AMENDMENT TO THE SCHEDULE TO THE AGREEMENT:

Equipment

The **RedFusion speedmeter** comprises the following type approved hardware:

- Roadside Imaging Device (RID)
- Decision Making Unit (DMU)
- Evidence Retrieval and Control Unit (ERCU)

The RID consists of a camera head, which contains two cameras, an infra-red illuminator (850 nm), a laser trigger, GPS antenna, and optional 100 Hz light sensor, and a roadside cabinet containing a computer running embedded Windows XP, power distribution and networking equipment. The DMU and ERCU consist of computers and communication equipment. The operating systems are linux (DMU) and Windows XP embedded (ERCU) respectively.

The hardware most critical to the speed measuring process contained in the camera head assembly comprise the following:

- Gardasoft Vision MD290 Lens Controller
- Monochrome camera - DALSA Genie M640 8-bit Series GigE network camera
- Colour camera - DALSA Genie C1410 8-bit Series GigE network camera
- Triggering laser - Noptel CMP3-30 laser, having a wavelength of 905 nm, and set to a 2 kHz pulse repetition frequency
- 2 IR illuminators - comprising a total of 42 of the following LEDs: Edison Opto "IR Edixeon" EDEI-1LA3
- Trimble 'Bullet 3' GPS antenna (Trimble part number 57860-00)

Software

The checksums of the approved software are listed in **Table 1**.

Physical Location	File Name	Release Version	Release Date	CRC32 Checksum	File Size (bytes)
RID - PC	RID.exe	v1.3.9.0	11-Aug-09	4F7FCD43	737280
RID- firmware on RTC card	Timeserver.bin	v2.8	21-Nov-08	16A3BC6B	13183
DMU -PC	Dmu	v1.2.0.1	11-Aug-09	319D70B9	719877
DMU -PC	Dmucron	v1.2.0.1	11-Aug-09	B44292B3	157210
DMU -PC	Dmuercu	v1.2.0.1	11-Aug-09	6FD5DED2	559657
ERCU -PC	Ercu.exe	v2.1.0.22	20-Mar-09	5E879D93	1011712
OVDS -PC	Redfusion.std.server.exe	v1.0.2.18	11-Aug-09	80B1CD7A	2904064
COURT PC (running Windows XP Professional)	Redfusion.std.courtviewer.exe	v1.0.2.5	11-Aug-09	E96BD645	638976
PCs running Windows XP on the RIDs, ERCUs and OVDS	AESNet.dll	v1.0.0	21-Nov-08	E6EC9A98	24576
PCs running Windows XP on the RIDs, ERCUs and OVDS	AES2DOTNET.dll	v1.1.0	21-Nov-08	74B6A2D3	41472

Table 1 Approved software checksums.

Configuration files are listed in Annex A: 'System Configuration XML Tags v1.0.4'. All values in red may change, and are not controlled by this document. All other values, however, should remain as they are in this document.

Usage

The device is to be used in the automatic unattended mode.

The device measures the average speed between pairs of RIDs where one RID is designated an entry RID and the other RID designated an exit RID. On the baseline between an entry and exit pair of RIDs, one additional RID designated as an intermediate RID that can act as both an entry and an exit RID between a pair of contiguous base lines may optionally be used. The average speeds that can be recorded by the device will be the average speed on the following road segments:

- one entry site to one exit site

and if and only if an intermediate RID is used

- one entry site to one intermediate site, and
- one intermediate site to one exit site.

Each camera assembly may only monitor one lane of traffic where the centre of the lane is located either immediately below or within 9.1m of the camera mounting with all lanes adjoining through out the length of the base line.

For each base line the base line used shall be the shortest traffic route between the entry point and exit point.

Vehicles are detected by a Noptel CMP3-30 laser. The laser trigger distance shall be set to between 2500 cm and 2700 cm, and the trigger window width to between 50 cm and 120 cm.

The camera assemblies shall be mounted on either of the two following poles:

- The RedFusion 'straight pole', which shall mount up to two camera assemblies at a height of 6 m or
- The RedFusion 'out reach pole', on which up to three camera assemblies shall be mounted at a height of 7 m along a 6 m extension.

A system may use either and different types of pole at entry, exit or intermediate points.

The maximum horizontal angle the cameras can subtend with the road axis is 20°. The distance parallel to the road axis from the camera to the detection point shall be 25 m. The maximum distance from the point on the road immediately below the camera to the centre of the monitored lane shall be 9.1 m

The equipment is approved to measure speeds from 20 mph to 140 mph.

The minimum baseline is 100 m.

There can be up to three camera heads connected to a single roadside cabinet, up to twenty cabinets to each DMU, and up to four DMUs to the ERCU.

For each base line a 10cm by 10cm square datum mark that marks the end of the base line shall be placed on the road in the centre of the lane, within the field of view of the cameras and 25m down the centre of the lane from the base of the pole. There will be two additional 15cm equilateral triangular marks placed on the road 1m after the datum mark in approaching mode or 1m before the datum mark in receding mode, and 1.25m either side of the centre of the lane.

The cameras can monitor approaching or receding traffic. In approaching mode, the laser is set to 'In Window' triggering. In receding mode, the laser is set to 'Out of Window' triggering. For each base line or set of contiguous baselines only one traffic direction shall be monitored at any one time.

Every base line shall be subject to a common speed limit.

SIGNED SEALED AND DELIVERED
on behalf of the **Secretary of State for the Home Department**

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Mr S. Jegede, Home Office

Date: September 2010

SIGNED SEALED AND DELIVERED
on behalf of **RedSpeed International Ltd**

by.....

Daniel Zaydman

Date: September 2010