1601 North A.W. Grimes Blvd., Suite B
Round Rock, TX 78665
e-mail: info@ptitest.com
(512) 244-3371 Fax: (512) 244-1846

May 29, 2012

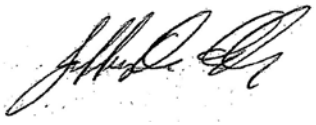
Tom Kennedy
EnergyHub, Inc.
232 3rd Street, Suite C201
Brooklyn, NY 11215

Dear Tom:

Enclosed is the Wireless Test Report for the HomeBase by EnergyHub, Inc. This report can be used to demonstrate compliance with FCC and IC requirements for wireless devices in the United States and Canada.

If you have any questions, please contact me.

Sincerely,



Jeffrey A. Lenk
President

Enclosure

Project 12145-10

EnergyHub, Inc.
HomeBase

Wireless Certification Report
Amendment 1

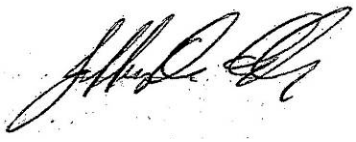
Prepared for:
EnergyHub, Inc.
232 3rd Street, Suite C201
Brooklyn, NY 11215

By

Professional Testing (EMI), Inc.
1601 N. A.W. Grimes Blvd., Suite B
Round Rock, Texas 78665

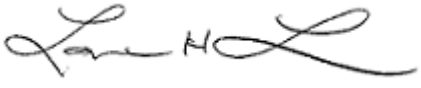
April 26, 2011
Revised April 27, 2011
Amended May 29, 2012

Reviewed by



Jeffrey A. Lenk
President

Written by



Layne Lueckemeyer
Product Development Engineer

Table of Contents

Applicant:	EnergyHub, Inc.
Applicant's Address:	232 3rd Street, Suite C201 Brooklyn, NY 11215
FCC ID:	ZANHBZZP20, ZANHBEZP20, ZANHBNZP20
IC Identifier:	9603A-HBZZP20, 9603A-HBEZP20, 9603A-HBNZP20
Project Number:	12145-10
Test Dates:	February 16, 22, 23 and March 7, 11, 14, 15 of 2011 and May 28, 29 of 2012

The **EnergyHub HomeBase** was tested to and found to be in compliance with FCC 47 CFR Part 15 and IC RSS-210 issue 8.

The highest emissions generated by the above equipment are listed below:

B Mode:

Parameter	Frequency (MHz)	Level		Limit	Margin (dB)
Transmitter: Output Power @3 m	2440	19.37 dBm	86.52 mW	+30 dBm	-10.693
Transmitter: Radiated Spurious	660.05	35.4 dBµV/m @ 10 m		35.5 dBµV/m	-0.1
Occupied Bandwidth					
6 dB	**20 dB**		**26 dB**		
11.06 MHz	17.45 MHz		18.61 MHz		

G Mode:

Parameter	Frequency (MHz)	Level		Limit	Margin (dB)
Transmitter: Output Power @ 3 m	2412	18.37 dBm	68.73 mW	+30 dBm	-11.63
Transmitter: Radiated Spurious	77.34	29.3 dBµV/m @ 10 m		29.5 dBµV/m	-0.2
Occupied Bandwidth					
6 dB	**20 dB**		**26 dB**		
16.67 MHz	20.06 MHz		25.192 MHz		

N Mode:

Parameter	Frequency (MHz)	Level		Limit	Margin (dB)
Transmitter: Output Power @ 3 m	2440	17.44 dBm	55.86 mW	+30 dBm	-12.56
Transmitter: Radiated Spurious	104.63	31.6 dBµV/m @ 10 m		33.0 dBµV/m	-1.4
Occupied Bandwidth					
6 dB	**20 dB**			**26 dB**	
17.84 MHz	21.11 MHz			25.24 MHz	

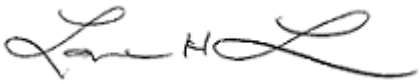
HAN Zigbee Radio:

Parameter	Frequency (MHz)	Level		Limit	Margin (dB)
Transmitter: Output Power @3 m	2405	14.87 dBm	30.7 mW	+30 dBm	-15.13
Transmitter: Radiated Spurious	4950	62.9 dBµV/m @ 1 m		63.5 dBµV/m	-0.6
Occupied Bandwidth					
6 dB	**20 dB**			**26 dB**	
1.62 MHz	2.82 MHz			4.74 MHz	

Meter Zigbee Radio:

Parameter	Frequency (MHz)	Level		Limit	Margin (dB)
Transmitter: Output Power @ 3 m	2405	16.37 dBm	43.36mW	+30 dBm	-13.63
Transmitter: Radiated Spurious	4810	61.4 dBµV/m @ 1 m		63.5 dBµV/m	-2.1
Occupied Bandwidth					
6 dB	**20 dB**			**26 dB**	
1.81 MHz	2.69 MHz			4.47 MHz	

I, Layne Lueckemeyer, for Professional Testing (EMI), Inc., being familiar with the FCC rules and test procedures have reviewed the test setup, measured data, and this report. I believe them to be true and accurate.



Layne Lueckemeyer
Product Development Engineer

This report has been reviewed and accepted by EnergyHub, Inc. The undersigned is responsible for ensuring that this device will continue to comply with the FCC and IC rules.

_____

Representative of EnergyHub, Inc.

1.0 Introduction

1.1 Scope

This report describes the extent of the equipment under test (EUT) conformance to the intentional radiator requirements of the United States and Canada.

Professional Testing (EMI), Inc. (PTI), follows the guidelines of NIST for all uncertainty calculations, estimates, and expressions thereof for EMC testing. The procedure of ANSI C63.4: 2009 were utilized for making all emissions measurements.

1.2 EUT Description

The EnergyHub Home Base is a small embedded touchscreen computer. The Home Base is designed to collect energy usage information from a Zigbee networked devices and to analyze and present the collected data to a user. The Home Base can also collect whole home data from the user's utility meter. The HomeBase will be manufactured in the following 3 configurations: Dashboard with 2 Zigbee radios and Wifi (FCC ID ZANHBZZP20), Dashboard with 1 Zigbee radio and Wifi (FCC ID ZANHBEZP20), and Dashboard with 1 Zigbee (FCC ID ZANHBNZP20) The EUT was tested while in a continuous transmit mode. The EUT was tuned to a low, middle, and high channel to perform power, occupied bandwidth, and harmonic tests. The EUT was tuned to a middle channel to perform spurious tests. The EUT continuously transmitted at maximum power. The system tested consisted of the following:

Manufacturer	Model	FCC ID Number	IC Identifier
EnergyHub, Inc.	HomeBase	ZANHBZZP20, ZANHBEZP20, ZANHBNZP20	9603A-HBZZP20, 9603A-HBEZP20, 9603A-HBNZP20

The following rules apply to the operation of the EUT:

Guidelines	FCC Rules	IC Rules	
	Part 15	RSS-GEN Issue 3	RSS-210 Issue 8
Transmitter Characteristics	15.247	4.1-4.6, 7	2.2, 2.6-2.7, A2.9, A8, A9
Spurious Radiated Power	15.209	4.2, 4.7, 4.8, 6, 7	2.2, 2.6-2.7, A2.9, A8, A9
Antenna Requirement	15.203	7.1, 7.1.4	

1.3 Modifications

No modifications were made to the EUT during the performance of the test program.

1.4 Test Site

Measurements were made at the PTI semi-anechoic facility designated Site 45 (FCC 459644, IC 3036B-1) in Austin, Texas. This site is registered with the FCC under Section 2.948 and Industry Canada per RS-212, and is subsequently confirmed by laboratory accreditation (NVLAP). The test site is located at 11400 Burnet Road, Austin, Texas, 78758, while the main office is located at 1601 N. A.W. Grimes Blvd., Suite B, Round Rock, Texas, 78665.

1.5 Applicable Documents

Document	Title	Release
ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment	2009
ANSI C63.10	American National Standard for Testing Unlicensed Wireless Devices	2009
47 CFR	Part 15 – Radio Frequency Devices Subpart C -Intentional Radiators	
RSS-210	Low-power License-exempt Radio communication Devices (All Frequency Bands): Category I Equipment	Issue 8
RSS-Gen	General Requirements and Information for the Certification of Radio Communication Equipment	Issue 3

2.0 Power Line Conducted Emissions

2.1 Test Procedure

The EUT was configured and operated in a manner consistent with typical applications. The EUT power cord in excess of one meter was folded back and forth forming a bundle 30 to 40 cm long in the approximate center of the cable. Power supply cords for the peripheral equipment were powered from an auxiliary LISN. Excess interface cable lengths were separately bundled in a non-inductive arrangement at the approximate center of the cable with the bundle 30 to 40 centimeters in length. The conducted emissions were maximized, by varying the operating states and configuration of the EUT.

The tests were performed in an 8' x 8' RayProof modular shielded room. The EUT was placed on a non-metallic table 0.4 meters from a vertical metal reference plane and 0.8 meters from a horizontal metal reference plane. A drawing showing the test setup is given as Figure 2.1.1.

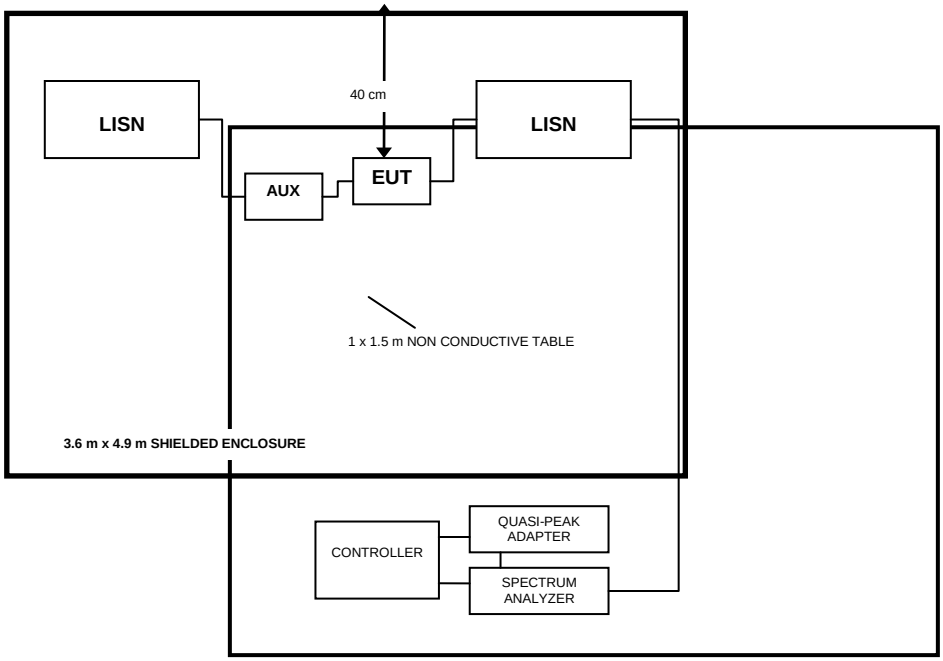


Figure 2.1.1 Conducted Emissions Test Setup

2.2 Test Criteria

The FCC Part 15 Class B conduction limits are given below.

Frequency (MHz)	Conducted Limits (dBuV)	
	Average	Quasi-Peak
0.15 – .50	66-56*	56 – 46*
.50 - 5	56	46
5 – 30	60	50

The tighter limit shall apply at the edge between two frequency bands.
*Decreases with the logarithm of the frequency.

2.3 Test Results

Power Line conducted emissions measurements were taken on February 21, 2011, and the EUT was found to be in compliance with applicable requirements. Test equipment used to perform this test is given in Tables 2.3.1.

Table 2.3.1: Conducted Emissions Test Equipment

Asset #	Manufacturer	Model #	Description	Calibration Due
1277	HP	85650A	Quasi-peak Adapter	November 11, 2011
1629	HP	85662A	Spectrum Analyzer Display	NCR
1129	HP	8568B	Spectrum Analyzer	October 5, 2011
1088	PTI	PTI-ALF4	Attenuator, Limiter, Filter	April 29, 2011
0939	Emco	3825/2	Line Impedance Stabilization Network	November 8, 2011
0081	ELGAR	1751SL	AC Power Supply	NCR
1683	TESEQ	T800	ISN	January 17, 2012
1173	PTI	100KHz HPF	High Pass Filter	January 25, 2012

Table 2.3.2 B Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting B Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.33854	42.1	35.9	59.2	-23.4	PASS	25.3	49.2	-24	PASS
0.39475	46.7	39.8	58	-18.1	PASS	28.5	48	-19.5	PASS
0.4178	44.5	36.2	57.5	-21.3	PASS	24.6	47.5	-22.8	PASS
0.50607	45.7	38.4	56	-17.6	PASS	27.1	46	-18.9	PASS
0.6248	46.6	39	56	-17	PASS	28.7	46	-17.3	PASS
1.0658	45.8	30.7	56	-25.3	PASS	15.4	46	-30.6	PASS
13.6394	37.6	34.6	60	-25.4	PASS	12.9	50	-37.1	PASS
22.7494	51.5	45.4	60	-14.6	PASS	18.6	50	-31.4	PASS
22.7531	51.5	44.8	60	-15.2	PASS	17.5	50	-32.5	PASS
29.5634	35.7	27.5	60	-32.5	PASS	19.8	50	-30.2	PASS

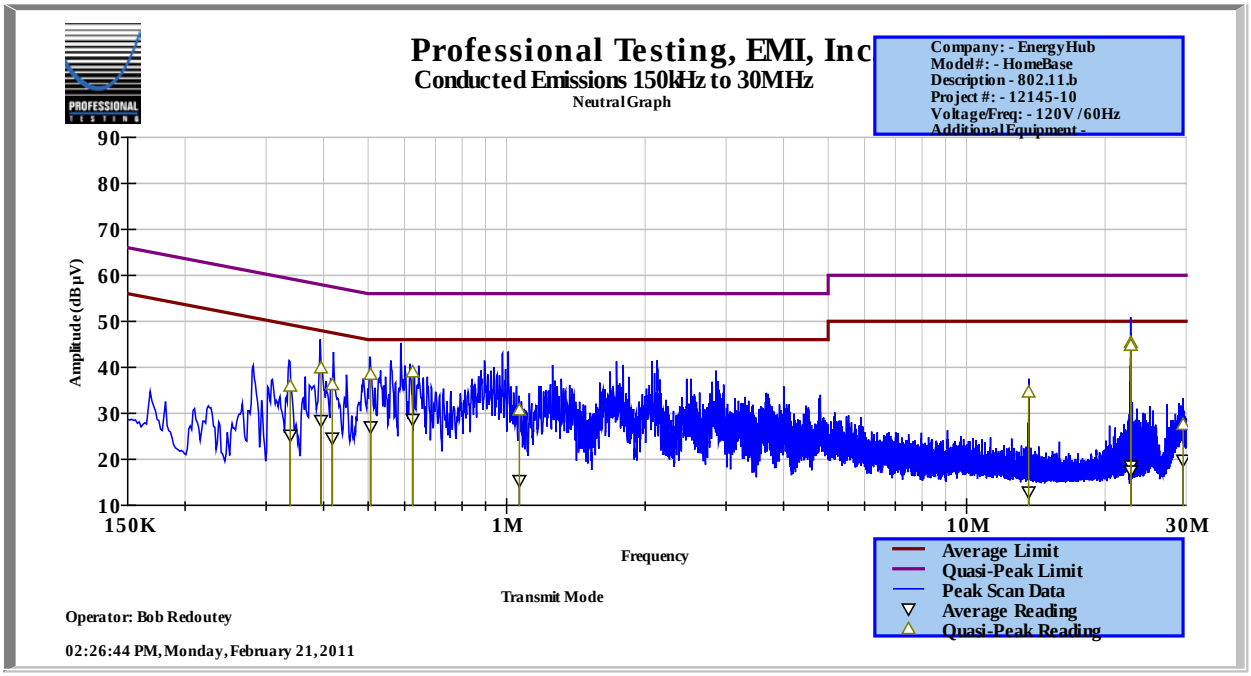


Table 2.3.3 B Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting B Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.398	48.6	44.6	57.9	-13.3	PASS	29.9	47.9	-18	PASS
0.41909	49.1	46.5	57.5	-10.9	PASS	30.3	47.5	-17.2	PASS
0.49958	47.8	45.3	56	-10.7	PASS	27.4	46	-18.6	PASS
0.501904	49	46.2	56	-9.8	PASS	27.2	46	-18.8	PASS
0.8787	49.5	45.5	56	-10.5	PASS	31.3	46	-14.7	PASS
0.8924	49.7	46.4	56	-9.6	PASS	29.2	46	-16.8	PASS
13.622	43.7	28.1	60	-31.9	PASS	12.2	50	-37.8	PASS
13.6561	44.2	38.1	60	-21.9	PASS	12.5	50	-37.5	PASS
22.7327	50.1	41.9	60	-18.1	PASS	14.4	50	-35.6	PASS
22.7528	50	41.5	60	-18.5	PASS	14.6	50	-35.4	PASS

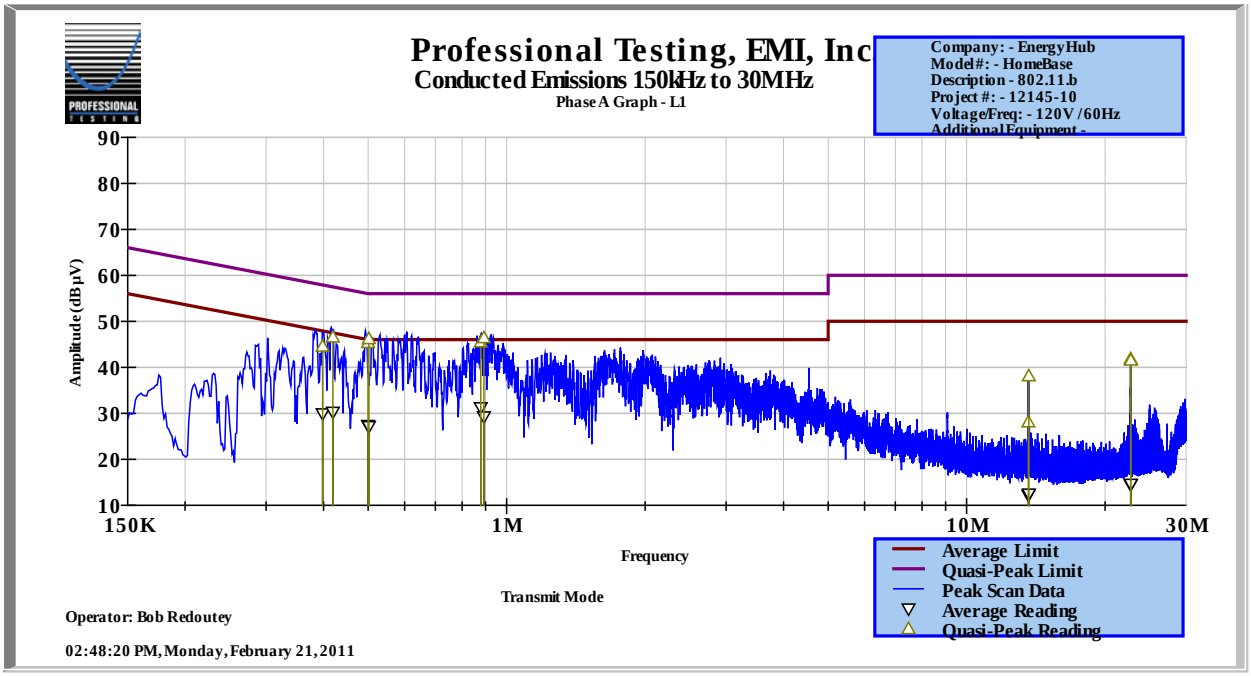


Table 2.3.4 G Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting G Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.34053	42.9	36.3	59.2	-22.9	PASS	25.7	49.2	-23.4	PASS
0.39539	46.4	40.2	57.9	-17.7	PASS	29.1	47.9	-18.9	PASS
0.39554	46.8	40.2	57.9	-17.7	PASS	29.1	47.9	-18.8	PASS
0.5662	45.9	38.6	56	-17.4	PASS	27.5	46	-18.5	PASS
0.622	46.4	39.7	56	-16.3	PASS	28.9	46	-17.1	PASS
0.9551	45.4	38.4	56	-17.6	PASS	26	46	-20	PASS
22.733	37.6	30.9	60	-29.1	PASS	21.5	50	-28.5	PASS
22.7355	36.3	30.7	60	-29.3	PASS	21.6	50	-28.4	PASS
29.3936	33.1	26.1	60	-33.9	PASS	20.6	50	-29.4	PASS
29.5414	33.5	25.5	60	-34.5	PASS	19.6	50	-30.4	PASS

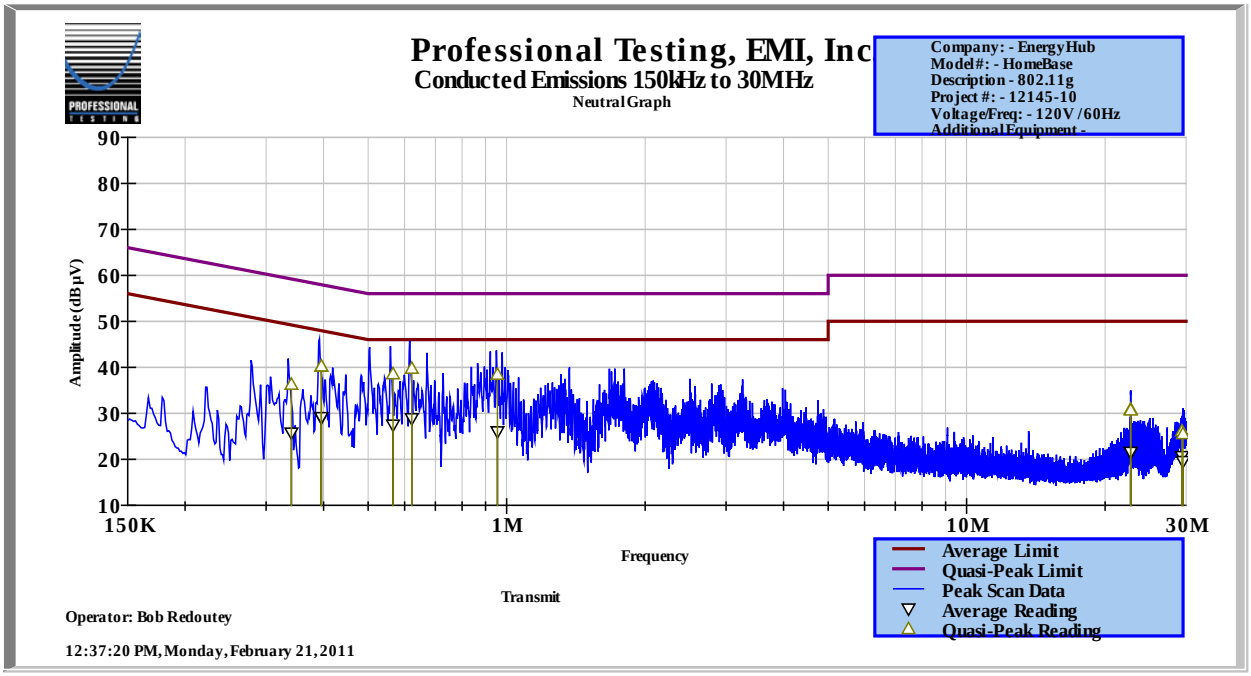


Table 2.3.5 G Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting G Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.39446	48.8	46.3	58	-11.7	PASS	30.8	48	-17.2	PASS
0.41759	49	46.4	57.5	-11.1	PASS	30.4	47.5	-17.1	PASS
0.500004	48.6	45.1	56	-10.9	PASS	26.9	46	-19.1	PASS
0.502606	48.9	45.9	56	-10.1	PASS	28.9	46	-17.1	PASS
0.8882	48.1	44.4	56	-11.6	PASS	29.3	46	-16.7	PASS
0.8918	48	44.9	56	-11.1	PASS	30.4	46	-15.6	PASS
5.1043	35.2	27.2	60	-32.8	PASS	16.9	50	-33.1	PASS
5.1483	34.9	27.4	60	-32.6	PASS	16	50	-34	PASS
5.7412	33.8	25.3	60	-34.7	PASS	16.9	50	-33.1	PASS
22.7486	36	28.8	60	-31.2	PASS	19	50	-31	PASS

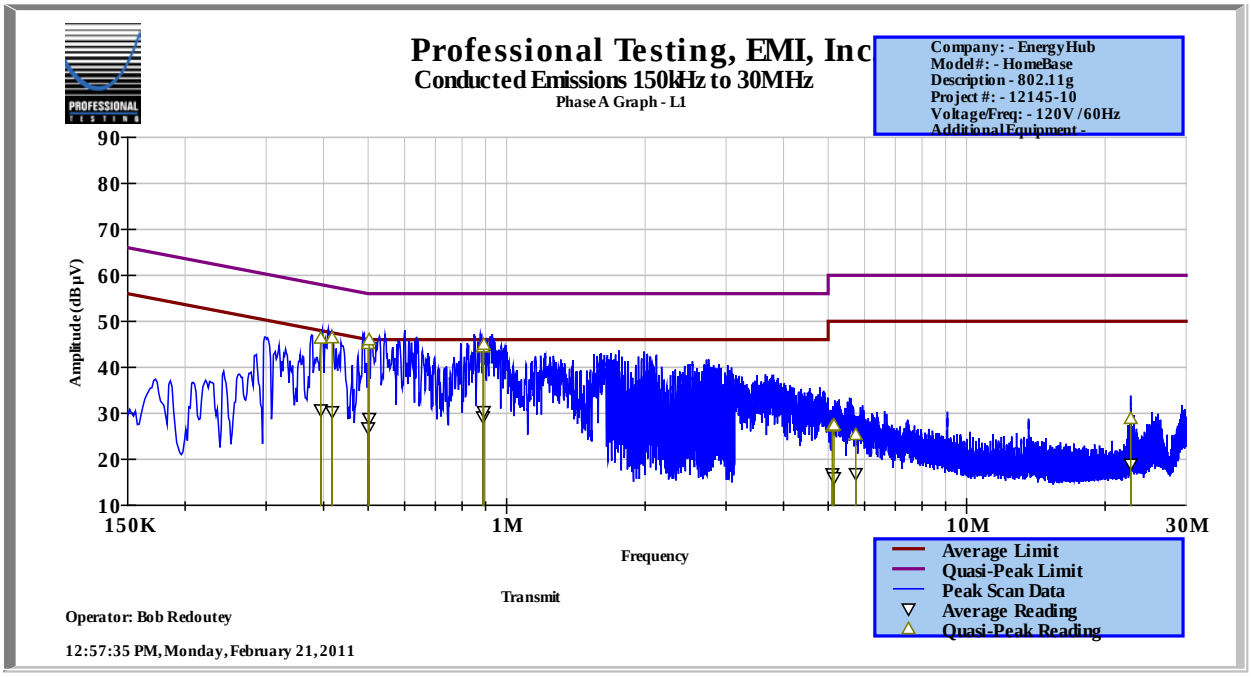


Table 2.3.6 N Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting N Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.30341	45.3	38.9	60.1	-21.3	PASS	28.1	50.1	-22.1	PASS
0.42223	45.3	39.4	57.4	-18	PASS	23.5	47.4	-23.9	PASS
0.48932	43.2	38.4	56.2	-17.8	PASS	25.2	46.2	-21	PASS
0.9387	44	37.4	56	-18.6	PASS	23.9	46	-22.1	PASS
0.948	41.6	34.6	56	-21.4	PASS	25.4	46	-20.6	PASS
1.2015	42.1	33.7	56	-22.3	PASS	13.6	46	-32.4	PASS
13.6398	39.7	34.6	60	-25.4	PASS	15.2	50	-34.8	PASS
22.7498	50.1	45.7	60	-14.3	PASS	18.9	50	-31.1	PASS
22.7524	50.8	45.6	60	-14.4	PASS	18.5	50	-31.5	PASS
29.5618	36.8	27.2	60	-32.8	PASS	19.6	50	-30.4	PASS

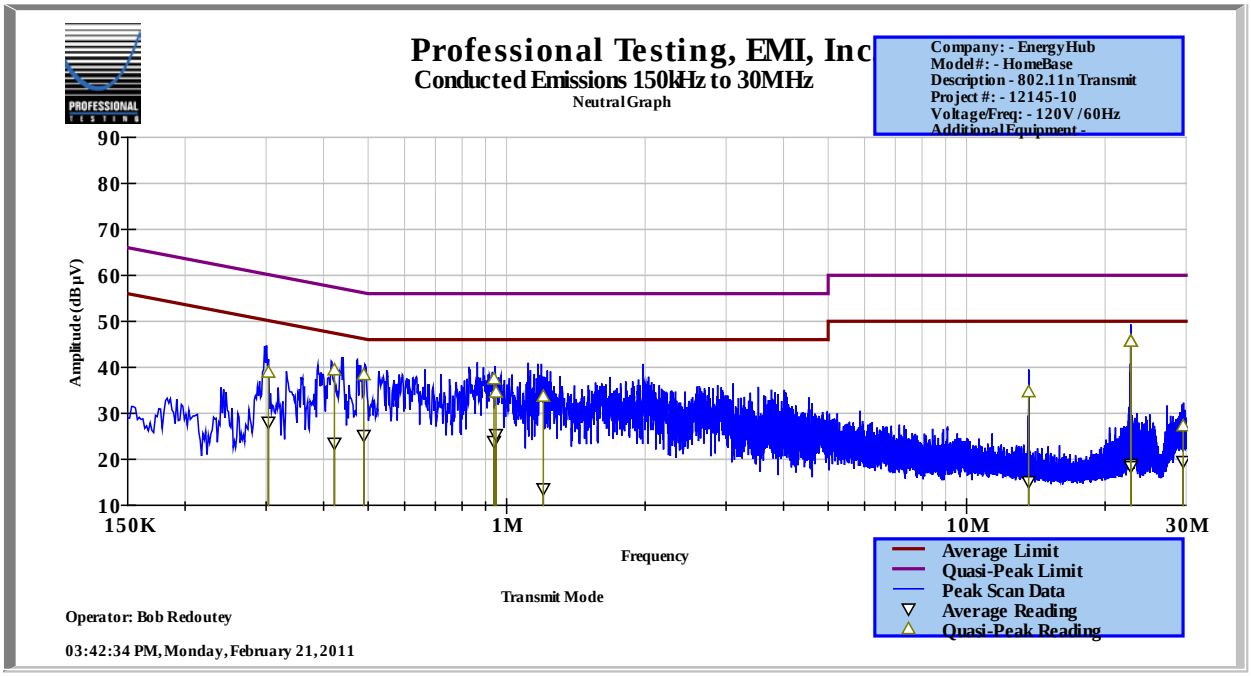


Table 2.3.7 N Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting N Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.41147	49.7	47.5	57.6	-10.1	PASS	30.6	47.6	-17	PASS
0.44147	48.8	46.1	57	-10.9	PASS	29.4	47	-17.7	PASS
0.499651	49.9	43.5	56	-12.5	PASS	24.9	46	-21.1	PASS
0.51075	51.5	49.2	56	-6.8	PASS	28.3	46	-17.7	PASS
0.8863	49.8	47.2	56	-8.8	PASS	30.6	46	-15.4	PASS
0.942	46.6	43.9	56	-12.1	PASS	31.5	46	-14.5	PASS
5.2963	35.2	28.9	60	-31.1	PASS	18.4	50	-31.6	PASS
13.6599	44.1	34.4	60	-25.6	PASS	10.9	50	-39.1	PASS
22.7513	49.8	42.3	60	-17.7	PASS	15.6	50	-34.4	PASS
22.753	50.8	41.5	60	-18.5	PASS	14.3	50	-35.7	PASS

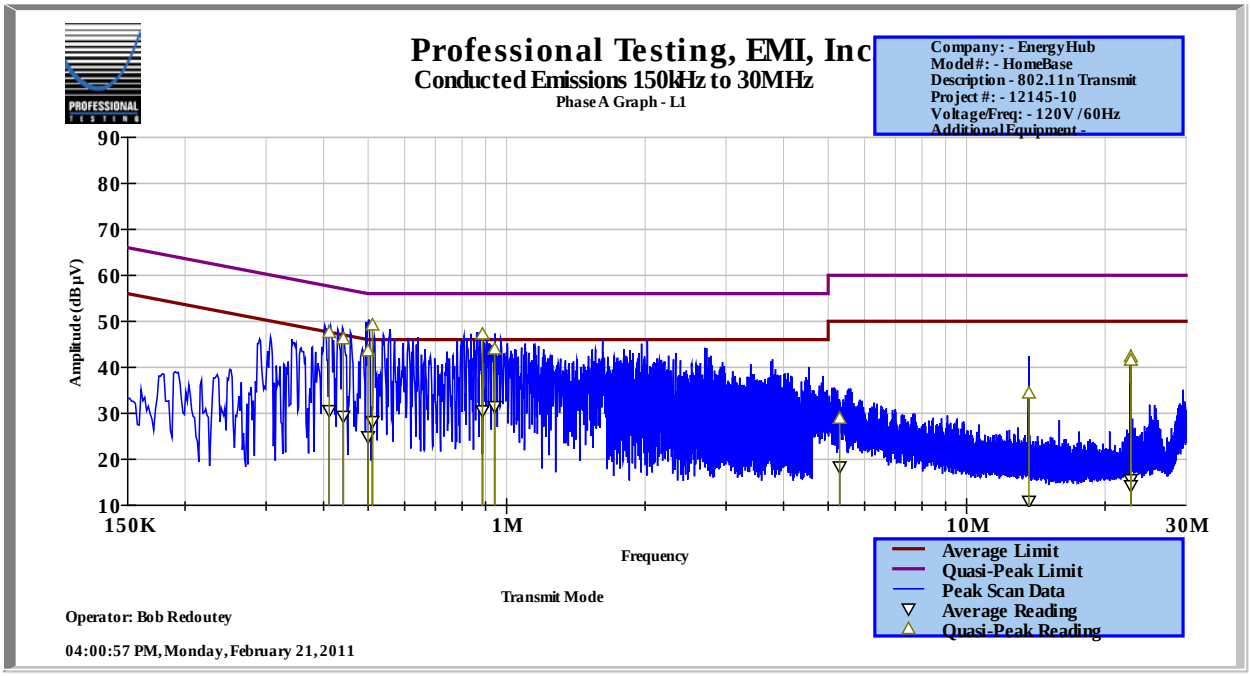


Table 2.3.8 HAN Zigbee Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting HAN Zigbee Radio					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.3242	44.5	39.7	59.6	-19.9	PASS	31.2	49.6	-18.4	PASS
0.3264	44.7	37.4	59.5	-22.1	PASS	30.4	49.5	-19.2	PASS
0.43145	46.8	40.6	57.2	-16.6	PASS	31.9	47.2	-15.3	PASS
0.532	43.3	37.6	56	-18.4	PASS	26.9	46	-19.1	PASS
0.53553	43.4	37.9	56	-18.1	PASS	28.4	46	-17.6	PASS
0.9048	43.2	37.5	56	-18.5	PASS	27.2	46	-18.8	PASS
13.655	40.9	34.6	60	-25.4	PASS	14.3	50	-35.7	PASS
22.7327	51.5	45.8	60	-14.2	PASS	20.6	50	-29.4	PASS
22.7499	51.5	45.8	60	-14.2	PASS	21.1	50	-28.9	PASS
22.7533	50.1	44.7	60	-15.3	PASS	19	50	-31	PASS

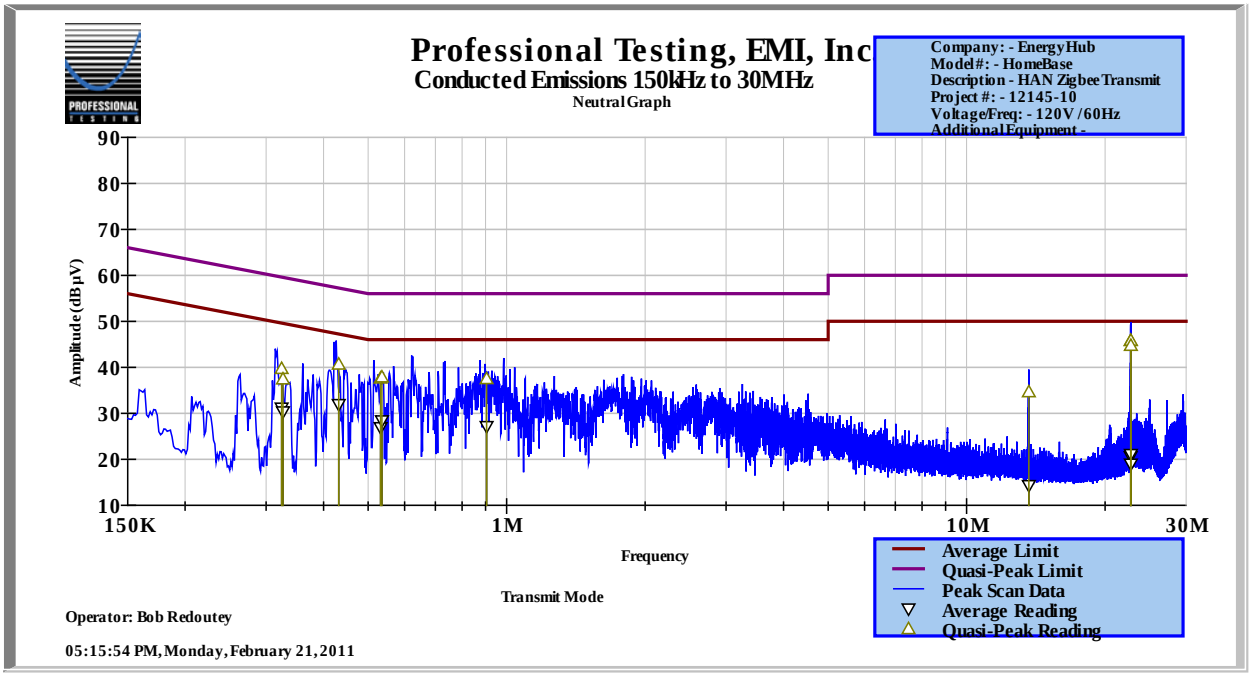


Table 2.3.9 HAN Zigbee Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting HAN Zigbee Radio					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.42269	50.5	48.5	57.4	-8.9	PASS	33.2	47.4	-14.1	PASS
0.42636	50.6	48.3	57.3	-9.1	PASS	33.1	47.3	-14.2	PASS
0.43187	50.4	47.2	57.2	-10	PASS	28.8	47.2	-18.4	PASS
0.5641	49.2	47.6	56	-8.4	PASS	31.3	46	-14.7	PASS
0.5661	49.4	46.4	56	-9.6	PASS	28.9	46	-17.1	PASS
0.9492	47.9	45.3	56	-10.7	PASS	31.9	46	-14.1	PASS
5.0722	36.4	30.8	60	-29.2	PASS	18.2	50	-31.8	PASS
13.6374	42.9	38.1	60	-21.9	PASS	13.7	50	-36.3	PASS
22.7494	51.1	41.4	60	-18.6	PASS	15.5	50	-34.5	PASS
29.5088	38	28.7	60	-31.3	PASS	18.2	50	-31.8	PASS

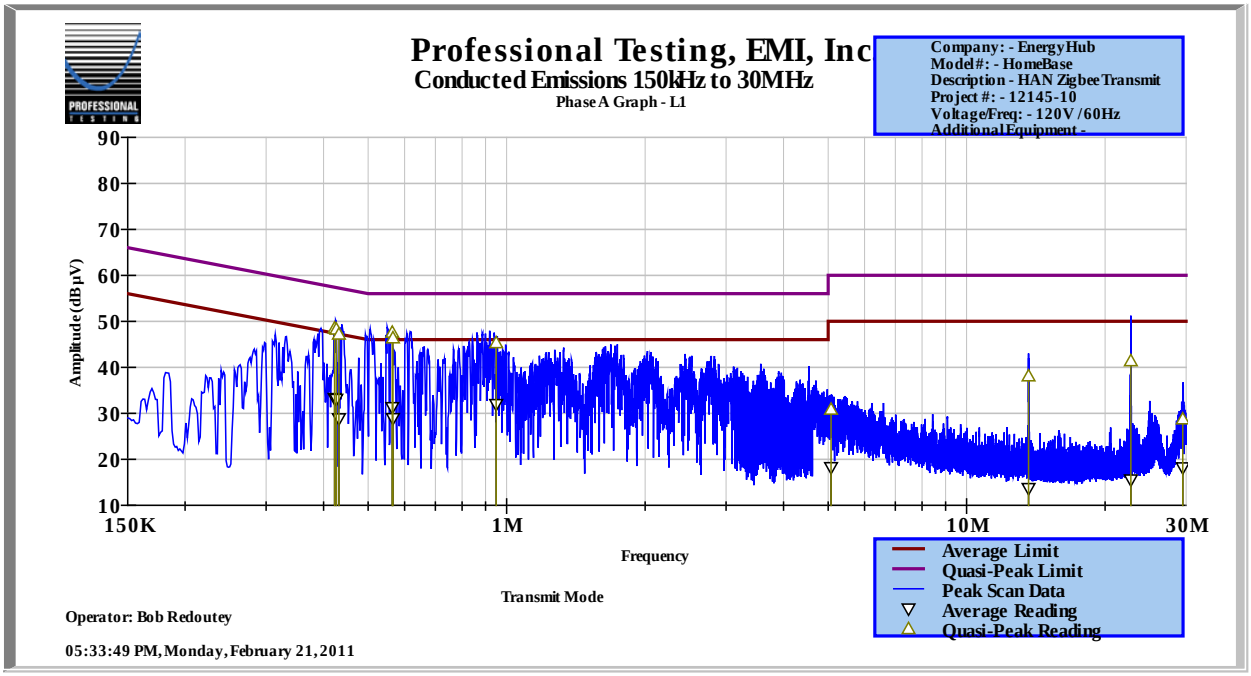


Table 2.3.10 Meter Zigbee Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting Meter Zigbee Radio					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.34781	44	38.1	59	-20.9	PASS	27.8	49	-21.2	PASS
0.40005	45.6	40.6	57.9	-17.2	PASS	31.7	47.9	-16.2	PASS
0.40332	46.6	38.4	57.8	-19.3	PASS	30.5	47.8	-17.3	PASS
0.5446	43.7	38.6	56	-17.4	PASS	28	46	-18	PASS
0.54513	44.3	38.9	56	-17.1	PASS	28.7	46	-17.3	PASS
0.9419	43.1	38.1	56	-17.9	PASS	26.2	46	-19.8	PASS
13.656	40.9	34.6	60	-25.4	PASS	12.6	50	-37.4	PASS
22.7503	49.5	45.8	60	-14.2	PASS	18.9	50	-31.1	PASS
22.754	49.1	43.6	60	-16.4	PASS	16.6	50	-33.4	PASS
29.4319	36.2	26.7	60	-33.3	PASS	19.9	50	-30.1	PASS

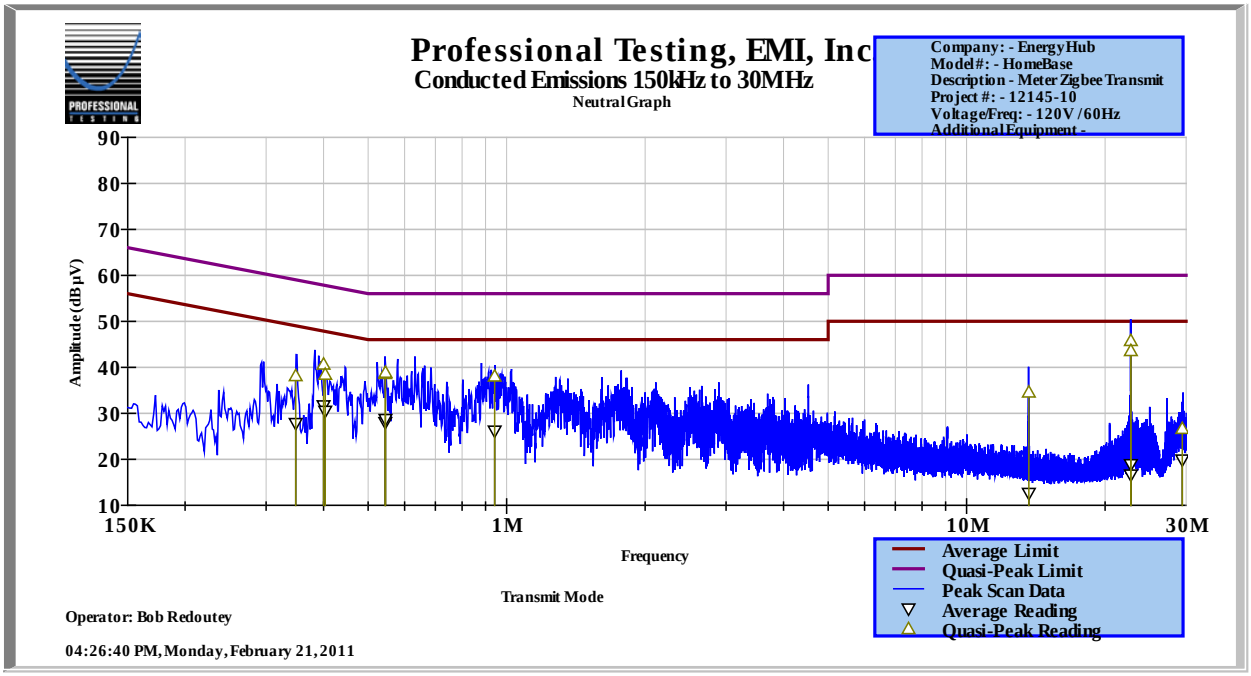


Table 2.3.11 Meter Zigbee Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Transmitting Meter Zigbee Radio					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.41376	49.4	46.3	57.6	-11.3	PASS	30.8	47.6	-16.8	PASS
0.41747	49.2	47.1	57.5	-10.4	PASS	31.7	47.5	-15.8	PASS
0.41957	49.2	47.3	57.5	-10.2	PASS	31.4	47.5	-16	PASS
0.5442	47.8	45.6	56	-10.4	PASS	30.8	46	-15.2	PASS
0.5636	48.1	43.8	56	-12.2	PASS	25.6	46	-20.4	PASS
0.9775	46.7	43.4	56	-12.6	PASS	28.4	46	-17.6	PASS
5.00179	35.3	26.5	60	-33.5	PASS	17.5	50	-32.5	PASS
13.6577	44.4	38	60	-22	PASS	13	50	-37	PASS
22.733	48.3	42	60	-18	PASS	15	50	-35	PASS
22.7662	50.9	31.2	60	-28.8	PASS	8.1	50	-41.9	PASS

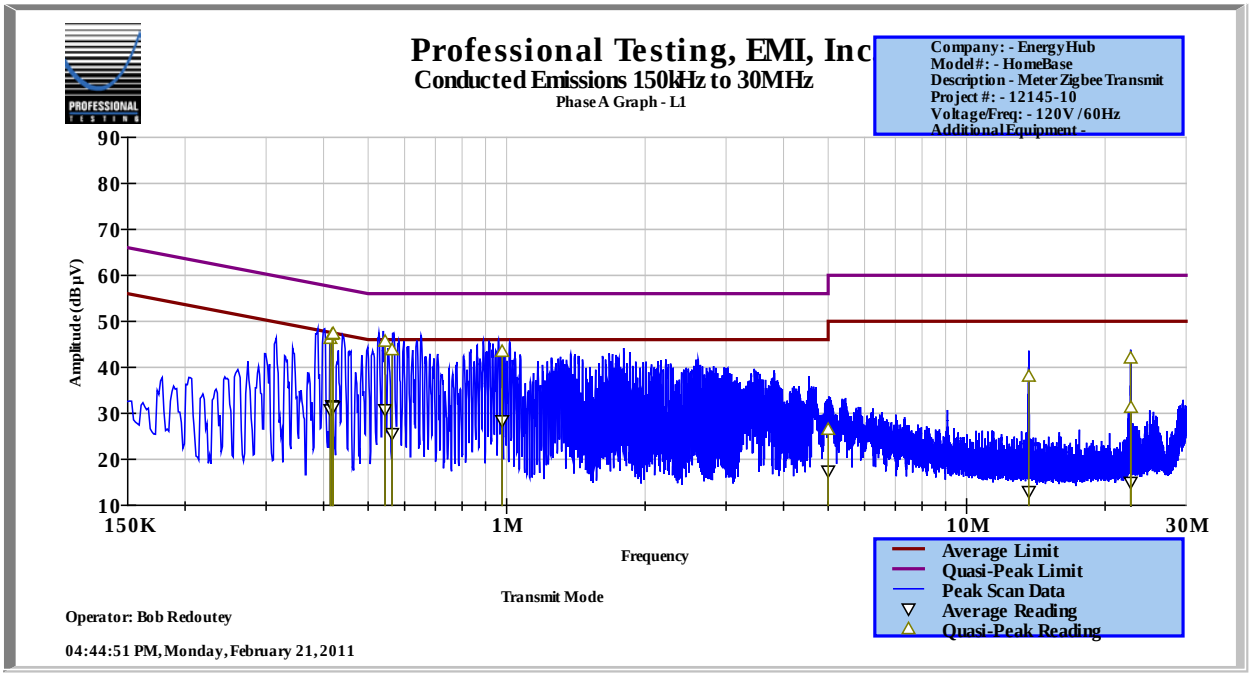


Table 2.3.12 Receive Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Neutral	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Receive Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.39782	46.2	40.2	57.9	-17.6	PASS	29.8	47.9	-18	PASS
0.39962	46.3	41	57.9	-16.9	PASS	30.4	47.9	-17.5	PASS
0.497944	40.6	33.4	56	-22.6	PASS	18.1	46	-27.9	PASS
0.568	45.9	38.2	56	-17.8	PASS	27.5	46	-18.5	PASS
0.9524	42	33.5	56	-22.5	PASS	25.5	46	-20.5	PASS
1.0102	42.8	35.4	56	-20.6	PASS	18.8	46	-27.2	PASS
22.7432	37.5	28.9	60	-31.1	PASS	16.4	50	-33.6	PASS
22.7495	37.5	29.9	60	-30.1	PASS	17.9	50	-32.1	PASS
27.2869	34.4	31.2	60	-28.8	PASS	25.3	50	-24.7	PASS
29.313	34	25.3	60	-34.7	PASS	19.3	50	-30.7	PASS

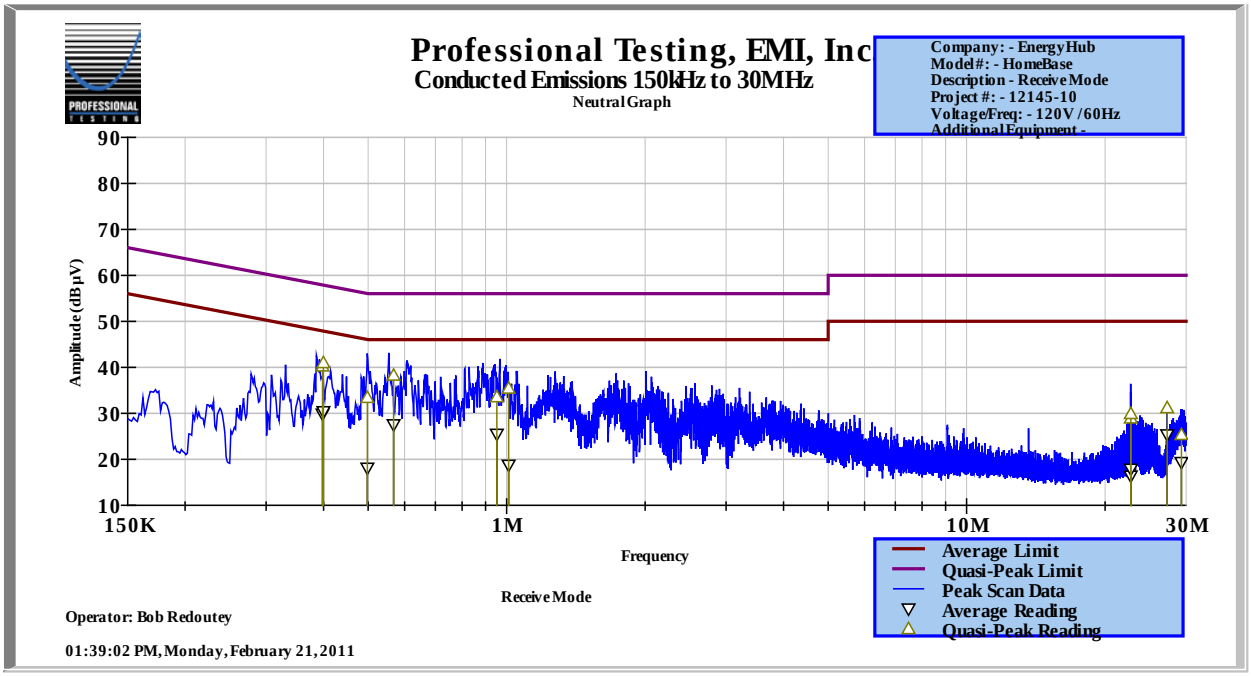
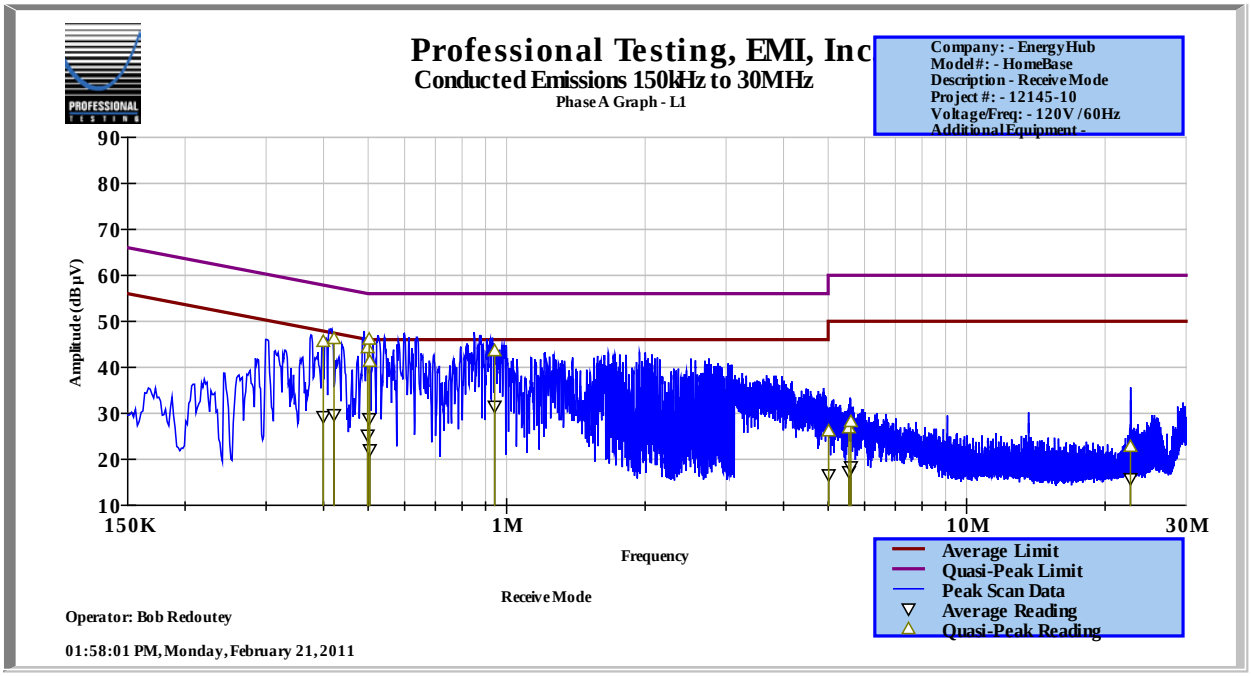


Table 2.3.13 Receive Mode Mains Conducted Emissions Test Results 150 kHz to 30 MHz

PROJECT #	DATE	CLASS	LINE	RBW	VBW	DETECTOR
12145-10	February 21, 2011	FCC B	Phase	CISPR 9 kHz	100 kHz	Quasi-Peak/Avg
COMMENT	Receive Mode					

Frequency Measured (MHz)	Peak Detector Reading (dBµV)	Quasi-peak Detector Reading (dBµV)	Quasi-peak Detector Limit (dBµV)	Quasi-peak Detector Margin (dB)	Quasi-peak Detector Test Results	Average Detector Reading (dBµV)	Average Detector Limit (dBµV)	Average Detector Margin (dB)	Average Detector Test Results
0.3995	49	45.6	57.9	-12.3	PASS	29.3	47.9	-18.5	PASS
0.42145	49.2	46.2	57.4	-11.2	PASS	29.7	47.4	-17.7	PASS
0.498644	47.7	44.2	56	-11.8	PASS	25.3	46	-20.7	PASS
0.502556	48.8	46.1	56	-9.9	PASS	28.9	46	-17.1	PASS
0.504085	48.7	41.2	56	-14.8	PASS	22.1	46	-23.9	PASS
0.9418	46.2	43.6	56	-12.4	PASS	31.6	46	-14.4	PASS
5.01195	33.1	26.1	60	-33.9	PASS	16.7	50	-33.3	PASS
5.5503	34.7	26.8	60	-33.2	PASS	17.4	50	-32.6	PASS
5.6036	34.2	28.2	60	-31.8	PASS	18.4	50	-31.6	PASS
22.712	36.7	22.8	60	-37.2	PASS	15.8	50	-34.2	PASS



3.0 Output Power

Output power measurements were made on selected fundamental transmit frequencies of the EUT for the lowest, most center, and highest transmit frequency.

Tests of the fundamental emissions of the EUT also determined the worse case polarization of the device. The emissions of the device were measured with the EUT in three orthogonal axes.

3.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a motorized turntable, which allows 360-degree rotation. For measurements of the fundamental signal, a measurement antenna was positioned at a distance of 3 meter as measured from the closest point of the EUT. Rotating the EUT maximized the emissions.

A spectrum analyzer with peak detection was used to find the maximum field strength during the variability testing. Resolution bandwidth (RBW) is chosen to encompass the entire 6 dB bandwidth of the fundamental signal, up to 3 times the bandwidth if possible. RBW used is recorded. A calculation was then made to determine the output power at the antenna terminal. A diagram showing the test setup is given as Figure 3.1.1.

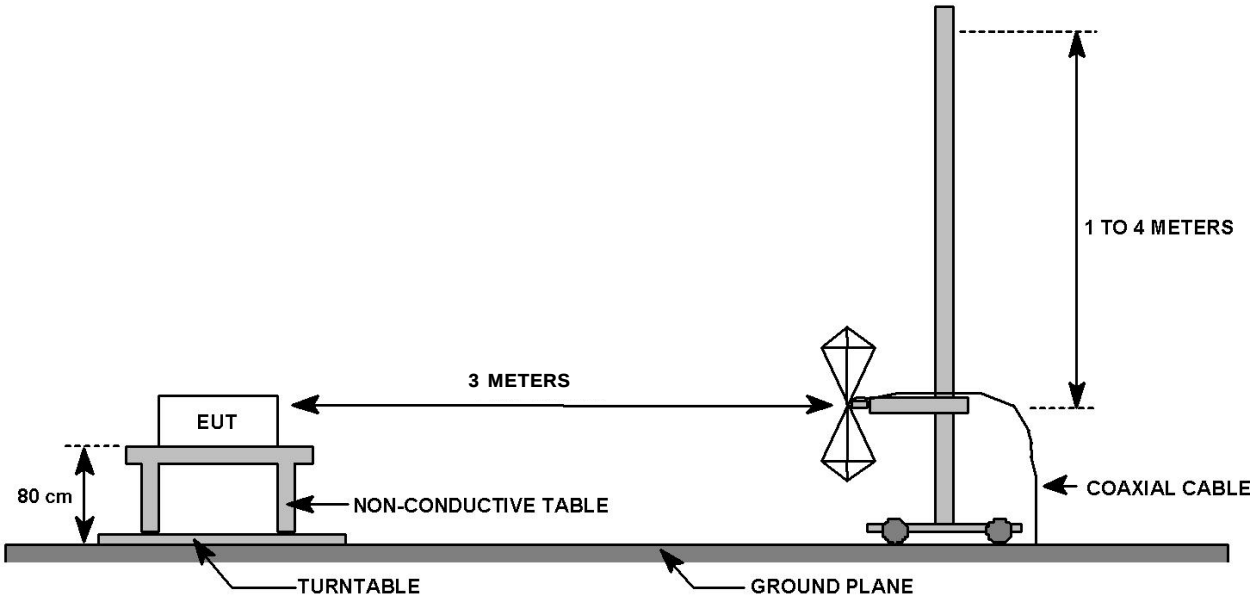


Figure 3.1.1: Radiated Emission Test Setup

3.2 Test Criteria and Methodology

The maximum output power is 1 W for devices operating in the frequency range 2400 -2483.5 MHz according to FCC 15.247 and RSS-210.

The calculation for deriving output power is as follows:

Calculations:

$$P = \frac{(E * d)^2}{30 * G}$$

P=Power in watts, E=measured maximum field strength in V/m, d=distance in meters, G=numeric gain of transmitting antenna

Distance=3 meters
Gain=0 dBi

A bandwidth correction factor of 10 log (EBW/1 MHz) is added to the spectral peak of the emission for computing power. The bandwidth correction factor calculation for each mode of operation is presented below each data set.

3.3 Test Results

Radiated emission measurements of the output power for the EUT were found to be in compliance with applicable requirements.

Table 3.3.1: Radiated Emissions Test Equipment

Asset #	Manufacturer	Model #	Description	Calibration Due
Rental	Rhode & Schwartz	FSP	Spectrum Analyzer, 9kHz – 30 GHz	December 22, 2012
0077	EMCO	3115	Antenna, Horn, DRG, 1-18GHz	November 16, 2012
1974	Agilent	83017A	Amplifier, Microwave 0.5-26.5 GHz	September 21, 2012
C147	Beldon	None	Cable, RF, N-SMA, 16",	September 26, 2012
C148	Beldon	none	Cable, RF, SMA-SMA, 10',	September 26, 2012

Table 3.3.3: Output Power Test Results B Mode

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 28, 2012	15.247	3m	Horn	1 MHz	3 MHz	Peak
COMMENT	**Transmitting B Mode**						

B Mode Raw Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	124	1	106.91	33.5	28.1	2.8	104.3
2.440	125	1	107.1	33.4	28.0	2.8	104.5
2.462	125	1	105.6	33.4	28.0	2.8	103.0

Calculated Result B Mode

Frequency (GHz)	Field Strength (dBµV)	Corrected Field Strength (dBµV)	E.I.R.P.		Limit (dBm)
			dBm	mW	
2.412	104.3	114.4	19.17	82.63	30
2.440	104.5	114.6	19.37	86.52	30
2.462	103.0	113.1	17.87	61.25	30

Corrected Field Strength = Field Strength + Transmit Power Factor

Transmit Power Factor: 10 log (11.06 MHz / 1 MHz) = 10.44
10.44 was added to the measured value to compute real power in mW.

Table 3.3.4: Output Power Test Results G Mode

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 28, 2012	15.247	3m	Horn	1 MHz	3 MHz	Peak
COMMENT	**Transmitting G Mode**						

G Mode Raw Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	120	1	104.3	33.8	28.1	2.8	101.4
2.440	120	1	103.28	33.7	28.0	2.8	100.4
2.462	130	1	101.92	33.7	28.0	2.8	99.0

Calculated Result G Mode

Frequency (GHz)	Field Strength (dBµV)	Corrected Field Strength (dBµV)	E.I.R.P.		Limit (dBm)
			dBm	mW	
2.412	101.4	113.6	18.37	68.73	30
2.440	100.4	112.6	17.37	54.59	30
2.462	99.0	111.2	15.97	39.55	30

Corrected Field Strength = Field Strength + Transmit Power Factor

Transmit Power Factor: 10 log (16.67 MHz / 1 MHz) = 12.22
12.22 was added to the measured value to compute real power in mW

Table 3.3.5: Output Power Test Results N Mode

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 28, 2012	15.247	3m	Horn	1 MHz	3 MHz	Peak
COMMENT	Transmitting N Mode						

N Mode Raw Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	122	1	102.07	33.8	28.1	2.8	99.2
2.442	130	1	103.07	33.7	28.0	2.8	100.2
2.462	120	1	99.79	33.7	28.0	2.8	96.9

Calculated Result N Mode

Frequency (GHz)	Field Strength (dBµV)	Corrected Field Strength (dBµV)	E.I.R.P.		Limit (dBm)
			dBm	mW	
2.412	99.2	111.7	16.47	44.37	30
2.440	100.2	112.7	17.47	55.86	30
2.462	96.9	109.4	14.17	26.13	30

Corrected Field Strength = Field Strength + Transmit Power Factor

Transmit Power: 10 log (17.84 MHz / 1 MHz) = 12.51
12.51 was added to the measured value to compute real power in mW

Table 3.3.6: Output Power Test Results HAN Zigbee Radio

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	1 MHz	3 MHz	Peak
COMMENT	Transmitting HAN Zigbee Radio						

HAN Zigbee Radio Raw Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.405	70	1	110.93	33.8	28.1	2.8	108.0
2.445	280	1	105.32	33.7	28.0	2.8	102.4
2.475	152	1	106.49	33.7	28.0	2.8	103.6

Calculated Result HAN Zigbee Radio

Frequency (GHz)	Field Strength (dBµV)	Corrected Field Strength (dBµV)	E.I.R.P.		Limit (dBm)
			dBm	mW	
2.405	108.0	110.1	14.87	30.70	30
2.445	102.4	104.5	9.27	8.46	30
2.475	103.6	105.7	10.47	11.15	30

Corrected Field Strength = Field Strength + Transmit Power Factor

Transmit Power: 10 log (1.62 MHz / 1 MHz) = 2.10
2.10 was added to the measured value to compute real power in mW

Table 3.3.7: Output Power Test Results Meter Zigbee Radio

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	1 MHz	3 MHz	Peak
COMMENT	Transmitting Meter Zigbee Radio						

Meter Zigbee Radio Raw Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.405	341	1	111.89	33.8	28.1	2.8	109.0
2.435	100	1	108.52	33.7	28.0	2.8	105.6
2.480	330	1	110.09	33.7	28.0	2.8	107.2

Calculated Result Meter Zigbee Radio

Frequency (GHz)	Field Strength (dBµV)	Corrected Field Strength (dBµV)	E.I.R.P.		Limit (dBm)
			dBm	mW	
2.405	109.0	111.6	16.37	43.36	30
2.435	105.6	108.2	12.97	19.82	30
2.480	107.2	109.8	14.57	28.65	30

Corrected Field Strength = Field Strength + Transmit Power Factor

Transmit Power: 10 log (1.81 MHz / 1 MHz) = 2.58
2.58 was added to the measured value to compute real power in mW

4.0 Occupied Bandwidth

Occupied bandwidth measurements were performed on the EUT to determine compliance with FCC 15.247 and RSS-210.

4.1 Test Procedure

The occupied bandwidth was measured with a spectrum analyzer connected to a double-ridged guide horn while the EUT was operating in continuous transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency. Display line and marker delta functions were used to measure the occupied bandwidth of the EUT. However, the 20 or 26 dB bandwidth is referenced to a peak power measurement taken at the entire bandwidth or more for RBW, then using 1% RBW for the 20 or 26 dB bandwidth. A diagram showing the test setup is given as Figure 2.1.1.

4.2 Test Criteria

The minimum 6 dB occupied bandwidth for the EUT is 500 kHz as stated in 15.247(a)(2) and RSS-210. The 20 dB bandwidth must be measured and reported for the FCC and the 26 dB bandwidth must be measured and reported for IC.

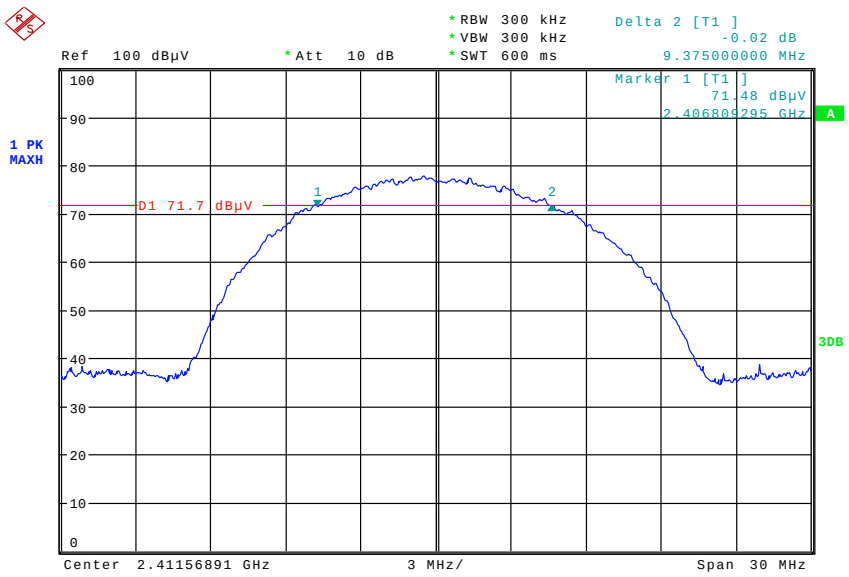
4.3 Test Results

Occupied bandwidth measurements were taken on March 11, 14 and 15, 2011, and the EUT was found to be in compliance with applicable requirements. Test equipment used to perform this test is given in Tables 2.3.1 and 2.3.2.

Table 4.3.1: Occupied Bandwidth B Mode Low Channel Test Results, Data Sheet 1

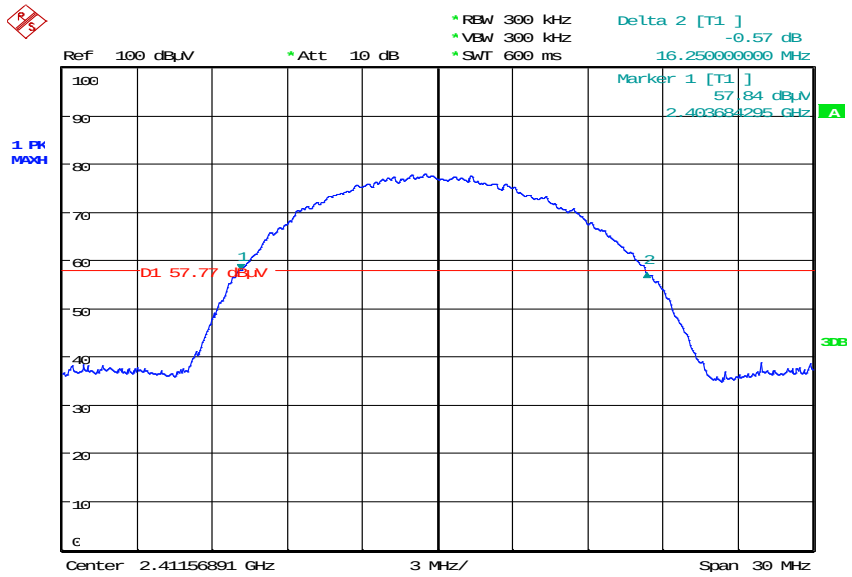
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Low Channel 6 dB Bandwidth – 9.375 MHz 20 dB Bandwidth – 16.250 MHz 26 dB Bandwidth – 18.077 MHz						

6dB



Date: 14.MAR.2011 14:51:43

20dB



Date: 14.MAR.2011 14:52:40

26dB

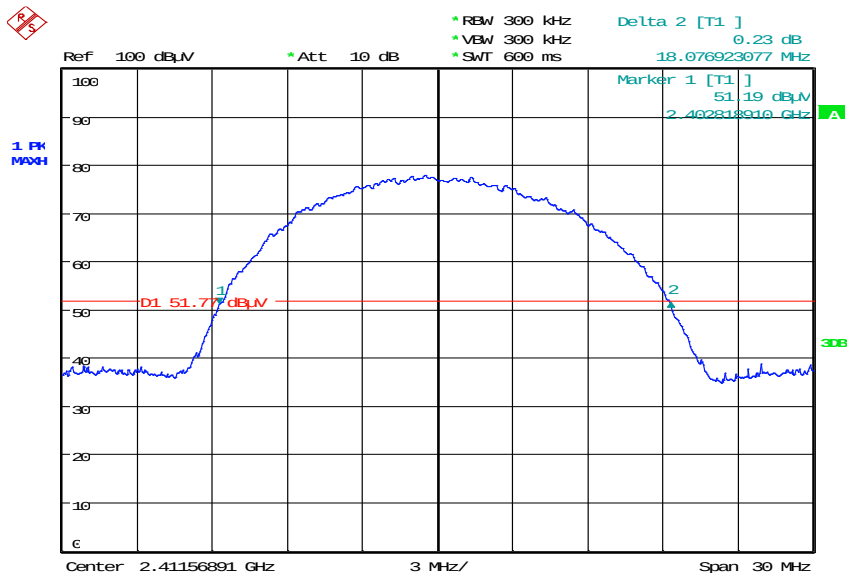


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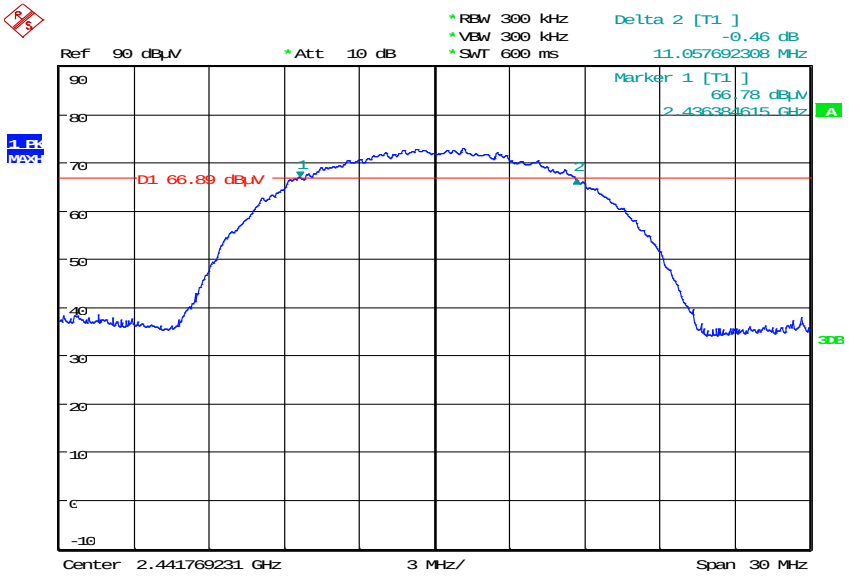
Table 4.3.2: Occupied Bandwidth B Mode Mid Channel Test Results, Data Sheet 2

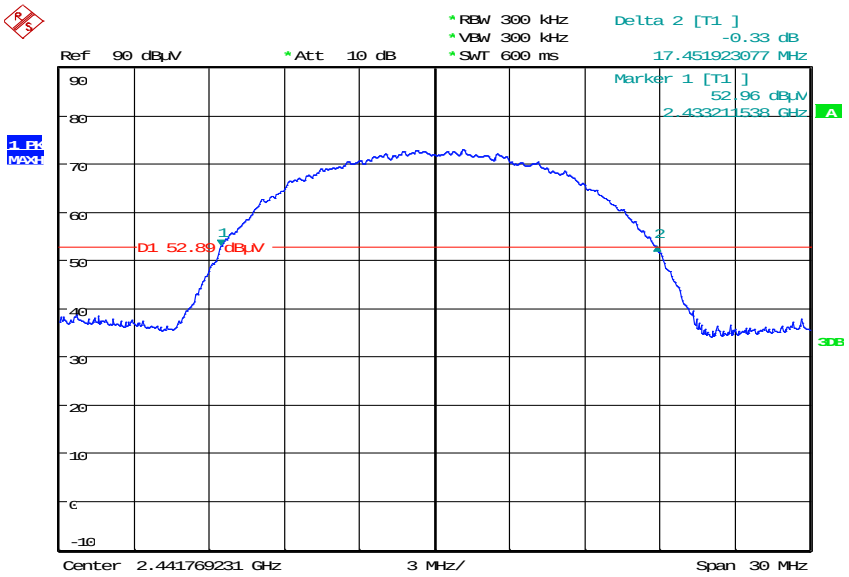
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Mid Channel 6 dB Bandwidth – 11.058 MHz 20 dB Bandwidth – 17.452 MHz 26 dB Bandwidth – 18.606 MHz						

6 dB



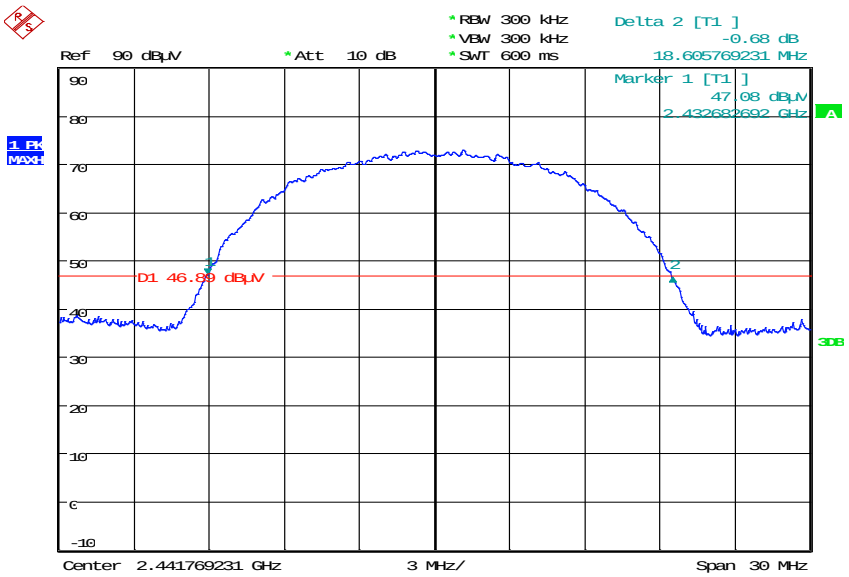
Date: 14.MAR.2011 15:35:52

20 dB



Date: 14.MAR.2011 15:36:33

26 dB

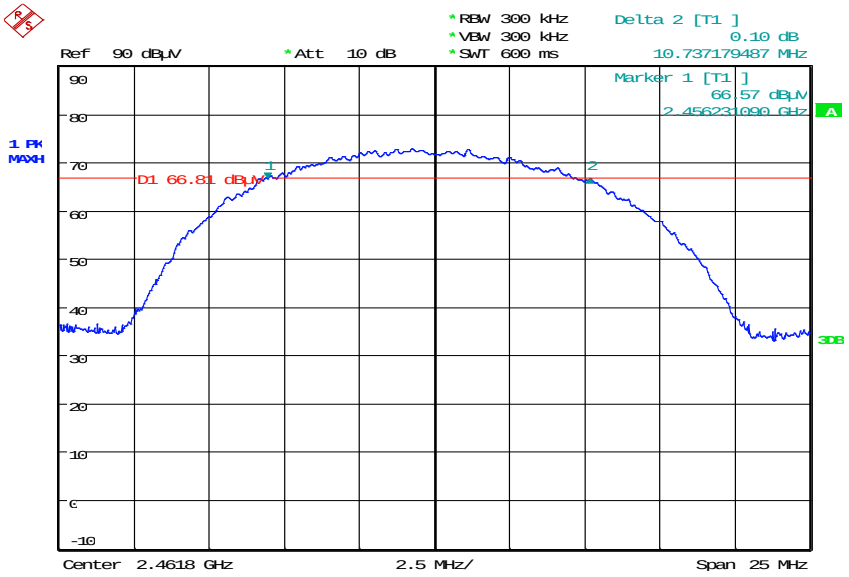


Date: 14.MAR.2011 15:37:15

Table 4.3.3: Occupied Bandwidth B Mode High Channel Test Results, Data Sheet 3

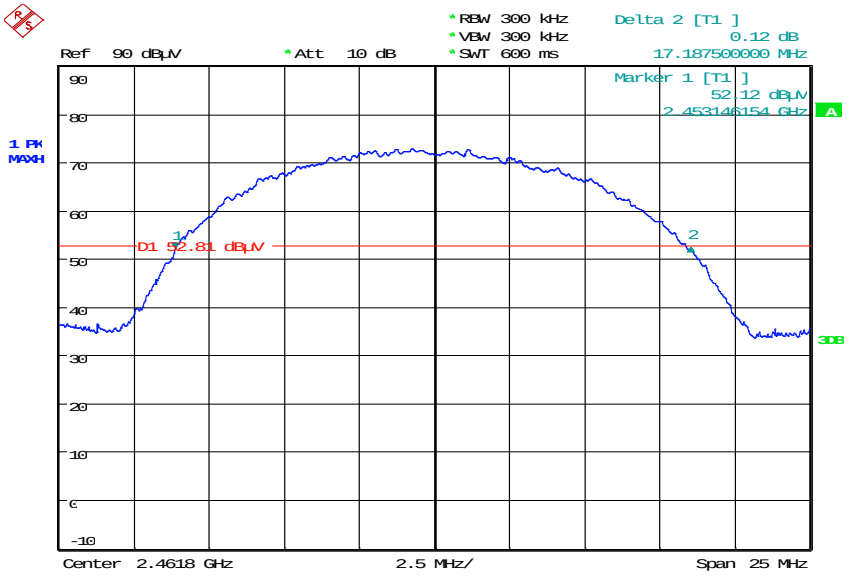
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	High Channel 6 dB Bandwidth – 10.737 MHz 20 dB Bandwidth – 17.188 MHz 26 dB Bandwidth – 18.389 MHz						

6 dB



Date: 14.MAR.2011 15:59:58

20 dB



Date: 14.MAR.2011 16:00:50

26 dB

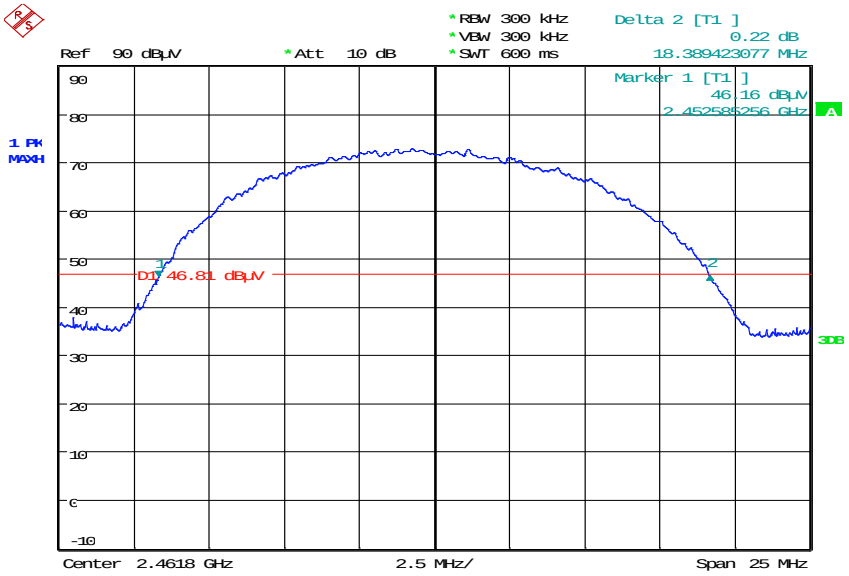
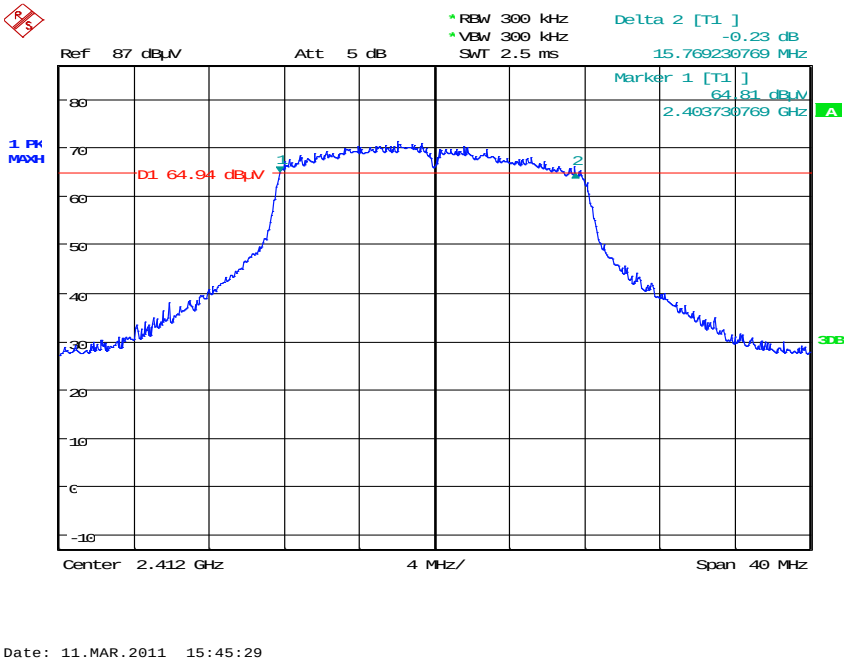

RBW 300 kHz
VBW 300 kHz
SWT 600 ms
Delta 2 [T1]
0.22 dB
18.389423077 MHz
Marker 1 [T1]
46.16 dBµV
2.452583256 GHz
Ref 90 dBµV
Att 10 dB
1 PK
MAXH
D1 46.81 dBµV
3DB
Center 2.4618 GHz
2.5 MHz/
Span 25 MHz
Date: 14.MAR.2011 16:01:42

Table 4.3.4: Occupied Bandwidth G Mode Low Channel Test Results, Data Sheet 4

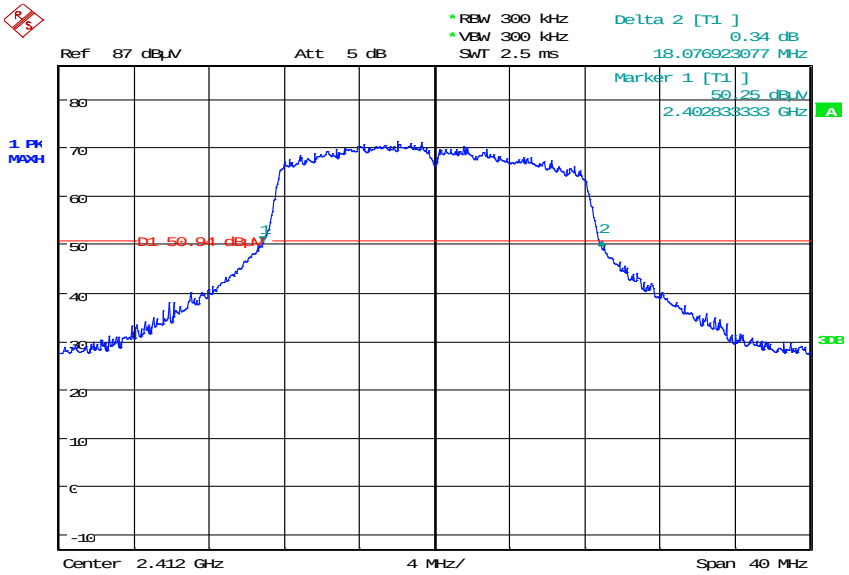
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Low Channel 6 dB Bandwidth – 15.769 MHz 20 dB Bandwidth – 18.077 MHz 26 dB Bandwidth – 21.282 MHz						

6 dB



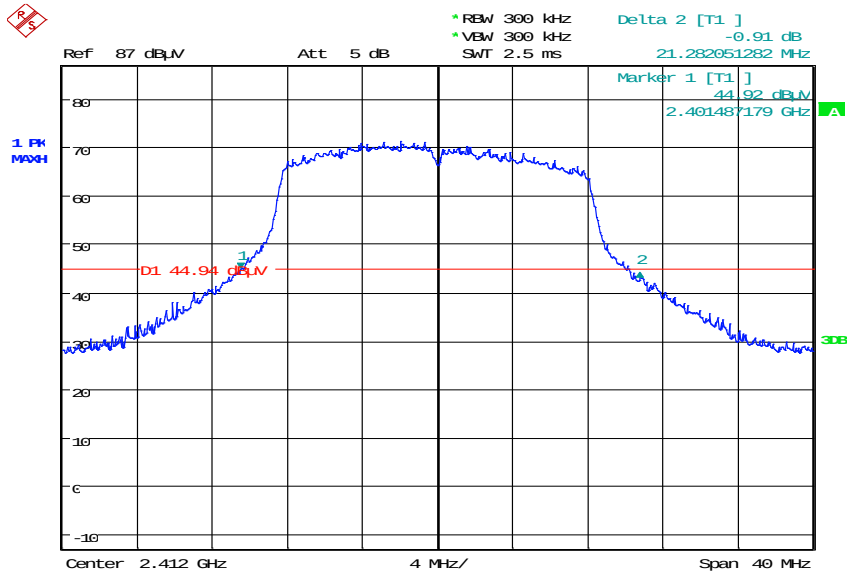
Date: 11.MAR.2011 15:45:29

20 dB



Date: 11.MAR.2011 15:46:20

26 dB

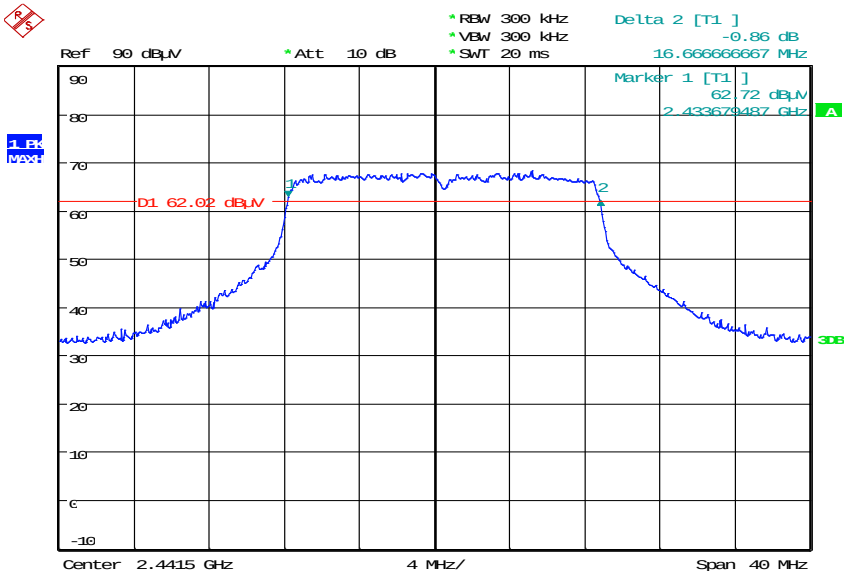


Date: 11.MAR.2011 15:47:36

Table 4.3.5: Occupied Bandwidth G Mode Mid Channel Test Results, Data Sheet 5

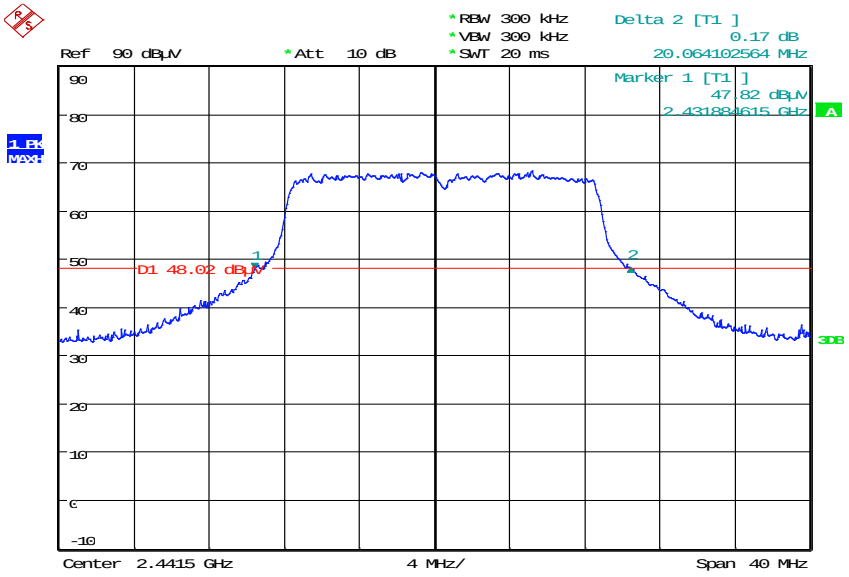
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Mid Channel 6 dB Bandwidth – 16.667 MHz 20 dB Bandwidth – 20.064 MHz 26 dB Bandwidth – 25.192 MHz						

6 dB



Date: 11.MAR.2011 16:35:16

20 dB



Date: 11.MAR.2011 16:36:01

26 dB

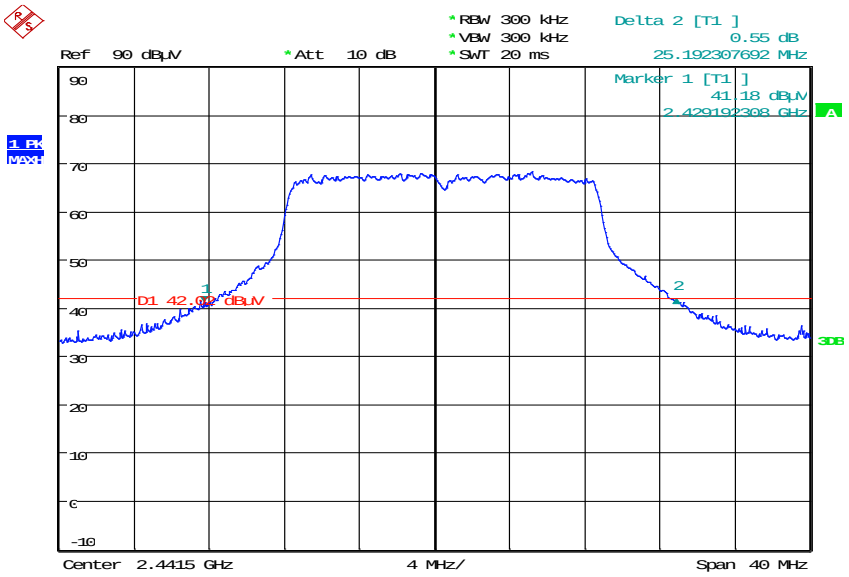
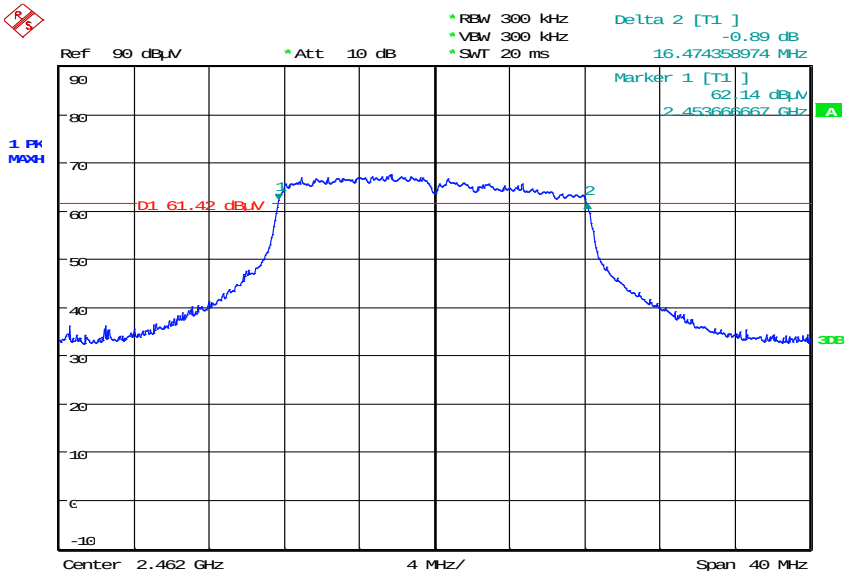

RBW 300 kHz
VBW 300 kHz
SWT 20 ms
Delta 2 [T1]
0.55 dB
25.192307692 MHz
Ref 90 dBµV
Att 10 dB
Marker 1 [T1]
41.18 dBµV
2.429192308 GHz
1 PK
MAXH
A
D1 42.00 dBµV
3DB
Center 2.4415 GHz
4 MHz/
Span 40 MHz
Date: 11.MAR.2011 16:36:45

Table 4.3.6: Occupied Bandwidth G Mode High Channel Test Results, Data Sheet 6

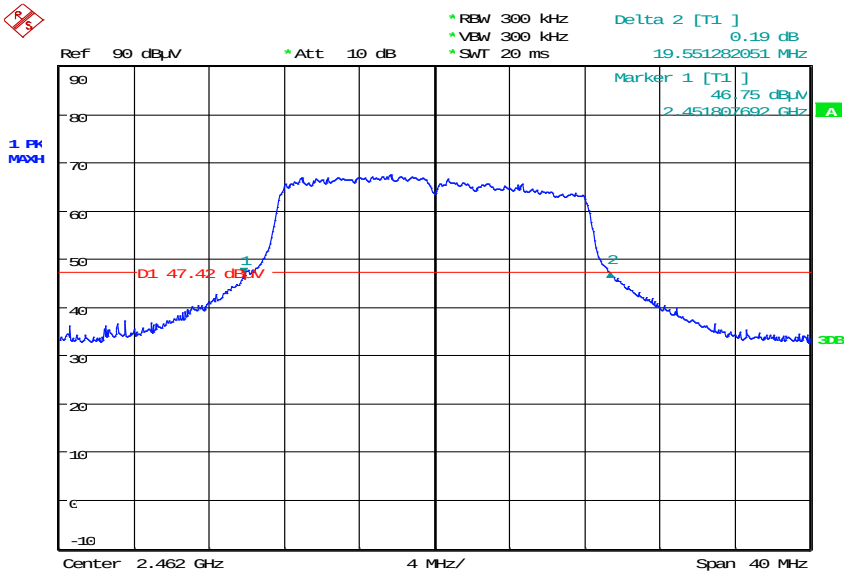
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	High Channel 6 dB Bandwidth – 16.474 MHz 20 dB Bandwidth – 19.551 MHz 26 dB Bandwidth – 24.294 MHz						

6 dB



Date: 11.MAR.2011 17:21:35

20 dB



Date: 11.MAR.2011 17:22:31

26 dB

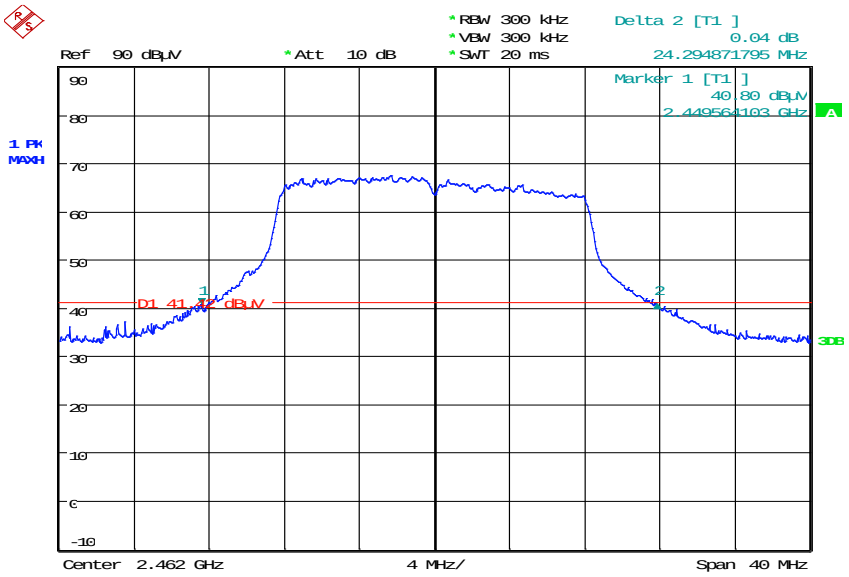
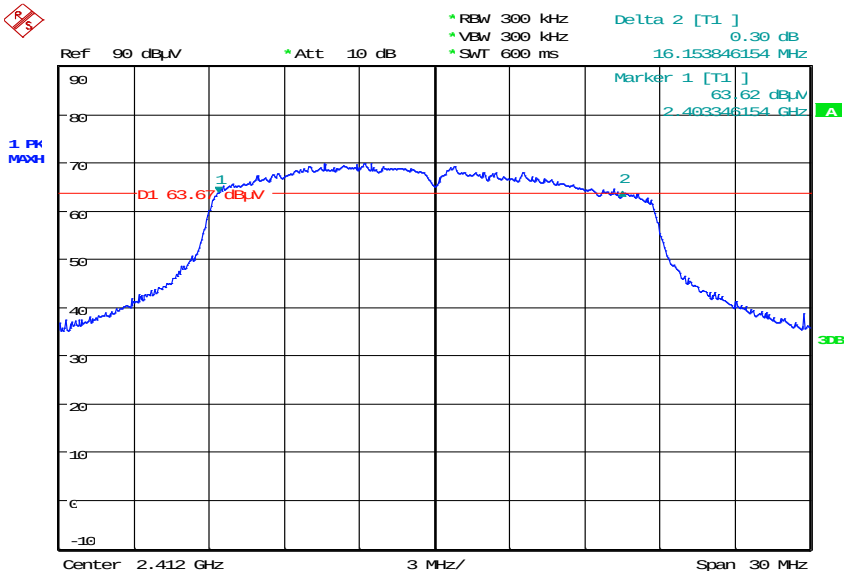

RBW 300 kHz
VBW 300 kHz
SWT 20 ms
Delta 2 [T1]
0.04 dB
24.294871795 MHz
Marker 1 [T1]
40.80 dBµV
2.449564103 GHz
Ref 90 dBµV
Att 10 dB
1 PK
MAXH
D1 41.2 dBµV
3DB
Center 2.462 GHz
4 MHz/
Span 40 MHz
Date: 11.MAR.2011 17:23:14

Table 4.3.7: Occupied Bandwidth N Mode Low Channel Test Results, Data Sheet 7

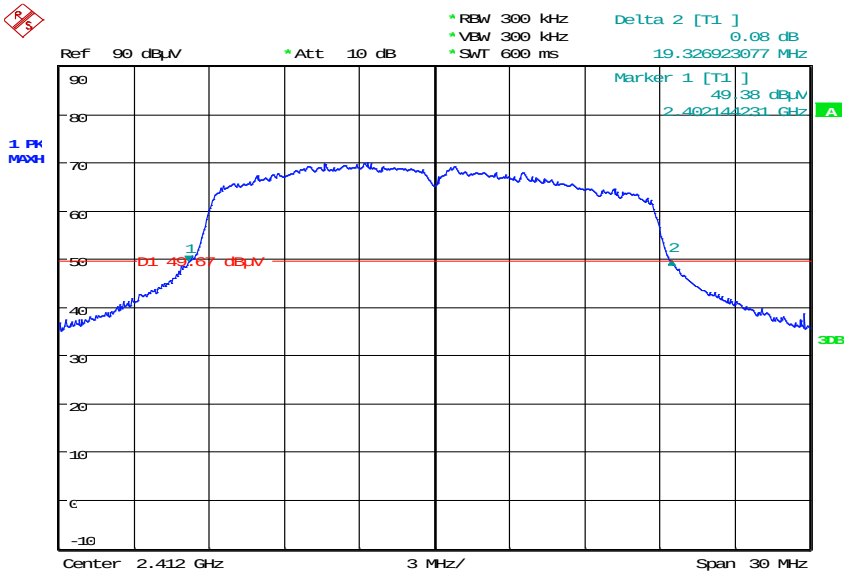
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Low Channel 6 dB Bandwidth – 16.154 MHz 20 dB Bandwidth – 19.327 MHz 26 dB Bandwidth – 22.212 MHz						

6 dB



Date: 14.MAR.2011 16:48:57

20 dB



Date: 14.MAR.2011 16:50:09

26 dB

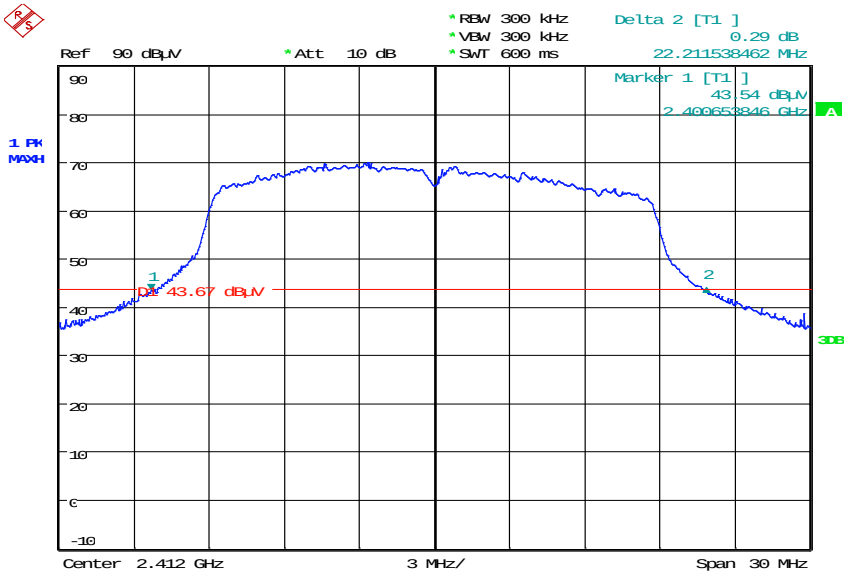
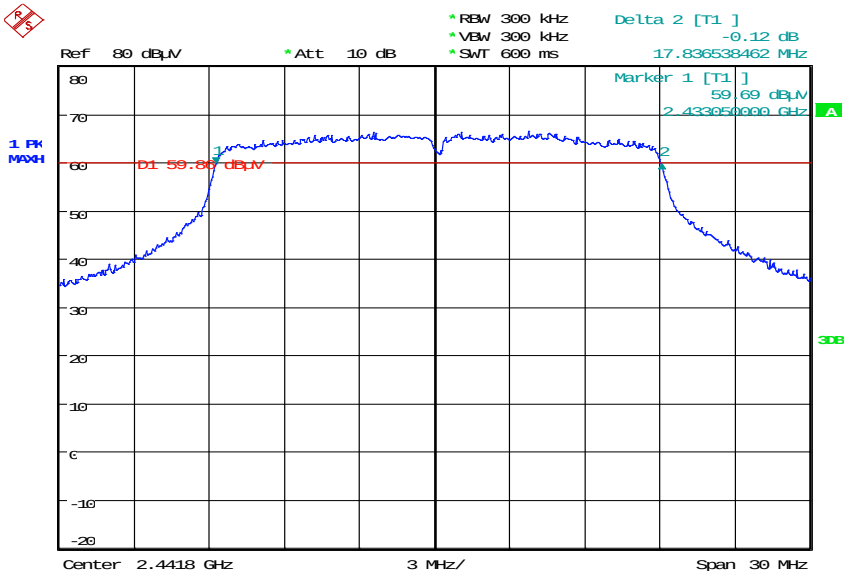

RBW 300 kHz
VBW 300 kHz
SWT 600 ms
Delta 2 [T1]
0.29 dB
22.211538462 MHz
Ref 90 dBµV
Att 10 dB
Marker 1 [T1]
43.54 dBµV
2.400653846 GHz
1 PK
MAXH
D1 43.67 dBµV
3DB
Center 2.412 GHz
3 MHz/
Span 30 MHz
Date: 14.MAR.2011 16:50:53

Table 4.3.8: Occupied Bandwidth N Mode Mid Channel Test Results, Data Sheet 8

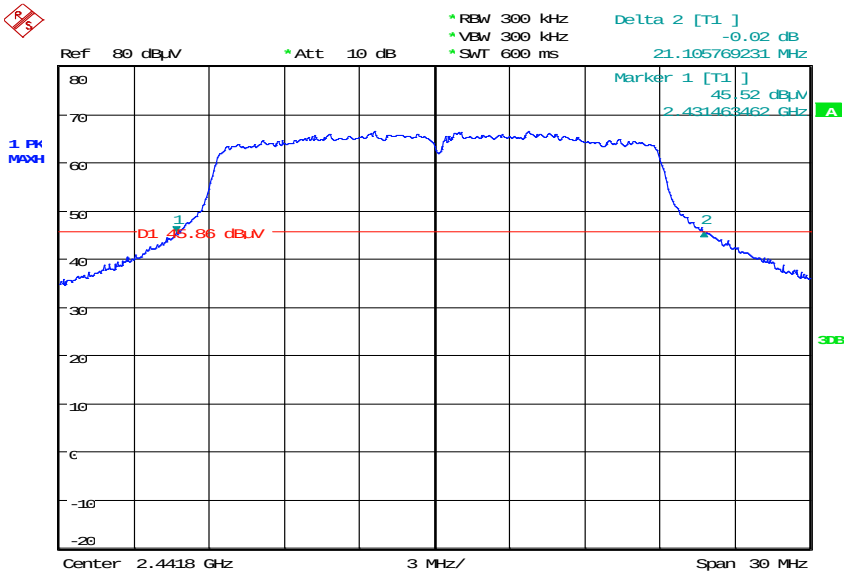
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	Mid Channel 6 dB Bandwidth – 17.837 MHz 20 dB Bandwidth – 21.106 MHz 26 dB Bandwidth – 25.240 MHz						

6 dB



Date: 14.MAR.2011 17:04:03

20 dB



Date: 14.MAR.2011 17:05:34

26 dB

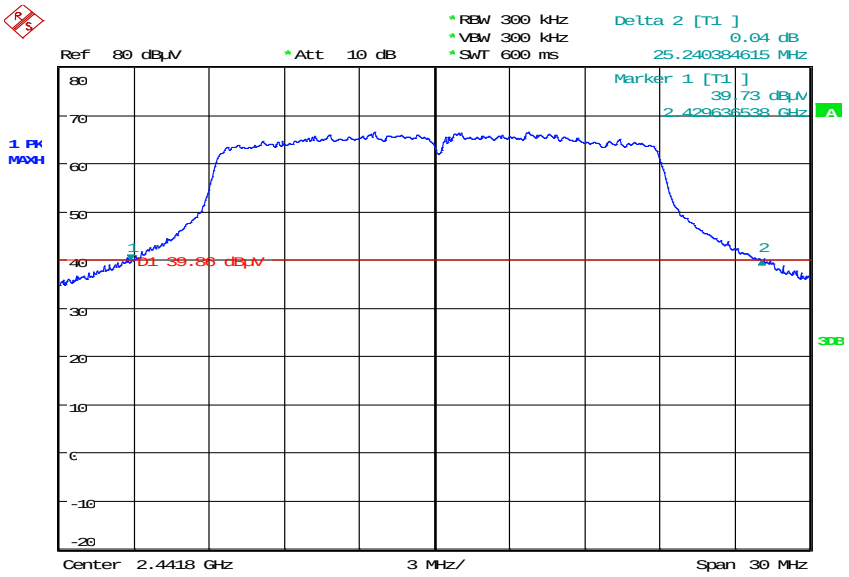
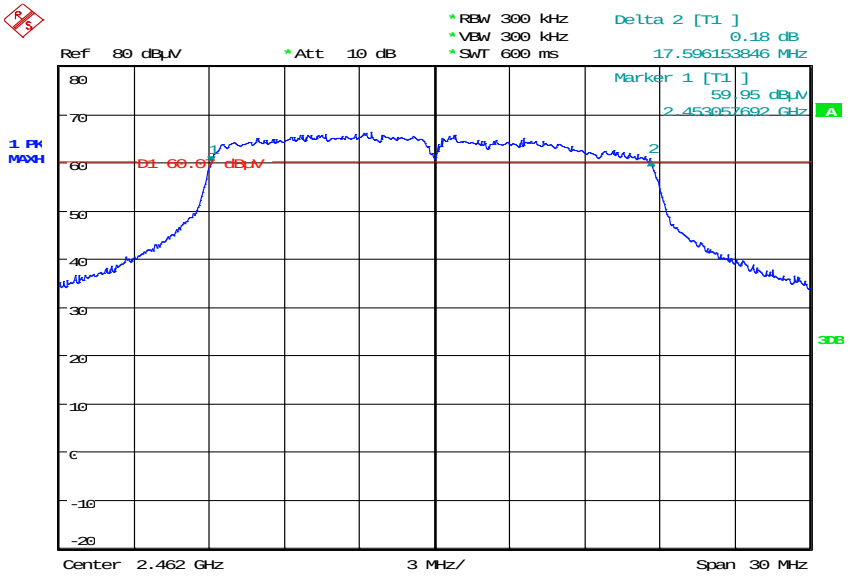

RBW 300 kHz
VBW 300 kHz
SWT 600 ms
Delta 2 [T1]
0.04 dB
25.240384615 MHz
Ref 80 dBµV
Att 10 dB
Marker 1 [T1]
39.73 dBµV
2.429636538 GHz
1 PK
MAXH
1
2
3DB
Center 2.4418 GHz
3 MHz/
Span 30 MHz
Date: 14.MAR.2011 17:06:16

Table 4.3.9: Occupied Bandwidth N Mode High Channel Test Results, Data Sheet 9

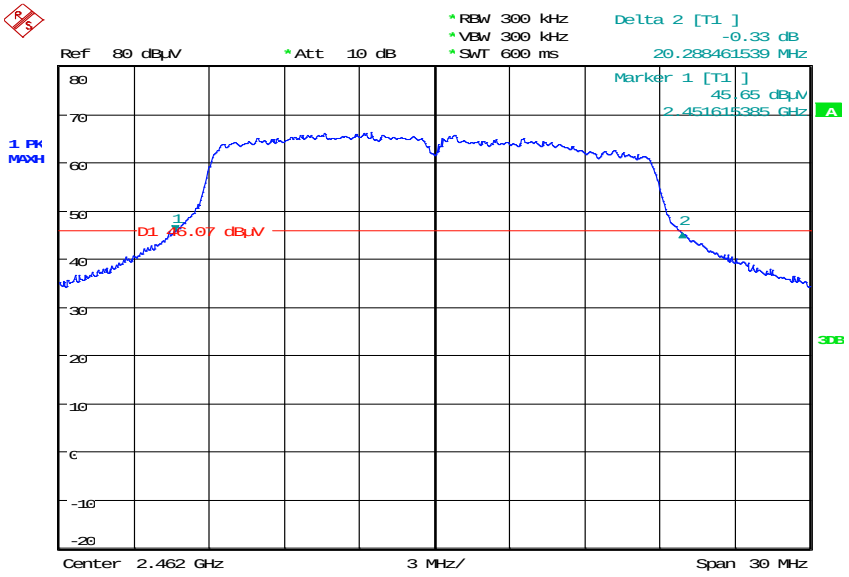
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	300 kHz	300 kHz	Peak
COMMENT	High Channel 6 dB Bandwidth – 17.596 MHz 20 dB Bandwidth – 20.288 MHz 26 dB Bandwidth – 24.808 MHz						

6 dB



Date: 14.MAR.2011 17:24:47

20 dB



Date: 14.MAR.2011 17:25:31

26 dB

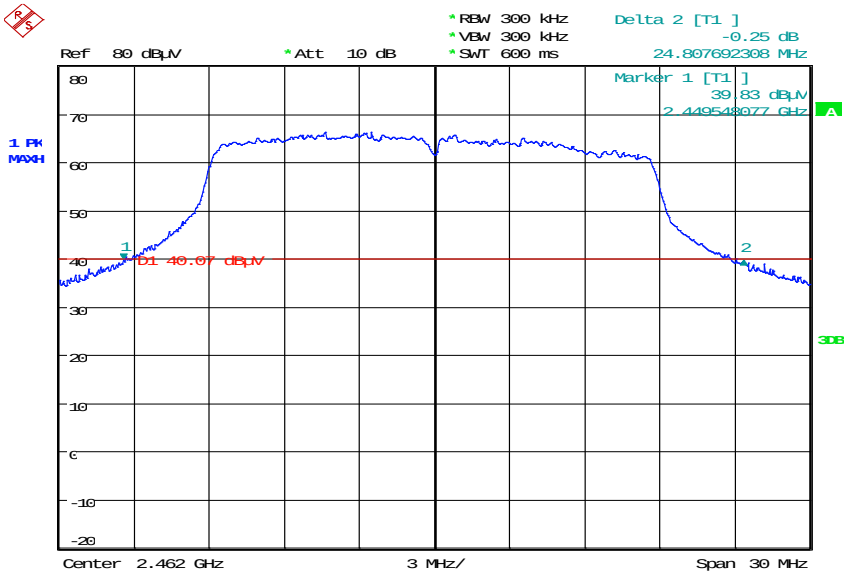
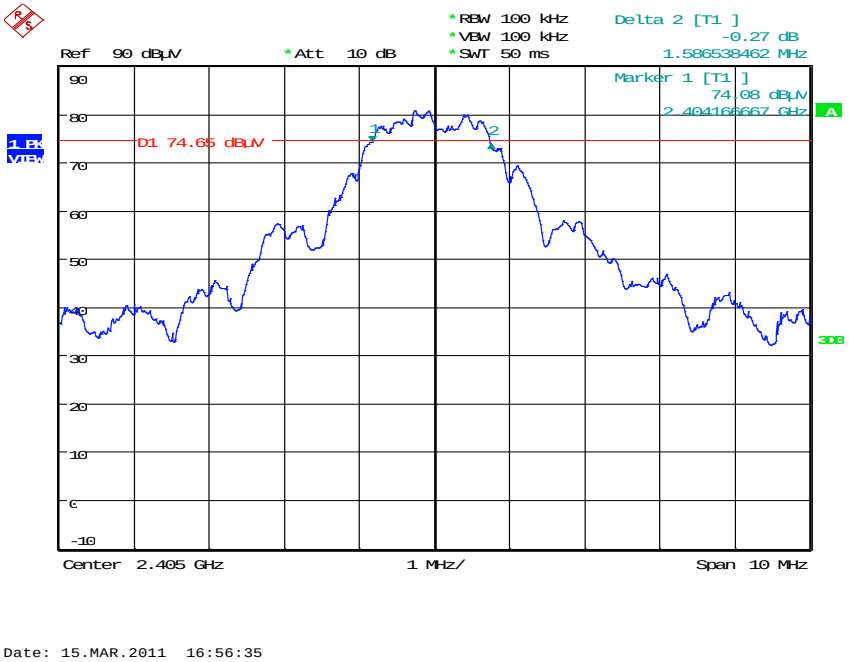

RBW 300 kHz
VBW 300 kHz
SWT 600 ms
Delta 2 [T1]
-0.25 dB
24.807692308 MHz
Ref 80 dBµV
Att 10 dB
Marker 1 [T1]
39.83 dBµV
2.449548077 GHz
1 PK
MAXH
D1 40.07 dBµV
3DB
Center 2.462 GHz
3 MHz/
Span 30 MHz
Date: 14.MAR.2011 17:26:10

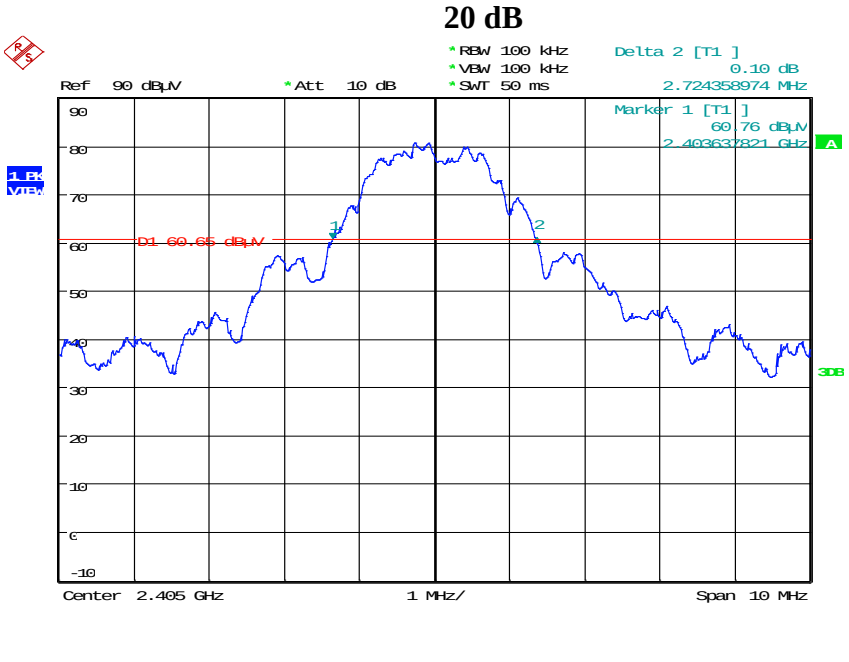
Table 4.3.10 Occupied Bandwidth HAN Radio Low Channel Test Results, Data Sheet 10

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	Low Channel 6 dB Bandwidth – 1.587 MHz 20 dB Bandwidth – 2.724 MHz 26 dB Bandwidth – 4.311 MHz						

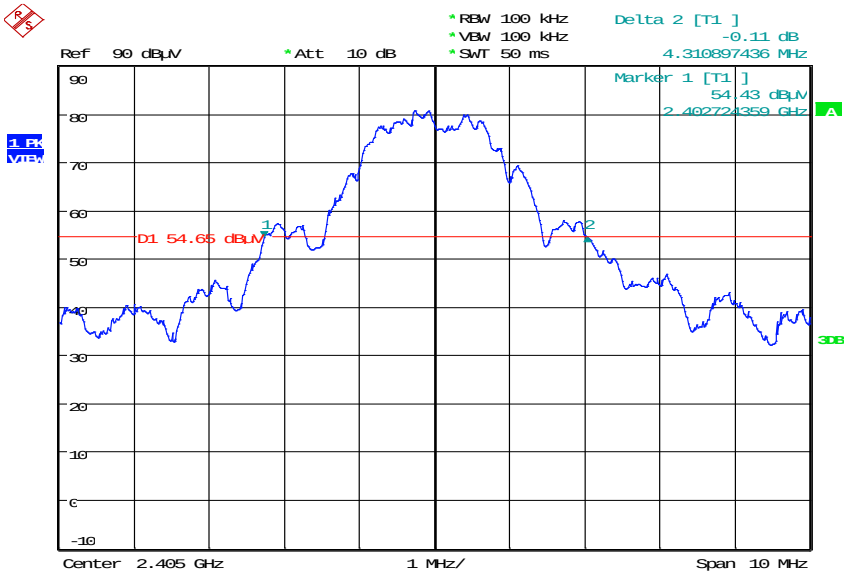
6 dB



20 dB



26 dB

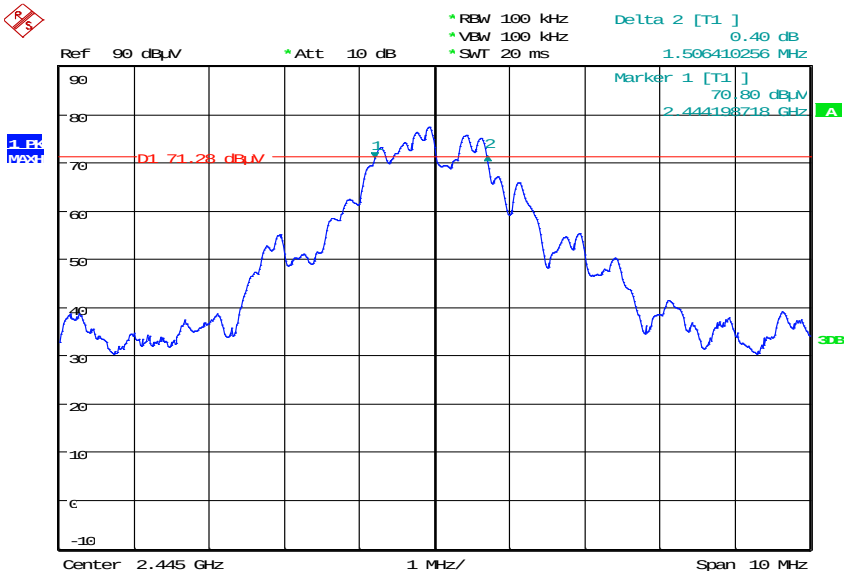


Date: 15.MAR.2011 16:58:38

Table 4.3.11 Occupied Bandwidth HAN Radio Mid Channel Test Results, Data Sheet 11

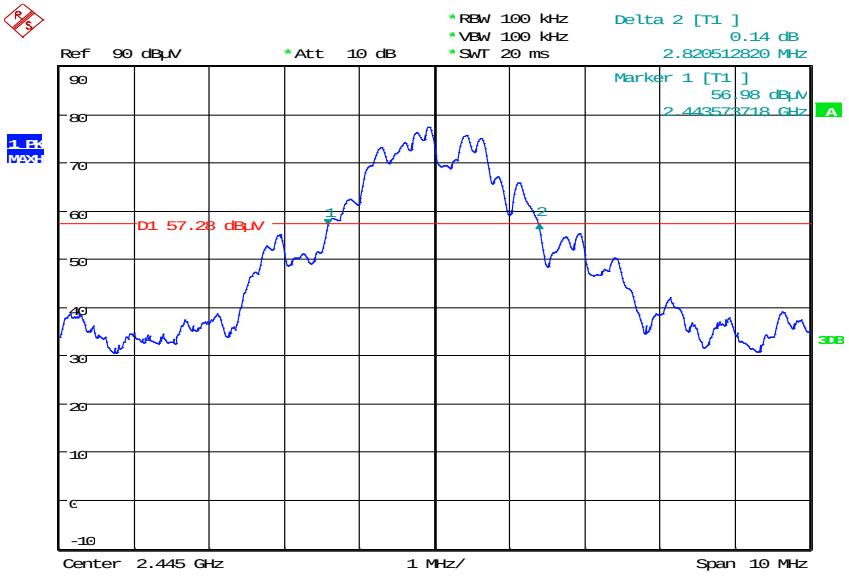
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	Mid Channel 6 dB Bandwidth – 1.506 MHz 20 dB Bandwidth – 2.821 MHz 26 dB Bandwidth – 4.327 MHz						

6 dB



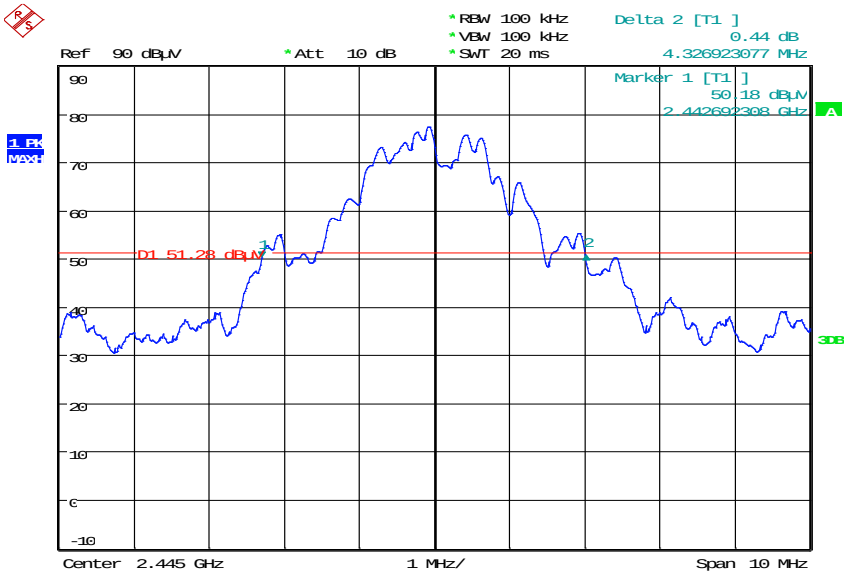
Date: 15.MAR.2011 17:38:46

20 dB



Date: 15.MAR.2011 17:39:19

26 dB

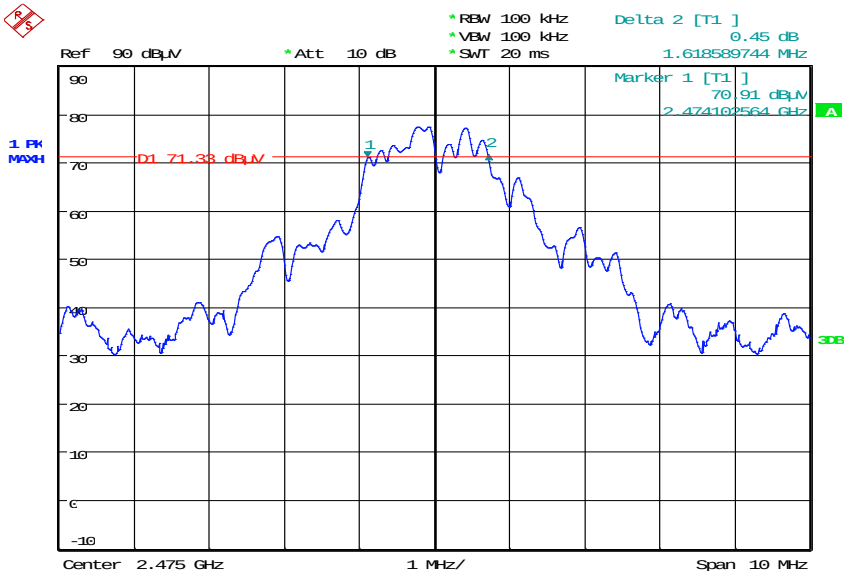


Date: 15.MAR.2011 17:40:30

Table 4.3.12 Occupied Bandwidth HAN Radio High Channel Test Results, Data Sheet 12

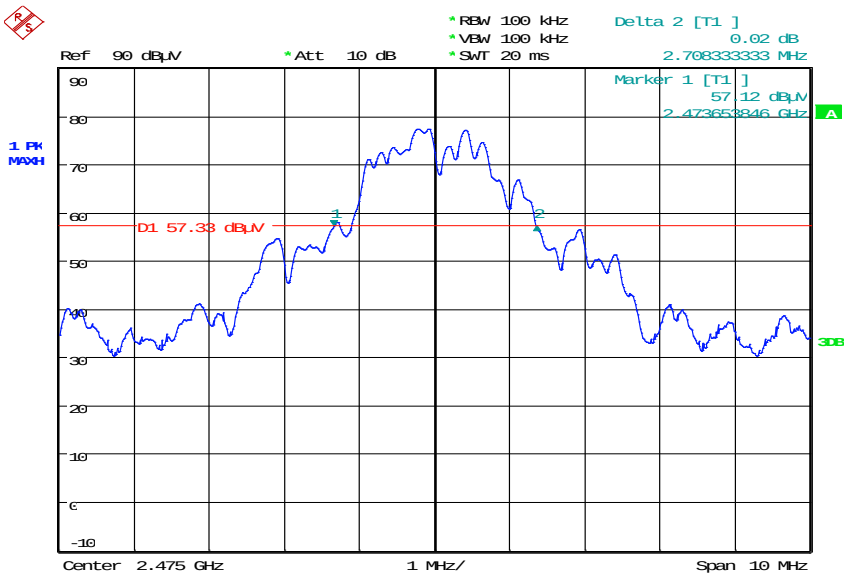
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	High Channel 6 dB Bandwidth – 1.619 MHz 20 dB Bandwidth – 2.708 MHz 26 dB Bandwidth – 4.744 MHz						

6 dB



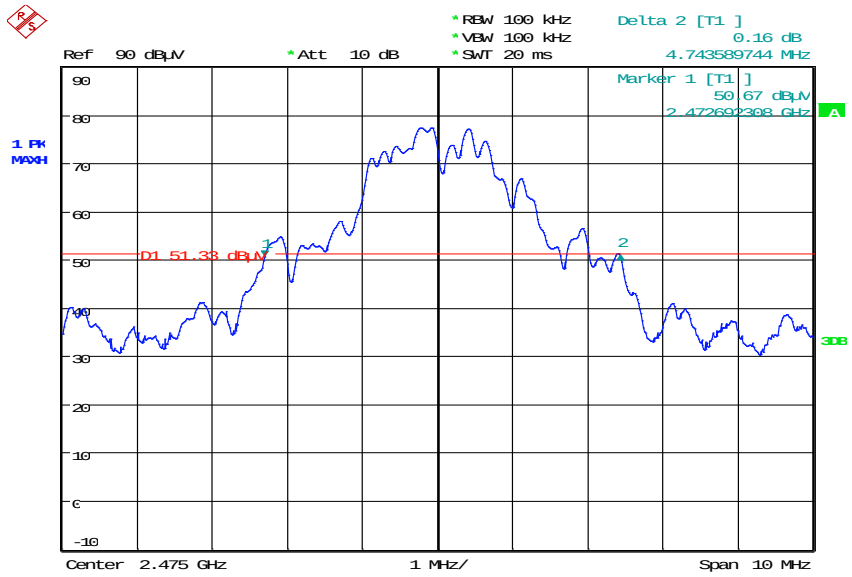
Date: 15.MAR.2011 18:28:30

20 dB



Date: 15.MAR.2011 18:29:07

26 dB

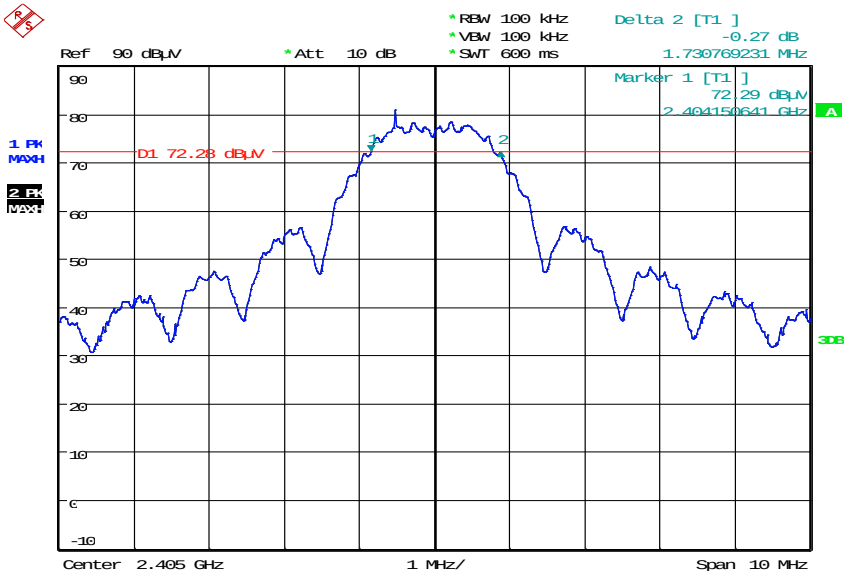


Date: 15.MAR.2011 18:29:44

Table 4.3.13 Occupied Bandwidth Meter Radio Low Channel Test Results, Data Sheet 13

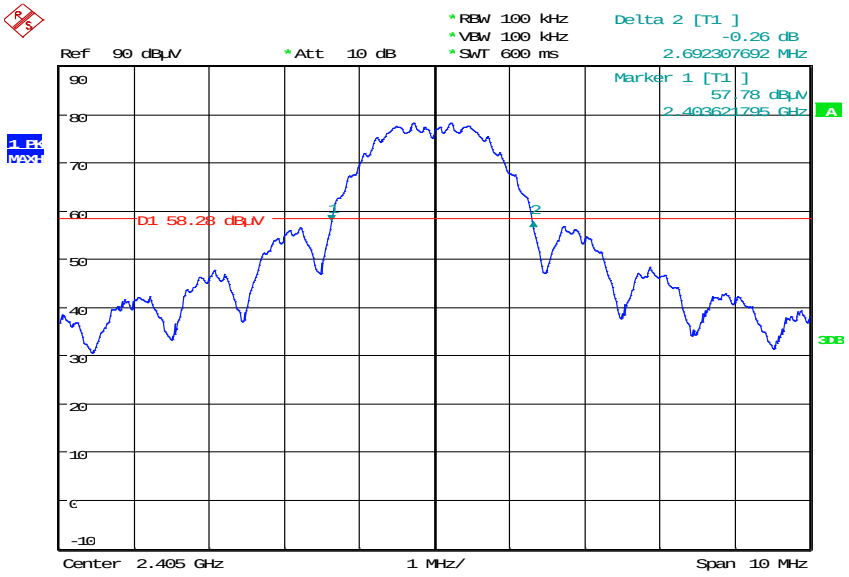
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	Low Channel 6 dB Bandwidth – 1.731 MHz 20 dB Bandwidth – 2.692 MHz 26 dB Bandwidth – 4.407 MHz						

6 dB



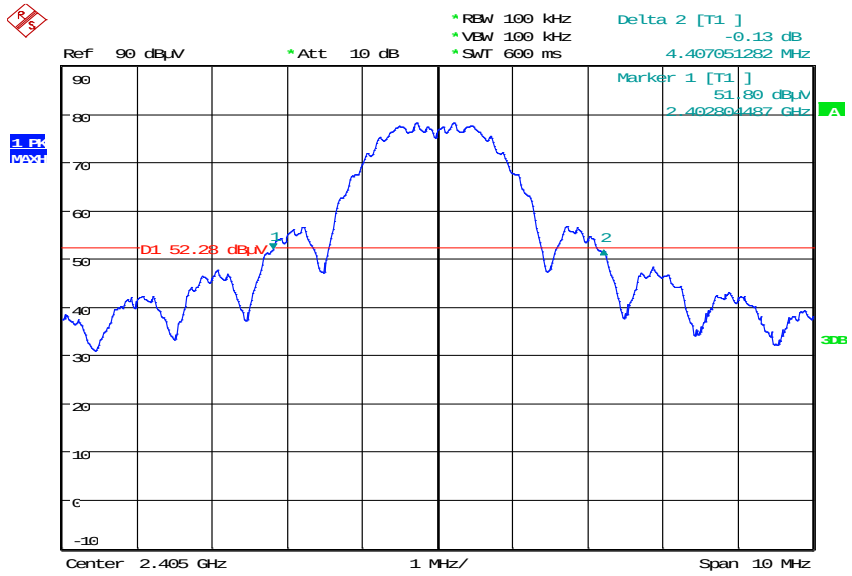
Date: 14.MAR.2011 18:18:34

20 dB



Date: 14.MAR.2011 18:19:45

26 dB

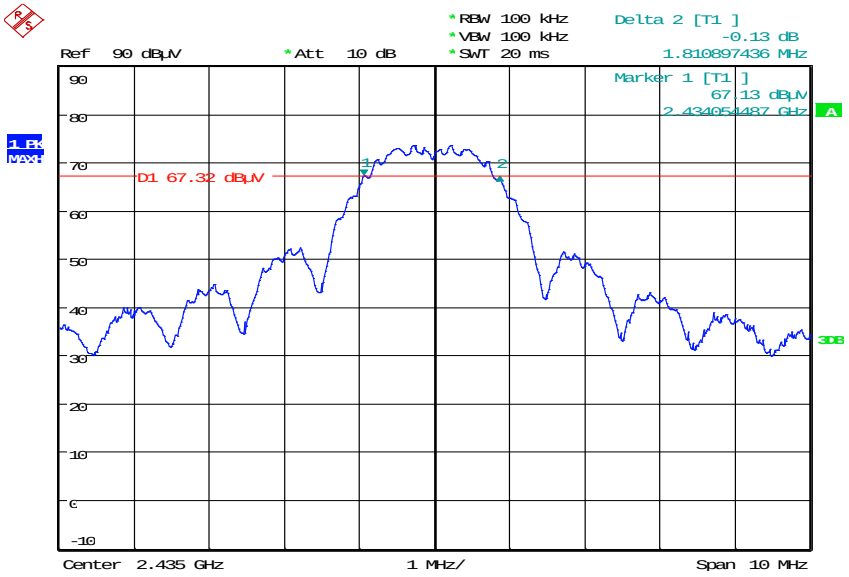


Date: 14.MAR.2011 18:20:26

Table 4.3.14 Occupied Bandwidth Meter Radio Mid Channel Test Results, Data Sheet 14

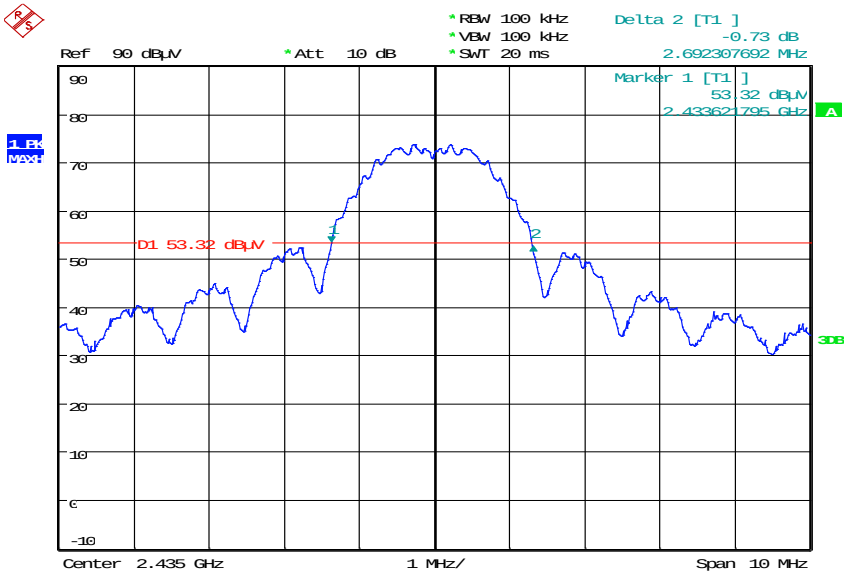
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	Mid Channel 6 dB Bandwidth – 1.811 MHz 20 dB Bandwidth – 2.692 MHz 26 dB Bandwidth – 4.471 MHz						

6 dB



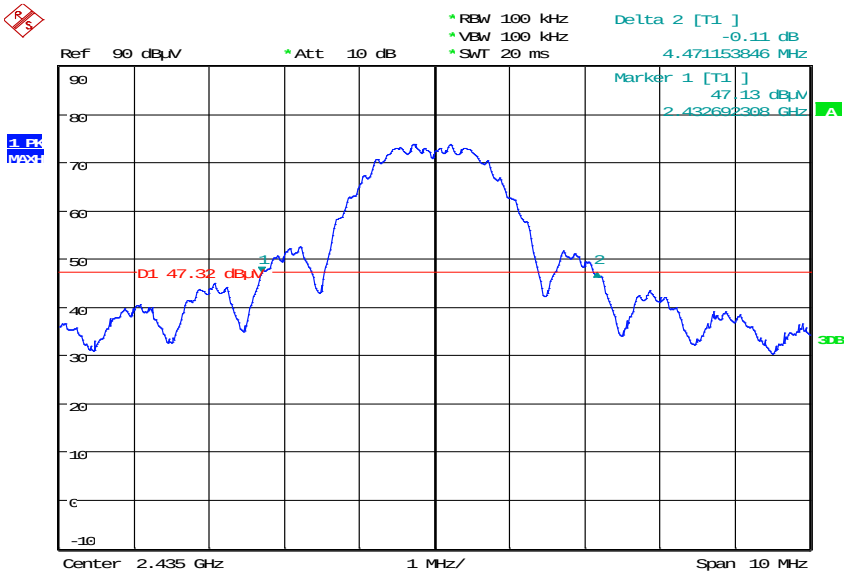
Date: 14.MAR.2011 19:20:19

20 dB



Date: 14.MAR.2011 19:23:39

26 dB

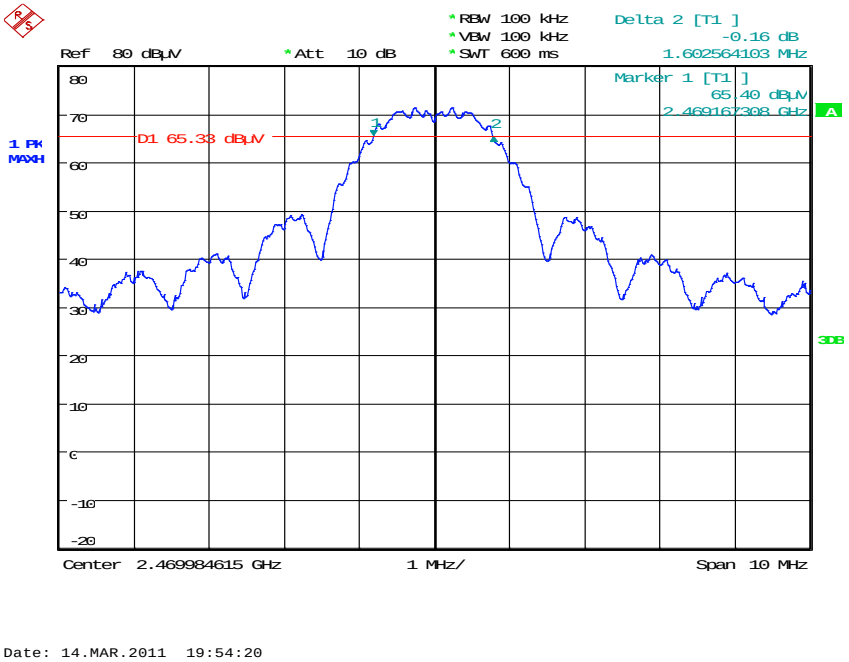


Date: 14.MAR.2011 19:24:17

Table 4.3.15 Occupied Bandwidth Meter Radio High Channel Test Results, Data Sheet 15

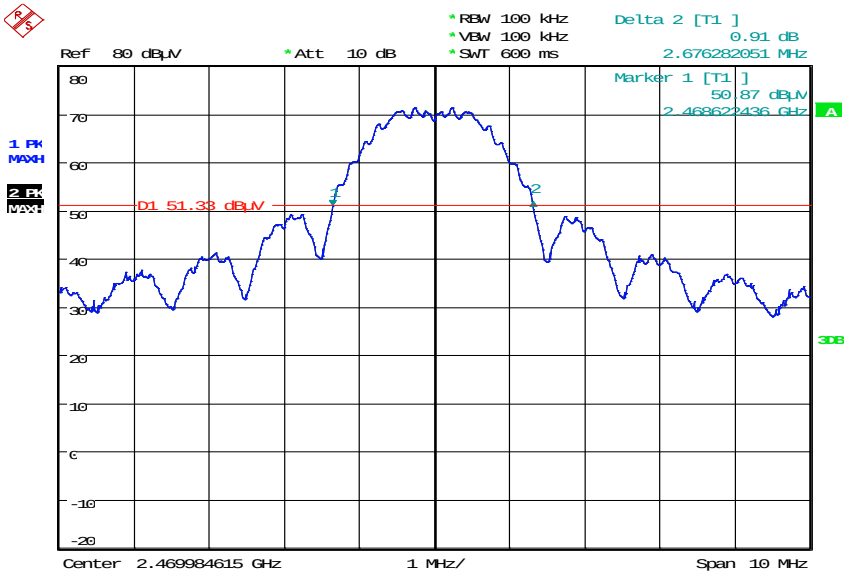
PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1 m	Horn	100 kHz	100 kHz	Peak
COMMENT	High Channel 6 dB Bandwidth – 1.603 MHz 20 dB Bandwidth – 2.676 MHz 26 dB Bandwidth – 4.343 MHz						

6 dB



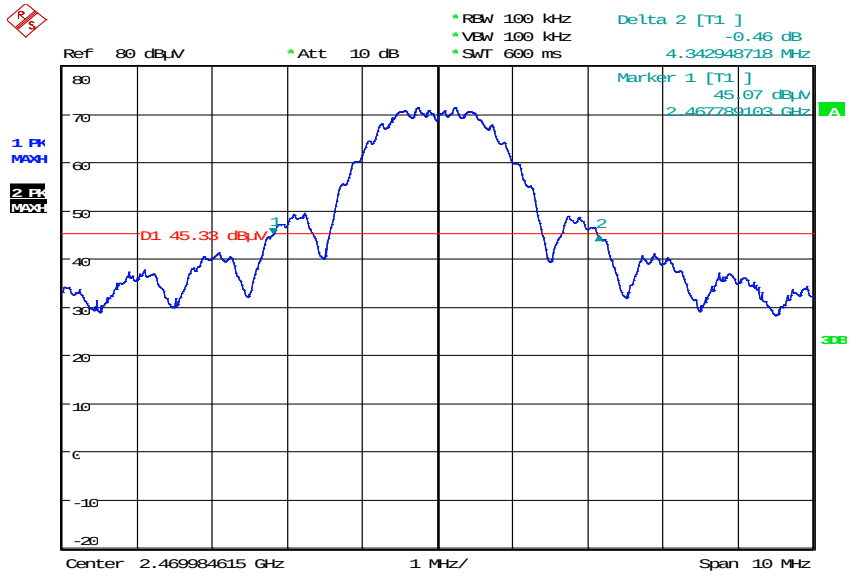
Date: 14.MAR.2011 19:54:20

20 dB



Date: 14.MAR.2011 19:55:20

26 dB



Date: 14.MAR.2011 19:55:52

5.0 Power Spectral Density

Power spectral density measurements were performed on the EUT to determine compliance with FCC 15.247(d) and RSS-210.

5.1 Test Procedure

The fundamental emission of the EUT is maximized and the spectrum analyzer is tuned to the highest point as measured in max-hold with peak detection. The analyzer is then centered on the maximum peak and set with the following parameters: RBW = 3 kHz, VBW > RBW, span = 300 kHz, and sweep time = 100s. The peak level is obtained after the sweep completes. The test setup is included in Appendix A.

5.2 Test Criteria and Methodology

According to section FCC 15.247(d) and RSS-210 the maximum power spectral density is +8 dBm in any 3 kHz bandwidth.

The calculation for deriving power spectral density is as follows:

Calculations:

$$P = \frac{(E * d)^2}{30 * G}$$

P=Power in watts, E=measured maximum field strength in V/m, d=distance in meters, G=numeric gain of transmitting antenna

Distance=1 meters
Gain=0 dBi

5.3 Test Results

Power spectral density measurements were taken on March 11 and 14, 2011, and the EUT was found to be in compliance with applicable requirements. Test equipment used to perform this test is given in Tables 2.3.1 and 2.3.2.

Table 5.3.1: Power Spectral Density B Mode Low Channel Test Results, Data Sheet 1

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Low Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	280	1	99.38	33.8	28.1	2.8	96.5

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.412	96.5	-10.5	-15.23	-23.73	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

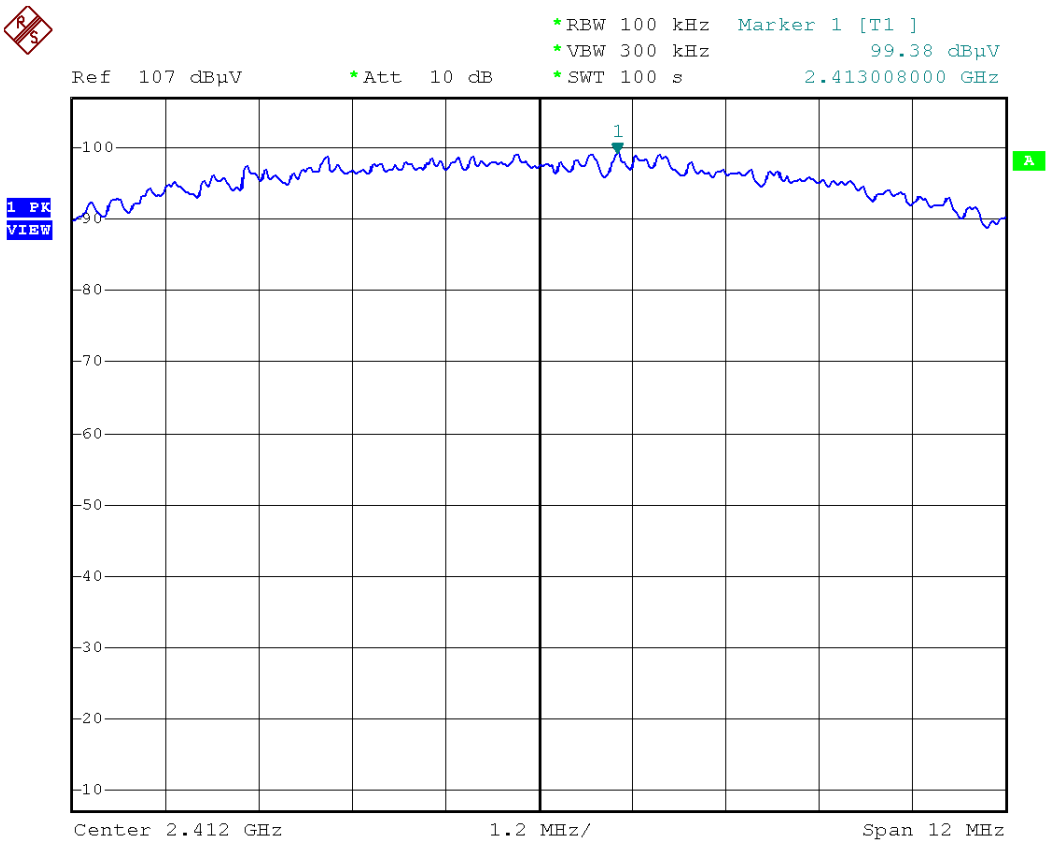


Table 5.3.2: Power Spectral Density B Mode Mid Channel Test Results, Data Sheet 2

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.44	270	1	99.58	33.7	28.0	2.8	96.7

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.44	96.7	-10.3	-15.23	-23.53	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

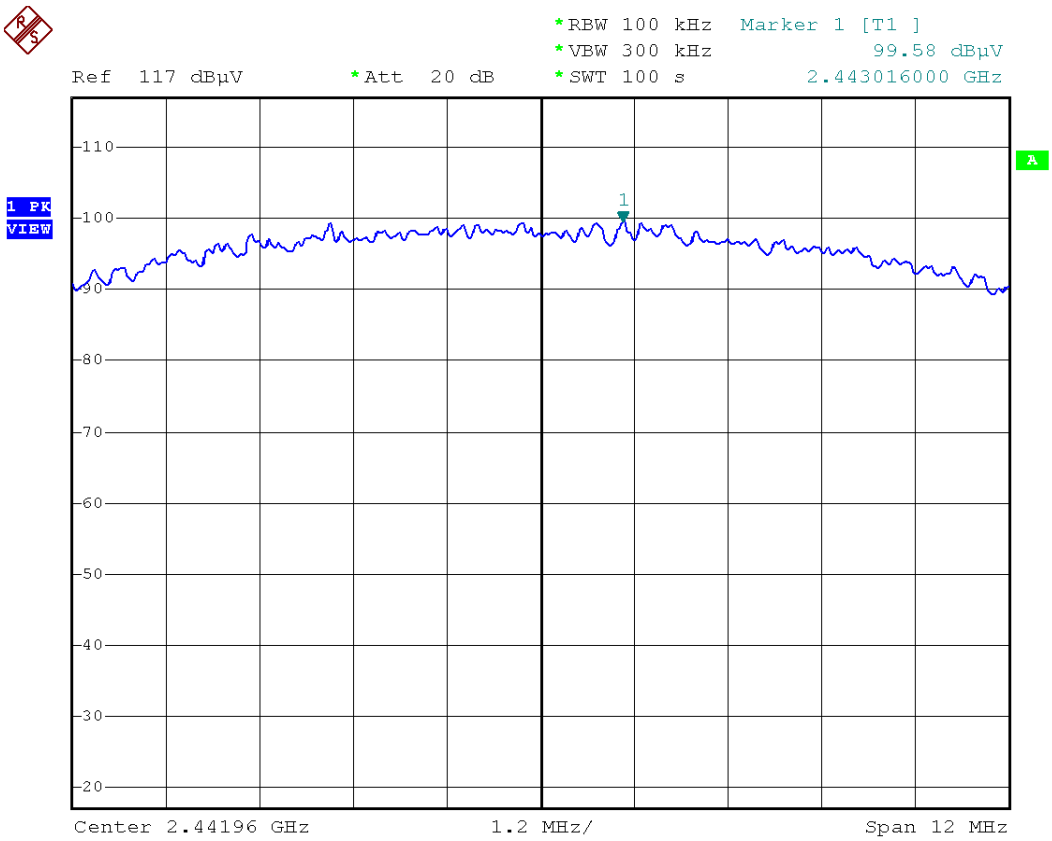


Table 5.3.3: Power Spectral Density B Mode High Channel Test Results, Data Sheet 3

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	High Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.462	120	1	97.47	33.7	28.0	2.8	94.6

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.462	94.6	-12.4	-15.23	-27.63	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

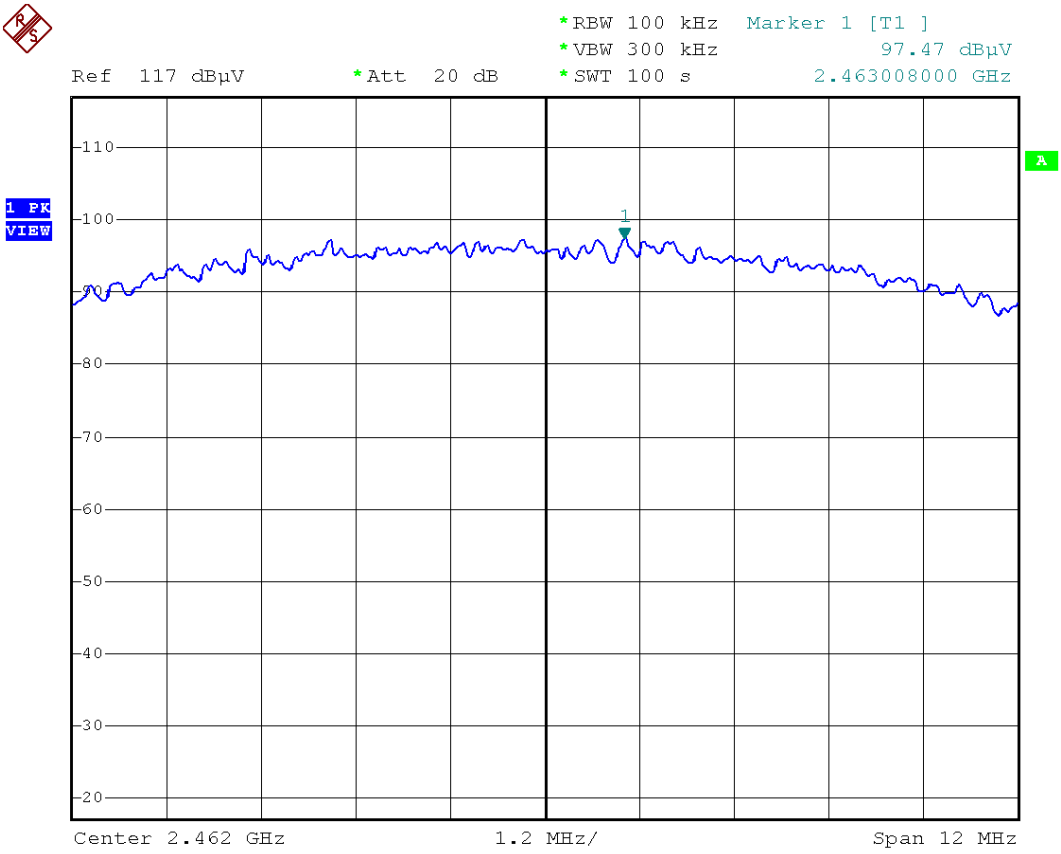


Table 5.3.4: Power Spectral Density G Mode Low Channel Test Results, Data Sheet 4

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Low Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	280	1	93.81	33.8	28.1	2.8	90.9

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.412	90.9	-16.1	-15.23	-31.33	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

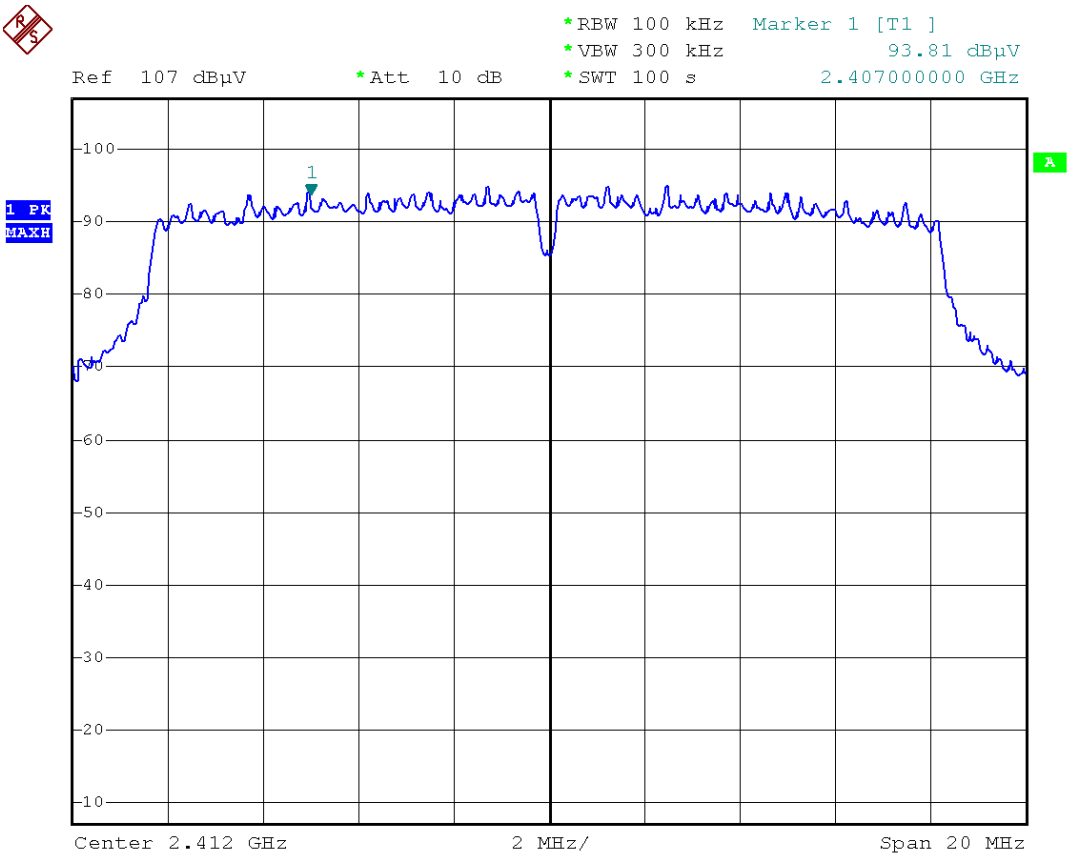


Table 5.3.5: Power Spectral Density G Mode Mid Channel Test Results, Data Sheet 5

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.44	280	1	93.2	33.7	28.0	2.8	90.3

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.44	90.3	-16.7	-15.23	-31.93	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

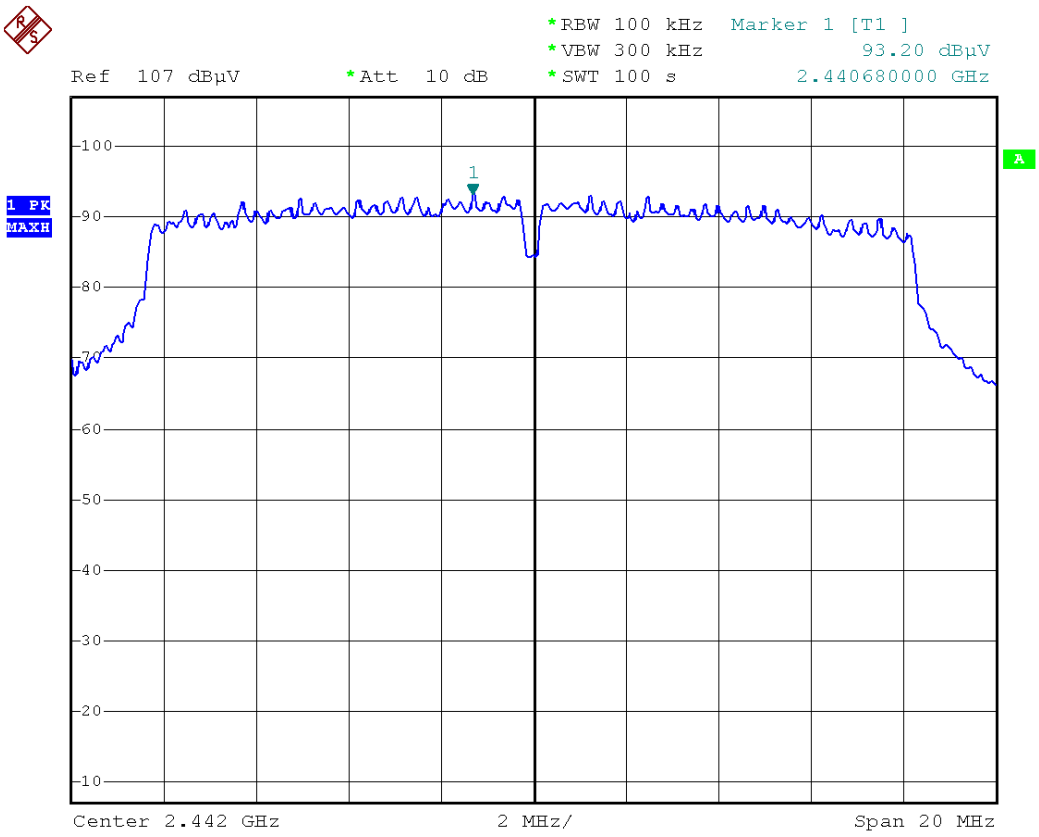


Table 5.3.6: Power Spectral Density G Mode High Channel Test Results, Data Sheet 6

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	High Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.462	280	1	90.73	33.7	28.0	2.8	87.8

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.462	87.8	-19.2	-15.23	-34.43	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

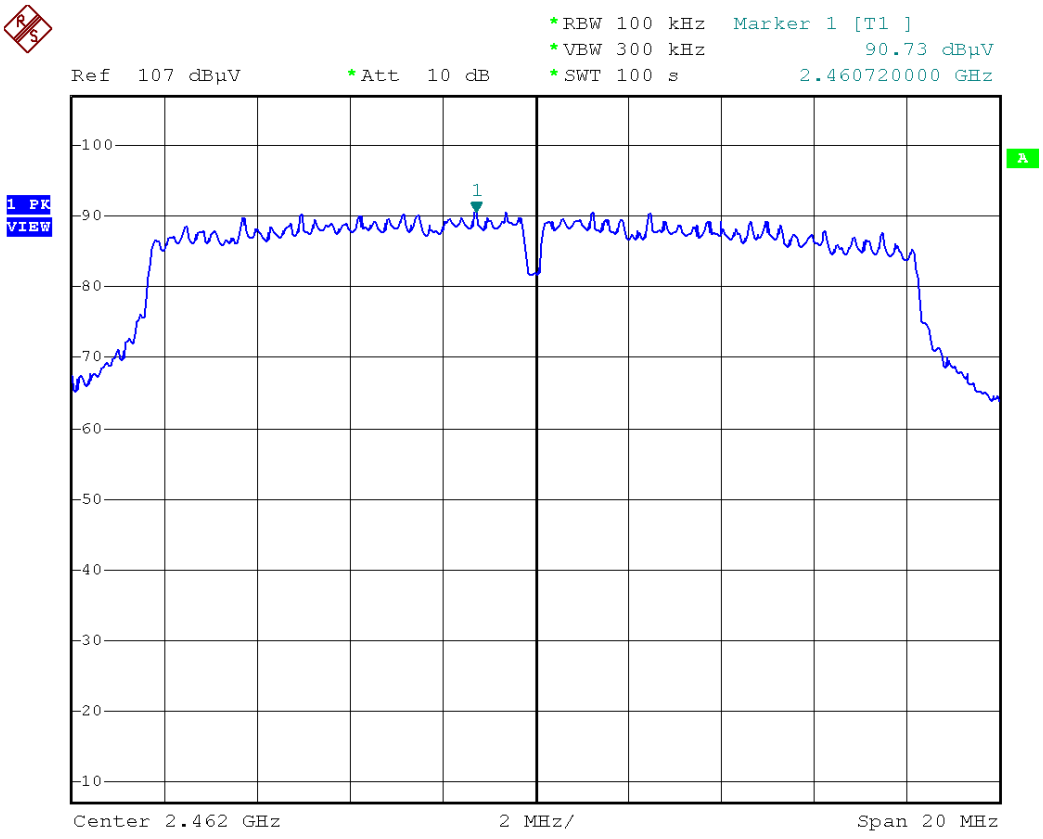


Table 5.3.7: Power Spectral Density N Mode Low Channel Test Results, Data Sheet 7

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Low Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.412	120	1	91.33	33.8	28.1	2.8	88.4

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.412	88.4	-18.6	-15.23	-33.83	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

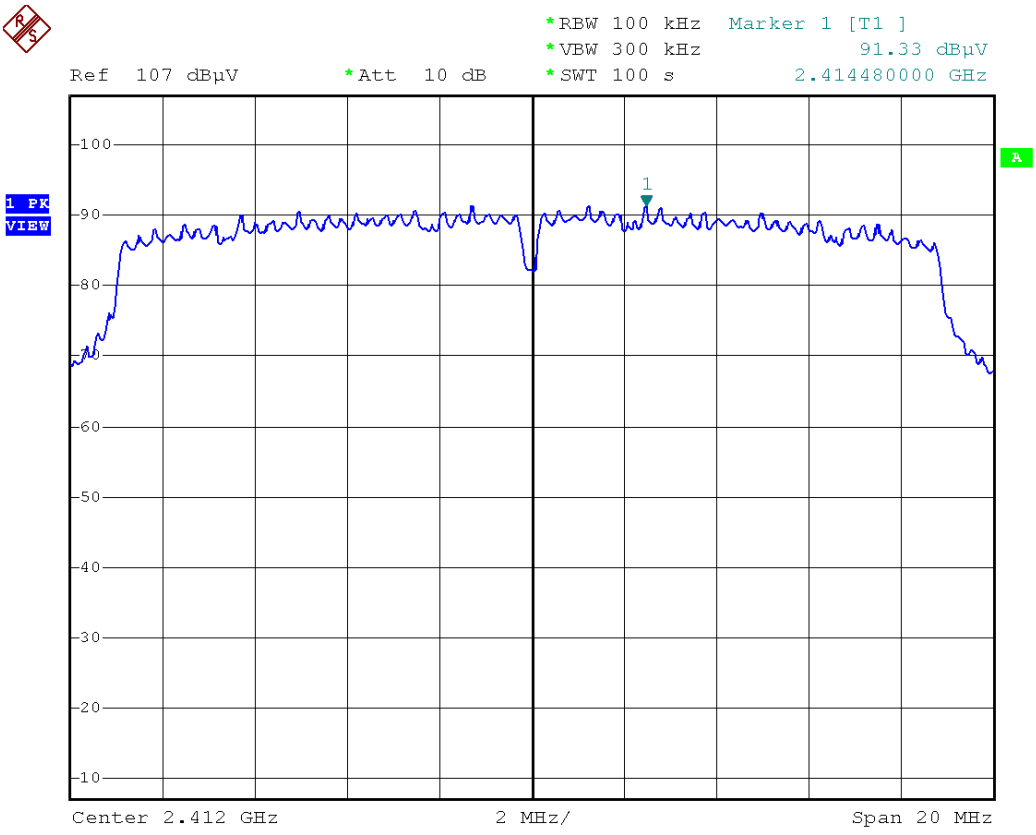


Table 5.3.8: Power Spectral Density N Mode Mid Channel Test Results, Data Sheet 8

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.442	120	1	90.9	33.7	28.0	2.8	88.0

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.442	88.0	-19.0	-15.23	-34.23	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

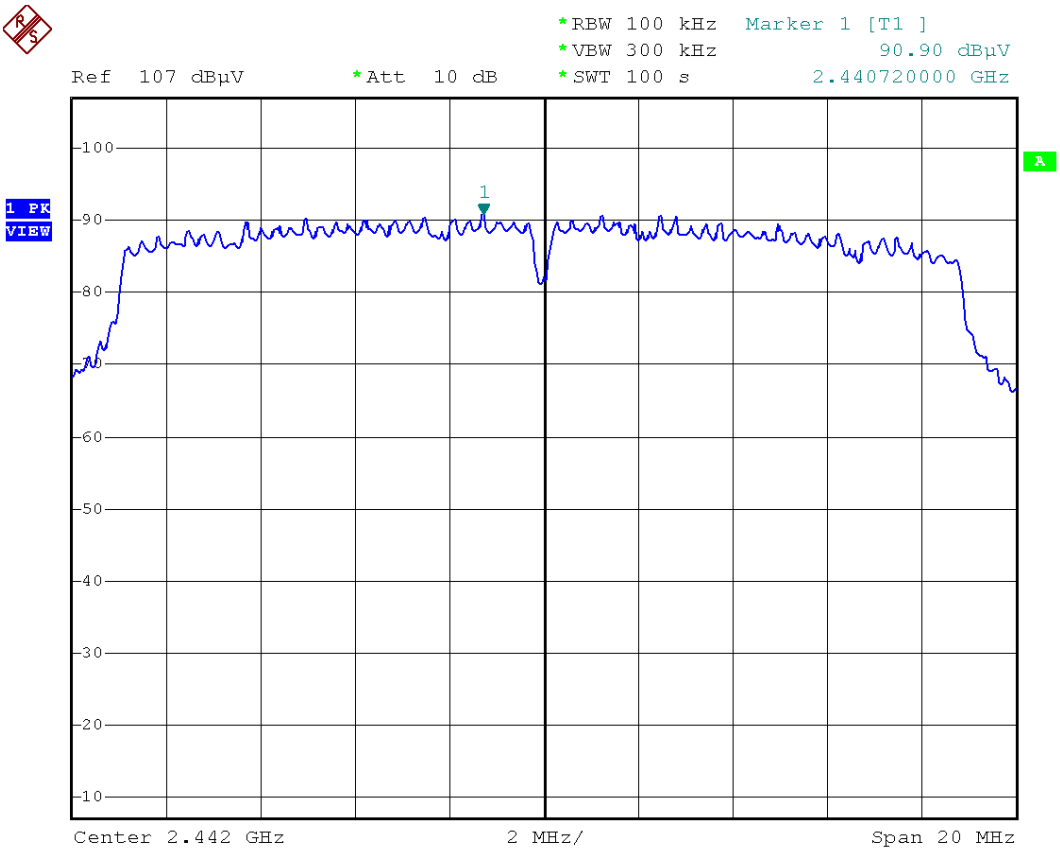


Table 5.3.9: Power Spectral Density N Mode High Channel Test Results, Data Sheet 9

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	High Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.462	100	1	88.71	33.7	28.0	2.8	85.8

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.462	85.8	-21.2	-15.23	-36.43	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

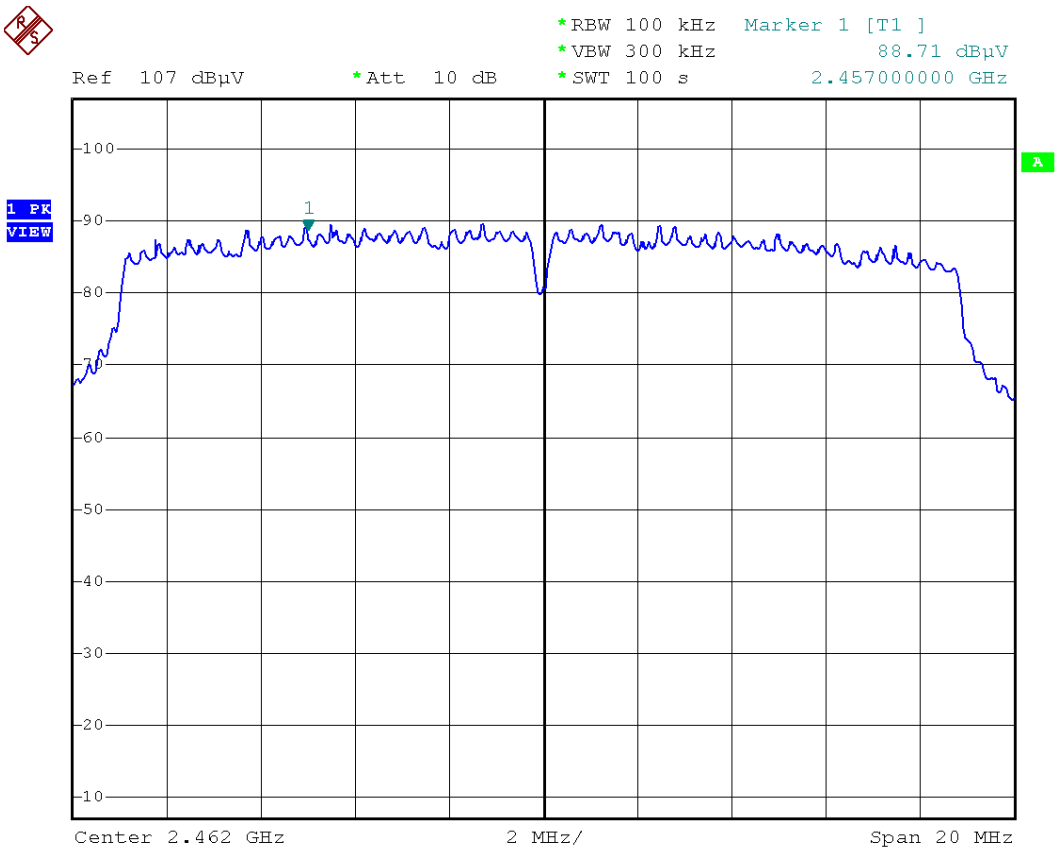


Table 5.3.10: Power Spectral Density HAN Radio Low Channel Test Results, Data Sheet 10

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Low Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.405	100	1	103.94	33.8	28.1	2.8	101.0

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.405	101	-6.0	-15.23	-21.23	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

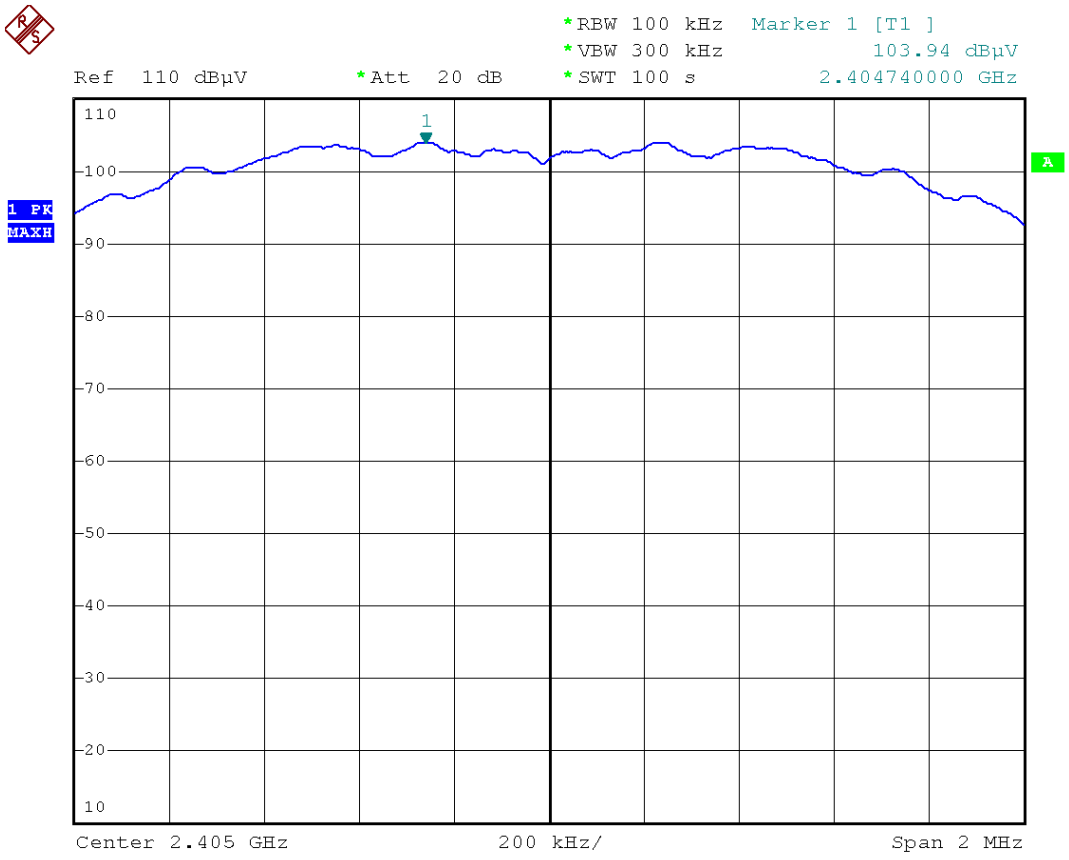


Table 5.3.11: Power Spectral Density HAN Radio Mid Channel Test Results, Data Sheet 11

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.445	30	1	101.47	33.7	28.0	2.8	98.6

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.445	98.6	-8.4	-15.23	-23.63	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

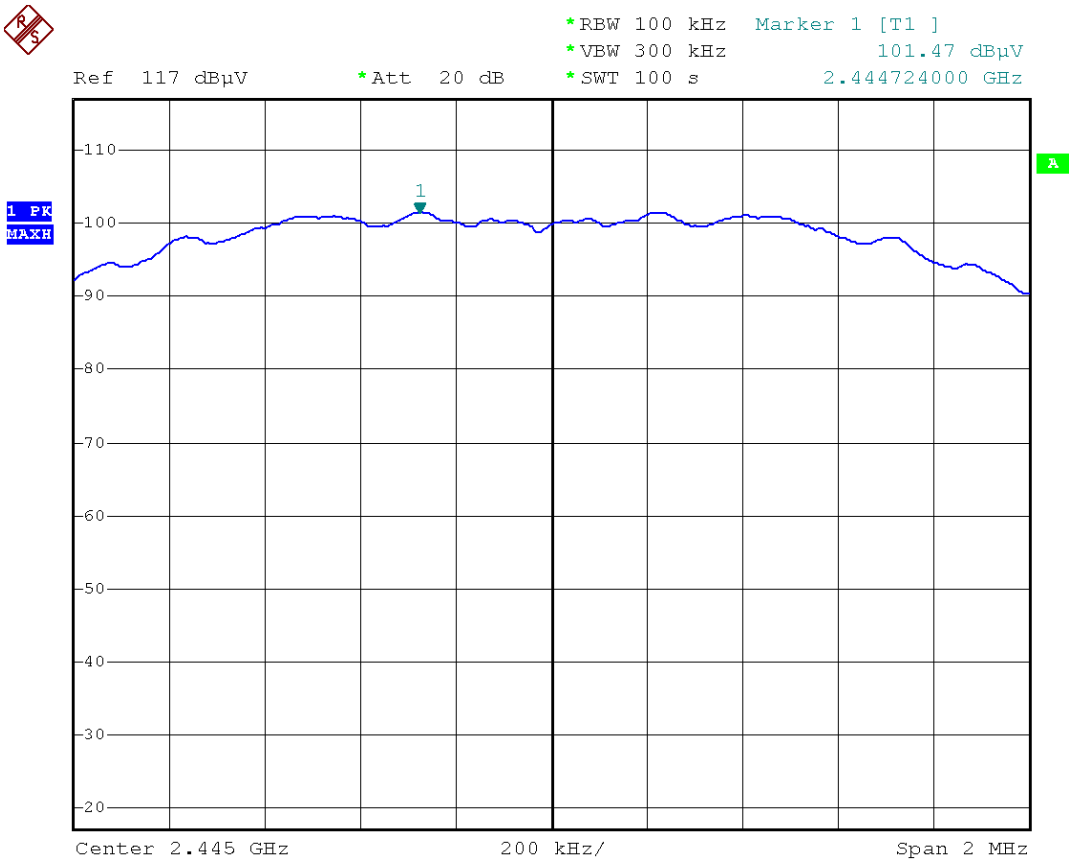


Table 5.3.12: Power Spectral Density HAN Radio High Channel Test Results Data Sheet 12

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	High Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.475	270	1	103.66	33.7	28.0	2.8	100.8

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.475	100.8	-6.2	-15.23	-21.43	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

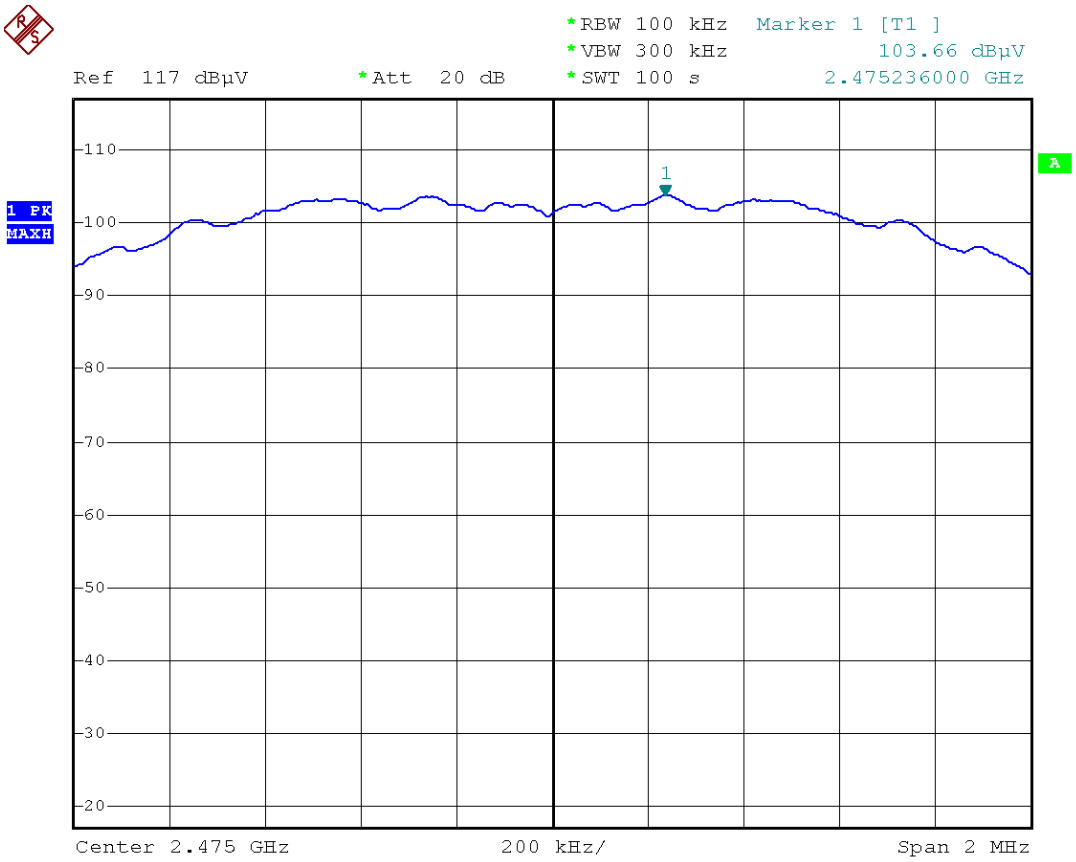


Table 5.3.13: Power Spectral Density Meter Radio Low Channel Test Results Data Sheet 13

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Low Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.405	0	1	106.07	33.8	28.1	2.8	103.1

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.405	103.1	-3.9	-15.23	-19.13	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

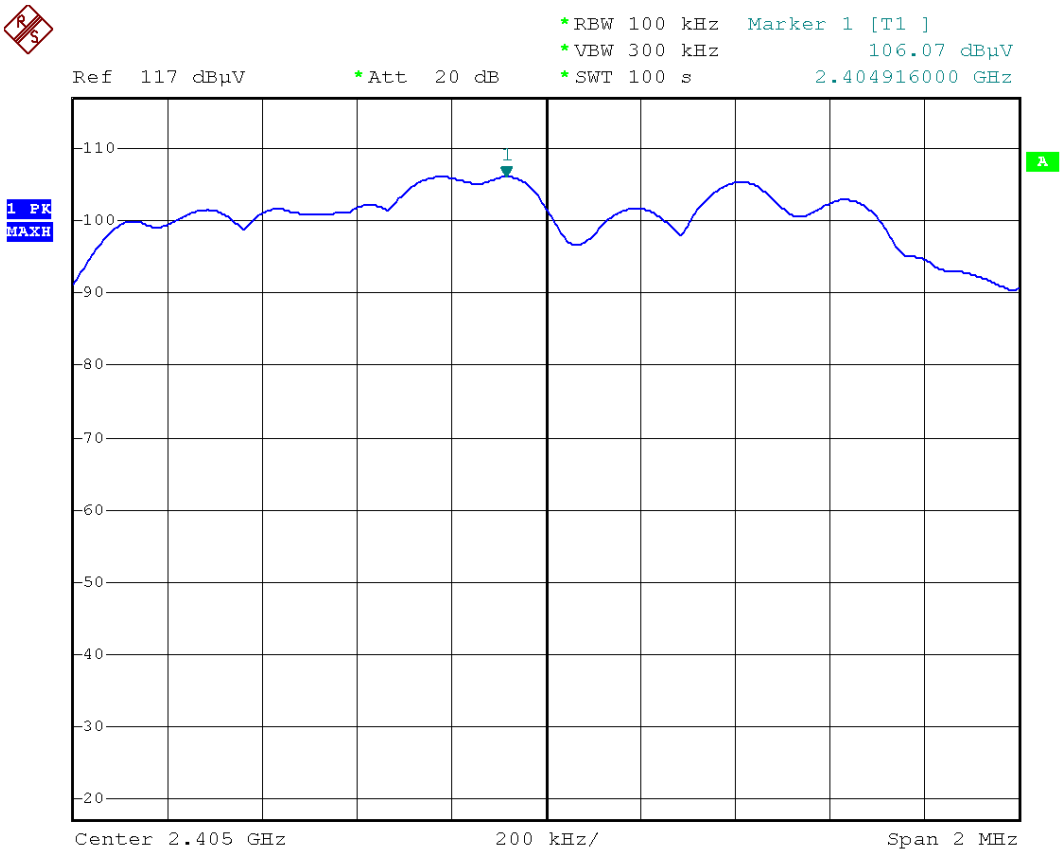


Table 5.3.14: Power Spectral Density Meter Radio Mid Channel Test Results Data Sheet 14

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.435	100	1	102.94	33.7	28.0	2.8	100.0

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.435	100.0	-7.0	-15.23	-22.23	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)

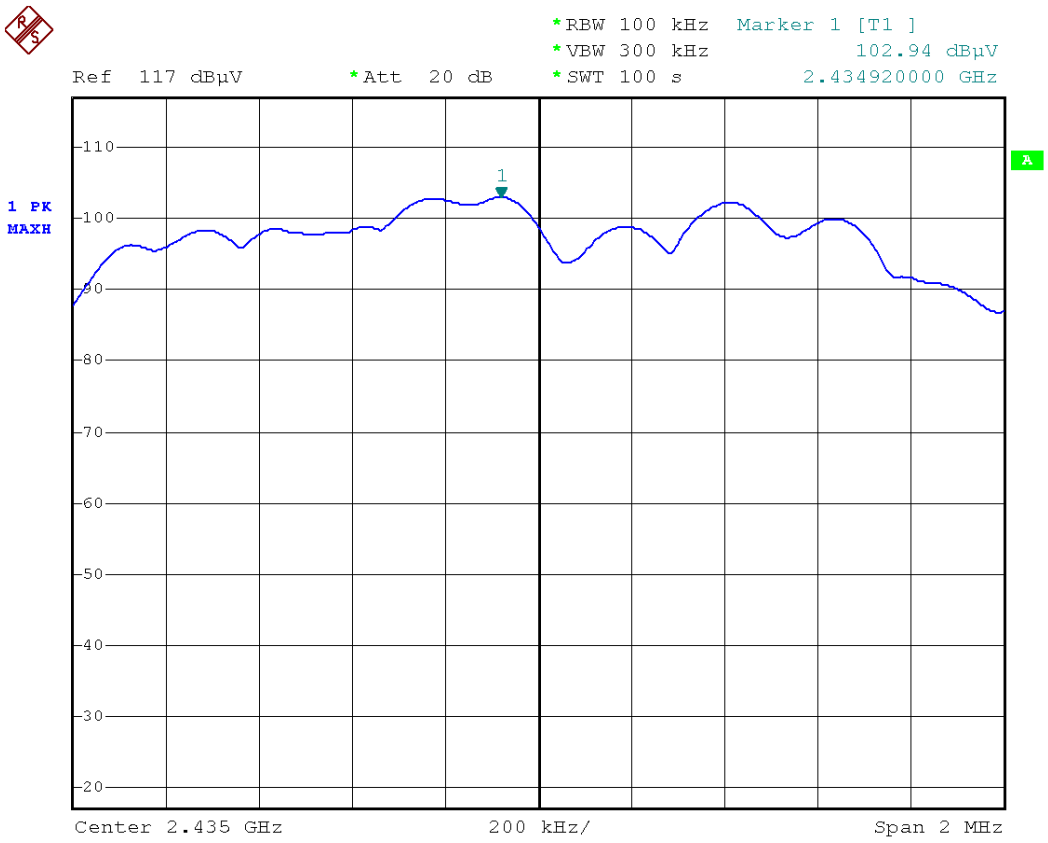


Table 5.3.15: Power Spectral Density Meter Radio High Channel Test Results Data Sheet 15

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	May 29, 2012	15.247	3m	Horn	100 kHz	300 kHz	Peak
COMMENT	Mid Channel						

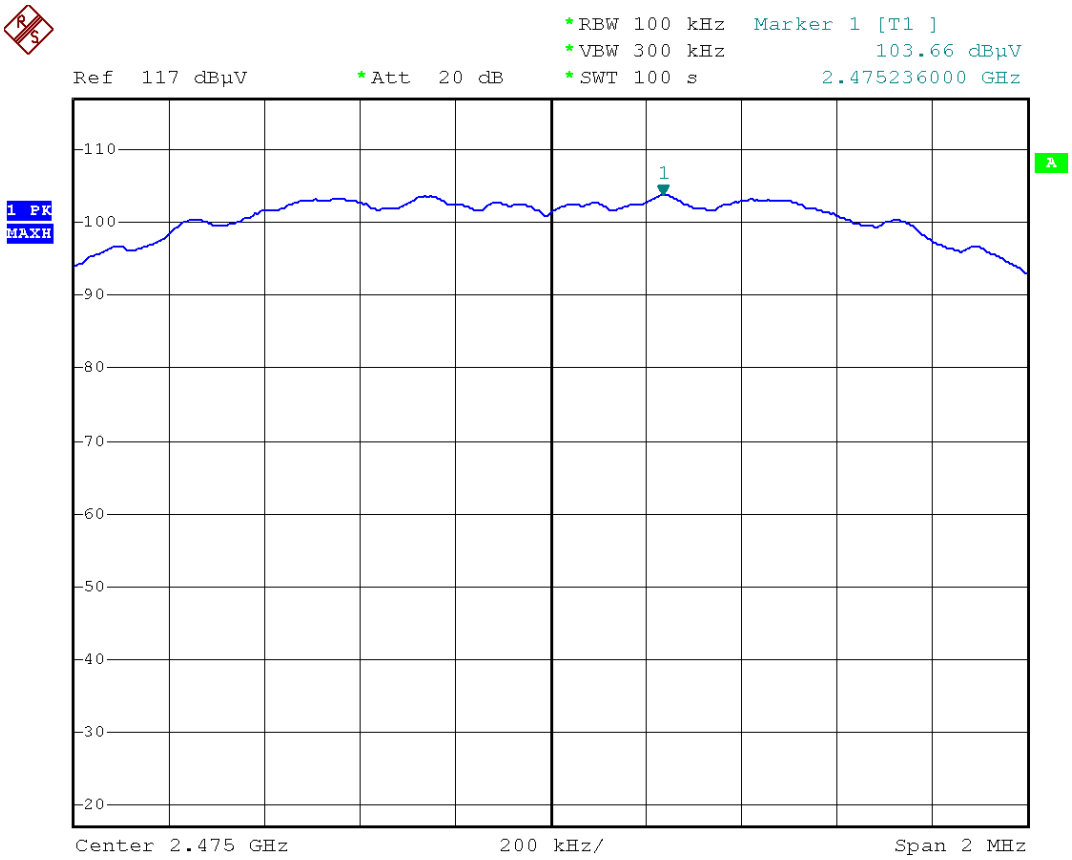
Measured Data

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)
2.48	100	1	103.66	33.7	28.0	2.8	100.8

Calculated Result

Frequency (GHz)	Field Strength (dBµV / 100 kHz)	Field Strength (dBm/100 kHz)	B.W.C.F. (dB)	E.I.R.P (dBm / 3 kHz)	Limit (dBm / 3 kHz)
2.48	100.8	-6.2	-15.23	-21.43	8

Bandwidth Correction Factor (B.W.C.F.) = 10log(3 kHz / 100 kHz)



6.0 Band Edge Spurious Emissions

Band edge spurious emissions measurements were performed on the EUT to determine compliance to FCC 15.247(c) and RSS-210.

6.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a motorized turntable, which allows 360-degree rotation. For measurements of the fundamental signal, a measurement antenna was positioned at a distance of 1 meter as measured from the closest point of the EUT. Rotating the EUT maximized the emissions.

The spectrum analyzer was set for peak detection using a 500 kHz resolution bandwidth. The span is set wide enough to show the band edge and the edge of the emission of the screen. Measurement is made at the band edge using the marker delta method while transmitting on the channels nearest the band edge to determine if the EUT meets the test criteria. The test setup is included in Appendix A.

6.2 Test Criteria

According to FCC 15.247(c) and RSS-210 the band edge spurious emissions must be 20 dB below the highest peak in the operating band in any 100 kHz bandwidth. If the frequency falls in the restricted bands of 15.205 the maximum permitted average must be below the field strength listed in 15.209.

Alternatively, the band edge spurious emissions will meet criteria if they are attenuated below the limits specified in FCC 15.209 or RSS-210 Table 3

6.3 Test Results

Band edge spurious emissions measurements were taken on March 11, 14, and 15, 2011, and the EUT was found to be in compliance with applicable requirements. Test equipment used to perform this test is given in Tables 2.3.1 and 2.3.2.

Table 6.3.1 Band Edge Spurious Emissions (Restricted Bands) B Mode Test Results Data Sheet 1

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2400	-41.14	-20.0	-21.14	Peak

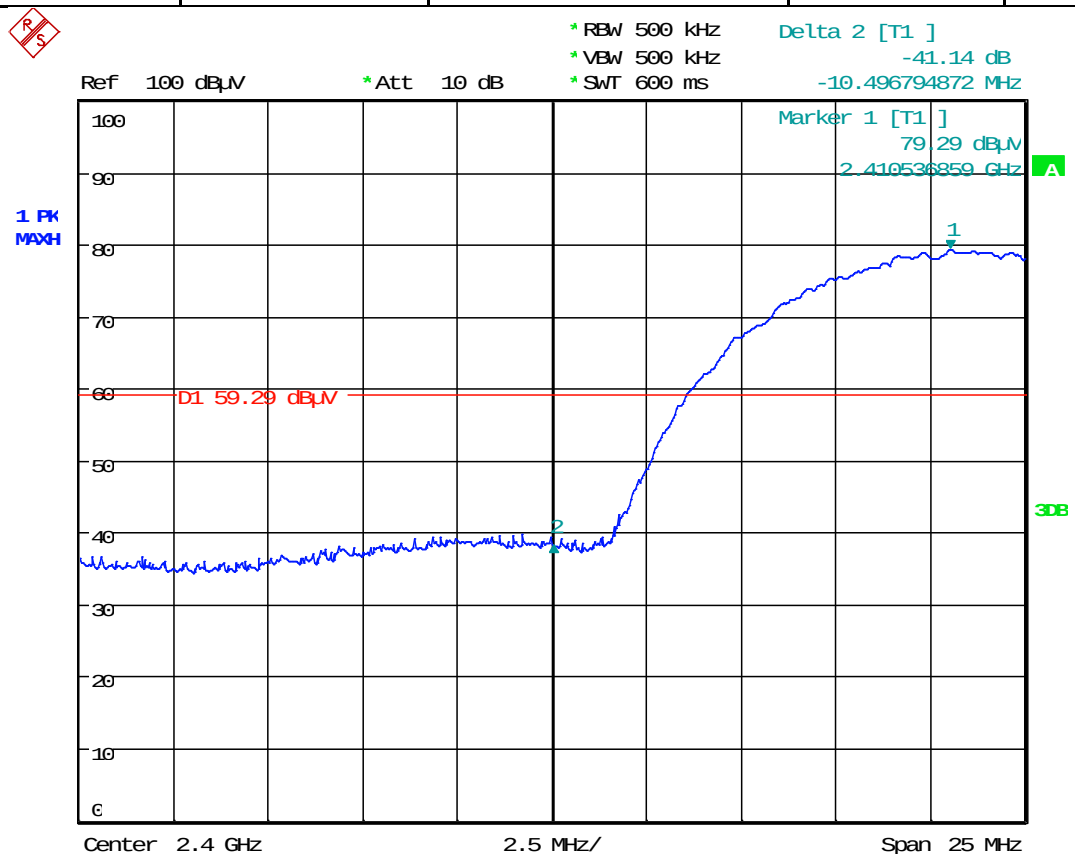
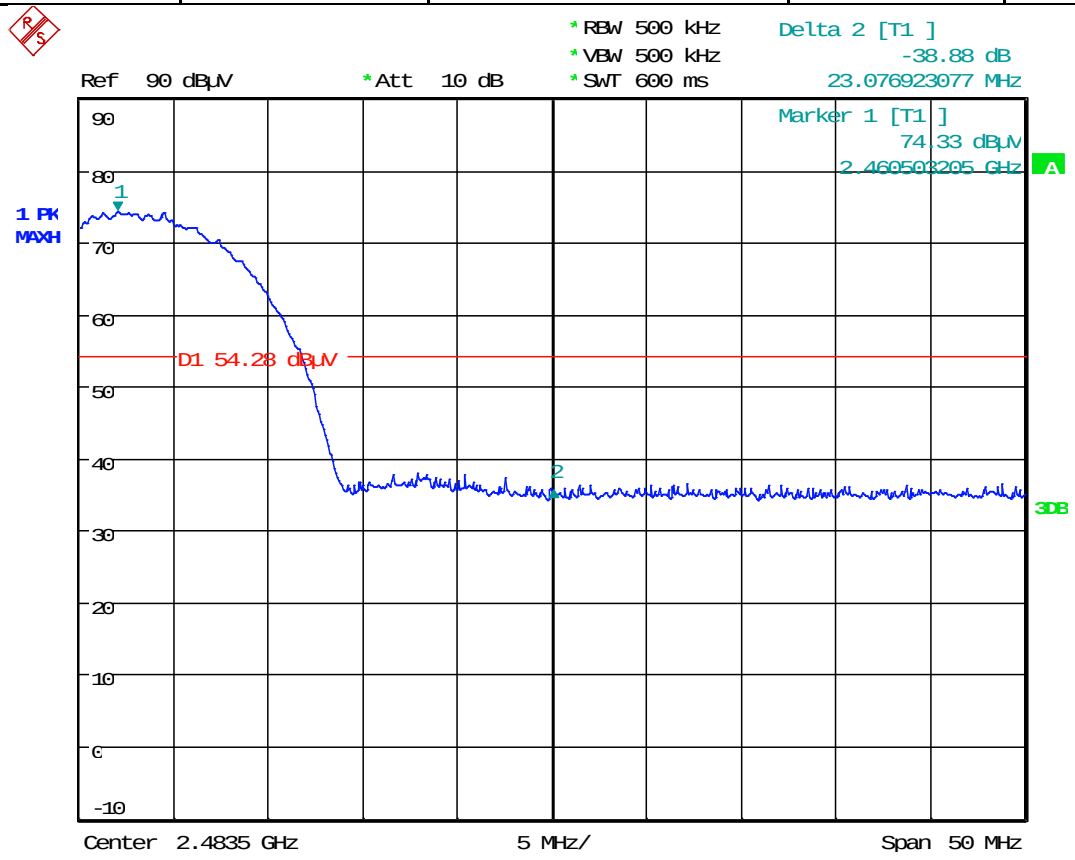


Table 6.3.2 Band Edge Spurious Emissions (Restricted Bands) B Mode Test Results Data Sheet 2

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2483.5	-38.88	-20.0	-18.88	Peak



Date: 14.MAR.2011 16:05:28

Table 6.3.3 Band Edge Spurious Emissions (Restricted Bands) B Mode Test Results Data Sheet 3

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	FCC B	1 m	Horn	1 MHz	10 Hz / 1 MHz	Average / Peak
COMMENT	Investigated Restricted Bands at 2390 MHz and 2483.5 MHz						

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Detector Function
2.39	0	1	38.2	26.4	28.1	2.8	42.7	83.5	-40.8	Peak Hold
2.39	0	1	25.5	26.4	28.1	2.8	30.0	63.5	-33.5	Average
2.4835	0	1	38.5	24.4	29.0	2.8	45.9	83.5	-37.6	Peak Hold
2.4835	0	1	27.8	24.4	29.0	2.8	35.2	63.5	-28.3	Average

Table 6.3.4 Band Edge Spurious Emissions (Restricted Bands) G Mode Test Results Data Sheet 4

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2400	-30.35	-20.0	-10.35	Peak

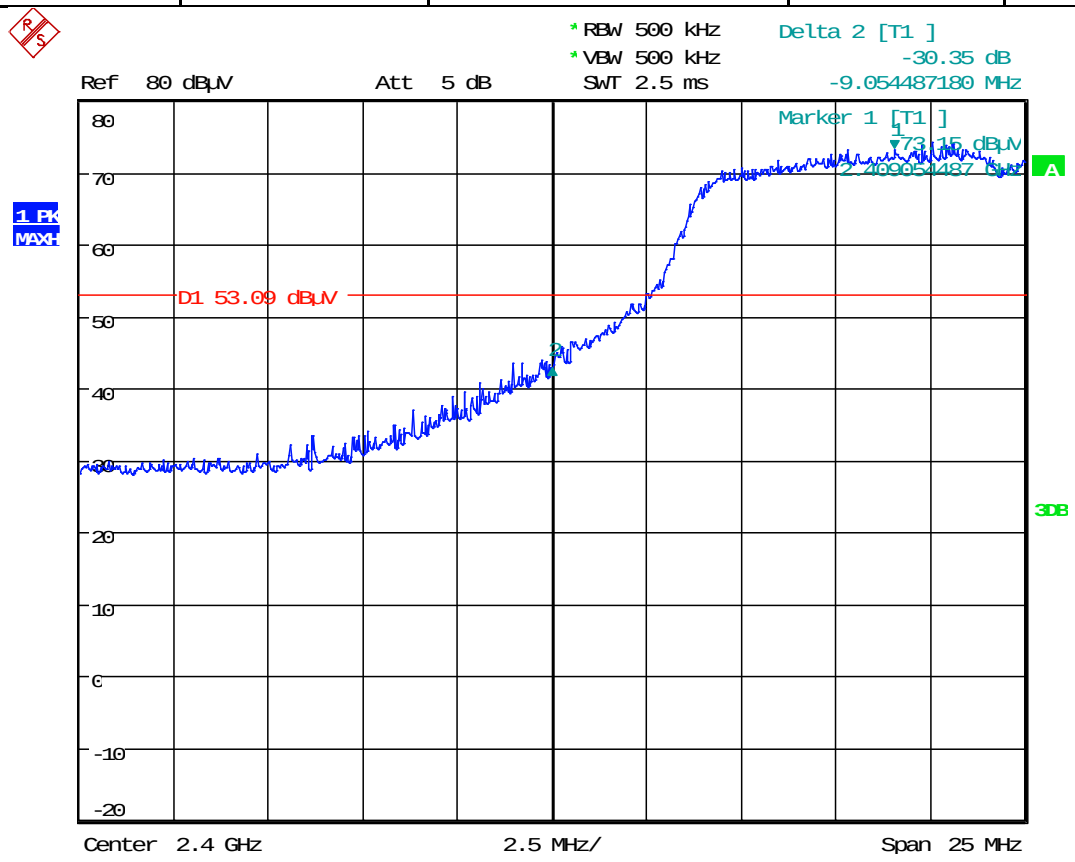


Table 6.3.5 Band Edge Spurious Emissions (Restricted Bands) G Mode Test Results Data Sheet 5

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2483.5	-35.33	-20.0	-15.33	Peak

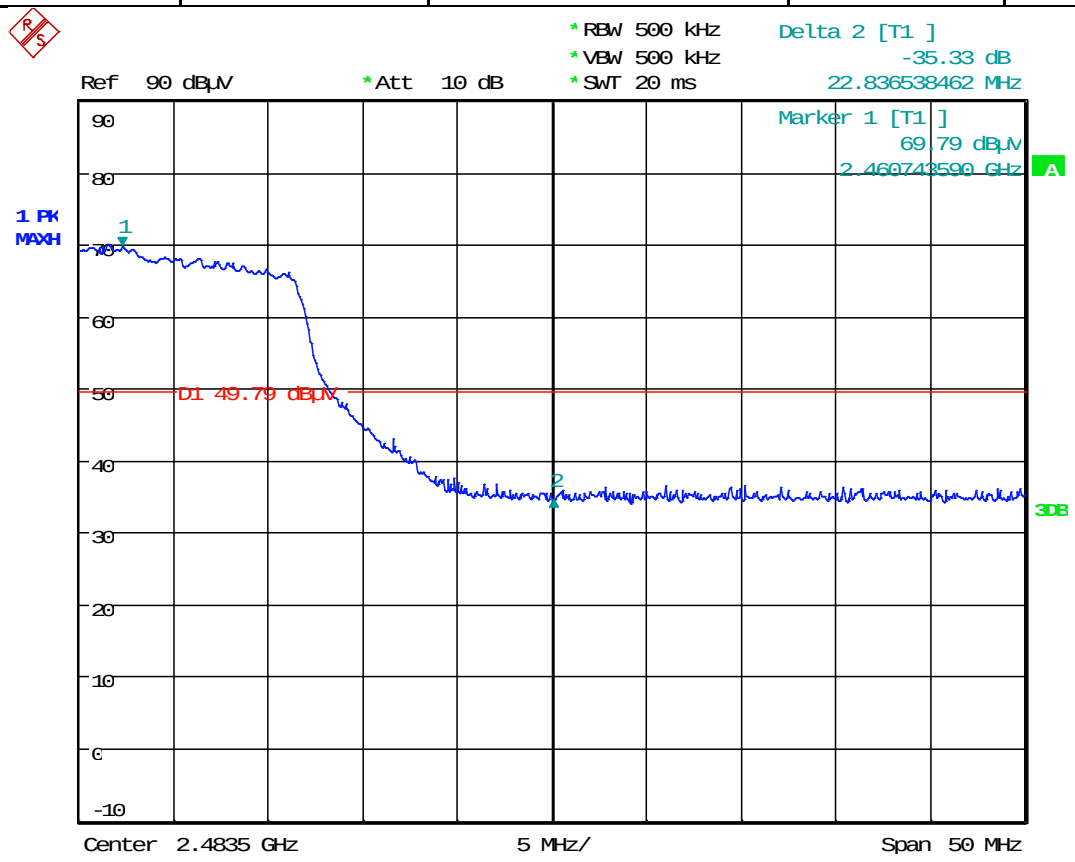


Table 6.3.6 Band Edge Spurious Emissions (Restricted Bands) G Mode Test Results Data Sheet 6

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 11, 2011	FCC B	1 m	Horn	1 MHz	10 Hz / 1 MHz	Average / Peak
COMMENT	Investigated Restricted Bands at 2390 MHz and 2483.5 MHz						

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Detector Function
2.39	0	1	31.5	26.4	28.1	2.8	36.0	83.5	-47.5	Peak Hold
2.39	0	1	21	26.4	28.1	2.8	25.5	63.5	-38.0	Average
2.4835	0	1	38.2	26.4	29.0	2.8	43.6	83.5	-39.9	Peak Hold
2.4835	0	1	29.5	26.4	29.0	2.8	34.9	63.5	-28.6	Average

Table 6.3.7 Band Edge Spurious Emissions (Restricted Bands) N Mode Test Results Data Sheet 7

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2400	-27.37	-20.0	-7.37	Peak

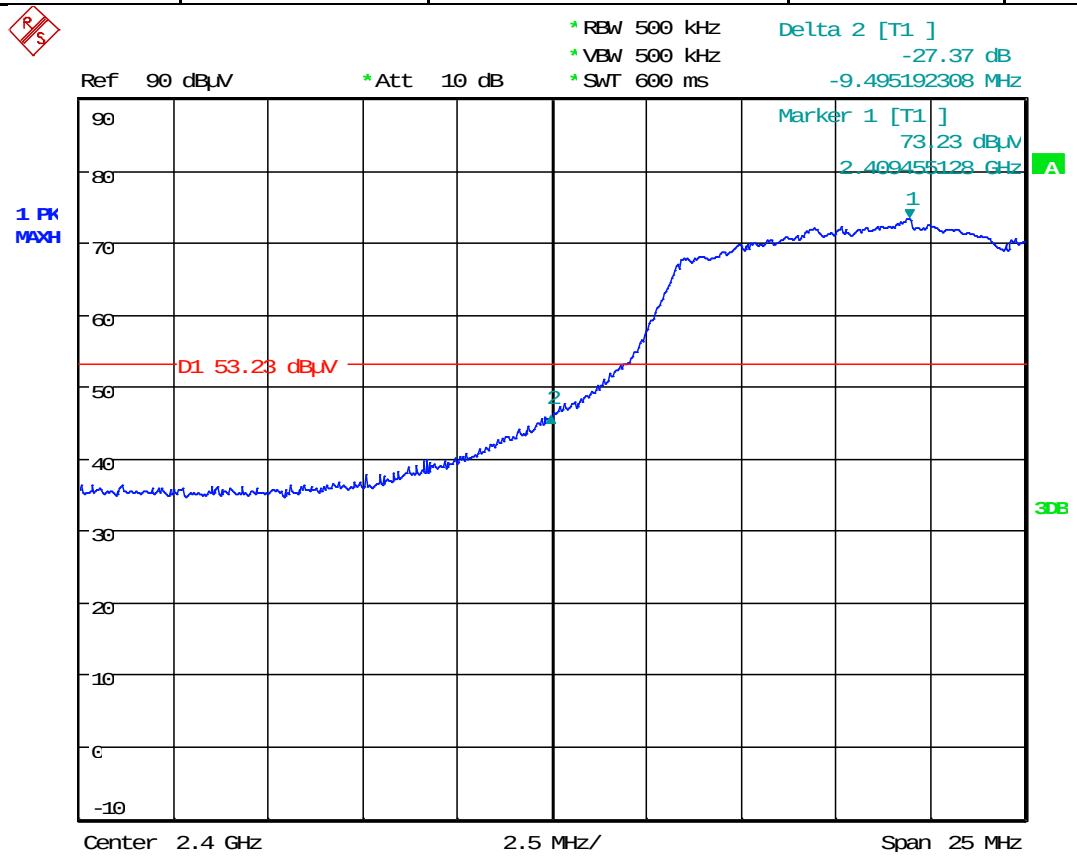


Table 6.3.8 Band Edge Spurious Emissions (Restricted Bands) N Mode Test Results Data Sheet 8

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2483.5	-30.94	-20.0	-10.94	Peak

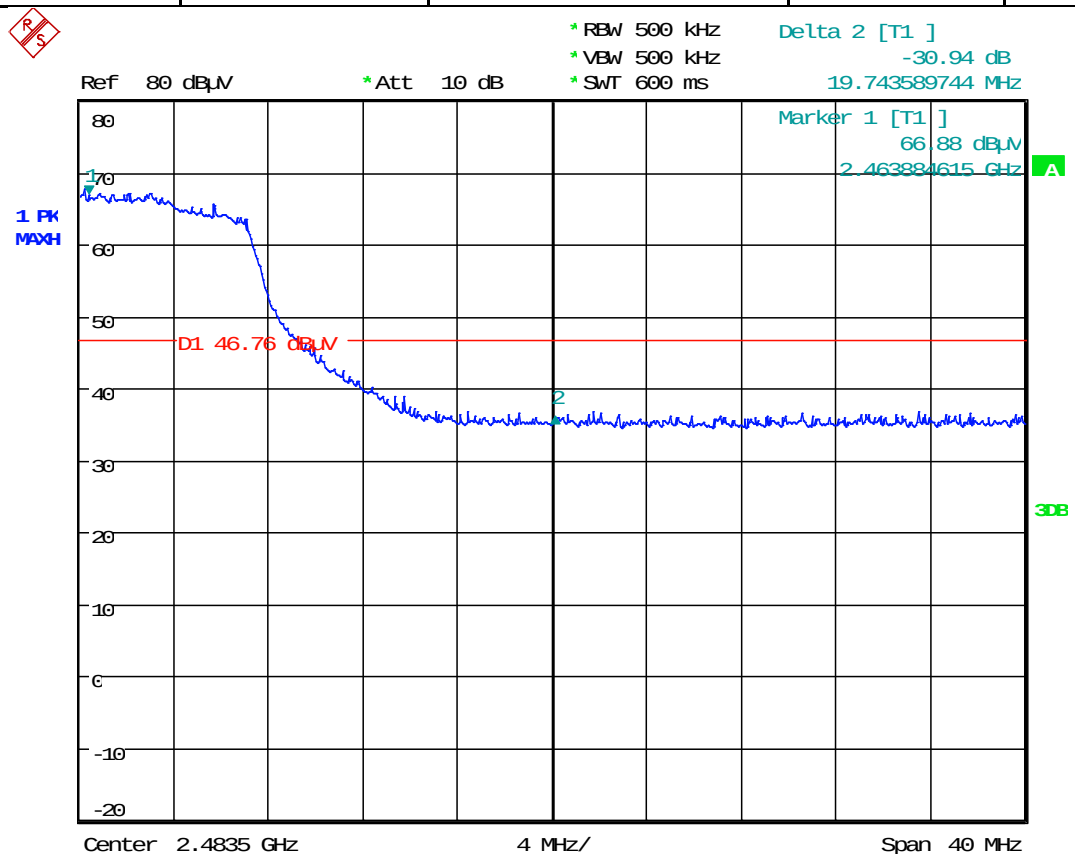


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Table 6.3.9 Band Edge Spurious Emissions (Restricted Bands) N Mode Test Results Data Sheet 9

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	FCC B	1 m	Horn	1 MHz	10 Hz / 1 MHz	Average / Peak
COMMENT	Investigated Restricted Bands at 2390 MHz and 2483.5 MHz						

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Detector Function
2.39	0	1	37.7	26.4	28.1	2.8	42.2	83.5	-41.3	Peak Hold
2.39	0	1	26.3	26.4	28.1	2.8	30.8	63.5	-32.7	Average
2.4385	0	1	38.2	26.4	29.0	2.8	43.6	83.5	-39.9	Peak Hold
2.4385	0	1	27.4	26.4	29.0	2.8	32.8	63.5	-30.7	Average

Table 6.3.10 Band Edge Spurious Emissions (Restricted Bands) HAN Radio Test Results Data Sheet 10

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2400	-41.48	-20.0	-21.48	Peak

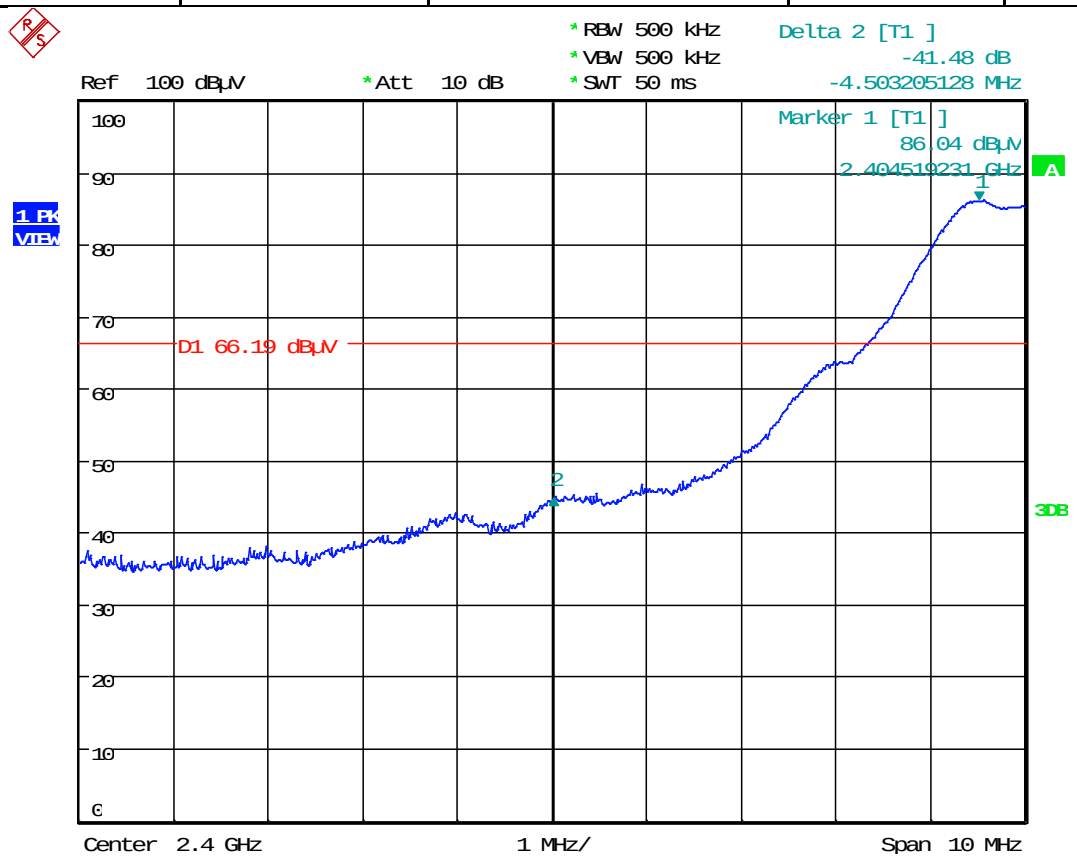

Table 6.3.11 Band Edge Spurious Emissions (Restricted Bands) HAN Radio Test Results Data Sheet 11

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2483.5	-47.24	-20.0	-27.24	Peak

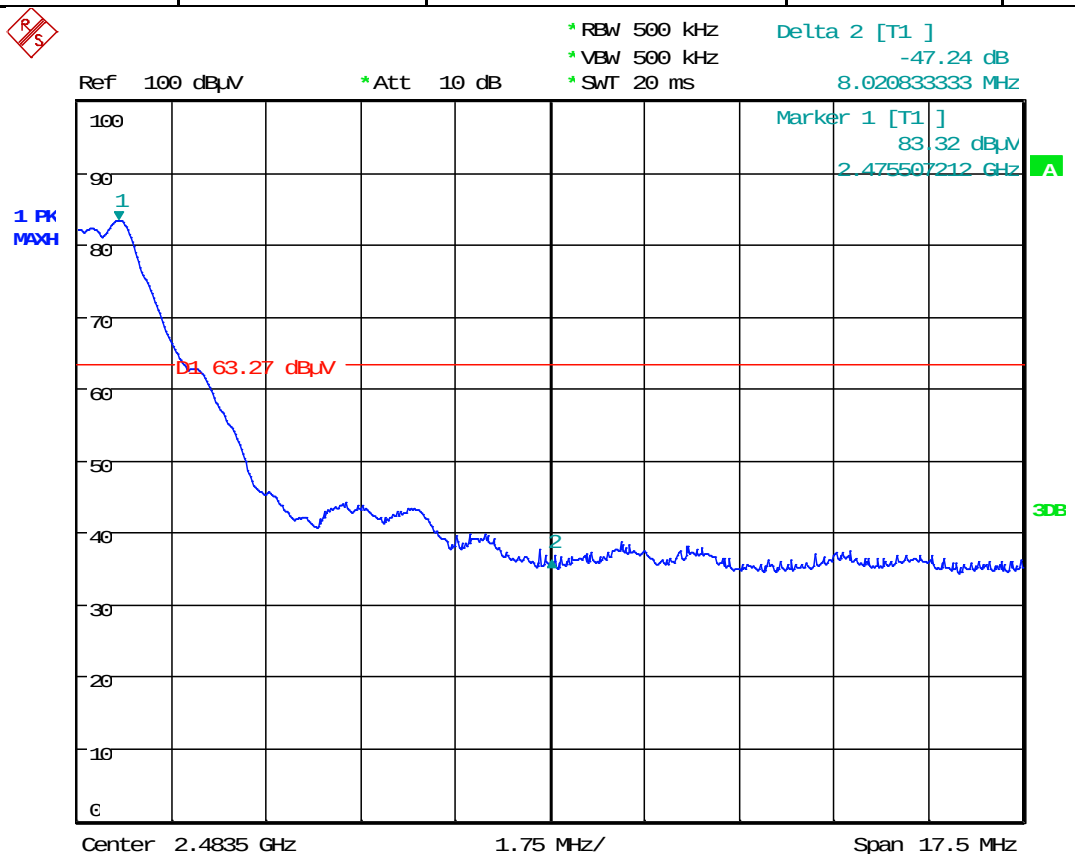

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Table 6.3.12 Band Edge Spurious Emissions (Restricted Bands) HAN Radio Test Results
Data Sheet 12

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 15, 2011	FCC B	1 m	Horn	1 MHz	10 Hz / 1 MHz	Average / Peak
COMMENT	Investigated Restricted Bands at 2390 MHz and 2483.5 MHz						

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Detector Function
2.39	0	1	39.8	40.5	28.1	2.8	30.2	83.5	-53.3	Peak Hold
2.39	0	1	27.9	40.5	28.1	2.8	18.3	63.5	-45.2	Average
2.4835	0	1	39.8	26.4	29.0	2.8	45.2	83.5	-38.3	Peak Hold
2.4835	0	1	30.7	26.4	29.0	2.8	36.1	63.5	-27.4	Average

Table 6.3.13 Band Edge Spurious Emissions (Restricted Bands) Meter Radio Test Results Data Sheet 13

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2400	-40.30	-20.0	-20.30	Peak

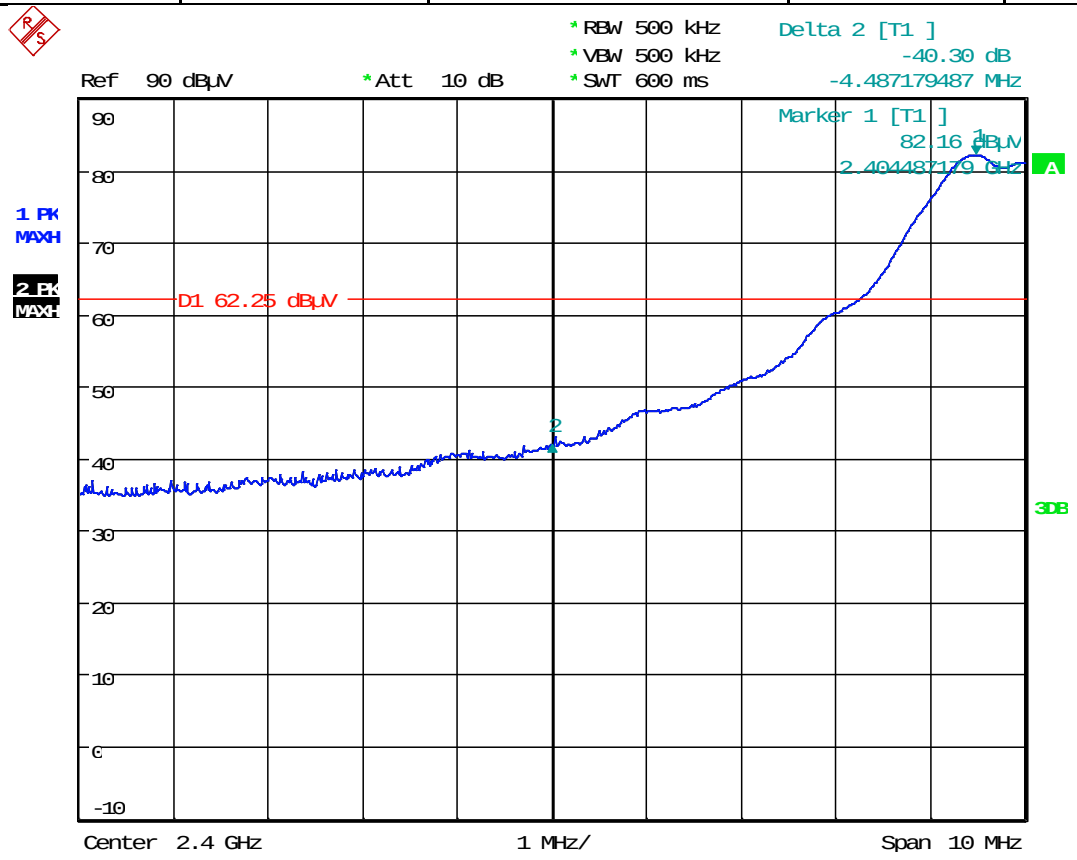

Table 6.3.14 Band Edge Spurious Emissions (Restricted Bands) Meter Radio Test Results Data Sheet 14

PROJECT #	DATE	RULE	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	15.247	1m	Horn	500 kHz	500 kHz	Peak
COMMENT	Transmitting						

Frequency (MHz)	Recorded Level (dB)	Limit (dB) down from fundamental	Margin (dB)	Detector Function
2483.5	-39.81	-20.0	-19.81	Peak

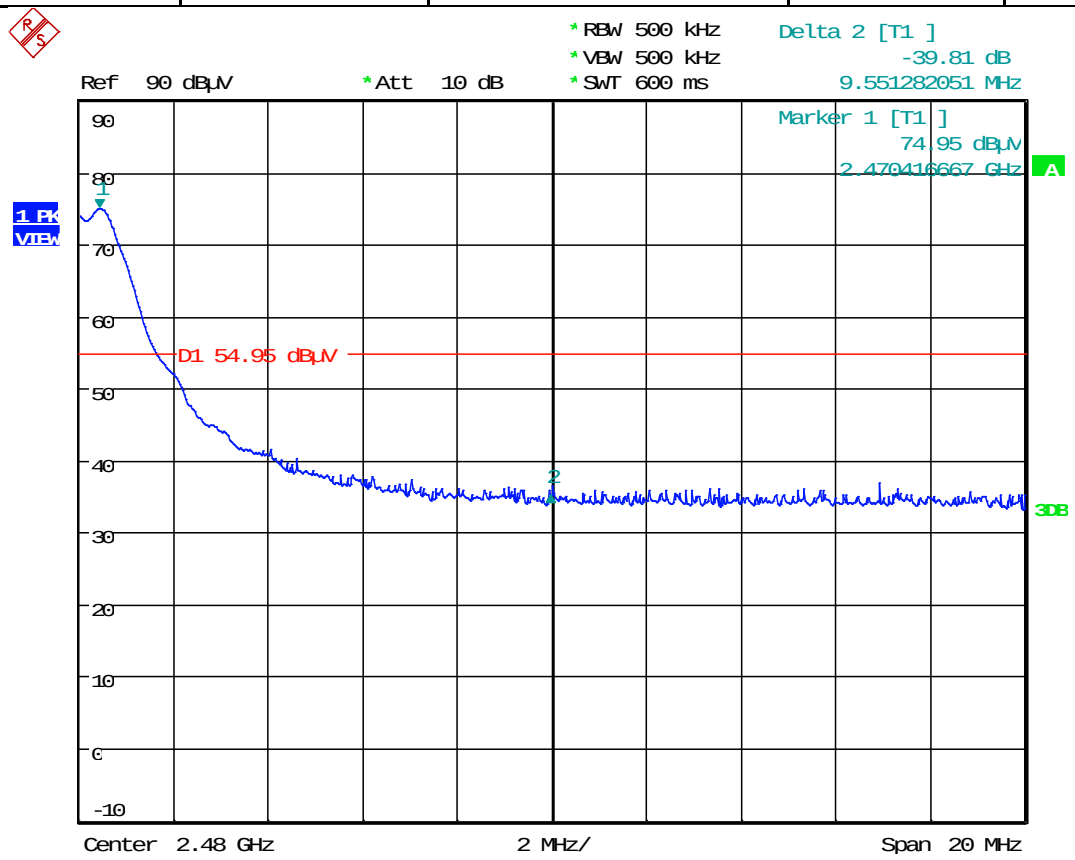

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Table 6.3.15 Band Edge Spurious Emissions (Restricted Bands) Meter Radio Test Results
Data Sheet 15

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 14, 2011	FCC B	1 m	Horn	1 MHz	10 Hz / 1 MHz	Average / Peak
COMMENT	Investigated Restricted Bands at 2390 MHz and 2483.5 MHz						

Frequency (GHz)	EUT Direction (degrees)	Antenna Elevation (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Detector Function
2.39	0	1	39.4	26.4	28.1	2.8	43.9	83.5	-39.6	Peak Hold
2.39	0	1	28.2	26.4	28.1	2.8	32.7	63.5	-30.8	Average
2.4835	0	1	39.4	26.4	29.0	2.8	44.8	83.5	-38.7	Peak Hold
2.4835	0	1	28.1	26.4	29.0	2.8	33.5	63.5	-30.0	Average

7.0 Out of Band Spurious Emissions

Out of band spurious/harmonic emissions measurements were performed on the EUT to determine compliance to FCC sections 15.247(c), 15.209 and RSS-210.

7.1 Test Procedure

The EUT was placed on a non-conductive table 0.8 meters above the ground plane. The table was centered on a rotating turntable at a distance of 10 meters from the measurement antenna.

For spurious emissions below 1 GHz, quasi-peak detection was used with a resolution bandwidth of 120 kHz. All measurements below 1 GHz were normalized to 3 meters using a 20 dB/decade distance extrapolation. The emissions were maximized by rotating the EUT and raising and lowering the measurement antenna from 1 to 4 meters.

Spurious/harmonic emissions above 1 GHz peak were measured with average and peak detection with a resolution bandwidth of 1 MHz and measured at a distance of 1 meter. Average detection was used to determine compliance of the EUT if the peak did not meet the average limit. Non-harmonic emissions must satisfy the average limit and the peak limit (20 dB above average). A diagram showing the test setup is given as Figure 2.1.1. Above 1 GHz, testing was completed at the transmit frequency to determine compliance.

7.2 Test Criteria

The radiated limits of FCC 15.209 and RSS-210 are shown below. The limits specified are at 3 meters. The limits are quasi-peak for emissions below 1 GHz and average for emissions above 1 GHz. Also above 1 GHz, the peak limit is 20 dB above the average limit.

Frequency MHz	Specification Distance (Meters)	Field Strength (dBuV/m)	Test Distance (Meters)	Field Strength (dBuV/m)
30 to 88	3	40.0	10	29.5
88 to 216	3	43.5	10	33
216 to 960	3	46.0	10	35.5
Above 960	3	54.0	1	63.5

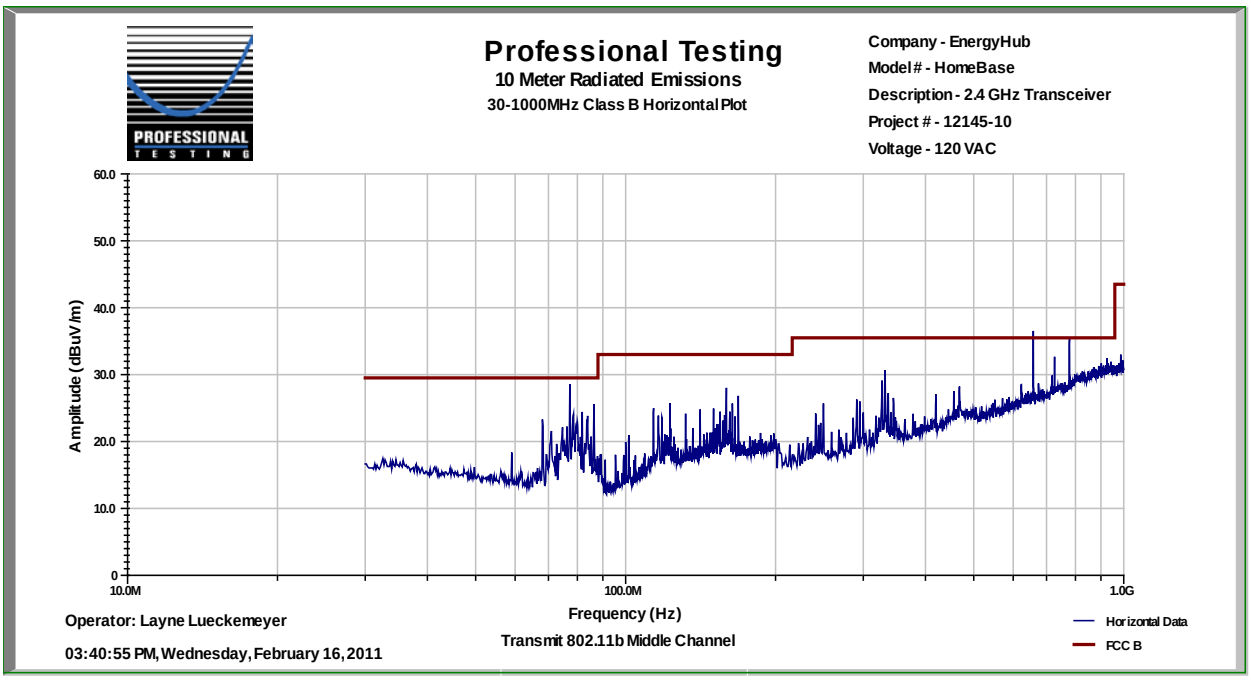
7.3 Test Results

Out of band spurious emissions measurements were taken on February 16, 22, and 23, and March 7, 2011 and the EUT was found to be in compliance with applicable requirements. Test equipment used to perform this test is given in Tables 2.3.1 and 2.3.2.

Table 7.3.1: Out of Band Spurious Emissions Test Results, B Mode 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting B Mode						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
68.255	10	21	2.6	Quasi-peak	36.3	20.5	29.5	-9.0
77.35	10	21	4	Quasi-peak	42.6	26.7	29.5	-2.8
159.195	10	12	4	Quasi-peak	36.8	25.9	33.0	-7.1
332.41	10	21	4	Quasi-peak	29.2	16.8	35.5	-18.7
660.05	10	48	4	Quasi-peak	40.0	35.4	35.5	-0.1
777.6	10	1	1	Quasi-peak	29.7	27.2	35.5	-8.3

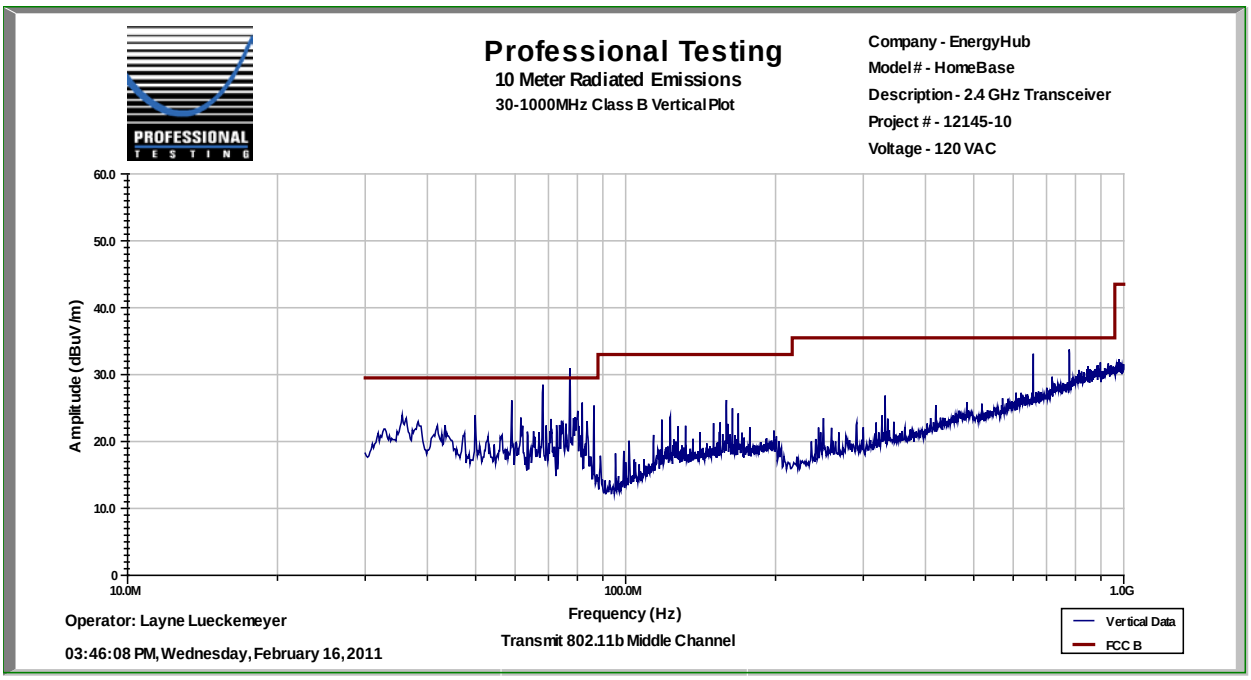


Result = Pass

Table 7.3.2: Out of Band Spurious Emissions Test Results, B Mode 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting B Mode						

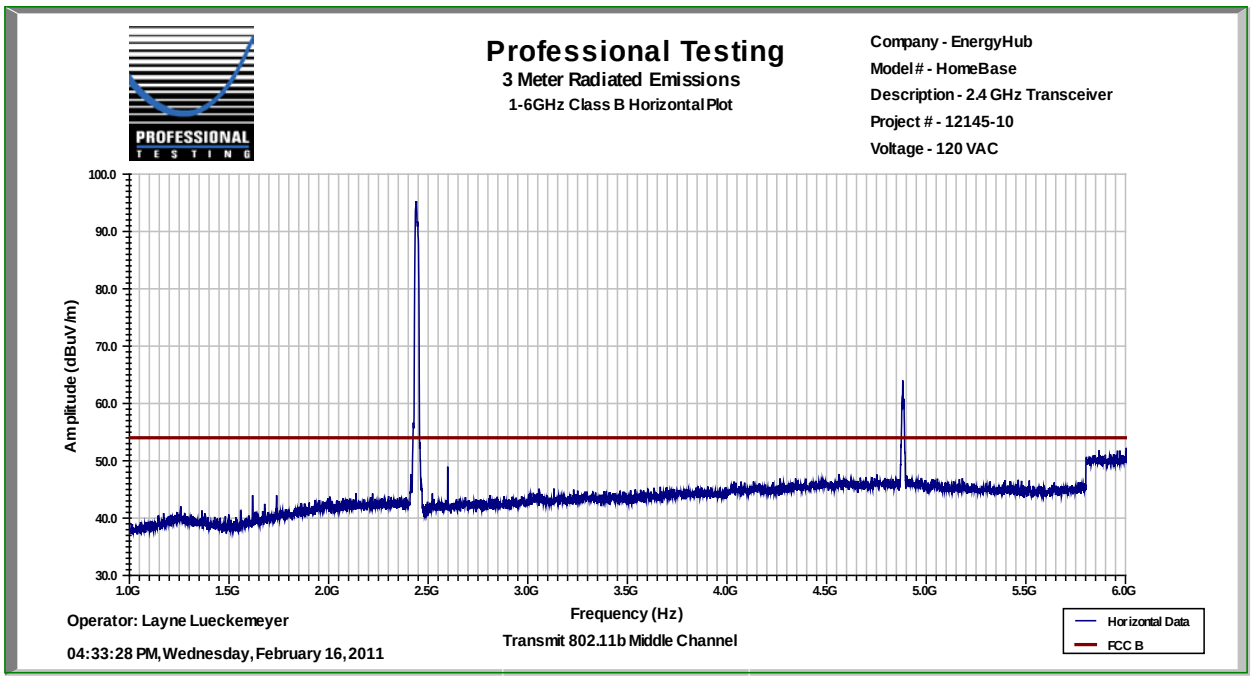
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
68.255	10	285	1.2	Quasi-peak	40.8	25.0	29.5	-4.5
77.35	10	262	1	Quasi-peak	41.5	25.6	29.5	-3.9
159.195	10	149	1	Quasi-peak	34.7	23.8	33.0	-9.2
332.41	10	298	1.2	Quasi-peak	29.4	17.0	35.5	-18.5
660.05	10	301	1.2	Quasi-peak	31.5	26.9	35.5	-8.6
777.6	10	1	1	Quasi-peak	27.8	25.3	35.5	-10.2



Result = Pass

Table 7.3.3: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 6 GHz, Horizontal Polarization

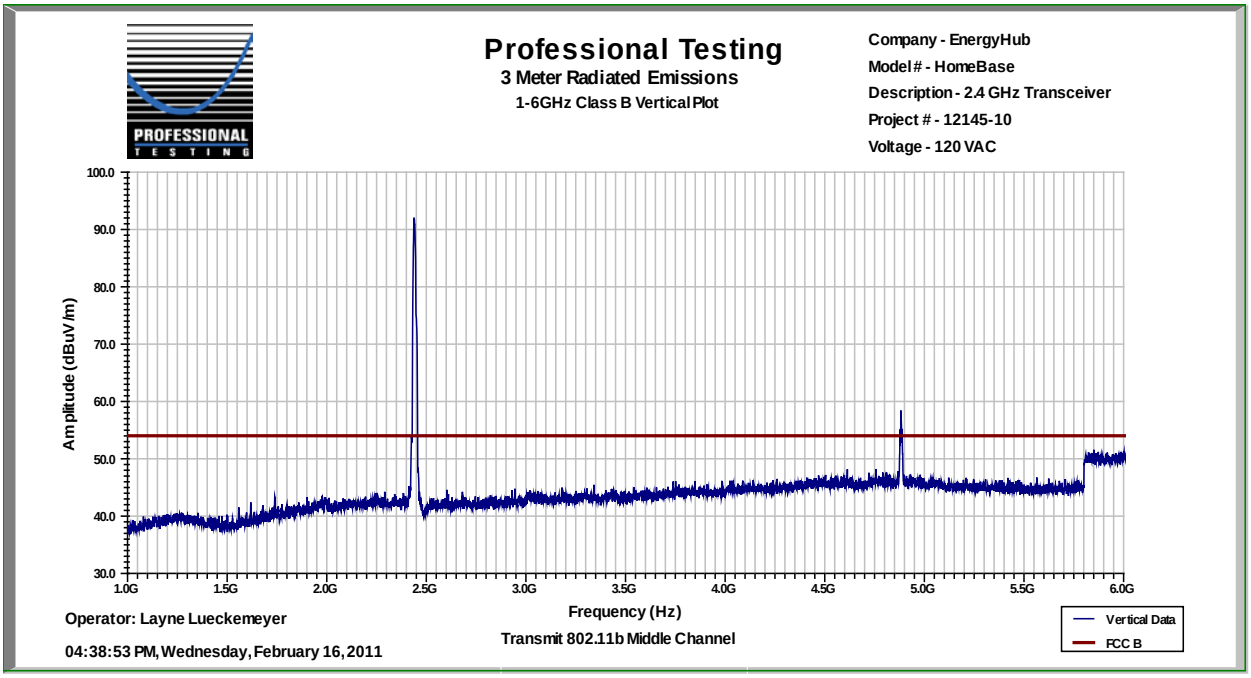
PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting B Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.4: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting B Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.5: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting B Mode Low Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.824	0	1	42	24.4	33.5	4.2	55.3	63.5	-8.2	Average
7.236	0	1	29.8	24.1	36.8	5.1	47.6	63.5	-15.9	Average
9.648	Noise	Floor	25.9	28.5	38.2	4.7	40.3	63.5	-23.2	Average
12.06	Noise	Floor	26.3	25.3	40.3	7.1	48.4	63.5	-15.1	Average
14.472	Noise	Floor	26.4	25.3	42.0	7.7	50.8	63.5	-12.7	Average
16.884	Noise	Floor	26.3	24.5	41.0	7.6	50.4	63.5	-13.1	Average
19.296	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.708	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.12	Noise	Floor	42.6	42.7	37.1	10.3	47.4	63.5	-16.1	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.824	0	1	34.7	24.4	33.5	4.2	48.0	63.5	-15.5	Average
7.236	0	1	26.4	24.1	36.8	5.1	44.2	63.5	-19.3	Average
9.648	Noise	Floor	25.9	28.5	38.2	4.7	40.3	63.5	-23.2	Average
12.06	Noise	Floor	26.3	25.3	40.3	7.1	48.4	63.5	-15.1	Average
14.472	Noise	Floor	26.4	25.3	42.0	7.7	50.8	63.5	-12.7	Average
16.884	Noise	Floor	26.3	24.5	41.0	7.6	50.4	63.5	-13.1	Average
19.296	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.708	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.12	Noise	Floor	42.6	42.7	37.1	10.3	47.4	63.5	-16.1	Average

Result = Pass

Table 7.3.6: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting B Mode Middle Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	49	24.4	33.5	4.2	62.4	63.5	-1.1	Average
7.32	0	1	37.3	24.1	36.8	5.1	55.1	63.5	-8.4	Average
9.76	Noise	Floor	35.9	24.4	38.2	5.0	54.6	63.5	-8.9	Average
12.2	Noise	Floor	35.5	26.7	39.5	5.6	53.9	63.5	-9.6	Average
14.64	Noise	Floor	34	24.5	41.4	6.1	57.0	63.5	-6.5	Average
17.08	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.52	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
21.96	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.4	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	43.3	24.4	33.5	4.2	56.7	63.5	-6.8	Average
7.32	0	1	35.8	24.1	36.8	5.1	53.6	63.5	-9.9	Average
9.76	Noise	Floor	35.9	24.4	38.2	5.0	54.6	63.5	-8.9	Average
12.2	Noise	Floor	35.5	26.7	39.5	5.6	53.9	63.5	-9.6	Average
14.64	Noise	Floor	34	24.5	41.4	6.1	57.0	63.5	-6.5	Average
17.08	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.52	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
21.96	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.4	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Result = Pass

Table 7.3.7: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting B Mode High Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	35.5	24.4	33.5	4.2	48.9	63.5	-14.6	Average
7.386	Noise	Floor	25.2	24.7	37.3	4.5	42.3	63.5	-21.2	Average
9.848	Noise	Floor	25.9	23.5	38.2	5.0	45.5	63.5	-18.0	Average
12.31	Noise	Floor	26.3	27.8	39.5	5.6	43.6	63.5	-19.9	Average
14.772	Noise	Floor	26.4	23.4	41.1	7.3	51.4	63.5	-12.1	Average
17.234	Noise	Floor	26.3	21.5	43.8	8.4	56.9	63.5	-6.6	Average
19.696	Noise	Floor	39.7	43.5	36.5	6.8	39.5	63.5	-24.0	Average
22.158	Noise	Floor	40.3	40.5	37.0	9.2	46.0	63.5	-17.5	Average
24.62	Noise	Floor	42.6	42.1	37.2	9.8	47.5	63.5	-16.0	Average

Vertical Polarization

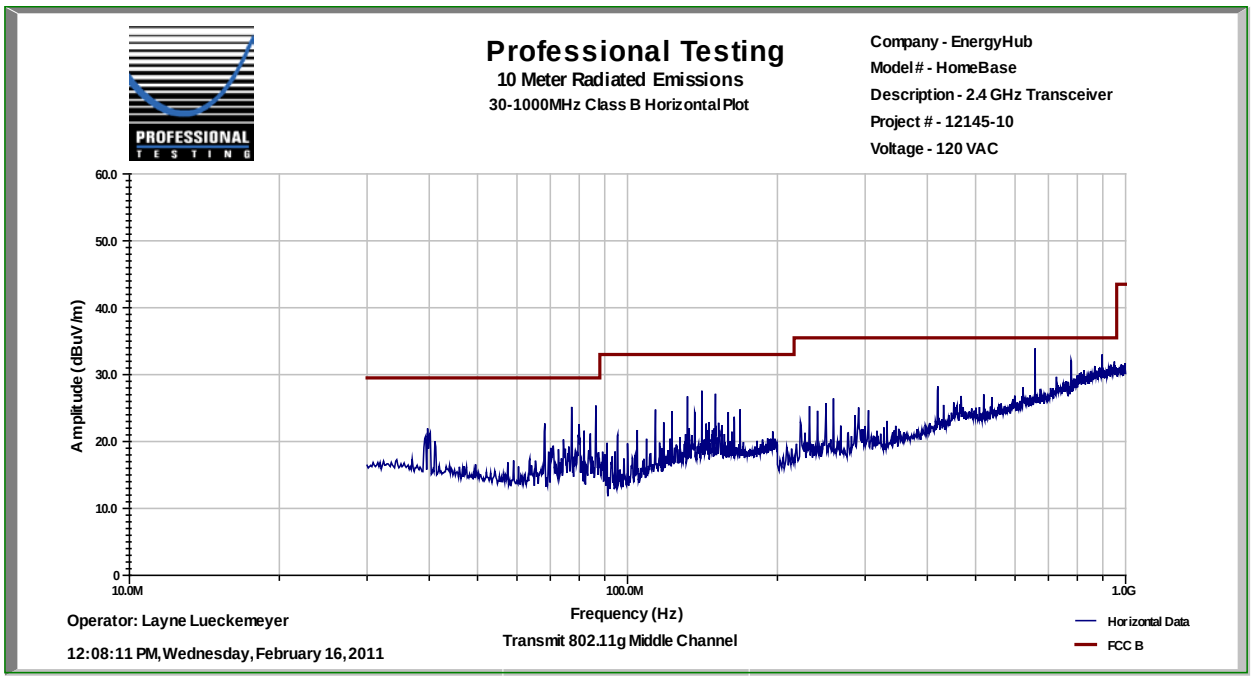
Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	30.8	24.4	33.5	4.2	44.2	63.5	-19.3	Average
7.386	Noise	Floor	25.2	24.7	37.3	4.5	42.3	63.5	-21.2	Average
9.848	Noise	Floor	25.9	23.5	38.2	5.0	45.5	63.5	-18.0	Average
12.31	Noise	Floor	26.3	27.8	39.5	5.6	43.6	63.5	-19.9	Average
14.772	Noise	Floor	26.4	23.4	41.1	7.3	51.4	63.5	-12.1	Average
17.234	Noise	Floor	26.3	21.5	43.8	8.4	56.9	63.5	-6.6	Average
19.696	Noise	Floor	39.7	43.5	36.5	6.8	39.5	63.5	-24.0	Average
22.158	Noise	Floor	40.3	40.5	37.0	9.2	46.0	63.5	-17.5	Average
24.62	Noise	Floor	42.6	42.1	37.2	9.8	47.5	63.5	-16.0	Average

Result = Pass

Table 7.3.8: Out of Band Spurious Emissions Test Results, G Mode 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting G Mode						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
86.45	10	28	4	Quasi-peak	40.6	24.1	29.5	-5.4
141.01	10	202	4	Quasi-peak	32.8	21.5	33.0	-11.5
150.17	10	22	4	Quasi-peak	31.6	20.5	33.0	-12.5
259.2	10	195	4	Quasi-peak	31.9	17.2	35.5	-18.3
420	10	1	4	Quasi-peak	26.9	17.2	35.5	-18.3
658.4	10	1	1	Quasi-peak	24.9	20.3	35.5	-15.2

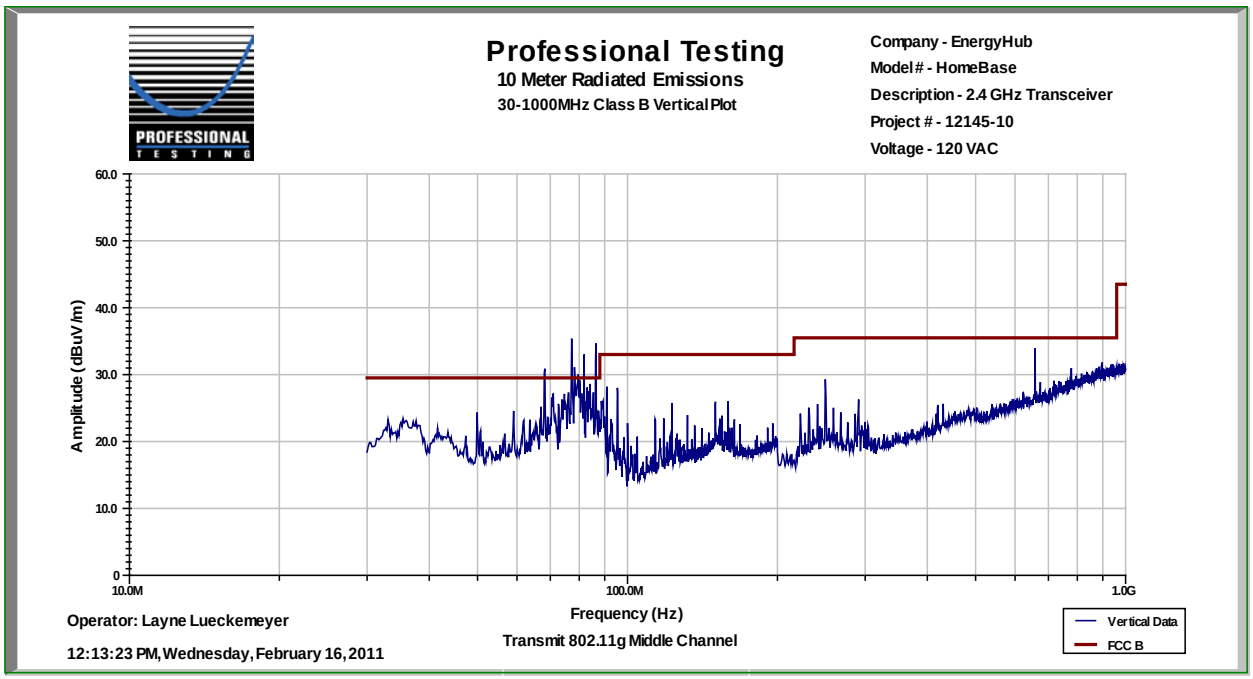


Result = Pass

Table 7.3.9: Out of Band Spurious Emissions Test Results, G Mode 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting G Mode						

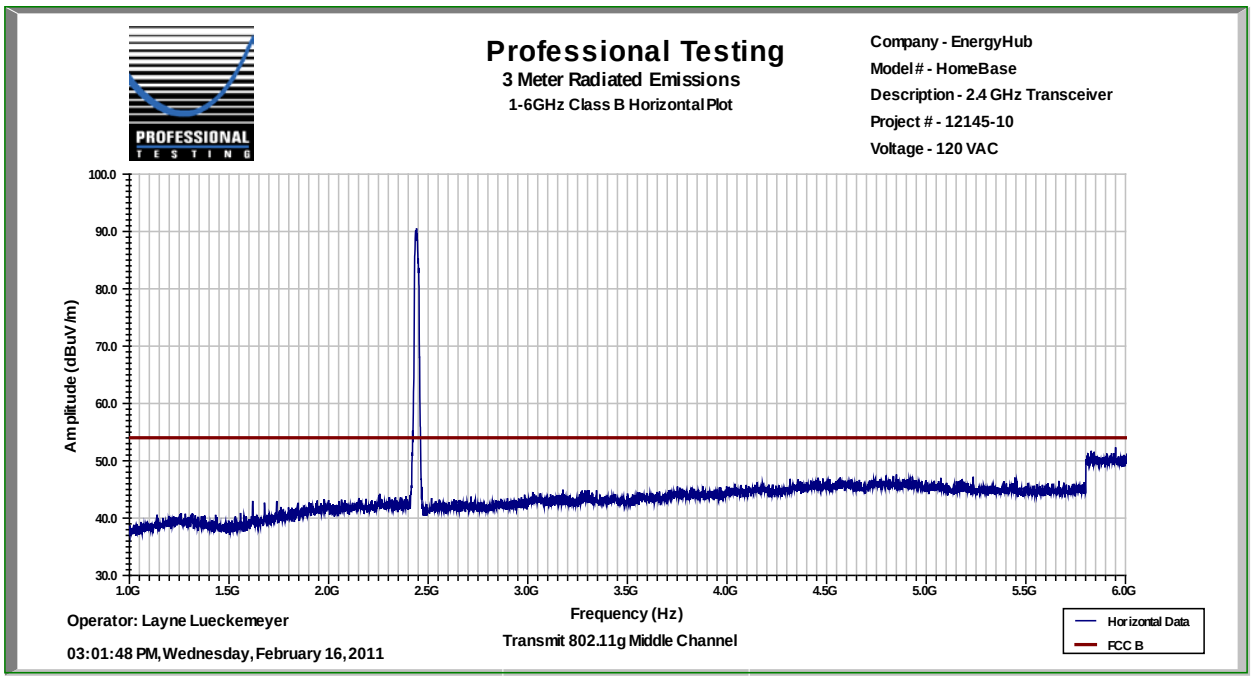
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
68.29	10	292	1.2	Quasi-peak	40.3	24.5	29.5	-5.0
77.34	10	282	1.6	Quasi-peak	45.2	29.3	29.5	-0.2
81.91	10	272	2.3	Quasi-peak	44.4	28.1	29.5	-1.4
86.45	10	79	1	Quasi-peak	43.4	26.9	29.5	-2.6
246.84	10	290	1	Quasi-peak	34.7	19.6	35.5	-15.9
658.4	10	1	1	Quasi-peak	24.4	19.8	35.5	-15.7



Result = Pass

Table 7.3.10: Out of Band Spurious Emissions Test Results, G Mode 1 GHz to 6 GHz, Horizontal Polarization

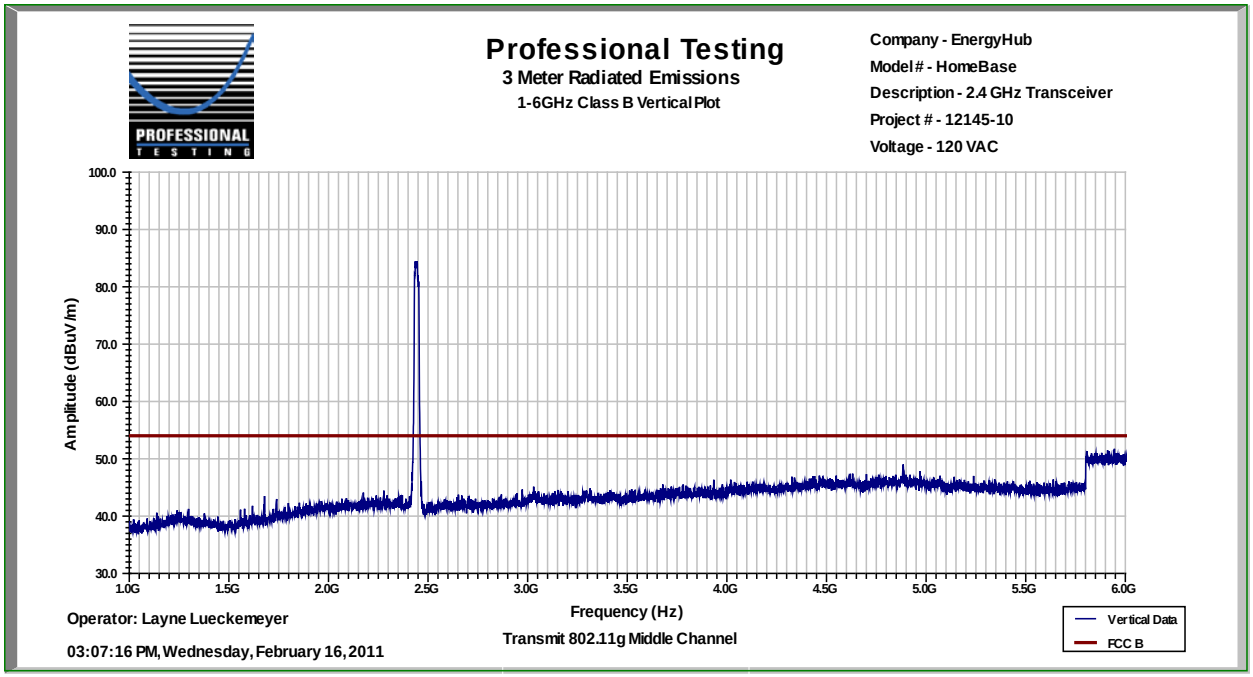
PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting G Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.11: Out of Band Spurious Emissions Test Results, B Mode 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting G Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.12: Out of Band Spurious Emissions Test Results, G Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting G Mode Low Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.82	0	1	43.5	24.4	33.5	4.2	56.8	63.5	-6.7	Average
7.236	0	1	37.8	24.1	36.8	5.1	55.6	63.5	-7.9	Average
9.648	Noise	Floor	32.9	28.5	38.2	4.7	47.3	63.5	-16.2	Average
12.06	Noise	Floor	35.5	25.3	40.3	7.1	57.6	63.5	-5.9	Average
14.472	Noise	Floor	34	25.3	42.0	7.7	58.4	63.5	-5.1	Average
16.884	Noise	Floor	33.9	24.5	41.0	7.6	58.0	63.5	-5.5	Average
19.296	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.708	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.12	Noise	Floor	42.6	42.7	37.1	10.3	47.4	63.5	-16.1	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.82	0	1	42.9	24.4	33.5	4.2	56.2	63.5	-7.3	Average
7.236	Noise	Floor	30.8	24.1	36.8	5.1	48.6	63.5	-14.9	Average
9.648	Noise	Floor	32.9	28.5	38.2	4.7	47.3	63.5	-16.2	Average
12.06	Noise	Floor	35.5	25.3	40.3	7.1	57.6	63.5	-5.9	Average
14.472	Noise	Floor	34	25.3	42.0	7.7	58.4	63.5	-5.1	Average
16.884	Noise	Floor	33.9	24.5	41.0	7.6	58.0	63.5	-5.5	Average
19.296	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.708	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.12	Noise	Floor	42.6	42.7	37.1	10.3	47.4	63.5	-16.1	Average

Result = Pass

Table 7.3.13: Out of Band Spurious Emissions Test Results, G Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting G Mode Middle Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	44.4	24.4	33.5	4.2	57.8	63.5	-5.7	Average
7.32	Noise	Floor	35.6	24.1	36.8	5.1	53.4	63.5	-10.1	Average
9.76	Noise	Floor	32.9	24.4	38.2	5.0	51.6	63.5	-11.9	Average
12.2	Noise	Floor	35.5	26.7	39.5	5.6	53.9	63.5	-9.6	Average
14.64	Noise	Floor	34	24.5	41.4	6.1	57.0	63.5	-6.5	Average
17.08	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.52	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
21.96	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.4	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	38.4	24.4	33.5	4.2	51.8	63.5	-11.7	Average
7.32	Noise	Floor	36.9	24.1	36.8	5.1	54.7	63.5	-8.8	Average
9.76	Noise	Floor	32.9	24.4	38.2	5.0	51.6	63.5	-11.9	Average
12.2	Noise	Floor	35.5	26.7	39.5	5.6	53.9	63.5	-9.6	Average
14.64	Noise	Floor	34	24.5	41.4	6.1	57.0	63.5	-6.5	Average
17.08	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.52	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
21.96	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.4	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Result = Pass

Table 7.3.14: Out of Band Spurious Emissions Test Results, G Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting G Mode High Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	63.2	41.7	33.5	4.2	59.3	63.5	-4.2	Average
7.386	Noise	Floor	56	42.6	37.3	4.5	55.1	63.5	-8.4	Average
9.848	Noise	Floor	47.4	38.9	38.2	5.0	51.6	63.5	-11.9	Average
12.31	Noise	Floor	43.9	35.6	39.5	5.6	53.4	63.5	-10.1	Average
14.772	Noise	Floor	44.8	39.3	41.1	7.3	53.9	63.5	-9.6	Average
17.234	Noise	Floor	45.7	41.4	43.8	8.4	56.5	63.5	-7.0	Average
19.696	Noise	Floor	39.7	43.5	36.5	6.8	39.5	63.5	-24.0	Average
22.158	Noise	Floor	40.3	40.5	37.0	9.2	46.0	63.5	-17.5	Average
24.62	Noise	Floor	42.6	42.1	37.2	9.8	47.5	63.5	-16.0	Average

Vertical Polarization

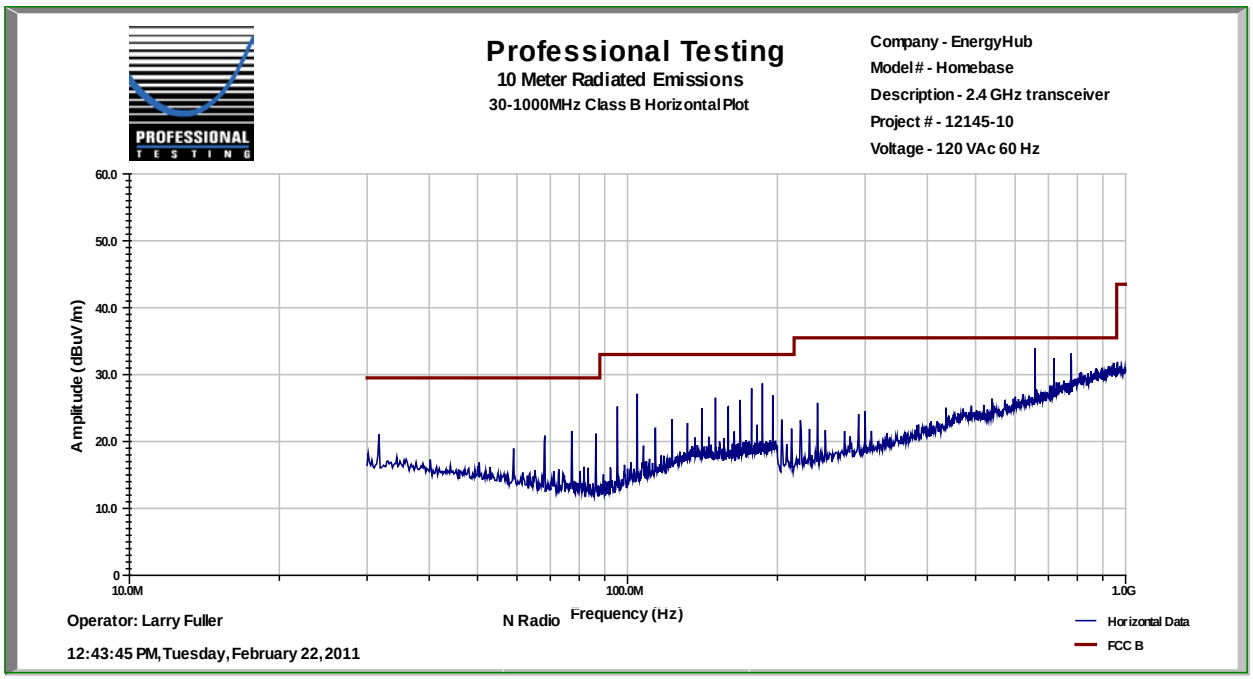
Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	59.9	41.7	33.5	4.2	56.0	63.5	-7.5	Average
7.386	Noise	Floor	51.1	42.6	37.3	4.5	50.2	63.5	-13.3	Average
9.848	Noise	Floor	47.2	38.9	38.2	5.0	51.4	63.5	-12.1	Average
12.31	Noise	Floor	42.3	35.6	39.5	5.6	51.8	63.5	-11.7	Average
14.772	Noise	Floor	41.3	39.3	41.1	7.3	50.4	63.5	-13.1	Average
17.234	Noise	Floor	42.8	41.4	43.8	8.4	53.6	63.5	-9.9	Average
19.696	Noise	Floor	39.7	43.5	36.5	6.8	39.5	63.5	-24.0	Average
22.158	Noise	Floor	40.3	40.5	37.0	9.2	46.0	63.5	-17.5	Average
24.62	Noise	Floor	42.6	42.1	37.2	9.8	47.5	63.5	-16.0	Average

Result = Pass

Table 7.3.15: Out of Band Spurious Emissions Test Results, N Mode 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting N Mode						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
40.895	10	54	2.2	Quasi-peak	22.9	9.6	29.5	-19.9
77.335	10	28	4	Quasi-peak	33.6	17.7	29.5	-11.8
100.11	10	123	4	Quasi-peak	30.1	14.9	33.0	-18.1
104.63	10	106	4	Quasi-peak	35.9	21.3	33.0	-11.7
113.7	10	79	4	Quasi-peak	32.9	19.6	33.0	-13.4
122.8	10	223	2.7	Quasi-peak	30.7	18.3	33.0	-14.7

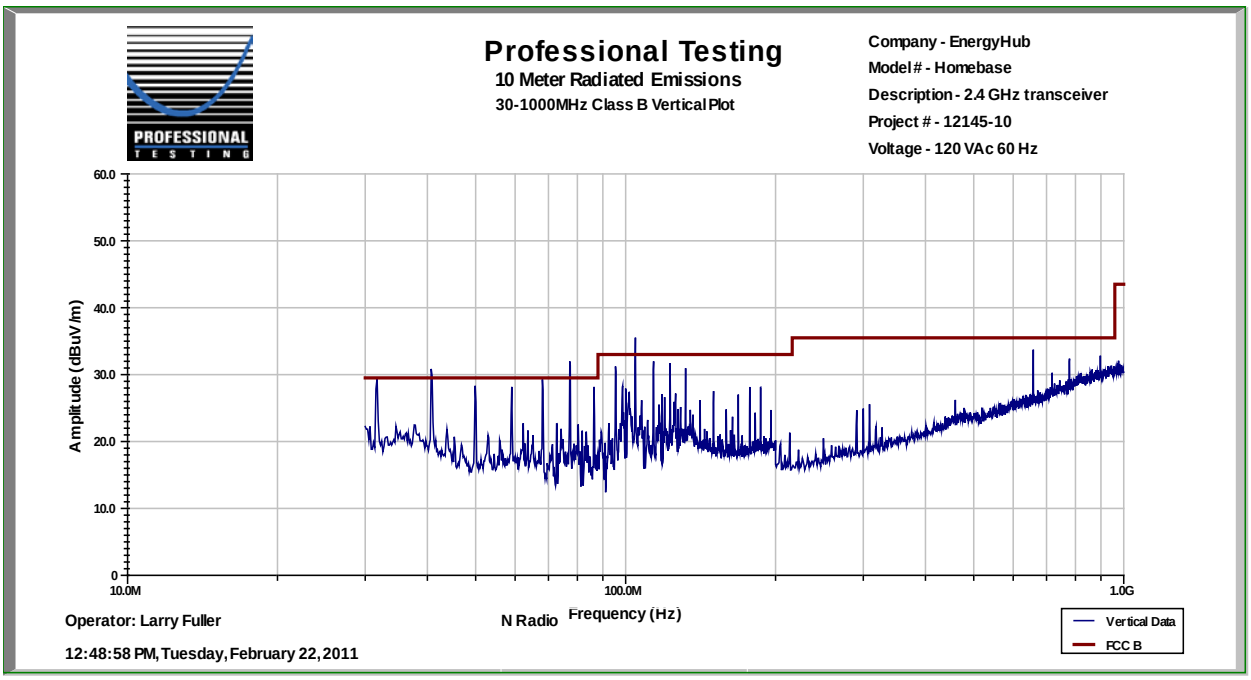


Result = Pass

Table 7.3.16: Out of Band Spurious Emissions Test Results, N Mode 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting N Mode						

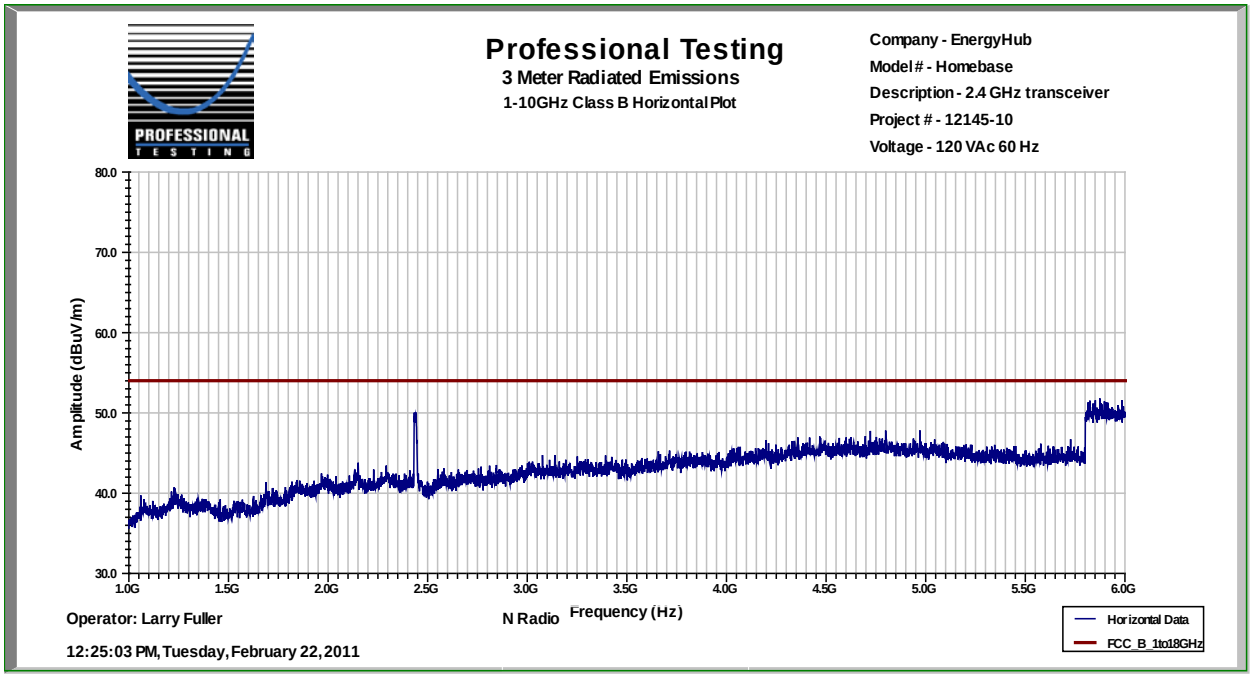
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
40.895	10	301	2	Quasi-peak	32.6	19.3	29.5	-10.2
77.355	10	283	2	Quasi-peak	43.5	27.6	29.5	-1.9
100.11	10	282	1.7	Quasi-peak	41.9	26.7	33.0	-6.3
104.63	10	328	1	Quasi-peak	46.2	31.6	33.0	-1.4
113.7	10	180	1	Quasi-peak	40.9	27.6	33.0	-5.4
122.8	10	158	1	Quasi-peak	41.9	29.5	33.0	-3.5



Result = Pass

Table 7.3.17: Out of Band Spurious Emissions Test Results, N Mode 1 GHz to 6 GHz, Horizontal Polarization

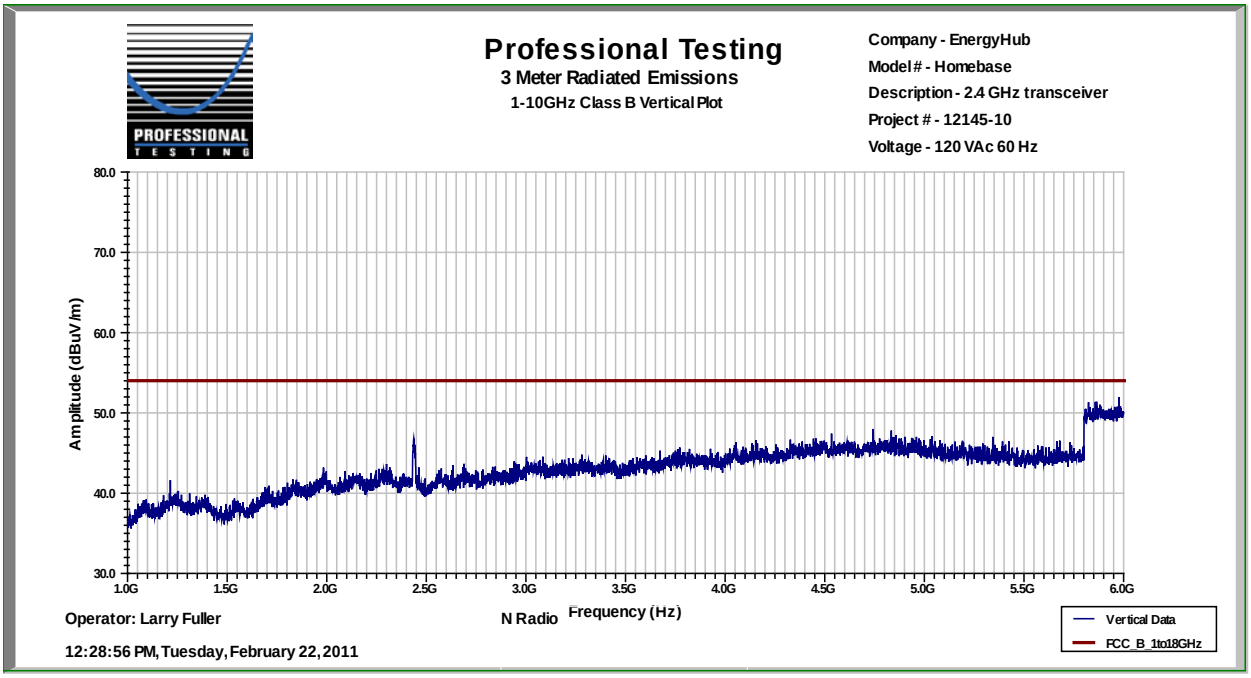
PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting N Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.18: Out of Band Spurious Emissions Test Results, N Mode 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting N Mode						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.19: Out of Band Spurious Emissions Test Results, N Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting N Mode Low Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.824	0	1	39.4	24.4	33.5	4.2	52.7	63.5	-10.8	Average
7.236	0	1	30.4	24.1	36.8	5.1	48.2	63.5	-15.3	Average
9.648	Noise	Floor	29	28.5	38.2	4.7	43.4	63.5	-20.1	Average
12.06	Noise	Floor	30.4	25.3	40.3	7.1	52.5	63.5	-11.0	Average
14.472	Noise	Floor	30.3	25.3	42.0	7.7	54.7	63.5	-8.8	Average
16.884	Noise	Floor	31	24.5	41.0	7.6	55.1	63.5	-8.4	Average
19.296	Noise	Floor	38.5	43.2	36.6	8.8	40.7	63.5	-22.8	Average
21.708	Noise	Floor	38.7	41.8	36.9	9.5	43.3	63.5	-20.2	Average
24.12	Noise	Floor	39.3	42.7	37.1	10.3	44.1	63.5	-19.4	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.824	0	1	34.5	24.4	33.5	4.2	47.8	63.5	-15.7	Average
7.236	0	1	31.6	24.1	36.8	5.1	49.4	63.5	-14.1	Average
9.648	Noise	Floor	29	28.5	38.2	4.7	43.4	63.5	-20.1	Average
12.06	Noise	Floor	30.4	25.3	40.3	7.1	52.5	63.5	-11.0	Average
14.472	Noise	Floor	30.3	25.3	42.0	7.7	54.7	63.5	-8.8	Average
16.884	Noise	Floor	31	24.5	41.0	7.6	55.1	63.5	-8.4	Average
19.296	Noise	Floor	38.5	43.2	36.6	8.8	40.7	63.5	-22.8	Average
21.708	Noise	Floor	38.7	41.8	36.9	9.5	43.3	63.5	-20.2	Average
24.12	Noise	Floor	39.3	42.7	37.1	10.3	44.1	63.5	-19.4	Average

Result = Pass

Table 7.3.20: Out of Band Spurious Emissions Test Results, N Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting N Mode Middle Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	41	24.4	33.5	4.2	54.4	63.5	-9.1	Average
7.32	0	1	36.5	24.1	36.8	5.1	54.3	63.5	-9.2	Average
9.76	Noise	Floor	29	28.5	38.2	5.0	43.6	63.5	-19.9	Average
12.2	Noise	Floor	30.4	25.3	39.5	5.6	50.2	63.5	-13.3	Average
14.64	Noise	Floor	30.3	25.3	41.4	6.1	52.5	63.5	-11.0	Average
17.08	Noise	Floor	31	24.5	42.7	7.6	56.8	63.5	-6.7	Average
19.52	Noise	Floor	38.5	43.5	36.5	6.7	38.2	63.5	-25.3	Average
21.96	Noise	Floor	38.7	40.6	36.9	10.4	45.4	63.5	-18.1	Average
24.4	Noise	Floor	39.3	42.2	37.2	10.3	44.5	63.5	-19.0	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.88	0	1	38.1	24.4	33.5	4.2	51.5	63.5	-12.0	Average
7.32	0	1	36.3	24.1	36.8	5.1	54.1	63.5	-9.4	Average
9.76	Noise	Floor	29	28.5	38.2	5.0	43.6	63.5	-19.9	Average
12.2	Noise	Floor	30.4	25.3	39.5	5.6	50.2	63.5	-13.3	Average
14.64	Noise	Floor	30.3	25.3	41.4	6.1	52.5	63.5	-11.0	Average
17.08	Noise	Floor	31	24.5	42.7	7.6	56.8	63.5	-6.7	Average
19.52	Noise	Floor	38.5	43.5	36.5	6.7	38.2	63.5	-25.3	Average
21.96	Noise	Floor	38.7	40.6	36.9	10.4	45.4	63.5	-18.1	Average
24.4	Noise	Floor	39.3	42.2	37.2	10.3	44.5	63.5	-19.0	Average

Result = Pass

Table 7.3.21: Out of Band Spurious Emissions Test Results, N Mode 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting N Mode High Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	41.9	24.4	33.5	4.2	55.3	63.5	-8.2	Average
7.386	0	1	35.3	24.7	37.3	4.5	52.4	63.5	-11.1	Average
9.848	Noise	Floor	29	23.5	38.2	5.0	48.6	63.5	-14.9	Average
12.31	Noise	Floor	30.4	27.8	39.5	5.6	47.7	63.5	-15.8	Average
14.772	Noise	Floor	30.3	23.4	41.1	7.3	55.3	63.5	-8.2	Average
17.234	Noise	Floor	31	21.5	43.8	8.4	61.6	63.5	-1.9	Average
19.696	Noise	Floor	38.5	43.5	36.5	6.8	38.3	63.5	-25.2	Average
22.158	Noise	Floor	38.7	40.5	37.0	9.2	44.4	63.5	-19.1	Average
24.62	Noise	Floor	39.3	42.1	37.2	9.8	44.2	63.5	-19.3	Average

Vertical Polarization

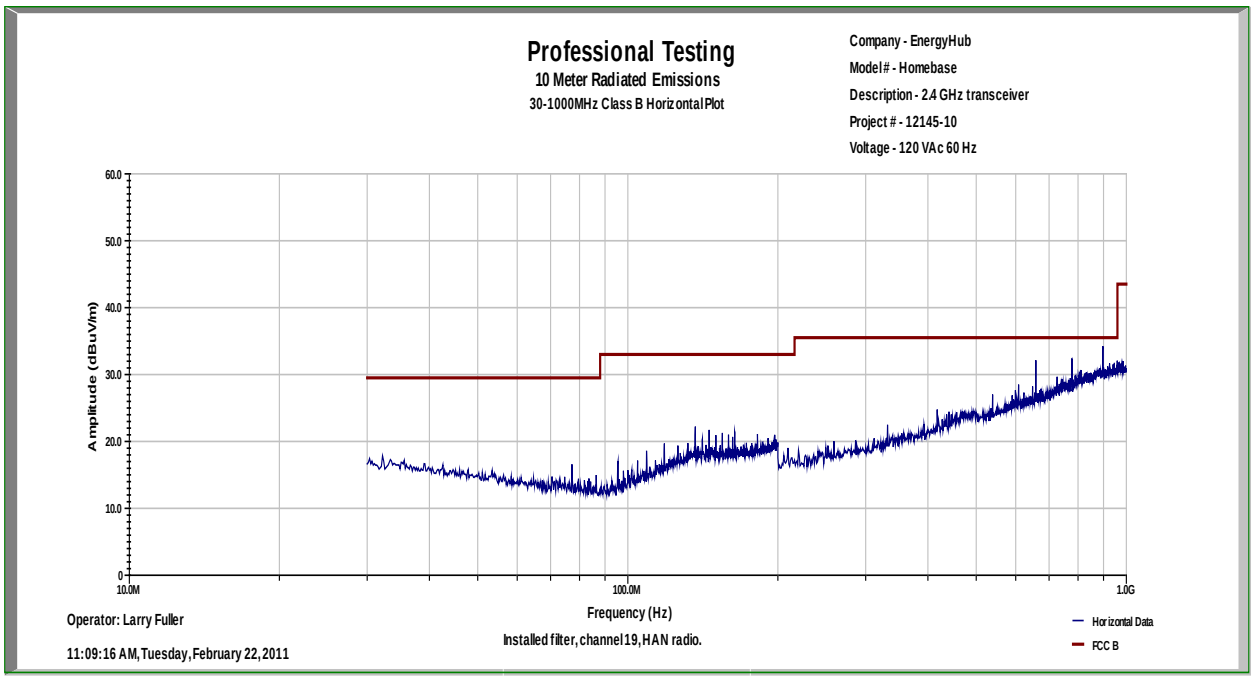
Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.924	0	1	39.1	24.4	33.5	4.2	52.5	63.5	-11.0	Average
7.386	0	1	34.6	24.7	37.3	4.5	51.7	63.5	-11.8	Average
9.848	Noise	Floor	29	23.5	38.2	5.0	48.6	63.5	-14.9	Average
12.31	Noise	Floor	30.4	27.8	39.5	5.6	47.7	63.5	-15.8	Average
14.772	Noise	Floor	30.3	23.4	41.1	7.3	55.3	63.5	-8.2	Average
17.234	Noise	Floor	31	21.5	43.8	8.4	61.6	63.5	-1.9	Average
19.696	Noise	Floor	38.5	43.5	36.5	6.8	38.3	63.5	-25.2	Average
22.158	Noise	Floor	38.7	40.5	37.0	9.2	44.4	63.5	-19.1	Average
24.62	Noise	Floor	39.3	42.1	37.2	9.8	44.2	63.5	-19.3	Average

Result = Pass

Table 7.3.22: Out of Band Spurious Emissions Test Results, HAN Radio 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting HAN Radio						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
95.566	10	285	4	Quasi-peak	30.2	14.3	33.0	-18.7
98.055	10	89	4	Quasi-peak	25.3	9.8	33.0	-23.2
104.625	10	235	4	Quasi-peak	28.5	13.9	33.0	-19.1
118.276	10	60	4	Quasi-peak	28.2	15.4	33.0	-17.6
900.04	10	182	4	Quasi-peak	29.8	29.4	35.5	-6.1
956.8	10	1	4	Quasi-peak	24.4	24.3	35.5	-11.2

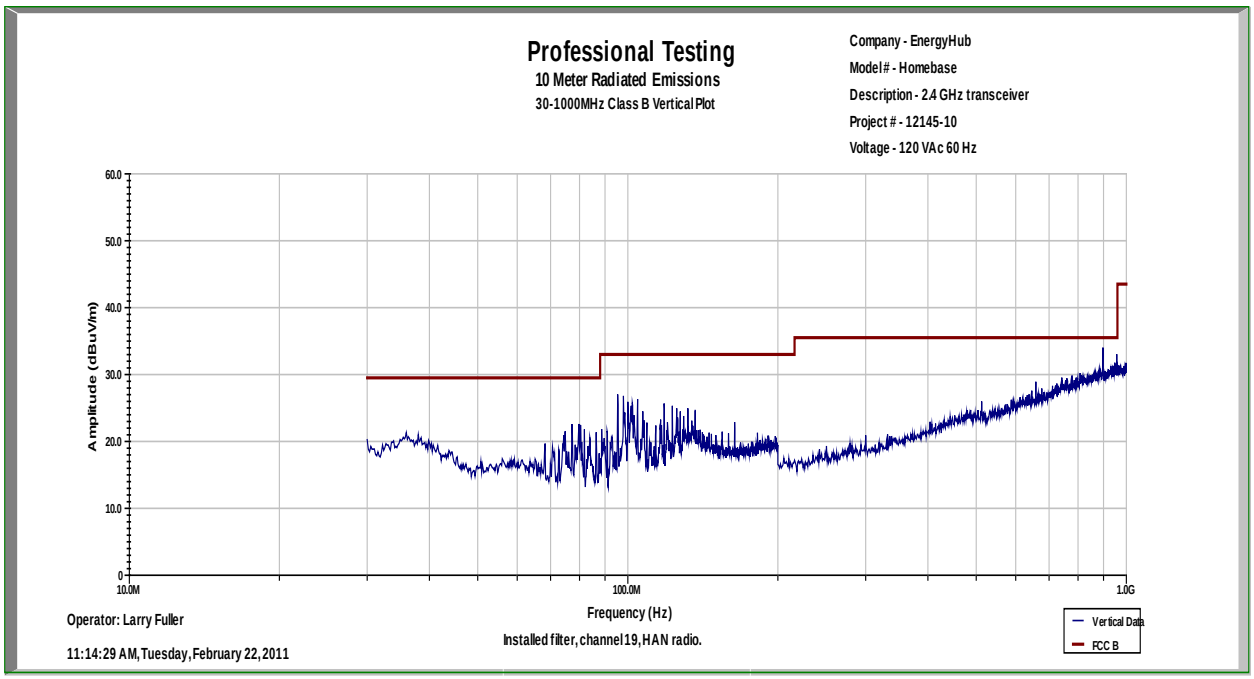


Result = Pass

Table 7.3.23: Out of Band Spurious Emissions Test Results, HAN Radio 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 22, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting HAN Radio						

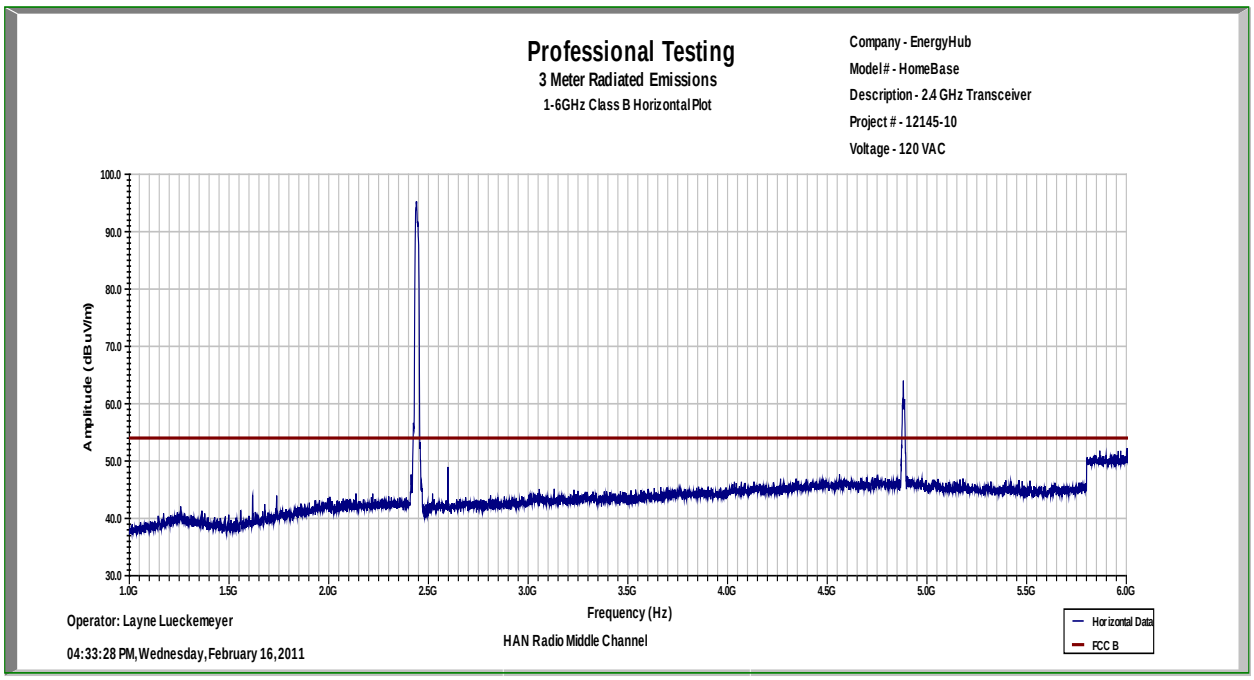
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
95.566	10	99	1	Quasi-peak	39.4	23.5	33.0	-9.5
98.055	10	78	1	Quasi-peak	35.8	20.3	33.0	-12.7
104.625	10	1	1	Quasi-peak	38.5	23.9	33.0	-9.1
118.276	10	171	1	Quasi-peak	37.2	24.4	33.0	-8.6
900.04	10	165	1.8	Quasi-peak	30.6	30.2	35.5	-5.3
956.8	10	1	1	Quasi-peak	24.4	24.3	35.5	-11.2



Result = Pass

Table 7.3.24: Out of Band Spurious Emissions Test Results, HAN Radio 1 GHz to 6 GHz, Horizontal Polarization

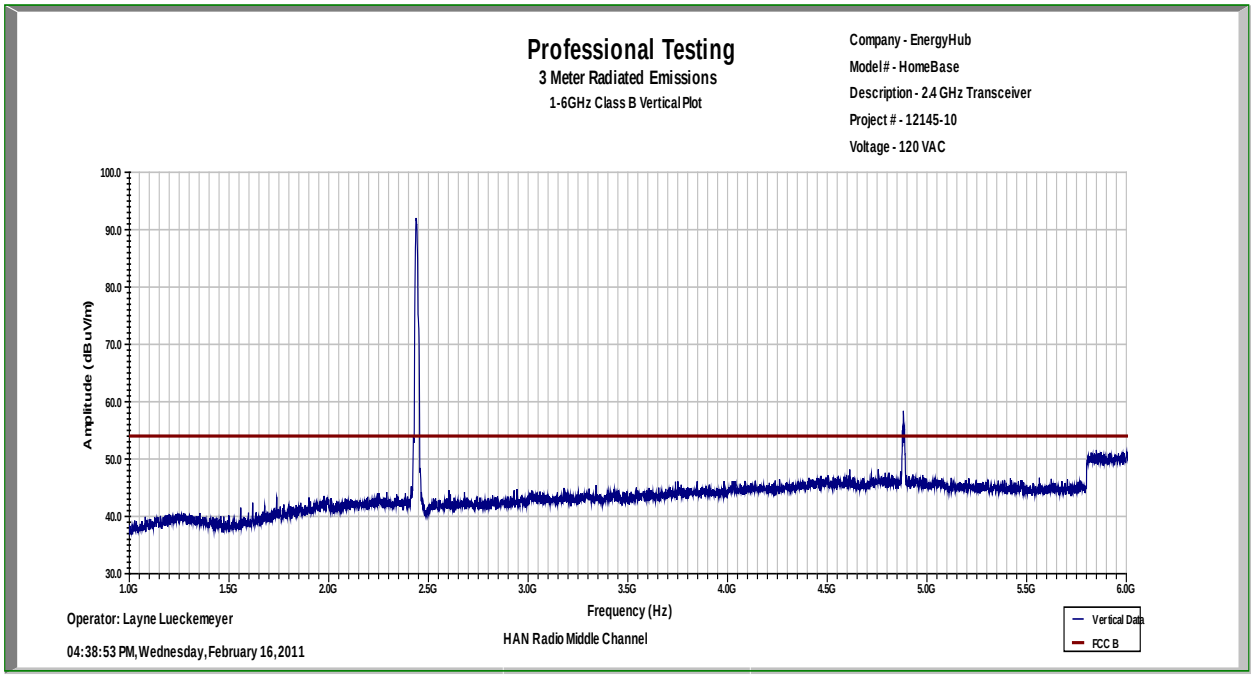
PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting HAN Radio						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.25: Out of Band Spurious Emissions Test Results, HAN Radio 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting HAN Radio						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.26: Out of Band Spurious Emissions Test Results, HAN Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting HAN Radio Low Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.81	0	1	49.3	24.4	33.5	4.2	62.6	63.5	-0.9	Average
7.215	0	1	40.6	24.1	36.8	5.0	58.4	63.5	-5.1	Average
9.62	Noise	Floor	43.3	28.5	38.2	4.6	57.7	63.5	-5.8	Average
12.025	Noise	Floor	29.1	25.3	40.3	7.1	51.2	63.5	-12.3	Average
14.43	Noise	Floor	30.2	25.3	42.0	7.7	54.6	63.5	-8.9	Average
16.835	Noise	Floor	25.3	24.5	41.0	7.6	49.4	63.5	-14.1	Average
19.24	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.645	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.05	Noise	Floor	42.6	42.2	37.1	10.4	47.9	63.5	-15.6	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.81	0	1	49.4	24.4	33.5	4.2	62.7	63.5	-0.8	Average
7.215	0	1	38.8	24.1	36.8	5.0	56.6	63.5	-6.9	Average
9.62	0	1	38.8	28.5	38.2	4.6	53.2	63.5	-10.3	Average
12.025	0	1	28.3	25.3	40.3	7.1	50.4	63.5	-13.1	Average
14.43	0	1	30.2	25.3	42.0	7.7	54.6	63.5	-8.9	Average
16.835	Noise	Floor	25.3	24.5	41.0	7.6	49.4	63.5	-14.1	Average
19.24	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.645	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.05	Noise	Floor	42.6	42.2	37.1	10.4	47.9	63.5	-15.6	Average

Result = Pass

Table 7.3.27: Out of Band Spurious Emissions Test Results, HAN Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting HAN Radio Middle Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.89	0	1	41.2	24.4	33.5	4.2	54.6	63.5	-8.9	Average
7.335	0	1	35.4	24.1	36.8	5.1	53.2	63.5	-10.3	Average
9.78	Noise	Floor	26.1	24.4	38.2	5.0	44.8	63.5	-18.7	Average
12.225	Noise	Floor	28.4	26.7	39.5	5.6	46.8	63.5	-16.7	Average
14.67	Noise	Floor	30.2	24.5	41.4	6.1	53.2	63.5	-10.3	Average
17.115	Noise	Floor	25.3	22.8	42.7	7.6	52.8	63.5	-10.7	Average
19.56	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
22.005	Noise	Floor	40.3	40.6	36.9	10.4	46.9	63.5	-16.6	Average
24.45	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.89	0	1	47.3	24.4	33.5	4.2	60.7	63.5	-2.8	Average
7.335	0	1	37.4	24.1	36.8	5.1	55.2	63.5	-8.3	Average
9.78	Noise	Floor	26.9	24.4	38.2	5.0	45.6	63.5	-17.9	Average
12.225	Noise	Floor	28.3	26.7	39.5	5.6	46.7	63.5	-16.8	Average
14.67	Noise	Floor	30.2	24.5	41.4	6.1	53.2	63.5	-10.3	Average
17.115	Noise	Floor	25.3	22.8	42.7	7.6	52.8	63.5	-10.7	Average
19.56	Noise	Floor	39.7	43.5	36.5	6.7	39.4	63.5	-24.1	Average
22.005	Noise	Floor	40.3	40.6	36.9	10.4	46.9	63.5	-16.6	Average
24.45	Noise	Floor	42.6	42.2	37.2	10.3	47.8	63.5	-15.7	Average

Result = Pass

Table 7.3.28: Out of Band Spurious Emissions Test Results, HAN Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting HAN Radio High Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.95	0	1	48.7	24.4	33.5	4.2	62.1	63.5	-1.4	Average
7.425	0	1	36.4	24.7	37.3	4.5	53.5	63.5	-10.0	Average
9.9	Noise	Floor	25.9	23.5	38.2	5.0	45.6	63.5	-17.9	Average
12.375	Noise	Floor	25.7	27.8	39.9	6.2	44.0	63.5	-19.5	Average
14.85	Noise	Floor	30.2	23.4	41.1	7.3	55.2	63.5	-8.3	Average
17.325	Noise	Floor	25.3	21.5	43.7	8.4	55.9	63.5	-7.6	Average
19.8	Noise	Floor	39.7	43.7	36.5	8.2	40.8	63.5	-22.7	Average
22.275	Noise	Floor	40.3	40.6	37.0	9.2	46.0	63.5	-17.5	Average
24.75	Noise	Floor	42.6	42.1	37.2	10.1	47.8	63.5	-15.7	Average

Vertical Polarization

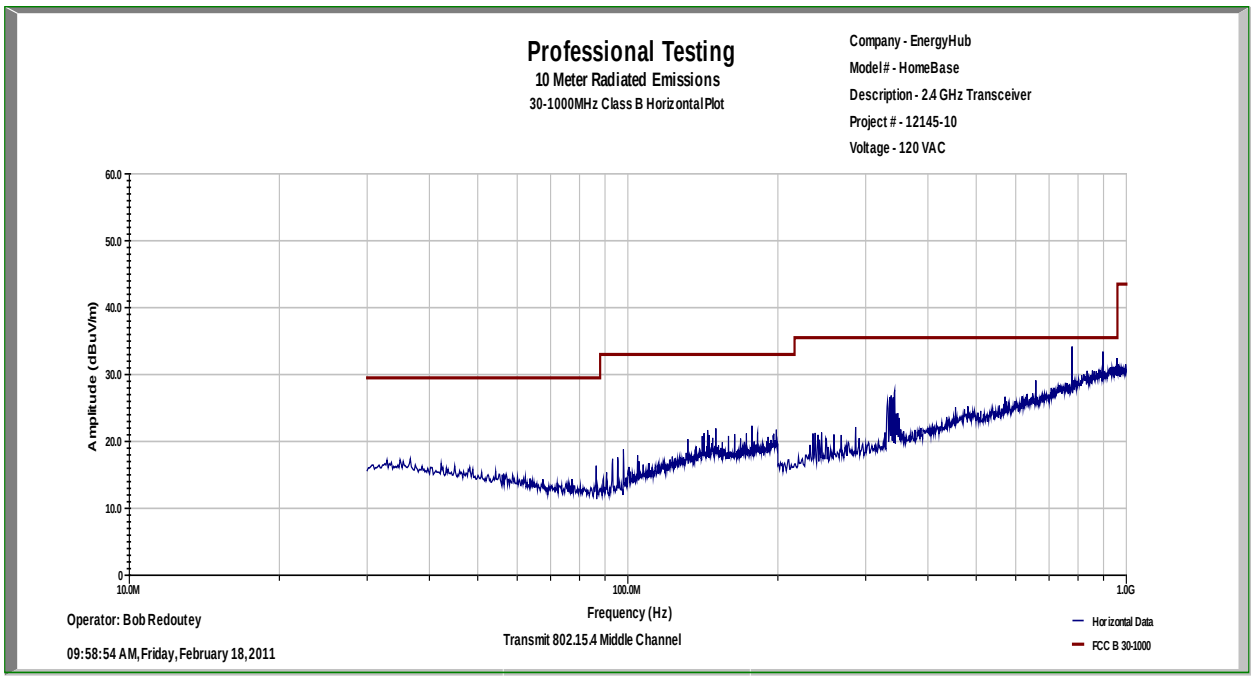
Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.95	0	1	49.5	24.4	33.5	4.2	62.9	63.5	-0.6	Average
7.425	0	1	37.2	24.7	37.3	4.5	54.3	63.5	-9.2	Average
9.9	Noise	Floor	25.9	23.5	38.2	5.0	45.6	63.5	-17.9	Average
12.375	Noise	Floor	25.7	27.8	39.9	6.2	44.0	63.5	-19.5	Average
14.85	Noise	Floor	30.2	23.4	41.1	7.3	55.2	63.5	-8.3	Average
17.325	Noise	Floor	25.3	21.5	43.7	8.4	55.9	63.5	-7.6	Average
19.8	Noise	Floor	39.7	43.7	36.5	8.2	40.8	63.5	-22.7	Average
22.275	Noise	Floor	40.3	40.6	37.0	9.2	46.0	63.5	-17.5	Average
24.75	Noise	Floor	42.6	42.1	37.2	10.1	47.8	63.5	-15.7	Average

Result = Pass

Table 7.3.29: Out of Band Spurious Emissions Test Results, Meter Radio 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting Meter Radio						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
95.56	10	205	4	Quasi-peak	32.62	16.8	29.5	-12.7
98	10	180	4	Quasi-peak	30.47	15.0	33.0	-18.0
146.98	10	180	4	Quasi-peak	30.01	18.9	33.0	-14.1
342.9	10	300	2.6	Quasi-peak	39.24	27.2	35.5	-8.3
780.74	10	120	3.2	Quasi-peak	29.3	26.8	35.5	-8.8
900.04	10	45	3	Quasi-peak	30.3	29.9	35.5	-5.6

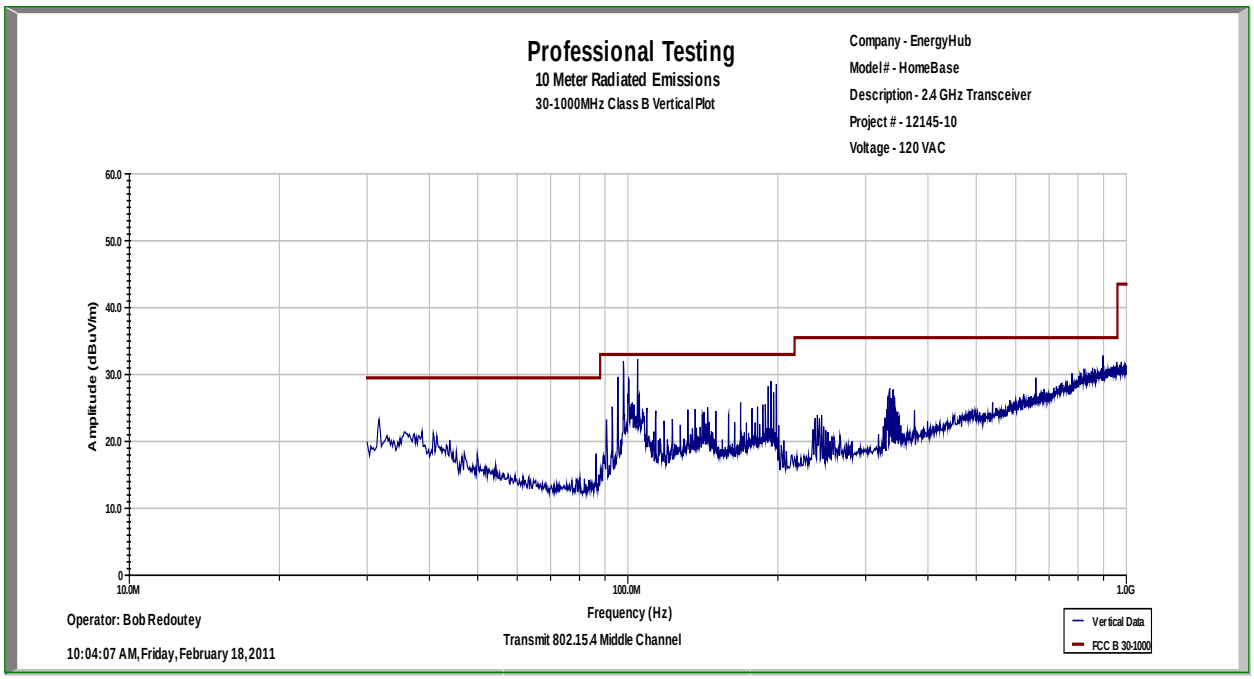


Result = Pass

Table 7.3.30: Out of Band Spurious Emissions Test Results, Meter Radio 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Transmitting Meter Radio						

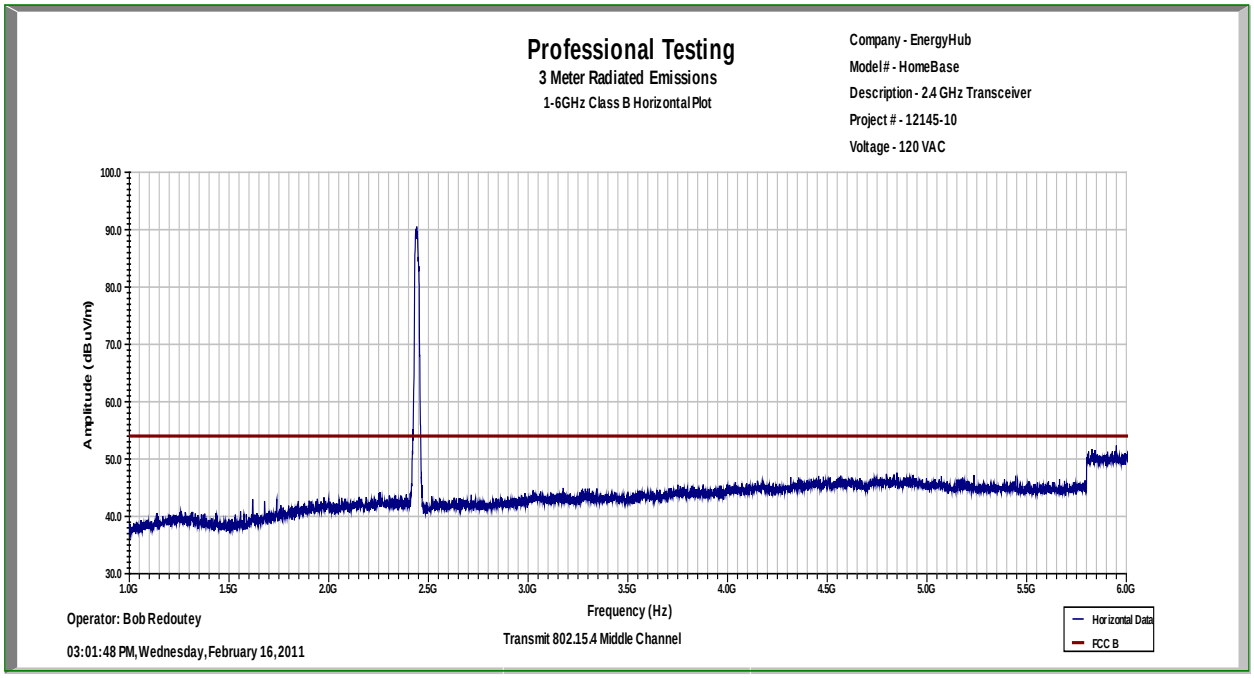
Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
95.56	10	320	1.3	Quasi-peak	46.25	30.4	33.0	-2.6
98	10	130	1.4	Quasi-peak	44.04	28.5	33.0	-4.5
100.42	10	100	1	Quasi-peak	46.03	30.9	33.0	-2.1
104.63	10	100	1	Quasi-peak	41.27	26.7	33.0	-6.3
195.97	10	220	1.4	Quasi-peak	38.28	28.7	33.0	-4.3
342.8	10	65	1	Quasi-peak	40.28	28.2	35.5	-7.3



Result = Pass

Table 7.3.31: Out of Band Spurious Emissions Test Results, Meter Radio 1 GHz to 6 GHz, Horizontal Polarization

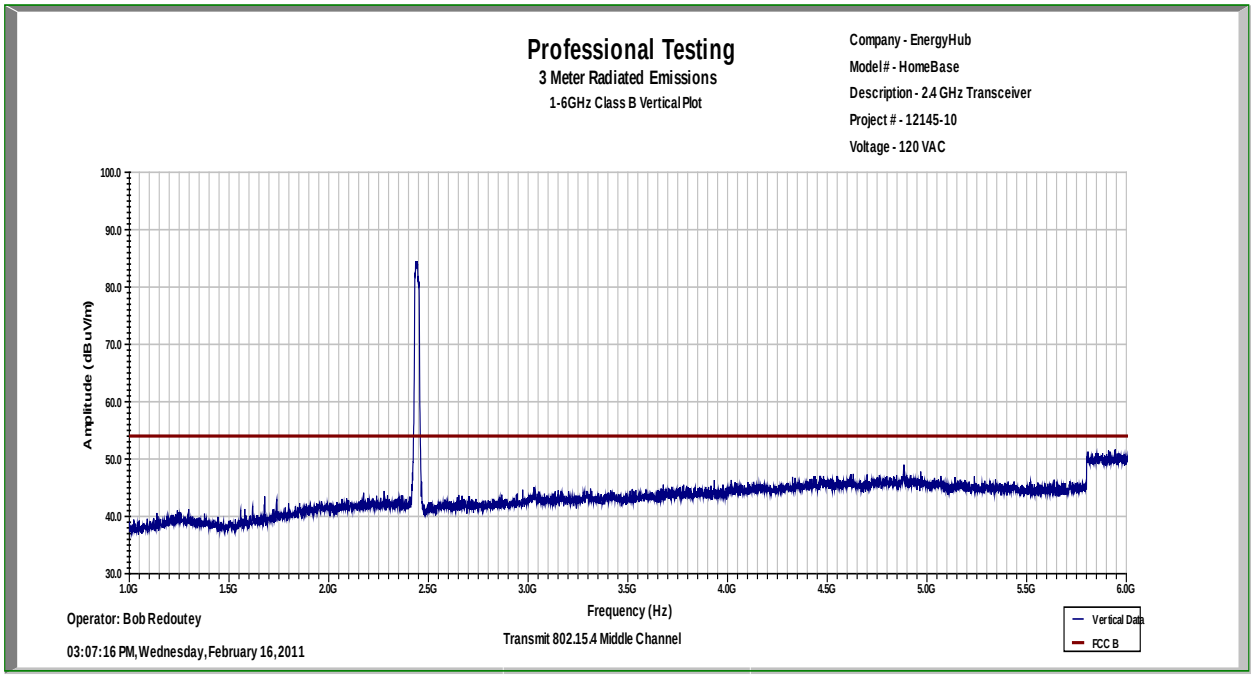
PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting Meter Radio						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.32: Out of Band Spurious Emissions Test Results, Meter Radio 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	February 16, 2011	FCC B	3 m	Horn	1 MHz	1 MHz	Average
COMMENT	Transmitting Meter Radio						



NOTE: Graphical data for overview only. Pre-scan used to determine if spurious signals other than harmonics were present.

Table 7.3.33: Out of Band Spurious Emissions Test Results, Meter Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting Meter Radio Low Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.81	0	1	48.1	24.4	33.5	4.2	61.4	63.5	-2.1	Average
7.215	0	1	40	24.1	36.8	5.0	57.8	63.5	-5.7	Average
9.62	0	1	43.7	28.5	38.2	4.6	58.1	63.5	-5.4	Average
12.025	Noise	Floor	29	25.3	40.3	7.1	51.1	63.5	-12.4	Average
14.43	Noise	Floor	33.2	25.3	42.0	7.7	57.6	63.5	-5.9	Average
16.835	Noise	Floor	33.9	24.5	41.0	7.6	58.0	63.5	-5.5	Average
19.24	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.645	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.05	Noise	Floor	42.6	42.2	37.1	10.4	47.9	63.5	-15.6	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.81	0	1	40.3	24.4	33.5	4.2	53.6	63.5	-9.9	Average
7.215	0	1	35.7	24.1	36.8	5.0	53.5	63.5	-10.0	Average
9.62	0	1	37.8	28.5	38.2	4.6	52.2	63.5	-11.3	Average
12.025	0	1	37.6	25.3	40.3	7.1	59.7	63.5	-3.8	Average
14.43	Noise	Floor	33.2	25.3	42.0	7.7	57.6	63.5	-5.9	Average
16.835	Noise	Floor	33.9	24.5	41.0	7.6	58.0	63.5	-5.5	Average
19.24	Noise	Floor	39.7	43.2	36.6	8.8	41.9	63.5	-21.6	Average
21.645	Noise	Floor	40.3	41.8	36.9	9.5	44.9	63.5	-18.6	Average
24.05	Noise	Floor	42.6	42.7	37.1	10.4	47.4	63.5	-16.1	Average

Result = Pass

Table 7.3.34: Out of Band Spurious Emissions Test Results, Meter Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting Meter Radio Middle Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.87	0	1	39.5	24.4	33.5	4.2	52.9	63.5	-10.6	Average
7.305	0	1	35.9	24.1	36.8	5.1	53.7	63.5	-9.8	Average
9.74	Noise	Floor	37.8	24.4	38.2	4.7	56.3	63.5	-7.2	Average
12.175	Noise	Floor	37.6	26.7	39.5	5.6	56.0	63.5	-7.5	Average
14.61	Noise	Floor	33.2	24.5	41.4	6.1	56.2	63.5	-7.3	Average
17.045	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.48	Noise	Floor	39.7	43.5	36.5	8.8	41.5	63.5	-22.0	Average
21.915	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.35	Noise	Floor	42.6	42.2	37.2	10.3	47.9	63.5	-15.6	Average

Vertical Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.87	0	1	40.1	24.4	33.5	4.2	53.5	63.5	-10.0	Average
7.305	0	1	38.5	24.1	36.8	5.1	56.3	63.5	-7.2	Average
9.74	Noise	Floor	37.8	24.4	38.2	4.7	56.3	63.5	-7.2	Average
12.175	Noise	Floor	37.6	26.7	39.5	5.6	56.0	63.5	-7.5	Average
14.61	Noise	Floor	33.2	24.5	41.4	6.1	56.2	63.5	-7.3	Average
17.045	Noise	Floor	33.9	22.8	42.7	7.6	61.4	63.5	-2.1	Average
19.48	Noise	Floor	39.7	43.5	36.5	8.8	41.5	63.5	-22.0	Average
21.915	Noise	Floor	40.3	40.6	36.9	10.4	47.0	63.5	-16.5	Average
24.35	Noise	Floor	42.6	42.2	37.2	10.3	47.9	63.5	-15.6	Average

Result = Pass

Table 7.3.35: Out of Band Spurious Emissions Test Results, Meter Radio 1 GHz to 25 GHz, Horizontal and Vertical Polarizations

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12145-10	March 7, 2011	FCC B	1 m	Horn	1 MHz	1 MHz	Peak
COMMENT	Transmitting Meter Radio High Channel Harmonics and spurious investigated up to 25 GHz						

Horizontal Polarization

Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.96	0	1	56.6	41.7	33.5	4.2	52.7	63.5	-10.8	Average
7.44	0	1	52.9	42.6	37.3	4.5	52.1	63.5	-11.4	Average
9.92	Noise	Floor	45.1	38.9	38.2	5.0	49.3	63.5	-14.2	Average
12.4	Noise	Floor	44.1	37.1	39.9	6.2	53.0	63.5	-10.5	Average
14.88	Noise	Floor	41.9	39.4	41.1	7.3	50.9	63.5	-12.6	Average
17.36	Noise	Floor	41.7	41.5	44.6	8.7	53.4	63.5	-10.1	Average
19.84	Noise	Floor	42.1	43.7	36.5	8.2	43.2	63.5	-20.3	Average
22.32	Noise	Floor	40.3	40.5	37.1	9.4	46.3	63.5	-17.2	Average
24.8	Noise	Floor	42.6	42.1	37.2	10.1	47.8	63.5	-15.7	Average

Vertical Polarization

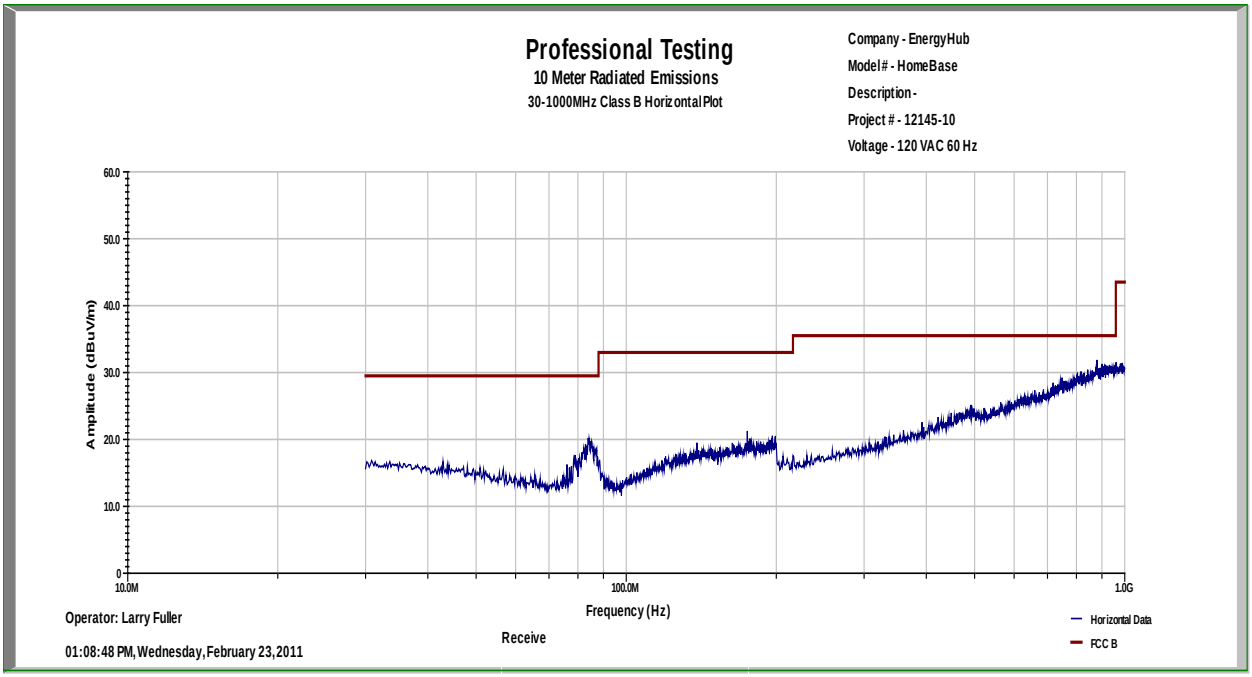
Frequency Measured (MHz)	EUT Direction (Degrees)	Antenna Height (Meters)	Recorded Level (dBµV)	Amplifier Gain (dB)	Antenna Factor (dB/m)	Cable Loss (dB)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)	Detector Function
4.96	0	1	53.9	41.7	33.5	4.2	50.0	63.5	-13.5	Average
7.44	0	1	55.2	42.6	37.3	4.5	54.4	63.5	-9.1	Average
9.92	Noise	Floor	53.6	38.9	38.2	5.0	57.8	63.5	-5.7	Average
12.4	Noise	Floor	44.9	37.1	39.9	6.2	53.8	63.5	-9.7	Average
14.88	Noise	Floor	45.1	39.4	41.1	7.3	54.1	63.5	-9.4	Average
17.36	Noise	Floor	40.8	41.5	44.6	8.7	52.5	63.5	-11.0	Average
19.84	Noise	Floor	39.7	43.7	36.5	8.2	40.8	63.5	-22.7	Average
22.32	Noise	Floor	40.3	40.5	37.1	9.4	46.3	63.5	-17.2	Average
24.8	Noise	Floor	42.6	42.1	37.2	10.1	47.8	63.5	-15.7	Average

Result = Pass

Table 7.3.36: Out of Band Spurious Emissions Test Results, Receive Mode 30 MHz to 1 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12147-10	February 23, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Receive						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
31.5	10	Noise	Floor	Quasi-peak	21.8	9.4	29.5	-20.1
87.2	10	32	4	Quasi-peak	28.7	12.2	29.5	-17.3
199.8	10	Noise	Floor	Quasi-peak	21.4	12.1	33.0	-20.9
566.4	10	Noise	Floor	Quasi-peak	26.8	20.3	35.5	-15.2
841.6	10	Noise	Floor	Quasi-peak	26.1	24.6	35.5	-10.9
993.6	10	Noise	Floor	Quasi-peak	26.5	26.9	43.5	-16.6

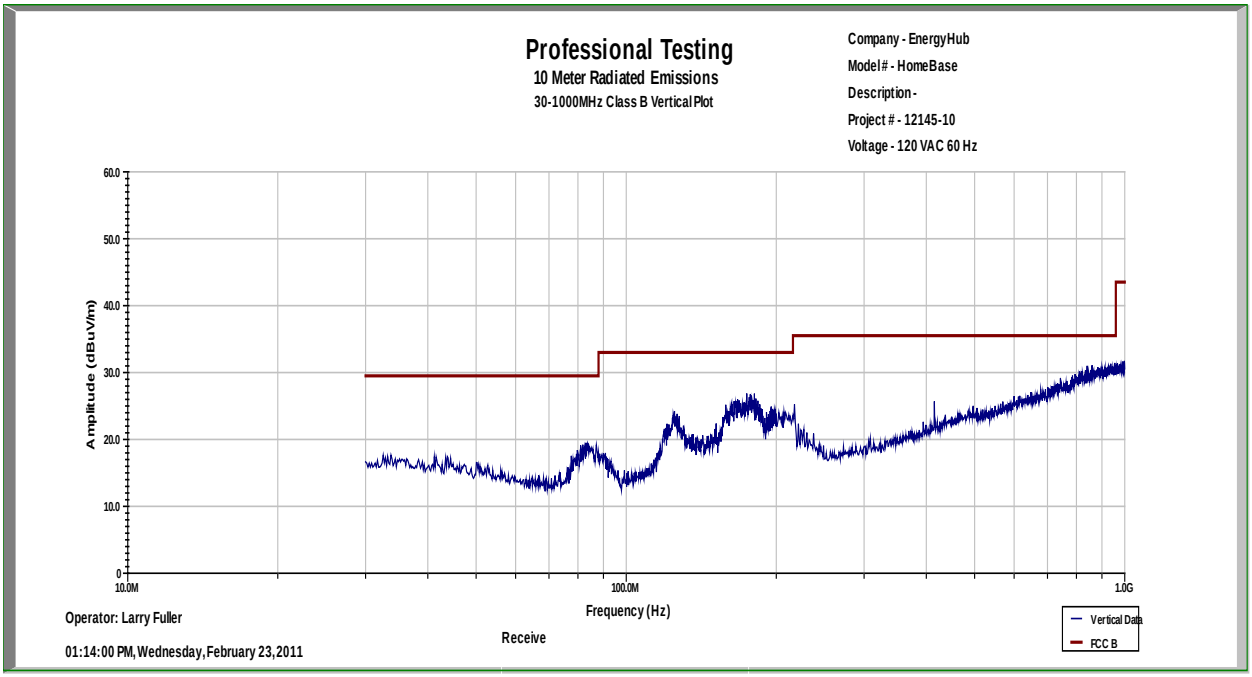


Result = Pass

Table 7.3.37: Out of Band Spurious Emissions Test Results, Receive Mode 30 MHz to 1 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12147-10	February 23, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Receive						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
31.5	10	Noise	Floor	Quasi-peak	21.8	9.4	29.5	-20.1
127.6	10	319	1	Quasi-peak	33.2	21.2	33.0	-11.8
173.1	10	1	1	Quasi-peak	27.8	17.3	33.0	-15.7
566.4	10	Noise	Floor	Quasi-peak	26.9	20.4	35.5	-15.1
841.6	10	Noise	Floor	Quasi-peak	26.3	24.8	35.5	-10.7
993.6	10	Noise	Floor	Quasi-peak	26.5	26.9	43.5	-16.6



Result = Pass

Table 7.3.38: Out of Band Spurious Emissions Test Results, Receive Mode 1 GHz to 6 GHz, Horizontal Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12147-10	February 23, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Receive						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
2067	3	Noise	Floor	Average	46.3	44.4	54.0	-9.6
4376	3	Noise	Floor	Average	45.1	47.4	54.0	-6.6
6050	3	Noise	Floor	Average	46.3	50.2	54.0	-3.7

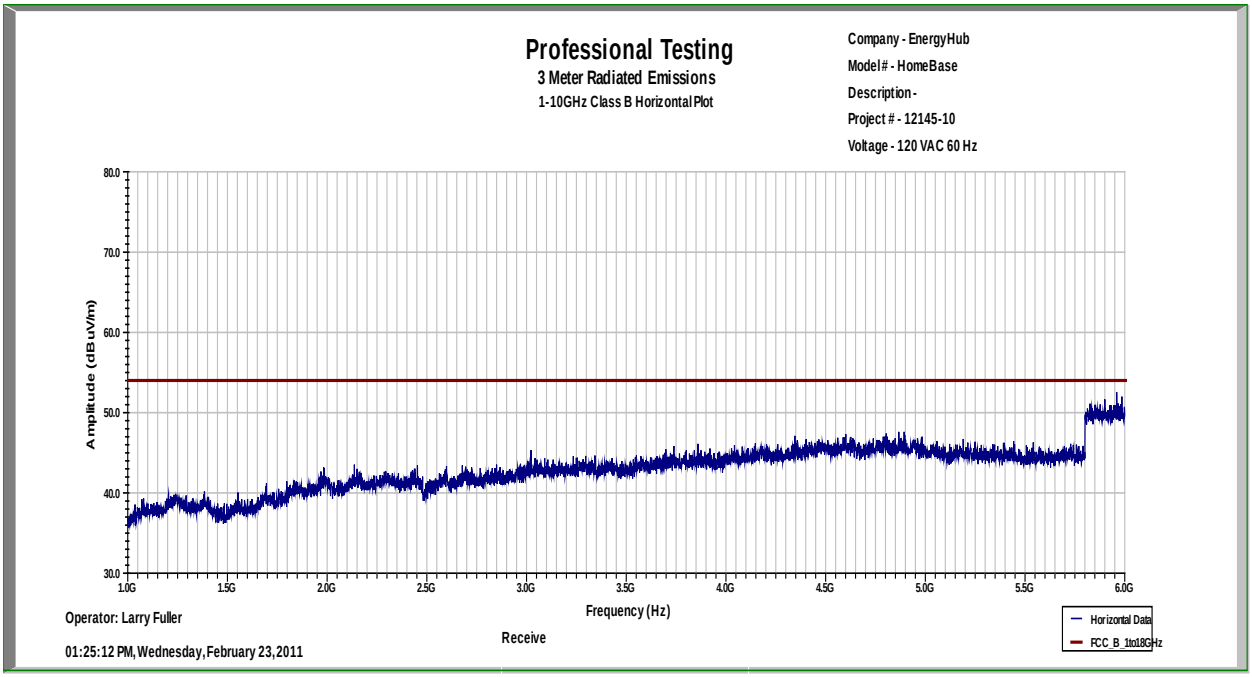
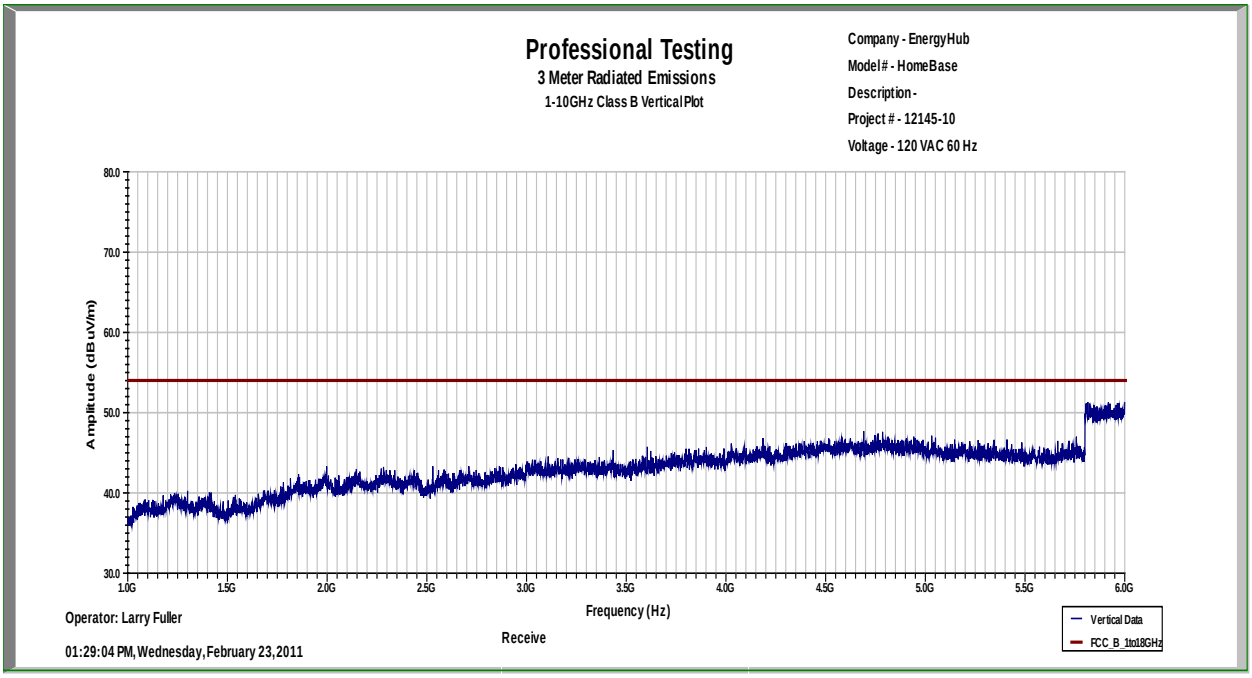


Table 7.3.39: Out of Band Spurious Emissions Test Results, Receive Mode 1 GHz to 6 GHz, Vertical Polarization

PROJECT #	DATE	CLASS	DISTANCE	ANTENNA	RBW	VBW	DETECTOR
12147-10	February 23, 2011	FCC B	10 m	Bicon | Log	CISPR 120 kHz	1 MHz	Quasi Peak
COMMENT	Receive						

Frequency Measured (MHz)	Test Distance (Meters)	EUT Direction (Degrees)	Antenna Height (Meters)	Detector Function	Recorded Amplitude (dBµV)	Corrected Level (dBµV/m)	Limit Level (dBµV/m)	Margin (dB)
2067	3	Noise	Floor	Average	46.3	44.4	54.0	-9.6
4376	3	Noise	Floor	Average	45.1	47.4	54.0	-6.6
6050	3	Noise	Floor	Average	46.3	50.2	54.0	-3.7



Result = Pass

8.0 Antenna Requirements

An antenna evaluation was performed on the EUT to determine compliance with FCC sections 15.203, 15.247(b) and RSS-210.

8.1 Evaluation Procedure

The design of the EUT antenna was evaluated for conformance to engineering requirements for gain and to prevent substitution of unapproved antennae. Gain of the antenna was assessed by reviewing the antenna manufacturer's data sheet.

8.2 Evaluation Criteria

The antenna design must meet at least one of the following criteria:

a) Antenna is permanently attached to the unit.
b) Antenna must use a unique type of connector to attach to the EUT.
c) Unit must be professionally installed. Installer shall be responsible for verifying that the correct antenna is employed with the unit.

8.3 Evaluation Results

The HomeBase met the criteria of this rule by virtue of having an internal antenna inaccessible to the user. Therefore, the EUT is compliant.

End of Report

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