TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: IRIS

FCC ID: FSOIRISMP6

IC Certification Number: 10473A-IRISMP6

To: FCC Part 15.247:2011 Subpart C, RSS-Gen Issue 3 December 2010
and RSS-210 Issue 8 December 2010

Test Report Serial No:
RFI-RPT-RP81039JD02A

This Test Report Is Issued Under The Authority Of John Newell, Group Quality Manager:	pp
Checked By:	Steven White
Signature:	
Date of Issue:	10 July 2012

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Registered in England and Wales. Company number:2117901

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Table of Contents

1. Customer Information

Company Name:	Innovative Converged Devices Ltd
Address:	Innovation Centre Highfield Drive St Leonards-on-Sea East Sussex TN38 9UH United Kingdon

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: 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) 2011: 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) 2011: Part 15 Subpart C (Intentional Radiators) - Sections 15.207 and 15.209
Specification Reference:	RSS-Gen Issue 3 December 2010
Specification Title:	General Requirements and Information for the Certification of Radio Apparatus
Specification Reference:	RSS-210 Issue 8 December 2010
Specification Title:	Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	21 February 2012 to 14 March 2012

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 15.109	RSS-Gen 4.10/6.1	Receiver/Idle Mode Radiated Spurious Emissions	✓
Part 15.247(a)(1)	RSS-Gen 4.6.1/4.6.3 RSS-210 A8.1(a)	Transmitter 20 dB Bandwidth	✓
Part 15.247(a)(1)	RSS-210 A8.1(b)	Transmitter Carrier Frequency Separation	✓
Part 15.247(a)(1)(iii)	RSS-210 A8.1(d)	Transmitter Number of Hopping Frequencies and Average Time of Occupancy	✓
Part 15.247(b)(1)	RSS-Gen 4.8 RSS-210 A8.4(2)	Transmitter Maximum Peak Output Power	✓
Part 15.247(d)/ 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Radiated Emissions	✓
Part 15.247(d)/ 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	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:	IRIS
Model Name or Number:	IRIS (McLaren Infotainment System)
Serial Number:	1109060100313
Hardware Version Number:	MP1
Software Version Number:	MP1
FCC ID:	FSOIRISMP6
IC Certification Number:	10473A-IRISMP6

3.2. Description of EUT

The equipment under test was an Automotive Entertainment System

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:	*Bluetooth*		
Power Supply Requirement:	Nominal	12.0 V	
Type of Unit:	Transceiver		
Channel Spacing:	1 MHz		
Mode:	Basic Rate	Enhanced Data Rate	
Modulation:	GFSK	π/4-DQPSK	8DQPSK
Packet Type: (Maximum Payload)	DH5	2DH5	3DH5
Data Rate (Mbit/s):	1	2	3
Maximum Conducted Output Power:	0.0 dBm		
Antenna Gain	4.0 dBi		
Transmit Frequency Range:	2402 MHz to 2480 MHz		
Transmit Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480
Receive Frequency Range:	2402 MHz to 2480 MHz		
Receive Channels Tested:	**Channel ID**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	0	2402
	Middle	39	2441
	Top	78	2480

3.5. Support Equipment

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

Description:	Amplifier
Brand Name:	Meriden Audio Lt d
Model Name or Number:	11M0124CP
Serial Number:	MCLAP1045010

Description:	Ethernet Hub
Brand Name:	Not stated
Model Name or Number:	Not stated
Serial Number:	Not stated

Support Equipment (continued)

Description:	LCD display
Brand Name:	McLaren
Model Name or Number:	11M1431CP.01
Serial Number:	1202170501112

Description:	Laptop
Brand Name:	Dell
Model Name or Number:	D610
Serial Number:	PC401NT

Description:	2.4GHz WLAN Antenna
Brand Name:	Laird Technologies
Model Name or Number:	Protype #69
Serial Number:	00721XXXXXA

Description:	USB connector
Brand Name:	McLaren
Model Name or Number:	11M1432CP.02
Serial Number:	1202060500909

Description:	Ethernet PCB board
Brand Name:	Not stated
Model Name or Number:	Not stated
Serial Number:	Not stated

Description:	Ethernet cable
Brand Name:	Not stated
Model Name or Number:	Not stated
Serial Number:	Not stated

Description:	Mini USB cable
Brand Name:	Not stated
Model Name or Number:	Not stated
Serial Number:	Not stated

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Transmit mode with Basic Rate (DH5 packets) or EDR (2DH5 or 3DH5 packets) as required.
- Receive/idle mode

4.2. Configuration and Peripherals

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

- The EUT was connected to a test laptop using a USB cable. Bluetest software was installed on the laptop and this was used to control the CSR Bluetooth module inside the EUT.
- The EUT was set into a transmit mode on the required channel, with required rate set and receive mode.

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.

5.2. Test Results

5.2.1. Receiver/Idle Mode Radiated Spurious Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	29 February 2012
Test Sample Serial No:	1109060100313		

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):	26
Relative Humidity (%):	33

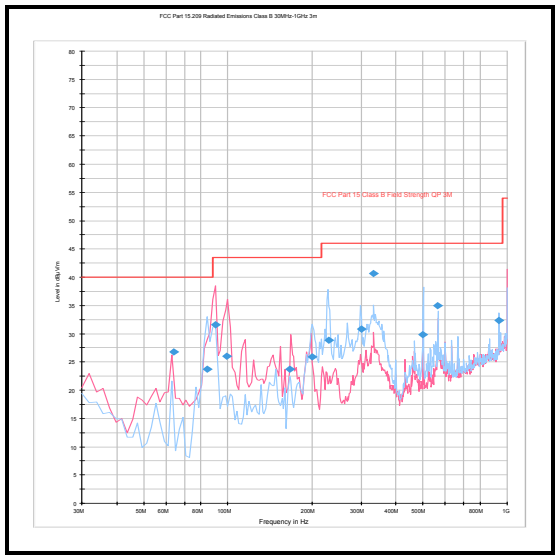
Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
64.003	Vertical	26.8	40.0	13.2	Complied
84.606	Horizontal	23.7	40.0	16.3	Complied
90.236	Vertical	31.6	43.5	11.9	Complied
99.186	Vertical	26.0	43.5	17.5	Complied
230.311	Horizontal	28.8	46.0	17.2	Complied
300.050	Horizontal	30.8	46.0	15.2	Complied
332.991	Horizontal	40.7	46.0	5.3	Complied
499.636	Horizontal	29.8	46.0	16.2	Complied
565.219	Horizontal	34.9	46.0	11.1	Complied
930.891	Horizontal	32.4	46.0	13.6	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. 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 (RFI 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:	Andrew Edwards & Nick Steele	**Test Date:**	21 February 2012 & 14 March 2012
Test Sample Serial No:	1109060100313		

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 12.75 GHz

Environmental Conditions:

Temperature (°C):	22 to 23
Relative Humidity (%):	22 to 23

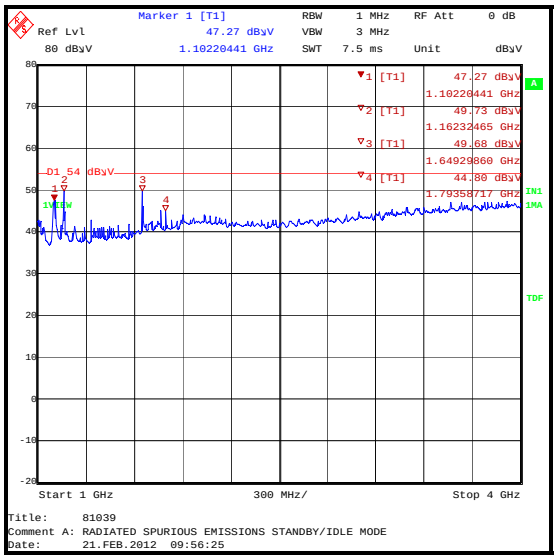
Results:

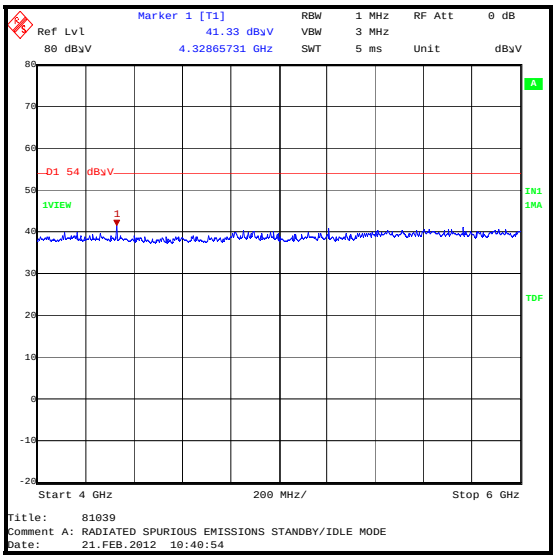
Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
1109.521	Horizontal	47.6	54.0	6.4	Complied
1163.284	Horizontal	46.5	54.0	7.5	Complied
1652.156	Horizontal	49.8	54.0	4.2	Complied
1831.736	Horizontal	50.1	54.0	3.9	Complied
4328.595	Vertical	42.1	54.0	11.9	Complied

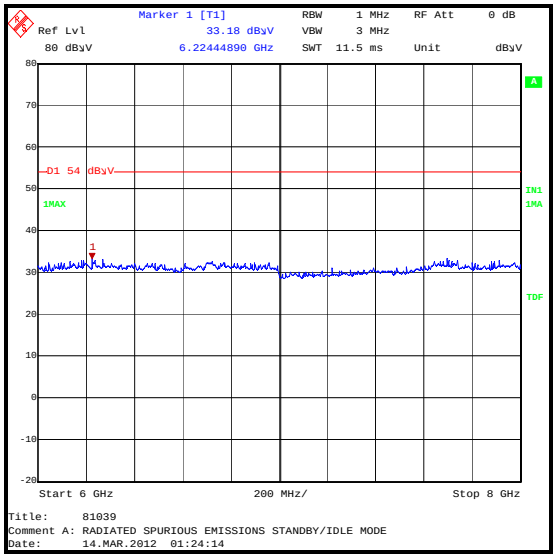
Note(s):

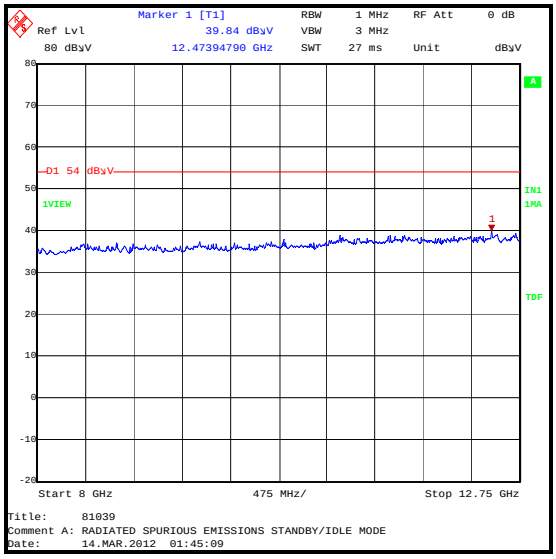
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI Asset Number K0002) at a distance of 3 metres. The EUT was placed at a height of 1.5 metres above 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 (RFI 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: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.2.Transmitter 20 dB Bandwidth

Test Summary:

Test Engineer:	Mark Percival	**Test Date:**	1 March 2012
Test Sample Serial No:	1109060100313		

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

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	24

Results DH5:

Channel	20 dB Bandwidth (kHz)
Bottom	951.904
Middle	941.884
Top	941.884

Results 2DH5:

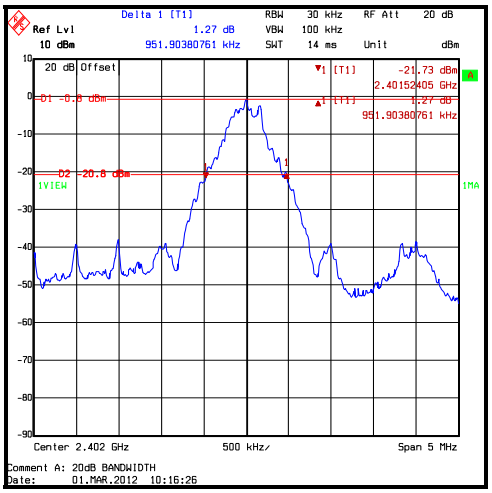
Channel	20 dB Bandwidth (kHz)
Bottom	1252.505
Middle	1242.485
Top	1242.485

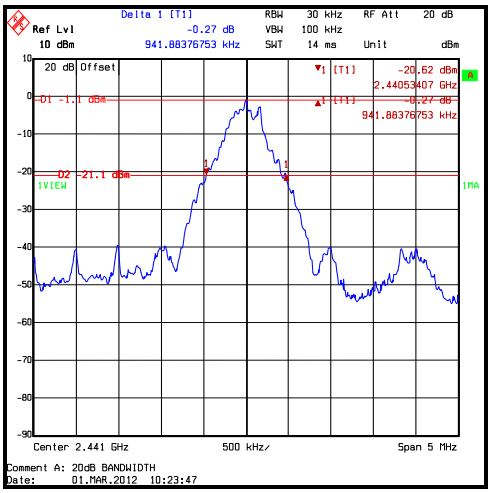
Results 3DH5:

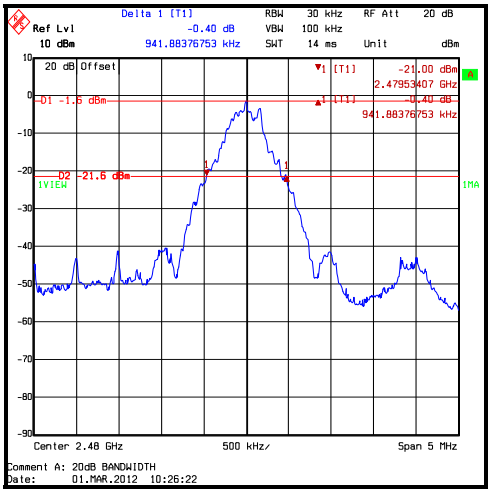
Channel	20 dB Bandwidth (kHz)
Bottom	1262.525
Middle	1272.545
Top	1272.545

Transmitter 20 dB Bandwidth (continued)

Results DH5:

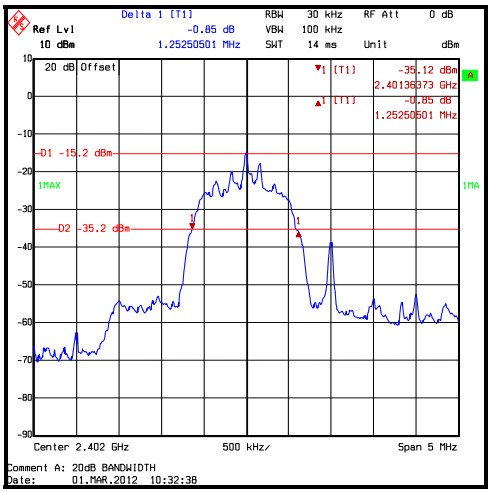


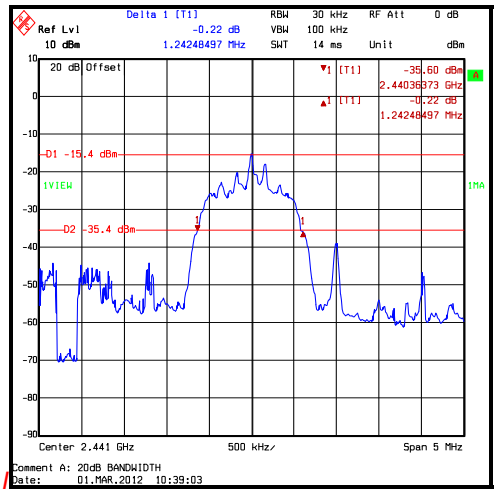


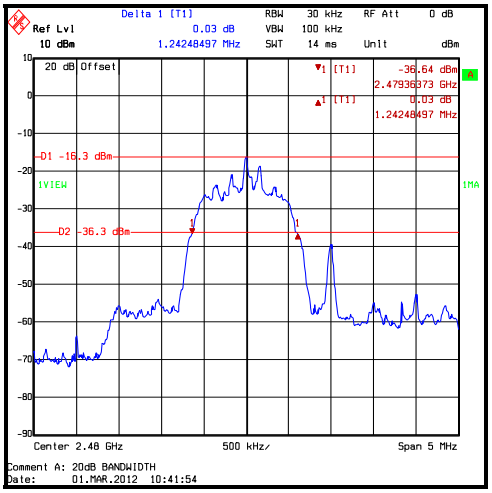


Transmitter 20 dB Bandwidth (continued)

Results 2DH5:

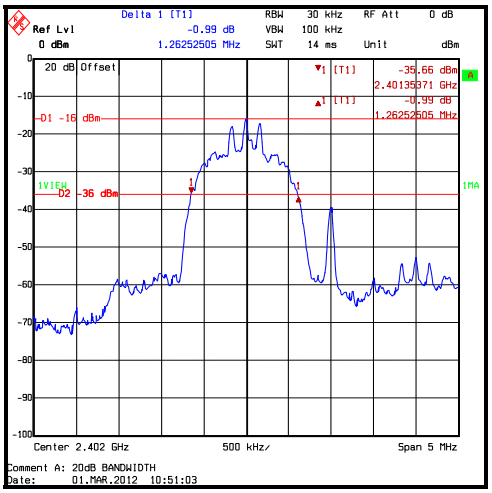


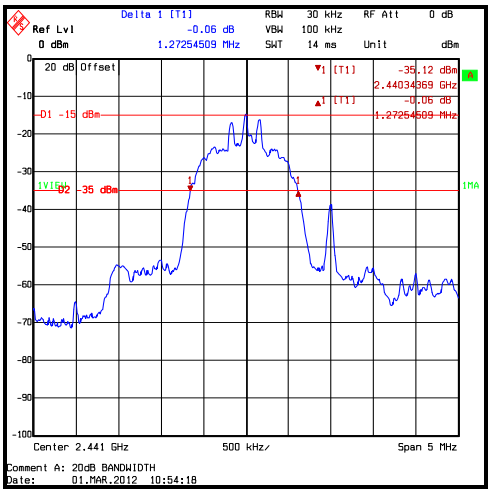


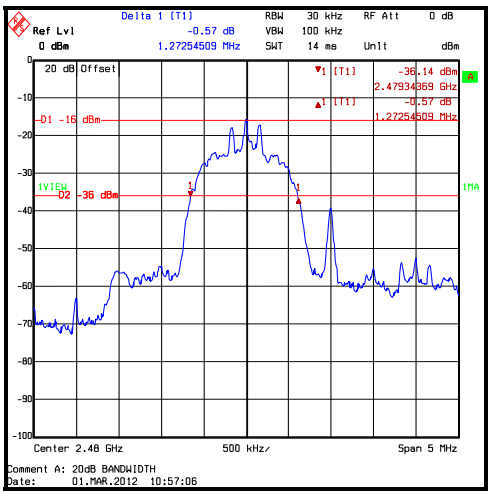


Transmitter 20 dB Bandwidth (continued)

Results 3DH5:







5.2.3. Transmitter Carrier Frequency Separation

Test Summary:

Test Engineer:	Mark Percival	**Test Date:**	01 March 2012
Test Sample Serial No:	1109060100313		

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

Environmental Conditions:

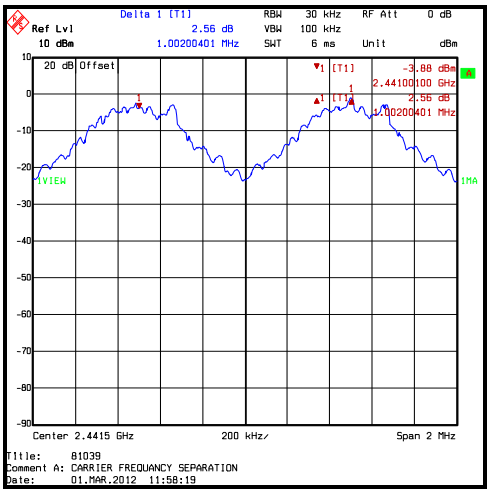
Temperature (°C):	25
Relative Humidity (%):	24

Results: DH5

Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1002.004	627.923	374.081	Complied

Note(s):

1. The 20 dB bandwidth measured for the middle channel operating at 2441 MHz was used to calculate the limit.



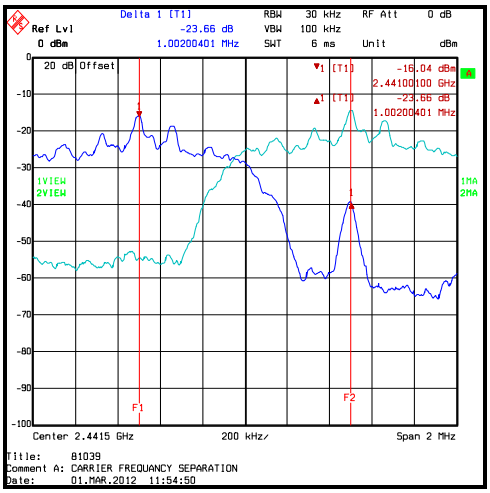
Transmitter Carrier Frequency Separation (continued)

Results: 2DH5

Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1002.004	828.324	173.680	Complied

Note(s):

1. The 20 dB bandwidth measured for the middle channel operating at 2441 MHz was used to calculate the limit.



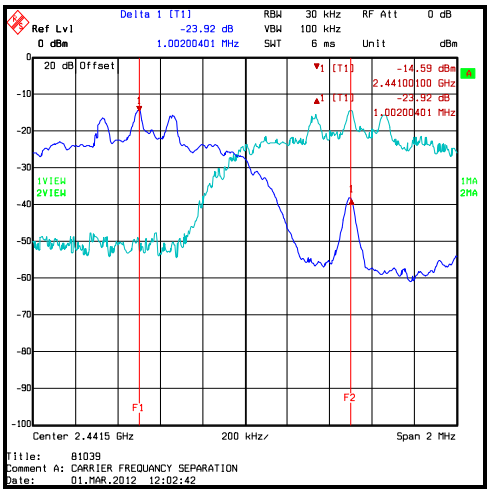
Transmitter Carrier Frequency Separation (continued)

Results: 3DH5

Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1002.004	848.364	153.640	Complied

Note(s):

1. The 20 dB bandwidth measured for the middle channel operating at 2441 MHz was used to calculate the limit.



5.2.4. Transmitter Number of Hopping Frequencies and Average Time of Occupancy

Test Summary:

Test Engineer:	Mark Percival	**Test Date:**	01 March 2012
Test Sample Serial No:	1109060100313		

FCC Part:	15.247(a)(1)(iii)
Test Method Used:	As detailed in ANSI C63.10 Section 7.7.3 & 7.7.4

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	23

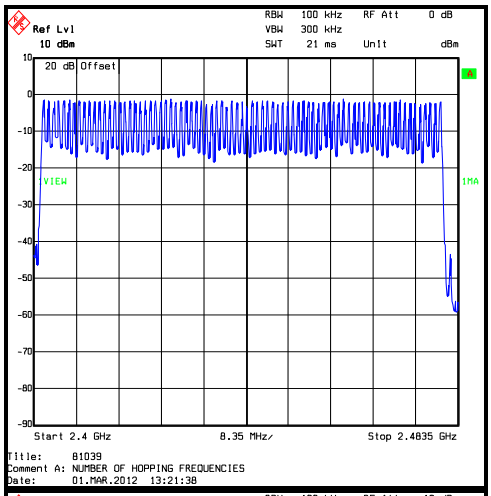
Results:

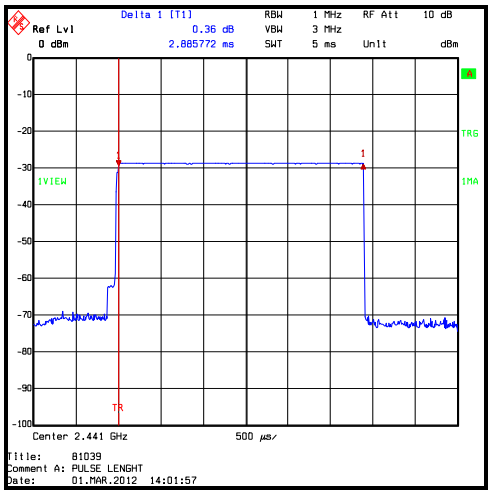
Emission Width (μs)	Number of Hops in 31.6 Seconds	Average Time of Occupancy (s)	Limit (s)	Margin (s)	Result
2885.772	109	0.315	0.4	0.085	Complied

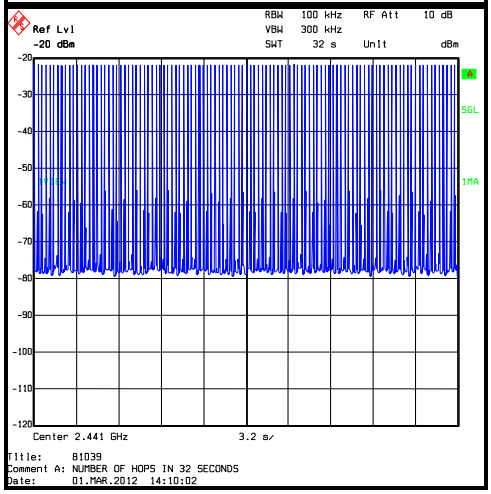
Note(s):

1. Tests were performed to identify the average time of occupancy in number of channels (79) x 0.4 seconds. The calculated period is 31.6 seconds.

Transmitter Number of Hopping Frequencies and Average Time of Occupancy (continued)







5.2.5. Transmitter Maximum Peak Output Power

Test Summary:

Test Engineer:	Mark Percival	**Test Date:**	01 March 2012
Test Sample Serial No:	1109060100313		

FCC Part:	15.247(b)(1)
Test Method Used:	As detailed in ANSI C63.10 Section 6.10.1

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	23

Results: DH5

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	-0.10	30.0	30.10	Complied
Middle	-0.35	30.0	30.35	Complied
Top	-0.71	30.0	30.71	Complied

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	-0.10	4.0	3.90	36.0	32.1	Complied
Middle	-0.35	4.0	3.65	36.0	32.4	Complied
Top	-0.71	4.0	3.29	36.0	32.7	Complied

Results: 2DH5

Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	0.02	21.0	20.9	Complied
Middle	-0.10	21.0	21.1	Complied
Top	-0.59	21.0	21.6	Complied

Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	0.02	4.0	4.02	27.0	22.9	Complied
Middle	-0.10	4.0	3.90	27.0	23.1	Complied
Top	-0.59	4.0	3.41	27.0	23.6	Complied

Transmitter Maximum Peak Output Power (continued)

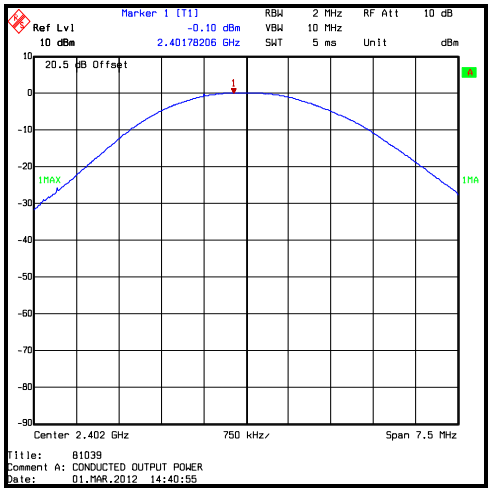
Results: 3DH5

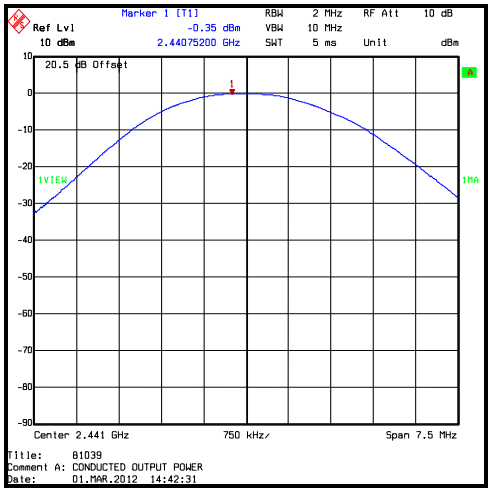
Channel	Conducted Peak Power (dBm)	Conducted Peak Power Limit (dBm)	Margin (dB)	Result
Bottom	-0.35	21.0	21.4	Complied
Middle	-0.45	21.0	21.5	Complied
Top	-0.99	21.0	21.9	Complied

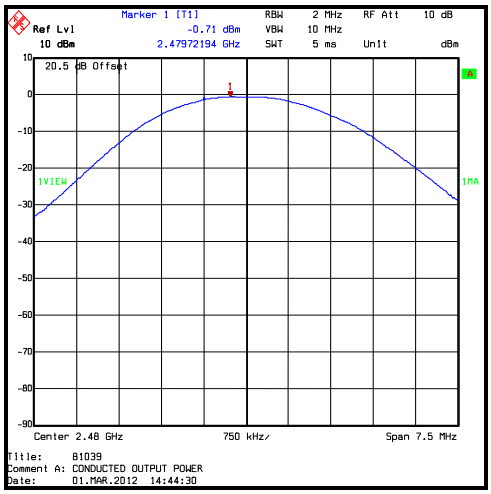
Channel	Conducted Peak Power (dBm)	Declared Antenna Gain (dBi)	EIRP (dBm)	De Facto EIRP Limit (dBm)	Margin (dB)	Result
Bottom	-0.35	4.0	3.65	27.0	23.4	Complied
Middle	-0.45	4.0	3.55	27.0	23.5	Complied
Top	-0.99	4.0	3.01	27.0	23.9	Complied

Transmitter Maximum Peak Output Power (continued)

Results: Basic Rate DH5

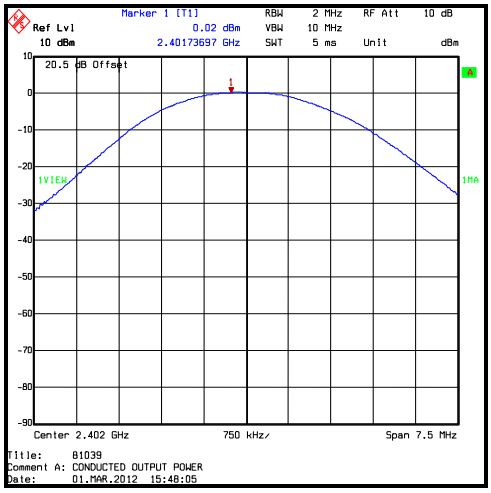


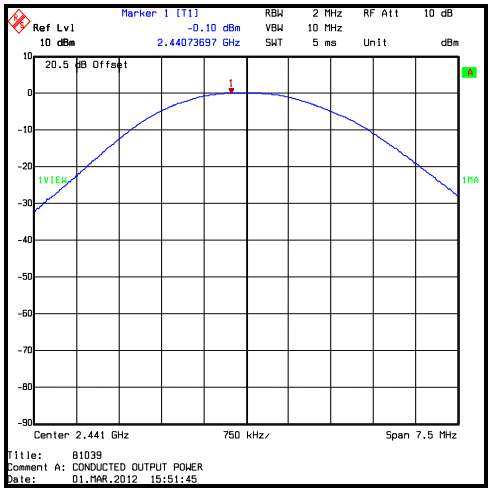


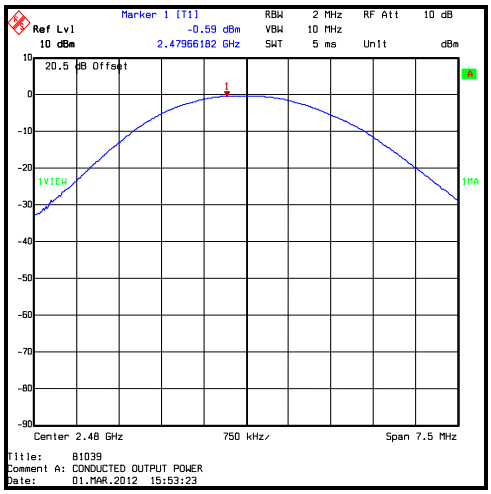


Transmitter Maximum Peak Output Power (continued)

Results: 2DH5

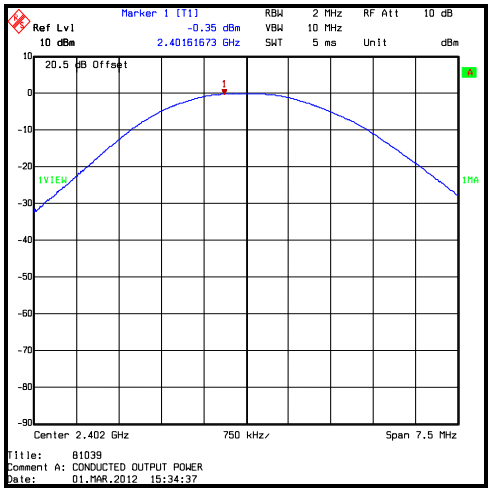


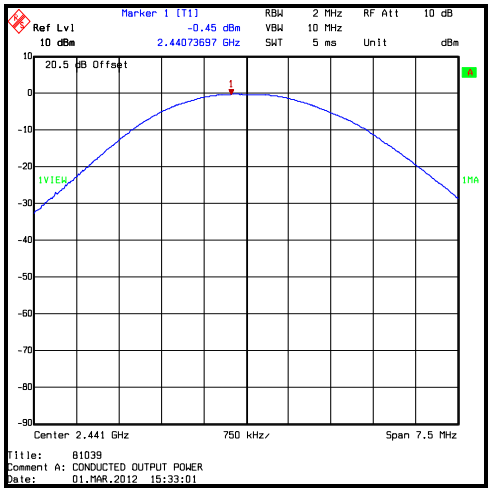


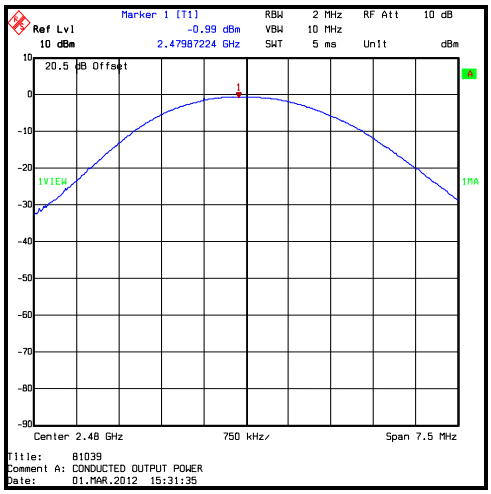


Transmitter Maximum Peak Output Power (continued)

Results: 3DH5







5.2.6. Transmitter Radiated Emissions

Test Summary:

Test Engineer:	Andrew Edwards	**Test Date:**	29 February 2012
Test Sample Serial No:	1109060100313		

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):	27
Relative Humidity (%):	32

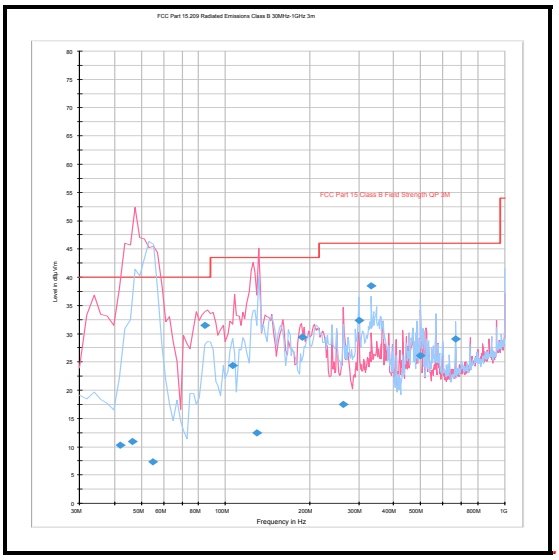
Results: Quasi-Peak DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
41.937	Vertical	10.2	40.0	29.8	Complied
46.528	Vertical	10.9	40.0	29.1	Complied
55.072	Horizontal	7.3	40.0	32.7	Complied
84.319	Vertical	31.5	40.0	8.5	Complied
106.404	Vertical	24.4	43.5	19.1	Complied
129.884	Vertical	12.5	43.5	31.0	Complied
187.796	Vertical	29.4	43.5	14.1	Complied
263.723	Vertical	17.5	46.0	28.5	Complied
299.993	Horizontal	32.4	46.0	13.6	Complied
332.981	Horizontal	38.5	46.0	7.5	Complied
499.453	Horizontal	26.1	46.0	19.9	Complied
665.897	Horizontal	29.1	46.0	16.9	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. 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.
3. 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.
4. Measurements below 1 GHz were performed in a semi-anechoic chamber (RFI 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.

Transmitter Radiated Emissions (continued)

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	05 March 2012
Test Sample Serial No:	1109060100313		

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 26.5 GHz

Environmental Conditions:

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

Results: Peak Bottom Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4803.589	Vertical	57.1	74.0	16.9	Complied
8038.076	Vertical	48.1	74.0	25.9	Complied
8056.513	Vertical	46.8	74.0	27.2	Complied

Results: Average Bottom Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4804.037	Vertical	49.0	54.0	5.0	Complied
8038.076	Vertical	47.3	54.0	6.7	Complied
8056.513	Vertical	45.7	54.0	8.3	Complied

Results: Peak Middle Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4881.646	Vertical	56.4	74.0	17.6	Complied
8038.076	Vertical	48.1	74.0	25.9	Complied
8056.513	Vertical	46.8	74.0	27.2	Complied

Results: Average Middle Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
4882.024	Vertical	48.5	54.0	5.5	Complied
8038.076	Vertical	47.3	54.0	6.7	Complied
8056.513	Vertical	45.7	54.0	8.3	Complied

Transmitter Radiated Emissions (continued)

Results: Peak Top Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4959.611	Vertical	56.4	74.0	17.6	Complied
8038.076	Vertical	48.1	74.0	25.9	Complied
8056.513	Vertical	46.8	74.0	27.2	Complied

Results: Average Top Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4960.022	Vertical	48.2	54.0	5.8	Complied
8038.076	Vertical	47.3	54.0	6.7	Complied
8056.513	Vertical	45.7	54.0	8.3	Complied

Results: Peak Hopping Mode DH5

Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4806.132	Vertical	56.8	74.0	17.2	Complied
8038.076	Vertical	48.1	74.0	25.9	Complied
8056.513	Vertical	46.8	74.0	27.2	Complied

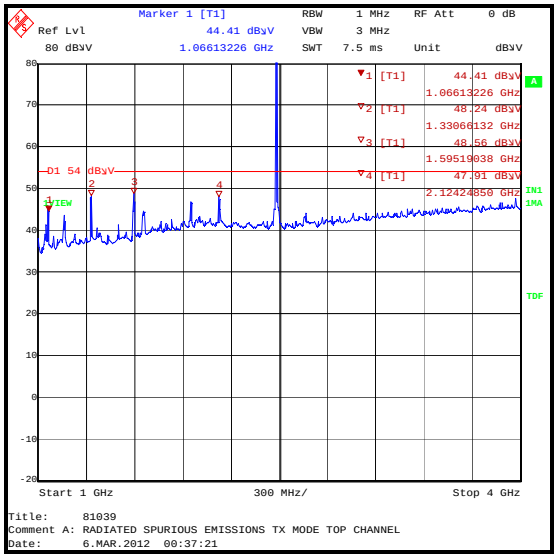
Results: Average Hopping Mode DH5

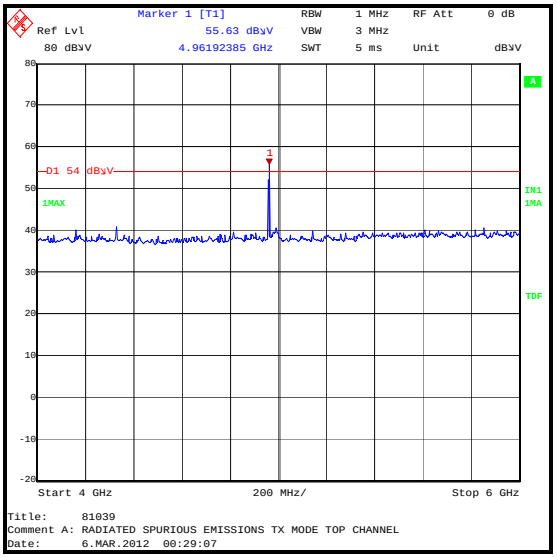
Frequency (MHz)	Antenna Polarity	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4805.837	Vertical	31.8.	54.0	22.2	Complied
8038.076	Vertical	47.3	54.0	6.7	Complied
8056.513	Vertical	45.7	54.0	8.3	Complied

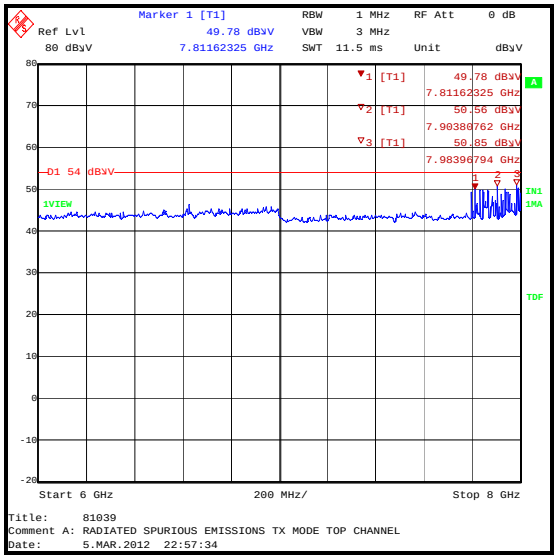
Note(s):

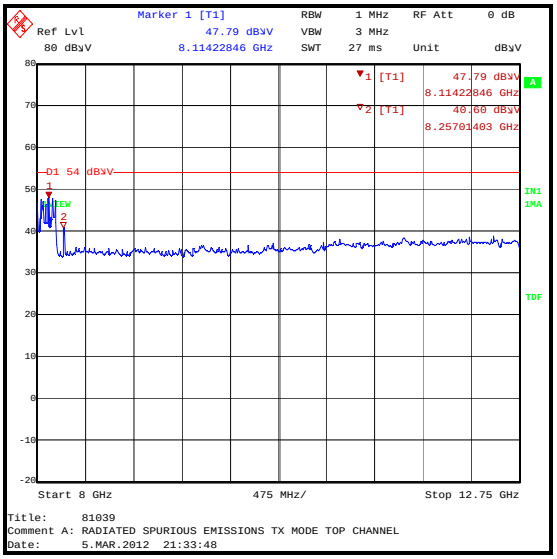
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. The emission shown on the 1 GHz to 4 GHz plot is the EUT fundamental at 2480 MHz.
3. All other emissions shown on the pre-scan plot were investigated and found to be ambient or >20 dB below the applicable limit or below the measurement system noise floor.
4. Pre-scans above 1 GHz were performed in a fully anechoic chamber (RFI 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 (RFI 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)

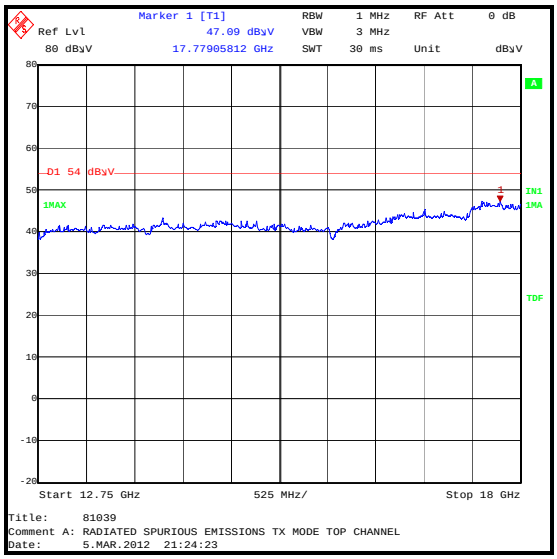


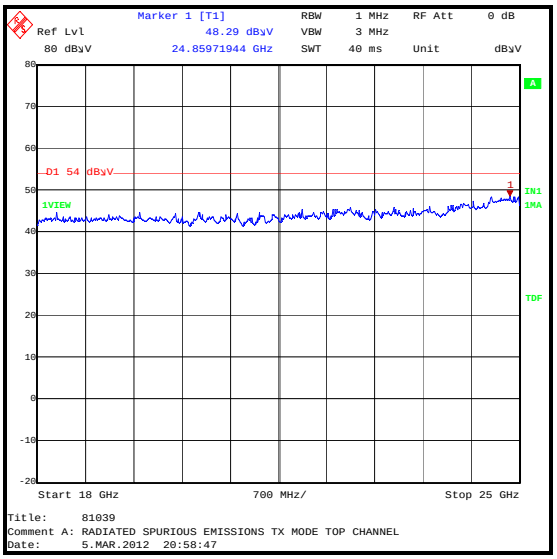






Transmitter Radiated Emissions (continued)





Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

5.2.7. Transmitter Band Edge Radiated Emissions

Test Summary:

Test Engineer:	Nick Steele	**Test Date:**	06 March 2012
Test Sample Serial No:	1109060100313		

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

Environmental Conditions:

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

Results: Static Mode DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	53.2	*72.3**	19.1	Complied
2483.5	Vertical	50.5	74.0	23.5	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	37.7	54.0	16.3	Complied

Results: Hopping Mode DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	48.0	*72.2**	24.2	Complied
2483.5	Vertical	49.4	74.0	24.6	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	30.3	54.0	23.7	Complied

Results: Static Mode 2DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	47.0	*71.7**	24.7	Complied
2483.5	Vertical	55.2	74.0	18.8	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	40.0	54.0	14.0	Complied

Results: Hopping Mode 2DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	48.6	72.9*	24.3	Complied
2483.5	Vertical	55.4	74.0	18.6	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	31.3	54.0	22.7	Complied

Results: Static Mode 3DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	47.7	*71.7**	24.0	Complied
2483.5	Vertical	56.9	74.0	17.1	Complied

Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	41.1	54.0	12.9	Complied

Results: Hopping Mode 3DH5

Frequency (MHz)	Antenna Polarity	Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2400.0	Vertical	46.9	72.6*	25.7	Complied
2483.5	Vertical	54.8	74.0	19.2	Complied

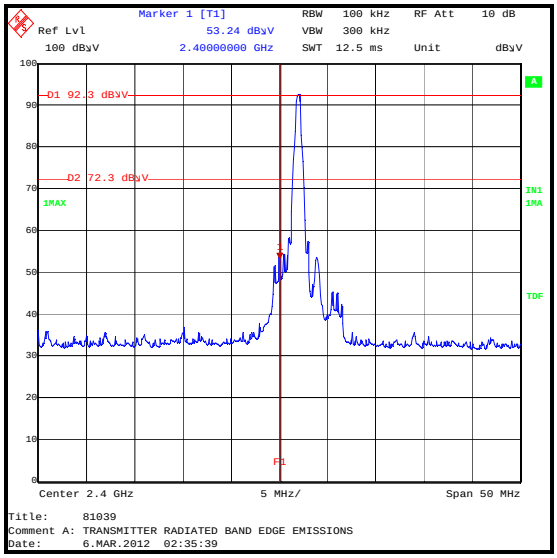
Frequency (MHz)	Antenna Polarity	Average Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2483.5	Vertical	31.0	54.0	23.0	Complied

Note(s):

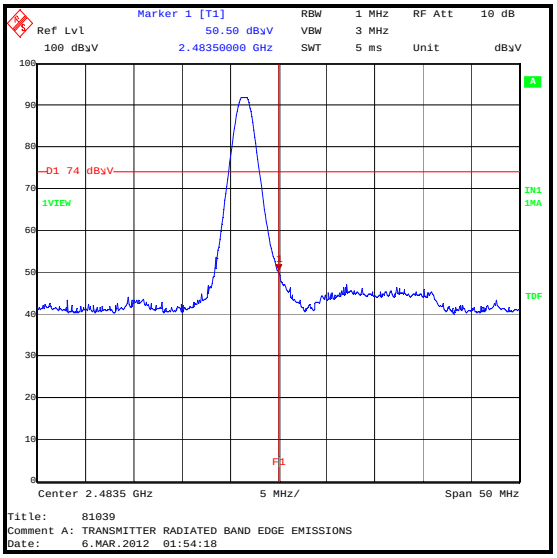
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. * -20 dBc limit

Transmitter Band Edge Radiated Emissions (continued)

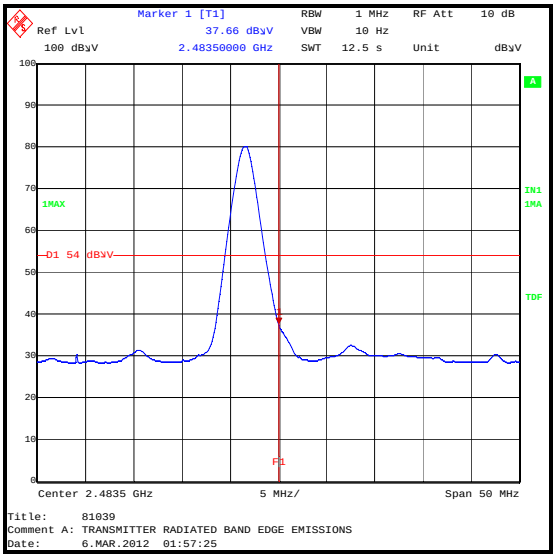
DH5 Static Mode



Lower Band Edge Peak Static



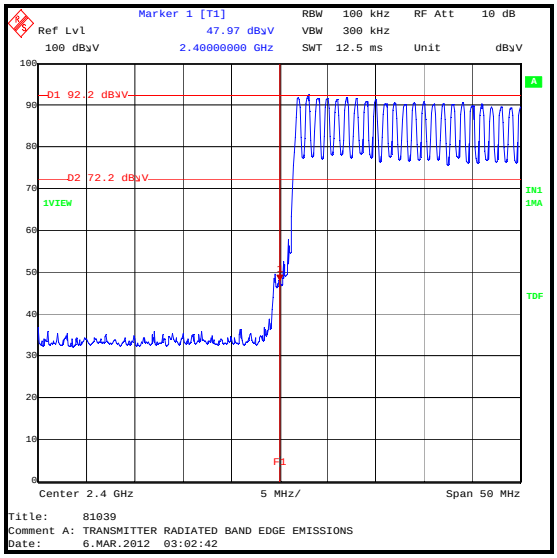
Upper Band Edge Peak Static



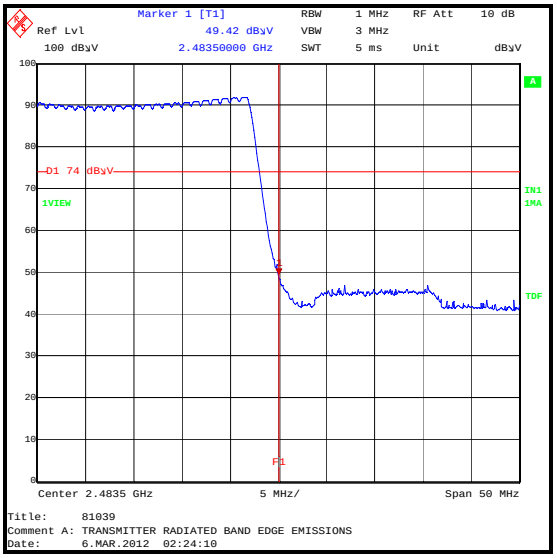
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

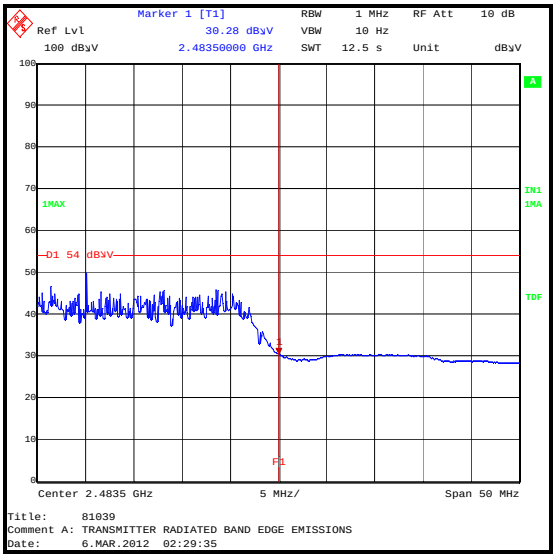
DH5 Hopping Mode



Lower Band Edge Peak Hopping



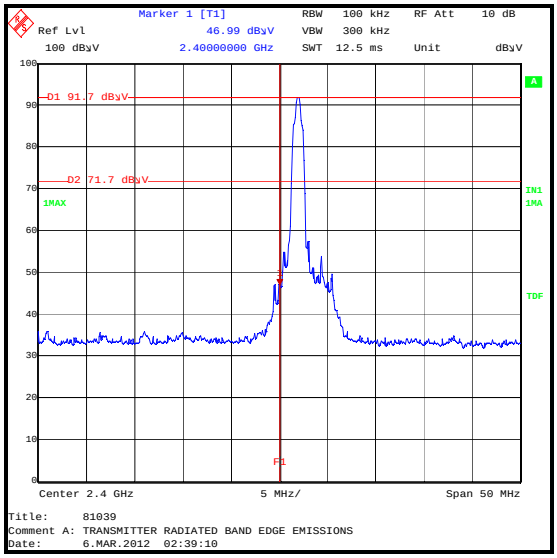
Upper Band Edge Peak Hopping



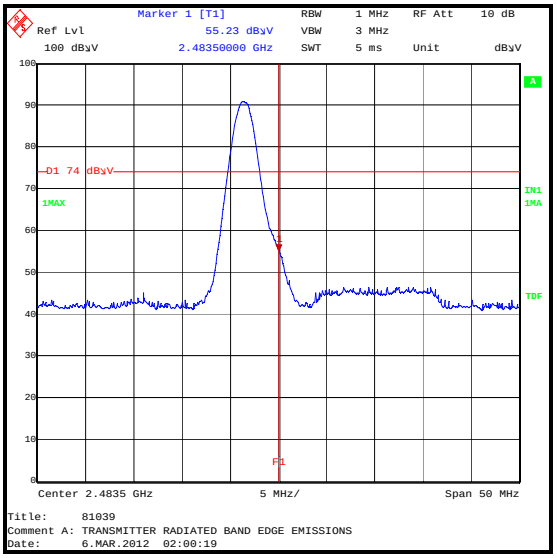
Upper Band Edge Average Hopping

Transmitter Band Edge Radiated Emissions (continued)

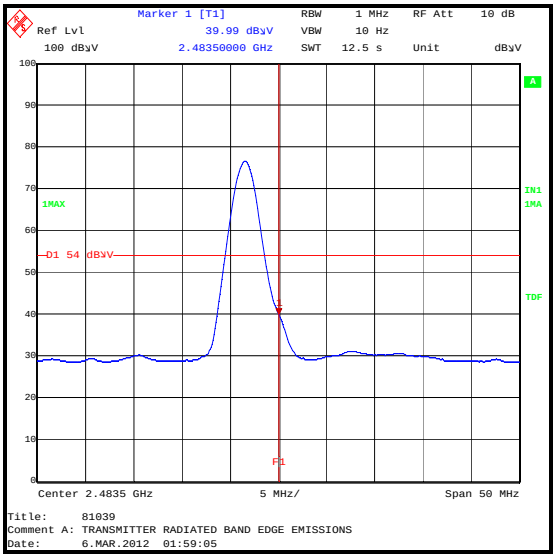
2DH5 Static Mode



Lower Band Edge Peak Static



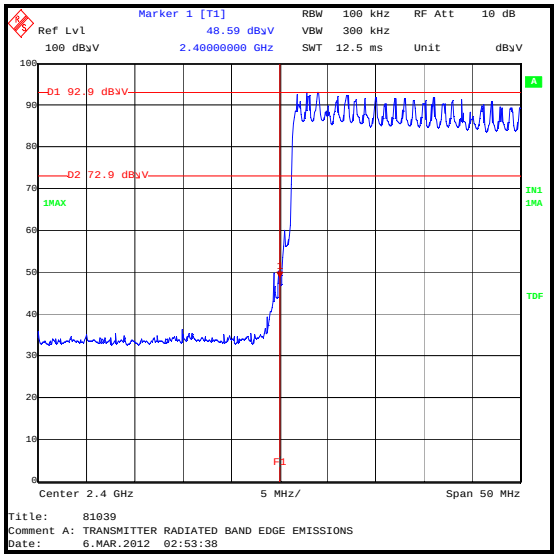
Upper Band Edge Peak Static



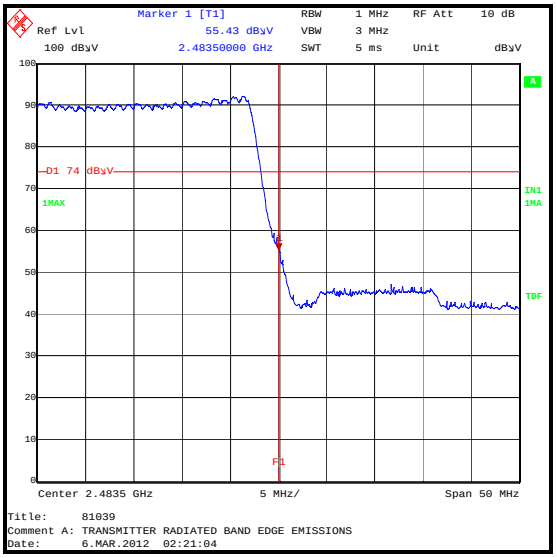
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

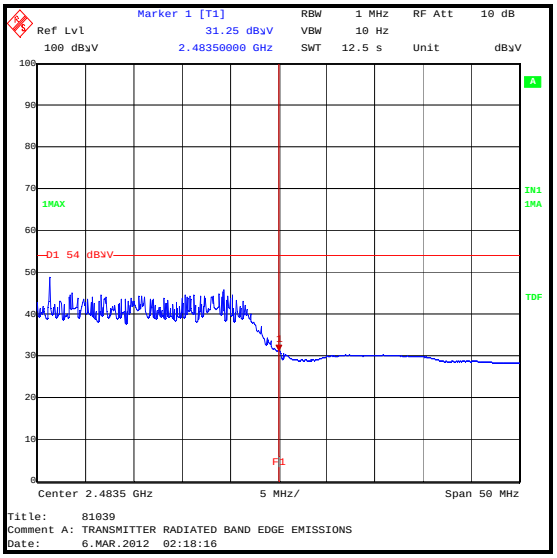
2DH5 Hopping Mode



Lower Band Edge Peak Hopping



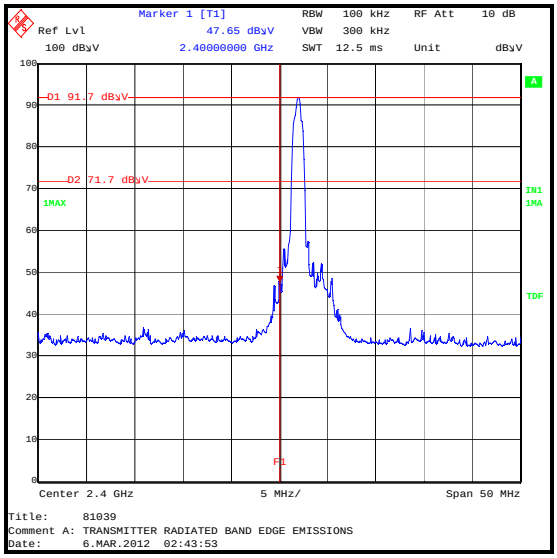
Upper Band Edge Peak Hopping



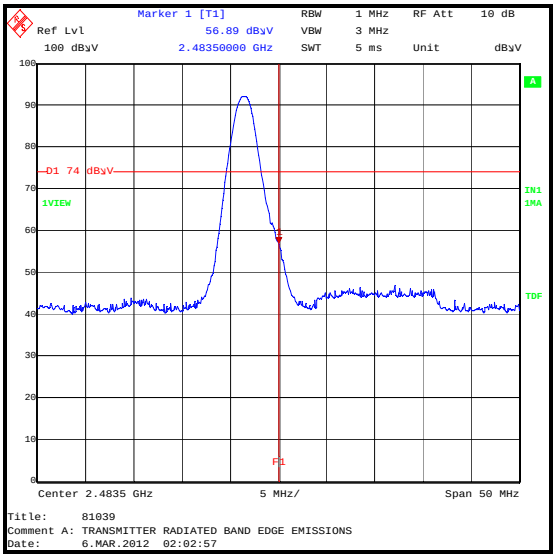
Upper Band Edge Average Hopping

Transmitter Band Edge Radiated Emissions (continued)

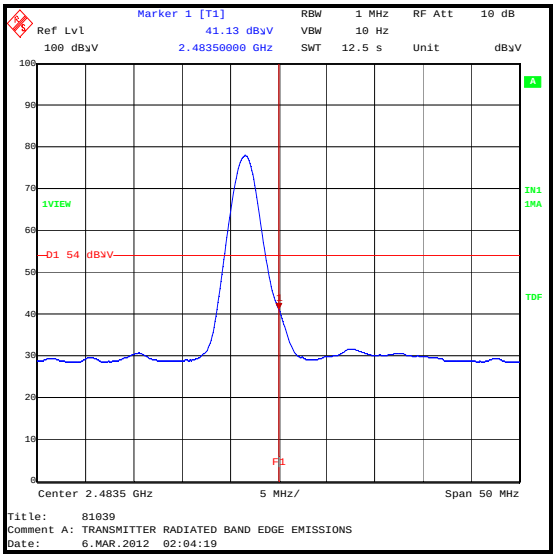
3DH5 Static Mode



Lower Band Edge Peak Static



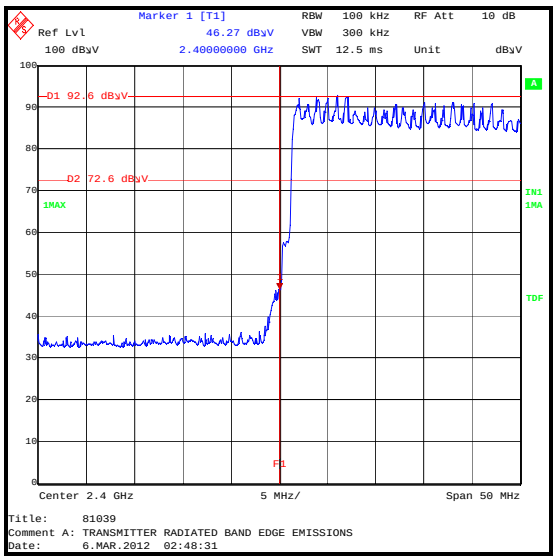
Upper Band Edge Peak Static



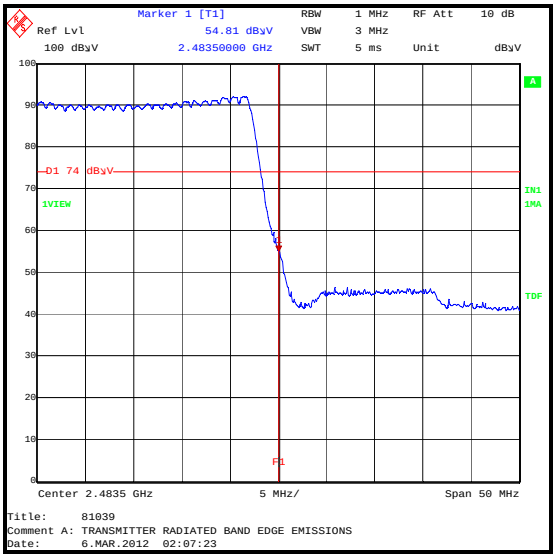
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

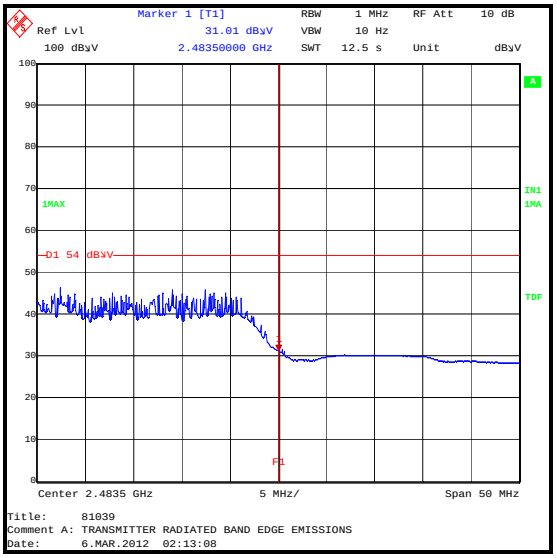
3DH5 Hopping Mode



Lower Band Edge Peak Hopping



Upper Band Edge Peak Hopping



Upper Band Edge Average 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
Conducted Maximum Peak Output Power	2.4 GHz to 2.4835 GHz	95%	±0.27 dB
Carrier Frequency Separation	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
Average Time of Occupancy	2.4 GHz to 2.4835 GHz	95%	±0.3 ns
20 dB Bandwidth	2.4 GHz to 2.4835 GHz	95%	±0.92 ppm
Radiated Spurious Emissions	30 MHz 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.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (months)
A1393	Attenuator	HUBER + SUHNER AG	757456	6820.17.B	08 Jul 2012	12
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	09 Oct 2012	12
A1818	Antenna	EMCO	3115	00075692	09 Oct 2012	12
A1834	Attenuator	Hewlett Packard	8491B	10444	29 Jan 2013	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
A256	Antenna	Flann Microwave	18240-20	400	09 Oct 2012	12
A436	Antenna	Flann	20240-20	330	09 Oct 2012	12
A553	Antenna	Chase	CBL6111A	1593	15 Feb 2013	12
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	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	29 Jun 2012	12
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	12 Dec 2012	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	03 Feb 2013	12
S0537	EL302D Dual Power Supply	TTI	EL302D	249928	Calibrated before use	12

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