

Annex H: Impact of proposed QC 0.0625 operations

Under the current regime, the QC 0.125 category applies to aircraft classified between 81 and 83.9 EPNdB. Aircraft quieter than QC 0.125 (below 81 EPNdB) are classified as QC 0 and are generally comprised of business jets and propeller-driven aircraft.

To take further account of quieter aircraft in the longer-term, a new QC 0.0625 band (or “QC sixteenth”) could be introduced for aircraft between 78 EPNdB and 80.9 EPNdB, with QC 0 then applying to aircraft classified below 78 EPNdB. Table 1 provides a list of existing QC 0 aircraft types that could be covered under a new QC 0.0625 category if introduced.

To provide an indication of the likely noise impact of an aircraft covered under a new QC 0.0625 band, Figure 1 illustrates the size and extent of the 60 dB L_{Amax} arrival and departure noise footprints for typical easterly (runway 04) operations at Stansted. An outdoor L_{Amax} level of 60 dB corresponds to an indoor noise level of approximately 45 dB, in accordance with the WHO¹ recommendation that individual noise events at night exceeding 45 dB should be avoided.

Figure 2 illustrates the equivalent 60 dB L_{Amax} noise footprints for westerly operations at Stansted. In each figure, separate footprints are shown for the Buzad (BZD), Clacton (CLN) and Detling (DET) departure routes. The generic QC 0.0625 aircraft used for the comparisons shown in Figures 1 and 2 was modelled to be exactly 3 EPNdB² quieter than the existing Airbus A320neo, which is classified as QC 0.125 on arrival and departure.

Results are summarised in Tables 2 and 3, which indicate that whilst the noise footprints of a new QC 0.0625 rated aircraft would be significantly smaller than the A320neo, the impacts of a QC 0.0625 aircraft are not insignificant.

¹ WHO Guidelines for Community Noise. World Health Organization, Geneva. 1999

² The midpoints of successive QC bands are 3 EPNdB apart.

Table 1 QC 0 aircraft expected to be covered under a new QC 0.0625 category (78.0-80.9 EPNdB)

Arrivals	Departures
BAE Jetstream 4100	ATR 42-200
BAE Model 4124 (Jetstream 4100)	ATR 42-300
Bombardier Challenger 300 (BD-100-1A10)	ATR 42-320
Bombardier Challenger 350 (BD-100-1A10)	ATR 42-400
Bombardier Global 5000 (BD-700-1A11)	ATR 42-500
Bombardier Global 5500 (BD-700-1A11)	ATR 72-212A
Bombardier Global 6000 (BD-700-1A10)	Bombardier CRJ 100/200 (CL-600-2B19)
Bombardier Global 6500 (BD-700-1A10)	Cessna 525
Bombardier Global 7500 (BD-700-2A12)	Cessna Bravo (Model 550)
CASA CN 235	Cessna Citation CJ2+ (525A)
CASA CN 235-100	Cessna Citation Excel (Model 560XL)
Cessna 525	Cessna Citation II (Model 550)
Cessna Cessna 500	Cessna Citation Latitude (680A)
Cessna Cessna 501	Cessna Citation M2 (525)
Cessna Citation CJ2+ (525A)	Cessna Citation Mustang (Cessna 510)
Cessna Citation CJ3 (525B)	Cessna Citation Sovereign (680)
Cessna Citation CJ4 (525C)	Cessna Citation Sovereign+ (680)
Cessna Citation Latitude (680A)	Cessna Encore (Model 560)
Cessna Citation M2 (525)	Cessna Encore + (Model 560)
Cessna Citation Sovereign+ (680)	Cessna Model 550
Cessna Citation V (Model 560)	Cessna Model S550
Cessna Model 550	Cessna XLS (Model 560XL)
Cessna Model S550	Cessna XLS+ (Model 560XL)
Embraer Legacy 450 (EMB-545)	De Havilland DHC-8-400
Embraer Legacy 500 (EMB-550)	De Havilland DHC-8-401
Embraer Phenom 300 (EMB-505)	De Havilland DHC-8-402
Fokker F28 Mark 0070	Embraer 190-E2 (ERJ 190-300)
Gulfstream G650 (GVI)	Embraer Legacy 450 (EMB-545)
Gulfstream G650ER (GVI)	Embraer Legacy 500 (EMB-550)
Hawker 400XP (Beech 400A)	Embraer Phenom 300 (EMB-505)
Honda HA-420	Honda HA-420
IPTN CN 235-110	Learjet 40 (Learjet Model 45)
Learjet 60	Learjet 45 (Learjet Model 45)
Let L-410 FG	Learjet 70 (Learjet Model 45)
Let L-410 UVP-LW	Learjet 75 (Learjet Model 45)
Let L-410 UVP-Turbolet	
SAAB 2000	
SAAB 340B	
Short Brothers SD3 Sherpa	
Short Brothers SD3-60 Sherpa	
Short Brothers Variant 100 (SD3-60)	

NOTE: some aircraft variants may also be included in lower or higher QC categories depending on maximum take-off/landing weights or other modifications.

Table 2 60dB L_{Amax} arrival footprint areas for QC 0.125 and QC 0.0625 aircraft at Stansted

Aircraft	Arrival footprint	Area, sq km	Population	Households
QC 0.125 (A320neo)	Easterly	89.7	11,100	4,500
	Westerly	55.6	5,100	2,100
QC 0.0625 (Generic aircraft)	Easterly	51.9	6,100	2,400
	Westerly	33.4	4,100	1,700
Differences	Easterly	-42%	-45%	-47%
	Westerly	-40%	-20%	-19%

Table 3 60dB L_{Amax} departure footprint areas for QC 0.125 and QC 0.0625 aircraft at Stansted

Aircraft	Departure footprint	Area, sq km	Population	Households
QC 0.125 (A320neo)	Easterly BZD	48.7	3,600	1,400
	Easterly CLN	48.7	3,300	1,200
	Easterly DET	48.7	2,100	800
	Westerly BZD	48.6	12,100	4,700
	Westerly CLN	48.6	8,000	3,000
	Westerly DET	48.8	9,700	3,700
QC 0.0625 (Generic aircraft)	Easterly BZD	30.2	1,100	400
	Easterly CLN	29.9	1,400	500
	Easterly DET	29.9	1,500	600
	Westerly BZD	29.6	3,500	1,300
	Westerly CLN	29.6	4,100	1,500
	Westerly DET	29.4	3,900	1,400
Differences	Easterly BZD	-38%	-69%	-71%
	Easterly CLN	-39%	-58%	-58%
	Easterly DET	-39%	-29%	-25%
	Westerly BZD	-39%	-71%	-72%
	Westerly CLN	-39%	-49%	-50%
	Westerly DET	-40%	-60%	-62%

Figure 1 Illustrative 60dB L_{Amax} footprints for Stansted easterly (runway 04) operations

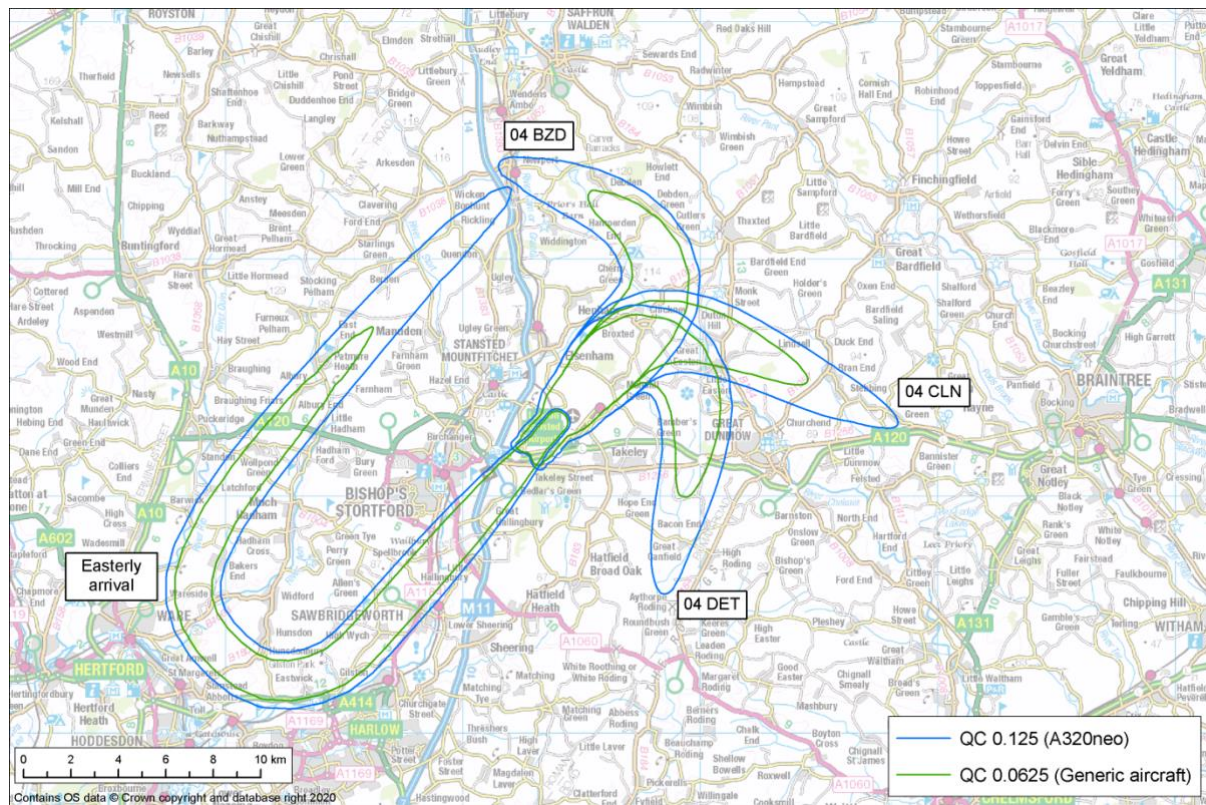


Figure 2 Illustrative 60dB L_{Amax} footprints for Stansted westerly (runway 22) operations

