EMISSIONS TEST REPORT

Report Number: 101930181BOX-001a
Project Number: G101930181

Report Issue Date: 02/03/2015

Product Designation: NC-103 (Originally tested as Igeacare 2.4GHz Pull Cord)

Standards: CFR47 FCC Part 15 Subpart C 15.247:2015
CFR47 FCC Part 15 Subpart B:2015
IC RSS-247 Issue 1 May 2015
IC RSS-Gen Issue 4 November 2014
IC ICES-003 Issue 5 August 2012
IC RSS-102 Issue 5 March 2015 updated December 2010

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

Client:
Mircom Technologies Ltd.
25 Interchange Way
Vaughan ON L4K 5W3
Canada

Testing was originally performed for IGEACare Solutions Inc.
163 Rivalda Road
North York M9M 2M7
Canada

As company name and model number changed, output power and spurious emissions was spot checked on 01/10/2015 and found that emissions didn't get worst.

Report prepared by

Vathana F. Ven / Staff Engineer

Report reviewed by

Michael F. Murphy / Sr. Staff Engineer

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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 Human RF Exposure (CFR47 FCC Part 15 Subpart C 15.247(b)(3), KDB 558074, IC RSS-247 Issue 1 May 2015 5.4(4), IC RSS-102 Issue 5 March 2015)	Pass
7	6 dB Bandwidth (CFR47 FCC Part 15 Subpart C 15.247(a)(2), IC RSS-247 Issue 1 May 2015 5.2, IC RSS-Gen Section 6.6, KDB 558074)	Pass
8	Peak Power Spectral Density (FCC 15:2015 Subpart C Section 15.247 (e), RSS-247 Issue 1 May 2015 5.2(2), KDB 558074)	Pass
9	Band Edge Compliance (FCC 15:2015 Subpart C Section 15.247 (d), RSS-247 Issue 1 May 2015 5.2(2), KDB 558074)	Pass
10	Transmitter Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart C 15.247(d), IC RSS-247 Issue 1 May 2015 5.5, KDB 558074)	Pass
11	Receiver/Digital Device Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B 15.109, IC RSS-Gen Sections 4.10 & 6.0)	Pass
-	AC Mains Conducted Emissions CFR47 FCC Part 15:2015 Subpart B Section 15.207 IC RSS-Gen Issue 3 December 2010, 7.2.2 (Table 2)	N/A, Battery Powered
12	Revision History	--

3 Client Information

This EUT was tested at the request of:

Company: Mircom Technologies Ltd.
25 Interchange Way
Vaughan ON L4K 5W3
Canada
Contact: Mr. Mike Mahoney
Telephone: (905) 660-4655
Fax: (905) 695-3538
Email: mmahoney@mircomgroup.com

4 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
MiCare Wireless Pull Station	Mircom Technologies Ltd. (was IGEACare Solutions Inc)	NC-103 (Originally tested as Igeacare 2.4GHz Pull Cord)	12

Receive Date:	06/04/2012, 01/10/2015	Start Date:	08/24/2012
Received Condition:	Good	Complete date:	01/10/2015
Type:	Prototype		

Description of Equipment Under Test (provided by client)
The EUT is a transmitter. It runs on 3VDC battery.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
3VDC Battery	N/A	N/A	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Transmit, Channel 11 (2405 MHz), Channel 18 (2440 MHz), Channel 26 (2480 MHz)
2	Receive

5 System Setup and Method

Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
	None				

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
None			

5.1 Method:

Configuration as required by ANSI C63.4:2009, ANSI C63.10:2009, and KDB 558074.

5.2 EUT Block Diagram:

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

6.1 Method

Tests are performed in accordance with Tests are performed in accordance with FCC Part 15 Subpart C Section 15.247, *KDB 558074*, ANSI C63.10, RSS-102, FCC Part 2 and KDB 447498, and RSS-247.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/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	10/17/2012
HORN2'	HORN ANTENNA	EMCO	3115	9602-4675	10/24/2011	10/24/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	09/23/2012
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	09/04/2011	10/04/2012

Software Utilized:

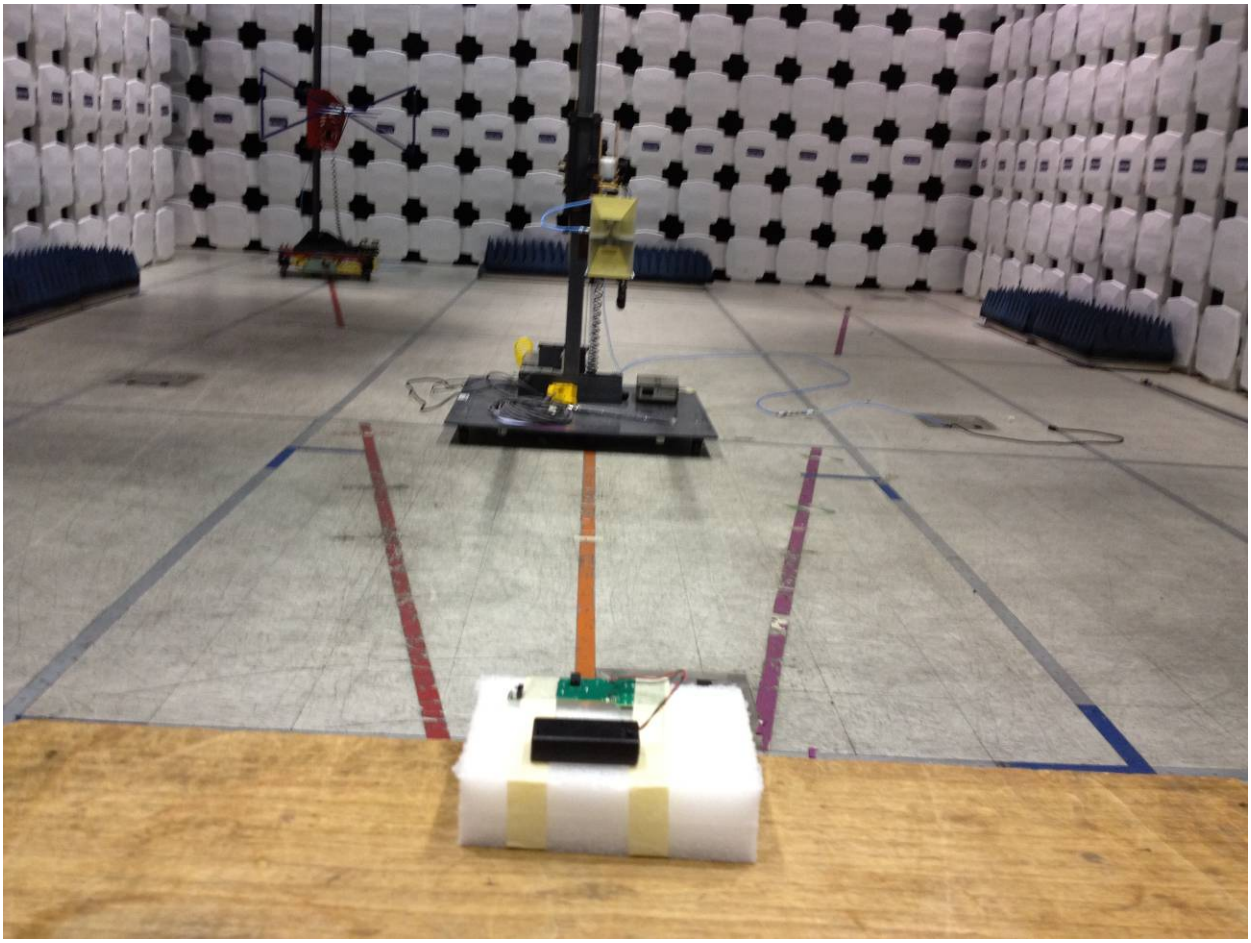
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

6.3 Results:

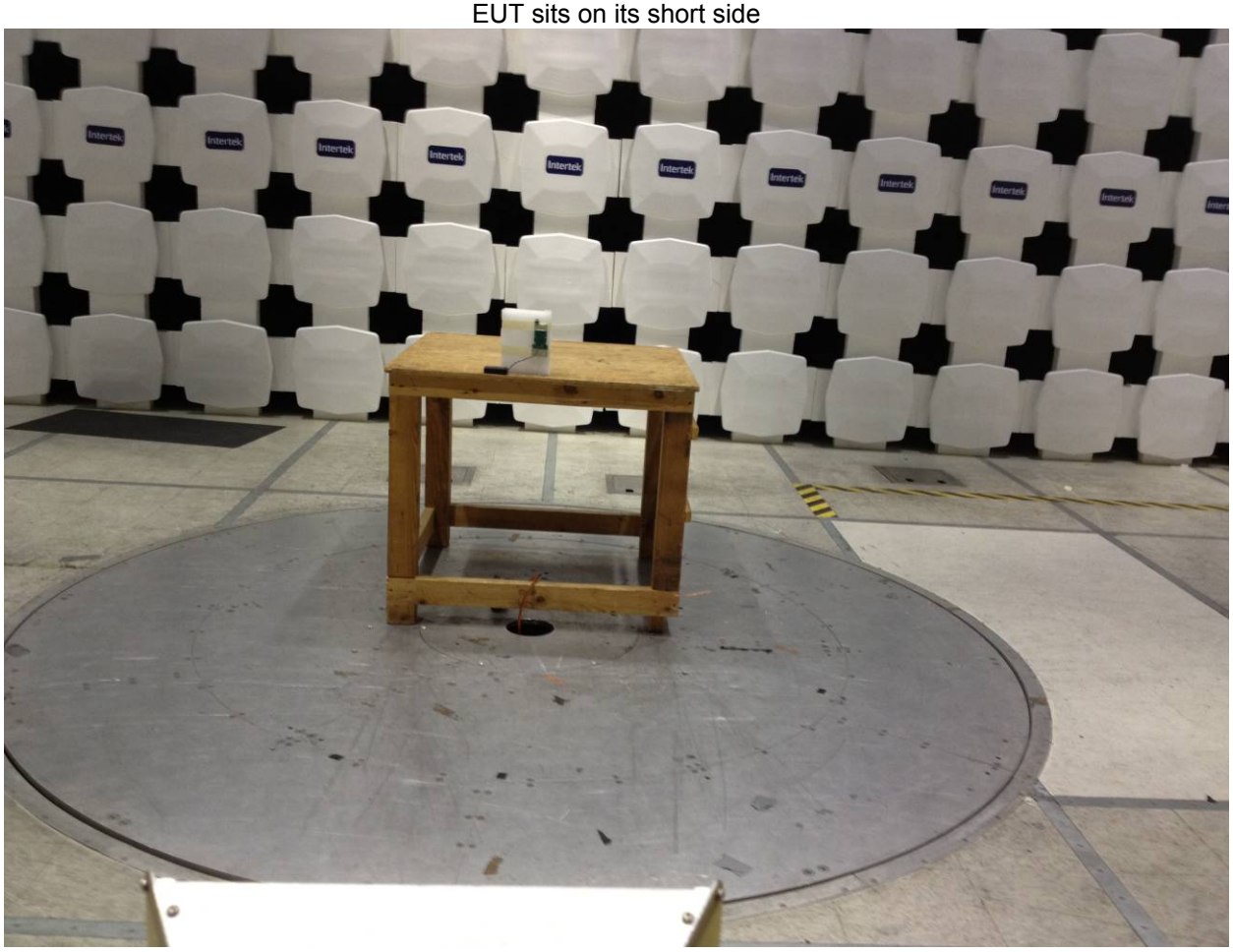
The sample tested was found to Comply. The EIRP must not exceed 36 dBm. The Human RF Exposure limit is 1 mW/cm^2.

6.4 Setup Photographs:

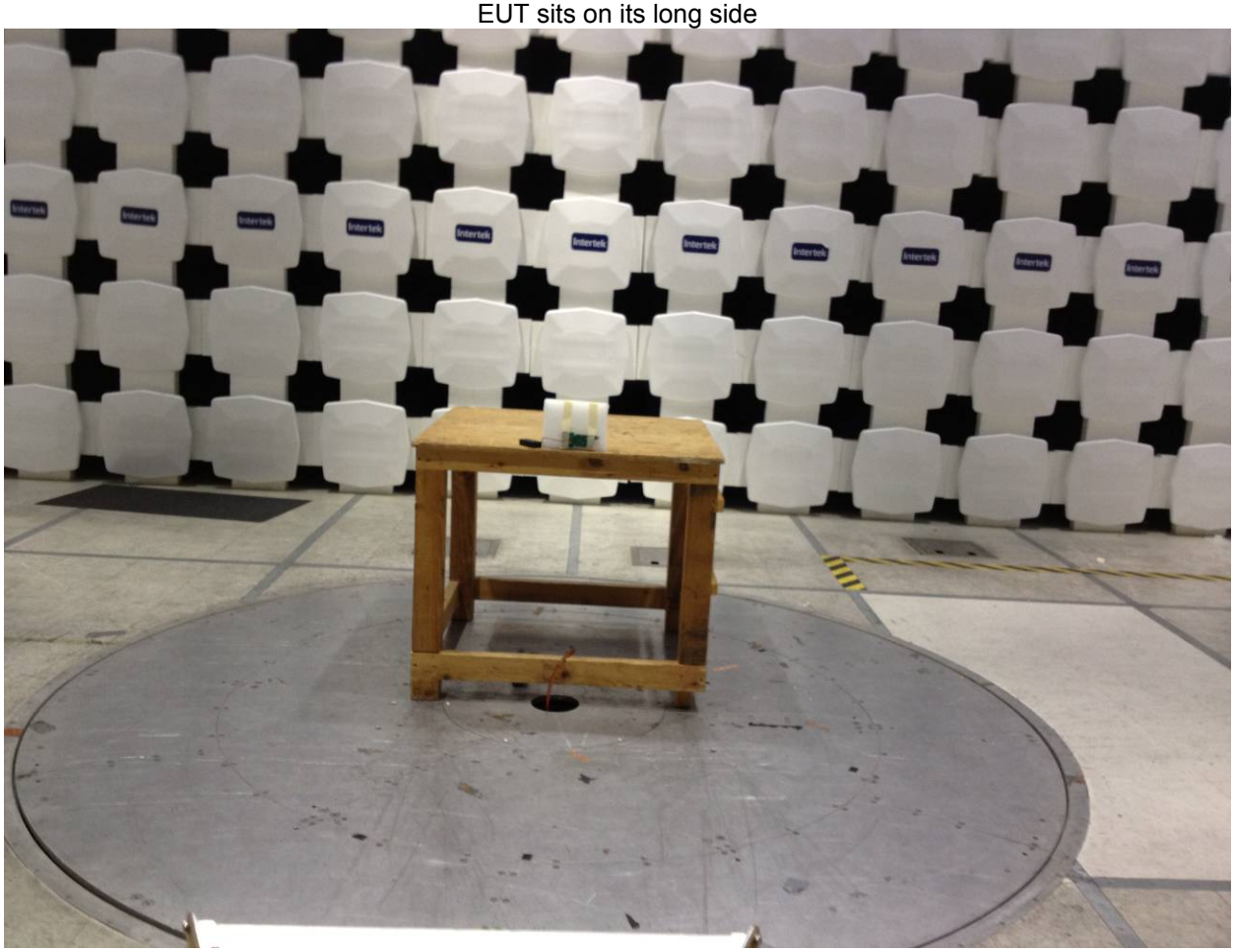
EUT sits flat



EUT sits on its short side



EUT sits on its long side



6.5 Test Data:

Channel 11 Power Radiated Emissions

Company: IGEACare Solutions Inc — Antenna & Cables: SHF — Bands: N, LF, HF, SHF
Model #: Igeacom II Zigbee Wireless Pull Cord — Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
Serial #: BOX1206041341-011 (Intertek Assigned) — Cable(s): 145-416 3mTrkB 10-04-2012.txt NONE.
Engineers: Vathana Ven — Location: 10m Chamber — Barometer: DAV003 — Filter: NONE
Project #: G100357410 — Date(s): 08/24/12
Standard: FCC Part 15 Subpart C 15.247 — Temp/Humidity/Pressure: 21C 64% 1011mbar
Receiver: R&S ESI (145-128) 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: Battery Powered — 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											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
CH11 - 2405MHz, No pre-amp, Orientation 1 - EUT is flat											
PK	H	2405.000	57.80	28.33	5.93	0.00	0.00	-3.16	36.00	-39.16	5/10MHz
CH11 - 2405MHz, No pre-amp, Orientation 2 - EUT on its long side											
PK	V	2405.000	55.84	28.55	5.93	0.00	0.00	-4.90	36.00	-40.90	5/10MHz
CH11 - 2405MHz, No pre-amp, Orientation 3 - EUT on its short side											
PK	H	2405.000	50.76	28.33	5.93	0.00	0.00	-10.20	36.00	-46.20	5/10MHz

CH18, CH26 Power Radiated Emissions

Company: IGEACare Solutions Inc
Model #: Igeacom II (Pull Cord)
Serial #: BOX1206041341-011 (Intertek Assigned)
Engineers: Kouma Sinn
Project #: G100357410
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128 09-23-12
PreAmp: PRE145014 12-16-2012.txt
PreAmp Used? (Y or N): N

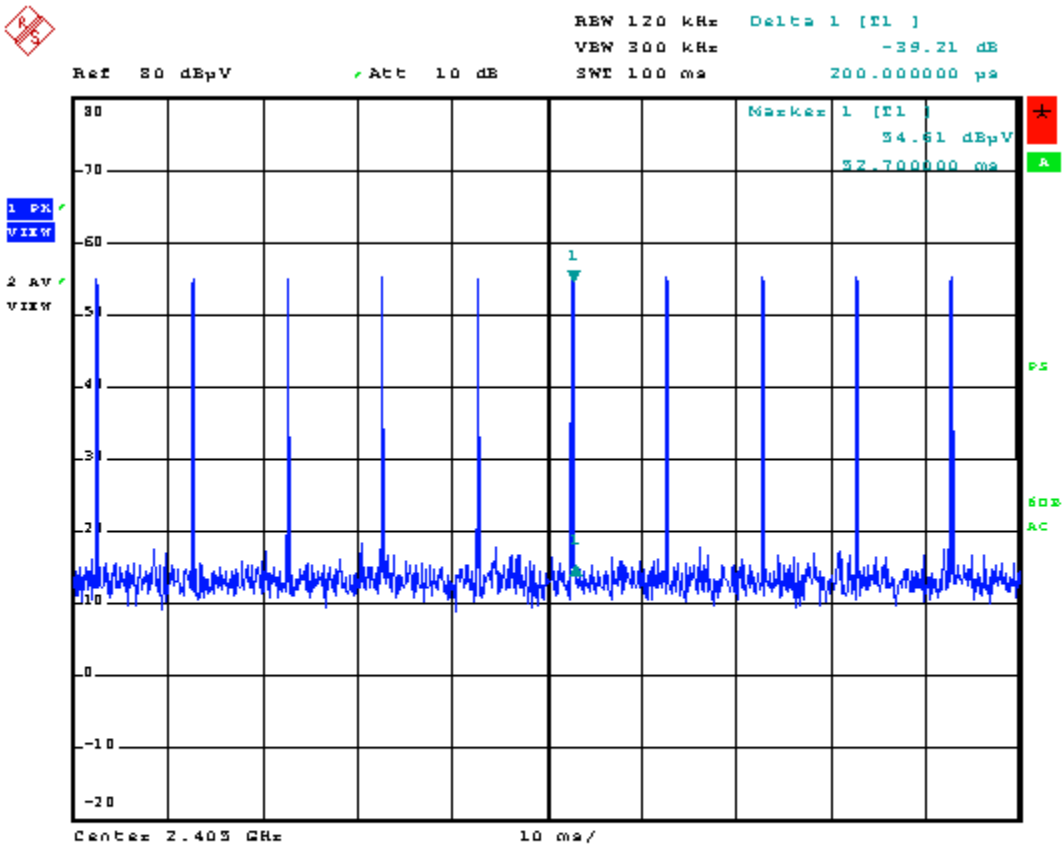
Antenna & Cables: LF Bands: N, LF, HF, SHF
Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
Cable(s): 145-416 3mTrkB 10-04-2012.txt NONE.
Location: 10m Chamber Barometer: DAV003 Filter: NONE
Date(s): 09/09/12
Temp/Humidity/Pressure: 21C 72% 1000mbar
Limit Distance (m): 3
Test Distance (m): 3
Voltage/Frequency: Battery powered Frequency Range: See below

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

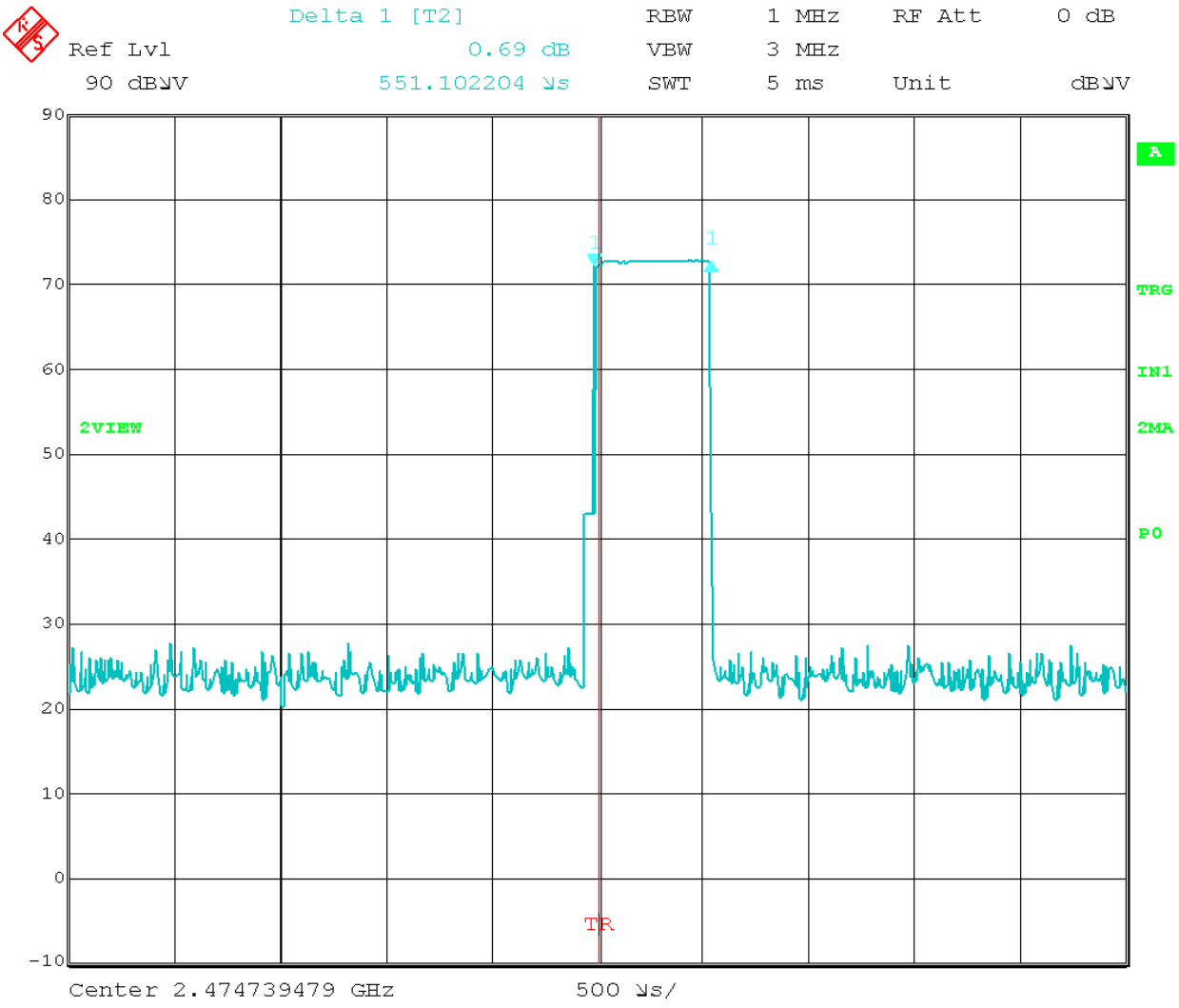
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	EIRP Net dBm	EIRP Limit dBm	Margin dB	Bandwidth
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
Channel 18 (2440MHz), no pre-amp. EUT: Flat											
PK	H	2440.000	56.20	28.43	5.98	0.00	0.00	-4.61	36.00	-40.61	5/10MHz
Channel 18 (2440MHz), no pre-amp. EUT: Long Side											
PK	V	2440.000	57.33	28.60	5.98	0.00	0.00	-3.31	36.00	-39.31	5/10MHz
Channel 18 (2440MHz), no pre-amp. EUT: Short side											
PK	H	2440.000	55.80	28.43	5.98	0.00	0.00	-5.01	36.00	-41.01	5/10MHz
Channel 26 (2480MHz), no pre-amp. EUT: Flat											
PK	H	2480.000	57.92	28.54	6.03	0.00	0.00	-2.72	36.00	-38.72	5/10MHz
Channel 26 (2480MHz), no pre-amp. EUT: Long Side											
PK	V	2480.000	56.17	28.67	6.03	0.00	0.00	-4.35	36.00	-40.35	5/10MHz
Channel 26 (2480MHz), no pre-amp. EUT: Short side											
PK	H	2480.000	55.90	28.54	6.03	0.00	0.00	-4.74	36.00	-40.74	5/10MHz

Number of Pulses within 100ms



Date: 17.SEP.2012 11:58:20

Pulse Width


Delta 1 [T2]
RBW 1 MHz
RF Att 0 dB
Ref Lvl
0.69 dB
VBW 3 MHz
90 dBµV
551.102204 µs
SWT 5 ms
Unit dBµV
90
80
70
60
50
40
30
20
10
0
-10
2VIEW
A
TRG
IN1
2MA
P0
TR
Center 2.474739479 GHz
500 µs/
Date: 22.SEP.2012 20:16:41

The EUT was measured in a radiated fashion. The RF output power was measured using a resolution bandwidth which encompassed the entire emission bandwidth. The data obtained was adjusted for equipment losses and converted from a field strength reading to a power reading using the provisions of FCC KDB 558074 and RSS-Gen 4.6. The human RF exposure limit is 1 mW/cm^2. The power density S generated by some value of EIRP at a given distance d is related by the equation:

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

The distance, given a maximum EIRP of -2.72 dBm (0.535 mW), at which the radiated power density of the EUT is equal to the human RF exposure limit is 0.206 cm from the antenna. This result does not take averaging into account. The EUT is exempt from FCC SAR RF Exposure evaluation because the output power is below the 60/f(GHz) average power exemption threshold of 24.2 mW.

The EUT is exempt from Industry Canada SAR RF Exposure evaluation as referenced in RSS-102 because the operating frequency is between 2.2 and 3.0 GHz and the EIRP does not exceed 20 milliwatts.

A duty cycle averaging factor has been calculated which takes into account the typical EUT duty cycle. Normally the device would transmit ten bursts every 100 ms repetitively while in operation. The worst-case burst length is 551.102µs. Given the 100 ms interval, and the 5511.02 µs on time, the duty cycle can be calculated using the equation dB reduction = 20 * LOG (on-time/ burst interval), and the duty cycle average factor obtained is 25.18 dB. Plots of the duty cycle are not currently available.

Test Personnel:	Vathana F. Ven VFV	Test Date:	08/24/2012
	Kouma Sinn KPS		09/12/2012
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15 Subpart C 15.247 IC RSS-247	Test Levels:	See table
Input Voltage:	Fresh 3.0V Battery	Ambient Temperature:	21, 21 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**Ambient**	Relative Humidity:	64, 72 %
		Atmospheric Pressure:	1011, 1000 mbars

Deviations, Additions, or Exclusions: None

7 Transmitter Radiated Spurious Emissions

7.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C Section 15.247, *KDB 558074*, ANSI C63.10, and RSS-247.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

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

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	12/16/2011	12/16/2012
145128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	09/23/2012
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	10/04/2012
REA002'	2.5GHz High Pass Filter	Reactel, Inc	7HS-2.5G/18G-S11	06-1	11/30/2011	11/30/2012
ROS001'	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	02/10/2012	02/10/2013
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
145 034'	BiLog Antenna (30 MHz to 1GHz)	Schaffner Chase EMC	CBL6111C	2564	02/07/2012	02/07/2013
145 410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	09/04/2011	10/04/2012
145 003'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2011	10/04/2012
145 128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	09/23/2012
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	10/17/2012

Software Utilized:

Name	Manufacturer	Version
C5 Emissions	TESEQ	5.26.46.46
EMI Boxborough.xls	Intertek	08/27/2010

7.3 Results:

The sample tested was found to Comply.

FCC Part 15.247(d) & RSS-247 – Non Restricted Band Radiated Spurious/Harmonics Limits

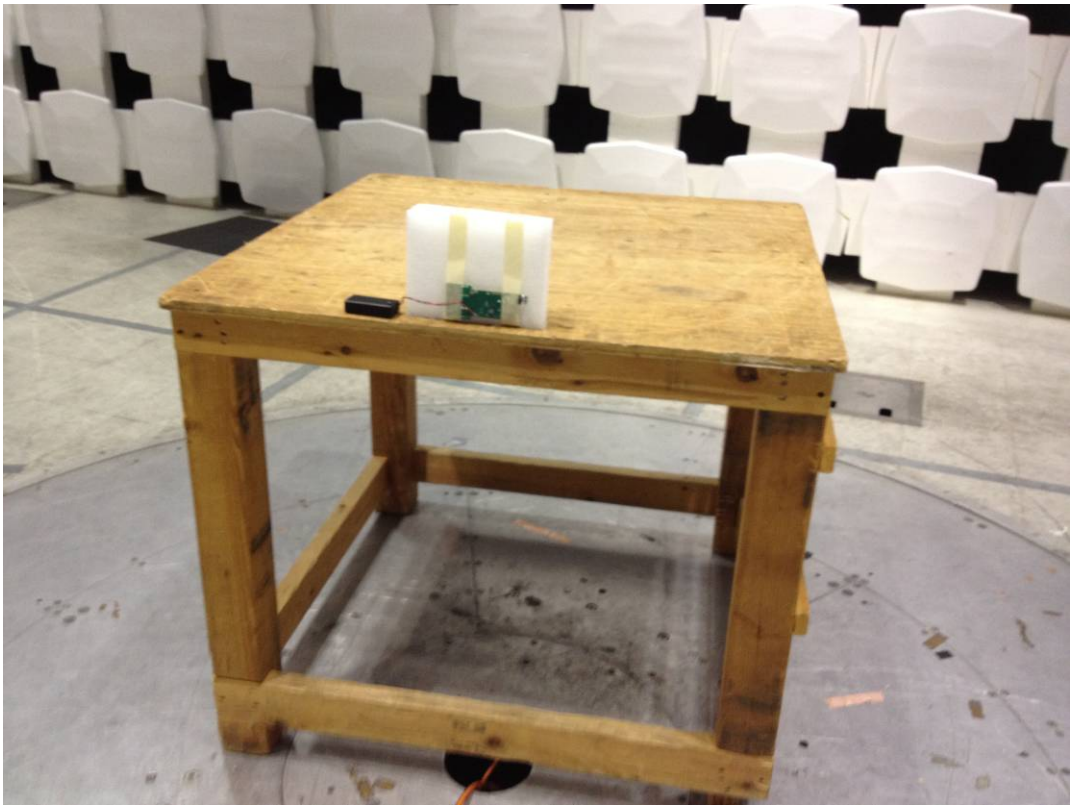
In any 100 kHz bandwidth outside the frequency band , the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in §15.209(a) and RSS-Gen Section 7.2.5 Table 5 is not required. In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a) and RSS-Gen Section 7.2.2 Table 3, must also comply with the radiated emission limits specified in 15.209(a) and IC RSS-Gen Section 7.2.5 Table 5).

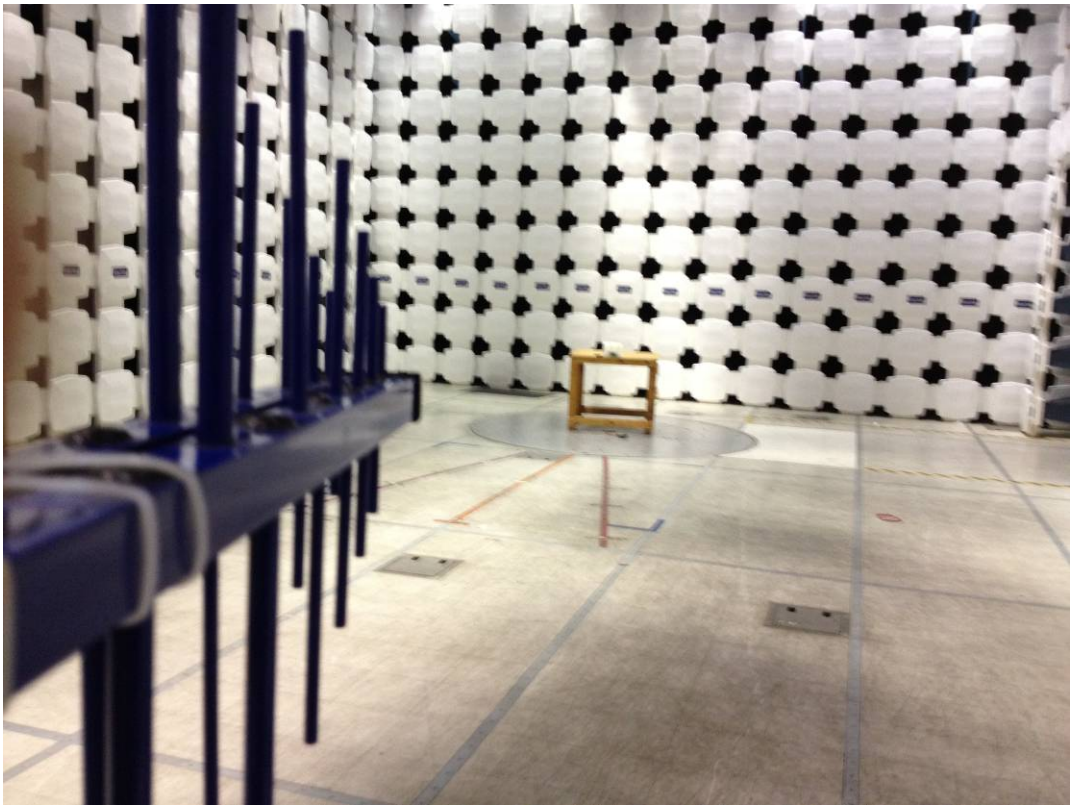
FCC Part 15.209(a) & RSS-247 & RSS-Gen Section 7.2.5 Table 5 – Restricted Band Radiated Spurious/Harmonics Limits

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

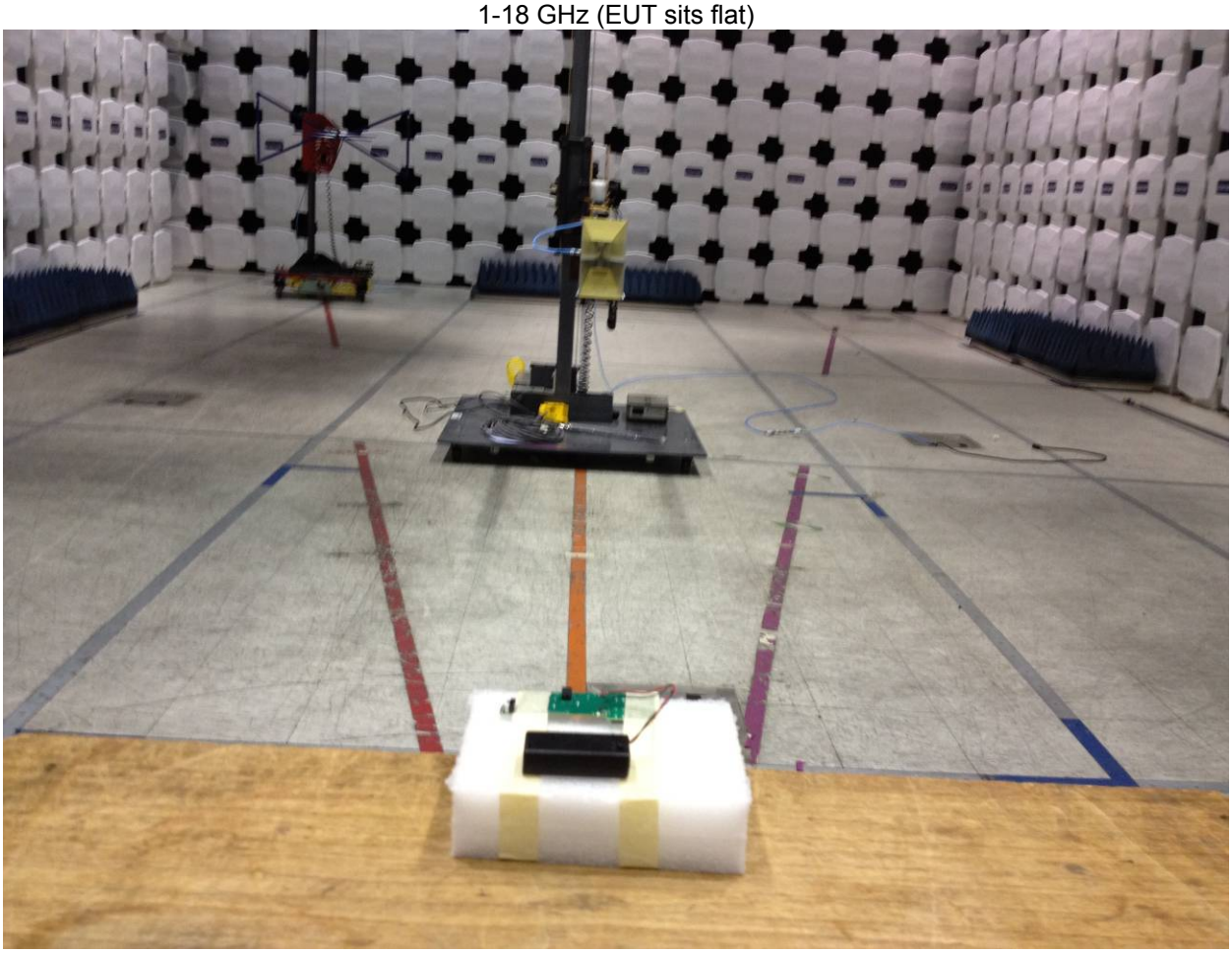
7.4 Setup Photographs:

30-1000 MHz

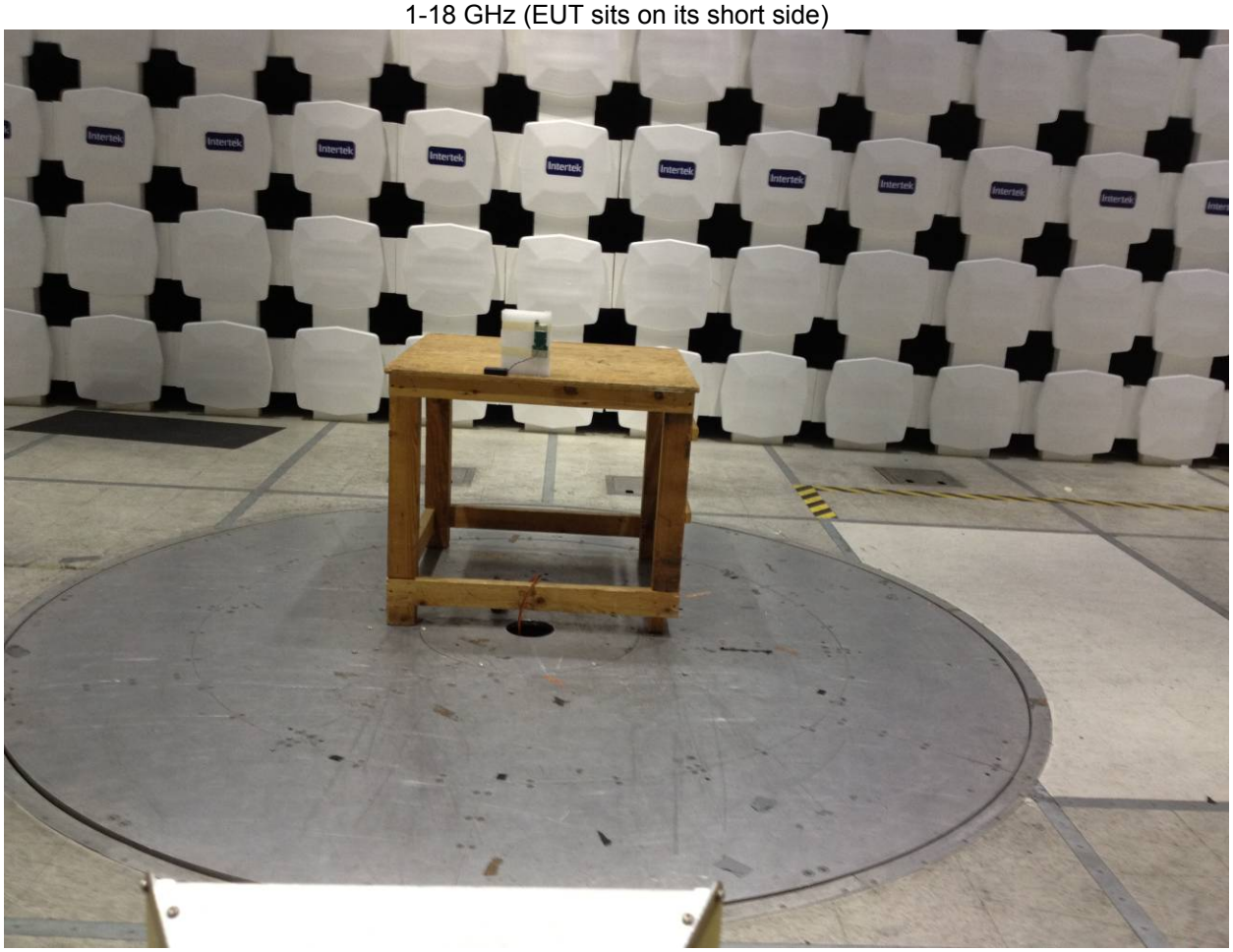




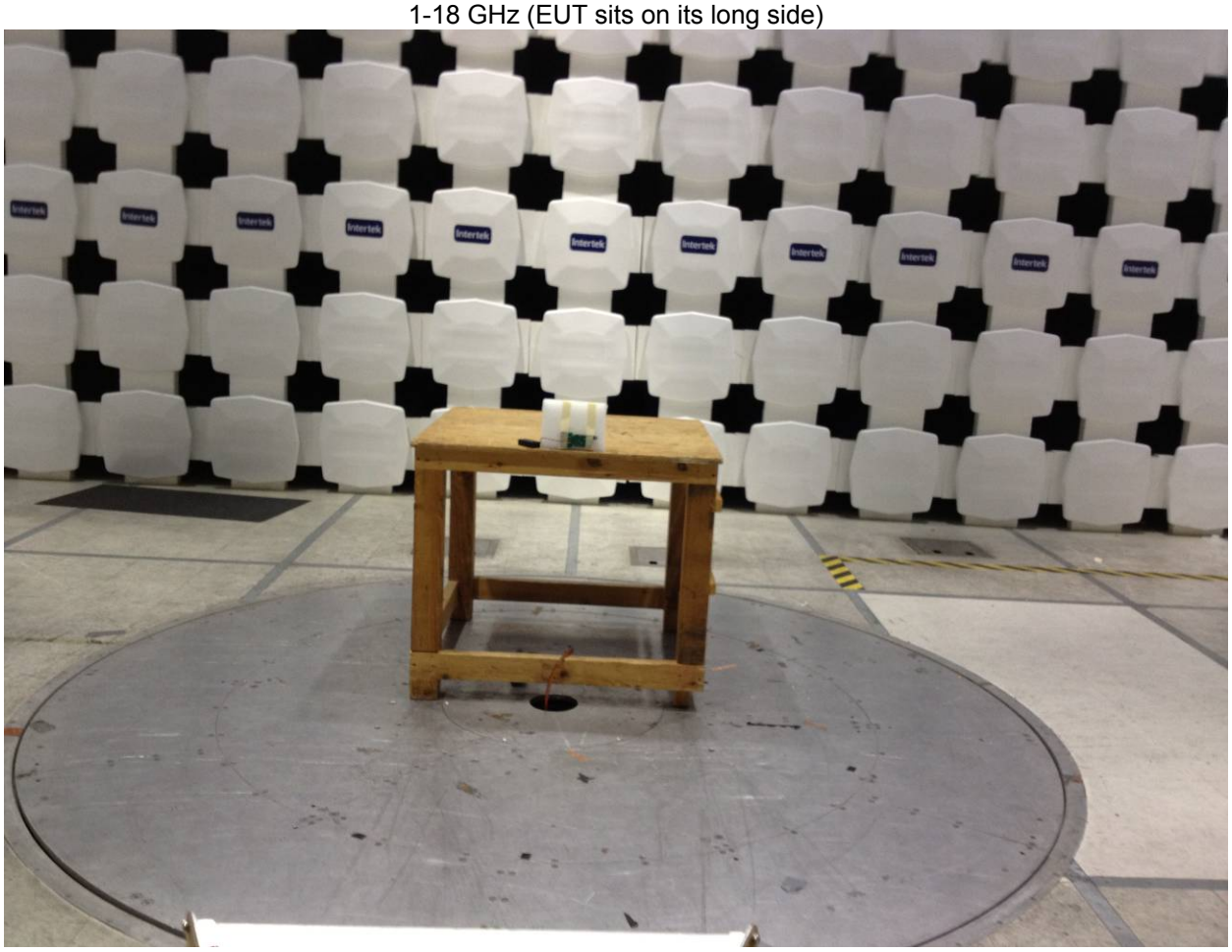
1-18 GHz (EUT sits flat)



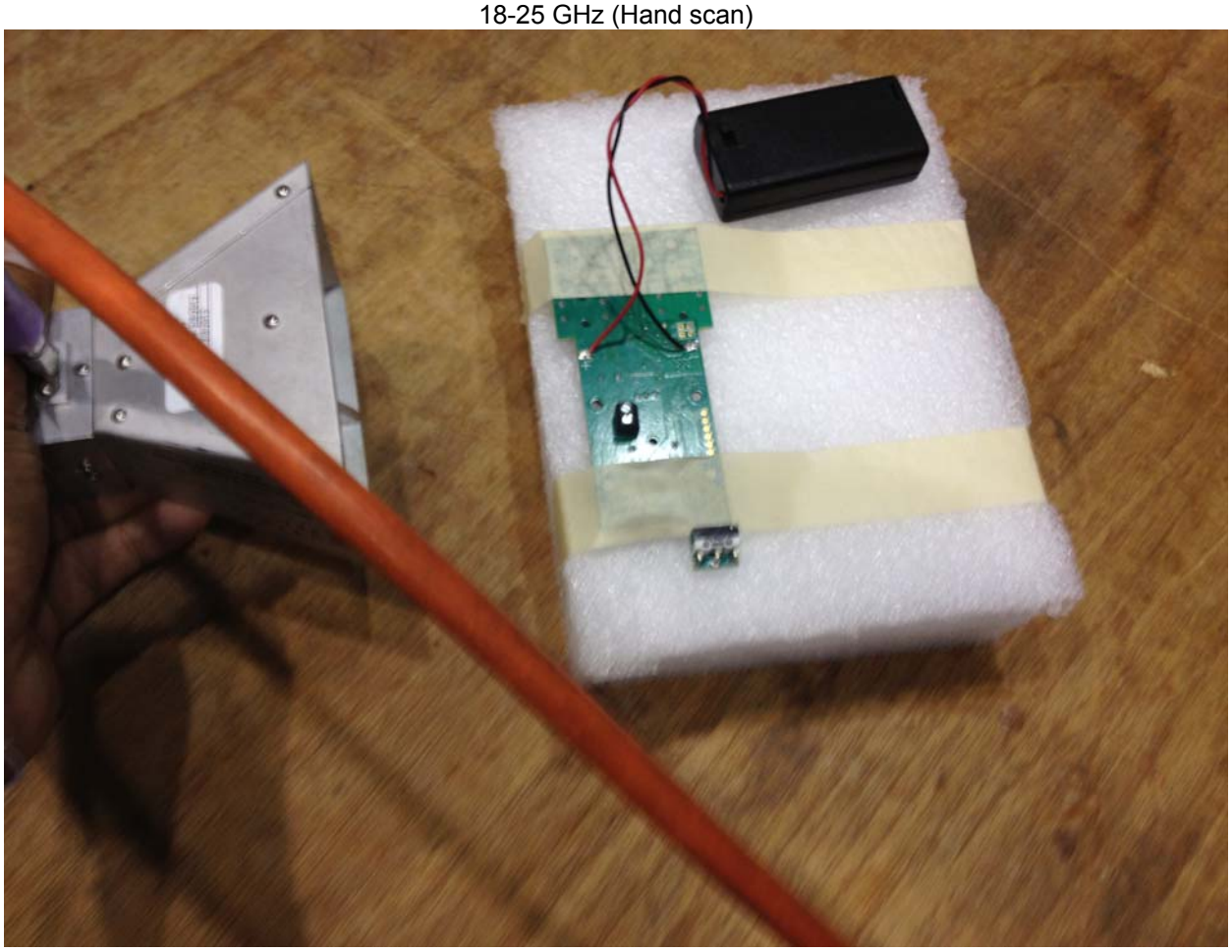
1-18 GHz (EUT sits on its short side)



1-18 GHz (EUT sits on its long side)



18-25 GHz (Hand scan)



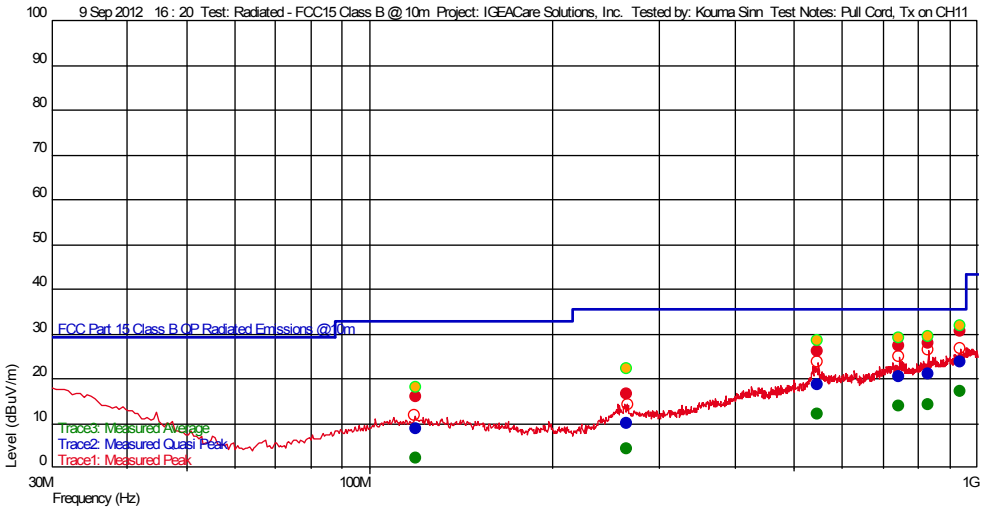
7.5 Plots/Data:

Channel 11 (2405MHz), 30-1000 MHz Radiated Spurious Emissions

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	IGEACare Solutions, Inc.	
Test Notes:	Pull Cord, Tx on CH11	
Temperature:	22C	
Humidity:	65%, 998mbar	
Tested by:	Kouma Sinn	
Test Started:	9 Sep 2012 16 : 20	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace1: Measured Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
265.840882034 M	16.62	13.965	-24.121	--	--	|	123	2.11	120 k	
119.303206681 M	16.00	11.330	-25.105	--	--	|	164	4.00	120 k	
547.719037892 M	26.18	21.319	-23.972	--	--	|	86	1.85	120 k	
743.688978329 M	27.19	22.121	-23.445	--	--	|	279	2.69	120 k	
830.58436921 M	27.95	22.047	-23.089	--	--	|	21	2.67	120 k	
939.244488908 M	30.56	24.100	-22.485	--	--	|	267	4.00	120 k	

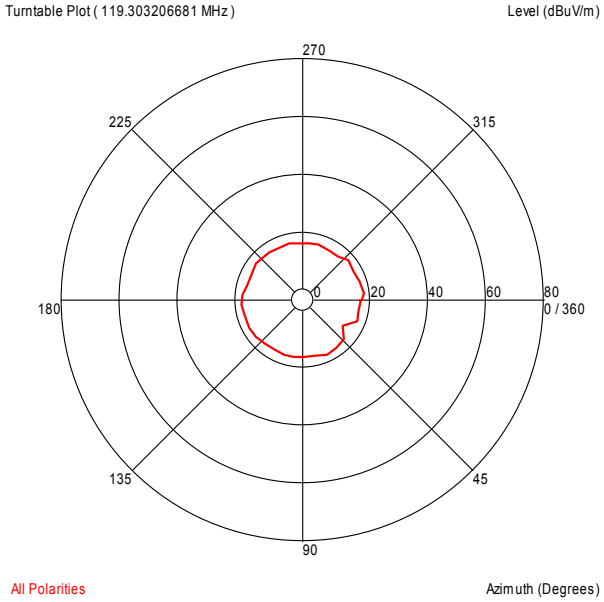
Trace2: Measured Quasi Peak

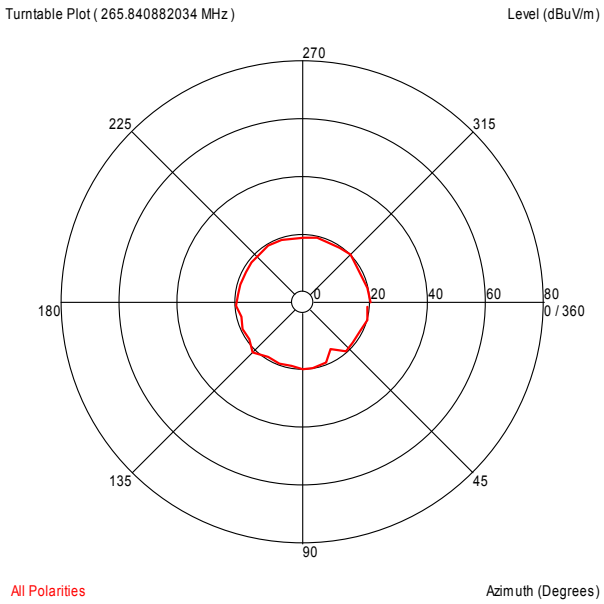
Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
265.840882034 M	9.99	13.965	-24.121	35.540	-25.55	|	123	2.11	120 k	
119.303206681 M	8.83	11.330	-25.105	33.040	-24.21	|	164	4.00	120 k	
547.719037892 M	18.68	21.319	-23.972	35.540	-16.86	|	86	1.85	120 k	
743.688978329 M	20.50	22.121	-23.445	35.540	-15.04	|	279	2.69	120 k	
830.58436921 M	21.01	22.047	-23.089	35.540	-14.53	|	21	2.67	120 k	
939.244488908 M	23.78	24.100	-22.485	35.540	-11.76	|	267	4.00	120 k	

Trace3: Measured Average

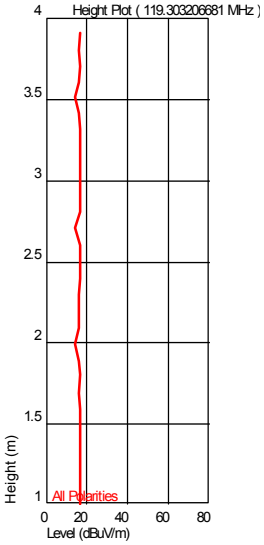
Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
119.303206681 M	2.26	11.330	-25.105	--	--	|	164	4.00	120 k	
265.840882034 M	4.38	13.965	-24.121	--	--	|	123	2.11	120 k	
547.719037892 M	12.15	21.319	-23.972	--	--	|	86	1.85	120 k	
743.688978329 M	13.99	22.121	-23.445	--	--	|	279	2.69	120 k	
830.58436921 M	14.27	22.047	-23.089	--	--	|	21	2.67	120 k	
939.244488908 M	17.18	24.100	-22.485	--	--	|	267	4.00	120 k	

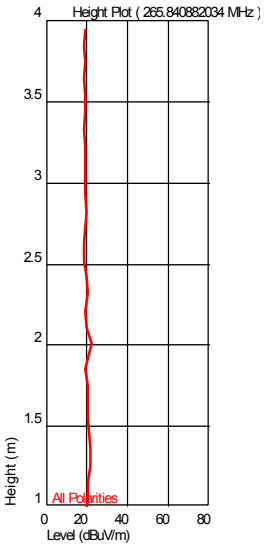
Azimuth Plots

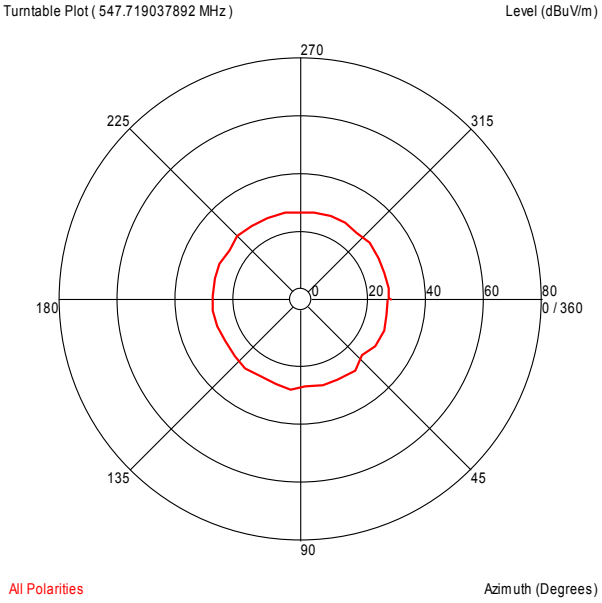


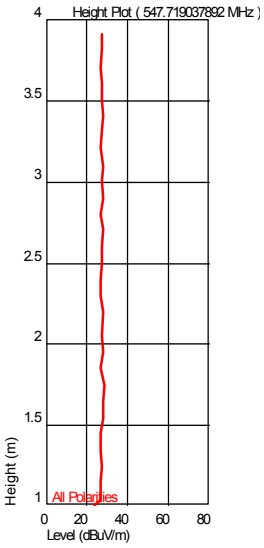


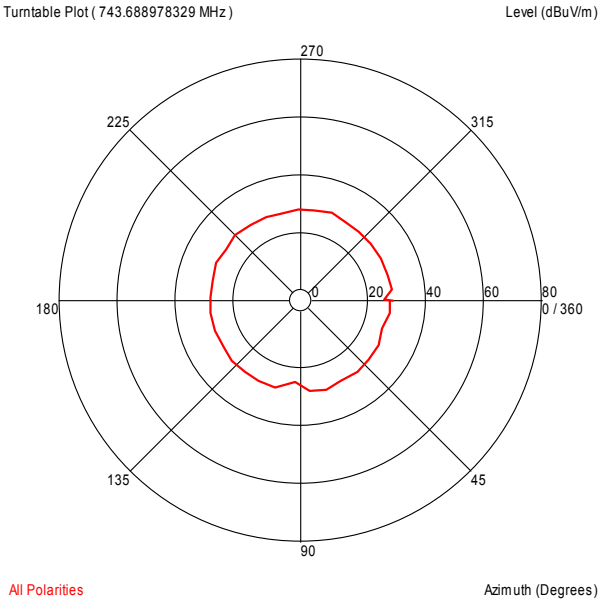
Turntable Plots

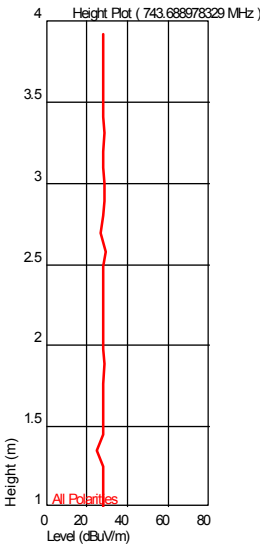


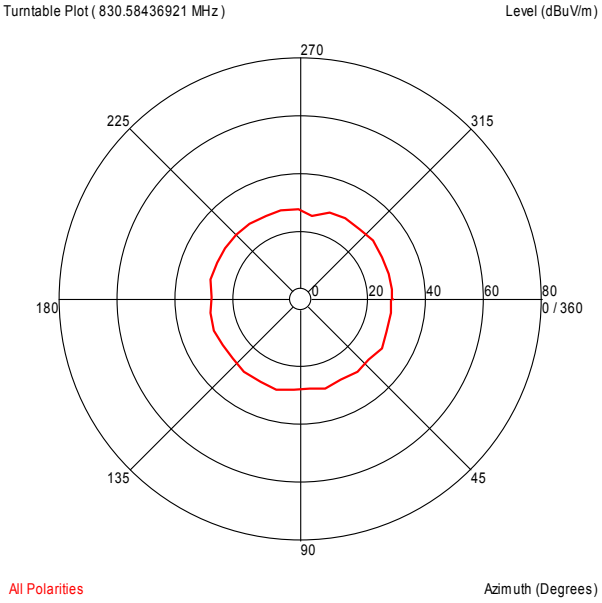


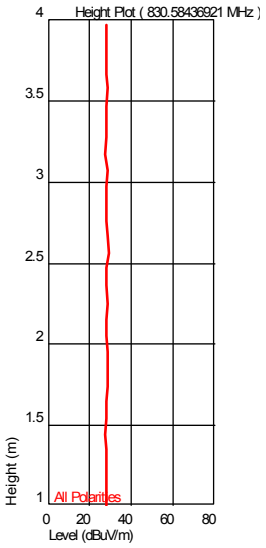

Turntable Plot (547.719037892 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

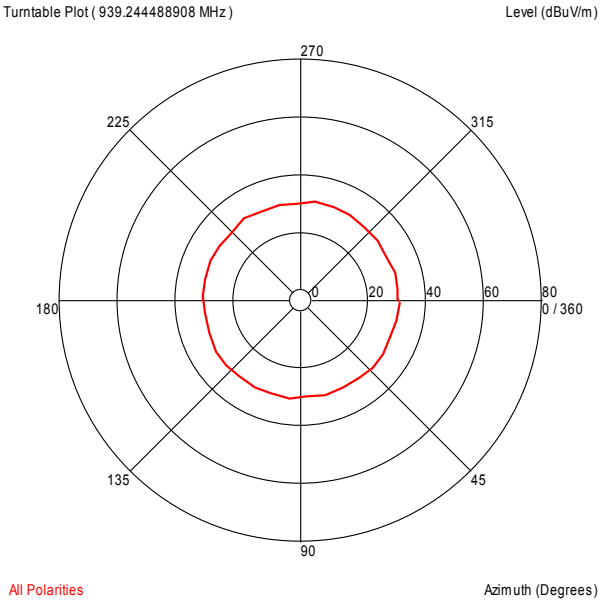

Height Plot (547.719037892 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

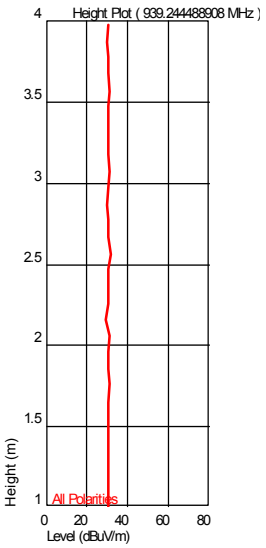

Turntable Plot (743.688978329 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (743.688978329 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (830.58436921 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (830.58436921 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (939.244488908 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (939.244488908 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Channel 11 (2405MHz), 1-25 GHz Radiated Spurious Emissions

Company: IGEACare Solutions Inc
Model #: Igeacom II (Pull Cord)
Serial #: None
Engineers: Kouma Sinn
Project #: G100357410
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128 09-23-12
PreAmp: PRE145014 12-16-2012.txt

Antenna & Cables: LF
Antenna: HORN2 V3m 10-24-2012.txt
Cable(s): 145-416 3mTrkB 10-04-2012.txt
Location: 10m Chamber
Date(s): 09/09/12
Limit Distance (m): 3
Test Distance (m): 3
Barometer: DAV003
Temp/Humidity/Pressure: 21C

Bands: N, LF, HF, SHF
HORN2 H3m 10-24-2012.txt
NONE.
Filter: REA002
72%
1000mbar

PreAmp Used? (Y or N): Y
Voltage/Frequency: Battery powered
Frequency Range: See below

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

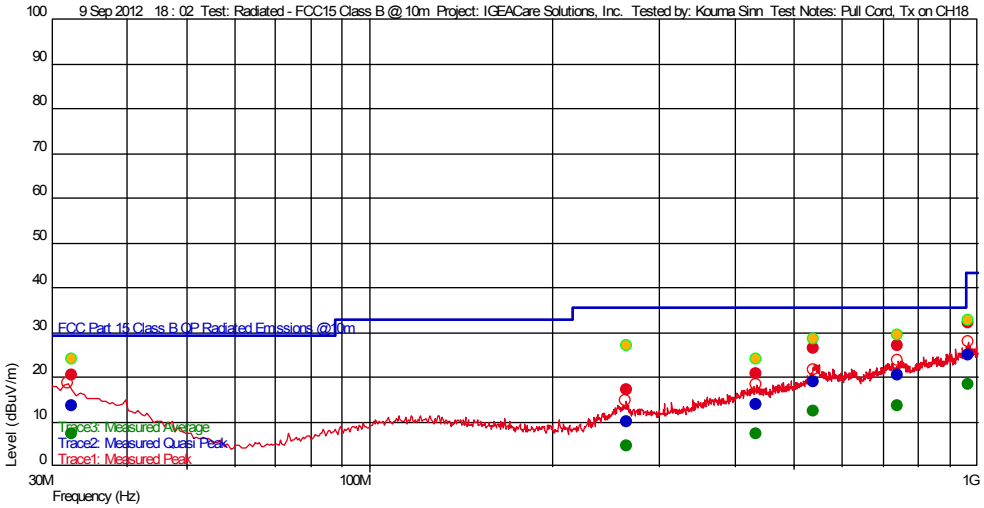
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC
Channel 11 (2405MHz), with pre-amp and filter, 1-18 GHz. EUT: Flat. AVG = Peak - (Average Factor = 25.18dB)													
PK	H	4810.000	42.46	32.86	9.17	34.54	0.00	49.94	74.00	-24.06	1/3MHz	RB	RB
AVG	H	4810.000	17.28	32.86	9.17	34.54	0.00	24.76	54.00	-29.24	1/3MHz	RB	RB
PK	V	7215.000	27.53	36.12	10.85	35.66	0.00	38.84	65.00	-26.16	100/300kHz	NF	
PK	V	9620.000	25.88	37.89	13.16	35.85	0.00	41.08	65.00	-23.92	100/300kHz	NF	
PK	V	12025.000	35.44	39.52	14.97	35.38	0.00	54.55	74.00	-19.45	1/3MHz	RB, NF	RB
AVG	V	12025.000	10.26	39.52	14.97	35.38	0.00	29.37	54.00	-24.63	1/3MHz	RB, NF	RB
PK	V	14430.000	23.11	42.14	15.16	34.64	0.00	45.77	65.00	-19.23	100/300kHz	NF	
PK	V	16835.000	22.50	39.85	25.50	37.74	0.00	50.12	65.00	-14.88	100/300kHz	NF	
Channel 11 (2405MHz), with pre-amp and filter, 1-18 GHz. EUT: Long side													
PK	V	4810.000	39.65	33.08	9.17	34.54	0.00	47.35	74.00	-26.65	1/3MHz	RB	RB
AVG	V	4810.000	14.47	33.08	9.17	34.54	0.00	22.17	54.00	-31.83	1/3MHz	RB	RB
No emissions were detected beyond 4810MHz													
Channel 11 (2405MHz), with pre-amp and filter, 1-18 GHz. EUT: Short side													
PK	V	4810.000	40.80	33.08	9.17	34.54	0.00	48.50	74.00	-25.50	1/3MHz	RB	RB
AVG	V	4810.000	15.62	33.08	9.17	34.54	0.00	23.32	54.00	-30.68	1/3MHz	RB	RB
No emissions were detected beyond 4810MHz													
Hand scanned from 18-25GHz, no emissions were detected. Equipment used: ROS001, CBL030, EMC04													

Channel 18 (2440MHz), 30-1000 MHz Radiated Spurious Emissions

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	IGEACare Solutions, Inc.	
Test Notes:	Pull Cord, Tx on CH18	
Temperature:	22C	
Humidity:	65%, 998mbar	
Tested by:	Kouma Sinn	
Test Started:	9 Sep 2012 18 : 02	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace1: Measured Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
264.908817737 M	17.08	14.100	-24.123	--	--	|	140	1.55	120 k	
433.133867309 M	20.66	17.100	-23.920	--	--	--	169	4.00	120 k	
965.358116248 M	31.96	24.814	-22.391	--	--	|	352	1.95	120 k	
537.711823341 M	26.40	21.542	-23.980	--	--	|	280	3.22	120 k	
32.379158541 M	20.45	17.773	-26.107	--	--	|	156	2.87	120 k	
739.602404733 M	26.99	21.884	-23.469	--	--	--	204	2.88	120 k	

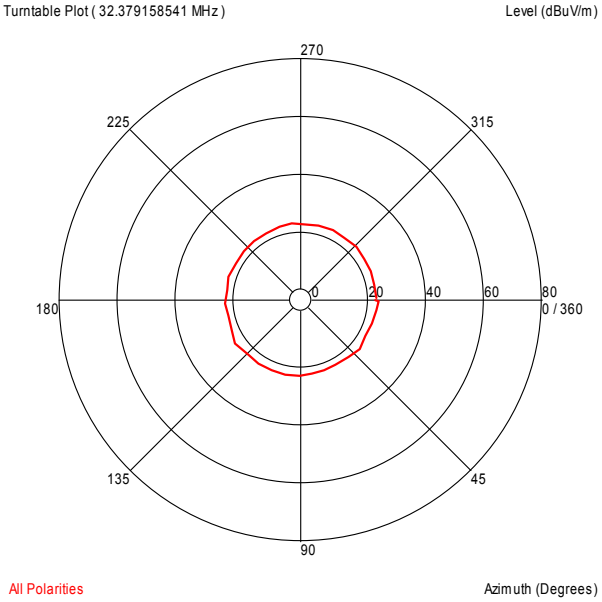
Trace2: Measured Quasi Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
264.908817737 M	10.12	14.100	-24.123	35.540	-25.42	|	140	1.55	120 k	
433.133867309 M	14.01	17.100	-23.920	35.540	-21.53	--	169	4.00	120 k	
965.358116248 M	25.03	24.814	-22.391	43.540	-18.51	|	352	1.95	120 k	
537.711823341 M	18.90	21.542	-23.980	35.540	-16.64	|	280	3.22	120 k	
32.379158541 M	13.72	17.773	-26.107	29.540	-15.82	|	156	2.87	120 k	
739.602404733 M	20.35	21.884	-23.469	35.540	-15.19	--	204	2.88	120 k	

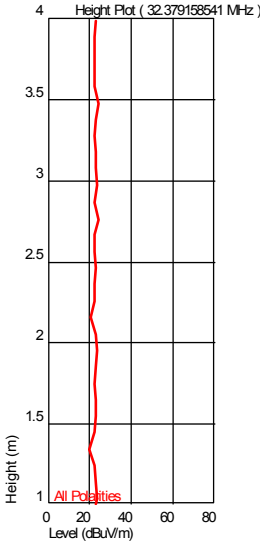
Trace3: Measured Average

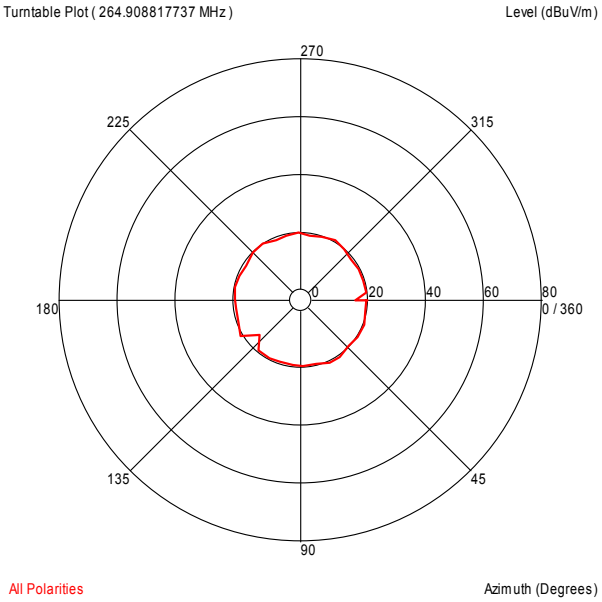
Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
264.908817737 M	4.51	14.100	-24.123	--	--	|	140	1.55	120 k	
32.379158541 M	7.23	17.773	-26.107	--	--	|	156	2.87	120 k	
433.133867309 M	7.44	17.100	-23.920	--	--	--	169	4.00	120 k	
537.711823341 M	12.37	21.542	-23.980	--	--	|	280	3.22	120 k	
739.602404733 M	13.73	21.884	-23.469	--	--	--	204	2.88	120 k	
965.358116248 M	18.45	24.814	-22.391	--	--	|	352	1.95	120 k	

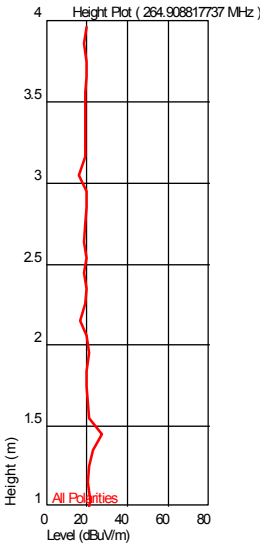
Azimuth Plots

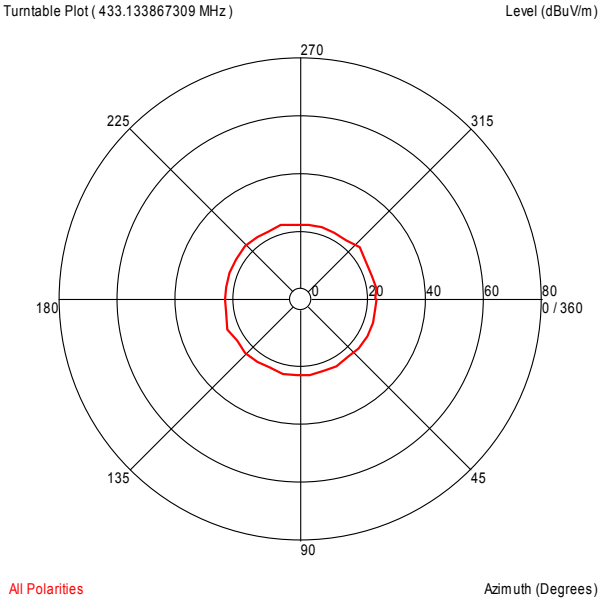


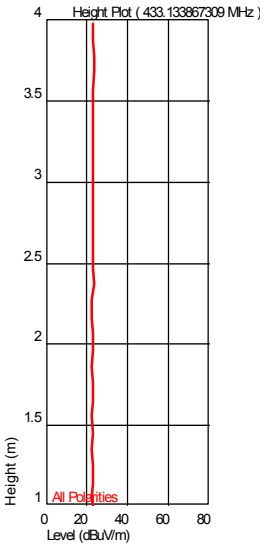
Turntable Plots

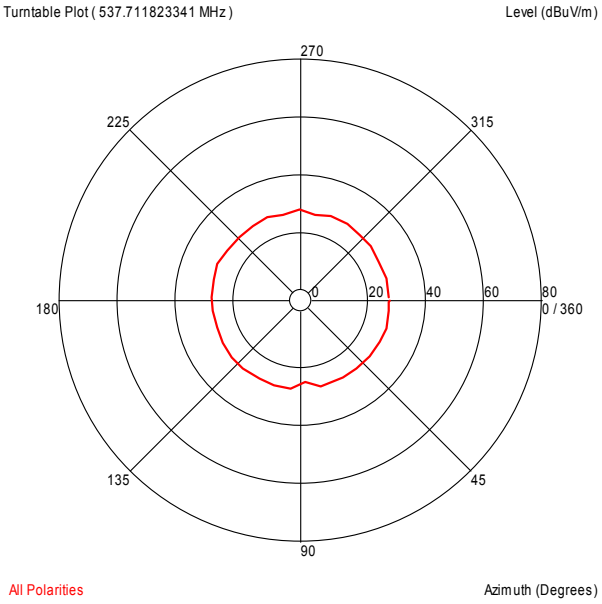


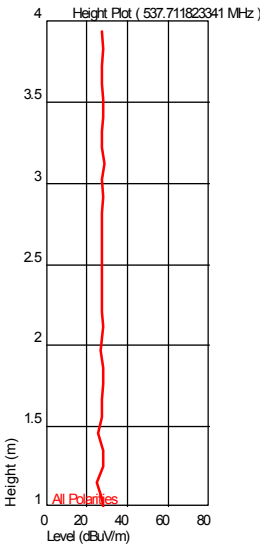


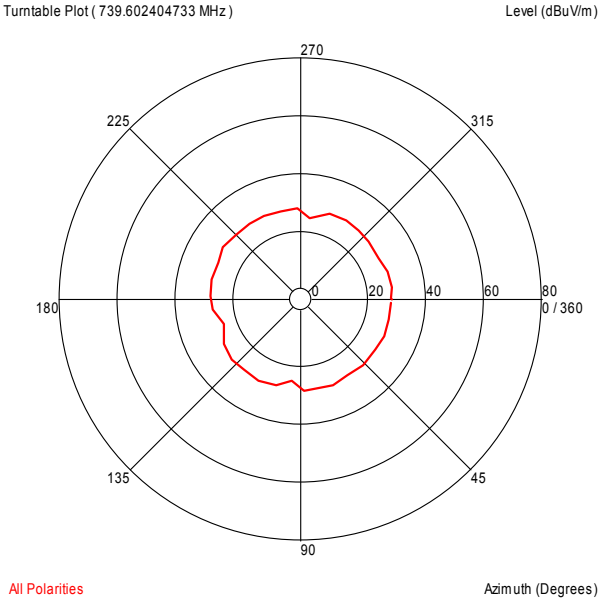


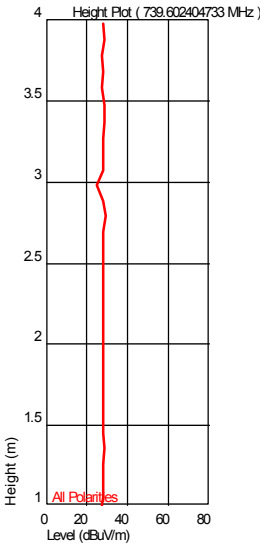

Turntable Plot (433.133867309 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

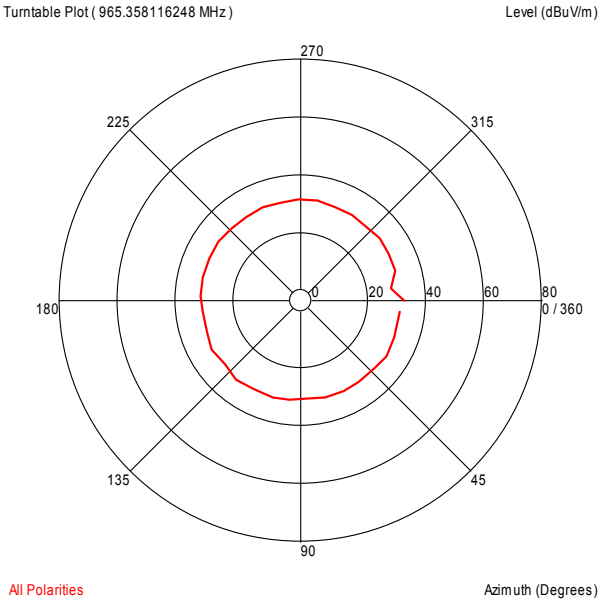

Height Plot (433.133867309 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

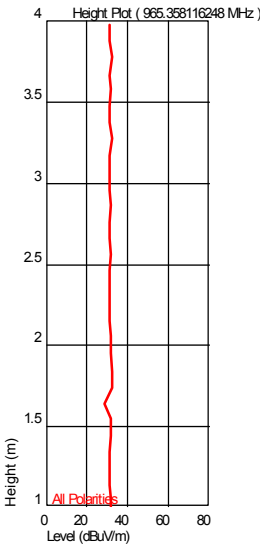

Turntable Plot (537.711823341 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (537.711823341 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (739.602404733 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)


Height Plot (739.602404733 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (965.358116248 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)


Height Plot (965.358116248 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Channel 18 (2440MHz), 1-25 GHz Radiated Spurious Emissions

Company: IGEACare Solutions Inc
Model #: Igeacom II (Pull Cord)
Serial #: None
Engineers: Kouma Sinn
Project #: G100357410
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128 09-23-12
PreAmp: PRE145014 12-16-2012.txt
PreAmp Used? (Y or N): Y
Antenna & Cables: LF Bands: N, LF, HF, SHF
Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
Cable(s): 145-416 3mTrkB 10-04-2012.txt NONE.
Location: 10m Chamber Barometer: DAV003 Filter: REA002
Date(s): 09/09/12
Temp/Humidity/Pressure: 21C 72% 1000mbar
Limit Distance (m): 3
Test Distance (m): 3
Voltage/Frequency: Battery powered
Frequency Range: 1-25 GHz

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

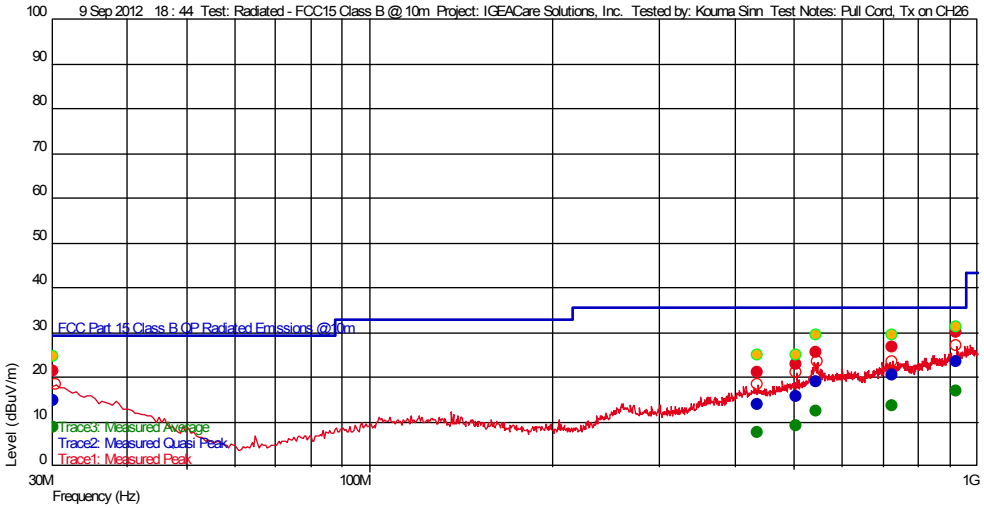
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC
Channel 18 (2440MHz), with pre-amp and filter, 1-18 GHz. EUT: Long side. AVG = Peak - (Average Factor = 25.18dB)													
PK	H	4880.000	45.16	32.97	9.28	34.41	0.00	53.00	74.00	-21.00	1/3MHz	RB	RB
AVG	H	4880.000	19.98	32.97	9.28	34.41	0.00	27.82	54.00	-26.18	1/3MHz	RB	RB
PK	H	7320.000	38.10	36.42	10.97	35.73	0.00	49.75	74.00	-24.25	1/3MHz	RB, NF	RB
AVG	V	7320.000	12.92	36.46	10.97	35.73	0.00	24.62	54.00	-29.38	1/3MHz	RB, NF	RB
PK	V	9760.000	26.40	38.04	13.35	35.35	0.00	42.44	65.98	-23.54	100/300kHz	NF	
PK	V	12200.000	35.40	39.18	14.88	35.45	0.00	54.02	74.00	-19.98	1/3MHz	RB, NF	RB
AVG	V	12200.000	10.22	39.18	14.88	35.45	0.00	28.84	54.00	-25.16	1/3MHz	RB, NF	RB
PK	V	14640.000	23.57	41.60	15.25	34.87	0.00	45.55	65.98	-20.43	100/300kHz	NF	
PK	V	17080.000	22.21	40.72	18.66	37.60	0.00	43.99	65.98	-21.99	100/300kHz	NF	
Channel 18 (2440MHz), with pre-amp and filter, 1-18 GHz. EUT: Short side													
PK	V	4880.000	44.70	33.13	9.28	34.41	0.00	52.70	74.00	-21.30	1/3MHz	RB	RB
AVG	V	4880.000	19.52	33.13	9.28	34.41	0.00	27.52	54.00	-26.48	1/3MHz	RB	RB
No emissions were detected beyong 4880MHz													
Channel 18 (2440MHz), with pre-amp and filter, 1-18 GHz. EUT: Flat													
PK	H	4880.000	45.65	32.97	9.28	34.41	0.00	53.49	74.00	-20.51	1/3MHz	RB	RB
AVG	H	4880.000	20.47	32.97	9.28	34.41	0.00	28.31	54.00	-25.69	1/3MHz	RB	RB
No emissions were detected beyong 4880MHz													
Hand scanned from 18-25GHz, no emissions were detected. Equipment used: ROS001, CBL030, EMC04													

Channel 26 (2480MHz), 30-1000 MHz Radiated Spurious Emissions

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	IGEACare Solutions, Inc.	
Test Notes:	Pull Cord, Tx on CH26	
Temperature:	22C	
Humidity:	65%, 998mbar	
Tested by:	Kouma Sinn	
Test Started:	9 Sep 2012 18 : 44	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable

- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace1: Measured Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
435.894789433 M	21.17	17.082	-23.922	--	--	--	146	3.69	120 k	
505.190781441 M	22.82	18.200	-24.006	--	--	|	360	2.21	120 k	
545.254708954 M	25.65	21.664	-23.974	--	--	--	38	1.55	120 k	
726.059519447 M	26.85	21.936	-23.550	--	--	|	332	4.00	120 k	
30.169338733 M	21.49	18.981	-26.114	--	--	|	198	1.86	120 k	
926.586774018 M	30.14	23.959	-22.553	--	--	|	64	2.24	120 k	

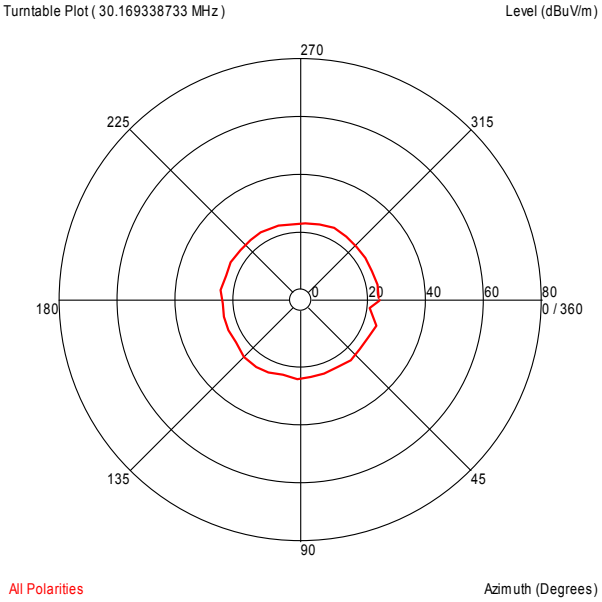
Trace2: Measured Quasi Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
435.894789433 M	13.99	17.082	-23.922	35.540	-21.55	--	146	3.69	120 k	
505.190781441 M	15.78	18.200	-24.006	35.540	-19.76	|	360	2.21	120 k	
545.254708954 M	19.03	21.664	-23.974	35.540	-16.51	--	38	1.55	120 k	
726.059519447 M	20.44	21.936	-23.550	35.540	-15.10	|	332	4.00	120 k	
30.169338733 M	14.69	18.981	-26.114	29.540	-14.85	|	198	1.86	120 k	
926.586774018 M	23.57	23.959	-22.553	35.540	-11.97	|	64	2.24	120 k	

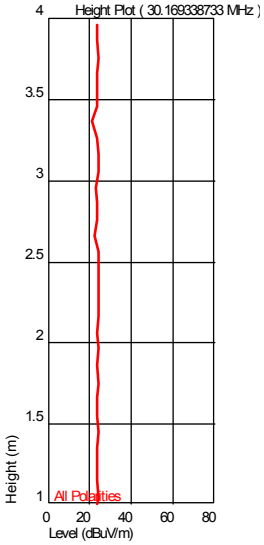
Trace3: Measured Average

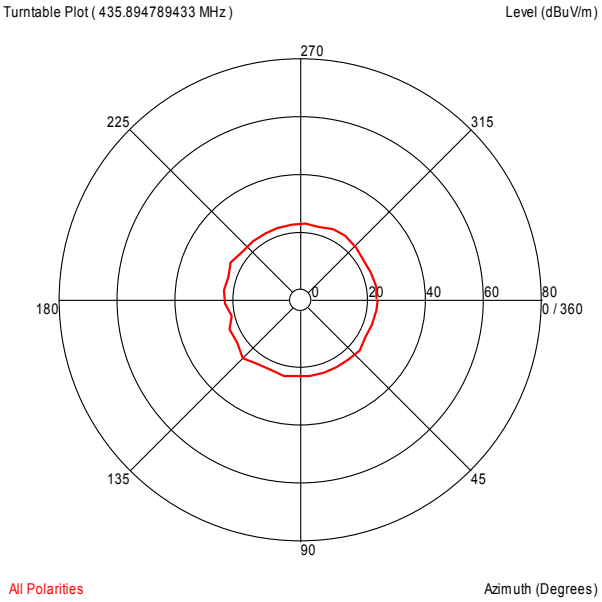
Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
435.894789433 M	7.70	17.082	-23.922	--	--	--	146	3.69	120 k	
30.169338733 M	8.67	18.981	-26.114	--	--	|	198	1.86	120 k	
505.190781441 M	9.00	18.200	-24.006	--	--	|	360	2.21	120 k	
545.254708954 M	12.50	21.664	-23.974	--	--	--	38	1.55	120 k	
726.059519447 M	13.70	21.936	-23.550	--	--	|	332	4.00	120 k	
926.586774018 M	16.97	23.959	-22.553	--	--	|	64	2.24	120 k	

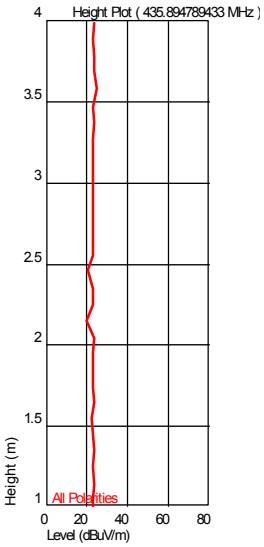
Azimuth Plots

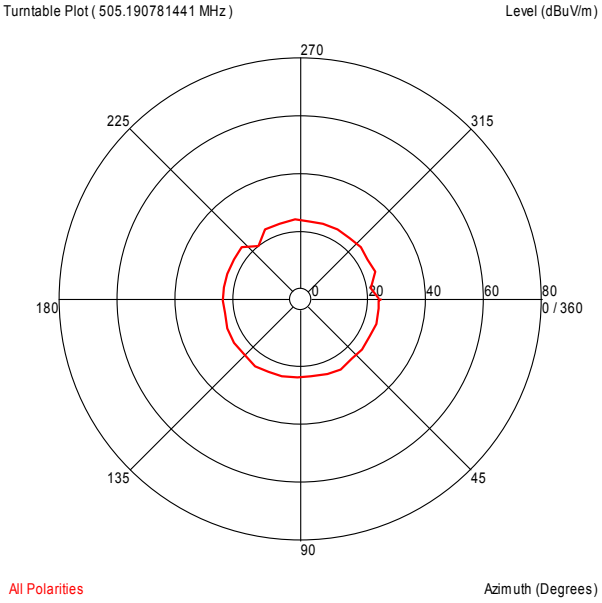


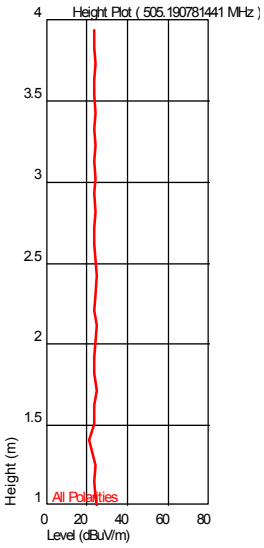
Turntable Plots

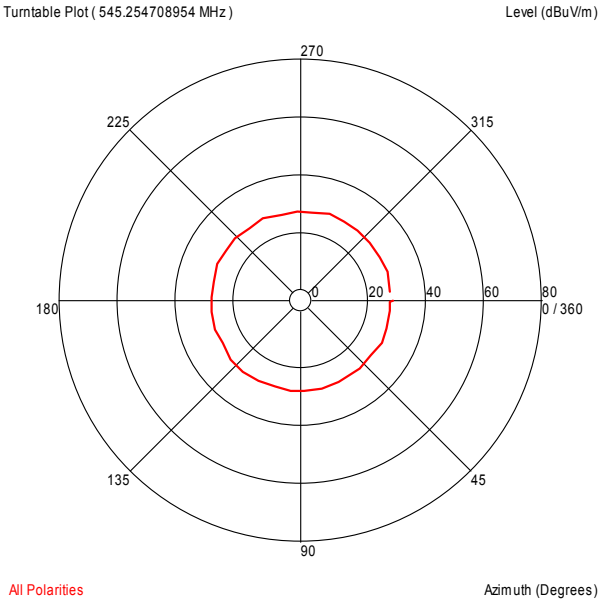


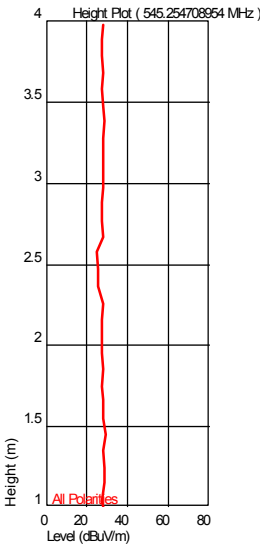


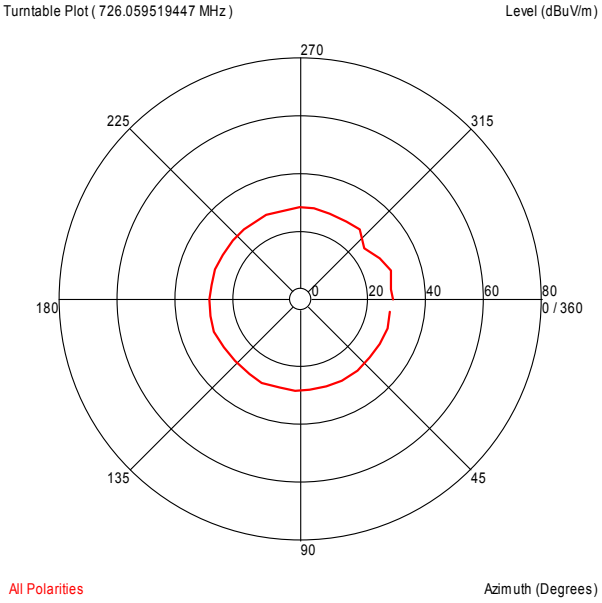


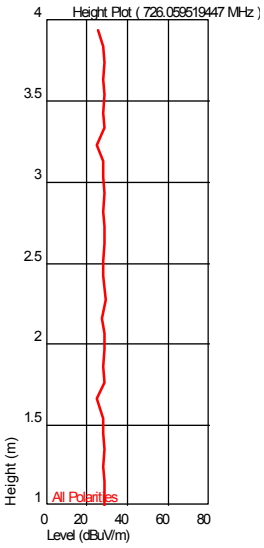

Turntable Plot (505.190781441 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

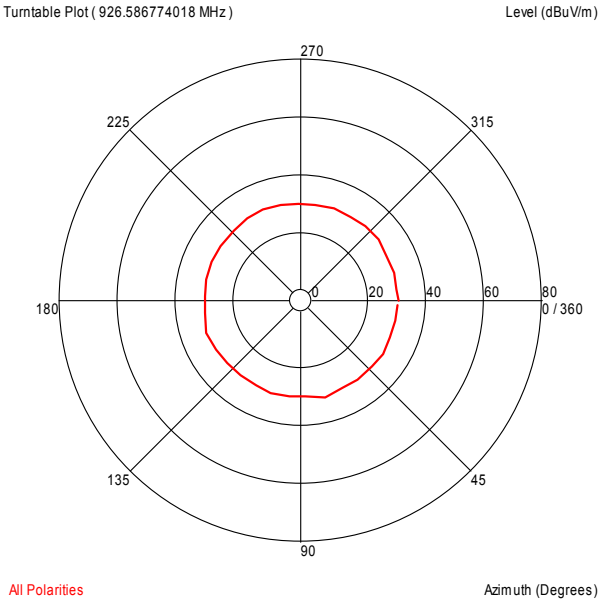

Height Plot (505.190781441 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

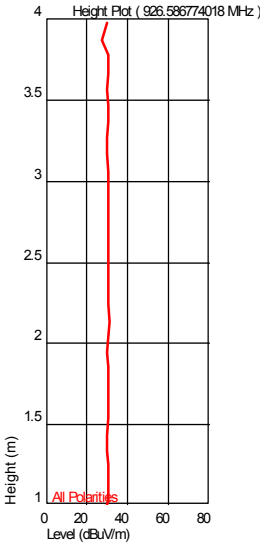

Turntable Plot (545.254708954 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (545.254708954 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (726.059519447 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (726.059519447 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)


Turntable Plot (926.586774018 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (926.586774018 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Channel 26 (2480MHz), 1-25 GHz Radiated Spurious Emissions

Company: IGEACare Solutions Inc
Model #: Igeacom II (Pull Cord)
Serial #: None
Engineers: Kouma Sinn
Project #: G100357410 Date(s): 09/09/12
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128 09-23-12
PreAmp: PRE145014 12-16-2012.txt
Antenna & Cables: LF Bands: N, LF, HF, SHF
Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
Cable(s): 145-416 3mTrkB 10-04-2012.txt NONE.
Location: 10m Chamber Barometer: DAV003 Filter: REA002
Temp/Humidity/Pressure: 21C 72% 1000mbar
Limit Distance (m): 3
Test Distance (m): 3
PreAmp Used? (Y or N): Y Voltage/Frequency: Battery powered Frequency Range: See below
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	FCC	IC
Channel 26 (2480MHz), with pre-amp and filter, 1-18 GHz. EUT: Flat													
PK	H	4960.000	44.56	33.15	9.41	34.25	0.00	52.87	74.00	-21.13	1/3MHz	RB	RB
AVG	H	4960.000	19.38	33.15	9.41	34.25	0.00	27.69	54.00	-26.31	1/3MHz	RB	RB
PK	H	7440.000	37.35	36.50	11.10	35.81	0.00	49.14	74.00	-24.86	1/3MHz	RB, NF	RB
AVG	H	7440.000	12.17	36.50	11.10	35.81	0.00	23.96	54.00	-30.04	1/3MHz	RB, NF	RB
PK	V	9920.000	28.12	38.27	13.57	34.78	0.00	45.17	66.62	-21.45	100/300kHz	NF	
PK	V	12400.000	34.88	38.98	14.79	35.52	0.00	53.13	74.00	-20.87	1/3MHz	RB, NF	RB
AVG	V	12400.000	9.70	38.98	14.79	35.52	0.00	18.25	54.00	-35.75	1/3MHz	RB, NF	RB
PK	V	14880.000	24.58	40.37	15.75	35.32	0.00	45.38	66.62	-21.24	100/300kHz	NF	
PK	V	17360.000	21.79	42.09	23.22	36.91	0.00	50.19	66.62	-16.43	100/300kHz	NF	
Channel 26 (2480MHz), with pre-amp and filter, 1-18 GHz. EUT: Long side													
PK	H	4960.000	44.47	33.15	9.41	34.25	0.00	52.78	74.00	-21.22	1/3MHz	RB	RB
AVG	H	4960.000	19.29	33.15	9.41	34.25	0.00	8.31	54.00	-45.69	1/3MHz	RB	RB
No emissions were detected beyond 4960MHz													
Channel 26 (2480MHz), with pre-amp and filter, 1-18 GHz. EUT: Short side													
PK	H	4960.000	43.39	33.15	9.41	34.25	0.00	51.70	74.00	-22.30	1/3MHz	RB	RB
AVG	H	4960.000	18.21	33.15	9.41	34.25	0.00	8.31	54.00	-45.69	1/3MHz	RB	RB
No emissions were detected beyond 4960MHz													
Hand scanned from 18-25GHz, no emissions were detected. Equipment used: ROS001, CBL030, EMC04													

Test Personnel: Kouma Sinn KPS
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15 Subpart C 15.247 IC RSS-247
Input Voltage: Fresh 3.0V Battery
Pretest Verification w/ Ambient Signals or BB Source: **Ambient**

Test Date: 09/09/2012
Test Levels: See data table
Ambient Temperature: 22 ºC
Relative Humidity: 65 %
Atmospheric Pressure: 998 mbars

Deviations, Additions, or Exclusions: None

8 6 dB Bandwidth & 99% Power Bandwidth

8.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C Section 15.247, *KDB 558074*, ANSI C63.10, and RSS-247.

TEST SITE: 10m ALSE Control Room

8.2 Test Equipment Used:

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

Software Utilized:

Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

8.3 Results:

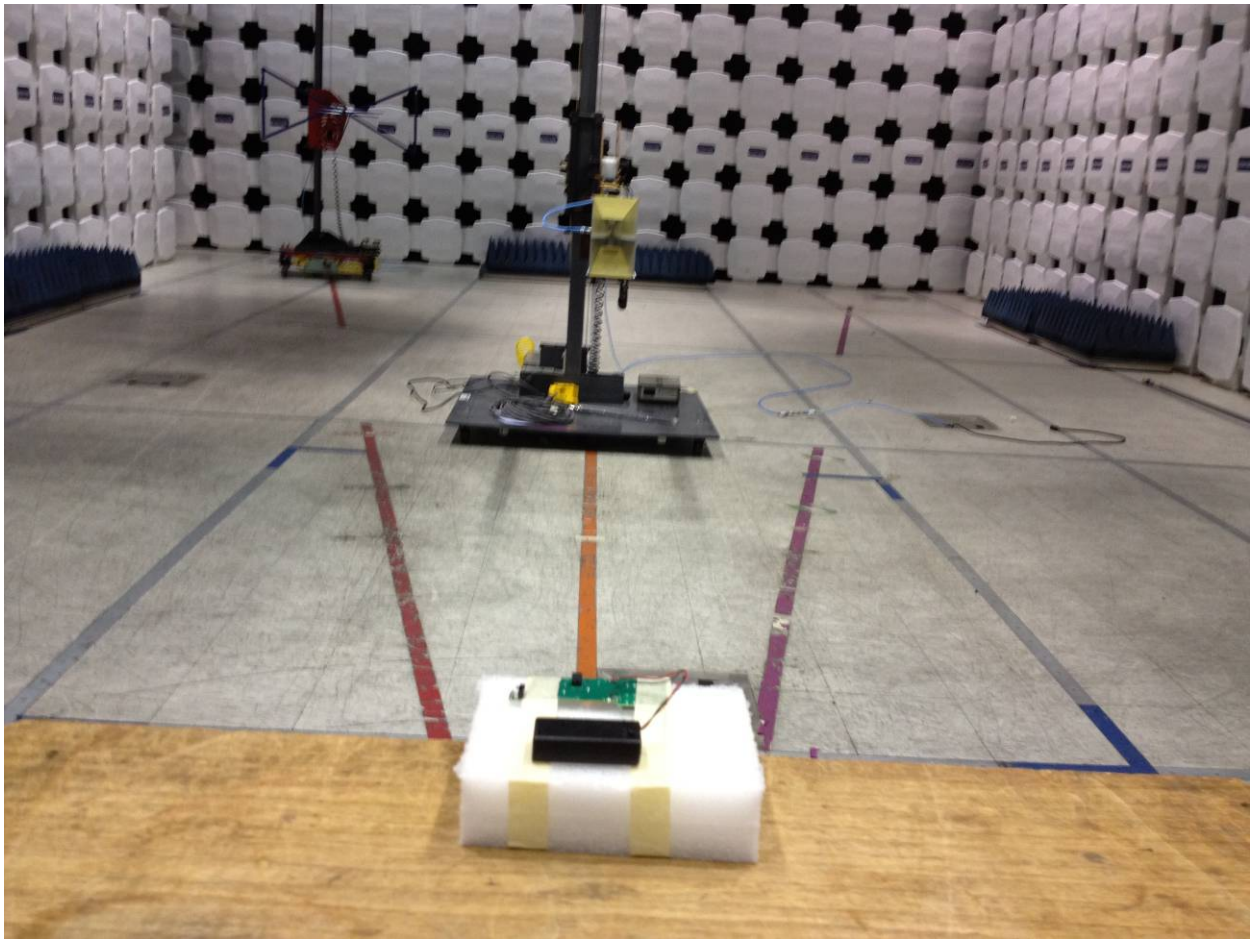
The sample tested was found to Comply. The 99% power bandwidth, or 6 dB bandwidth, must not be less than 500 kHz.

Channels	6 dB Bandwidth	99% Power Bandwidth
Channel 11 (2405 MHz)	1.623 MHz	3.287 MHz
Channel 18 (2440 MHz)	1.628 MHz	3.732 MHz
Channel 26 (2480 MHz)	1.628 MHz	3.532 MHz

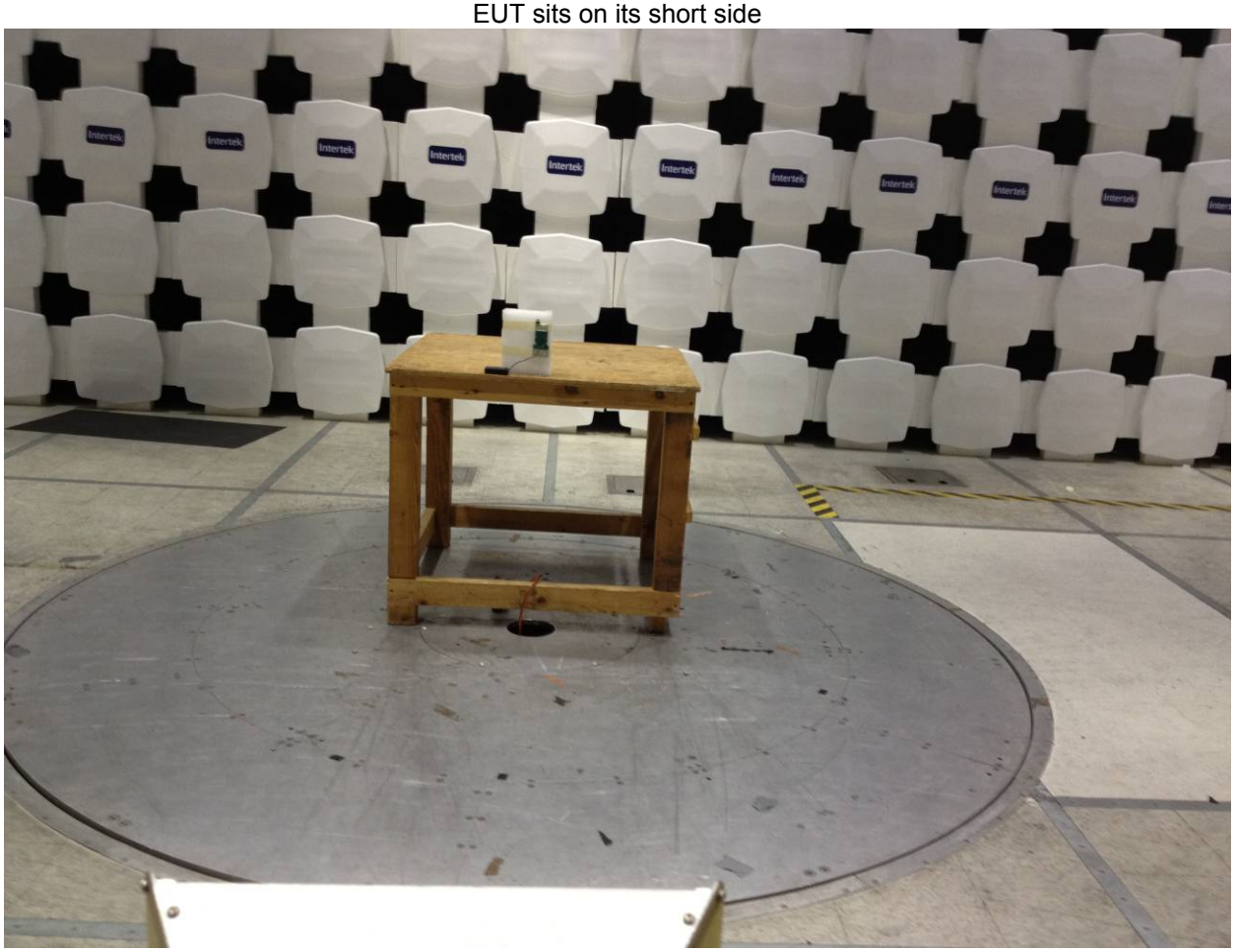
Plots were taken using an RBW of ~1-5% of the measured emission bandwidth, per KDB 558074 and IC RSS-Gen Section 4.6.2.

8.4 Photographs:

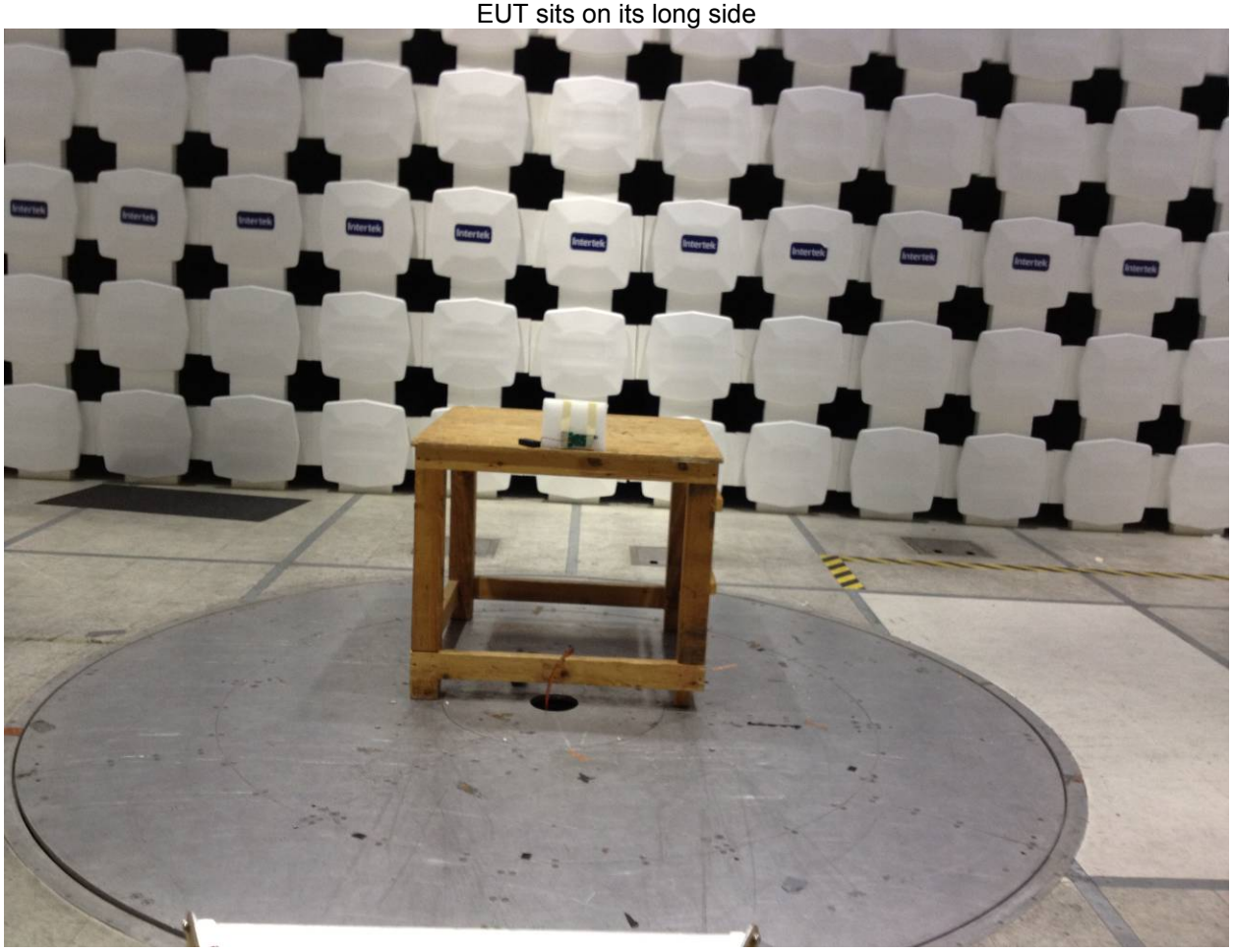
EUT sits flat



EUT sits on its short side

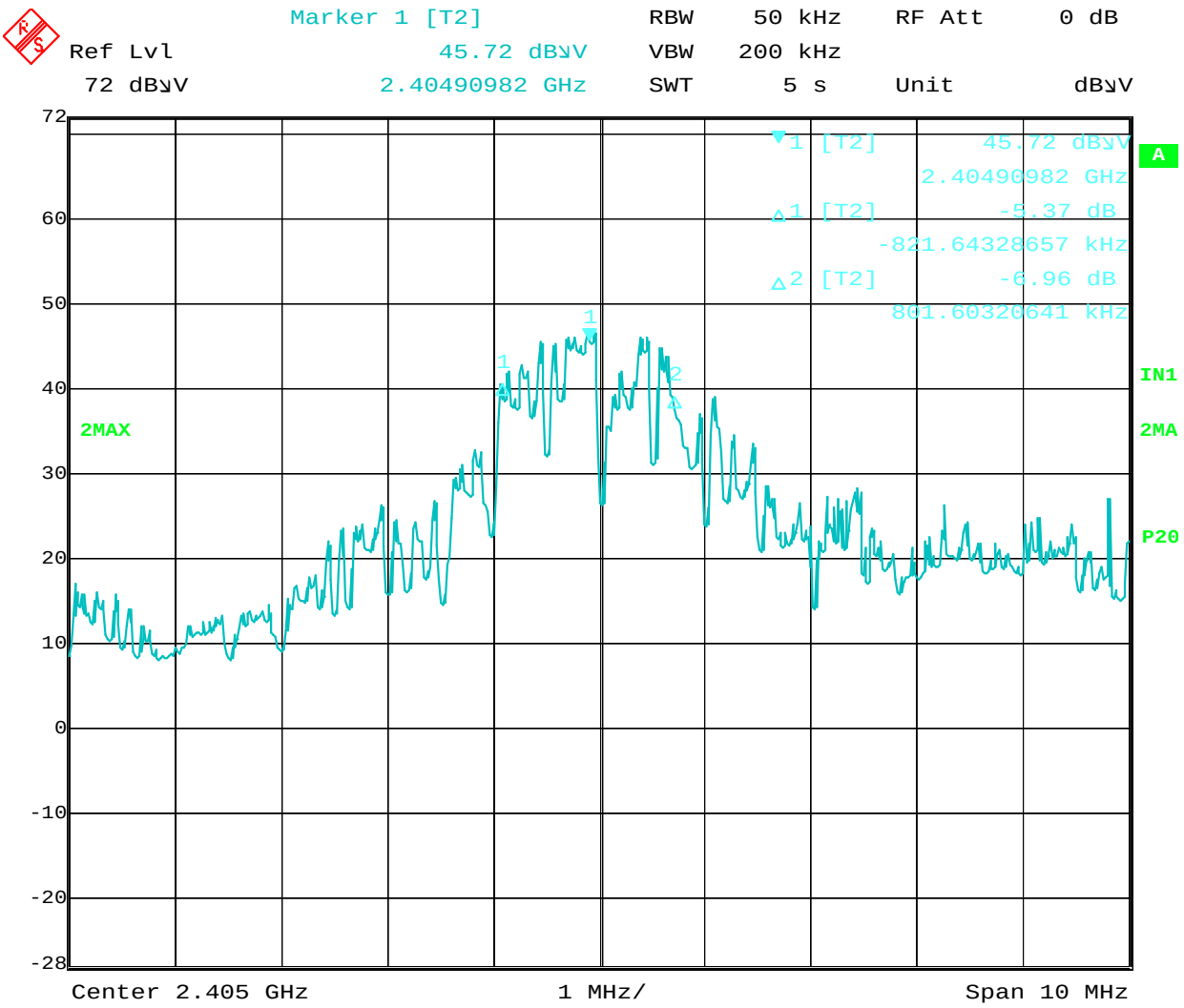


EUT sits on its long side

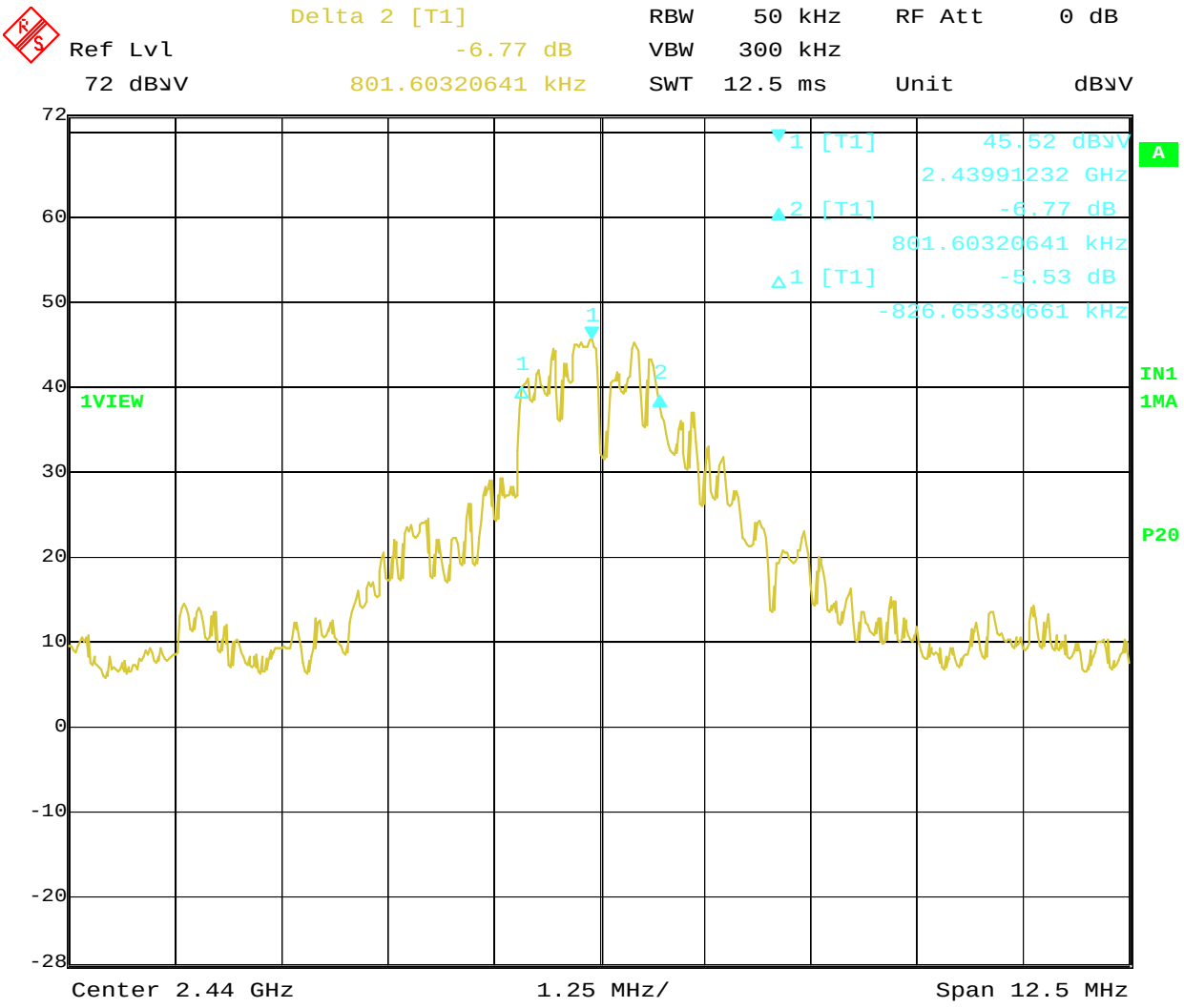


8.5 Plots/Data:

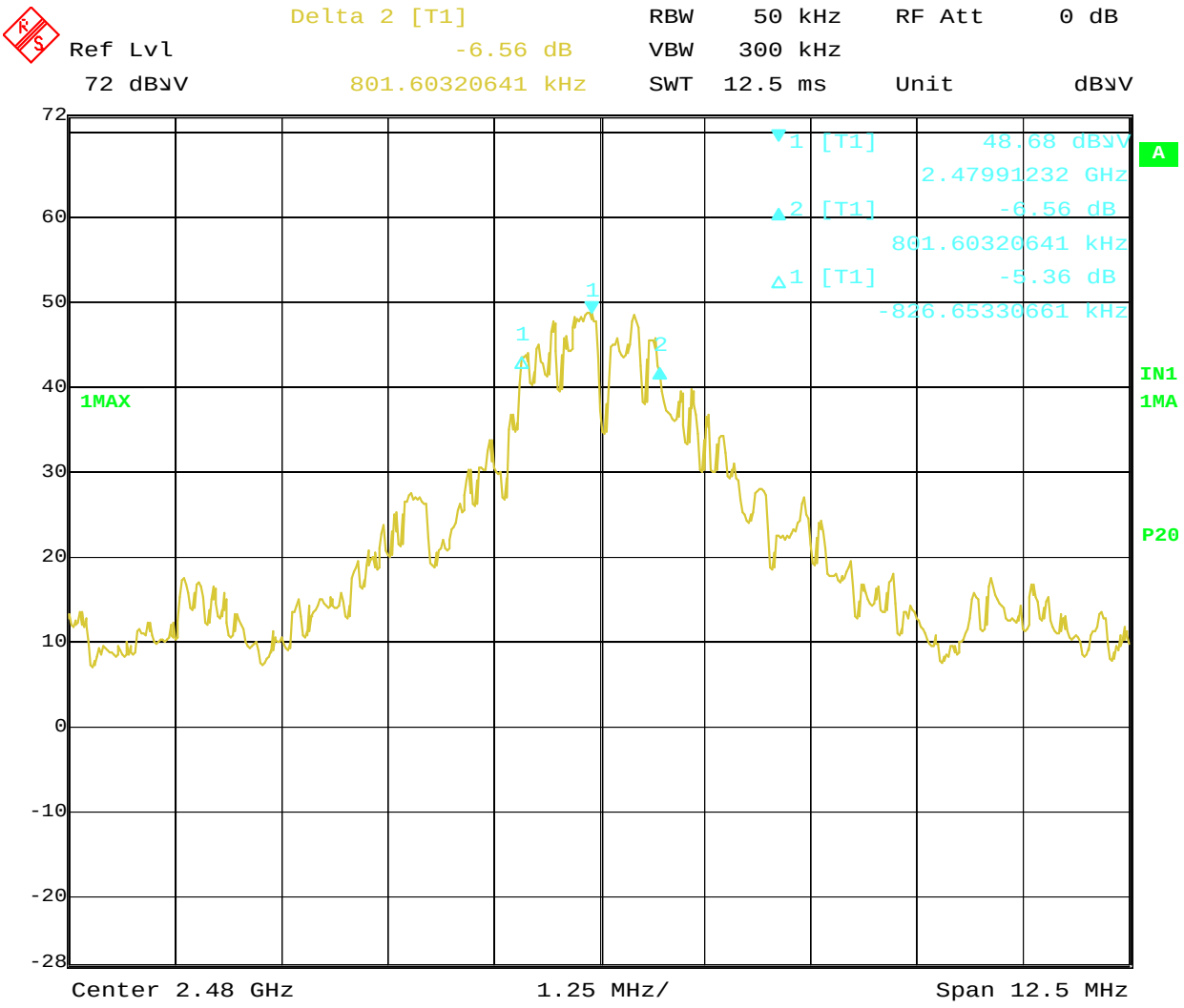
Channel 11 (2405 MHz) 6 dB Bandwidth, 1.623 MHz



Channel 18 (2440 MHz) 6 dB Bandwidth, 1.638 MHz

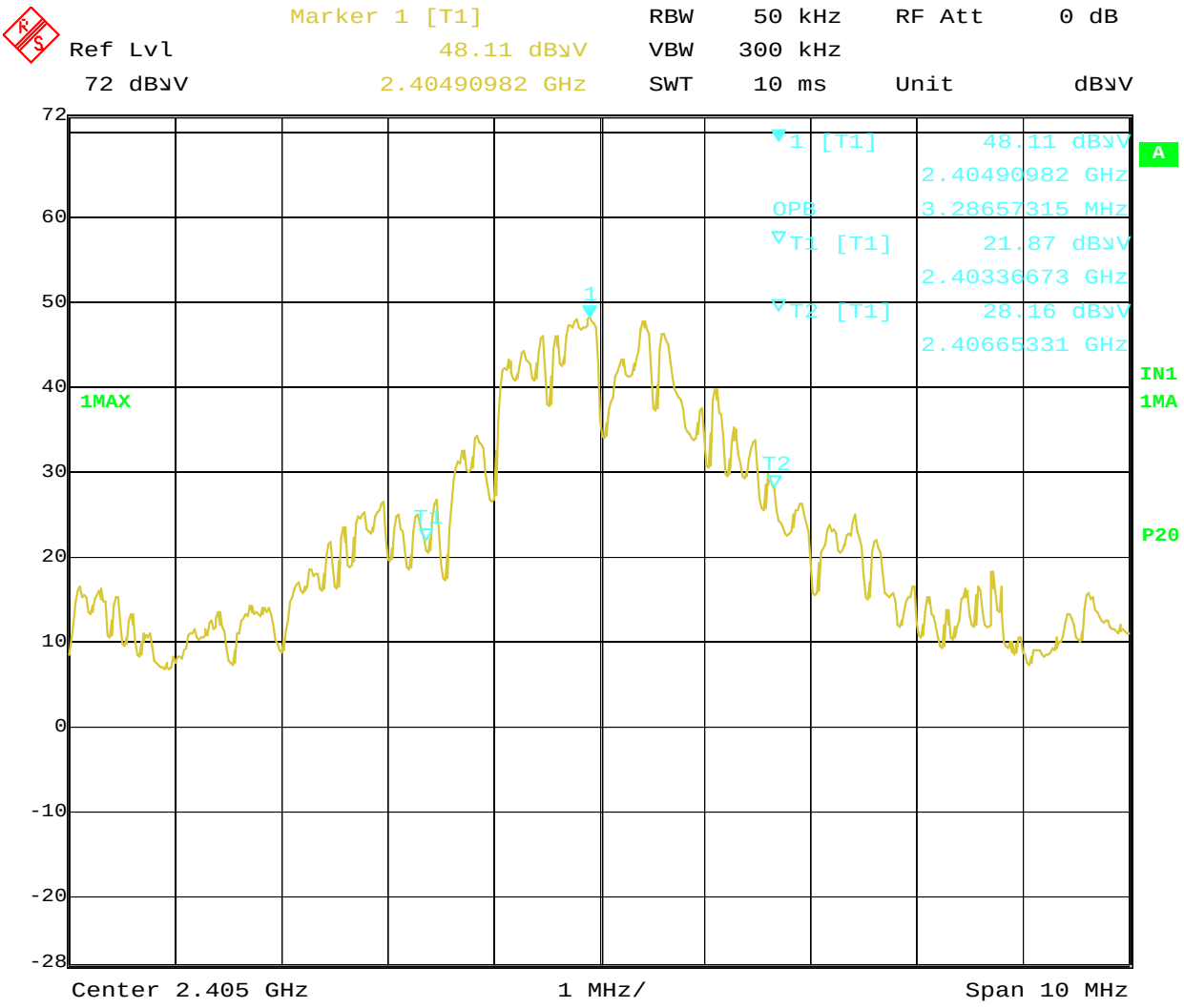


Channel 26 (2480 MHz) 6 dB Bandwidth, 1.628 MHz

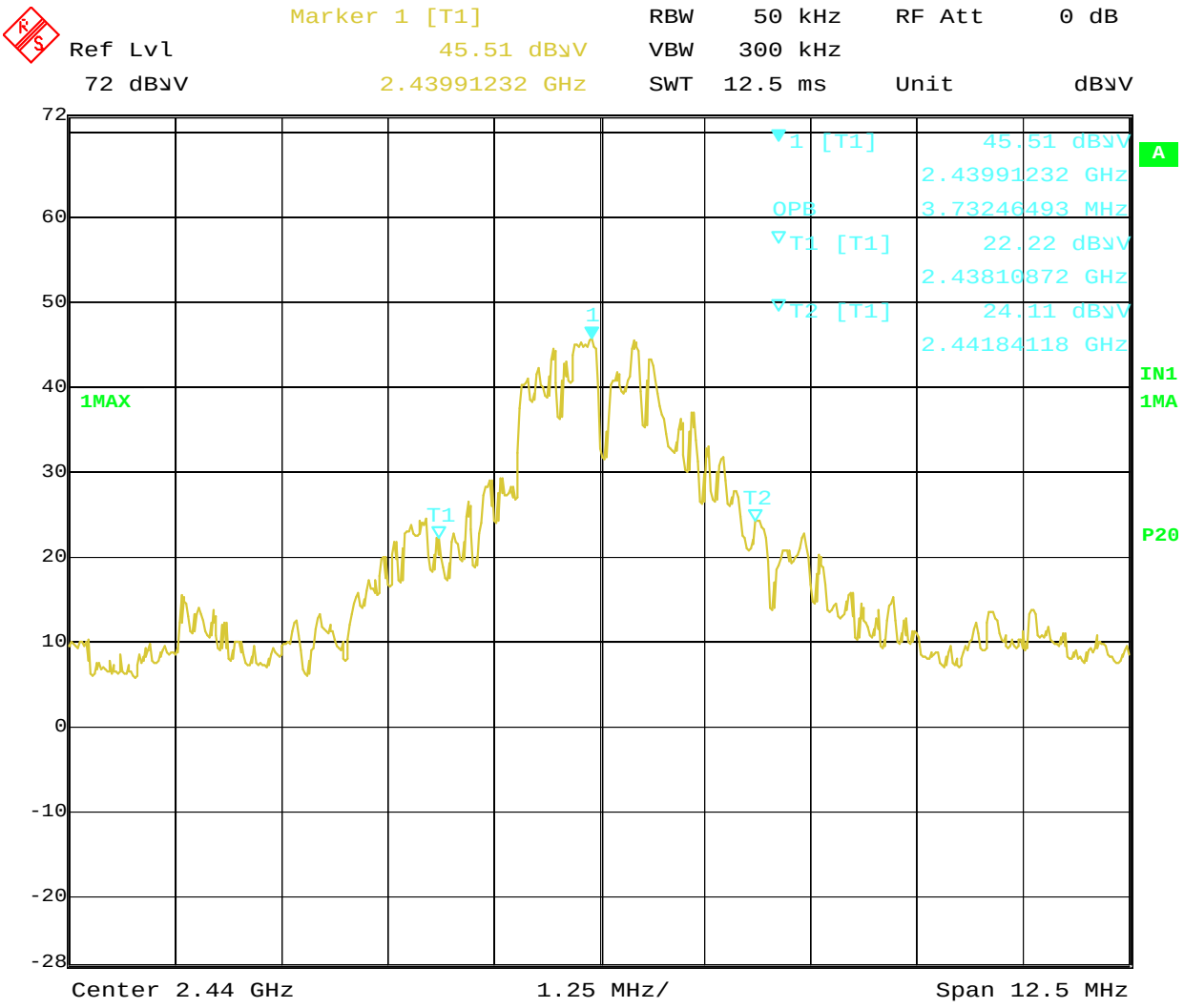


Date: 9.SEP.2012 14:43:59

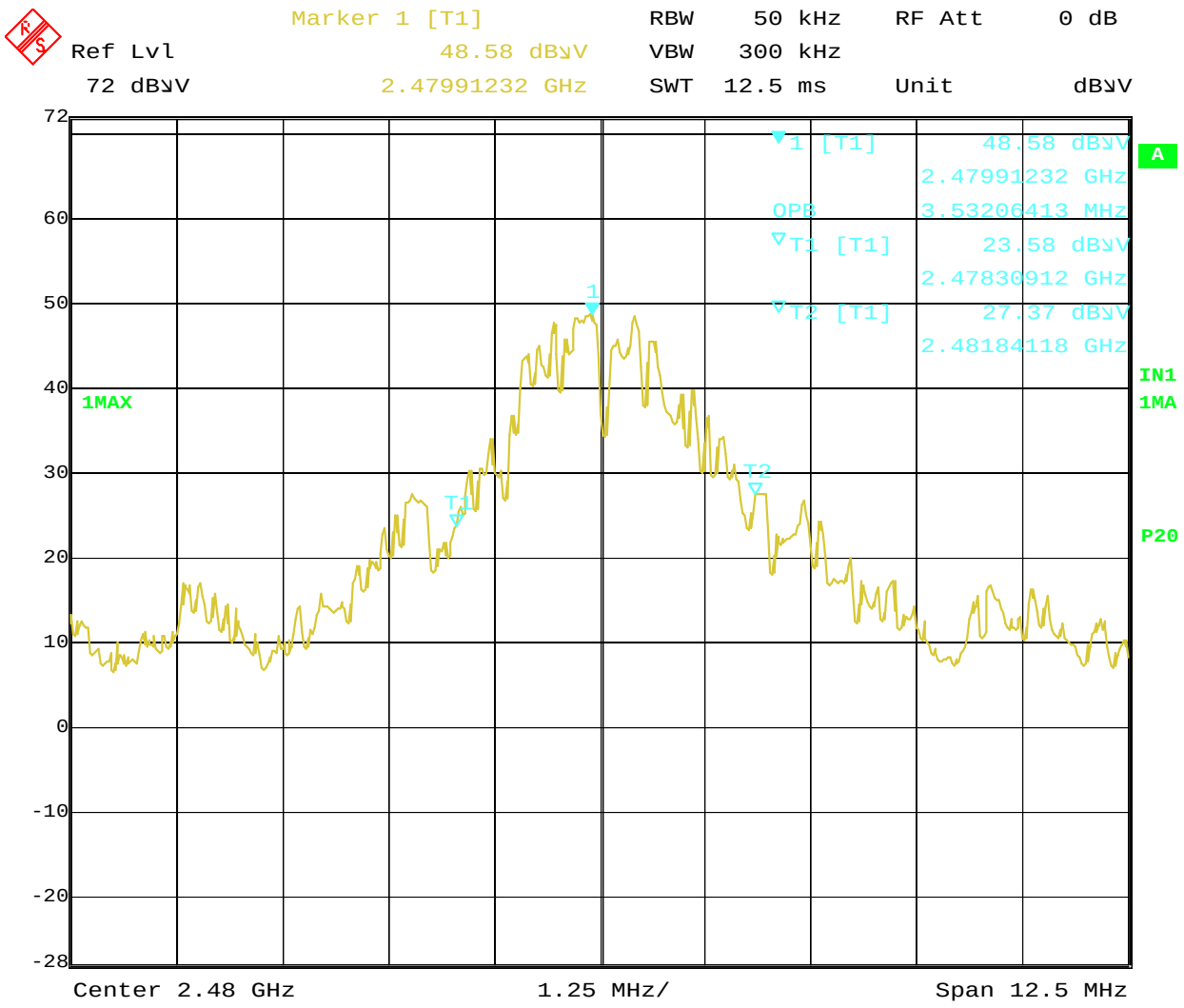
Channel 11 (2405 MHz) 99% Power Bandwidth, 3.287 MHz



Channel 18 (2440 MHz) 99% Power Bandwidth, 3.732 MHz



Channel 26 (2480 MHz) 99% Power Bandwidth, 3.532 MHz



Test Personnel:	Vathana F. Ven VFV	Test Date:	08/24/2012
Test Personnel:	Kouma Sinn KPS	Test Date:	09/09/2012
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15 Subpart C 15.247 IC RSS-247	Test Levels:	See section 8.3
Input Voltage:	Fresh 3VDC Battery	Ambient Temperature:	21, 22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	**Ambient**	Relative Humidity:	64, 65 %
		Atmospheric Pressure:	1011, 998 mbars

Deviations, Additions, or Exclusions: None

9 Power Spectral Density

9.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C Section 15.247, *KDB 558074*, ANSI C63.10, and RSS-247.

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.

9.2 Test Equipment Used:

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

Software Utilized:

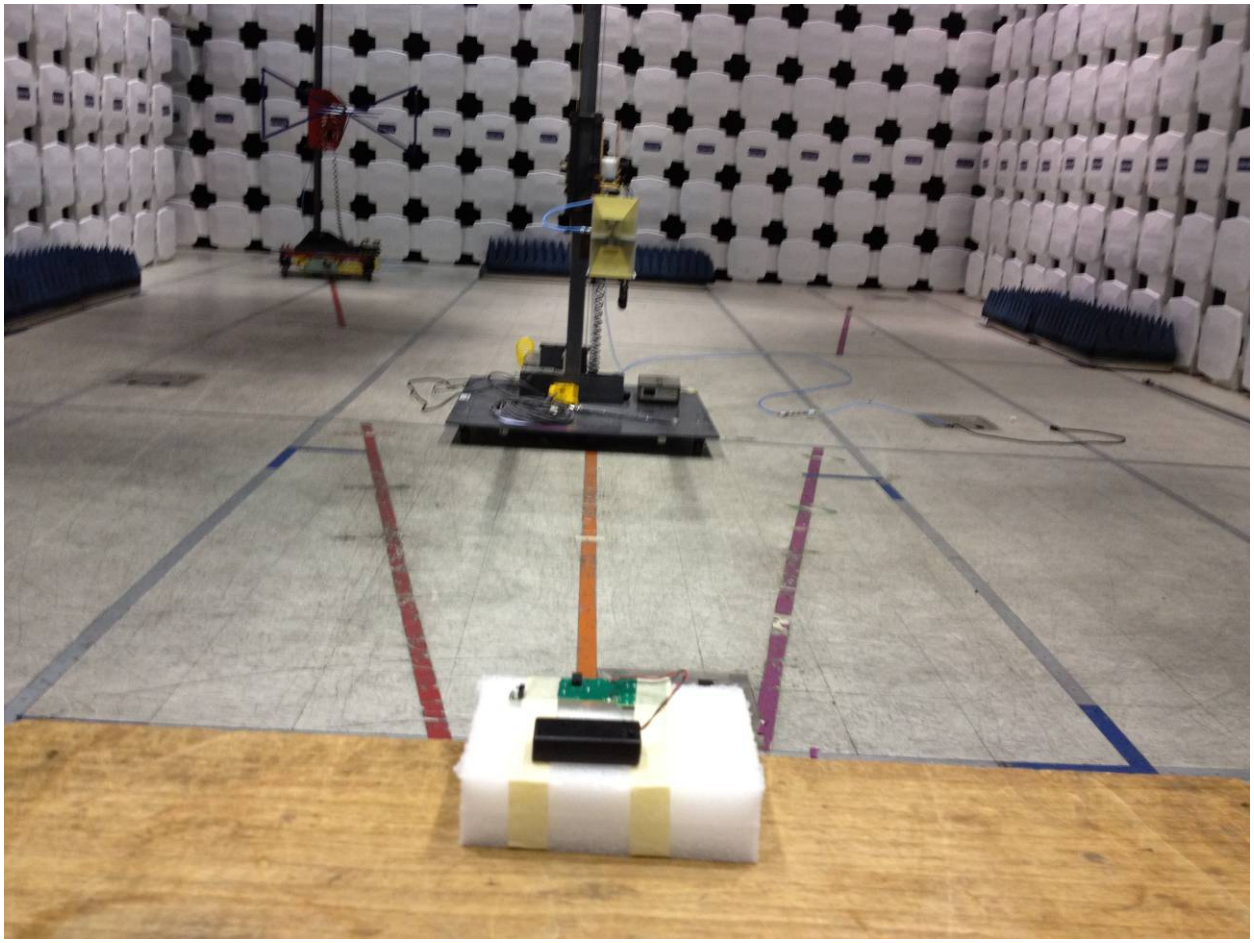
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

9.3 Results:

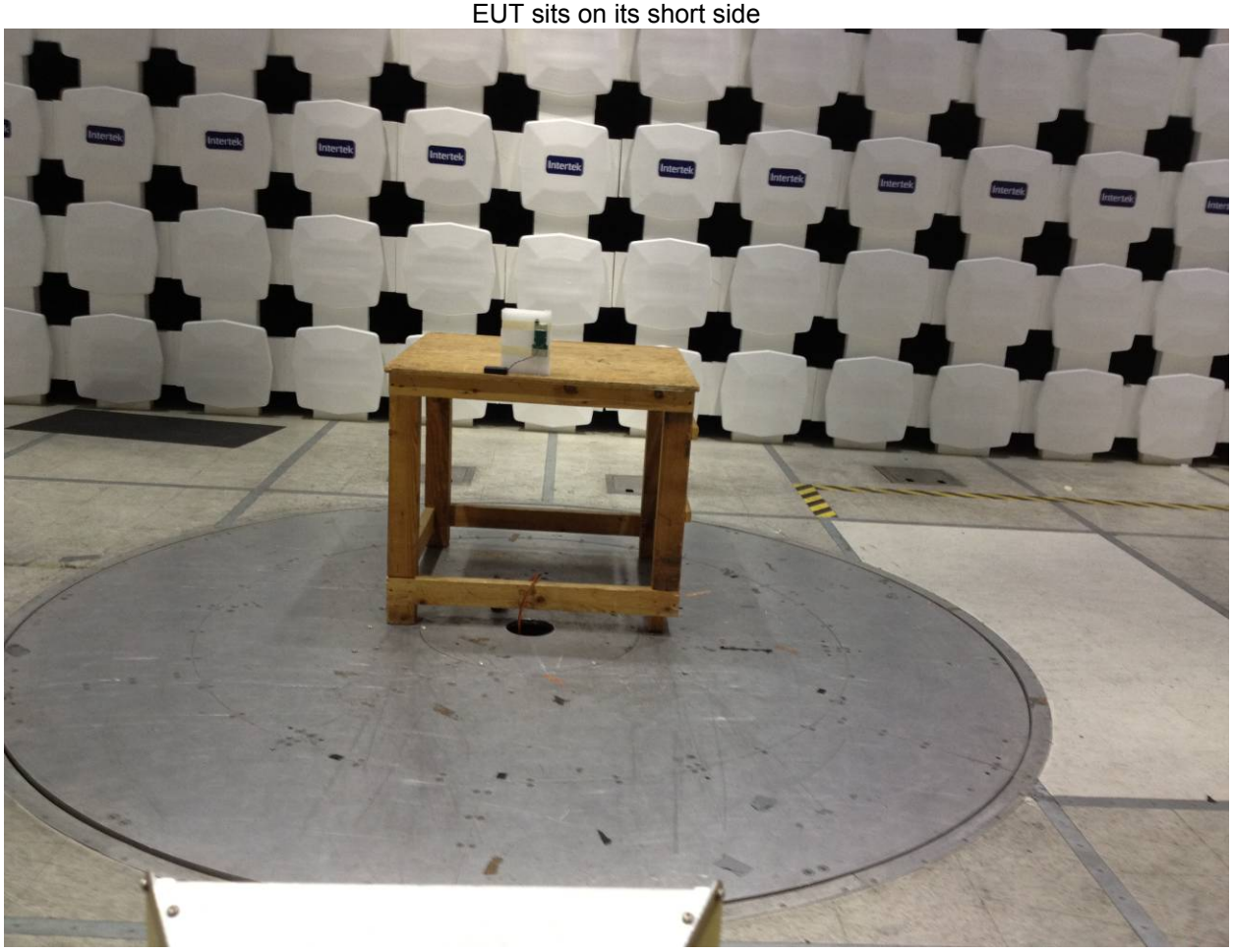
The sample tested was found to Comply. The peak power spectral density must not exceed 8 dBm in any 3 kHz bandwidth using the methods of KDB 558074.

9.4 Setup Photographs:

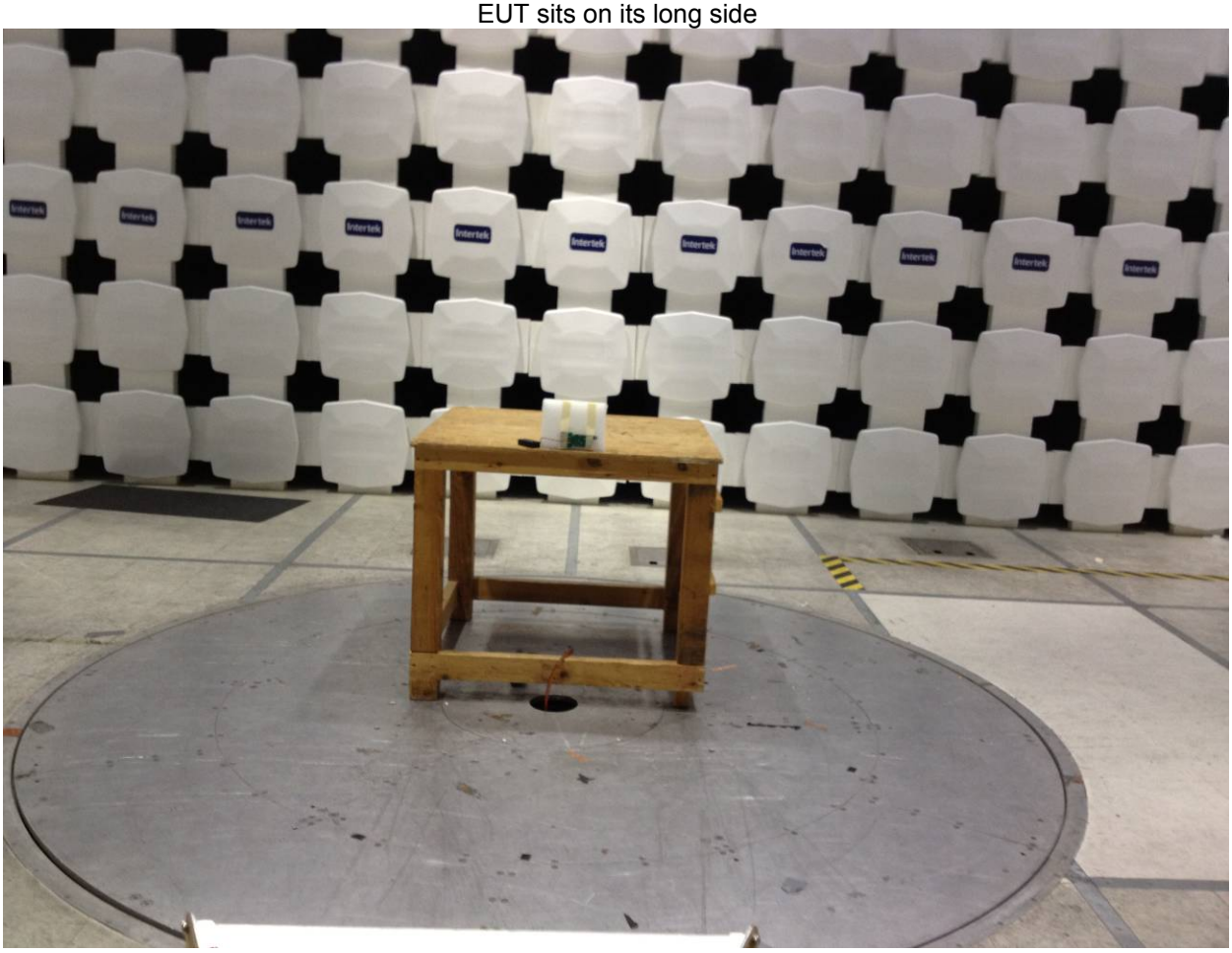
EUT sits flat



EUT sits on its short side



EUT sits on its long side



9.5 Test Data:

Channel 11 Power Spectral Density Radiated Emissions

Company: IGEACare Solutions Inc — Antenna & Cables: SHF — Bands: N, LF, HF, SHF
Model #: Igeacom II Zigbee Wireless Pull Cord — Antenna: HORN2 V3m 10-24-2012.txt — HORN2 H3m 10-24-2012.txt
Serial #: BOX1206041341-011 (Intertek Assigned) — Cable(s): 145-416 3mTrkB 10-04-2012.txt — NONE.
Engineers: Vathana Ven — Location: 10m Chamber — Barometer: DAV003 — Filter: NONE
Project #: G100357410 — Date(s): 08/24/12
Standard: FCC Part 15 Subpart C 15.247 — Temp/Humidity/Pressure: 21C — 64% — 1011mbar
Receiver: R&S ESI (145-128) 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: Battery Powered — 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											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
CH11 - 2405MHz, No pre-amp, Orientation 1 - EUT is flat											
PK	H	2405.000	42.43	28.33	5.93	0.00	0.00	-18.53	8.00	-26.53	3/10kHz
CH11 - 2405MHz, No pre-amp, Orientation 2 - EUT on its long side											
PK	V	2405.000	44.64	28.55	5.93	0.00	0.00	-16.10	8.00	-24.10	3/10kHz
CH11 - 2405MHz, No pre-amp, Orientation 3 - EUT on its short side											
PK	H	2405.000	39.46	28.33	5.93	0.00	0.00	-21.50	8.00	-29.50	3/10kHz

Channel 18 and 26 Power Spectral Density Radiated Emissions

Company: IGEACare Solutions Inc
Model #: Igeacom II (Pull Cord)
Serial #: BOX1206041341-011 (Intertek Assigned)
Engineers: Kouma Sinn
Project #: G100357410
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128 09-23-12
PreAmp: PRE145014 12-16-2012.txt
PreAmp Used? (Y or N): N

Antenna & Cables: LF Bands: N, LF, HF, SHF
Antenna: HORN2 V3m 10-24-2012.txt HORN2 H3m 10-24-2012.txt
Cable(s): 145-416 3mTrkB 10-04-2012.txt NONE.
Location: 10m Chamber Barometer: DAV003 Filter: NONE
Date(s): 09/09/12
Temp/Humidity/Pressure: 21C 72% 1000mbar
Limit Distance (m): 3
Test Distance (m): 3
Voltage/Frequency: Battery Powered Frequency Range: See below

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: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
Channel 18 (2440MHz), no pre-amp. EUT: Flat											
PK	H	2440.000	44.14	28.43	5.98	0.00	0.00	-16.67	8.00	-24.67	3/10kHz
Channel 18 (2440MHz), no pre-amp. EUT: Long side											
PK	V	2440.000	45.52	28.60	5.98	0.00	0.00	-15.12	8.00	-23.12	3/10kHz
Channel 18 (2440MHz), no pre-amp. EUT: Short side											
PK	H	2440.000	43.71	28.43	5.98	0.00	0.00	-17.10	8.00	-25.10	3/10kHz
Channel 26 (2480MHz), no pre-amp. EUT: Flat											
PK	H	2480.000	46.27	28.54	6.03	0.00	0.00	-14.37	8.00	-22.37	3/10kHz
Channel 26 (2480MHz), no pre-amp. EUT: Long side											
PK	V	2480.000	44.51	28.67	6.03	0.00	0.00	-16.01	8.00	-24.01	3/10kHz
Channel 26 (2480MHz), no pre-amp. EUT: Short side											
PK	H	2480.000	44.24	28.54	6.03	0.00	0.00	-16.40	8.00	-24.40	3/10kHz

Test Personnel: Vathana F. Ven VFV Test Date: 08/24/2012
Test Personnel: Kouma Sinn KPS Test Date: 09/09/2012
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15 Subpart C 15.247 IC RSS-247
Input Voltage: Fresh 3VDC Battery
Pretest Verification w/ Ambient Signals or BB Source: **Ambient**
Test Levels: See data table
Ambient Temperature: 21, 21 ºC
Relative Humidity: 64, 72 %
Atmospheric Pressure: 1011, 1000 mbars

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, *KDB 558074*, ANSI C63.10, and RSS-247.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

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

10.2 Test Equipment Used:

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

Software Utilized:

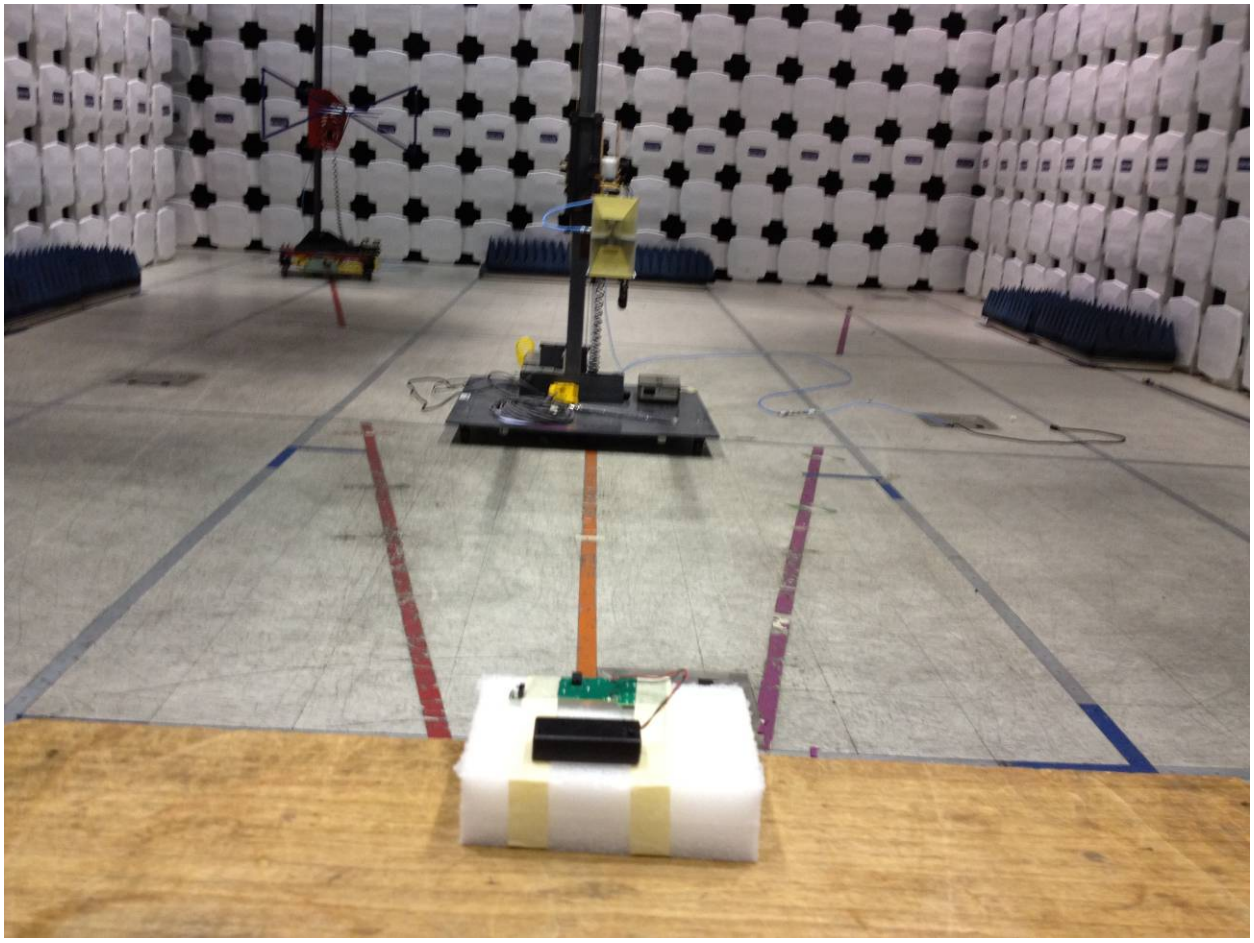
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

10.3 Results:

The sample tested was found to Comply.

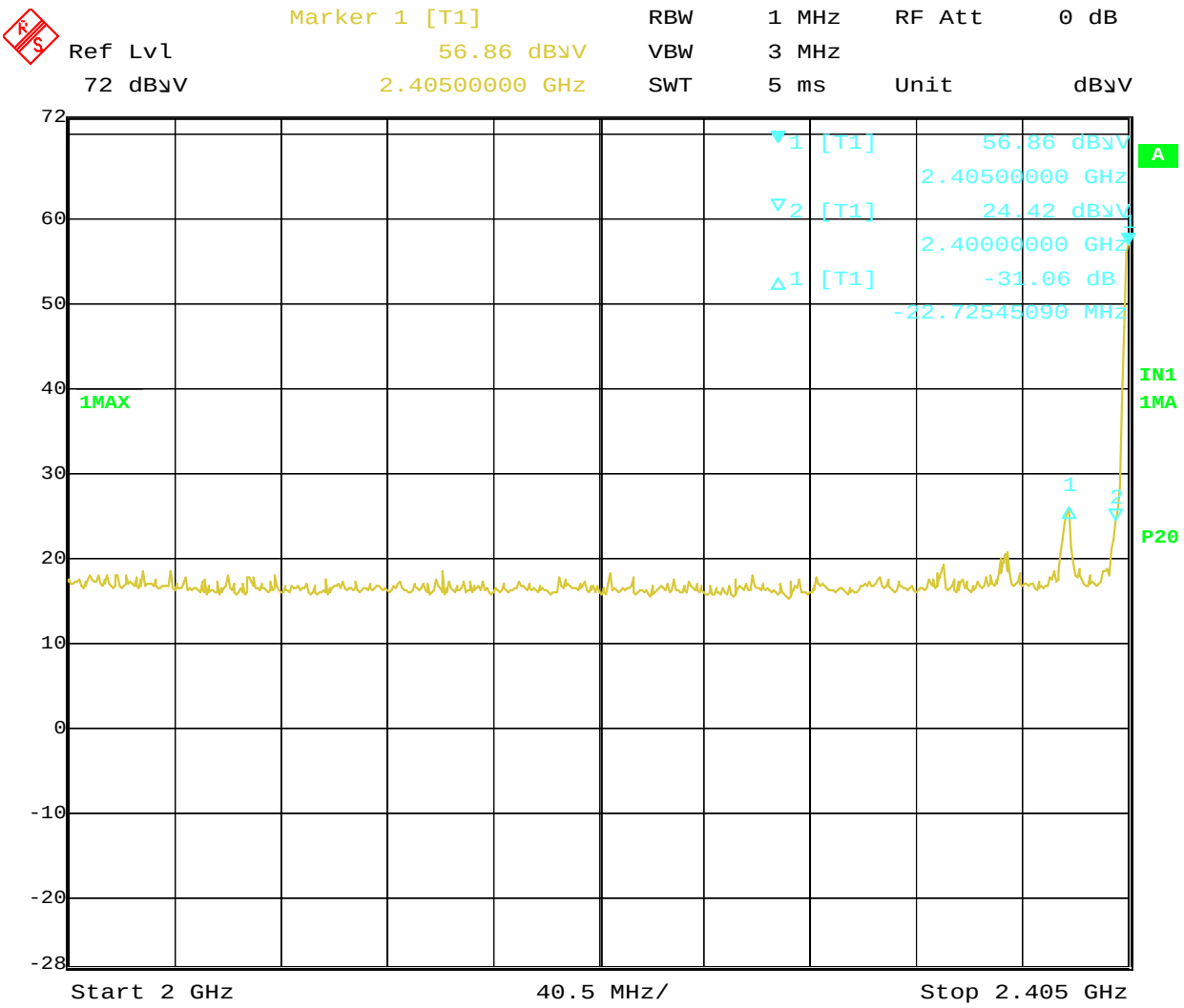
Spurious emissions at the band edges must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth, without the need to be below the general limits of FCC Part 15 Section 15.209 and of RSS-Gen 7.2.5 Table 5. Emissions in restricted bands must meet the general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

10.4 Setup Photograph:

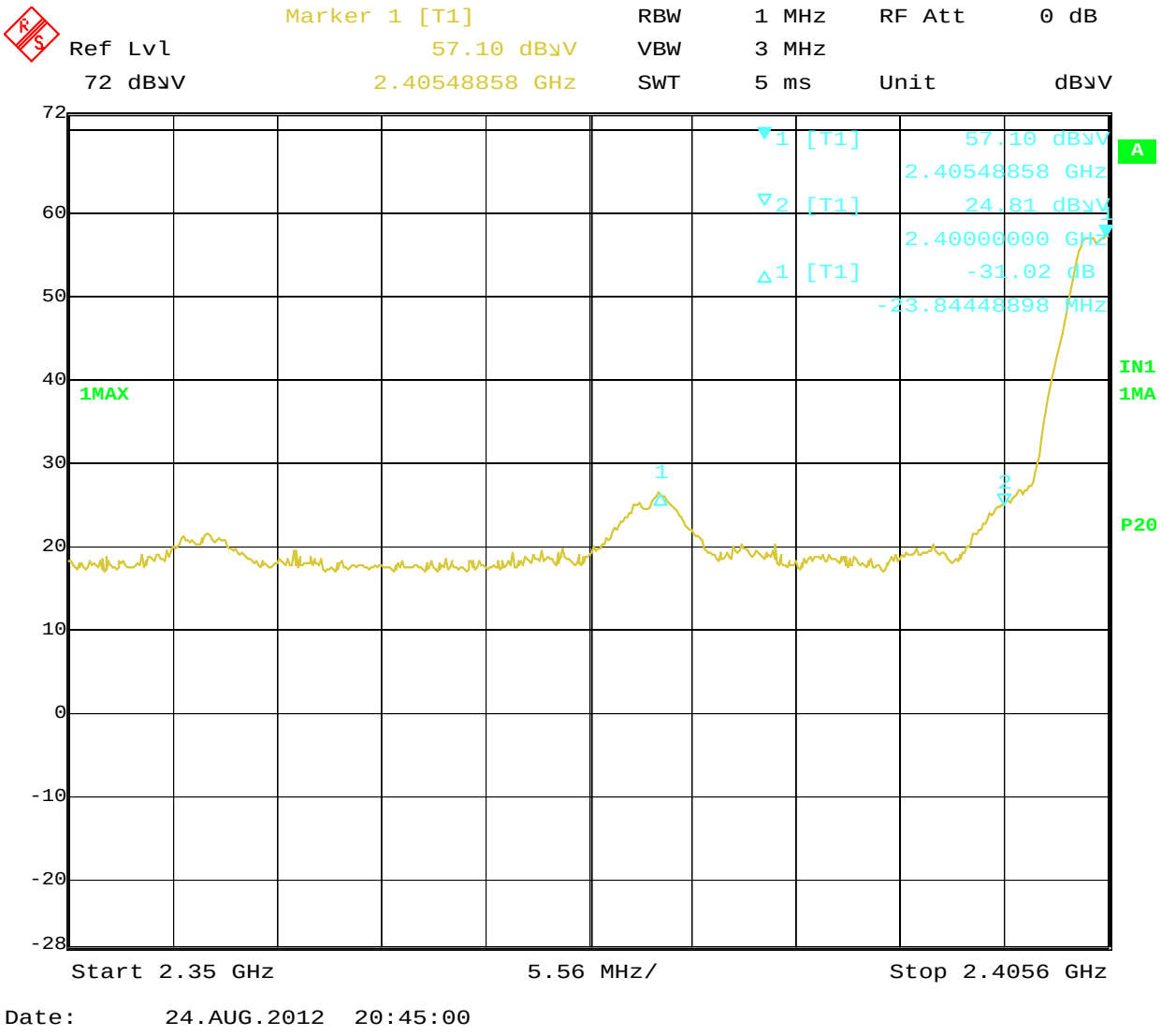


10.5 Plots/Data:

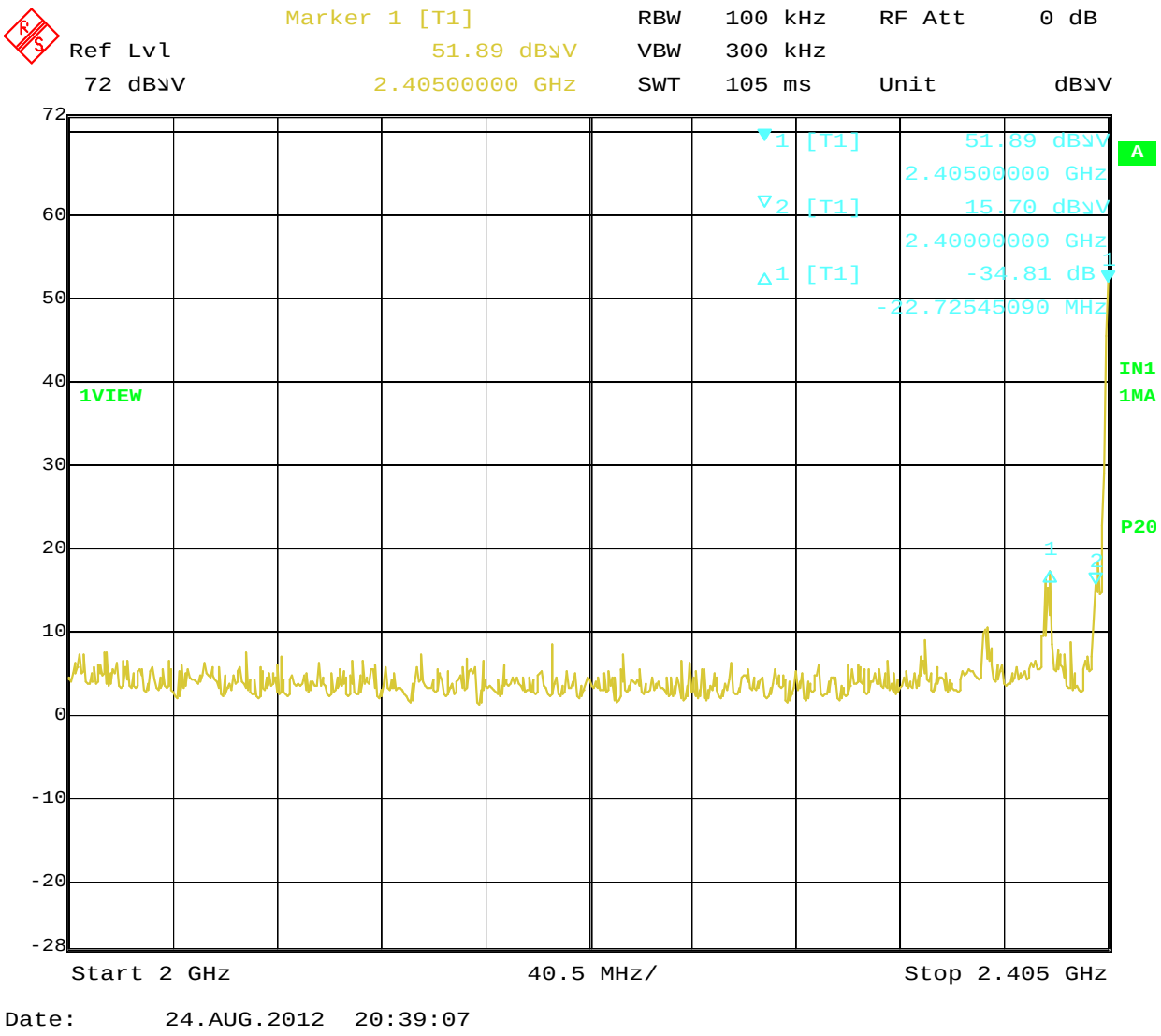
Lower Band Edge (ReBW/VBW, 1/3MHz)



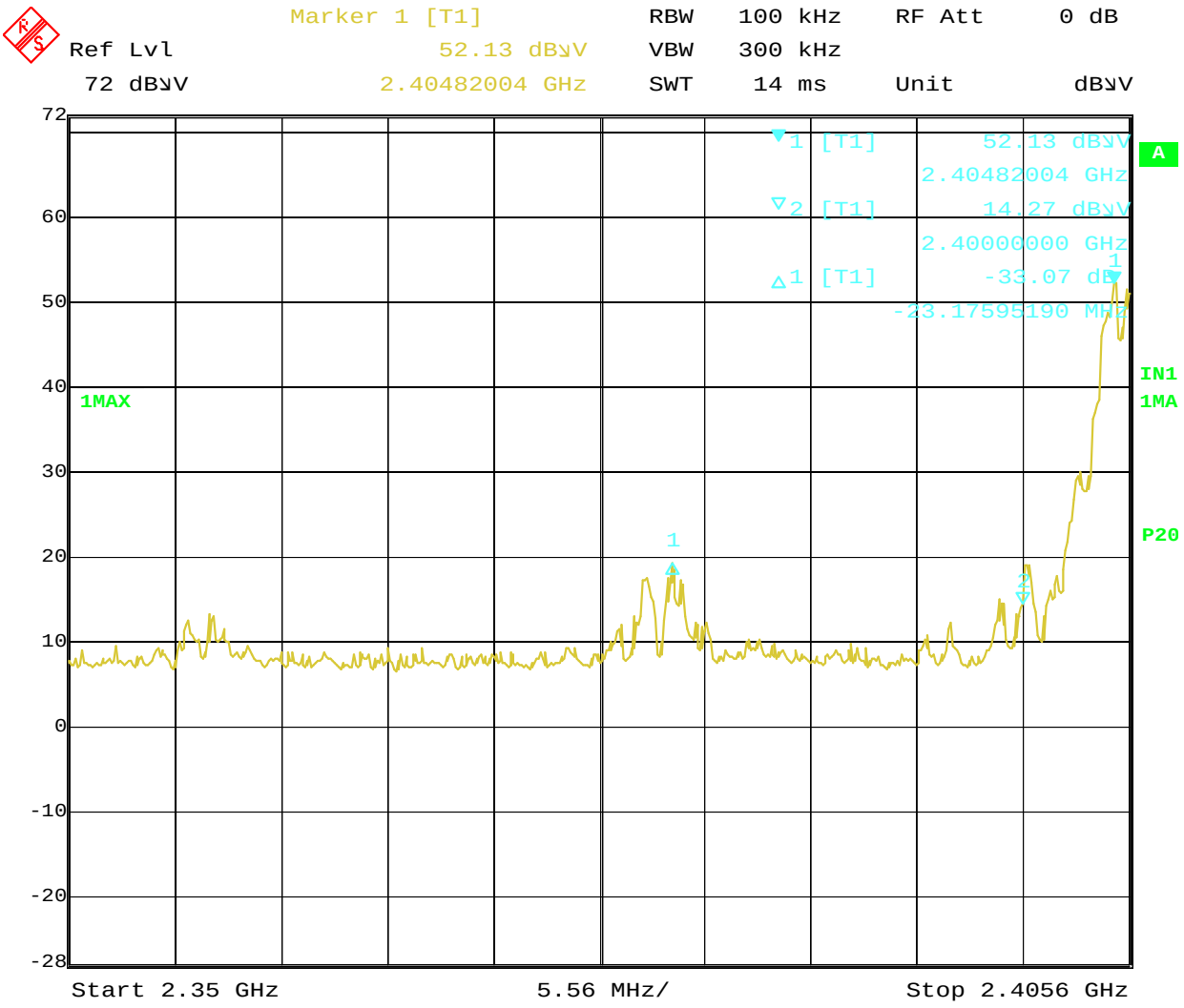
Lower Band Edge (ReBW/VBW, 1/3MHz)



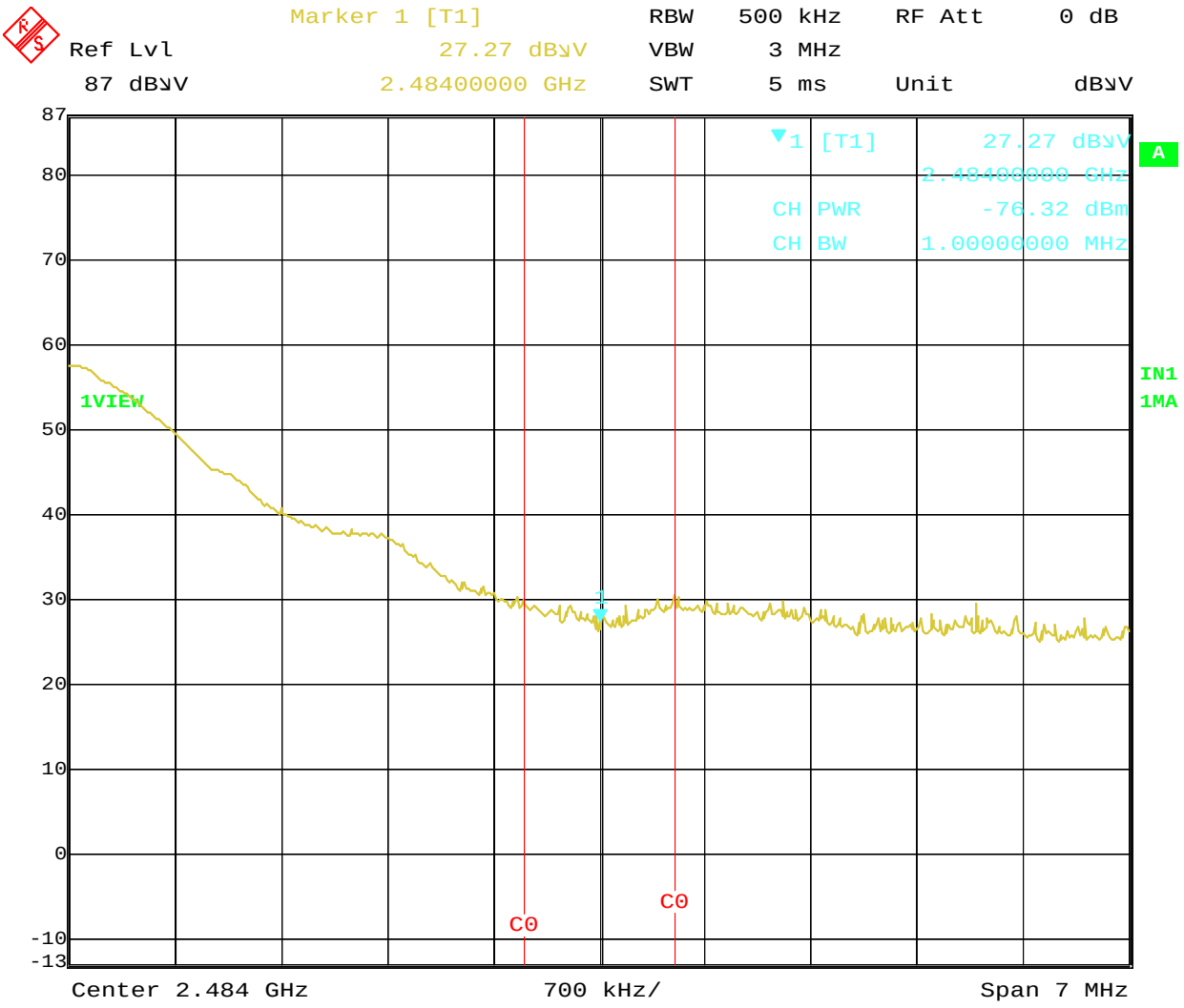
Lower Band Edge (ReBW/VBW, 100/300kHz)



Lower Band Edge (ReBW/VBW, 100/300kHz)



Upper Band Edge Compliance



Date: 23.SEP.2012 17:55:05

Company: IGEACare Solutions Inc | Antenna & Cables: LF | Bands: N, LF, HF, SHF
Model #: Pull Cord | Antenna: HORN2 V3m 10-24-2012.txt | HORN2 H3m 10-24-2012.txt
Serial #: 12 | Cable(s): 145-416 3mTrkB 09-04-2012.txt | NONE.
Engineers: Kouma Sinn | Location: 10m Chamber | Barometer: DAV003 | Filter: NONE
Project #: G100357410 | Date(s): 09/23/12
Standard: FCC Part 15 Subpart C 15.247 | Temp/Humidity/Pressure: 24C | 24% | 1015mbar
Receiver: 145-128 09-23-12 | Limit Distance (m): 3
PreAmp: PRE145014 12-16-2012.txt | Test Distance (m): 3
PreAmp Used? (Y or N): N | Voltage/Frequency: Battery powered | Frequency Range: See below
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	FCC	IC
Note: Power integrated across 1 MHz bandwidth; dBm reading converted to dBuv inside the receiver using dBm + 107 = dBuV													
Note: Average obtained from peak using -25.18 dB duty cycle correction factor													
PK	H	2484.000	30.68	28.56	6.04	0.00	0.00	65.27	74.00	-8.73	500kHz/3MHz	RB	
AVG	H	2484.000	5.50	28.56	6.04	0.00	0.00	40.09	54.00	-13.91	500kHz/3MHz	RB	

Test Personnel: Vathana F. Ven VFV — Test Date: 08/24/2012
Kouma Sinn KPS — 09/23/2012
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15 Subpart C 15.247 IC RSS-247
Input Voltage: Fresh 3VDC Battery
Pretest Verification w/ Ambient Signals or BB Source: **Ambient**

Test Levels: See report section 10.3
Ambient Temperature: 21 ºC
Relative Humidity: 64 %
Atmospheric Pressure: 1011 mbars

Deviations, Additions, or Exclusions: None

11 Digital Device Radiated Spurious Emissions

11.1 Method

Tests are performed in accordance with FCC Part 15 Subpart B, IC ICES-003, and ANSI C63.4:2009.

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

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

11.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145 034'	BiLog Antenna (30 MHz to 1GHz)	Schaffner Chase EMC	CBL6111C	2564	02/07/2012	02/07/2013
145 410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	09/04/2011	10/04/2012
145 003'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2011	10/04/2012
145 128'	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	08/23/2011	09/23/2012
DAV003'	Weather Station	Davis Instruments	7400	PE80529A39A	08/17/2011	10/17/2012

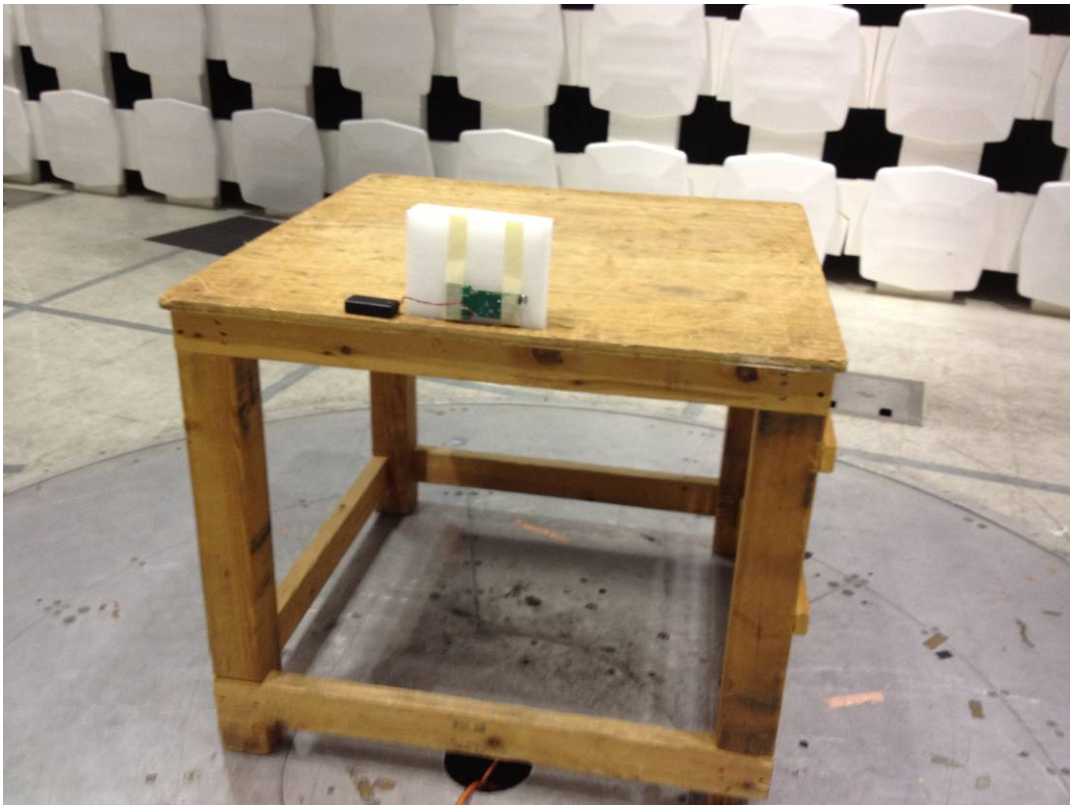
Software Utilized:

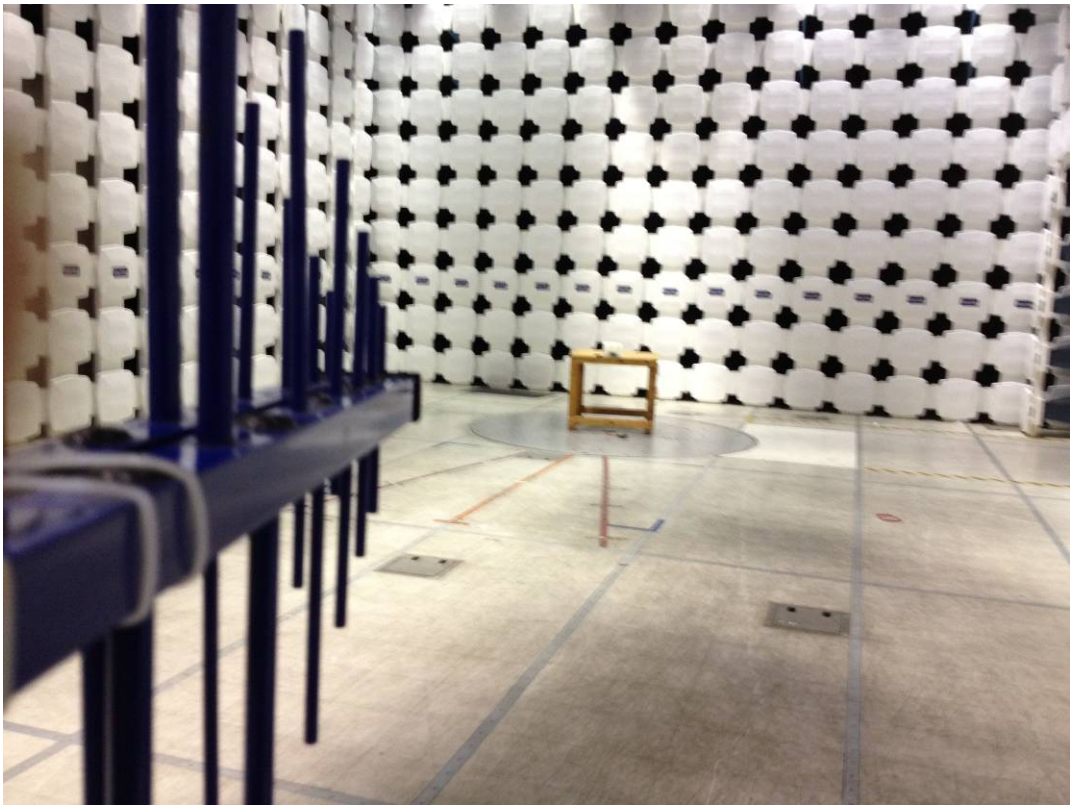
Name	Manufacturer	Version
C5 Emissions	TESEQ	5.26.46.46

11.3 Results:

The sample tested was found to Comply.

11.4 Setup Photographs:



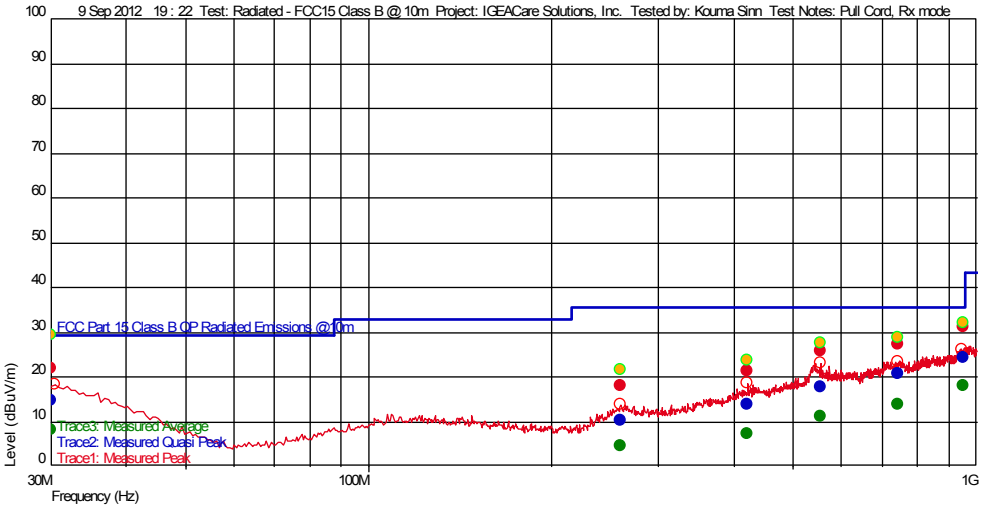


11.5 Plots/Data:

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	IGEACare Solutions, Inc.	
Test Notes:	Pull Cord, Rx mode	
Temperature:	22C	
Humidity:	65%, 998mbar	
Tested by:	Kouma Sinn	
Test Started:	9 Sep 2012 19 : 22	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace1: Measured Peak

Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
260.43466888 M	17.93	14.100	-24.130	35.540	-17.61	|	334	1.35	120 k	
421.230661493 M	21.43	16.825	-23.913	35.540	-14.11	--	18	4.00	120 k	
554.549899401 M	25.92	20.454	-23.977	35.540	-9.62	--	71	2.48	120 k	
743.650701832 M	27.19	22.119	-23.445	35.540	-8.35	--	176	1.94	120 k	
30.135671399 M	21.88	19.005	-26.115	29.540	-7.66	--	278	3.07	120 k	
950.746693663 M	31.29	24.570	-22.426	35.540	-4.25	--	146	3.28	120 k	

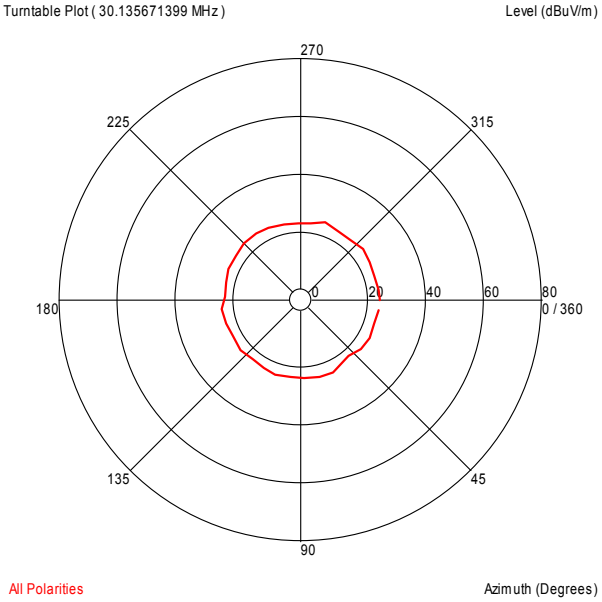
Trace2: Measured Quasi Peak

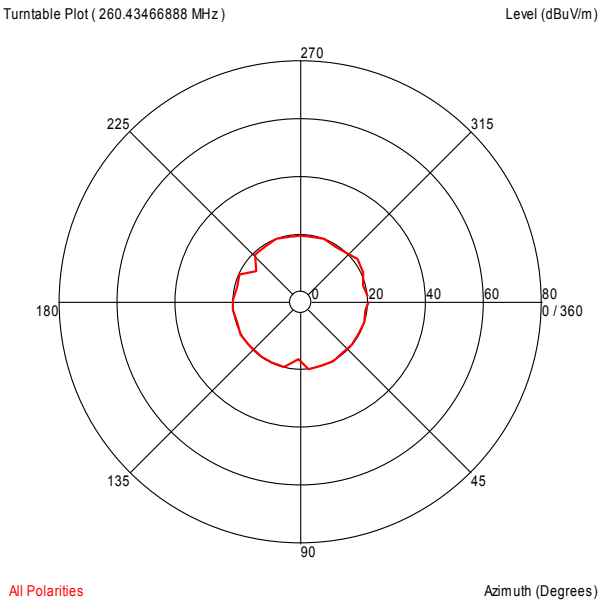
Frequency(Hz)	Level (dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
260.43466888 M	10.39	14.100	-24.130	35.540	-25.15	|	334	1.35	120 k	
421.230661493 M	13.74	16.825	-23.913	35.540	-21.80	--	18	4.00	120 k	
554.549899401 M	17.81	20.454	-23.977	35.540	-17.73	--	71	2.48	120 k	
743.650701832 M	20.61	22.119	-23.445	35.540	-14.93	--	176	1.94	120 k	
30.135671399 M	14.83	19.005	-26.115	29.540	-14.71	--	278	3.07	120 k	
950.746693663 M	24.42	24.570	-22.426	35.540	-11.12	--	146	3.28	120 k	

Trace3: Measured Average

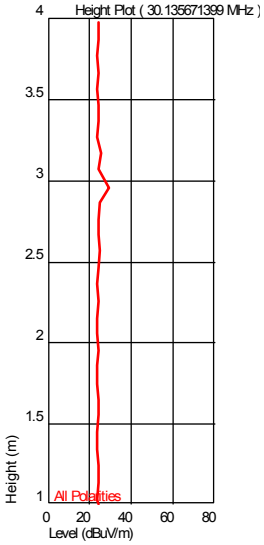
Frequency(Hz)	Level dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
260.43466888 M	4.51	14.100	-24.130	--	--	|	334	1.35	120 k	
421.230661493 M	7.17	16.825	-23.913	--	--	--	18	4.00	120 k	
30.135671399 M	8.21	19.005	-26.115	--	--	--	278	3.07	120 k	
554.549899401 M	11.28	20.454	-23.977	--	--	--	71	2.48	120 k	
743.650701832 M	13.99	22.119	-23.445	--	--	--	176	1.94	120 k	
950.746693663 M	17.94	24.570	-22.426	--	--	--	146	3.28	120 k	

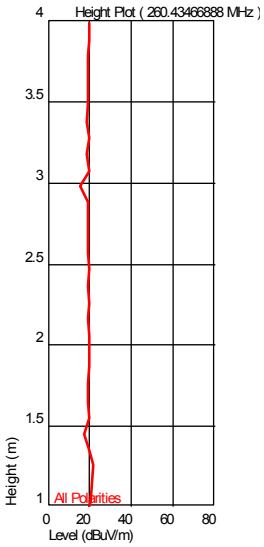
Azimuth Plots

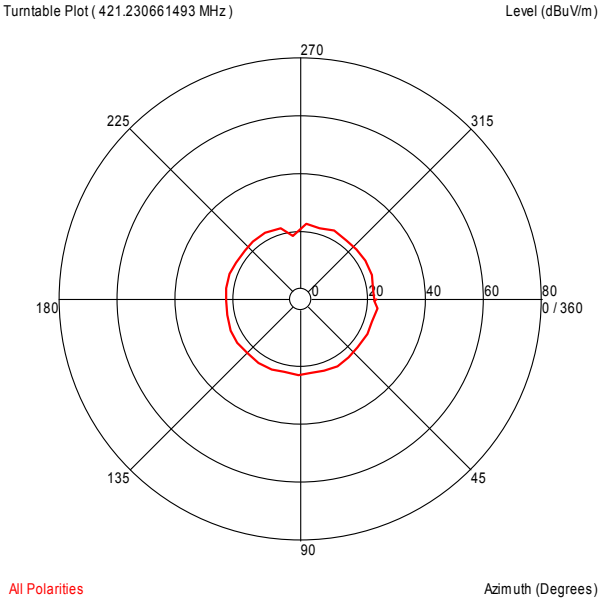


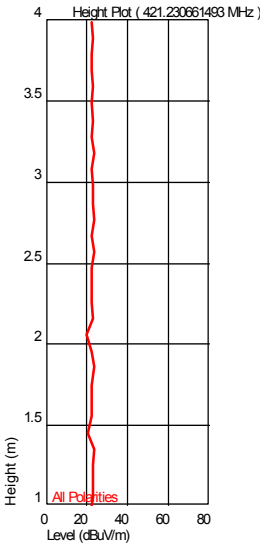


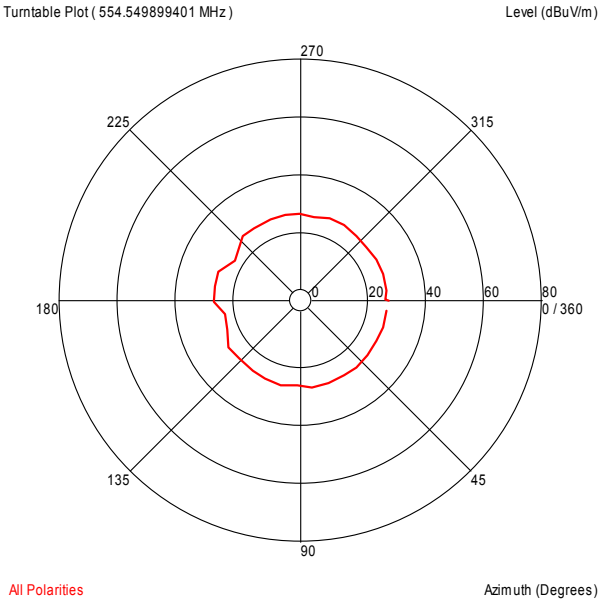
Turntable Plots

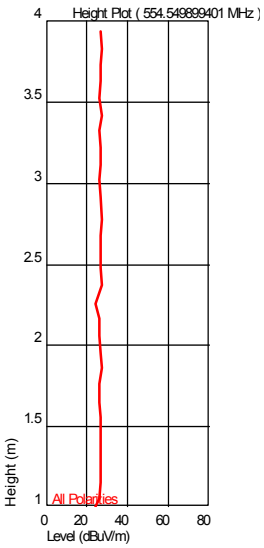


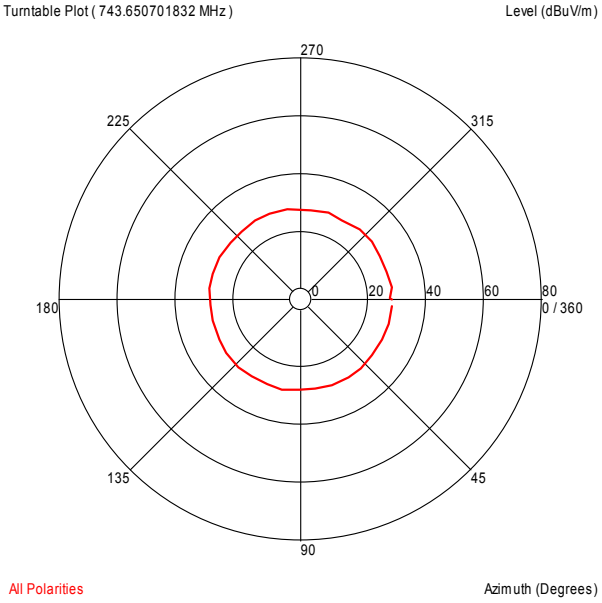


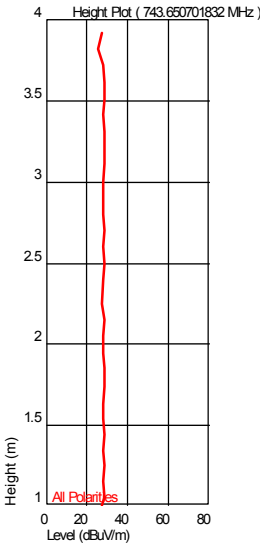

Turntable Plot (421.230661493 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)

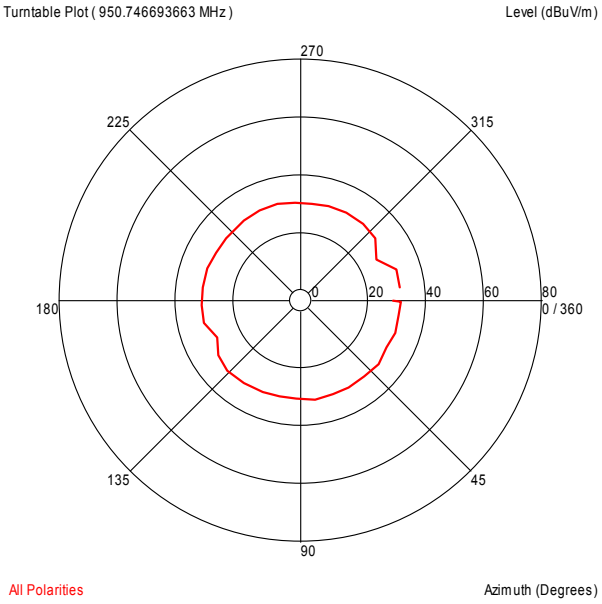

Height Plot (421.230661493 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

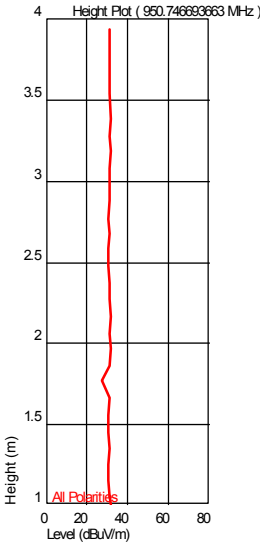

Turntable Plot (554.549899401 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)


Height Plot (554.549899401 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)









Test Personnel:	Kouma Sinn KPS	Test Date:	09/09/2012
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15 Subpart C 15.247 IC RSS-247	Test Levels:	See test data
Input Voltage:	Fresh 3VDC Battery	Ambient Temperature:	22 °C
Pretest Verification w/ Ambient Signals or BB Source:	**Ambient**	Relative Humidity:	65 %
		Atmospheric Pressure:	998 mbars

Deviations, Additions, or Exclusions: None

12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	09/25/2012	100334102BOX-024	MH	-	Original Issue
1	02/03/2015	101930181BOX-001a	MH	MFM	Company name and model number changed