



EMISSIONS TEST REPORT

(FULL COMPLIANCE)

Report Number: 102502065BOX-002

Project Number: G102502065

Report Issue Date: 06/26/2016

Model(s) Tested: Kaye Validator AVS X2015

Model(s) Not Tested but declared equivalent by the client: Kaye Validator AVS X2015E

Standards: CFR47 FCC Part 15 Subpart C (15.247): 06/2016,
CFR47 FCC Part 15 Subpart B: 06/2016,
RSS-247 Issue 1: 05/2015,
ICES-003 Issue 6: 01/2016 updated 04/2016,
RSS-Gen Issue 4: 11/2014,
RSS-102 Issue 5: 03/2015,
KDB 558074 D01 DTS Meas Guidance v03r04: 01/2016

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

Client:
Amphenol Thermometrics, Inc.
967 Windfall Rd
Saint Marys, PA 15857-3333
USA

Report prepared by

Naga Suryadevara/EMC Engineer

Report reviewed by

Kouma Sinn / EMC Staff Engineer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Table of Contents

1 Introduction and Conclusion 3

2 Test Summary 3

3 Client Information 4

4 Description of Equipment Under Test and Variant Models..... 4

5 System Setup and Method 6

6 Maximum Peak Output Power and Human RF exposure 7

7 Maximum Power Spectral Density..... 22

8 6 dB and Occupied Bandwidth 36

9 Band Edge Compliance..... 59

10 Transmitter Radiated Spurious Emissions 72

11 Digital Devices Radiated Spurious Emissions 136

12 AC Mains Conducted Emissions 150

13 Revision History 157

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	Maximum Peak Output Power and Human RF exposure (CFR47 FCC Part 15 Subpart C: 06/2016, Section 15.247 (b)(3) RSS-247 Issue1: 05/2015 RSS-102 Issue 5: 03/2015)	Pass
7	Maximum Power Spectral Density (CFR47 FCC Part 15 Subpart C: 06/2016, Section 15.247 (e) RSS-247 Issue1: 05/2015)	Pass
8	6 dB Bandwidth and Occupied Bandwidth (CFR47 FCC Part 15 Subpart C: 06/2016, Section 15.247 (a)(2) RSS-247 Issue1: 05/2015)	Pass
9	Band Edge Compliance (CFR47 FCC Part 15 Subpart C: 06/2016, Section 15.247 (d) RSS-247 Issue1: 05/2015)	Pass
10	Transmitter radiated emissions (CFR47 FCC Part 15 Subpart C: 06/2016, Section 15.247 (d) RSS247 Issue1: 05/2015)	Pass
11	Digital Devices Radiated Spurious Emissions (FCC 47CFR Part 15 Subpart B: 06/2016, ICES-003 Issue 6: 01/2016 updated 04/2016)	Pass
12	AC Mains Conducted Emissions (FCC 47CFR Part 15 Subpart B :06/2016, ICES-003 Issue 6: 01/2016 updated 04/2016)	Pass
13	Revision History	--

3 Client Information

This EUT was tested at the request of:

Client: Amphenol Thermometrics, Inc.
 967 Windfall Rd
 Saint Marys, PA 15857-3333
 USA

Contact: Matt Schwabenbauer
Telephone: (814) 834-5521
Fax: None
Email: matt.schwabenbauer@amphenol-sensors.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: Amphenol Thermometrics, Inc.
 967 Windfall Rd
 Saint Marys, PA 15857-3333
 USA

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Advanced validation system	Amphenol Thermometrics Inc.	Kaye Validator X2015	16020019

Receive Date:	05/31/2016
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
Advanced Validation System.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
120-240 VAC	1.8 A	50/60 Hz	1

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	CERHOST.exe

Radio/Receiver Characteristics	
Frequency Band(s)	2412 - 2462 MHz
Modulation Type(s)	DSSS, OFDM
Maximum Output Power	4.41 dBm
Test Channels	CH1, CH6, CH11
Occupied Bandwidth	18.19 MHz
Frequency Hopper: Number of Hopping Channels	NA
Frequency Hopper: Channel Dwell Time	NA
Frequency Hopper: Max interval between two instances of use of the same channel	NA
MIMO Information (# of Transmit and Receive antenna ports)	NA
Equipment Type	Standalone
ETSI LBT/Adaptivity	NA
ETSI Adaptivity Type	NA
ETSI Temperature Category (I, II, III)	NA
ETSI Receiver Category (1, 2, 3)	NA
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.

Kaye Validator AVS X2015E

5 System Setup and Method

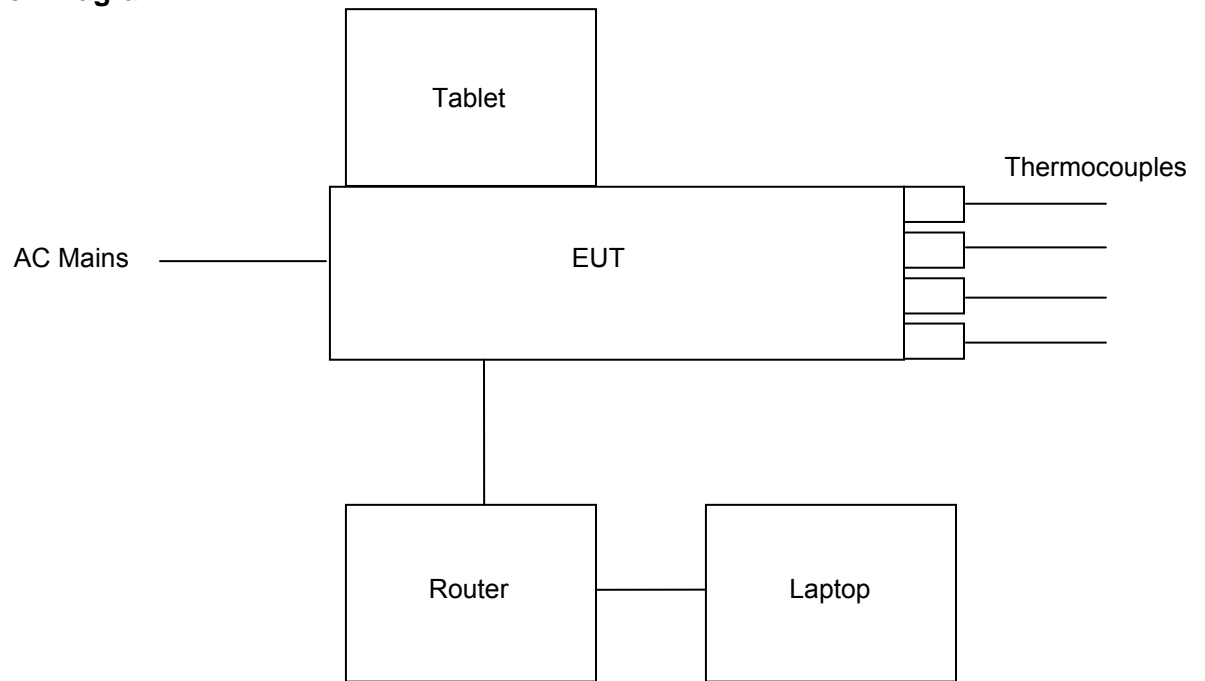
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
1	Power Supply Cable	1.5	None	None	AC Mains
2	Thermocouple Cables	3	None	None	Thermocouples
3	Ethernet	6	Yes	None	Wireless Router

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop	Dell Inc.	Latitude E6420	VVF52 A00
Tablet – MC-F5te	Motion	CFT-003	None
Router	TRENDnet	TEW-752dru	C1451RD300820

5.1 Method:

Configuration as required by CFR47 FCC Part 15 Subpart C (15.247): 06/2016, CFR47 FCC Part 15 Subpart B: 06/2016, RSS-247 Issue 1: 05/2015, ICES-003 Issue 6: 01/2016 updated 04/2016, RSS-Gen Issue 4: 11/2014 RSS-102 Issue 5: 03/2015, ANSI C63.4: 2014, ANSI C63.10:2013, and KDB 558074 D01 DTS MeasGuidance v03r04: 01/2016.

5.2 EUT Block Diagram:



6 Maximum Peak Output Power and Human RF exposure

6.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C (15.247), ANSI C63.4, ANSI C63.10, KDB558074, and RSS-247.

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

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

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

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

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

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
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017

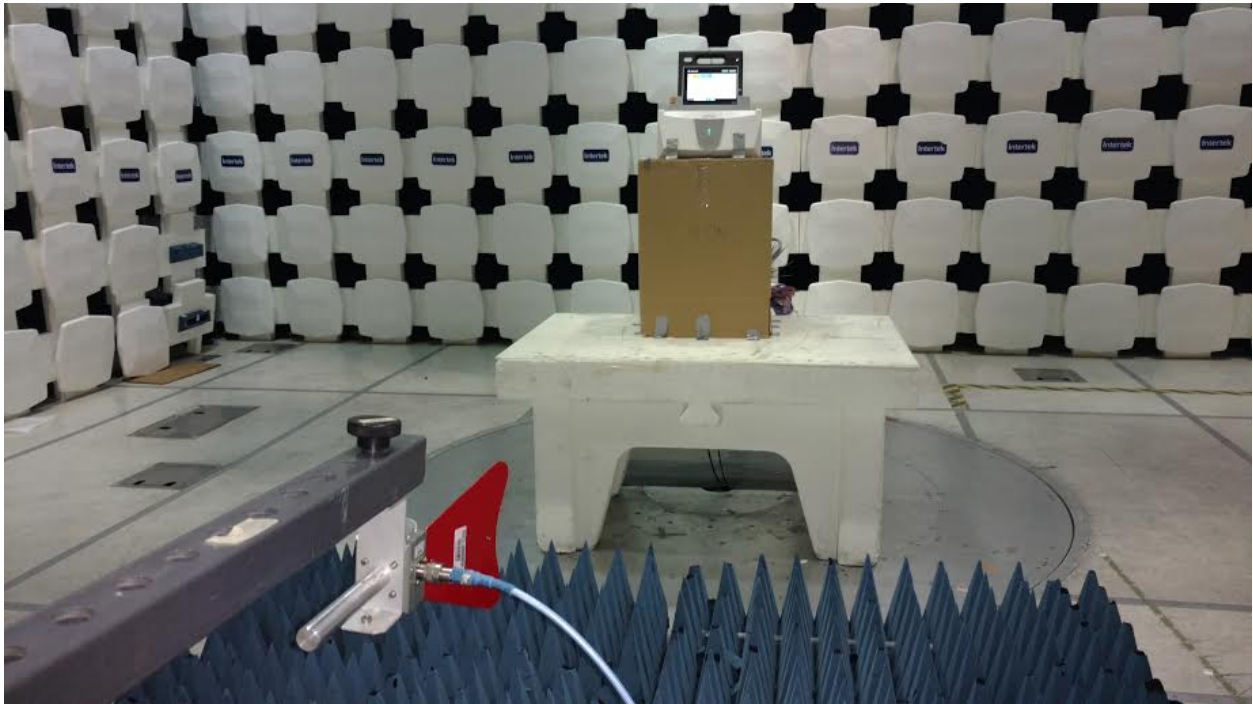
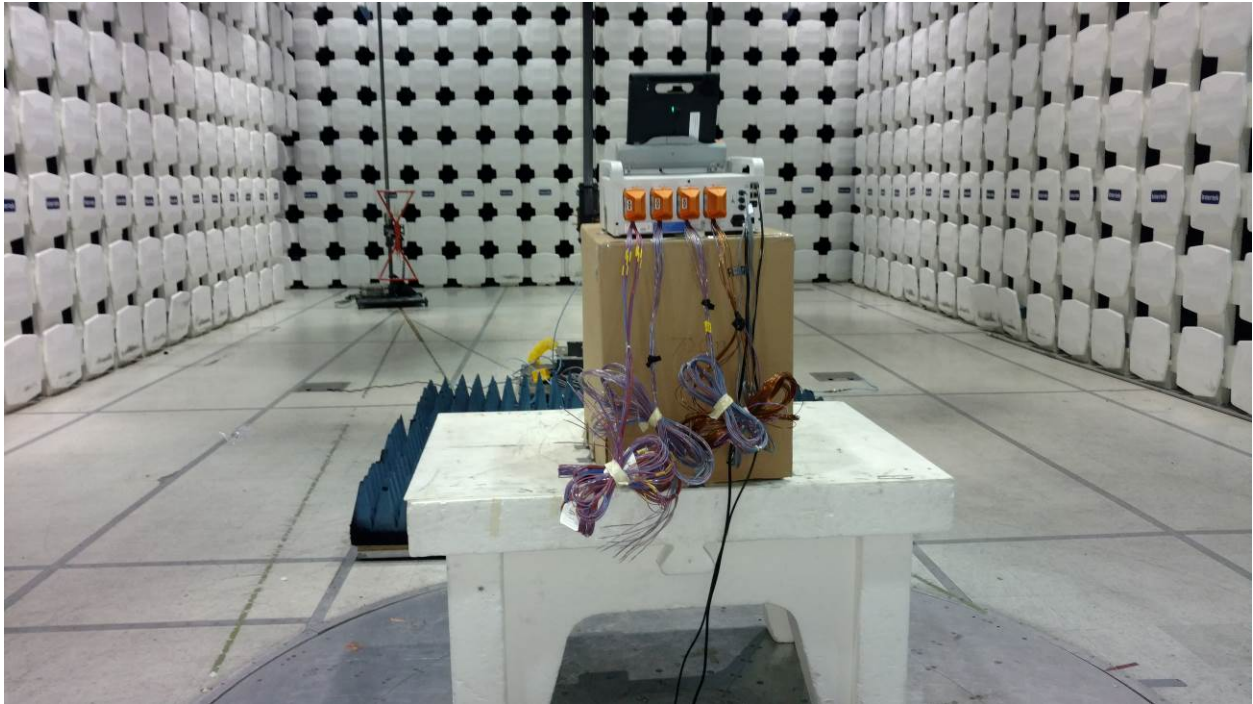
Software Utilized:

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 30 dBm. The Human RF Exposure limit is 1 mW/cm².

6.4 Setup Photographs:



6.5 Test Data:

Intertek											
Output Power											
Company: Amphenol Thermometrics Inc						Antenna & Cables: HF		Bands: N, LF, HF, SHF			
Model #: KAYE VALIDATOR X 2015						Antenna: ETS002 05-13-2017.txt					
Serial #: 16020119						Cable(s): 145-416 1-18 GHz 10-08-16.txt		NONE.			
Engineers: Naga Suryadevara			Date(s): 05/31/2016 06/01/2016			Location: 10M		Barometer: DAV004		Filter: NONE	
Project #: G102502065								Temp/Humidity/Pressure: 22, 21 C		45, 48% 1004, 1008, mbars	
Standard: FCC Part 15 Subpart C 15.247						Limit Distance (m): 3					
Receiver: R&S ESI (145-128) 03-10-2017						Test Distance (m): 3					
PreAmp: None						Voltage/Frequency: 120 VAC 60 Hz		Frequency Range: Frequencies Shown			
PreAmp Used? (Y or N): N								Net = Reading (dBuV/m) + Antenna Factor (dB/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, Channel 1 - 802.11b DSSS Data rate - 1 Mbps, 20 MHz BW, 18 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	59.90	32.17	3.69	0.00	0.00	0.54	30.00	-29.46	5/10 MHz
PK	H	2412.000	60.55	32.17	3.69	0.00	0.00	1.19	30.00	-28.81	5/10 MHz
PK	V	2412.000	50.12	32.17	3.69	0.00	0.00	-9.24	30.00	-39.24	1/3 MHz
PK	H	2412.000	50.68	32.17	3.69	0.00	0.00	-8.68	30.00	-38.68	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11b DSSS Data rate - 2 Mbps, 20 MHz BW, 18 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	58.64	32.17	3.69	0.00	0.00	-0.72	30.00	-30.72	5/10 MHz
PK	H	2412.000	60.80	32.17	3.69	0.00	0.00	1.44	30.00	-28.56	5/10 MHz
PK	V	2412.000	49.06	32.17	3.69	0.00	0.00	-10.30	30.00	-40.30	1/3 MHz
PK	H	2412.000	51.17	32.17	3.69	0.00	0.00	-8.19	30.00	-38.19	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11b DSSS Data rate - 5.5 Mbps, 20 MHz BW, 18 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	60.28	32.17	3.69	0.00	0.00	0.92	30.00	-29.08	5/10 MHz
PK	H	2412.000	62.55	32.17	3.69	0.00	0.00	3.19	30.00	-26.81	5/10 MHz
PK	V	2412.000	50.43	32.17	3.69	0.00	0.00	-8.93	30.00	-38.93	1/3 MHz
PK	H	2412.000	53.50	32.17	3.69	0.00	0.00	-5.86	30.00	-35.86	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11b DSSS Data rate - 11 Mbps, 20 MHz BW, 18 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	60.15	32.17	3.69	0.00	0.00	0.79	30.00	-29.21	5/10 MHz
PK	H	2412.000	60.55	32.17	3.69	0.00	0.00	1.19	30.00	-28.81	5/10 MHz
PK	V	2412.000	53.28	32.17	3.69	0.00	0.00	-6.08	30.00	-36.08	1/3 MHz
PK	H	2412.000	53.47	32.17	3.69	0.00	0.00	-5.89	30.00	-35.89	1/3 MHz

Note: RF Output Power, Channel 6 - 802.11b DSSS Data rate - 1 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	58.76	32.22	3.72	0.00	0.00	-0.52	30.00	-30.52	5/10 MHz
PK	H	2437.000	61.18	32.22	3.72	0.00	0.00	1.90	30.00	-28.10	5/10 MHz
PK	V	2437.000	48.11	32.22	3.72	0.00	0.00	-11.17	30.00	-41.17	1/3 MHz
PK	H	2437.000	51.57	32.22	3.72	0.00	0.00	-7.71	30.00	-37.71	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11b DSSS Data rate - 2 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	59.38	32.22	3.72	0.00	0.00	0.10	30.00	-29.90	5/10 MHz
PK	H	2437.000	57.91	32.22	3.72	0.00	0.00	-1.37	30.00	-31.37	5/10 MHz
PK	V	2437.000	47.61	32.22	3.72	0.00	0.00	-11.67	30.00	-41.67	1/3 MHz
PK	H	2437.000	48.59	32.22	3.72	0.00	0.00	-10.69	30.00	-40.69	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11b DSSS Data rate - 5.5 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	58.40	32.22	3.72	0.00	0.00	-0.88	30.00	-30.88	5/10 MHz
PK	H	2437.000	60.55	32.22	3.72	0.00	0.00	1.27	30.00	-28.73	5/10 MHz
PK	V	2437.000	50.49	32.22	3.72	0.00	0.00	-8.79	30.00	-38.79	1/3 MHz
PK	H	2437.000	52.79	32.22	3.72	0.00	0.00	-6.49	30.00	-36.49	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11b DSSS Data rate - 11 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	57.18	32.22	3.72	0.00	0.00	-2.10	30.00	-32.10	5/10 MHz
PK	H	2437.000	61.31	32.22	3.72	0.00	0.00	2.03	30.00	-27.97	5/10 MHz
PK	V	2437.000	52.37	32.22	3.72	0.00	0.00	-6.91	30.00	-36.91	1/3 MHz
PK	H	2437.000	53.64	32.22	3.72	0.00	0.00	-5.64	30.00	-35.64	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11b DSSS Data rate - 1 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	58.03	32.26	3.76	0.00	0.00	-1.17	30.00	-31.17	5/10 MHz
PK	H	2462.000	62.42	32.26	3.76	0.00	0.00	3.22	30.00	-26.78	5/10 MHz
PK	V	2462.000	47.93	32.26	3.76	0.00	0.00	-11.27	30.00	-41.27	1/3 MHz
PK	H	2462.000	52.90	32.26	3.76	0.00	0.00	-6.30	30.00	-36.30	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11b DSSS Data rate - 2 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	57.79	32.26	3.76	0.00	0.00	-1.41	30.00	-31.41	5/10 MHz
PK	H	2462.000	63.61	32.26	3.76	0.00	0.00	4.41	30.00	-25.59	5/10 MHz
PK	V	2462.000	48.46	32.26	3.76	0.00	0.00	-10.74	30.00	-40.74	1/3 MHz
PK	H	2462.000	53.59	32.26	3.76	0.00	0.00	-5.61	30.00	-35.61	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11b DSSS Data rate - 5.5 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	58.64	32.26	3.76	0.00	0.00	-0.56	30.00	-30.56	5/10 MHz
PK	H	2462.000	61.18	32.26	3.76	0.00	0.00	1.98	30.00	-28.02	5/10 MHz
PK	V	2462.000	48.13	32.26	3.76	0.00	0.00	-11.07	30.00	-41.07	1/3 MHz
PK	H	2462.000	52.04	32.26	3.76	0.00	0.00	-7.16	30.00	-37.16	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11b DSSS Data rate - 11 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	55.77	32.26	3.76	0.00	0.00	-3.43	30.00	-33.43	5/10 MHz
PK	H	2462.000	60.42	32.26	3.76	0.00	0.00	1.22	30.00	-28.78	5/10 MHz
PK	V	2462.000	50.74	32.26	3.76	0.00	0.00	-8.46	30.00	-38.46	1/3 MHz
PK	H	2462.000	53.46	32.26	3.76	0.00	0.00	-5.74	30.00	-35.74	1/3 MHz

Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	59.03	32.17	3.69	0.00	0.00	-0.33	30.00	-30.33	5/10 MHz
PK	H	2412.000	60.55	32.17	3.69	0.00	0.00	1.19	30.00	-28.81	5/10 MHz
PK	V	2412.000	47.55	32.17	3.69	0.00	0.00	-11.81	30.00	-41.81	1/3 MHz
PK	H	2412.000	51.04	32.17	3.69	0.00	0.00	-8.32	30.00	-38.32	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 9 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	57.91	32.17	3.69	0.00	0.00	-1.45	30.00	-31.45	5/10 MHz
PK	H	2412.000	60.80	32.17	3.69	0.00	0.00	1.44	30.00	-28.56	5/10 MHz
PK	V	2412.000	47.68	32.17	3.69	0.00	0.00	-11.68	30.00	-41.68	1/3 MHz
PK	H	2412.000	48.74	32.17	3.69	0.00	0.00	-10.62	30.00	-40.62	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 12 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	58.40	32.17	3.69	0.00	0.00	-0.96	30.00	-30.96	5/10 MHz
PK	H	2412.000	61.23	32.17	3.69	0.00	0.00	1.87	30.00	-28.13	5/10 MHz
PK	V	2412.000	47.99	32.17	3.69	0.00	0.00	-11.37	30.00	-41.37	1/3 MHz
PK	H	2412.000	49.23	32.17	3.69	0.00	0.00	-10.13	30.00	-40.13	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 18 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	57.18	32.17	3.69	0.00	0.00	-2.18	30.00	-32.18	5/10 MHz
PK	H	2412.000	61.31	32.17	3.69	0.00	0.00	1.95	30.00	-28.05	5/10 MHz
PK	V	2412.000	47.59	32.17	3.69	0.00	0.00	-11.77	30.00	-41.77	1/3 MHz
PK	H	2412.000	51.46	32.17	3.69	0.00	0.00	-7.90	30.00	-37.90	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 24 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	58.76	32.17	3.69	0.00	0.00	-0.60	30.00	-30.60	5/10 MHz
PK	H	2412.000	60.93	32.17	3.69	0.00	0.00	1.57	30.00	-28.43	5/10 MHz
PK	V	2412.000	49.67	32.17	3.69	0.00	0.00	-9.69	30.00	-39.69	1/3 MHz
PK	H	2412.000	51.72	32.17	3.69	0.00	0.00	-7.64	30.00	-37.64	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 36 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	57.79	32.17	3.69	0.00	0.00	-1.57	30.00	-31.57	5/10 MHz
PK	H	2412.000	59.64	32.17	3.69	0.00	0.00	0.28	30.00	-29.72	5/10 MHz
PK	V	2412.000	47.35	32.17	3.69	0.00	0.00	-12.01	30.00	-42.01	1/3 MHz
PK	H	2412.000	50.44	32.17	3.69	0.00	0.00	-8.92	30.00	-38.92	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 48 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	58.32	32.17	3.69	0.00	0.00	-1.04	30.00	-31.04	5/10 MHz
PK	H	2412.000	60.14	32.17	3.69	0.00	0.00	0.78	30.00	-29.22	5/10 MHz
PK	V	2412.000	49.23	32.17	3.69	0.00	0.00	-10.13	30.00	-40.13	1/3 MHz
PK	H	2412.000	51.24	32.17	3.69	0.00	0.00	-8.12	30.00	-38.12	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11g OFDM Data rate - 54 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	56.23	32.17	3.69	0.00	0.00	-3.13	30.00	-33.13	5/10 MHz
PK	H	2412.000	59.17	32.17	3.69	0.00	0.00	-0.19	30.00	-30.19	5/10 MHz
PK	V	2412.000	47.23	32.17	3.69	0.00	0.00	-12.13	30.00	-42.13	1/3 MHz
PK	H	2412.000	49.16	32.17	3.69	0.00	0.00	-10.20	30.00	-40.20	1/3 MHz

Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 6 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	57.76	32.22	3.72	0.00	0.00	-1.52	30.00	-31.52	5/10 MHz
PK	H	2437.000	59.23	32.22	3.72	0.00	0.00	-0.05	30.00	-30.05	5/10 MHz
PK	V	2437.000	49.12	32.22	3.72	0.00	0.00	-10.16	30.00	-40.16	1/3 MHz
PK	H	2437.000	50.19	32.22	3.72	0.00	0.00	-9.09	30.00	-39.09	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 9 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	59.27	32.22	3.72	0.00	0.00	-0.01	30.00	-30.01	5/10 MHz
PK	H	2437.000	61.17	32.22	3.72	0.00	0.00	1.89	30.00	-28.11	5/10 MHz
PK	V	2437.000	48.38	32.22	3.72	0.00	0.00	-10.90	30.00	-40.90	1/3 MHz
PK	H	2437.000	51.87	32.22	3.72	0.00	0.00	-7.41	30.00	-37.41	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 12 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	56.48	32.22	3.72	0.00	0.00	-2.80	30.00	-32.80	5/10 MHz
PK	H	2437.000	59.67	32.22	3.72	0.00	0.00	0.39	30.00	-29.61	5/10 MHz
PK	V	2437.000	47.27	32.22	3.72	0.00	0.00	-12.01	30.00	-42.01	1/3 MHz
PK	H	2437.000	49.33	32.22	3.72	0.00	0.00	-9.95	30.00	-39.95	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 18 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	58.22	32.22	3.72	0.00	0.00	-1.06	30.00	-31.06	5/10 MHz
PK	H	2437.000	60.32	32.22	3.72	0.00	0.00	1.04	30.00	-28.96	5/10 MHz
PK	V	2437.000	49.22	32.22	3.72	0.00	0.00	-10.06	30.00	-40.06	1/3 MHz
PK	H	2437.000	51.13	32.22	3.72	0.00	0.00	-8.15	30.00	-38.15	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 24 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	56.53	32.22	3.72	0.00	0.00	-2.75	30.00	-32.75	5/10 MHz
PK	H	2437.000	58.27	32.22	3.72	0.00	0.00	-1.01	30.00	-31.01	5/10 MHz
PK	V	2437.000	48.14	32.22	3.72	0.00	0.00	-11.14	30.00	-41.14	1/3 MHz
PK	H	2437.000	49.12	32.22	3.72	0.00	0.00	-10.16	30.00	-40.16	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 36 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	58.45	32.22	3.72	0.00	0.00	-0.83	30.00	-30.83	5/10 MHz
PK	H	2437.000	59.88	32.22	3.72	0.00	0.00	0.60	30.00	-29.40	5/10 MHz
PK	V	2437.000	47.12	32.22	3.72	0.00	0.00	-12.16	30.00	-42.16	1/3 MHz
PK	H	2437.000	50.15	32.22	3.72	0.00	0.00	-9.13	30.00	-39.13	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 48 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	59.12	32.22	3.72	0.00	0.00	-0.16	30.00	-30.16	5/10 MHz
PK	H	2437.000	61.69	32.22	3.72	0.00	0.00	2.41	30.00	-27.59	5/10 MHz
PK	V	2437.000	50.18	32.22	3.72	0.00	0.00	-9.10	30.00	-39.10	1/3 MHz
PK	H	2437.000	52.23	32.22	3.72	0.00	0.00	-7.05	30.00	-37.05	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11g OFDM Data rate - 54 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	57.73	32.22	3.72	0.00	0.00	-1.55	30.00	-31.55	5/10 MHz
PK	H	2437.000	59.19	32.22	3.72	0.00	0.00	-0.09	30.00	-30.09	5/10 MHz
PK	V	2437.000	46.67	32.22	3.72	0.00	0.00	-12.61	30.00	-42.61	1/3 MHz
PK	H	2437.000	49.65	32.22	3.72	0.00	0.00	-9.63	30.00	-39.63	1/3 MHz

Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 6 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	56.23	32.26	3.76	0.00	0.00	-2.97	30.00	-32.97	5/10 MHz
PK	H	2462.000	58.14	32.26	3.76	0.00	0.00	-1.06	30.00	-31.06	5/10 MHz
PK	V	2462.000	46.32	32.26	3.76	0.00	0.00	-12.88	30.00	-42.88	1/3 MHz
PK	H	2462.000	48.19	32.26	3.76	0.00	0.00	-11.01	30.00	-41.01	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 9 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	58.46	32.26	3.76	0.00	0.00	-0.74	30.00	-30.74	5/10 MHz
PK	H	2462.000	60.13	32.26	3.76	0.00	0.00	0.93	30.00	-29.07	5/10 MHz
PK	V	2462.000	49.18	32.26	3.76	0.00	0.00	-10.02	30.00	-40.02	1/3 MHz
PK	H	2462.000	50.52	32.26	3.76	0.00	0.00	-8.68	30.00	-38.68	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 12 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	59.18	32.26	3.76	0.00	0.00	-0.02	30.00	-30.02	5/10 MHz
PK	H	2462.000	61.03	32.26	3.76	0.00	0.00	1.83	30.00	-28.17	5/10 MHz
PK	V	2462.000	50.34	32.26	3.76	0.00	0.00	-8.86	30.00	-38.86	1/3 MHz
PK	H	2462.000	52.26	32.26	3.76	0.00	0.00	-6.94	30.00	-36.94	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 18 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	56.31	32.26	3.76	0.00	0.00	-2.89	30.00	-32.89	5/10 MHz
PK	H	2462.000	58.28	32.26	3.76	0.00	0.00	-0.92	30.00	-30.92	5/10 MHz
PK	V	2462.000	46.42	32.26	3.76	0.00	0.00	-12.78	30.00	-42.78	1/3 MHz
PK	H	2462.000	48.17	32.26	3.76	0.00	0.00	-11.03	30.00	-41.03	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 24 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	59.17	32.26	3.76	0.00	0.00	-0.03	30.00	-30.03	5/10 MHz
PK	H	2462.000	60.68	32.26	3.76	0.00	0.00	1.48	30.00	-28.52	5/10 MHz
PK	V	2462.000	50.18	32.26	3.76	0.00	0.00	-9.02	30.00	-39.02	1/3 MHz
PK	H	2462.000	52.07	32.26	3.76	0.00	0.00	-7.13	30.00	-37.13	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 36 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	57.12	32.26	3.76	0.00	0.00	-2.08	30.00	-32.08	5/10 MHz
PK	H	2462.000	59.31	32.26	3.76	0.00	0.00	0.11	30.00	-29.89	5/10 MHz
PK	V	2462.000	46.73	32.26	3.76	0.00	0.00	-12.47	30.00	-42.47	1/3 MHz
PK	H	2462.000	49.21	32.26	3.76	0.00	0.00	-9.99	30.00	-39.99	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 48 Mbps, 20 MHz BW											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	60.08	32.26	3.76	0.00	0.00	0.88	30.00	-29.12	5/10 MHz
PK	H	2462.000	60.69	32.26	3.76	0.00	0.00	1.49	30.00	-28.51	5/10 MHz
PK	V	2462.000	49.12	32.26	3.76	0.00	0.00	-10.08	30.00	-40.08	1/3 MHz
PK	H	2462.000	51.23	32.26	3.76	0.00	0.00	-7.97	30.00	-37.97	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11g OFDM Data rate - 54 Mbps, 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	58.18	32.26	3.76	0.00	0.00	-1.02	30.00	-31.02	5/10 MHz
PK	H	2462.000	60.16	32.26	3.76	0.00	0.00	0.96	30.00	-29.04	5/10 MHz
PK	V	2462.000	47.28	32.26	3.76	0.00	0.00	-11.92	30.00	-41.92	1/3 MHz
PK	H	2462.000	50.23	32.26	3.76	0.00	0.00	-8.97	30.00	-38.97	1/3 MHz

Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS0 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	51.01	32.17	3.69	0.00	0.00	-8.35	30.00	-38.35	5/10 MHz
PK	H	2412.000	54.30	32.17	3.69	0.00	0.00	-5.06	30.00	-35.06	5/10 MHz
PK	V	2412.000	41.24	32.17	3.69	0.00	0.00	-18.12	30.00	-48.12	1/3 MHz
PK	H	2412.000	43.68	32.17	3.69	0.00	0.00	-15.68	30.00	-45.68	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS1 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	52.62	32.17	3.69	0.00	0.00	-6.74	30.00	-36.74	5/10 MHz
PK	H	2412.000	55.10	32.17	3.69	0.00	0.00	-4.26	30.00	-34.26	5/10 MHz
PK	V	2412.000	43.04	32.17	3.69	0.00	0.00	-16.32	30.00	-46.32	1/3 MHz
PK	H	2412.000	44.97	32.17	3.69	0.00	0.00	-14.39	30.00	-44.39	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS2 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	53.19	32.17	3.69	0.00	0.00	-6.17	30.00	-36.17	5/10 MHz
PK	H	2412.000	55.79	32.17	3.69	0.00	0.00	-3.57	30.00	-33.57	5/10 MHz
PK	V	2412.000	43.62	32.17	3.69	0.00	0.00	-15.74	30.00	-45.74	1/3 MHz
PK	H	2412.000	45.38	32.17	3.69	0.00	0.00	-13.98	30.00	-43.98	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS3 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	52.23	32.17	3.69	0.00	0.00	-7.13	30.00	-37.13	5/10 MHz
PK	H	2412.000	53.71	32.17	3.69	0.00	0.00	-5.65	30.00	-35.65	5/10 MHz
PK	V	2412.000	42.66	32.17	3.69	0.00	0.00	-16.70	30.00	-46.70	1/3 MHz
PK	H	2412.000	43.11	32.17	3.69	0.00	0.00	-16.25	30.00	-46.25	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS4 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	51.36	32.17	3.69	0.00	0.00	-8.00	30.00	-38.00	5/10 MHz
PK	H	2412.000	52.77	32.17	3.69	0.00	0.00	-6.59	30.00	-36.59	5/10 MHz
PK	V	2412.000	40.24	32.17	3.69	0.00	0.00	-19.12	30.00	-49.12	1/3 MHz
PK	H	2412.000	42.08	32.17	3.69	0.00	0.00	-17.28	30.00	-47.28	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS5 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	53.12	32.17	3.69	0.00	0.00	-6.24	30.00	-36.24	5/10 MHz
PK	H	2412.000	54.55	32.17	3.69	0.00	0.00	-4.81	30.00	-34.81	5/10 MHz
PK	V	2412.000	42.23	32.17	3.69	0.00	0.00	-17.13	30.00	-47.13	1/3 MHz
PK	H	2412.000	44.30	32.17	3.69	0.00	0.00	-15.06	30.00	-45.06	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS6 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	51.70	32.17	3.69	0.00	0.00	-7.66	30.00	-37.66	5/10 MHz
PK	H	2412.000	53.08	32.17	3.69	0.00	0.00	-6.28	30.00	-36.28	5/10 MHz
PK	V	2412.000	41.14	32.17	3.69	0.00	0.00	-18.22	30.00	-48.22	1/3 MHz
PK	H	2412.000	43.12	32.17	3.69	0.00	0.00	-16.24	30.00	-46.24	1/3 MHz
Note: RF Output Power, Channel 1 - 802.11n OFDM Data rate - MCS7 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2412.000	52.19	32.17	3.69	0.00	0.00	-7.17	30.00	-37.17	5/10 MHz
PK	H	2412.000	53.88	32.17	3.69	0.00	0.00	-5.48	30.00	-35.48	5/10 MHz
PK	V	2412.000	41.68	32.17	3.69	0.00	0.00	-17.68	30.00	-47.68	1/3 MHz
PK	H	2412.000	44.04	32.17	3.69	0.00	0.00	-15.32	30.00	-45.32	1/3 MHz

Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS0 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	54.27	32.22	3.72	0.00	0.00	-5.01	30.00	-35.01	5/10 MHz
PK	H	2437.000	56.68	32.22	3.72	0.00	0.00	-2.60	30.00	-32.60	5/10 MHz
PK	V	2437.000	45.32	32.22	3.72	0.00	0.00	-13.96	30.00	-43.96	1/3 MHz
PK	H	2437.000	47.43	32.22	3.72	0.00	0.00	-11.85	30.00	-41.85	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS1 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	55.14	32.22	3.72	0.00	0.00	-4.14	30.00	-34.14	5/10 MHz
PK	H	2437.000	57.19	32.22	3.72	0.00	0.00	-2.09	30.00	-32.09	5/10 MHz
PK	V	2437.000	44.18	32.22	3.72	0.00	0.00	-15.10	30.00	-45.10	1/3 MHz
PK	H	2437.000	46.34	32.22	3.72	0.00	0.00	-12.94	30.00	-42.94	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS2 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	54.08	32.22	3.72	0.00	0.00	-5.20	30.00	-35.20	5/10 MHz
PK	H	2437.000	56.32	32.22	3.72	0.00	0.00	-2.96	30.00	-32.96	5/10 MHz
PK	V	2437.000	43.16	32.22	3.72	0.00	0.00	-16.12	30.00	-46.12	1/3 MHz
PK	H	2437.000	45.67	32.22	3.72	0.00	0.00	-13.61	30.00	-43.61	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS3 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	54.88	32.22	3.72	0.00	0.00	-4.40	30.00	-34.40	5/10 MHz
PK	H	2437.000	57.67	32.22	3.72	0.00	0.00	-1.61	30.00	-31.61	5/10 MHz
PK	V	2437.000	44.96	32.22	3.72	0.00	0.00	-14.32	30.00	-44.32	1/3 MHz
PK	H	2437.000	46.04	32.22	3.72	0.00	0.00	-13.24	30.00	-43.24	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS4 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	54.20	32.22	3.72	0.00	0.00	-5.08	30.00	-35.08	5/10 MHz
PK	H	2437.000	56.56	32.22	3.72	0.00	0.00	-2.72	30.00	-32.72	5/10 MHz
PK	V	2437.000	42.78	32.22	3.72	0.00	0.00	-16.50	30.00	-46.50	1/3 MHz
PK	H	2437.000	45.87	32.22	3.72	0.00	0.00	-13.41	30.00	-43.41	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS5 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	55.23	32.22	3.72	0.00	0.00	-4.05	30.00	-34.05	5/10 MHz
PK	H	2437.000	58.04	32.22	3.72	0.00	0.00	-1.24	30.00	-31.24	5/10 MHz
PK	V	2437.000	43.45	32.22	3.72	0.00	0.00	-15.83	30.00	-45.83	1/3 MHz
PK	H	2437.000	45.68	32.22	3.72	0.00	0.00	-13.60	30.00	-43.60	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS6 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	54.42	32.22	3.72	0.00	0.00	-4.86	30.00	-34.86	5/10 MHz
PK	H	2437.000	56.28	32.22	3.72	0.00	0.00	-3.00	30.00	-33.00	5/10 MHz
PK	V	2437.000	43.76	32.22	3.72	0.00	0.00	-15.52	30.00	-45.52	1/3 MHz
PK	H	2437.000	46.12	32.22	3.72	0.00	0.00	-13.16	30.00	-43.16	1/3 MHz
Note: RF Output Power, Channel 6 - 802.11n OFDM Data rate - MCS7 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2437.000	55.45	32.22	3.72	0.00	0.00	-3.83	30.00	-33.83	5/10 MHz
PK	H	2437.000	57.31	32.22	3.72	0.00	0.00	-1.97	30.00	-31.97	5/10 MHz
PK	V	2437.000	44.12	32.22	3.72	0.00	0.00	-15.16	30.00	-45.16	1/3 MHz
PK	H	2437.000	46.80	32.22	3.72	0.00	0.00	-12.48	30.00	-42.48	1/3 MHz

Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS0 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	54.14	32.26	3.76	0.00	0.00	-5.06	30.00	-35.06	5/10 MHz
PK	H	2462.000	55.98	32.26	3.76	0.00	0.00	-3.22	30.00	-33.22	5/10 MHz
PK	V	2462.000	43.20	32.26	3.76	0.00	0.00	-16.00	30.00	-46.00	1/3 MHz
PK	H	2462.000	45.12	32.26	3.76	0.00	0.00	-14.08	30.00	-44.08	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS1 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	54.78	32.26	3.76	0.00	0.00	-4.42	30.00	-34.42	5/10 MHz
PK	H	2462.000	56.43	32.26	3.76	0.00	0.00	-2.77	30.00	-32.77	5/10 MHz
PK	V	2462.000	44.12	32.26	3.76	0.00	0.00	-15.08	30.00	-45.08	1/3 MHz
PK	H	2462.000	45.84	32.26	3.76	0.00	0.00	-13.36	30.00	-43.36	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS2 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	55.09	32.26	3.76	0.00	0.00	-4.11	30.00	-34.11	5/10 MHz
PK	H	2462.000	57.18	32.26	3.76	0.00	0.00	-2.02	30.00	-32.02	5/10 MHz
PK	V	2462.000	45.14	32.26	3.76	0.00	0.00	-14.06	30.00	-44.06	1/3 MHz
PK	H	2462.000	46.36	32.26	3.76	0.00	0.00	-12.84	30.00	-42.84	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS3 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	54.86	32.26	3.76	0.00	0.00	-4.34	30.00	-34.34	5/10 MHz
PK	H	2462.000	56.62	32.26	3.76	0.00	0.00	-2.58	30.00	-32.58	5/10 MHz
PK	V	2462.000	45.24	32.26	3.76	0.00	0.00	-13.96	30.00	-43.96	1/3 MHz
PK	H	2462.000	47.38	32.26	3.76	0.00	0.00	-11.82	30.00	-41.82	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS4 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	55.24	32.26	3.76	0.00	0.00	-3.96	30.00	-33.96	5/10 MHz
PK	H	2462.000	57.08	32.26	3.76	0.00	0.00	-2.12	30.00	-32.12	5/10 MHz
PK	V	2462.000	46.08	32.26	3.76	0.00	0.00	-13.12	30.00	-43.12	1/3 MHz
PK	H	2462.000	48.19	32.26	3.76	0.00	0.00	-11.01	30.00	-41.01	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS5 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	54.19	32.26	3.76	0.00	0.00	-5.01	30.00	-35.01	5/10 MHz
PK	H	2462.000	56.28	32.26	3.76	0.00	0.00	-2.92	30.00	-32.92	5/10 MHz
PK	V	2462.000	45.84	32.26	3.76	0.00	0.00	-13.36	30.00	-43.36	1/3 MHz
PK	H	2462.000	46.90	32.26	3.76	0.00	0.00	-12.30	30.00	-42.30	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS6 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	56.76	32.26	3.76	0.00	0.00	-2.44	30.00	-32.44	5/10 MHz
PK	H	2462.000	54.75	32.26	3.76	0.00	0.00	-4.45	30.00	-34.45	5/10 MHz
PK	V	2462.000	46.54	32.26	3.76	0.00	0.00	-12.66	30.00	-42.66	1/3 MHz
PK	H	2462.000	44.87	32.26	3.76	0.00	0.00	-14.33	30.00	-44.33	1/3 MHz
Note: RF Output Power, Channel 11 - 802.11n OFDM Data rate - MCS7 20 MHz BW, 15 dBm											
Note: EIRP Obtained by applying the path loss correction for a 3m test distance, E(dBuV/m)@3m - 95.22 = dBm EIRP											
PK	V	2462.000	56.32	32.26	3.76	0.00	0.00	-2.88	30.00	-32.88	5/10 MHz
PK	H	2462.000	55.24	32.26	3.76	0.00	0.00	-3.96	30.00	-33.96	5/10 MHz
PK	V	2462.000	46.71	32.26	3.76	0.00	0.00	-12.49	30.00	-42.49	1/3 MHz
PK	H	2462.000	45.14	32.26	3.76	0.00	0.00	-14.06	30.00	-44.06	1/3 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/ <i>f</i>	-	6**
1.1-10	87/ <i>f</i> ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ <i>f</i> ^{0.25}	0.1540/ <i>f</i> ^{0.25}	8.944/ <i>f</i> ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 <i>f</i> ^{0.3417}	0.008335 <i>f</i> ^{0.3417}	0.02619 <i>f</i> ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ <i>f</i> ^{1.2}
150000-300000	0.158 <i>f</i> ^{0.5}	4.21 x 10 ⁻⁴ <i>f</i> ^{0.5}	6.67 x 10 ⁻⁵ <i>f</i>	616000/ <i>f</i> ^{1.2}

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

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:

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

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

1.2 Results:

$$\text{Maximum Output Power}_{\text{mW}} = 10^{(4.41/10)} \text{ or } 2.7605$$

$$\text{Power Density} = (2.7605) / 5025.6 \text{ or } 0.000549 \text{ mW/cm}^2$$

$$\text{Limit at 2.4 GHz} = 1 \text{ mW/cm}^2$$

$$\text{RSS-102 Issue 5 Exposure Limit at 2.4 GHz} = 5.35 \text{ W/m}^2$$

$$\text{Power Density} = 0.00549 \text{ W/m}^2$$

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

Test Personnel: Naga Suryadevara NS
Supervising/Reviewing
Engineer:
(Where Applicable) N/A
Product Standard: FCC Part 15 Subpart C and
RSS-247
Input Voltage: 120 VAC 60 Hz

Pretest Verification: Yes

Test Date: 05/31/2016
06/01/2016

Limit Applied: Below specified limit

Ambient Temperature: 22, 21 °C

Relative Humidity: 45, 48 %

Atmospheric Pressure: 1004, 1008 mbars

Deviations, Additions, or Exclusions: None

7 Maximum Power Spectral Density

7.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C (15.247), ANSI C63.4, ANSI C63.10, KDB558074, and RSS-247.

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

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

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

$$RA = 52.0 \text{ dB}\mu\text{V}$$

$$AF = 7.4 \text{ dB/m}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$FS = 32 \text{ dB}\mu\text{V/m}$$

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

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
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017

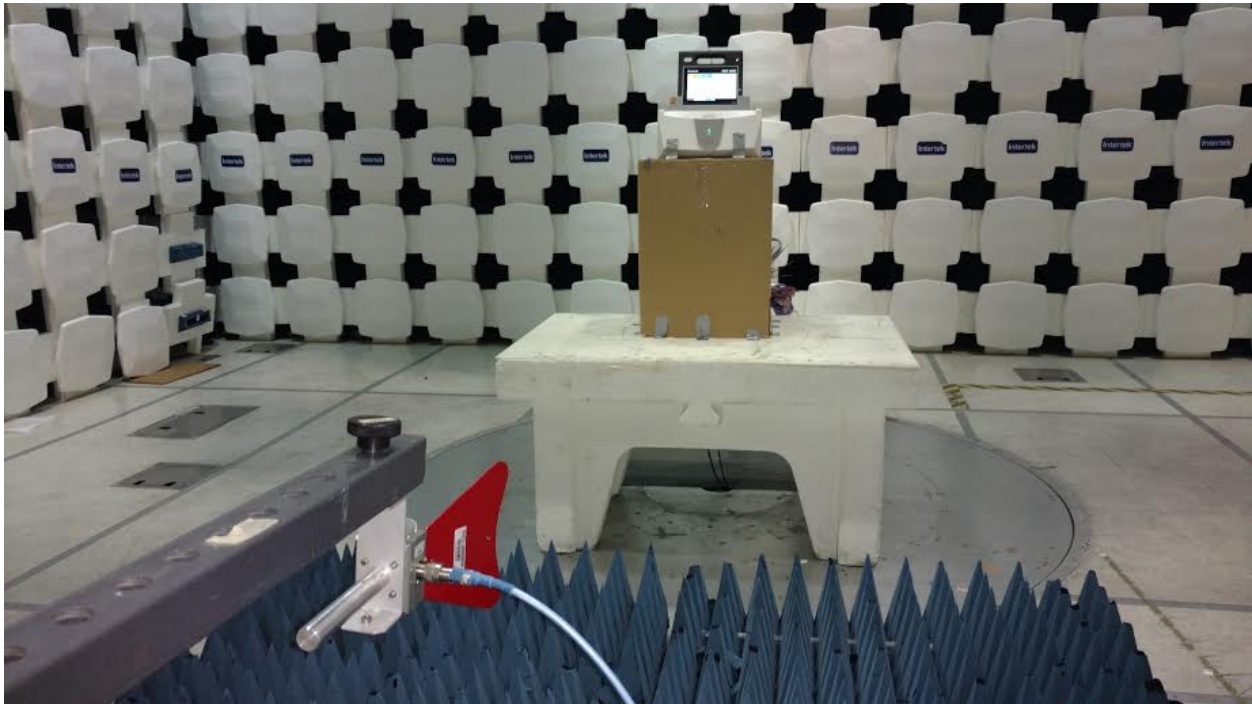
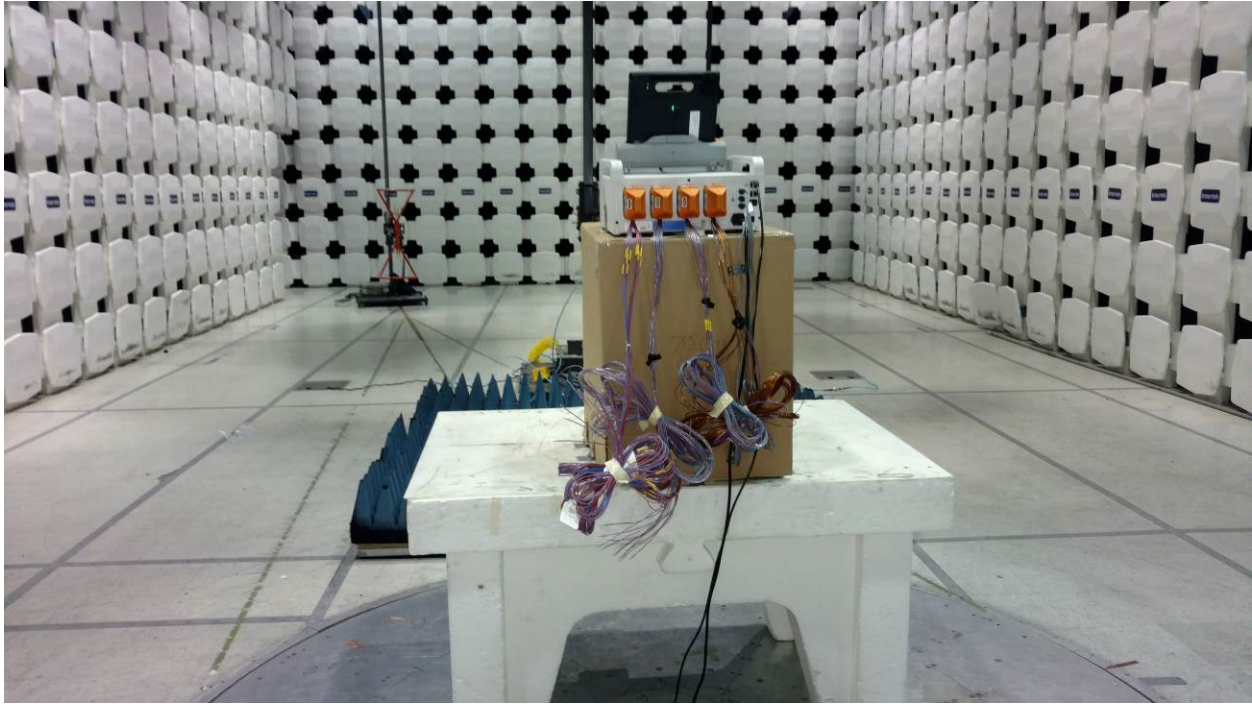
Software Utilized:

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

7.3 Results:

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

7.4 Setup Photographs:

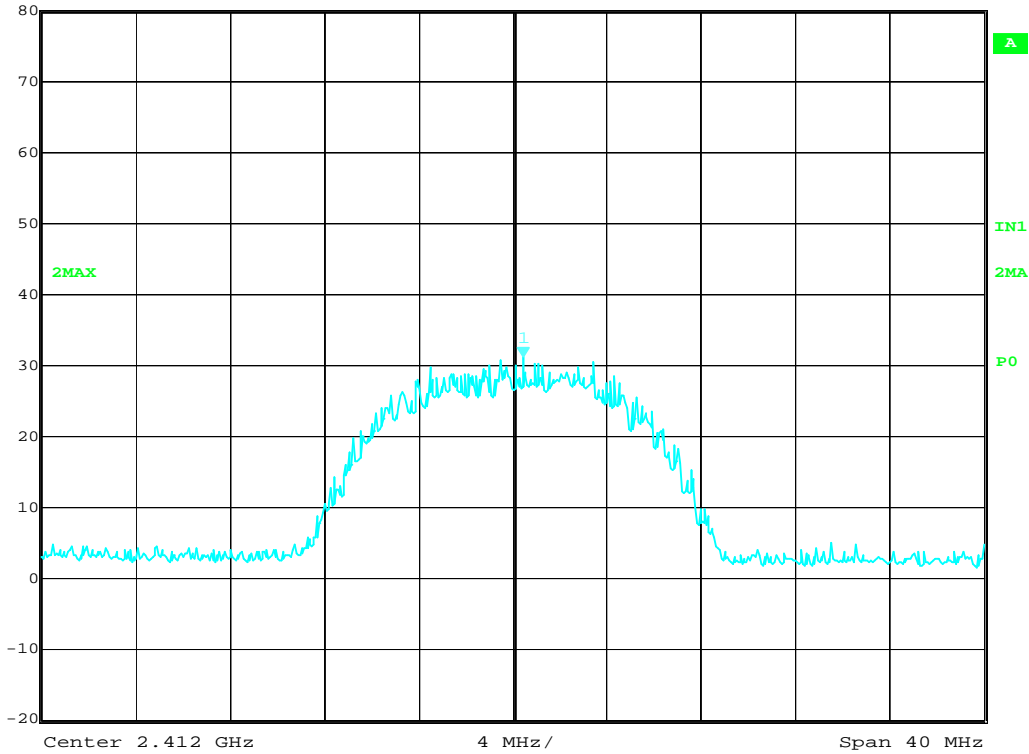


7.5 Test Data:

802.11b, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 1



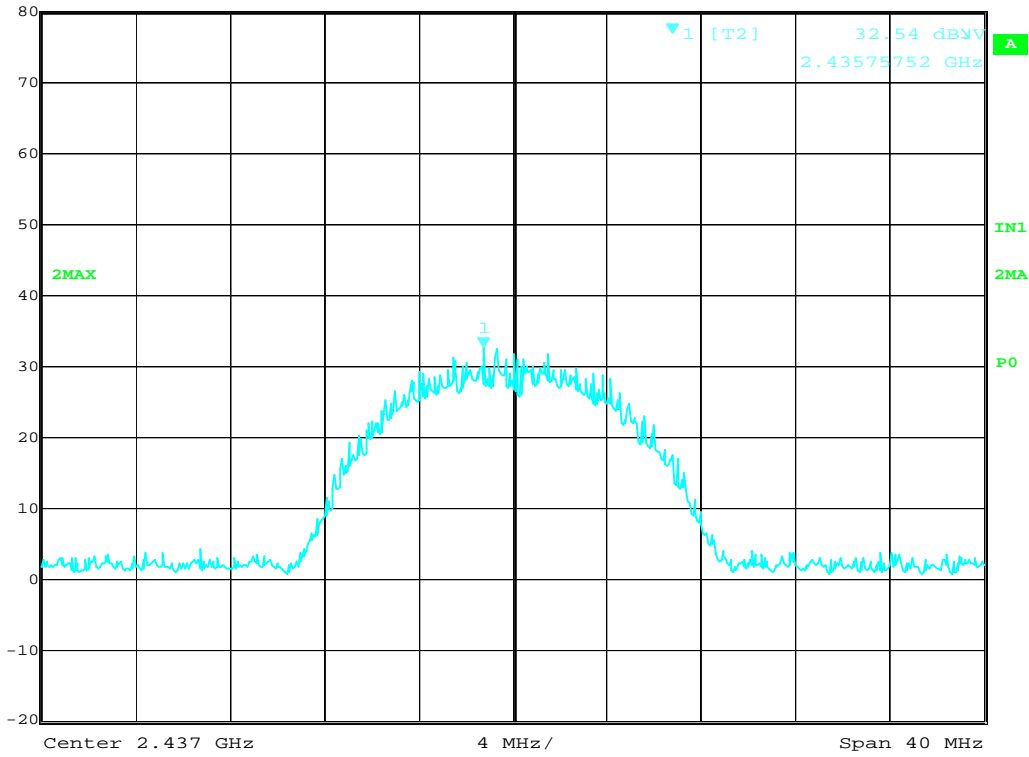
Ref Lvl	Marker 1 [T2]	RBW	3 kHz	RF Att	0 dB
80 dBV	31.12 dBV	VBW	10 kHz		
	2.41244088 GHz	SWT	11.5 s	Unit	dBV



802.11b, 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 6



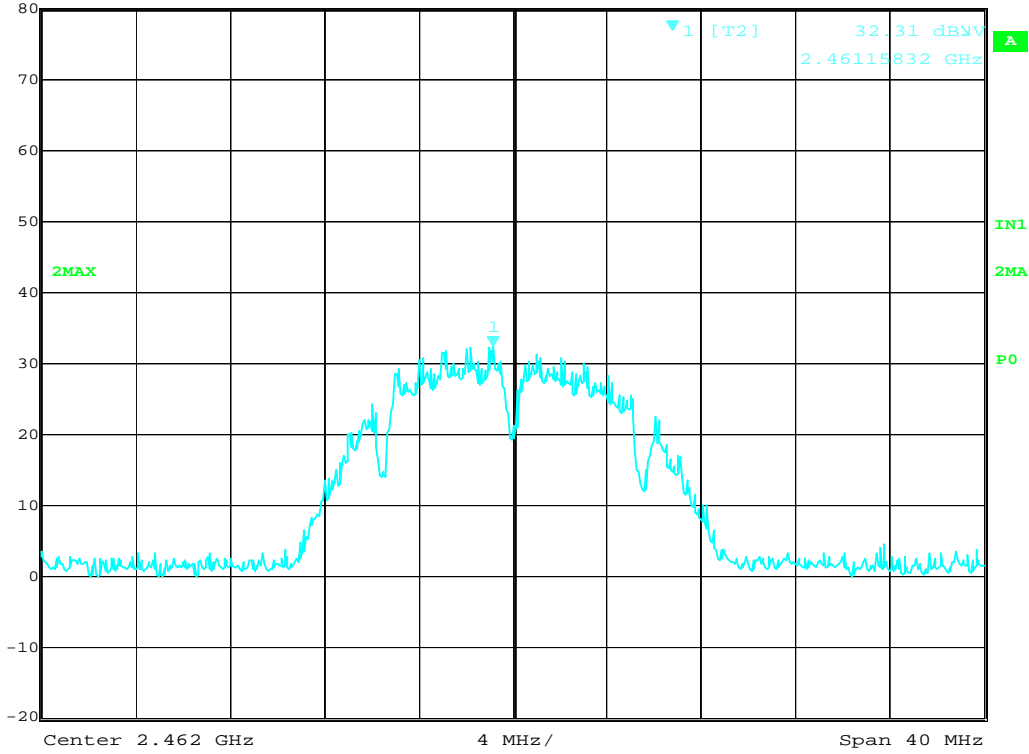
Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 32.54 dBmV VBW 10 kHz
80 dBmV 2.43575752 GHz SWT 11.5 s Unit dBmV



802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11



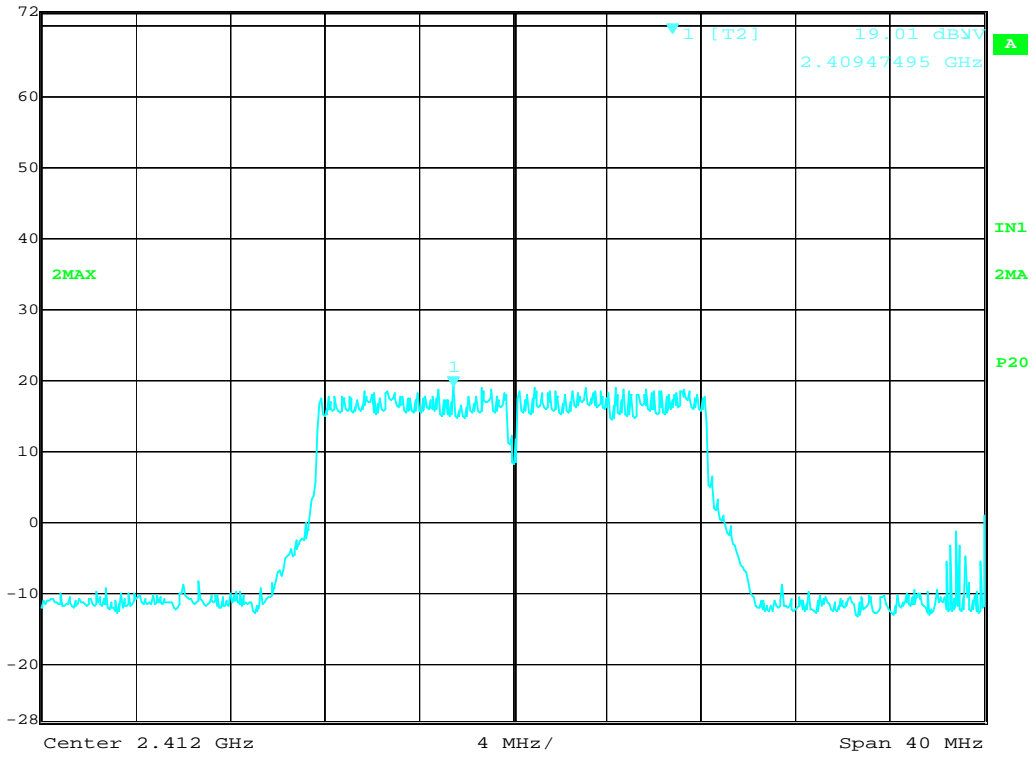
Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 32.31 dBmV VBW 10 kHz
80 dBmV 2.46115832 GHz SWT 11.5 s Unit dBmV



802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1



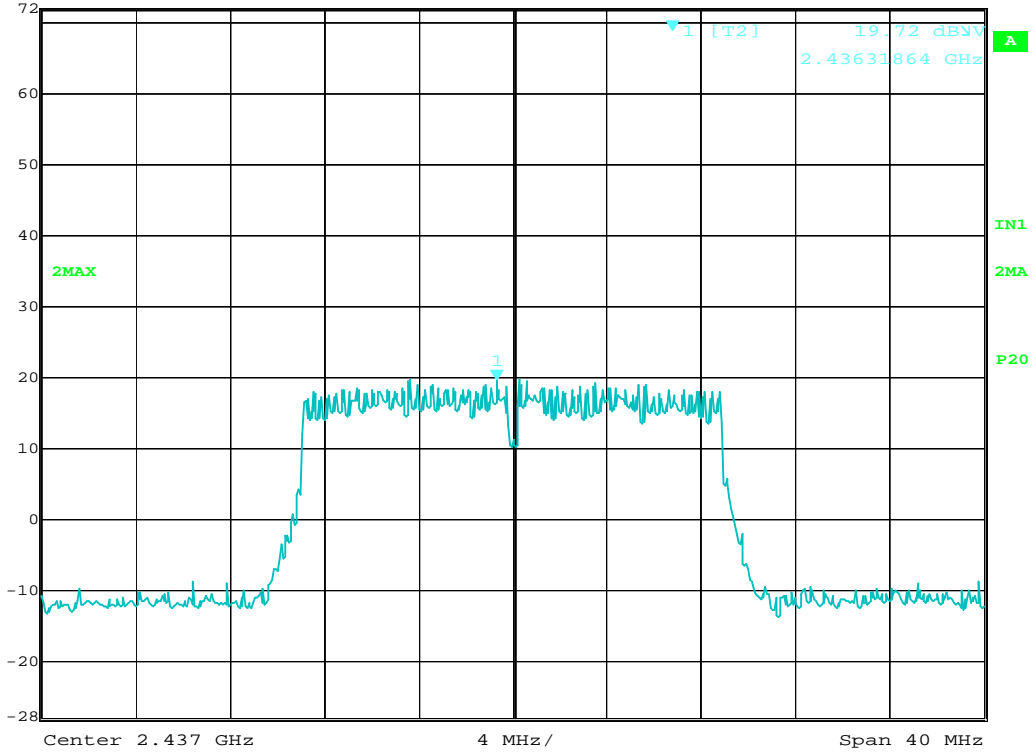
Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 19.01 dBmV VBW 10 kHz
72 dBmV 2.40947495 GHz SWT 20 s Unit dBmV



802.11g, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6



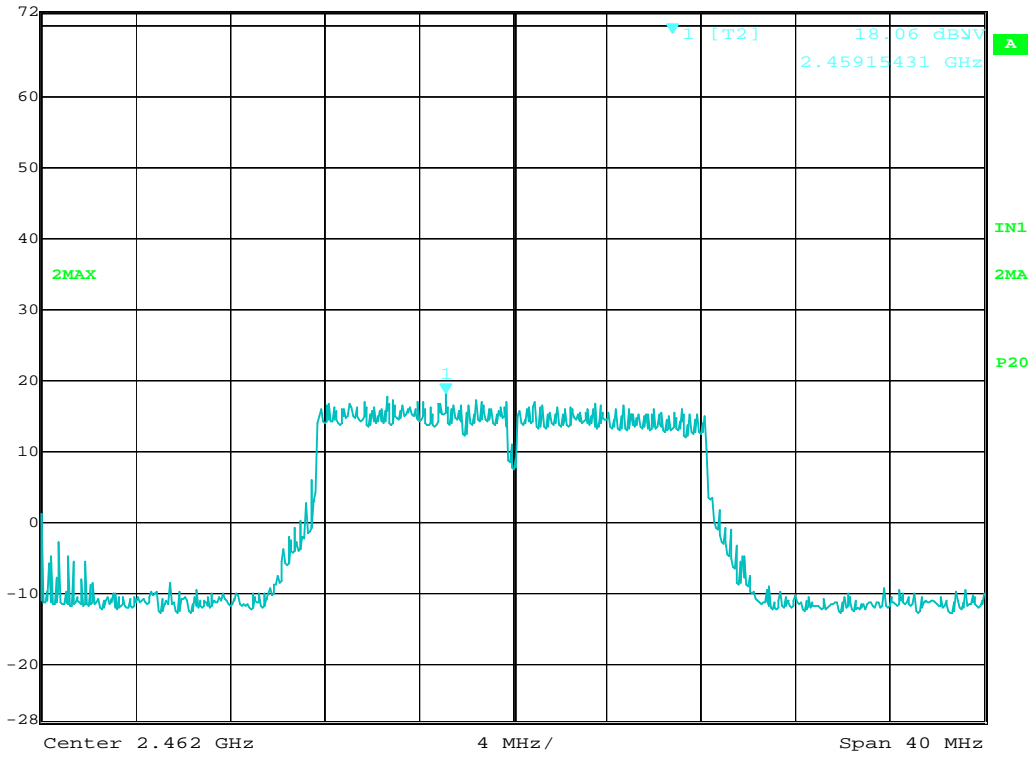
UNCAL Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 19.72 dBmV VBW 10 kHz
72 dBmV 2.43631864 GHz SWT 500 ms Unit dBmV



802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



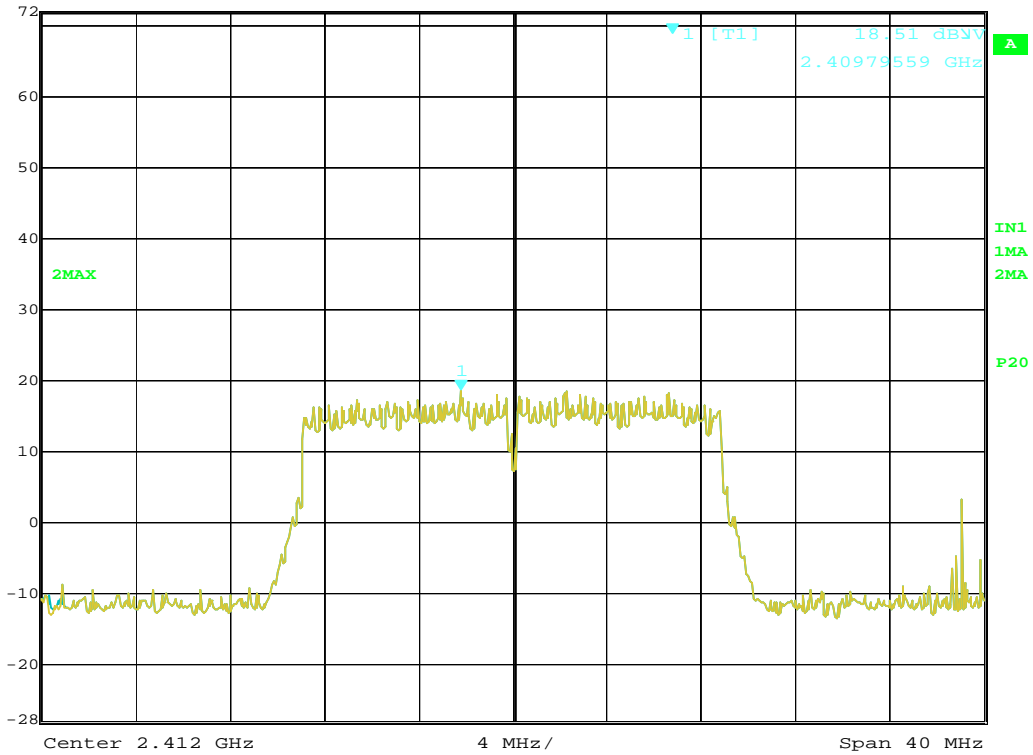
Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 18.06 dBmV VBW 10 kHz
72 dBmV 2.45915431 GHz SWT 11.5 s Unit dBmV



802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1



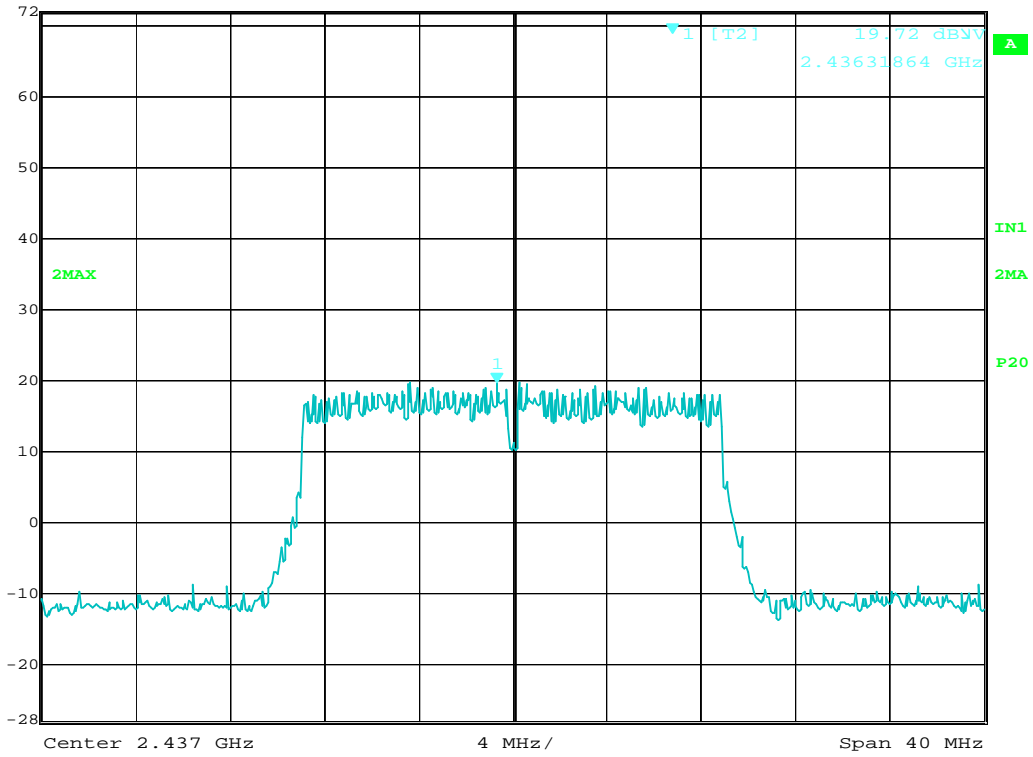
Marker 1 [T1] RBW 3 kHz RF Att 0 dB
Ref Lvl 18.51 dBV VBW 10 kHz
72 dBV 2.40979559 GHz SWT 20 s Unit dBV



802.11n, MCS5, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6



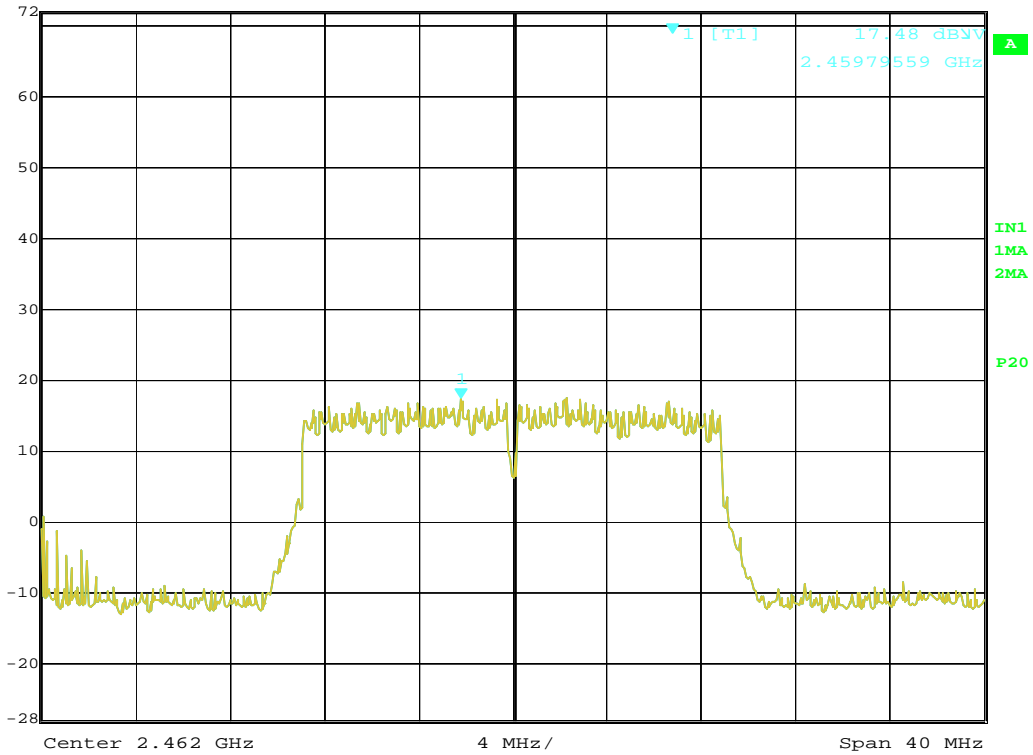
UNCAL Marker 1 [T2] RBW 3 kHz RF Att 0 dB
Ref Lvl 19.72 dBmV VBW 10 kHz
72 dBmV 2.43631864 GHz SWT 500 ms Unit dBmV



802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



Marker 1 [T1] RBW 3 kHz RF Att 0 dB
Ref Lvl 17.48 dBmV VBW 10 kHz
72 dBmV 2.45979559 GHz SWT 20 s Unit dBmV



Power Spectral Density

Company: Amphenol Thermometrics Inc
 Model #: KAYE VALIDATOR X 2015
 Serial #: 16020119

Antenna & Cables: HF Bands: N, LF, HF, SHF
 Antenna: ETS002 05-13-2017.txt
 Cable(s): 145-416 1-18 GHz 10-08-16.txt NONE.

Engineers: Vathana Ven
 Project #: G102502065

Location: 10M

Barometer: DAV004

Filter: NONE

Date(s): 06/02/16

1008
mbars

Standard: FCC Part 15 Subpart C 15.247

Temp/Humidity/Pressure: 21 C 48%

Receiver: R&S ESI (145-128) 03-10-2017

Limit Distance (m): 3

PreAmp: None

Test Distance (m): 3

PreAmp Used? (Y or N): N

Voltage/Frequency: 120 VAC 60 Hz

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: Power Density measured in a 3 kHz RBW, 802.11b, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m), CH 1											
PK	H	2412.000	30.99	32.17	3.69	0.00	0.00	-28.37	8.00	-36.37	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11b, 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m), CH 6											
PK	H	2437.000	32.33	32.22	3.72	0.00	0.00	-26.95	8.00	-34.95	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m), CH 11											
PK	H	2462.000	32.31	32.26	3.76	0.00	0.00	-26.89	8.00	-34.89	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 1											
PK	H	2412.000	19.00	32.17	3.69	0.00	0.00	-40.36	8.00	-48.36	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11g, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 6											
PK	H	2437.000	19.01	32.22	3.72	0.00	0.00	-40.27	8.00	-48.27	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 11											
PK	H	2462.000	18.06	32.26	3.76	0.00	0.00	-41.14	8.00	-49.14	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11n, MC S2, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 1											
PK	H	2412.000	18.51	32.17	3.69	0.00	0.00	-40.85	8.00	-48.85	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11n, MC S5, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 6											
PK	H	2437.000	19.72	32.22	3.72	0.00	0.00	-39.56	8.00	-47.56	3/10 kHz
Note: Power Density measured in a 3 kHz RBW, 802.11n, MC S2, 20 MHz BW, OFDM modulation, rated power 15 dB(m), CH 11											
PK	H	2462.000	17.48	32.26	3.76	0.00	0.00	-41.72	8.00	-49.72	3/10 kHz

Test Personnel: Vathana Ven *VSV*
 Supervising/Reviewing Engineer:

Test Date: 06/02/2016

(Where Applicable) N/A
 Product Standard: FCC Part 15 Subpart C and RSS-247

Limit Applied: Below specified limit

Input Voltage: 120 VAC 60 Hz

Ambient Temperature: 21 °C

Pretest Verification: Yes

Relative Humidity: 48 %

Atmospheric Pressure: 1008 mbars

Deviations, Additions, or Exclusions: None

8 6 dB and Occupied Bandwidth

8.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C (15.247), ANSI C63.4, ANSI C63.10, KDB558074, 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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisp
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

Sample Calculation

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

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

Where

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

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

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

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

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

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
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017

Software Utilized:

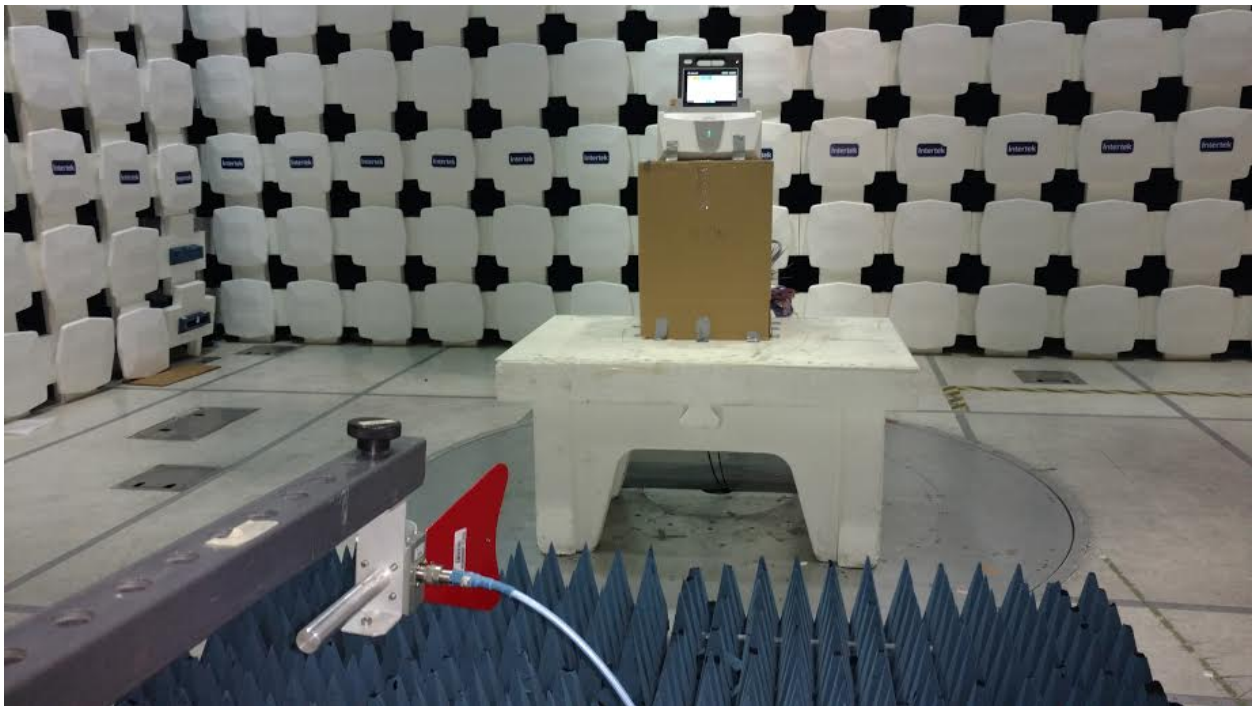
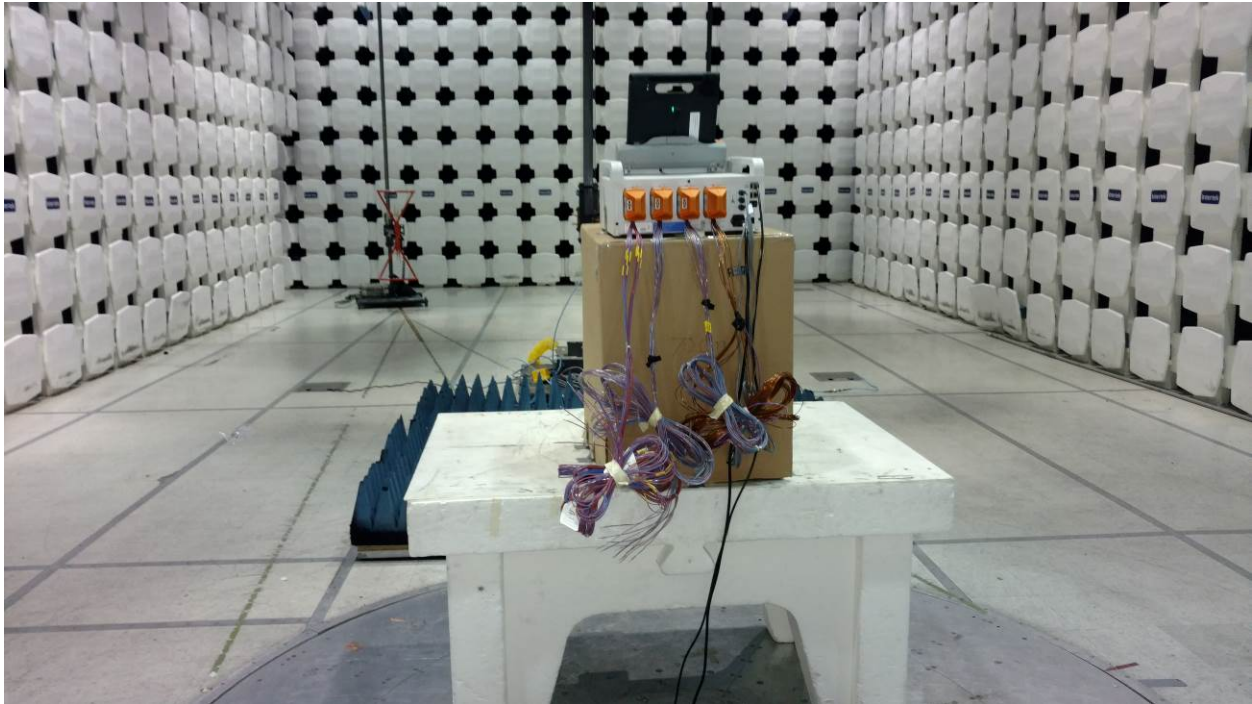
Name	Manufacturer	Version
None		

8.3 Results:

The sample tested was found to Comply.

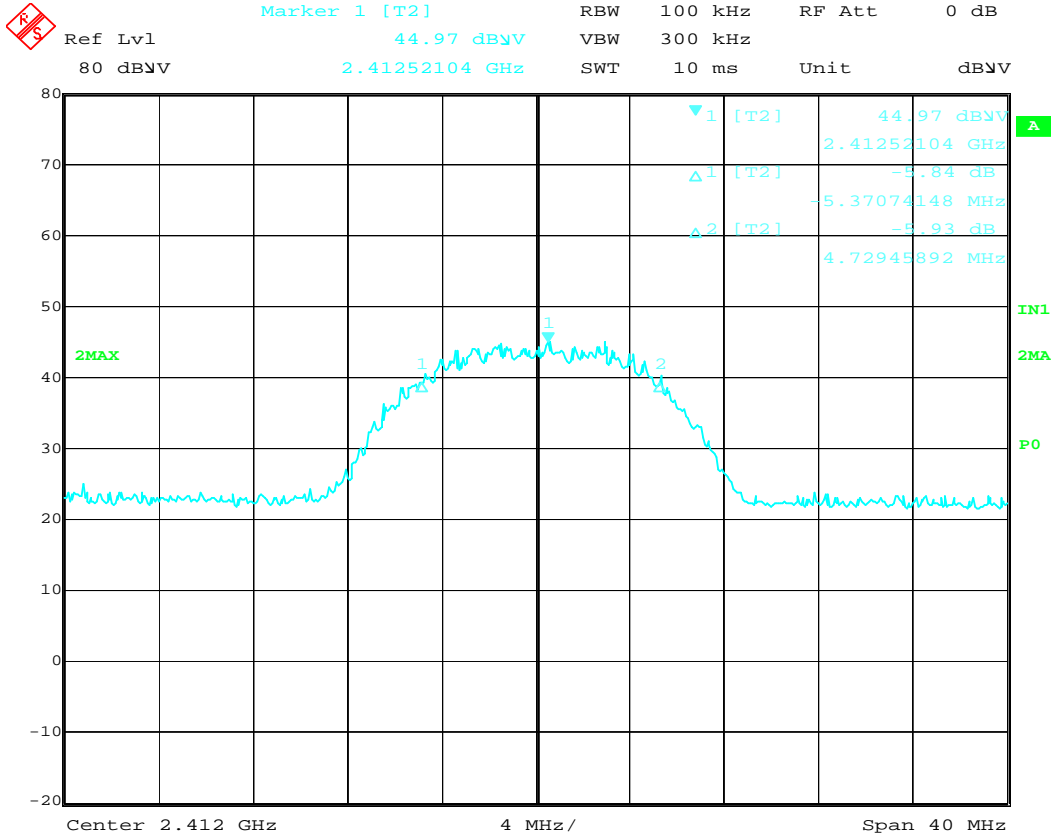
The sample tested was found to Comply. The 99% power bandwidth, or 6 dB bandwidth, must not be less than 500 kHz.

8.4 Setup Photograph:

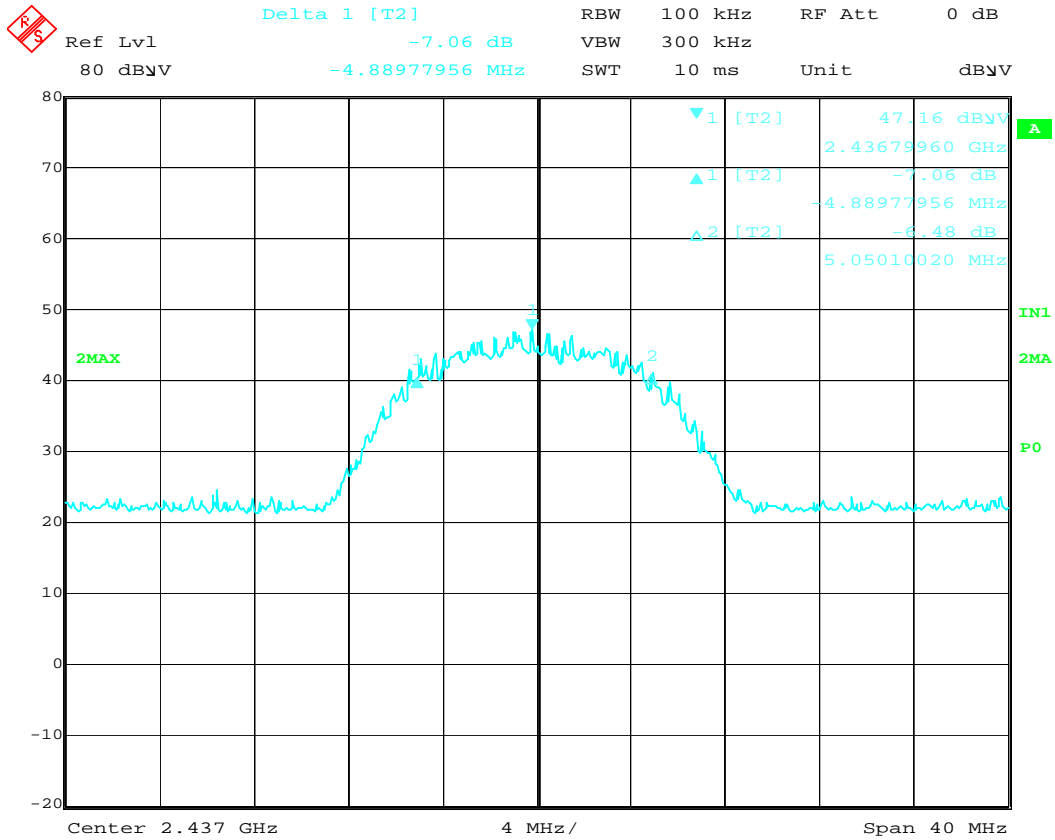


8.5 Plots/Data:

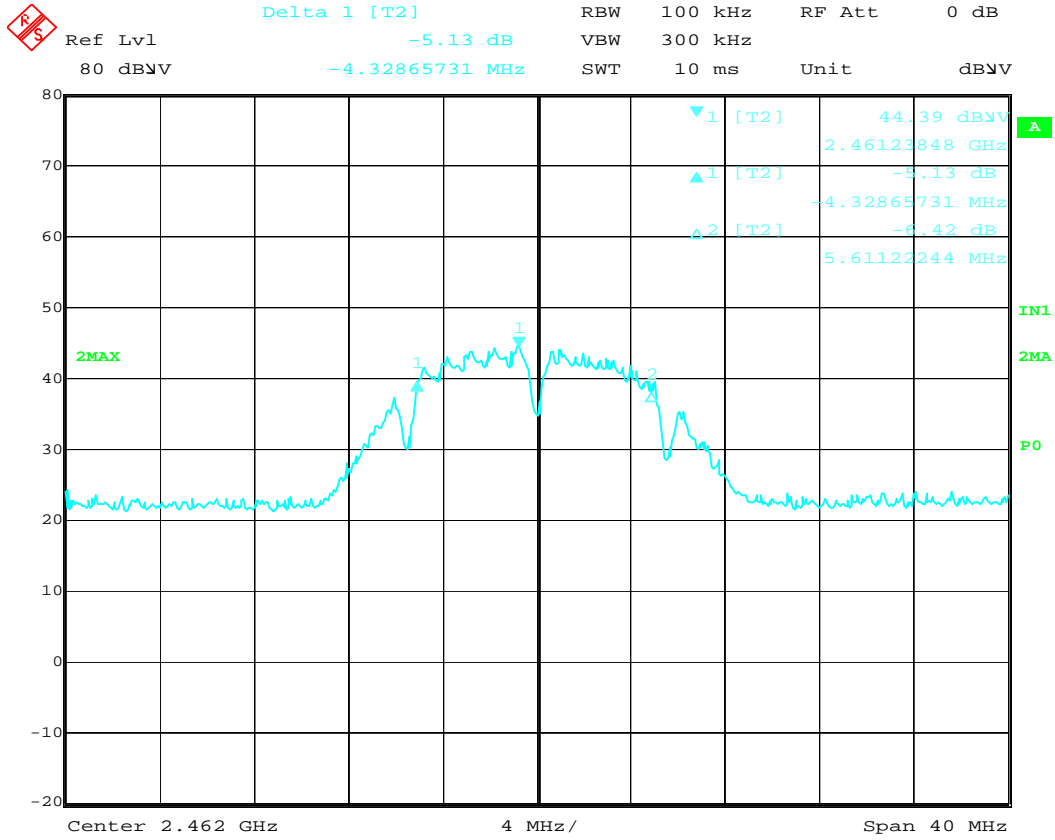
802.11b, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 1
6dB BW = 10.100 MHz



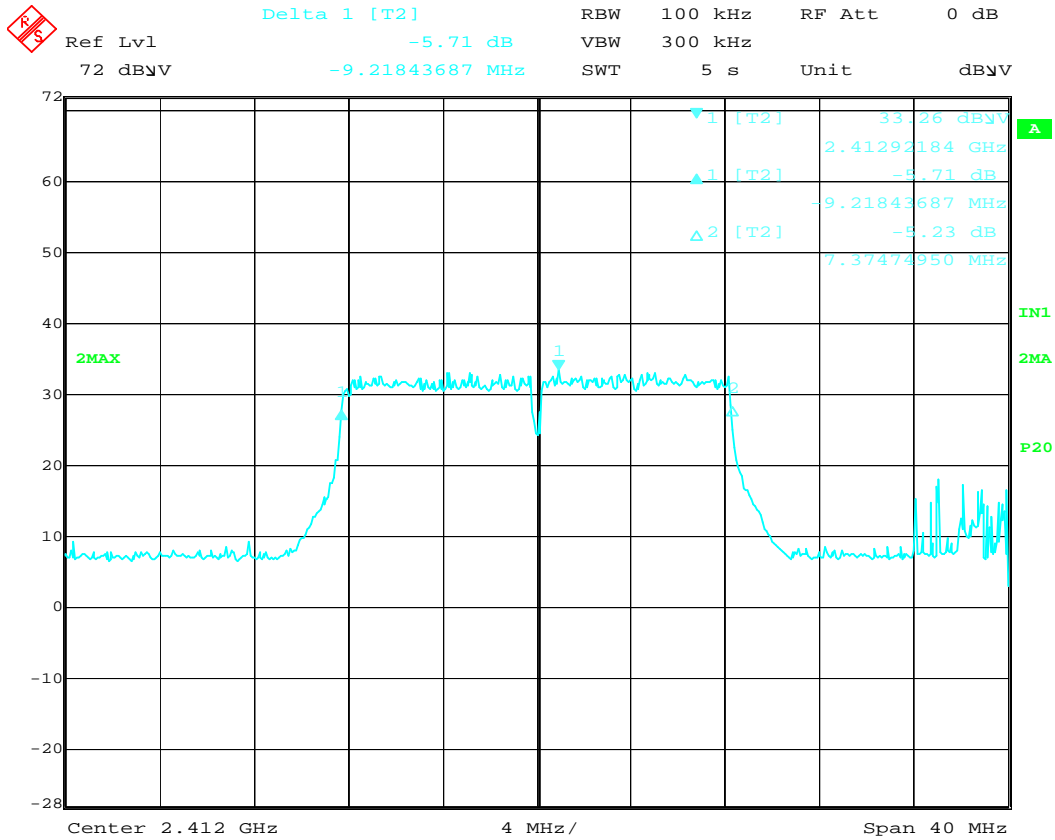
**802.11b, 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 6
6dB BW = 9.93 MHz**



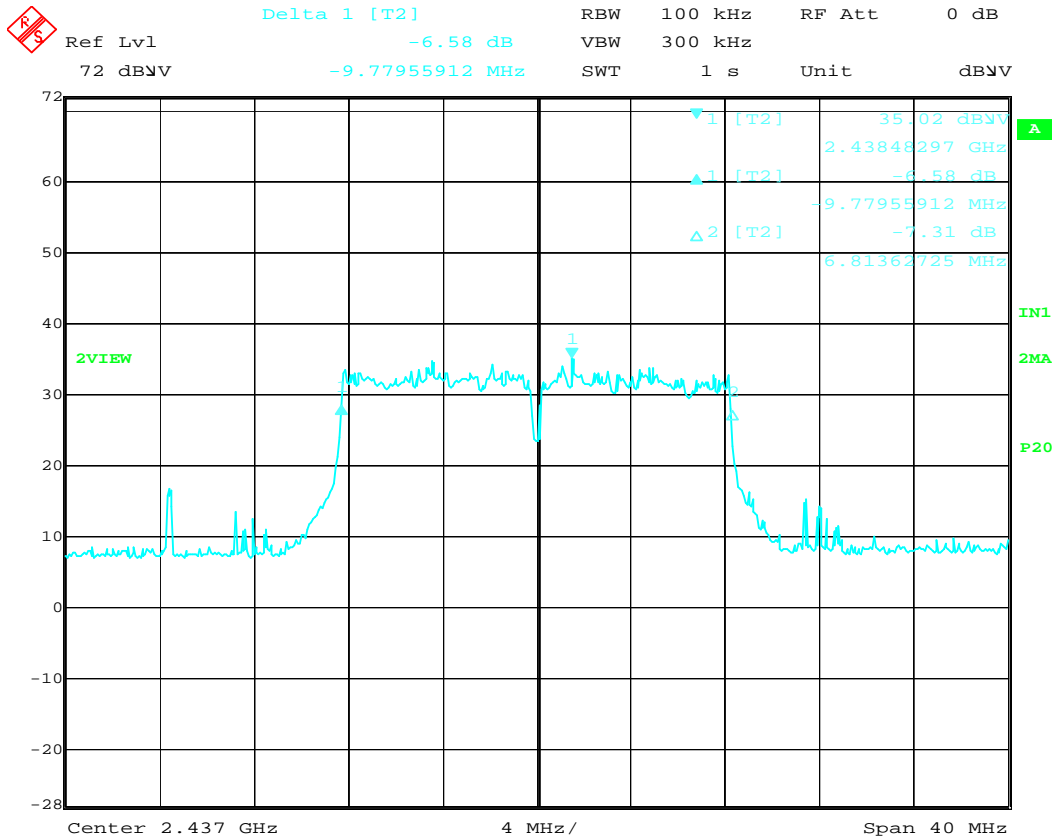
**802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11
6dB BW = 9.93 MHz**



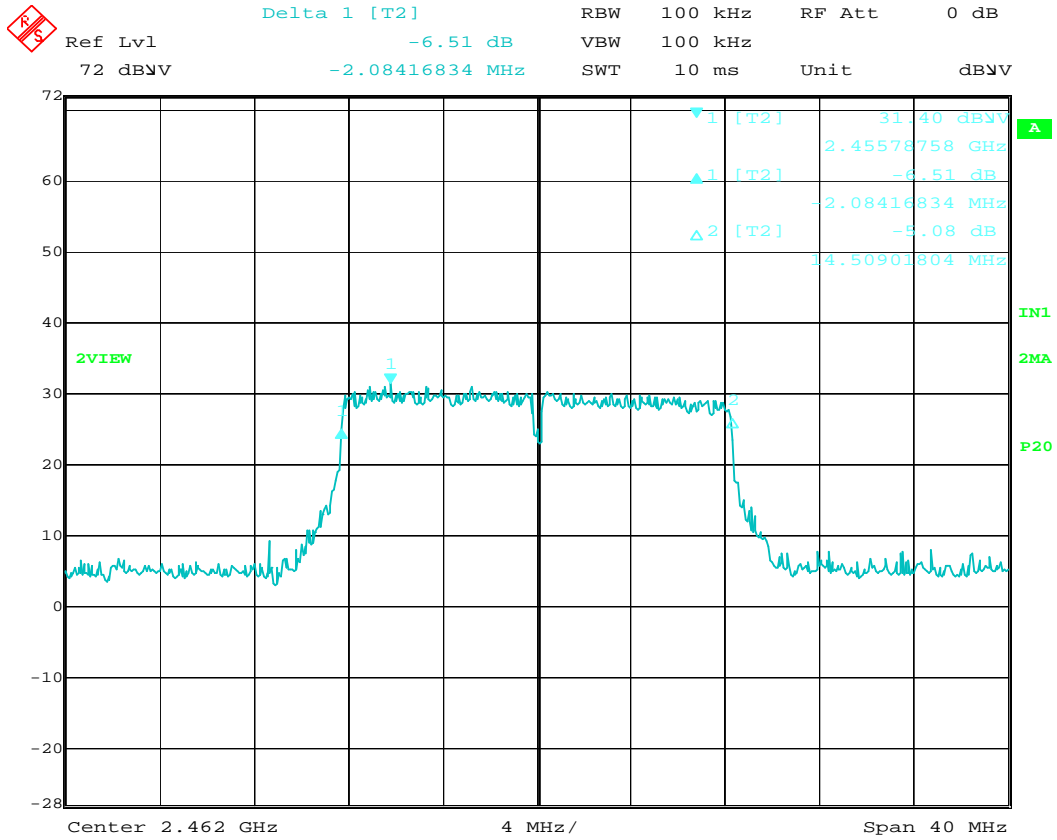
**802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1
6dB BW = 16.592 MHz**



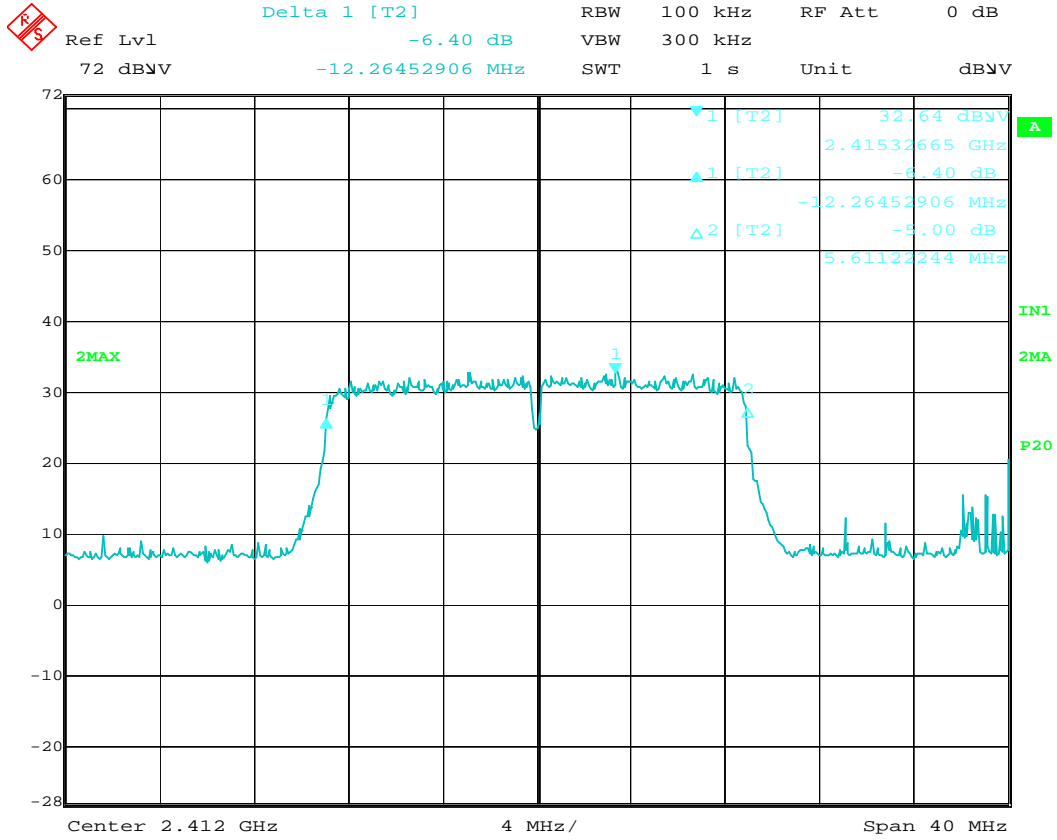
**802.11g, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6
6dB BW = 16.592 MHz**



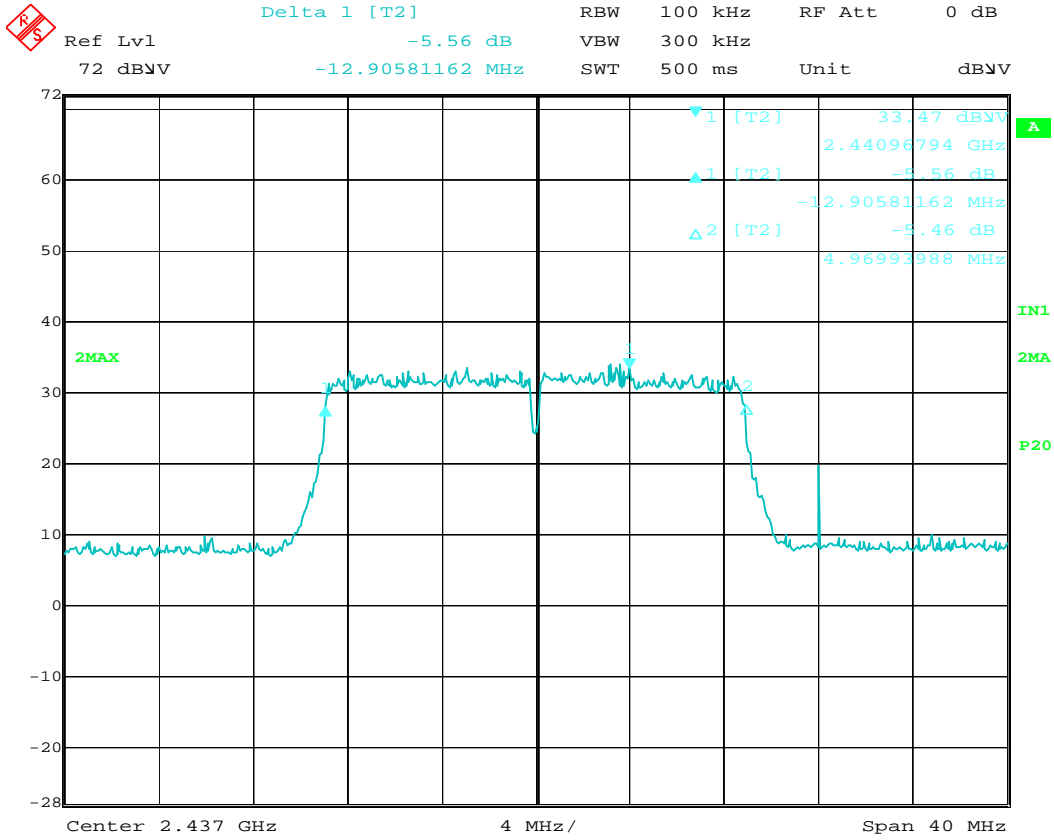
**802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11
6dB BW = 16.593 MHz**



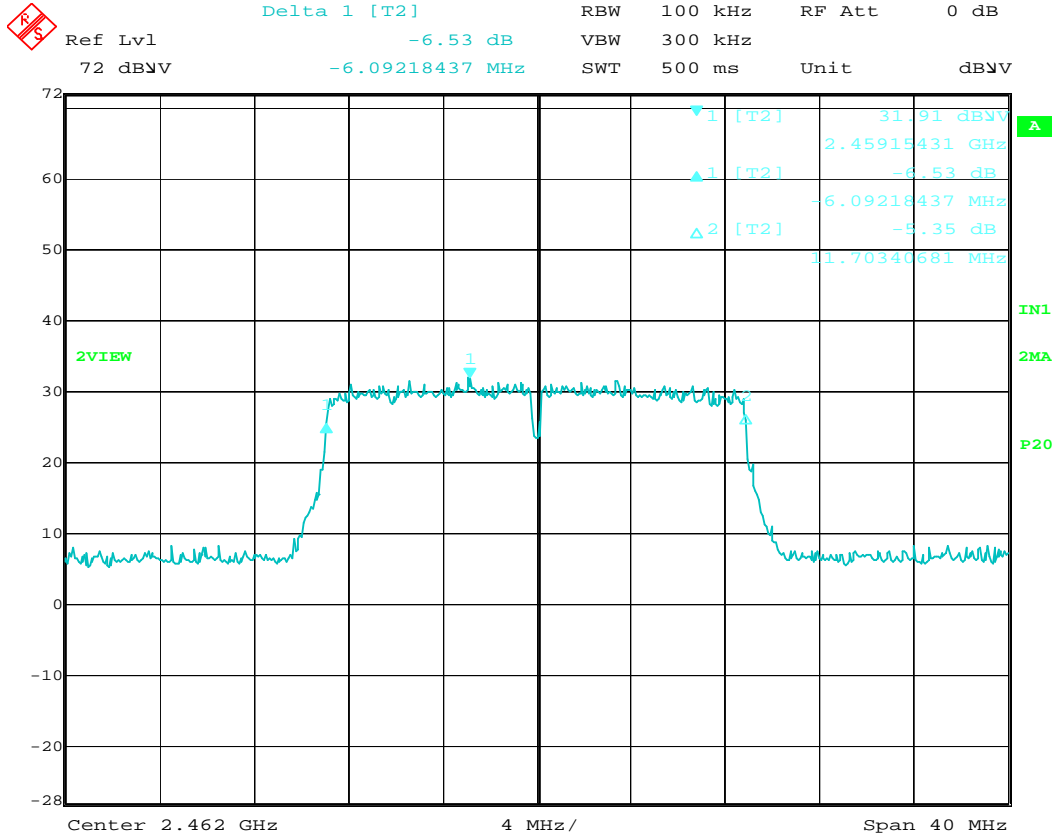
802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1
6dB BW = 17.875 MHz



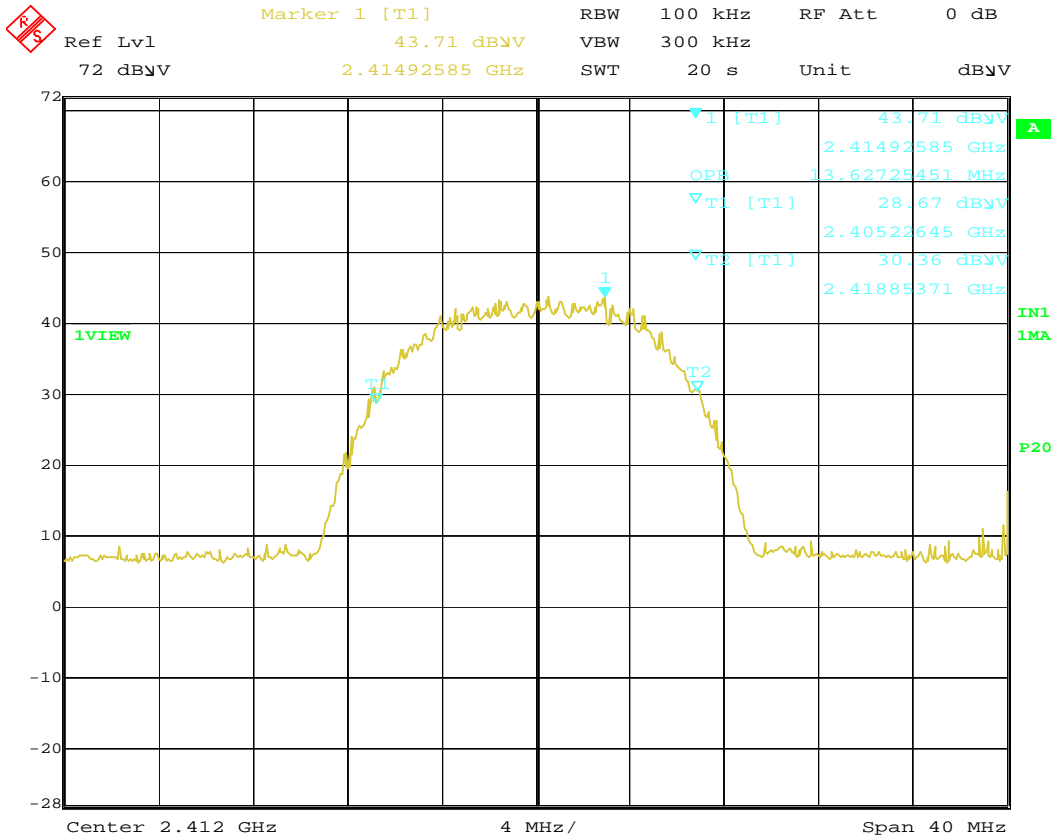
**802.11n, MCS5, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6
6dB BW = 17.874 MHz**



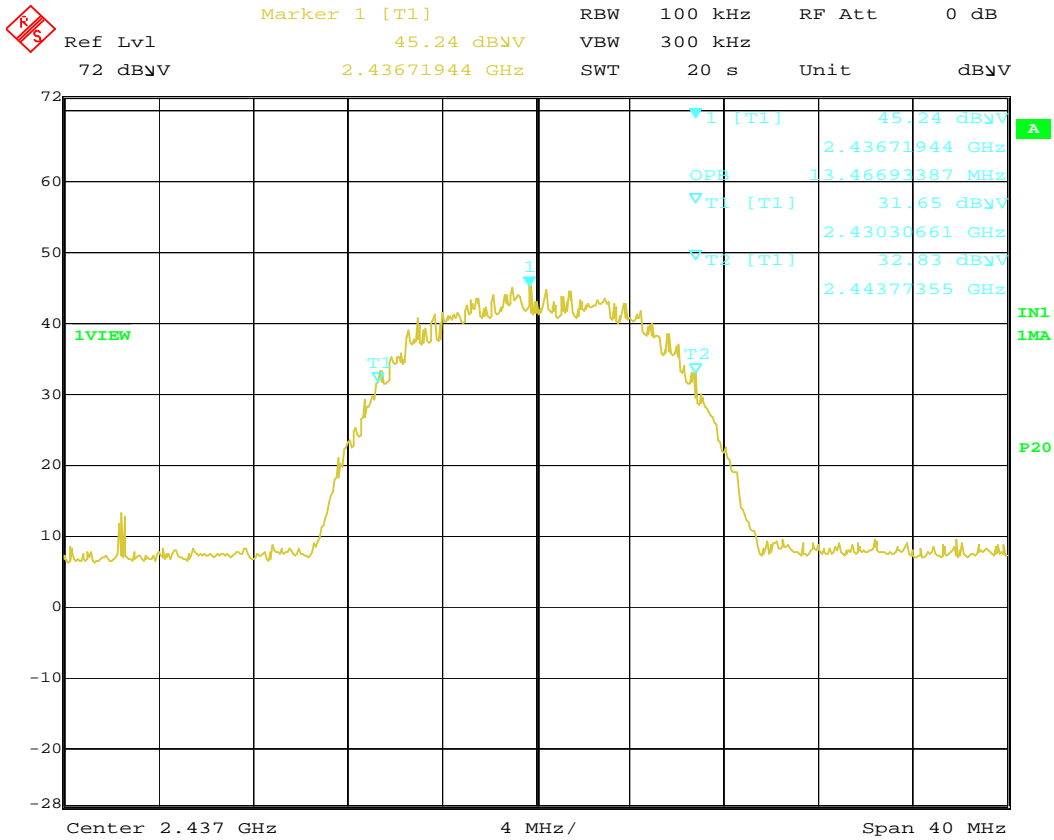
802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11
6dB BW = 17.795 MHz



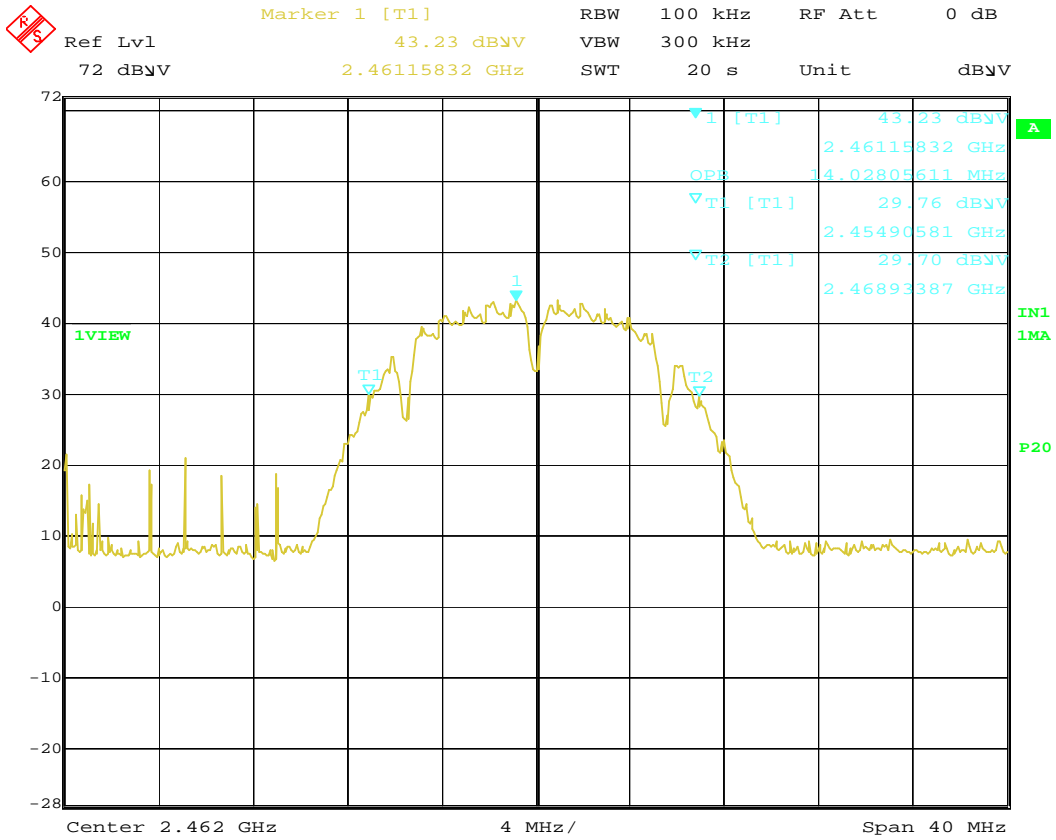
802.11b, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 1
Occupied BW = 13.62 MHz



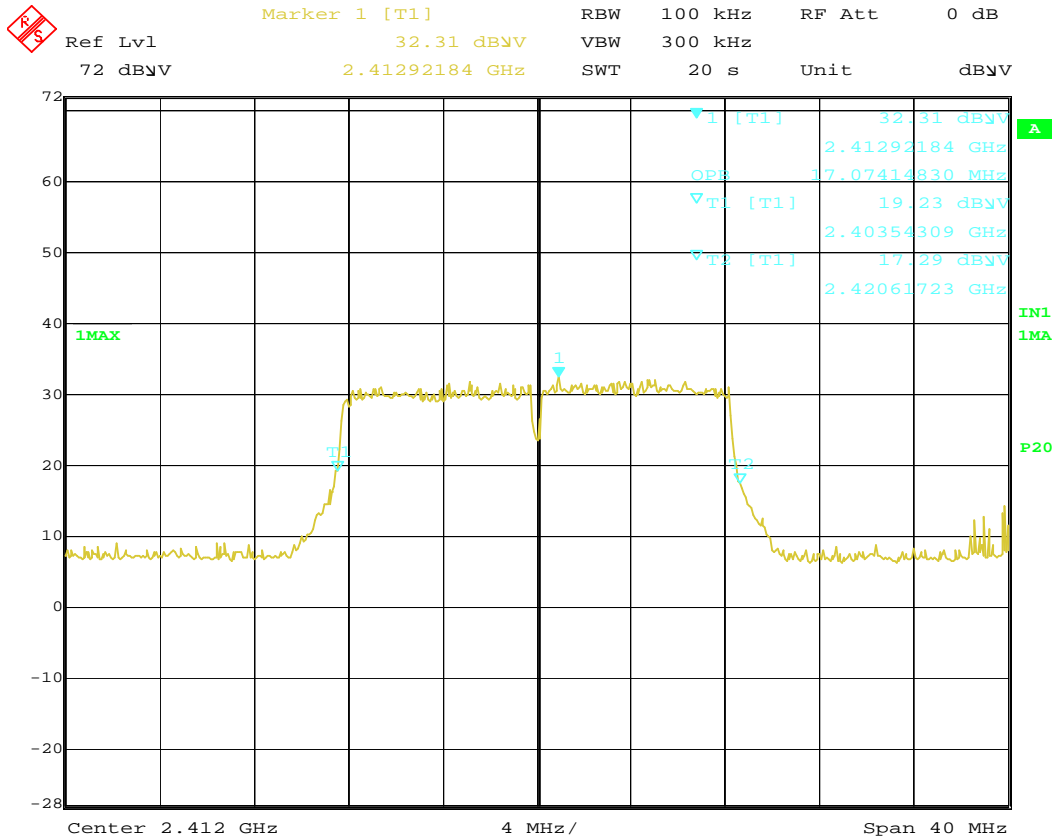
802.11b, 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 6
Occupied BW = 13.46 MHz



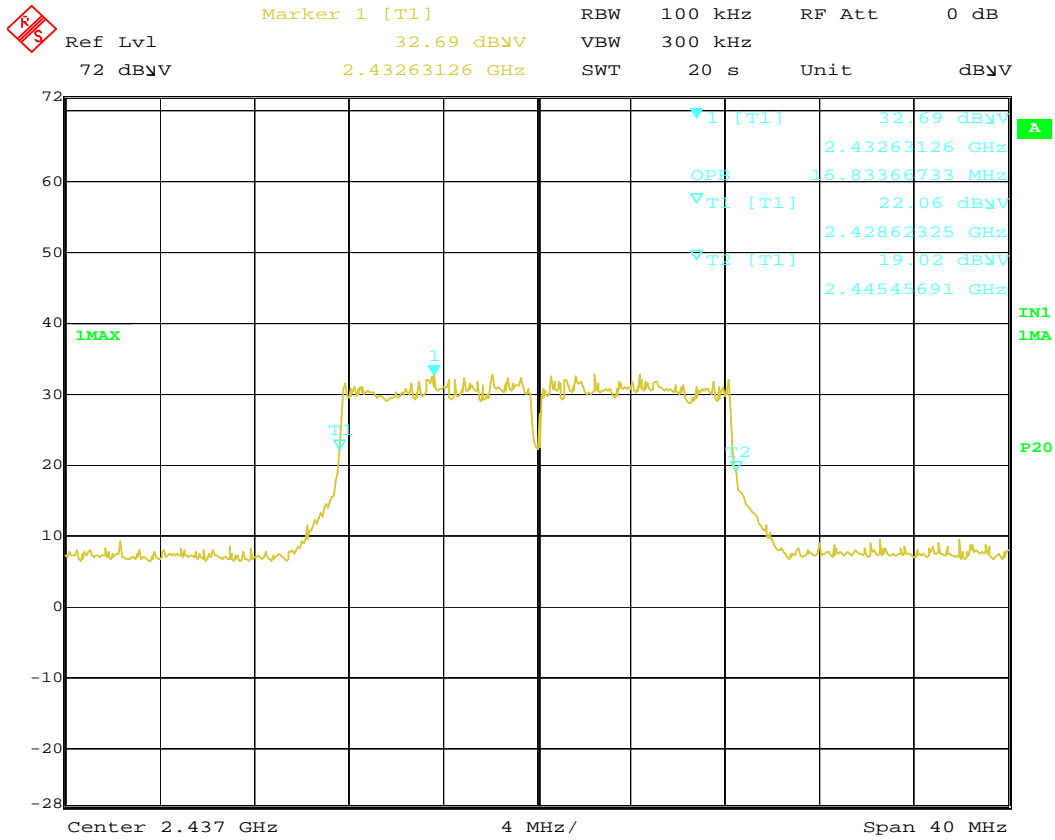
802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11
Occupied BW = 14.028 MHz



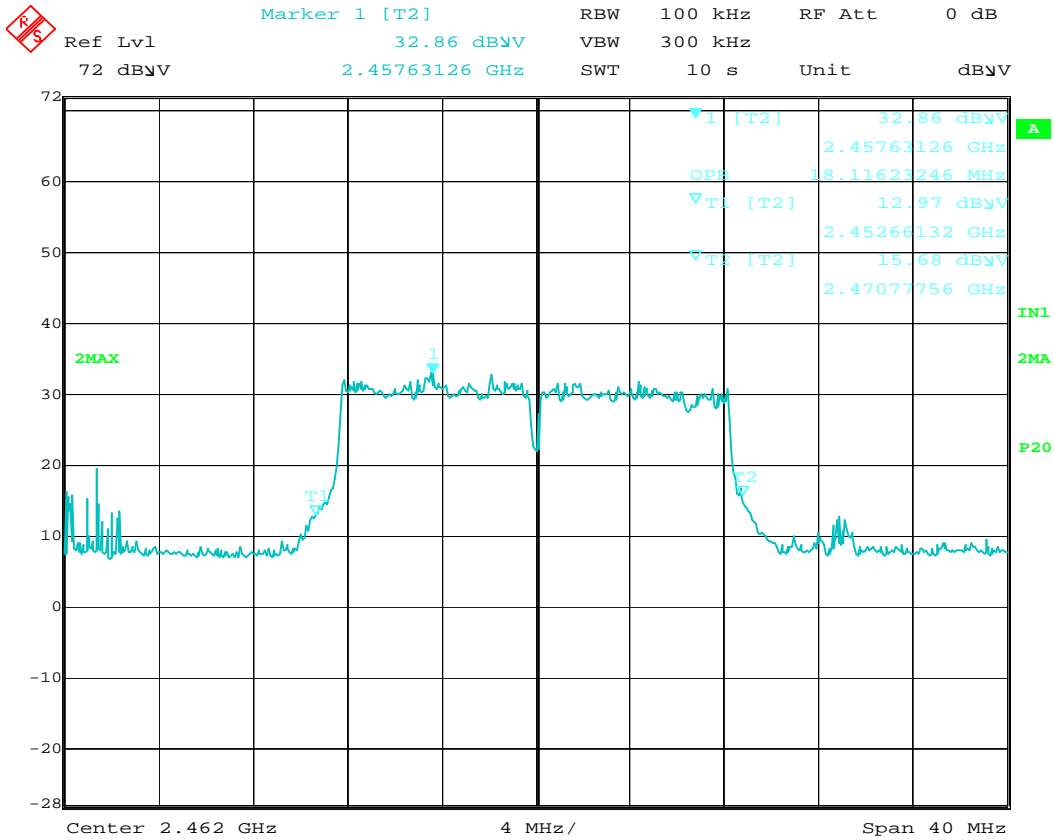
802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1
Occupied BW = 17.07 MHz



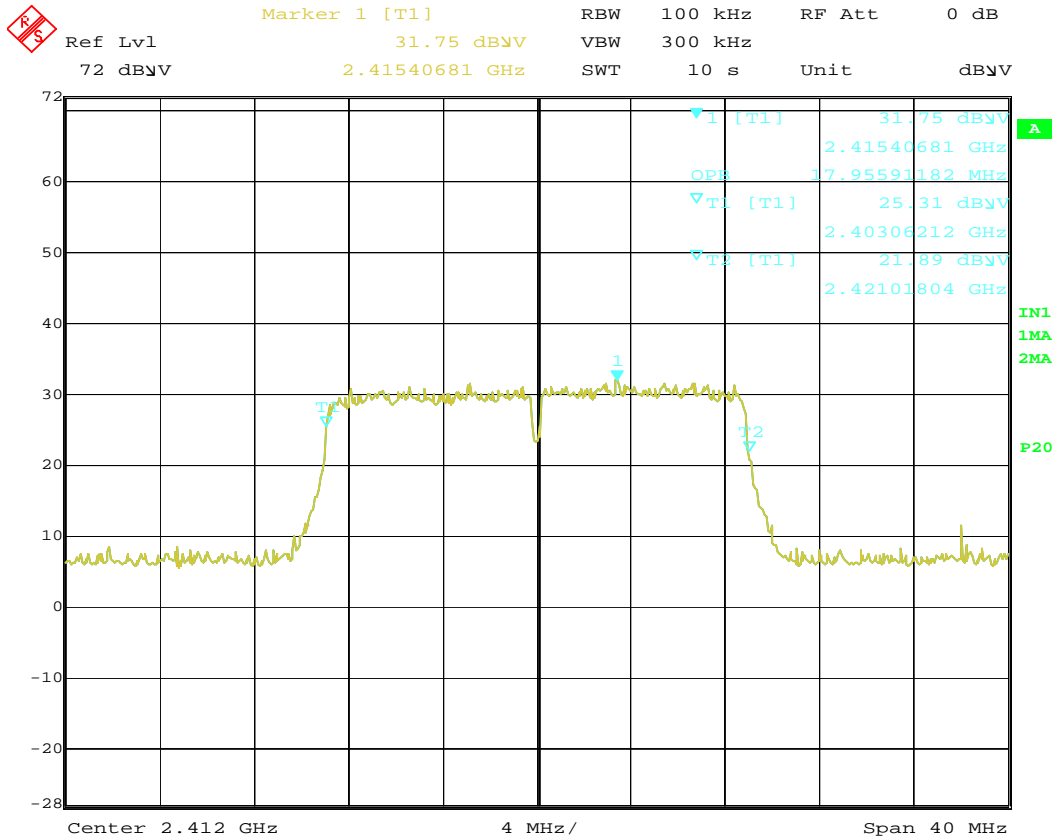
**802.11g, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6
Occupied BW = 16.83 MHz**



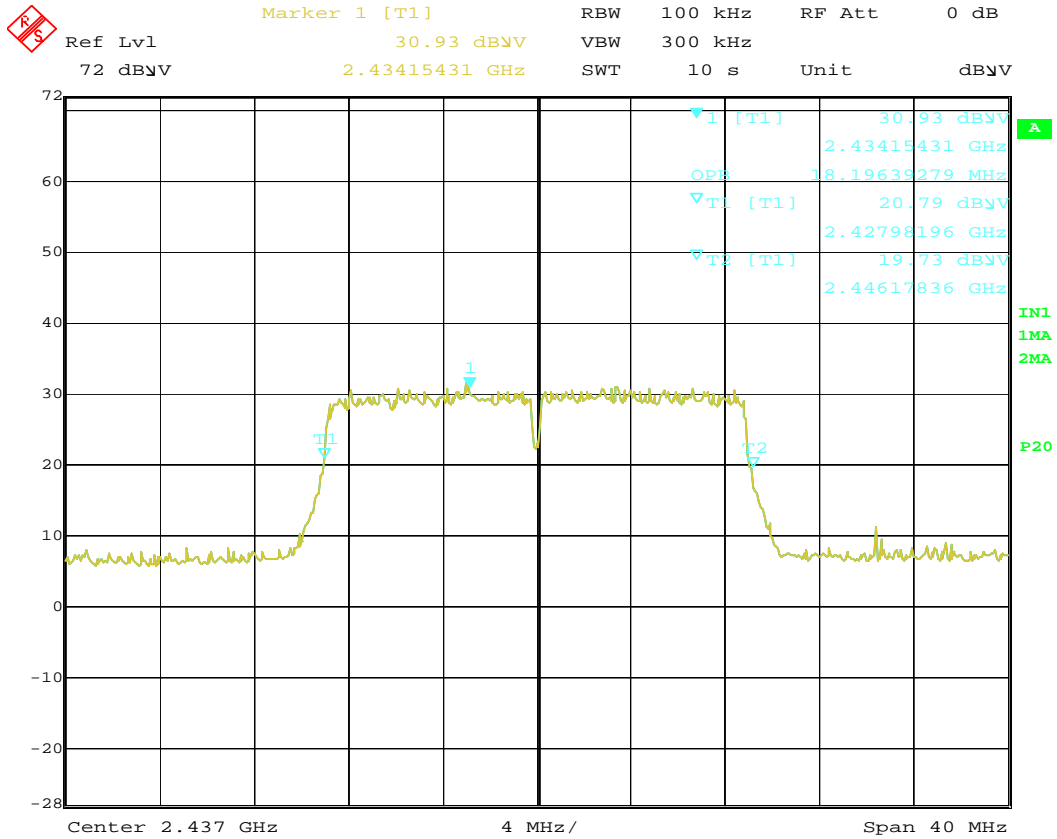
**802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11
Occupied BW = 18.11 MHz**



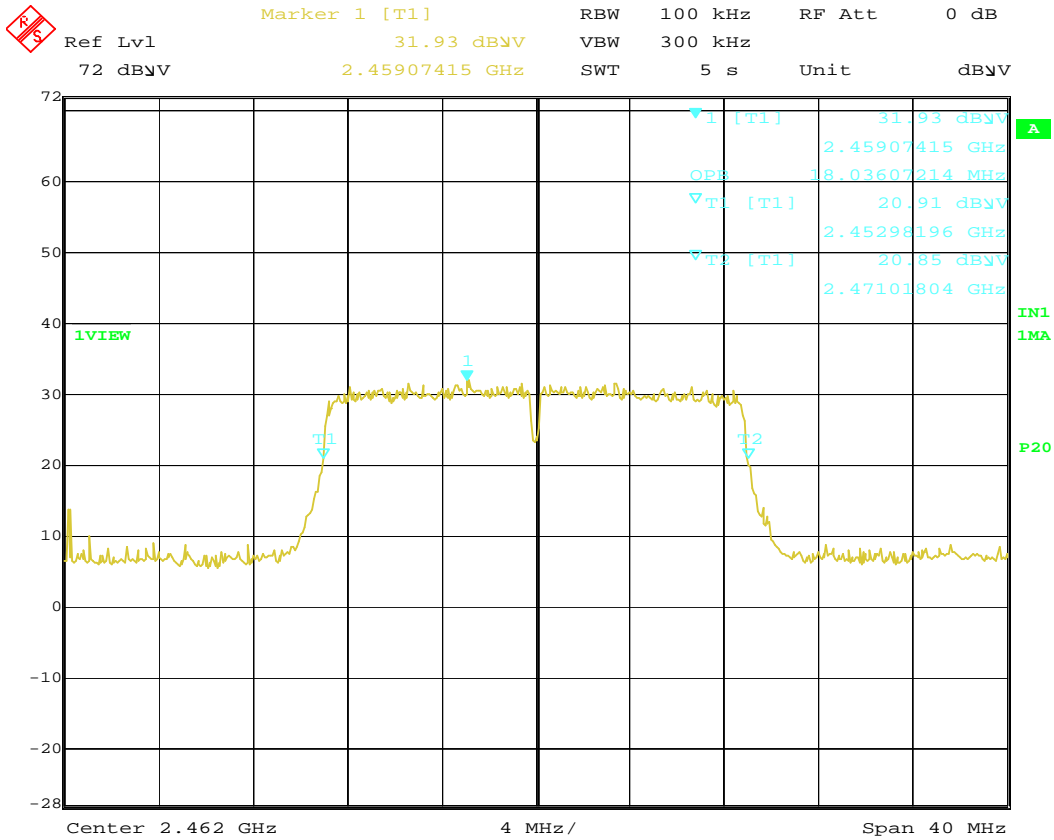
**802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1
Occupied BW = 17.95 MHz**



802.11n, MCS5, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 6
Occupied BW = 18.19 MHz



802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11
 Occupied BW = 18.03 MHz



Test Personnel: Vathana Ven *VJV*
Supervising/Reviewing
Engineer:
(Where Applicable) N/A
Product Standard: FCC Part 15 Subpart C and
RSS-247
Input Voltage: 120 VAC 60 Hz

Pretest Verification: **Yes**

Test Date: 06/02/2016

Limit Applied: Below specified limit
Ambient Temperature: 20 °C
Relative Humidity: 38 %
Atmospheric Pressure: 1009 mbars

Deviations, Additions, or Exclusions: None

9 Band Edge Compliance

9.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C (15.247), ANSI C63.4, ANSI C63.10, KDB558074, 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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisprr
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 dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

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

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

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

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

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
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017

Software Utilized:

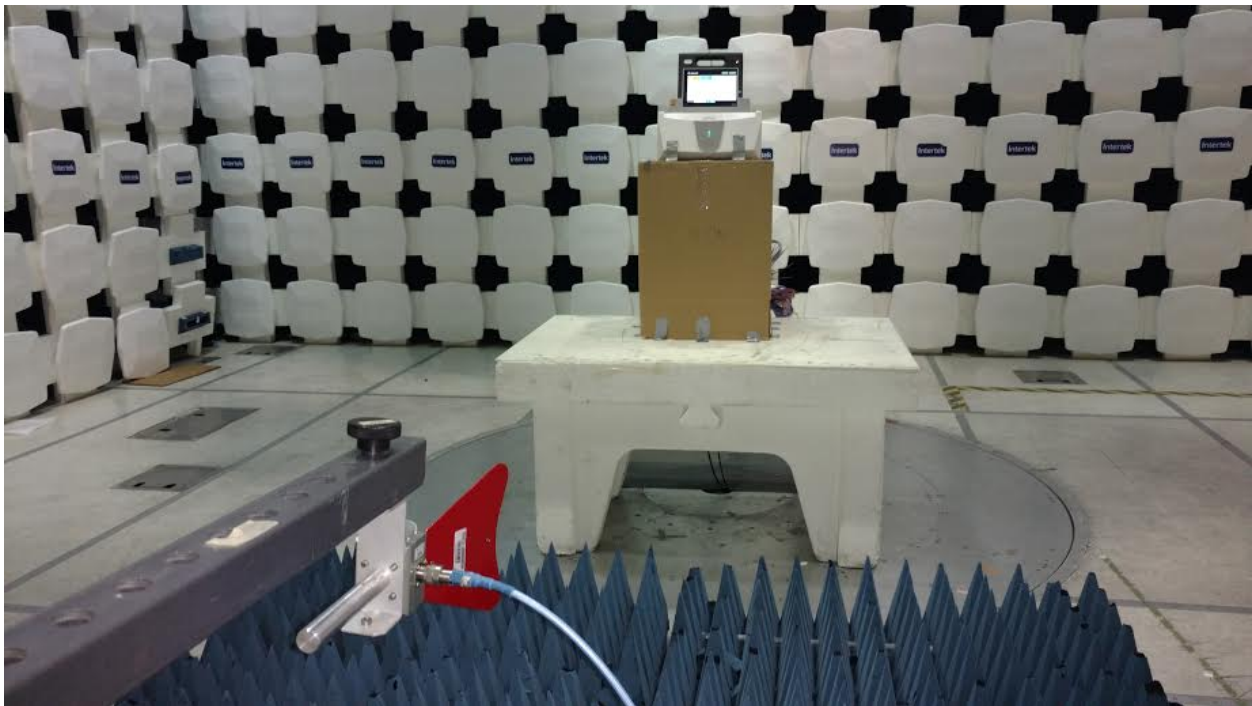
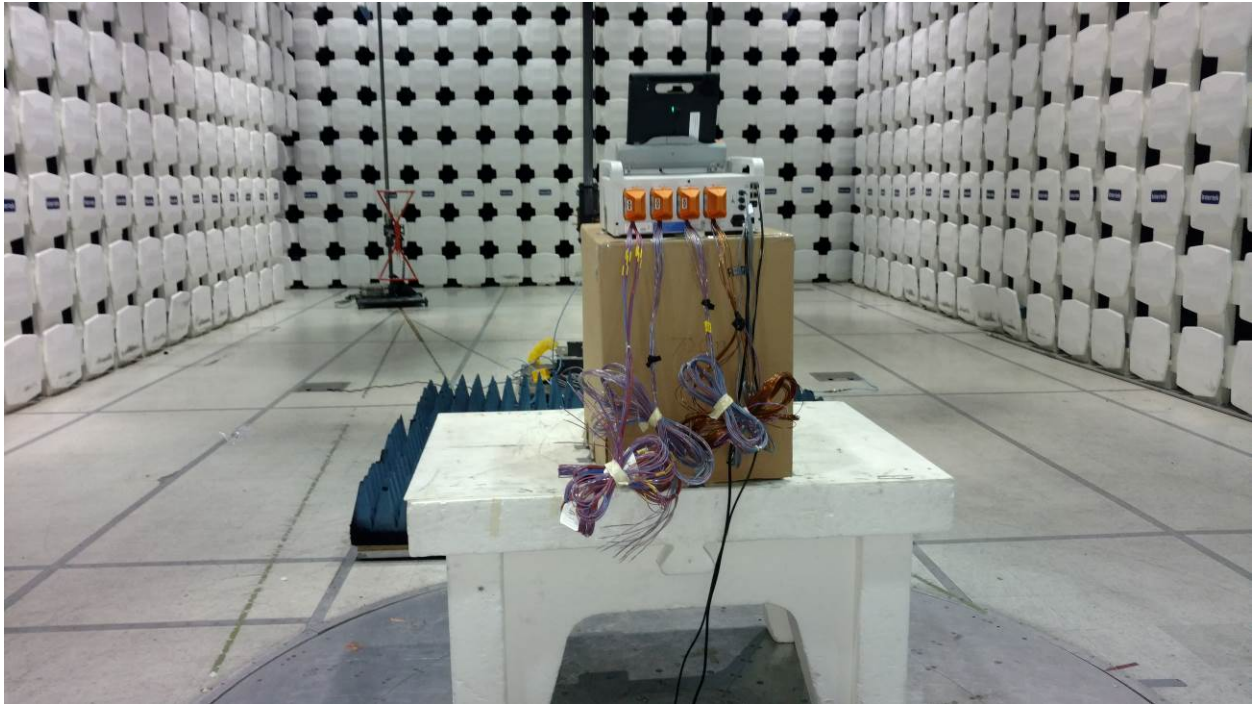
Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	08/27/2010

9.3 Results:

The sample tested was found to Comply.

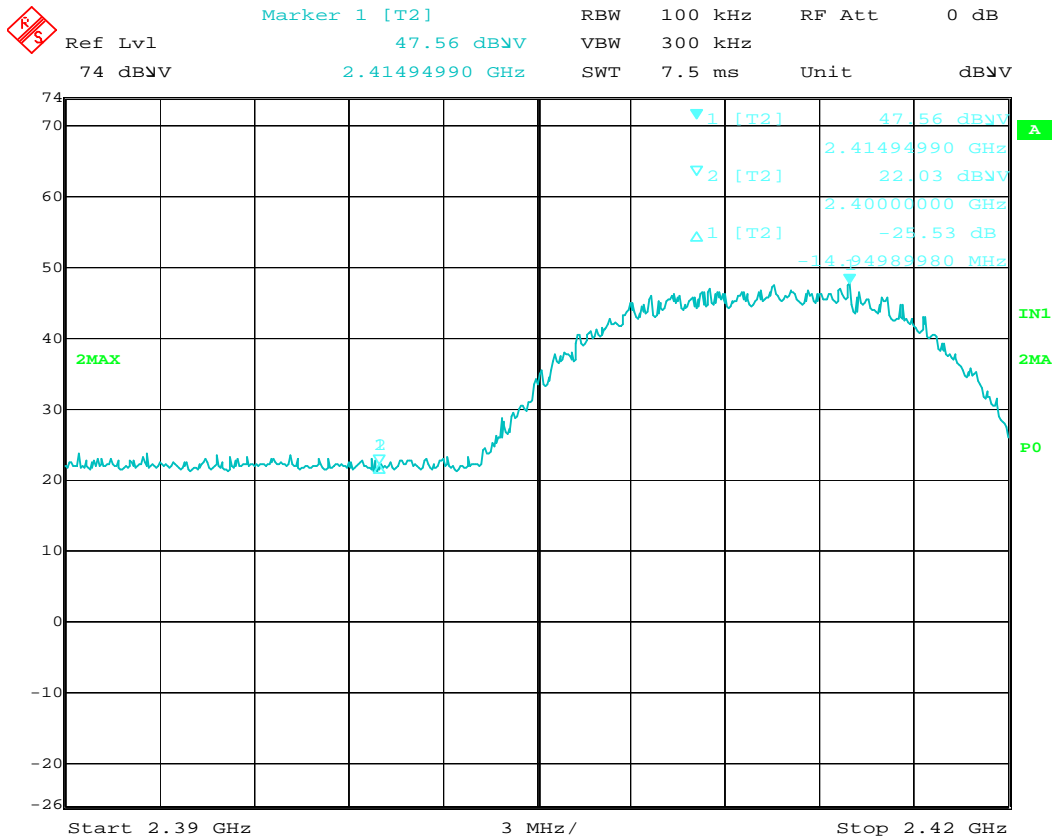
Spurious emissions at the band edges must be at least 20 dB lower than the fundamental field strength when measured with a 100 kHz bandwidth, without the need to be below the general limits of FCC Part 15 Section 15.209 and of RSS-Gen 7.2.5 Table 5. Emissions in restricted bands must meet the general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

9.4 Setup Photograph:



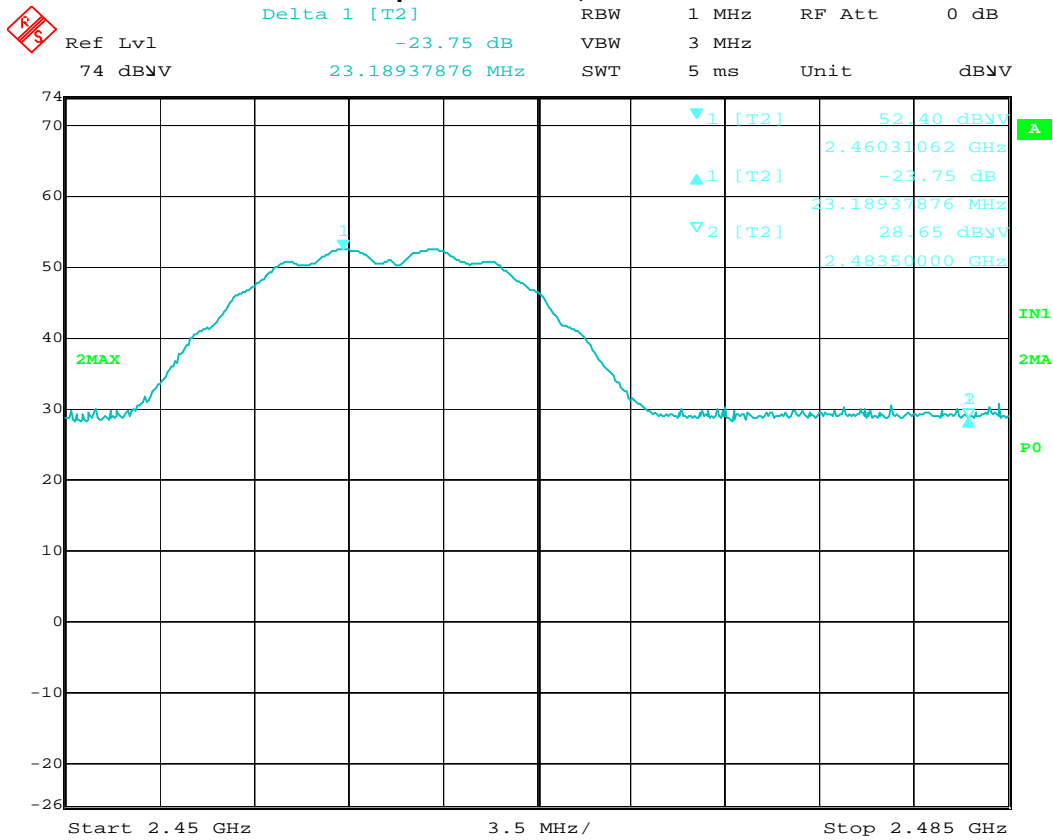
9.5 Plots/Data:

Lower Band Edge Compliance - 802.11b, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 1.



Spurious emission measured in 100 kHz RBW at 2400 MHz (Non-RB) is 20 dB below fundamental as shown in the above plot.

Upper Band Edge Compliance (peak) - 802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11.



Spurious emission measured in 1 MHz RBW (peak) at 2483.5 MHz (RB) meets general limits.

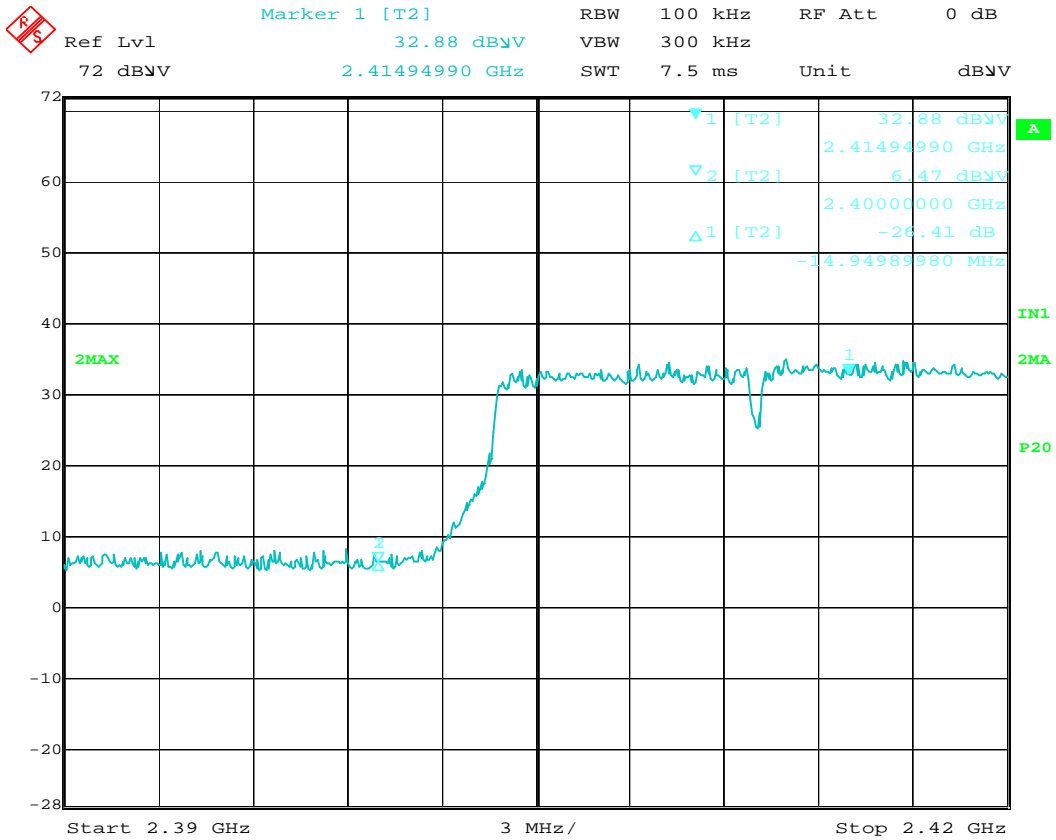
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Note: Upper Band Edge Compliance											
802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11											
PK	H	2483.500	28.65	31.30	3.79	0.00	0.00	63.74	74.00	-10.26	1/3 MHz

Upper Band Edge Compliance (average) - 802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11.

Spurious emission measured in 1 MHz RBW (average) at 2483.5 MHz (RB) meets general limits.

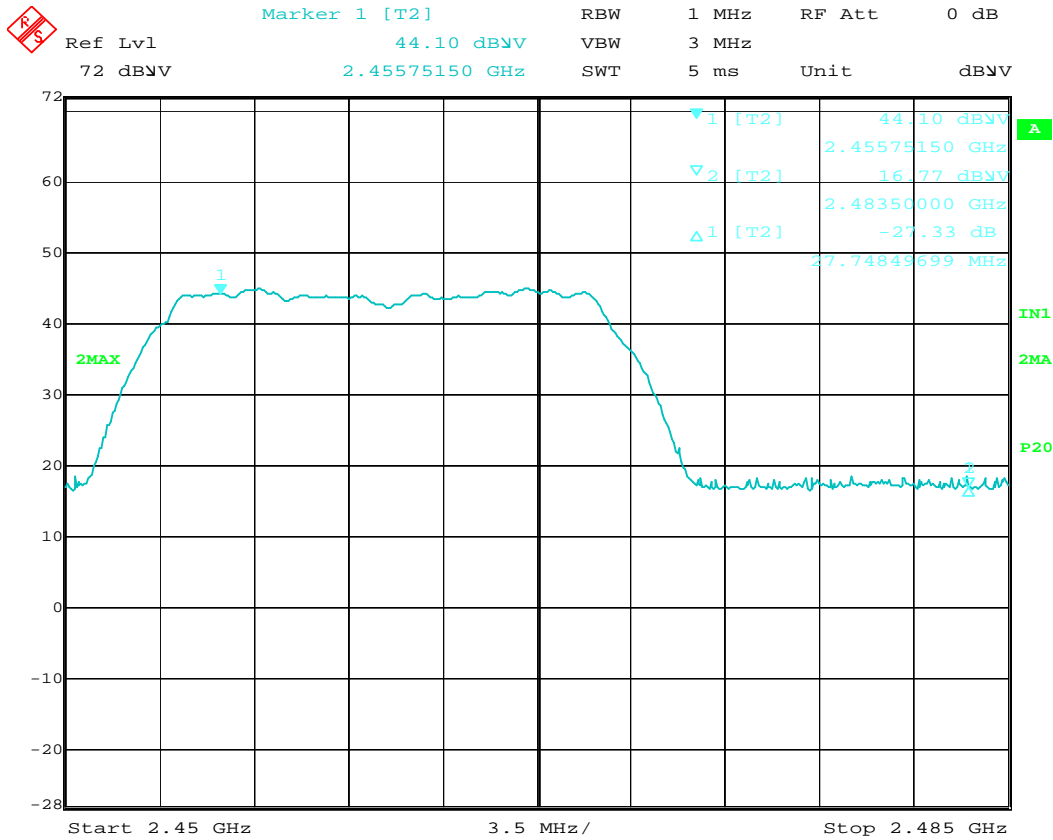
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
Note: Upper Band Edge Compliance											
802.11b, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm, CH 11											
AVG	H	2483.500	18.35	31.30	3.79	0.00	0.00	53.44	54.00	-0.56	1/3 MHz

Lower Band Edge Compliance - 802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1



Spurious emission measured in 100 kHz RBW at 2400 MHz (Non-RB) is 20 dB below fundamental as shown in the above plot.

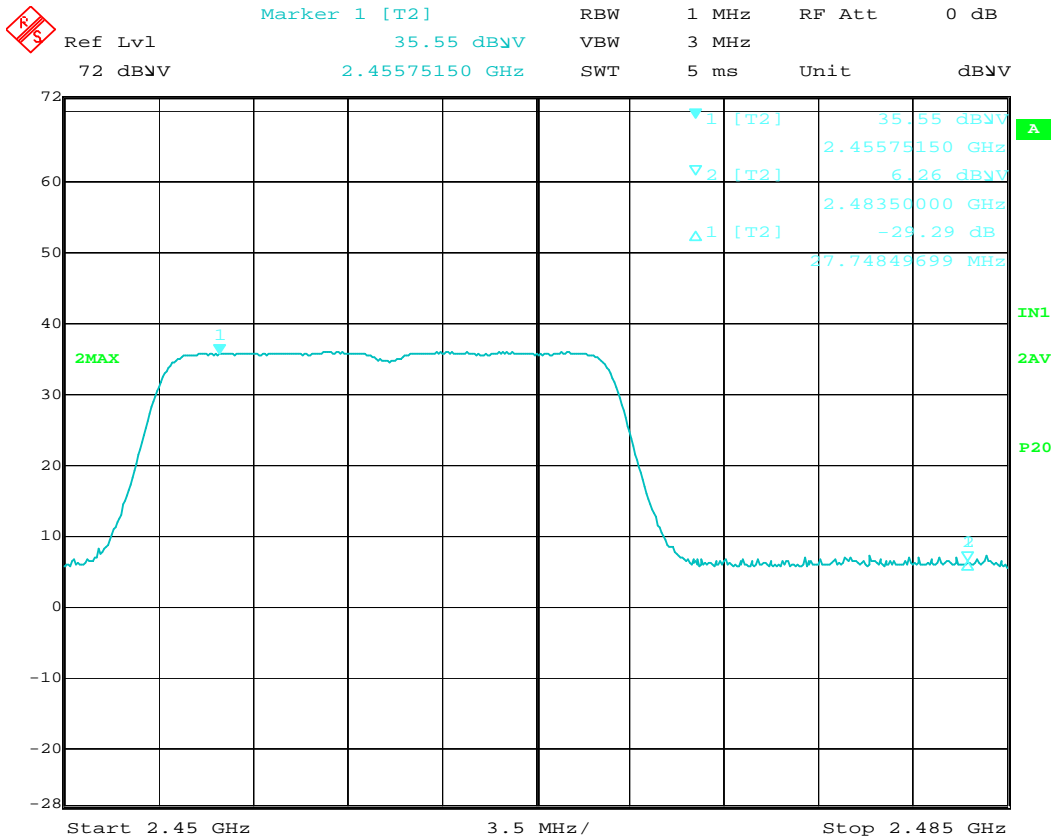
Upper Band Edge Compliance (peak) - 802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



Spurious emission measured in 1 MHz RBW (peak) at 2483.5 MHz (RB) meets general limits.

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
802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11											
PK	H	2483.500	16.77	31.30	3.79	0.00	0.00	51.86	74.00	-22.14	1/3 MHz

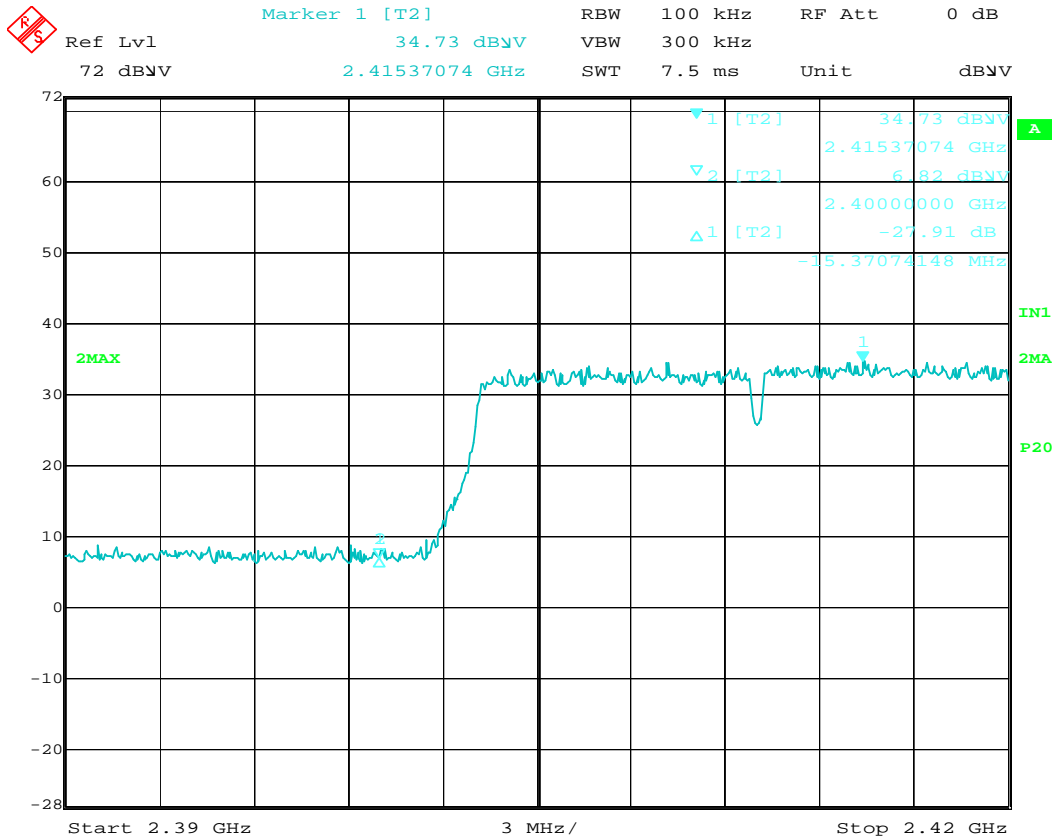
Upper Band Edge Compliance (average) - 802.11g, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



Spurious emission measured in 1 MHz RBW (average) at 2483.5 MHz (RB) meets general limits.

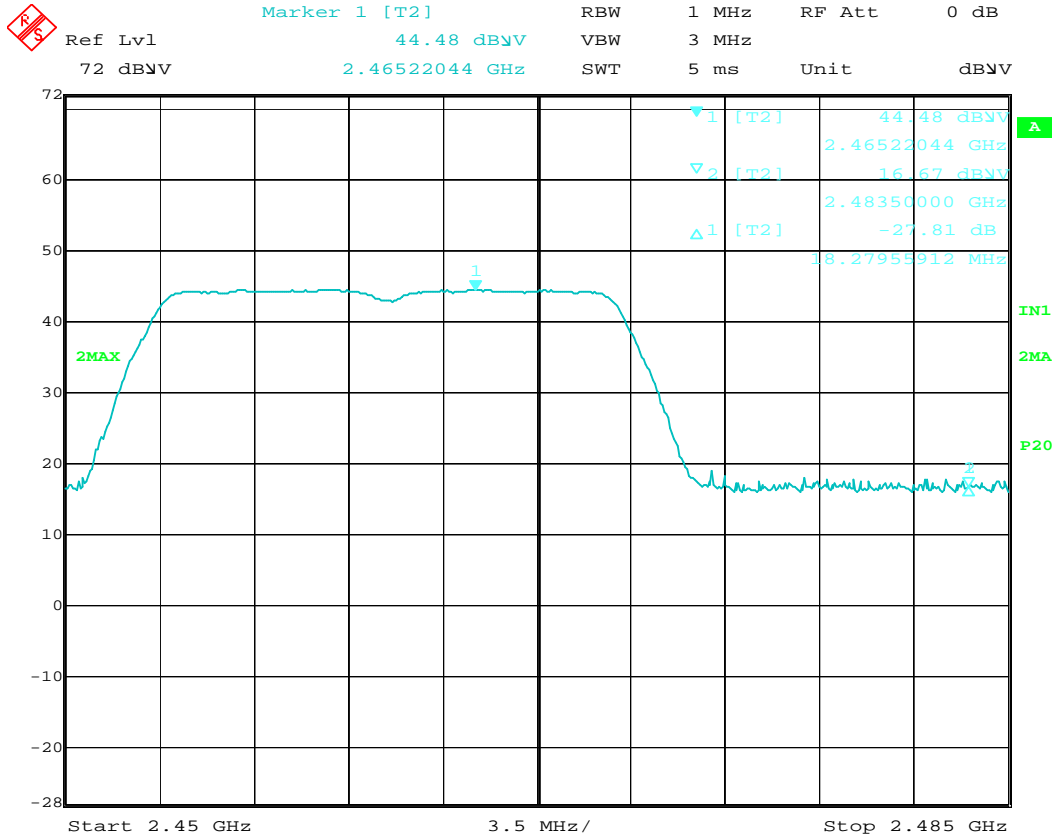
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth
802.11g, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11											
AVG	H	2483.500	6.26	31.30	3.79	0.00	0.00	41.35	74.00	-32.65	1/3 MHz

Lower Band Edge Compliance 802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 1



Spurious emission measured in 100 kHz RBW at 2400 MHz (Non-RB) is 20 dB below fundamental as shown in the above plot.

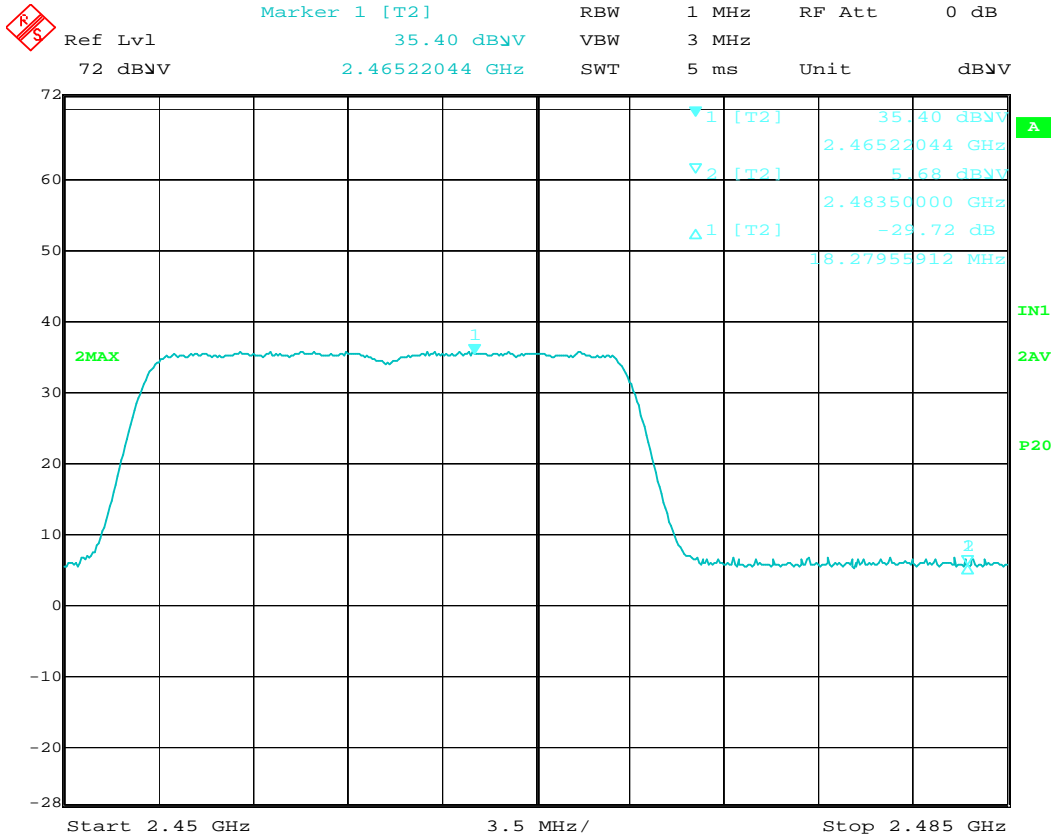
Upper Band Edge Compliance (peak) - 802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



Spurious emission measured in 1 MHz RBW (peak) at 2483.5 MHz (RB) meets general limits.

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
802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11											
PK	H	2483.500	16.67	31.30	3.79	0.00	0.00	51.76	74.00	-22.24	1/3 MHz

Upper Band Edge Compliance (average) 802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11



Spurious emission measured in 1 MHz RBW (average) at 2483.5 MHz (RB) meets general limits.

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
802.11n, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm, CH 11											
AVG	H	2483.500	5.68	31.30	3.79	0.00	0.00	40.77	74.00	-33.23	1/3 MHz

Test Personnel: Naga Suryadevara N-5
 Supervising/Reviewing Engineer: _____
 (Where Applicable) N/A
 Product Standard: FCC Part 15 Subpart C and RSS-247
 Input Voltage: 120 VAC 60 Hz
 Pretest Verification: Yes

Test Date: 06/08/2016
 Limit Applied: Below specified limit
 Ambient Temperature: 20 °C
 Relative Humidity: 25 %
 Atmospheric Pressure: 1006 mbars

10 Transmitter Radiated Spurious Emissions

10.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C (15.247), ANSI C63.4, ANSI C63.10, KDB558074, 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 Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

Measurement	Frequency Range	Expanded Uncertainty (k=2)	Ucisprr
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 dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

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

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

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

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

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
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
145013'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2944A07027	05/02/2016	05/02/2017
145106'	Bilog Antenna (30MHz - 5GHz)	Sunoi Sciences	JB5	A111003	11/10/2015	11/10/2016
145-410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	09/01/2015	09/01/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
EMC04'	ANTENNA, RIDGED GUIDE, 18-40 GHZ	EMCO	3116	2090	05/13/2016	05/13/2017
REA004'	3GHz High Pass Filter	Reactel, Inc	7HSX-3G/18G-S11	06-1	01/25/2016	01/25/2017
PRE8'	PREAMPLIFIER 1- 40 GHz	MIITEQ	NSP4000-NF	507145	08/28/2015	08/28/2016
CBLHF2012 -2M-2'	2m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252675002	02/09/2016	02/09/2017
CBLHF2012 -5M-2'	5m 9kHz-40GHz Coaxial Cable - SET2	Huber & Suhner	SF102	252676002	02/19/2016	02/19/2017

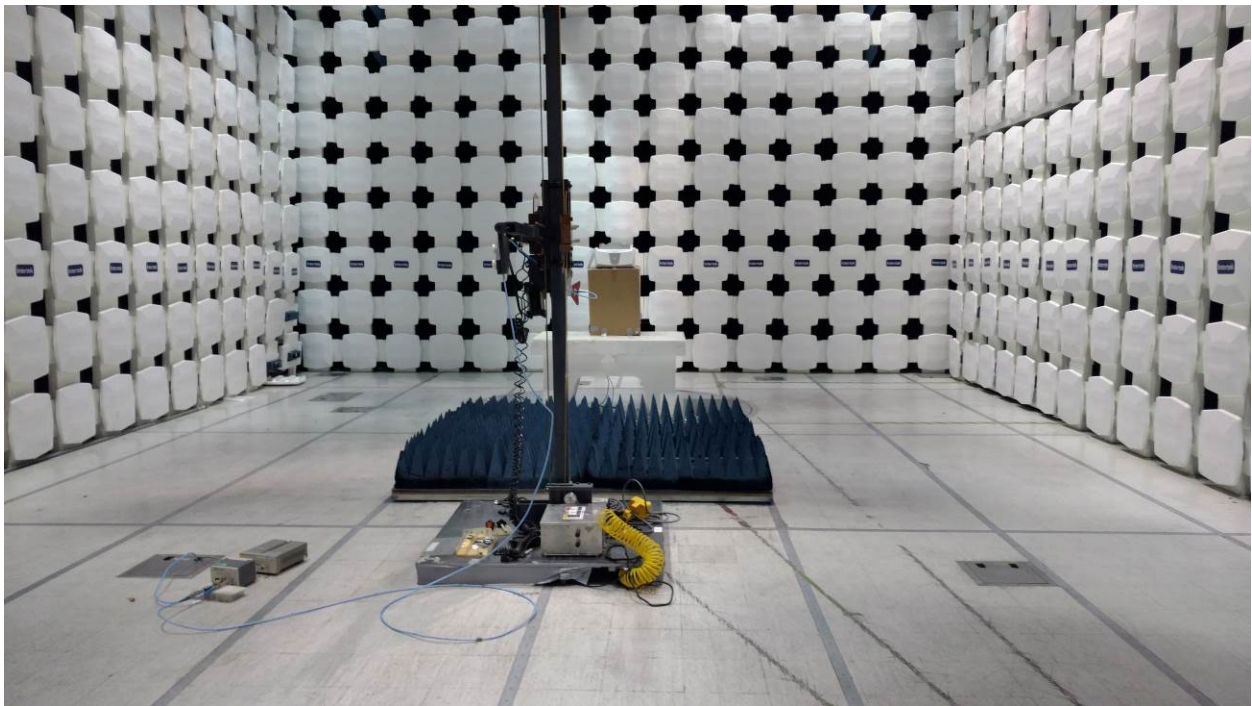
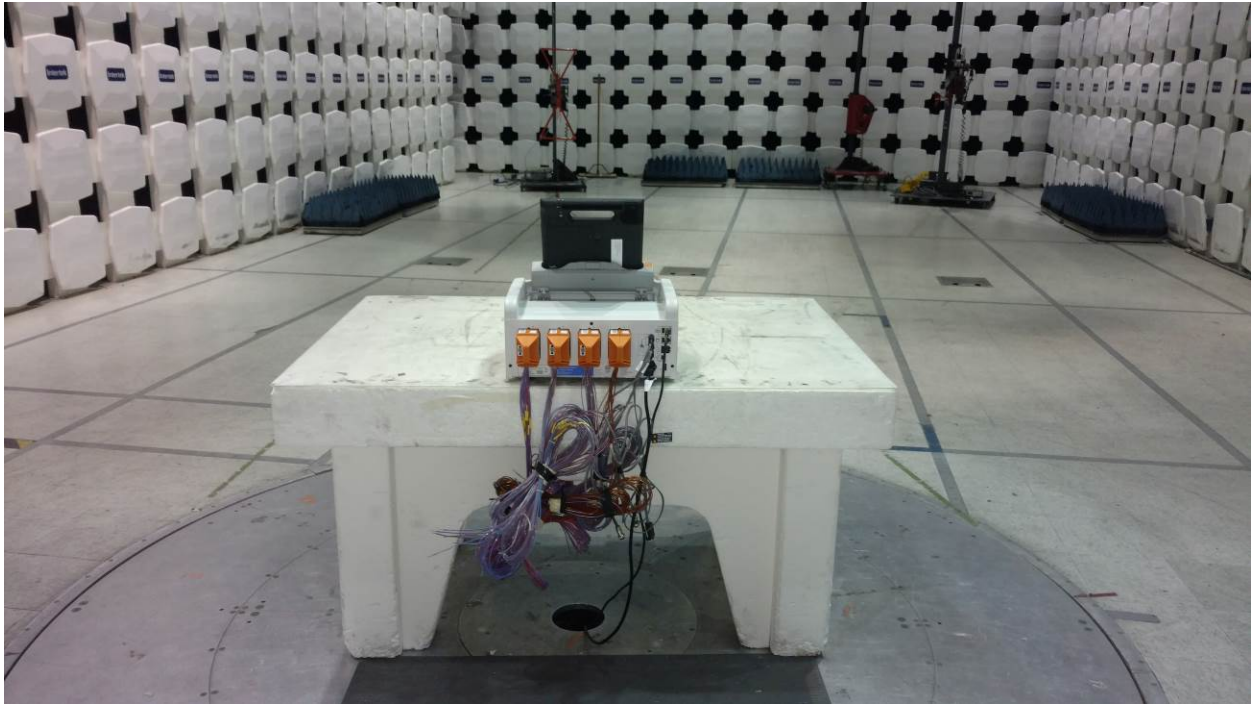
Software Utilized:

Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46
EMI Boxborough.xls	Intertek	08/27/2010

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 Fundamental peak emission – 20 dB and attenuation below 15.209 general limits is not required.

10.4 Setup Photographs:



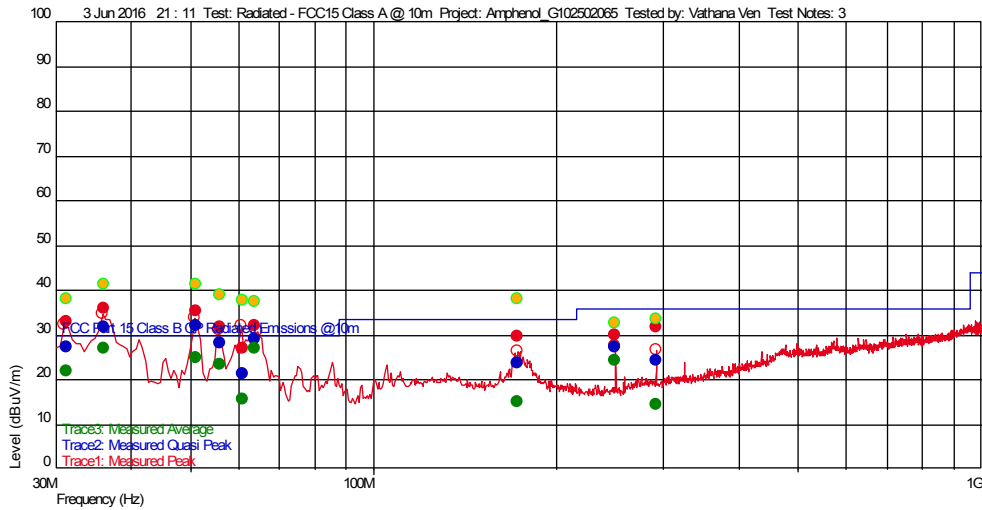
10.5 Plots/Data:

802.11b Tx CH1, 5.5 Mbps, BW 20 MHz, DSSS modulation, rated power 18 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, 802.11b, CH1, 5.5 Mbps, DSSS modulation, Tx mode	
Temperature:	23 deg C	
Humidity:	44%, 1005 mB	
Tested by:	Vathana Ven	
Test Started:	3 Jun 2016 21 : 11	

Prescan Emission Graph



Emissions Test Data

Note: Peak Limit for Non-Restricted Band frequencies @ 10 m distance is 50.55 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 80.55 - 20 - 10 = 50.55 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

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
250.025852122 M	30.07	17.700	-24.790	-	-		234	1.14	120 k	RB 15.209
292.488176653 M	31.79	19.400	-24.535	50.55	-18.76		200	1.14	120 k	Non-RB
172.43326703 M	29.69	17.557	-25.539	-	-		360	1.12	120 k	RB 15.209
60.940881299 M	27.01	13.494	-26.948	50.55	-23.54		194	1.13	120 k	Non-RB
55.90400799 M	31.81	13.300	-27.003	50.55	-18.74		85	2.48	120 k	Non-RB
63.973346677 M	32.09	13.797	-26.915	50.55	-18.46		276	2.04	120 k	Non-RB
31.367134381 M	32.91	26.406	-27.418	50.55	-17.64		237	2.15	120 k	Non-RB
51.099599611 M	35.42	13.870	-27.055	50.55	-15.13		116	1.90	120 k	Non-RB
36.096993661 M	35.83	22.822	-27.329	50.55	-14.72		82	1.58	120 k	Non-RB

Trace2: Measured Quasi Peak

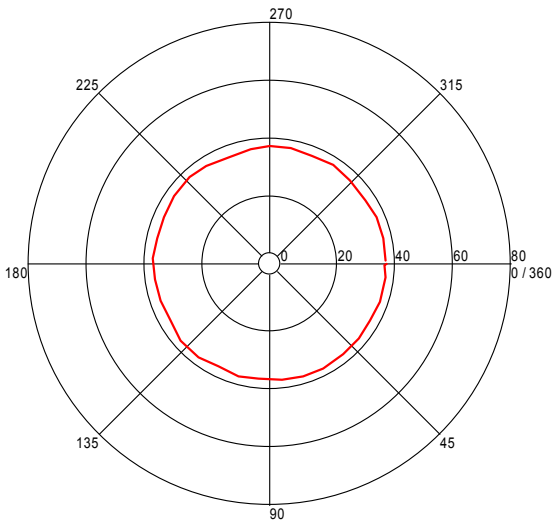
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.488176653 M	24.36	19.400	-24.535	-	-		200	1.14	120 k	Non-RB
172.43326703 M	23.65	17.557	-25.539	33.520	-9.87		360	1.12	120 k	RB 15.209
250.025852122 M	27.28	17.700	-24.790	36.020	-8.74		234	1.14	120 k	RB 15.209
60.940881299 M	21.46	13.494	-26.948	-	-		194	1.13	120 k	Non-RB
31.367134381 M	27.45	26.406	-27.418	-	-		237	2.15	120 k	Non-RB
55.90400799 M	28.18	13.300	-27.003	-	-		85	2.48	120 k	Non-RB
63.973346677 M	29.10	13.797	-26.915	-	-		276	2.04	120 k	Non-RB
36.096993661 M	31.79	22.822	-27.329	-	-		82	1.58	120 k	Non-RB
51.099599611 M	32.11	13.870	-27.055	-	-		116	1.90	120 k	Non-RB

Azimuth Plots

Turntable Plots

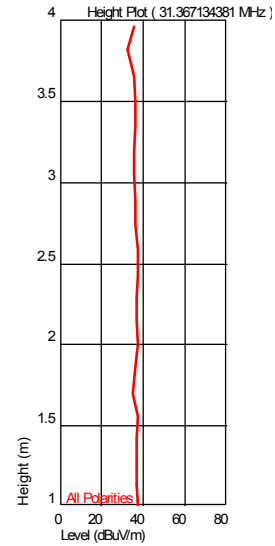
Turntable Plot (31.367134381 MHz)

Level (dBuV/m)



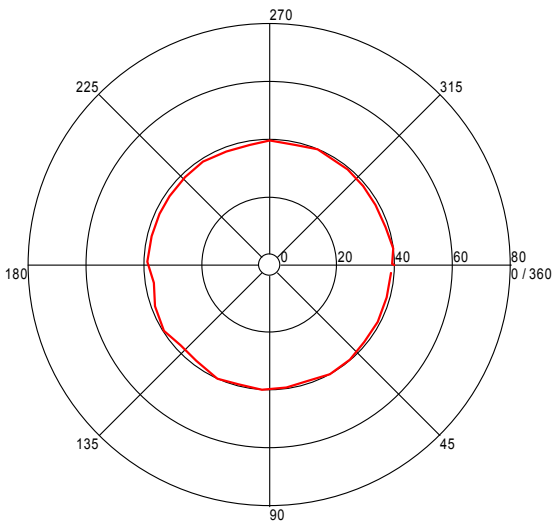
All Polarities

Azimuth (Degrees)



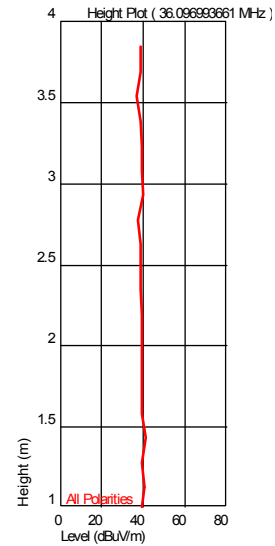
Turntable Plot (36.096993661 MHz)

Level (dBuV/m)



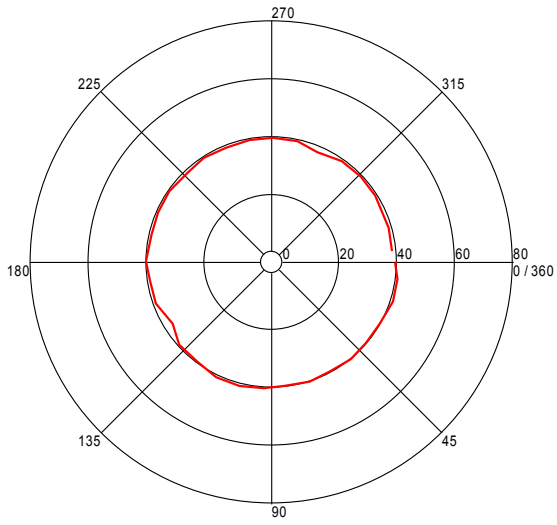
All Polarities

Azimuth (Degrees)



Turntable Plot (51.099599611 MHz)

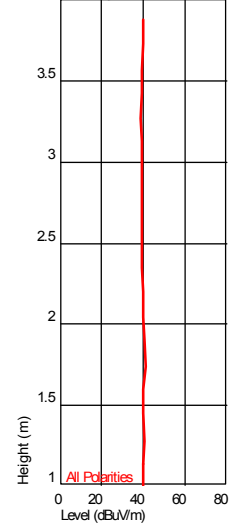
Level (dBuV/m)



All Polarities

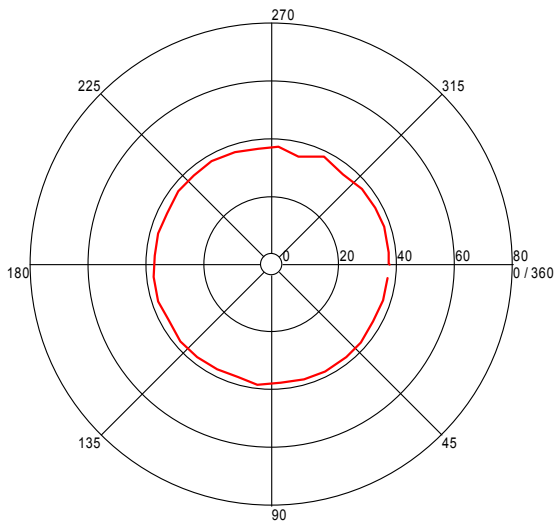
Azimuth (Degrees)

Height Plot (51.099599611 MHz)



Turntable Plot (55.90400799 MHz)

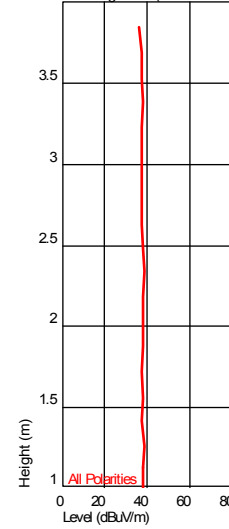
Level (dBuV/m)



All Polarities

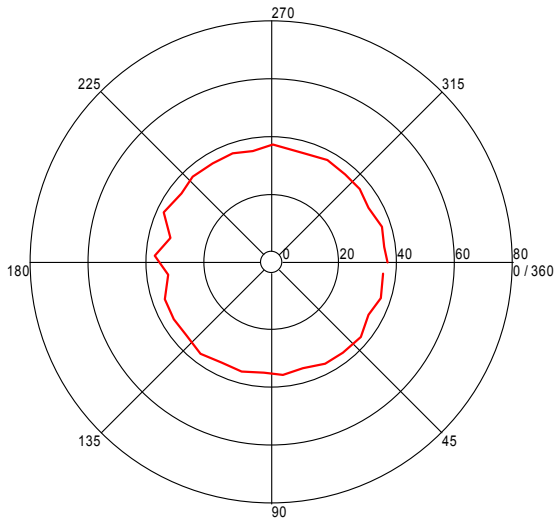
Azimuth (Degrees)

Height Plot (55.90400799 MHz)



Turntable Plot (60.940881299 MHz)

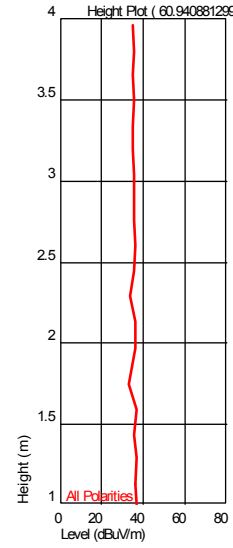
Level (dBuV/m)



All Polarities

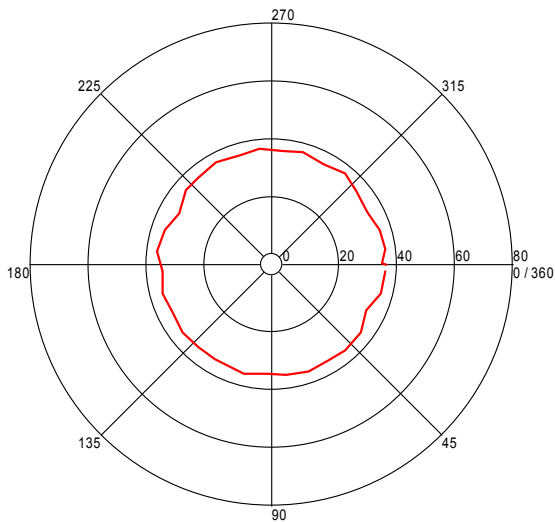
Azimuth (Degrees)

Height Plot (60.940881299 MHz)



Turntable Plot (63.973346677 MHz)

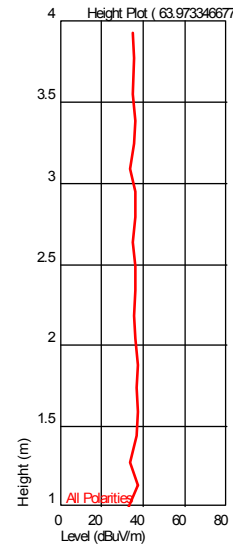
Level (dBuV/m)



All Polarities

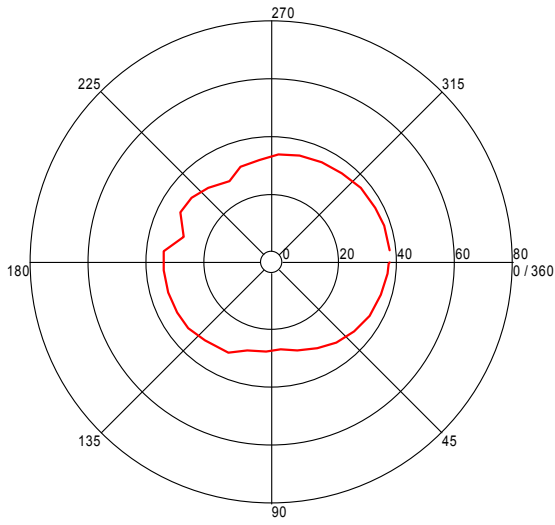
Azimuth (Degrees)

Height Plot (63.973346677 MHz)



Turntable Plot (172.43326703 MHz)

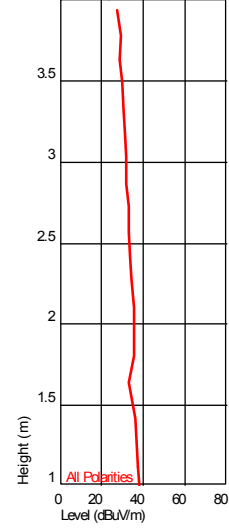
Level (dBuV/m)



All Polarities

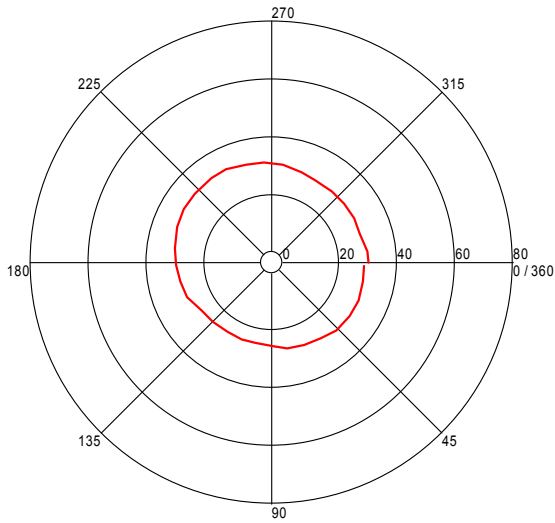
Azimuth (Degrees)

Height Plot (172.43326703 MHz)



Turntable Plot (250.025852122 MHz)

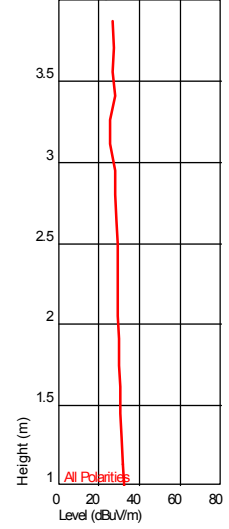
Level (dBuV/m)



All Polarities

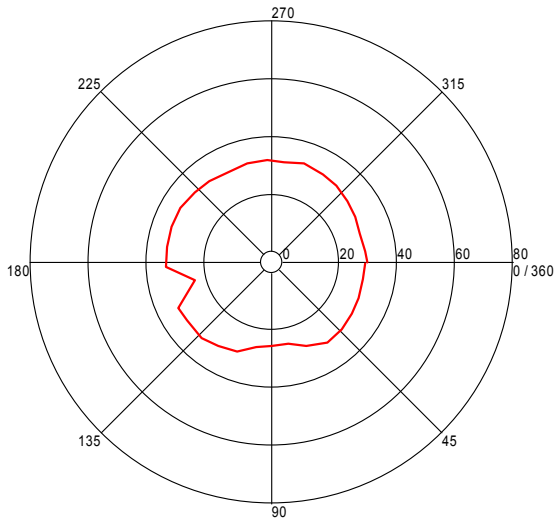
Azimuth (Degrees)

Height Plot (250.025852122 MHz)



Turntable Plot (292.488176653 MHz)

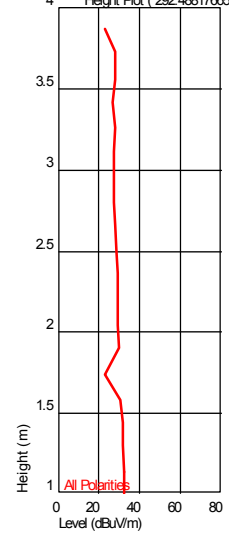
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.488176653 MHz)



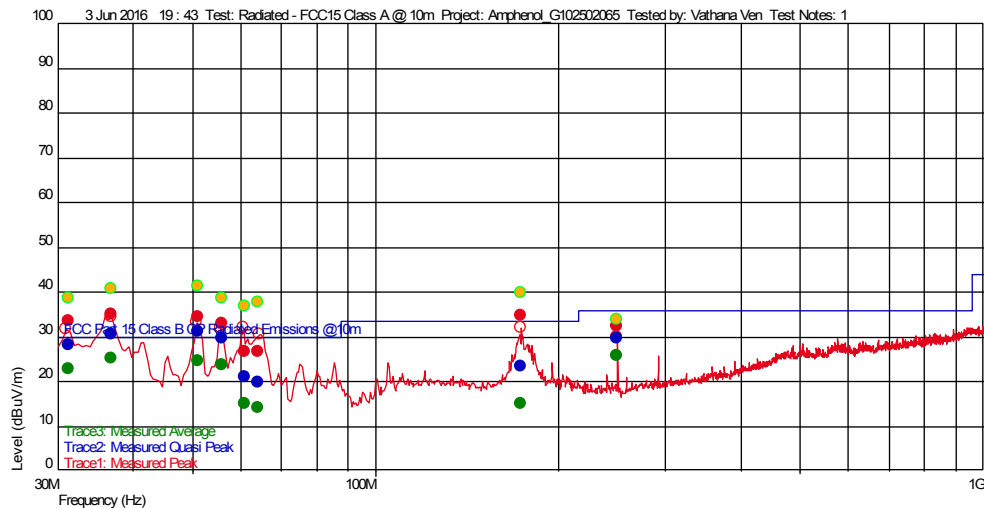
All Polarities

802.11b Tx CH6, 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, 802.11b, CH6, 11 Mbps, DSSS modulation, Tx mode	
Temperature:	23 deg C	
Humidity:	44%, 1005 mB	
Tested by:	Vathana Ven	
Test Started:	3 Jun 2016 19 : 43	

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

Note: Peak Limit for Non-Restricted Band frequencies @ 10 m distance is 52.99 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 82.99 - 20 - 10 = 52.99 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dB uV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
250.010621661 M	32.35	17.700	-24.790	-	-		210	1.14	120 k	RB 15.209
64.143286557 M	26.62	13.814	-26.913	52.99	-26.37		360	1.90	120 k	Non-RB
60.914428393 M	26.73	13.491	-26.948	52.99	-26.26		31	4.00	120 k	Non-RB
174.054508627 M	34.88	17.495	-25.521	52.99	-18.11		0	1.59	120 k	Non-RB
56.001001978 M	32.90	13.300	-27.002	52.99	-20.09		41	2.19	120 k	Non-RB
31.364729571 M	33.47	26.408	-27.418	52.99	-19.52		63	1.13	120 k	Non-RB
51.122044501 M	34.58	13.863	-27.055	52.99	-18.41		95	2.18	120 k	Non-RB
36.778757301 M	35.15	22.277	-27.316	52.99	-17.44		49	2.79	120 k	Non-RB

Trace2: Measured Quasi Peak

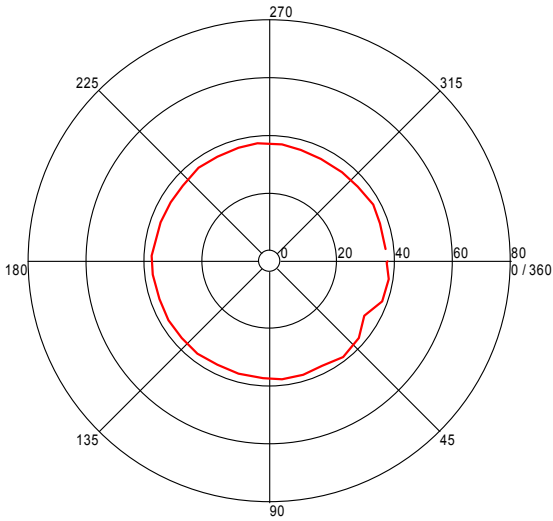
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dB uV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
174.054508627 M	23.30	17.495	-25.521	-	-		0	1.59	120 k	Non-RB
64.143286557 M	19.83	13.814	-26.913	-	-		360	1.90	120 k	Non-RB
60.914428393 M	21.03	13.491	-26.948	-	-		31	4.00	120 k	Non-RB
250.010621661 M	29.68	17.700	-24.790	36.020	-6.34		210	1.14	120 k	RB 15.209
31.364729571 M	28.14	26.408	-27.418	-	-		63	1.13	120 k	Non-RB
56.001001978 M	29.71	13.300	-27.002	-	-		41	2.19	120 k	Non-RB
36.778757301 M	30.57	22.277	-27.316	-	-		49	2.79	120 k	Non-RB
51.122044501 M	31.21	13.863	-27.055	-	-		95	2.18	120 k	Non-RB

Azimuth Plots

Turntable Plots

Turntable Plot (31.364729571 MHz)

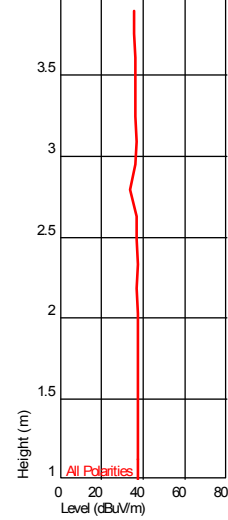
Level (dBuV/m)



All Polarities

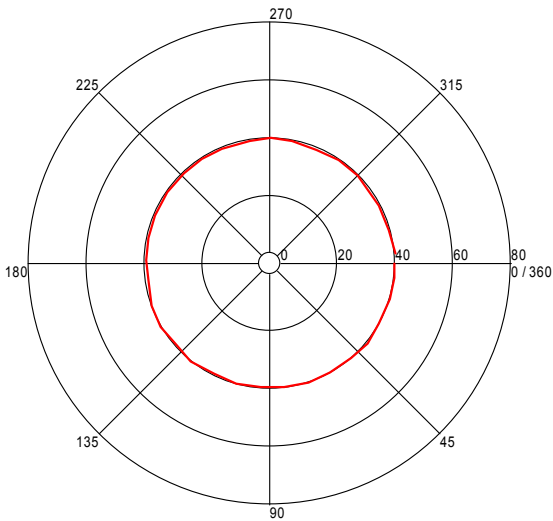
Azimuth (Degrees)

Height Plot (31.364729571 MHz)



Turntable Plot (36.778757301 MHz)

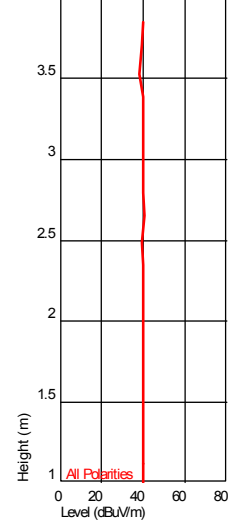
Level (dBuV/m)



All Polarities

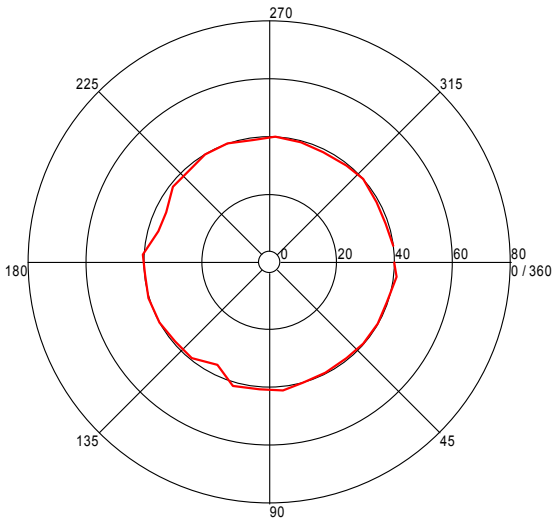
Azimuth (Degrees)

Height Plot (36.778757301 MHz)



Turntable Plot (51.122044501 MHz)

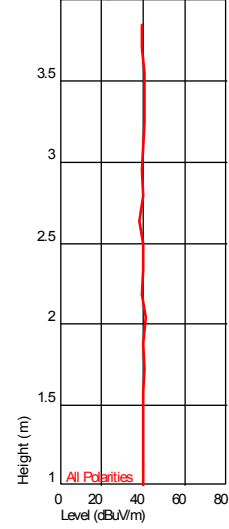
Level (dBuV/m)



All Polarities

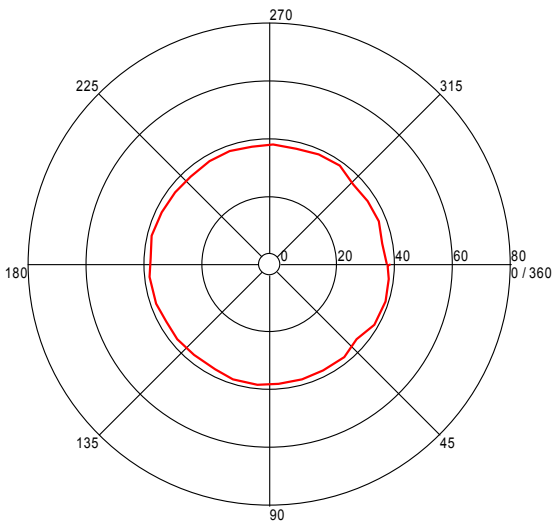
Azimuth (Degrees)

Height Plot (51.122044501 MHz)



Turntable Plot (56.001001978 MHz)

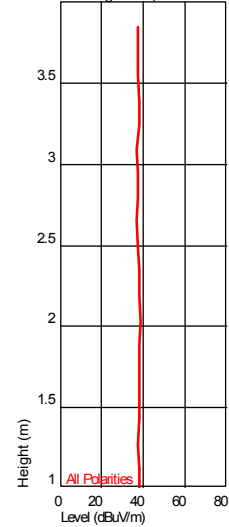
Level (dBuV/m)



All Polarities

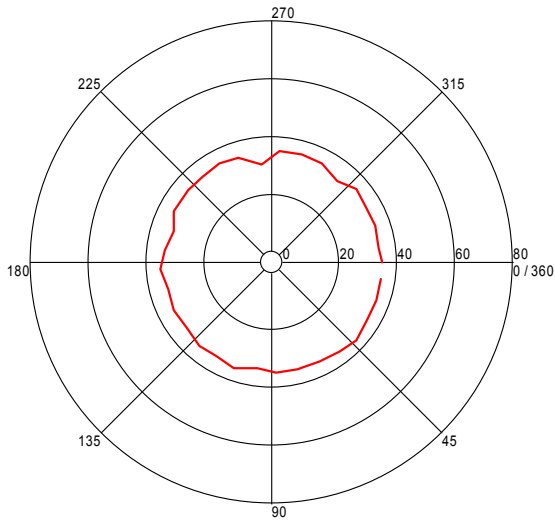
Azimuth (Degrees)

Height Plot (56.001001978 MHz)



Turntable Plot (60.914428393 MHz)

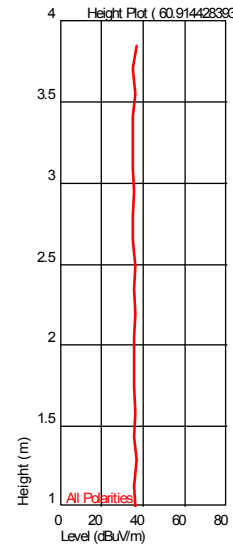
Level (dBuV/m)



All Polarities

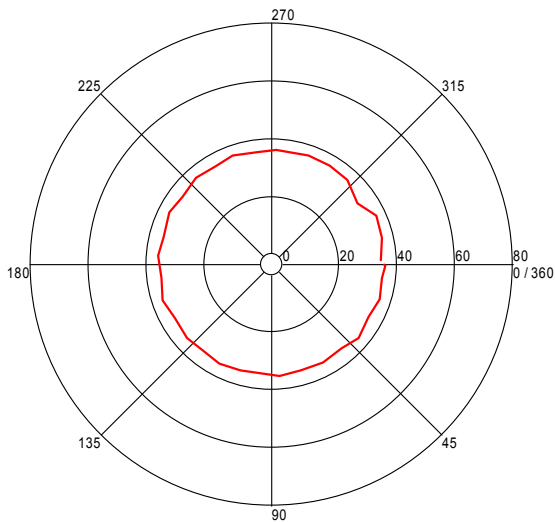
Azimuth (Degrees)

Height Plot (60.914428393 MHz)



Turntable Plot (64.143286557 MHz)

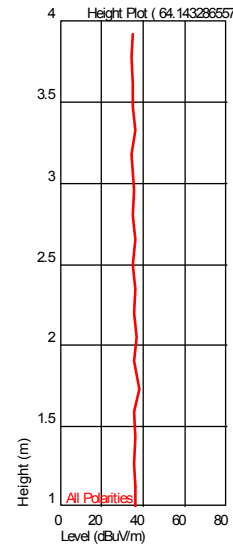
Level (dBuV/m)



All Polarities

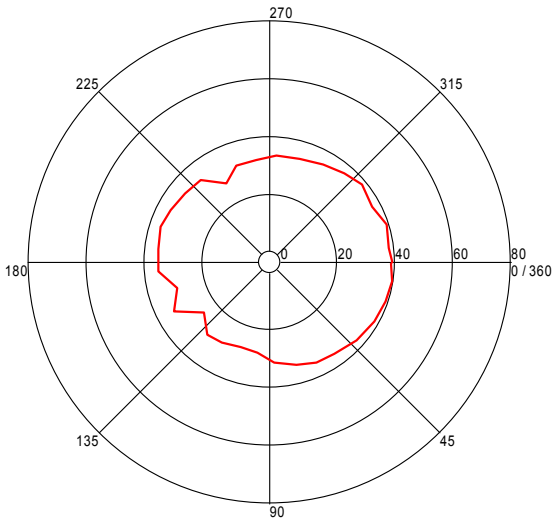
Azimuth (Degrees)

Height Plot (64.143286557 MHz)



Turntable Plot (174.054508627 MHz)

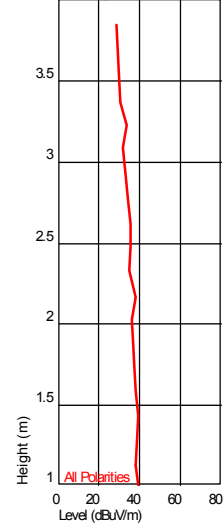
Level (dBuV/m)



All Polarities

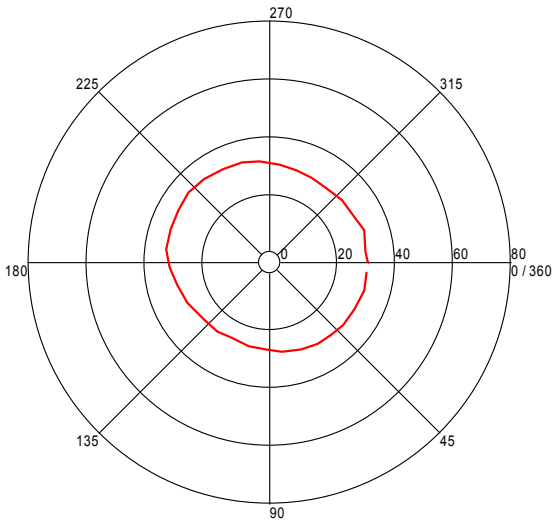
Azimuth (Degrees)

Height Plot (174.054508627 MHz)



Turntable Plot (250.010621661 MHz)

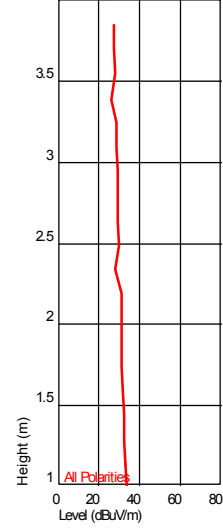
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (250.010621661 MHz)

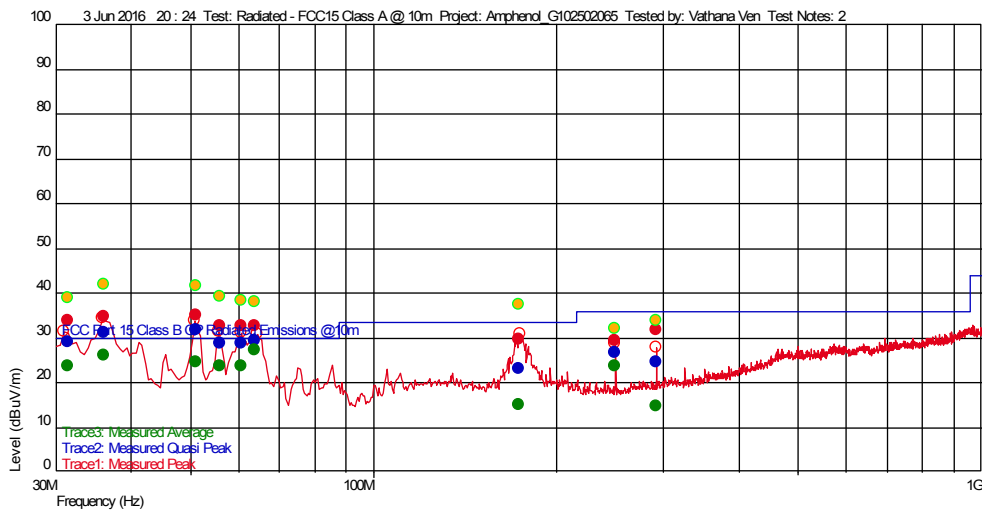


802.11b Tx CH11, 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, 802.11b, CH11, 2 Mbps, DSSS modulation, Tx mode	
Temperature:	23 deg C	
Humidity:	44%, 1005 mB	
Tested by:	Vathana Ven	
Test Started:	3 Jun 2016 20 : 24	

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

Note: Peak Limit for Non-Restricted Band frequencies @ 10 m distance is 51.01 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 81.01 - 20 - 10 = 51.01 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

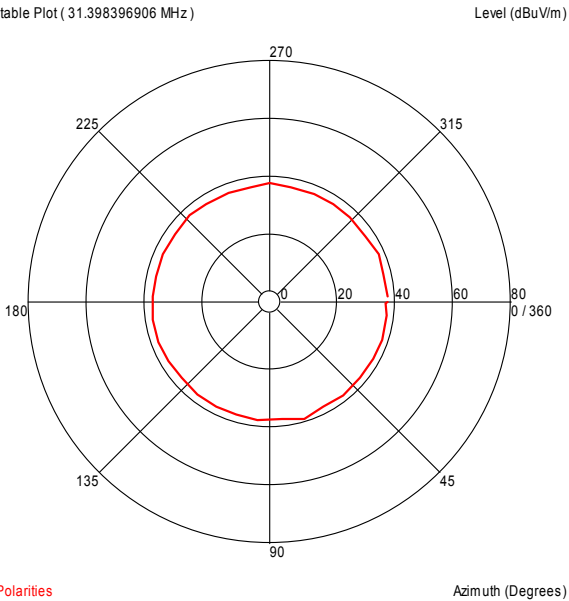
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
249.958517453 M	29.41	17.701	-24.790	-	-		232	1.22	120 k	RB 15.209
292.502605511 M	31.70	19.400	-24.535	51.01	-19.31		173	1.12	120 k	Non-RB
174.065931529 M	29.62	17.493	-25.520	51.01	-21.39		0	1.13	120 k	Non-RB
60.768536609 M	32.56	13.477	-26.950	51.01	-18.45		253	1.87	120 k	Non-RB
63.981362709 M	32.59	13.798	-26.915	51.01	-18.42		287	1.30	120 k	Non-RB
55.903206387 M	32.72	13.300	-27.003	51.01	-18.29		181	2.05	120 k	Non-RB
31.398396906 M	34.00	26.381	-27.417	51.01	-17.01		84	1.13	120 k	Non-RB
36.08416801 M	34.86	22.833	-27.329	51.01	-16.15		359	1.61	120 k	Non-RB
51.108417246 M	35.14	13.867	-27.055	51.01	-15.87		122	1.60	120 k	Non-RB

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
292.502605511 M	24.60	19.400	-24.535	-	-		173	1.12	120 k	Non-RB
174.065931529 M	23.10	17.493	-25.520	-	-		0	1.13	120 k	Non-RB
249.958517453 M	26.59	17.701	-24.790	36.020	-9.43		232	1.22	120 k	RB 15.209
60.768536609 M	28.71	13.477	-26.950	-	-		253	1.87	120 k	Non-RB
55.903206387 M	28.94	13.300	-27.003	-	-		181	2.05	120 k	Non-RB
31.398396906 M	29.02	26.381	-27.417	-	-		84	1.13	120 k	Non-RB
63.981362709 M	29.32	13.798	-26.915	-	-		287	1.30	120 k	Non-RB
36.08416801 M	31.16	22.833	-27.329	-	-		359	1.61	120 k	Non-RB
51.108417246 M	31.82	13.867	-27.055	-	-		122	1.60	120 k	Non-RB

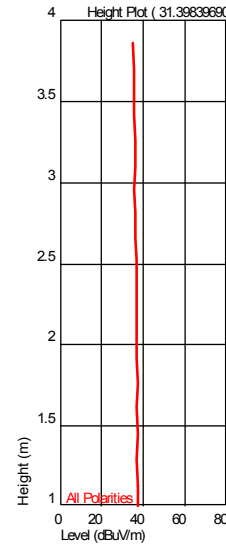
Azimuth Plots

Turntable Plot (31.398396906 MHz)

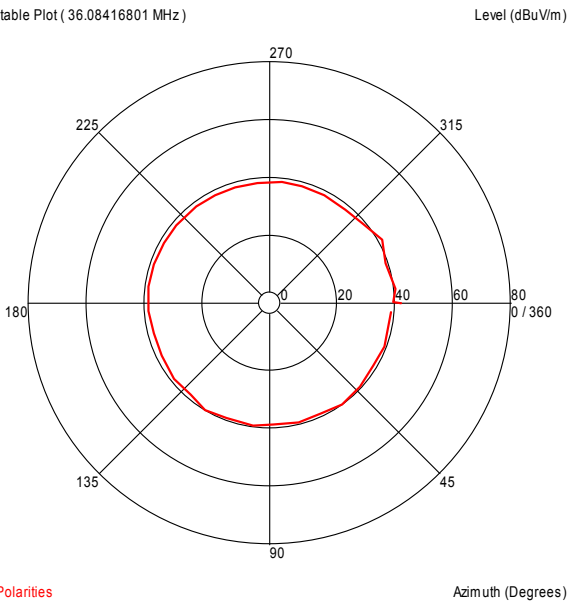


Turntable Plots

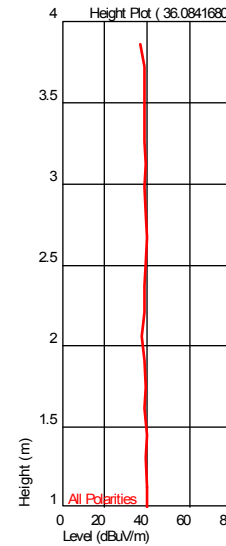
Height Plot (31.398396906 MHz)



Turntable Plot (36.08416801 MHz)

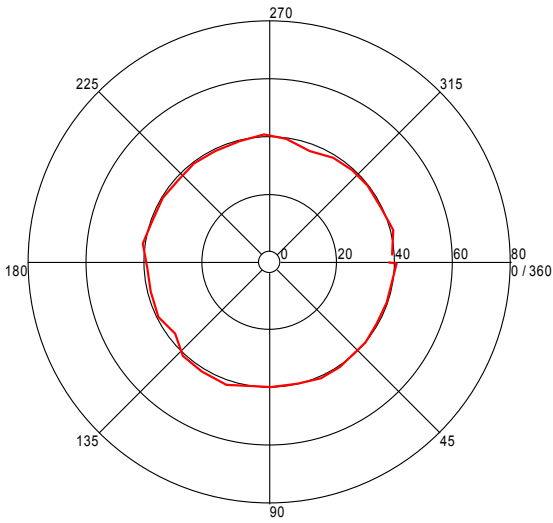


Height Plot (36.08416801 MHz)



Turntable Plot (51.108417246 MHz)

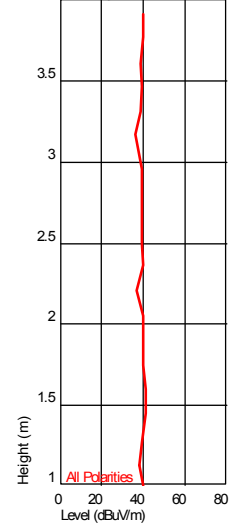
Level (dBuV/m)



All Polarities

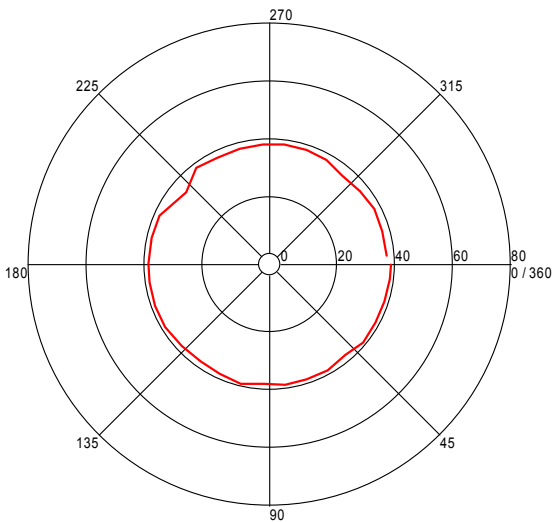
Azimuth (Degrees)

Height Plot (51.108417246 MHz)



Turntable Plot (55.903206387 MHz)

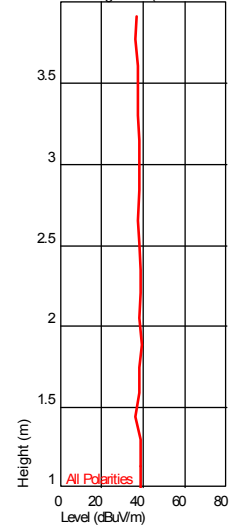
Level (dBuV/m)



All Polarities

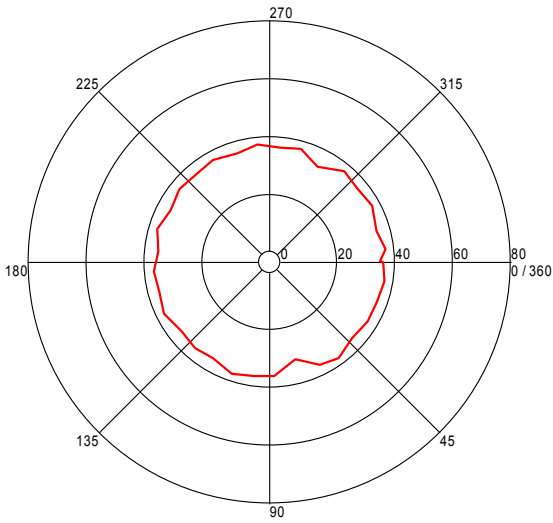
Azimuth (Degrees)

Height Plot (55.903206387 MHz)



Turntable Plot (60.768536609 MHz)

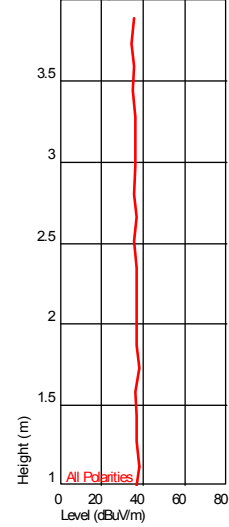
Level (dBuV/m)



All Polarities

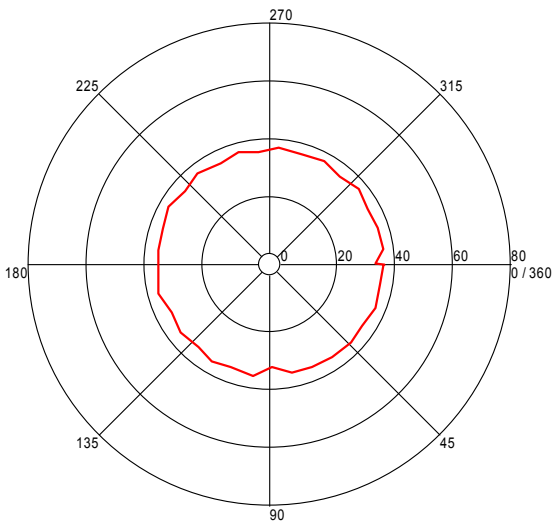
Azimuth (Degrees)

Height Plot (60.768536609 MHz)



Turntable Plot (63.981362709 MHz)

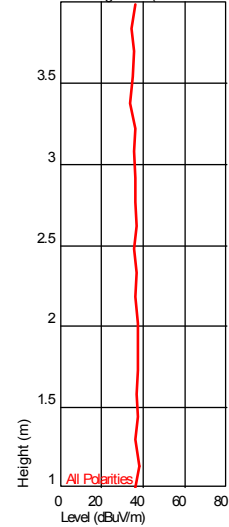
Level (dBuV/m)



All Polarities

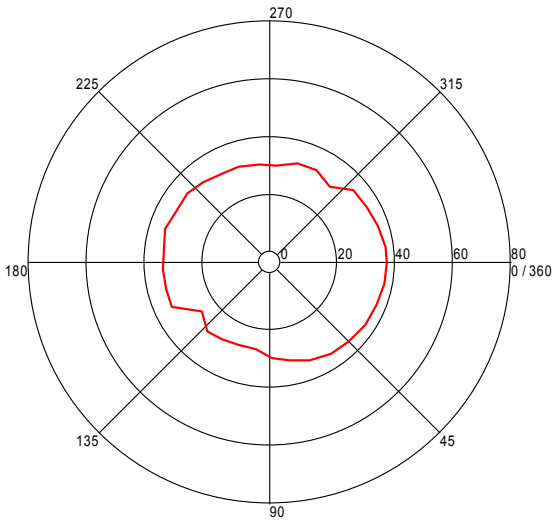
Azimuth (Degrees)

Height Plot (63.981362709 MHz)



Turntable Plot (174.065931529 MHz)

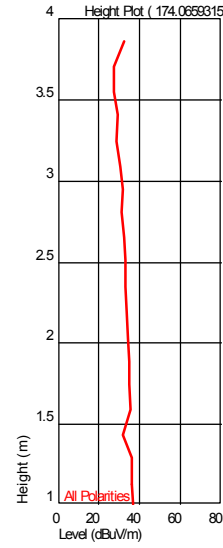
Level (dBuV/m)



All Polarities

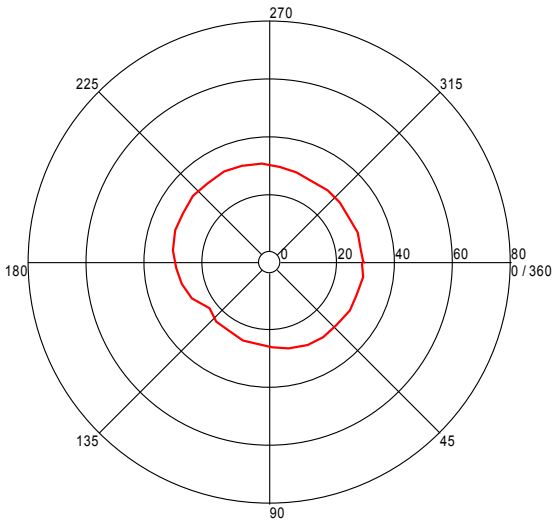
Azimuth (Degrees)

Height Plot (174.065931529 MHz)



Turntable Plot (249.958517453 MHz)

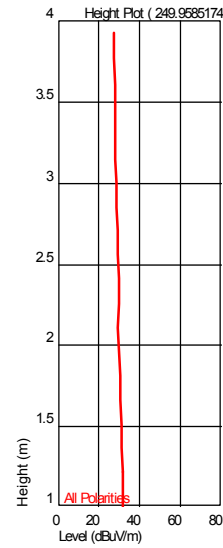
Level (dBuV/m)



All Polarities

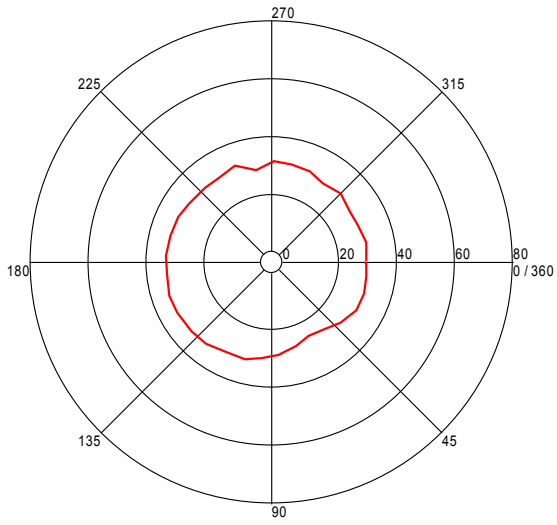
Azimuth (Degrees)

Height Plot (249.958517453 MHz)



Turntable Plot (292.502605511 MHz)

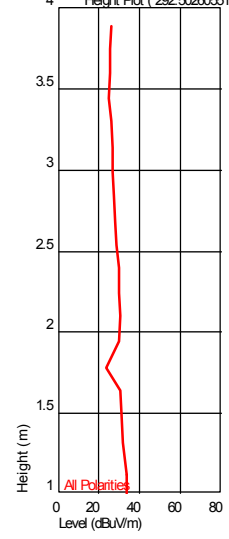
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.502605511 MHz)



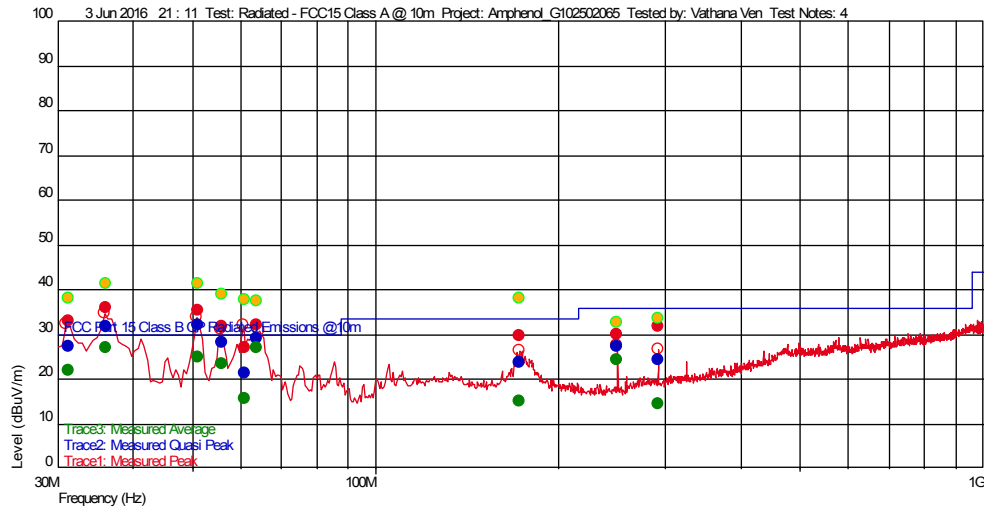
Level (dBuV/m)

802.11g Tx CH 1, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, 802.11g, CH1, 18 Mbps, OFDM modulation, Tx mode	
Temperature:	23 deg C	
Humidity:	44%, 1005 mB	
Tested by:	Vathana Ven	
Test Started:	3 Jun 2016 21 : 11	

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

Note: Peak Limit for Non-Restricted Band frequencies @ 10 m distance is 38.06 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 68.06 - 20 - 10 = 38.06 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

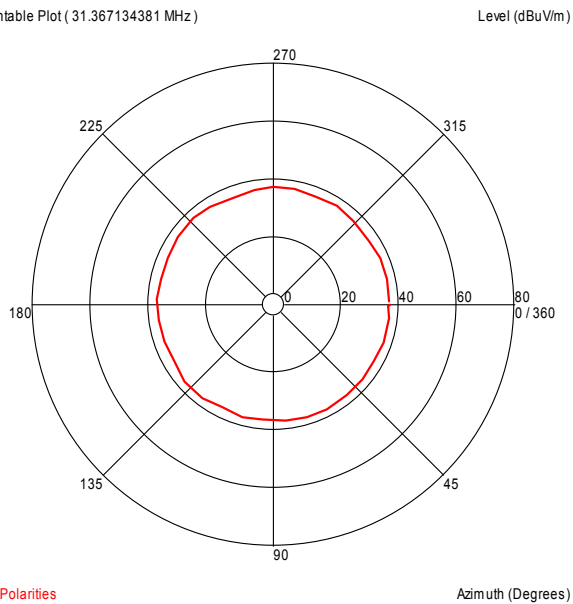
Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
250.025852122 M	30.07	17.700	-24.790	--	--		234	1.14	120 k	RB 15.209
292.488176653 M	31.79	19.400	-24.535	38.06	-6.27		200	1.14	120 k	Non-RB
172.43326703 M	29.69	17.557	-25.539	--	--		360	1.12	120 k	RB 15.209
60.940881299 M	27.01	13.494	-26.948	38.06	-11.05		194	1.13	120 k	Non-RB
55.90400799 M	31.81	13.300	-27.003	38.06	-6.25		85	2.48	120 k	Non-RB
63.973346677 M	32.09	13.797	-26.915	38.06	-5.97		276	2.04	120 k	Non-RB
31.367134381 M	32.91	26.406	-27.418	38.06	-5.15		237	2.15	120 k	Non-RB
51.099599611 M	35.42	13.870	-27.055	38.06	-2.64		116	1.90	120 k	Non-RB
36.096993661 M	35.83	22.822	-27.329	38.06	-2.23		82	1.58	120 k	Non-RB

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
292.488176653 M	24.36	19.400	-24.535	--	-12.04		200	1.14	120 k	Non-RB
172.43326703 M	23.65	17.557	-25.539	33.520	-9.87		360	1.12	120 k	RB 15.209
250.025852122 M	27.28	17.700	-24.790	36.020	-8.74		234	1.14	120 k	RB 15.209
60.940881299 M	21.46	13.494	-26.948	--	-7.64		194	1.13	120 k	Non-RB
31.367134381 M	27.45	26.406	-27.418	--	-1.65		237	2.15	120 k	Non-RB
55.90400799 M	28.18	13.300	-27.003	--	-0.92		85	2.48	120 k	Non-RB
63.973346677 M	29.10	13.797	-26.915	--	-0.00		276	2.04	120 k	Non-RB
36.096993661 M	31.79	22.822	-27.329	--	+2.69		82	1.58	120 k	Non-RB
51.099599611 M	32.11	13.870	-27.055	--	+3.02		116	1.90	120 k	Non-RB

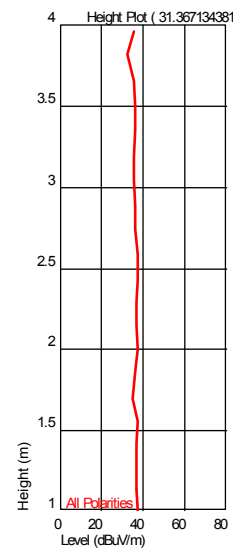
Azimuth Plots

Turntable Plot (31.367134381 MHz)



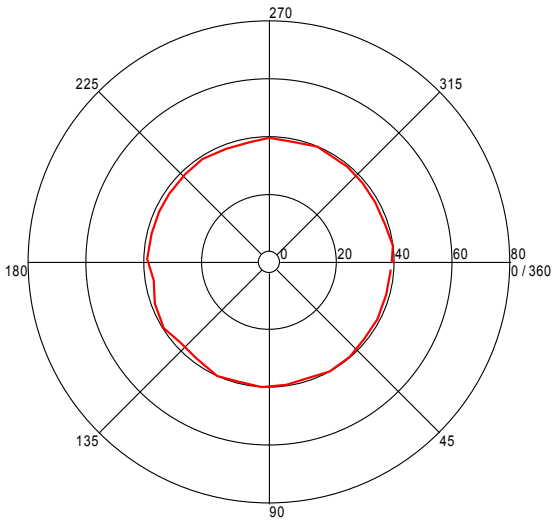
Turntable Plots

Height Plot (31.367134381 MHz)



Turntable Plot (36.096993661 MHz)

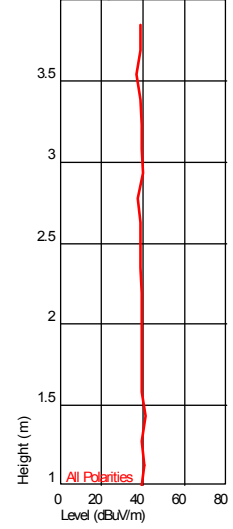
Level (dBuV/m)



All Polarities

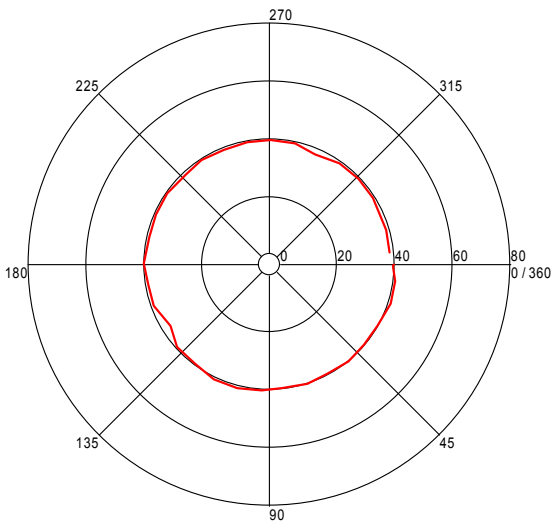
Azimuth (Degrees)

Height Plot (36.096993661 MHz)



Turntable Plot (51.099599611 MHz)

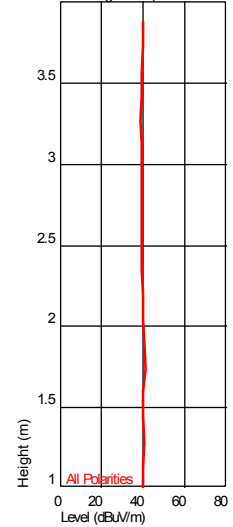
Level (dBuV/m)



All Polarities

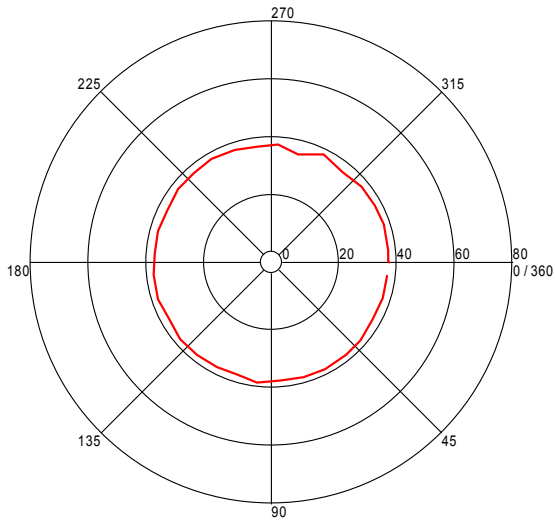
Azimuth (Degrees)

Height Plot (51.099599611 MHz)



Turntable Plot (55.90400799 MHz)

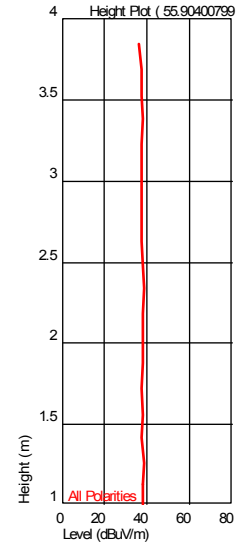
Level (dBuV/m)



All Polarities

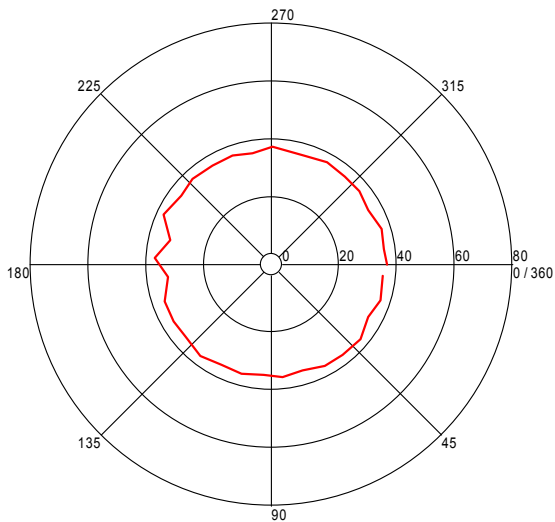
Azimuth (Degrees)

Height Plot (55.90400799 MHz)



Turntable Plot (60.940881299 MHz)

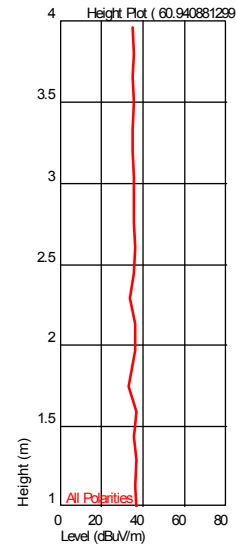
Level (dBuV/m)



All Polarities

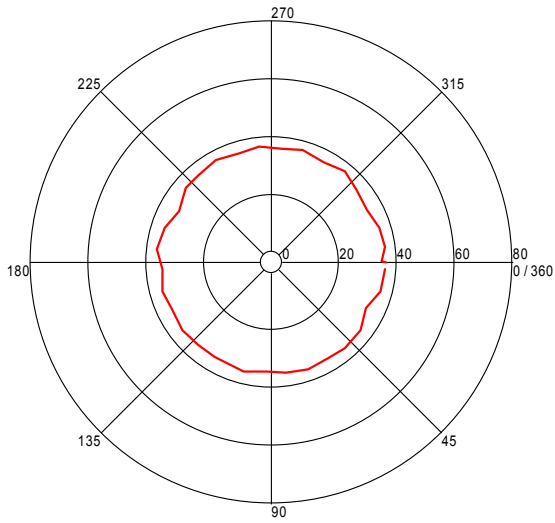
Azimuth (Degrees)

Height Plot (60.940881299 MHz)



Turntable Plot (63.973346677 MHz)

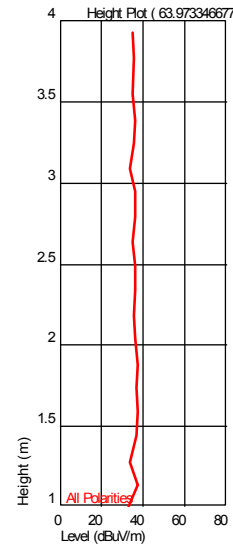
Level (dBuV/m)



All Polarities

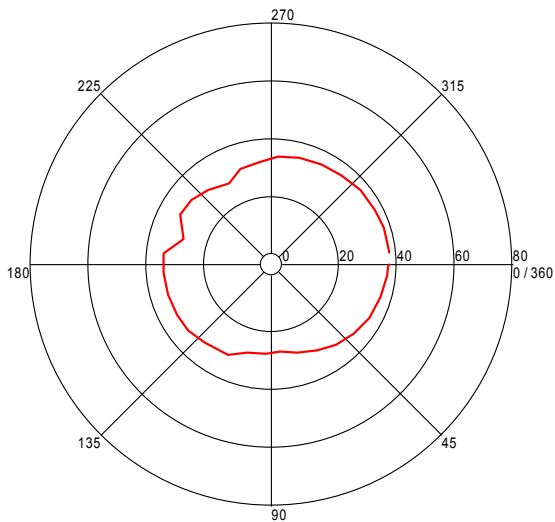
Azimuth (Degrees)

Height Plot (63.973346677 MHz)



Turntable Plot (172.43326703 MHz)

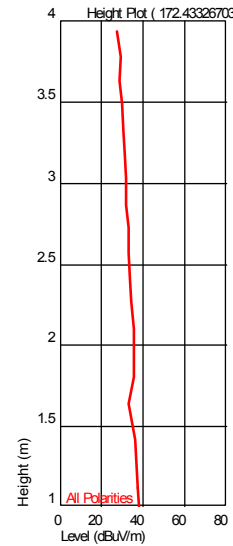
Level (dBuV/m)



All Polarities

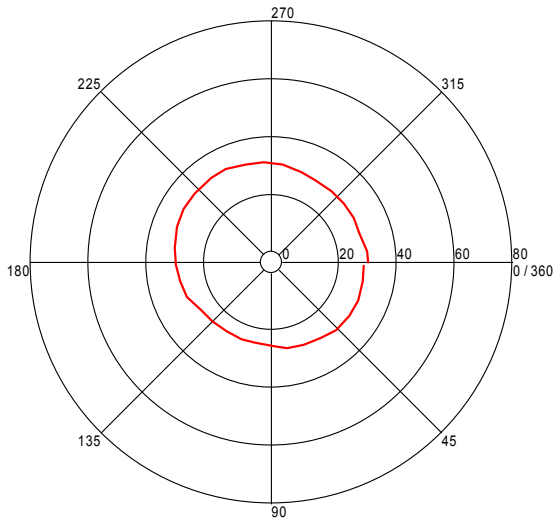
Azimuth (Degrees)

Height Plot (172.43326703 MHz)



Turntable Plot (250.025852122 MHz)

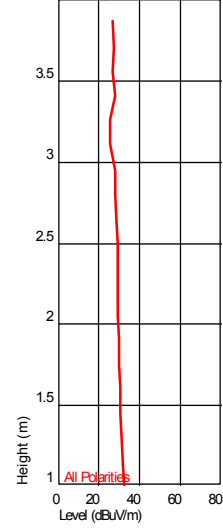
Level (dBuV/m)



All Polarities

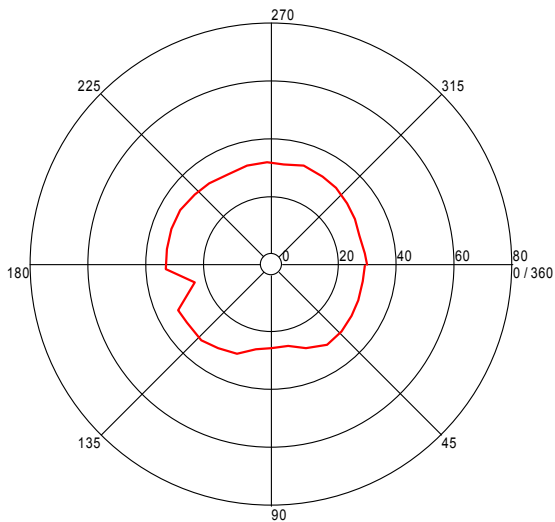
Azimuth (Degrees)

Height Plot (250.025852122 MHz)



Turntable Plot (292.488176653 MHz)

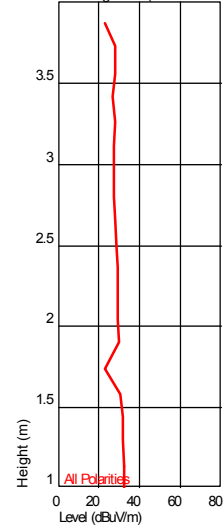
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.488176653 MHz)

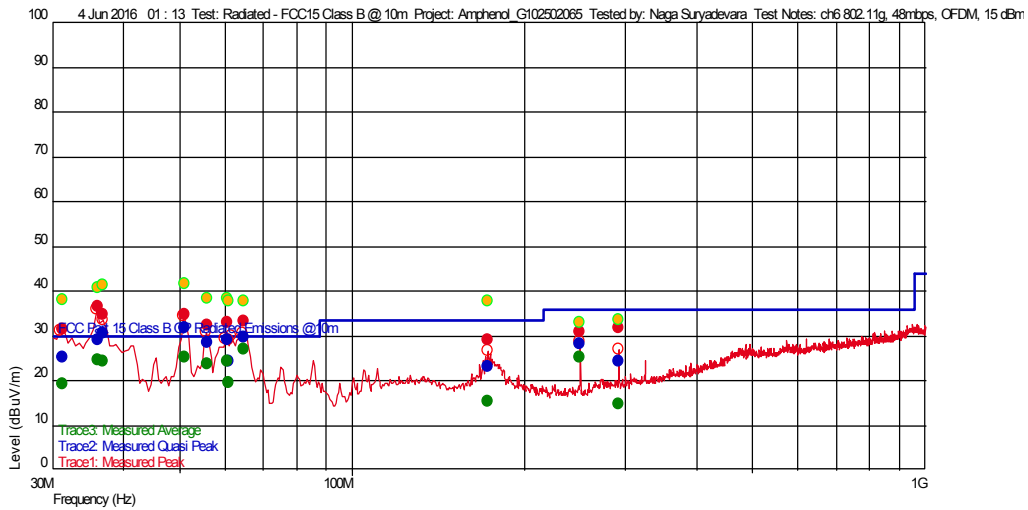


802.11g Tx CH 6, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	ch6 802.11g, 48mbps, OFDM, 15 dBm	
Temperature:	23 C	
Humidity:	44% 1005 mbars	
Tested by:	Naga Suryadevara	
Test Started:	4 Jun 2016 01 : 13	

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

Note: Peak limit for Non-Restricted Band @ 10 m distance is 40.52 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 70.52 - 20 - 10 = 40.52 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

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
249.97535112 M	30.88	17.700	-24.790	-	-		209	1.28	120 k	RB (15.209)
172.47234513 M	29.20	17.553	-25.538	-	-		360	1.33	120 k	RB (15.209)
292.510621543 M	31.74	19.400	-24.535	40.52	-8.78		166	1.13	120 k	Non-RB
60.903006491 M	29.15	13.490	-26.949	40.52	-11.57		198	1.30	120 k	Non-RB
31.319839792 M	31.35	26.444	-27.418	40.52	-9.17		120	1.28	120 k	Non-RB
55.919238451 M	32.33	13.300	-27.003	40.52	-8.19		266	1.45	120 k	Non-RB
60.837073796 M	32.95	13.484	-26.949	40.52	-7.57		221	1.29	120 k	Non-RB
64.741282549 M	33.14	13.874	-26.907	40.52	-7.38		288	1.73	120 k	Non-RB
36.733065918 M	34.89	22.314	-27.317	40.52	-5.63		360	1.14	120 k	Non-RB
51.12685412 M	34.91	13.862	-27.054	40.52	-5.61		1	1.61	120 k	Non-RB
36.055310295 M	36.47	22.856	-27.329	40.52	-4.05		66	2.68	120 k	Non-RB

Trace2: Measured Quasi Peak

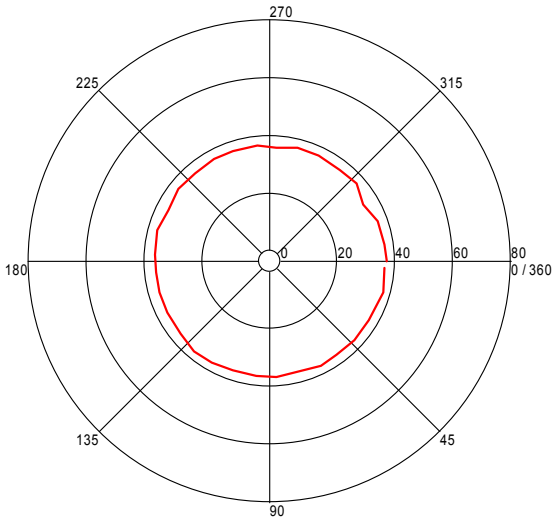
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dB uV/m)	Margin(dBuV/m)	Hor (-), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.510621543 M	24.41	19.400	-24.535	-	-		166	1.13	120 k	Non-RB
172.47234513 M	23.18	17.553	-25.538	33.520	-10.34		360	1.33	120 k	RB (15.209)
249.97535112 M	28.08	17.700	-24.790	36.020	-7.94		209	1.28	120 k	RB (15.209)
60.903006491 M	24.25	13.490	-26.949	-	-		198	1.30	120 k	Non-RB
31.319839792 M	25.26	26.444	-27.418	-	-		120	1.28	120 k	Non-RB
55.919238451 M	28.42	13.300	-27.003	-	-		266	1.45	120 k	Non-RB
60.837073796 M	29.14	13.484	-26.949	-	-		221	1.29	120 k	Non-RB
36.055310295 M	29.18	22.856	-27.329	-	-		66	2.68	120 k	Non-RB
64.741282549 M	29.73	13.874	-26.907	-	-		288	1.73	120 k	Non-RB
36.733065918 M	30.53	22.314	-27.317	-	-		360	1.14	120 k	Non-RB
51.12685412 M	31.67	13.862	-27.054	-	-		1	1.61	120 k	Non-RB

Azimuth Plots

Turntable Plots

Turntable Plot (31.319839792 MHz)

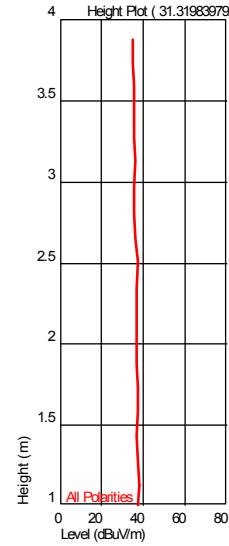
Level (dBuV/m)



All Polarities

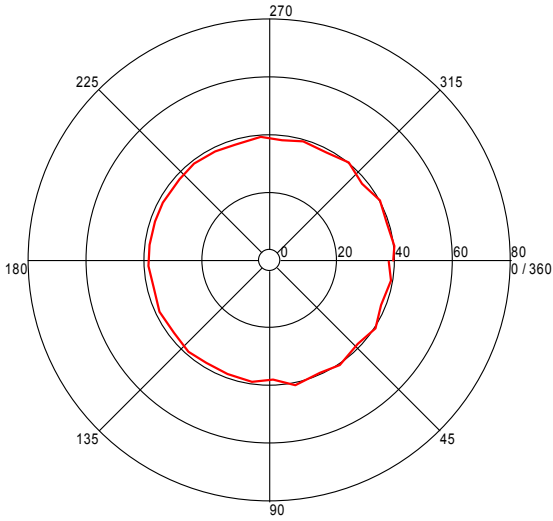
Azimuth (Degrees)

Height Plot (31.319839792 MHz)



Turntable Plot (36.055310295 MHz)

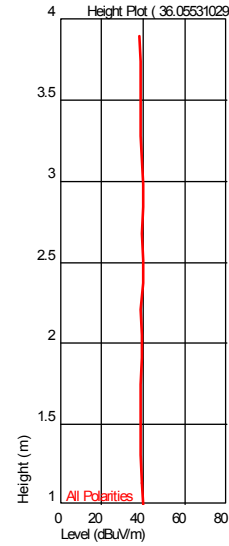
Level (dBuV/m)



All Polarities

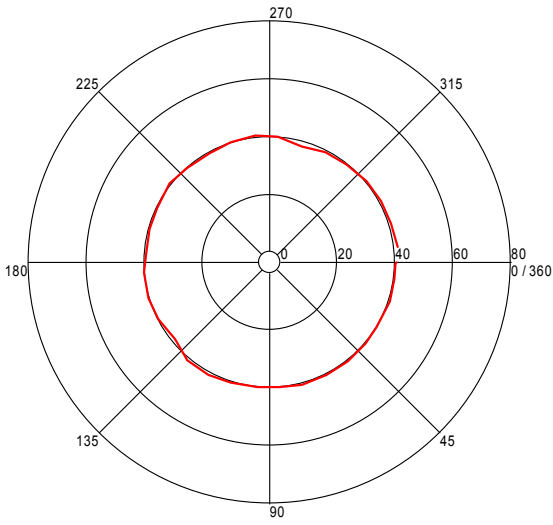
Azimuth (Degrees)

Height Plot (36.055310295 MHz)



Turntable Plot (36.733065918 MHz)

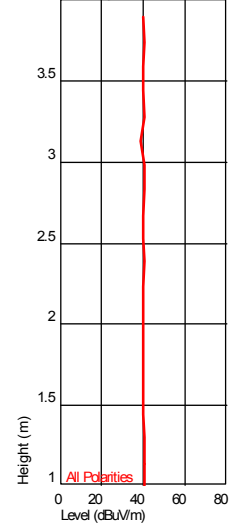
Level (dBuV/m)



All Polarities

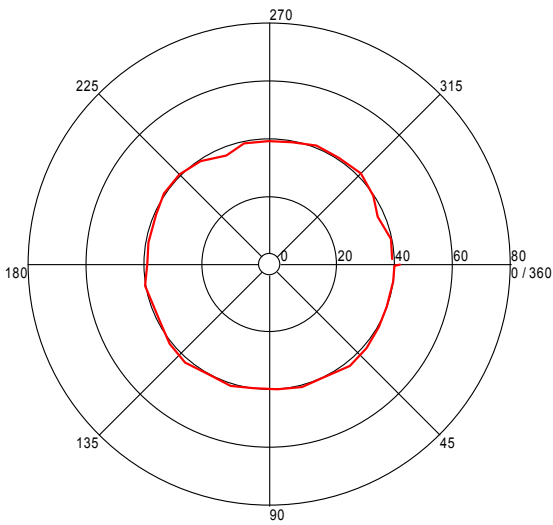
Azimuth (Degrees)

Height Plot (36.733065918 MHz)



Turntable Plot (51.12685412 MHz)

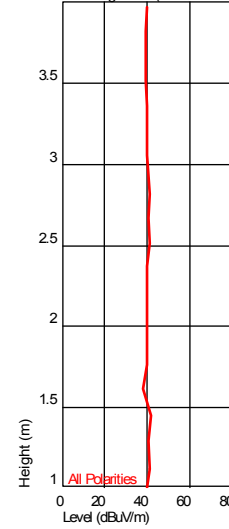
Level (dBuV/m)



All Polarities

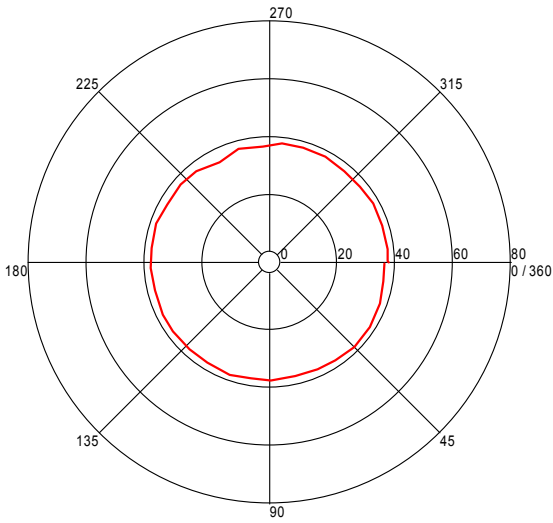
Azimuth (Degrees)

Height Plot (51.12685412 MHz)



Turntable Plot (55.919238451 MHz)

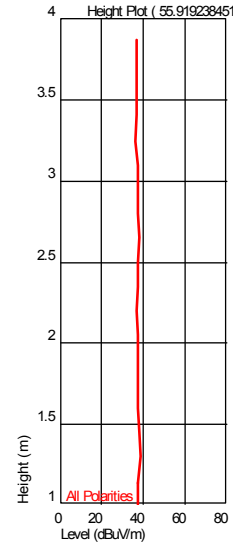
Level (dBuV/m)



All Polarities

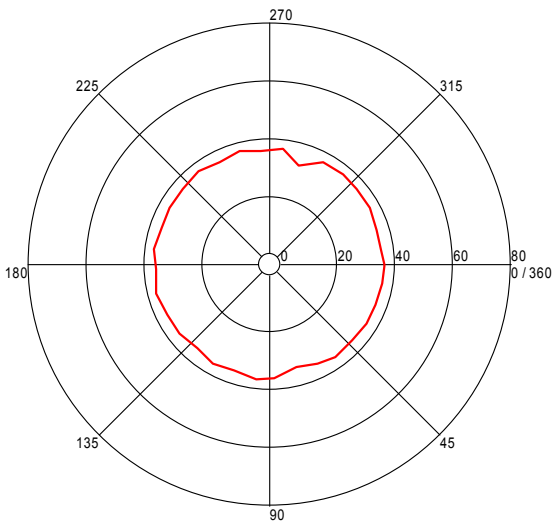
Azimuth (Degrees)

Height Plot (55.919238451 MHz)



Turntable Plot (60.837073796 MHz)

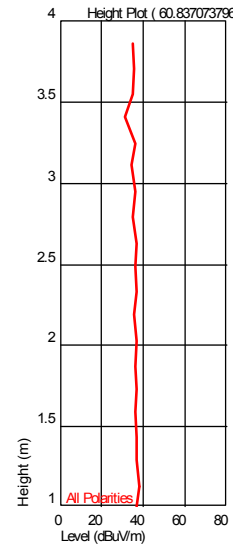
Level (dBuV/m)



All Polarities

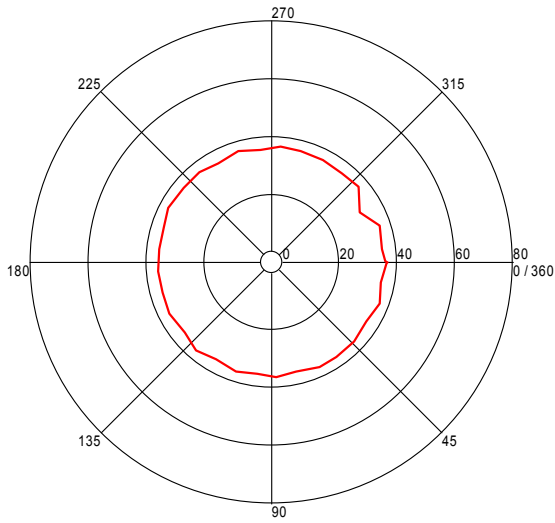
Azimuth (Degrees)

Height Plot (60.837073796 MHz)



Turntable Plot (60.903006491 MHz)

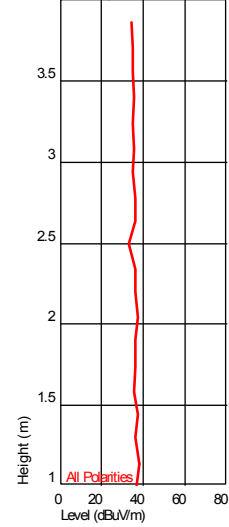
Level (dBuV/m)



All Polarities

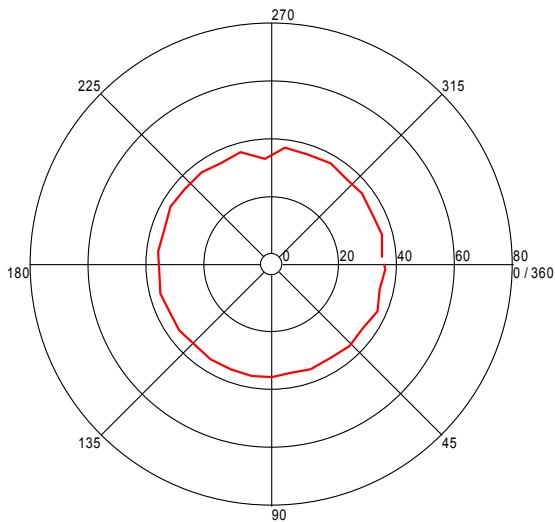
Azimuth (Degrees)

Height Plot (60.903006491 MHz)



Turntable Plot (64.741282549 MHz)

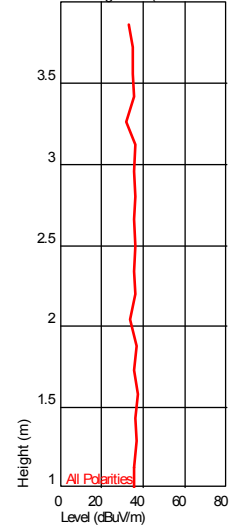
Level (dBuV/m)



All Polarities

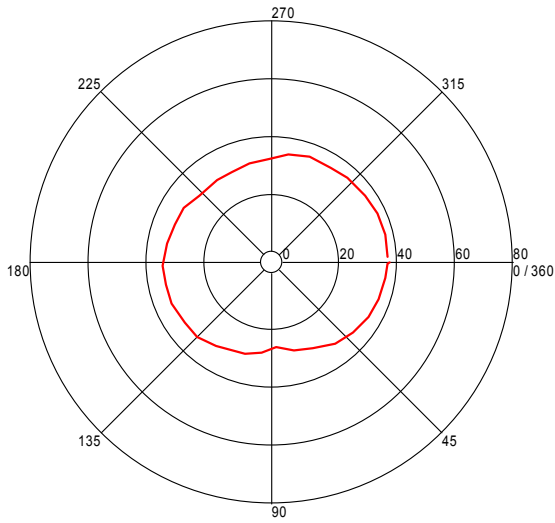
Azimuth (Degrees)

Height Plot (64.741282549 MHz)



Turntable Plot (172.47234513 MHz)

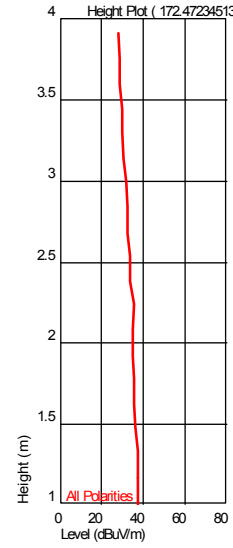
Level (dBuV/m)



All Polarities

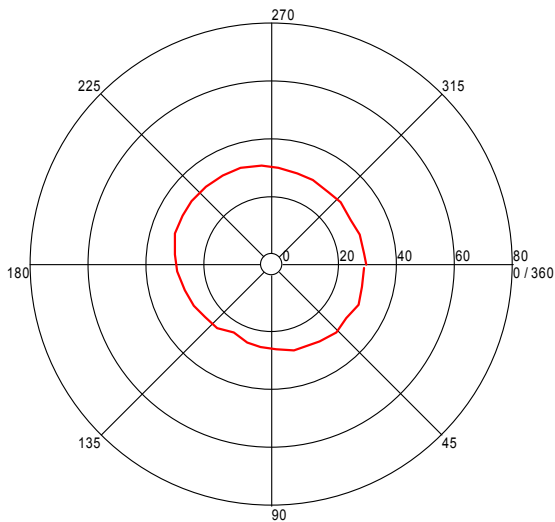
Azimuth (Degrees)

Height Plot (172.47234513 MHz)



Turntable Plot (249.97535112 MHz)

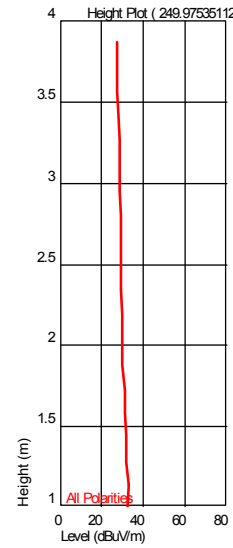
Level (dBuV/m)



All Polarities

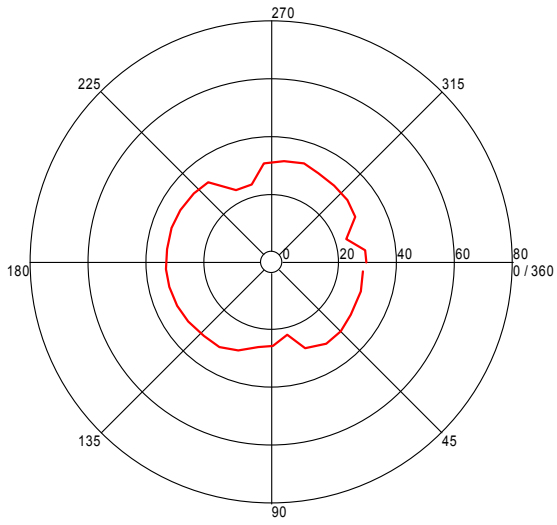
Azimuth (Degrees)

Height Plot (249.97535112 MHz)



Turntable Plot (292.510621543 MHz)

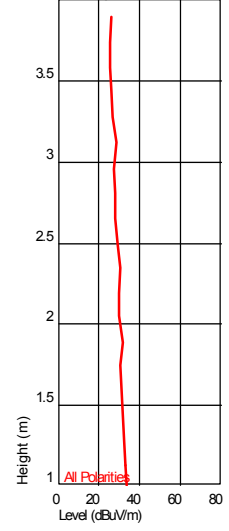
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.510621543 MHz)



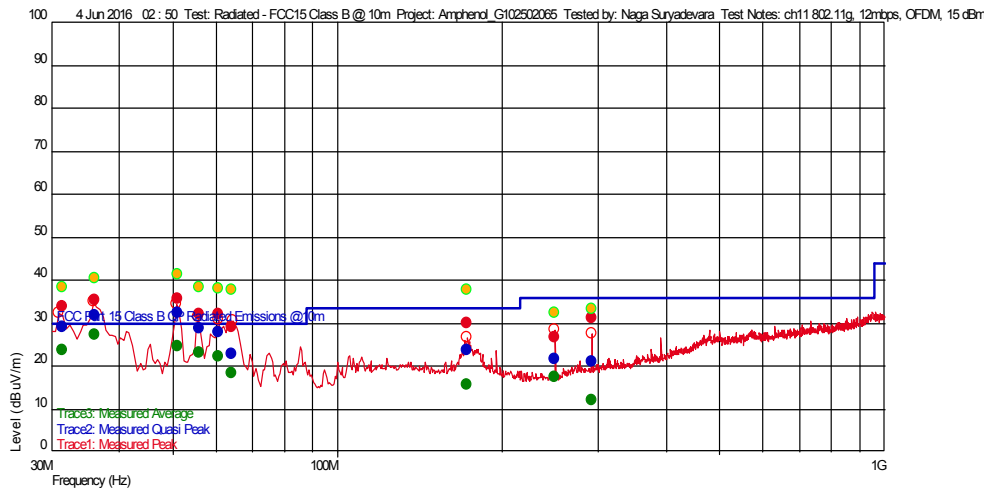
Height (m)
Level (dBuV/m)

802.11g TX CH 11, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	ch11 802.11g, 12mbps, OFDM, 15 dBm	
Temperature:	23 C	
Humidity:	44% 1005 mbars	
Tested by:	Naga Suryadevara	
Test Started:	4 Jun 2016 02 : 50	

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

Note: Peak Limit for Non-Restricted Band frequencies @ 10 m distance is 38.32 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 68.32 – 20 – 10 = 38.32 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

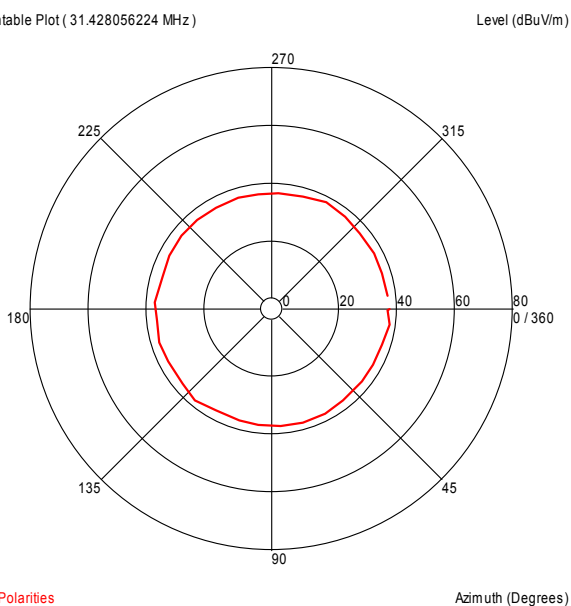
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
249.91523088 M	26.80	17.702	-24.791	-	-		216	1.13	120 k	RB 15.209
292.601202705 M	31.19	19.400	-24.534	38.32	-7.13		195	1.13	120 k	Non-RB
172.608818132 M	29.88	17.539	-25.537	-	-		0	1.13	120 k	RB 15.209
64.073547078 M	29.24	13.807	-26.914	38.32	-9.08		290	1.94	120 k	Non-RB
60.840680898 M	32.13	13.484	-26.949	38.32	-6.19		41	1.43	120 k	Non-RB
55.98657312 M	32.16	13.300	-27.002	38.32	-6.16		129	1.75	120 k	Non-RB
31.428056224 M	33.93	26.358	-27.416	38.32	-4.39		308	1.74	120 k	Non-RB
36.113827329 M	35.38	22.809	-27.328	38.32	-2.94		211	1.89	120 k	Non-RB
51.072345102 M	35.52	13.878	-27.055	38.32	-2.8		61	1.30	120 k	Non-RB

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dB uV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.601202705 M	21.03	19.400	-24.534	-	-		195	1.13	120 k	Non-RB
249.91523088 M	21.64	17.702	-24.791	36.020	-14.38		216	1.13	120 k	RB 15.209
172.608818132 M	23.63	17.539	-25.537	33.520	-9.89		0	1.13	120 k	RB 15.209
64.073547078 M	22.83	13.807	-26.914	-	-		290	1.94	120 k	Non-RB
60.840680898 M	27.92	13.484	-26.949	-	-		41	1.43	120 k	Non-RB
55.98657312 M	28.91	13.300	-27.002	-	-		129	1.75	120 k	Non-RB
31.428056224 M	29.00	26.358	-27.416	-	-		308	1.74	120 k	Non-RB
36.113827329 M	31.89	22.809	-27.328	-	-		211	1.89	120 k	Non-RB
51.072345102 M	32.31	13.878	-27.055	-	-		61	1.30	120 k	Non-RB

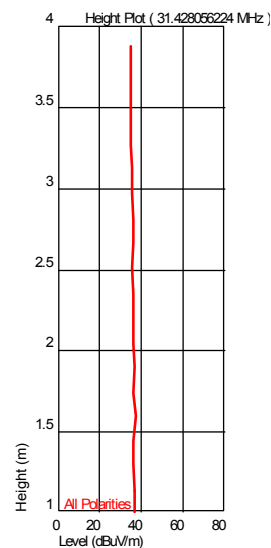
Azimuth Plots

Turntable Plot (31.428056224 MHz)



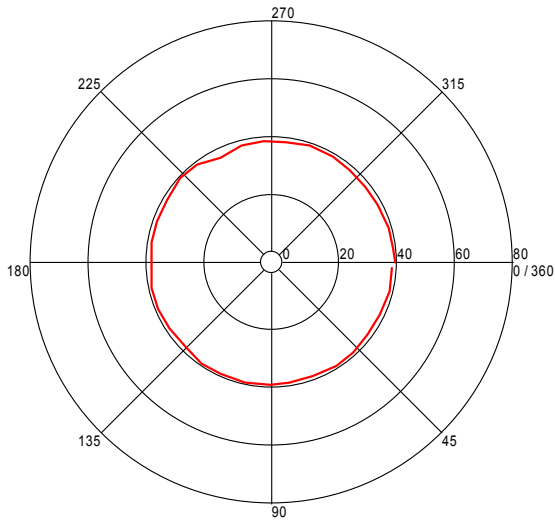
Turntable Plots

Height Plot (31.428056224 MHz)



Turntable Plot (36.113827329 MHz)

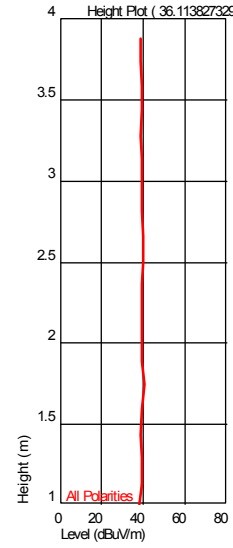
Level (dBuV/m)



All Polarities

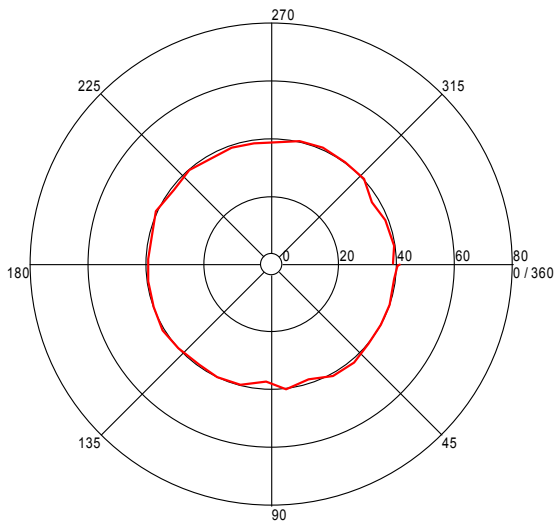
Azimuth (Degrees)

Height Plot (36.113827329 MHz)



Turntable Plot (51.072345102 MHz)

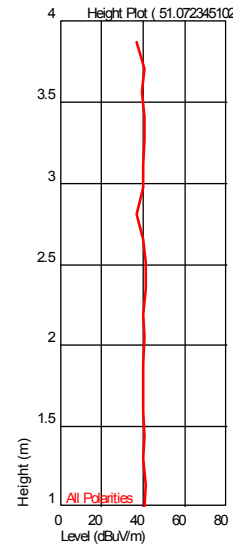
Level (dBuV/m)



All Polarities

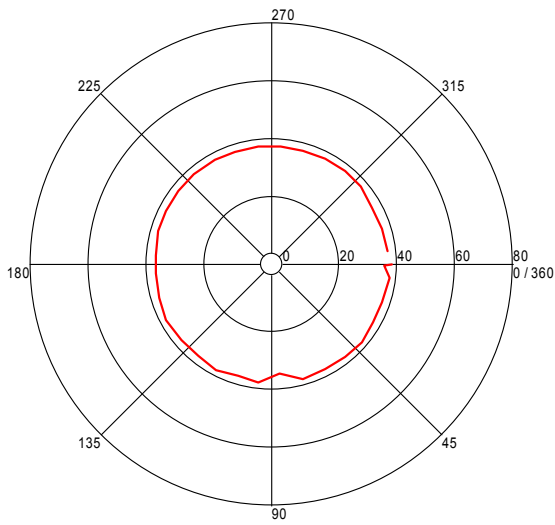
Azimuth (Degrees)

Height Plot (51.072345102 MHz)



Turntable Plot (55.98657312 MHz)

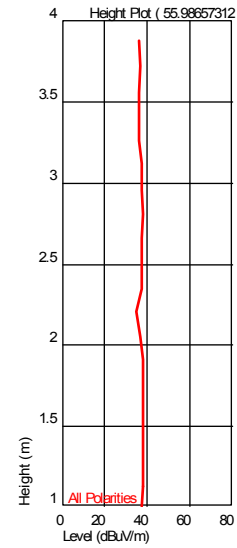
Level (dBuV/m)



All Polarities

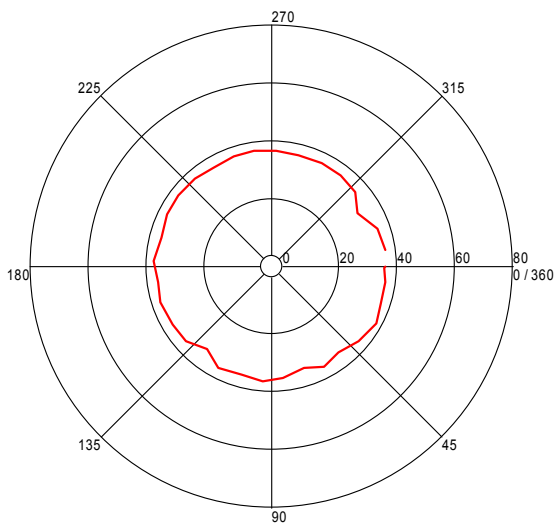
Azimuth (Degrees)

Height Plot (55.98657312 MHz)



Turntable Plot (60.840680898 MHz)

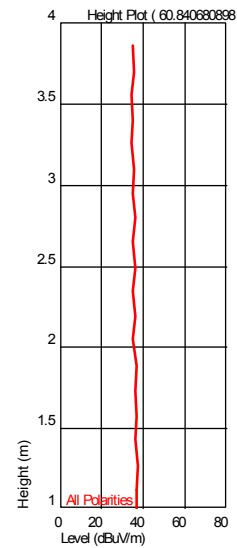
Level (dBuV/m)



All Polarities

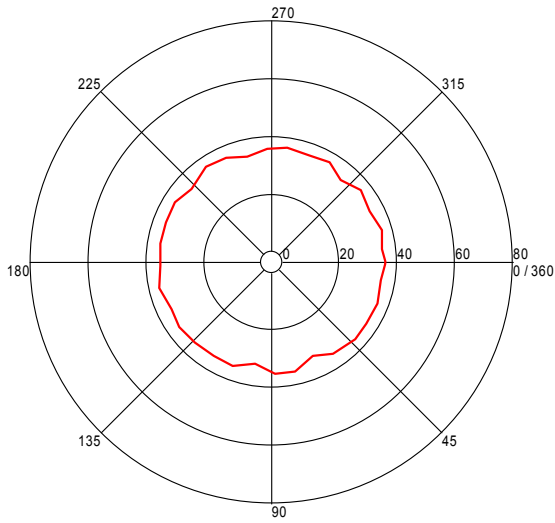
Azimuth (Degrees)

Height Plot (60.840680898 MHz)



Turntable Plot (64.073547078 MHz)

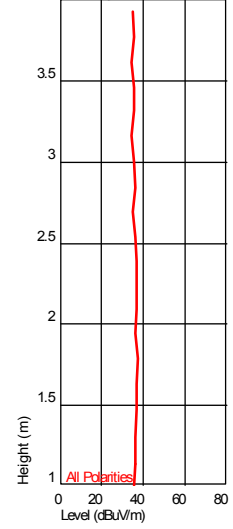
Level (dBuV/m)



All Polarities

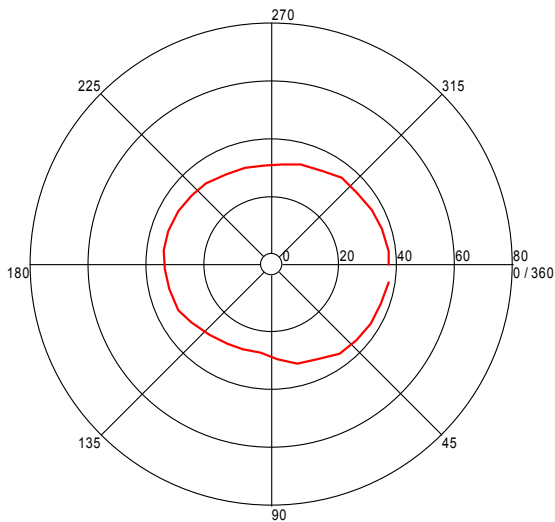
Azimuth (Degrees)

Height Plot (64.073547078 MHz)



Turntable Plot (172.608818132 MHz)

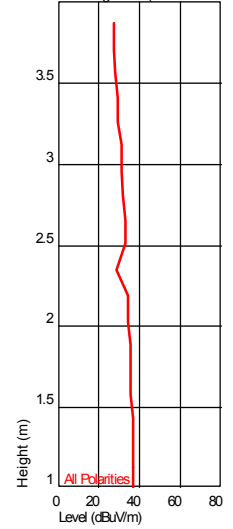
Level (dBuV/m)



All Polarities

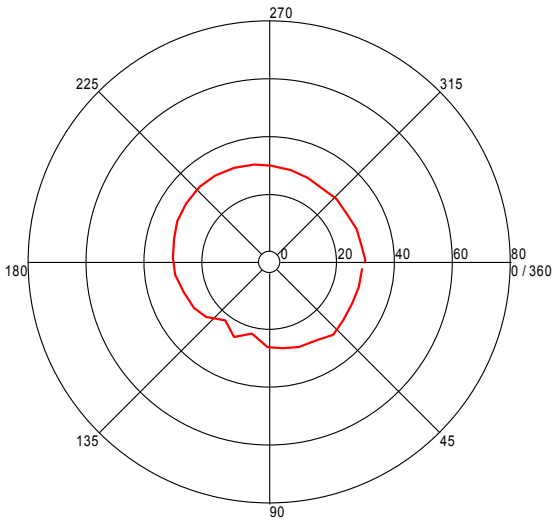
Azimuth (Degrees)

Height Plot (172.608818132 MHz)



Turntable Plot (249.91523088 MHz)

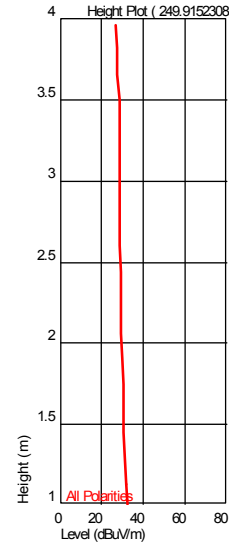
Level (dBuV/m)



All Polarities

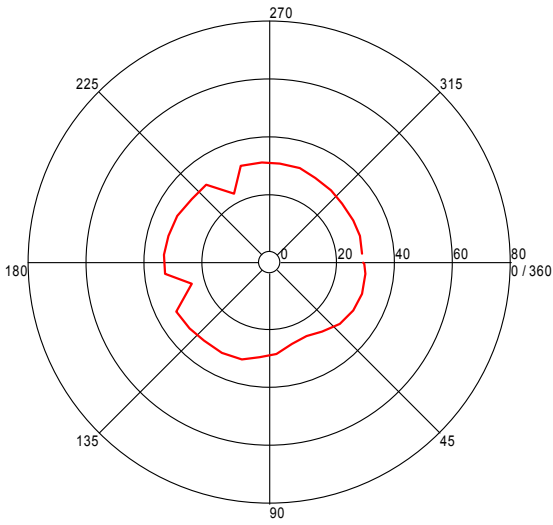
Azimuth (Degrees)

Height Plot (249.91523088 MHz)



Turntable Plot (292.601202705 MHz)

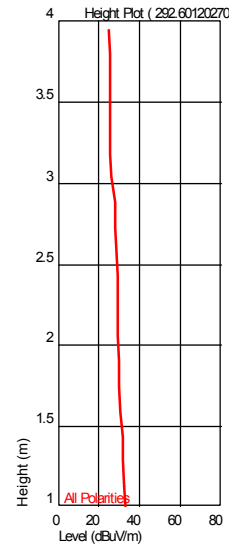
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.601202705 MHz)

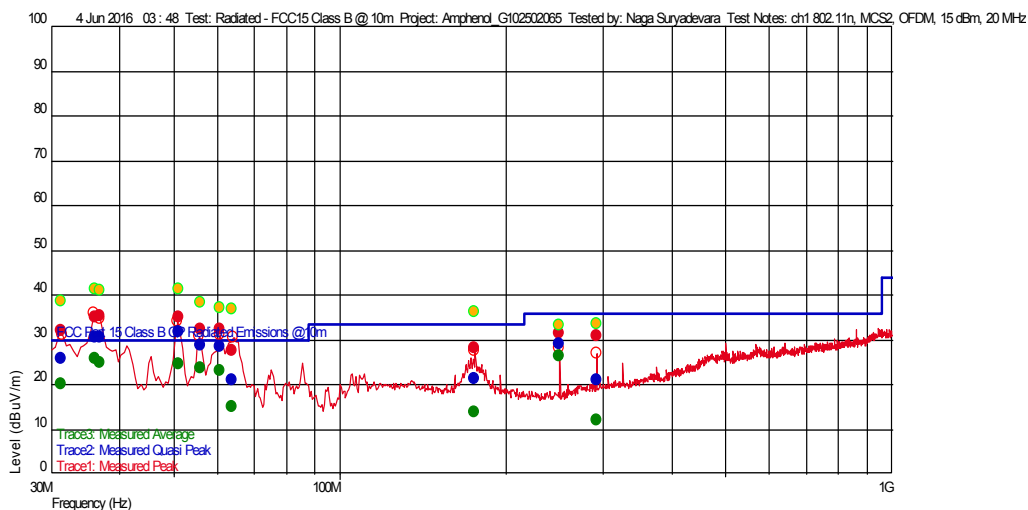


802.11n Tx CH 1, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dBm

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	ch1 802.11n, MCS2, OFDM, 15 dBm, 20 MHz	
Temperature:	23 C	
Humidity:	44% 1005 mbars	
Tested by:	Naga Suryadevara	
Test Started:	4 Jun 2016 03 : 48	

Prescan Emission Graph



Emissions Test Data

Note: Peak Limit for Non-Restricted Band @ 10 m distance is 38.25 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 68.25 - 20 - 10 = 38.25 dBuV/m, attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

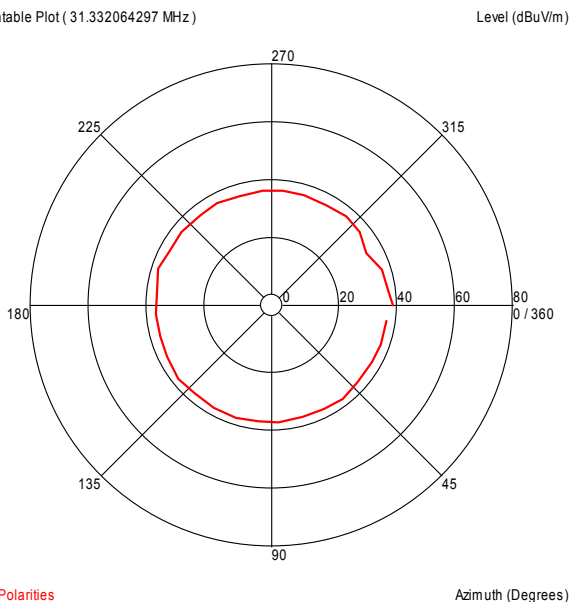
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (-), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
175.777955745 M	28.07	17.400	-25.501	38.25	-10.18		360	1.27	120 k	Non-RB
292.409619539 M	31.01	19.400	-24.536	38.25	-7.24		174	1.12	120 k	Non-RB
250.00020082 M	31.60	17.700	-24.790	-	-		209	1.12	120 k	RB 15.209
63.862524978 M	27.48	13.786	-26.916	38.25	-10.77		237	1.92	120 k	Non-RB
31.332064297 M	32.11	26.434	-27.418	38.25	-6.14		360	1.31	120 k	Non-RB
55.871943862 M	32.36	13.300	-27.003	38.25	-5.89		263	2.03	120 k	Non-RB
60.840680898 M	32.39	13.484	-26.949	38.25	-5.86		198	1.44	120 k	Non-RB
36.082564804 M	34.97	22.834	-27.329	38.25	-3.28		118	2.93	120 k	Non-RB
51.043487387 M	35.13	13.887	-27.055	38.25	-3.12		98	1.48	120 k	Non-RB
36.723446679 M	35.23	22.321	-27.317	38.25	-3.02		151	2.83	120 k	Non-RB

Trace2: Measured Quasi Peak

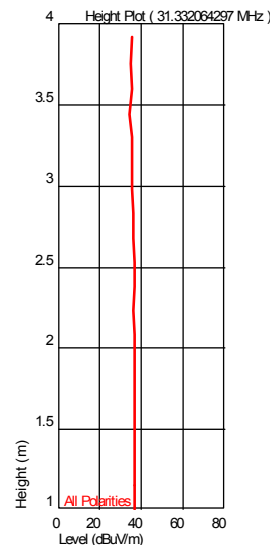
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (-), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.409619539 M	21.03	19.400	-24.536	-	-		174	1.12	120 k	Non-RB
175.777955745 M	21.49	17.400	-25.501	-	-		360	1.27	120 k	Non-RB
63.862524978 M	20.96	13.786	-26.916	-	-		237	1.92	120 k	Non-RB
250.00020082 M	29.19	17.700	-24.790	36.020	-6.83		209	1.12	120 k	RB 15.209
31.332064297 M	25.80	26.434	-27.418	-	-		360	1.31	120 k	Non-RB
60.840680898 M	28.45	13.484	-26.949	-	-		198	1.44	120 k	Non-RB
55.871943862 M	28.92	13.300	-27.003	-	-		263	2.03	120 k	Non-RB
36.723446679 M	30.57	22.321	-27.317	-	-		151	2.83	120 k	Non-RB
36.082564804 M	30.62	22.834	-27.329	-	-		118	2.93	120 k	Non-RB
51.043487387 M	31.73	13.887	-27.055	-	-		98	1.48	120 k	Non-RB

Azimuth Plots

Turntable Plot (31.332064297 MHz)

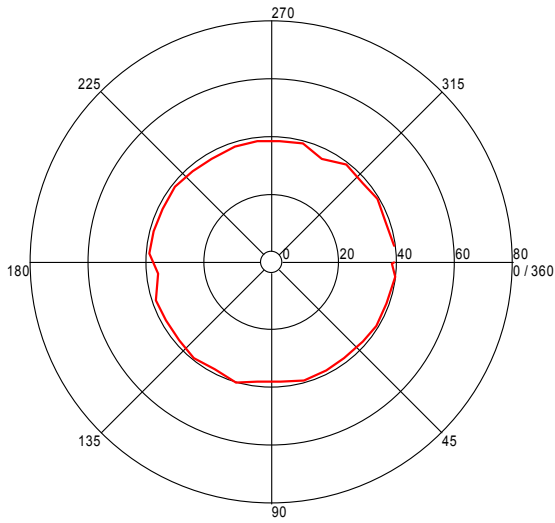


Turntable Plots



Turntable Plot (36.082564804 MHz)

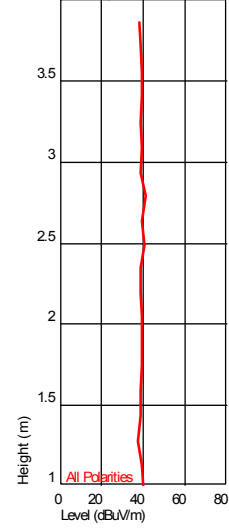
Level (dBuV/m)



All Polarities

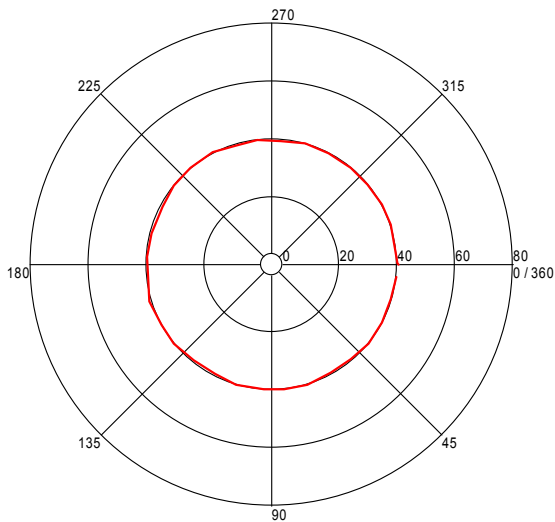
Azimuth (Degrees)

Height Plot (36.082564804 MHz)



Turntable Plot (36.723446679 MHz)

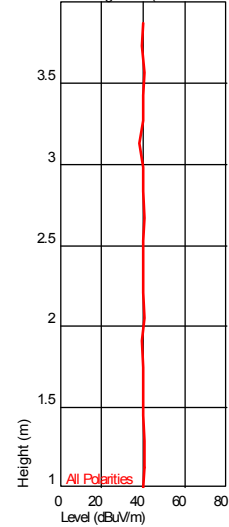
Level (dBuV/m)



All Polarities

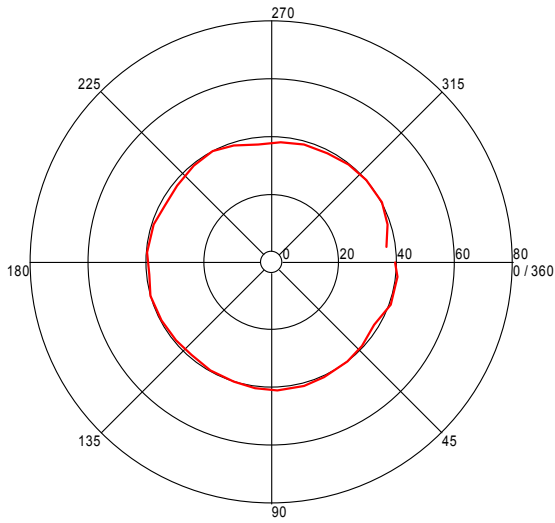
Azimuth (Degrees)

Height Plot (36.723446679 MHz)



Turntable Plot (51.043487387 MHz)

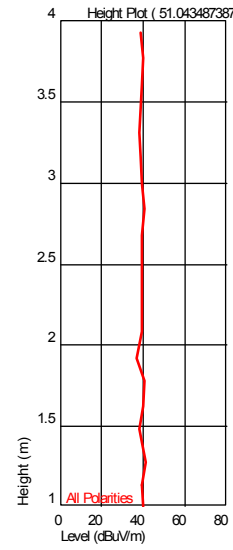
Level (dBuV/m)



All Polarities

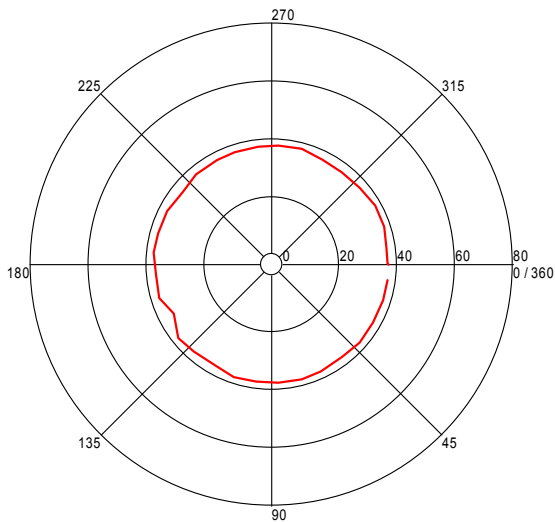
Azimuth (Degrees)

Height Plot (51.043487387 MHz)



Turntable Plot (55.871943862 MHz)

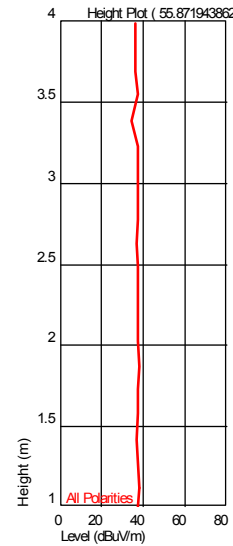
Level (dBuV/m)



All Polarities

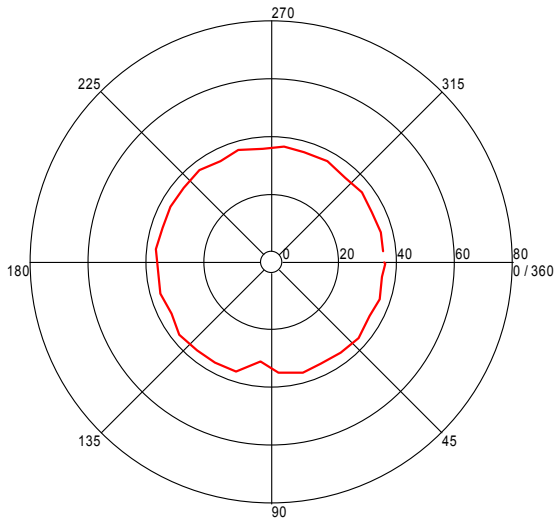
Azimuth (Degrees)

Height Plot (55.871943862 MHz)



Turntable Plot (60.840680898 MHz)

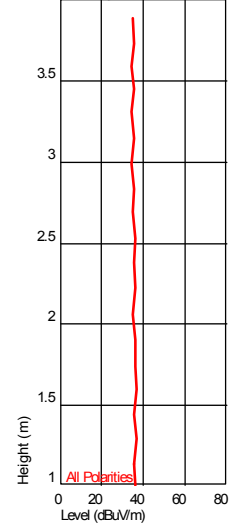
Level (dBuV/m)



All Polarities

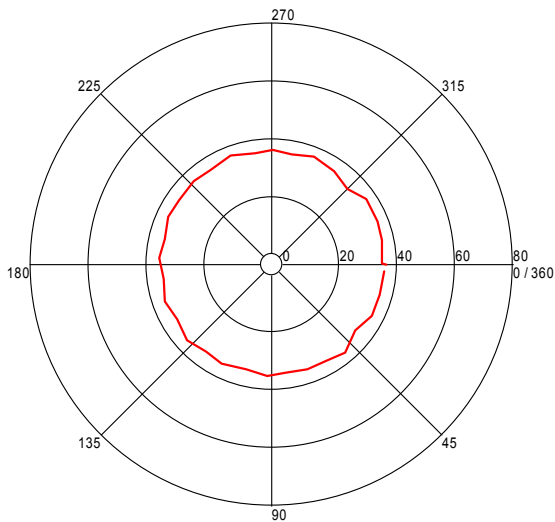
Azimuth (Degrees)

Height Plot (60.840680898 MHz)



Turntable Plot (63.862524978 MHz)

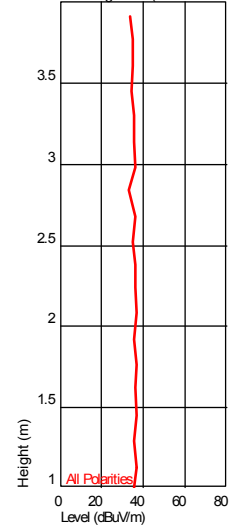
Level (dBuV/m)



All Polarities

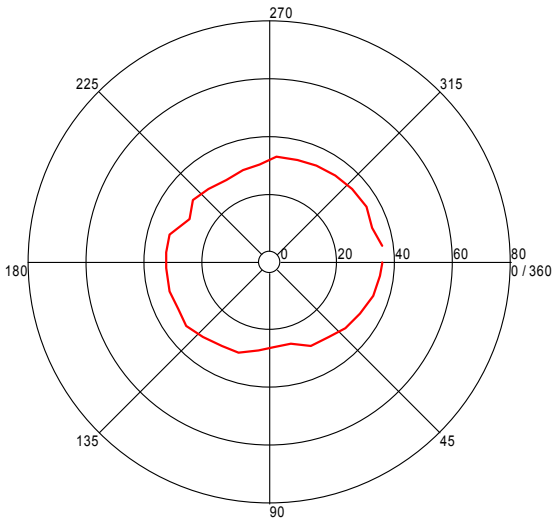
Azimuth (Degrees)

Height Plot (63.862524978 MHz)



Turntable Plot (175.777955745 MHz)

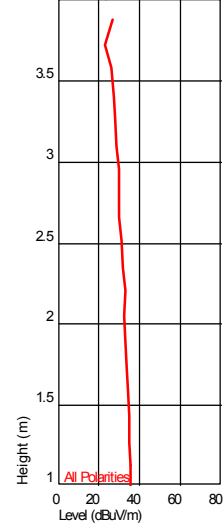
Level (dBuV/m)



All Polarities

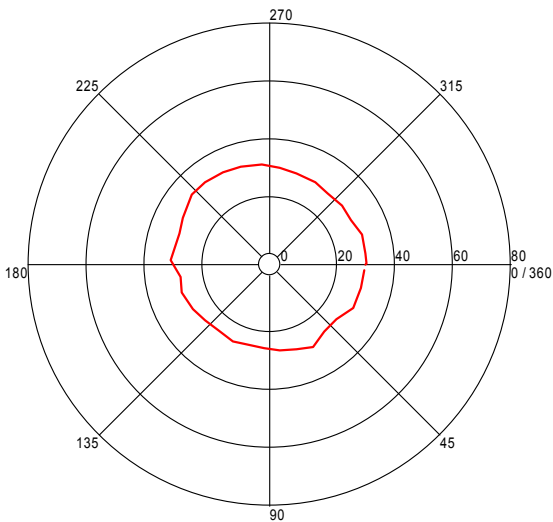
Azimuth (Degrees)

Height Plot (175.777955745 MHz)



Turntable Plot (250.00020082 MHz)

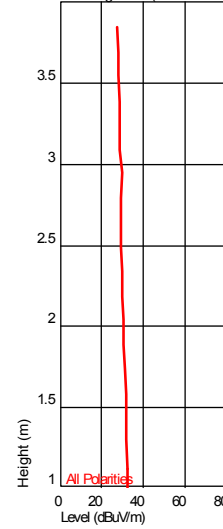
Level (dBuV/m)



All Polarities

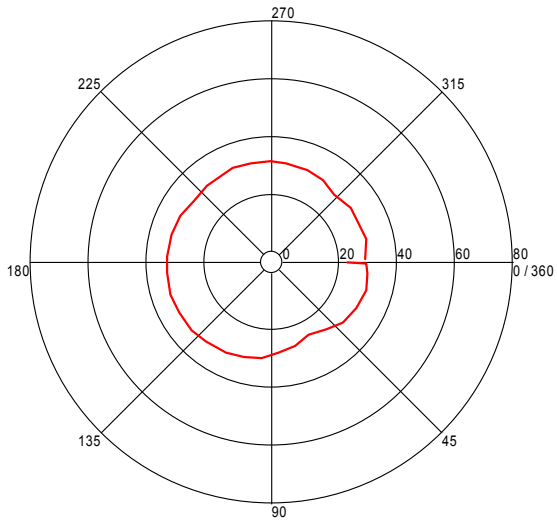
Azimuth (Degrees)

Height Plot (250.00020082 MHz)



Turntable Plot (292.409619539 MHz)

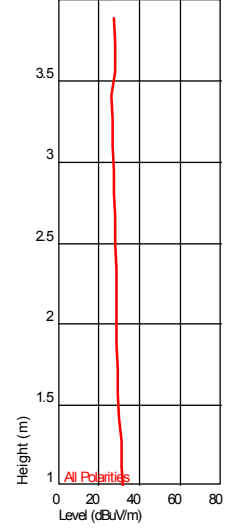
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.409619539 MHz)



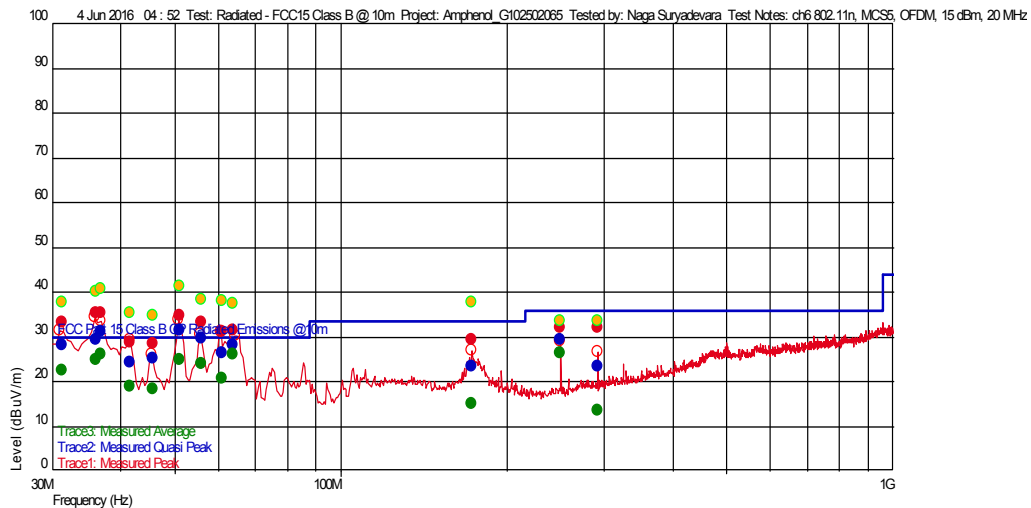
Height (m)
Level (dBuV/m)

802.11n Tx CH 6, MCS5, 20 MHz BW, OFDM modulation, rated power 15 dB(m)

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	ch6 802.11n, MCS5, OFDM, 15 dBm, 20 MHz	
Temperature:	23 C	
Humidity:	44% 1005 mbars	
Tested by:	Naga Suryadevara	
Test Started:	4 Jun 2016 04 : 52	

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

Note: Peak Limit for Non-Restricted Band @ 10 m distance is 40.70 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 70.70 - 20 - 10 = 40.70 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

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
250.001002423 M	31.99	17.700	-24.790	36.020	-4.03		211	1.14	120 k	RB 15.209
172.473146733 M	29.49	17.553	-25.538	33.520	-4.03		360	1.13	120 k	RB 15.209
292.451302906 M	32.05	19.400	-24.535	40.7	-8.65		176	1.13	120 k	Non-RB
45.732264325 M	28.46	15.961	-27.147	40.7	-12.24		51	2.35	120 k	Non-RB
41.478156659 M	28.74	18.665	-27.227	40.7	-11.96		42	3.36	120 k	Non-RB
60.867133804 M	31.27	13.487	-26.949	40.7	-9.43		245	2.05	120 k	Non-RB
64.012625234 M	31.55	13.801	-26.915	40.7	-9.15		274	1.87	120 k	Non-RB
56.009819613 M	33.21	13.300	-27.002	40.7	-7.49		275	1.59	120 k	Non-RB
31.389579271 M	33.43	26.388	-27.417	40.7	-7.27		231	1.75	120 k	Non-RB
51.123647707 M	34.81	13.863	-27.054	40.7	-5.89		28	1.73	120 k	Non-RB
36.054508691 M	35.33	22.856	-27.329	40.7	-5.37		8	4.00	120 k	Non-RB
36.745891569 M	35.52	22.303	-27.316	40.7	-5.18		353	2.64	120 k	Non-RB

Trace2: Measured Quasi Peak

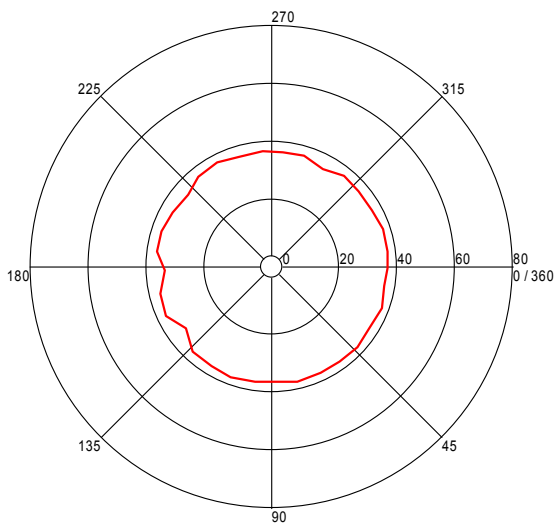
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.451302906 M	23.44	19.400	-24.535	-	-		176	1.13	120 k	Non-RB
172.473146733 M	23.45	17.553	-25.538	33.520	-10.07		360	1.13	120 k	RB 15.209
250.001002423 M	29.30	17.700	-24.790	36.020	-6.72		211	1.14	120 k	RB 15.209
41.478156659 M	24.34	18.665	-27.227	-	-		42	3.36	120 k	Non-RB
45.732264325 M	25.16	15.961	-27.147	-	-		51	2.35	120 k	Non-RB
60.867133804 M	26.56	13.487	-26.949	-	-		245	2.05	120 k	Non-RB 15.209
64.012625234 M	28.25	13.801	-26.915	-	-		274	1.87	120 k	Non-RB
31.389579271 M	28.27	26.388	-27.417	-	-		231	1.75	120 k	Non-RB
36.054508691 M	29.53	22.856	-27.329	-	-		8	4.00	120 k	Non-RB
56.009819613 M	29.72	13.300	-27.002	-	-		275	1.59	120 k	Non-RB
36.745891569 M	31.33	22.303	-27.316	-	-		353	2.64	120 k	Non-RB
51.123647707 M	31.44	13.863	-27.054	-	-		28	1.73	120 k	Non-RB

Azimuth Plots

Turntable Plots

Turntable Plot (31.389579271 MHz)

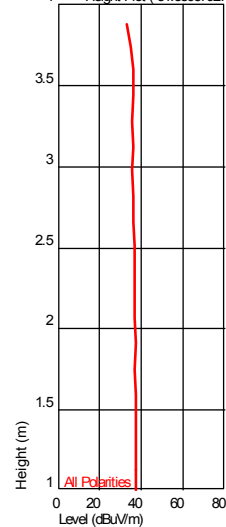
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (31.389579271 MHz)

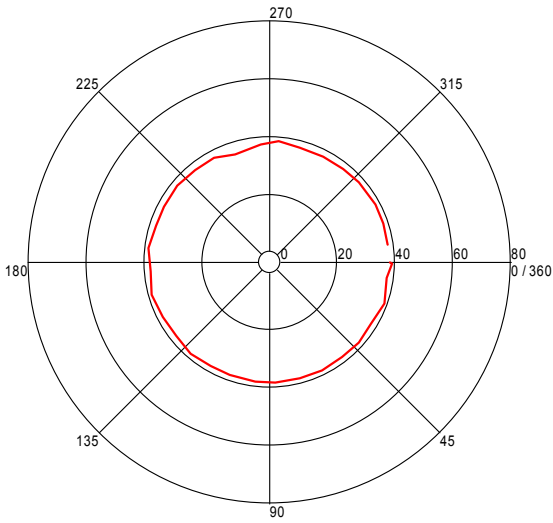


Height (m)

Level (dBuV/m)

Turntable Plot (36.054508691 MHz)

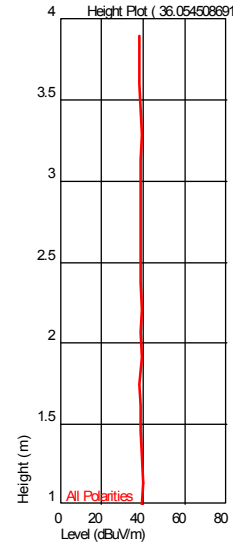
Level (dBuV/m)



All Polarities

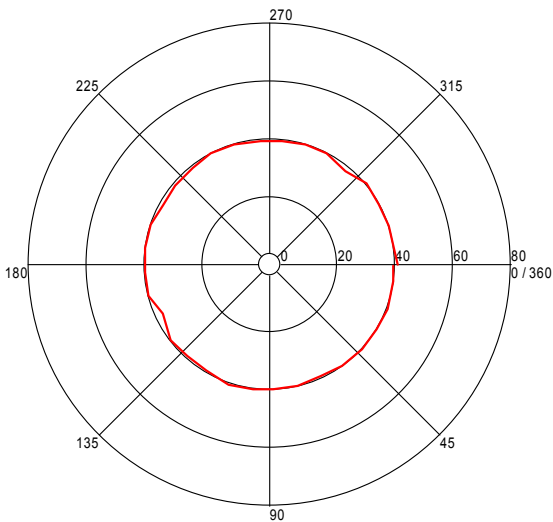
Azimuth (Degrees)

Height Plot (36.054508691 MHz)



Turntable Plot (36.745891569 MHz)

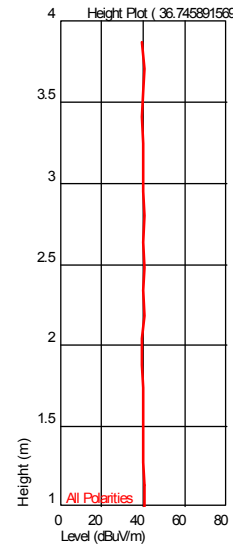
Level (dBuV/m)



All Polarities

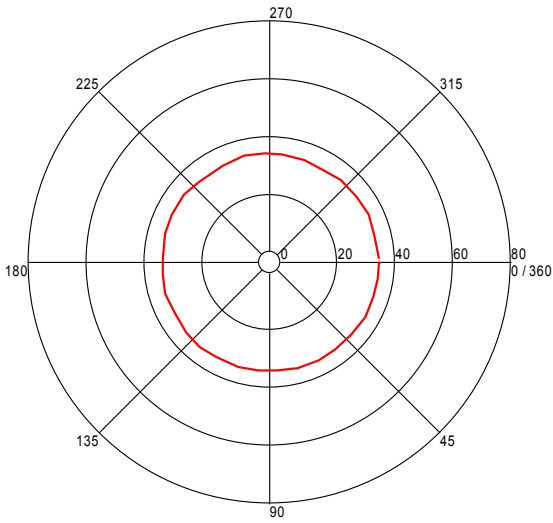
Azimuth (Degrees)

Height Plot (36.745891569 MHz)



Turntable Plot (41.478156659 MHz)

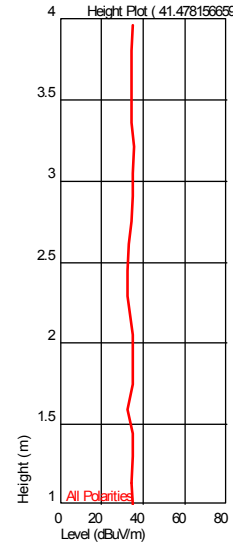
Level (dBuV/m)



All Polarities

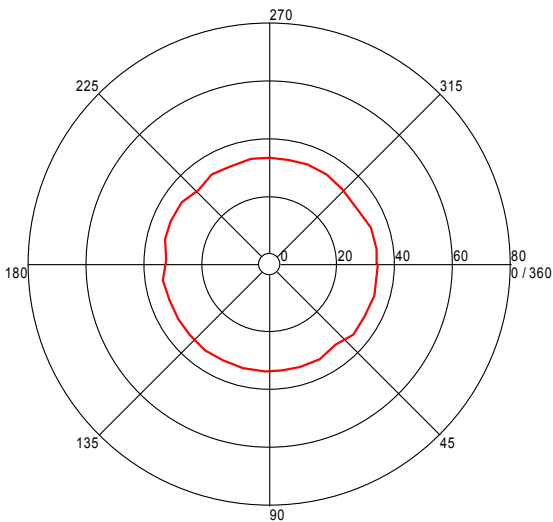
Azimuth (Degrees)

Height Plot (41.478156659 MHz)



Turntable Plot (45.732264325 MHz)

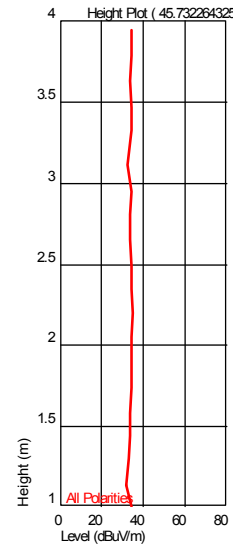
Level (dBuV/m)



All Polarities

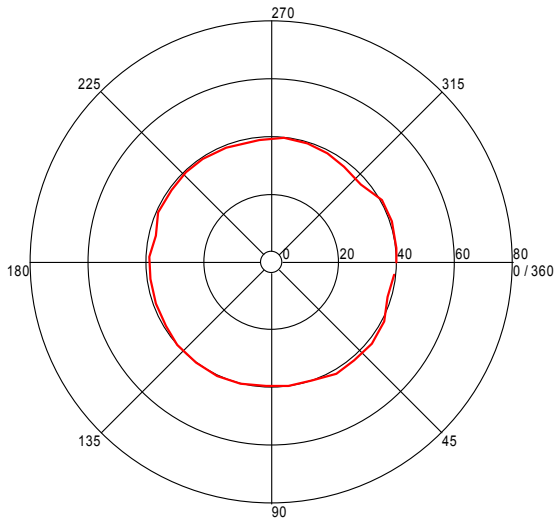
Azimuth (Degrees)

Height Plot (45.732264325 MHz)



Turntable Plot (51.123647707 MHz)

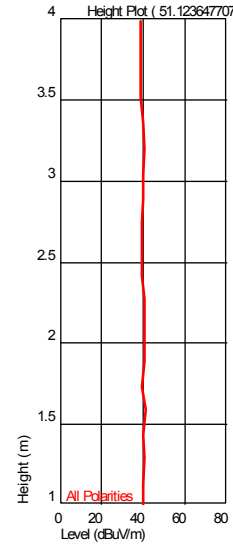
Level (dBuV/m)



All Polarities

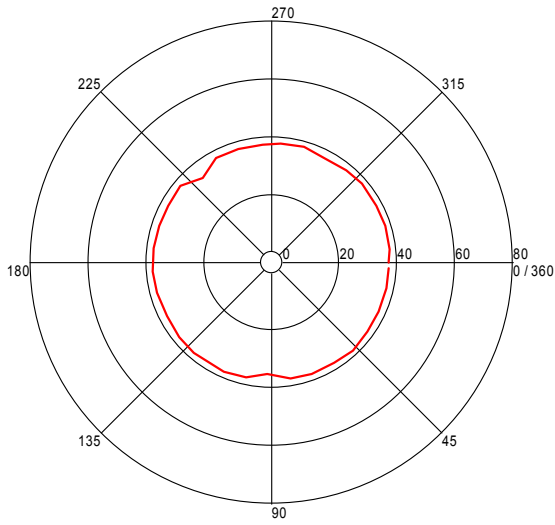
Azimuth (Degrees)

Height Plot (51.123647707 MHz)



Turntable Plot (56.009819613 MHz)

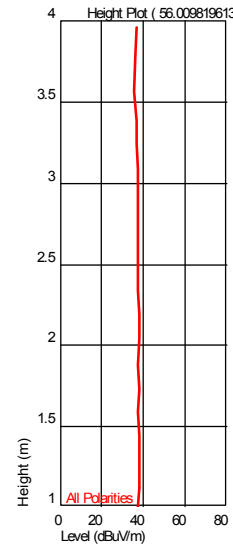
Level (dBuV/m)



All Polarities

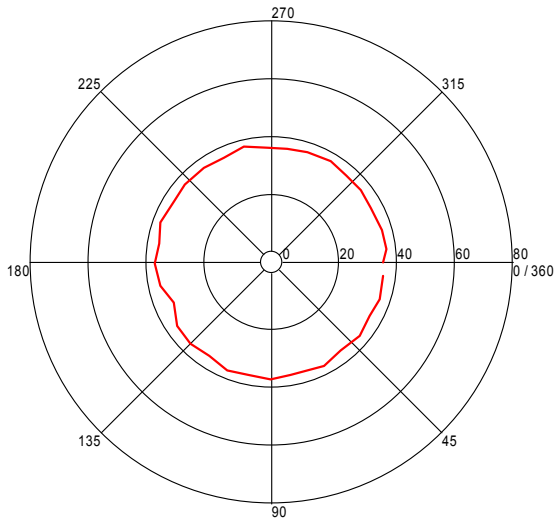
Azimuth (Degrees)

Height Plot (56.009819613 MHz)



Turntable Plot (60.867133804 MHz)

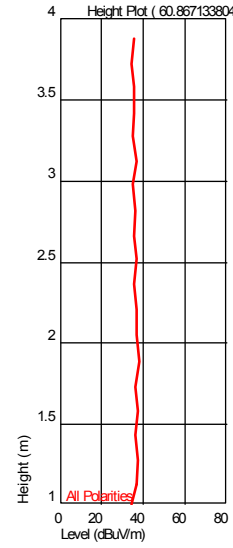
Level (dBuV/m)



All Polarities

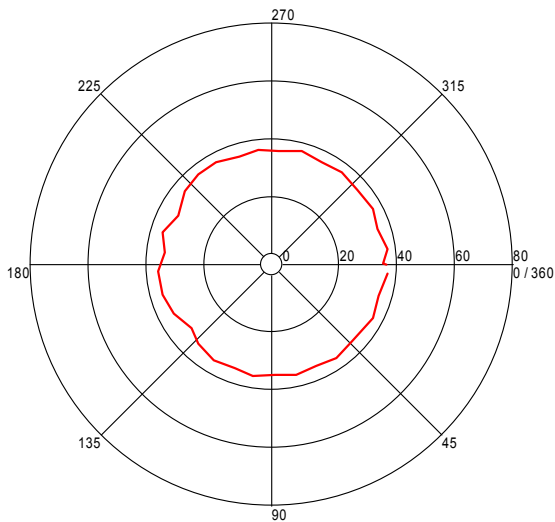
Azimuth (Degrees)

Height Plot (60.867133804 MHz)



Turntable Plot (64.012625234 MHz)

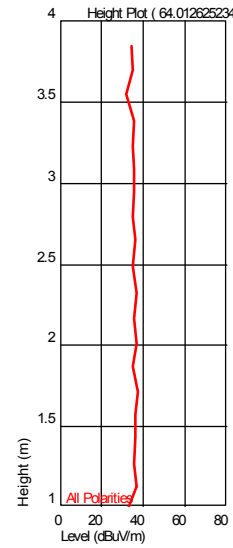
Level (dBuV/m)



All Polarities

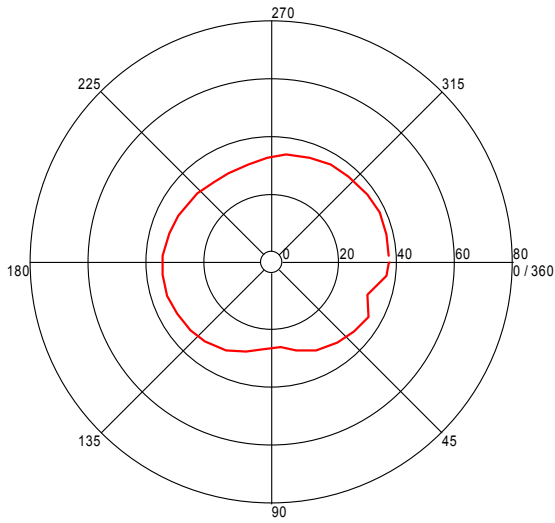
Azimuth (Degrees)

Height Plot (64.012625234 MHz)



Turntable Plot (172.473146733 MHz)

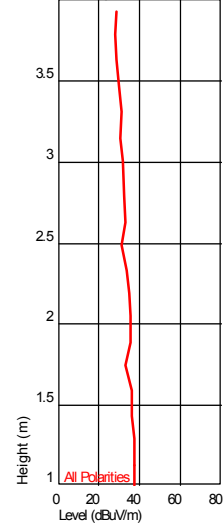
Level (dBuV/m)



All Polarities

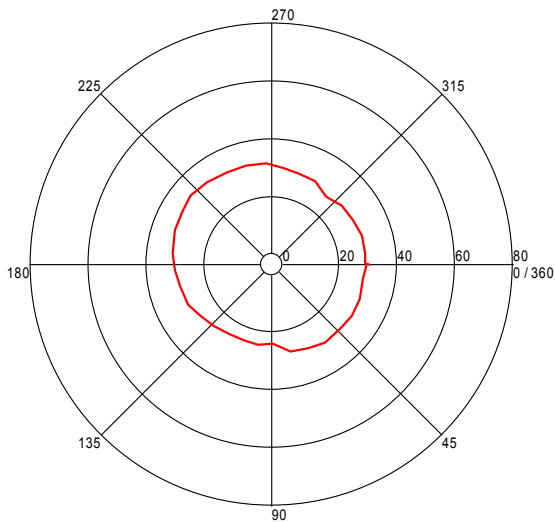
Azimuth (Degrees)

Height Plot (172.473146733 MHz)



Turntable Plot (250.001002423 MHz)

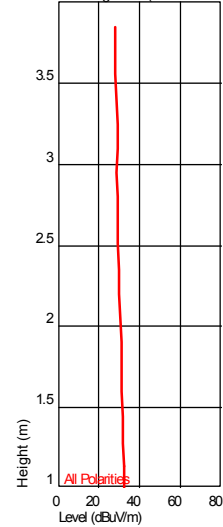
Level (dBuV/m)



All Polarities

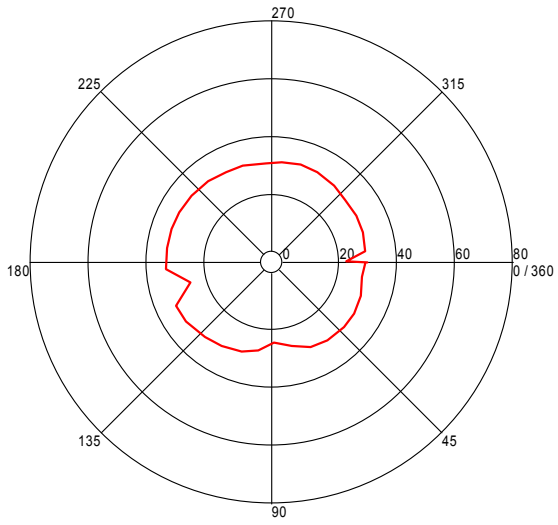
Azimuth (Degrees)

Height Plot (250.001002423 MHz)



Turntable Plot (292.451302906 MHz)

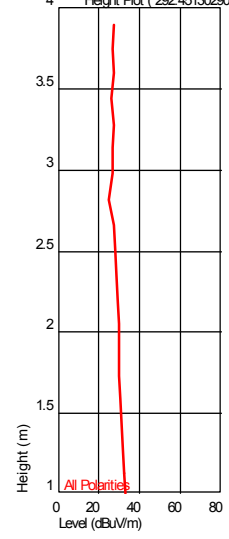
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.451302906 MHz)



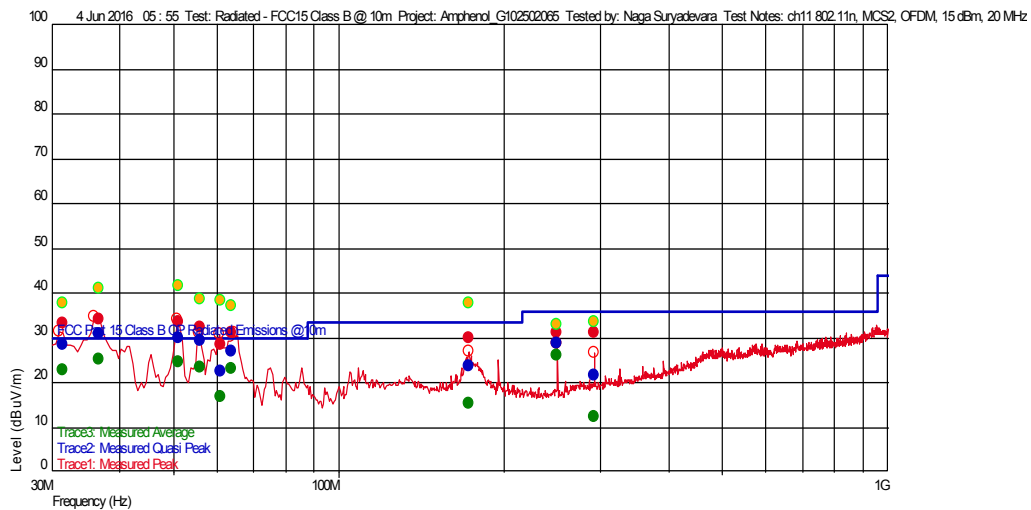
Height (m)
Level (dBuV/m)

Note: 802.11n TX CH 11, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dB(m)

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	ch11 802.11n, MCS2, OFDM, 15 dBm, 20 MHz	
Temperature:	23 C	
Humidity:	44% 1005 mbars	
Tested by:	Naga Suryadevara	
Test Started:	4 Jun 2016 05 : 55	

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

Note: Peak Limit for Non-Restricted Band @ 10 m distance is 43.81 dBuV/m (Fundamental emission peak @ 3m in dBuV/m - 20 dBuV/m - 10dBuV/m = 73.81 - 20 - 10 = 43.81 dBuV/m), attenuation below 15.209 general limits is not required.

For Restricted Band 15.209 General Limits Apply

Trace1: Measured Peak

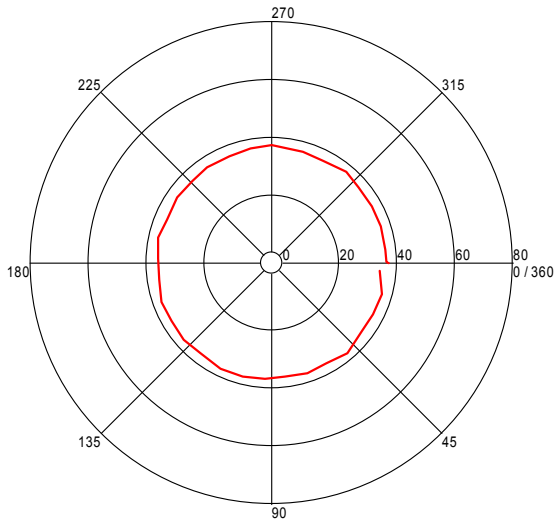
Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
250.0106217	31.29	17.700	-24.790	36.020	-4.73		229	1.14	120 k	RB 15.209
292.4240484	31.30	19.400	-24.535	43.81	-12.51		205	1.14	120 k	Non-RB
172.4539083	30.08	17.555	-25.539	33.520	-3.44		0	1.14	120 k	RB 15.209
60.91763481	28.39	13.492	-26.948	43.81	-15.42		276	1.13	120 k	Non=RB
63.93166331	31.14	13.793	-26.916	43.81	-12.67		309	2.04	120 k	Non=RB
55.9817635	32.43	13.300	-27.002	43.81	-11.38		275	1.73	120 k	Non=RB
31.47615242	33.22	26.319	-27.416	43.81	-10.59		105	1.91	120 k	Non=RB
51.15330703	33.48	13.854	-27.054	43.81	-10.33		140	1.59	120 k	Non=RB
36.56913795	34.22	22.445	-27.320	43.81	-9.59		117	2.67	120 k	Non=RB

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
292.424048397 M	21.71	19.400	-24.535	-	-		205	1.14	120 k	Non-RB
172.453908257 M	23.69	17.555	-25.539	33.520	-9.83		0	1.14	120 k	RB 15.209
60.917634806 M	22.46	13.492	-26.948	-	-		276	1.13	120 k	Non-RB
250.010621661 M	28.87	17.700	-24.790	36.020	-7.15		229	1.14	120 k	RB 15.209
63.931663311 M	27.08	13.793	-26.916	-	-		309	2.04	120 k	Non-RB
31.476152417 M	28.49	26.319	-27.416	-	-		105	1.91	120 k	Non-RB
55.981763501 M	29.33	13.300	-27.002	-	-		275	1.73	120 k	Non-RB
51.153307026 M	30.07	13.854	-27.054	-	-		140	1.59	120 k	Non-RB
36.56913795 M	30.76	22.445	-27.320	-	-		117	2.67	120 k	Non-RB

Azimuth Plots

Turntable Plot (31.476152417 MHz)

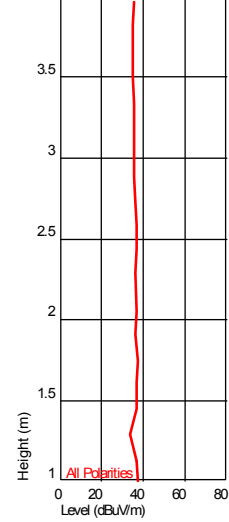


All Polarities

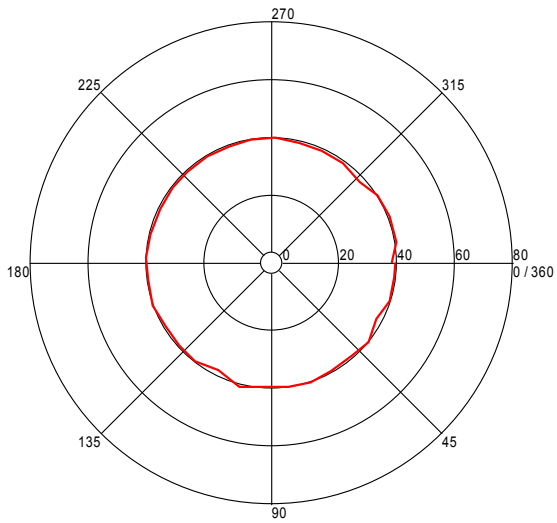
Azimuth (Degrees)

Turntable Plots

Height Plot (31.476152417 MHz)



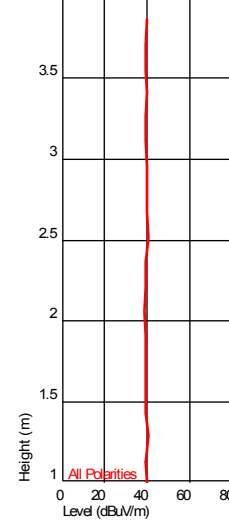
Turntable Plot (36.56913795 MHz)



All Polarities

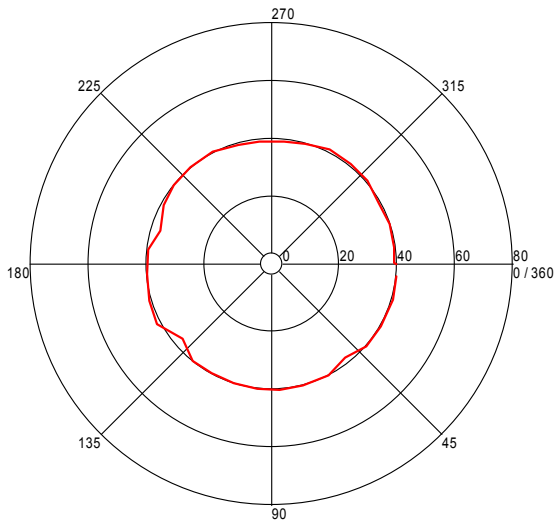
Azimuth (Degrees)

Height Plot (36.56913795 MHz)



Turntable Plot (51.153307026 MHz)

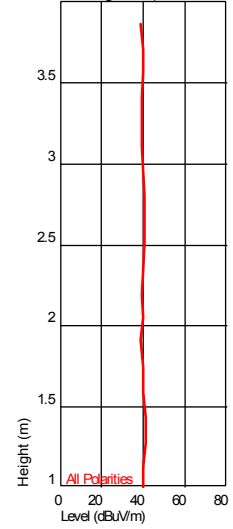
Level (dBuV/m)



All Polarities

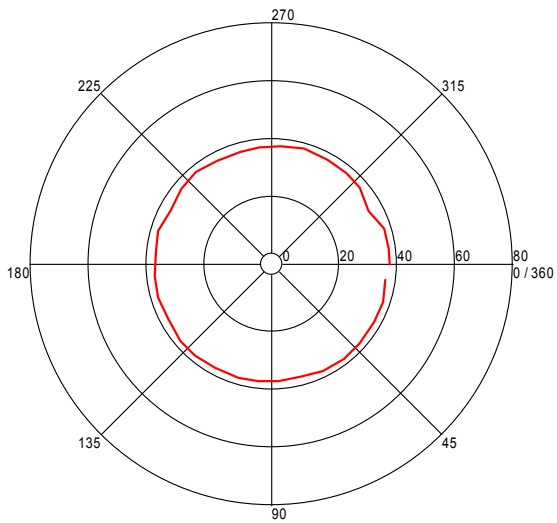
Azimuth (Degrees)

Height Plot (51.153307026 MHz)



Turntable Plot (55.981763501 MHz)

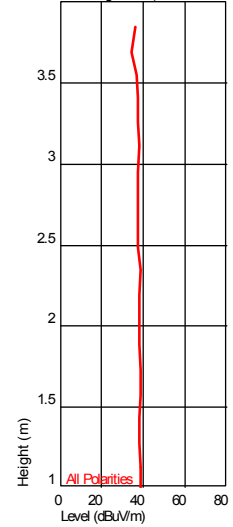
Level (dBuV/m)



All Polarities

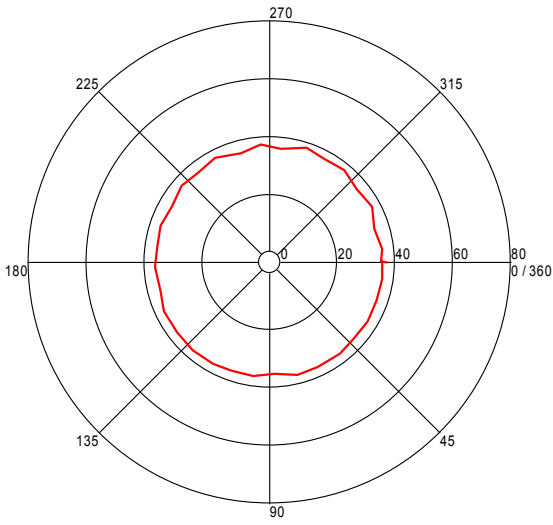
Azimuth (Degrees)

Height Plot (55.981763501 MHz)



Turntable Plot (60.917634806 MHz)

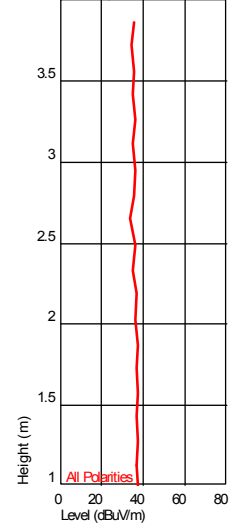
Level (dBuV/m)



All Polarities

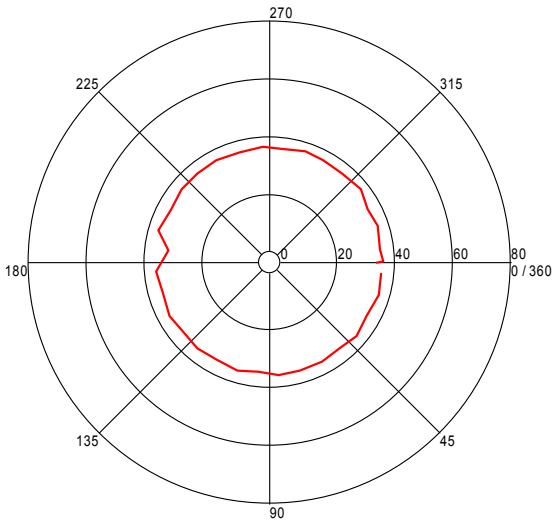
Azimuth (Degrees)

Height Plot (60.917634806 MHz)



Turntable Plot (63.931663311 MHz)

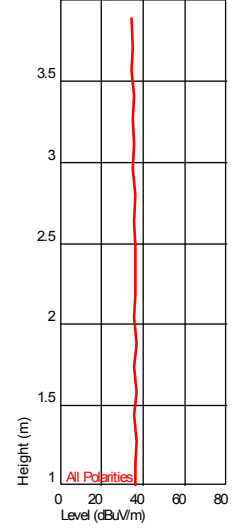
Level (dBuV/m)



All Polarities

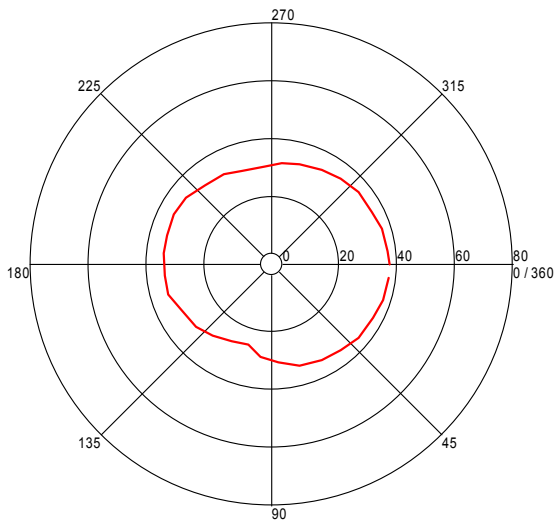
Azimuth (Degrees)

Height Plot (63.931663311 MHz)



Turntable Plot (172.453908257 MHz)

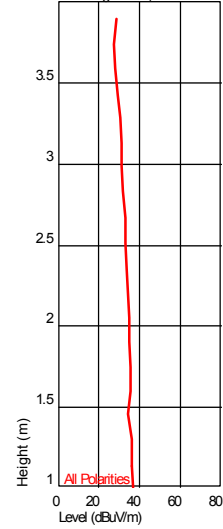
Level (dBuV/m)



All Polarities

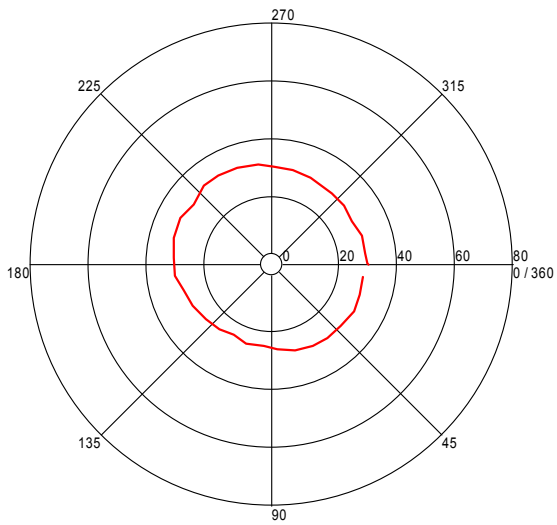
Azimuth (Degrees)

Height Plot (172.453908257 MHz)



Turntable Plot (250.010621661 MHz)

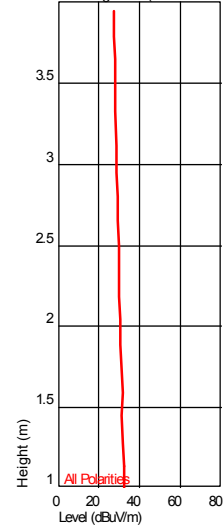
Level (dBuV/m)



All Polarities

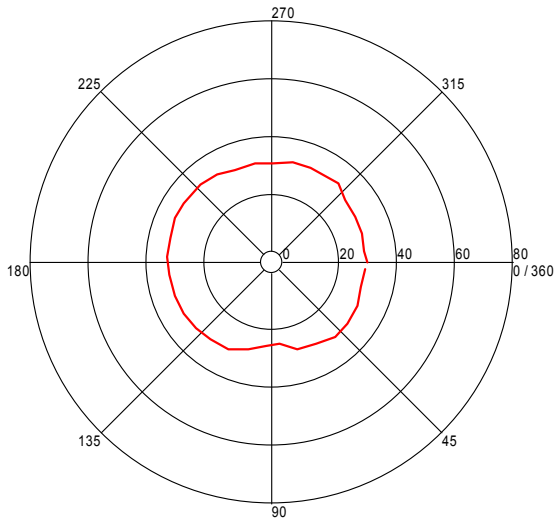
Azimuth (Degrees)

Height Plot (250.010621661 MHz)



Turntable Plot (292.424048397 MHz)

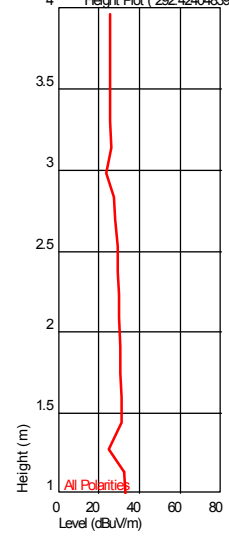
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.424048397 MHz)



Height (m)
Level (dBuV/m)

Intertek

Transmitter Radiated Spurious Emissions

Company: Amphenol Thermometrics Inc Antenna & Cables: HF Bands: N, LF, HF, SHF
 Model #: KAYE VALIDATOR X 2015 Antenna: ETS002 05-13-2017.txt ETS002 05-13-2017.txt
 Serial #: 16020119 Cable(s): 145-416 1-18 GHz 10-08-16.txt
 Engineers: Naga Suryadevara Location: 10M Barometer: DAV004 Filter: REA004
 Project #: G102502065 Date(s): 06/03/16 Temp/Humidity/Pressure: 22 C 45% 1006 mbars

Standard: FCC Part 15 Subpart C 15.247
 Receiver: R&S ESI (145-128) 03-14-2016 Limit Distance (m): 3
 PRE8_08_28_2016.txt Test Distance (m): 3
 PreAmp Used? (Y or N): Y Voltage/Frequency: 120 VAC 60 Hz Frequency Range: 1-25GHz
 Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)
 Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW

Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	
Note: 802.11b Tx CH 1, 5.5 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m)												
PK	H	4824.000	32.12	33.99	6.01	17.23	0.00	54.88	74.00	-19.12	1/3 MHz	RB
AVG	H	4824.000	18.78	33.99	6.01	17.23	0.00	41.54	54.00	-12.46	1/3 MHz	RB
PK	H	7236.000	21.41	35.73	7.01	16.48	0.00	47.67	60.55	-12.88	100/300 kHz	
PK	H	9648.000	19.92	36.69	7.64	14.86	0.00	49.39	60.55	-11.16	100/300 kHz	
PK	H	12060.000	29.20	38.81	8.81	15.14	0.00	61.69	74.00	-12.32	1/3 MHz	RB
AVG	H	12060.000	17.06	38.81	8.81	15.14	0.00	49.55	54.00	-4.46	1/3 MHz	RB
PK	H	14472.000	26.33	39.31	9.30	16.81	0.00	58.13	74.00	-15.87	1/3 MHz	RB
AVG	H	14472.000	15.17	39.31	9.30	16.81	0.00	46.97	54.00	-7.03	1/3 MHz	RB
PK	H	16884.000	21.20	41.83	9.71	19.35	0.00	53.38	60.55	-7.17	100/300 kHz	
Note: 802.11b Tx CH 6 11 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m)												
PK	H	4874.000	30.07	34.00	6.06	17.31	0.00	52.82	74.00	-21.18	1/3 MHz	RB
AVG	H	4874.000	17.06	34.00	6.06	17.31	0.00	39.81	54.00	-14.19	1/3 MHz	RB
PK	H	7311.000	26.24	35.76	6.97	16.45	0.00	52.52	74.00	-21.48	1/3 MHz	RB
AVG	H	7311.000	15.39	35.76	6.97	16.45	0.00	41.67	54.00	-12.33	1/3 MHz	RB
PK	H	9748.000	19.18	36.84	7.60	14.86	0.00	48.75	62.99	-14.24	100/300 kHz	
PK	H	12185.000	29.12	38.87	8.89	15.09	0.00	61.78	74.00	-12.22	1/3 MHz	RB
AVG	H	12185.000	16.72	38.87	8.89	15.09	0.00	49.38	54.00	-4.62	1/3 MHz	RB
PK	H	14622.000	21.20	39.46	9.29	17.09	0.00	52.87	62.99	-10.12	100/300 kHz	
PK	H	17059.000	17.54	41.50	9.71	19.05	0.00	49.69	62.99	-13.30	100/300 kHz	
Note: 802.11b, TX CH 11 2 Mbps, 20 MHz BW, DSSS modulation, rated power 18 dB(m)												
PK	H	4924.000	29.87	34.05	6.12	17.36	0.00	52.67	74.00	-21.33	1/3 MHz	RB
AVG	H	4924.000	18.12	34.05	6.12	17.36	0.00	40.92	54.00	-13.08	1/3 MHz	RB
PK	H	7386.000	26.54	35.67	6.93	16.44	0.00	52.70	74.00	-21.30	1/3 MHz	RB
AVG	H	7386.000	15.68	35.67	6.93	16.44	0.00	41.84	54.00	-12.16	1/3 MHz	RB
PK	H	9848.000	19.39	36.99	7.56	14.75	0.00	49.19	61.01	-11.82	100/300 kHz	
PK	H	12310.000	23.12	38.92	8.97	15.11	0.00	55.90	74.00	-18.10	1/3 MHz	RB
AVG	H	12310.000	13.77	38.92	8.97	15.11	0.00	46.55	54.00	-7.45	1/3 MHz	RB
PK	H	14772.000	21.12	39.62	9.29	17.17	0.00	52.86	61.01	-8.15	100/300 kHz	
PK	H	17234.000	19.89	41.24	9.75	18.88	0.00	52.00	61.01	-9.01	100/300 kHz	

Note: 802.11g Tx CH 1, 18 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4824.000	27.12	33.99	6.01	17.23	0.00	49.88	74.00	-24.12	1/3 MHz	RB
AVG	H	4824.000	13.89	33.99	6.01	17.23	0.00	36.65	54.00	-17.35	1/3 MHz	RB
PK	H	7236.000	16.47	35.73	7.01	16.48	0.00	42.73	48.06	-5.33	100/300 kHz	
PK	H	9648.000	12.96	36.69	7.64	14.86	0.00	42.43	48.06	-5.63	100/300 kHz	
PK	H	12060.000	22.67	38.81	8.81	15.14	0.00	55.16	74.00	-18.85	1/3 MHz	RB
AVG	H	12060.000	11.44	38.81	8.81	15.14	0.00	43.93	54.00	-10.08	1/3 MHz	RB
PK	H	14472.000	18.21	39.31	9.30	16.81	0.00	50.01	74.00	-23.99	1/3 MHz	RB
AVG	H	14472.000	10.99	39.31	9.30	16.81	0.00	42.79	54.00	-11.21	100/300 kHz	RB
PK	H	16884.000	12.84	41.83	9.71	19.35	0.00	45.02	48.06	-3.04	100/300 kHz	
Note: 802.11g Tx CH 6, 48 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4874.000	27.96	34.00	6.06	17.31	0.00	50.71	74.00	-23.29	1/3 MHz	RB
AVG	H	4874.000	15.69	34.00	6.06	17.31	0.00	38.44	54.00	-15.56	1/3 MHz	RB
PK	H	7311.000	23.47	35.76	6.97	16.45	0.00	49.75	74.00	-24.25	1/3 MHz	RB
AVG	H	7311.000	14.35	35.76	6.97	16.45	0.00	40.63	54.00	-13.37	1/3 MHz	RB
PK	H	9748.000	15.84	36.84	7.60	14.86	0.00	45.41	50.52	-5.11	100/300 kHz	
PK	H	12185.000	21.42	38.87	8.89	15.09	0.00	54.08	74.00	-19.92	1/3 MHz	RB
AVG	H	12185.000	12.69	38.87	8.89	15.09	0.00	45.35	54.00	-8.65	1/3 MHz	RB
PK	H	14622.000	13.89	39.46	9.29	17.09	0.00	45.56	50.52	-4.96	100/300 kHz	
PK	H	17059.000	11.58	41.50	9.71	19.05	0.00	43.73	50.52	-6.79	100/300 kHz	
Note: 802.11g TX CH 11, 12 Mbps, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4924.000	26.11	34.05	6.12	17.36	0.00	48.91	74.00	-25.09	1/3 MHz	RB
AVG	H	4924.000	16.78	34.05	6.12	17.36	0.00	39.58	54.00	-14.42	1/3 MHz	RB
PK	H	7386.000	25.22	35.67	6.93	16.44	0.00	51.38	74.00	-22.62	1/3 MHz	RB
AVG	H	7386.000	15.58	35.67	6.93	16.44	0.00	41.74	54.00	-12.26	1/3 MHz	RB
PK	H	9848.000	16.33	36.99	7.56	14.75	0.00	46.13	48.32	-2.19	100/300 kHz	
PK	H	12310.000	23.21	38.92	8.97	15.11	0.00	55.99	74.00	-18.01	1/3 MHz	RB
AVG	H	12310.000	10.76	38.92	8.97	15.11	0.00	43.54	54.00	-10.46	1/3 MHz	RB
PK	H	14772.000	12.44	39.62	9.29	17.17	0.00	44.18	48.32	-4.14	100/300 kHz	
PK	H	17234.000	10.80	41.24	9.75	18.88	0.00	42.91	48.32	-5.41	100/300 kHz	

Note: 802.11n Tx CH 1, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4824.000	28.09	33.99	6.01	17.23	0.00	50.85	74.00	-23.15	1/3 MHz	RB
AVG	H	4824.000	17.11	33.99	6.01	17.23	0.00	39.87	54.00	-14.13	1/3 MHz	RB
PK	H	7236.000	16.76	35.73	7.01	16.48	0.00	43.02	48.25	-5.23	100/300 kHz	
PK	H	9648.000	14.33	36.69	7.64	14.86	0.00	43.80	48.25	-4.45	100/300 kHz	
PK	H	12060.000	25.71	38.81	8.81	15.14	0.00	58.20	74.00	-15.81	1/3 MHz	RB
AVG	H	12060.000	15.23	38.81	8.81	15.14	0.00	47.72	54.00	-6.29	1/3 MHz	RB
PK	H	14472.000	22.39	39.31	9.30	16.81	0.00	54.19	74.00	-19.81	1/3 MHz	RB
AVG	H	14472.000	12.35	39.31	9.30	16.81	0.00	44.15	54.00	-9.85	1/3 MHz	RB
PK	H	16884.000	13.33	41.83	9.71	19.35	0.00	45.51	48.25	-2.74	100/300 kHz	
Note: 802.11n Tx CH 6, MCS5, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4874.000	25.22	34.00	6.06	17.31	0.00	47.97	74.00	-26.03	1/3 MHz	RB
AVG	H	4874.000	14.54	34.00	6.06	17.31	0.00	37.29	54.00	-16.71	1/3 MHz	RB
PK	H	7311.000	23.11	35.76	6.97	16.45	0.00	49.39	74.00	-24.61	1/3 MHz	RB
AVG	H	7311.000	11.19	35.76	6.97	16.45	0.00	37.47	54.00	-16.53	1/3 MHz	RB
PK	H	9748.000	14.44	36.84	7.60	14.86	0.00	44.01	50.70	-6.69	100/300 kHz	
PK	H	12185.000	23.36	38.87	8.89	15.09	0.00	56.02	74.00	-17.98	1/3 MHz	RB
AVG	H	12185.000	12.12	38.87	8.89	15.09	0.00	44.78	54.00	-9.22	1/3 MHz	RB
PK	H	14622.000	15.55	39.46	9.29	17.09	0.00	47.22	50.70	-3.48	100/300 kHz	
PK	H	17059.000	13.19	41.50	9.71	19.05	0.00	45.34	50.70	-5.36	100/300 kHz	
Note: 802.11n TX CH 11, MCS2, 20 MHz BW, OFDM modulation, rated power 15 dB(m)												
PK	H	4924.000	27.12	34.05	6.12	17.36	0.00	49.92	74.00	-24.08	1/3 MHz	RB
AVG	H	4924.000	15.12	34.05	6.12	17.36	0.00	37.92	54.00	-16.08	1/3 MHz	RB
PK	H	7386.000	25.14	35.67	6.93	16.44	0.00	51.30	74.00	-22.70	1/3 MHz	RB
AVG	H	7386.000	14.12	35.67	6.93	16.44	0.00	40.28	54.00	-13.72	1/3 MHz	RB
PK	H	9848.000	16.34	36.99	7.56	14.75	0.00	46.14	53.81	-7.67	100/300 kHz	
PK	H	12310.000	23.65	38.92	8.97	15.11	0.00	56.43	74.00	-17.57	1/3 MHz	RB
AVG	H	12310.000	12.23	38.92	8.97	15.11	0.00	45.01	54.00	-8.99	1/3 MHz	RB
PK	H	14772.000	16.12	39.62	9.29	17.17	0.00	47.86	53.81	-5.95	100/300 kHz	
PK	H	17234.000	13.39	41.24	9.75	18.88	0.00	45.50	53.81	-8.31	100/300 kHz	

Note: No emissions were detected above noise floor from 18 – 25 GHz

Test Personnel: Naga Suryadevara NS
Supervising/Reviewing Engineer: Vathana Ven *VSV*
(Where Applicable) N/A
Product Standard: FCC 15.247 and RSS-247
Input Voltage: 120 VAC 60 Hz
Pretest Verification w/
Ambient Signals or
BB Source: **BB Source**

Test Date: 06/03/2016
06/04/2016
06/05/2016
Limit Applied: Below specified limit
Ambient Temperature: 22, 22, 22 °C
Relative Humidity: 45, 44, 44 %
Atmospheric Pressure: 1006, 1005, 1005 mbars

Deviations, Additions, or Exclusions: None

11 Digital Devices Radiated Spurious Emissions

11.1 Method

Tests are performed in accordance with Configuration as required by FCC 47CFR Part 15 Subpart B (2/2016), ICES-003 Issue 5 August 2012, ANSI C 63.4:2014, and RSS-Gen Issue 4 November 2014.

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)	Ucisprr
Radiated Emissions, 10m	30-1000 MHz	4.6dB	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 dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

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

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

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

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

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

$$NF = \text{Net Reading in dB}\mu\text{V}$$

Example:

$$FS = RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0$$

$$UF = 10^{(32 \text{ dB}\mu\text{V} / 20)} = 39.8 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "AF" is the Antenna Factor; "PA+CL" are Preamp and Cable Loss. These are already accounted for in the "Level" column.

11.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV004'	Weather Station	Davis Instruments	7400	PE80529A61 A	10/23/2015	10/23/2017
145128'	EMI Receiver (20 Hz - 40 Ghz)	Rohde & Schwarz	ESIB 40	839283/001	03/14/2015	03/14/2016
145-416'	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/08/2015	10/08/2016
ETS001'	1-18GHz DRG Horn Antenna	ETS-Lindgren	3117	00143259	02/10/2016	02/10/2017
145013'	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2944A07027	10/12/2015	10/12/2016
145106'	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	11/10/2015	11/10/2016
145-410'	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	09/01/2015	09/01/2016
145014	Preamplifier (1 GHz to 26.5 GHz)	Hewlett Packard	8449B	3008A00232	05/27/2016	05/27/2017

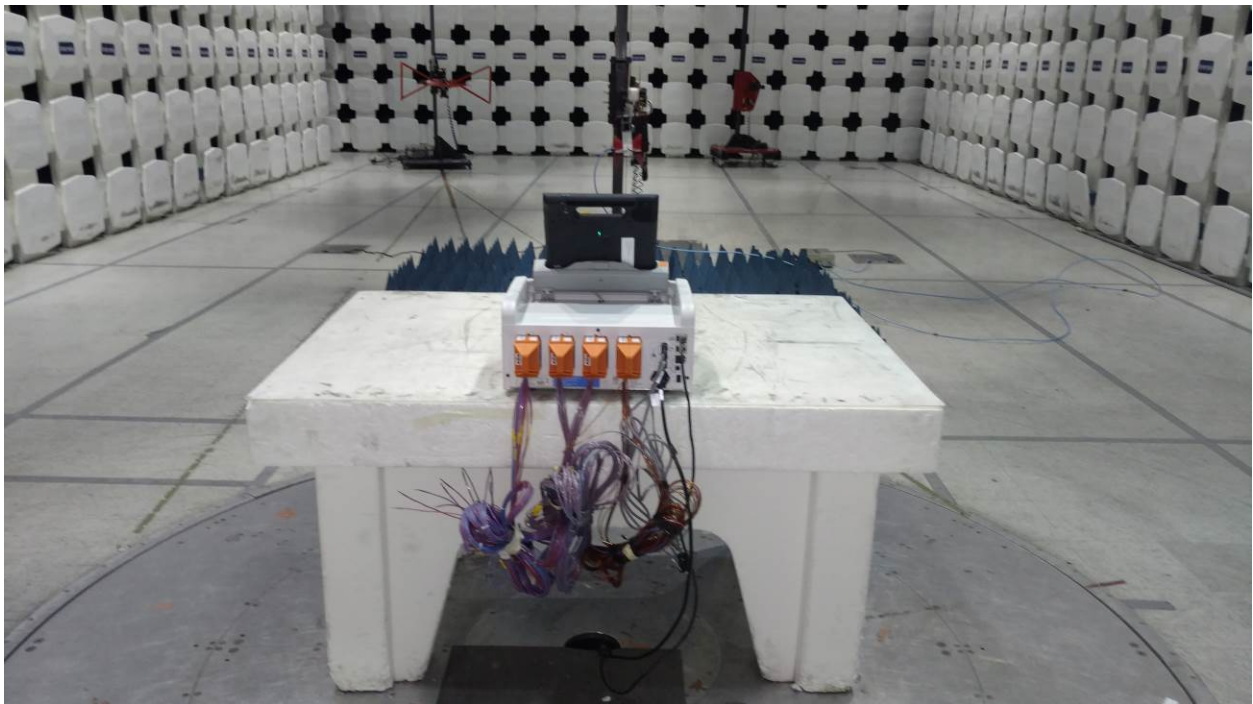
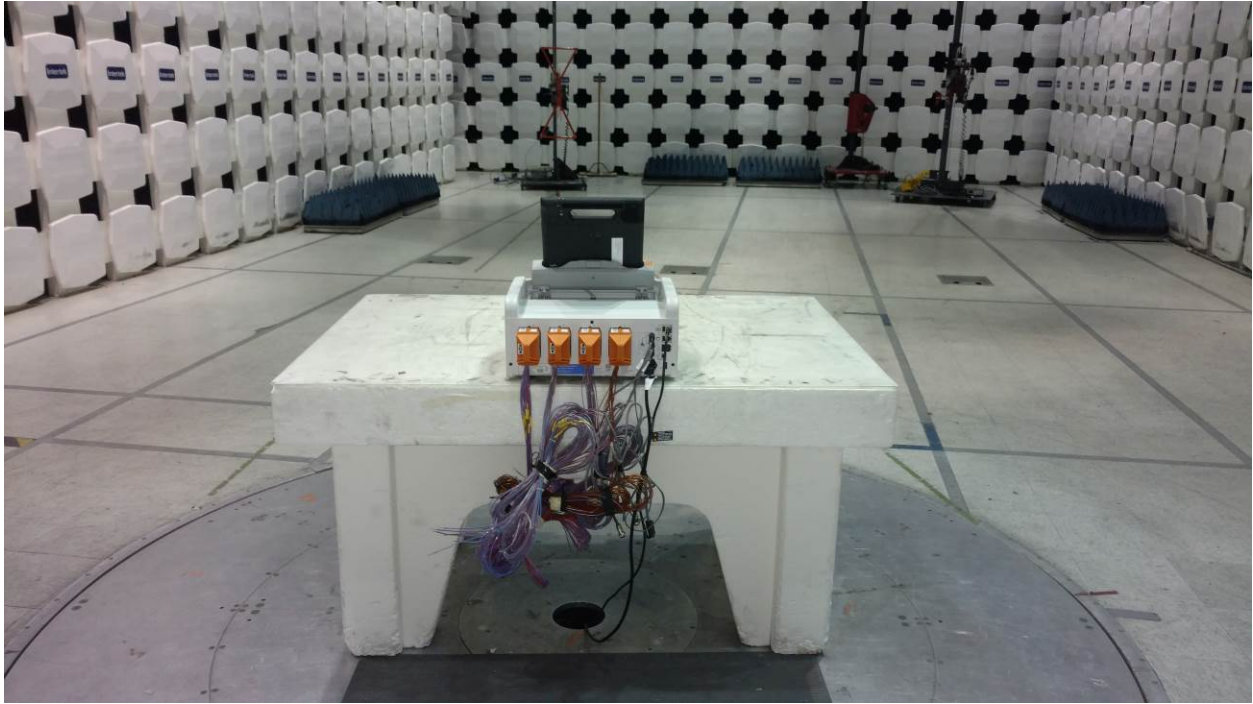
Software Utilized:

Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46

11.3 Results:

The sample tested was found to Comply.

11.4 Setup Photographs:



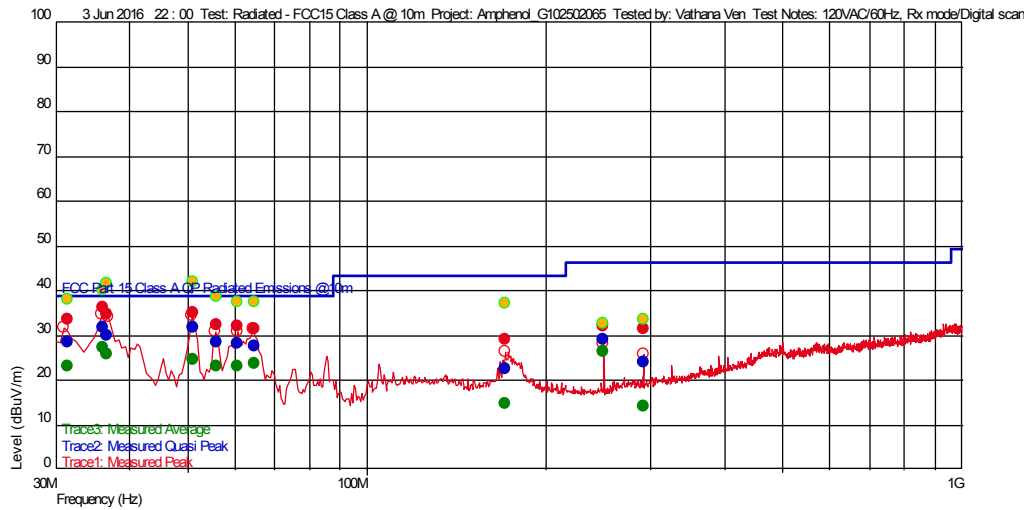
11.5 Plots/Data:

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

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 10m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, Rx mode/Digital scan	
Temperature:	23 deg C	
Humidity:	44%, 1005 mB	
Tested by:	Vathana Ven	
Test Started:	3 Jun 2016 22 : 00	

Prescan Emission Graph



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

Emissions Test Data

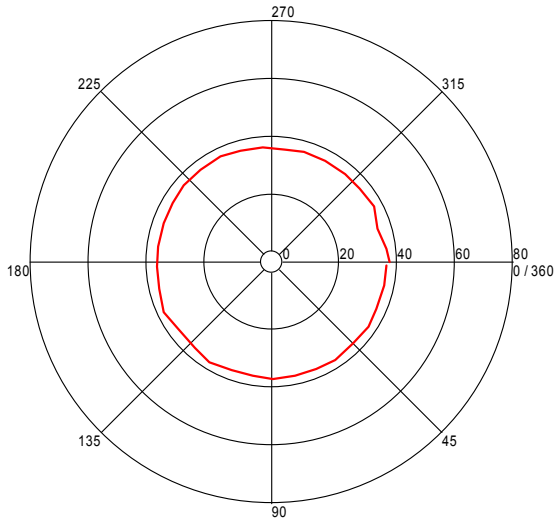
Trace2: Measured Quasi Peak

Frequency (Hz)	Level (dBuV/m)	AF	PA+CL	Limit (dBuV/m)	Margin (dBuV/m)	Hor (-), Ver ()	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)	Comment
292.475351002 M	24.11	19.400	-24.535	46.400	-22.29		197	1.13	120 k	
171.03927883 M	22.64	17.696	-25.554	43.500	-20.86		360	1.13	120 k	
249.986573565 M	29.17	17.700	-24.790	46.400	-17.23		211	1.14	120 k	
64.742885756 M	27.48	13.874	-26.907	39.100	-11.62		264	2.35	120 k	
60.824648834 M	28.25	13.482	-26.949	39.100	-10.85		168	2.18	120 k	
31.424849812 M	28.58	26.360	-27.416	39.100	-10.52		111	2.23	120 k	
55.855110194 M	28.58	13.300	-27.003	39.100	-10.52		218	1.28	120 k	
36.695390567 M	29.86	22.344	-27.317	39.100	-9.24		138	2.71	120 k	
36.113827329 M	31.69	22.809	-27.328	39.100	-7.41		58	2.40	120 k	
51.058717848 M	31.89	13.882	-27.055	39.100	-7.21		117	2.34	120 k	

Azimuth Plots

Turntable Plot (31.424849812 MHz)

Level (dBuV/m)

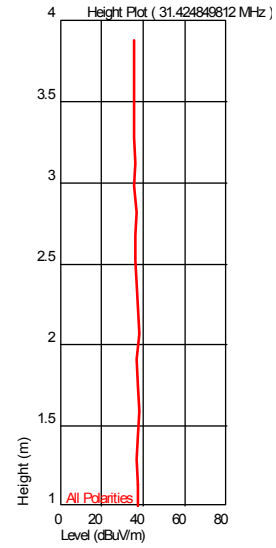


All Polarities

Azimuth (Degrees)

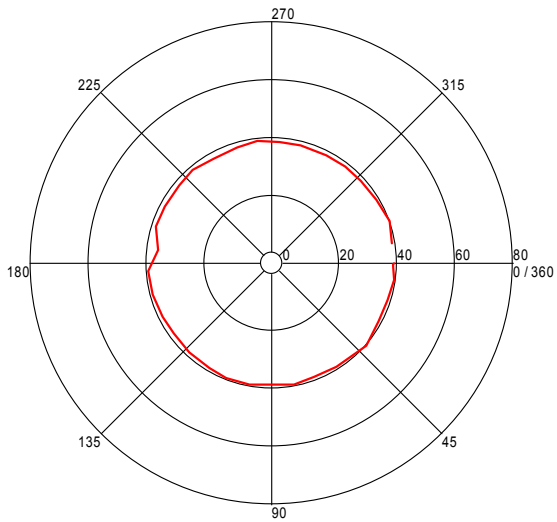
Turntable Plots

Height Plot (31.424849812 MHz)



Turntable Plot (36.113827329 MHz)

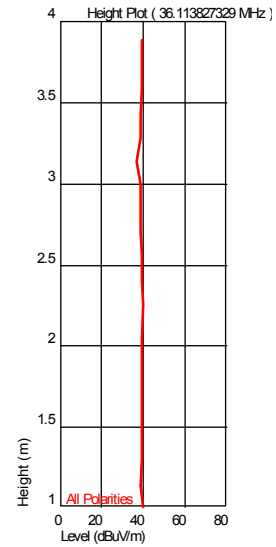
Level (dBuV/m)



All Polarities

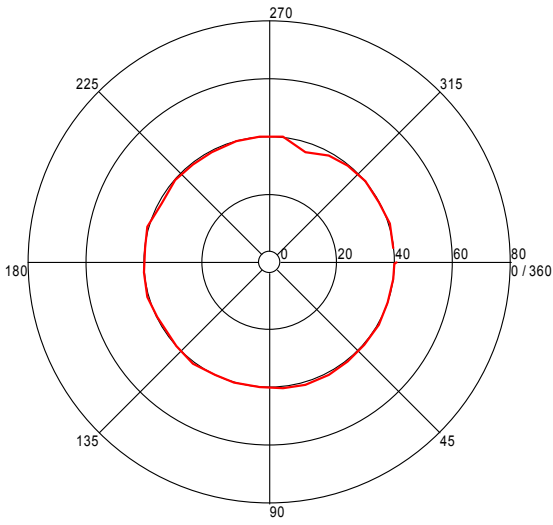
Azimuth (Degrees)

Height Plot (36.113827329 MHz)



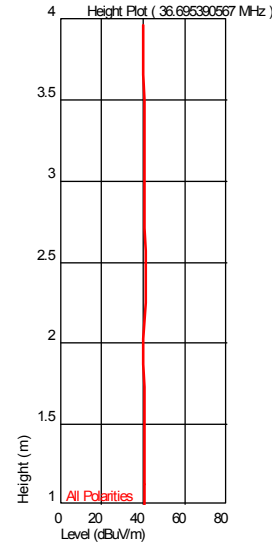
Turntable Plot (36.695390567 MHz)

Level (dBuV/m)



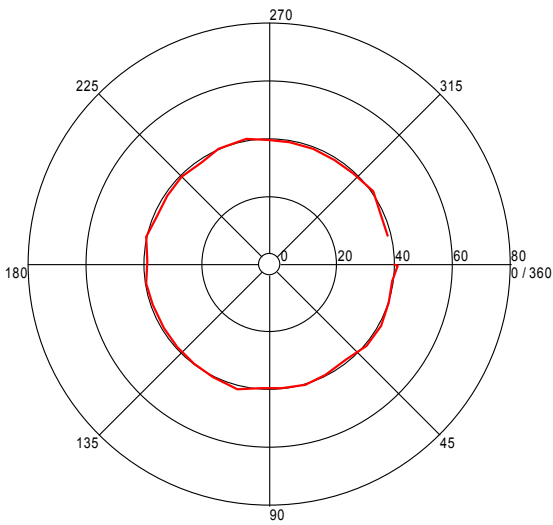
All Polarities

Azimuth (Degrees)



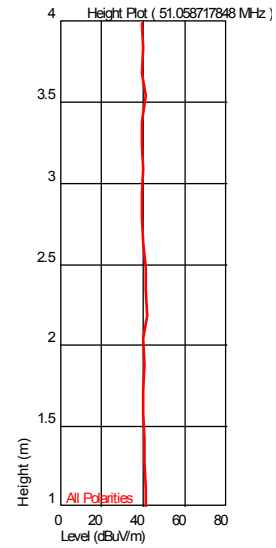
Turntable Plot (51.058717848 MHz)

Level (dBuV/m)



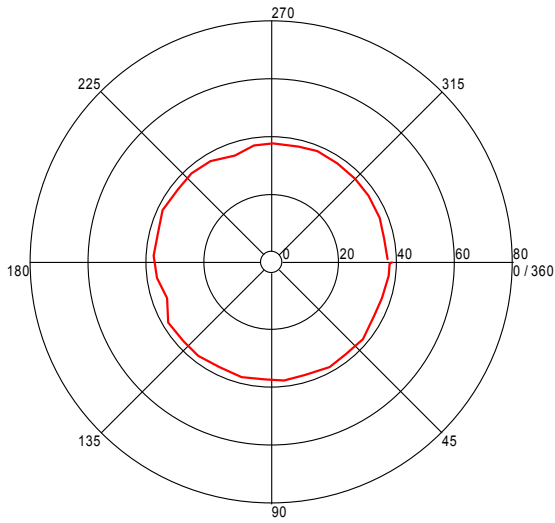
All Polarities

Azimuth (Degrees)



Turntable Plot (55.855110194 MHz)

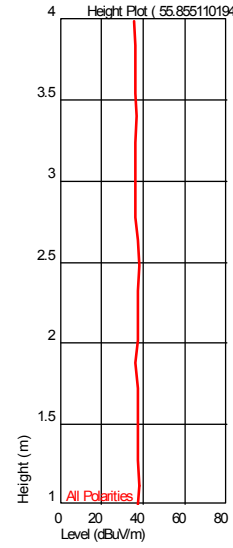
Level (dBuV/m)



All Polarities

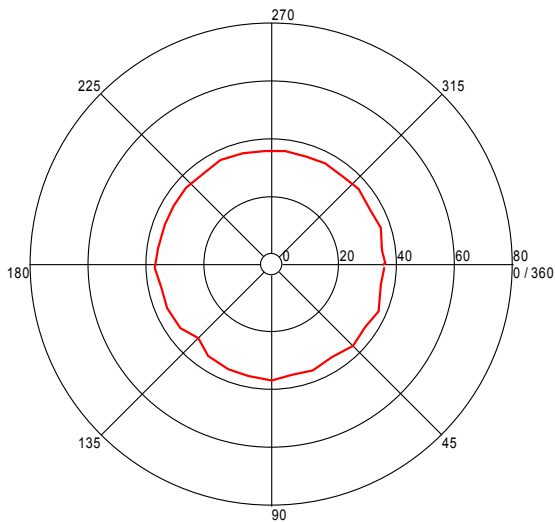
Azimuth (Degrees)

Height Plot (55.855110194 MHz)



Turntable Plot (60.824648834 MHz)

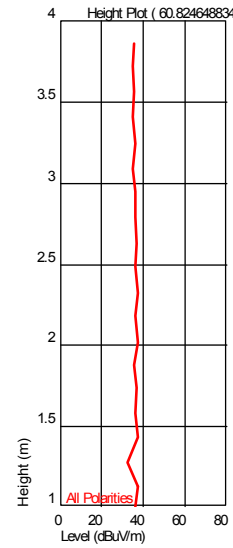
Level (dBuV/m)



All Polarities

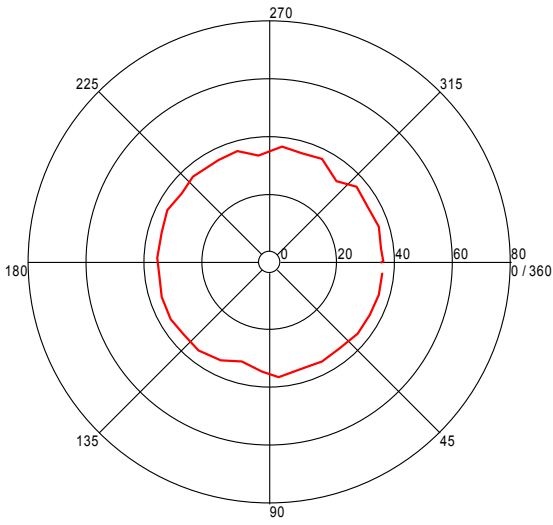
Azimuth (Degrees)

Height Plot (60.824648834 MHz)



Turntable Plot (64.742885756 MHz)

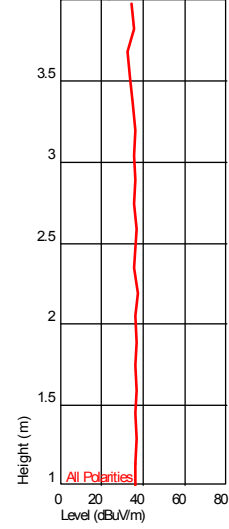
Level (dBuV/m)



All Polarities

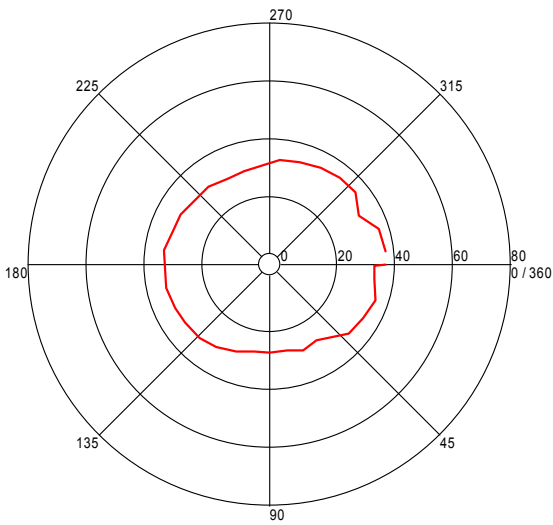
Azimuth (Degrees)

Height Plot (64.742885756 MHz)



Turntable Plot (171.03927883 MHz)

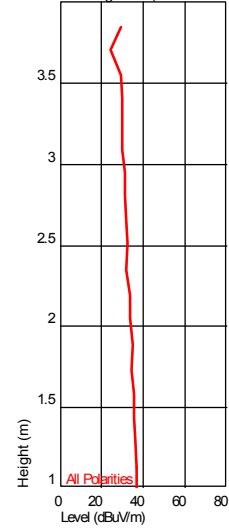
Level (dBuV/m)



All Polarities

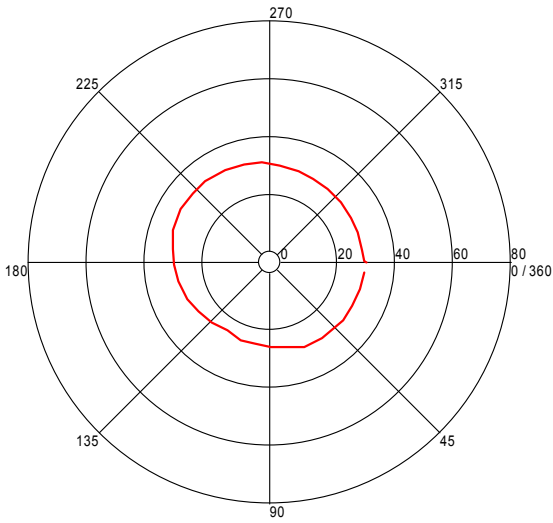
Azimuth (Degrees)

Height Plot (171.03927883 MHz)



Turntable Plot (249.986573565 MHz)

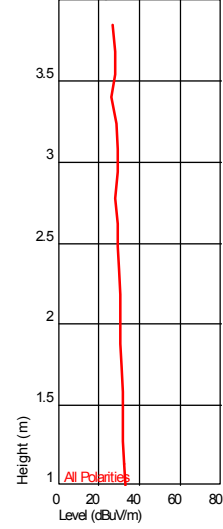
Level (dBuV/m)



All Polarities

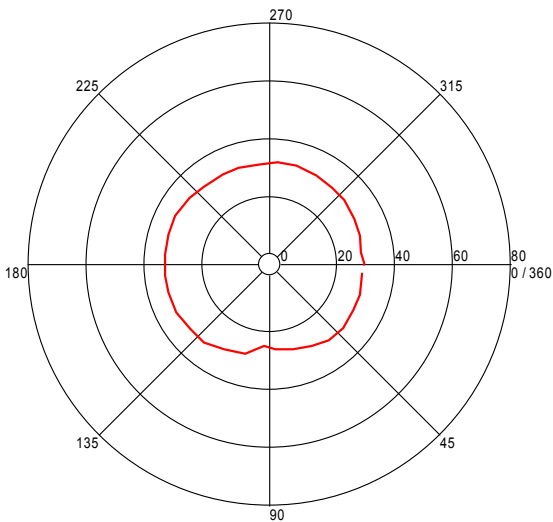
Azimuth (Degrees)

Height Plot (249.986573565 MHz)



Turntable Plot (292.475351002 MHz)

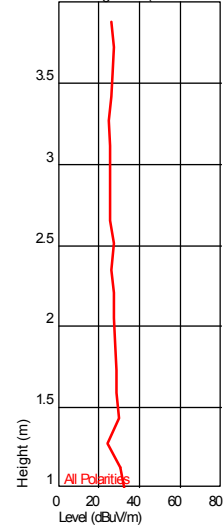
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (292.475351002 MHz)

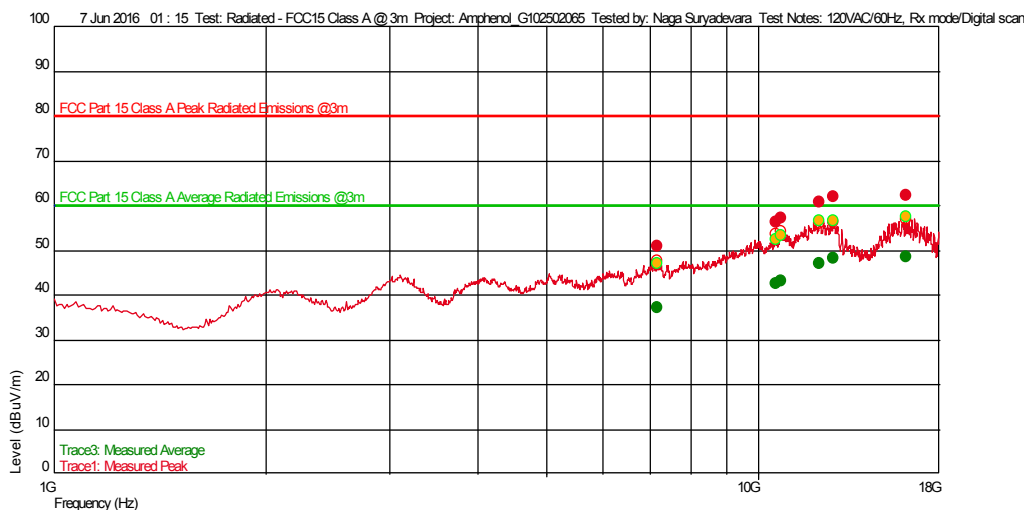


Operating @ 120 VAC 60 Hz, Rx Mode, 1 GHz – 18 GHz

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class A @ 3m	
Project:	Amphenol_G102502065	
Test Notes:	120VAC/60Hz, Rx mode/Digital scan	
Temperature:	21 C	
Humidity:	51% 992 mbars	
Tested by:	Naga Suryadevara	
Test Started:	7 Jun 2016 01 : 15	

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
7.173360053 G	50.77	35.633	-27.598	80.000	-29.23		1	3.24	1 M	
10.588062793 G	56.35	37.599	-23.174	80.000	-23.65	--	217	1.05	1 M	
10.755758183 G	57.04	37.705	-22.845	80.000	-22.96		232	2.87	1 M	
12.187354709 G	60.86	38.979	-20.583	80.000	-19.14		62	3.23	1 M	
12.77503006 G	61.93	39.371	-20.434	80.000	-18.07		359	4.01	1 M	
16.164235137 G	62.19	40.900	-21.174	80.000	-17.81		219	4.01	1 M	

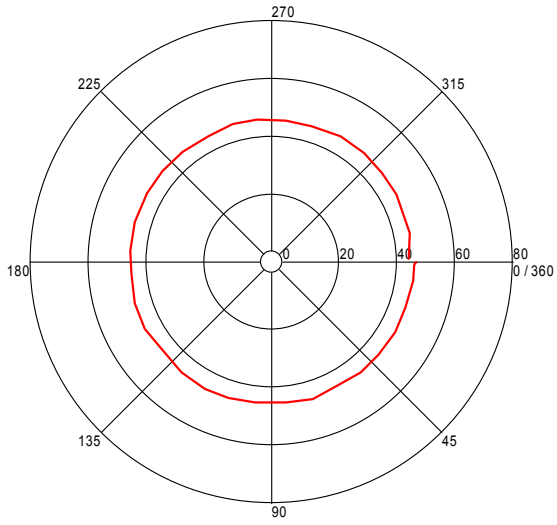
Trace3: Measured Average

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
7.173360053 G	37.28	35.633	-27.598	60.000	-22.72		1	3.24	1 M	
10.588062793 G	42.66	37.599	-23.174	60.000	-17.34	--	217	1.05	1 M	
10.755758183 G	43.27	37.705	-22.845	60.000	-16.73		232	2.87	1 M	
12.187354709 G	46.98	38.979	-20.583	60.000	-13.02		62	3.23	1 M	
12.77503006 G	48.18	39.371	-20.434	60.000	-11.82		359	4.01	1 M	
16.164235137 G	48.48	40.900	-21.174	60.000	-11.52		219	4.01	1 M	

Azimuth Plots

Turntable Plot (7.173360053 GHz)

Level (dBuV/m)

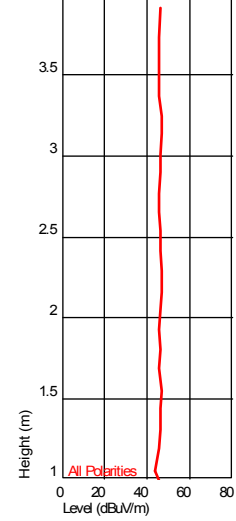


All Polarities

Azimuth (Degrees)

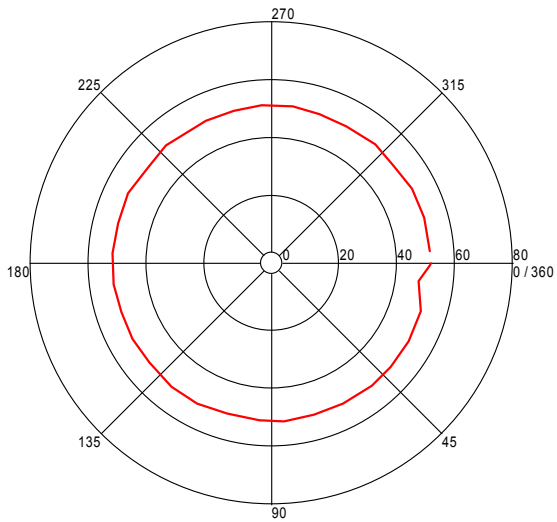
Turntable Plots

Height Plot (7.173360053 GHz)



Turntable Plot (10.588062793 GHz)

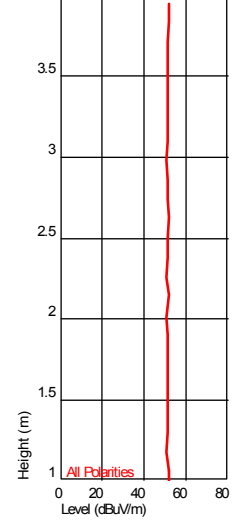
Level (dBuV/m)



All Polarities

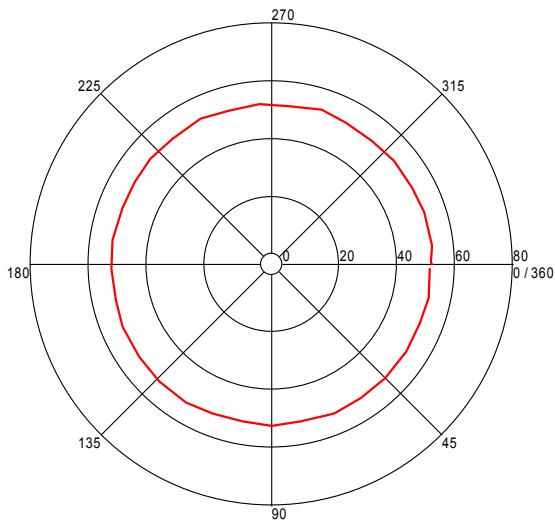
Azimuth (Degrees)

Height Plot (10.588062793 GHz)



Turntable Plot (10.755758183 GHz)

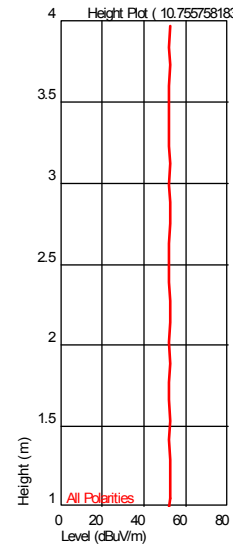
Level (dBuV/m)



All Polarities

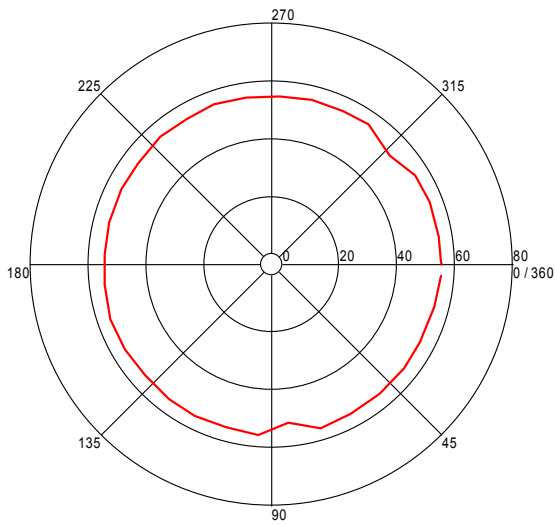
Azimuth (Degrees)

Height Plot (10.755758183 GHz)



Turntable Plot (12.187354709 GHz)

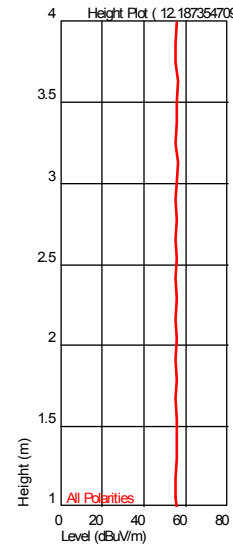
Level (dBuV/m)



All Polarities

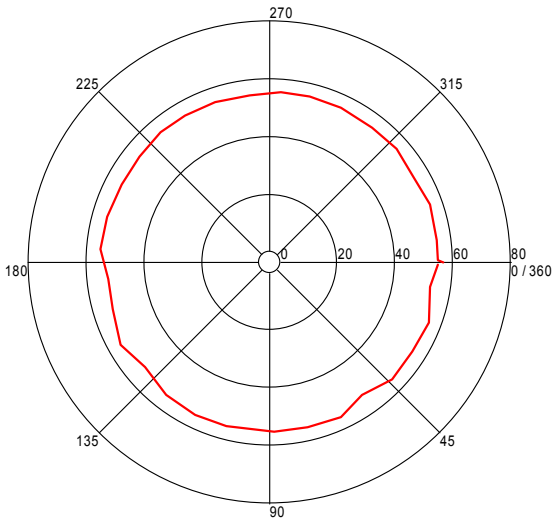
Azimuth (Degrees)

Height Plot (12.187354709 GHz)



Turntable Plot (12.77503006 GHz)

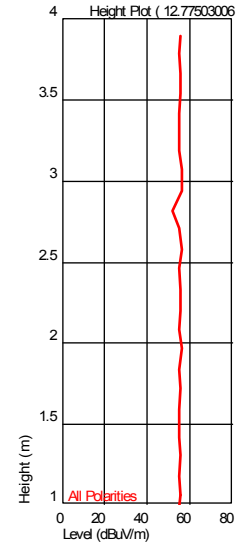
Level (dBuV/m)



All Polarities

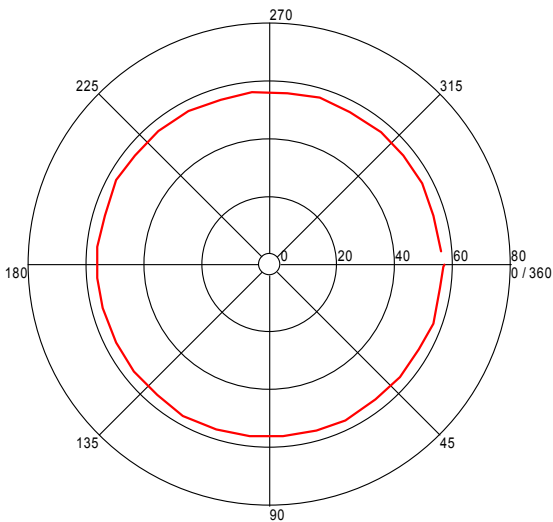
Azimuth (Degrees)

Height Plot (12.77503006 GHz)



Turntable Plot (16.164235137 GHz)

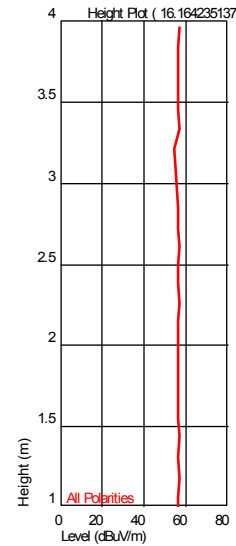
Level (dBuV/m)



All Polarities

Azimuth (Degrees)

Height Plot (16.164235137 GHz)



Test Personnel: Naga Suryadevara N5
 Supervising/Reviewing Engineer: Vathana Ven
 (Where Applicable) N/A
 Product Standard: FCC Part15 Subpart B
 Input Voltage: 120 VAC 60 Hz
 Pretest Verification w/ Ambient Signals or BB Source: Yes

Test Date: 06/03/2016
06/07/2016

Limit Applied: Class A
 Ambient Temperature: 23, 21 °C
 Relative Humidity: 44, 51%
 Atmospheric Pressure: 1005, 992 mbars

Deviations, Additions, or Exclusions: None

12 AC Mains Conducted Emissions

12.1 Method

Tests are performed in accordance with Configuration as required CFR Part 15 Subpart B (2/2016), ICES-003 Issue 5 August 2012, ANSI C 63.4:2014, and RSS-Gen Issue 4 November 2014.

TEST SITE: EMC Lab

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

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)	U _{CISPR}
AC Line Conducted Emissions	150 kHz - 30 MHz	2.8dB	3.4dB
Telco Port Emissions	150 kHz - 30 MHz	3.2dB	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 dB μ V

RF = Reading from receiver in dB μ V

LF = LISN or ISN Correction Factor in dB

CF = Cable Correction Factor in dB

AF = Attenuator Loss Factor in dB

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

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

NF = Net Reading in dB μ V

Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V} / 20)} = 285.1 \mu\text{V/m}$$

Alternately, when C5 Software is used, the "Level" includes all losses and gains and is compared directly in the "Margin" column to the "Limit". "TF" is the Transducer Factor; in this case LISN or ISN loss.

12.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
DAV001'	Weather Station	Davis Instruments	7400	PE80519A61	10/23/2015	10/23/2016
ROS002'	9kHz to 3GHz EMI Test Receiver	Rohde & Schwartz	ESCI 1166.5950K0 3	100067	07/23/2015	07/23/2016
MET1'	Digital Multimeter	Meterman	15XP	050407785	05/09/2016	05/09/2017
LISN31'	LISN - CISPR16 Compliant 9kHz-30MHz	Com-Power	LI-215A	191957	03/14/2016	03/14/2017
LISN33'	LISN - CISPR16 Compliant 9kHz-30MHz	Com-Power	LI-215A	191953	03/14/2016	03/14/2017
DS23A'	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS23A	10/15/2015	10/15/2016
CBLBNC 2012-3'	50 Ohm Coaxial Cable	Pomona	RG58C/U	CBLBNC2012 -3	02/26/2016	02/26/2017
DS23A'	Attenuator, 20dB	Mini Circuits	20dB, 50 ohm	DS23A	10/15/2015	10/15/2016

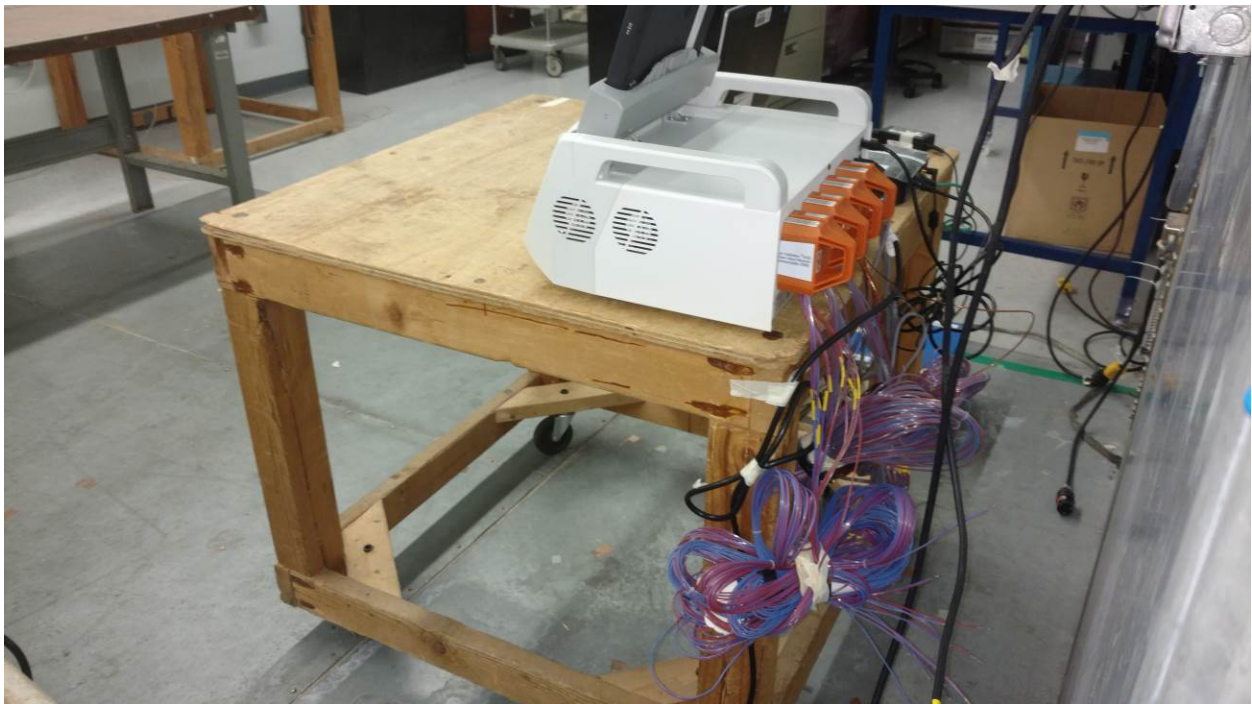
Software Utilized:

Name	Manufacturer	Version
Compliance5	Teseq	5.26.46.46

12.3 Results:

The sample tested was found to Comply.

12.4 Setup Photographs:



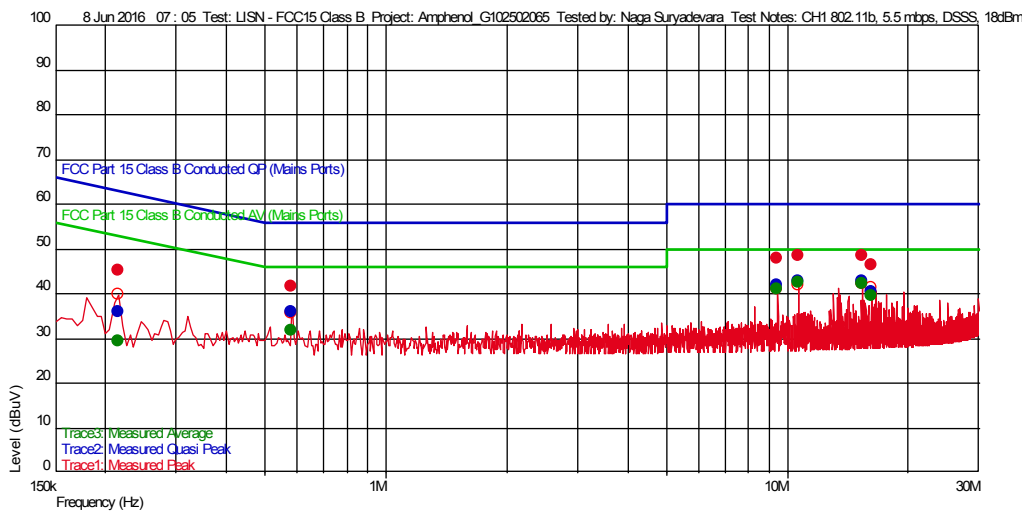
12.5 Plots/Data:

Operating @ 120 VAC 60 Hz – Tx Mode

Test Information

Test Details	User Entry	Additional Information
Test:	LISN - FCC15 Class B	
Project:	Amphenol_G102502065	
Test Notes:	CH1 802.11b, 5.5 mbps, DSSS, 18dBm	
Temperature:	21C	
Humidity:	47% 988mbars	
Tested by:	Naga Suryadevara	
Test Started:	8 Jun 2016 07 : 05	

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
215.1 k	36.03	0.065	20.026	63.006	-26.97	9 k		N
580.1 k	35.90	0.021	20.044	56.000	-20.10	9 k		N
16.23 M	40.40	0.045	20.513	60.000	-19.60	9 k		L1
9.47 M	42.00	0.019	20.397	60.000	-18.00	9 k		N
15.385 M	42.72	0.042	20.500	60.000	-17.28	9 k		N
10.65 M	42.80	0.023	20.427	60.000	-17.20	9 k		L1

Trace3: Measured Average

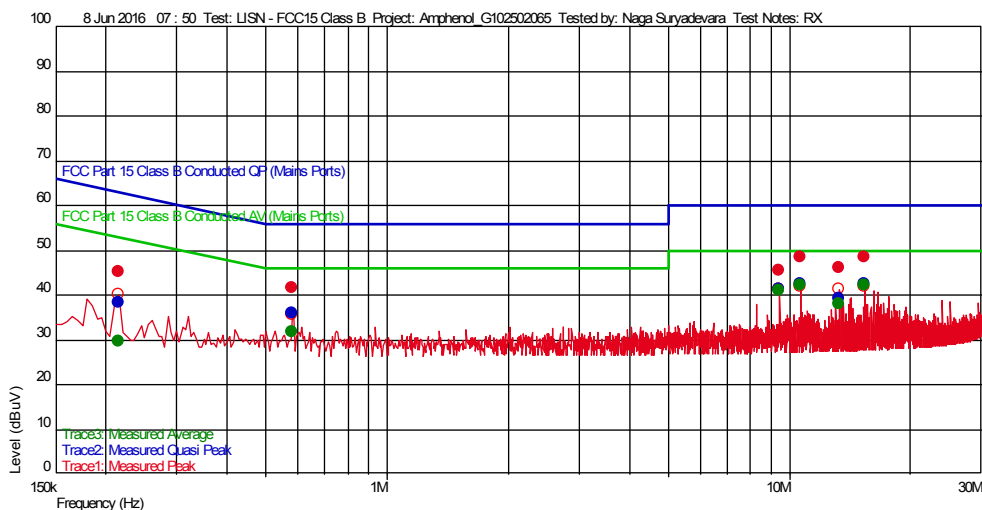
Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
215.1 k	29.54	0.065	20.026	53.006	-23.46	9 k		N
580.1 k	31.78	0.021	20.044	46.000	-14.22	9 k		N
16.23 M	39.59	0.045	20.513	50.000	-10.41	9 k		L1
9.47 M	41.03	0.019	20.397	50.000	-8.97	9 k		N
15.385 M	42.10	0.042	20.500	50.000	-7.90	9 k		N
10.65 M	42.49	0.023	20.427	50.000	-7.51	9 k		L1

Operating @ 120 VAC 60 Hz – Rx Mode

Test Information

Test Details	User Entry	Additional Information
Test:	LISN - FCC15 Class B	
Project:	Amphenol_G102502065	
Test Notes:	RX Mode	
Temperature:	21C	
Humidity:	47% 988mbars	
Tested by:	Naga Suryadevara	
Test Started:	8 Jun 2016 07 : 32	

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
215.1 k	38.28	0.065	20.026	63.006	-24.72	9 k		L1
13.355 M	39.33	0.033	20.469	60.000	-20.67	9 k		L1
580.1 k	35.90	0.021	20.044	56.000	-20.10	9 k		L1
9.465 M	41.26	0.019	20.396	60.000	-18.74	9 k		L1
10.645 M	42.56	0.023	20.427	60.000	-17.44	9 k		L1
15.38 M	42.64	0.042	20.500	60.000	-17.36	9 k		L1

Trace3: Measured Average

Frequency(Hz)	Level(dBuV)	TF	PA+CL	Limit(dBuV)	Margin(dBuV)	RBW(Hz)	Comment	LINE
215.1 k	29.71	0.065	20.026	53.006	-23.29	9 k		L1
580.1 k	31.84	0.021	20.044	46.000	-14.16	9 k		L1
13.355 M	37.92	0.033	20.469	50.000	-12.08	9 k		L1
9.465 M	41.04	0.019	20.396	50.000	-8.96	9 k		L1
15.38 M	42.09	0.042	20.500	50.000	-7.91	9 k		L1
10.645 M	42.31	0.023	20.427	50.000	-7.69	9 k		L1

Test Personnel: Naga Suryadevara N5
Supervising/Reviewing
Engineer:
(Where Applicable) N/A
Product Standard: FCC Part15 Subpart B
Input Voltage: 120 VAC 60 Hz
Pretest Verification w/
Ambient Signals or
BB Source: Yes

Test Date: 06/08/2016
Limit Applied: Class B
Ambient Temperature: 21 °C
Relative Humidity: 47 %
Atmospheric Pressure: 988 mbars

Deviations, Additions, or Exclusions: None

13 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	06/26/2016	102502065BOX-002	NS	KPS <i>KPS</i>	Original Issue