TEST REPORT

Test Report No. : UL-RPT-RP10697749JD01A V3.0

Manufacturer	:	Ash Wireless Electronics Ltd
Model No.	:	VTB-2VB (Located within TL-2.0 host product)
FCC ID	:	2AEAI-VTB1
Test Standard(s)	:	FCC Parts 15.109, 15.209(a) & 15.247

1. This test report shall not be reproduced in full or partial, without the written approval of UL VS LTD.
2. The results in this report apply only to the sample(s) tested.
3. This sample tested is in compliance with the above standard(s).
4. The test results in this report are traceable to the national or international standards.
5. Version 3.0 supersedes all previous versions.

Date of Issue: 28 July 2015

Checked by:

Steven White
Project Lead, Radio Laboratory

Issued by :

pp

John Newell
Quality Manager,
UL VS LTD

ilac-MRA UKAS TESTING 0644

This laboratory is accredited by UKAS. The tests reported herein have been performed in accordance with its terms of accreditation.

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1. Customer Information

Company Name:	Ash Wireless Electronics Ltd
Address:	Leornain House, Itchen Business Park Kent Road Southampton SO17 2LJ United Kingdom

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Section 15.247
Specification Reference:	47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Specification Reference:	47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart B (Unintentional Radiators) – Section 15.109
Site Registration:	209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	30 March 2015 to 07 April 2015

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.247(a)(2)	Transmitter Minimum 6 dB Bandwidth	✓
Part 15.247(e)	Transmitter Power Spectral Density	Note 1
Part 15.247(b)(3)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d)/ 15.209(a)	Transmitter Radiated Emissions	✓
Part 15.247(d)/ 15.209(a)	Transmitter Band Edge Radiated Emissions	✓
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	✓
Key to Results ✓ = Complied ✗ = Did not comply		

Note(s):

1. In accordance with FCC KDB 558074 Section 10.1, PSD is not required if the maximum conducted output power is less than the PSD limit of 8 dBm / 3 kHz. The PSD level is therefore deemed to be equal to the measured total output power.

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices
Reference:	KDB 558074 D01 v03r03 June 9, 2015
Title:	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Vega Telemetry Board (Located within Telemetry Tensile Link TL-2.0 Host Device)
Model Name or Number:	VTB-2VB
Test Sample Serial Number:	UL Sample #3 No. 8 *(Conducted RF Sample)*
Hardware Version Number:	Revision B
Software Version Number:	1.3.4.1
FCC ID:	2AEAI-VTB1

Brand Name:	Vega Telemetry Board (Located within Telemetry Tensile Link TL-2.0 Host Device)
Model Name or Number:	VTB-2VB
Test Sample Serial Number:	UL Sample #2 No. 7 *(Radiated Sample)*
Hardware Version:	Revision B
Software Version:	1.3.4.1
FCC ID:	2AEAI-VTB1

Brand Name:	Vega Telemetry Board (Located within Telemetry Tensile Link TL-2.0 Host Device)
Model Name or Number:	VTB-2VB
Test Sample Serial Number:	No UL Sample #1 No. 6 *(Radiated Sample)*
Hardware Version Number:	Revision B
Software Version Number:	1.3.4.1
FCC ID:	2AEAI-VTB1

3.2. Antenna

Type:	PCB PIFA F-Type
Stated Gain:	1.0 dBi
Brand Name:	N/A
Antenna Name	N/A

3.3. Description of EUT

The equipment under test was a 2.4 GHz proprietary transceiver module.

For testing purposes it was installed into a representative host product, which was a light weight wireless tension measuring unit. The device was powered by 2 x 1.5V AA batteries.

3.4. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.5. Additional Information Related to Testing

Technology Tested:	Digital Transmission System	
Type of Unit:	Transceiver	
Modulation:	Phase Modulation	
Power Supply Requirement(s):	Nominal	3.0 VDC
Maximum Conducted Output Power:	7.5 dBm	
Antenna Gain:	1.0 dBi	
Transmit Frequency:	2435 MHz	
Transmit Channel Tested:	**Channel ID**	**Channel Frequency (MHz)**
	Single	2435

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Continuously transmitting at maximum power at 2435 MHz, with a 100% duty cycle.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- For testing purposes the client supplied the VTB-2VB module installed into a representative host product, a Telemetry Tensile Link TL-2.0.
- The sample marked UL Sample #3 No.8 was supplied with a temporary SMA connector attached the RF output port, to allow conducted measurements to be performed.
- The samples marked UL Sample #2 No.7 and #2 No.6, were supplied with an integral antenna, to allow radiated measurements to be performed.
- EUT powered up in a continuously modulated transmit mode.
- For radiated measurements the EUT was powered by two new AA (2 x 1.5V) batteries and the voltages monitored throughout the test.
- For conducted measurements the EUT was powered from a desktop DC power supply, which was monitored by a calibrated multimetre.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6. Measurement Uncertainty* for details.

In accordance with UKAS requirements all the measurement equipment is on a calibration schedule. All equipment was within the calibration period on the date of testing.

5.2. Test Results

5.2.1. Transmitter Minimum 6 dB Bandwidth

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	30 March 2015
Test Sample Serial Number:	UL sample #3 No.8		

FCC Reference:	Part 15.247(a)(2)
Test Method Used:	As detailed in FCC KDB 558074 Section 8.1 Option 1

Environmental Conditions:

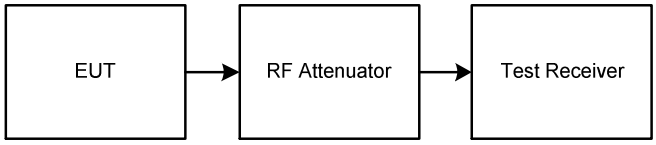
Temperature (°C):	24
Relative Humidity (%):	26

Note(s):

1. 6 dB DTS bandwidth tests were performed using a spectrum analyser in accordance with FCC KDB 558074 Section 8.1 Option 1 measurement procedure. The spectrum analyser resolution bandwidth was set to 100 kHz and video bandwidth 300 kHz. A peak detector was used, sweep time was set to auto and the trace mode was Max Hold. The DTS bandwidth was measured at 6 dB down from the peak of the signal.
2. The test receiver was connected to the RF port on the EUT using suitable attenuation and RF cable.

Minimum 6 dB Bandwidth (continued)

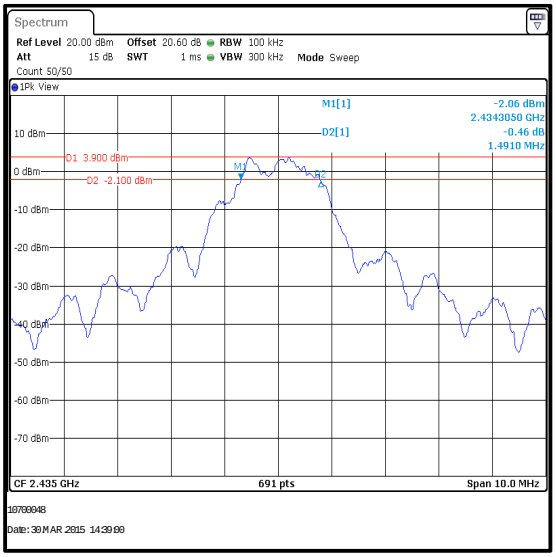
Test setup for bandwidth measurements:



Results:

Channel	6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Middle	1.491	≥0.5	0.991	Complied

Results:



Single Channel

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1785	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	24 Apr 2015	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	18 Feb 2016	12
A2528	Attenuator	AtlanTecRF	AN18W5-20	832828#3	Calibrated before use	-
S0558	DC Power Supply	TTI	EL303R	395825	Calibrated before use	-
M122	Multimeter	Fluke	77	64910017	24 Apr 2015	12

5.2.2. Transmitter Maximum Peak Output Power

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	30 March 2015
Test Sample Serial Number:	UL sample #3 No.8		

FCC Reference:	Part 15.247(b)(3)
Test Method Used:	As detailed in FCC KDB 558074 Section 9.1.1

Environmental Conditions:

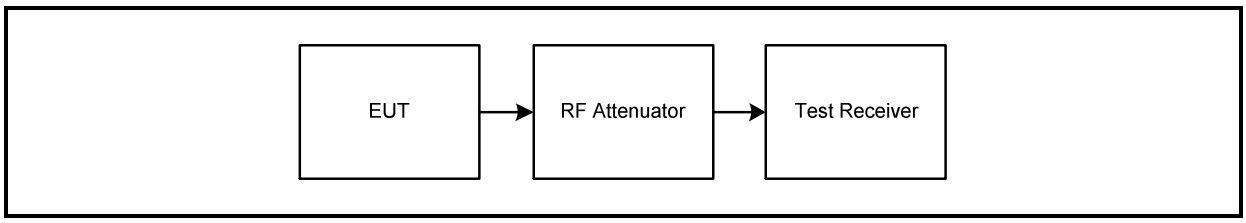
Temperature (°C):	24
Relative Humidity (%):	26

Note(s):

1. Conducted power tests were performed using a spectrum analyser in accordance with FCC KDB 558074 Section 9.1.1 Measurement Procedure Option RBW ≥ DTS Bandwidth.
2. The signal analyser resolution bandwidth was set to 3 MHz and video bandwidth of 10 MHz. A peak detector was used, sweep time was set to auto and trace mode was Max Hold. The span was set to 10 MHz. A marker was placed at the peak of the signal and the results recorded in the table below.
3. The spectrum analyser was connected to the SMA RF cable on the EUT using suitable attenuation and RF cable. An RF level offset was entered on the spectrum analyser to compensate for the loss of the attenuator and RF cable.
4. The conducted power was added to the declared antenna gain to obtain the EIRP.

Transmitter Maximum Peak Output Power (continued)

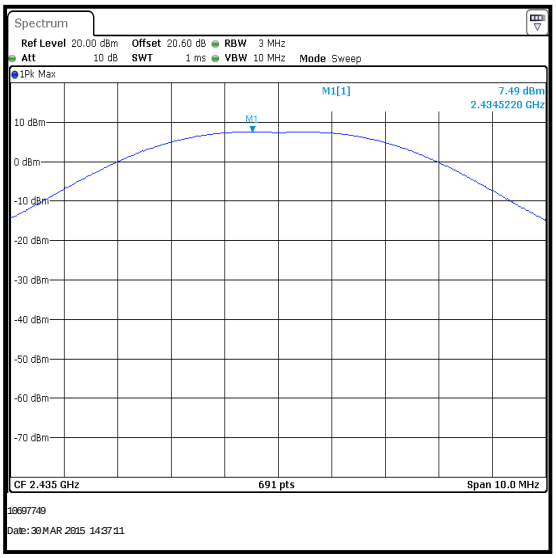
Test setup for conducted power measurements:



Results:

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Single	7.5	30.0	22.5	Complied

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Single	7.5	1.0	8.5	36.0	27.5	Complied



Single Channel

Transmitter Maximum Peak Output Power (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1785	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	24 Apr 2015	12
M1835	Signal Analyser	Rohde & Schwarz	FSV30	103050	18 Feb 2016	12
A2528	Attenuator	AtlanTecRF	AN18W5-20	832828#3	Calibrated before use	-
S0558	DC Power Supply	TTI	EL303R	395825	Calibrated before use	-
M122	Multimeter	Fluke	77	64910017	24 Apr 2015	12
M260	Signal Generator	Rohde & Schwarz	SMP02	829076/008	24 Apr 2015	12
M1267	Thermal Power Sensor	Rohde & Schwarz	NRV-Z52	100155	23 Apr 2016	24
M199	Power Meter	Rohde & Schwarz	NRVS	827023/075	08 Apr 2016	24

5.2.3. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	01 April 2015
Test Sample Serial Number:	UL sample #2 No.7		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range	30 MHz to 1000 MHz

Environmental Conditions:

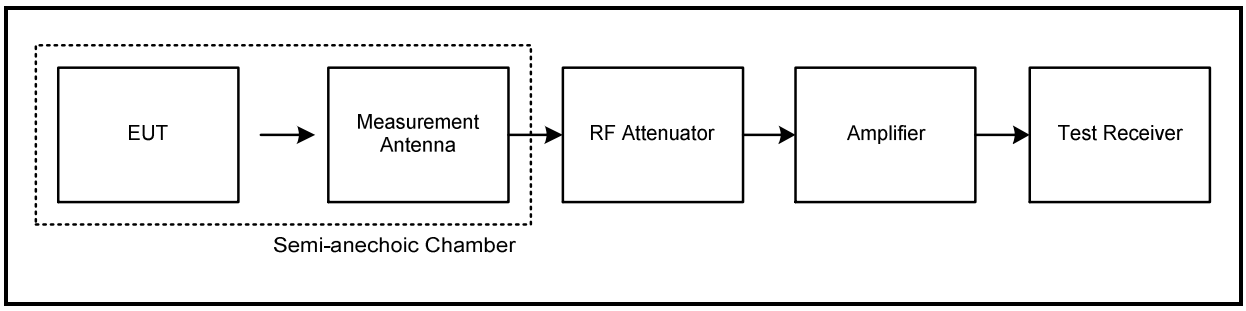
Temperature (°C):	23
Relative Humidity (%):	32

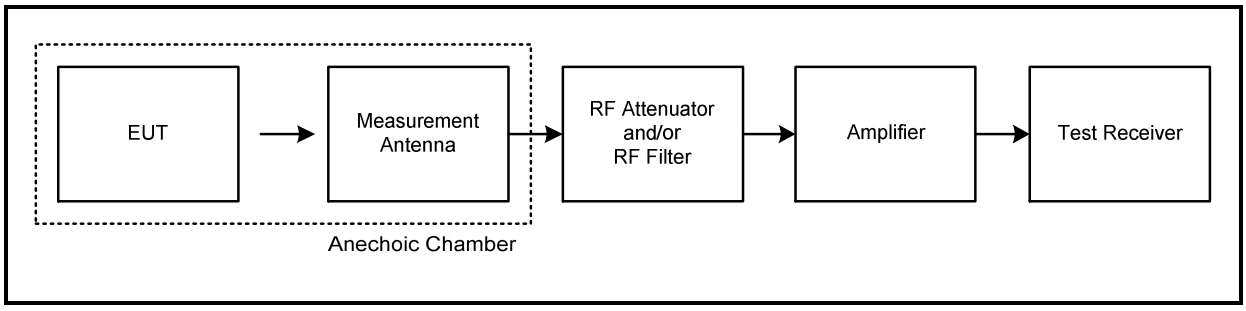
Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. All emissions shown on the pre-scan plots were investigated and found to be ambient, or >20 dB below the applicable limit or below the measurement system noise floor. Therefore the highest peak noise floor reading of the measuring receiver was recorded in the table below
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
4. Pre-scans were performed and markers placed on the highest measured levels. The test receiver resolution bandwidth was set to 100 kHz and video bandwidth 300 kHz. A peak detector was used, sweep time was set to auto and trace mode was Max Hold.
5. Final measurements were performed on the marker frequencies and the results entered into the table below. The test receiver resolution bandwidth was set to 120 kHz, using a CISPR quasi-peak detector and span big enough to see the whole emission.

Transmitter Radiated Emissions (continued)

Test setup for radiated measurements:

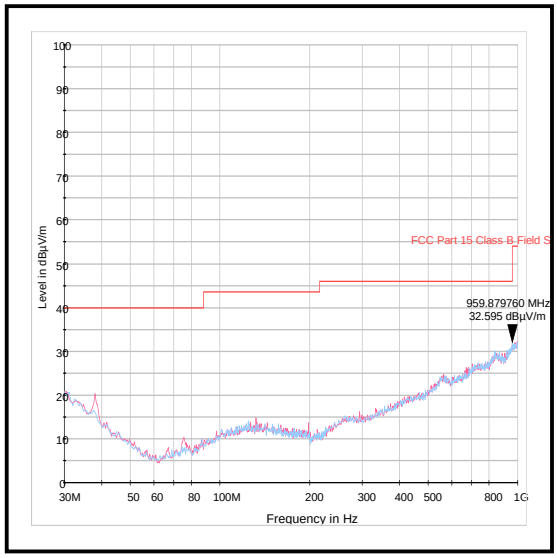




Transmitter Radiated Emissions (continued)

Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
959.880	Vertical	32.6	46.0	13.4	Complied



Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1624	Thermohygrometer	JM Handelspunkt	30.5015.10	None stated	07 Jan 2016	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	19 Mar 2016	12
G0543	Amplifier	Sonoma	310N	230801	05 Jun 2015	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	19 Mar 2016	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
A1834	Attenuator	Hewlett Packard	8491B	10444	05 Mar 2016	12

Transmitter Radiated Emissions (continued)

Test Summary:

Test Engineer:	David Doyle	**Test Date:**	07 April 2015
Test Sample Serial Number:	UL sample #2 No.7		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.5 referencing ANSI C63.4
Frequency Range	1 GHz to 25 GHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	30

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver, therefore the highest peak and average noise floor readings of the measuring receiver were recorded as shown in the tables below.
3. The emission shown on the 1 GHz to 4 GHz plot is the EUT fundamental.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.
5. Pre-scans were performed and markers placed on the highest measured levels the test receiver was set up as followed: a RBW set to 1 MHz, the VBW set to 3, with the sweep time set to auto couple. Peak and average measurements were performed with their own appropriate detectors during the pre-scan measurements.

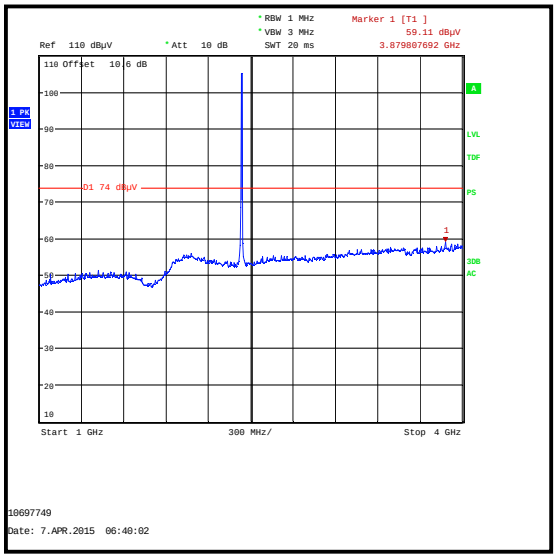
Results: Peak

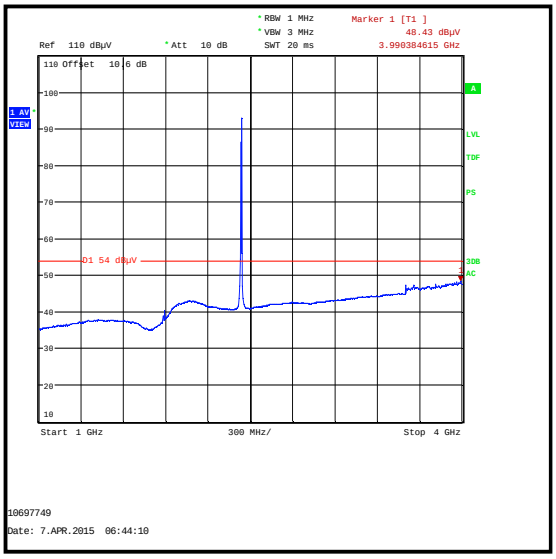
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
3879.808	Horizontal	59.1	74.0	14.9	Complied

Results: Average

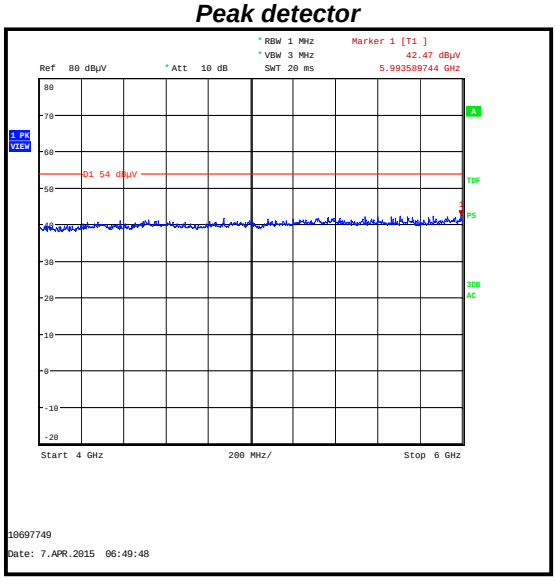
Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
3990.385	Horizontal	48.4	54.0	5.6	Complied

Transmitter Radiated Emissions (continued)

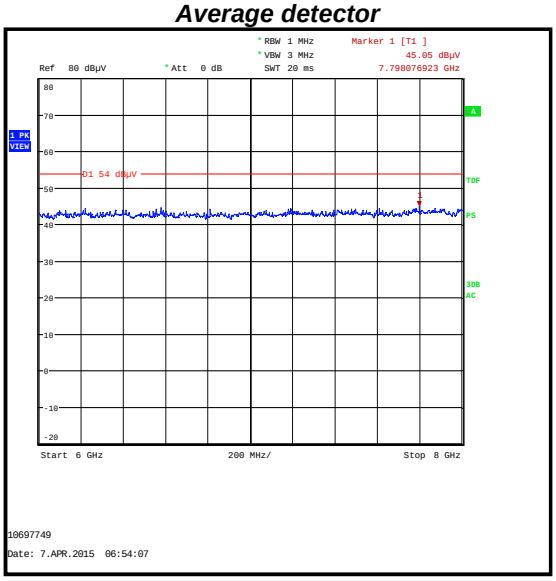




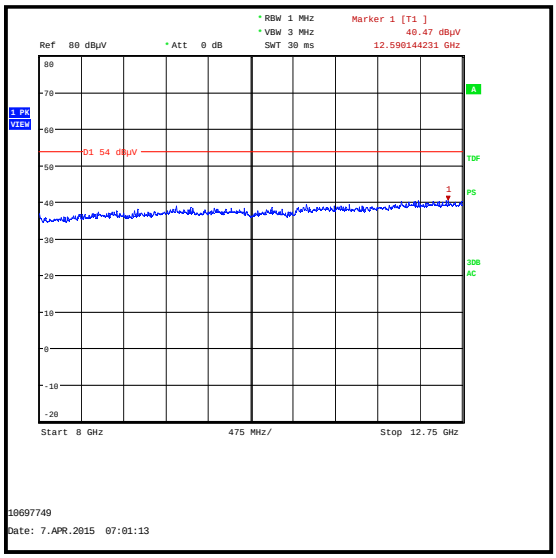
Peak detector

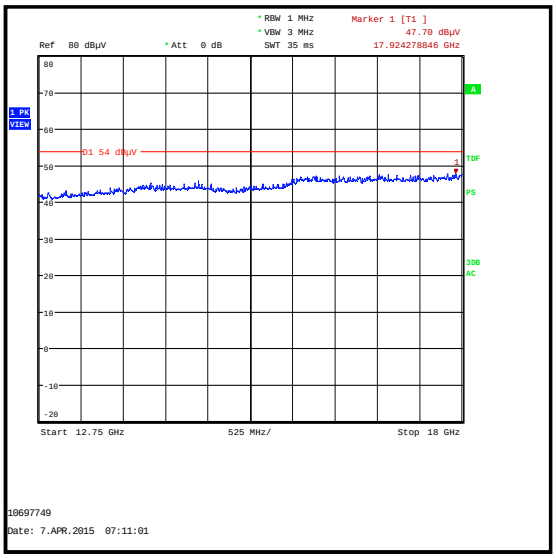


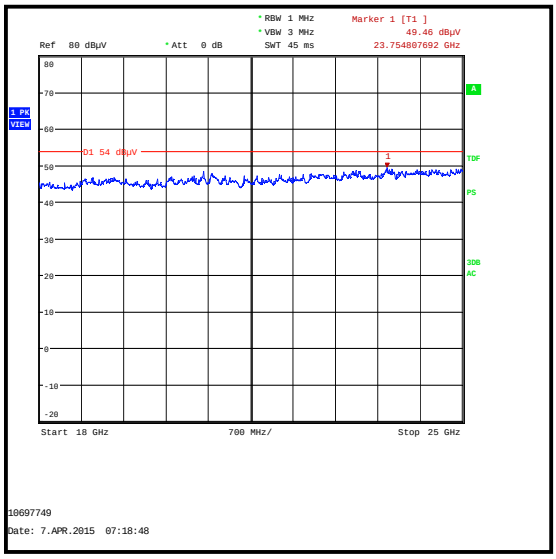
Average detector



Transmitter Radiated Emissions (continued)







Transmitter Radiated Emissions (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1782	Thermohygrometer	JM Handelspunkt	30.5015.10	Not stated	24 Apr 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	30 Apr 2015	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12
A253	Antenna	Flann Microwave	12240-20	128	20 Dec 2015	12
A254	Antenna	Flann Microwave	14240-20	139	20 Dec 2015	12
A255	Antenna	Flann Microwave	16240-20	519	20 Dec 2015	12
A256	Antenna	Flann Microwave	18240-20	400	20 Dec 2015	12
A436	Antenna	Flann Microwave	20240-20	330	20 Dec 2015	12
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	02 May 2015	12

5.2.4. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	David Doyle	**Test Date:**	07 April 2015
Test Sample Serial Number:	UL sample #2 No.7		

FCC Reference:	Parts 15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	30

Note(s):

1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. The maximum peak conducted output power was previously measured. In accordance with FCC KDB 558074 Section 11.1(a), the lower band edge measurement was performed with a peak detector and the -20 dBc limit applied.
3. There is a restricted band 10 MHz below the lower band edge. The test receiver was set up as follows: the RBW set to 1 MHz, the VBW set to 3 MHz, with the sweep time set to auto couple. Peak and average measurements were performed with their respective detectors. Markers were placed on the highest point on each trace.
4. * -20 dBc limit.
5. The reference level was set to 120 dBµV in order to achieve sufficient headroom.

Transmitter Band Edge Radiated Emissions (continued)

Results: Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400	42.1	81.0*	38.9	Complied
2483.5	52.7	74.0	21.3	Complied

Results: Average

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	40.2	54.0	13.8	Complied

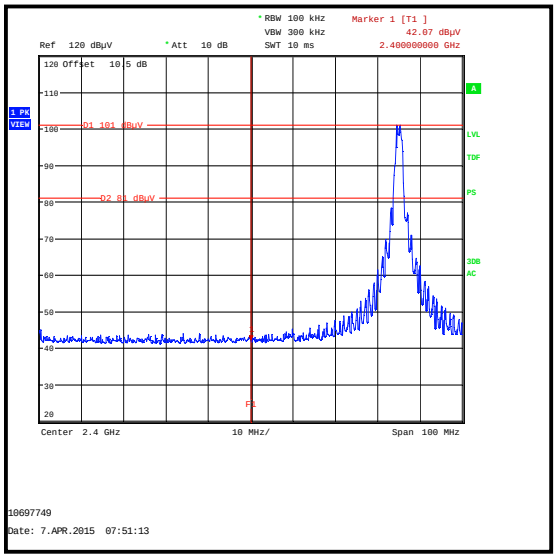
Results: Restricted Band / Peak

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2336.154	53.9	74.0	20.1	Complied

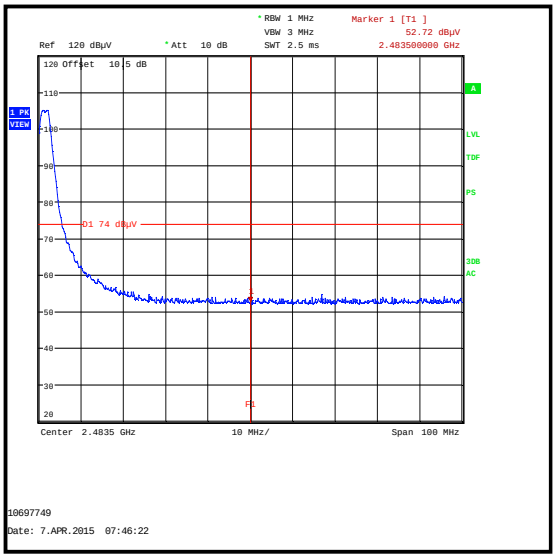
Results: Restricted Band / Average

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2318.077	43.9	54.0	10.1	Complied

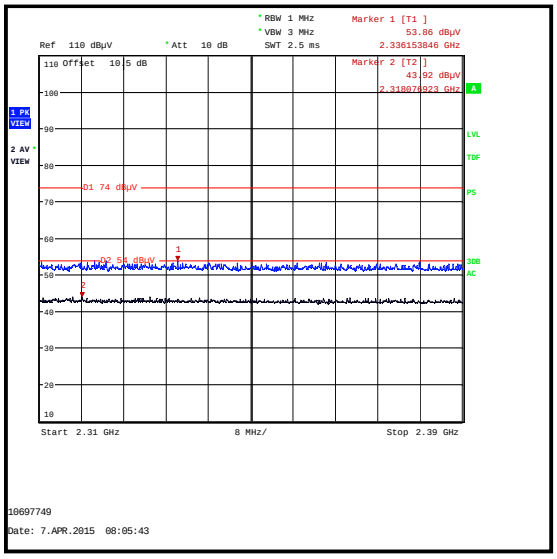
Transmitter Band Edge Radiated Emissions (continued)



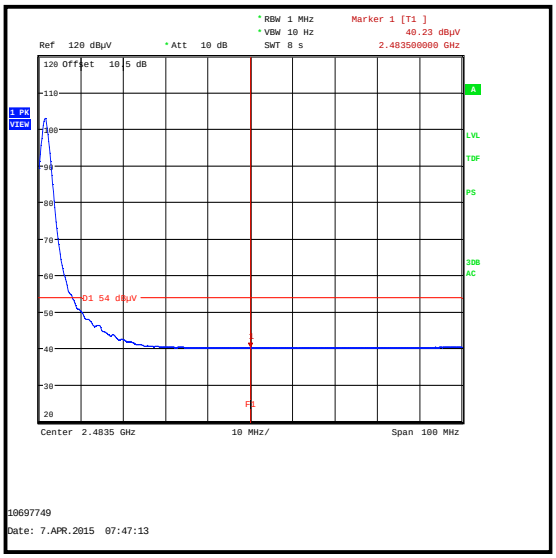
Lower Band Edge Peak Measurement



Upper Band Edge Peak Measurement



2310 MHz to 2390 MHz Restricted Band Plot



Upper Band Edge Average Measurement

Transmitter Band Edge Radiated Emissions (continued)

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1782	Thermohygrometer	JM Handelspunkt	30.5015.10	Not stated	24 Apr 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	30 Apr 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1396	Attenuator	Huber & Suhner	6810.17.B	757987	02 May 2015	12

5.2.5. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	01 April 2015
Test Sample Serial Number:	UL Sample #1 No. 6		

FCC Reference:	Part 15.109
Test Method Used:	ANSI C63.4 Section 8
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	32

Note(s):

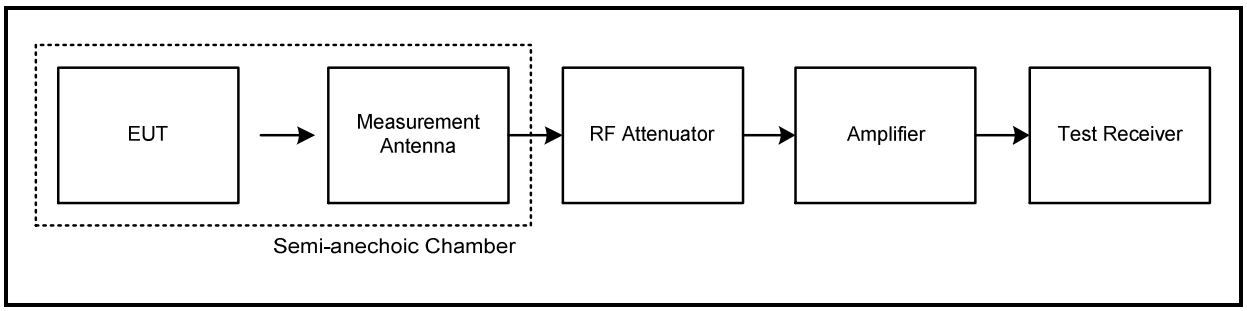
1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
3. Measurements below 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

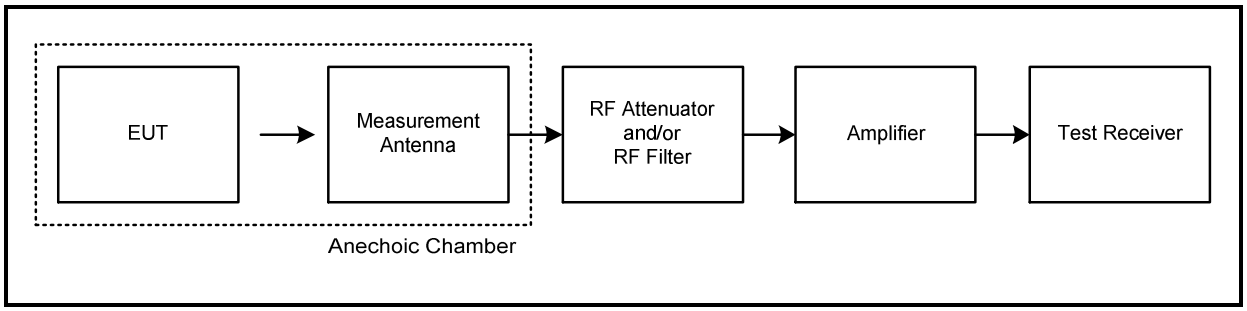
Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
30.094	Vertical	16.4	40.0	23.6	Complied
689.981	Horizontal	20.2	46.0	25.8	Complied
826.031	Vertical	23.0	46.0	23.0	Complied
960.821	Horizontal	25.6	54.0	28.4	Complied

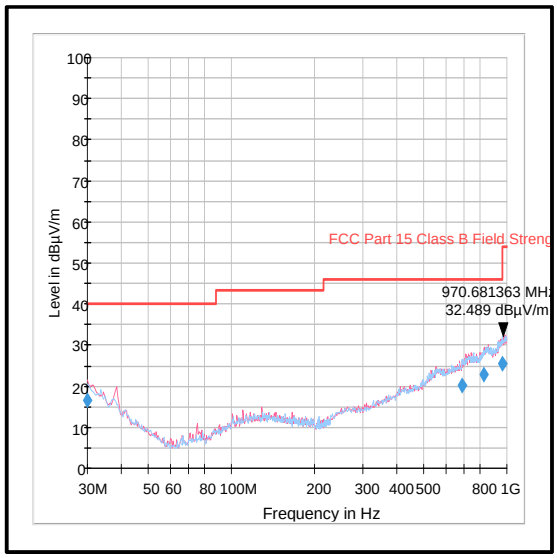
Receiver Radiated Emissions (continued)

Test setups for radiated measurements:





Receiver/Idle Mode Radiated Spurious Emissions (continued)



Note: This plot is a pre-scan and for indication purposes only. For final measurements, see accompanying table.

Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1624	Thermohygrometer	JM Handelspunkt	30.5015.10	None stated	07 Jan 2016	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	19 Mar 2016	12
G0543	Amplifier	Sonoma	310N	230801	05 Jun 2015	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	19 Mar 2016	12
A490	Antenna	Chase	CBL6111A	1590	29 Apr 2015	12
A1834	Attenuator	Hewlett Packard	8491B	10444	05 Mar 2016	12

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

Test Engineer:	David Doyle	**Test Date:**	07 April 2015
Test Sample Serial Number:	UL Sample #1 No. 6		

FCC Reference:	Part 15.109
Test Method Used:	ANSI C63.4 Section 8
Frequency Range:	1 GHz to 12.75 GHz

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	29

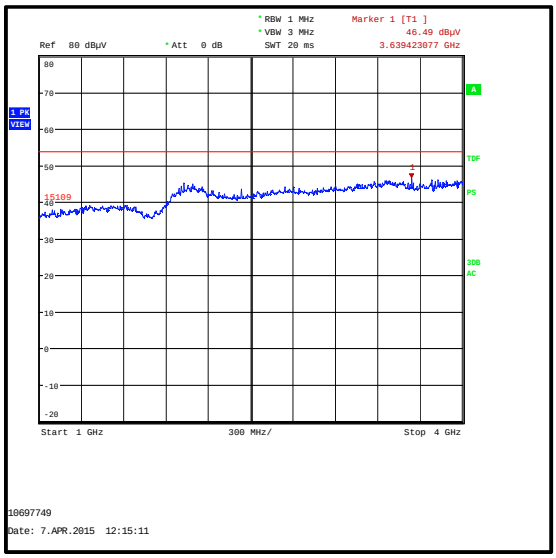
Note(s):

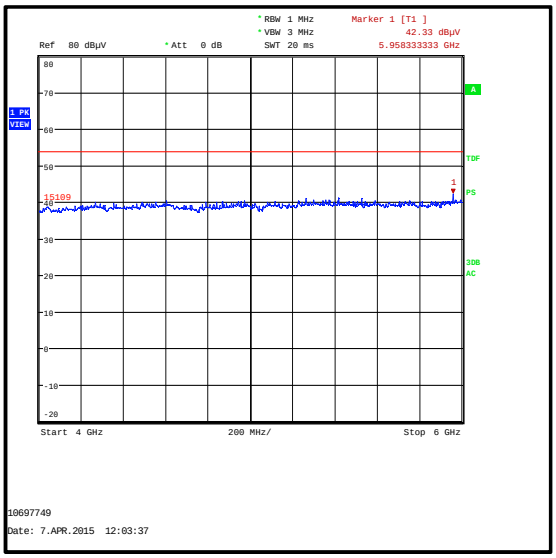
1. The final measured value, for the given emission, in the table below incorporates the calibrated antenna factor and cable loss.
2. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table below. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.
3. Pre-scans above 1 GHz were performed in a fully anechoic chamber (Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above the test chamber floor in the centre of the chamber turntable. All measurement antennas were placed at a fixed height of 1.5 metres above the test chamber floor, in line with the EUT. Final measurements above 1 GHz were performed in a semi-anechoic chamber (Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

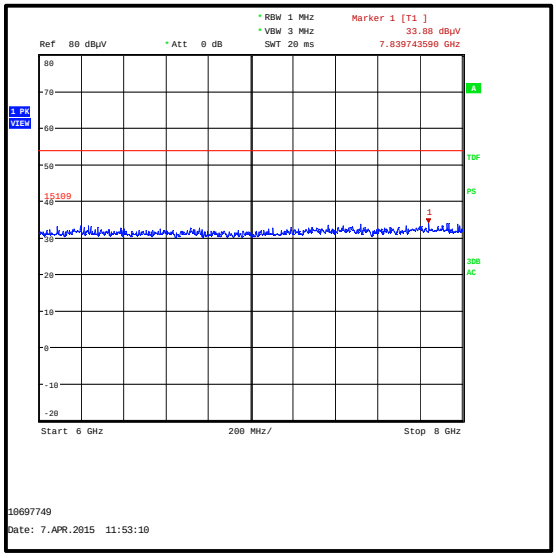
Results:

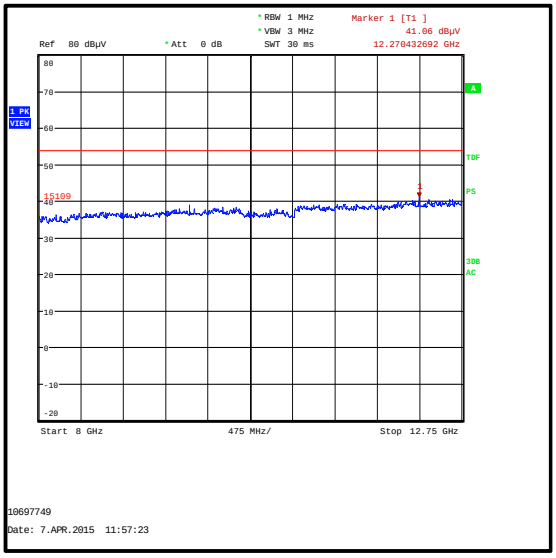
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3639.423	Horizontal	46.5	54.0	7.5	Complied

Receiver/Idle Mode Radiated Spurious Emissions (continued)









Test Equipment Used:

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1782	Thermohygrometer	JM Handelspunkt	30.5015.10	Not stated	24 Apr 2015	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	30 Apr 2015	12
M1874	Test Receiver	Rohde & Schwarz	ESU26	100553	13 May 2015	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	21 Dec 2015	12
A1818	Antenna	EMCO	3115	00075692	20 Dec 2015	12
A253	Antenna	Flann Microwave	12240-20	128	20 Dec 2015	12
A254	Antenna	Flann Microwave	14240-20	139	20 Dec 2015	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
Conducted Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±1.13 dB
Minimum 6 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±3.92 %
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 26.5 GHz	95%	±2.94 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	-	-	Section 2.3 updated
3.0	7	-	FCC ID updated

--- END OF REPORT ---