



TEST REPORT

Test Report No. : UL-RPT-RP82770JD10A V2.0

Manufacturer : Amedo Smart Tracking Solutions GmbH

Product Name: : Amedo medical UHF Reader

FCC ID : O8M100890-001

Test Standard(s) : FCC Parts 15.107, 15.109, 15.207, 15.209 & 15.247

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2. The results in this report apply only to the sample(s) tested.
3. The 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 2.0 supersedes all previous versions.

Date of Issue: 13 March 2014

Checked by:

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Issued by :

pp

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This laboratory is accredited by UKAS.
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1. Customer Information












Company Name:	Amedo Smart Tracking Solutions GmbH
Address:	Universitätssr. 142, 44799 Bochum, Germany

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:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart B (Unintentional Radiators) - Sections 15.107 and 15.109
Specification Reference:	47CFR15.207 and 47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications): Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Site Registration:	FCC: 209735
Location of Testing:	UL VS LTD, Unit 3 Horizon, Wade Road, Kingsland Business Park, Basingstoke, Hampshire, RG24 8AH, United Kingdom
Test Dates:	30 January 2012 to 25 May 2012

2.2. Summary of Test Results

FCC Reference (47CFR)	Measurement	Result
Part 15.107(a)	Receiver/Idle Mode AC Conducted Emissions	
Part 15.109	Receiver/Idle Mode Radiated Spurious Emissions	
Part 15.207	Transmitter AC Conducted Emissions	
Part 15.247(a)(1)(i)	Transmitter 20 dB Bandwidth	
Part 15.247(a)(1)	Transmitter Carrier Frequency Separation	
Part 15.247(a)(1)(i)	Transmitter Number of Hopping Frequencies and Average Time of Occupancy	
Part 15.247(b)(2)	Transmitter Maximum Peak Output Power	
Part 15.247(d)/15.209(a)	Transmitter Radiated Emissions	
Part 15.247(d)	Transmitter Band Edge Radiated Emissions	
Key to Results  = Complied  = Did not comply		

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

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:	Amedo
Model Name or Number:	Amedo medical UHF Reader
Serial Number:	000780
Hardware Version Number:	100890-001/000
Software Version Number:	100890-001/000
FCC ID:	O8M100890-001

Description:	PoE Power Supply
Brand Name:	Digitus
Model Name or Number:	PSE 151
Serial Number:	Not stated

3.2. Description of EUT

The equipment under test was a UHF RFID reader intended for use in a medical environment. The manufacturer confirmed that the build status of the EUT used in testing is representative of the latest product build standard at the date of this test report.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	Frequency hopping system operating in the ISM band with a 20 dB bandwidth of less than 250 kHz and hopping on at least 50 frequencies	
Power Supply Requirement:	Nominal	48 VDC (PoE)
Type of Unit:	Transceiver	
Channel Spacing:	500 kHz	
Modulation:	DSB-ASK	
Maximum Conducted Output Power:	22.2 dBm	
Transmit Frequency Range:	902 MHz to 928 MHz	
Transmit Channels Tested:	Channel ID	Channel Frequency (MHz)
	Bottom	902.75
	Middle	914.75
	Top	927.25
Receive Frequency Range:	902 MHz to 928 MHz	
Receive Channels Tested:	Channel ID	Channel Frequency (MHz)
	Bottom	902.75
	Middle	914.75
	Top	927.25

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	Laptop PC
Brand Name:	Dell
Model Name or Number:	D610
Serial Number:	Asset Number 00229

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Receive/idle Mode
- Continuously transmitting at maximum power on the bottom, middle, top channels or hopping mode using all 50 channels as required.

4.2. Configuration and Peripherals

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

- The EUT was set into a transmit or receive mode, by using a bespoke software supplied by the client.
- The EUT was connected to data/power supply port of a POE (Power Over Ethernet) power supply, via an Ethernet cable. The data port of the POE was then connected to a support laptop via an Ethernet cable.
- Using the bespoke software, a transmitter attenuation setting of 8 was used for all testing.
- AC conducted emissions tests were performed with the EUT connected to the PSE 151 PoE power supply which was, in turn, connected to 120 VAC 60 Hz single phase via a LISN.

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. Receiver/Idle AC Conducted Spurious Emissions

Test Summary:

Test Engineer:	Nick Steele	Test Date:	17 April 2012
Test Sample Serial No:	000780		

FCC Part:	15.107(a)
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	30

Results: Live - Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	46.3	66.0	19.7	Complied
0.199500	Live	43.9	63.6	19.7	Complied
0.343500	Live	36.9	59.1	22.2	Complied
0.928500	Live	31.9	56.0	24.1	Complied
1.743000	Live	31.8	56.0	24.2	Complied
3.057000	Live	35.9	56.0	20.1	Complied

Results: Live - Average

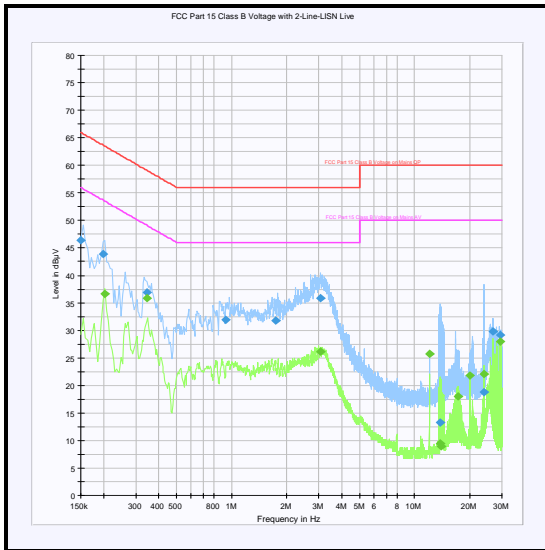
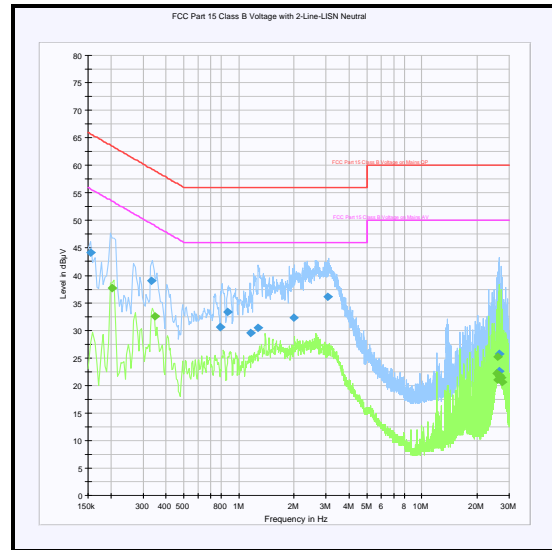
Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.204000	Live	36.6	53.4	16.8	Complied
0.343500	Live	35.8	49.1	13.3	Complied
3.043500	Live	26.1	46.0	19.9	Complied
11.998500	Live	25.8	50.0	24.2	Complied
24.000000	Live	22.1	50.0	27.9	Complied
29.490000	Live	28.0	50.0	22.0	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Neutral - Quasi Peak**

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.154500	Neutral	44.2	65.8	21.6	Complied
0.334500	Neutral	39.1	59.3	20.2	Complied
0.793500	Neutral	30.7	56.0	25.3	Complied
0.865500	Neutral	33.4	56.0	22.6	Complied
1.167000	Neutral	29.6	56.0	26.4	Complied
1.270500	Neutral	30.5	56.0	25.5	Complied
1.990500	Neutral	32.3	56.0	23.7	Complied
3.048000	Neutral	36.1	56.0	19.9	Complied

Results: Neutral - Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.204000	Neutral	37.7	53.4	15.7	Complied
0.348000	Neutral	32.6	49.0	16.4	Complied
25.705500	Neutral	22.2	50.0	27.8	Complied
25.912500	Neutral	25.2	50.0	24.8	Complied
26.448000	Neutral	21.8	50.0	28.2	Complied
26.569500	Neutral	21.7	50.0	28.3	Complied
26.569500	Neutral	21.8	50.0	28.2	Complied
27.190500	Neutral	21.4	50.0	28.6	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Live****Neutral**

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	01 February 2012
Test Sample Serial No:	000780		

FCC Part:	15.109
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:

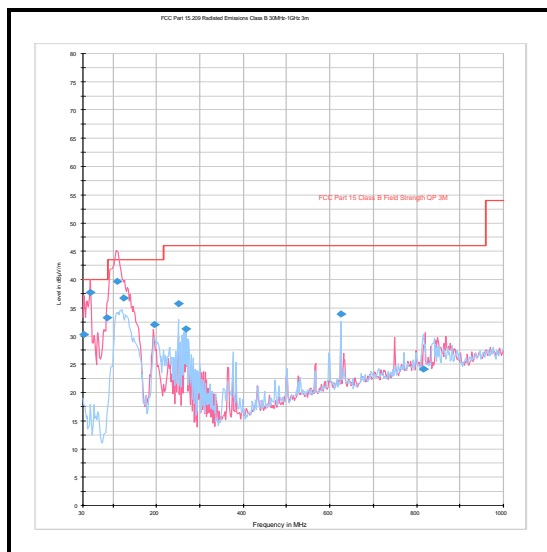
Temperature (°C):	21
Relative Humidity (%):	23

Results: Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
33.056	Vertical	30.2	40.0	9.8	Complied
47.808	Vertical	37.7	40.0	2.3	Complied
86.685	Vertical	33.2	40.0	6.8	Complied
110.098	Vertical	39.7	43.5	3.8	Complied
124.091	Vertical	36.7	43.5	6.8	Complied
194.138	Vertical	32.1	43.5	11.4	Complied
250.010	Horizontal	35.7	46.0	10.3	Complied
267.996	Horizontal	31.2	46.0	14.8	Complied
624.988	Horizontal	33.9	46.0	12.1	Complied
816.867	Vertical	24.2	46.0	21.8	Complied

Note(s):

1. The final measured value, for the given emission, in the table above 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.

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.

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	31 January 2012
Test Sample Serial No:	000780		

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range:	1 GHz to 5 GHz

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	21

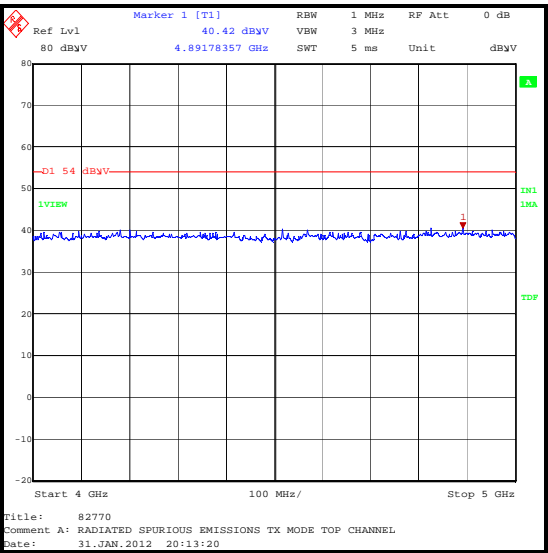
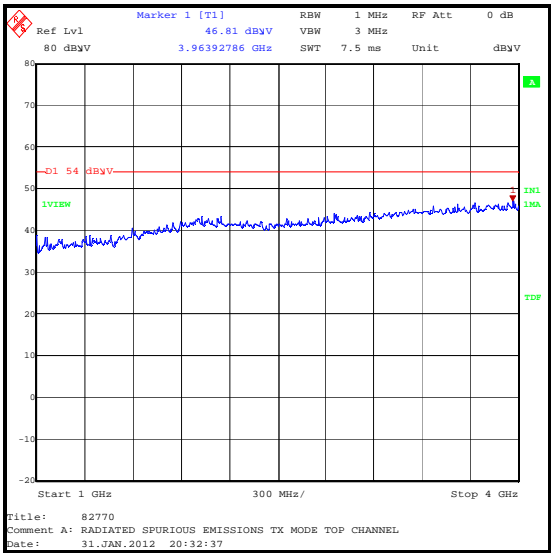
Results:

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
3963.928	Horizontal	46.8	54.0	7.2	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. 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.
3. 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 above. 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.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



5.2.3. Transmitter AC Conducted Spurious Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	19 April 2012
Test Sample Serial No:	000780		

FCC Part:	15.207
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	30

Results: Live - Quasi Peak

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.199500	Live	46.4	63.6	17.2	Complied
0.388500	Live	40.8	58.1	17.3	Complied
0.663000	Live	37.9	56.0	18.1	Complied
1.239000	Live	37.8	56.0	18.2	Complied
1.248000	Live	38.1	56.0	17.9	Complied
1.531500	Live	40.6	56.0	15.4	Complied
2.908500	Live	42.8	56.0	13.2	Complied
3.637500	Live	37.3	56.0	18.7	Complied
18.244500	Live	40.6	60.0	19.4	Complied
26.610000	Live	40.8	60.0	19.2	Complied

Results: Live - Average

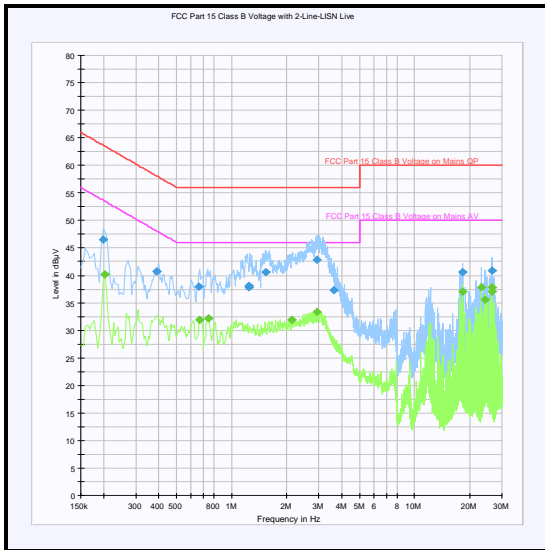
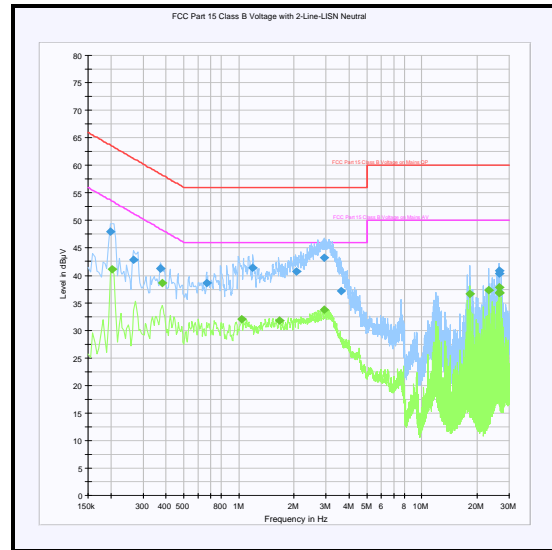
Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.204000	Live	40.3	53.4	13.2	Complied
0.667500	Live	31.9	46.0	14.1	Complied
0.748500	Live	32.2	46.0	13.8	Complied
2.125500	Live	31.9	46.0	14.1	Complied
2.931000	Live	33.4	46.0	12.6	Complied
18.244500	Live	37.0	50.0	13.0	Complied
23.127000	Live	37.8	50.0	12.2	Complied
24.351000	Live	35.6	50.0	14.4	Complied
26.488500	Live	37.0	50.0	13.0	Complied
26.610000	Live	37.8	50.0	12.2	Complied

Transmitter AC Conducted Spurious Emissions (continued)**Results: Neutral - Quasi Peak**

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.199500	Neutral	48.0	63.6	15.6	Complied
0.267000	Neutral	42.8	61.2	18.4	Complied
0.375000	Neutral	41.2	58.4	17.2	Complied
0.667500	Neutral	38.7	56.0	17.3	Complied
1.194000	Neutral	41.4	56.0	14.6	Complied
2.058000	Neutral	40.7	56.0	15.3	Complied
2.922000	Neutral	43.2	56.0	12.8	Complied
3.628500	Neutral	37.1	56.0	18.9	Complied
26.488500	Neutral	40.3	60.0	19.7	Complied
26.610000	Neutral	40.9	60.0	19.1	Complied

Results: Neutral - Average

Frequency (MHz)	Line	Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.204000	Neutral	41.1	53.4	12.3	Complied
0.379500	Neutral	38.6	48.3	9.7	Complied
1.041000	Neutral	32.0	46.0	14.0	Complied
1.662000	Neutral	31.8	46.0	14.2	Complied
2.922000	Neutral	33.7	46.0	12.3	Complied
18.244500	Neutral	36.7	50.0	13.3	Complied
23.127000	Neutral	37.2	50.0	12.8	Complied
26.488500	Neutral	36.9	50.0	13.1	Complied
26.547000	Neutral	36.8	50.0	13.2	Complied
26.610000	Neutral	37.8	50.0	12.2	Complied

Transmitter AC Conducted Spurious Emissions (continued)**Live****Neutral**

5.2.4. Transmitter 20 dB Bandwidth**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	24 May 2012
Test Sample Serial No:	000780		

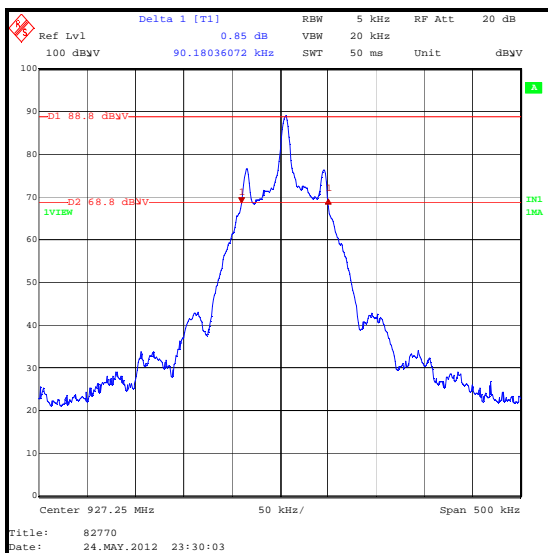
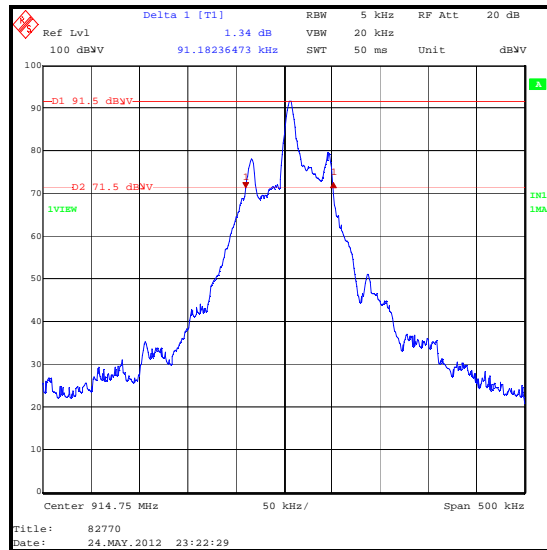
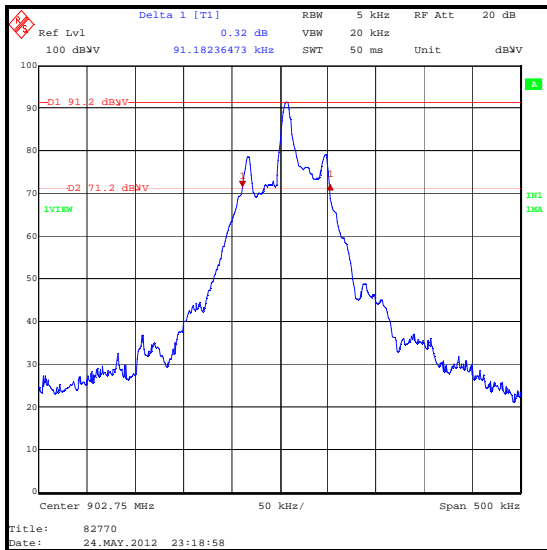
FCC Part:	15.247(a)(1)(i)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	53

Results:

Channel	20 dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)	Result
Bottom	91.182	≤500	408.818	Complied
Middle	91.182	≤500	408.818	Complied
Top	90.180	≤500	409.820	Complied

Transmitter 20 dB Bandwidth (continued)

5.2.5. Transmitter Carrier Frequency Separation**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	17 April 2012
Test Sample Serial No:	000780		

FCC Part:	15.247(a)(1)
Test Method Used:	As detailed in ANSI C63.10 Section 7.7.2

Environmental Conditions:

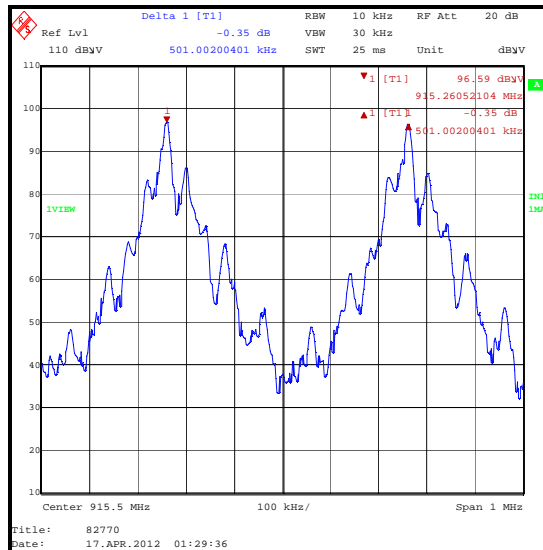
Temperature (°C):	21
Relative Humidity (%):	19

Results:

Carrier Frequency Separation (kHz)	Limit* (kHz)	Margin (kHz)	Result
501.002	91.182	409.820	Complied

Note(s):

- *The limit is a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The 20dB bandwidth figure was used as it was the greater.



5.2.6. Transmitter Number of Hopping Frequencies and Average Time of Occupancy**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	24 May 2012
Test Sample Serial No:	000780		

FCC Part:	15.247(a)(1)(i)
Test Method Used:	As detailed in ANSI C63.10 Sections 7.7.3 and 7.7.4

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	53

Results: Number of Hopping Frequencies:

Number of Hops	Limit (Hops)	Note	Result
50	≥50	1	Complied

Results: Average Time of Occupancy:

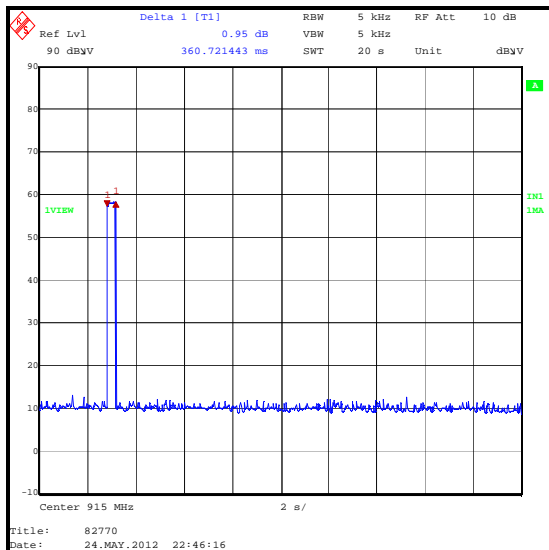
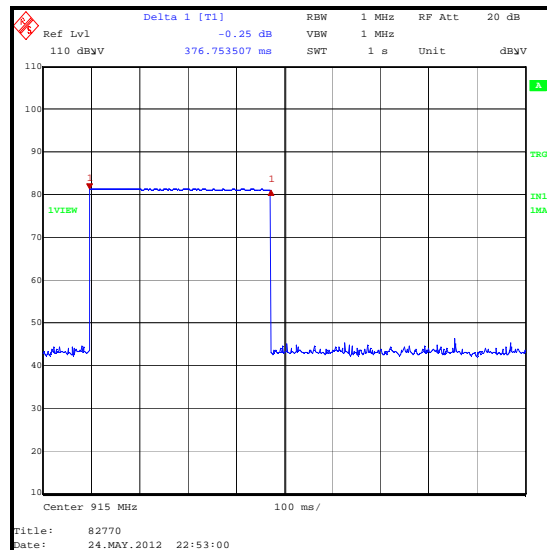
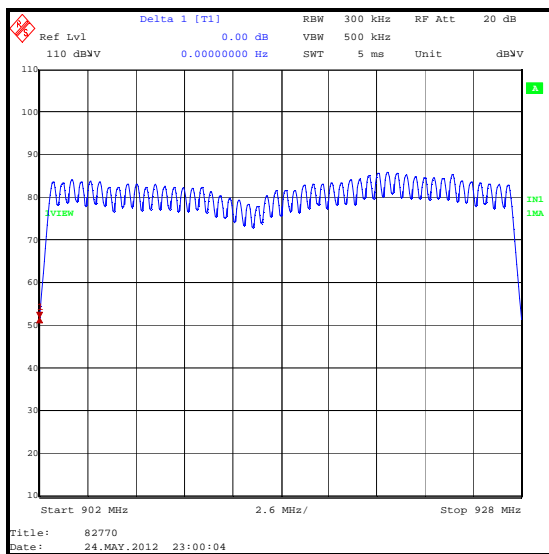
Emission Width (ms)	Average Time of Occupancy* (s)	Limit (s)	Margin (s)	Note	Result
376.954	0.361	0.4	0.039	2	Complied

Note(s):

1. For a hopping channel 20 dB bandwidth of less than 250 kHz.
2. *In a 20 second period.
3. The EUT was set to transmit in a hopping mode, using all 50 channels.

Limit:

If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

Transmitter Time of Occupancy (continued)**TX on time in 20 sec period*****TX on period****Number Of Hopping Channels**

5.2.7. Transmitter Maximum Peak Output Power**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	30 January 2012
Test Sample Serial No:	000780		

FCC Part:	15.247(b)(2)
Test Method Used:	As detailed in ANSI C63.10 Section 6.10.1 and Sections 6.3 and 6.6 referencing ANSI C63.4 (see note below)

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	21

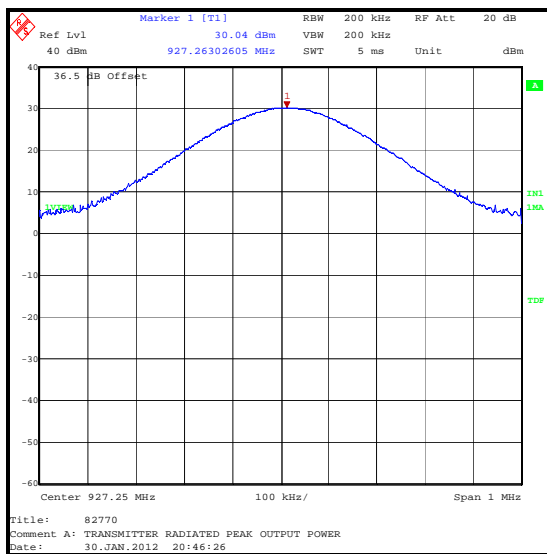
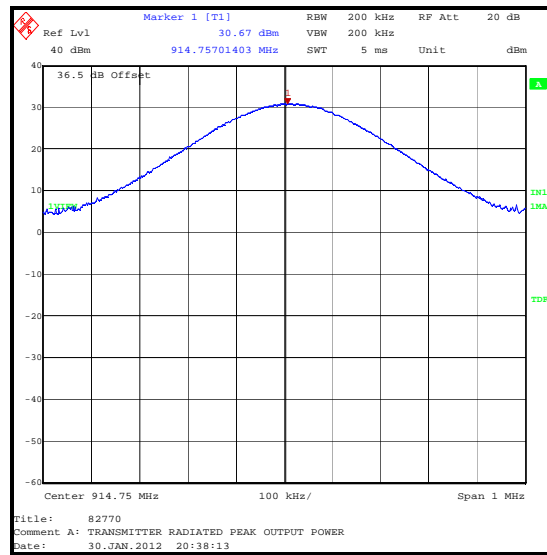
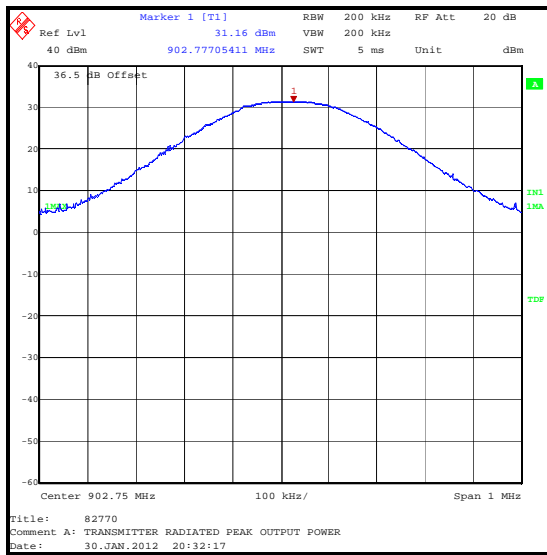
Results:

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	22.2	30.0	7.8	Complied
Middle	21.7	30.0	8.3	Complied
Top	21.0	30.0	9.0	Complied

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	22.2	9.0	31.2	36.0	4.8	Complied
Middle	21.7	9.0	30.7	36.0	5.3	Complied
Top	21.0	9.0	30.0	36.0	6.0	Complied

Note(s):

- Tests were performed using a combination of the conducted test method described in ANSI C63.10 Section 6.10.1 and the test methods for radiated emissions measurements described in Sections 6.3 and 6.6. The reason for this being that the measurements were performed radiated as the EUT has an integral antenna and does not have an external antenna port. The EIRP was measured and the conducted power calculated by subtracting the antenna gain.

Transmitter Maximum Peak Output Power (continued)

5.2.8. Transmitter Radiated Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	01 February 2012
Test Sample Serial No:	000780		

FCC Part:	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:

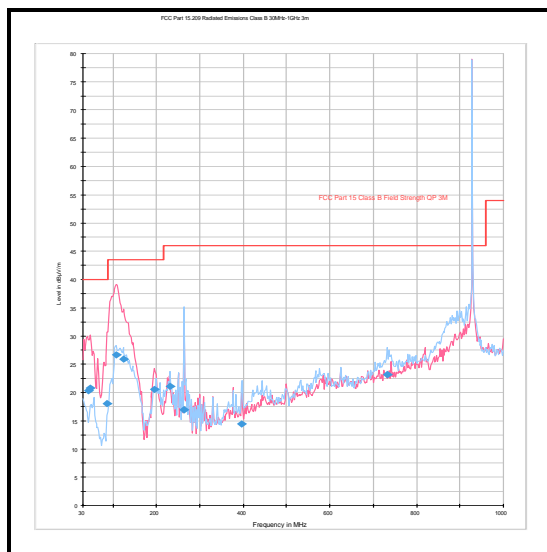
Temperature (°C):	21
Relative Humidity (%):	23

Results: Quasi-Peak

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
125.121	Vertical	25.9	43.5	17.6	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. The emission shown at 928 MHz on the 30 MHz to 1 GHz plot is the EUT fundamental.
3. The preliminary scans showed similar emission levels below 1 GHz, for each channel of operation. Therefore final radiated emissions measurements were performed with the EUT set to the top channel only.
4. 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.
5. 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.

Transmitter Radiated Emissions (continued)

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

5.2.9. Transmitter Radiated Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	25 May 2012
Test Sample Serial No:	000780		

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3 and 6.6 referencing ANSI C63.4
Frequency Range	1 GHz to 12.75 GHz

Environmental Conditions:

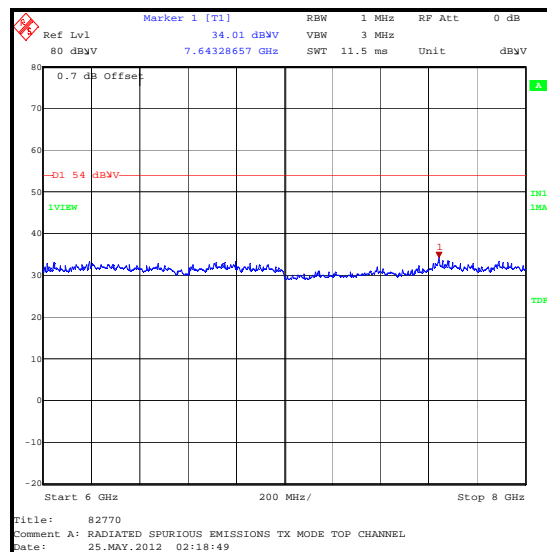
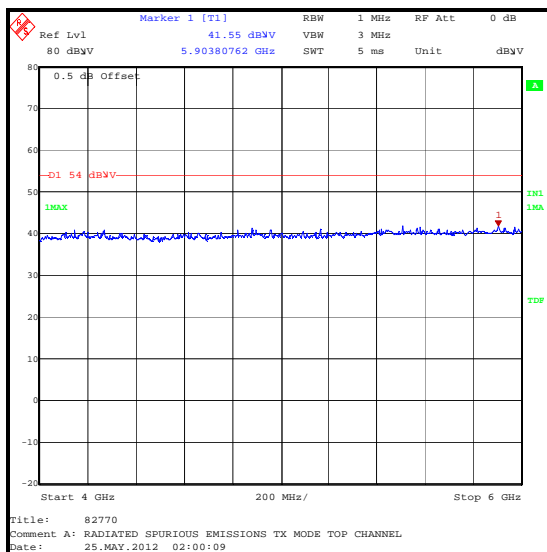
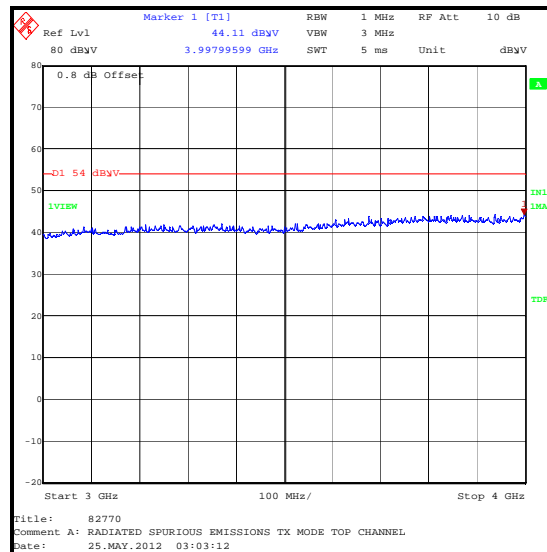
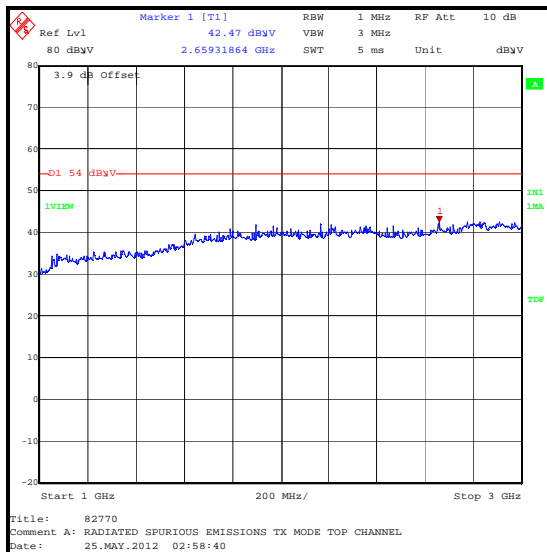
Temperature (°C):	27
Relative Humidity (%):	54

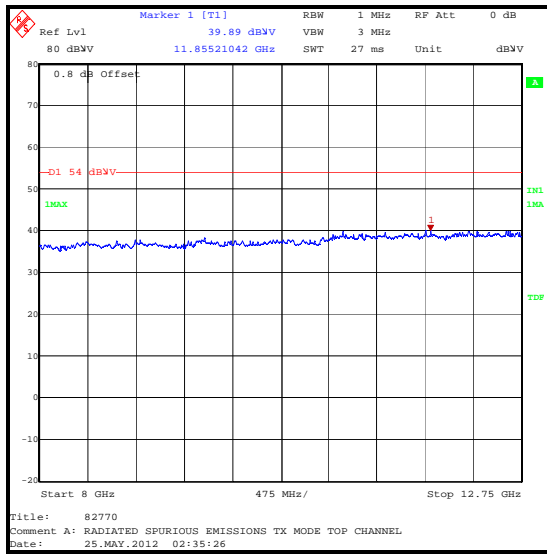
Results:

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
3997.996	Vertical	44.1	54.0	9.9	Complied

Note(s):

1. The final measured value, for the given emission, in the table above 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 above. 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.

Transmitter Radiated Emissions (continued)

Transmitter Radiated Emissions (continued)

5.2.10. Transmitter Band Edge Radiated Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	30 January 2012
Test Sample Serial No:	000780		

FCC Part:	15.247(d)
Test Method Used:	As detailed in ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	22

Results: Static Mode

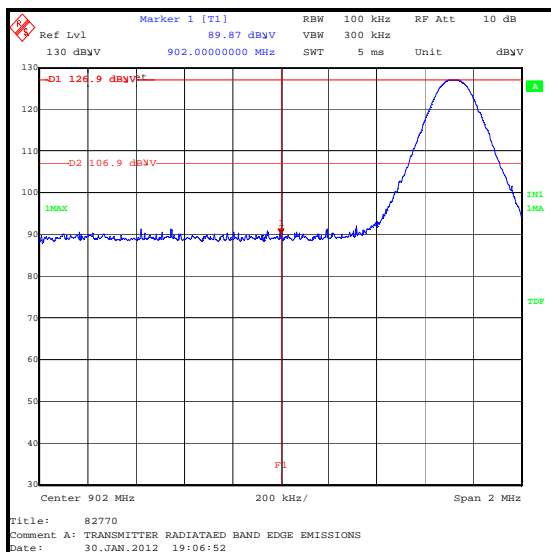
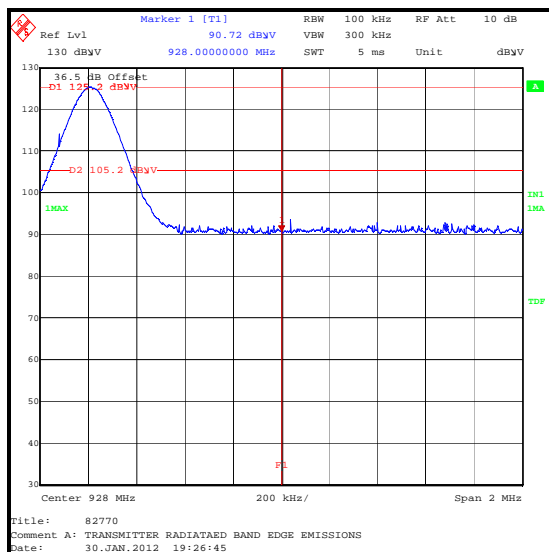
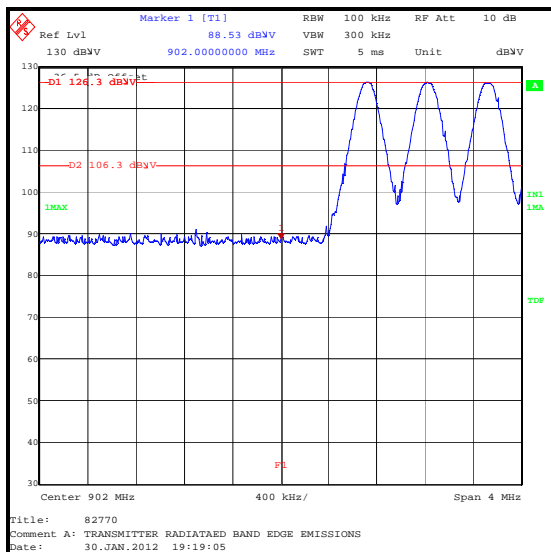
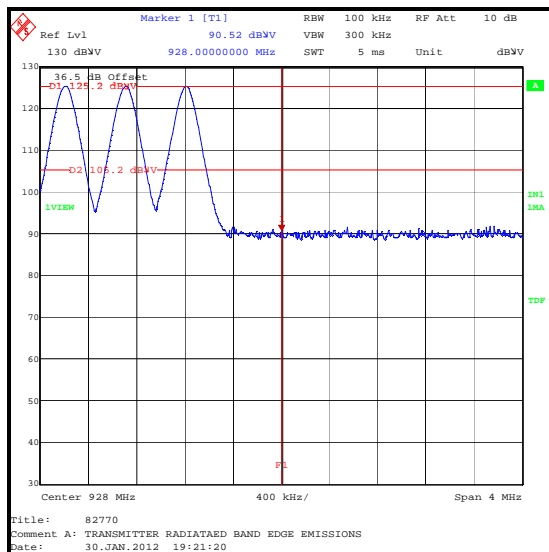
Frequency (MHz)	Peak Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
902	86.9	106.9	20.0	Complied
928	90.7	105.2	14.5	Complied

Results: Hopping Mode

Frequency (MHz)	Peak Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
902	89.1	106.3	17.2	Complied
928	90.5	105.2	14.7	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.

Transmitter Band Edge Radiated Emissions (continued)**Lower Band Edge / Bottom Channel / Static****Upper Band Edge / Top Channel / Static****Lower Band Edge / Bottom Channel / Hopping****Upper Band Edge / Top Channel / Hopping**

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
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±4.69 dB
Maximum Peak Output Power	902 MHz to 928 MHz	95%	±2.94 dB
Carrier Frequency Separation	902 MHz to 928 MHz	95%	±0.92 ppm
Average Time of Occupancy	902 MHz to 928 MHz	95%	±0.3 ns
20 dB Bandwidth	902 MHz to 928 MHz	95%	±3.92 %
Radiated Spurious Emissions	30 MHz to 1 GHz	95%	±5.65 dB
Radiated Spurious Emissions	1 GHz to 12.75 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.

Appendix 1. Test Equipment Used

Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (months)
A057	High Pass Filter	Aerial Facilities	HP-950-5N	4389B	08 Jul 2013	24
A067	LISN	Rohde & Schwarz	ESH3-Z5	890603/002	02 Jun 2012	12
A1396	Attenuator	Huber + Suhner	757987	6810.17.B	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	09 Oct 2012	12
A1551	Notch Filter	Wainright Instruments	WRCT902.6-0.3/40-8EE	2	29 Jan 2013	12
A1818	Antenna	EMCO	3115	00075692	09 Oct 2012	12
A1830	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100668	25 Feb 2013	12
A1834	Attenuator	Hewlett Packard	8491B	10444	29 Jan 2013	12
A1975	High Pass Filter	AtlanTecRF	AFH-03000	090424010	15 Mar 2013	12
A2000	Attenuator	Huber + Suhner	6830.17.B	301623	03 Apr 2013	12
A239	Attenuator	Schaffner	6806-17-B	NONE	22 Nov 2012	12
A253	Antenna	Flann Microwave	12240-20	128	09 Oct 2012	12
A254	Antenna	Flann Microwave	14240-20	139	09 Oct 2012	12
A255	Antenna	Flann Microwave	16240-20	519	09 Oct 2012	12
A288	Antenna	Chase	CBL6111A	1589	19 Aug 2012	12
A553	Antenna	Chase	CBL6111A	1593	15 Feb 2013	12
G0543	Amplifier	Sonoma	310N	230801	13 Jul 2012	3
K0001	5m Semi-Anechoic Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	09 Oct 2012	12
M1124	Test Receiver	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB26	100275	03 Feb 2013	12
M1379	Test Receiver	Rohde & Schwarz	ESIB7	100330	20 Sep 2012	12

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.

Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	5 7 36	- - -	Corrected testing end date Section 3.2. Inserted additional information regarding build status. Corrected calibration date for Asset M1379

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