

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: IWL200-01B1328A

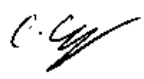
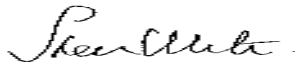
FCC ID: XKB-IWL2XXBBASE

IC Certification Number: 2586D-IWL2XXBBASE

To: FCC Parts 15.107; 15.109; 15.207; 15.209; 15.247(b)(d) & Industry
Canada RSS-Gen 4.9. RSS-210 A8.5

Test Report Serial No:
RFI-RPT-RP81035JD03B V2.0

Version 2.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals: 	
Checked By:	Ian Watch
Signature:	pp 
Date of Issue:	07 July 2011

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1. Customer Information








Company Name:	Ingenico France
Address:	1 Rue Claude Chappe - BP 346 Guilherand-Granges 7503 France

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.247
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2010: 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) 2010: 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) 2010: 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:	14 June 2011 to 21 June 2011

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 15.107(a)	-	Receiver/Idle Mode AC Conducted Emissions	
Part 15.109	-	Receiver/Idle Mode Radiated Spurious Emissions	
Part 15.207	RSS-Gen 7.2.4	Transmitter AC Conducted Emissions	
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:	Ingenico
Model Name or Number:	IWL200-01B1328A Base
Serial Number:	11042WL40001135
Hardware Version:	IWL200
Software Version:	Y002
FCC ID:	XKB-IWL2XXBBASE
IC Certification Number:	2586D-IWL2XXBBASE

Brand Name:	Ingenico
Description:	AC/DC Adaptor for use in USA
Model Name or Number:	FW7601/152171

3.2. Description of EUT

The equipment under test was a wireless Point of Sales Base supporting *Bluetooth* and PSTN connectivity.

3.3. Modifications Incorporated in the EUT

None.

3.4. Additional Information Related to Testing

Tested Technology:	<i>Bluetooth</i>		
Power Supply Requirement:	Nominal	120 VAC 60 Hz	
Type of Unit:	Transceiver		
Channel Spacing:	1 MHz		
Mode:	Basic Rate	Enhanced Data Rate	
Modulation:	GFSK	$\pi/4$ -DQPSK	8DQPSK
Packet Type: (Maximum Payload)	DH5	2DH5	3DH5
Data Rate (Mbit/s):	1	2	3
Maximum Conducted Output Power:	-11.9 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

3.5. Support Equipment

None.

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

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

- Receive/Idle Mode
- Transmitting at maximum power with Basic Rate (DH5 packets) or EDR (2DH5 or 3DH5 packets) as required with the maximum supported packet length.
- The EUT was put into test mode by using a Bluetooth test simulator during testing.

4.2. Configuration and Peripherals

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

- The Base unit was tested without the IWL2XX terminal unit.
- The Base unit was configured by the Customer to enter Bluetooth test mode whenever the AC/DC Adaptor was connected to the Base.
- The AC/DC adaptor was connected to the Base during testing and power was supplied from a 120 VAC 60 Hz supply.
- Radiated tests were performed with the EUT transmitting DH5 packets at maximum power as this mode was found to produce the highest power.
- All ports were terminated with typical cables during radiated emission testing.

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 AC Conducted Spurious Emissions****Test Summary:**

Test Engineer:	Tim Stanley	Test Date:	15 June 2011
Test Sample Serial No:	11042WL40001135		

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

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	25

Results: Live - Quasi Peak

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.154500	Live	42.9	65.8	22.9	Complied
0.172500	Live	40.5	64.8	24.3	Complied
0.235500	Live	33.4	62.3	28.9	Complied
0.433500	Live	24.1	57.2	33.1	Complied
3.552000	Live	29.0	56.0	27.0	Complied
21.768000	Live	19.0	60.0	41.0	Complied

Results: Live - Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
7.764000	Live	22.0	50.0	28.0	Complied

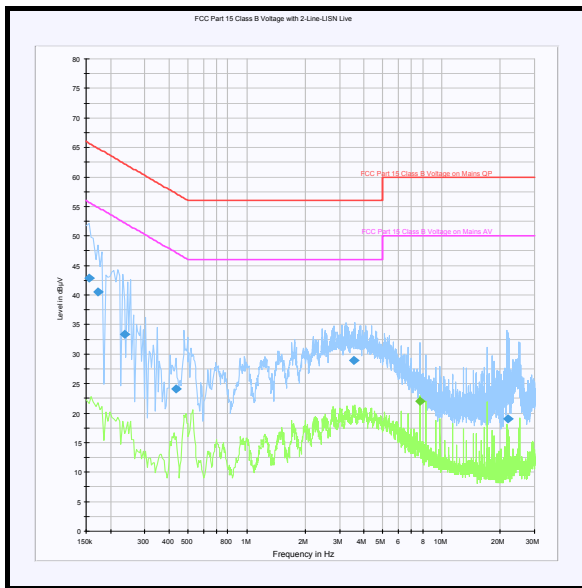
Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Neutral - Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150000	Neutral	44.0	66.0	22.0	Complied
0.154500	Neutral	43.5	65.8	22.3	Complied
0.181500	Neutral	39.9	64.4	24.5	Complied
0.483000	Neutral	30.8	56.3	25.5	Complied
3.421500	Neutral	33.6	56.0	22.4	Complied
4.222500	Neutral	31.7	56.0	24.3	Complied
4.884000	Neutral	31.2	56.0	24.8	Complied

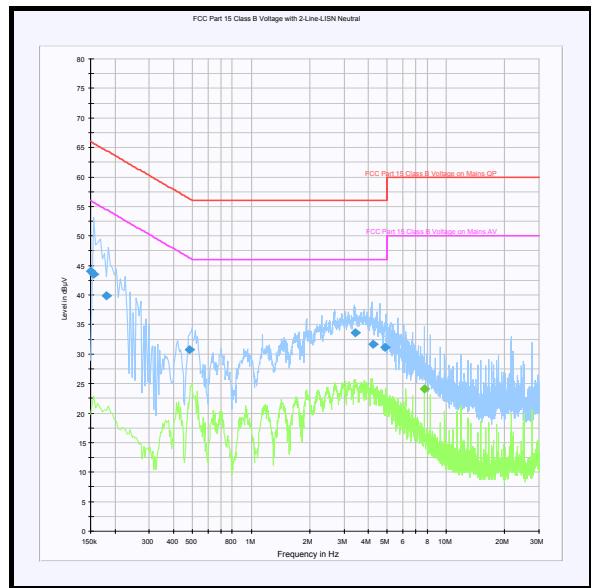
Results: Neutral - Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
7.768500	Neutral	24.1	50.0	25.9	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)



Live



Neutral

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

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

Test Engineer:	Crawford Lindsay	Test Date:	21 June 2011
Test Sample Serial No:	1042WL40001135		

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):	27
Relative Humidity (%):	28

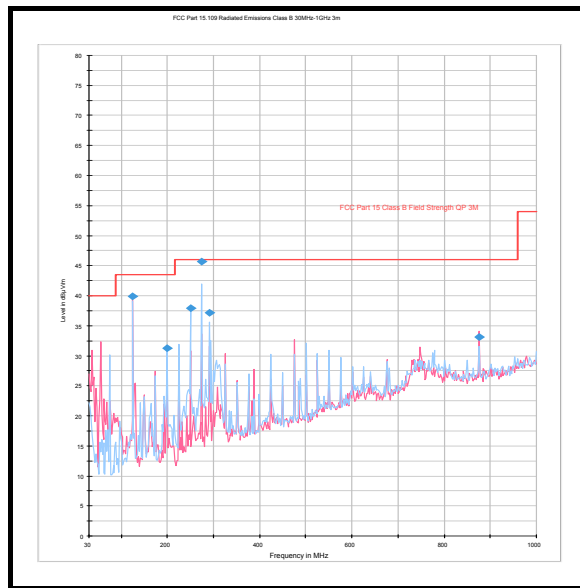
Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
125.005	Vertical	39.9	43.	3.6	Complied
199.998	Horizontal	31.3	43.5	12.2	Complied
250.001	Horizontal	38.0	46.0	8.0	Complied
275.002	Horizontal	45.6	46.0	0.4	Complied
290.293	Horizontal	37.2	46.0	8.8	Complied
875.000	Vertical	33.1	46.0	12.9	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. 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:	Nick Steele	Test Date:	14 June 2011
Test Sample Serial No:	11042WL40001135		

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):	29
Relative Humidity (%):	20

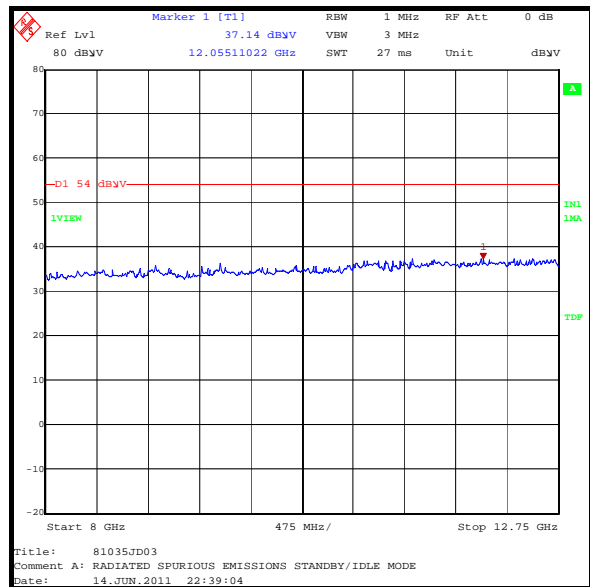
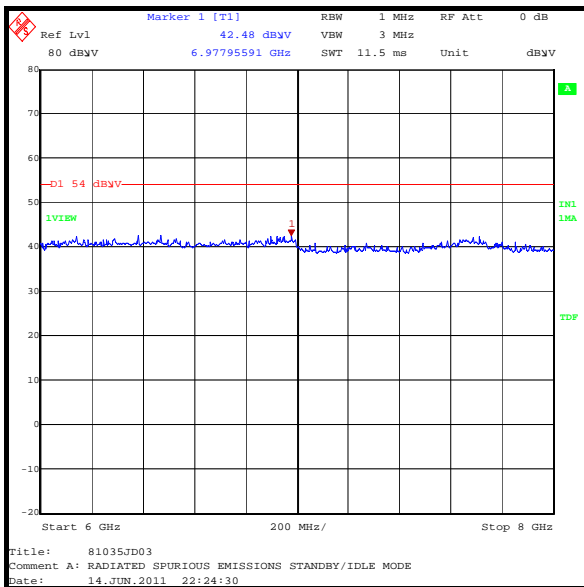
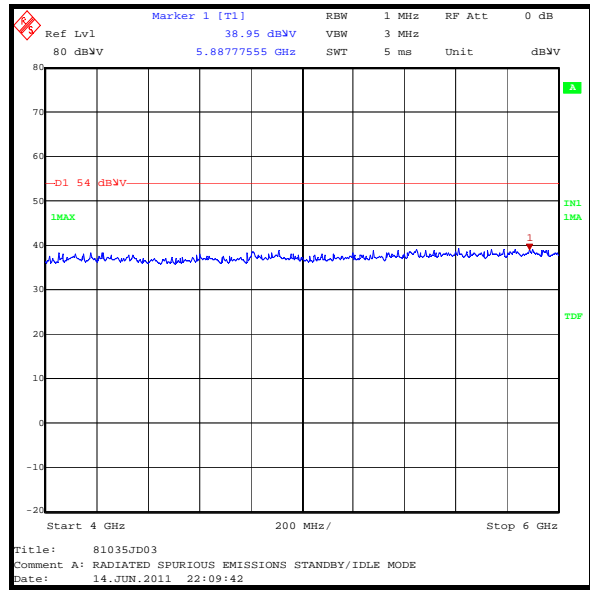
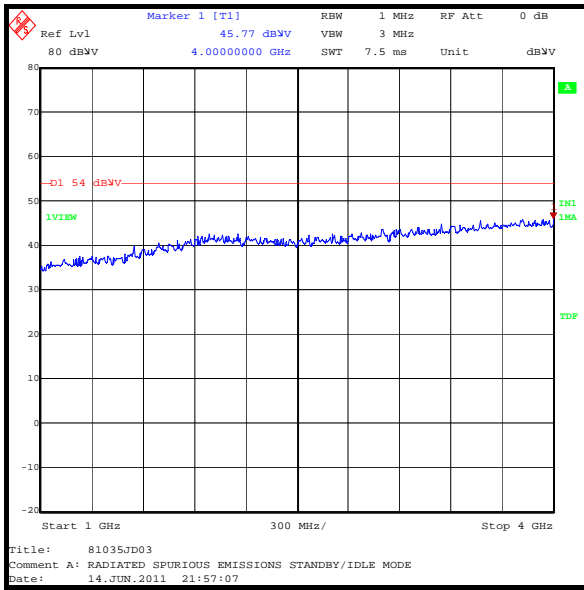
Results:

Frequency (MHz)	Antenna Polarity	Peak Level (dBμV/m)	Average Limit (dBμV/m)	Margin (dB)	Result
4000.000	Horizontal	45.8	54.4	8.2	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. Pre-scans above 1 GHz were performed in a fully anechoic chamber (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.
3. No spurious emissions were detected above the noise floor of the measuring receiver therefore the highest peak noise floor reading of the measuring receiver was recorded as shown in the table above. The peak level was compared to the average limit as opposed to being compared to the peak limit because this is the more onerous limit.

Receiver/Idle Mode Radiated Spurious Emissions (continued)



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

Test Engineer:	Tim Stanley	Test Date:	15 June 2011
Test Sample Serial No:	11042WL40001135		

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

Environmental Conditions:

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

Results: Live - Quasi Peak

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150000	Live	38.5	66.0	27.5	Complied
0.172500	Live	35.5	64.8	29.3	Complied
0.199500	Live	31.0	63.6	32.6	Complied
0.294000	Live	19.3	60.4	41.1	Complied
0.415500	Live	25.0	57.5	32.5	Complied
0.424500	Live	25.6	57.4	31.8	Complied
0.483000	Live	28.9	56.3	27.4	Complied
0.492000	Live	28.6	56.1	27.5	Complied
0.523500	Live	26.8	56.0	29.2	Complied
0.681000	Live	23.6	56.0	32.4	Complied
1.000500	Live	25.0	56.0	31.0	Complied
3.556500	Live	29.3	56.0	26.7	Complied

Results: Live - Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150000	Live	23.1	56.0	32.9	Complied
0.163500	Live	18.6	55.3	36.7	Complied
0.204000	Live	17.9	53.4	35.5	Complied
0.483000	Live	19.3	46.3	27.0	Complied

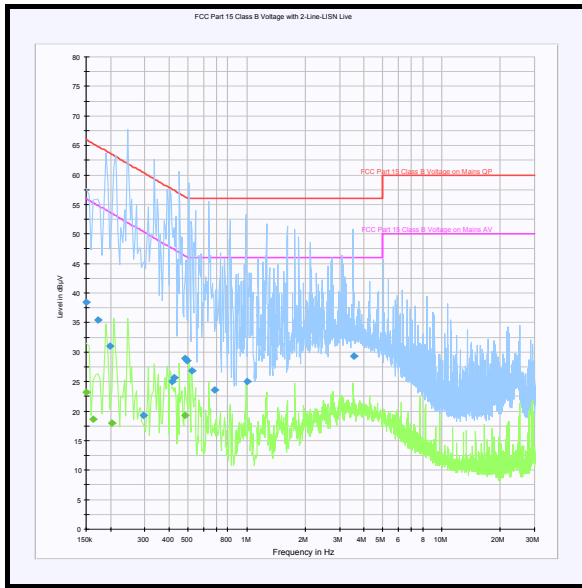
Transmitter AC Conducted Spurious Emissions (continued)**Results: Neutral - Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150000	Neutral	42.2	66.0	23.8	Complied
0.163500	Neutral	41.2	65.3	24.1	Complied
0.496500	Neutral	30.7	56.1	25.4	Complied
2.674500	Neutral	32.9	56.0	23.1	Complied
3.435000	Neutral	33.4	56.0	22.6	Complied
3.871500	Neutral	33.6	56.0	22.4	Complied

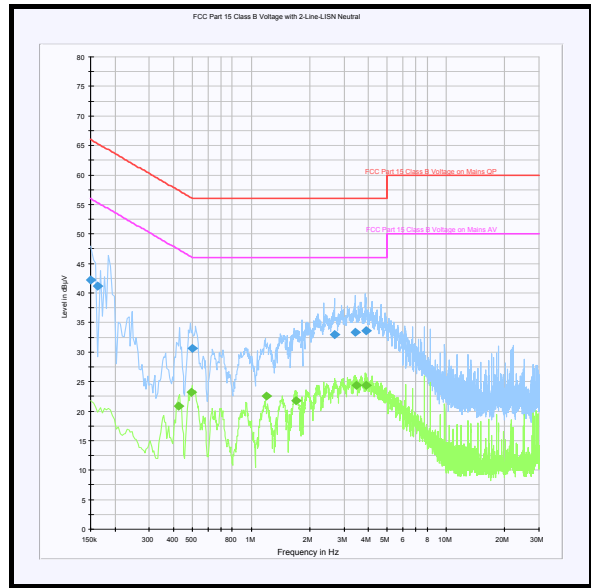
Results: Neutral - Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.424500	Neutral	20.8	47.4	26.6	Complied
0.492000	Neutral	23.2	46.1	22.9	Complied
1.198500	Neutral	22.6	46.0	23.4	Complied
1.707000	Neutral	21.8	46.0	24.2	Complied
3.453000	Neutral	24.4	46.0	21.6	Complied
3.907500	Neutral	24.3	46.0	21.7	Complied

Transmitter AC Conducted Spurious Emissions (continued)



Live



Neutral

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

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

Test Engineer:	Crawford Lindsay	Test Date:	21 June 2011
Test Sample Serial No:	11042WL40001135		

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 (%):	28

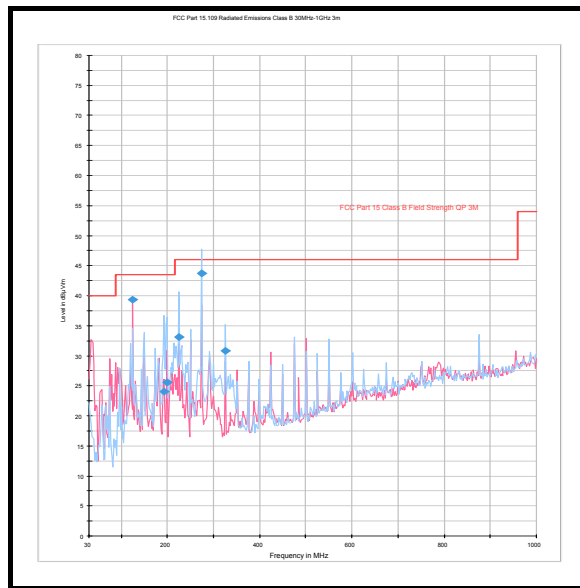
Results: Quasi-Peak DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
124.996	Vertical	39.4	43.5	4.1	Complied
193.503	Horizontal	24.0	43.5	19.5	Complied
199.989	Horizontal	25.6	43.5	17.9	Complied
225.000	Horizontal	33.1	46.0	12.9	Complied
274.992	Horizontal	43.7	46.0	2.3	Complied
324.995	Horizontal	30.8	46.0	15.2	Complied

Note(s):

1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss
2. 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:	14 June 2011
Test Sample Serial No:	11042WL40001135		

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):	29
Relative Humidity (%):	20

Results: Peak Bottom Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4804.337	Horizontal	60.2	74.0	13.8	Complied

Results: Average Bottom Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4804.070	Horizontal	51.5	54.0	2.5	Complied

Results: Peak Middle Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4881.648	Horizontal	61.1	74.0	12.9	Complied

Results: Average Middle Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4882.039	Horizontal	52.2	54.0	1.8	Complied

Results: Peak Top Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4959.630	Horizontal	60.0	74.0	14.0	Complied

Results: Average Top Channel DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4960.021	Horizontal	51.3	54.0	2.7	Complied

Transmitter Radiated Emissions (continued)**Results: Peak Hopping Mode DH5**

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4879.722	Horizontal	60.7	74.0	13.3	Complied

Results: Peak Bottom Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4803.819	Horizontal	55.2	74.0	18.8	Complied

Results: Average Bottom Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4804.391	Horizontal	43.1	54.0	10.9	Complied

Results: Peak Middle Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4881.632	Horizontal	55.9	74.0	18.1	Complied

Results: Average Middle Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4881.992	Horizontal	43.8	54.0	10.2	Complied

Results: Peak Top Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4959.646	Horizontal	55.5	74.0	18.5	Complied

Results: Average Top Channel 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4960.037	Horizontal	43.1	54.0	10.9	Complied

Results: Peak Hopping Mode 2-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4880.176	Horizontal	56.1	74.0	17.9	Complied

Transmitter Radiated Emissions (continued)**Results: Peak Bottom Channel 3-DH5**

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4804.055	Horizontal	56.0	74.0	18.0	Complied

Results: Average Bottom Channel 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4804.008	Horizontal	43.0	54.0	11.0	Complied

Results: Peak Middle Channel 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4882.023	Horizontal	56.8	74.0	17.2	Complied

Results: Average Middle Channel 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4882.039	Horizontal	43.9	54.0	10.1	Complied

Results: Peak Top Channel 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4960.099	Horizontal	55.8	74.0	18.2	Complied

Results: Average Top Channel 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4960.069	Horizontal	43.1	54.0	10.9	Complied

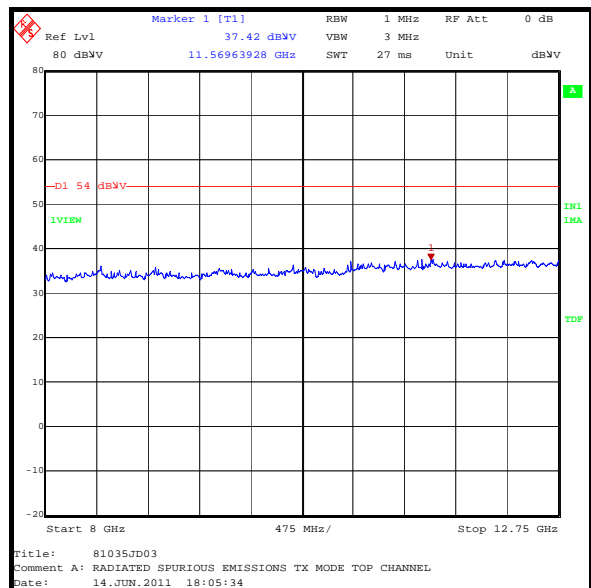
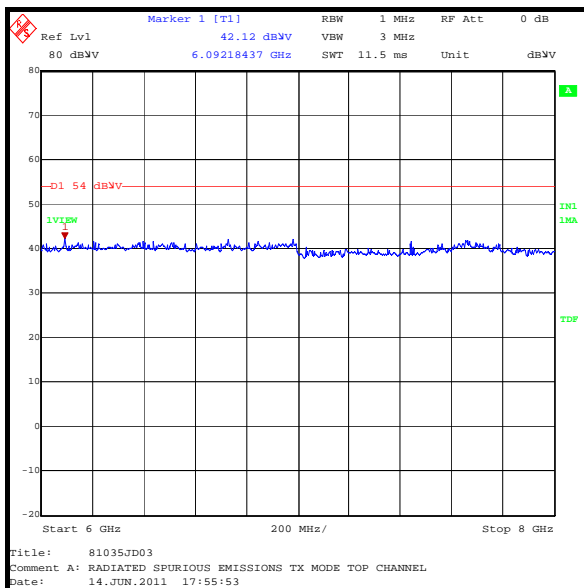
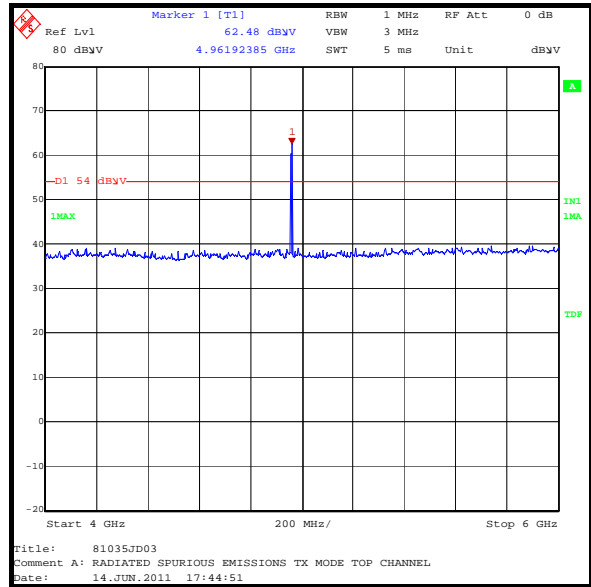
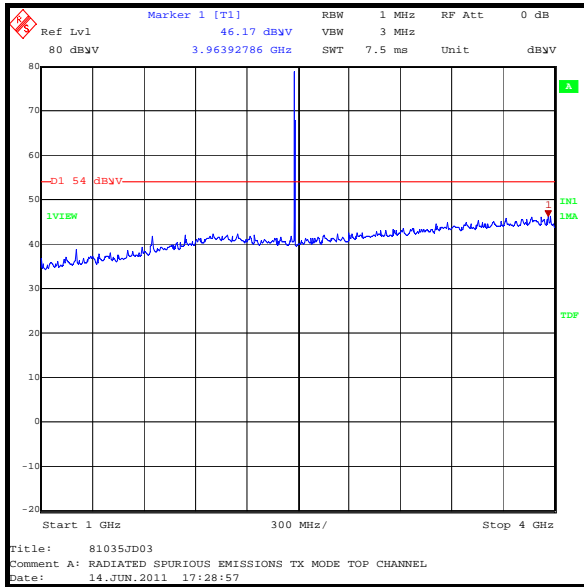
Results: Peak Hopping Mode 3-DH5

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
4880.113	Horizontal	56.9	74.0	17.1	Complied

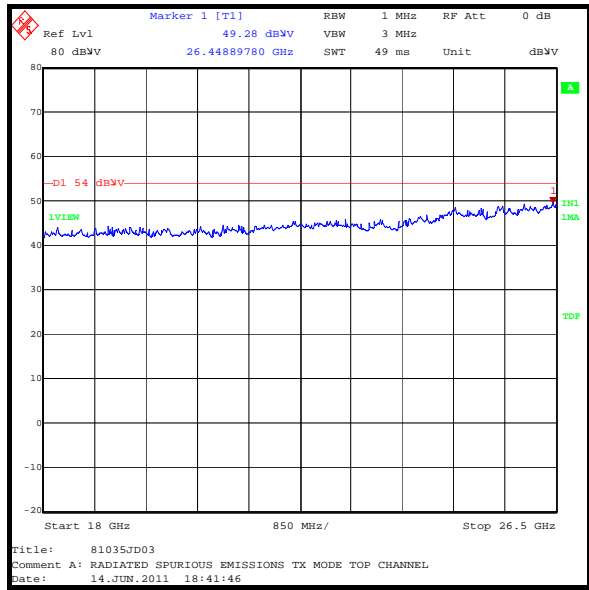
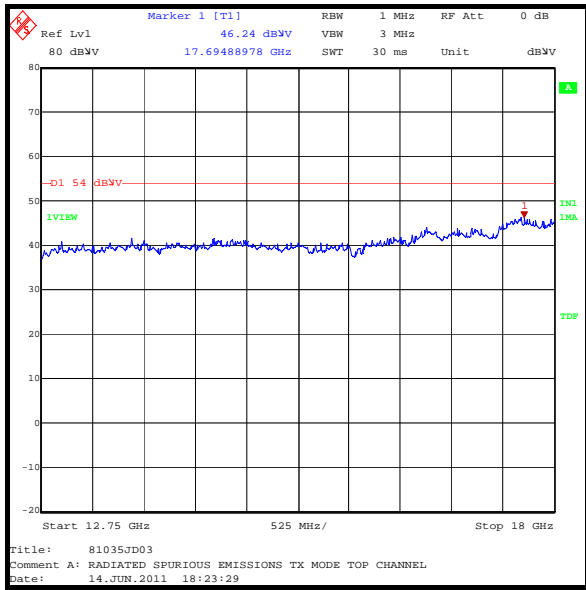
Transmitter Radiated Emissions (continued)**Note(s):**

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.

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

Test Engineer:	Nick Steele	Test Date:	14 June 2011
Test Sample Serial No:	11042WL40001135		

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):	29
Relative Humidity (%):	20

Results: Static Mode DH5

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	47.4	*66.6	19.2	Complied
2483.5	43.4	74.0	30.6	Complied

Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	30.3	54.0	13.7	Complied

Results: Hopping Mode DH5

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	44.7	*66.5	21.8	Complied
2483.5	41.8	74.0	32.2	Complied

Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	27.4	54.0	26.6	Complied

Results: Static Mode 2DH5

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	42.8	*65.9	23.1	Complied
2483.5	41.4	74.0	32.6	Complied

Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	29.0	54.0	25.0	Complied

Transmitter Band Edge Radiated Emissions (continued)**Results: Hopping Mode 2DH5**

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	40.5	*65.7	25.2	Complied
2483.5	40.0	74.0	34.0	Complied

Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	27.0	54.0	27.0	Complied

Results: Static Mode 3DH5

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	41.4	*65.7	24.3	Complied
2483.5	41.6	74.0	32.4	Complied

Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	29.0	54.0	25.0	Complied

Results: Hopping Mode 3DH5

Frequency (MHz)	Peak Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	37.9	*65.7	27.8	Complied
2483.5	39.8	74.0	34.2	Complied

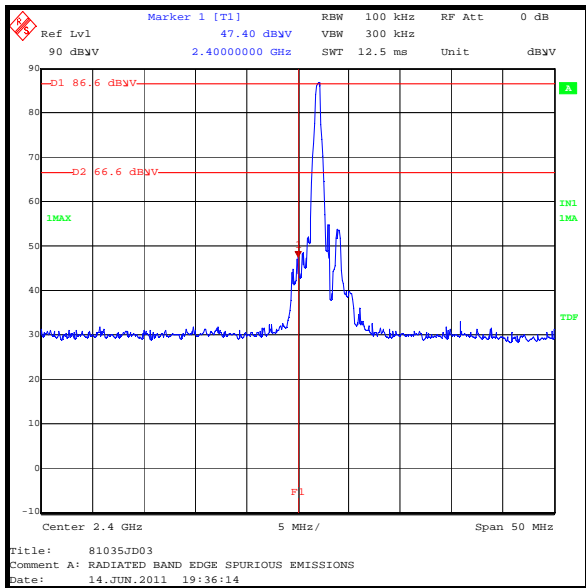
Frequency (MHz)	Average Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
2400.0	27.0	54.0	27.0	Complied

Note(s):

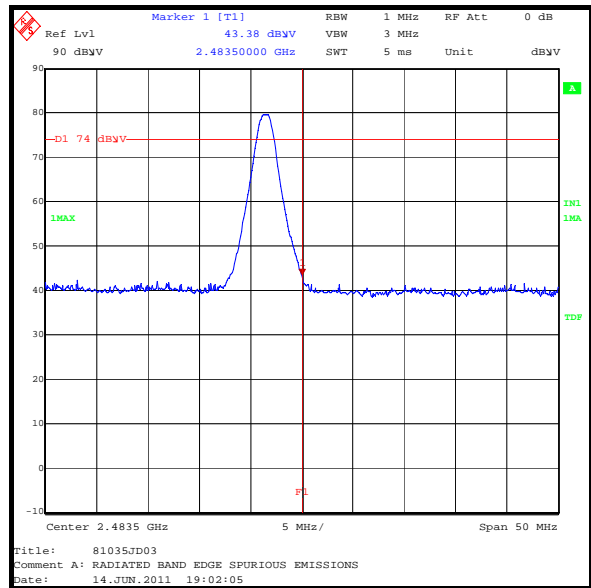
1. The final measured value, for the given emission, in the table above incorporates the calibrated antenna factor and cable loss.
2. * -20 dBc limit

Transmitter Band Edge Radiated Emissions (continued)

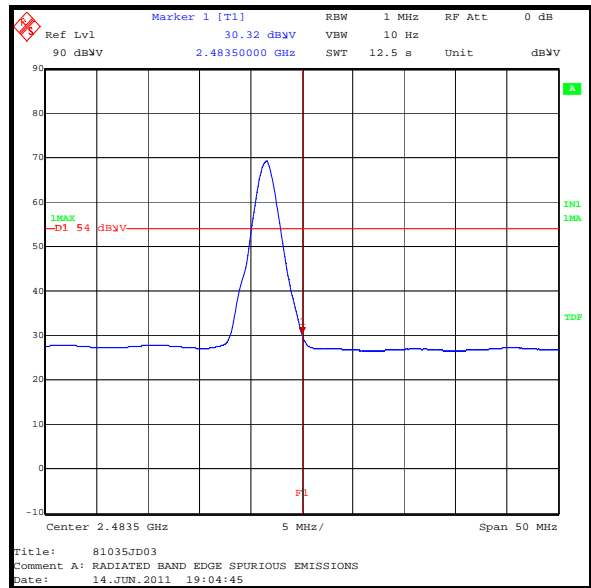
DH5 Static Mode



Lower Band Edge Peak Static



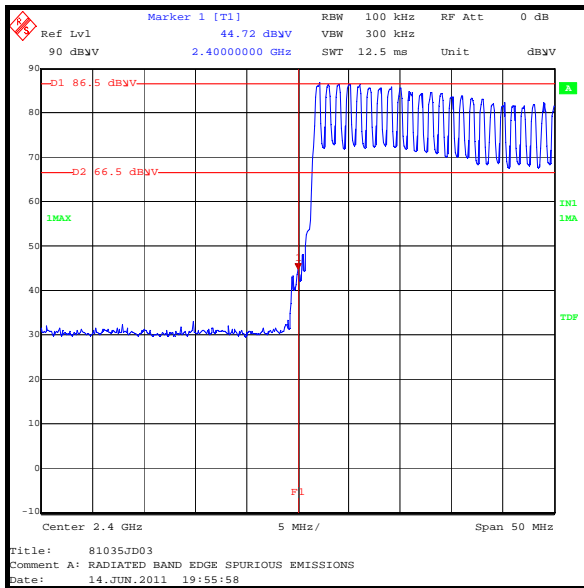
Upper Band Edge Peak Static



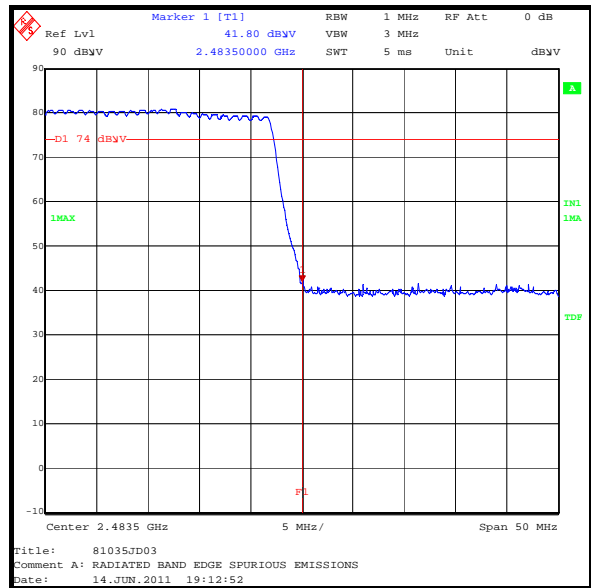
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

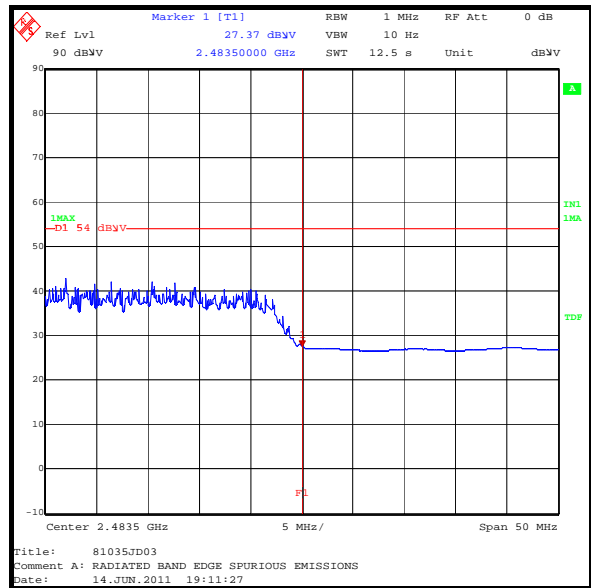
DH5 Hopping Mode



Lower Band Edge Peak Hopping



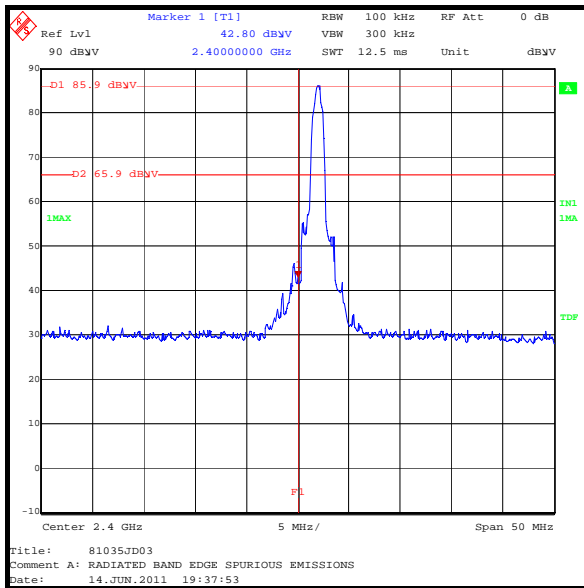
Upper Band Edge Peak Hopping



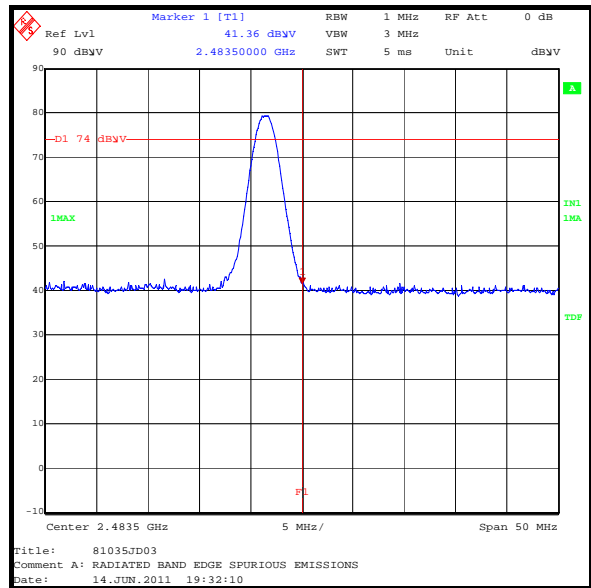
Upper Band Edge Average Hopping

Transmitter Band Edge Radiated Emissions (continued)

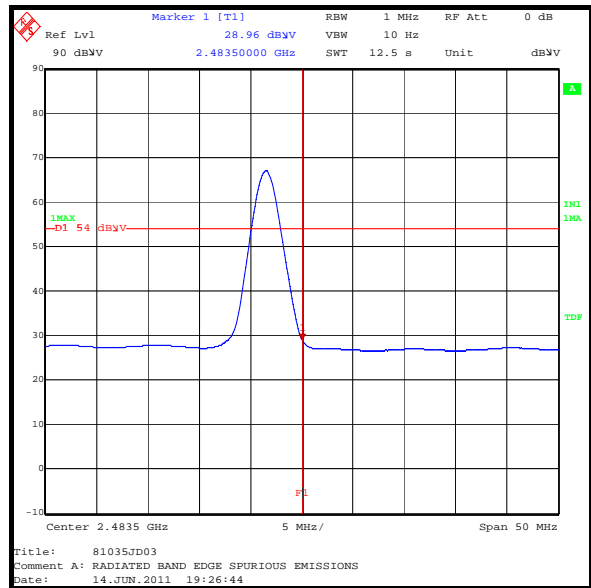
2DH5 Static Mode



Lower Band Edge Peak Static



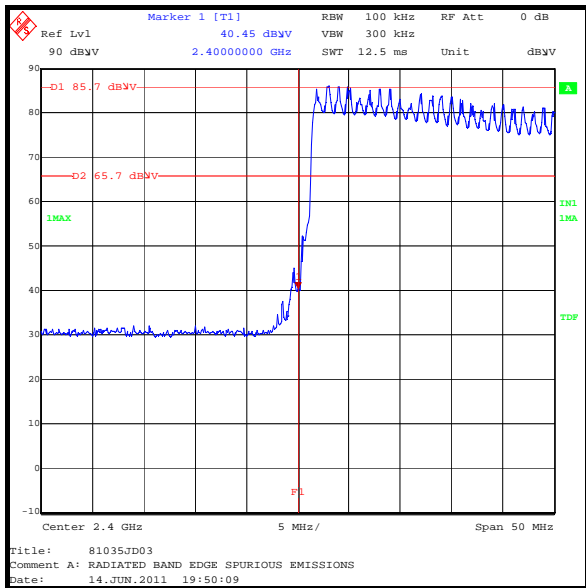
Upper Band Edge Peak Static



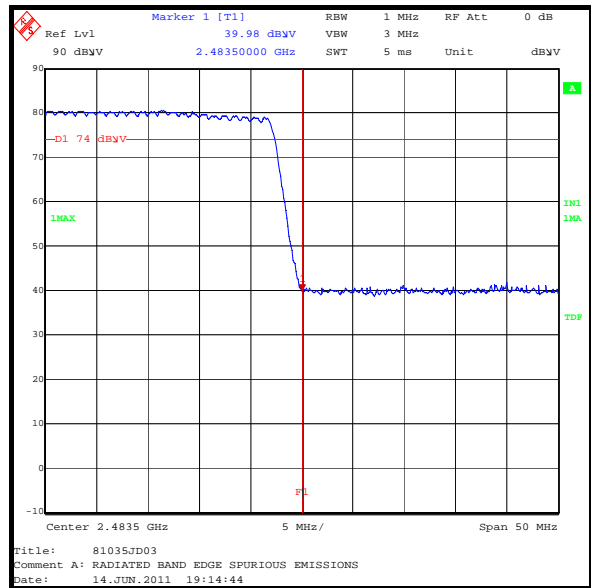
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

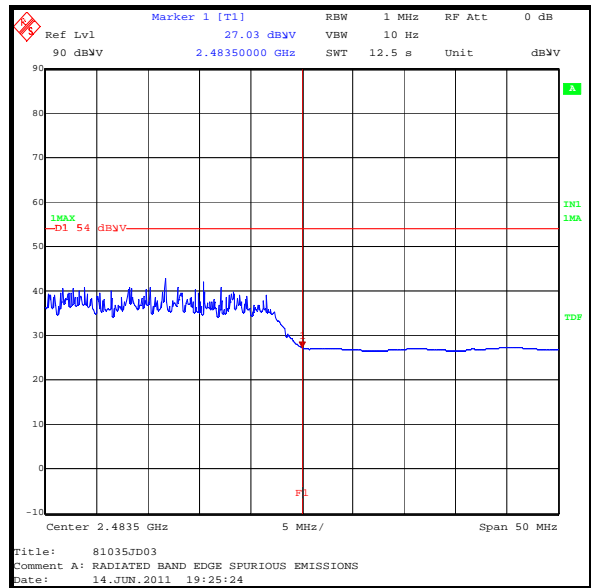
2DH5 Hopping Mode



Lower Band Edge Peak Hopping



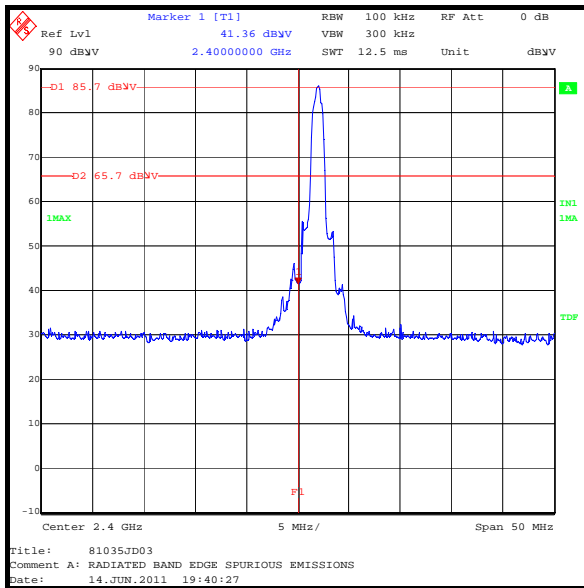
Upper Band Edge Peak Hopping



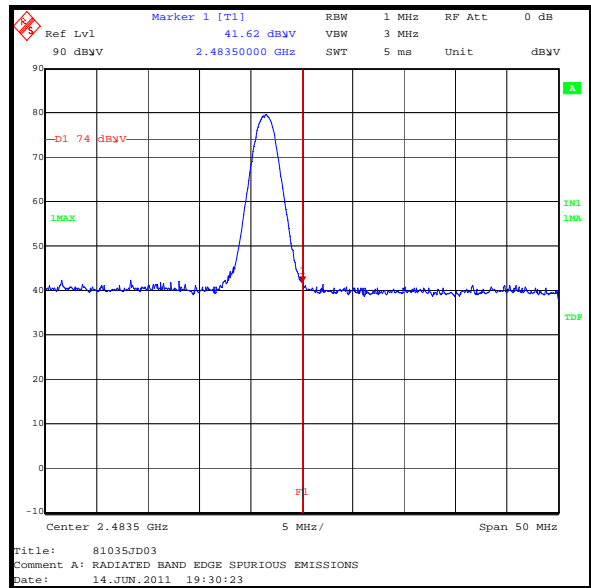
Upper Band Edge Average Hopping

Transmitter Band Edge Radiated Emissions (continued)

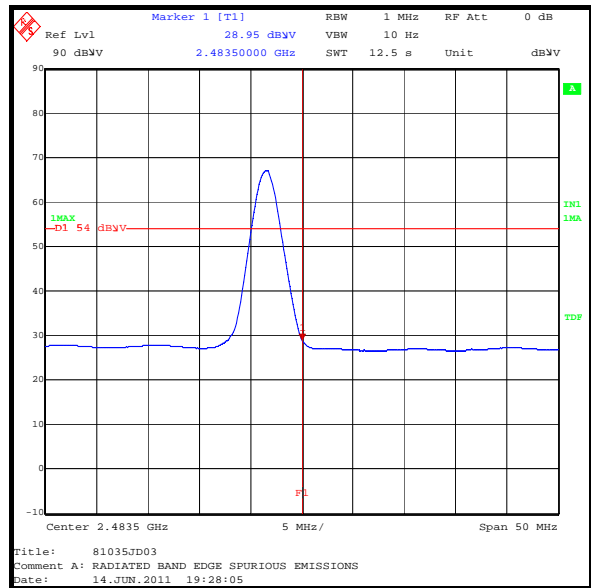
3DH5 Static Mode



Lower Band Edge Peak Static



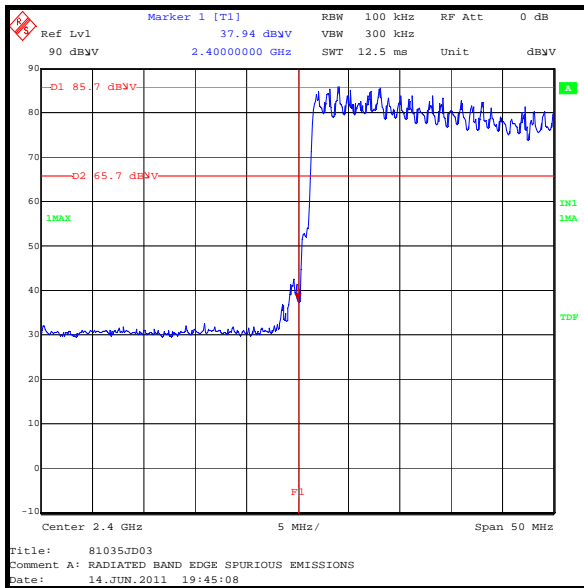
Upper Band Edge Peak Static



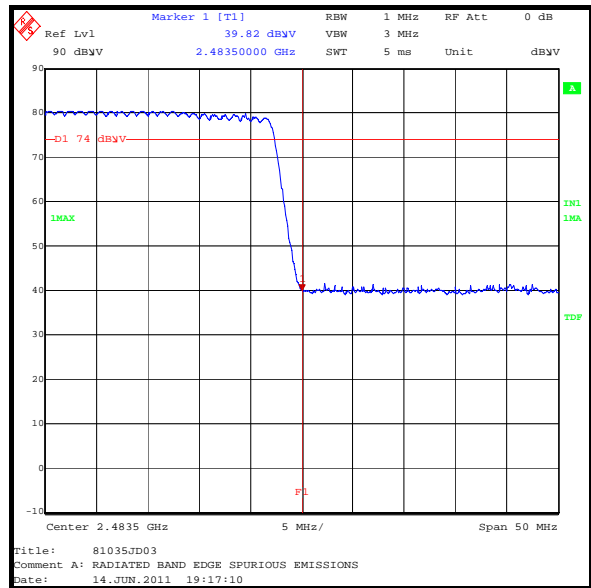
Upper Band Edge Average Static

Transmitter Band Edge Radiated Emissions (continued)

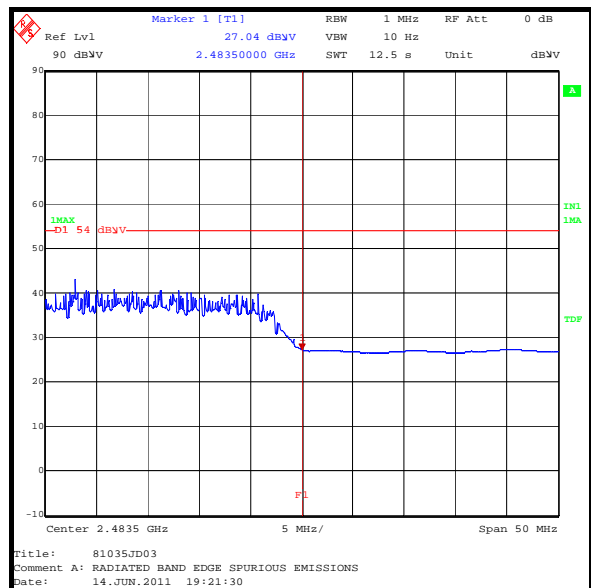
3DH5 Hopping Mode



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
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 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
A1534	Pre Amplifier	Hewlett Packard	8449B	3008A00405	06 Jun 2011	12
A1818	Antenna	EMCO	3115	00075692	05 Sep 2011	12
A253	Antenna	Flann Microwave	12240-20	128	05 Sep 2011	12
A254	Antenna	Flann Microwave	14240-20	139	05 Sep 2011	12
A255	Antenna	Flann Microwave	16240-20	519	05 Sep 2011	12
A553	Antenna	Chase	CBL6111A	1593	26 Mar 2012	12
A649	LISN	Rohde & Schwarz	ESH3-Z5	825562/008	05 Apr 2012	12
G0543	Amplifier	Sonoma	310N	230801	30 Jun 2011	12
K0001	5m RSE Chamber	Rainford EMC	N/A	N/A	29 May 2012	12
K0002	3m RSE Chamber	Rainford EMC	N/A	N/A	05 Sep 2011	12
M1124	Spectrum Analyser	Rohde & Schwarz	ESI26	100046K	22 Jun 2011	12
M1263	Test Receiver	Rohde & Schwarz	ESIB7	100265	28 Jun 2011	12
M1273	Test Receiver	Rohde & Schwarz	ESIB 26	100275	04 Feb 2012	12

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