

# FCC Test Report

Product Name	G.hn Powerline Wireless Extender
Model No	PWS-8121, PWS-8131
FCC ID.	YG7-PWS812131

Applicant	Zinwell Corporation
Address	7F., No.512, Yuanshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)

Date of Receipt	Jun. 21, 2017
Issue Date	Jul. 24, 2017
Report No.	1760527R-RFUSP26V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# Test Report

Issue Date: Jul. 24, 2017

Report No.: 1760527R-RFUSP26V00



Product Name	G.hn Powerline Wireless Extender
Applicant	Zinwell Corporation
Address	7F., No.512, Yuanshan Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)
Manufacturer	Zinwell Corporation
Model No.	PWS-8121, PWS-8131
FCC ID.	YG7-PWS812131
EUT Rated Voltage	AC 100-240V, 50/60Hz
EUT Test Voltage	AC 120V/60Hz
Trade Name	ZINWELL
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2016 ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 DTS Meas Guidance v04
Test Result	Complied

Documented By

:



( Senior Adm. Specialist / Jinn Chen )

Tested By

:



( Engineer / Nova Chu )

Approved By

:



( Director / Vincent Lin )

## TABLE OF CONTENTS

Description	Page
<b>1. GENERAL INFORMATION .....</b>	<b>5</b>
1.1. EUT Description.....	5
1.2. Operational Description .....	8
1.3. Tested System Details.....	9
1.4. Configuration of Tested System .....	9
1.5. EUT Exercise Software .....	9
1.6. Test Facility .....	10
1.7. List of Test Item and Equipment .....	11
<b>2. Conducted Emission.....</b>	<b>12</b>
2.1. Test Setup .....	12
2.2. Limits .....	12
2.3. Test Procedure .....	12
2.4. Uncertainty .....	12
2.5. Test Result of Conducted Emission.....	13
<b>3. Peak Power Output .....</b>	<b>15</b>
3.1. Test Setup .....	15
3.2. Limits .....	15
3.3. Test Procedure .....	15
3.4. Uncertainty .....	15
3.5. Test Result of Peak Power Output.....	16
<b>4. Radiated Emission.....</b>	<b>22</b>
4.1. Test Setup .....	22
4.2. Limits .....	23
4.3. Test Procedure .....	23
4.4. Uncertainty .....	24
4.5. Test Result of Radiated Emission.....	25
<b>5. RF antenna conducted test.....</b>	<b>45</b>
5.1. Test Setup .....	45
5.2. Limits .....	45
5.3. Test Procedure .....	45
5.4. Uncertainty .....	45
5.5. Test Result of RF antenna conducted test.....	46
<b>6. Band Edge .....</b>	<b>54</b>
6.1. Test Setup .....	54
6.2. Limits .....	55
6.3. Test Procedure .....	55
6.4. Uncertainty .....	55
6.5. Test Result of Band Edge .....	56
<b>7. 6dB Bandwidth .....</b>	<b>90</b>
7.1. Test Setup .....	90
7.2. Limits .....	90

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7.3.	Test Procedure .....	90
7.4.	Uncertainty .....	90
7.5.	Test Result of 6dB Bandwidth.....	91
<b>8.</b>	<b>Power Density .....</b>	<b>107</b>
8.1.	Test Setup .....	107
8.2.	Limits .....	107
8.3.	Test Procedure .....	107
8.4.	Uncertainty .....	107
8.5.	Test Result of Power Density .....	108
<b>9.</b>	<b>EMI Reduction Method During Compliance Testing .....</b>	<b>124</b>

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	G.hn Powerline Wireless Extender
Trade Name	ZINWELL
Model No.	PWS-8121, PWS-8131
FCC ID.	YG7-PWS812131
Frequency Range	2412-2462MHz for 802.11b/g/n-20BW, 2422-2452MHz for 802.11n-40BW
Number of Channels	802.11b/g/n-20MHz: 11, n-40MHz: 7
Data Speed	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 300Mbps
Type of Modulation	802.11b:DSSS (DBPSK, DQPSK, CCK) 802.11g/n:OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type	PCB Antenna
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	ZINWELL	PWS-8131	PCB Antenna	2.76dBi for 2.4 GHz

Note:

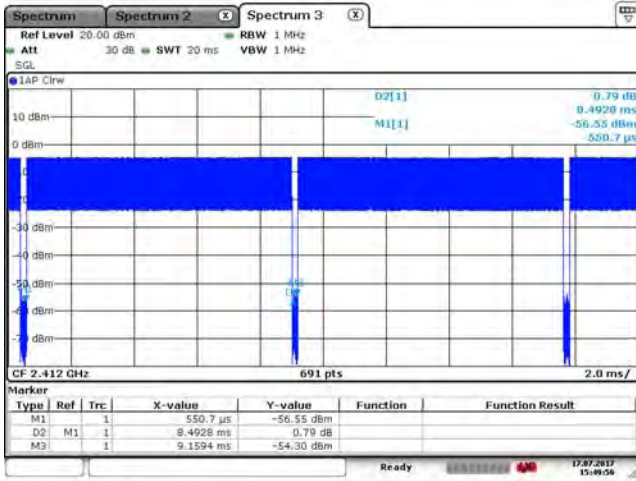
1. The antenna of EUT conforms to FCC 15.203.
2. Only the higher gain antenna was tested and recorded in this report

**Duty Cycle:**

802.11b	0.933
802.11g	0.886
802.11n-20	0.880
802.11n-40	0.780

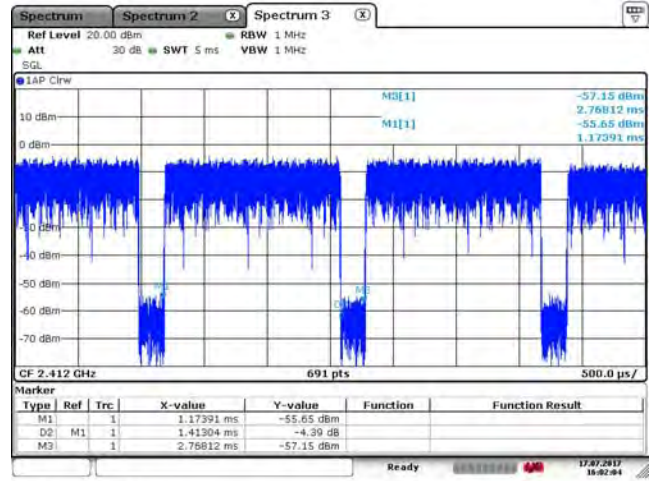
\*Duty cycle = Ton / (Ton + Toff)

802.11b:



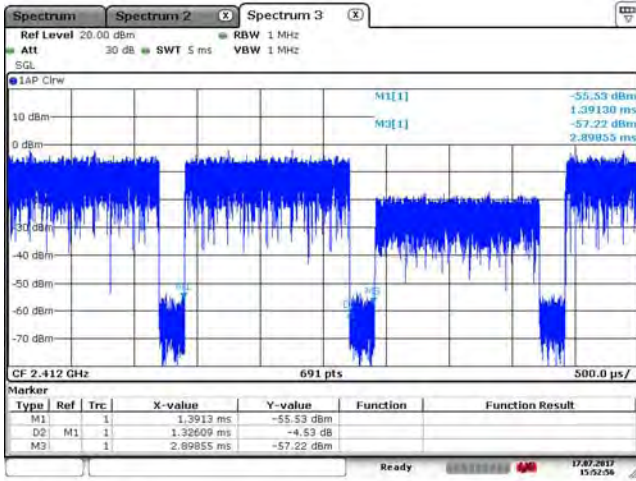
Date 17.JUL.2017 15:49:56

802.11g:



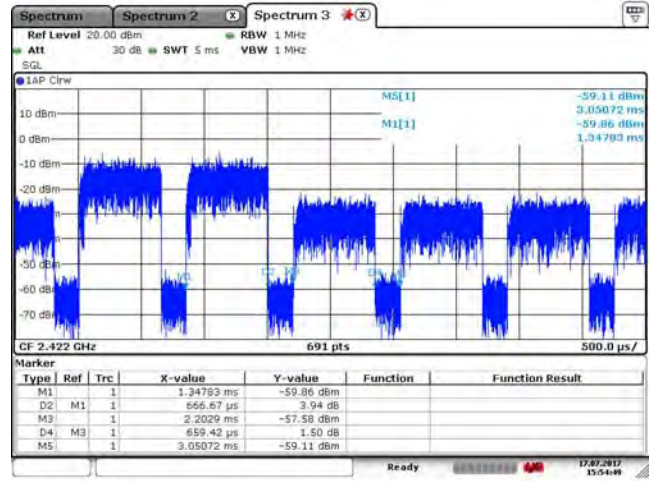
Date 17.JUL.2017 16:02:05

802.11n20:



Date 17.JUL.2017 15:52:56

802.11n40:



Date 17.JUL.2017 15:54:49

802.11b/g/n-20MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 01:	2412 MHz	Channel 02:	2417 MHz	Channel 03:	2422 MHz	Channel 04:	2427 MHz
Channel 05:	2432 MHz	Channel 06:	2437 MHz	Channel 07:	2442 MHz	Channel 08:	2447 MHz
Channel 09:	2452 MHz	Channel 10:	2457 MHz	Channel 11:	2462 MHz		

802.11n-40MHz Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 03:	2422 MHz	Channel 04:	2427 MHz	Channel 05:	2432 MHz	Channel 06:	2437 MHz
Channel 07:	2442 MHz	Channel 08:	2447 MHz	Channel 09:	2452 MHz		

Note:

1. The EUT is a G.hn Powerline Wireless Extender with a built-in WLAN transceiver.
2. The EUT is including two models, PWS-8131 with outlet, PWS-8121 without outlet, all models are the same electrical.
3. Each model through the pretest, only the worst case PWS-8131 is shown in the test report.
4. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
5. At result of pretests, module supports dual-channel transmission, only the worst case is shown in the report.
6. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps 、802.11g is 6Mbps 、802.11n(20M-BW) is 14.4Mbps and 802.11n(40M-BW) is 30Mbps)
7. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)
	Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)
	Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)

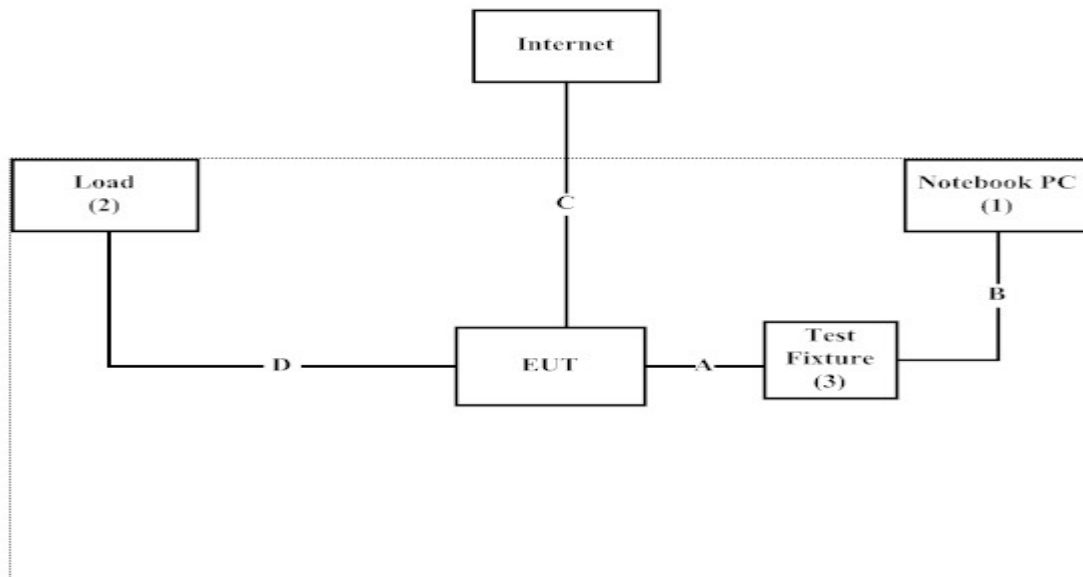
### 1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
(1)	Notebook PC	DELL	P62G	416FJC2	Non-Shielded, 1.8m
(2)	Load	N/A	N/A	N/A	N/A
(3)	Test Fixture	ZINWELL	N/A	N/A	N/A

Signal Cable Type	Signal cable Description
A	Single Cable
B	USB Cable
C	LAN Cable
D	Power Cable

### 1.4. Configuration of Tested System



### 1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Putty V0.63.0.0” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.



## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

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FCC Accreditation Number: TW1014

## 1.7. List of Test Item and Equipment

### For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	161601	2017.01.06	2018.01.05
X	Two-Line V-Network	R&S	ENV216	101306	2017.02.16	2018.02.15
X	Two-Line V-Network	R&S	ENV216	101307	2017.03.17	2018.03.16
X	Coaxial Cable	Quietek	RG400_BNC	RF001	2017.05.24	2018.05.23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

### For Conducted measurements /ASR4

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103464	2017.01.09	2018.01.08
X	Power Meter	Anritsu	ML2496A	1548003	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531024	2016.12.15	2017.12.14
X	Power Sensor	Anritsu	MA2411B	1531025	2016.12.15	2017.12.14
	Bluetooth Tester	R&S	CBT	101238	2017.01.03	2018.01.02

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek Conduction Test System V8.0.110

### For Radiated measurements /ACB1

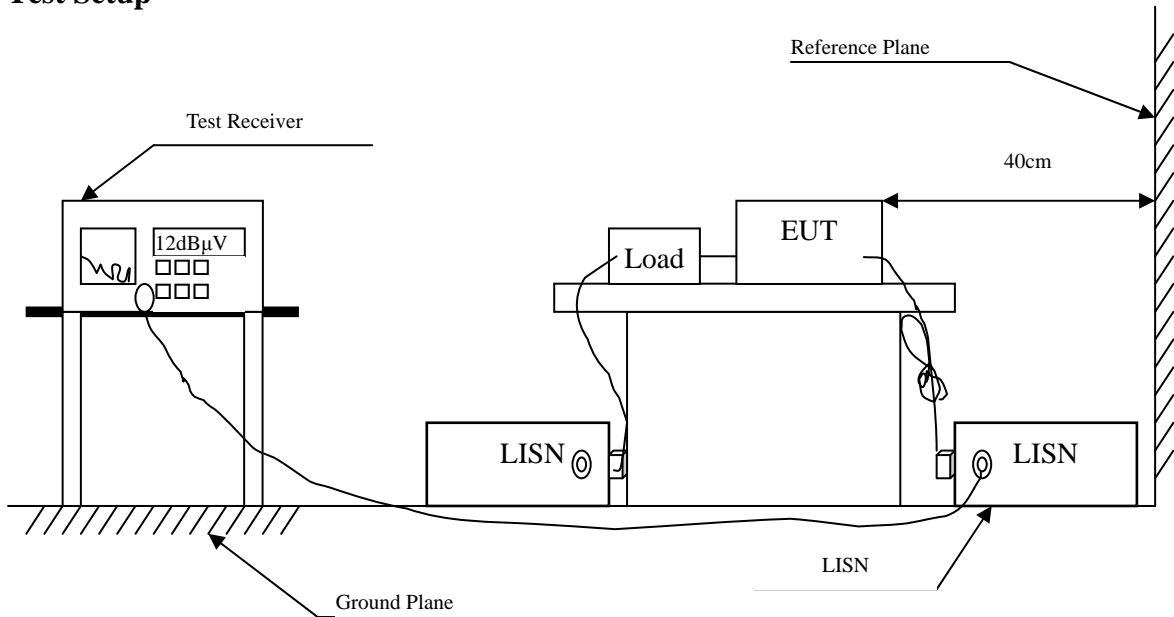
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	TESEQ	HLA6121	37133	2016.03.18	2018.03.17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-674	2017.02.09	2018.02.08
X	Horn Antenna	ETS-Lindgren	3117	00203800	2016.10.13	2017.10.12
X	Horn Antenna	Com-Power	AH-840	101087	2017.05.24	2018.05.23
X	Pre-Amplifier	EMCI	EMC001330	980316	2017.05.14	2018.05.13
X	Pre-Amplifier	EMCI	EMC051835SE	980311	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2017.05.15	2018.05.14
X	Pre-Amplifier	EMCI	EMC184045SE	980314	2017.05.17	2018.05.16
X	Filter	MICRO TRONICS	BRM50702	G251	2016.08.11	2017.08.10
	Filter	MICRO TRONICS	BRM50716	G188	2016.08.11	2017.08.10
X	EMI Test Receiver	R&S	ESR7	101602	2016.12.15	2017.12.14
X	Spectrum Analyzer	R&S	FSV40	101148	2017.01.24	2018.01.23
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2017.05.25	2018.05.24
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2016.08.11	2017.08.10

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : QuieTek EMI 2.0 V2.1.113

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB $\mu$ V) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

### 2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 2.4. Uncertainty

$\pm 2.35$  dB

## 2.5. Test Result of Conducted Emission

Product : G.hn Powerline Wireless Extender  
 Test Item : Conducted Emission Test  
 Power Line : Line 1  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)  
 Test Date : 2017/07/21

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V	Margin dB	Limit dB $\mu$ V
<b>Line 1</b>					
<b>Quasi-Peak</b>					
0.152	9.707	29.762	39.469	-26.474	65.943
0.420	9.720	18.796	28.516	-29.770	58.286
1.358	9.772	24.994	34.766	-21.234	56.000
3.480	9.844	18.783	28.627	-27.373	56.000
10.280	10.004	22.121	32.125	-27.875	60.000
15.520	10.084	34.508	44.592	-15.408	60.000
<b>Average</b>					
0.152	9.707	10.296	20.004	-35.939	55.943
0.420	9.720	12.141	21.862	-26.424	48.286
1.358	9.772	22.713	32.486	-13.514	46.000
3.480	9.844	12.619	22.463	-23.537	46.000
10.280	10.004	16.837	26.841	-23.159	50.000
15.520	10.084	32.704	42.788	-7.212	50.000

### Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : G.hn Powerline Wireless Extender  
 Test Item : Conducted Emission Test  
 Power Line : Line 2  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)  
 Test Date : 2017/07/21

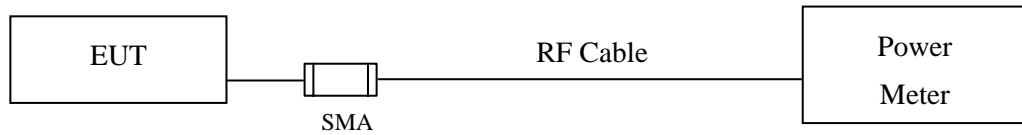
Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V	Margin dB	Limit dB $\mu$ V
<b>Line 2</b>					
<b>Quasi-Peak</b>					
0.242	9.692	20.636	30.328	-33.043	63.371
0.570	9.736	18.662	28.398	-27.602	56.000
0.920	9.752	17.359	27.111	-28.889	56.000
2.600	9.808	15.007	24.814	-31.186	56.000
6.400	9.918	16.667	26.585	-33.415	60.000
9.700	9.990	17.818	27.808	-32.192	60.000
<b>Average</b>					
0.242	9.692	6.239	15.931	-37.440	53.371
0.570	9.736	10.989	20.726	-25.274	46.000
0.920	9.752	10.093	19.845	-26.155	46.000
2.600	9.808	8.005	17.813	-28.187	46.000
6.400	9.918	14.164	24.082	-25.918	50.000
9.700	9.990	12.345	22.335	-27.665	50.000

## Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

### 3. Peak Power Output

#### 3.1. Test Setup



#### 3.2. Limits

The maximum peak power shall be less 1 Watt.

#### 3.3. Test Procedure

Tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

#### 3.4. Uncertainty

±0.86 dB

### 3.5. Test Result of Peak Power Output

Product : G.hn Powerline Wireless Extender  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2017/07/20

#### CHAIN A

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power 1	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	15.78	--	--	--	18.69	<30dBm	Pass
06	2437	14.09	13.73	13.68	13.62	17.11	<30dBm	Pass
11	2462	16.97	--	--	--	20.16	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

#### CHAIN B

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power 1	Required Limit	Result
		1	2	5.5	11			
		Measurement Level (dBm)						
01	2412	15.81	--	--	--	19.03	<30dBm	Pass
06	2437	14.32	13.95	13.91	13.86	17.61	<30dBm	Pass
11	2462	16.89	--	--	--	20.43	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

#### CHAIN A+B

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
01	2412	1	18.69	19.03	21.87	<30dBm	Pass
06	2437	1	17.11	17.61	20.38	<30dBm	Pass
11	2462	1	20.16	20.43	23.31	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : G.hn Powerline Wireless Extender  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
 Test Date : 2017/07/20

**CHAIN A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 6	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	17.06	--	--	--	--	--	--	--	25.07	<30dBm	Pass
06	2437	19.11	18.53	18.48	18.43	18.38	18.32	18.27	18.21	25.58	<30dBm	Pass
11	2462	14.35	--	--	--	--	--	--	--	23.49	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 6	Required Limit	Result
		6	9	12	18	24	36	48	54			
		Measurement Level (dBm)										
01	2412	17.09	--	--	--	--	--	--	--	25.34	<30dBm	Pass
06	2437	18.99	18.43	18.38	18.34	18.29	18.25	18.21	18.17	25.76	<30dBm	Pass
11	2462	14.31	--	--	--	--	--	--	--	23.77	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
01	2412	6	25.07	25.34	28.22	<30dBm	Pass
06	2437	6	25.58	25.76	28.68	<30dBm	Pass
11	2462	6	23.49	23.77	26.64	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))



Product : G.hn Powerline Wireless Extender  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
 Test Date : 2017/07/20

**CHAIN A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 7.2	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2			
		Measurement Level (dBm)										
01	2412	14.97	--	--	--	--	--	--	--	24.16	<30dBm	Pass
02	2417	18.71	--	--	--	--	--	--	--	25.49	<30dBm	Pass
03	2422	18.62	--	--	--	--	--	--	--	25.73	<30dBm	Pass
06	2437	18.97	18.37	18.32	18.27	18.22	18.16	18.11	18.06	24.97	<30dBm	Pass
09	2452	18.69	--	--	--	--	--	--	--	25.71	<30dBm	Pass
10	2457	18.72	--	--	--	--	--	--	--	25.64	<30dBm	Pass
11	2462	14.43	--	--	--	--	--	--	--	22.91	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power 7.2	Required Limit	Result
		7.2	14.4	21.7	28.9	43.3	57.8	65	72.2			
		Measurement Level (dBm)										
01	2412	15.97	--	--	--	--	--	--	--	24.89	<30dBm	Pass
02	2417	19.33	--	--	--	--	--	--	--	25.54	<30dBm	Pass
03	2422	19.28	--	--	--	--	--	--	--	25.74	<30dBm	Pass
06	2437	18.91	18.31	18.27	18.21	18.16	18.09	18.03	17.97	25.34	<30dBm	Pass
09	2452	19.25	--	--	--	--	--	--	--	25.73	<30dBm	Pass
10	2457	19.33	--	--	--	--	--	--	--	25.63	<30dBm	Pass
11	2462	14.32	--	--	--	--	--	--	--	23.51	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

Channel	Frequency (MHz)	Data Rate (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
1	2412	14.4	24.16	24.89	27.55	<30dBm	Pass
2	2417	14.4	25.49	25.54	28.53	<30dBm	Pass
3	2422	14.4	25.73	25.74	28.75	<30dBm	Pass
6	2437	14.4	24.97	25.34	28.17	<30dBm	Pass
9	2452	14.4	25.71	25.73	28.73	<30dBm	Pass
10	2457	14.4	25.64	25.63	28.65	<30dBm	Pass
11	2462	14.4	22.91	23.51	26.23	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

Product : G.hn Powerline Wireless Extender  
 Test Item : Peak Power Output Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
 Test Date : 2017/07/20

**CHAIN A**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		15	30	45	60	90	120	135	150	15		
		Measurement Level (dBm)										
03	2422	15.02	--	--	--	--	--	--	--	24.32	<30dBm	Pass
04	2427	15.60	--	--	--	--	--	--	--	24.66	<30dBm	Pass
05	2432	15.92	--	--	--	--	--	--	--	24.76	<30dBm	Pass
06	2437	16.6	17.87	17.83	17.76	17.72	17.67	17.63	17.59	24.61	<30dBm	Pass
07	2442	14.89	--	--	--	--	--	--	--	23.57	<30dBm	Pass
08	2447	14.42	--	--	--	--	--	--	--	23.2	<30dBm	Pass
09	2452	13.37	--	--	--	--	--	--	--	22.51	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN B**

Channel No	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit	Result
		15	30	45	60	90	120	135	150	15		
		Measurement Level (dBm)										
03	2422	15.59	--	--	--	--	--	--	--	24.56	<30dBm	Pass
04	2427	16.03	--	--	--	--	--	--	--	24.24	<30dBm	Pass
05	2432	16.46	--	--	--	--	--	--	--	24.34	<30dBm	Pass
06	2437	17.21	17.76	17.71	17.65	17.61	17.57	17.51	17.47	24.17	<30dBm	Pass
07	2442	16.27	--	--	--	--	--	--	--	24.27	<30dBm	Pass
08	2447	15.43	--	--	--	--	--	--	--	24.08	<30dBm	Pass
09	2452	14.34	--	--	--	--	--	--	--	23.78	<30dBm	Pass

Note: Peak Power Output Value = Reading value on power meter + cable loss

**CHAIN A+B**

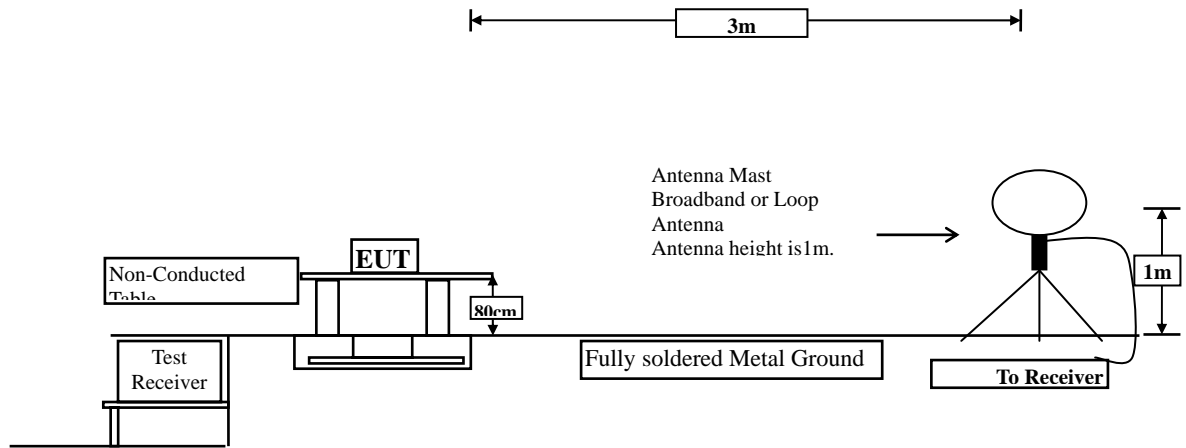
Channel	Frequency (MHz)	Data Rata (Mbps)	Chain A Power (dBm)	Chain B Power (dBm)	Chain A+B Power (dBm)	Limit (dBm)	Result
3	2422	30	24.32	24.56	27.45	<30dBm	Pass
4	2427	30	24.66	24.24	27.47	<30dBm	Pass
5	2432	30	24.76	24.34	27.57	<30dBm	Pass
6	2437	30	24.61	24.17	27.41	<30dBm	Pass
7	2442	30	23.57	24.27	26.94	<30dBm	Pass
8	2447	30	23.20	24.08	26.67	<30dBm	Pass
9	2452	30	22.51	23.78	26.20	<30dBm	Pass

Note: Peak Power Output Value (dBm) = 10\*LOG (Chain A (mW)+ Chain B (mW))

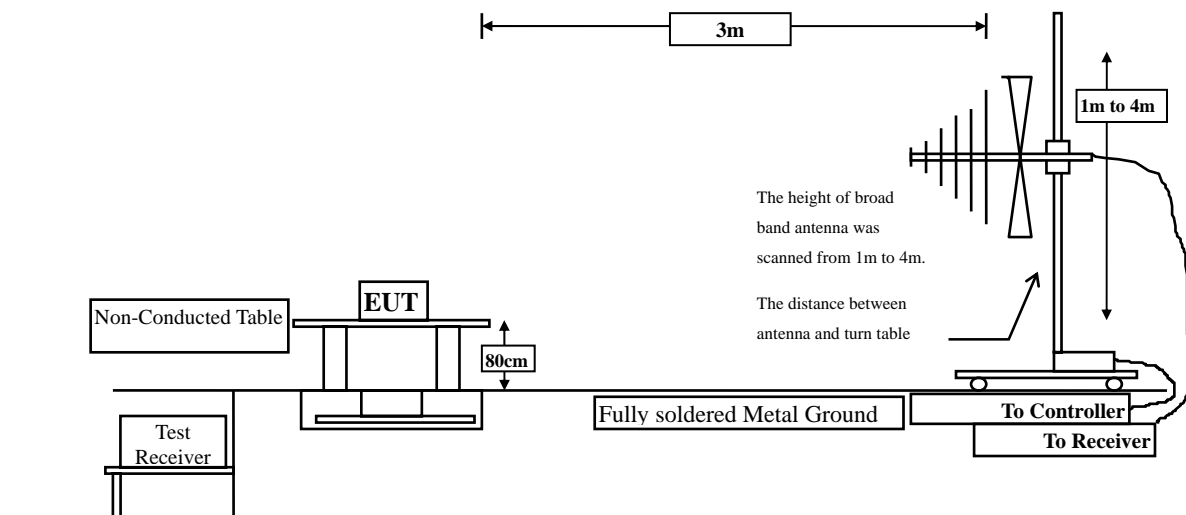
## 4. Radiated Emission

### 4.1. Test Setup

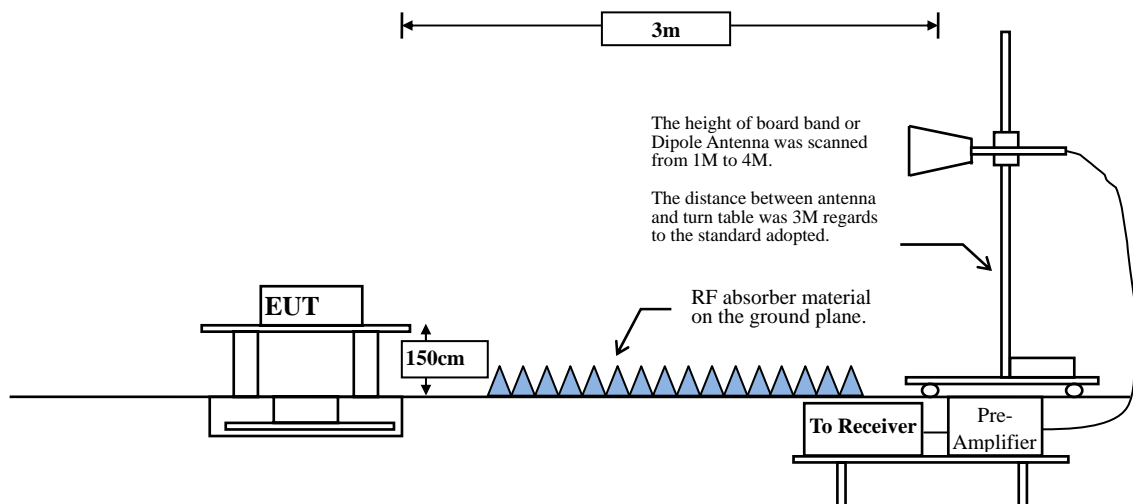
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



## 4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dB $\mu$ V/m) = 20 log E field strength (uV/m)

## 4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

The average measurement tested according to KDB 558074 section 12.2.5.3. Reduced VBW averaging across on- and off-times of the EUT transmissions with max hold.

VBW  $\geq$  1/T:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	0.933	8.49 ms	117 Hz	200 Hz
802.11g	0.886	1.41 ms	707 Hz	1 KHz
802.11n20	0.880	1.32 ms	754 Hz	1 KHz
802.11n40	0.780	0.66 ms	1499 Hz	2 KHz

#### 4.4. Uncertainty

Horizontal :

30-300MHz:  $\pm 4.08$ dB ; 300M-1GHz:  $\pm 3.86$ dB ; 1-18GHz:  $\pm 3.77$ dB ; 18-40GHz:  $\pm 3.98$ dB ◦

Vertical :

30-300MHz:  $\pm 4.81$ dB ; 300M-1GHz:  $\pm 3.87$ dB ; 1-18GHz:  $\pm 3.83$ dB ; 18-40GHz:  $\pm 3.98$ dB ◦

#### 4.5. Test Result of Radiated Emission

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	63.333	57.216	-16.784	74.000
7236.000	-3.110	55.210	52.100	-21.900	74.000
9648.000	-0.709	46.440	45.731	-28.269	74.000
<b>Average Detector:</b>					
4824.000	-6.117	59.483	53.366	-0.634	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	58.500	52.383	-21.617	74.000
7236.000	-3.110	56.610	53.500	-20.500	74.000
9648.000	-0.709	46.400	45.691	-28.309	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	62.200	56.120	-17.880	74.000
7311.000	-3.045	56.270	53.226	-20.774	74.000
9748.000	-0.536	46.550	46.013	-27.987	74.000
<b>Average Detector:</b>					
4874.000	-6.080	59.140	53.060	-0.940	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	58.100	52.020	-21.980	74.000
7311.000	-3.045	55.190	52.146	-21.854	74.000
9748.000	-0.536	45.600	45.063	-28.937	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	63.750	57.690	-16.310	74.000
7386.000	-2.923	55.570	52.647	-21.353	74.000
9848.000	-0.441	46.690	46.250	-27.750	74.000
<b>Average Detector:</b>					
4924.000	-6.060	59.890	53.830	-0.170	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	59.230	53.170	-20.830	74.000
7386.000	-2.923	55.720	52.797	-21.203	74.000
9848.000	-0.441	46.420	45.980	-28.020	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	60.070	53.953	-20.047	74.000
7236.000	-3.110	56.880	53.770	-20.230	74.000
9648.000	-0.709	47.010	46.301	-27.699	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	56.750	50.633	-23.367	74.000
7236.000	-3.110	57.060	53.950	-20.050	74.000
9648.000	-0.709	47.160	46.451	-27.549	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	62.850	56.770	-17.230	74.000
7311.000	-3.045	68.160	65.116	-8.884	74.000
9748.000	-0.536	46.890	46.353	-27.647	74.000
<b>Average Detector:</b>					
4874.000	-6.080	49.910	43.830	-10.170	54.000
7311.000	-3.045	53.820	50.776	-3.224	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	60.760	54.680	-19.320	74.000
7311.000	-3.045	68.020	64.976	-9.024	74.000
9748.000	-0.536	46.580	46.043	-27.957	74.000
<b>Average Detector:</b>					
4874.000	-6.080	47.960	41.880	-12.120	54.000
7311.000	-3.045	52.560	49.516	-4.484	54.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	59.430	53.370	-20.630	74.000
7386.000	-2.923	58.300	55.377	-18.623	74.000
9848.000	-0.441	46.390	45.950	-28.050	74.000
<b>Average Detector:</b>					
7386.000	-2.923	40.510	37.587	-16.413	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	55.760	49.700	-24.300	74.000
7386.000	-2.923	57.220	54.297	-19.703	74.000
9848.000	-0.441	46.730	46.290	-27.710	74.000
<b>Average Detector:</b>					
7386.000	-2.923	41.150	38.227	-15.773	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)(2412MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	58.270	52.153	-21.847	74.000
7236.000	-3.110	61.220	58.110	-15.890	74.000
9648.000	-0.709	46.160	45.451	-28.549	74.000
<b>Average Detector:</b>					
7236.000	-3.110	43.930	40.820	-13.180	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4824.000	-6.117	55.900	49.783	-24.217	74.000
7236.000	-3.110	59.900	56.790	-17.210	74.000
9648.000	-0.709	46.520	45.811	-28.189	74.000
<b>Average Detector:</b>					
7236.000	-3.110	41.680	38.570	-15.430	54.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2437 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	62.950	56.870	-17.130	74.000
7311.000	-3.045	69.550	66.506	-7.494	74.000
9748.000	-0.536	46.610	46.073	-27.927	74.000
<b>Average Detector:</b>					
4874.000	-6.080	49.720	43.640	-10.360	54.000
7311.000	-3.045	53.750	50.706	-3.294	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	60.430	54.350	-19.650	74.000
7311.000	-3.045	69.000	65.956	-8.044	74.000
9748.000	-0.536	46.210	45.673	-28.327	74.000
<b>Average Detector:</b>					
4874.000	-6.080	46.250	40.170	-13.830	54.000
7311.000	-3.045	49.430	46.386	-7.614	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	60.800	54.740	-19.260	74.000
7386.000	-2.923	58.230	55.307	-18.693	74.000
9848.000	-0.441	46.310	45.870	-28.130	74.000
<b>Average Detector:</b>					
4924.000	-6.060	45.370	39.310	-14.690	54.000
7386.000	-2.923	40.740	37.817	-16.183	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4924.000	-6.060	55.620	49.560	-24.440	74.000
7386.000	-2.923	58.670	55.747	-18.253	74.000
9848.000	-0.441	46.190	45.750	-28.250	74.000
<b>Average Detector:</b>					
7386.000	-2.923	41.130	38.207	-15.793	54.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.



Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2422MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4844.000	-6.104	55.180	49.076	-24.924	74.000
7266.000	-3.099	56.010	52.911	-21.089	74.000
9688.000	-0.649	46.840	46.191	-27.809	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4844.000	-6.104	52.670	46.566	-27.434	74.000
7266.000	-3.099	55.440	52.341	-21.659	74.000
9688.000	-0.649	46.520	45.871	-28.129	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	59.490	53.410	-20.590	4874.000
7311.000	-3.045	65.880	62.836	-11.164	7311.000
9748.000	-0.536	46.370	45.833	-28.167	9748.000
<b>Average Detector:</b>					
7311.000	-3.045	56.840	53.796	-0.204	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4874.000	-6.080	58.110	52.030	-21.970	74.000
7311.000	-3.045	64.780	61.736	-12.264	74.000
9748.000	-0.536	46.490	45.953	-28.047	74.000
<b>Average Detector:</b>					
7311.000	-3.045	56.750	53.706	-0.294	54.000

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : Harmonic Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2452 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
<b>Peak Detector:</b>					
4904.000	-6.090	53.620	47.530	-26.470	74.000
7356.000	-2.975	54.240	51.266	-22.734	74.000
9808.000	-0.484	46.220	45.737	-28.263	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000
<b>Vertical</b>					
<b>Peak Detector:</b>					
4904.000	-6.090	51.270	45.180	-28.820	74.000
7356.000	-2.975	55.160	52.186	-21.814	74.000
9808.000	-0.484	45.970	45.487	-28.513	74.000
<b>Average Detector:</b>					
--	--	--	--	--	54.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz)  
 Test Date : 2017/07/12

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
124.188	-12.662	44.154	31.493	-12.007	43.500
240.870	-12.022	41.964	29.942	-16.058	46.000
374.420	-8.297	53.264	44.967	-1.033	46.000
482.667	-5.847	41.090	35.243	-10.757	46.000
676.667	-2.389	33.211	30.822	-15.178	46.000
874.884	0.235	43.131	43.366	-2.634	46.000
<b>Vertical</b>					
37.029	-11.511	50.000	38.490	-1.510	40.000
124.188	-12.662	40.786	28.125	-15.375	43.500
374.420	-8.297	48.829	40.532	-5.468	46.000
434.870	-6.771	36.965	30.194	-15.806	46.000
746.957	-1.285	43.926	42.641	-3.359	46.000
874.884	0.235	35.352	35.587	-10.413	46.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)  
 Test Date : 2017/07/12

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
124.188	-12.662	44.154	31.493	-12.007	43.500
316.783	-9.712	40.040	30.328	-15.672	46.000
374.420	-8.297	53.564	45.267	-0.733	46.000
531.870	-4.903	34.094	29.192	-16.808	46.000
734.304	-1.454	28.705	27.251	-18.749	46.000
1000.000	1.822	42.242	44.063	-9.937	54.000
<b>Vertical</b>					
39.841	-11.168	49.680	38.512	-1.488	40.000
124.188	-12.662	42.202	29.541	-13.959	43.500
337.870	-9.245	46.034	36.789	-9.211	46.000
482.667	-5.847	44.233	38.386	-7.614	46.000
628.870	-3.104	35.545	32.441	-13.559	46.000
741.333	-1.361	45.880	44.520	-1.480	46.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)(2437 MHz)  
 Test Date : 2017/07/12

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
124.188	-12.662	44.154	31.493	-12.007	43.500
290.072	-10.298	43.687	33.389	-12.611	46.000
374.420	-8.297	53.264	44.967	-1.033	46.000
531.870	-4.903	34.094	29.192	-16.808	46.000
755.391	-1.180	28.238	27.058	-18.942	46.000
874.884	0.235	43.131	43.366	-2.634	46.000
<b>Vertical</b>					
41.246	-11.085	48.900	37.815	-2.185	40.000
290.072	-10.298	44.477	34.179	-11.821	46.000
374.420	-8.297	48.829	40.532	-5.468	46.000
624.652	-3.141	40.404	37.263	-8.737	46.000
746.957	-1.285	43.926	42.641	-3.359	46.000
874.884	0.235	35.352	35.587	-10.413	46.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2437 MHz)  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
124.188	-12.662	38.903	26.242	-17.258	43.500
290.072	-10.298	42.691	32.393	-13.607	46.000
374.420	-8.297	52.305	44.008	-1.992	46.000
579.667	-3.816	31.782	27.966	-18.034	46.000
773.667	-0.965	37.233	36.268	-9.732	46.000
950.797	1.095	32.287	33.382	-12.618	46.000
<b>Vertical</b>					
41.246	-11.085	49.600	38.515	-1.485	40.000
290.072	-10.298	44.477	34.179	-11.821	46.000
374.420	-8.297	48.829	40.532	-5.468	46.000
482.667	-5.847	44.233	38.386	-7.614	46.000
741.333	-1.361	45.880	44.520	-1.480	46.000
874.884	0.235	35.352	35.587	-10.413	46.000

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz) \_Loop  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
0.851	19.680	11.500	31.180	-39.414	70.594
13.052	-13.970	21.000	7.030	-46.970	54.000
16.958	20.100	13.400	33.500	-36.040	69.540
17.524	20.090	17.610	37.700	-31.840	69.540
22.817	20.060	19.800	39.860	-29.680	69.540
22.949	20.070	23.300	43.370	-26.170	69.540
<b>Vertical</b>					
3.416	19.800	23.500	43.300	-26.240	69.540
8.032	19.870	24.530	44.400	-25.140	69.540
13.563	20.020	35.900	55.920	-13.620	69.540
16.305	20.090	20.110	40.200	-29.340	69.540
22.696	20.060	35.100	55.160	-14.380	69.540
24.337	20.150	11.580	31.730	-37.810	69.540

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.



Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz)\_Loop  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
8.798	19.870	23.500	43.370	-26.170	69.540
10.245	19.920	21.220	41.140	-28.400	69.540
16.169	20.090	21.200	41.290	-28.250	69.540
19.351	20.034	24.130	44.164	-25.376	69.540
23.628	20.113	24.100	44.213	-25.327	69.540
24.006	20.140	22.600	42.740	-26.800	69.540
<b>Vertical</b>					
13.375	20.020	40.400	60.420	-9.120	69.540
13.442	20.020	35.800	55.820	-13.720	69.540
16.259	20.090	20.230	40.320	-29.220	69.540
19.882	20.010	14.620	34.630	-34.910	69.540
22.860	20.067	38.200	58.267	-11.273	69.540
24.115	20.140	23.510	43.650	-25.890	69.540

## Note:

- All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
- Measurement Level = Reading Level + Correct Factor.
- Correct Factor = Antenna factor + Cable loss – Amplifier gain.
- The average measurement was not performed when the peak measured data under the limit of average detection.
- The emission levels of other frequencies are very lower than the limit and not show in test report.
- No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)(2437 MHz) \_Loop  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
8.190	19.870	23.300	43.170	-26.370	69.540
10.832	19.950	24.330	44.280	-25.260	69.540
11.265	19.970	11.060	31.030	-38.510	69.540
16.220	20.090	21.100	41.190	-28.350	69.540
20.329	20.010	21.510	41.520	-28.020	69.540
23.555	20.110	22.100	42.210	-27.330	69.540
<b>Vertical</b>					
13.572	20.020	39.300	59.320	-10.220	69.540
13.650	20.020	39.800	59.820	-9.720	69.540
16.419	20.090	22.310	42.400	-27.140	69.540
22.685	20.060	39.500	59.560	-9.980	69.540
24.365	20.150	22.650	42.800	-26.740	69.540
28.032	20.160	11.600	31.760	-37.780	69.540

## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

Product : G.hn Powerline Wireless Extender  
 Test Item : General Radiated Emission Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)(2437 MHz) \_Loop  
 Test Date : 2017/07/18

Frequency MHz	Correct Factor dB	Reading Level dB $\mu$ V	Measurement Level dB $\mu$ V/m	Margin dB	Limit dB $\mu$ V/m
<b>Horizontal</b>					
8.107	19.870	25.400	45.270	-24.270	69.540
8.202	19.870	26.500	46.370	-23.170	69.540
13.107	20.020	22.400	42.420	-27.120	69.540
16.306	20.090	11.650	31.740	-37.800	69.540
18.987	20.050	18.320	38.370	-31.170	69.540
24.120	20.140	22.130	42.270	-27.270	69.540
<b>Vertical</b>					
10.080	19.911	13.510	33.421	-36.119	69.540
13.661	20.020	37.900	57.920	-11.620	69.540
13.832	20.020	38.900	58.920	-10.620	69.540
16.985	20.100	22.620	42.720	-26.820	69.540
22.947	20.070	38.900	58.970	-10.570	69.540
28.334	20.150	21.300	41.450	-28.090	69.540

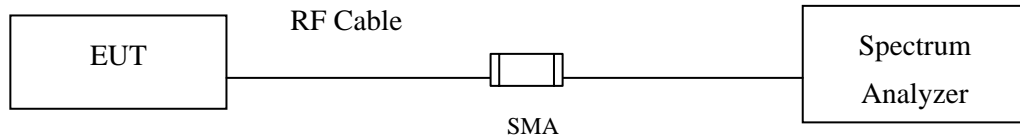
## Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

## 5. RF antenna conducted test

### 5.1. Test Setup

#### RF antenna Conducted Measurement:



### 5.2. Limits

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

### 5.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

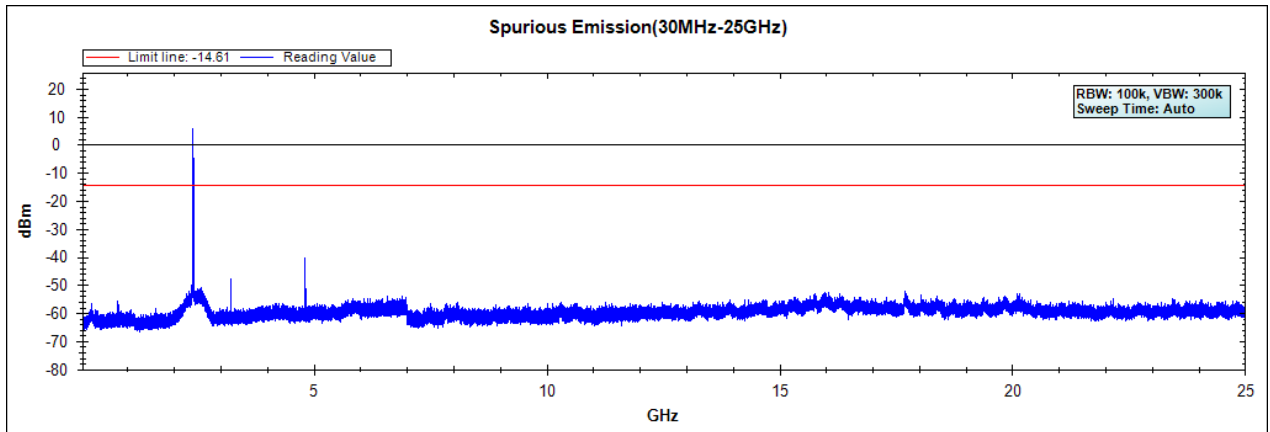
### 5.4. Uncertainty

$\pm 1.23\text{dB}$

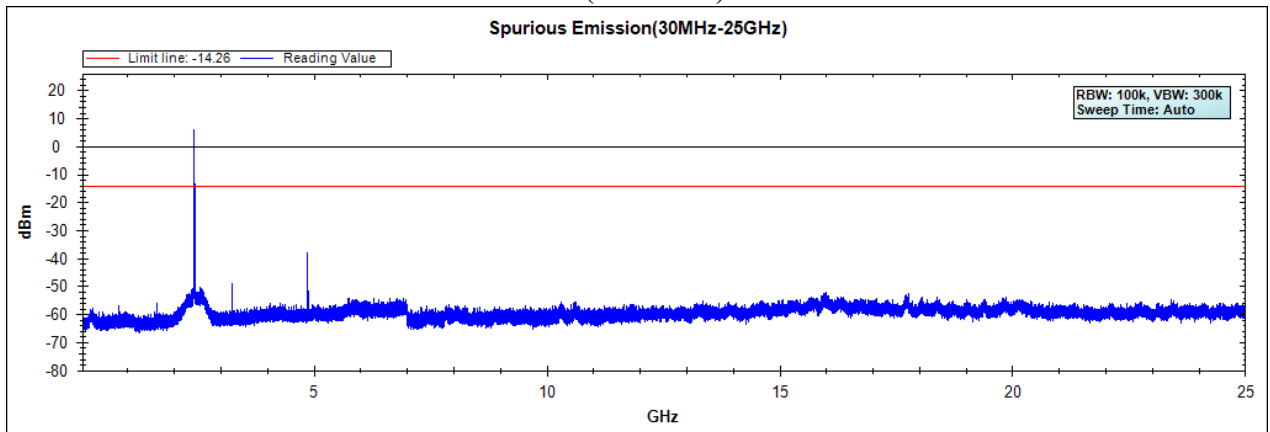
### 5.5. Test Result of RF antenna conducted test

Product : G.hn Powerline Wireless Extender  
Test Item : RF antenna conducted test  
Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
Test Date : 2017/07/11

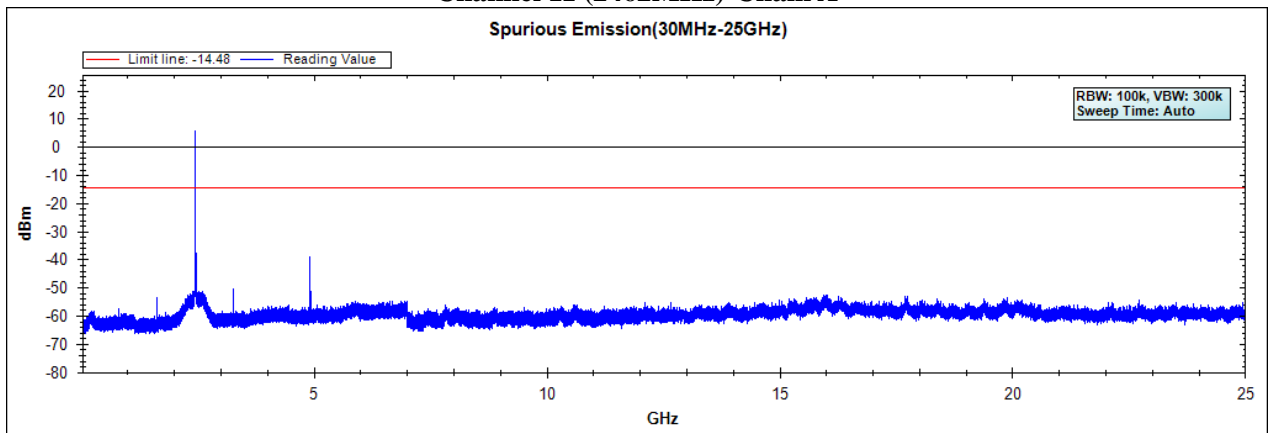
**Channel 01 (2412MHz)-Chain A**



**Channel 06 (2437MHz)-Chain A**



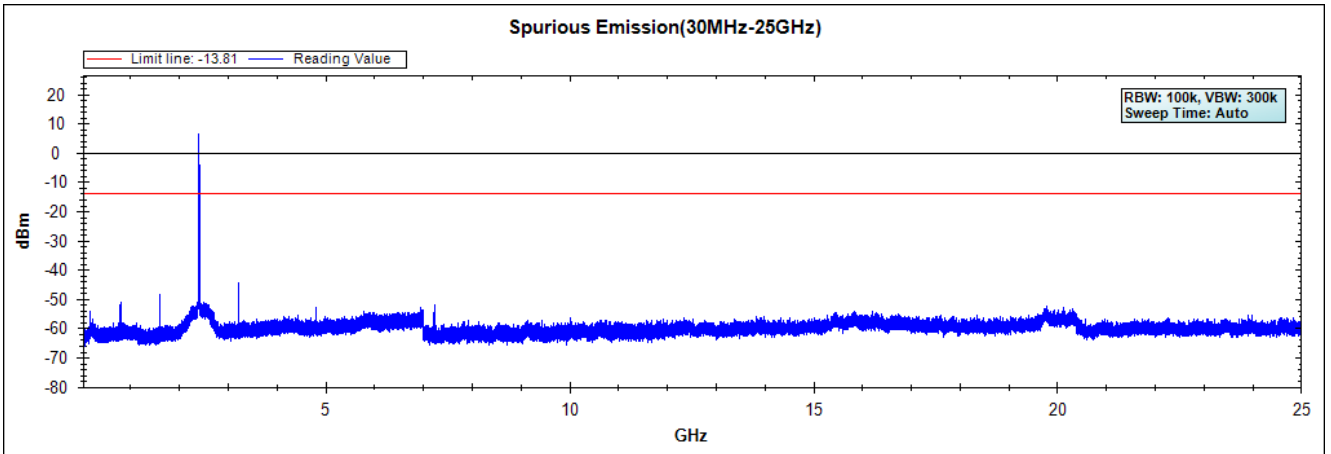
**Channel 11 (2462MHz)-Chain A**



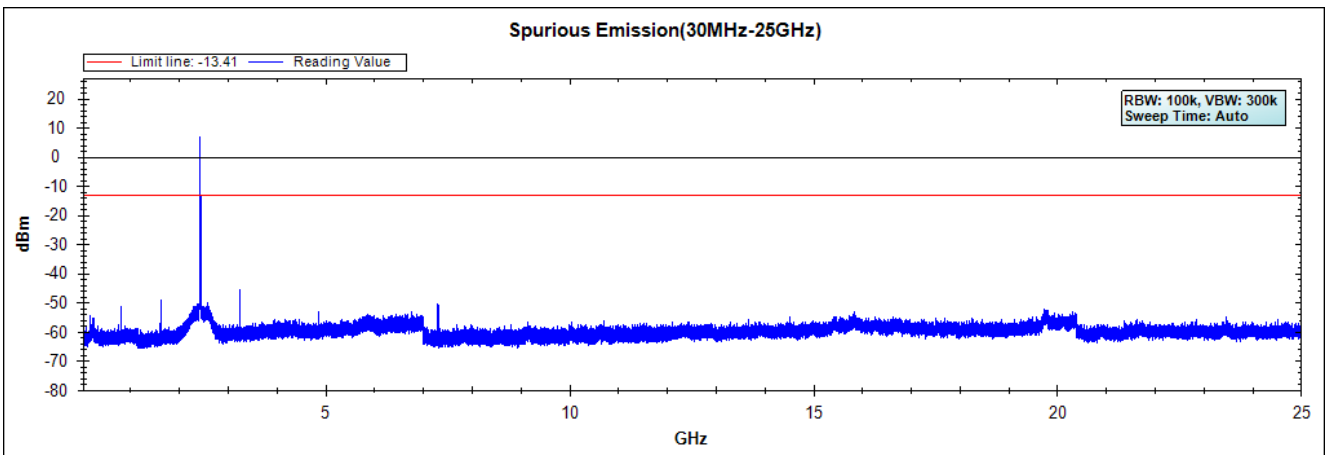
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF antenna conducted test  
Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
Test Date : 2017/07/11

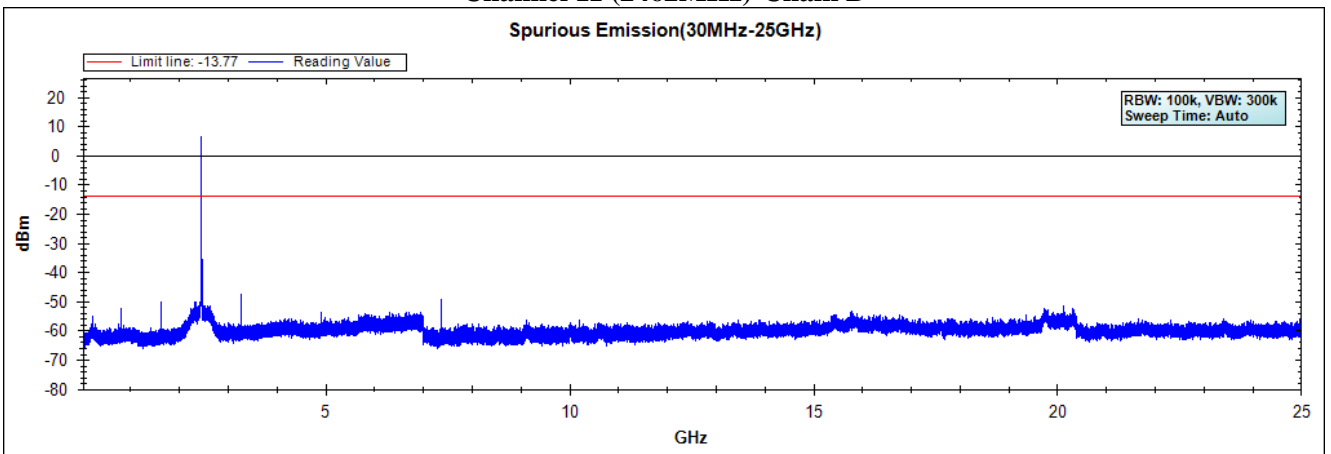
### Channel 01 (2412MHz)-Chain B



### Channel 06 (2437MHz)-Chain B



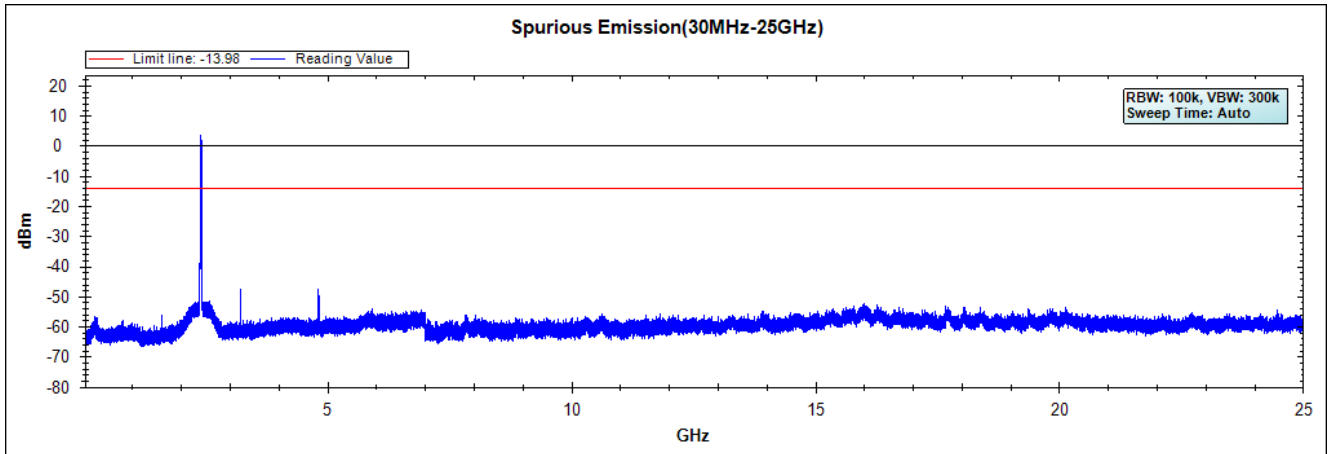
### Channel 11 (2462MHz)-Chain B



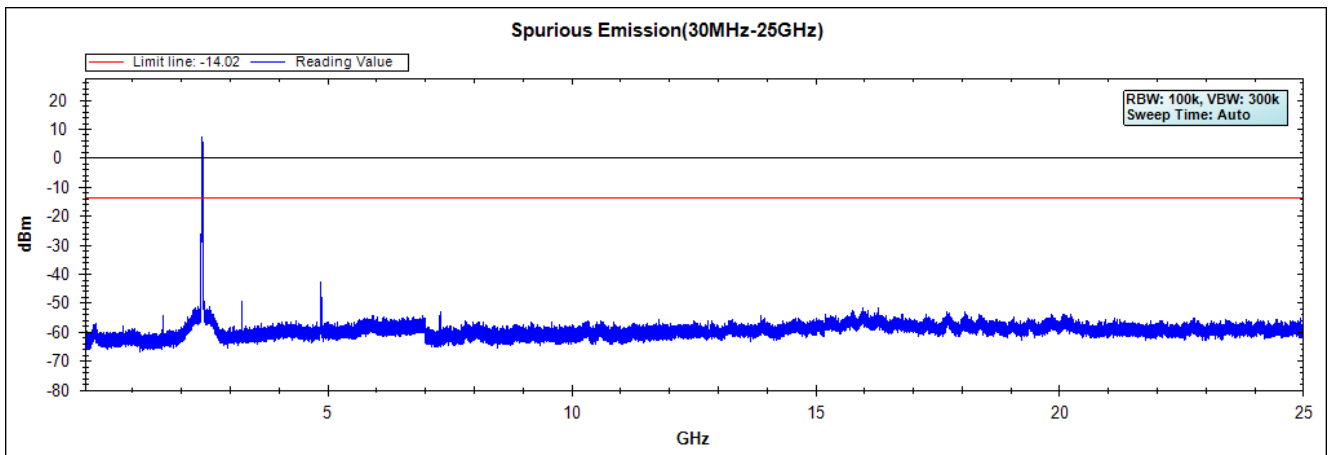
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
Test Date : 2017/07/11

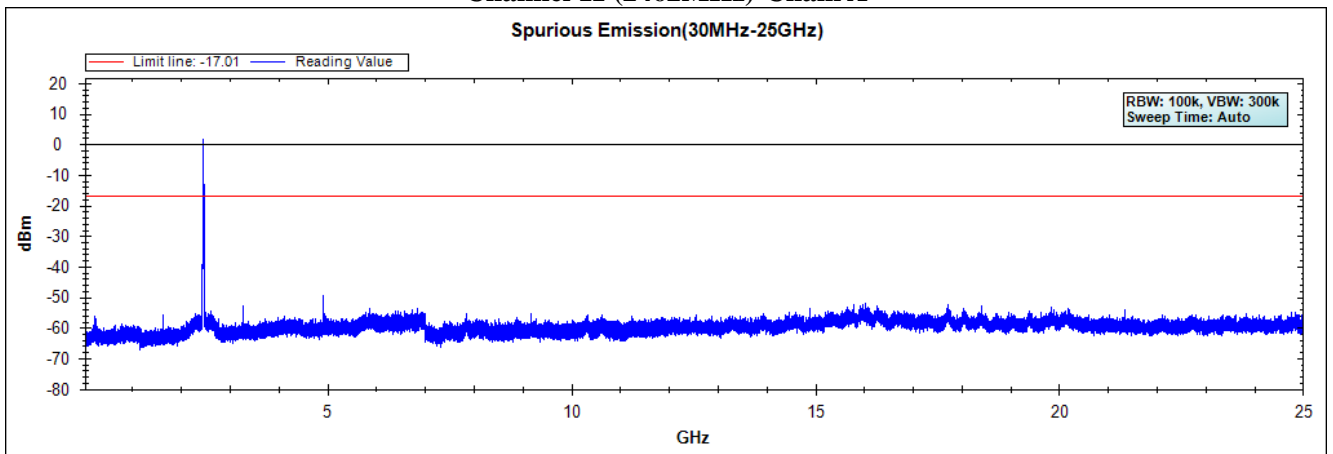
**Channel 01 (2412MHz)-Chain A**



**Channel 06 (2437MHz)-Chain A**



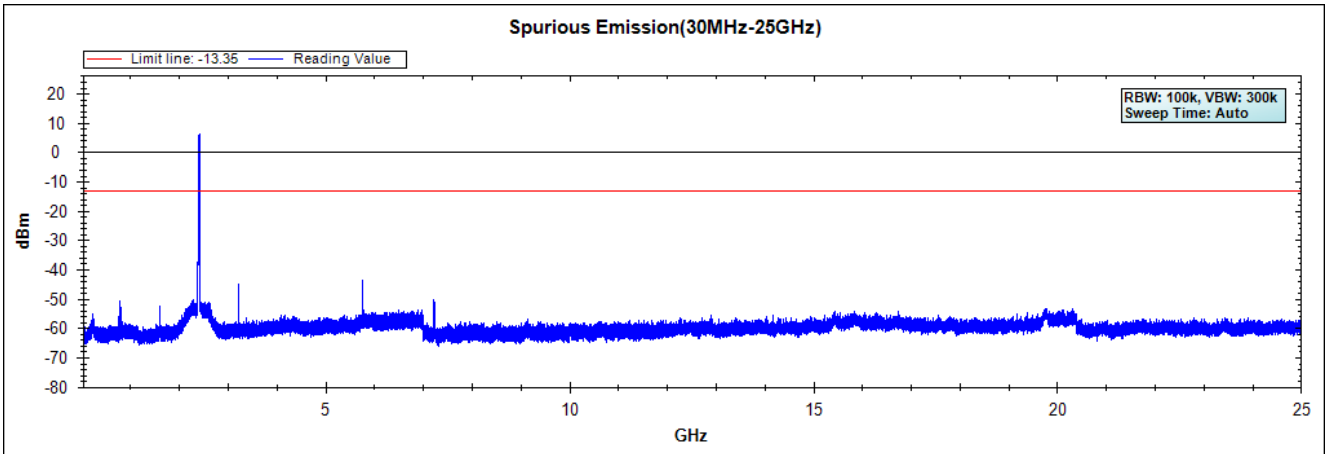
**Channel 11 (2462MHz)-Chain A**



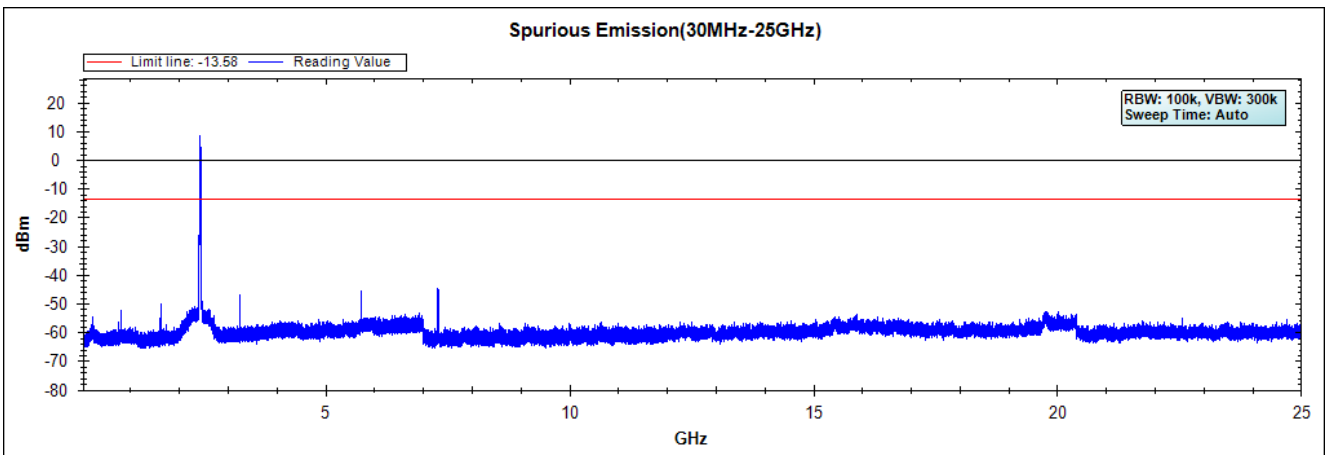
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
Test Date : 2017/07/11

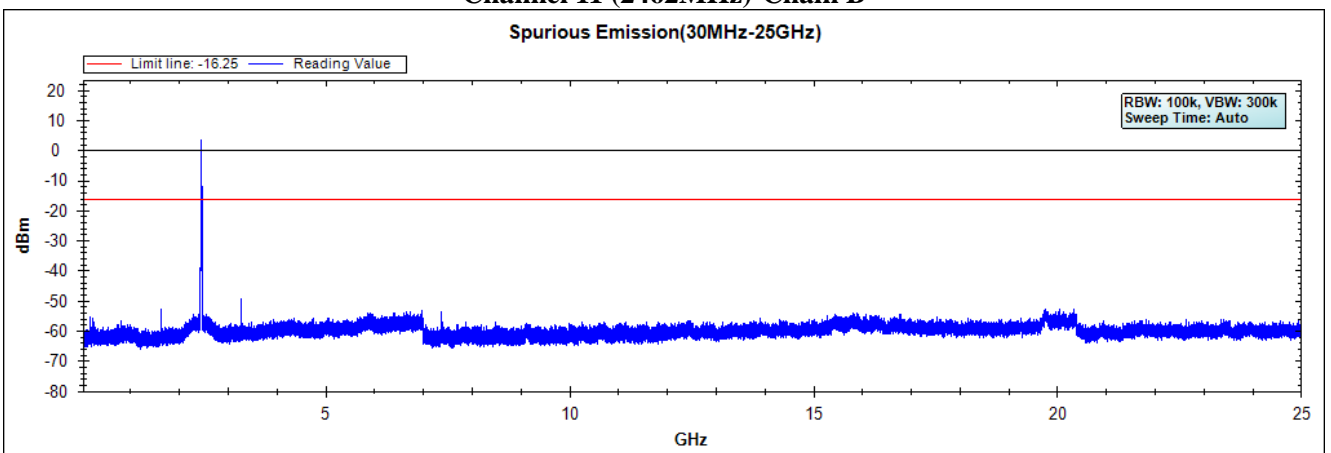
**Channel 01 (2412MHz)-Chain B**



**Channel 06 (2437MHz)-Chain B**



**Channel 11 (2462MHz)-Chain B**

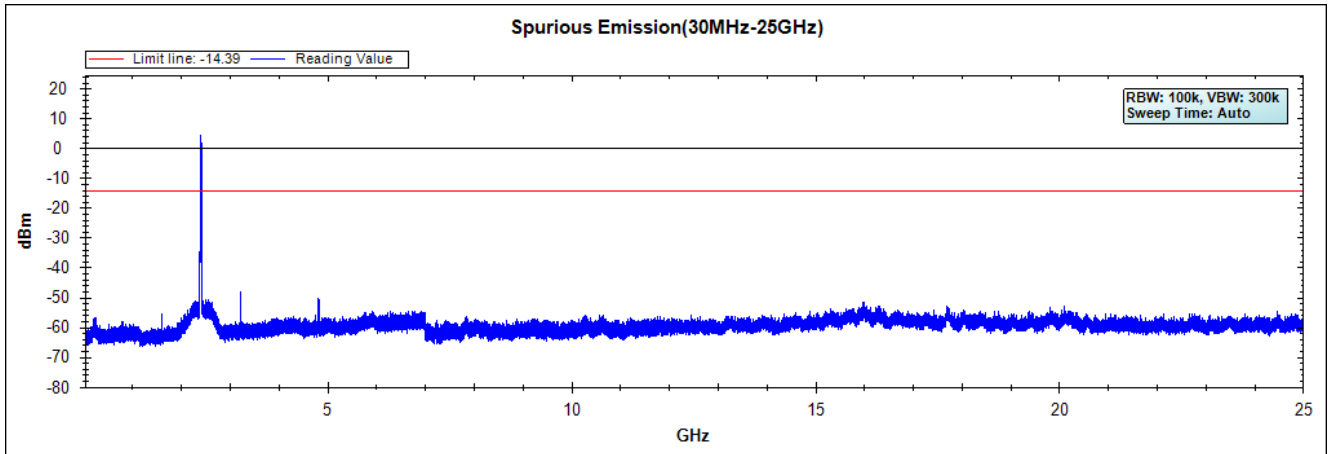


Note: The above test pattern is synthesized by multiple of the frequency range.

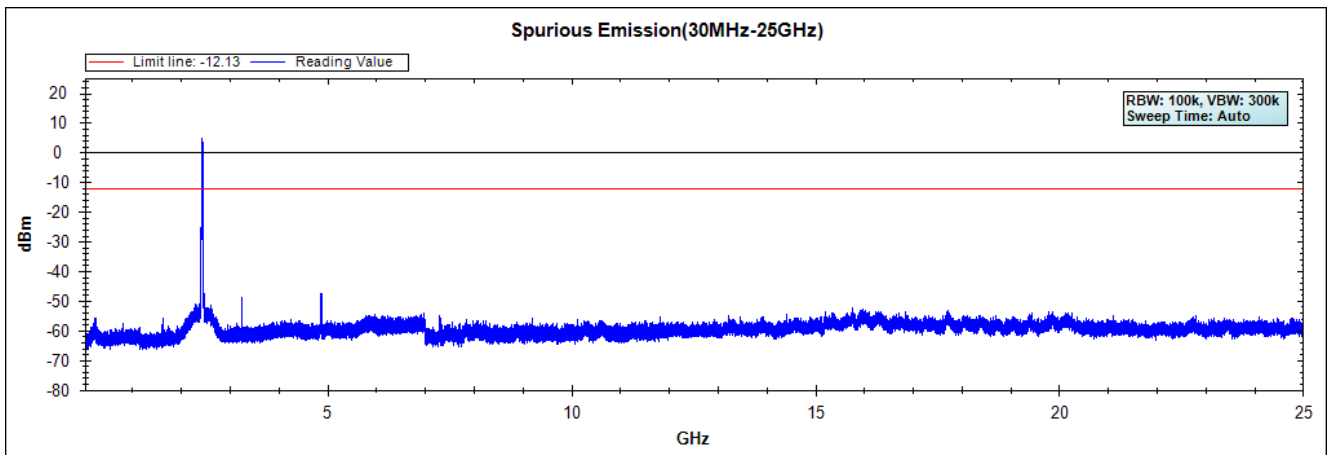


Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
Test Date : 2017/07/11

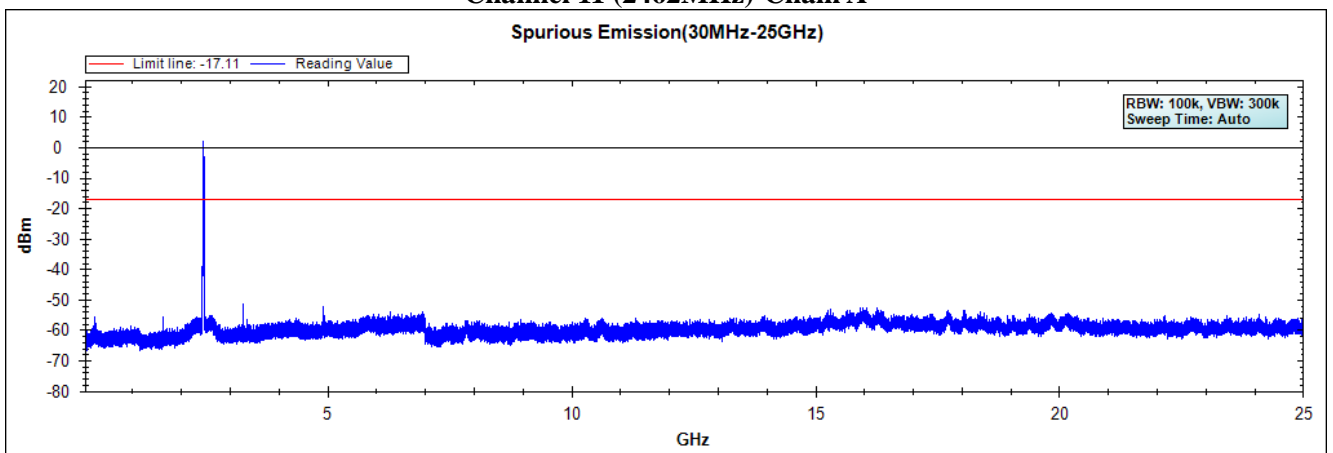
### Channel 01 (2412MHz)-Chain A



### Channel 06 (2437MHz)-Chain A



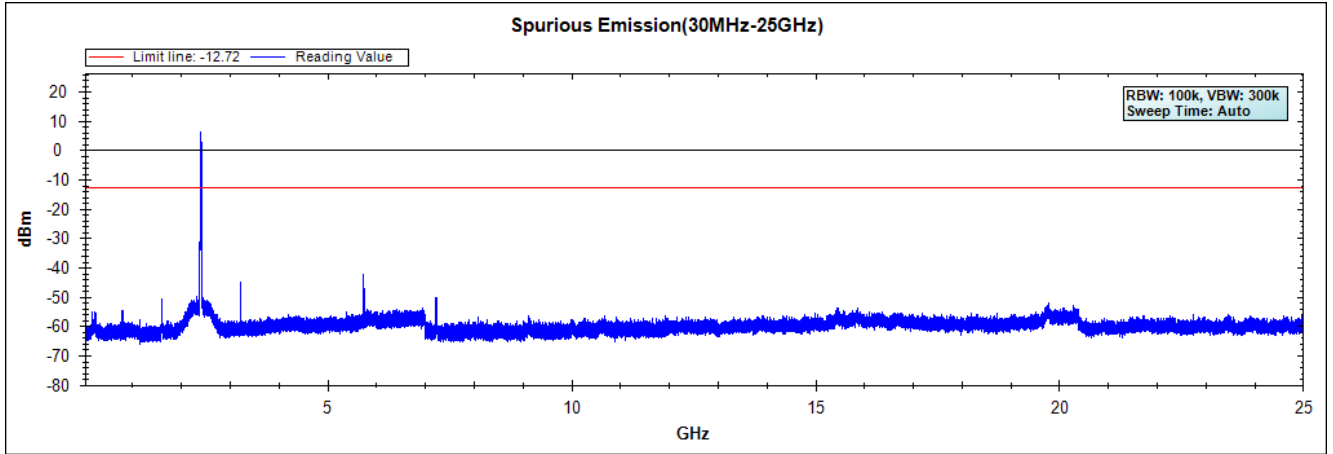
### Channel 11 (2462MHz)-Chain A



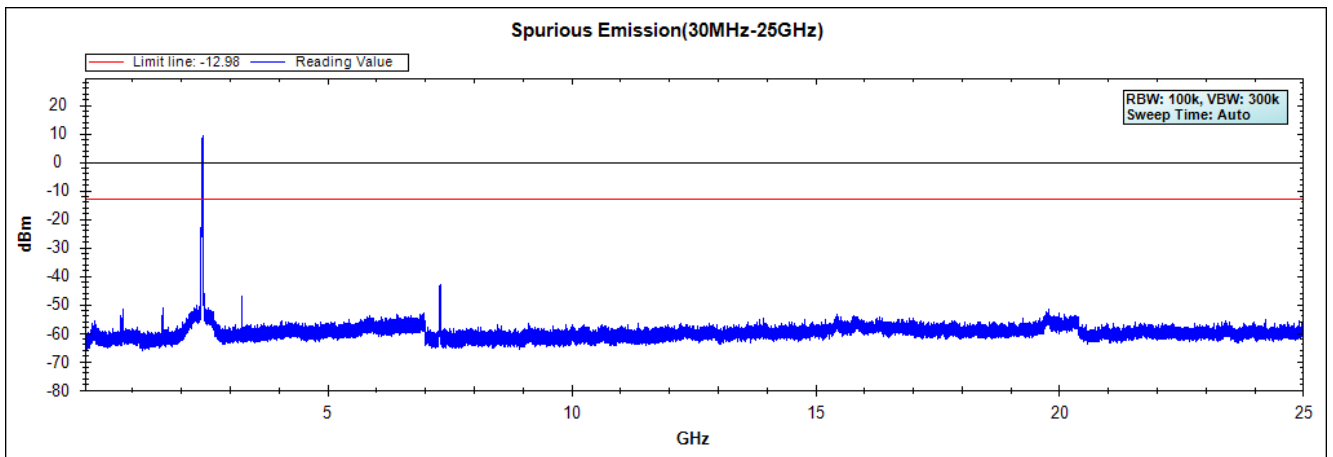
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
Test Date : 2017/07/11

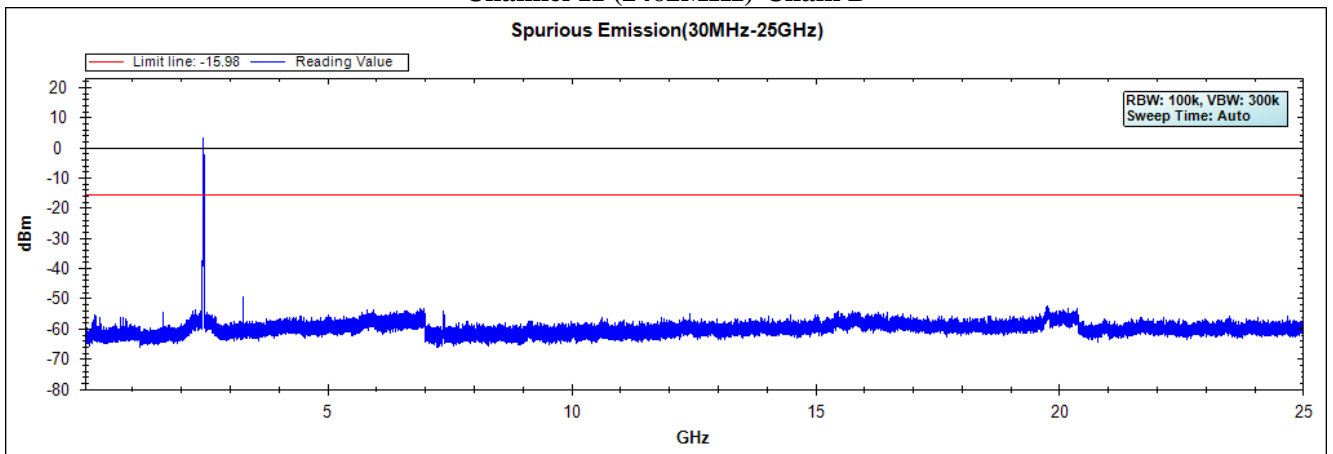
**Channel 01 (2412MHz)-Chain B**



**Channel 06 (2437MHz)-Chain B**



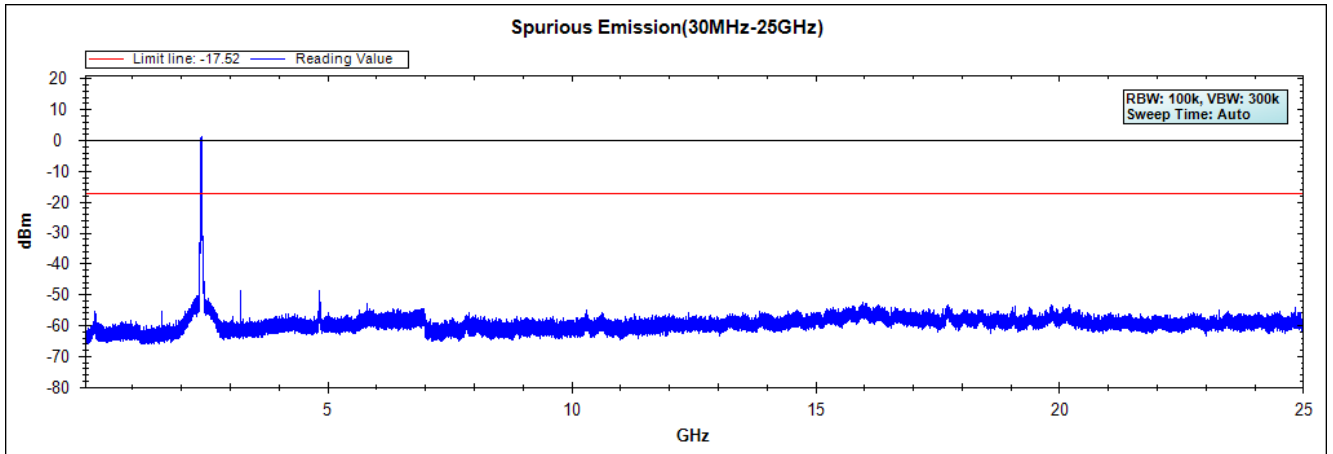
**Channel 11 (2462MHz)-Chain B**



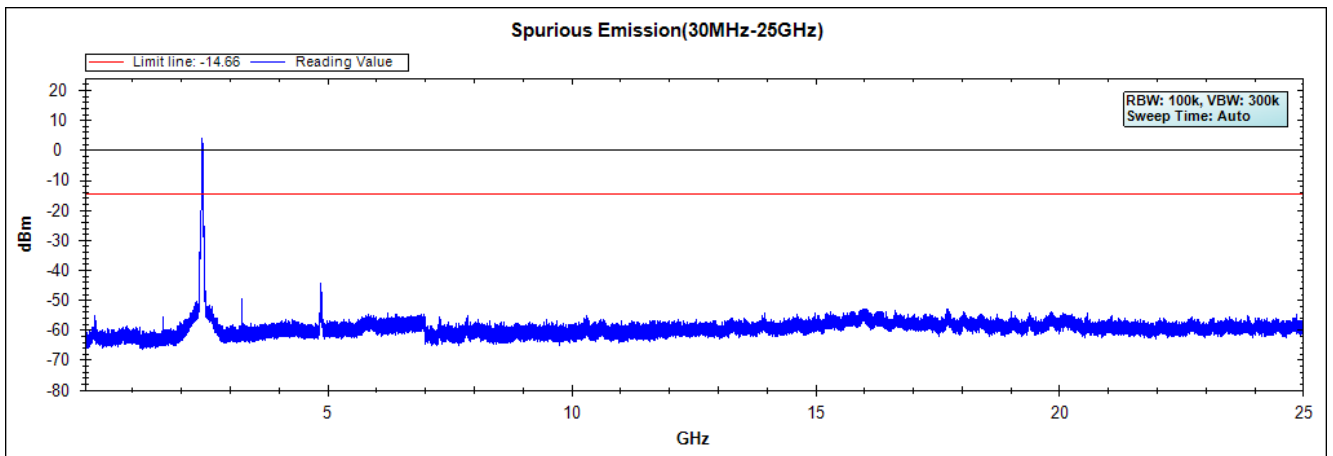
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
Test Date : 2017/07/12

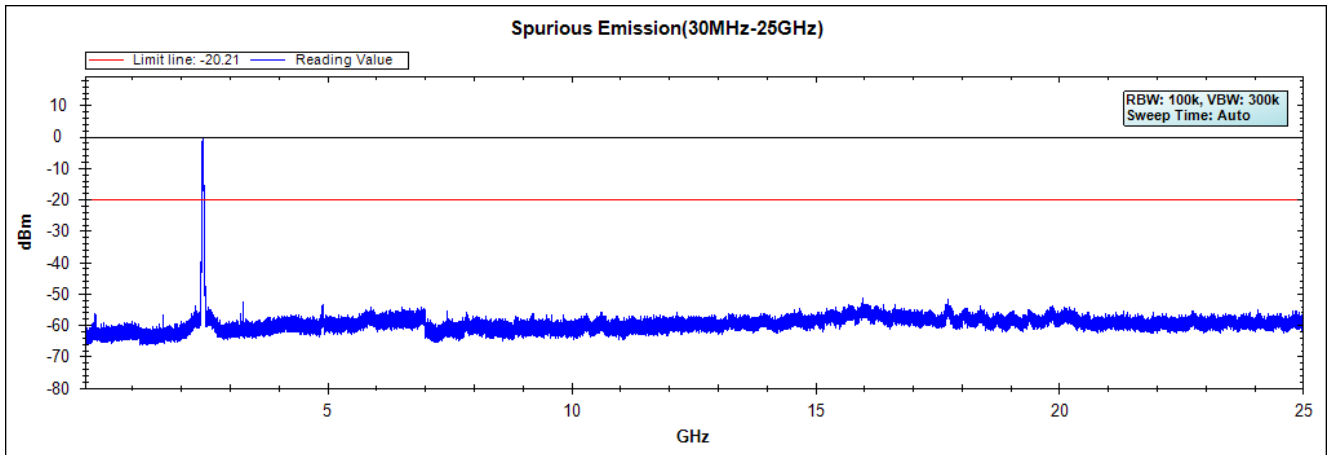
### Channel 01 (2422MHz)-Chain A



### Channel 04 (2437MHz)-Chain A



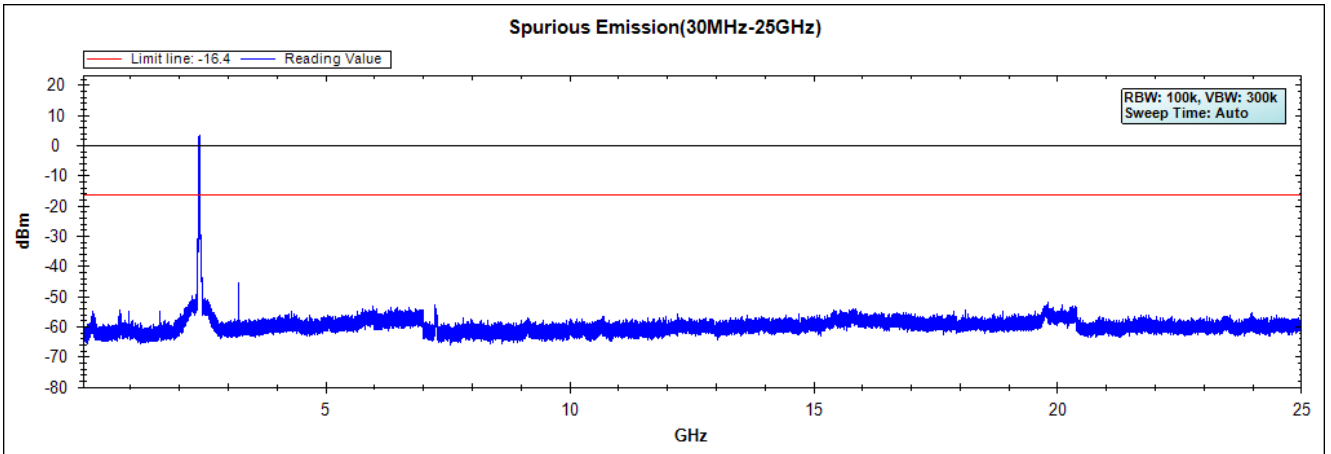
### Channel 07 (2452MHz)-Chain A



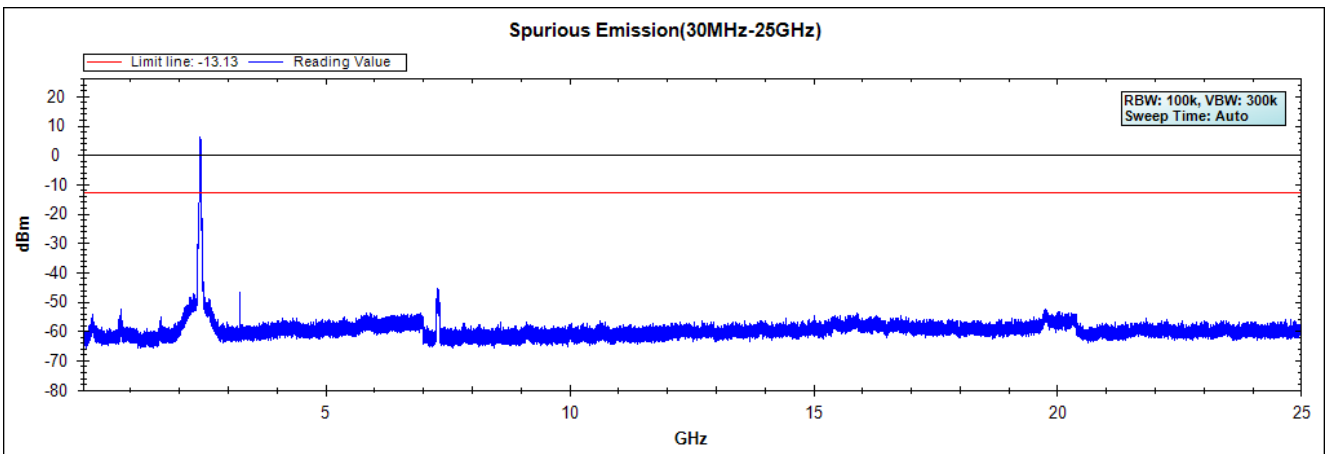
Note: The above test pattern is synthesized by multiple of the frequency range.

Product : G.hn Powerline Wireless Extender  
Test Item : RF Antenna Conducted Spurious  
Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
Test Date : 2017/07/12

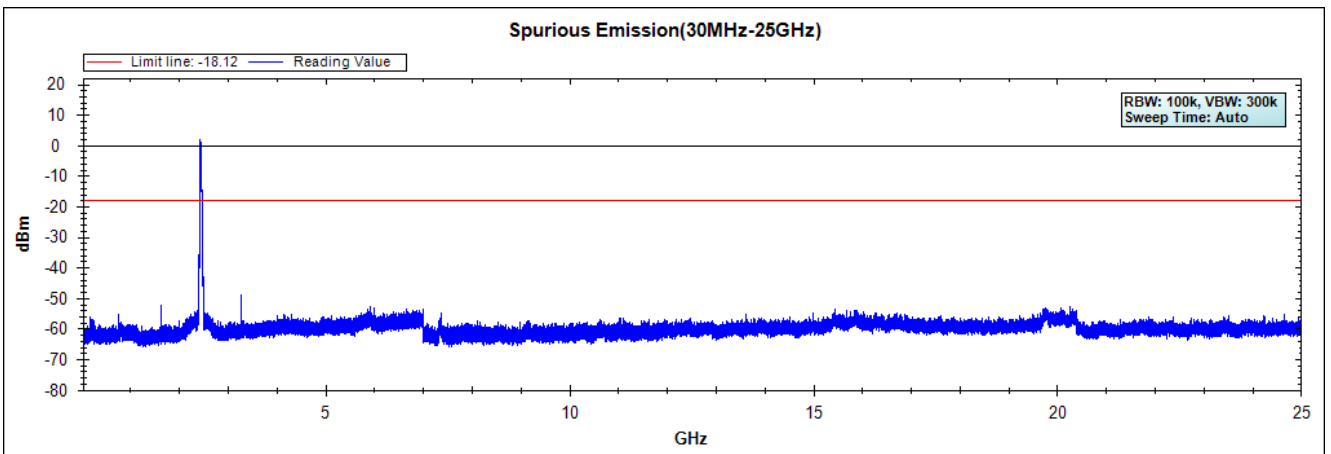
**Channel 01 (2422MHz)-Chain B**



**Channel 04 (2437MHz)-Chain B**



**Channel 07 (2452MHz)-Chain B**

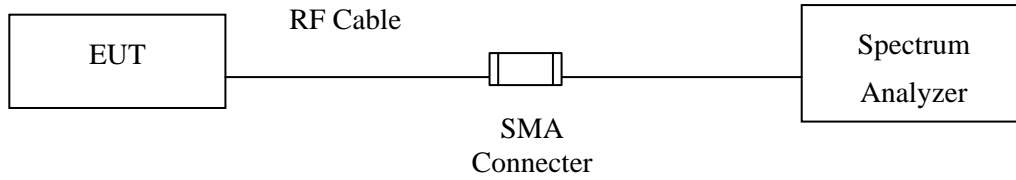


Note: The above test pattern is synthesized by multiple of the frequency range.

## 6. Band Edge

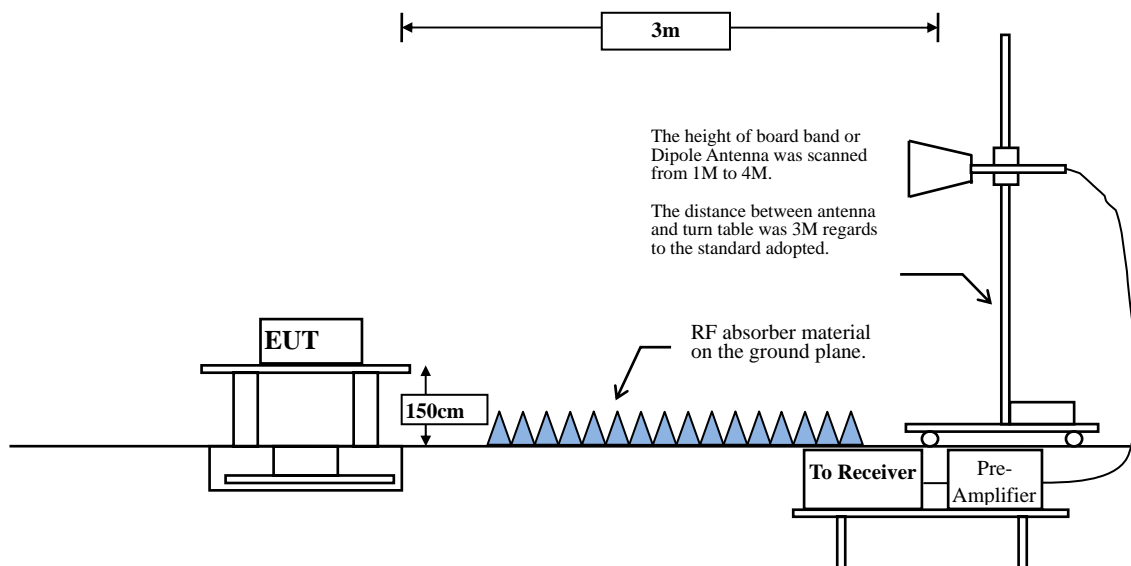
### 6.1. Test Setup

#### RF Conducted Measurement



#### RF Radiated Measurement:

Above 1GHz



## 6.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

## 6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

The average measurement tested according to KDB 558074 section 12.2.5.3. Reduced VBW averaging across on- and off-times of the EUT transmissions with max hold.

VBW  $\geq$  1/T:

Mode	Duty Cycle	T	1/T	VBW Setting
802.11b	0.933	8.49 ms	117 Hz	200 Hz
802.11g	0.886	1.41 ms	707 Hz	1 KHz
802.11n20	0.880	1.32 ms	754 Hz	1 KHz
802.11n40	0.780	0.66 ms	1499 Hz	2 KHz

## 6.4. Uncertainty

Conducted:  $\pm 1.23$ dB

Radiated:

Horizontal polarization : 1-18GHz:  $\pm 3.77$ dB

Vertical polarization : 1-18GHz :  $\pm 3.83$ dB

### 6.5. Test Result of Band Edge

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 Test Date : 2017/07/10

#### RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	41.987	53.543	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	54.443	66.022	--	--	--
01 (Peak)	2413.478	11.611	96.128	107.739	--	--	--
01 (Average)	2390.000	11.556	31.219	42.775	74.00	54.00	Pass
01 (Average)	2400.000	11.579	43.896	55.475	--	--	--
01 (Average)	2412.754	11.609	93.274	104.884	--	--	--

Figure Channel 01: Horizontal (Peak)

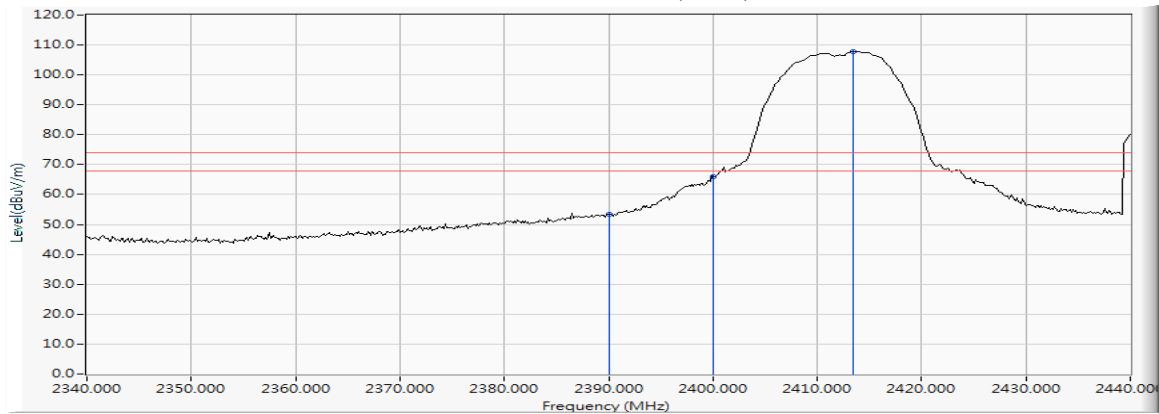
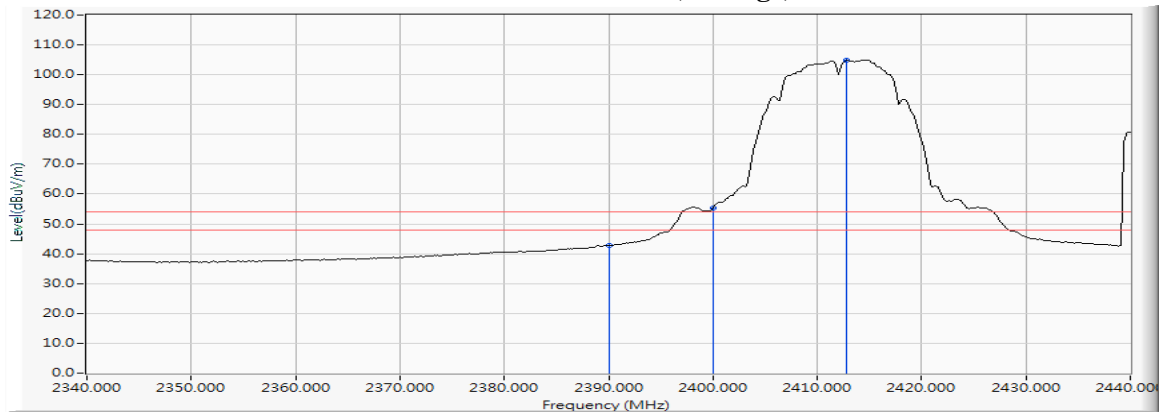


Figure Channel 01: Horizontal (Average)



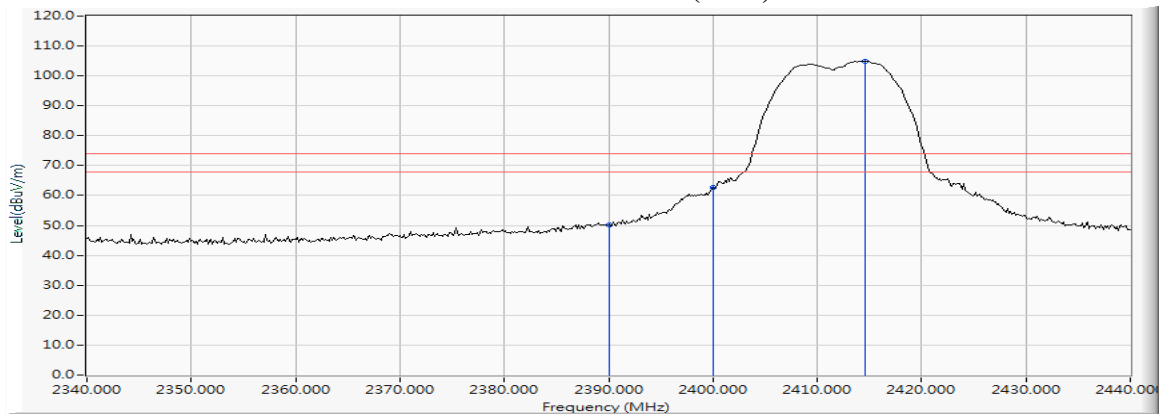
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)  
 Test Date : 2017/07/10

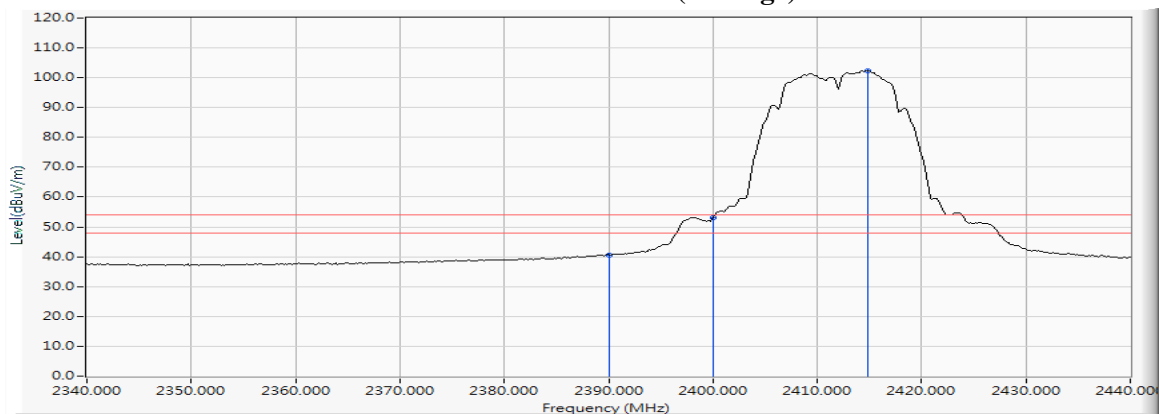
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	38.721	50.277	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	51.048	62.627	--	--	--
01 (Peak)	2414.638	11.614	93.410	105.024	--	--	--
01 (Average)	2390.000	11.556	29.063	40.619	74.00	54.00	Pass
01 (Average)	2400.000	11.579	41.403	52.982	--	--	--
01 (Average)	2414.783	11.614	90.769	102.383	--	--	--

**Figure Channel 01: VERTICAL (Peak)**



**Figure Channel 01: VERTICAL (Average)**



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

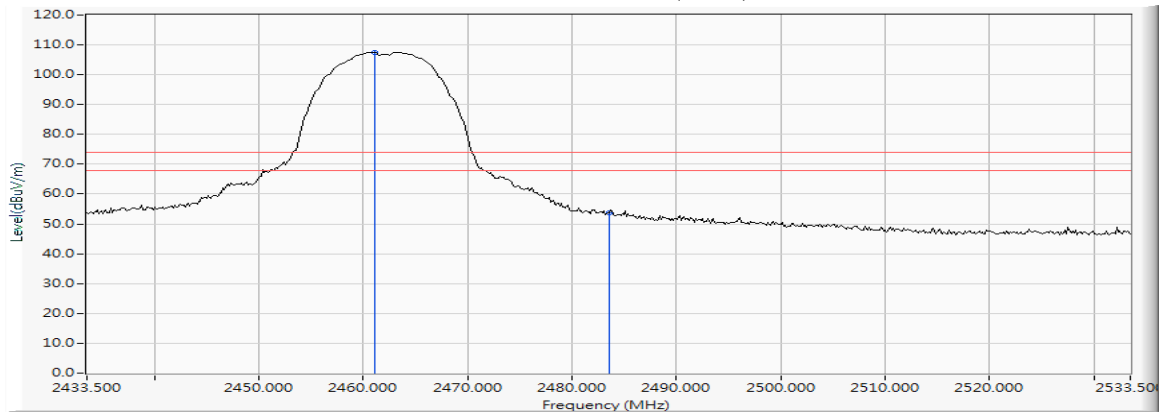


Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)  
 Test Date : 2017/07/10

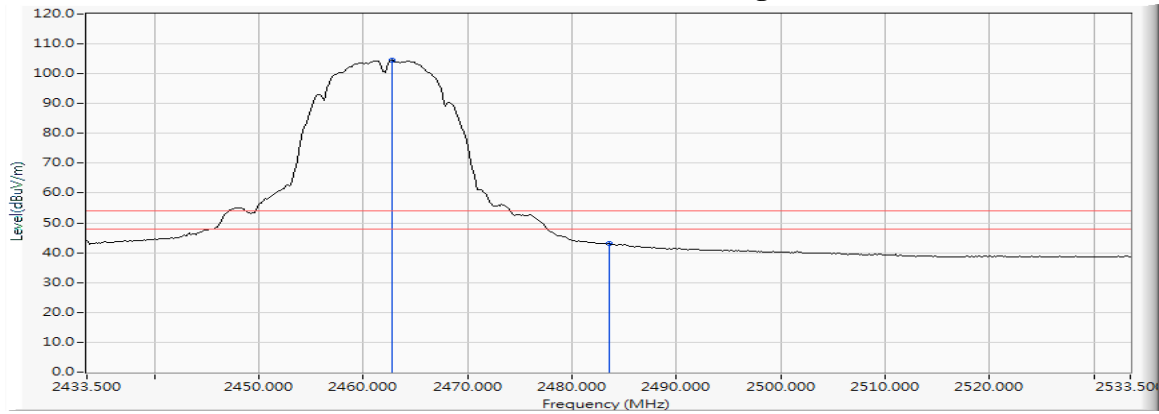
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2461.036	11.740	95.814	107.554	--	--	--
11 (Peak)	2483.500	11.800	41.903	53.703	74.00	54.00	Pass
11 (Average)	2462.775	11.745	92.753	104.498	--	--	--
11 (Average)	2483.500	11.800	31.286	43.086	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



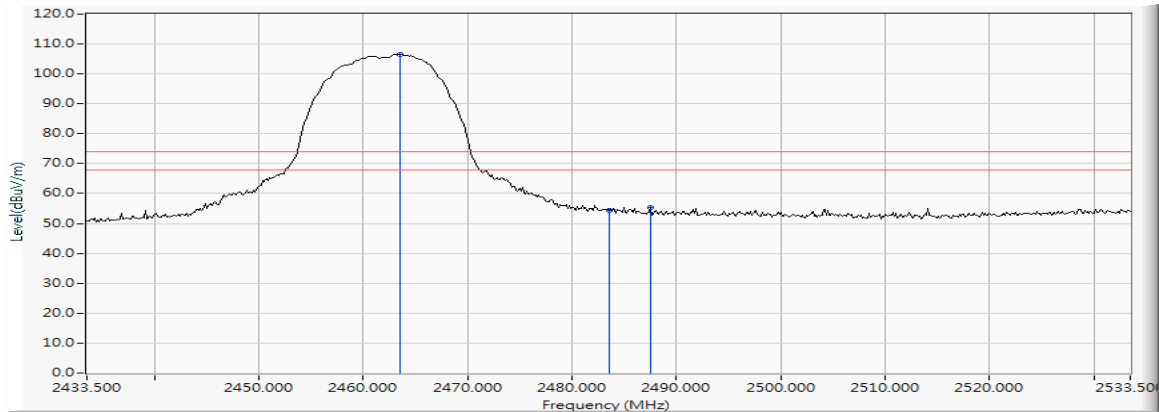
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)  
 Test Date : 2017/07/10

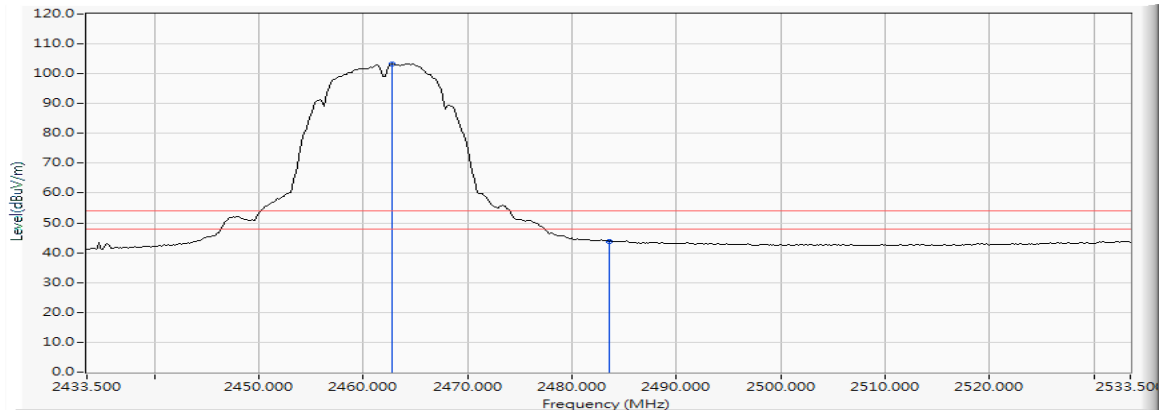
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2463.500	11.747	94.765	106.512	--	--	--
11 (Peak)	2483.500	11.800	42.713	54.513	74.00	54.00	Pass
11 (Peak)	2487.558	11.810	43.475	55.284	74.00	54.00	Pass
11 (Average)	2462.775	11.745	91.594	103.339	--	--	--
11 (Average)	2483.500	11.800	31.977	43.777	74.00	54.00	Pass

**Figure Channel 11: VERTICAL (Peak)**



**Figure Channel 11: VERTICAL (Average)**



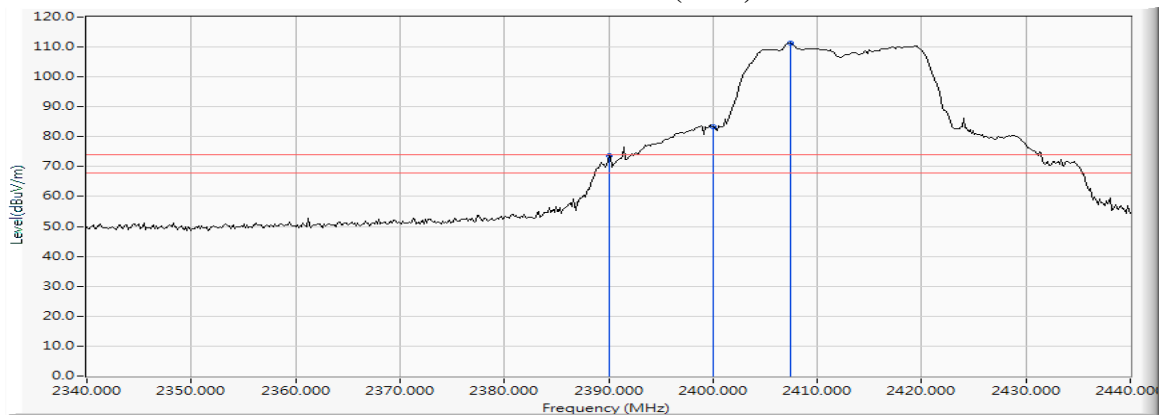
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 200Hz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/07/10

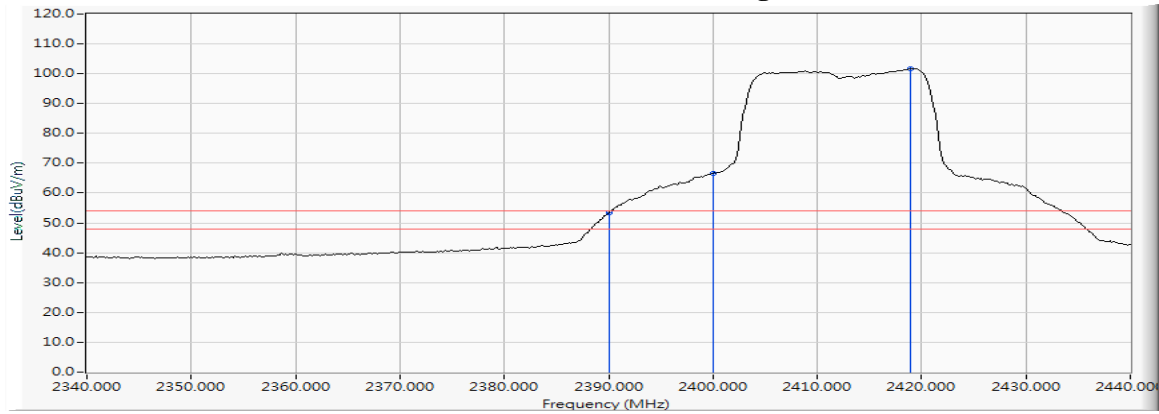
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	62.226	73.782	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	71.854	83.433	--	--	--
01 (Peak)	2407.391	11.596	99.603	111.200	--	--	--
01 (Average)	2390.000	11.556	41.836	53.392	74.00	54.00	Pass
01 (Average)	2400.000	11.579	55.150	66.729	--	--	--
01 (Average)	2418.986	11.624	90.073	101.697	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



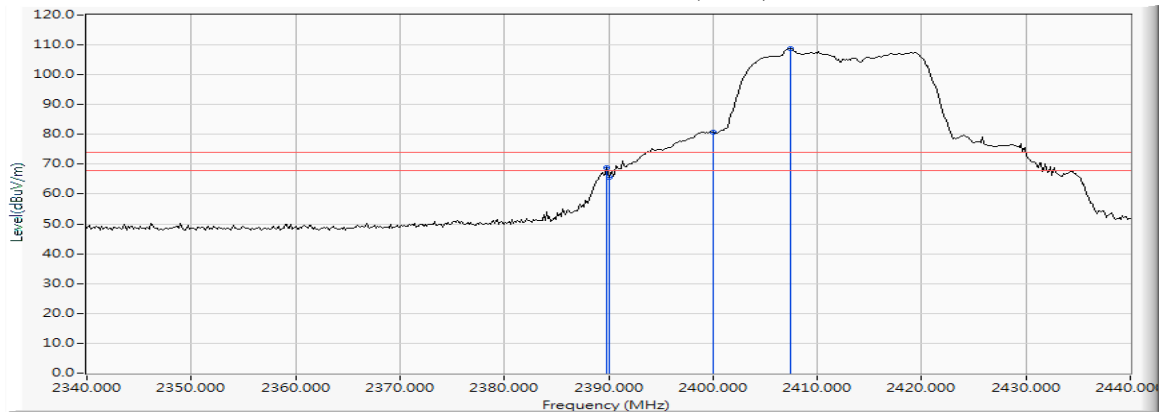
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/07/10

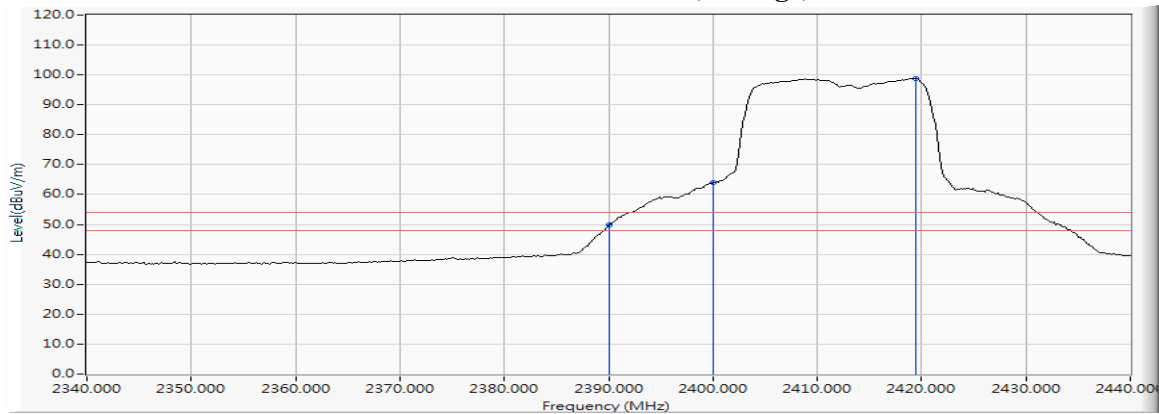
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2389.855	11.556	57.338	68.893	74.00	54.00	Pass
01 (Peak)	2390.000	11.556	54.004	65.560	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	69.067	80.646	--	--	--
01 (Peak)	2407.391	11.596	97.224	108.821	--	--	--
01 (Average)	2390.000	11.556	38.208	49.764	74.00	54.00	Pass
01 (Average)	2400.000	11.579	52.452	64.031	--	--	--
01 (Average)	2419.420	11.626	87.160	98.785	--	--	--

**Figure Channel 01: VERTICAL (Peak)**



**Figure Channel 01: VERTICAL (Average)**



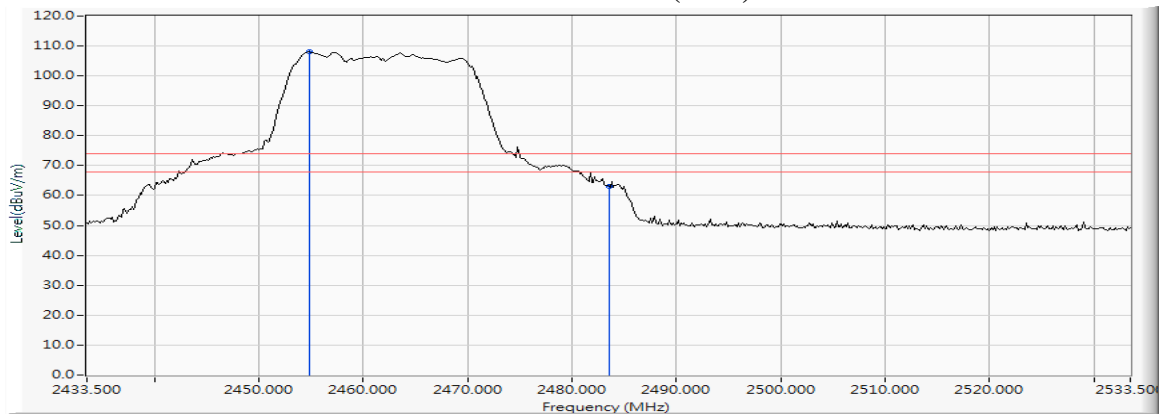
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)  
 Test Date : 2017/07/10

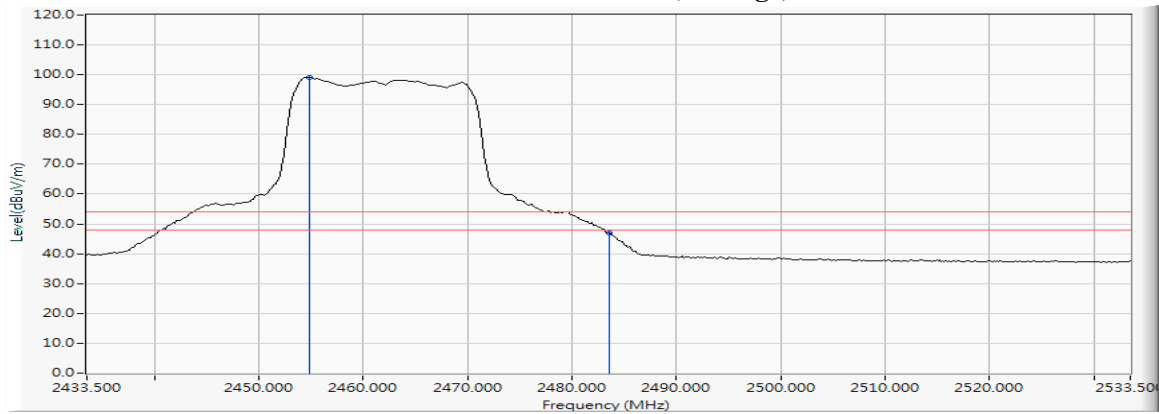
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2454.804	11.721	96.387	108.108	--	--	--
11 (Peak)	2483.500	11.800	51.381	63.181	74.00	54.00	Pass
11 (Average)	2454.804	11.721	87.486	99.207	--	--	--
11 (Average)	2483.500	11.800	35.261	47.061	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



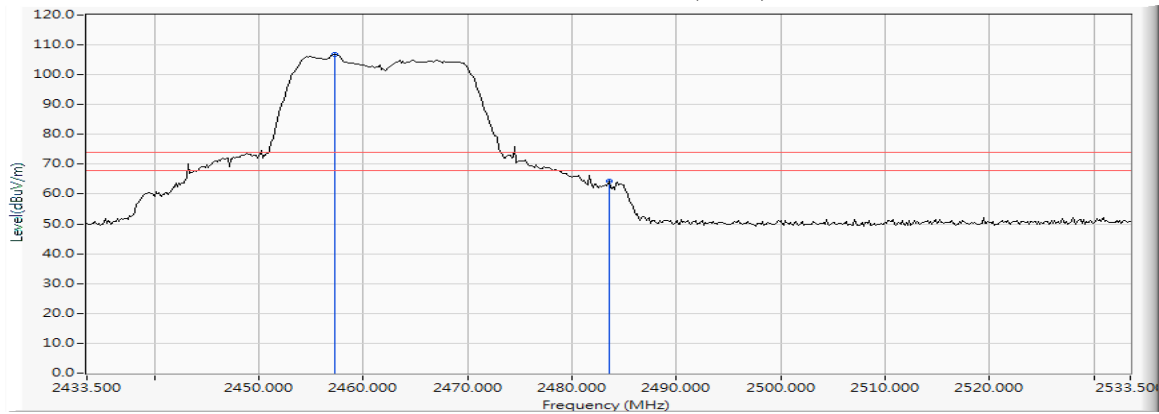
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)  
 Test Date : 2017/07/10

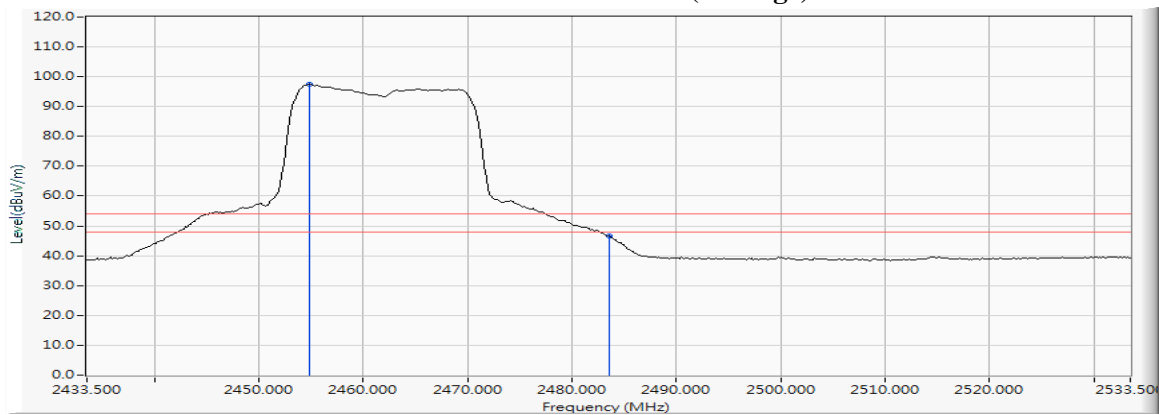
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2457.268	11.728	95.149	106.877	--	--	--
11 (Peak)	2483.500	11.800	52.652	64.452	74.00	54.00	Pass
11 (Average)	2454.804	11.721	85.864	97.585	--	--	--
11 (Average)	2483.500	11.800	34.801	46.601	74.00	54.00	Pass

**Figure Channel 11: VERTICAL (Peak)**



**Figure Channel 11: VERTICAL (Average)**



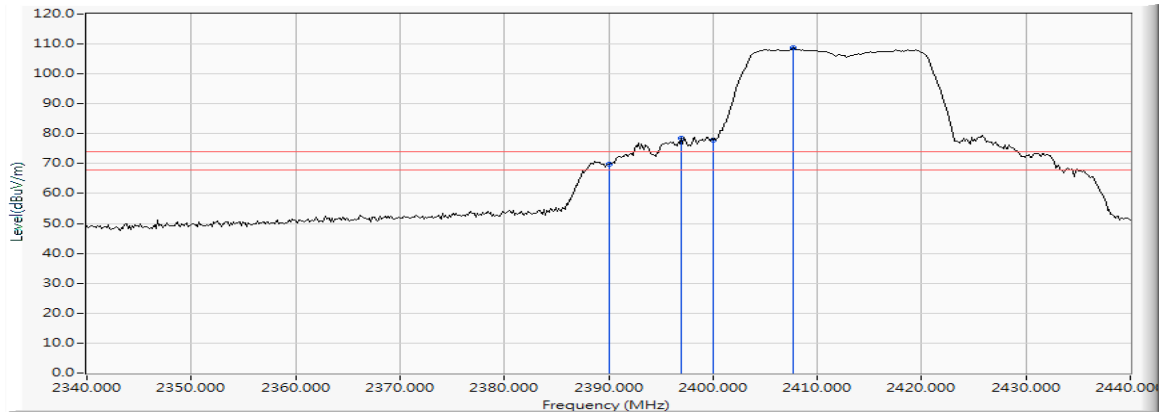
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)  
 Test Date : 2017/07/10

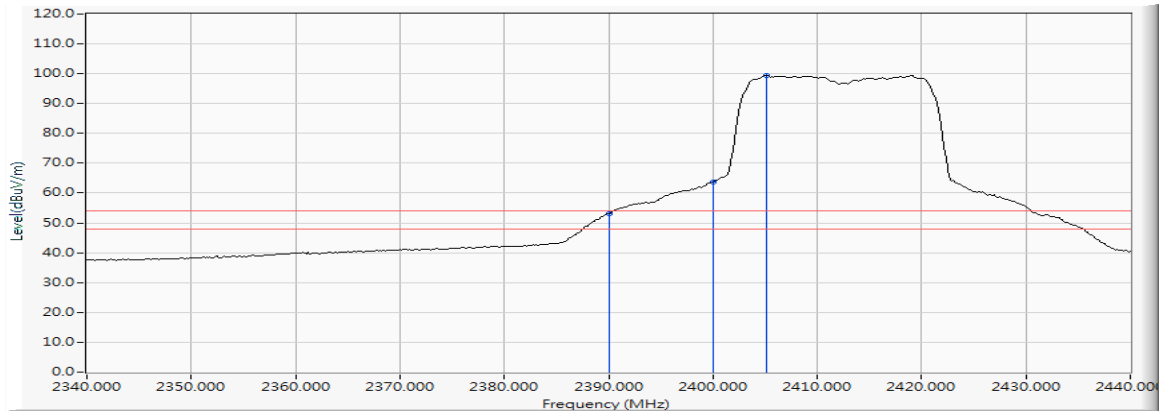
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	58.226	69.782	74.00	54.00	Pass
01 (Peak)	2396.957	11.572	66.775	78.347	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	66.275	77.854	--	--	--
01 (Peak)	2407.681	11.596	97.133	108.730	--	--	--
01 (Average)	2390.000	11.556	41.533	53.089	74.00	54.00	Pass
01 (Average)	2400.000	11.579	52.201	63.780	--	--	--
01 (Average)	2405.072	11.591	87.787	99.378	--	--	--

**Figure Channel 01: Horizontal (Peak)**



**Figure Channel 01: Horizontal (Average)**



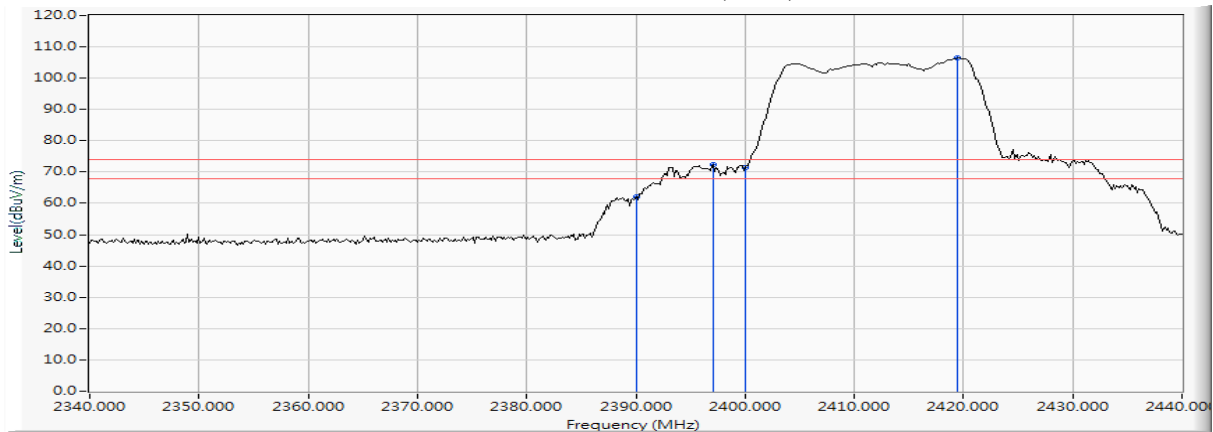
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2412MHz)  
 Test Date : 2017/07/10

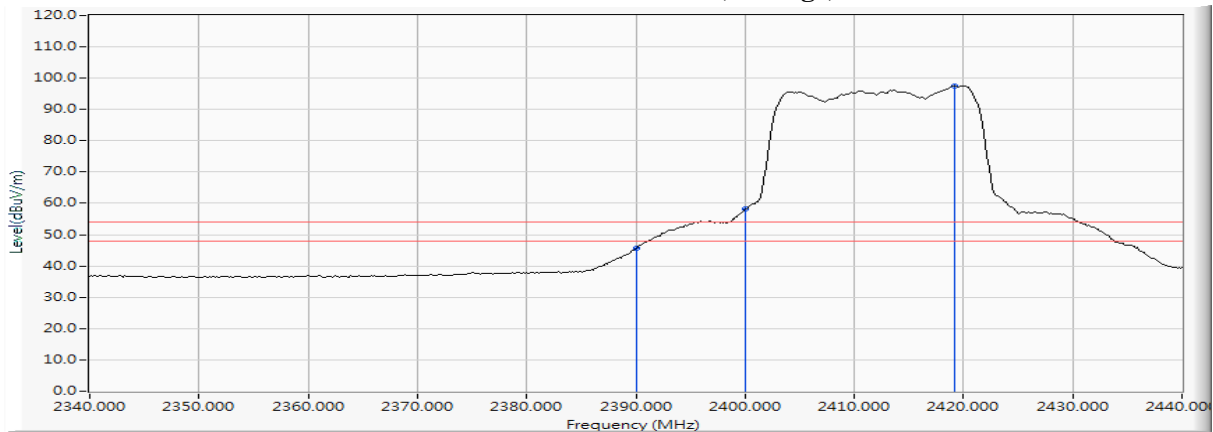
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
01 (Peak)	2390.000	11.556	50.456	62.012	74.00	54.00	Pass
01 (Peak)	2397.101	11.573	60.833	72.405	74.00	54.00	Pass
01 (Peak)	2400.000	11.579	59.810	71.389	--	--	--
01 (Peak)	2419.420	11.626	94.794	106.419	--	--	--
01 (Average)	2390.000	11.556	34.258	45.814	74.00	54.00	Pass
01 (Average)	2400.000	11.579	46.591	58.170	--	--	--
01 (Average)	2419.130	11.624	85.904	97.529	--	--	--

**Figure Channel 01: VERTICAL (Peak)**



**Figure Channel 01: VERTICAL (Average)**



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

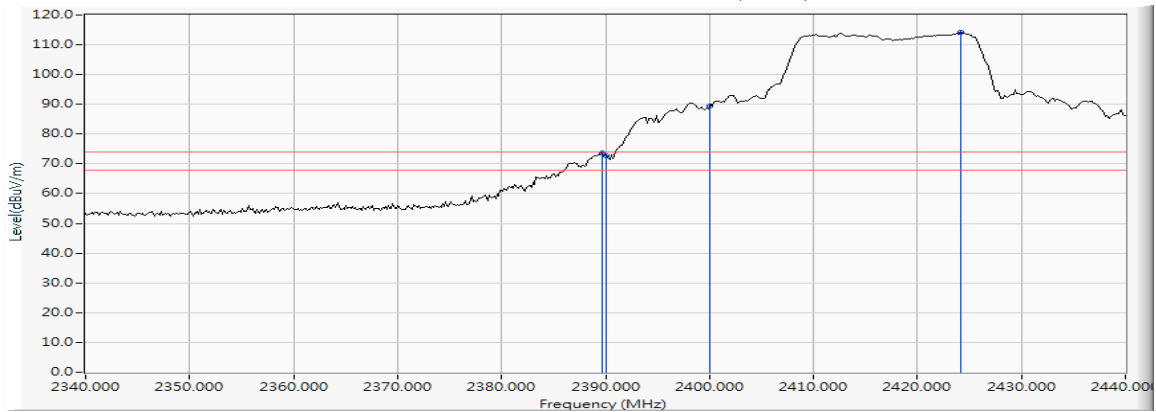


Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2417MHz)  
 Test Date : 2017/07/10

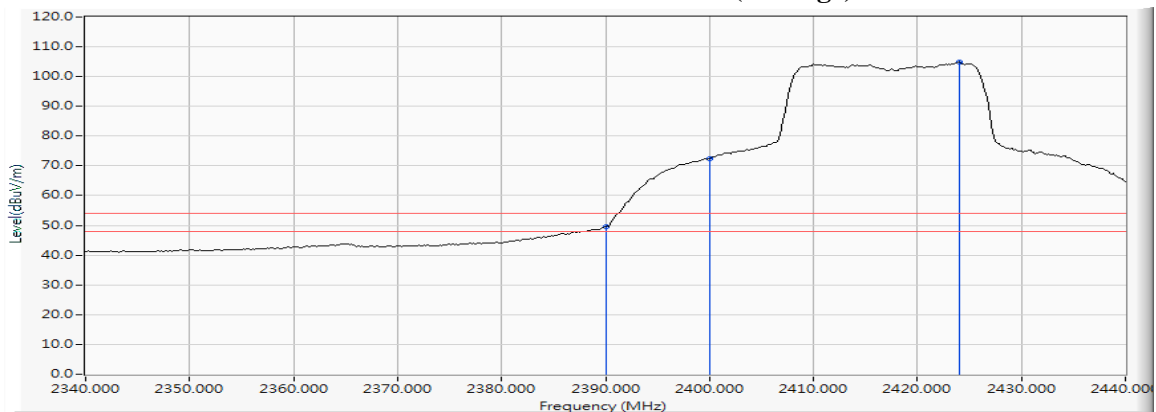
**RF Radiated Measurement (HORIZONTAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
02 (Peak)	2389.710	11.555	62.098	73.653	74.00	54.00	Pass
02 (Peak)	2390.000	11.556	61.089	72.645	74.00	54.00	Pass
02 (Peak)	2400.000	11.579	77.767	89.346	--	--	--
02 (Peak)	2424.203	11.637	102.453	114.090	--	--	--
02 (Average)	2390.000	11.556	37.900	49.456	74.00	54.00	Pass
02 (Average)	2400.000	11.579	60.935	72.514	--	--	--
02 (Average)	2424.058	11.636	93.231	104.867	--	--	--

**Figure Channel 02: HORIZONTAL (Peak)**



**Figure Channel 02: HORIZONTAL (Average)**



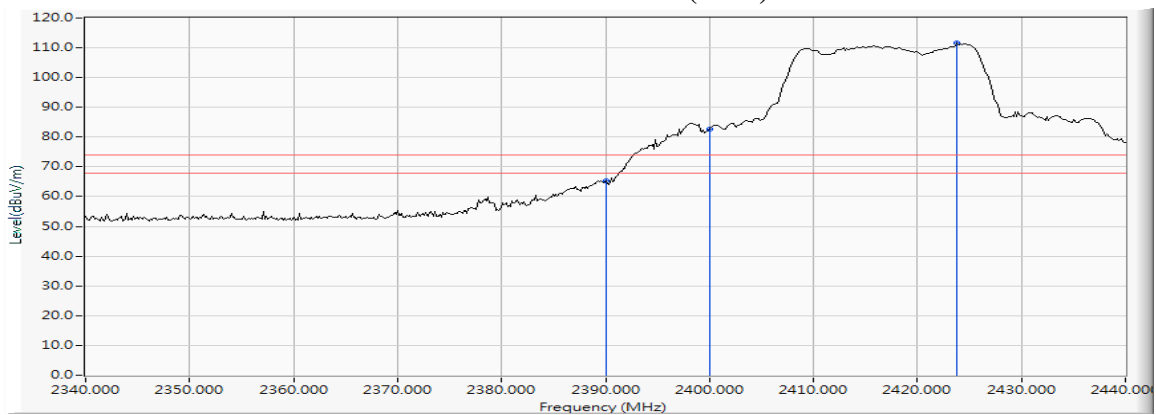
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2417MHz)  
 Test Date : 2017/07/10

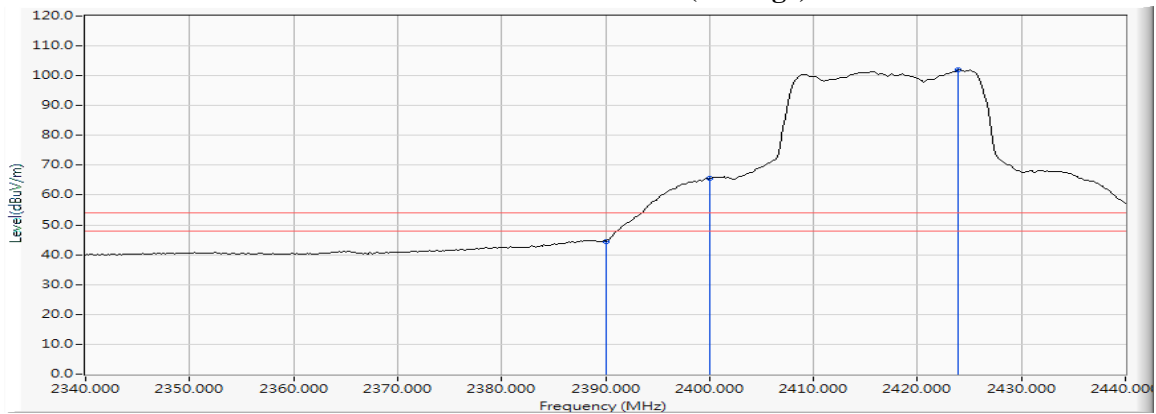
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
02 (Peak)	2390.000	11.556	53.712	65.268	74.00	54.00	Pass
02 (Peak)	2400.000	11.579	71.201	82.780	--	--	--
02 (Peak)	2423.768	11.635	99.847	111.483	--	--	--
02 (Average)	2390.000	11.556	32.965	44.521	74.00	54.00	Pass
02 (Average)	2400.000	11.579	54.018	65.597	--	--	--
02 (Average)	2423.913	11.636	90.237	101.873	--	--	--

**Figure Channel 02: VERTICAL (Peak)**



**Figure Channel 02: VERTICAL (Average)**



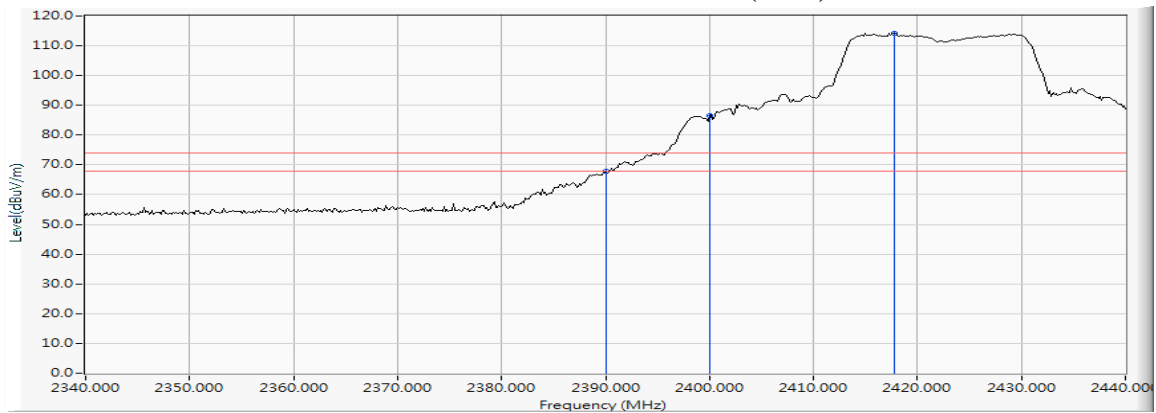
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2422MHz)  
 Test Date : 2017/07/10

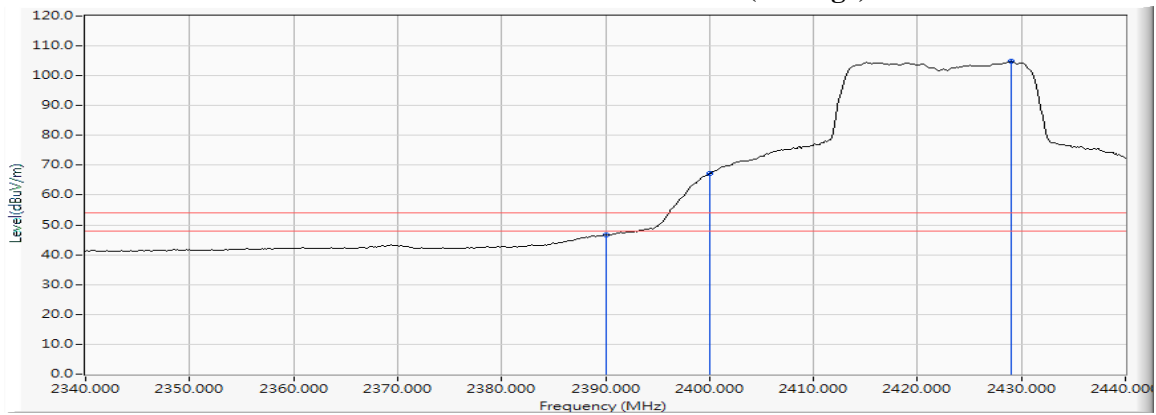
**RF Radiated Measurement ( HORIZONTAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2390.000	11.556	56.260	67.816	74.00	54.00	Pass
03 (Peak)	2400.000	11.579	75.089	86.668	--	--	--
03 (Peak)	2417.826	11.622	102.691	114.313	--	--	--
03 (Average)	2390.000	11.556	35.122	46.678	74.00	54.00	Pass
03 (Average)	2400.000	11.579	55.595	67.174	--	--	--
03 (Average)	2428.986	11.647	93.074	104.722	--	--	--

**Figure Channel 03: HORIZONTAL (Peak)**



**Figure Channel 03: HORIZONTAL (Average)**



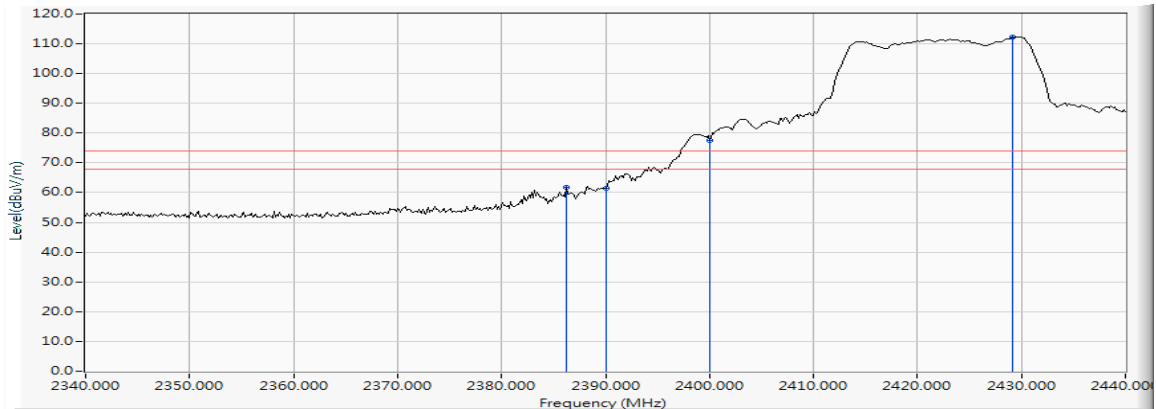
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2422MHz)  
 Test Date : 2017/07/10

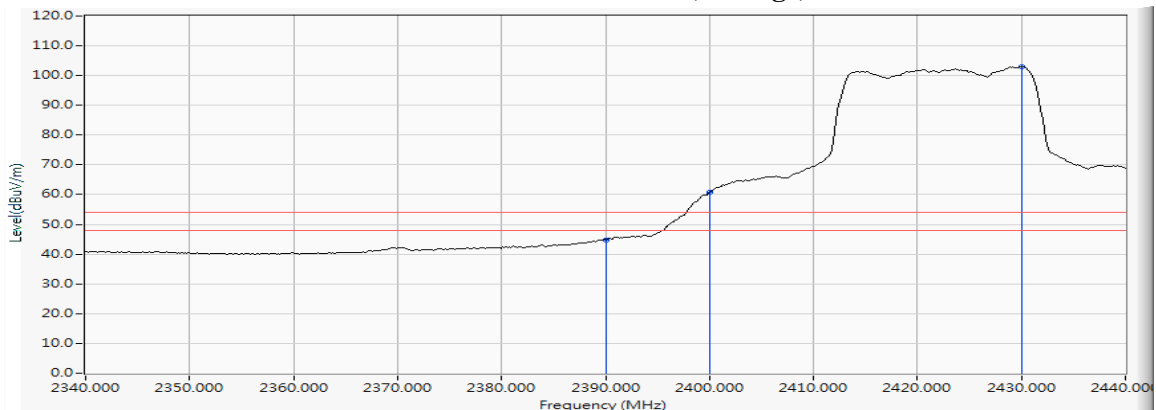
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2386.232	11.547	50.322	61.869	74.00	54.00	Pass
03 (Peak)	2390.000	11.556	49.858	61.414			
03 (Peak)	2400.000	11.579	66.096	77.675	--	--	--
03 (Peak)	2429.130	11.648	100.740	112.388	--	--	--
03 (Average)	2390.000	11.556	33.308	44.864	74.00	54.00	Pass
03 (Average)	2400.000	11.579	49.305	60.884	--	--	--
03 (Average)	2430.000	11.651	91.436	103.087	--	--	--

**Figure Channel 3: VERTICAL (Peak)**



**Figure Channel 03: VERTICAL (Average)**



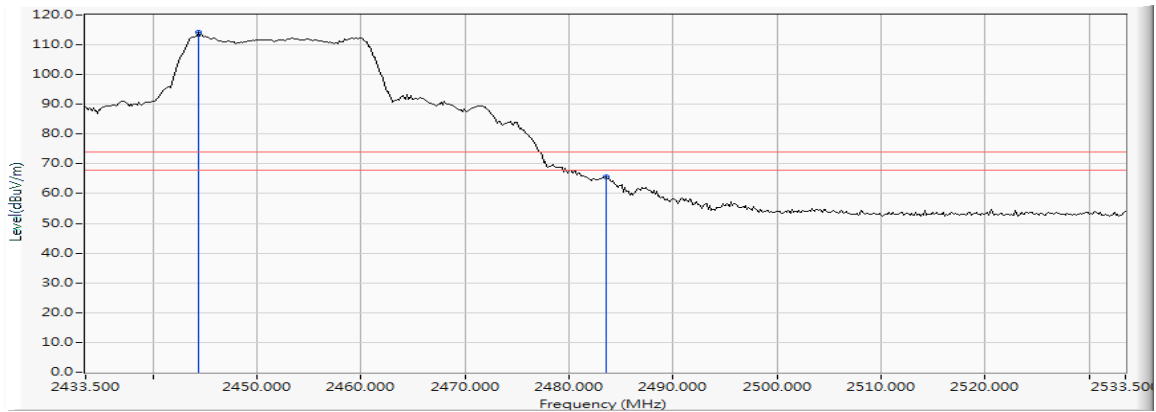
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2452MHz)  
 Test Date : 2017/07/10

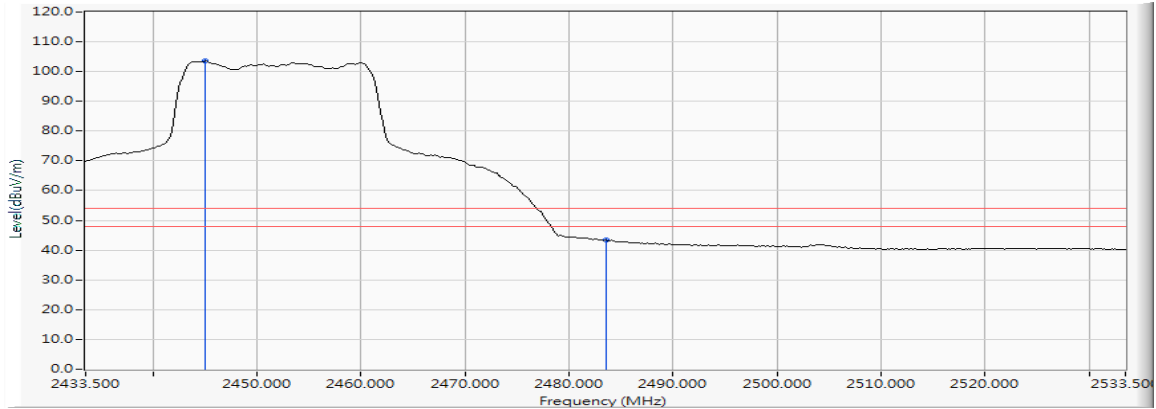
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2444.370	11.691	102.383	114.073	--	--	--
09 (Peak)	2483.500	11.800	53.875	65.675	74.00	54.00	Pass
09 (Average)	2444.949	11.692	91.994	103.686	--	--	--
09 (Average)	2483.500	11.800	31.478	43.278	74.00	54.00	Pass

**Figure Channel 09: Horizontal (Peak)**



**Figure Channel 09: Horizontal (Average)**



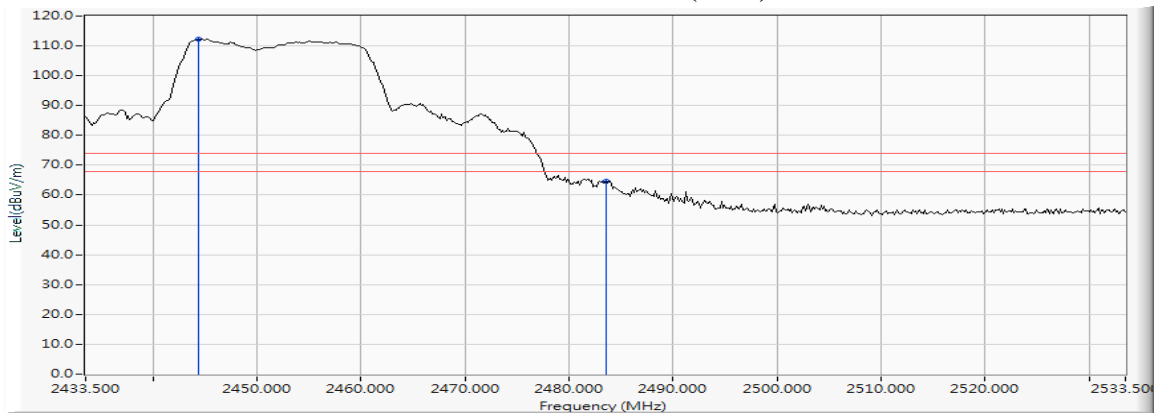
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2452MHz)  
 Test Date : 2017/07/10

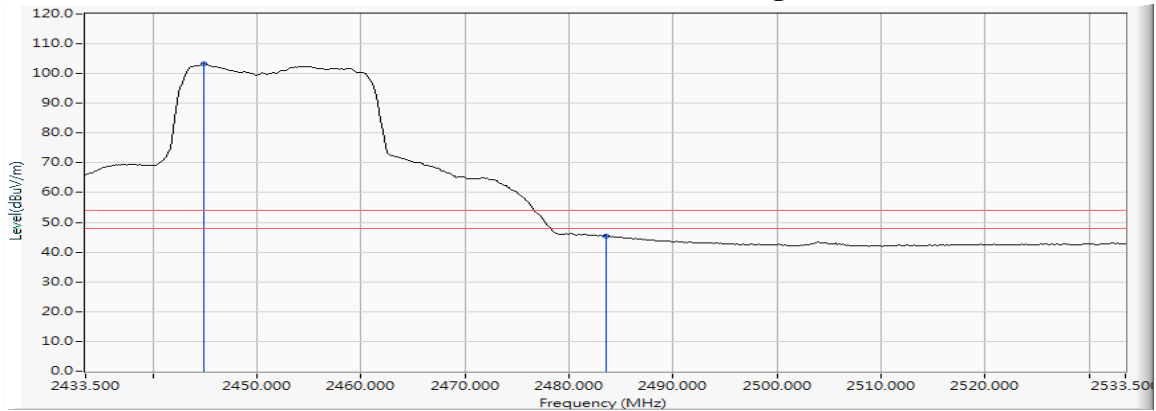
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2444.370	11.691	100.727	112.417	--	--	--
09 (Peak)	2483.500	11.800	53.001	64.801	74.00	54.00	Pass
09 (Average)	2444.804	11.692	91.482	103.174	--	--	--
09 (Average)	2483.500	11.800	33.537	45.337	74.00	54.00	Pass

**Figure Channel 09: VERTICAL (Peak)**



**Figure Channel 09: VERTICAL (Average)**



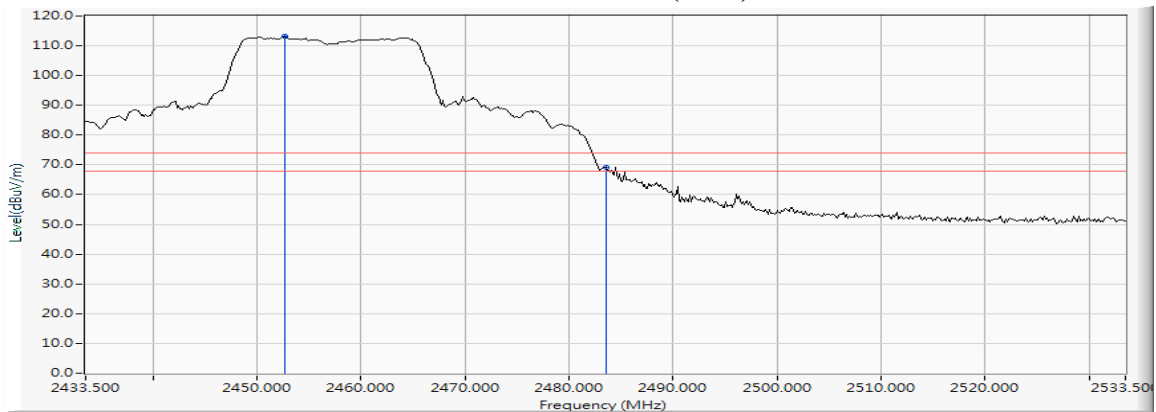
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2457MHz)  
 Test Date : 2017/07/10

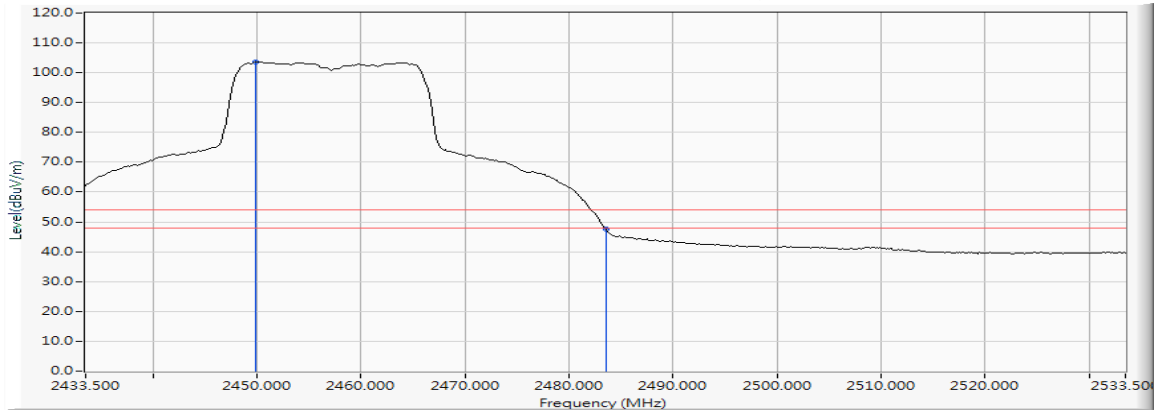
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
10 (Peak)	2452.630	11.715	101.474	113.189	--	--	--
10 (Peak)	2483.500	11.800	57.309	69.109	74.00	54.00	Pass
10 (Average)	2449.877	11.707	91.991	103.698	--	--	--
10 (Average)	2483.500	11.800	35.826	47.626	74.00	54.00	Pass

**Figure Channel 10: Horizontal (Peak)**



**Figure Channel 10: Horizontal (Average)**



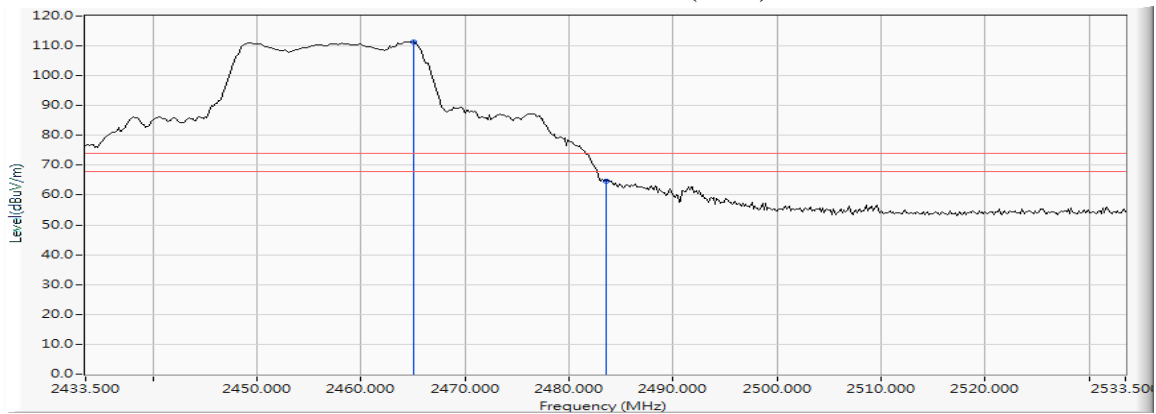
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2457MHz)  
 Test Date : 2017/07/10

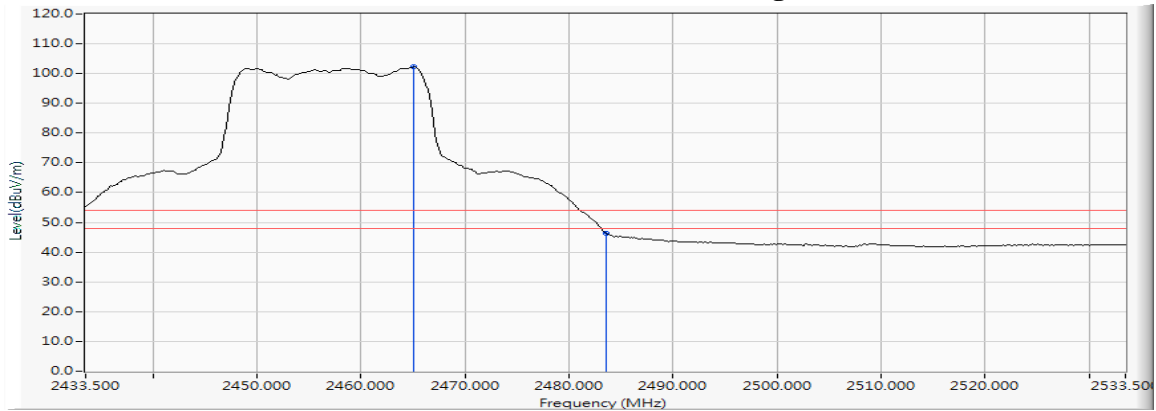
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
10 (Peak)	2465.094	11.752	99.586	111.338	--	--	--
10 (Peak)	2483.500	11.800	52.999	64.799	74.00	54.00	Pass
10 (Average)	2465.094	11.752	90.426	102.178	--	--	--
10 (Average)	2483.500	11.800	34.638	46.438	74.00	54.00	Pass

**Figure Channel 10: VERTICAL (Peak)**



**Figure Channel 10: VERTICAL (Average)**



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

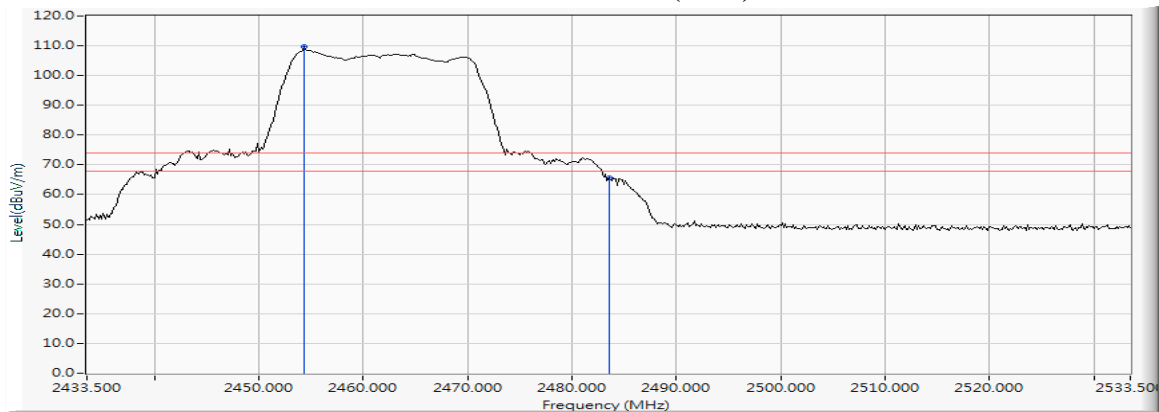


Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)  
 Test Date : 2017/07/10

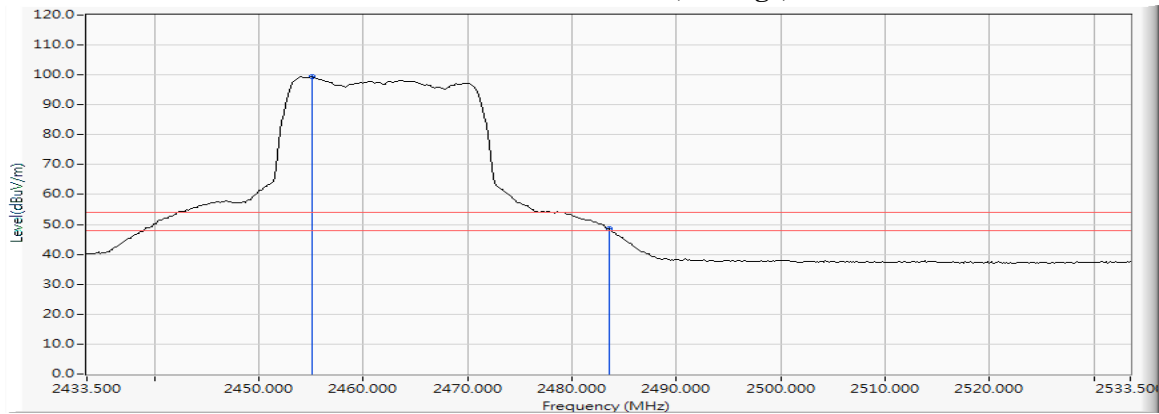
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2454.370	11.720	98.048	109.768	--	--	--
11 (Peak)	2483.500	11.800	53.936	65.736	74.00	54.00	Pass
11 (Average)	2455.094	11.722	87.762	99.484	--	--	--
11 (Average)	2483.500	11.800	36.657	48.457	74.00	54.00	Pass

**Figure Channel 11: Horizontal (Peak)**



**Figure Channel 11: Horizontal (Average)**



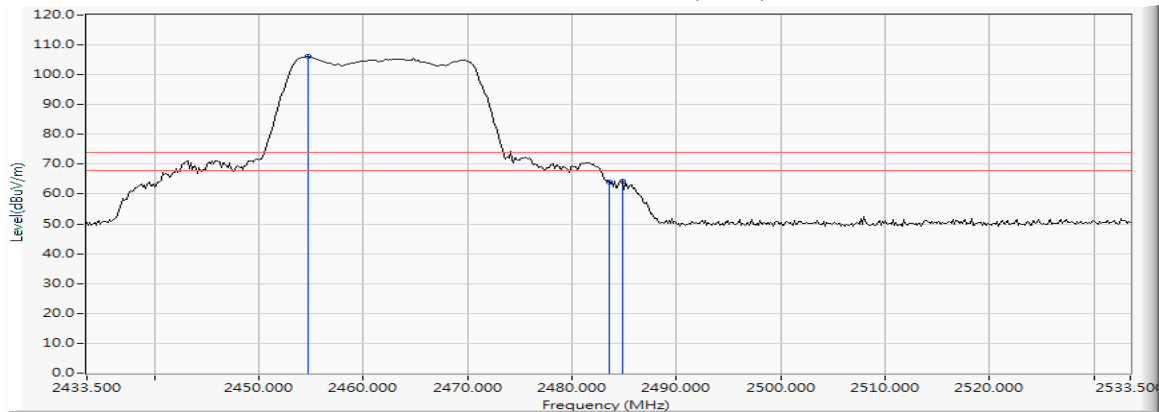
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW) (2462MHz)  
 Test Date : 2017/07/10

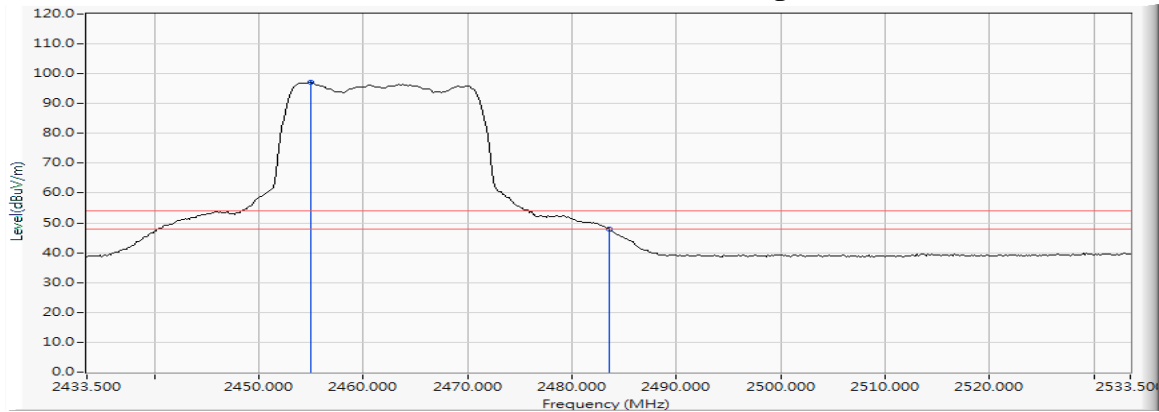
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
11 (Peak)	2454.659	11.721	94.338	106.059	--	--	--
11 (Peak)	2483.500	11.800	52.107	63.907	74.00	54.00	Pass
11 (Peak)	2484.804	11.803	52.571	64.374	74.00	54.00	Pass
11 (Average)	2454.949	11.722	85.325	97.046	--	--	--
11 (Average)	2483.500	11.800	36.214	48.014	74.00	54.00	Pass

**Figure Channel 11: VERTICAL (Peak)**



**Figure Channel 11: VERTICAL (Average)**



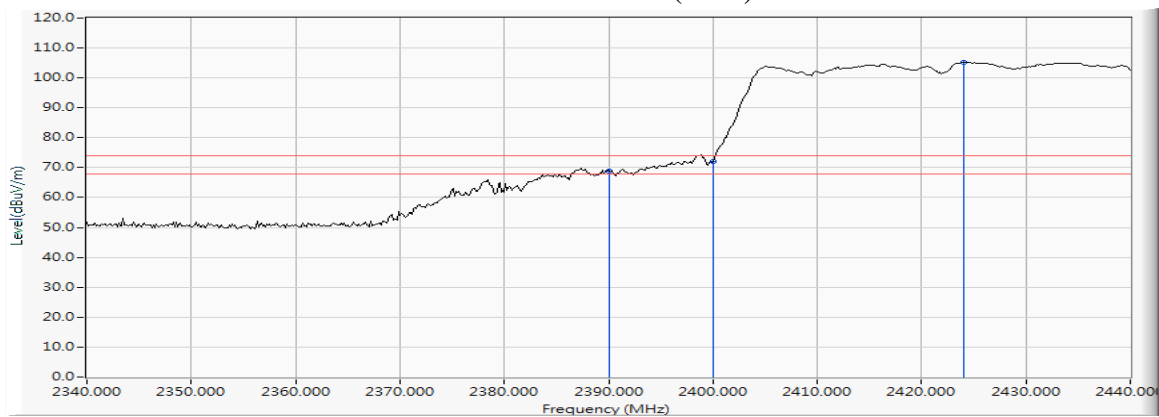
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 1kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)  
 Test Date : 2017/07/10

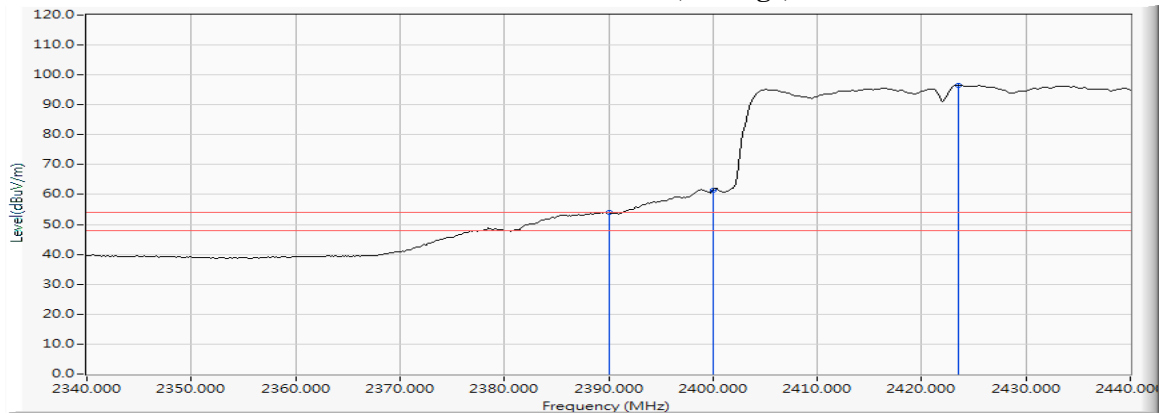
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2390.000	11.556	57.253	68.809	74.00	54.00	Pass
03 (Peak)	2400.000	11.579	60.516	72.095	--	--	--
03 (Peak)	2424.058	11.636	93.59	105.226	--	--	--
03 (Average)	2390.000	11.556	42.431	53.987	74.00	54.00	Pass
03 (Average)	2400.000	11.579	49.936	61.515	--	--	--
03 (Average)	2423.478	11.635	85.026	96.661	--	--	--

**Figure Channel 03: Horizontal (Peak)**



**Figure Channel 03: Horizontal (Average)**



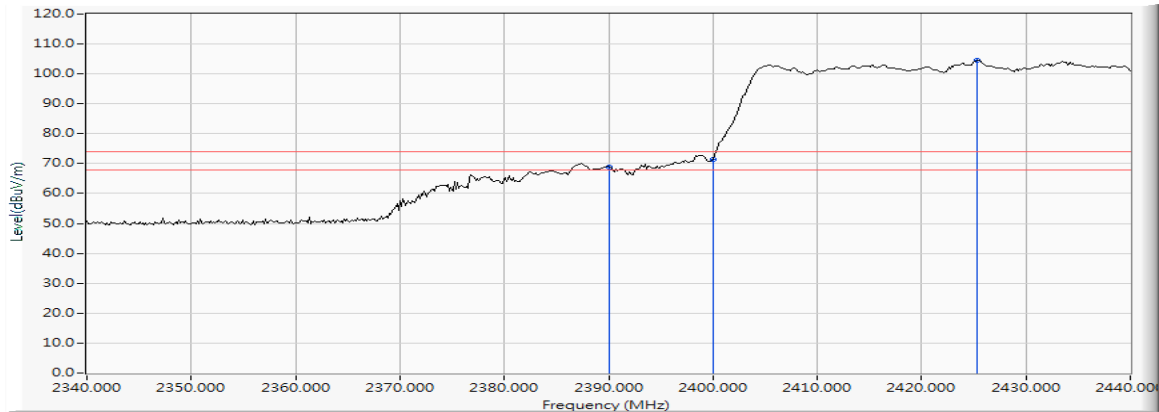
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2422MHz)  
 Test Date : 2017/07/10

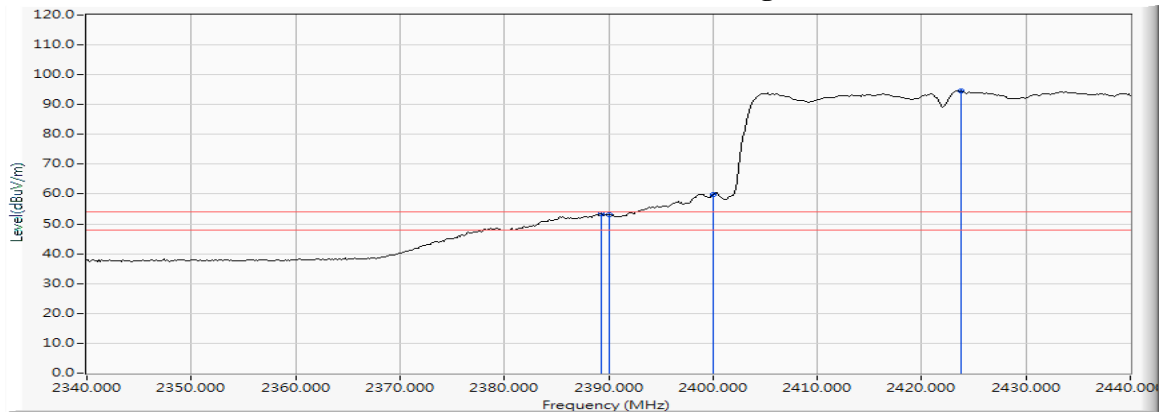
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
03 (Peak)	2390.000	11.556	57.313	68.869	74.00	54.00	Pass
03 (Peak)	2400.000	11.579	59.821	71.400	--	--	--
03 (Peak)	2425.362	11.639	92.921	104.561	--	--	--
03 (Average)	2389.275	11.553	41.786	53.340	74.00	54.00	Pass
03 (Average)	2390.000	11.556	41.453	53.009	74.00	54.00	Pass
03 (Average)	2400.000	11.579	48.150	59.729	--	--	--
03 (Average)	2423.768	11.635	82.932	94.568	--	--	--

**Figure Channel 03: VERTICAL (Peak)**



**Figure Channel 03: VERTICAL (Average)**



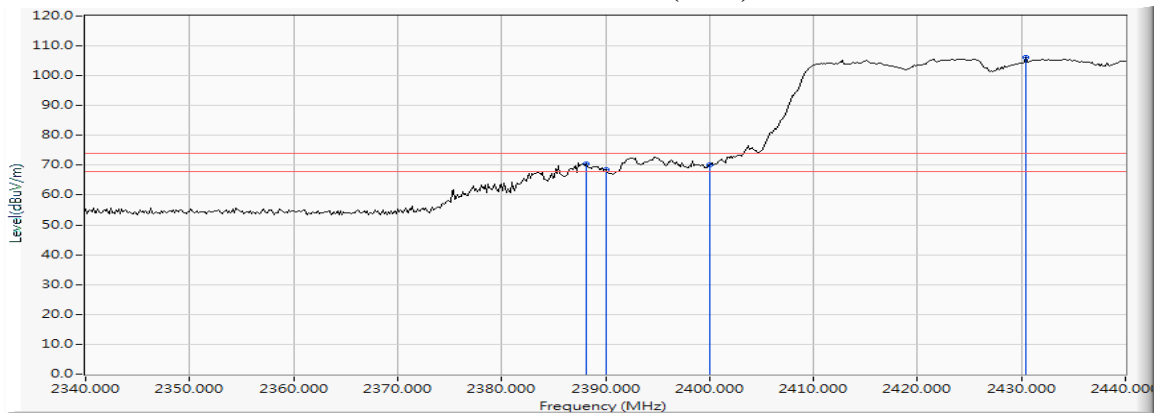
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2427MHz)  
 Test Date : 2017/07/10

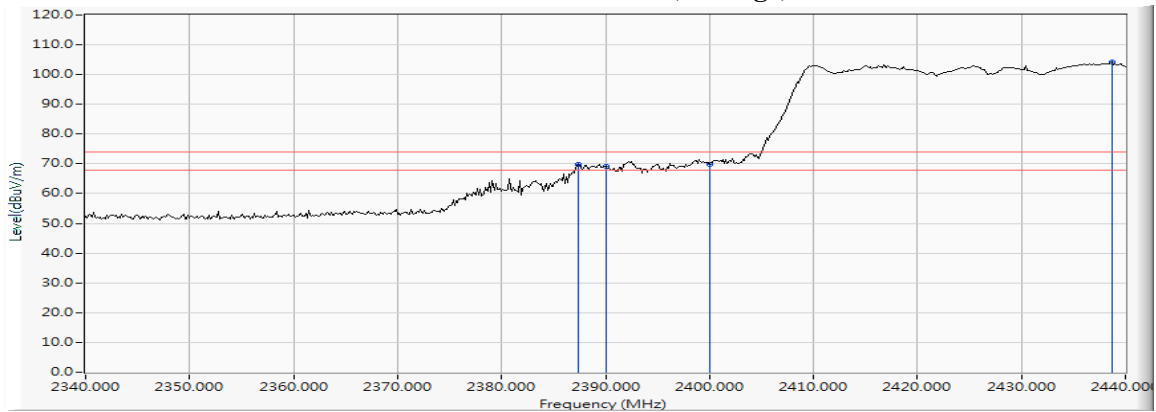
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
04 (Peak)	2388.116	11.552	58.941	70.492	74.00	54.00	Pass
04 (Peak)	2390.000	11.556	56.859	68.415	74.00	54.00	Pass
04 (Peak)	2400.000	11.579	58.588	70.167	--	--	--
04 (Peak)	2430.435	11.651	94.593	106.245	--	--	--
04 (Average)	2387.101	11.548	41.714	53.263	74.00	54.00	Pass
04 (Average)	2390.000	11.556	40.972	52.528	74.00	54.00	Pass
04 (Average)	2400.000	11.579	45.158	56.737	--	--	--
04 (Average)	2432.464	11.656	85.101	96.757	--	--	--

**Figure Channel 04: Horizontal (Peak)**



**Figure Channel 04: Horizontal (Average)**



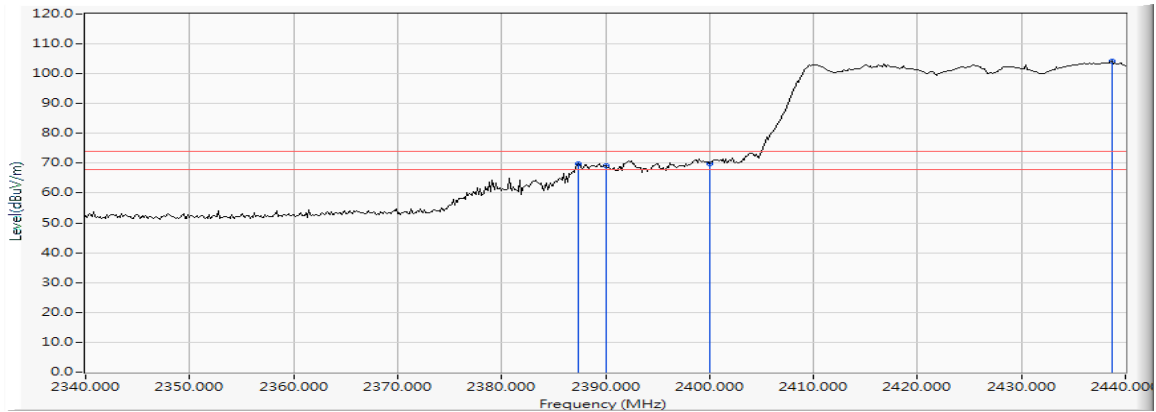
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2427MHz)  
 Test Date : 2017/07/10

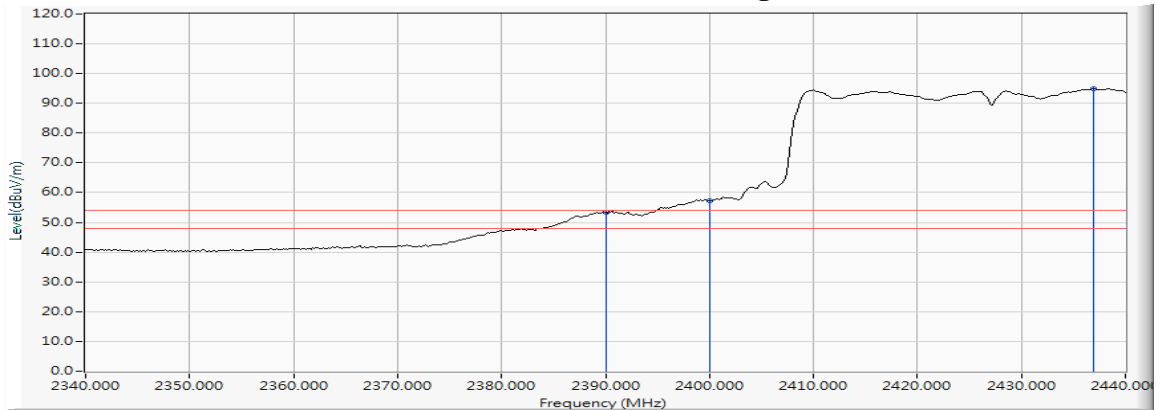
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
04 (Peak)	2387.391	11.550	58.208	69.757	74.00	54.00	Pass
04 (Peak)	2390.000	11.556	57.519	69.075	74.00	54.00	Pass
04 (Peak)	2400.000	11.579	58.221	69.800	--	--	--
04 (Peak)	2438.696	11.673	92.708	104.382	--	--	--
04 (Average)	2390.000	11.556	41.910	53.466	74.00	54.00	Pass
04 (Average)	2400.000	11.579	45.755	57.334	--	--	--
04 (Average)	2436.957	11.669	83.259	94.927	--	--	--

**Figure Channel 04: VERTICAL (Peak)**



**Figure Channel 04: VERTICAL (Average)**



- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2432MHz)  
 Test Date : 2017/07/10

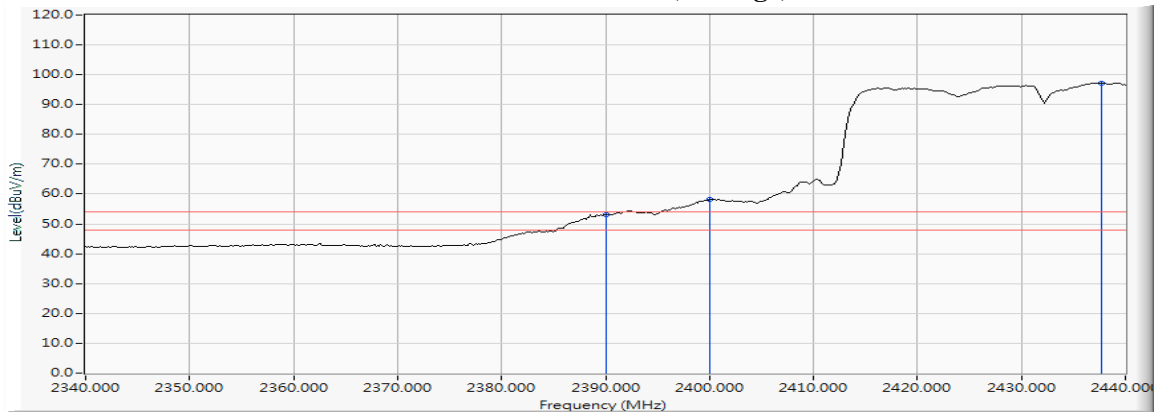
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
05 (Peak)	2388.696	11.552	58.524	70.077	74.00	54.00	Pass
05 (Peak)	2390.000	11.556	55.185	66.741	74.00	54.00	Pass
05 (Peak)	2400.000	11.579	61.935	73.514	--	--	--
05 (Peak)	2439.130	11.675	94.689	106.364	--	--	--
05 (Average)	2390.000	11.556	41.590	53.146	74.00	54.00	Pass
05 (Average)	2400.000	11.579	46.494	58.073	--	--	--
05 (Average)	2437.681	11.670	85.593	97.264	--	--	--

**Figure Channel 05: Horizontal (Peak)**



**Figure Channel 05: Horizontal (Average)**



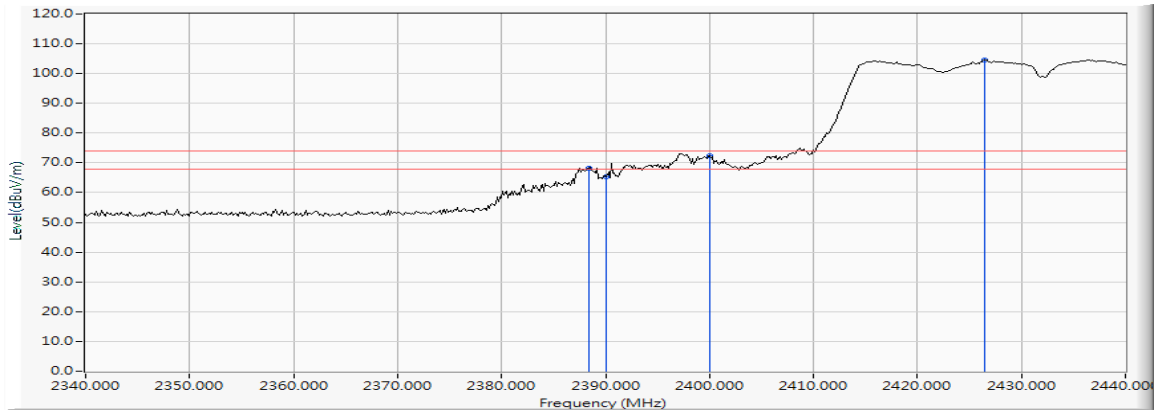
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2432MHz)  
 Test Date : 2017/07/10

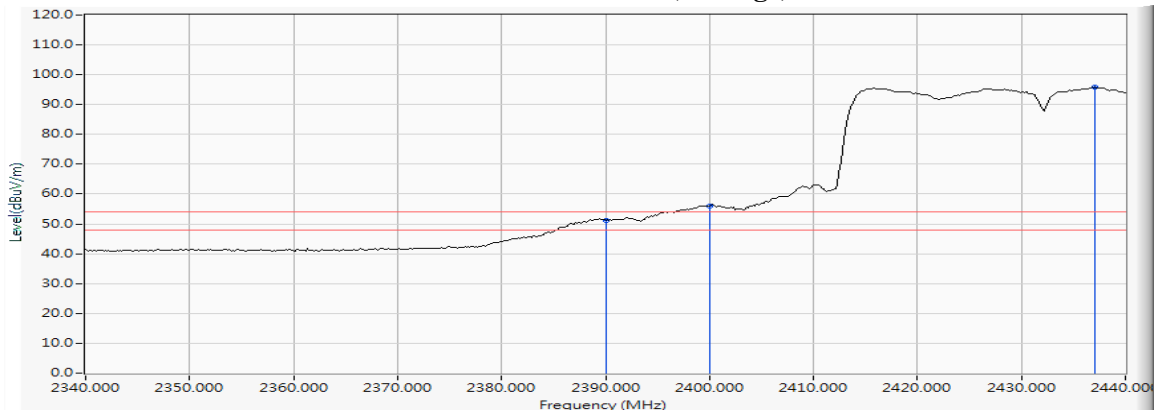
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
05 (Peak)	2388.406	11.552	56.713	68.265	74.00	54.00	Pass
05 (Peak)	2390.000	11.556	53.826	65.382	74.00	54.00	Pass
05 (Peak)	2400.000	11.579	60.698	72.277	--	--	--
05 (Peak)	2426.522	11.642	92.954	104.596	--	--	--
05 (Average)	2390.000	11.556	39.648	51.204	74.00	54.00	Pass
05 (Average)	2400.000	11.579	44.410	55.989	--	--	--
05 (Average)	2437.101	11.669	84.091	95.760	--	--	--

**Figure Channel 05: Horizontal (Peak)**



**Figure Channel 05: Horizontal (Average)**



- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

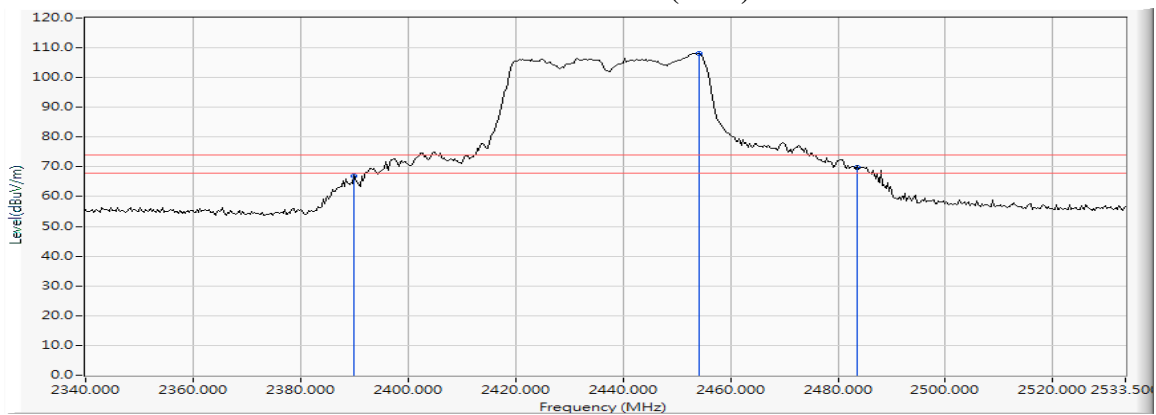


Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)  
 Test Date : 2017/07/10

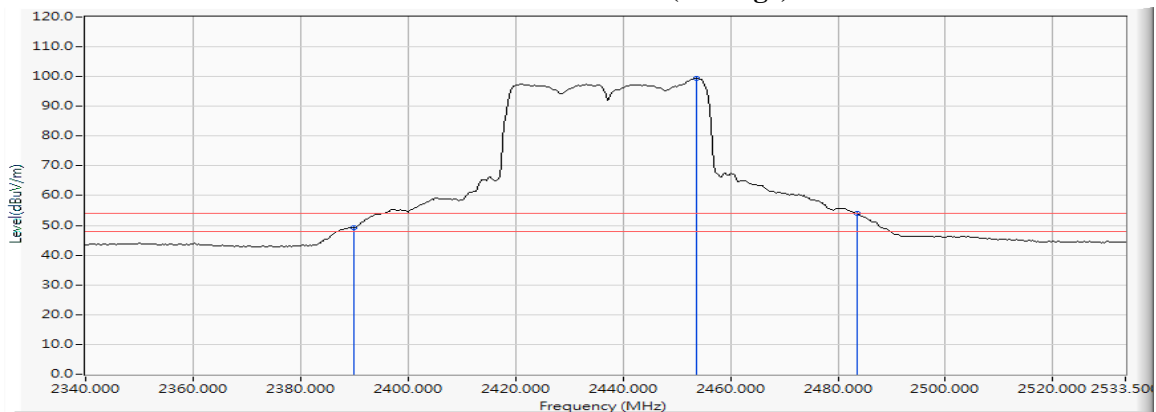
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
06 (Peak)	2390.000	11.556	55.285	66.841	74.00	54.00	Pass
06 (Peak)	2454.137	11.719	96.376	108.095	--	--	--
06 (Peak)	2483.500	11.800	58.158	69.958	74.00	54.00	Pass
06 (Average)	2390.000	11.556	37.587	49.143	74.00	54.00	Pass
06 (Average)	2453.576	11.717	87.814	99.531	--	--	--
06 (Average)	2483.500	11.800	42.172	53.972	74.00	54.00	Pass

**Figure Channel 06: Horizontal (Peak)**



**Figure Channel 06: Horizontal (Average)**



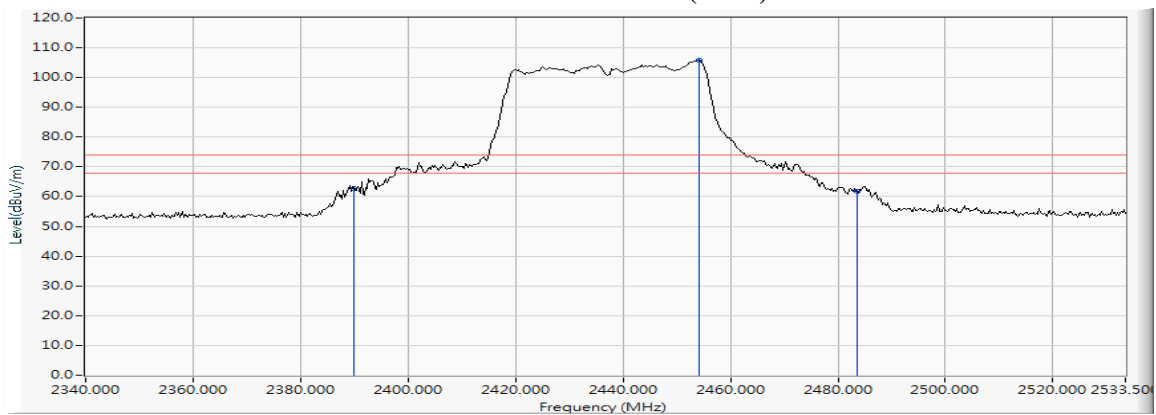
- Note: 1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2437MHz)  
 Test Date : 2017/07/10

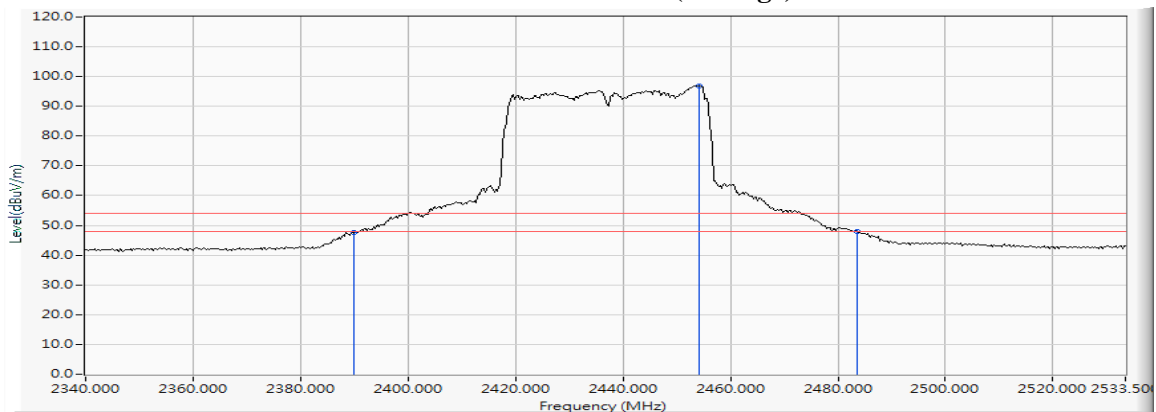
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
06 (Peak)	2390.000	11.556	51.211	62.767	74.00	54.00	Pass
06 (Peak)	2454.137	11.719	94.168	105.887	--	--	--
06 (Peak)	2483.500	11.800	49.854	61.654	74.00	54.00	Pass
06 (Average)	2390.000	11.556	35.922	47.478	74.00	54.00	Pass
06 (Average)	2454.137	11.719	85.245	96.964	--	--	--
06 (Average)	2483.500	11.800	36.263	48.063	74.00	54.00	Pass

**Figure Channel 06: VERTICAL (Peak)**



**Figure Channel 06: VERTICAL (Average)**



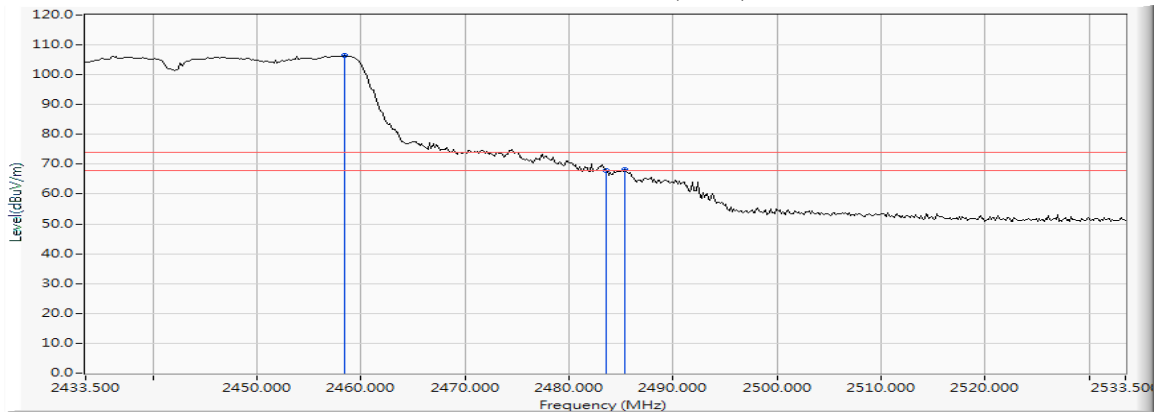
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2442MHz)  
 Test Date : 2017/07/10

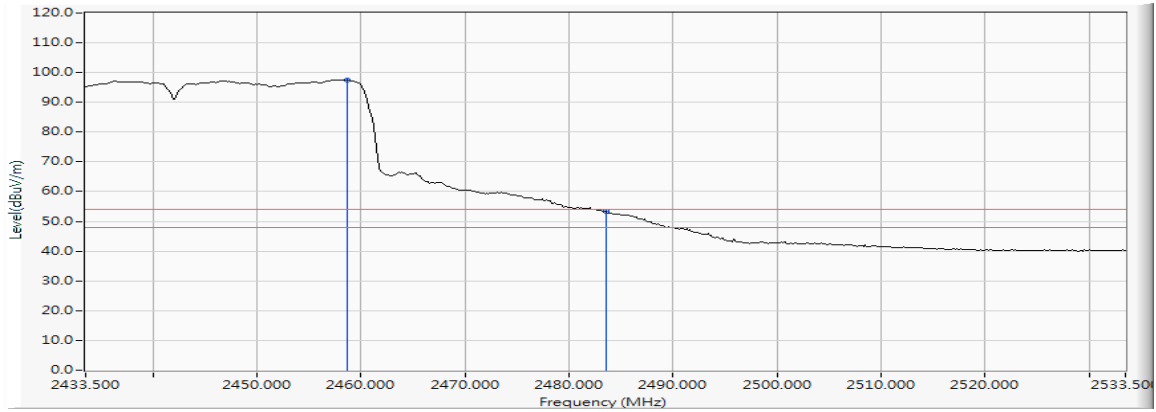
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
07 (Peak)	2458.428	11.732	94.612	106.344	--	--	--
07 (Peak)	2483.500	11.800	56.034	67.834	74.00	54.00	Pass
07 (Peak)	2485.384	11.805	56.439	68.243	74.00	54.00	Pass
07 (Average)	2458.717	11.733	85.873	97.606	--	--	--
07 (Average)	2483.500	11.800	41.570	53.370	74.00	54.00	Pass

**Figure Channel 07: Horizontal (Peak)**



**Figure Channel 07: Horizontal (Average)**



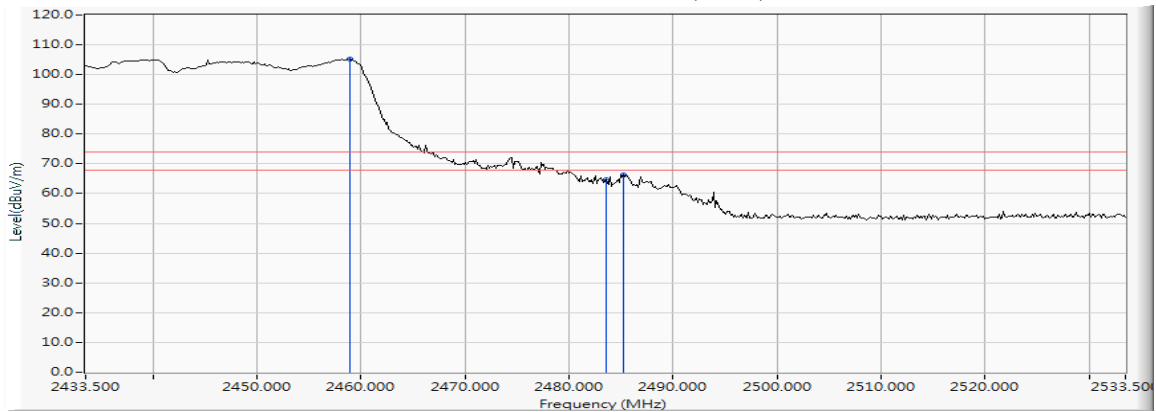
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2442MHz)  
 Test Date : 2017/07/10

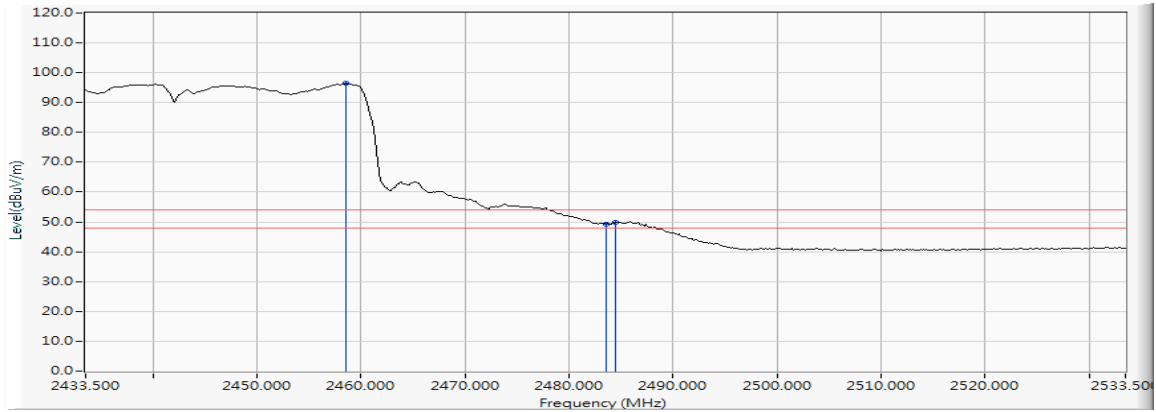
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
07 (Peak)	2458.862	11.734	93.401	105.134	--	--	--
07 (Peak)	2483.500	11.800	52.767	64.567	74.00	54.00	Pass
07 (Peak)	2485.239	11.804	54.510	66.314	74.00	54.00	Pass
07 (Average)	2458.572	11.733	84.655	96.387	--	--	--
07 (Average)	2483.500	11.800	37.581	49.381	74.00	54.00	Pass
07 (Average)	2484.514	11.801	38.206	50.008	74.00	54.00	Pass

**Figure Channel 07: VERTICAL (Peak)**



**Figure Channel 07: VERTICAL (Average)**



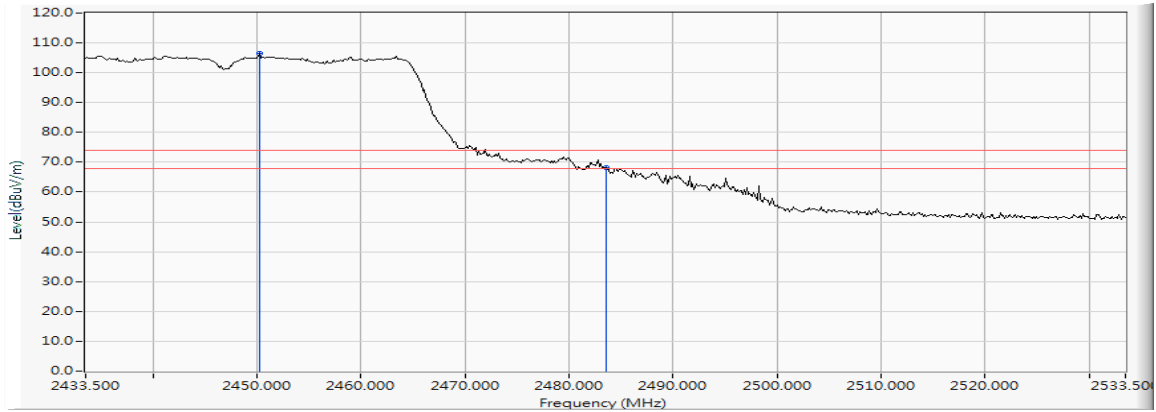
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2447MHz)  
 Test Date : 2017/07/10

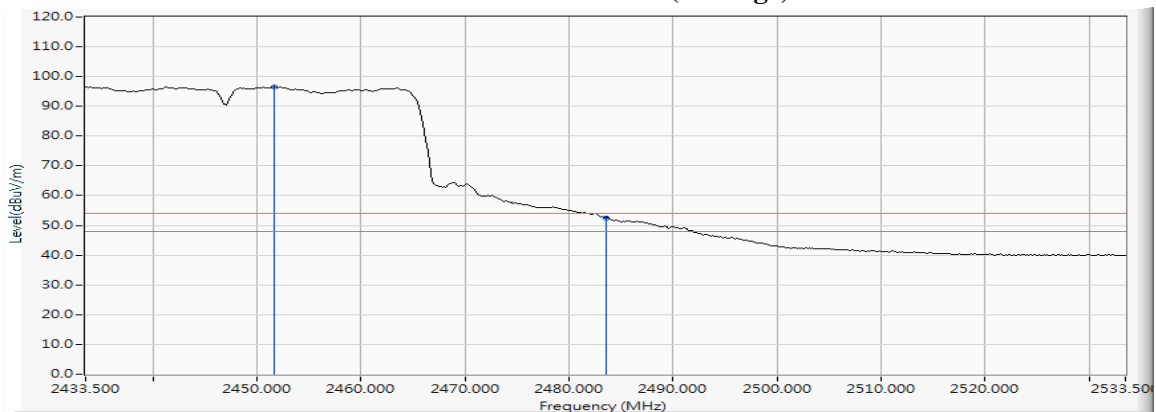
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
08 (Peak)	2450.167	11.707	94.793	106.500	--	--	--
08 (Peak)	2483.500	11.800	56.320	68.120	74.00	54.00	Pass
08 (Average)	2451.616	11.711	84.771	96.483	--	--	--
08 (Average)	2483.500	11.800	40.720	52.520	74.00	54.00	Pass

**Figure Channel 08: Horizontal (Peak)**



**Figure Channel 08: Horizontal (Average)**



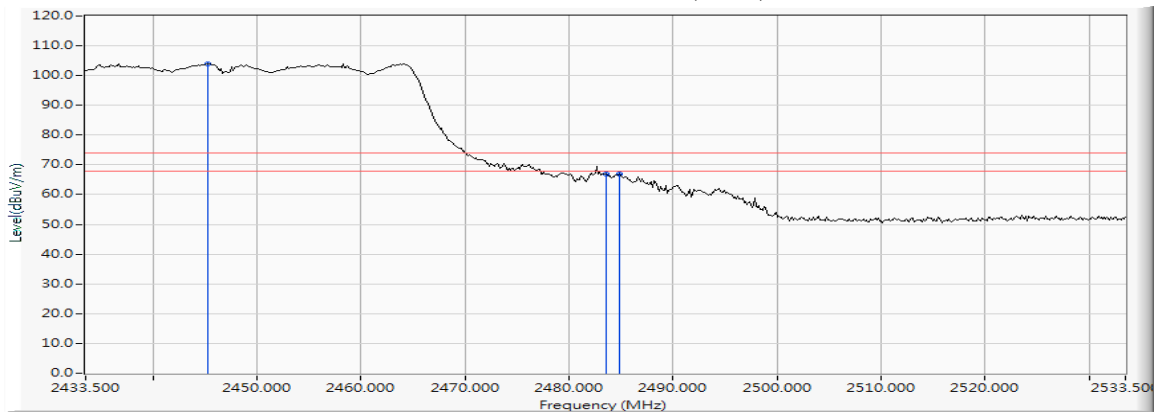
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2447MHz)  
 Test Date : 2017/07/10

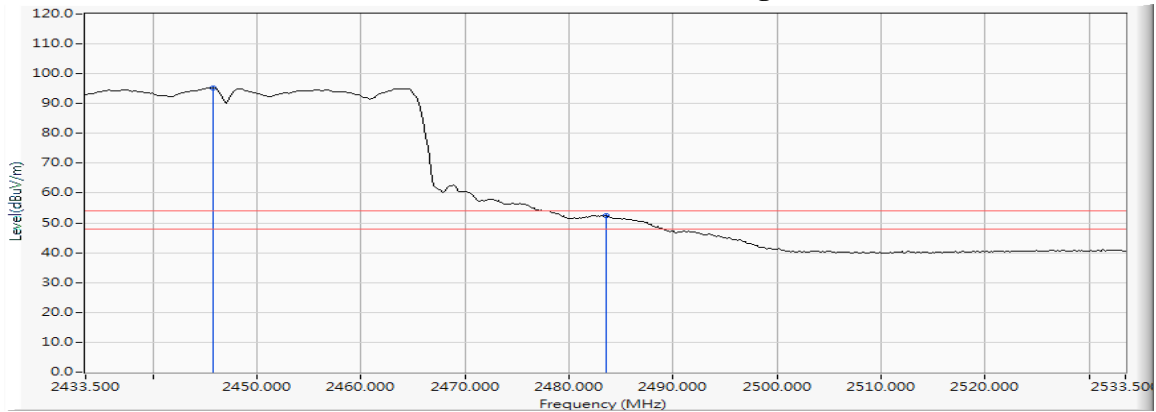
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
08 (Peak)	2445.239	11.693	92.345	104.038	--	--	--
08 (Peak)	2483.500	11.800	55.210	67.010	74.00	54.00	Pass
08 (Peak)	2484.804	11.803	55.238	67.041	74.00	54.00	Pass
08 (Average)	2445.819	11.694	83.612	95.307	--	--	--
08 (Average)	2483.500	11.800	40.510	52.310	74.00	54.00	Pass

**Figure Channel 08: VERTICAL (Peak)**



**Figure Channel 08: VERTICAL (Average)**



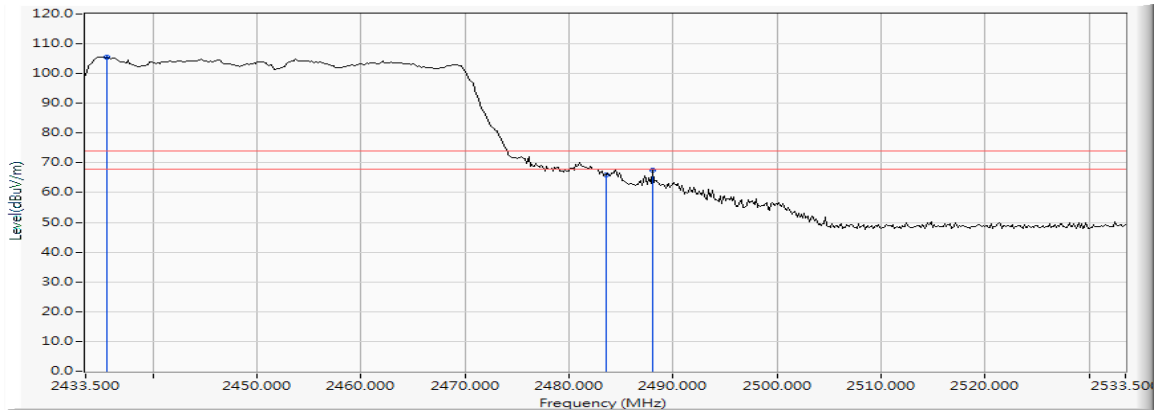
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)  
 Test Date : 2017/07/10

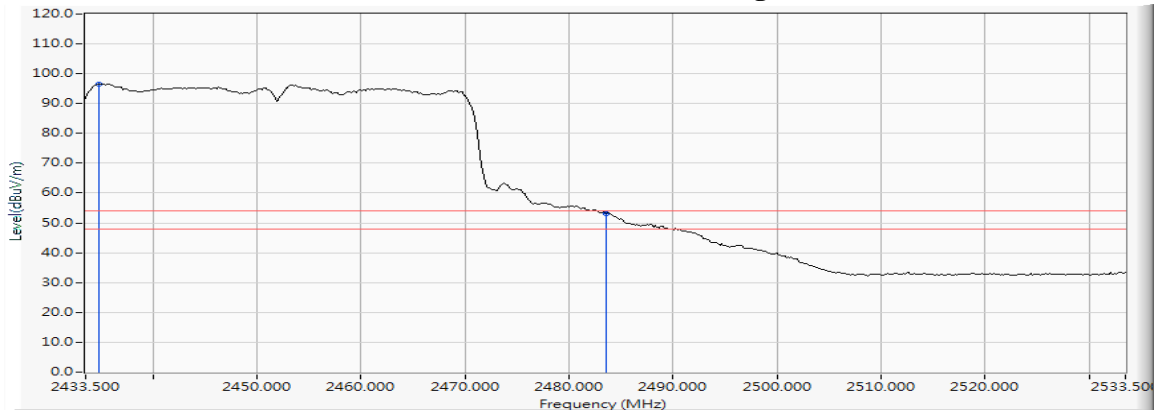
**RF Radiated Measurement (Horizontal):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2435.529	11.664	93.983	105.647	--	--	--
09 (Peak)	2483.500	11.800	54.026	65.826	74.00	54.00	Pass
09 (Peak)	2487.993	11.810	55.598	67.408	74.00	54.00	Pass
09 (Average)	2434.804	11.663	84.948	96.610	--	--	--
09 (Average)	2483.500	11.800	41.410	53.210	74.00	54.00	Pass

**Figure Channel 09: Horizontal (Peak)**



**Figure Channel 09: Horizontal (Average)**



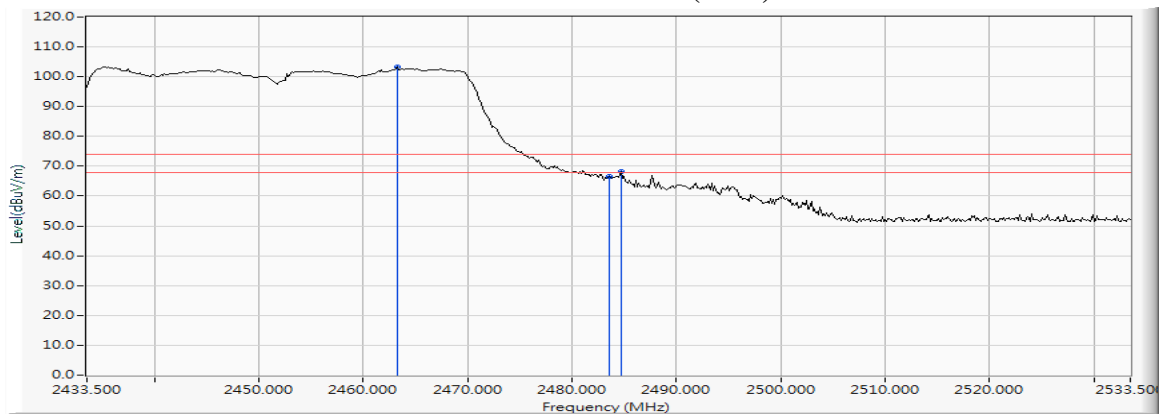
- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : G.hn Powerline Wireless Extender  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW) (2452MHz)  
 Test Date : 2017/07/10

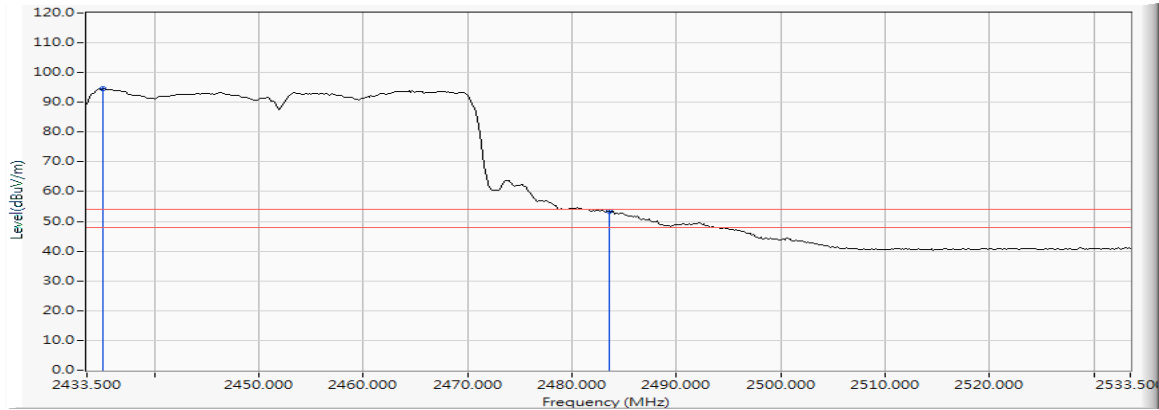
**RF Radiated Measurement (VERTICAL):**

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Result
09 (Peak)	2463.210	11.747	91.657	103.404	--	--	--
09 (Peak)	2483.500	11.800	54.731	66.531	74.00	54.00	Pass
09 (Peak)	2484.659	11.803	56.369	68.172	74.00	54.00	Pass
09 (Average)	2435.094	11.663	82.841	94.504	--	--	--
09 (Average)	2483.500	11.800	41.497	53.297	74.00	54.00	Pass

**Figure Channel 09: VERTICAL (Peak)**



**Figure Channel 09: VERTICAL (Average)**

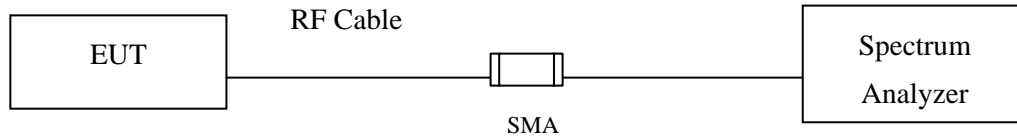


- Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary.  
 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.  
 3. Average measurements: RBW = 1MHz, VBW = 2kHz, Sweep: Auto.  
 4. “ \* ”, means this data is the worst emission level.  
 5. Measurement Level = Reading Level + Correct Factor.  
 6. The average measurement was not performed when the peak measured data under the limit of average detection.



## 7. 6dB Bandwidth

### 7.1. Test Setup



### 7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.3. Test Procedure

The EUT was setup according to ANSI C63.4: 2014; tested according to DTS test procedure of Jan KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 7.4. Uncertainty

$\pm 279.2\text{Hz}$

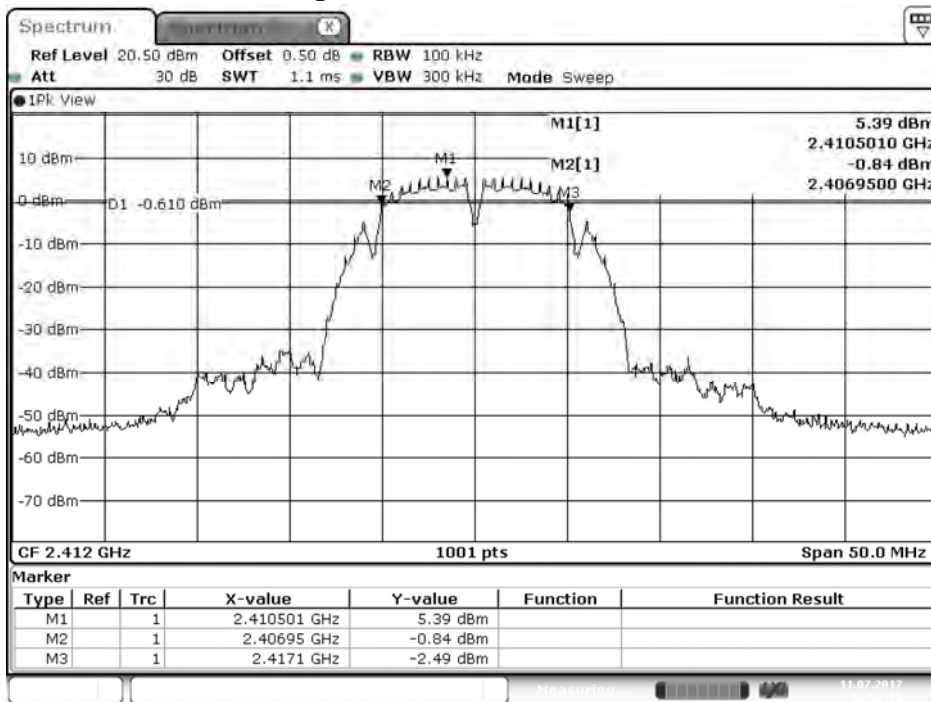
### 7.5. Test Result of 6dB Bandwidth

Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2017/07/20

#### Chain A

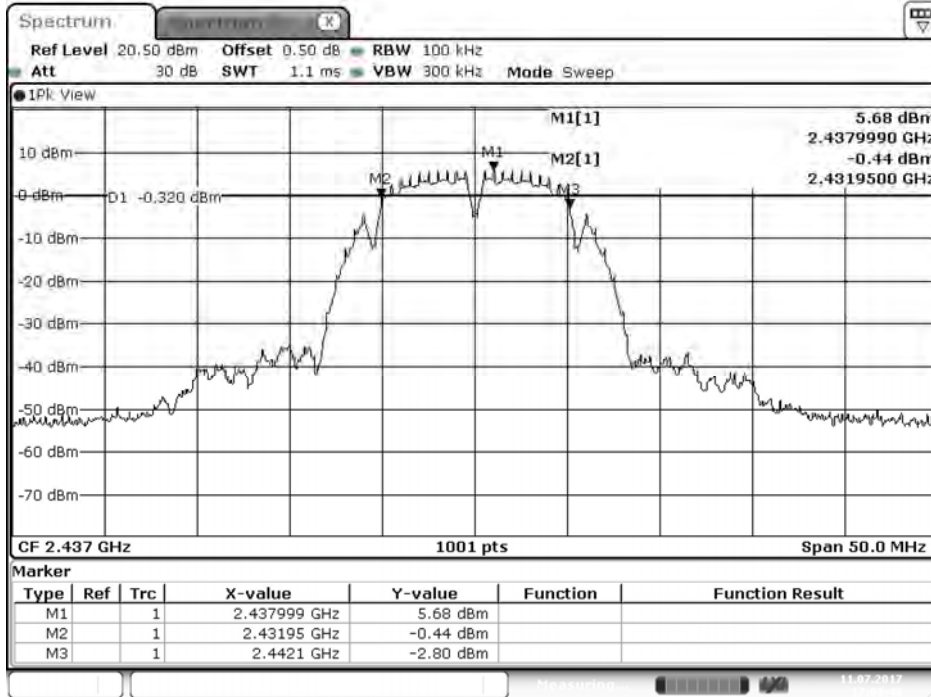
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	10150	>500	Pass
06	2437	10150	>500	Pass
11	2462	10150	>500	Pass

Figure Channel 01: (Chain A)



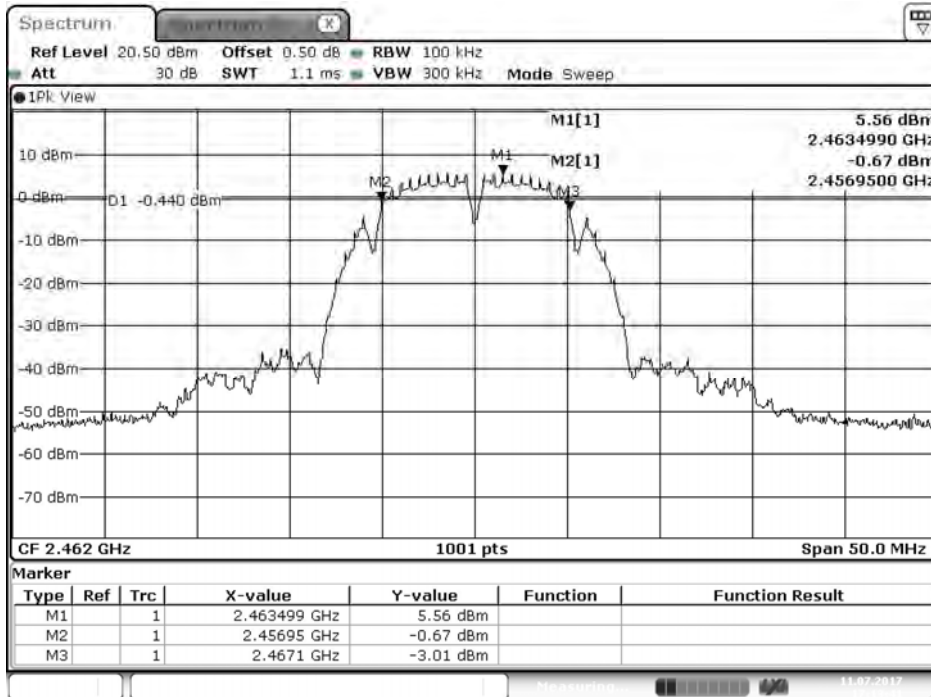
Date: 11.JUL.2017 17:01:19

Figure Channel 06: (Chain A)



Date: 11.JUL.2017 17:08:48

Figure Channel 11: (Chain A)



Date: 11.JUL.2017 17:13:41

Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
 Test Date : 2017/07/20

**Chain B**

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	10200	>500	Pass
06	2437	10200	>500	Pass
11	2462	10150	>500	Pass

**Figure Channel 01: (Chain B)**

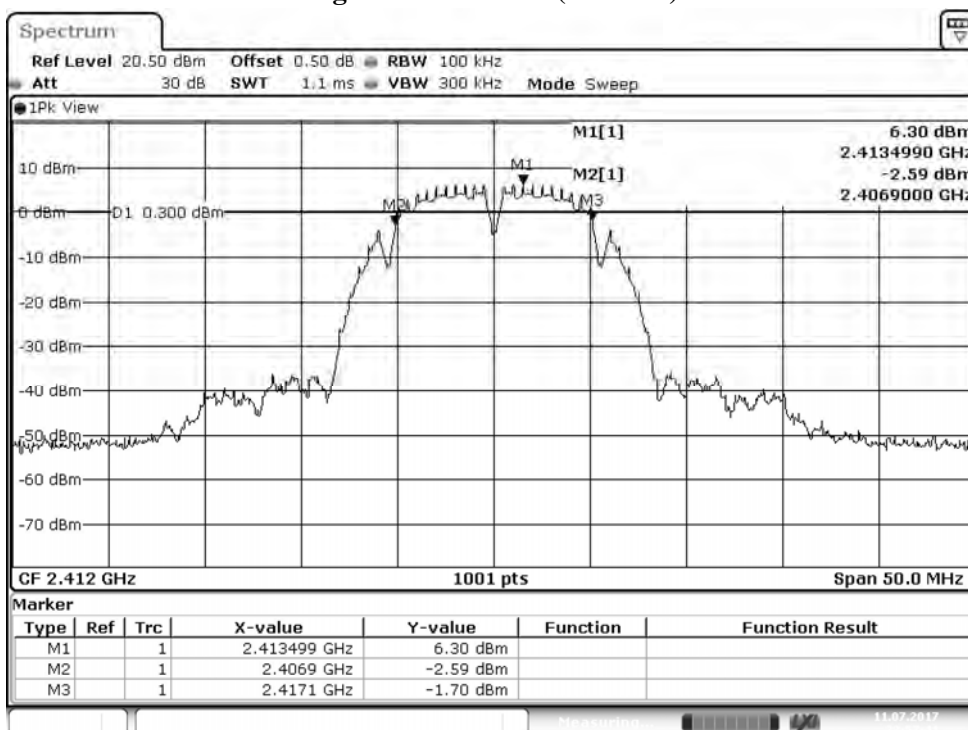


Figure Channel 06: (Chain B)

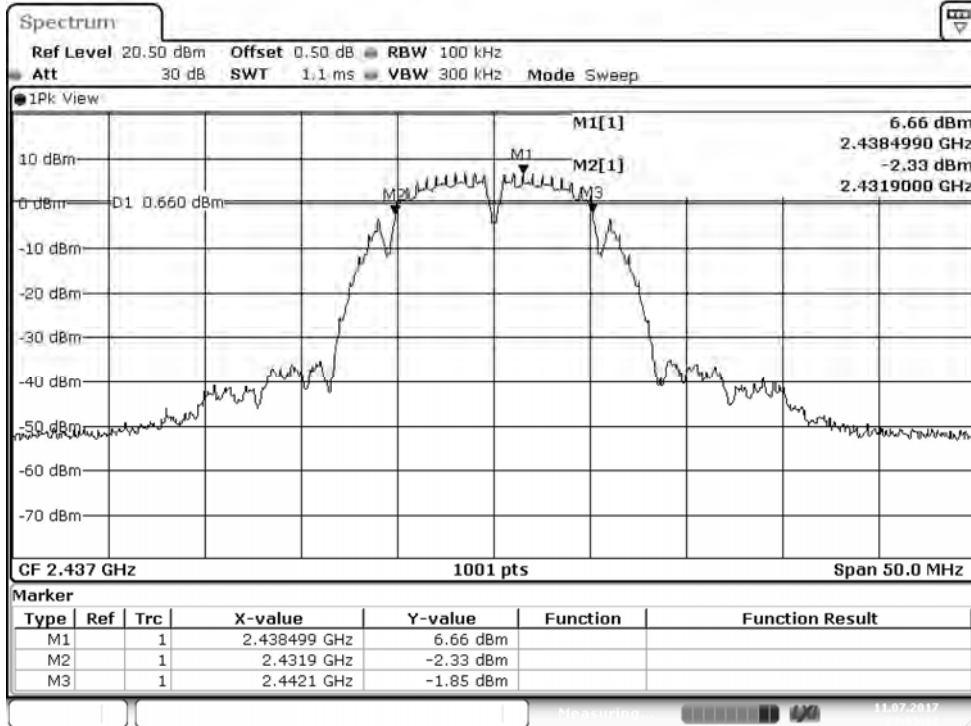
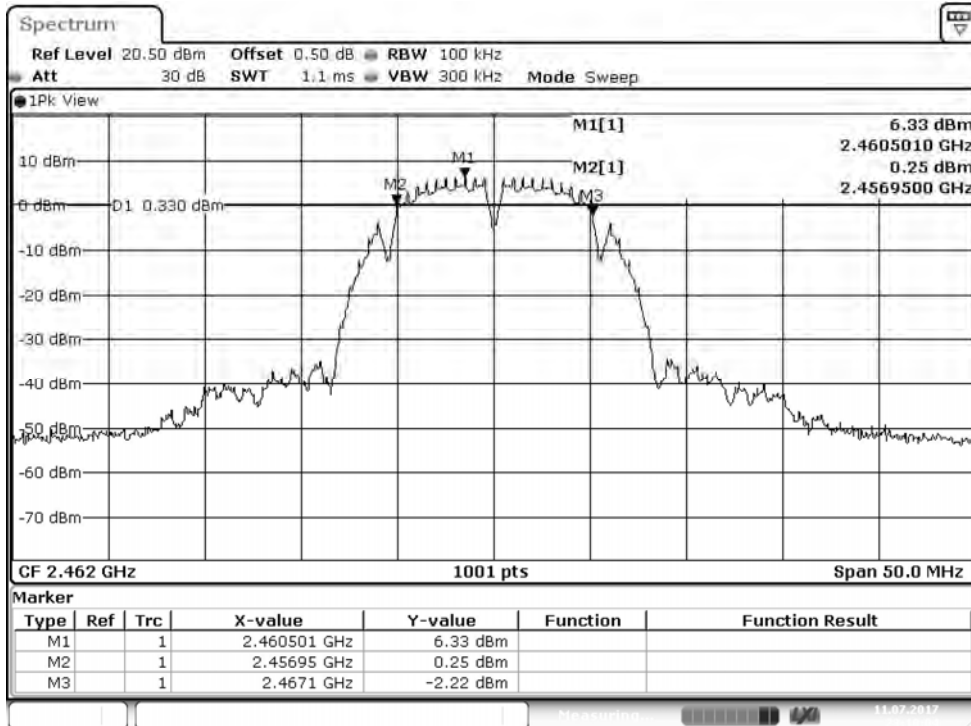


Figure Channel 11: (Chain B)

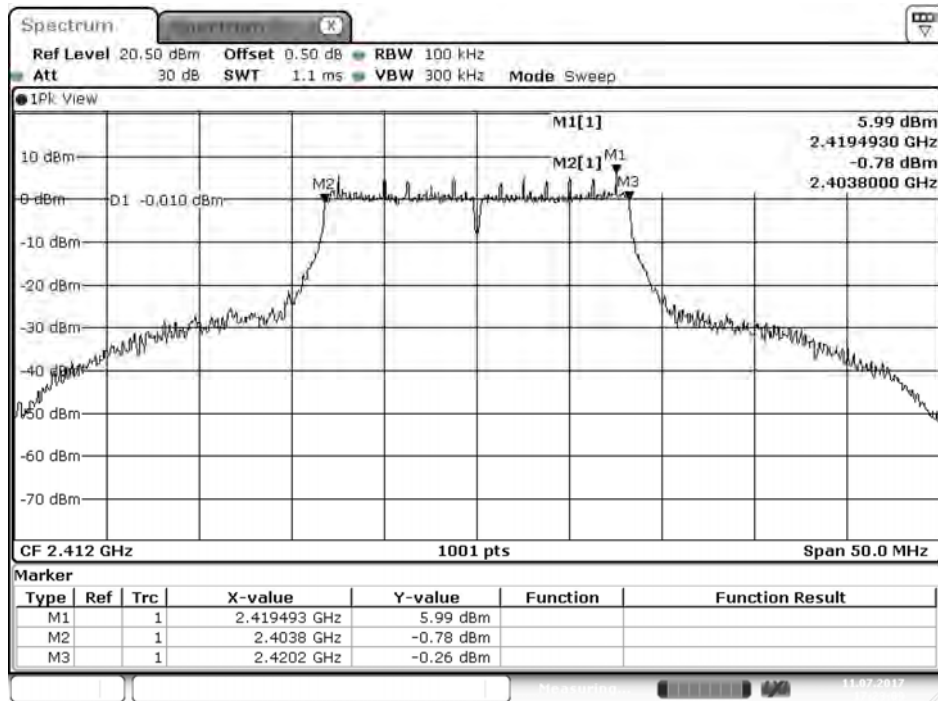


Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/07/20

**Chain A**

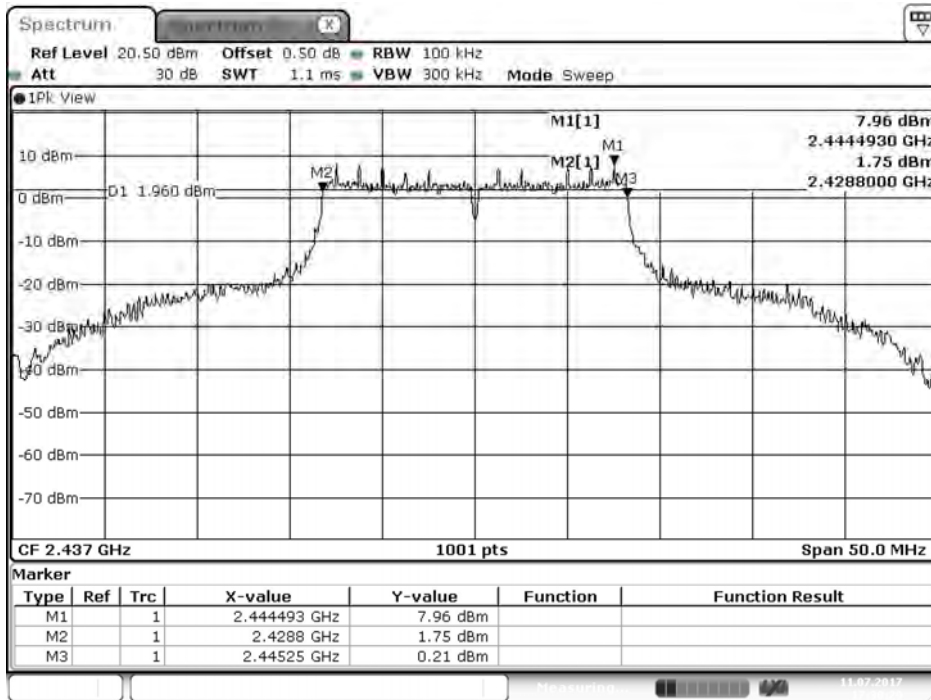
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16400	>500	Pass
06	2437	16450	>500	Pass
11	2462	16450	>500	Pass

**Figure Channel 01: (Chain A)**



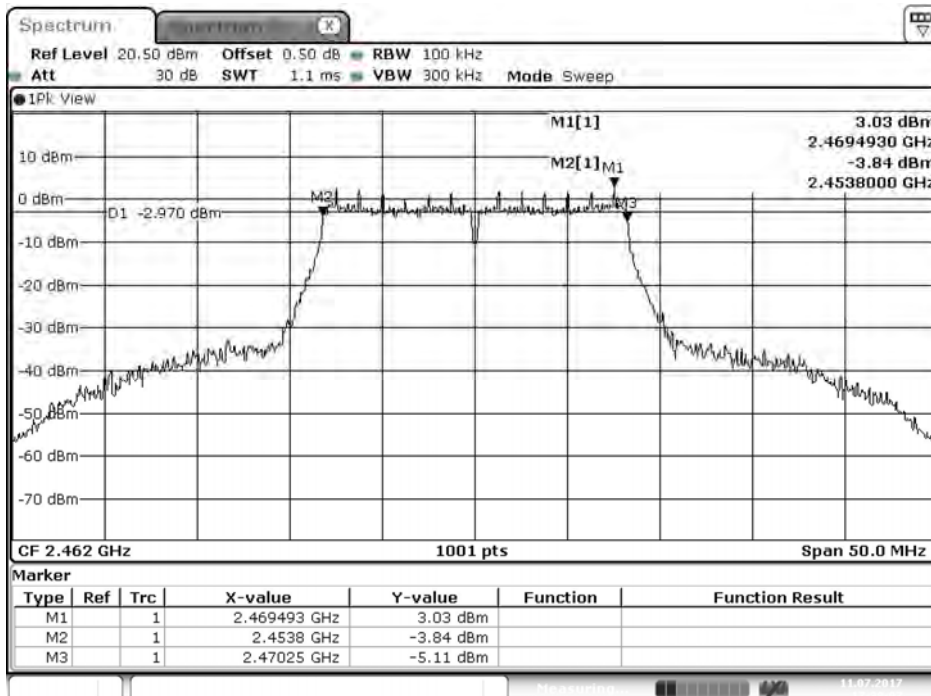
Date: 11.JUL 2017 17:23:10

Figure Channel 06: (Chain A)



Date: 11.JUL.2017 17:30:29

Figure Channel 11: (Chain A)



Date: 11.JUL.2017 17:38:07

Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)  
 Test Date : 2017/07/20

**Chain B**

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	16450	>500	Pass
06	2437	16400	>500	Pass
11	2462	16450	>500	Pass

**Figure Channel 01: (Chain B)**

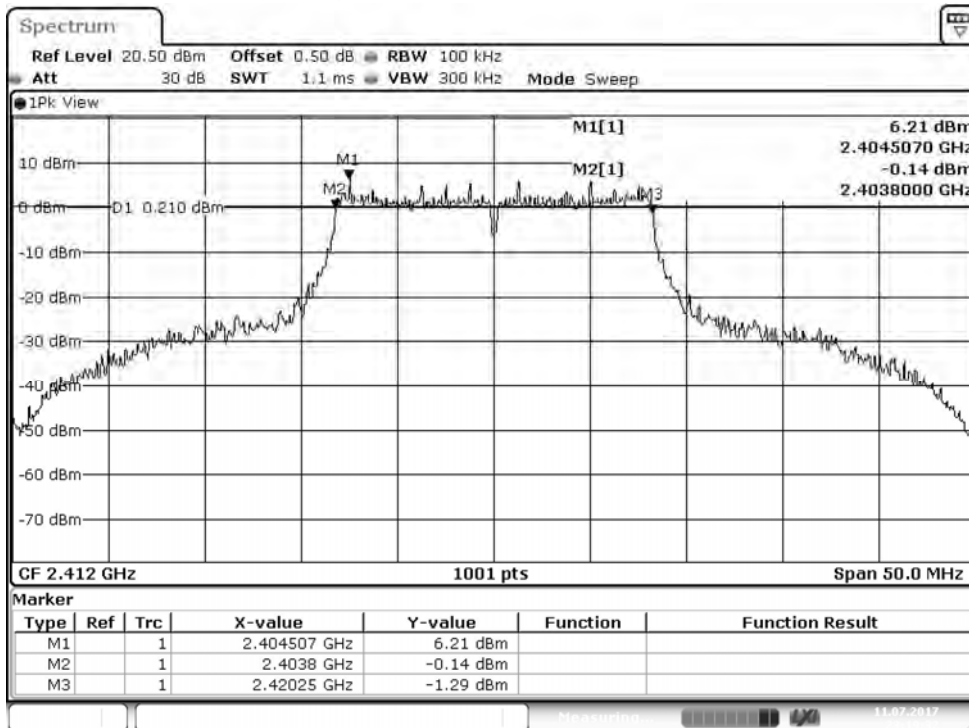




Figure Channel 06: (Chain B)

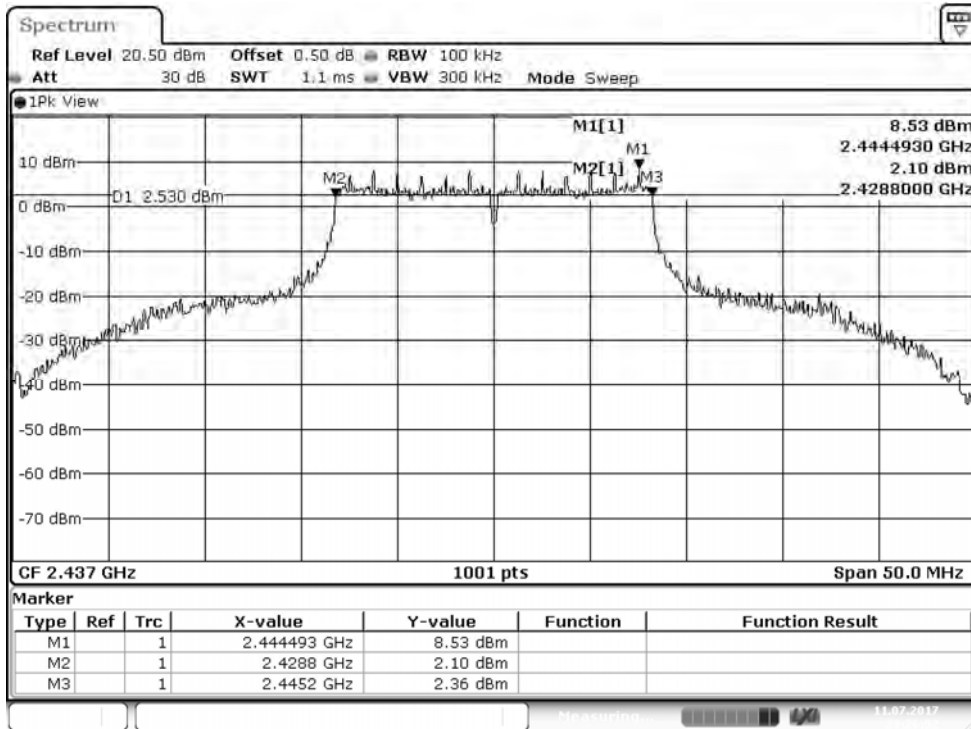
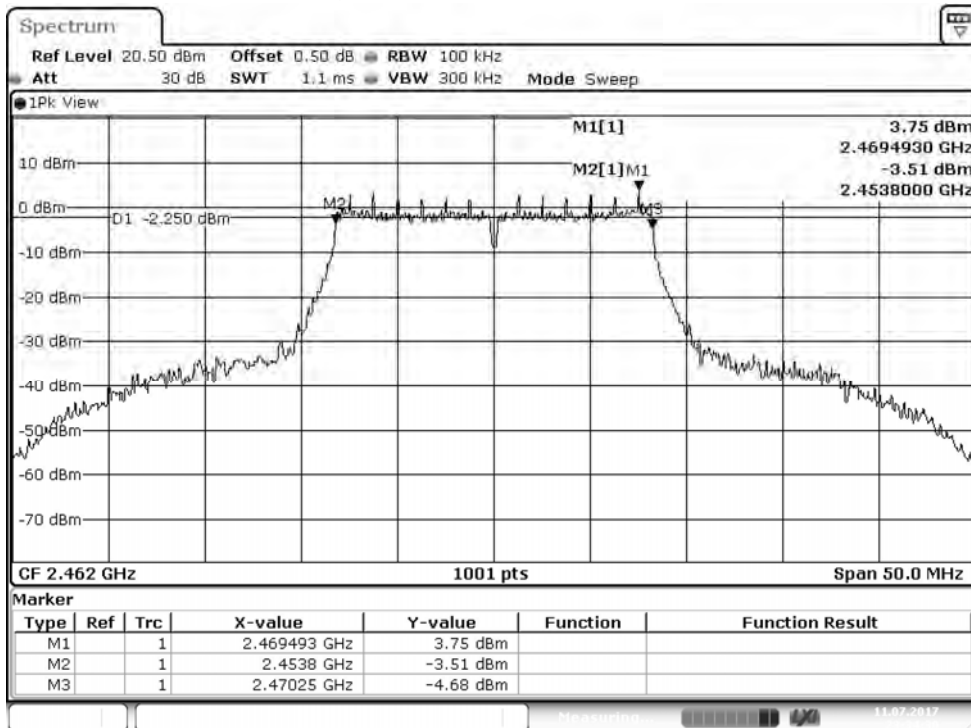


Figure Channel 11: (Chain B)

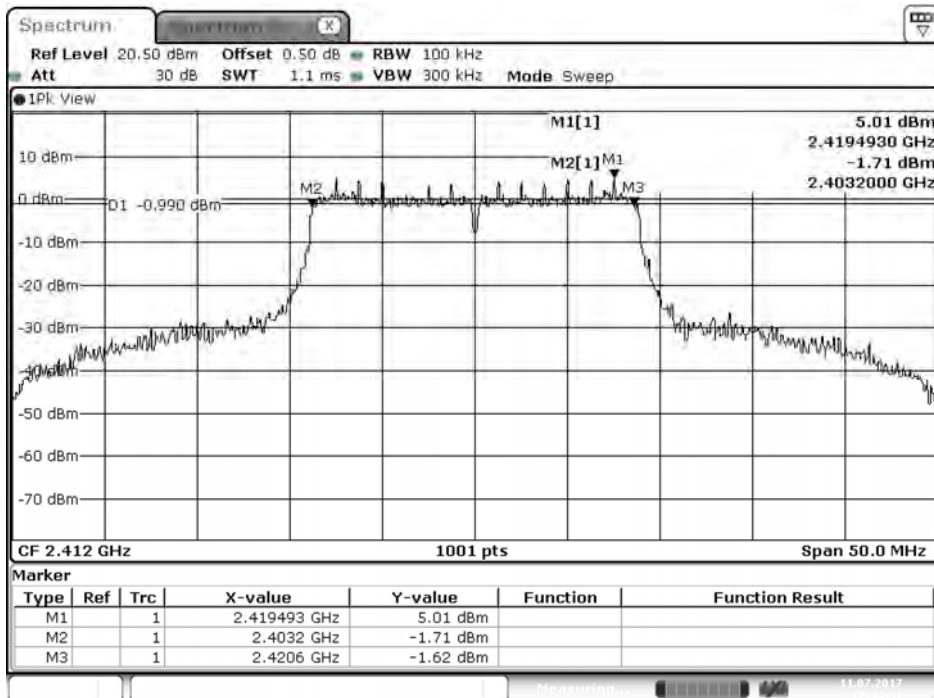


Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
 Test Date : 2017/07/20

**Chain A**

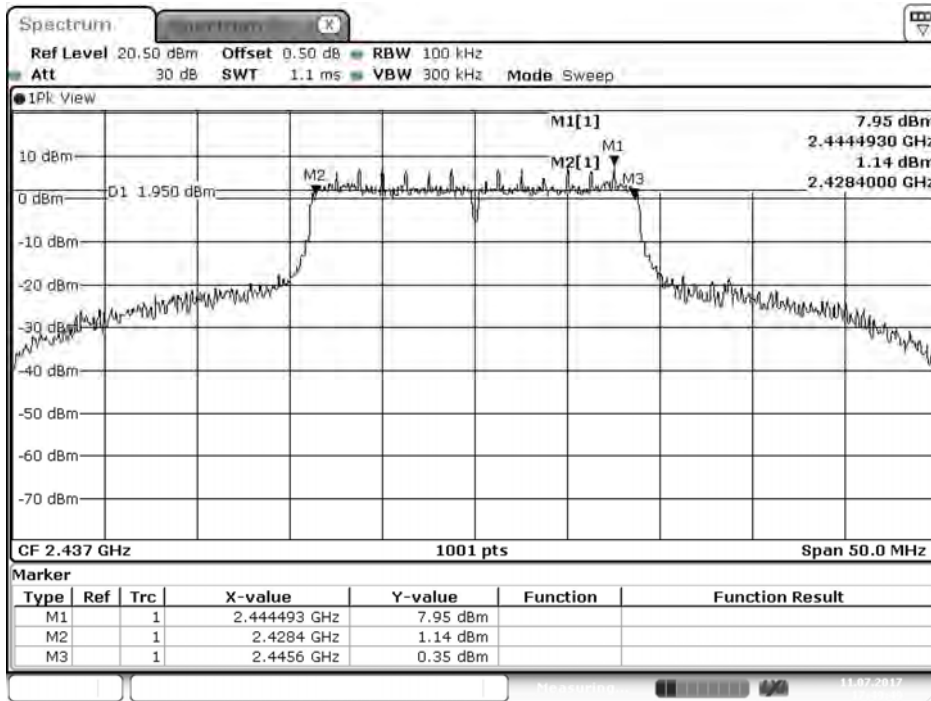
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17400	>500	Pass
06	2437	17200	>500	Pass
11	2462	17700	>500	Pass

**Figure Channel 01: (Chain A)**



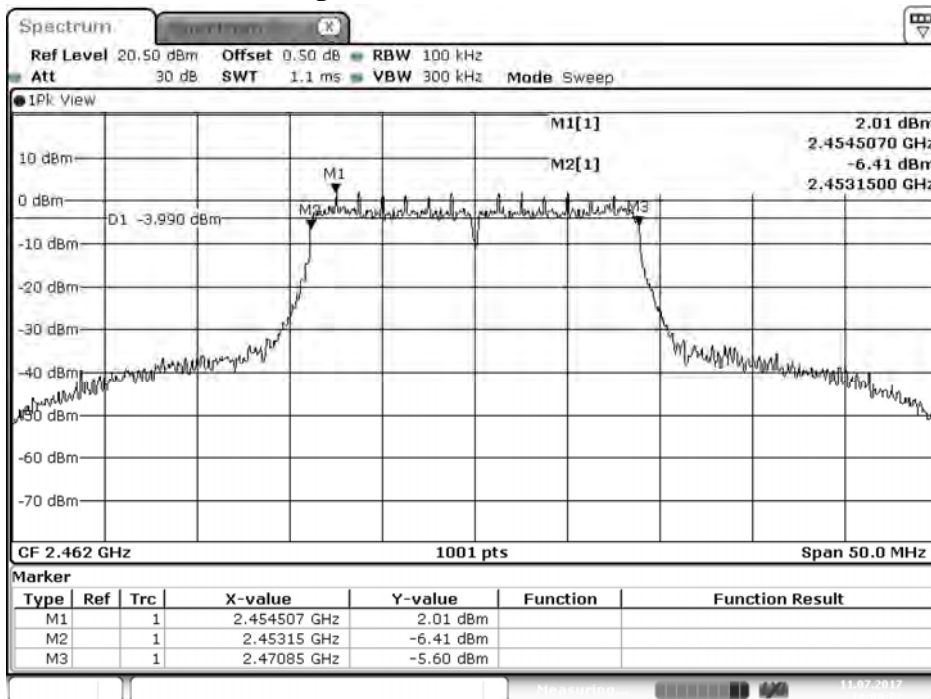
Date: 11.JUL 2017 17:44:51

Figure Channel 06: (Chain A)



Date: 11.JUL.2017 17:49:49

Figure Channel 11: (Chain A)



Date: 11.JUL.2017 18:00:22

Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
 Test Date : 2017/07/20

**Chain B**

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2412	17200	>500	Pass
06	2437	17200	>500	Pass
11	2462	17200	>500	Pass

**Figure Channel 01: (Chain B)**

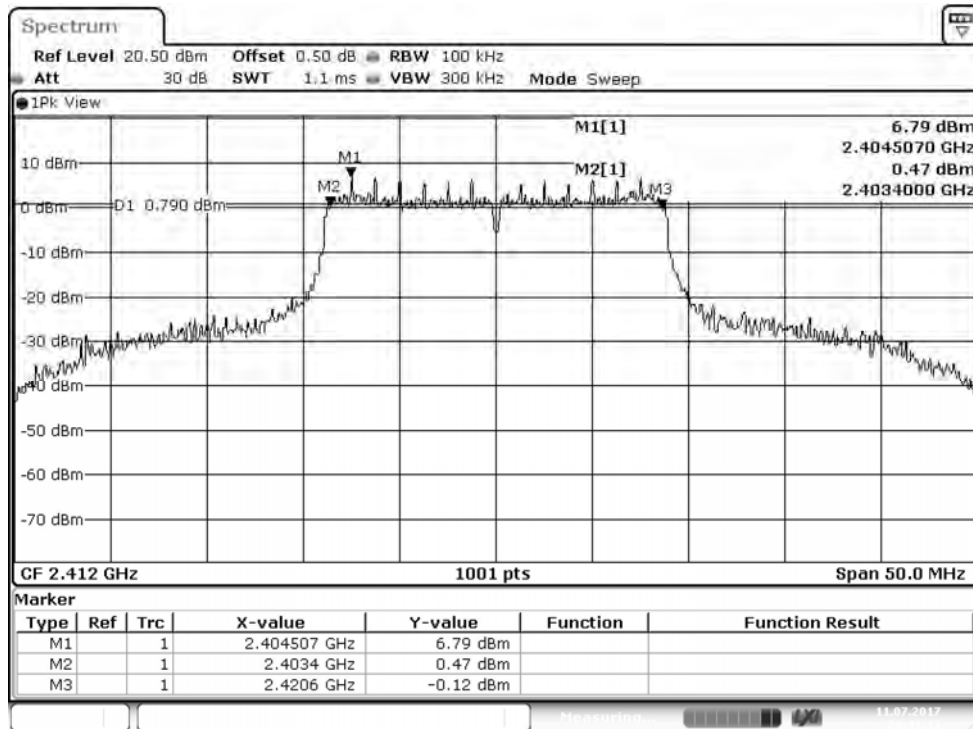


Figure Channel 06: (Chain B)

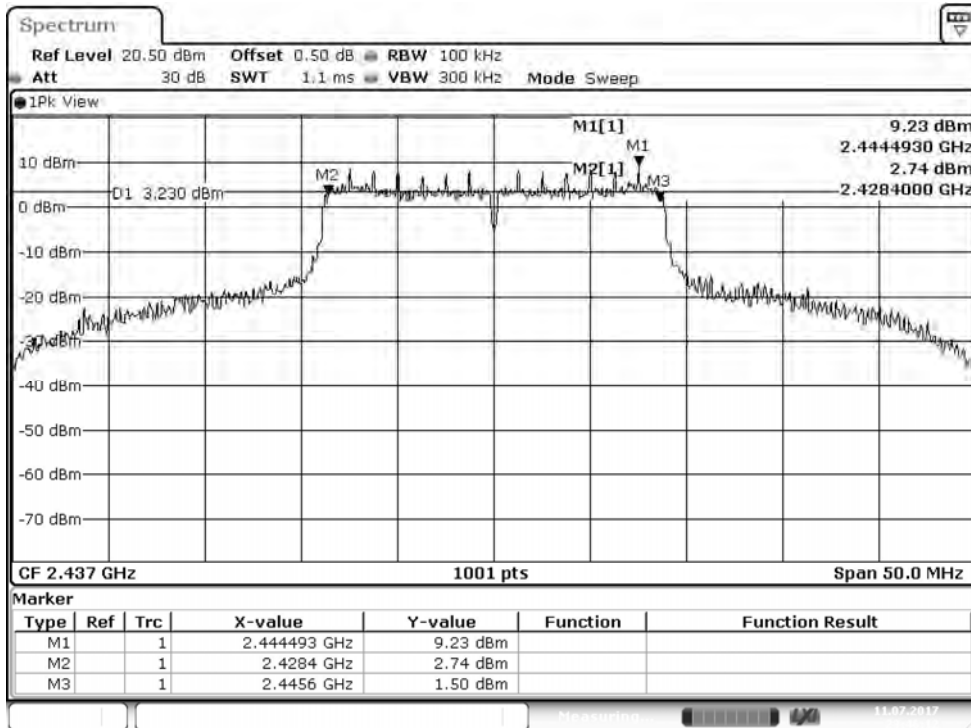
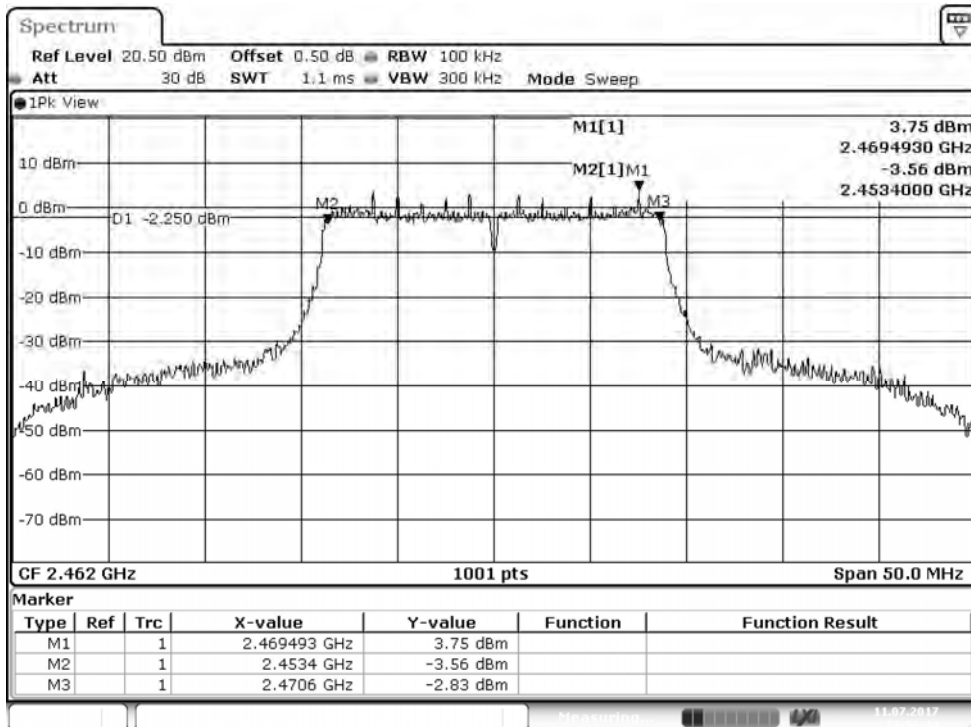


Figure Channel 11: (Chain B)

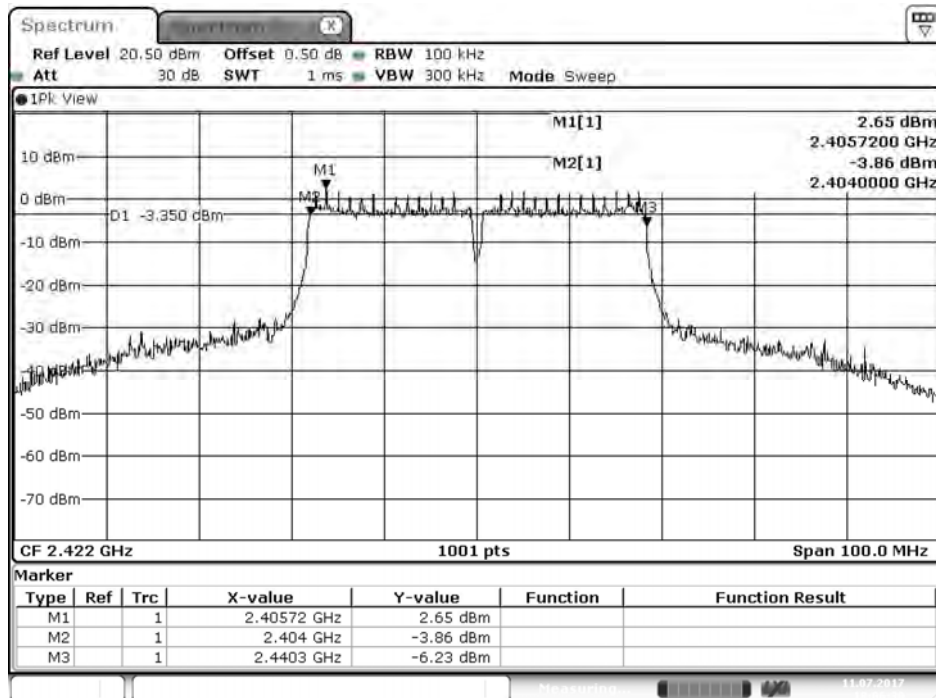


Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
 Test Date : 2017/07/20

**Chain A**

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36300	>500	Pass
06	2437	36500	>500	Pass
09	2452	36300	>500	Pass

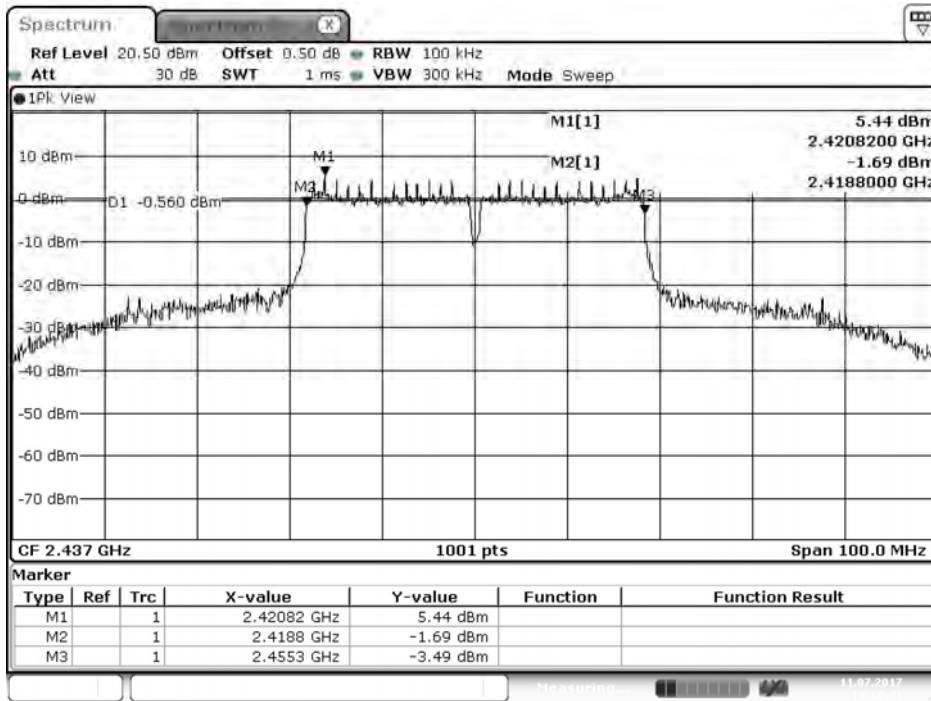
**Figure Channel 03: (Chain A)**



Date: 11.JUL.2017 18:06:30

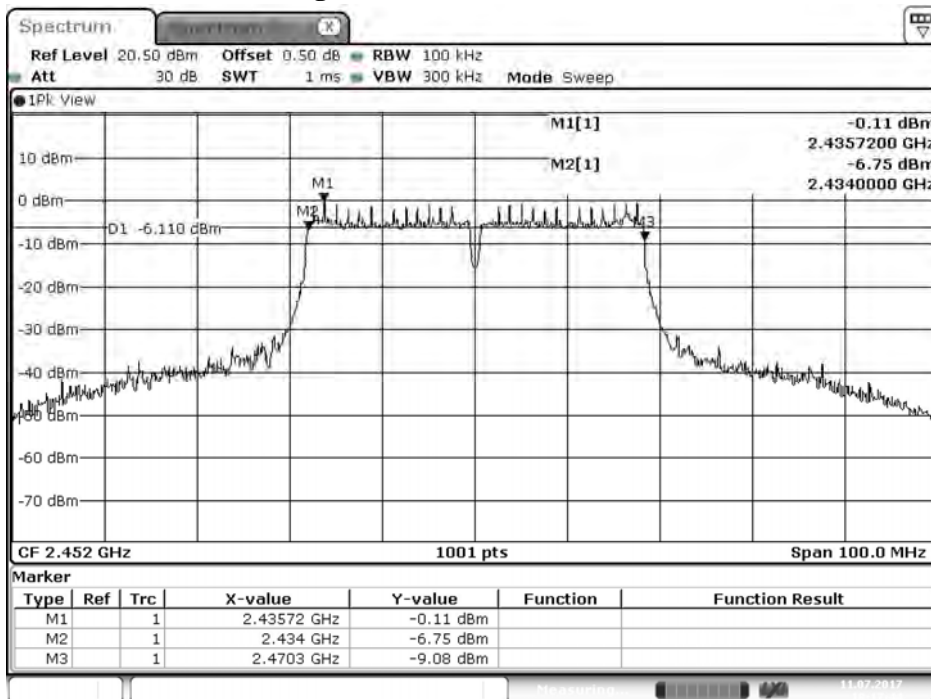


Figure Channel 06: (Chain A)



Date: 11.JUL.2017 18:10:42

Figure Channel 09: (Chain A)



Date: 11.JUL.2017 18:17:44

Product : G.hn Powerline Wireless Extender  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
 Test Date : 2017/07/20

**Chain B**

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
03	2422	36300	>500	Pass
06	2437	36500	>500	Pass
09	2452	36500	>500	Pass

**Figure Channel 03: (Chain B)**

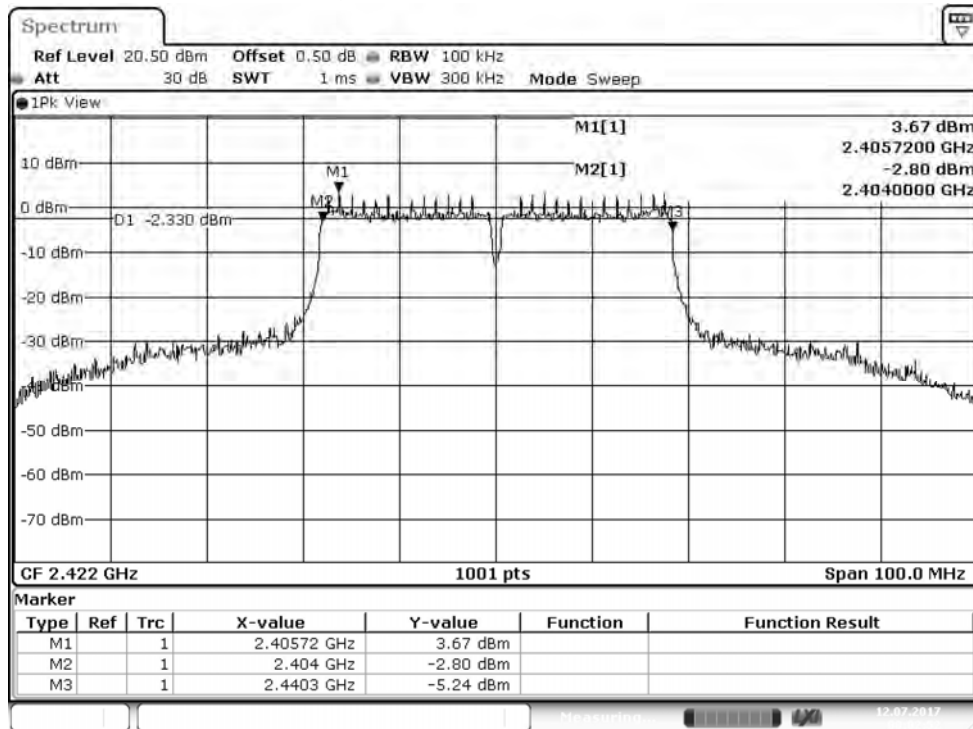




Figure Channel 06: (Chain B)

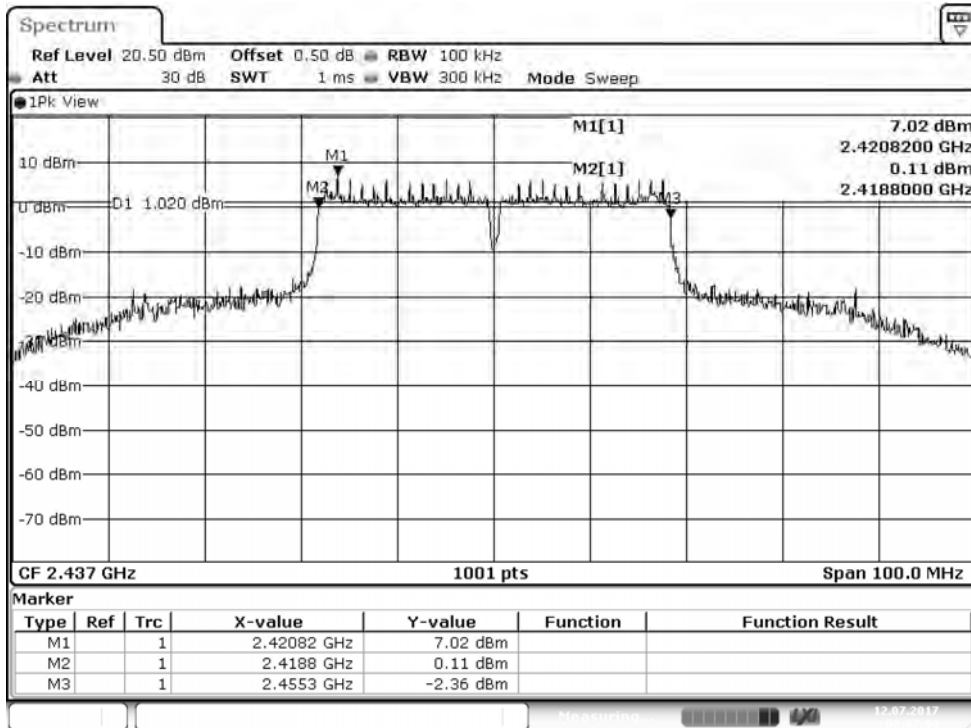
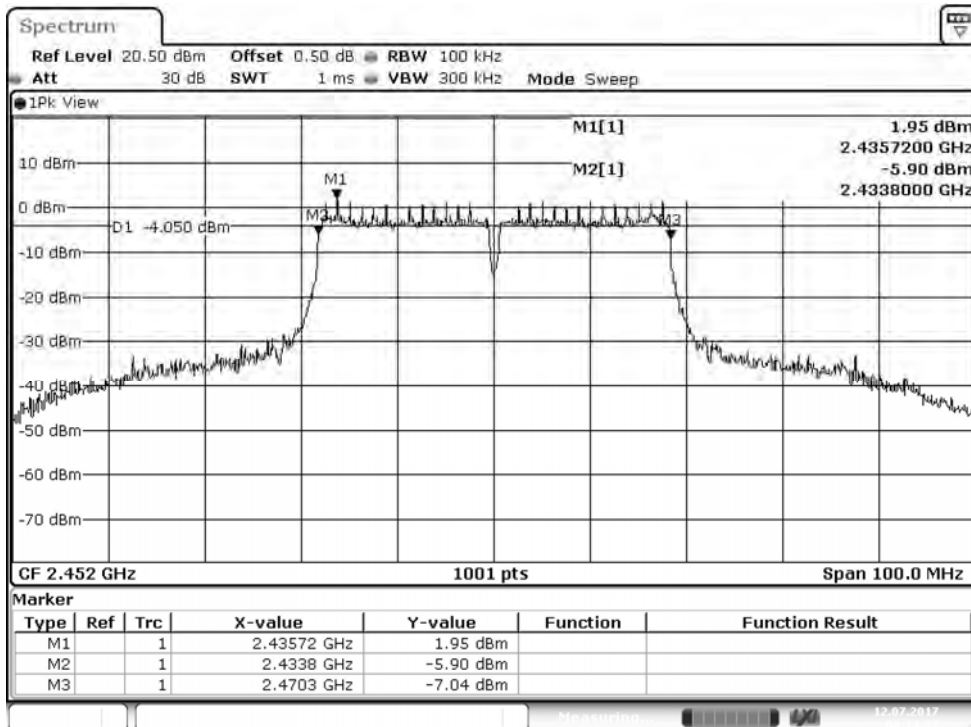
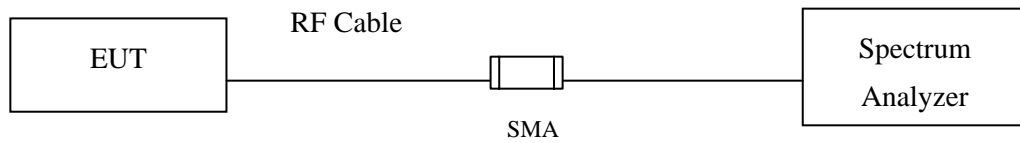


Figure Channel 09: (Chain B)



## 8. Power Density

### 8.1. Test Setup



### 8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

### 8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

### 8.4. Uncertainty

$\pm 1.23$  dB

### 8.5. Test Result of Power Density

Product : G.hn Powerline Wireless Extender  
 Test Item : Power Density Data  
 Test Mode : Mode 1: Transmit (802.11b 1Mbps)  
 Test Date : 2017/07/20

Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSSD/MHz (dBm)	Limit (dBm)	Result
01	2412.000	A	-4.410	-1.400	≤ 8dBm	Pass
		B	-4.920	-1.910	≤ 8dBm	Pass
06	2437.000	A	-6.340	-3.330	≤ 8dBm	Pass
		B	-6.340	-3.330	≤ 8dBm	Pass
11	2462.000	A	-4.190	-1.180	≤ 8dBm	Pass
		B	-4.120	-1.110	≤ 8dBm	Pass

Figure Channel 1: (Chain A)

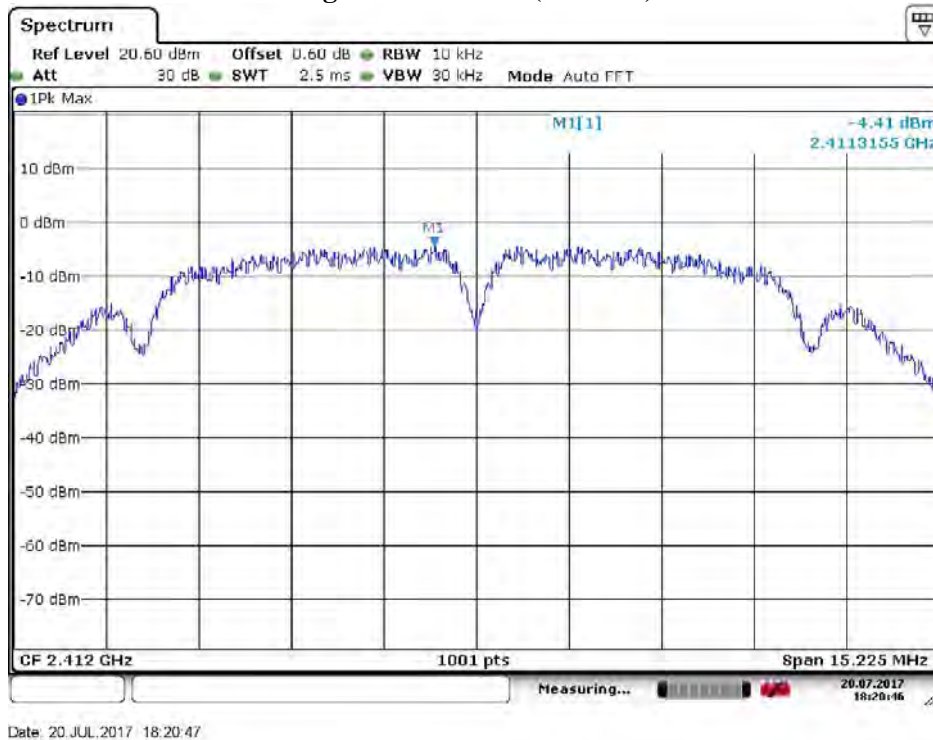
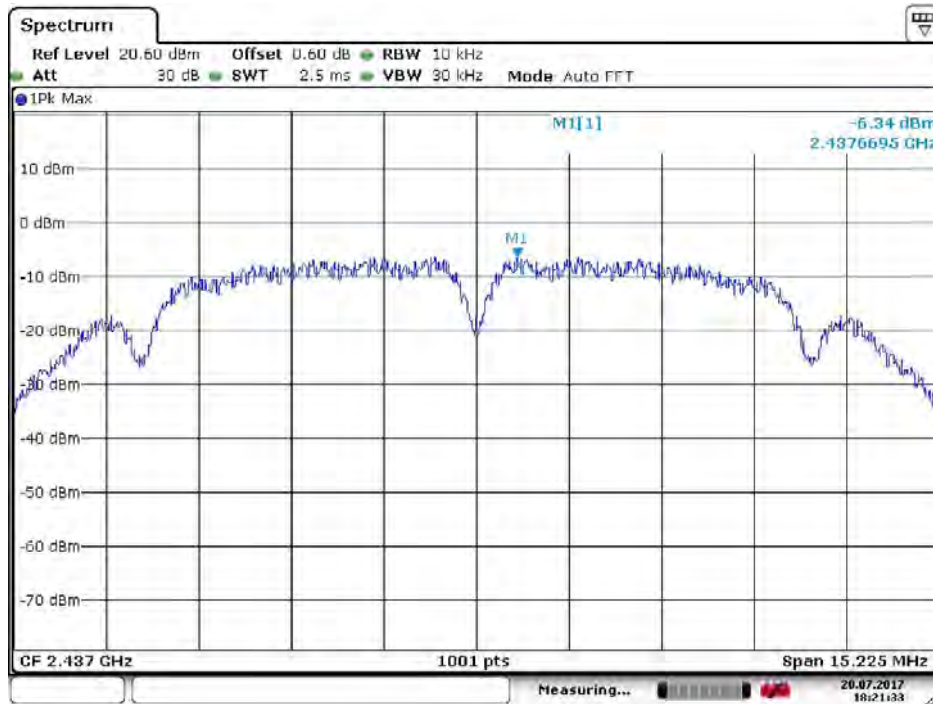
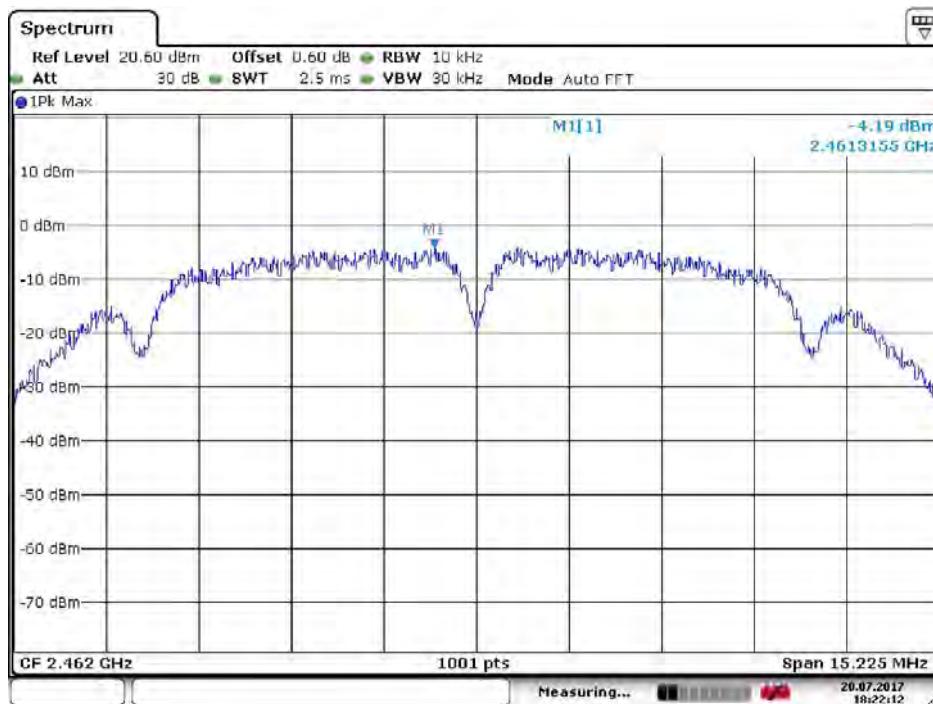


Figure Channel 6: (Chain A)



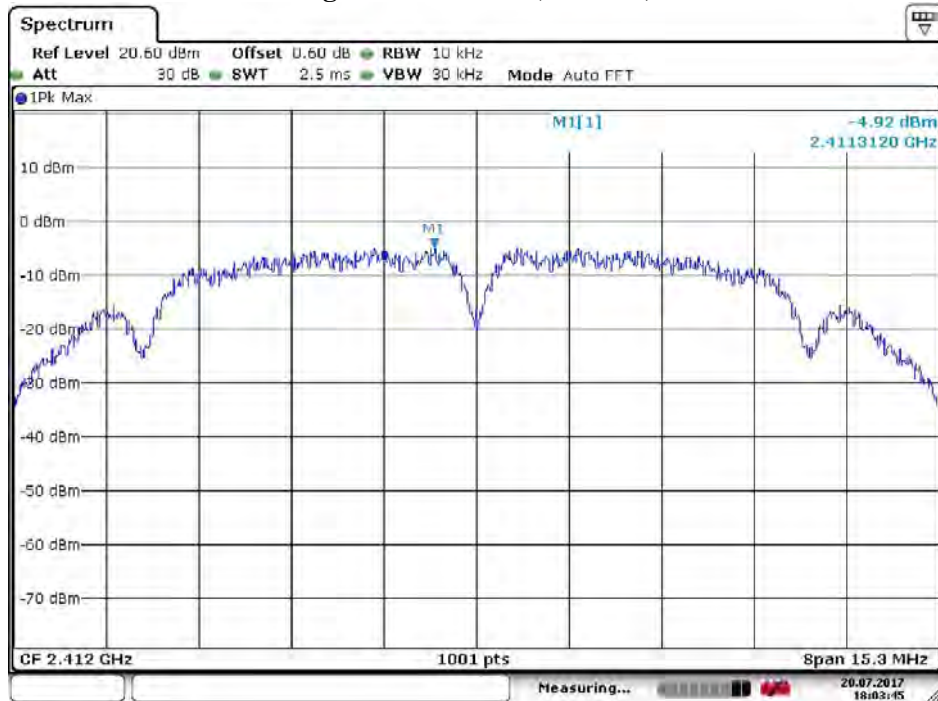
Date: 20 JUL 2017 18:21:33

Figure Channel 11: (Chain A)



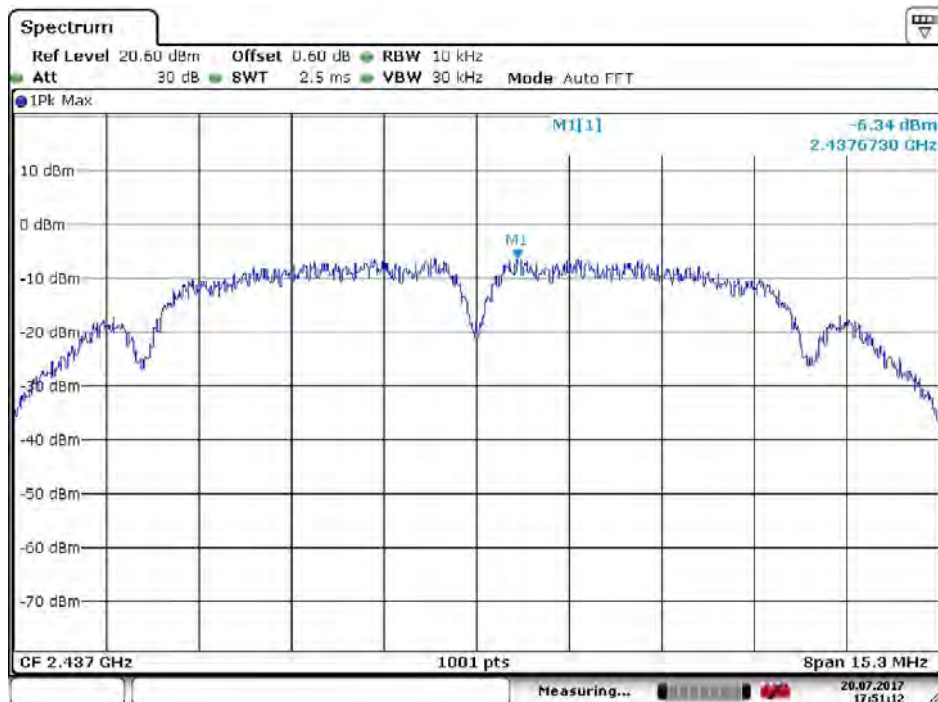
Date: 20 JUL 2017 18:22:11

Figure Channel 1: (Chain B)



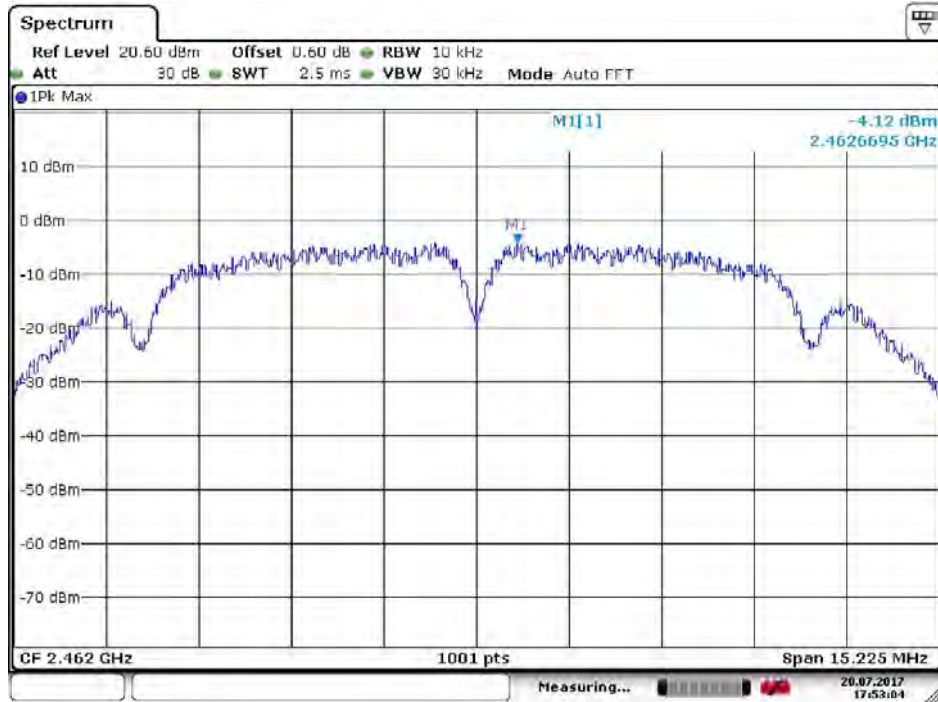
Date: 20 JUL 2017 18:03:46

Figure Channel 6: (Chain B)



Date: 20 JUL 2017 17:51:12

Figure Channel 11: (Chain B)



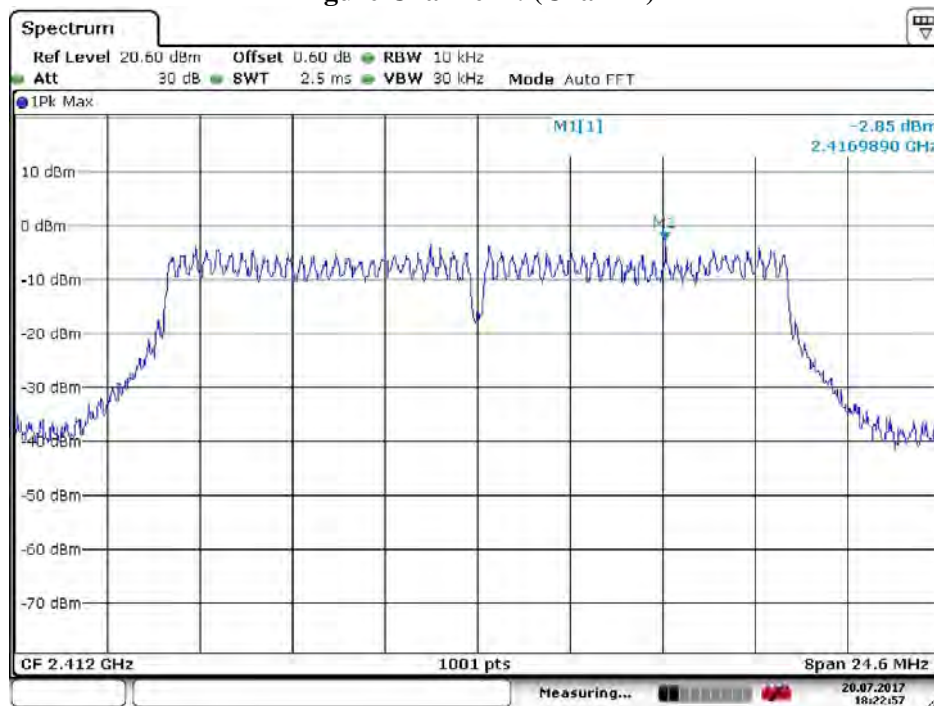
Date: 20 JUL 2017 17:53:04



Product : G.hn Powerline Wireless Extender  
 Test Item : Power Density Data  
 Test Mode : Mode 2: Transmit (802.11g 6Mbps)  
 Test Date : 2017/07/20

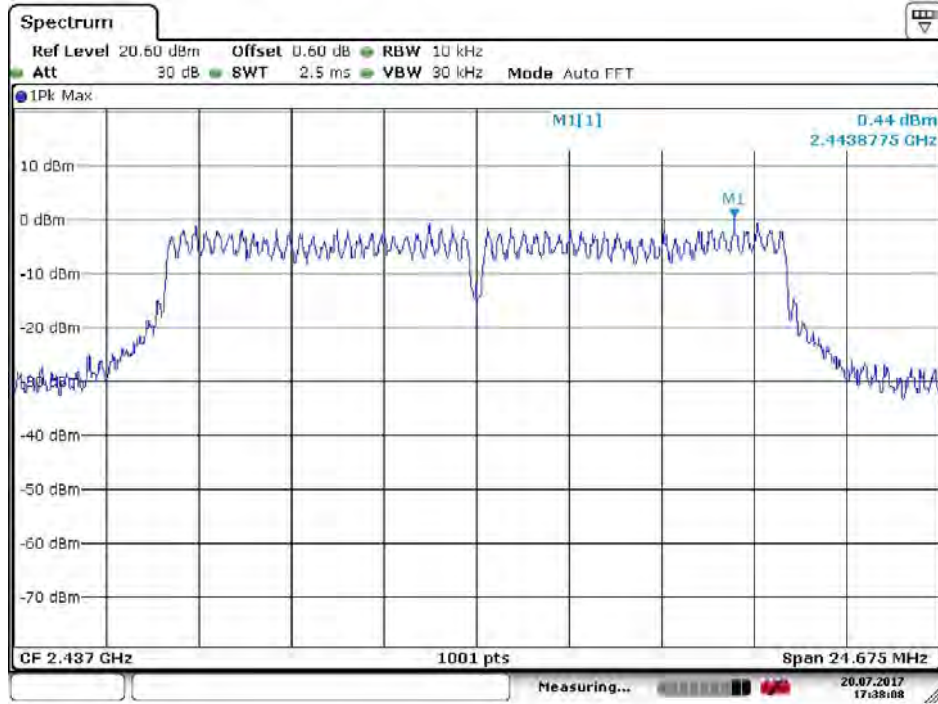
Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412.000	A	-2.850	0.160	≤ 8dBm	Pass
		B	-2.780	0.230	≤ 8dBm	Pass
06	2437.000	A	0.440	3.450	≤ 8dBm	Pass
		B	-0.410	2.600	≤ 8dBm	Pass
11	2462.000	A	2.990	6.000	≤ 8dBm	Pass
		B	3.750	6.760	≤ 8dBm	Pass

Figure Channel 1: (Chain A)



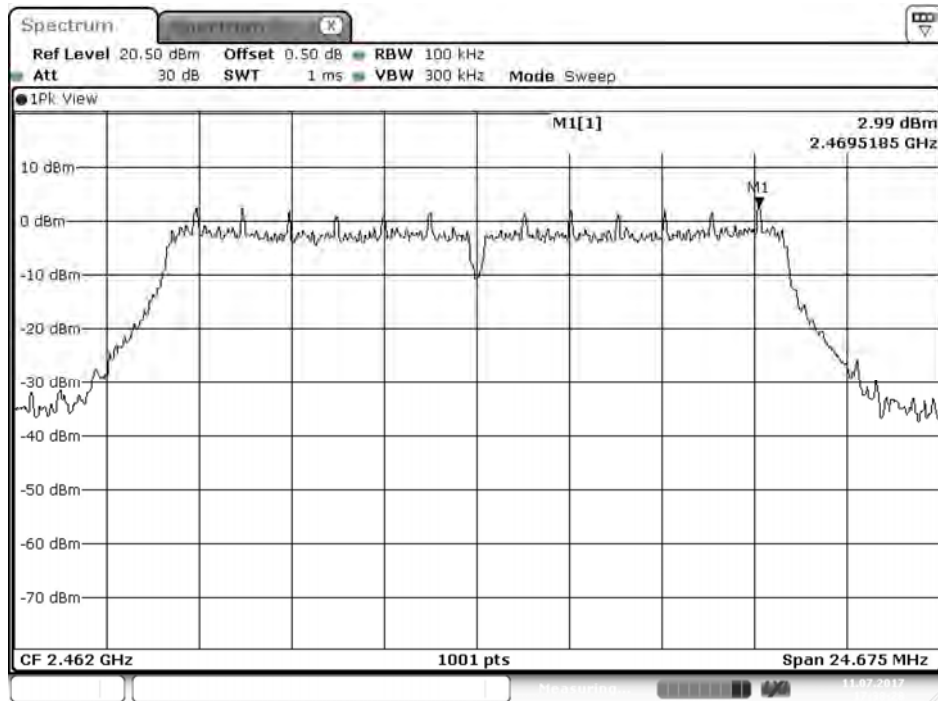
Date: 20 JUL 2017 18:22:57

Figure Channel 6: (Chain A)



Date: 20.JUL.2017 17:38:08

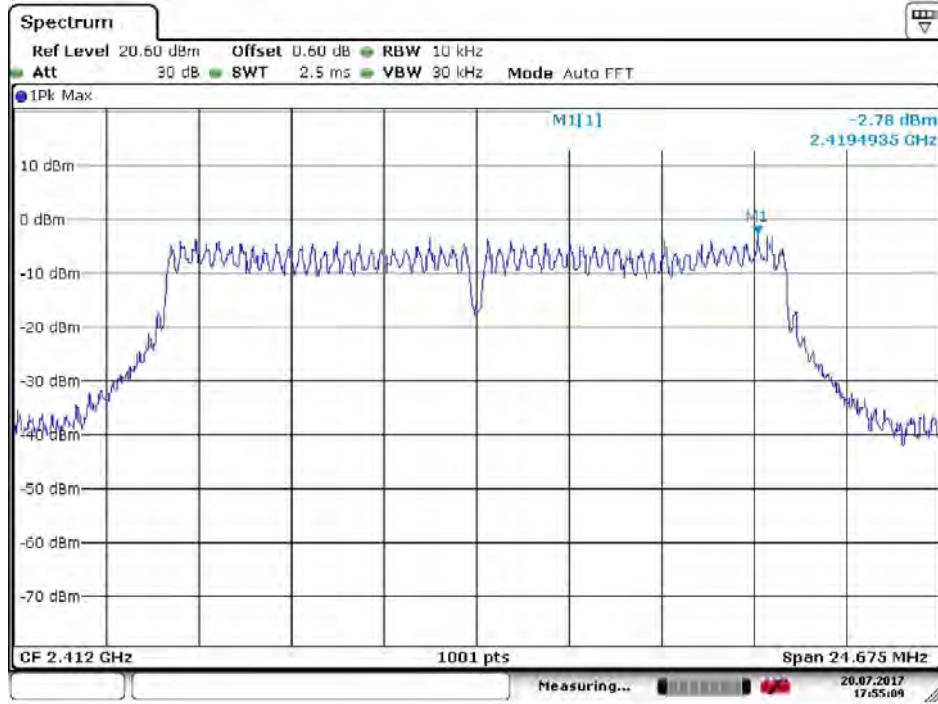
Figure Channel 11: (Chain A)



Date: 11.JUL.2017 17:38:29

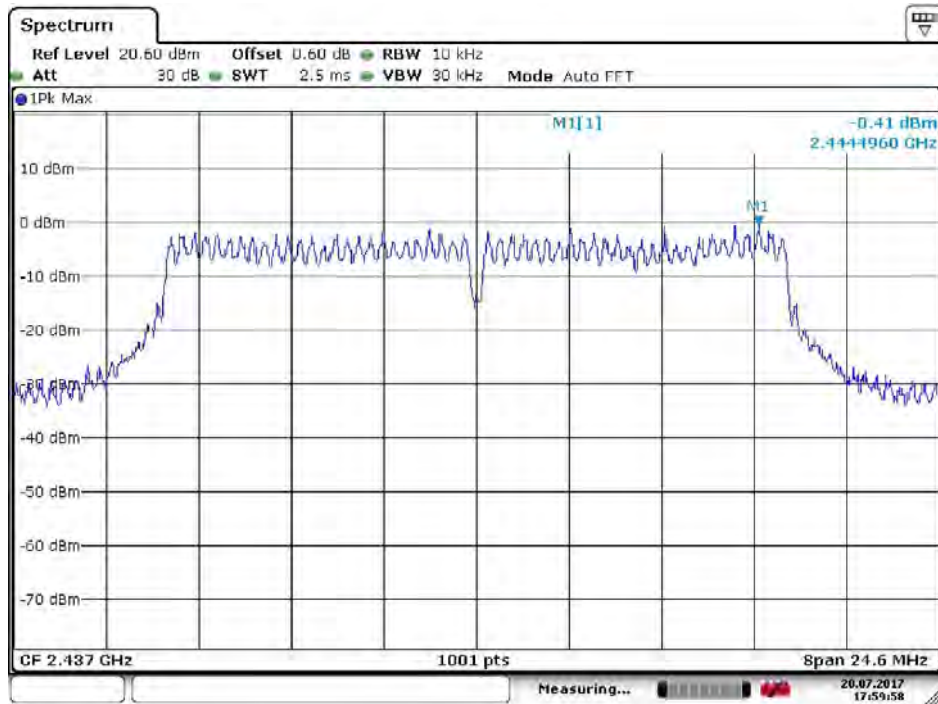


Figure Channel 1: (Chain B)



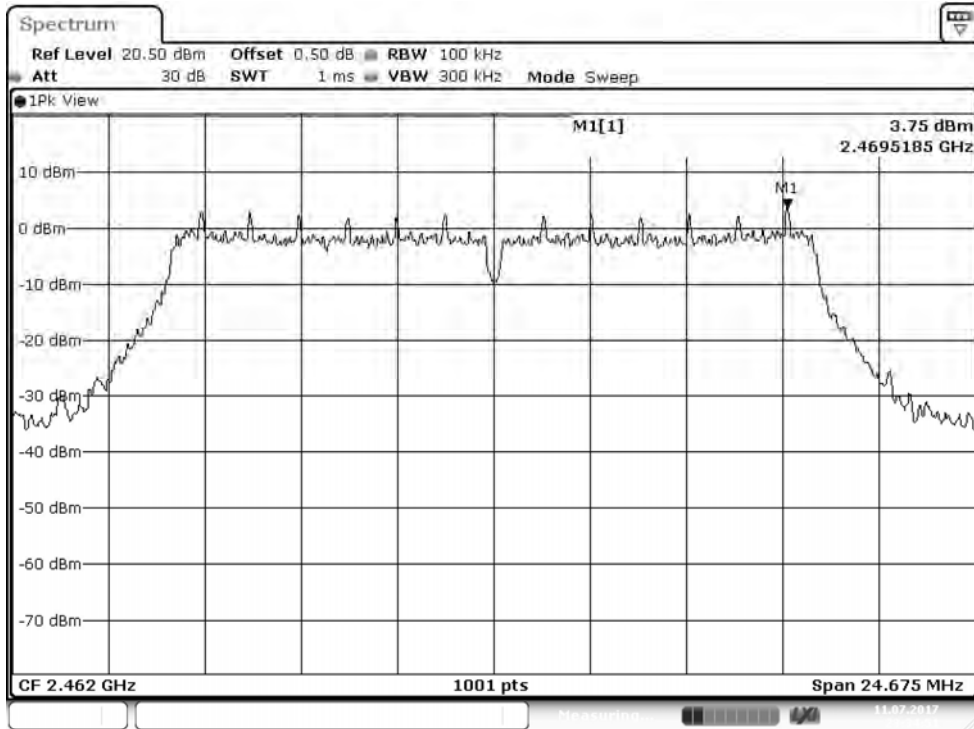
Date: 20 JUL 2017 17:55:10

Figure Channel 6: (Chain B)



Date: 20 JUL 2017 17:59:58

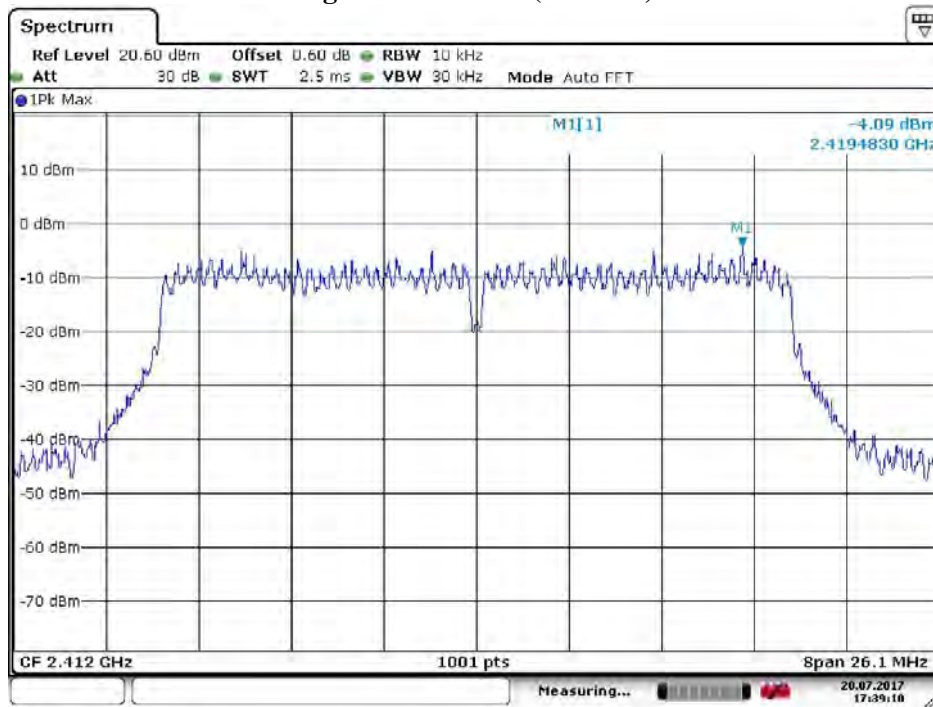
Figure Channel 11: (Chain B)



Product : G.hn Powerline Wireless Extender  
 Test Item : Power Density Data  
 Test Mode : Mode 3: Transmit (802.11n MCS8 14.4Mbps 20M-BW)  
 Test Date : 2017/07/20

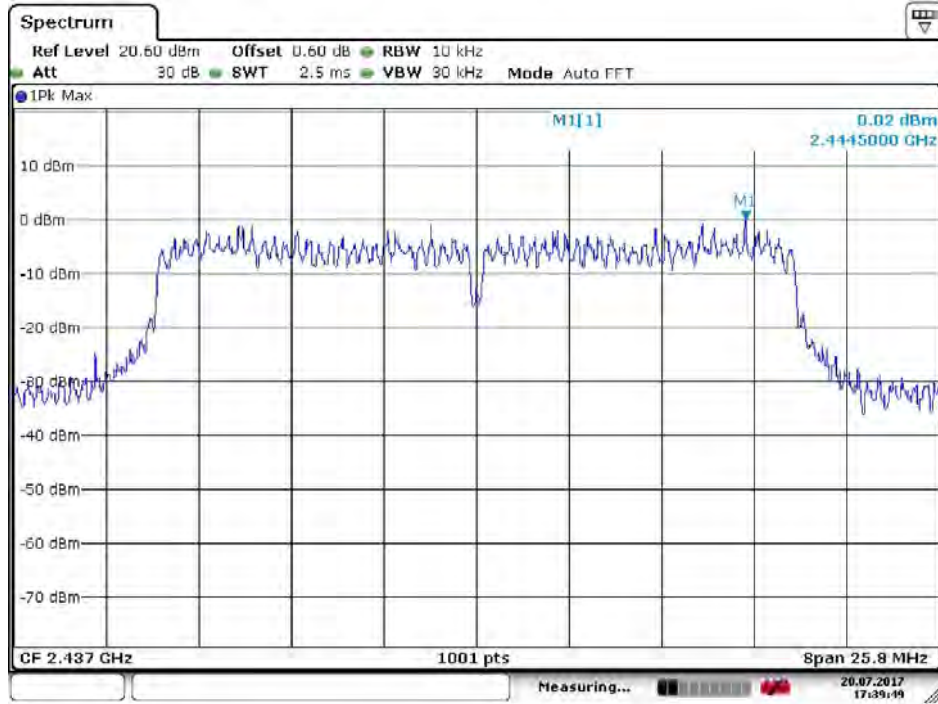
Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
01	2412.000	A	-4.090	-1.080	≤ 8dBm	Pass
		B	-3.810	-0.800	≤ 8dBm	Pass
06	2437.000	A	0.020	3.030	≤ 8dBm	Pass
		B	1.020	4.030	≤ 8dBm	Pass
11	2462.000	A	2.890	5.900	≤ 8dBm	Pass
		B	4.020	7.030	≤ 8dBm	Pass

Figure Channel 1: (Chain A)



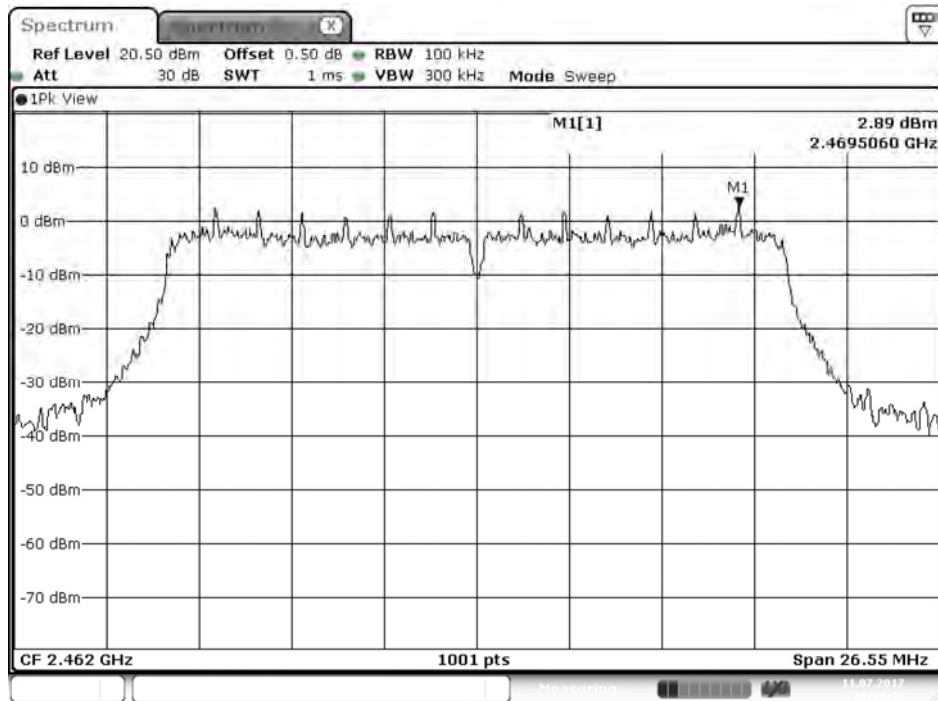
Date: 20 JUL 2017 17:39:10

Figure Channel 6: (Chain A)



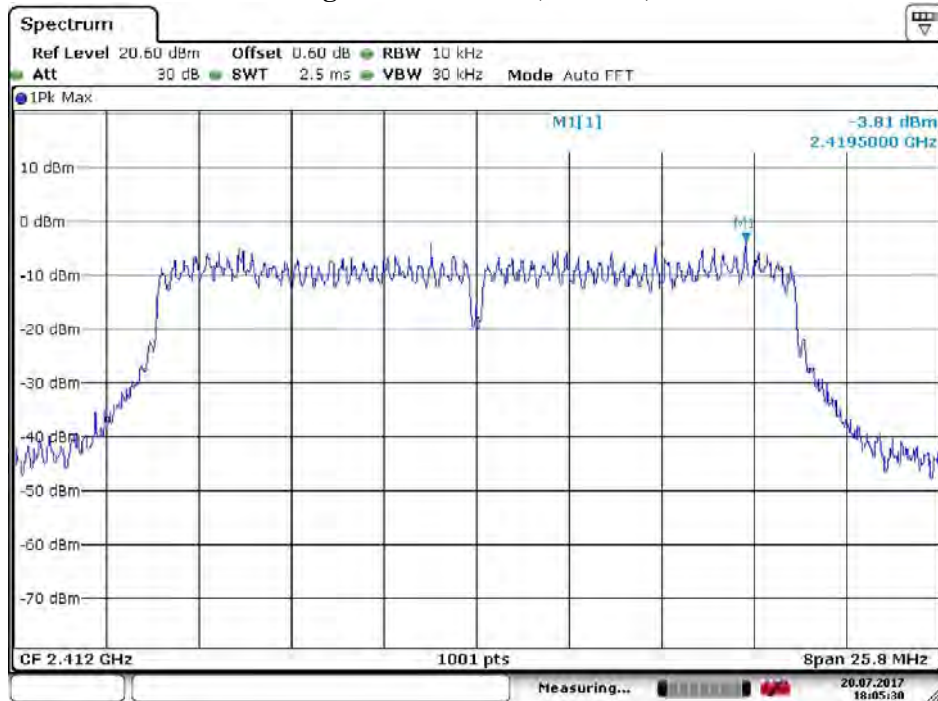
Date: 20.JUL.2017 17:39:49

Figure Channel 11: (Chain A)



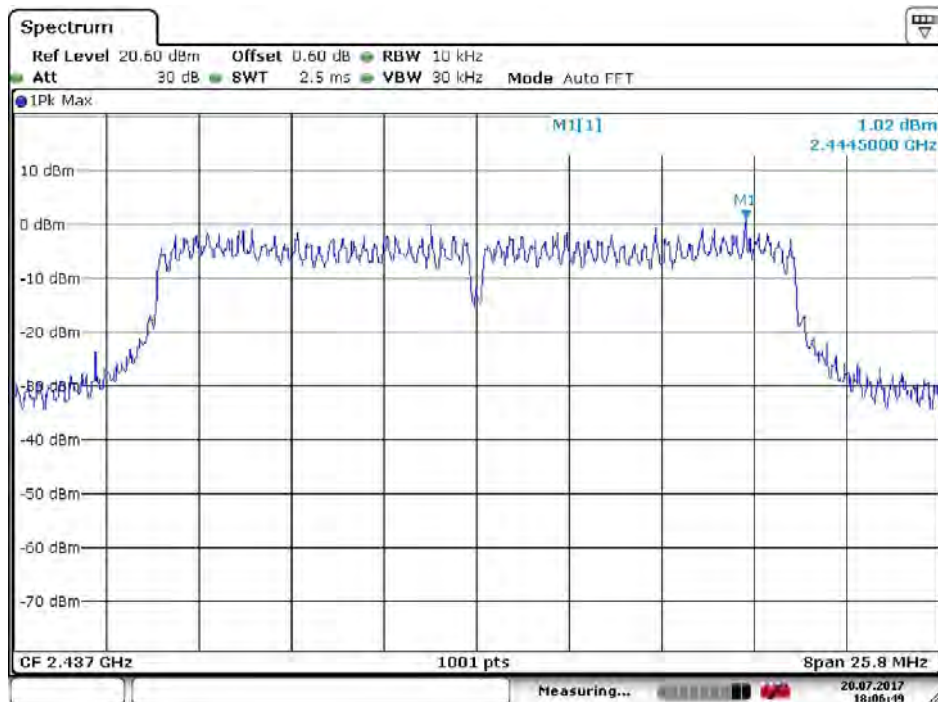
Date: 11.JUL.2017 18:00:43

Figure Channel 1: (Chain B)



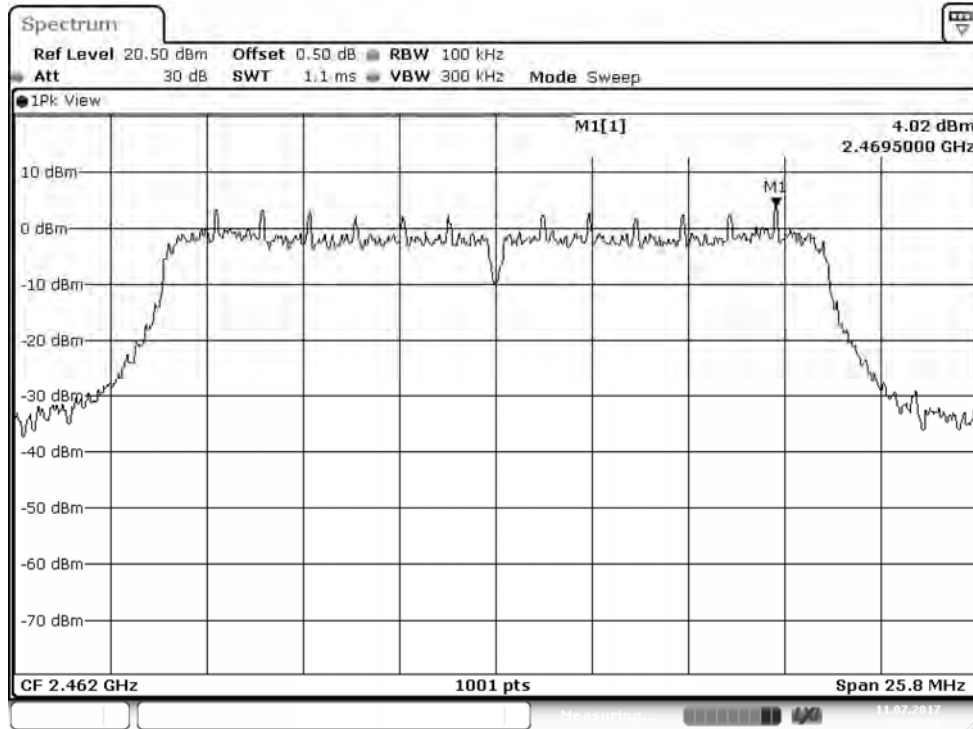
Date: 20 JUL 2017 18:05:30

Figure Channel 6: (Chain B)



Date: 20 JUL 2017 18:06:50

Figure Channel 11: (Chain B)

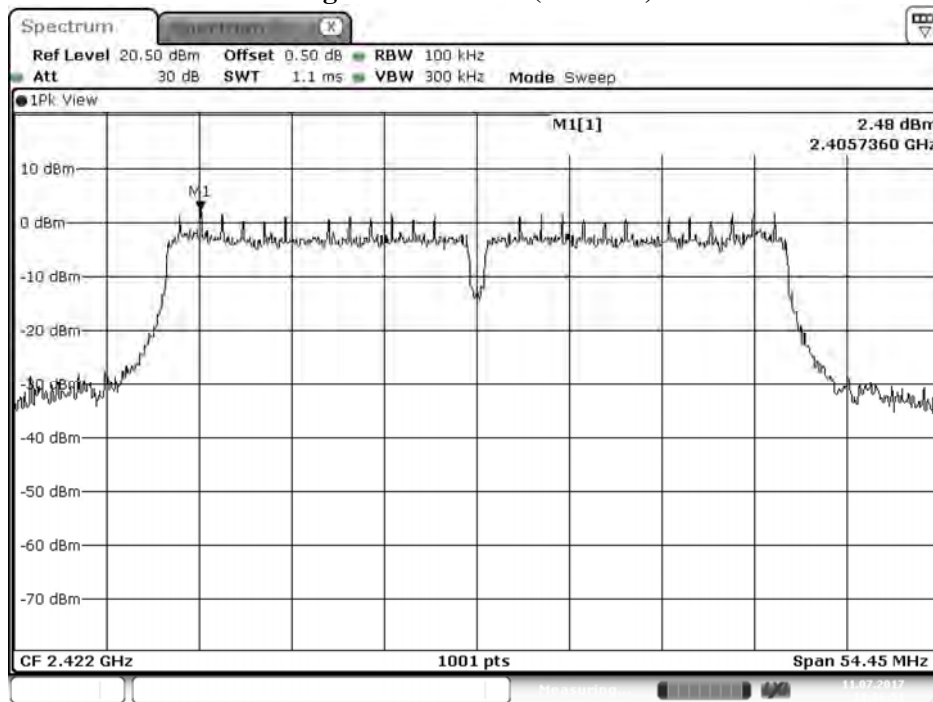




Product : G.hn Powerline Wireless Extender  
 Test Item : Power Density Data  
 Test Mode : Mode 4: Transmit (802.11n MCS8 30Mbps 40M-BW)  
 Test Date : 2017/07/20

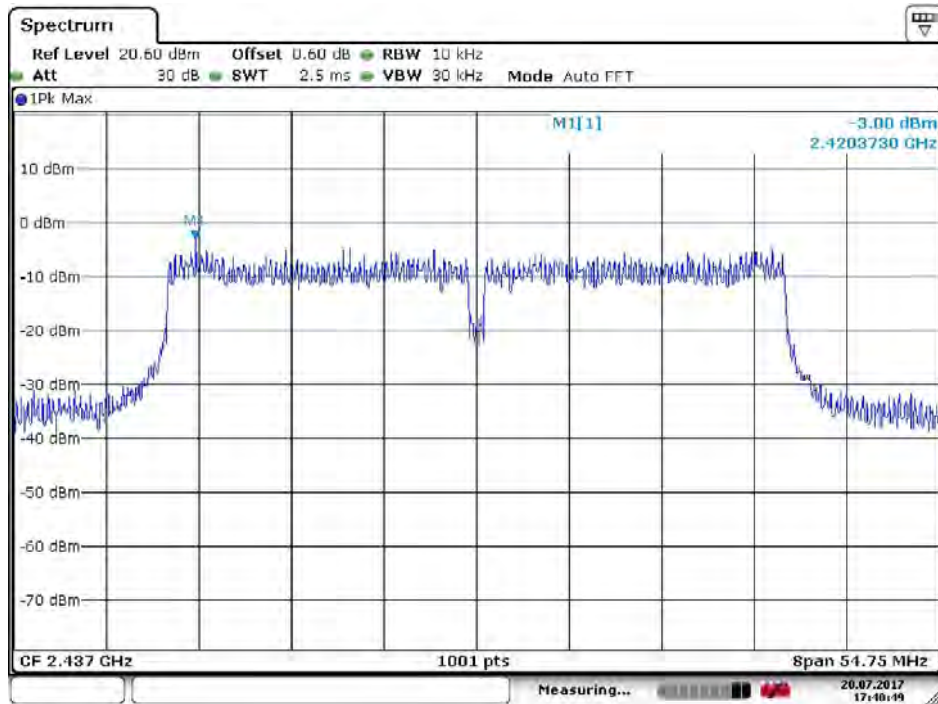
Channel No.	Frequency (MHz)	Chain	PPSD/MHz (dBm)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
03	2422.000	A	2.480	5.490	≤ 8dBm	Pass
		B	3.600	6.610	≤ 8dBm	Pass
06	2437.000	A	-3.000	0.010	≤ 8dBm	Pass
		B	-2.820	0.190	≤ 8dBm	Pass
09	2452.000	A	-0.210	2.800	≤ 8dBm	Pass
		B	1.880	4.890	≤ 8dBm	Pass

Figure Channel 3: (Chain A)



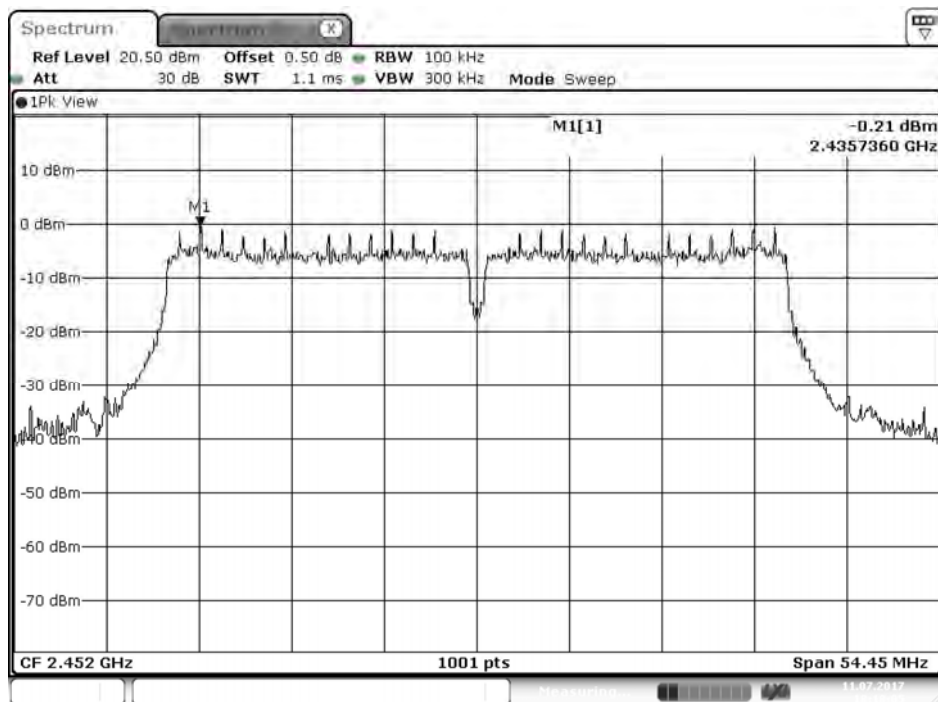
Date: 11. JUL 2017 18:06:52

Figure Channel 6: (Chain A)



Date: 20.JUL.2017 17:40:50

Figure Channel 9: (Chain A)



Date: 11.JUL.2017 18:18:06



Figure Channel 3: (Chain B)

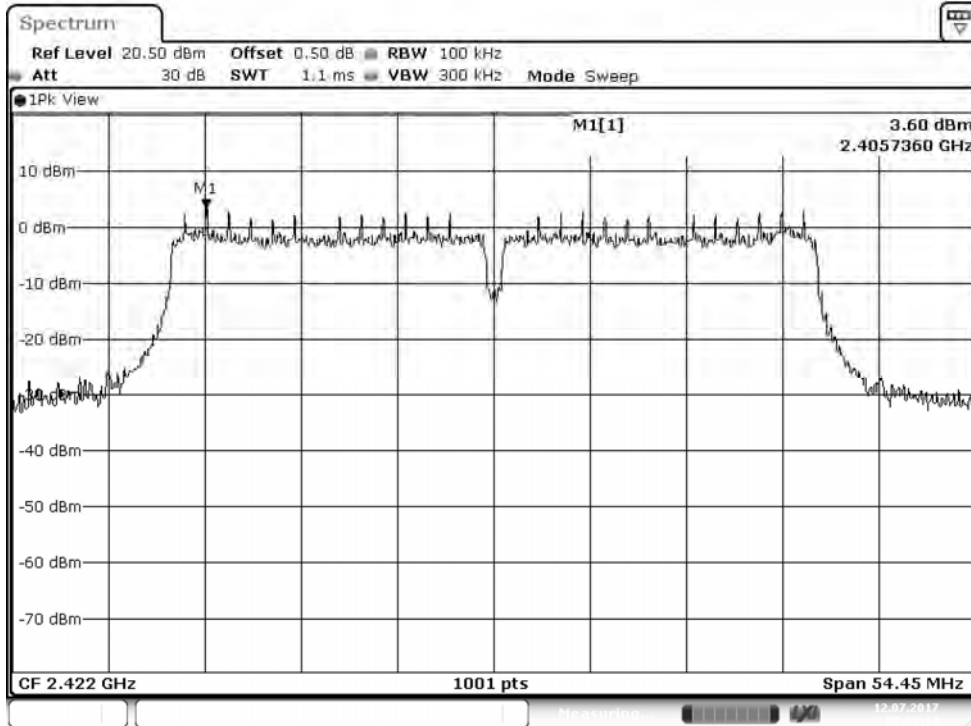
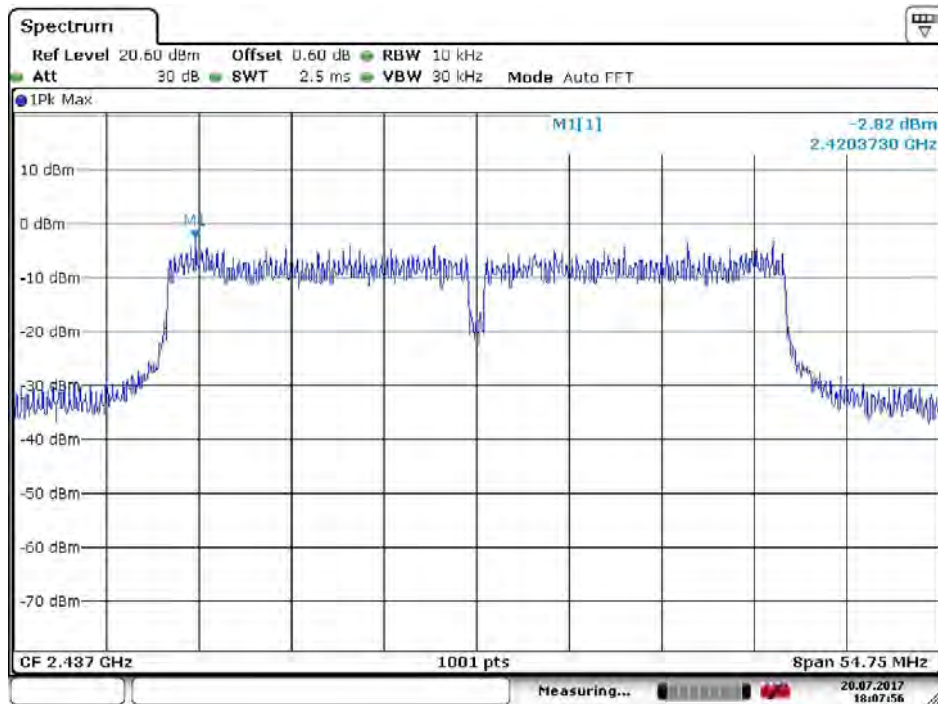
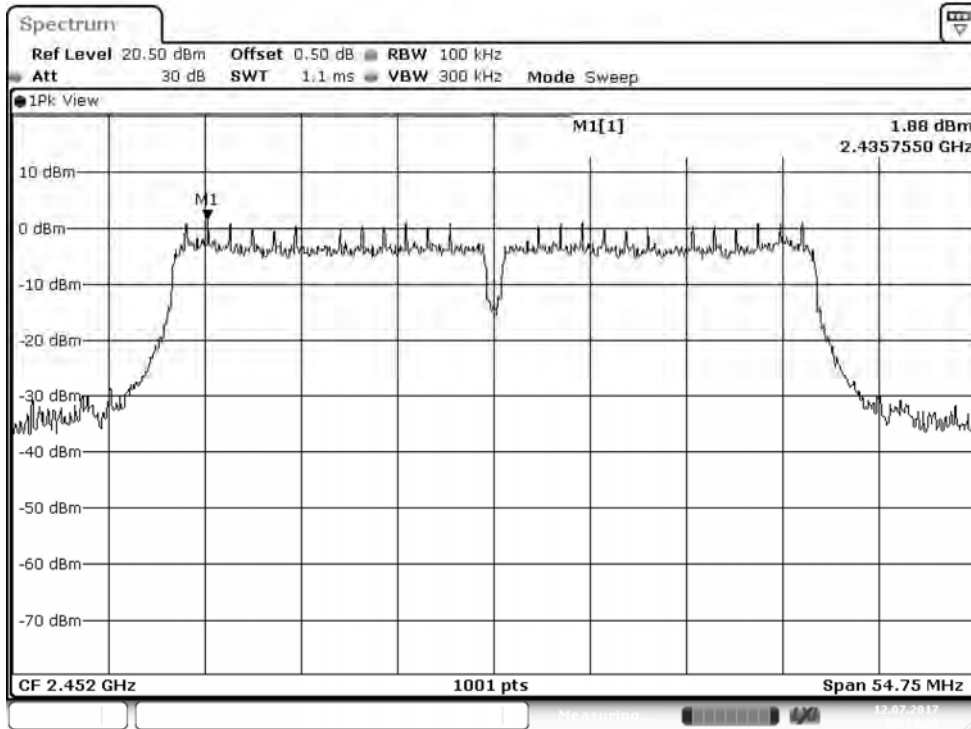


Figure Channel 6: (Chain B)



Date: 20 JUL 2017 18:07:56

Figure Channel 9: (Chain B)



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**9. EMI Reduction Method During Compliance Testing**

No modification was made during testing.