EMISSIONS TEST REPORT

(FULL COMPLIANCE)

Report Number: 102684875BOX-001a
Project Number: G102684875

Report Issue Date: 11/22/2016

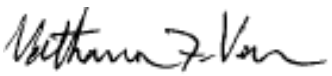
Model(s) Tested: Nightingale 3.2

Standards: CFR47 FCC Part 15 Subpart C (15.247): 08/2016
RSS-247 Issue 1: 05/2015
CFR47 FCC Part 15 Subpart B: 09/2016
ICES 003 Issue 6: 01/2016 updated 06/2016

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

Client:
Cambridge Sound Management Inc.
404 Wyman St, Ste 200
Waltham, MA 02451-1242
USA

Report prepared by Reviewer



Vathana Ven / Staff Engineer, EMC

Report reviewed by

Michael Murphy / Technical Team Leader, EMC

Table of Contents

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. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	Output Power and Human RF Exposure (CFR47 FCC Part 15 Subpart C (15.247): 09/2016 RSS-247 Issue 1: 05/2015 RSS-102 Issue 5: 03/2015)	Pass
7	Power Spectral Density (CFR47 FCC Part 15 Subpart C (15.247): 09/2016 RSS-247 Issue 1: 05/2015)	Pass
8	Occupied (99%) and 6 dB Bandwidth (CFR47 FCC Part 15 Subpart C (15.247): 09/2016 RSS-247 Issue 1: 05/2015)	Pass
9	Band Edge Compliance (CFR47 FCC Part 15 Subpart C (15.247): 09/2016 RSS-247 Issue 1: 05/2015)	Pass
10	Transmitter Spurious Emissions (CFR47 FCC Part 15 Subpart C (15.247): 09/2016 RSS-247 Issue 1: 05/2015)	Pass
11	Digital Device Radiated Spurious Emissions (CFR47 FCC Part 15 Subpart B: 09/2016 ICES 003 Issue 6: 01/2016 updated 06/2016)	Pass
12	AC Mains Conducted Emissions (CFR47 FCC Part 15.207 Subpart C: 09/2016 ICES 003 Issue 6: 01/2016 updated 06/2016, RSS-Gen Issue 4 Section 8.8)	Pass
13	Revision History	--

3 Client Information

This EUT was tested at the request of:

Client: Cambridge Sound Management Inc.
404 Wyman St, Ste 200
Waltham, MA 02451-1242
USA

Contact: Greg Saunders
Telephone: (781) 547-7495
Fax: None
Email: gsaunders@csmqt.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Cambridge Sound Management Inc.
404 Wyman St, Ste 200
Waltham, MA 02451-1242
USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Sound Masking Sleep Aid	Cambridge Sound Management Inc.	Nightingale 3.2	NGP3.2-104

Receive Date:	09/26/2016
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
Sound Masking Sleep Aid

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
120 VAC	N/A	60 Hz	Single

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Transmit mode
2	Receive mode

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	None

Radio/Receiver Characteristics	
Frequency Band(s)	2402 – 2480 MHz
Modulation Type(s)	GFSK
Maximum Output Power	-9.6 dBm
Test Channels	CH 0 - 2402 MHz, CH 13 - 2440 MHz, CH 27 - 2480 MHz
Occupied Bandwidth	CH 0 - 1.034 MHz, CH 13 - 1.046 MHz, CH 27 -1.064 MHz
Frequency Hopper: Number of Hopping Channels	N/A
Frequency Hopper: Channel Dwell Time	N/A
Frequency Hopper: Max interval between two instances of use of the same channel	N/A
MIMO Information (# of Transmit and Receive antenna ports)	Integral Antenna
Equipment Type	Standalone
ETSI LBT/Adaptivity	N/A
ETSI Adaptivity Type	N/A
ETSI Temperature Category (I, II, III)	N/A
ETSI Receiver Category (1, 2, 3)	N/A
Antenna Type and Gain	Integral

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 System Setup and Method

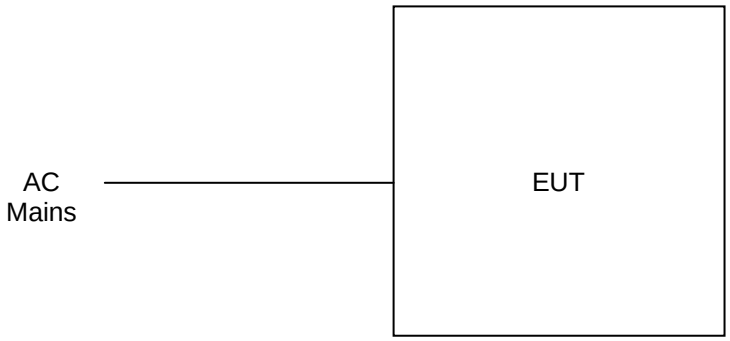
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	Power Cable	2	None	None	AC Mains

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
IPAD	Apple	MD531LL/A	F7NN7P7VF196

5.1 Method:

Configuration as required by CFR47 FCC Part 15 Subpart C (15.247): 08/2016 RSS-247 Issue 1: 05/2015 CFR47 FCC Part 15 Subpart B: 09/2016, ICES 003 Issue 6: 01/2016 updated 06/2016, ANSI C63.10:2013.

5.2 EUT Block Diagram:



6 Output Power and Human RF Exposure

6.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C (15.247), RSS-247 Issue 1 and ANSI C 63.10,

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016

Software Utilized:

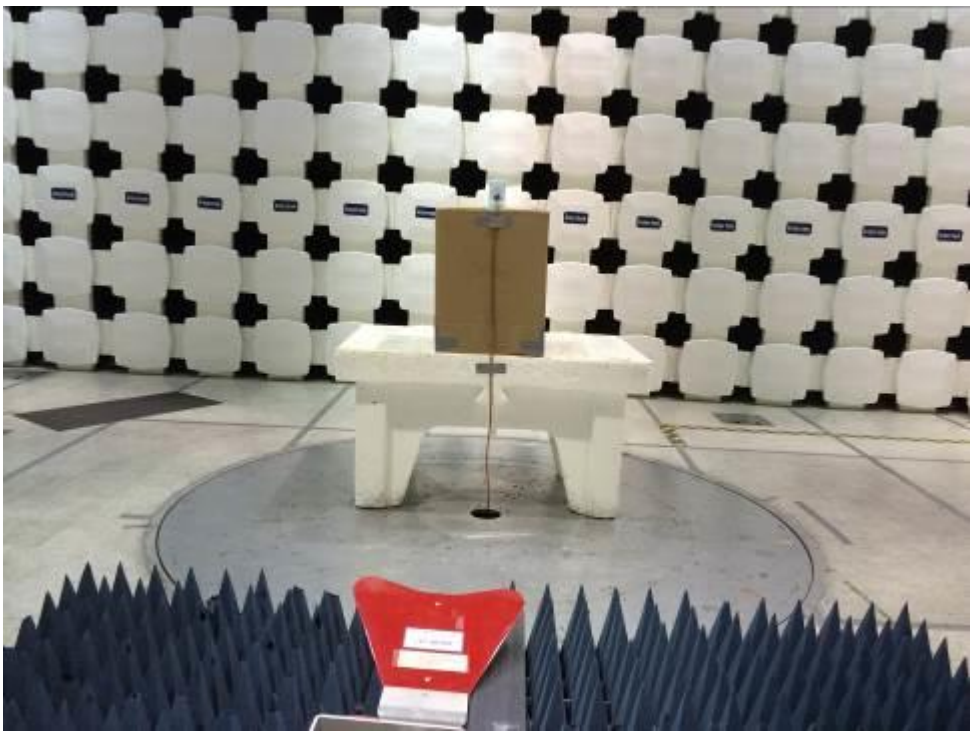
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

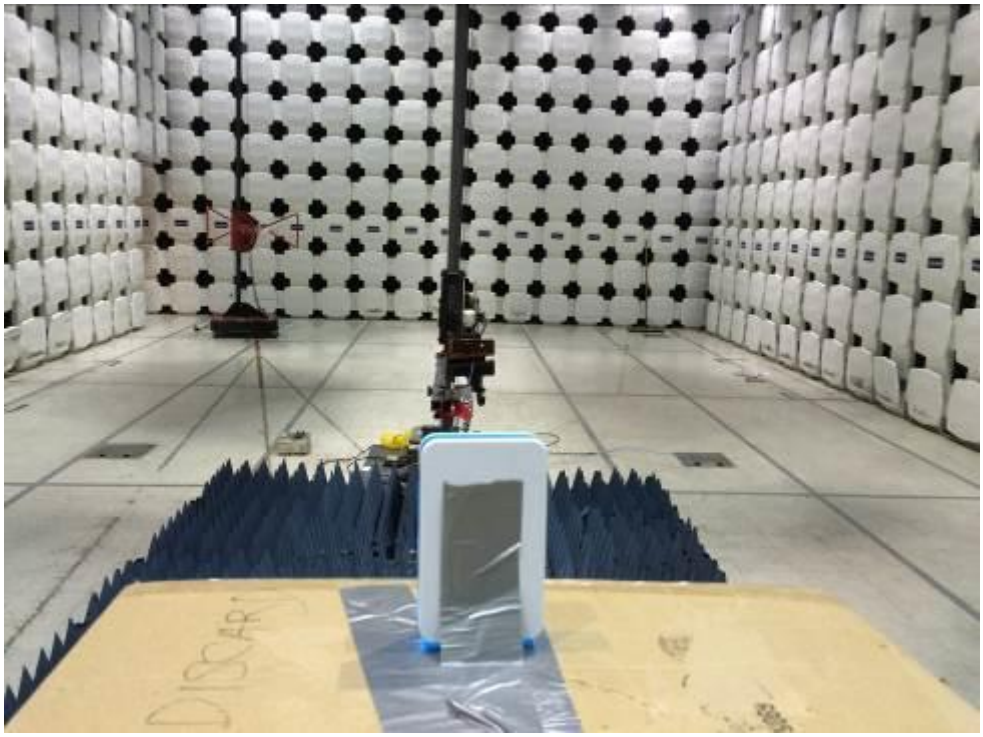
Note: Your Laptop may use a different version of Excel. Record the version you actually used!

6.3 Results:

The sample tested was found to Comply. The EIRP must not exceed 30 dBm. The Human RF Exposure limit is 1 mW/cm^2.

6.4 Setup Photographs:





6.5 Test Data:

Intertek

Fundamental Power (Radiated Emissions)

Company: Cambridge Sound Management | Antenna & Cables: LF | Bands: N, LF, HF, SHF
Model #: Nightingale 3.2 | Antenna: ETS001 02-10-17.txt
Serial #: NGP3.2-104 | Cable(s): 145-416 & CBLSHF203_07-05-17.txt CBLSHF204 09-03-16.txt
Engineers: Kouma Sinn | Location: 10M | Barometer: DAV004 | Filter: NONE
Project #: QU-00705932 | Date(s): 07/07/16
Standard: FCC Part 15 Subpart C 15.247 | Temp/Humidity/Pressure: 22C 48% 1000mbar
Receiver: 145-128 | Limit Distance (m): 3
PreAmp: None | Test Distance (m): 3
PreAmp Used? (Y or N): N | Voltage/Frequency: 120 VAC 60 Hz | Frequency Range: Fundamental
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
Low Channel 2402 MHz. The EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2402.000	44.45	32.29	7.51	0.00	0.00	-10.97	30.00	-40.97	5/10 MHz
PK	V	2402.000	43.66	32.29	7.51	0.00	0.00	-11.76	30.00	-41.76	5/10 MHz
Mid Channel 2440 MHz. The EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2440.000	45.79	32.26	7.57	0.00	0.00	-9.60	30.00	-39.60	5/10 MHz
PK	V	2440.000	42.48	32.26	7.57	0.00	0.00	-12.91	30.00	-42.91	5/10 MHz
High Channel 2480 MHz. The EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2480.000	44.59	32.23	7.63	0.00	0.00	-10.77	30.00	-40.77	5/10 MHz
PK	V	2480.000	41.95	32.23	7.63	0.00	0.00	-13.41	30.00	-43.41	5/10 MHz

Human RF Exposure

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. .

§1.1310 The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices shall be evaluated according to the provisions of §2.1093 of this chapter.

Part §1.1310 Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

(1) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. The phrase *fully aware* in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of *transient* persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. Such training is not required for *transient* persons, but they must receive written and/or verbal information and notification (for example, using signs) concerning their exposure potential and appropriate means available to mitigate their exposure. The phrase *exercise control* means that an exposed person is allowed to and knows how to reduce or avoid exposure by administrative or engineering controls and work practices, such as use of personal protective equipment or time averaging of exposure.

(2) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

RSS-102 Issue 5 Exposure Limits:

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10[21]	83	90	-	Instantaneous*
0.1-10	-	$0.73/f$	-	6**
1.1-10	$87/f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000/f^{1.2}$
150000-300000	$0.158 f^{0.5}$	$4.21 \times 10^{-4} f^{0.5}$	$6.67 \times 10^{-5} f$	$616000/f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

1.1 Test Procedure

An MPE evaluation was performed in order to show that the device was compliant with §2.1091. The maximum power density was calculated for each transmitter at a separation distance of 20 cm.

For each transmitter the maximum power RF exposure at a 20 cm distance using the formula:

$\text{Conducted Power}_{mW} = 10^{\text{ConductedPower(dBm)}/10}$

$\text{Power Density} = [\text{Conducted Power}_{mW} \times \text{Ant.Gain}] / [4\pi \times (20_{cm})^2]$ or $[\text{EIRP}] / [4\pi \times (20_{cm})^2]$

1.2 Results

Maximum Output Power of the Bluetooth module in Nightingale 3.2 $= 10^{(-9.6/10)}$ or 0.1096 mW (EIRP from radiated testing)

Maximum Output Power of the Wi-Fi module in Nightingale 3.2 (per test report FCC ID COF-WMNBM30**)** $= 10^{(20.37/10)}$ or 108.89 mW

Power Density = $[(108.89*2.04) / 5025.6] + [0.1096/5025.6]$ mW/cm^2

= 0.04420081184 + 0.000021

= 0.044221 mW/cm^2

Limit at 2.4 GHz = 1 mW/cm^2

RSS-102 Issue 5 Exposure Limit at 2.4 GHz = 5.35 W/m^2

Power Density = 0.44221 W/m^2

The calculated maximum power density at 20 cm distance is less than the limit for general population / uncontrolled exposure.

Test Personnel:	Kouma Sinn KPS	Test Date:	07/07/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part 15C, 15.247, RSS-247	Limit Applied:	Below specified limit
Input Voltage:	120VAC/60Hz	Ambient Temperature:	20 ºC
Pretest Verification w/ Ambient Signals or BB Source:	Yes	Relative Humidity:	48 %
		Atmospheric Pressure:	1000 mbars

Deviations, Additions, or Exclusions: None

7 Power Spectral Density

7.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C (15.247), RSS-247 Issue 1 and ANSI C 63.10,

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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.

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RA = 52.0 dBμV
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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
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016

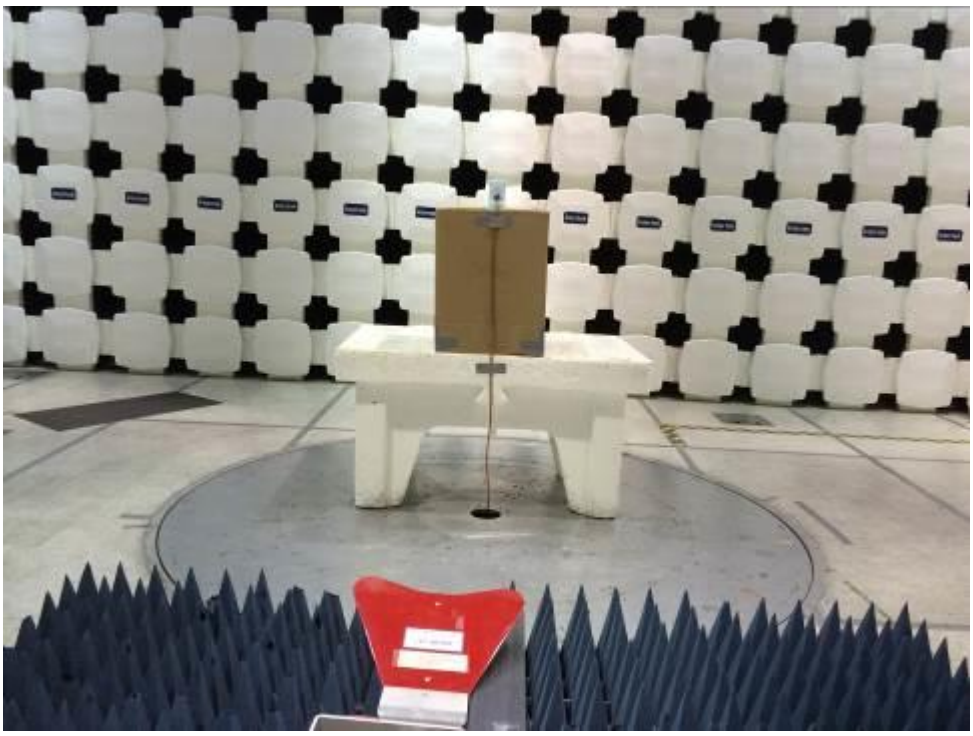
Software Utilized:

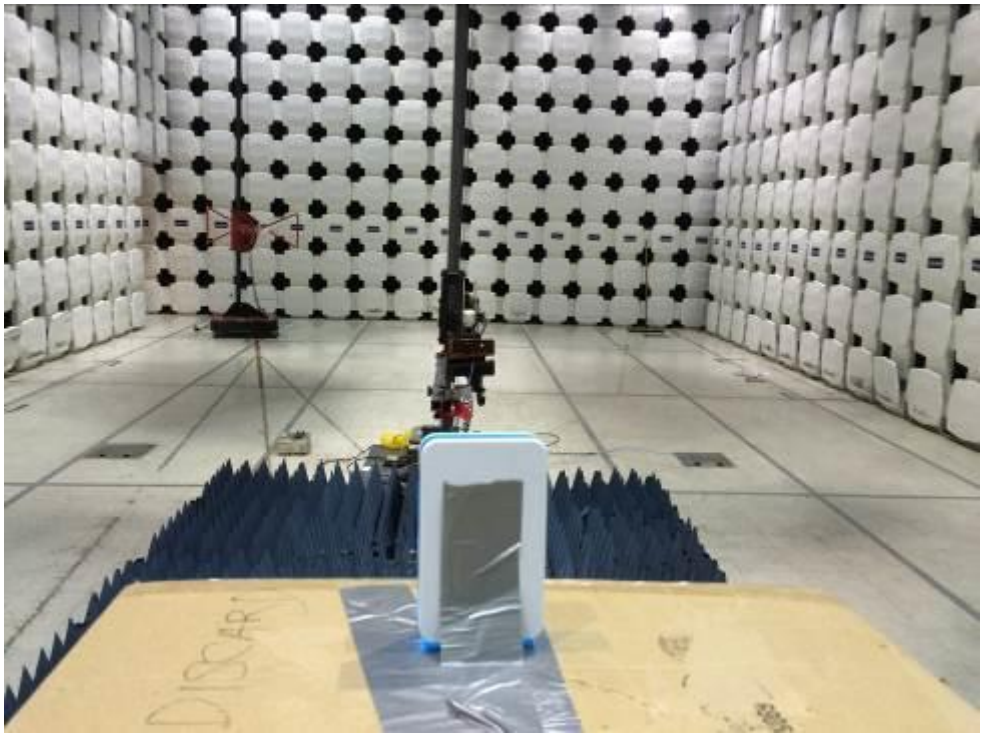
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

7.3 Results:

The sample tested was found to Comply.

7.4 Setup Photographs:





7.5 Test Data:

Intertek

Power Spectral Density (Radiated Emissions)

Company: Cambridge Sound Management | Antenna & Cables: LF | Bands: N, LF, HF, SHF
Model #: Nightingale 3.2 | Antenna: ETS001 02-10-17.txt
Serial #: NGP3.2-104 | Cable(s): 145-416 & CBLSHF203_07-05-17.txt CBLSHF204 09-03-16.txt
Engineers: Kouma Sinn | Location: 10M | Barometer: DAV004 | Filter: NONE
Project #: QU-00705932 | Date(s): 07/07/16
Standard: FCC Part 15 Subpart C 15.247 | Temp/Humidity/Pressure: 22C 48% 1000mbar
Receiver: 145-128 | Limit Distance (m): 3
PreAmp: None | Test Distance (m): 3
PreAmp Used? (Y or N): N | Voltage/Frequency: 120 VAC 60 Hz | Frequency Range: Fundamental

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
Low Channel 2402 MHz. EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2402.000	27.79	32.29	7.51	0.00	0.00	-27.63	8.00	-35.63	3/10kHz
PK	V	2402.000	26.35	32.29	7.51	0.00	0.00	-29.07	8.00	-37.07	3/10kHz
Mid Channel 2440 MHz. EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2440.000	30.28	32.26	7.57	0.00	0.00	-25.11	8.00	-33.11	3/10kHz
PK	V	2440.000	25.34	32.26	7.57	0.00	0.00	-30.05	8.00	-38.05	3/10kHz
High Channel 2480 MHz. EUT sits straight up in its only normal orientation											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	H	2480.000	27.24	32.23	7.63	0.00	0.00	-28.12	8.00	-36.12	3/10kHz
PK	V	2480.000	23.49	32.23	7.63	0.00	0.00	-31.87	8.00	-39.87	3/10kHz

Test Personnel: Kouma Sinn KPS | Test Date: 07/07/2016
Supervising/Reviewing Engineer: (Where Applicable) N/A
Product Standard: FCC Part 15C, 15.247, RSS-247 | Limit Applied: Below specified limit
Input Voltage: 120VAC/60Hz | Ambient Temperature: 20 ºC
Pretest Verification w/ Ambient Signals or BB Source: **Yes** | Relative Humidity: 48 %
Atmospheric Pressure: 1000 mbars

Deviations, Additions, or Exclusions: None

8 Occupied (99%) and 6 dB Bandwidth

8.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C (15.247), RSS-247 Issue 1 and ANSI C 63.10,

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016

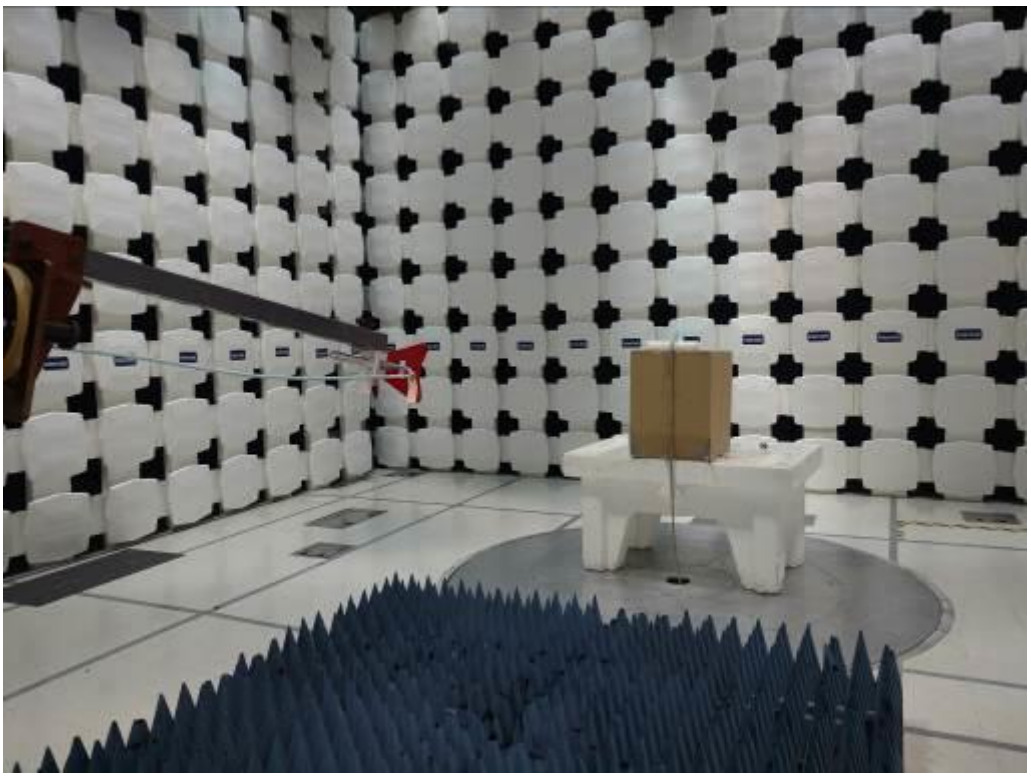
Software Utilized:

Name	Manufacturer	Version
None		

8.3 Results:

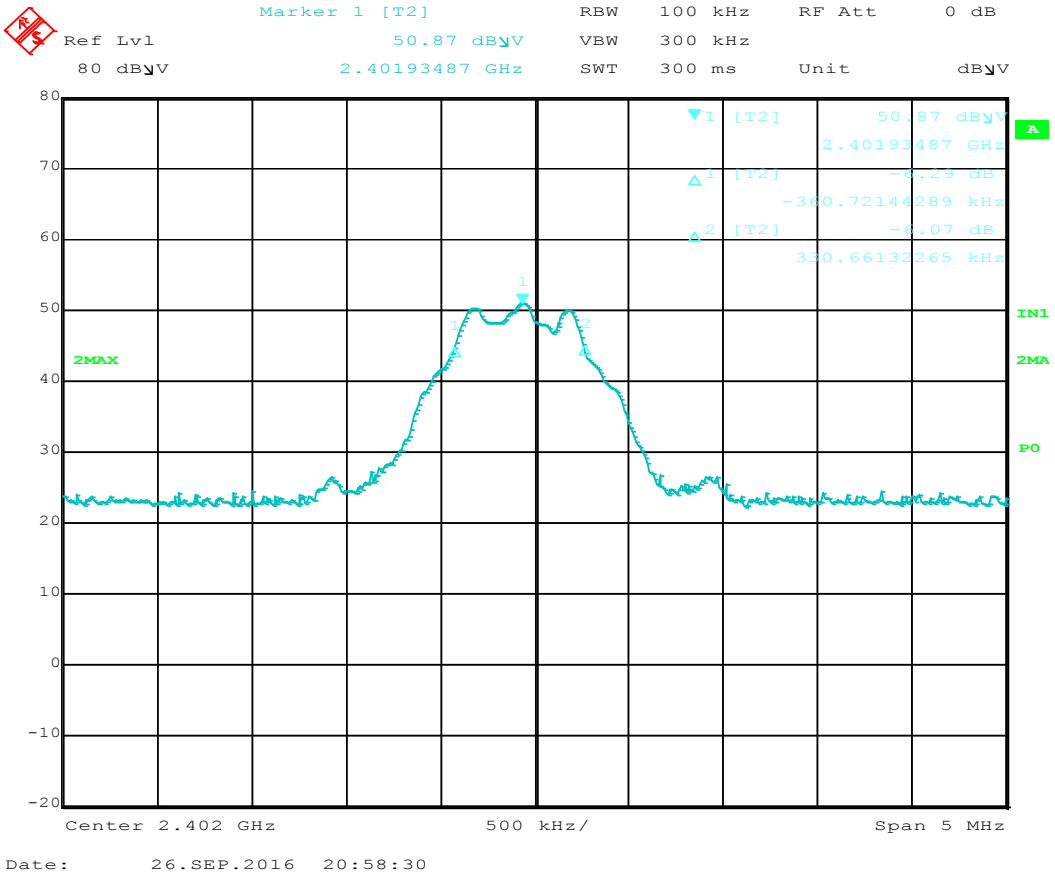
The sample tested was found to Comply.The 99% power bandwidth, or 6 dB bandwidth, must not be less than 500 kHz.

8.4 Setup Photograph:

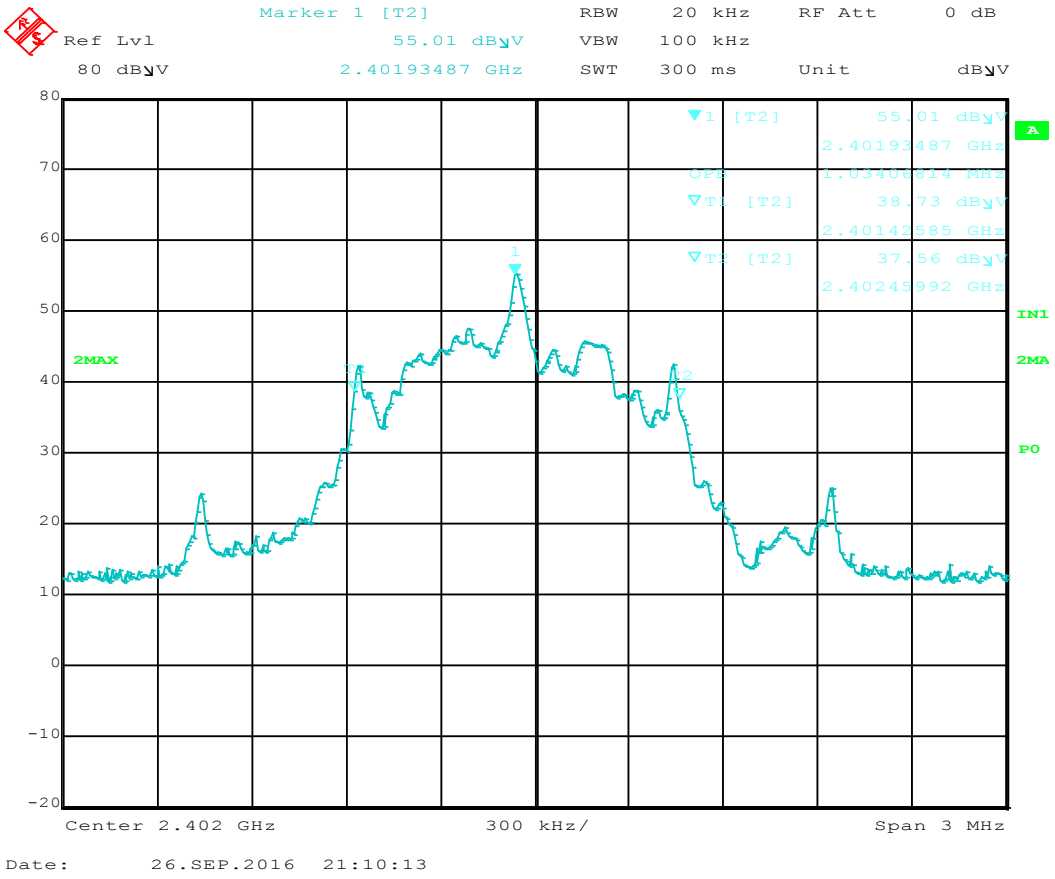


8.5 Plots/Data:

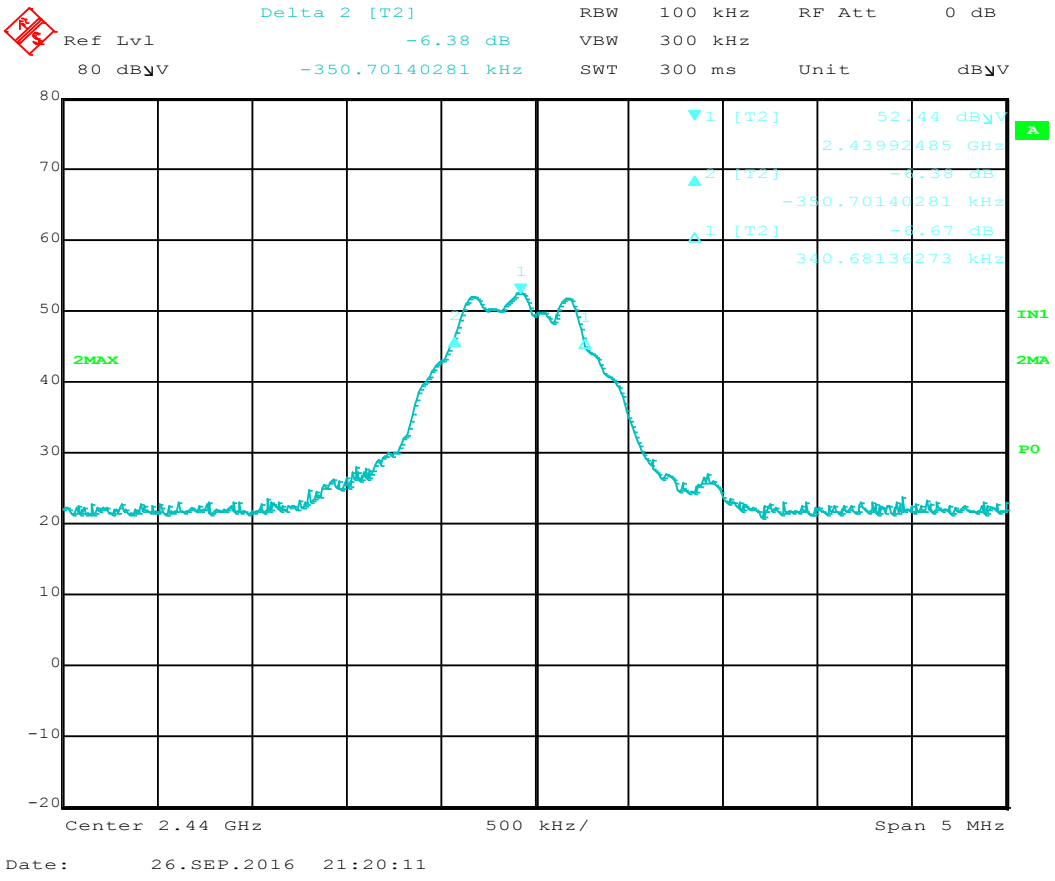
Operating @ 120 VAC 60 Hz, Device set to CH0 – 2402 MHz, 6dB BW = 691.38 kHz



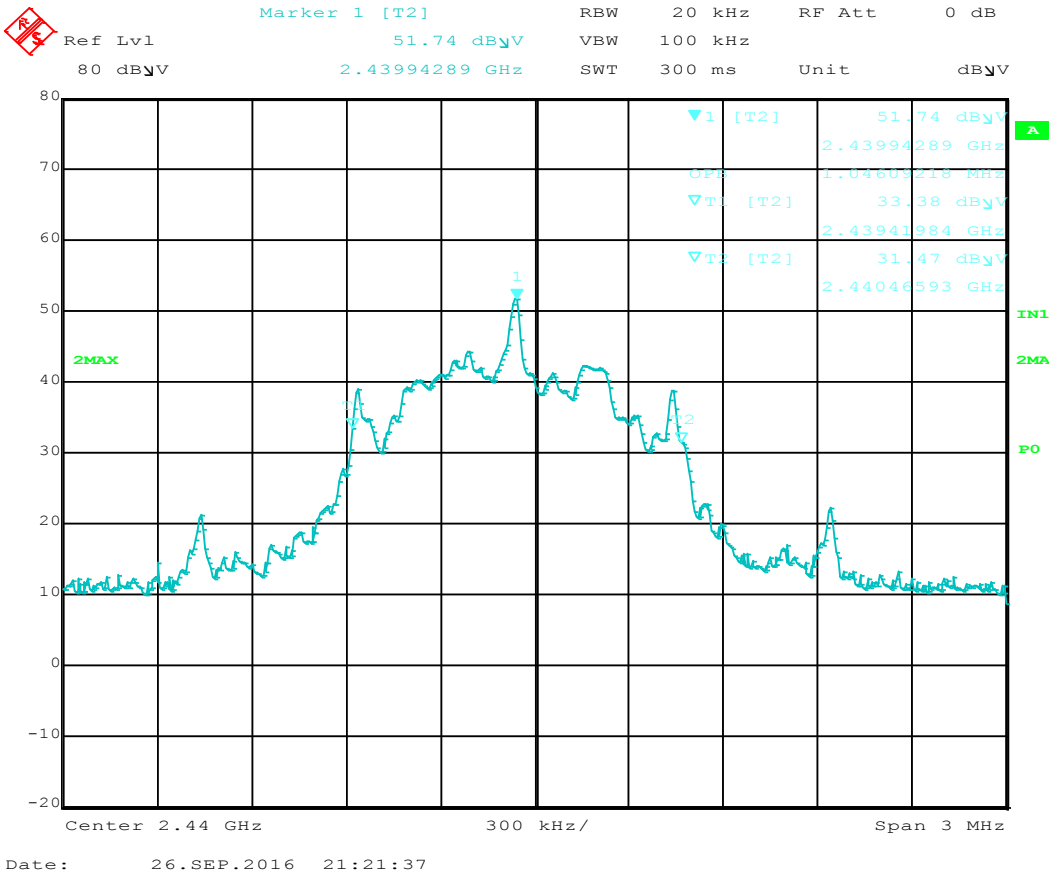
Operating @ 120 VAC 60 Hz, Device set to CH0 – 2402 MHz, Occupied BW (99%) = 1.034 MHz



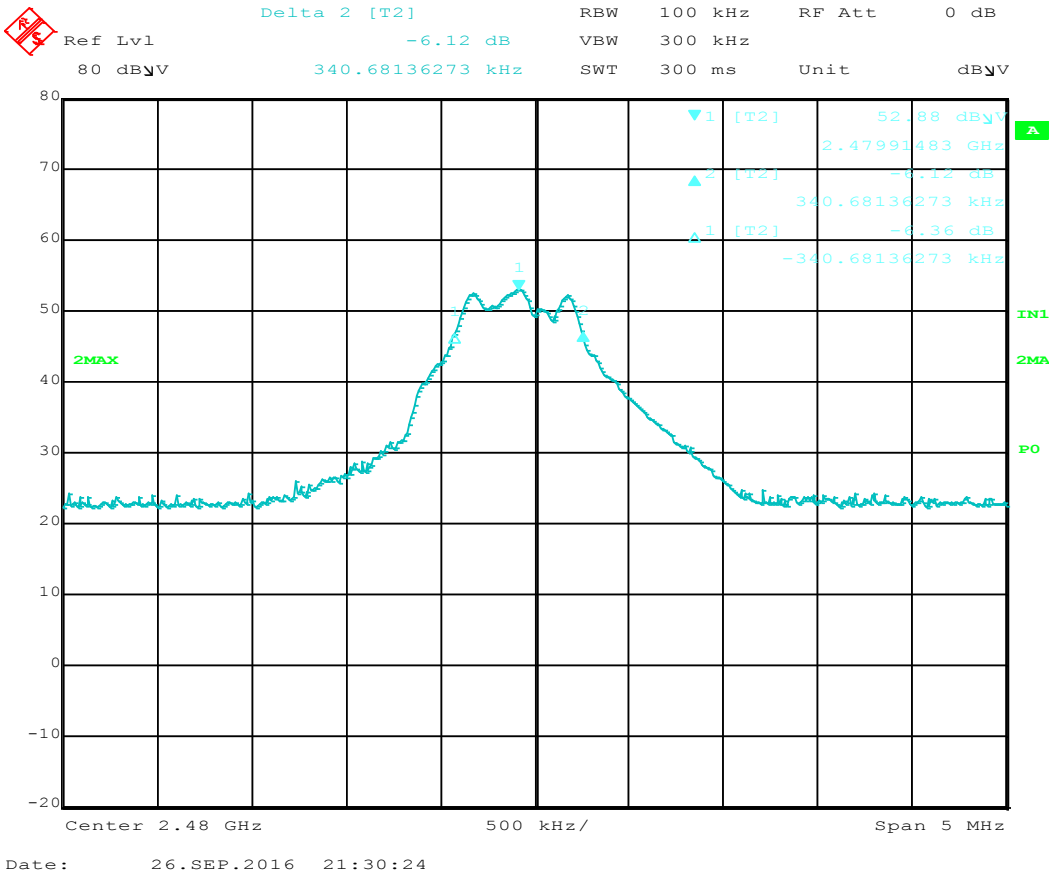
Operating @ 120 VAC 60 Hz, Device set to CH13 – 2440 MHz, 6dB BW = 691.38 kHz



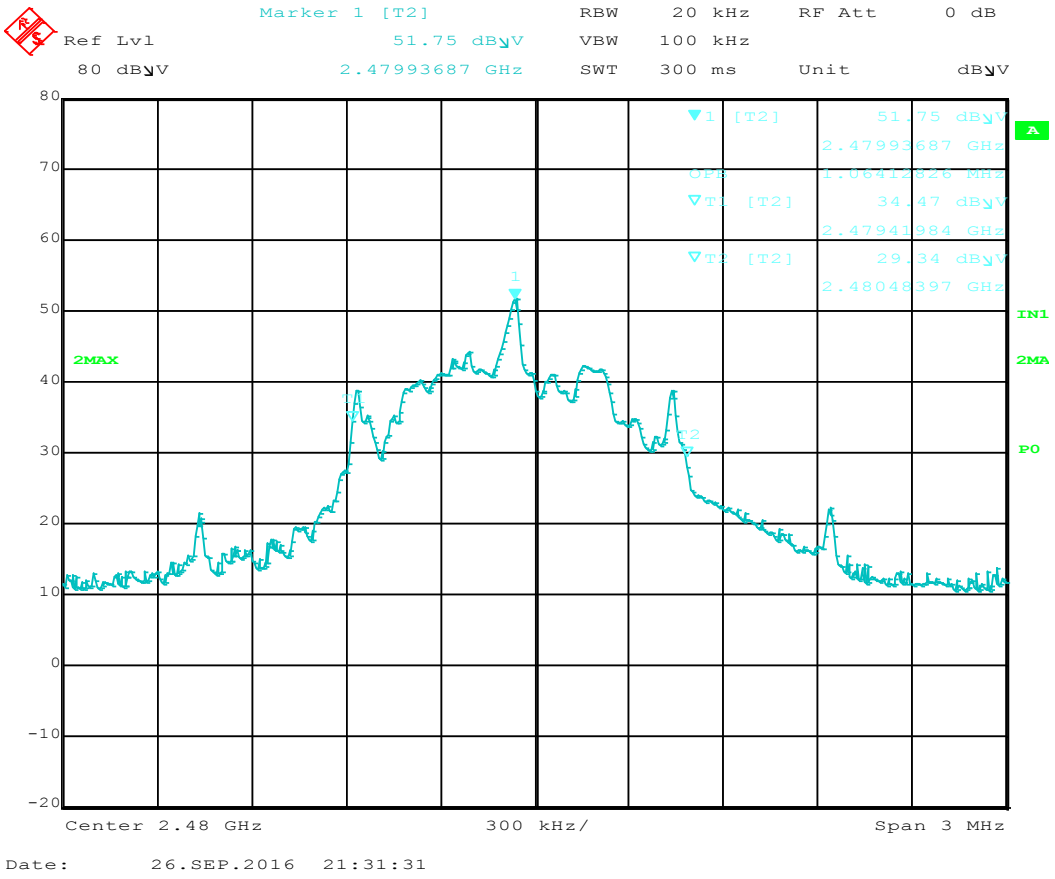
Operating @ 120 VAC 60 Hz, Device set to CH13 – 2440 MHz, Occupied BW (99%) = 1.0460 MHz



Operating @ 120 VAC 60 Hz, Device set to CH27 – 2480 MHz, 6dB BW = 681.36 kHz



Operating @ 120 VAC 60 Hz, Device set to CH27 – 2480 MHz, Occupied BW (99%) = 1.064 MHz



Test Personnel:	Naga Suryadevara NS	Test Date:	09/26/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC 15.247 & RSS 247	Limit Applied:	Below specified limit
Input Voltage:	120 VAC 60 Hz	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	Ambient Signals	Relative Humidity:	34 %
		Atmospheric Pressure:	1007 mbars

Deviations, Additions, or Exclusions: None

9 Band Edge Compliance

9.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C (15.247), RSS-247 Issue 1 and ANSI C 63.10.

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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

9.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016

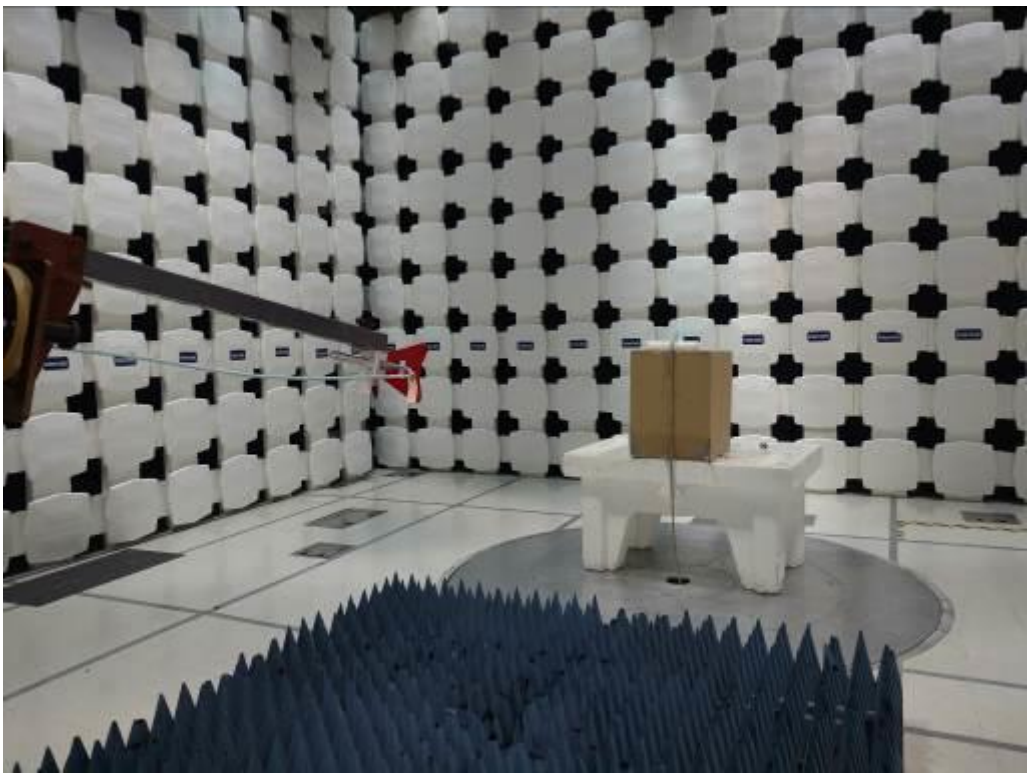
Software Utilized:

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

9.3 Results:

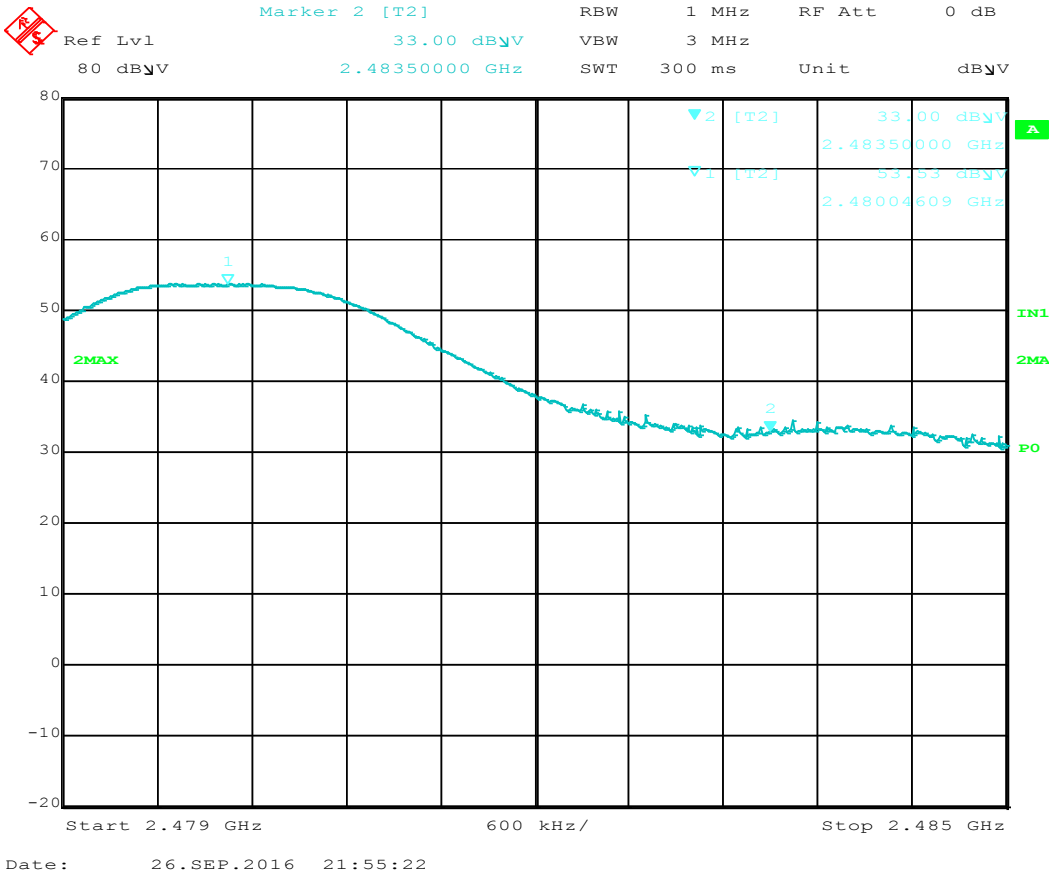
The sample tested was found to Comply.Spurious emissions at the band edges must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth, without the need to be below the general limits of FCC Part 15 Section 15.209 and of RSS-Gen 7.2.5 Table 5. Emissions in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

9.4 Setup Photograph:



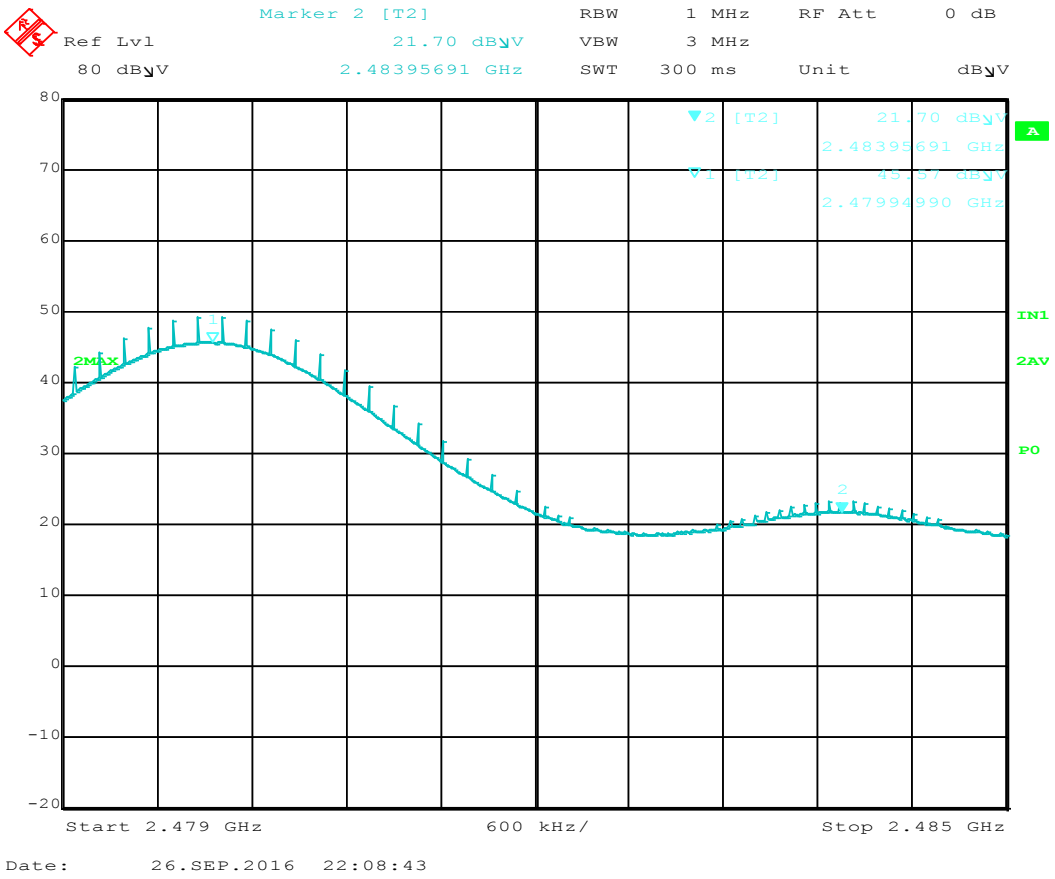
9.5 Plots/Data:

Operating @ 120 VAC 60 Hz, CH 27 – 2480 MHz, Restricted band edge compliance (Peak)



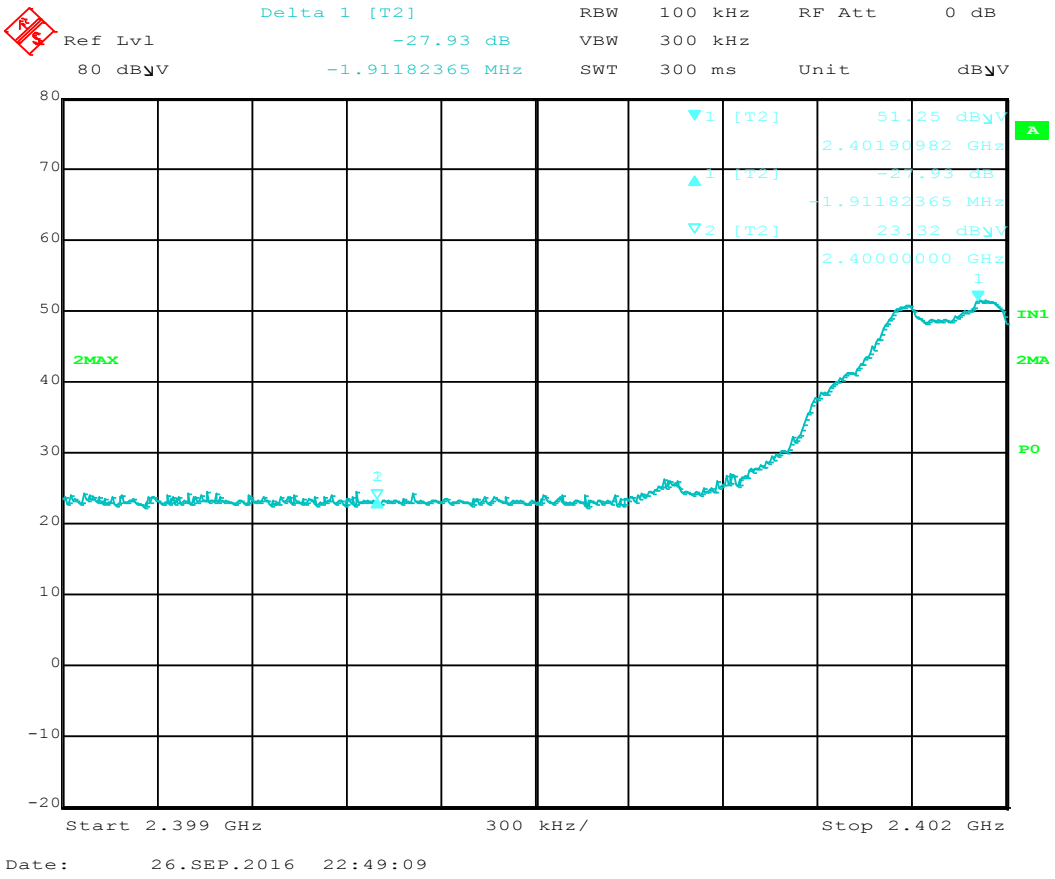
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Note: Upper Band Edge Compliance											
PK	V	2483.500	33.00	31.30	3.79	0.00	0.00	68.09	74.00	-5.91	1/3 MHz

Operating @ 120 VAC 60 Hz, CH 27 – 2480 MHz, Restricted band edge compliance (Average)



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											
AVG	V	2483.950	21.70	31.30	3.79	0.00	9.54	47.25	54.00	-6.75	1/3 MHz

Operating @ 120 VAC 60 Hz, CH 0 – 2402 MHz, Non Restricted band edge compliance @ 2400 MHz



Spurious emission at 2400 MHz is found to be 20 dB below the fundamental.

Test Personnel:	Naga Suryadevara NS	Test Date:	09/26/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC 15.247 & RSS 247	Limit Applied:	Below Specified Limit
Input Voltage:	120 VAC 60 Hz		
Pretest Verification w/ Ambient Signals or BB Source:	Ambient Signals	Ambient Temperature:	22 ºC
		Relative Humidity:	34 %
		Atmospheric Pressure:	1007 mbars

Deviations, Additions, or Exclusions: None

10 Transmitter Spurious Emissions

10.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart C (15.247), RSS-247 Issue 1 and ANSI C 63.10,

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145014'	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017
145013'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2944A07027	05/02/2016	05/02/2017
145145'	Broadband Hybrid Antenna 30 MHz - 3 GHz	Sunol Sciences Corp.	JB3	A122313	03/09/2016	03/09/2017
145-410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	07/30/2016	07/30/2017
145-416''	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	07/30/2016	07/30/2017
PRE9'	100MHz-40GHz Preamp	MITEQ	NSP4000-NFG	1260417	08/23/2016	08/23/2017
ROS001'	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	06/09/2016	06/09/2017
EMC04'	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	05/13/2016	05/13/2017
CBLHF2012 -5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	02/19/2016	02/19/2017
CBLHF2012 -2M-2'	2m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252675002	02/09/2016	02/09/2017

Software Utilized:

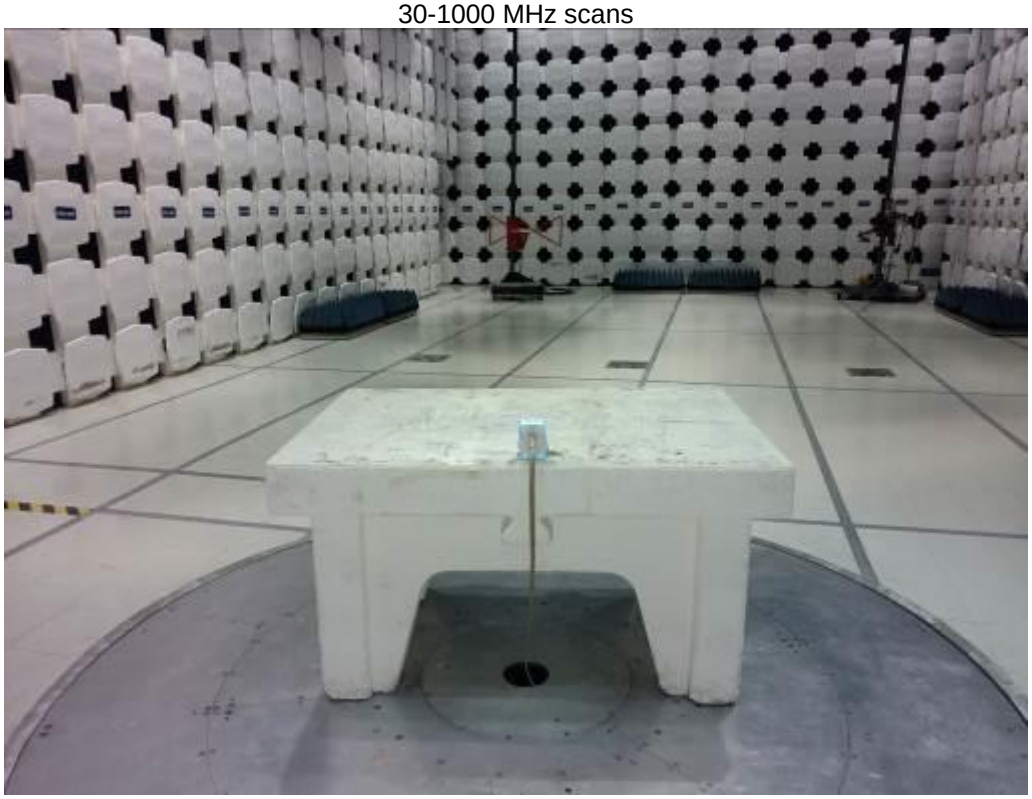
Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46

10.3 Results:

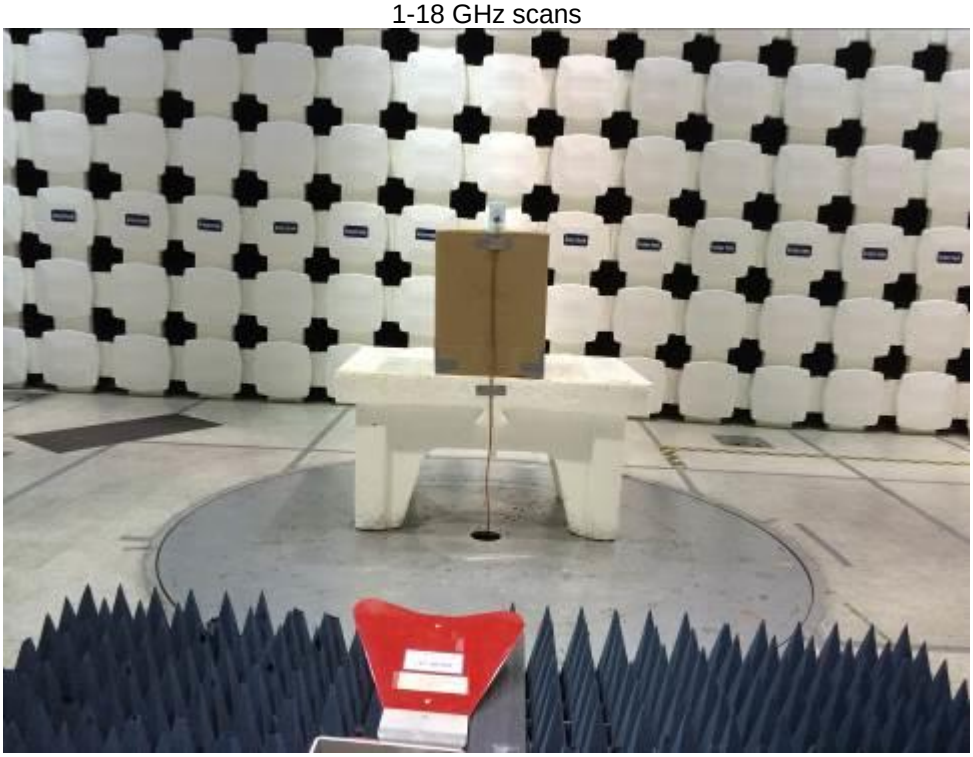
The sample tested was found to Comply.The spurious emissions in Restricted bands must be less than general limits specified in section 15.209. The spurious emissions in Non-Restricted bands must be less than Fundemental peak emission – 20 dB and attenuation below 15.209 general limits is not required.

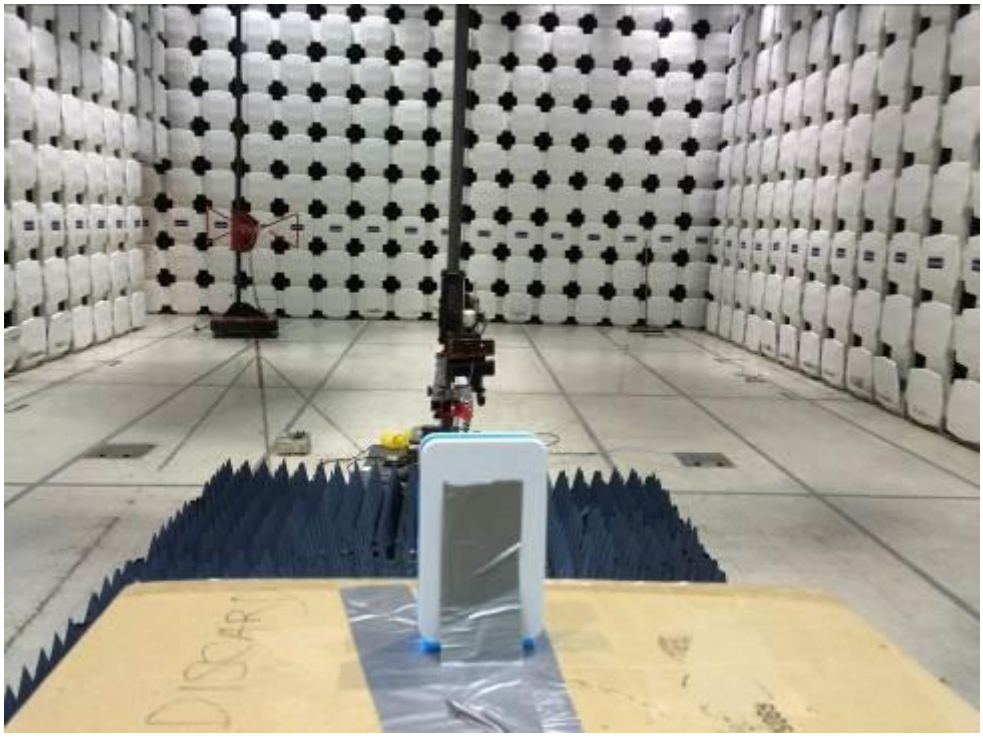
10.4 Setup Photographs:

30-1000 MHz scans



1-18 GHz scans





18-25 GHz scans

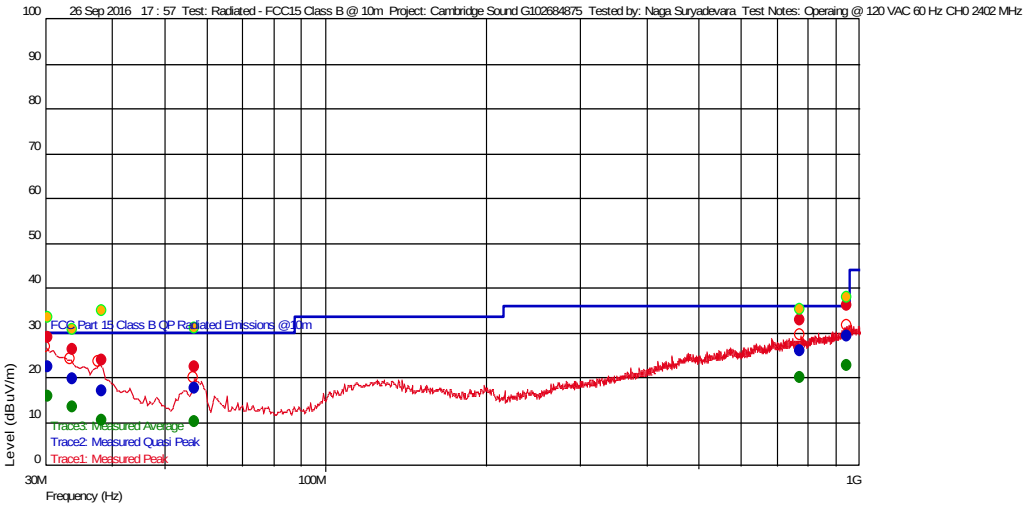
10.5 Plots/Data:

Operating @ 120 VAC 60 Hz, Tx CH 0 – 2402 MHz, 30 MHz – 1 GHz

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Cambridge Sound G102684875	
Test Notes:	Operaing @ 120 VAC 60 Hz CH0 2402 MHz	
Temperature:	22 C	
Humidity:	34% 1007 mbars	
Tested by:	Naga Suryadevara	
Test Started:	26 Sep 2016 17 : 57	

Prescan Emission Graph



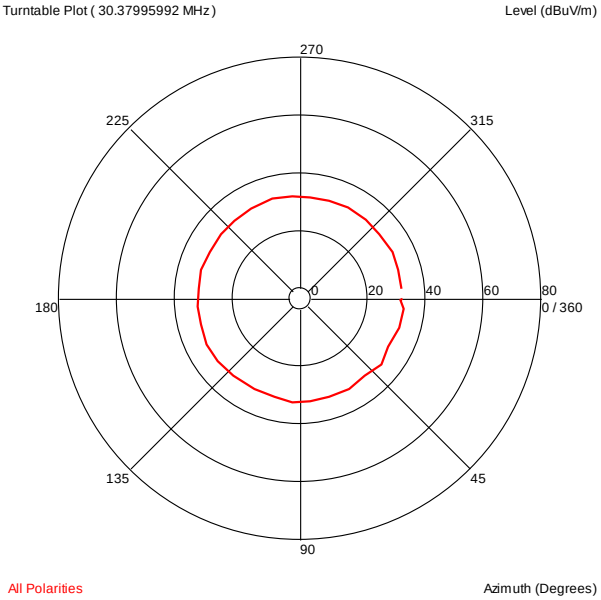
- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

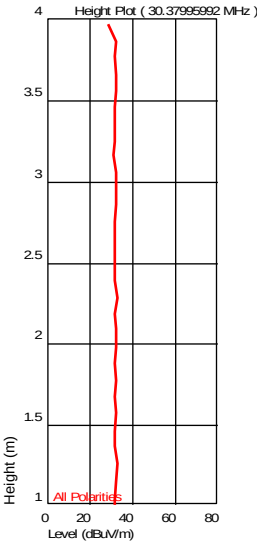
Trace2: Measured Quasi Peak

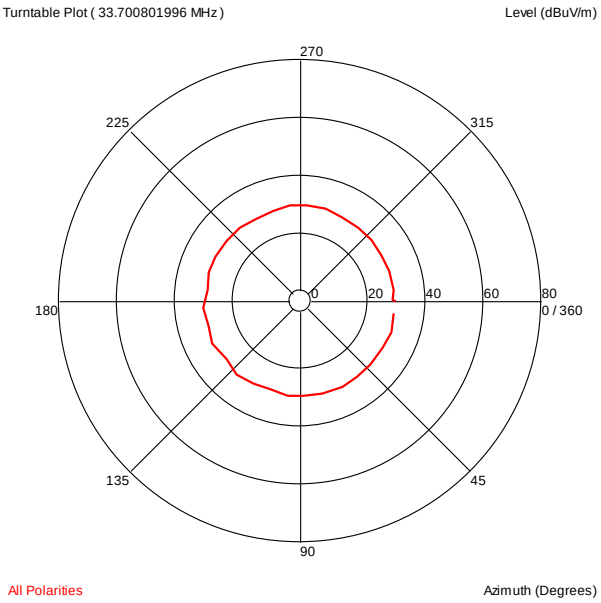
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)
38.36553096 M	16.76	21.044	-27.612	30.000	-13.24	|	40	1.66	120 k
57.252705497 M	17.40	13.300	-27.302	30.000	-12.60	|	204	1.36	120 k
33.700801996 M	19.69	24.680	-27.702	30.000	-10.31	--	142	4.00	120 k
775.459318713 M	25.87	27.500	-23.681	36.020	-10.15	--	7	3.94	120 k
30.37995992 M	22.25	27.196	-27.766	30.000	-7.75	|	165	2.39	120 k
946.167134096 M	29.13	30.023	-22.943	36.020	-6.89	|	184	4.00	120 k

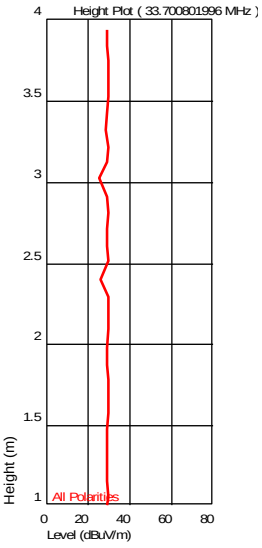
Azimuth Plots

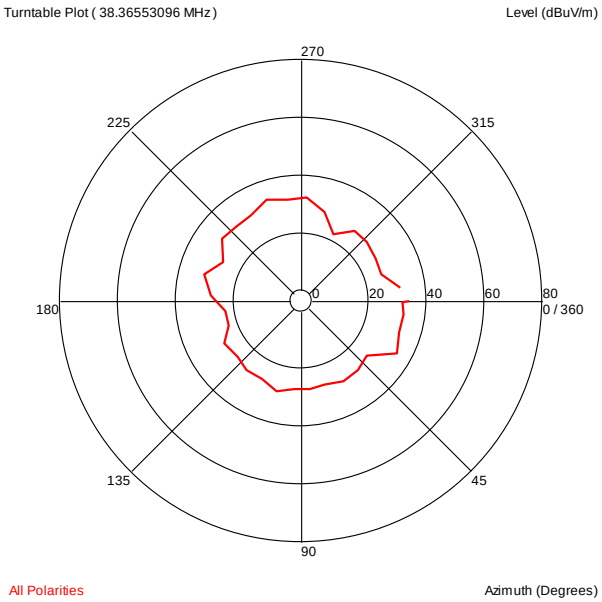


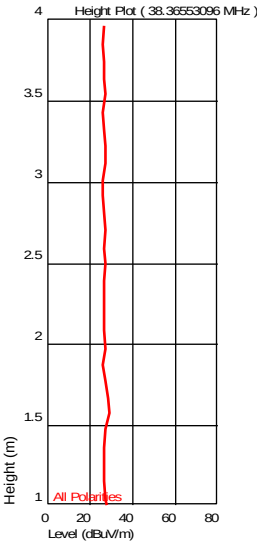
Turntable Plots

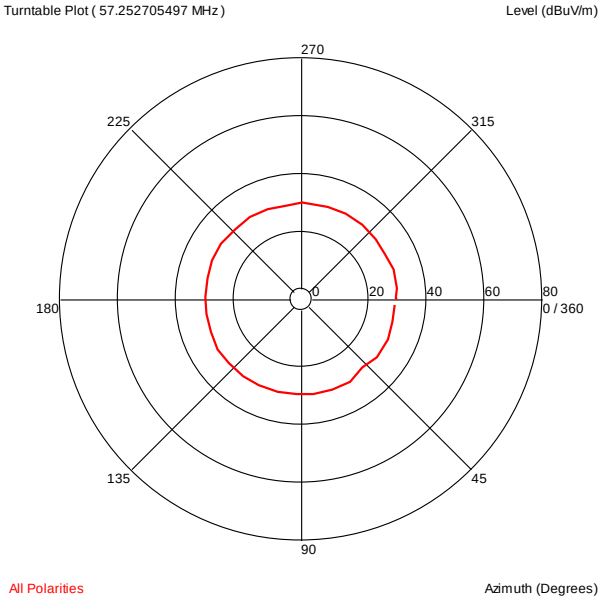


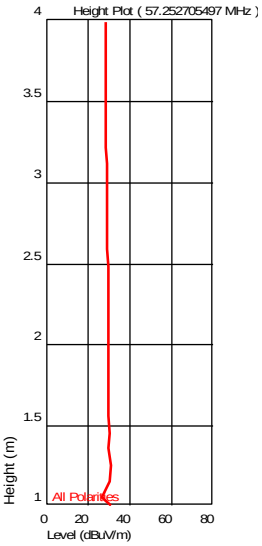


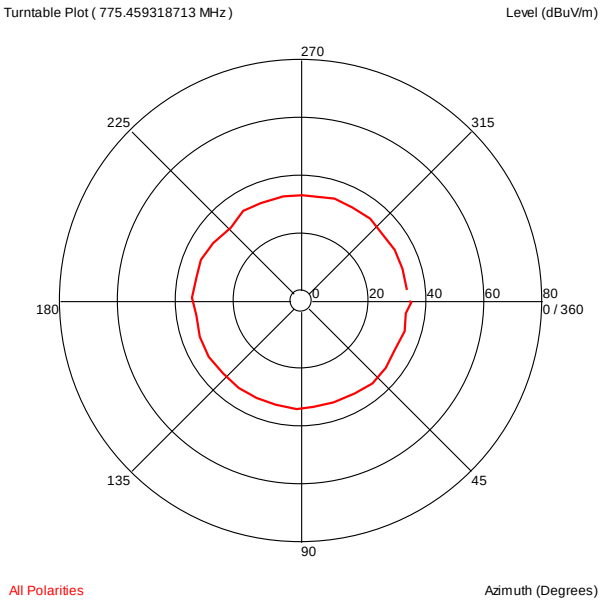


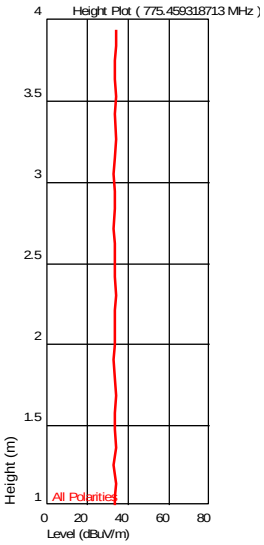

Turntable Plot (38.36553096 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

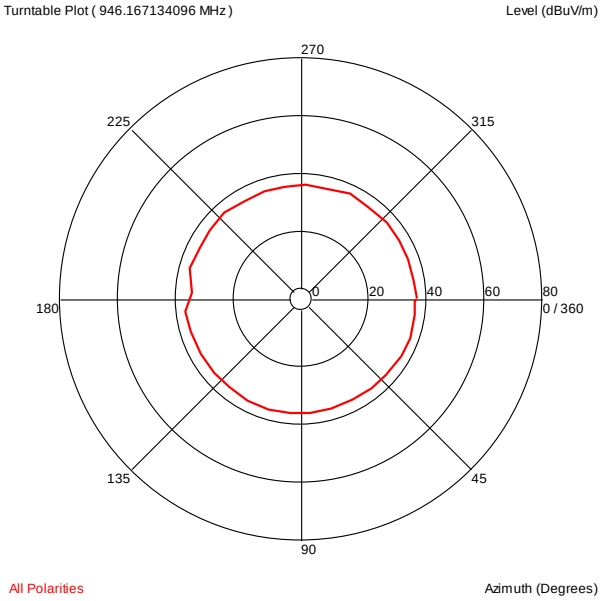

Height Plot (38.36553096 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

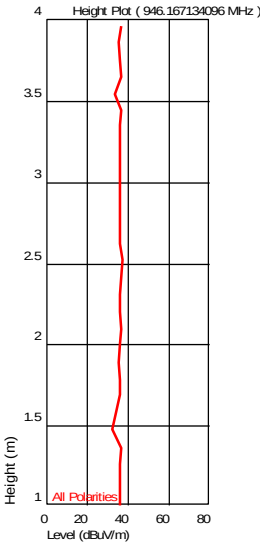

Turntable Plot (57.252705497 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (57.252705497 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 (775.459318713 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (775.459318713 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 (946.167134096 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

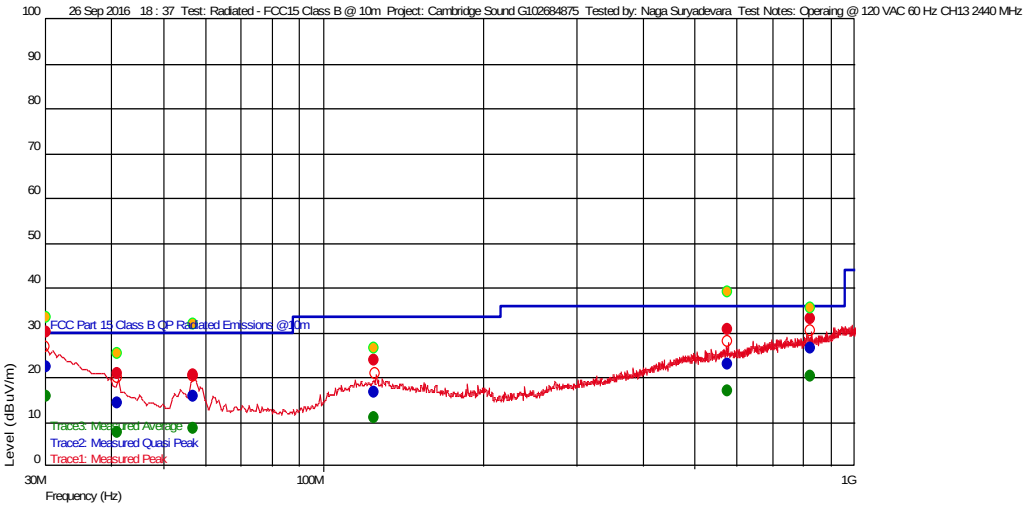

Height Plot (946.167134096 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Operating @ 120 VAC 60 Hz, Tx CH13 – 2440 MHz, 30 MHz – 1 GHz

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Cambridge Sound G102684875	
Test Notes:	Operaing @ 120 VAC 60 Hz CH13 2440 MHz	
Temperature:	22 C	
Humidity:	34% 1007 mbars	
Tested by:	Naga Suryadevara	
Test Started:	26 Sep 2016 18 : 37	

Prescan Emission Graph



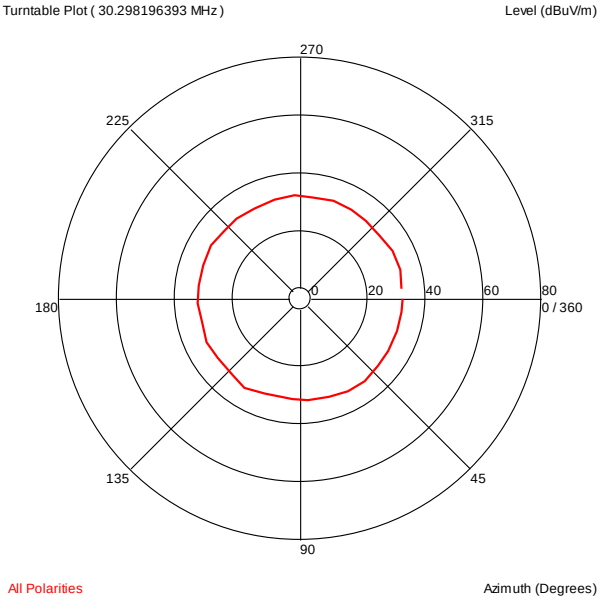
- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

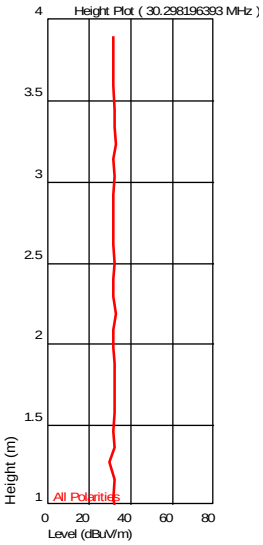
Trace2: Measured Quasi Peak

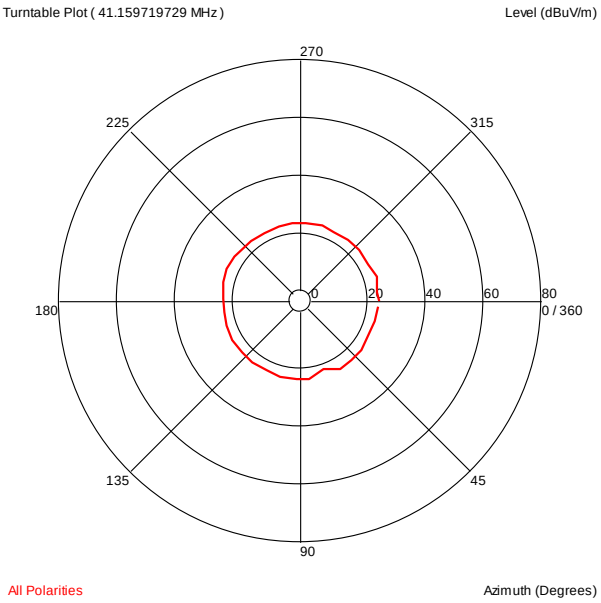
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)
125.221843741 M	16.59	20.200	-26.528	33.520	-16.93	|	120	1.35	120 k
41.159719729 M	14.04	18.888	-27.558	30.000	-15.96	--	331	3.89	120 k
57.249699541 M	15.68	13.300	-27.302	30.000	-14.32	|	268	3.78	120 k
576.623847822 M	22.88	25.368	-24.184	36.020	-13.14	|	136	3.97	120 k
826.018236441 M	26.43	28.000	-23.504	36.020	-9.59	--	359	3.73	120 k
30.298196393 M	22.31	27.261	-27.768	30.000	-7.69	--	132	2.29	120 k

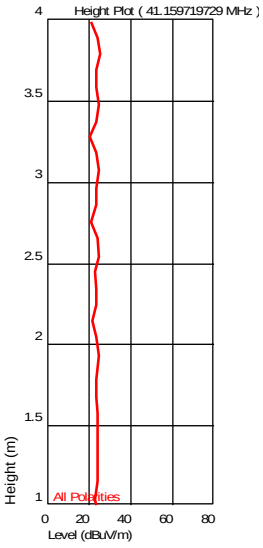
Azimuth Plots

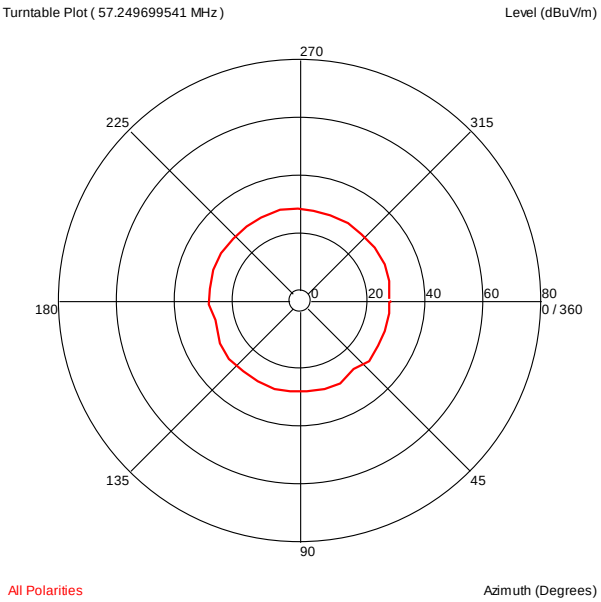


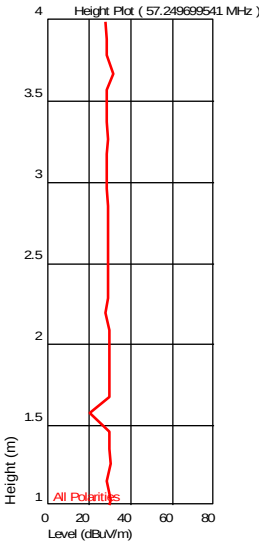
Turntable Plots

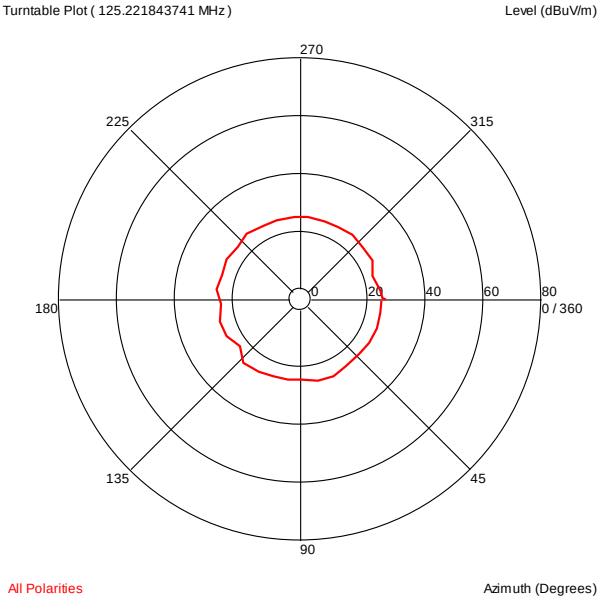


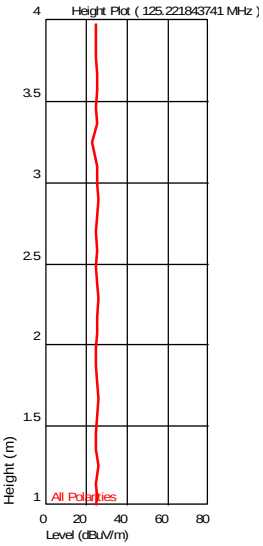


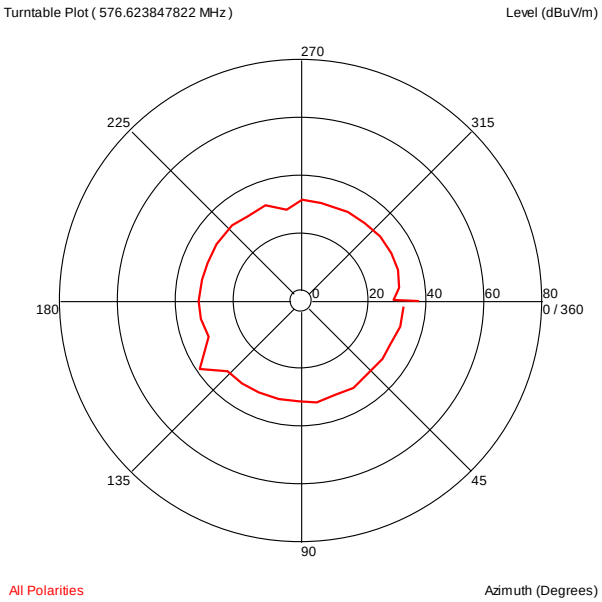


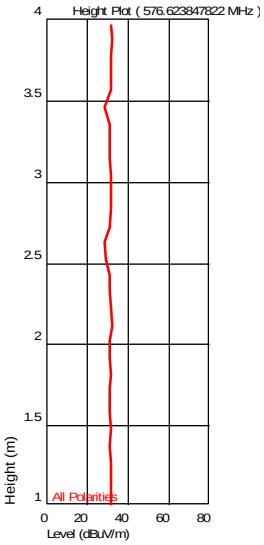

Turntable Plot (57.249699541 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

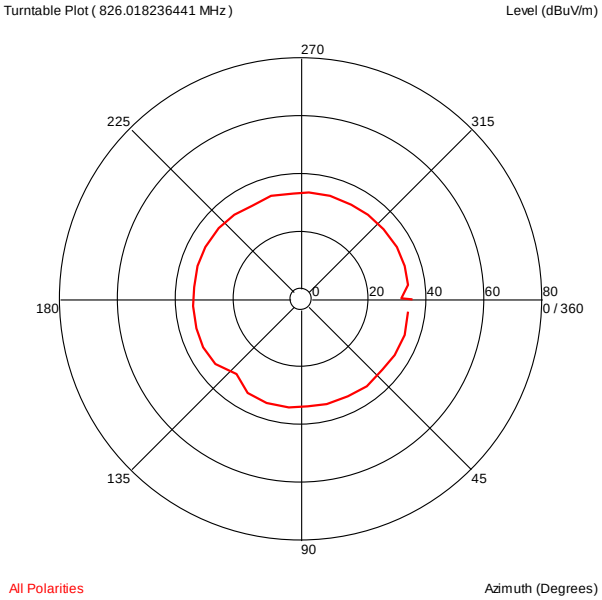

Height Plot (57.249699541 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

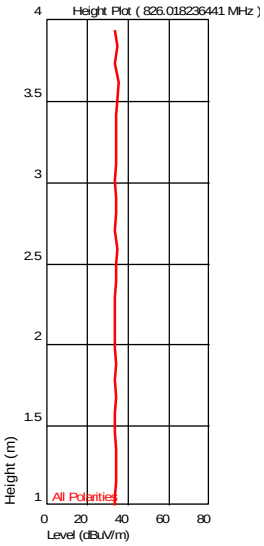

Turntable Plot (125.221843741 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (125.221843741 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 (576.623847822 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)


Height Plot (576.623847822 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 (826.018236441 MHz)
Level (dBuV/m)
270
225
315
180
135
45
90
0
20
40
60
80
0 / 360
All Polarities
Azimuth (Degrees)

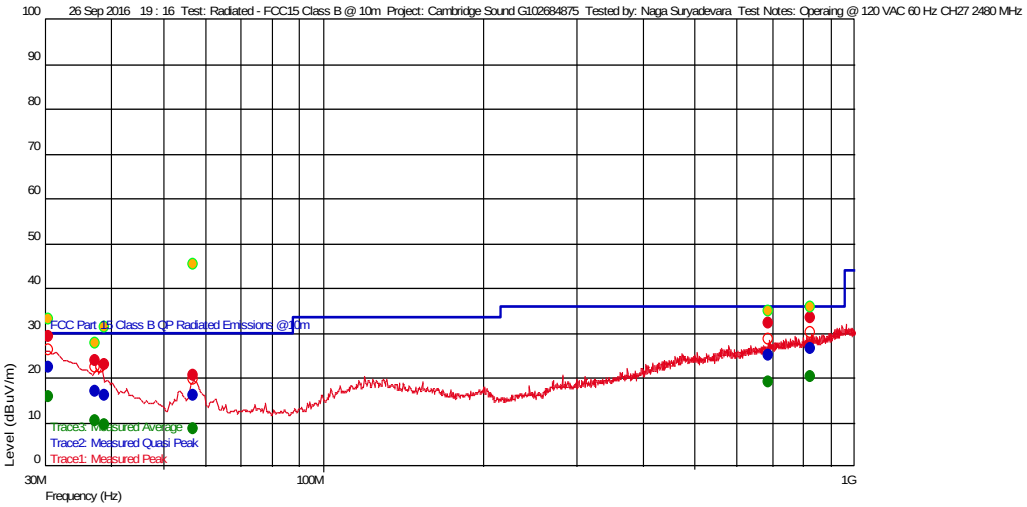

Height Plot (826.018236441 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Operating @ 120 VAC 60 Hz, Tx CH27 – 2480 MHz, 30 MHz – 1 GHz

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Cambridge Sound G102684875	
Test Notes:	Operaing @ 120 VAC 60 Hz CH27 2480 MHz	
Temperature:	22 C	
Humidity:	34% 1007 mbars	
Tested by:	Naga Suryadevara	
Test Started:	26 Sep 2016 19 : 16	

Prescan Emission Graph



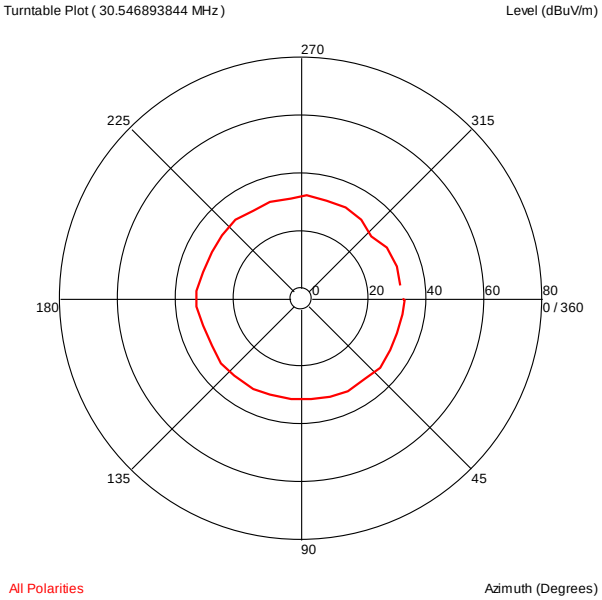
- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

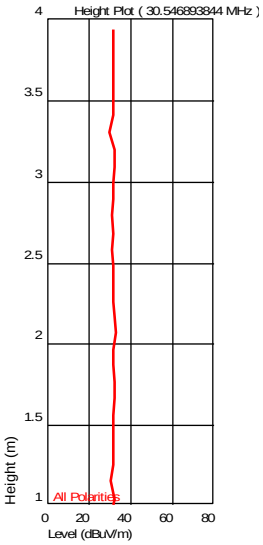
Trace2: Measured Quasi Peak

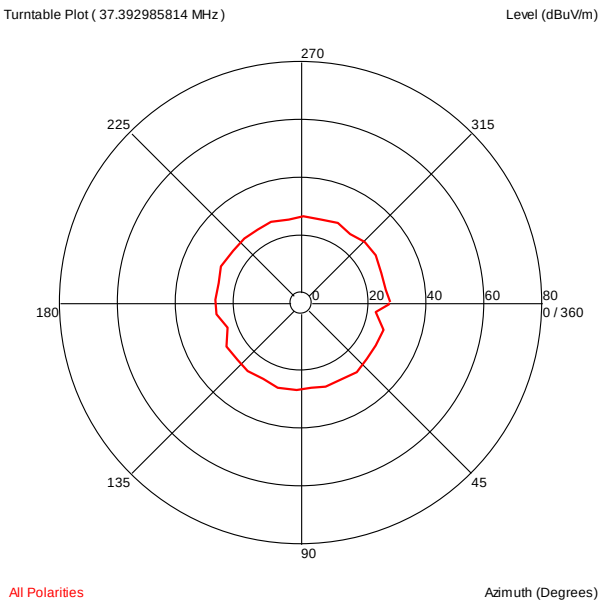
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	
57.147094331 M	15.82	13.300	-27.303	30.000	-14.18	|	223	4.00	120 k	
38.843486928 M	15.92	20.710	-27.602	30.000	-14.08	|	35	1.67	120 k	
37.392985814 M	16.87	21.786	-27.630	30.000	-13.13	--	360	1.57	120 k	
689.90981984 M	24.85	26.696	-23.897	36.020	-11.17	--	4	1.69	120 k	
827.241683391 M	26.44	28.000	-23.499	36.020	-9.58	--	94	2.19	120 k	
30.546893844 M	22.12	27.062	-27.763	30.000	-7.88	--	185	2.17	120 k	

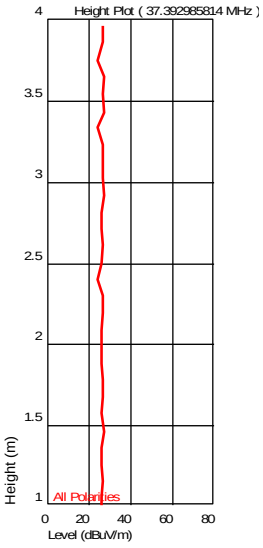
Azimuth Plots

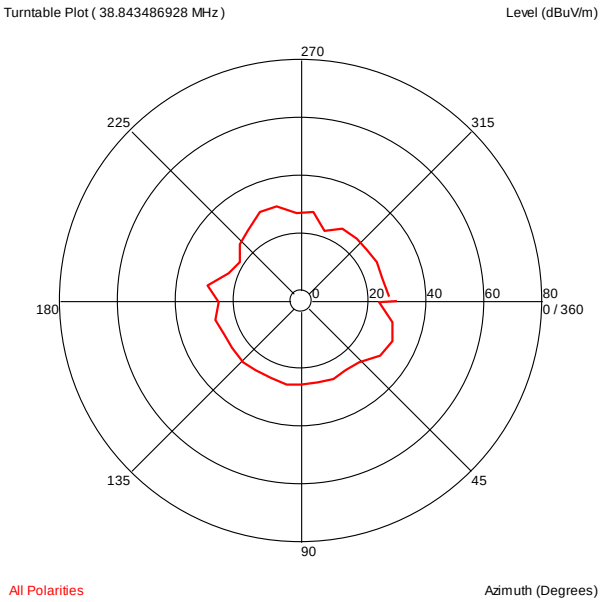


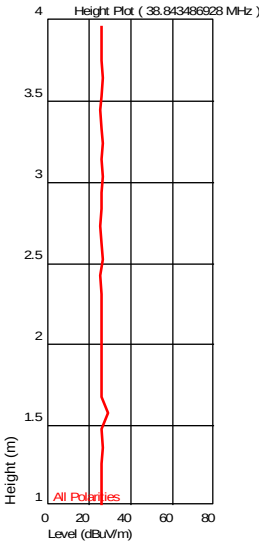
Turntable Plots

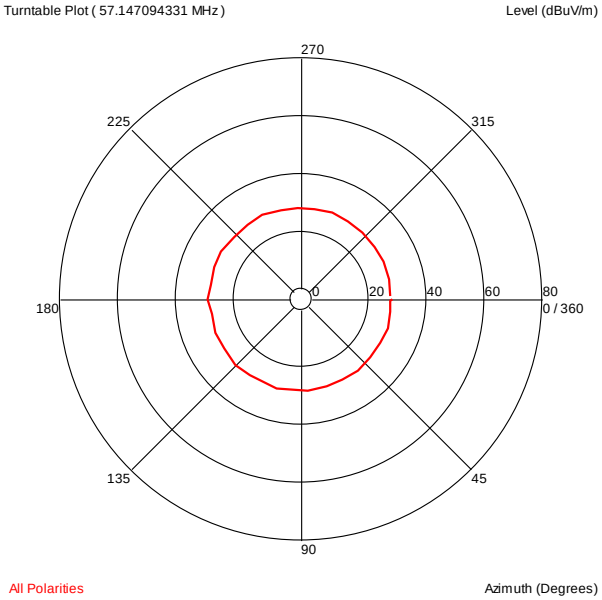


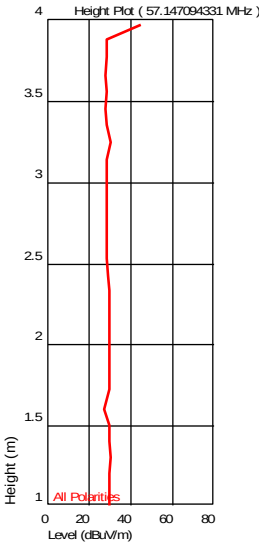


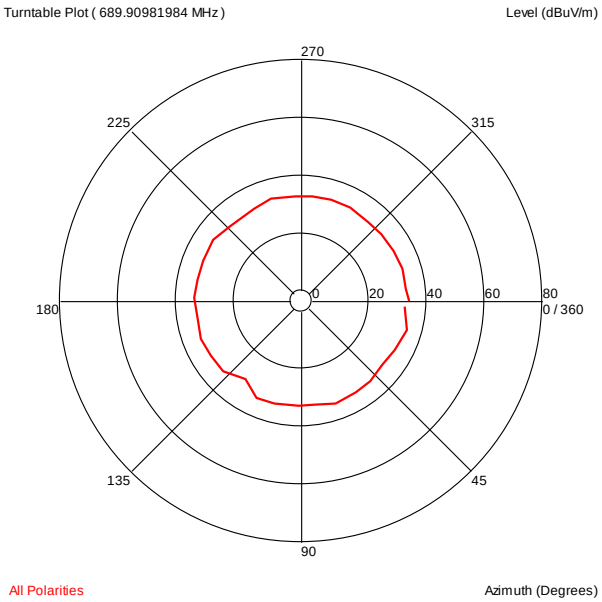


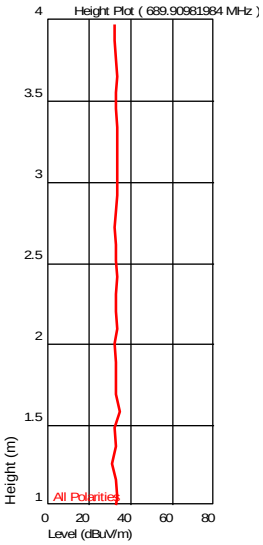

Turntable Plot (38.843486928 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

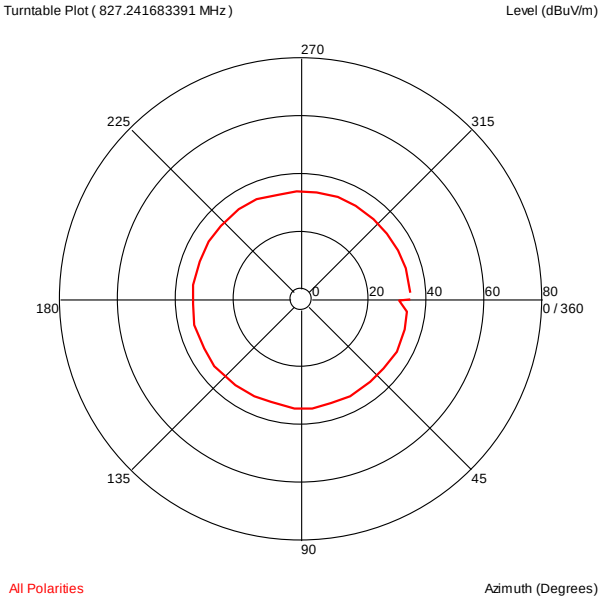

Height Plot (38.843486928 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

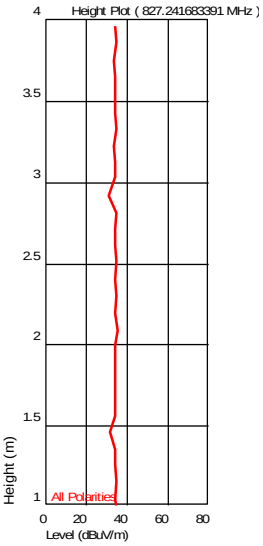

Turntable Plot (57.147094331 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (57.147094331 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 (689.90981984 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (689.90981984 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 (827.241683391 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (827.241683391 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

Intertek

Spurious Emissions From 1-17 GHz Radiated Emissions

Company: Cambridge Sound Management
Model #: Nightingale 3.2
Serial #: NGP3.2-104
Engineers: Kouma Sinn
Project #: QU-00705932
Standard: FCC Part 15 Subpart C 15.247
Receiver: 145-128
PreAmp: None
Date(s): 07/07/16
Location: 10M
Limit Distance (m): 3
Test Distance (m): 3
PreAmp Used? (Y or N): Y
Voltage/Frequency: 120 VAC 60 Hz
Antenna & Cables: LF
Antenna: ETS001 02-10-17.txt
Cable(s): 145-416 & CBLSHF203_07-05-17.txt CBLSHF204 09-03-16.txt
Barometer: DAV004
Filter: REA004
Temp/Humidity/Pressure: 22C 48% 1000mbar
Frequency Range: 1-17 GHz
Bands: N, LF, HF, SHF

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
High Channel 2480 MHz. EUT sits straight up in its only normal orientation. Spurious Emissions. 1-3 GHz (no pre-amp used)											
3-17 GHz pre-amp used with filter. No emissions were detected. Took noise floor readings at second and third harmonics											
PK, NF	H	4960.000	25.02	34.21	11.96	33.90	0.00	37.29	74.00	-36.71	100/300kHz
AVG, NF	H	4960.000	16.71	34.21	11.96	33.90	0.00	28.98	54.00	-25.02	100/300kHz
PK, NF	H	4960.000	35.66	34.21	11.96	33.90	0.00	47.93	74.00	-26.07	1/3MHz
AVG, NF	H	4960.000	26.26	34.21	11.96	33.90	0.00	38.53	54.00	-15.47	1/3MHz
PK, NF	H	7440.000	25.77	35.63	15.86	34.82	0.00	42.43	74.00	-31.57	100/300kHz
AVG, NF	H	7440.000	15.02	35.63	15.86	34.82	0.00	31.68	54.00	-22.32	100/300kHz
PK, NF	H	7440.000	35.43	35.63	15.86	34.82	0.00	52.09	74.00	-21.91	1/3MHz
AVG, NF	H	7440.000	25.89	35.63	15.86	34.82	0.00	42.55	54.00	-11.45	1/3MHz
Mid Channel 2440MHz. EUT sits straight up in its only normal orientation. Spurious Emissions. 1-3 GHz (no pre-amp used)											
3-17 GHz pre-amp used. No emissions were detected. Took noise floor readings at second and third harmonics											
PK, NF	H	4880.000	25.07	34.24	11.88	33.89	0.00	37.30	74.00	-36.70	100/300kHz
AVG, NF	H	4880.000	16.30	34.24	11.88	33.89	0.00	28.53	54.00	-25.47	100/300kHz
PK, NF	H	4880.000	35.77	34.24	11.88	33.89	0.00	48.00	74.00	-26.00	1/3MHz
AVG, NF	H	4880.000	26.48	34.24	11.88	33.89	0.00	38.71	54.00	-15.29	1/3MHz
PK, NF	H	7320.000	24.81	35.63	15.51	34.73	0.00	41.22	74.00	-32.78	100/300kHz
AVG, NF	H	7320.000	14.52	35.63	15.51	34.73	0.00	30.93	54.00	-23.07	100/300kHz
PK, NF	H	7320.000	34.59	35.63	15.51	34.73	0.00	51.00	74.00	-23.00	1/3MHz
AVG, NF	H	7320.000	25.87	35.63	15.51	34.73	0.00	42.28	54.00	-11.72	1/3MHz
Low Channel 2402MHz. EUT sits straight up in its only normal orientation. Spurious Emissions. 1-3 GHz (no pre-amp used)											
3-17 GHz pre-amp used. No emissions were detected. Took noise floor readings at second and third harmonics											
PK	H	4804.000	25.77	34.19	11.81	33.88	0.00	37.89	74.00	-36.11	100/300kHz
AVG	H	4804.000	15.18	34.19	11.81	33.88	0.00	27.30	54.00	-26.70	100/300kHz
PK	H	4804.000	35.13	34.19	11.81	33.88	0.00	47.25	74.00	-26.75	1/3MHz
AVG	H	4804.000	25.29	34.19	11.81	33.88	0.00	37.41	54.00	-16.59	1/3MHz
PK	H	7206.000	25.11	35.65	15.21	34.63	0.00	41.34	74.00	-32.66	100/300kHz
AVG	H	7206.000	15.26	35.65	15.21	34.63	0.00	31.49	54.00	-22.51	100/300kHz
PK	H	7206.000	34.83	35.65	15.21	34.63	0.00	51.06	74.00	-22.94	1/3MHz
AVG	H	7206.000	25.75	35.65	15.21	34.63	0.00	41.98	54.00	-12.02	1/3MHz

Notes: Applied the general limits for all emissions.

Hand scans were performed from 17-25 GHz at a distance of 10cm from the EUT, no emissions were detected above the measuring equipment noise floor.

Test Personnel:	Naga Suryadevara NS Vathana Ven VSV Kouma Sinn KPS	Test Date:	09/26/2016, 07/07/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC 15.247 & RSS 247	Limit Applied:	Below Specified Limit
Input Voltage:	120 VAC 60 Hz	Ambient Temperature:	22, 22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	BB Source	Relative Humidity:	34, 48 %
		Atmospheric Pressure:	1007, 1000 mbars

Deviations, Additions, or Exclusions: None

11 Digital Device Radiated Spurious Emissions

11.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart B, ICES 003 and ANSI C 63.4,

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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
Radiated Emissions, 10m	30-1000 MHz	4.6 dB	6.3 dB
Radiated Emissions, 3m	30-1000 MHz	5.3 dB	6.3 dB
Radiated Emissions, 3m	1-6 GHz	4.5 dB	5.2 dB
Radiated Emissions, 3m	6-15 GHz	5.2 dB	5.5 dB
Radiated Emissions, 3m	15-18 GHz	5.0 dB	5.5 dB
Radiated Emissions, 3m	18-40 GHz	5.0 dB	5.5 dB

As shown in the table above our radiated emissions U_{lab} is less than the corresponding U_{CISPR} 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
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
145145	Broadband Hybrid Antenna 30 MHz - 3 GHz	Sunol Sciences Corp.	JB3	A122313	03/09/2016	03/09/2017
145013'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2944A07027	05/02/2016	05/02/2017
145-410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	06/27/2016	06/27/2017

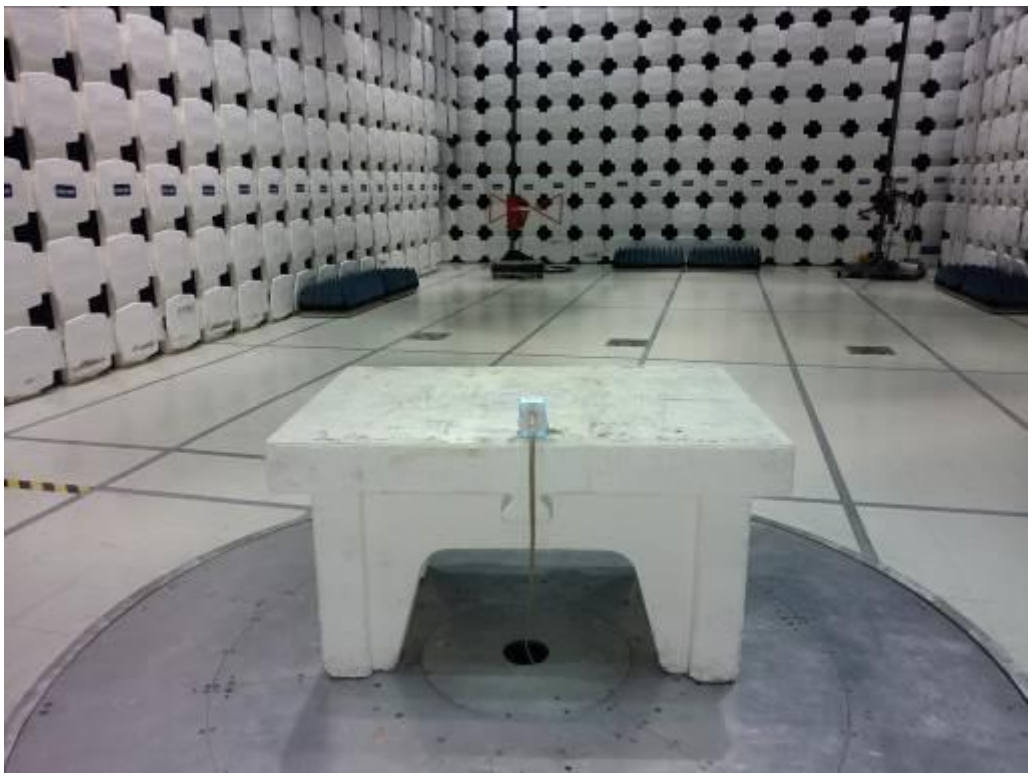
Software Utilized:

Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46

11.3 Results:

The sample tested was found to Comply.

11.4 Setup Photograph:



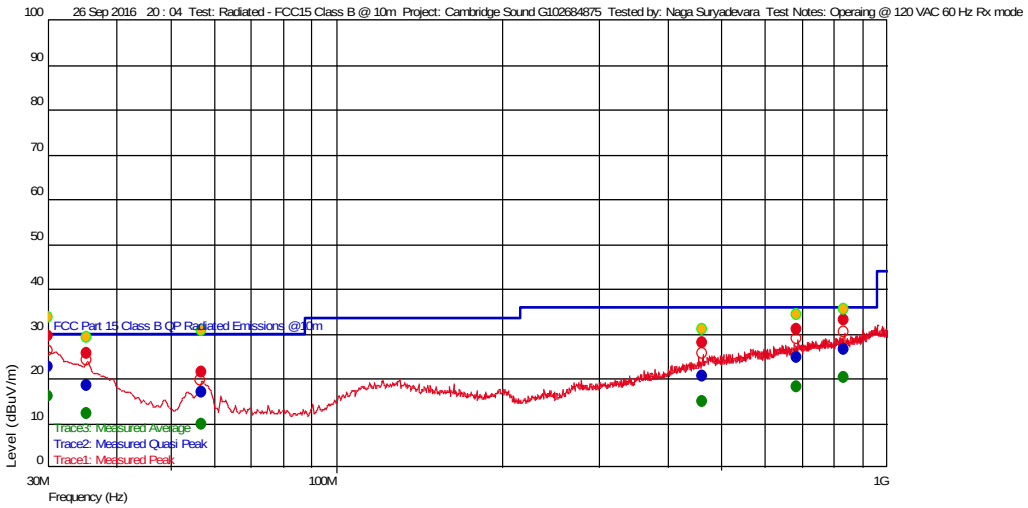
11.5 Plots/Data:

Operating @ 120 VAC 60 Hz 30 MHz – 1 GHz, Rx mode

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Cambridge Sound G102684875	
Test Notes:	Operaing @ 120 VAC 60 Hz Rx mode	
Temperature:	22 C	
Humidity:	34% 1007 mbars	
Tested by:	Naga Suryadevara	
Test Started:	26 Sep 2016 20 : 04	

Prescan Emission Graph



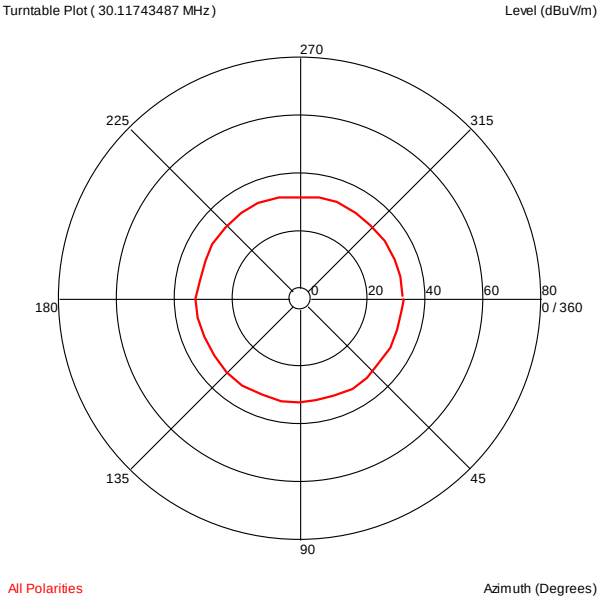
- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

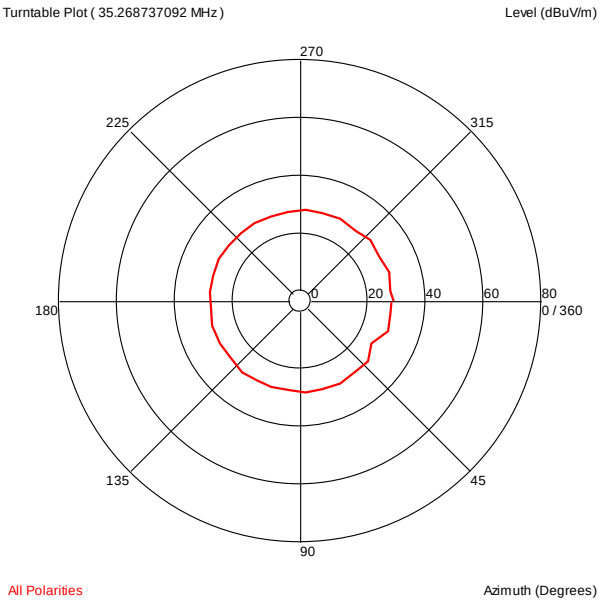
Emissions Test Data

Trace2: Measured Quasi Peak

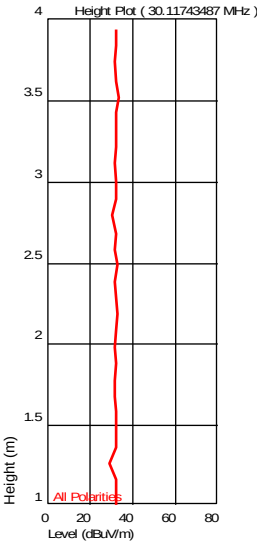
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)
461.941683251 M	20.45	23.578	-24.459	36.020	-15.57	|	176	2.08	120 k
57.135671429 M	17.00	13.300	-27.303	30.000	-13.00	|	262	1.05	120 k
35.268737092 M	18.45	23.412	-27.671	30.000	-11.55	--	330	1.47	120 k
685.774348449 M	24.56	26.531	-23.908	36.020	-11.46	|	62	4.00	120 k
833.808015842 M	26.47	28.000	-23.470	36.020	-9.55	|	182	3.98	120 k
30.11743487 M	22.56	27.406	-27.771	30.000	-7.44	|	360	3.62	120 k

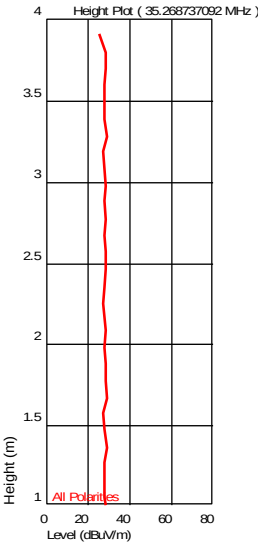
Azimuth Plots

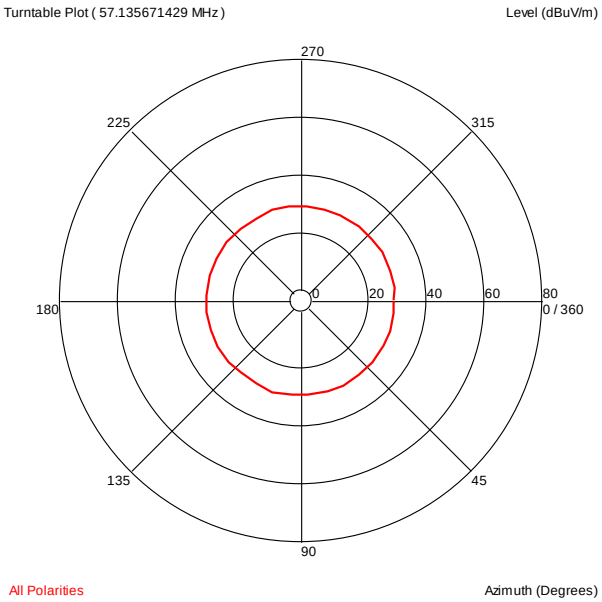


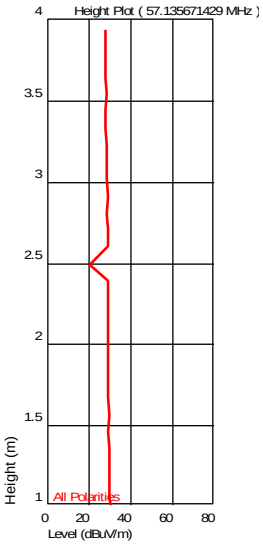


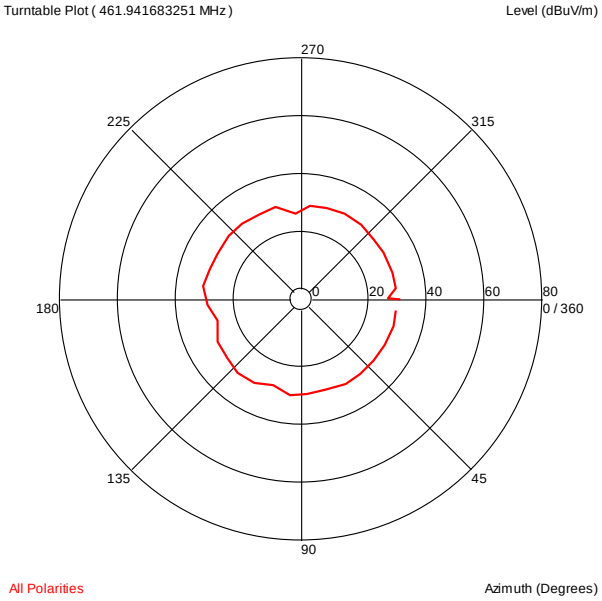
Turntable Plots

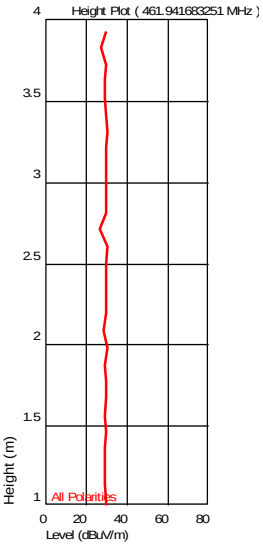


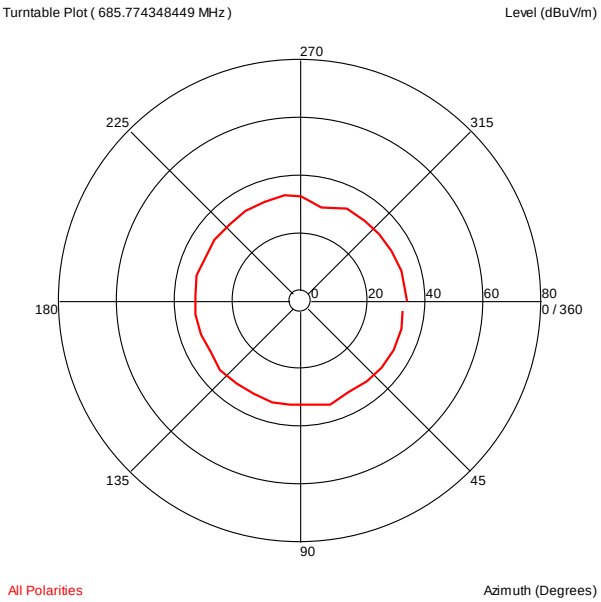


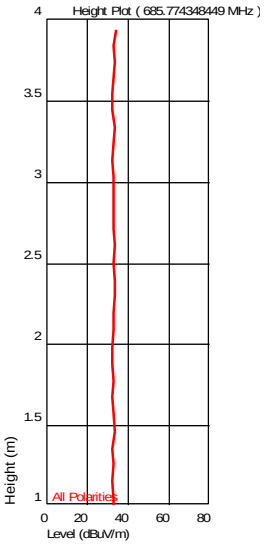

Turntable Plot (57.135671429 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)

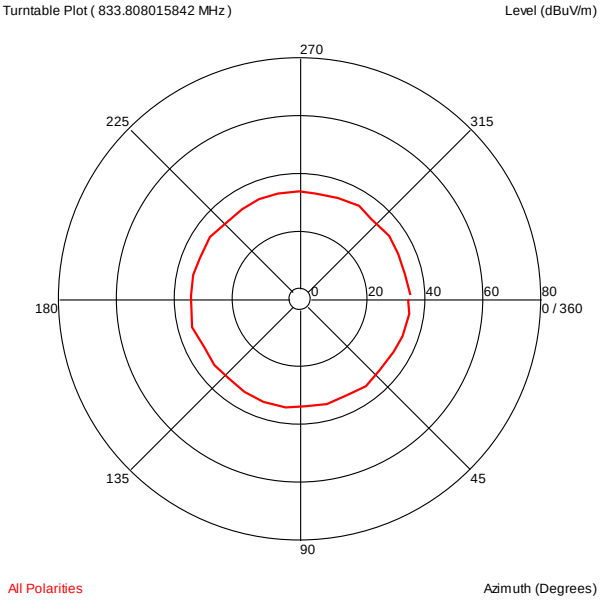

Height Plot (57.135671429 MHz)
4
3.5
3
2.5
2
1.5
1
Height (m)
All Polarities
0
20
40
60
80
Level (dBuV/m)

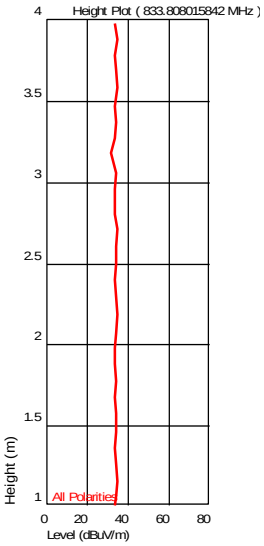

Turntable Plot (461.941683251 MHz)
Level (dBuV/m)
270
225
315
180
0
20
40
60
80
0 / 360
135
45
90
All Polarities
Azimuth (Degrees)


Height Plot (461.941683251 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:	Naga Suryadevara NS	Test Date:	09/26/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part15 Subpart B, ICES 003	Limit Applied:	Class B
Input Voltage:	120 VAC 60 Hz	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	BB Source	Relative Humidity:	34 %
		Atmospheric Pressure:	1007 mbars

Deviations, Additions, or Exclusions: None

12 AC Mains Conducted Emissions

12.1 Method

Tests are performed in accordance with CFR47 FCC Part 15 Subpart B, ICES 003 and ANSI C 63.4.

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. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucispr
AC Line Conducted Emissions	150 kHz - 30 MHz	dB	3.4dB
Telco Port Emissions	150 kHz - 30 MHz	dB	5.0dB

As shown in the table above our conducted emissions U_{lab} is less than the corresponding U_{CISPR} 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 Calculations

The following is how net line-conducted readings were determined:

NF = RF + LF + CF + AF
Where NF = Net Reading in dBμV
RF = Reading from receiver in dBμV
LF = LISN or ISN Correction Factor in dB
CF = Cable Correction Factor in dB
AF = Attenuator Loss Factor in dB

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:

NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 dBμV
$UF = 10^{(49.1\ dB\mu V / 20)}$ = 285.1 μV/m

12.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61A	05/02/2016	05/02/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/10/2016	03/10/2017
DS25'	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS25	10/12/2015	10/12/2016
CBL043'	3ft BNC to BNC	Hosiwell	Coax RG-58	CBL043	05/02/2016	05/02/2017
LISN32'	LISN - CISPR16 Compliant 9kHz-30MHz	Com-Power	LI-215A	191955	03/25/2016	03/25/2017

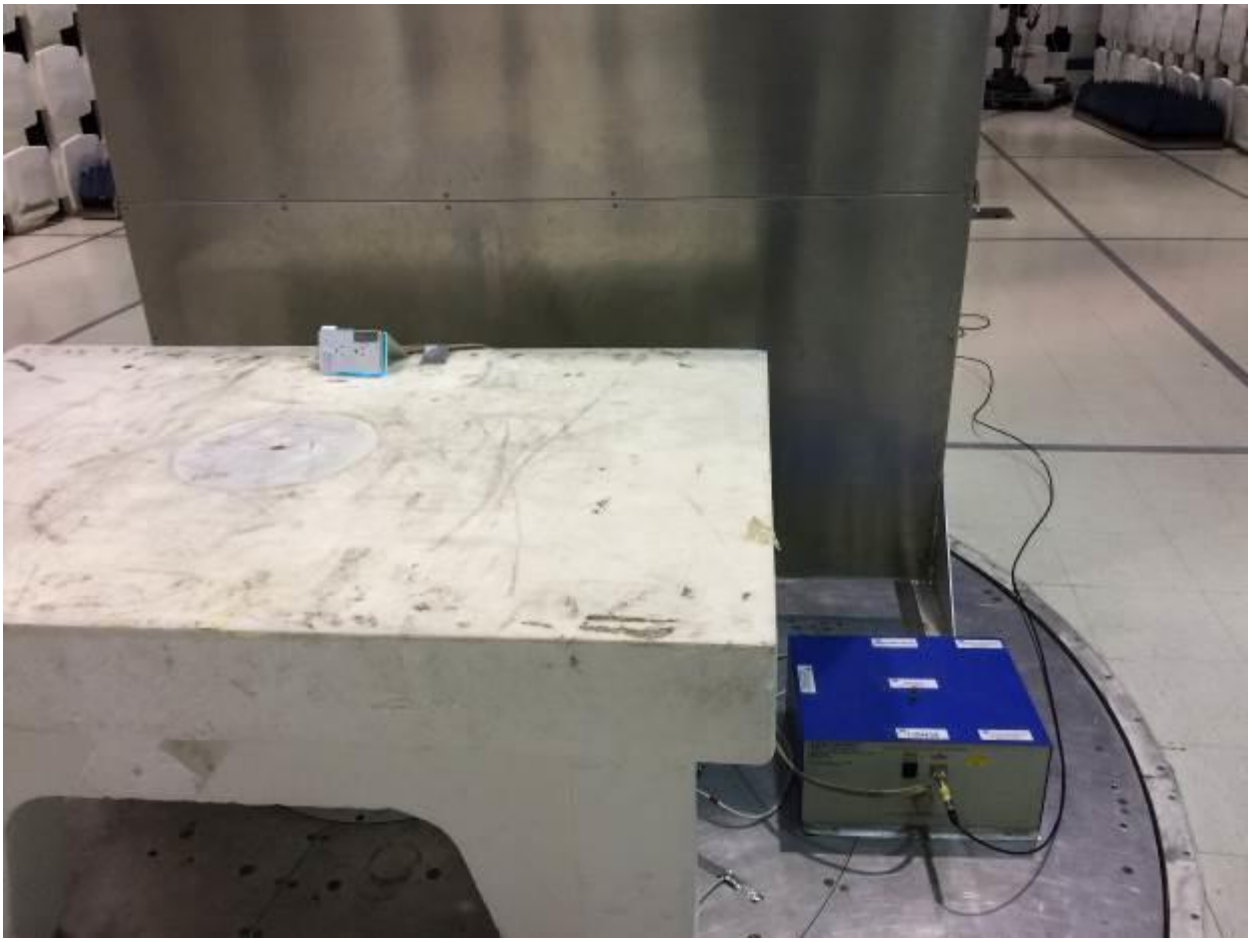
Software Utilized:

Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46

12.3 Results:

The sample tested was found to Comply.

12.4 Setup Photograph:

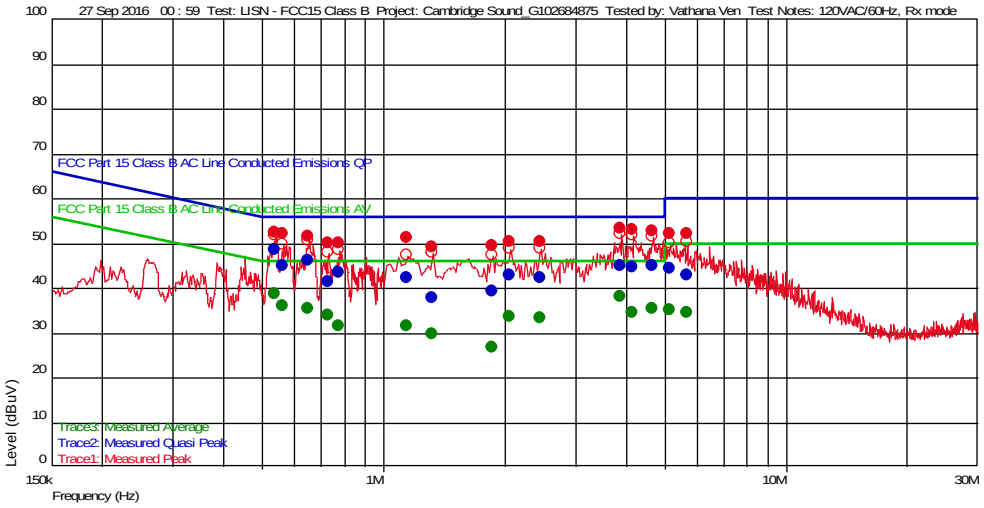


12.5 Plots/Data:

Test Information

Test Details	User Entry	Additional Information
Test:	LISN - FCC15 Class B	
Project:	Cambridge Sound_G102684875	
Test Notes:	120VAC/60Hz, Rx mode	
Temperature:	22 deg C	
Humidity:	38%, 1004 mB	
Tested by:	Vathana Ven	
Test Started:	27 Sep 2016 00 : 59	

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

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
1.324649299 M	37.88	0.013	20.260	56.000	-18.12	9 k		N
5.689378758 M	42.80	0.020	20.076	60.000	-17.20	9 k		N
1.865731463 M	39.25	0.019	20.237	56.000	-16.75	9 k		N
5.148296593 M	44.30	0.020	20.099	60.000	-15.70	9 k		N
729.158316633 k	41.41	0.010	20.240	56.000	-14.59	9 k		N
1.144288577 M	42.21	0.011	20.268	56.000	-13.79	9 k		N
2.460921844 M	42.23	0.020	20.212	56.000	-13.77	9 k		N
2.064128257 M	42.78	0.020	20.229	56.000	-13.22	9 k		N
778.557114228 k	43.48	0.010	20.247	56.000	-12.52	9 k		N
4.174348697 M	44.64	0.020	20.140	56.000	-11.36	9 k		N
4.679358717 M	44.89	0.020	20.118	56.000	-11.11	9 k		N
3.903807615 M	44.90	0.020	20.151	56.000	-11.10	9 k		N
565.631262525 k	45.04	0.011	20.220	56.000	-10.96	9 k		N
652.50501002 k	46.16	0.010	20.231	56.000	-9.84	9 k		N
538.376753507 k	48.57	0.012	20.216	56.000	-7.43	9 k		N

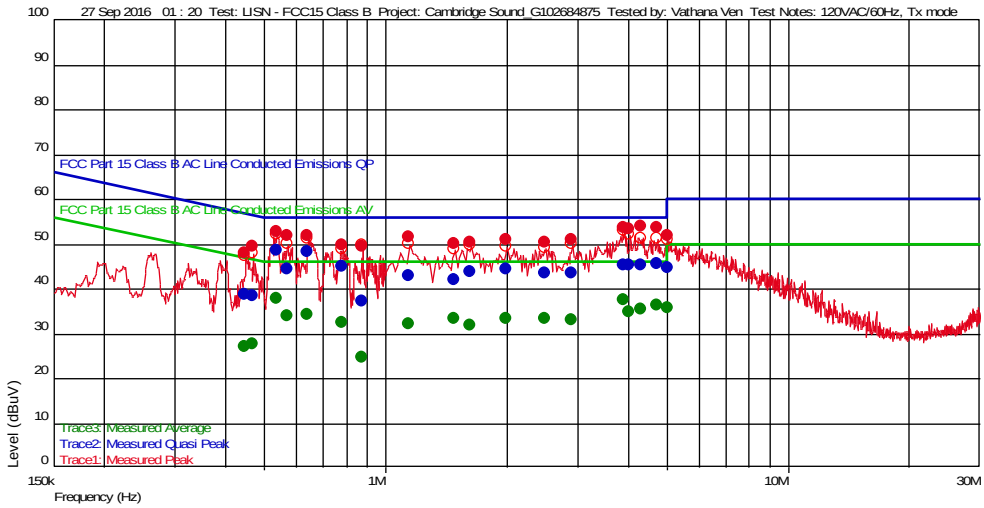
Trace3: Measured Average

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
1.865731463 M	26.73	0.019	20.237	46.000	-19.27	9 k		N
1.324649299 M	29.67	0.013	20.260	46.000	-16.33	9 k		N
5.689378758 M	34.53	0.020	20.076	50.000	-15.47	9 k		N
5.148296593 M	35.06	0.020	20.099	50.000	-14.94	9 k		N
1.144288577 M	31.36	0.011	20.268	46.000	-14.64	9 k		N
778.557114228 k	31.59	0.010	20.247	46.000	-14.41	9 k		N
2.460921844 M	33.36	0.020	20.212	46.000	-12.64	9 k		N
2.064128257 M	33.67	0.020	20.229	46.000	-12.33	9 k		N
729.158316633 k	33.96	0.010	20.240	46.000	-12.04	9 k		N
4.174348697 M	34.59	0.020	20.140	46.000	-11.41	9 k		N
652.50501002 k	35.26	0.010	20.231	46.000	-10.74	9 k		N
4.679358717 M	35.32	0.020	20.118	46.000	-10.68	9 k		N
565.631262525 k	36.10	0.011	20.220	46.000	-9.90	9 k		N
3.903807615 M	38.19	0.020	20.151	46.000	-7.81	9 k		N
538.376753507 k	38.69	0.012	20.216	46.000	-7.31	9 k		N

Test Information

Test Details	User Entry	Additional Information
Test:	LISN - FCC15 Class B	
Project:	Cambridge Sound_G102684875	
Test Notes:	120VAC/60Hz, Tx mode	
Temperature:	22 deg C	
Humidity:	38%, 1004 mB	
Tested by:	Vathana Ven	
Test Started:	27 Sep 2016 01 : 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

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
877.354709419 k	37.05	0.010	20.259	56.000	-18.95	9 k		N
449.799599198 k	38.57	0.015	20.205	56.879	-18.31	9 k		N
468.537074148 k	38.35	0.014	20.207	56.540	-18.19	9 k		N
5.058116232 M	44.71	0.020	20.102	60.000	-15.29	9 k		N
1.486973948 M	42.05	0.015	20.253	56.000	-13.95	9 k		N
1.144288577 M	42.98	0.011	20.268	56.000	-13.02	9 k		N
2.911823647 M	43.47	0.020	20.193	56.000	-12.53	9 k		N
2.496993988 M	43.51	0.020	20.210	56.000	-12.49	9 k		N
1.631262525 M	43.61	0.016	20.247	56.000	-12.39	9 k		N
570.741482966 k	44.24	0.011	20.220	56.000	-11.76	9 k		N
2.01002004 M	44.31	0.020	20.231	56.000	-11.69	9 k		N
783.667334669 k	44.93	0.010	20.247	56.000	-11.07	9 k		N
4.048096192 M	45.15	0.020	20.145	56.000	-10.85	9 k		N
3.921843687 M	45.34	0.020	20.150	56.000	-10.66	9 k		N
4.336673347 M	45.37	0.020	20.133	56.000	-10.63	9 k		N
4.733466934 M	45.58	0.020	20.116	56.000	-10.42	9 k		N
642.284569138 k	48.19	0.010	20.229	56.000	-7.81	9 k		N
538.376753507 k	48.61	0.012	20.216	56.000	-7.39	9 k		N

Trace3: Measured Average

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
877.354709419 k	24.53	0.010	20.259	46.000	-21.47	9 k		N
449.799599198 k	26.91	0.015	20.205	46.879	-19.97	9 k		N
468.537074148 k	27.53	0.014	20.207	46.540	-19.01	9 k		N
5.058116232 M	35.70	0.020	20.102	50.000	-14.30	9 k		N
1.631262525 M	31.72	0.016	20.247	46.000	-14.28	9 k		N
1.144288577 M	32.10	0.011	20.268	46.000	-13.90	9 k		N
783.667334669 k	32.53	0.010	20.247	46.000	-13.47	9 k		N
2.911823647 M	33.13	0.020	20.193	46.000	-12.87	9 k		N
1.486973948 M	33.19	0.015	20.253	46.000	-12.81	9 k		N
2.01002004 M	33.27	0.020	20.231	46.000	-12.73	9 k		N
2.496993988 M	33.36	0.020	20.210	46.000	-12.64	9 k		N
570.741482966 k	33.94	0.011	20.220	46.000	-12.06	9 k		N
642.284569138 k	34.23	0.010	20.229	46.000	-11.77	9 k		N
4.048096192 M	34.77	0.020	20.145	46.000	-11.23	9 k		N
4.336673347 M	35.49	0.020	20.133	46.000	-10.51	9 k		N
4.733466934 M	36.23	0.020	20.116	46.000	-9.77	9 k		N
3.921843687 M	37.34	0.020	20.150	46.000	-8.66	9 k		N
538.376753507 k	37.71	0.012	20.216	46.000	-8.29	9 k		N

Test Personnel:	Vathana Ven VSV	Test Date:	09/26/2016
Supervising/Reviewing Engineer: (Where Applicable)	N/A		
Product Standard:	FCC Part15 Subpart B, ICES 003	Limit Applied:	All Class B
Input Voltage:	120 VAC 60 Hz	Ambient Temperature:	22 ºC
Pretest Verification w/ Ambient Signals or BB Source:	BB Source	Relative Humidity:	38 %
		Atmospheric Pressure:	1004 mbars

Deviations, Additions, or Exclusions: None

13 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	09/29/2016	102684875BOX-001	VFV	MFM	Original Issue
1	11/22/2016	102684875BOX-001a	VFV	MFM	Corrected typo and recalculated RF exposure