Global EMC Inc. Labs

EMC & RF Test Report

As per

RSS 210 Issue 7:2007

&

FCC Part 15 Subpart C:2008

Unlicensed Intentional Radiators

on the

MyTraker Interactive Health Coach

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Testing produced for

MYTRAK

See Appendix A for full customer & EUT details.

Industry Canada

LAB REGISTRATION #6844A-1

FCC REGISTRATION #612361

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2555.01

Table of Contents

Table of Contents 2

Report Scope 3

Summary 4

- Test Results Summary 5
- Justifications, Descriptions, or Deviations 6
- Applicable Standards, Specifications and Methods 7
- Sample calculation(s) 8
- Document Revision Status 8

Definitions and Acronyms 9

Testing Facility 10

- Calibrations and Accreditations 10
- Testing Environmental Conditions and Dates 11

Detailed Test Results Section 12

- Power Line Conducted Emissions 13
- Spurious Radiated Emissions 24
- 6dB Bandwidth of Digitally Modulated Systems 45
- Maximum Peak Envelope Conducted Power 49
- Spurious Conducted Emissions 51
- Power Spectral Density 61
- Maximum Permissible Exposure 65

Appendix A – EUT Summary 67

Appendix B – EUT and Test Setup Photographs 68

Report Scope

This report addresses the EMC verification testing and test results of the MyTraker Interactive Health Coach, herein referred to as EUT (Equipment Under Test) performed at Global EMC Labs.

The EUT was tested for compliance against the following standards:

RSS 210 Issue 7:2007 / FCC Part 15 Subpart C 15:2008

Test procedures, results, justifications, and engineering considerations, if any, follow later in this report.

The results contained in this report relate only to the item(s) tested.

This report does not imply product endorsement by A2LA or any other accreditation agency, any government, or Global EMC Inc.

Opinions/interpretations expressed in this report, if any, are outside the scope of Global EMC Inc accreditation. Any opinions expressed do not necessarily reflect the opinions of Global EMC Inc, unless otherwise stated.

Client	**MYTRAK**
Product	MyTraker Interactive Health Coach
Standard(s)	RSS 210 Issue 7:2007 / FCC Part 15 Subpart C 15:2008

Summary

The results contained in this report relate only to the item(s) tested.

EUT FCC Certification #, FCC ID:	W3P30346000
EUT Industry Canada Certification #, IC:	8153A-30346000
Frequency of operation	2.401 GHz to 2.48 GHz
EUT Passed all tests performed.	Yes (see test results summary)
Tests conducted by	Scott Drysdale

Client	**MYTRAK**
Product	MyTraker Interactive Health Coach
Standard(s)	RSS 210 Issue 7:2007 / FCC Part 15 Subpart C 15:2008

Test Results Summary

Standard/Method	Description	Class/Limit	Result
FCC 15.203	Antenna Requirement	Unique / Built-in	Pass See Justification
FCC 15.205 RSS 210 (Table 1)	Restricted Bands for intentional operation	QuasiPeak Average	Pass
FCC 15.207	Power line conducted emissions	QuasiPeak Average	Pass
FCC 15.209 RSS-210 (Table 2)	Spurious Radiated emissions	QuasiPeak Average	Pass
FCC 15.247(a)2 RSS-210 A8.2(a)	6 dB Bandwidth	> 500 kHz	Pass
FCC 15.247(b)2 RSS-210 A8.4(4)	Max output power	< 1 Watt	Pass
FCC 15.247(b)(4) RSS-210 A8.4(5)	Antenna Gain	< 6 dBi	Pass See Justifications
FCC 15.247(d) RSS-210 A8.5	Antenna conducted spurious	< 20 dBc	Pass
FCC 15.247(e) RSS-210 A8.2(b)	Spectral Density	< 8 dBm (3 kHz BW)	Pass
FCC 15.247(i) IC Safety code 6	Portable. Maximum Permissible Exposure	< 24 mW @ 2.45 GHz	Pass See justification and calculations
Overall Result			**PASS**

All tests were performed by Scott Drysdale.

If the product as tested or otherwise complies with the specification, the EUT is deemed to comply with the requirement and is deemed a 'PASS' grade. If not 'FAIL' grade will be issued. Note that 'PASS' / 'FAIL' grade is independent of any measurement uncertainties. A 'PASS' / 'FAIL' grade within measurement uncertainty is marked with a '*'.

Justifications, Descriptions, or Deviations

The following justifications for tests not performed or deviations from the above listed specifications apply:

For the Antenna requirement specified in FCC 15.203 (RSS 210 section 5.5), this device is sold with an integral antenna and there is no provision for replacement.

For the Restricted Bands of operation, the EUT is designed to only operate between 2.4 GHz to 2.4835 GHz band (2.401 to 2.48 GHz)

For the Antenna gain, the rated antenna again according to the manufacturer is 1.5 dBi maximum.

For maximum permissible exposure or Specific Absorption Rate requirements this device operates at less than 2.5 mW. No SAR testing is required as per FCC KDB 447498 2(a)(i), however worst case calculated exposure compliance follows later in this report.

Applicable Standards, Specifications and Methods

ANSI C63.4:2003	- Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
CFR 47 FCC 15	- Code of Federal Regulations – Radio Frequency Devices
CISPR 22:1997	- Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement
ICES-003:2004	- Digital Apparatus - Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard
ISO 17025:2005	- General Requirements for the competence of testing and calibration laboratories
RSS 210:2007	- Issue 7: Spectrum Management and Telecommunications Policy. Radio Standards Specification Low Power Licence-Exempt Radiocommunication Devices

Sample calculation(s)

Margin = limit – (received signal + antenna factor + cable loss – pre-amp gain)
Margin = 50.5dBuV/m – (50dBuV + 10dB + 2.5dB – 20dB)
Margin = 8.5 dB

Document Revision Status

Revision 1 – June 9, 2009

Revision 2 – June 12, 2009 – Added clarity of frequency of operation.

Definitions and Acronyms

The following definitions and acronyms are applicable in this report.
See also ANSI C63.14.

AE – Auxiallary Equipment.

BW – Bandwidth. Unless otherwise stated, this is refers to the 6 dB bandwidth.

EMC – Electro-Magnetic Compatibility

EMI – Electro-Magnetic Immunity

EUT – Equipment Under Test

ITE – Information Technology Equipment with a primary function(s) of entry, storage, display, retrieval, transmission, processing, switching, or control, of data.

LISN – Line impedance stabilization network

NCR – No Calibration Required

RF – Radio Frequency

Testing Facility

Testing for EMC on the EUT was carried out at Global EMC labs in Toronto, Ontario, Canada. The testing lab consists of a 3m semi-anechoic chamber calibrated to be able to allow measurements on an EUT with a maximum width or length of up to 2m and height up to 3m. The chamber is equipped with a turn table that is capable of testing devices up to 3300lb in weight. This facility is capable of testing products that are rated for 120 Vac and 240Vac single phase, or 208 Vac 3 phase input. DC capability is also available. The chamber is equipped with an antenna mast that controls polarization and height from the control room adjoining the shielded chamber. Radiated emissions measurements are performed using a Bilog, and Horn antenna where applicable. Conducted emissions, unless otherwise stated, are performed using a LISN.

Calibrations and Accreditations

The measurement site used is registered with Federal Communications Commission (FCC) and Industry Canada (IC). This site is calibrated for Normalized Site Attenuation (NSA) using test procedures outlined in ANSI C63.4 “Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz”. The semi-anechoic chamber is lined with ferrite tiles and absorption cones to minimize any undesired reflections. All measuring equipment is calibrated on an annual or bi-annual basis as listed for each respective test.

Testing Environmental Conditions and Dates

Following were the environmental conditions in the facility during time of testing –

Date	Test	Init.	Temperature (ºC)	Humidity (%)	Pressure (kPa)
June 1-5, 2009	All	SD	20-25ºC	30-45%	100 -103kPa

Detailed Test Results Section

Power Line Conducted Emissions

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT's power line does not exceed the limits listed below as defined in the applicable test standard, as measured from a LISN. This helps protect lower frequency radio services such as AM radio, shortwave radio, amateur radio operators, maritime radio, CB radio, and so on, from unwanted interference.

Limits & Method

The limits are as defined in 47 CFR FCC Part 15 Section 15.207
Method is as defined in ANSI C64:2003

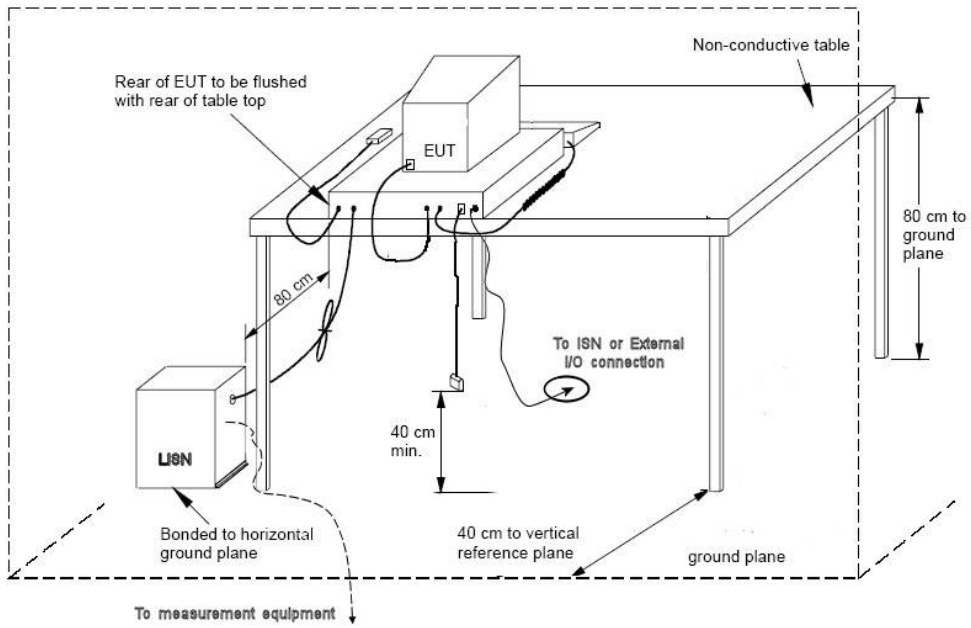
Average Limits		QuasiPeak Limits	
150 kHz – 500 kHz	56 to 46 dBuV	150 kHz – 500 kHz	66 to 56 dBuV
500 kHz – 5 MHz	46 dBuV	500 kHz – 5 MHz	56 dBuV
5 MHz – 30 MHz	50 dBuV	500 kHz – 30 MHz	60 dBuV

The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

Note: If the Peak or Quasi Peak detector measurements do not exceed the Average limits, then the EUT is deemed to have passed the requirements.

Both limits are applicable, and each is specified as being measured with a 9 kHz measurement bandwidth .

Typical Setup Diagram



Note: The vertical reference plane is optional as per ANSI C63.4 section 5.2.2

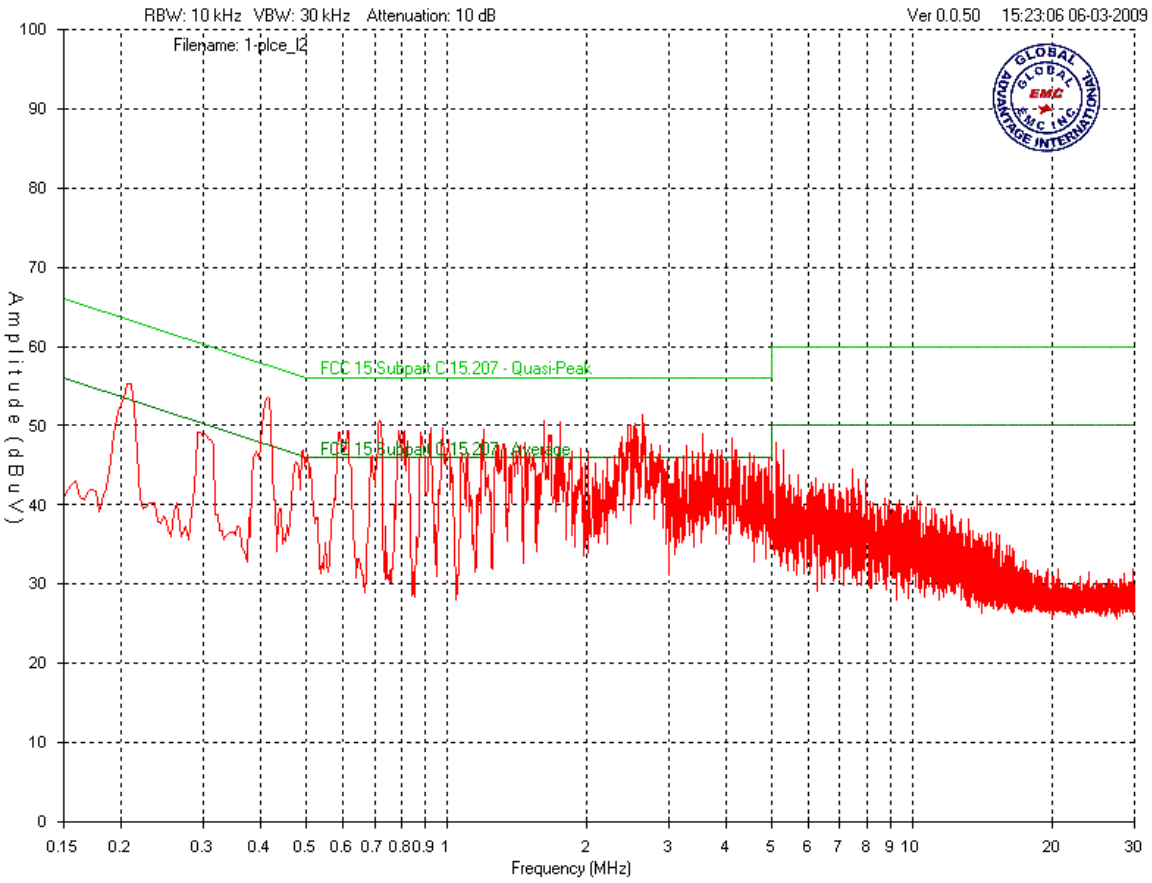
Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is +/-3.6 dB with a 'k=2' coverage factor and a %95 confidence level.

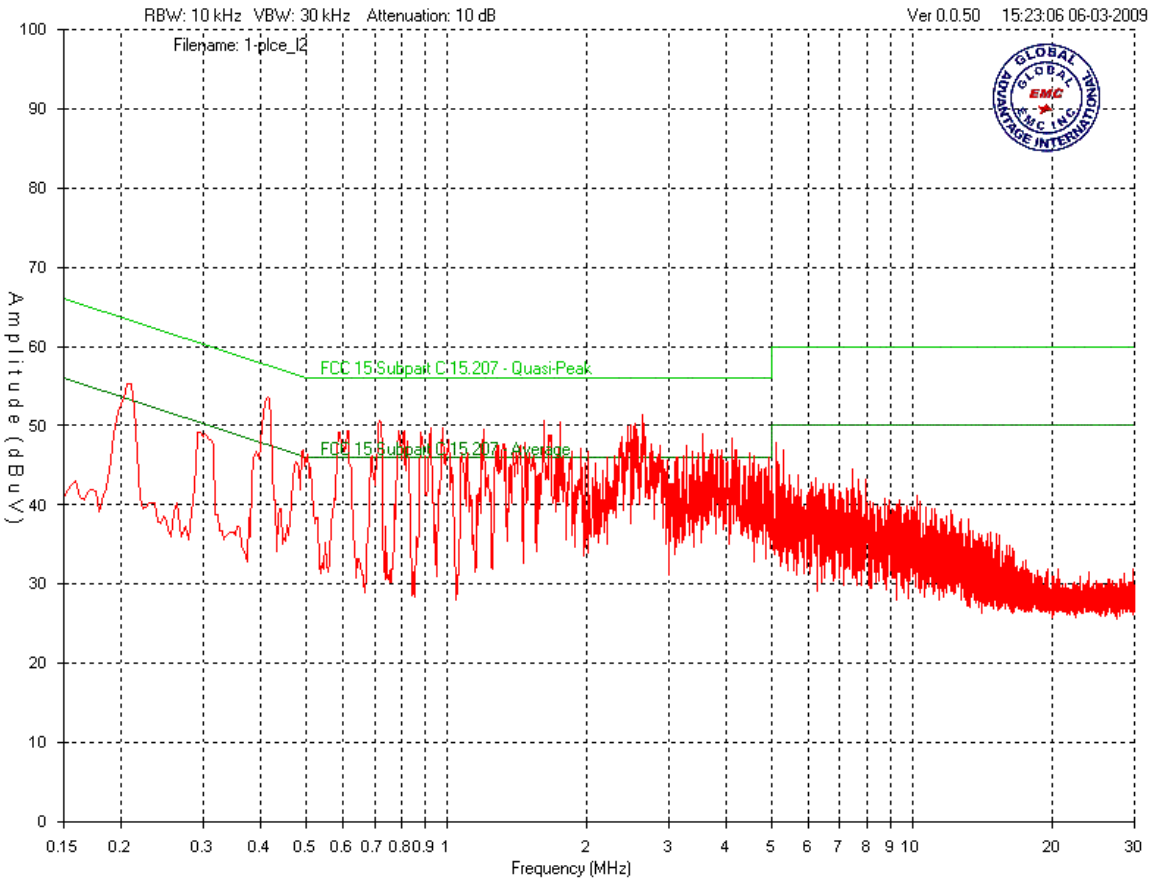
Preliminary Graphs

Note the graphs shown below are for graphical illustration only. For final measurements with the appropriate detector where applicable, please refer to the table. The graph shown below is a peak measurement graph, measured with a resolution bandwidth greater then or equal to the final required detector. This graphs are performed as a worst case measurement to enable the detection of frequencies of concern and for considerable time savings.

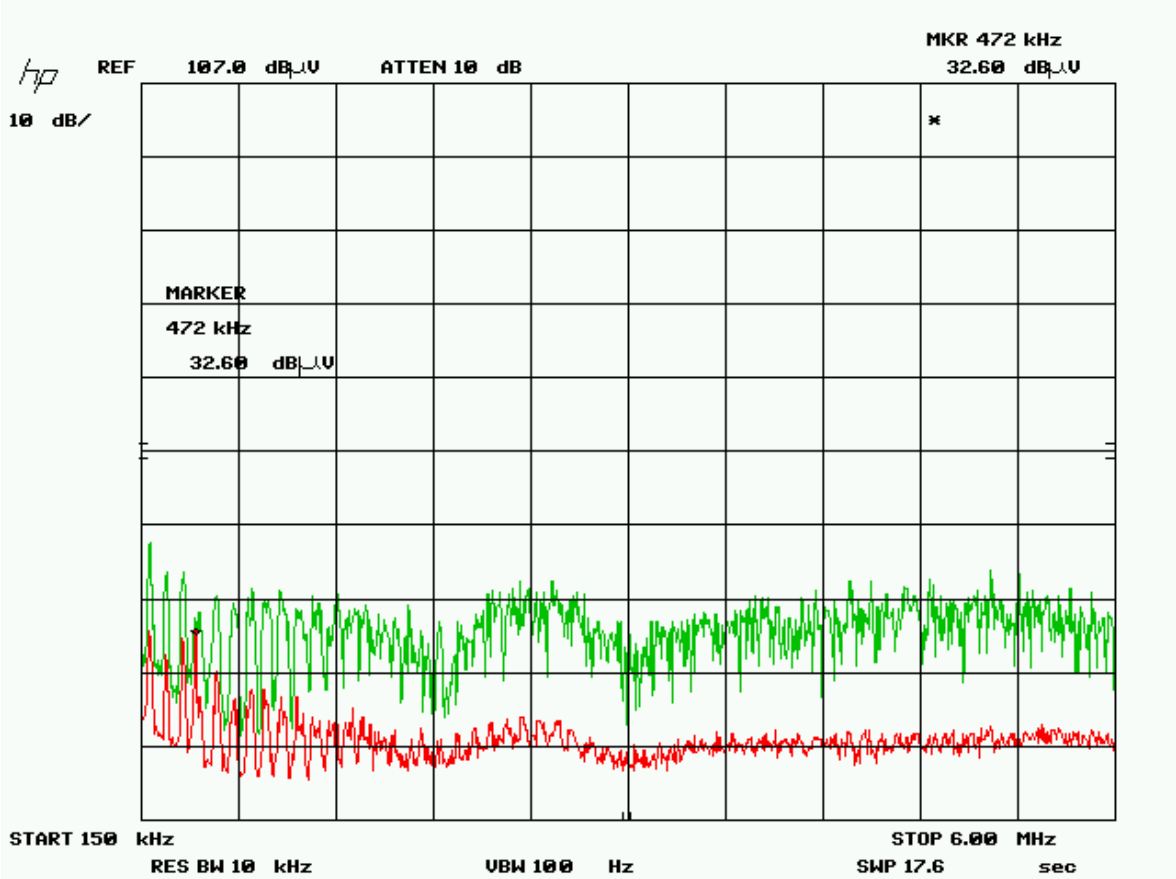
Phase (Black/Brown) - Power Supply 1



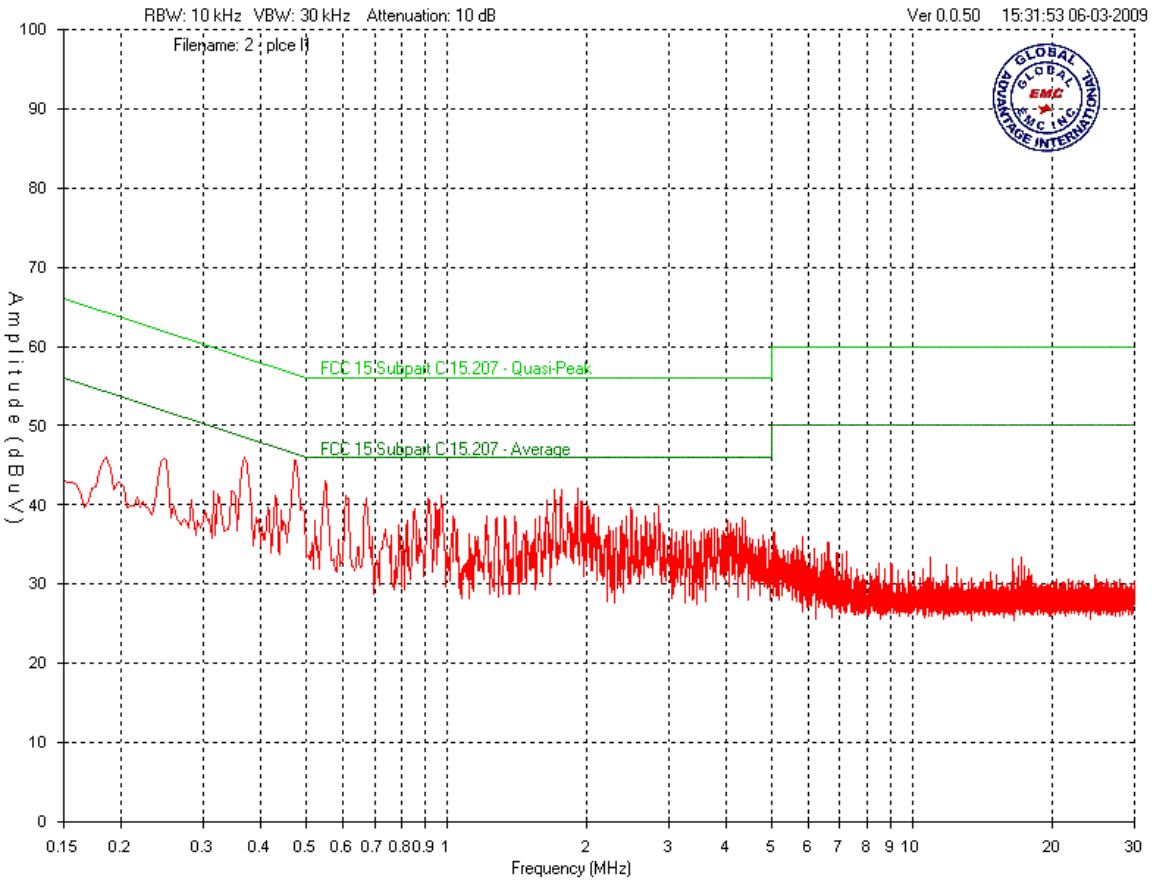
Neutral (White/Blue) – Power Supply 1



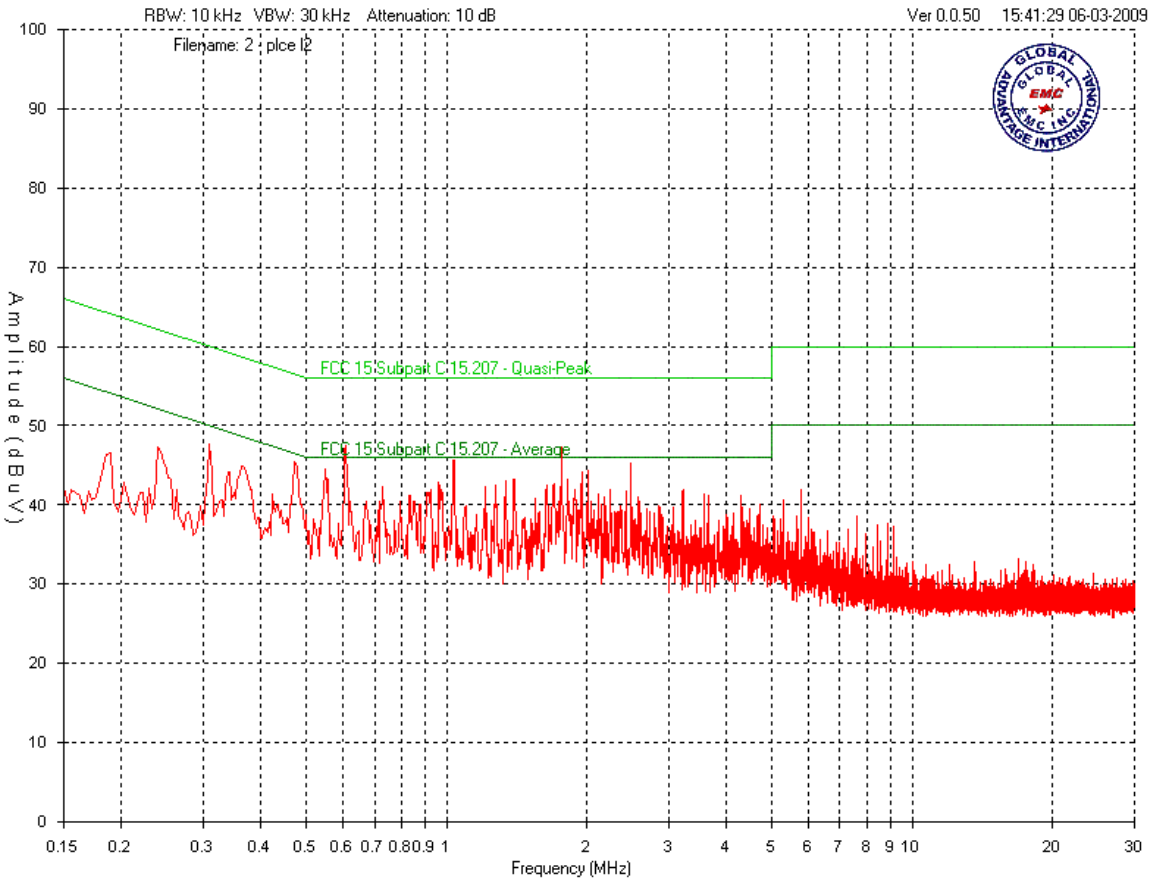
Peak Vs Average – Power Supply 1



Phase (Black/Brown) - Power Supply 2



Neutral (White/Blue) – Power Supply 2



Final Measurements

The peak emissions as shown in the graphs above did not exceed the Quasi Peak limits, therefore no quasi-peak measurements were deemed necessary for the purpose of declaring compliance.

Power Supply 1 – Average - Line 1 – Phase (Black/Brown)

Frequency (MHz)	Raw (dBuV)	Atten Factor (dB)	LISN Factor (dB)	Level (dBuV)	Limit (dB)	Margin (dB)	Pass/Fail
0.412	32.6	10	0.2	42.8	47.6	4.8	Pass
0.206	36.6	10	1	47.6	53.3	5.7	Pass
0.598	29.8	10	0.2	40	46	6	Pass
2.618	29.3	10	0.2	39.5	46	6.5	Pass
2.346	28.9	10	0.2	39.1	46	6.9	Pass
1.324	28.6	10	0.2	38.8	46	7.2	Pass

Power Supply 1 – Average - Line 2 – Neutral (White/Blue)

Frequency (MHz)	Raw (dBuV)	Atten Factor (dB)	LISN Factor (dB)	Level (dBuV)	Limit (dB)	Margin (dB)	Pass/Fail
0.412	33.4	10	0.2	43.6	47.6	4	Pass
2.631	31.1	10	0.2	41.3	46	4.7	Pass
0.717	30.4	10	0.2	40.6	46	5.4	Pass
1.619	30.3	10	0.2	40.5	46	5.5	Pass
1.752	30.1	10	0.2	40.3	46	5.7	Pass
2.548	30	10	0.2	40.2	46	5.8	Pass

Power Supply 2 – Average - Line 1 – Phase (Black/Brown)

Frequency (MHz)	Raw (dBuV)	Atten Factor (dB)	LISN Factor (dB)	Level (dBuV)	Limit (dB)	Margin (dB)	Pass/Fail
0.475	28.4	10	0.2	38.6	46.4	7.8	Pass
0.369	27.6	10	0.3	37.9	48.5	10.6	Pass
0.548	22.7	10	0.2	32.9	46	13.1	Pass
1.911	21.8	10	0.2	32	46	14	Pass
1.765	21.7	10	0.2	31.9	46	14.1	Pass
1.709	21.6	10	0.2	31.8	46	14.2	Pass

Power Supply 2 – Average - Line 2 – Neutral (White/Blue)

Frequency (MHz)	Raw (dBuV)	Atten Factor (dB)	LISN Factor (dB)	Level (dBuV)	Limit (dB)	Margin (dB)	Pass/Fail
0.608	29.1	10	0.2	39.3	46	6.7	Pass
1.769	29	10	0.2	39.2	46	6.8	Pass
1.039	27.3	10	0.2	37.5	46	8.5	Pass
2.492	27.9	10	0.2	38.1	46	7.9	Pass
0.472	27.2	10	0.2	37.4	46.5	9.1	Pass
0.548	28.3	10	0.2	38.5	46	7.5	Pass

Note: See 'Appendix B – EUT & Test Setup Photographs' for photos showing the test set-up for the highest line conducted emission

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2008-02-28	2010-02-28	GEMC 6
Quasi Peak Adapter	85650A	HP	2008-02-28	2010-02-28	GEMC 7
LISN	FCC-LISN-50/250-16-2-01	FCC	2009-02-11	2011-02-11	GEMC 65
RF Cable 7m	LMR-400-7M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 28
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29
Attenuator 10 dB	FP-50-10	Trilithic	NCR	NCR	GEMC 42

This report module is based on GEMC template "FCC – Power Line Conducted Emissions Class B_Rev1"

Spurious Radiated Emissions

Purpose

The purpose of this test is to ensure that the RF energy unintentionally emitted from the EUT does not exceed the limits listed below as defined in the applicable test standard, as measured from a receiving antenna. This helps protect broadcast radio services such as television, FM radio, pagers, cellular telephones, emergency services, and so on, from unwanted interference.

Limit(s) and Method

The method is as defined in ANSI C63.4:2003.

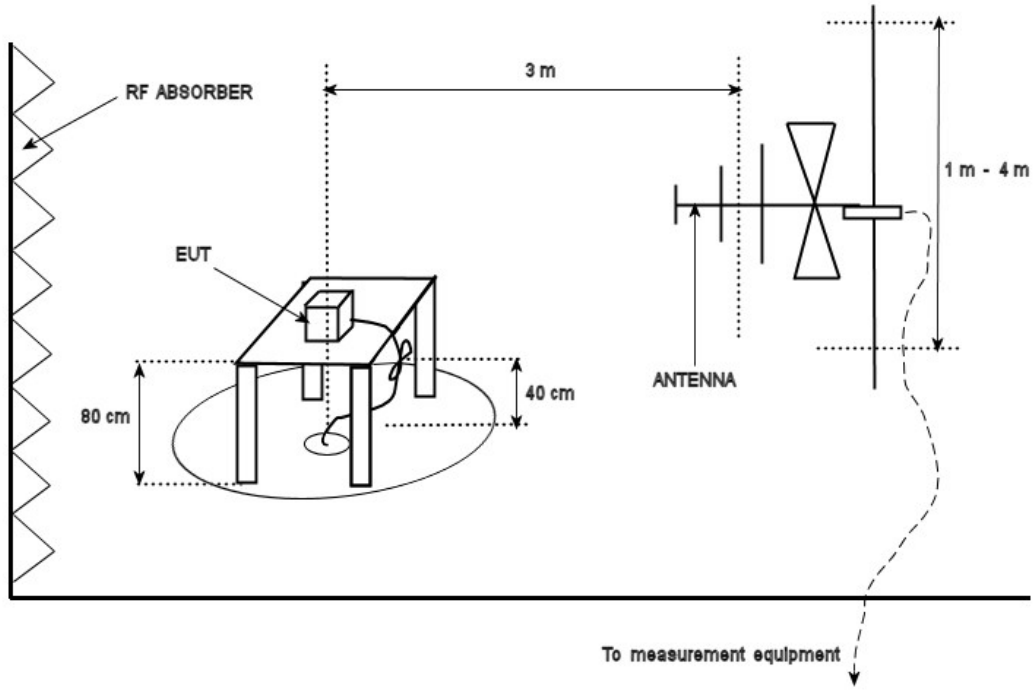
The limits, as defined in 15.247(d) for unintentional radiated emissions apply for those emissions that fall in the restricted bands, as defined in Section 15.205(a). These emissions must comply with the radiated emission limits specified in Section 15.209(a).

All unintentional emissions must also meet the 'Spurious Conducted Emissions' requirements of -20 dBc or greater. See also 'Spurious Conducted Emissions' for further details.

30 MHZ – 88 MHz, 100 uV/m (40.0 dBuV/m[1]) at 3 m
88 MHz – 216 MHz, 150 uV/m (43.5 dBuV/m[1]) at 3 m
216 MHz – 960 MHz, 200 uV/m (46.4 dBuV/m[1]) at 3 m
Above 960 MHz, 500 uV/m (54.0 dBuV/m[1]) at 3 m
Above 1000 MHz, 500 uV/m (54.0 dBuV/m[2]) at 3m

[1]Limit is with 120 kHz measurement bandwidth and a using a Quasi Peak detector.
[2]Limit is with 1 MHz measurement bandwidth and using an Average detector, scanned in accordance with 15.33 to above the 10th harmonic (25 GHz).

Typical Radiated Emissions Setup



Measurement Uncertainty

The expanded measurement uncertainty is calculated in accordance with CISPR 16-4-2 and is +/-4.4 dB with a 'k=2' coverage factor and a %95 confidence level.

Preliminary Graphs

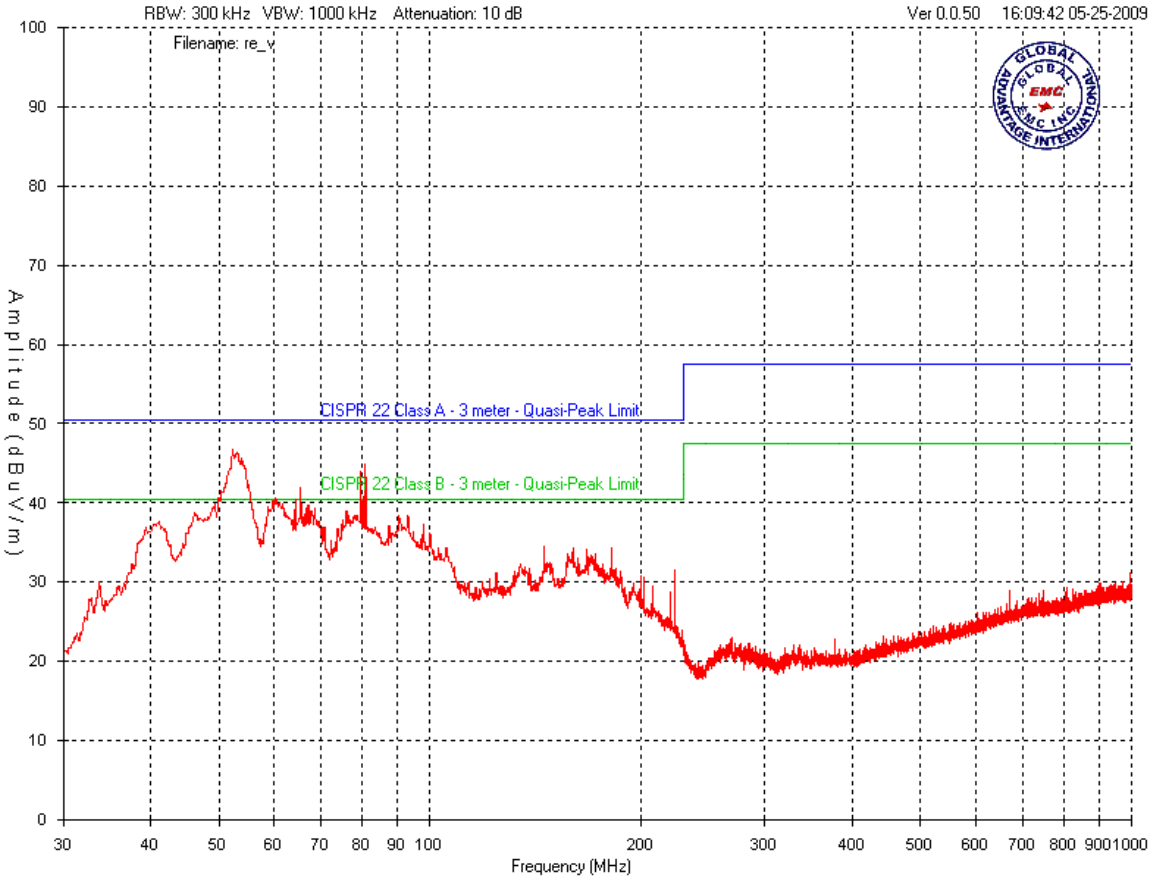
Note the graphs shown below are for graphical illustration only. For final measurements with the appropriate detector, please refer to the final measurement table where applicable. The graph shown below is a maximized peak measurement graph, measured with a resolution bandwidth greater then the final required detector and over a full 0-360 rotation. This peaking process is done as a worst case measurement. This process enables the detection of frequencies of concern for final measurement, and provides considerable time savings. These graphs show the CISPR 22 limits, however the quasi-peak measurements were compared against the FCC quasi-peak limits.

The worst case graphs shown are representative of low band, middle band and high band emissions.

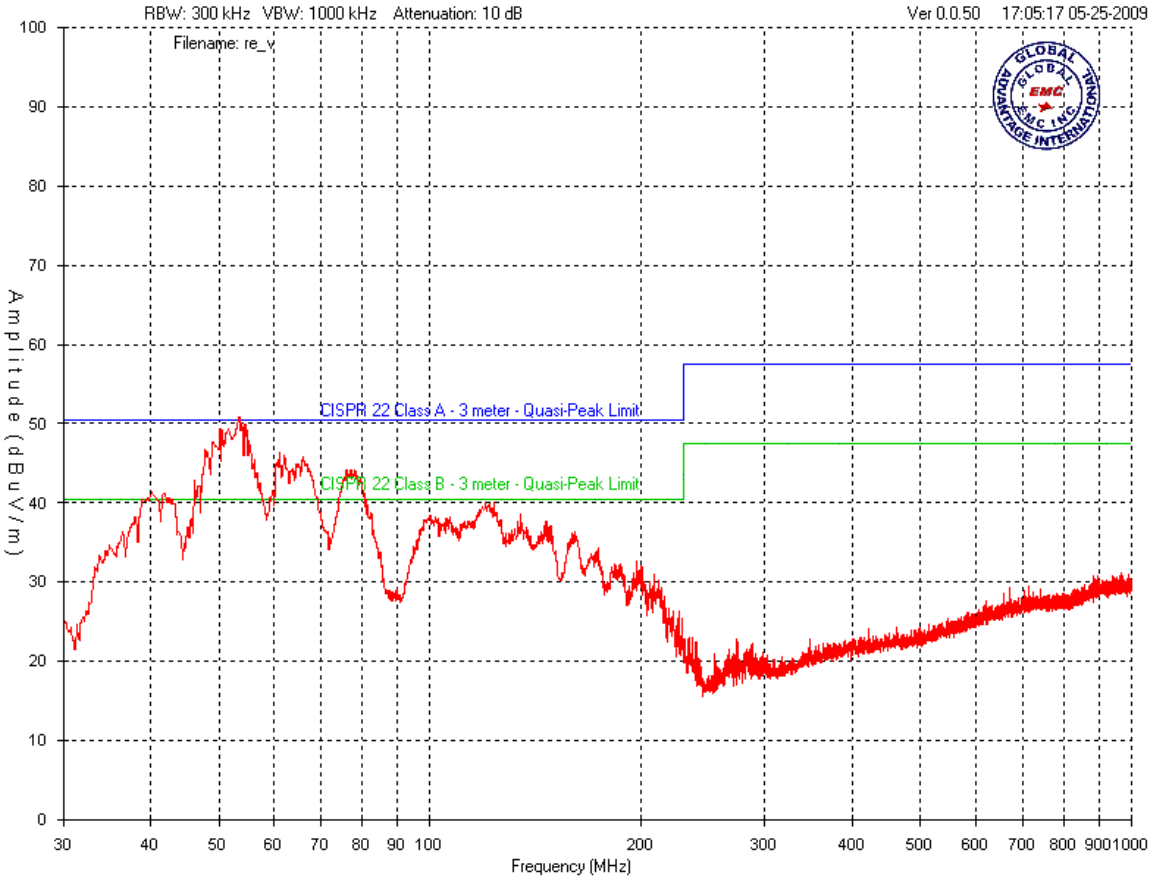
For the 30 MHz to 1 GHz region, graphs are shown with power supply 1, power supply 2, and no power supply, as considerable differences were observed. No significant differences in measured readings above 1 GHz were attributable to the power supply. The graphs above 1 GHz are shown based on power supply 1.

In accordance with FCC Part 15, Subpart A, Section 15.33, the device was scanned to a minimum of a 25 GHz in all modes, however only the low channel (worst case) is shown.

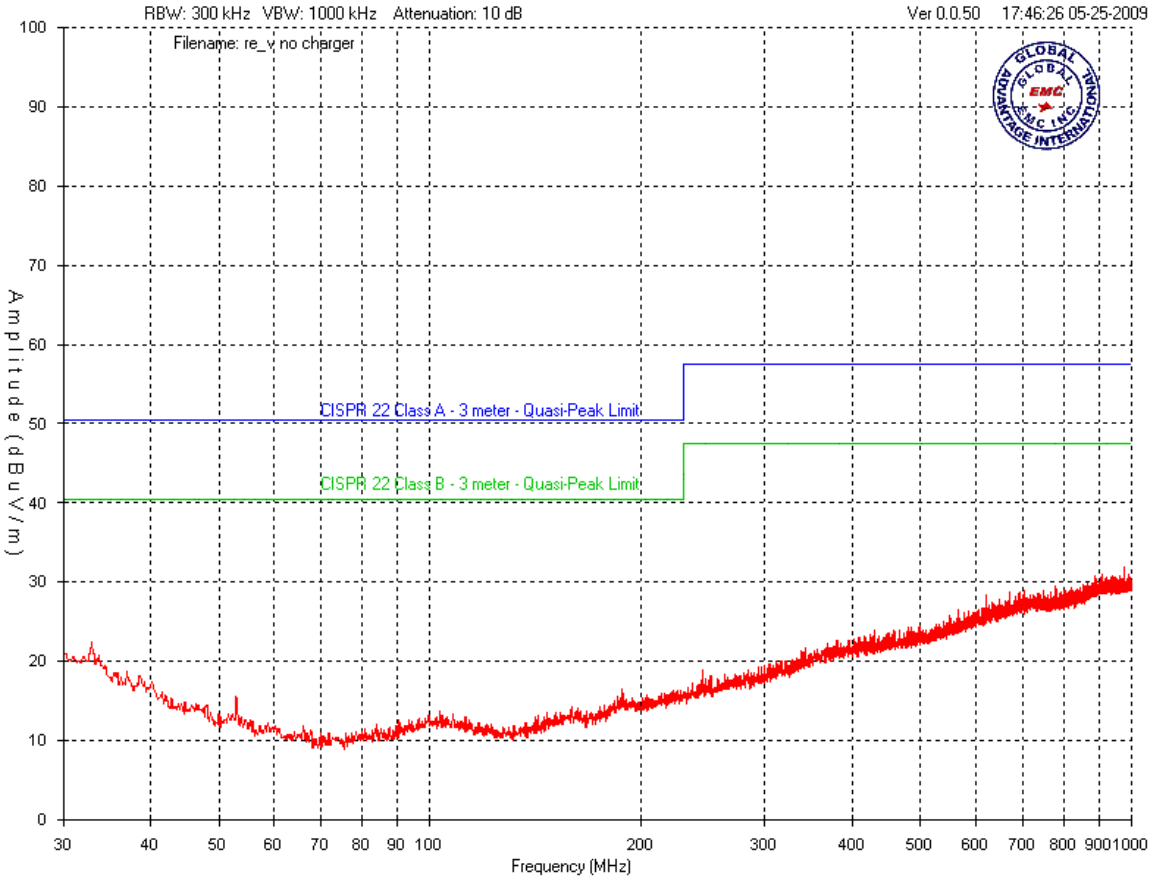
Vertical – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)



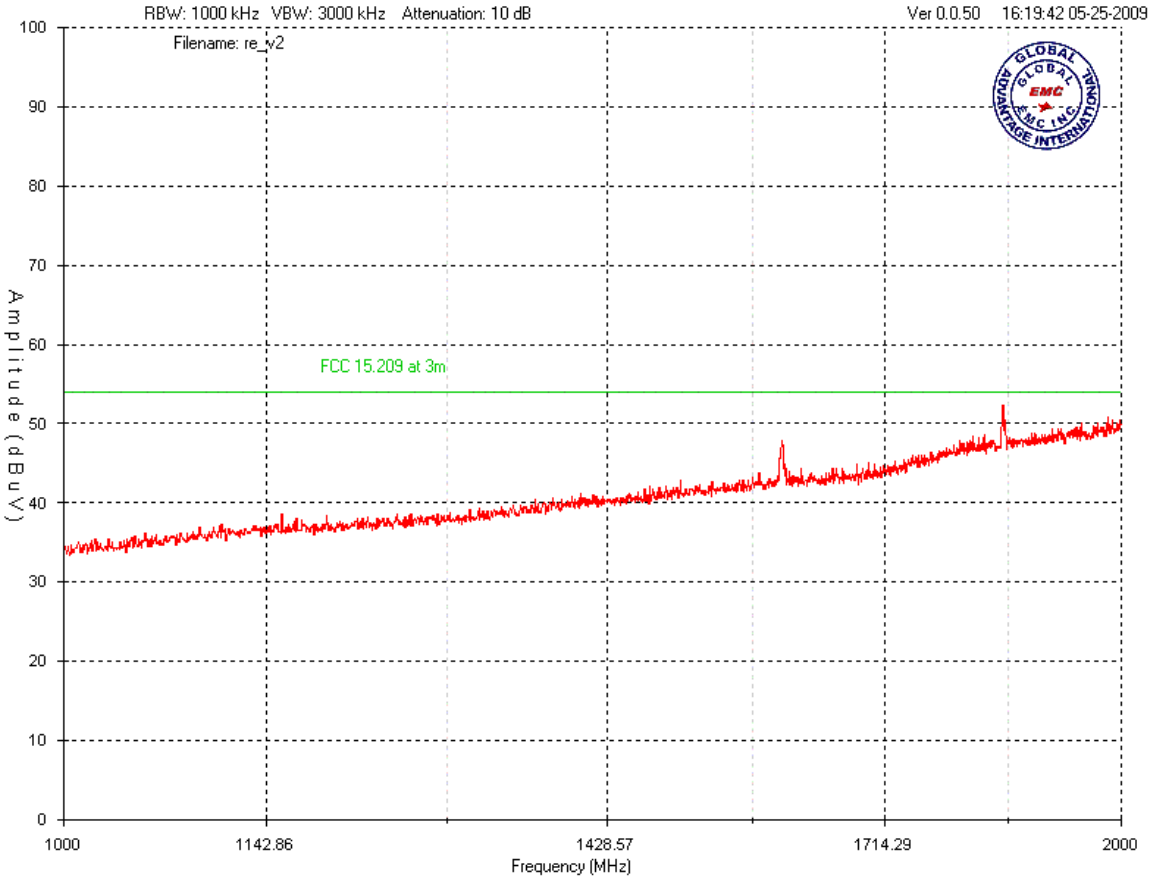
Vertical – Peak Emissions Graph Power Supply 2 – Low Channel (worst case)



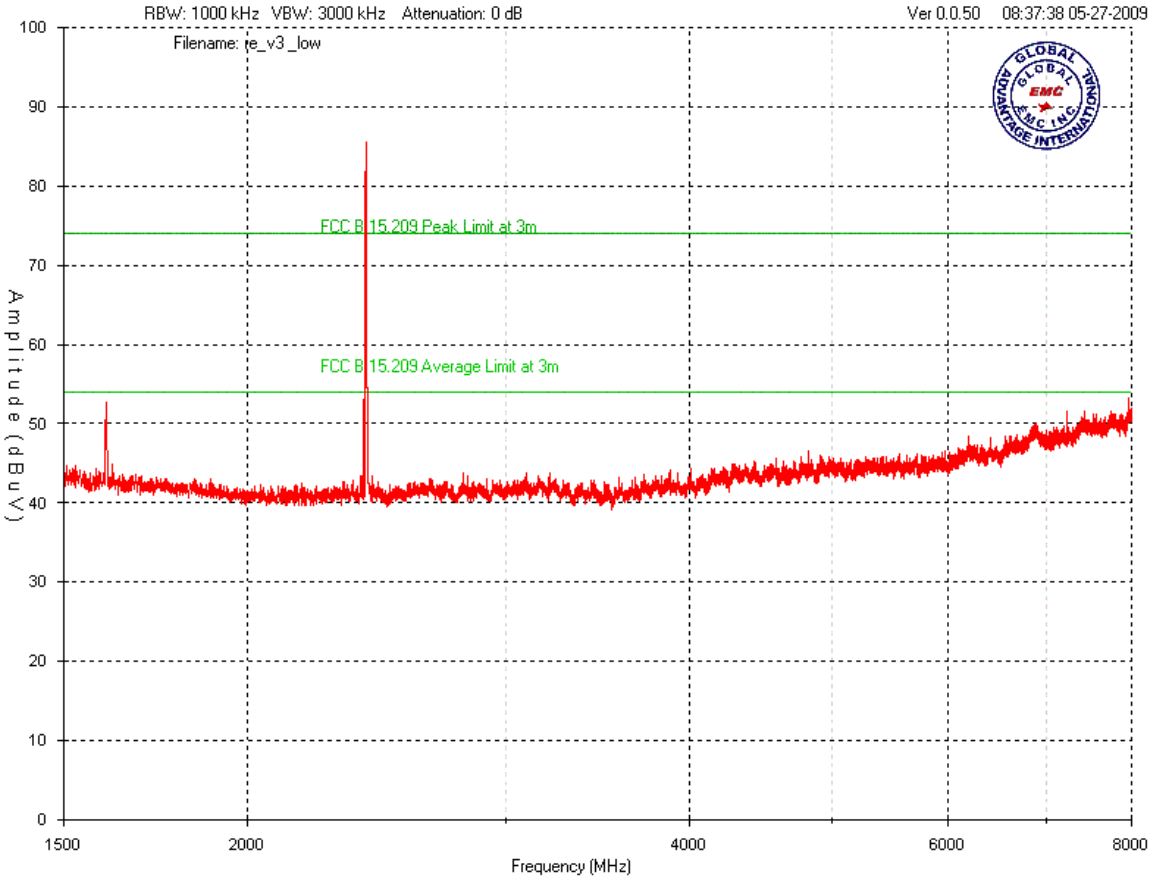
Vertical – Unit running on internal battery power only (low channel – worst case)



Vertical – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)

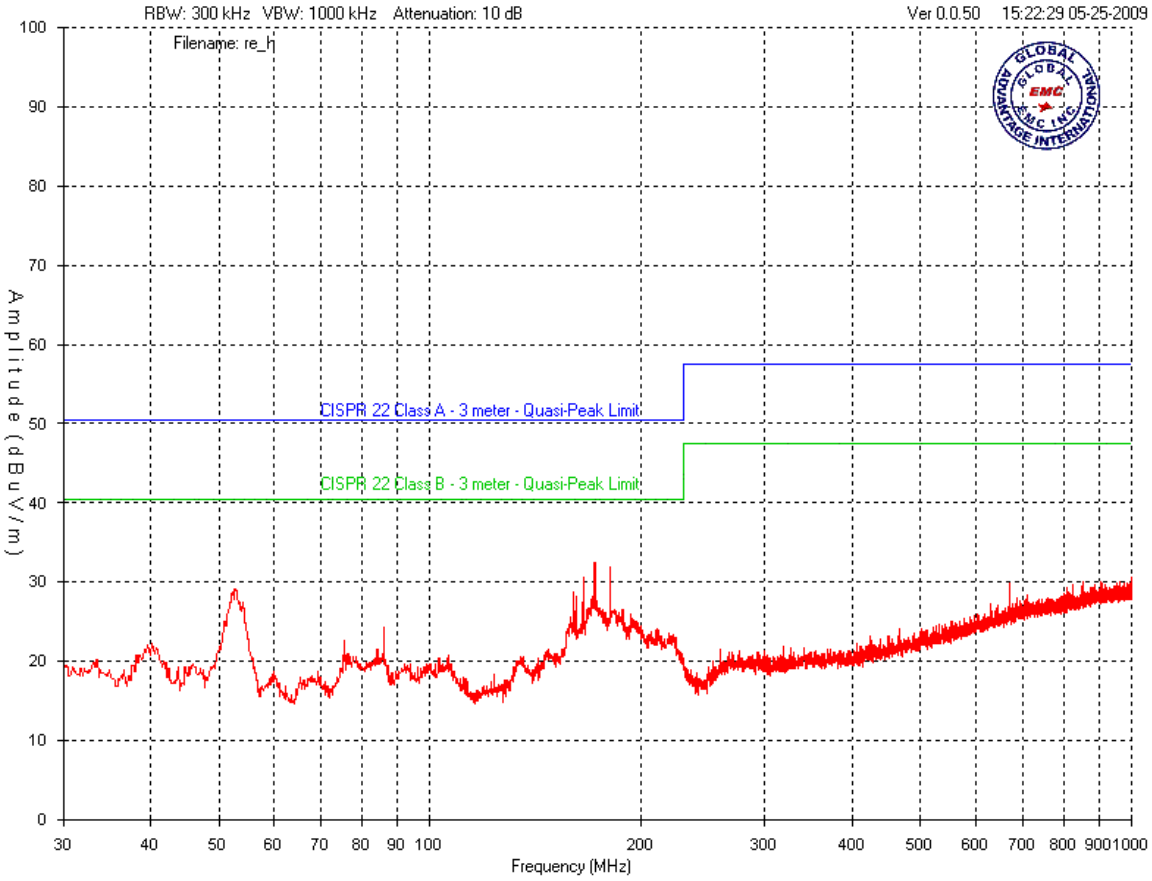


Vertical – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)

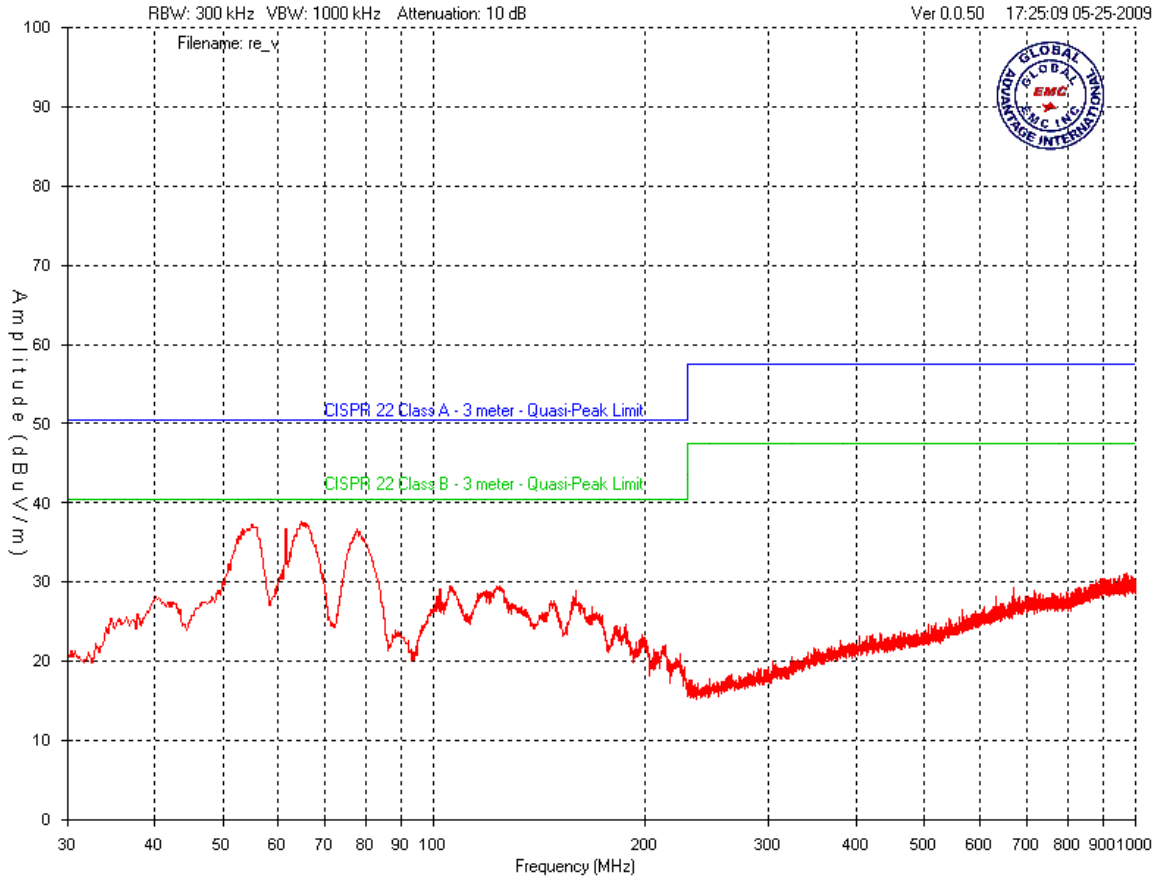


Radiated emissions vertical at 1 meter (Low Channel – worst case)

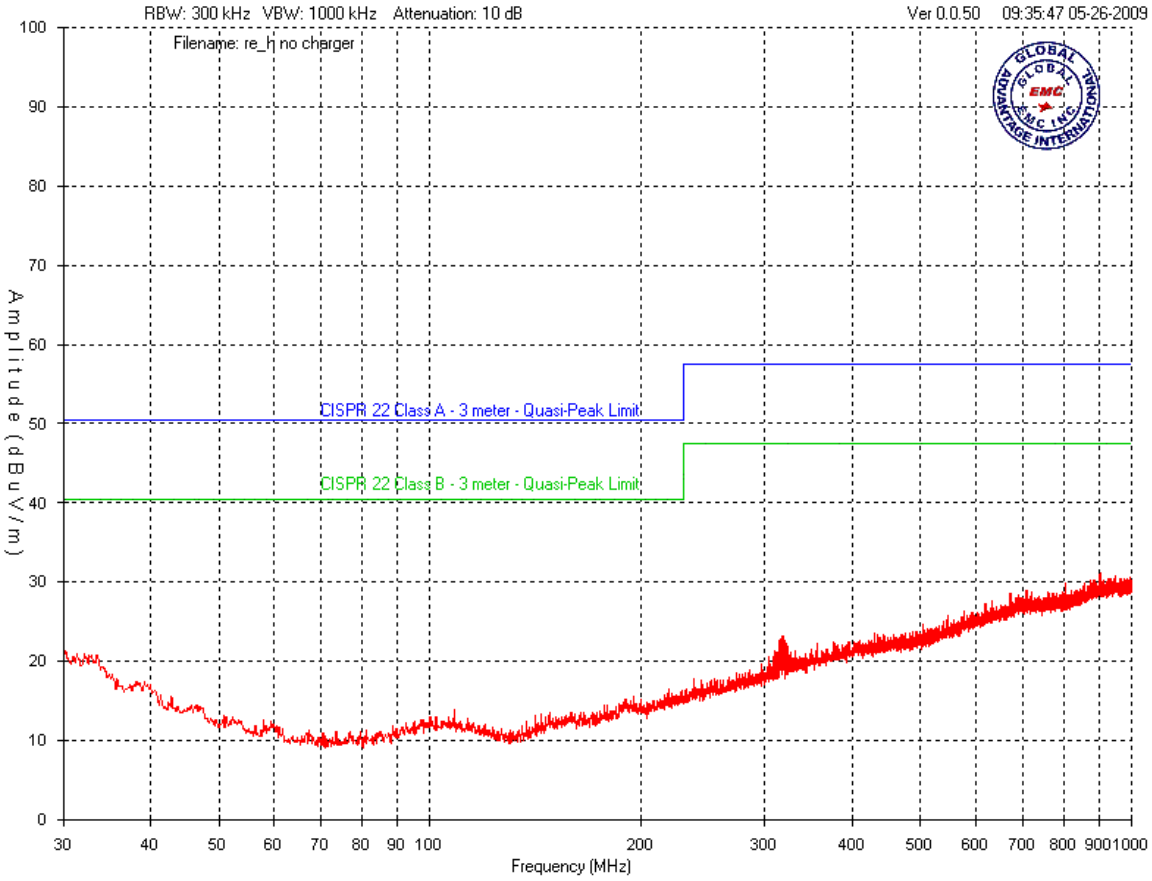
Horizontal – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)



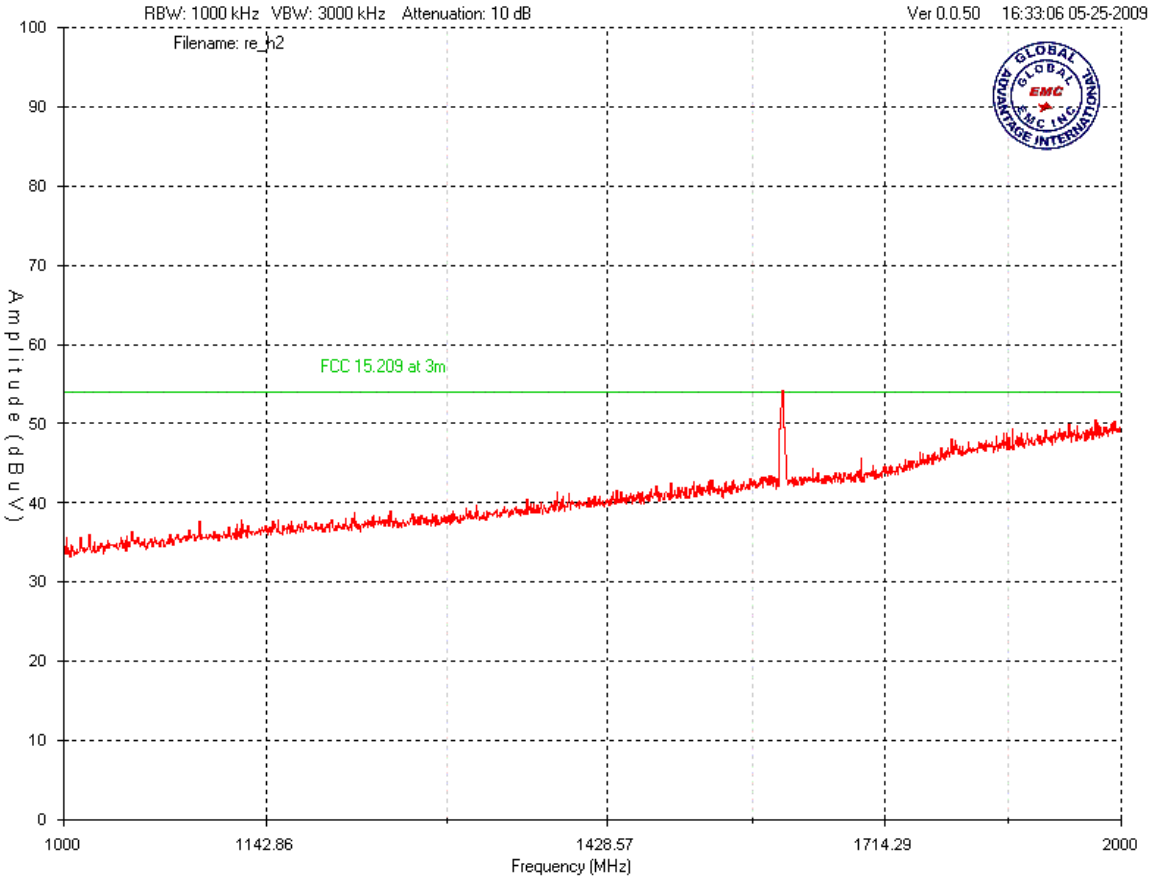
Horizontal – Peak Emissions Graph Power Supply 2 – Low Channel (worst case)



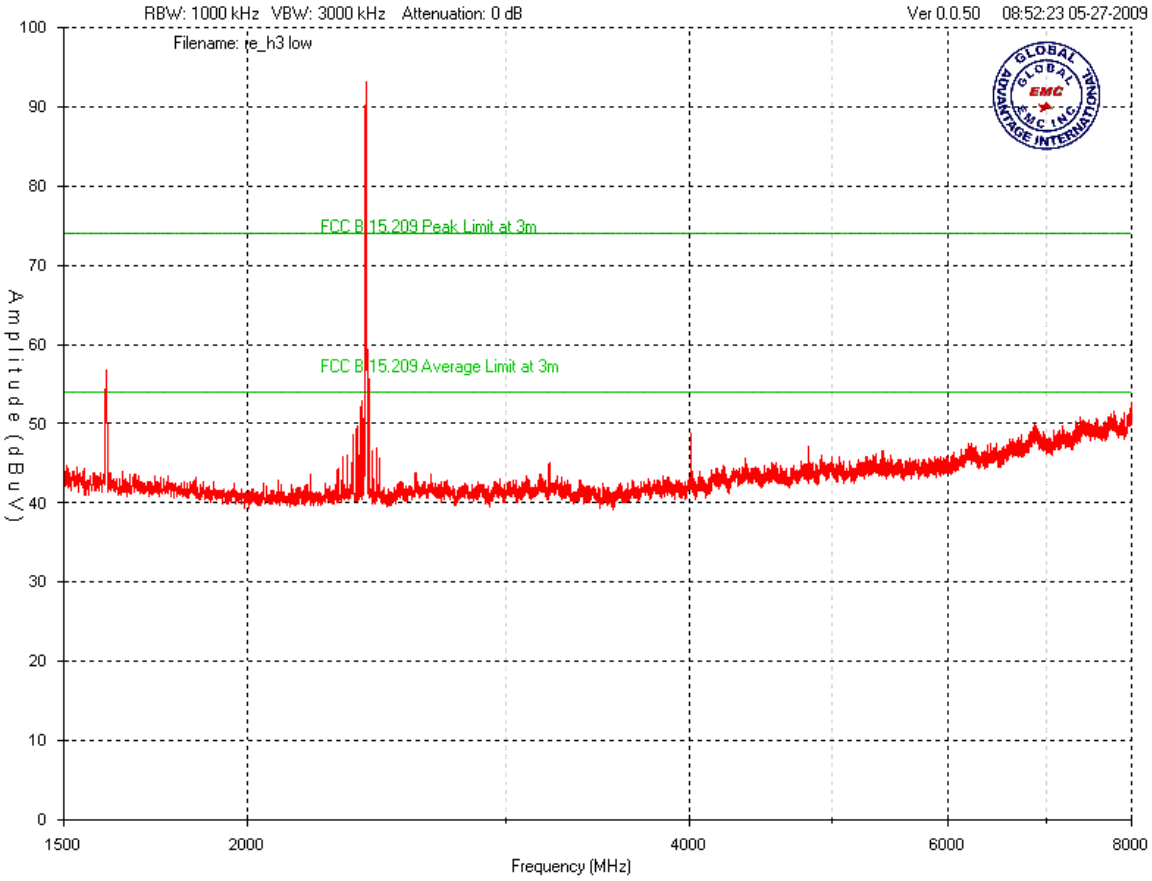
Horizontal – Unit running on internal battery power only (low channel – worst case)



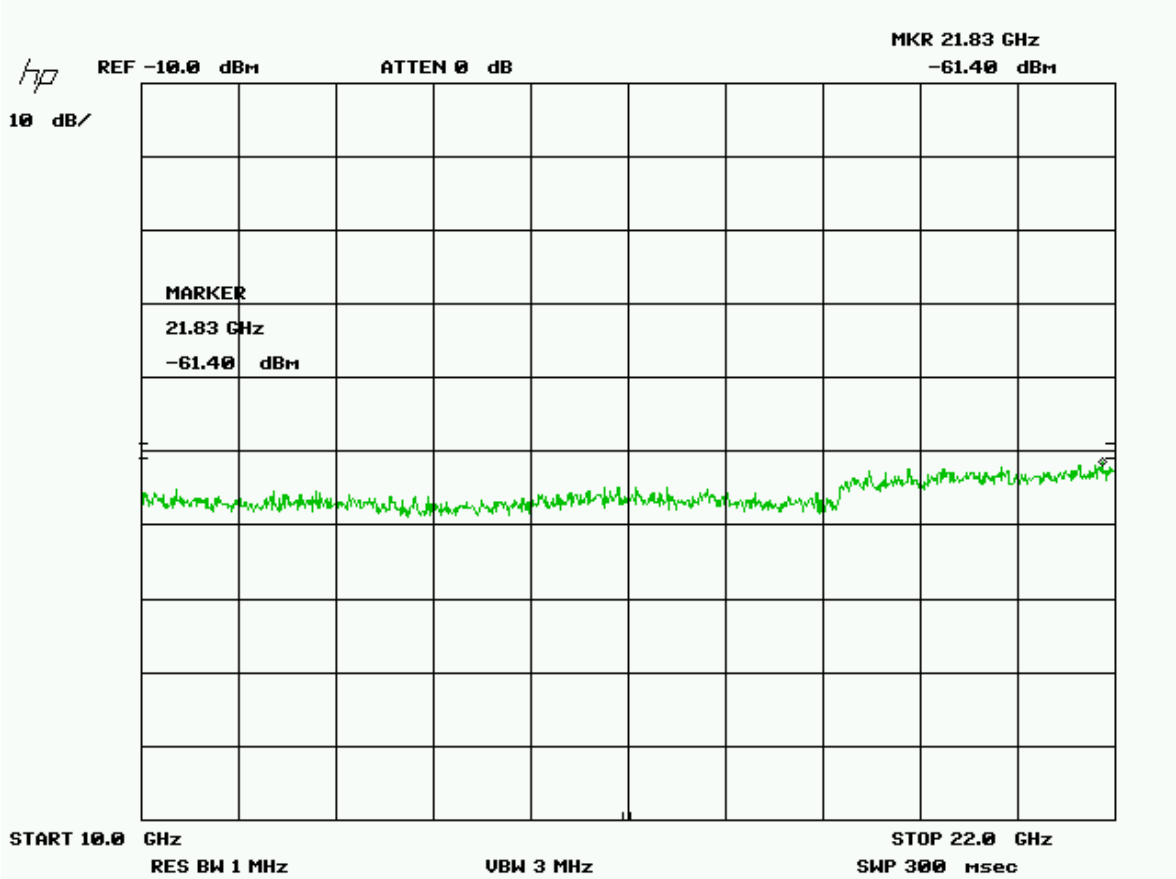
Horizontal – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)



Horizontal – Peak Emissions Graph Power Supply 1 – Low Channel (worst case)



Radiated emissions horizontal at 1 meter (Low Channel – worst case)



Final Measurements

Power Supply 1 – 30 MHz to 1 GHz

Quasi Peak Emissions Table - Vertical

Frequency (MHz)	Raw (dBuV)	Ant. (dB/m)	Factor (dB)	Level (dBuV/m)	Limit (dB)	Margin (dB)	Pass/Fail
52.31	60.6	8.2	-32	36.8	40	3.2	Pass
80.731	60.3	6.5	-32	34.8	40	5.2	Pass
79.761	59.6	6.4	-32	34	40	6	Pass
81.119	58.6	6.6	-32	33.2	40	6.8	Pass
65.308	57.4	6.5	-32	31.9	40	8.1	Pass
145.527	48	8.5	-31.9	24.6	43.5	18.9	Pass

Quasi Peak Emissions Table - Horizontal

Frequency (MHz)	Raw (dBuV)	Ant. (dB/m)	Factor (dB)	Level (dBuV/m)	Limit (dB)	Margin (dB)	Pass/Fail
30	34.6	16.3	-32	18.9	40	21.1	Pass
52.698	53	8.2	-32	29.2	40	10.8	Pass
85.969	48.7	7.6	-32	24.3	40	15.7	Pass
165.315	52.9	9.6	-31.8	30.7	43.5	12.8	Pass
171.717	54.5	9.9	-31.8	32.6	43.5	10.9	Pass
180.835	53.6	10.1	-31.8	31.9	43.5	11.6	Pass

Power Supply 2 - 30 MHz to 1 GHz

Quasi Peak Emissions Table - Vertical

Frequency (MHz)	Raw (dBuV)	Ant. (dB/m)	Factor (dB)	Level (dBuV/m)	Limit (dB)	Margin (dB)	Pass/Fail
30	28.2	18.3	-32	14.5	40	25.5	Pass
40.088	50.7	12.7	-32	31.4	40	8.6	Pass
53.474	62.5	8.8	-32	39.3	40	0.7	Pass
61.04	60.8	7.6	-32	36.4	40	3.6	Pass
76.075	59.5	6.6	-32	34.1	40	5.9	Pass
120.016	54.3	7.7	-32	30	43.5	13.5	Pass

Quasi Peak Emissions Table - Horizontal

Frequency (MHz)	Raw (dBuV)	Ant. (dB/m)	Factor (dB)	Level (dBuV/m)	Limit (dB)	Margin (dB)	Pass/Fail
30	35	18.3	-32	21.3	40	18.7	Pass
55.026	50.8	8.5	-32	27.3	40	12.7	Pass
64.726	52.6	7	-32	27.6	40	12.4	Pass
77.821	52.1	6.7	-32	26.8	40	13.2	Pass
105.466	42.1	8.8	-32	18.9	43.5	24.6	Pass

Frequencies above 1 GHz

Test Frequency (MHz)	Detection mode (Q-Peak)	Antenna polarity (Horz/Vert)	Raw signal dB(µV)	Antenna factor dB	Cable loss dB + Preselecor	Attenuator dB	Pre-Amp Gain dB	Received signal dB(µV/m)	Emission limit dB(µV/m)	Margin dB	Result
Low Channel 0 2401											
1605.9	Peak	Horz	54.6	31.2	4.0	0.0	36.0	53.8	74.0	20.2	PASS
1605.9	Avg	Horz	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
1605.9	Peak	Vert	48.2	31.2	4.0	0.0	36.0	47.4	74.0	26.6	PASS
1605.9	Avg	Vert	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2402	Peak	Horz	91.6	31.6	4.0	0.0	36.0	91.2			PASS
2402	Avg	Horz	35.0	31.6	4.0	0.0	36.0	34.6			PASS
2402	Peak	Vert	83.3	31.6	4.0	0.0	36.0	82.9			PASS
2402	Avg	Vert	28.5	31.6	4.0	0.0	36.0	28.1			PASS
2390	Peak	Horz	51.7	31.6	4.0	0.0	36.0	51.3	74.0	22.7	PASS
2390	Avg	Horz	N/A	31.6	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2390	Peak	Vert	48.2	31.6	4.0	0.0	36.0	47.8	74.0	26.2	PASS
2390	Avg	Vert	N/A	31.6	4.0	0.0	36.0	N/A	54.0	N/A	N/A
4804	Peak	Horz	N/A	30.0	11.0	0.0	36.0	N/A	74.0	N/A	N/A
4804	Avg	Horz	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
4804	Peak	Vert	N/A	30.0	11.0	0.0	36.0	N/A	74.0	N/A	N/A
4804	Avg	Vert	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
7206	Peak	Vert	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7206	Avg	Vert	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A
7206	Peak	Horz	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7206	Avg	Horz	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A
Mid channel 39 2441											
1625	Peak	Horz	53.4	31.2	4.0	0.0	36.0	52.6	74.0	21.4	PASS
1625	Avg	Horz	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
1625	Peak	Vert	46.0	31.2	4.0	0.0	36.0	45.2	74.0	28.8	PASS
1625	Avg	Vert	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2441	Peak	Horz	87.4	31.6	4.0	0.0	36.0	87.0			PASS
2441	Avg	Horz	28.8	31.6	4.0	0.0	36.0	28.4			PASS
2441	Peak	Vert	77.5	31.6	4.0	0.0	36.0	77.1			PASS
2441	Avg	Vert	25.9	31.6	4.0	0.0	36.0	25.5			PASS
4882	Peak	Horz	N/A	30.0	11.0	0.0	36.0	N/A	74.0	N/A	N/A
4882	Avg	Horz	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
4882	Peak	Vert	N/A	30.0	11.0	0.0	36.0	N/A	74.0	N/A	N/A

4882	Avg	Vert	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
7323	Peak	Vert	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7323	Avg	Vert	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A
7323	Peak	Horz	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7323	Avg	Horz	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A
High Channel 79 -2480											
1653.4	Peak	Horz	55.6	31.2	4.0	0.0	36.0	54.8	74.0	19.2	PASS
1653.4	Peak	Horz	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
1653.4	Peak	Vert	49.2	31.2	4.0	0.0	36.0	48.4	74.0	25.6	PASS
1653.4	Avg	Vert	N/A	31.2	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2480	Peak	Horz	89.6	31.6	4.0	0.0	36.0	89.2			PASS
2480	Avg	Horz	35.3	31.6	4.0	0.0	36.0	34.9			PASS
2480	Peak	Vert	76.4	31.5	4.0	0.0	36.0	75.9			PASS
2480	Avg	Vert	25.0	31.6	4.0	0.0	36.0	24.6			PASS
2483.5	Peak	Horz	52.9	31.6	4.0	0.0	36.0	52.5	74.0	21.5	Marker Delta
2483.5	Avg	Horz	N/A	31.6	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2483.5	Peak	Vert	35.6	31.6	4.0	0.0	36.0	35.2	74.0	38.8	PASS
2483.5	Avg	Vert	N/A	31.6	4.0	0.0	36.0	N/A	54.0	N/A	N/A
2485.5	Peak	Horz	64.1	31.6	4.0	0.0	36.0	63.7	74.0	10.3	PASS
2485.5	Avg	Horz	36.2	31.6	4.0	0.0	36.0	35.8	54.0	18.2	PASS
2485.5	Peak	Vert	49.1	31.6	4.0	0.0	36.0	48.7	74.0	25.3	PASS
2485.5	Avg	Vert	N/A	31.6	4.0	0.0	36.0	N/A	54.0	N/A	N/A
4960	Peak	Horz	42.4	30.0	11.0	0.0	36.0	47.4	74.0	26.6	PASS
4960	Avg	Horz	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
4960	Peak	Vert	N/A	30.0	11.0	0.0	36.0	N/A	74.0	N/A	N/A
4960	Avg	Vert	N/A	30.0	11.0	0.0	36.0	N/A	54.0	N/A	N/A
7440	Peak	Vert	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7440	Avg	Vert	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A
7440	Peak	Horz	N/A	36.0	12.0	0.0	35.8	N/A	74.0	N/A	N/A
7440	Avg	Horz	N/A	36.0	12.0	0.0	35.8	N/A	54.0	N/A	N/A

Note: In accordance with 15.247(d), only radiated emissions exceeding the 15.209 limit that occur within the bands listed in 15.205, need to be verified with a quasi-peak detector or an average detector.

The requirement of -20dBc is verified by the conducted method, please see 'Spurious Antenna Conducted Emissions' section of this report.

All emissions were verified against the limits specified in 15.209. If any frequency exceeded this limit, it then compared against the bands in 15.205 and requirement of -20 dBc or 15.209 is applied as appropriate.

For information purposes, the fundamental was measured to be 90.4 dBuV/m at 3 meters, and none of the unintentional radiated emissions that fall outside of the restricted bands exceeded the -20dBc (or 70.4dBuV/m) requirement.

Note: Radiated emissions measurements above 10 GHz were performed at a 1 meter test distance, and in accordance with FCC 15.31(f)(1) an extrapolation factor of 9.5 dB was applied. No emissions above the 3rd harmonic were detected at 1 meter.

See 'Spurious Antenna Conducted Emissions' measurements for -20 dBc requirements.

Test Equipment List

Equipment	Model #	Manufacturer	Cal date (yyyy-mm-dd)	Due Date (yyyy-mm-dd)	Equipment ID# (GEMC xxx)
Spectrum Analyzer	8566B	HP	2008-02-28	2010-02-28	6
Quasi Peak Adapter	85650A	HP	2008-02-28	2010-02-28	7
BiLog Antenna	3142-C	ETS	2009-02-12	2011-02-12	8
RF Cable 7m	LMR-400-7M-50OHM-MN-MN	LexTec	NCR	NCR	28
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	29
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	30
RF Cable 0.5M	LMR-400-0.5M-50OHM-MN-MN	LexTec	NCR	NCR	31
Attenuator 3 dB	FP-50-3	Trilithic	NCR	NCR	40
IFR Spectrum Analyzer	AN940	IFR	NCR	NCR	6350
A.H. Systems Horn Antenna 18 GHz - 26.5 GHz	SAS-572	AH	NCR	NCR	6371
Schaffner Preamp 9kHz - 2 GHz	CPA9231A	Schaffner	8/26/2008	8/26/2010	116
Q-Par 1.5-18 GHz Horn	6878/24	Q-par	8/25/2008	8/25/2010	6365
HP Preamp	HP-8449B	HP	8/25/2008	8/25/2010	6351

This report module is based on GEMC template “FCC - 15.209 - Radiated Emissions_Rev2.doc”

6dB Bandwidth of Digitally Modulated Systems

Purpose

The purpose of this test is to ensure that the bandwidth occupied exceeds a stated minimum. This helps ensure the utilization of the frequency allocation is sufficiently wide. This also helps prevent corruption of data by ensuring adequate data separation to distinguish the reception of the intended information.

Limits

The Limit is as specified in FCC Part 15 and RSS 210.

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz. This should be measured with a 100 kHz RBW and a 300 kHz VBW.

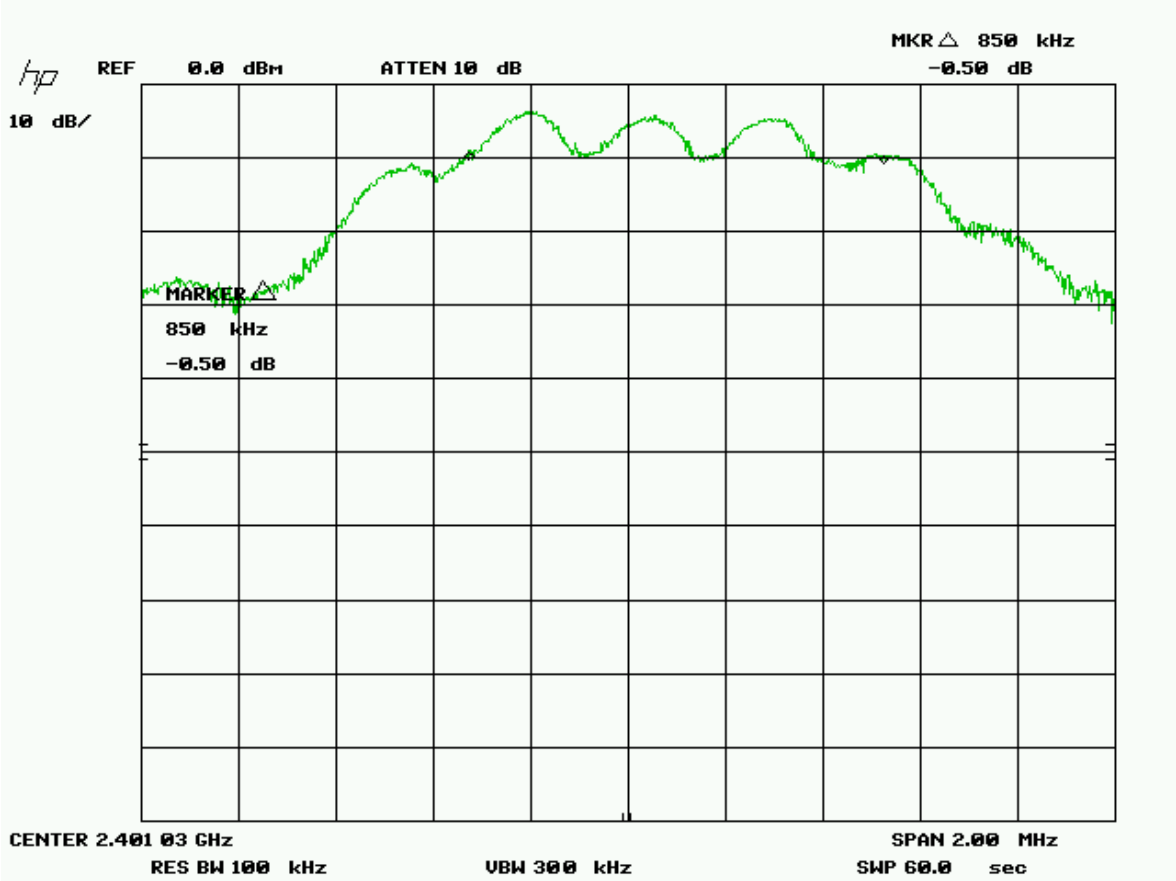
Results

The EUT passed. The lowest 6 dB BW measured was 850 kHz

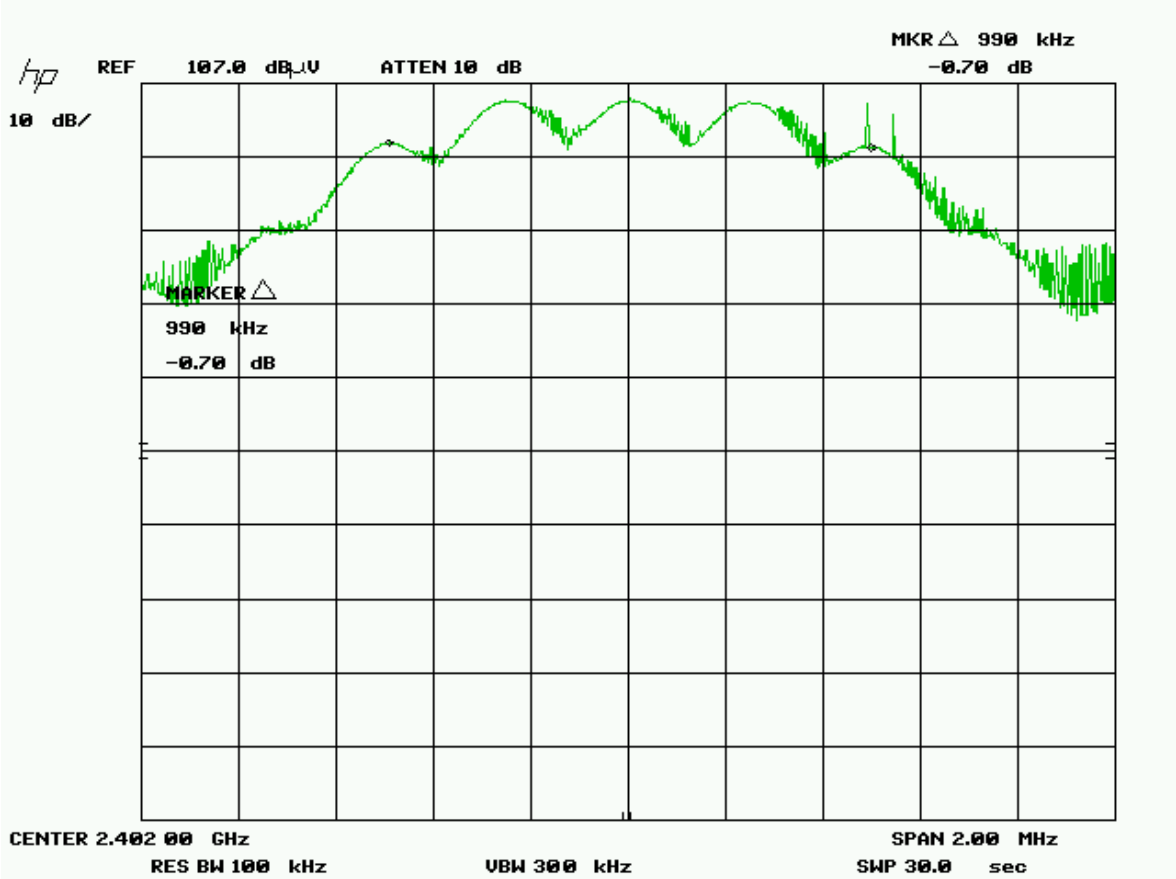
Graph(s)

The graphs shown below shows the channel spacing during the operation of the device. This is measured by a max hold on the spectrum analyzer and the highest resolution bandwidth that is sufficiently low to exhibit the 6 dB bandwidth of a channel during operation of the EUT. This measurement is a peak measurement. Max hold is performed for a duration of not less then 1 minute.

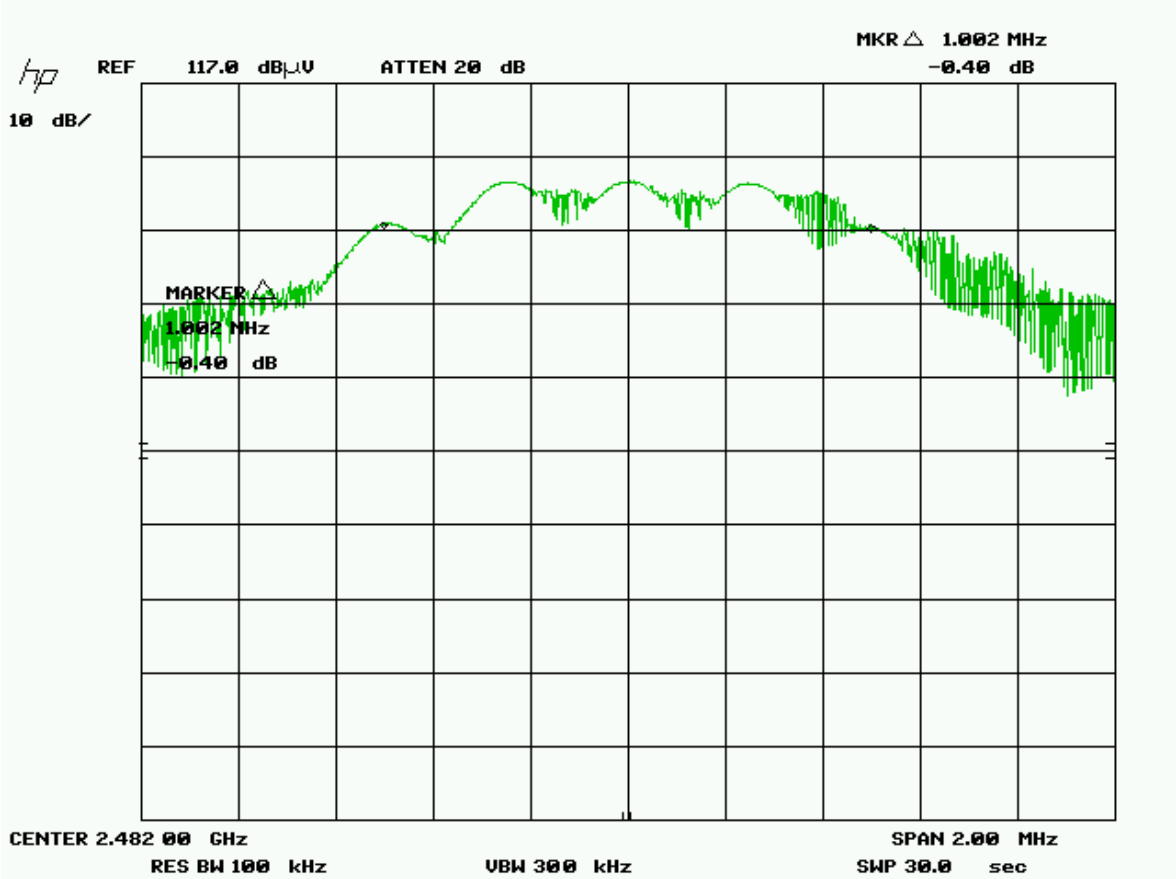
Low Channel – 6 dB Bandwidth



Mid Channel 6 dB Bandwidth



High Channel 6 dB Bandwidth



Note: See 'Appendix B – EUT & Test Setup Photographs' for photos showing the test set-up.

Test Equipment List

Equipment	Model #	Manufacturer	Cal date (yyyy-mm-dd)	Due Date (yyyy-mm-dd)	Equipment ID# (GEMC xxx)
Spectrum Analyzer	8566B	HP	2008-02-28	2010-02-28	6
RF Cable 0.5M	LMR-400-0.5M-50OHM-MN-MN	LexTec	NCR	NCR	31

This report module is based on GEMC template "FCC – Power Line Conducted Emissions Class B_Rev1"

Maximum Peak Envelope Conducted Power

Purpose

The purpose of this test is to ensure that the maximum power conducted to the radiating element does not exceed the limits specified. This ensures that if the end-user replaces the antenna, that the maximum power does not exceed an amount which may create an an excessive power level.

Limits

The limits are defined in FCC Part 15.247(b) and RSS 210.
For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands, the peak limit is 1 watt.

Results

The EUT passed. The peak power measured was 2.2 dBm (1.7 mW).

Table(s)

The tables shown below shows the peak power output of the device during the antenna conducted measurement during transmit operation of the EUT.

Test Data

Band	Channel	Frequency (GHz)	Output Power (dBm)
Low	0	2401	2.2
Medium	39	2440	1.7
High	79	2480	1.5

Note: See 'Appendix B – EUT & Test Setup Photographs' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2008-02-28	2010-02-28	6
Power meter	PM 2002	AR	2008-07-17	2010-07-19	GEMC 16
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29

This report module is based on GEMC template "FCC – Power Line Conducted Emissions Class B_Rev1"

Spurious Conducted Emissions

Purpose

The purpose of this test is to ensure that the maximum power conducted to the radiating element at frequencies outside of the authorized spectrum does not exceed the limits specified. This ensures that the only the intended signal is delivered to the radiating element.

Limits

The limits are defined in 15.247(d). In any 100 kHz band, the peak spurious harmonics emissions must be at least 20 dB below the fundamental. Spurious Conducted emissions are to be evaluated up to the 10^{th} harmonic. This -20 dBc requirement also applies at the 'band edge' or 2.4 GHz and 2.4835 GHz.

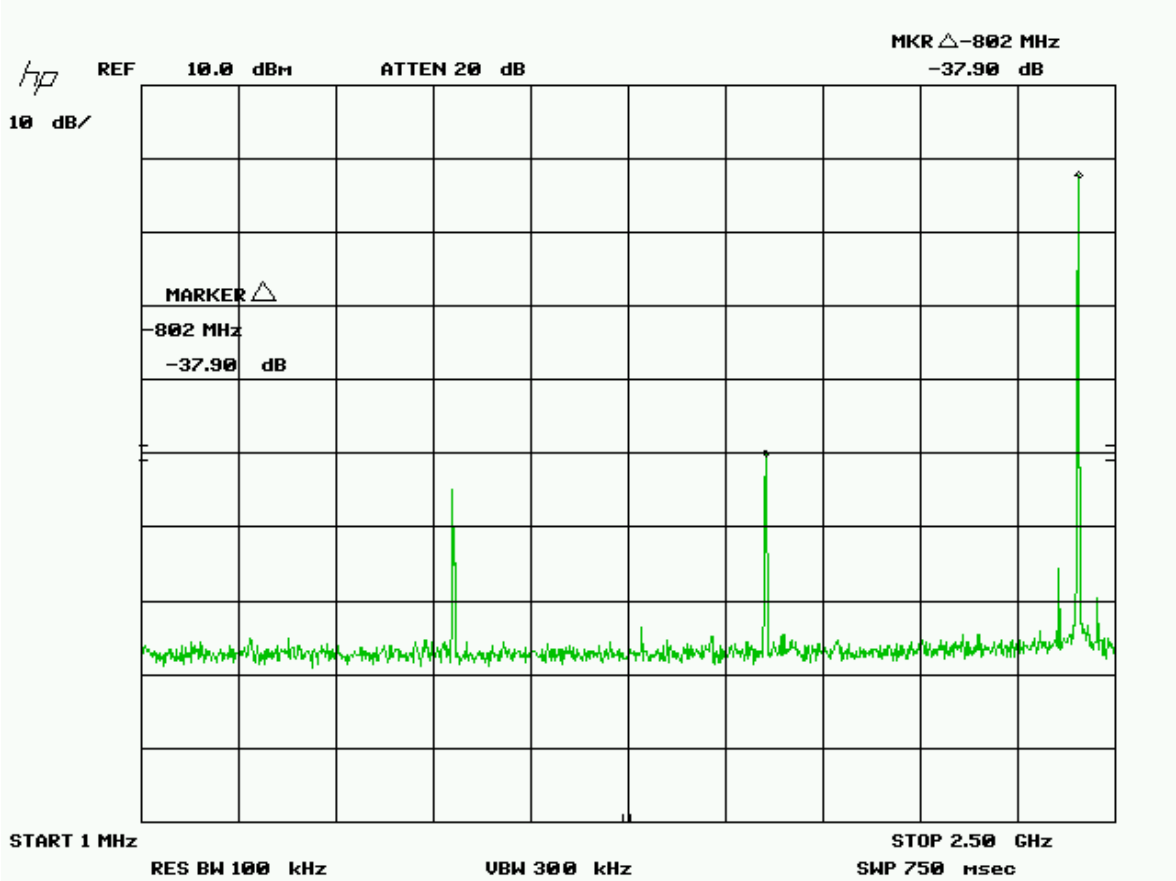
Results

The EUT passed. Low, middle and high band was measured. The worst case graphs for the spectrum are shown.

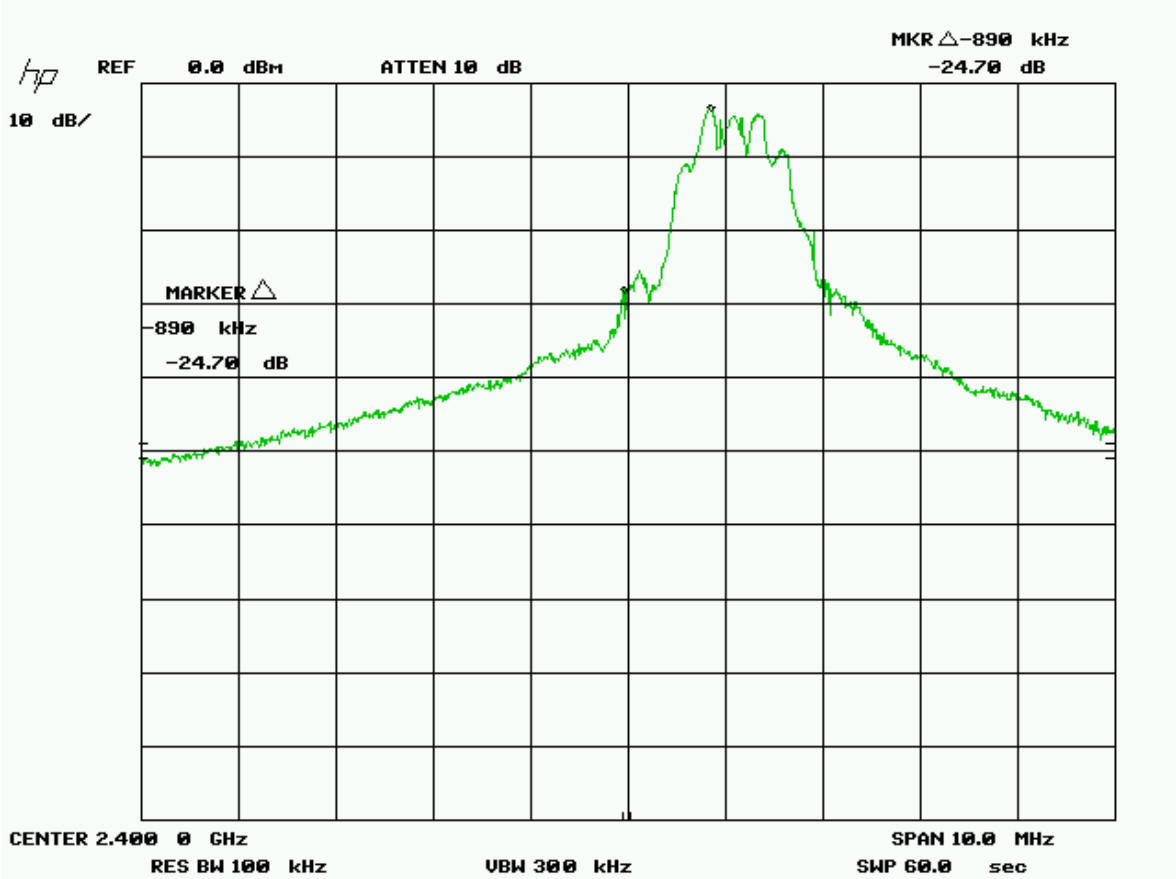
Graph(s)

The graphs shown below shows the peak power output of the device during the antenna conducted measurement during transmit operation of the EUT.

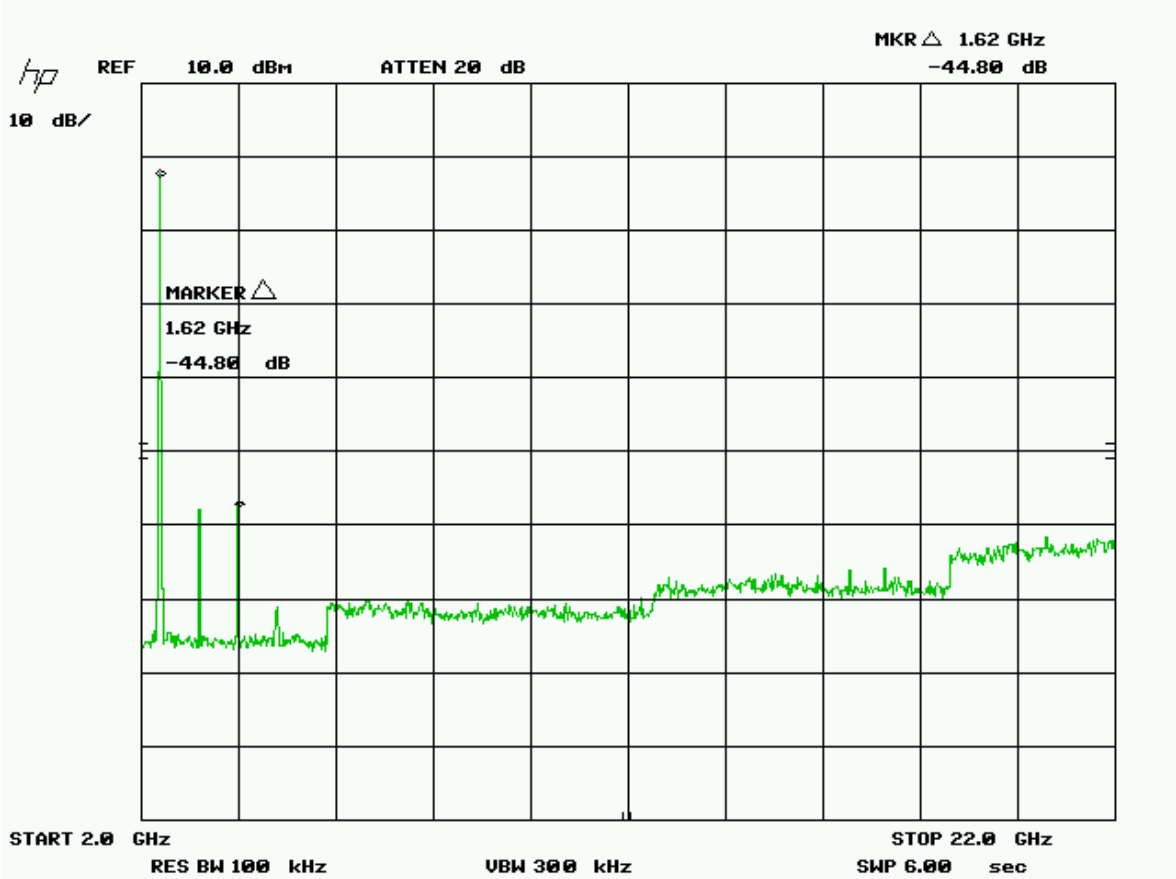
Frequencies below fundamental – Low Channel



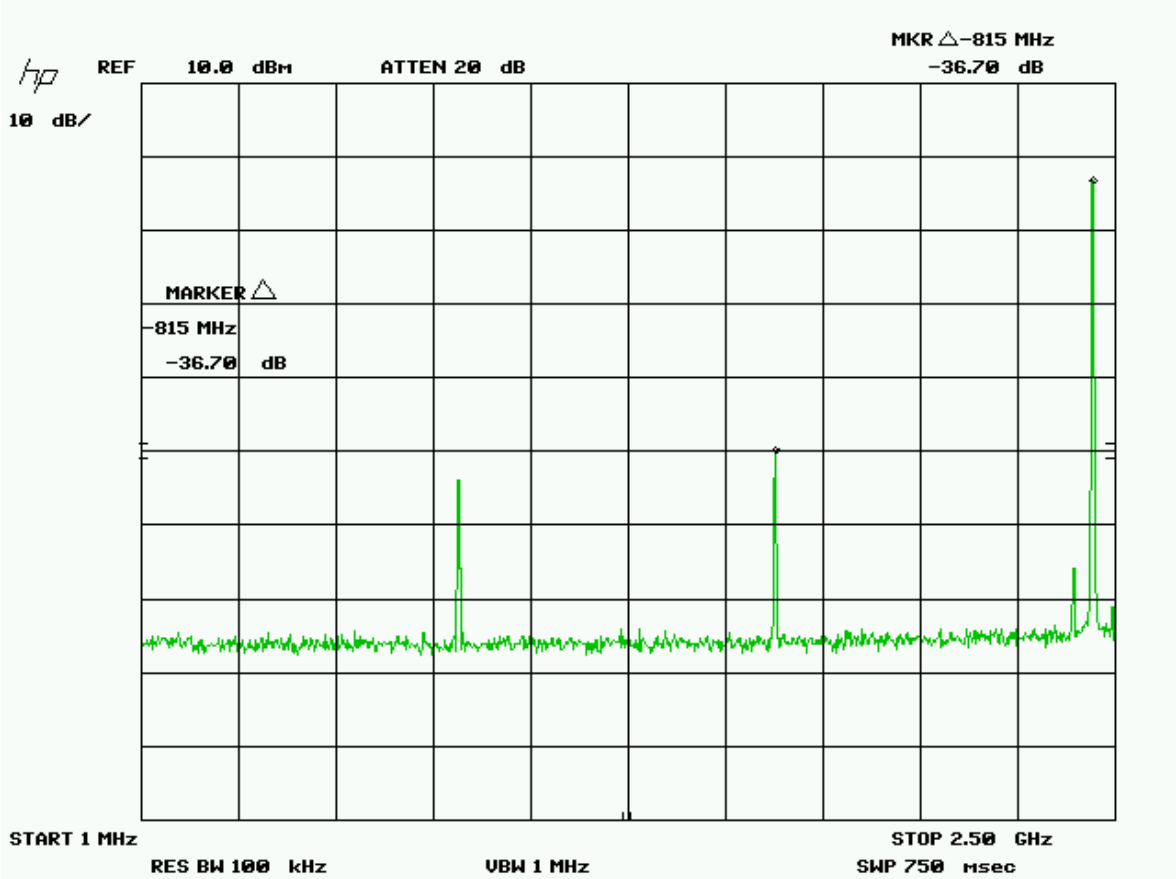
Band edge -20dBc – Low Channel



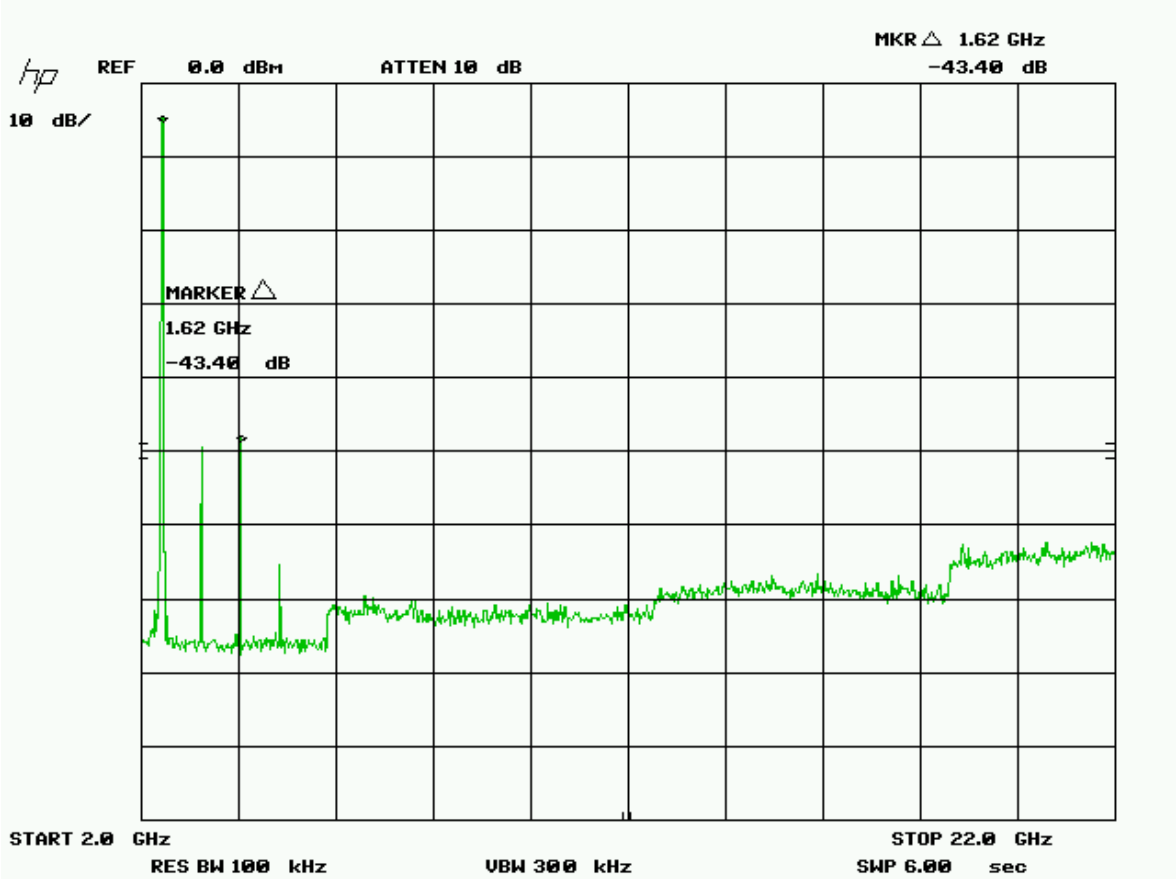
Harmonics – Low Channel



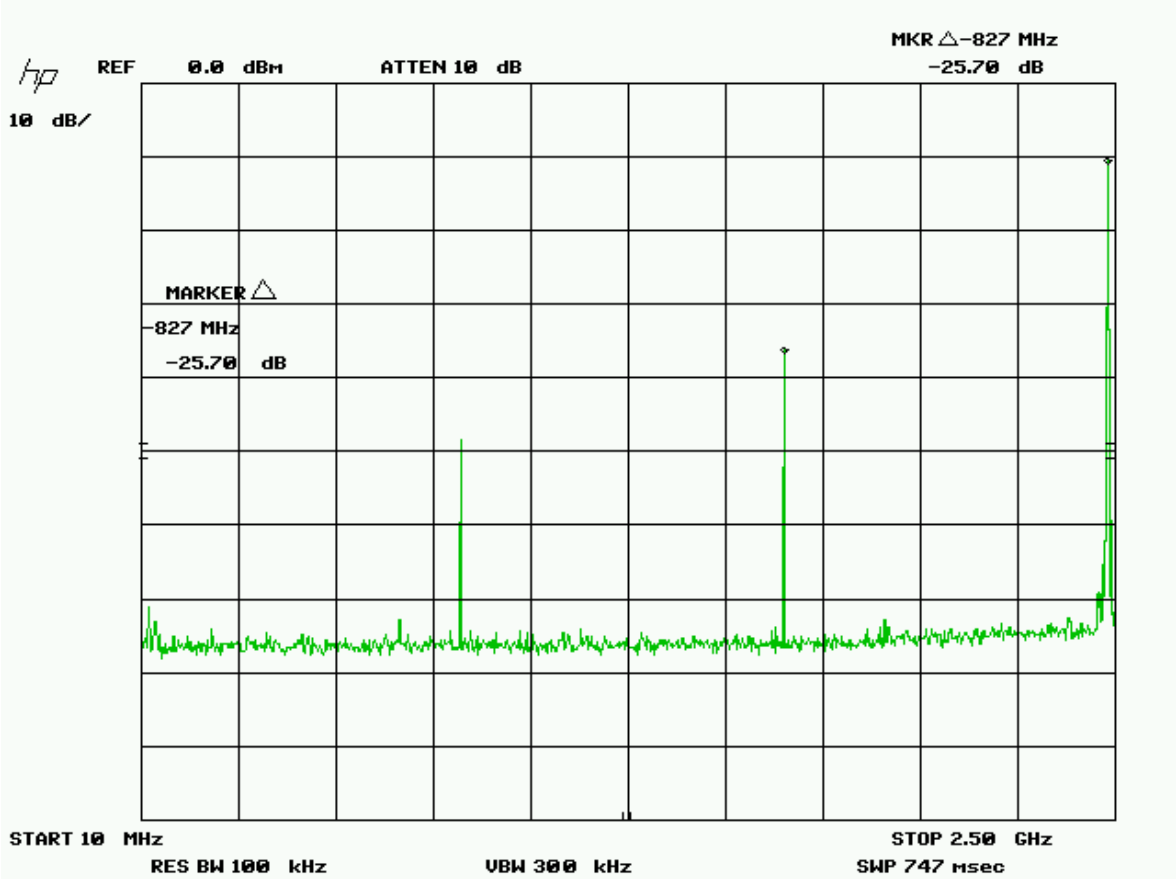
Frequencies below fundamental – Mid Channel



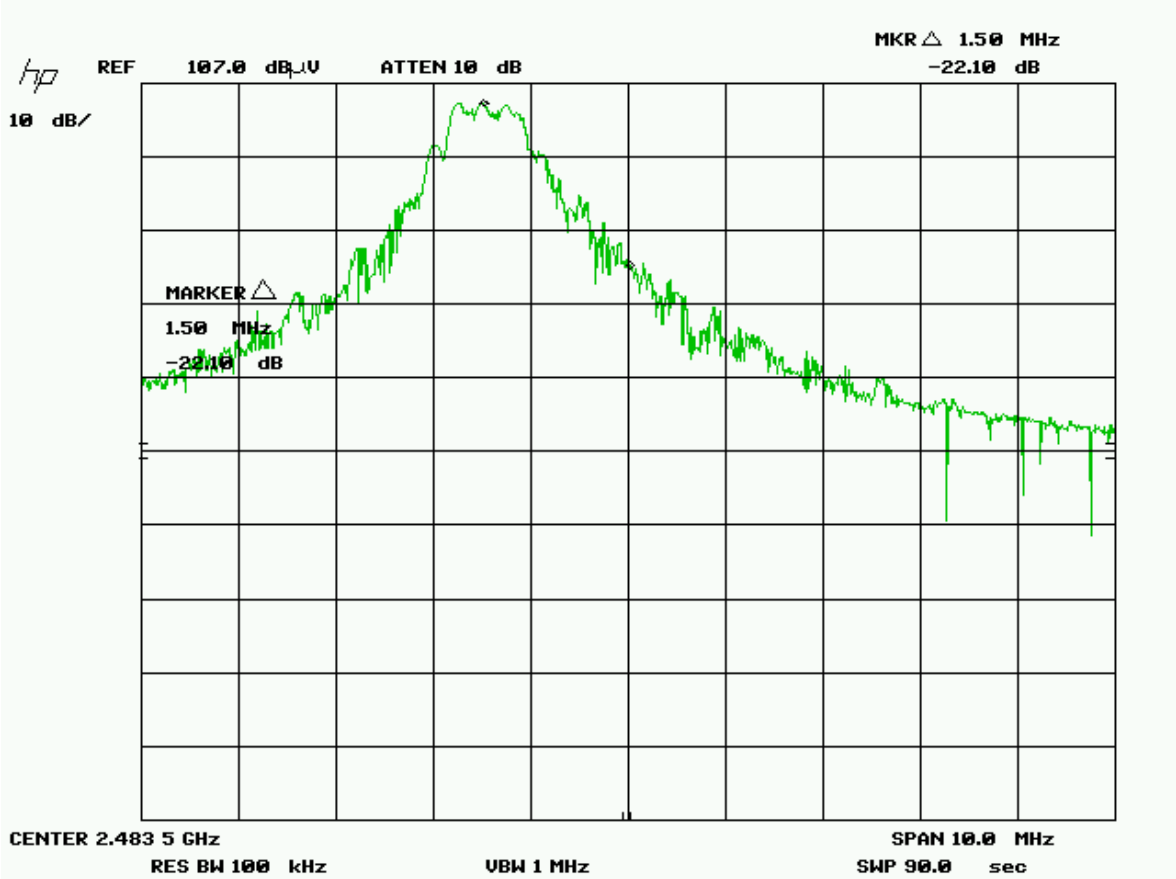
Harmonics – Mid Channel



Frequencies below fundamental – High Channel

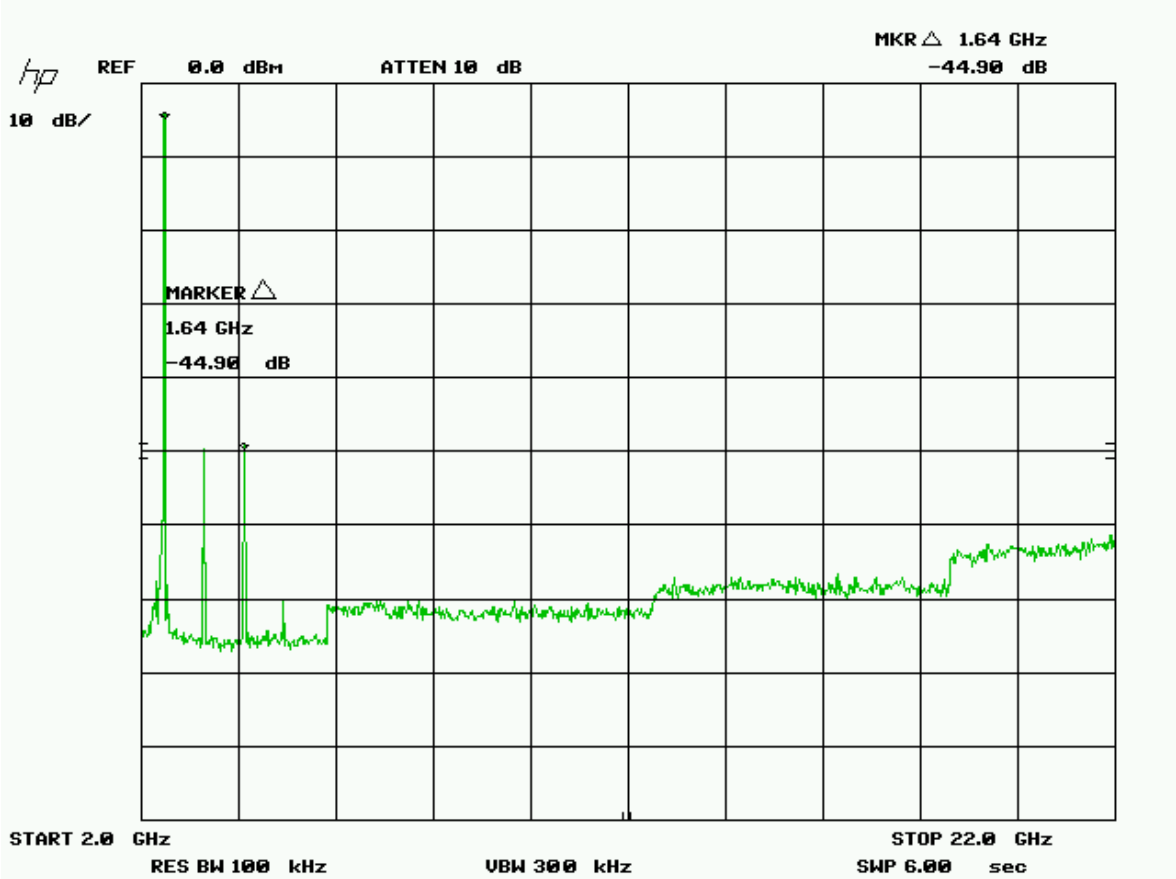


Band Edge – High channel



Note: Due to a software/firmware error, the maximum channel shown is 2.482 GHz, however actual software/firmware will limit this device to 2.48 GHz The band edge was also verified with the device operating at 2.48 GHz and passed with more margin. The compliant 2.482 GHz graph is shown above is presented as a worst case.

Harmonics - High Channel



The frequency range of 22 – 25 GHz, the 10th harmonic and 9th harmonic where applicable, was additionally scanned using an alternate spectrum analyzer, in low, middle and high band for each mode. No emissions were detected at the 9th and 10th harmonic.

Note: See 'Appendix B – EUT & Test Setup Photographs' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Attenuator 1 dB	FP-50-1	Trilithic	NCR	NCR	GEMC 38
Attenuator 3 dB	FP-50-3	Trilithic	NCR	NCR	GEMC 40
Attenuator 6 dB	FP-50-6	Trilithic	NCR	NCR	GEMC 41
Attenuator 10 dB	FP-50-10	Trilithic	NCR	NCR	GEMC 42
Attenuator 20 dB	FP-50-20	Trilithic	NCR	NCR	GEMC 43
Spectrum Analyzer	8566B	HP	2006-08-09	2008-08-09	GEMC 6
Quasi Peak Adapter	85650A	HP	2006-08-07	2008-08-07	GEMC 7
IFR Spectrum Analyzer	AN940	IFR	NCR	NCR	GEMC 6350
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29
Power Attenuator 20 dB	25-A-FFN-20	Bird / Hutton	NCR	NCR	GEMC 49

This report module is based on GEMC template "FCC – Power Line Conducted Emissions Class B_Rev1"

Power Spectral Density

Purpose

The purpose of this test is to ensure that the maximum power spectral density to the radiating element does not exceed the limits specified. This ensures that the modulation is significantly wide enough, or low enough in power that it will allow for co-operation of other wireless devices operating within this frequency allocation.

Limits

The limits are defined in 15.247(e).

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

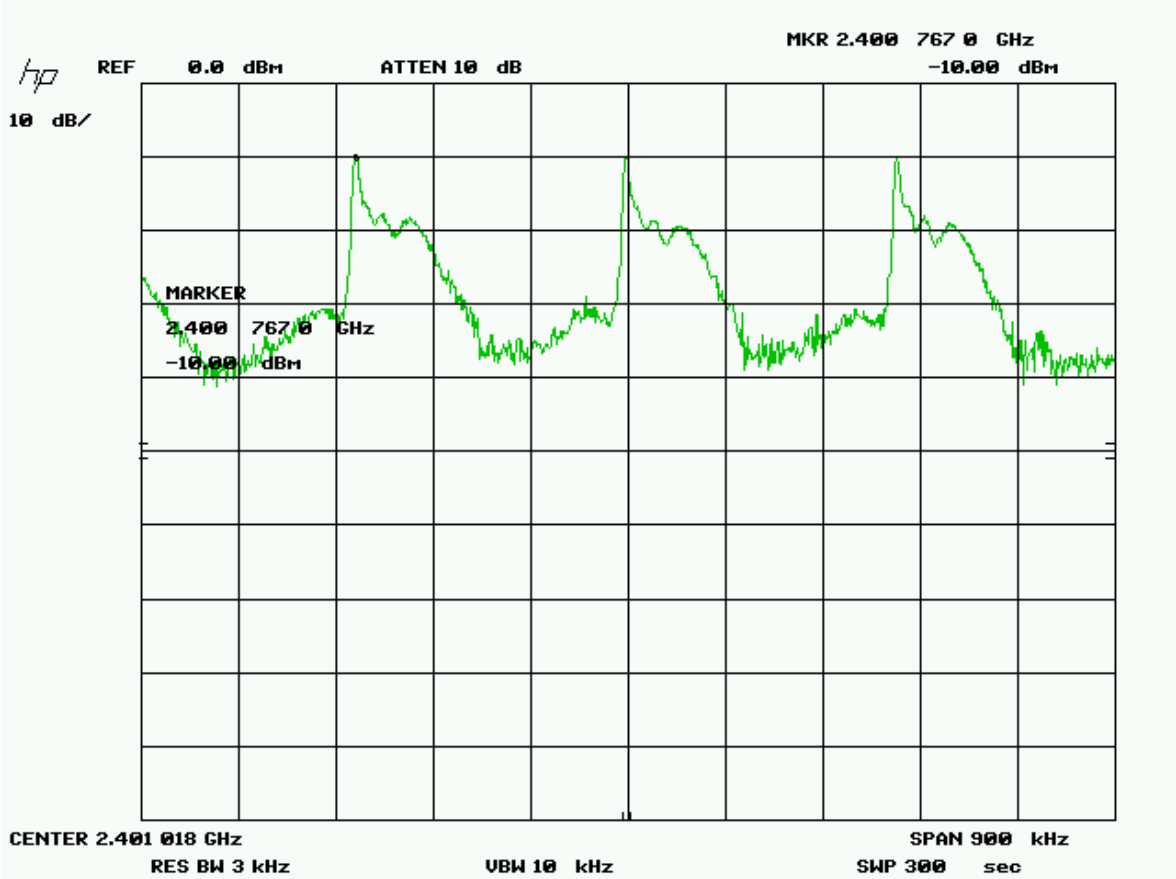
Results

The EUT passed. Each mode was tested at low, medium, and high band. The worst case value is -3.3 dBm.

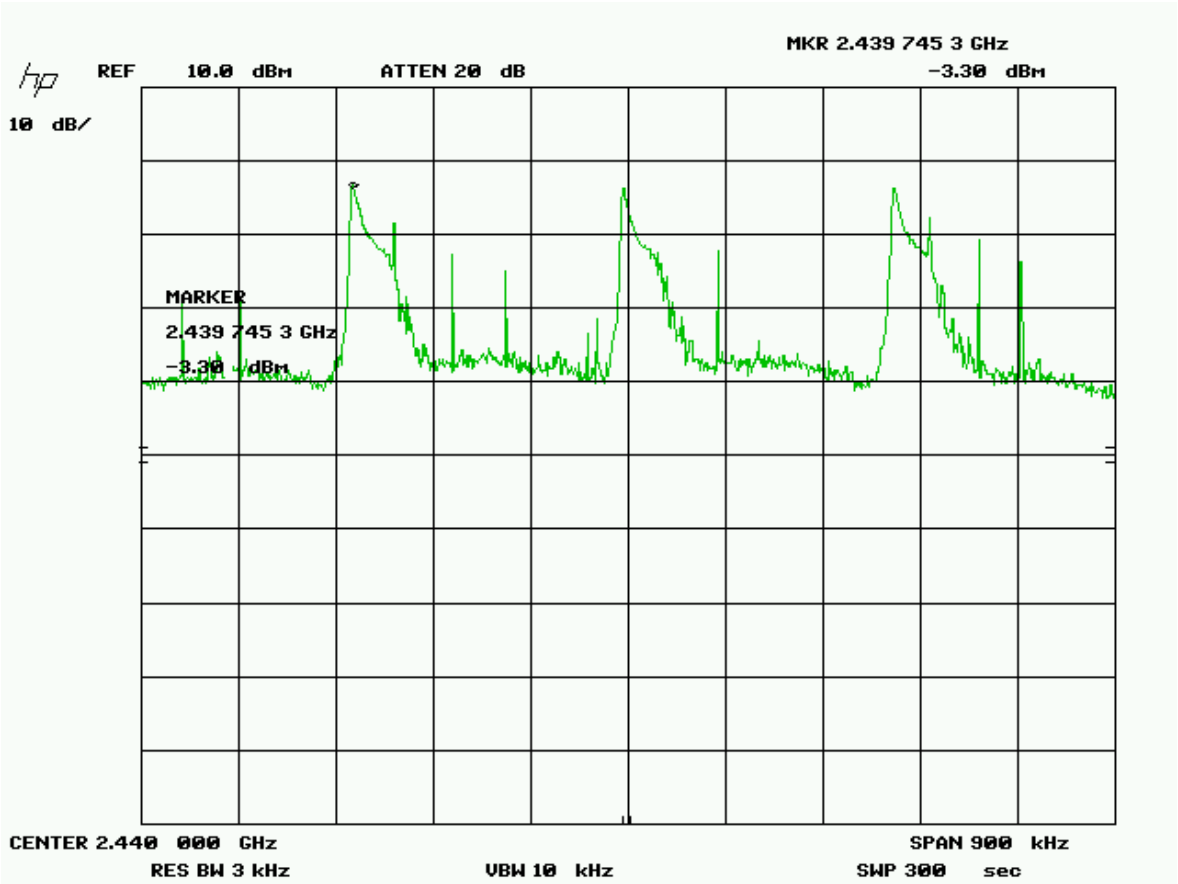
Graph(s)

The graphs shown below show the power spectral density of the device during the conducted measurement operation of the EUT. Low, middle, and high channel was investigated in each mode.

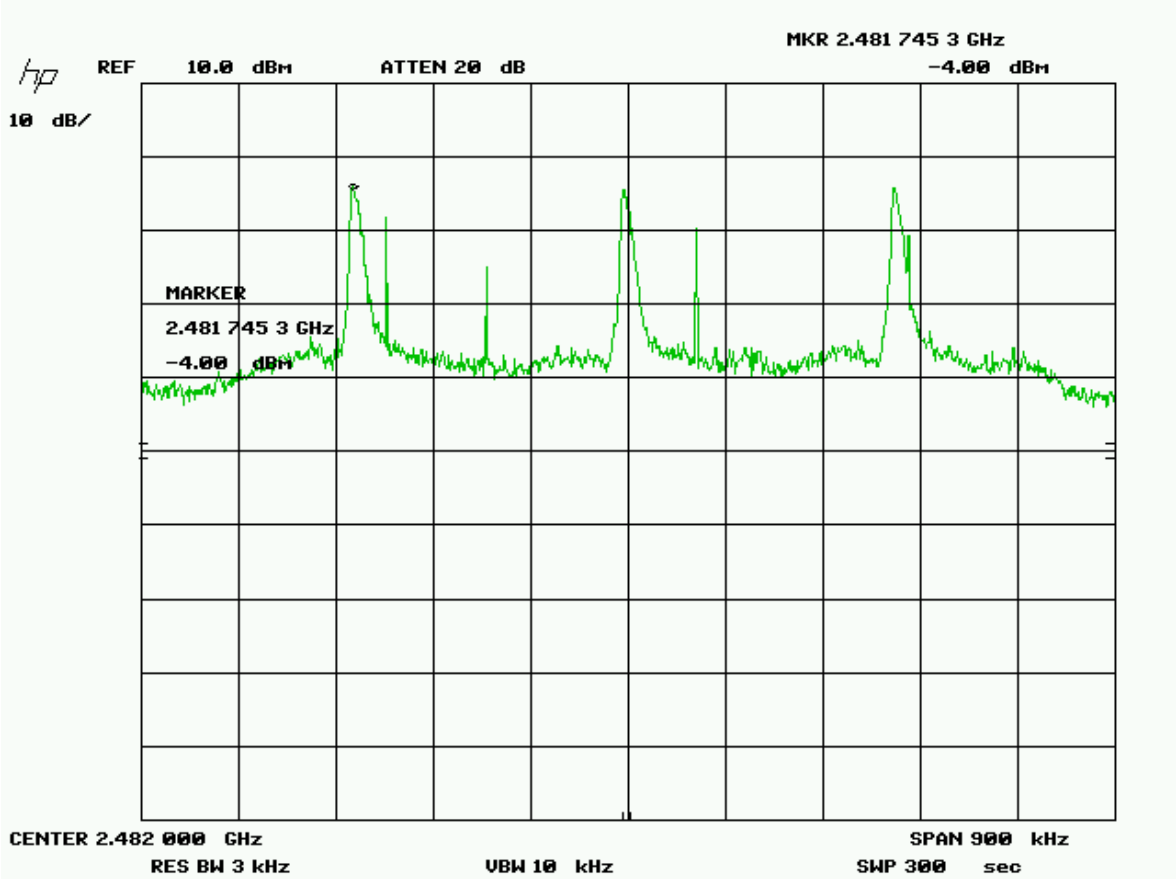
Low channel



Mid channel



High channel



Note: See 'Appendix B – EUT & Test Setup Photographs' for photos showing the test set-up.

Test Equipment List

Equipment	Model No.	Manufacturer	Last calibration date	Next calibration due date	Asset #
Spectrum Analyzer	8566B	HP	2008-02-28	2010-02-28	6
RF Cable 1m	LMR-400-1M-50OHM-MN-MN	LexTec	NCR	NCR	GEMC 29

This report module is based on GEMC template "FCC – Power Line Conducted Emissions Class B_Rev1"

Maximum Permissible Exposure

Purpose

The purpose of this test is to ensure that the RF energy intentionally transmitted, in terms of power density emitted from the EUT at a stated operating distance does not exceed the limits listed below as defined in the applicable test standard, as calculated based upon readings obtained during testing. This helps protect human exposure to excessive RF fields.

Limit(s) and Method

The limits, as defined in FCC 15.247(i), and FCC 1.1310 Table 1 (B) limits for general public exposure was applied. The limit for the frequency range of 1.5 GHz to 100 GHz was applied. This is a limit of 1.0 mW/ cm^2 The distance used for calculations was 2.5cm, as this is the distance that a body worn device is to use for the purpose of calculation.

Results

The EUT passed the requirements. The worst case calculated power density was 0.030 mW/cm^2, this is significantly under the 1.0 mW/cm^2 requirement.

Calculations

Method 1 (conducted power)

$P_d = (P_t * G) / (4 * pi * R^2)$
Where Pt = 2.2 dBm or 1.7 mW as per Peak power conducted output
Where G = 1.5 dBi, or numerically 1.4
Where R = 2.5 cm

$P_d = (1.7\ mW * 1.4) / (4 * pi * 2.5\ cm^2)$
$P_d = 2.38\ mW / 78.5\ cm^2$
$P_d = 0.030\ mW/cm^2$

Appendix A – EUT Summary

For further details for filing purposes, refer to filing package.

General EUT Description

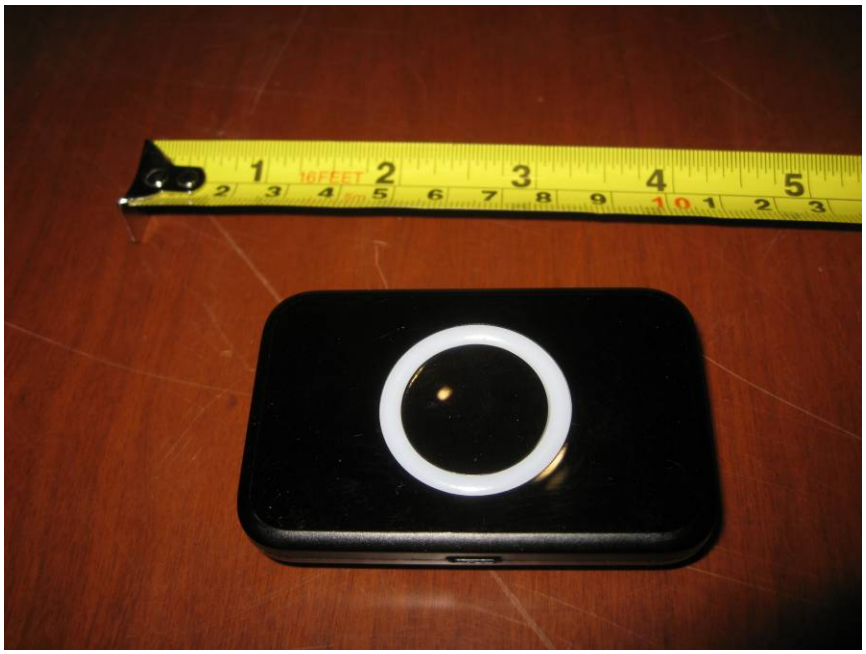
Company & Address	MYTRAK
	MYTRAK Health System 3250 Ridgeway Dr Suite 10 Mississauga ON Canada L5L 5Y6
EUT Name	MyTraker Interactive Health Coach
FCCID	W3P30346000
IC #	8153A-30346000
Approximate Size (LxWxH)	6 cm x 4 cm x 1 cm
Input Voltage and Frequency	120 Vac, 60 Hz
Rated Input Current	< 100 mA
Intentional RF (If yes describe)	Yes- 2.4 GHz @ < 2.5 mW (2.401 GHz to 2.48 GHz)
Table Top / Wall mount / Floor standing (choose table top if unsure)	Table top.
I/O Connectors available on EUT	None
Peripherals required for test	None. – Specialty firmware for test operation
Minimum Separation distance from operator	The device could be body worn.
Types and lengths of all I/O cables	No I/O cable, however device powers using a USB cable of 1 meter in length.

Note the EUT is considered to have been received the date of the commencement of the first test, unless otherwise stated. For a close-up picture of the EUT, see 'Appendix B – EUT & Test Setup Photographs'.

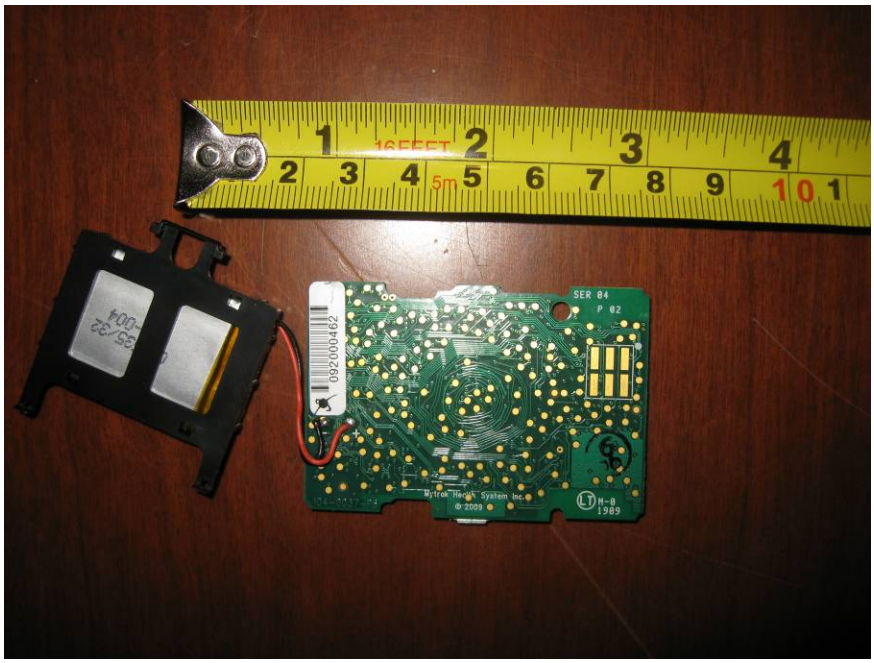
Appendix B – EUT and Test Setup Photographs

Note: These photos are for information purposes only. Also refer to PDF files that are separate from this test report.

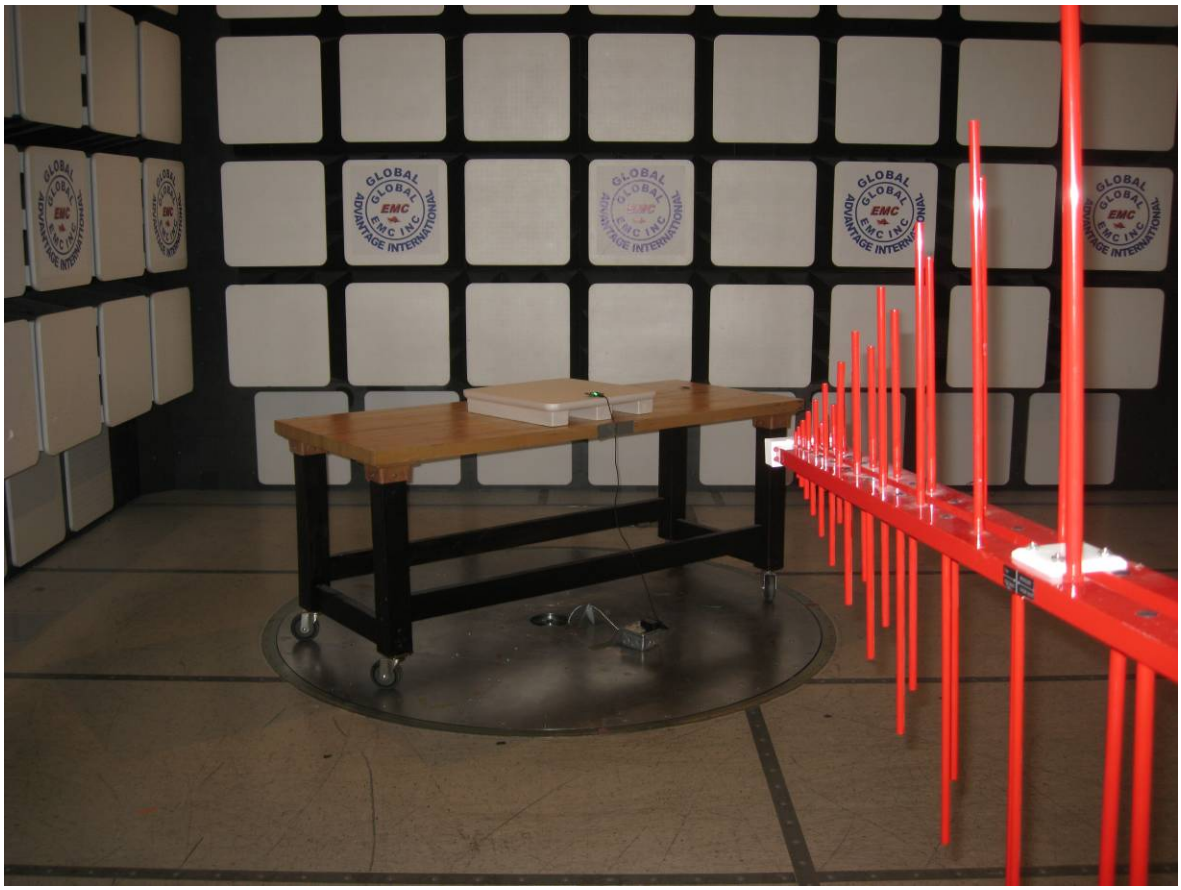
EUT – Front



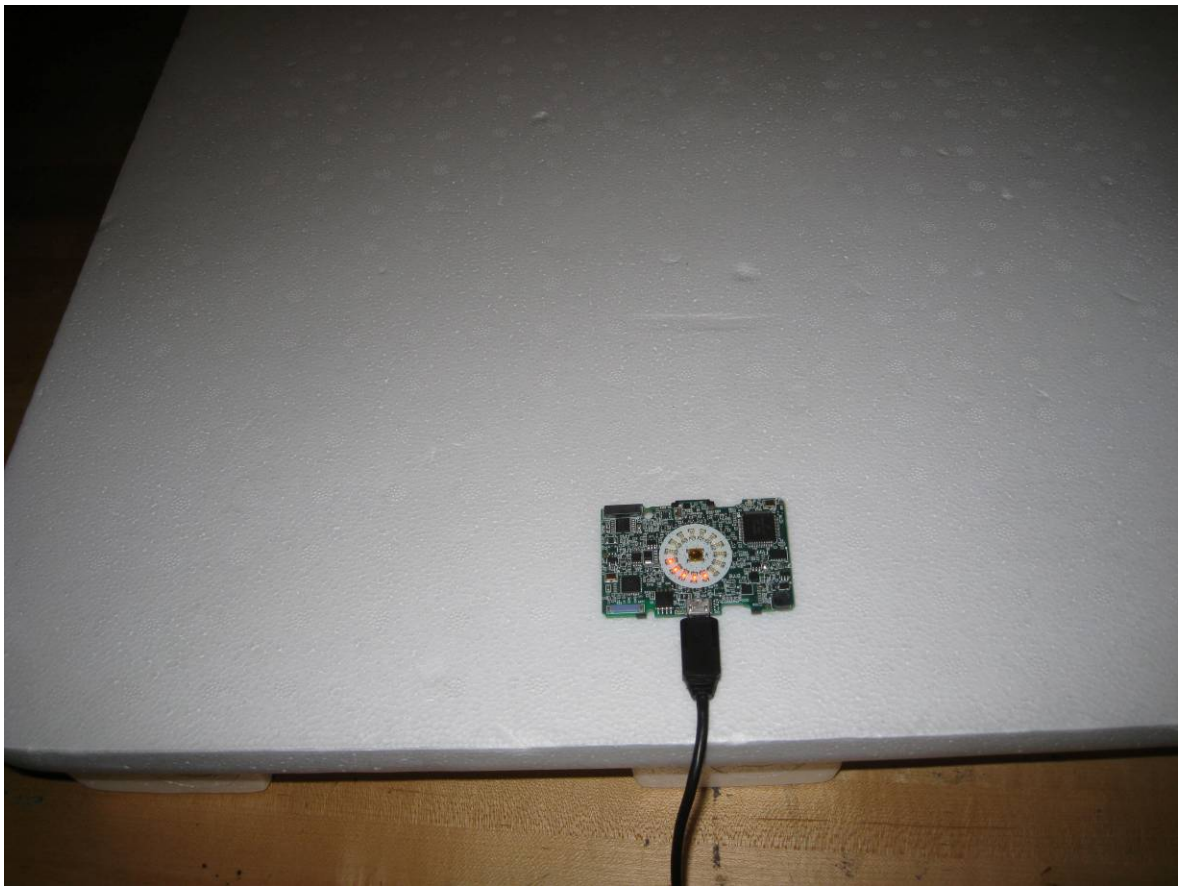
EUT – Back



Radiated Emissions – Photo 1

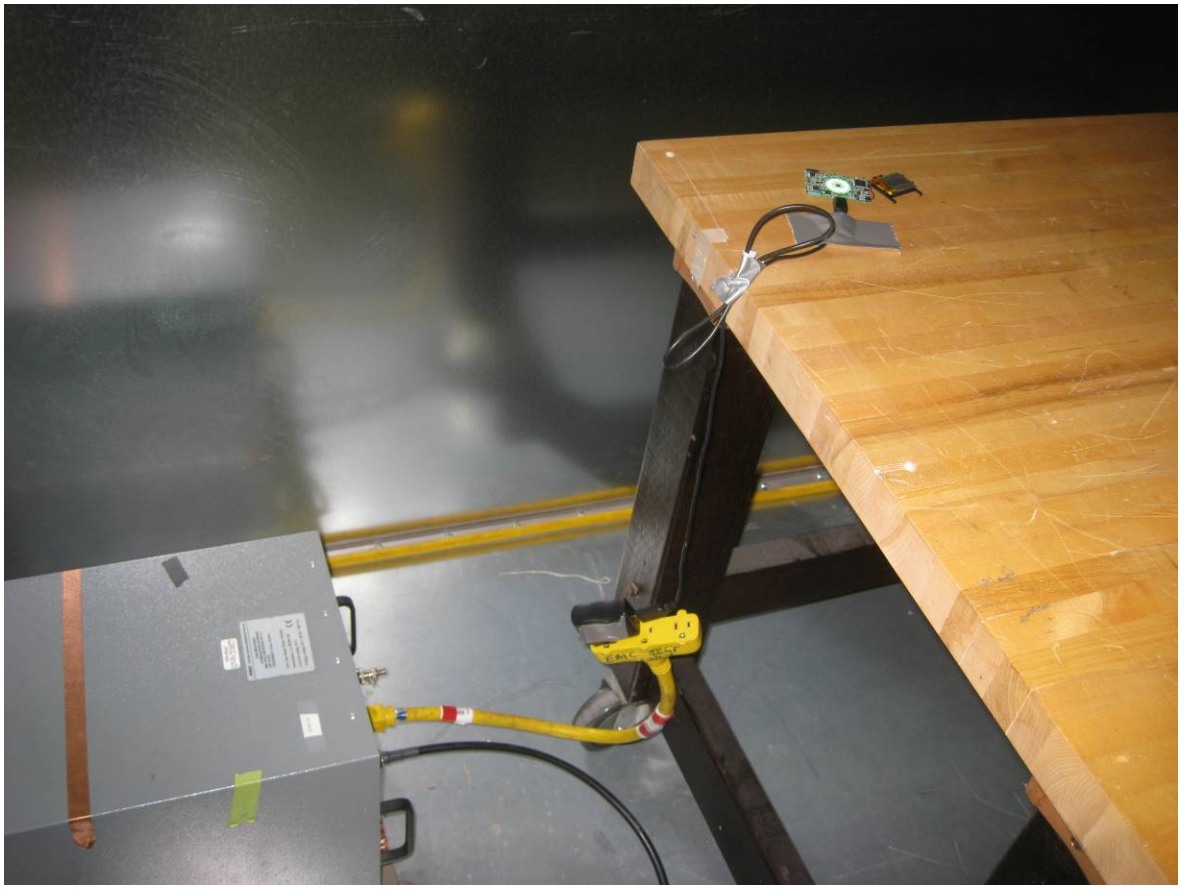


Radiated Emissions – Photo 2



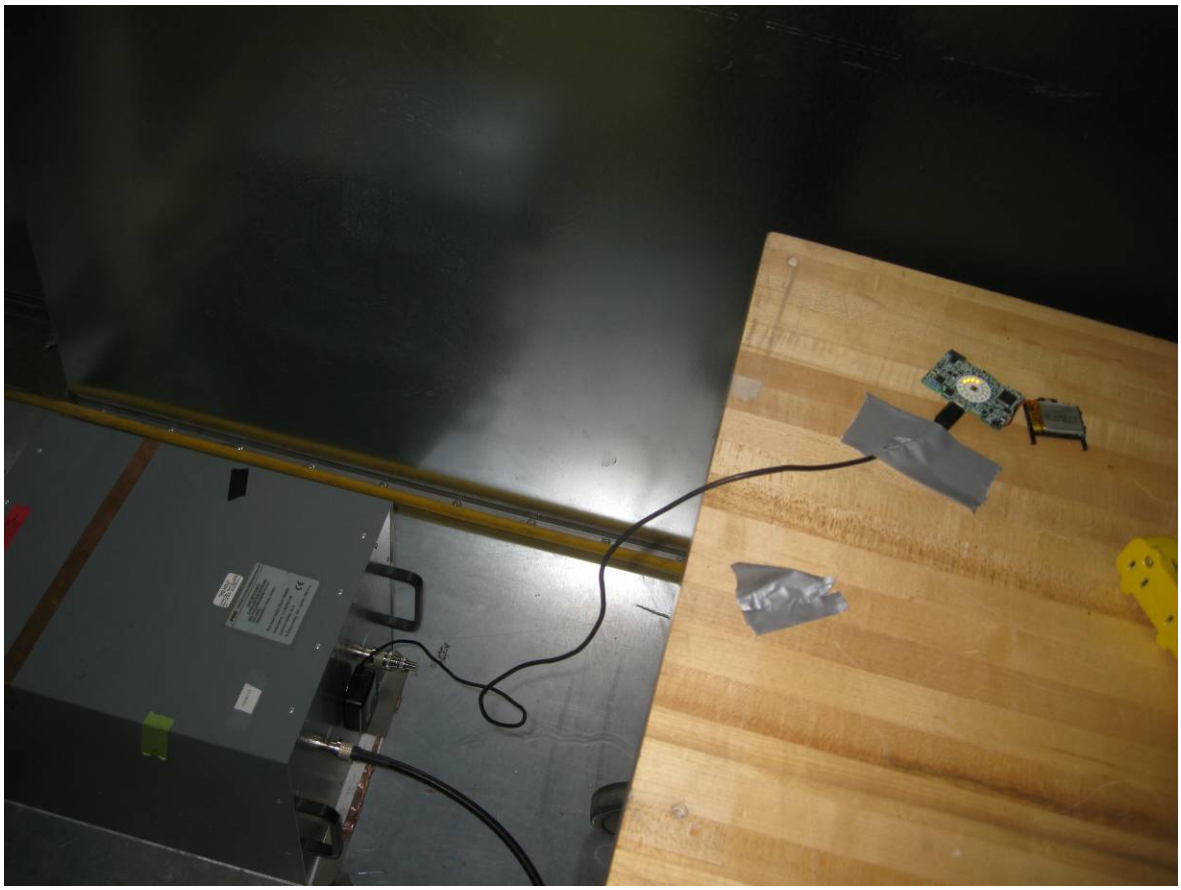
Radiated Emissions – Photo 3

Power Line Conducted Emissions – Photo 1



Note: An extender had to be used as the power adapter did not plug in to the LISN directly. This was deemed to have no significant impact on the readings.

Power Line Conducted Emissions – Photo 2



Antenna Conducted Measurements