TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

Test Report Serial No:
RFI/RPTE2/RP73125JD03A

Supersedes Test Report Serial No:
RFI/RPTE1/RP73125JD03A

This Test Report Is Issued Under The Authority Of Steve Flooks, Radio Performance Group Service Leader:  **pp Brian Watson**	
Checked By: Brian Watson 	**Report Copy No: PDF01**
Issue Date: 06 June 2008	**Test Dates: 05 March 2008 to 15 March 2008**

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Registered in England and Wales. Company number:2117901

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iDL3ID

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1. Client Information

Company Name:	MaxID Ltd
Address:	Hillswood Business Park 3000 Hillswood Drive Chertsey Surrey KT16 ORS
Contact Name:	Mr R Biggs

2. Equipment Under Test (EUT)

The following information (with the exception of the date of receipt) has been supplied by the customer:

2.1. Description of EUT

The equipment under test is a Rugged Multifunctional Mobile Computer with HF RFID, GSM/GPRS, Wireless LAN, GPS, finger sensor and barcode/imager functionality.

2.2. Identification of Equipment Under Test (EUT)

Description:	Rugged Mobile Computer
Brand Name:	iDL
Model Name or Number:	iDL3ID FCC test unit 1
Serial Number:	505159
IMEI Number:	359811000479573
Hardware Version Number:	VER 1.0
Software Version Number:	03.0006.13
FCC ID Number:	TFTIDL3ID01
Country of Manufacture:	United States of America
Date of Receipt:	05 March 2008

Description:	Docking station for Mobile computer
Brand Name:	iDL docking station
Model Name or Number:	iDL doc
Serial Number:	CHN00002
IMEI Number:	Not Applicable
Hardware Version Number:	VER1.0
Software Version Number:	Not Applicable
FCC ID Number:	TFTIDL3ID01
Country of Manufacture:	United States of America
Date of Receipt:	05 March 2008

Identification of Equipment Under Test (EUT) (Continued)

Description:	AC-DC Adaptor
Brand Name:	Netgear
Model Name or Number:	DV-1280-3UK
Serial Number:	330-10102-01
Country of Manufacture:	United States of America
Date of Receipt:	05 March 2008

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified. Note that the EUT was modified by the manufacturer before submission for testing. An external serial and USB cable including connections were fitted and passed though the bottom of the casing. Both cables were approximately 100mm long and were fitted in order to control 802.11 functions during testing.

2.4. Support Equipment

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

Description:	Laptop
Brand Name:	Dell
Model Name or Number:	Latitude 110L
Serial Number:	(01)07898349890528
Cable Length and Type:	Not applicable
Connected to Port:	Serial and USB

Description:	USB to serial adaptor
Brand Name:	Prolific
Model Name or Number:	GMUS-03
Serial Number:	None stated
Cable Length and Type:	1 m, serial cable
Connected to Port:	USB

Support Equipment (Continued):

Description:	RS-232 extender cable
Brand Name:	None stated
Model Name or Number:	None stated
Serial Number:	None stated
Cable Length and Type:	2 m, 9way male to 9way female D-type
Connected to Port:	Serial

2.5. Additional Information Related to Testing

Intended Operating Environment:	Commercial, Light Industry, Heavy Industry, Within GSM Coverage		
Equipment Category:	802.11 (x), GSM/GPRS/EGPRS, HF RFID, GPS		
Type of Unit:	Portable (Standalone battery powered device) Transceiver		
Power Supply Requirement:	Nominal 110 V, 60 Hz AC Mains Supply Internal battery supply of 3.4 V		
Transmit Frequency Range:	2400 MHz to 2483.5 MHz		
Transmit Channels Tested:	**Channel Description**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	1	2412
	Middle	6	2437
	Top	11	2462
Receive Frequency Range:	2400 MHz to 2483.5 MHz		
Receive Channels Tested:	**Channel Description**	**Channel Number**	**Channel Frequency (MHz)**
	Bottom	Not Applicable	2412
	Middle	Not Applicable	2437
	Top	Not Applicable	2462

2.6. Port Identification

Port	Description	Type/Length
1	Serial (RS-232) interface	9 way d-type female/100mm
2	USB	Type A connector/50mm
3	SIM	Standard GSM SIM

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	FCC Part 15.247: 2007 Subpart C Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz
Title:	Code of Federal Regulations, Part 15.247 (47CFR15)

3.2. Methods and Procedures

The methods and procedures used were as detailed in:

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

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:

- WiFi was put into a test mode with software provided by the module manufacturer.
- Transmitter testing was performed on the top , middle and bottom channels with the EUT transmitting at maximum power and the maximum data rate.
- Standby mode testing performed with the EUT transmitter turned off.
- AC conducted and radiated emissions tests were performed with the EUT placed on the charger in standby and TX modes. All other testing was performed with the EUT in standalone mode.

5.2. Configuration and Peripherals

The EUT was tested in the following configuration:

- WiFi was setup using a bespoke application on a laptop computer. The PC was connected to the EUT using a serial cable connected to the external RS-232 port. The PC application controlled the EUT power, frequency and 802.11 mode. NB The laptop PC can be disconnected from the EUT once the required mode of operation has been selected.

6. Summary of Test Results

Range of Measurements	Specification Reference	Port Type	Compliancy Status
Receiver AC Conducted Emissions (150 kHz to 30 MHz)	C.F.R. 47 FCC Part 15: 2007 Section 15.107	AC Mains	Complied
Receiver Radiated Spurious Emissions	C.F.R. 47 FCC Part 15: 2007 Section 15.109	Antenna	Complied
Transmitter AC Conducted Emissions (150 kHz to 30 MHz)	C.F.R. 47 FCC Part 15: 2007 Section 15.207	AC Mains	Complied
Transmitter Minimum 6 dB Bandwidth	C.F.R. 47 FCC Part 15: 2007 Section 15.247(a)(2)	Antenna	Complied
Transmitter 20 dB Bandwidth	C.F.R. 47 FCC Part 2: 2007 Section 2.1049	Antenna	Complied
Transmitter Peak Power Spectral Density	C.F.R. 47 FCC Part 15: 2007 Section 15.247(e)	Antenna	Complied
Transmitter Maximum Peak Output Power	C.F.R. 47 FCC Part 15: 2007 Section 15.247(b)(3)	Antenna	Complied
Transmitter Radiated Emissions	C.F.R. 47 FCC Part 15: 2007 Sections 15.247(d) & 15.209(a)	Antenna	Complied
Transmitter Band Edge Radiated Emissions	C.F.R. 47 FCC Part 15: 2007 Sections 15.247(d) & 15.209(a)	Antenna	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

- FCC Site Registration Number: 90895

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. Receiver AC Conducted Spurious Emissions

Tests were performed using the test methods detailed in ANSI C63.4 Section 7.

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Note(s)
See Note 1					

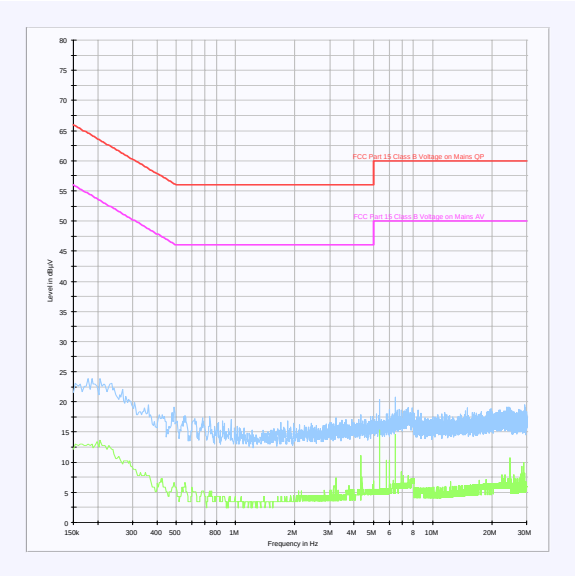
Average Detector Measurements on Live and Neutral Lines

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Note(s)
See Note 1					

Note(s):

1. *All emissions were >20 dB below the applicable limits.*

Receiver AC Conducted Spurious Emissions (Continued)



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

7.2.2. Receiver Radiated Spurious Emissions

The EUT was configured for radiated emission testing, as described in section 9 of this report.

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

Results:

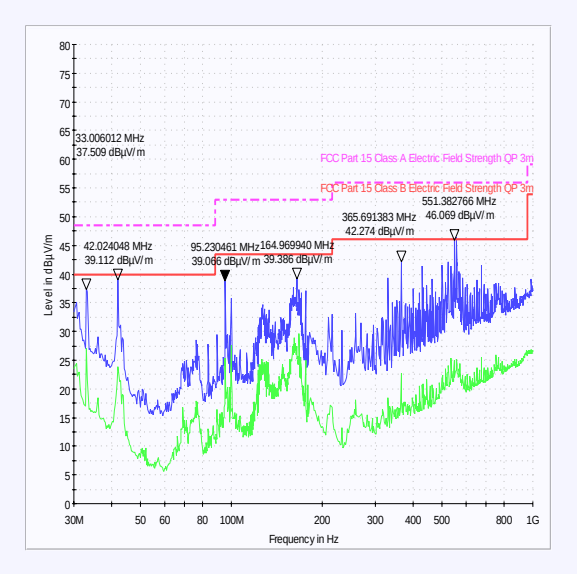
Electric Field Strength Measurements (Frequency Range: 30 MHz to 1000 MHz)

Frequency (MHz)	Antenna Polarity	Quasi-Peak Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Note(s)
365.480	Vertical	34.1	46.0	11.9	Complied
551.798	Vertical	45.6	46.0	0.4	Complied

Note(s):

1. *All other emissions shown on the plot were investigated and were found to be noise floor or ambience.*

Receiver Radiated Spurious Emissions (Continued)



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

7.2.3. Receiver Radiated Spurious Emissions

Results:

Electric Field Strength Measurements (Frequency Range: 1 GHz to 13 GHz)

Highest Peak Level:

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
12.739478	Horizontal	41.3	5.7	47.4	54.0	6.6	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.*

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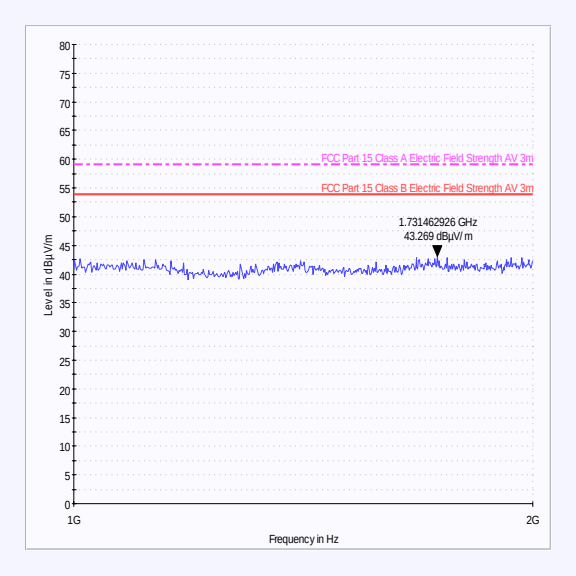
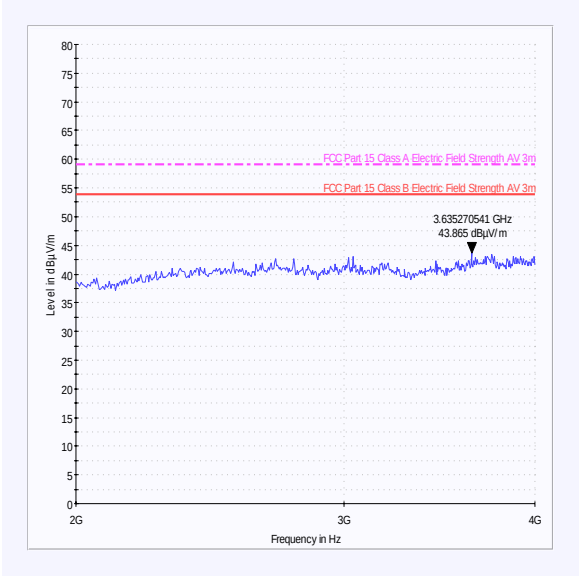
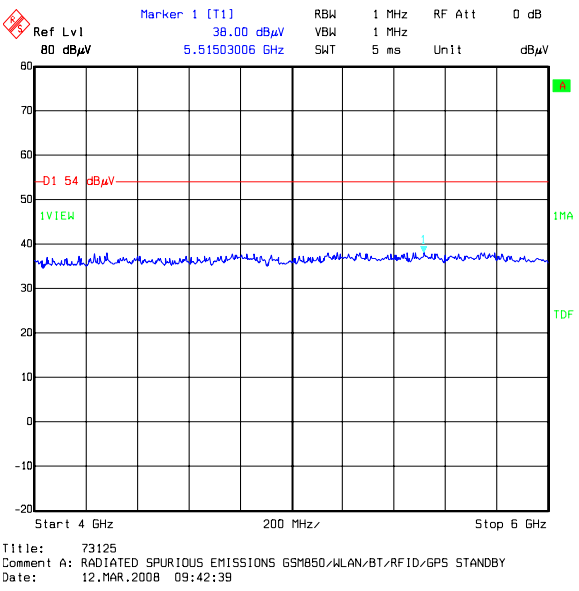
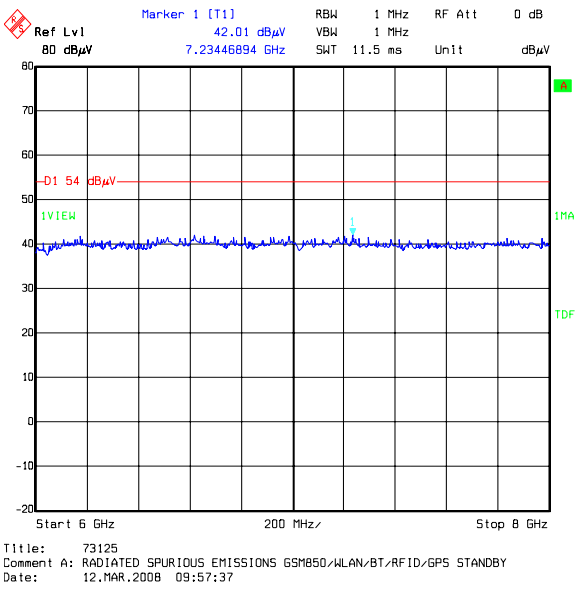
Receiver Radiated Spurious Emissions (Continued)









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

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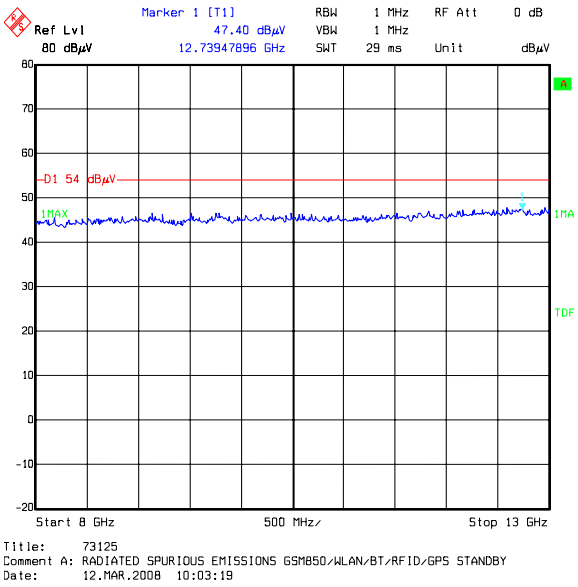
Receiver Radiated Spurious Emissions (Continued)



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

7.2.4. Transmitter AC Conducted Spurious Emissions

The EUT was configured for ac conducted emission measurements, as described in section 9 of this report.

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

Results:

Quasi-Peak Detector Measurements on Live and Neutral Lines

Top Channel

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Note(s)
See Note 1					

Average Detector Measurements on Live and Neutral Lines

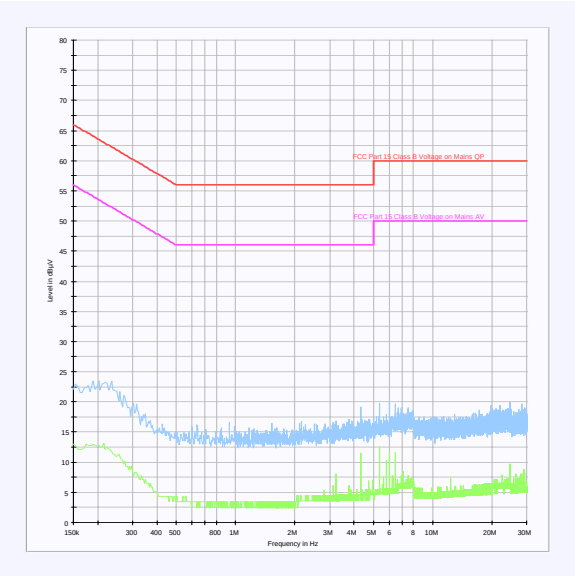
Top Channel

Frequency (MHz)	Line	Level (dBµV)	Limit (dBµV)	Margin (dB)	Note(s)
See Note 1					

Note(s):

1. *All emissions were >20 dB below the applicable limits.*

Transmitter AC Conducted Spurious Emissions (Continued)



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

7.2.5. Transmitter Minimum 6 dB Bandwidth

The EUT was configured for 6 dB bandwidth measurements as described in section 9 of this report.

Results 802.11b:

Channel	Transmitter 6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	9.739	$\geq$ 0.5	9.239	Complied
Middle	9.679	$\geq$ 0.5	9.179	Complied
Top	9.559	$\geq$ 0.5	9.059	Complied

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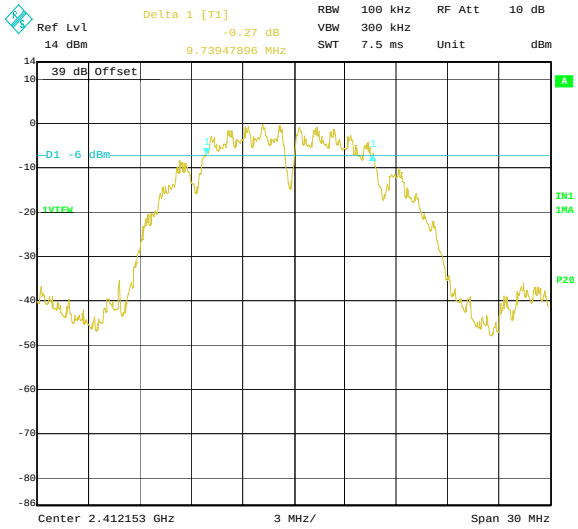
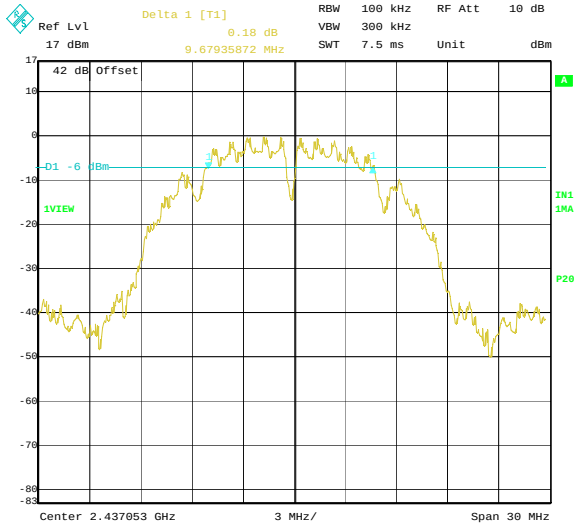
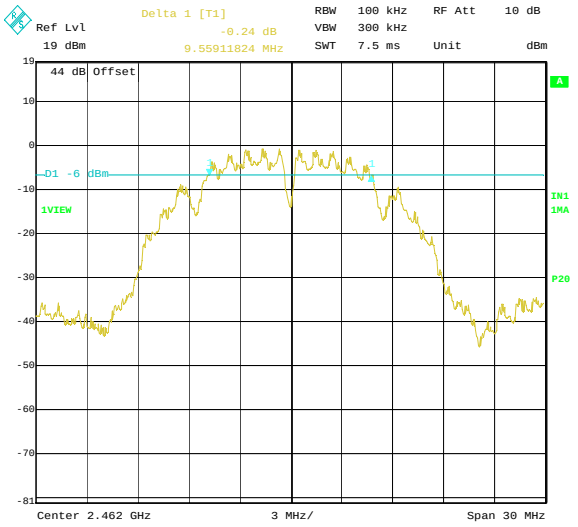
Transmitter Minimum 6 dB Bandwidth (Continued)



Title: 73125
Comment A: FCC 15.247 6dB BANDWIDTH BOTTOM CHANNEL
Date: 14.MAR.2008 09:23:38



Title: 73125
Comment A: FCC 15.247 6dB BANDWIDTH CENTRE CHANNEL
Date: 14.MAR.2008 09:19:07



Title: 73125
Comment A: FCC 15.247 6dB BANDWIDTH TOP CHANNEL
Date: 14.MAR.2008 09:11:20

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

Transmitter Minimum 6 dB Bandwidth (Continued)

The EUT was configured for 6 dB bandwidth measurements as described in section 9 of this report.

Results 802.11g:

Channel	Transmitter 6 dB Bandwidth (MHz)	Limit (MHz)	Margin (MHz)	Result
Bottom	16.593	≥ 0.5	16.093	Complied
Middle	16.593	≥ 0.5	16.093	Complied
Top	16.643	≥ 0.5	16.143	Complied

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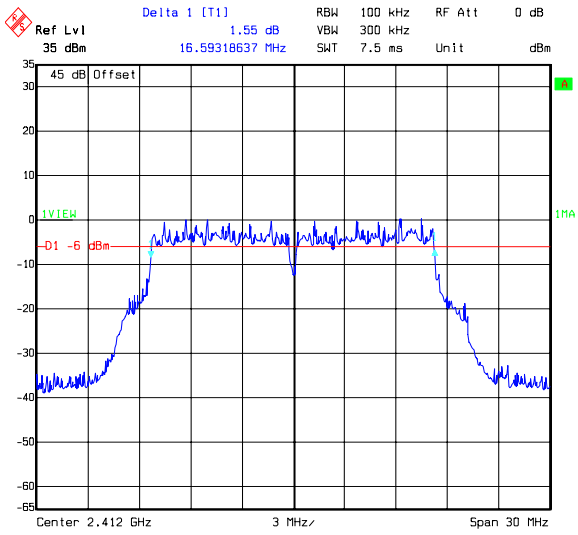
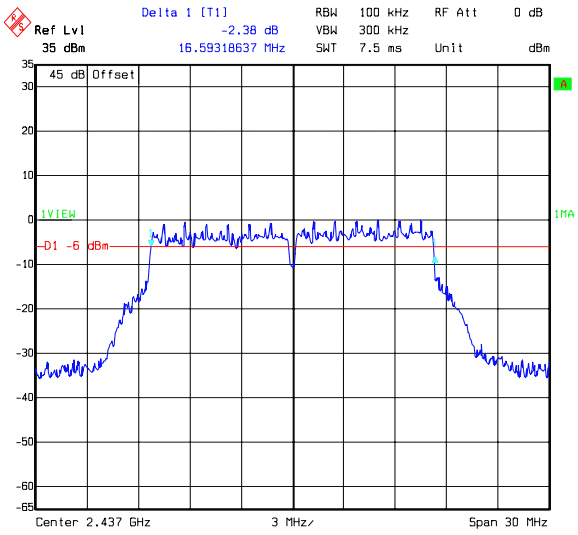
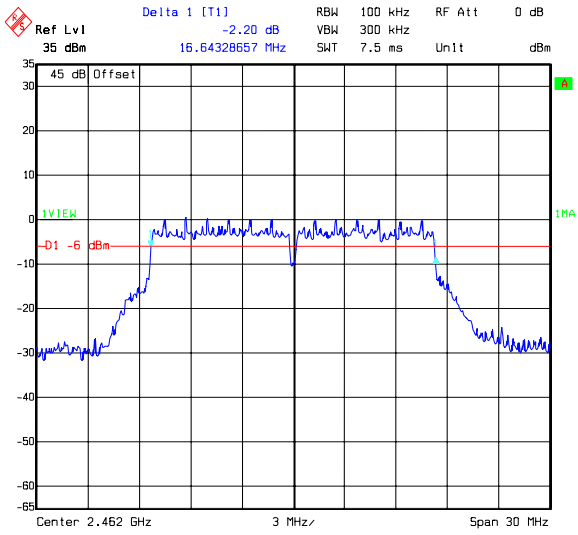
Transmitter Minimum 6 dB Bandwidth (Continued)



Title: 73125
Comment A: FCC 15.247 6 dB BANDWIDTH BOTTOM CHANNEL 802.11g
Date: 14.MAR.2008 08:49:54



Title: 73125
Comment A: FCC 15.247 6 dB BANDWIDTH CENTRE CHANNEL 802.11g
Date: 14.MAR.2008 08:47:36



Title: 73125
Comment A: FCC 15.247 6 dB BANDWIDTH TOP CHANNEL 802.11g
Date: 14.MAR.2008 08:44:35

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

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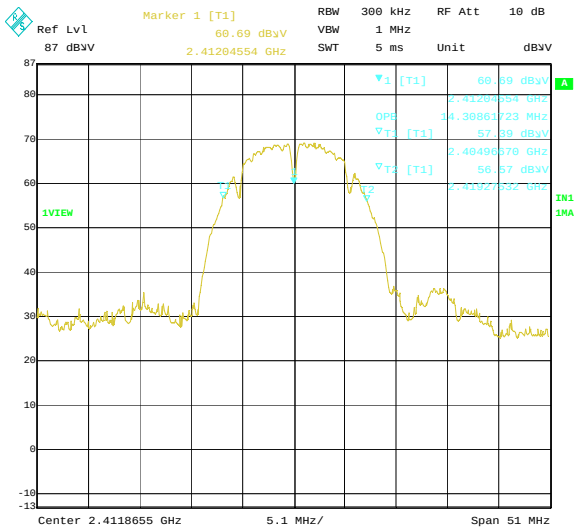
7.2.6. Transmitter Occupied Bandwidth

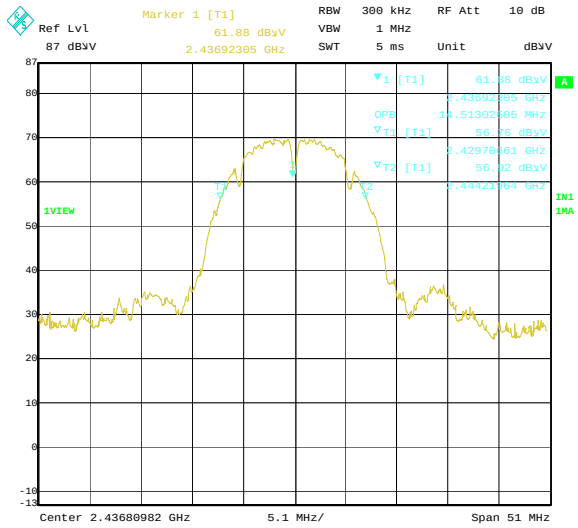
Tests were performed using the test methods detailed in Public Notice DA 00-705 (March 30, 2000)

Results 802.11b:

Channel	Occupied Bandwidth (MHz)	Result
Bottom	14.308	Complied
Middle	14.513	Complied
Top	14.921	Complied



Title: 73125
Comment A: OCCUPIED BANDWIDTH BOTTOM CHANNEL
Date: 14.MAR.2008 12:08:35



Title: 73125
Comment A: OCCUPIED BANDWIDTH CENTRE CHANNEL
Date: 14.MAR.2008 12:04:48

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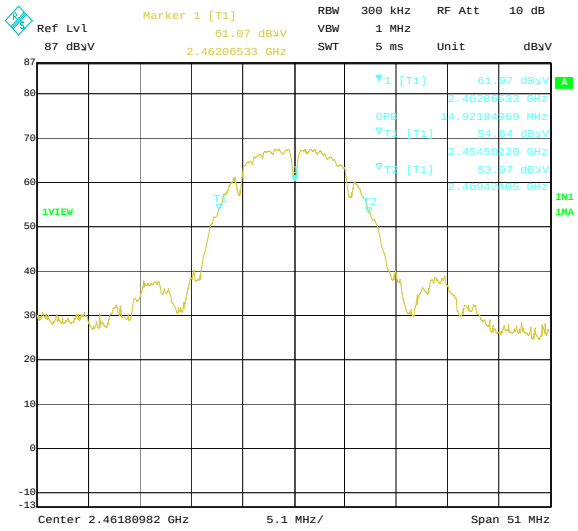
Transmitter Occupied Bandwidth (Continued)



Title: 73125
Comment A: OCCUPIED BANDWIDTH TOP CHANNEL
Date: 14.MAR.2008 11:58:13

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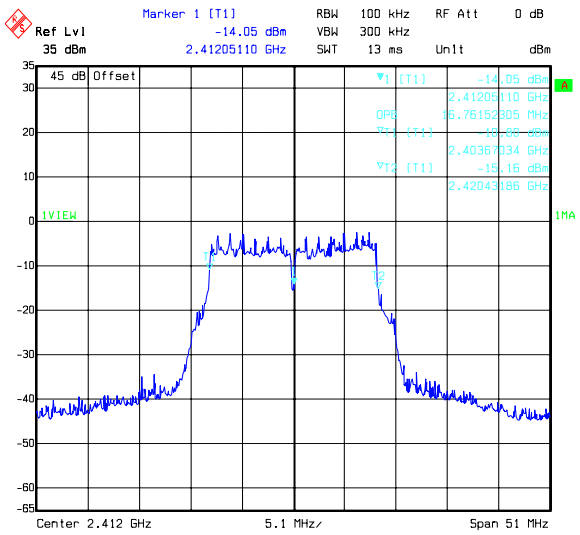
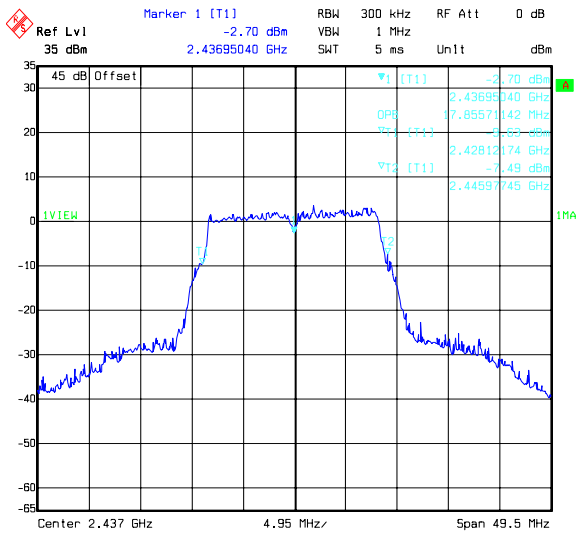
Transmitter Occupied Bandwidth (Continued)

Tests were performed using the test methods detailed in Public Notice DA 00-705 (March 30, 2000)

Results 802.11g:

Channel	Occupied Bandwidth (MHz)	Result
Bottom	16.761	Complied
Middle	17.855	Complied
Top	18.153	Complied





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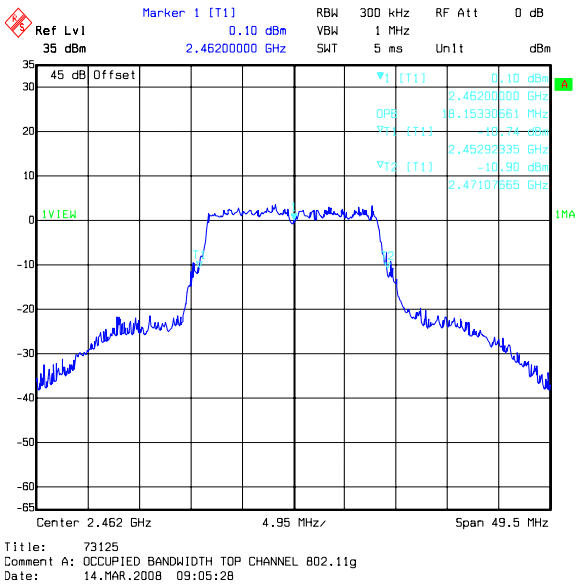
Transmitter Occupied Bandwidth (Continued)



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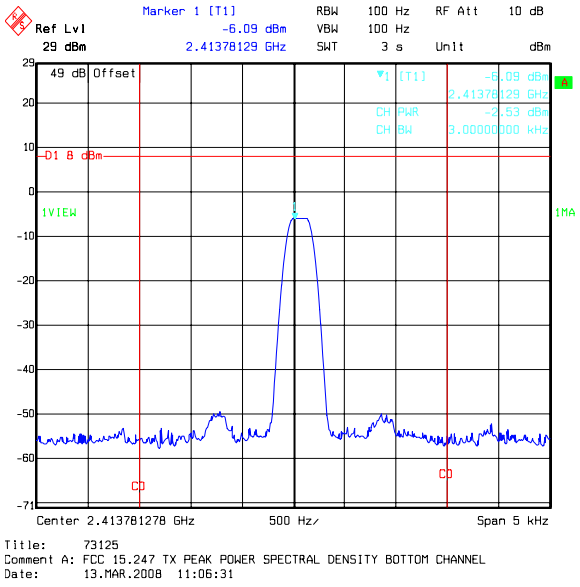
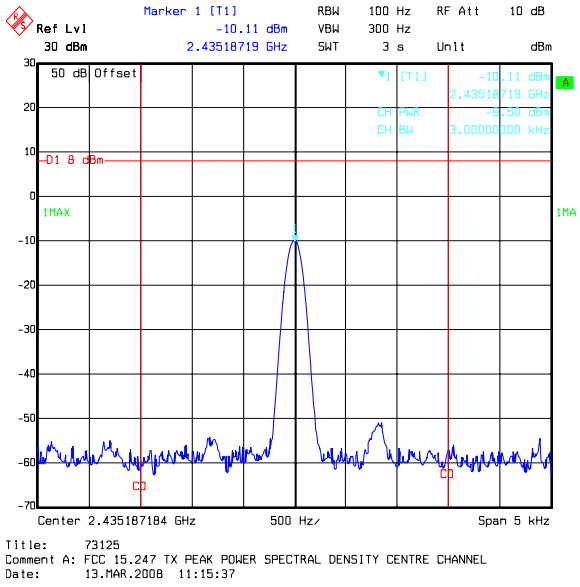
7.2.7. Transmitter Peak Power Spectral Density

The EUT was configured for Peak Power Spectral Density measurements as described in Section 9 of this report.

Results 802.11 b:

Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-2.5	8.0	10.5	Complied
Middle	-9.3	8.0	17.3	Complied
Top	-6.8	8.0	14.8	Complied





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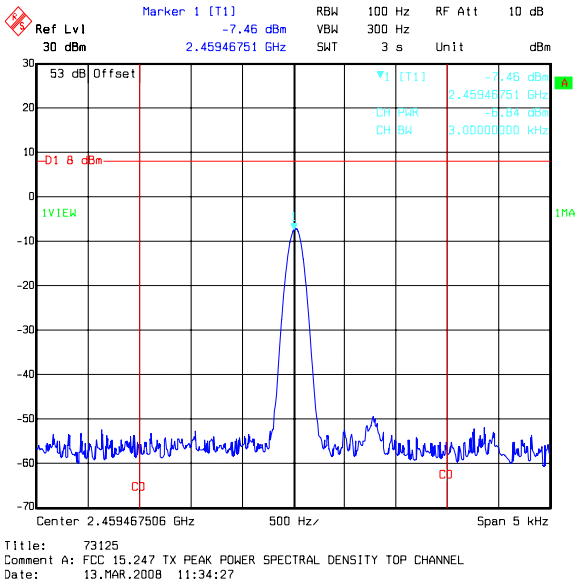
Transmitter Peak Power Spectral Density (Continued)



Transmitter Peak Power Spectral Density (Continued)

Results 802.11 g:

Channel	Output Power (dBm/3 kHz)	Limit (dBm/3 kHz)	Margin (dB)	Result
Bottom	-45.1	8.0	53.1	Complied
Middle	-36.9	8.0	44.9	Complied
Top	-40.6	8.0	48.6	Complied

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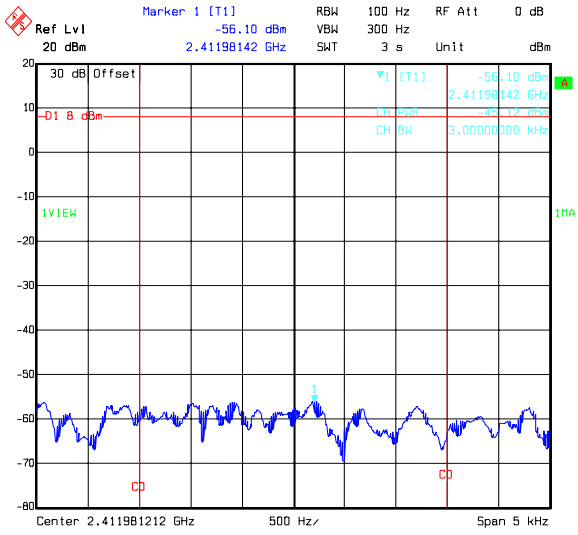
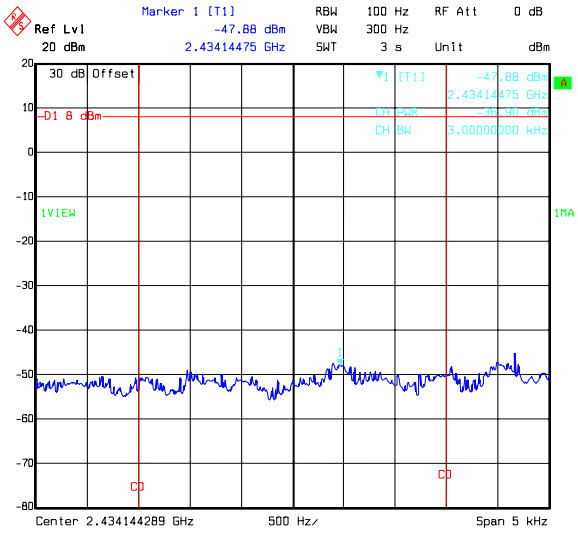
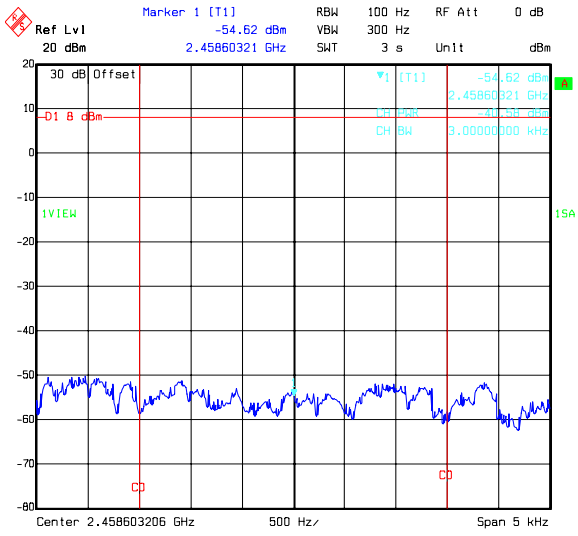
Transmitter Peak Power Spectral Density (Continued)



Title: 73125
Comment A: FCC15.247 PEAK POWER SPECTRAL DENSITY BOTTOM CHANNEL 802.11g
Date: 14.MAR.2008 10:31:16



Title: 73125
Comment A: FCC15.247 PEAK POWER SPECTRAL DENSITY CENTRE CHANNEL 802.11g
Date: 14.MAR.2008 10:16:15



Title: 73125
Comment A: FCC15.247 PEAK POWER SPECTRAL DENSITY TOP CHANNEL 802.11g
Date: 14.MAR.2008 10:20:30

7.2.8. Transmitter Maximum Peak Output Power: (EIRP)

Tests were performed using the test methods detailed in Public Notice DA 00-705 (March 30, 2000), ANSI TIA-603-C-2004 and FCC CFR Part 2.

Results 802.11b:

Battery Powered Devices

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	13.9	30.0	16.1	Complied
Middle	13.2	30.0	16.8	Complied
Top	10.7	30.0	19.3	Complied

Results 802.11g:

Battery Powered Devices

Channel	EIRP (dBm)	Limit (dBm)	Margin (dB)	Result
Bottom	5.6	30.0	24.4	Complied
Middle	6.4	30.0	23.6	Complied
Top	5.8	30.0	24.2	Complied

Note(s):

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

7.2.9. Transmitter Radiated Emissions

Tests were performed using the test methods detailed in ANSI C63.4 Section 8 and Public Notice DA 00-705 (March 30, 2000).

Electric Field Strength Measurements: 30 to 1000 MHz
(emissions occurring in the restricted bands)

Top Channel

Frequency (MHz)	Antenna Polarity	Q-P Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
262.899	Horizontal	41.3	46.0	4.7	Complied

Electric Field Strength Measurements: 30 to 1000 MHz
(emissions outside the restricted bands)

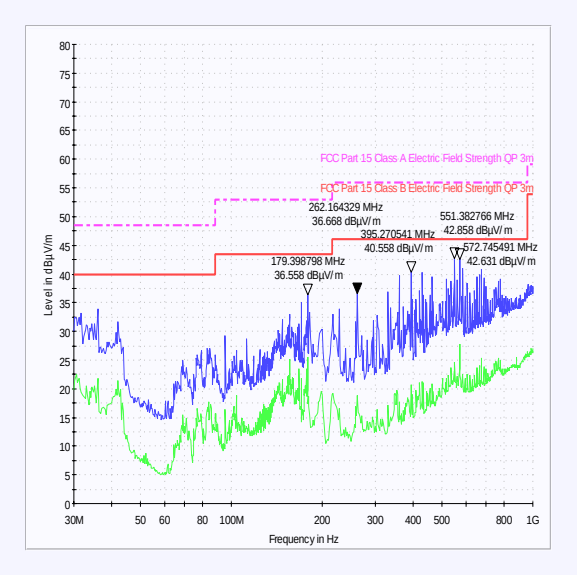
Top Channel

Frequency (MHz)	Antenna Polarity	RMS Averaging Level (dBμV/m)	-30.0 dBc Limit (dBμV/m)	Margin (dB)	Result
179.123	Horizontal	32.5	75.9	43.4	Complied
395.781	Horizontal	45.2	75.9	30.7	Complied
551.798	Vertical	45.6	75.9	30.3	Complied
572.035	Horizontal	44.8	75.9	31.1	Complied

Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

Transmitter Radiated Emissions (Continued)



The pre-scan plot is shown above. The final measurements were carried out with both antennas as supplied by the client.

Transmitter Radiated Emissions (Continued)

Electric Field Strength Measurements (Frequency Range: 1 to 25 GHz)

(emissions occurring in the restricted bands)

Highest Peak Level: Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.823937	Horizontal	61.3	-3.4	57.9	74.0	16.1	Complied
7.235821	Horizontal	47.4	0.1	47.5	74.0	26.5	Complied

Highest Average Level: Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.823937	Horizontal	55.7	-3.4	52.3	54.0	1.7	Complied
7.235821	Horizontal	40.8	0.1	40.9	54.0	13.1	Complied

NOTE: The emission at approximately 12 GHz on the middle and top channel was not present or below the noise floor level when the EUT was transmitting on the bottom channel.

Highest Peak Level: Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.874078	Horizontal	59.9	-3.6	56.3	74.0	17.7	Complied
7.310991	Horizontal	49.1	-0.3	48.8	74.0	25.2	Complied
12.185090	Horizontal	45.5	4.8	50.3	74.0	23.7	Complied

Highest Average Level: Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.874078	Horizontal	52.2	-3.6	48.6	54.0	5.4	Complied
7.310991	Horizontal	40.9	-0.3	40.6	54.0	13.4	Complied
12.185090	Horizontal	38.4	4.8	43.2	54.0	10.8	Complied

Transmitter Radiated Emissions (Continued)

Electric Field Strength Measurements (Frequency Range: 1 to 25 GHz)

Highest Peak Level: Top Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.923837	Horizontal	51.3	-3.7	47.6	74.0	26.4	Complied
7.386012	Horizontal	57.0	-0.4	56.6	74.0	17.4	Complied
12.309776	Horizontal	51.8	5.2	57.0	74.0	17.0	Complied

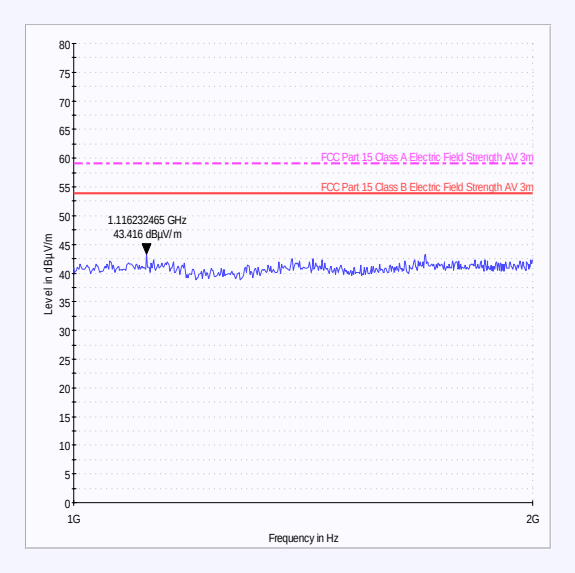
Highest Average Level: Top Channel

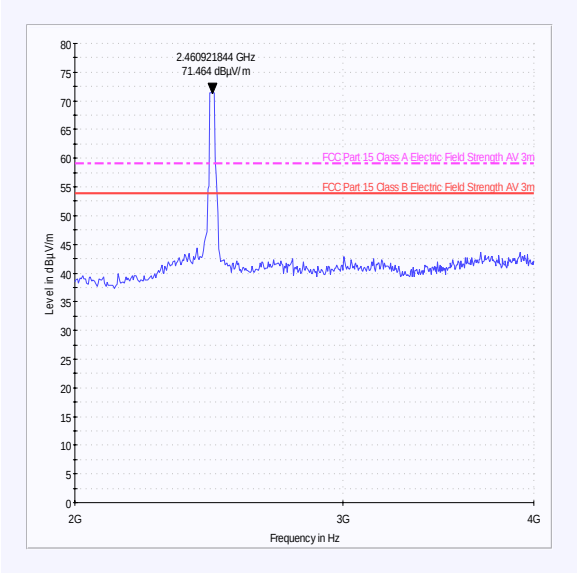
Frequency (GHz)	Antenna Polarity	Detector Level (dBμV)	Transducer Factor (dB)	Actual Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Result
4.923837	Horizontal	48.8	-3.7	45.1	54.0	8.9	Complied
7.386012	Horizontal	51.7	-0.4	51.3	54.0	2.7	Complied
12.309776	Horizontal	44.0	5.2	49.2	54.0	4.8	Complied

Test of: MaxID Ltd
iDL3ID

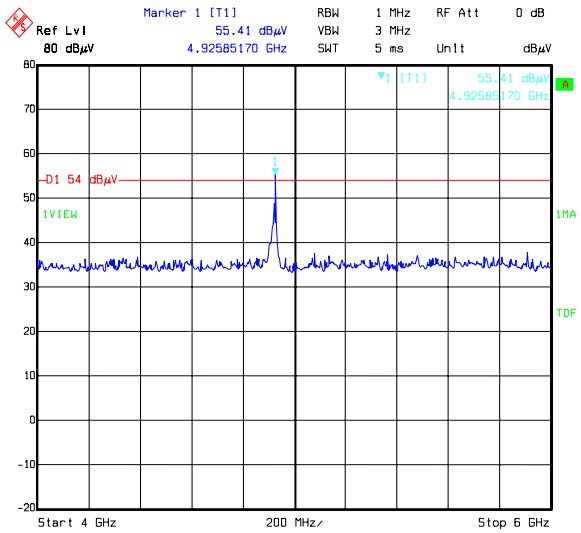
To: FCC Part 15.247: 2007 (Subpart C)

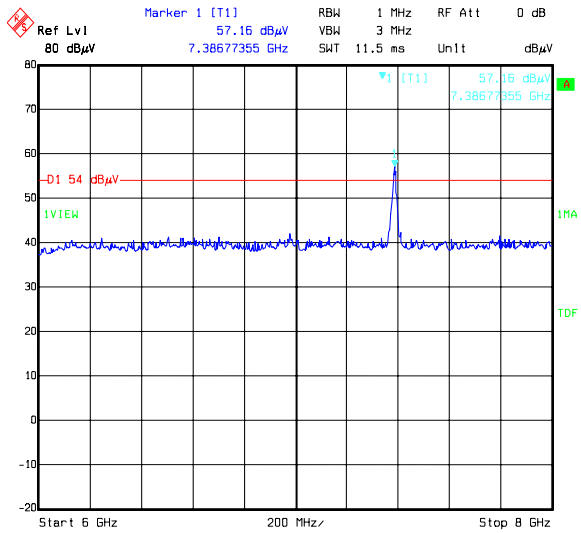
Transmitter Radiated Emissions (Continued)





NOTE: The carrier is shown on the above plot at 2.460921 GHz



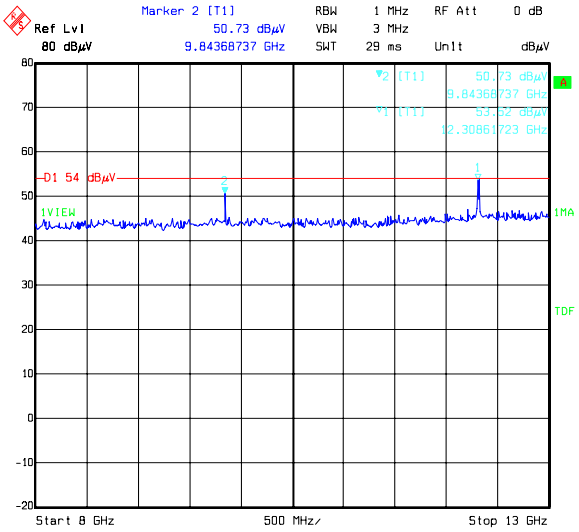


Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

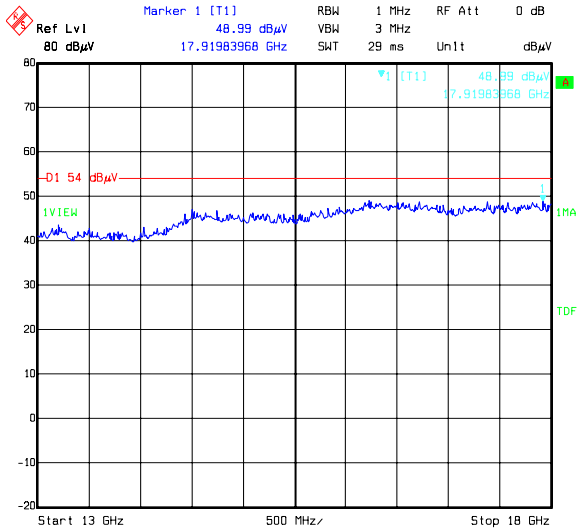
Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

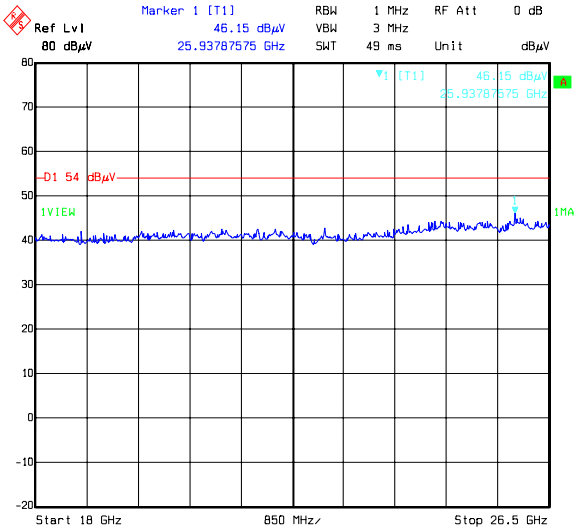
Transmitter Radiated Emissions (Continued)



Title: 73125
Comment A: FCC 15.247 TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.MAR.2008 13:25:52



Title: 73125
Comment A: FCC 15.247 TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.MAR.2008 13:28:27



Title: 73125
Comment A: FCC 15.247 TX RADIATED EMISSIONS TOP CHANNEL
Date: 13.MAR.2008 13:33:36

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

Transmitter Radiated Emissions (Continued)

Electric Field Strength Measurements (Frequency Range: 1 to 25 GHz)
(emissions outside the restricted bands)

Highest Peak Level: Bottom Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
9.647885	Horizontal	50.4	3.1	53.5	89.1	35.6	Complied

Highest Peak Level: Middle Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
9.747875	Horizontal	51.3	3.5	54.8	89.1	34.3	Complied

Highest Peak Level: Top Channel

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	-20 dBc Limit (dBµV/m)	Margin (dB)	Result
9.847912	Horizontal	46.9	3.5	50.4	89.1	38.7	Complied

Note(s):

1. *The EUT was transmitting in 802.11b mode for all tests as the power was higher than 802.11g mode and therefore worst case.*

Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

7.3. Transmitter Band Edge Conducted Emissions

Tests were performed using the test methods detailed in Public Notice DA 00-705 (March 30, 2000) and FCC CFR Part 2.

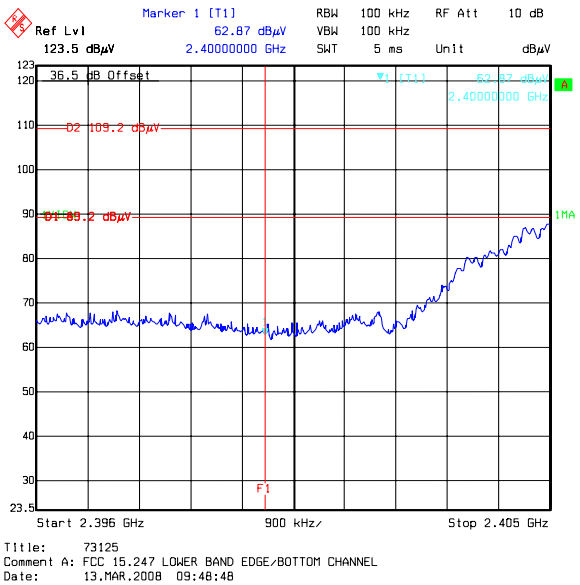
Results:

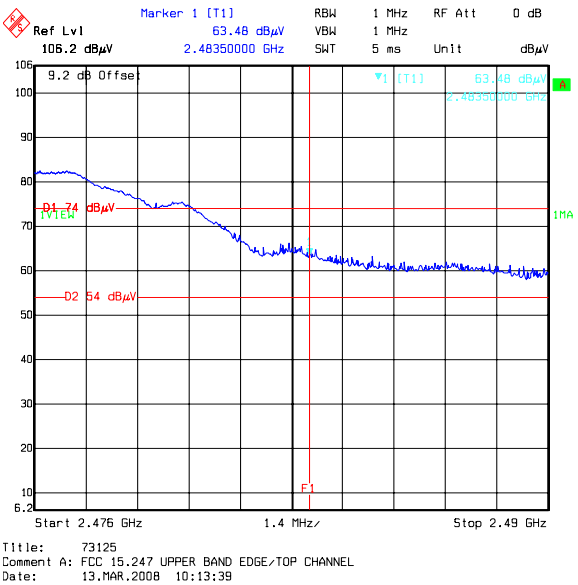
Peak Power Level 802.11b:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Horizontal	69.4	-6.5	62.9*	89.2	26.3	Complied
2.4835	Horizontal	71.5	-8.0	63.5	74.0	11.5	Complied

Note:* *-20 dBc limit***

*** Note: Peak and average measurements were performed on the band edge frequency 2.4835 GHz, as it is adjacent to the restricted bands*





Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

Transmitter Band Edge Conducted Emissions (Continued)

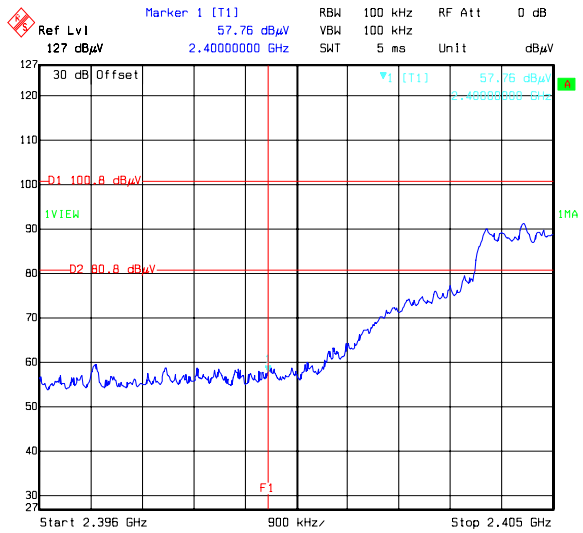
Results:

Peak Power Level 802.11g:

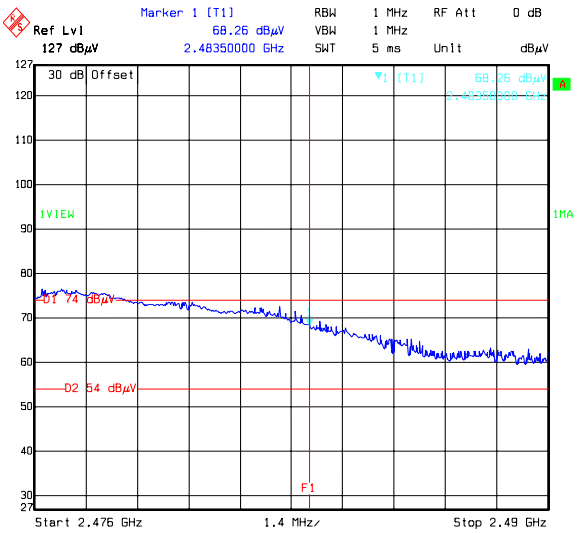
Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Horizontal	64.3	-6.5	57.8*	80.8	23.0	Complied
2.4835	Horizontal	76.3	-8.0	68.3	74.0	5.7	Complied

*Note: ***-20 dBc limit***

** Note: Peak measurements were performed on the band edge frequency 2.4835 GHz, as it is adjacent to the restricted bands.



Title: 73125
Comment A: FCC 15.247 LOWER BAND EDGE/BOTTOM CHANNEL 802.11g
Date: 15.MAR.2008 10:44:00



Title: 73125
Comment A: FCC 15.247 LOWER BAND EDGE/TOP CHANNEL 802.11g
Date: 15.MAR.2008 10:48:24

Test of: MaxID Ltd
iDL3ID

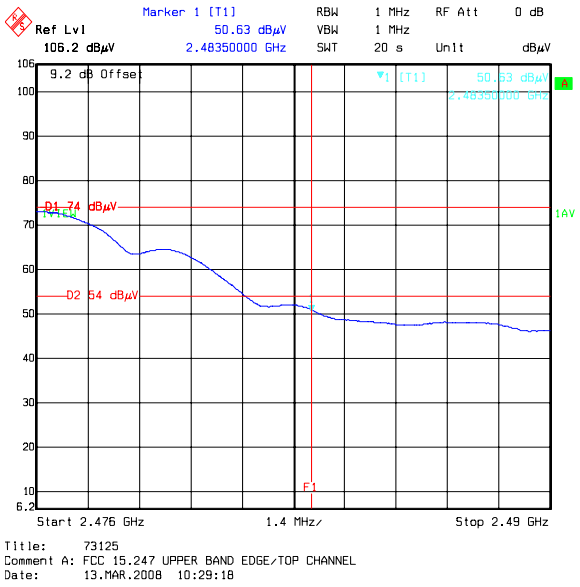
To: FCC Part 15.247: 2007 (Subpart C)

Transmitter Band Edge Conducted Emissions (Continued)

Results:

Average Power Level 802.11b:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	Horizontal	58.6	-8.0	50.6	54.0	3.4	Complied



Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

Transmitter Band Edge Conducted Emissions (Continued)

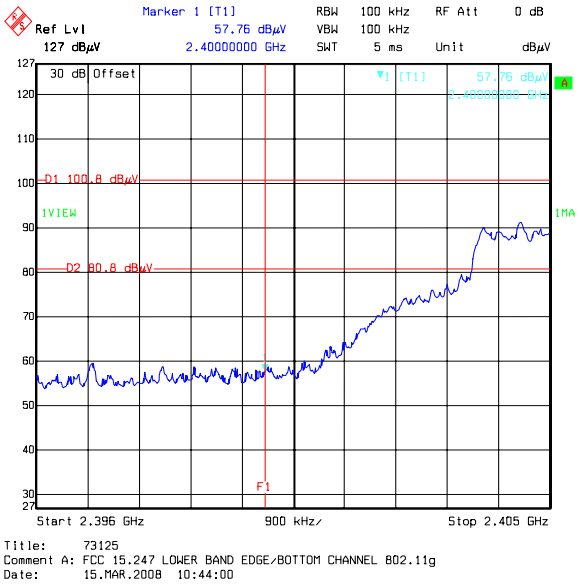
Results:

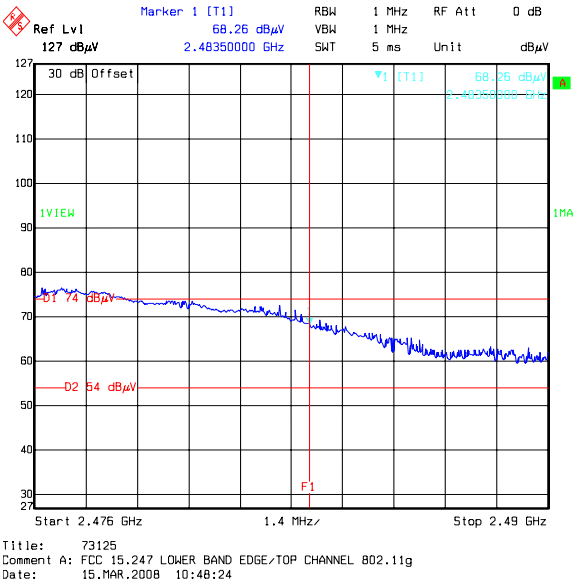
Peak Power Level 802.11g:

Frequency (MHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4000	Horizontal	64.3	-6.5	57.8*	80.8	23.0	Complied
2.4835	Horizontal	76.3	-8.0	68.3	74.0	5.7	Complied

*Note: ***-20 dBc limit***

** Note: ***Peak and average measurements were performed on the band edge frequency 2.4835 GHz, as it is adjacent to the restricted bands***





Test of: MaxID Ltd
iDL3ID

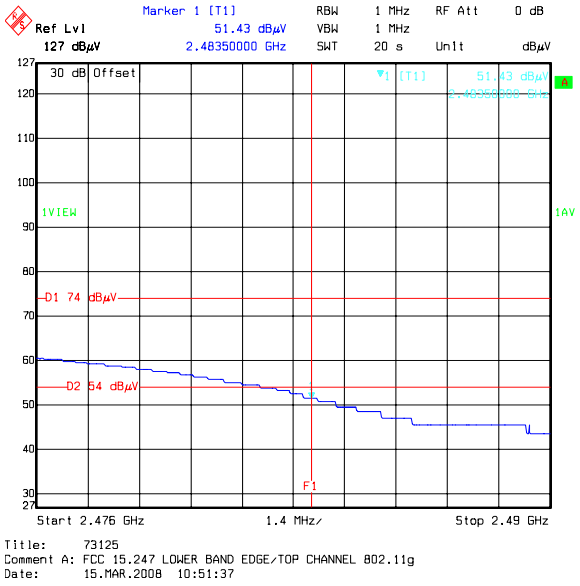
To: FCC Part 15.247: 2007 (Subpart C)

Transmitter Band Edge Conducted Emissions (Continued)

Results:

Average Power Level 802.11g:

Frequency (GHz)	Antenna Polarity	Detector Level (dBµV)	Transducer Factor (dB)	Actual Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
2.4835	Horizontal	59.4	-8.0	51.4	54.0	3.6	Complied



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%	+/- 3.25 dB
Transmitter Maximum Peak Output Power	Not applicable	95%	+/- 0.46 dB
Spectral Power Density	Not applicable	95%	+/- 1.2 dB
6 dB/20 dB Bandwidth	Not applicable	95%	+/- 0.12 %
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	+/- 5.26 dB
Radiated Spurious Emissions	1 GHz to 25 GHz	95%	+/- 1.78 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.

9. Measurement Methods

9.1. AC Mains Conducted Emissions

AC mains conducted emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane. The EUT was powered with 110V 60 Hz AC mains supplied via a Line Impedance Stabilisation Network (LISN).

Initial measurements in the form of swept scans covering the entire measurement band were performed in order to identify frequencies on which the EUT was generating interference. In order to minimise the time taken for these swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidths (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

Following the initial scans, a graph was produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested (at individual frequencies) using the appropriate detector function.

The test equipment settings for conducted emissions measurements were as follows:

Receiver Function	**Initial Scan**	**Final Measurements**
Detector Type:	Peak	Quasi-Peak (CISPR)/Average
Mode:	Max Hold	Not applicable
Bandwidth:	10 kHz	9 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

9.2. Radiated Emissions

Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

Initial measurements covering the entire measurement band in the form of swept scans in a shielded enclosure were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which the EUT should be re-measured in full on the open area test site. In order to minimise the time taken for the swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates.

The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. Following the initial scans, graphs were produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. Any emission within 20 dB of the limit were then measured on the open area test site, except in cases where the noise floor was within 20 dB of the limit, in these cases the highest point of the noise floor was measured.

Where an emission fell inside a restricted band, measurements were made at the appropriate test distance using a measuring receiver with a Quasi-Peak detector for measurements below 1000 MHz and an Average and Peak detector for measurements above 1000 MHz. A peak detector was used for all other measurements.

For the final measurements the EUT was arranged on a non-conducting turn table on a standard test site compliant with ANSI C63.4 – 2001 Clause 5.4.

All measurements on the open area test site were performed using broadband antennas.

On the open area test site, at each frequency where a signal was to be measured, the trace was maximised by rotating a turntable through 360°. The angle at which the maximum signal was observed was locked out. For frequencies below 1000 MHz the test antenna was varied in height between 1 m and 4 m in order to further maximise the target emission.

For frequencies above 1000 MHz where a horn antenna was used, height searching was performed to locate the optimal height of the horn with respect to the EUT. At this point the horn was locked off and the turntable was again rotated through 360° to maximise the target signal. It should be noted that the received signal from the EUT would diminish very quickly after it exits the beam width of the horn antenna, for this reason it may not be necessary to fully height search with the horns.

At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT.

Scans were performed to the upper frequency limits as stated in Section 15.33

The final field strength was determined as the indicated level in dBμV plus cable loss and antenna factor.

Radiated Emissions (Continued)

The test equipment settings for radiated emissions measurements were as follows:

Receiver Function	Initial Scan	Final Measurements Below 1 GHz	Final Measurements Above 1 GHz
Detector Type:	Peak	Quasi-Peak (CISPR)	Peak / Average
Mode:	Max Hold	Not applicable	Max Hold
Bandwidth:	(120 kHz < 1 GHz) (1 MHz > 1 GHz)	120 kHz	1 MHz
Amplitude Range:	100 dB	100 dB	100 dB
Step Size:	Continuous sweep	Not applicable	Not applicable
Sweep Time:	Coupled	Not applicable	Not applicable

9.3. Conducted Antenna Port Emissions

Conducted antenna port emissions measurements were performed using a 100 kHz bandwidth in accordance with the standard against the appropriate limits.

Prior to testing being performed a suitable RF attenuator and cable was calibrated for the required frequency range. For each measurement range the calibrated level of the attenuator and cable were entered as an offset into the spectrum analyser to compensate for the losses in the measurement set up.

Initial measurements covering the entire measurement band in the form of swept scans were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which final measurements were necessary. To make the final measurements a peak detector was used in conjunction with the appropriate detector IF measuring bandwidth.

Repetitive scans were performed to allow for emissions with low repetition rates.

Scans were performed to the upper frequency limits as stated in 15.33(a)(1)

9.4. Minimum 6 dB Bandwidth

The EUT and spectrum analyser were configured as for conducted antenna port emissions.

Prior to testing being performed a suitable RF attenuator and cable was calibrated for the required frequencies. For each frequency the calibrated level of the attenuator and cable were entered as an offset into the spectrum analyser to compensate for the losses in the measurement set up.

To determine the 6 dB bandwidth, a resolution bandwidth of 200 kHz was used, which is approximates to 1% of the 6 dB bandwidth. A video bandwidth of 1000 kHz was used. The analyser was set to a span of greater than twice the 6 dB bandwidth and for a maximum hold scan to capture the profile of the signal. The peak level was then determined, and a reference established 6 dB below the peak level. The bandwidth was determined at the points where the 6 dB reference crossed the profile of the emission.

9.5. Transmitter 20 dB Bandwidth

The EUT and spectrum analyser was configured as for transmitter conducted antenna port emissions.

To determine the occupied bandwidth, a resolution bandwidth of 200 kHz was used, which is greater than 1% of the 20 dB bandwidth. A video bandwidth of a least the same value was used. The analyser was set for a maximum hold scan to capture the profile of the signal. The peak level was then determined, and a reference line was drawn 20 dB below the peak level. The bandwidth was determined at the points where the 20 dB reference crossed the profile of the emission.

9.6. Spectral Power Density

The EUT and spectrum analyser were configured as for conducted antenna port emissions measurements.

Prior to testing being performed a suitable RF attenuator and cable was calibrated for the required frequencies. For each frequency the calibrated level of the attenuator and cable were entered as an offset into the spectrum analyser to compensate for the losses in the measurement set up.

Prior to the measurement being taken the spectrum analyser was tuned to the fundamental frequency of the EUT.

A resolution bandwidth of 3 kHz was selected and the analyser was set to a span of greater than twice the 6 dB bandwidth. The trace was max held and a reading was taken at the peak point of the trace.

9.7. Peak Output Power

The EUT and spectrum analyser were configured as for conducted antenna port emissions measurements.

Prior to testing being performed, a suitable RF attenuator and cable were calibrated for the required frequencies. For each frequency to be measured, the calibrated level of the attenuator, cable and a duty cycle correction of 3.3 dB were entered as an offset into a wideband power meter to compensate for the measurement set up.

To determine the transmitter output power, the EUT was operated at maximum power and a result was obtained using a wideband peak power meter.

Appendix 1. Test Equipment Used

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
A028	Antenna	Eaton	91888-2	304	08 Jun 2006	36
A031	Antenna	Eaton	91889-2	557	08 Jun 2006	36
A067	Line Impedance Stabilization Network	Rohde & Schwarz	ESH3-Z5	890603/002	23 Apr 2007	12
A1534	Pre Amplifier	Hewlett Packard	8449B OPT H02	3008A00405	Calibrated before use	-
A1829	Pulse Limiter	Rhode & Schwarz	ESH3-Z2	100671	16 Jan 2008	12
A253	Antenna	Flann Microwave	12240-20	128	17 Nov 2006	36
A254	Antenna	Flann Microwave	14240-20	139	17 Nov 2006	36
A255	Antenna	Flann Microwave	16240-20	519	17 Nov 2006	36
A256	Antenna	Flann Microwave	18240-20	400	17 Nov 2006	36
A259	Antenna	Chase	CBL6111	1513	18 Mar 2007	12
A288	Antenna	Chase	CBL6111A	1589	Calibrated as part of system	-
A436	Antenna	Flann	20240-20	330	24 Apr 2006	36
C1072	Cable	Rosenberger	FA210a1030M5050	Not Stated	Calibrated before use	-
C1161	Cable	Rosenberger	05 42448-1	33	Calibrated before use	-
C1262	Cable	Rosenberger	FA210A0075008080	49356-2	Calibrated before use	-
C1265	Cable	Rosenberger	FA210A1020007070	49317-01	Calibrated before use	-
C341	Cable	Andrews	None	None	Calibrated before use	-
C454	Cable	Rosenberger	RG142XX-001-RFIB	C454-10081998	Calibrated before use	-

Test Equipment Used (Continued)

RFI No.	Instrument	Manufacturer	Type No.	Serial No.	Date Last Calibrated	Cal. Interval (Months)
C461	Cable	Rosenberger	UFA210A-1-1182-704704	98H0305	Calibrated before use	-
C468	Cable	Rosenberger	UFA210A-1-3937-504504	98L0440	Calibrated before use	-
M023	Test Receiver	Rohde & Schwarz	ESVP	872 991/027	24 Apr 2007	12
M024	Spectrum Monitor	Rohde & Schwarz	EZM	873 952/006	Calibrated before use	-
M1242	Spectrum Analyser	Rohde & Schwarz, Inc.	FSEM30	845986/022	29 Nov 2007	12
M1379	Test Receiver	Rohde and Schwarz	ESIB7	100330	02 Aug 2007	12
S201	Open Area Test Site	RFI	1		25 May 2007	12
S202	Site 2	RFI	2	S202-15011990	28 Jan 2008	12
S209	Anechoic Chamber	RFI	9		29 May 2006	12

Appendix 2. Test Configuration Drawings

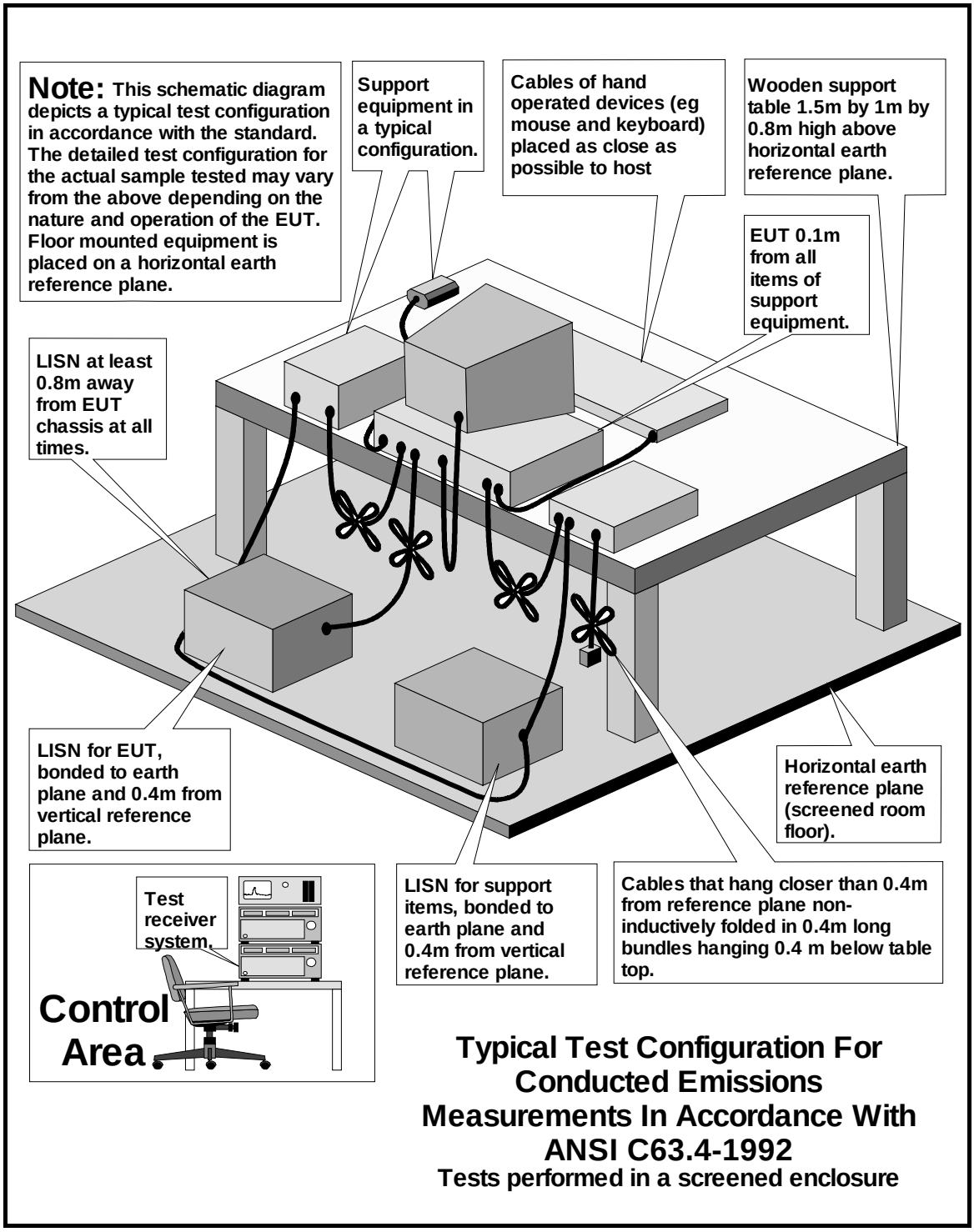
This appendix contains the following drawings:

Drawing Reference Number	Title
DRG\73125JD03\EMICON	Test configuration for measurement of conducted emissions.
DRG\73125JD03\EMIRAD	Test configuration for measurement of radiated emissions.

Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

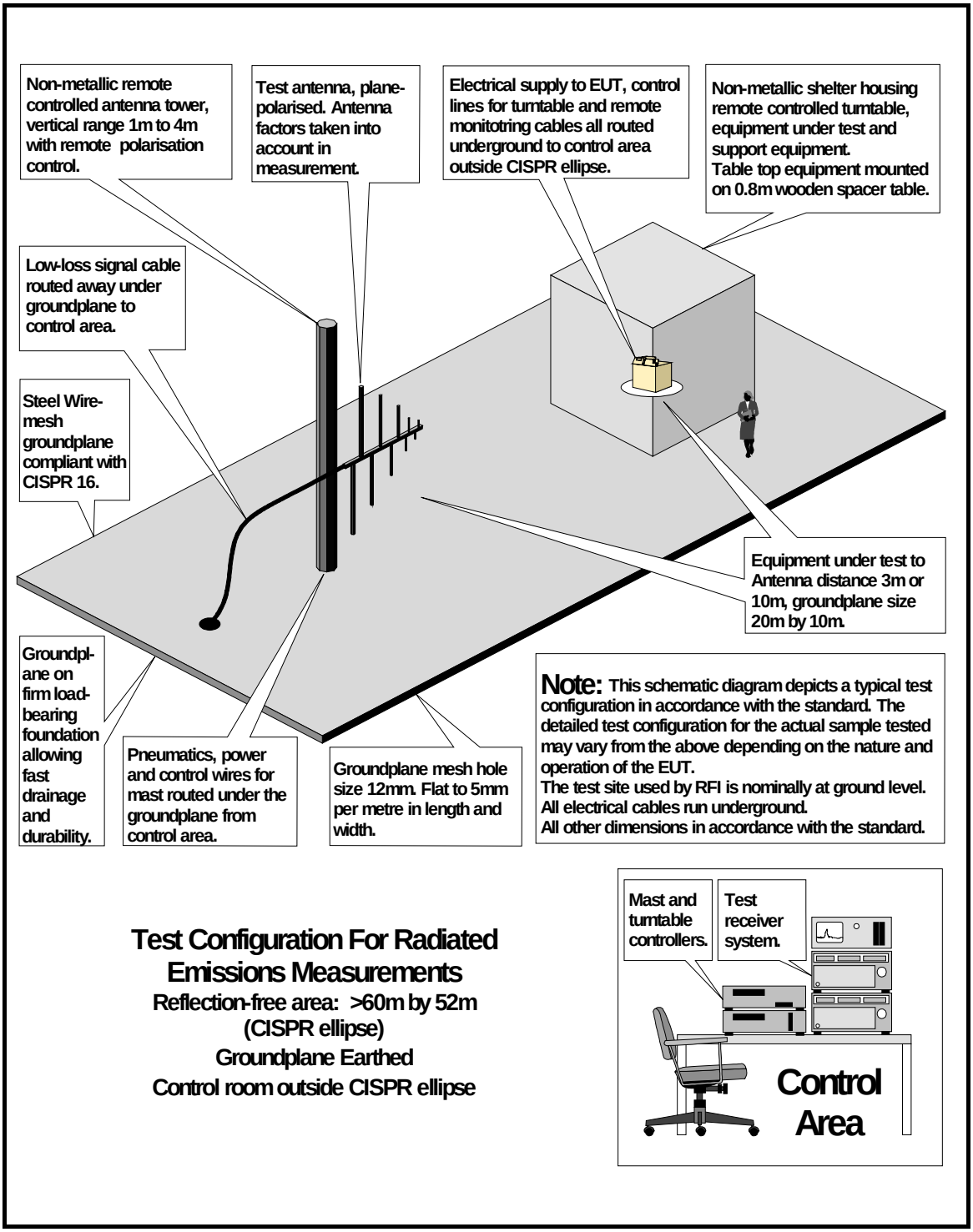
DRG\73125JD03\EMICON



Test of: MaxID Ltd
iDL3ID

To: FCC Part 15.247: 2007 (Subpart C)

DRG\73125JD03\EMIRAD



Test Configuration For Radiated Emissions Measurements
Reflection-free area: >60m by 52m (CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse