



EMISSIONS TEST REPORT

Report Number: 100719224BOX-005b

Project Number: G100719224

Report Issue Date: 10/25/2012

Product Designation: POD miCoach Player-Cell, Model/Article number: Z56308

Standards: CFR47 FCC Part 15:2012 Subpart C Section 15.247,
CFR47 FCC Part 15:2012 Subpart B Class B,
RSS-210 Issue 8 December 2010,
ICES-003 Issue 5 August 2012,
RSS-Gen Issue 3 December 2010+Notice DRS 2012-DRS0126,
CENELEC EN 55022:2010,
AS/NZS Cisp 22:2009

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719

Client:
Adidas International
1895 J. W. Foster Boulevard
Canton, MA 2021

Report prepared by

Kouma Sinn / Senior Project Engineer, EMC

Report reviewed by

Nicholas Abbondante/Staff Engineer, EMC

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1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test	--
5	System Setup and Method	--
6	RF Output Power, Duty Cycle and RF Exposure (CFR47 FCC Part 15 Subpart C 15.247(b)(3), KDB 558074v01 01/18/2012, IC RSS-210 A8.4(4), IC RSS-102 Issue 4 March 2010)	Pass
7	Transmitter Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart C 15.247(d), IC RSS-210 A8.5, KDB 558074v01 01/18/2012 Section 5.4)	Pass
8	6 dB Bandwidth (CFR47 FCC Part 15 Subpart C 15.247(a)(2), IC RSS-210 A8.2(a), IC RSS-Gen Section 4.6.2, KDB 558074v01 01/18/2012 Section 5.1)	Pass
9	Peak Power Spectral Density (FCC 15:2011 Subpart C Section 15.247 (e), RSS-210 Issue 8 December 2010, A8.2 (b), KDB 558074v01 01/18/2012 Section 5.3)	Pass
10	Band Edge Compliance (FCC 15:2011 Subpart C Section 15.247 (d), RSS-210 Issue 8 December 2010, A8.5, KDB 558074v01 01/18/2012 Section 5.4.2.2.4)	Pass
-	Receiver Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B 15.109, IC RSS-Gen Sections 4.10 & 6.0)	Exempt, above 960 MHz
11	Digital Device Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B 15.109, IC ICES-003 Issue 4 February 2004, AS/NZS Cispr 22:2009, CENELEC EN 55022:2010)	Pass
12	Revision History	--

Note: The EUT is battery powered and does not have facility to connect to the AC mains, directly or indirectly. Therefore, line-conducted emission testing is not required.

3 Client Information

This EUT was tested at the request of:

Company: Adidas International
1895 J. W. Foster Boulevard
Canton, MA 2021

Contact: Mr. Evan Locke
Telephone: (781) 401-7260
Fax: Not Available
Email: Evan.Locke@adidas-Group.com

4 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model/Article Number	Serial Number
MiCoach Wireless Data Collection System, POD miCoach Player-Cell	Adidas International	Z56308	20

Receive Date:	05/29/2012
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)

The POD is part of a MiCoach Wireless Data Collection System. Wireless communication to a host via an internal chip antenna and Zigbee application with O-PQSK modulation is used. The Zigbee transceiver operates in the 2400-2483.5MHz band from 2405-2480MHz.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
3.7VDC Lithium Battery	0.87 Ah	N/A	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	The device was in transmit mode for all transmitter testing
2	For digital devices testing the device was in idle mode

5 System Setup and Method

Cables					
Qty	Description	Length (m)	Shielding	Ferrites	Termination
	None				

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
None			

5.1 Method:

5.1

Configuration as required by ANSI C63.4:2003, FCC Part 15:2012 Subpart C Section 15.247, RSS-210 Issue 8 December 2010, RSS-Gen Issue 3 December 2010, and KDB 558074v01 01/18/2012.

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6 Maximum Peak Output Power, Duty cycle, and Human RF Exposure

6.1 Method

Tests are performed in accordance with ANSI C63.4:2003, CFR47 FCC Part 15 Subpart C 15.247, IC RSS-210 Issue 8 December 2010, IC RSS-Gen Issue 3 December 2010, KDB 558074v01 01/18/2012, KDB 447498, and IC RSS-102 Issue 4 March 2010.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

Measurement Uncertainty

For radiated emissions, U_{lab} (3.5 dB at 3m and 3.5 dB at 10m below 1 GHz, and 4.2 dB at 3m above 1 GHz) < U_{CISPR} (5.2 dB), which is the reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

NF = Net Reading in dB μ V

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$
$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	08/02/2012
HORN2'	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	09/04/2011	09/04/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	08/23/2012

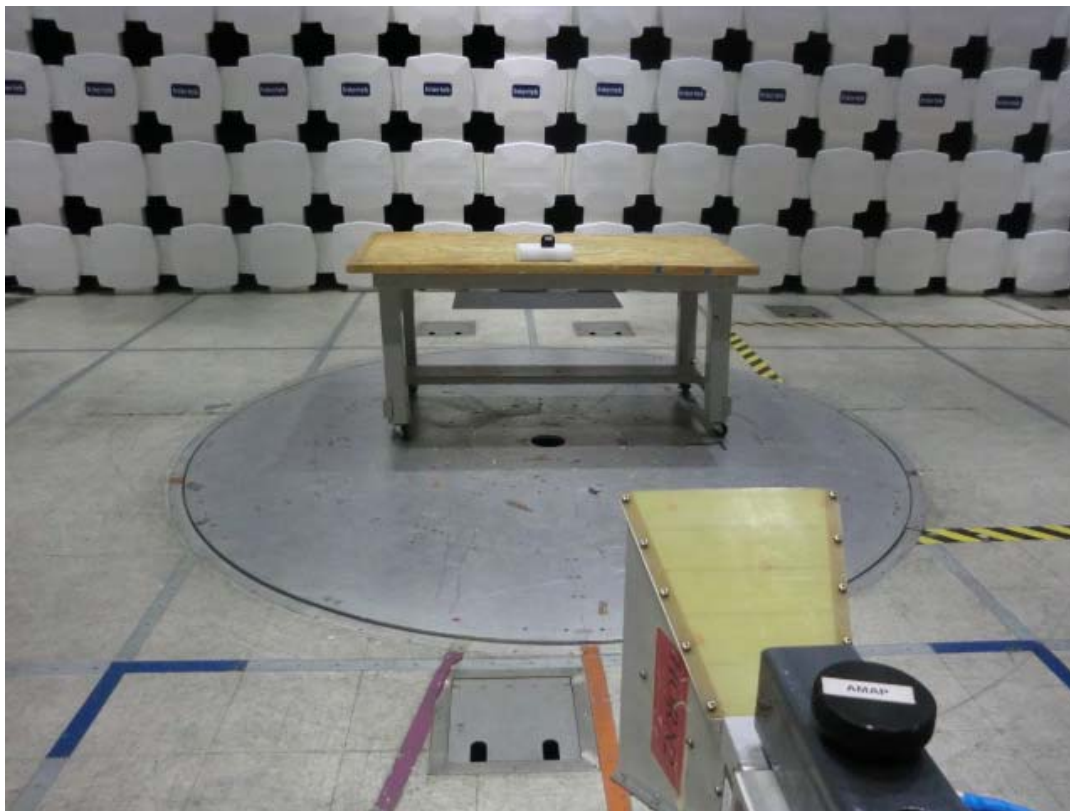
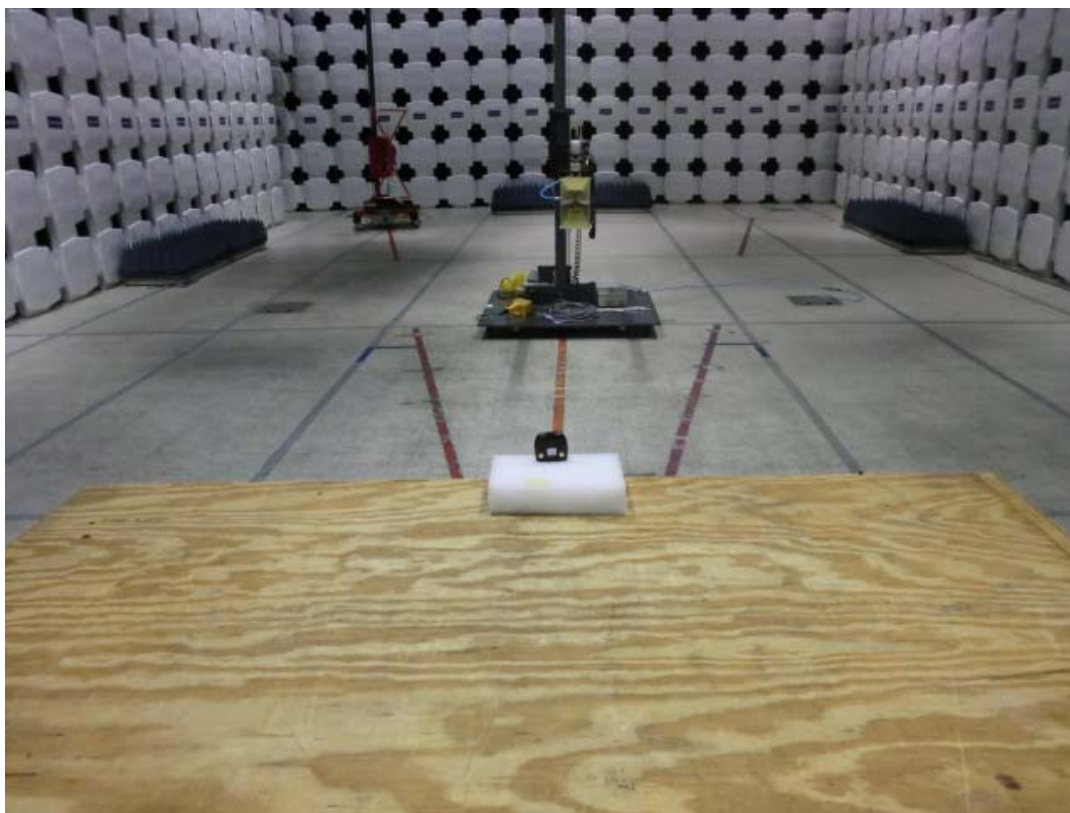
Software Utilized:

Name	Manufacturer	Version
Excel 2003	Microsoft	(11.8231.8221) SP3
EMI Boxborough.xls	Intertek	08/27/10

6.3 Results:

The EIRP must not exceed 36 dBm. The human RF Exposure limit is 1 mW/cm². The sample tested was found to comply.

6.4 Setup Photographs:



6.5 Test Data:

Intertek

Radiated Emissions

Company: Adidas International
 Model #: POD
 Serial #: 20
 Engineers: Vathana Ven
 Project #: G100719224 Date(s): 05/29/12
 Standard: FCC Part 15 Subpart C 15.247
 Receiver: R&S ESI (145128) 08-23-2012
 PreAmp: PRE145014 12-16-2012.txt
 PreAmp Used? (Y or N): N
 Antenna & Cables: N Bands: N, LF, HF, SHF
 Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
 Cable(s): 145-416 3mTrkB 09-04-2012.txt NONE
 Location: 10m Chamber Barometer: DAV003 Filter: NONE
 Temp/Humidity/Pressure: 20c 66% 996mB
 Limit Distance (m): 3
 Test Distance (m): 3
 Voltage/Frequency: 3.7VDC Frequency Range: Frequencies Shown
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	EIRP Net dBm	EIRP Limit dBm	Margin dB	Bandwidth
Note: RF Output Power (Unit was tested in player's back mounted position)											
Note: EIRP was obtained by applying the path loss correction for a 3m test distance, E(dBuV/m) @3m - 95.22 = dBm EIRP											
PK	H	2405.000	65.89	28.33	5.93	0.00	0.00	4.93	36.00	-31.07	5/10 MHz
PK	H	2440.000	66.33	28.43	5.98	0.00	0.00	5.52	36.00	-30.48	5/10 MHz
PK	H	2480.000	65.30	28.54	6.03	0.00	0.00	4.66	36.00	-31.34	5/10 MHz

RF Exposure:

The EUT is a portable device and was measured in a radiated fashion. The RF output power was measured using a resolution bandwidth larger than the bandwidth of the emission. The data obtained was adjusted for equipment losses and converted from a field strength reading to a power reading using the provisions of KDB 558074 and RSS-Gen 4.6. The human RF exposure limit is 1 mW/cm². The power density S in mW/cm² generated by some value of EIRP in mW at a given distance d in cm is related by the equation:

$$S = \text{EIRP} / (4\pi d^2)$$

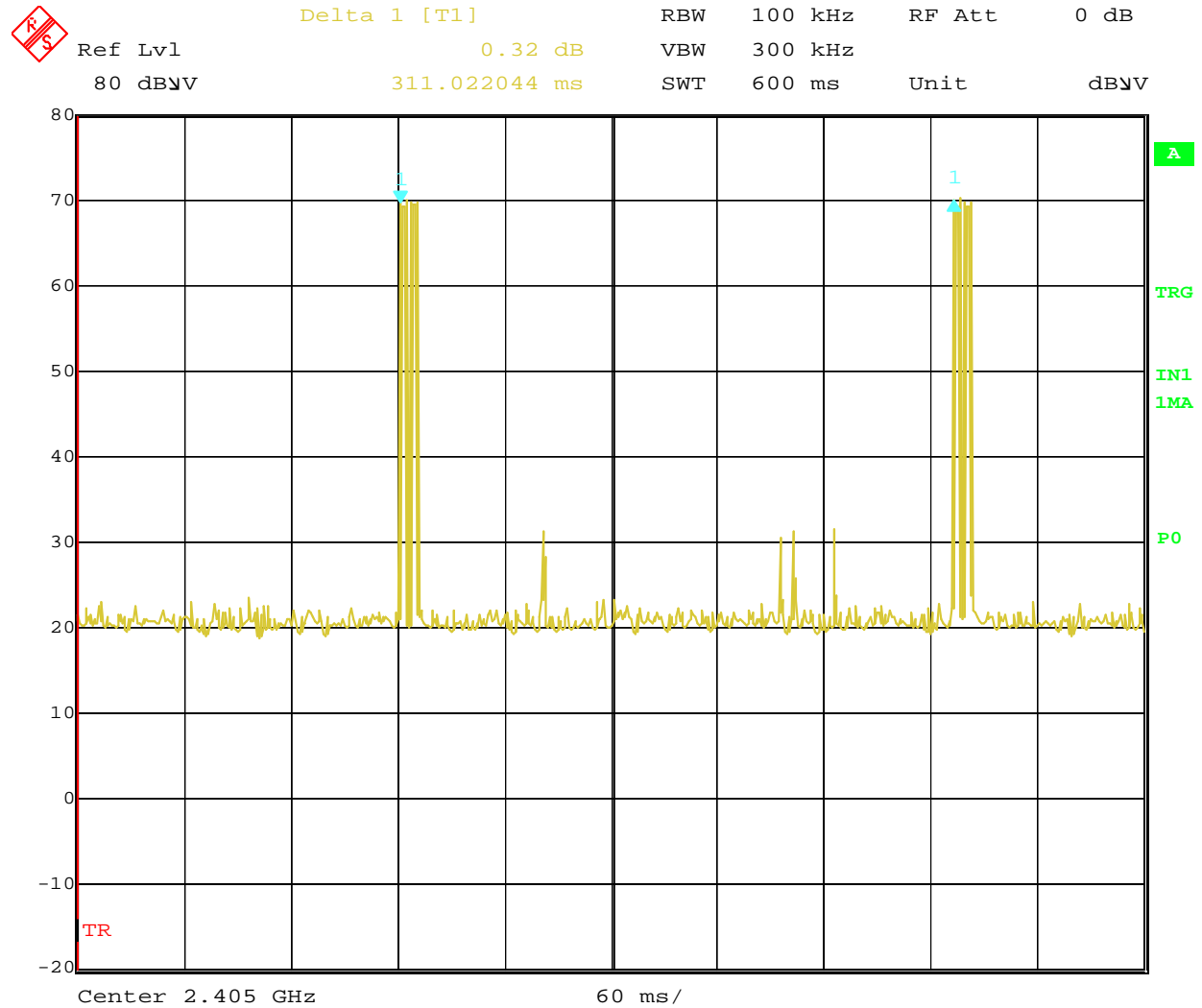
The distance, given a maximum EIRP of 5.52 dBm (3.56 mW), at which the radiated power density of the EUT is equal to the human RF exposure limit is 0.5 cm from the antenna. This result does not take averaging into account.

The EUT is exempt from FCC SAR RF exposure evaluation as referenced in KDB 447498 section 1(c) due to the average output power being below $60/f_{(\text{GHz})}$ where f is the frequency in GHz. This expression yields an exemption threshold of 24.2 mW (13.84 dBm) at 2480 MHz.

The EUT is exempt from IC SAR RF exposure evaluation as referenced in IC RSS-102 Issue 4 March 2010 section 2.5.1 because the operating frequency is between 2.2 and 3.0 GHz and the EIRP does not exceed 20 mW (13.0 dBm).

Duty Cycle

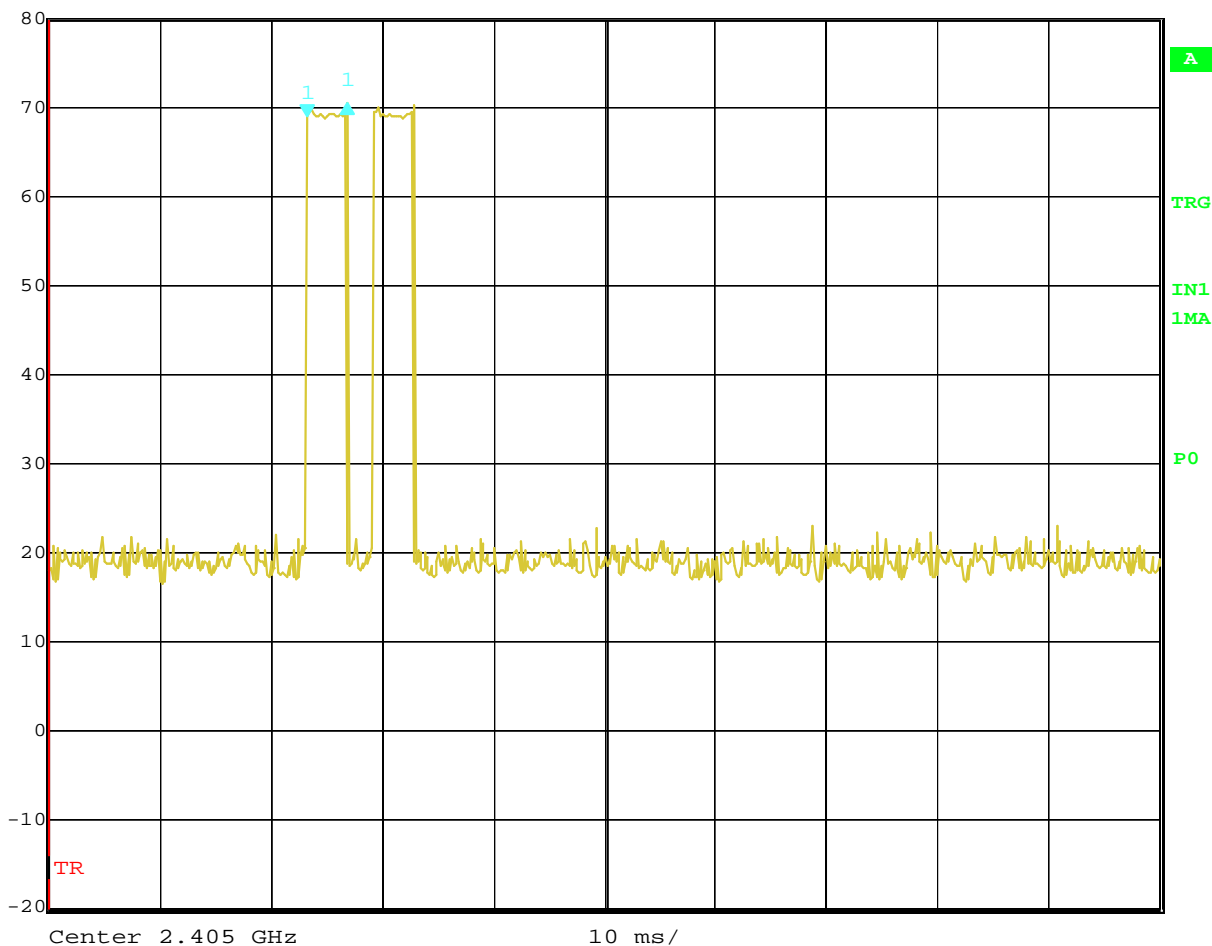
The worst-case duty cycle for typical EUT operation is shown below. The pulse train repeats over a larger than 100ms period.



Date: 6.JUN.2012 20:33:38



	Delta 1 [T1]	RBW	100 kHz	RF Att	0 dB
Ref Lvl	1.49 dB	VBW	300 kHz		
80 dBμV	3.607214 ms	SWT	100 ms	Unit	dBμV



Date: 6.JUN.2012 20:30:21

Average factor = $20 \cdot \text{LOG}((3.607 \cdot 2) / 100) = -22.84 \text{ dB}$

Test Personnel: <u>Vathana F. Ven <i>VFV</i></u>	Test Date: <u>05/29/2012, 06/06/2012</u>
Supervising Engineer: <u>N/A</u>	Test Levels: <u>Below the specified limits</u>
(Where Applicable)	Ambient Temperature: <u>20 °C</u>
Product Standard: <u>FCC Part 15.247, RSS-210 Annex 8</u>	Relative Humidity: <u>66 %</u>
Input Voltage: <u>Internal battery</u>	Atmospheric Pressure: <u>996 mbar</u>
Pretest Verification w/ Ambient Signals or BB Source: <u>Ambient Signals</u>	

Deviations, Additions, or Exclusions: None

7 Transmitter Radiated Spurious Emissions

7.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C 15.247(d), IC RSS-210 A8.5, KDB 558074v01 01/18/2012 Section 5.4.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

Measurement Uncertainty

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Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

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In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

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NF = Net Reading in dB μ V

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$
$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
~145106	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	08/15/2011	08/15/2012
~145003	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2011	10/04/2012
~145 128	EMI Test Receiver (20Hz - 40GHz)	Rohde & Schwarz	ESL	837771/027	08/23/2011	08/23/2012
~145-410	Cables 145-400 145-406 145-407 145-405 145-403	Huber + Suhner	10m Track A Cables	multiple	09/04/2011	09/04/2012
~145-416	Cables 145-400 145-408 145-402 145-404	Huber + Suhner	3m Track B cables	multiple	09/04/2011	09/04/2012
~HORN2	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
~145 014	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	12/16/2011	12/16/2012
~DAV002	Weather Station	Davis Instruments	7400	PE80519A93	08/17/2011	08/17/2012
~PRE9	100MHz-40GHz Preamp	MITEQ	NSP4000-NFG	1260417	05/12/2011	05/12/2012
~CBL030	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	02/08/2012	02/08/2013
~EMC04	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	02/08/2012	02/08/2013
MEG005'	High Frequency Cable	Megaphase	TM40-K1K1-197	8148601-001	02/07/2012	02/07/2013
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	11/30/2011	11/30/2012

Software Utilized:

Name	Manufacturer	Version
Excel 2003	Microsoft	(11.8231.8221) SP3
EMI Boxborough.xls	Intertek	08/27/10
C5	Teseq	Build 5.26.00.3

7.3 Results:

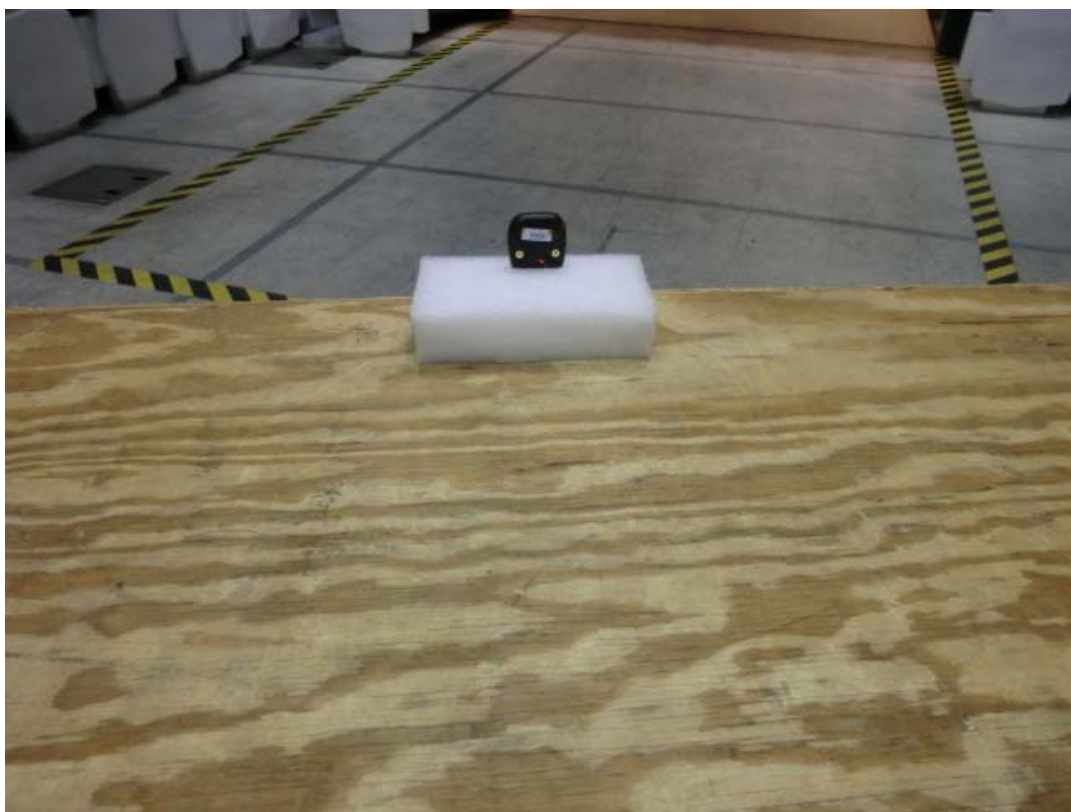
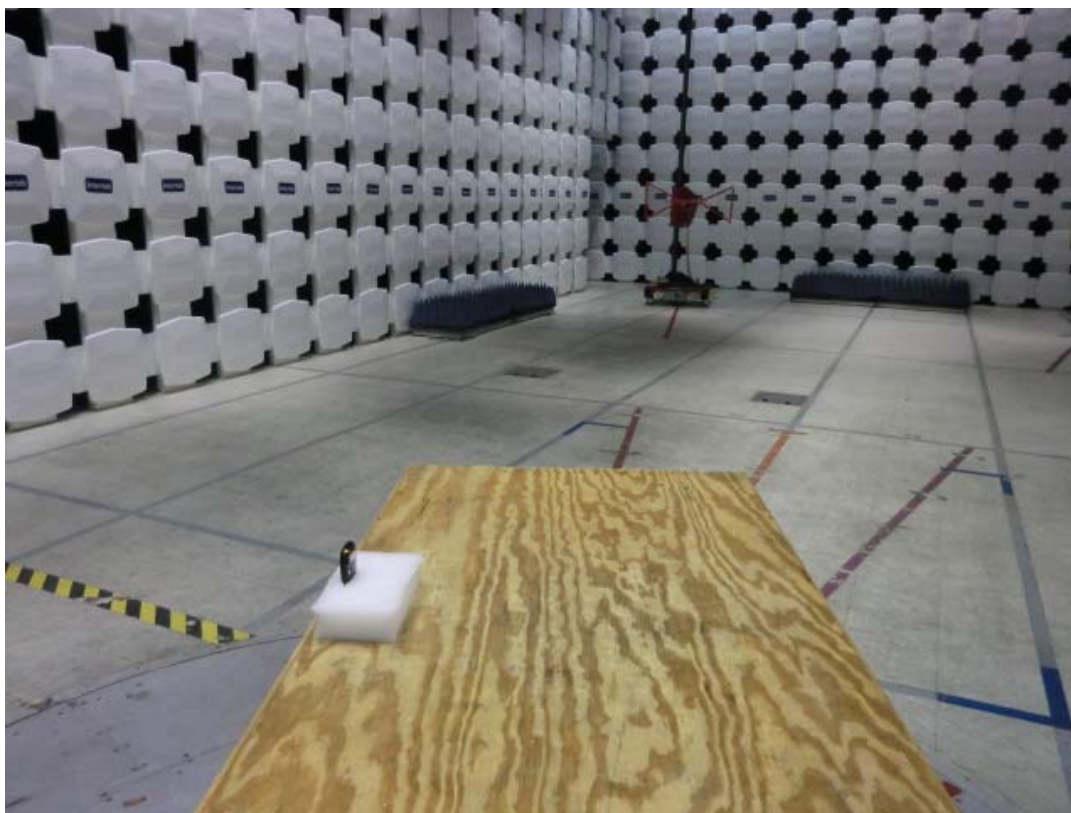
7.3
The sample tested was found to comply.

7.3
In any 100 kHz bandwidth outside the frequency band, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a) (see 15.205(c)).

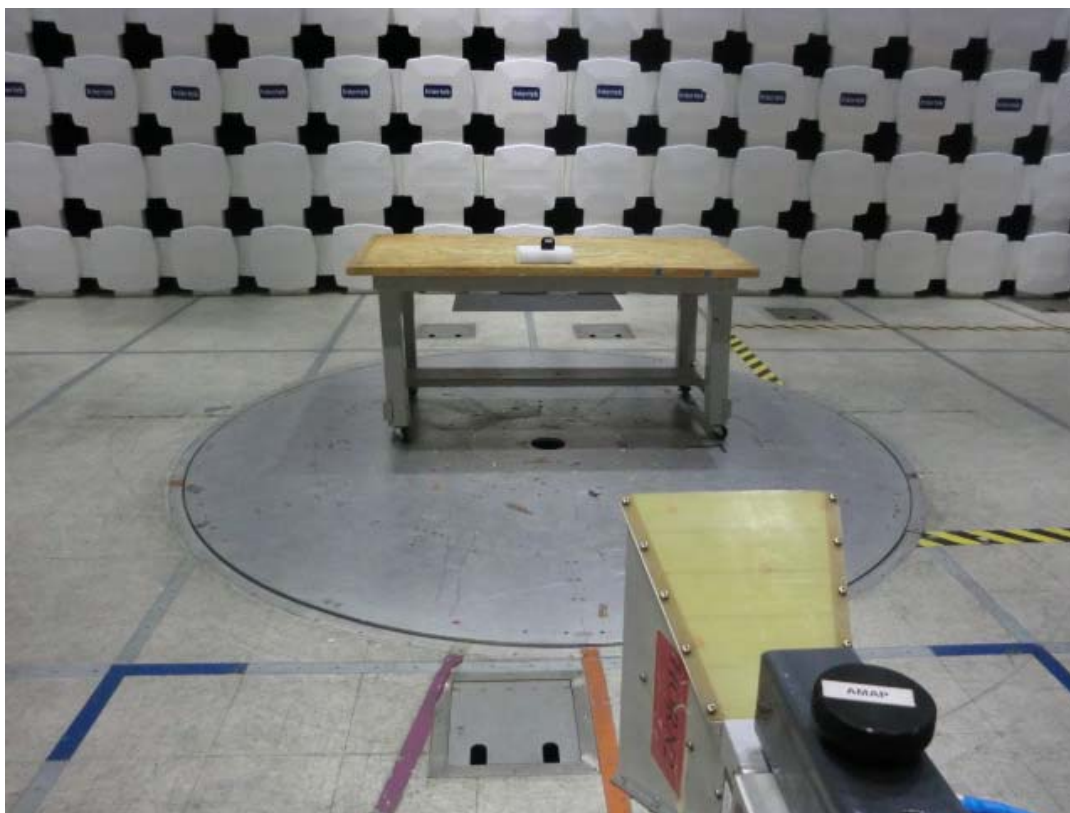
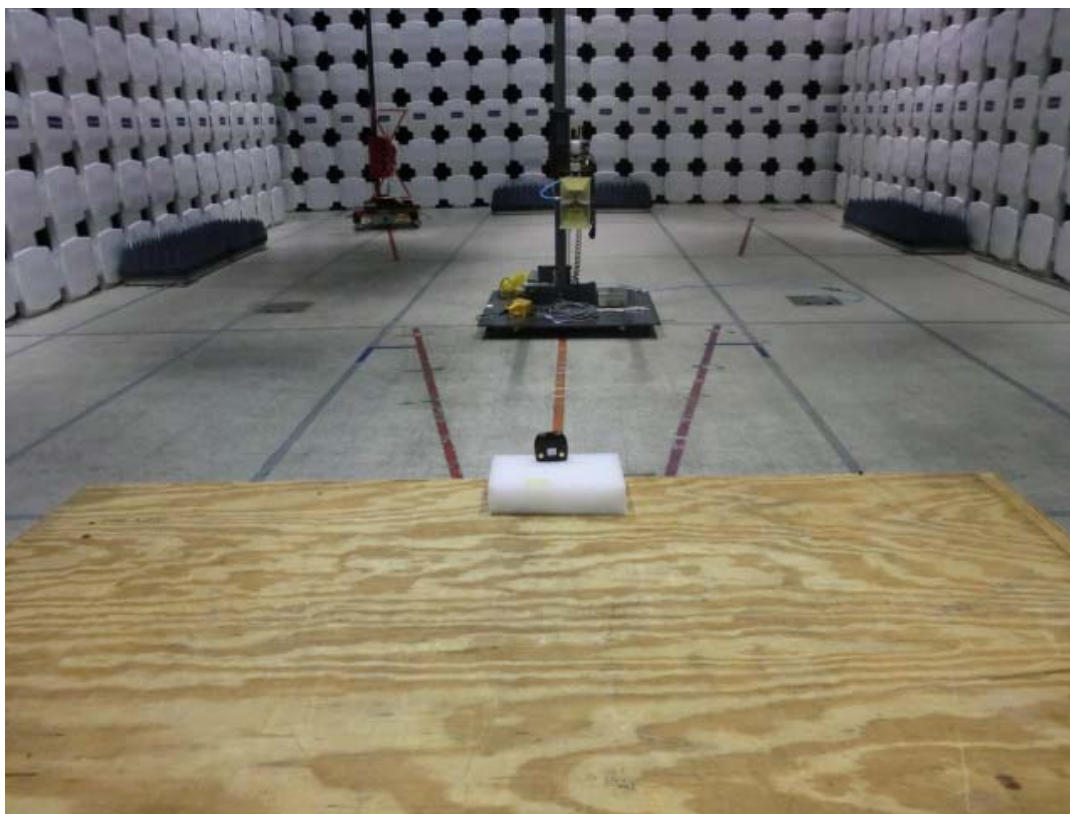
7.3
FCC Part 15.209(a) & RSS-210 A8.5 – Restricted Band Radiated Spurious/Harmonics Limits

Frequency	Field Strength		Test Distance
(MHz)	μV/m	dBμV/m	(meters)
30–88	100	40.00	3
88–216	150	43.52	3
216–960	200	46.02	3
Above 960	500	53.98	3

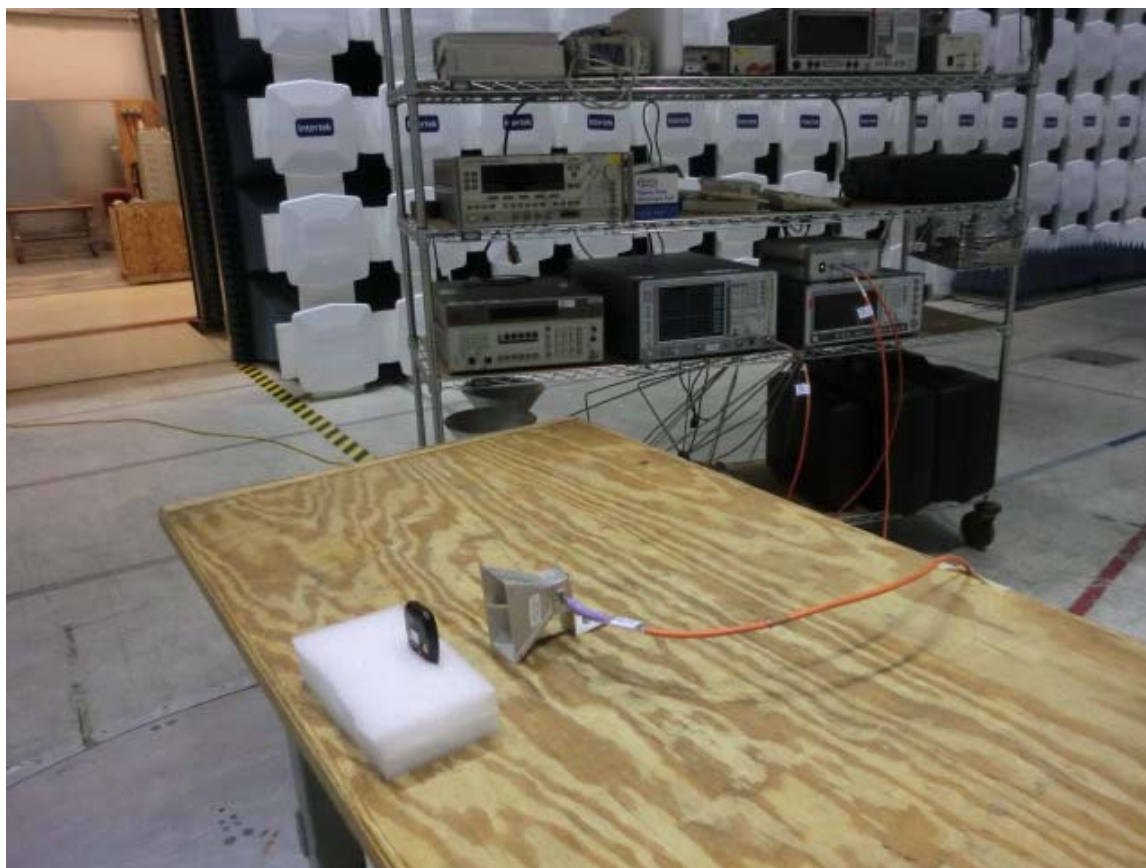
7.3
FCC Part 15.247(d) & RSS-210 A8.5 – Non Restricted Band Radiated Spurious/Harmonics Limits.

7.4 Setup Photographs:

Scan from 30-1000MHz



Scan from 1-18 GHz



Hand scan from 18-25GHz

7.5 Test Data:

Channel 11 Spurious Emissions From 30-1000MHz, Horizontal Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

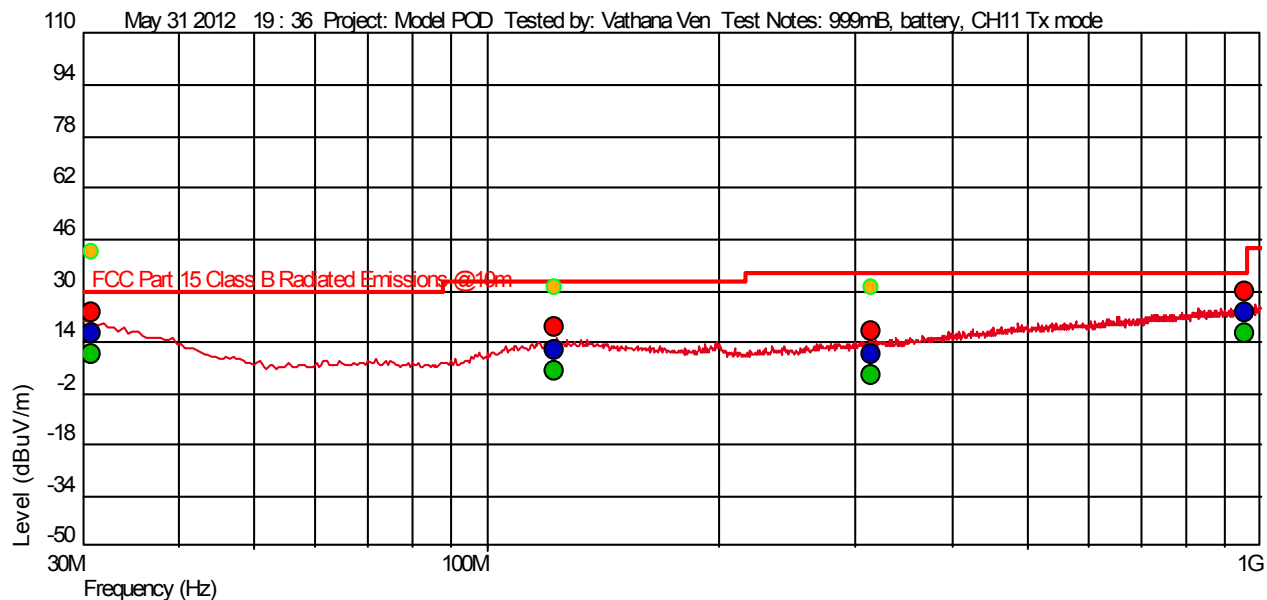
999mB, battery, CH11 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 19 : 36



- Measured Peak Value
 - Measured Quasi Peak Value
 - Measured Average Value
 - Maximum Value of Mast and Turntable
- Level (dBuV/m) = AF + CL + PA + Raw
- AF = Antenna Factor
- CL = Cable Losses
- PA = Pre-Amplifier
- Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
30.749654972 M	16.77	20.600	-26.107	29.54	-12.77	--	72	3.01	QP	120 k
122.575350719 M	11.65	13.958	-25.016	33.04	-21.39	--	342	2.16	QP	120 k
314.604809521 M	10.44	14.084	-24.069	35.54	-25.10	--	12	2.54	QP	120 k
955.268537014 M	23.00	22.800	-22.406	35.54	-12.54	--	194	2.95	QP	120 k

Channel 11 Spurious Emissions From 30-1000MHz, Vertical Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

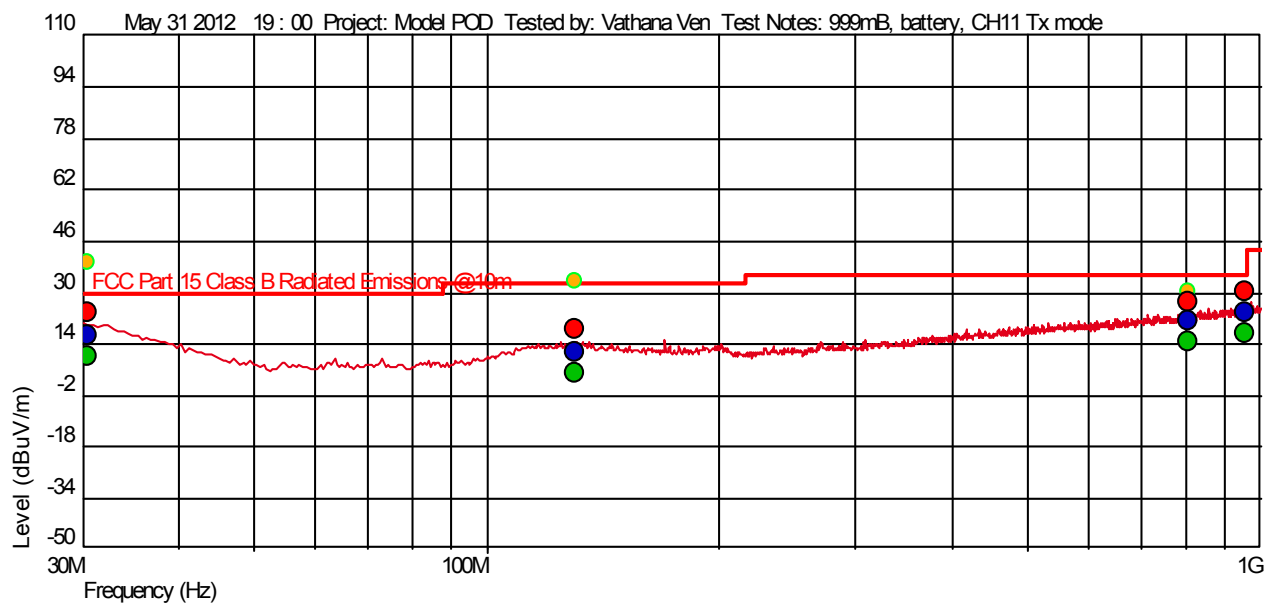
999mB, battery, CH11 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 19 : 00



- Measured Peak Value
 - Measured Quasi Peak Value
 - Measured Average Value
 - Maximum Value of Mast and Turntable
- Level (dBuV/m) = AF + CL + PA + Raw
- AF = Antenna Factor
- CL = Cable Losses
- PA = Pre-Amplifier
- Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
30.479581509 M	16.59	20.416	-26.107	29.54	-12.95		107	3.50	QP	120 k
130.190803934 M	11.71	13.919	-24.917	33.04	-21.33		175	3.80	QP	120 k
806.04509017 M	21.00	21.800	-23.184	35.54	-14.54		169	3.67	QP	120 k
955.770830451 M	23.60	23.400	-22.405	35.54	-11.94		97	2.74	QP	120 k

Channel 18 Spurious Emissions From 30-1000MHz, Horizontal Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

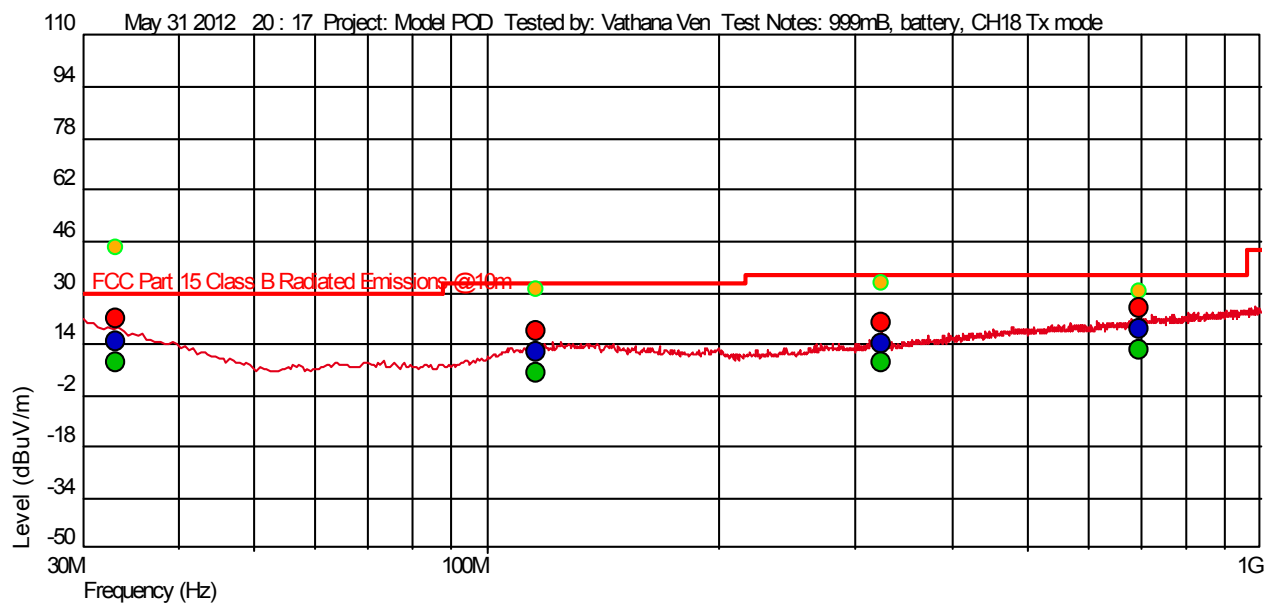
999mB, battery, CH18 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 20 : 17



- Measured Peak Value
 - Measured Quasi Peak Value
 - Measured Average Value
 - Maximum Value of Mast and Turntable
- Level (dBuV/m) = AF + CL + PA + Raw
- AF = Antenna Factor
- CL = Cable Losses
- PA = Pre-Amplifier
- Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
33.125517691 M	14.98	19.025	-26.099	29.54	-14.56	--	225	3.54	QP	120 k
115.761923818 M	11.31	13.500	-25.110	33.04	-21.73	--	56	2.92	QP	120 k
324.088732938 M	14.33	14.200	-24.041	35.54	-21.21	--	274	3.47	QP	120 k
695.906880493 M	18.58	20.018	-23.711	35.54	-16.96	--	42	3.90	QP	120 k

Channel 18 Spurious Emissions From 30-1000MHz, Vertical Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

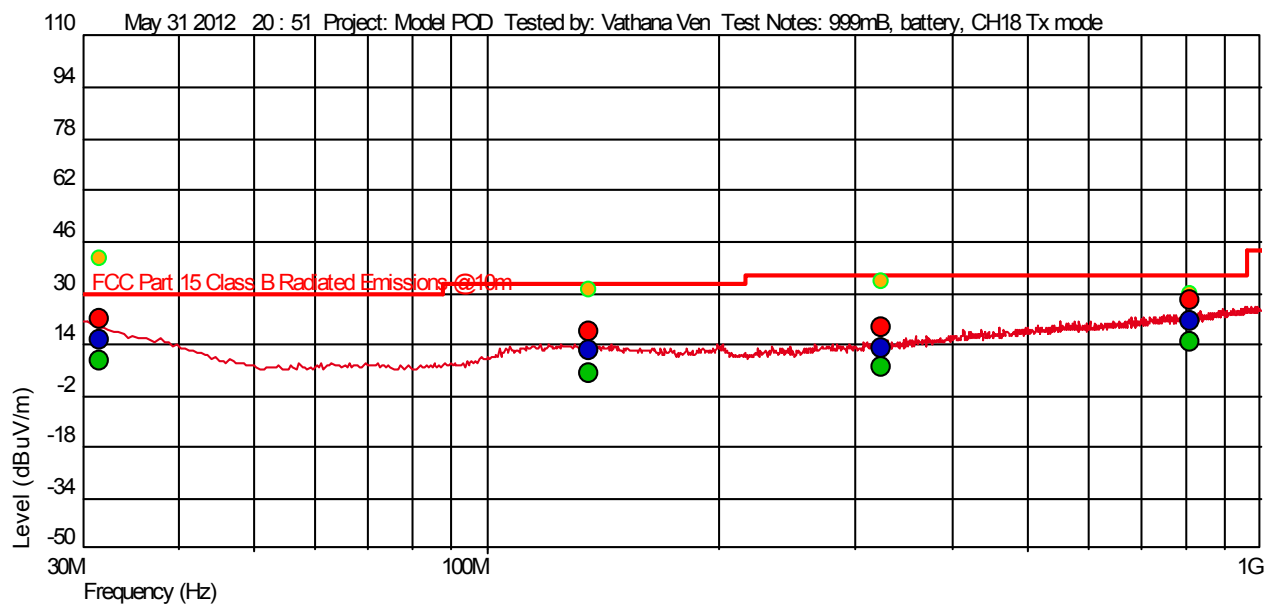
999mB, battery, CH18 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 20 : 51



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Level (dBuV/m) = AF + CL + PA + Raw
- AF = Antenna Factor
- CL = Cable Losses
- PA = Pre-Amplifier
- Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
31.64733914 M	15.66	19.482	-26.104	29.54	-13.88		66	3.41	QP	120 k
135.410086745 M	11.83	13.659	-24.853	33.04	-21.21		238	2.14	QP	120 k
324.068559234 M	13.05	14.381	-24.041	35.54	-22.49		154	3.82	QP	120 k
810.417435014 M	21.01	21.792	-23.166	35.54	-14.53		322	2.40	QP	120 k

Channel 26 Spurious Emissions From 30-1000MHz, Horizontal Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

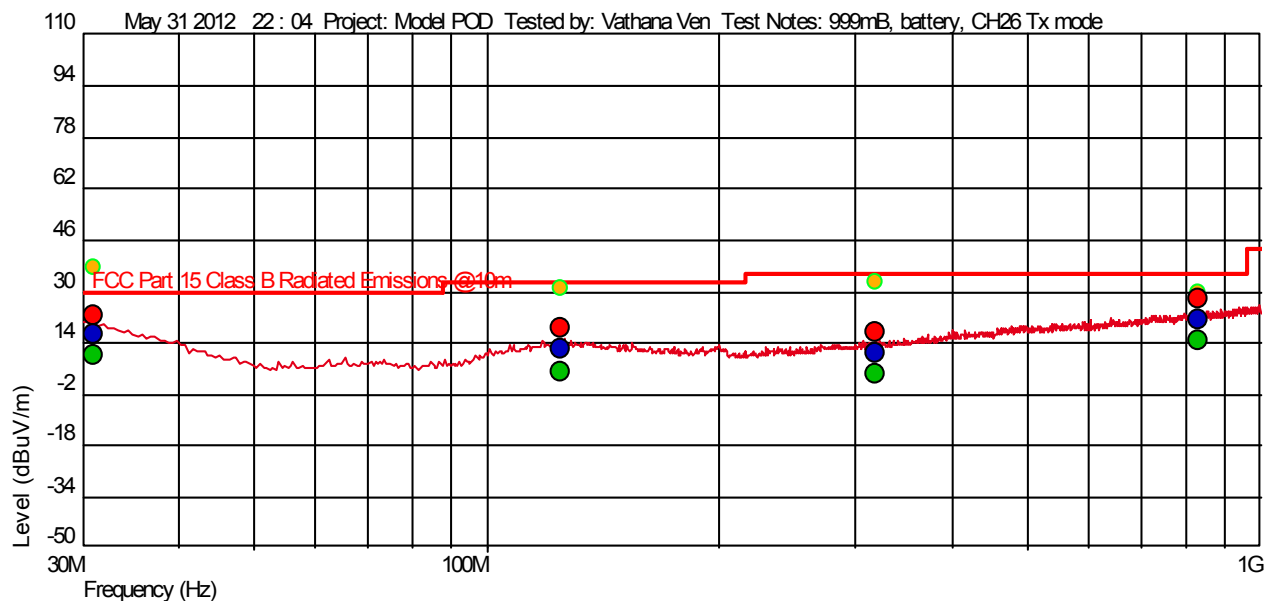
999mB, battery, CH26 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 22 : 04



Measured Peak Value

Measured Quasi Peak Value

Measured Average Value

Maximum Value of Mast and Turntable

Level (dBUV/m) = AF + CL + PA + Raw

AF = Antenna Factor

CL = Cable Losses

PA = Pre-Amplifier

Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBUV/m)	AF	PA+CL	Limit (dBUV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
31.07227762 M	16.52	20.349	-26.106	29.54	-13.02	--	261	3.59	QP	120 k
124.211823715 M	11.84	14.021	-24.995	33.04	-21.20	--	208	2.58	QP	120 k
317.658917922 M	10.65	14.153	-24.060	35.54	-24.89	--	236	3.00	QP	120 k
833.934402018 M	21.01	21.800	-23.068	35.54	-14.53	--	48	1.39	QP	120 k

Channel 26 Spurious Emissions From 30-1000MHz, Vertical Polarity

Test Information

Test Details

Project:

Test Notes:

Temperature:

Humidity:

Tested by:

Test Started:

User Input

Model POD

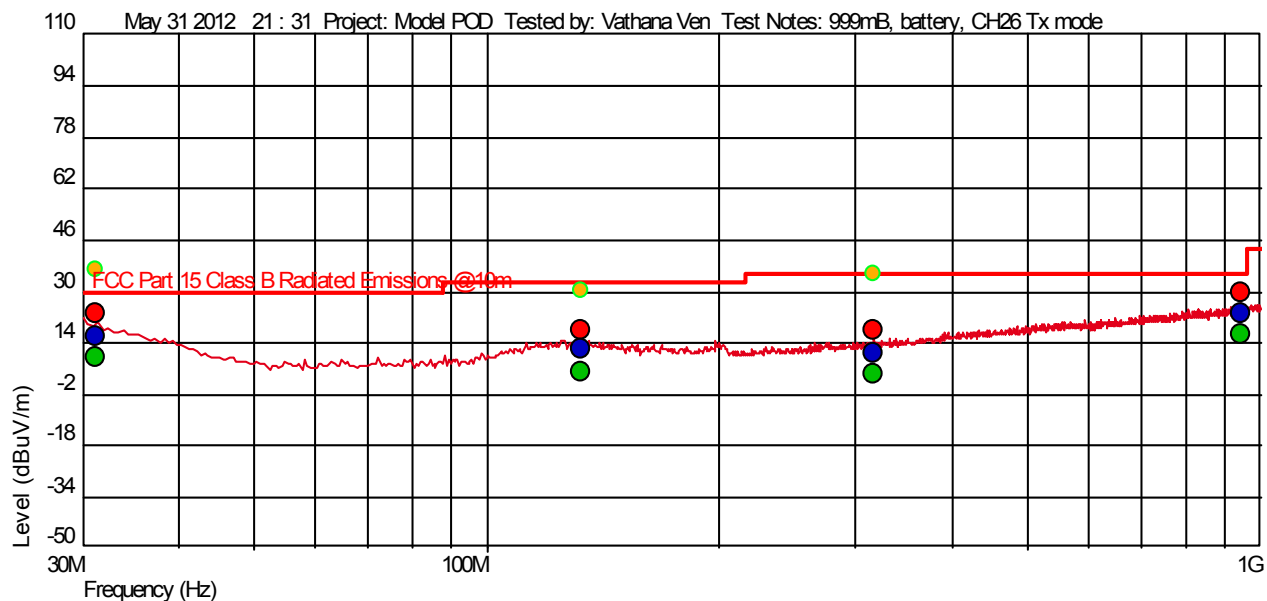
999mB, battery, CH26 Tx mode

21 deg C

45%

Vathana Ven

May 31 2012 21 : 31



Measured Peak Value

Measured Quasi Peak Value

Measured Average Value

Maximum Value of Mast and Turntable

Level (dBUV/m) = AF + CL + PA + Raw

AF = Antenna Factor

CL = Cable Losses

PA = Pre-Amplifier

Raw = Raw Instrument Reading (Not listed on Spot Tables)

Measured: QP

Frequency (Hz)	Level (dBUV/m)	AF	PA+CL	Limit (dBUV/m)	Margin (dB)	Hor (--), Ver ()	Angle (Deg)	Mast Height(m)	Detector	RBW (Hz)
31.233600545 M	15.98	19.813	-26.105	29.54	-13.56		267	4.00	QP	120 k
132.255288453 M	11.82	13.900	-24.892	33.04	-21.22		157	3.98	QP	120 k
315.954553681 M	10.71	14.219	-24.065	35.54	-24.83		33	2.30	QP	120 k
945.447005118 M	23.25	23.200	-22.441	35.54	-12.29		280	3.13	QP	120 k

Channel 11, 18, and 26 Spurious Emissions above 1GHz, Vertical and Horizontal Polarity

Radiated Emissions

Company: Adidas International
 Model #: POD
 Serial #: 20
 Engineers: Vathana Ven
 Project #: G100719224 Date(s): 05/29/12
 Standard: FCC Part 15 Subpart C 15.247
 Receiver: R&S ESI (145128) 08-23-2012
 PreAmp: PRE145014 12-16-2012.txt
 PreAmp Used? (Y or N): Y
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Antenna & Cables: N Bands: N, LF, HF, SHF
 Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt EMC04
 Cable(s): 145-416 3mTrkB 09-04-2012.txt CBL030, MEG005
 Barometer: DAV003 Filter: REA004
 Location: 10m Chamber
 Temp/Humidity/Pressure: 20c 66% 996mB

Limit Distance (m): 3
 Test Distance (m): 3
 Voltage/Frequency: 3.7VDC Frequency Range: 1-25GHz

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC	Harmonic?
Tx CH 11, F = 2405 MHz, Spurious emissions														
PK	H	4810.000	48.70	32.86	9.17	34.54	0.00	56.18	74.00	-17.82	1/3 MHz	RB		
AVG	H	4810.000	38.20	32.86	9.17	34.54	0.00	45.68	54.00	-8.32	1/3 MHz	RB		
PK	V	7215.000	28.90	36.12	10.85	35.66	9.54	30.67	71.16	-40.49	100/300 kHz		Noise Floor	1 meter
PK	V	9620.000	26.80	37.89	13.16	35.85	9.54	32.46	71.16	-38.70	100/300 kHz		Noise Floor	1 meter
PK	V	12025.000	38.37	39.52	14.97	35.38	9.54	47.94	74.00	-26.06	1/3 MHz	RB	Noise Floor	1 meter
AVG	V	12025.000	25.10	39.52	14.97	35.38	9.54	34.67	54.00	-19.33	1/3 MHz	RB	Noise Floor	1 meter
PK	V	14430.000	25.93	42.14	15.16	34.64	9.54	39.05	71.16	-32.11	100/300 kHz		Noise Floor	1 meter
PK	V	16835.000	24.00	39.85	25.50	37.74	9.54	42.08	71.16	-29.08	100/300 kHz		Noise Floor	1 meter
Tx CH 18, F = 2440 MHz, Spurious emissions														
PK	H	4880.000	47.13	32.97	9.28	34.41	0.00	54.97	74.00	-19.03	1/3 MHz			
AVG	H	4880.000	39.30	32.97	9.28	34.41	0.00	47.14	54.00	-6.86	1/3 MHz			
PK	V	7320.000	38.65	36.46	10.97	35.73	9.54	40.81	74.00	-33.19	1/3 MHz		Noise Floor	1 meter
AVG	V	7320.000	26.30	36.46	10.97	35.73	9.54	28.46	54.00	-25.54	1/3 MHz		Noise Floor	1 meter
PK	V	9760.000	26.58	38.04	13.35	35.35	9.54	33.08	71.98	-38.90	100/300 kHz		Noise Floor	1 meter
PK	V	12200.000	36.86	39.18	14.88	35.45	9.54	45.94	54.00	-8.06	1/3 MHz	RB	Noise Floor	1 meter
AVG	V	12200.000	24.39	39.18	14.88	35.45	9.54	33.47	54.00	-20.53	1/3 MHz	RB	Noise Floor	1 meter
PK	V	14640.000	25.20	41.60	15.25	34.87	9.54	37.64	71.98	-34.34	100/300 kHz		Noise Floor	1 meter
PK	V	17080.000	25.55	40.72	18.66	37.60	9.54	37.79	71.98	-34.19	100/300 kHz		Noise Floor	1 meter
Tx CH 26, F = 2480 MHz, Spurious emissions														
PK	H	4960.000	43.46	33.15	9.41	34.25	0.00	51.77	74.00	-22.23	1/3 MHz	RB		
AVG	H	4960.000	30.00	33.15	9.41	34.25	0.00	38.31	54.00	-15.69	1/3 MHz	RB		
PK	V	7440.000	40.89	36.58	11.10	35.81	9.54	43.21	74.00	-30.79	1/3 MHz	RB	Noise Floor	1 meter
AVG	V	7440.000	30.90	36.58	11.10	35.81	9.54	33.22	54.00	-20.78	1/3 MHz	RB	Noise Floor	1 meter
PK	V	9920.000	31.70	38.27	13.57	34.78	9.54	39.21	72.20	-32.99	100/300 kHz		Noise Floor	1 meter
PK	V	12400.000	41.24	38.98	14.79	35.52	9.54	49.95	54.00	-4.05	1/3 MHz	RB	Noise Floor	1 meter
AVG	V	12400.000	30.85	38.98	14.79	35.52	9.54	39.56	54.00	-14.44	1/3 MHz	RB	Noise Floor	1 meter
PK	V	14880.000	31.92	40.37	15.75	35.32	9.54	43.18	72.30	-29.12	100/300 kHz		Noise Floor	1 meter
PK	V	17360.000	30.50	42.09	23.22	36.91	9.54	49.36	72.30	-22.94	100/300 kHz		Noise Floor	1 meter

Test Personnel: Vathana F. Ven

Test Date: 05/29/2012

Supervising Engineer: N/A

(Where Applicable)

Product Standard: FCC Part 15.247, RSS-210 Annex 8

Input Voltage: Internal Battery

Pretest Verification w/ Ambient

Signals or BB Source: Ambient Signals

Test Levels: Below the specified limits

Ambient Temperature: 20 °C

Relative Humidity: 66 %

Atmospheric Pressure: 996 mbar

Deviations, Additions, or Exclusions: None

8 6 dB Bandwidth

8.1 Method

Tests are performed in accordance with ANSI C63.4:2003, CFR47 FCC Part 15 Subpart C 15.247, IC RSS-210 Issue 8 December 2010, IC RSS-Gen Issue 3 December 2010, and KDB 558074v01 01/18/2012.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	08/02/2012
HORN2'	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	09/04/2011	09/04/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	08/23/2012

Software Utilized:

Name	Manufacturer	Version
None		

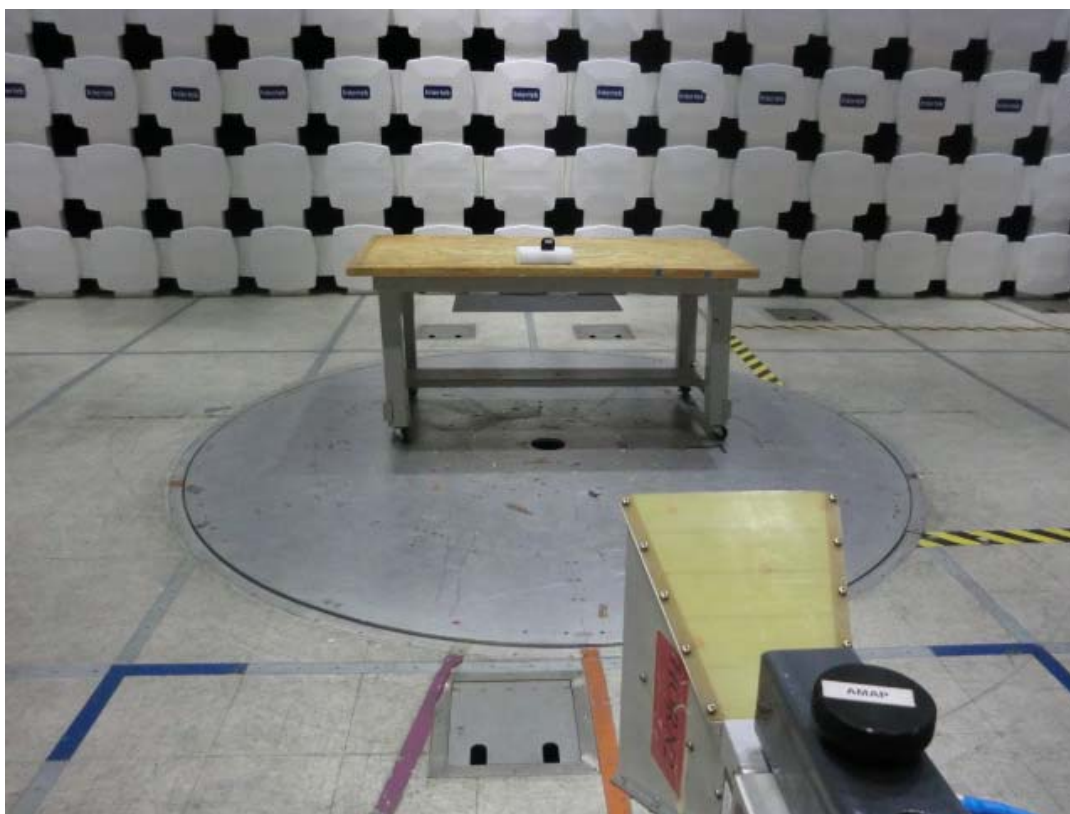
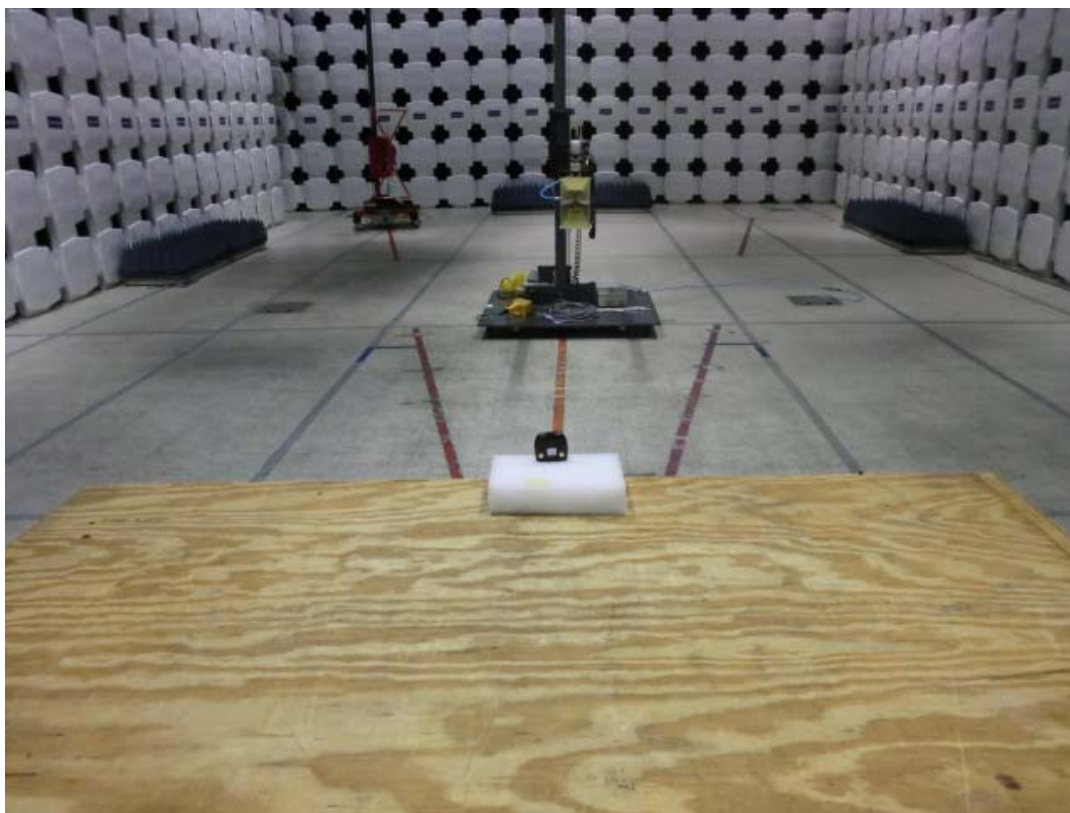
8.3 Results:

The 99% power bandwidth, or 6 dB bandwidth, must not be less than 500 kHz. The sample tested was found to comply.

Channels	6 dB Bandwidth	99% Power Bandwidth
Channel 11 (2405 MHz)	1.724 MHz	2.879 MHz
Channel 18 (2440 MHz)	1.597 MHz	2.858 MHz
Channel 26 (2480 MHz)	1.724 MHz	2.837 MHz

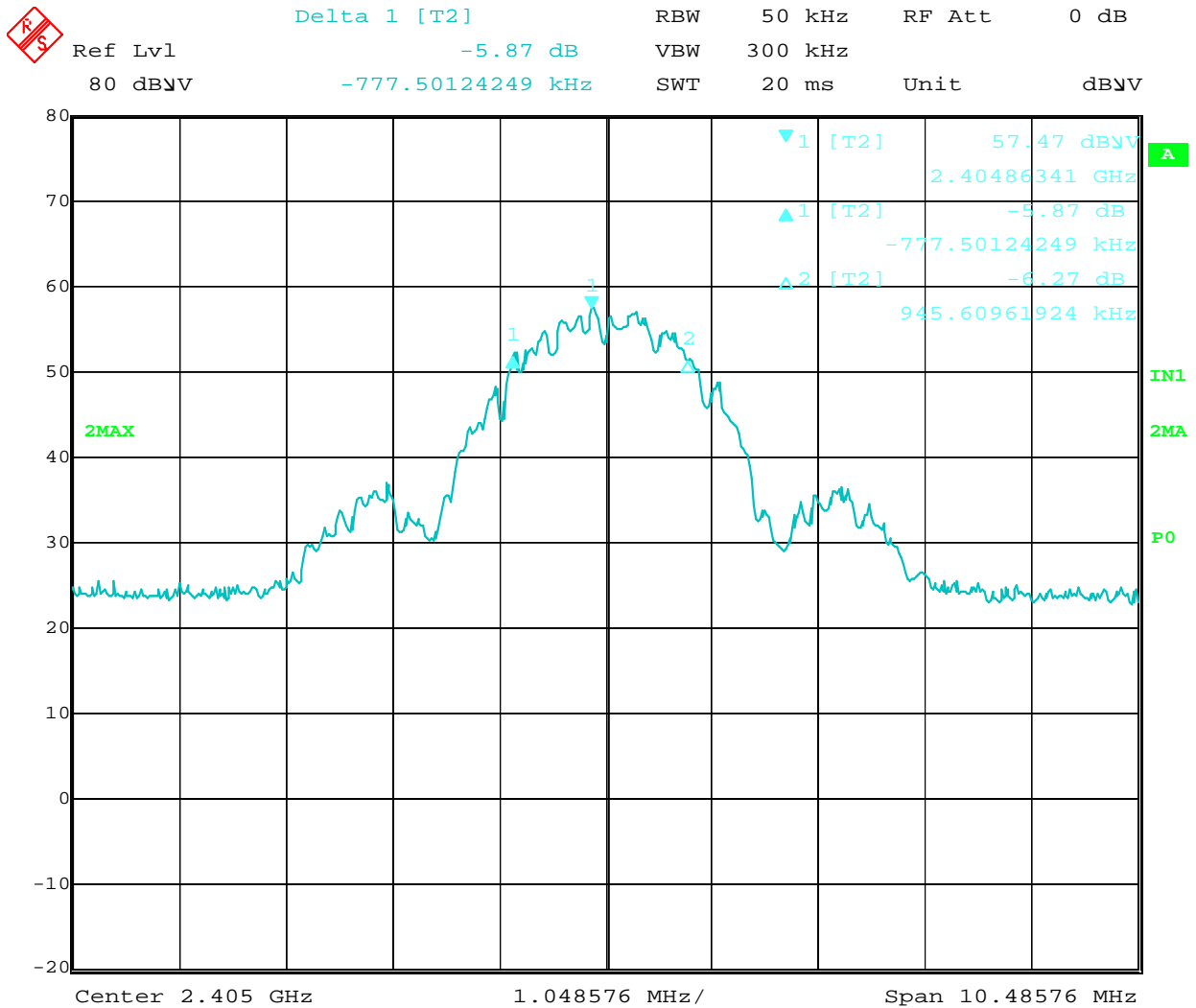
Plots were taken using an RBW of ~1-5% of the measured emission bandwidth, per KDB 558074v01 01/18/2012 and IC RSS-Gen Section 4.6.2.

8.4 Setup Photographs:



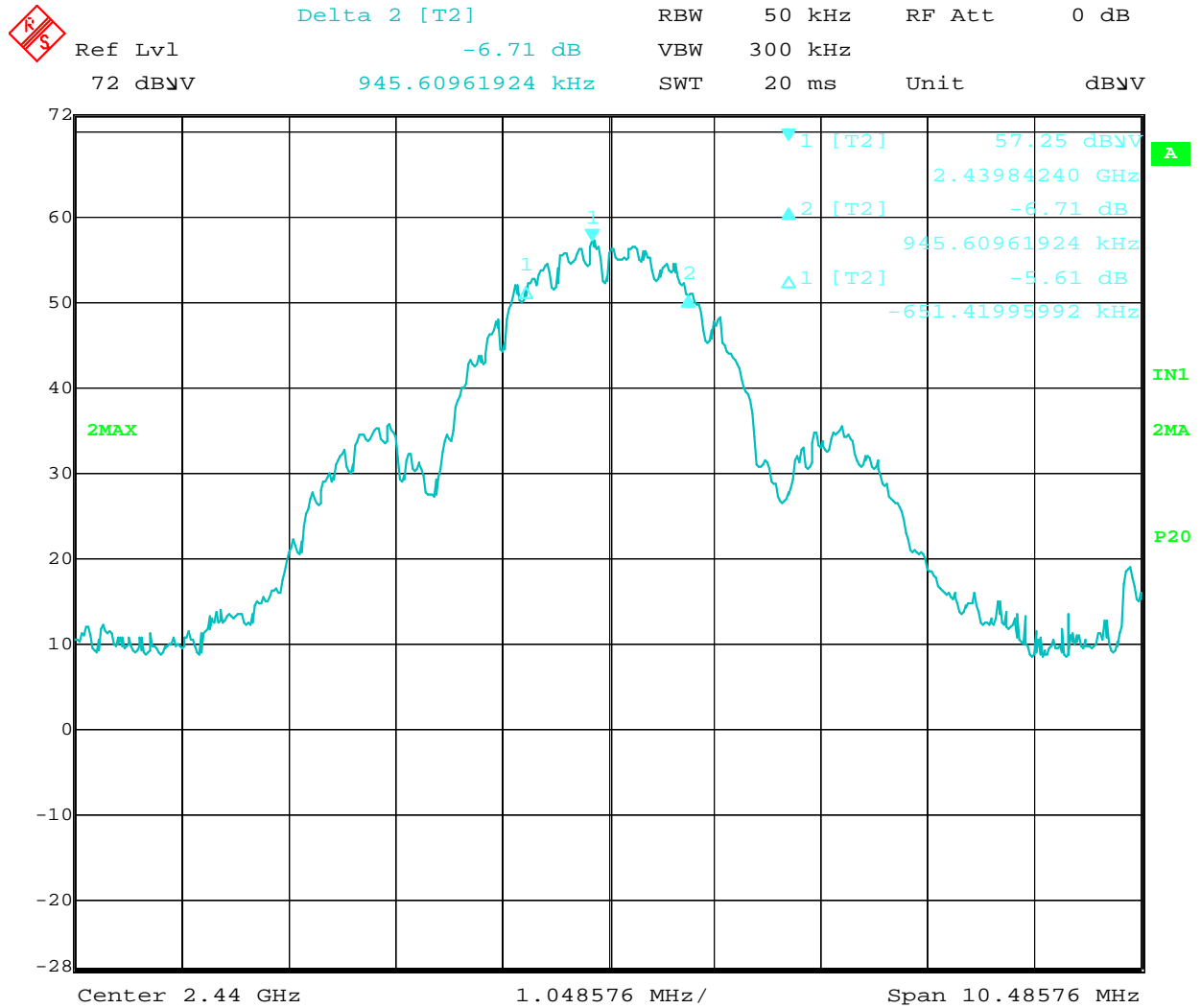
8.5 Test Data:

6 dB Bandwidth (Channel 11)



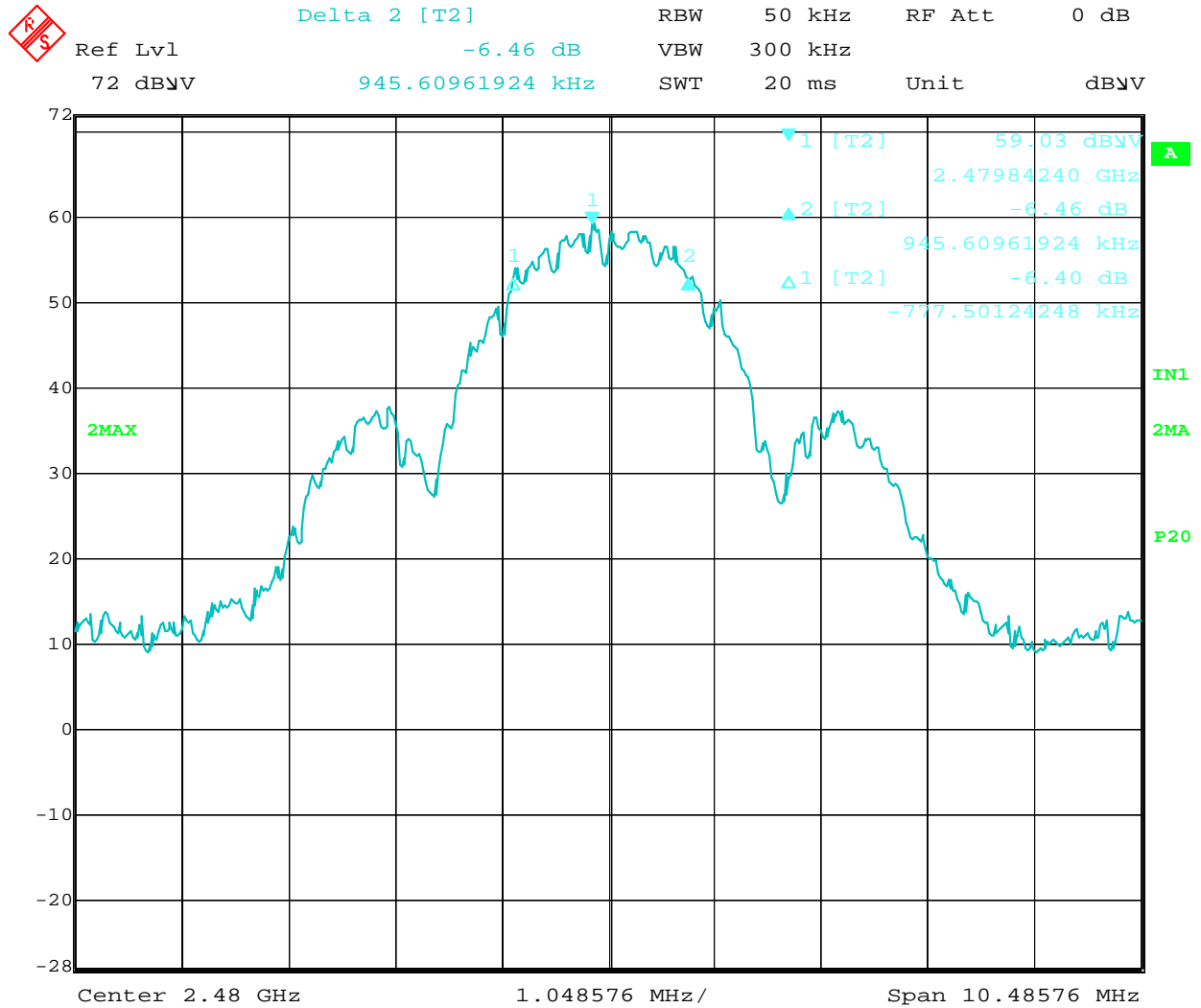
Date: 29.MAY.2012 19:13:04

6 dB bandwidth (Channel 18)



Date: 29.MAY.2012 19:46:30

6 dB bandwidth (Channel 26)

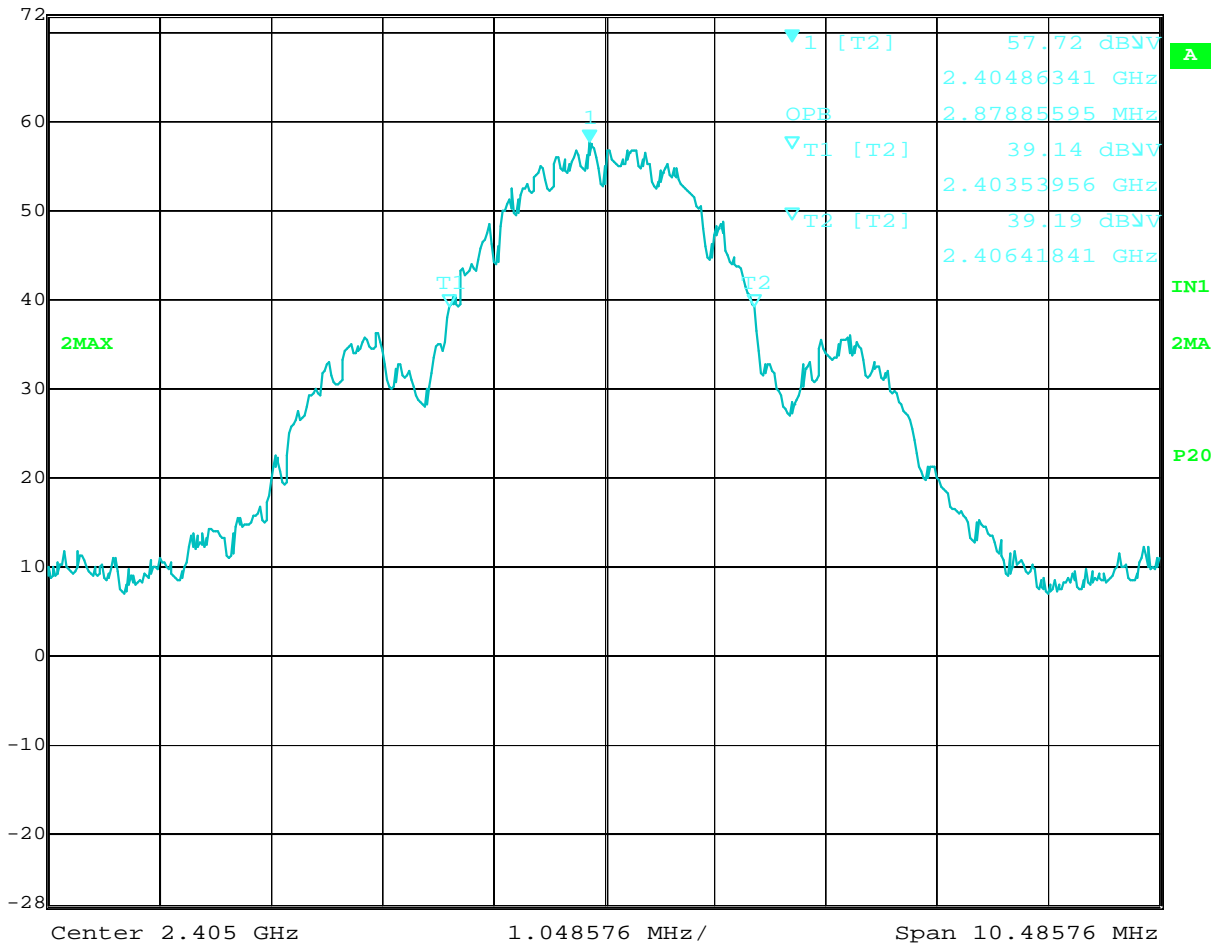


Date: 29.MAY.2012 21:32:21

99% Power Bandwidth (Channel 11)

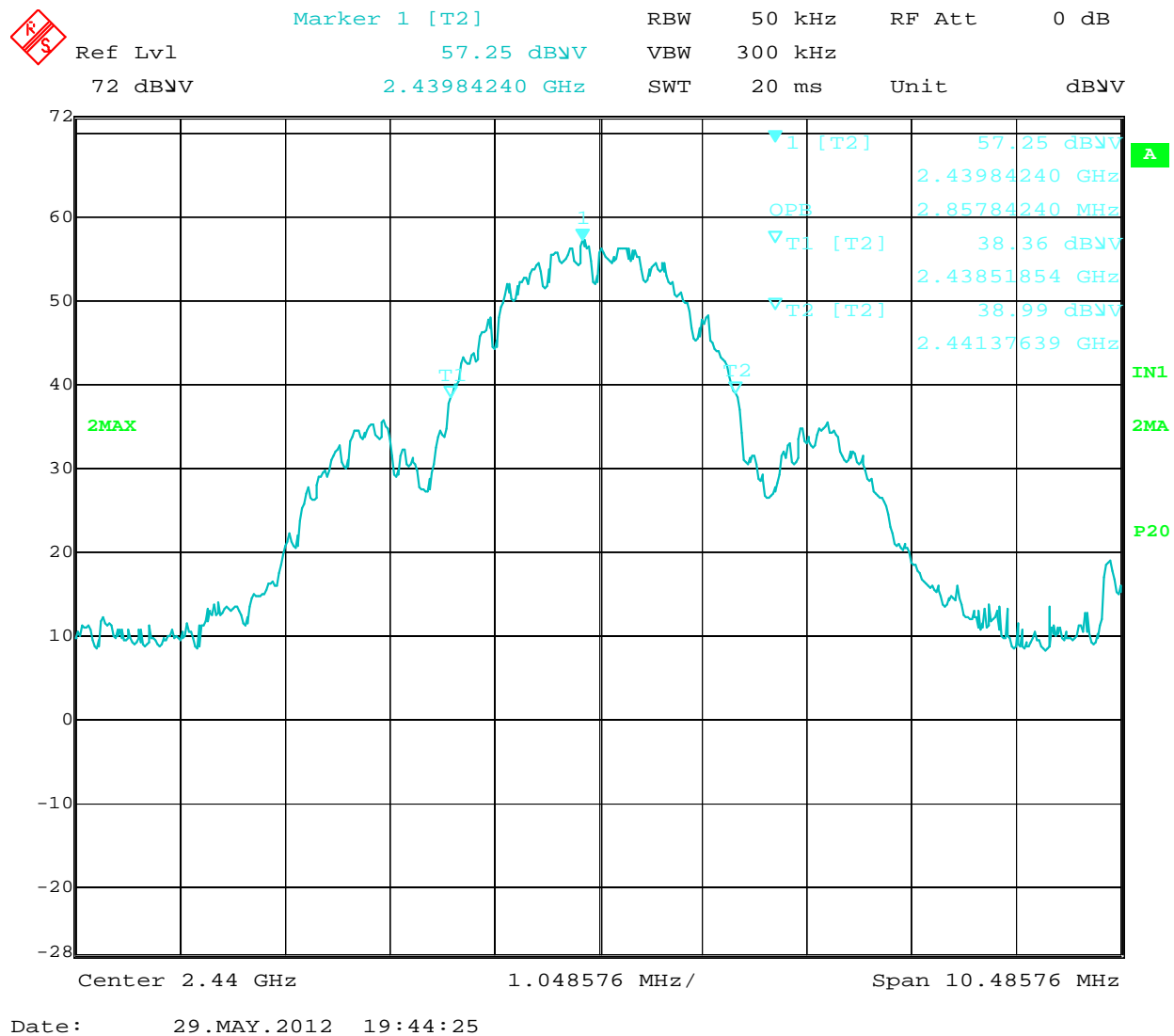


Ref Lvl	Marker 1 [T2]	RBW	50 kHz	RF Att	0 dB
72 dBμV	57.72 dBμV	VBW	300 kHz		
	2.40486341 GHz	SWT	20 ms	Unit	dBμV



Date: 29.MAY.2012 19:34:07

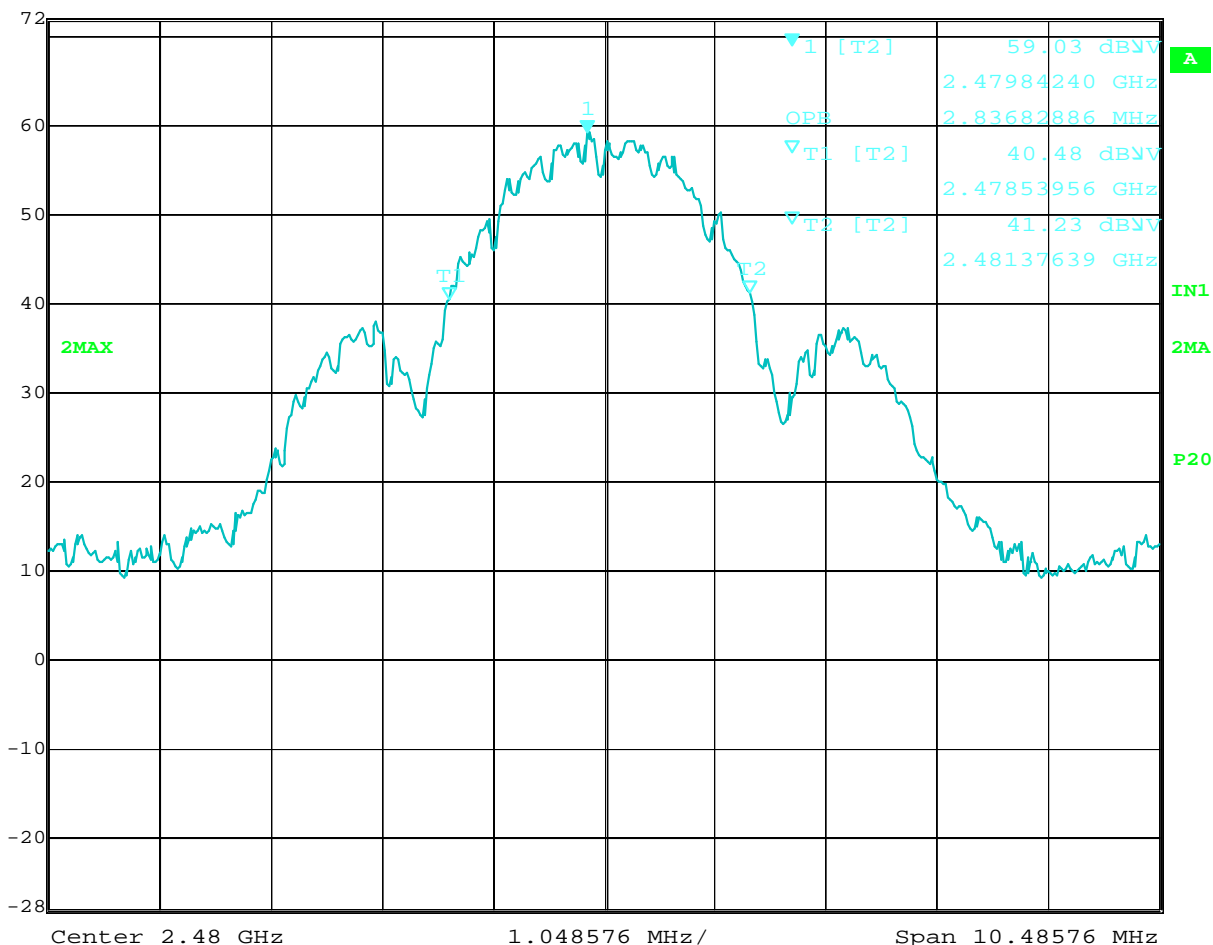
99% Power Bandwidth (Channel 18)



99% Power Bandwidth (Channel 26)



Marker 1 [T2] RBW 50 kHz RF Att 0 dB
 Ref Lvl 59.03 dBμV VBW 300 kHz
 72 dBμV 2.47984240 GHz SWT 20 ms Unit dBμV



Date: 29.MAY.2012 21:33:31

Test Personnel: Vathana F. Ven *VFV*

Test Date: 05/29/2012

Supervising Engineer: (Where Applicable) N/A

Product Standard: FCC Part 15.247, RSS-210 Annex 8

Input Voltage: Internal Battery

Pretest Verification w/ Ambient Signals or BB Source: Ambient Signals

Test Levels: Below the specified limits

Ambient Temperature: 20 °C

Relative Humidity: 66 %

Atmospheric Pressure: 996 mbar

Deviations, Additions, or Exclusions: None

9 Power Spectral Density

9.1 Method

Tests are performed in accordance with FCC 15 Subpart C Section 15.247 (e), RSS-210 Issue 8 December 2010, A8.2 (b), KDB 558074 Section 5.3.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

9.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	08/02/2012
HORN2'	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	09/04/2011	09/04/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	08/23/2012

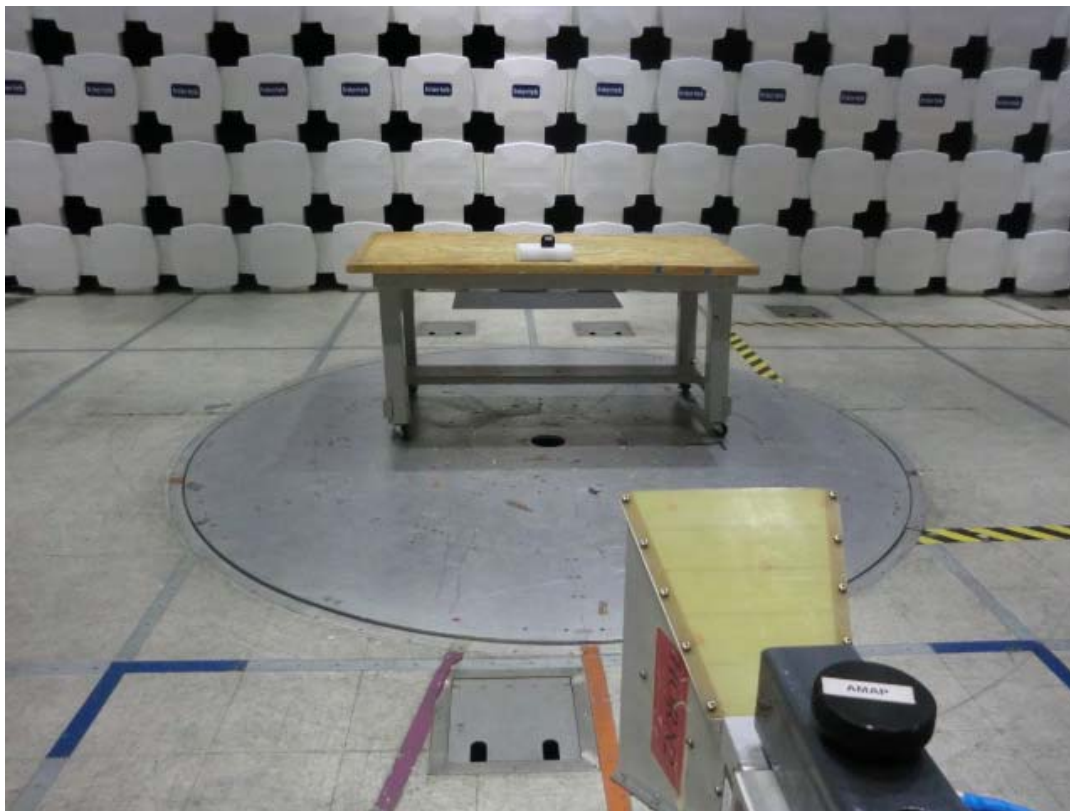
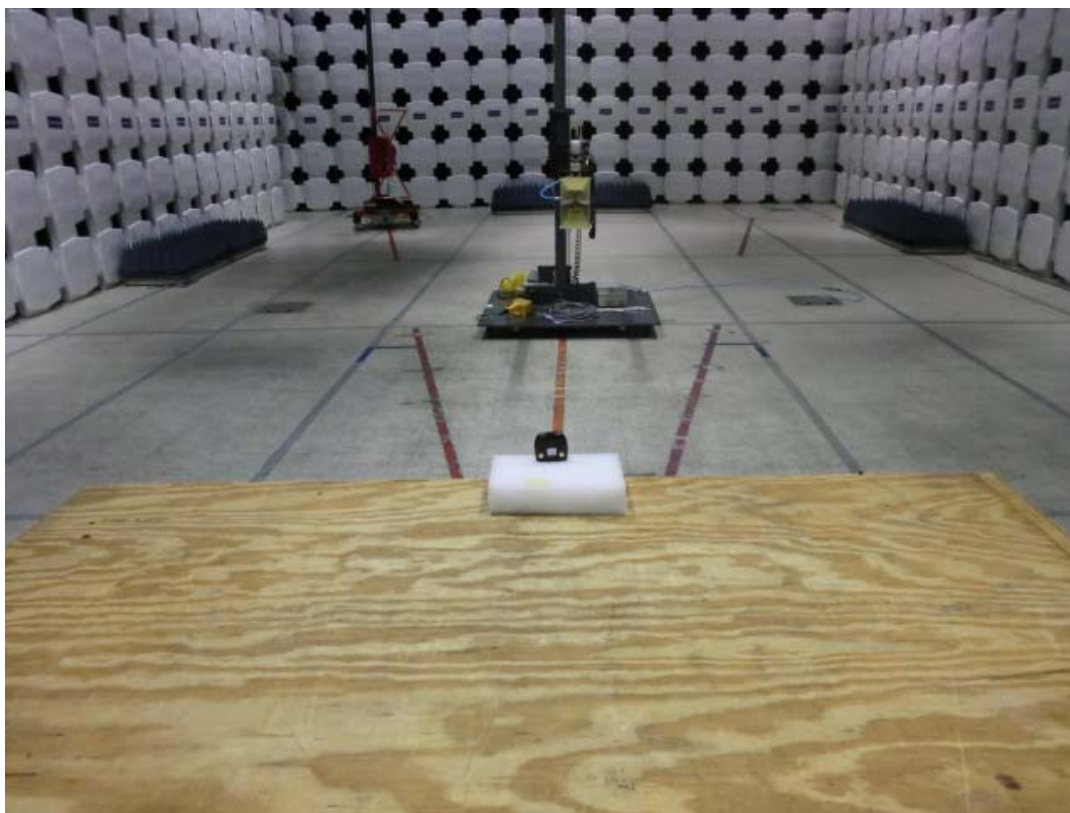
Software Utilized:

Name	Manufacturer	Version
Excel 2003	Microsoft	(11.8231.8221) SP3
EMI Boxborough.xls	Intertek	08/27/10

9.3 Results:

The peak power spectral density must not exceed 8 dBm in any 3 kHz bandwidth. The sample tested was found to comply.

9.4 Setup Photographs:



9.5 Test Data:

Intertek

Radiated Emissions

Company: Adidas International
 Model #: 2
 Serial #: 20
 Engineers: Vathana Ven
 Project #: G100719224 Date(s): 05/29/12
 Standard: FCC Part 15 Subpart C 15.247
 Receiver: R&S ESI (145128) 08-23-2012 Limit Distance (m): 3
 PreAmp: PRE145014 12-16-2012.txt Test Distance (m): 3
 PreAmp Used? (Y or N): N Voltage/Frequency: 3.7VDC Frequency Range: Frequencies Shown
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	EIRP Net dBm	EIRP Limit dBm	Margin dB	Bandwidth
Peak Power Spectral Density, normalized from 100kHz to 3 kHz using Bandwidth Correction Factor 10LOG(3/100 kHz)=-15.2 dB											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2405.000	60.74	28.33	5.93	0.00	0.00	-15.42	8.00	-23.42	100/300 kHz
PK	H	2440.000	61.76	28.43	5.98	0.00	0.00	-14.25	8.00	-22.25	100/300 kHz
PK	H	2480.000	60.55	28.54	6.03	0.00	0.00	-15.29	8.00	-23.29	100/300 kHz
Note: Power Density measured in a 3 kHz RBW											
PK	H	2405.000	49.91	28.33	5.93	0.00	0.00	-11.05	8.00	-19.05	3/10 kHz
PK	H	2440.000	50.55	28.43	5.98	0.00	0.00	-10.26	8.00	-18.26	3/10 kHz
PK	H	2480.000	52.10	28.54	6.03	0.00	0.00	-8.54	8.00	-16.54	3/10 kHz

Test Personnel: Vathana F. Ven *VSV*

Test Date: 05/29/2012

Supervising Engineer: N/A
 (Where Applicable)
 Product Standard: FCC Part 15.247, RSS-210 Annex 8
 Input Voltage: Internal Battery

Test Levels: Below the specified limits
 Ambient Temperature: 20 °C
 Relative Humidity: 66 %
 Atmospheric Pressure: 996 mbar

Pretest Verification w/ Ambient Signals or BB Source: **Ambient Signals**

Deviations, Additions, or Exclusions: None

10 Band-edge Compliance

10.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C Section 15.247 (d), RSS-210 Issue 8 December 2010, A8.5, KDB 558074v01 01/18/2012 Section 5.4.2.2.4.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

10.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	08/02/2012
HORN2'	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	09/04/2011	09/04/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	08/23/2012
WEI18'	20 dB, Attenuator DC-18GHz	Weinschel Corp	47-20-34	BP0570	07/16/2012	07/16/2013
ROS001'	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	02/10/2012	02/10/2013
MEG005'	High Frequency Cable	Megaphase	TM40-K1K1-197	8148601-001	02/07/2012	02/07/2013
HORN3'	HORN ANTENNA	EMCO	3115	9610-4980	04/16/2012	04/16/2013

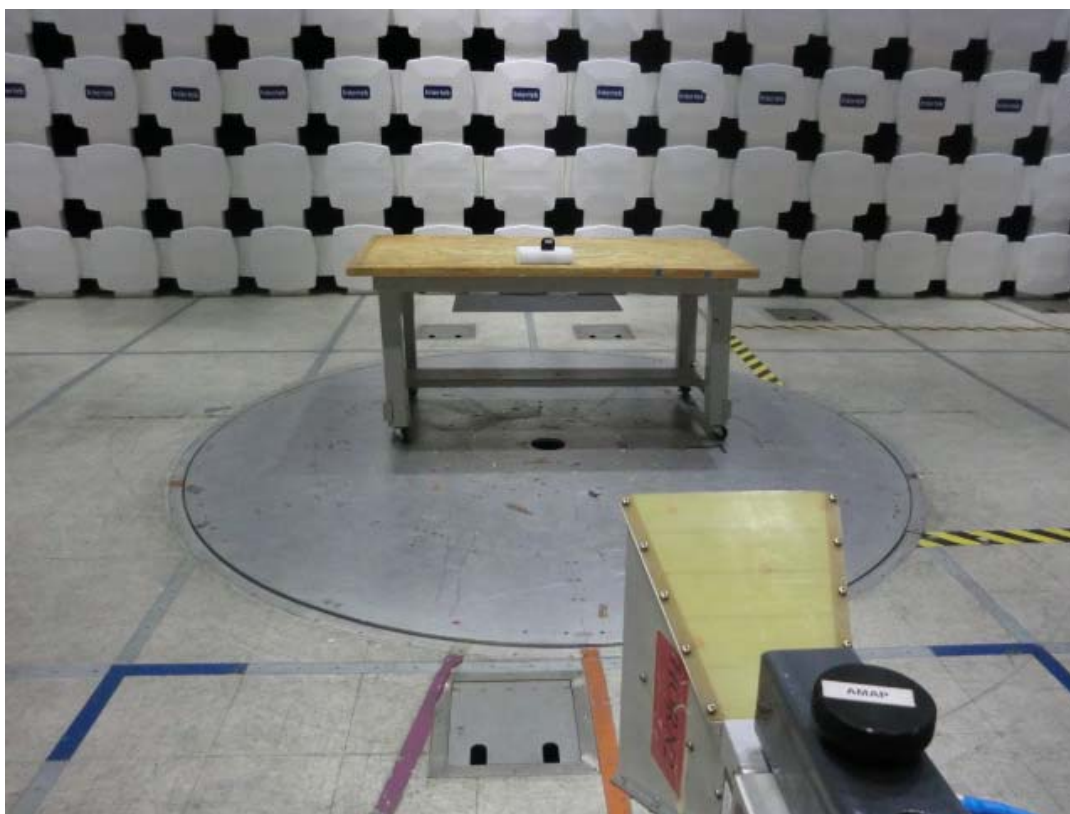
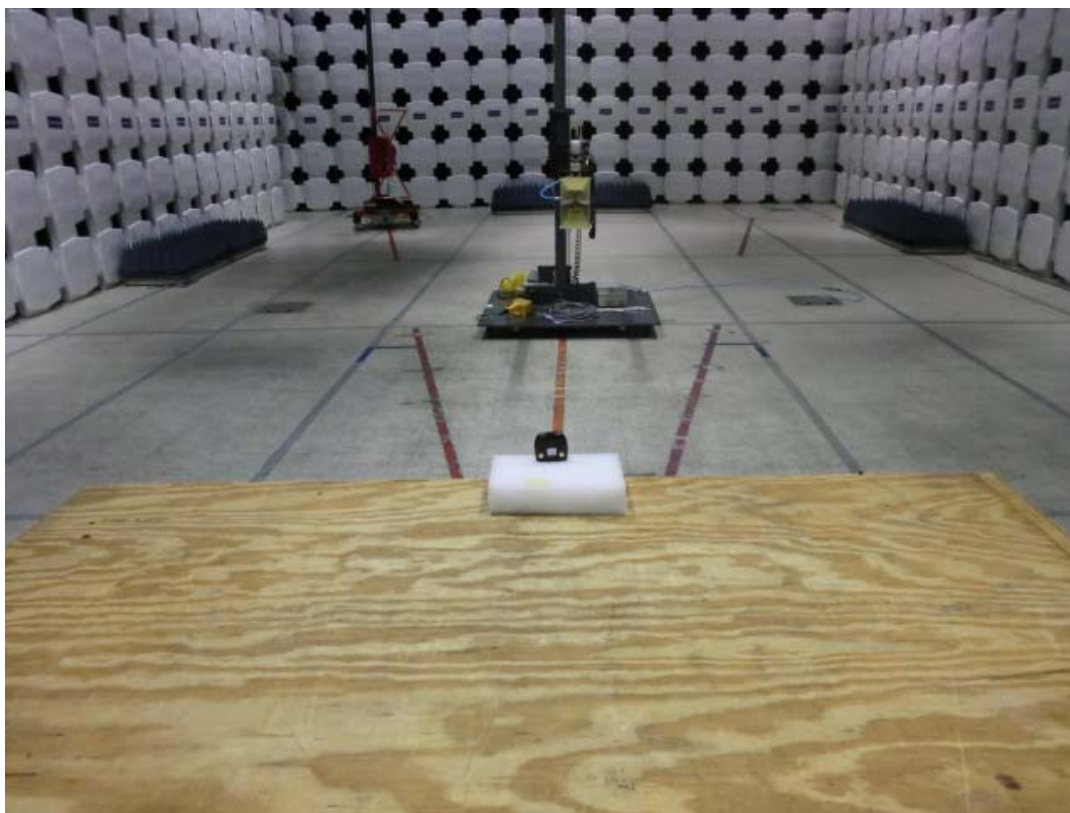
Software Utilized:

Name	Manufacturer	Version
None		

10.3 Results:

The sample tested was found to comply.

Spurious emissions at the band edges must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth, without the need to be below the general limits of FCC Part 15 Section 15.209 and of RSS-Gen 7.2.5 Table 5. Emissions in restricted bands must meet the general limits of FCC Part 15 Section 15.209 and of RSS-Gen 7.2.5 Table 5.

10.4 Setup Photographs:

10.5 Test Data:

Upper Band Edge

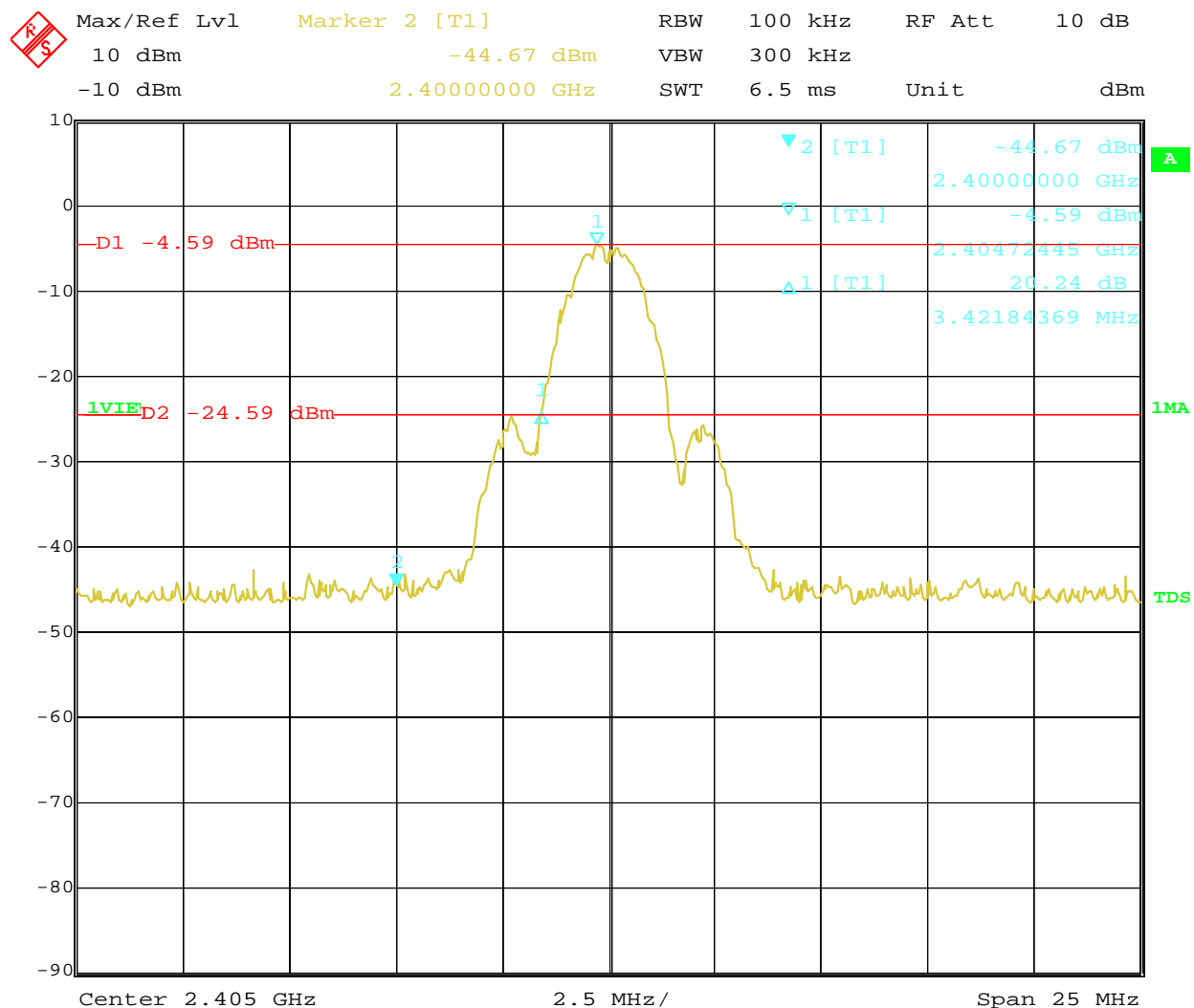
Intertek

Radiated Emissions

Company: Adidas International
 Model #: 2
 Serial #: 20
 Engineers: Vathana Ven
 Project #: G100719224
 Standard: FCC Part 15 Subpart C 15.247
 Receiver: R&S ESI (145128) 08-23-2012
 PreAmp: PRE145014 12-16-2012.txt
 Date(s): 05/29/12
 Location: 10m Chamber
 Barometer: DAV003
 Temp/Humidity/Pressure: 20c 66% 996mB
 Antenna & Cables: N Bands: N, LF, HF, SHF
 Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt EMC04
 Cable(s): 145-416 3mTrkB 09-04-2012.txt CBL030, MEG005
 Filter: REA004
 Limit Distance (m): 3
 Test Distance (m): 3
 Voltage/Frequency: 3.7VDC
 Frequency Range: 1-25GHz
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	
Note: Upper Band Edge Compliance, Integrated to 1 MHz RBW Equivalent												FCC
PK	H	2484.000	18.86	28.56	6.04	0.00	0.00	53.45	74.00	-20.55	10 kHz/30 kHz	RB
AVG	H	2484.000	14.61	28.56	6.04	0.00	0.00	49.20	54.00	-4.80	10 kHz/30 kHz	RB
Note: Upper Band Edge Compliance, Integrated to 1 MHz RBW Equivalent												
PK	H	2484.000	20.12	28.56	6.04	0.00	0.00	54.71	74.00	-19.29	100/300kHz	RB
AVG	H	2484.000	15.87	28.56	6.04	0.00	0.00	50.46	54.00	-3.54	100/300kHz	RB

Lower Band Edge



Date: 17.JUL.2012 14:26:23

Test Personnel: Vathana F. Ven *VSV*

Test Date: 05/29/2012

Kouma Sinn *KPS*

07/17/2012

Supervising Engineer: N/A

Product Standard: FCC Part 15.247, RSS-210 Annex 8

Input Voltage: Internal Battery

Pretest Verification w/ Ambient Signals or BB Source: Ambient Signals

Test Levels: Below the specified limits

Ambient Temperature: 20, 22 °C

Relative Humidity: 66, 68 %

Atmospheric Pressure: 996, 998 mbar

11 Digital Device Radiated Spurious Emissions

11.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart B, IC ICES-003, EN 55022, AS/NZS Cisprr 22

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

Measurement Uncertainty

For radiated emissions, U_{lab} (3.5 dB at 3m and 3.5 dB at 10m below 1 GHz, and 4.2 dB at 3m above 1 GHz) $< U_{CISPR}$ (5.2 dB), which is the reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
AF = 7.4 dB/m
CF = 1.6 dB
AG = 29.0 dB
FS = 32 dB μ V/m

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF / 20)} \text{ where } UF = \text{Net Reading in } \mu\text{V}$$

NF = Net Reading in dB μ V

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$
$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

11.2 Test Equipment Used:

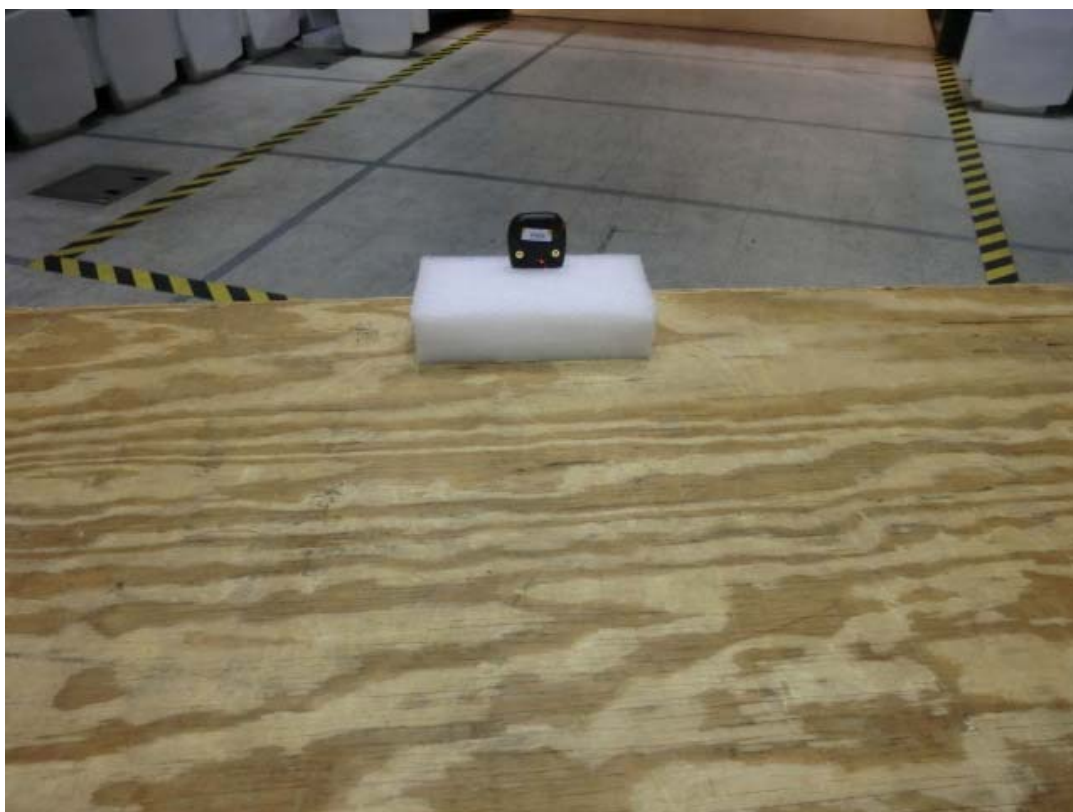
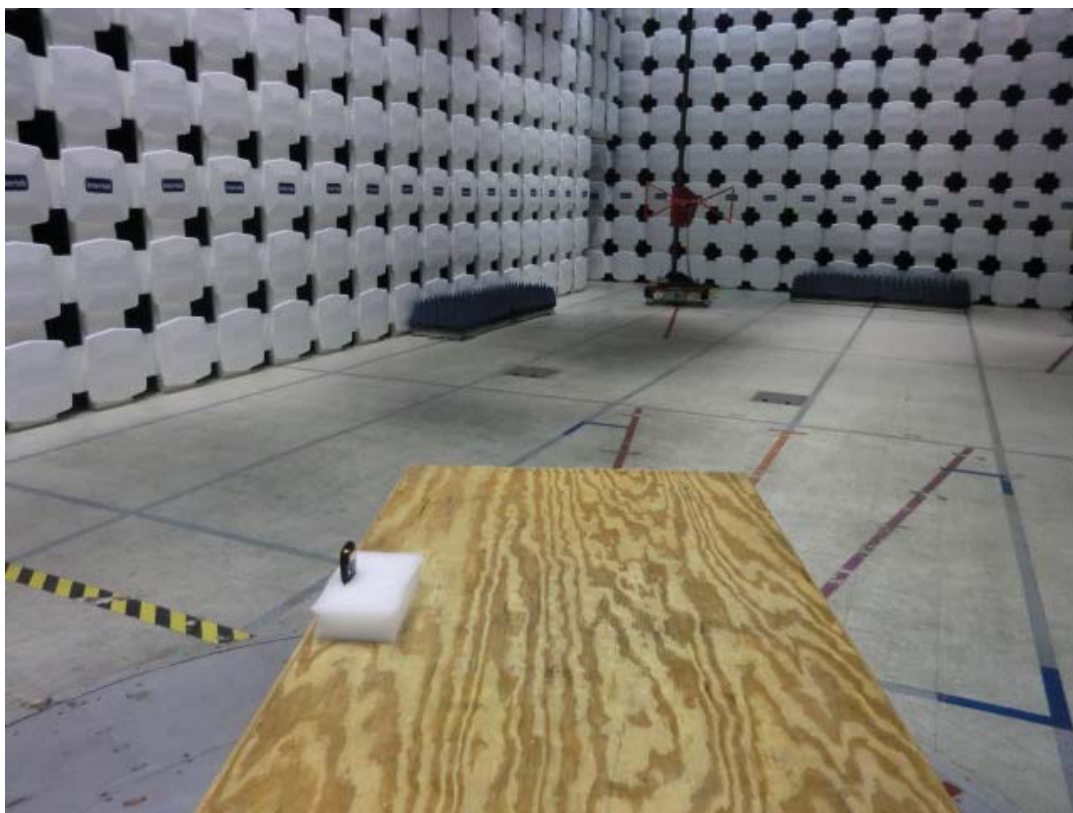
Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
~145106	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	08/15/2011	08/15/2012
~145003	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2011	10/04/2012
~145 128	EMI Test Receiver (20Hz - 40GHz)	Rohde & Schwarz	ESL	837771/027	08/23/2011	08/23/2012
~145-410	Cables 145-400 145-406 145-407 145-405 145-403	Huber + Suhner	10m Track A Cables	multiple	09/04/2011	09/04/2012
~DAV002	Weather Station	Davis Instruments	7400	PE80519A93	08/17/2011	08/17/2012

Software Utilized:

Name	Manufacturer	Version
Excel 2003	Microsoft	(11.8231.8221) SP3
EMI Boxborough.xls	Intertek	08/27/10
C5	Teseq	Build 5.26.00.3

11.3 Results:

The sample tested was found to comply.

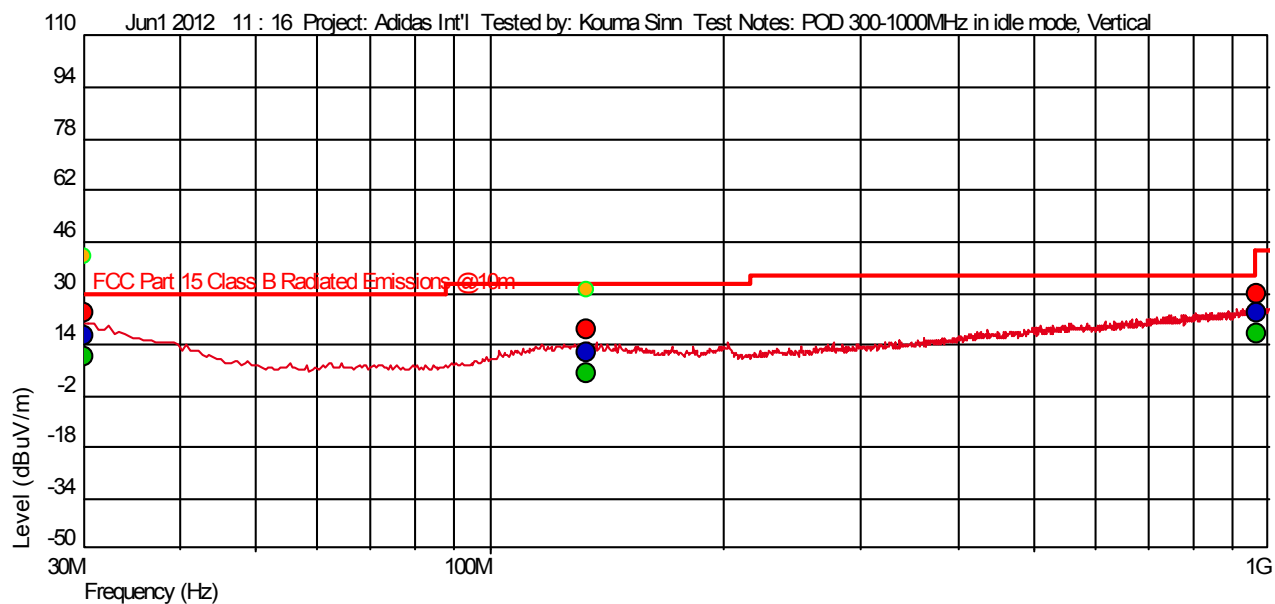
11.4 Setup Photographs:

Scan from 30-1000MHz

11.5 Test Data:

Test Information

Test Details	User Input
Project:	Adidas Int'l
Test Notes:	POD 300-1000MHz in idle mode, Vertical
Temperature:	22C
Humidity:	43%, 1008mbar
Tested by:	Kouma Sinn
Test Started:	Jun1 2012 11:16



Measured Peak Value

Measured Quasi Peak Value

Measured Average Value

Maximum Value of Mast and Turntable

Level (dBuV/m) = AF + CL + PA + Raw

AF = Antenna Factor

CL = Cable Losses

PA = Pre-Amplifier

Raw = Raw Instrument Reading (Not listed on Spot Tables)

FCC & IC Measured: QP

Frequency(Hz)	Level*(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Angle(Deg)	Mast Height(m)	Commen t	Detecto r	RBW(Hz)
30.00968607 M	16.73	20.79 2	- 26.109	29.54	-12.81		117	2.57		QP	120 k
133.549298621 M	11.63	13.79 0	- 24.876	33.04	-21.41		26	1.36		QP	120 k
965.063571539 M	23.62	23.40 1	- 22.385	43.54	-19.92		301	1.84		QP	120 k

AS/NZS Cisprr 22 & EN 55022 Measured: QP

Frequency(Hz)	Level*(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Angle(Deg)	Mast Height(m)	Commen t	Detecto r	RBW(Hz)
30.00968607 M	16.73	20.79 2	- 26.109	30.00	-13.37		117	2.57		QP	120 k
133.549298621 M	11.63	13.79 0	- 24.876	30.00	-18.37		26	1.36		QP	120 k
965.063571539 M	23.62	23.40 1	- 22.385	37.00	-11.38		301	1.84		QP	120 k

Test Information

Test Details

Test Notes:

Tested by:

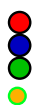
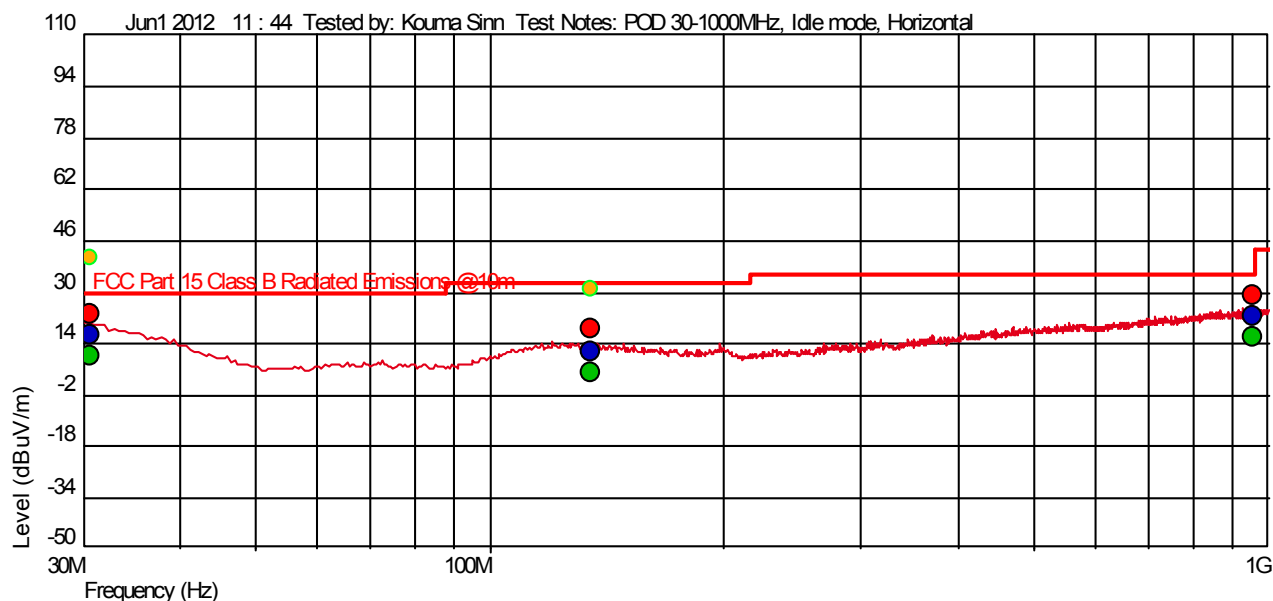
Test Started:

User Input

POD 30-1000MHz, Idle mode, Horizontal

Kouma Sinn

Jun1 2012 11:44



Measured Peak Value

Measured Quasi Peak Value

Measured Average Value

Maximum Value of Mast and Turntable

Level (dBuV/m) = AF + CL + PA + Raw

AF = Antenna Factor

CL = Cable Losses

PA = Pre-Amplifier

Raw = Raw Instrument Reading (Not listed on Spot Tables)

FCC & IC Measured: QP

Frequency(Hz)	Level*(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Angle(Deg)	Mast Height(m)	Comment	Detector	RBW(Hz)
30.581674473 M	16.68	20.73 5	- 26.107	29.54	-12.86	--	14	3.21		QP	120 k
134.400356389 M	11.59	13.74 0	- 24.865	33.04	-21.45	--	359	3.14		QP	120 k
956.094922988 M	22.78	22.80 0	- 22.405	35.54	-12.76	--	196	3.79		QP	120 k

AS/NZS Cispr 22 & EN 55022 Measured: QP

Frequency(Hz)	Level*(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Angle(Deg)	Mast Height(m)	Comment	Detector	RBW(Hz)
30.581674473 M	16.68	20.73 5	- 26.107	30.00	-13.32	--	14	3.21		QP	120 k
134.400356389 M	11.59	13.74 0	- 24.865	30.00	-18.41	--	359	3.14		QP	120 k
956.094922988 M	22.78	22.80 0	- 22.405	37.00	-14.22	--	196	3.79		QP	120 k

Test Personnel: Kouma Sinn *KPS*

Test Date: 06/01/2012

Supervising Engineer:
(Where Applicable)

N/A

Test Levels: Below the specified Class
B limits

Product Standard:

FCC Part 15 Subpart B, IC ICES-003,
AS/NZS Cispr 22, EN 55022

Input Voltage:

Internal Battery

Ambient Temperature:

20 °C

Relative Humidity:

66 %

Atmospheric Pressure:

996 mbar

Pretest Verification w/ Ambient
Signals or BB Source:

Ambient Signals

Deviations, Additions, or Exclusions: None

12 Revision History

Revision Level	Date	Report Number	Notes
0	06/27/2012	100719224BOX-005	Original Issue
1	07/19/2012	100719224BOX-005a	Added lower band edge plot
2	10/25/2012	100719224BOX-005b	Updated product designation and model number to include final models, added RF exposure analysis