Published Project Report
PPR354

Creating the future of transport

A reference book of driving cycles for use in the measurement of road vehicle emissions

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TRL Limited

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A reference book of driving cycles for use in the measurement of road vehicle emissions

Version: 3

by T J Barlow, S Latham, I S McCrae and P G Boulter

Prepared for: **Department for Transport, Cleaner Fuels & Vehicles 4**
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Contents

1 Introduction

1.1 Background

TRL Limited has been commissioned by the Department for Transport (DfT) to review the methodology currently used in the UK NAEI[1] to estimate emissions of air pollutants from road vehicles. The project includes an extensive and detailed assessment of the methodology, and will identify alternative approaches which have the potential to improve the quality of the NAEI estimates.

One objective of the project is to review the methods used to derive the emission factors in the NAEI. This necessarily requires that some consideration be given to the emission measurement process, an important aspect of which is the definition and application of driving cycles to represent different types of vehicle operation. The term 'driving cycle' is fairly self-explanatory, but the central role of the driving cycle in emission measurement is discussed in more detail in the next Section of this introductory Chapter.

Hundreds, if not thousands, of driving cycles have been used in the measurement of emissions, though the vast majority of tests have been conducted over a small number of these - notably the driving cycles defined in legislation. However, it appears that there is no single volume which comprehensively documents all these cycles, although some efforts have been made to bring together the various legislative cycles used in different countries (*e.g.* CONCAWE, 2004; DieselNet, 2006).

This Reference Book represents an attempt to compile a unique document which contains detailed descriptions of more than 200 driving cycles in a standardised format. Emphasis has been given to those driving cycles and vehicle operations that are relevant to the UK. The Reference Book is designed for use by TRL primarily within the DfT project. However, it is also hoped that it will be a useful source of information for other researchers and practitioners in the fields of vehicle emissions and air pollution.

An effort has been made to compile a list of driving cycles which is as comprehensive as possible, although the authors recognise that there are likely to be many omissions. An effort will be made to revise the Reference Book at a later date in order to increase the number of cycles included and the depth of coverage for each cycle.

1.2 The use of driving cycles in the measurement of emissions

A range of atmospheric pollutants are emitted from road vehicles as a result of combustion and other processes. Exhaust emissions of carbon monoxide (CO), volatile organic compounds (VOCs), oxides of nitrogen (NO_x) and particulate matter (PM) are regulated by EU Directives, as are evaporative emissions of VOCs. Various unregulated gaseous pollutants are also emitted, but these have generally been characterised in less detail.

In the European Union, type approval emission tests are required by law for all new light-duty vehicle models, and for the engines used in heavy-duty vehicles[2]. Vehicle exhaust emissions are inherently rather variable, and so the best way to ensure that an emission test is reproducible is to perform it under standardised laboratory conditions. The procedures for the collection and analysis of the pollutants are specified in detail in the legislation. Light-duty vehicles are tested using a power-absorbing chassis dynamometer, whereas heavy-duty engines are operated on a test bed. However, for research and emission factor development chassis dynamometer measurements have also been conducted for heavy-duty vehicles. Indeed, the time and cost involved in setting up an engine on a test bed can be far greater than the time and cost required for the actual test itself, and full-vehicle tests are often therefore more practical.

In tests conducted using a chassis dynamometer the vehicle drive wheels are positioned so that they are in contact with rollers. The rollers can be adjusted to simulate friction losses and aerodynamic resistance. The sampling of exhaust emissions is then performed as the vehicle progresses through a pre-defined driving cycle

[1] NAEI = National Atmospheric Emissions Inventory (http://www.naei.org.uk/)
[2] Vehicles weighing more than 3.5 tonnes (gross vehicle weight).

which is designed to represent a particular type of real-world operation.

A driving cycle is therefore a fixed schedule of vehicle operation which allows an emission test to be conducted under reproducible conditions. Driving cycles are usually defined in terms of vehicle speed and gear selection as a function of time. A trained driver is employed to follow the driving cycle on the chassis dynamometer, and a 'driver's aid' is provided to ensure that the driven cycle is as close as possible (*e.g.* within stated tolerances) to the defined cycle.

Emission levels are dependent upon many parameters, including vehicle-related factors such as model, size, fuel type, technology level and mileage, and operational factors such as speed, acceleration, gear selection and road gradient. Not surprisingly, therefore, different driving cycles have been developed for different types of vehicle such as cars, vans, trucks, buses and motorcycles.

It is also useful to note that driving cycles may be used for a variety of purposes other than emissions measurement, such as testing engine or drive train durability, and may be used on a test track rather than in the laboratory. Nevertheless, this Reference Book focuses exclusively on *vehicle-based* driving cycles used in the laboratory to measure exhaust emissions.

Depending on the character of speed and engine load changes, cycles can be broadly divided into 'steady-state' cycles and 'transient' cycles. A steady-state cycle is a sequence of constant engine speed and load modes. Such cycles are mainly used for the testing of heavy-duty diesel engines, and are therefore not included in this Reference Book. The Reference Book focuses on transient driving cycles, in which the vehicle speed and engine load are more or less changing continuously.

Three examples of transient driving cycle are shown in Figures 1, 2 and 3. Figure 1 depicts a driving cycle which has been specifically designed to fit a particular requirement - the 'New European Driving Cycle' (NEDC), which is used for type approval of light-duty vehicle models in the European Union. It is clearly a highly stylised cycle, with periods of constant acceleration, deceleration and speed, and which bears little relation to real driving patterns on the road. Figure 2 shows an example of a driving cycle which is based directly upon real-world data collected from vehicles while they have been operated on the road. In some cases a real-world cycle might be derived from the actual data from one trip. In other cases, segments of data from a number of trips may be put together to produce a representative cycle. The contrast between the real-world cycle and the legislative cycle is evident; real-world cycles are generally much more transient than stylised cycles such as the NEDC. Figure 3 shows a 'pseudo-steady-state' driving cycle' (the 'EMPA T115' cycle), which represents the reality of trying to maintain a steady speed in free-flowing traffic. When trying to maintain a certain speed, a small amount of variation in the speed occurs for a number of reasons, including slight variations in the throttle position, changes in gradient, and the consequences of the movements of other vehicles.

1.3 The importance of driving cycles in emission modelling

All emission models must take into account the various factors affecting emissions, although the manner and detail in which they do so can differ substantially. One of the commonest approaches is based upon the principle that the average emission factor for a certain pollutant and a given type of vehicle varies according to the average speed during a trip. The emission factor is usually stated in grammes per vehicle-kilometre (g vehicle^{-1} km^{-1}). A continuous average-speed emission function is fitted to the emission factors measured for several vehicles over a range of driving cycles, with each cycle representing a specific type of driving. Average-speed emission functions for road vehicles are also widely applied in regional and national inventories, but are currently used in a large proportion of local air pollution prediction models. The average-speed approach is exemplified by the model used in the NAEI (Dore *et al.*, 2005) and the European Environment Agency's COPERT III model (Ntziachristos and Samaras, 2000). However, there are now considered to be a number of limitations associated with average-speed models, one of which is the inability to account for the ranges of vehicle operation and emission behaviour which can be observed for a given average speed. This is especially relevant in the case of modern catalyst-equipped petrol vehicles, for which a large proportion of the total emission during a trip can be emitted as very short, sharp peaks, often occurring during gear changes and periods of high acceleration.

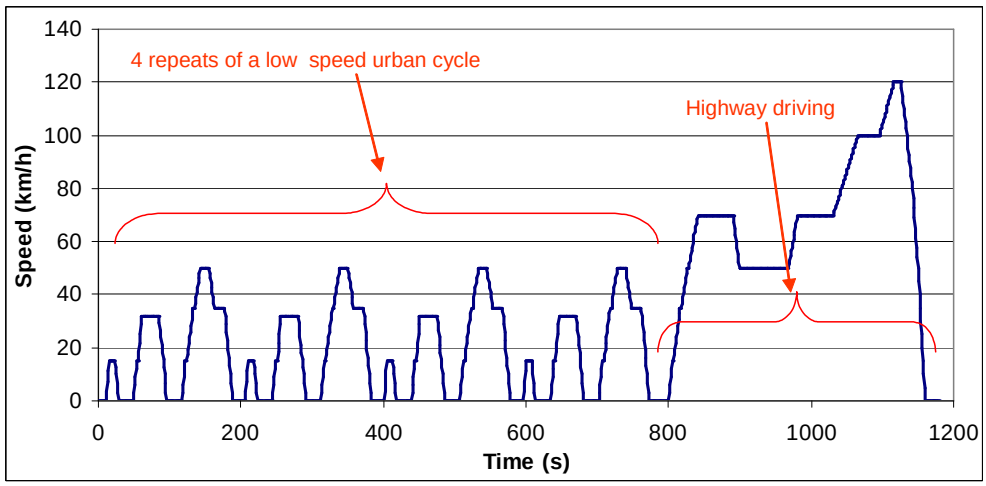

Figure 1: An example of a stylised cycle – the NEDC.

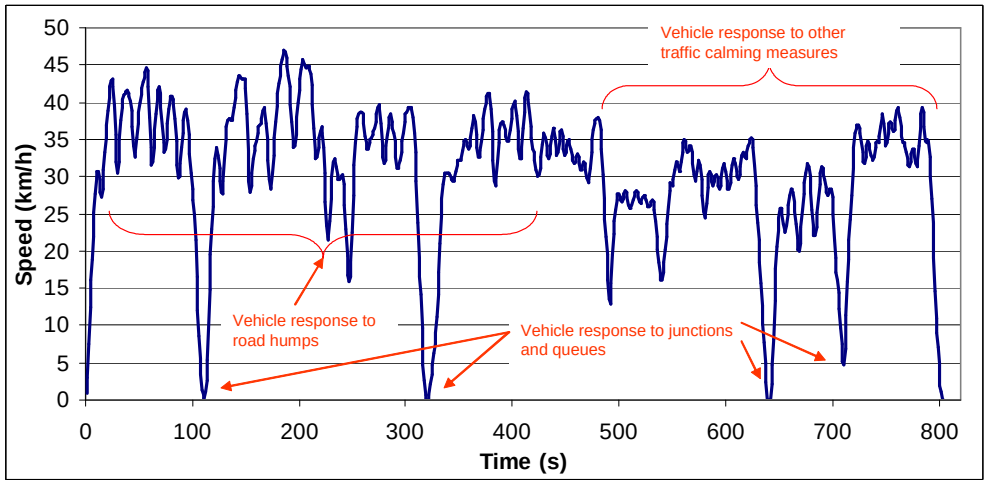

Figure 2: An example of a realistic cycle – TRAMAQ UG214 traffic calming car cycle

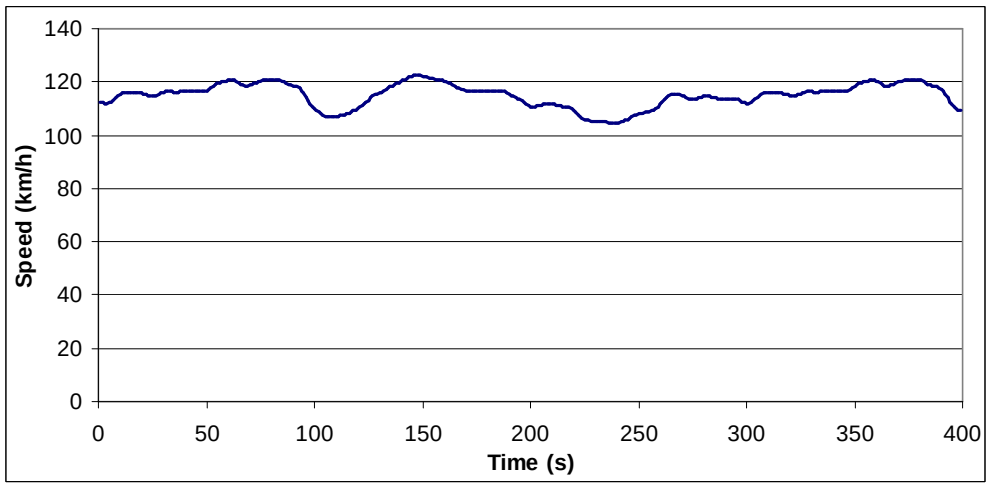

Figure 3: An example of a pseudo-steady-state cycle – EMPA T115 cycle.

One alternative to average-speed modelling is an approach which relates discrete emission factors to specific traffic situations (*e.g.* INFRAS, 2004). As before, the emission factors are derived using driving cycles, and in this case the driving cycles clearly need to be representative of the traffic situations they describe. How this representativeness is assessed (in a way which is meaningful in terms of emissions), is rather problematic.

With respect to the challenges posed by average-speed models and traffic situation models the concept of 'cycle dynamics' has become useful for emission model developers (*e.g.* Sturm *et al*., 1998). In qualitative terms, cycle dynamics can be thought of as the 'aggressiveness' of driving, or the extent of transient operation in a driving pattern. Quantitatively, the term refers to the variation in various properties or statistical descriptors of a vehicle operation pattern. Researchers have examined a range of variables in an attempt to understand the links between cycle dynamics and emissions. However, as the vehicle operation information available to model users and developers has tended to be very limited, and almost invariably speed-based (*e.g.* spot speeds measured using traffic counting equipment), interest has inevitably focussed on parameters which describe speed variation in some way. Some of the more useful parameters appear to be relative positive acceleration (Ericsson, 2000) and positive mean acceleration (Osses *et al*., 2002).

1.4 The *Art.Kinema* utility

Within the ARTEMIS[3] project, the Swiss organisation INFRAS[4] has developed a utility called *Art.Kinema* which computes a wide range of descriptive parameters (more than 30) for a user-defined driving cycle (De Haan and Keller, 2003). These values - termed 'kinematic' parameters - are listed in Table 1, and definitions are provided in Appendix B.

Art.kinema is designed to read an ASCII file defined as a speed-time series and applies an automatic smoothing function to the speed profile if necessary. Different driving cycles can have a different time and speed resolution, and that this affects the values of some parameters. For example, if a speed profile has a low resolution, too many extreme changes in the calculated acceleration can occur, and the smoothing function is designed to avoid this. Up to three iterations of the smoothing function are applied. This also has the effect of providing a consistent method for comparing different cycles.

All the cycles included in this Reference Book have been analysed using the *Art.Kinema* utility. *Art.Kinema* creates three output files, one of which includes the smoothed speed profile and the values of the kinematic parameters. The other files are formatted for use in other applications, and are not of interest here.

[3] ARTEMIS: Assessment and Reliability of Transport Emission Models and Inventory Systems. A European Fifth Framework project. www.trl.co.uk/artemis/
[4] www.infras.ch

Table 1: Kinematics parameters computed by the *Art.Kinema* utility.

Group	Parameter	Units
Distance related	Total distance	m
Time related	Total time	s
	Driving time	s
	Cruising time	s
	Drive time spent accelerating	s
	Drive time spent decelerating	s
	Time spent braking	s
	Standing time	s
	% of time driving	%
	% of cruising	%
	% of time accelerating	%
	% of time decelerating	%
	% of time braking	%
	% of time standing	%
Speed related	Average trip speed	km/h
	Average driving speed	km/h
	Standard deviation of speed	km/h
	Speed: 75th - 25th percentile	km/h
	Maximum speed	km/h
Acceleration related	Average acceleration	m/s^2
	Average positive acceleration	m/s^2
	Average negative acceleration	m/s^2
	Standard deviation of acceleration	m/s^2
	Standard dev. of positive acceleration	m/s^2
	Acceleration: 75th - 25th percentile	m/s^2
	Number of accelerations	
	Number of accelerations per km	/km
Stop related	Number of stops	
	Number of stops per km	/km
	Average stop duration	s
	Average distance between stops	m
Dynamics related	Relative positive acceleration (RPA)	m/s^2
	Positive kinetic energy (PKE)	m/s^2
	Relative positive speed (RPS)	
	Relative real speed (RRS)	
	Relative square speed (RSS)	m/s
	Relative positive square speed (RPSS)	m/s
	Relative real square speed (RRSS)	m/s
	Relative cubic speed (RCS)	m^2/s^2
	Relative positive cubic speed (RPCS)	m^2/s^2
	Relative real cubic speed (RRCS)	m^2/s^2
	Root mean square of acceleration (RMSA)	m^2/s^2

2 The driving cycles

A total of 256 driving cycles are presented in this Reference Book. The cycles have been broadly grouped according to the purpose or the measurement programme for which they were developed or used, and the nomenclature for these groups is given in Table 2.

Table 2: Nomenclature for the driving cycle groups used in the Reference Book.

Driving cycle group	Comments
EU legislative cycles	European test cycles used for type approval purposes – cars, HGVs & buses
US cycles	A variety of test cycles from the USA including their type approval cycles– cars, HGVs & buses
Japanese legislative cycles	Test cycles used for type approval purposes in Japan – cars
Legislative motorcycle cycles	Harmonised world-wide type approval test cycles for motorcycles
Warren Spring Laboratory (WSL) cycles	Car test cycles developed by TRL over the Stevenage and Hitchin routes, used by the former Warren Spring Laboratory for road tests
TRAMAQ UG214	Test cycles developed within the DfT TRAMAQ programme, project UG214 – cars, vans, HGVs & buses
Millbrook	Test cycles developed by Millbrook Proving Ground – HGVs & buses
OSCAR	Test cycles developed within the European 5th Framework project: OSCAR – cars
ARTEMIS driving cycles	Test cycles developed within the European 5th Framework project: ARTEMIS - cars
EMPA driving cycles	Swiss test cycles developed by EMPA for the UBA
Handbook driving cycles	The German/Austrian/Swiss (DACH) Handbook of emission factors. Swiss driving cycles extracted in this summary
MODEM-IM driving cycles	Short test cycles developed for inspection & maintenance purposes within the JCS project
INRETS driving cycles	Test cycles developed by INRETS from data logged around Lyon, France
INRETS short cycles (cold start)	Short versions of the INRETS driving cycles
MODEM driving cycles	Realistic driving cycle developed within MODEM project, based on data from 60 cars in normal use in 6 towns in the UK, France and Germany
ARTEMIS WP3141	Additional test cycles for cars derived within the ARTEMIS project, based on data collected in Naples
Modem-HyZem for passenger cars	Test cycles developed for evaluating hybrid vehicles
Driving cycles for passenger cars with a professional use	Test cycles developed by INRETS from data collected from cars used for business purposes
Driving cycles for light vans (1,3 to 1,7 tonnes)	Test cycles developed by INRETS for small vans
Driving cycles for 2.5 tonne vans	Test cycles developed by INRETS for medium vans
Driving cycles for 3.5 tonne vans	Test cycles developed by INRETS for large vans
MTC cycles	Test cycles developed by MTC for cars
TUG cycles	Test cycle developed by TUG, Graz, to evaluate the effects of gradient
TRRL cycles	Stylised test cycles developed by TRRL, based on logged data.
TRL M25	High speed car test cycle developed by TRL, based on data collected on the M25 motorway.
BP bus cycle	Bus test cycle developed by BP
TNO bus	Bus test cycle developed by TNO, The Netherlands
FHB motorcycle cycles	Motorcycle test cycles developed by Biel University of applied science, Switzerland

The full list of driving cycles included in the Reference Book is given in Table 3. The values for the distance, duration and average speed of each cycle are also provided. Detailed descriptions of each driving cycle, including a graph showing speed as a function of time as well as the values of the *Art.Kinema* parameters, are contained in Appendix C.

Table 3: Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
1	EU legislative cycles	ECE 15	995	195	18.4
2		Extra Urban Driving Cycle (EUDC)	6955	400	62.6
3		EUDC for low power vehicles	6609	400	59.5
4		ECE 15 + EUDC	11017	1220	32.5
5		New European Driving Cycle (NEDC)	11017	1180	33.6
6		Braunschweig City Driving Cycle	10900	1740	22.6
7		European Transient Cycle (ETC) - entire cycle	29494	1800	59.0
8		European Transient Cycle (ETC) - part 1	3874	600	23.3
9		European Transient Cycle (ETC) - part 2	11557	600	69.3
10		European Transient Cycle (ETC) - part 3	14063	600	84.4
11	US cycles	FTP-72	11997	1369	31.6
12		FTP-75	17787	1874	34.2
13		US06 Supplemental FTP	12894	596	77.9
14		SC03 Supplemental FTP	5766	596	34.8
15		EPA New York City Cycle (NYCC)	1903	598	11.5
16		EPA Highway Fuel Economy Test (HWFET)	16503	765	77.7
17		IM240	3154	240	47.3
18		California LA92 Dynamometer Driving Schedule	15802	1435	39.6
19		UDDS for heavy-duty vehicles	8932	1060	30.3
20		Transit Coach Operating Duty Cycle - All	22633	2830	28.8
21		Transit Coach Operating Duty Cycle - CBD	3295	560	21.2
22		Transit Coach Operating Duty Cycle - Arterial	3157	270	42.1
23		Transit Coach Operating Duty Cycle - Commuter	6433	310	74.7
24		City Suburban Cycle (CSC)	10752	1700	22.8
25		New York Composite Cycle	4020	1029	14.1
26		New York Bus Cycle	996	600	6.0
27		Manhattan Bus Cycle	3333	1089	11.0
28		Orange County Bus (OC Bus) Cycle	10530	1909	19.9
29		WVU 5-Peak (Truck) Cycle	8069	900	32.3
30	Japanese legislative cycles	JP 10 Mode	663	135	17.7
31		JP 10-15 Mode (3 x 10-mode + 1 x 15-mode)	4165	660	22.7
32		Japanese New Transient Mode (JE05)	13897	1829	27.4
33	Legislative motorcycle cycles	World Motorcycle Test Cycle (WMTC): part 1	4065	600	24.4
34		World Motorcycle Test Cycle (WMTC): part 2	9111	600	54.7
35		World Motorcycle Test Cycle (WMTC): part 3	15736	600	94.4
36		WMTC: part 1, reduced speed	3937	600	23.6
37		WMTC: part 2, reduced speed	8972	600	53.8
38		WMTC: part 3, reduced speed	14436	600	86.6
39	WSL cycles	TRL WSL Urban: large car	6152	1207	18.4
40		TRL WSL Urban: medium car	6152	1207	18.4
41		TRL WSL Urban: small car	6151	1207	18.4
42		TRL WSL Suburban: large car	5518	481	41.3
43		TRL WSL Suburban: medium car	5518	481	41.3
44		TRL WSL Suburban: small car	5518	481	41.3
45		TRL WSL Rural: large car	10952	589	66.9
46		TRL WSL Rural: medium car	10957	589	67.0
47		TRL WSL Rural: small car	10947	588	67.0
48		TRL WSL Motorway 90	7966	307	93.4
49		TRL WSL Motorway 113	7972	256	112.1
50		WSL congested traffic cycle	1921	1029	6.7

Table 3 (continued): Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
51		UG214 Car01: suburban control	8258	805	36.9
52		UG214 Car02: traffic calming (road hump)	6807	804	30.5
53		UG214 Car03: cycle-lane	7924	1117	25.5
54		UG214 Car04: bus-lane	7840	1067	26.5
55		UG214 Car05: one-way	5935	1051	20.3
56		UG214 Car06: mini-roundabout	6901	808	30.8
57		UG214 Car07: urban traffic control	7046	914	27.8
58		UG214 Car08: congested control	3658	1057	12.5
59		UG214 Car09: non-congested control	9921	950	37.6
60		UG214 Car10: traffic calming (other)	7993	824	34.9
61		UG214 LGV01: suburban control	8816	881	36.0
62		UG214 LGV02: traffic calming (road hump)	8028	1027	28.1
63		UG214 LGV03: cycle-lane	8870	1195	26.7
64		UG214 LGV04: bus-lane	7733	1168	23.8
65		UG214 LGV05: one-way	6332	1155	19.7
66		UG214 LGV06: mini-roundabout	7298	842	31.2
67		UG214 LGV07: urban traffic control	6733	1006	24.1
68		UG214 LGV08: congested control	3268	1142	10.3
69		UG214 LGV09: non-congested control	10649	1016	37.7
70	TRAMAQ UG214	UG214 LGV10: traffic calming (other)	8492	909	33.6
71		UG214 HGV01: suburban control	5120	790	23.3
72		UG214 HGV02: traffic calming (road hump)	5755	1010	20.5
73		UG214 HGV03: cycle-lane	6827	985	25.0
74		UG214 HGV04: bus-lane	6560	930	25.4
75		UG214 HGV05: one-way	4019	947	15.3
76		UG214 HGV06: mini-roundabouts	5802	927	22.5
77		UG214 HGV07: urban traffic control	5068	954	19.1
78		UG214 HGV08: congested control	2511	835	10.8
79		UG214 HGV09: non-congested control	8806	875	36.2
80		UG214 HGV10: traffic calming (other)	6703	895	27.0
81		UG214 Bus01: traffic calming (road hump)	5318	944	20.3
82		UG214 Bus02: traffic calming (other)	5938	855	25.0
83		UG214 Bus03: cycle-lane	5652	1080	18.8
84		UG214 Bus04: bus-lane	8345	1192	25.2
85		UG214 Bus05: one-way	4360	941	16.7
86		UG214 Bus06: mini-roundabout	7880	1076	26.4
87		UG214 Bus07: urban traffic control	5413	894	21.8
88		UG214 Bus08: congested control	3078	1051	10.5
89		UG214 Bus09: non-congested control	7610	983	27.9
90		UG214 Bus10: suburban control	6395	886	26.0
91		Millbrook Heavy Duty: urban	4051	814	17.9
92		Millbrook Heavy Duty: suburban	11098	889	44.9
93		Millbrook Heavy Duty: motorway	17903	780	82.6
94	Millbrook	Millbrook Westminster Dust Cart: Depot	5252	780	24.2
95		Millbrook Westminster Dust Cart: Commercial	1464	780	6.8
96		Millbrook Westminster Dust Cart: domestic	124	780	0.6
97		Millbrook Westminster London Bus: outer London	6474	1380	16.9
98		Millbrook Westminster London Bus: inner London	2509	901	10.0

Table 3 (continued): Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
99	OSCAR	OSCAR C	3982	401	35.8
100		OSCAR D1	2697	429	22.6
101		OSCAR D2	2329	363	23.1
102		OSCAR E	2056	371	20.0
103		OSCAR F	1605	423	13.7
104		OSCAR G1	1561	455	12.4
105		OSCAR G2	1122	350	11.5
106		OSCAR H1	804	370	7.8
107		OSCAR H2	956	424	8.1
108		OSCAR H3	859	374	8.3
109	ARTEMIS driving cycles	Artemis urban_incl_start	4874	993	17.7
110		Artemis rural_incl_pre_post	17275	1082	57.5
111		Artemis mw_150_incl_pre_post	29547	1068	99.6
112		Artemis mw_130_incl_pre_post	28737	1068	96.9
113		Artemis URM150 (CADC)	51695	3143	59.2
114		Artemis URM130 (CADC)	50886	3143	58.3
115		Artemis HighMot_urban_total	5438	998	19.6
116		Artemis HighMot_urbdense_total	3086	787	14.1
117		Artemis HighMot_freeurban_total	5378	822	23.6
118		Artemis HighMot_rural_total	16613	1043	57.3
119		Artemis HighMot_motorway_total	30209	1065	102.1
120		Artemis LowMot_urban_total	5319	1028	18.6
121		Artemis LowMot_urbdense_total	3070	761	14.5
122		Artemis LowMot_freeurban_total	5377	808	24.0
123		Artemis LowMot_rural_total	15439	1036	53.7
124		Artemis LowMot_motorway_total	28885	1064	97.7
125	EMPA driving cycles	EMPA B	27525	2024	49.0
126		EMPA L2	44644	2290	70.2
127		EMPA BAB	32646	1000	117.5
128		EMPA Beschl	5379	963	20.1
129		EMPA C-1	1199	1348	3.2
130		EMPA C-2	17315	828	75.3
131		EMPA C-3	27394	855	115.3
132		EMPA C-4	9405	1094	31.0
133		EMPA C-5	18184	983	66.6
134		EMPA C-6	29866	1040	103.4
135		EMPA EL1	34692	1228	101.7
136		EMPA EL2	15258	1731	31.7
137		EMPA K1	53227	2190	87.5
138		EMPA K2	19702	2045	34.7
139		EMPA Kreisel	4884	513	34.3
140		EMPA LSA	6070	770	28.4
141		EMPA Pendel	14076	924	54.8
142		EMPA RX	12397	1169	38.2
143		EMPA T85	9417	399	85.0
144		EMPA T100	11087	399	100.0
145		EMPA T115	12747	399	115.0
146		EMPA T130	14409	399	130.0

Table 3 (continued): Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
147	Handbook driving cycles	Handbook R1 incl pre	45089	1500	108.2
148		Handbook R2 incl pre	25065	1222	73.8
149		Handbook R3 incl pre	15914	1208	47.4
150		Handbook R4 incl pre	6972	1456	17.2
151		Handbook S1 incl pre	76948	2581	107.3
152		Handbook S2 incl pre	55280	2572	77.4
153		Handbook S3 incl pre	31344	2537	44.5
154		Handbook S4 incl pre	10832	2534	15.4
155		Handbook Driving Patterns	83493	4820	62.4
156	MODEM-IM driving cycles	modemIM Urban_Slow	1711	428	14.4
157		modemIM Urban_Free_Flow	2253	355	22.8
158		modemIM Road	8494	712	43.0
159		modemIM Motorway	12683	452	101.0
160		TUV-A	1970	200	35.5
161		modemIM short	2250	255	31.8
162		EMPA M1	10199	1140	32.2
163		EMPA M2	14934	807	66.6
164	INRETS driving cycles	INRETS urbainlent1	844	805	3.8
165		INRETS urbainlent2	1672	814	7.4
166		INRETS urbainfluide1	1890	680	10.0
167		INRETS urbainfluide2	5624	1054	19.2
168		INRETS urbainfluide3	7239	1067	24.4
169		INRETS route1	7815	888	31.7
170		INRETS route2	9278	809	41.3
171		INRETS route3	15695	996	56.7
172		INRETS autoroute1	15127	734	74.2
173		INRETS autoroute2	26489	1009	94.5
174	INRETS short cycles (cold start)	INRETS urbainlentcourt	422	208	7.3
175		INRETS urbainfluidecourt	1003	189	19.1
176		INRETS routecourt (old version)	1439	126	41.1
177		INRETS routecourt	1439	126	41.1
178	MODEM driving cycles	MODEM urban1	3452	635	19.6
179		MODEM urban2	877	168	18.8
180		MODEM urban3	1088	282	13.9
181		MODEM urban4	407	132	11.1
182		MODEM urban5	6339	1027	22.2
183		MODEM urban6	129	91	5.1
184		MODEM urban7	841	100	30.3
185		MODEM urban8	1107	250	15.9
186		MODEM urban9	201	95	7.6
187		MODEM urban10	1871	430	15.7
188		MODEM urban11	11346	962	42.5
189		MODEM urban12	2445	423	20.8
190		MODEM urban13	2622	526	18.0
191		MODEM urban14	3418	383	32.1
192		MODEM MODEM_1	5819	1217	17.2
193		MODEM MODEM_2	7305	1218	21.6
194		MODEM MODEM_3	3179	775	14.8
195		MODEM MODEM_6	6039	909	23.9
196		MODEM EVAP	2363	553	15.4

Table 3 (continued): Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
197	ARTEMIS WP3141	MODEM urban5713	9082	1426	22.9
198		Napoli 6_17	16469	1038	57.1
199		Napoli 15_18_21	4473	1070	15.1
200		Napoli 10_23	3362	1081	11.2
201		Naples Driving Patterns	87270	11061	28.4
202	MODEM-HyZem for passenger cars	MODEM Hyzem urban	3476	560	22.3
203		MODEM Hyzem road_total	11233	843	48.0
204		MODEM Hyzem motorway_total	46210	1804	92.2
205		MODEM Hyzem urban1	4192	720	21.0
206		MODEM Hyzem urban3	2920	583	18.0
207		MODEM Hyzem road1_total	7830	700	40.3
208		MODEM Hyzem road2_total	27331	1494	65.9
209		MODEM Hyzem motorway1_total	42703	1868	82.3
210	Driving cycles for passenger cars with a professional use	LDV_PVU commercial cars urban_1	3328	583	20.6
211		LDV_PVU commercial cars urban_2	3733	476	28.2
212		LDV_PVU commercial cars urban_3	2479	502	17.8
213		LDV_PVU commercial cars road_total	14086	917	55.3
214		LDV_PVU commercial cars motorway_1_total	19657	1012	69.9
215		LDV_PVU commercial cars motorway_2_total	26965	1082	89.7
216	Driving cycles for light vans (1,3 to 1,7 tonnes)	LDV_PVU light vans-Empty urban1	2305	680	12.2
217		LDV_PVU light vans-Loaded urban1	3240	832	14.0
218		LDV_PVU light vans-Empty urban2	2924	526	20.0
219		LDV_PVU light vans-Loaded urban2	2918	516	20.4
220		LDV_PVU light vans-Empty road	5021	483	37.4
221		LDV_PVU light vans-Loaded road	5818	482	43.5
222		LDV_PVU light vans-Empty motorway_total	18059	802	81.1
223		LDV_PVU light vans-Loaded motorway_total	17669	832	76.5
224	Driving cycles for 2.5 tonnes vans	LDV_PVU 2.5t vans-Empty urban1	2590	546	17.1
225		LDV_PVU 2.5t vans-Loaded urban1	2590	548	17.0
226		LDV_PVU 2.5t vans-Empty urban2	4753	640	26.7
227		LDV_PVU 2.5t vans-Loaded urban2	5737	817	25.3
228		LDV_PVU 2.5t vans delivery	2424	633	13.8
229		LDV_PVU 2.5t vans-Empty rural_total	9964	774	46.3
230		LDV_PVU 2.5t vans-Loaded rural_total	10525	652	58.1
231		LDV_PVU 2.5t vans-Empty motorway_total	22653	904	90.2
232		LDV_PVU 2.5t vans-Loaded motorway_total	27524	1198	82.7
233	Driving cycles for 3.5 tonnes vans	LDV_PVU 3.5t vans slow_urban	2199	649	12.2
234		LDV_PVU 3.5t vans free-flow_urban	2897	467	22.3
235		LDV_PVU 3.5t vans delivery	1594	546	10.5
236		LDV_PVU 3.5t vans rural_total	11474	819	50.4
237		LDV_PVU 3.5t vans motorway_total	31330	1280	88.1
238	MTC cycles	MTC Essing_congested	1426	1049	4.9
239		MTC Essing_freeflow	9610	506	68.4
240	TUG cycles	TUG Ries_RoadGradient	6840	510	48.3

Table 3 (continued): Summary of driving cycles.

No	Programme	Cycle Name	Distance (m)	Duration (s)	Average Speed (km/h)
241	TRRL cycles	TRRL 1.1	4565	580	28.3
242		TRRL 1.2	10967	551	71.7
243		TRRL 1.3	11463	566	72.9
244		TRRL 1.4	5005	573	31.4
245		TRRL 2.1	5005	573	31.4
246		TRRL 2.2	13718	532	92.8
247		TRRL 2.3	12500	501	89.8
248		TRRL 2.4	4709	592	28.6
249	TRL M25	M25 High speed cycle	98578	3500	101.4
250	BP bus cycle	BP Bus cycle	5556	903	22.2
251	TNO bus	TNO Bus cycle	5248	898	21.0
252	FHB motorcycle cycles	FHB Motorcycle cycle – All	27423	1868	52.9
253		FHB Motorcycle cycle – Zentrum	2468	401	22.2
254		FHB Motorcycle cycle – Peripherie	3837	466	29.7
255		FHB Motorcycle cycle – Ueberland	7311	524	50.2
256		FHB Motorcycle cycle – Autobahn	13814	477	104.3

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Appendix A: Glossary

ARTEMIS	Assessment and Reliability of Transport Emission Models and Inventory Systems. A European Fifth Framework research project, funded by DG TREN. Project coordinated by TRL. www.trl.co.uk/artemis.
BP	British Petroleum
Braunschweig	An urban bus cycle measured in the Lower Saxony German town of Braunschweig (Brunswick). The cycle takes its name from the town.
CADC	Common Artemis Driving Cycle – comprising of the urban, rural and motorway (130 or 150) sub-cycles
DfT	Department for Transport, UK
ECE	Economic Commission for Europe
EMPA	One of the research institutes of the ETH organisation. ETH comprises Switzerland's two Federal Institutes of Technology, ETH Zurich and EPF Lausanne, and four independent Federal research institutions, one of which is EMPA. EMPA focuses primarily on applied research.
EPA	Environmental Protection Agency, US
ETC	European Transient Cycle
EUDC	European Extra Urban Driving Cycle
FHB	Fachhochschule Biel (FHB): Biel University of applied science, Switzerland
FIGE	FIGE Institute, Aachen, Germany. FIGE is now consumed within RWTUEV
FTP	Federal Test Procedure, US
Handbook	Handbook Emission Factors for Road Transport (Handbuch Emissionsfaktoren des Strassenverkehrs). A national collaboration between the Switzerland, Germany and Austria. www.hbefa.net
HGV	Heavy Goods Vehicles. Road vehicles greater than 7.5 tonnes (GVW), where GVW is the gross weight of the vehicle, *i.e.* the combined weight of the vehicle and goods.
Hyzem	HYbrid technology approaching efficient Zero Emission Mobility
IM	Inspection and Maintenance: in-service vehicle road worthiness testing.
INRETS	Institut National de Recherche sur les Transports et leur Sécurité, France
JCS	A European Joint Commission funded project: *The inspection of in-use cars in order to attain minimum emissions of pollutants and optimum energy efficiency*, carried out on behalf of EC DGs for Environment (DG XI) Transport (DG VII) and Energy (DG XVII). Project coordinated by LAT, University of Thessaloniki.
LDV	Light Duty Vehicles. Road vehicles less than 3.5 tonnes weight. Test cycles for LDVs are often incorrectly referred to as LGV. The former are vehicles with a GVW of less than 7.5 tonnes.
M25	London orbital motorway
Millbrook	Millbrook Proving Ground, England
MODEM	Modelling of Emissions and Fuel Consumption in Urban Areas. A research project with the EU DRIVE programme. Project coordinated by INRETS.
MTC	AVL MTC Motortestcenter AB, Sweden
NEDC	European, New European Driving Cycle
OSCAR	Optimised Expert System for Conducting Environmental Assessment of Urban Road Traffic. A European Fifth Framework research project, funded by DG Research. Project coordinated by the University of Hertfordshire. www.eu-oscar.org
TNO	TNO Automotive, The Netherlands. The power train and emissions research institute

	of the holding company, TNO Companies BV
TRAMAQ	Traffic Management and Air Quality Research Programme. A research programme run by the UK's Department for Transport
TRL	TRL Limited (Transport Research Laboratory), England
TRRL	Transport and Road Research Laboratory - former name of TRL
TUG	Technical University of Graz, Austria
TUV	TÜV Rheinland, Germany. Exhaust emission testing used to be undertaken at this institute based in Cologne. These activities were transferred to another institute in the TUV group, based in Essen, in 1999.
UG214	A project within DfT's TRAMAQ programme. Traffic management and air quality. realistic driving cycles for traffic management schemes.
WMTC	World Motorcycle Test Cycle
WSL	Warren Spring Laboratory. The former research laboratory of the UK Department for Trade and Industry, which became NETCEN
WVU	West Virginia University, US

Appendix B: Definitions of Art.Kinema parameters

The following definitions of the parameters in Art.Kinema are taken from De Haan and Keller (2003). The definitions apply to a speed profile consisting of n data rows of time in seconds t_i ($1 <= i <= n$), and speed v_i in km/h, with ($1 <= i < n$).

Distance related

Total distance

$$dist = (t_2 - t_1)\frac{v_1}{3.6} + \sum_{i=2}^{n}(t_i - t_{i-1})\frac{v_i}{3.6}$$

Time related

Total time

$$T_{total} = t_2 - t_1 + \sum_{i=2}^{n}(t_i - t_{i-1})$$

Driving time

$$T_{drive} = T_{total} - T_{stop}$$

Cruise time

$$T_{cruise} = T_{drive} - T_{acc} - T_{dec}$$

Drive time spent accelerating

$$T_{acc} = \begin{cases} t_2 - t_1 & (a_1 > acc\_threshold) \\ 0 & (else) \end{cases} + \sum_{i=2}^{n} \begin{cases} t_i - t_{i-1} & (a_i > acc\_threshold) \\ 0 & (else) \end{cases}$$

Drive time spent decelerating

$$T_{dec} = \begin{cases} t_2 - t_1 & (a_1 < -acc\_threshold) \\ 0 & (else) \end{cases} + \sum_{i=2}^{n} \begin{cases} t_i - t_{i-1} & (a_i < -acc\_threshold) \\ 0 & (else) \end{cases}$$

Time spent braking

$$T_{brake} = \begin{cases} t_2 - t_1 & (a_1 < brake\_threshold) \\ 0 & (else) \end{cases} + \sum_{i=2}^{n} \begin{cases} t_i - t_{i-1} & (a_i < brake\_threshold) \\ 0 & (else) \end{cases}$$

Standing time

$$T_{stop} = \begin{cases} t_2 - t_1 & (v_1 = 0 \wedge a_1 = 0) \\ 0 & (\text{else}) \end{cases} + \sum_{i=2}^{n} \begin{cases} t_i - t_{i-1} & (v_i = 0 \wedge a_i = 0) \\ 0 & (\text{else}) \end{cases}$$

% of time driving

$$\%drive = \frac{T_{drive}}{T_{total}}$$

% of cruising

$$\%cruise = \frac{T_{cruise}}{T_{total}}$$

% of time accelerating

$$\%acc = \frac{T_{acc}}{T_{total}}$$

% of time decelerating

$$\%dec = \frac{T_{dec}}{T_{total}}$$

% of time braking

$$\%brake = \frac{T_{brake}}{T_{total}}$$

% of time standing

$$\%stop = \frac{T_{stop}}{T_{total}}$$

Speed related

Average speed (trip)

$$\bar{v}_{trip} = 3.6\frac{dist}{T_{total}}$$

Average driving speed

$$\bar{v}_{drive} = 3.6\frac{dist}{T_{drive}}$$

Standard deviation of speed

$$v\_sd = \sigma_v = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n} v_i^2}$$ (i.e., v_sd corresponds to $\bar{v}_{trip}$, not $\bar{v}_{drive}$)

	Speed: 75th - 25th percentile	
	Maximum speed	
Acceleration related	Average acceleration	$a\_av = \overline{a} = \frac{1}{T_{total}} \sum_{i=1}^{n} a_i$
	Average positive accel.	$a\_pos\_av = \overline{a}_{pos} = \left(\sum_{i=1}^{n} \begin{cases} 1 & (a_i > 0) \\ 0 & (\text{else}) \end{cases} \right)^{-1} \sum_{i=1}^{n} \begin{cases} a_i & (a_i > 0) \\ 0 & (\text{else}) \end{cases}$
	Average negative accel.	$a\_neg\_av = \overline{a}_{neg} = \left(\sum_{i=1}^{n} \begin{cases} 1 & (a_i < 0) \\ 0 & (\text{else}) \end{cases} \right)^{-1} \sum_{i=1}^{n} \begin{cases} a_i & (a_i < 0) \\ 0 & (\text{else}) \end{cases}$
	Standard deviation of accel.	$a\_sd = \sigma_a = \sqrt{\frac{1}{n-1} \sum_{i=1}^{n} a_i^2}$
	Standard dev. of positive acceleration	$a\_pos\_sd = \sigma_{a\_av\_pos} = \sqrt{\frac{1}{n_{a\_pos} - 1} \sum_{i=1}^{n} \begin{cases} a_i^2 & (a_i > 0) \\ 0 & (else) \end{cases}}$ where $n_{a\_pos} = \sum_{i=1}^{n} \begin{cases} 1 & (a_i > 0) \\ 0 & (else) \end{cases}$
	Accel: 75th - 25th percentile	
	Number of accelerations	$acc\_nr = \sum_{i=1}^{n} \begin{cases} 1 & (a_i > \text{acc\_threshold} \wedge a_{i-1} \le \text{acc\_threshold}) \\ 0 & (\text{else}) \end{cases}$
	Accelerations per km	$acc\_rate = 1000 \frac{acc\_nr}{dist}$
Stop related	Number of stops	$stop\_nr = \sum_{i=1}^{n} \begin{cases} 1 & (\{v_i = 0 \wedge a_i = 0\} \wedge \{v_{i-1} \neq 0 \vee a_{i-1} \neq 0\}) \\ 0 & (\text{else}) \end{cases}$
	Stops per km	$stop\_rate = 1000 \frac{stop\_nr}{dist}$
	Average stop duration	$stop\_T\_av = \overline{T}_{stop} = \frac{T_{stop}}{stop\_nr}$
	Average distance between stops	
Dynamics oriented	Relative positive acceleration	$RPA = \frac{1}{dist} \sum_{i=1}^{n} \begin{cases} \frac{a_i v_i}{3.6} & (a_i > 0) \\ 0 & (\text{else}) \end{cases}$
	Positive kinetic energy	$PKE = \frac{1}{dist} \sum_{i=2}^{n} \begin{cases} v_i^2 - v_{i-1}^2 & (v_i > v_{i-1}) \\ & (else) \end{cases}$
	Relative positive speed Relative real speed	$\frac{\frac{1}{T} \int_0^T (v_i) dt}{\overline{v}} = \frac{\int_0^T (v_i) dt}{x}$

Relative square speed

Relative positive square speed (RPSS)

Relative real square speed

$$\frac{\frac{1}{T}\int_0^T (v_i)^2\,dt}{\bar{v}} = \frac{\int_0^T (v_i)^2\,dt}{x}$$

Relative cubic speed

Relative positive cubic speed

Relative real cubic speed

$$\frac{\frac{1}{T}\int_0^T (v_i)^3\,dt}{\bar{v}} = \frac{\int_0^T (v_i)^3\,dt}{x}$$

Root mean square of acceleration $\sqrt{\frac{1}{T}\int_0^T (a)^2\,dt}$

Appendix C: Driving cycles and kinematic parameters

Disclaimer:

This reference book represents the views of its authors. It does not necessarily represent those views of the Department for Transport. Whilst every effort has been made to ensure the validity of the drive cycles and their summary statistics, TRL does not accept liability for errors in their application, arising from omissions or errors within this reference book.

Periodic revision:

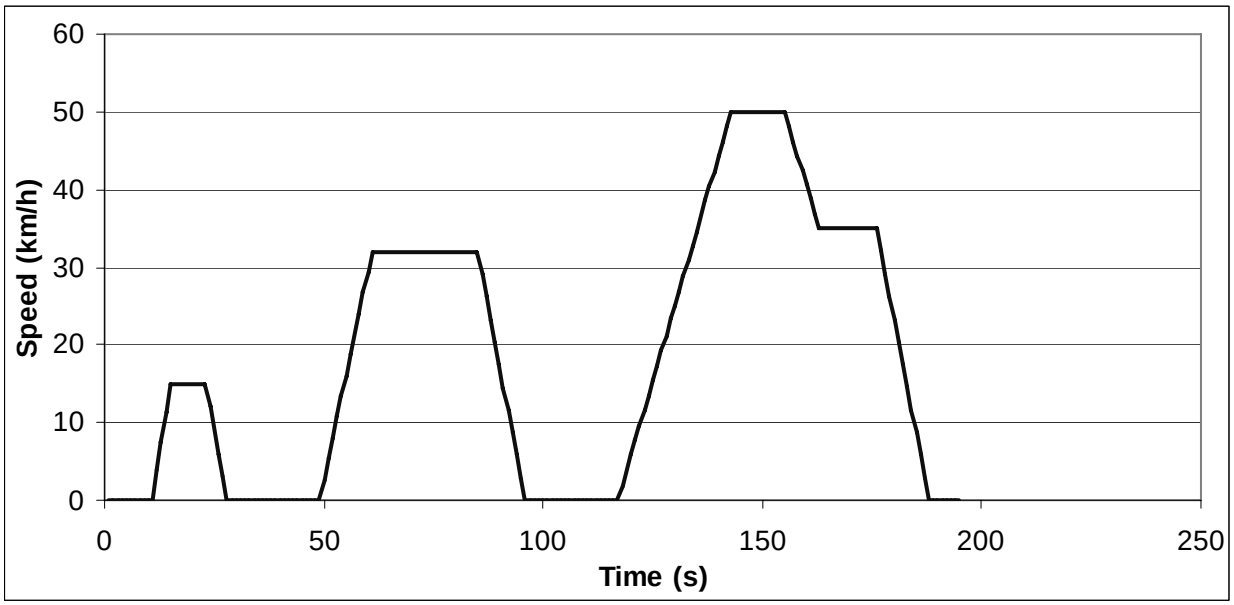
It is recognised that there are many hundreds of driving cycles available for the estimation of vehicle emissions. Whilst this reference book has intentionally focused on those cycles used in UK chassis dynamometer-based test programmes, it is recognised that new cycles are being continually developed, and that non-UK cycles may be directly applicable to the UK on-road situation.

Any corrections or suggestions for the inclusion of supplementary cycles should be addressed to Dr Tim Barlow (tbarlow@trl.co.uk) or Dr Ian McCrae (imccrae@trl.co.uk) at the following address:

Energy, Emissions and Air Pollution Team
TRL Limited
Crowthorne House
Nine Mile Ride
Wokingham
Berkshire, RG40 3GA

Cycle No: 1

Cycle name: **ECE 15**
Alternative name:
Test programme: **EU legislative cycles**
Additional info: **Elementary ECE 15 cycle**
Vehicle category: **Cars**

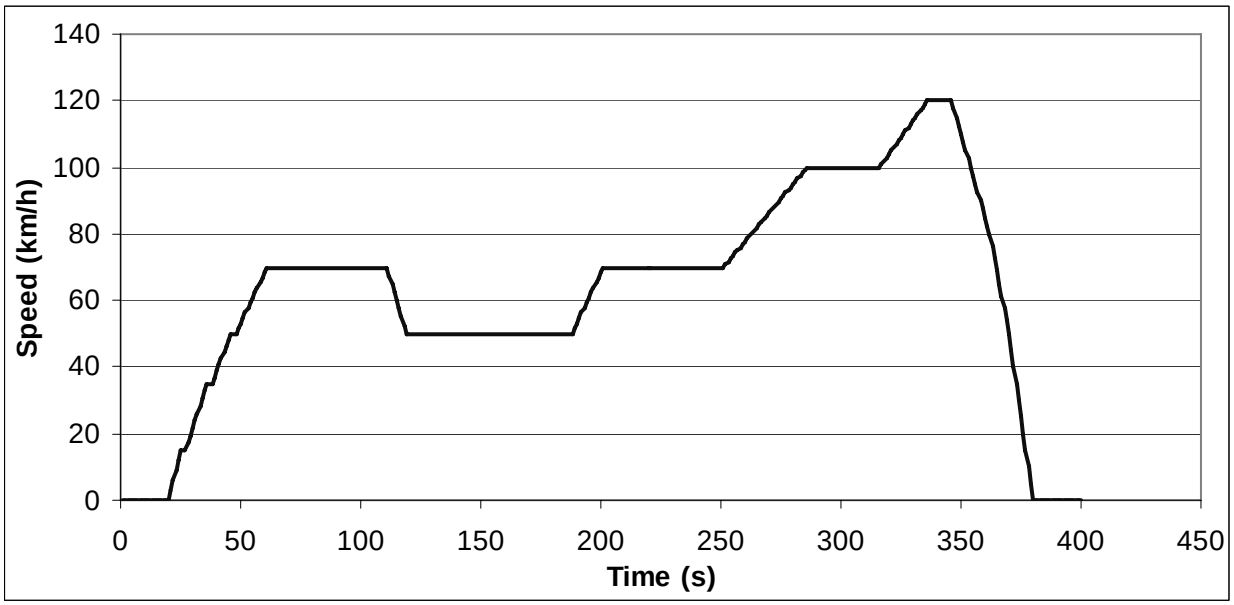


ART.KINEMA parameters

Total distance	994.6 m	Average negative acceleration	-0.393 m/s^2
Total time	195 s	Standard deviation of accel.	0.473 m/s^2
Driving time	150 s	Standard dev. of positive accel.	0.285 m/s^2
Drive time	49 s	Accel: 75th - 25th percentile	0.254 m/s^2
Drive time spent accelerating	53 s	Number of accelerations	3
Drive time spent decelerating	48 s	Accelerations per km	3.016 /km
Time spent braking	40 s	Number of stops	4
Standing time	45 s	Stops per km	4.02 /km
% of time driving	76.92 %	Average stop duration	11.25 s
% of cruising	25.13 %	Average distance between stops	248.65 m
% of time accelerating	27.18 %	Relative positive acceleration	0.147 m/s^2
% of time decelerating	24.62 %	Positive kinetic energy	3.812 m/s^2
% of time braking	20.51 %	Relative positive speed	0.521
% of time standing	23.08 %	Relative real speed	0.763
Average speed (trip)	18.4 km/h	Relative square speed	9.436 m/s
Average driving speed	23.87 km/h	Relative positive square speed	4.925 m/s
Standard deviation of speed	15.58 km/h	Relative real square speed	7.378 m/s
Speed: 75th - 25th percentile	32.01 km/h	Relative cubic speed	99.60 m^2/s^2
Maximum speed	50.07 km/h	Relative positive cubic speed	52.09 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	78.72 m^2/s^2
Average positive acceleration	0.348 m/s^2	Root mean square of acceleration	0.183 m/s^2

Cycle No: 2

Cycle name: **Extra Urban Driving Cycle (EUDC)**
Alternative name:
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **Cars**

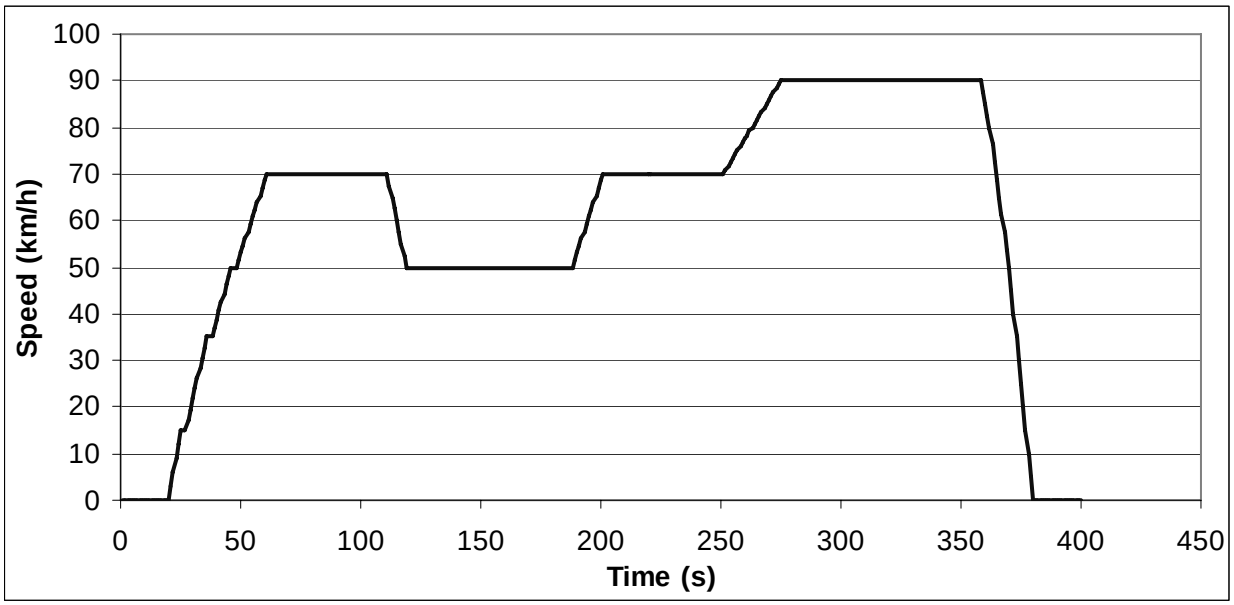


ART.KINEMA parameters

Total distance	6955.07 m	Average negative acceleration	-0.420 m/s^2
Total time	400 s	Standard deviation of accel.	0.378 m/s^2
Driving time	365 s	Standard dev. of positive accel.	0.177 m/s^2
Drive time	197 s	Accel: 75th - 25th percentile	0.221 m/s^2
Drive time spent accelerating	119 s	Number of accelerations	4
Drive time spent decelerating	49 s	Accelerations per km	0.575 /km
Time spent braking	45 s	Number of stops	2
Standing time	35 s	Stops per km	0.29 /km
% of time driving	91.25 %	Average stop duration	17.5 s
% of cruising	49.25 %	Average distance between stops	3477.54 m
% of time accelerating	29.75 %	Relative positive acceleration	0.0936 m/s^2
% of time decelerating	12.25 %	Positive kinetic energy	2.427 m/s^2
% of time braking	11.25 %	Relative positive speed	0.410
% of time standing	8.75 %	Relative real speed	0.881
Average speed (trip)	62.6 km/h	Relative square speed	21.760 m/s
Average driving speed	68.6 km/h	Relative positive square speed	9.432 m/s
Standard deviation of speed	25.88 km/h	Relative real square speed	19.047 m/s
Speed: 75th - 25th percentile	29.43 km/h	Relative cubic speed	514.92 m^2/s^2
Maximum speed	120.09 km/h	Relative positive cubic speed	237.01 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	446.86 m^2/s^2
Average positive acceleration	0.266 m/s^2	Root mean square of acceleration	0.087 m/s^2

Cycle No: 3

Cycle name: **Extra Urban Driving Cycle (EUDC), low power vehicles**
Alternative name:
Test programme: **EU legislative cycles**
Additional info: **Extra Urban Driving Cycle for low-powered vehicles**
Vehicle category: **Cars**

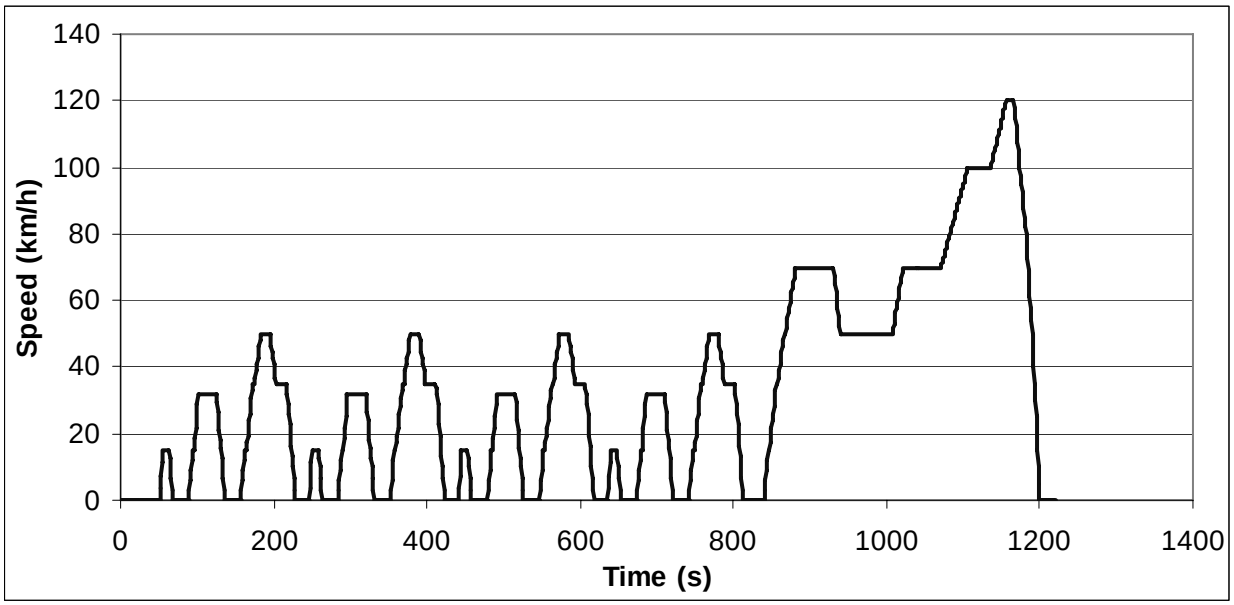


ART.KINEMA parameters

Total distance	6609.31 m	Average negative acceleration	-0.415 m/s^2
Total time	400 s	Standard deviation of accel.	0.348 m/s^2
Driving time	365 s	Standard dev. of positive accel.	0.201 m/s^2
Drive time	243 s	Accel: 75th - 25th percentile	0.004 m/s^2
Drive time spent accelerating	85 s	Number of accelerations	3
Drive time spent decelerating	37 s	Accelerations per km	0.454 /km
Time spent braking	33 s	Number of stops	2
Standing time	35 s	Stops per km	0.3 /km
% of time driving	91.25 %	Average stop duration	17.5 s
% of cruising	60.75 %	Average distance between stops	3304.65 m
% of time accelerating	21.25 %	Relative positive acceleration	0.0617 m/s^2
% of time decelerating	9.25 %	Positive kinetic energy	1.599 m/s^2
% of time braking	8.25 %	Relative positive speed	0.278
% of time standing	8.75 %	Relative real speed	0.929
Average speed (trip)	59.5 km/h	Relative square speed	19.996 m/s
Average driving speed	65.19 km/h	Relative positive square speed	5.208 m/s
Standard deviation of speed	21.08 km/h	Relative real square speed	18.733 m/s
Speed: 75th - 25th percentile	29.17 km/h	Relative cubic speed	420.44 m^2/s^2
Maximum speed	90.09 km/h	Relative positive cubic speed	104.04 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	396.33 m^2/s^2
Average positive acceleration	0.269 m/s^2	Root mean square of acceleration	0.082 m/s^2

Cycle No: 4

Cycle name: **ECE 15 + EUDC**
Alternative name: **MVEG-A cycle**
Test programme: **EU legislative cycles**
Additional info: **Includes 40 second idle period at start**
Vehicle category: **Cars**

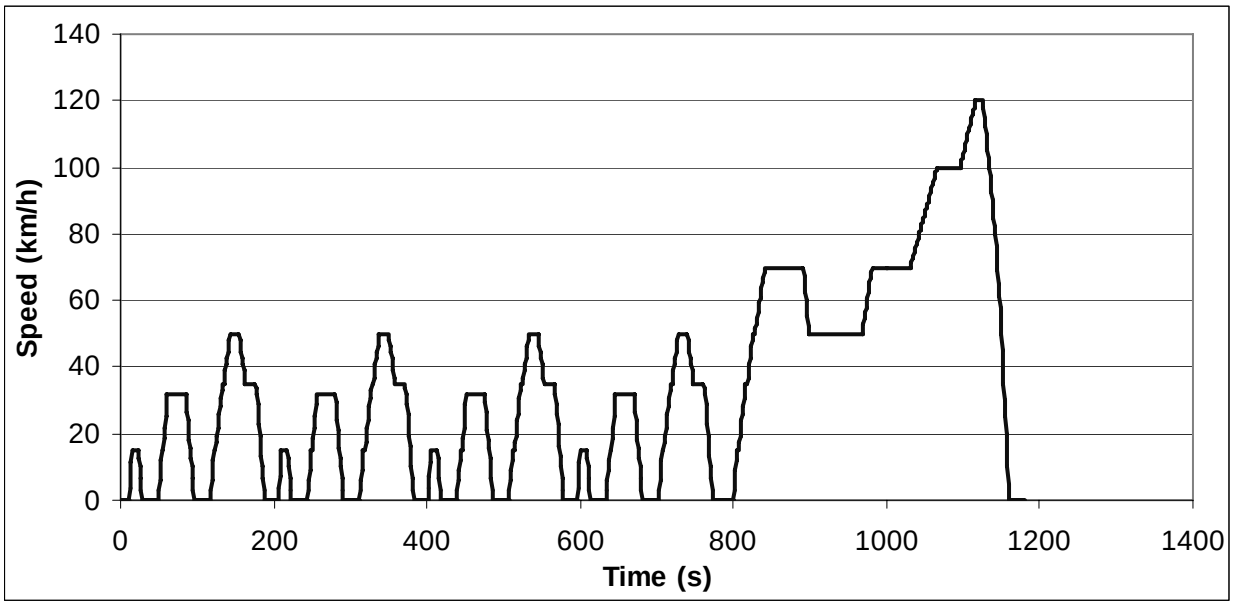


ART.KINEMA parameters

Total distance	11016.63 m	Average negative acceleration	-0.400 m/s^2
Total time	1220 s	Standard deviation of accel.	0.441 m/s^2
Driving time	965 s	Standard dev. of positive accel.	0.260 m/s^2
Drive time	393 s	Accel: 75th - 25th percentile	0.193 m/s^2
Drive time spent accelerating	331 s	Number of accelerations	16
Drive time spent decelerating	241 s	Accelerations per km	1.452 /km
Time spent braking	201 s	Number of stops	14
Standing time	255 s	Stops per km	1.27 /km
% of time driving	79.10 %	Average stop duration	18.21 s
% of cruising	32.21 %	Average distance between stops	786.9 m
% of time accelerating	27.13 %	Relative positive acceleration	0.1122 m/s^2
% of time decelerating	19.75 %	Positive kinetic energy	2.909 m/s^2
% of time braking	16.48 %	Relative positive speed	0.446
% of time standing	20.90 %	Relative real speed	0.840
Average speed (trip)	32.5 km/h	Relative square speed	17.223 m/s
Average driving speed	41.1 km/h	Relative positive square speed	7.711 m/s
Standard deviation of speed	29.33 km/h	Relative real square speed	14.771 m/s
Speed: 75th - 25th percentile	49.54 km/h	Relative cubic speed	361.85 m^2/s^2
Maximum speed	120.09 km/h	Relative positive cubic speed	167.97 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	311.37 m^2/s^2
Average positive acceleration	0.324 m/s^2	Root mean square of acceleration	0.131 m/s^2

Cycle No: 5

Cycle name: **New European Driving Cycle (NEDC)**
Alternative name:
Test programme: **EU legislative cycles**
Additional info: **Excludes initial 40 second idle period**
Vehicle category: **Cars**

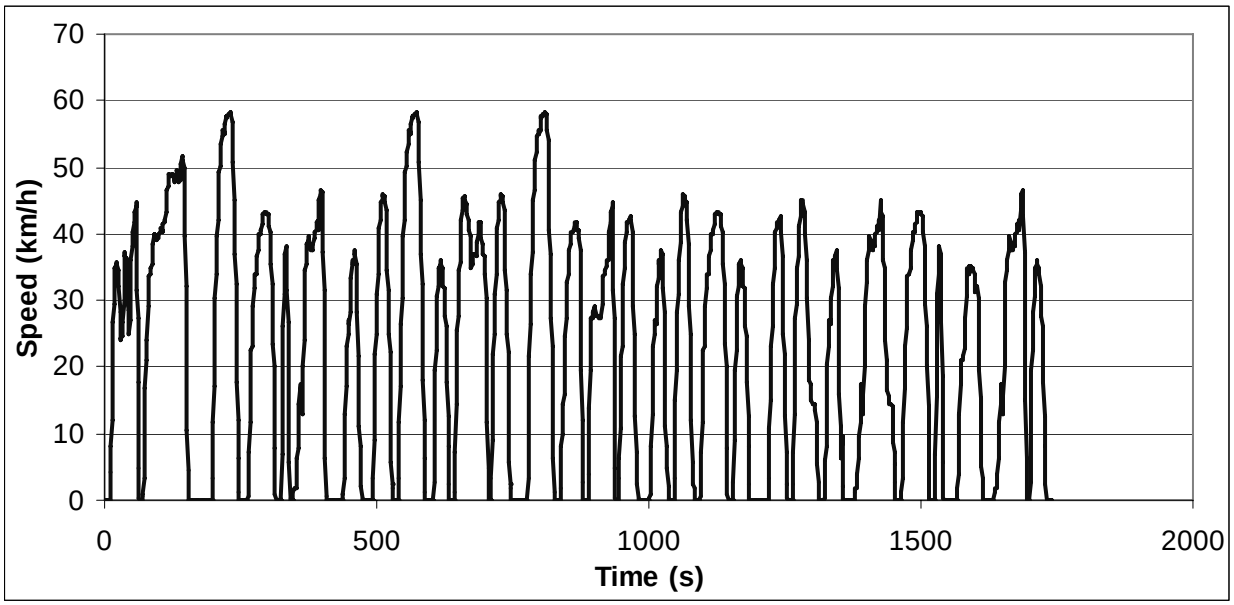


ART.KINEMA parameters

Total distance	11016.63 m	Average negative acceleration	-0.719 m/s^2
Total time	1180 s	Standard deviation of accel.	0.476 m/s^2
Driving time	939 s	Standard dev. of positive accel.	0.243 m/s^2
Drive time	458 s	Accel: 75th - 25th percentile	0.000 m/s^2
Drive time spent accelerating	278 s	Number of accelerations	31
Drive time spent decelerating	204 s	Accelerations per km	2.814 /km
Time spent braking	200 s	Number of stops	14
Standing time	241 s	Stops per km	1.27 /km
% of time driving	79.58 %	Average stop duration	17.21 s
% of cruising	38.81 %	Average distance between stops	786.9 m
% of time accelerating	23.56 %	Relative positive acceleration	0.1113 m/s^2
% of time decelerating	17.29 %	Positive kinetic energy	0.224 m/s^2
% of time braking	16.95 %	Relative positive speed	0.286
% of time standing	20.42 %	Relative real speed	0.840
Average speed (trip)	33.6 km/h	Relative square speed	17.223 m/s
Average driving speed	42.24 km/h	Relative positive square speed	5.284 m/s
Standard deviation of speed	28.91 km/h	Relative real square speed	14.771 m/s
Speed: 75th - 25th percentile	46.7 km/h	Relative cubic speed	361.85 m^2/s^2
Maximum speed	120.09 km/h	Relative positive cubic speed	120.96 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	311.37 m^2/s^2
Average positive acceleration	0.528 m/s^2	Root mean square of acceleration	0.139 m/s^2

Cycle No: 6

Cycle name: **Braunschweig City Driving Cycle**
Alternative name:
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **Buses**

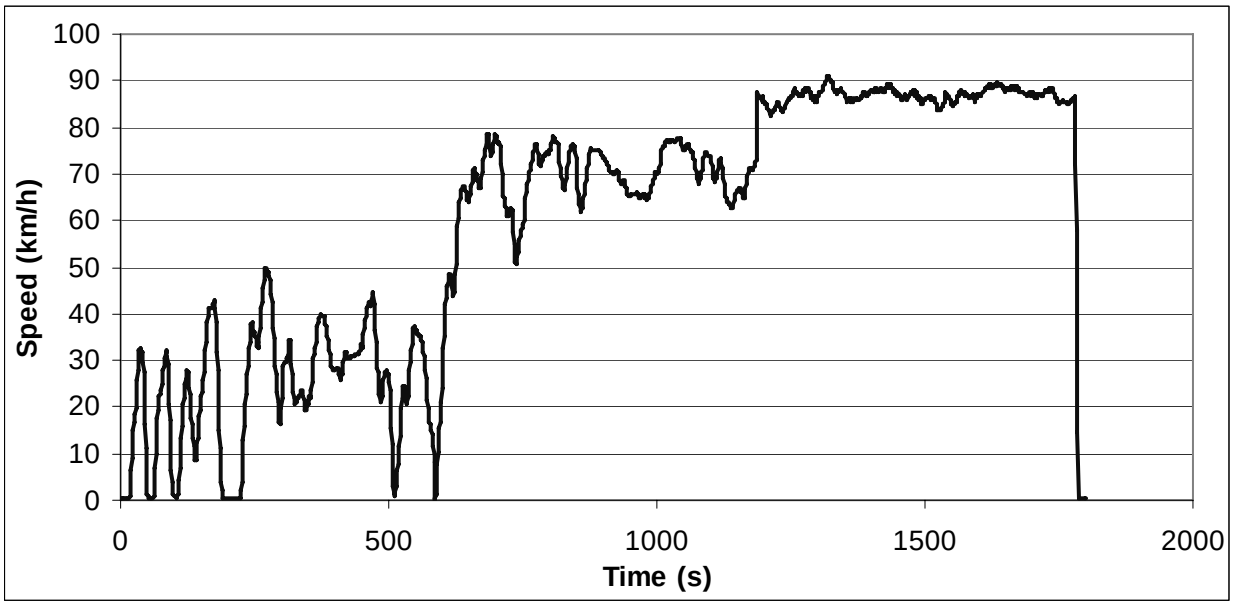


ART.KINEMA parameters

Total distance	10900.32 m	Average negative acceleration	-0.595 m/s^2
Total time	1740 s	Standard deviation of accel.	0.687 m/s^2
Driving time	1452 s	Standard dev. of positive accel.	0.395 m/s^2
Drive time	245 s	Accel: 75th - 25th percentile	0.390 m/s^2
Drive time spent accelerating	712 s	Number of accelerations	52
Drive time spent decelerating	495 s	Accelerations per km	4.771 /km
Time spent braking	369 s	Number of stops	26
Standing time	288 s	Stops per km	2.39 /km
% of time driving	83.45 %	Average stop duration	11.08 s
% of cruising	14.08 %	Average distance between stops	419.24 m
% of time accelerating	40.92 %	Relative positive acceleration	0.2062 m/s^2
% of time decelerating	28.45 %	Positive kinetic energy	5.360 m/s^2
% of time braking	21.21 %	Relative positive speed	0.614
% of time standing	16.55 %	Relative real speed	0.784
Average speed (trip)	22.6 km/h	Relative square speed	10.340 m/s
Average driving speed	27.03 km/h	Relative positive square speed	6.478 m/s
Standard deviation of speed	16.61 km/h	Relative real square speed	8.385 m/s
Speed: 75th - 25th percentile	37.31 km/h	Relative cubic speed	116.81 m^2/s^2
Maximum speed	58.21 km/h	Relative positive cubic speed	74.20 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	96.77 m^2/s^2
Average positive acceleration	0.424 m/s^2	Root mean square of acceleration	0.251 m/s^2

Cycle No: 7

Cycle name: **European Transient Cycle (ETC) - entire cycle**
Alternative name: **FIGE cycle**
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **HGVs**

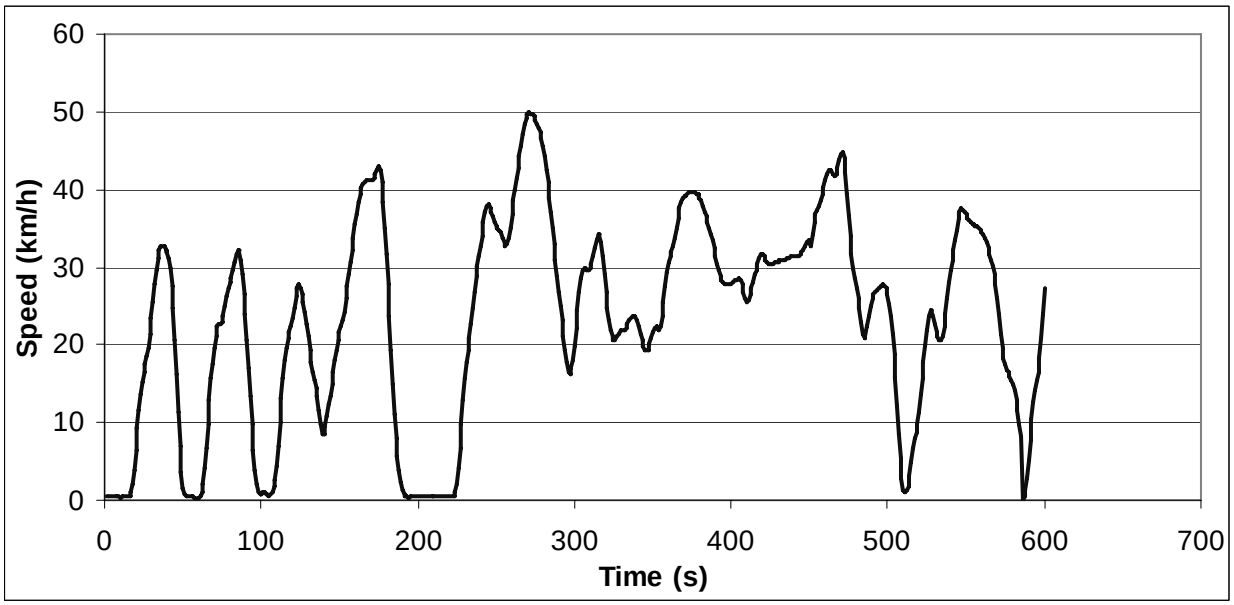


ART.KINEMA parameters

Total distance	29493.59 m	Average negative acceleration	-0.176 m/s^2
Total time	1800 s	Standard deviation of accel.	0.327 m/s^2
Driving time	1800 s	Standard dev. of positive accel.	0.189 m/s^2
Drive time	859 s	Accel: 75th - 25th percentile	0.129 m/s^2
Drive time spent accelerating	522 s	Number of accelerations	65
Drive time spent decelerating	419 s	Accelerations per km	2.204 /km
Time spent braking	155 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	47.72 %	Average distance between stops	N/A m
% of time accelerating	29.00 %	Relative positive acceleration	0.0565 m/s^2
% of time decelerating	23.28 %	Positive kinetic energy	1.477 m/s^2
% of time braking	8.61 %	Relative positive speed	0.515
% of time standing	0.00 %	Relative real speed	0.951
Average speed (trip)	59.0 km/h	Relative square speed	20.262 m/s
Average driving speed	58.99 km/h	Relative positive square speed	10.278 m/s
Standard deviation of speed	28.7 km/h	Relative real square speed	19.613 m/s
Speed: 75th - 25th percentile	54.33 km/h	Relative cubic speed	438.55 m^2/s^2
Maximum speed	90.8 km/h	Relative positive cubic speed	220.77 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	428.06 m^2/s^2
Average positive acceleration	0.158 m/s^2	Root mean square of acceleration	0.081 m/s^2

Cycle No: 8

Cycle name: **European Transient Cycle (ETC) - part 1**
Alternative name: **FIGE cycle**
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **HGVs**

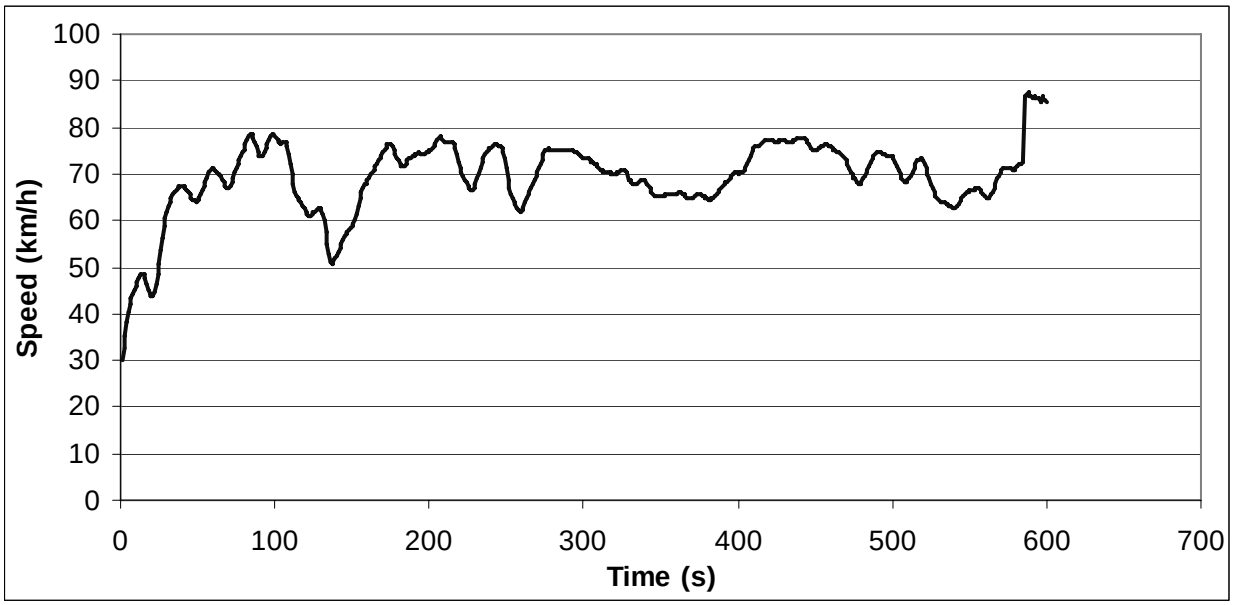


ART.KINEMA parameters

Total distance	3874.3 m	Average negative acceleration	-0.313 m/s^2
Total time	600 s	Standard deviation of accel.	0.381 m/s^2
Driving time	600 s	Standard dev. of positive accel.	0.219 m/s^2
Drive time	163 s	Accel: 75th - 25th percentile	0.414 m/s^2
Drive time spent accelerating	245 s	Number of accelerations	86
Drive time spent decelerating	192 s	Accelerations per km	22.198 /km
Time spent braking	113 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	27.17 %	Average distance between stops	N/A m
% of time accelerating	40.83 %	Relative positive acceleration	0.1365 m/s^2
% of time decelerating	32.00 %	Positive kinetic energy	3.532 m/s^2
% of time braking	18.83 %	Relative positive speed	0.561
% of time standing	0.00 %	Relative real speed	0.815
Average speed (trip)	23.3 km/h	Relative square speed	8.559 m/s
Average driving speed	23.25 km/h	Relative positive square speed	4.731 m/s
Standard deviation of speed	13.27 km/h	Relative real square speed	7.118 m/s
Speed: 75th - 25th percentile	18.34 km/h	Relative cubic speed	79.72 m^2/s^2
Maximum speed	90.8 km/h	Relative positive cubic speed	43.38 m^2/s^2
Average acceleration	0.013 m/s^2	Relative real cubic speed	67.20 m^2/s^2
Average positive acceleration	0.273 m/s^2	Root mean square of acceleration	0.150 m/s^2

Cycle No: 9

Cycle name: **European Transient Cycle (ETC) - part 2**
Alternative name: **FIGE cycle**
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **HGVs**

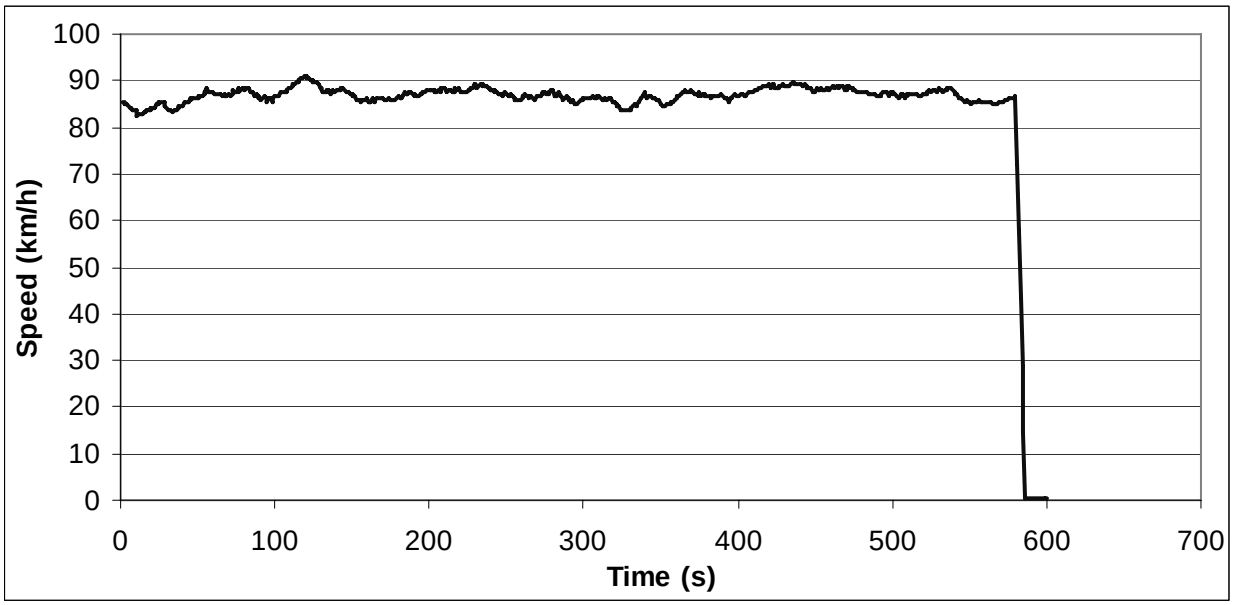


ART.KINEMA parameters

Total distance	11556.6 m	Average negative acceleration	-0.118 m/s^2
Total time	600 s	Standard deviation of accel.	0.204 m/s^2
Driving time	600 s	Standard dev. of positive accel.	0.171 m/s^2
Drive time	222 s	Accel: 75th - 25th percentile	0.191 m/s^2
Drive time spent accelerating	218 s	Number of accelerations	109
Drive time spent decelerating	160 s	Accelerations per km	9.432 /km
Time spent braking	33 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	37.00 %	Average distance between stops	N/A m
% of time accelerating	36.33 %	Relative positive acceleration	0.0766 m/s^2
% of time decelerating	26.67 %	Positive kinetic energy	1.995 m/s^2
% of time braking	5.50 %	Relative positive speed	0.519
% of time standing	0.00 %	Relative real speed	0.947
Average speed (trip)	69.3 km/h	Relative square speed	19.515 m/s
Average driving speed	69.34 km/h	Relative positive square speed	10.010 m/s
Standard deviation of speed	7.98 km/h	Relative real square speed	18.515 m/s
Speed: 75th - 25th percentile	9.18 km/h	Relative cubic speed	384.90 m^2/s^2
Maximum speed	90.8 km/h	Relative positive cubic speed	195.31 m^2/s^2
Average acceleration	0.026 m/s^2	Relative real cubic speed	365.77 m^2/s^2
Average positive acceleration	0.156 m/s^2	Root mean square of acceleration	0.047 m/s^2

Cycle No: 10

Cycle name: **European Transient Cycle (ETC) - part 3**
Alternative name: **FIGE cycle**
Test programme: **EU legislative cycles**
Additional info:
Vehicle category: **HGVs**

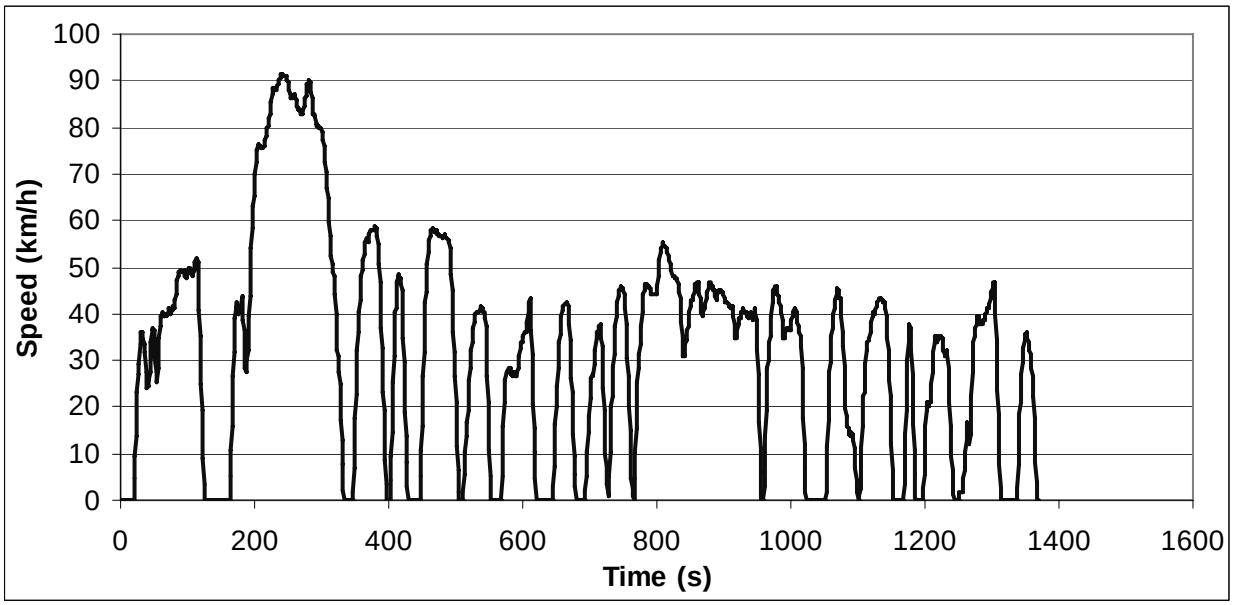


ART.KINEMA parameters

Total distance	14062.72 m	Average negative acceleration	-0.115 m/s^2
Total time	600 s	Standard deviation of accel.	0.362 m/s^2
Driving time	600 s	Standard dev. of positive accel.	0.027 m/s^2
Drive time	473 s	Accel: 75th - 25th percentile	0.061 m/s^2
Drive time spent accelerating	59 s	Number of accelerations	131
Drive time spent decelerating	68 s	Accelerations per km	9.315 /km
Time spent braking	9 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	78.83 %	Average distance between stops	N/A m
% of time accelerating	9.83 %	Relative positive acceleration	0.0179 m/s^2
% of time decelerating	11.33 %	Positive kinetic energy	0.473 m/s^2
% of time braking	1.50 %	Relative positive speed	0.498
% of time standing	0.00 %	Relative real speed	0.992
Average speed (trip)	84.4 km/h	Relative square speed	24.098 m/s
Average driving speed	84.38 km/h	Relative positive square speed	12.027 m/s
Standard deviation of speed	14.18 km/h	Relative real square speed	23.958 m/s
Speed: 75th - 25th percentile	1.84 km/h	Relative cubic speed	581.50 m^2/s^2
Maximum speed	90.8 km/h	Relative positive cubic speed	290.57 m^2/s^2
Average acceleration	-0.039 m/s^2	Relative real cubic speed	578.67 m^2/s^2
Average positive acceleration	0.036 m/s^2	Root mean square of acceleration	0.075 m/s^2

Cycle No: 11

Cycle name: **FTP-72**
Alternative name: **LA-4 cycle, A10 (Sweden), ADR 27 (Australia)**
Test programme: **US cycles**
Additional info: **Urban Dynamometer Driving Schedule (UDDS)**
Vehicle category: **Cars**

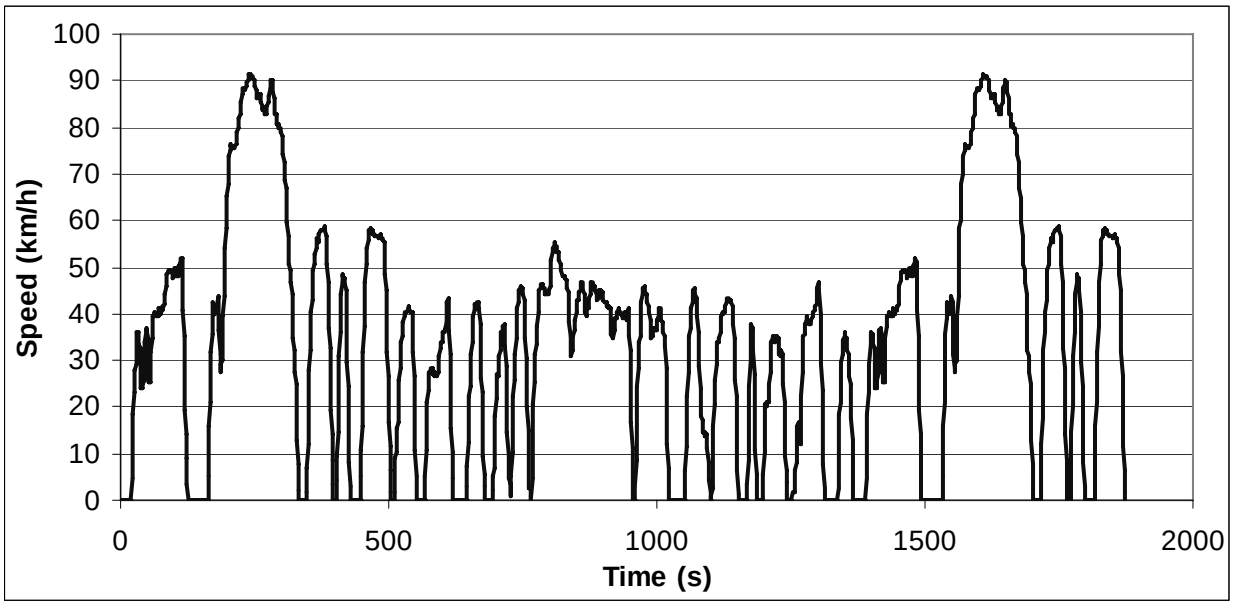


ART.KINEMA parameters

Total distance	11996.85 m	Average negative acceleration	-0.464 m/s^2
Total time	1369 s	Standard deviation of accel.	0.637 m/s^2
Driving time	1180 s	Standard dev. of positive accel.	0.421 m/s^2
Drive time	247 s	Accel: 75th - 25th percentile	0.363 m/s^2
Drive time spent accelerating	506 s	Number of accelerations	48
Drive time spent decelerating	427 s	Accelerations per km	4.001 /km
Time spent braking	271 s	Number of stops	14
Standing time	189 s	Stops per km	1.17 /km
% of time driving	86.19 %	Average stop duration	13.5 s
% of cruising	18.04 %	Average distance between stops	856.92 m
% of time accelerating	36.96 %	Relative positive acceleration	0.1652 m/s^2
% of time decelerating	31.19 %	Positive kinetic energy	4.307 m/s^2
% of time braking	19.80 %	Relative positive speed	0.505
% of time standing	13.81 %	Relative real speed	0.823
Average speed (trip)	31.6 km/h	Relative square speed	13.660 m/s
Average driving speed	36.6 km/h	Relative positive square speed	6.658 m/s
Standard deviation of speed	21.46 km/h	Relative real square speed	11.677 m/s
Speed: 75th - 25th percentile	34.92 km/h	Relative cubic speed	218.99 m^2/s^2
Maximum speed	91.15 km/h	Relative positive cubic speed	103.54 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	192.32 m^2/s^2
Average positive acceleration	0.429 m/s^2	Root mean square of acceleration	0.200 m/s^2

Cycle No: 12

Cycle name: **FTP-75**
Alternative name: **ADR 37 (Australia)**
Test programme: **US cycles**
Additional info:
Vehicle category: **Cars**

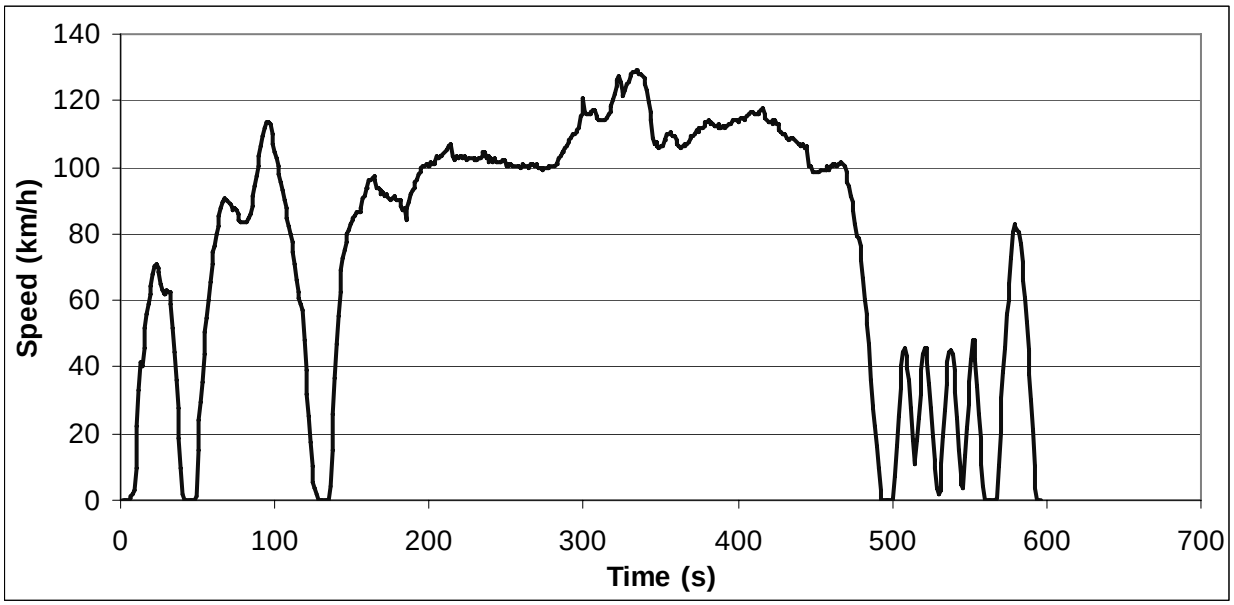


ART.KINEMA parameters

Total distance	17786.59 m	Average negative acceleration	-0.457 m/s^2
Total time	1874 s	Standard deviation of accel.	0.629 m/s^2
Driving time	1633 s	Standard dev. of positive accel.	0.423 m/s^2
Drive time	376 s	Accel: 75th - 25th percentile	0.358 m/s^2
Drive time spent accelerating	683 s	Number of accelerations	61
Drive time spent decelerating	574 s	Accelerations per km	3.430 /km
Time spent braking	383 s	Number of stops	16
Standing time	241 s	Stops per km	0.9 /km
% of time driving	87.14 %	Average stop duration	15.06 s
% of cruising	20.06 %	Average distance between stops	1111.66 m
% of time accelerating	36.45 %	Relative positive acceleration	0.1613 m/s^2
% of time decelerating	30.63 %	Positive kinetic energy	4.197 m/s^2
% of time braking	20.44 %	Relative positive speed	0.505
% of time standing	12.86 %	Relative real speed	0.816
Average speed (trip)	34.2 km/h	Relative square speed	14.804 m/s
Average driving speed	39.21 km/h	Relative positive square speed	7.195 m/s
Standard deviation of speed	23.51 km/h	Relative real square speed	12.575 m/s
Speed: 75th - 25th percentile	37.49 km/h	Relative cubic speed	255.41 m^2/s^2
Maximum speed	91.09 km/h	Relative positive cubic speed	119.95 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	222.94 m^2/s^2
Average positive acceleration	0.420 m/s^2	Root mean square of acceleration	0.190 m/s^2

Cycle No: 13

Cycle name: **US06 Supplemental FTP**
Alternative name:
Test programme: **US cycles**
Additional info: **Supplement to the FTP-75 - high speeds & accelerations**
Vehicle category: **Cars**

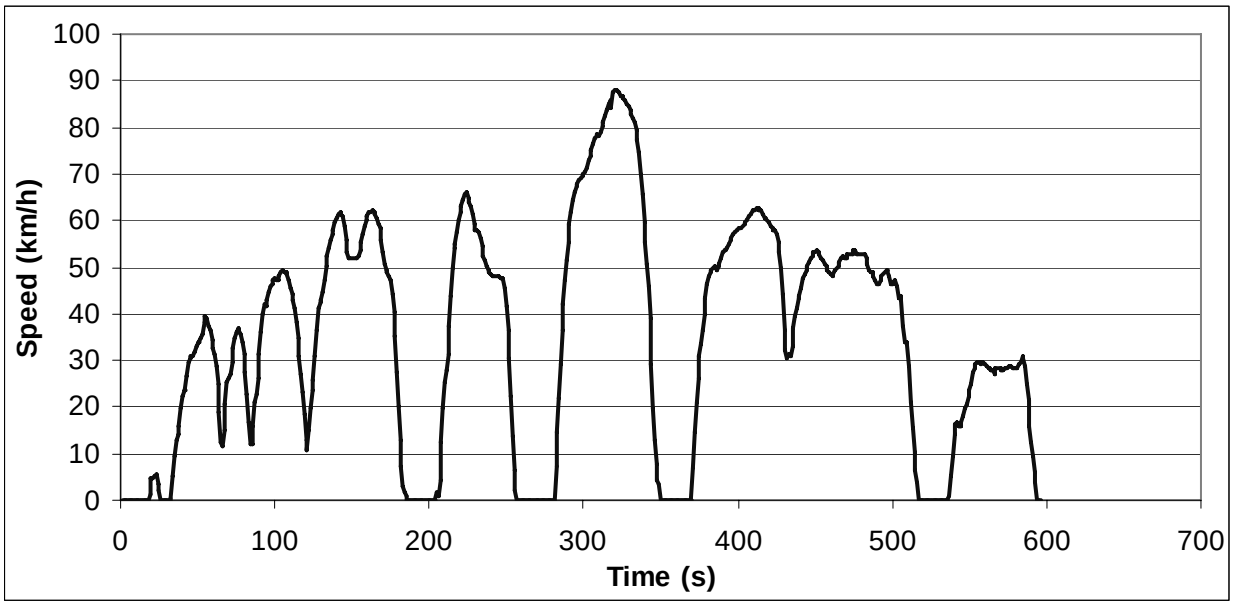


ART.KINEMA parameters

Total distance	12893.77 m	Average negative acceleration	-0.570 m/s^2
Total time	596 s	Standard deviation of accel.	0.896 m/s^2
Driving time	583 s	Standard dev. of positive accel.	0.716 m/s^2
Drive time	153 s	Accel: 75th - 25th percentile	0.380 m/s^2
Drive time spent accelerating	216 s	Number of accelerations	20
Drive time spent decelerating	214 s	Accelerations per km	1.551 /km
Time spent braking	128 s	Number of stops	5
Standing time	13 s	Stops per km	0.39 /km
% of time driving	97.82 %	Average stop duration	2.6 s
% of cruising	25.67 %	Average distance between stops	2578.75 m
% of time accelerating	36.24 %	Relative positive acceleration	0.1715 m/s^2
% of time decelerating	35.91 %	Positive kinetic energy	4.474 m/s^2
% of time braking	21.48 %	Relative positive speed	0.524
% of time standing	2.18 %	Relative real speed	0.847
Average speed (trip)	77.9 km/h	Relative square speed	27.023 m/s
Average driving speed	79.62 km/h	Relative positive square speed	14.311 m/s
Standard deviation of speed	37.53 km/h	Relative real square speed	23.690 m/s
Speed: 75th - 25th percentile	62.25 km/h	Relative cubic speed	768.68 m^2/s^2
Maximum speed	128.91 km/h	Relative positive cubic speed	409.86 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	685.80 m^2/s^2
Average positive acceleration	0.541 m/s^2	Root mean square of acceleration	0.190 m/s^2

Cycle No: 14

Cycle name: **SC03 Supplemental FTP**
Alternative name:
Test programme: **US cycles**
Additional info: **Supplement to the FTP-75 - use of air conditioning**
Vehicle category: **Cars**

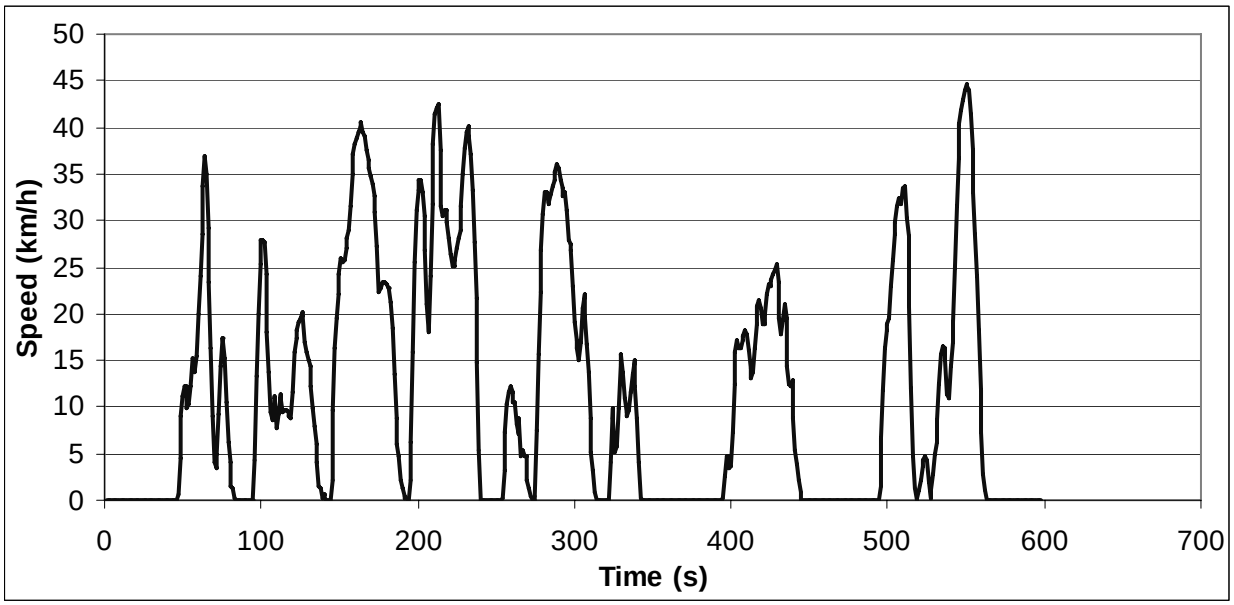


ART.KINEMA parameters

Total distance	5765.65 m	Average negative acceleration	-0.516 m/s^2
Total time	596 s	Standard deviation of accel.	0.678 m/s^2
Driving time	514 s	Standard dev. of positive accel.	0.439 m/s^2
Drive time	81 s	Accel: 75th - 25th percentile	0.398 m/s^2
Drive time spent accelerating	236 s	Number of accelerations	18
Drive time spent decelerating	197 s	Accelerations per km	3.122 /km
Time spent braking	128 s	Number of stops	6
Standing time	82 s	Stops per km	1.04 /km
% of time driving	86.24 %	Average stop duration	13.67 s
% of cruising	13.59 %	Average distance between stops	960.94 m
% of time accelerating	39.60 %	Relative positive acceleration	0.1933 m/s^2
% of time decelerating	33.05 %	Positive kinetic energy	5.028 m/s^2
% of time braking	21.48 %	Relative positive speed	0.552
% of time standing	13.76 %	Relative real speed	0.782
Average speed (trip)	34.8 km/h	Relative square speed	14.466 m/s
Average driving speed	40.38 km/h	Relative positive square speed	7.904 m/s
Standard deviation of speed	21.75 km/h	Relative real square speed	11.600 m/s
Speed: 75th - 25th percentile	40.18 km/h	Relative cubic speed	232.59 m^2/s^2
Maximum speed	88.07 km/h	Relative positive cubic speed	126.02 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	190.09 m^2/s^2
Average positive acceleration	0.424 m/s^2	Root mean square of acceleration	0.202 m/s^2

Cycle No: 15

Cycle name: **EPA New York City Cycle (NYCC)**
Alternative name:
Test programme: **US cycles**
Additional info: **Low speed urban driving**
Vehicle category: **Cars**

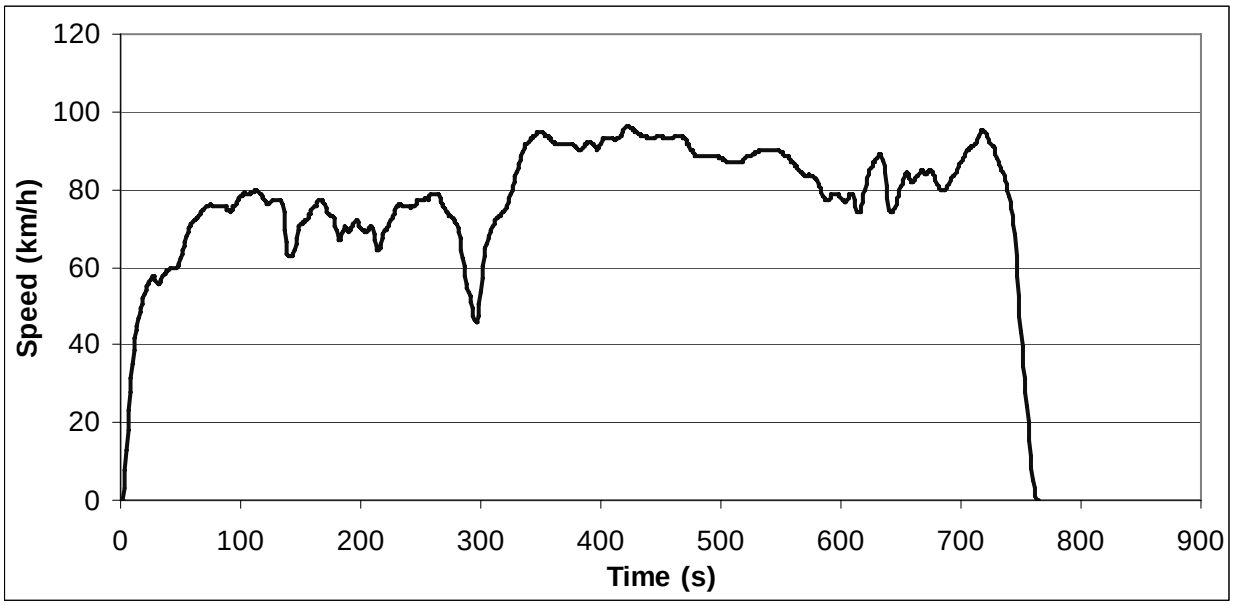


ART.KINEMA parameters

Total distance	1902.76 m	Average negative acceleration	-0.480 m/s^2
Total time	598 s	Standard deviation of accel.	0.652 m/s^2
Driving time	412 s	Standard dev. of positive accel.	0.448 m/s^2
Drive time	61 s	Accel: 75th - 25th percentile	0.308 m/s^2
Drive time spent accelerating	176 s	Number of accelerations	22
Drive time spent decelerating	175 s	Accelerations per km	11.562 /km
Time spent braking	129 s	Number of stops	7
Standing time	186 s	Stops per km	3.68 /km
% of time driving	68.90 %	Average stop duration	26.57 s
% of cruising	10.20 %	Average distance between stops	271.82 m
% of time accelerating	29.43 %	Relative positive acceleration	0.25 m/s^2
% of time decelerating	29.26 %	Positive kinetic energy	6.568 m/s^2
% of time braking	21.57 %	Relative positive speed	0.514
% of time standing	31.10 %	Relative real speed	0.665
Average speed (trip)	11.5 km/h	Relative square speed	7.113 m/s
Average driving speed	16.63 km/h	Relative positive square speed	3.641 m/s
Standard deviation of speed	12.23 km/h	Relative real square speed	4.732 m/s
Speed: 75th - 25th percentile	20.15 km/h	Relative cubic speed	58.89 m^2/s^2
Maximum speed	44.45 km/h	Relative positive cubic speed	29.97 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	39.41 m^2/s^2
Average positive acceleration	0.466 m/s^2	Root mean square of acceleration	0.303 m/s^2

Cycle No: 16

Cycle name: **EPA Highway Fuel Economy Test (HWFET)**
Alternative name:
Test programme: **US cycles**
Additional info:
Vehicle category: **Cars**

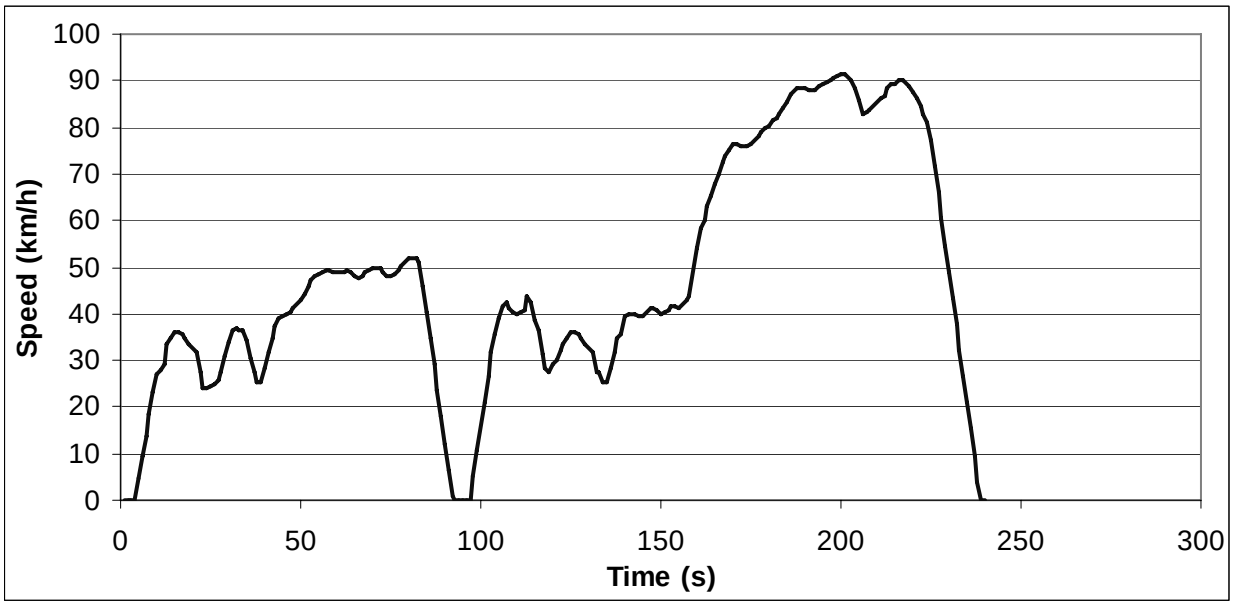


ART.KINEMA parameters

Total distance	16503.13 m	Average negative acceleration	-0.178 m/s^2
Total time	765 s	Standard deviation of accel.	0.288 m/s^2
Driving time	764 s	Standard dev. of positive accel.	0.207 m/s^2
Drive time	290 s	Accel: 75th - 25th percentile	0.179 m/s^2
Drive time spent accelerating	264 s	Number of accelerations	26
Drive time spent decelerating	210 s	Accelerations per km	1.576 /km
Time spent braking	63 s	Number of stops	1
Standing time	1 s	Stops per km	0.06 /km
% of time driving	99.87 %	Average stop duration	1 s
% of cruising	37.91 %	Average distance between stops	16503.13 m
% of time accelerating	34.51 %	Relative positive acceleration	0.0675 m/s^2
% of time decelerating	27.45 %	Positive kinetic energy	1.761 m/s^2
% of time braking	8.24 %	Relative positive speed	0.522
% of time standing	0.13 %	Relative real speed	0.937
Average speed (trip)	77.7 km/h	Relative square speed	22.515 m/s
Average driving speed	77.76 km/h	Relative positive square speed	11.574 m/s
Standard deviation of speed	16 km/h	Relative real square speed	21.331 m/s
Speed: 75th - 25th percentile	16.61 km/h	Relative cubic speed	517.10 m^2/s^2
Maximum speed	96.32 km/h	Relative positive cubic speed	262.25 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	493.63 m^2/s^2
Average positive acceleration	0.157 m/s^2	Root mean square of acceleration	0.062 m/s^2

Cycle No: 17

Cycle name: **IM240**
Alternative name:
Test programme: **US cycles**
Additional info: **Inspection & maintenance driving cycle**
Vehicle category: **Cars**

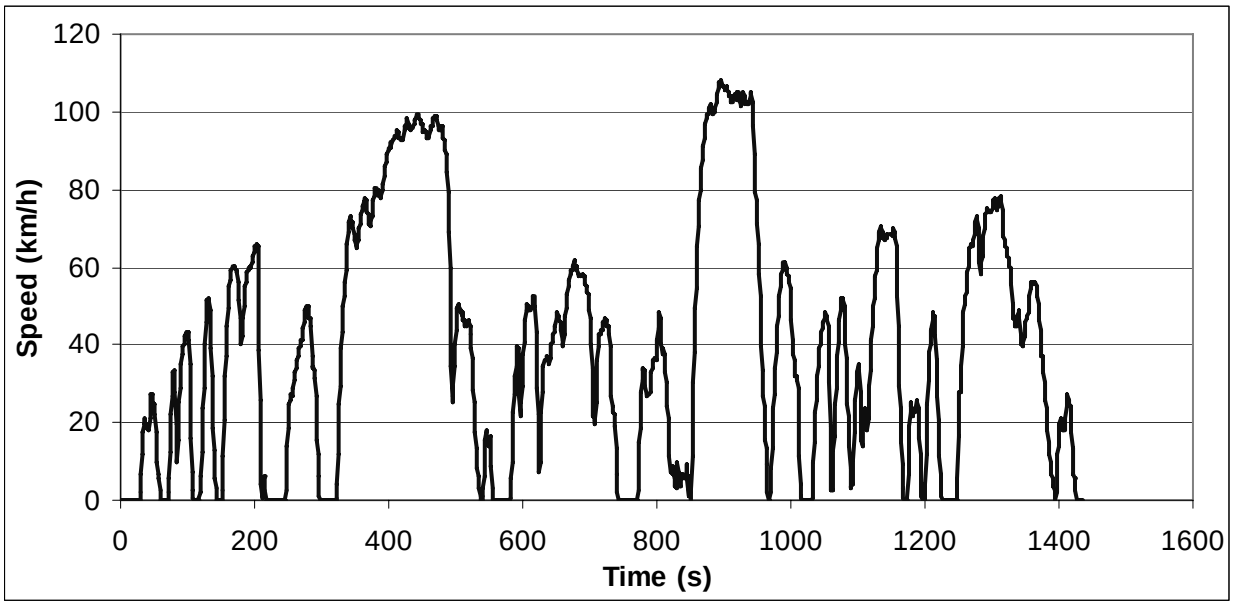


ART.KINEMA parameters

Total distance	3154.19 m	Average negative acceleration	-0.588 m/s^2
Total time	240 s	Standard deviation of accel.	0.646 m/s^2
Driving time	239 s	Standard dev. of positive accel.	0.367 m/s^2
Drive time	46 s	Accel: 75th - 25th percentile	0.506 m/s^2
Drive time spent accelerating	120 s	Number of accelerations	13
Drive time spent decelerating	73 s	Accelerations per km	4.122 /km
Time spent braking	56 s	Number of stops	0
Standing time	1 s	Stops per km	0 /km
% of time driving	99.58 %	Average stop duration	N/A s
% of cruising	19.17 %	Average distance between stops	N/A m
% of time accelerating	50.00 %	Relative positive acceleration	0.1816 m/s^2
% of time decelerating	30.42 %	Positive kinetic energy	4.733 m/s^2
% of time braking	23.33 %	Relative positive speed	0.638
% of time standing	0.42 %	Relative real speed	0.801
Average speed (trip)	47.3 km/h	Relative square speed	16.847 m/s
Average driving speed	47.51 km/h	Relative positive square speed	10.899 m/s
Standard deviation of speed	25.04 km/h	Relative real square speed	13.720 m/s
Speed: 75th - 25th percentile	38.9 km/h	Relative cubic speed	325.95 m^2/s^2
Maximum speed	91.18 km/h	Relative positive cubic speed	212.01 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	267.37 m^2/s^2
Average positive acceleration	0.360 m/s^2	Root mean square of acceleration	0.178 m/s^2

Cycle No: 18

Cycle name: **California LA92 Dynamometer Driving Schedule**
Alternative name: **Unified LA92**
Test programme: **US cycles**
Additional info:
Vehicle category: **Cars**

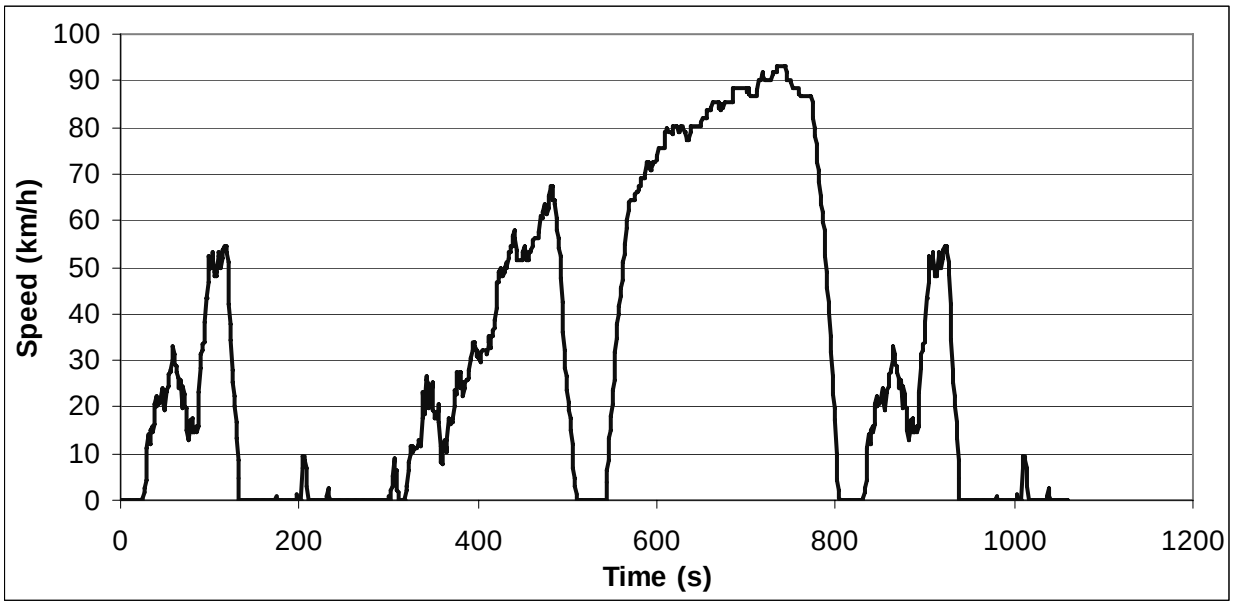


ART.KINEMA parameters

Total distance	15802.15 m	Average negative acceleration	-0.577 m/s^2
Total time	1435 s	Standard deviation of accel.	0.768 m/s^2
Driving time	1258 s	Standard dev. of positive accel.	0.485 m/s^2
Drive time	162 s	Accel: 75th - 25th percentile	0.501 m/s^2
Drive time spent accelerating	587 s	Number of accelerations	59
Drive time spent decelerating	509 s	Accelerations per km	3.734 /km
Time spent braking	326 s	Number of stops	13
Standing time	177 s	Stops per km	0.82 /km
% of time driving	87.67 %	Average stop duration	13.62 s
% of cruising	11.29 %	Average distance between stops	1215.55 m
% of time accelerating	40.91 %	Relative positive acceleration	0.2069 m/s^2
% of time decelerating	35.47 %	Positive kinetic energy	5.409 m/s^2
% of time braking	22.72 %	Relative positive speed	0.557
% of time standing	12.33 %	Relative real speed	0.805
Average speed (trip)	39.6 km/h	Relative square speed	18.037 m/s
Average driving speed	45.22 km/h	Relative positive square speed	10.101 m/s
Standard deviation of speed	29.87 km/h	Relative real square speed	15.253 m/s
Speed: 75th - 25th percentile	51.31 km/h	Relative cubic speed	380.34 m^2/s^2
Maximum speed	107.35 km/h	Relative positive cubic speed	212.69 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	331.85 m^2/s^2
Average positive acceleration	0.502 m/s^2	Root mean square of acceleration	0.217 m/s^2

Cycle No: 19

Cycle name: **Urban Dynamometer Driving Schedule (UDDS) for heavy-duty vehicles**
Alternative name: **Cycle D**
Test programme: **US cycles**
Additional info:
Vehicle category: **HGVs**

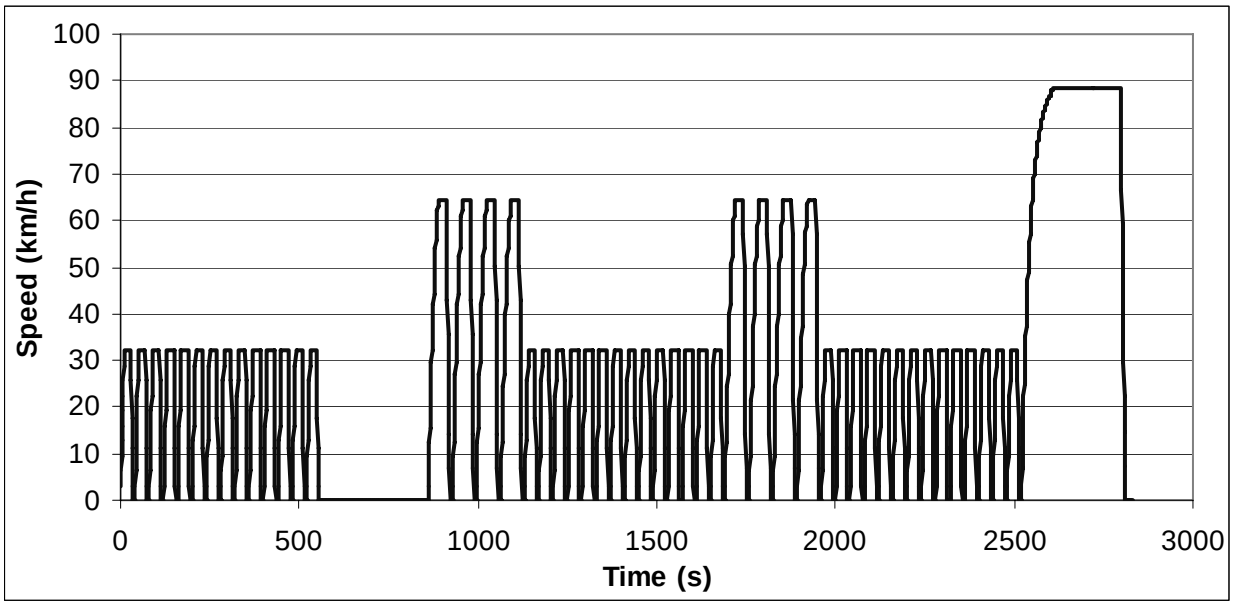


ART.KINEMA parameters

Total distance	8932.03 m	Average negative acceleration	-0.313 m/s^2
Total time	1060 s	Standard deviation of accel.	0.393 m/s^2
Driving time	796 s	Standard dev. of positive accel.	0.234 m/s^2
Drive time	261 s	Accel: 75th - 25th percentile	0.127 m/s^2
Drive time spent accelerating	329 s	Number of accelerations	41
Drive time spent decelerating	206 s	Accelerations per km	4.590 /km
Time spent braking	128 s	Number of stops	12
Standing time	264 s	Stops per km	1.34 /km
% of time driving	75.09 %	Average stop duration	22 s
% of cruising	24.62 %	Average distance between stops	744.34 m
% of time accelerating	31.04 %	Relative positive acceleration	0.1031 m/s^2
% of time decelerating	19.43 %	Positive kinetic energy	2.693 m/s^2
% of time braking	12.08 %	Relative positive speed	0.593
% of time standing	24.91 %	Relative real speed	0.876
Average speed (trip)	30.3 km/h	Relative square speed	17.740 m/s
Average driving speed	40.4 km/h	Relative positive square speed	10.344 m/s
Standard deviation of speed	30.81 km/h	Relative real square speed	16.092 m/s
Speed: 75th - 25th percentile	54.36 km/h	Relative cubic speed	360.97 m^2/s^2
Maximum speed	93.36 km/h	Relative positive cubic speed	206.21 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	334.66 m^2/s^2
Average positive acceleration	0.218 m/s^2	Root mean square of acceleration	0.117 m/s^2

Cycle No: 20

Cycle name: **Transit Coach Operating Duty Cycle - All**
Alternative name: **Business-Arterial-Commuter (BAC) cycle**
Test programme: **US cycles**
Additional info:
Vehicle category: **Buses**

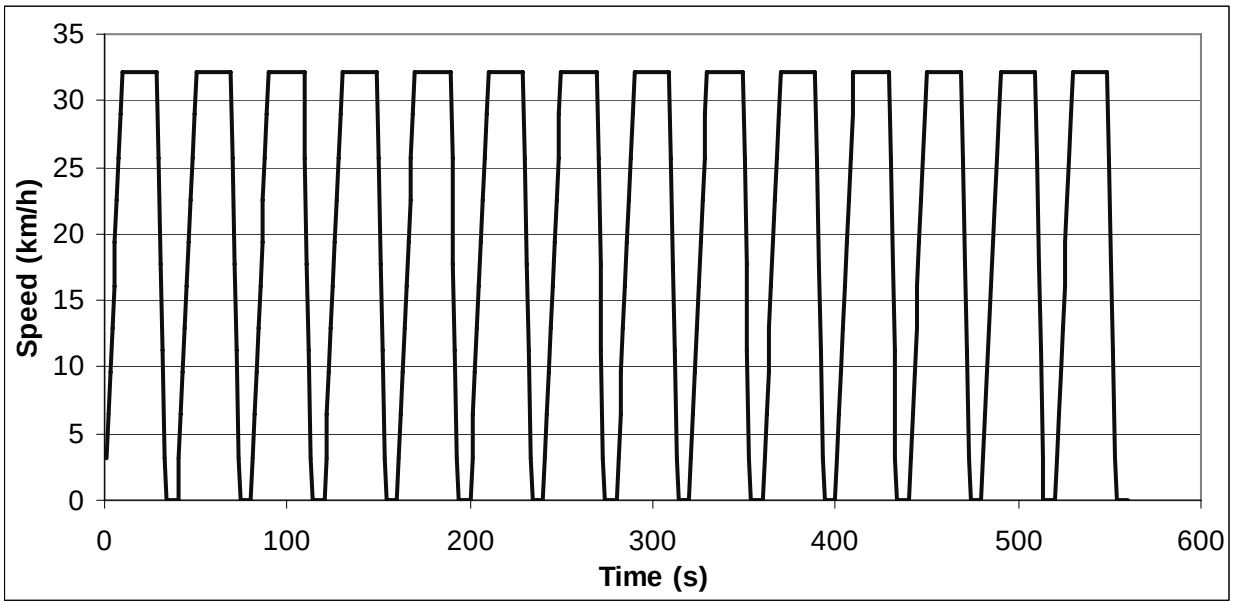


ART.KINEMA parameters

Total distance	22633.44 m	Average negative acceleration	-0.573 m/s^2
Total time	2830 s	Standard deviation of accel.	0.699 m/s^2
Driving time	2454 s	Standard dev. of positive accel.	0.357 m/s^2
Drive time	1075 s	Accel: 75th - 25th percentile	0.291 m/s^2
Drive time spent accelerating	872 s	Number of accelerations	51
Drive time spent decelerating	507 s	Accelerations per km	2.253 /km
Time spent braking	447 s	Number of stops	51
Standing time	376 s	Stops per km	2.25 /km
% of time driving	86.71 %	Average stop duration	7.37 s
% of cruising	37.99 %	Average distance between stops	443.79 m
% of time accelerating	30.81 %	Relative positive acceleration	0.1462 m/s^2
% of time decelerating	17.92 %	Positive kinetic energy	3.794 m/s^2
% of time braking	15.80 %	Relative positive speed	0.475
% of time standing	13.29 %	Relative real speed	0.891
Average speed (trip)	28.8 km/h	Relative square speed	14.452 m/s
Average driving speed	33.2 km/h	Relative positive square speed	5.997 m/s
Standard deviation of speed	25.01 km/h	Relative real square speed	13.388 m/s
Speed: 75th - 25th percentile	28.92 km/h	Relative cubic speed	258.13 m^2/s^2
Maximum speed	88.74 km/h	Relative positive cubic speed	92.78 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	244.84 m^2/s^2
Average positive acceleration	0.419 m/s^2	Root mean square of acceleration	0.230 m/s^2

Cycle No: 21

Cycle name: **Transit Coach Operating Duty Cycle - CBD**
Alternative name: **Business-Arterial-Commuter (BAC) cycle**
Test programme: **US cycles**
Additional info: **CBD: Central Business District**
Vehicle category: **Buses**

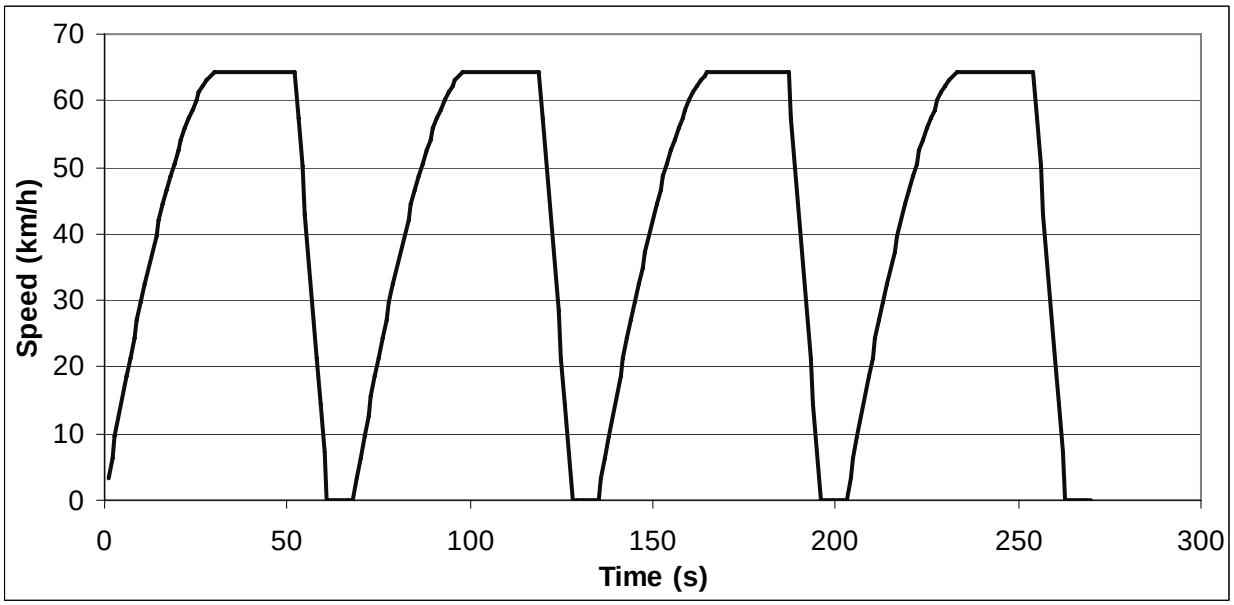


ART.KINEMA parameters

Total distance	3294.94 m	Average negative acceleration	-0.502 m/s^2
Total time	560 s	Standard deviation of accel.	0.704 m/s^2
Driving time	543 s	Standard dev. of positive accel.	0.383 m/s^2
Drive time	237 s	Accel: 75th - 25th percentile	0.474 m/s^2
Drive time spent accelerating	180 s	Number of accelerations	14
Drive time spent decelerating	126 s	Accelerations per km	4.249 /km
Time spent braking	112 s	Number of stops	14
Standing time	17 s	Stops per km	4.25 /km
% of time driving	96.96 %	Average stop duration	1.21 s
% of cruising	42.32 %	Average distance between stops	235.35 m
% of time accelerating	32.14 %	Relative positive acceleration	0.1736 m/s^2
% of time decelerating	22.50 %	Positive kinetic energy	4.506 m/s^2
% of time braking	20.00 %	Relative positive speed	0.513
% of time standing	3.04 %	Relative real speed	0.856
Average speed (trip)	21.2 km/h	Relative square speed	8.025 m/s
Average driving speed	21.84 km/h	Relative positive square speed	3.996 m/s
Standard deviation of speed	12.42 km/h	Relative real square speed	7.061 m/s
Speed: 75th - 25th percentile	25.74 km/h	Relative cubic speed	67.71 m^2/s^2
Maximum speed	32.47 km/h	Relative positive cubic speed	33.09 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	60.53 m^2/s^2
Average positive acceleration	0.433 m/s^2	Root mean square of acceleration	0.286 m/s^2

Cycle No: 22

Cycle name: **Transit Coach Operating Duty Cycle - Arterial**
Alternative name: **Business-Arterial-Commuter (BAC) cycle**
Test programme: **US cycles**
Additional info:
Vehicle category: **Buses**

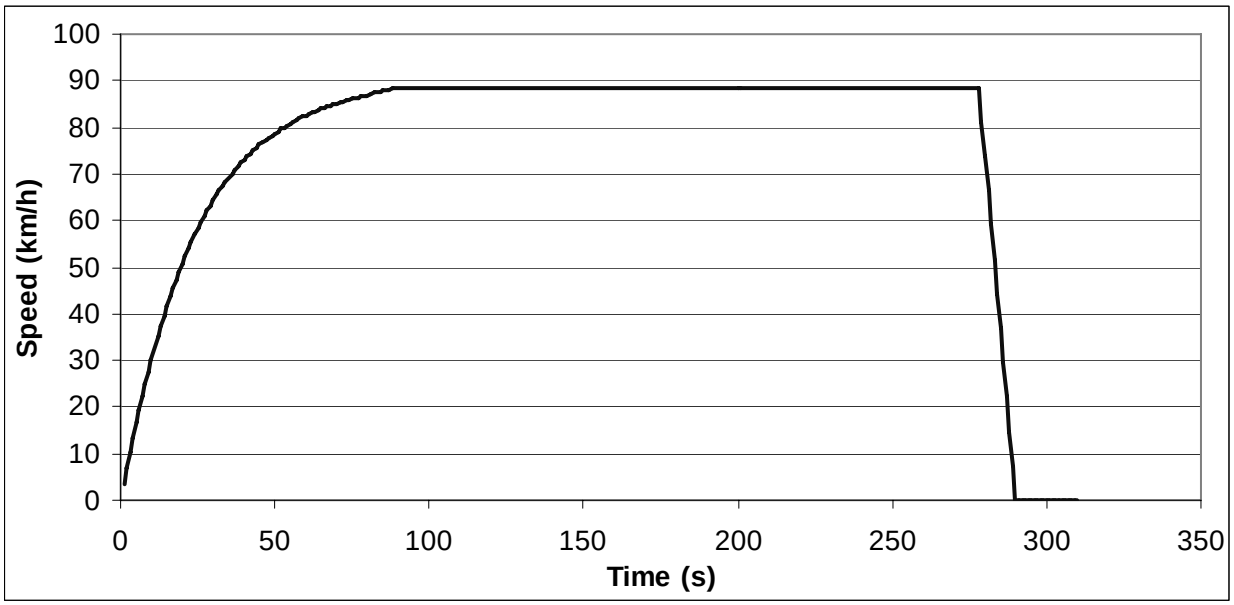


ART.KINEMA parameters

Total distance	3156.64 m	Average negative acceleration	-0.816 m/s^2
Total time	270 s	Standard deviation of accel.	0.805 m/s^2
Driving time	259 s	Standard dev. of positive accel.	0.301 m/s^2
Drive time	77 s	Accel: 75th - 25th percentile	0.561 m/s^2
Drive time spent accelerating	126 s	Number of accelerations	4
Drive time spent decelerating	56 s	Accelerations per km	1.267 /km
Time spent braking	48 s	Number of stops	4
Standing time	11 s	Stops per km	1.27 /km
% of time driving	95.93 %	Average stop duration	2.75 s
% of cruising	28.52 %	Average distance between stops	789.16 m
% of time accelerating	46.67 %	Relative positive acceleration	0.2042 m/s^2
% of time decelerating	20.74 %	Positive kinetic energy	5.292 m/s^2
% of time braking	17.78 %	Relative positive speed	0.603
% of time standing	4.07 %	Relative real speed	0.864
Average speed (trip)	42.1 km/h	Relative square speed	15.411 m/s
Average driving speed	43.88 km/h	Relative positive square speed	8.967 m/s
Standard deviation of speed	22.61 km/h	Relative real square speed	13.628 m/s
Speed: 75th - 25th percentile	43.21 km/h	Relative cubic speed	251.95 m^2/s^2
Maximum speed	64.61 km/h	Relative positive cubic speed	142.50 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	225.86 m^2/s^2
Average positive acceleration	0.443 m/s^2	Root mean square of acceleration	0.230 m/s^2

Cycle No: 23

Cycle name: **Transit Coach Operating Duty Cycle - Commuter**
Alternative name: **Business-Arterial-Commuter (BAC) cycle**
Test programme: **US cycles**
Additional info:
Vehicle category: **Buses**

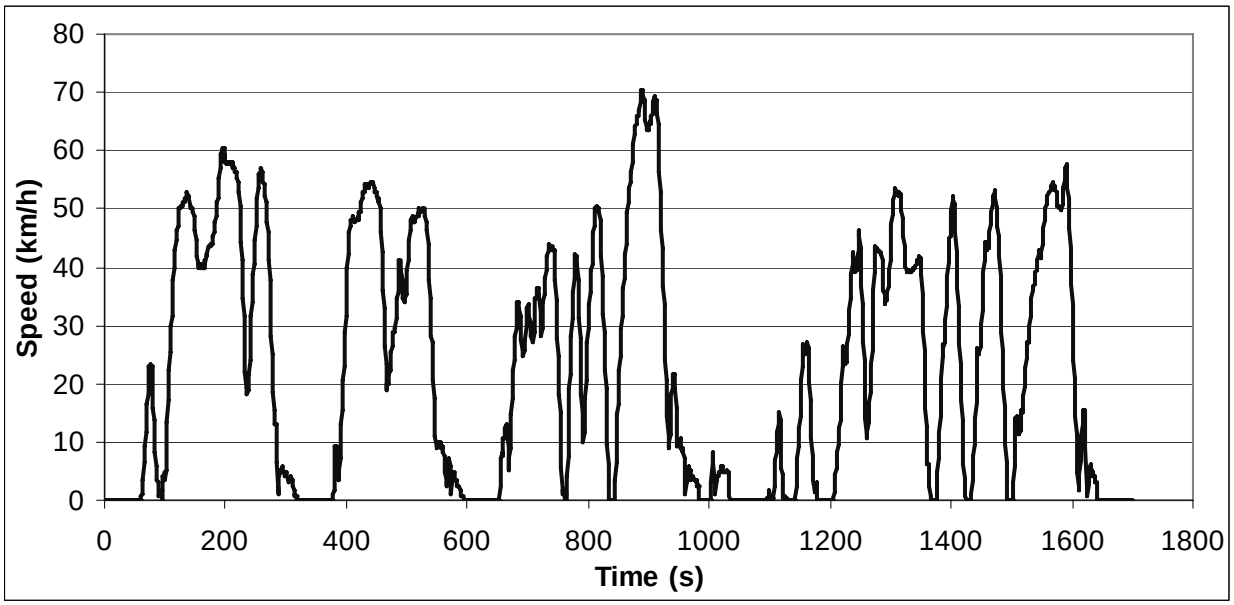


ART.KINEMA parameters

Total distance	6432.97 m	Average negative acceleration	-1.027 m/s^2
Total time	310 s	Standard deviation of accel.	0.443 m/s^2
Driving time	292 s	Standard dev. of positive accel.	0.258 m/s^2
Drive time	205 s	Accel: 75th - 25th percentile	0.048 m/s^2
Drive time spent accelerating	70 s	Number of accelerations	1
Drive time spent decelerating	17 s	Accelerations per km	0.155 /km
Time spent braking	15 s	Number of stops	1
Standing time	18 s	Stops per km	0.16 /km
% of time driving	94.19 %	Average stop duration	18 s
% of cruising	66.13 %	Average distance between stops	6432.97 m
% of time accelerating	22.58 %	Relative positive acceleration	0.0472 m/s^2
% of time decelerating	5.48 %	Positive kinetic energy	1.222 m/s^2
% of time braking	4.84 %	Relative positive speed	0.291
% of time standing	5.81 %	Relative real speed	0.971
Average speed (trip)	74.7 km/h	Relative square speed	23.391 m/s
Average driving speed	79.31 km/h	Relative positive square speed	6.160 m/s
Standard deviation of speed	19.74 km/h	Relative real square speed	22.881 m/s
Speed: 75th - 25th percentile	11.76 km/h	Relative cubic speed	556.89 m^2/s^2
Maximum speed	88.74 km/h	Relative positive cubic speed	135.73 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	546.76 m^2/s^2
Average positive acceleration	0.246 m/s^2	Root mean square of acceleration	0.094 m/s^2

Cycle No: 24

Cycle name: **City Suburban Cycle (CSC)**
Alternative name: **City Suburban Heavy Vehicle Cycle (CSHVC)**
Test programme: **US cycles**
Additional info:
Vehicle category: **HGVs**

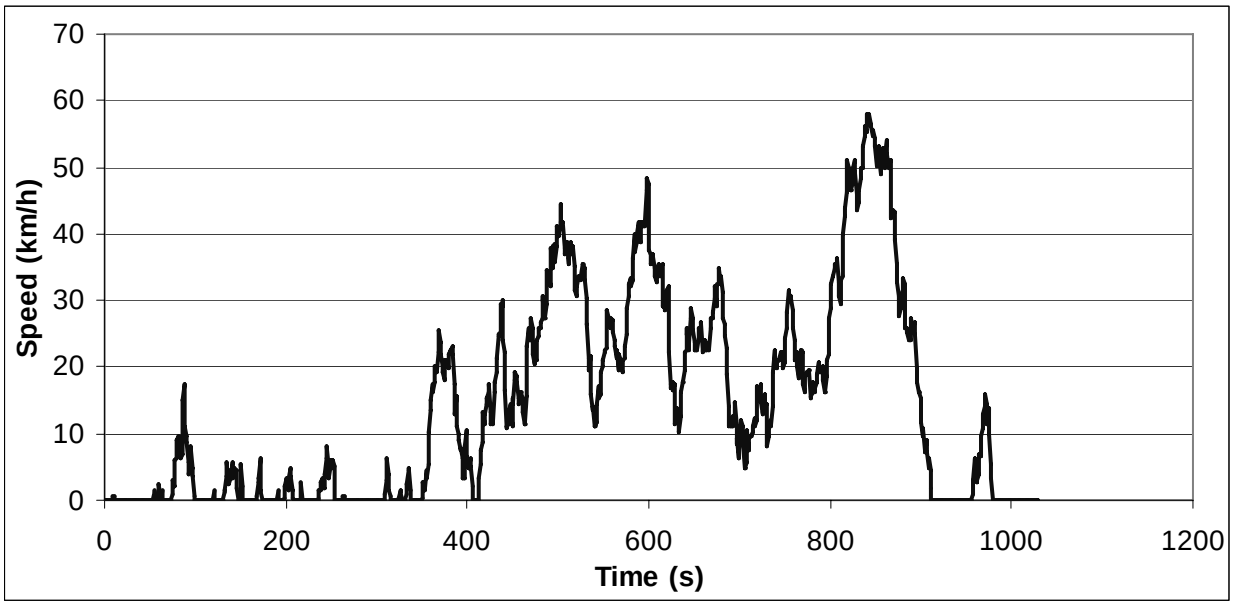


ART.KINEMA parameters

Total distance	10751.94 m	Average negative acceleration	-0.354 m/s^2
Total time	1700 s	Standard deviation of accel.	0.442 m/s^2
Driving time	1362 s	Standard dev. of positive accel.	0.247 m/s^2
Drive time	310 s	Accel: 75th - 25th percentile	0.289 m/s^2
Drive time spent accelerating	576 s	Number of accelerations	51
Drive time spent decelerating	476 s	Accelerations per km	4.743 /km
Time spent braking	299 s	Number of stops	12
Standing time	338 s	Stops per km	1.12 /km
% of time driving	80.12 %	Average stop duration	28.17 s
% of cruising	18.24 %	Average distance between stops	895.99 m
% of time accelerating	33.88 %	Relative positive acceleration	0.1575 m/s^2
% of time decelerating	28.00 %	Positive kinetic energy	4.107 m/s^2
% of time braking	17.59 %	Relative positive speed	0.558
% of time standing	19.88 %	Relative real speed	0.790
Average speed (trip)	22.8 km/h	Relative square speed	11.699 m/s
Average driving speed	28.42 km/h	Relative positive square speed	6.524 m/s
Standard deviation of speed	19.74 km/h	Relative real square speed	9.520 m/s
Speed: 75th - 25th percentile	41.21 km/h	Relative cubic speed	153.39 m^2/s^2
Maximum speed	70.26 km/h	Relative positive cubic speed	85.16 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	127.35 m^2/s^2
Average positive acceleration	0.313 m/s^2	Root mean square of acceleration	0.157 m/s^2

Cycle No: 25

Cycle name: **New York Composite Cycle**
Alternative name: **NYComp cycle**
Test programme: **US cycles**
Additional info:
Vehicle category: **HGVs**

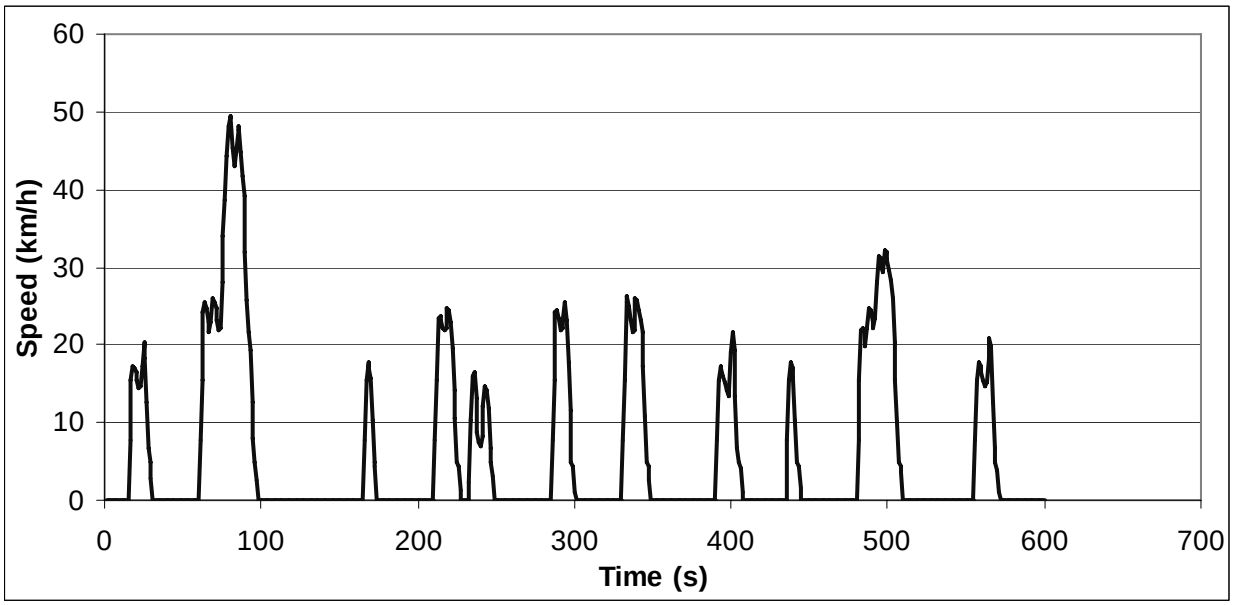


ART.KINEMA parameters

Total distance	4020.07 m	Average negative acceleration	-0.257 m/s^2
Total time	1029 s	Standard deviation of accel.	0.322 m/s^2
Driving time	763 s	Standard dev. of positive accel.	0.199 m/s^2
Drive time	175 s	Accel: 75th - 25th percentile	0.192 m/s^2
Drive time spent accelerating	315 s	Number of accelerations	53
Drive time spent decelerating	273 s	Accelerations per km	13.184 /km
Time spent braking	144 s	Number of stops	14
Standing time	266 s	Stops per km	3.48 /km
% of time driving	74.15 %	Average stop duration	19 s
% of cruising	17.01 %	Average distance between stops	287.15 m
% of time accelerating	30.61 %	Relative positive acceleration	0.1294 m/s^2
% of time decelerating	26.53 %	Positive kinetic energy	3.434 m/s^2
% of time braking	13.99 %	Relative positive speed	0.540
% of time standing	25.85 %	Relative real speed	0.806
Average speed (trip)	14.1 km/h	Relative square speed	8.469 m/s
Average driving speed	18.97 km/h	Relative positive square speed	4.529 m/s
Standard deviation of speed	14.79 km/h	Relative real square speed	6.992 m/s
Speed: 75th - 25th percentile	23.95 km/h	Relative cubic speed	85.65 m^2/s^2
Maximum speed	57.99 km/h	Relative positive cubic speed	44.88 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	72.42 m^2/s^2
Average positive acceleration	0.218 m/s^2	Root mean square of acceleration	0.140 m/s^2

Cycle No: 26

Cycle name: **New York Bus Cycle**
Alternative name: **NYBus cycle**
Test programme: **US cycles**
Additional info:
Vehicle category: **Buses**

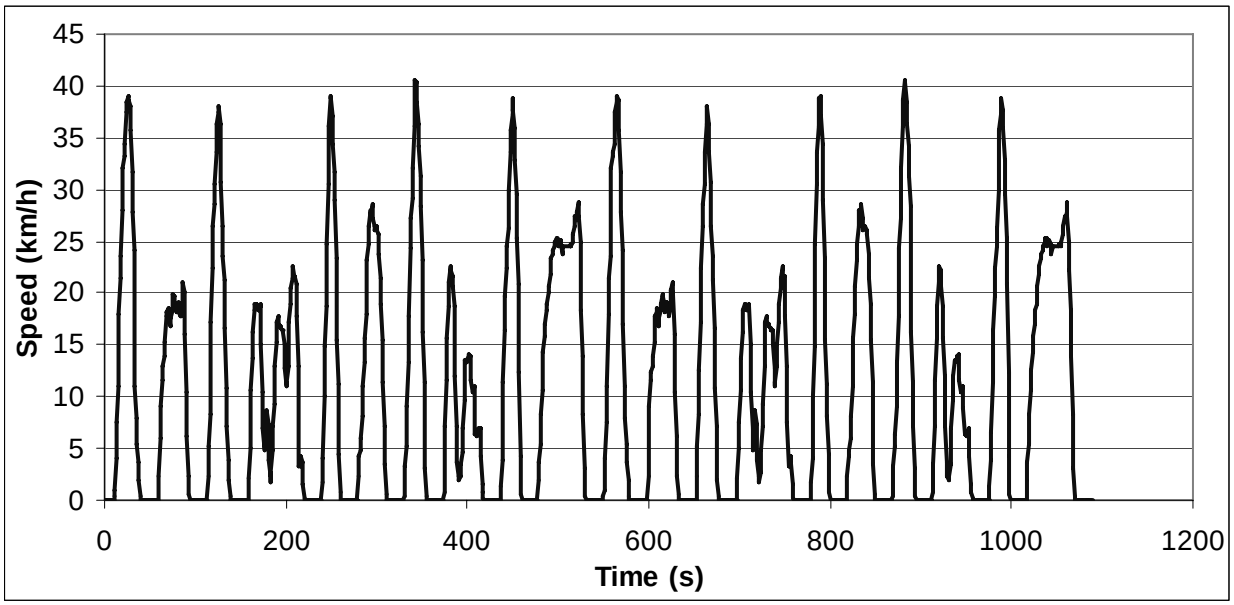


ART.KINEMA parameters

Total distance	995.59 m	Average negative acceleration	-0.498 m/s^2
Total time	600 s	Standard deviation of accel.	0.684 m/s^2
Driving time	272 s	Standard dev. of positive accel.	0.485 m/s^2
Drive time	59 s	Accel: 75th - 25th percentile	0.000 m/s^2
Drive time spent accelerating	103 s	Number of accelerations	17
Drive time spent decelerating	110 s	Accelerations per km	17.075 /km
Time spent braking	80 s	Number of stops	11
Standing time	328 s	Stops per km	11.05 /km
% of time driving	45.33 %	Average stop duration	29.82 s
% of cruising	9.83 %	Average distance between stops	90.51 m
% of time accelerating	17.17 %	Relative positive acceleration	0.2533 m/s^2
% of time decelerating	18.33 %	Positive kinetic energy	6.619 m/s^2
% of time braking	13.33 %	Relative positive speed	0.505
% of time standing	54.67 %	Relative real speed	0.734
Average speed (trip)	6.0 km/h	Relative square speed	6.538 m/s
Average driving speed	13.18 km/h	Relative positive square speed	3.107 m/s
Standard deviation of speed	11.7 km/h	Relative real square speed	4.979 m/s
Speed: 75th - 25th percentile	9.65 km/h	Relative cubic speed	53.17 m^2/s^2
Maximum speed	47.72 km/h	Relative positive cubic speed	22.95 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	40.85 m^2/s^2
Average positive acceleration	0.513 m/s^2	Root mean square of acceleration	0.357 m/s^2

Cycle No: 27

Cycle name: **Manhattan Bus Cycle**
Alternative name:
Test programme: **US cycles**
Additional info:
Vehicle category: **Buses**

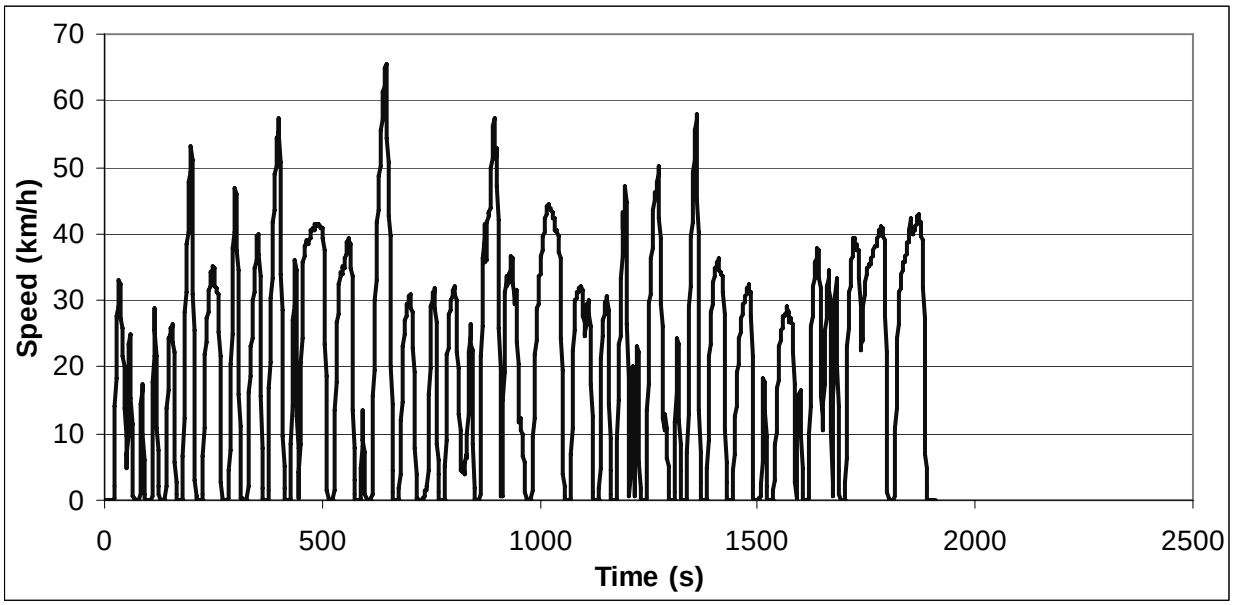


ART.KINEMA parameters

Total distance	3332.81 m	Average negative acceleration	-0.504 m/s^2
Total time	1089 s	Standard deviation of accel.	0.635 m/s^2
Driving time	794 s	Standard dev. of positive accel.	0.372 m/s^2
Drive time	140 s	Accel: 75th - 25th percentile	0.320 m/s^2
Drive time spent accelerating	352 s	Number of accelerations	32
Drive time spent decelerating	302 s	Accelerations per km	9.602 /km
Time spent braking	220 s	Number of stops	21
Standing time	295 s	Stops per km	6.3 /km
% of time driving	72.91 %	Average stop duration	14.05 s
% of cruising	12.86 %	Average distance between stops	158.71 m
% of time accelerating	32.32 %	Relative positive acceleration	0.2488 m/s^2
% of time decelerating	27.73 %	Positive kinetic energy	6.479 m/s^2
% of time braking	20.20 %	Relative positive speed	0.545
% of time standing	27.09 %	Relative real speed	0.722
Average speed (trip)	11.0 km/h	Relative square speed	6.504 m/s
Average driving speed	15.11 km/h	Relative positive square speed	3.558 m/s
Standard deviation of speed	11.21 km/h	Relative real square speed	4.733 m/s
Speed: 75th - 25th percentile	19.18 km/h	Relative cubic speed	48.96 m^2/s^2
Maximum speed	39.09 km/h	Relative positive cubic speed	26.67 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	35.47 m^2/s^2
Average positive acceleration	0.453 m/s^2	Root mean square of acceleration	0.310 m/s^2

Cycle No: 28

Cycle name: **Orange County Bus (OC Bus) Cycle**
Alternative name:
Test programme: **US cycles**
Additional info: **West Virginia University (WVU)**
Vehicle category: **Buses**

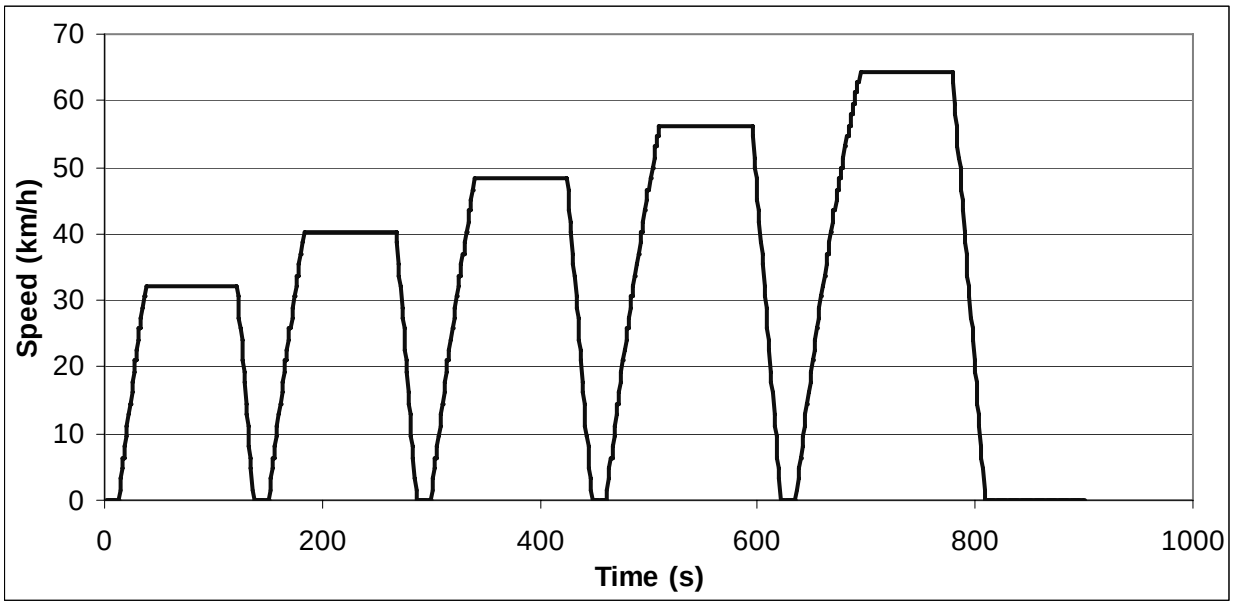


ART.KINEMA parameters

Total distance	10529.75 m	Average negative acceleration	-0.584 m/s^2
Total time	1909 s	Standard deviation of accel.	0.663 m/s^2
Driving time	1592 s	Standard dev. of positive accel.	0.375 m/s^2
Drive time	252 s	Accel: 75th - 25th percentile	0.424 m/s^2
Drive time spent accelerating	794 s	Number of accelerations	62
Drive time spent decelerating	546 s	Accelerations per km	5.888 /km
Time spent braking	404 s	Number of stops	32
Standing time	317 s	Stops per km	3.04 /km
% of time driving	83.39 %	Average stop duration	9.91 s
% of cruising	13.20 %	Average distance between stops	329.05 m
% of time accelerating	41.59 %	Relative positive acceleration	0.2062 m/s^2
% of time decelerating	28.60 %	Positive kinetic energy	5.373 m/s^2
% of time braking	21.16 %	Relative positive speed	0.613
% of time standing	16.61 %	Relative real speed	0.788
Average speed (trip)	19.9 km/h	Relative square speed	9.328 m/s
Average driving speed	23.81 km/h	Relative positive square speed	5.771 m/s
Standard deviation of speed	15.26 km/h	Relative real square speed	7.567 m/s
Speed: 75th - 25th percentile	32.3 km/h	Relative cubic speed	97.30 m^2/s^2
Maximum speed	64.79 km/h	Relative positive cubic speed	60.38 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	79.74 m^2/s^2
Average positive acceleration	0.413 m/s^2	Root mean square of acceleration	0.258 m/s^2

Cycle No: 29

Cycle name: **WVU 5-Peak (Truck) Cycle**
Alternative name:
Test programme: **US cycles**
Additional info: **West Virginia University (WVU)**
Vehicle category: **HGVs**

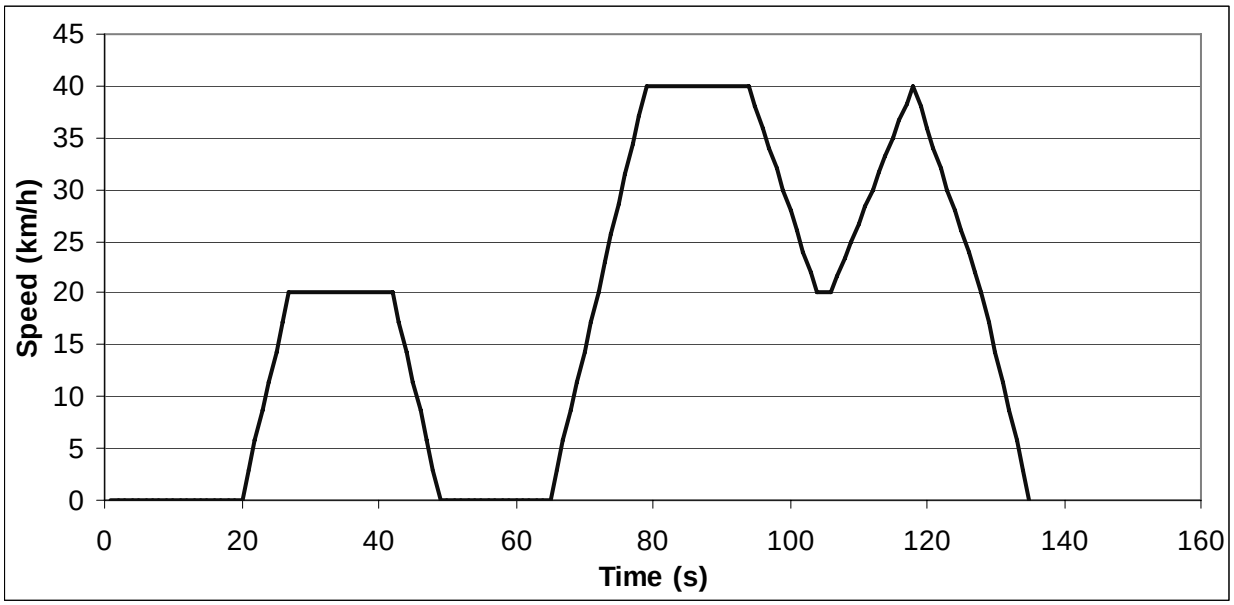


ART.KINEMA parameters

Total distance	8069.18 m	Average negative acceleration	-0.373 m/s^2
Total time	900 s	Standard deviation of accel.	0.278 m/s^2
Driving time	768 s	Standard dev. of positive accel.	0.129 m/s^2
Drive time	420 s	Accel: 75th - 25th percentile	0.027 m/s^2
Drive time spent accelerating	220 s	Number of accelerations	5
Drive time spent decelerating	128 s	Accelerations per km	0.620 /km
Time spent braking	116 s	Number of stops	6
Standing time	132 s	Stops per km	0.74 /km
% of time driving	85.33 %	Average stop duration	22 s
% of cruising	46.67 %	Average distance between stops	1344.86 m
% of time accelerating	24.44 %	Relative positive acceleration	0.0591 m/s^2
% of time decelerating	14.22 %	Positive kinetic energy	1.533 m/s^2
% of time braking	12.89 %	Relative positive speed	0.277
% of time standing	14.67 %	Relative real speed	0.897
Average speed (trip)	32.3 km/h	Relative square speed	13.000 m/s
Average driving speed	37.82 km/h	Relative positive square speed	3.193 m/s
Standard deviation of speed	18.44 km/h	Relative real square speed	11.967 m/s
Speed: 75th - 25th percentile	37.07 km/h	Relative cubic speed	183.69 m^2/s^2
Maximum speed	64.48 km/h	Relative positive cubic speed	41.52 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	171.58 m^2/s^2
Average positive acceleration	0.253 m/s^2	Root mean square of acceleration	0.086 m/s^2

Cycle No: 30

Cycle name: **JP 10 Mode**
Alternative name:
Test programme: **Japanese legislative cycles**
Additional info: **Replaced by the newer 10-15 mode cycle**
Vehicle category: **Cars**

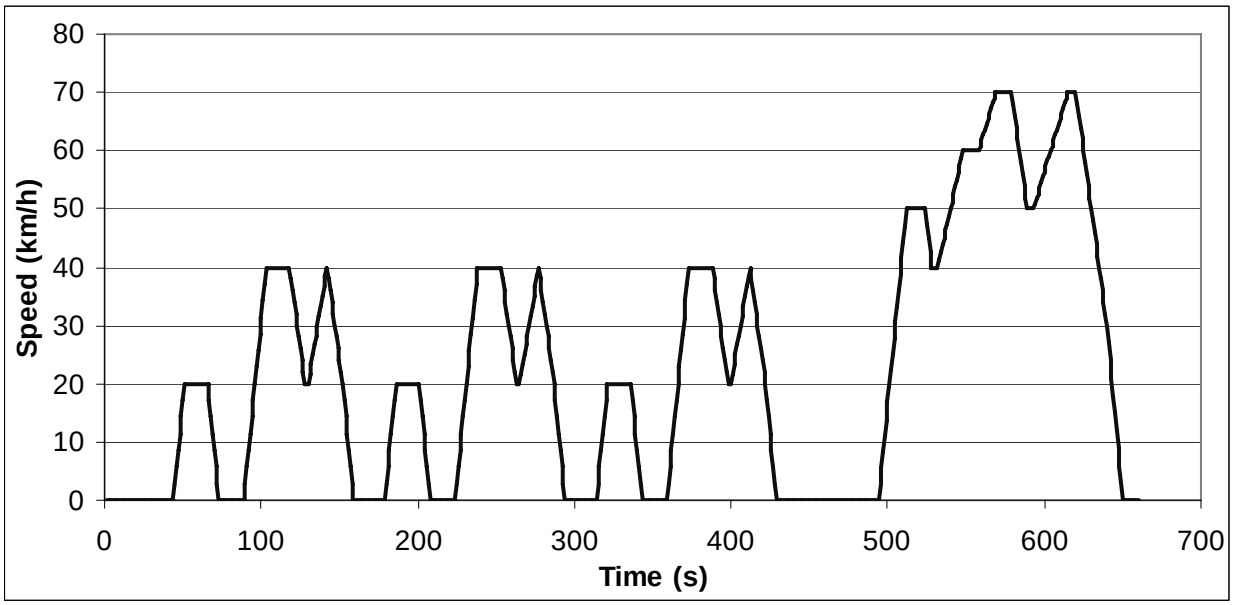


ART.KINEMA parameters

Total distance	663.43 m	Average negative acceleration	-0.406 m/s^2
Total time	135 s	Standard deviation of accel.	0.507 m/s^2
Driving time	107 s	Standard dev. of positive accel.	0.306 m/s^2
Drive time	29 s	Accel: 75th - 25th percentile	0.584 m/s^2
Drive time spent accelerating	39 s	Number of accelerations	3
Drive time spent decelerating	39 s	Accelerations per km	4.522 /km
Time spent braking	34 s	Number of stops	2
Standing time	28 s	Stops per km	3.01 /km
% of time driving	79.26 %	Average stop duration	14 s
% of cruising	21.48 %	Average distance between stops	331.71 m
% of time accelerating	28.89 %	Relative positive acceleration	0.1758 m/s^2
% of time decelerating	28.89 %	Positive kinetic energy	4.577 m/s^2
% of time braking	25.19 %	Relative positive speed	0.482
% of time standing	20.74 %	Relative real speed	0.707
Average speed (trip)	17.7 km/h	Relative square speed	8.206 m/s
Average driving speed	22.32 km/h	Relative positive square speed	3.939 m/s
Standard deviation of speed	12.75 km/h	Relative real square speed	5.995 m/s
Speed: 75th - 25th percentile	29.71 km/h	Relative cubic speed	74.35 m^2/s^2
Maximum speed	40.09 km/h	Relative positive cubic speed	35.63 m^2/s^2
Average acceleration	-0.004 m/s^2	Relative real cubic speed	55.93 m^2/s^2
Average positive acceleration	0.407 m/s^2	Root mean square of acceleration	0.203 m/s^2

Cycle No: 31

Cycle name: **JP 10-15 Mode (3 x 10-mode + 1 x 15-mode)**
Alternative name:
Test programme: **Japanese legislative cycles**
Additional info:
Vehicle category: **Cars**

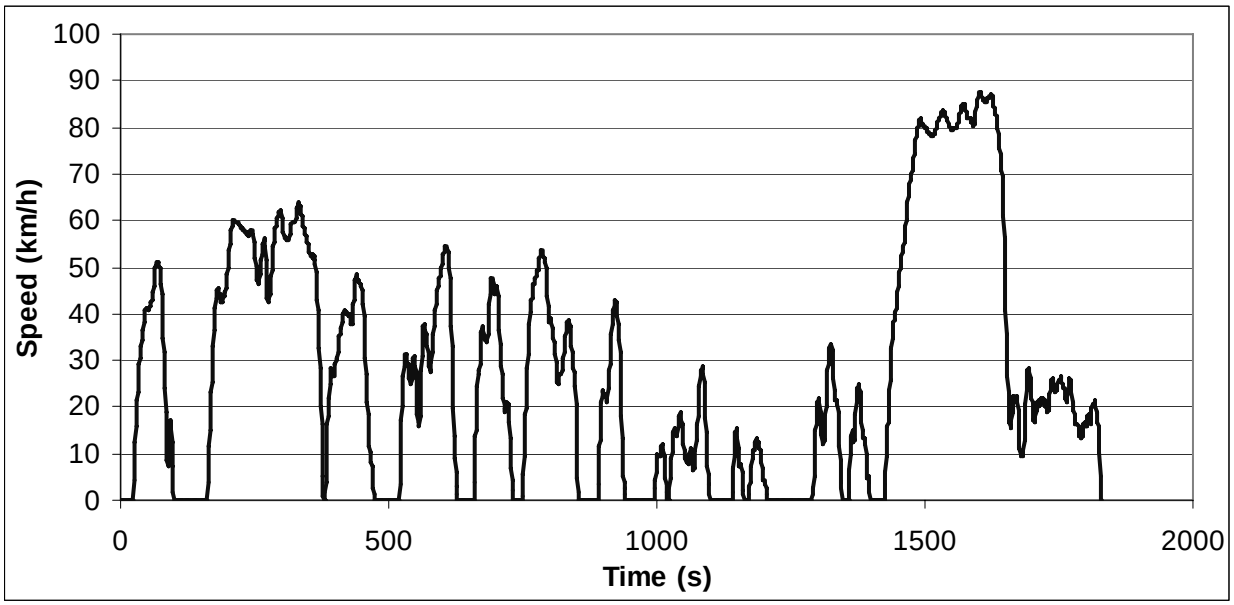


ART.KINEMA parameters

Total distance	4165.27 m	Average negative acceleration	-0.389 m/s^2
Total time	660 s	Standard deviation of accel.	0.474 m/s^2
Driving time	488 s	Standard dev. of positive accel.	0.285 m/s^2
Drive time	120 s	Accel: 75th - 25th percentile	0.373 m/s^2
Drive time spent accelerating	195 s	Number of accelerations	13
Drive time spent decelerating	173 s	Accelerations per km	3.121 /km
Time spent braking	149 s	Number of stops	8
Standing time	172 s	Stops per km	1.92 /km
% of time driving	73.94 %	Average stop duration	21.5 s
% of cruising	18.18 %	Average distance between stops	520.66 m
% of time accelerating	29.55 %	Relative positive acceleration	0.1605 m/s^2
% of time decelerating	26.21 %	Positive kinetic energy	4.171 m/s^2
% of time braking	22.58 %	Relative positive speed	0.534
% of time standing	26.06 %	Relative real speed	0.722
Average speed (trip)	22.7 km/h	Relative square speed	12.030 m/s
Average driving speed	30.73 km/h	Relative positive square speed	6.681 m/s
Standard deviation of speed	19.68 km/h	Relative real square speed	8.971 m/s
Speed: 75th - 25th percentile	39.82 km/h	Relative cubic speed	167.51 m^2/s^2
Maximum speed	70.09 km/h	Relative positive cubic speed	96.02 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	127.66 m^2/s^2
Average positive acceleration	0.370 m/s^2	Root mean square of acceleration	0.162 m/s^2

Cycle No: 32

Cycle name: **Japanese New Transient Mode (JE05)**
Alternative name:
Test programme: **Japanese legislative cycles**
Additional info: **For vehicles > 3500 kg GVW**
Vehicle category: **HGVs**

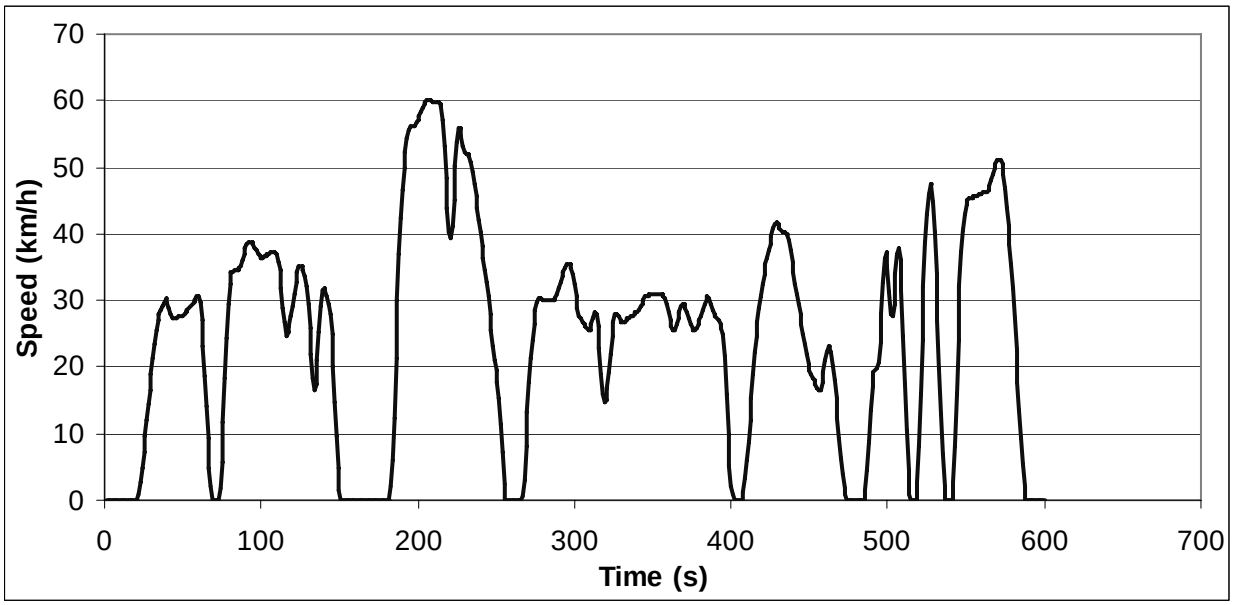


ART.KINEMA parameters

Total distance	13897.4 m	Average negative acceleration	-0.299 m/s^2
Total time	1829 s	Standard deviation of accel.	0.413 m/s^2
Driving time	1440 s	Standard dev. of positive accel.	0.252 m/s^2
Drive time	294 s	Accel: 75th - 25th percentile	0.261 m/s^2
Drive time spent accelerating	601 s	Number of accelerations	56
Drive time spent decelerating	545 s	Accelerations per km	4.030 /km
Time spent braking	297 s	Number of stops	12
Standing time	389 s	Stops per km	0.86 /km
% of time driving	78.73 %	Average stop duration	32.42 s
% of cruising	16.07 %	Average distance between stops	1158.12 m
% of time accelerating	32.86 %	Relative positive acceleration	0.1162 m/s^2
% of time decelerating	29.80 %	Positive kinetic energy	3.029 m/s^2
% of time braking	16.24 %	Relative positive speed	0.508
% of time standing	21.27 %	Relative real speed	0.849
Average speed (trip)	27.4 km/h	Relative square speed	14.276 m/s
Average driving speed	34.74 km/h	Relative positive square speed	7.125 m/s
Standard deviation of speed	24.06 km/h	Relative real square speed	12.670 m/s
Speed: 75th - 25th percentile	43.98 km/h	Relative cubic speed	244.49 m^2/s^2
Maximum speed	87.49 km/h	Relative positive cubic speed	119.32 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	223.36 m^2/s^2
Average positive acceleration	0.293 m/s^2	Root mean square of acceleration	0.133 m/s^2

Cycle No: 33

Cycle name: **World Motorcycle Test Cycle (WMTC): part 1**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

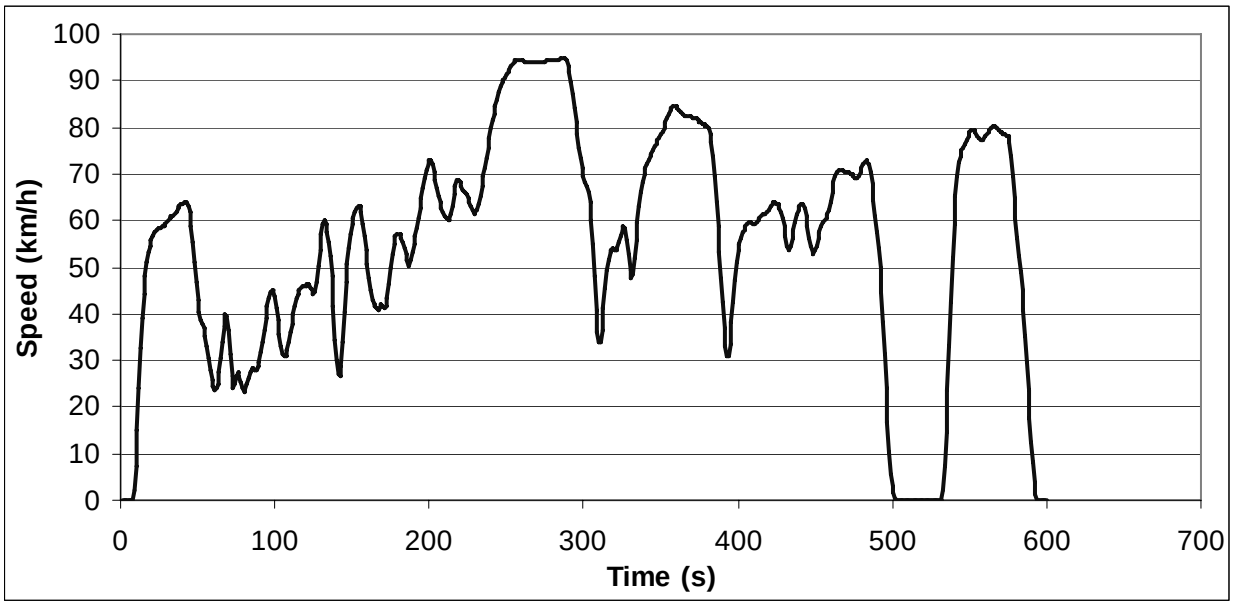


ART.KINEMA parameters

Total distance	4065.26 m	Average negative acceleration	-0.502 m/s^2
Total time	600 s	Standard deviation of accel.	0.691 m/s^2
Driving time	506 s	Standard dev. of positive accel.	0.526 m/s^2
Drive time	128 s	Accel: 75th - 25th percentile	0.386 m/s^2
Drive time spent accelerating	186 s	Number of accelerations	25
Drive time spent decelerating	193 s	Accelerations per km	6.150 /km
Time spent braking	138 s	Number of stops	9
Standing time	94 s	Stops per km	2.21 /km
% of time driving	84.33 %	Average stop duration	10.44 s
% of cruising	21.33 %	Average distance between stops	451.7 m
% of time accelerating	31.00 %	Relative positive acceleration	0.1961 m/s^2
% of time decelerating	32.17 %	Positive kinetic energy	0.398 m/s^2
% of time braking	23.00 %	Relative positive speed	0.538
% of time standing	15.67 %	Relative real speed	0.763
Average speed (trip)	24.4 km/h	Relative square speed	9.938 m/s
Average driving speed	28.92 km/h	Relative positive square speed	5.375 m/s
Standard deviation of speed	14.09 km/h	Relative real square speed	7.720 m/s
Speed: 75th - 25th percentile	26.17 km/h	Relative cubic speed	109.99 m^2/s^2
Maximum speed	59.99 km/h	Relative positive cubic speed	59.39 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	86.54 m^2/s^2
Average positive acceleration	0.447 m/s^2	Root mean square of acceleration	0.244 m/s^2

Cycle No: 34

Cycle name: **World Motorcycle Test Cycle (WMTC): part 2**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

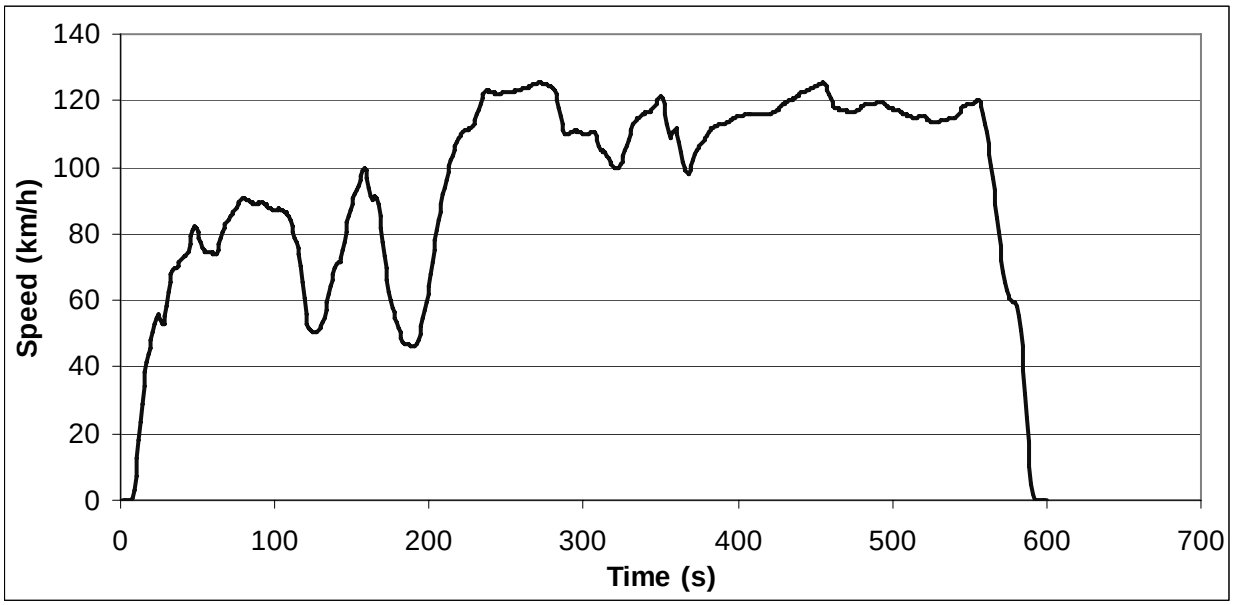


ART.KINEMA parameters

Total distance	9111.39 m	Average negative acceleration	-0.490 m/s^2
Total time	600 s	Standard deviation of accel.	0.676 m/s^2
Driving time	558 s	Standard dev. of positive accel.	0.487 m/s^2
Drive time	144 s	Accel: 75th - 25th percentile	0.473 m/s^2
Drive time spent accelerating	234 s	Number of accelerations	51
Drive time spent decelerating	181 s	Accelerations per km	5.597 /km
Time spent braking	143 s	Number of stops	3
Standing time	42 s	Stops per km	0.33 /km
% of time driving	93.00 %	Average stop duration	14 s
% of cruising	24.00 %	Average distance between stops	3037.13 m
% of time accelerating	39.00 %	Relative positive acceleration	0.1881 m/s^2
% of time decelerating	30.17 %	Positive kinetic energy	0.380 m/s^2
% of time braking	23.83 %	Relative positive speed	0.537
% of time standing	7.00 %	Relative real speed	0.783
Average speed (trip)	54.7 km/h	Relative square speed	18.370 m/s
Average driving speed	58.78 km/h	Relative positive square speed	9.808 m/s
Standard deviation of speed	20.8 km/h	Relative real square speed	14.904 m/s
Speed: 75th - 25th percentile	30.16 km/h	Relative cubic speed	361.69 m^2/s^2
Maximum speed	94.91 km/h	Relative positive cubic speed	191.73 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	301.90 m^2/s^2
Average positive acceleration	0.429 m/s^2	Root mean square of acceleration	0.167 m/s^2

Cycle No: 35

Cycle name: **World Motorcycle Test Cycle (WMTC): part 3**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

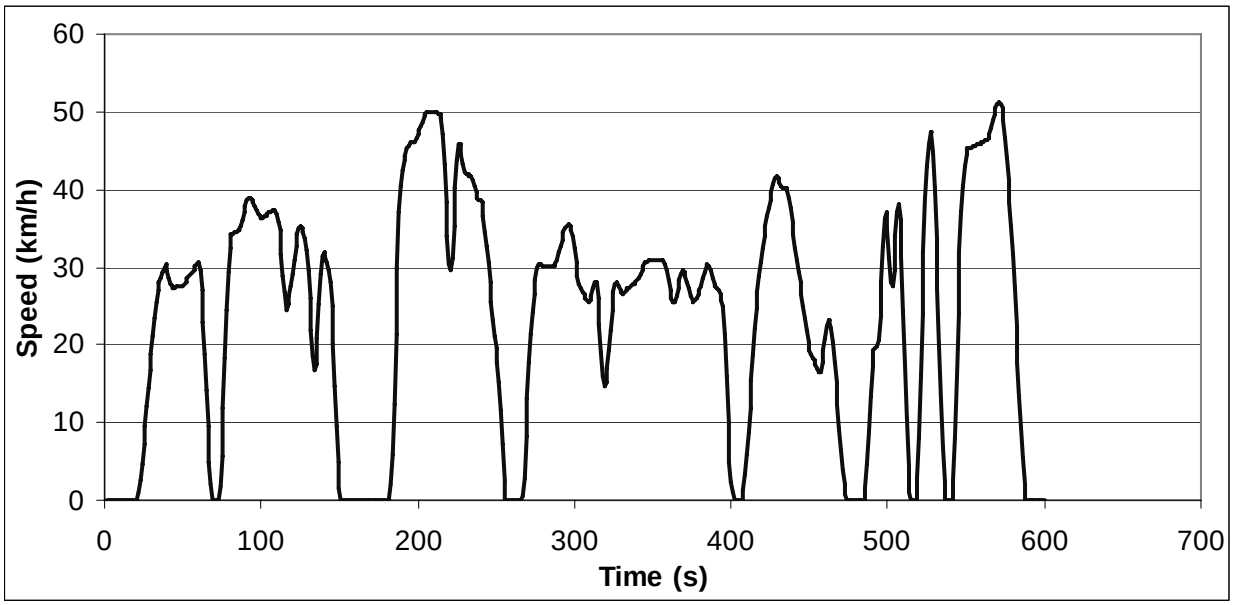


ART.KINEMA parameters

Total distance	15736.27 m	Average negative acceleration	-0.341 m/s^2
Total time	600 s	Standard deviation of accel.	0.450 m/s^2
Driving time	586 s	Standard dev. of positive accel.	0.286 m/s^2
Drive time	272 s	Accel: 75th - 25th percentile	0.222 m/s^2
Drive time spent accelerating	178 s	Number of accelerations	66
Drive time spent decelerating	137 s	Accelerations per km	4.194 /km
Time spent braking	97 s	Number of stops	2
Standing time	14 s	Stops per km	0.13 /km
% of time driving	97.67 %	Average stop duration	7 s
% of cruising	45.33 %	Average distance between stops	7868.13 m
% of time accelerating	29.67 %	Relative positive acceleration	0.1107 m/s^2
% of time decelerating	22.83 %	Positive kinetic energy	0.224 m/s^2
% of time braking	16.17 %	Relative positive speed	0.604
% of time standing	2.33 %	Relative real speed	0.862
Average speed (trip)	94.4 km/h	Relative square speed	28.967 m/s
Average driving speed	96.67 km/h	Relative positive square speed	17.779 m/s
Standard deviation of speed	27.14 km/h	Relative real square speed	25.446 m/s
Speed: 75th - 25th percentile	40.07 km/h	Relative cubic speed	872.43 m^2/s^2
Maximum speed	125.31 km/h	Relative positive cubic speed	541.77 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	776.64 m^2/s^2
Average positive acceleration	0.236 m/s^2	Root mean square of acceleration	0.087 m/s^2

Cycle No: 36

Cycle name: **World Motorcycle Test Cycle (WMTC): part 1, reduced speed**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

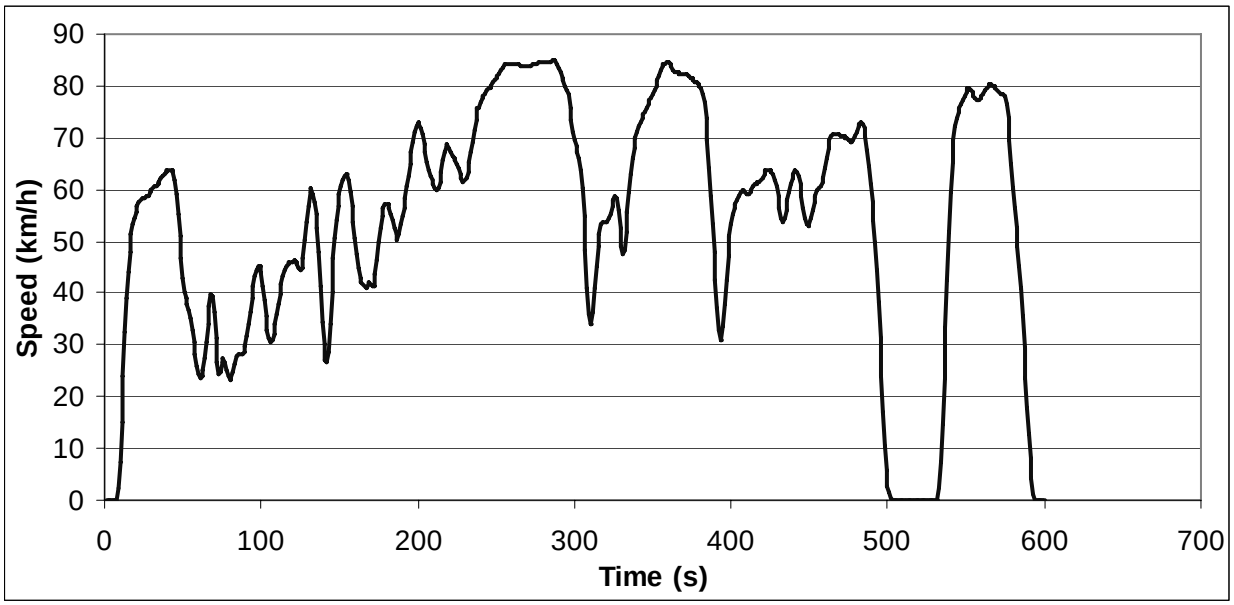


ART.KINEMA parameters

Total distance	3937.01 m	Average negative acceleration	-0.448 m/s^2
Total time	600 s	Standard deviation of accel.	0.632 m/s^2
Driving time	525 s	Standard dev. of positive accel.	0.485 m/s^2
Drive time	111 s	Accel: 75th - 25th percentile	0.329 m/s^2
Drive time spent accelerating	207 s	Number of accelerations	23
Drive time spent decelerating	207 s	Accelerations per km	5.842 /km
Time spent braking	131 s	Number of stops	8
Standing time	75 s	Stops per km	2.03 /km
% of time driving	87.50 %	Average stop duration	9.38 s
% of cruising	18.50 %	Average distance between stops	492.13 m
% of time accelerating	34.50 %	Relative positive acceleration	0.1746 m/s^2
% of time decelerating	34.50 %	Positive kinetic energy	4.566 m/s^2
% of time braking	21.83 %	Relative positive speed	0.551
% of time standing	12.50 %	Relative real speed	0.792
Average speed (trip)	23.6 km/h	Relative square speed	9.319 m/s
Average driving speed	27 km/h	Relative positive square speed	5.274 m/s
Standard deviation of speed	13.31 km/h	Relative real square speed	7.602 m/s
Speed: 75th - 25th percentile	25.71 km/h	Relative cubic speed	94.03 m^2/s^2
Maximum speed	49.99 km/h	Relative positive cubic speed	54.69 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	78.31 m^2/s^2
Average positive acceleration	0.398 m/s^2	Root mean square of acceleration	0.231 m/s^2

Cycle No: 37

Cycle name: **World Motorcycle Test Cycle (WMTC): part 2, reduced speed**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

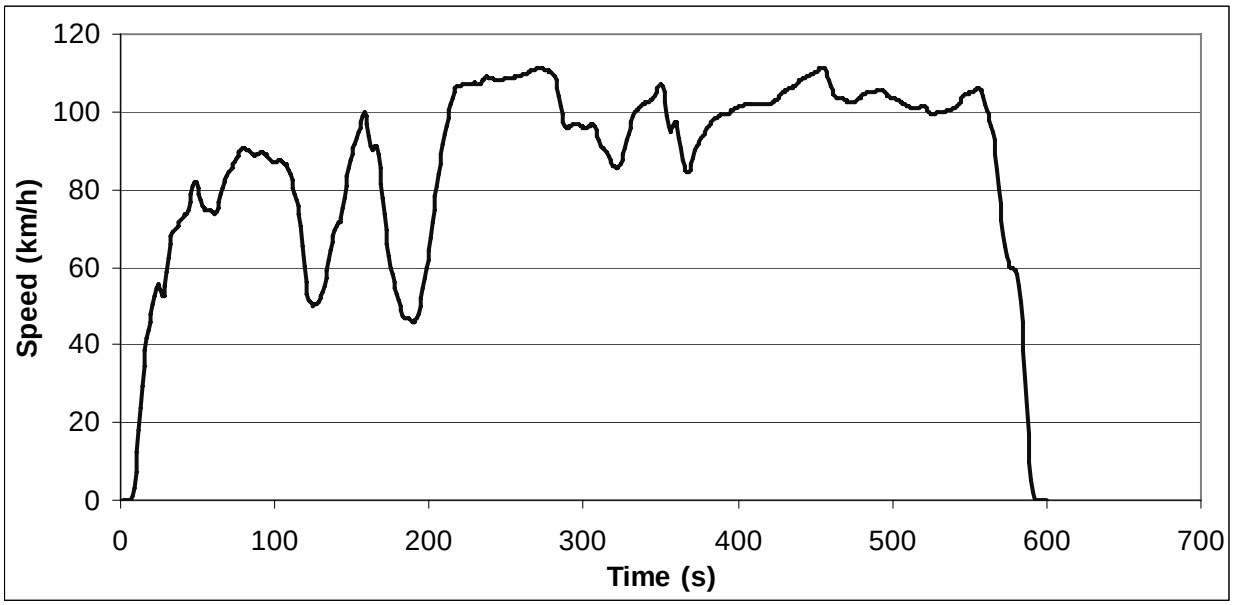


ART.KINEMA parameters

Total distance	8971.83 m	Average negative acceleration	-0.470 m/s^2
Total time	600 s	Standard deviation of accel.	0.654 m/s^2
Driving time	563 s	Standard dev. of positive accel.	0.483 m/s^2
Drive time	118 s	Accel: 75th - 25th percentile	0.415 m/s^2
Drive time spent accelerating	247 s	Number of accelerations	48
Drive time spent decelerating	198 s	Accelerations per km	5.350 /km
Time spent braking	136 s	Number of stops	3
Standing time	37 s	Stops per km	0.33 /km
% of time driving	93.83 %	Average stop duration	12.33 s
% of cruising	19.67 %	Average distance between stops	2990.61 m
% of time accelerating	41.17 %	Relative positive acceleration	0.1776 m/s^2
% of time decelerating	33.00 %	Positive kinetic energy	4.638 m/s^2
% of time braking	22.67 %	Relative positive speed	0.544
% of time standing	6.17 %	Relative real speed	0.793
Average speed (trip)	53.8 km/h	Relative square speed	17.885 m/s
Average driving speed	57.37 km/h	Relative positive square speed	9.602 m/s
Standard deviation of speed	20.08 km/h	Relative real square speed	14.651 m/s
Speed: 75th - 25th percentile	30.1 km/h	Relative cubic speed	338.96 m^2/s^2
Maximum speed	84.85 km/h	Relative positive cubic speed	179.10 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	285.05 m^2/s^2
Average positive acceleration	0.395 m/s^2	Root mean square of acceleration	0.164 m/s^2

Cycle No: 38

Cycle name: **World Motorcycle Test Cycle (WMTC): part 3, reduced speed**
Alternative name:
Test programme: **Legislative motorcycle cycles**
Additional info:
Vehicle category: **Motorcycles**

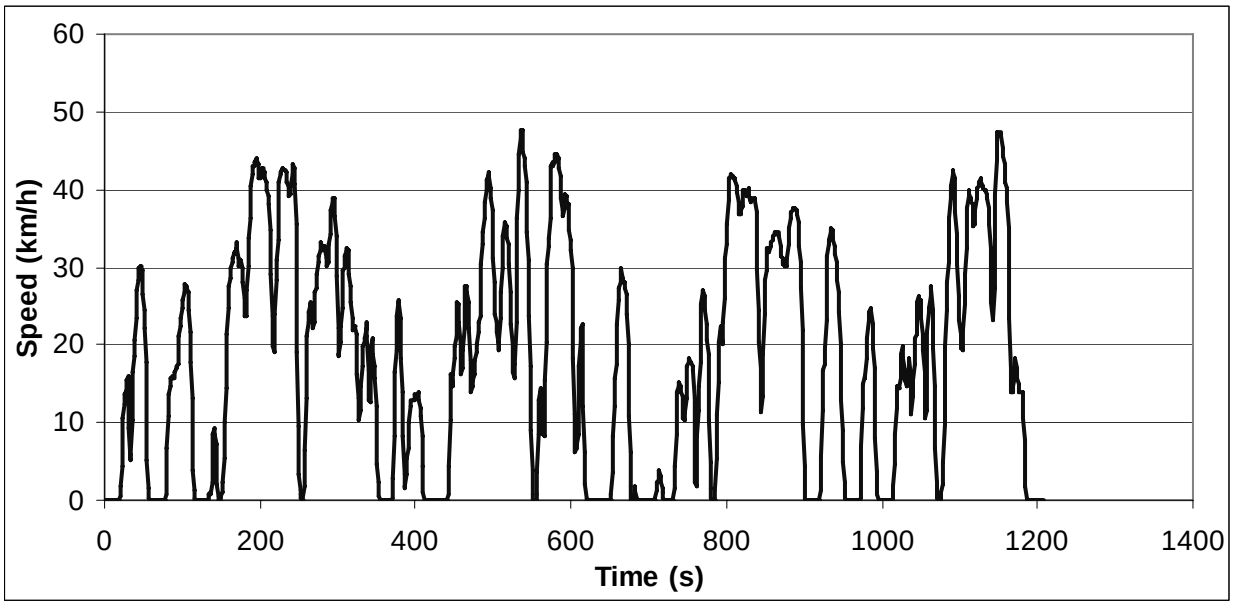


ART.KINEMA parameters

Total distance	14435.72 m	Average negative acceleration	-0.313 m/s^2
Total time	600 s	Standard deviation of accel.	0.430 m/s^2
Driving time	588 s	Standard dev. of positive accel.	0.285 m/s^2
Drive time	217 s	Accel: 75th - 25th percentile	0.188 m/s^2
Drive time spent accelerating	212 s	Number of accelerations	68
Drive time spent decelerating	159 s	Accelerations per km	4.711 /km
Time spent braking	94 s	Number of stops	2
Standing time	12 s	Stops per km	0.14 /km
% of time driving	98.00 %	Average stop duration	6 s
% of cruising	36.17 %	Average distance between stops	7217.86 m
% of time accelerating	35.33 %	Relative positive acceleration	0.1044 m/s^2
% of time decelerating	26.50 %	Positive kinetic energy	2.719 m/s^2
% of time braking	15.67 %	Relative positive speed	0.597
% of time standing	2.00 %	Relative real speed	0.862
Average speed (trip)	86.6 km/h	Relative square speed	26.127 m/s
Average driving speed	88.38 km/h	Relative positive square speed	15.856 m/s
Standard deviation of speed	22.42 km/h	Relative real square speed	22.851 m/s
Speed: 75th - 25th percentile	26.75 km/h	Relative cubic speed	702.80 m^2/s^2
Maximum speed	111.31 km/h	Relative positive cubic speed	431.94 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	621.62 m^2/s^2
Average positive acceleration	0.222 m/s^2	Root mean square of acceleration	0.087 m/s^2

Cycle No: 39

Cycle name: **TRL WSL Urban: large car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

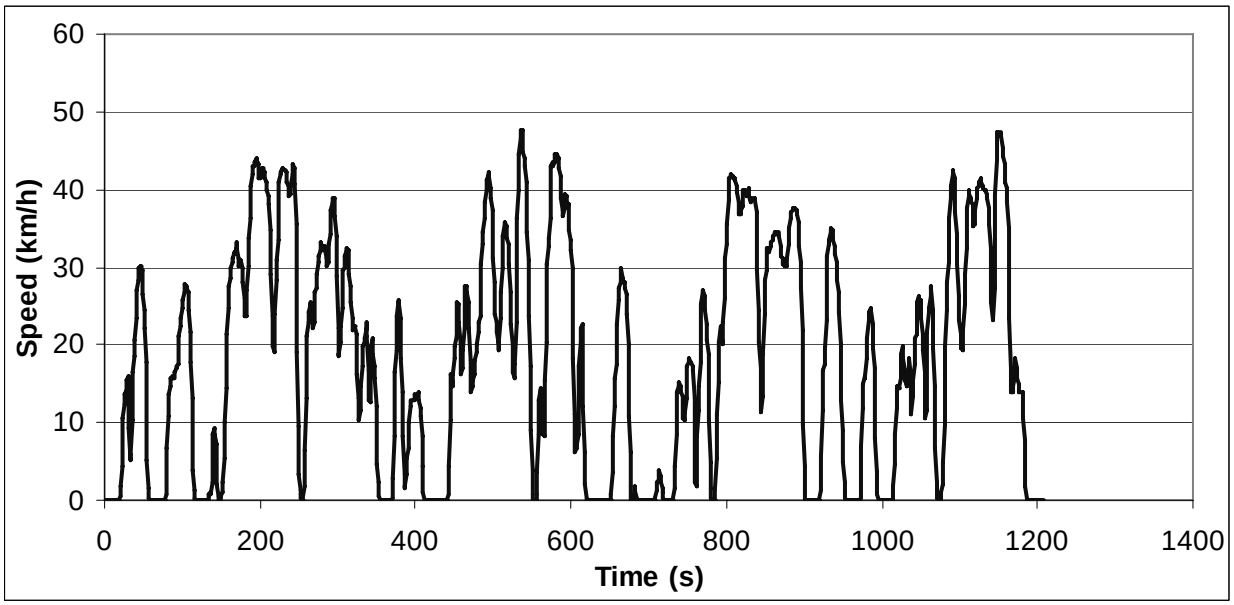


ART.KINEMA parameters

Total distance	6151.97 m	Average negative acceleration	-0.453 m/s^2
Total time	1207 s	Standard deviation of accel.	0.596 m/s^2
Driving time	992 s	Standard dev. of positive accel.	0.364 m/s^2
Drive time	158 s	Accel: 75th - 25th percentile	0.418 m/s^2
Drive time spent accelerating	438 s	Number of accelerations	51
Drive time spent decelerating	396 s	Accelerations per km	8.290 /km
Time spent braking	261 s	Number of stops	15
Standing time	215 s	Stops per km	2.44 /km
% of time driving	82.19 %	Average stop duration	14.33 s
% of cruising	13.09 %	Average distance between stops	410.13 m
% of time accelerating	36.29 %	Relative positive acceleration	0.1968 m/s^2
% of time decelerating	32.81 %	Positive kinetic energy	5.151 m/s^2
% of time braking	21.62 %	Relative positive speed	0.502
% of time standing	17.81 %	Relative real speed	0.755
Average speed (trip)	18.4 km/h	Relative square speed	8.412 m/s
Average driving speed	22.33 km/h	Relative positive square speed	4.095 m/s
Standard deviation of speed	13.34 km/h	Relative real square speed	6.522 m/s
Speed: 75th - 25th percentile	29.86 km/h	Relative cubic speed	78.89 m^2/s^2
Maximum speed	47.67 km/h	Relative positive cubic speed	37.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	62.37 m^2/s^2
Average positive acceleration	0.420 m/s^2	Root mean square of acceleration	0.239 m/s^2

Cycle No: 40

Cycle name: **TRL WSL Urban: medium car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

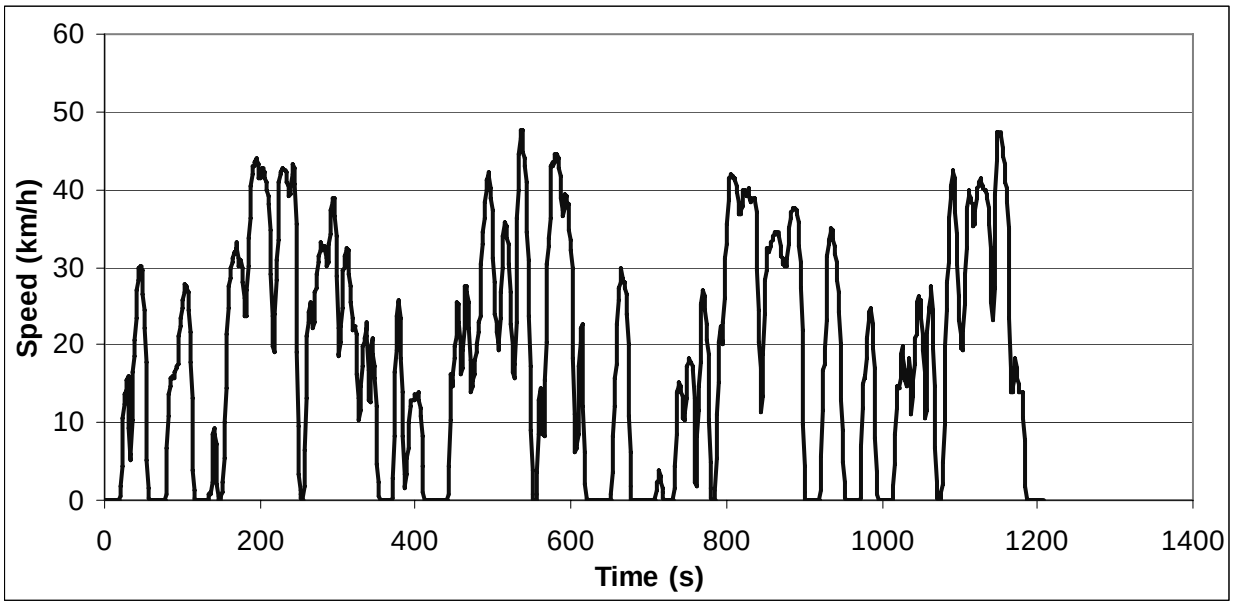


ART.KINEMA parameters

Total distance	6151.92 m	Average negative acceleration	-0.453 m/s^2
Total time	1207 s	Standard deviation of accel.	0.596 m/s^2
Driving time	992 s	Standard dev. of positive accel.	0.364 m/s^2
Drive time	158 s	Accel: 75th - 25th percentile	0.418 m/s^2
Drive time spent accelerating	438 s	Number of accelerations	51
Drive time spent decelerating	396 s	Accelerations per km	8.290 /km
Time spent braking	261 s	Number of stops	15
Standing time	215 s	Stops per km	2.44 /km
% of time driving	82.19 %	Average stop duration	14.33 s
% of cruising	13.09 %	Average distance between stops	410.13 m
% of time accelerating	36.29 %	Relative positive acceleration	0.1968 m/s^2
% of time decelerating	32.81 %	Positive kinetic energy	5.151 m/s^2
% of time braking	21.62 %	Relative positive speed	0.502
% of time standing	17.81 %	Relative real speed	0.755
Average speed (trip)	18.4 km/h	Relative square speed	8.412 m/s
Average driving speed	22.33 km/h	Relative positive square speed	4.095 m/s
Standard deviation of speed	13.34 km/h	Relative real square speed	6.522 m/s
Speed: 75th - 25th percentile	29.86 km/h	Relative cubic speed	78.89 m^2/s^2
Maximum speed	47.67 km/h	Relative positive cubic speed	37.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	62.37 m^2/s^2
Average positive acceleration	0.420 m/s^2	Root mean square of acceleration	0.239 m/s^2

Cycle No: 41

Cycle name: **TRL WSL Urban: small car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

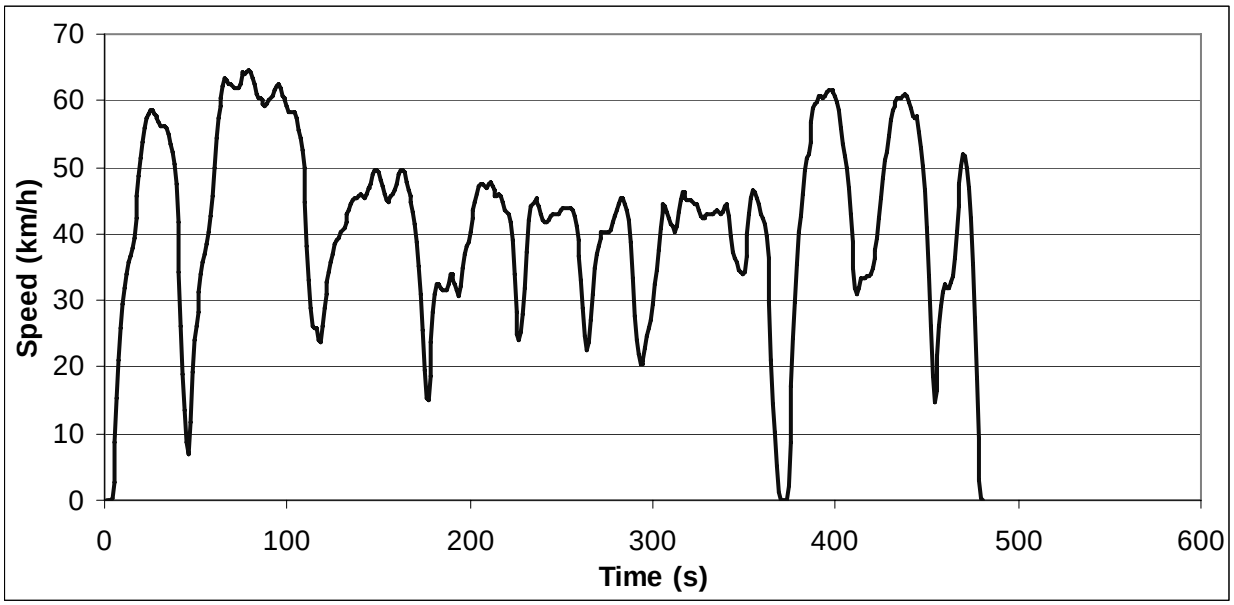


ART.KINEMA parameters

Total distance	6150.76 m	Average negative acceleration	-0.457 m/s^2
Total time	1207 s	Standard deviation of accel.	0.598 m/s^2
Driving time	984 s	Standard dev. of positive accel.	0.364 m/s^2
Drive time	154 s	Accel: 75th - 25th percentile	0.418 m/s^2
Drive time spent accelerating	436 s	Number of accelerations	50
Drive time spent decelerating	394 s	Accelerations per km	8.129 /km
Time spent braking	261 s	Number of stops	15
Standing time	223 s	Stops per km	2.44 /km
% of time driving	81.52 %	Average stop duration	14.87 s
% of cruising	12.76 %	Average distance between stops	410.05 m
% of time accelerating	36.12 %	Relative positive acceleration	0.1969 m/s^2
% of time decelerating	32.64 %	Positive kinetic energy	5.152 m/s^2
% of time braking	21.62 %	Relative positive speed	0.502
% of time standing	18.48 %	Relative real speed	0.755
Average speed (trip)	18.4 km/h	Relative square speed	8.413 m/s
Average driving speed	22.5 km/h	Relative positive square speed	4.095 m/s
Standard deviation of speed	13.24 km/h	Relative real square speed	6.523 m/s
Speed: 75th - 25th percentile	30.02 km/h	Relative cubic speed	78.90 m^2/s^2
Maximum speed	47.67 km/h	Relative positive cubic speed	37.47 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	62.38 m^2/s^2
Average positive acceleration	0.423 m/s^2	Root mean square of acceleration	0.239 m/s^2

Cycle No: 42

Cycle name: **TRL WSL Suburban: large car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

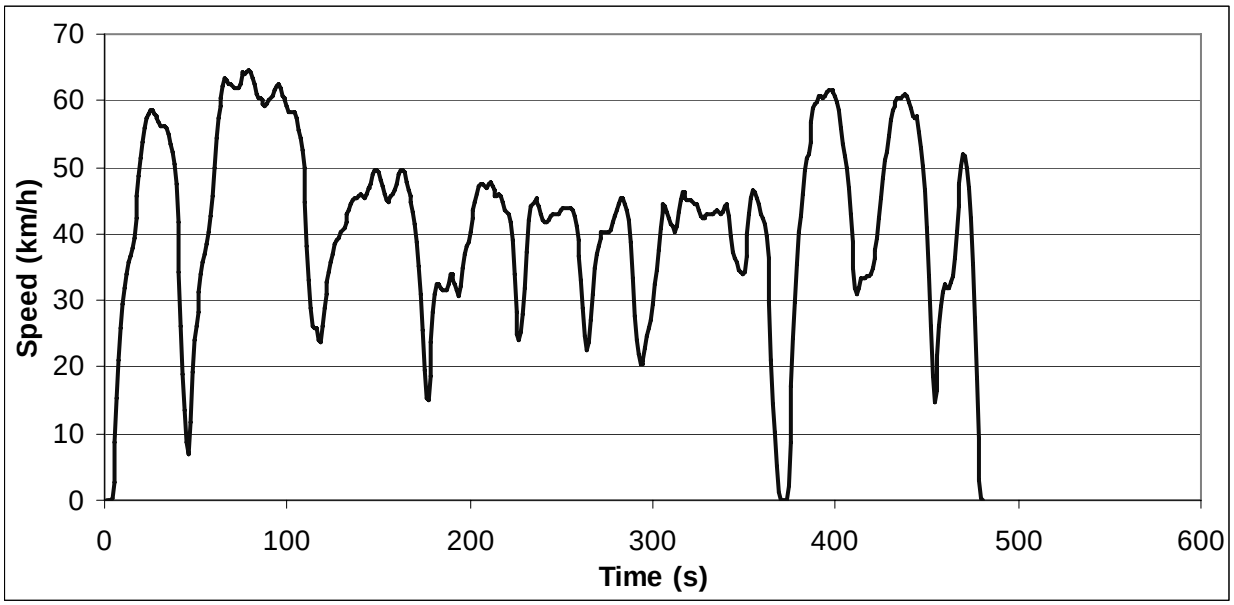


ART.KINEMA parameters

Total distance	5517.51 m	Average negative acceleration	-0.484 m/s^2
Total time	481 s	Standard deviation of accel.	0.638 m/s^2
Driving time	480 s	Standard dev. of positive accel.	0.382 m/s^2
Drive time	89 s	Accel: 75th - 25th percentile	0.478 m/s^2
Drive time spent accelerating	213 s	Number of accelerations	21
Drive time spent decelerating	178 s	Accelerations per km	3.806 /km
Time spent braking	103 s	Number of stops	0
Standing time	1 s	Stops per km	0 /km
% of time driving	99.79 %	Average stop duration	N/A s
% of cruising	18.50 %	Average distance between stops	N/A m
% of time accelerating	44.28 %	Relative positive acceleration	0.1841 m/s^2
% of time decelerating	37.01 %	Positive kinetic energy	4.793 m/s^2
% of time braking	21.41 %	Relative positive speed	0.540
% of time standing	0.21 %	Relative real speed	0.811
Average speed (trip)	41.3 km/h	Relative square speed	12.768 m/s
Average driving speed	41.38 km/h	Relative positive square speed	6.719 m/s
Standard deviation of speed	13.79 km/h	Relative real square speed	10.564 m/s
Speed: 75th - 25th percentile	15.84 km/h	Relative cubic speed	172.74 m^2/s^2
Maximum speed	64.33 km/h	Relative positive cubic speed	88.74 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	145.24 m^2/s^2
Average positive acceleration	0.392 m/s^2	Root mean square of acceleration	0.188 m/s^2

Cycle No: 43

Cycle name: **TRL WSL Suburban: medium car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

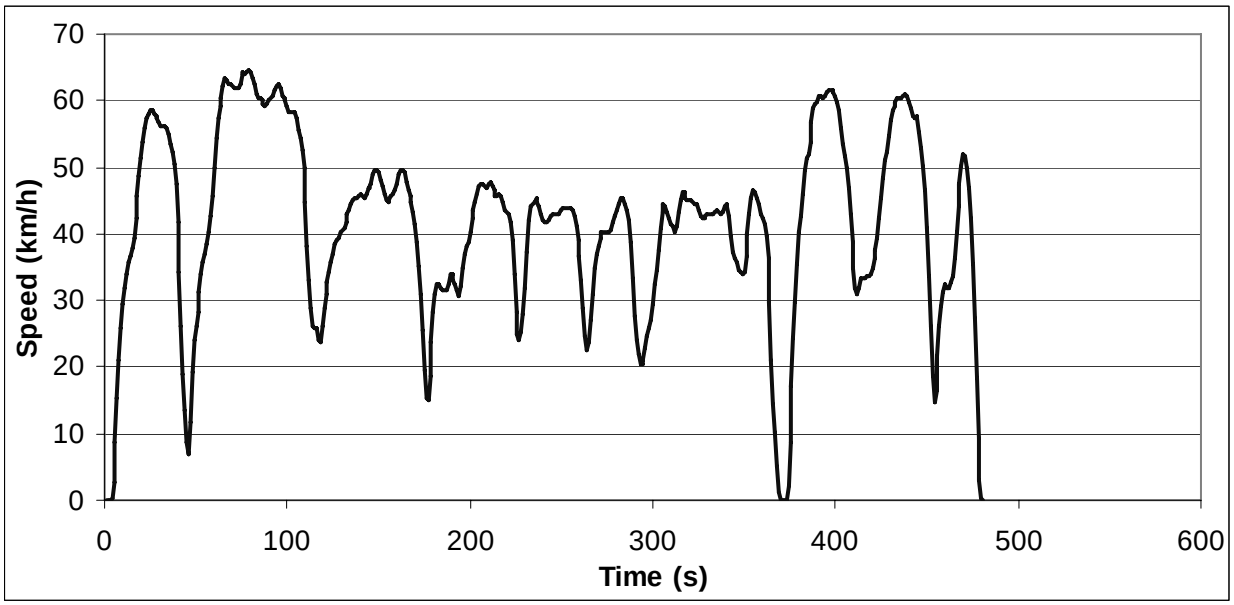


ART.KINEMA parameters

Total distance	5517.57 m	Average negative acceleration	-0.484 m/s^2
Total time	481 s	Standard deviation of accel.	0.638 m/s^2
Driving time	480 s	Standard dev. of positive accel.	0.382 m/s^2
Drive time	89 s	Accel: 75th - 25th percentile	0.478 m/s^2
Drive time spent accelerating	213 s	Number of accelerations	21
Drive time spent decelerating	178 s	Accelerations per km	3.806 /km
Time spent braking	103 s	Number of stops	0
Standing time	1 s	Stops per km	0 /km
% of time driving	99.79 %	Average stop duration	N/A s
% of cruising	18.50 %	Average distance between stops	N/A m
% of time accelerating	44.28 %	Relative positive acceleration	0.1841 m/s^2
% of time decelerating	37.01 %	Positive kinetic energy	4.793 m/s^2
% of time braking	21.41 %	Relative positive speed	0.540
% of time standing	0.21 %	Relative real speed	0.811
Average speed (trip)	41.3 km/h	Relative square speed	12.769 m/s
Average driving speed	41.38 km/h	Relative positive square speed	6.719 m/s
Standard deviation of speed	13.79 km/h	Relative real square speed	10.564 m/s
Speed: 75th - 25th percentile	15.84 km/h	Relative cubic speed	172.75 m^2/s^2
Maximum speed	64.33 km/h	Relative positive cubic speed	88.75 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	145.25 m^2/s^2
Average positive acceleration	0.392 m/s^2	Root mean square of acceleration	0.188 m/s^2

Cycle No: 44

Cycle name: **TRL WSL Suburban: small car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

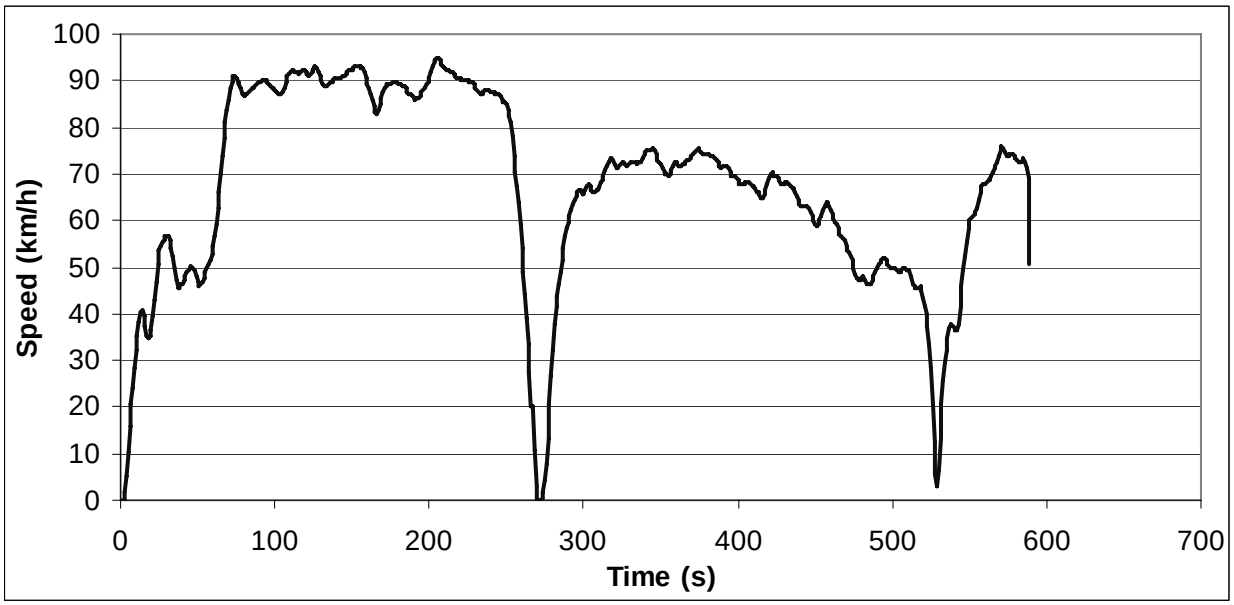


ART.KINEMA parameters

Total distance	5517.51 m	Average negative acceleration	-0.484 m/s^2
Total time	481 s	Standard deviation of accel.	0.638 m/s^2
Driving time	480 s	Standard dev. of positive accel.	0.382 m/s^2
Drive time	89 s	Accel: 75th - 25th percentile	0.478 m/s^2
Drive time spent accelerating	213 s	Number of accelerations	21
Drive time spent decelerating	178 s	Accelerations per km	3.806 /km
Time spent braking	103 s	Number of stops	0
Standing time	1 s	Stops per km	0 /km
% of time driving	99.79 %	Average stop duration	N/A s
% of cruising	18.50 %	Average distance between stops	N/A m
% of time accelerating	44.28 %	Relative positive acceleration	0.1841 m/s^2
% of time decelerating	37.01 %	Positive kinetic energy	4.793 m/s^2
% of time braking	21.41 %	Relative positive speed	0.540
% of time standing	0.21 %	Relative real speed	0.811
Average speed (trip)	41.3 km/h	Relative square speed	12.768 m/s
Average driving speed	41.38 km/h	Relative positive square speed	6.719 m/s
Standard deviation of speed	13.79 km/h	Relative real square speed	10.564 m/s
Speed: 75th - 25th percentile	15.84 km/h	Relative cubic speed	172.74 m^2/s^2
Maximum speed	64.33 km/h	Relative positive cubic speed	88.74 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	145.24 m^2/s^2
Average positive acceleration	0.392 m/s^2	Root mean square of acceleration	0.188 m/s^2

Cycle No: 45

Cycle name: **TRL WSL Rural: large car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

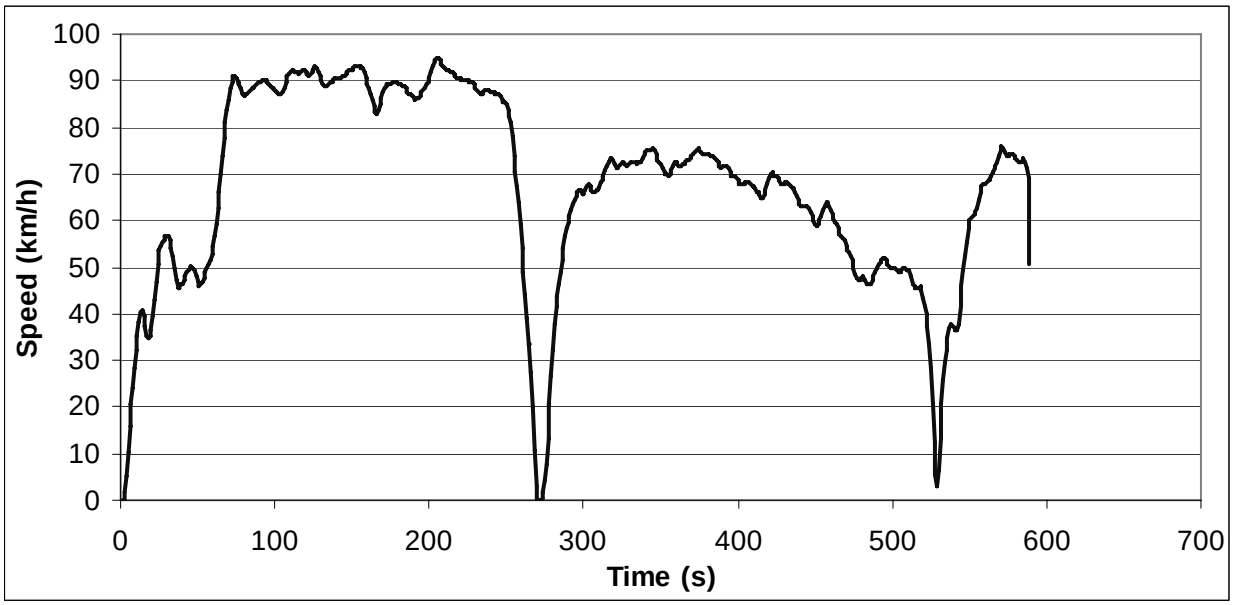


ART.KINEMA parameters

Total distance	10952.28 m	Average negative acceleration	-0.241 m/s^2
Total time	589 s	Standard deviation of accel.	0.478 m/s^2
Driving time	589 s	Standard dev. of positive accel.	0.377 m/s^2
Drive time	182 s	Accel: 75th - 25th percentile	0.235 m/s^2
Drive time spent accelerating	207 s	Number of accelerations	24
Drive time spent decelerating	200 s	Accelerations per km	2.191 /km
Time spent braking	62 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	30.90 %	Average distance between stops	N/A m
% of time accelerating	35.14 %	Relative positive acceleration	0.1035 m/s^2
% of time decelerating	33.96 %	Positive kinetic energy	2.708 m/s^2
% of time braking	10.53 %	Relative positive speed	0.482
% of time standing	0.00 %	Relative real speed	0.917
Average speed (trip)	66.9 km/h	Relative square speed	20.462 m/s
Average driving speed	66.94 km/h	Relative positive square speed	9.774 m/s
Standard deviation of speed	21.23 km/h	Relative real square speed	18.984 m/s
Speed: 75th - 25th percentile	35.63 km/h	Relative cubic speed	439.67 m^2/s^2
Maximum speed	94.68 km/h	Relative positive cubic speed	208.68 m^2/s^2
Average acceleration	0.023 m/s^2	Relative real cubic speed	410.90 m^2/s^2
Average positive acceleration	0.291 m/s^2	Root mean square of acceleration	0.111 m/s^2

Cycle No: 46

Cycle name: **TRL WSL Rural: medium car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

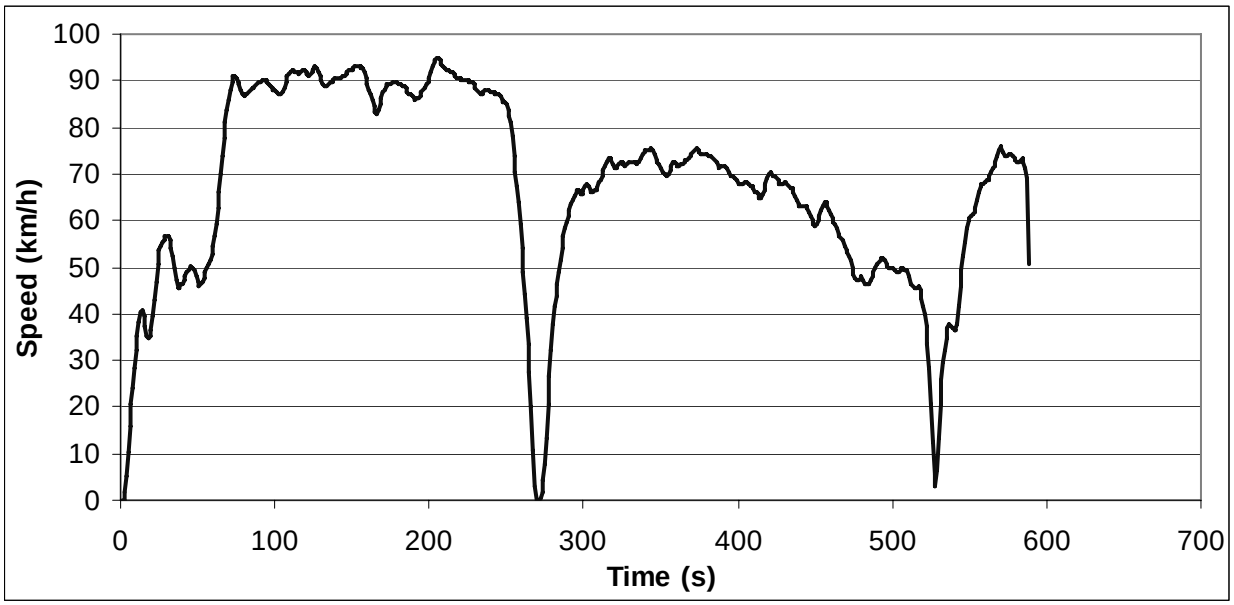


ART.KINEMA parameters

Total distance	10956.53 m	Average negative acceleration	-0.241 m/s^2
Total time	589 s	Standard deviation of accel.	0.480 m/s^2
Driving time	589 s	Standard dev. of positive accel.	0.377 m/s^2
Drive time	182 s	Accel: 75th - 25th percentile	0.235 m/s^2
Drive time spent accelerating	207 s	Number of accelerations	24
Drive time spent decelerating	200 s	Accelerations per km	2.191 /km
Time spent braking	62 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	30.90 %	Average distance between stops	N/A m
% of time accelerating	35.14 %	Relative positive acceleration	0.1034 m/s^2
% of time decelerating	33.96 %	Positive kinetic energy	2.707 m/s^2
% of time braking	10.53 %	Relative positive speed	0.482
% of time standing	0.00 %	Relative real speed	0.916
Average speed (trip)	67.0 km/h	Relative square speed	20.459 m/s
Average driving speed	66.97 km/h	Relative positive square speed	9.770 m/s
Standard deviation of speed	21.18 km/h	Relative real square speed	18.976 m/s
Speed: 75th - 25th percentile	35.62 km/h	Relative cubic speed	439.55 m^2/s^2
Maximum speed	94.68 km/h	Relative positive cubic speed	208.59 m^2/s^2
Average acceleration	0.023 m/s^2	Relative real cubic speed	410.74 m^2/s^2
Average positive acceleration	0.291 m/s^2	Root mean square of acceleration	0.111 m/s^2

Cycle No: 47

Cycle name: **TRL WSL Rural: small car**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

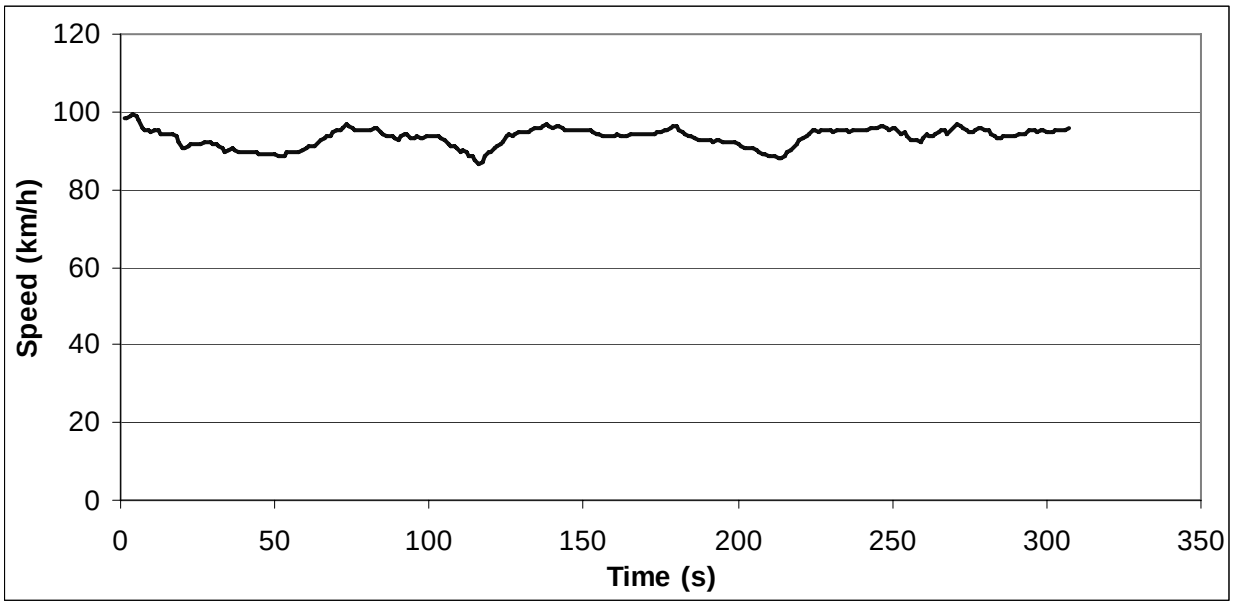


ART.KINEMA parameters

Total distance	10946.96 m	Average negative acceleration	-0.242 m/s^2
Total time	588 s	Standard deviation of accel.	0.484 m/s^2
Driving time	588 s	Standard dev. of positive accel.	0.377 m/s^2
Drive time	183 s	Accel: 75th - 25th percentile	0.236 m/s^2
Drive time spent accelerating	207 s	Number of accelerations	24
Drive time spent decelerating	198 s	Accelerations per km	2.192 /km
Time spent braking	61 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	31.12 %	Average distance between stops	N/A m
% of time accelerating	35.20 %	Relative positive acceleration	0.1035 m/s^2
% of time decelerating	33.67 %	Positive kinetic energy	2.709 m/s^2
% of time braking	10.37 %	Relative positive speed	0.483
% of time standing	0.00 %	Relative real speed	0.917
Average speed (trip)	67.0 km/h	Relative square speed	20.468 m/s
Average driving speed	67.02 km/h	Relative positive square speed	9.778 m/s
Standard deviation of speed	21.15 km/h	Relative real square speed	18.992 m/s
Speed: 75th - 25th percentile	35.09 km/h	Relative cubic speed	439.84 m^2/s^2
Maximum speed	94.68 km/h	Relative positive cubic speed	208.77 m^2/s^2
Average acceleration	0.023 m/s^2	Relative real cubic speed	411.08 m^2/s^2
Average positive acceleration	0.291 m/s^2	Root mean square of acceleration	0.112 m/s^2

Cycle No: 48

Cycle name: **TRL WSL Motorway 90**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

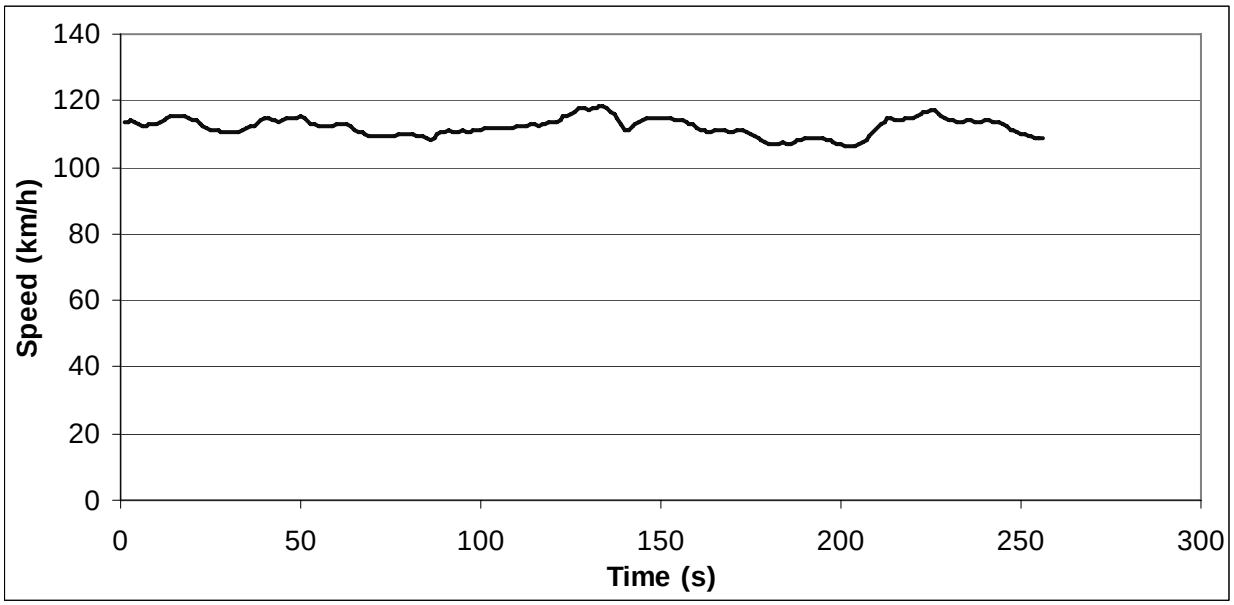


ART.KINEMA parameters

Total distance	7965.65 m	Average negative acceleration	-0.067 m/s^2
Total time	307 s	Standard deviation of accel.	0.090 m/s^2
Driving time	307 s	Standard dev. of positive accel.	0.060 m/s^2
Drive time	174 s	Accel: 75th - 25th percentile	0.099 m/s^2
Drive time spent accelerating	62 s	Number of accelerations	11
Drive time spent decelerating	71 s	Accelerations per km	1.381 /km
Time spent braking	4 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	56.68 %	Average distance between stops	N/A m
% of time accelerating	20.20 %	Relative positive acceleration	0.0318 m/s^2
% of time decelerating	23.13 %	Positive kinetic energy	0.836 m/s^2
% of time braking	1.30 %	Relative positive speed	0.487
% of time standing	0.00 %	Relative real speed	0.987
Average speed (trip)	93.4 km/h	Relative square speed	25.963 m/s
Average driving speed	93.41 km/h	Relative positive square speed	12.668 m/s
Standard deviation of speed	2.37 km/h	Relative real square speed	25.615 m/s
Speed: 75th - 25th percentile	3.4 km/h	Relative cubic speed	674.53 m^2/s^2
Maximum speed	98.86 km/h	Relative positive cubic speed	329.94 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	665.34 m^2/s^2
Average positive acceleration	0.066 m/s^2	Root mean square of acceleration	0.018 m/s^2

Cycle No: 49

Cycle name: **TRL WSL Motorway 113**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

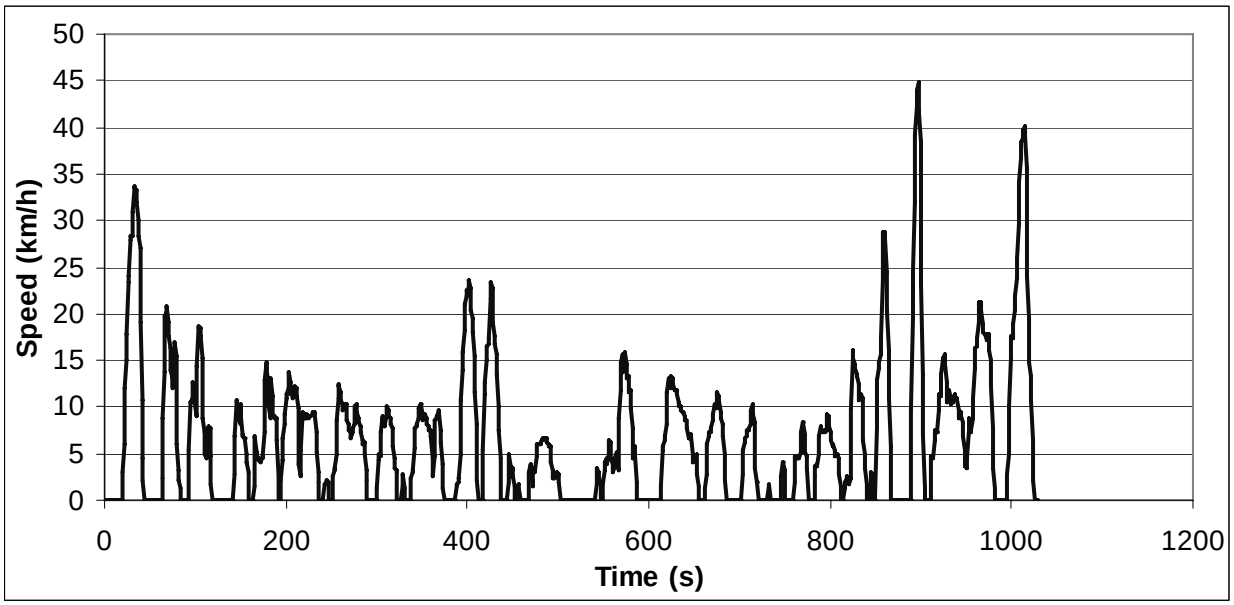


ART.KINEMA parameters

Total distance	7971.7 m	Average negative acceleration	-0.089 m/s^2
Total time	256 s	Standard deviation of accel.	0.110 m/s^2
Driving time	256 s	Standard dev. of positive accel.	0.073 m/s^2
Drive time	128 s	Accel: 75th - 25th percentile	0.117 m/s^2
Drive time spent accelerating	57 s	Number of accelerations	10
Drive time spent decelerating	71 s	Accelerations per km	1.254 /km
Time spent braking	4 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	50.00 %	Average distance between stops	N/A m
% of time accelerating	22.27 %	Relative positive acceleration	0.0377 m/s^2
% of time decelerating	27.73 %	Positive kinetic energy	0.995 m/s^2
% of time braking	1.56 %	Relative positive speed	0.505
% of time standing	0.00 %	Relative real speed	0.984
Average speed (trip)	112.1 km/h	Relative square speed	31.157 m/s
Average driving speed	112.1 km/h	Relative positive square speed	15.746 m/s
Standard deviation of speed	2.7 km/h	Relative real square speed	30.646 m/s
Speed: 75th - 25th percentile	3.64 km/h	Relative cubic speed	971.34 m^2/s^2
Maximum speed	118.2 km/h	Relative positive cubic speed	491.60 m^2/s^2
Average acceleration	-0.006 m/s^2	Relative real cubic speed	955.02 m^2/s^2
Average positive acceleration	0.075 m/s^2	Root mean square of acceleration	0.020 m/s^2

Cycle No: 50

Cycle name: **WSL congested traffic cycle**
Alternative name:
Test programme: **WSL cycles**
Additional info:
Vehicle category: **Cars**

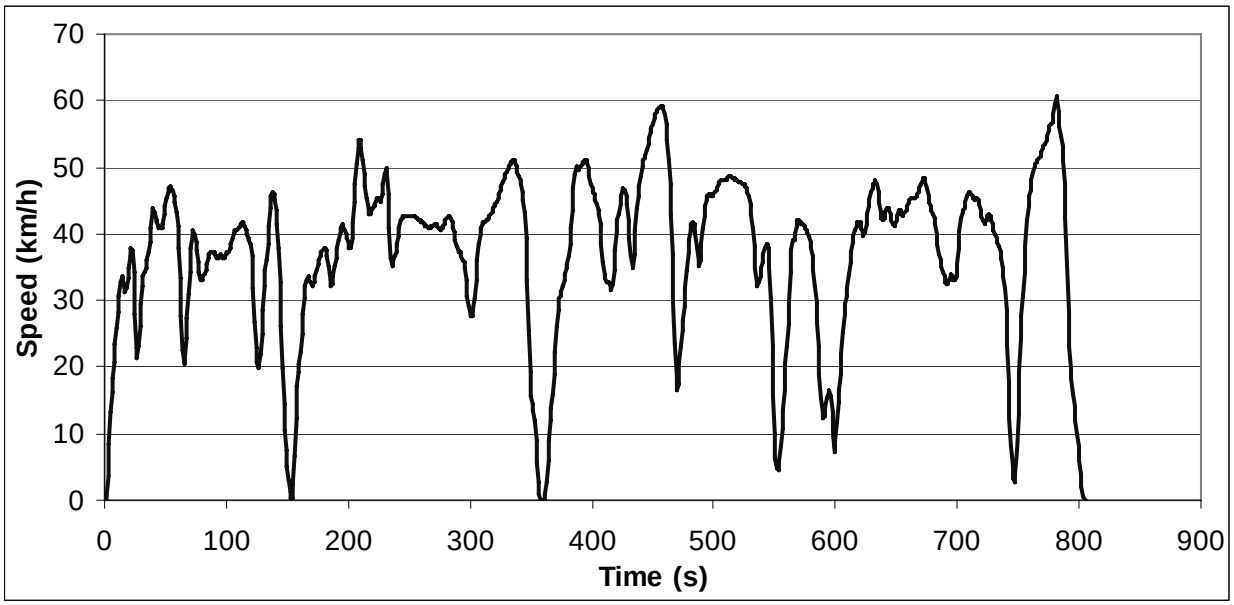


ART.KINEMA parameters

Total distance	1920.59 m	Average negative acceleration	-0.284 m/s^2
Total time	1029 s	Standard deviation of accel.	0.453 m/s^2
Driving time	838 s	Standard dev. of positive accel.	0.331 m/s^2
Drive time	187 s	Accel: 75th - 25th percentile	0.256 m/s^2
Drive time spent accelerating	314 s	Number of accelerations	46
Drive time spent decelerating	337 s	Accelerations per km	23.951 /km
Time spent braking	155 s	Number of stops	22
Standing time	191 s	Stops per km	11.45 /km
% of time driving	81.44 %	Average stop duration	8.68 s
% of cruising	18.17 %	Average distance between stops	87.3 m
% of time accelerating	30.52 %	Relative positive acceleration	0.1986 m/s^2
% of time decelerating	32.75 %	Positive kinetic energy	5.183 m/s^2
% of time braking	15.06 %	Relative positive speed	0.483
% of time standing	18.56 %	Relative real speed	0.781
Average speed (trip)	6.7 km/h	Relative square speed	4.358 m/s
Average driving speed	8.25 km/h	Relative positive square speed	2.207 m/s
Standard deviation of speed	7.84 km/h	Relative real square speed	3.288 m/s
Speed: 75th - 25th percentile	9.69 km/h	Relative cubic speed	27.11 m^2/s^2
Maximum speed	43.65 km/h	Relative positive cubic speed	14.37 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	19.98 m^2/s^2
Average positive acceleration	0.308 m/s^2	Root mean square of acceleration	0.299 m/s^2

Cycle No: 51

Cycle name: **UG214 Car01: suburban control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

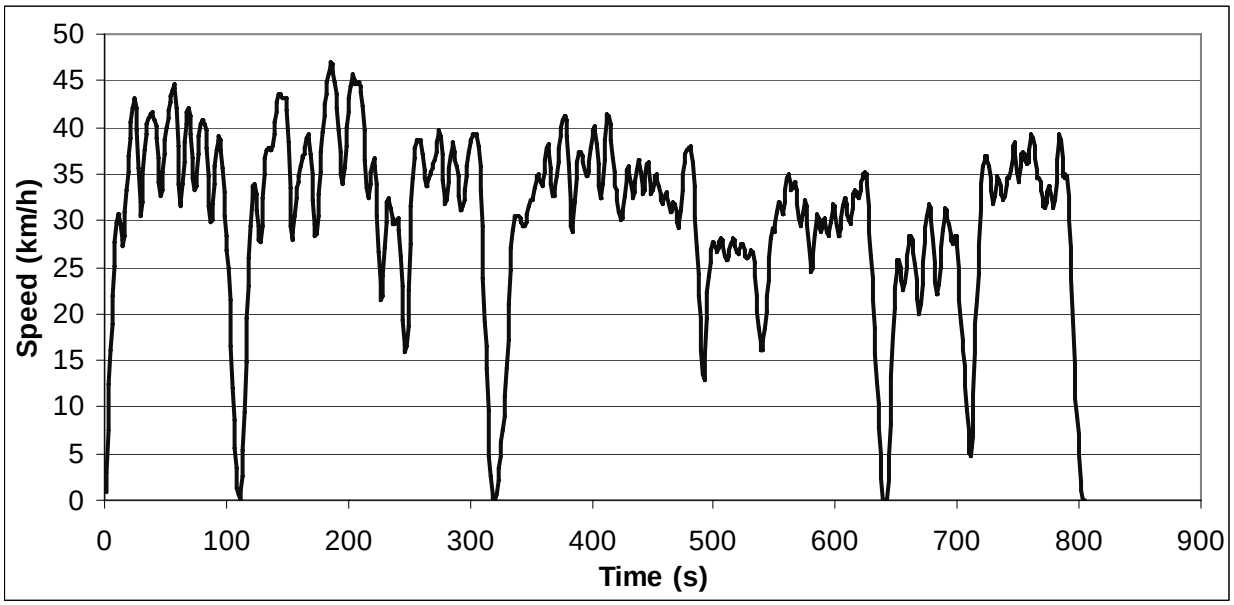


ART.KINEMA parameters

Total distance	8258.47 m	Average negative acceleration	-0.381 m/s^2
Total time	805 s	Standard deviation of accel.	0.508 m/s^2
Driving time	805 s	Standard dev. of positive accel.	0.301 m/s^2
Drive time	164 s	Accel: 75th - 25th percentile	0.412 m/s^2
Drive time spent accelerating	366 s	Number of accelerations	39
Drive time spent decelerating	275 s	Accelerations per km	4.722 /km
Time spent braking	164 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	20.37 %	Average distance between stops	N/A m
% of time accelerating	45.47 %	Relative positive acceleration	0.1476 m/s^2
% of time decelerating	34.16 %	Positive kinetic energy	3.867 m/s^2
% of time braking	20.37 %	Relative positive speed	0.555
% of time standing	0.00 %	Relative real speed	0.825
Average speed (trip)	36.9 km/h	Relative square speed	11.423 m/s
Average driving speed	36.93 km/h	Relative positive square speed	6.405 m/s
Standard deviation of speed	12.45 km/h	Relative real square speed	9.570 m/s
Speed: 75th - 25th percentile	12.2 km/h	Relative cubic speed	136.54 m^2/s^2
Maximum speed	59.79 km/h	Relative positive cubic speed	77.41 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	115.29 m^2/s^2
Average positive acceleration	0.320 m/s^2	Root mean square of acceleration	0.159 m/s^2

Cycle No: 52

Cycle name: **UG214 Car02: traffic calming (road hump)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

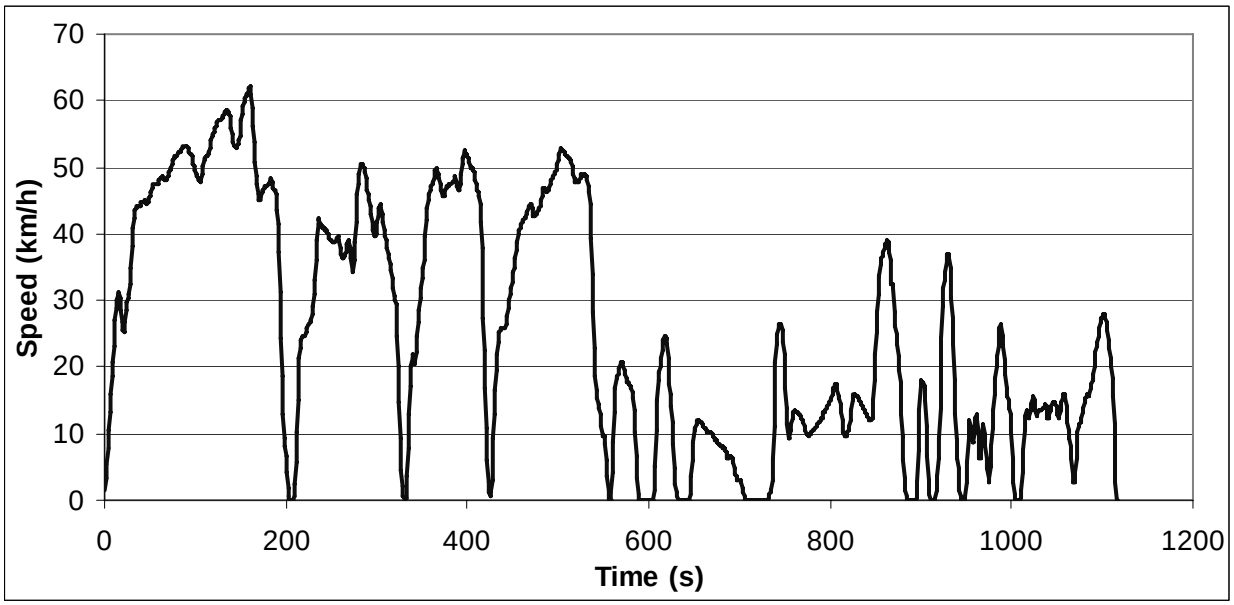


ART.KINEMA parameters

Total distance	6806.56 m	Average negative acceleration	-0.324 m/s^2
Total time	804 s	Standard deviation of accel.	0.430 m/s^2
Driving time	804 s	Standard dev. of positive accel.	0.278 m/s^2
Drive time	147 s	Accel: 75th - 25th percentile	0.443 m/s^2
Drive time spent accelerating	341 s	Number of accelerations	54
Drive time spent decelerating	316 s	Accelerations per km	7.934 /km
Time spent braking	181 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	18.28 %	Average distance between stops	N/A m
% of time accelerating	42.41 %	Relative positive acceleration	0.1434 m/s^2
% of time decelerating	39.30 %	Positive kinetic energy	3.791 m/s^2
% of time braking	22.51 %	Relative positive speed	0.513
% of time standing	0.00 %	Relative real speed	0.794
Average speed (trip)	30.5 km/h	Relative square speed	9.270 m/s
Average driving speed	30.48 km/h	Relative positive square speed	4.775 m/s
Standard deviation of speed	9.4 km/h	Relative real square speed	7.425 m/s
Speed: 75th - 25th percentile	8.94 km/h	Relative cubic speed	89.17 m^2/s^2
Maximum speed	46.82 km/h	Relative positive cubic speed	46.03 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	71.70 m^2/s^2
Average positive acceleration	0.313 m/s^2	Root mean square of acceleration	0.148 m/s^2

Cycle No: 53

Cycle name: **UG214 Car03: cycle-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

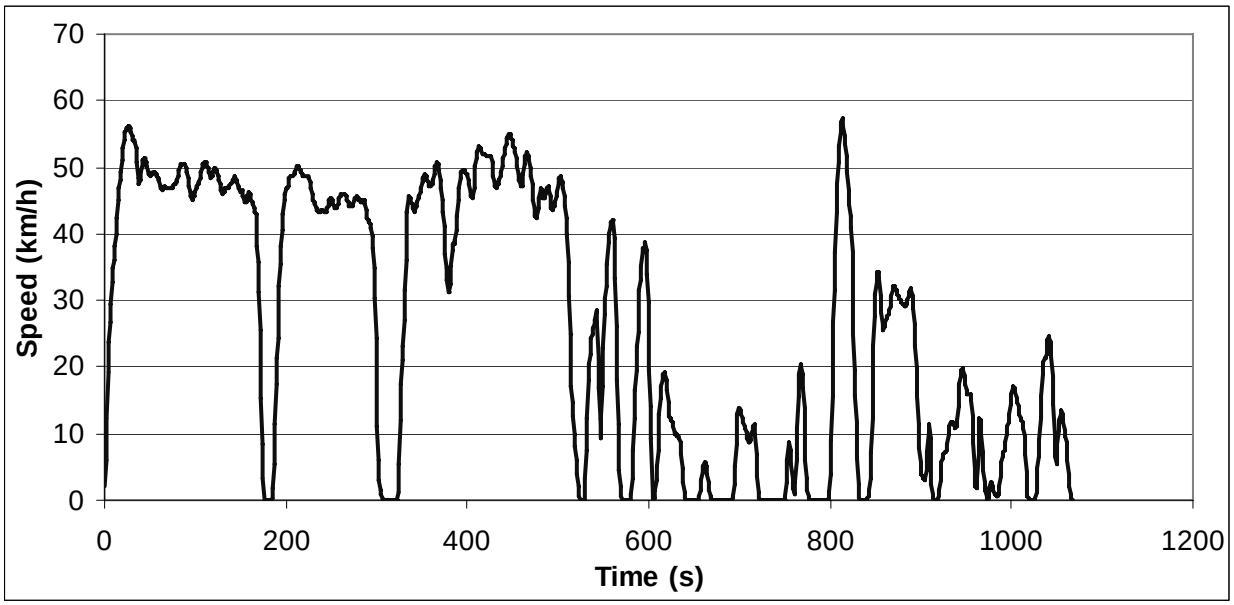


ART.KINEMA parameters

Total distance	7924.22 m	Average negative acceleration	-0.291 m/s^2
Total time	1117 s	Standard deviation of accel.	0.425 m/s^2
Driving time	1090 s	Standard dev. of positive accel.	0.303 m/s^2
Drive time	279 s	Accel: 75th - 25th percentile	0.286 m/s^2
Drive time spent accelerating	432 s	Number of accelerations	57
Drive time spent decelerating	379 s	Accelerations per km	7.193 /km
Time spent braking	191 s	Number of stops	12
Standing time	27 s	Stops per km	1.51 /km
% of time driving	97.58 %	Average stop duration	2.25 s
% of cruising	24.98 %	Average distance between stops	660.35 m
% of time accelerating	38.68 %	Relative positive acceleration	0.1149 m/s^2
% of time decelerating	33.93 %	Positive kinetic energy	3.018 m/s^2
% of time braking	17.10 %	Relative positive speed	0.553
% of time standing	2.42 %	Relative real speed	0.858
Average speed (trip)	25.5 km/h	Relative square speed	10.749 m/s
Average driving speed	26.17 km/h	Relative positive square speed	6.060 m/s
Standard deviation of speed	18.11 km/h	Relative real square speed	9.498 m/s
Speed: 75th - 25th percentile	33.85 km/h	Relative cubic speed	131.90 m^2/s^2
Maximum speed	62.22 km/h	Relative positive cubic speed	74.91 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	118.53 m^2/s^2
Average positive acceleration	0.269 m/s^2	Root mean square of acceleration	0.158 m/s^2

Cycle No: 54

Cycle name: **UG214 Car04: bus-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

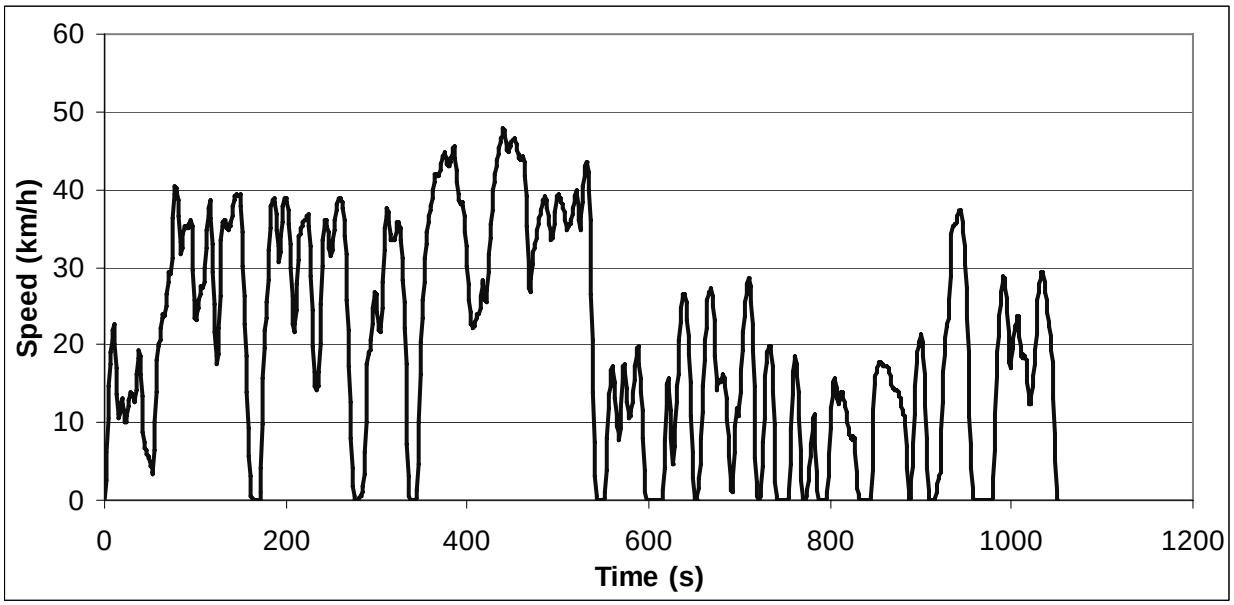


ART.KINEMA parameters

Total distance	7839.58 m	Average negative acceleration	-0.320 m/s^2
Total time	1067 s	Standard deviation of accel.	0.512 m/s^2
Driving time	963 s	Standard dev. of positive accel.	0.384 m/s^2
Drive time	220 s	Accel: 75th - 25th percentile	0.285 m/s^2
Drive time spent accelerating	362 s	Number of accelerations	44
Drive time spent decelerating	381 s	Accelerations per km	5.613 /km
Time spent braking	187 s	Number of stops	11
Standing time	104 s	Stops per km	1.4 /km
% of time driving	90.25 %	Average stop duration	9.45 s
% of cruising	20.62 %	Average distance between stops	712.69 m
% of time accelerating	33.93 %	Relative positive acceleration	0.1293 m/s^2
% of time decelerating	35.71 %	Positive kinetic energy	3.378 m/s^2
% of time braking	17.53 %	Relative positive speed	0.488
% of time standing	9.75 %	Relative real speed	0.857
Average speed (trip)	26.5 km/h	Relative square speed	11.583 m/s
Average driving speed	29.31 km/h	Relative positive square speed	5.620 m/s
Standard deviation of speed	19.07 km/h	Relative real square speed	10.183 m/s
Speed: 75th - 25th percentile	41.29 km/h	Relative cubic speed	145.64 m^2/s^2
Maximum speed	56.99 km/h	Relative positive cubic speed	70.15 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	129.62 m^2/s^2
Average positive acceleration	0.343 m/s^2	Root mean square of acceleration	0.179 m/s^2

Cycle No: 55

Cycle name: **UG214 Car05: one-way**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

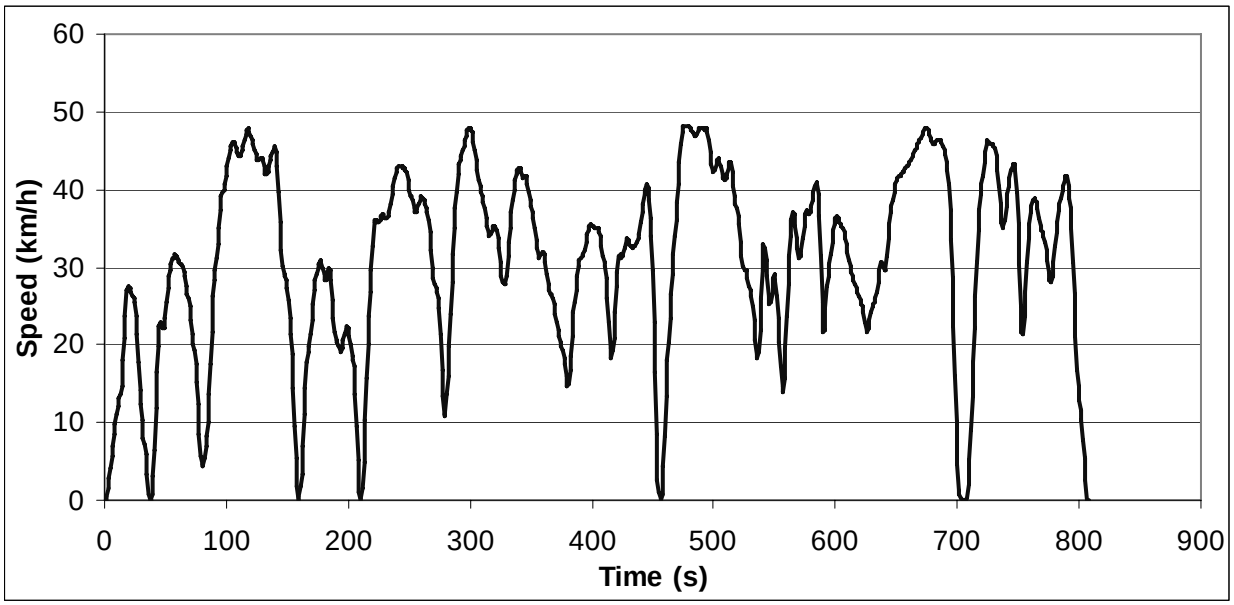


ART.KINEMA parameters

Total distance	5935.03 m	Average negative acceleration	-0.421 m/s^2
Total time	1051 s	Standard deviation of accel.	0.521 m/s^2
Driving time	988 s	Standard dev. of positive accel.	0.324 m/s^2
Drive time	165 s	Accel: 75th - 25th percentile	0.469 m/s^2
Drive time spent accelerating	438 s	Number of accelerations	59
Drive time spent decelerating	385 s	Accelerations per km	9.941 /km
Time spent braking	248 s	Number of stops	11
Standing time	63 s	Stops per km	1.85 /km
% of time driving	94.01 %	Average stop duration	5.73 s
% of cruising	15.70 %	Average distance between stops	539.55 m
% of time accelerating	41.67 %	Relative positive acceleration	0.1708 m/s^2
% of time decelerating	36.63 %	Positive kinetic energy	4.518 m/s^2
% of time braking	23.60 %	Relative positive speed	0.555
% of time standing	5.99 %	Relative real speed	0.768
Average speed (trip)	20.3 km/h	Relative square speed	8.336 m/s
Average driving speed	21.63 km/h	Relative positive square speed	4.686 m/s
Standard deviation of speed	13.47 km/h	Relative real square speed	6.589 m/s
Speed: 75th - 25th percentile	25.56 km/h	Relative cubic speed	78.04 m^2/s^2
Maximum speed	47.78 km/h	Relative positive cubic speed	44.03 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	63.03 m^2/s^2
Average positive acceleration	0.360 m/s^2	Root mean square of acceleration	0.213 m/s^2

Cycle No: 56

Cycle name: **UG214 Car06: mini-roundabout**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

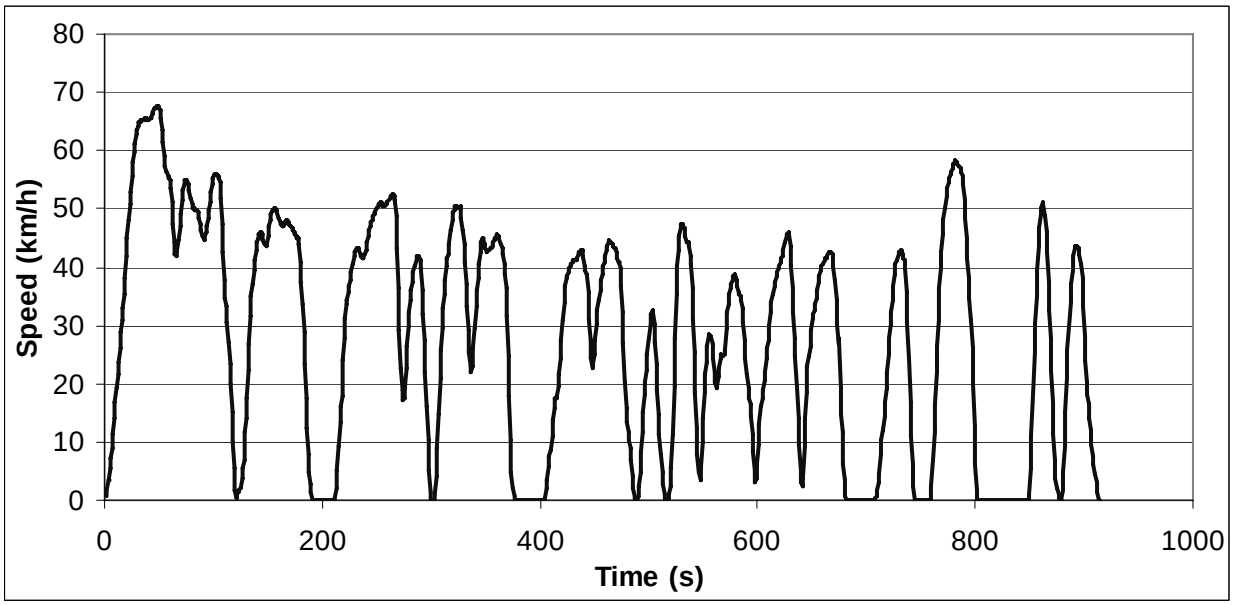


ART.KINEMA parameters

Total distance	6900.96 m	Average negative acceleration	-0.354 m/s^2
Total time	808 s	Standard deviation of accel.	0.498 m/s^2
Driving time	806 s	Standard dev. of positive accel.	0.330 m/s^2
Drive time	119 s	Accel: 75th - 25th percentile	0.470 m/s^2
Drive time spent accelerating	337 s	Number of accelerations	41
Drive time spent decelerating	350 s	Accelerations per km	5.941 /km
Time spent braking	191 s	Number of stops	1
Standing time	2 s	Stops per km	0.14 /km
% of time driving	99.75 %	Average stop duration	2 s
% of cruising	14.73 %	Average distance between stops	6900.96 m
% of time accelerating	41.71 %	Relative positive acceleration	0.1486 m/s^2
% of time decelerating	43.32 %	Positive kinetic energy	3.916 m/s^2
% of time braking	23.64 %	Relative positive speed	0.500
% of time standing	0.25 %	Relative real speed	0.799
Average speed (trip)	30.8 km/h	Relative square speed	9.891 m/s
Average driving speed	30.82 km/h	Relative positive square speed	5.030 m/s
Standard deviation of speed	12.15 km/h	Relative real square speed	8.143 m/s
Speed: 75th - 25th percentile	16.78 km/h	Relative cubic speed	104.01 m^2/s^2
Maximum speed	48.22 km/h	Relative positive cubic speed	53.62 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	87.50 m^2/s^2
Average positive acceleration	0.361 m/s^2	Root mean square of acceleration	0.170 m/s^2

Cycle No: 57

Cycle name: **UG214 Car07: urban traffic control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

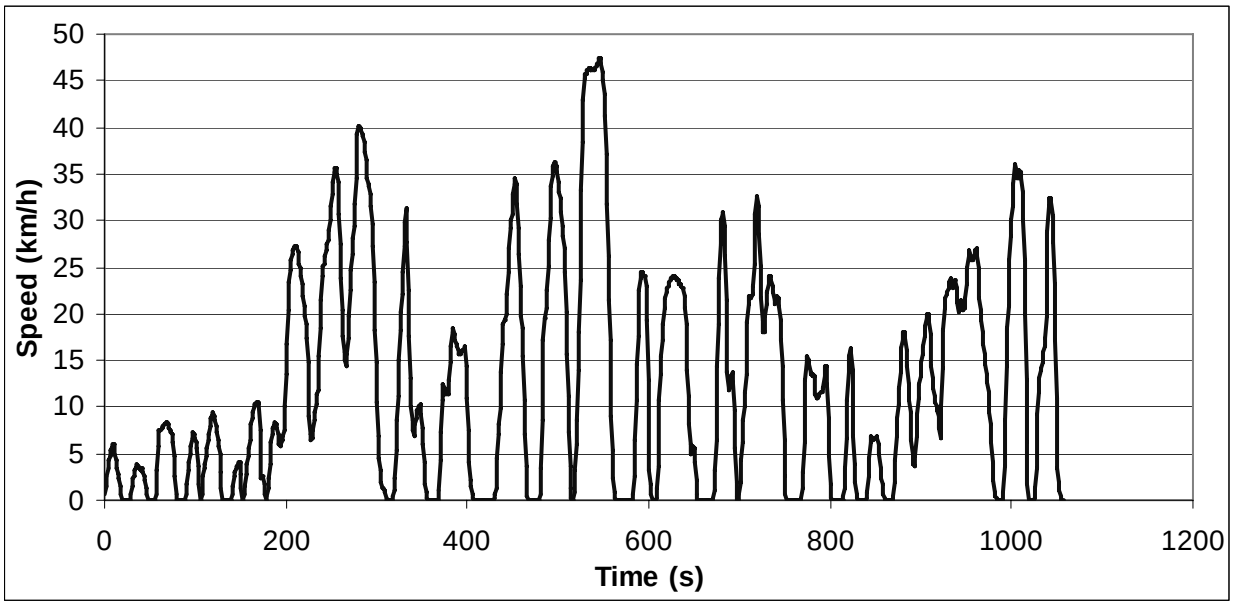


ART.KINEMA parameters

Total distance	7045.58 m	Average negative acceleration	-0.537 m/s^2
Total time	914 s	Standard deviation of accel.	0.663 m/s^2
Driving time	913 s	Standard dev. of positive accel.	0.417 m/s^2
Drive time	200 s	Accel: 75th - 25th percentile	0.590 m/s^2
Drive time spent accelerating	399 s	Number of accelerations	28
Drive time spent decelerating	314 s	Accelerations per km	3.974 /km
Time spent braking	223 s	Number of stops	1
Standing time	1 s	Stops per km	0.14 /km
% of time driving	99.89 %	Average stop duration	1 s
% of cruising	21.88 %	Average distance between stops	7045.58 m
% of time accelerating	43.65 %	Relative positive acceleration	0.2222 m/s^2
% of time decelerating	34.35 %	Positive kinetic energy	5.813 m/s^2
% of time braking	24.40 %	Relative positive speed	0.564
% of time standing	0.11 %	Relative real speed	0.763
Average speed (trip)	27.8 km/h	Relative square speed	11.629 m/s
Average driving speed	27.78 km/h	Relative positive square speed	6.560 m/s
Standard deviation of speed	19.79 km/h	Relative real square speed	9.221 m/s
Speed: 75th - 25th percentile	37.66 km/h	Relative cubic speed	147.82 m^2/s^2
Maximum speed	67.5 km/h	Relative positive cubic speed	83.53 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	120.08 m^2/s^2
Average positive acceleration	0.437 m/s^2	Root mean square of acceleration	0.239 m/s^2

Cycle No: 58

Cycle name: **UG214 Car08: congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

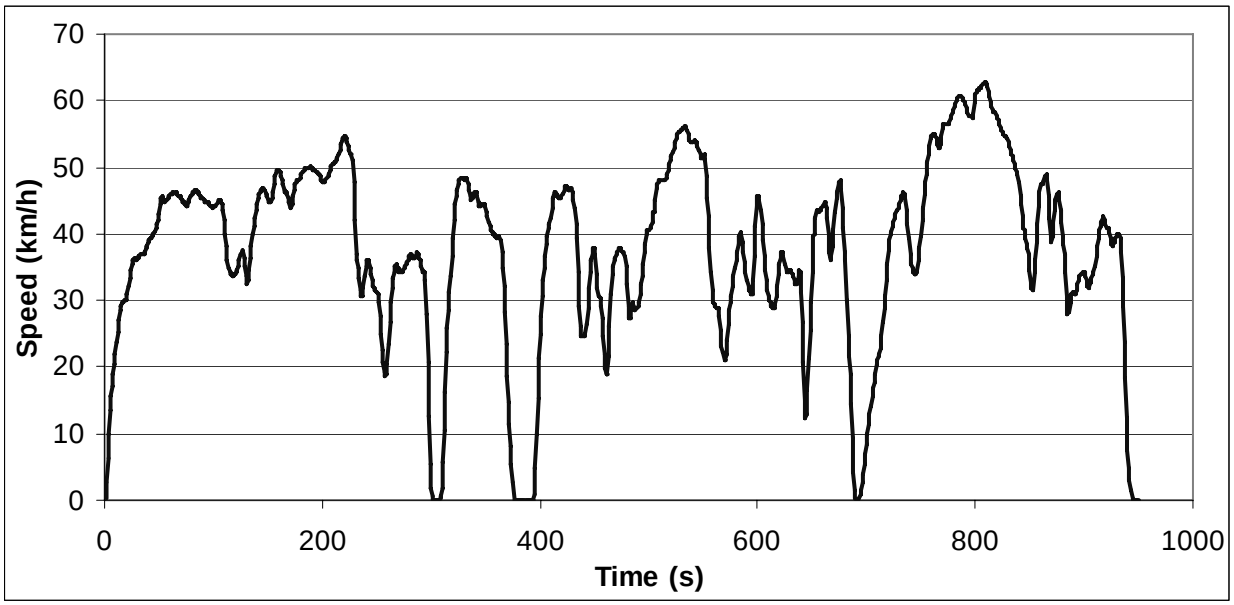


ART.KINEMA parameters

Total distance	3657.67 m	Average negative acceleration	-0.352 m/s^2
Total time	1057 s	Standard deviation of accel.	0.484 m/s^2
Driving time	937 s	Standard dev. of positive accel.	0.313 m/s^2
Drive time	203 s	Accel: 75th - 25th percentile	0.379 m/s^2
Drive time spent accelerating	374 s	Number of accelerations	37
Drive time spent decelerating	360 s	Accelerations per km	10.116 /km
Time spent braking	216 s	Number of stops	18
Standing time	120 s	Stops per km	4.92 /km
% of time driving	88.65 %	Average stop duration	6.67 s
% of cruising	19.21 %	Average distance between stops	203.2 m
% of time accelerating	35.38 %	Relative positive acceleration	0.1849 m/s^2
% of time decelerating	34.06 %	Positive kinetic energy	4.826 m/s^2
% of time braking	20.44 %	Relative positive speed	0.523
% of time standing	11.35 %	Relative real speed	0.759
Average speed (trip)	12.5 km/h	Relative square speed	6.650 m/s
Average driving speed	14.05 km/h	Relative positive square speed	3.458 m/s
Standard deviation of speed	11.79 km/h	Relative real square speed	5.178 m/s
Speed: 75th - 25th percentile	19.99 km/h	Relative cubic speed	53.98 m^2/s^2
Maximum speed	47.37 km/h	Relative positive cubic speed	27.96 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	43.19 m^2/s^2
Average positive acceleration	0.337 m/s^2	Root mean square of acceleration	0.245 m/s^2

Cycle No: 59

Cycle name: **UG214 Car09: non-congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

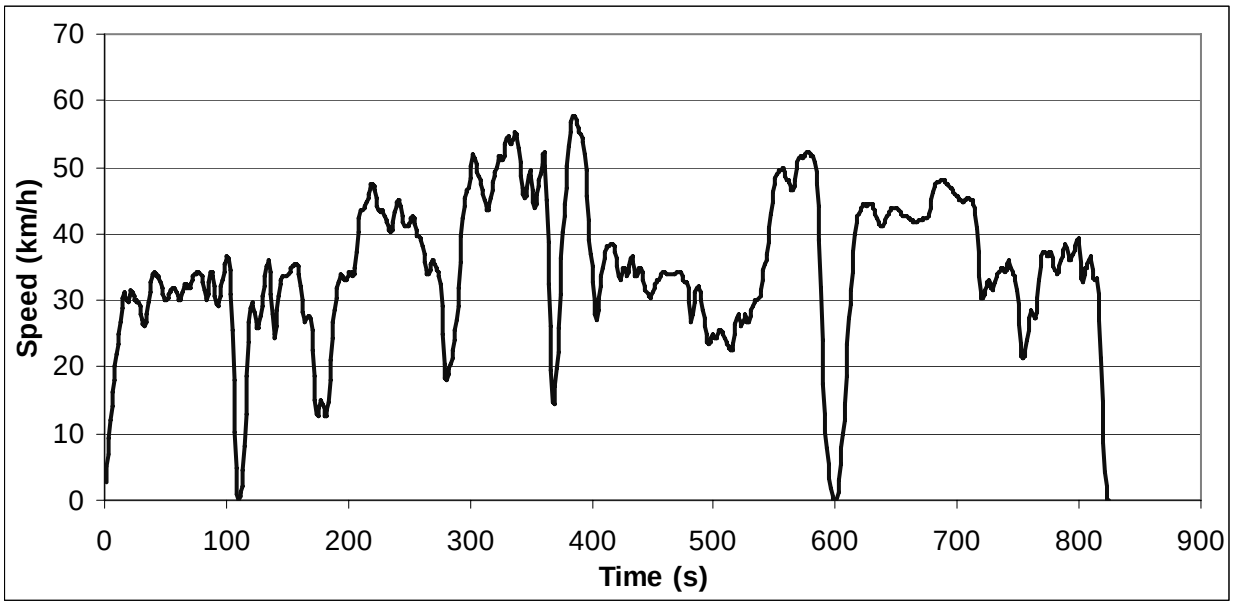


ART.KINEMA parameters

Total distance	9920.57 m	Average negative acceleration	-0.310 m/s^2
Total time	950 s	Standard deviation of accel.	0.439 m/s^2
Driving time	928 s	Standard dev. of positive accel.	0.288 m/s^2
Drive time	210 s	Accel: 75th - 25th percentile	0.316 m/s^2
Drive time spent accelerating	387 s	Number of accelerations	50
Drive time spent decelerating	331 s	Accelerations per km	5.040 /km
Time spent braking	153 s	Number of stops	2
Standing time	22 s	Stops per km	0.2 /km
% of time driving	97.68 %	Average stop duration	11 s
% of cruising	22.11 %	Average distance between stops	4960.29 m
% of time accelerating	40.74 %	Relative positive acceleration	0.1204 m/s^2
% of time decelerating	34.84 %	Positive kinetic energy	3.172 m/s^2
% of time braking	16.11 %	Relative positive speed	0.525
% of time standing	2.32 %	Relative real speed	0.866
Average speed (trip)	37.6 km/h	Relative square speed	11.891 m/s
Average driving speed	38.48 km/h	Relative positive square speed	6.212 m/s
Standard deviation of speed	12.9 km/h	Relative real square speed	10.549 m/s
Speed: 75th - 25th percentile	14.49 km/h	Relative cubic speed	148.85 m^2/s^2
Maximum speed	62.8 km/h	Relative positive cubic speed	77.44 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	134.67 m^2/s^2
Average positive acceleration	0.274 m/s^2	Root mean square of acceleration	0.134 m/s^2

Cycle No: 60

Cycle name: **UG214 Car10: traffic calming (other)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Cars**

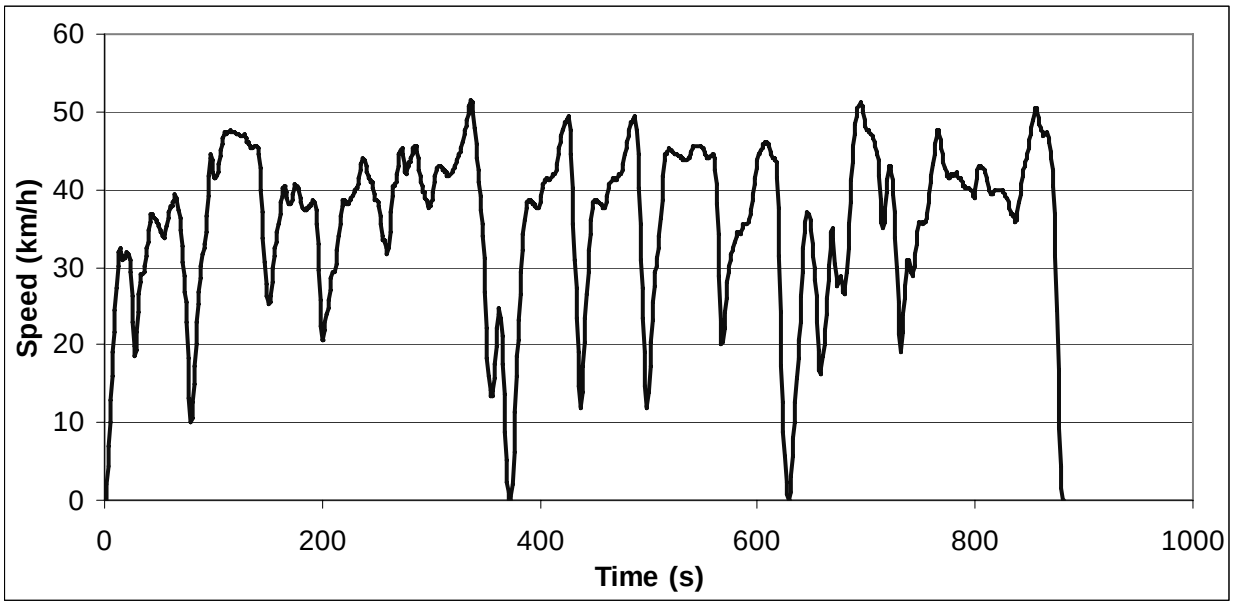


ART.KINEMA parameters

Total distance	7992.72 m	Average negative acceleration	-0.278 m/s^2
Total time	824 s	Standard deviation of accel.	0.415 m/s^2
Driving time	824 s	Standard dev. of positive accel.	0.264 m/s^2
Drive time	243 s	Accel: 75th - 25th percentile	0.281 m/s^2
Drive time spent accelerating	310 s	Number of accelerations	50
Drive time spent decelerating	271 s	Accelerations per km	6.256 /km
Time spent braking	121 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	29.49 %	Average distance between stops	N/A m
% of time accelerating	37.62 %	Relative positive acceleration	0.1124 m/s^2
% of time decelerating	32.89 %	Positive kinetic energy	2.958 m/s^2
% of time braking	14.68 %	Relative positive speed	0.534
% of time standing	0.00 %	Relative real speed	0.869
Average speed (trip)	34.9 km/h	Relative square speed	10.677 m/s
Average driving speed	34.92 km/h	Relative positive square speed	5.632 m/s
Standard deviation of speed	11.09 km/h	Relative real square speed	9.356 m/s
Speed: 75th - 25th percentile	13.56 km/h	Relative cubic speed	120.39 m^2/s^2
Maximum speed	57.74 km/h	Relative positive cubic speed	62.88 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	105.94 m^2/s^2
Average positive acceleration	0.237 m/s^2	Root mean square of acceleration	0.133 m/s^2

Cycle No: 61

Cycle name: **UG214 LGV01: suburban control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

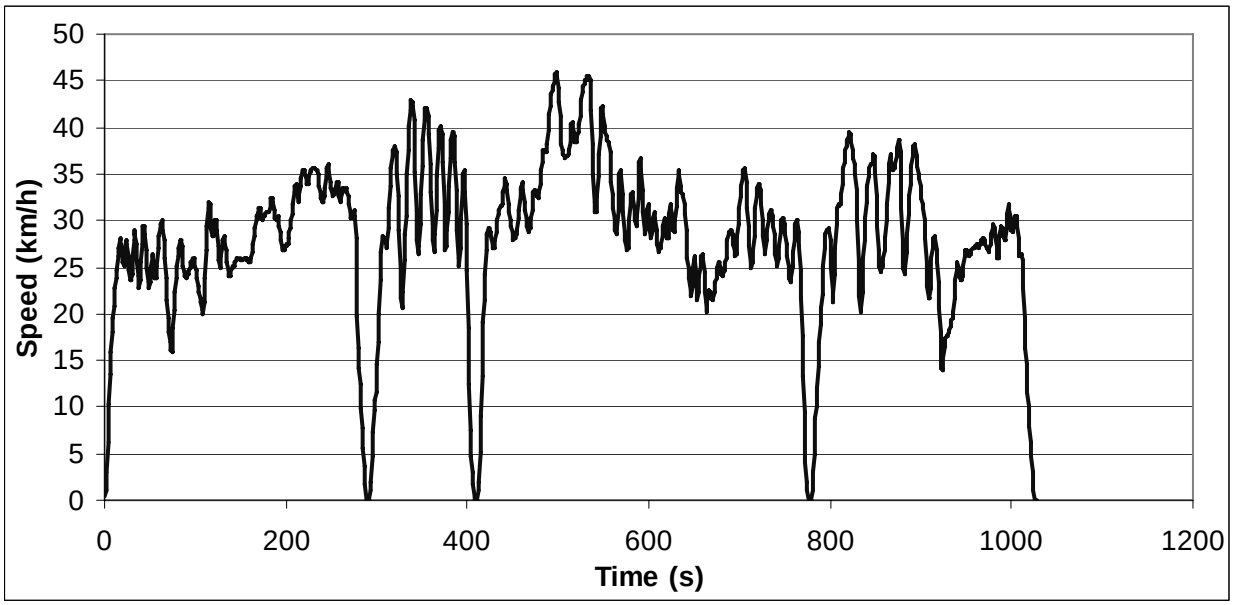


ART.KINEMA parameters

Total distance	8816.49 m	Average negative acceleration	-0.307 m/s^2
Total time	881 s	Standard deviation of accel.	0.433 m/s^2
Driving time	881 s	Standard dev. of positive accel.	0.244 m/s^2
Drive time	237 s	Accel: 75th - 25th percentile	0.316 m/s^2
Drive time spent accelerating	371 s	Number of accelerations	39
Drive time spent decelerating	273 s	Accelerations per km	4.424 /km
Time spent braking	135 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	26.90 %	Average distance between stops	N/A m
% of time accelerating	42.11 %	Relative positive acceleration	0.1176 m/s^2
% of time decelerating	30.99 %	Positive kinetic energy	3.075 m/s^2
% of time braking	15.32 %	Relative positive speed	0.528
% of time standing	0.00 %	Relative real speed	0.874
Average speed (trip)	36.0 km/h	Relative square speed	10.864 m/s
Average driving speed	36.03 km/h	Relative positive square speed	5.652 m/s
Standard deviation of speed	10.54 km/h	Relative real square speed	9.651 m/s
Speed: 75th - 25th percentile	12.24 km/h	Relative cubic speed	122.56 m^2/s^2
Maximum speed	51.39 km/h	Relative positive cubic speed	62.96 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	110.07 m^2/s^2
Average positive acceleration	0.265 m/s^2	Root mean square of acceleration	0.137 m/s^2

Cycle No: 62

Cycle name: **UG214 LGV02: traffic calming (road hump)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

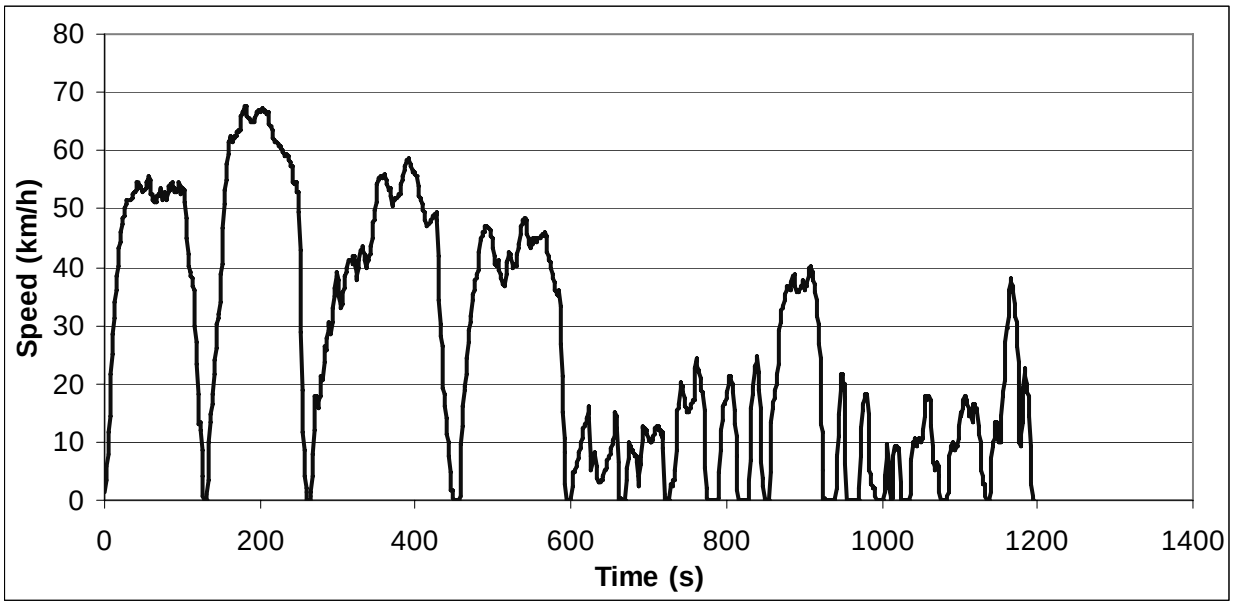


ART.KINEMA parameters

Total distance	8028.39 m	Average negative acceleration	-0.274 m/s^2
Total time	1027 s	Standard deviation of accel.	0.357 m/s^2
Driving time	1025 s	Standard dev. of positive accel.	0.215 m/s^2
Drive time	224 s	Accel: 75th - 25th percentile	0.374 m/s^2
Drive time spent accelerating	424 s	Number of accelerations	69
Drive time spent decelerating	377 s	Accelerations per km	8.595 /km
Time spent braking	190 s	Number of stops	2
Standing time	2 s	Stops per km	0.25 /km
% of time driving	99.81 %	Average stop duration	1 s
% of cruising	21.81 %	Average distance between stops	4014.2 m
% of time accelerating	41.29 %	Relative positive acceleration	0.1217 m/s^2
% of time decelerating	36.71 %	Positive kinetic energy	3.222 m/s^2
% of time braking	18.50 %	Relative positive speed	0.530
% of time standing	0.19 %	Relative real speed	0.828
Average speed (trip)	28.1 km/h	Relative square speed	8.515 m/s
Average driving speed	28.2 km/h	Relative positive square speed	4.509 m/s
Standard deviation of speed	8.33 km/h	Relative real square speed	7.092 m/s
Speed: 75th - 25th percentile	7.75 km/h	Relative cubic speed	75.51 m^2/s^2
Maximum speed	45.54 km/h	Relative positive cubic speed	40.03 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	63.14 m^2/s^2
Average positive acceleration	0.245 m/s^2	Root mean square of acceleration	0.127 m/s^2

Cycle No: 63

Cycle name: **UG214 LGV03: cycle-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

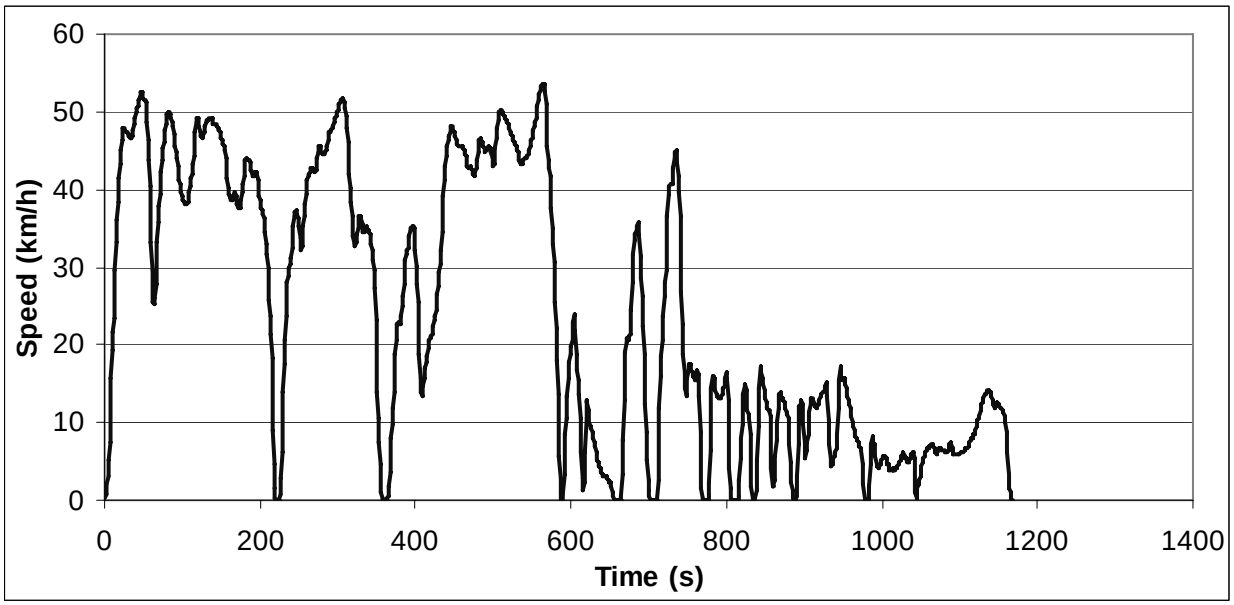


ART.KINEMA parameters

Total distance	8870.22 m	Average negative acceleration	-0.297 m/s^2
Total time	1195 s	Standard deviation of accel.	0.421 m/s^2
Driving time	1151 s	Standard dev. of positive accel.	0.257 m/s^2
Drive time	291 s	Accel: 75th - 25th percentile	0.305 m/s^2
Drive time spent accelerating	463 s	Number of accelerations	50
Drive time spent decelerating	397 s	Accelerations per km	5.637 /km
Time spent braking	187 s	Number of stops	14
Standing time	44 s	Stops per km	1.58 /km
% of time driving	96.32 %	Average stop duration	3.14 s
% of cruising	24.35 %	Average distance between stops	633.59 m
% of time accelerating	38.74 %	Relative positive acceleration	0.1071 m/s^2
% of time decelerating	33.22 %	Positive kinetic energy	2.802 m/s^2
% of time braking	15.65 %	Relative positive speed	0.518
% of time standing	3.68 %	Relative real speed	0.890
Average speed (trip)	26.7 km/h	Relative square speed	11.940 m/s
Average driving speed	27.74 km/h	Relative positive square speed	5.997 m/s
Standard deviation of speed	20.57 km/h	Relative real square speed	11.005 m/s
Speed: 75th - 25th percentile	37.06 km/h	Relative cubic speed	162.93 m^2/s^2
Maximum speed	67.54 km/h	Relative positive cubic speed	79.69 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	153.12 m^2/s^2
Average positive acceleration	0.263 m/s^2	Root mean square of acceleration	0.152 m/s^2

Cycle No: 64

Cycle name: **UG214 LGV04: bus-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

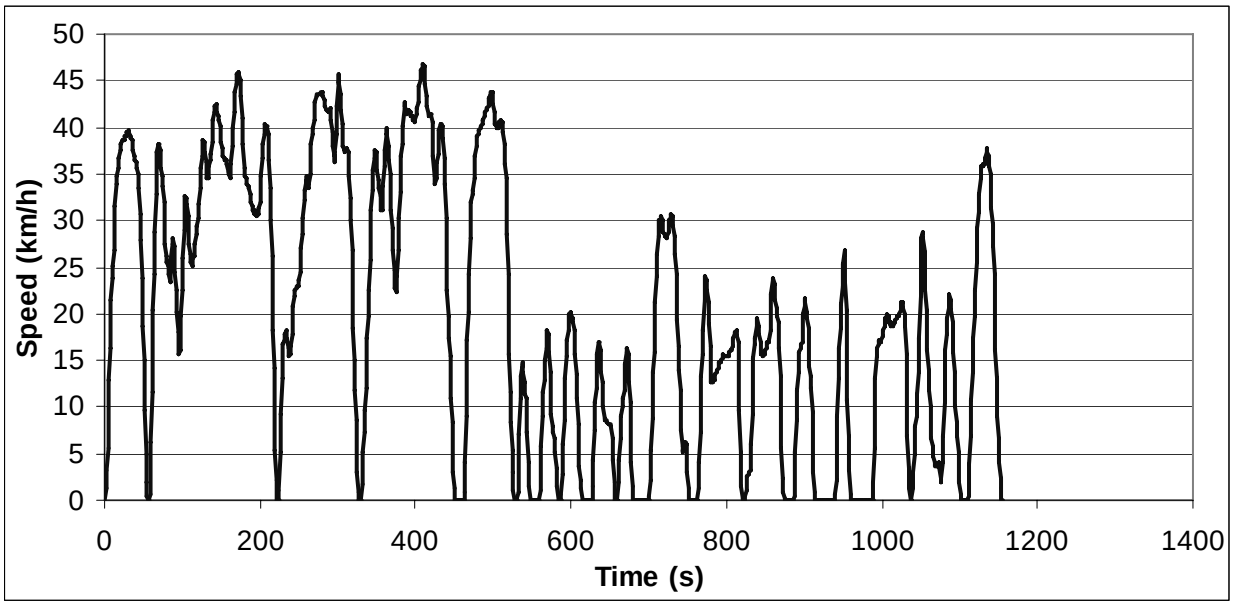


ART.KINEMA parameters

Total distance	7732.84 m	Average negative acceleration	-0.240 m/s^2
Total time	1168 s	Standard deviation of accel.	0.362 m/s^2
Driving time	1139 s	Standard dev. of positive accel.	0.258 m/s^2
Drive time	312 s	Accel: 75th - 25th percentile	0.243 m/s^2
Drive time spent accelerating	419 s	Number of accelerations	46
Drive time spent decelerating	408 s	Accelerations per km	5.949 /km
Time spent braking	166 s	Number of stops	8
Standing time	29 s	Stops per km	1.03 /km
% of time driving	97.52 %	Average stop duration	3.63 s
% of cruising	26.71 %	Average distance between stops	966.61 m
% of time accelerating	35.87 %	Relative positive acceleration	0.1061 m/s^2
% of time decelerating	34.93 %	Positive kinetic energy	2.769 m/s^2
% of time braking	14.21 %	Relative positive speed	0.504
% of time standing	2.48 %	Relative real speed	0.877
Average speed (trip)	23.8 km/h	Relative square speed	10.256 m/s
Average driving speed	24.44 km/h	Relative positive square speed	5.144 m/s
Standard deviation of speed	17.47 km/h	Relative real square speed	9.177 m/s
Speed: 75th - 25th percentile	35.91 km/h	Relative cubic speed	119.22 m^2/s^2
Maximum speed	53.54 km/h	Relative positive cubic speed	59.51 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	108.19 m^2/s^2
Average positive acceleration	0.240 m/s^2	Root mean square of acceleration	0.139 m/s^2

Cycle No: 65

Cycle name: **UG214 LGV05: one-way**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

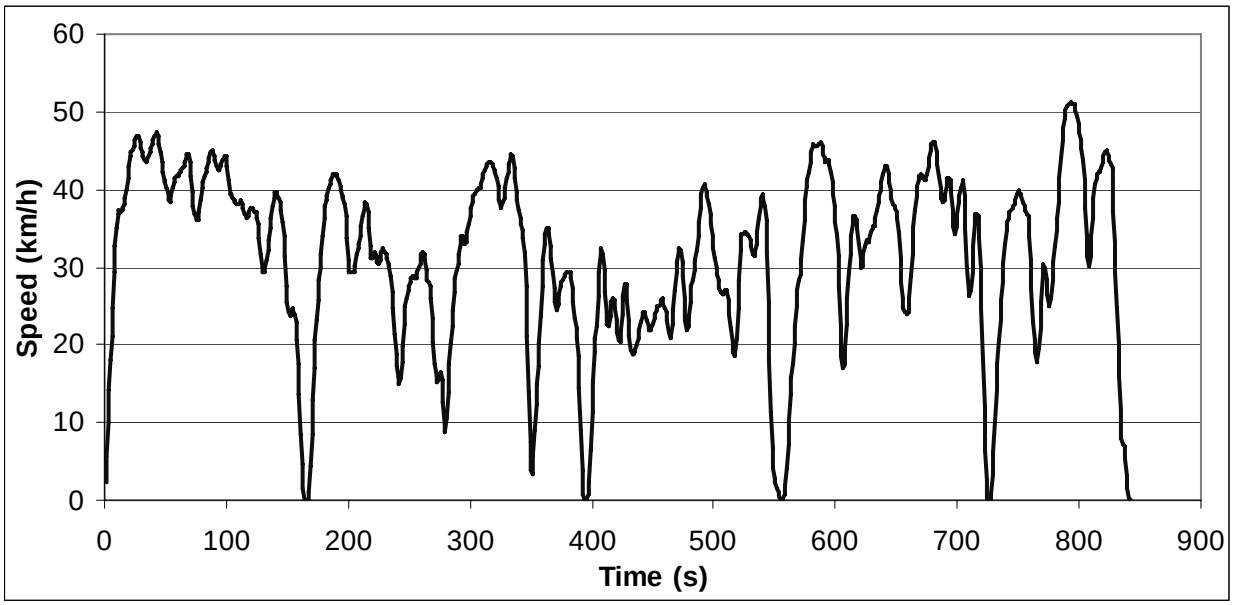


ART.KINEMA parameters

Total distance	6331.98 m	Average negative acceleration	-0.354 m/s^2
Total time	1155 s	Standard deviation of accel.	0.458 m/s^2
Driving time	1040 s	Standard dev. of positive accel.	0.300 m/s^2
Drive time	209 s	Accel: 75th - 25th percentile	0.414 m/s^2
Drive time spent accelerating	422 s	Number of accelerations	43
Drive time spent decelerating	409 s	Accelerations per km	6.791 /km
Time spent braking	260 s	Number of stops	12
Standing time	115 s	Stops per km	1.9 /km
% of time driving	90.04 %	Average stop duration	9.58 s
% of cruising	18.10 %	Average distance between stops	527.66 m
% of time accelerating	36.54 %	Relative positive acceleration	0.1442 m/s^2
% of time decelerating	35.41 %	Positive kinetic energy	3.767 m/s^2
% of time braking	22.51 %	Relative positive speed	0.524
% of time standing	9.96 %	Relative real speed	0.791
Average speed (trip)	19.7 km/h	Relative square speed	8.520 m/s
Average driving speed	21.92 km/h	Relative positive square speed	4.444 m/s
Standard deviation of speed	13.86 km/h	Relative real square speed	6.967 m/s
Speed: 75th - 25th percentile	28.57 km/h	Relative cubic speed	81.44 m^2/s^2
Maximum speed	46.75 km/h	Relative positive cubic speed	42.29 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	67.99 m^2/s^2
Average positive acceleration	0.328 m/s^2	Root mean square of acceleration	0.186 m/s^2

Cycle No: 66

Cycle name: **UG214 LGV06: mini-roundabout**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

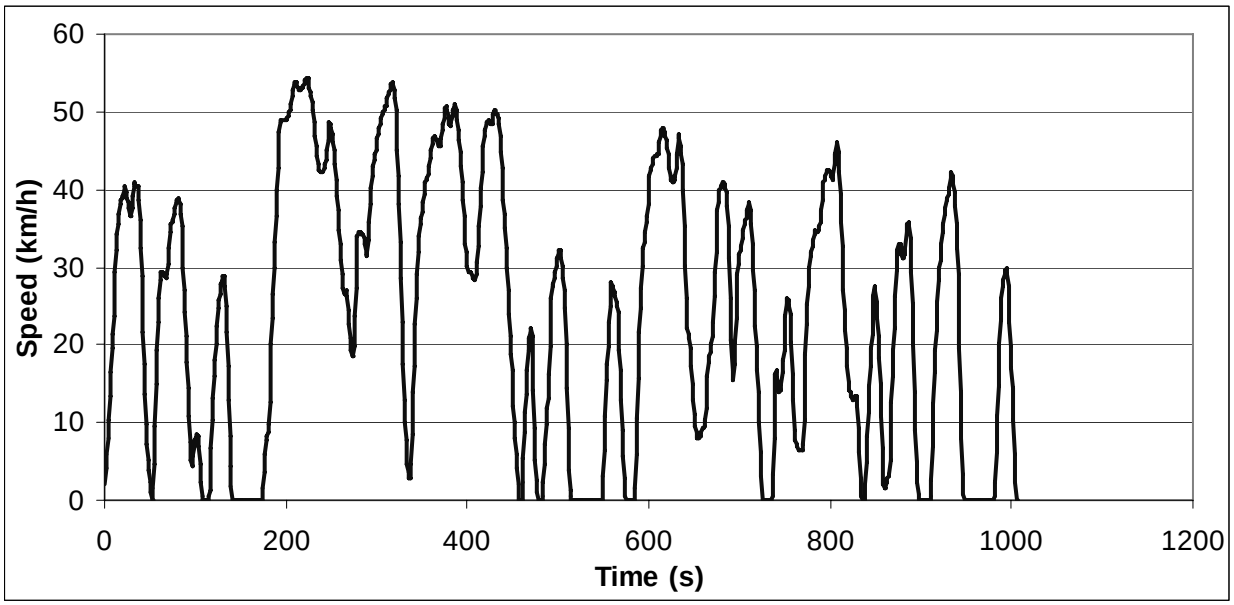


ART.KINEMA parameters

Total distance	7298.43 m	Average negative acceleration	-0.369 m/s^2
Total time	842 s	Standard deviation of accel.	0.477 m/s^2
Driving time	842 s	Standard dev. of positive accel.	0.290 m/s^2
Drive time	133 s	Accel: 75th - 25th percentile	0.478 m/s^2
Drive time spent accelerating	379 s	Number of accelerations	43
Drive time spent decelerating	330 s	Accelerations per km	5.892 /km
Time spent braking	201 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	15.80 %	Average distance between stops	N/A m
% of time accelerating	45.01 %	Relative positive acceleration	0.1481 m/s^2
% of time decelerating	39.19 %	Positive kinetic energy	3.882 m/s^2
% of time braking	23.87 %	Relative positive speed	0.538
% of time standing	0.00 %	Relative real speed	0.785
Average speed (trip)	31.2 km/h	Relative square speed	9.821 m/s
Average driving speed	31.2 km/h	Relative positive square speed	5.286 m/s
Standard deviation of speed	11.39 km/h	Relative real square speed	7.874 m/s
Speed: 75th - 25th percentile	15.12 km/h	Relative cubic speed	101.87 m^2/s^2
Maximum speed	51.1 km/h	Relative positive cubic speed	54.81 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	82.98 m^2/s^2
Average positive acceleration	0.323 m/s^2	Root mean square of acceleration	0.162 m/s^2

Cycle No: 67

Cycle name: **UG214 LGV07: urban traffic control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

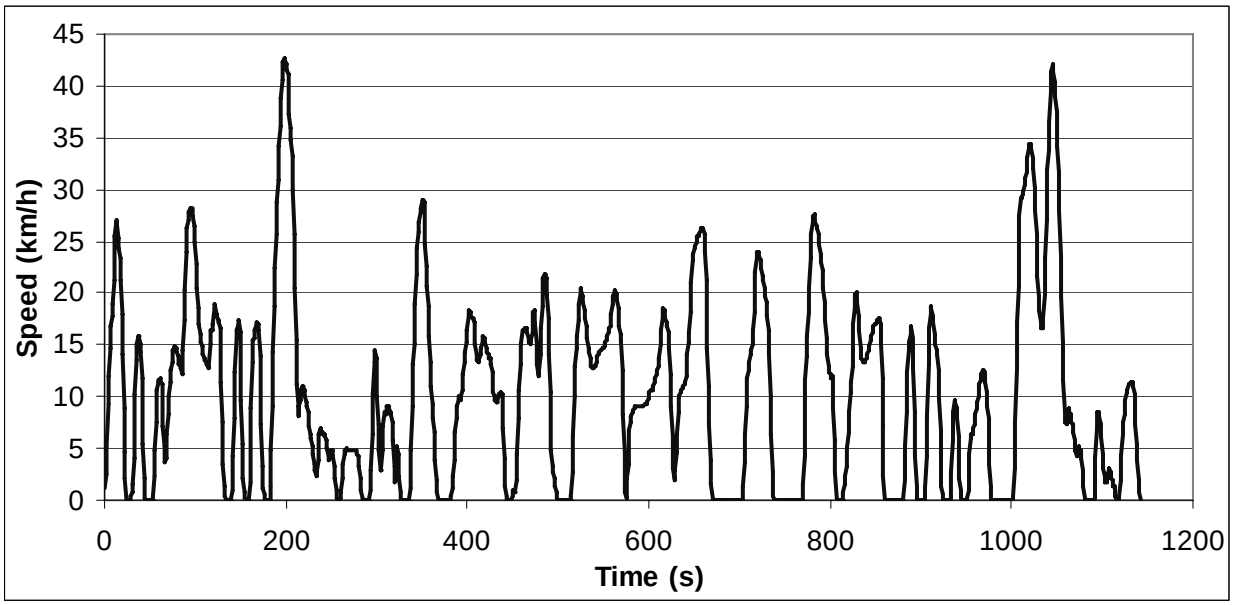


ART.KINEMA parameters

Total distance	6732.51 m	Average negative acceleration	-0.460 m/s^2
Total time	1006 s	Standard deviation of accel.	0.551 m/s^2
Driving time	890 s	Standard dev. of positive accel.	0.322 m/s^2
Drive time	120 s	Accel: 75th - 25th percentile	0.488 m/s^2
Drive time spent accelerating	426 s	Number of accelerations	35
Drive time spent decelerating	344 s	Accelerations per km	5.199 /km
Time spent braking	247 s	Number of stops	8
Standing time	116 s	Stops per km	1.19 /km
% of time driving	88.47 %	Average stop duration	14.5 s
% of cruising	11.93 %	Average distance between stops	841.56 m
% of time accelerating	42.35 %	Relative positive acceleration	0.174 m/s^2
% of time decelerating	34.19 %	Positive kinetic energy	4.533 m/s^2
% of time braking	24.55 %	Relative positive speed	0.566
% of time standing	11.53 %	Relative real speed	0.765
Average speed (trip)	24.1 km/h	Relative square speed	10.129 m/s
Average driving speed	27.23 km/h	Relative positive square speed	5.821 m/s
Standard deviation of speed	15.86 km/h	Relative real square speed	8.061 m/s
Speed: 75th - 25th percentile	32.24 km/h	Relative cubic speed	113.41 m^2/s^2
Maximum speed	54.33 km/h	Relative positive cubic speed	65.70 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	92.66 m^2/s^2
Average positive acceleration	0.387 m/s^2	Root mean square of acceleration	0.200 m/s^2

Cycle No: 68

Cycle name: **UG214 LGV08: congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

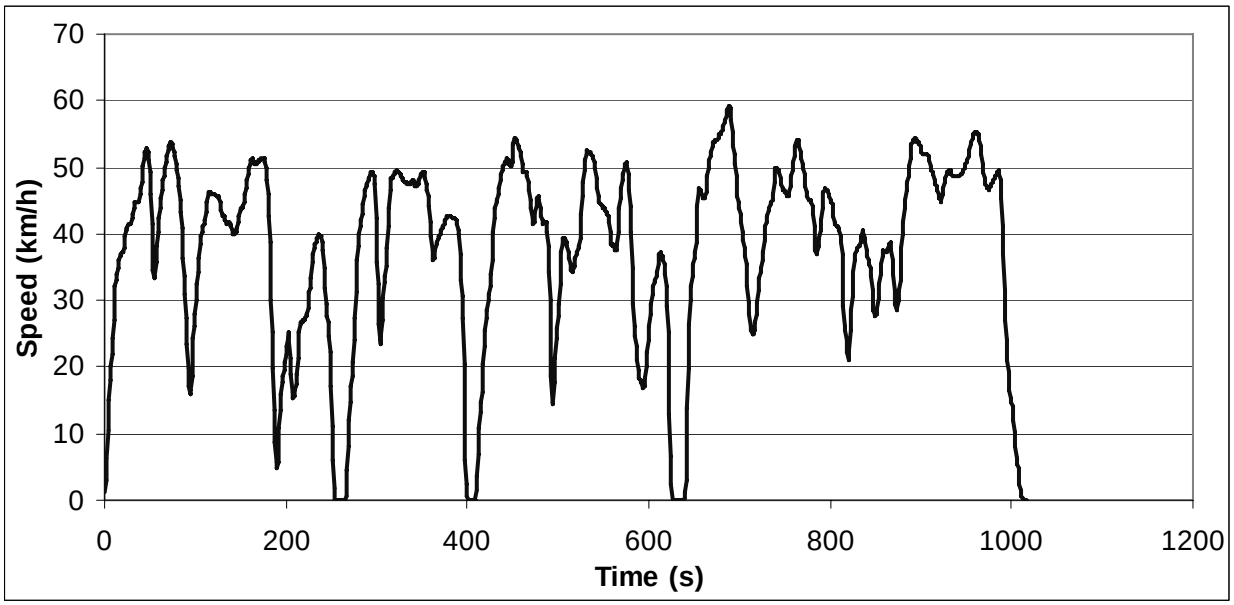


ART.KINEMA parameters

Total distance	3267.83 m	Average negative acceleration	-0.322 m/s^2
Total time	1142 s	Standard deviation of accel.	0.428 m/s^2
Driving time	982 s	Standard dev. of positive accel.	0.291 m/s^2
Drive time	206 s	Accel: 75th - 25th percentile	0.318 m/s^2
Drive time spent accelerating	391 s	Number of accelerations	46
Drive time spent decelerating	385 s	Accelerations per km	14.077 /km
Time spent braking	210 s	Number of stops	19
Standing time	160 s	Stops per km	5.81 /km
% of time driving	85.99 %	Average stop duration	8.42 s
% of cruising	18.04 %	Average distance between stops	171.99 m
% of time accelerating	34.24 %	Relative positive acceleration	0.1635 m/s^2
% of time decelerating	33.71 %	Positive kinetic energy	4.260 m/s^2
% of time braking	18.39 %	Relative positive speed	0.524
% of time standing	14.01 %	Relative real speed	0.775
Average speed (trip)	10.3 km/h	Relative square speed	5.244 m/s
Average driving speed	11.98 km/h	Relative positive square speed	2.717 m/s
Standard deviation of speed	9.1 km/h	Relative real square speed	3.997 m/s
Speed: 75th - 25th percentile	14.8 km/h	Relative cubic speed	34.25 m^2/s^2
Maximum speed	42.46 km/h	Relative positive cubic speed	17.47 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	25.48 m^2/s^2
Average positive acceleration	0.301 m/s^2	Root mean square of acceleration	0.234 m/s^2

Cycle No: 69

Cycle name: **UG214 LGV09: non-congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

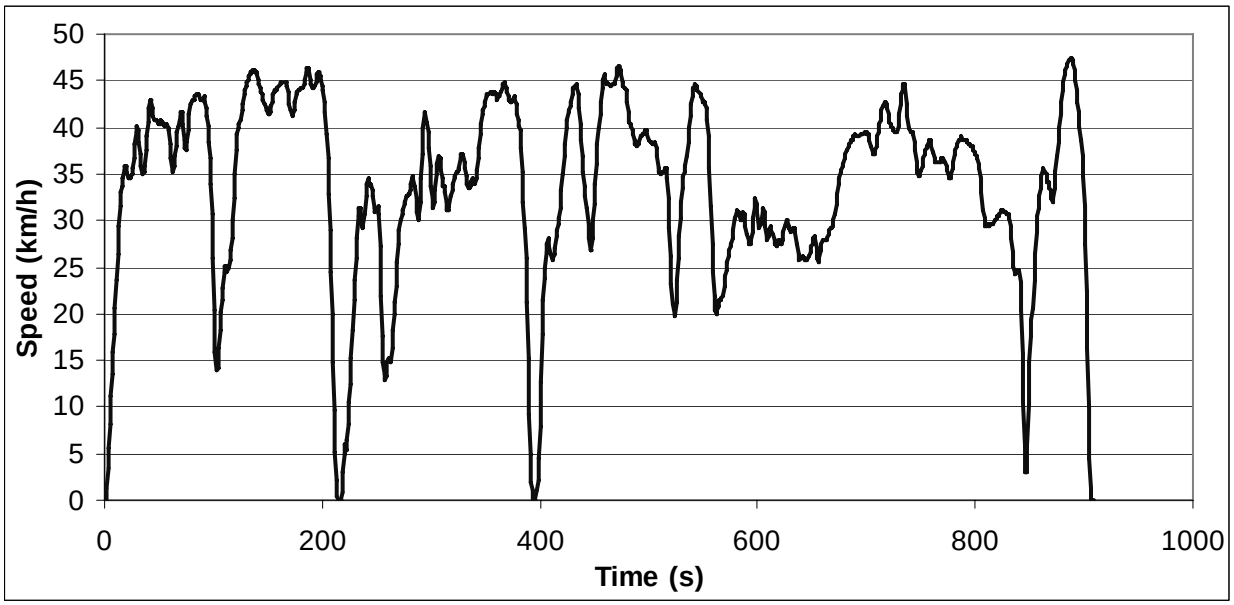


ART.KINEMA parameters

Total distance	10649.31 m	Average negative acceleration	-0.324 m/s^2
Total time	1016 s	Standard deviation of accel.	0.435 m/s^2
Driving time	991 s	Standard dev. of positive accel.	0.249 m/s^2
Drive time	205 s	Accel: 75th - 25th percentile	0.386 m/s^2
Drive time spent accelerating	439 s	Number of accelerations	35
Drive time spent decelerating	347 s	Accelerations per km	3.287 /km
Time spent braking	194 s	Number of stops	4
Standing time	25 s	Stops per km	0.38 /km
% of time driving	97.54 %	Average stop duration	6.25 s
% of cruising	20.18 %	Average distance between stops	2662.33 m
% of time accelerating	43.21 %	Relative positive acceleration	0.1264 m/s^2
% of time decelerating	34.15 %	Positive kinetic energy	3.294 m/s^2
% of time braking	19.09 %	Relative positive speed	0.531
% of time standing	2.46 %	Relative real speed	0.834
Average speed (trip)	37.7 km/h	Relative square speed	11.960 m/s
Average driving speed	38.69 km/h	Relative positive square speed	6.286 m/s
Standard deviation of speed	13.01 km/h	Relative real square speed	10.170 m/s
Speed: 75th - 25th percentile	17.22 km/h	Relative cubic speed	149.51 m^2/s^2
Maximum speed	59.09 km/h	Relative positive cubic speed	78.08 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	128.86 m^2/s^2
Average positive acceleration	0.283 m/s^2	Root mean square of acceleration	0.133 m/s^2

Cycle No: 70

Cycle name: **UG214 LGV10: traffic calming (other)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Vans**

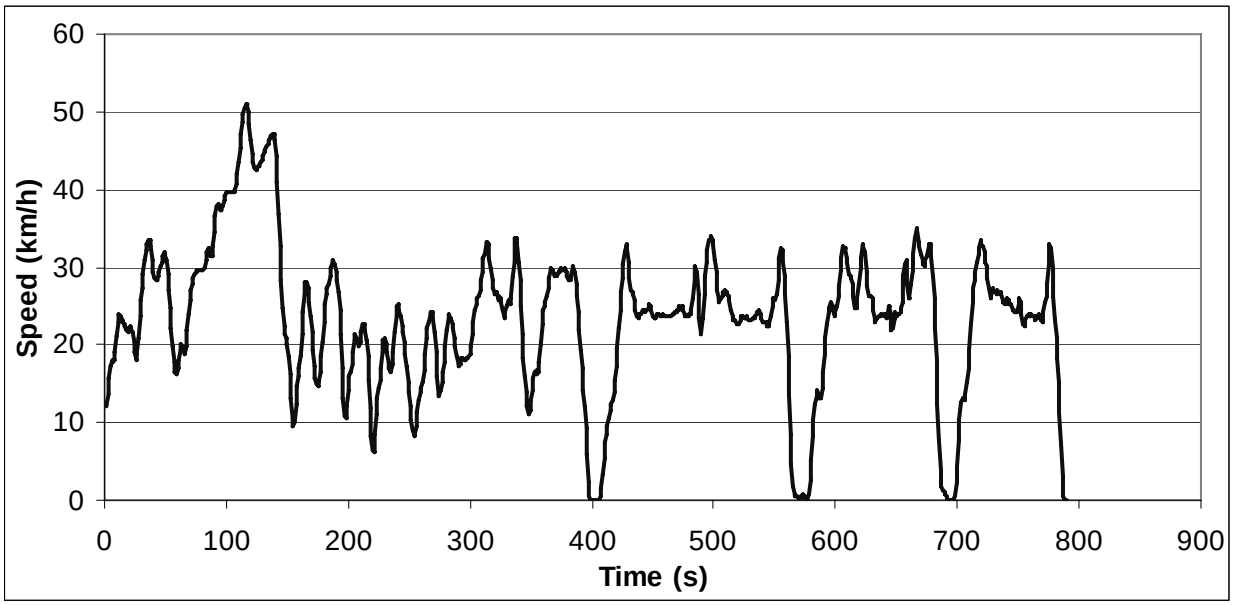


ART.KINEMA parameters

Total distance	8492.02 m	Average negative acceleration	-0.251 m/s^2
Total time	909 s	Standard deviation of accel.	0.362 m/s^2
Driving time	908 s	Standard dev. of positive accel.	0.220 m/s^2
Drive time	270 s	Accel: 75th - 25th percentile	0.268 m/s^2
Drive time spent accelerating	348 s	Number of accelerations	42
Drive time spent decelerating	290 s	Accelerations per km	4.946 /km
Time spent braking	113 s	Number of stops	1
Standing time	1 s	Stops per km	0.12 /km
% of time driving	99.89 %	Average stop duration	1 s
% of cruising	29.70 %	Average distance between stops	8492.02 m
% of time accelerating	38.28 %	Relative positive acceleration	0.0971 m/s^2
% of time decelerating	31.90 %	Positive kinetic energy	2.544 m/s^2
% of time braking	12.43 %	Relative positive speed	0.530
% of time standing	0.11 %	Relative real speed	0.892
Average speed (trip)	33.6 km/h	Relative square speed	10.161 m/s
Average driving speed	33.67 km/h	Relative positive square speed	5.307 m/s
Standard deviation of speed	9.9 km/h	Relative real square speed	9.148 m/s
Speed: 75th - 25th percentile	11.93 km/h	Relative cubic speed	107.22 m^2/s^2
Maximum speed	47.42 km/h	Relative positive cubic speed	55.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	97.20 m^2/s^2
Average positive acceleration	0.213 m/s^2	Root mean square of acceleration	0.118 m/s^2

Cycle No: 71

Cycle name: **UG214 HGV01: suburban control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

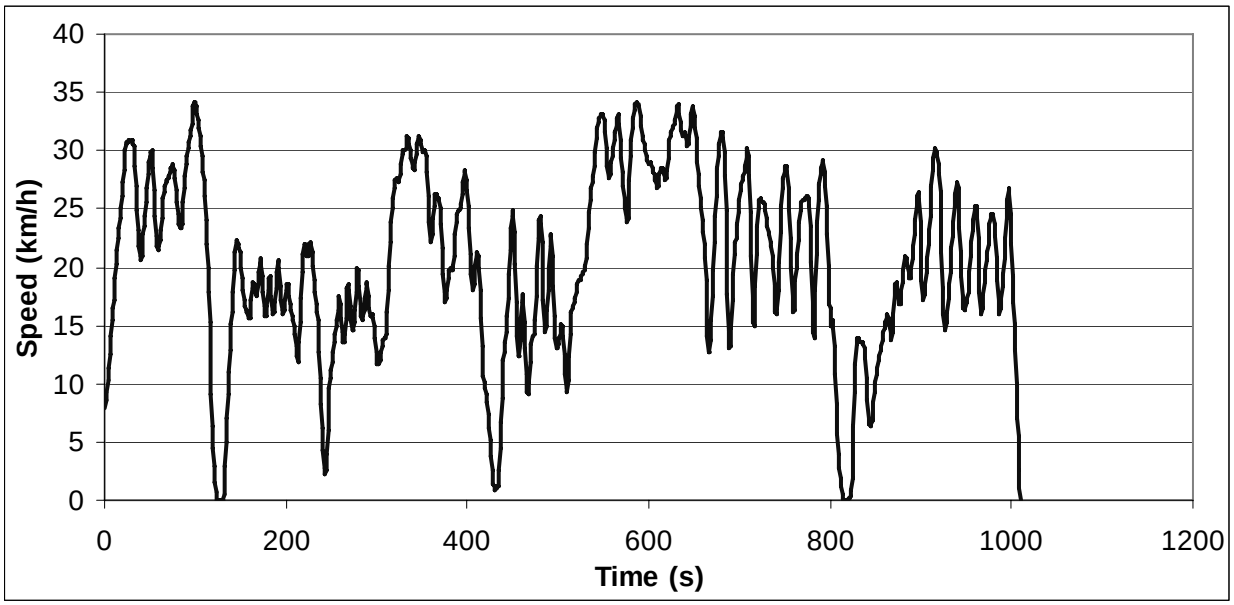


ART.KINEMA parameters

Total distance	5119.97 m	Average negative acceleration	-0.287 m/s^2
Total time	790 s	Standard deviation of accel.	0.367 m/s^2
Driving time	784 s	Standard dev. of positive accel.	0.201 m/s^2
Drive time	226 s	Accel: 75th - 25th percentile	0.340 m/s^2
Drive time spent accelerating	308 s	Number of accelerations	43
Drive time spent decelerating	250 s	Accelerations per km	8.399 /km
Time spent braking	144 s	Number of stops	3
Standing time	6 s	Stops per km	0.59 /km
% of time driving	99.24 %	Average stop duration	2 s
% of cruising	28.61 %	Average distance between stops	1706.66 m
% of time accelerating	38.99 %	Relative positive acceleration	0.1206 m/s^2
% of time decelerating	31.65 %	Positive kinetic energy	3.174 m/s^2
% of time braking	18.23 %	Relative positive speed	0.552
% of time standing	0.76 %	Relative real speed	0.825
Average speed (trip)	23.3 km/h	Relative square speed	7.567 m/s
Average driving speed	23.51 km/h	Relative positive square speed	4.224 m/s
Standard deviation of speed	9.37 km/h	Relative real square speed	6.276 m/s
Speed: 75th - 25th percentile	10.15 km/h	Relative cubic speed	62.35 m^2/s^2
Maximum speed	50.82 km/h	Relative positive cubic speed	35.53 m^2/s^2
Average acceleration	-0.004 m/s^2	Relative real cubic speed	51.68 m^2/s^2
Average positive acceleration	0.235 m/s^2	Root mean square of acceleration	0.143 m/s^2

Cycle No: 72

Cycle name: **UG214 HGV02: traffic calming (road hump)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

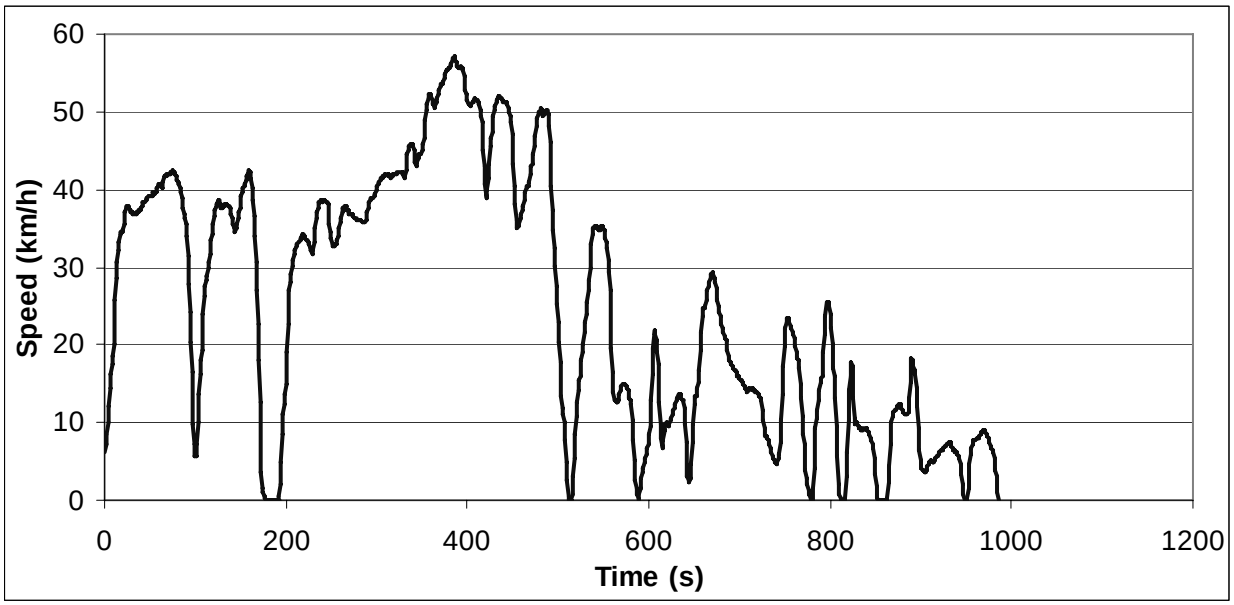


ART.KINEMA parameters

Total distance	5754.63 m	Average negative acceleration	-0.262 m/s^2
Total time	1010 s	Standard deviation of accel.	0.305 m/s^2
Driving time	1005 s	Standard dev. of positive accel.	0.161 m/s^2
Drive time	179 s	Accel: 75th - 25th percentile	0.386 m/s^2
Drive time spent accelerating	454 s	Number of accelerations	56
Drive time spent decelerating	372 s	Accelerations per km	9.731 /km
Time spent braking	196 s	Number of stops	2
Standing time	5 s	Stops per km	0.35 /km
% of time driving	99.50 %	Average stop duration	2.5 s
% of cruising	17.72 %	Average distance between stops	2877.31 m
% of time accelerating	44.95 %	Relative positive acceleration	0.1118 m/s^2
% of time decelerating	36.83 %	Positive kinetic energy	2.938 m/s^2
% of time braking	19.41 %	Relative positive speed	0.547
% of time standing	0.50 %	Relative real speed	0.820
Average speed (trip)	20.5 km/h	Relative square speed	6.530 m/s
Average driving speed	20.61 km/h	Relative positive square speed	3.559 m/s
Standard deviation of speed	7.73 km/h	Relative real square speed	5.435 m/s
Speed: 75th - 25th percentile	11.23 km/h	Relative cubic speed	45.76 m^2/s^2
Maximum speed	34.07 km/h	Relative positive cubic speed	24.82 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	38.64 m^2/s^2
Average positive acceleration	0.217 m/s^2	Root mean square of acceleration	0.128 m/s^2

Cycle No: 73

Cycle name: **UG214 HGV03: cycle-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

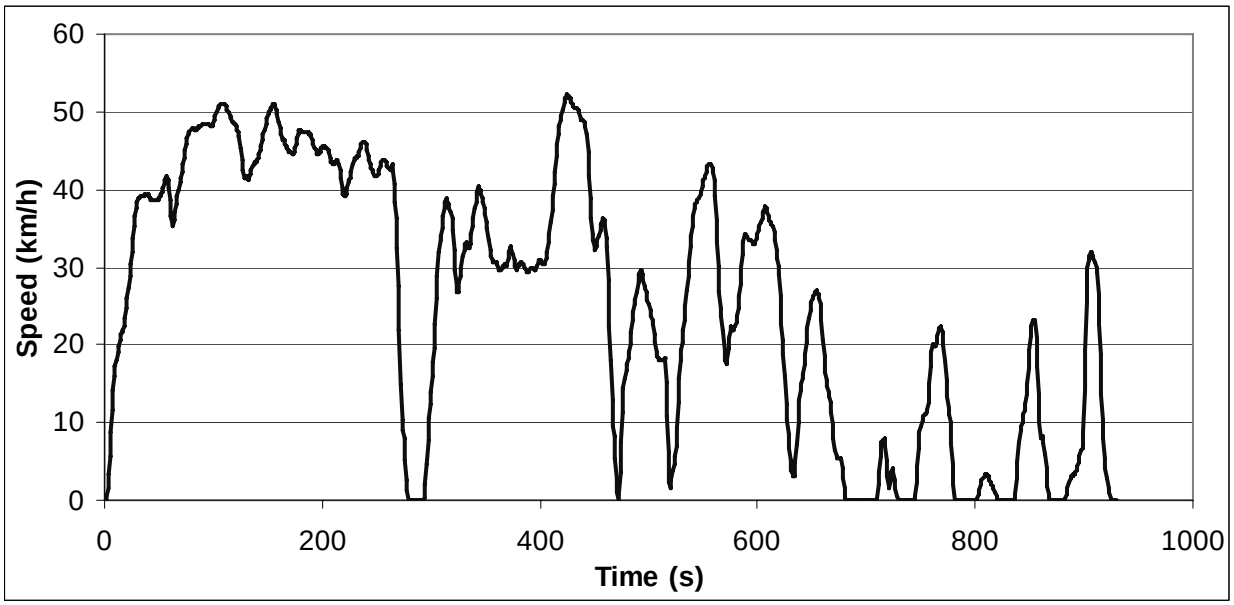


ART.KINEMA parameters

Total distance	6827.25 m	Average negative acceleration	-0.221 m/s^2
Total time	985 s	Standard deviation of accel.	0.316 m/s^2
Driving time	966 s	Standard dev. of positive accel.	0.210 m/s^2
Drive time	331 s	Accel: 75th - 25th percentile	0.216 m/s^2
Drive time spent accelerating	338 s	Number of accelerations	34
Drive time spent decelerating	297 s	Accelerations per km	4.980 /km
Time spent braking	130 s	Number of stops	3
Standing time	19 s	Stops per km	0.44 /km
% of time driving	98.07 %	Average stop duration	6.33 s
% of cruising	33.60 %	Average distance between stops	2275.75 m
% of time accelerating	34.31 %	Relative positive acceleration	0.0863 m/s^2
% of time decelerating	30.15 %	Positive kinetic energy	2.250 m/s^2
% of time braking	13.20 %	Relative positive speed	0.557
% of time standing	1.93 %	Relative real speed	0.900
Average speed (trip)	25.0 km/h	Relative square speed	9.988 m/s
Average driving speed	25.44 km/h	Relative positive square speed	5.691 m/s
Standard deviation of speed	16.36 km/h	Relative real square speed	9.158 m/s
Speed: 75th - 25th percentile	29.19 km/h	Relative cubic speed	113.26 m^2/s^2
Maximum speed	56.96 km/h	Relative positive cubic speed	64.94 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	105.00 m^2/s^2
Average positive acceleration	0.197 m/s^2	Root mean square of acceleration	0.119 m/s^2

Cycle No: 74

Cycle name: **UG214 HGV04: bus-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

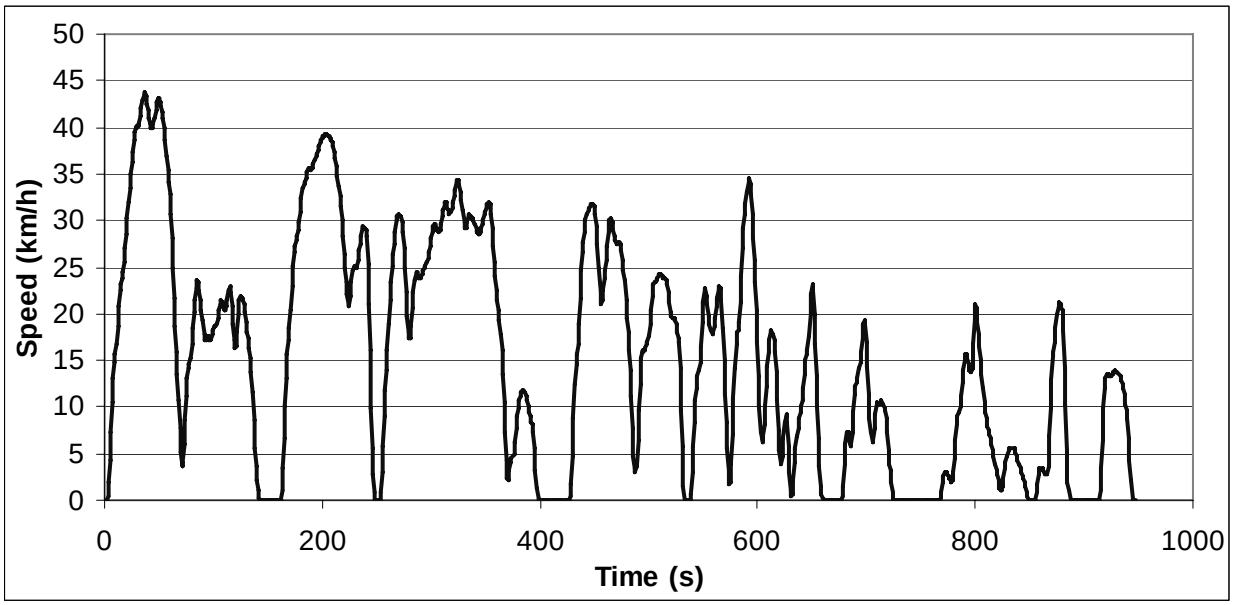


ART.KINEMA parameters

Total distance	6560.03 m	Average negative acceleration	-0.269 m/s^2
Total time	930 s	Standard deviation of accel.	0.369 m/s^2
Driving time	826 s	Standard dev. of positive accel.	0.229 m/s^2
Drive time	188 s	Accel: 75th - 25th percentile	0.259 m/s^2
Drive time spent accelerating	350 s	Number of accelerations	38
Drive time spent decelerating	288 s	Accelerations per km	5.793 /km
Time spent braking	133 s	Number of stops	7
Standing time	104 s	Stops per km	1.07 /km
% of time driving	88.82 %	Average stop duration	14.86 s
% of cruising	20.22 %	Average distance between stops	937.15 m
% of time accelerating	37.63 %	Relative positive acceleration	0.1 m/s^2
% of time decelerating	30.97 %	Positive kinetic energy	2.632 m/s^2
% of time braking	14.30 %	Relative positive speed	0.527
% of time standing	11.18 %	Relative real speed	0.885
Average speed (trip)	25.4 km/h	Relative square speed	10.325 m/s
Average driving speed	28.59 km/h	Relative positive square speed	5.363 m/s
Standard deviation of speed	15.67 km/h	Relative real square speed	9.388 m/s
Speed: 75th - 25th percentile	33.92 km/h	Relative cubic speed	115.84 m^2/s^2
Maximum speed	52.19 km/h	Relative positive cubic speed	59.35 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	107.03 m^2/s^2
Average positive acceleration	0.236 m/s^2	Root mean square of acceleration	0.131 m/s^2

Cycle No: 75

Cycle name: **UG214 HGV05: one-way**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

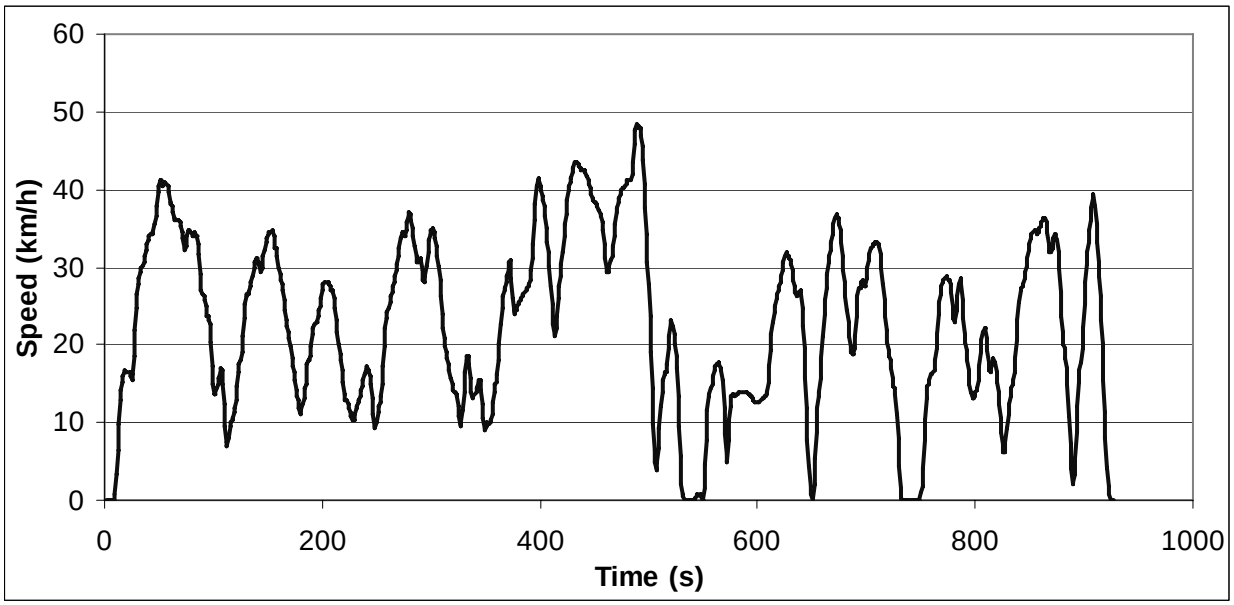


ART.KINEMA parameters

Total distance	4018.72 m	Average negative acceleration	-0.320 m/s^2
Total time	947 s	Standard deviation of accel.	0.402 m/s^2
Driving time	805 s	Standard dev. of positive accel.	0.228 m/s^2
Drive time	126 s	Accel: 75th - 25th percentile	0.355 m/s^2
Drive time spent accelerating	364 s	Number of accelerations	42
Drive time spent decelerating	315 s	Accelerations per km	10.451 /km
Time spent braking	178 s	Number of stops	9
Standing time	142 s	Stops per km	2.24 /km
% of time driving	85.01 %	Average stop duration	15.78 s
% of cruising	13.31 %	Average distance between stops	446.52 m
% of time accelerating	38.44 %	Relative positive acceleration	0.1343 m/s^2
% of time decelerating	33.26 %	Positive kinetic energy	3.541 m/s^2
% of time braking	18.80 %	Relative positive speed	0.540
% of time standing	14.99 %	Relative real speed	0.796
Average speed (trip)	15.3 km/h	Relative square speed	6.977 m/s
Average driving speed	17.97 km/h	Relative positive square speed	3.787 m/s
Standard deviation of speed	11.34 km/h	Relative real square speed	5.716 m/s
Speed: 75th - 25th percentile	21.18 km/h	Relative cubic speed	55.98 m^2/s^2
Maximum speed	43.71 km/h	Relative positive cubic speed	30.29 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	47.05 m^2/s^2
Average positive acceleration	0.291 m/s^2	Root mean square of acceleration	0.180 m/s^2

Cycle No: 76

Cycle name: **UG214 HGV06: mini-roundabouts**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

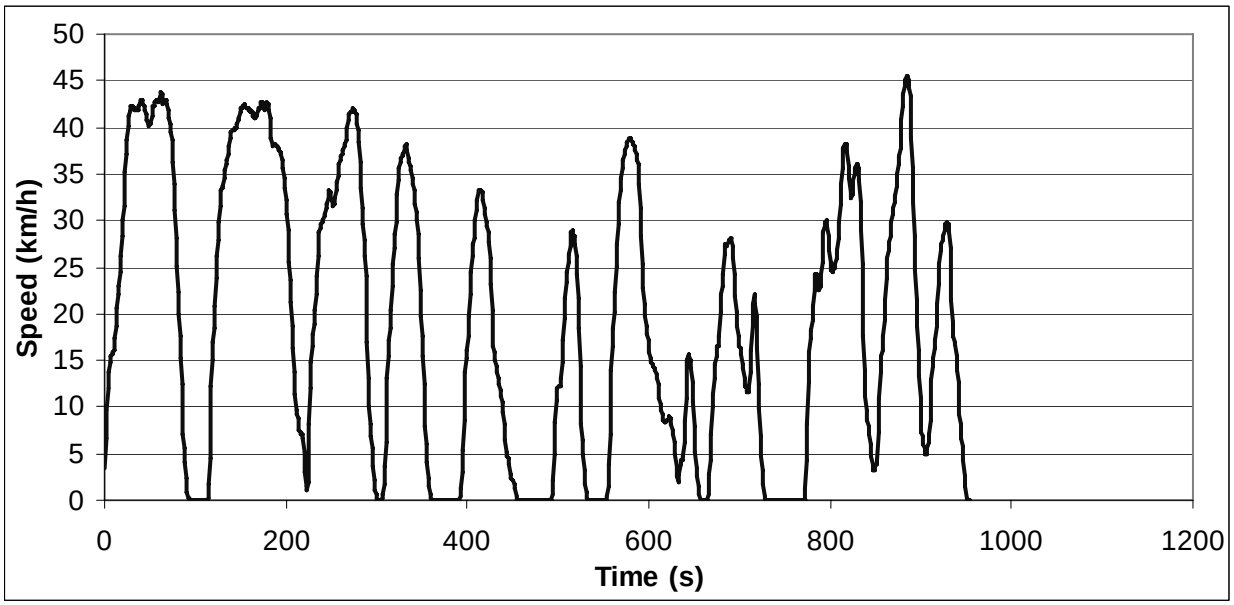


ART.KINEMA parameters

Total distance	5801.66 m	Average negative acceleration	-0.306 m/s^2
Total time	927 s	Standard deviation of accel.	0.375 m/s^2
Driving time	893 s	Standard dev. of positive accel.	0.212 m/s^2
Drive time	149 s	Accel: 75th - 25th percentile	0.414 m/s^2
Drive time spent accelerating	409 s	Number of accelerations	44
Drive time spent decelerating	335 s	Accelerations per km	7.584 /km
Time spent braking	199 s	Number of stops	4
Standing time	34 s	Stops per km	0.69 /km
% of time driving	96.33 %	Average stop duration	8.5 s
% of cruising	16.07 %	Average distance between stops	1450.42 m
% of time accelerating	44.12 %	Relative positive acceleration	0.1298 m/s^2
% of time decelerating	36.14 %	Positive kinetic energy	3.425 m/s^2
% of time braking	21.47 %	Relative positive speed	0.531
% of time standing	3.67 %	Relative real speed	0.797
Average speed (trip)	22.5 km/h	Relative square speed	7.868 m/s
Average driving speed	23.39 km/h	Relative positive square speed	4.105 m/s
Standard deviation of speed	10.75 km/h	Relative real square speed	6.412 m/s
Speed: 75th - 25th percentile	17.81 km/h	Relative cubic speed	68.59 m^2/s^2
Maximum speed	48.39 km/h	Relative positive cubic speed	35.15 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	56.99 m^2/s^2
Average positive acceleration	0.266 m/s^2	Root mean square of acceleration	0.147 m/s^2

Cycle No: 77

Cycle name: **UG214 HGV07: urban traffic control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

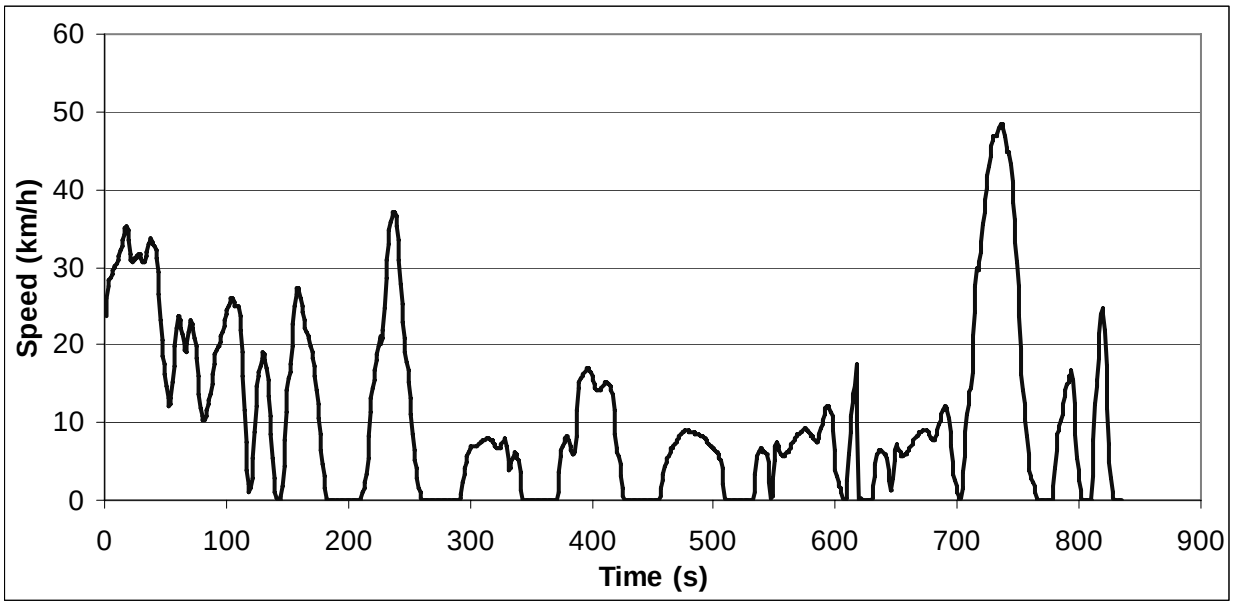


ART.KINEMA parameters

Total distance	5068.47 m	Average negative acceleration	-0.309 m/s^2
Total time	954 s	Standard deviation of accel.	0.402 m/s^2
Driving time	795 s	Standard dev. of positive accel.	0.250 m/s^2
Drive time	118 s	Accel: 75th - 25th percentile	0.349 m/s^2
Drive time spent accelerating	342 s	Number of accelerations	31
Drive time spent decelerating	335 s	Accelerations per km	6.116 /km
Time spent braking	176 s	Number of stops	8
Standing time	159 s	Stops per km	1.58 /km
% of time driving	83.33 %	Average stop duration	19.88 s
% of cruising	12.37 %	Average distance between stops	633.56 m
% of time accelerating	35.85 %	Relative positive acceleration	0.1321 m/s^2
% of time decelerating	35.12 %	Positive kinetic energy	3.451 m/s^2
% of time braking	18.45 %	Relative positive speed	0.538
% of time standing	16.67 %	Relative real speed	0.823
Average speed (trip)	19.1 km/h	Relative square speed	8.607 m/s
Average driving speed	22.95 km/h	Relative positive square speed	4.691 m/s
Standard deviation of speed	13.59 km/h	Relative real square speed	7.363 m/s
Speed: 75th - 25th percentile	29.43 km/h	Relative cubic speed	82.42 m^2/s^2
Maximum speed	45.47 km/h	Relative positive cubic speed	44.81 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	72.40 m^2/s^2
Average positive acceleration	0.307 m/s^2	Root mean square of acceleration	0.159 m/s^2

Cycle No: 78

Cycle name: **UG214 HGV08: congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

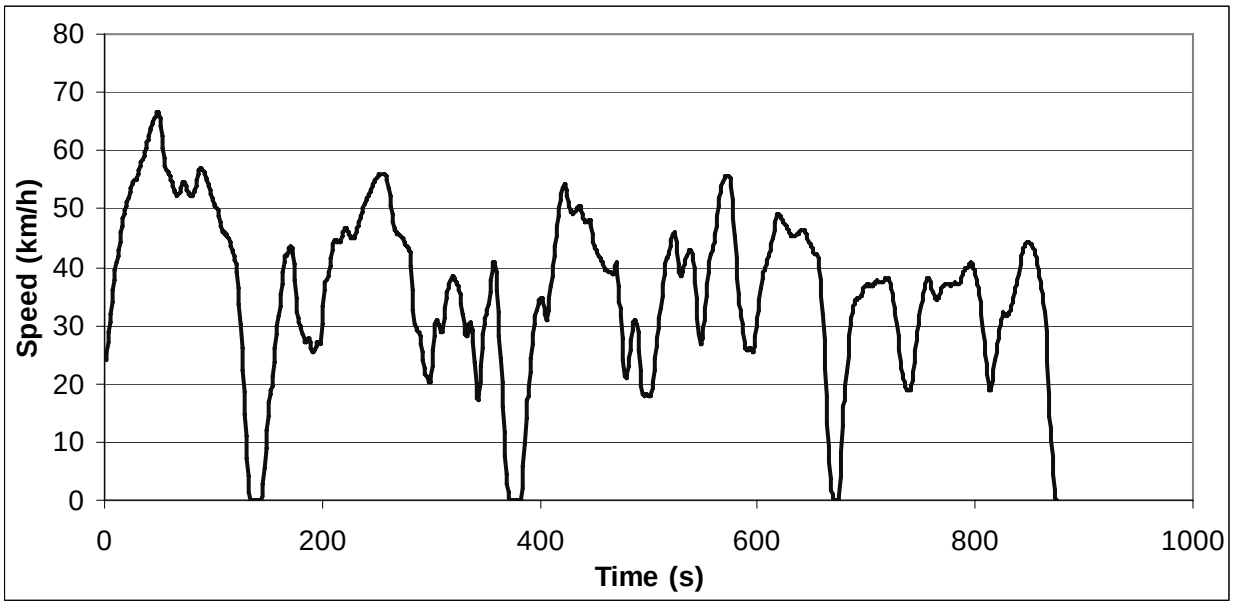


ART.KINEMA parameters

Total distance	2510.54 m	Average negative acceleration	-0.288 m/s^2
Total time	835 s	Standard deviation of accel.	0.385 m/s^2
Driving time	678 s	Standard dev. of positive accel.	0.246 m/s^2
Drive time	164 s	Accel: 75th - 25th percentile	0.239 m/s^2
Drive time spent accelerating	270 s	Number of accelerations	32
Drive time spent decelerating	244 s	Accelerations per km	12.746 /km
Time spent braking	139 s	Number of stops	9
Standing time	157 s	Stops per km	3.58 /km
% of time driving	81.20 %	Average stop duration	17.44 s
% of cruising	19.64 %	Average distance between stops	278.95 m
% of time accelerating	32.34 %	Relative positive acceleration	0.1397 m/s^2
% of time decelerating	29.22 %	Positive kinetic energy	3.693 m/s^2
% of time braking	16.65 %	Relative positive speed	0.541
% of time standing	18.80 %	Relative real speed	0.776
Average speed (trip)	10.8 km/h	Relative square speed	6.251 m/s
Average driving speed	13.33 km/h	Relative positive square speed	3.485 m/s
Standard deviation of speed	11.07 km/h	Relative real square speed	4.837 m/s
Speed: 75th - 25th percentile	15.23 km/h	Relative cubic speed	50.97 m^2/s^2
Maximum speed	48.52 km/h	Relative positive cubic speed	29.03 m^2/s^2
Average acceleration	-0.009 m/s^2	Relative real cubic speed	39.89 m^2/s^2
Average positive acceleration	0.255 m/s^2	Root mean square of acceleration	0.200 m/s^2

Cycle No: 79

Cycle name: **UG214 HGV09: non-congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

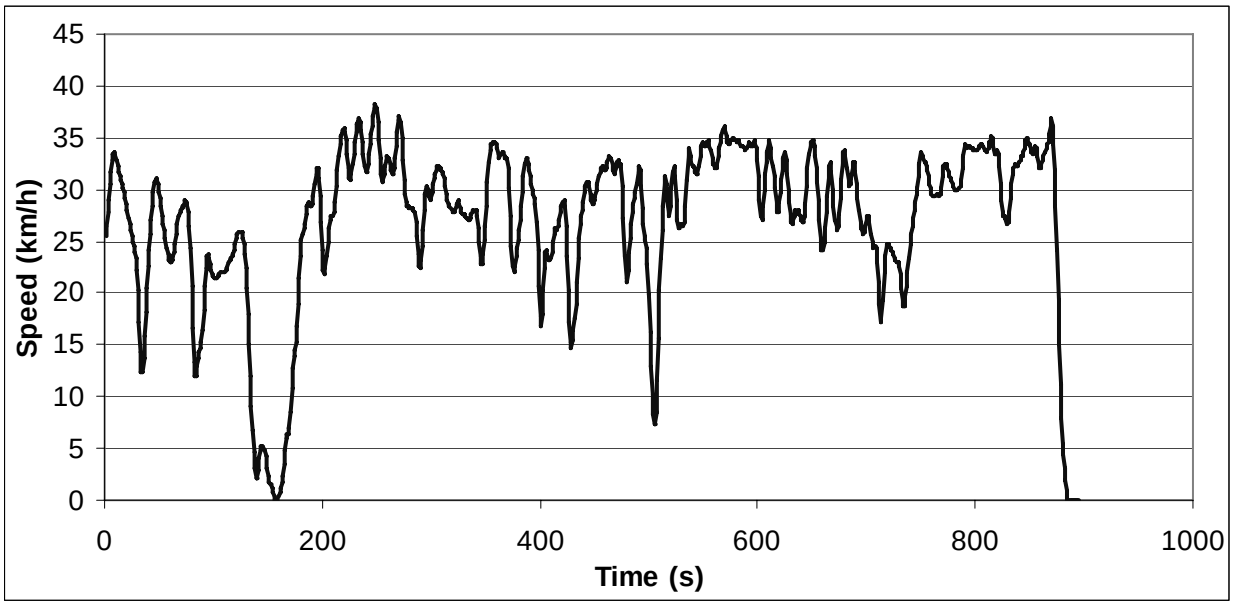


ART.KINEMA parameters

Total distance	8806.44 m	Average negative acceleration	-0.297 m/s^2
Total time	875 s	Standard deviation of accel.	0.389 m/s^2
Driving time	855 s	Standard dev. of positive accel.	0.220 m/s^2
Drive time	156 s	Accel: 75th - 25th percentile	0.357 m/s^2
Drive time spent accelerating	365 s	Number of accelerations	34
Drive time spent decelerating	334 s	Accelerations per km	3.861 /km
Time spent braking	161 s	Number of stops	3
Standing time	20 s	Stops per km	0.34 /km
% of time driving	97.71 %	Average stop duration	6.67 s
% of cruising	17.83 %	Average distance between stops	2935.48 m
% of time accelerating	41.71 %	Relative positive acceleration	0.1184 m/s^2
% of time decelerating	38.17 %	Positive kinetic energy	3.099 m/s^2
% of time braking	18.40 %	Relative positive speed	0.518
% of time standing	2.29 %	Relative real speed	0.841
Average speed (trip)	36.2 km/h	Relative square speed	11.564 m/s
Average driving speed	37.08 km/h	Relative positive square speed	5.986 m/s
Standard deviation of speed	13 km/h	Relative real square speed	9.918 m/s
Speed: 75th - 25th percentile	17.16 km/h	Relative cubic speed	142.77 m^2/s^2
Maximum speed	66.69 km/h	Relative positive cubic speed	74.11 m^2/s^2
Average acceleration	-0.008 m/s^2	Relative real cubic speed	123.96 m^2/s^2
Average positive acceleration	0.266 m/s^2	Root mean square of acceleration	0.121 m/s^2

Cycle No: 80

Cycle name: **UG214 HGV10: traffic calming (other)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **HGVs**

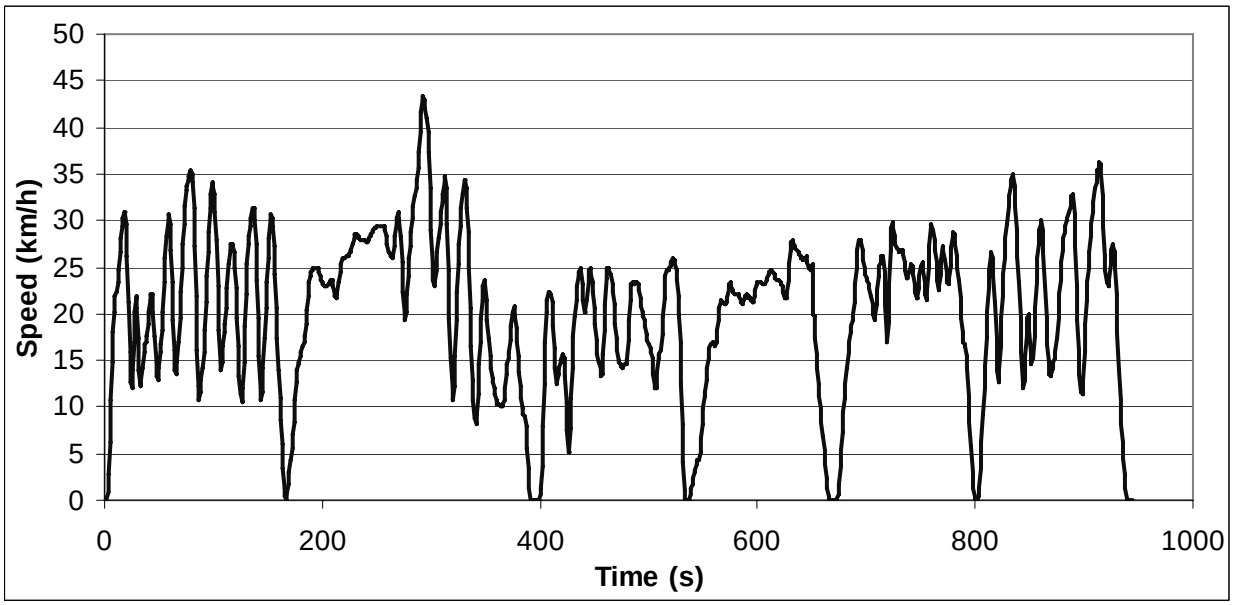


ART.KINEMA parameters

Total distance	6702.75 m	Average negative acceleration	-0.208 m/s^2
Total time	895 s	Standard deviation of accel.	0.285 m/s^2
Driving time	887 s	Standard dev. of positive accel.	0.173 m/s^2
Drive time	254 s	Accel: 75th - 25th percentile	0.269 m/s^2
Drive time spent accelerating	324 s	Number of accelerations	51
Drive time spent decelerating	309 s	Accelerations per km	7.609 /km
Time spent braking	123 s	Number of stops	1
Standing time	8 s	Stops per km	0.15 /km
% of time driving	99.11 %	Average stop duration	8 s
% of cruising	28.38 %	Average distance between stops	6702.75 m
% of time accelerating	36.20 %	Relative positive acceleration	0.0895 m/s^2
% of time decelerating	34.53 %	Positive kinetic energy	2.356 m/s^2
% of time braking	13.74 %	Relative positive speed	0.506
% of time standing	0.89 %	Relative real speed	0.876
Average speed (trip)	27.0 km/h	Relative square speed	8.159 m/s
Average driving speed	27.2 km/h	Relative positive square speed	4.118 m/s
Standard deviation of speed	7.69 km/h	Relative real square speed	7.223 m/s
Speed: 75th - 25th percentile	8.16 km/h	Relative cubic speed	68.55 m^2/s^2
Maximum speed	37.98 km/h	Relative positive cubic speed	34.50 m^2/s^2
Average acceleration	-0.008 m/s^2	Relative real cubic speed	61.15 m^2/s^2
Average positive acceleration	0.189 m/s^2	Root mean square of acceleration	0.104 m/s^2

Cycle No: 81

Cycle name: **UG214 Bus01: traffic calming (road hump)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

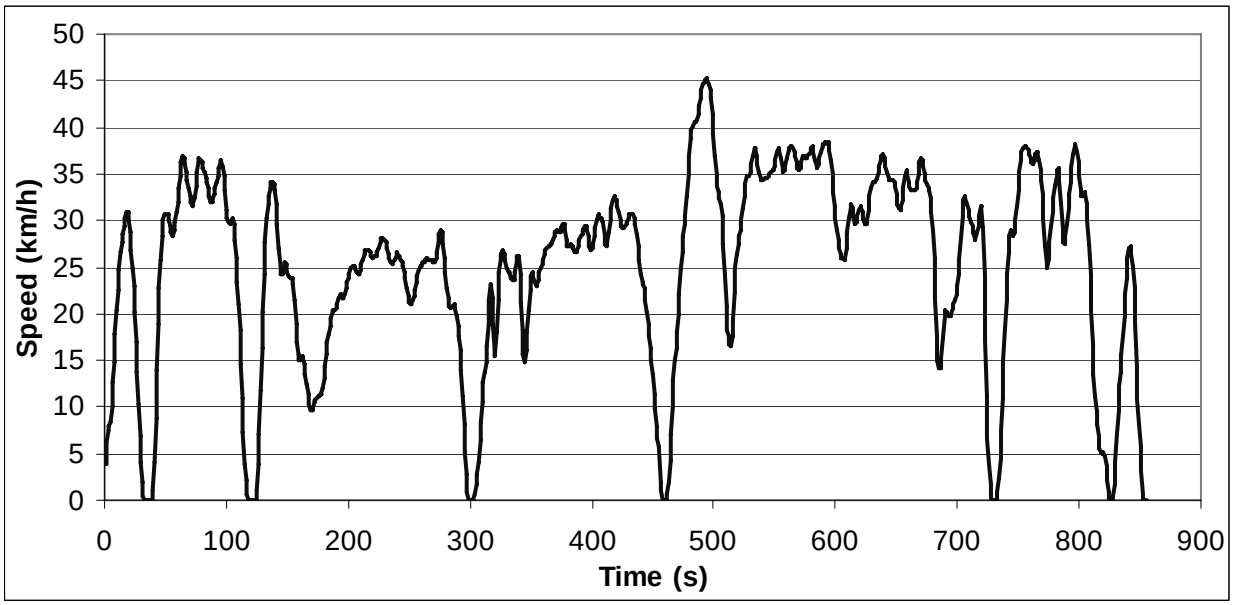


ART.KINEMA parameters

Total distance	5317.89 m	Average negative acceleration	-0.353 m/s^2
Total time	944 s	Standard deviation of accel.	0.444 m/s^2
Driving time	932 s	Standard dev. of positive accel.	0.252 m/s^2
Drive time	181 s	Accel: 75th - 25th percentile	0.493 m/s^2
Drive time spent accelerating	406 s	Number of accelerations	49
Drive time spent decelerating	345 s	Accelerations per km	9.214 /km
Time spent braking	216 s	Number of stops	4
Standing time	12 s	Stops per km	0.75 /km
% of time driving	98.73 %	Average stop duration	3 s
% of cruising	19.17 %	Average distance between stops	1329.47 m
% of time accelerating	43.01 %	Relative positive acceleration	0.16 m/s^2
% of time decelerating	36.55 %	Positive kinetic energy	4.209 m/s^2
% of time braking	22.88 %	Relative positive speed	0.535
% of time standing	1.27 %	Relative real speed	0.783
Average speed (trip)	20.3 km/h	Relative square speed	6.639 m/s
Average driving speed	20.54 km/h	Relative positive square speed	3.601 m/s
Standard deviation of speed	8.31 km/h	Relative real square speed	5.257 m/s
Speed: 75th - 25th percentile	11.13 km/h	Relative cubic speed	47.38 m^2/s^2
Maximum speed	43.09 km/h	Relative positive cubic speed	26.04 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	37.69 m^2/s^2
Average positive acceleration	0.313 m/s^2	Root mean square of acceleration	0.186 m/s^2

Cycle No: 82

Cycle name: **UG214 Bus02: traffic calming (other)**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

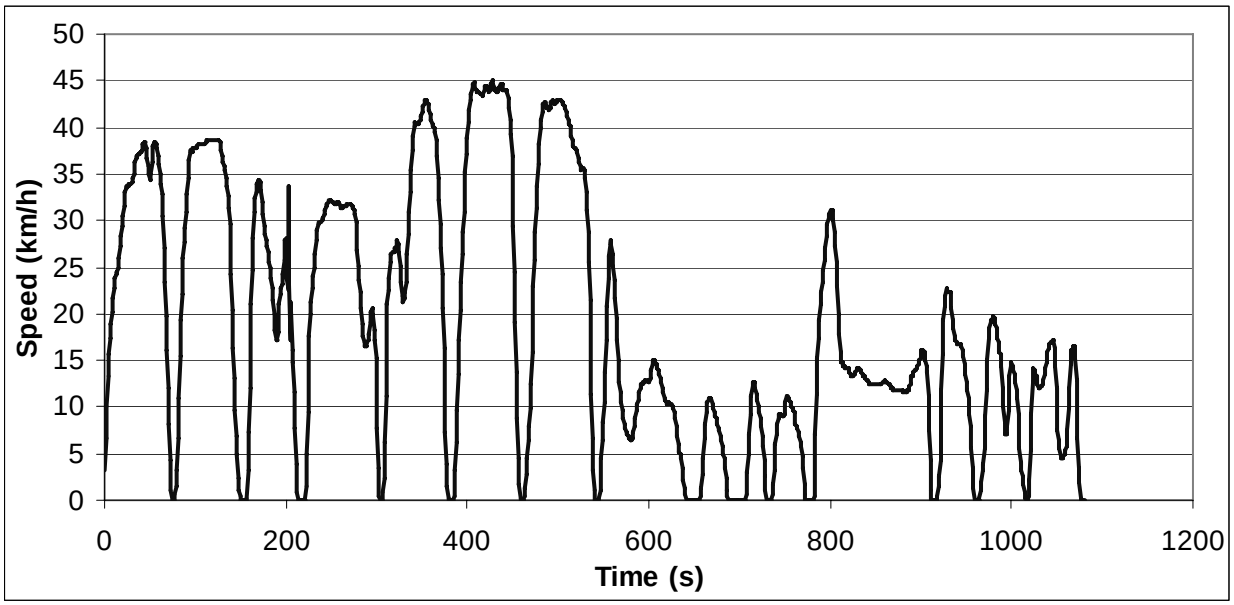


ART.KINEMA parameters

Total distance	5937.89 m	Average negative acceleration	-0.275 m/s^2
Total time	855 s	Standard deviation of accel.	0.375 m/s^2
Driving time	846 s	Standard dev. of positive accel.	0.254 m/s^2
Drive time	204 s	Accel: 75th - 25th percentile	0.322 m/s^2
Drive time spent accelerating	331 s	Number of accelerations	47
Drive time spent decelerating	311 s	Accelerations per km	7.915 /km
Time spent braking	152 s	Number of stops	5
Standing time	9 s	Stops per km	0.84 /km
% of time driving	98.95 %	Average stop duration	1.8 s
% of cruising	23.86 %	Average distance between stops	1187.58 m
% of time accelerating	38.71 %	Relative positive acceleration	0.1113 m/s^2
% of time decelerating	36.37 %	Positive kinetic energy	2.921 m/s^2
% of time braking	17.78 %	Relative positive speed	0.533
% of time standing	1.05 %	Relative real speed	0.855
Average speed (trip)	25.0 km/h	Relative square speed	8.186 m/s
Average driving speed	25.27 km/h	Relative positive square speed	4.379 m/s
Standard deviation of speed	10.31 km/h	Relative real square speed	7.133 m/s
Speed: 75th - 25th percentile	12.73 km/h	Relative cubic speed	70.93 m^2/s^2
Maximum speed	45.15 km/h	Relative positive cubic speed	38.08 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	62.54 m^2/s^2
Average positive acceleration	0.248 m/s^2	Root mean square of acceleration	0.141 m/s^2

Cycle No: 83

Cycle name: **UG214 Bus03: cycle-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

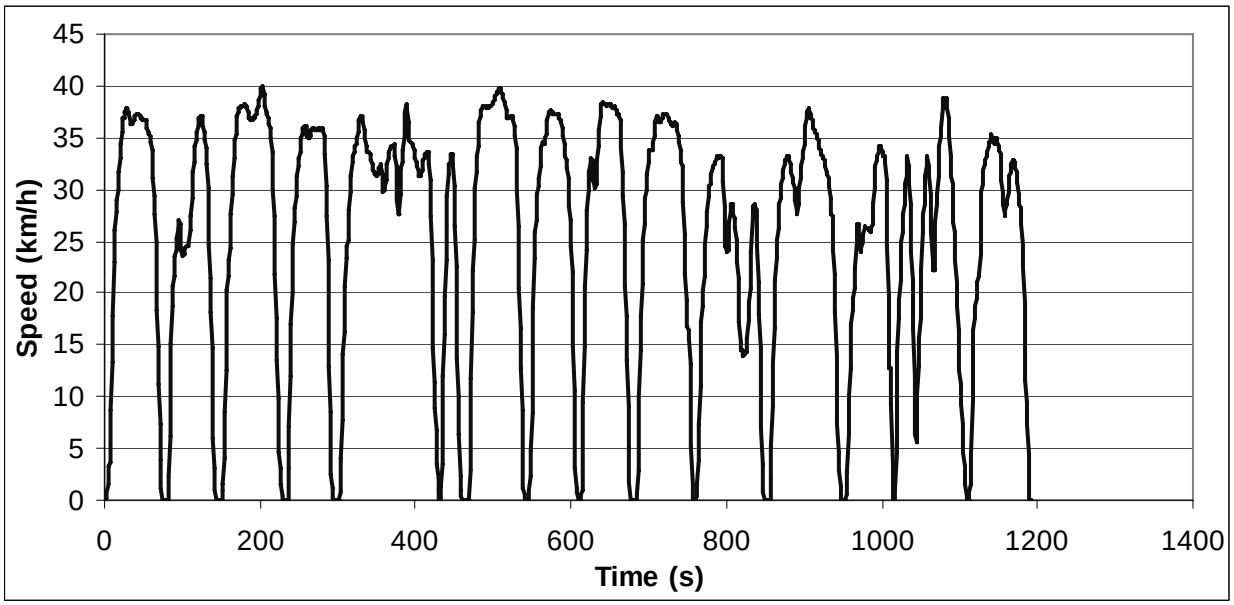


ART.KINEMA parameters

Total distance	5651.6 m	Average negative acceleration	-0.269 m/s^2
Total time	1080 s	Standard deviation of accel.	0.421 m/s^2
Driving time	1004 s	Standard dev. of positive accel.	0.317 m/s^2
Drive time	292 s	Accel: 75th - 25th percentile	0.250 m/s^2
Drive time spent accelerating	343 s	Number of accelerations	39
Drive time spent decelerating	369 s	Accelerations per km	6.901 /km
Time spent braking	174 s	Number of stops	15
Standing time	76 s	Stops per km	2.65 /km
% of time driving	92.96 %	Average stop duration	5.07 s
% of cruising	27.04 %	Average distance between stops	376.77 m
% of time accelerating	31.76 %	Relative positive acceleration	0.1156 m/s^2
% of time decelerating	34.17 %	Positive kinetic energy	3.108 m/s^2
% of time braking	16.11 %	Relative positive speed	0.501
% of time standing	7.04 %	Relative real speed	0.855
Average speed (trip)	18.8 km/h	Relative square speed	8.049 m/s
Average driving speed	20.26 km/h	Relative positive square speed	4.081 m/s
Standard deviation of speed	13.29 km/h	Relative real square speed	7.071 m/s
Speed: 75th - 25th percentile	23.49 km/h	Relative cubic speed	75.30 m^2/s^2
Maximum speed	45.02 km/h	Relative positive cubic speed	38.01 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	67.70 m^2/s^2
Average positive acceleration	0.286 m/s^2	Root mean square of acceleration	0.177 m/s^2

Cycle No: 84

Cycle name: **UG214 Bus04: bus-lane**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

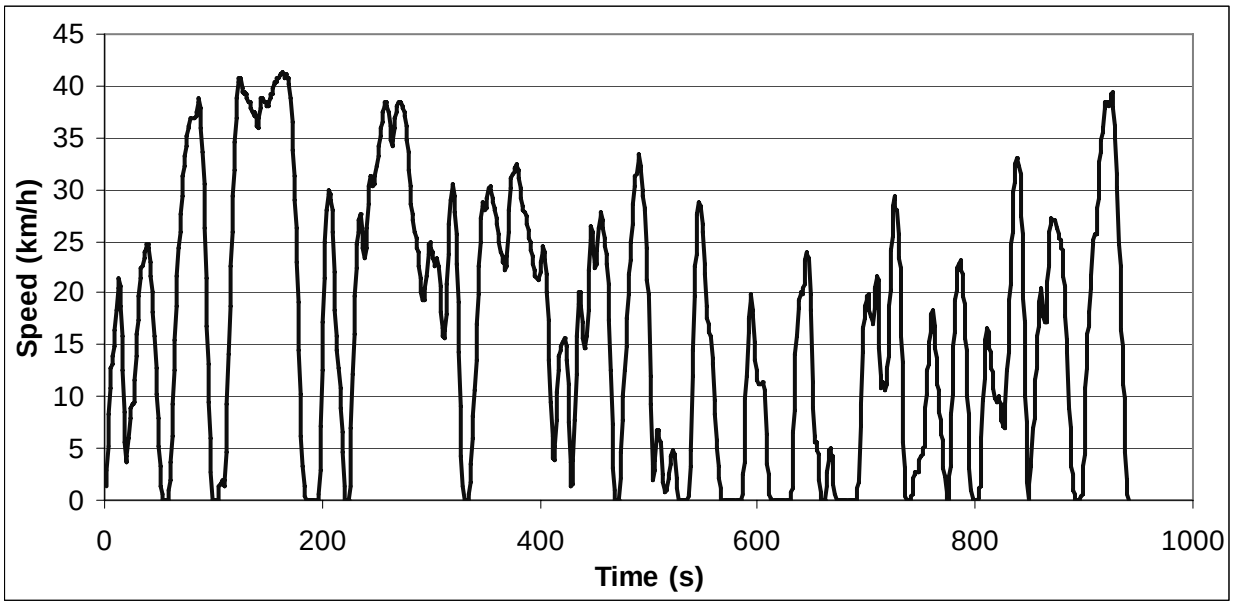


ART.KINEMA parameters

Total distance	8344.63 m	Average negative acceleration	-0.318 m/s^2
Total time	1192 s	Standard deviation of accel.	0.455 m/s^2
Driving time	1154 s	Standard dev. of positive accel.	0.320 m/s^2
Drive time	299 s	Accel: 75th - 25th percentile	0.341 m/s^2
Drive time spent accelerating	446 s	Number of accelerations	37
Drive time spent decelerating	409 s	Accelerations per km	4.434 /km
Time spent braking	228 s	Number of stops	11
Standing time	38 s	Stops per km	1.32 /km
% of time driving	96.81 %	Average stop duration	3.45 s
% of cruising	25.08 %	Average distance between stops	758.6 m
% of time accelerating	37.42 %	Relative positive acceleration	0.1166 m/s^2
% of time decelerating	34.31 %	Positive kinetic energy	3.035 m/s^2
% of time braking	19.13 %	Relative positive speed	0.513
% of time standing	3.19 %	Relative real speed	0.856
Average speed (trip)	25.2 km/h	Relative square speed	8.740 m/s
Average driving speed	26.03 km/h	Relative positive square speed	4.437 m/s
Standard deviation of speed	11.89 km/h	Relative real square speed	7.735 m/s
Speed: 75th - 25th percentile	17.36 km/h	Relative cubic speed	80.00 m^2/s^2
Maximum speed	39.8 km/h	Relative positive cubic speed	40.21 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	72.30 m^2/s^2
Average positive acceleration	0.303 m/s^2	Root mean square of acceleration	0.169 m/s^2

Cycle No: 85

Cycle name: **UG214 Bus05: one-way**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

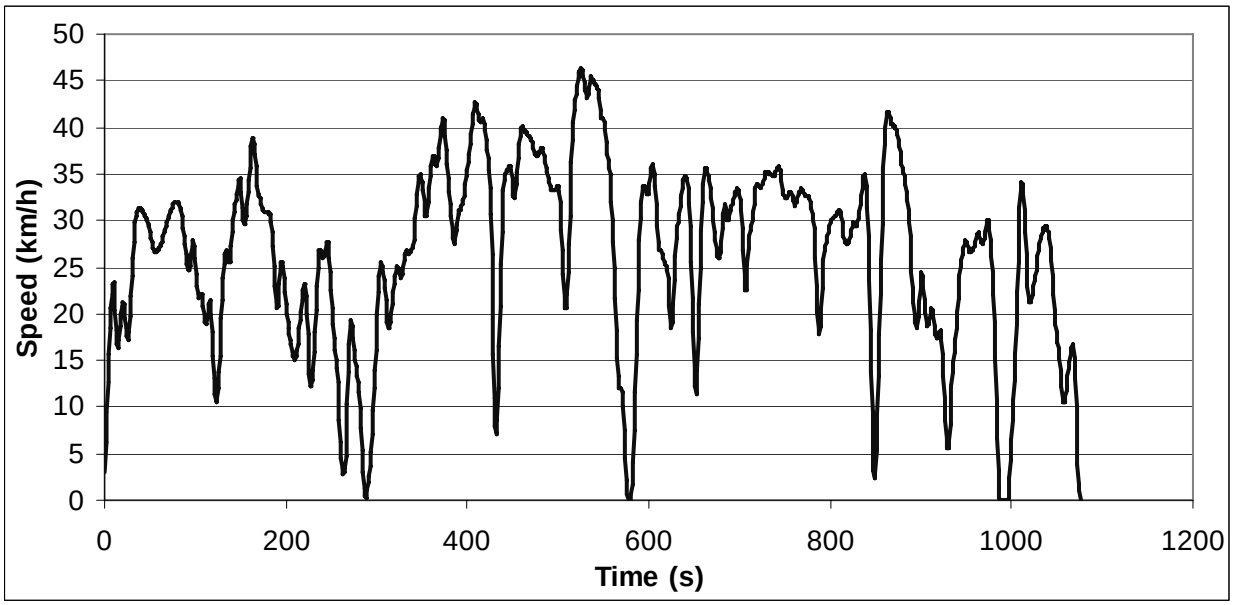


ART.KINEMA parameters

Total distance	4360.31 m	Average negative acceleration	-0.382 m/s^2
Total time	941 s	Standard deviation of accel.	0.508 m/s^2
Driving time	877 s	Standard dev. of positive accel.	0.319 m/s^2
Drive time	139 s	Accel: 75th - 25th percentile	0.508 m/s^2
Drive time spent accelerating	368 s	Number of accelerations	42
Drive time spent decelerating	370 s	Accelerations per km	9.632 /km
Time spent braking	233 s	Number of stops	11
Standing time	64 s	Stops per km	2.52 /km
% of time driving	93.20 %	Average stop duration	5.82 s
% of cruising	14.77 %	Average distance between stops	396.39 m
% of time accelerating	39.11 %	Relative positive acceleration	0.1716 m/s^2
% of time decelerating	39.32 %	Positive kinetic energy	4.487 m/s^2
% of time braking	24.76 %	Relative positive speed	0.497
% of time standing	6.80 %	Relative real speed	0.768
Average speed (trip)	16.7 km/h	Relative square speed	7.265 m/s
Average driving speed	17.9 km/h	Relative positive square speed	3.634 m/s
Standard deviation of speed	12.16 km/h	Relative real square speed	5.834 m/s
Speed: 75th - 25th percentile	22.05 km/h	Relative cubic speed	59.88 m^2/s^2
Maximum speed	41.13 km/h	Relative positive cubic speed	30.16 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	49.57 m^2/s^2
Average positive acceleration	0.386 m/s^2	Root mean square of acceleration	0.228 m/s^2

Cycle No: 86

Cycle name: **UG214 Bus06: mini-roundabout**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

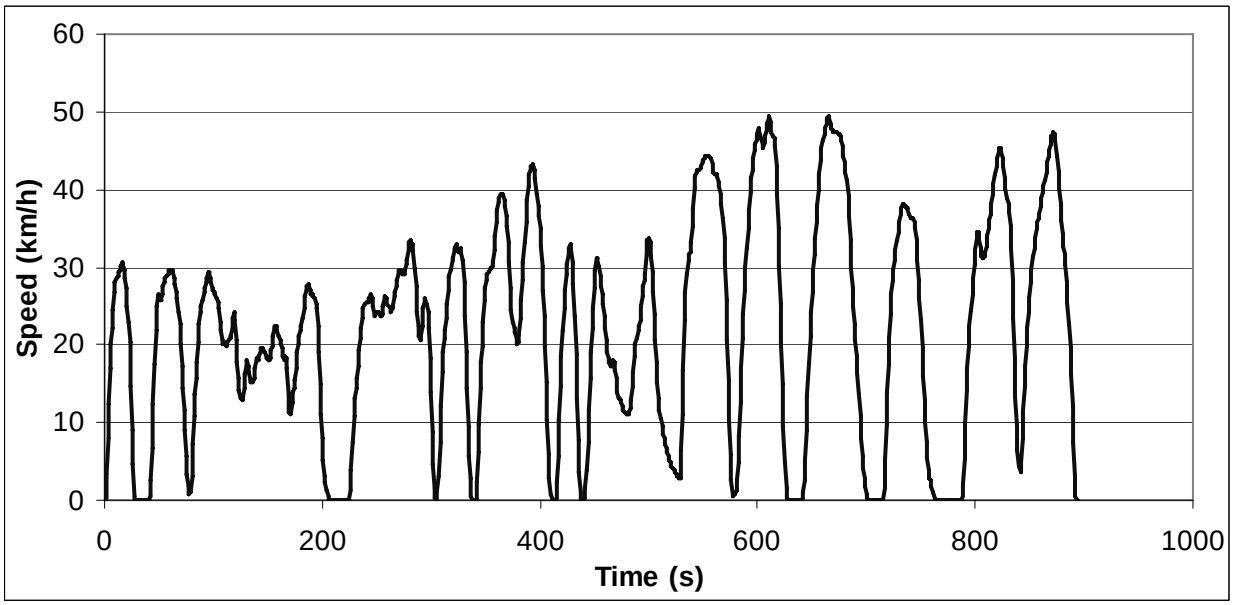


ART.KINEMA parameters

Total distance	7879.78 m	Average negative acceleration	-0.250 m/s^2
Total time	1076 s	Standard deviation of accel.	0.366 m/s^2
Driving time	1069 s	Standard dev. of positive accel.	0.266 m/s^2
Drive time	251 s	Accel: 75th - 25th percentile	0.340 m/s^2
Drive time spent accelerating	403 s	Number of accelerations	50
Drive time spent decelerating	415 s	Accelerations per km	6.345 /km
Time spent braking	201 s	Number of stops	2
Standing time	7 s	Stops per km	0.25 /km
% of time driving	99.35 %	Average stop duration	3.5 s
% of cruising	23.33 %	Average distance between stops	3939.89 m
% of time accelerating	37.45 %	Relative positive acceleration	0.1099 m/s^2
% of time decelerating	38.57 %	Positive kinetic energy	2.877 m/s^2
% of time braking	18.68 %	Relative positive speed	0.482
% of time standing	0.65 %	Relative real speed	0.845
Average speed (trip)	26.4 km/h	Relative square speed	8.357 m/s
Average driving speed	26.54 km/h	Relative positive square speed	3.963 m/s
Standard deviation of speed	9.71 km/h	Relative real square speed	7.239 m/s
Speed: 75th - 25th percentile	12.75 km/h	Relative cubic speed	74.46 m^2/s^2
Maximum speed	46.42 km/h	Relative positive cubic speed	34.71 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	65.68 m^2/s^2
Average positive acceleration	0.262 m/s^2	Root mean square of acceleration	0.135 m/s^2

Cycle No: 87

Cycle name: **UG214 Bus07: urban traffic control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

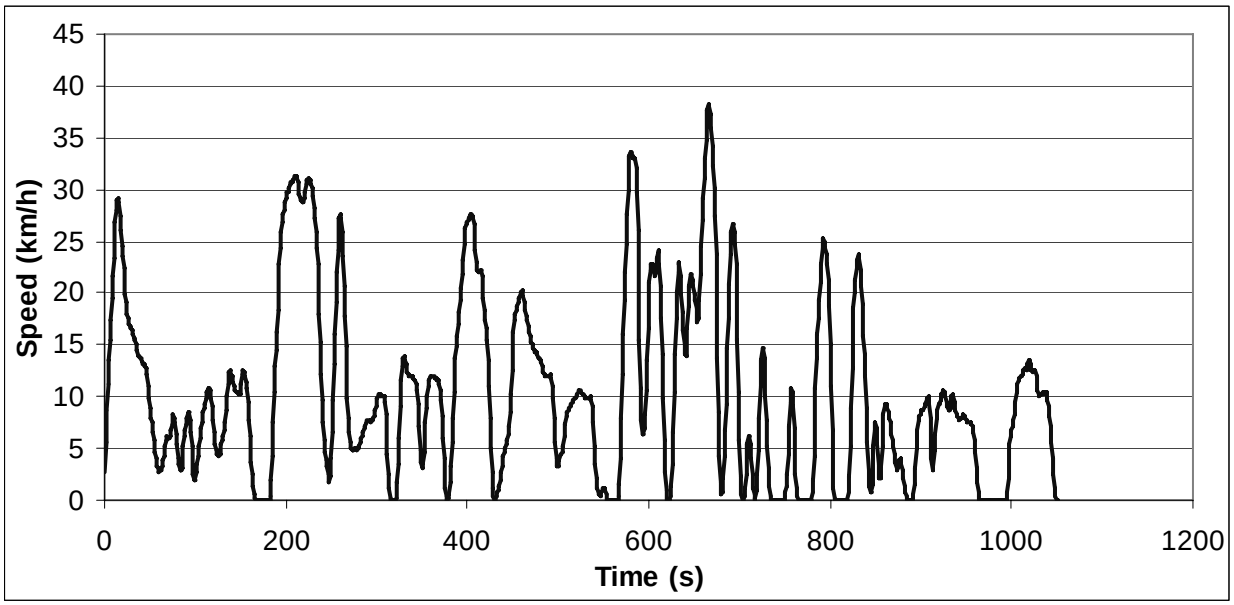


ART.KINEMA parameters

Total distance	5413.29 m	Average negative acceleration	-0.411 m/s^2
Total time	894 s	Standard deviation of accel.	0.548 m/s^2
Driving time	824 s	Standard dev. of positive accel.	0.334 m/s^2
Drive time	116 s	Accel: 75th - 25th percentile	0.500 m/s^2
Drive time spent accelerating	368 s	Number of accelerations	30
Drive time spent decelerating	340 s	Accelerations per km	5.542 /km
Time spent braking	214 s	Number of stops	8
Standing time	70 s	Stops per km	1.48 /km
% of time driving	92.17 %	Average stop duration	8.75 s
% of cruising	12.98 %	Average distance between stops	676.66 m
% of time accelerating	41.16 %	Relative positive acceleration	0.1786 m/s^2
% of time decelerating	38.03 %	Positive kinetic energy	4.654 m/s^2
% of time braking	23.94 %	Relative positive speed	0.517
% of time standing	7.83 %	Relative real speed	0.763
Average speed (trip)	21.8 km/h	Relative square speed	8.627 m/s
Average driving speed	23.65 km/h	Relative positive square speed	4.439 m/s
Standard deviation of speed	13.24 km/h	Relative real square speed	6.753 m/s
Speed: 75th - 25th percentile	21.6 km/h	Relative cubic speed	83.10 m^2/s^2
Maximum speed	49.18 km/h	Relative positive cubic speed	42.21 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	66.35 m^2/s^2
Average positive acceleration	0.410 m/s^2	Root mean square of acceleration	0.214 m/s^2

Cycle No: 88

Cycle name: **UG214 Bus08: congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

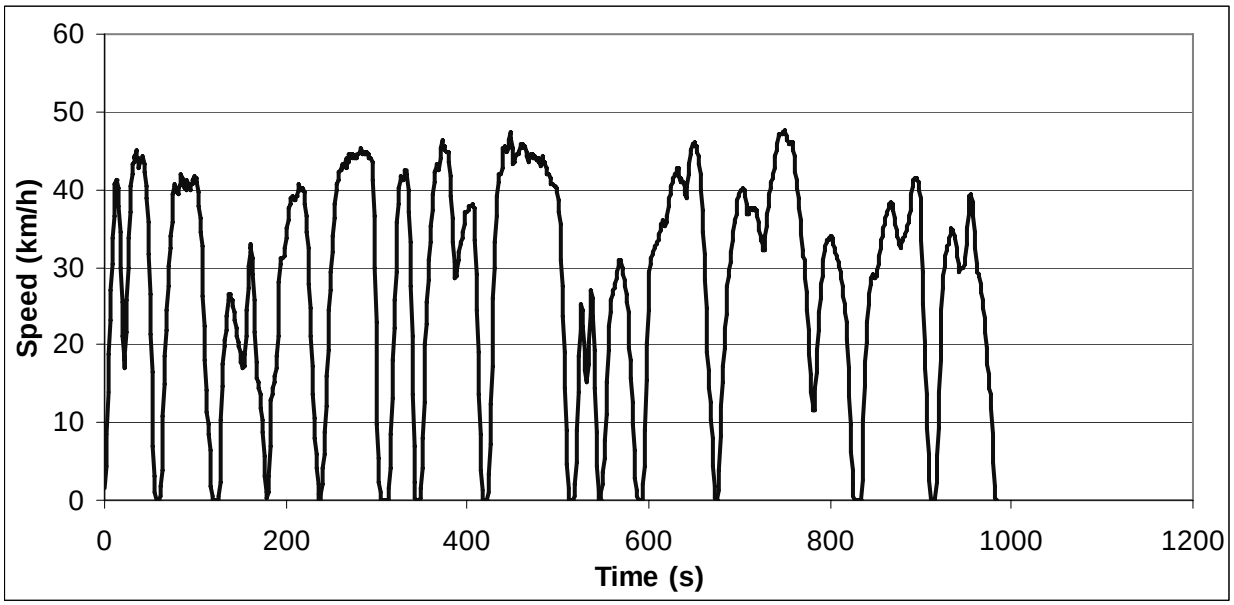


ART.KINEMA parameters

Total distance	3078.21 m	Average negative acceleration	-0.253 m/s^2
Total time	1051 s	Standard deviation of accel.	0.373 m/s^2
Driving time	965 s	Standard dev. of positive accel.	0.260 m/s^2
Drive time	268 s	Accel: 75th - 25th percentile	0.261 m/s^2
Drive time spent accelerating	345 s	Number of accelerations	40
Drive time spent decelerating	352 s	Accelerations per km	12.995 /km
Time spent braking	177 s	Number of stops	10
Standing time	86 s	Stops per km	3.25 /km
% of time driving	91.82 %	Average stop duration	8.6 s
% of cruising	25.50 %	Average distance between stops	307.82 m
% of time accelerating	32.83 %	Relative positive acceleration	0.1382 m/s^2
% of time decelerating	33.49 %	Positive kinetic energy	3.602 m/s^2
% of time braking	16.84 %	Relative positive speed	0.489
% of time standing	8.18 %	Relative real speed	0.810
Average speed (trip)	10.5 km/h	Relative square speed	5.006 m/s
Average driving speed	11.48 km/h	Relative positive square speed	2.474 m/s
Standard deviation of speed	8.67 km/h	Relative real square speed	4.056 m/s
Speed: 75th - 25th percentile	11.41 km/h	Relative cubic speed	31.23 m^2/s^2
Maximum speed	37.86 km/h	Relative positive cubic speed	15.72 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	25.44 m^2/s^2
Average positive acceleration	0.262 m/s^2	Root mean square of acceleration	0.209 m/s^2

Cycle No: 89

Cycle name: **UG214 Bus09: non-congested control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

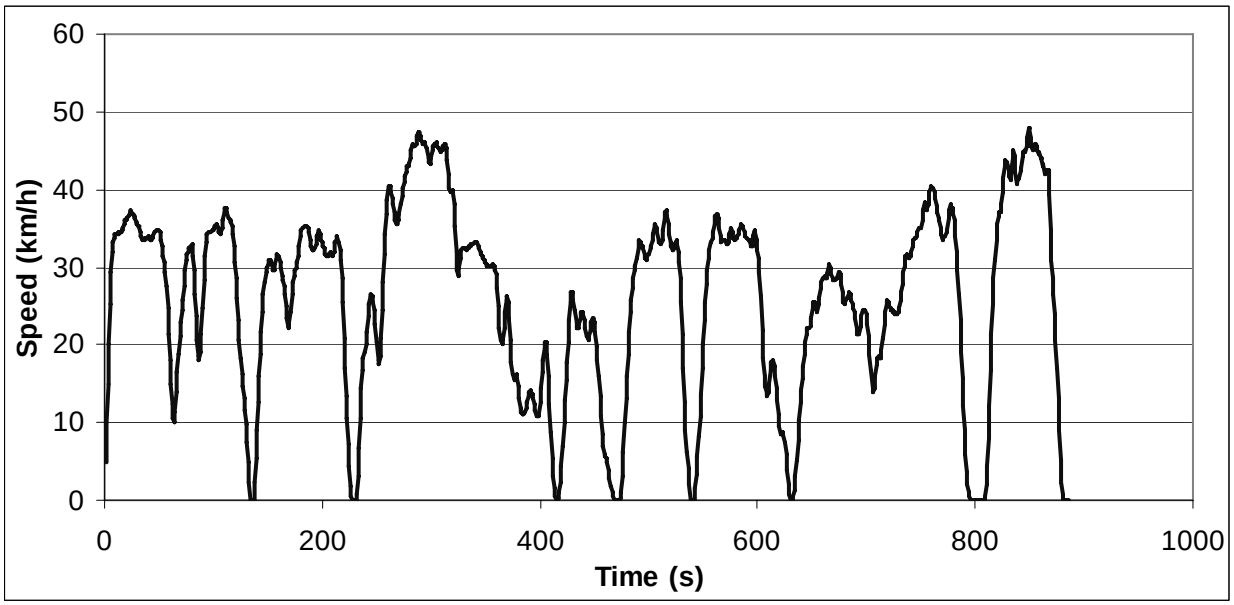


ART.KINEMA parameters

Total distance	7609.55 m	Average negative acceleration	-0.408 m/s^2
Total time	983 s	Standard deviation of accel.	0.546 m/s^2
Driving time	961 s	Standard dev. of positive accel.	0.360 m/s^2
Drive time	206 s	Accel: 75th - 25th percentile	0.448 m/s^2
Drive time spent accelerating	403 s	Number of accelerations	36
Drive time spent decelerating	352 s	Accelerations per km	4.731 /km
Time spent braking	227 s	Number of stops	9
Standing time	22 s	Stops per km	1.18 /km
% of time driving	97.76 %	Average stop duration	2.44 s
% of cruising	20.96 %	Average distance between stops	845.51 m
% of time accelerating	41.00 %	Relative positive acceleration	0.1483 m/s^2
% of time decelerating	35.81 %	Positive kinetic energy	3.866 m/s^2
% of time braking	23.09 %	Relative positive speed	0.540
% of time standing	2.24 %	Relative real speed	0.819
Average speed (trip)	27.9 km/h	Relative square speed	9.835 m/s
Average driving speed	28.51 km/h	Relative positive square speed	5.321 m/s
Standard deviation of speed	14.03 km/h	Relative real square speed	8.364 m/s
Speed: 75th - 25th percentile	22.77 km/h	Relative cubic speed	103.09 m^2/s^2
Maximum speed	47.51 km/h	Relative positive cubic speed	55.58 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	89.68 m^2/s^2
Average positive acceleration	0.363 m/s^2	Root mean square of acceleration	0.194 m/s^2

Cycle No: 90

Cycle name: **UG214 Bus10: suburban control**
Alternative name:
Test programme: **TRAMAQ UG214**
Additional info:
Vehicle category: **Buses**

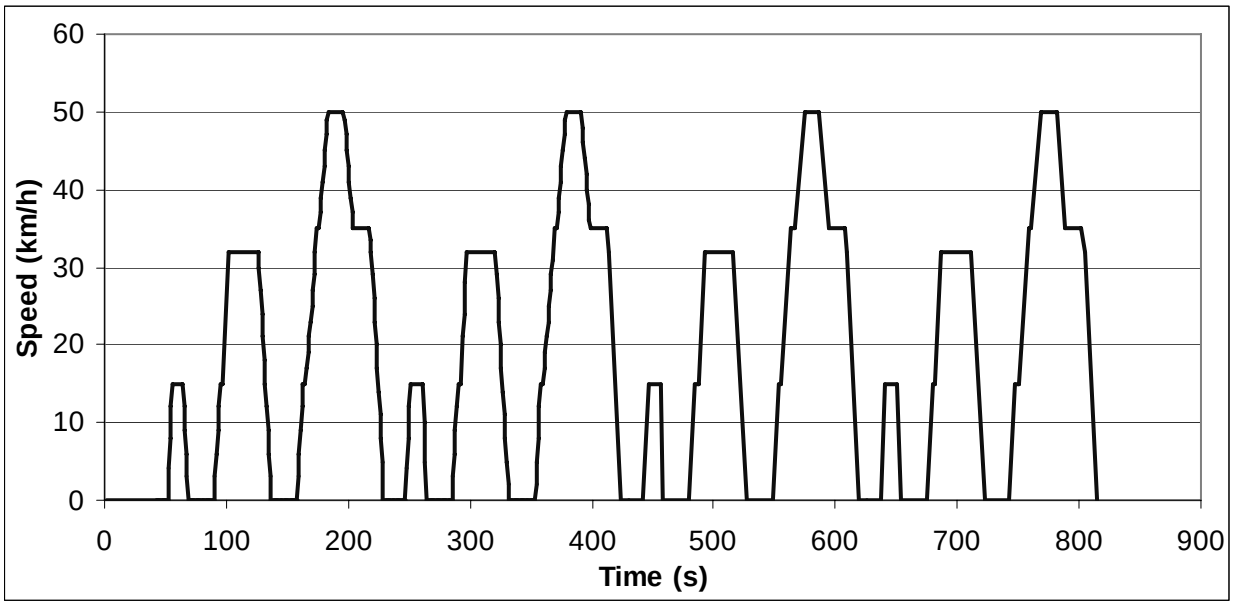


ART.KINEMA parameters

Total distance	6394.54 m	Average negative acceleration	-0.282 m/s^2
Total time	886 s	Standard deviation of accel.	0.404 m/s^2
Driving time	869 s	Standard dev. of positive accel.	0.291 m/s^2
Drive time	195 s	Accel: 75th - 25th percentile	0.338 m/s^2
Drive time spent accelerating	339 s	Number of accelerations	47
Drive time spent decelerating	335 s	Accelerations per km	7.350 /km
Time spent braking	170 s	Number of stops	4
Standing time	17 s	Stops per km	0.63 /km
% of time driving	98.08 %	Average stop duration	4.25 s
% of cruising	22.01 %	Average distance between stops	1598.64 m
% of time accelerating	38.26 %	Relative positive acceleration	0.1145 m/s^2
% of time decelerating	37.81 %	Positive kinetic energy	3.003 m/s^2
% of time braking	19.19 %	Relative positive speed	0.510
% of time standing	1.92 %	Relative real speed	0.850
Average speed (trip)	26.0 km/h	Relative square speed	8.870 m/s
Average driving speed	26.49 km/h	Relative positive square speed	4.514 m/s
Standard deviation of speed	12.01 km/h	Relative real square speed	7.777 m/s
Speed: 75th - 25th percentile	16.39 km/h	Relative cubic speed	84.55 m^2/s^2
Maximum speed	47.14 km/h	Relative positive cubic speed	42.74 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	75.59 m^2/s^2
Average positive acceleration	0.280 m/s^2	Root mean square of acceleration	0.149 m/s^2

Cycle No: 91

Cycle name: **Millbrook Heavy Duty: urban**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

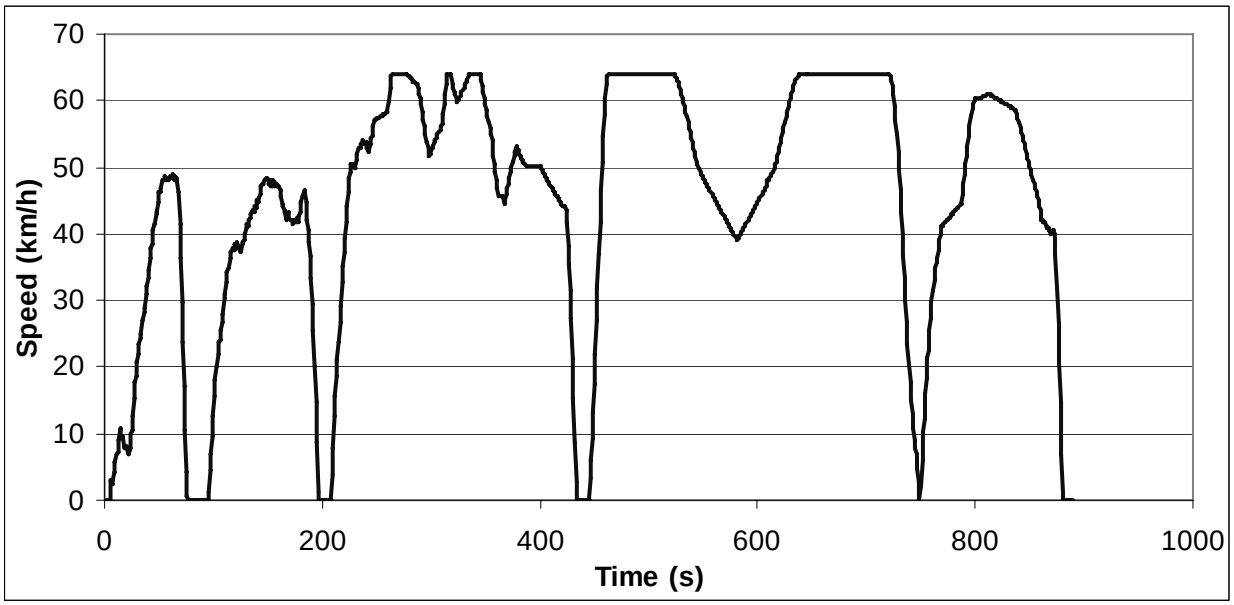


ART.KINEMA parameters

Total distance	4050.63 m	Average negative acceleration	-0.349 m/s^2
Total time	814 s	Standard deviation of accel.	0.449 m/s^2
Driving time	690 s	Standard dev. of positive accel.	0.286 m/s^2
Drive time	298 s	Accel: 75th - 25th percentile	0.223 m/s^2
Drive time spent accelerating	215 s	Number of accelerations	10
Drive time spent decelerating	177 s	Accelerations per km	2.469 /km
Time spent braking	120 s	Number of stops	6
Standing time	124 s	Stops per km	1.48 /km
% of time driving	84.77 %	Average stop duration	20.67 s
% of cruising	36.61 %	Average distance between stops	675.1 m
% of time accelerating	26.41 %	Relative positive acceleration	0.1076 m/s^2
% of time decelerating	21.74 %	Positive kinetic energy	2.870 m/s^2
% of time braking	14.74 %	Relative positive speed	0.476
% of time standing	15.23 %	Relative real speed	0.818
Average speed (trip)	17.9 km/h	Relative square speed	8.551 m/s
Average driving speed	11.41 km/h	Relative positive square speed	3.875 m/s
Standard deviation of speed	26 km/h	Relative real square speed	6.981 m/s
Speed: 75th - 25th percentile	31.79 km/h	Relative cubic speed	86.54 m^2/s^2
Maximum speed	50.09 km/h	Relative positive cubic speed	38.19 m^2/s^2
Average acceleration	0.009 m/s^2	Relative real cubic speed	71.29 m^2/s^2
Average positive acceleration	0.322 m/s^2	Root mean square of acceleration	0.141 m/s^2

Cycle No: 92

Cycle name: **Millbrook Heavy Duty: suburban**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

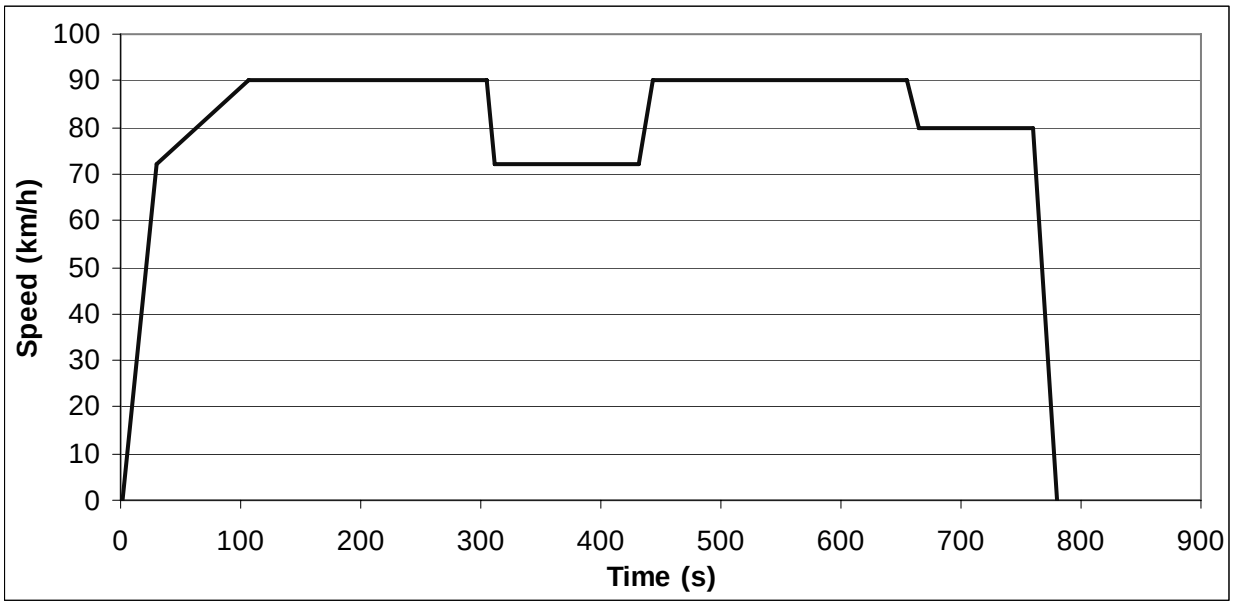


ART.KINEMA parameters

Total distance	11097.76 m	Average negative acceleration	-0.259 m/s^2
Total time	889 s	Standard deviation of accel.	0.392 m/s^2
Driving time	855 s	Standard dev. of positive accel.	0.275 m/s^2
Drive time	328 s	Accel: 75th - 25th percentile	0.185 m/s^2
Drive time spent accelerating	285 s	Number of accelerations	15
Drive time spent decelerating	242 s	Accelerations per km	1.352 /km
Time spent braking	85 s	Number of stops	4
Standing time	34 s	Stops per km	0.36 /km
% of time driving	96.18 %	Average stop duration	8.5 s
% of cruising	36.90 %	Average distance between stops	2774.44 m
% of time accelerating	32.06 %	Relative positive acceleration	0.0769 m/s^2
% of time decelerating	27.22 %	Positive kinetic energy	1.997 m/s^2
% of time braking	9.56 %	Relative positive speed	0.418
% of time standing	3.82 %	Relative real speed	0.931
Average speed (trip)	44.9 km/h	Relative square speed	14.784 m/s
Average driving speed	46.73 km/h	Relative positive square speed	5.806 m/s
Standard deviation of speed	17.43 km/h	Relative real square speed	13.938 m/s
Speed: 75th - 25th percentile	21.33 km/h	Relative cubic speed	228.45 m^2/s^2
Maximum speed	64.1 km/h	Relative positive cubic speed	85.21 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	217.01 m^2/s^2
Average positive acceleration	0.239 m/s^2	Root mean square of acceleration	0.109 m/s^2

Cycle No: 93

Cycle name: **Millbrook Heavy Duty: motorway**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

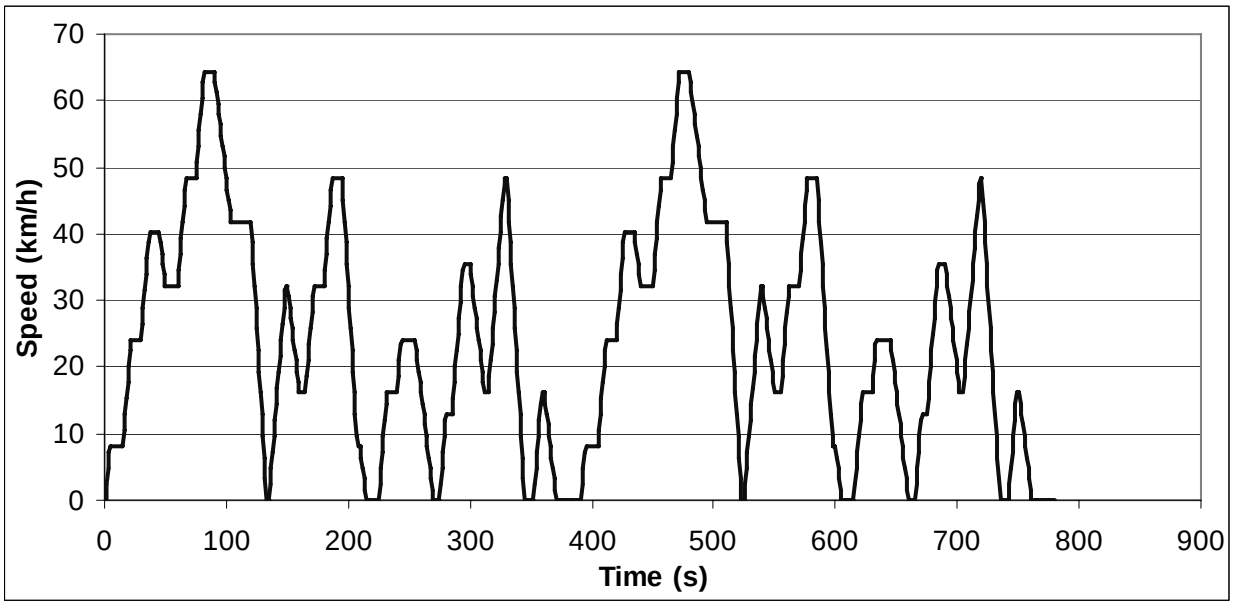


ART.KINEMA parameters

Total distance	17903.33 m	Average negative acceleration	-0.235 m/s^2
Total time	780 s	Standard deviation of accel.	0.425 m/s^2
Driving time	780 s	Standard dev. of positive accel.	0.288 m/s^2
Drive time	635 s	Accel: 75th - 25th percentile	0.216 m/s^2
Drive time spent accelerating	30 s	Number of accelerations	1
Drive time spent decelerating	115 s	Accelerations per km	0.056 /km
Time spent braking	20 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	81.41 %	Average distance between stops	N/A m
% of time accelerating	3.85 %	Relative positive acceleration	0.0151 m/s^2
% of time decelerating	14.74 %	Positive kinetic energy	0.615 m/s^2
% of time braking	2.56 %	Relative positive speed	0.288
% of time standing	0.00 %	Relative real speed	1.000
Average speed (trip)	82.6 km/h	Relative square speed	23.767 m/s
Average driving speed	0.94 km/h	Relative positive square speed	6.366 m/s
Standard deviation of speed	77.94 km/h	Relative real square speed	23.767 m/s
Speed: 75th - 25th percentile	90 km/h	Relative cubic speed	568.69 m^2/s^2
Maximum speed	90 km/h	Relative positive cubic speed	142.51 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	568.69 m^2/s^2
Average positive acceleration	0.201 m/s^2	Root mean square of acceleration	0.041 m/s^2

Cycle No: 94

Cycle name: **Millbrook Westminster Dust Cart: Depot**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

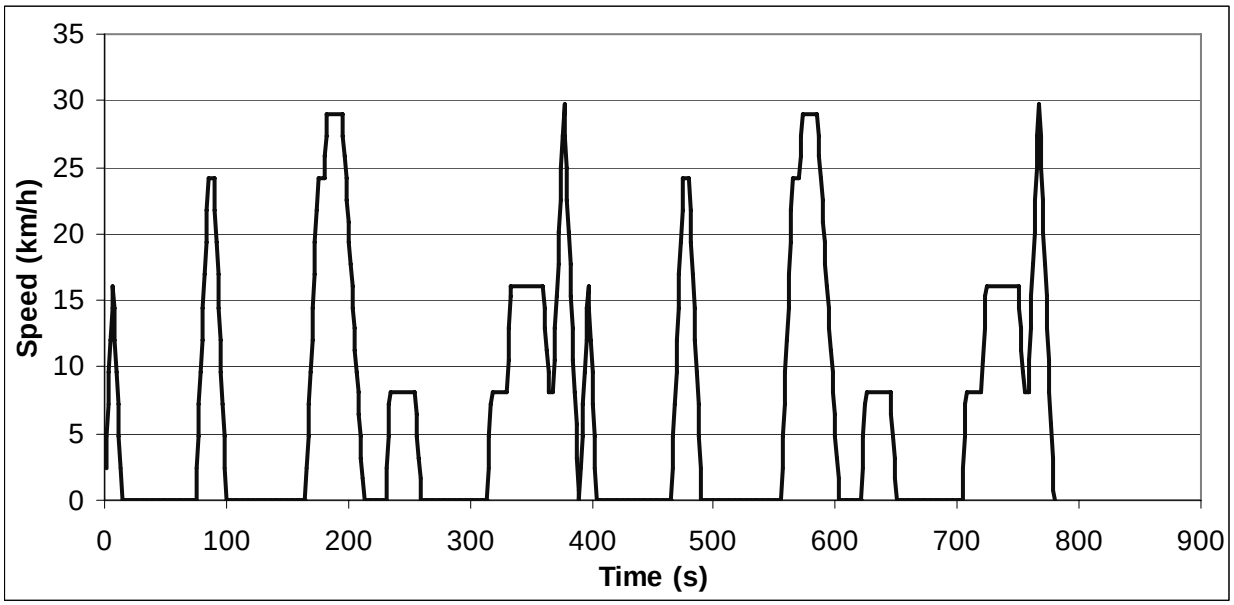


ART.KINEMA parameters

Total distance	5252.25 m	Average negative acceleration	-0.371 m/s^2
Total time	780 s	Standard deviation of accel.	0.464 m/s^2
Driving time	735 s	Standard dev. of positive accel.	0.261 m/s^2
Drive time	176 s	Accel: 75th - 25th percentile	0.679 m/s^2
Drive time spent accelerating	287 s	Number of accelerations	28
Drive time spent decelerating	272 s	Accelerations per km	5.331 /km
Time spent braking	216 s	Number of stops	6
Standing time	45 s	Stops per km	1.14 /km
% of time driving	94.23 %	Average stop duration	7.5 s
% of cruising	22.56 %	Average distance between stops	875.38 m
% of time accelerating	36.79 %	Relative positive acceleration	0.1753 m/s^2
% of time decelerating	34.87 %	Positive kinetic energy	4.561 m/s^2
% of time braking	27.69 %	Relative positive speed	0.505
% of time standing	5.77 %	Relative real speed	0.719
Average speed (trip)	24.2 km/h	Relative square speed	10.119 m/s
Average driving speed	25.73 km/h	Relative positive square speed	4.994 m/s
Standard deviation of speed	16.61 km/h	Relative real square speed	7.392 m/s
Speed: 75th - 25th percentile	27.41 km/h	Relative cubic speed	119.09 m^2/s^2
Maximum speed	64.52 km/h	Relative positive cubic speed	57.01 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	87.78 m^2/s^2
Average positive acceleration	0.365 m/s^2	Root mean square of acceleration	0.173 m/s^2

Cycle No: 95

Cycle name: **Millbrook Westminster Dust Cart: Commercial**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

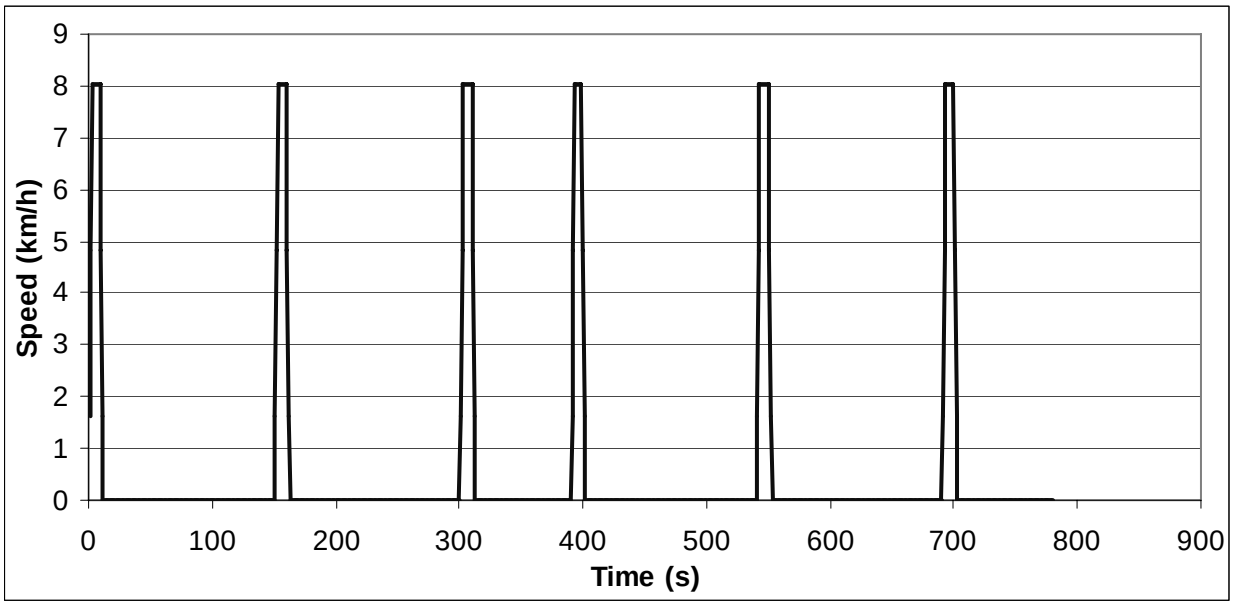


ART.KINEMA parameters

Total distance	1464.15 m	Average negative acceleration	-0.293 m/s^2
Total time	780 s	Standard deviation of accel.	0.383 m/s^2
Driving time	428 s	Standard dev. of positive accel.	0.262 m/s^2
Drive time	151 s	Accel: 75th - 25th percentile	0.000 m/s^2
Drive time spent accelerating	138 s	Number of accelerations	16
Drive time spent decelerating	139 s	Accelerations per km	10.928 /km
Time spent braking	110 s	Number of stops	8
Standing time	352 s	Stops per km	5.46 /km
% of time driving	54.87 %	Average stop duration	44 s
% of cruising	19.36 %	Average distance between stops	183.02 m
% of time accelerating	17.69 %	Relative positive acceleration	0.1379 m/s^2
% of time decelerating	17.82 %	Positive kinetic energy	3.598 m/s^2
% of time braking	14.10 %	Relative positive speed	0.500
% of time standing	45.13 %	Relative real speed	0.748
Average speed (trip)	6.8 km/h	Relative square speed	5.041 m/s
Average driving speed	12.32 km/h	Relative positive square speed	2.582 m/s
Standard deviation of speed	8.49 km/h	Relative real square speed	3.857 m/s
Speed: 75th - 25th percentile	12.69 km/h	Relative cubic speed	29.78 m^2/s^2
Maximum speed	29.04 km/h	Relative positive cubic speed	15.53 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	23.31 m^2/s^2
Average positive acceleration	0.288 m/s^2	Root mean square of acceleration	0.207 m/s^2

Cycle No: 96

Cycle name: **Millbrook Westminster Dust Cart: domestic**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **HGVs**

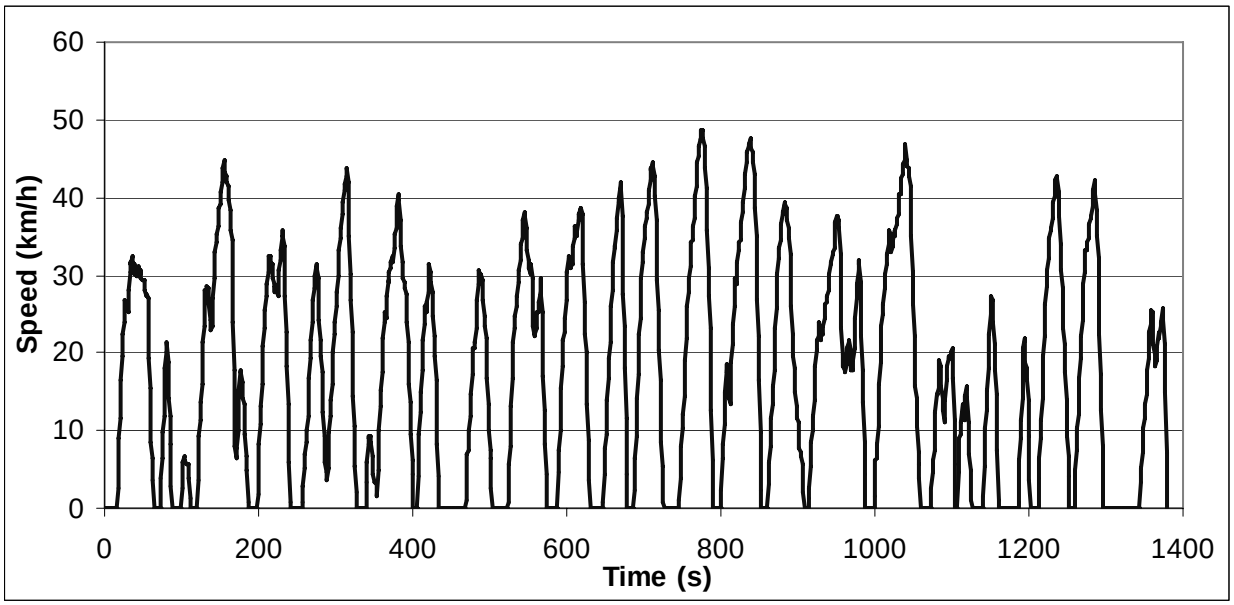


ART.KINEMA parameters

Total distance	123.9 m	Average negative acceleration	-0.261 m/s^2
Total time	780 s	Standard deviation of accel.	0.329 m/s^2
Driving time	103 s	Standard dev. of positive accel.	0.196 m/s^2
Drive time	21 s	Accel: 75th - 25th percentile	0.000 m/s^2
Drive time spent accelerating	40 s	Number of accelerations	6
Drive time spent decelerating	42 s	Accelerations per km	48.426 /km
Time spent braking	30 s	Number of stops	6
Standing time	677 s	Stops per km	48.43 /km
% of time driving	13.21 %	Average stop duration	112.83 s
% of cruising	2.69 %	Average distance between stops	20.65 m
% of time accelerating	5.13 %	Relative positive acceleration	0.1285 m/s^2
% of time decelerating	5.38 %	Positive kinetic energy	3.304 m/s^2
% of time braking	3.85 %	Relative positive speed	0.480
% of time standing	86.79 %	Relative real speed	0.705
Average speed (trip)	0.6 km/h	Relative square speed	1.871 m/s
Average driving speed	4.33 km/h	Relative positive square speed	0.893 m/s
Standard deviation of speed	3.24 km/h	Relative real square speed	1.401 m/s
Speed: 75th - 25th percentile	0 km/h	Relative cubic speed	3.80 m^2/s^2
Maximum speed	8.34 km/h	Relative positive cubic speed	1.81 m^2/s^2
Average acceleration	-0.003 m/s^2	Relative real cubic speed	2.97 m^2/s^2
Average positive acceleration	0.276 m/s^2	Root mean square of acceleration	0.298 m/s^2

Cycle No: 97

Cycle name: **Millbrook Westminster London Bus: outer London**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **Buses**

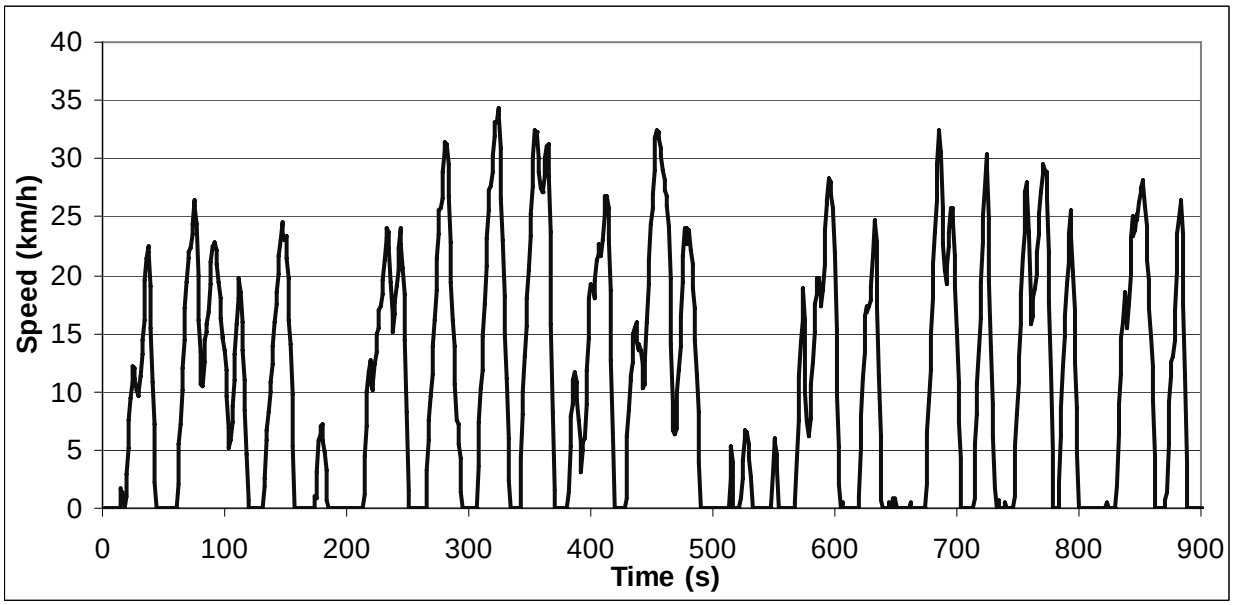


ART.KINEMA parameters

Total distance	6474.15 m	Average negative acceleration	-0.619 m/s^2
Total time	1380 s	Standard deviation of accel.	0.614 m/s^2
Driving time	1073 s	Standard dev. of positive accel.	0.230 m/s^2
Drive time	100 s	Accel: 75th - 25th percentile	0.602 m/s^2
Drive time spent accelerating	578 s	Number of accelerations	54
Drive time spent decelerating	396 s	Accelerations per km	8.341 /km
Time spent braking	329 s	Number of stops	24
Standing time	307 s	Stops per km	3.71 /km
% of time driving	77.75 %	Average stop duration	12.79 s
% of cruising	7.25 %	Average distance between stops	269.76 m
% of time accelerating	41.88 %	Relative positive acceleration	0.2206 m/s^2
% of time decelerating	28.70 %	Positive kinetic energy	0.422 m/s^2
% of time braking	23.84 %	Relative positive speed	0.592
% of time standing	22.25 %	Relative real speed	0.719
Average speed (trip)	16.9 km/h	Relative square speed	8.126 m/s
Average driving speed	21.72 km/h	Relative positive square speed	4.841 m/s
Standard deviation of speed	12.8 km/h	Relative real square speed	5.976 m/s
Speed: 75th - 25th percentile	28.67 km/h	Relative cubic speed	74.16 m^2/s^2
Maximum speed	48.33 km/h	Relative positive cubic speed	44.26 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	55.25 m^2/s^2
Average positive acceleration	0.442 m/s^2	Root mean square of acceleration	0.250 m/s^2

Cycle No: 98

Cycle name: **Millbrook Westminster London Bus: inner London**
Alternative name:
Test programme: **Millbrook**
Additional info:
Vehicle category: **Buses**

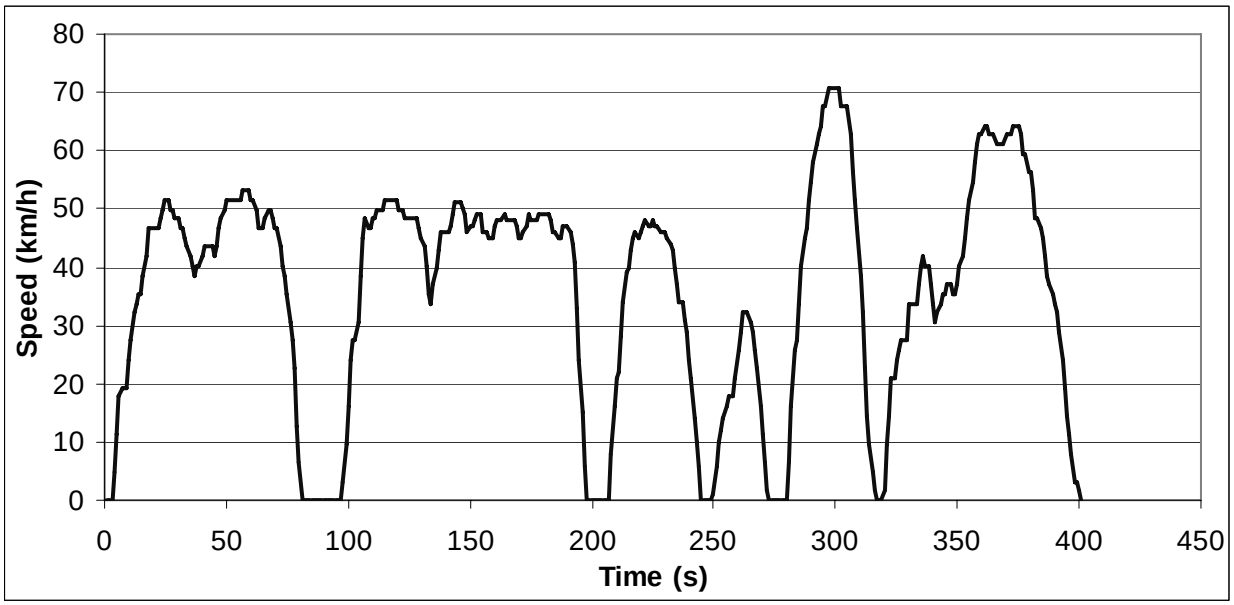


ART.KINEMA parameters

Total distance	2509.07 m	Average negative acceleration	-0.647 m/s^2
Total time	901 s	Standard deviation of accel.	0.665 m/s^2
Driving time	620 s	Standard dev. of positive accel.	0.259 m/s^2
Drive time	63 s	Accel: 75th - 25th percentile	0.512 m/s^2
Drive time spent accelerating	322 s	Number of accelerations	41
Drive time spent decelerating	236 s	Accelerations per km	16.341 /km
Time spent braking	194 s	Number of stops	23
Standing time	281 s	Stops per km	9.17 /km
% of time driving	68.81 %	Average stop duration	12.22 s
% of cruising	6.99 %	Average distance between stops	109.09 m
% of time accelerating	35.74 %	Relative positive acceleration	0.2642 m/s^2
% of time decelerating	26.19 %	Positive kinetic energy	0.491 m/s^2
% of time braking	21.53 %	Relative positive speed	0.575
% of time standing	31.19 %	Relative real speed	0.688
Average speed (trip)	10.0km/h	Relative square speed	5.657 m/s
Average driving speed	14.57km/h	Relative positive square speed	3.230 m/s
Standard deviation of speed	9.2km/h	Relative real square speed	3.936 m/s
Speed: 75th - 25th percentile	18.83km/h	Relative cubic speed	36.04m^2/s^2
Maximum speed	33.66km/h	Relative positive cubic speed	20.39m^2/s^2
Total distance	2509.07 m	Average negative acceleration	-0.647 m/s^2
Total time	901 s	Standard deviation of accel.	0.665 m/s^2

Cycle No: 99

Cycle name: **OSCAR C**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

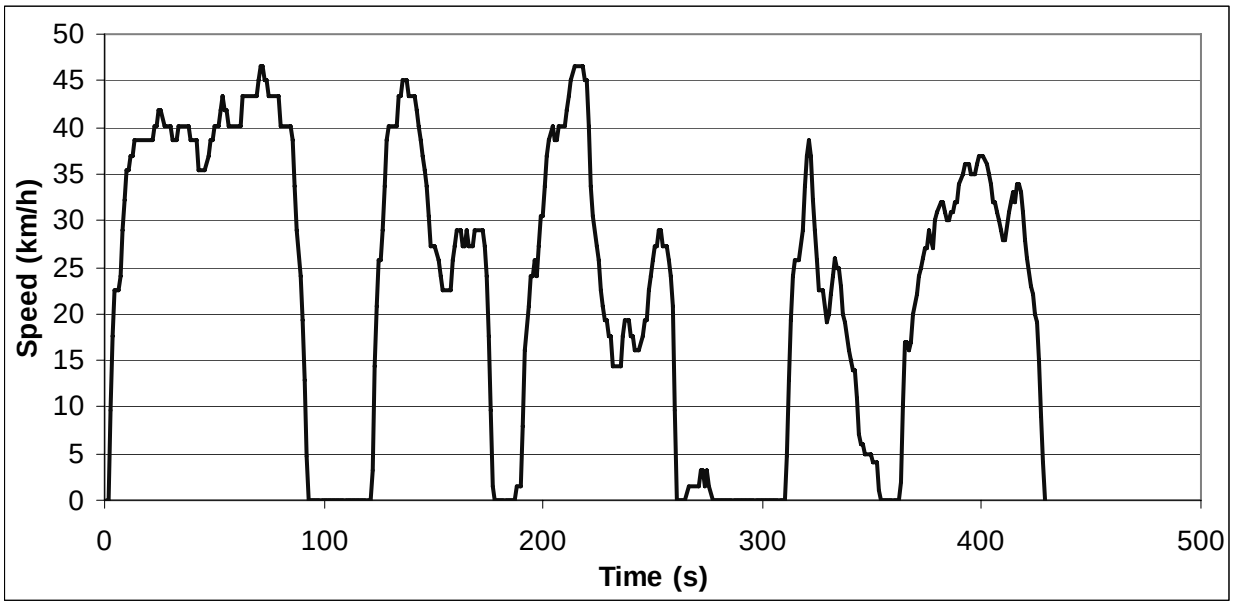


ART.KINEMA parameters

Total distance	3981.96 m	Average negative acceleration	-0.556 m/s^2
Total time	401 s	Standard deviation of accel.	0.718 m/s^2
Driving time	385 s	Standard dev. of positive accel.	0.447 m/s^2
Drive time	48 s	Accel: 75th - 25th percentile	0.636 m/s^2
Drive time spent accelerating	181 s	Number of accelerations	17
Drive time spent decelerating	156 s	Accelerations per km	4.269 /km
Time spent braking	104 s	Number of stops	3
Standing time	16 s	Stops per km	0.75 /km
% of time driving	96.01 %	Average stop duration	5.33 s
% of cruising	11.97 %	Average distance between stops	1327.32 m
% of time accelerating	45.14 %	Relative positive acceleration	0.2054 m/s^2
% of time decelerating	38.90 %	Positive kinetic energy	5.353 m/s^2
% of time braking	25.94 %	Relative positive speed	0.532
% of time standing	3.99 %	Relative real speed	0.771
Average speed (trip)	35.8 km/h	Relative square speed	12.845 m/s
Average driving speed	37.23 km/h	Relative positive square speed	6.715 m/s
Standard deviation of speed	18.34 km/h	Relative real square speed	10.144 m/s
Speed: 75th - 25th percentile	26.54 km/h	Relative cubic speed	176.48 m^2/s^2
Maximum speed	70.76 km/h	Relative positive cubic speed	90.86 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	141.27 m^2/s^2
Average positive acceleration	0.478 m/s^2	Root mean square of acceleration	0.223 m/s^2

Cycle No: 100

Cycle name: **OSCAR D1**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

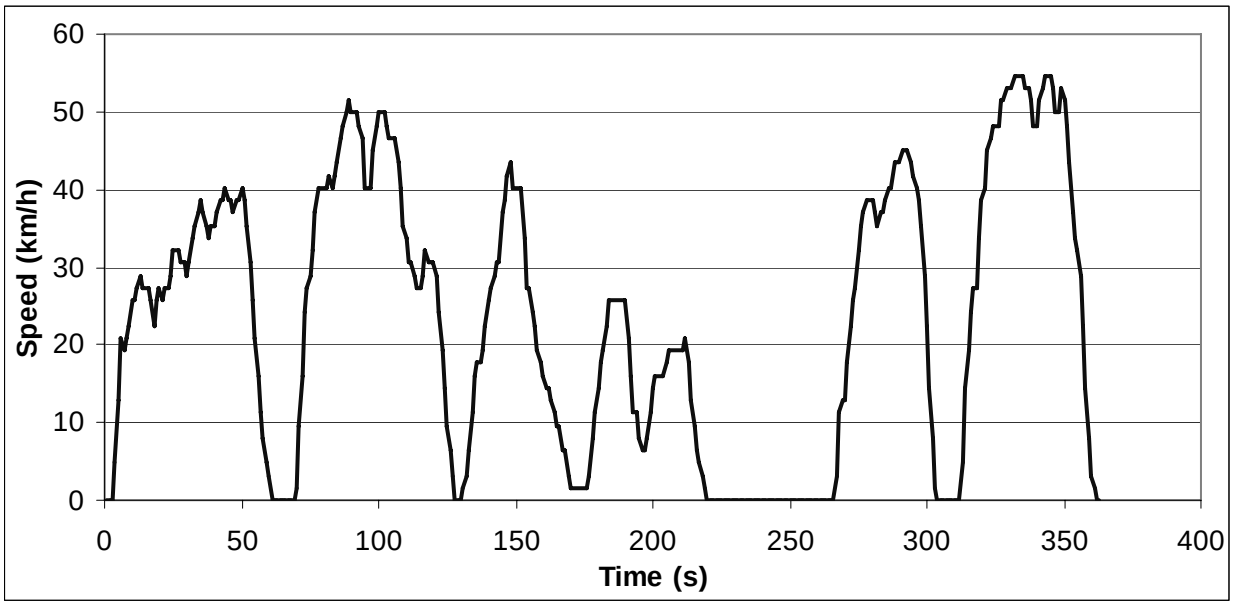


ART.KINEMA parameters

Total distance	2697.1 m	Average negative acceleration	-0.399 m/s^2
Total time	429 s	Standard deviation of accel.	0.552 m/s^2
Driving time	373 s	Standard dev. of positive accel.	0.381 m/s^2
Drive time	63 s	Accel: 75th - 25th percentile	0.335 m/s^2
Drive time spent accelerating	165 s	Number of accelerations	20
Drive time spent decelerating	145 s	Accelerations per km	7.415 /km
Time spent braking	85 s	Number of stops	4
Standing time	56 s	Stops per km	1.48 /km
% of time driving	86.95 %	Average stop duration	14 s
% of cruising	14.69 %	Average distance between stops	674.28 m
% of time accelerating	38.46 %	Relative positive acceleration	0.1568 m/s^2
% of time decelerating	33.80 %	Positive kinetic energy	4.101 m/s^2
% of time braking	19.81 %	Relative positive speed	0.547
% of time standing	13.05 %	Relative real speed	0.801
Average speed (trip)	22.6 km/h	Relative square speed	9.292 m/s
Average driving speed	26.03 km/h	Relative positive square speed	5.124 m/s
Standard deviation of speed	13.92 km/h	Relative real square speed	7.710 m/s
Speed: 75th - 25th percentile	31.78 km/h	Relative cubic speed	92.79 m^2/s^2
Maximum speed	46.8 km/h	Relative positive cubic speed	51.25 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	78.93 m^2/s^2
Average positive acceleration	0.356 m/s^2	Root mean square of acceleration	0.205 m/s^2

Cycle No: 101

Cycle name: **OSCAR D2**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

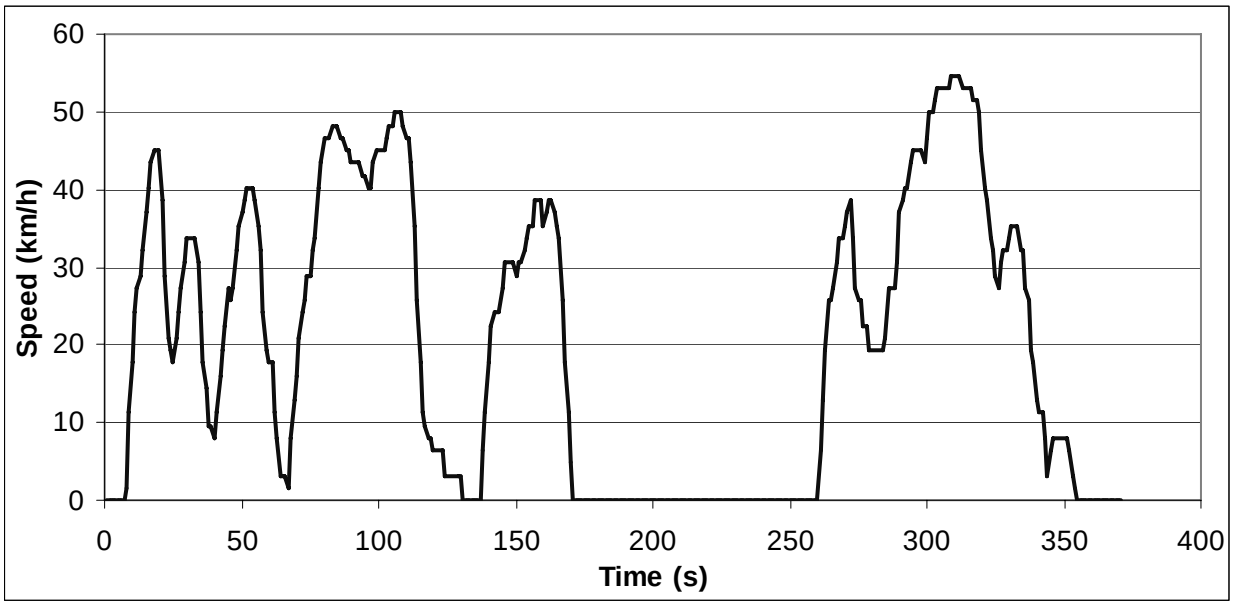


ART.KINEMA parameters

Total distance	2329.4 m	Average negative acceleration	-0.529 m/s^2
Total time	363 s	Standard deviation of accel.	0.656 m/s^2
Driving time	315 s	Standard dev. of positive accel.	0.387 m/s^2
Drive time	42 s	Accel: 75th - 25th percentile	0.604 m/s^2
Drive time spent accelerating	148 s	Number of accelerations	15
Drive time spent decelerating	125 s	Accelerations per km	6.439 /km
Time spent braking	94 s	Number of stops	3
Standing time	48 s	Stops per km	1.29 /km
% of time driving	86.78 %	Average stop duration	16 s
% of cruising	11.57 %	Average distance between stops	776.47 m
% of time accelerating	40.77 %	Relative positive acceleration	0.216 m/s^2
% of time decelerating	34.44 %	Positive kinetic energy	5.643 m/s^2
% of time braking	25.90 %	Relative positive speed	0.551
% of time standing	13.22 %	Relative real speed	0.740
Average speed (trip)	23.1 km/h	Relative square speed	10.146 m/s
Average driving speed	26.62 km/h	Relative positive square speed	5.582 m/s
Standard deviation of speed	16.26 km/h	Relative real square speed	7.740 m/s
Speed: 75th - 25th percentile	33.71 km/h	Relative cubic speed	114.59 m^2/s^2
Maximum speed	54.63 km/h	Relative positive cubic speed	62.61 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	88.80 m^2/s^2
Average positive acceleration	0.469 m/s^2	Root mean square of acceleration	0.241 m/s^2

Cycle No: 102

Cycle name: **OSCAR E**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

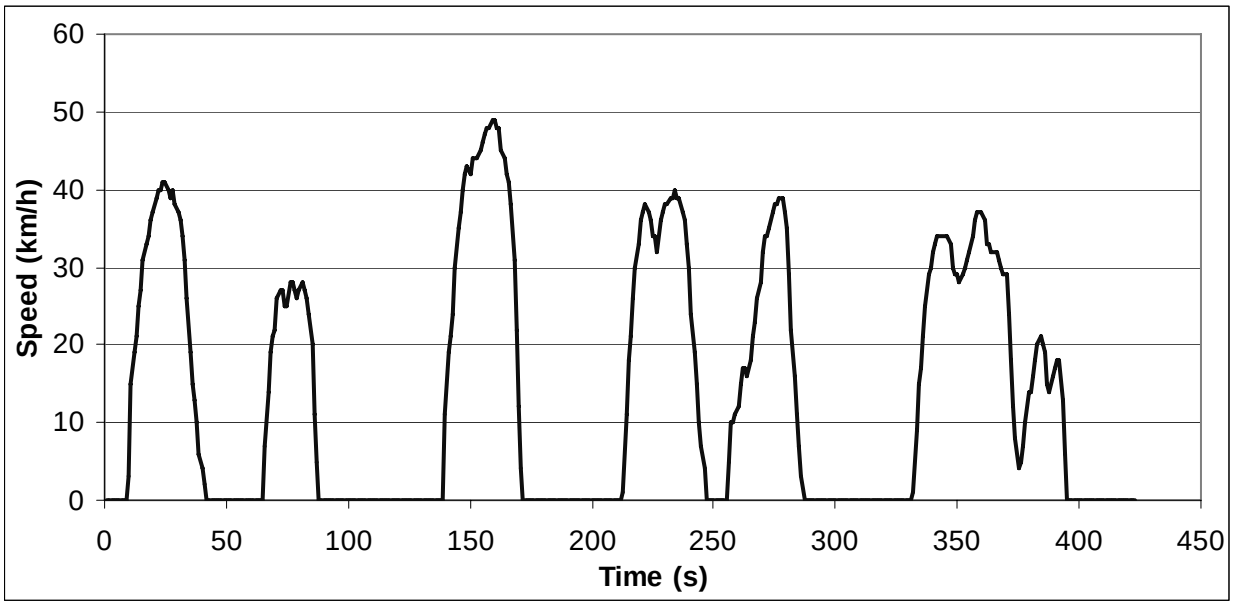


ART.KINEMA parameters

Total distance	2055.91 m	Average negative acceleration	-0.556 m/s^2
Total time	371 s	Standard deviation of accel.	0.704 m/s^2
Driving time	269 s	Standard dev. of positive accel.	0.401 m/s^2
Drive time	29 s	Accel: 75th - 25th percentile	0.373 m/s^2
Drive time spent accelerating	128 s	Number of accelerations	12
Drive time spent decelerating	112 s	Accelerations per km	5.837 /km
Time spent braking	73 s	Number of stops	3
Standing time	102 s	Stops per km	1.46 /km
% of time driving	72.51 %	Average stop duration	34 s
% of cruising	7.82 %	Average distance between stops	685.3 m
% of time accelerating	34.50 %	Relative positive acceleration	0.2413 m/s^2
% of time decelerating	30.19 %	Positive kinetic energy	6.289 m/s^2
% of time braking	19.68 %	Relative positive speed	0.573
% of time standing	27.49 %	Relative real speed	0.756
Average speed (trip)	20.0 km/h	Relative square speed	10.199 m/s
Average driving speed	27.51 km/h	Relative positive square speed	5.891 m/s
Standard deviation of speed	15.94 km/h	Relative real square speed	8.006 m/s
Speed: 75th - 25th percentile	35.08 km/h	Relative cubic speed	114.90 m^2/s^2
Maximum speed	54.33 km/h	Relative positive cubic speed	65.98 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	92.58 m^2/s^2
Average positive acceleration	0.498 m/s^2	Root mean square of acceleration	0.254 m/s^2

Cycle No: 103

Cycle name: **OSCAR F**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

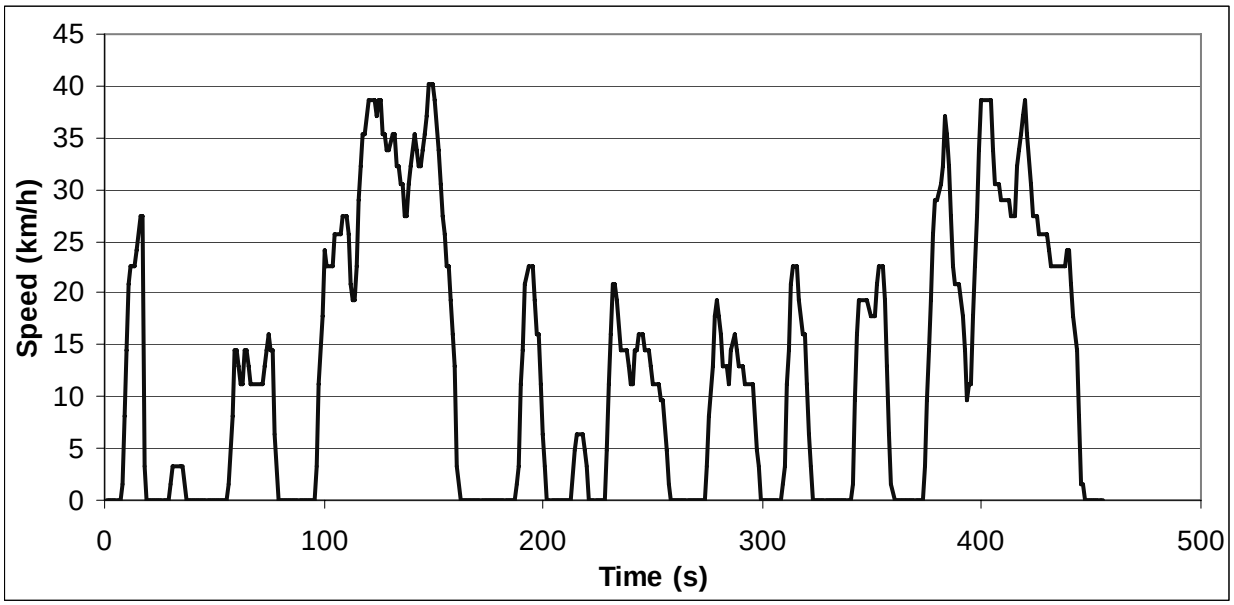


ART.KINEMA parameters

Total distance	1604.56 m	Average negative acceleration	-0.602 m/s^2
Total time	423 s	Standard deviation of accel.	0.734 m/s^2
Driving time	254 s	Standard dev. of positive accel.	0.429 m/s^2
Drive time	36 s	Accel: 75th - 25th percentile	0.159 m/s^2
Drive time spent accelerating	118 s	Number of accelerations	9
Drive time spent decelerating	100 s	Accelerations per km	5.609 /km
Time spent braking	76 s	Number of stops	7
Standing time	169 s	Stops per km	4.36 /km
% of time driving	60.05 %	Average stop duration	24.14 s
% of cruising	8.51 %	Average distance between stops	229.22 m
% of time accelerating	27.90 %	Relative positive acceleration	0.2395 m/s^2
% of time decelerating	23.64 %	Positive kinetic energy	6.242 m/s^2
% of time braking	17.97 %	Relative positive speed	0.558
% of time standing	39.95 %	Relative real speed	0.730
Average speed (trip)	13.7 km/h	Relative square speed	8.854 m/s
Average driving speed	22.74 km/h	Relative positive square speed	4.961 m/s
Standard deviation of speed	14.44 km/h	Relative real square speed	6.653 m/s
Speed: 75th - 25th percentile	28.93 km/h	Relative cubic speed	86.23 m^2/s^2
Maximum speed	48.62 km/h	Relative positive cubic speed	48.52 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	65.85 m^2/s^2
Average positive acceleration	0.506 m/s^2	Root mean square of acceleration	0.292 m/s^2

Cycle No: 104

Cycle name: **OSCAR G1**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

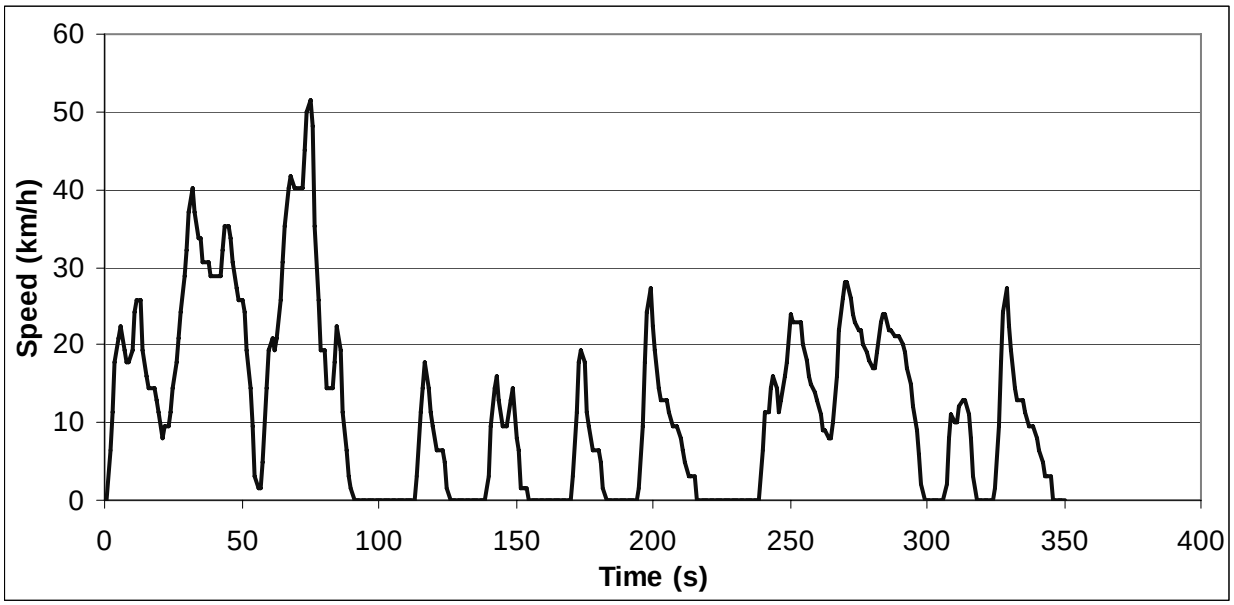


ART.KINEMA parameters

Total distance	1560.76 m	Average negative acceleration	-0.395 m/s^2
Total time	455 s	Standard deviation of accel.	0.592 m/s^2
Driving time	354 s	Standard dev. of positive accel.	0.448 m/s^2
Drive time	55 s	Accel: 75th - 25th percentile	0.332 m/s^2
Drive time spent accelerating	132 s	Number of accelerations	19
Drive time spent decelerating	167 s	Accelerations per km	12.174 /km
Time spent braking	99 s	Number of stops	12
Standing time	101 s	Stops per km	7.69 /km
% of time driving	77.80 %	Average stop duration	8.42 s
% of cruising	12.09 %	Average distance between stops	130.06 m
% of time accelerating	29.01 %	Relative positive acceleration	0.2072 m/s^2
% of time decelerating	36.70 %	Positive kinetic energy	5.459 m/s^2
% of time braking	21.76 %	Relative positive speed	0.450
% of time standing	22.20 %	Relative real speed	0.707
Average speed (trip)	12.4 km/h	Relative square speed	6.847 m/s
Average driving speed	15.87 km/h	Relative positive square speed	3.101 m/s
Standard deviation of speed	11.82 km/h	Relative real square speed	4.870 m/s
Speed: 75th - 25th percentile	22.06 km/h	Relative cubic speed	53.80 m^2/s^2
Maximum speed	39.53 km/h	Relative positive cubic speed	24.56 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	38.39 m^2/s^2
Average positive acceleration	0.474 m/s^2	Root mean square of acceleration	0.282 m/s^2

Cycle No: 105

Cycle name: **OSCAR G2**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

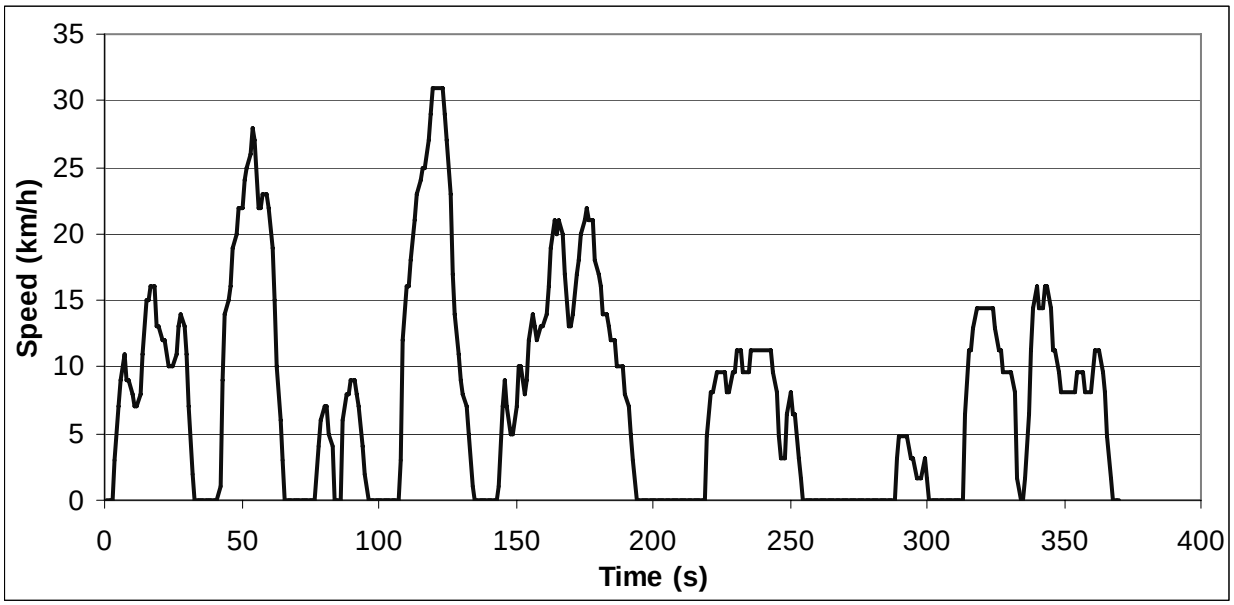


ART.KINEMA parameters

Total distance	1122.27 m	Average negative acceleration	-0.402 m/s^2
Total time	350 s	Standard deviation of accel.	0.614 m/s^2
Driving time	288 s	Standard dev. of positive accel.	0.444 m/s^2
Drive time	29 s	Accel: 75th - 25th percentile	0.523 m/s^2
Drive time spent accelerating	112 s	Number of accelerations	16
Drive time spent decelerating	147 s	Accelerations per km	14.257 /km
Time spent braking	109 s	Number of stops	8
Standing time	62 s	Stops per km	7.13 /km
% of time driving	82.29 %	Average stop duration	7.75 s
% of cruising	8.29 %	Average distance between stops	140.28 m
% of time accelerating	32.00 %	Relative positive acceleration	0.2496 m/s^2
% of time decelerating	42.00 %	Positive kinetic energy	6.562 m/s^2
% of time braking	31.14 %	Relative positive speed	0.475
% of time standing	17.71 %	Relative real speed	0.626
Average speed (trip)	11.5 km/h	Relative square speed	6.226 m/s
Average driving speed	14.03 km/h	Relative positive square speed	3.226 m/s
Standard deviation of speed	10.86 km/h	Relative real square speed	4.064 m/s
Speed: 75th - 25th percentile	18.45 km/h	Relative cubic speed	47.73 m^2/s^2
Maximum speed	47.26 km/h	Relative positive cubic speed	26.56 m^2/s^2
Average acceleration	0.003 m/s^2	Relative real cubic speed	32.01 m^2/s^2
Average positive acceleration	0.554 m/s^2	Root mean square of acceleration	0.311 m/s^2

Cycle No: 106

Cycle name: **OSCAR H1**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

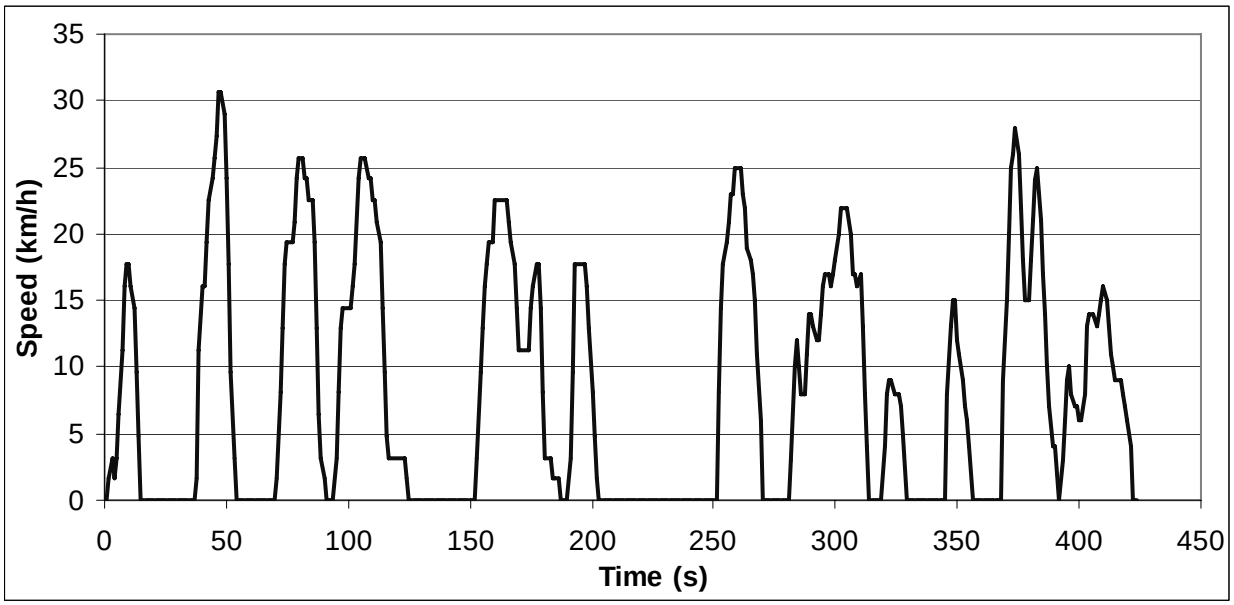


ART.KINEMA parameters

Total distance	803.66 m	Average negative acceleration	-0.303 m/s^2
Total time	370 s	Standard deviation of accel.	0.394 m/s^2
Driving time	304 s	Standard dev. of positive accel.	0.262 m/s^2
Drive time	57 s	Accel: 75th - 25th percentile	0.334 m/s^2
Drive time spent accelerating	122 s	Number of accelerations	20
Drive time spent decelerating	125 s	Accelerations per km	24.886 /km
Time spent braking	72 s	Number of stops	7
Standing time	66 s	Stops per km	8.71 /km
% of time driving	82.16 %	Average stop duration	9.43 s
% of cruising	15.41 %	Average distance between stops	114.81 m
% of time accelerating	32.97 %	Relative positive acceleration	0.1588 m/s^2
% of time decelerating	33.78 %	Positive kinetic energy	4.162 m/s^2
% of time braking	19.46 %	Relative positive speed	0.534
% of time standing	17.84 %	Relative real speed	0.755
Average speed (trip)	7.8 km/h	Relative square speed	4.210 m/s
Average driving speed	9.52 km/h	Relative positive square speed	2.270 m/s
Standard deviation of speed	7.34 km/h	Relative real square speed	3.199 m/s
Speed: 75th - 25th percentile	11.83 km/h	Relative cubic speed	21.81 m^2/s^2
Maximum speed	31.05 km/h	Relative positive cubic speed	11.79 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	16.59 m^2/s^2
Average positive acceleration	0.288 m/s^2	Root mean square of acceleration	0.242 m/s^2

Cycle No: 107

Cycle name: **OSCAR H2**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

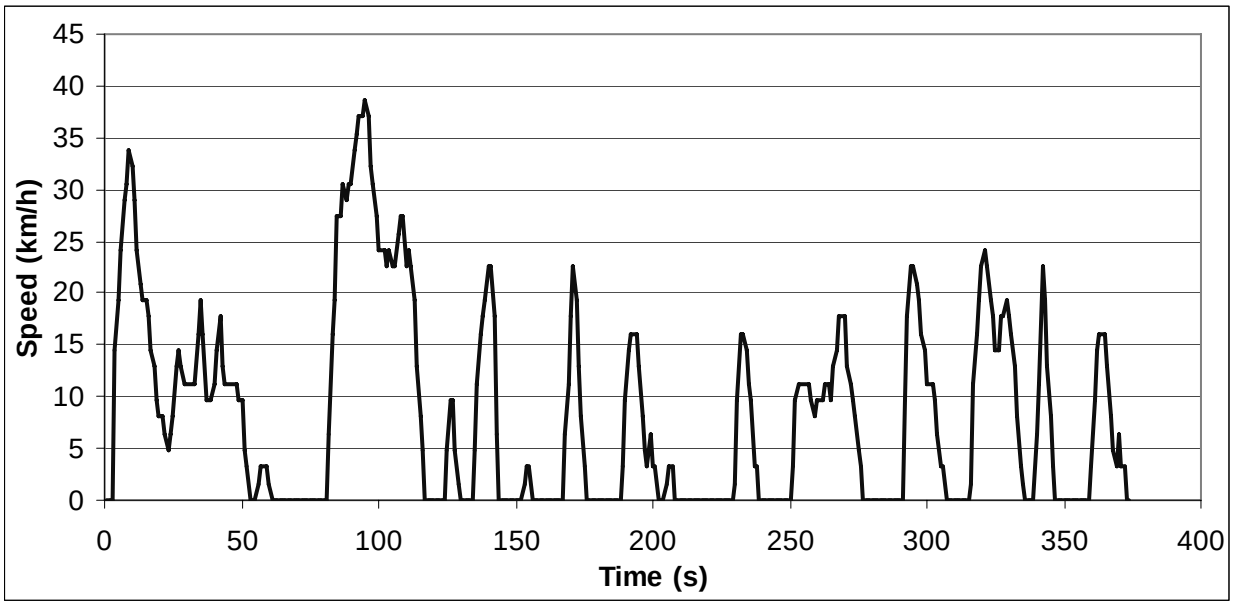


ART.KINEMA parameters

Total distance	955.64 m	Average negative acceleration	-0.441 m/s^2
Total time	424 s	Standard deviation of accel.	0.573 m/s^2
Driving time	315 s	Standard dev. of positive accel.	0.356 m/s^2
Drive time	40 s	Accel: 75th - 25th percentile	0.396 m/s^2
Drive time spent accelerating	140 s	Number of accelerations	15
Drive time spent decelerating	135 s	Accelerations per km	15.696 /km
Time spent braking	94 s	Number of stops	7
Standing time	109 s	Stops per km	7.32 /km
% of time driving	74.29 %	Average stop duration	15.57 s
% of cruising	9.43 %	Average distance between stops	136.52 m
% of time accelerating	33.02 %	Relative positive acceleration	0.2281 m/s^2
% of time decelerating	31.84 %	Positive kinetic energy	5.951 m/s^2
% of time braking	22.17 %	Relative positive speed	0.520
% of time standing	25.71 %	Relative real speed	0.694
Average speed (trip)	8.1 km/h	Relative square speed	4.753 m/s
Average driving speed	10.92 km/h	Relative positive square speed	2.477 m/s
Standard deviation of speed	8.24 km/h	Relative real square speed	3.404 m/s
Speed: 75th - 25th percentile	14.82 km/h	Relative cubic speed	25.79 m^2/s^2
Maximum speed	28.99 km/h	Relative positive cubic speed	13.35 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	18.94 m^2/s^2
Average positive acceleration	0.444 m/s^2	Root mean square of acceleration	0.329 m/s^2

Cycle No: 108

Cycle name: **OSCAR H3**
Alternative name:
Test programme: **OSCAR**
Additional info:
Vehicle category: **Cars**

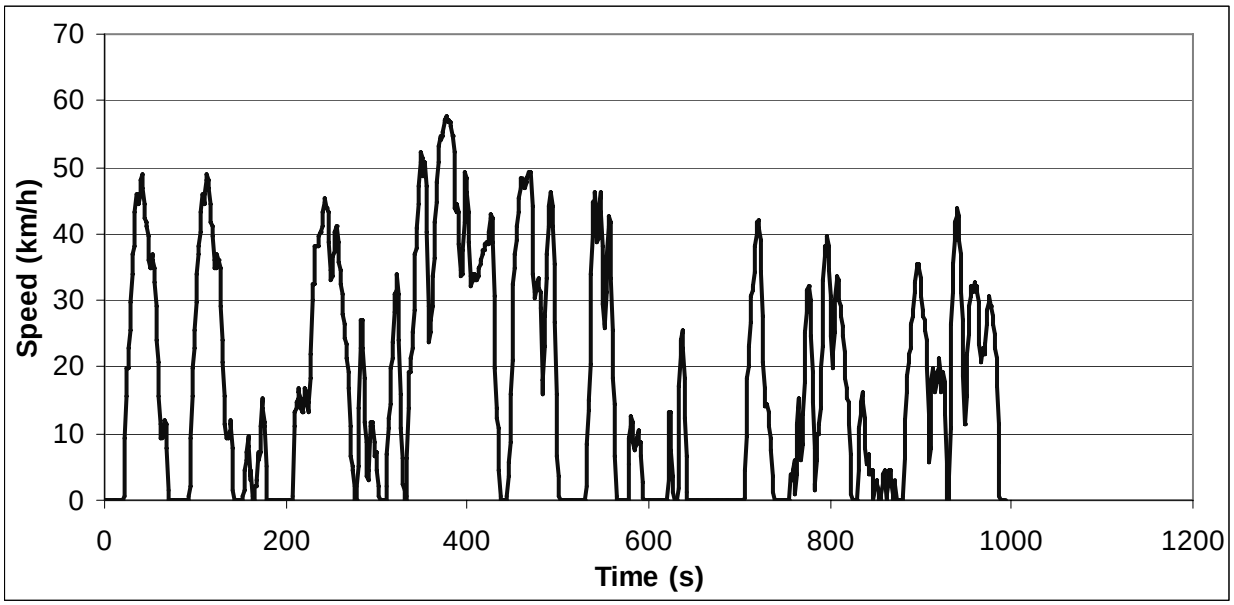


ART.KINEMA parameters

Total distance	859.37 m	Average negative acceleration	-0.394 m/s^2
Total time	374 s	Standard deviation of accel.	0.592 m/s^2
Driving time	312 s	Standard dev. of positive accel.	0.461 m/s^2
Drive time	57 s	Accel: 75th - 25th percentile	0.411 m/s^2
Drive time spent accelerating	115 s	Number of accelerations	20
Drive time spent decelerating	140 s	Accelerations per km	23.273 /km
Time spent braking	95 s	Number of stops	10
Standing time	62 s	Stops per km	11.64 /km
% of time driving	83.42 %	Average stop duration	6.2 s
% of cruising	15.24 %	Average distance between stops	85.94 m
% of time accelerating	30.75 %	Relative positive acceleration	0.2444 m/s^2
% of time decelerating	37.43 %	Positive kinetic energy	6.461 m/s^2
% of time braking	25.40 %	Relative positive speed	0.463
% of time standing	16.58 %	Relative real speed	0.655
Average speed (trip)	8.3 km/h	Relative square speed	5.093 m/s
Average driving speed	9.92 km/h	Relative positive square speed	2.464 m/s
Standard deviation of speed	9.15 km/h	Relative real square speed	3.405 m/s
Speed: 75th - 25th percentile	13.13 km/h	Relative cubic speed	32.17 m^2/s^2
Maximum speed	37.12 km/h	Relative positive cubic speed	16.28 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	21.96 m^2/s^2
Average positive acceleration	0.486 m/s^2	Root mean square of acceleration	0.356 m/s^2

Cycle No: 109

Cycle name: **Artemis urban_incl_start**
Alternative name: **Artemis.urban**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

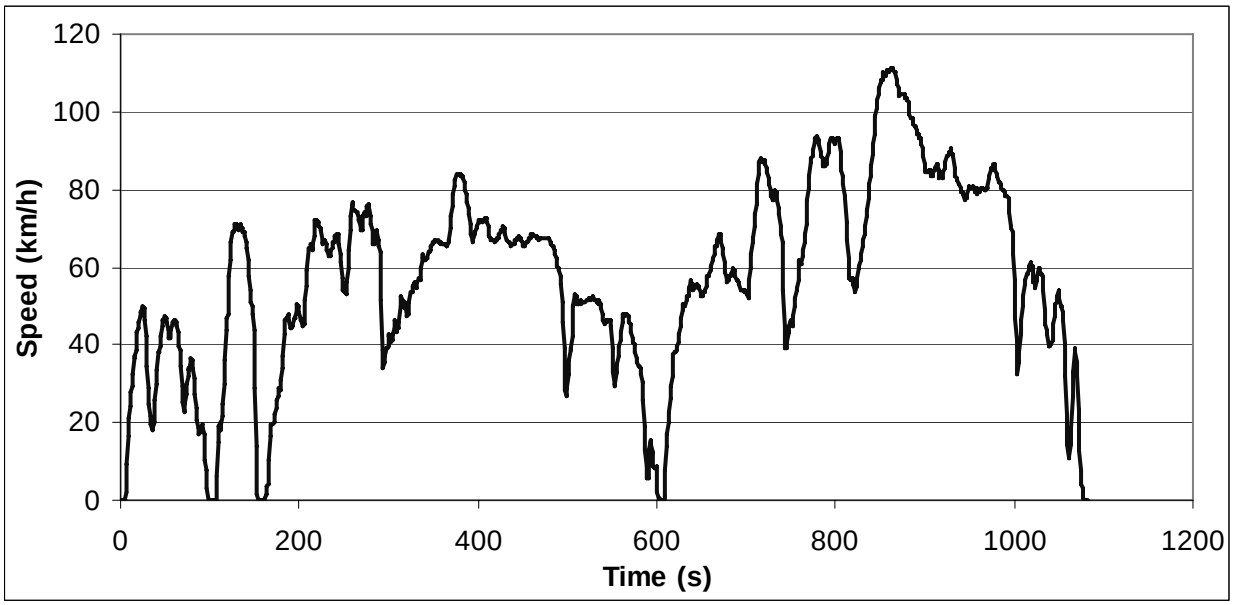


ART.KINEMA parameters

Total distance	4873.73 m	Average negative acceleration	-0.571 m/s^2
Total time	993 s	Standard deviation of accel.	0.732 m/s^2
Driving time	787 s	Standard dev. of positive accel.	0.454 m/s^2
Drive time	95 s	Accel: 75th - 25th percentile	0.523 m/s^2
Drive time spent accelerating	357 s	Number of accelerations	48
Drive time spent decelerating	335 s	Accelerations per km	9.849 /km
Time spent braking	251 s	Number of stops	14
Standing time	206 s	Stops per km	2.87 /km
% of time driving	79.25 %	Average stop duration	14.71 s
% of cruising	9.57 %	Average distance between stops	348.12 m
% of time accelerating	35.95 %	Relative positive acceleration	0.2715 m/s^2
% of time decelerating	33.74 %	Positive kinetic energy	7.139 m/s^2
% of time braking	25.28 %	Relative positive speed	0.543
% of time standing	20.75 %	Relative real speed	0.682
Average speed (trip)	17.7 km/h	Relative square speed	9.406 m/s
Average driving speed	22.29 km/h	Relative positive square speed	5.179 m/s
Standard deviation of speed	16.07 km/h	Relative real square speed	6.615 m/s
Speed: 75th - 25th percentile	32.47 km/h	Relative cubic speed	100.84 m^2/s^2
Maximum speed	57.32 km/h	Relative positive cubic speed	55.54 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	72.83 m^2/s^2
Average positive acceleration	0.531 m/s^2	Root mean square of acceleration	0.294 m/s^2

Cycle No: 110

Cycle name: **Artemis rural_incl_pre_post**
Alternative name: **Artemis.road**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

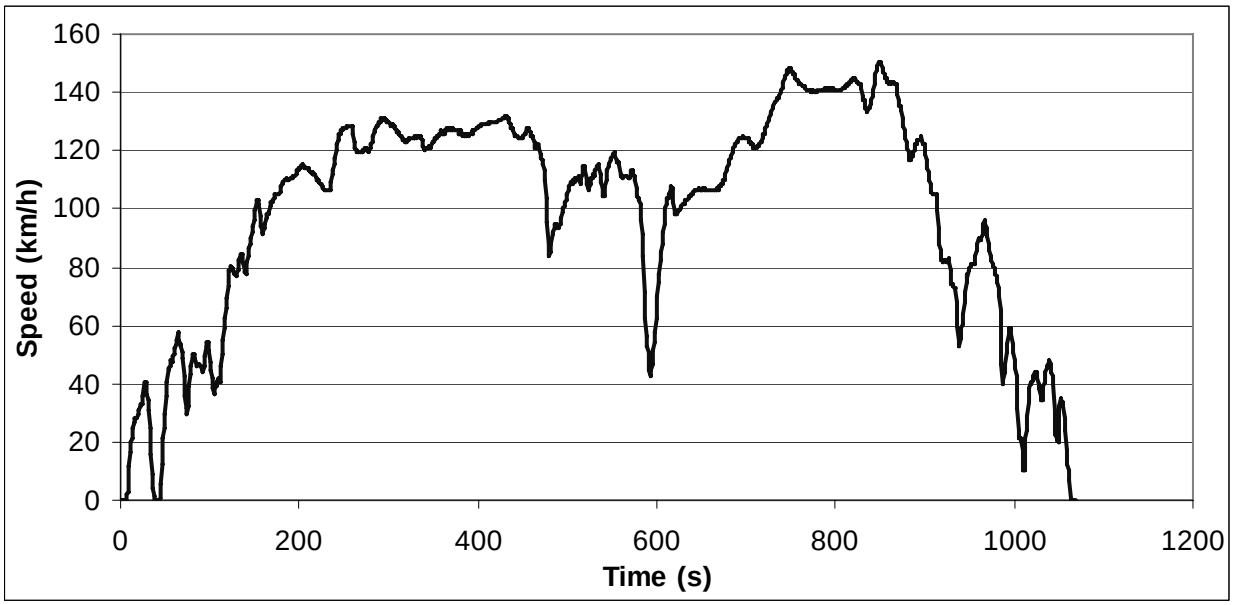


ART.KINEMA parameters

Total distance	17275.17 m	Average negative acceleration	-0.371 m/s^2
Total time	1082 s	Standard deviation of accel.	0.556 m/s^2
Driving time	1066 s	Standard dev. of positive accel.	0.351 m/s^2
Drive time	234 s	Accel: 75th - 25th percentile	0.439 m/s^2
Drive time spent accelerating	430 s	Number of accelerations	48
Drive time spent decelerating	402 s	Accelerations per km	2.779 /km
Time spent braking	232 s	Number of stops	5
Standing time	16 s	Stops per km	0.29 /km
% of time driving	98.52 %	Average stop duration	3.2 s
% of cruising	21.63 %	Average distance between stops	3455.03 m
% of time accelerating	39.74 %	Relative positive acceleration	0.1529 m/s^2
% of time decelerating	37.15 %	Positive kinetic energy	4.007 m/s^2
% of time braking	21.44 %	Relative positive speed	0.494
% of time standing	1.48 %	Relative real speed	0.804
Average speed (trip)	57.5 km/h	Relative square speed	18.867 m/s
Average driving speed	58.34 km/h	Relative positive square speed	9.110 m/s
Standard deviation of speed	23.65 km/h	Relative real square speed	15.326 m/s
Speed: 75th - 25th percentile	28.3 km/h	Relative cubic speed	386.47 m^2/s^2
Maximum speed	111.09 km/h	Relative positive cubic speed	183.83 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	315.78 m^2/s^2
Average positive acceleration	0.359 m/s^2	Root mean square of acceleration	0.138 m/s^2

Cycle No: 111

Cycle name: **Artemis mw_150_incl_pre_post**
Alternative name: **Artemis.motorway**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

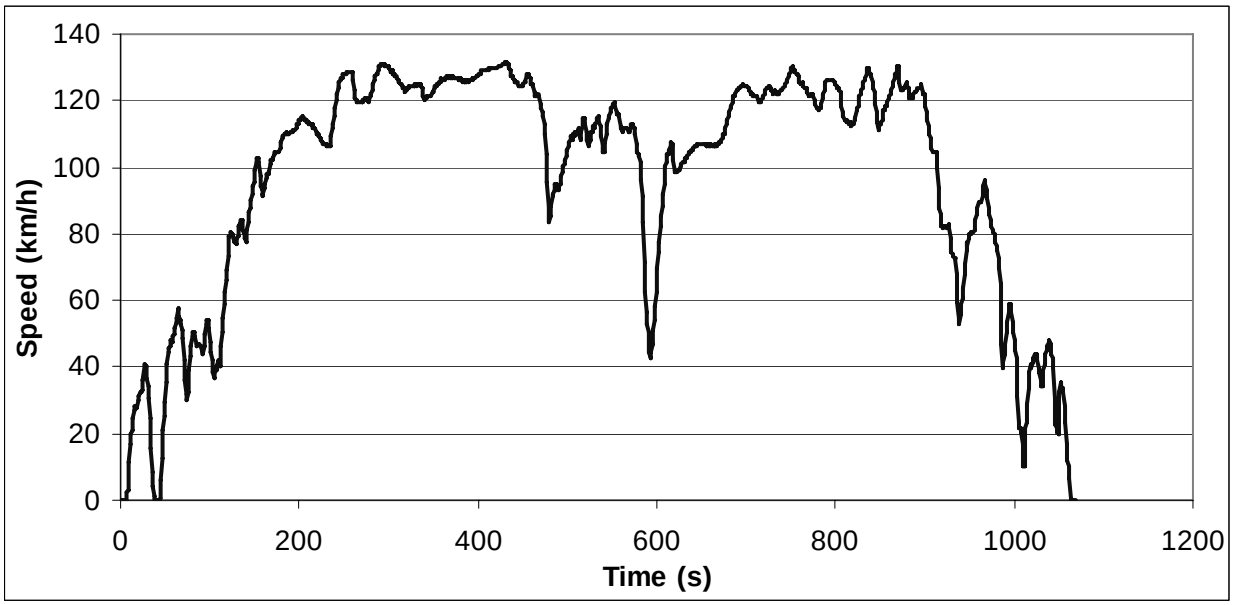


ART.KINEMA parameters

Total distance	29546.5 m	Average negative acceleration	-0.344 m/s^2
Total time	1068 s	Standard deviation of accel.	0.484 m/s^2
Driving time	1060 s	Standard dev. of positive accel.	0.309 m/s^2
Drive time	297 s	Accel: 75th - 25th percentile	0.309 m/s^2
Drive time spent accelerating	424 s	Number of accelerations	43
Drive time spent decelerating	339 s	Accelerations per km	1.455 /km
Time spent braking	182 s	Number of stops	3
Standing time	8 s	Stops per km	0.1 /km
% of time driving	99.25 %	Average stop duration	2.67 s
% of cruising	27.81 %	Average distance between stops	9848.83 m
% of time accelerating	39.70 %	Relative positive acceleration	0.113 m/s^2
% of time decelerating	31.74 %	Positive kinetic energy	2.955 m/s^2
% of time braking	17.04 %	Relative positive speed	0.549
% of time standing	0.75 %	Relative real speed	0.864
Average speed (trip)	99.6 km/h	Relative square speed	31.595 m/s
Average driving speed	100.35 km/h	Relative positive square speed	17.140 m/s
Standard deviation of speed	36.68 km/h	Relative real square speed	27.861 m/s
Speed: 75th - 25th percentile	46.27 km/h	Relative cubic speed	1051.47 m^2/s^2
Maximum speed	150.37 km/h	Relative positive cubic speed	564.01 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	938.53 m^2/s^2
Average positive acceleration	0.271 m/s^2	Root mean square of acceleration	0.092 m/s^2

Cycle No: 112

Cycle name: **Artemis mw_130_incl_pre_post**
Alternative name: **Artemis.motorway130**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

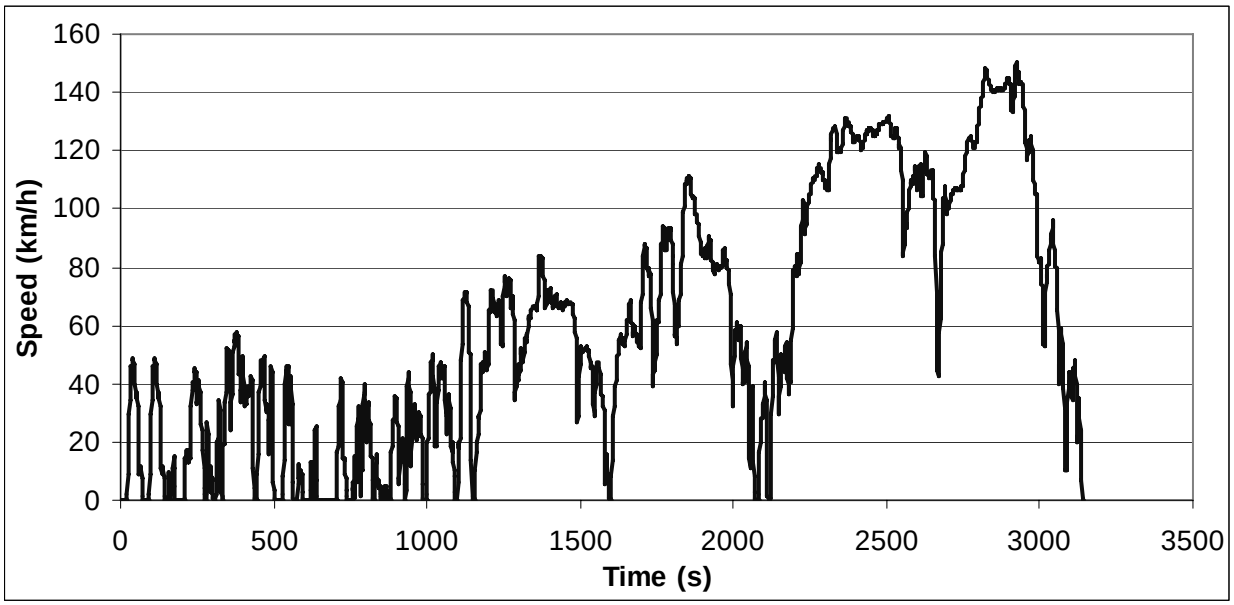


ART.KINEMA parameters

Total distance	28737.41 m	Average negative acceleration	-0.345 m/s^2
Total time	1068 s	Standard deviation of accel.	0.484 m/s^2
Driving time	1060 s	Standard dev. of positive accel.	0.307 m/s^2
Drive time	278 s	Accel: 75th - 25th percentile	0.318 m/s^2
Drive time spent accelerating	434 s	Number of accelerations	46
Drive time spent decelerating	348 s	Accelerations per km	1.601 /km
Time spent braking	183 s	Number of stops	3
Standing time	8 s	Stops per km	0.1 /km
% of time driving	99.25 %	Average stop duration	2.67 s
% of cruising	26.03 %	Average distance between stops	9579.14 m
% of time accelerating	40.64 %	Relative positive acceleration	0.1151 m/s^2
% of time decelerating	32.58 %	Positive kinetic energy	3.014 m/s^2
% of time braking	17.13 %	Relative positive speed	0.550
% of time standing	0.75 %	Relative real speed	0.861
Average speed (trip)	96.9 km/h	Relative square speed	30.425 m/s
Average driving speed	97.6 km/h	Relative positive square speed	16.620 m/s
Standard deviation of speed	34.14 km/h	Relative real square speed	26.710 m/s
Speed: 75th - 25th percentile	43.66 km/h	Relative cubic speed	967.76 m^2/s^2
Maximum speed	131.43 km/h	Relative positive cubic speed	525.68 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	859.17 m^2/s^2
Average positive acceleration	0.273 m/s^2	Root mean square of acceleration	0.093 m/s^2

Cycle No: 113

Cycle name: **Artemis URM150 (CADC)**
Alternative name: **Common Artemis Driving Cycle**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

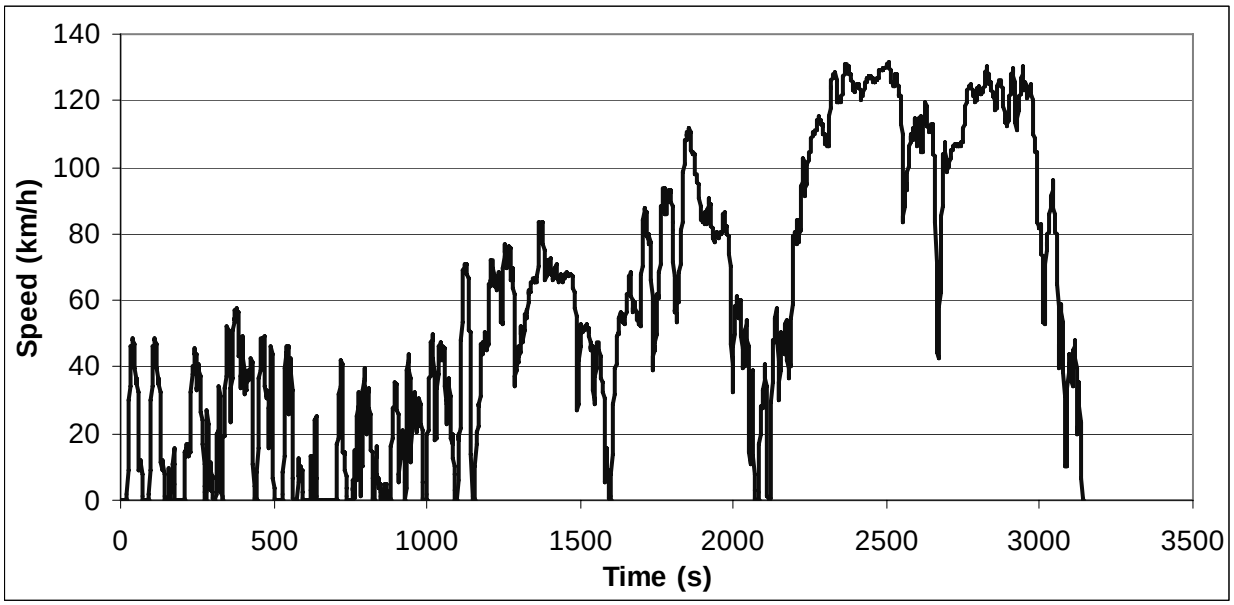


ART.KINEMA parameters

Total distance	51695.46 m	Average negative acceleration	-0.417 m/s^2
Total time	3143 s	Standard deviation of accel.	0.585 m/s^2
Driving time	2913 s	Standard dev. of positive accel.	0.381 m/s^2
Drive time	626 s	Accel: 75th - 25th percentile	0.397 m/s^2
Drive time spent accelerating	1211 s	Number of accelerations	139
Drive time spent decelerating	1076 s	Accelerations per km	2.689 /km
Time spent braking	665 s	Number of stops	20
Standing time	230 s	Stops per km	0.39 /km
% of time driving	92.68 %	Average stop duration	11.5 s
% of cruising	19.92 %	Average distance between stops	2584.77 m
% of time accelerating	38.53 %	Relative positive acceleration	0.1413 m/s^2
% of time decelerating	34.23 %	Positive kinetic energy	3.701 m/s^2
% of time braking	21.16 %	Relative positive speed	0.530
% of time standing	7.32 %	Relative real speed	0.827
Average speed (trip)	59.2 km/h	Relative square speed	25.250 m/s
Average driving speed	63.89 km/h	Relative positive square speed	13.329 m/s
Standard deviation of speed	41.55 km/h	Relative real square speed	21.669 m/s
Speed: 75th - 25th percentile	70.58 km/h	Relative cubic speed	739.62 m^2/s^2
Maximum speed	150.37 km/h	Relative positive cubic speed	389.03 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	648.81 m^2/s^2
Average positive acceleration	0.371 m/s^2	Root mean square of acceleration	0.139 m/s^2

Cycle No: 114

Cycle name: **Artemis URM130 (CADC)**
Alternative name: **Common Artemis Driving Cycle**
Test programme: **ARTEMIS driving cycles**
Additional info:
Vehicle category: **Cars**

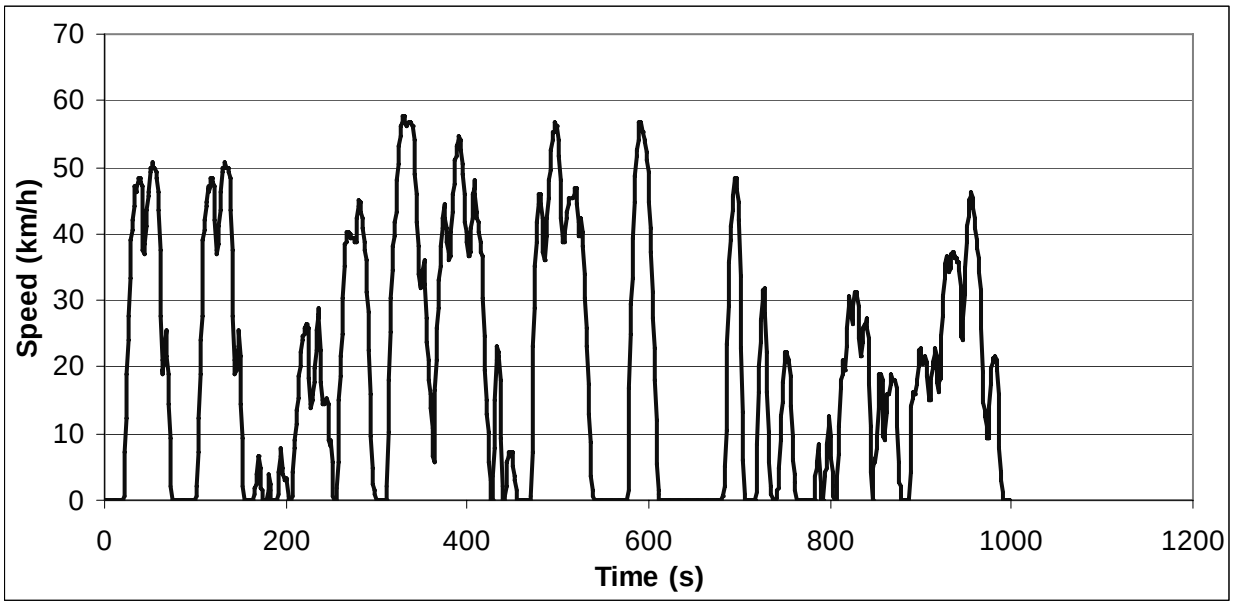


ART.KINEMA parameters

Total distance	50886.36 m	Average negative acceleration	-0.418 m/s^2
Total time	3143 s	Standard deviation of accel.	0.585 m/s^2
Driving time	2913 s	Standard dev. of positive accel.	0.380 m/s^2
Drive time	607 s	Accel: 75th - 25th percentile	0.397 m/s^2
Drive time spent accelerating	1221 s	Number of accelerations	142
Drive time spent decelerating	1085 s	Accelerations per km	2.791 /km
Time spent braking	666 s	Number of stops	20
Standing time	230 s	Stops per km	0.39 /km
% of time driving	92.68 %	Average stop duration	11.5 s
% of cruising	19.31 %	Average distance between stops	2544.32 m
% of time accelerating	38.85 %	Relative positive acceleration	0.1429 m/s^2
% of time decelerating	34.52 %	Positive kinetic energy	3.746 m/s^2
% of time braking	21.19 %	Relative positive speed	0.530
% of time standing	7.32 %	Relative real speed	0.825
Average speed (trip)	58.3 km/h	Relative square speed	24.488 m/s
Average driving speed	62.89 km/h	Relative positive square speed	12.974 m/s
Standard deviation of speed	39.87 km/h	Relative real square speed	20.921 m/s
Speed: 75th - 25th percentile	70.58 km/h	Relative cubic speed	687.39 m^2/s^2
Maximum speed	131.43 km/h	Relative positive cubic speed	364.59 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	599.38 m^2/s^2
Average positive acceleration	0.372 m/s^2	Root mean square of acceleration	0.140 m/s^2

Cycle No: 115

Cycle name:	**Artemis HighMot_urban_total**
Alternative name:	**ArtHiURB**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

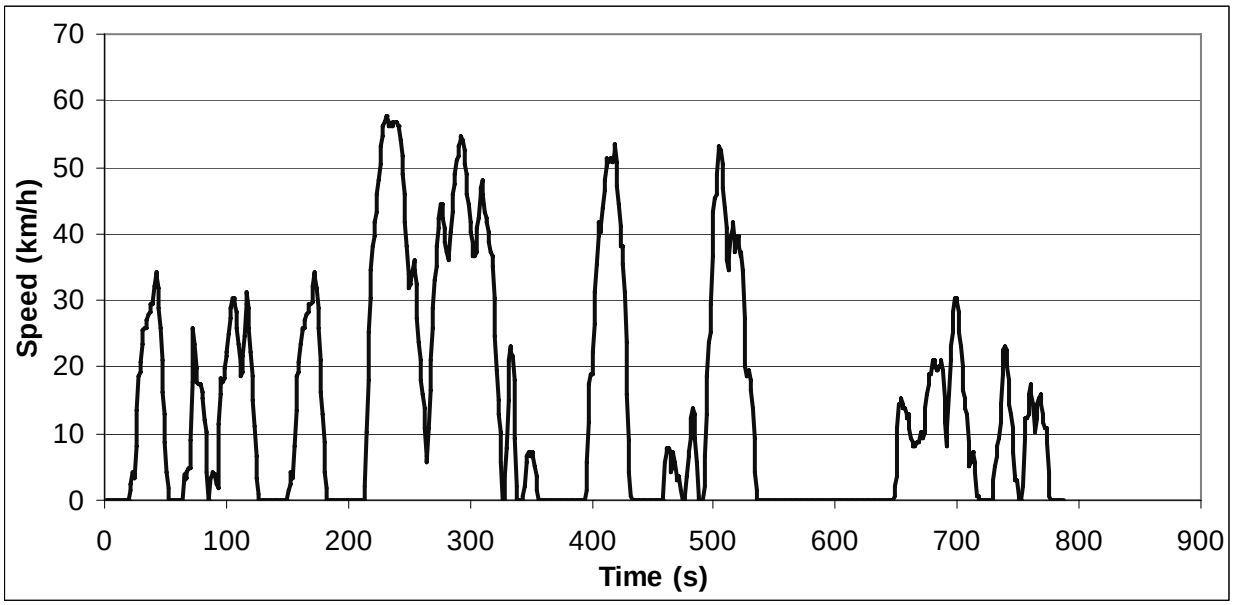


ART.KINEMA parameters

Total distance	5437.61 m	Average negative acceleration	-0.530 m/s^2
Total time	998 s	Standard deviation of accel.	0.711 m/s^2
Driving time	799 s	Standard dev. of positive accel.	0.465 m/s^2
Drive time	101 s	Accel: 75th - 25th percentile	0.549 m/s^2
Drive time spent accelerating	355 s	Number of accelerations	45
Drive time spent decelerating	343 s	Accelerations per km	8.276 /km
Time spent braking	250 s	Number of stops	12
Standing time	199 s	Stops per km	2.21 /km
% of time driving	80.06 %	Average stop duration	16.58 s
% of cruising	10.12 %	Average distance between stops	453.13 m
% of time accelerating	35.57 %	Relative positive acceleration	0.2508 m/s^2
% of time decelerating	34.37 %	Positive kinetic energy	6.567 m/s^2
% of time braking	25.05 %	Relative positive speed	0.508
% of time standing	19.94 %	Relative real speed	0.690
Average speed (trip)	19.6 km/h	Relative square speed	10.323 m/s
Average driving speed	24.5 km/h	Relative positive square speed	5.203 m/s
Standard deviation of speed	17.63 km/h	Relative real square speed	7.300 m/s
Speed: 75th - 25th percentile	37.5 km/h	Relative cubic speed	120.25 m^2/s^2
Maximum speed	57.28 km/h	Relative positive cubic speed	60.16 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	86.72 m^2/s^2
Average positive acceleration	0.521 m/s^2	Root mean square of acceleration	0.273 m/s^2

Cycle No: 116

Cycle name:	**Artemis HighMot_urbdense_total**
Alternative name:	**ArtHiUDE**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

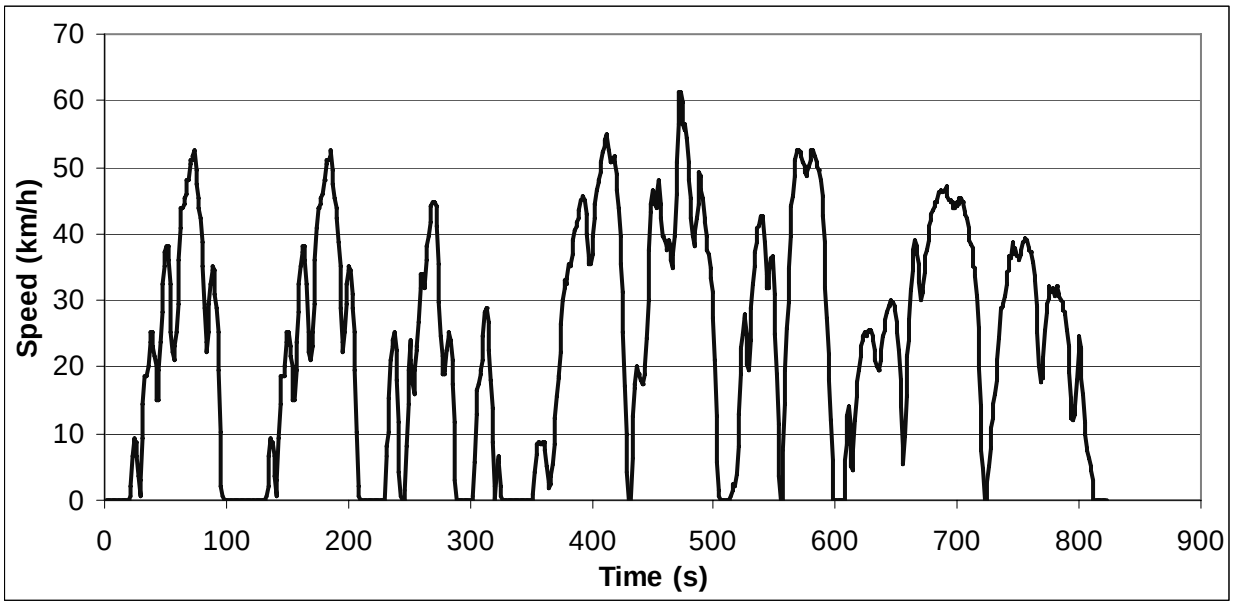


ART.KINEMA parameters

Total distance	3086.29 m	Average negative acceleration	-0.505 m/s^2
Total time	787 s	Standard deviation of accel.	0.632 m/s^2
Driving time	539 s	Standard dev. of positive accel.	0.399 m/s^2
Drive time	61 s	Accel: 75th - 25th percentile	0.355 m/s^2
Drive time spent accelerating	246 s	Number of accelerations	24
Drive time spent decelerating	232 s	Accelerations per km	7.776 /km
Time spent braking	171 s	Number of stops	10
Standing time	248 s	Stops per km	3.24 /km
% of time driving	68.49 %	Average stop duration	24.8 s
% of cruising	7.75 %	Average distance between stops	308.63 m
% of time accelerating	31.26 %	Relative positive acceleration	0.2452 m/s^2
% of time decelerating	29.48 %	Positive kinetic energy	6.414 m/s^2
% of time braking	21.73 %	Relative positive speed	0.523
% of time standing	31.51 %	Relative real speed	0.674
Average speed (trip)	14.1 km/h	Relative square speed	9.412 m/s
Average driving speed	20.61 km/h	Relative positive square speed	4.966 m/s
Standard deviation of speed	16.55 km/h	Relative real square speed	6.492 m/s
Speed: 75th - 25th percentile	24.82 km/h	Relative cubic speed	105.67 m^2/s^2
Maximum speed	57.18 km/h	Relative positive cubic speed	55.99 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	74.60 m^2/s^2
Average positive acceleration	0.474 m/s^2	Root mean square of acceleration	0.264 m/s^2

Cycle No: 117

Cycle name:	**Artemis HighMot_freeurban_total**
Alternative name:	**ArtHiUFL**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

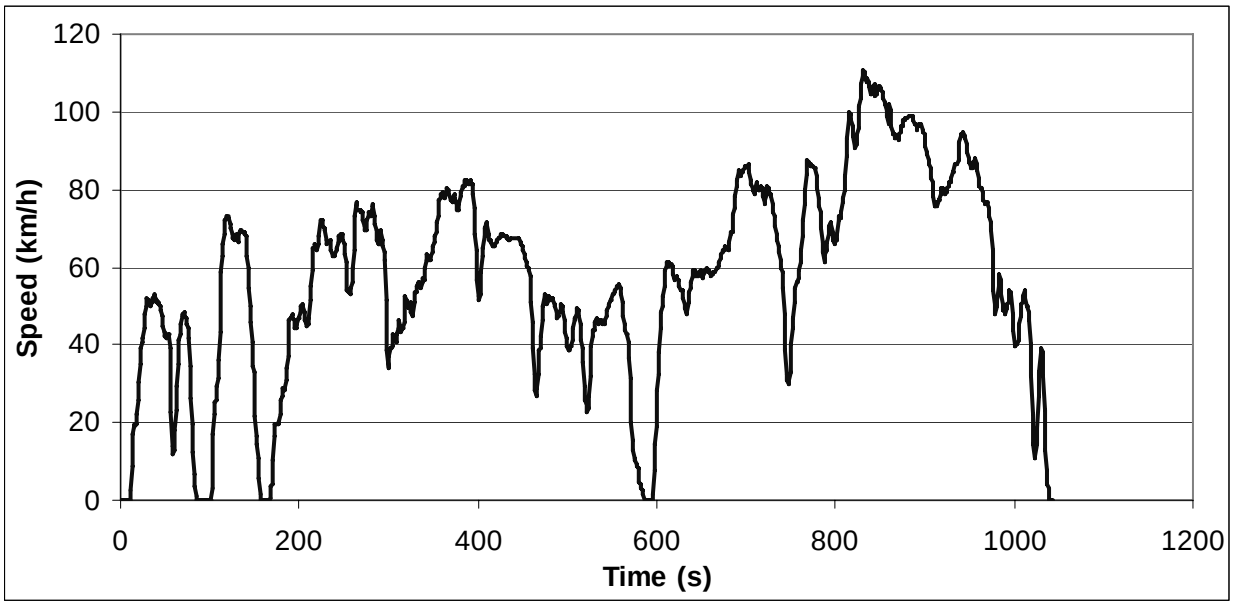


ART.KINEMA parameters

Total distance	5378.24 m	Average negative acceleration	-0.556 m/s^2
Total time	822 s	Standard deviation of accel.	0.702 m/s^2
Driving time	710 s	Standard dev. of positive accel.	0.412 m/s^2
Drive time	83 s	Accel: 75th - 25th percentile	0.640 m/s^2
Drive time spent accelerating	331 s	Number of accelerations	39
Drive time spent decelerating	296 s	Accelerations per km	7.251 /km
Time spent braking	211 s	Number of stops	8
Standing time	112 s	Stops per km	1.49 /km
% of time driving	86.37 %	Average stop duration	14 s
% of cruising	10.10 %	Average distance between stops	672.28 m
% of time accelerating	40.27 %	Relative positive acceleration	0.2371 m/s^2
% of time decelerating	36.01 %	Positive kinetic energy	6.240 m/s^2
% of time braking	25.67 %	Relative positive speed	0.522
% of time standing	13.63 %	Relative real speed	0.719
Average speed (trip)	23.6 km/h	Relative square speed	10.081 m/s
Average driving speed	27.27 km/h	Relative positive square speed	5.175 m/s
Standard deviation of speed	15.7 km/h	Relative real square speed	7.395 m/s
Speed: 75th - 25th percentile	32.53 km/h	Relative cubic speed	112.66 m^2/s^2
Maximum speed	60.26 km/h	Relative positive cubic speed	57.00 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	83.72 m^2/s^2
Average positive acceleration	0.500 m/s^2	Root mean square of acceleration	0.255 m/s^2

Cycle No: 118

Cycle name:	**Artemis HighMot_rural_total**
Alternative name:	**ArtHiROA**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

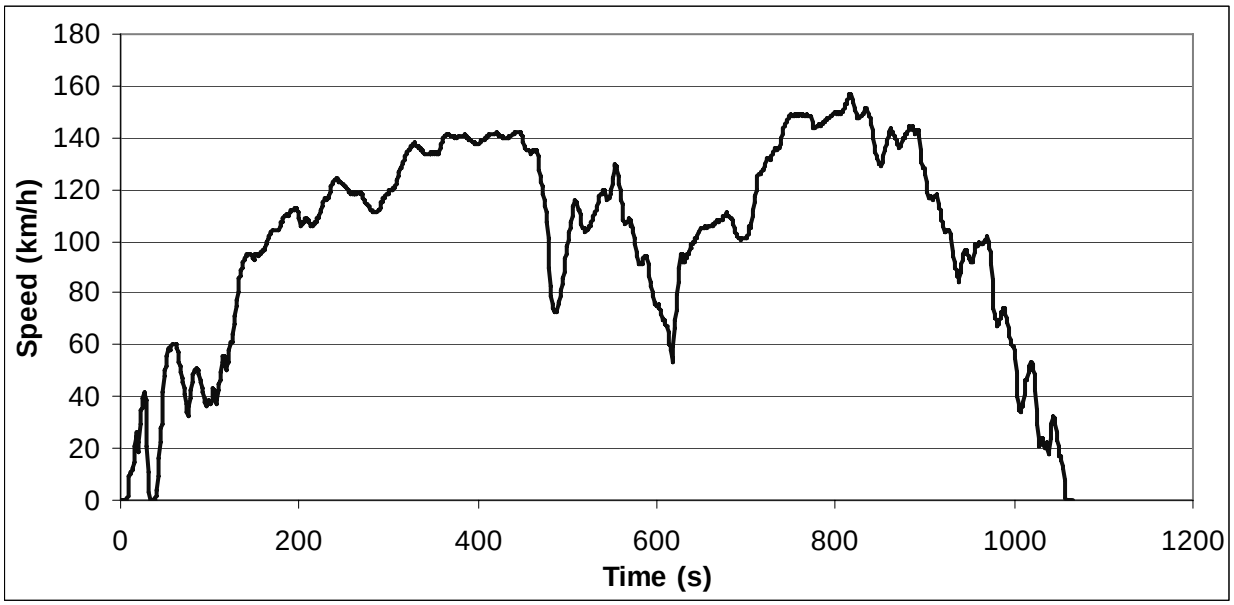


ART.KINEMA parameters

Total distance	16613.1 m	Average negative acceleration	-0.396 m/s^2
Total time	1043 s	Standard deviation of accel.	0.592 m/s^2
Driving time	1008 s	Standard dev. of positive accel.	0.407 m/s^2
Drive time	192 s	Accel: 75th - 25th percentile	0.453 m/s^2
Drive time spent accelerating	415 s	Number of accelerations	54
Drive time spent decelerating	401 s	Accelerations per km	3.250 /km
Time spent braking	241 s	Number of stops	5
Standing time	35 s	Stops per km	0.3 /km
% of time driving	96.64 %	Average stop duration	7 s
% of cruising	18.41 %	Average distance between stops	3322.62 m
% of time accelerating	39.79 %	Relative positive acceleration	0.1634 m/s^2
% of time decelerating	38.45 %	Positive kinetic energy	4.297 m/s^2
% of time braking	23.11 %	Relative positive speed	0.492
% of time standing	3.36 %	Relative real speed	0.780
Average speed (trip)	57.3 km/h	Relative square speed	19.166 m/s
Average driving speed	59.33 km/h	Relative positive square speed	9.211 m/s
Standard deviation of speed	23.96 km/h	Relative real square speed	15.162 m/s
Speed: 75th - 25th percentile	30.68 km/h	Relative cubic speed	397.80 m^2/s^2
Maximum speed	109.53 km/h	Relative positive cubic speed	187.58 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	317.93 m^2/s^2
Average positive acceleration	0.393 m/s^2	Root mean square of acceleration	0.146 m/s^2

Cycle No: 119

Cycle name:	**Artemis HighMot_motorway_total**
Alternative name:	**ArtHiMWY**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

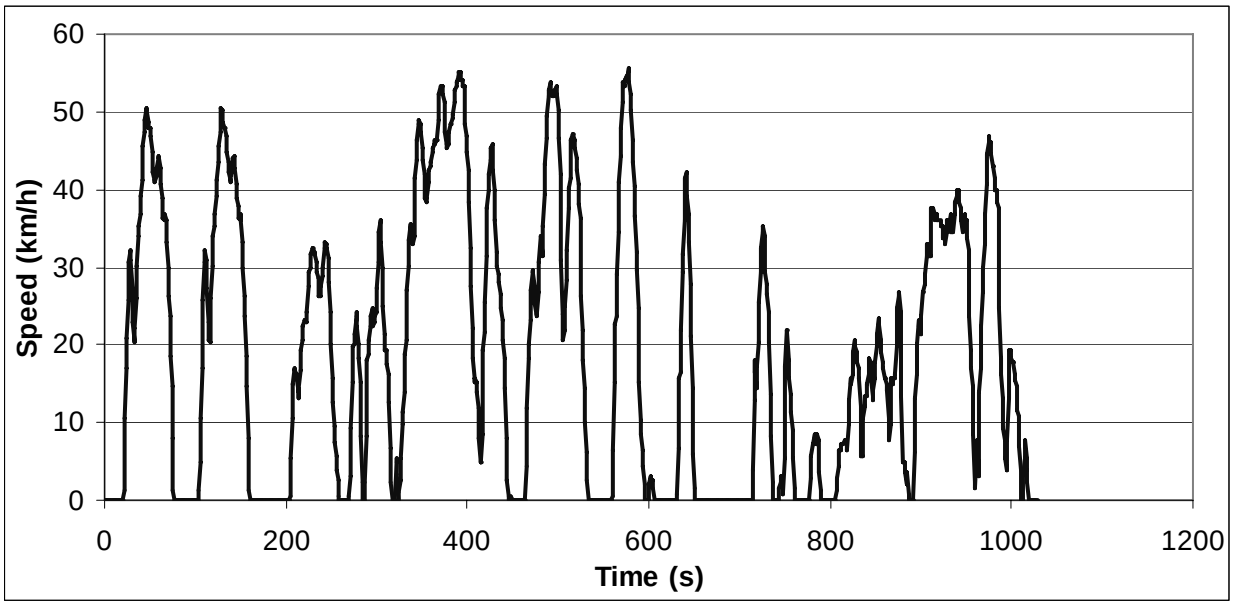


ART.KINEMA parameters

Total distance	30209.4 m	Average negative acceleration	-0.330 m/s^2
Total time	1065 s	Standard deviation of accel.	0.438 m/s^2
Driving time	1053 s	Standard dev. of positive accel.	0.289 m/s^2
Drive time	262 s	Accel: 75th - 25th percentile	0.310 m/s^2
Drive time spent accelerating	441 s	Number of accelerations	44
Drive time spent decelerating	350 s	Accelerations per km	1.457 /km
Time spent braking	199 s	Number of stops	3
Standing time	12 s	Stops per km	0.1 /km
% of time driving	98.87 %	Average stop duration	4 s
% of cruising	24.60 %	Average distance between stops	10069.8 m
% of time accelerating	41.41 %	Relative positive acceleration	0.1134 m/s^2
% of time decelerating	32.86 %	Positive kinetic energy	2.964 m/s^2
% of time braking	18.69 %	Relative positive speed	0.583
% of time standing	1.13 %	Relative real speed	0.841
Average speed (trip)	102.1 km/h	Relative square speed	32.548 m/s
Average driving speed	103.28 km/h	Relative positive square speed	19.102 m/s
Standard deviation of speed	37.9 km/h	Relative real square speed	27.905 m/s
Speed: 75th - 25th percentile	51.71 km/h	Relative cubic speed	1119.34 m^2/s^2
Maximum speed	156.87 km/h	Relative positive cubic speed	657.87 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	970.56 m^2/s^2
Average positive acceleration	0.246 m/s^2	Root mean square of acceleration	0.082 m/s^2

Cycle No: 120

Cycle name: **Artemis LowMot_urban_total**
Alternative name: **ArtLoURB**
Test programme: **ARTEMIS driving cycles**
Additional info: **Specific to Power Rate**
Vehicle category: **Cars**

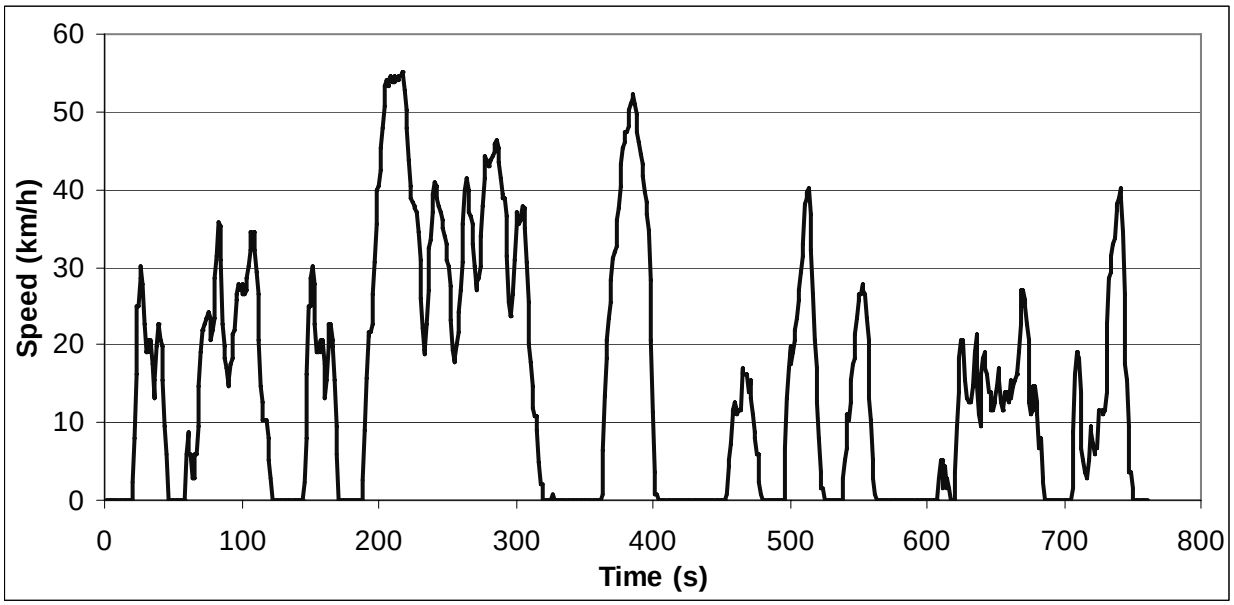


ART.KINEMA parameters

Total distance	5319.35 m	Average negative acceleration	-0.516 m/s^2
Total time	1028 s	Standard deviation of accel.	0.669 m/s^2
Driving time	786 s	Standard dev. of positive accel.	0.424 m/s^2
Drive time	91 s	Accel: 75th - 25th percentile	0.484 m/s^2
Drive time spent accelerating	346 s	Number of accelerations	44
Drive time spent decelerating	349 s	Accelerations per km	8.272 /km
Time spent braking	251 s	Number of stops	13
Standing time	242 s	Stops per km	2.44 /km
% of time driving	76.46 %	Average stop duration	18.62 s
% of cruising	8.85 %	Average distance between stops	409.18 m
% of time accelerating	33.66 %	Relative positive acceleration	0.2375 m/s^2
% of time decelerating	33.95 %	Positive kinetic energy	6.225 m/s^2
% of time braking	24.42 %	Relative positive speed	0.501
% of time standing	23.54 %	Relative real speed	0.687
Average speed (trip)	18.6 km/h	Relative square speed	9.722 m/s
Average driving speed	24.36 km/h	Relative positive square speed	4.859 m/s
Standard deviation of speed	16.11 km/h	Relative real square speed	6.846 m/s
Speed: 75th - 25th percentile	33.55 km/h	Relative cubic speed	107.05 m^2/s^2
Maximum speed	54.87 km/h	Relative positive cubic speed	53.56 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	76.83 m^2/s^2
Average positive acceleration	0.508 m/s^2	Root mean square of acceleration	0.257 m/s^2

Cycle No: 121

Cycle name:	**Artemis LowMot_urbdense_total**
Alternative name:	**ArtLoUDE**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

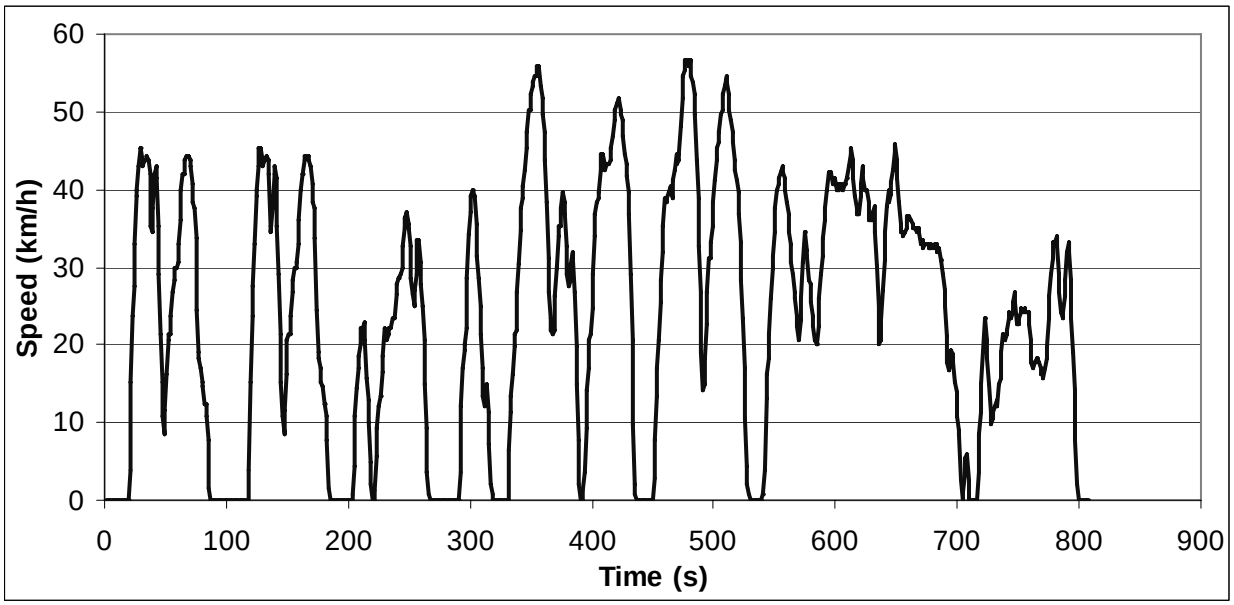


ART.KINEMA parameters

Total distance	3069.74 m	Average negative acceleration	-0.505 m/s^2
Total time	761 s	Standard deviation of accel.	0.636 m/s^2
Driving time	539 s	Standard dev. of positive accel.	0.394 m/s^2
Drive time	71 s	Accel: 75th - 25th percentile	0.370 m/s^2
Drive time spent accelerating	238 s	Number of accelerations	31
Drive time spent decelerating	230 s	Accelerations per km	10.099 /km
Time spent braking	167 s	Number of stops	11
Standing time	222 s	Stops per km	3.58 /km
% of time driving	70.83 %	Average stop duration	20.18 s
% of cruising	9.33 %	Average distance between stops	279.07 m
% of time accelerating	31.27 %	Relative positive acceleration	0.2421 m/s^2
% of time decelerating	30.22 %	Positive kinetic energy	6.335 m/s^2
% of time braking	21.94 %	Relative positive speed	0.538
% of time standing	29.17 %	Relative real speed	0.681
Average speed (trip)	14.5 km/h	Relative square speed	8.578 m/s
Average driving speed	20.5 km/h	Relative positive square speed	4.652 m/s
Standard deviation of speed	14.6 km/h	Relative real square speed	5.919 m/s
Speed: 75th - 25th percentile	25.35 km/h	Relative cubic speed	86.81 m^2/s^2
Maximum speed	54.85 km/h	Relative positive cubic speed	47.44 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	61.03 m^2/s^2
Average positive acceleration	0.463 m/s^2	Root mean square of acceleration	0.266 m/s^2

Cycle No: 122

Cycle name:	**Artemis LowMot_freeurban_total**
Alternative name:	**ArtLoUFL**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

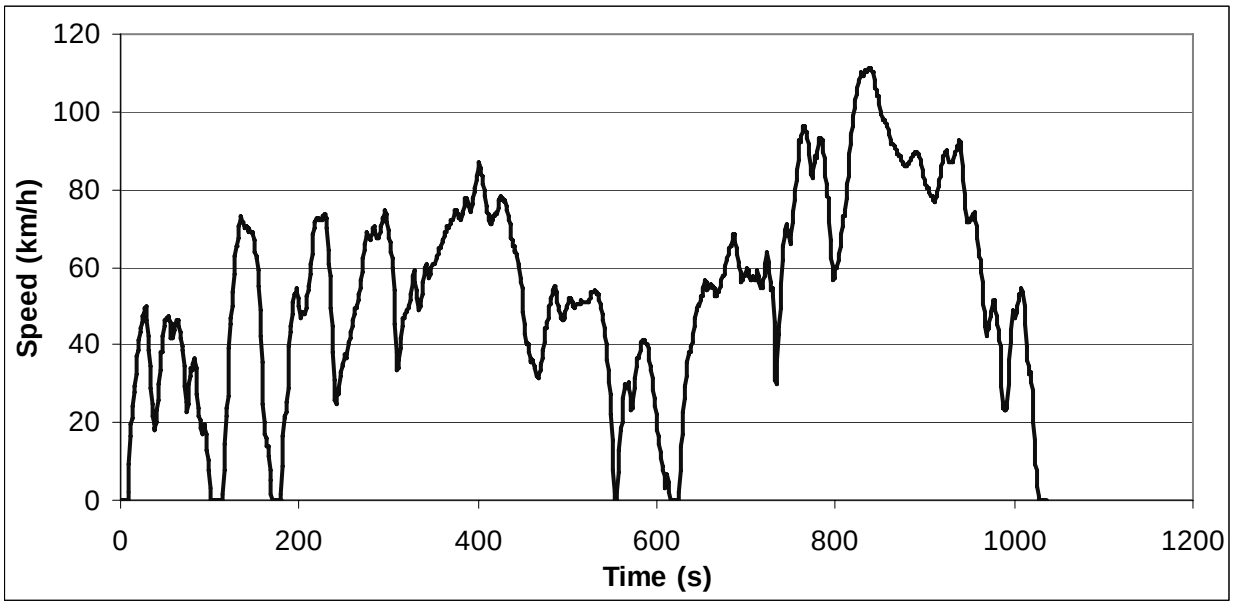


ART.KINEMA parameters

Total distance	5377.43 m	Average negative acceleration	-0.544 m/s^2
Total time	808 s	Standard deviation of accel.	0.698 m/s^2
Driving time	692 s	Standard dev. of positive accel.	0.412 m/s^2
Drive time	95 s	Accel: 75th - 25th percentile	0.662 m/s^2
Drive time spent accelerating	318 s	Number of accelerations	34
Drive time spent decelerating	279 s	Accelerations per km	6.323 /km
Time spent braking	213 s	Number of stops	9
Standing time	116 s	Stops per km	1.67 /km
% of time driving	85.64 %	Average stop duration	12.89 s
% of cruising	11.76 %	Average distance between stops	597.49 m
% of time accelerating	39.36 %	Relative positive acceleration	0.2349 m/s^2
% of time decelerating	34.53 %	Positive kinetic energy	6.190 m/s^2
% of time braking	26.36 %	Relative positive speed	0.520
% of time standing	14.36 %	Relative real speed	0.712
Average speed (trip)	24.0 km/h	Relative square speed	9.828 m/s
Average driving speed	27.98 km/h	Relative positive square speed	5.067 m/s
Standard deviation of speed	14.4 km/h	Relative real square speed	7.125 m/s
Speed: 75th - 25th percentile	29.12 km/h	Relative cubic speed	106.06 m^2/s^2
Maximum speed	56.72 km/h	Relative positive cubic speed	54.33 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	77.61 m^2/s^2
Average positive acceleration	0.505 m/s^2	Root mean square of acceleration	0.250 m/s^2

Cycle No: 123

Cycle name:	**Artemis LowMot_rural_total**
Alternative name:	**ArtLoROA**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

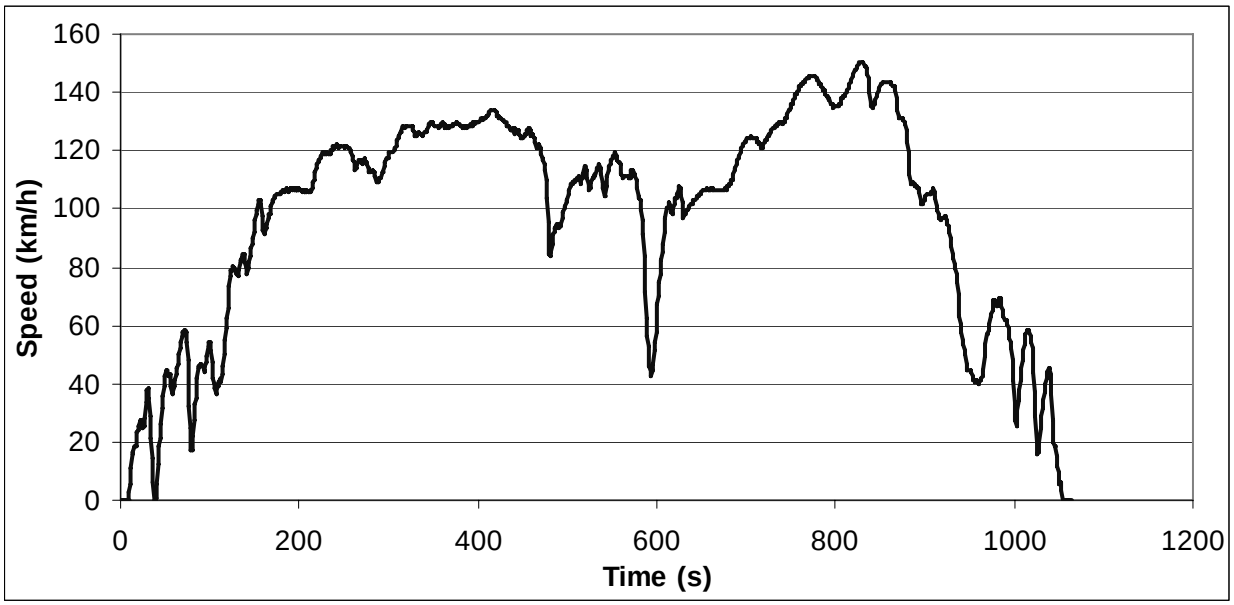


ART.KINEMA parameters

Total distance	15438.71 m	Average negative acceleration	-0.420 m/s^2
Total time	1036 s	Standard deviation of accel.	0.540 m/s^2
Driving time	1002 s	Standard dev. of positive accel.	0.339 m/s^2
Drive time	144 s	Accel: 75th - 25th percentile	0.545 m/s^2
Drive time spent accelerating	453 s	Number of accelerations	42
Drive time spent decelerating	405 s	Accelerations per km	2.720 /km
Time spent braking	266 s	Number of stops	5
Standing time	34 s	Stops per km	0.32 /km
% of time driving	96.72 %	Average stop duration	6.8 s
% of cruising	13.90 %	Average distance between stops	3087.74 m
% of time accelerating	43.73 %	Relative positive acceleration	0.1671 m/s^2
% of time decelerating	39.09 %	Positive kinetic energy	4.366 m/s^2
% of time braking	25.68 %	Relative positive speed	0.534
% of time standing	3.28 %	Relative real speed	0.769
Average speed (trip)	53.7 km/h	Relative square speed	18.440 m/s
Average driving speed	55.47 km/h	Relative positive square speed	9.744 m/s
Standard deviation of speed	24.62 km/h	Relative real square speed	14.465 m/s
Speed: 75th - 25th percentile	35.41 km/h	Relative cubic speed	375.21 m^2/s^2
Maximum speed	111.09 km/h	Relative positive cubic speed	196.29 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	297.25 m^2/s^2
Average positive acceleration	0.370 m/s^2	Root mean square of acceleration	0.138 m/s^2

Cycle No: 124

Cycle name:	**Artemis LowMot_motorway_total**
Alternative name:	**ArtLoMWY**
Test programme:	**ARTEMIS driving cycles**
Additional info:	**Specific to Power Rate**
Vehicle category:	**Cars**

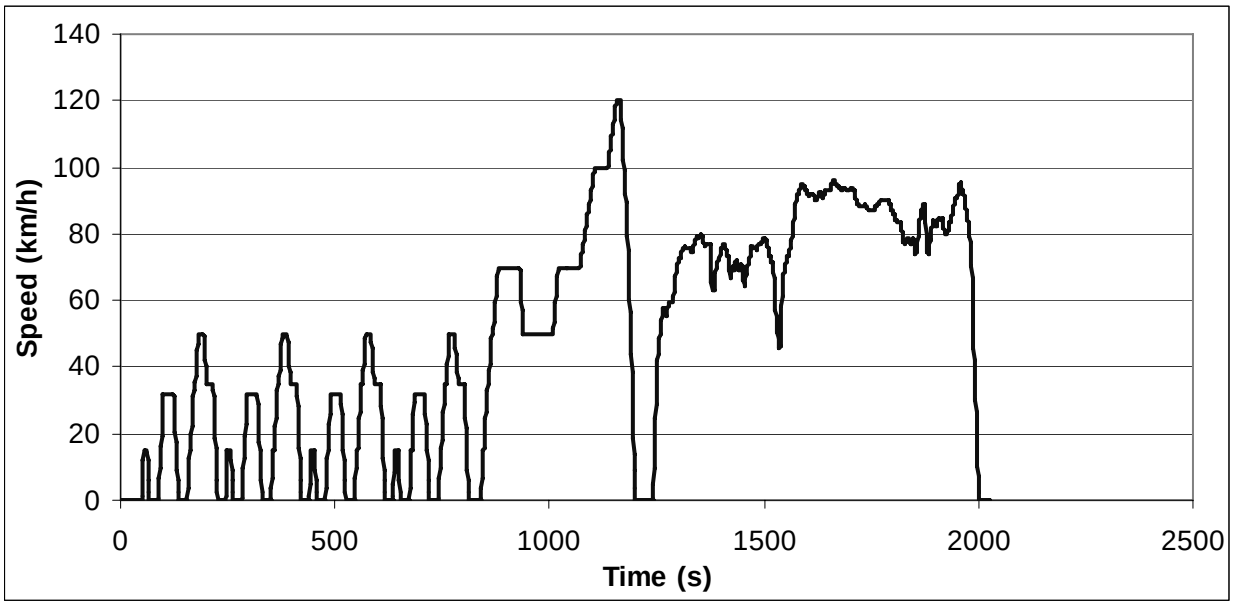


ART.KINEMA parameters

Total distance	28884.84 m	Average negative acceleration	-0.341 m/s^2
Total time	1064 s	Standard deviation of accel.	0.485 m/s^2
Driving time	1050 s	Standard dev. of positive accel.	0.296 m/s^2
Drive time	280 s	Accel: 75th - 25th percentile	0.285 m/s^2
Drive time spent accelerating	453 s	Number of accelerations	49
Drive time spent decelerating	317 s	Accelerations per km	1.696 /km
Time spent braking	175 s	Number of stops	2
Standing time	14 s	Stops per km	0.07 /km
% of time driving	98.68 %	Average stop duration	7 s
% of cruising	26.32 %	Average distance between stops	14442.42 m
% of time accelerating	42.58 %	Relative positive acceleration	0.1093 m/s^2
% of time decelerating	29.79 %	Positive kinetic energy	2.862 m/s^2
% of time braking	16.45 %	Relative positive speed	0.562
% of time standing	1.32 %	Relative real speed	0.870
Average speed (trip)	97.7 km/h	Relative square speed	31.271 m/s
Average driving speed	99.03 km/h	Relative positive square speed	17.577 m/s
Standard deviation of speed	36.64 km/h	Relative real square speed	27.787 m/s
Speed: 75th - 25th percentile	53.26 km/h	Relative cubic speed	1031.82 m^2/s^2
Maximum speed	150.32 km/h	Relative positive cubic speed	579.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	928.93 m^2/s^2
Average positive acceleration	0.263 m/s^2	Root mean square of acceleration	0.092 m/s^2

Cycle No: 125

Cycle name: **EMPA B**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **NEDC+Highway**
Vehicle category: **Cars**

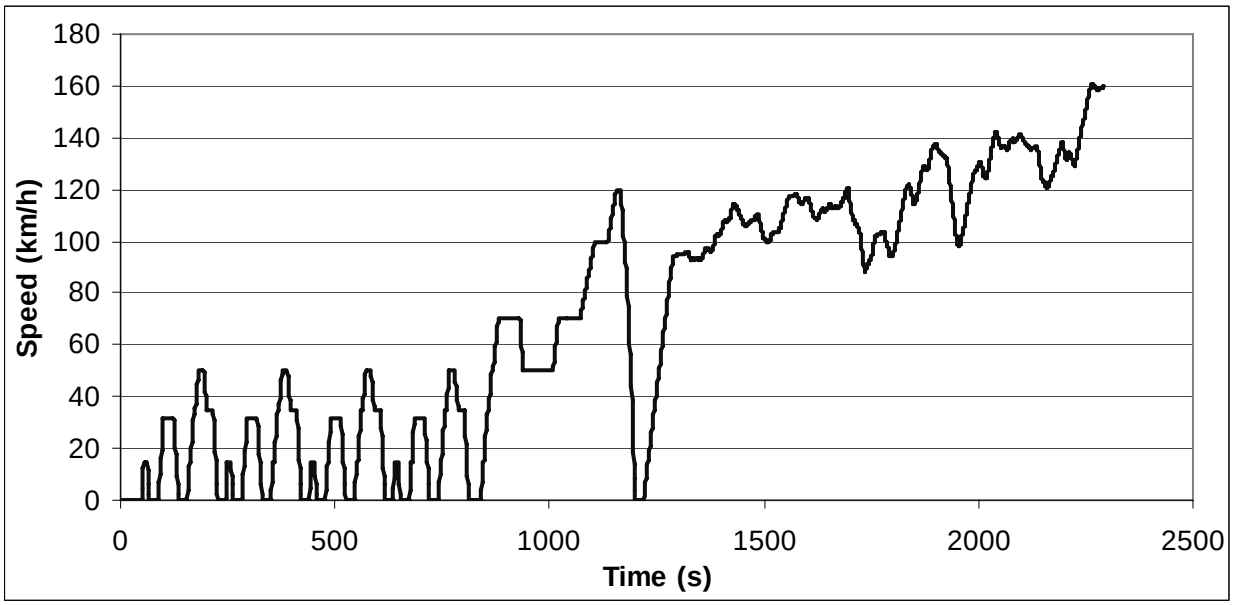


ART.KINEMA parameters

Total distance	27525.07 m	Average negative acceleration	-0.281 m/s^2
Total time	2024 s	Standard deviation of accel.	0.378 m/s^2
Driving time	1743 s	Standard dev. of positive accel.	0.249 m/s^2
Drive time	682 s	Accel: 75th - 25th percentile	0.141 m/s^2
Drive time spent accelerating	599 s	Number of accelerations	40
Drive time spent decelerating	462 s	Accelerations per km	1.453 /km
Time spent braking	265 s	Number of stops	15
Standing time	281 s	Stops per km	0.54 /km
% of time driving	86.12 %	Average stop duration	18.73 s
% of cruising	33.70 %	Average distance between stops	1835 m
% of time accelerating	29.59 %	Relative positive acceleration	0.0845 m/s^2
% of time decelerating	22.83 %	Positive kinetic energy	2.197 m/s^2
% of time braking	13.09 %	Relative positive speed	0.497
% of time standing	13.88 %	Relative real speed	0.899
Average speed (trip)	49.0 km/h	Relative square speed	20.397 m/s
Average driving speed	56.85 km/h	Relative positive square speed	10.173 m/s
Standard deviation of speed	30.71 km/h	Relative real square speed	18.722 m/s
Speed: 75th - 25th percentile	63.85 km/h	Relative cubic speed	455.01 m^2/s^2
Maximum speed	120.1 km/h	Relative positive cubic speed	227.92 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	421.13 m^2/s^2
Average positive acceleration	0.240 m/s^2	Root mean square of acceleration	0.095 m/s^2

Cycle No: 126

Cycle name: **EMPA L2**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **NEDC+BAB**
Vehicle category: **Cars**

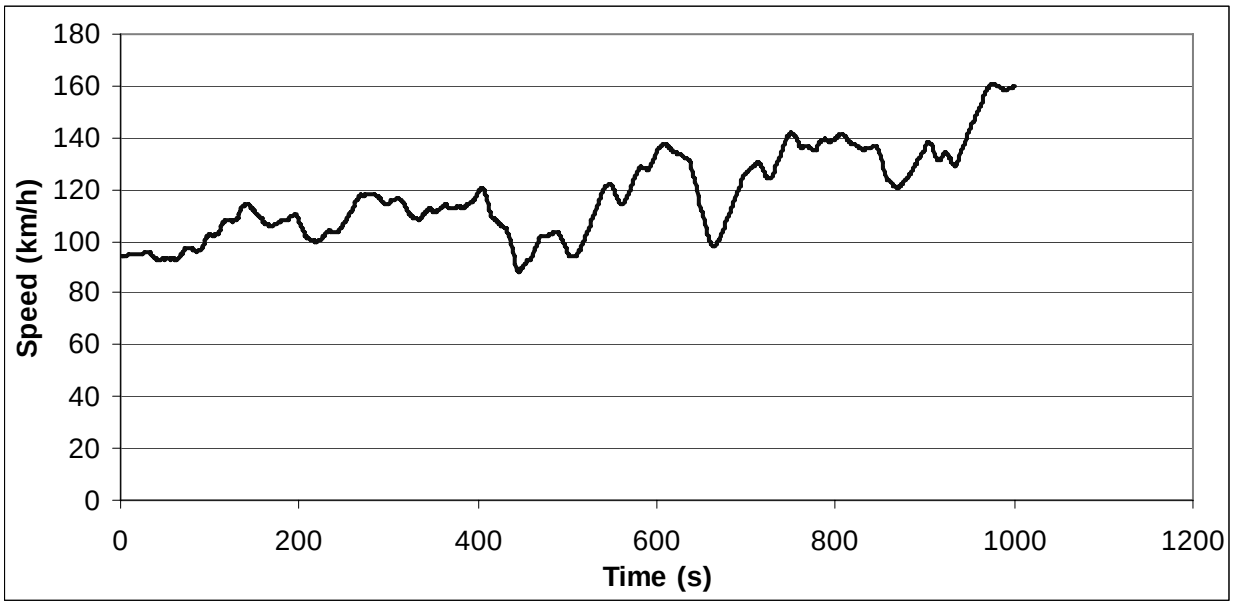


ART.KINEMA parameters

Total distance	44644.14 m	Average negative acceleration	-0.241 m/s^2
Total time	2290 s	Standard deviation of accel.	0.327 m/s^2
Driving time	2052 s	Standard dev. of positive accel.	0.207 m/s^2
Drive time	760 s	Accel: 75th - 25th percentile	0.201 m/s^2
Drive time spent accelerating	781 s	Number of accelerations	41
Drive time spent decelerating	511 s	Accelerations per km	0.918 /km
Time spent braking	249 s	Number of stops	14
Standing time	238 s	Stops per km	0.31 /km
% of time driving	89.61 %	Average stop duration	17 s
% of cruising	33.19 %	Average distance between stops	3188.87 m
% of time accelerating	34.10 %	Relative positive acceleration	0.0856 m/s^2
% of time decelerating	22.31 %	Positive kinetic energy	2.224 m/s^2
% of time braking	10.87 %	Relative positive speed	0.552
% of time standing	10.39 %	Relative real speed	0.928
Average speed (trip)	70.2 km/h	Relative square speed	29.013 m/s
Average driving speed	78.32 km/h	Relative positive square speed	16.311 m/s
Standard deviation of speed	45.25 km/h	Relative real square speed	27.341 m/s
Speed: 75th - 25th percentile	87.94 km/h	Relative cubic speed	925.96 m^2/s^2
Maximum speed	160.85 km/h	Relative positive cubic speed	527.13 m^2/s^2
Average acceleration	0.022 m/s^2	Relative real cubic speed	878.95 m^2/s^2
Average positive acceleration	0.218 m/s^2	Root mean square of acceleration	0.070 m/s^2

Cycle No: 127

Cycle name: **EMPA BAB**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

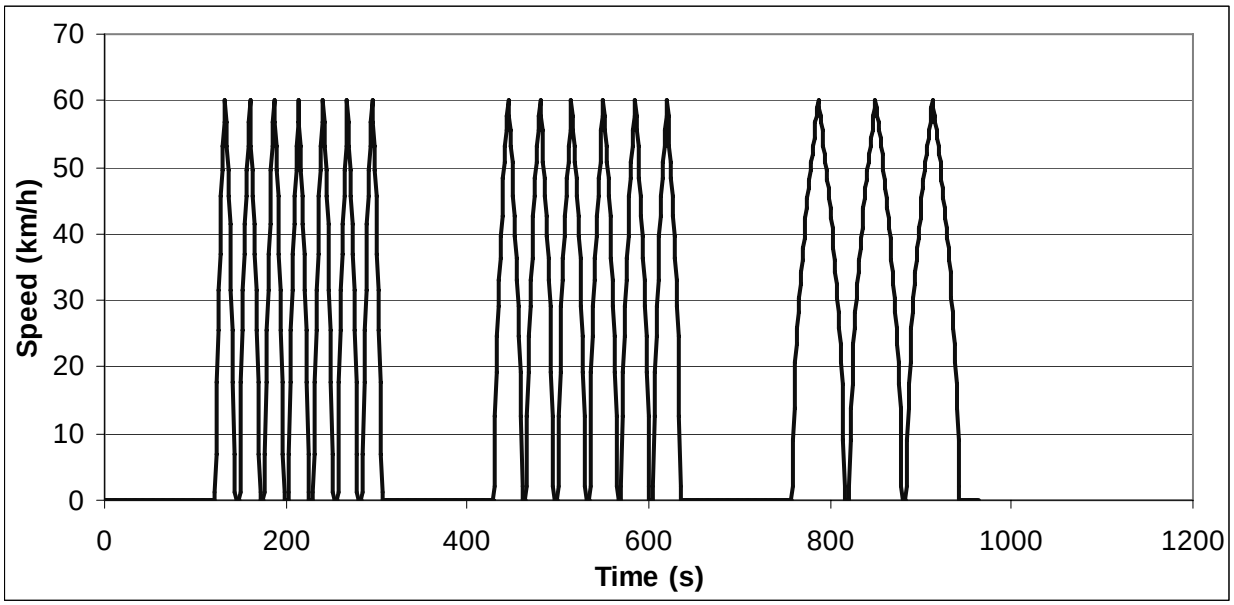


ART.KINEMA parameters

Total distance	32646.1 m	Average negative acceleration	-0.116 m/s^2
Total time	1000 s	Standard deviation of accel.	0.152 m/s^2
Driving time	1000 s	Standard dev. of positive accel.	0.086 m/s^2
Drive time	356 s	Accel: 75th - 25th percentile	0.187 m/s^2
Drive time spent accelerating	380 s	Number of accelerations	31
Drive time spent decelerating	264 s	Accelerations per km	0.950 /km
Time spent braking	52 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	35.60 %	Average distance between stops	N/A m
% of time accelerating	38.00 %	Relative positive acceleration	0.0694 m/s^2
% of time decelerating	26.40 %	Positive kinetic energy	1.805 m/s^2
% of time braking	5.20 %	Relative positive speed	0.567
% of time standing	0.00 %	Relative real speed	0.950
Average speed (trip)	117.5 km/h	Relative square speed	33.317 m/s
Average driving speed	117.53 km/h	Relative positive square speed	18.946 m/s
Standard deviation of speed	16.86 km/h	Relative real square speed	31.735 m/s
Speed: 75th - 25th percentile	27.63 km/h	Relative cubic speed	1133.00 m^2/s^2
Maximum speed	160.83 km/h	Relative positive cubic speed	646.19 m^2/s^2
Average acceleration	0.018 m/s^2	Relative real cubic speed	1082.21 m^2/s^2
Average positive acceleration	0.121 m/s^2	Root mean square of acceleration	0.027 m/s^2

Cycle No: 128

Cycle name: **EMPA Beschl**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

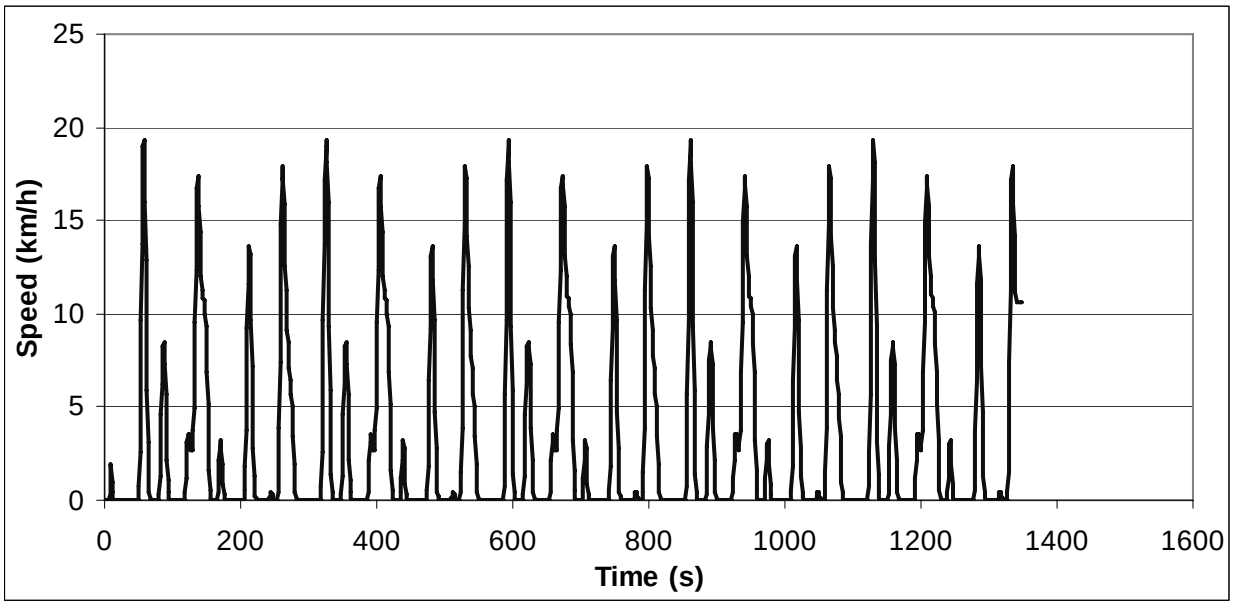


ART.KINEMA parameters

Total distance	5379.08 m	Average negative acceleration	-0.880 m/s^2
Total time	963 s	Standard deviation of accel.	1.022 m/s^2
Driving time	592 s	Standard dev. of positive accel.	0.547 m/s^2
Drive time	20 s	Accel: 75th - 25th percentile	0.712 m/s^2
Drive time spent accelerating	286 s	Number of accelerations	16
Drive time spent decelerating	286 s	Accelerations per km	2.975 /km
Time spent braking	259 s	Number of stops	4
Standing time	371 s	Stops per km	0.74 /km
% of time driving	61.47 %	Average stop duration	92.75 s
% of cruising	2.08 %	Average distance between stops	1344.77 m
% of time accelerating	29.70 %	Relative positive acceleration	0.3743 m/s^2
% of time decelerating	29.70 %	Positive kinetic energy	9.777 m/s^2
% of time braking	26.90 %	Relative positive speed	0.476
% of time standing	38.53 %	Relative real speed	0.560
Average speed (trip)	20.1 km/h	Relative square speed	12.251 m/s
Average driving speed	32.71 km/h	Relative positive square speed	5.749 m/s
Standard deviation of speed	19.32 km/h	Relative real square speed	7.077 m/s
Speed: 75th - 25th percentile	41.77 km/h	Relative cubic speed	162.06 m^2/s^2
Maximum speed	58.78 km/h	Relative positive cubic speed	75.02 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	96.24 m^2/s^2
Average positive acceleration	0.880 m/s^2	Root mean square of acceleration	0.339 m/s^2

Cycle No: 129

Cycle name: **EMPA C-1**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

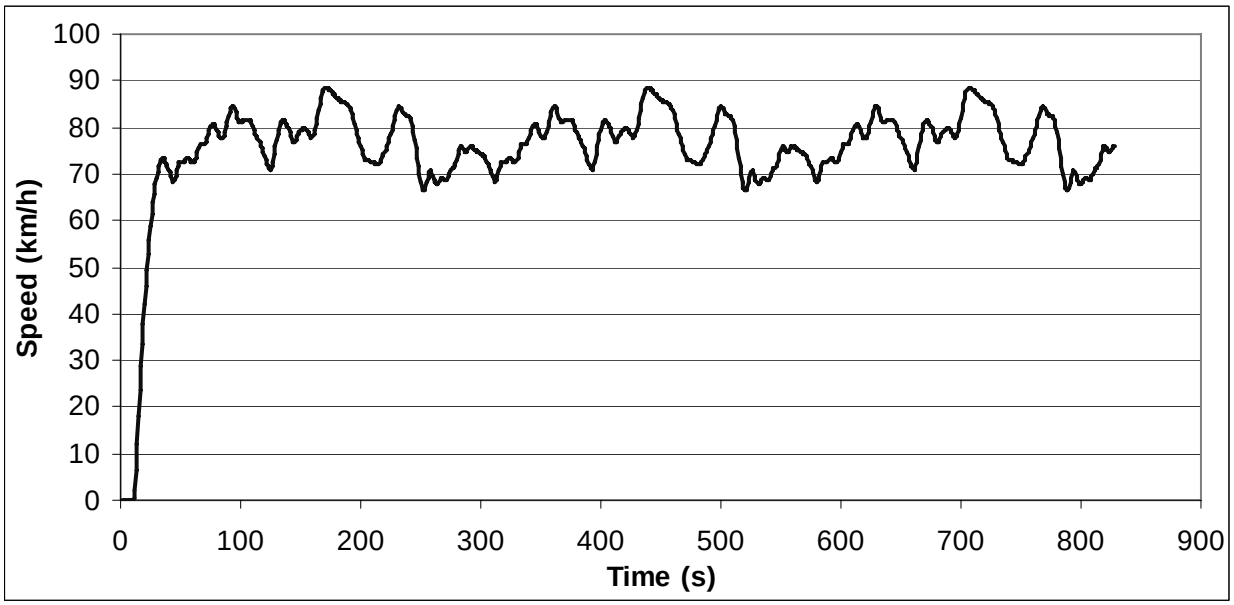


ART.KINEMA parameters

Total distance	1199.06 m	Average negative acceleration	-0.232 m/s^2
Total time	1348 s	Standard deviation of accel.	0.364 m/s^2
Driving time	807 s	Standard dev. of positive accel.	0.295 m/s^2
Drive time	231 s	Accel: 75th - 25th percentile	0.054 m/s^2
Drive time spent accelerating	252 s	Number of accelerations	36
Drive time spent decelerating	324 s	Accelerations per km	30.024 /km
Time spent braking	171 s	Number of stops	36
Standing time	541 s	Stops per km	30.02 /km
% of time driving	59.87 %	Average stop duration	15.03 s
% of cruising	17.14 %	Average distance between stops	33.31 m
% of time accelerating	18.69 %	Relative positive acceleration	0.1829 m/s^2
% of time decelerating	24.04 %	Positive kinetic energy	4.808 m/s^2
% of time braking	12.69 %	Relative positive speed	0.415
% of time standing	40.13 %	Relative real speed	0.682
Average speed (trip)	3.2 km/h	Relative square speed	3.064 m/s
Average driving speed	5.35 km/h	Relative positive square speed	1.291 m/s
Standard deviation of speed	5.52 km/h	Relative real square speed	2.080 m/s
Speed: 75th - 25th percentile	4.9 km/h	Relative cubic speed	11.15 m^2/s^2
Maximum speed	18.4 km/h	Relative positive cubic speed	4.83 m^2/s^2
Average acceleration	0.004 m/s^2	Relative real cubic speed	7.60 m^2/s^2
Average positive acceleration	0.293 m/s^2	Root mean square of acceleration	0.299 m/s^2

Cycle No: 130

Cycle name: **EMPA C-2**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

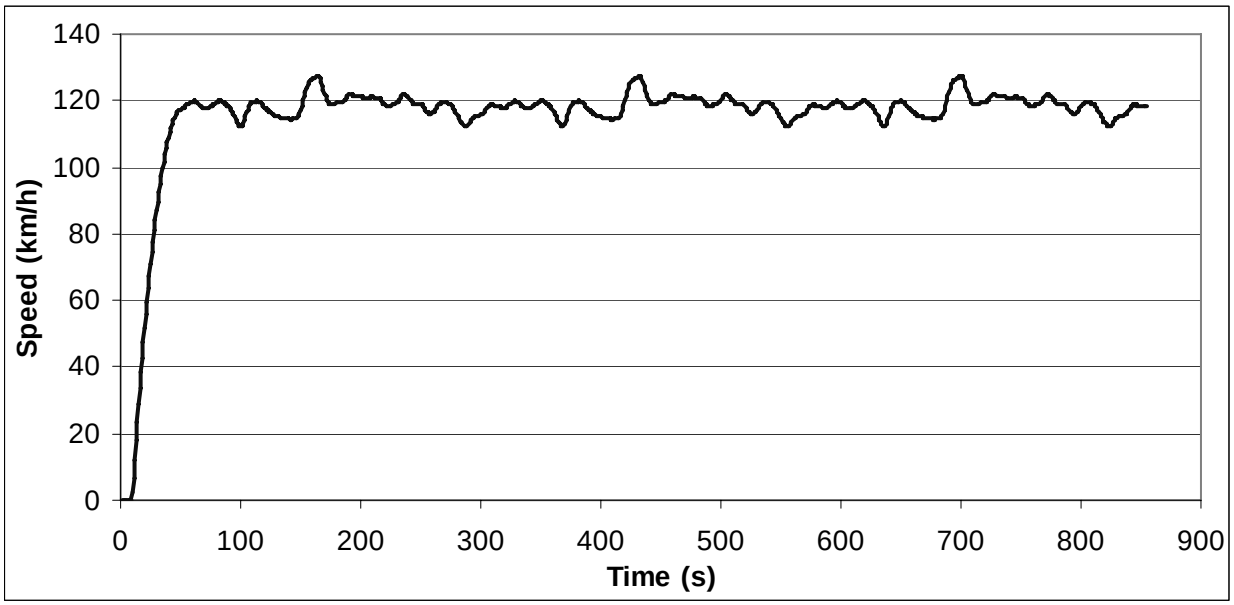


ART.KINEMA parameters

Total distance	17314.64 m	Average negative acceleration	-0.130 m/s^2
Total time	828 s	Standard deviation of accel.	0.238 m/s^2
Driving time	819 s	Standard dev. of positive accel.	0.226 m/s^2
Drive time	264 s	Accel: 75th - 25th percentile	0.226 m/s^2
Drive time spent accelerating	279 s	Number of accelerations	37
Drive time spent decelerating	276 s	Accelerations per km	2.137 /km
Time spent braking	39 s	Number of stops	1
Standing time	9 s	Stops per km	0.06 /km
% of time driving	98.91 %	Average stop duration	9 s
% of cruising	31.88 %	Average distance between stops	17314.64 m
% of time accelerating	33.70 %	Relative positive acceleration	0.0801 m/s^2
% of time decelerating	33.33 %	Positive kinetic energy	2.088 m/s^2
% of time braking	4.71 %	Relative positive speed	0.478
% of time standing	1.09 %	Relative real speed	0.952
Average speed (trip)	75.3 km/h	Relative square speed	21.434 m/s
Average driving speed	76.11 km/h	Relative positive square speed	10.097 m/s
Standard deviation of speed	8.96 km/h	Relative real square speed	20.417 m/s
Speed: 75th - 25th percentile	8.56 km/h	Relative cubic speed	462.44 m^2/s^2
Maximum speed	88.37 km/h	Relative positive cubic speed	214.96 m^2/s^2
Average acceleration	0.026 m/s^2	Relative real cubic speed	440.73 m^2/s^2
Average positive acceleration	0.188 m/s^2	Root mean square of acceleration	0.052 m/s^2

Cycle No: 131

Cycle name: **EMPA C-3**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

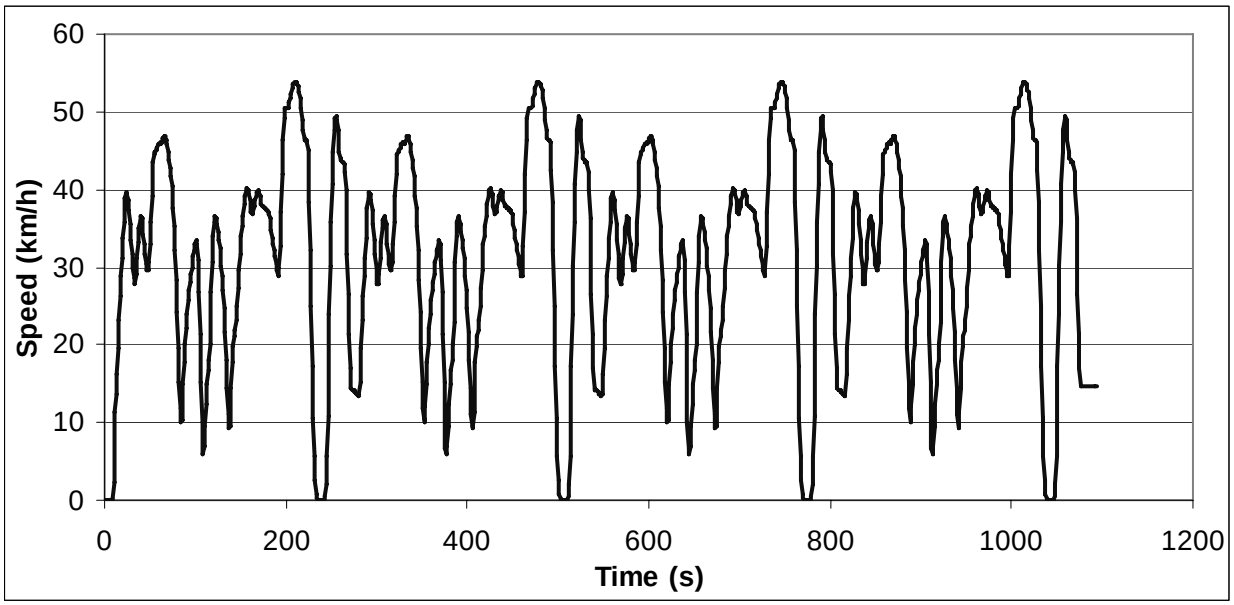


ART.KINEMA parameters

Total distance	27393.56 m	Average negative acceleration	-0.079 m/s^2
Total time	855 s	Standard deviation of accel.	0.224 m/s^2
Driving time	849 s	Standard dev. of positive accel.	0.260 m/s^2
Drive time	394 s	Accel: 75th - 25th percentile	0.134 m/s^2
Drive time spent accelerating	239 s	Number of accelerations	28
Drive time spent decelerating	216 s	Accelerations per km	1.022 /km
Time spent braking	15 s	Number of stops	1
Standing time	6 s	Stops per km	0.04 /km
% of time driving	99.30 %	Average stop duration	6 s
% of cruising	46.08 %	Average distance between stops	27393.56 m
% of time accelerating	27.95 %	Relative positive acceleration	0.0602 m/s^2
% of time decelerating	25.26 %	Positive kinetic energy	1.566 m/s^2
% of time braking	1.75 %	Relative positive speed	0.486
% of time standing	0.70 %	Relative real speed	0.981
Average speed (trip)	115.3 km/h	Relative square speed	32.728 m/s
Average driving speed	116.16 km/h	Relative positive square speed	15.794 m/s
Standard deviation of speed	13.91 km/h	Relative real square speed	32.084 m/s
Speed: 75th - 25th percentile	3.77 km/h	Relative cubic speed	1074.85 m^2/s^2
Maximum speed	127.14 km/h	Relative positive cubic speed	516.91 m^2/s^2
Average acceleration	0.039 m/s^2	Relative real cubic speed	1052.80 m^2/s^2
Average positive acceleration	0.158 m/s^2	Root mean square of acceleration	0.040 m/s^2

Cycle No: 132

Cycle name: **EMPA C-4**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

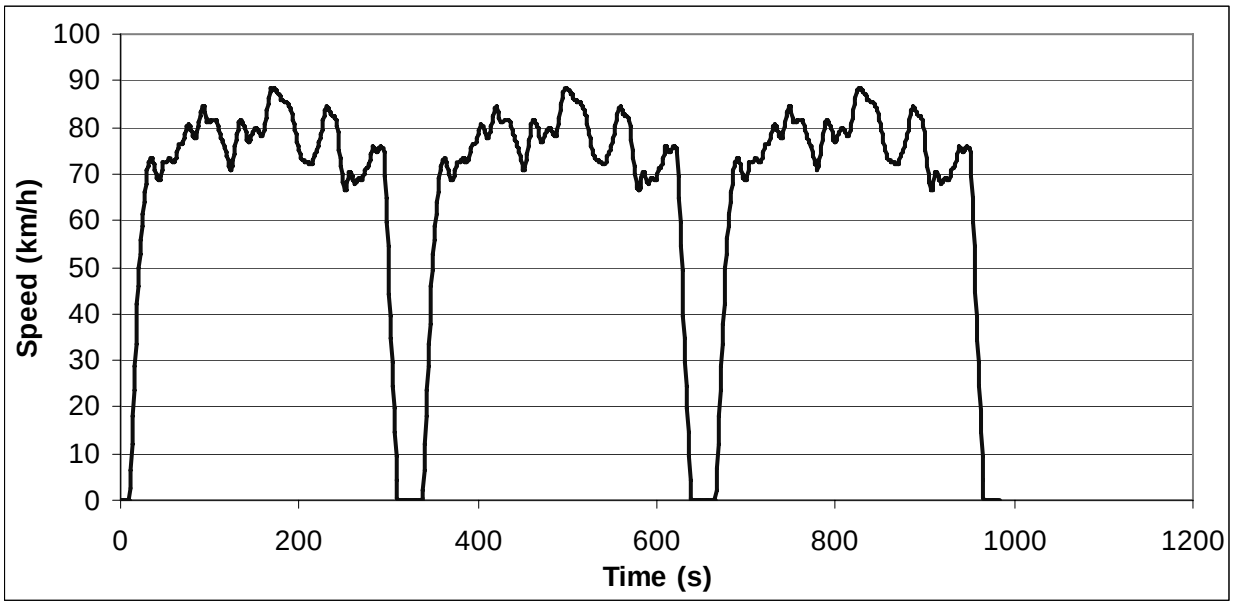


ART.KINEMA parameters

Total distance	9404.73 m	Average negative acceleration	-0.416 m/s^2
Total time	1094 s	Standard deviation of accel.	0.601 m/s^2
Driving time	1064 s	Standard dev. of positive accel.	0.389 m/s^2
Drive time	181 s	Accel: 75th - 25th percentile	0.607 m/s^2
Drive time spent accelerating	436 s	Number of accelerations	40
Drive time spent decelerating	447 s	Accelerations per km	4.253 /km
Time spent braking	272 s	Number of stops	5
Standing time	30 s	Stops per km	0.53 /km
% of time driving	97.26 %	Average stop duration	6 s
% of cruising	16.54 %	Average distance between stops	1880.95 m
% of time accelerating	39.85 %	Relative positive acceleration	0.1873 m/s^2
% of time decelerating	40.86 %	Positive kinetic energy	4.881 m/s^2
% of time braking	24.86 %	Relative positive speed	0.476
% of time standing	2.74 %	Relative real speed	0.761
Average speed (trip)	31.0 km/h	Relative square speed	10.318 m/s
Average driving speed	31.82 km/h	Relative positive square speed	4.906 m/s
Standard deviation of speed	13.02 km/h	Relative real square speed	8.007 m/s
Speed: 75th - 25th percentile	18.73 km/h	Relative cubic speed	114.82 m^2/s^2
Maximum speed	53.76 km/h	Relative positive cubic speed	54.96 m^2/s^2
Average acceleration	0.004 m/s^2	Relative real cubic speed	90.64 m^2/s^2
Average positive acceleration	0.450 m/s^2	Root mean square of acceleration	0.202 m/s^2

Cycle No: 133

Cycle name: **EMPA C-5**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

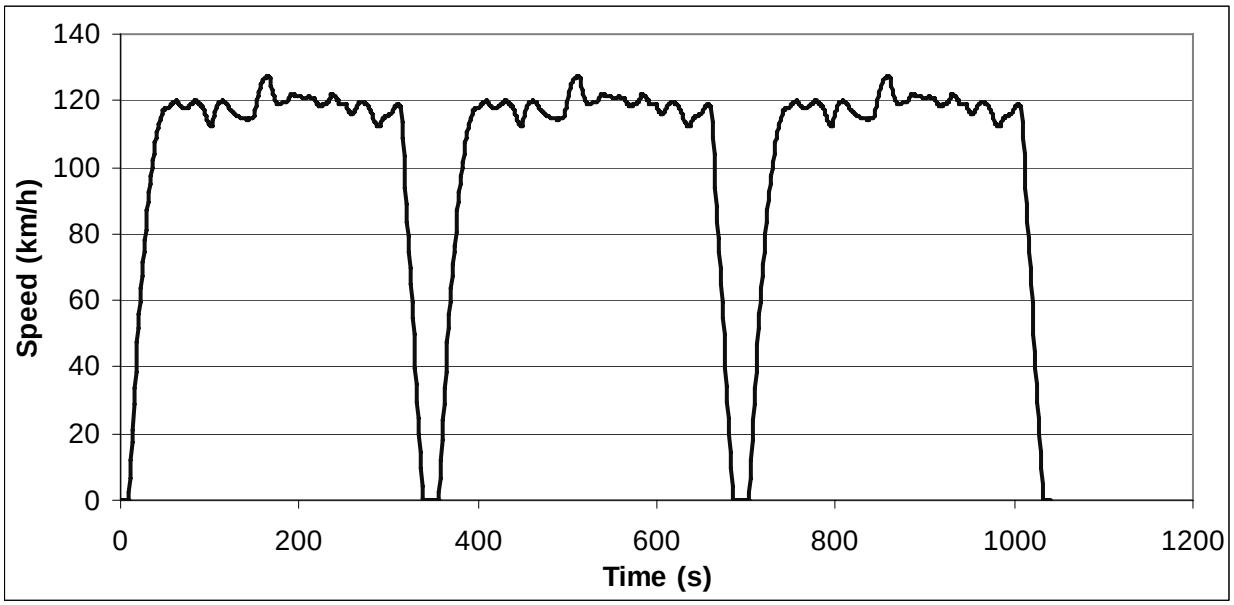


ART.KINEMA parameters

Total distance	18184.24 m	Average negative acceleration	-0.251 m/s^2
Total time	983 s	Standard deviation of accel.	0.441 m/s^2
Driving time	912 s	Standard dev. of positive accel.	0.330 m/s^2
Drive time	216 s	Accel: 75th - 25th percentile	0.274 m/s^2
Drive time spent accelerating	355 s	Number of accelerations	45
Drive time spent decelerating	341 s	Accelerations per km	2.475 /km
Time spent braking	97 s	Number of stops	4
Standing time	71 s	Stops per km	0.22 /km
% of time driving	92.78 %	Average stop duration	17.75 s
% of cruising	21.97 %	Average distance between stops	4546.06 m
% of time accelerating	36.11 %	Relative positive acceleration	0.1037 m/s^2
% of time decelerating	34.69 %	Positive kinetic energy	2.711 m/s^2
% of time braking	9.87 %	Relative positive speed	0.463
% of time standing	7.22 %	Relative real speed	0.915
Average speed (trip)	66.6 km/h	Relative square speed	21.068 m/s
Average driving speed	71.78 km/h	Relative positive square speed	9.604 m/s
Standard deviation of speed	17.09 km/h	Relative real square speed	19.436 m/s
Speed: 75th - 25th percentile	10.85 km/h	Relative cubic speed	450.29 m^2/s^2
Maximum speed	88.4 km/h	Relative positive cubic speed	202.33 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	417.22 m^2/s^2
Average positive acceleration	0.280 m/s^2	Root mean square of acceleration	0.099 m/s^2

Cycle No: 134

Cycle name: **EMPA C-6**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

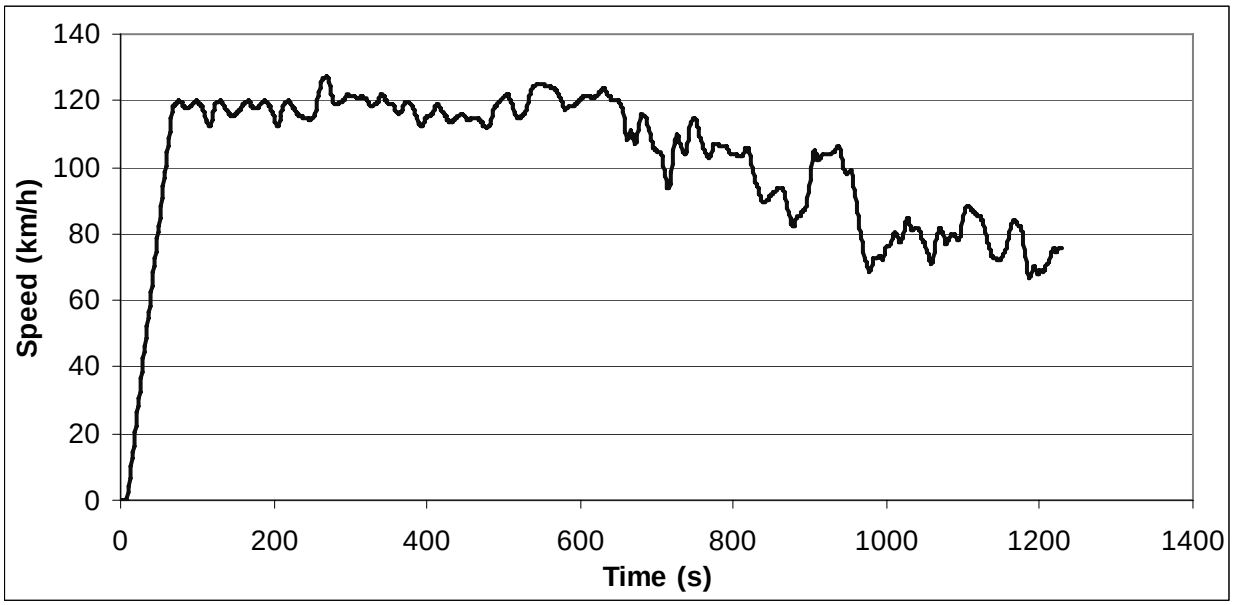


ART.KINEMA parameters

Total distance	29866.18 m	Average negative acceleration	-0.281 m/s^2
Total time	1040 s	Standard deviation of accel.	0.495 m/s^2
Driving time	999 s	Standard dev. of positive accel.	0.374 m/s^2
Drive time	363 s	Accel: 75th - 25th percentile	0.175 m/s^2
Drive time spent accelerating	323 s	Number of accelerations	32
Drive time spent decelerating	313 s	Accelerations per km	1.071 /km
Time spent braking	87 s	Number of stops	4
Standing time	41 s	Stops per km	0.13 /km
% of time driving	96.06 %	Average stop duration	10.25 s
% of cruising	34.90 %	Average distance between stops	7466.55 m
% of time accelerating	31.06 %	Relative positive acceleration	0.0931 m/s^2
% of time decelerating	30.10 %	Positive kinetic energy	2.423 m/s^2
% of time braking	8.37 %	Relative positive speed	0.522
% of time standing	3.94 %	Relative real speed	0.945
Average speed (trip)	103.4 km/h	Relative square speed	31.898 m/s
Average driving speed	107.63 km/h	Relative positive square speed	16.608 m/s
Standard deviation of speed	27.86 km/h	Relative real square speed	30.495 m/s
Speed: 75th - 25th percentile	6.23 km/h	Relative cubic speed	1032.77 m^2/s^2
Maximum speed	127.2 km/h	Relative positive cubic speed	536.31 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	993.07 m^2/s^2
Average positive acceleration	0.256 m/s^2	Root mean square of acceleration	0.090 m/s^2

Cycle No: 135

Cycle name: **EMPA EL1**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

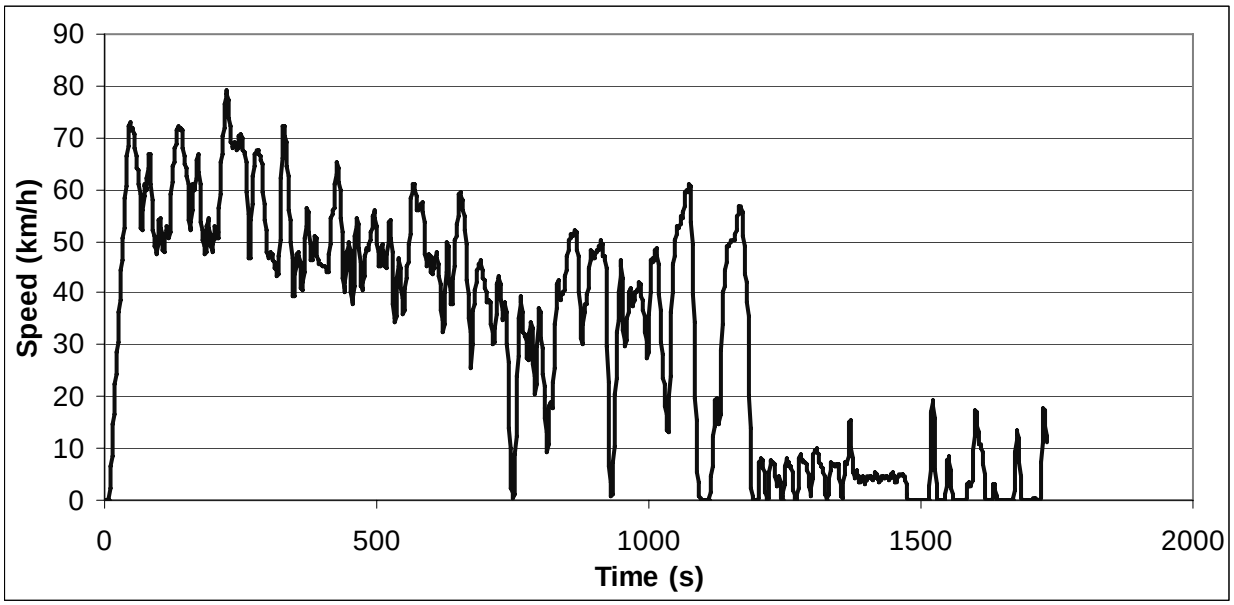


ART.KINEMA parameters

Total distance	34692.38 m	Average negative acceleration	-0.129 m/s^2
Total time	1228 s	Standard deviation of accel.	0.204 m/s^2
Driving time	1221 s	Standard dev. of positive accel.	0.171 m/s^2
Drive time	431 s	Accel: 75th - 25th percentile	0.178 m/s^2
Drive time spent accelerating	386 s	Number of accelerations	50
Drive time spent decelerating	404 s	Accelerations per km	1.441 /km
Time spent braking	77 s	Number of stops	1
Standing time	7 s	Stops per km	0.03 /km
% of time driving	99.43 %	Average stop duration	7 s
% of cruising	35.10 %	Average distance between stops	34692.38 m
% of time accelerating	31.43 %	Relative positive acceleration	0.0686 m/s^2
% of time decelerating	32.90 %	Positive kinetic energy	1.794 m/s^2
% of time braking	6.27 %	Relative positive speed	0.492
% of time standing	0.57 %	Relative real speed	0.942
Average speed (trip)	101.7 km/h	Relative square speed	29.632 m/s
Average driving speed	102.29 km/h	Relative positive square speed	14.530 m/s
Standard deviation of speed	21.2 km/h	Relative real square speed	28.094 m/s
Speed: 75th - 25th percentile	33.39 km/h	Relative cubic speed	900.70 m^2/s^2
Maximum speed	127.2 km/h	Relative positive cubic speed	441.86 m^2/s^2
Average acceleration	0.017 m/s^2	Relative real cubic speed	858.82 m^2/s^2
Average positive acceleration	0.162 m/s^2	Root mean square of acceleration	0.039 m/s^2

Cycle No: 136

Cycle name: **EMPA EL2**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

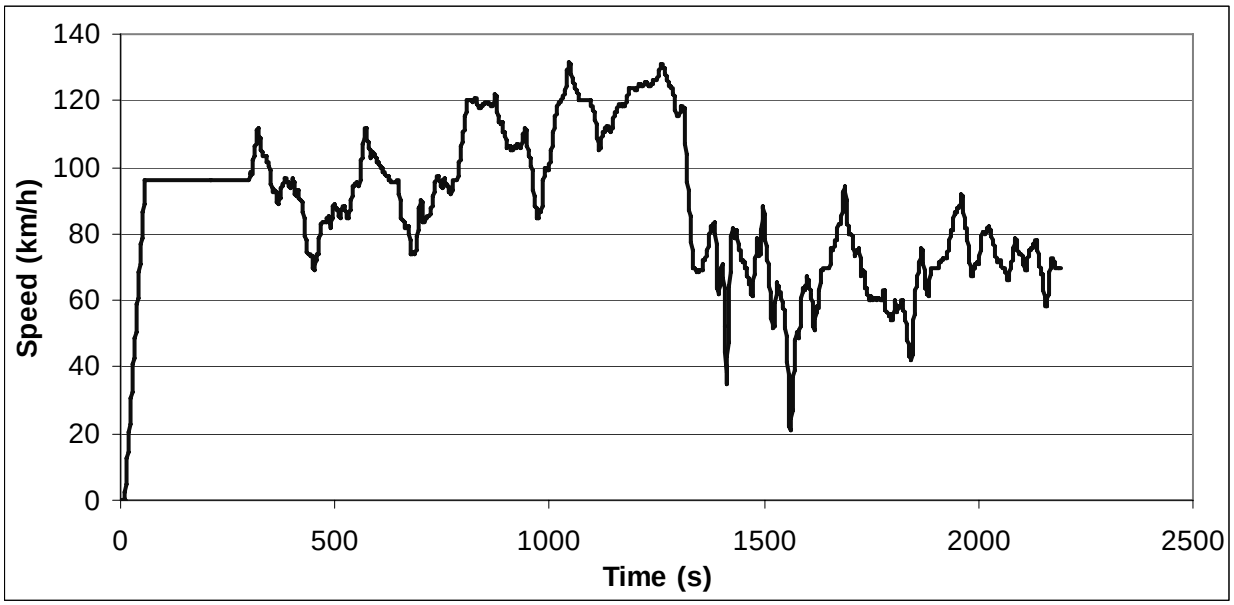


ART.KINEMA parameters

Total distance	15257.98 m	Average negative acceleration	-0.309 m/s^2
Total time	1731 s	Standard deviation of accel.	0.435 m/s^2
Driving time	1602 s	Standard dev. of positive accel.	0.279 m/s^2
Drive time	302 s	Accel: 75th - 25th percentile	0.443 m/s^2
Drive time spent accelerating	642 s	Number of accelerations	85
Drive time spent decelerating	658 s	Accelerations per km	5.571 /km
Time spent braking	404 s	Number of stops	10
Standing time	129 s	Stops per km	0.66 /km
% of time driving	92.55 %	Average stop duration	12.9 s
% of cruising	17.45 %	Average distance between stops	1525.8 m
% of time accelerating	37.09 %	Relative positive acceleration	0.167 m/s^2
% of time decelerating	38.01 %	Positive kinetic energy	4.395 m/s^2
% of time braking	23.34 %	Relative positive speed	0.497
% of time standing	7.45 %	Relative real speed	0.727
Average speed (trip)	31.7 km/h	Relative square speed	13.565 m/s
Average driving speed	34.29 km/h	Relative positive square speed	6.710 m/s
Standard deviation of speed	22.34 km/h	Relative real square speed	9.955 m/s
Speed: 75th - 25th percentile	44.52 km/h	Relative cubic speed	200.81 m^2/s^2
Maximum speed	79.14 km/h	Relative positive cubic speed	98.26 m^2/s^2
Average acceleration	0.002 m/s^2	Relative real cubic speed	148.71 m^2/s^2
Average positive acceleration	0.337 m/s^2	Root mean square of acceleration	0.141 m/s^2

Cycle No: 137

Cycle name: **EMPA K1**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

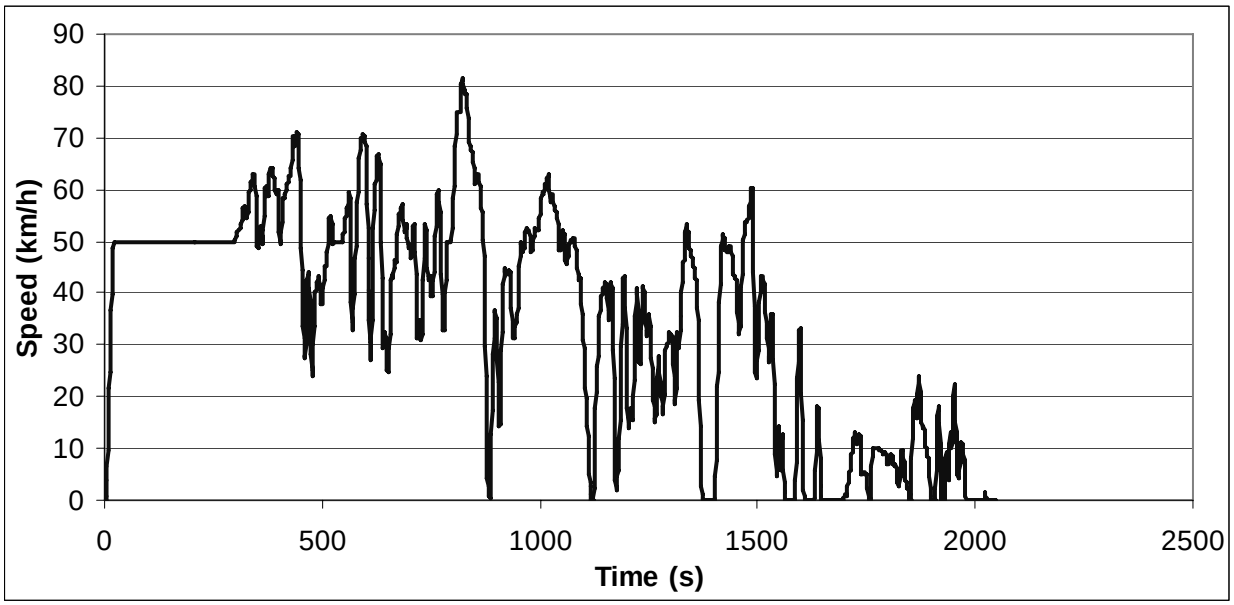


ART.KINEMA parameters

Total distance	53227.37 m	Average negative acceleration	-0.169 m/s^2
Total time	2190 s	Standard deviation of accel.	0.248 m/s^2
Driving time	2184 s	Standard dev. of positive accel.	0.195 m/s^2
Drive time	868 s	Accel: 75th - 25th percentile	0.181 m/s^2
Drive time spent accelerating	676 s	Number of accelerations	71
Drive time spent decelerating	640 s	Accelerations per km	1.334 /km
Time spent braking	216 s	Number of stops	1
Standing time	6 s	Stops per km	0.02 /km
% of time driving	99.73 %	Average stop duration	6 s
% of cruising	39.63 %	Average distance between stops	53227.37 m
% of time accelerating	30.87 %	Relative positive acceleration	0.0712 m/s^2
% of time decelerating	29.22 %	Positive kinetic energy	1.855 m/s^2
% of time braking	9.86 %	Relative positive speed	0.452
% of time standing	0.27 %	Relative real speed	0.910
Average speed (trip)	87.5 km/h	Relative square speed	25.957 m/s
Average driving speed	87.74 km/h	Relative positive square speed	11.733 m/s
Standard deviation of speed	22.38 km/h	Relative real square speed	23.819 m/s
Speed: 75th - 25th percentile	30.82 km/h	Relative cubic speed	706.91 m^2/s^2
Maximum speed	131.09 km/h	Relative positive cubic speed	321.63 m^2/s^2
Average acceleration	0.009 m/s^2	Relative real cubic speed	653.14 m^2/s^2
Average positive acceleration	0.180 m/s^2	Root mean square of acceleration	0.050 m/s^2

Cycle No: 138

Cycle name: **EMPA K2**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

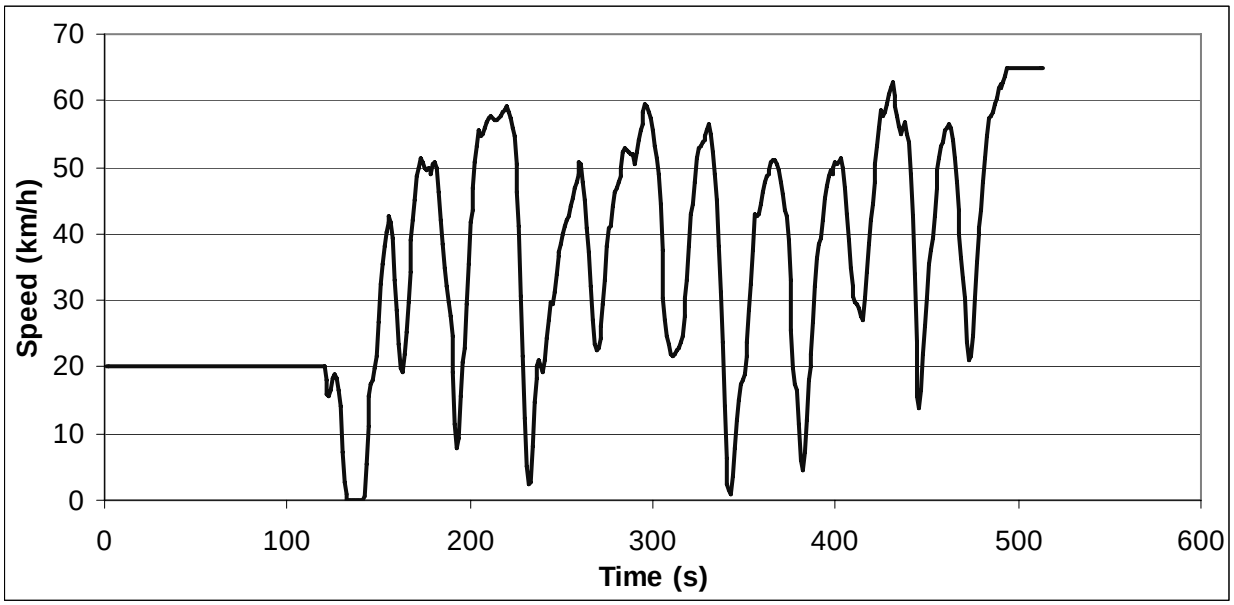


ART.KINEMA parameters

Total distance	19701.5 m	Average negative acceleration	-0.328 m/s^2
Total time	2045 s	Standard deviation of accel.	0.429 m/s^2
Driving time	1885 s	Standard dev. of positive accel.	0.299 m/s^2
Drive time	625 s	Accel: 75th - 25th percentile	0.240 m/s^2
Drive time spent accelerating	659 s	Number of accelerations	74
Drive time spent decelerating	601 s	Accelerations per km	3.756 /km
Time spent braking	339 s	Number of stops	8
Standing time	160 s	Stops per km	0.41 /km
% of time driving	92.18 %	Average stop duration	20 s
% of cruising	30.56 %	Average distance between stops	2462.69 m
% of time accelerating	32.22 %	Relative positive acceleration	0.1202 m/s^2
% of time decelerating	29.39 %	Positive kinetic energy	3.138 m/s^2
% of time braking	16.58 %	Relative positive speed	0.436
% of time standing	7.82 %	Relative real speed	0.845
Average speed (trip)	34.7 km/h	Relative square speed	13.382 m/s
Average driving speed	37.63 km/h	Relative positive square speed	5.838 m/s
Standard deviation of speed	19.93 km/h	Relative real square speed	11.532 m/s
Speed: 75th - 25th percentile	38.11 km/h	Relative cubic speed	193.87 m^2/s^2
Maximum speed	80.72 km/h	Relative positive cubic speed	85.30 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	168.76 m^2/s^2
Average positive acceleration	0.310 m/s^2	Root mean square of acceleration	0.133 m/s^2

Cycle No: 139

Cycle name: **EMPA Kreisel**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

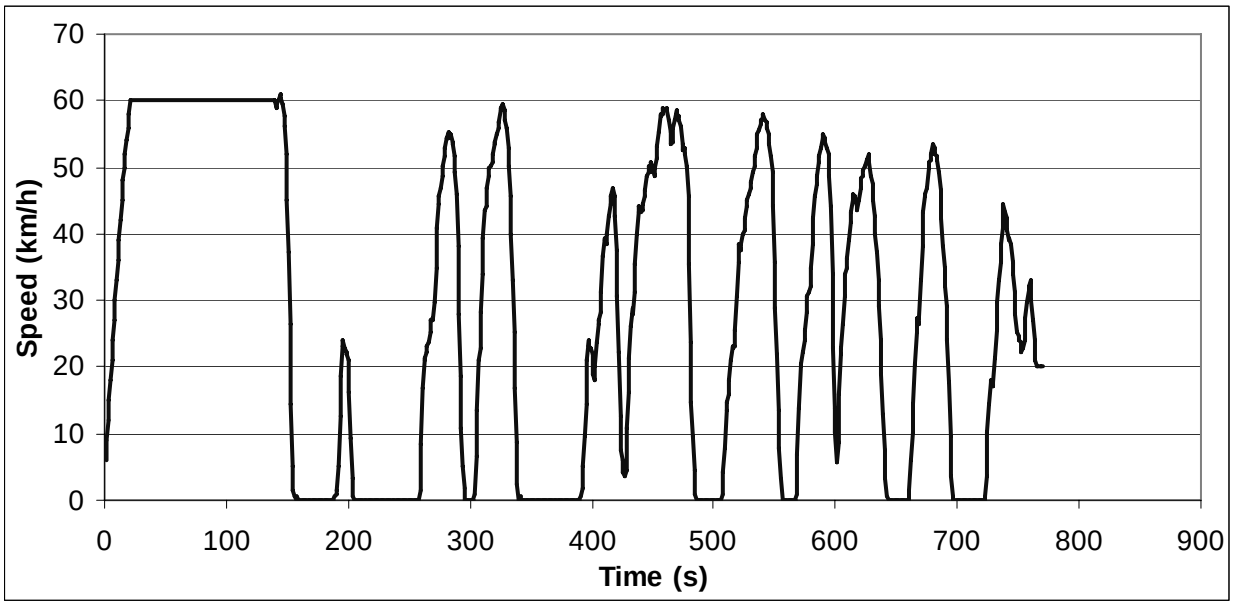


ART.KINEMA parameters

Total distance	4884.16 m	Average negative acceleration	-0.698 m/s^2
Total time	513 s	Standard deviation of accel.	0.674 m/s^2
Driving time	509 s	Standard dev. of positive accel.	0.387 m/s^2
Drive time	172 s	Accel: 75th - 25th percentile	0.434 m/s^2
Drive time spent accelerating	208 s	Number of accelerations	14
Drive time spent decelerating	129 s	Accelerations per km	2.866 /km
Time spent braking	101 s	Number of stops	1
Standing time	4 s	Stops per km	0.2 /km
% of time driving	99.22 %	Average stop duration	4 s
% of cruising	33.53 %	Average distance between stops	4884.16 m
% of time accelerating	40.55 %	Relative positive acceleration	0.2324 m/s^2
% of time decelerating	25.15 %	Positive kinetic energy	6.047 m/s^2
% of time braking	19.69 %	Relative positive speed	0.516
% of time standing	0.78 %	Relative real speed	0.801
Average speed (trip)	34.3 km/h	Relative square speed	11.865 m/s
Average driving speed	34.54 km/h	Relative positive square speed	6.501 m/s
Standard deviation of speed	16.81 km/h	Relative real square speed	9.589 m/s
Speed: 75th - 25th percentile	29.95 km/h	Relative cubic speed	159.00 m^2/s^2
Maximum speed	65.03 km/h	Relative positive cubic speed	88.72 m^2/s^2
Average acceleration	0.025 m/s^2	Relative real cubic speed	130.75 m^2/s^2
Average positive acceleration	0.509 m/s^2	Root mean square of acceleration	0.217 m/s^2

Cycle No: 140

Cycle name: **EMPA LSA**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

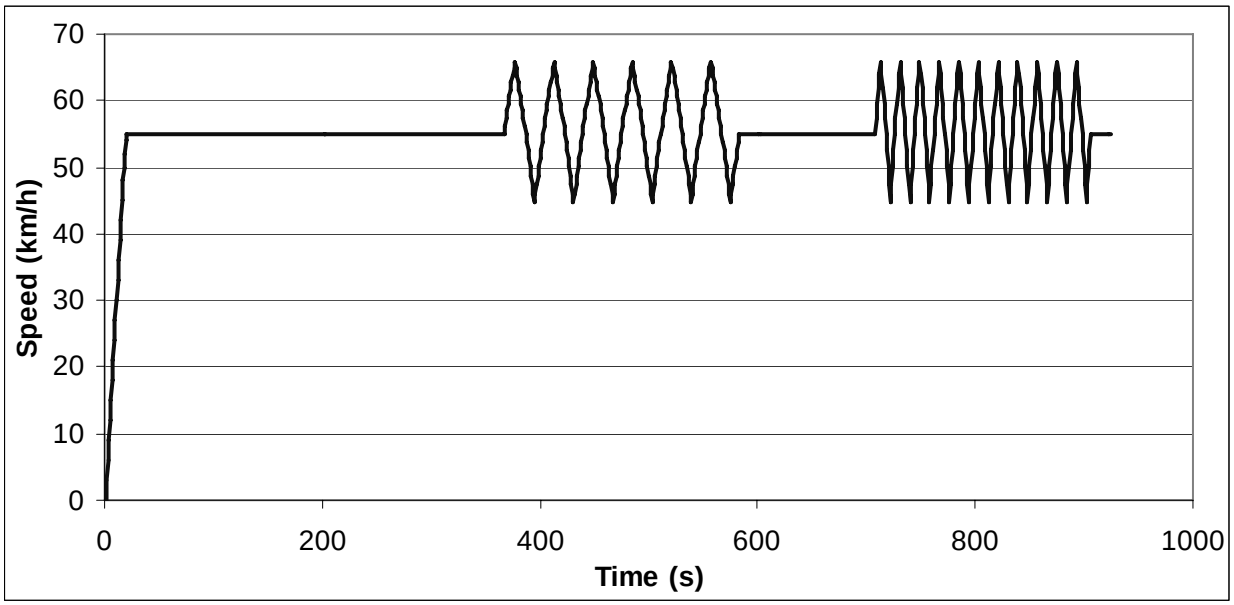


ART.KINEMA parameters

Total distance	6069.98 m	Average negative acceleration	-0.796 m/s^2
Total time	770 s	Standard deviation of accel.	0.770 m/s^2
Driving time	582 s	Standard dev. of positive accel.	0.380 m/s^2
Drive time	166 s	Accel: 75th - 25th percentile	0.302 m/s^2
Drive time spent accelerating	260 s	Number of accelerations	16
Drive time spent decelerating	156 s	Accelerations per km	2.636 /km
Time spent braking	127 s	Number of stops	8
Standing time	188 s	Stops per km	1.32 /km
% of time driving	75.58 %	Average stop duration	23.5 s
% of cruising	21.56 %	Average distance between stops	758.75 m
% of time accelerating	33.77 %	Relative positive acceleration	0.1917 m/s^2
% of time decelerating	20.26 %	Positive kinetic energy	4.987 m/s^2
% of time braking	16.49 %	Relative positive speed	0.445
% of time standing	24.42 %	Relative real speed	0.828
Average speed (trip)	28.4 km/h	Relative square speed	13.432 m/s
Average driving speed	37.55 km/h	Relative positive square speed	5.319 m/s
Standard deviation of speed	20.16 km/h	Relative real square speed	11.494 m/s
Speed: 75th - 25th percentile	52.47 km/h	Relative cubic speed	194.73 m^2/s^2
Maximum speed	60.26 km/h	Relative positive cubic speed	69.55 m^2/s^2
Average acceleration	0.007 m/s^2	Relative real cubic speed	170.45 m^2/s^2
Average positive acceleration	0.519 m/s^2	Root mean square of acceleration	0.238 m/s^2

Cycle No: 141

Cycle name: **EMPA Pendel**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info:
Vehicle category: **Cars**

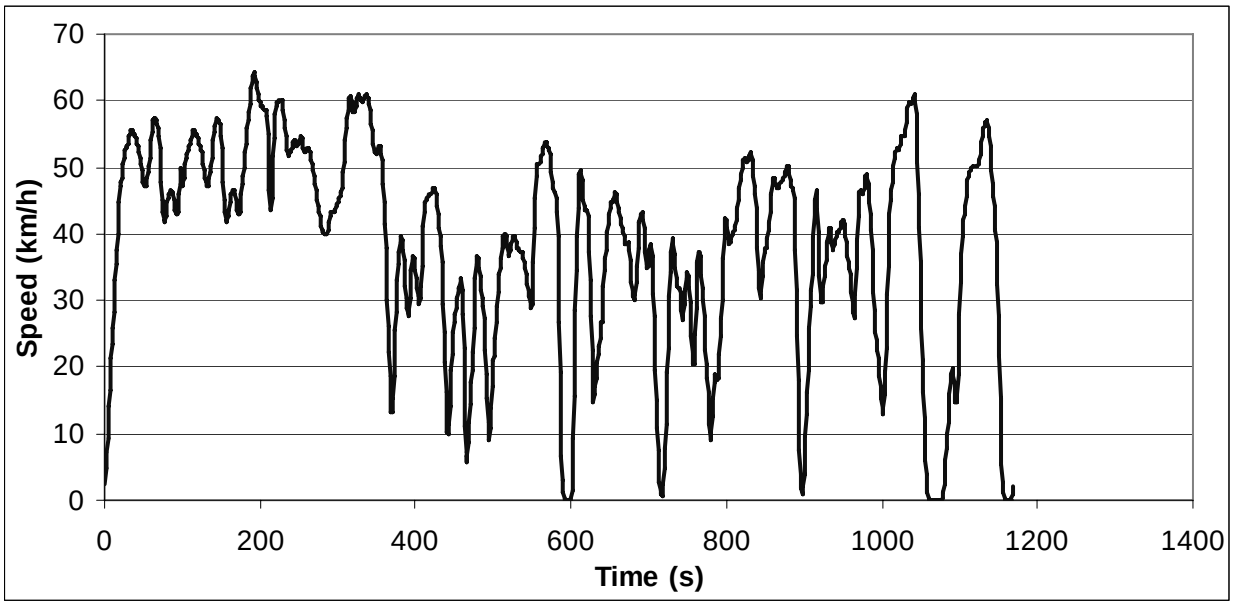


ART.KINEMA parameters

Total distance	14076.08 m	Average negative acceleration	-0.350 m/s^2
Total time	924 s	Standard deviation of accel.	0.306 m/s^2
Driving time	924 s	Standard dev. of positive accel.	0.226 m/s^2
Drive time	515 s	Accel: 75th - 25th percentile	0.000 m/s^2
Drive time spent accelerating	219 s	Number of accelerations	20
Drive time spent decelerating	190 s	Accelerations per km	1.421 /km
Time spent braking	161 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	55.74 %	Average distance between stops	N/A m
% of time accelerating	23.70 %	Relative positive acceleration	0.0933 m/s^2
% of time decelerating	20.56 %	Positive kinetic energy	2.463 m/s^2
% of time braking	17.42 %	Relative positive speed	0.247
% of time standing	0.00 %	Relative real speed	0.825
Average speed (trip)	54.8 km/h	Relative square speed	15.422 m/s
Average driving speed	54.84 km/h	Relative positive square speed	3.807 m/s
Standard deviation of speed	6.09 km/h	Relative real square speed	12.712 m/s
Speed: 75th - 25th percentile	0.01 km/h	Relative cubic speed	239.43 m^2/s^2
Maximum speed	64.7 km/h	Relative positive cubic speed	59.62 m^2/s^2
Average acceleration	0.017 m/s^2	Relative real cubic speed	197.27 m^2/s^2
Average positive acceleration	0.398 m/s^2	Root mean square of acceleration	0.078 m/s^2

Cycle No: 142

Cycle name: **EMPA RX**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **ECODRIVE (Gears)**
Vehicle category: **Cars**

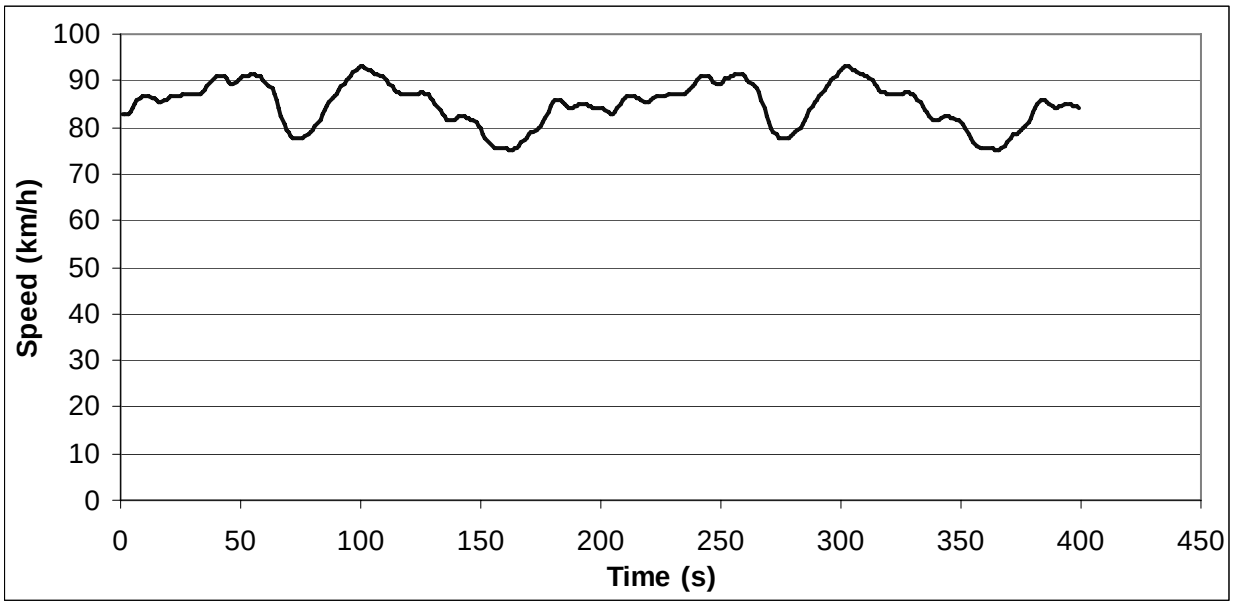


ART.KINEMA parameters

Total distance	12396.98 m	Average negative acceleration	-0.376 m/s^2
Total time	1169 s	Standard deviation of accel.	0.501 m/s^2
Driving time	1145 s	Standard dev. of positive accel.	0.317 m/s^2
Drive time	189 s	Accel: 75th - 25th percentile	0.477 m/s^2
Drive time spent accelerating	510 s	Number of accelerations	55
Drive time spent decelerating	446 s	Accelerations per km	4.437 /km
Time spent braking	257 s	Number of stops	3
Standing time	24 s	Stops per km	0.24 /km
% of time driving	97.95 %	Average stop duration	8 s
% of cruising	16.17 %	Average distance between stops	4132.33 m
% of time accelerating	43.63 %	Relative positive acceleration	0.1472 m/s^2
% of time decelerating	38.15 %	Positive kinetic energy	3.843 m/s^2
% of time braking	21.98 %	Relative positive speed	0.531
% of time standing	2.05 %	Relative real speed	0.807
Average speed (trip)	38.2 km/h	Relative square speed	12.432 m/s
Average driving speed	38.98 km/h	Relative positive square speed	6.607 m/s
Standard deviation of speed	15.01 km/h	Relative real square speed	10.310 m/s
Speed: 75th - 25th percentile	20.26 km/h	Relative cubic speed	164.05 m^2/s^2
Maximum speed	63.9 km/h	Relative positive cubic speed	87.26 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	138.64 m^2/s^2
Average positive acceleration	0.332 m/s^2	Root mean square of acceleration	0.152 m/s^2

Cycle No: 143

Cycle name: **EMPA T85**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **QuasiStable Speed 85km/h**
Vehicle category: **Cars**

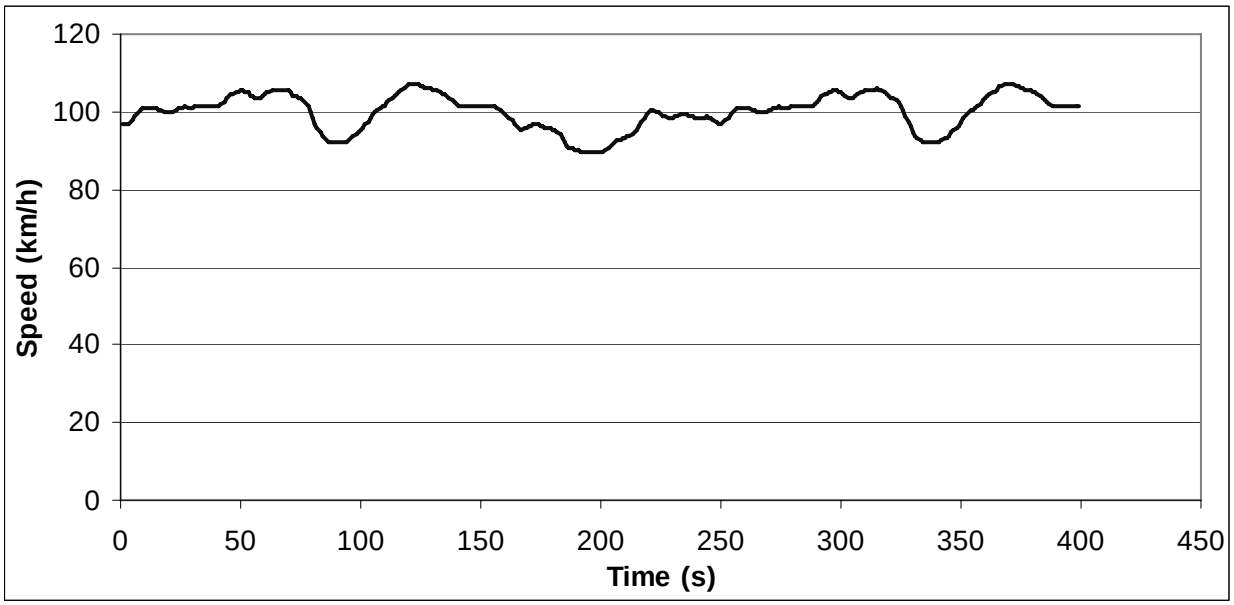


ART.KINEMA parameters

Total distance	9416.68 m	Average negative acceleration	-0.107 m/s^2
Total time	399 s	Standard deviation of accel.	0.141 m/s^2
Driving time	399 s	Standard dev. of positive accel.	0.082 m/s^2
Drive time	143 s	Accel: 75th - 25th percentile	0.175 m/s^2
Drive time spent accelerating	132 s	Number of accelerations	16
Drive time spent decelerating	124 s	Accelerations per km	1.699 /km
Time spent braking	16 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	35.84 %	Average distance between stops	N/A m
% of time accelerating	33.08 %	Relative positive acceleration	0.0545 m/s^2
% of time decelerating	31.08 %	Positive kinetic energy	1.434 m/s^2
% of time braking	4.01 %	Relative positive speed	0.496
% of time standing	0.00 %	Relative real speed	0.961
Average speed (trip)	85.0 km/h	Relative square speed	23.673 m/s
Average driving speed	84.96 km/h	Relative positive square speed	11.747 m/s
Standard deviation of speed	4.71 km/h	Relative real square speed	22.789 m/s
Speed: 75th - 25th percentile	6.55 km/h	Relative cubic speed	562.08 m^2/s^2
Maximum speed	92.95 km/h	Relative positive cubic speed	278.83 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	541.85 m^2/s^2
Average positive acceleration	0.110 m/s^2	Root mean square of acceleration	0.029 m/s^2

Cycle No: 144

Cycle name: **EMPA T100**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **QuasiStable Speed 100km/h**
Vehicle category: **Cars**

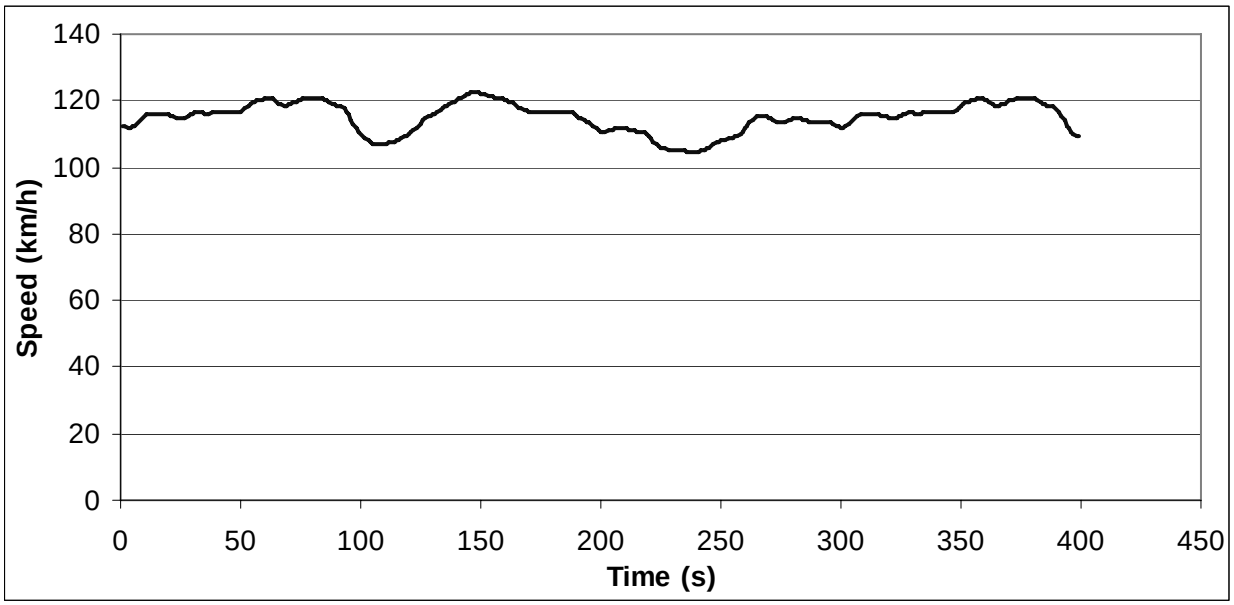


ART.KINEMA parameters

Total distance	11087.09 m	Average negative acceleration	-0.093 m/s^2
Total time	399 s	Standard deviation of accel.	0.122 m/s^2
Driving time	399 s	Standard dev. of positive accel.	0.070 m/s^2
Drive time	164 s	Accel: 75th - 25th percentile	0.156 m/s^2
Drive time spent accelerating	125 s	Number of accelerations	14
Drive time spent decelerating	110 s	Accelerations per km	1.263 /km
Time spent braking	15 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	41.10 %	Average distance between stops	N/A m
% of time accelerating	31.33 %	Relative positive acceleration	0.0478 m/s^2
% of time decelerating	27.57 %	Positive kinetic energy	1.256 m/s^2
% of time braking	3.76 %	Relative positive speed	0.514
% of time standing	0.00 %	Relative real speed	0.964
Average speed (trip)	100.0 km/h	Relative square speed	27.845 m/s
Average driving speed	100.03 km/h	Relative positive square speed	14.291 m/s
Standard deviation of speed	4.56 km/h	Relative real square speed	26.861 m/s
Speed: 75th - 25th percentile	6.67 km/h	Relative cubic speed	776.89 m^2/s^2
Maximum speed	107.32 km/h	Relative positive cubic speed	398.44 m^2/s^2
Average acceleration	0.003 m/s^2	Relative real cubic speed	750.30 m^2/s^2
Average positive acceleration	0.094 m/s^2	Root mean square of acceleration	0.023 m/s^2

Cycle No: 145

Cycle name: **EMPA T115**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **QuasiStable Speed 115km/h**
Vehicle category: **Cars**

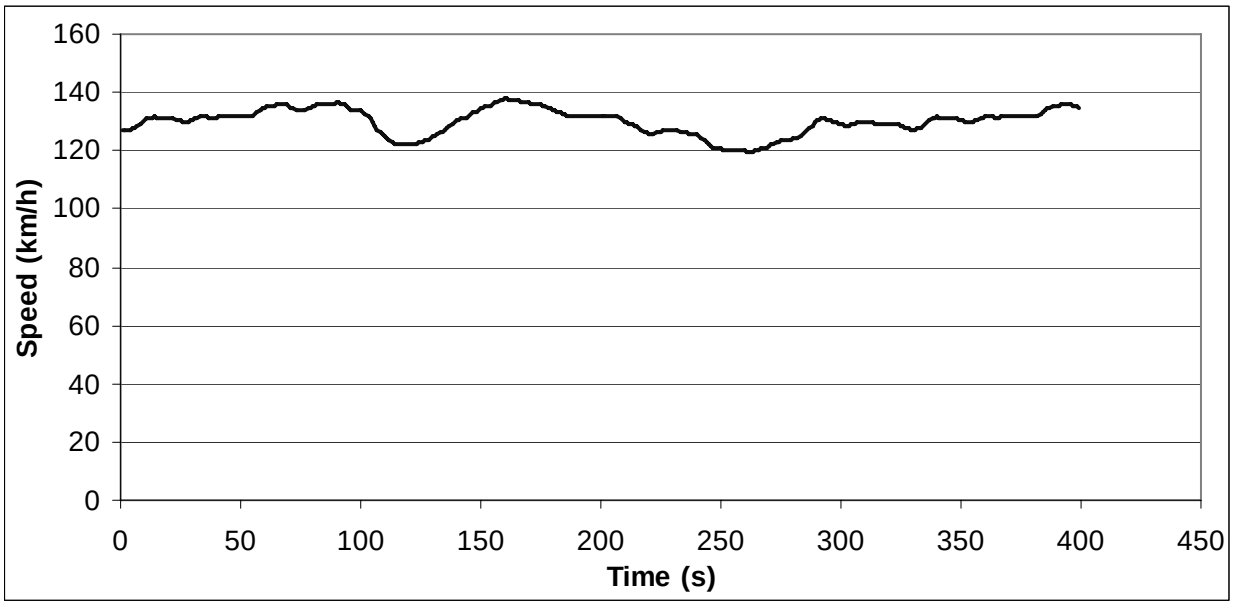


ART.KINEMA parameters

Total distance	12747.08 m	Average negative acceleration	-0.083 m/s^2
Total time	399 s	Standard deviation of accel.	0.107 m/s^2
Driving time	399 s	Standard dev. of positive accel.	0.060 m/s^2
Drive time	197 s	Accel: 75th - 25th percentile	0.124 m/s^2
Drive time spent accelerating	104 s	Number of accelerations	14
Drive time spent decelerating	98 s	Accelerations per km	1.098 /km
Time spent braking	11 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	49.37 %	Average distance between stops	N/A m
% of time accelerating	26.07 %	Relative positive acceleration	0.0388 m/s^2
% of time decelerating	24.56 %	Positive kinetic energy	1.022 m/s^2
% of time braking	2.76 %	Relative positive speed	0.494
% of time standing	0.00 %	Relative real speed	0.973
Average speed (trip)	115.0 km/h	Relative square speed	31.995 m/s
Average driving speed	115.01 km/h	Relative positive square speed	15.807 m/s
Standard deviation of speed	4.45 km/h	Relative real square speed	31.132 m/s
Speed: 75th - 25th percentile	6.47 km/h	Relative cubic speed	1025.19 m^2/s^2
Maximum speed	122.44 km/h	Relative positive cubic speed	506.65 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	997.85 m^2/s^2
Average positive acceleration	0.079 m/s^2	Root mean square of acceleration	0.019 m/s^2

Cycle No: 146

Cycle name: **EMPA T130**
Alternative name:
Test programme: **EMPA driving cycles**
Additional info: **QuasiStable Speed 130km/h**
Vehicle category: **Cars**

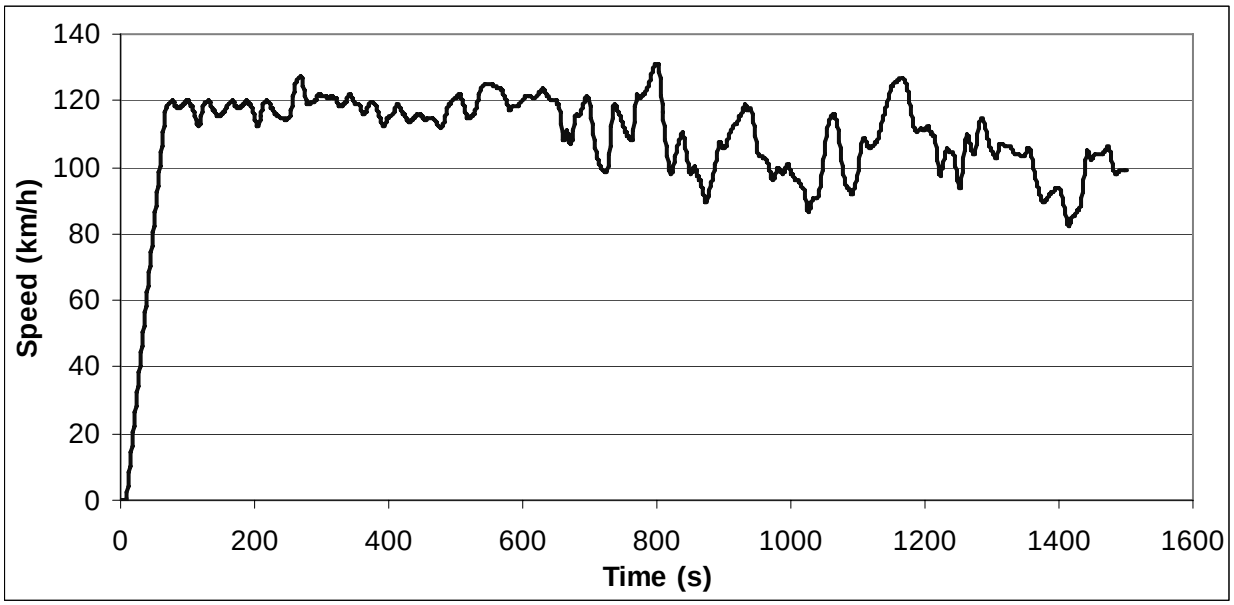


ART.KINEMA parameters

Total distance	14408.77 m	Average negative acceleration	-0.069 m/s^2
Total time	399 s	Standard deviation of accel.	0.094 m/s^2
Driving time	399 s	Standard dev. of positive accel.	0.057 m/s^2
Drive time	216 s	Accel: 75th - 25th percentile	0.116 m/s^2
Drive time spent accelerating	104 s	Number of accelerations	12
Drive time spent decelerating	79 s	Accelerations per km	0.833 /km
Time spent braking	5 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	54.14 %	Average distance between stops	N/A m
% of time accelerating	26.07 %	Relative positive acceleration	0.0379 m/s^2
% of time decelerating	19.80 %	Positive kinetic energy	0.999 m/s^2
% of time braking	1.25 %	Relative positive speed	0.503
% of time standing	0.00 %	Relative real speed	0.988
Average speed (trip)	130.0 km/h	Relative square speed	36.154 m/s
Average driving speed	130 km/h	Relative positive square speed	18.176 m/s
Standard deviation of speed	4.45 km/h	Relative real square speed	35.704 m/s
Speed: 75th - 25th percentile	5.49 km/h	Relative cubic speed	1308.63 m^2/s^2
Maximum speed	137.72 km/h	Relative positive cubic speed	657.23 m^2/s^2
Average acceleration	0.005 m/s^2	Relative real cubic speed	1292.40 m^2/s^2
Average positive acceleration	0.076 m/s^2	Root mean square of acceleration	0.016 m/s^2

Cycle No: 147

Cycle name: **Handbook R1 incl pre**
Alternative name: **Handbook R1**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

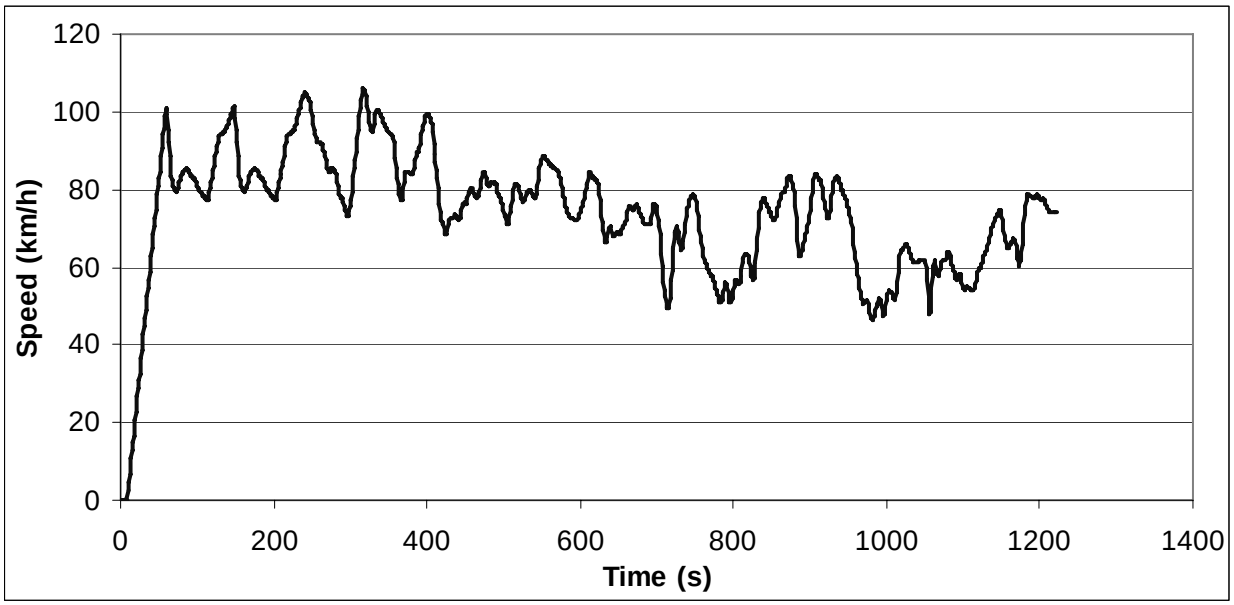


ART.KINEMA parameters

Total distance	45088.98 m	Average negative acceleration	-0.145 m/s^2
Total time	1500 s	Standard deviation of accel.	0.217 m/s^2
Driving time	1493 s	Standard dev. of positive accel.	0.171 m/s^2
Drive time	486 s	Accel: 75th - 25th percentile	0.201 m/s^2
Drive time spent accelerating	512 s	Number of accelerations	55
Drive time spent decelerating	495 s	Accelerations per km	1.220 /km
Time spent braking	124 s	Number of stops	1
Standing time	7 s	Stops per km	0.02 /km
% of time driving	99.53 %	Average stop duration	7 s
% of cruising	32.40 %	Average distance between stops	45088.98 m
% of time accelerating	34.13 %	Relative positive acceleration	0.0768 m/s^2
% of time decelerating	33.00 %	Positive kinetic energy	2.006 m/s^2
% of time braking	8.27 %	Relative positive speed	0.514
% of time standing	0.47 %	Relative real speed	0.919
Average speed (trip)	108.2 km/h	Relative square speed	30.861 m/s
Average driving speed	108.72 km/h	Relative positive square speed	15.832 m/s
Standard deviation of speed	16.08 km/h	Relative real square speed	28.431 m/s
Speed: 75th - 25th percentile	16.27 km/h	Relative cubic speed	962.87 m^2/s^2
Maximum speed	131.1 km/h	Relative positive cubic speed	494.85 m^2/s^2
Average acceleration	0.019 m/s^2	Relative real cubic speed	889.71 m^2/s^2
Average positive acceleration	0.166 m/s^2	Root mean square of acceleration	0.040 m/s^2

Cycle No: 148

Cycle name: **Handbook R2 incl pre**
Alternative name: **Handbook R2**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

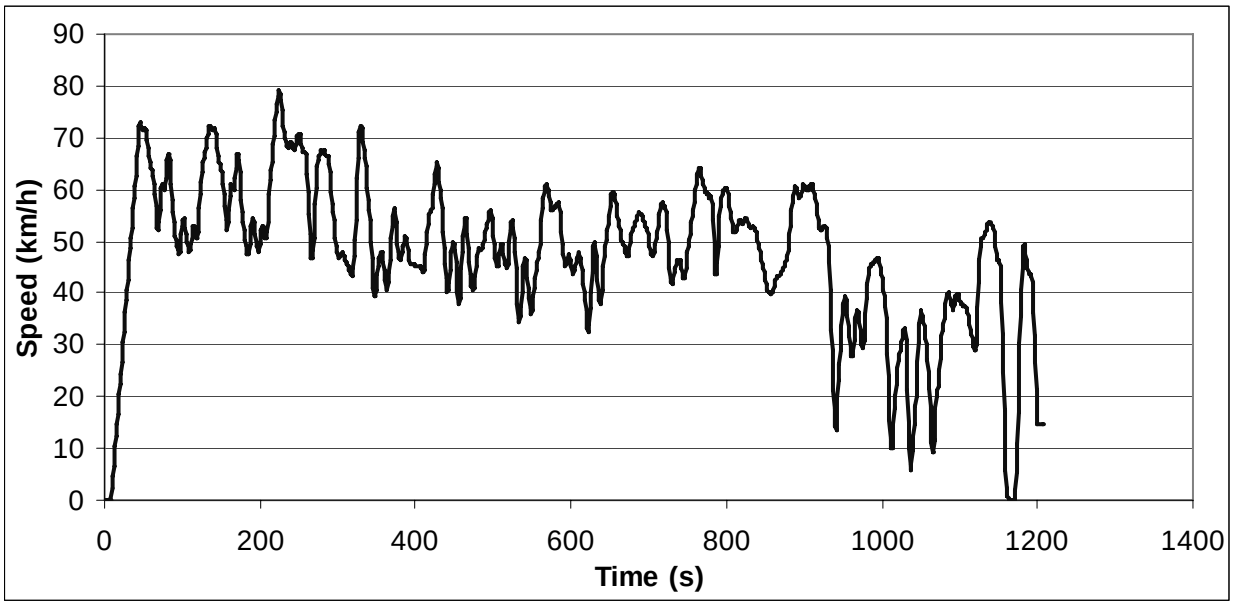


ART.KINEMA parameters

Total distance	25064.73 m	Average negative acceleration	-0.195 m/s^2
Total time	1222 s	Standard deviation of accel.	0.286 m/s^2
Driving time	1215 s	Standard dev. of positive accel.	0.188 m/s^2
Drive time	230 s	Accel: 75th - 25th percentile	0.321 m/s^2
Drive time spent accelerating	489 s	Number of accelerations	51
Drive time spent decelerating	496 s	Accelerations per km	2.035 /km
Time spent braking	162 s	Number of stops	1
Standing time	7 s	Stops per km	0.04 /km
% of time driving	99.43 %	Average stop duration	7 s
% of cruising	18.82 %	Average distance between stops	25064.73 m
% of time accelerating	40.02 %	Relative positive acceleration	0.1098 m/s^2
% of time decelerating	40.59 %	Positive kinetic energy	2.873 m/s^2
% of time braking	13.26 %	Relative positive speed	0.471
% of time standing	0.57 %	Relative real speed	0.866
Average speed (trip)	73.8 km/h	Relative square speed	21.487 m/s
Average driving speed	74.27 km/h	Relative positive square speed	10.073 m/s
Standard deviation of speed	15.15 km/h	Relative real square speed	18.608 m/s
Speed: 75th - 25th percentile	18.72 km/h	Relative cubic speed	475.54 m^2/s^2
Maximum speed	105.9 km/h	Relative positive cubic speed	222.75 m^2/s^2
Average acceleration	0.017 m/s^2	Relative real cubic speed	411.65 m^2/s^2
Average positive acceleration	0.244 m/s^2	Root mean square of acceleration	0.063 m/s^2

Cycle No: 149

Cycle name: **Handbook R3 incl pre**
Alternative name: **Handbook R3**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

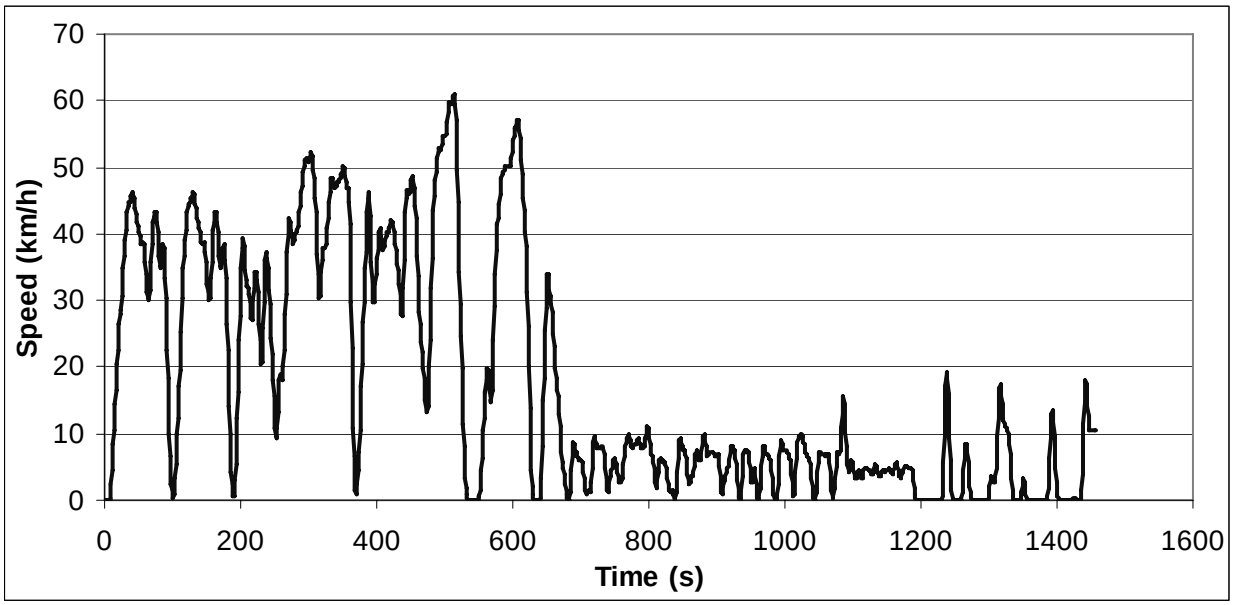


ART.KINEMA parameters

Total distance	15913.51 m	Average negative acceleration	-0.322 m/s^2
Total time	1208 s	Standard deviation of accel.	0.448 m/s^2
Driving time	1197 s	Standard dev. of positive accel.	0.285 m/s^2
Drive time	176 s	Accel: 75th - 25th percentile	0.505 m/s^2
Drive time spent accelerating	500 s	Number of accelerations	55
Drive time spent decelerating	521 s	Accelerations per km	3.456 /km
Time spent braking	287 s	Number of stops	2
Standing time	11 s	Stops per km	0.13 /km
% of time driving	99.09 %	Average stop duration	5.5 s
% of cruising	14.57 %	Average distance between stops	7956.76 m
% of time accelerating	41.39 %	Relative positive acceleration	0.1528 m/s^2
% of time decelerating	43.13 %	Positive kinetic energy	4.013 m/s^2
% of time braking	23.76 %	Relative positive speed	0.477
% of time standing	0.91 %	Relative real speed	0.766
Average speed (trip)	47.4 km/h	Relative square speed	14.445 m/s
Average driving speed	47.86 km/h	Relative positive square speed	6.831 m/s
Standard deviation of speed	14.08 km/h	Relative real square speed	11.133 m/s
Speed: 75th - 25th percentile	14.98 km/h	Relative cubic speed	218.74 m^2/s^2
Maximum speed	79.14 km/h	Relative positive cubic speed	102.72 m^2/s^2
Average acceleration	0.003 m/s^2	Relative real cubic speed	169.30 m^2/s^2
Average positive acceleration	0.347 m/s^2	Root mean square of acceleration	0.123 m/s^2

Cycle No: 150

Cycle name: **Handbook R4 incl pre**
Alternative name: **Handbook R4**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

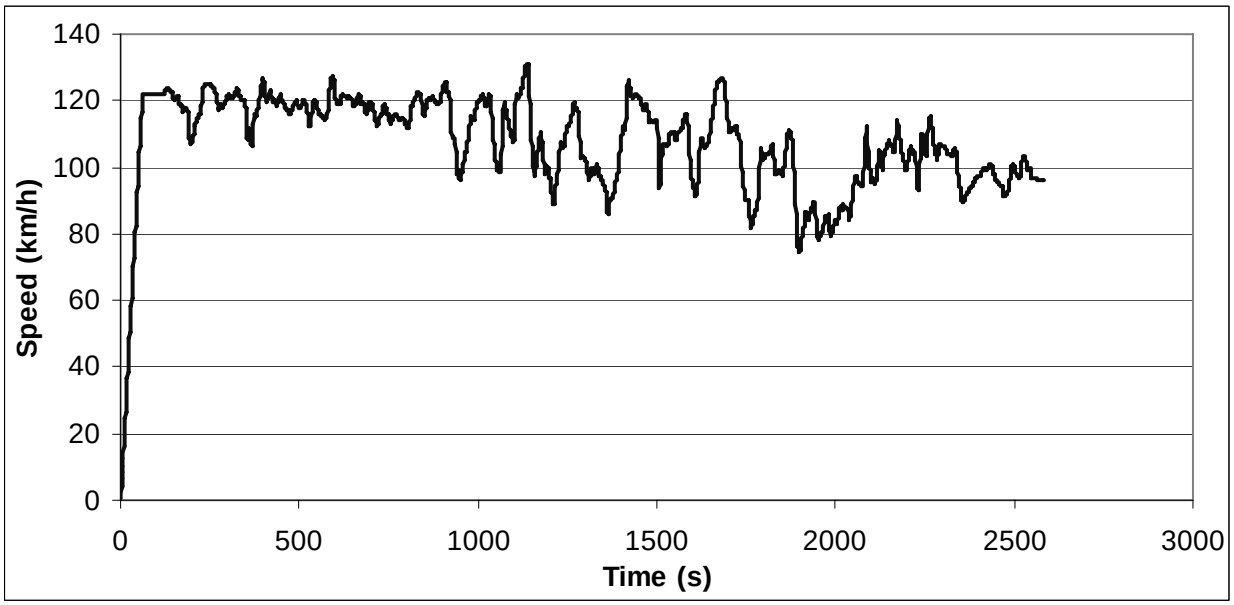


ART.KINEMA parameters

Total distance	6971.69 m	Average negative acceleration	-0.276 m/s^2
Total time	1456 s	Standard deviation of accel.	0.418 m/s^2
Driving time	1327 s	Standard dev. of positive accel.	0.292 m/s^2
Drive time	318 s	Accel: 75th - 25th percentile	0.307 m/s^2
Drive time spent accelerating	495 s	Number of accelerations	70
Drive time spent decelerating	514 s	Accelerations per km	10.041 /km
Time spent braking	267 s	Number of stops	10
Standing time	129 s	Stops per km	1.43 /km
% of time driving	91.14 %	Average stop duration	12.9 s
% of cruising	21.84 %	Average distance between stops	697.17 m
% of time accelerating	34.00 %	Relative positive acceleration	0.1655 m/s^2
% of time decelerating	35.30 %	Positive kinetic energy	4.348 m/s^2
% of time braking	18.34 %	Relative positive speed	0.526
% of time standing	8.86 %	Relative real speed	0.764
Average speed (trip)	17.2 km/h	Relative square speed	9.835 m/s
Average driving speed	18.91 km/h	Relative positive square speed	5.448 m/s
Standard deviation of speed	17.67 km/h	Relative real square speed	7.666 m/s
Speed: 75th - 25th percentile	30.77 km/h	Relative cubic speed	114.76 m^2/s^2
Maximum speed	60.91 km/h	Relative positive cubic speed	65.32 m^2/s^2
Average acceleration	0.002 m/s^2	Relative real cubic speed	91.87 m^2/s^2
Average positive acceleration	0.305 m/s^2	Root mean square of acceleration	0.182 m/s^2

Cycle No: 151

Cycle name: **Handbook S1 incl pre**
Alternative name: **Version0-Handbook R1**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

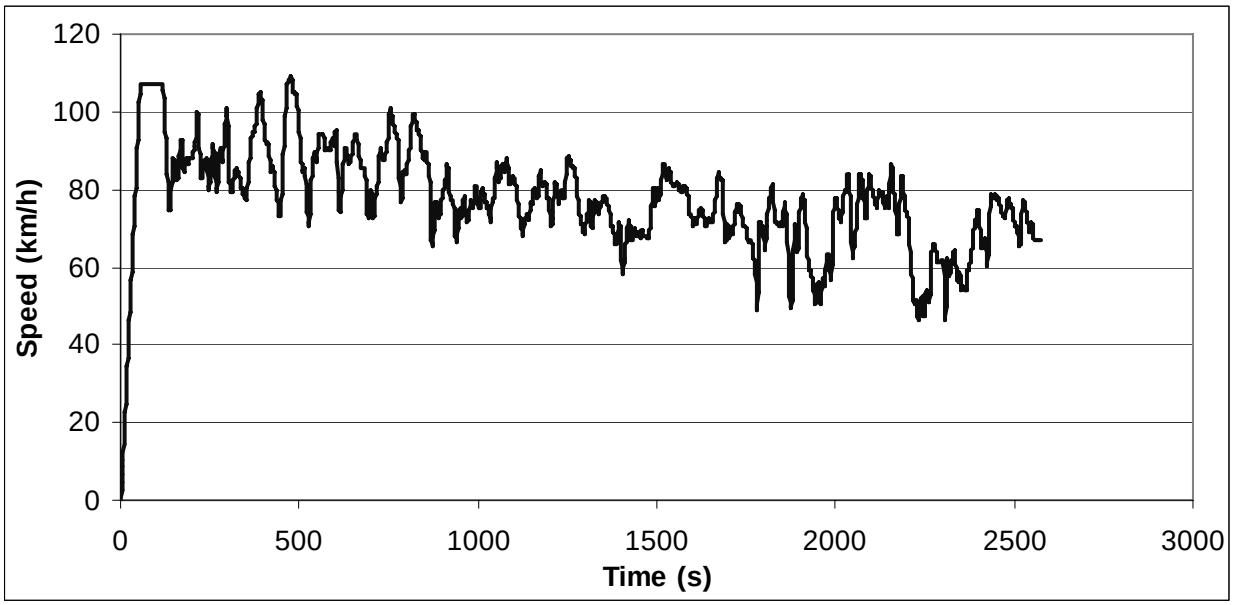


ART.KINEMA parameters

Total distance	76947.5 m	Average negative acceleration	-0.138 m/s^2
Total time	2581 s	Standard deviation of accel.	0.205 m/s^2
Driving time	2581 s	Standard dev. of positive accel.	0.154 m/s^2
Drive time	991 s	Accel: 75th - 25th percentile	0.177 m/s^2
Drive time spent accelerating	851 s	Number of accelerations	96
Drive time spent decelerating	739 s	Accelerations per km	1.248 /km
Time spent braking	200 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	38.40 %	Average distance between stops	N/A m
% of time accelerating	32.97 %	Relative positive acceleration	0.0683 m/s^2
% of time decelerating	28.63 %	Positive kinetic energy	1.784 m/s^2
% of time braking	7.75 %	Relative positive speed	0.504
% of time standing	0.00 %	Relative real speed	0.924
Average speed (trip)	107.3 km/h	Relative square speed	30.388 m/s
Average driving speed	107.33 km/h	Relative positive square speed	15.200 m/s
Standard deviation of speed	14.91 km/h	Relative real square speed	28.159 m/s
Speed: 75th - 25th percentile	20.34 km/h	Relative cubic speed	935.27 m^2/s^2
Maximum speed	131.2 km/h	Relative positive cubic speed	465.74 m^2/s^2
Average acceleration	0.010 m/s^2	Relative real cubic speed	868.94 m^2/s^2
Average positive acceleration	0.146 m/s^2	Root mean square of acceleration	0.038 m/s^2

Cycle No: 152

Cycle name: **Handbook S2 incl pre**
Alternative name: **Version0-Handbook R2**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

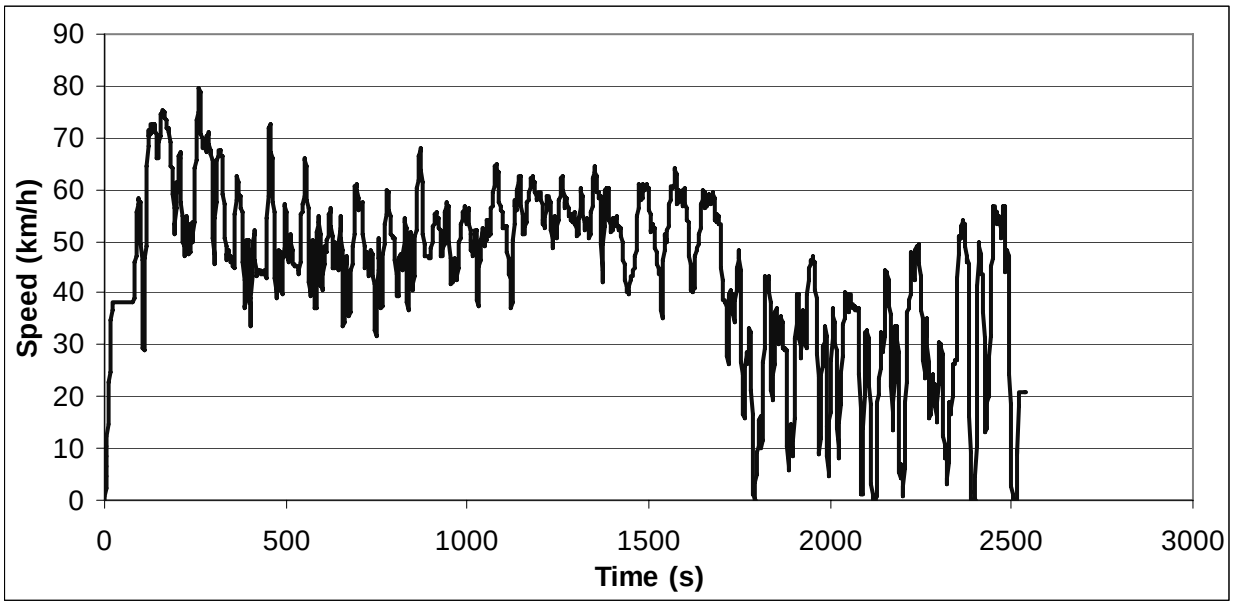


ART.KINEMA parameters

Total distance	55280.41 m	Average negative acceleration	-0.176 m/s^2
Total time	2572 s	Standard deviation of accel.	0.257 m/s^2
Driving time	2572 s	Standard dev. of positive accel.	0.182 m/s^2
Drive time	652 s	Accel: 75th - 25th percentile	0.276 m/s^2
Drive time spent accelerating	928 s	Number of accelerations	107
Drive time spent decelerating	992 s	Accelerations per km	1.936 /km
Time spent braking	306 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	25.35 %	Average distance between stops	N/A m
% of time accelerating	36.08 %	Relative positive acceleration	0.0929 m/s^2
% of time decelerating	38.57 %	Positive kinetic energy	2.430 m/s^2
% of time braking	11.90 %	Relative positive speed	0.455
% of time standing	0.00 %	Relative real speed	0.882
Average speed (trip)	77.4 km/h	Relative square speed	22.133 m/s
Average driving speed	77.38 km/h	Relative positive square speed	9.981 m/s
Standard deviation of speed	13.35 km/h	Relative real square speed	19.573 m/s
Speed: 75th - 25th percentile	14.47 km/h	Relative cubic speed	501.77 m^2/s^2
Maximum speed	109.33 km/h	Relative positive cubic speed	224.08 m^2/s^2
Average acceleration	0.007 m/s^2	Relative real cubic speed	444.73 m^2/s^2
Average positive acceleration	0.212 m/s^2	Root mean square of acceleration	0.056 m/s^2

Cycle No: 153

Cycle name: **Handbook S3 incl pre**
Alternative name: **Version0-Handbook R3**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

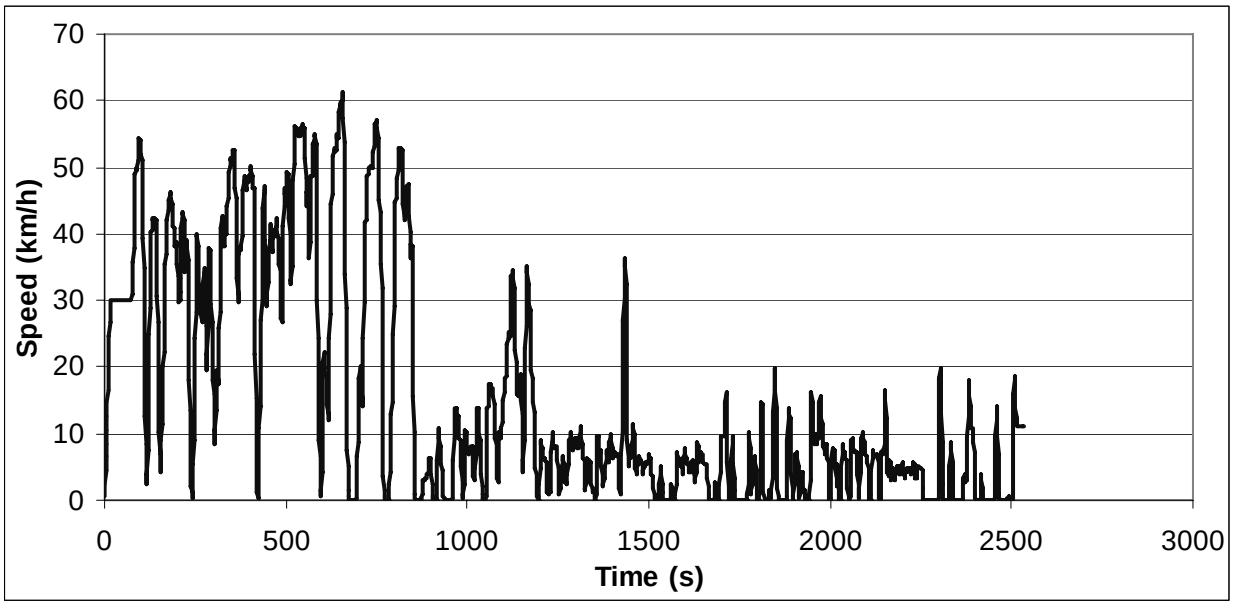


ART.KINEMA parameters

Total distance	31344.29 m	Average negative acceleration	-0.311 m/s^2
Total time	2537 s	Standard deviation of accel.	0.442 m/s^2
Driving time	2518 s	Standard dev. of positive accel.	0.304 m/s^2
Drive time	549 s	Accel: 75th - 25th percentile	0.421 m/s^2
Drive time spent accelerating	986 s	Number of accelerations	121
Drive time spent decelerating	983 s	Accelerations per km	3.860 /km
Time spent braking	549 s	Number of stops	3
Standing time	19 s	Stops per km	0.1 /km
% of time driving	99.25 %	Average stop duration	6.33 s
% of cruising	21.64 %	Average distance between stops	10448.1 m
% of time accelerating	38.86 %	Relative positive acceleration	0.1362 m/s^2
% of time decelerating	38.75 %	Positive kinetic energy	3.569 m/s^2
% of time braking	21.64 %	Relative positive speed	0.482
% of time standing	0.75 %	Relative real speed	0.798
Average speed (trip)	44.5 km/h	Relative square speed	13.948 m/s
Average driving speed	44.81 km/h	Relative positive square speed	6.725 m/s
Standard deviation of speed	15.56 km/h	Relative real square speed	11.266 m/s
Speed: 75th - 25th percentile	17.91 km/h	Relative cubic speed	205.81 m^2/s^2
Maximum speed	79.02 km/h	Relative positive cubic speed	99.35 m^2/s^2
Average acceleration	0.002 m/s^2	Relative real cubic speed	167.64 m^2/s^2
Average positive acceleration	0.321 m/s^2	Root mean square of acceleration	0.125 m/s^2

Cycle No: 154

Cycle name: **Handbook S4 incl pre**
Alternative name: **Version0Handbook R4**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

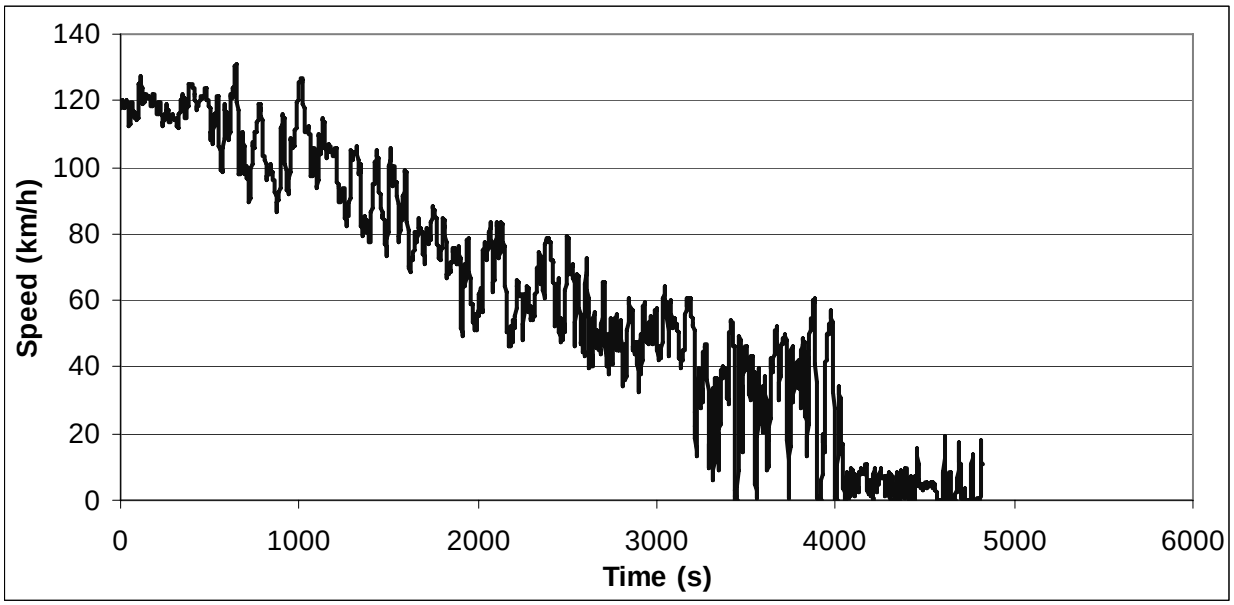


ART.KINEMA parameters

Total distance	10832.27 m	Average negative acceleration	-0.271 m/s^2
Total time	2534 s	Standard deviation of accel.	0.418 m/s^2
Driving time	2263 s	Standard dev. of positive accel.	0.299 m/s^2
Drive time	655 s	Accel: 75th - 25th percentile	0.256 m/s^2
Drive time spent accelerating	800 s	Number of accelerations	118
Drive time spent decelerating	808 s	Accelerations per km	10.893 /km
Time spent braking	417 s	Number of stops	24
Standing time	271 s	Stops per km	2.22 /km
% of time driving	89.31 %	Average stop duration	11.29 s
% of cruising	25.85 %	Average distance between stops	451.34 m
% of time accelerating	31.57 %	Relative positive acceleration	0.1584 m/s^2
% of time decelerating	31.89 %	Positive kinetic energy	4.150 m/s^2
% of time braking	16.46 %	Relative positive speed	0.504
% of time standing	10.69 %	Relative real speed	0.789
Average speed (trip)	15.4 km/h	Relative square speed	9.516 m/s
Average driving speed	17.23 km/h	Relative positive square speed	5.070 m/s
Standard deviation of speed	17.13 km/h	Relative real square speed	7.597 m/s
Speed: 75th - 25th percentile	26.41 km/h	Relative cubic speed	111.73 m^2/s^2
Maximum speed	61.1 km/h	Relative positive cubic speed	61.36 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	90.94 m^2/s^2
Average positive acceleration	0.296 m/s^2	Root mean square of acceleration	0.191 m/s^2

Cycle No: 155

Cycle name: **Handbook_DrivingPatterns**
Alternative name: **Handbook.DP**
Test programme: **Handbook driving cycles**
Additional info:
Vehicle category: **Cars**

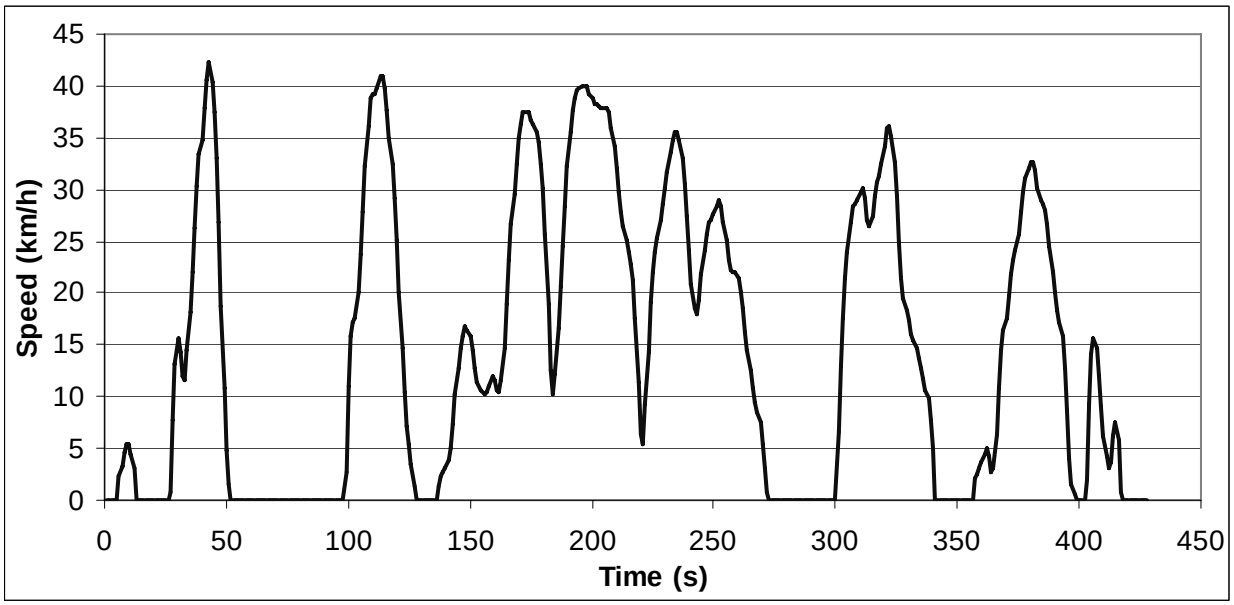


ART.KINEMA parameters

Total distance	83492.52 m	Average negative acceleration	-0.234 m/s^2
Total time	4820 s	Standard deviation of accel.	0.348 m/s^2
Driving time	4642 s	Standard dev. of positive accel.	0.250 m/s^2
Drive time	1635 s	Accel: 75th - 25th percentile	0.297 m/s^2
Drive time spent accelerating	1423 s	Number of accelerations	193
Drive time spent decelerating	1584 s	Accelerations per km	2.312 /km
Time spent braking	792 s	Number of stops	13
Standing time	178 s	Stops per km	0.16 /km
% of time driving	96.31 %	Average stop duration	13.69 s
% of cruising	33.92 %	Average distance between stops	6422.5 m
% of time accelerating	29.52 %	Relative positive acceleration	0.0962 m/s^2
% of time decelerating	32.86 %	Positive kinetic energy	0.187 m/s^2
% of time braking	16.43 %	Relative positive speed	0.484
% of time standing	3.69 %	Relative real speed	0.859
Average speed (trip)	62.4 km/h	Relative square speed	24.031 m/s
Average driving speed	64.74 km/h	Relative positive square speed	11.720 m/s
Standard deviation of speed	37.56 km/h	Relative real square speed	21.153 m/s
Speed: 75th - 25th percentile	62.37 km/h	Relative cubic speed	644.47 m^2/s^2
Maximum speed	131.11 km/h	Relative positive cubic speed	316.76 m^2/s^2
Average acceleration	-0.006 m/s^2	Relative real cubic speed	576.10 m^2/s^2
Average positive acceleration	0.241 m/s^2	Root mean square of acceleration	0.082 m/s^2

Cycle No: 156

Cycle name: **modemIM Urban_Slow**
Alternative name: **mIM.slowurban**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

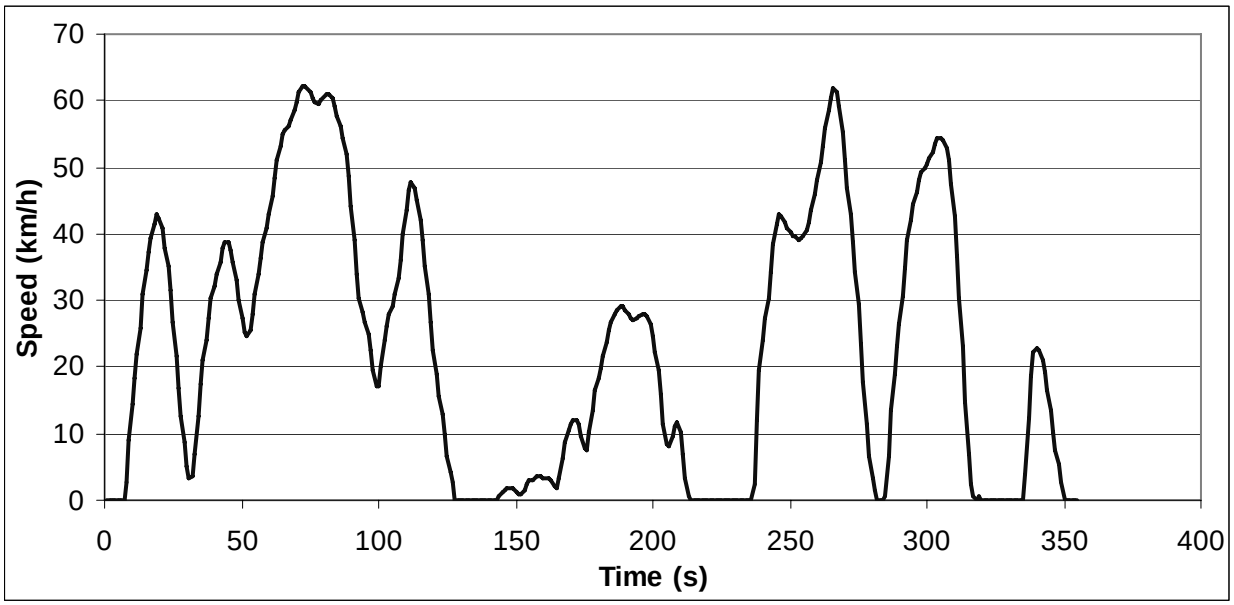


ART.KINEMA parameters

Total distance	1711.46 m	Average negative acceleration	-0.437 m/s^2
Total time	428 s	Standard deviation of accel.	0.578 m/s^2
Driving time	340 s	Standard dev. of positive accel.	0.358 m/s^2
Drive time	48 s	Accel: 75th - 25th percentile	0.491 m/s^2
Drive time spent accelerating	139 s	Number of accelerations	13
Drive time spent decelerating	153 s	Accelerations per km	7.596 /km
Time spent braking	109 s	Number of stops	6
Standing time	88 s	Stops per km	3.51 /km
% of time driving	79.44 %	Average stop duration	14.67 s
% of cruising	11.21 %	Average distance between stops	285.24 m
% of time accelerating	32.48 %	Relative positive acceleration	0.2319 m/s^2
% of time decelerating	35.75 %	Positive kinetic energy	6.045 m/s^2
% of time braking	25.47 %	Relative positive speed	0.482
% of time standing	20.56 %	Relative real speed	0.675
Average speed (trip)	14.4 km/h	Relative square speed	7.566 m/s
Average driving speed	18.12 km/h	Relative positive square speed	3.598 m/s
Standard deviation of speed	12.87 km/h	Relative real square speed	5.283 m/s
Speed: 75th - 25th percentile	26.71 km/h	Relative cubic speed	64.59 m^2/s^2
Maximum speed	40.42 km/h	Relative positive cubic speed	30.33 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	46.45 m^2/s^2
Average positive acceleration	0.447 m/s^2	Root mean square of acceleration	0.257 m/s^2

Cycle No: 157

Cycle name: **modemIM Urban_Free_Flow**
Alternative name: **mIM.free-flowurban**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

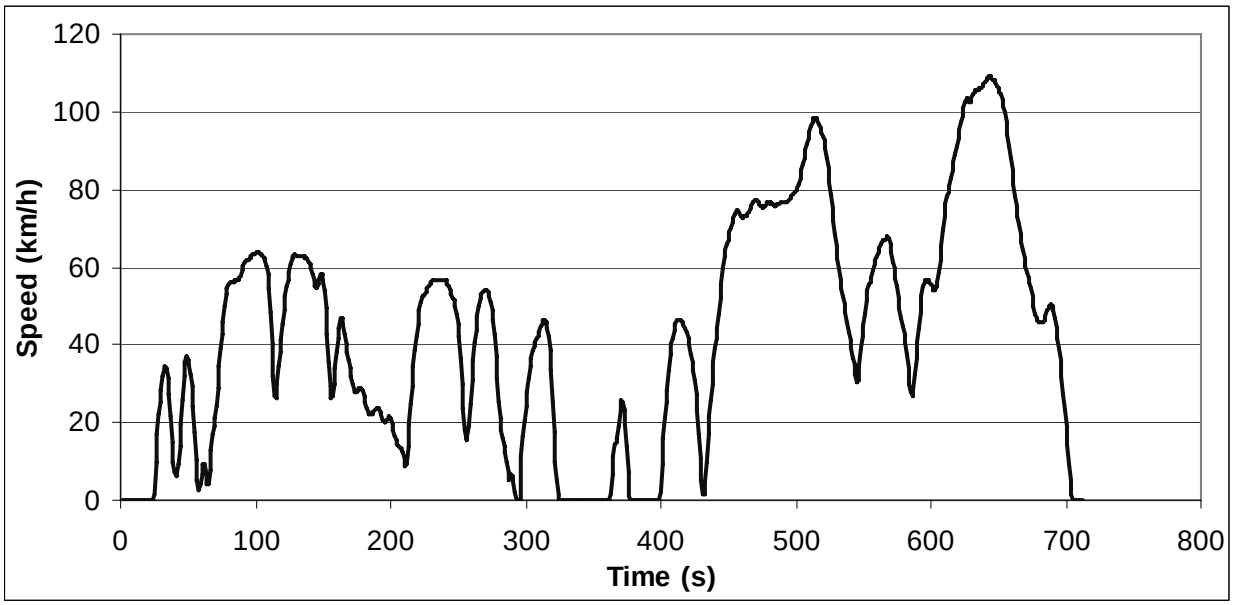


ART.KINEMA parameters

Total distance	2252.64 m	Average negative acceleration	-0.600 m/s^2
Total time	355 s	Standard deviation of accel.	0.726 m/s^2
Driving time	308 s	Standard dev. of positive accel.	0.423 m/s^2
Drive time	50 s	Accel: 75th - 25th percentile	0.702 m/s^2
Drive time spent accelerating	135 s	Number of accelerations	12
Drive time spent decelerating	123 s	Accelerations per km	5.327 /km
Time spent braking	92 s	Number of stops	5
Standing time	47 s	Stops per km	2.22 /km
% of time driving	86.76 %	Average stop duration	9.4 s
% of cruising	14.08 %	Average distance between stops	450.53 m
% of time accelerating	38.03 %	Relative positive acceleration	0.2794 m/s^2
% of time decelerating	34.65 %	Positive kinetic energy	7.292 m/s^2
% of time braking	25.92 %	Relative positive speed	0.555
% of time standing	13.24 %	Relative real speed	0.710
Average speed (trip)	22.8 km/h	Relative square speed	11.107 m/s
Average driving speed	26.33 km/h	Relative positive square speed	6.248 m/s
Standard deviation of speed	18.99 km/h	Relative real square speed	8.127 m/s
Speed: 75th - 25th percentile	36.74 km/h	Relative cubic speed	141.01 m^2/s^2
Maximum speed	61.84 km/h	Relative positive cubic speed	79.45 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	105.42 m^2/s^2
Average positive acceleration	0.520 m/s^2	Root mean square of acceleration	0.268 m/s^2

Cycle No: 158

Cycle name: **modemIM Road**
Alternative name: **mIM.road**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

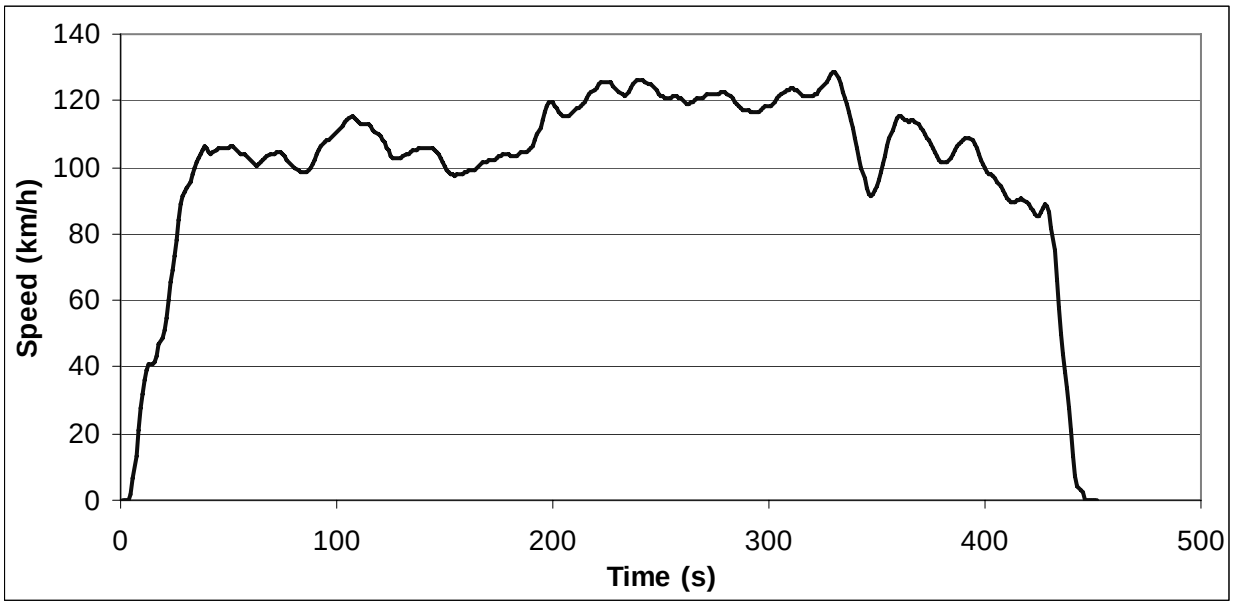


ART.KINEMA parameters

Total distance	8493.72 m	Average negative acceleration	-0.541 m/s^2
Total time	712 s	Standard deviation of accel.	0.690 m/s^2
Driving time	636 s	Standard dev. of positive accel.	0.444 m/s^2
Drive time	90 s	Accel: 75th - 25th percentile	0.598 m/s^2
Drive time spent accelerating	283 s	Number of accelerations	24
Drive time spent decelerating	263 s	Accelerations per km	2.826 /km
Time spent braking	190 s	Number of stops	4
Standing time	76 s	Stops per km	0.47 /km
% of time driving	89.33 %	Average stop duration	19 s
% of cruising	12.64 %	Average distance between stops	2123.43 m
% of time accelerating	39.75 %	Relative positive acceleration	0.2118 m/s^2
% of time decelerating	36.94 %	Positive kinetic energy	5.510 m/s^2
% of time braking	26.69 %	Relative positive speed	0.551
% of time standing	10.67 %	Relative real speed	0.738
Average speed (trip)	43.0 km/h	Relative square speed	17.612 m/s
Average driving speed	48.08 km/h	Relative positive square speed	10.046 m/s
Standard deviation of speed	27.16 km/h	Relative real square speed	13.494 m/s
Speed: 75th - 25th percentile	43.3 km/h	Relative cubic speed	356.70 m^2/s^2
Maximum speed	108.95 km/h	Relative positive cubic speed	208.31 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	280.35 m^2/s^2
Average positive acceleration	0.489 m/s^2	Root mean square of acceleration	0.189 m/s^2

Cycle No: 159

Cycle name: **modemIM Motorway**
Alternative name: **mIM.motorway**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

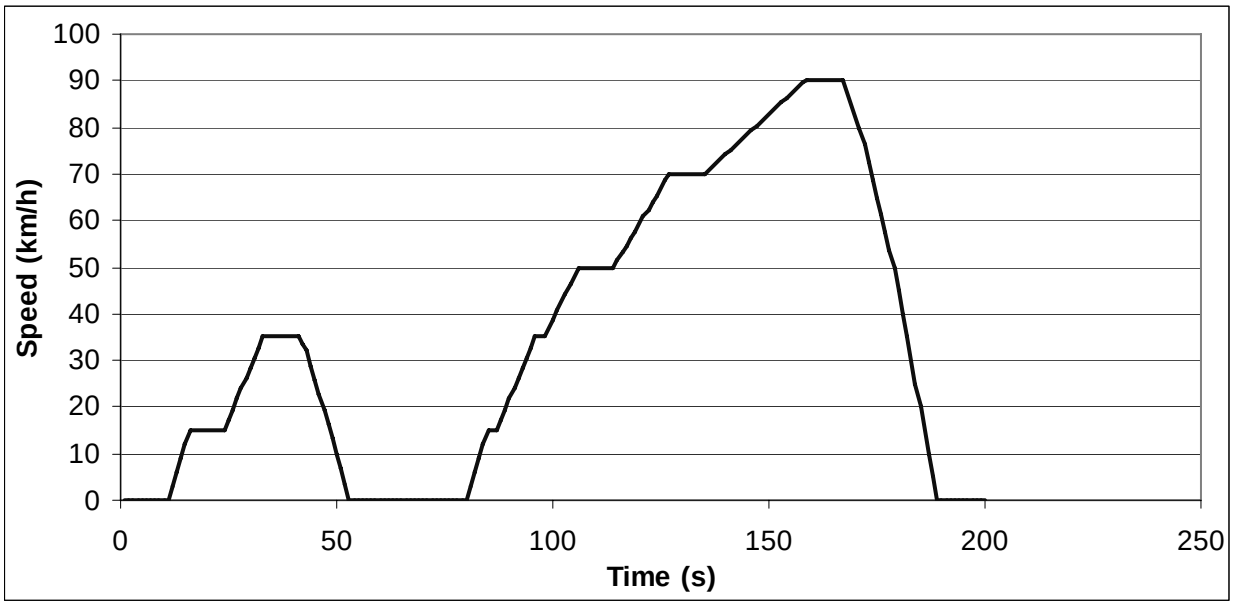


ART.KINEMA parameters

Total distance	12683.09 m	Average negative acceleration	-0.294 m/s^2
Total time	452 s	Standard deviation of accel.	0.467 m/s^2
Driving time	446 s	Standard dev. of positive accel.	0.338 m/s^2
Drive time	104 s	Accel: 75th - 25th percentile	0.291 m/s^2
Drive time spent accelerating	179 s	Number of accelerations	20
Drive time spent decelerating	163 s	Accelerations per km	1.577 /km
Time spent braking	63 s	Number of stops	2
Standing time	6 s	Stops per km	0.16 /km
% of time driving	98.67 %	Average stop duration	3 s
% of cruising	23.01 %	Average distance between stops	6341.54 m
% of time accelerating	39.60 %	Relative positive acceleration	0.1088 m/s^2
% of time decelerating	36.06 %	Positive kinetic energy	2.847 m/s^2
% of time braking	13.94 %	Relative positive speed	0.539
% of time standing	1.33 %	Relative real speed	0.879
Average speed (trip)	101.0 km/h	Relative square speed	30.156 m/s
Average driving speed	102.37 km/h	Relative positive square speed	16.202 m/s
Standard deviation of speed	25.2 km/h	Relative real square speed	26.783 m/s
Speed: 75th - 25th percentile	18.94 km/h	Relative cubic speed	926.29 m^2/s^2
Maximum speed	128.26 km/h	Relative positive cubic speed	497.26 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	829.00 m^2/s^2
Average positive acceleration	0.252 m/s^2	Root mean square of acceleration	0.087 m/s^2

Cycle No: 160

Cycle name: **TUV-A**
Alternative name: **mIM.TUV-A**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

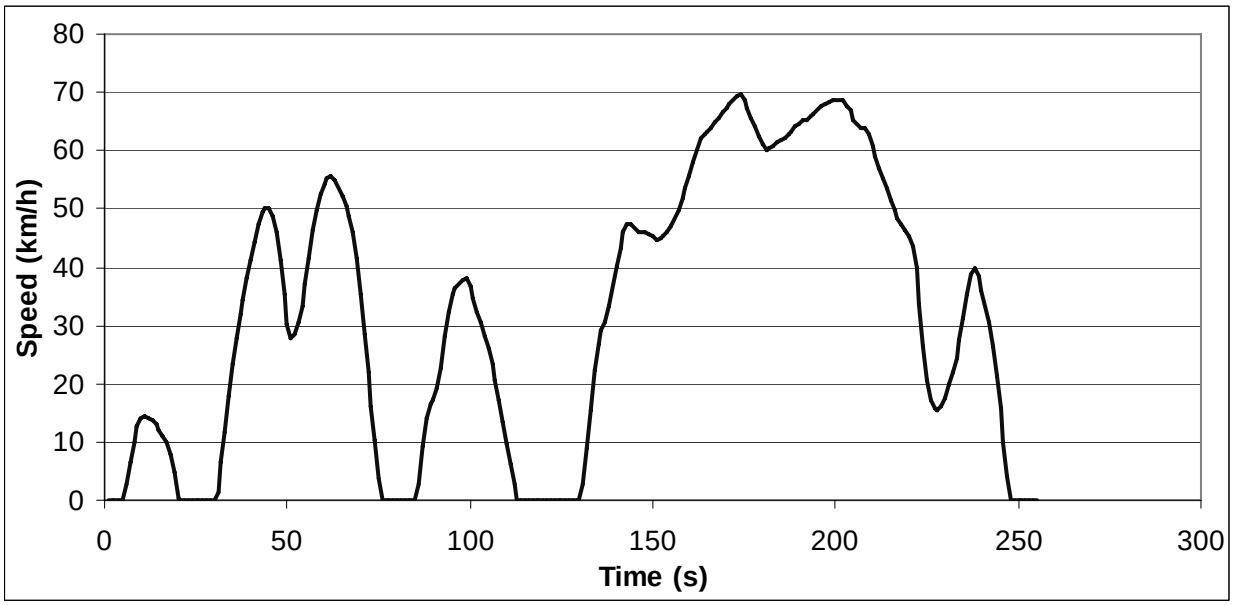


ART.KINEMA parameters

Total distance	1970.36 m	Average negative acceleration	-0.646 m/s^2
Total time	200 s	Standard deviation of accel.	0.569 m/s^2
Driving time	161 s	Standard dev. of positive accel.	0.212 m/s^2
Drive time	30 s	Accel: 75th - 25th percentile	0.318 m/s^2
Drive time spent accelerating	90 s	Number of accelerations	5
Drive time spent decelerating	41 s	Accelerations per km	2.538 /km
Time spent braking	36 s	Number of stops	3
Standing time	39 s	Stops per km	1.52 /km
% of time driving	80.50 %	Average stop duration	13 s
% of cruising	15.00 %	Average distance between stops	656.79 m
% of time accelerating	45.00 %	Relative positive acceleration	0.1836 m/s^2
% of time decelerating	20.50 %	Positive kinetic energy	4.760 m/s^2
% of time braking	18.00 %	Relative positive speed	0.705
% of time standing	19.50 %	Relative real speed	0.807
Average speed (trip)	35.5 km/h	Relative square speed	17.444 m/s
Average driving speed	44.06 km/h	Relative positive square speed	12.566 m/s
Standard deviation of speed	28.82 km/h	Relative real square speed	14.287 m/s
Speed: 75th - 25th percentile	63.93 km/h	Relative cubic speed	345.09 m^2/s^2
Maximum speed	90.1 km/h	Relative positive cubic speed	251.45 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	284.52 m^2/s^2
Average positive acceleration	0.326 m/s^2	Root mean square of acceleration	0.162 m/s^2

Cycle No: 161

Cycle name: **modemIM short**
Alternative name: **mIM.short**
Test programme: **MODEM-IM driving cycles**
Additional info:
Vehicle category: **Cars**

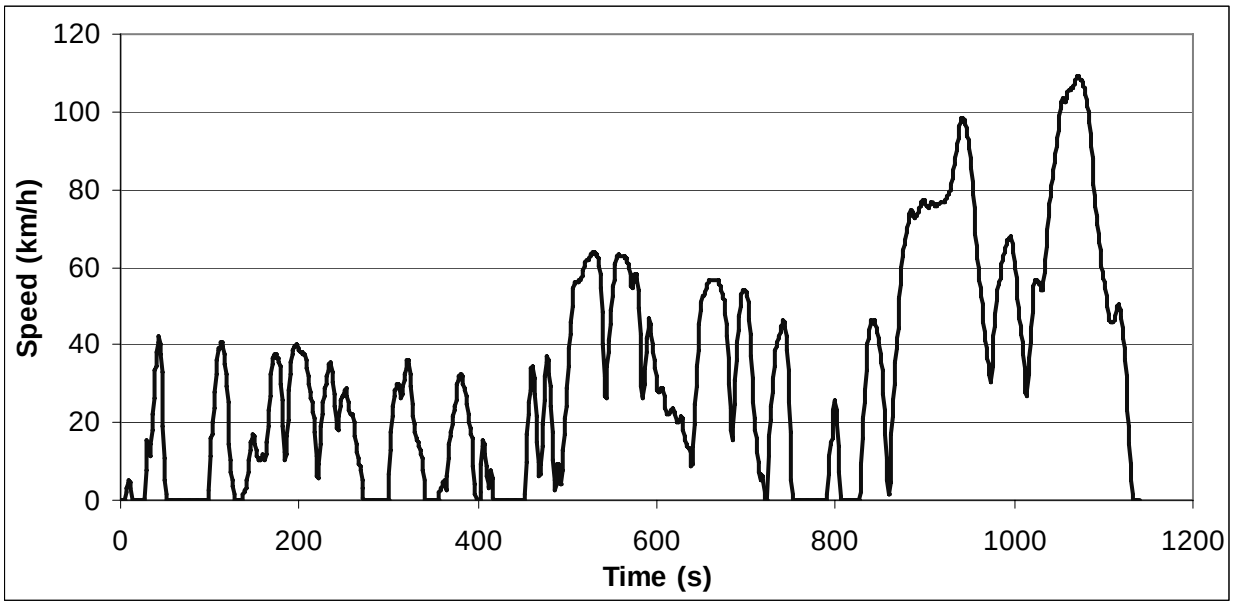


ART.KINEMA parameters

Total distance	2249.74 m	Average negative acceleration	-0.585 m/s^2
Total time	255 s	Standard deviation of accel.	0.717 m/s^2
Driving time	227 s	Standard dev. of positive accel.	0.419 m/s^2
Drive time	23 s	Accel: 75th - 25th percentile	0.733 m/s^2
Drive time spent accelerating	107 s	Number of accelerations	8
Drive time spent decelerating	97 s	Accelerations per km	3.556 /km
Time spent braking	76 s	Number of stops	5
Standing time	28 s	Stops per km	2.22 /km
% of time driving	89.02 %	Average stop duration	5.6 s
% of cruising	9.02 %	Average distance between stops	449.95 m
% of time accelerating	41.96 %	Relative positive acceleration	0.2289 m/s^2
% of time decelerating	38.04 %	Positive kinetic energy	5.964 m/s^2
% of time braking	29.80 %	Relative positive speed	0.546
% of time standing	10.98 %	Relative real speed	0.702
Average speed (trip)	31.8 km/h	Relative square speed	13.754 m/s
Average driving speed	35.68 km/h	Relative positive square speed	7.692 m/s
Standard deviation of speed	22.27 km/h	Relative real square speed	10.029 m/s
Speed: 75th - 25th percentile	44.76 km/h	Relative cubic speed	209.42 m^2/s^2
Maximum speed	68.98 km/h	Relative positive cubic speed	119.48 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	156.80 m^2/s^2
Average positive acceleration	0.531 m/s^2	Root mean square of acceleration	0.227 m/s^2

Cycle No: 162

Cycle name: **EMPA M1**
Alternative name: **MODEM urban1+road (mIM ?)**
Test programme: **MODEM-IM driving cycles**
Additional info: **Combined MODEM-IM cycles**
Vehicle category: **Cars**

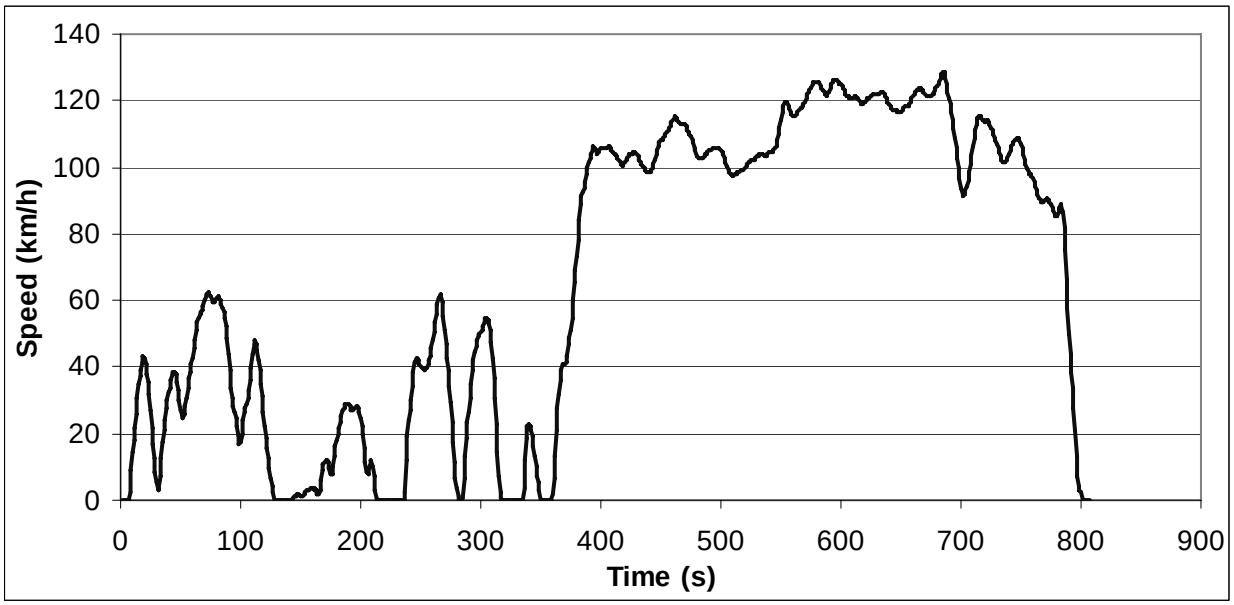


ART.KINEMA parameters

Total distance	10199.48 m	Average negative acceleration	-0.517 m/s^2
Total time	1140 s	Standard deviation of accel.	0.680 m/s^2
Driving time	960 s	Standard dev. of positive accel.	0.433 m/s^2
Drive time	124 s	Accel: 75th - 25th percentile	0.557 m/s^2
Drive time spent accelerating	426 s	Number of accelerations	43
Drive time spent decelerating	410 s	Accelerations per km	4.216 /km
Time spent braking	306 s	Number of stops	11
Standing time	180 s	Stops per km	1.08 /km
% of time driving	84.21 %	Average stop duration	16.36 s
% of cruising	10.88 %	Average distance between stops	927.23 m
% of time accelerating	37.37 %	Relative positive acceleration	0.2191 m/s^2
% of time decelerating	35.96 %	Positive kinetic energy	5.710 m/s^2
% of time braking	26.84 %	Relative positive speed	0.534
% of time standing	15.79 %	Relative real speed	0.722
Average speed (trip)	32.2 km/h	Relative square speed	15.944 m/s
Average driving speed	38.25 km/h	Relative positive square speed	8.817 m/s
Standard deviation of speed	27.08 km/h	Relative real square speed	12.038 m/s
Speed: 75th - 25th percentile	47.35 km/h	Relative cubic speed	308.07 m^2/s^2
Maximum speed	109.05 km/h	Relative positive cubic speed	174.00 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	239.30 m^2/s^2
Average positive acceleration	0.502 m/s^2	Root mean square of acceleration	0.209 m/s^2

Cycle No: 163

Cycle name: **EMPA M2**
Alternative name: **MODEM urban2+highway (mIM ?)**
Test programme: **MODEM-IM driving cycles**
Additional info: **Combined MODEM-IM cycles**
Vehicle category: **Cars**

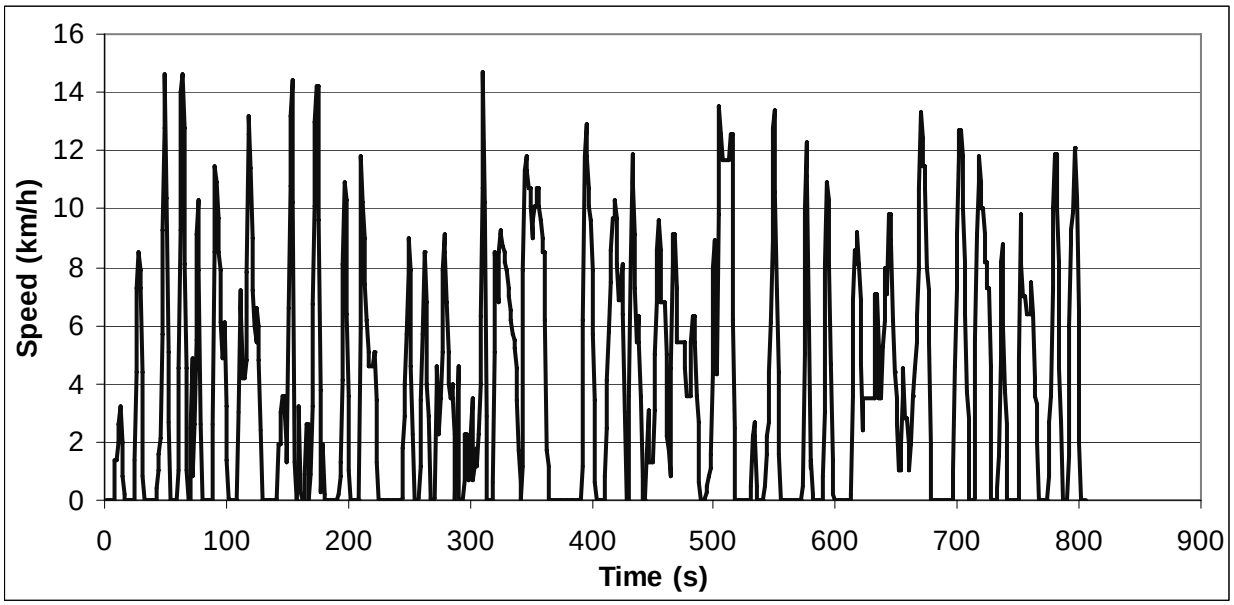


ART.KINEMA parameters

Total distance	14933.76 m	Average negative acceleration	-0.425 m/s^2
Total time	807 s	Standard deviation of accel.	0.597 m/s^2
Driving time	749 s	Standard dev. of positive accel.	0.408 m/s^2
Drive time	141 s	Accel: 75th - 25th percentile	0.375 m/s^2
Drive time spent accelerating	320 s	Number of accelerations	35
Drive time spent decelerating	288 s	Accelerations per km	2.344 /km
Time spent braking	158 s	Number of stops	6
Standing time	58 s	Stops per km	0.4 /km
% of time driving	92.81 %	Average stop duration	9.67 s
% of cruising	17.47 %	Average distance between stops	2488.96 m
% of time accelerating	39.65 %	Relative positive acceleration	0.1356 m/s^2
% of time decelerating	35.69 %	Positive kinetic energy	3.544 m/s^2
% of time braking	19.58 %	Relative positive speed	0.541
% of time standing	7.19 %	Relative real speed	0.852
Average speed (trip)	66.6 km/h	Relative square speed	27.289 m/s
Average driving speed	71.78 km/h	Relative positive square speed	14.697 m/s
Standard deviation of speed	43.61 km/h	Relative real square speed	23.958 m/s
Speed: 75th - 25th percentile	85 km/h	Relative cubic speed	808.00 m^2/s^2
Maximum speed	128.26 km/h	Relative positive cubic speed	434.24 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	719.82 m^2/s^2
Average positive acceleration	0.371 m/s^2	Root mean square of acceleration	0.134 m/s^2

Cycle No: 164

Cycle name: **INRETS urbainlent1**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

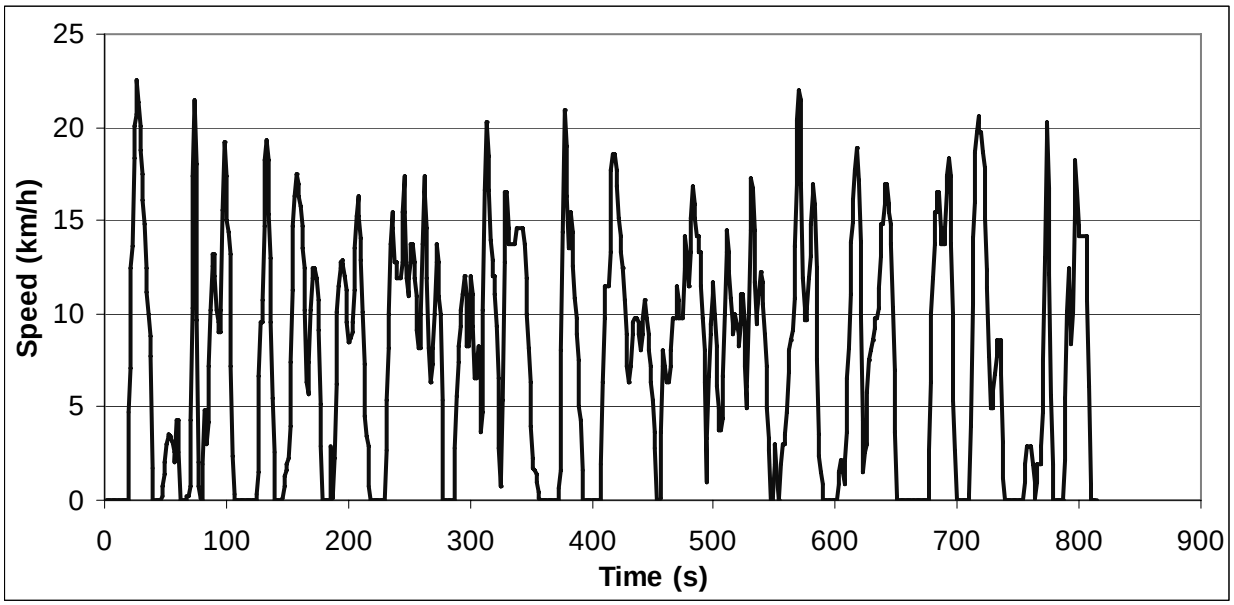


ART.KINEMA parameters

Total distance	843.81 m	Average negative acceleration	-0.276 m/s^2
Total time	805 s	Standard deviation of accel.	0.386 m/s^2
Driving time	661 s	Standard dev. of positive accel.	0.269 m/s^2
Drive time	148 s	Accel: 75th - 25th percentile	0.274 m/s^2
Drive time spent accelerating	238 s	Number of accelerations	45
Drive time spent decelerating	275 s	Accelerations per km	53.330 /km
Time spent braking	143 s	Number of stops	23
Standing time	144 s	Stops per km	27.26 /km
% of time driving	82.11 %	Average stop duration	6.26 s
% of cruising	18.39 %	Average distance between stops	36.69 m
% of time accelerating	29.57 %	Relative positive acceleration	0.1611 m/s^2
% of time decelerating	34.16 %	Positive kinetic energy	4.319 m/s^2
% of time braking	17.76 %	Relative positive speed	0.450
% of time standing	17.89 %	Relative real speed	0.764
Average speed (trip)	3.8 km/h	Relative square speed	2.115 m/s
Average driving speed	4.6 km/h	Relative positive square speed	0.947 m/s
Standard deviation of speed	3.73 km/h	Relative real square speed	1.658 m/s
Speed: 75th - 25th percentile	6.81 km/h	Relative cubic speed	5.20 m^2/s^2
Maximum speed	13.59 km/h	Relative positive cubic speed	2.34 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	4.16 m^2/s^2
Average positive acceleration	0.301 m/s^2	Root mean square of acceleration	0.342 m/s^2

Cycle No: 165

Cycle name: **INRETS urbainlent2**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

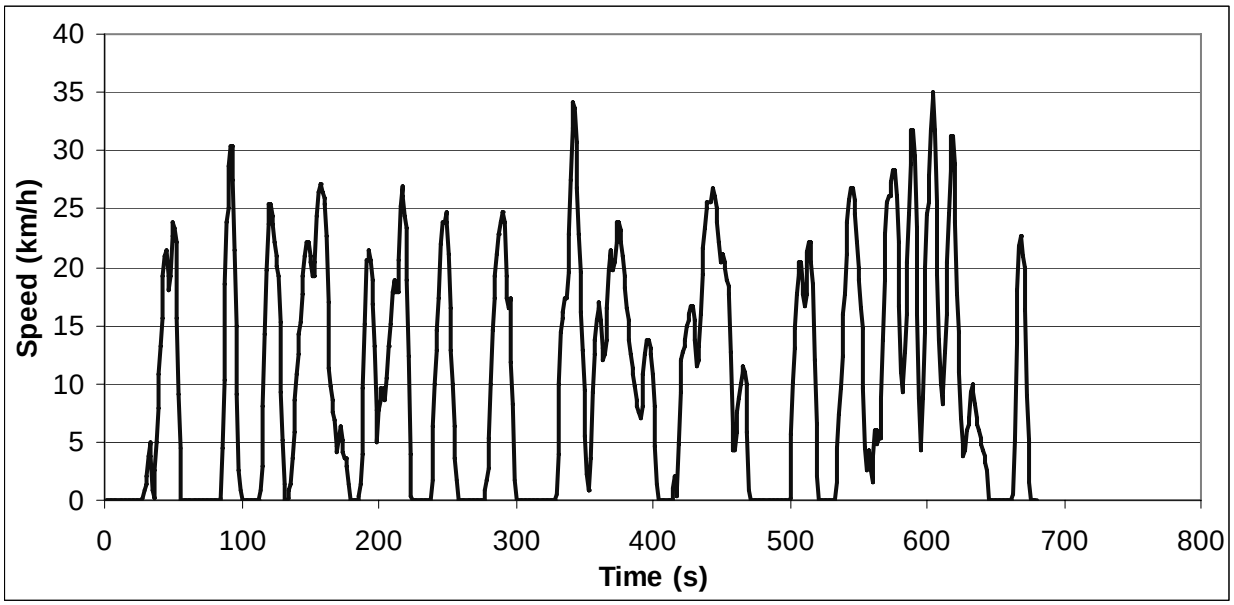


ART.KINEMA parameters

Total distance	1672.41 m	Average negative acceleration	-0.331 m/s^2
Total time	814 s	Standard deviation of accel.	0.455 m/s^2
Driving time	689 s	Standard dev. of positive accel.	0.318 m/s^2
Drive time	124 s	Accel: 75th - 25th percentile	0.335 m/s^2
Drive time spent accelerating	281 s	Number of accelerations	46
Drive time spent decelerating	284 s	Accelerations per km	27.505 /km
Time spent braking	179 s	Number of stops	16
Standing time	125 s	Stops per km	9.57 /km
% of time driving	84.64 %	Average stop duration	7.81 s
% of cruising	15.23 %	Average distance between stops	104.53 m
% of time accelerating	34.52 %	Relative positive acceleration	0.1753 m/s^2
% of time decelerating	34.89 %	Positive kinetic energy	4.684 m/s^2
% of time braking	21.99 %	Relative positive speed	0.479
% of time standing	15.36 %	Relative real speed	0.725
Average speed (trip)	7.4 km/h	Relative square speed	3.456 m/s
Average driving speed	8.74 km/h	Relative positive square speed	1.626 m/s
Standard deviation of speed	5.69 km/h	Relative real square speed	2.532 m/s
Speed: 75th - 25th percentile	11.72 km/h	Relative cubic speed	13.36 m^2/s^2
Maximum speed	21.27 km/h	Relative positive cubic speed	6.22 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	9.87 m^2/s^2
Average positive acceleration	0.335 m/s^2	Root mean square of acceleration	0.292 m/s^2

Cycle No: 166

Cycle name: **INRETS urbainfluide1**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

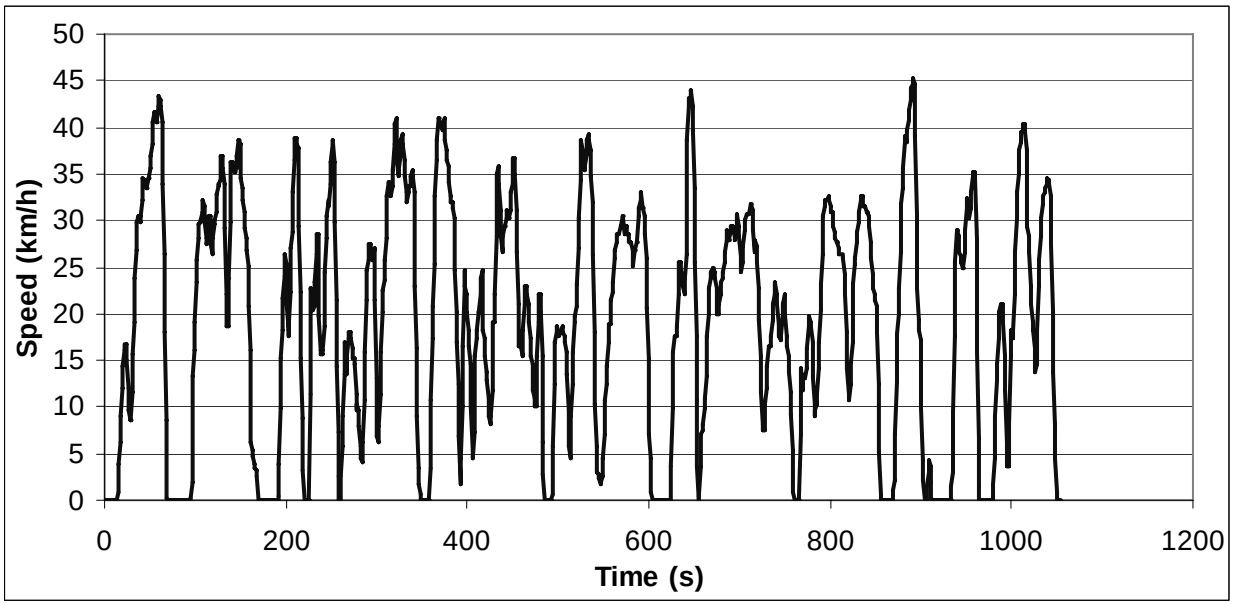


ART.KINEMA parameters

Total distance	1890.17 m	Average negative acceleration	-0.494 m/s^2
Total time	680 s	Standard deviation of accel.	0.624 m/s^2
Driving time	522 s	Standard dev. of positive accel.	0.374 m/s^2
Drive time	66 s	Accel: 75th - 25th percentile	0.411 m/s^2
Drive time spent accelerating	241 s	Number of accelerations	27
Drive time spent decelerating	215 s	Accelerations per km	14.284 /km
Time spent braking	150 s	Number of stops	12
Standing time	158 s	Stops per km	6.35 /km
% of time driving	76.76 %	Average stop duration	13.17 s
% of cruising	9.71 %	Average distance between stops	157.51 m
% of time accelerating	35.44 %	Relative positive acceleration	0.2549 m/s^2
% of time decelerating	31.62 %	Positive kinetic energy	6.676 m/s^2
% of time braking	22.06 %	Relative positive speed	0.533
% of time standing	23.24 %	Relative real speed	0.686
Average speed (trip)	10.0 km/h	Relative square speed	5.333 m/s
Average driving speed	13.04 km/h	Relative positive square speed	2.866 m/s
Standard deviation of speed	8.97 km/h	Relative real square speed	3.682 m/s
Speed: 75th - 25th percentile	18.74 km/h	Relative cubic speed	32.21 m^2/s^2
Maximum speed	32.56 km/h	Relative positive cubic speed	17.35 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	22.39 m^2/s^2
Average positive acceleration	0.458 m/s^2	Root mean square of acceleration	0.328 m/s^2

Cycle No: 167

Cycle name: **INRETS urbainfluide2**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

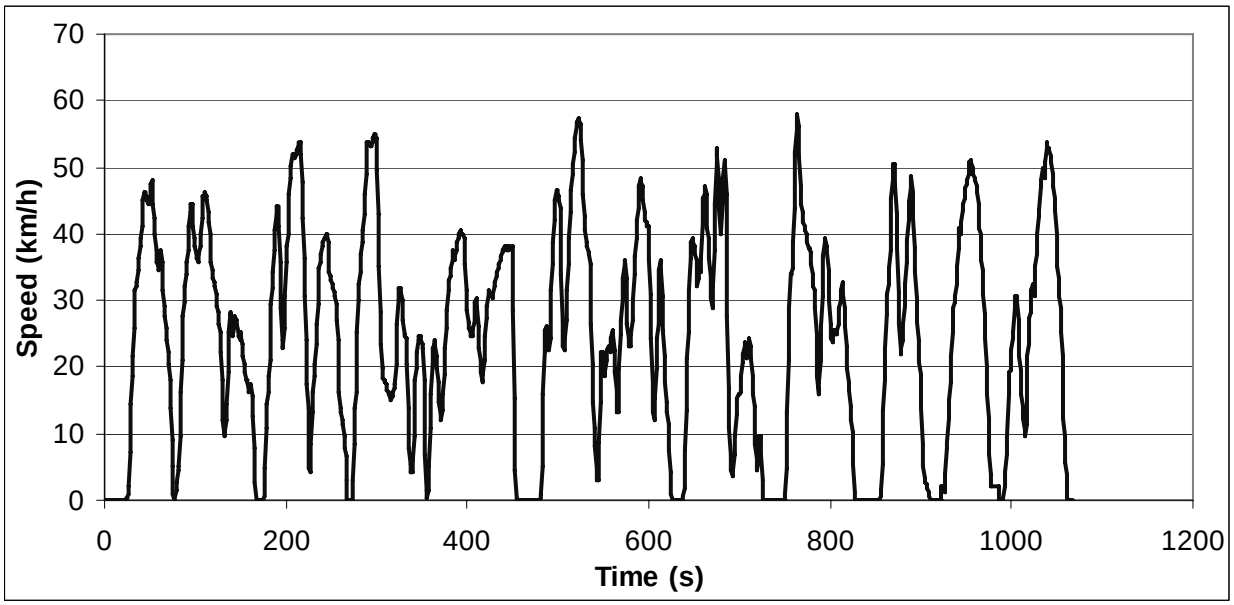


ART.KINEMA parameters

Total distance	5624.31 m	Average negative acceleration	-0.525 m/s^2
Total time	1054 s	Standard deviation of accel.	0.673 m/s^2
Driving time	928 s	Standard dev. of positive accel.	0.385 m/s^2
Drive time	118 s	Accel: 75th - 25th percentile	0.558 m/s^2
Drive time spent accelerating	440 s	Number of accelerations	55
Drive time spent decelerating	370 s	Accelerations per km	9.779 /km
Time spent braking	259 s	Number of stops	12
Standing time	126 s	Stops per km	2.13 /km
% of time driving	88.05 %	Average stop duration	10.5 s
% of cruising	11.20 %	Average distance between stops	468.69 m
% of time accelerating	41.75 %	Relative positive acceleration	0.2176 m/s^2
% of time decelerating	35.10 %	Positive kinetic energy	5.703 m/s^2
% of time braking	24.57 %	Relative positive speed	0.548
% of time standing	11.95 %	Relative real speed	0.747
Average speed (trip)	19.2 km/h	Relative square speed	7.749 m/s
Average driving speed	21.82 km/h	Relative positive square speed	4.276 m/s
Standard deviation of speed	11.52 km/h	Relative real square speed	5.931 m/s
Speed: 75th - 25th percentile	22.63 km/h	Relative cubic speed	65.99 m^2/s^2
Maximum speed	44.76 km/h	Relative positive cubic speed	36.62 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	51.24 m^2/s^2
Average positive acceleration	0.455 m/s^2	Root mean square of acceleration	0.273 m/s^2

Cycle No: 168

Cycle name: **INRETS urbainfluide3**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

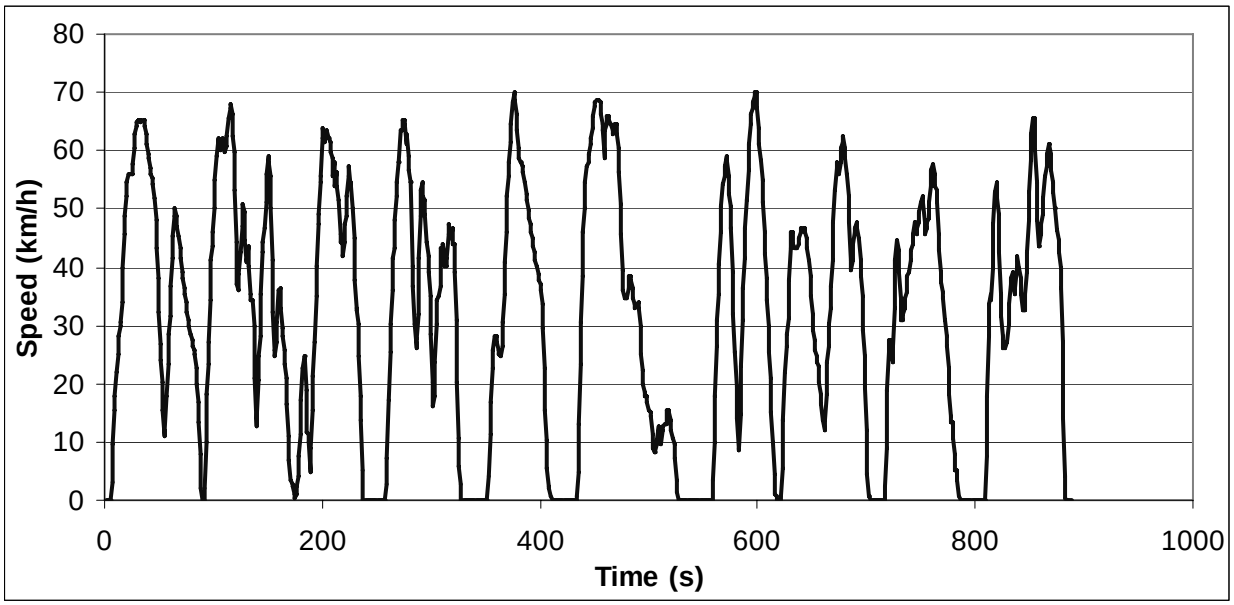


ART.KINEMA parameters

Total distance	7239.13 m	Average negative acceleration	-0.559 m/s^2
Total time	1067 s	Standard deviation of accel.	0.703 m/s^2
Driving time	956 s	Standard dev. of positive accel.	0.411 m/s^2
Drive time	106 s	Accel: 75th - 25th percentile	0.805 m/s^2
Drive time spent accelerating	435 s	Number of accelerations	43
Drive time spent decelerating	415 s	Accelerations per km	5.940 /km
Time spent braking	317 s	Number of stops	9
Standing time	111 s	Stops per km	1.24 /km
% of time driving	89.60 %	Average stop duration	12.33 s
% of cruising	9.93 %	Average distance between stops	804.35 m
% of time accelerating	40.77 %	Relative positive acceleration	0.26 m/s^2
% of time decelerating	38.89 %	Positive kinetic energy	6.814 m/s^2
% of time braking	29.71 %	Relative positive speed	0.524
% of time standing	10.40 %	Relative real speed	0.676
Average speed (trip)	24.4 km/h	Relative square speed	9.839 m/s
Average driving speed	27.26 km/h	Relative positive square speed	5.212 m/s
Standard deviation of speed	14.92 km/h	Relative real square speed	6.798 m/s
Speed: 75th - 25th percentile	27.54 km/h	Relative cubic speed	107.50 m^2/s^2
Maximum speed	57.08 km/h	Relative positive cubic speed	57.30 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	75.55 m^2/s^2
Average positive acceleration	0.527 m/s^2	Root mean square of acceleration	0.255 m/s^2

Cycle No: 169

Cycle name: **INRETS route1**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

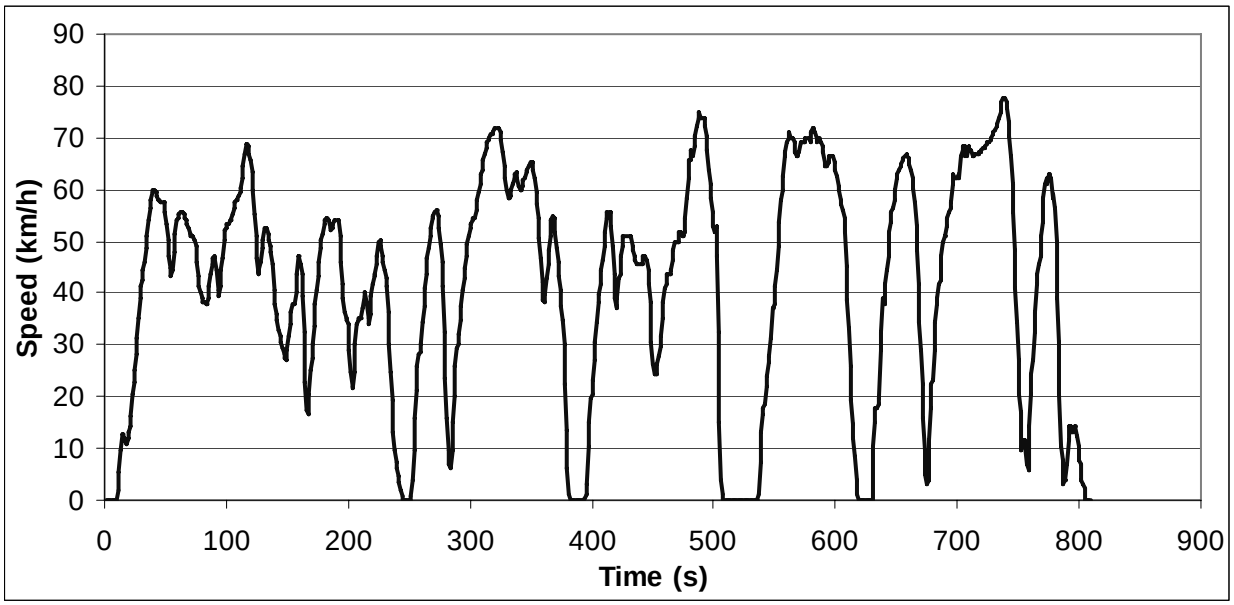


ART.KINEMA parameters

Total distance	7814.57 m	Average negative acceleration	-0.663 m/s^2
Total time	888 s	Standard deviation of accel.	0.909 m/s^2
Driving time	764 s	Standard dev. of positive accel.	0.587 m/s^2
Drive time	55 s	Accel: 75th - 25th percentile	0.894 m/s^2
Drive time spent accelerating	329 s	Number of accelerations	39
Drive time spent decelerating	380 s	Accelerations per km	4.991 /km
Time spent braking	311 s	Number of stops	9
Standing time	124 s	Stops per km	1.15 /km
% of time driving	86.04 %	Average stop duration	13.78 s
% of cruising	6.19 %	Average distance between stops	868.29 m
% of time accelerating	37.05 %	Relative positive acceleration	0.326 m/s^2
% of time decelerating	42.79 %	Positive kinetic energy	8.558 m/s^2
% of time braking	35.02 %	Relative positive speed	0.478
% of time standing	13.96 %	Relative real speed	0.609
Average speed (trip)	31.7 km/h	Relative square speed	12.995 m/s
Average driving speed	36.82 km/h	Relative positive square speed	6.312 m/s
Standard deviation of speed	19.16 km/h	Relative real square speed	8.181 m/s
Speed: 75th - 25th percentile	38.42 km/h	Relative cubic speed	185.09 m^2/s^2
Maximum speed	69.71 km/h	Relative positive cubic speed	90.87 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	119.69 m^2/s^2
Average positive acceleration	0.768 m/s^2	Root mean square of acceleration	0.284 m/s^2

Cycle No: 170

Cycle name: **INRETS route2**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

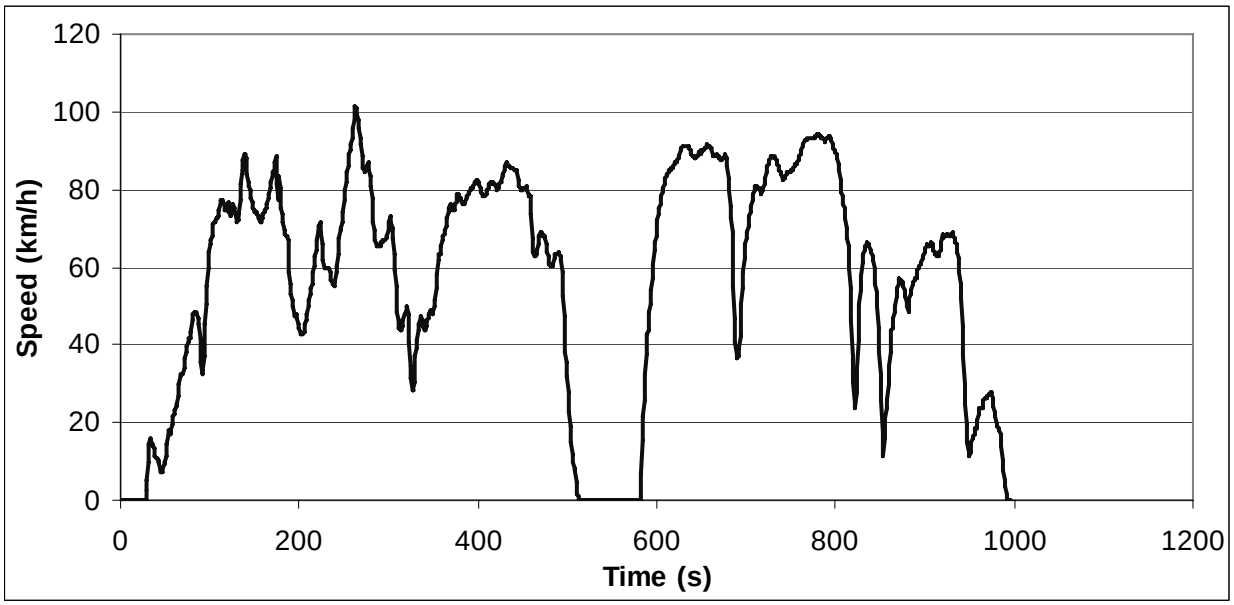


ART.KINEMA parameters

Total distance	9277.58 m	Average negative acceleration	-0.643 m/s^2
Total time	809 s	Standard deviation of accel.	0.746 m/s^2
Driving time	754 s	Standard dev. of positive accel.	0.363 m/s^2
Drive time	84 s	Accel: 75th - 25th percentile	0.740 m/s^2
Drive time spent accelerating	386 s	Number of accelerations	32
Drive time spent decelerating	284 s	Accelerations per km	3.449 /km
Time spent braking	210 s	Number of stops	6
Standing time	55 s	Stops per km	0.65 /km
% of time driving	93.20 %	Average stop duration	9.17 s
% of cruising	10.38 %	Average distance between stops	1546.26 m
% of time accelerating	47.71 %	Relative positive acceleration	0.2304 m/s^2
% of time decelerating	35.11 %	Positive kinetic energy	6.019 m/s^2
% of time braking	25.96 %	Relative positive speed	0.586
% of time standing	6.80 %	Relative real speed	0.745
Average speed (trip)	41.3 km/h	Relative square speed	14.832 m/s
Average driving speed	44.3 km/h	Relative positive square speed	8.693 m/s
Standard deviation of speed	20.09 km/h	Relative real square speed	11.291 m/s
Speed: 75th - 25th percentile	33.66 km/h	Relative cubic speed	236.22 m^2/s^2
Maximum speed	77.68 km/h	Relative positive cubic speed	138.52 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	182.82 m^2/s^2
Average positive acceleration	0.472 m/s^2	Root mean square of acceleration	0.213 m/s^2

Cycle No: 171

Cycle name: **INRETS route3**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

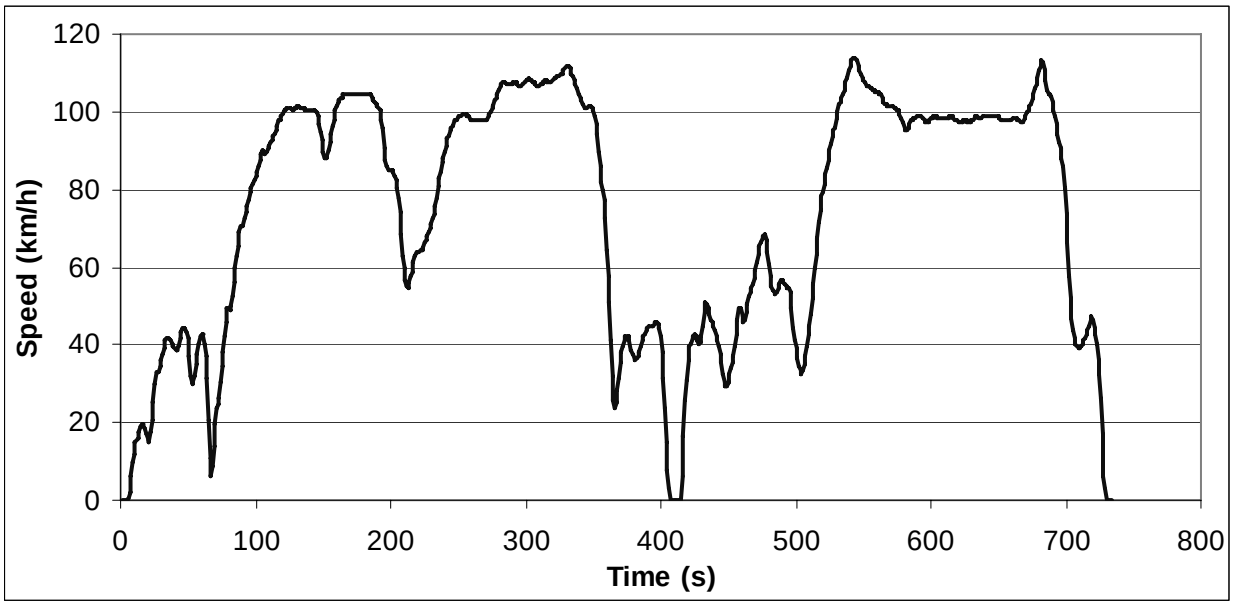


ART.KINEMA parameters

Total distance	15694.63 m	Average negative acceleration	-0.395 m/s^2
Total time	996 s	Standard deviation of accel.	0.519 m/s^2
Driving time	907 s	Standard dev. of positive accel.	0.327 m/s^2
Drive time	166 s	Accel: 75th - 25th percentile	0.362 m/s^2
Drive time spent accelerating	415 s	Number of accelerations	39
Drive time spent decelerating	326 s	Accelerations per km	2.485 /km
Time spent braking	184 s	Number of stops	3
Standing time	89 s	Stops per km	0.19 /km
% of time driving	91.06 %	Average stop duration	29.67 s
% of cruising	16.67 %	Average distance between stops	5231.54 m
% of time accelerating	41.67 %	Relative positive acceleration	0.1492 m/s^2
% of time decelerating	32.73 %	Positive kinetic energy	3.893 m/s^2
% of time braking	18.47 %	Relative positive speed	0.564
% of time standing	8.94 %	Relative real speed	0.822
Average speed (trip)	56.7 km/h	Relative square speed	19.998 m/s
Average driving speed	62.29 km/h	Relative positive square speed	11.239 m/s
Standard deviation of speed	24.59 km/h	Relative real square speed	16.756 m/s
Speed: 75th - 25th percentile	42.4 km/h	Relative cubic speed	424.36 m^2/s^2
Maximum speed	100.85 km/h	Relative positive cubic speed	237.88 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	360.46 m^2/s^2
Average positive acceleration	0.312 m/s^2	Root mean square of acceleration	0.125 m/s^2

Cycle No: 172

Cycle name: **INRETS autoroute1**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

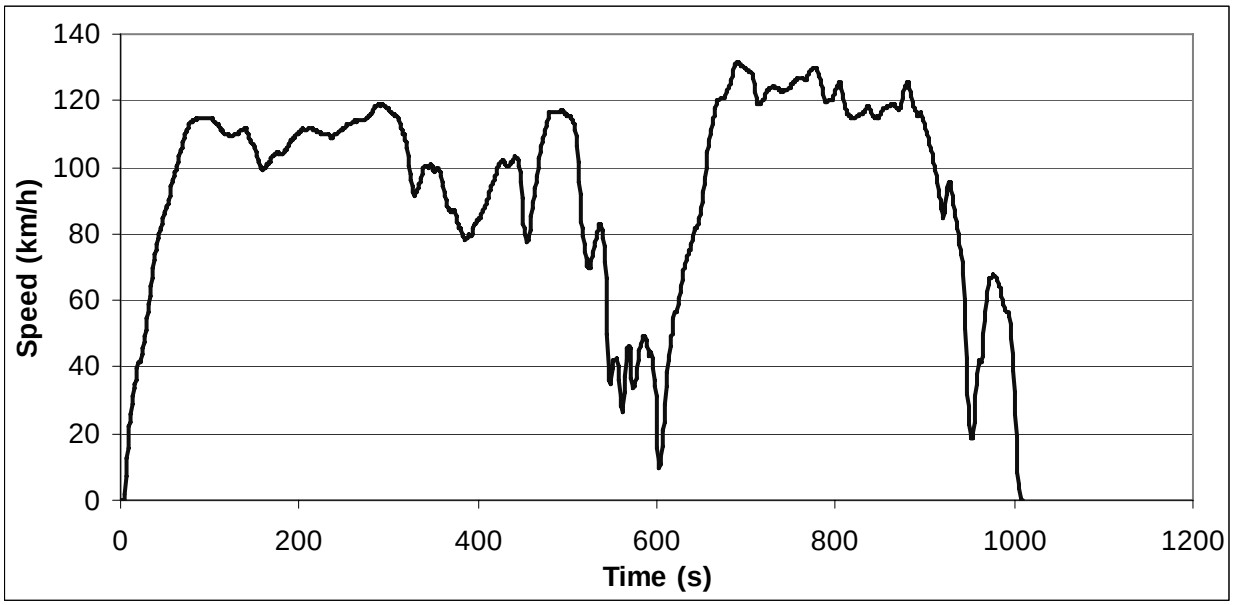


ART.KINEMA parameters

Total distance	15126.8 m	Average negative acceleration	-0.396 m/s^2
Total time	734 s	Standard deviation of accel.	0.553 m/s^2
Driving time	724 s	Standard dev. of positive accel.	0.322 m/s^2
Drive time	190 s	Accel: 75th - 25th percentile	0.387 m/s^2
Drive time spent accelerating	306 s	Number of accelerations	27
Drive time spent decelerating	228 s	Accelerations per km	1.785 /km
Time spent braking	134 s	Number of stops	3
Standing time	10 s	Stops per km	0.2 /km
% of time driving	98.64 %	Average stop duration	3.33 s
% of cruising	25.89 %	Average distance between stops	5042.27 m
% of time accelerating	41.69 %	Relative positive acceleration	0.1326 m/s^2
% of time decelerating	31.06 %	Positive kinetic energy	3.464 m/s^2
% of time braking	18.26 %	Relative positive speed	0.546
% of time standing	1.36 %	Relative real speed	0.845
Average speed (trip)	74.2 km/h	Relative square speed	24.454 m/s
Average driving speed	75.22 km/h	Relative positive square speed	13.082 m/s
Standard deviation of speed	31.07 km/h	Relative real square speed	21.087 m/s
Speed: 75th - 25th percentile	56.81 km/h	Relative cubic speed	640.96 m^2/s^2
Maximum speed	113.97 km/h	Relative positive cubic speed	337.84 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	559.19 m^2/s^2
Average positive acceleration	0.311 m/s^2	Root mean square of acceleration	0.121 m/s^2

Cycle No: 173

Cycle name: **INRETS autoroute2**
Alternative name:
Test programme: **INRETS driving cycles**
Additional info:
Vehicle category: **Cars**

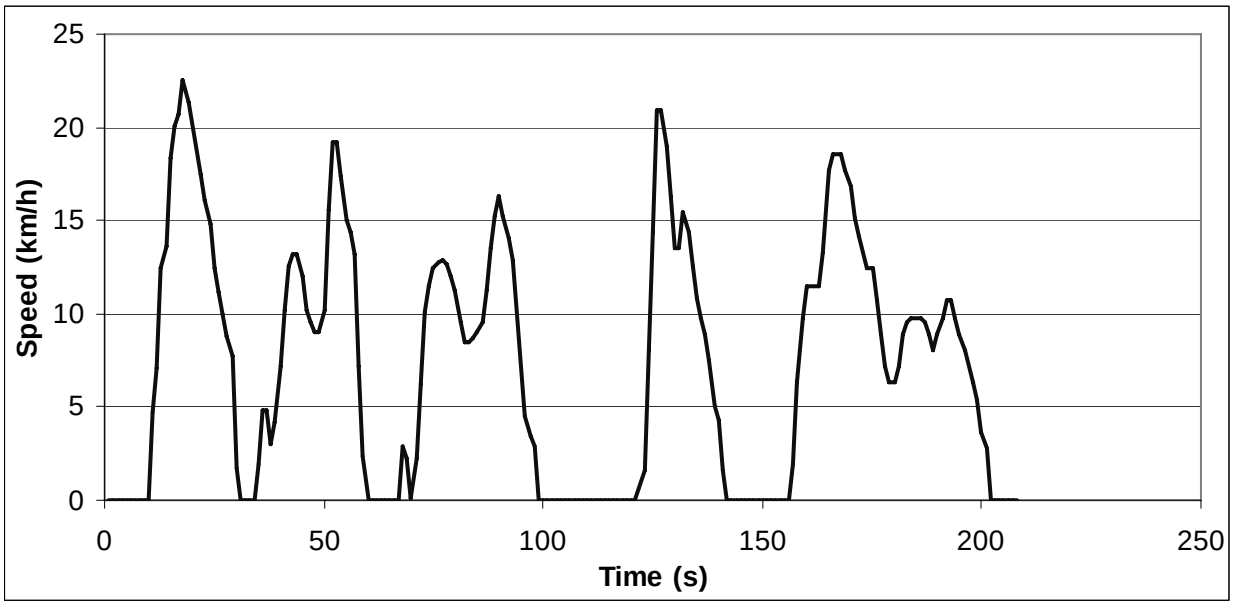


ART.KINEMA parameters

Total distance	26489.33 m	Average negative acceleration	-0.317 m/s^2
Total time	1009 s	Standard deviation of accel.	0.430 m/s^2
Driving time	1007 s	Standard dev. of positive accel.	0.250 m/s^2
Drive time	284 s	Accel: 75th - 25th percentile	0.265 m/s^2
Drive time spent accelerating	415 s	Number of accelerations	31
Drive time spent decelerating	308 s	Accelerations per km	1.170 /km
Time spent braking	155 s	Number of stops	1
Standing time	2 s	Stops per km	0.04 /km
% of time driving	99.80 %	Average stop duration	2 s
% of cruising	28.15 %	Average distance between stops	26489.33 m
% of time accelerating	41.13 %	Relative positive acceleration	0.1017 m/s^2
% of time decelerating	30.53 %	Positive kinetic energy	2.650 m/s^2
% of time braking	15.36 %	Relative positive speed	0.554
% of time standing	0.20 %	Relative real speed	0.872
Average speed (trip)	94.5 km/h	Relative square speed	28.905 m/s
Average driving speed	94.7 km/h	Relative positive square speed	15.821 m/s
Standard deviation of speed	29.78 km/h	Relative real square speed	25.595 m/s
Speed: 75th - 25th percentile	35.3 km/h	Relative cubic speed	871.89 m^2/s^2
Maximum speed	131.5 km/h	Relative positive cubic speed	472.96 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	779.99 m^2/s^2
Average positive acceleration	0.238 m/s^2	Root mean square of acceleration	0.084 m/s^2

Cycle No: 174

Cycle name: **INRETS urbainlentcourt**
Alternative name:
Test programme: **INRETS short cycles (cold start)**
Additional info:
Vehicle category: **Cars**

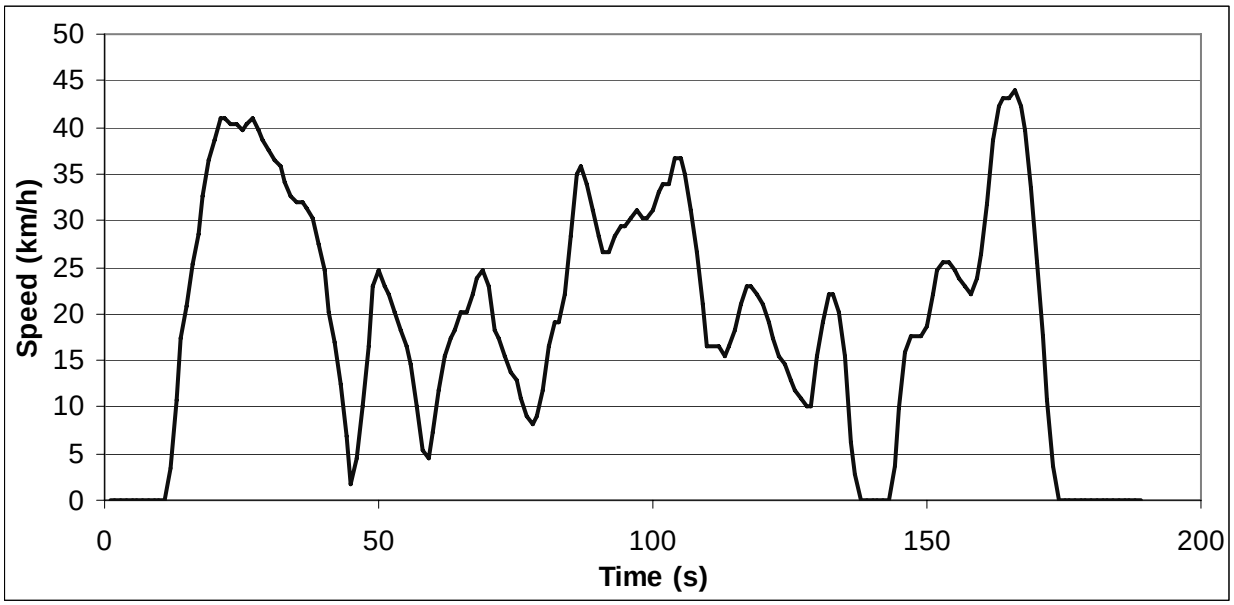


ART.KINEMA parameters

Total distance	421.5 m	Average negative acceleration	-0.297 m/s^2
Total time	208 s	Standard deviation of accel.	0.413 m/s^2
Driving time	171 s	Standard dev. of positive accel.	0.298 m/s^2
Drive time	28 s	Accel: 75th - 25th percentile	0.435 m/s^2
Drive time spent accelerating	65 s	Number of accelerations	9
Drive time spent decelerating	78 s	Accelerations per km	21.352 /km
Time spent braking	53 s	Number of stops	5
Standing time	37 s	Stops per km	11.86 /km
% of time driving	82.21 %	Average stop duration	7.4 s
% of cruising	13.46 %	Average distance between stops	84.3 m
% of time accelerating	31.25 %	Relative positive acceleration	0.1677 m/s^2
% of time decelerating	37.50 %	Positive kinetic energy	4.392 m/s^2
% of time braking	25.48 %	Relative positive speed	0.437
% of time standing	17.79 %	Relative real speed	0.664
Average speed (trip)	7.3 km/h	Relative square speed	3.542 m/s
Average driving speed	8.87 km/h	Relative positive square speed	1.523 m/s
Standard deviation of speed	5.88 km/h	Relative real square speed	2.391 m/s
Speed: 75th - 25th percentile	11.93 km/h	Relative cubic speed	14.08 m^2/s^2
Maximum speed	21.2 km/h	Relative positive cubic speed	5.99 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	9.64 m^2/s^2
Average positive acceleration	0.354 m/s^2	Root mean square of acceleration	0.263 m/s^2

Cycle No: 175

Cycle name: **INRETS urbainfluidecourt**
Alternative name:
Test programme: **INRETS short cycles (cold start)**
Additional info:
Vehicle category: **Cars**

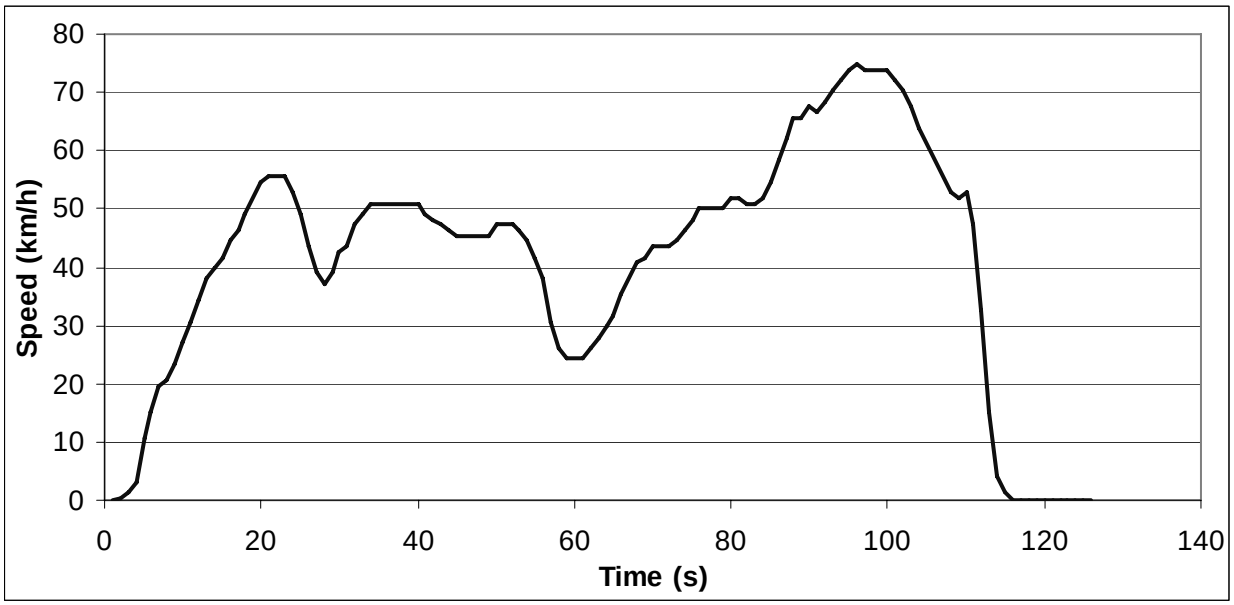


ART.KINEMA parameters

Total distance	1003.37 m	Average negative acceleration	-0.526 m/s^2
Total time	189 s	Standard deviation of accel.	0.696 m/s^2
Driving time	168 s	Standard dev. of positive accel.	0.403 m/s^2
Drive time	20 s	Accel: 75th - 25th percentile	0.662 m/s^2
Drive time spent accelerating	75 s	Number of accelerations	9
Drive time spent decelerating	73 s	Accelerations per km	8.970 /km
Time spent braking	55 s	Number of stops	2
Standing time	21 s	Stops per km	1.99 /km
% of time driving	88.89 %	Average stop duration	10.5 s
% of cruising	10.58 %	Average distance between stops	501.69 m
% of time accelerating	39.68 %	Relative positive acceleration	0.2499 m/s^2
% of time decelerating	38.62 %	Positive kinetic energy	6.555 m/s^2
% of time braking	29.10 %	Relative positive speed	0.488
% of time standing	11.11 %	Relative real speed	0.682
Average speed (trip)	19.1 km/h	Relative square speed	7.615 m/s
Average driving speed	21.5 km/h	Relative positive square speed	3.634 m/s
Standard deviation of speed	11.31 km/h	Relative real square speed	5.306 m/s
Speed: 75th - 25th percentile	19.42 km/h	Relative cubic speed	65.14 m^2/s^2
Maximum speed	43.9 km/h	Relative positive cubic speed	30.38 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	45.92 m^2/s^2
Average positive acceleration	0.539 m/s^2	Root mean square of acceleration	0.284 m/s^2

Cycle No: 176

Cycle name: **INRETS routecourt (old version)**
Alternative name: **INRETS-COURT.route**
Test programme: **INRETS short cycles (cold start)**
Additional info:
Vehicle category: **Cars**

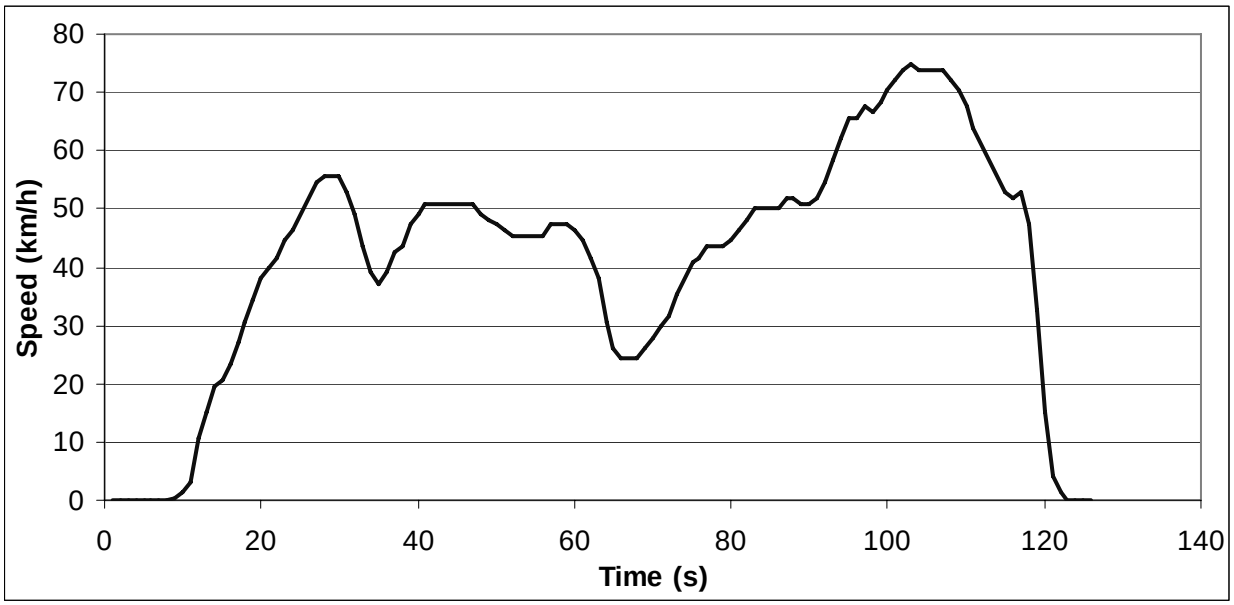


ART.KINEMA parameters

Total distance	1438.69 m	Average negative acceleration	-0.710 m/s^2
Total time	126 s	Standard deviation of accel.	0.780 m/s^2
Driving time	117 s	Standard dev. of positive accel.	0.311 m/s^2
Drive time	12 s	Accel: 75th - 25th percentile	0.687 m/s^2
Drive time spent accelerating	65 s	Number of accelerations	5
Drive time spent decelerating	40 s	Accelerations per km	3.475 /km
Time spent braking	32 s	Number of stops	1
Standing time	9 s	Stops per km	0.7 /km
% of time driving	92.86 %	Average stop duration	9 s
% of cruising	9.52 %	Average distance between stops	1438.69 m
% of time accelerating	51.59 %	Relative positive acceleration	0.2443 m/s^2
% of time decelerating	31.75 %	Positive kinetic energy	6.355 m/s^2
% of time braking	25.40 %	Relative positive speed	0.600
% of time standing	7.14 %	Relative real speed	0.727
Average speed (trip)	41.1 km/h	Relative square speed	14.256 m/s
Average driving speed	44.27 km/h	Relative positive square speed	8.431 m/s
Standard deviation of speed	17.75 km/h	Relative real square speed	10.310 m/s
Speed: 75th - 25th percentile	21.69 km/h	Relative cubic speed	217.06 m^2/s^2
Maximum speed	74.16 km/h	Relative positive cubic speed	126.78 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	156.19 m^2/s^2
Average positive acceleration	0.461 m/s^2	Root mean square of acceleration	0.221 m/s^2

Cycle No: 177

Cycle name: **INRETS routecourt**
Alternative name: **INRETS route court 2001**
Test programme: **INRETS short cycles (cold start)**
Additional info:
Vehicle category: **Cars**

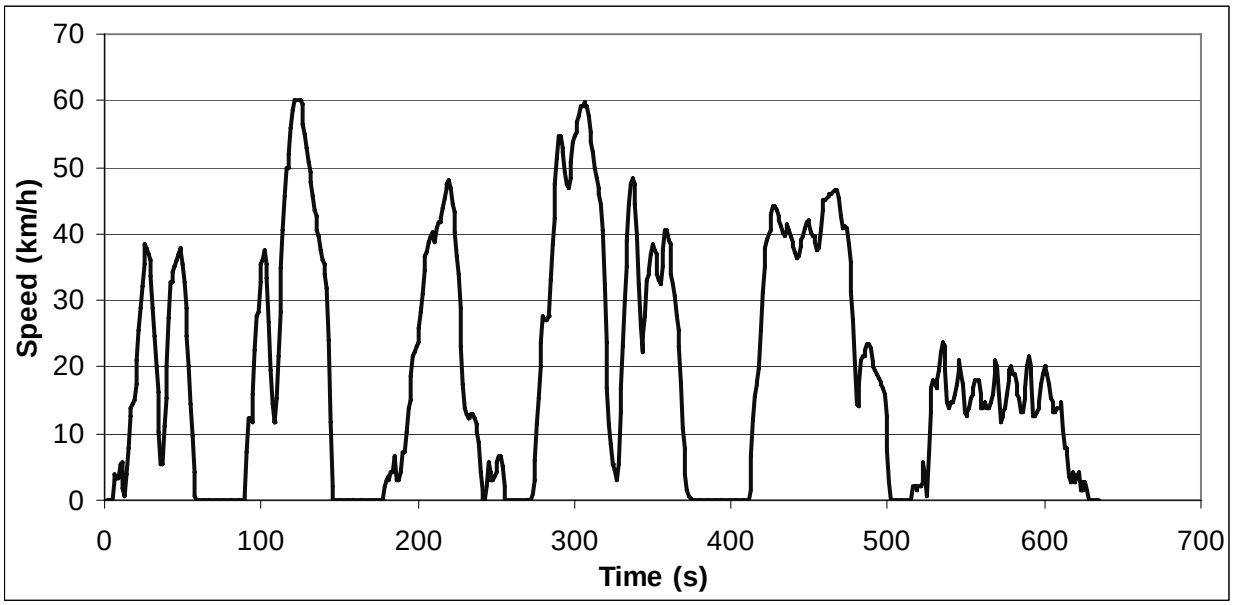


ART.KINEMA parameters

Total distance	1438.7 m	Average negative acceleration	-0.710 m/s^2
Total time	126 s	Standard deviation of accel.	0.779 m/s^2
Driving time	117 s	Standard dev. of positive accel.	0.312 m/s^2
Drive time	12 s	Accel: 75th - 25th percentile	0.687 m/s^2
Drive time spent accelerating	65 s	Number of accelerations	5
Drive time spent decelerating	40 s	Accelerations per km	3.475 /km
Time spent braking	32 s	Number of stops	2
Standing time	9 s	Stops per km	1.39 /km
% of time driving	92.86 %	Average stop duration	4.5 s
% of cruising	9.52 %	Average distance between stops	719.35 m
% of time accelerating	51.59 %	Relative positive acceleration	0.2443 m/s^2
% of time decelerating	31.75 %	Positive kinetic energy	6.355 m/s^2
% of time braking	25.40 %	Relative positive speed	0.600
% of time standing	7.14 %	Relative real speed	0.727
Average speed (trip)	41.1 km/h	Relative square speed	14.256 m/s
Average driving speed	44.27 km/h	Relative positive square speed	8.431 m/s
Standard deviation of speed	17.75 km/h	Relative real square speed	10.310 m/s
Speed: 75th - 25th percentile	21.69 km/h	Relative cubic speed	217.06 m^2/s^2
Maximum speed	74.16 km/h	Relative positive cubic speed	126.77 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	156.19 m^2/s^2
Average positive acceleration	0.460 m/s^2	Root mean square of acceleration	0.221 m/s^2

Cycle No: 178

Cycle name: **MODEM urban1**
Alternative name: **MODEM1**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

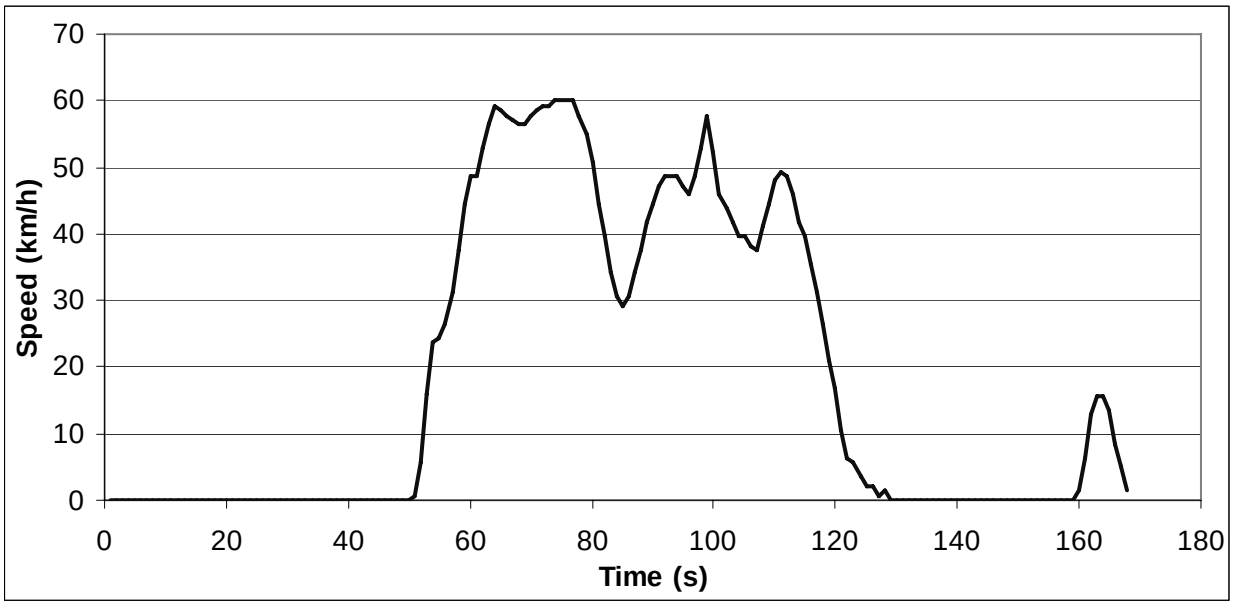


ART.KINEMA parameters

Total distance	3451.8 m	Average negative acceleration	-0.468 m/s^2
Total time	635 s	Standard deviation of accel.	0.628 m/s^2
Driving time	527 s	Standard dev. of positive accel.	0.407 m/s^2
Drive time	80 s	Accel: 75th - 25th percentile	0.447 m/s^2
Drive time spent accelerating	234 s	Number of accelerations	25
Drive time spent decelerating	213 s	Accelerations per km	7.243 /km
Time spent braking	145 s	Number of stops	6
Standing time	108 s	Stops per km	1.74 /km
% of time driving	82.99 %	Average stop duration	18 s
% of cruising	12.60 %	Average distance between stops	575.3 m
% of time accelerating	36.85 %	Relative positive acceleration	0.2379 m/s^2
% of time decelerating	33.54 %	Positive kinetic energy	6.230 m/s^2
% of time braking	22.83 %	Relative positive speed	0.504
% of time standing	17.01 %	Relative real speed	0.701
Average speed (trip)	19.6 km/h	Relative square speed	9.872 m/s
Average driving speed	23.58 km/h	Relative positive square speed	4.914 m/s
Standard deviation of speed	16.81 km/h	Relative real square speed	6.906 m/s
Speed: 75th - 25th percentile	33.83 km/h	Relative cubic speed	113.16 m^2/s^2
Maximum speed	60.3 km/h	Relative positive cubic speed	55.80 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	79.02 m^2/s^2
Average positive acceleration	0.439 m/s^2	Root mean square of acceleration	0.245 m/s^2

Cycle No: 179

Cycle name: **MODEM urban2**
Alternative name: **MODEM2**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

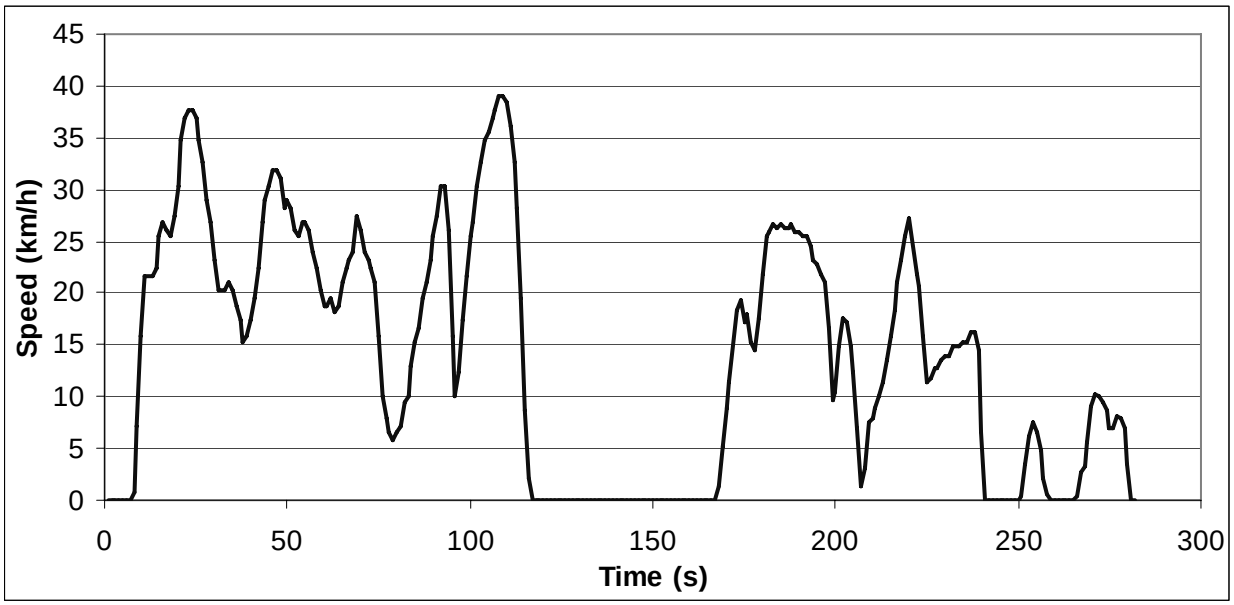


ART.KINEMA parameters

Total distance	877 m	Average negative acceleration	-0.632 m/s^2
Total time	168 s	Standard deviation of accel.	0.775 m/s^2
Driving time	95 s	Standard dev. of positive accel.	0.481 m/s^2
Drive time	12 s	Accel: 75th - 25th percentile	0.107 m/s^2
Drive time spent accelerating	44 s	Number of accelerations	6
Drive time spent decelerating	39 s	Accelerations per km	6.842 /km
Time spent braking	29 s	Number of stops	2
Standing time	73 s	Stops per km	2.28 /km
% of time driving	56.55 %	Average stop duration	36.5 s
% of cruising	7.14 %	Average distance between stops	438.5 m
% of time accelerating	26.19 %	Relative positive acceleration	0.2714 m/s^2
% of time decelerating	23.21 %	Positive kinetic energy	7.099 m/s^2
% of time braking	17.26 %	Relative positive speed	0.578
% of time standing	43.45 %	Relative real speed	0.711
Average speed (trip)	18.8 km/h	Relative square speed	12.781 m/s
Average driving speed	33.23 km/h	Relative positive square speed	7.595 m/s
Standard deviation of speed	20.71 km/h	Relative real square speed	9.447 m/s
Speed: 75th - 25th percentile	41.72 km/h	Relative cubic speed	175.14 m^2/s^2
Maximum speed	60.14 km/h	Relative positive cubic speed	105.67 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	132.98 m^2/s^2
Average positive acceleration	0.565 m/s^2	Root mean square of acceleration	0.254 m/s^2

Cycle No: 180

Cycle name: **MODEM urban3**
Alternative name: **MODEM3**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

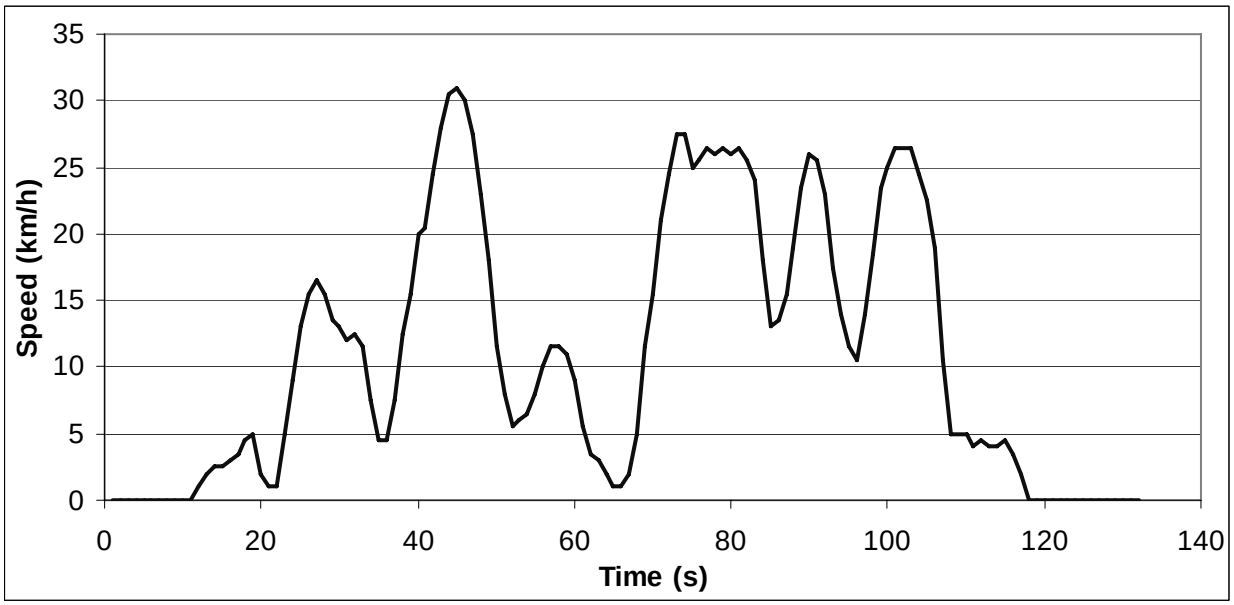


ART.KINEMA parameters

Total distance	1087.76 m	Average negative acceleration	-0.410 m/s^2
Total time	282 s	Standard deviation of accel.	0.540 m/s^2
Driving time	227 s	Standard dev. of positive accel.	0.301 m/s^2
Drive time	29 s	Accel: 75th - 25th percentile	0.431 m/s^2
Drive time spent accelerating	103 s	Number of accelerations	11
Drive time spent decelerating	95 s	Accelerations per km	10.113 /km
Time spent braking	63 s	Number of stops	4
Standing time	55 s	Stops per km	3.68 /km
% of time driving	80.50 %	Average stop duration	13.75 s
% of cruising	10.28 %	Average distance between stops	271.94 m
% of time accelerating	36.52 %	Relative positive acceleration	0.2045 m/s^2
% of time decelerating	33.69 %	Positive kinetic energy	5.353 m/s^2
% of time braking	22.34 %	Relative positive speed	0.494
% of time standing	19.50 %	Relative real speed	0.718
Average speed (trip)	13.9 km/h	Relative square speed	6.469 m/s
Average driving speed	17.25 km/h	Relative positive square speed	3.169 m/s
Standard deviation of speed	10.23 km/h	Relative real square speed	4.649 m/s
Speed: 75th - 25th percentile	23.29 km/h	Relative cubic speed	47.05 m^2/s^2
Maximum speed	38.7 km/h	Relative positive cubic speed	23.06 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	33.79 m^2/s^2
Average positive acceleration	0.397 m/s^2	Root mean square of acceleration	0.246 m/s^2

Cycle No: 181

Cycle name: **MODEM urban4**
Alternative name: **MODEM4**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

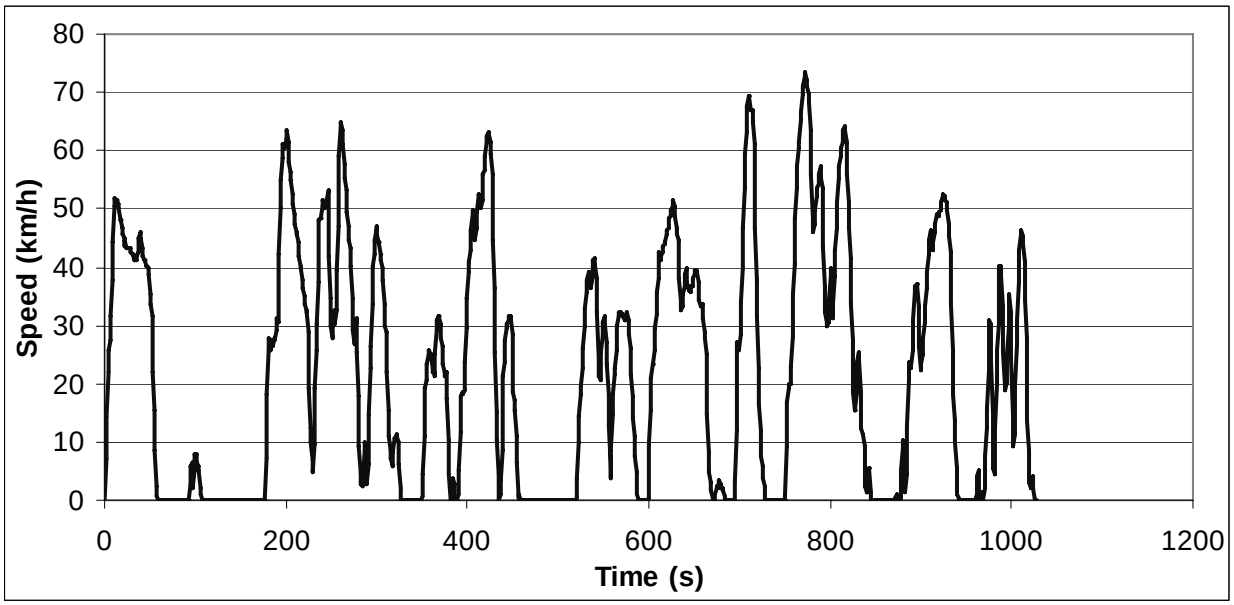


ART.KINEMA parameters

Total distance	407.15 m	Average negative acceleration	-0.389 m/s^2
Total time	132 s	Standard deviation of accel.	0.578 m/s^2
Driving time	114 s	Standard dev. of positive accel.	0.393 m/s^2
Drive time	21 s	Accel: 75th - 25th percentile	0.434 m/s^2
Drive time spent accelerating	46 s	Number of accelerations	7
Drive time spent decelerating	47 s	Accelerations per km	17.193 /km
Time spent braking	33 s	Number of stops	2
Standing time	18 s	Stops per km	4.91 /km
% of time driving	86.36 %	Average stop duration	9 s
% of cruising	15.91 %	Average distance between stops	203.58 m
% of time accelerating	34.85 %	Relative positive acceleration	0.2471 m/s^2
% of time decelerating	35.61 %	Positive kinetic energy	6.513 m/s^2
% of time braking	25.00 %	Relative positive speed	0.452
% of time standing	13.64 %	Relative real speed	0.666
Average speed (trip)	11.1 km/h	Relative square speed	5.392 m/s
Average driving speed	12.86 km/h	Relative positive square speed	2.402 m/s
Standard deviation of speed	9.22 km/h	Relative real square speed	3.646 m/s
Speed: 75th - 25th percentile	16.38 km/h	Relative cubic speed	33.48 m^2/s^2
Maximum speed	30.14 km/h	Relative positive cubic speed	14.60 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	23.10 m^2/s^2
Average positive acceleration	0.463 m/s^2	Root mean square of acceleration	0.305 m/s^2

Cycle No: 182

Cycle name: **MODEM urban5**
Alternative name: **MODEM5**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

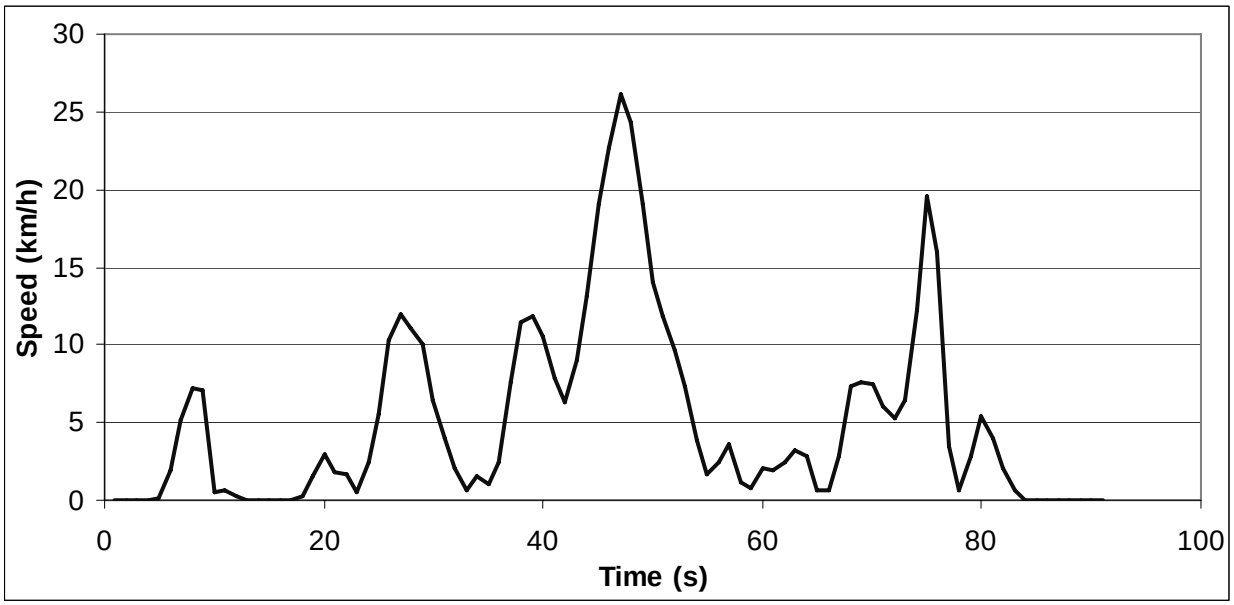


ART.KINEMA parameters

Total distance	6339.21 m	Average negative acceleration	-0.599 m/s^2
Total time	1027 s	Standard deviation of accel.	0.810 m/s^2
Driving time	794 s	Standard dev. of positive accel.	0.530 m/s^2
Drive time	102 s	Accel: 75th - 25th percentile	0.476 m/s^2
Drive time spent accelerating	351 s	Number of accelerations	40
Drive time spent decelerating	341 s	Accelerations per km	6.310 /km
Time spent braking	255 s	Number of stops	9
Standing time	233 s	Stops per km	1.42 /km
% of time driving	77.31 %	Average stop duration	25.89 s
% of cruising	9.93 %	Average distance between stops	704.36 m
% of time accelerating	34.18 %	Relative positive acceleration	0.2986 m/s^2
% of time decelerating	33.20 %	Positive kinetic energy	7.818 m/s^2
% of time braking	24.83 %	Relative positive speed	0.510
% of time standing	22.69 %	Relative real speed	0.669
Average speed (trip)	22.2 km/h	Relative square speed	11.546 m/s
Average driving speed	28.74 km/h	Relative positive square speed	5.911 m/s
Standard deviation of speed	19.21 km/h	Relative real square speed	7.866 m/s
Speed: 75th - 25th percentile	39.47 km/h	Relative cubic speed	150.51 m^2/s^2
Maximum speed	72.74 km/h	Relative positive cubic speed	77.41 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	103.82 m^2/s^2
Average positive acceleration	0.599 m/s^2	Root mean square of acceleration	0.287 m/s^2

Cycle No: 183

Cycle name: **MODEM urban6**
Alternative name: **MODEM6**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

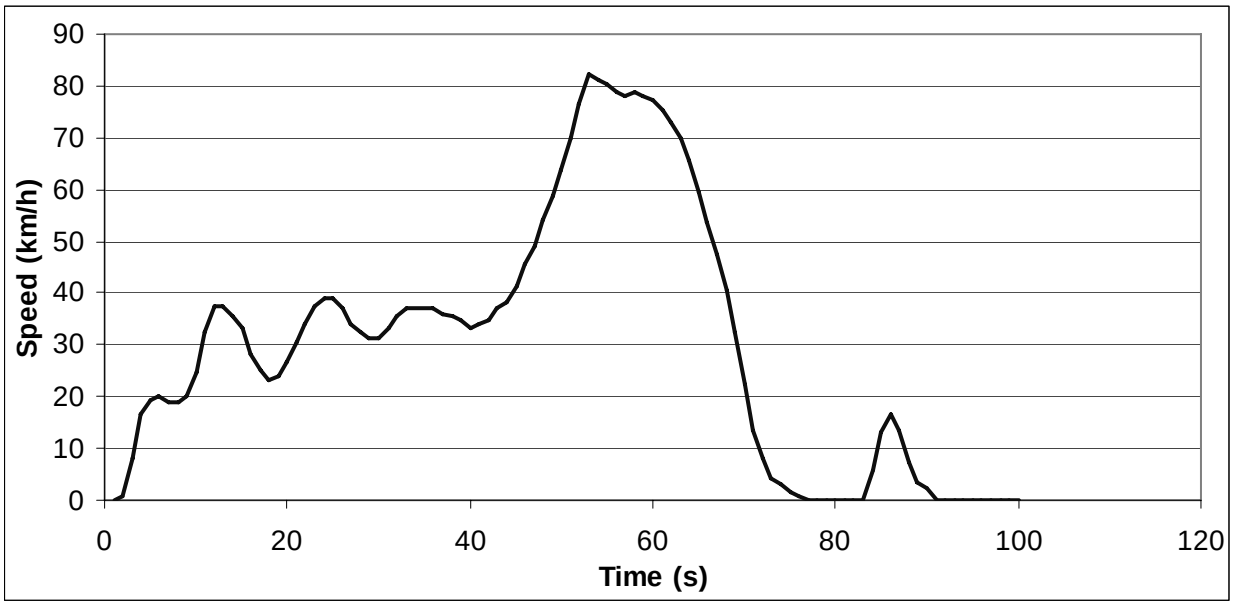


ART.KINEMA parameters

Total distance	128.98 m	Average negative acceleration	-0.332 m/s^2
Total time	91 s	Standard deviation of accel.	0.396 m/s^2
Driving time	85 s	Standard dev. of positive accel.	0.253 m/s^2
Drive time	18 s	Accel: 75th - 25th percentile	0.386 m/s^2
Drive time spent accelerating	36 s	Number of accelerations	6
Drive time spent decelerating	31 s	Accelerations per km	46.518 /km
Time spent braking	18 s	Number of stops	1
Standing time	6 s	Stops per km	7.75 /km
% of time driving	93.41 %	Average stop duration	6 s
% of cruising	19.78 %	Average distance between stops	128.98 m
% of time accelerating	39.56 %	Relative positive acceleration	0.2162 m/s^2
% of time decelerating	34.07 %	Positive kinetic energy	5.781 m/s^2
% of time braking	19.78 %	Relative positive speed	0.567
% of time standing	6.59 %	Relative real speed	0.681
Average speed (trip)	5.1 km/h	Relative square speed	2.999 m/s
Average driving speed	5.46 km/h	Relative positive square speed	1.698 m/s
Standard deviation of speed	5.43 km/h	Relative real square speed	1.912 m/s
Speed: 75th - 25th percentile	6.78 km/h	Relative cubic speed	12.23 m^2/s^2
Maximum speed	22.62 km/h	Relative positive cubic speed	6.97 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	7.51 m^2/s^2
Average positive acceleration	0.256 m/s^2	Root mean square of acceleration	0.320 m/s^2

Cycle No: 184

Cycle name: **MODEM urban7**
Alternative name: **MODEM7**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

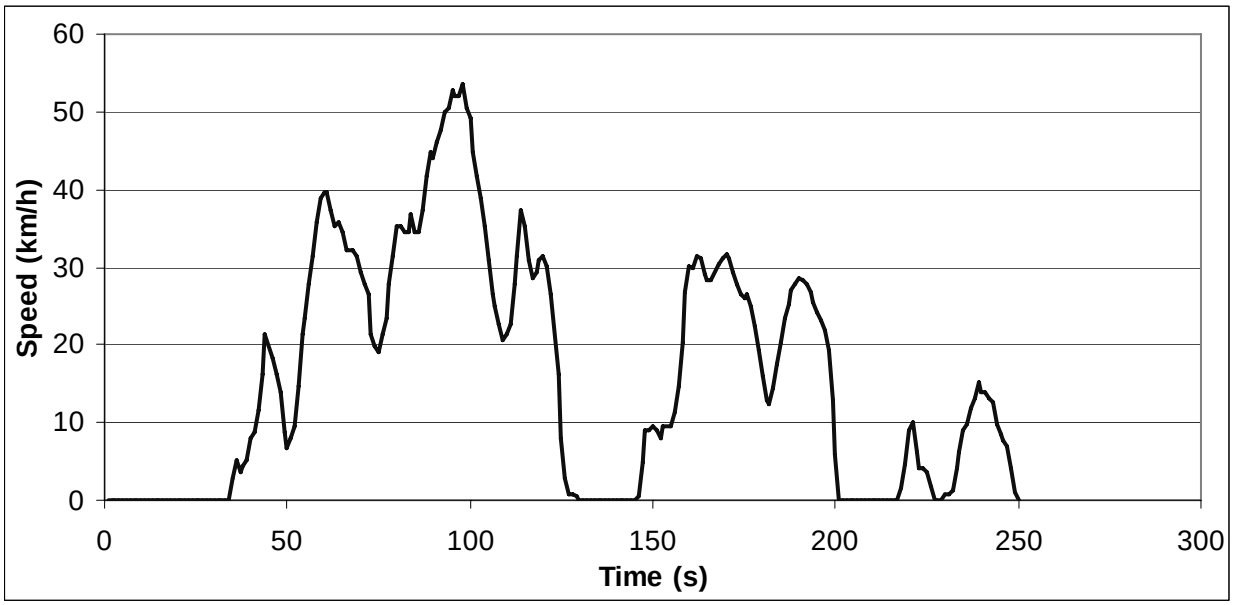


ART.KINEMA parameters

Total distance	840.56 m	Average negative acceleration	-0.641 m/s^2
Total time	100 s	Standard deviation of accel.	0.887 m/s^2
Driving time	92 s	Standard dev. of positive accel.	0.473 m/s^2
Drive time	9 s	Accel: 75th - 25th percentile	0.879 m/s^2
Drive time spent accelerating	42 s	Number of accelerations	5
Drive time spent decelerating	41 s	Accelerations per km	5.948 /km
Time spent braking	28 s	Number of stops	2
Standing time	8 s	Stops per km	2.38 /km
% of time driving	92.00 %	Average stop duration	4 s
% of cruising	9.00 %	Average distance between stops	420.28 m
% of time accelerating	42.00 %	Relative positive acceleration	0.3514 m/s^2
% of time decelerating	41.00 %	Positive kinetic energy	9.176 m/s^2
% of time braking	28.00 %	Relative positive speed	0.468
% of time standing	8.00 %	Relative real speed	0.702
Average speed (trip)	30.3 km/h	Relative square speed	13.977 m/s
Average driving speed	32.89 km/h	Relative positive square speed	5.897 m/s
Standard deviation of speed	24.07 km/h	Relative real square speed	9.763 m/s
Speed: 75th - 25th percentile	32.08 km/h	Relative cubic speed	231.47 m^2/s^2
Maximum speed	80.1 km/h	Relative positive cubic speed	88.84 m^2/s^2
Average acceleration	0.007 m/s^2	Relative real cubic speed	161.85 m^2/s^2
Average positive acceleration	0.684 m/s^2	Root mean square of acceleration	0.292 m/s^2

Cycle No: 185

Cycle name: **MODEM urban8**
Alternative name: **MODEM8**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

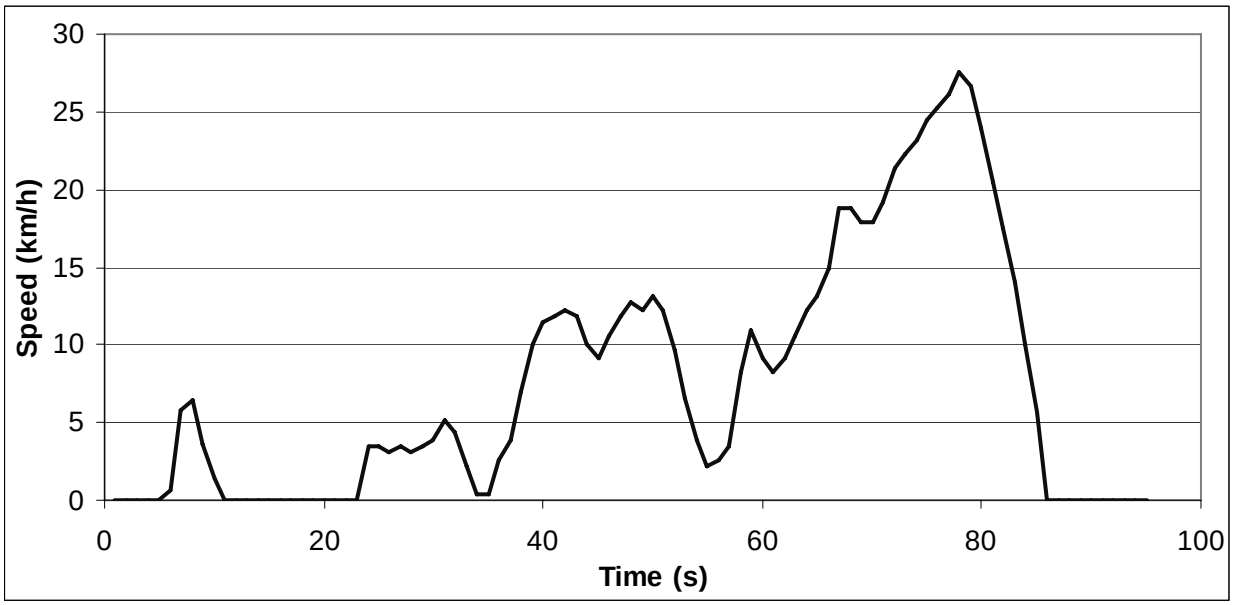


ART.KINEMA parameters

Total distance	1106.71 m	Average negative acceleration	-0.428 m/s^2
Total time	250 s	Standard deviation of accel.	0.563 m/s^2
Driving time	200 s	Standard dev. of positive accel.	0.341 m/s^2
Drive time	29 s	Accel: 75th - 25th percentile	0.488 m/s^2
Drive time spent accelerating	86 s	Number of accelerations	11
Drive time spent decelerating	85 s	Accelerations per km	9.939 /km
Time spent braking	61 s	Number of stops	3
Standing time	50 s	Stops per km	2.71 /km
% of time driving	80.00 %	Average stop duration	16.67 s
% of cruising	11.60 %	Average distance between stops	368.9 m
% of time accelerating	34.40 %	Relative positive acceleration	0.2232 m/s^2
% of time decelerating	34.00 %	Positive kinetic energy	5.850 m/s^2
% of time braking	24.40 %	Relative positive speed	0.477
% of time standing	20.00 %	Relative real speed	0.691
Average speed (trip)	15.9 km/h	Relative square speed	8.351 m/s
Average driving speed	19.92 km/h	Relative positive square speed	4.030 m/s
Standard deviation of speed	14.25 km/h	Relative real square speed	5.933 m/s
Speed: 75th - 25th percentile	28.34 km/h	Relative cubic speed	80.43 m^2/s^2
Maximum speed	52.22 km/h	Relative positive cubic speed	39.97 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	58.56 m^2/s^2
Average positive acceleration	0.434 m/s^2	Root mean square of acceleration	0.239 m/s^2

Cycle No: 186

Cycle name: **MODEM urban9**
Alternative name: **MODEM9**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

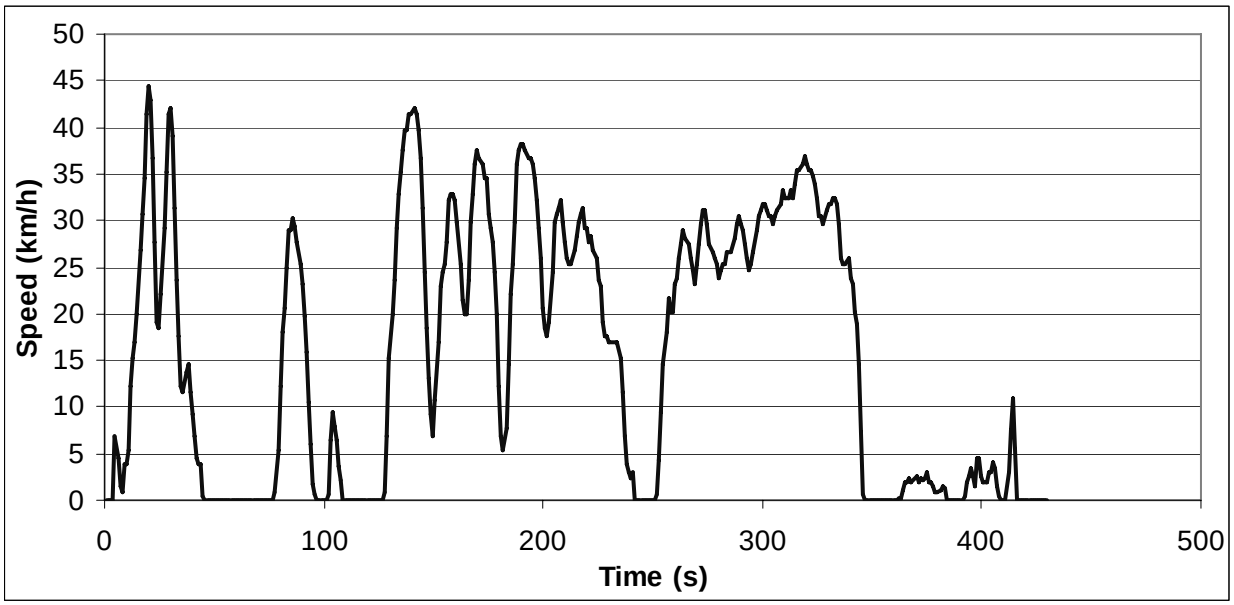


ART.KINEMA parameters

Total distance	201.33 m	Average negative acceleration	-0.340 m/s^2
Total time	95 s	Standard deviation of accel.	0.377 m/s^2
Driving time	83 s	Standard dev. of positive accel.	0.163 m/s^2
Drive time	16 s	Accel: 75th - 25th percentile	0.276 m/s^2
Drive time spent accelerating	42 s	Number of accelerations	5
Drive time spent decelerating	25 s	Accelerations per km	24.835 /km
Time spent braking	15 s	Number of stops	2
Standing time	12 s	Stops per km	9.93 /km
% of time driving	87.37 %	Average stop duration	6 s
% of cruising	16.84 %	Average distance between stops	100.67 m
% of time accelerating	44.21 %	Relative positive acceleration	0.1637 m/s^2
% of time decelerating	26.32 %	Positive kinetic energy	4.274 m/s^2
% of time braking	15.79 %	Relative positive speed	0.649
% of time standing	12.63 %	Relative real speed	0.784
Average speed (trip)	7.6 km/h	Relative square speed	4.305 m/s
Average driving speed	8.73 km/h	Relative positive square speed	2.812 m/s
Standard deviation of speed	7.73 km/h	Relative real square speed	3.310 m/s
Speed: 75th - 25th percentile	11.03 km/h	Relative cubic speed	22.73 m^2/s^2
Maximum speed	26.04 km/h	Relative positive cubic speed	14.64 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	17.21 m^2/s^2
Average positive acceleration	0.224 m/s^2	Root mean square of acceleration	0.240 m/s^2

Cycle No: 187

Cycle name: **MODEM urban10**
Alternative name: **MODEM10**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

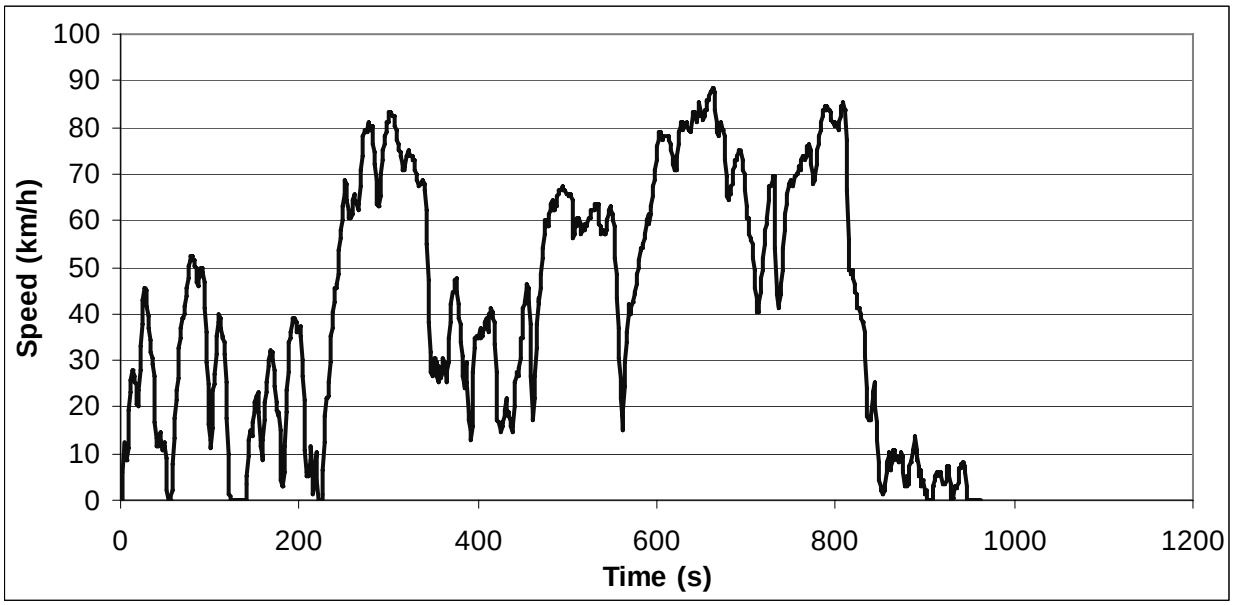


ART.KINEMA parameters

Total distance	1870.78 m	Average negative acceleration	-0.392 m/s^2
Total time	430 s	Standard deviation of accel.	0.594 m/s^2
Driving time	365 s	Standard dev. of positive accel.	0.444 m/s^2
Drive time	74 s	Accel: 75th - 25th percentile	0.331 m/s^2
Drive time spent accelerating	143 s	Number of accelerations	21
Drive time spent decelerating	148 s	Accelerations per km	11.225 /km
Time spent braking	94 s	Number of stops	6
Standing time	65 s	Stops per km	3.21 /km
% of time driving	84.88 %	Average stop duration	10.83 s
% of cruising	17.21 %	Average distance between stops	311.8 m
% of time accelerating	33.26 %	Relative positive acceleration	0.2274 m/s^2
% of time decelerating	34.42 %	Positive kinetic energy	5.998 m/s^2
% of time braking	21.86 %	Relative positive speed	0.486
% of time standing	15.12 %	Relative real speed	0.722
Average speed (trip)	15.7 km/h	Relative square speed	7.787 m/s
Average driving speed	18.45 km/h	Relative positive square speed	3.817 m/s
Standard deviation of speed	13.31 km/h	Relative real square speed	5.741 m/s
Speed: 75th - 25th percentile	27.76 km/h	Relative cubic speed	65.89 m^2/s^2
Maximum speed	41.73 km/h	Relative positive cubic speed	32.40 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	49.27 m^2/s^2
Average positive acceleration	0.426 m/s^2	Root mean square of acceleration	0.262 m/s^2

Cycle No: 188

Cycle name: **MODEM urban11**
Alternative name: **MODEM11**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

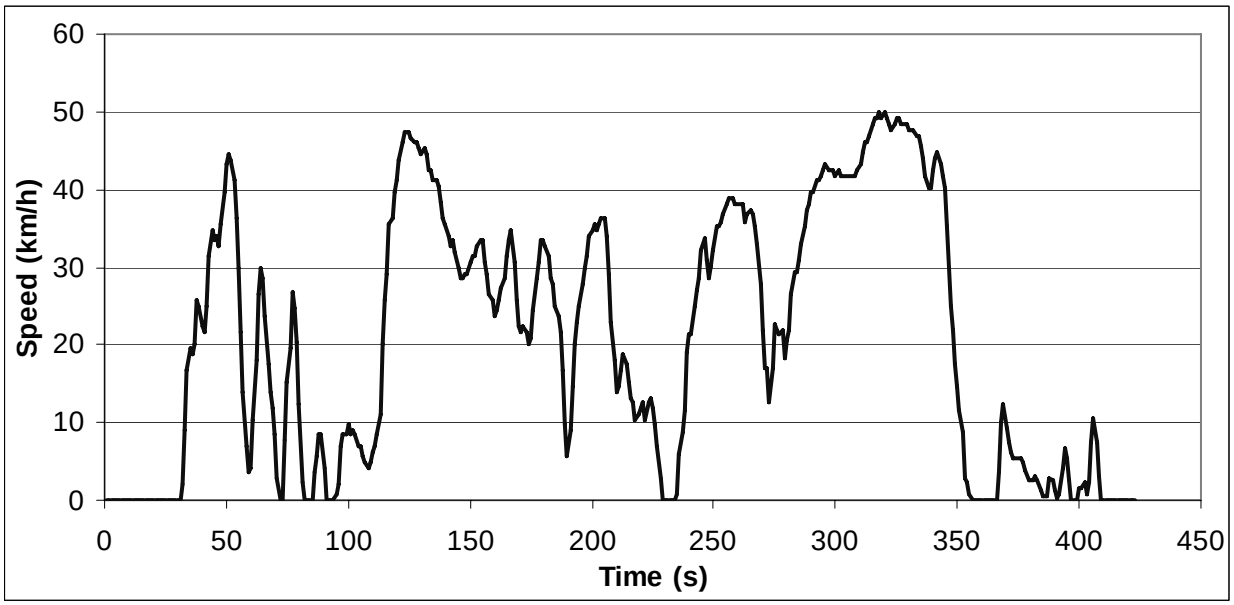


ART.KINEMA parameters

Total distance	11346.39 m	Average negative acceleration	-0.442 m/s^2
Total time	962 s	Standard deviation of accel.	0.574 m/s^2
Driving time	936 s	Standard dev. of positive accel.	0.337 m/s^2
Drive time	159 s	Accel: 75th - 25th percentile	0.512 m/s^2
Drive time spent accelerating	431 s	Number of accelerations	58
Drive time spent decelerating	346 s	Accelerations per km	5.112 /km
Time spent braking	224 s	Number of stops	3
Standing time	26 s	Stops per km	0.26 /km
% of time driving	97.30 %	Average stop duration	8.67 s
% of cruising	16.53 %	Average distance between stops	3782.13 m
% of time accelerating	44.80 %	Relative positive acceleration	0.1773 m/s^2
% of time decelerating	35.97 %	Positive kinetic energy	4.647 m/s^2
% of time braking	23.28 %	Relative positive speed	0.550
% of time standing	2.70 %	Relative real speed	0.780
Average speed (trip)	42.5 km/h	Relative square speed	16.590 m/s
Average driving speed	43.64 km/h	Relative positive square speed	9.073 m/s
Standard deviation of speed	26.51 km/h	Relative real square speed	13.281 m/s
Speed: 75th - 25th percentile	48.66 km/h	Relative cubic speed	306.59 m^2/s^2
Maximum speed	88.07 km/h	Relative positive cubic speed	166.38 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	249.68 m^2/s^2
Average positive acceleration	0.369 m/s^2	Root mean square of acceleration	0.165 m/s^2

Cycle No: 189

Cycle name: **MODEM urban12**
Alternative name: **MODEM12**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

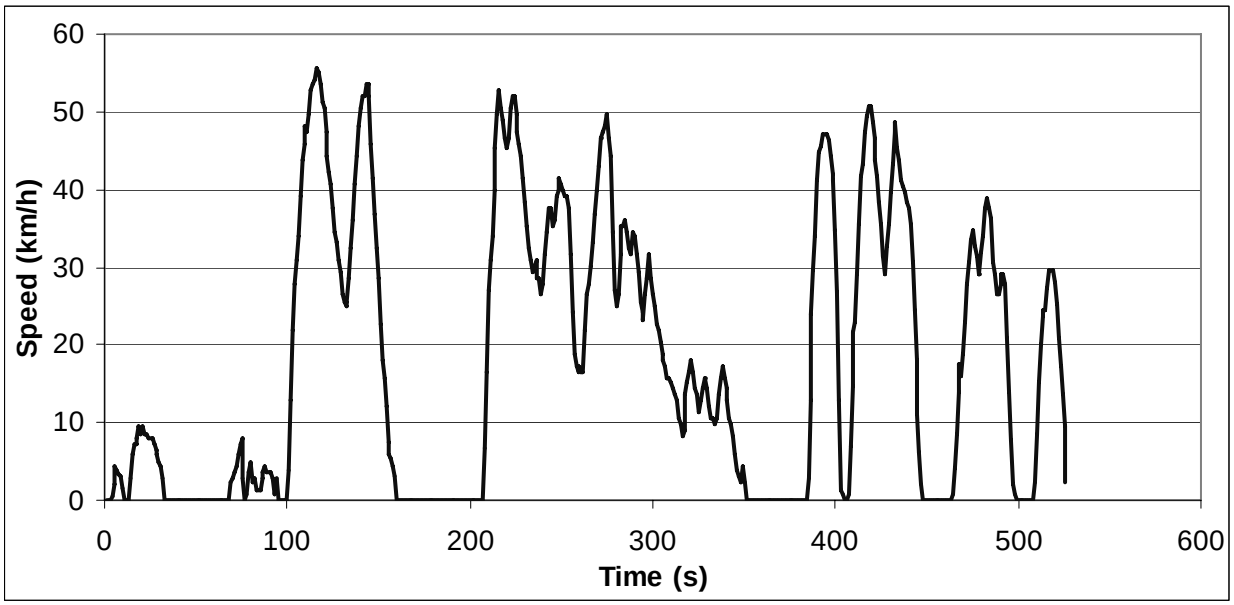


ART.KINEMA parameters

Total distance	2444.84 m	Average negative acceleration	-0.396 m/s^2
Total time	423 s	Standard deviation of accel.	0.568 m/s^2
Driving time	378 s	Standard dev. of positive accel.	0.365 m/s^2
Drive time	66 s	Accel: 75th - 25th percentile	0.445 m/s^2
Drive time spent accelerating	160 s	Number of accelerations	20
Drive time spent decelerating	152 s	Accelerations per km	8.181 /km
Time spent braking	89 s	Number of stops	4
Standing time	45 s	Stops per km	1.64 /km
% of time driving	89.36 %	Average stop duration	11.25 s
% of cruising	15.60 %	Average distance between stops	611.21 m
% of time accelerating	37.83 %	Relative positive acceleration	0.1808 m/s^2
% of time decelerating	35.93 %	Positive kinetic energy	4.729 m/s^2
% of time braking	21.04 %	Relative positive speed	0.504
% of time standing	10.64 %	Relative real speed	0.786
Average speed (trip)	20.8 km/h	Relative square speed	9.402 m/s
Average driving speed	23.28 km/h	Relative positive square speed	4.604 m/s
Standard deviation of speed	15.7 km/h	Relative real square speed	7.667 m/s
Speed: 75th - 25th percentile	31.33 km/h	Relative cubic speed	98.71 m^2/s^2
Maximum speed	49.43 km/h	Relative positive cubic speed	46.59 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	82.86 m^2/s^2
Average positive acceleration	0.396 m/s^2	Root mean square of acceleration	0.223 m/s^2

Cycle No: 190

Cycle name: **MODEM urban13**
Alternative name: **MODEM13**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

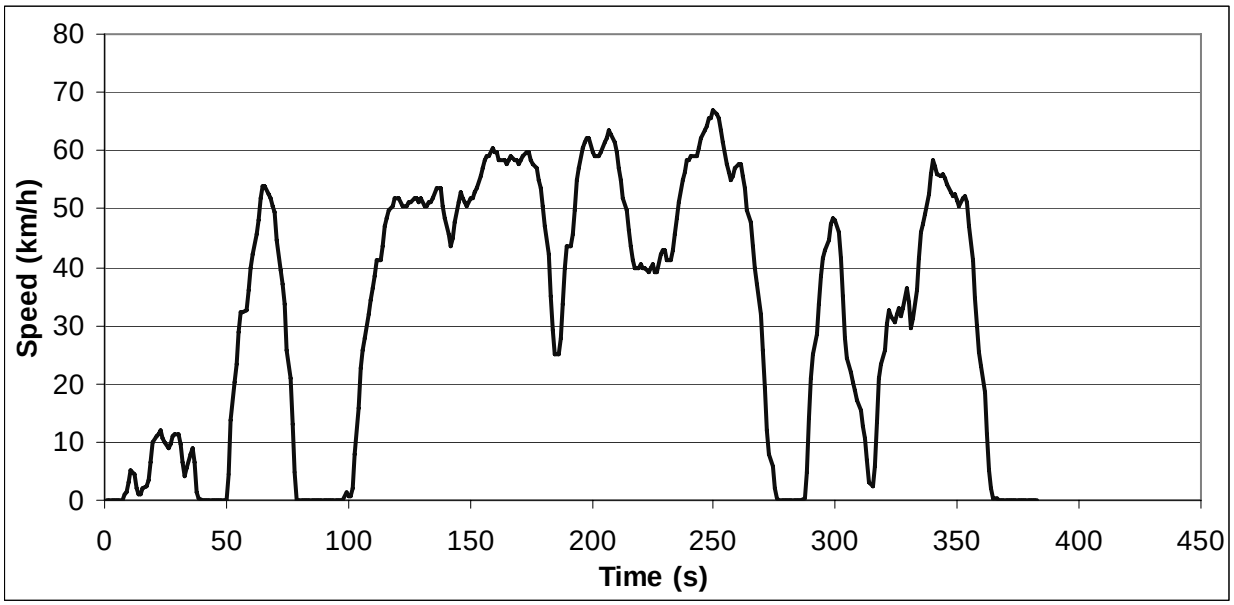


ART.KINEMA parameters

Total distance	2622.2 m	Average negative acceleration	-0.484 m/s^2
Total time	526 s	Standard deviation of accel.	0.729 m/s^2
Driving time	413 s	Standard dev. of positive accel.	0.530 m/s^2
Drive time	56 s	Accel: 75th - 25th percentile	0.419 m/s^2
Drive time spent accelerating	162 s	Number of accelerations	22
Drive time spent decelerating	195 s	Accelerations per km	8.390 /km
Time spent braking	128 s	Number of stops	5
Standing time	113 s	Stops per km	1.91 /km
% of time driving	78.52 %	Average stop duration	22.6 s
% of cruising	10.65 %	Average distance between stops	524.44 m
% of time accelerating	30.80 %	Relative positive acceleration	0.2855 m/s^2
% of time decelerating	37.07 %	Positive kinetic energy	7.475 m/s^2
% of time braking	24.33 %	Relative positive speed	0.481
% of time standing	21.48 %	Relative real speed	0.646
Average speed (trip)	18.0 km/h	Relative square speed	9.757 m/s
Average driving speed	22.86 km/h	Relative positive square speed	4.796 m/s
Standard deviation of speed	16.77 km/h	Relative real square speed	6.334 m/s
Speed: 75th - 25th percentile	32.67 km/h	Relative cubic speed	107.49 m^2/s^2
Maximum speed	54.68 km/h	Relative positive cubic speed	53.55 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	70.70 m^2/s^2
Average positive acceleration	0.569 m/s^2	Root mean square of acceleration	0.289 m/s^2

Cycle No: 191

Cycle name: **MODEM urban14**
Alternative name: **MODEM14**
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

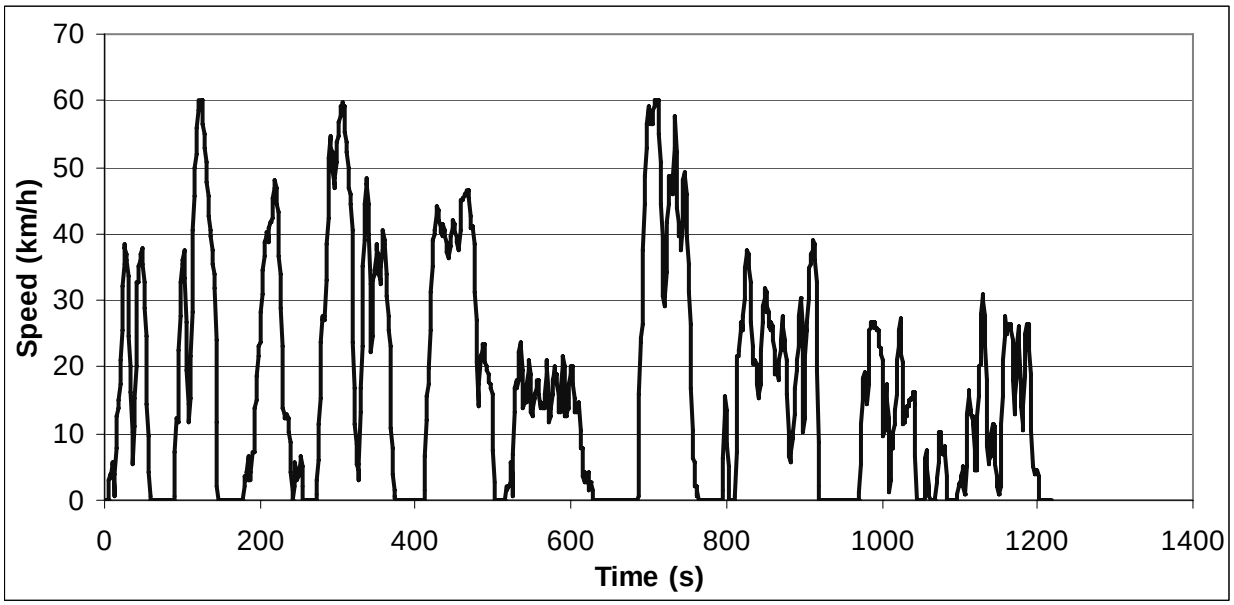


ART.KINEMA parameters

Total distance	3417.63 m	Average negative acceleration	-0.515 m/s^2
Total time	383 s	Standard deviation of accel.	0.683 m/s^2
Driving time	338 s	Standard dev. of positive accel.	0.446 m/s^2
Drive time	74 s	Accel: 75th - 25th percentile	0.474 m/s^2
Drive time spent accelerating	138 s	Number of accelerations	15
Drive time spent decelerating	126 s	Accelerations per km	4.389 /km
Time spent braking	88 s	Number of stops	5
Standing time	45 s	Stops per km	1.46 /km
% of time driving	88.25 %	Average stop duration	9 s
% of cruising	19.32 %	Average distance between stops	683.53 m
% of time accelerating	36.03 %	Relative positive acceleration	0.2141 m/s^2
% of time decelerating	32.90 %	Positive kinetic energy	5.597 m/s^2
% of time braking	22.98 %	Relative positive speed	0.541
% of time standing	11.75 %	Relative real speed	0.761
Average speed (trip)	32.1 km/h	Relative square speed	13.401 m/s
Average driving speed	36.4 km/h	Relative positive square speed	7.227 m/s
Standard deviation of speed	20.79 km/h	Relative real square speed	10.437 m/s
Speed: 75th - 25th percentile	45.35 km/h	Relative cubic speed	192.08 m^2/s^2
Maximum speed	66.25 km/h	Relative positive cubic speed	103.05 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	151.79 m^2/s^2
Average positive acceleration	0.458 m/s^2	Root mean square of acceleration	0.214 m/s^2

Cycle No: 192

Cycle name: **MODEM MODEM_1**
Alternative name: **MODEM 1+2+3+4**
Test programme: **MODEM driving cycles**
Additional info: **Combined MODEM cycles**
Vehicle category: **Cars**

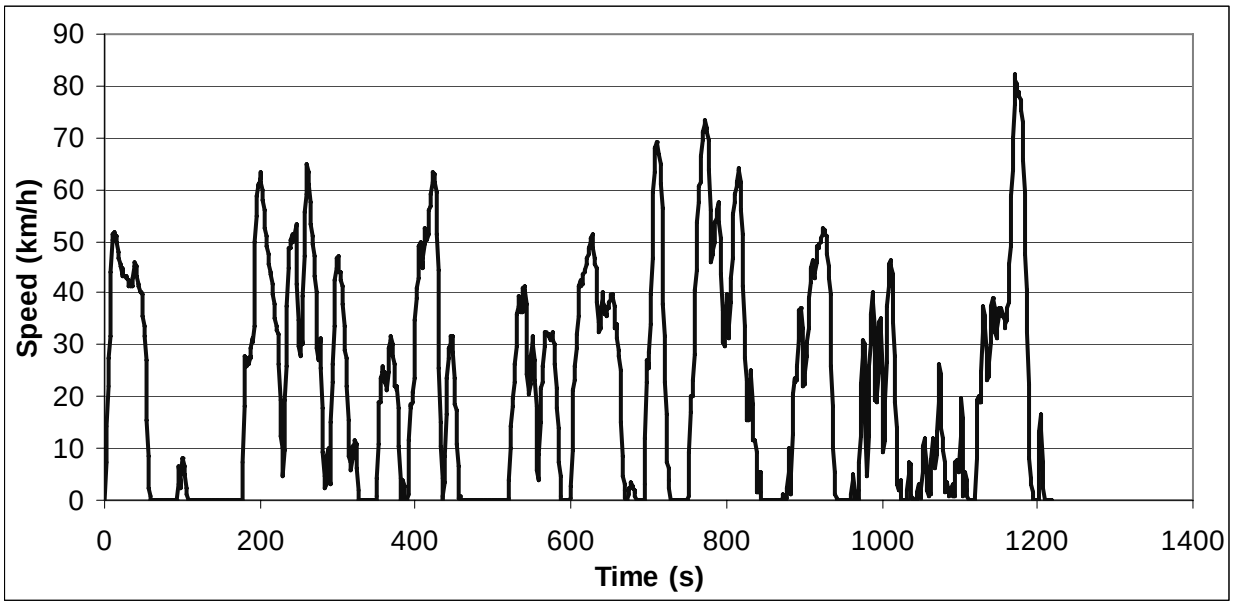


ART.KINEMA parameters

Total distance	5818.62 m	Average negative acceleration	-0.492 m/s^2
Total time	1217 s	Standard deviation of accel.	0.659 m/s^2
Driving time	949 s	Standard dev. of positive accel.	0.416 m/s^2
Drive time	138 s	Accel: 75th - 25th percentile	0.445 m/s^2
Drive time spent accelerating	417 s	Number of accelerations	53
Drive time spent decelerating	394 s	Accelerations per km	9.109 /km
Time spent braking	274 s	Number of stops	14
Standing time	268 s	Stops per km	2.41 /km
% of time driving	77.98 %	Average stop duration	19.14 s
% of cruising	11.34 %	Average distance between stops	415.62 m
% of time accelerating	34.26 %	Relative positive acceleration	0.2493 m/s^2
% of time decelerating	32.37 %	Positive kinetic energy	6.561 m/s^2
% of time braking	22.51 %	Relative positive speed	0.517
% of time standing	22.02 %	Relative real speed	0.692
Average speed (trip)	17.2 km/h	Relative square speed	9.393 m/s
Average driving speed	22.07 km/h	Relative positive square speed	4.892 m/s
Standard deviation of speed	16.11 km/h	Relative real square speed	6.529 m/s
Speed: 75th - 25th percentile	27.53 km/h	Relative cubic speed	105.10 m^2/s^2
Maximum speed	60.2 km/h	Relative positive cubic speed	55.16 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	73.58 m^2/s^2
Average positive acceleration	0.474 m/s^2	Root mean square of acceleration	0.266 m/s^2

Cycle No: 193

Cycle name: **MODEM MODEM_2**
Alternative name: **MODEM 5+6+7**
Test programme: **MODEM driving cycles**
Additional info: **Combined MODEM cycles**
Vehicle category: **Cars**

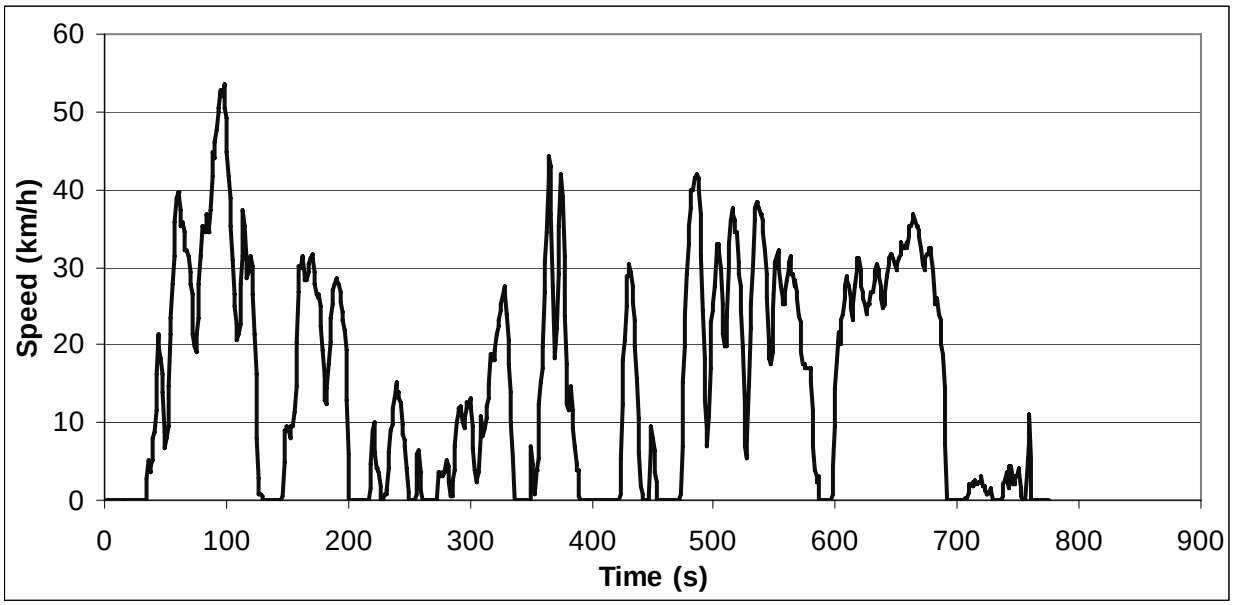


ART.KINEMA parameters

Total distance	7305.23 m	Average negative acceleration	-0.600 m/s^2
Total time	1218 s	Standard deviation of accel.	0.826 m/s^2
Driving time	959 s	Standard dev. of positive accel.	0.542 m/s^2
Drive time	123 s	Accel: 75th - 25th percentile	0.499 m/s^2
Drive time spent accelerating	416 s	Number of accelerations	57
Drive time spent decelerating	420 s	Accelerations per km	7.803 /km
Time spent braking	302 s	Number of stops	14
Standing time	259 s	Stops per km	1.92 /km
% of time driving	78.74 %	Average stop duration	18.5 s
% of cruising	10.10 %	Average distance between stops	521.8 m
% of time accelerating	34.15 %	Relative positive acceleration	0.3116 m/s^2
% of time decelerating	34.48 %	Positive kinetic energy	8.190 m/s^2
% of time braking	24.79 %	Relative positive speed	0.509
% of time standing	21.26 %	Relative real speed	0.675
Average speed (trip)	21.6 km/h	Relative square speed	11.698 m/s
Average driving speed	27.42 km/h	Relative positive square speed	5.903 m/s
Standard deviation of speed	20.08 km/h	Relative real square speed	7.999 m/s
Speed: 75th - 25th percentile	37.94 km/h	Relative cubic speed	157.84 m^2/s^2
Maximum speed	80.51 km/h	Relative positive cubic speed	78.58 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	109.02 m^2/s^2
Average positive acceleration	0.611 m/s^2	Root mean square of acceleration	0.299 m/s^2

Cycle No: 194

Cycle name: **MODEM MODEM_3**
Alternative name: **MODEM 8+9+10**
Test programme: **MODEM driving cycles**
Additional info: **Combined MODEM cycles**
Vehicle category: **Cars**

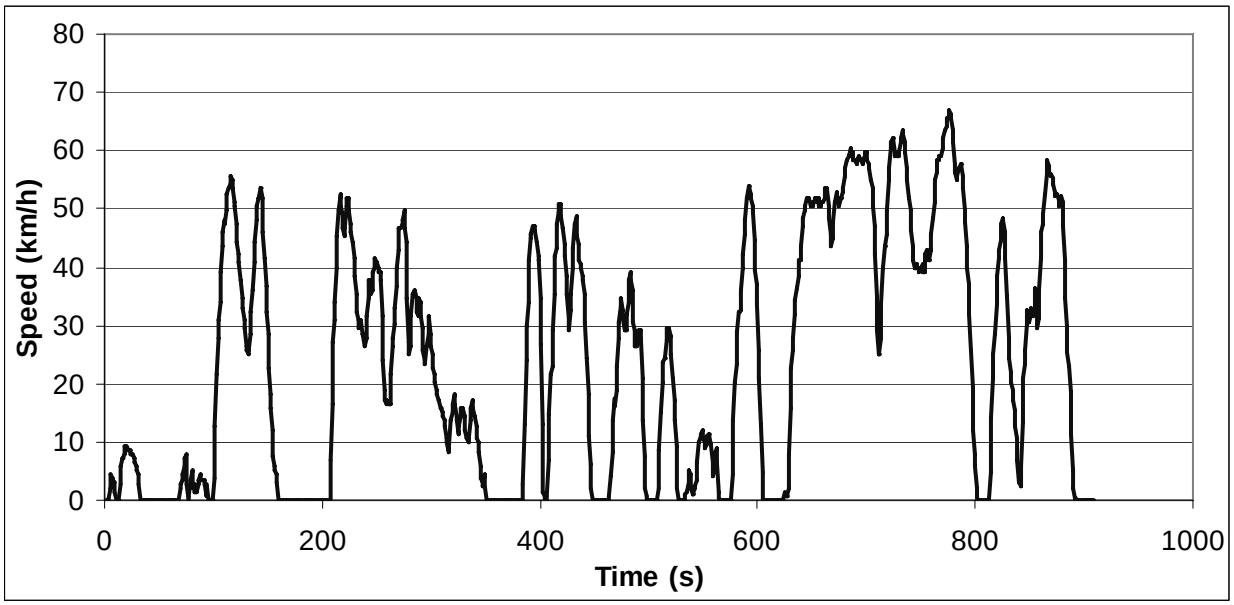


ART.KINEMA parameters

Total distance	3178.78 m	Average negative acceleration	-0.395 m/s^2
Total time	775 s	Standard deviation of accel.	0.559 m/s^2
Driving time	650 s	Standard dev. of positive accel.	0.389 m/s^2
Drive time	121 s	Accel: 75th - 25th percentile	0.363 m/s^2
Drive time spent accelerating	270 s	Number of accelerations	37
Drive time spent decelerating	259 s	Accelerations per km	11.640 /km
Time spent braking	170 s	Number of stops	11
Standing time	125 s	Stops per km	3.46 /km
% of time driving	83.87 %	Average stop duration	11.36 s
% of cruising	15.61 %	Average distance between stops	288.98 m
% of time accelerating	34.84 %	Relative positive acceleration	0.2219 m/s^2
% of time decelerating	33.42 %	Positive kinetic energy	5.837 m/s^2
% of time braking	21.94 %	Relative positive speed	0.493
% of time standing	16.13 %	Relative real speed	0.715
Average speed (trip)	14.8 km/h	Relative square speed	7.763 m/s
Average driving speed	17.61 km/h	Relative positive square speed	3.827 m/s
Standard deviation of speed	13.5 km/h	Relative real square speed	5.654 m/s
Speed: 75th - 25th percentile	26.85 km/h	Relative cubic speed	68.22 m^2/s^2
Maximum speed	52.22 km/h	Relative positive cubic speed	33.91 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	50.48 m^2/s^2
Average positive acceleration	0.397 m/s^2	Root mean square of acceleration	0.253 m/s^2

Cycle No: 195

Cycle name: **MODEM MODEM_6**
Alternative name: **MODEM 13+14**
Test programme: **MODEM driving cycles**
Additional info: **Combined MODEM cycles**
Vehicle category: **Cars**

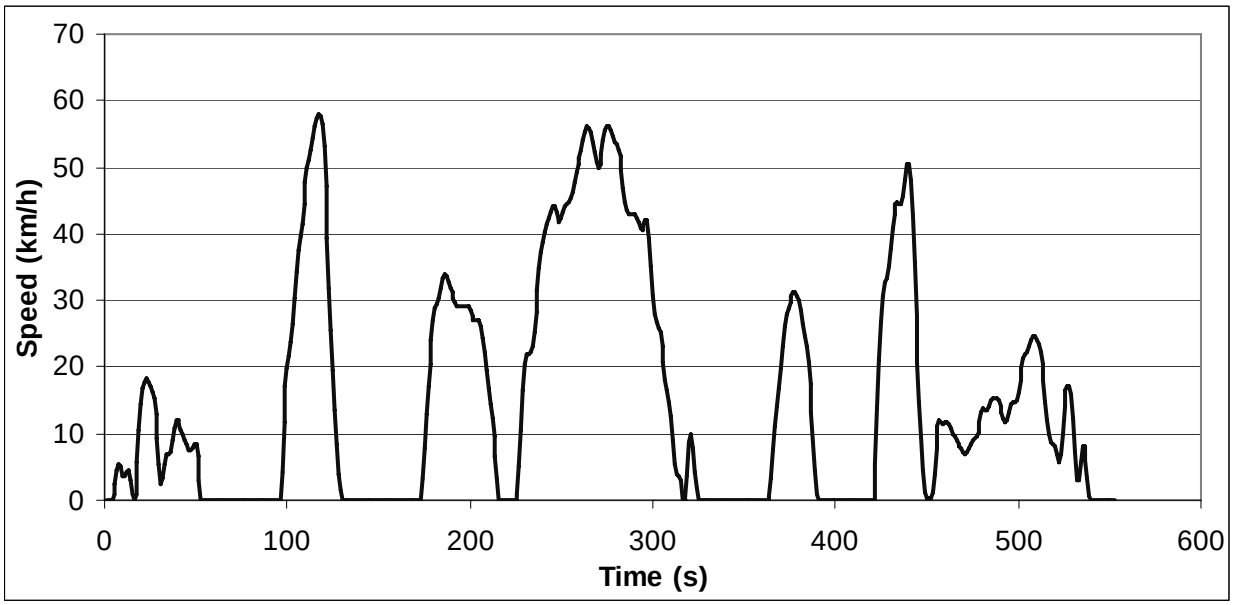


ART.KINEMA parameters

Total distance	6039.01 m	Average negative acceleration	-0.503 m/s^2
Total time	909 s	Standard deviation of accel.	0.717 m/s^2
Driving time	753 s	Standard dev. of positive accel.	0.501 m/s^2
Drive time	128 s	Accel: 75th - 25th percentile	0.461 m/s^2
Drive time spent accelerating	303 s	Number of accelerations	40
Drive time spent decelerating	322 s	Accelerations per km	6.624 /km
Time spent braking	221 s	Number of stops	11
Standing time	156 s	Stops per km	1.82 /km
% of time driving	82.84 %	Average stop duration	14.18 s
% of cruising	14.08 %	Average distance between stops	549 m
% of time accelerating	33.33 %	Relative positive acceleration	0.2494 m/s^2
% of time decelerating	35.42 %	Positive kinetic energy	6.535 m/s^2
% of time braking	24.31 %	Relative positive speed	0.515
% of time standing	17.16 %	Relative real speed	0.707
Average speed (trip)	23.9 km/h	Relative square speed	11.828 m/s
Average driving speed	28.87 km/h	Relative positive square speed	6.199 m/s
Standard deviation of speed	19.91 km/h	Relative real square speed	8.610 m/s
Speed: 75th - 25th percentile	42.02 km/h	Relative cubic speed	155.53 m^2/s^2
Maximum speed	66.28 km/h	Relative positive cubic speed	82.10 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	115.99 m^2/s^2
Average positive acceleration	0.525 m/s^2	Root mean square of acceleration	0.253 m/s^2

Cycle No: 196

Cycle name: **MODEM EVAP**
Alternative name:
Test programme: **MODEM driving cycles**
Additional info:
Vehicle category: **Cars**

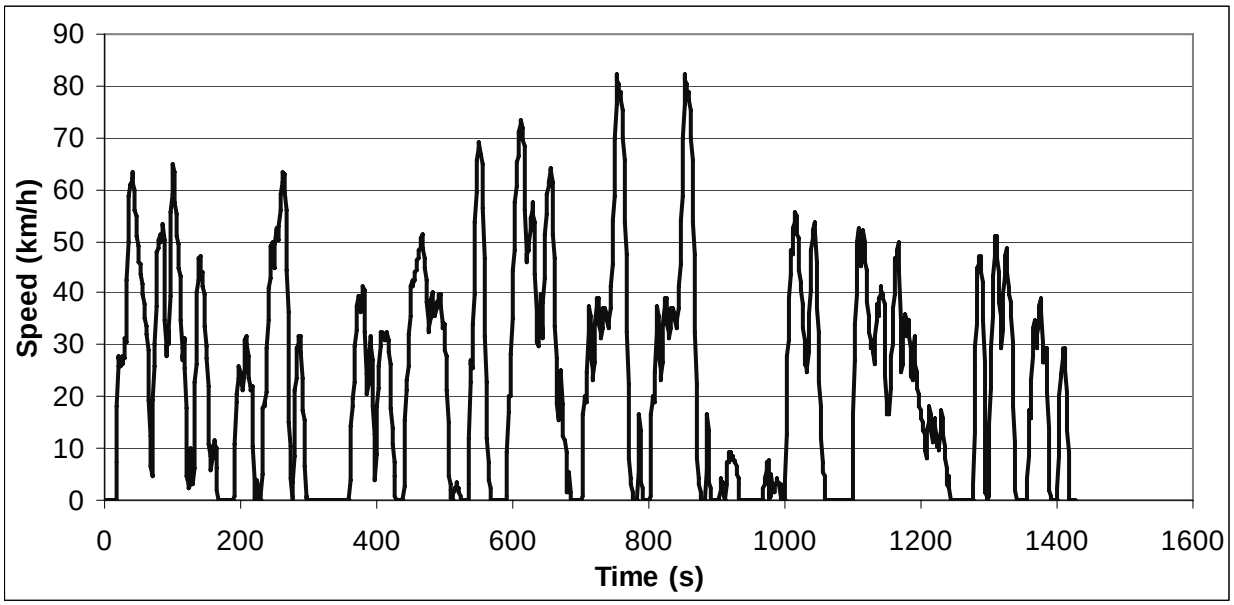


ART.KINEMA parameters

Total distance	2362.89 m	Average negative acceleration	-0.428 m/s^2
Total time	553 s	Standard deviation of accel.	0.587 m/s^2
Driving time	400 s	Standard dev. of positive accel.	0.362 m/s^2
Drive time	53 s	Accel: 75th - 25th percentile	0.315 m/s^2
Drive time spent accelerating	176 s	Number of accelerations	15
Drive time spent decelerating	171 s	Accelerations per km	6.348 /km
Time spent braking	103 s	Number of stops	6
Standing time	153 s	Stops per km	2.54 /km
% of time driving	72.33 %	Average stop duration	25.5 s
% of cruising	9.58 %	Average distance between stops	393.82 m
% of time accelerating	31.83 %	Relative positive acceleration	0.2099 m/s^2
% of time decelerating	30.92 %	Positive kinetic energy	5.478 m/s^2
% of time braking	18.63 %	Relative positive speed	0.527
% of time standing	27.67 %	Relative real speed	0.757
Average speed (trip)	15.4 km/h	Relative square speed	9.625 m/s
Average driving speed	21.27 km/h	Relative positive square speed	5.174 m/s
Standard deviation of speed	16.89 km/h	Relative real square speed	7.389 m/s
Speed: 75th - 25th percentile	26.99 km/h	Relative cubic speed	110.87 m^2/s^2
Maximum speed	57.83 km/h	Relative positive cubic speed	60.26 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	85.57 m^2/s^2
Average positive acceleration	0.419 m/s^2	Root mean square of acceleration	0.241 m/s^2

Cycle No: 197

Cycle name: **MODEM urban5713**
Alternative name:
Test programme: **ARTEMIS WP3141**
Additional info:
Vehicle category: **Cars**

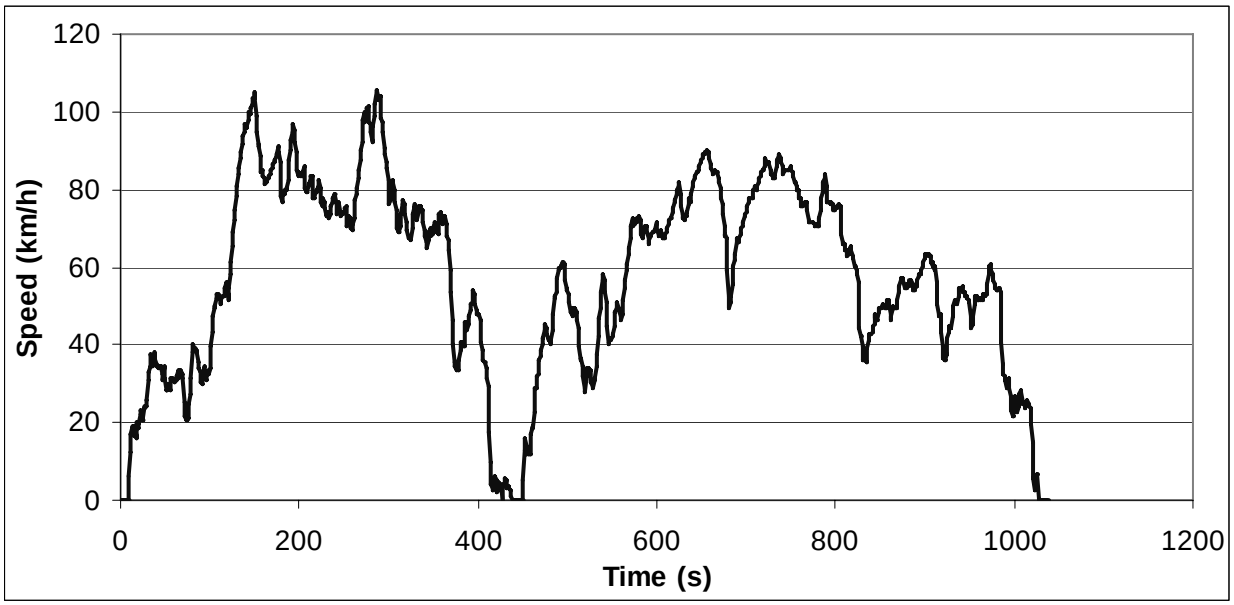


ART.KINEMA parameters

Total distance	9082.15 m	Average negative acceleration	-0.600 m/s^2
Total time	1426 s	Standard deviation of accel.	0.832 m/s^2
Driving time	1151 s	Standard dev. of positive accel.	0.544 m/s^2
Drive time	119 s	Accel: 75th - 25th percentile	0.601 m/s^2
Drive time spent accelerating	500 s	Number of accelerations	64
Drive time spent decelerating	532 s	Accelerations per km	7.047 /km
Time spent braking	388 s	Number of stops	18
Standing time	275 s	Stops per km	1.98 /km
% of time driving	80.72 %	Average stop duration	15.28 s
% of cruising	8.35 %	Average distance between stops	504.56 m
% of time accelerating	35.06 %	Relative positive acceleration	0.3186 m/s^2
% of time decelerating	37.31 %	Positive kinetic energy	8.361 m/s^2
% of time braking	27.21 %	Relative positive speed	0.505
% of time standing	19.28 %	Relative real speed	0.655
Average speed (trip)	22.9 km/h	Relative square speed	11.680 m/s
Average driving speed	28.41 km/h	Relative positive square speed	5.847 m/s
Standard deviation of speed	19.69 km/h	Relative real square speed	7.749 m/s
Speed: 75th - 25th percentile	36.96 km/h	Relative cubic speed	158.61 m^2/s^2
Maximum speed	80.51 km/h	Relative positive cubic speed	77.72 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	106.67 m^2/s^2
Average positive acceleration	0.635 m/s^2	Root mean square of acceleration	0.296 m/s^2

Cycle No: 198

Cycle name: **Napoli 6_17**
Alternative name:
Test programme: **ARTEMIS WP3141**
Additional info:
Vehicle category: **Cars**

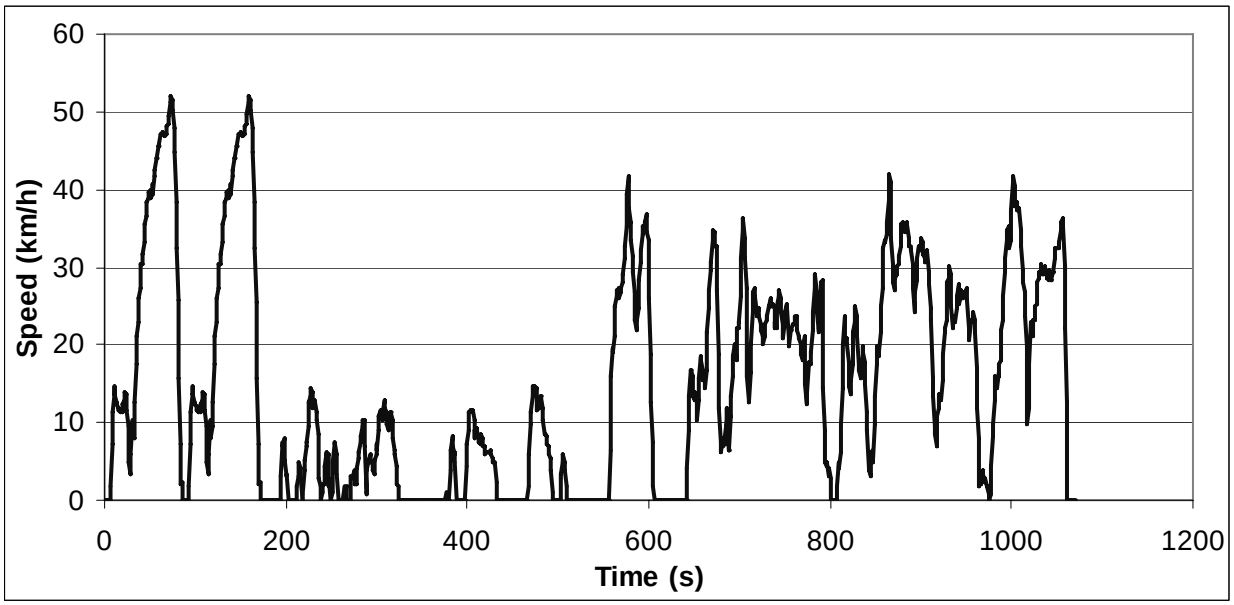


ART.KINEMA parameters

Total distance	16468.77 m	Average negative acceleration	-0.319 m/s^2
Total time	1038 s	Standard deviation of accel.	0.417 m/s^2
Driving time	1017 s	Standard dev. of positive accel.	0.253 m/s^2
Drive time	176 s	Accel: 75th - 25th percentile	0.400 m/s^2
Drive time spent accelerating	448 s	Number of accelerations	60
Drive time spent decelerating	393 s	Accelerations per km	3.643 /km
Time spent braking	210 s	Number of stops	3
Standing time	21 s	Stops per km	0.18 /km
% of time driving	97.98 %	Average stop duration	7 s
% of cruising	16.96 %	Average distance between stops	5489.59 m
% of time accelerating	43.16 %	Relative positive acceleration	0.1433 m/s^2
% of time decelerating	37.86 %	Positive kinetic energy	3.772 m/s^2
% of time braking	20.23 %	Relative positive speed	0.536
% of time standing	2.02 %	Relative real speed	0.793
Average speed (trip)	57.1 km/h	Relative square speed	18.936 m/s
Average driving speed	58.3 km/h	Relative positive square speed	10.141 m/s
Standard deviation of speed	24 km/h	Relative real square speed	15.013 m/s
Speed: 75th - 25th percentile	37.14 km/h	Relative cubic speed	387.27 m^2/s^2
Maximum speed	104.49 km/h	Relative positive cubic speed	207.41 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	306.26 m^2/s^2
Average positive acceleration	0.277 m/s^2	Root mean square of acceleration	0.104 m/s^2

Cycle No: 199

Cycle name: **Napoli 15_18_21**
Alternative name:
Test programme: **ARTEMIS WP3141**
Additional info:
Vehicle category: **Cars**

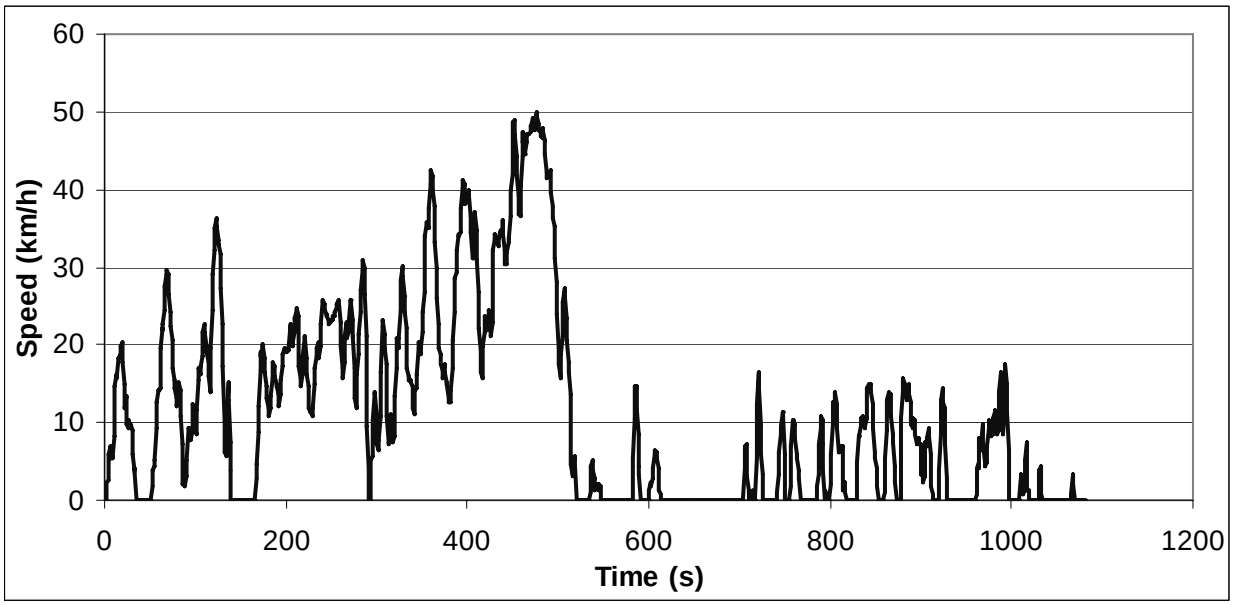


ART.KINEMA parameters

Total distance	4472.88 m	Average negative acceleration	-0.368 m/s^2
Total time	1070 s	Standard deviation of accel.	0.509 m/s^2
Driving time	873 s	Standard dev. of positive accel.	0.270 m/s^2
Drive time	156 s	Accel: 75th - 25th percentile	0.313 m/s^2
Drive time spent accelerating	403 s	Number of accelerations	55
Drive time spent decelerating	314 s	Accelerations per km	12.296 /km
Time spent braking	171 s	Number of stops	13
Standing time	197 s	Stops per km	2.91 /km
% of time driving	81.59 %	Average stop duration	15.15 s
% of cruising	14.58 %	Average distance between stops	344.07 m
% of time accelerating	37.66 %	Relative positive acceleration	0.1748 m/s^2
% of time decelerating	29.35 %	Positive kinetic energy	4.605 m/s^2
% of time braking	15.98 %	Relative positive speed	0.576
% of time standing	18.41 %	Relative real speed	0.812
Average speed (trip)	15.1 km/h	Relative square speed	7.806 m/s
Average driving speed	18.44 km/h	Relative positive square speed	4.637 m/s
Standard deviation of speed	13.35 km/h	Relative real square speed	6.422 m/s
Speed: 75th - 25th percentile	24.91 km/h	Relative cubic speed	71.89 m^2/s^2
Maximum speed	51.82 km/h	Relative positive cubic speed	43.36 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	59.88 m^2/s^2
Average positive acceleration	0.325 m/s^2	Root mean square of acceleration	0.225 m/s^2

Cycle No: 200

Cycle name: **Napoli 10_23**
Alternative name:
Test programme: **ARTEMIS WP3141**
Additional info:
Vehicle category: **Cars**

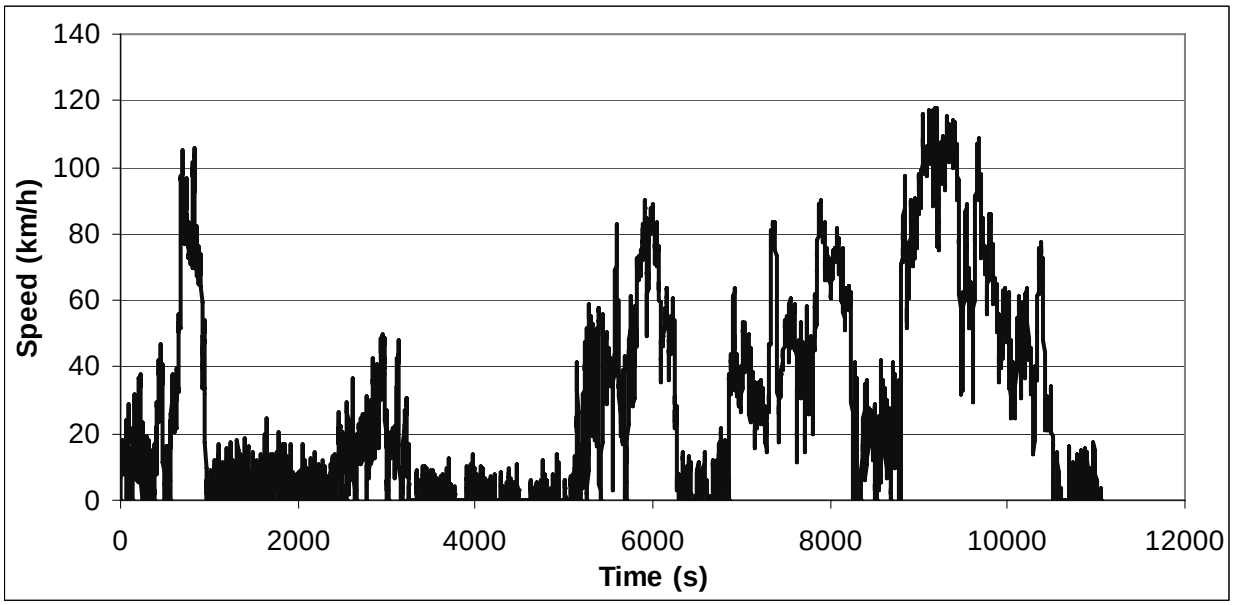


ART.KINEMA parameters

Total distance	3362.11 m	Average negative acceleration	-0.343 m/s^2
Total time	1081 s	Standard deviation of accel.	0.457 m/s^2
Driving time	809 s	Standard dev. of positive accel.	0.292 m/s^2
Drive time	146 s	Accel: 75th - 25th percentile	0.284 m/s^2
Drive time spent accelerating	335 s	Number of accelerations	56
Drive time spent decelerating	328 s	Accelerations per km	16.656 /km
Time spent braking	211 s	Number of stops	17
Standing time	272 s	Stops per km	5.06 /km
% of time driving	74.84 %	Average stop duration	16 s
% of cruising	13.51 %	Average distance between stops	197.77 m
% of time accelerating	30.99 %	Relative positive acceleration	0.1769 m/s^2
% of time decelerating	30.34 %	Positive kinetic energy	4.688 m/s^2
% of time braking	19.52 %	Relative positive speed	0.517
% of time standing	25.16 %	Relative real speed	0.734
Average speed (trip)	11.2 km/h	Relative square speed	7.090 m/s
Average driving speed	14.96 km/h	Relative positive square speed	3.675 m/s
Standard deviation of speed	12.58 km/h	Relative real square speed	5.326 m/s
Speed: 75th - 25th percentile	18.47 km/h	Relative cubic speed	62.90 m^2/s^2
Maximum speed	49.09 km/h	Relative positive cubic speed	32.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	48.43 m^2/s^2
Average positive acceleration	0.339 m/s^2	Root mean square of acceleration	0.224 m/s^2

Cycle No: 201

Cycle name: **Naples Driving Patterns**
Alternative name: **Naples.DP**
Test programme: **ARTEMIS WP3141**
Additional info:
Vehicle category: **Cars**

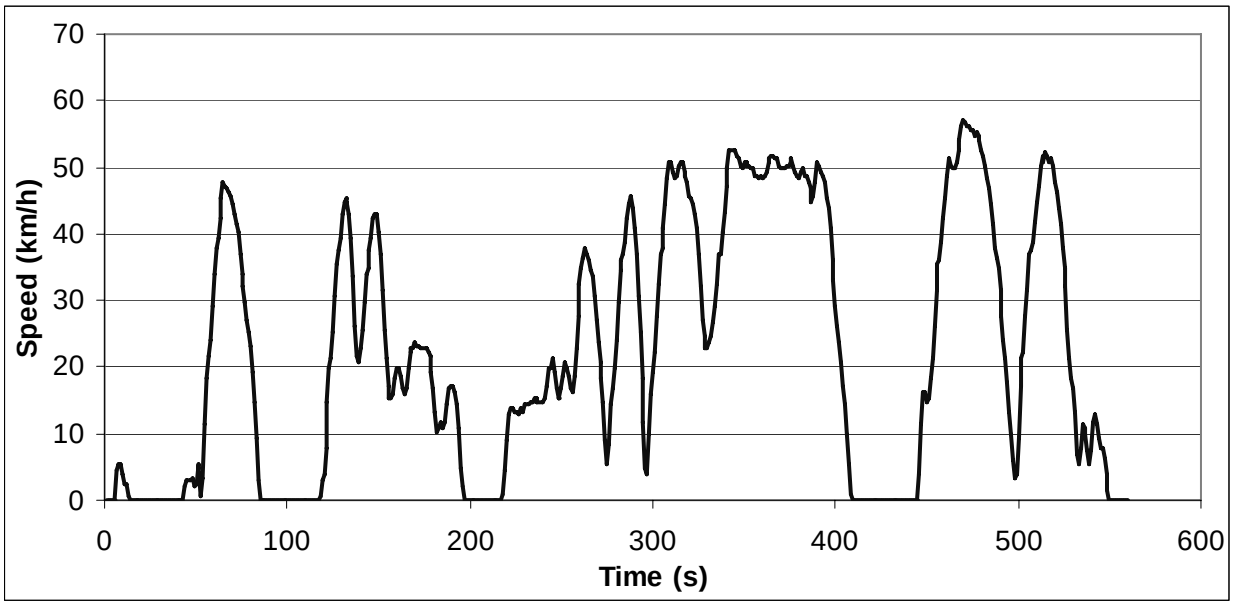


ART.KINEMA parameters

Total distance	87270.37 m	Average negative acceleration	-0.421 m/s^2
Total time	11061 s	Standard deviation of accel.	0.507 m/s^2
Driving time	9021 s	Standard dev. of positive accel.	0.318 m/s^2
Drive time	2154 s	Accel: 75th - 25th percentile	0.425 m/s^2
Drive time spent accelerating	3530 s	Number of accelerations	976
Drive time spent decelerating	3338 s	Accelerations per km	11.184 /km
Time spent braking	2474 s	Number of stops	161
Standing time	2040 s	Stops per km	1.84 /km
% of time driving	81.56 %	Average stop duration	12.67 s
% of cruising	19.47 %	Average distance between stops	542.05 m
% of time accelerating	31.91 %	Relative positive acceleration	0.1684 m/s^2
% of time decelerating	30.18 %	Positive kinetic energy	0.271 m/s^2
% of time braking	22.37 %	Relative positive speed	0.512
% of time standing	18.44 %	Relative real speed	0.755
Average speed (trip)	28.4 km/h	Relative square speed	17.202 m/s
Average driving speed	34.83 km/h	Relative positive square speed	8.918 m/s
Standard deviation of speed	30.72 km/h	Relative real square speed	13.227 m/s
Speed: 75th - 25th percentile	47.25 km/h	Relative cubic speed	359.06 m^2/s^2
Maximum speed	116.7 km/h	Relative positive cubic speed	187.48 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	277.82 m^2/s^2
Average positive acceleration	0.400 m/s^2	Root mean square of acceleration	0.163 m/s^2

Cycle No: 202

Cycle name: **MODEM Hyzem urban**
Alternative name: **MODEM-HyZem.urban**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

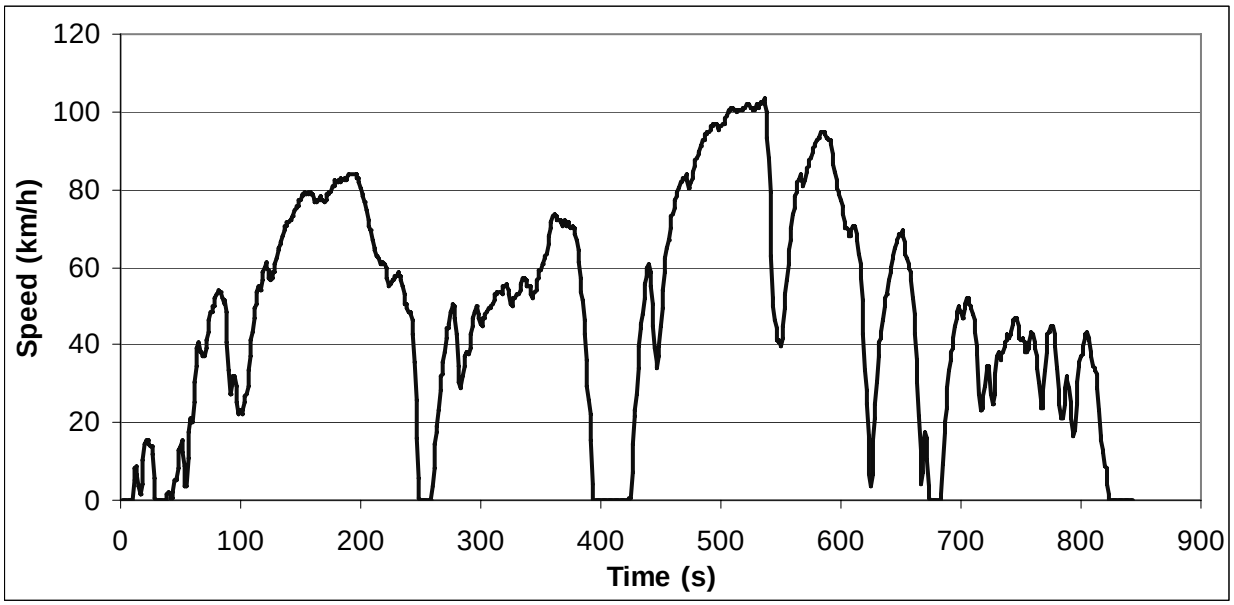


ART.KINEMA parameters

Total distance	3475.69 m	Average negative acceleration	-0.472 m/s^2
Total time	560 s	Standard deviation of accel.	0.628 m/s^2
Driving time	453 s	Standard dev. of positive accel.	0.407 m/s^2
Drive time	96 s	Accel: 75th - 25th percentile	0.380 m/s^2
Drive time spent accelerating	179 s	Number of accelerations	21
Drive time spent decelerating	178 s	Accelerations per km	6.042 /km
Time spent braking	127 s	Number of stops	6
Standing time	107 s	Stops per km	1.73 /km
% of time driving	80.89 %	Average stop duration	17.83 s
% of cruising	17.14 %	Average distance between stops	579.28 m
% of time accelerating	31.96 %	Relative positive acceleration	0.225 m/s^2
% of time decelerating	31.79 %	Positive kinetic energy	5.875 m/s^2
% of time braking	22.68 %	Relative positive speed	0.473
% of time standing	19.11 %	Relative real speed	0.729
Average speed (trip)	22.3 km/h	Relative square speed	10.693 m/s
Average driving speed	27.62 km/h	Relative positive square speed	4.853 m/s
Standard deviation of speed	17.35 km/h	Relative real square speed	8.076 m/s
Speed: 75th - 25th percentile	39.3 km/h	Relative cubic speed	128.56 m^2/s^2
Maximum speed	56.53 km/h	Relative positive cubic speed	56.82 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	100.40 m^2/s^2
Average positive acceleration	0.462 m/s^2	Root mean square of acceleration	0.226 m/s^2

Cycle No: 203

Cycle name: **MODEM Hyzem road_total**
Alternative name: **MODEM-HyZem.road**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

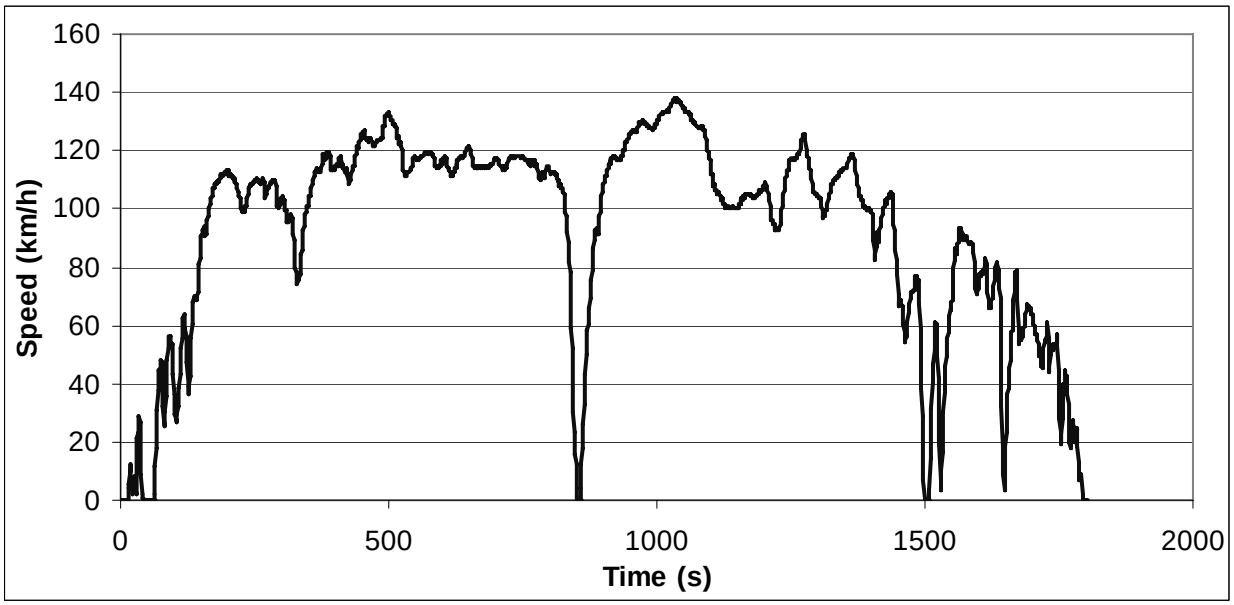


ART.KINEMA parameters

Total distance	11233.29 m	Average negative acceleration	-0.529 m/s^2
Total time	843 s	Standard deviation of accel.	0.649 m/s^2
Driving time	783 s	Standard dev. of positive accel.	0.369 m/s^2
Drive time	128 s	Accel: 75th - 25th percentile	0.476 m/s^2
Drive time spent accelerating	379 s	Number of accelerations	38
Drive time spent decelerating	276 s	Accelerations per km	3.383 /km
Time spent braking	188 s	Number of stops	6
Standing time	60 s	Stops per km	0.53 /km
% of time driving	92.88 %	Average stop duration	10 s
% of cruising	15.18 %	Average distance between stops	1872.21 m
% of time accelerating	44.96 %	Relative positive acceleration	0.1788 m/s^2
% of time decelerating	32.74 %	Positive kinetic energy	4.670 m/s^2
% of time braking	22.30 %	Relative positive speed	0.594
% of time standing	7.12 %	Relative real speed	0.801
Average speed (trip)	48.0 km/h	Relative square speed	18.286 m/s
Average driving speed	51.65 km/h	Relative positive square speed	11.037 m/s
Standard deviation of speed	27.08 km/h	Relative real square speed	15.159 m/s
Speed: 75th - 25th percentile	43.58 km/h	Relative cubic speed	373.18 m^2/s^2
Maximum speed	102.97 km/h	Relative positive cubic speed	228.08 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	317.11 m^2/s^2
Average positive acceleration	0.381 m/s^2	Root mean square of acceleration	0.171 m/s^2

Cycle No: 204

Cycle name: **MODEM Hyzem motorway_total**
Alternative name: **MODEM-HyZem.motorway**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

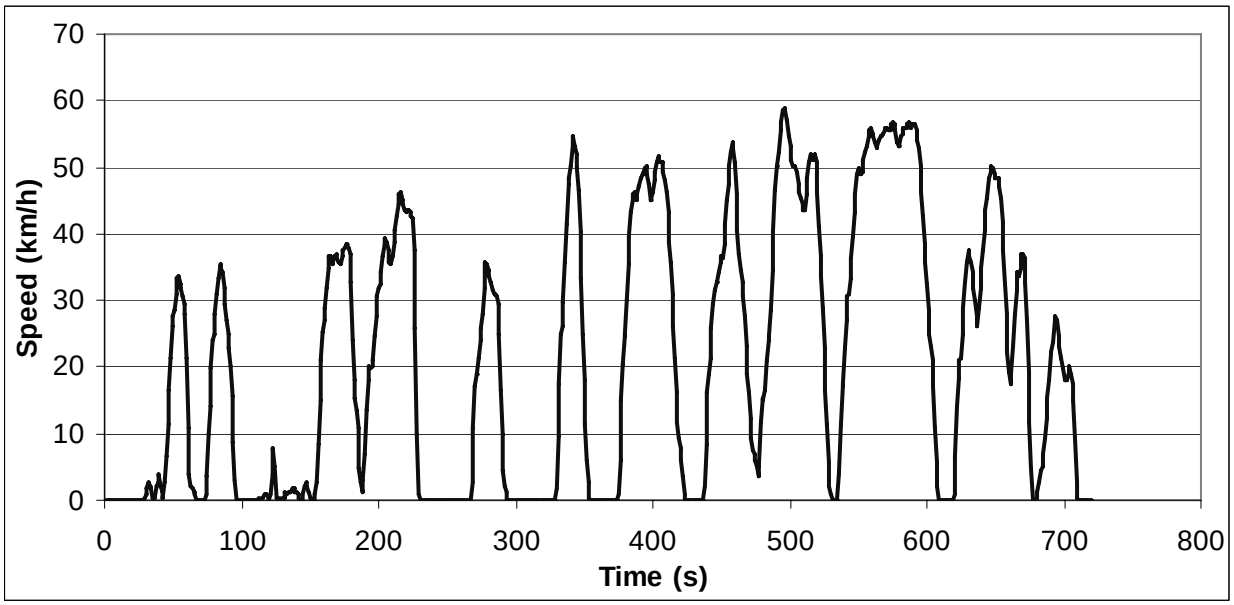


ART.KINEMA parameters

Total distance	46210.07 m	Average negative acceleration	-0.321 m/s^2
Total time	1804 s	Standard deviation of accel.	0.518 m/s^2
Driving time	1760 s	Standard dev. of positive accel.	0.353 m/s^2
Drive time	519 s	Accel: 75th - 25th percentile	0.233 m/s^2
Drive time spent accelerating	684 s	Number of accelerations	76
Drive time spent decelerating	557 s	Accelerations per km	1.645 /km
Time spent braking	249 s	Number of stops	5
Standing time	44 s	Stops per km	0.11 /km
% of time driving	97.56 %	Average stop duration	8.8 s
% of cruising	28.77 %	Average distance between stops	9242.01 m
% of time accelerating	37.92 %	Relative positive acceleration	0.0982 m/s^2
% of time decelerating	30.88 %	Positive kinetic energy	2.567 m/s^2
% of time braking	13.80 %	Relative positive speed	0.530
% of time standing	2.44 %	Relative real speed	0.895
Average speed (trip)	92.2 km/h	Relative square speed	29.439 m/s
Average driving speed	94.52 km/h	Relative positive square speed	15.463 m/s
Standard deviation of speed	32.92 km/h	Relative real square speed	26.826 m/s
Speed: 75th - 25th percentile	43.94 km/h	Relative cubic speed	904.67 m^2/s^2
Maximum speed	137.66 km/h	Relative positive cubic speed	471.59 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	833.74 m^2/s^2
Average positive acceleration	0.268 m/s^2	Root mean square of acceleration	0.101 m/s^2

Cycle No: 205

Cycle name: **MODEM Hyzem urban1**
Alternative name: **MODEM-HyZem.urban1**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

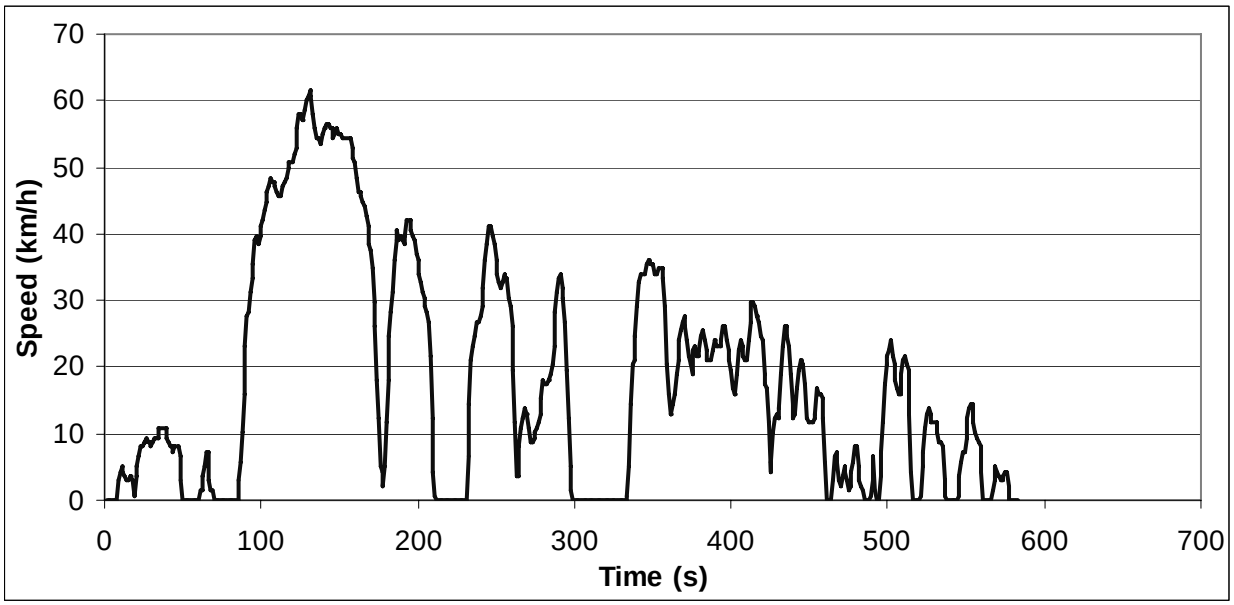


ART.KINEMA parameters

Total distance	4192.48 m	Average negative acceleration	-0.602 m/s^2
Total time	720 s	Standard deviation of accel.	0.736 m/s^2
Driving time	581 s	Standard dev. of positive accel.	0.431 m/s^2
Drive time	104 s	Accel: 75th - 25th percentile	0.433 m/s^2
Drive time spent accelerating	256 s	Number of accelerations	25
Drive time spent decelerating	221 s	Accelerations per km	5.963 /km
Time spent braking	157 s	Number of stops	10
Standing time	139 s	Stops per km	2.39 /km
% of time driving	80.69 %	Average stop duration	13.9 s
% of cruising	14.44 %	Average distance between stops	419.25 m
% of time accelerating	35.56 %	Relative positive acceleration	0.2546 m/s^2
% of time decelerating	30.69 %	Positive kinetic energy	6.634 m/s^2
% of time braking	21.81 %	Relative positive speed	0.547
% of time standing	19.31 %	Relative real speed	0.736
Average speed (trip)	21.0 km/h	Relative square speed	11.040 m/s
Average driving speed	25.98 km/h	Relative positive square speed	6.025 m/s
Standard deviation of speed	18.93 km/h	Relative real square speed	8.421 m/s
Speed: 75th - 25th percentile	37.12 km/h	Relative cubic speed	135.26 m^2/s^2
Maximum speed	58.51 km/h	Relative positive cubic speed	73.65 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	105.66 m^2/s^2
Average positive acceleration	0.494 m/s^2	Root mean square of acceleration	0.274 m/s^2

Cycle No: 206

Cycle name: **MODEM Hyzem urban3**
Alternative name: **MODEM-HyZem.urban3**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

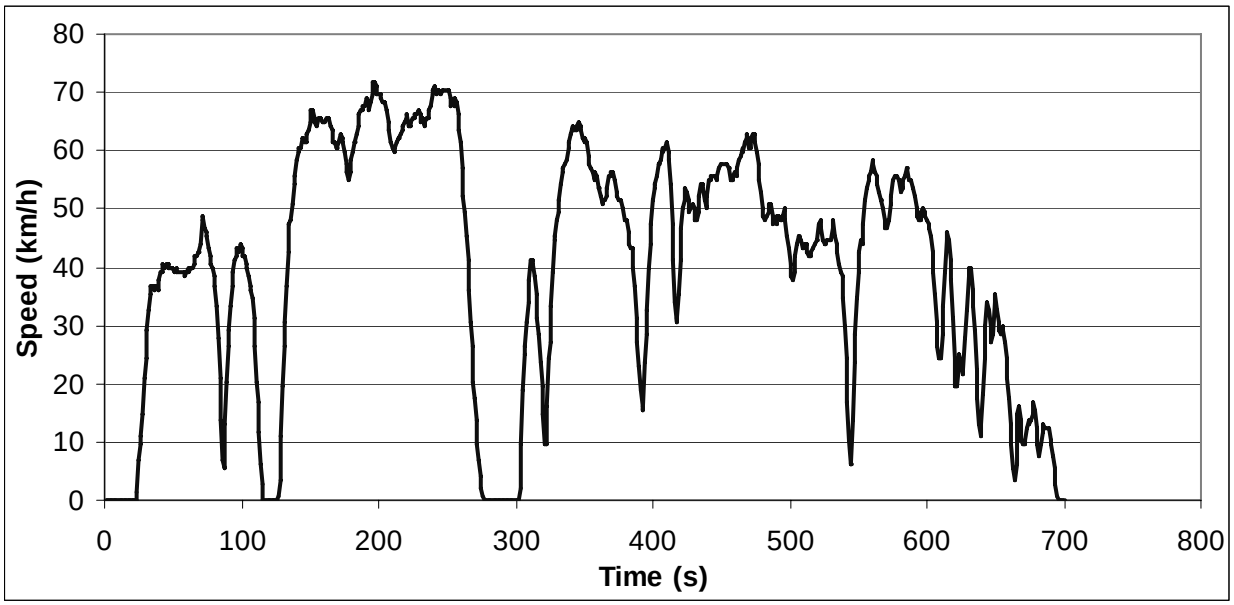


ART.KINEMA parameters

Total distance	2920.36 m	Average negative acceleration	-0.368 m/s^2
Total time	583 s	Standard deviation of accel.	0.529 m/s^2
Driving time	516 s	Standard dev. of positive accel.	0.360 m/s^2
Drive time	101 s	Accel: 75th - 25th percentile	0.380 m/s^2
Drive time spent accelerating	222 s	Number of accelerations	29
Drive time spent decelerating	193 s	Accelerations per km	9.930 /km
Time spent braking	125 s	Number of stops	7
Standing time	67 s	Stops per km	2.4 /km
% of time driving	88.51 %	Average stop duration	9.57 s
% of cruising	17.32 %	Average distance between stops	417.19 m
% of time accelerating	38.08 %	Relative positive acceleration	0.1703 m/s^2
% of time decelerating	33.10 %	Positive kinetic energy	4.460 m/s^2
% of time braking	21.44 %	Relative positive speed	0.509
% of time standing	11.49 %	Relative real speed	0.757
Average speed (trip)	18.0 km/h	Relative square speed	9.485 m/s
Average driving speed	20.37 km/h	Relative positive square speed	4.720 m/s
Standard deviation of speed	16.77 km/h	Relative real square speed	7.367 m/s
Speed: 75th - 25th percentile	25.66 km/h	Relative cubic speed	109.24 m^2/s^2
Maximum speed	60.32 km/h	Relative positive cubic speed	53.25 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	86.94 m^2/s^2
Average positive acceleration	0.354 m/s^2	Root mean square of acceleration	0.222 m/s^2

Cycle No: 207

Cycle name: **MODEM Hyzem road1_total**
Alternative name: **MODEM-HyZem.road1**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

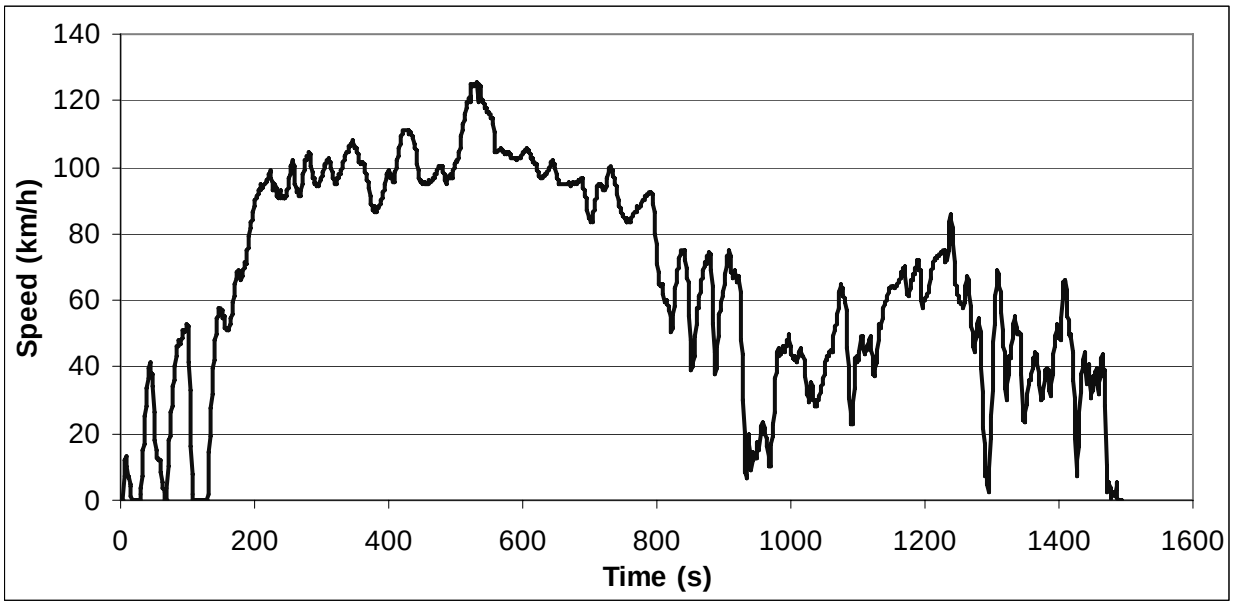


ART.KINEMA parameters

Total distance	7830.31 m	Average negative acceleration	-0.397 m/s^2
Total time	700 s	Standard deviation of accel.	0.596 m/s^2
Driving time	651 s	Standard dev. of positive accel.	0.458 m/s^2
Drive time	147 s	Accel: 75th - 25th percentile	0.370 m/s^2
Drive time spent accelerating	249 s	Number of accelerations	33
Drive time spent decelerating	255 s	Accelerations per km	4.214 /km
Time spent braking	155 s	Number of stops	4
Standing time	49 s	Stops per km	0.51 /km
% of time driving	93.00 %	Average stop duration	12.25 s
% of cruising	21.00 %	Average distance between stops	1957.58 m
% of time accelerating	35.57 %	Relative positive acceleration	0.1584 m/s^2
% of time decelerating	36.43 %	Positive kinetic energy	4.138 m/s^2
% of time braking	22.14 %	Relative positive speed	0.509
% of time standing	7.00 %	Relative real speed	0.799
Average speed (trip)	40.3 km/h	Relative square speed	14.230 m/s
Average driving speed	43.3 km/h	Relative positive square speed	7.284 m/s
Standard deviation of speed	18.54 km/h	Relative real square speed	11.708 m/s
Speed: 75th - 25th percentile	30.47 km/h	Relative cubic speed	216.89 m^2/s^2
Maximum speed	70.79 km/h	Relative positive cubic speed	111.46 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	182.19 m^2/s^2
Average positive acceleration	0.393 m/s^2	Root mean square of acceleration	0.172 m/s^2

Cycle No: 208

Cycle name: **MODEM Hyzem road2_total**
Alternative name: **MODEM-HyZem.road2**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

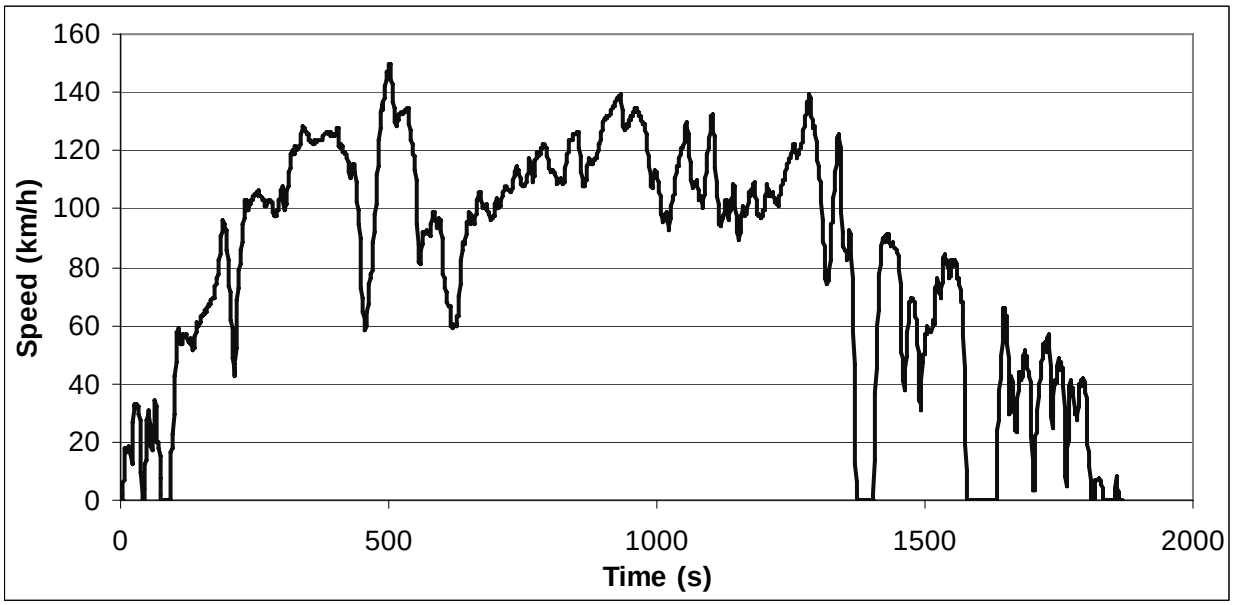


ART.KINEMA parameters

Total distance	27330.59 m	Average negative acceleration	-0.365 m/s^2
Total time	1494 s	Standard deviation of accel.	0.510 m/s^2
Driving time	1463 s	Standard dev. of positive accel.	0.319 m/s^2
Drive time	297 s	Accel: 75th - 25th percentile	0.383 m/s^2
Drive time spent accelerating	656 s	Number of accelerations	64
Drive time spent decelerating	510 s	Accelerations per km	2.342 /km
Time spent braking	288 s	Number of stops	3
Standing time	31 s	Stops per km	0.11 /km
% of time driving	97.93 %	Average stop duration	10.33 s
% of cruising	19.88 %	Average distance between stops	9110.2 m
% of time accelerating	43.91 %	Relative positive acceleration	0.1258 m/s^2
% of time decelerating	34.14 %	Positive kinetic energy	3.291 m/s^2
% of time braking	19.28 %	Relative positive speed	0.547
% of time standing	2.07 %	Relative real speed	0.841
Average speed (trip)	65.9 km/h	Relative square speed	22.719 m/s
Average driving speed	67.25 km/h	Relative positive square speed	12.199 m/s
Standard deviation of speed	31.28 km/h	Relative real square speed	19.580 m/s
Speed: 75th - 25th percentile	53.32 km/h	Relative cubic speed	564.76 m^2/s^2
Maximum speed	125.05 km/h	Relative positive cubic speed	298.44 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	494.04 m^2/s^2
Average positive acceleration	0.297 m/s^2	Root mean square of acceleration	0.118 m/s^2

Cycle No: 209

Cycle name: **MODEM Hyzem motorway1_total**
Alternative name: **MODEM-HyZem.motorway1**
Test programme: **Modem-HyZem for passenger cars**
Additional info:
Vehicle category: **Cars**

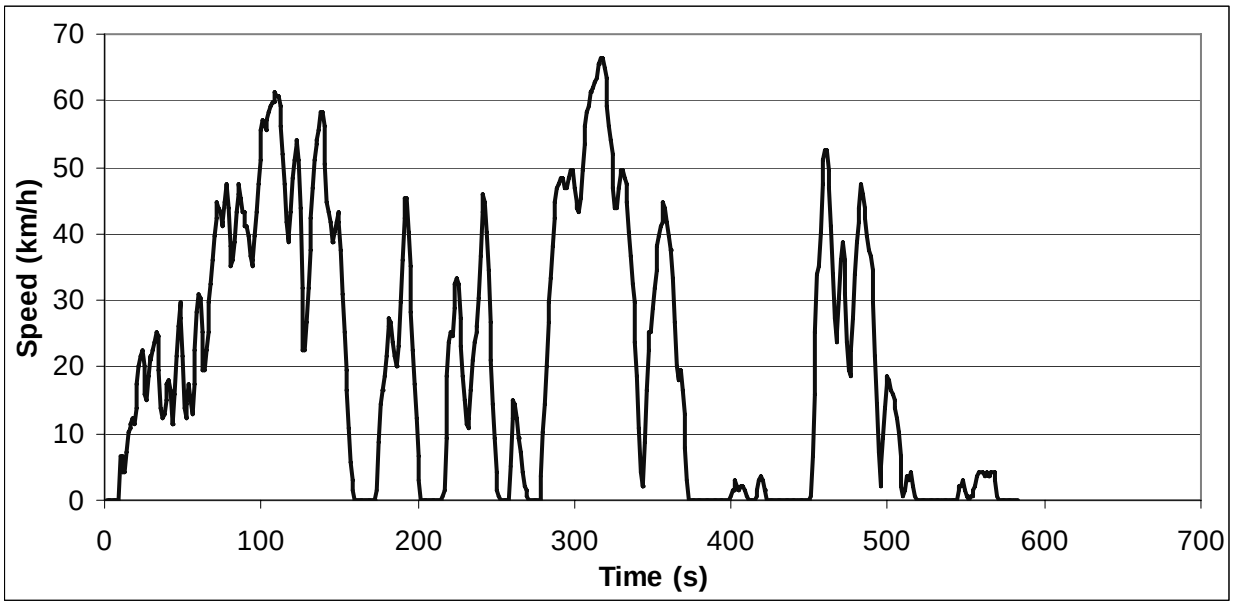


ART.KINEMA parameters

Total distance	42702.63 m	Average negative acceleration	-0.410 m/s^2
Total time	1868 s	Standard deviation of accel.	0.579 m/s^2
Driving time	1757 s	Standard dev. of positive accel.	0.371 m/s^2
Drive time	331 s	Accel: 75th - 25th percentile	0.407 m/s^2
Drive time spent accelerating	772 s	Number of accelerations	84
Drive time spent decelerating	654 s	Accelerations per km	1.967 /km
Time spent braking	383 s	Number of stops	6
Standing time	111 s	Stops per km	0.14 /km
% of time driving	94.06 %	Average stop duration	18.5 s
% of cruising	17.72 %	Average distance between stops	7117.1 m
% of time accelerating	41.33 %	Relative positive acceleration	0.1542 m/s^2
% of time decelerating	35.01 %	Positive kinetic energy	4.032 m/s^2
% of time braking	20.50 %	Relative positive speed	0.546
% of time standing	5.94 %	Relative real speed	0.804
Average speed (trip)	82.3 km/h	Relative square speed	28.581 m/s
Average driving speed	87.5 km/h	Relative positive square speed	15.745 m/s
Standard deviation of speed	36.71 km/h	Relative real square speed	23.245 m/s
Speed: 75th - 25th percentile	60.83 km/h	Relative cubic speed	870.03 m^2/s^2
Maximum speed	149.19 km/h	Relative positive cubic speed	483.58 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	711.44 m^2/s^2
Average positive acceleration	0.352 m/s^2	Root mean square of acceleration	0.117 m/s^2

Cycle No: 210

Cycle name: **LDV_PVU commercial cars urban_1**
Alternative name: **PVU-Vcom.urban1**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

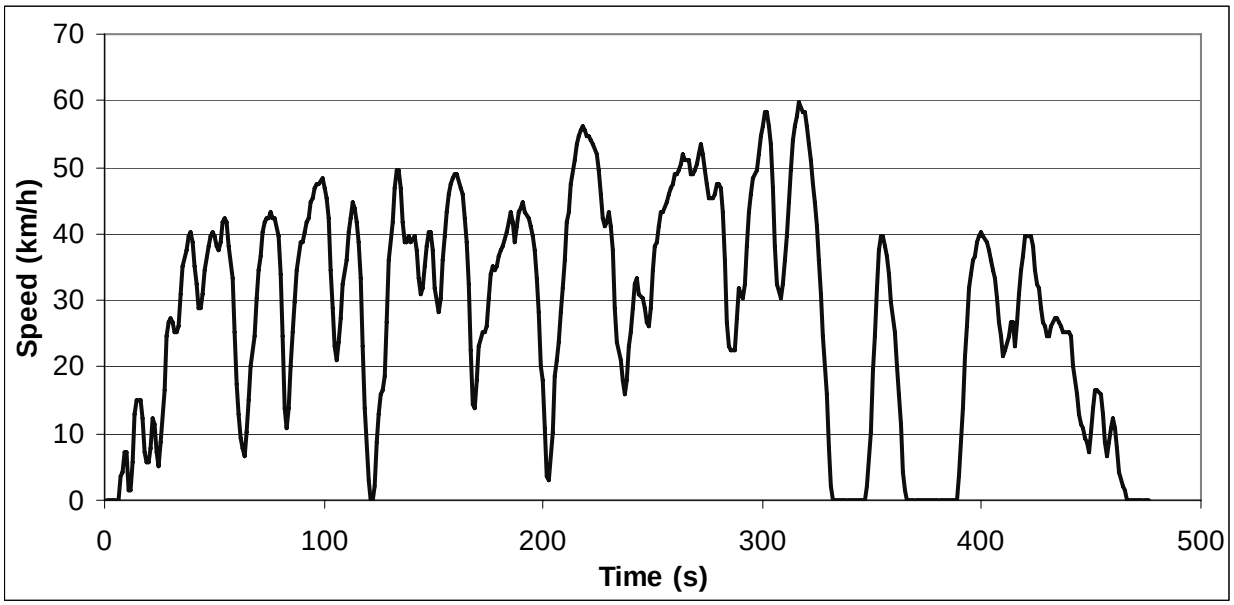


ART.KINEMA parameters

Total distance	3328.02 m	Average negative acceleration	-0.551 m/s^2
Total time	583 s	Standard deviation of accel.	0.729 m/s^2
Driving time	486 s	Standard dev. of positive accel.	0.473 m/s^2
Drive time	76 s	Accel: 75th - 25th percentile	0.485 m/s^2
Drive time spent accelerating	212 s	Number of accelerations	29
Drive time spent decelerating	198 s	Accelerations per km	8.714 /km
Time spent braking	143 s	Number of stops	9
Standing time	97 s	Stops per km	2.7 /km
% of time driving	83.36 %	Average stop duration	10.78 s
% of cruising	13.04 %	Average distance between stops	369.78 m
% of time accelerating	36.36 %	Relative positive acceleration	0.294 m/s^2
% of time decelerating	33.96 %	Positive kinetic energy	7.727 m/s^2
% of time braking	24.53 %	Relative positive speed	0.541
% of time standing	16.64 %	Relative real speed	0.662
Average speed (trip)	20.6 km/h	Relative square speed	10.973 m/s
Average driving speed	24.65 km/h	Relative positive square speed	6.096 m/s
Standard deviation of speed	19.15 km/h	Relative real square speed	7.400 m/s
Speed: 75th - 25th percentile	39.07 km/h	Relative cubic speed	137.44 m^2/s^2
Maximum speed	66.15 km/h	Relative positive cubic speed	78.41 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	94.50 m^2/s^2
Average positive acceleration	0.516 m/s^2	Root mean square of acceleration	0.278 m/s^2

Cycle No: 211

Cycle name: **LDV_PVU commercial cars urban_2**
Alternative name: **PVU-Vcom.urban2**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

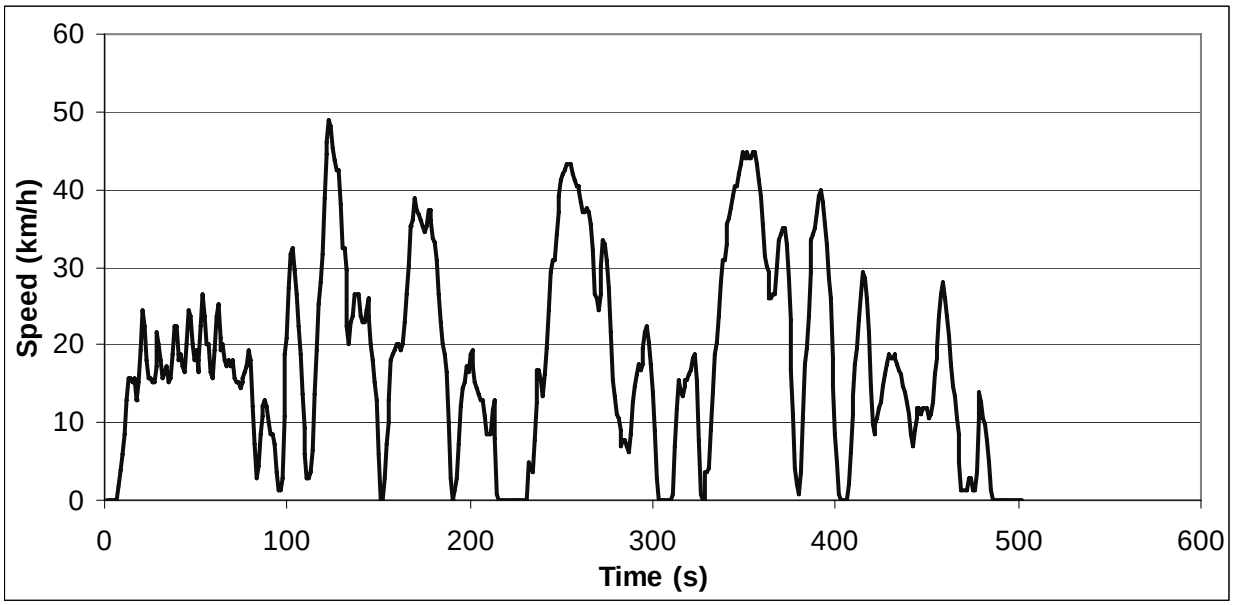


ART.KINEMA parameters

Total distance	3733.34 m	Average negative acceleration	-0.644 m/s^2
Total time	476 s	Standard deviation of accel.	0.794 m/s^2
Driving time	436 s	Standard dev. of positive accel.	0.470 m/s^2
Drive time	46 s	Accel: 75th - 25th percentile	0.745 m/s^2
Drive time spent accelerating	210 s	Number of accelerations	23
Drive time spent decelerating	180 s	Accelerations per km	6.161 /km
Time spent braking	137 s	Number of stops	4
Standing time	40 s	Stops per km	1.07 /km
% of time driving	91.60 %	Average stop duration	10 s
% of cruising	9.66 %	Average distance between stops	933.33 m
% of time accelerating	44.12 %	Relative positive acceleration	0.2828 m/s^2
% of time decelerating	37.82 %	Positive kinetic energy	7.406 m/s^2
% of time braking	28.78 %	Relative positive speed	0.544
% of time standing	8.40 %	Relative real speed	0.692
Average speed (trip)	28.2 km/h	Relative square speed	10.599 m/s
Average driving speed	30.83 km/h	Relative positive square speed	5.795 m/s
Standard deviation of speed	15.05 km/h	Relative real square speed	7.439 m/s
Speed: 75th - 25th percentile	28.31 km/h	Relative cubic speed	122.42 m^2/s^2
Maximum speed	58.24 km/h	Relative positive cubic speed	66.94 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	86.99 m^2/s^2
Average positive acceleration	0.551 m/s^2	Root mean square of acceleration	0.271 m/s^2

Cycle No: 212

Cycle name: **LDV_PVU commercial cars urban_3**
Alternative name: **PVU-Vcom.urban3**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

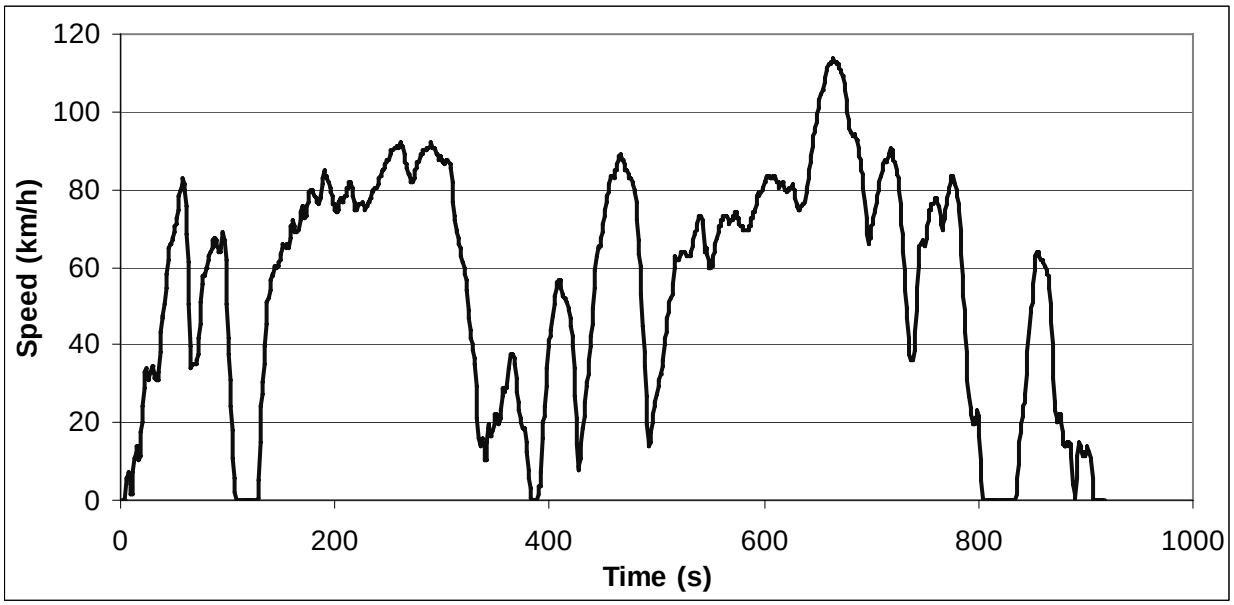


ART.KINEMA parameters

Total distance	2478.96 m	Average negative acceleration	-0.458 m/s^2
Total time	502 s	Standard deviation of accel.	0.600 m/s^2
Driving time	473 s	Standard dev. of positive accel.	0.390 m/s^2
Drive time	67 s	Accel: 75th - 25th percentile	0.565 m/s^2
Drive time spent accelerating	208 s	Number of accelerations	27
Drive time spent decelerating	198 s	Accelerations per km	10.892 /km
Time spent braking	129 s	Number of stops	4
Standing time	29 s	Stops per km	1.61 /km
% of time driving	94.22 %	Average stop duration	7.25 s
% of cruising	13.35 %	Average distance between stops	619.74 m
% of time accelerating	41.43 %	Relative positive acceleration	0.2174 m/s^2
% of time decelerating	39.44 %	Positive kinetic energy	5.692 m/s^2
% of time braking	25.70 %	Relative positive speed	0.510
% of time standing	5.78 %	Relative real speed	0.738
Average speed (trip)	17.8 km/h	Relative square speed	7.342 m/s
Average driving speed	18.87 km/h	Relative positive square speed	3.747 m/s
Standard deviation of speed	11.96 km/h	Relative real square speed	5.498 m/s
Speed: 75th - 25th percentile	16.73 km/h	Relative cubic speed	63.66 m^2/s^2
Maximum speed	46.73 km/h	Relative positive cubic speed	32.58 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	48.24 m^2/s^2
Average positive acceleration	0.437 m/s^2	Root mean square of acceleration	0.262 m/s^2

Cycle No: 213

Cycle name: **LDV_PVU commercial cars road_total**
Alternative name: **PVU-Vcom.road**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

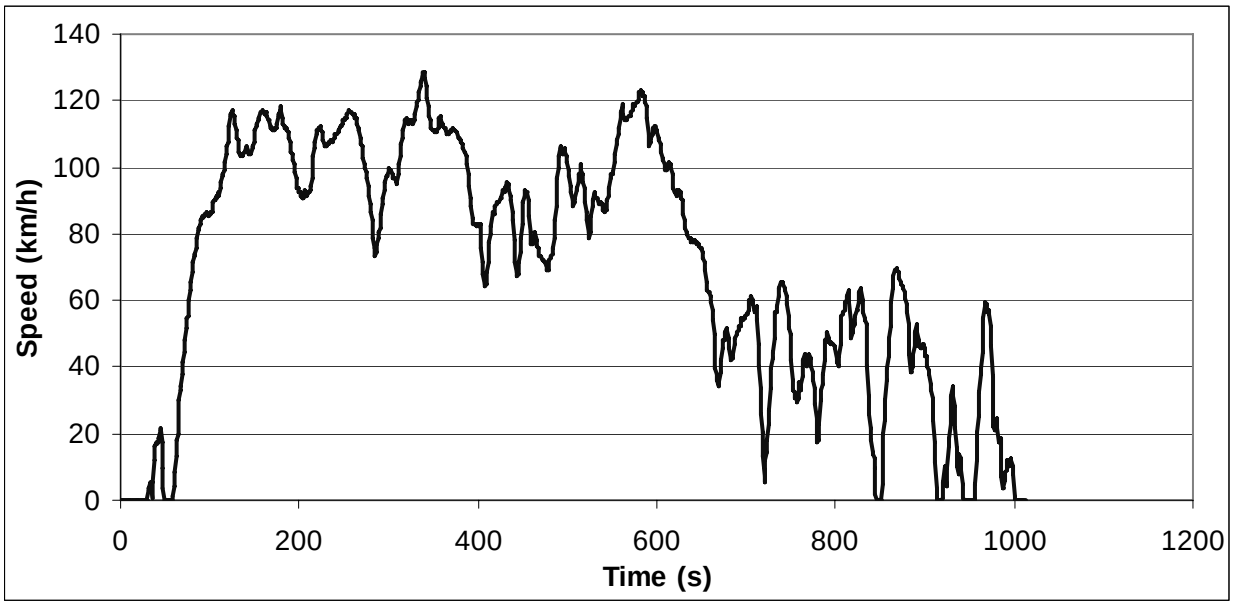


ART.KINEMA parameters

Total distance	14085.53 m	Average negative acceleration	-0.500 m/s^2
Total time	917 s	Standard deviation of accel.	0.627 m/s^2
Driving time	864 s	Standard dev. of positive accel.	0.357 m/s^2
Drive time	123 s	Accel: 75th - 25th percentile	0.529 m/s^2
Drive time spent accelerating	419 s	Number of accelerations	42
Drive time spent decelerating	322 s	Accelerations per km	2.982 /km
Time spent braking	202 s	Number of stops	4
Standing time	53 s	Stops per km	0.28 /km
% of time driving	94.22 %	Average stop duration	13.25 s
% of cruising	13.41 %	Average distance between stops	3521.38 m
% of time accelerating	45.69 %	Relative positive acceleration	0.184 m/s^2
% of time decelerating	35.11 %	Positive kinetic energy	4.804 m/s^2
% of time braking	22.03 %	Relative positive speed	0.561
% of time standing	5.78 %	Relative real speed	0.791
Average speed (trip)	55.3 km/h	Relative square speed	20.034 m/s
Average driving speed	58.69 km/h	Relative positive square speed	11.155 m/s
Standard deviation of speed	28.09 km/h	Relative real square speed	16.123 m/s
Speed: 75th - 25th percentile	50.97 km/h	Relative cubic speed	433.76 m^2/s^2
Maximum speed	113.03 km/h	Relative positive cubic speed	239.79 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	352.97 m^2/s^2
Average positive acceleration	0.392 m/s^2	Root mean square of acceleration	0.155 m/s^2

Cycle No: 214

Cycle name: **LDV_PVU commercial cars motorway_1_total**
Alternative name: **PVU-Vcom.mainroad**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

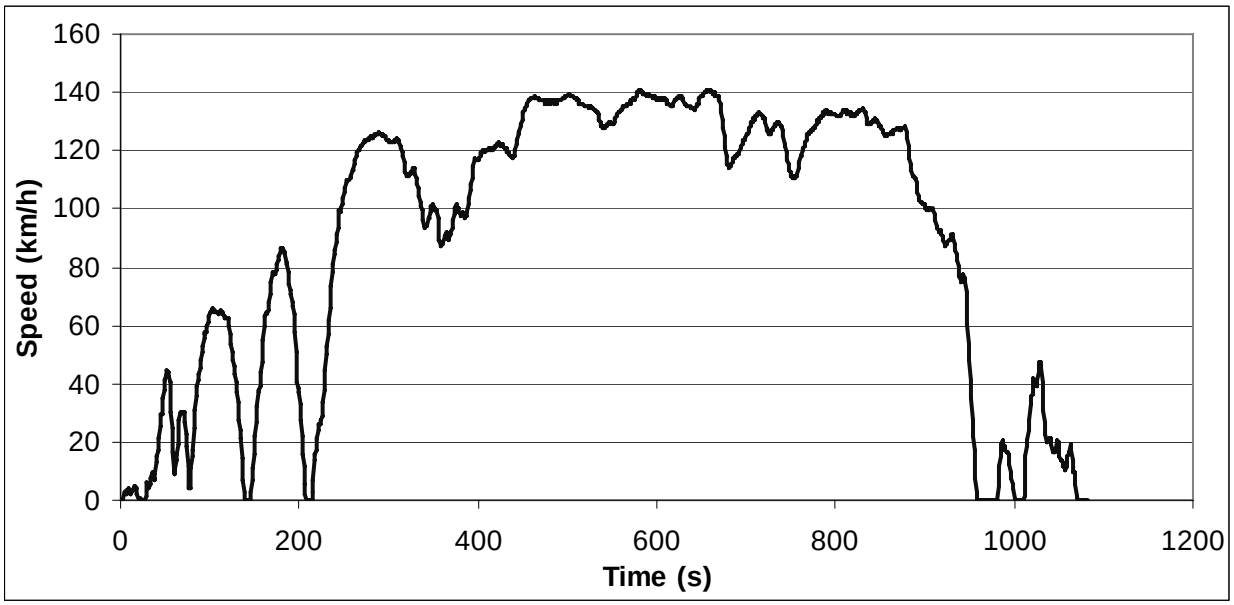


ART.KINEMA parameters

Total distance	19656.62 m	Average negative acceleration	-0.438 m/s^2
Total time	1012 s	Standard deviation of accel.	0.596 m/s^2
Driving time	956 s	Standard dev. of positive accel.	0.387 m/s^2
Drive time	124 s	Accel: 75th - 25th percentile	0.556 m/s^2
Drive time spent accelerating	423 s	Number of accelerations	40
Drive time spent decelerating	409 s	Accelerations per km	2.035 /km
Time spent braking	259 s	Number of stops	6
Standing time	56 s	Stops per km	0.31 /km
% of time driving	94.47 %	Average stop duration	9.33 s
% of cruising	12.25 %	Average distance between stops	3276.1 m
% of time accelerating	41.80 %	Relative positive acceleration	0.1766 m/s^2
% of time decelerating	40.42 %	Positive kinetic energy	4.625 m/s^2
% of time braking	25.59 %	Relative positive speed	0.496
% of time standing	5.53 %	Relative real speed	0.759
Average speed (trip)	69.9 km/h	Relative square speed	25.101 m/s
Average driving speed	74.02 km/h	Relative positive square speed	12.467 m/s
Standard deviation of speed	34.8 km/h	Relative real square speed	19.449 m/s
Speed: 75th - 25th percentile	62 km/h	Relative cubic speed	679.84 m^2/s^2
Maximum speed	128.56 km/h	Relative positive cubic speed	338.45 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	533.35 m^2/s^2
Average positive acceleration	0.431 m/s^2	Root mean square of acceleration	0.131 m/s^2

Cycle No: 215

Cycle name: **LDV_PVU commercial cars motorway_2_total**
Alternative name: **PVU-Vcom.motorway**
Test programme: **Driving cycles for passenger cars with a professional use**
Additional info:
Vehicle category: **Cars**

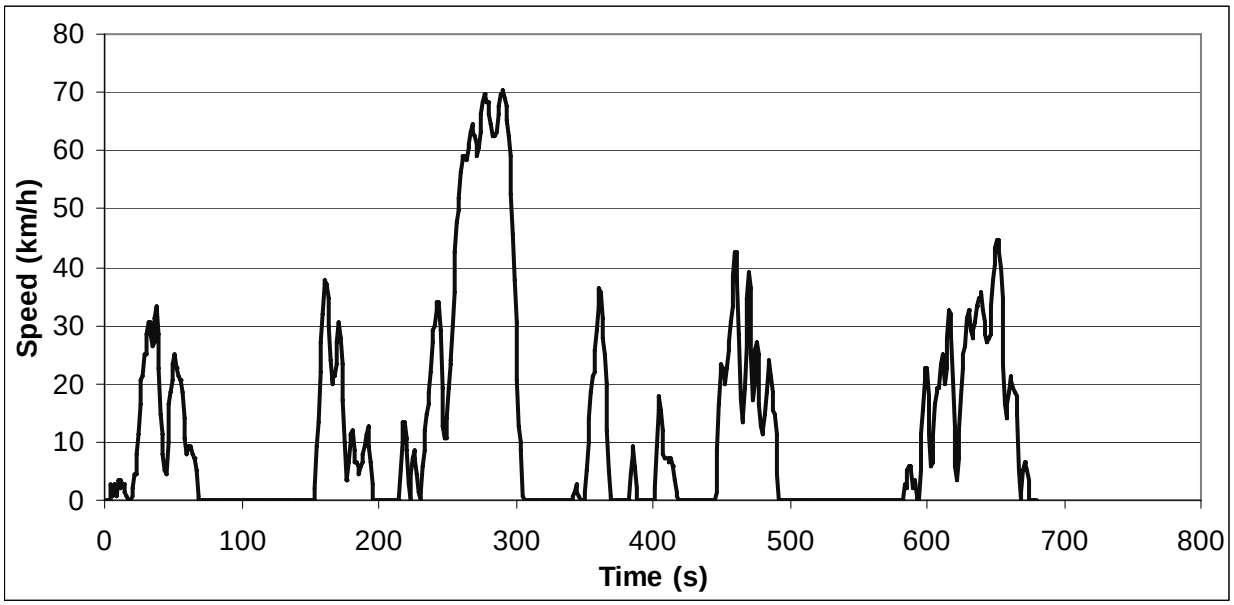


ART.KINEMA parameters

Total distance	26965.08 m	Average negative acceleration	-0.308 m/s^2
Total time	1082 s	Standard deviation of accel.	0.476 m/s^2
Driving time	1042 s	Standard dev. of positive accel.	0.335 m/s^2
Drive time	278 s	Accel: 75th - 25th percentile	0.249 m/s^2
Drive time spent accelerating	418 s	Number of accelerations	44
Drive time spent decelerating	346 s	Accelerations per km	1.632 /km
Time spent braking	184 s	Number of stops	6
Standing time	40 s	Stops per km	0.22 /km
% of time driving	96.30 %	Average stop duration	6.67 s
% of cruising	25.69 %	Average distance between stops	4494.18 m
% of time accelerating	38.63 %	Relative positive acceleration	0.0977 m/s^2
% of time decelerating	31.98 %	Positive kinetic energy	2.551 m/s^2
% of time braking	17.01 %	Relative positive speed	0.509
% of time standing	3.70 %	Relative real speed	0.875
Average speed (trip)	89.7 km/h	Relative square speed	32.382 m/s
Average driving speed	93.16 km/h	Relative positive square speed	16.381 m/s
Standard deviation of speed	46.73 km/h	Relative real square speed	29.050 m/s
Speed: 75th - 25th percentile	88.98 km/h	Relative cubic speed	1106.49 m^2/s^2
Maximum speed	140.52 km/h	Relative positive cubic speed	556.37 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	1007.03 m^2/s^2
Average positive acceleration	0.293 m/s^2	Root mean square of acceleration	0.094 m/s^2

Cycle No: 216

Cycle name: **LDV_PVU light vans-Empty urban1**
Alternative name: **PVU-lightvans-E.urban1**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

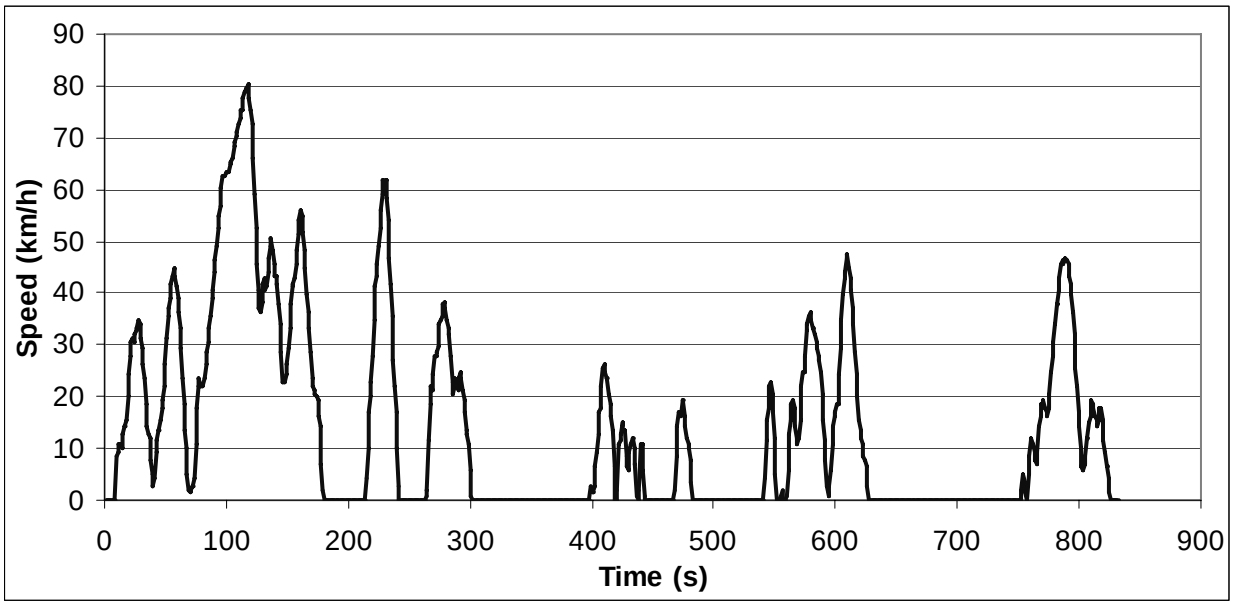


ART.KINEMA parameters

Total distance	2305.41 m	Average negative acceleration	-0.526 m/s^2
Total time	680 s	Standard deviation of accel.	0.693 m/s^2
Driving time	437 s	Standard dev. of positive accel.	0.427 m/s^2
Drive time	67 s	Accel: 75th - 25th percentile	0.196 m/s^2
Drive time spent accelerating	191 s	Number of accelerations	28
Drive time spent decelerating	179 s	Accelerations per km	12.145 /km
Time spent braking	125 s	Number of stops	8
Standing time	243 s	Stops per km	3.47 /km
% of time driving	64.26 %	Average stop duration	30.38 s
% of cruising	9.85 %	Average distance between stops	288.18 m
% of time accelerating	28.09 %	Relative positive acceleration	0.2831 m/s^2
% of time decelerating	26.32 %	Positive kinetic energy	7.450 m/s^2
% of time braking	18.38 %	Relative positive speed	0.555
% of time standing	35.74 %	Relative real speed	0.708
Average speed (trip)	12.2 km/h	Relative square speed	10.075 m/s
Average driving speed	18.99 km/h	Relative positive square speed	5.673 m/s
Standard deviation of speed	18.14 km/h	Relative real square speed	7.469 m/s
Speed: 75th - 25th percentile	21 km/h	Relative cubic speed	132.65 m^2/s^2
Maximum speed	69.44 km/h	Relative positive cubic speed	74.03 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	101.65 m^2/s^2
Average positive acceleration	0.486 m/s^2	Root mean square of acceleration	0.302 m/s^2

Cycle No: 217

Cycle name: **LDV_PVU light vans-Loaded urban1**
Alternative name: **PVU-lightvans-L.urban1**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

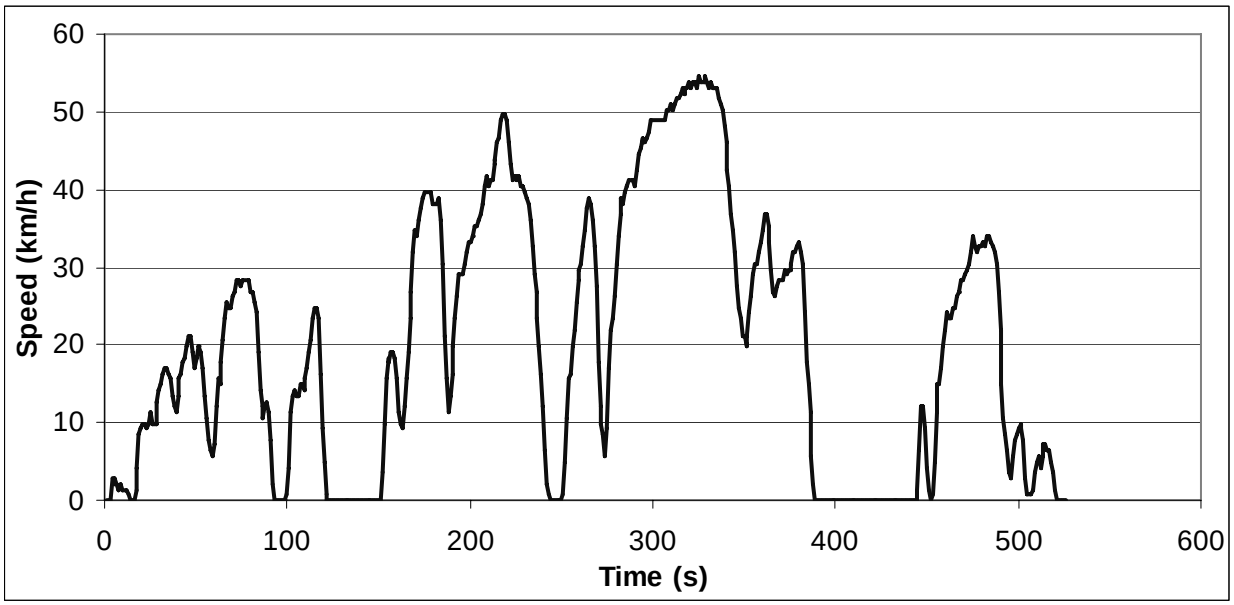


ART.KINEMA parameters

Total distance	3239.7 m	Average negative acceleration	-0.624 m/s^2
Total time	832 s	Standard deviation of accel.	0.713 m/s^2
Driving time	494 s	Standard dev. of positive accel.	0.379 m/s^2
Drive time	53 s	Accel: 75th - 25th percentile	0.223 m/s^2
Drive time spent accelerating	239 s	Number of accelerations	23
Drive time spent decelerating	202 s	Accelerations per km	7.099 /km
Time spent braking	167 s	Number of stops	8
Standing time	338 s	Stops per km	2.47 /km
% of time driving	59.38 %	Average stop duration	42.25 s
% of cruising	6.37 %	Average distance between stops	404.96 m
% of time accelerating	28.73 %	Relative positive acceleration	0.3008 m/s^2
% of time decelerating	24.28 %	Positive kinetic energy	7.857 m/s^2
% of time braking	20.07 %	Relative positive speed	0.572
% of time standing	40.63 %	Relative real speed	0.674
Average speed (trip)	14.0 km/h	Relative square speed	10.752 m/s
Average driving speed	23.61 km/h	Relative positive square speed	6.472 m/s
Standard deviation of speed	18.9 km/h	Relative real square speed	7.575 m/s
Speed: 75th - 25th percentile	23.16 km/h	Relative cubic speed	144.48 m^2/s^2
Maximum speed	79.55 km/h	Relative positive cubic speed	90.38 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	105.74 m^2/s^2
Average positive acceleration	0.530 m/s^2	Root mean square of acceleration	0.278 m/s^2

Cycle No: 218

Cycle name: **LDV_PVU light vans-Empty urban2**
Alternative name: **PVU-lightvans-E.urban2**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

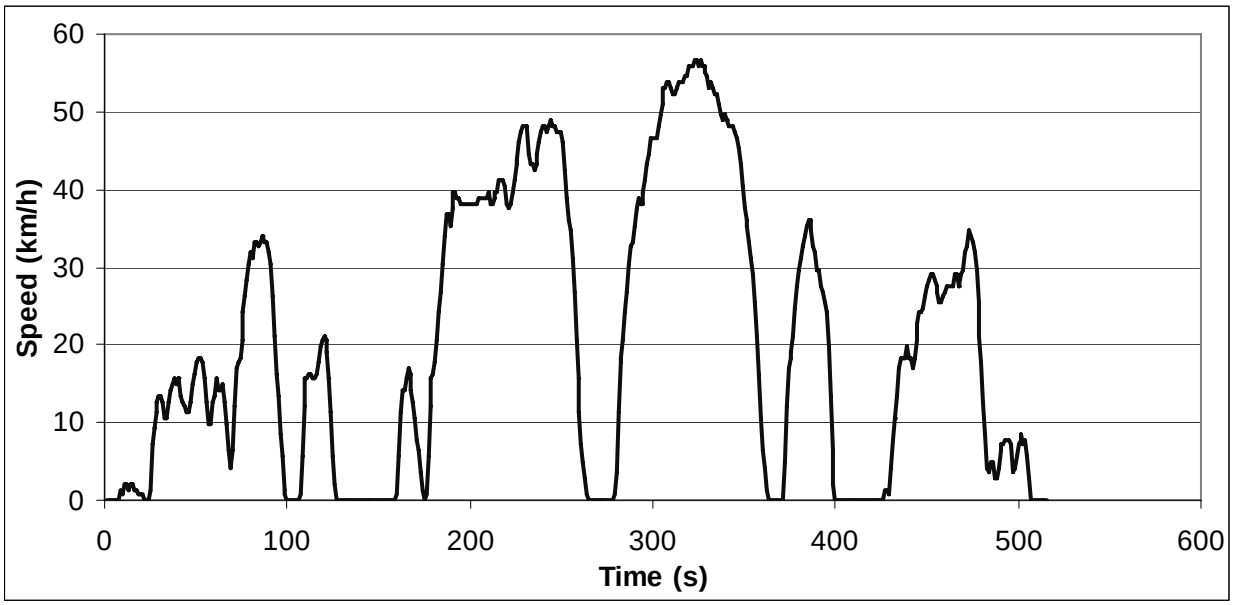


ART.KINEMA parameters

Total distance	2924.24 m	Average negative acceleration	-0.462 m/s^2
Total time	526 s	Standard deviation of accel.	0.524 m/s^2
Driving time	445 s	Standard dev. of positive accel.	0.293 m/s^2
Drive time	73 s	Accel: 75th - 25th percentile	0.305 m/s^2
Drive time spent accelerating	224 s	Number of accelerations	20
Drive time spent decelerating	148 s	Accelerations per km	6.839 /km
Time spent braking	102 s	Number of stops	5
Standing time	81 s	Stops per km	1.71 /km
% of time driving	84.60 %	Average stop duration	16.2 s
% of cruising	13.88 %	Average distance between stops	584.85 m
% of time accelerating	42.59 %	Relative positive acceleration	0.1636 m/s^2
% of time decelerating	28.14 %	Positive kinetic energy	4.263 m/s^2
% of time braking	19.39 %	Relative positive speed	0.631
% of time standing	15.40 %	Relative real speed	0.798
Average speed (trip)	20.0 km/h	Relative square speed	9.497 m/s
Average driving speed	23.66 km/h	Relative positive square speed	6.095 m/s
Standard deviation of speed	15.8 km/h	Relative real square speed	7.832 m/s
Speed: 75th - 25th percentile	30.6 km/h	Relative cubic speed	103.62 m^2/s^2
Maximum speed	53.82 km/h	Relative positive cubic speed	67.01 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	87.56 m^2/s^2
Average positive acceleration	0.317 m/s^2	Root mean square of acceleration	0.204 m/s^2

Cycle No: 219

Cycle name: **LDV_PVU light vans-Loaded urban2**
Alternative name: **PVU-lightvans-L.urban2**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

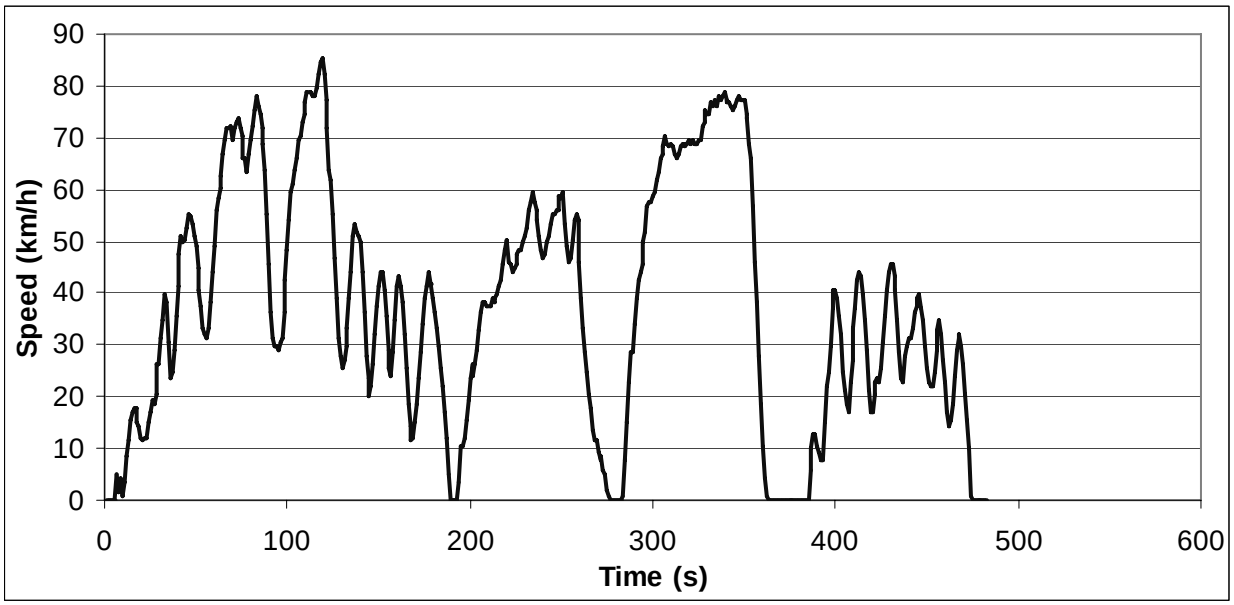


ART.KINEMA parameters

Total distance	2918.25 m	Average negative acceleration	-0.394 m/s^2
Total time	516 s	Standard deviation of accel.	0.515 m/s^2
Driving time	435 s	Standard dev. of positive accel.	0.323 m/s^2
Drive time	90 s	Accel: 75th - 25th percentile	0.315 m/s^2
Drive time spent accelerating	190 s	Number of accelerations	24
Drive time spent decelerating	155 s	Accelerations per km	8.224 /km
Time spent braking	98 s	Number of stops	7
Standing time	81 s	Stops per km	2.4 /km
% of time driving	84.30 %	Average stop duration	11.57 s
% of cruising	17.44 %	Average distance between stops	416.89 m
% of time accelerating	36.82 %	Relative positive acceleration	0.1493 m/s^2
% of time decelerating	30.04 %	Positive kinetic energy	3.901 m/s^2
% of time braking	18.99 %	Relative positive speed	0.541
% of time standing	15.70 %	Relative real speed	0.812
Average speed (trip)	20.4 km/h	Relative square speed	10.016 m/s
Average driving speed	24.15 km/h	Relative positive square speed	5.291 m/s
Standard deviation of speed	16.98 km/h	Relative real square speed	8.448 m/s
Speed: 75th - 25th percentile	33.83 km/h	Relative cubic speed	114.96 m^2/s^2
Maximum speed	56.44 km/h	Relative positive cubic speed	59.29 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	99.63 m^2/s^2
Average positive acceleration	0.336 m/s^2	Root mean square of acceleration	0.199 m/s^2

Cycle No: 220

Cycle name: **LDV_PVU light vans-Empty road**
Alternative name: **PVU-lightvans-E.road**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

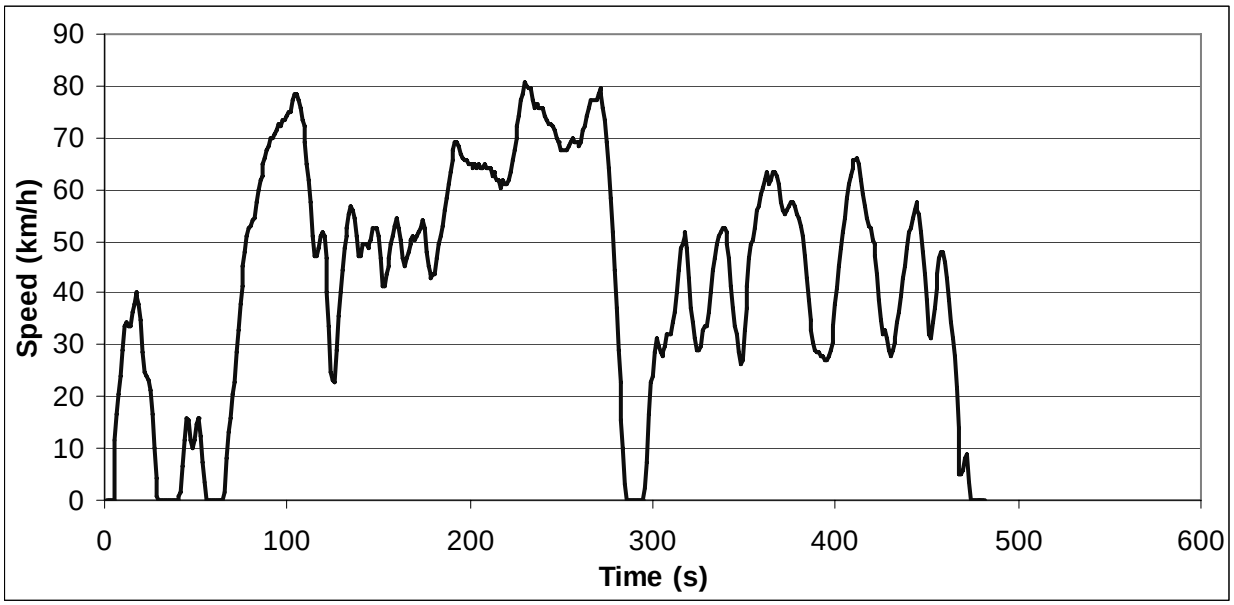


ART.KINEMA parameters

Total distance	5020.58 m	Average negative acceleration	-0.737 m/s^2
Total time	483 s	Standard deviation of accel.	0.834 m/s^2
Driving time	455 s	Standard dev. of positive accel.	0.437 m/s^2
Drive time	44 s	Accel: 75th - 25th percentile	0.849 m/s^2
Drive time spent accelerating	240 s	Number of accelerations	26
Drive time spent decelerating	171 s	Accelerations per km	5.179 /km
Time spent braking	133 s	Number of stops	4
Standing time	28 s	Stops per km	0.8 /km
% of time driving	94.20 %	Average stop duration	7 s
% of cruising	9.11 %	Average distance between stops	1255.15 m
% of time accelerating	49.69 %	Relative positive acceleration	0.2864 m/s^2
% of time decelerating	35.40 %	Positive kinetic energy	7.500 m/s^2
% of time braking	27.54 %	Relative positive speed	0.605
% of time standing	5.80 %	Relative real speed	0.741
Average speed (trip)	37.4 km/h	Relative square speed	14.571 m/s
Average driving speed	39.72 km/h	Relative positive square speed	9.071 m/s
Standard deviation of speed	22.51 km/h	Relative real square speed	11.247 m/s
Speed: 75th - 25th percentile	34.82 km/h	Relative cubic speed	240.92 m^2/s^2
Maximum speed	83 km/h	Relative positive cubic speed	152.78 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	191.60 m^2/s^2
Average positive acceleration	0.543 m/s^2	Root mean square of acceleration	0.251 m/s^2

Cycle No: 221

Cycle name: **LDV_PVU light vans-Loaded road**
Alternative name: **PVU-lightvans-L.road**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

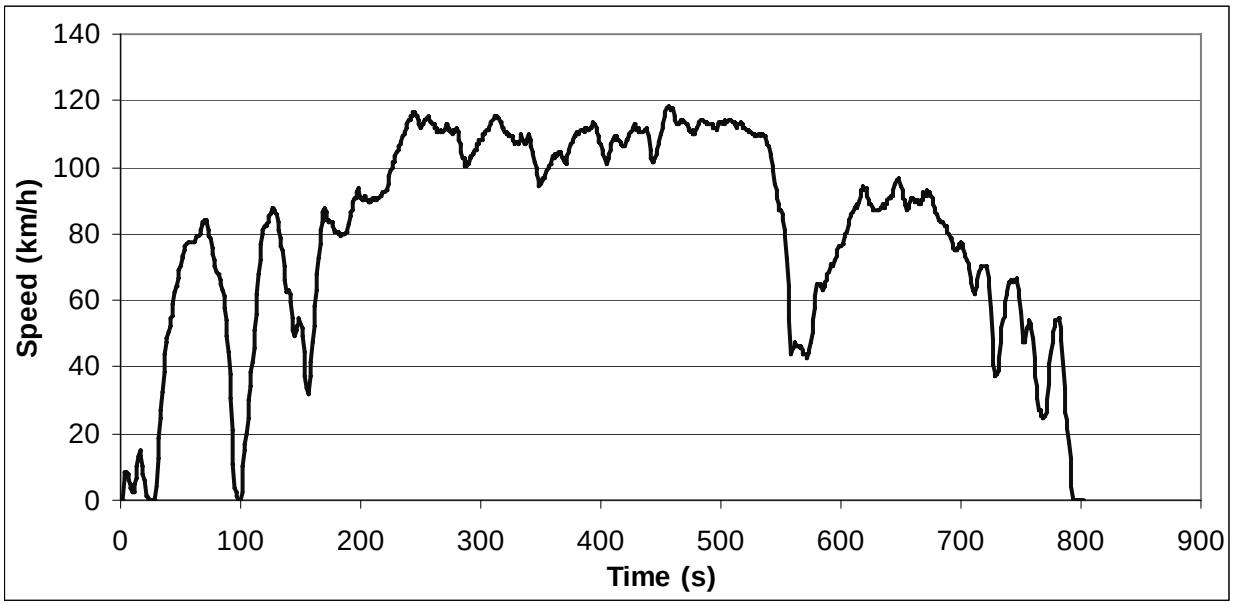


ART.KINEMA parameters

Total distance	5817.65 m	Average negative acceleration	-0.518 m/s^2
Total time	482 s	Standard deviation of accel.	0.668 m/s^2
Driving time	461 s	Standard dev. of positive accel.	0.387 m/s^2
Drive time	64 s	Accel: 75th - 25th percentile	0.679 m/s^2
Drive time spent accelerating	213 s	Number of accelerations	21
Drive time spent decelerating	184 s	Accelerations per km	3.610 /km
Time spent braking	126 s	Number of stops	4
Standing time	21 s	Stops per km	0.69 /km
% of time driving	95.64 %	Average stop duration	5.25 s
% of cruising	13.28 %	Average distance between stops	1454.41 m
% of time accelerating	44.19 %	Relative positive acceleration	0.2184 m/s^2
% of time decelerating	38.17 %	Positive kinetic energy	5.709 m/s^2
% of time braking	26.14 %	Relative positive speed	0.517
% of time standing	4.36 %	Relative real speed	0.760
Average speed (trip)	43.5 km/h	Relative square speed	15.365 m/s
Average driving speed	45.43 km/h	Relative positive square speed	7.870 m/s
Standard deviation of speed	21.21 km/h	Relative real square speed	12.084 m/s
Speed: 75th - 25th percentile	32.67 km/h	Relative cubic speed	254.93 m^2/s^2
Maximum speed	79.8 km/h	Relative positive cubic speed	129.49 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	205.91 m^2/s^2
Average positive acceleration	0.481 m/s^2	Root mean square of acceleration	0.188 m/s^2

Cycle No: 222

Cycle name: **LDV_PVU light vans-Empty motorway_total**
Alternative name: **PVU-lightvans-E.motorway**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

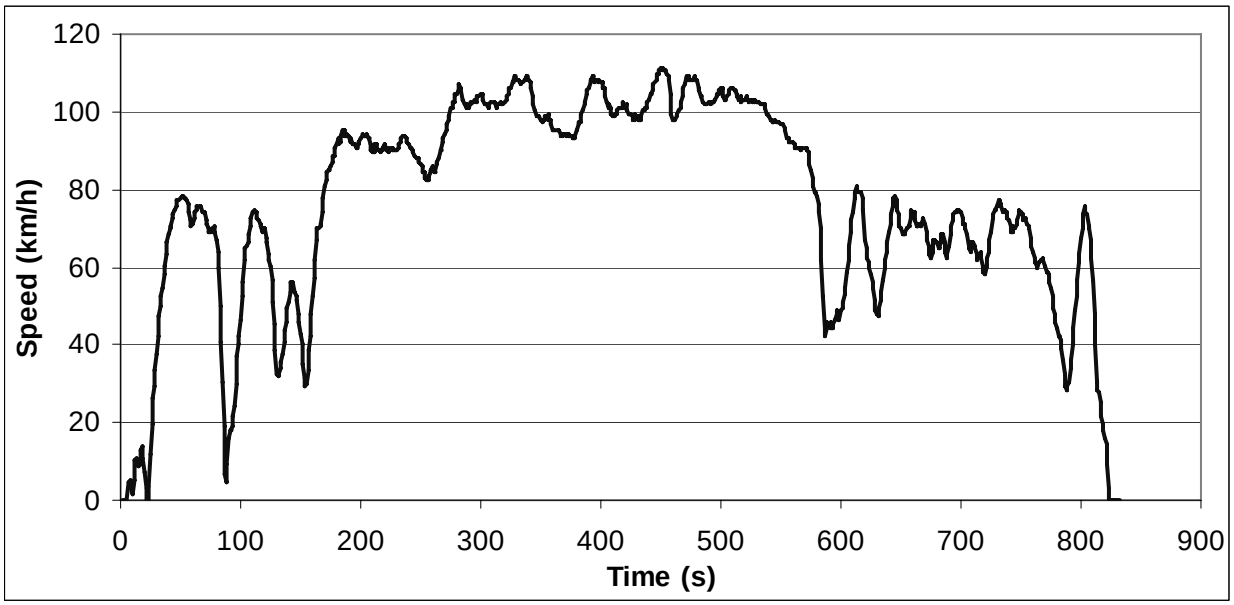


ART.KINEMA parameters

Total distance	18059.34 m	Average negative acceleration	-0.373 m/s^2
Total time	802 s	Standard deviation of accel.	0.546 m/s^2
Driving time	793 s	Standard dev. of positive accel.	0.375 m/s^2
Drive time	139 s	Accel: 75th - 25th percentile	0.381 m/s^2
Drive time spent accelerating	342 s	Number of accelerations	39
Drive time spent decelerating	312 s	Accelerations per km	2.160 /km
Time spent braking	161 s	Number of stops	2
Standing time	9 s	Stops per km	0.11 /km
% of time driving	98.88 %	Average stop duration	4.5 s
% of cruising	17.33 %	Average distance between stops	9029.67 m
% of time accelerating	42.64 %	Relative positive acceleration	0.1332 m/s^2
% of time decelerating	38.90 %	Positive kinetic energy	3.485 m/s^2
% of time braking	20.07 %	Relative positive speed	0.534
% of time standing	1.12 %	Relative real speed	0.833
Average speed (trip)	81.1 km/h	Relative square speed	25.927 m/s
Average driving speed	81.98 km/h	Relative positive square speed	13.779 m/s
Standard deviation of speed	30.53 km/h	Relative real square speed	22.132 m/s
Speed: 75th - 25th percentile	44.96 km/h	Relative cubic speed	707.48 m^2/s^2
Maximum speed	117.95 km/h	Relative positive cubic speed	373.76 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	613.83 m^2/s^2
Average positive acceleration	0.330 m/s^2	Root mean square of acceleration	0.114 m/s^2

Cycle No: 223

Cycle name: **LDV_PVU light vans-Loaded motorway_total**
Alternative name: **PVU-lightvans-L.motorway**
Test programme: **Driving cycles for light vans (1,3 to 1,7 tonnes)**
Additional info:
Vehicle category: **Vans**

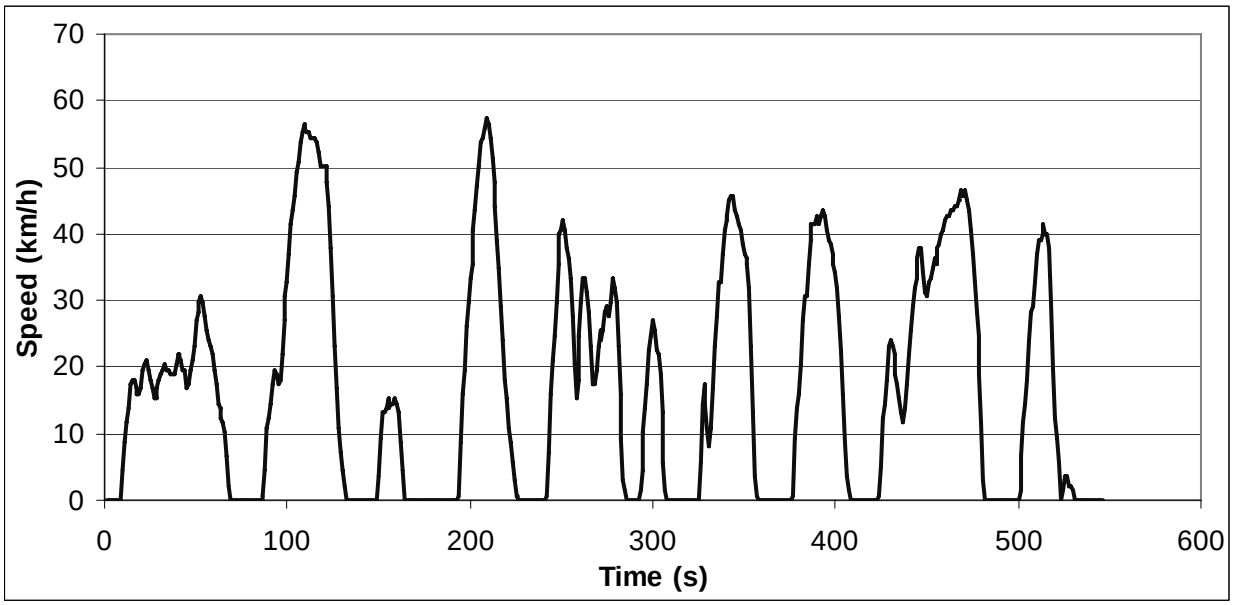


ART.KINEMA parameters

Total distance	17668.94 m	Average negative acceleration	-0.325 m/s^2
Total time	832 s	Standard deviation of accel.	0.524 m/s^2
Driving time	823 s	Standard dev. of positive accel.	0.360 m/s^2
Drive time	180 s	Accel: 75th - 25th percentile	0.381 m/s^2
Drive time spent accelerating	320 s	Number of accelerations	38
Drive time spent decelerating	323 s	Accelerations per km	2.151 /km
Time spent braking	167 s	Number of stops	2
Standing time	9 s	Stops per km	0.11 /km
% of time driving	98.92 %	Average stop duration	4.5 s
% of cruising	21.63 %	Average distance between stops	8834.47 m
% of time accelerating	38.46 %	Relative positive acceleration	0.129 m/s^2
% of time decelerating	38.82 %	Positive kinetic energy	3.379 m/s^2
% of time braking	20.07 %	Relative positive speed	0.481
% of time standing	1.08 %	Relative real speed	0.832
Average speed (trip)	76.5 km/h	Relative square speed	23.921 m/s
Average driving speed	77.29 km/h	Relative positive square speed	11.451 m/s
Standard deviation of speed	26.14 km/h	Relative real square speed	20.449 m/s
Speed: 75th - 25th percentile	36.16 km/h	Relative cubic speed	602.03 m^2/s^2
Maximum speed	110.87 km/h	Relative positive cubic speed	288.14 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	524.41 m^2/s^2
Average positive acceleration	0.338 m/s^2	Root mean square of acceleration	0.113 m/s^2

Cycle No: 224

Cycle name: **LDV_PVU 2.5t vans-Empty urban1**
Alternative name: **PVU-2Tvans-E.urban1**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

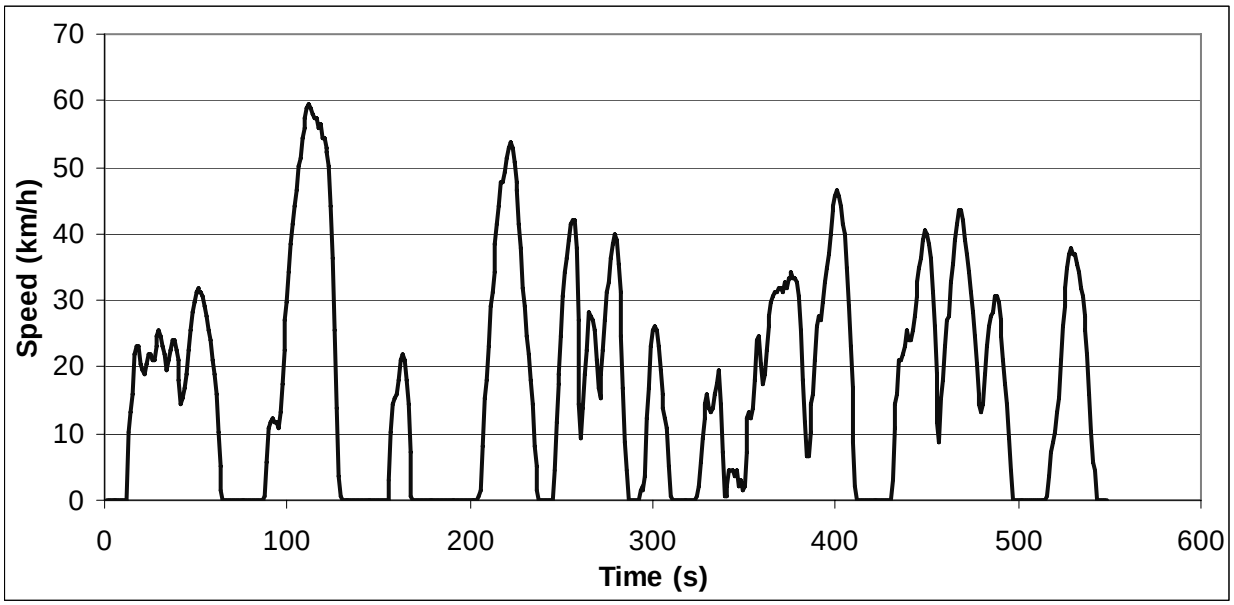


ART.KINEMA parameters

Total distance	2590.28 m	Average negative acceleration	-0.608 m/s^2
Total time	546 s	Standard deviation of accel.	0.757 m/s^2
Driving time	418 s	Standard dev. of positive accel.	0.427 m/s^2
Drive time	51 s	Accel: 75th - 25th percentile	0.513 m/s^2
Drive time spent accelerating	198 s	Number of accelerations	19
Drive time spent decelerating	169 s	Accelerations per km	7.335 /km
Time spent braking	130 s	Number of stops	11
Standing time	128 s	Stops per km	4.25 /km
% of time driving	76.56 %	Average stop duration	11.64 s
% of cruising	9.34 %	Average distance between stops	235.48 m
% of time accelerating	36.26 %	Relative positive acceleration	0.2832 m/s^2
% of time decelerating	30.95 %	Positive kinetic energy	7.404 m/s^2
% of time braking	23.81 %	Relative positive speed	0.532
% of time standing	23.44 %	Relative real speed	0.690
Average speed (trip)	17.1 km/h	Relative square speed	9.365 m/s
Average driving speed	22.31 km/h	Relative positive square speed	4.872 m/s
Standard deviation of speed	15.97 km/h	Relative real square speed	6.587 m/s
Speed: 75th - 25th percentile	29.83 km/h	Relative cubic speed	101.10 m^2/s^2
Maximum speed	56.27 km/h	Relative positive cubic speed	51.14 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	72.41 m^2/s^2
Average positive acceleration	0.547 m/s^2	Root mean square of acceleration	0.304 m/s^2

Cycle No: 225

Cycle name: **LDV_PVU 2.5t vans-Loaded urban1**
Alternative name: **PVU-2Tvans-L.urban1**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

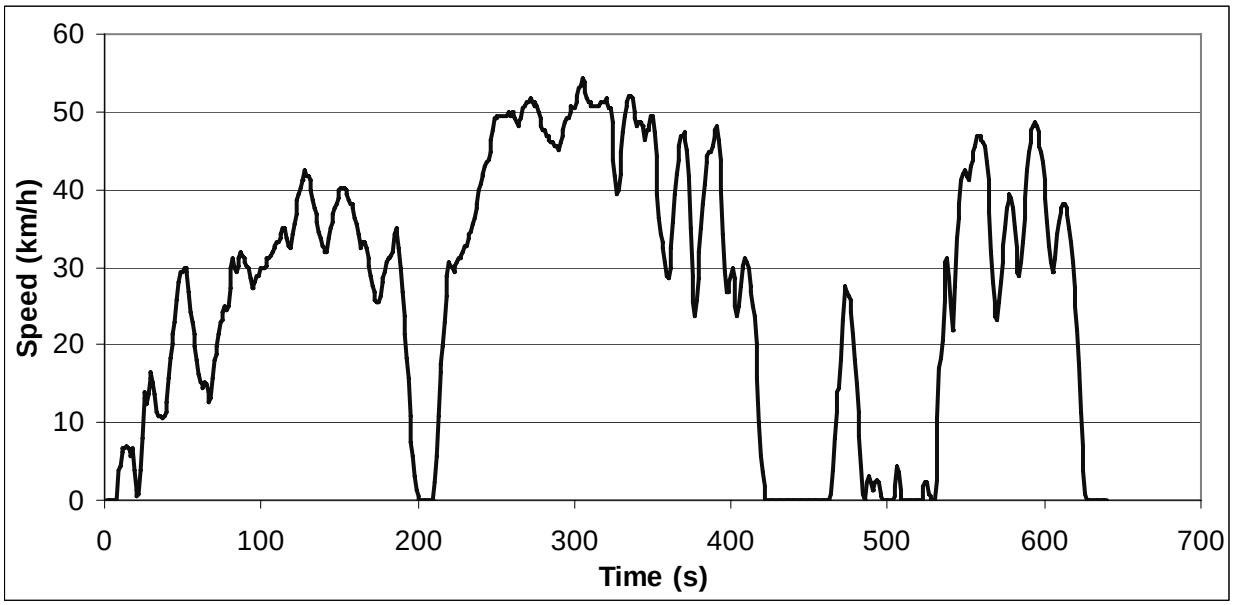


ART.KINEMA parameters

Total distance	2589.52 m	Average negative acceleration	-0.700 m/s^2
Total time	548 s	Standard deviation of accel.	0.778 m/s^2
Driving time	430 s	Standard dev. of positive accel.	0.393 m/s^2
Drive time	45 s	Accel: 75th - 25th percentile	0.647 m/s^2
Drive time spent accelerating	217 s	Number of accelerations	22
Drive time spent decelerating	168 s	Accelerations per km	8.496 /km
Time spent braking	132 s	Number of stops	9
Standing time	118 s	Stops per km	3.48 /km
% of time driving	78.47 %	Average stop duration	13.11 s
% of cruising	8.21 %	Average distance between stops	287.72 m
% of time accelerating	39.60 %	Relative positive acceleration	0.3051 m/s^2
% of time decelerating	30.66 %	Positive kinetic energy	7.969 m/s^2
% of time braking	24.09 %	Relative positive speed	0.555
% of time standing	21.53 %	Relative real speed	0.700
Average speed (trip)	17.0 km/h	Relative square speed	8.888 m/s
Average driving speed	21.68 km/h	Relative positive square speed	4.764 m/s
Standard deviation of speed	14.97 km/h	Relative real square speed	6.424 m/s
Speed: 75th - 25th percentile	28.53 km/h	Relative cubic speed	92.58 m^2/s^2
Maximum speed	58.59 km/h	Relative positive cubic speed	47.72 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	69.14 m^2/s^2
Average positive acceleration	0.539 m/s^2	Root mean square of acceleration	0.317 m/s^2

Cycle No: 226

Cycle name: **LDV_PVU 2.5t vans-Empty urban2**
Alternative name: **PVU-2Tvans-E.urban2**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

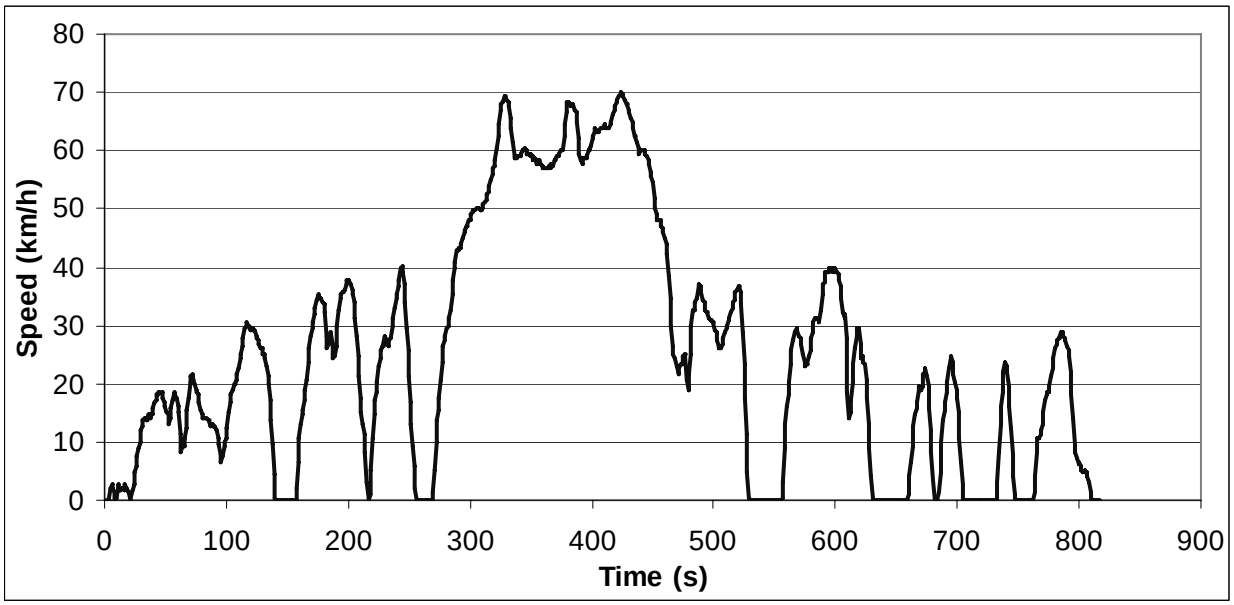


ART.KINEMA parameters

Total distance	4753.47 m	Average negative acceleration	-0.351 m/s^2
Total time	640 s	Standard deviation of accel.	0.458 m/s^2
Driving time	569 s	Standard dev. of positive accel.	0.295 m/s^2
Drive time	106 s	Accel: 75th - 25th percentile	0.336 m/s^2
Drive time spent accelerating	250 s	Number of accelerations	30
Drive time spent decelerating	213 s	Accelerations per km	6.311 /km
Time spent braking	123 s	Number of stops	6
Standing time	71 s	Stops per km	1.26 /km
% of time driving	88.91 %	Average stop duration	11.83 s
% of cruising	16.56 %	Average distance between stops	792.25 m
% of time accelerating	39.06 %	Relative positive acceleration	0.1466 m/s^2
% of time decelerating	33.28 %	Positive kinetic energy	3.853 m/s^2
% of time braking	19.22 %	Relative positive speed	0.551
% of time standing	11.09 %	Relative real speed	0.803
Average speed (trip)	26.7 km/h	Relative square speed	10.587 m/s
Average driving speed	30.07 km/h	Relative positive square speed	5.826 m/s
Standard deviation of speed	15.56 km/h	Relative real square speed	8.762 m/s
Speed: 75th - 25th percentile	30.31 km/h	Relative cubic speed	120.79 m^2/s^2
Maximum speed	53.71 km/h	Relative positive cubic speed	66.06 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	102.39 m^2/s^2
Average positive acceleration	0.302 m/s^2	Root mean square of acceleration	0.158 m/s^2

Cycle No: 227

Cycle name: **LDV_PVU 2.5t vans-Loaded urban2**
Alternative name: **PVU-2Tvans-L.urban2**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

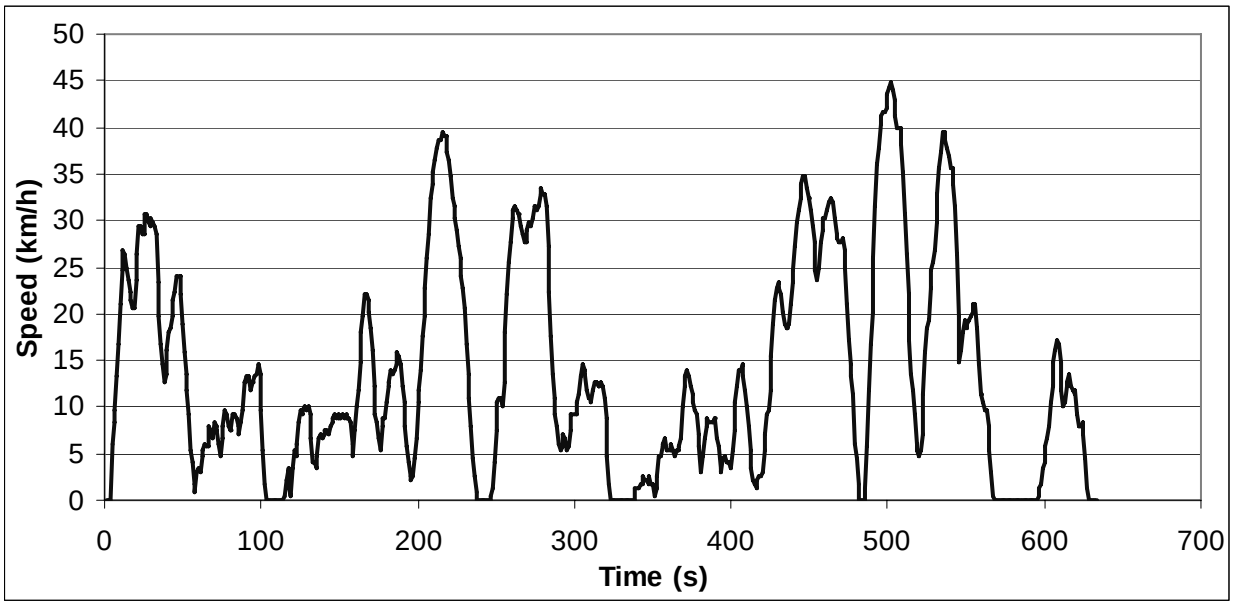


ART.KINEMA parameters

Total distance	5736.77 m	Average negative acceleration	-0.351 m/s^2
Total time	817 s	Standard deviation of accel.	0.459 m/s^2
Driving time	706 s	Standard dev. of positive accel.	0.270 m/s^2
Drive time	124 s	Accel: 75th - 25th percentile	0.349 m/s^2
Drive time spent accelerating	315 s	Number of accelerations	29
Drive time spent decelerating	267 s	Accelerations per km	5.055 /km
Time spent braking	146 s	Number of stops	7
Standing time	111 s	Stops per km	1.22 /km
% of time driving	86.41 %	Average stop duration	15.86 s
% of cruising	15.18 %	Average distance between stops	819.54 m
% of time accelerating	38.56 %	Relative positive acceleration	0.1303 m/s^2
% of time decelerating	32.68 %	Positive kinetic energy	3.405 m/s^2
% of time braking	17.87 %	Relative positive speed	0.536
% of time standing	13.59 %	Relative real speed	0.830
Average speed (trip)	25.3 km/h	Relative square speed	11.888 m/s
Average driving speed	29.25 km/h	Relative positive square speed	6.355 m/s
Standard deviation of speed	19.92 km/h	Relative real square speed	10.201 m/s
Speed: 75th - 25th percentile	30.9 km/h	Relative cubic speed	167.50 m^2/s^2
Maximum speed	69.74 km/h	Relative positive cubic speed	89.01 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	146.54 m^2/s^2
Average positive acceleration	0.311 m/s^2	Root mean square of acceleration	0.161 m/s^2

Cycle No: 228

Cycle name: **LDV_PVU 2.5t vans delivery**
Alternative name: **PVU-2Tvans-L.delivery**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

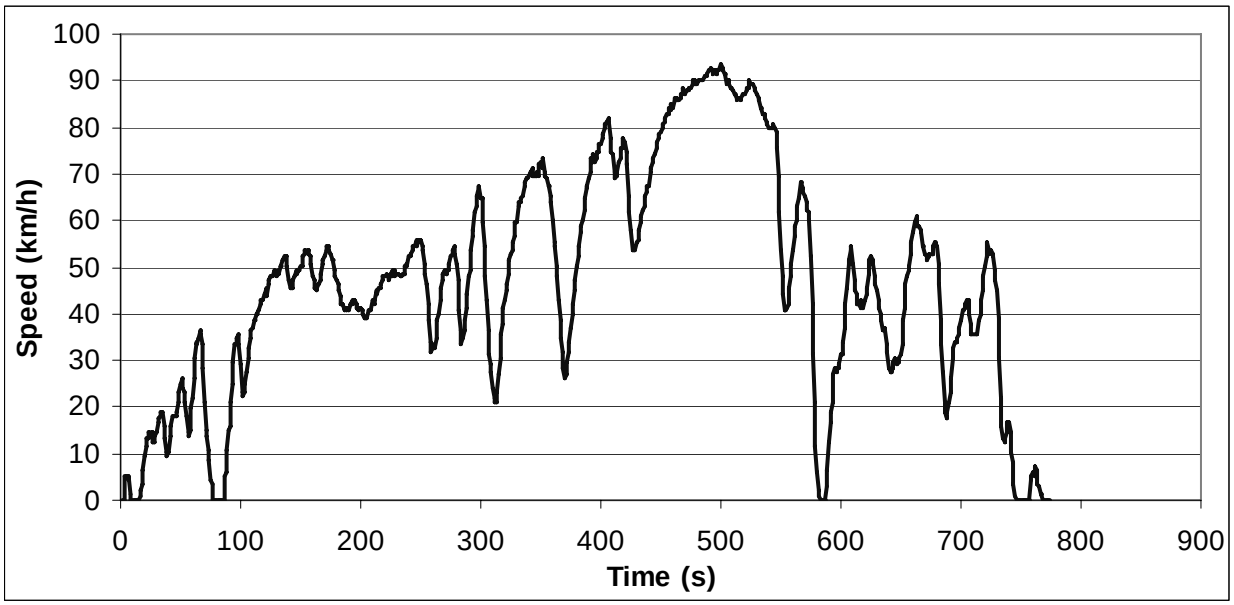


ART.KINEMA parameters

Total distance	2424 m	Average negative acceleration	-0.363 m/s^2
Total time	633 s	Standard deviation of accel.	0.454 m/s^2
Driving time	581 s	Standard dev. of positive accel.	0.300 m/s^2
Drive time	109 s	Accel: 75th - 25th percentile	0.405 m/s^2
Drive time spent accelerating	259 s	Number of accelerations	31
Drive time spent decelerating	213 s	Accelerations per km	12.789 /km
Time spent braking	142 s	Number of stops	5
Standing time	52 s	Stops per km	2.06 /km
% of time driving	91.79 %	Average stop duration	10.4 s
% of cruising	17.22 %	Average distance between stops	484.8 m
% of time accelerating	40.92 %	Relative positive acceleration	0.1826 m/s^2
% of time decelerating	33.65 %	Positive kinetic energy	4.788 m/s^2
% of time braking	22.43 %	Relative positive speed	0.523
% of time standing	8.21 %	Relative real speed	0.733
Average speed (trip)	13.8 km/h	Relative square speed	6.527 m/s
Average driving speed	15.02 km/h	Relative positive square speed	3.366 m/s
Standard deviation of speed	11.29 km/h	Relative real square speed	4.809 m/s
Speed: 75th - 25th percentile	16.64 km/h	Relative cubic speed	52.12 m^2/s^2
Maximum speed	44.2 km/h	Relative positive cubic speed	26.71 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	39.02 m^2/s^2
Average positive acceleration	0.308 m/s^2	Root mean square of acceleration	0.222 m/s^2

Cycle No: 229

Cycle name: **LDV_PVU 2.5t vans-Empty rural_total**
Alternative name: **PVU-2Tvans-E.road**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

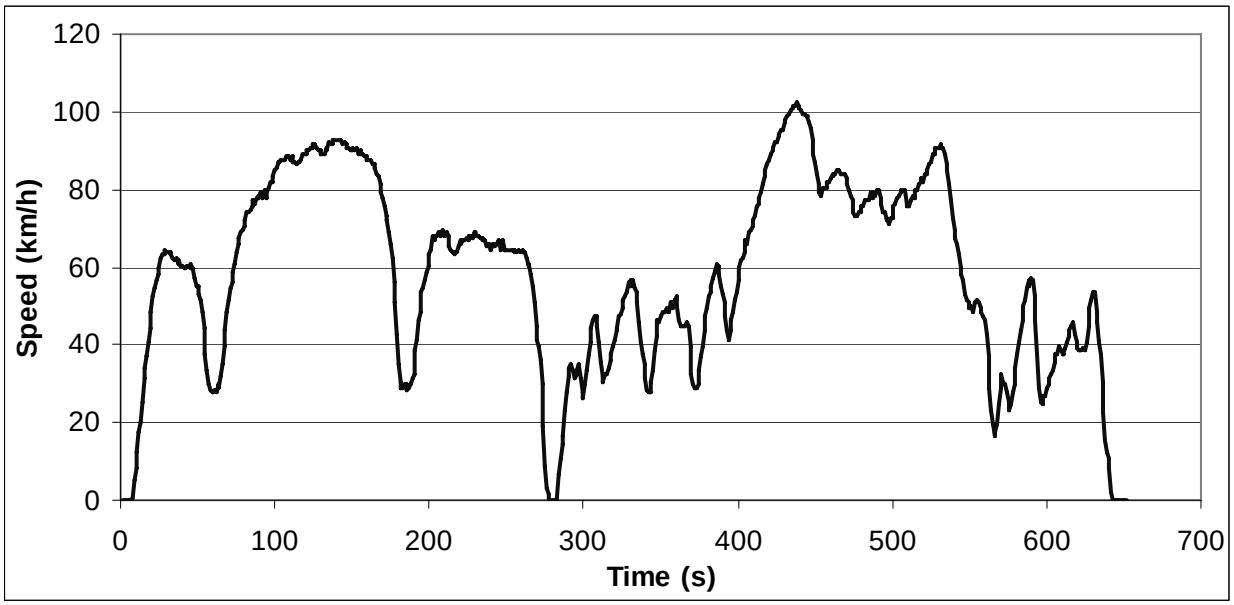


ART.KINEMA parameters

Total distance	9963.83 m	Average negative acceleration	-0.497 m/s^2
Total time	774 s	Standard deviation of accel.	0.572 m/s^2
Driving time	754 s	Standard dev. of positive accel.	0.285 m/s^2
Drive time	118 s	Accel: 75th - 25th percentile	0.475 m/s^2
Drive time spent accelerating	388 s	Number of accelerations	37
Drive time spent decelerating	248 s	Accelerations per km	3.713 /km
Time spent braking	170 s	Number of stops	5
Standing time	20 s	Stops per km	0.5 /km
% of time driving	97.42 %	Average stop duration	4 s
% of cruising	15.25 %	Average distance between stops	1992.77 m
% of time accelerating	50.13 %	Relative positive acceleration	0.1718 m/s^2
% of time decelerating	32.04 %	Positive kinetic energy	4.488 m/s^2
% of time braking	21.96 %	Relative positive speed	0.613
% of time standing	2.58 %	Relative real speed	0.809
Average speed (trip)	46.3 km/h	Relative square speed	16.549 m/s
Average driving speed	47.57 km/h	Relative positive square speed	10.165 m/s
Standard deviation of speed	23.91 km/h	Relative real square speed	13.909 m/s
Speed: 75th - 25th percentile	31.72 km/h	Relative cubic speed	306.06 m^2/s^2
Maximum speed	92.63 km/h	Relative positive cubic speed	187.73 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	265.97 m^2/s^2
Average positive acceleration	0.329 m/s^2	Root mean square of acceleration	0.157 m/s^2

Cycle No: 230

Cycle name: **LDV_PVU 2.5t vans-Loaded rural_total**
Alternative name: **PVU-2Tvans-L.road**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

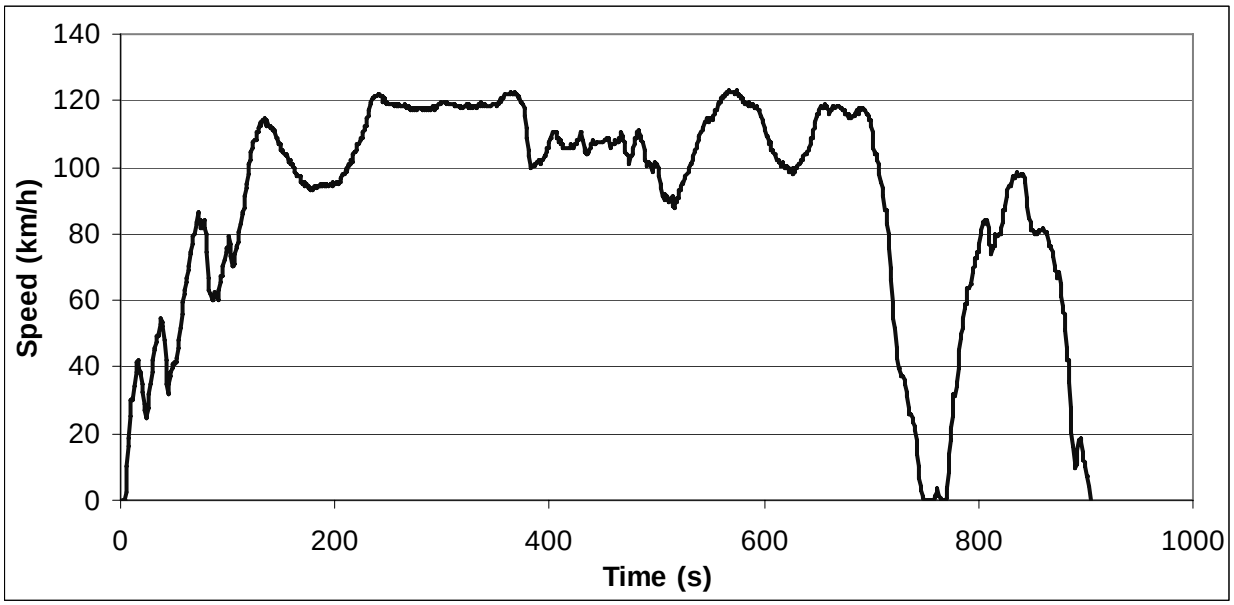


ART.KINEMA parameters

Total distance	10524.96 m	Average negative acceleration	-0.468 m/s^2
Total time	652 s	Standard deviation of accel.	0.593 m/s^2
Driving time	638 s	Standard dev. of positive accel.	0.333 m/s^2
Drive time	102 s	Accel: 75th - 25th percentile	0.455 m/s^2
Drive time spent accelerating	301 s	Number of accelerations	26
Drive time spent decelerating	235 s	Accelerations per km	2.470 /km
Time spent braking	147 s	Number of stops	3
Standing time	14 s	Stops per km	0.29 /km
% of time driving	97.85 %	Average stop duration	4.67 s
% of cruising	15.64 %	Average distance between stops	3508.32 m
% of time accelerating	46.17 %	Relative positive acceleration	0.1683 m/s^2
% of time decelerating	36.04 %	Positive kinetic energy	4.397 m/s^2
% of time braking	22.55 %	Relative positive speed	0.560
% of time standing	2.15 %	Relative real speed	0.800
Average speed (trip)	58.1 km/h	Relative square speed	19.096 m/s
Average driving speed	59.39 km/h	Relative positive square speed	10.724 m/s
Standard deviation of speed	23.59 km/h	Relative real square speed	15.716 m/s
Speed: 75th - 25th percentile	39.16 km/h	Relative cubic speed	395.56 m^2/s^2
Maximum speed	101.63 km/h	Relative positive cubic speed	222.50 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	332.45 m^2/s^2
Average positive acceleration	0.372 m/s^2	Root mean square of acceleration	0.146 m/s^2

Cycle No: 231

Cycle name: **LDV_PVU 2.5t vans-Empty motorway_total**
Alternative name: **PVU-2Tvans-E.motorway**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

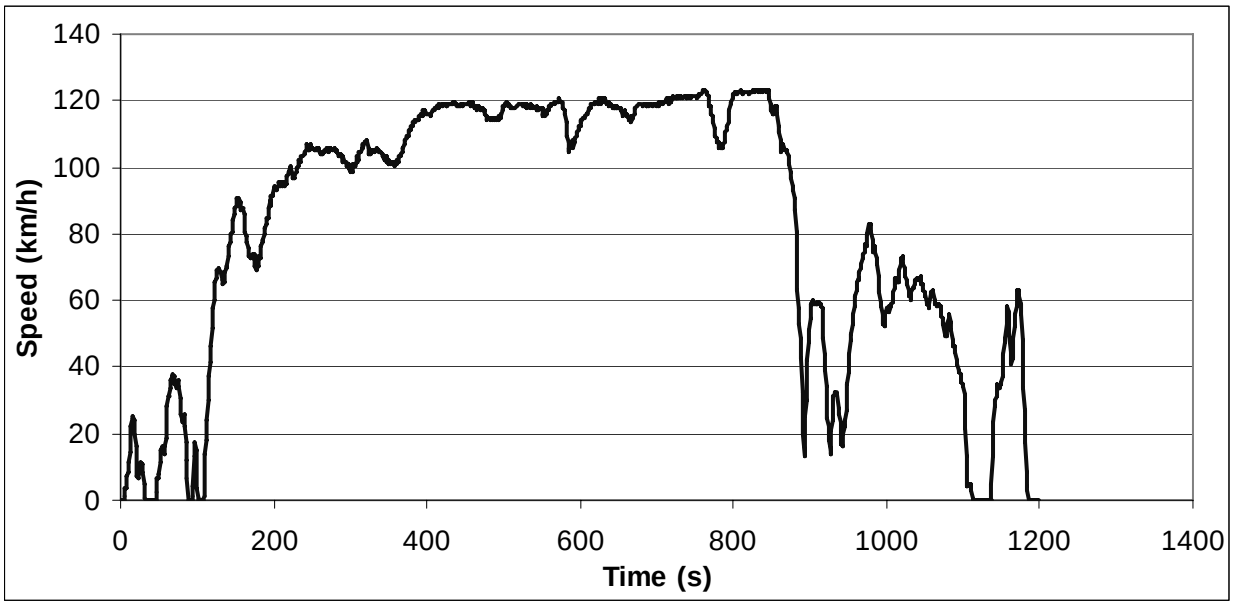


ART.KINEMA parameters

Total distance	22653.47 m	Average negative acceleration	-0.277 m/s^2
Total time	904 s	Standard deviation of accel.	0.401 m/s^2
Driving time	897 s	Standard dev. of positive accel.	0.272 m/s^2
Drive time	254 s	Accel: 75th - 25th percentile	0.268 m/s^2
Drive time spent accelerating	335 s	Number of accelerations	31
Drive time spent decelerating	308 s	Accelerations per km	1.368 /km
Time spent braking	137 s	Number of stops	3
Standing time	7 s	Stops per km	0.13 /km
% of time driving	99.23 %	Average stop duration	2.33 s
% of cruising	28.10 %	Average distance between stops	7551.16 m
% of time accelerating	37.06 %	Relative positive acceleration	0.0979 m/s^2
% of time decelerating	34.07 %	Positive kinetic energy	2.553 m/s^2
% of time braking	15.15 %	Relative positive speed	0.531
% of time standing	0.77 %	Relative real speed	0.889
Average speed (trip)	90.2 km/h	Relative square speed	28.380 m/s
Average driving speed	90.92 km/h	Relative positive square speed	14.911 m/s
Standard deviation of speed	32 km/h	Relative real square speed	25.764 m/s
Speed: 75th - 25th percentile	38.04 km/h	Relative cubic speed	837.46 m^2/s^2
Maximum speed	122.76 km/h	Relative positive cubic speed	435.59 m^2/s^2
Average acceleration	-0.001 m/s^2	Relative real cubic speed	769.81 m^2/s^2
Average positive acceleration	0.241 m/s^2	Root mean square of acceleration	0.080 m/s^2

Cycle No: 232

Cycle name: **LDV_PVU 2.5t vans-Loaded motorway_total**
Alternative name: **PVU-2Tvans-L.motorway**
Test programme: **Driving cycles for 2.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

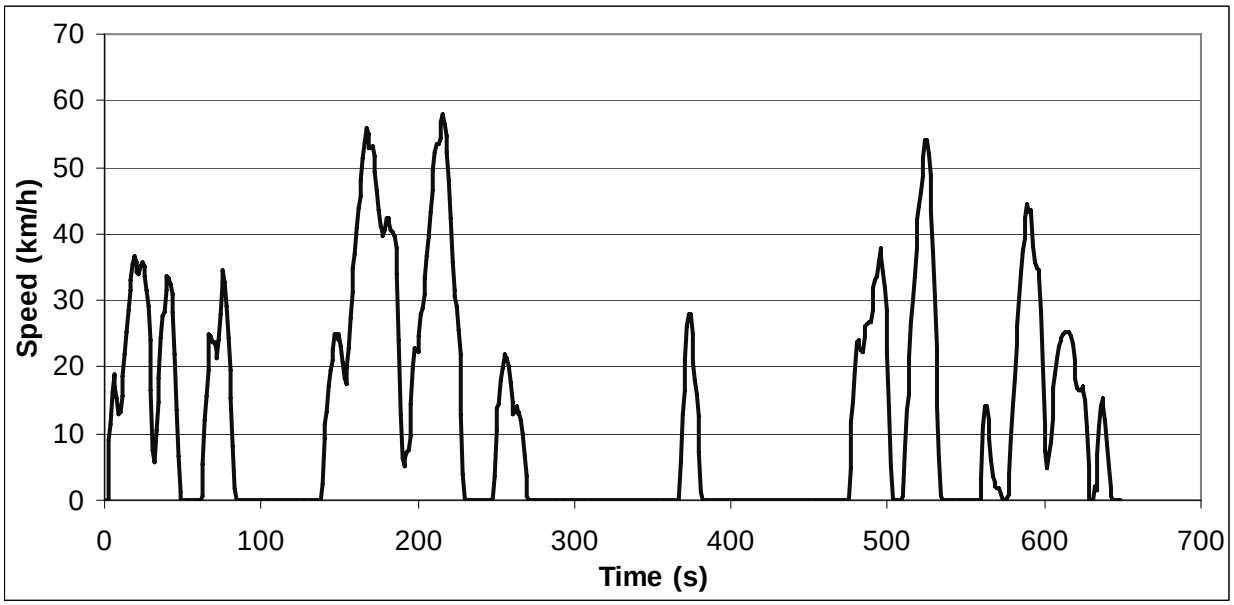


ART.KINEMA parameters

Total distance	27523.91 m	Average negative acceleration	-0.288 m/s^2
Total time	1198 s	Standard deviation of accel.	0.453 m/s^2
Driving time	1152 s	Standard dev. of positive accel.	0.325 m/s^2
Drive time	432 s	Accel: 75th - 25th percentile	0.192 m/s^2
Drive time spent accelerating	398 s	Number of accelerations	47
Drive time spent decelerating	322 s	Accelerations per km	1.708 /km
Time spent braking	181 s	Number of stops	5
Standing time	46 s	Stops per km	0.18 /km
% of time driving	96.16 %	Average stop duration	9.2 s
% of cruising	36.06 %	Average distance between stops	5504.78 m
% of time accelerating	33.22 %	Relative positive acceleration	0.0805 m/s^2
% of time decelerating	26.88 %	Positive kinetic energy	2.108 m/s^2
% of time braking	15.11 %	Relative positive speed	0.520
% of time standing	3.84 %	Relative real speed	0.895
Average speed (trip)	82.7 km/h	Relative square speed	28.388 m/s
Average driving speed	86.01 km/h	Relative positive square speed	14.709 m/s
Standard deviation of speed	37.33 km/h	Relative real square speed	26.065 m/s
Speed: 75th - 25th percentile	61.49 km/h	Relative cubic speed	852.94 m^2/s^2
Maximum speed	123.42 km/h	Relative positive cubic speed	440.14 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	793.86 m^2/s^2
Average positive acceleration	0.245 m/s^2	Root mean square of acceleration	0.093 m/s^2

Cycle No: 233

Cycle name: **LDV_PVU 3.5t vans slow_urban**
Alternative name: **PVU-3Tvans.congurban**
Test programme: **Driving cycles for 3.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

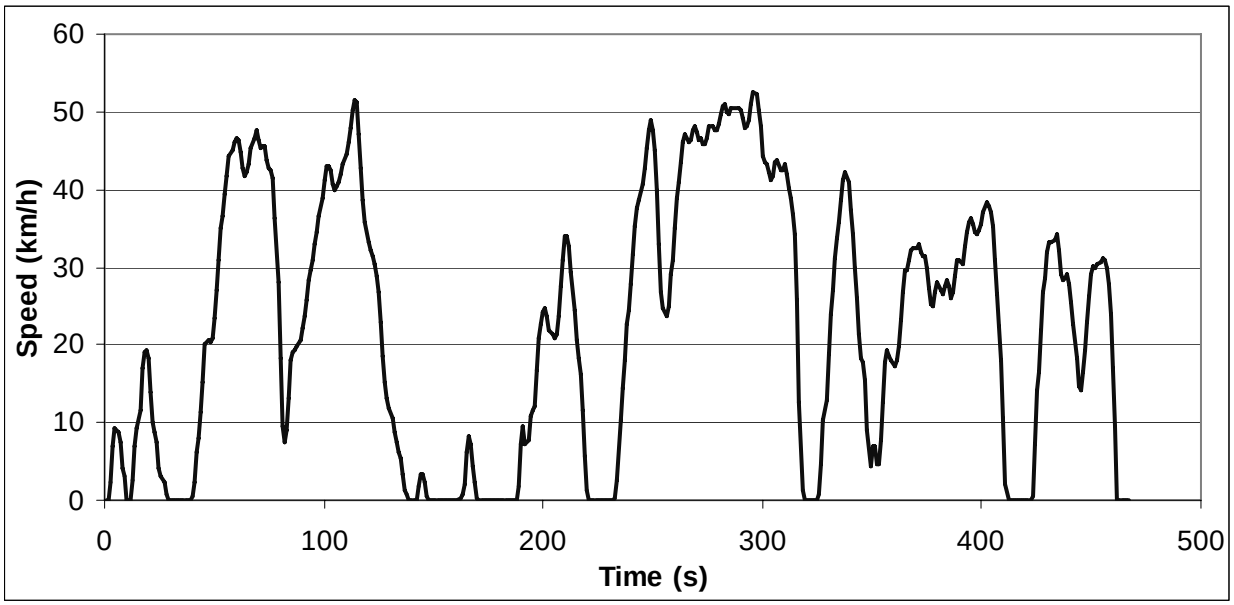


ART.KINEMA parameters

Total distance	2198.71 m	Average negative acceleration	-0.655 m/s^2
Total time	649 s	Standard deviation of accel.	0.796 m/s^2
Driving time	375 s	Standard dev. of positive accel.	0.392 m/s^2
Drive time	41 s	Accel: 75th - 25th percentile	0.170 m/s^2
Drive time spent accelerating	179 s	Number of accelerations	18
Drive time spent decelerating	155 s	Accelerations per km	8.187 /km
Time spent braking	120 s	Number of stops	8
Standing time	274 s	Stops per km	3.64 /km
% of time driving	57.78 %	Average stop duration	34.25 s
% of cruising	6.32 %	Average distance between stops	274.84 m
% of time accelerating	27.58 %	Relative positive acceleration	0.3088 m/s^2
% of time decelerating	23.88 %	Positive kinetic energy	8.062 m/s^2
% of time braking	18.49 %	Relative positive speed	0.541
% of time standing	42.22 %	Relative real speed	0.681
Average speed (trip)	12.2 km/h	Relative square speed	8.978 m/s
Average driving speed	21.11 km/h	Relative positive square speed	4.833 m/s
Standard deviation of speed	15.41 km/h	Relative real square speed	6.210 m/s
Speed: 75th - 25th percentile	22.91 km/h	Relative cubic speed	94.86 m^2/s^2
Maximum speed	56.63 km/h	Relative positive cubic speed	50.61 m^2/s^2
Average acceleration	0.002 m/s^2	Relative real cubic speed	66.32 m^2/s^2
Average positive acceleration	0.601 m/s^2	Root mean square of acceleration	0.328 m/s^2

Cycle No: 234

Cycle name: **LDV_PVU 3.5t vans free-flow_urban**
Alternative name: **PVU-3Tvans.freeurban**
Test programme: **Driving cycles for 3.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

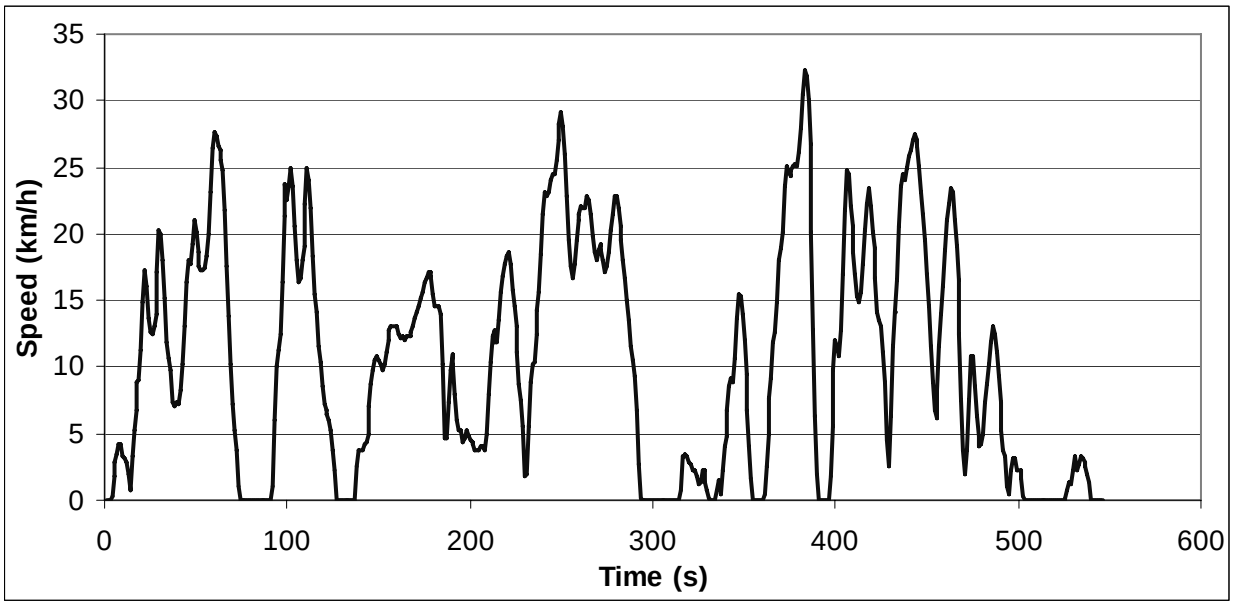


ART.KINEMA parameters

Total distance	2897.04 m	Average negative acceleration	-0.503 m/s^2
Total time	467 s	Standard deviation of accel.	0.632 m/s^2
Driving time	426 s	Standard dev. of positive accel.	0.348 m/s^2
Drive time	65 s	Accel: 75th - 25th percentile	0.603 m/s^2
Drive time spent accelerating	198 s	Number of accelerations	23
Drive time spent decelerating	163 s	Accelerations per km	7.939 /km
Time spent braking	115 s	Number of stops	7
Standing time	41 s	Stops per km	2.42 /km
% of time driving	91.22 %	Average stop duration	5.86 s
% of cruising	13.92 %	Average distance between stops	413.86 m
% of time accelerating	42.40 %	Relative positive acceleration	0.2126 m/s^2
% of time decelerating	34.90 %	Positive kinetic energy	5.562 m/s^2
% of time braking	24.63 %	Relative positive speed	0.548
% of time standing	8.78 %	Relative real speed	0.762
Average speed (trip)	22.3 km/h	Relative square speed	9.768 m/s
Average driving speed	24.48 km/h	Relative positive square speed	5.306 m/s
Standard deviation of speed	16.19 km/h	Relative real square speed	7.719 m/s
Speed: 75th - 25th percentile	32.01 km/h	Relative cubic speed	105.79 m^2/s^2
Maximum speed	50.89 km/h	Relative positive cubic speed	56.93 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	85.67 m^2/s^2
Average positive acceleration	0.434 m/s^2	Root mean square of acceleration	0.242 m/s^2

Cycle No: 235

Cycle name: **LDV_PVU 3.5t vans delivery**
Alternative name: **PVU-3Tvans.delivery**
Test programme: **Driving cycles for 3.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

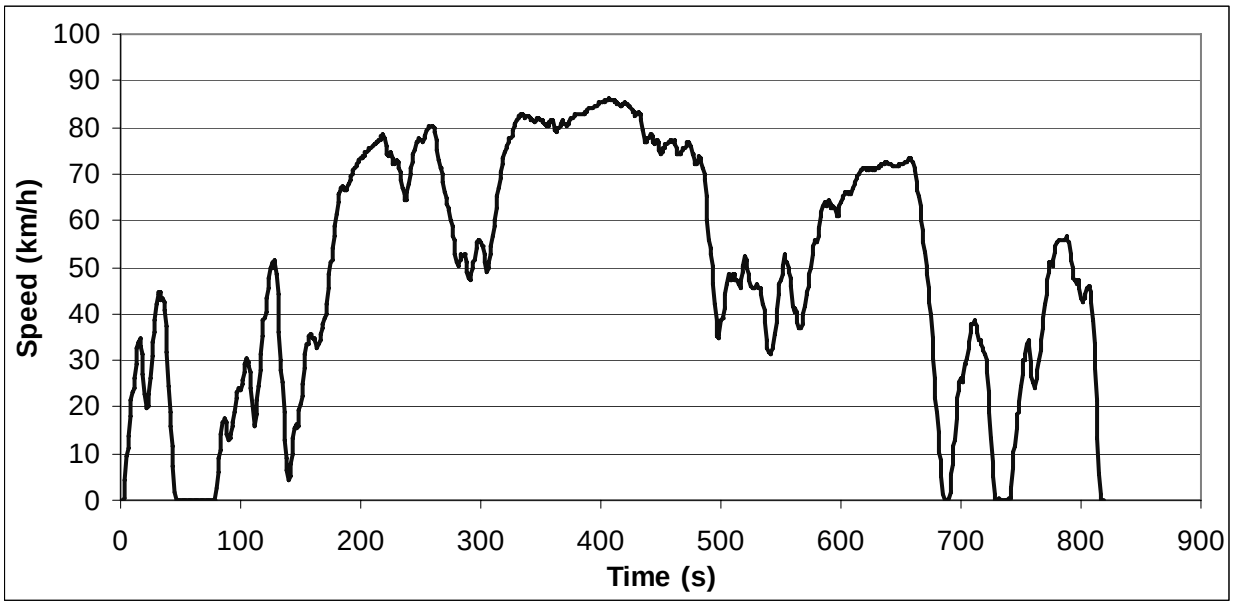


ART.KINEMA parameters

Total distance	1594.44 m	Average negative acceleration	-0.337 m/s^2
Total time	546 s	Standard deviation of accel.	0.421 m/s^2
Driving time	483 s	Standard dev. of positive accel.	0.239 m/s^2
Drive time	89 s	Accel: 75th - 25th percentile	0.384 m/s^2
Drive time spent accelerating	210 s	Number of accelerations	29
Drive time spent decelerating	184 s	Accelerations per km	18.188 /km
Time spent braking	115 s	Number of stops	7
Standing time	63 s	Stops per km	4.39 /km
% of time driving	88.46 %	Average stop duration	9 s
% of cruising	16.30 %	Average distance between stops	227.78 m
% of time accelerating	38.46 %	Relative positive acceleration	0.1736 m/s^2
% of time decelerating	33.70 %	Positive kinetic energy	4.567 m/s^2
% of time braking	21.06 %	Relative positive speed	0.553
% of time standing	11.54 %	Relative real speed	0.739
Average speed (trip)	10.5 km/h	Relative square speed	4.862 m/s
Average driving speed	11.88 km/h	Relative positive square speed	2.736 m/s
Standard deviation of speed	8.18 km/h	Relative real square speed	3.633 m/s
Speed: 75th - 25th percentile	15.31 km/h	Relative cubic speed	27.20 m^2/s^2
Maximum speed	31.5 km/h	Relative positive cubic speed	15.50 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	20.61 m^2/s^2
Average positive acceleration	0.297 m/s^2	Root mean square of acceleration	0.232 m/s^2

Cycle No: 236

Cycle name: **LDV_PVU 3.5t vans rural_total**
Alternative name: **PVU-3Tvans.road**
Test programme: **Driving cycles for 3.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

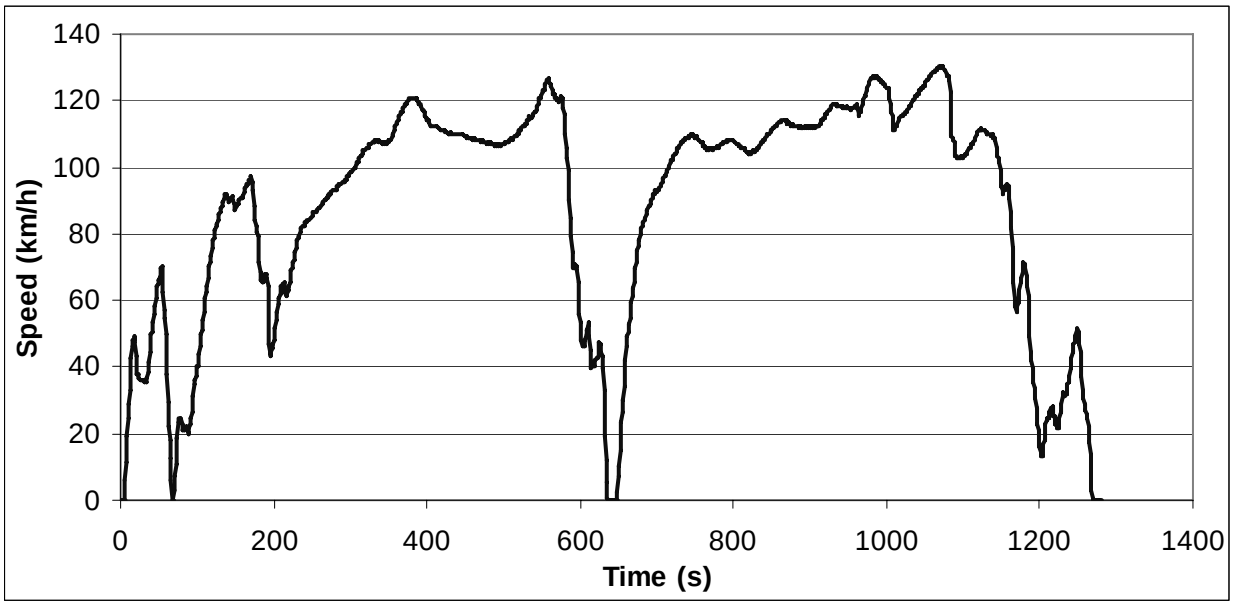


ART.KINEMA parameters

Total distance	11474.09 m	Average negative acceleration	-0.366 m/s^2
Total time	819 s	Standard deviation of accel.	0.469 m/s^2
Driving time	782 s	Standard dev. of positive accel.	0.268 m/s^2
Drive time	199 s	Accel: 75th - 25th percentile	0.316 m/s^2
Drive time spent accelerating	330 s	Number of accelerations	36
Drive time spent decelerating	253 s	Accelerations per km	3.138 /km
Time spent braking	161 s	Number of stops	4
Standing time	37 s	Stops per km	0.35 /km
% of time driving	95.48 %	Average stop duration	9.25 s
% of cruising	24.30 %	Average distance between stops	2868.52 m
% of time accelerating	40.29 %	Relative positive acceleration	0.1168 m/s^2
% of time decelerating	30.89 %	Positive kinetic energy	3.053 m/s^2
% of time braking	19.66 %	Relative positive speed	0.560
% of time standing	4.52 %	Relative real speed	0.837
Average speed (trip)	50.4 km/h	Relative square speed	17.715 m/s
Average driving speed	52.82 km/h	Relative positive square speed	9.965 m/s
Standard deviation of speed	24.07 km/h	Relative real square speed	15.318 m/s
Speed: 75th - 25th percentile	41.38 km/h	Relative cubic speed	339.58 m^2/s^2
Maximum speed	85.82 km/h	Relative positive cubic speed	191.96 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	300.43 m^2/s^2
Average positive acceleration	0.285 m/s^2	Root mean square of acceleration	0.122 m/s^2

Cycle No: 237

Cycle name: **LDV_PVU 3.5t vans motorway_total**
Alternative name: **PVU-3Tvans.motorway**
Test programme: **Driving cycles for 3.5 tonnes vans**
Additional info:
Vehicle category: **Vans**

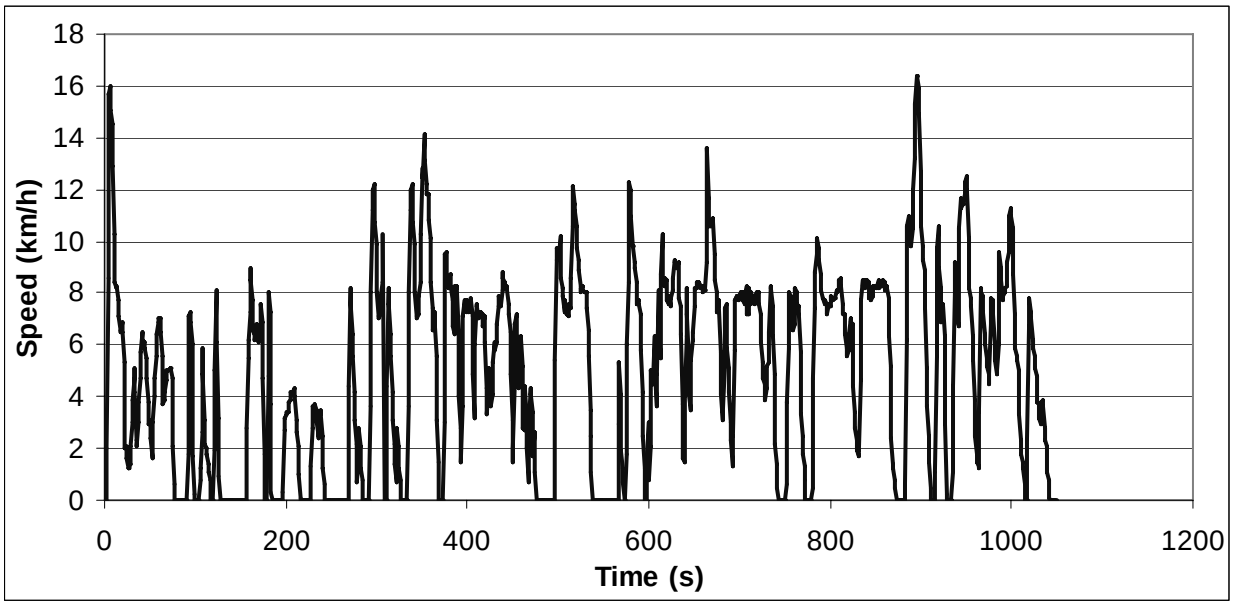


ART.KINEMA parameters

Total distance	31330.11 m	Average negative acceleration	-0.307 m/s^2
Total time	1280 s	Standard deviation of accel.	0.410 m/s^2
Driving time	1260 s	Standard dev. of positive accel.	0.240 m/s^2
Drive time	431 s	Accel: 75th - 25th percentile	0.159 m/s^2
Drive time spent accelerating	564 s	Number of accelerations	41
Drive time spent decelerating	265 s	Accelerations per km	1.309 /km
Time spent braking	151 s	Number of stops	3
Standing time	20 s	Stops per km	0.1 /km
% of time driving	98.44 %	Average stop duration	6.67 s
% of cruising	33.67 %	Average distance between stops	10443.37 m
% of time accelerating	44.06 %	Relative positive acceleration	0.081 m/s^2
% of time decelerating	20.70 %	Positive kinetic energy	2.111 m/s^2
% of time braking	11.80 %	Relative positive speed	0.598
% of time standing	1.56 %	Relative real speed	0.918
Average speed (trip)	88.1 km/h	Relative square speed	28.186 m/s
Average driving speed	89.51 km/h	Relative positive square speed	16.599 m/s
Standard deviation of speed	32.73 km/h	Relative real square speed	26.343 m/s
Speed: 75th - 25th percentile	46.05 km/h	Relative cubic speed	834.76 m^2/s^2
Maximum speed	130.44 km/h	Relative positive cubic speed	484.28 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	787.58 m^2/s^2
Average positive acceleration	0.193 m/s^2	Root mean square of acceleration	0.082 m/s^2

Cycle No: 238

Cycle name: **MTC Essing_congested**
Alternative name:
Test programme: **MTC cycles**
Additional info:
Vehicle category: **Cars**

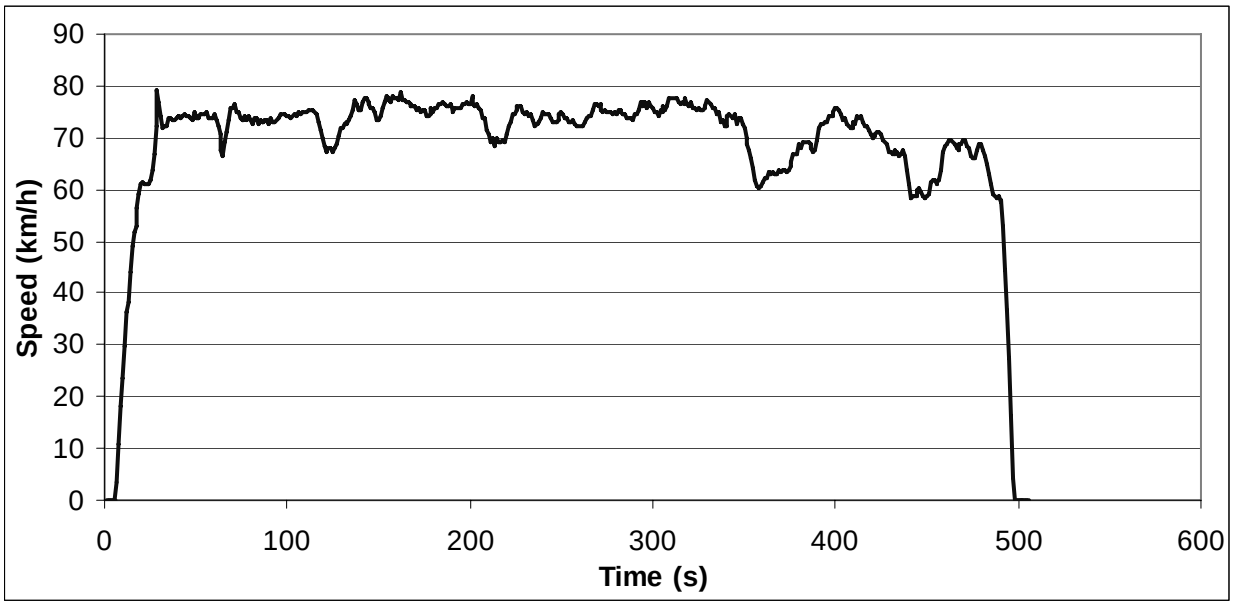


ART.KINEMA parameters

Total distance	1426.28 m	Average negative acceleration	-0.149 m/s^2
Total time	1049 s	Standard deviation of accel.	0.247 m/s^2
Driving time	916 s	Standard dev. of positive accel.	0.225 m/s^2
Drive time	305 s	Accel: 75th - 25th percentile	0.171 m/s^2
Drive time spent accelerating	253 s	Number of accelerations	56
Drive time spent decelerating	358 s	Accelerations per km	39.263 /km
Time spent braking	105 s	Number of stops	16
Standing time	133 s	Stops per km	11.22 /km
% of time driving	87.32 %	Average stop duration	8.31 s
% of cruising	29.08 %	Average distance between stops	89.14 m
% of time accelerating	24.12 %	Relative positive acceleration	0.0815 m/s^2
% of time decelerating	34.13 %	Positive kinetic energy	2.160 m/s^2
% of time braking	10.01 %	Relative positive speed	0.432
% of time standing	12.68 %	Relative real speed	0.890
Average speed (trip)	4.9 km/h	Relative square speed	2.117 m/s
Average driving speed	5.61 km/h	Relative positive square speed	0.916 m/s
Standard deviation of speed	3.36 km/h	Relative real square speed	1.899 m/s
Speed: 75th - 25th percentile	6.46 km/h	Relative cubic speed	5.07 m^2/s^2
Maximum speed	16.25 km/h	Relative positive cubic speed	2.20 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	4.55 m^2/s^2
Average positive acceleration	0.198 m/s^2	Root mean square of acceleration	0.198 m/s^2

Cycle No: 239

Cycle name: **MTC Essing_freeflow**
Alternative name:
Test programme: **MTC cycles**
Additional info:
Vehicle category: **Cars**

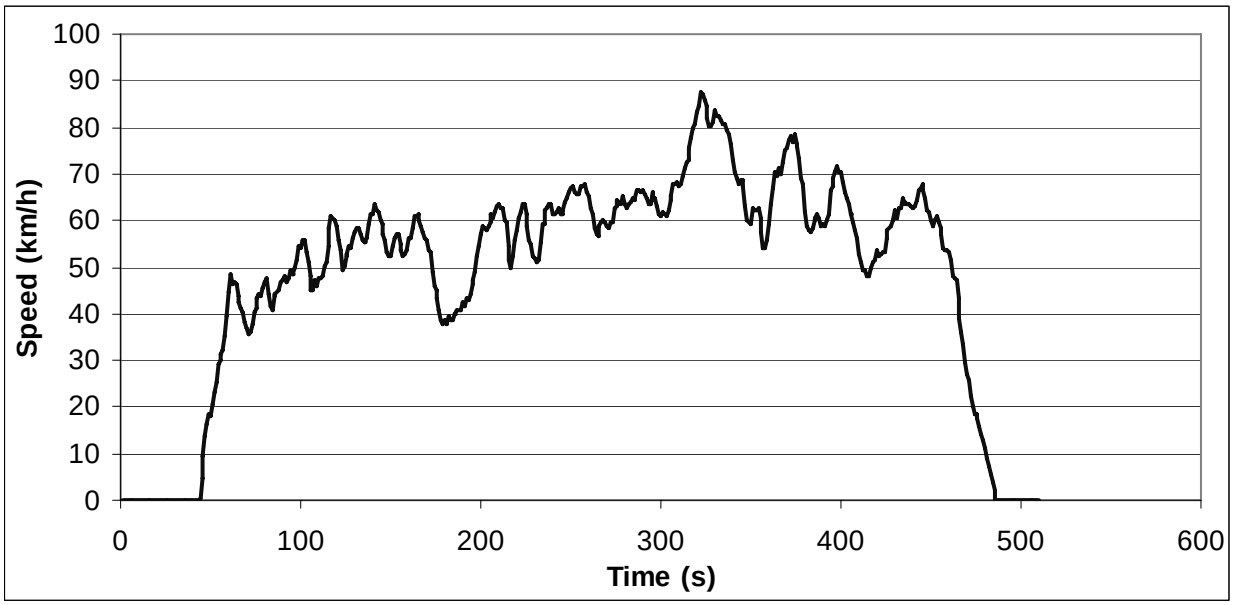


ART.KINEMA parameters

Total distance	9609.87 m	Average negative acceleration	-0.164 m/s^2
Total time	506 s	Standard deviation of accel.	0.369 m/s^2
Driving time	497 s	Standard dev. of positive accel.	0.295 m/s^2
Drive time	214 s	Accel: 75th - 25th percentile	0.134 m/s^2
Drive time spent accelerating	142 s	Number of accelerations	24
Drive time spent decelerating	141 s	Accelerations per km	2.497 /km
Time spent braking	37 s	Number of stops	2
Standing time	9 s	Stops per km	0.21 /km
% of time driving	98.22 %	Average stop duration	4.5 s
% of cruising	42.29 %	Average distance between stops	4804.94 m
% of time accelerating	28.06 %	Relative positive acceleration	0.0654 m/s^2
% of time decelerating	27.87 %	Positive kinetic energy	1.717 m/s^2
% of time braking	7.31 %	Relative positive speed	0.481
% of time standing	1.78 %	Relative real speed	0.938
Average speed (trip)	68.4 km/h	Relative square speed	19.898 m/s
Average driving speed	69.61 km/h	Relative positive square speed	9.509 m/s
Standard deviation of speed	11.89 km/h	Relative real square speed	18.792 m/s
Speed: 75th - 25th percentile	6.8 km/h	Relative cubic speed	399.09 m^2/s^2
Maximum speed	77.69 km/h	Relative positive cubic speed	189.62 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	378.66 m^2/s^2
Average positive acceleration	0.172 m/s^2	Root mean square of acceleration	0.084 m/s^2

Cycle No: 240

Cycle name: **TUG Ries_RoadGradient**
Alternative name:
Test programme: **TUG cycles**
Additional info:
Vehicle category: **Cars**

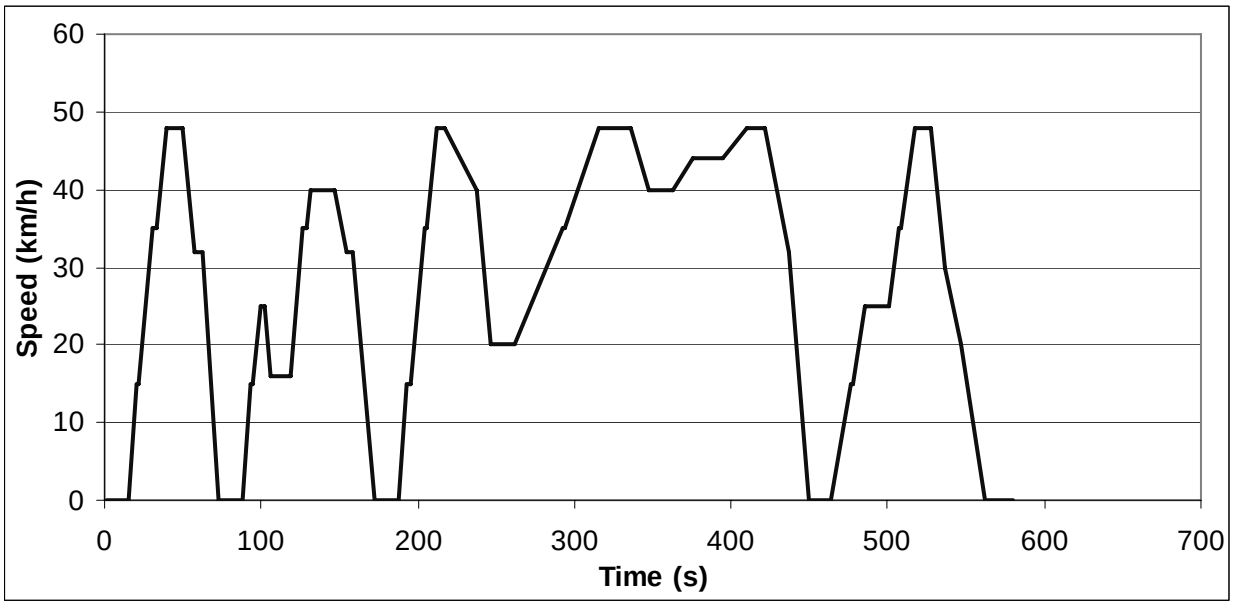


ART.KINEMA parameters

Total distance	6839.87 m	Average negative acceleration	-0.341 m/s^2
Total time	510 s	Standard deviation of accel.	0.400 m/s^2
Driving time	447 s	Standard dev. of positive accel.	0.242 m/s^2
Drive time	64 s	Accel: 75th - 25th percentile	0.444 m/s^2
Drive time spent accelerating	208 s	Number of accelerations	27
Drive time spent decelerating	175 s	Accelerations per km	3.947 /km
Time spent braking	122 s	Number of stops	2
Standing time	63 s	Stops per km	0.29 /km
% of time driving	87.65 %	Average stop duration	31.5 s
% of cruising	12.55 %	Average distance between stops	3419.93 m
% of time accelerating	40.78 %	Relative positive acceleration	0.1494 m/s^2
% of time decelerating	34.31 %	Positive kinetic energy	3.945 m/s^2
% of time braking	23.92 %	Relative positive speed	0.542
% of time standing	12.35 %	Relative real speed	0.746
Average speed (trip)	48.3 km/h	Relative square speed	16.563 m/s
Average driving speed	55.09 km/h	Relative positive square speed	8.897 m/s
Standard deviation of speed	15.83 km/h	Relative real square speed	12.483 m/s
Speed: 75th - 25th percentile	21.42 km/h	Relative cubic speed	285.01 m^2/s^2
Maximum speed	86.51 km/h	Relative positive cubic speed	151.70 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	216.29 m^2/s^2
Average positive acceleration	0.292 m/s^2	Root mean square of acceleration	0.102 m/s^2

Cycle No: 241

Cycle name: **TRRL 1.1**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

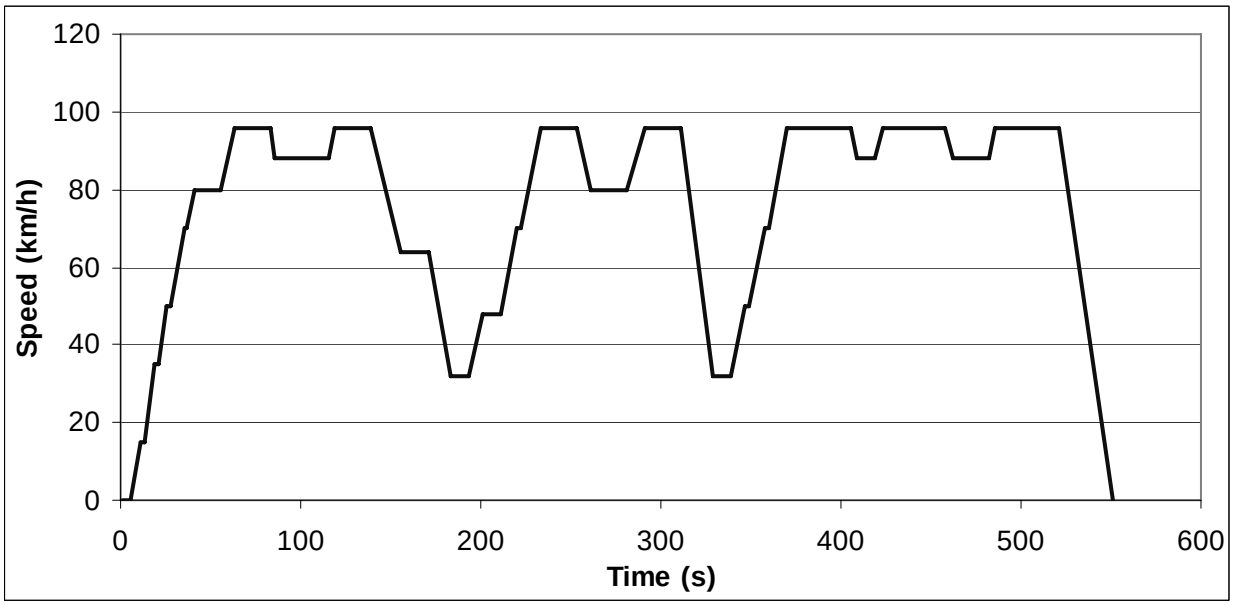


ART.KINEMA parameters

Total distance	4564.65 m	Average negative acceleration	-0.133 m/s^2
Total time	580 s	Standard deviation of accel.	0.222 m/s^2
Driving time	580 s	Standard dev. of positive accel.	0.166 m/s^2
Drive time	262 s	Accel: 75th - 25th percentile	0.291 m/s^2
Drive time spent accelerating	127 s	Number of accelerations	5
Drive time spent decelerating	191 s	Accelerations per km	1.095 /km
Time spent braking	24 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	45.17 %	Average distance between stops	N/A m
% of time accelerating	21.90 %	Relative positive acceleration	0.0561 m/s^2
% of time decelerating	32.93 %	Positive kinetic energy	1.470 m/s^2
% of time braking	4.14 %	Relative positive speed	0.500
% of time standing	0.00 %	Relative real speed	0.957
Average speed (trip)	28.3 km/h	Relative square speed	9.410 m/s
Average driving speed	2.84 km/h	Relative positive square speed	4.889 m/s
Standard deviation of speed	30.08 km/h	Relative real square speed	9.054 m/s
Speed: 75th - 25th percentile	21.65 km/h	Relative cubic speed	95.56 m^2/s^2
Maximum speed	44.42 km/h	Relative positive cubic speed	50.94 m^2/s^2
Average acceleration	0.005 m/s^2	Relative real cubic speed	92.50 m^2/s^2
Average positive acceleration	0.193 m/s^2	Root mean square of acceleration	0.062 m/s^2

Cycle No: 242

Cycle name: **TRRL 1.2**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

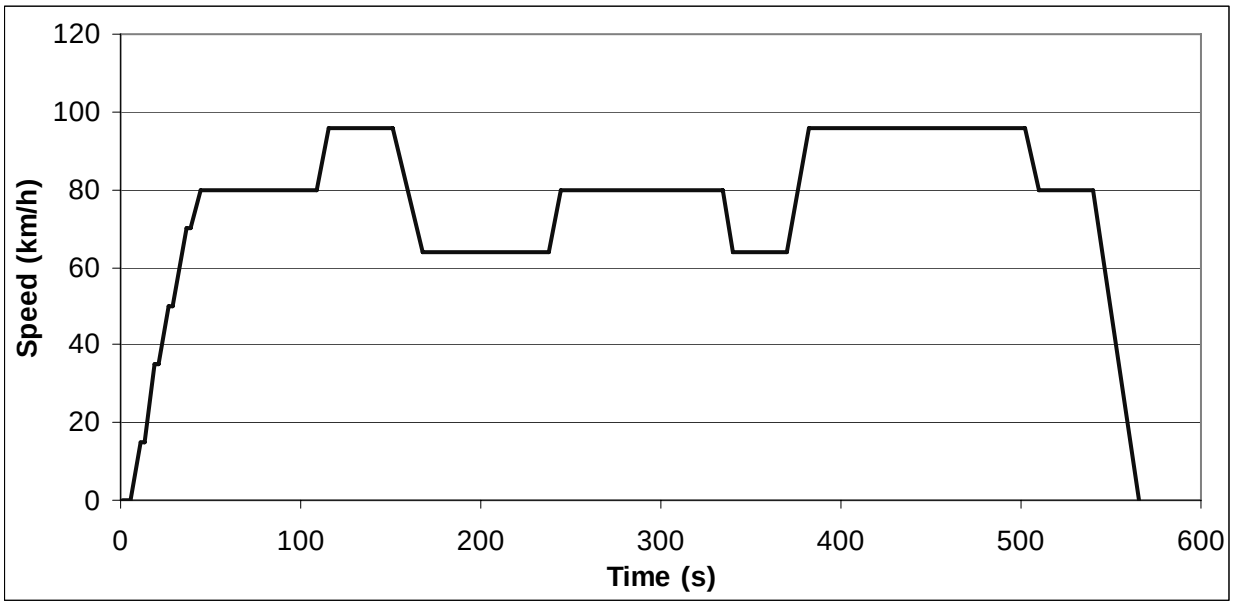


ART.KINEMA parameters

Total distance	10967.44 m	Average negative acceleration	-0.139 m/s^2
Total time	551 s	Standard deviation of accel.	0.326 m/s^2
Driving time	551 s	Standard dev. of positive accel.	0.250 m/s^2
Drive time	179 s	Accel: 75th - 25th percentile	0.434 m/s^2
Drive time spent accelerating	138 s	Number of accelerations	4
Drive time spent decelerating	234 s	Accelerations per km	0.365 /km
Time spent braking	0 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	32.49 %	Average distance between stops	N/A m
% of time accelerating	25.05 %	Relative positive acceleration	0.0682 m/s^2
% of time decelerating	42.47 %	Positive kinetic energy	1.924 m/s^2
% of time braking	0.00 %	Relative positive speed	0.507
% of time standing	0.00 %	Relative real speed	1.000
Average speed (trip)	71.7 km/h	Relative square speed	21.685 m/s
Average driving speed	5.88 km/h	Relative positive square speed	11.617 m/s
Standard deviation of speed	71.16 km/h	Relative real square speed	21.685 m/s
Speed: 75th - 25th percentile	37.98 km/h	Relative cubic speed	493.28 m^2/s^2
Maximum speed	93.71 km/h	Relative positive cubic speed	275.44 m^2/s^2
Average acceleration	0.012 m/s^2	Relative real cubic speed	493.28 m^2/s^2
Average positive acceleration	0.299 m/s^2	Root mean square of acceleration	0.052 m/s^2

Cycle No: 243

Cycle name: **TRRL 1.3**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

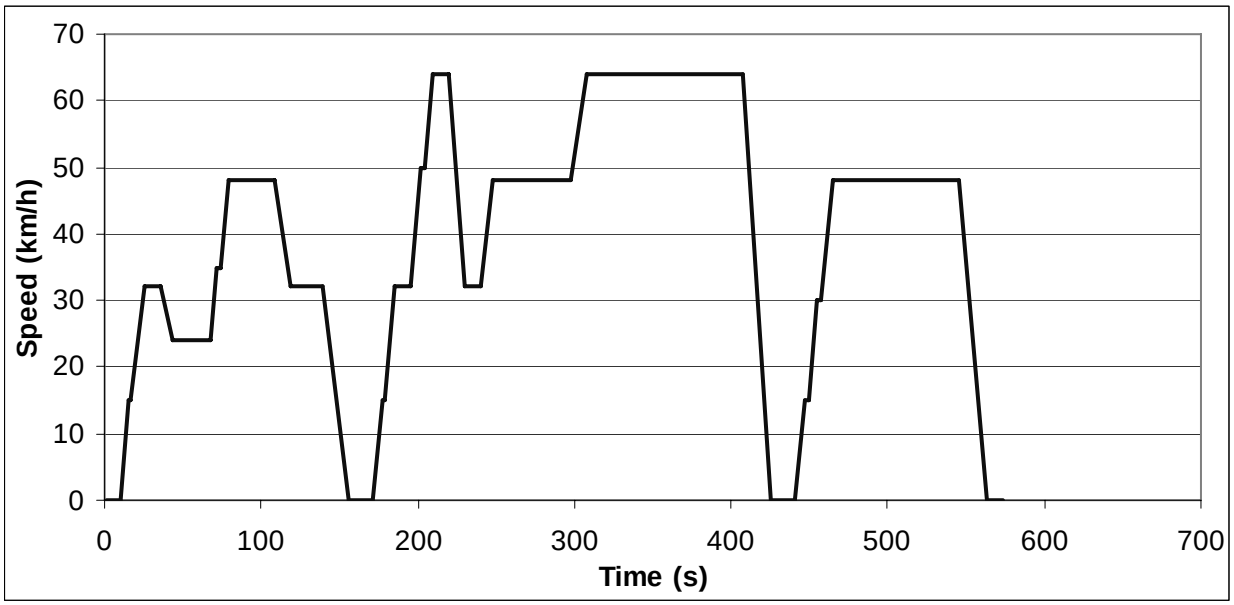


ART.KINEMA parameters

Total distance	11463.17 m	Average negative acceleration	-0.089 m/s^2
Total time	566 s	Standard deviation of accel.	0.355 m/s^2
Driving time	566 s	Standard dev. of positive accel.	0.263 m/s^2
Drive time	463 s	Accel: 75th - 25th percentile	0.490 m/s^2
Drive time spent accelerating	39 s	Number of accelerations	1
Drive time spent decelerating	64 s	Accelerations per km	0.087 /km
Time spent braking	26 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	81.80 %	Average distance between stops	N/A m
% of time accelerating	6.89 %	Relative positive acceleration	0.0265 m/s^2
% of time decelerating	11.31 %	Positive kinetic energy	0.756 m/s^2
% of time braking	4.59 %	Relative positive speed	0.428
% of time standing	0.00 %	Relative real speed	0.981
Average speed (trip)	72.9 km/h	Relative square speed	21.271 m/s
Average driving speed	2.58 km/h	Relative positive square speed	9.029 m/s
Standard deviation of speed	65.52 km/h	Relative real square speed	21.106 m/s
Speed: 75th - 25th percentile	47.73 km/h	Relative cubic speed	461.14 m^2/s^2
Maximum speed	83.79 km/h	Relative positive cubic speed	193.89 m^2/s^2
Average acceleration	0.008 m/s^2	Relative real cubic speed	459.74 m^2/s^2
Average positive acceleration	0.337 m/s^2	Root mean square of acceleration	0.037 m/s^2

Cycle No: 244

Cycle name: **TRRL 1.4**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

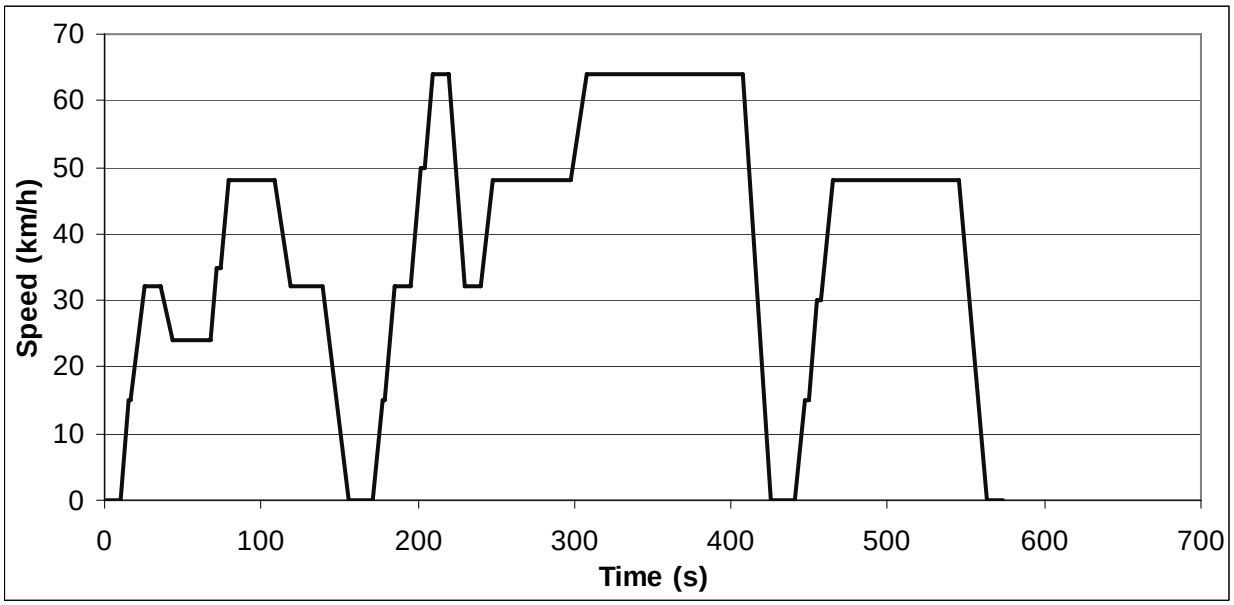


ART.KINEMA parameters

Total distance	5004.75 m	Average negative acceleration	-0.095 m/s^2
Total time	573 s	Standard deviation of accel.	0.221 m/s^2
Driving time	573 s	Standard dev. of positive accel.	0.150 m/s^2
Drive time	380 s	Accel: 75th - 25th percentile	0.242 m/s^2
Drive time spent accelerating	85 s	Number of accelerations	4
Drive time spent decelerating	108 s	Accelerations per km	0.799 /km
Time spent braking	28 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	66.32 %	Average distance between stops	N/A m
% of time accelerating	14.83 %	Relative positive acceleration	0.0366 m/s^2
% of time decelerating	18.85 %	Positive kinetic energy	0.963 m/s^2
% of time braking	4.89 %	Relative positive speed	0.210
% of time standing	0.00 %	Relative real speed	0.983
Average speed (trip)	31.4 km/h	Relative square speed	9.929 m/s
Average driving speed	2.04 km/h	Relative positive square speed	1.936 m/s
Standard deviation of speed	32.75 km/h	Relative real square speed	9.848 m/s
Speed: 75th - 25th percentile	20.63 km/h	Relative cubic speed	105.98 m^2/s^2
Maximum speed	51.96 km/h	Relative positive cubic speed	19.58 m^2/s^2
Average acceleration	0.005 m/s^2	Relative real cubic speed	105.60 m^2/s^2
Average positive acceleration	0.217 m/s^2	Root mean square of acceleration	0.051 m/s^2

Cycle No: 245

Cycle name: **TRRL 2.1**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

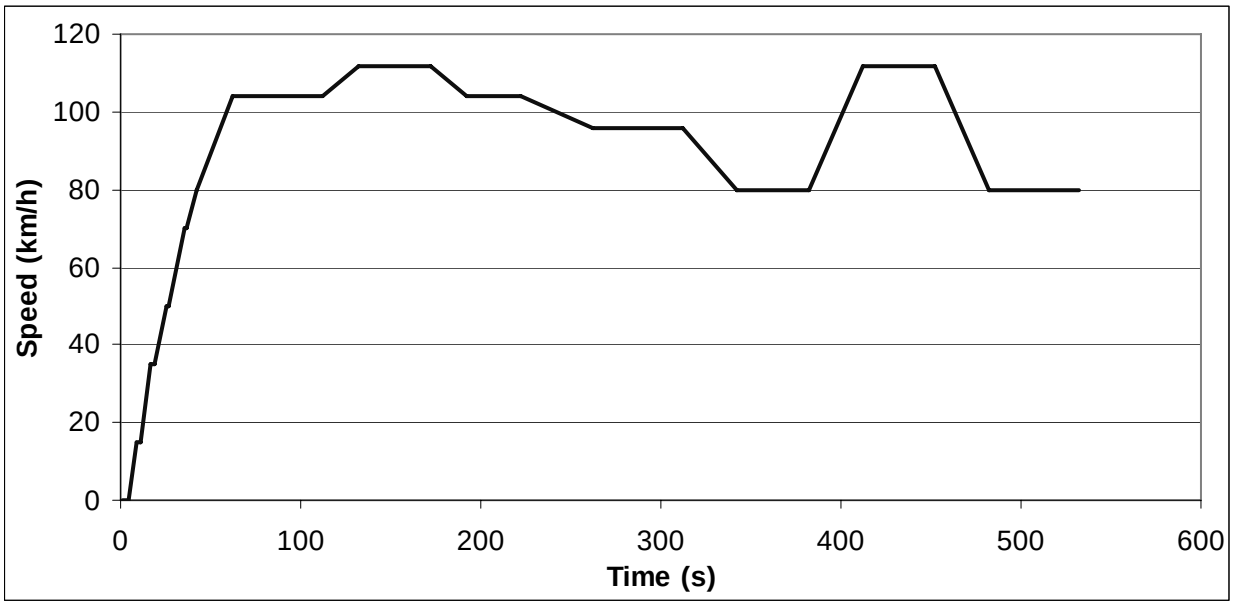


ART.KINEMA parameters

Total distance	5004.75 m	Average negative acceleration	-0.095 m/s^2
Total time	573 s	Standard deviation of accel.	0.221 m/s^2
Driving time	573 s	Standard dev. of positive accel.	0.150 m/s^2
Drive time	380 s	Accel: 75th - 25th percentile	0.242 m/s^2
Drive time spent accelerating	85 s	Number of accelerations	4
Drive time spent decelerating	108 s	Accelerations per km	0.799 /km
Time spent braking	28 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	66.32 %	Average distance between stops	N/A m
% of time accelerating	14.83 %	Relative positive acceleration	0.0366 m/s^2
% of time decelerating	18.85 %	Positive kinetic energy	0.963 m/s^2
% of time braking	4.89 %	Relative positive speed	0.210
% of time standing	0.00 %	Relative real speed	0.983
Average speed (trip)	31.4 km/h	Relative square speed	9.929 m/s
Average driving speed	2.04 km/h	Relative positive square speed	1.936 m/s
Standard deviation of speed	32.75 km/h	Relative real square speed	9.848 m/s
Speed: 75th - 25th percentile	20.63 km/h	Relative cubic speed	105.98 m^2/s^2
Maximum speed	51.96 km/h	Relative positive cubic speed	19.58 m^2/s^2
Average acceleration	0.005 m/s^2	Relative real cubic speed	105.60 m^2/s^2
Average positive acceleration	0.217 m/s^2	Root mean square of acceleration	0.051 m/s^2

Cycle No: 246

Cycle name: **TRRL 2.2**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

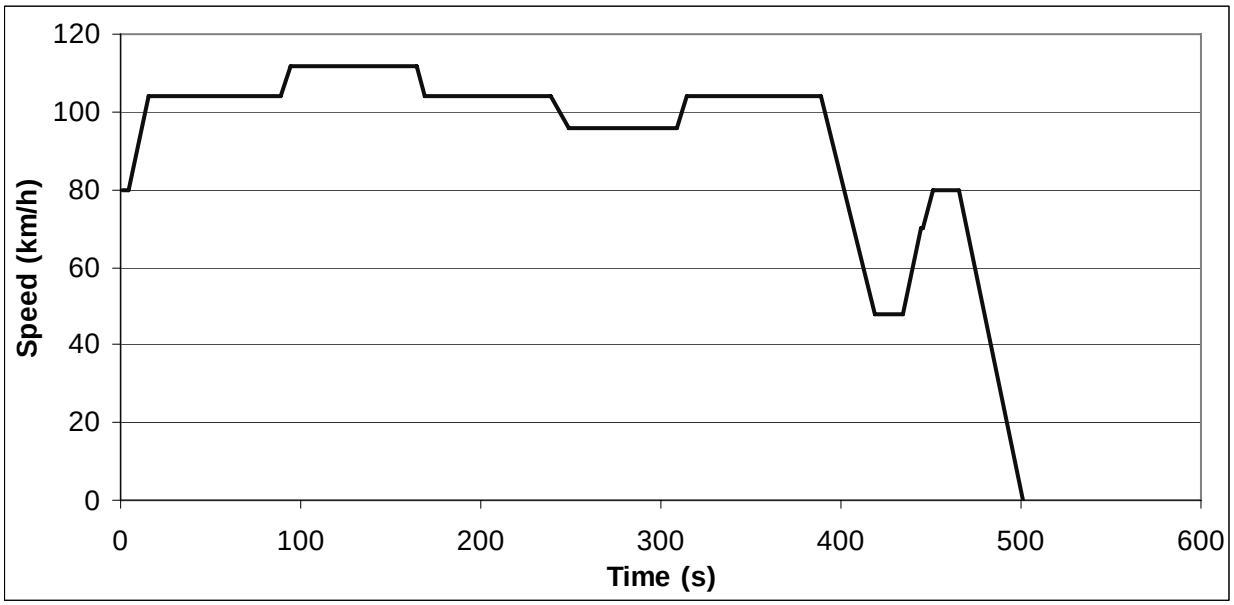


ART.KINEMA parameters

Total distance	13718.26 m	Average negative acceleration	-0.017 m/s^2
Total time	532 s	Standard deviation of accel.	0.385 m/s^2
Driving time	532 s	Standard dev. of positive accel.	0.251 m/s^2
Drive time	470 s	Accel: 75th - 25th percentile	0.522 m/s^2
Drive time spent accelerating	62 s	Number of accelerations	1
Drive time spent decelerating	0 s	Accelerations per km	0.073 /km
Time spent braking	0 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	88.35 %	Average distance between stops	N/A m
% of time accelerating	11.65 %	Relative positive acceleration	0.0277 m/s^2
% of time decelerating	0.00 %	Positive kinetic energy	0.859 m/s^2
% of time braking	0.00 %	Relative positive speed	0.227
% of time standing	0.00 %	Relative real speed	1.000
Average speed (trip)	92.8 km/h	Relative square speed	26.700 m/s
Average driving speed	3.38 km/h	Relative positive square speed	6.086 m/s
Standard deviation of speed	81.47 km/h	Relative real square speed	26.700 m/s
Speed: 75th - 25th percentile	57.1 km/h	Relative cubic speed	722.23 m^2/s^2
Maximum speed	108.54 km/h	Relative positive cubic speed	169.69 m^2/s^2
Average acceleration	0.011 m/s^2	Relative real cubic speed	722.23 m^2/s^2
Average positive acceleration	0.442 m/s^2	Root mean square of acceleration	0.031 m/s^2

Cycle No: 247

Cycle name: **TRRL 2.3**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

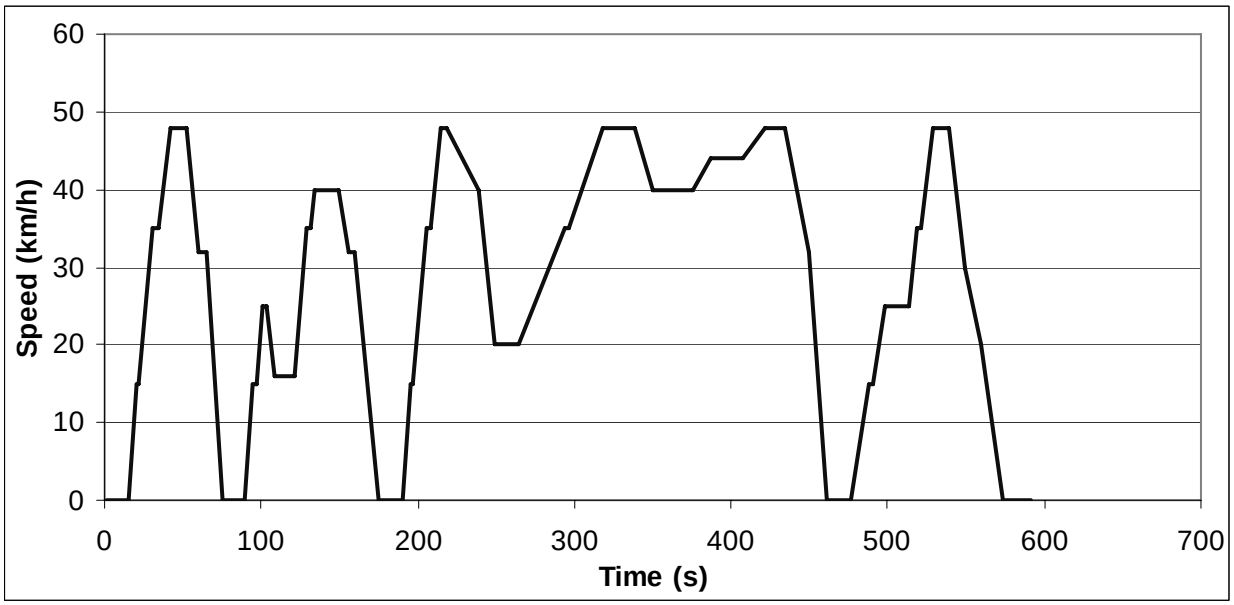


ART.KINEMA parameters

Total distance	12500 m	Average negative acceleration	-0.212 m/s^2
Total time	501 s	Standard deviation of accel.	0.284 m/s^2
Driving time	501 s	Standard dev. of positive accel.	0.191 m/s^2
Drive time	299 s	Accel: 75th - 25th percentile	0.227 m/s^2
Drive time spent accelerating	47 s	Number of accelerations	2
Drive time spent decelerating	155 s	Accelerations per km	0.160 /km
Time spent braking	80 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	59.68 %	Average distance between stops	N/A m
% of time accelerating	9.38 %	Relative positive acceleration	0.0287 m/s^2
% of time decelerating	30.94 %	Positive kinetic energy	0.947 m/s^2
% of time braking	15.97 %	Relative positive speed	0.397
% of time standing	0.00 %	Relative real speed	0.941
Average speed (trip)	89.8 km/h	Relative square speed	27.764 m/s
Average driving speed	3.19 km/h	Relative positive square speed	10.702 m/s
Standard deviation of speed	90.75 km/h	Relative real square speed	26.745 m/s
Speed: 75th - 25th percentile	34 km/h	Relative cubic speed	786.44 m^2/s^2
Maximum speed	112 km/h	Relative positive cubic speed	293.58 m^2/s^2
Average acceleration	0.001 m/s^2	Relative real cubic speed	767.58 m^2/s^2
Average positive acceleration	0.193 m/s^2	Root mean square of acceleration	0.047 m/s^2

Cycle No: 248

Cycle name: **TRRL 2.4**
Alternative name:
Test programme: **TRRL cycles**
Additional info:
Vehicle category: **Cars**

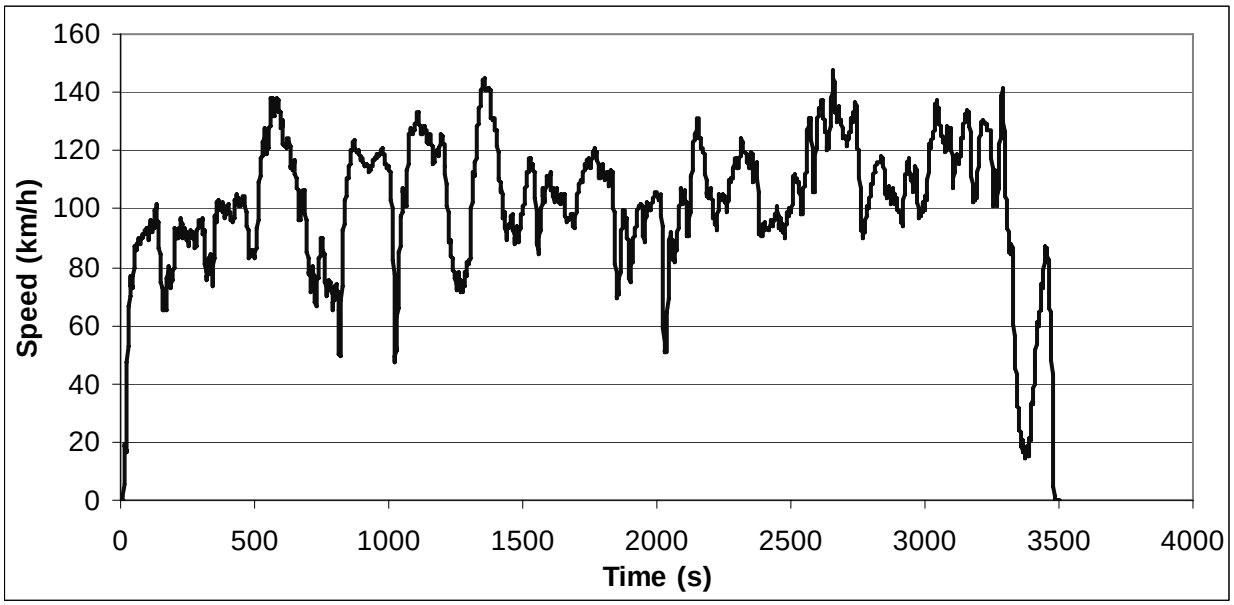


ART.KINEMA parameters

Total distance	4708.99 m	Average negative acceleration	-0.133 m/s^2
Total time	592 s	Standard deviation of accel.	0.219 m/s^2
Driving time	592 s	Standard dev. of positive accel.	0.163 m/s^2
Drive time	272 s	Accel: 75th - 25th percentile	0.291 m/s^2
Drive time spent accelerating	129 s	Number of accelerations	5
Drive time spent decelerating	191 s	Accelerations per km	1.062 /km
Time spent braking	24 s	Number of stops	0
Standing time	0 s	Stops per km	0 /km
% of time driving	100.00 %	Average stop duration	N/A s
% of cruising	45.95 %	Average distance between stops	N/A m
% of time accelerating	21.79 %	Relative positive acceleration	0.054 m/s^2
% of time decelerating	32.26 %	Positive kinetic energy	1.425 m/s^2
% of time braking	4.05 %	Relative positive speed	0.515
% of time standing	0.00 %	Relative real speed	0.959
Average speed (trip)	28.6 km/h	Relative square speed	9.491 m/s
Average driving speed	2.78 km/h	Relative positive square speed	5.108 m/s
Standard deviation of speed	30.08 km/h	Relative real square speed	9.146 m/s
Speed: 75th - 25th percentile	21.65 km/h	Relative cubic speed	97.09 m^2/s^2
Maximum speed	44.42 km/h	Relative positive cubic speed	53.84 m^2/s^2
Average acceleration	0.005 m/s^2	Relative real cubic speed	94.13 m^2/s^2
Average positive acceleration	0.189 m/s^2	Root mean square of acceleration	0.061 m/s^2

Cycle No: 249

Cycle name: **M25 High speed cycle**
Alternative name:
Test programme: **TRL M25 high-speed**
Additional info: **High speed motorway cycle**
Vehicle category: **Cars**

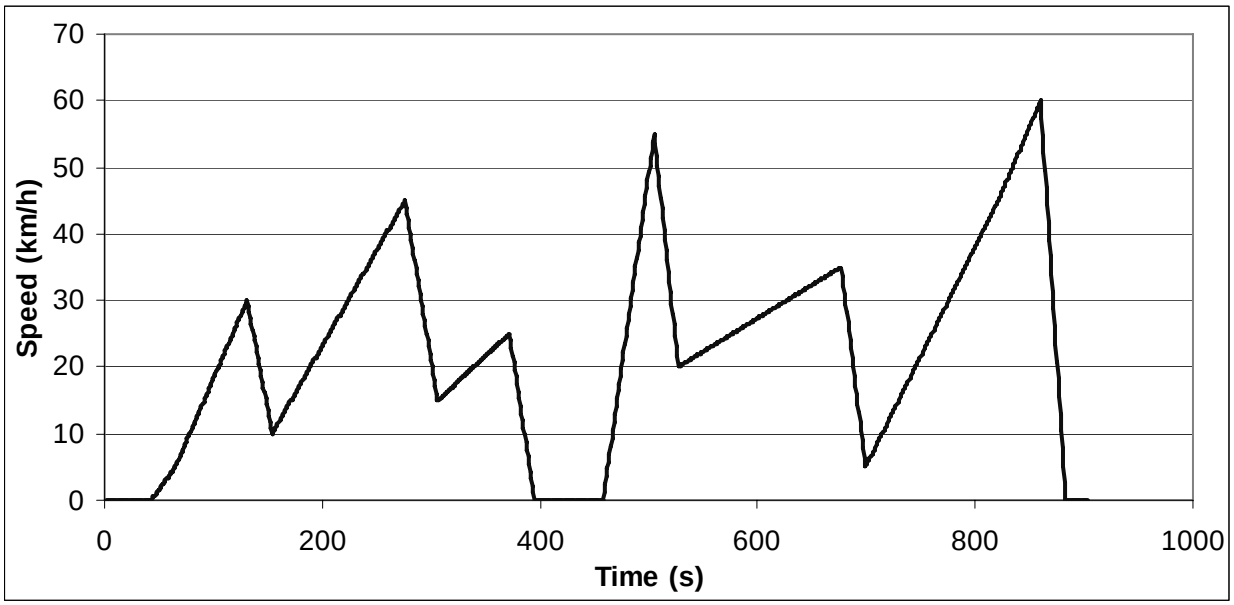


ART.KINEMA parameters

Total distance	98578.38 m	Average negative acceleration	-0.246 m/s^2
Total time	3500 s	Standard deviation of accel.	0.336 m/s^2
Driving time	3476 s	Standard dev. of positive accel.	0.218 m/s^2
Drive time	798 s	Accel: 75th - 25th percentile	0.314 m/s^2
Drive time spent accelerating	1415 s	Number of accelerations	158
Drive time spent decelerating	1263 s	Accelerations per km	1.603 /km
Time spent braking	573 s	Number of stops	2
Standing time	24 s	Stops per km	0.02 /km
% of time driving	99.31 %	Average stop duration	12 s
% of cruising	22.80 %	Average distance between stops	49289.19 m
% of time accelerating	40.43 %	Relative positive acceleration	0.1092 m/s^2
% of time decelerating	36.09 %	Positive kinetic energy	2.859 m/s^2
% of time braking	16.37 %	Relative positive speed	0.526
% of time standing	0.69 %	Relative real speed	0.844
Average speed (trip)	101.4 km/h	Relative square speed	29.789 m/s
Average driving speed	102.09 km/h	Relative positive square speed	15.637 m/s
Standard deviation of speed	22.92 km/h	Relative real square speed	25.315 m/s
Speed: 75th - 25th percentile	26.33 km/h	Relative cubic speed	914.51 m^2/s^2
Maximum speed	146.78 km/h	Relative positive cubic speed	478.65 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	780.78 m^2/s^2
Average positive acceleration	0.221 m/s^2	Root mean square of acceleration	0.063 m/s^2

Cycle No: 250

Cycle name: **BP Bus cycle**
Alternative name:
Test programme: **BP bus cycle**
Additional info:
Vehicle category: **Buses**

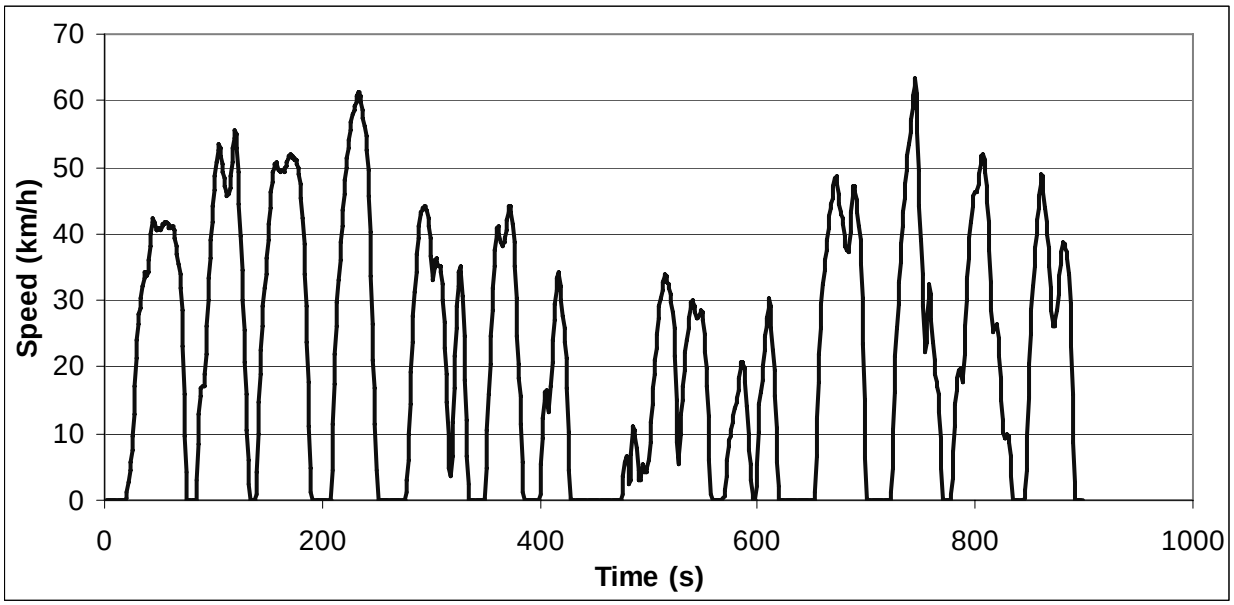


ART.KINEMA parameters

Total distance	5556.19 m	Average negative acceleration	-0.330 m/s^2
Total time	903 s	Standard deviation of accel.	0.199 m/s^2
Driving time	787 s	Standard dev. of positive accel.	0.072 m/s^2
Drive time	231 s	Accel: 75th - 25th percentile	0.091 m/s^2
Drive time spent accelerating	404 s	Number of accelerations	4
Drive time spent decelerating	152 s	Accelerations per km	0.720 /km
Time spent braking	112 s	Number of stops	3
Standing time	116 s	Stops per km	0.54 /km
% of time driving	87.15 %	Average stop duration	38.67 s
% of cruising	25.58 %	Average distance between stops	1852.06 m
% of time accelerating	44.74 %	Relative positive acceleration	0.0708 m/s^2
% of time decelerating	16.83 %	Positive kinetic energy	1.838 m/s^2
% of time braking	12.40 %	Relative positive speed	0.799
% of time standing	12.85 %	Relative real speed	0.852
Average speed (trip)	22.2 km/h	Relative square speed	8.814 m/s
Average driving speed	25.42 km/h	Relative positive square speed	7.000 m/s
Standard deviation of speed	12.68 km/h	Relative real square speed	7.449 m/s
Speed: 75th - 25th percentile	19.59 km/h	Relative cubic speed	89.02 m^2/s^2
Maximum speed	59.16 km/h	Relative positive cubic speed	70.00 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	74.62 m^2/s^2
Average positive acceleration	0.086 m/s^2	Root mean square of acceleration	0.075 m/s^2

Cycle No: 251

Cycle name: **TNO Bus cycle**
Alternative name:
Test programme: **TNO bus cycle**
Additional info:
Vehicle category: **Buses**

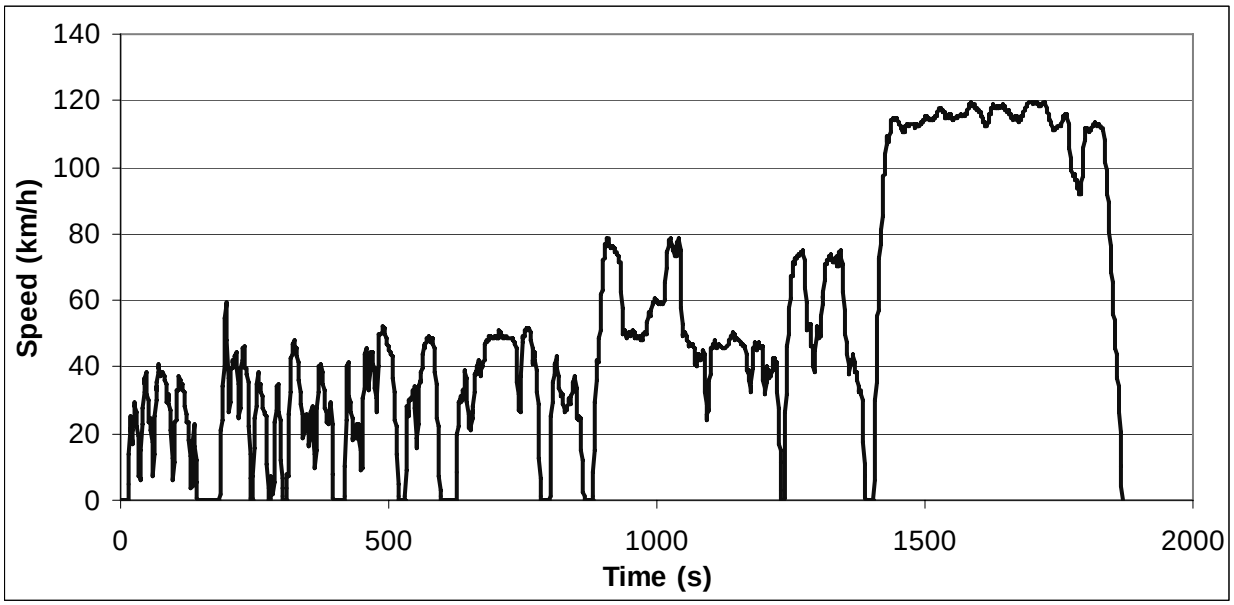


ART.KINEMA parameters

Total distance	5247.94 m	Average negative acceleration	-0.633 m/s^2
Total time	898 s	Standard deviation of accel.	0.730 m/s^2
Driving time	706 s	Standard dev. of positive accel.	0.383 m/s^2
Drive time	87 s	Accel: 75th - 25th percentile	0.589 m/s^2
Drive time spent accelerating	343 s	Number of accelerations	33
Drive time spent decelerating	276 s	Accelerations per km	6.288 /km
Time spent braking	217 s	Number of stops	14
Standing time	192 s	Stops per km	2.67 /km
% of time driving	78.62 %	Average stop duration	13.71 s
% of cruising	9.69 %	Average distance between stops	374.85 m
% of time accelerating	38.20 %	Relative positive acceleration	0.2549 m/s^2
% of time decelerating	30.73 %	Positive kinetic energy	6.660 m/s^2
% of time braking	24.16 %	Relative positive speed	0.551
% of time standing	21.38 %	Relative real speed	0.707
Average speed (trip)	21.0 km/h	Relative square speed	10.457 m/s
Average driving speed	26.76 km/h	Relative positive square speed	5.763 m/s
Standard deviation of speed	17.08 km/h	Relative real square speed	7.567 m/s
Speed: 75th - 25th percentile	37.7 km/h	Relative cubic speed	122.37 m^2/s^2
Maximum speed	61.81 km/h	Relative positive cubic speed	67.63 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	89.90 m^2/s^2
Average positive acceleration	0.516 m/s^2	Root mean square of acceleration	0.268 m/s^2

Cycle No: 252

Cycle name: **FHB Motorcycle cycle - All**
Alternative name:
Test programme: **FHB motorcycle cycles**
Additional info: **Fachhochschule Biel (FHB): Biel University of applied science**
Vehicle category: **Motorcycles**

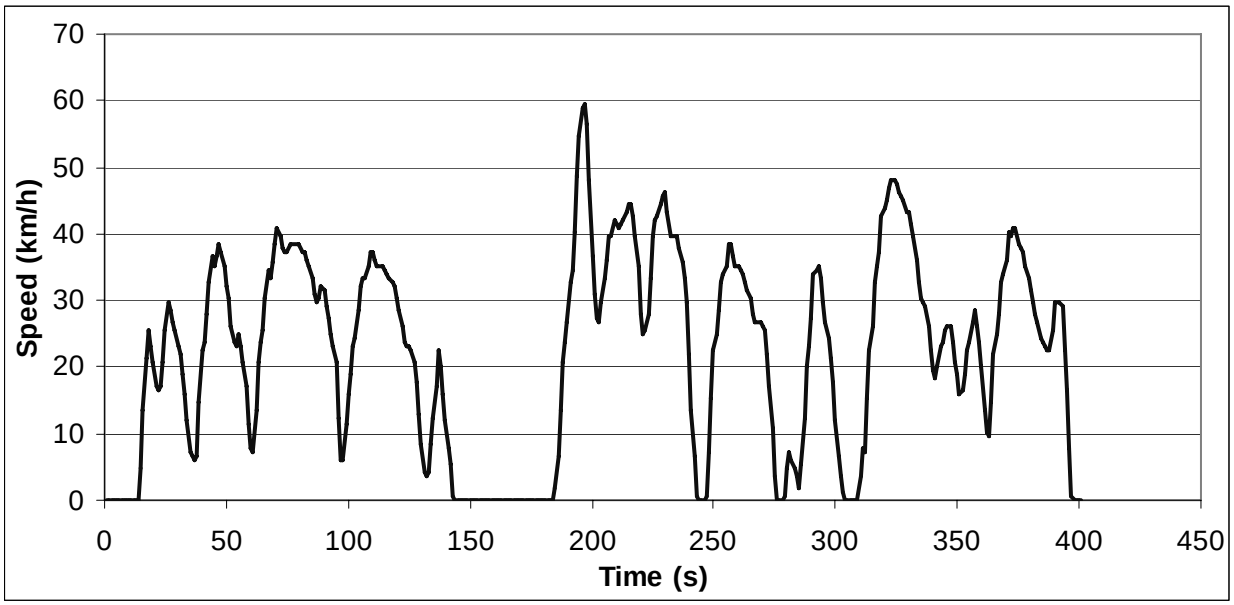


ART.KINEMA parameters

Total distance	27423.4 m	Average negative acceleration	-0.367 m/s^2
Total time	1868 s	Standard deviation of accel.	0.599 m/s^2
Driving time	1733 s	Standard dev. of positive accel.	0.501 m/s^2
Drive time	507 s	Accel: 75th - 25th percentile	0.273 m/s^2
Drive time spent accelerating	594 s	Number of accelerations	76
Drive time spent decelerating	632 s	Accelerations per km	2.771 /km
Time spent braking	375 s	Number of stops	11
Standing time	135 s	Stops per km	0.4 /km
% of time driving	92.77 %	Average stop duration	12.27 s
% of cruising	27.14 %	Average distance between stops	2493.04 m
% of time accelerating	31.80 %	Relative positive acceleration	0.1229 m/s^2
% of time decelerating	33.83 %	Positive kinetic energy	3.215 m/s^2
% of time braking	20.07 %	Relative positive speed	0.482
% of time standing	7.23 %	Relative real speed	0.864
Average speed (trip)	52.9 km/h	Relative square speed	22.092 m/s
Average driving speed	56.97 km/h	Relative positive square speed	10.807 m/s
Standard deviation of speed	35.86 km/h	Relative real square speed	20.183 m/s
Speed: 75th - 25th percentile	47.93 km/h	Relative cubic speed	582.21 m^2/s^2
Maximum speed	119.58 km/h	Relative positive cubic speed	287.06 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	547.69 m^2/s^2
Average positive acceleration	0.403 m/s^2	Root mean square of acceleration	0.151 m/s^2

Cycle No: 253

Cycle name: **FHB Motorcycle cycle - Zentrum**
Alternative name: **Urban city centre**
Test programme: **FHB motorcycle cycles**
Additional info: **Fachhochschule Biel (FHB): Biel University of applied science**
Vehicle category: **Motorcycles**

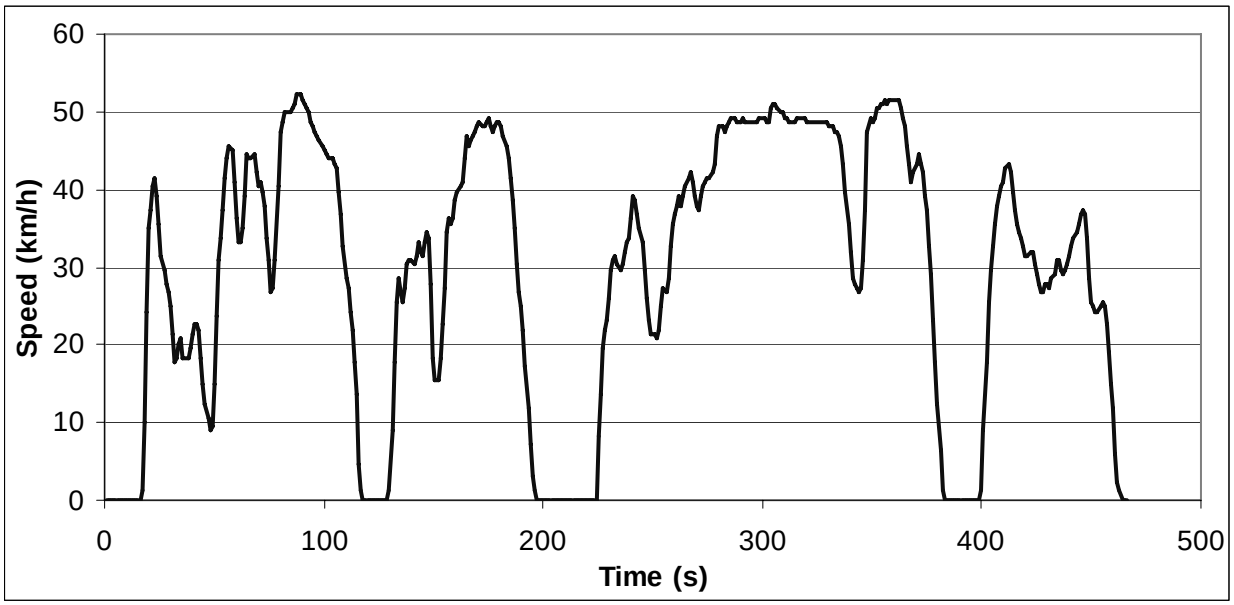


ART.KINEMA parameters

Total distance	2467.67 m	Average negative acceleration	-0.537 m/s^2
Total time	401 s	Standard deviation of accel.	0.755 m/s^2
Driving time	350 s	Standard dev. of positive accel.	0.483 m/s^2
Drive time	28 s	Accel: 75th - 25th percentile	0.746 m/s^2
Drive time spent accelerating	145 s	Number of accelerations	17
Drive time spent decelerating	177 s	Accelerations per km	6.889 /km
Time spent braking	132 s	Number of stops	4
Standing time	51 s	Stops per km	1.62 /km
% of time driving	87.28 %	Average stop duration	12.75 s
% of cruising	6.98 %	Average distance between stops	616.92 m
% of time accelerating	36.16 %	Relative positive acceleration	0.2717 m/s^2
% of time decelerating	44.14 %	Positive kinetic energy	7.103 m/s^2
% of time braking	32.92 %	Relative positive speed	0.437
% of time standing	12.72 %	Relative real speed	0.632
Average speed (trip)	22.2 km/h	Relative square speed	8.890 m/s
Average driving speed	25.38 km/h	Relative positive square speed	3.906 m/s
Standard deviation of speed	12.98 km/h	Relative real square speed	5.775 m/s
Speed: 75th - 25th percentile	26.3 km/h	Relative cubic speed	86.86 m^2/s^2
Maximum speed	55.93 km/h	Relative positive cubic speed	38.69 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	57.60 m^2/s^2
Average positive acceleration	0.653 m/s^2	Root mean square of acceleration	0.284 m/s^2

Cycle No: 254

Cycle name: **FHB Motorcycle cycle - Peripherie**
Alternative name: **Urban peripheral**
Test programme: **FHB motorcycle cycles**
Additional info: **Fachhochschule Biel (FHB): Biel University of applied science**
Vehicle category: **Motorcycles**

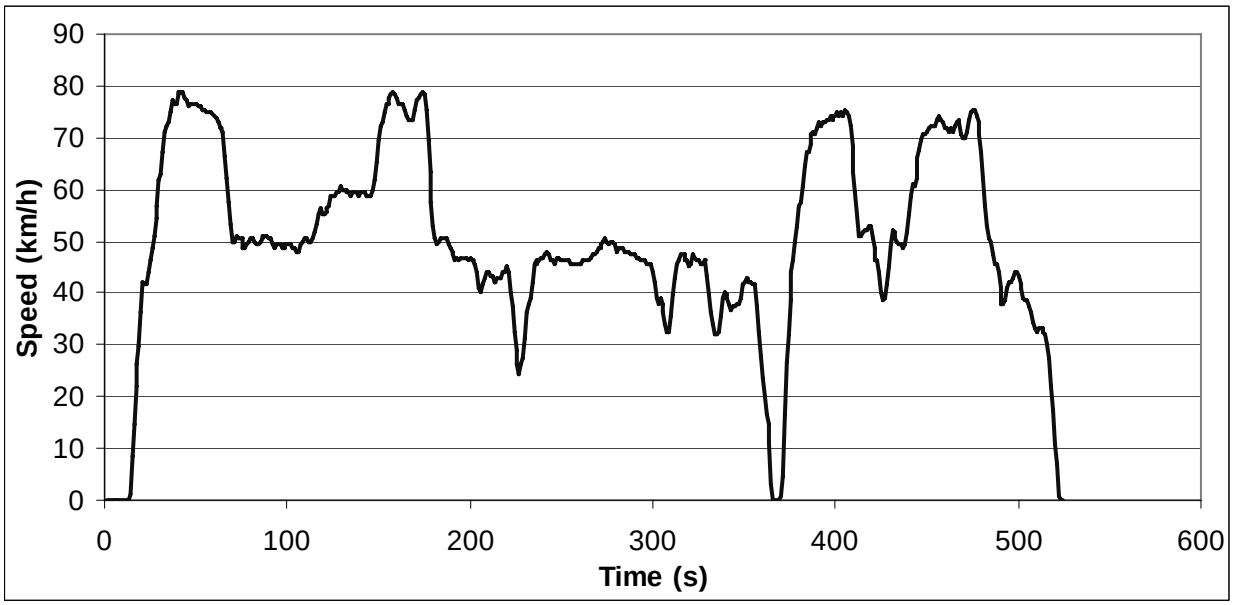


ART.KINEMA parameters

Total distance	3837.42 m	Average negative acceleration	-0.431 m/s^2
Total time	466 s	Standard deviation of accel.	0.623 m/s^2
Driving time	410 s	Standard dev. of positive accel.	0.508 m/s^2
Drive time	91 s	Accel: 75th - 25th percentile	0.358 m/s^2
Drive time spent accelerating	157 s	Number of accelerations	17
Drive time spent decelerating	162 s	Accelerations per km	4.430 /km
Time spent braking	109 s	Number of stops	5
Standing time	56 s	Stops per km	1.3 /km
% of time driving	87.98 %	Average stop duration	11.2 s
% of cruising	19.53 %	Average distance between stops	767.48 m
% of time accelerating	33.69 %	Relative positive acceleration	0.1696 m/s^2
% of time decelerating	34.76 %	Positive kinetic energy	4.433 m/s^2
% of time braking	23.39 %	Relative positive speed	0.515
% of time standing	12.02 %	Relative real speed	0.777
Average speed (trip)	29.7 km/h	Relative square speed	11.004 m/s
Average driving speed	33.69 km/h	Relative positive square speed	5.692 m/s
Standard deviation of speed	14.14 km/h	Relative real square speed	8.899 m/s
Speed: 75th - 25th percentile	25.47 km/h	Relative cubic speed	128.80 m^2/s^2
Maximum speed	51.69 km/h	Relative positive cubic speed	66.78 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	107.41 m^2/s^2
Average positive acceleration	0.415 m/s^2	Root mean square of acceleration	0.203 m/s^2

Cycle No: 255

Cycle name: **FHB Motorcycle cycle - Ueberland**
Alternative name: **Rural**
Test programme: **FHB motorcycle cycles**
Additional info: **Fachhochschule Biel (FHB): Biel University of applied science**
Vehicle category: **Motorcycles**

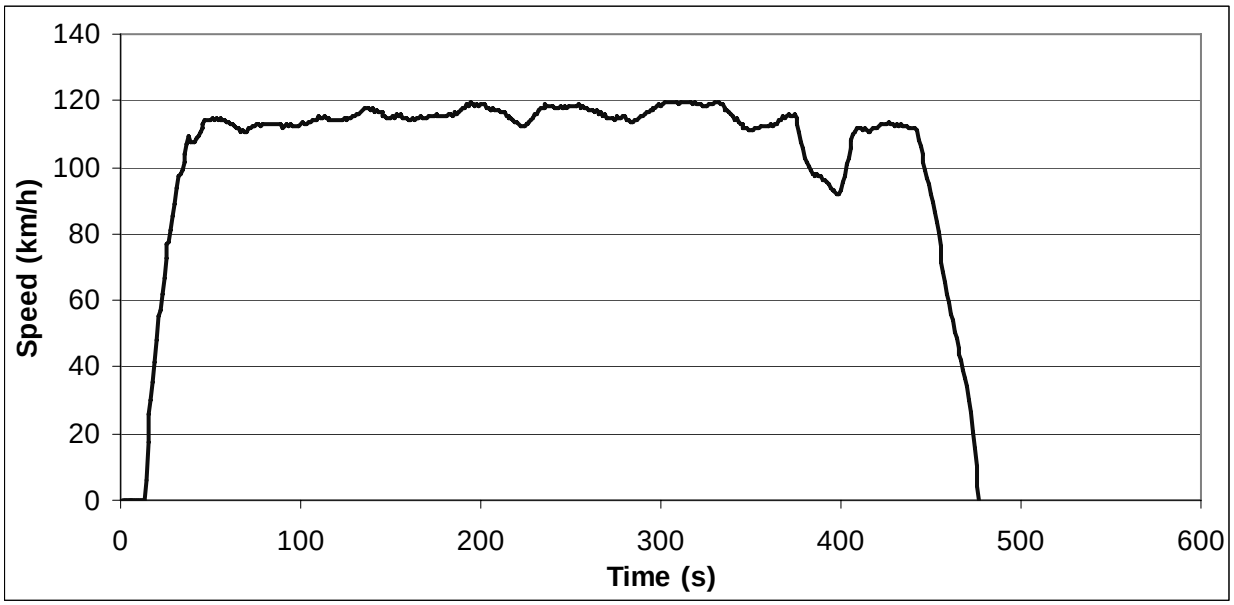


ART.KINEMA parameters

Total distance	7310.92 m	Average negative acceleration	-0.306 m/s^2
Total time	524 s	Standard deviation of accel.	0.518 m/s^2
Driving time	512 s	Standard dev. of positive accel.	0.422 m/s^2
Drive time	153 s	Accel: 75th - 25th percentile	0.249 m/s^2
Drive time spent accelerating	181 s	Number of accelerations	24
Drive time spent decelerating	178 s	Accelerations per km	3.283 /km
Time spent braking	91 s	Number of stops	2
Standing time	12 s	Stops per km	0.27 /km
% of time driving	97.71 %	Average stop duration	6 s
% of cruising	29.20 %	Average distance between stops	3655.46 m
% of time accelerating	34.54 %	Relative positive acceleration	0.1403 m/s^2
% of time decelerating	33.97 %	Positive kinetic energy	3.677 m/s^2
% of time braking	17.37 %	Relative positive speed	0.485
% of time standing	2.29 %	Relative real speed	0.850
Average speed (trip)	50.2 km/h	Relative square speed	15.753 m/s
Average driving speed	51.4 km/h	Relative positive square speed	7.811 m/s
Standard deviation of speed	16.53 km/h	Relative real square speed	13.609 m/s
Speed: 75th - 25th percentile	19.63 km/h	Relative cubic speed	263.95 m^2/s^2
Maximum speed	78.87 km/h	Relative positive cubic speed	133.11 m^2/s^2
Average acceleration	0.000 m/s^2	Relative real cubic speed	230.62 m^2/s^2
Average positive acceleration	0.342 m/s^2	Root mean square of acceleration	0.137 m/s^2

Cycle No: 256

Cycle name: **FHB Motorcycle cycle - Autobahn**
Alternative name: **Motorway**
Test programme: **FHB motorcycle cycles**
Additional info: **Fachhochschule Biel (FHB): Biel University of applied science**
Vehicle category: **Motorcycles**



ART.KINEMA parameters

Total distance	13813.82 m	Average negative acceleration	-0.199 m/s^2
Total time	477 s	Standard deviation of accel.	0.409 m/s^2
Driving time	467 s	Standard dev. of positive accel.	0.390 m/s^2
Drive time	234 s	Accel: 75th - 25th percentile	0.115 m/s^2
Drive time spent accelerating	113 s	Number of accelerations	13
Drive time spent decelerating	120 s	Accelerations per km	0.941 /km
Time spent braking	45 s	Number of stops	1
Standing time	10 s	Stops per km	0.07 /km
% of time driving	97.90 %	Average stop duration	10 s
% of cruising	49.06 %	Average distance between stops	13813.82 m
% of time accelerating	23.69 %	Relative positive acceleration	0.0688 m/s^2
% of time decelerating	25.16 %	Positive kinetic energy	1.788 m/s^2
% of time braking	9.43 %	Relative positive speed	0.498
% of time standing	2.10 %	Relative real speed	0.936
Average speed (trip)	104.3 km/h	Relative square speed	30.865 m/s
Average driving speed	106.49 km/h	Relative positive square speed	15.453 m/s
Standard deviation of speed	22.21 km/h	Relative real square speed	29.335 m/s
Speed: 75th - 25th percentile	5.15 km/h	Relative cubic speed	964.59 m^2/s^2
Maximum speed	119.54 km/h	Relative positive cubic speed	484.59 m^2/s^2
Average acceleration	-0.002 m/s^2	Relative real cubic speed	924.76 m^2/s^2
Average positive acceleration	0.201 m/s^2	Root mean square of acceleration	0.075 m/s^2

A reference book of driving cycles for use in the measurement of road vehicle emissions

TRL was commissioned by the Department for Transport to review the approach used in the National Atmospheric Emissions Inventory (NAEI) for estimating emissions from road vehicles, and to propose new methodologies. This necessarily requires that some consideration be given to the emission measurement process, an important aspect of which is the definition and application of driving cycles to represent different types of vehicle operation.

This Reference Book represents an attempt to compile a unique document which contains detailed descriptions of more than 200 driving cycles in a standardised format. Emphasis has been given to those driving cycles and vehicle operations that are relevant to the UK. The Reference Book was designed for use primarily within the DfT project. However, it is also hoped that it will be a useful source of information for other researchers and practitioners in the fields of vehicle emissions and air pollution.

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