TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Bluegiga WT21-A

To: FCC Part 15.247: 2008 Subpart C, RSS-210 Issue 7 June 2007
& RSS-Gen Issue 2 June 2007

Test Report Serial No:
RFI/RPT1/RP74713JD05B

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director:	pp 
Checked By:	R. Graham
Signature:	
Date of Issue:	12 November 2009

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1. Customer Information

Company Name:	Bluegiga Technologies OY
Address:	Sinikalliontie 5A FIN - 02630 Espoo Finland

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2008: Part 15 Subpart C (Radio Frequency Devices) - Section 15.247
Specification Reference:	RSS-210 Issue 7 June 2007
Specification Title:	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment.
Specification Reference:	RSS-GEN Issue 2 June 2007
Specification Title:	General Requirements and Information for the Certification of Radio communication Equipment
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	26 September 2009 to 11 November 2009

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Port Type	Result
Part 15.107	RSS-Gen 7.2.2	Idle Mode AC Conducted Emissions	AC Mains	✓
Part 15.109	RSS-Gen 4.10/6	Idle Mode Radiated Spurious Emissions	Antenna	✓
Part 15.207	RSS-Gen 7.2.2	Transmitter AC Conducted Emissions	AC Mains	✓
Part 15.247(a)(1)	RSS-Gen 4.6.1 RSS-210 A8.1(a)	Transmitter 20 dB Bandwidth	Antenna	✓
Part 15.247(a)(1)	RSS-210 A8.1(b)	Transmitter Carrier Frequency Separation	Antenna	✓
Part 15.247(a)(1)(iii)	RSS-210 A8.1(d)	Transmitter Average Time of Occupancy	Antenna	✓
Part 15.247(b)(3)	RSS-Gen 4.8 RSS-210 A8.4(2)	Transmitter Maximum Peak Output Power	Antenna	✓
Part 15.247(d) & 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Radiated Emissions	Antenna	✓
Part 15.247(d) & 15.209(a)	RSS-Gen 4.9 RSS-210 A8.5	Transmitter Band Edge Radiated Emissions	Antenna	✓

Key to Results

✓ = Complied ✗ = Did not comply

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2003)
Title:	American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
Reference:	DA00-705 (2000)
Title:	Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

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:	Bluegiga
Model Name or Number:	WT21-A
Serial Number:	093710
Hardware Version Number:	23c
Software Version Number:	2.2
Industry Canada Certification Number:	5123A-BGTWT21A
FCC ID Number:	QOQWT21A

3.2. Description of EUT

The equipment under test is a WT21-A *Bluetooth* HCI module with integrated antenna intended for *Bluetooth* applications where a host processor is capable of running the *Bluetooth* software stack. WT21 only implements the low level *Bluetooth* Host Controller Interface (HCI).

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	3.7 V	
	Minimum	2.7 V	
	Maximum	4.9 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 Transmit EIRP:	7.0 dBm		
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:	Laptop
Brand Name:	Dell
Model Name or Number:	D620

Description:	Bluetooth tester
Brand Name:	Rohde & Schwarz
Model Name or Number:	CBT
Serial Number:	100329

Description:	WT21 Evaluation Board v2.2
Brand Name:	Bluegiga
Serial Number:	093710

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Idle Mode.
- Transmit Mode with Basic Rate (DH5 packets) or EDR (2DH5 or 3DH5 packets) as required.

4.2. Configuration and Peripherals

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

- For transmit test: Standalone, connected via radio link to a Bluetooth Tester to provide a test mode and normal mode of operation for the sample.
- For Idle mode; Standalone, with the Bluetooth mode active but not transmitting,
- Both EDR/Basic rate modes were compared and tests were performed with the mode that presented the worst case result. For output power, bandwidth, band edge and channel separation, all modes were tested.

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. Idle Mode AC Conducted Spurious Emissions

Test Summary:

FCC Part:	15.107
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	35

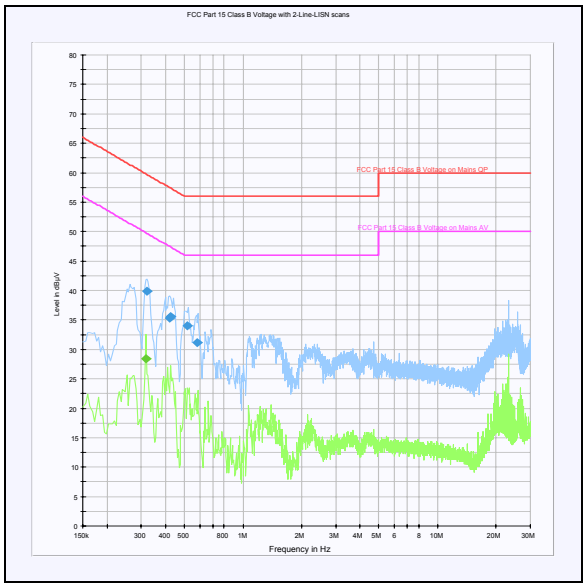
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.321000	Live	39.8	59.7	19.9	Complied
0.420000	Live	35.3	57.4	22.1	Complied
0.424500	Live	35.5	57.4	21.9	Complied
0.519000	Live	34.0	56.0	22.0	Complied
0.582000	Live	31.2	56.0	24.8	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.316500	Live	28.5	49.8	21.3	Complied

Idle Mode AC Conducted Spurious Emissions (continued)



5.2.2. Idle Mode Radiated Spurious Emissions

Test Summary:

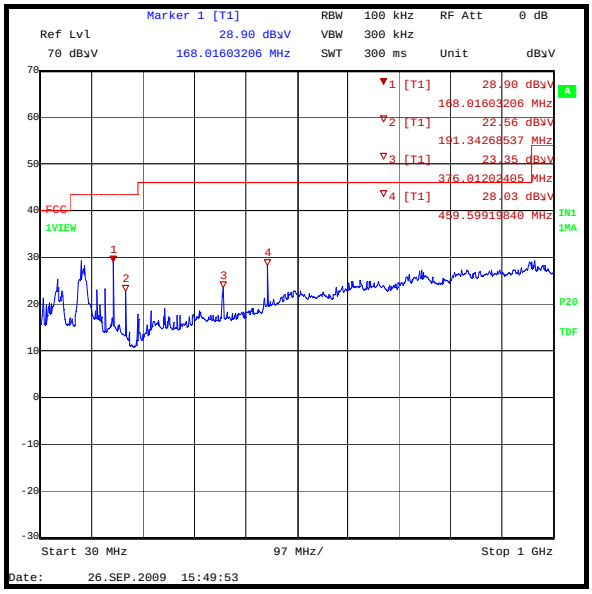
FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	30 MHz to 1000 MHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	28

Results:

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
107.598	Vertical	28.2	43.5	15.3	Complied
167.966	Horizontal	29.0	43.5	14.5	Complied
192.009	Horizontal	23.2	43.5	20.3	Complied
377.645	Horizontal	21.8	46.0	24.2	Complied
458.759	Vertical	26.9	46.0	19.1	Complied



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

Idle Mode Radiated Spurious Emissions (continued)

Test Summary:

FCC Part:	15.109
Test Method Used:	As detailed in ANSI C63.4 Section 8 and relevant annexes
Frequency Range:	1 GHz to 12.75 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	28

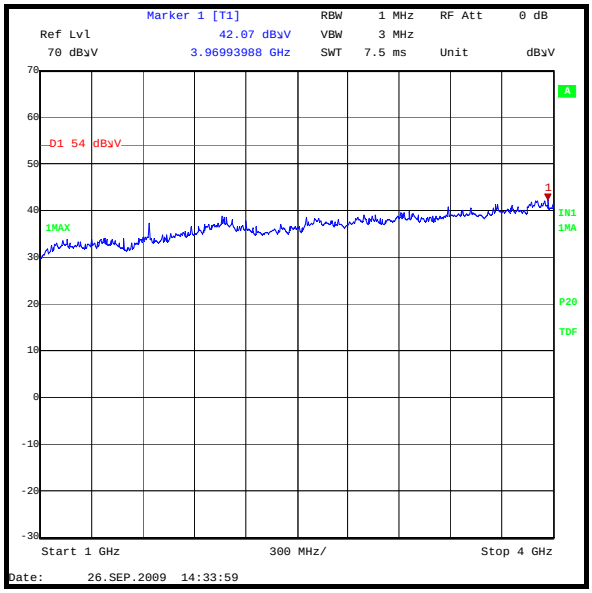
Results:

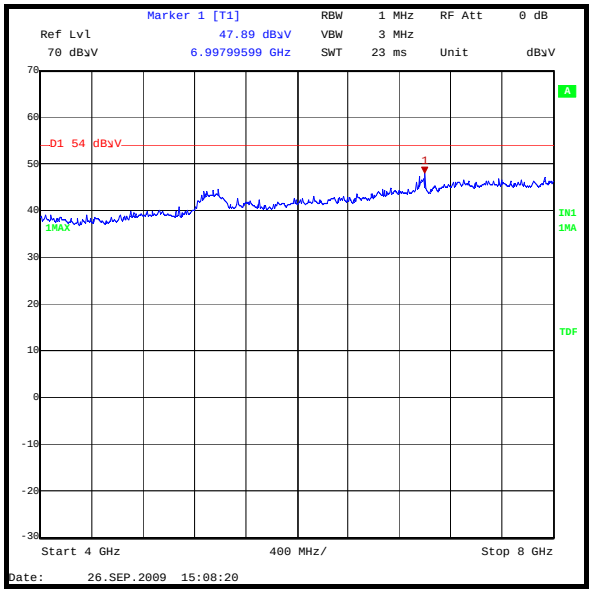
Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Peak Level (dBµV/m)	Average Limit (dBµV/m)	Margin (dB)	Result
12.588	Vertical	66.5	13.1	53.4	54.0	0.6	Complied

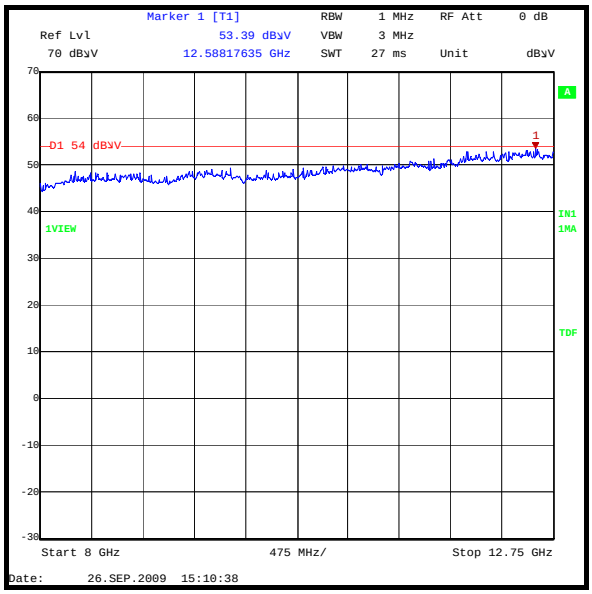
Note(s):

1. 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.

Idle Mode Radiated Spurious Emissions (continued)







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

5.2.3. Transmitter AC Conducted Spurious Emissions

Test Summary:

FCC Part:	15.207
Test Method Used:	As detailed in ANSI C63.4 Section 7 and relevant annexes

Environmental Conditions:

Temperature Range (°C):	23
Relative Humidity Range (%):	35

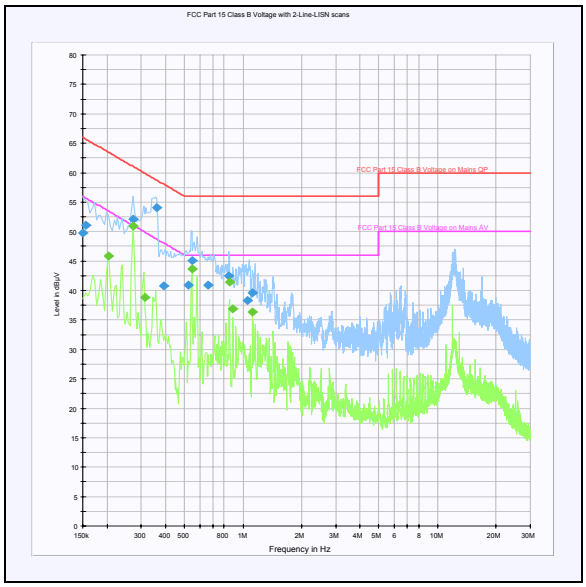
Results: Quasi Peak Detector Measurements

Frequency (MHz)	Line	Quasi Peak Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.150000	Live	49.7	66.0	16.3	Complied
0.154500	Live	51.1	65.8	14.7	Complied
0.271500	Live	52.1	61.1	9.0	Complied
0.361500	Live	54.1	58.7	4.6	Complied
0.388500	Live	40.8	58.1	17.3	Complied
0.523500	Live	40.9	56.0	15.1	Complied
0.546000	Neutral	45.0	56.0	11.0	Complied
0.663000	Neutral	40.9	56.0	15.1	Complied
0.847500	Neutral	42.5	56.0	13.5	Complied
1.050000	Neutral	38.3	56.0	17.7	Complied
1.122000	Neutral	39.6	56.0	16.4	Complied

Results: Average Detector Measurements

Frequency (MHz)	Line	Average Level (dBμV)	Limit (dBμV)	Margin (dB)	Result
0.204000	Live	45.8	53.4	7.6	Complied
0.271500	Neutral	51.0	51.1	0.1	Complied
0.312000	Live	38.9	49.9	11.0	Complied
0.546000	Neutral	43.7	46.0	2.3	Complied
0.852000	Neutral	41.5	46.0	4.6	Complied
0.883500	Neutral	36.8	46.0	9.2	Complied
1.122000	Neutral	36.3	46.0	9.7	Complied

Transmitter AC Conducted Spurious Emissions (continued)



5.2.4. Transmitter 20 dB Bandwidth

Test Summary:

FCC Part:	15.247(a)(1)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000) and ANSI C63.4 Section 13.1.7 and relevant annexes (see notes below)

Environmental Conditions:

Temperature (°C):	21
Relative Humidity (%):	67

Results: DH5

Channel	20 dB Bandwidth (MHz)
Bottom	0.942
Middle	0.942
Top	0.942

Results: 2DH5

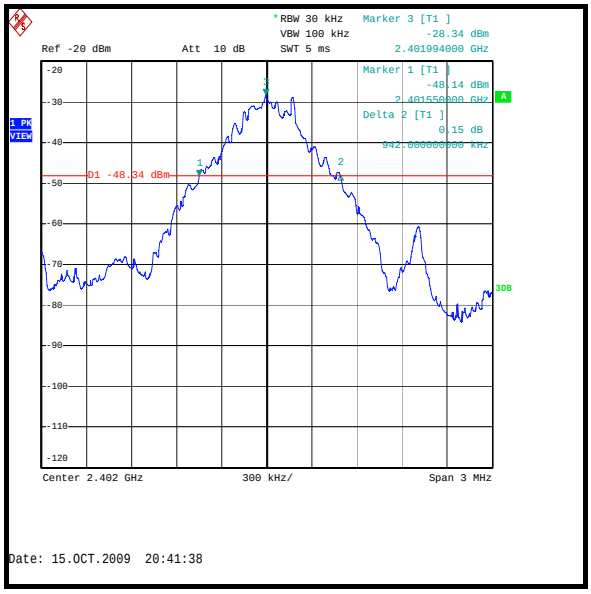
Channel	20 dB Bandwidth (MHz)
Bottom	1.278
Middle	1.278
Top	1.278

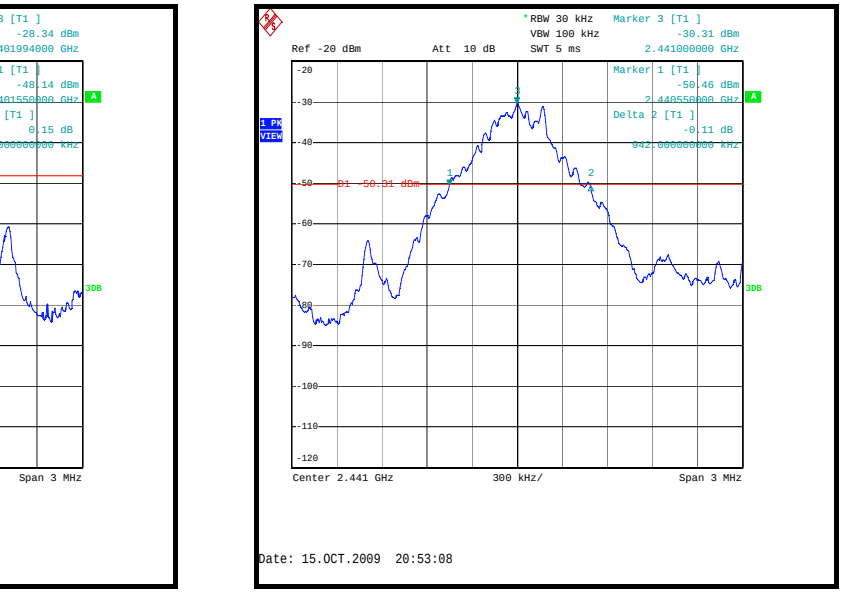
Results: 3DH5

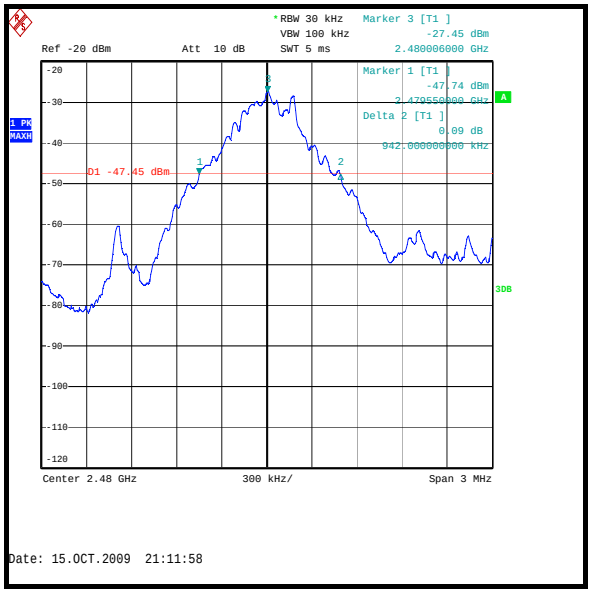
Channel	20 dB Bandwidth (MHz)
Bottom	1.296
Middle	1.290
Top	1.314

Transmitter 20 dB Bandwidth (continued)

Results: DH5

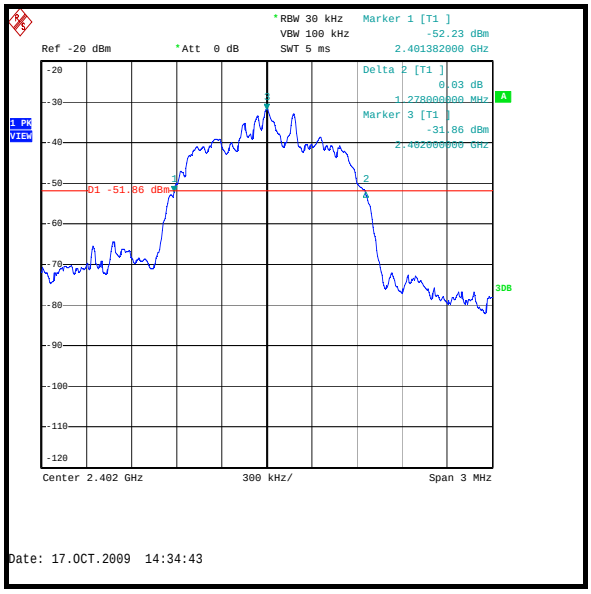


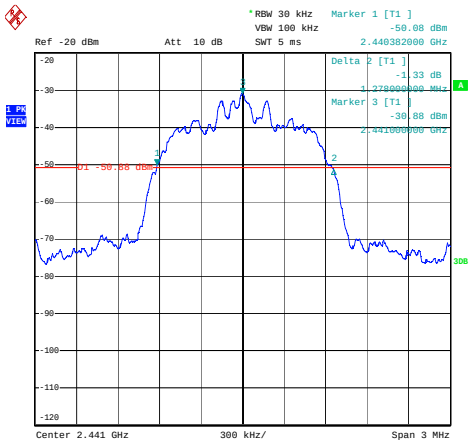


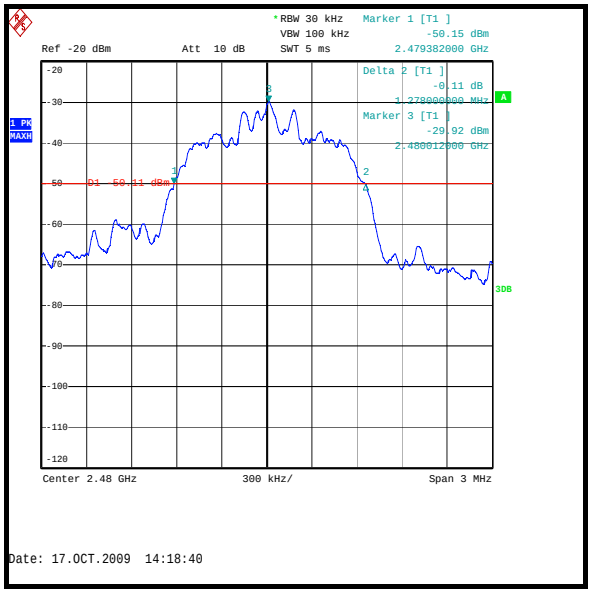


Transmitter 20 dB Bandwidth (continued)

Results: 2DH5

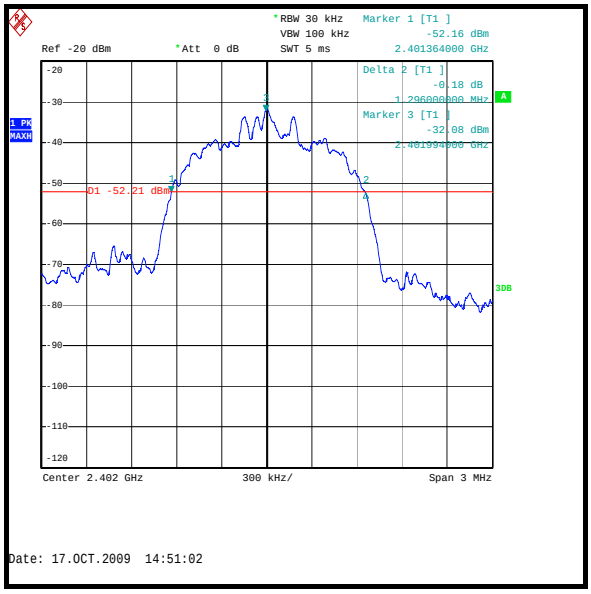


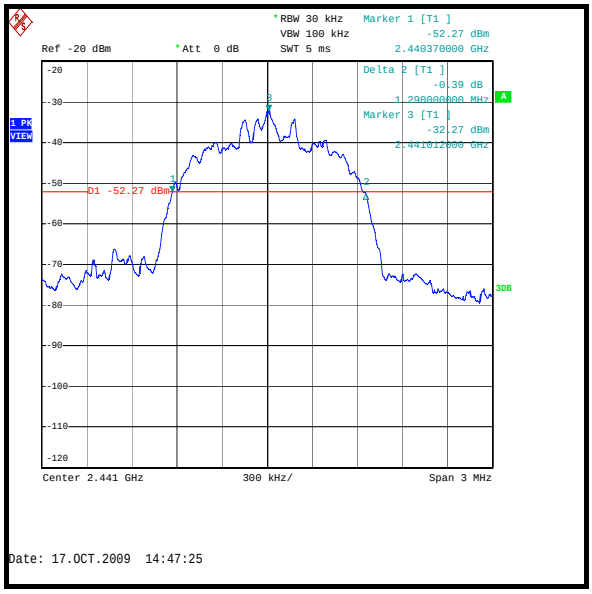


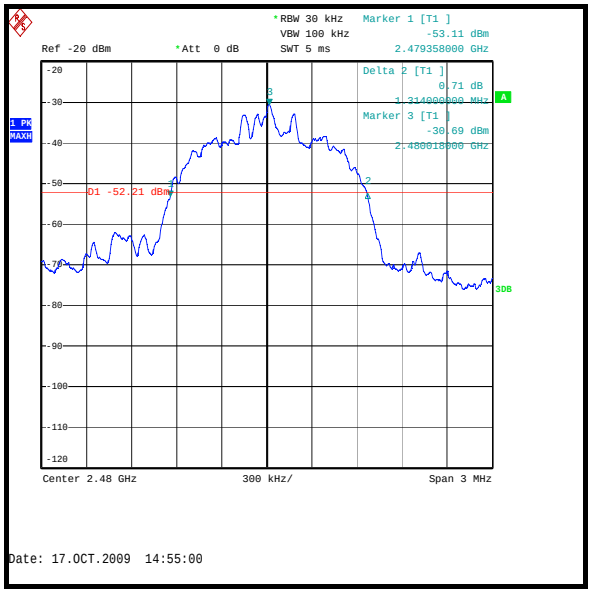


Transmitter 20 dB Bandwidth (continued)

Results: 3DH5







5.2.5. Transmitter Carrier Frequency Separation

Test Summary:

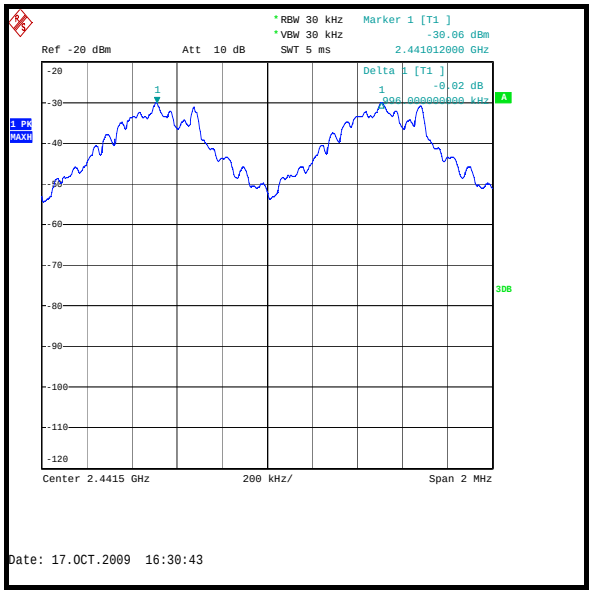
FCC Part:	15.247(a)(1)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000)

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	67

Results: DH5

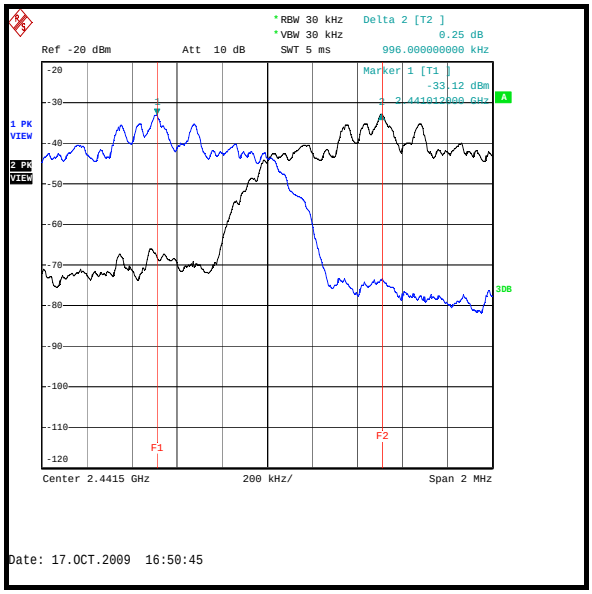
Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
996	628	368	Complied



Transmitter Carrier Frequency Separation (continued)

Results: 2DH5

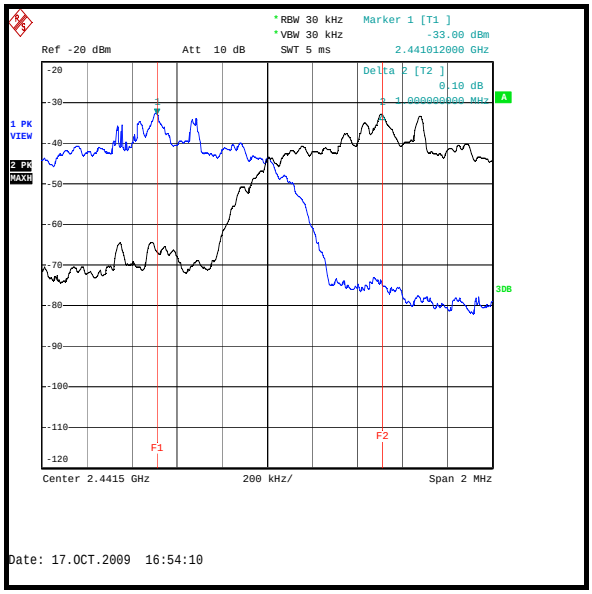
Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
996	864	132	Complied



Transmitter Carrier Frequency Separation (continued)

Results: 3DH5

Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1000	876	124	Complied



5.2.6. Transmitter Average Time of Occupancy

Test Summary:

FCC Part:	15.247(a)(1)(iii)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000)

Environmental Conditions:

Temperature (°C):	22
Relative Humidity (%):	67

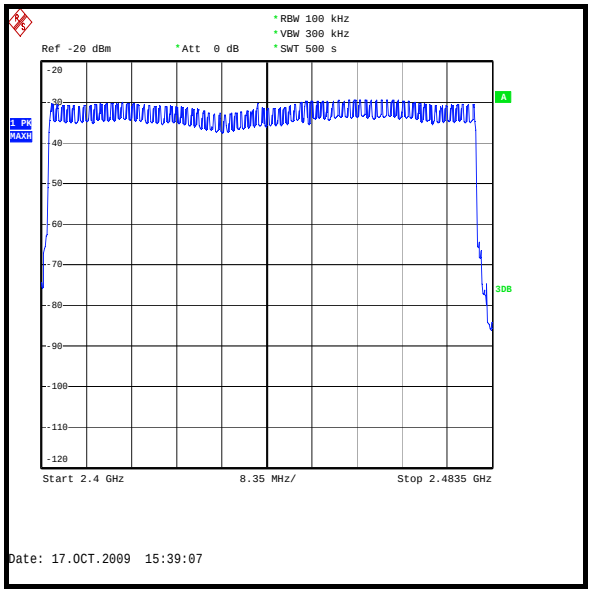
Results:

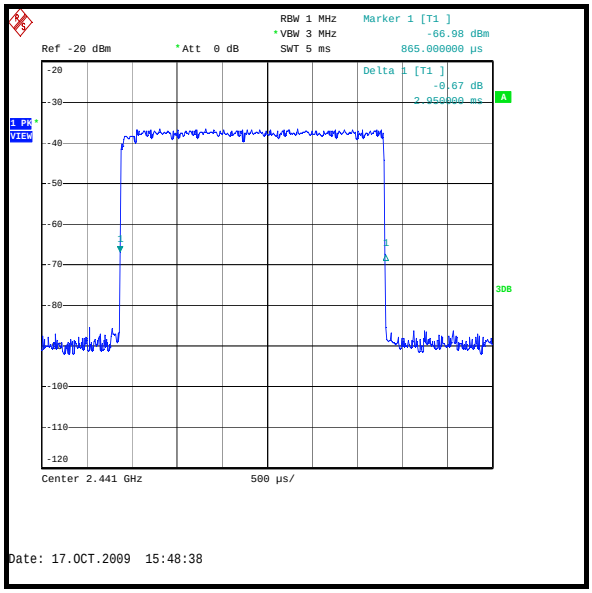
Emission Width (μs)	Number of Hops in 31.6 Seconds	Average Time of Occupancy (s)	Limit (s)	Margin (s)	Result
2950	61	0.17995	0.4	0.22005	Complied

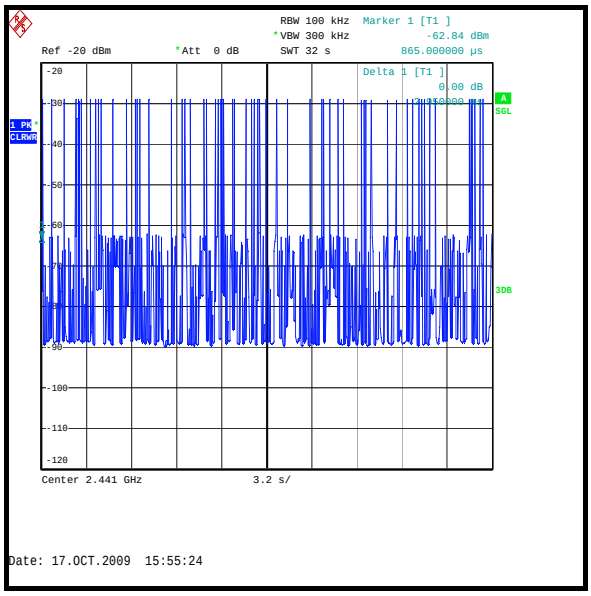
Note(s):

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 Average Time of Occupancy (continued)







5.2.7. Transmitter Maximum Peak Output Power (EIRP)

Test Summary:

FCC Part:	15.247(b)(3)
Test Method Used:	As detailed in Public Notice DA 00-705 (March 30, 2000), ANSI TIA-603-C-2004 and FCC CFR Part 2

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	30

Results: DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	7.0	30.0	23.0	Complied
Middle	4.7	30.0	25.3	Complied
Top	5.1	30.0	24.9	Complied

Results: 2DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5.2	21.0	15.8	Complied
Middle	2.9	21.0	18.1	Complied
Top	3.2	21.0	17.8	Complied

Results: 3DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5.4	21.0	15.6	Complied
Middle	2.9	21.0	18.1	Complied
Top	3.5	21.0	17.5	Complied

Note(s):

1. These tests were performed radiated; therefore the EUT antenna gain is encompassed in the final result and not measurable.

5.2.8. Transmitter Radiated Emissions

Test Summary:

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)
Frequency Range	30 MHz to 1000 MHz

Environmental Conditions:

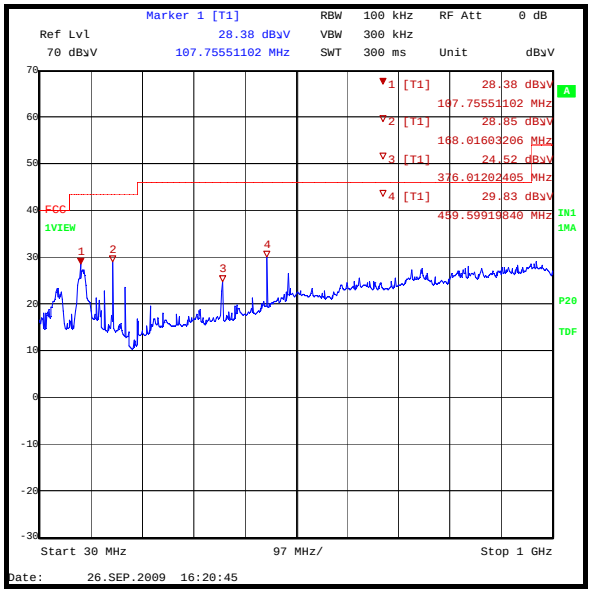
Temperature (°C):	26
Relative Humidity (%):	28

Results: DH5 Top Channel

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
107.598	Vertical	28.2	43.5	15.3	Complied
167.966	Horizontal	29.0	43.5	14.5	Complied
192.009	Horizontal	23.2	43.5	20.3	Complied
377.645	Horizontal	21.8	46.0	24.2	Complied
458.759	Vertical	26.9	46.0	19.1	Complied

Note(s):

1. 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.



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

5.2.9. Transmitter Radiated Emissions

Test Summary:

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)
Frequency Range	1 GHz to 26.5 GHz

Environmental Conditions:

Temperature (°C):	26
Relative Humidity (%):	28

Results: Highest Peak Level DH5 Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1.654	Vertical	53.0	-3.1	49.9	74.0	24.1	Complied
4.805	Vertical	54.4	-1.8	52.6	74.0	21.4	Complied

Results: Highest Average Level DH5 Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1.654	Vertical	42.8	-3.1	45.9	54.0	8.1	Complied
4.804	Vertical	46.4	-1.8	44.6	54.0	9.4	Complied

Results: Highest Peak Level DH5 Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1.654	Vertical	53.2	-3.1	50.1	74.0	23.9	Complied
4.882	Vertical	56.8	-1.3	55.5	74.0	18.5	Complied

Results: Highest Average Level DH5 Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
1.654	Vertical	50.6	-3.1	47.5	54.0	6.5	Complied
4.882	Vertical	33.3	-1.8	31.5	54.0	22.5	Complied

Transmitter Radiated Emissions (continued)

Results: Highest Peak Level DH5 Top Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.653	Vertical	53.0	-3.1	49.9	74.0	24.1	Complied
4.960	Horizontal	58.9	-1.4	57.5	74.0	16.5	Complied

Results: Highest Average Level DH5 Top Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.654	Vertical	50.4	-3.1	47.3	54.0	6.7	Complied
4.960	Horizontal	42.6	-1.4	41.2	54.0	12.8	Complied

Results: Highest Peak Level DH5 Hopping Mode

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.623	Vertical	53.3	-3.1	50.2	74.0	23.8	Complied
4.931	Vertical	56.3	-1.3	55.0	74.0	19.0	Complied

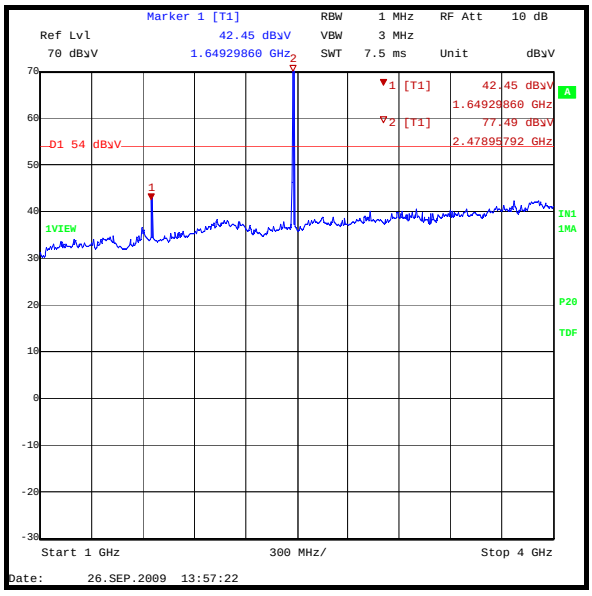
Results: Highest Average Level DH5 Hopping Mode

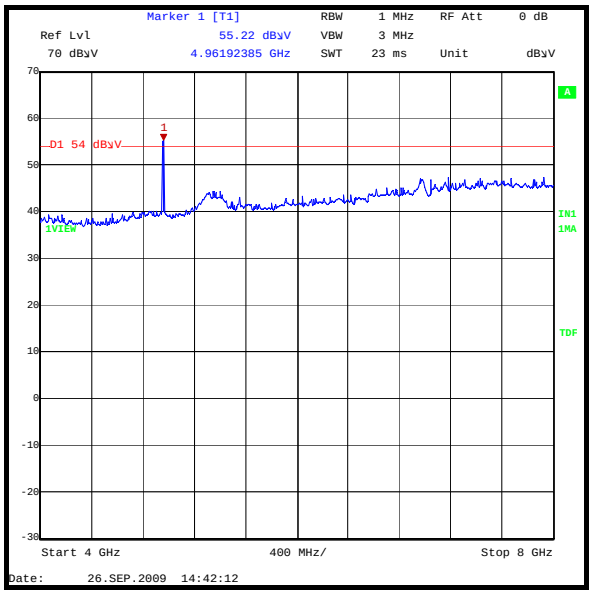
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
1.610	Vertical	50.8	-3.1	47.7	54.0	6.3	Complied
4.812	Vertical	44.7	-1.7	43.0	54.0	11.0	Complied

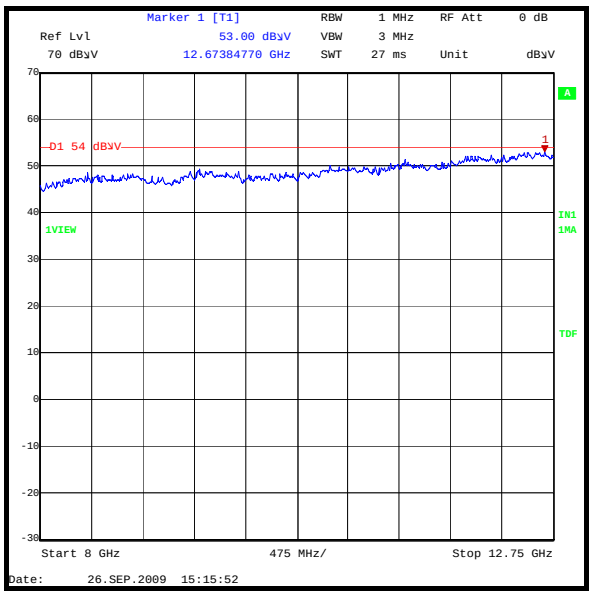
Note(s):

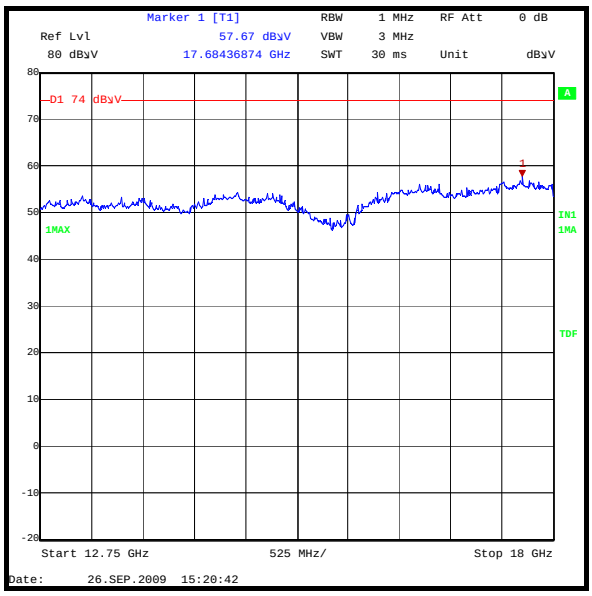
1. All pre-scans were performed with a peak detector against average limits apart from measurements made in the range of 12.75 to 18 GHz where pre-scans were performed with peak and average detectors and the applicable limit applied. This was due to the noise floor exceeding the average limit when using a peak detector.
2. The emission shown at approximately 2.478 GHz on the 1 to 4 GHz plot is the carrier.

Transmitter Radiated Emissions (continued)



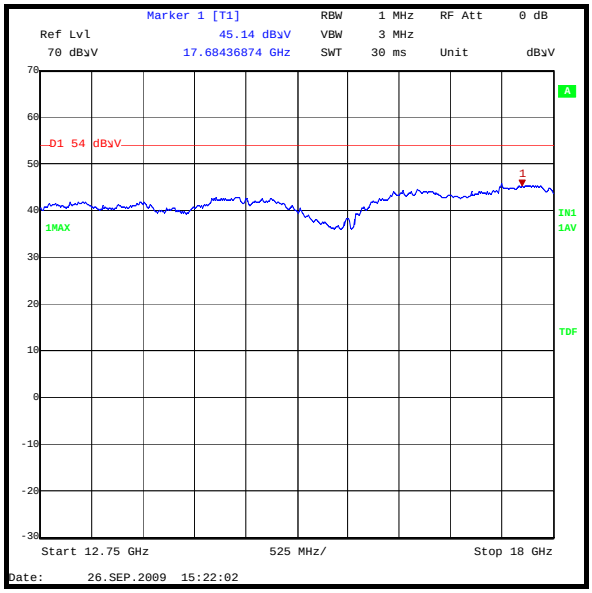


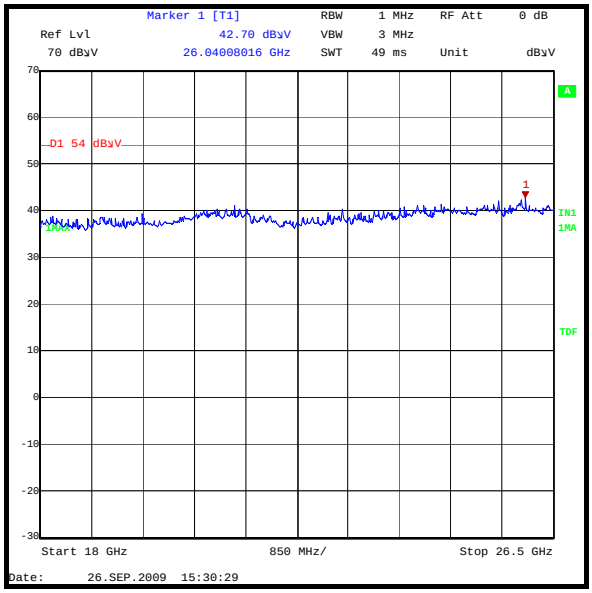




Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Transmitter Radiated Emissions (continued)





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

5.2.10. Transmitter Band Edge Radiated Emissions

Test Summary:

FCC Part:	15.247(d) & 15.209(a)
Test Method Used:	As detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000)

Environmental Conditions:

Temperature (°C):	28
Relative Humidity (%):	67

Results: Peak Power Level Hopping Mode DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Vertical	57.7	-0.2	57.5	*80.9	23.4	Complied
2.4835	Vertical	64.1	-0.3	63.8	74.0	10.2	Complied

Results: Average Power Level Hopping Mode DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	Vertical	38.9	-0.3	38.6	54.0	15.4	Complied

Results: Peak Power Level Hopping Mode 2DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Vertical	53.4	-0.2	53.2	*79.0	25.8	Complied
2.4835	Vertical	61.4	-0.3	61.1	74.0	12.9	Complied

Results: Average Power Level Hopping Mode 2DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	Vertical	35.2	-0.3	34.9	54.0	9.1	Complied

Results: Peak Power Level Hopping Mode 3DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Vertical	52.9	-0.3	52.6	*80.2	27.6	Complied
2.4835	Vertical	62.6	-0.3	62.3	74.0	13.7	Complied

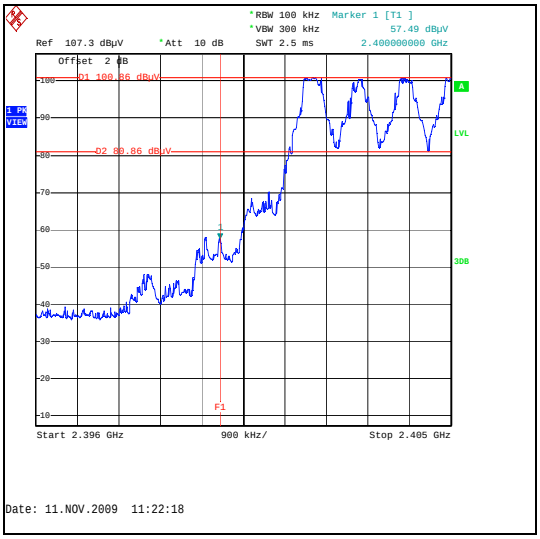
Results: Average Power Level Hopping Mode 3DH5

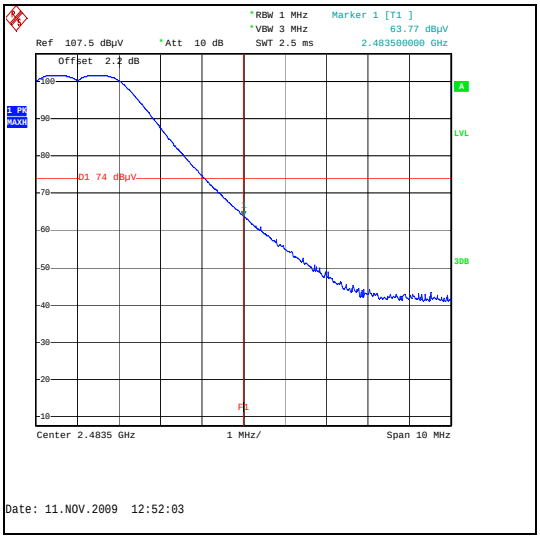
Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4835	Vertical	37.6	-0.3	37.3	54.0	16.7	Complied

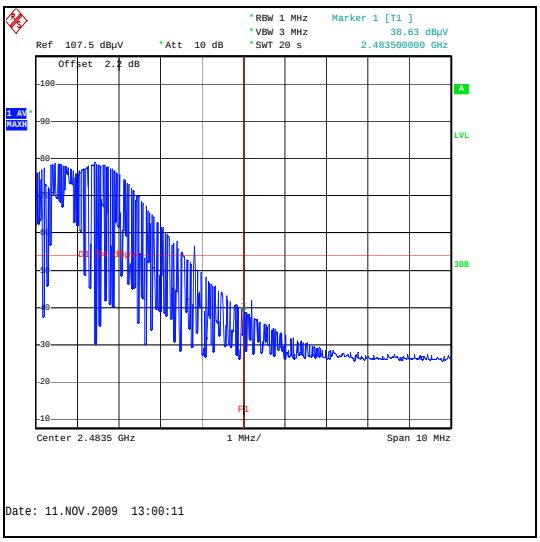
Note(s):

1. * -20 dBc limit

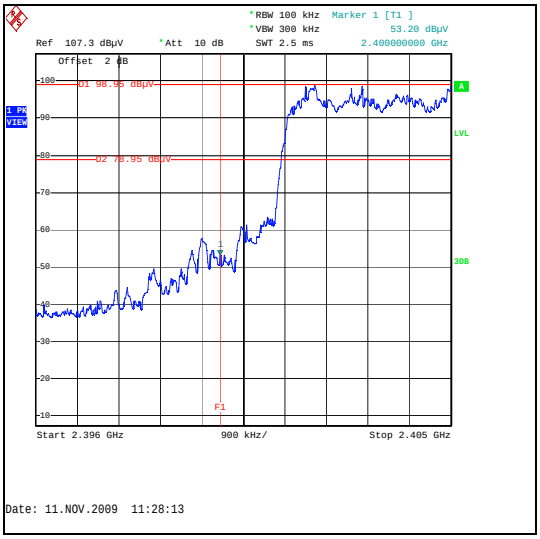
Transmitter Band Edge Radiated Emissions: DH5 (continued)

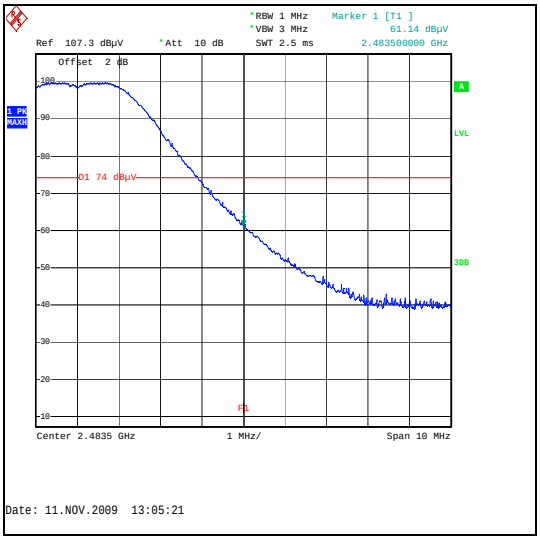


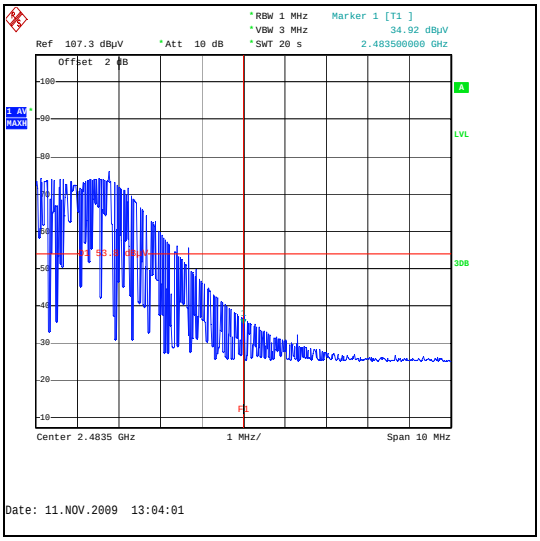




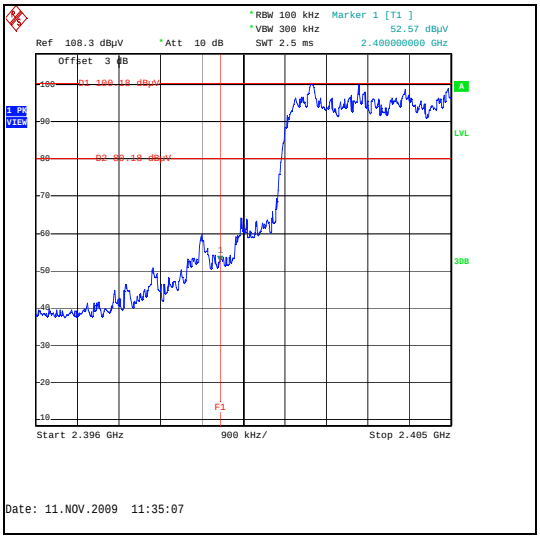
Transmitter Band Edge Radiated Emissions: 2H5 (continued)

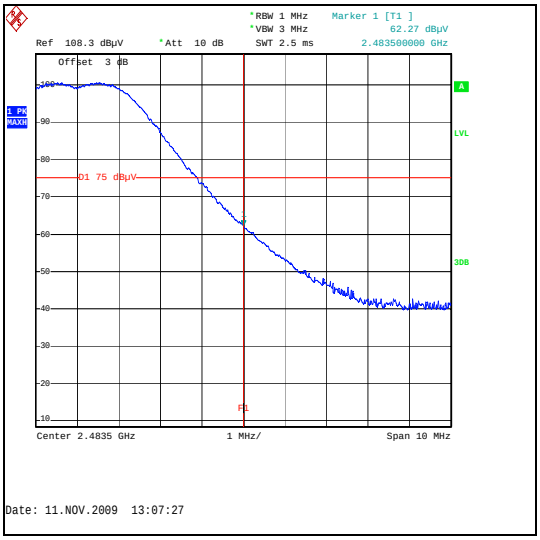


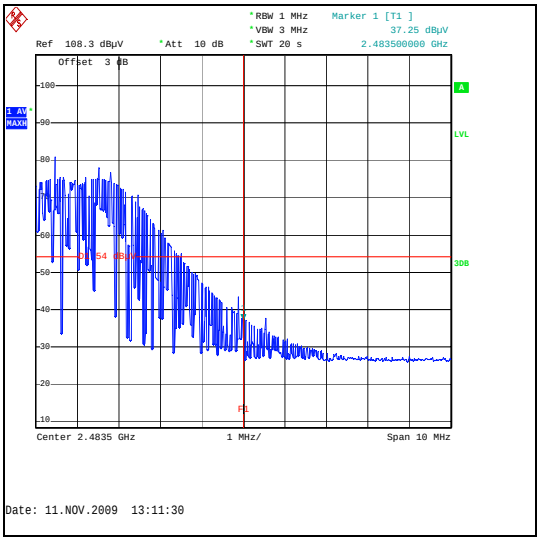




Transmitter Band Edge Radiated Emissions: 3DH5 (continued)







Transmitter Band Edge Radiated Emissions (continued)

Results: Peak Power Level Static Mode DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4000	Vertical	61.1	-0.2	60.9	*81.6	20.7	Complied
2.4835	Vertical	64.5	-0.3	64.2	74.0	9.8	Complied

Results: Average Power Level Static Mode DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4835	Vertical	53.0	-0.3	52.7	54.0	1.3	Complied

Results: Peak Power Level Static Mode 2DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4000	Vertical	52.9	-0.2	52.7	*79.6	26.7	Complied
2.4835	Vertical	62.6	-0.3	62.2	74.0	11.8	Complied

Results: Average Power Level Static Mode 2DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4835	Vertical	50.9	-0.3	50.6	54.0	3.4	Complied

Results: Peak Power Level Static Mode 3DH5

Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4000	Vertical	54.1	-0.2	53.9	*80.5	26.6	Complied
2.4835	Vertical	63.1	-0.3	62.8	74.0	11.2	Complied

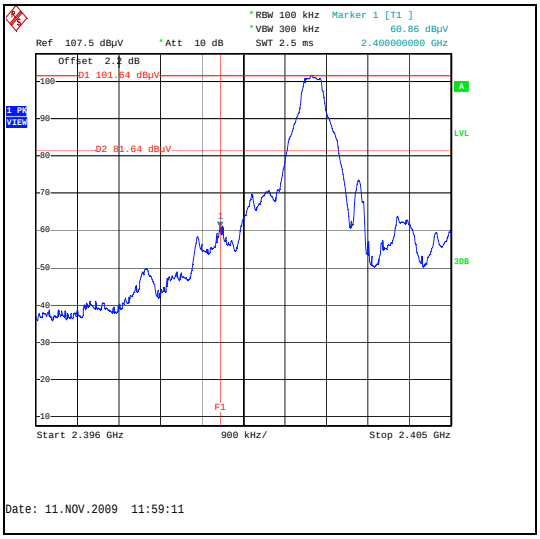
Results: Average Power Level Static Mode 3DH5

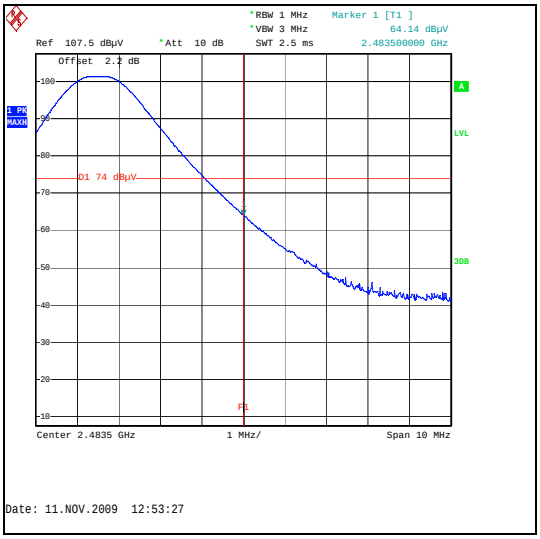
Frequency (MHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
2.4835	Vertical	51.4	-0.3	51.1	54.0	2.9	Complied

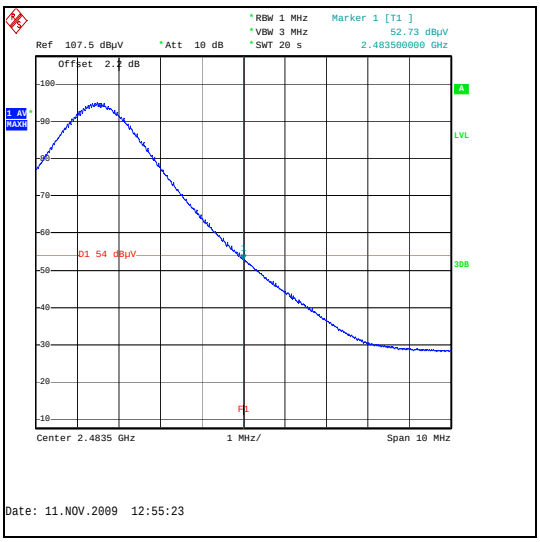
ote(s):

1. * -20 dBc limit

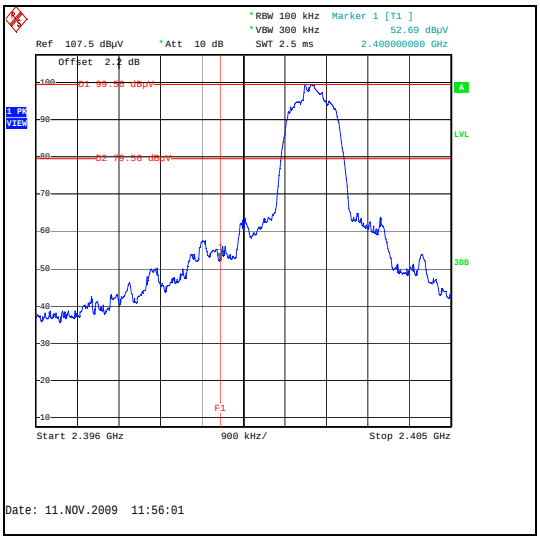
Transmitter Band Edge Radiated Emissions: DH5 (continued)

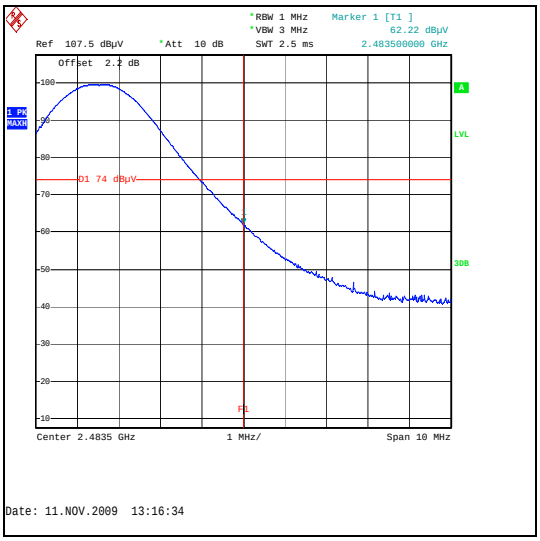


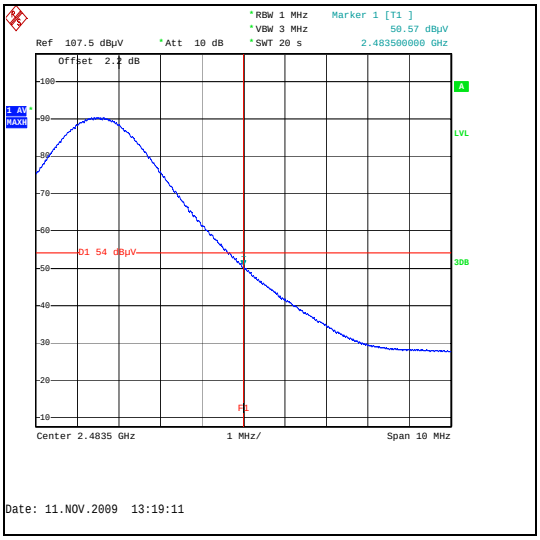




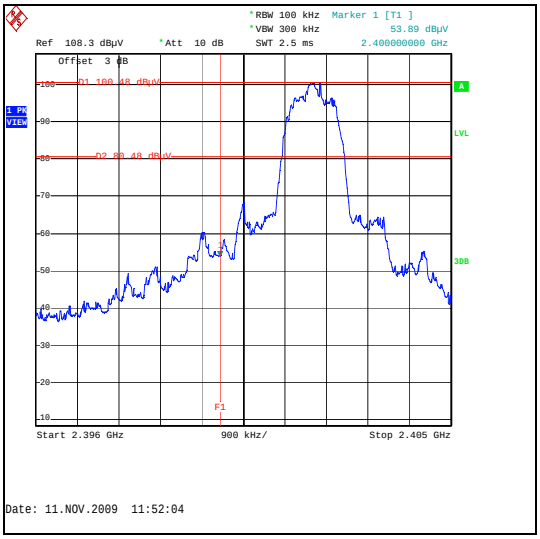
Transmitter Band Edge Radiated Emissions: 2DH5 (continued)

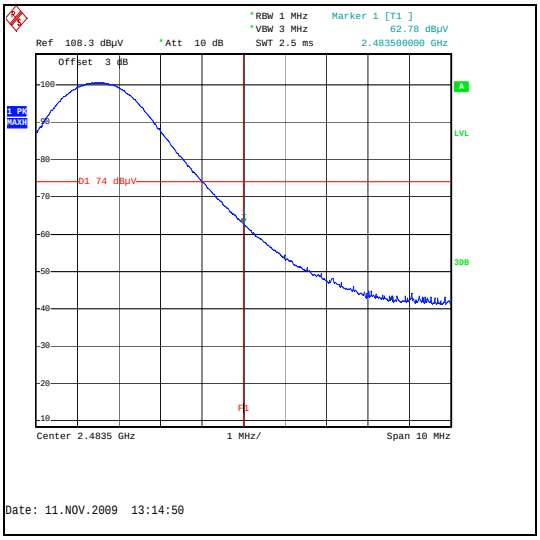


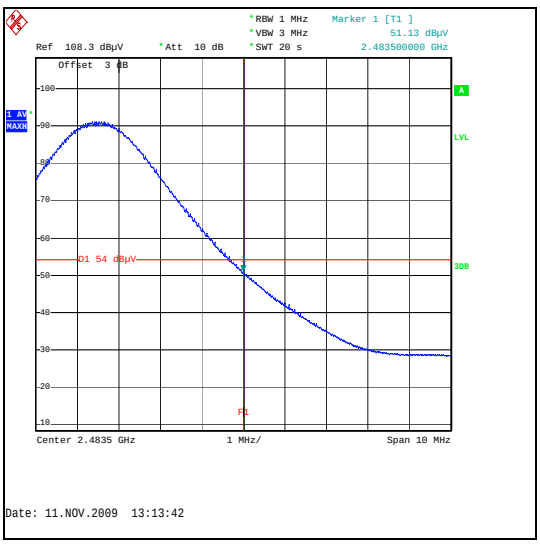




Transmitter Band Edge Radiated Emissions: 3DH5 (continued)







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 Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.72 dB
Transmitter Maximum Peak Output Power	Not Applicable	95%	±2.94 dB
Transmitter Carrier Frequency Separation	Not Applicable	95%	±0.92 ppm
Transmitter Average Time of Occupancy	Not Applicable	95%	±0.3 ns
20 dB Bandwidth	Not Applicable	95%	±11.4 ppm
Radiated Spurious Emissions	30 MHz to 40 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 Last Calibrated	Cal. Interval (Months)
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2009	12
A1830	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100668	05 Jan 2009	12
A288	Antenna	Chase	CBL6111A	1589	13 Mar 2009	12
A649	Single Phase LISN	Rohde & Schwarz	ESH3-Z5	825562/008	19 Mar 2009	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	01 Sep 2009	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	09 Mar 2009	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	22 Apr 2009	12
M1448	Spectrum Analyser	Rohde & Schwarz	FSP	100323	19 Jan 2009	12

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