TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Sennheiser Communications A/S MM450

To: FCC Part 15.247: 2008 (Subpart C)
RSS-210 Issue 7 June 2007 and RSS-Gen Issue 2 June 2007

Test Report Serial No:
RFI/RPT2/RP73101JD14A

Supersedes Test Report Serial No:
RFI/RPT1/RP73101JD14A

This Test Report Is Issued Under The Authority Of Brian Watson, Operations Director: 	
Checked By: 	**Report Copy No: PDF01**
Issue Date: 24 March 2009	**Test Dates: 15 December 2008 to 21 January 2009**

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1. Customer Information

Company Name:	Sennheiser Communications A/S
Address:	6 Langager Solrod Strand Denmark 2680

2. Equipment Under Test (EUT)

2.1. Identification of Equipment Under Test (EUT)

Brand Name:	Sennheiser
Model Name or Number:	MM450
Serial Number:	pcba 265 / ID NR. 3
Hardware Version:	V4RB
Software Version:	V0018
FCC ID:	DMOCBSSAB
IC Number:	2099D - MMBTX

Description:	Audio cable
Brand Name:	Sennheiser
Model Name or Number:	Not stated
Serial Number:	Not stated

Description:	USB / charge cable
Brand Name:	Sennheiser
Model Name or Number:	Not stated
Serial Number:	Not stated

2.2. Description of EUT

The equipment under test was a *Bluetooth* headset.

2.3. Modifications Incorporated in the EUT

The unit has been configured by the customer to enter *Bluetooth* test mode when powered on.

2.4. Support Equipment

No support equipment was used to exercise the EUT during testing:

2.5. Additional Information Related to Testing

Power Supply Requirement:	Internal battery supply of 3.7 V		
Equipment Category:	*Bluetooth*		
Type of Unit:	Portable 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:	5.9 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. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	FCC Part 15.247: 2008 Subpart C
Title:	Code of Federal Regulations, Part 15.247 (47CFR15) (Intentional Radiators operating within the band 2400 MHz to 2483.5 MHz)

Reference:	RSS-210 Issue 7 June 2007
Title:	Low-power Licence-exempt Radio communication Devices (All Frequency Bands): Category I Equipment.

Reference:	RSS-Gen Issue 2 June 2007
Title:	General Requirements and Information for the Certification of Radio communication Equipment.

3.2. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI C63.2 (1996)
Title: American National Standard for Instrumentation - Electromagnetic Noise and Field Strength Instrumentation, 10 Hz to 40 GHz.

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.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16-1: (1999)
Title: Specification For Radio Disturbance and Immunity Measuring Apparatus and Methods. Part 1: Radio Disturbance and Immunity Measuring Apparatus.

DA00-705 (2000)
Title: Filing and Frequency Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation and Configuration of the EUT during Testing

5.1. Operating Modes

The EUT was tested in the following operating modes, unless otherwise stated:

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

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

- For Transmit tests: Standalone, connected via a radio link to a Bluetooth Tester to provide a test mode and normal mode of operation for the sample.
- For Receive/Idle mode tests: 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 worse case result. For output power, bandwidth, band edge and channel separation, all modes were tested.
- Receiver/idle and transmitter radiated spurious emissions tests were performed with the mains charger connected to the EUT via the USB/charge cable and 120VAC supply as this was found to be the worst case during prescans.
- The supplied audio cable was connected for all tests.

6. Summary of Test Results

Range of Measurements	FCC Part 15 Reference	ICC RSS Reference	Port Type	Result
Idle Mode AC Conducted Emissions	Section 15.107	RSS-Gen 7.2.2	AC Mains	Complied
Idle Mode Radiated Spurious Emissions	Section 15.109	RSS-Gen 4.10 RSS-Gen 6.0	Antenna	Complied
Transmitter AC Conducted Emissions	Section 15.207	RSS-Gen 7.2.2	AC Mains	Complied
Transmitter 20 dB Bandwidth	Section 15.247(a)(1)	RSS-210 A8.1(b)	Antenna	Complied
Transmitter Carrier Frequency Separation	Section 15.247(a)(1)	RSS-210 A8.1(b)	Antenna	Complied
Transmitter Average Time of Occupancy	Section 15.247(a)(1)(iii)	RSS-210 A8.1(d)	Antenna	Complied
Transmitter Maximum Peak Output Power	Section 15.247(b)(1)	RSS-210 A8.4(2)	Antenna	Complied
Transmitter Radiated Emissions	Sections 15.247(d) & 15.209(a)	RSS-Gen 2.2 RSS-Gen 4.9 RSS-210 A8.5	Antenna	Complied
Transmitter Band Edge Radiated Emissions	Sections 15.247(d) & 15.209(a)	RSS-Gen 2.2 RSS-Gen 4.9 RSS-210 A8.5	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.

6.2. Site Registration Numbers

FCC: 209735

IC: 3245B-2

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

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 8 for details of measurement uncertainties.

7.2. Test Results

7.2.1. Idle Mode Conducted Emissions - Quasi-Peak Detector Measurements

Ambient Temperature: 25ºC Relative Humidity: 31%

Tests were performed to identify the maximum emission levels present on the AC mains line of the EUT.

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.154500	Live	28.7	65.8	37.1	Complied
0.186000	Live	26.7	64.2	37.5	Complied
0.208500	Live	24.9	63.3	38.4	Complied
0.550500	Live	18.8	56.0	37.2	Complied
0.582000	Live	24.3	56.0	31.7	Complied
13.150500	Live	10.1	60.0	49.9	Complied
13.159500	Live	10.1	60.0	49.9	Complied
13.173000	Live	10.1	60.0	49.9	Complied
28.590000	Neutral	11.4	60.0	48.6	Complied
28.684500	Neutral	19.9	60.0	40.1	Complied

7.2.2. Idle Mode Conducted Emissions - Average Detector Measurements

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.429000	Live	13.4	47.3	33.9	Complied
0.487500	Live	17.1	46.2	29.1	Complied
0.501000	Live	16.9	46.0	29.1	Complied
0.582000	Live	20.7	46.0	25.3	Complied
27.159000	Live	16.8	50.0	33.2	Complied
28.320000	Neutral	11.0	50.0	39.0	Complied
28.441500	Live	14.4	50.0	35.6	Complied
28.563000	Neutral	13.3	50.0	36.7	Complied
28.626000	Neutral	12.2	50.0	37.8	Complied
28.684500	Live	17.7	50.0	32.3	Complied

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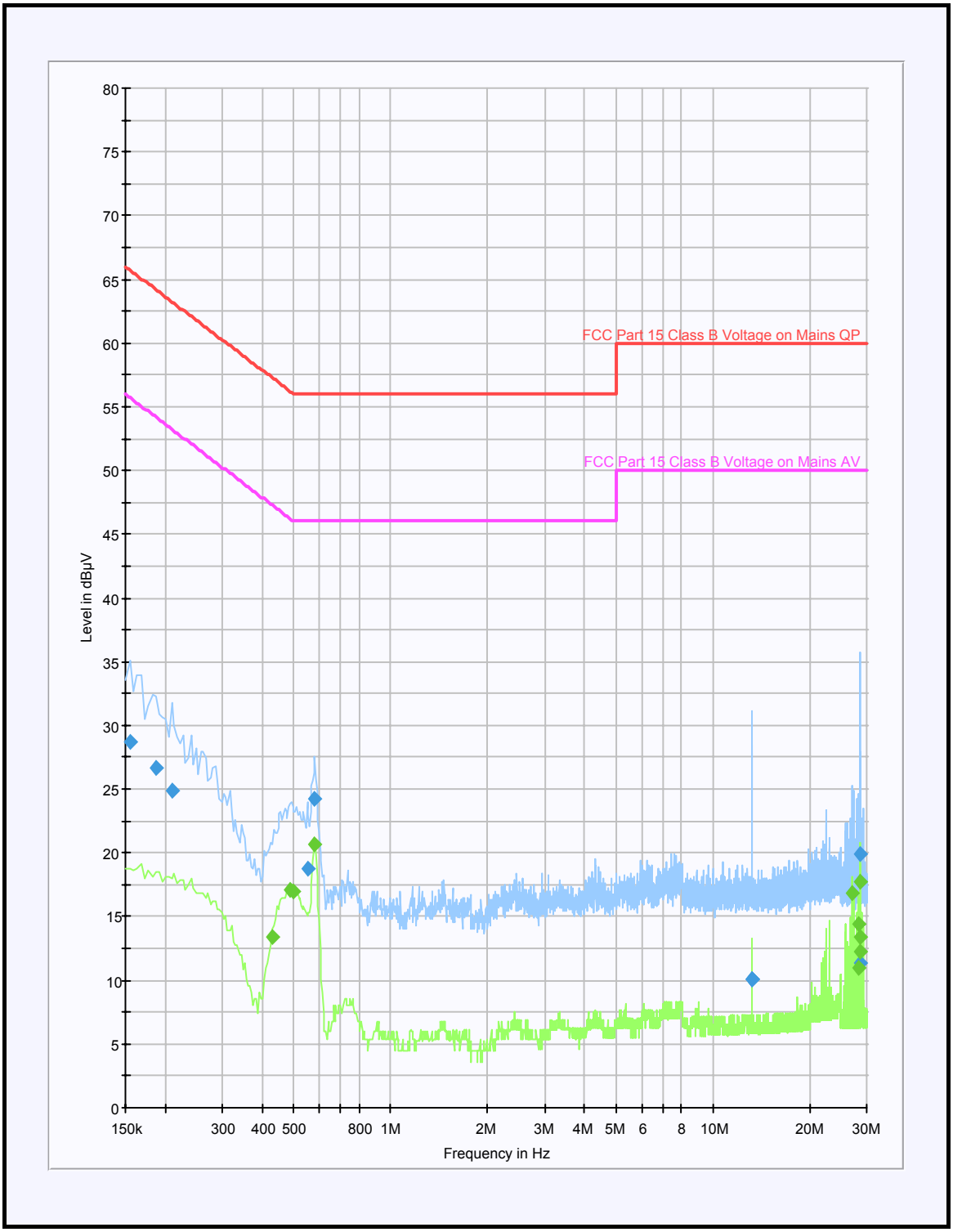
Idle Mode Conducted Emissions (Continued)



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

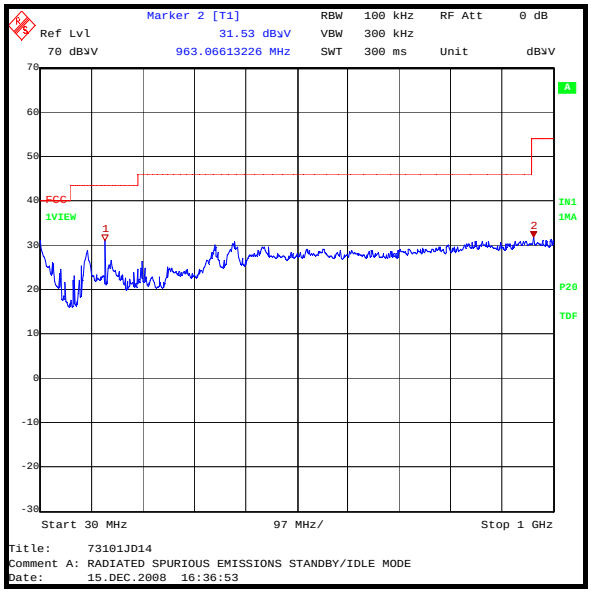
7.2.3. Idle Mode Radiated Spurious Emissions

Ambient Temperature: 23ºC Relative Humidity: 27%

Tests were performed to identify the maximum receiver or standby radiated emission levels.

Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
153.295	Horizontal	24.4	43.5	19.1	Complied



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

7.2.4. Idle Mode Radiated Spurious Emissions (Continued)

Electric Field Strength Measurements (Frequency Range: 1 GHz to 12.75 GHz)

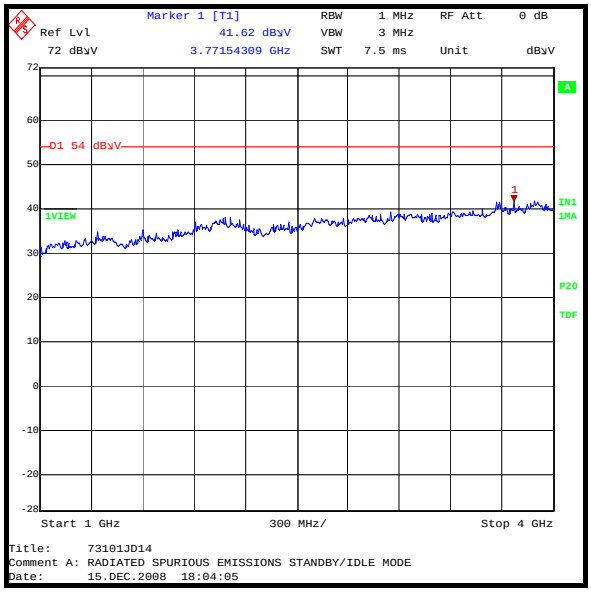
Highest Peak Level:

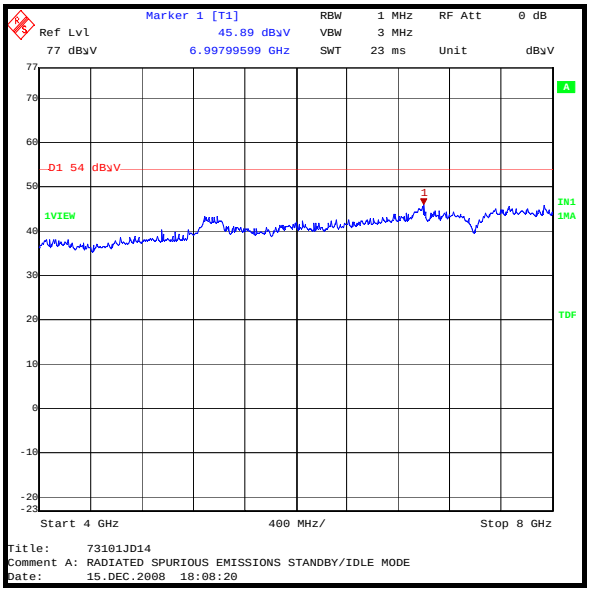
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
12.673	Vertical	38.5	13.0	51.5	54.0	2.5	Complied

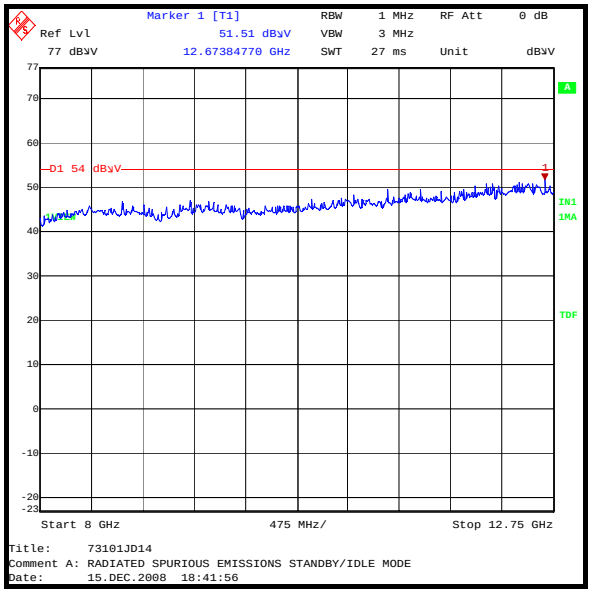
Note(s):

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 tables.

7.2.5. Transmitter AC Conducted Spurious Emissions

Ambient Temperature: 25ºC Relative Humidity: 31%

Tests were performed to identify the maximum emission levels present on the AC mains line of the EUT.

Quasi-Peak Detector Measurements on Live and Neutral Lines

Top Channel

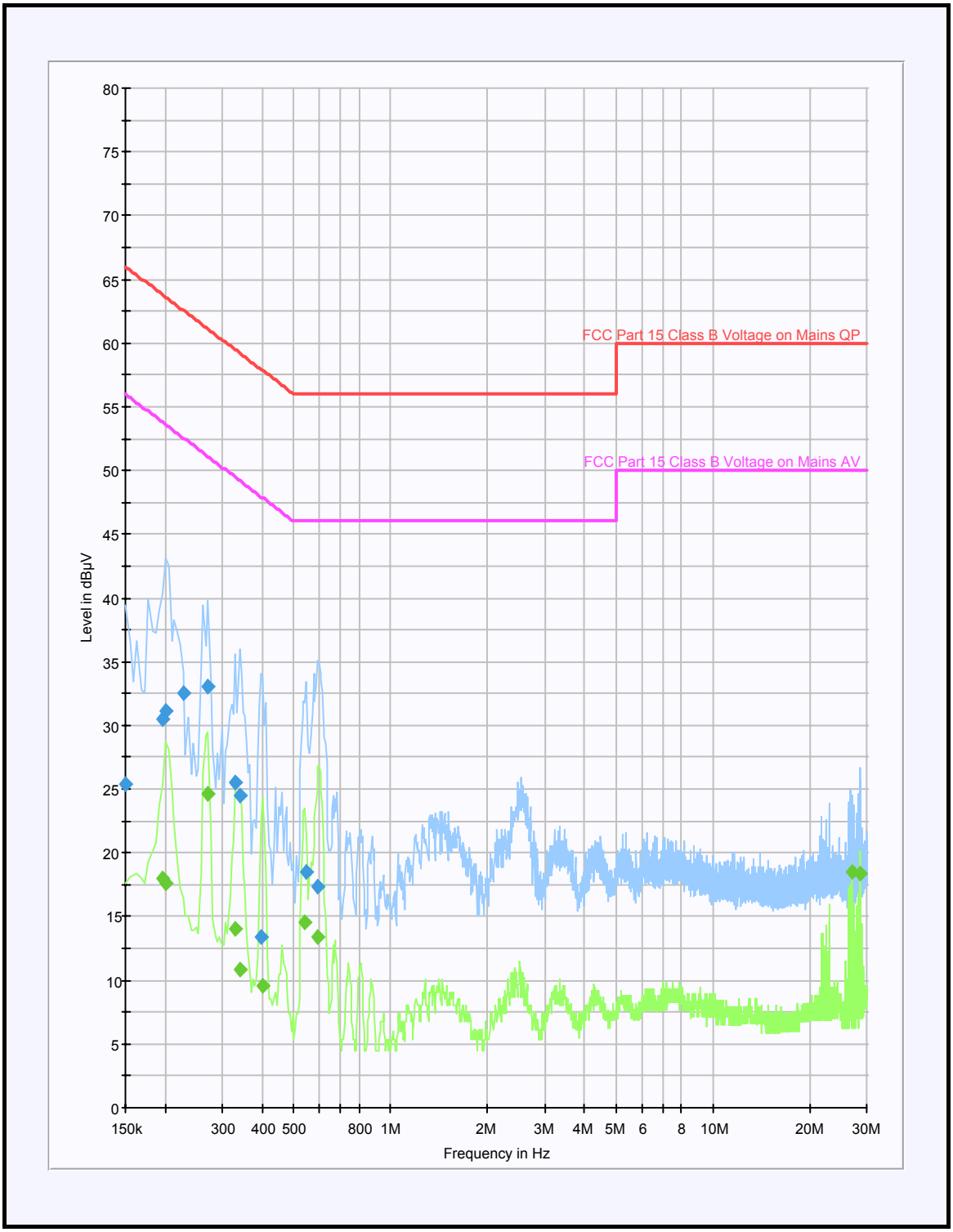
Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.150000	Live	25.4	66.0	40.6	Complied
0.195000	Live	30.5	63.8	33.3	Complied
0.199500	Live	31.2	63.6	32.4	Complied
0.226500	Live	32.6	62.6	30.0	Complied
0.271500	Live	33.0	61.1	28.1	Complied
0.330000	Live	25.6	59.5	33.9	Complied
0.339000	Live	24.5	59.2	34.7	Complied
0.397500	Live	13.4	57.9	44.5	Complied
0.546000	Live	18.4	56.0	37.6	Complied
0.595500	Live	17.3	56.0	38.7	Complied

Average Detector Measurements on Live and Neutral Lines

Top Channel

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Result
0.195000	Live	18.0	53.8	35.8	Complied
0.199500	Live	17.6	53.6	36.0	Complied
0.271500	Live	24.6	51.1	26.5	Complied
0.330000	Live	14.0	49.5	35.5	Complied
0.339000	Live	10.9	49.2	38.3	Complied
0.402000	Live	9.6	47.8	38.2	Complied
0.541500	Live	14.6	46.0	31.4	Complied
0.595500	Live	13.4	46.0	32.6	Complied
27.159000	Live	18.5	50.0	31.5	Complied
28.684500	Live	18.4	50.0	31.6	Complied

Transmitter AC Conducted Spurious Emissions (Continued)



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

7.2.6. Transmitter 20 dB Bandwidth

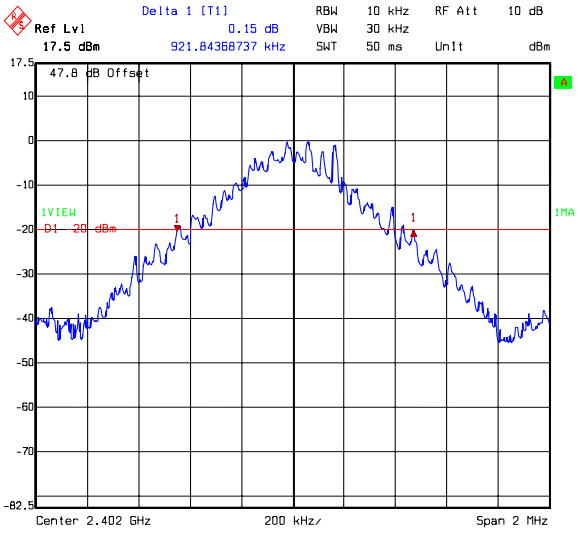
Ambient Temperature: 22ºC to 23 ºC Relative Humidity: 28% to 26%

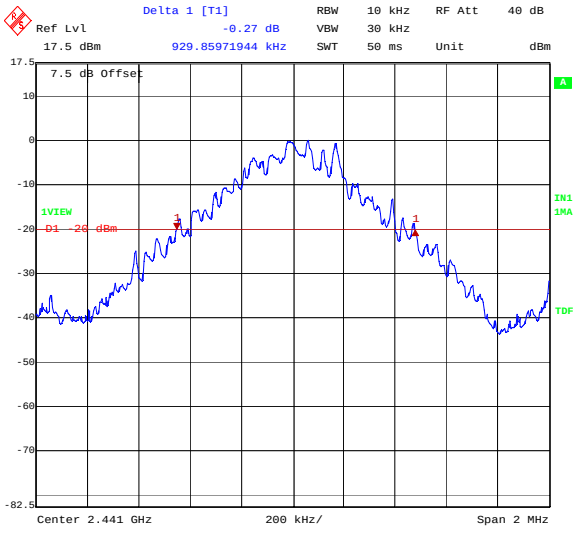
Tests were performed to identify the 20 dB bandwidth.

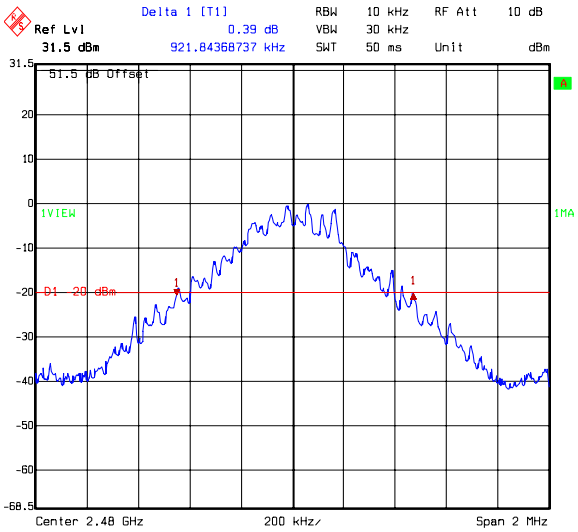
Results: DH5

Channel	Transmitter 20 dB Bandwidth DH5 (kHz)	Limit (kHz)
Bottom	921.844	None specified
Middle	929.860	None specified
Top	921.844	None specified

Transmitter 20 dB Bandwidth (continued)





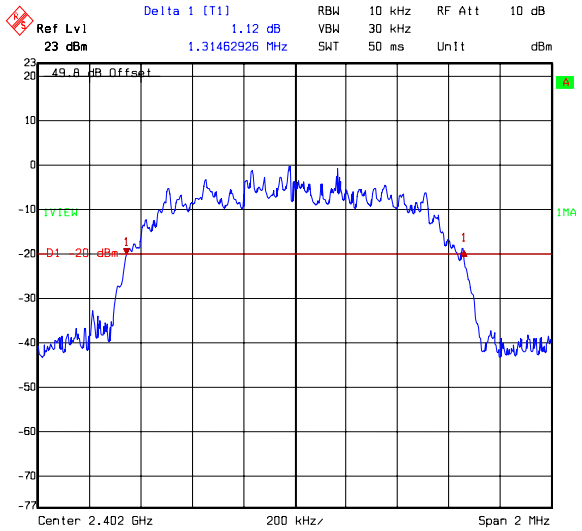


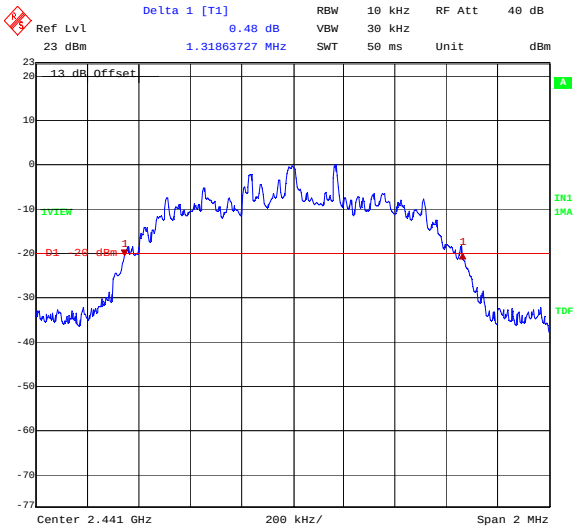
Transmitter 20 dB Bandwidth (continued)

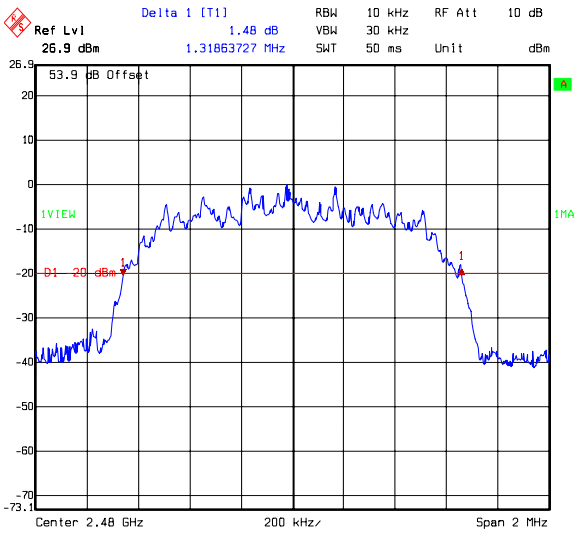
Results 2DH5:

Channel	Transmitter 20 dB Bandwidth 2DH5 (kHz)	Limit (kHz)
Bottom	1314.629	None specified
Middle	1318.637	None specified
Top	1318.637	None specified

Transmitter 20 dB Bandwidth (continued)





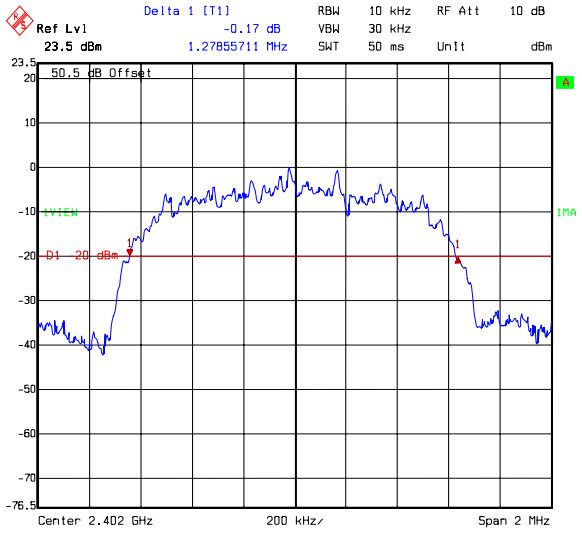


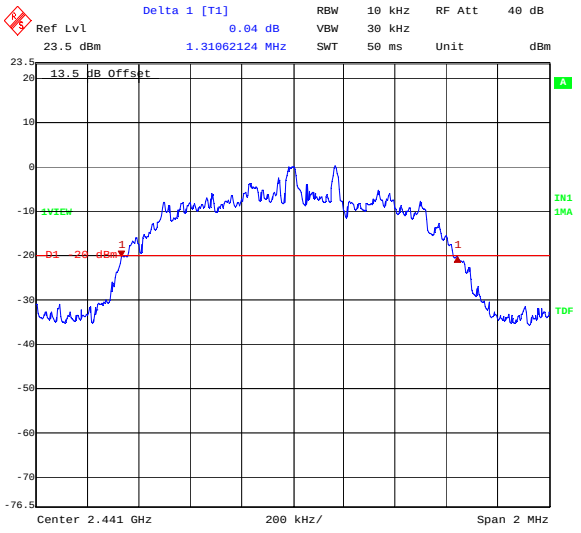
Transmitter 20 dB Bandwidth (continued)

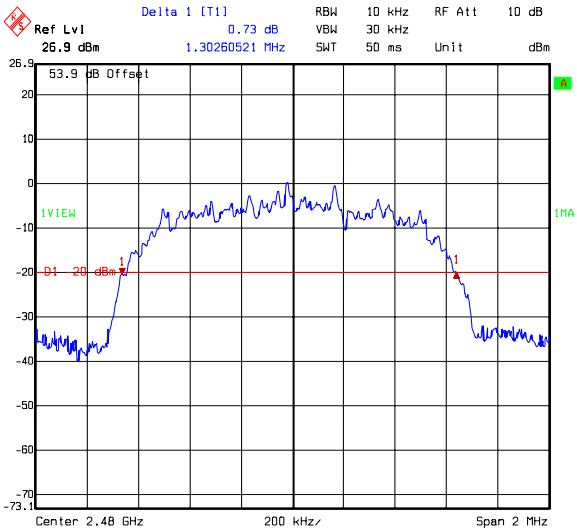
Results 3DH5:

Channel	Transmitter 20 dB Bandwidth 3DH5 (kHz)	Limit (kHz)
Bottom	1278.557	None specified
Middle	1310.621	None specified
Top	1302.605	None specified

Transmitter 20 dB Bandwidth (continued)







7.2.7. Transmitter Carrier Frequency Separation

Ambient Temperature: 22ºC Relative Humidity: 28%

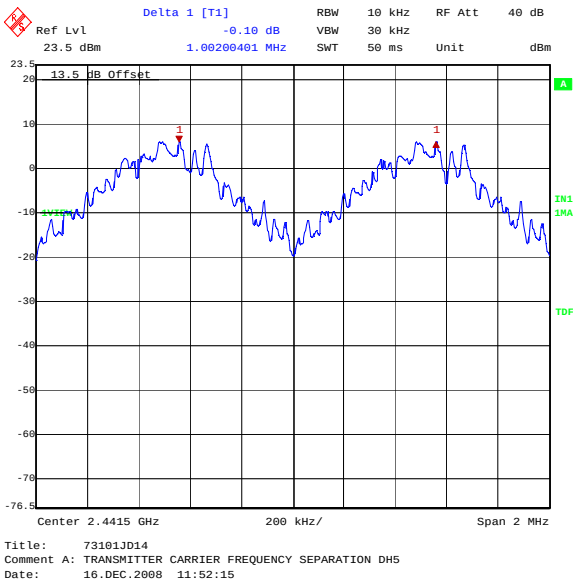
Tests were performed to identify the carrier frequency separation.

Results DH5:

Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Result
1002.004	619.907	382.097	Complied

Note(s):

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



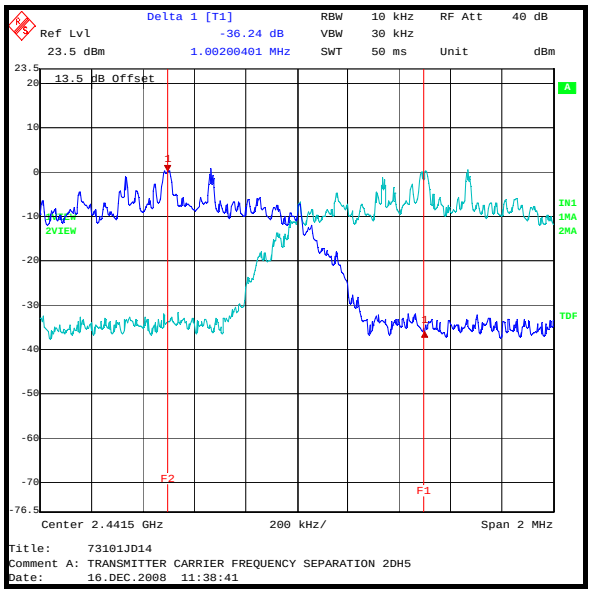
7.2.8. Transmitter Carrier Frequency Separation (continued)

Results 2DH5:

Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Note(s)
1002.200	879.091	123.109	Complied

Note(s):

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



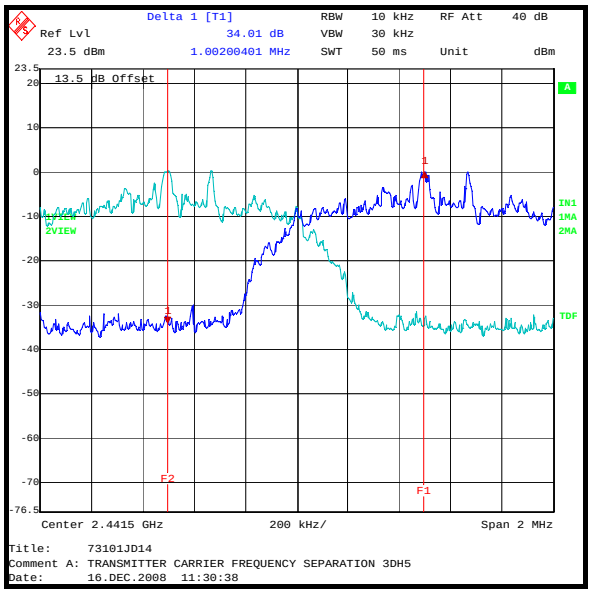
7.2.9. Transmitter Carrier Frequency Separation (continued)

Results 3DH5:

Transmitter Carrier Frequency Separation (kHz)	Limit ($^2/_3$ of 20 dB BW) (kHz)	Margin (kHz)	Note(s)
1002.004	873.747	128.257	Complied

Note(s):

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



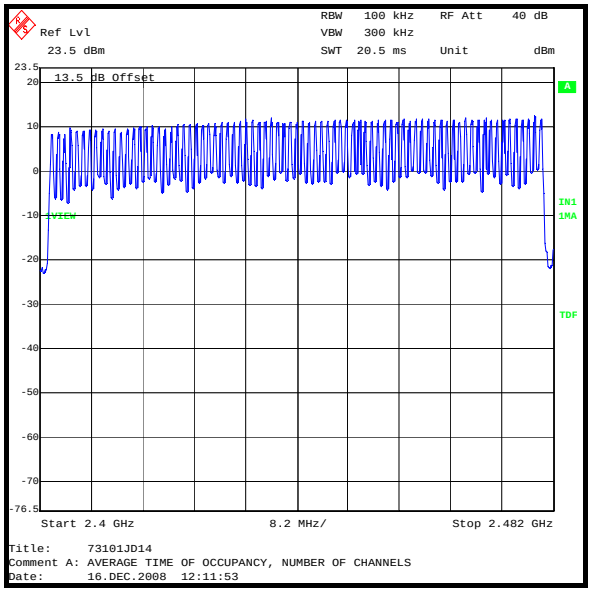
7.2.10. Transmitter Average Time of Occupancy

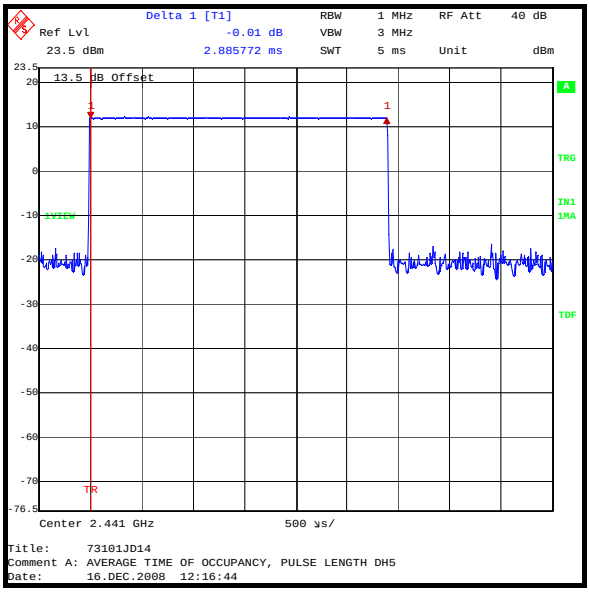
Ambient Temperature: 22ºC Relative Humidity: 28%

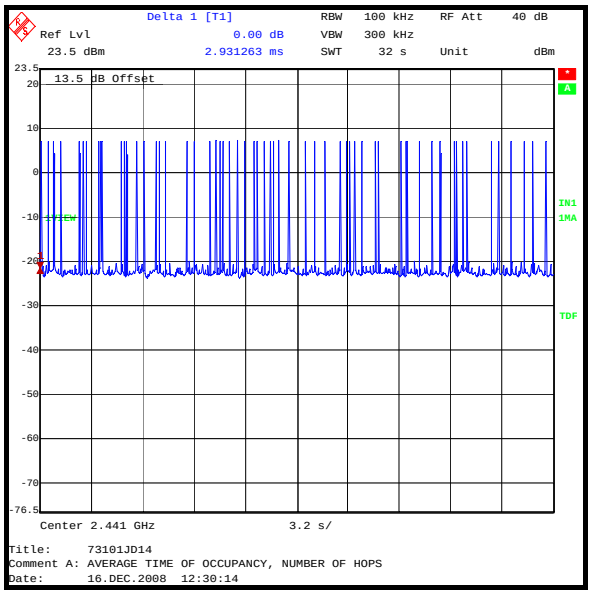
Tests were performed to identify the average time of occupancy in number of channels (79) x 0.4 seconds. The calculated period is 31.6 seconds.

Results:

Emission Width (µs)	Number of Hops in 31.6 Seconds	Average Time of Occupancy (s)	Limit (s)	Margin (s)	Result
2885.8	58	0.167	0.4	0.233	Complied







7.2.11. Transmitter Maximum Peak Output Power: (EIRP)

Ambient Temperature: 23ºC Relative Humidity: 27%

Tests were performed to identify the transmitter maximum peak output power (EIRP) of the EUT.

Results:

Basic Rate DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note(s)
Bottom	4.2	30.0	25.8	Complied
Middle	4.4	30.0	25.6	Complied
Top	5.9	30.0	24.1	Complied

EDR 2DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note(s)
Bottom	-0.2	30.0	30.2	Complied
Middle	1.1	30.0	28.9	Complied
Top	1.5	30.0	28.5	Complied

EDR 3DH5

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Note(s)
Bottom	0.0	30.0	30.0	Complied
Middle	1.2	30.0	28.8	Complied
Top	1.8	30.0	28.2	Complied

Note(s):

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

7.2.12. Transmitter Radiated Emissions

Ambient Temperature: 23ºC Relative Humidity: 27%

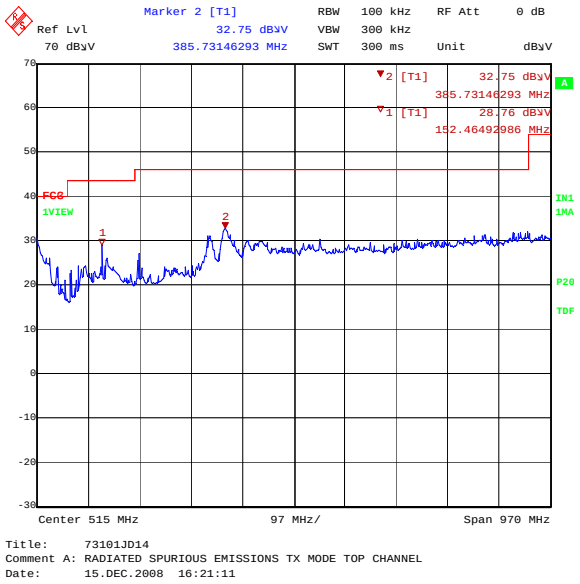
Tests were performed using the test methods detailed in ANSI C63.4 Section 8.

Electric Field Strength Measurements: 30 MHz to 1000 MHz
Top Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
153.295	Vertical	24.4	43.5	19.1	Complied
367.384	Vertical	35.9	46.0	10.1	Complied
397.624	Vertical	35.9	46.0	10.1	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: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Transmitter Radiated Emissions (Continued)

Tests were performed using the test methods detailed in ANSI C63.4 Section 8 and in accordance with DA-00-705 for Spurious Radiated Emissions

Electric Field Strength Measurements (Frequency Range: 1 GHz to 26.5 GHz) (Emissions Occurring in the Restricted Bands)

Highest Peak Level: Bottom Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.804020	Vertical	65.4	-1.8	63.6	74.0	10.4	Complied

Highest Average Level: Bottom Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.804020	Vertical	47.6	-1.8	45.8	54.0	8.2	Complied

Highest Peak Level: Middle Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.881899	Vertical	65.9	-1.3	64.6	74.0	9.4	Complied

Highest Average Level: Middle Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.881899	Vertical	49.1	-1.3	47.8	54.0	6.2	Complied

Transmitter Radiated Emissions (Continued)

Highest Peak Level: Top Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.960020	Vertical	65.9	-1.4	64.5	74.0	9.5	Complied

Highest Average Level: Top Channel DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.960020	Vertical	49.0	-1.4	47.6	54.0	6.4	Complied

Highest Peak Level: Hopping Mode DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.857771	Vertical	65.7	-1.5	64.2	74.0	9.8	Complied

Highest Average Level: Hopping Mode DH5

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.857771	Vertical	39.7	-1.5	38.2	54.0	15.8	Complied

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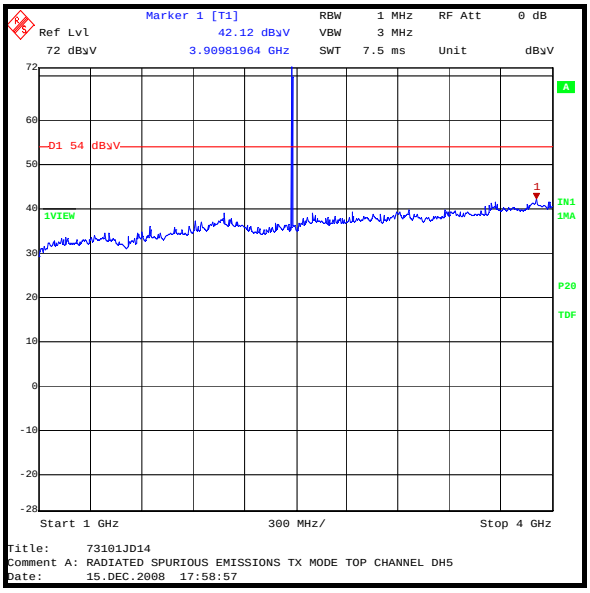
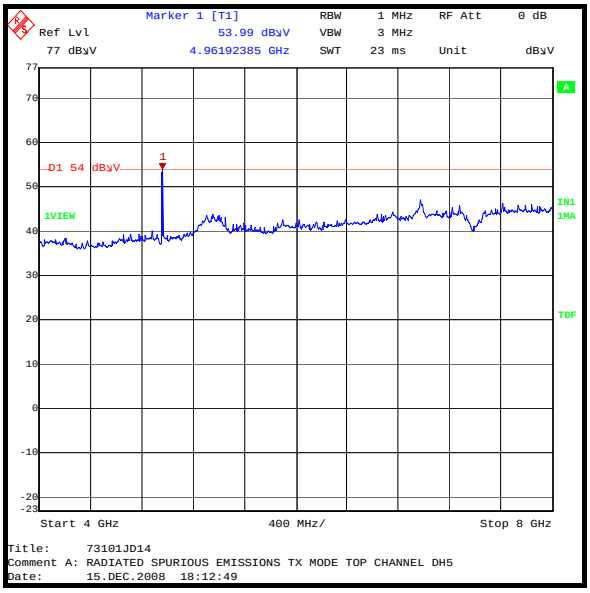
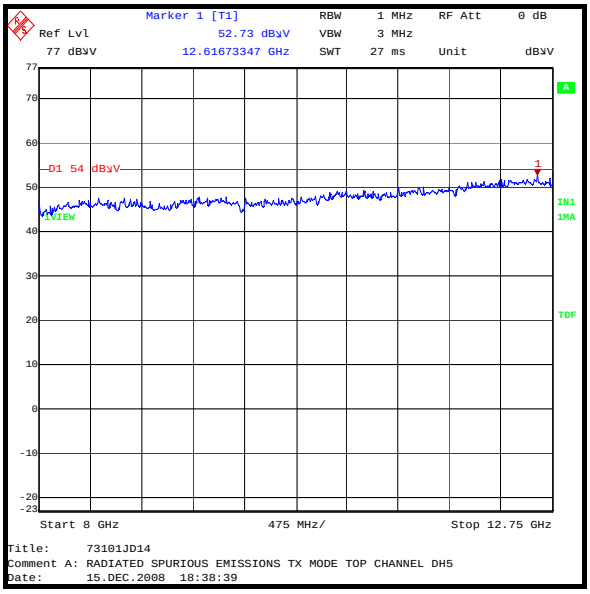
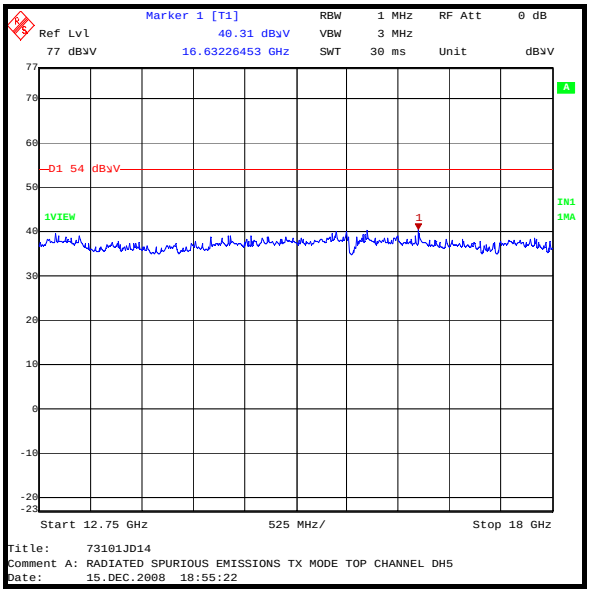
Transmitter Radiated Emissions (Continued)



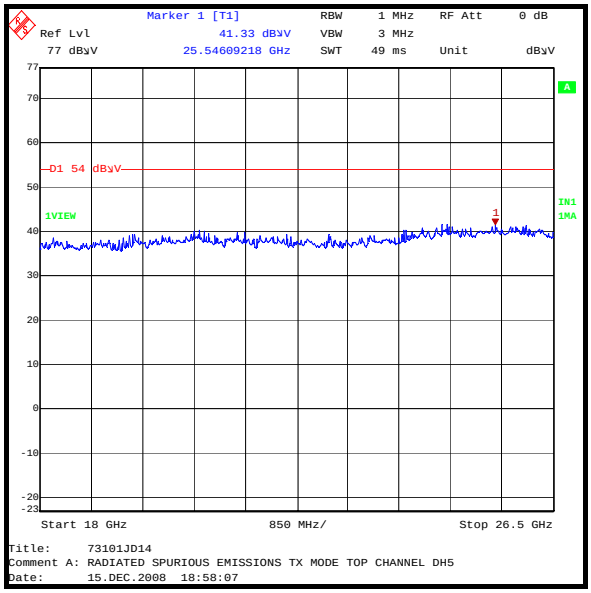






Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.
The emission shown on the 1 to 4 GHz plot is the carrier at 2.480 GHz

Transmitter Radiated Emissions (Continued)



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

7.2.13. Transmitter Band Edge Radiated Emissions

Ambient Temperature: 22ºC Relative Humidity: 28%

Tests were performed to identify the maximum radiated band edge emissions.

Electric Field Strength Measurements

Peak Power Level Hopping Mode DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	50.0	-0.2	49.8	*78.7	28.9	Complied
2.4835	V	61.6	-0.3	61.3	74.0	12.7	Complied

** -20 dBc limit*

Average Power Level Hopping Mode DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	38.0	-0.3	37.7	54.0	16.3	Complied

Peak Power Level Hopping Mode 2DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	45.8	-0.2	45.6	*74.4	28.8	Complied
2.4835	V	54.0	-0.3	53.7	74.0	20.3	Complied

** -20 dBc limit*

Average Power Level Hopping Mode 2DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	37.0	-0.3	36.7	54.0	17.3	Complied

Transmitter Band Edge Radiated Emissions (Continued)

Peak Power Level Hopping Mode 3DH5:

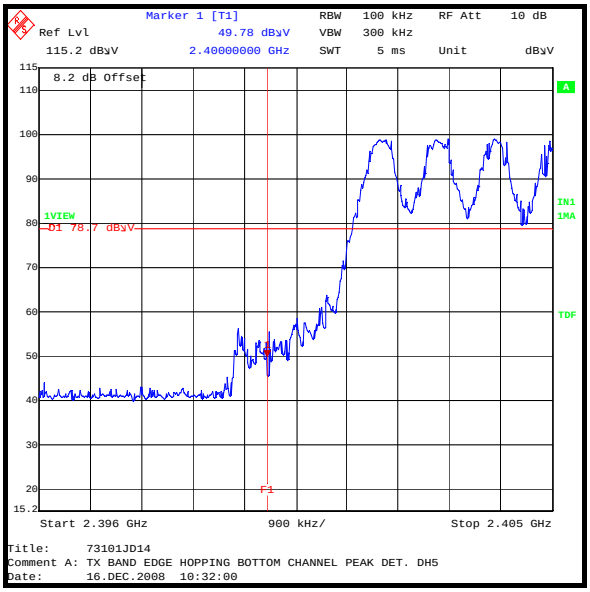
Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	47.6	-0.2	47.4	*73.8	26.4	Complied
2.4835	V	52.5	-0.3	52.2	74.0	21.8	Complied

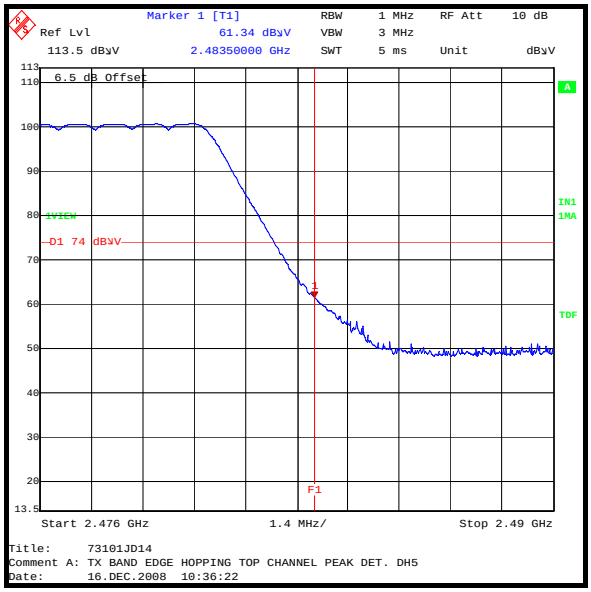
** -20 dBc limit*

Average Power Level Hopping Mode 3DH5:

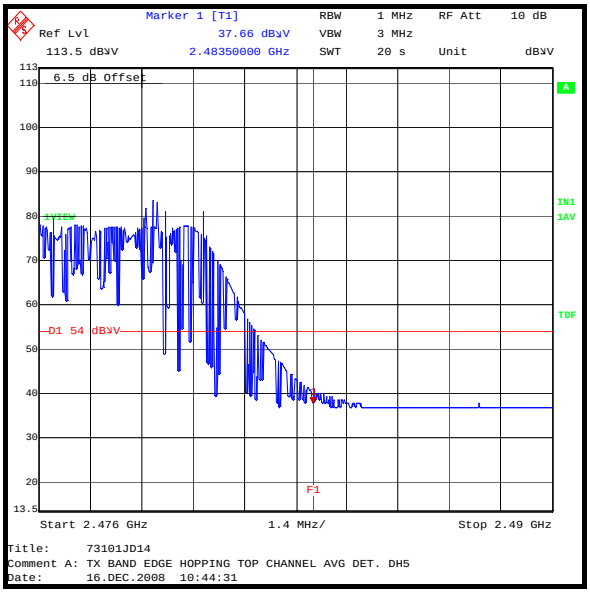
Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	37.0	-0.3	36.7	54.0	17.3	Complied

Transmitter Band Edge Radiated Emissions (Continued)





Mode DH5



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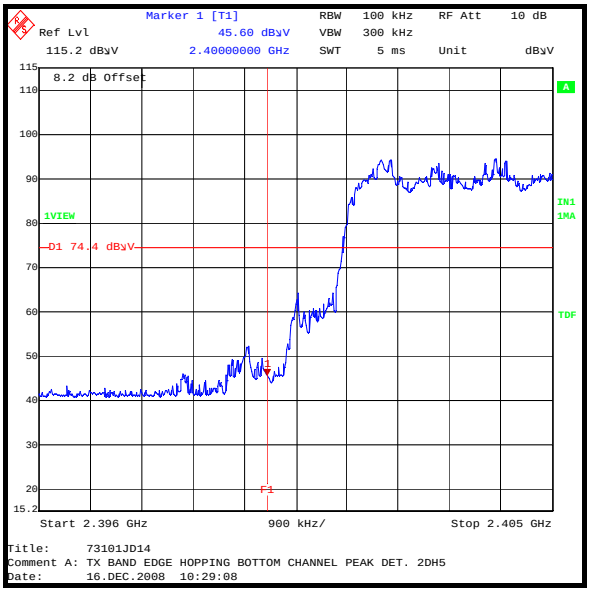
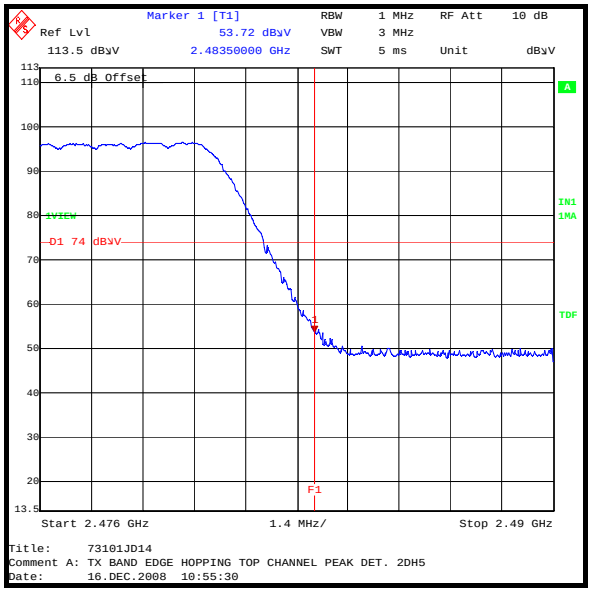
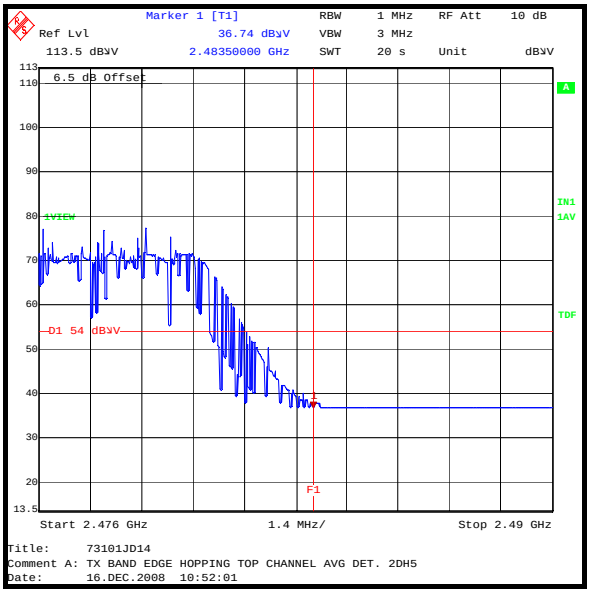
Transmitter Band Edge Radiated Emissions (Continued)







Mode 2DH5

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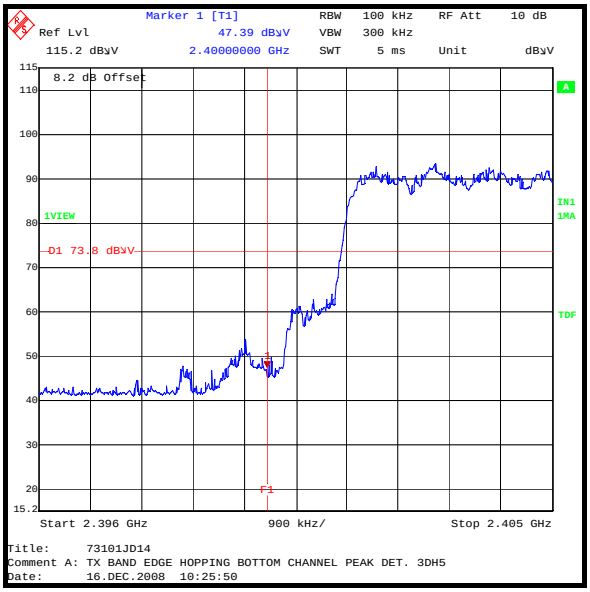
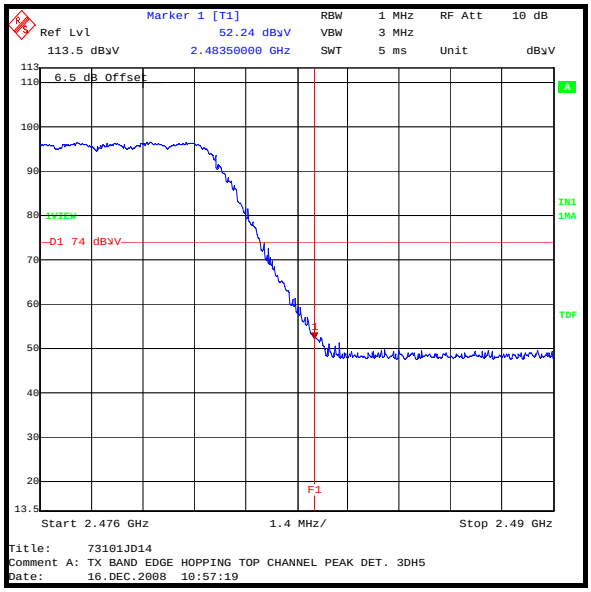
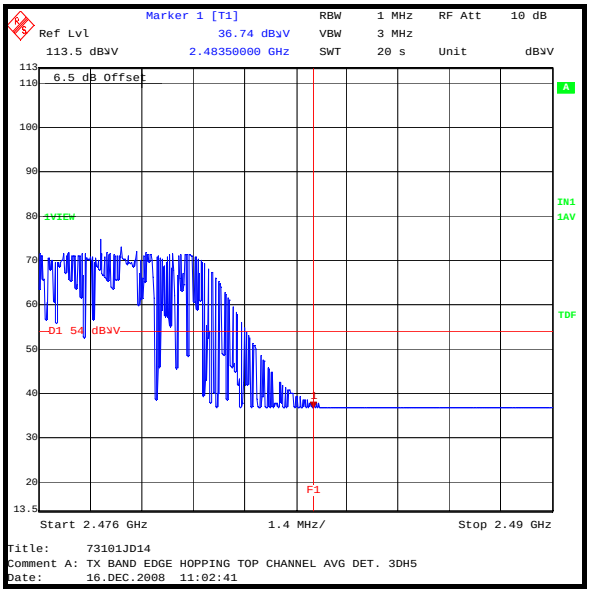
Transmitter Band Edge Radiated Emissions (Continued)





Mode 3DH5



Transmitter Band Edge Radiated Emissions (Continued)

Peak Power Level Static Mode DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	57.7	-0.2	57.5	*78.7	21.2	Complied
2.4835	V	63.4	-0.3	63.1	74.0	10.9	Complied

** -20 dBc limit*

Average Power Level Static Mode DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	49.6	-0.3	49.3	54.0	4.7	Complied

Peak Power Level Static Mode 2DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	48.2	-0.2	48.0	*74.3	26.3	Complied
2.4835	V	56.6	-0.3	56.3	74.0	17.7	Complied

** -20 dBc limit*

Average Power Level Static Mode 2DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	42.6	-0.3	42.3	54.0	11.7	Complied

Transmitter Band Edge Radiated Emissions (Continued)

Peak Power Level Static Mode 3DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	V	47.8	-0.2	47.6	*73.8	26.2	Complied
2.4835	V	57.0	-0.3	56.7	74.0	17.3	Complied

** -20 dBc limit*

Average Power Level Static Mode 3DH5:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	V	43.1	-0.3	42.8	54.0	11.2	Complied

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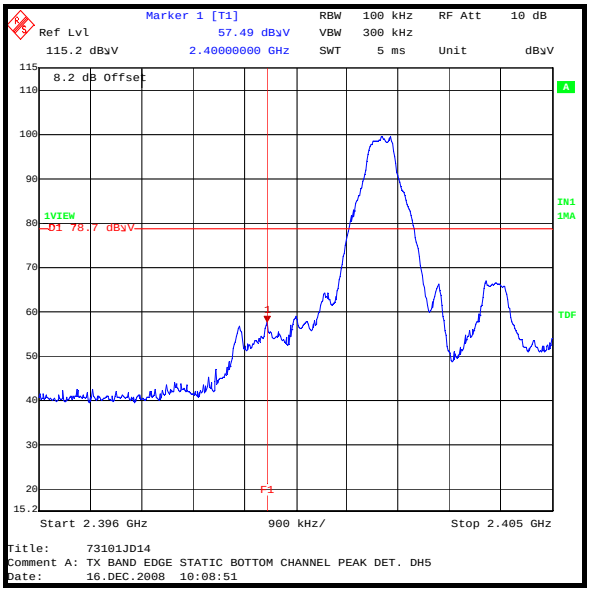
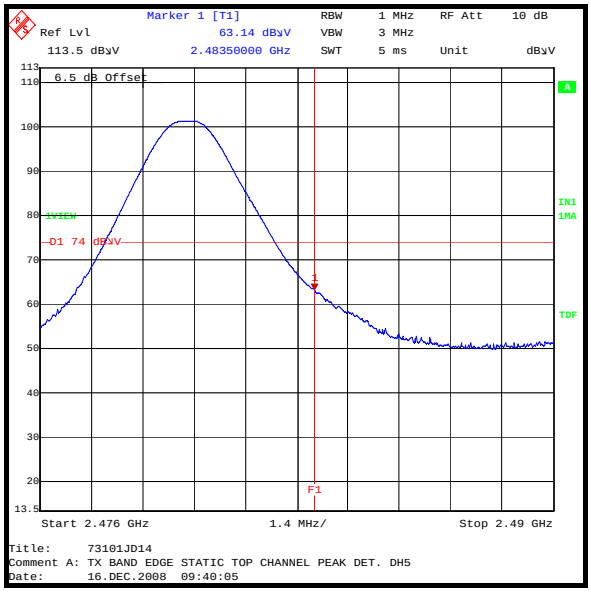
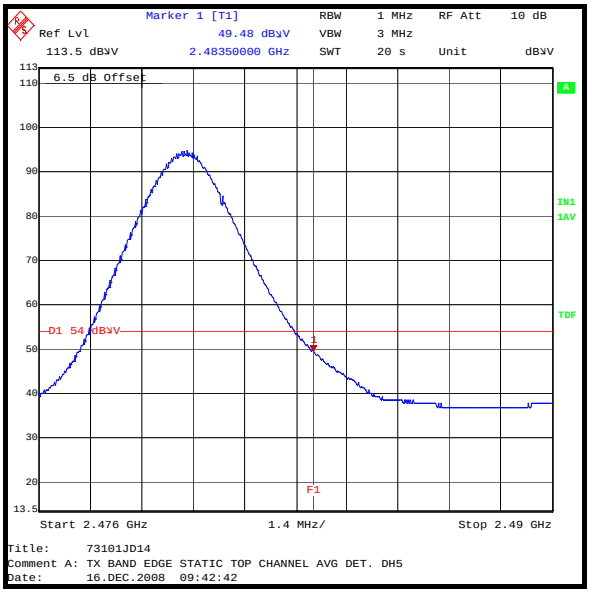
Transmitter Band Edge Radiated Emissions (Continued)





Mode DH5



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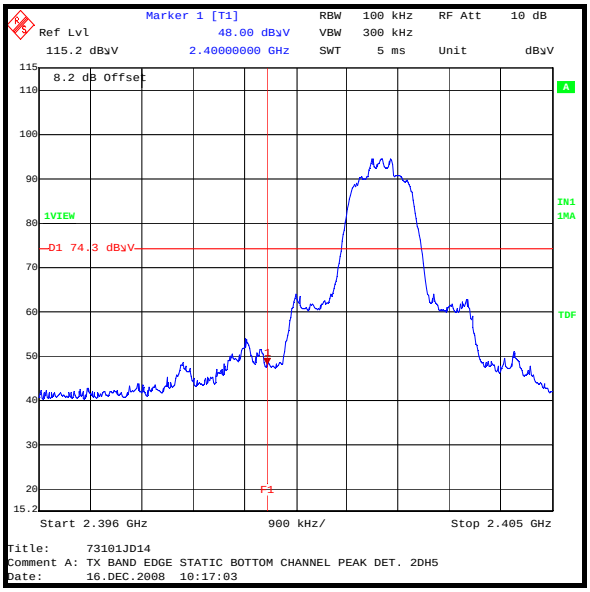
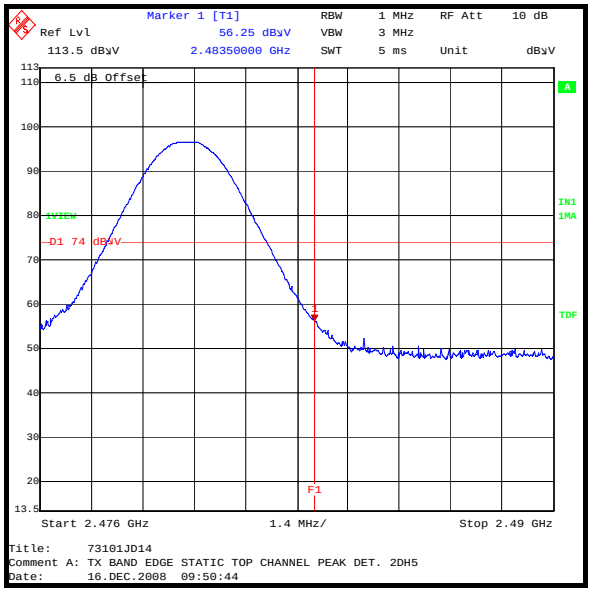
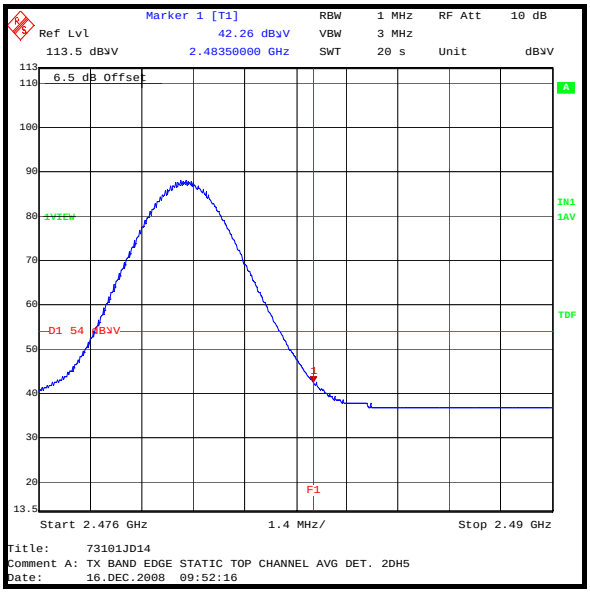
Transmitter Band Edge Radiated Emissions (Continued)





Mode 2DH5



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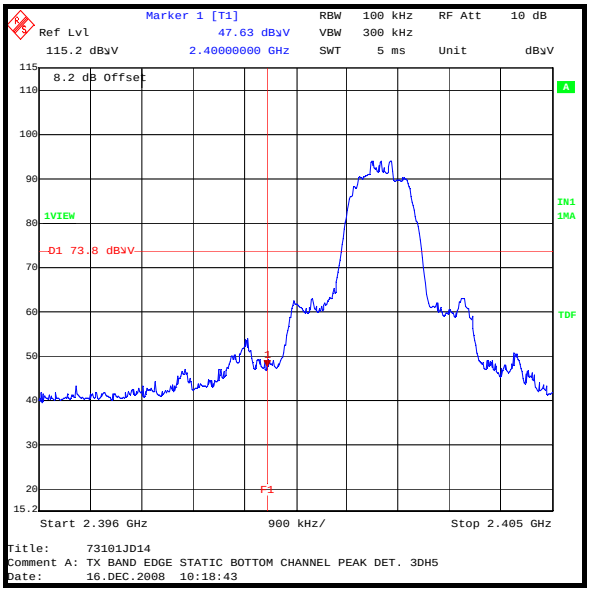
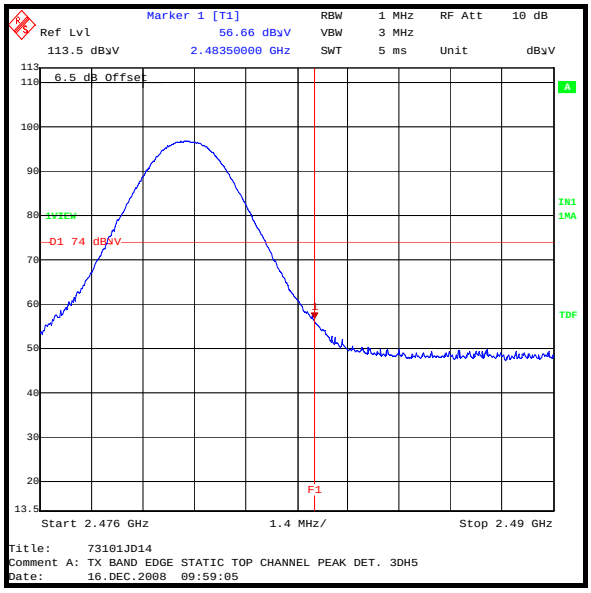
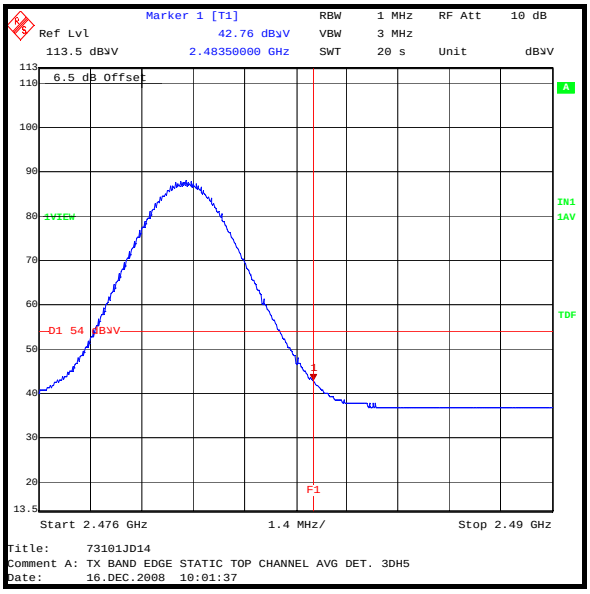
Transmitter Band Edge Radiated Emissions (Continued)





Mode 3DH5



8. 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%	±3.72 dB
Transmitter Maximum Peak Output Power	Not Applicable	95%	±2.94 dB
Transmitter Carrier Frequency Separation	Not Applicable	95%	±11.4 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 1000 MHz	95%	±4.64 dB
Radiated Spurious Emissions	1 GHz 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)
A1299	Antenna	Schaffner	CBL6143	5094	28 Jul 2008	12
A1391	Attenuator	Huber + Suhner	757987	6810.17.B	Calibrated before use	-
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1818	Antenna	EMCO	3115	00075692	25 Oct 2008	12
A436	Antenna	Flann	20240-20	330	24 Apr 2006	36
K0002	3m RSE chamber	Rainford EMC	N/A	N/A	26 Aug 2008	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESIB26	100046K	19 Feb 2008	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	06 Feb 2008	12

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