Report On

FCC and Industry Canada Testing of the
Sepura plc STP8040 Portable Tetra Radio

COMMERCIAL-IN-CONFIDENCE

FCC ID: XX6STP8040
IC ID: 8739A-STP8040

Document 75908190 Report 03 Issue 1 February 2010

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REPORT ON FCC and Industry Canada Testing of the Sepura plc STP8040 Portable Tetra Radio

Document 75908190 Report 03 Issue 1

February 2010

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DATED 25 February 2010

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47: Part 15B and RSS-Gen. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

UKAS TESTING 0141

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Product Service

SECTION 1

REPORT SUMMARY

FCC and Industry Canada Testing of the
Sepura plc STP8040 Portable Tetra Radio

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Sepura plc, STP8040 Portable Tetra Radio to the requirements of FCC CFR 47 Part 15B and RSS-Gen.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Sepura plc
Model Number(s)	STP8040 Portable Tetra Radio
Serial Number(s)	2PN000219VA
Software Version	-
Hardware Version	Production
Number of Samples Tested	One
Test Specification/Issue/Date	FCC CFR 47 Part 15B: 2007 RSS-Gen: 2009
Incoming Release Date	Declaration of Build Status 10 December 2009
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	315350/T0201 19 November 2009
Start of Test	04 January 2009
Finish of Test	04 January 2009
Name of Engineer(s)	G Lawler
Related Document(s)	ANSI 63.4 : 2003

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15B and RSS-Gen is shown below.

Configuration 1 - Mono Console & Handset Base Console							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Base Standard
	FCC	IC					
2.1	15.109	4.9	Radiated Emissions (Enclosure Port)	Idle	0	Pass	ANSI 63.4
				460.025MHz Receive	0	Pass	
	15.107		Conducted Emissions (AC Power Port)	Idle		N/A	ANSI 63.4
				460.025MHz Receive		N/A	

N/A – Not Applicable

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1.3 DECLARATION OF BUILD STATUS

MAIN EUT				
MANUFACTURING DESCRIPTION	Tetra Mobile/Gateway terminal			
MANUFACTURER	Sepura			
TYPE	STP8040 Portable Tetra Radio UW			
PART NUMBER	n/a			
SERIAL NUMBER	2PN000219VA			
HARDWARE VERSION	Production			
SOFTWARE VERSION	-			
TRANSMITTER OPERATING RANGE	407MHz to 473MHz			
RECEIVER OPERATING RANGE	407MHz to 473MHz			
COUNTRY OF ORIGIN	UK			
INTERMEDIATE FREQUENCIES	69.25MHz			
ITU DESIGNATION OF EMISSION	25K0Q1D			
HIGHEST INTERNALLY GENERATED FREQUENCY	Fc (TX)x4/3 MHz or Fc (RX)+69.25MHz			
OUTPUT POWER (W or dBm)	10 Watts			
FCC ID	XX6STP8040			
INDUSTRY CANADA ID	8739-STP8040			
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Tetra Mobile/Gateway terminal			
ANCILLARIES (if applicable)				
MANUFACTURING DESCRIPTION	Handset	RSM	Fist Mic	Hands-free kit
MANUFACTURER	ADI	ADI	ADI	ADI
TYPE				
PART NUMBER	300 00061	300-00444	300 00062	300 00085
SERIAL NUMBER				
COUNTRY OF ORIGIN	Taiwan	Taiwan	Taiwan	Taiwan
ANCILLARIES (if applicable)				
MANUFACTURING DESCRIPTION	Console	Console	HBC	AIU
MANUFACTURER	Sepura	Sepura	Sepura	Sepura
TYPE	Standard	Colour		
PART NUMBER	300 00149	300 00771	300 00669	300 00217
SERIAL NUMBER				
COUNTRY OF ORIGIN	UK	UK	UK	UK

Signature

Date 10 December 2009
Declaration of Build Status Serial Number 75908190

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV Product Service as to the accuracy of the information declared in this document by the manufacturer.

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1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a Sepura plc, STP8040 Portable Tetra Radio as shown in the photograph below. A full technical description can be found in the manufacturer's documentation.

Equipment Under Test

Product Service

1.4.2 Test Configuration

Configuration 1: Stand Alone Powered

The EUT was configured as a standalone item and powered via a 7.4 V battery.

The EUT was configured in accordance with FCC CFR 47 Part 15B and RSS-Gen.

1.4.3 EUT Cable / Port Identification

Port	Max Cable Length specified	Usage	Type	Screened
Signal	1.0m	Fist Microphone	Multicore	No

1.4.4 Modes of Operation

Modes of operation of each EUT during testing were as follows:

Mode 1 - Idle

Mode 2 - 460.025MHz Receive

Information on the specific test modes utilised are detailed in the test procedure for each individual test.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure, test laboratories or an open test area as appropriate.

The EUT was powered via a 7.4 V battery.

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.7 MODIFICATION RECORD

No modifications were made to the EUT during testing.

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SECTION 2

TEST DETAILS

FCC and Industry Canada Testing of the
Sepura plc STP8040 Portable Tetra Radio

2.1 RADIATED EMISSIONS (ENCLOSURE PORT)

2.1.1 Specification Reference

FCC CFR 47 Part 15B, Clause 15.109
RSS-Gen, Clause 4.9

2.1.2 Equipment Under Test

STP8040 Portable Tetra Radio, S/N: 2PN000219VA

2.1.3 Date of Test and Modification State

04 January 2009 - Modification State 0

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Method and Operating Modes

The test was applied in accordance with the test method requirements of ANSI 63.4.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1

2.1.6 Environmental Conditions

	04 January 2009
Ambient Temperature	16°C
Relative Humidity	29%
Atmospheric Pressure	1013mbar

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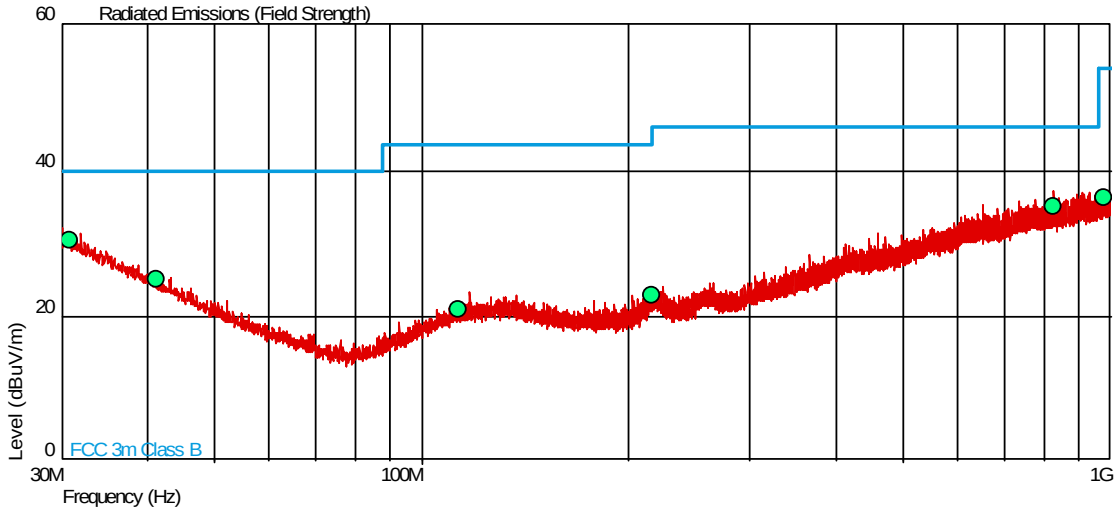
2.1.7 Test Results

For the period of test the EUT met the requirements of FCC CFR 47 Part 15B and RSS-Gen for Radiated Emissions (Enclosure Port).

The test results are shown below.

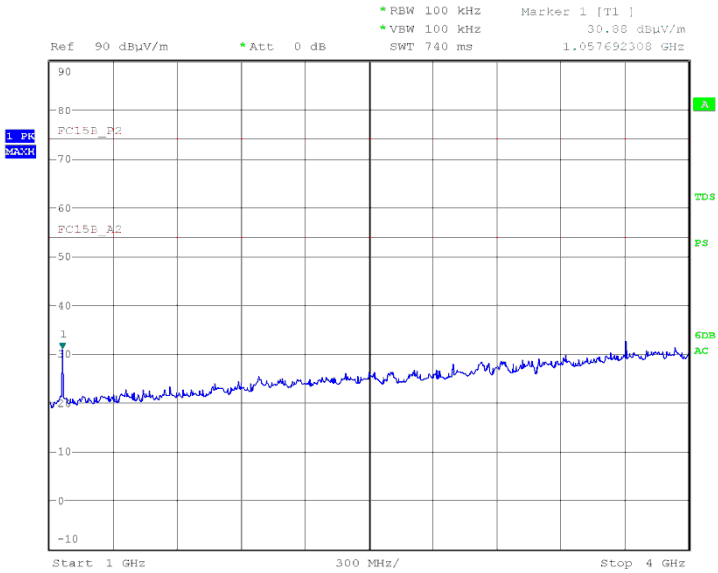
Configuration 1 - Mode 1



Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle (deg)	Height (m)	Polarity
30.741	30.4	33.1	40.0	100	-9.6	66.9	1	1.00	Vertical
41.191	25.0	17.8	40.0	100	-15.0	82.2	1	1.00	Vertical
113.183	20.9	11.1	43.5	150	-22.6	138.9	1	1.00	Horizontal
215.468	22.9	14.0	43.5	150	-20.6	136.0	1	1.00	Vertical
826.538	34.9	55.6	46.0	200	-11.1	144.4	1	1.00	Horizontal
978.691	36.2	64.6	54.0	501	-17.8	436.4	1	1.00	Horizontal

1GHz to 4GHz

Vertical



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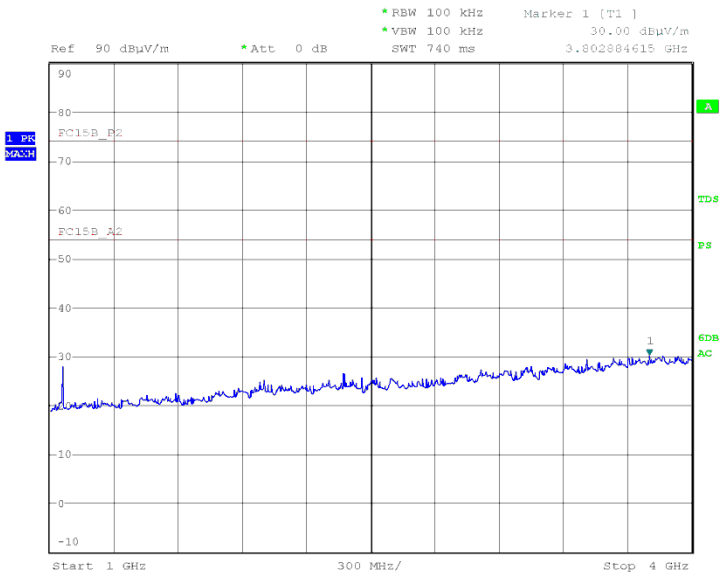

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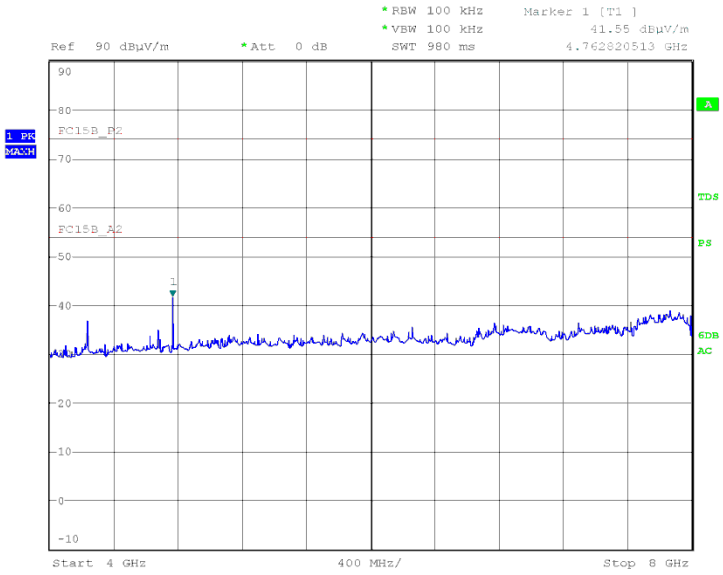
4GHz to 8GHz

Vertical



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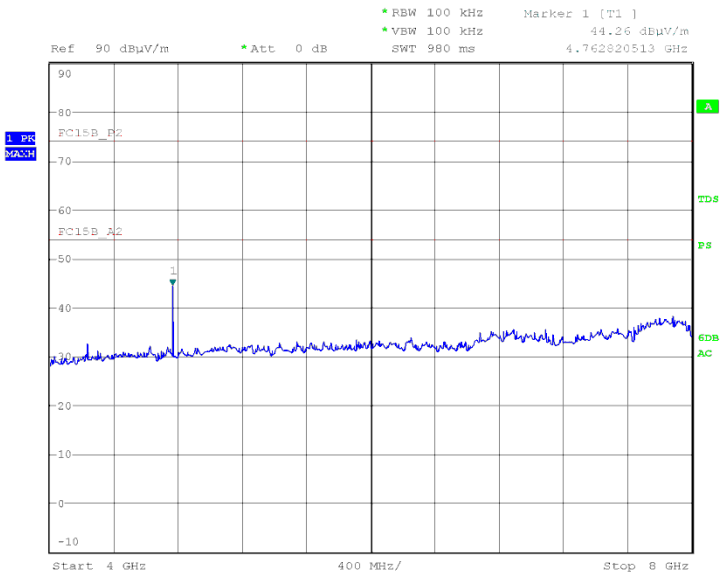

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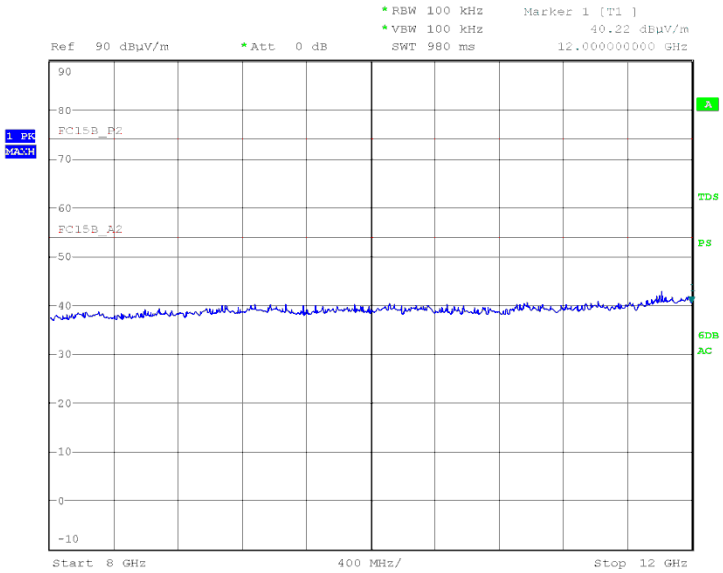
8GHz to 12GHz

Vertical



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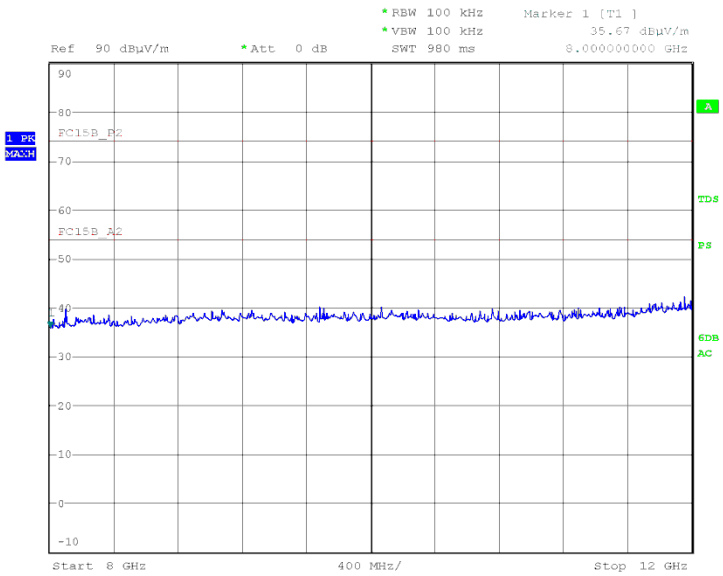

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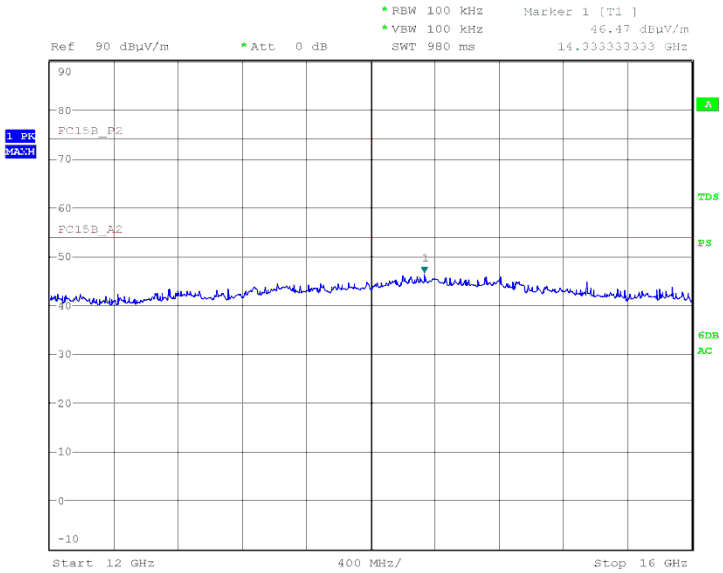
12GHz to 14GHz

Vertical



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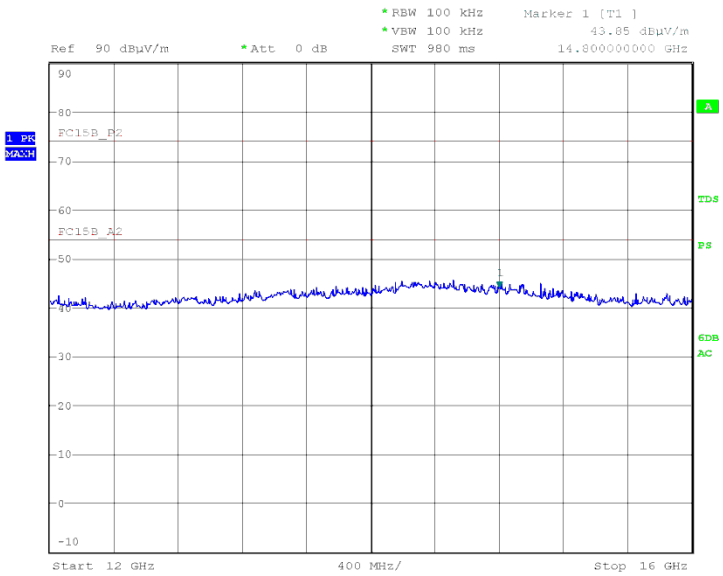

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SECTION 3

TEST EQUIPMENT USED

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3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 EMC - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	12-Oct-2010
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	12-Oct-2010
Antenna (Bilog)	Schaffner	CBL6143	287	24	21-Jan-2010
Pre-Amplifier	Phase One	PS04-0085	1532	12	16-Sep-2010
Pre-Amplifier	Phase One	PS04-0086	1533	12	17-Sep-2010
Screened Room (5)	Rainford	Rainford	1545	36	11-Feb-2011
Antenna (Bilog)	Chase	CBL6143	2904	24	4-Dec-2011
Signal Generator (10MHz to 40GHz)	Rohde & Schwarz	SMR40	3171	12	4-Aug-2010
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	1-Sep-2010
3 GHz High Pass Filter	K&L uwave	11SH10-3000/X18000-O/O	3552	12	14-Apr-2010

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3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*
Conducted Emissions, ISN	150kHz to 30MHz Amplitude	2.1dB
Substitution Antenna, Radiated Field	30MHz to 18GHz Amplitude	2.6dB
Discontinuous Interference	150kHz to 30MHz Amplitude	3.0dB*
Interference Power	30MHz to 300MHz Amplitude	3.0dB*
Radiated E-Field Susceptibility	10MHz to 6GHz Test Amplitude	2.0dB†
Conducted Susceptibility RF	50kHz to 1000MHz Amplitude EM Clamp Method of Test CDN Method of Test BCI Clamp Method of Test Direct Injection Method of Test	 3.1dB• 1.2dB• 1.1dB• 1.2dB•
Conducted Susceptibility LF	DC to 150kHz	1.0%†
Power Frequency Magnetic Field	50Hz/60Hz Amplitude	0.45%
Magnetic Emissions	9kHz to 30MHz Amplitude	3.4dB*
Magnetic Field/Flux iaw EN 50366	10Hz to 400kHz	2.64%
Harmonics and Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2 and EN 61000-3-3	—
Mains Voltage Variations and Interrupts	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11	—
Fast Transient Burst	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4	—
Electrostatic Discharge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2	—
Surge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5	—
Vehicle Transients	The test was applied using proprietary equipment that meets the requirements of ISO 7637-1 and 2	—
Compass Safe Distance	Azimuth Accuracy	0.10°

Worst case error for both Time and Frequency measurement 12 parts in 10^6.

* In accordance with CISPR 16-4-2
† In accordance with UKAS Lab 34
• In accordance with EN61000-4-6

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).