

# FCC Test Report

Product Name : Wireless N GPON HGU with 4-port GbE Switch

Model No. : GPT-2542GNU v2, PMG5318-B20A

FCC ID. : I88PMG5318B20A

Applicant : ZyXEL Communications Corporation

Address : No. 2, Gongye E. 9th Road, Hsinchu Science Park

Hsinchu, Taiwan

Date of Receipt : 2013/10/16

Issued Date : 2013/12/03

Report No. : 13A0306R-RFUSP42V01

Report Version : V1.0



The test results relate only to the samples tested.

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# Test Report Certification

Issued Date : 2013/12/03

Report No. : 13A0306R-RFUSP42V01



Product Name : Wireless N GPON HGU with 4-port GbE Switch

Applicant : ZyXEL Communications Corporation

Address : No. 2, Gongye E. 9th Road, Hsinchu Science Park Hsinchu,  
Taiwan

Manufacturer : (1) MitraStar Technology Corporation  
(2) WuXi MitraStar Technology Co. Ltd.  
(3) SHENZHEN TORCH EQUIPMENT CO., LTD.

Model No. : GPT-2542GNU v2, PMG5318-B20A

FCC ID. : I88PMG5318B20A

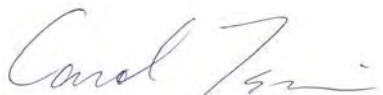
EUT Voltage : AC 100-240V, 50-60Hz

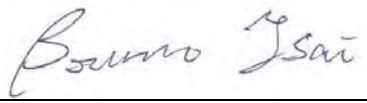
Trade Name : MitraStar, ZyXEL


Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2012  
ANSI C63.4: 2009

Test Result : Complied

The test results relate only to the samples tested.  
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Documented By :   
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( Bruno Tsai / Assistant Engineer)

Approved By :   
( Roy Wang / Director )

## Laboratory Information

We, **QuieTek Corporation**, are an independent RF consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025 specified testing scopes:

<b>Taiwan R.O.C.</b>	<b>: TAF, Accreditation Number: 1313</b>
<b>USA</b>	<b>: FCC, Registration Number: 365520</b>
<b>Canada</b>	<b>: IC, Submission No: 150981</b>

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site:<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site :  
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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## 1. General Information

### 1.1. EUT Description

Product Name	Wireless N GPON HGU with 4-port GbE Switch	
Product Type	WLAN (2TX, 2RX)	
FCC ID.	I88PMG5318B20A	
Trade Name	MitraStar, ZyXEL	
Model No.	GPT-2542GNU v2, PMG5318-B20A	
Frequency Range/ Channel Number	IEEE 802.11b/g/ IEEE 802.11n (20MHz)	2412~2462MHz / 11 Channels
	IEEE 802.11n (40MHz)	2422~2452MHz / 7 Channels
Type of Modulation	IEEE 802.11b	Direct Sequence Spread Spectrum
	IEEE 802.11g/n	Orthogonal Frequency Division Multiplexing
Data Speed	IEEE 802.11b	1, 2, 5.5, 11Mbps
	IEEE 802.11g	6, 9, 18, 24, 36, 48,54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 15 and bandwidth defined in 802.11n
Antenna Gain	Ant0 : 2.3dBi (Right Antenna-PCB085) , Ant1: 2.7dBi (Left Antenna)	
Antenna Type	Ant0 : PCB Antenna Ant1 : Printed Antenna	

Component	
RJ45 Cable	Non-Shielded, 1.8m
RJ11 Cable	Non-Shielded, 1.8m
Power Adapter	DVE, DSA-18PFG-12 FUS 120150 I/P: 100-240V~ 50/60Hz 0.6A O/P: +12V === 1.5A Cable Out: Non-Shielded, 2m
Power Adapter	YINGJU, YJS018I-1201500U I/P: 100-240V~ 50/60Hz 500mA O/P: 12.0V === 1500mA Cable Out: Non-Shielded, 2m

**ANT-TX / RX & Bandwidth**

ANT-TX / RX	TX		RX	
	20MHz	40MHz	20MHz	40MHz
IEEE802.11b	✓	✓	✓	✓
IEEE802.11g	✓	✓	✓	✓
IEEE802.11n	✓	✓	✓	✓

**(2TX / 2RX)**



## IEEE802.11n

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 2 – MCS parameters for TX Antenna number = 2

Symbol	Explanation
R	Code rate
N <sub>BPSC</sub>	Number of coded bits per single carrier
N <sub>CBPS</sub>	Number of coded bits per symbol
N <sub>DBPS</sub>	Number of data bits per symbol
GI	guard interval



IEEE 802.11b/g & IEEE 802.11n (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz		

IEEE 802.11n (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
003	2422 MHz	004	2427 MHz	005	2432 MHz	006	2437 MHz
007	2442 MHz	008	2447 MHz	009	2452 MHz		

Note:

1. This device is an Wireless N GPON HGU with 4-port GbE Switch including 2.4GHz 11b/g and 11n (2x2) transmitting and receiving function.
2. The different of the each model is shown as below:

Model Number	Brand
GPT-2542GNU v2	MitraStar
PMG5318-B20A	ZyXEL

3. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
4. Regards to the frequency band operation; the lowest , middle and highest frequency of channel were selected to perform the test, and then shown on this report.
5. This device is a composite device in accordance with Part 15 regulations. The receiving function receiving was tested and its test report number is 13A0306R-RFUSP37V02 under Declaration of Conformity.

**1.3. Mode of Operation**

Quietek has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

TX	Mode 1: Transmit (Power Adapter: YINGJU) Mode 2: Transmit (Power Adapter: DVE)
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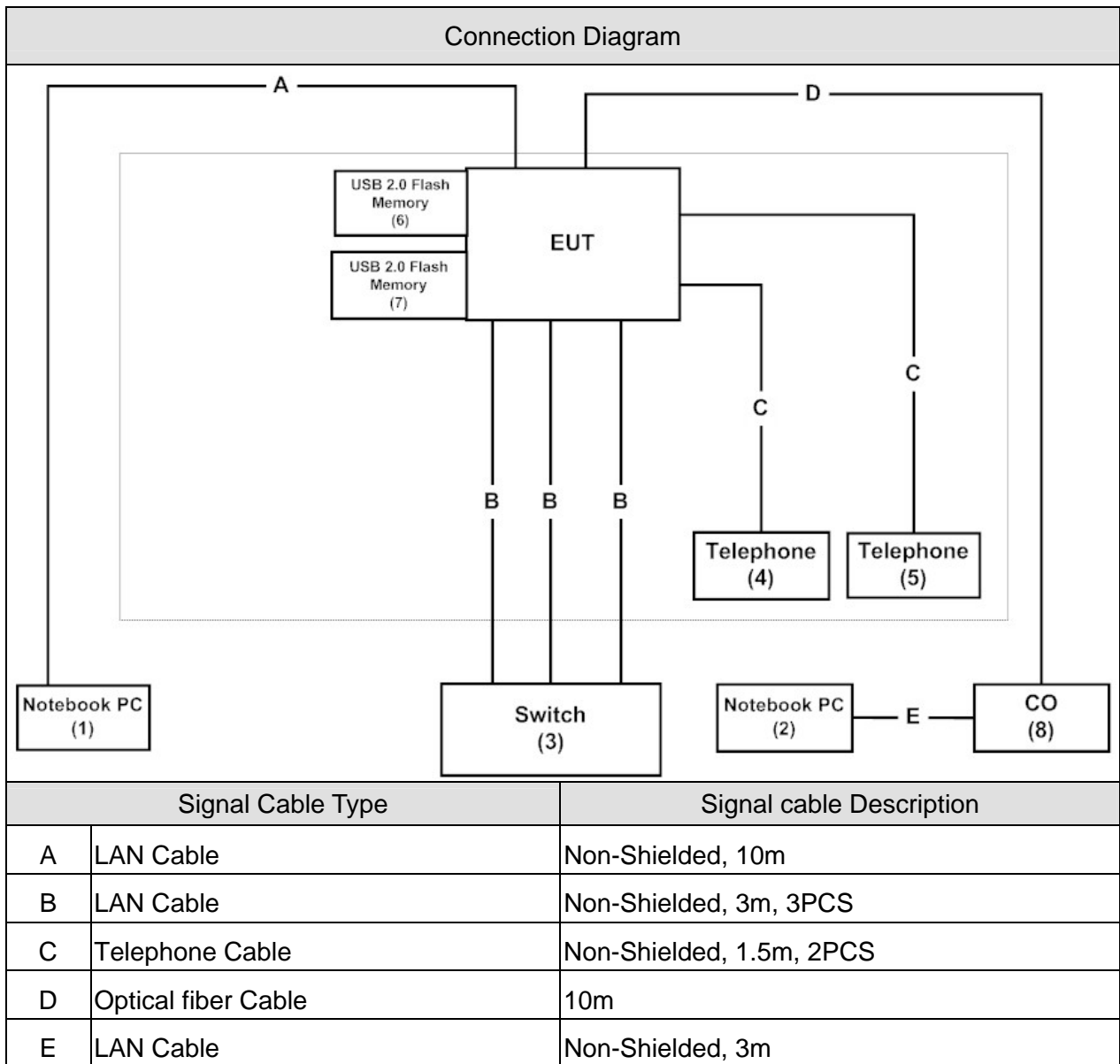
Test Items	Modulation	Antenna	Channel	Result
Conducted Emission	11n(40MHz)	0+1	6	Complies
Peak Power Output	b	0	1/ 6/ 11	Complies
	g	0	1/ 6/ 11	Complies
	11n(20MHz)	0+1	1/ 6/ 11	Complies
	11n(40MHz)	0+1	3/ 6/ 9	Complies
Radiated Emission	b	0	1/ 6/ 11	Complies
	g	0	1/ 6/ 11	Complies
	11n(20MHz)	0+1	1/ 6/ 11	Complies
	11n(40MHz)	0+1	3/ 6/ 9	Complies
RF antenna conducted test	b	0	1/ 11	Complies
	g	0	1/ 11	Complies
	11n(20MHz)	0/1	1/ 11	Complies
	11n(40MHz)	0/1	3/ 9	Complies
Radiated Emission Band Edge	b	0	1/ 11	Complies
	g	0	1/ 11	Complies
	11n(20MHz)	0+1	1/ 11	Complies
	11n(40MHz)	0+1	3/ 9	Complies
Occupied Bandwidth	b	0	1/ 6/ 11	Complies
	g	0	1/ 6/ 11	Complies
	11n(20MHz)	0/1	1/ 6/ 11	Complies
	11n(40MHz)	0/1	3/ 6/ 9	Complies
Power Density	b	0	1/ 6/ 11	Complies
	g	0	1/ 6/ 11	Complies
	11n(20MHz)	0+1	1/ 6/ 11	Complies
	11n(40MHz)	0+1	3/ 6/ 9	Complies

## 1.4. Tested System Details

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

Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1 Notebook PC	ASUS	A43S	C3N0BC33090613C	DoC	Non-Shielded, 1.8m, one ferrite core bonded
2 Notebook PC	ASUS	A43S	C3N0BC33665313C	DoC	Non-Shielded, 1.8m, one ferrite core bonded
3 Switch	D-Link	DGS1216T	F360298000042	DoC	Non-Shielded, 1.8m
4 Telephone	TENDEL	K-302	41230008000365	DoC	--
5 Telephone	TENDEL	K-302	50721005000521	DoC	--
6 USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
7 USB 2.0 Flash Memory	Apacer	AH223	N/A	DoC	--
8 CO	ZyXEL	OLT-1516S	N/A	DoC	Non-Shielded, 1.8m

1.5. Configuration of Tested System



## 1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Turn on the power of all equipment.
3	Execute the telnet command to control the EUT.
4	Configure the test mode, the test channel, and the data rate.
5	Press "TX command" to start the continuous transmitting.
6	Verify that the EUT works properly.

**1.7. Test Facility**

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 RF antenna conducted test	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Band Edge	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Occupied Bandwidth	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Power Density	15 - 35	25
Humidity (%RH)		25 - 75	45
Barometric pressure (mbar)		860 - 1060	950-1000

## 2. Conducted Emission

### 2.1. Test Equipment

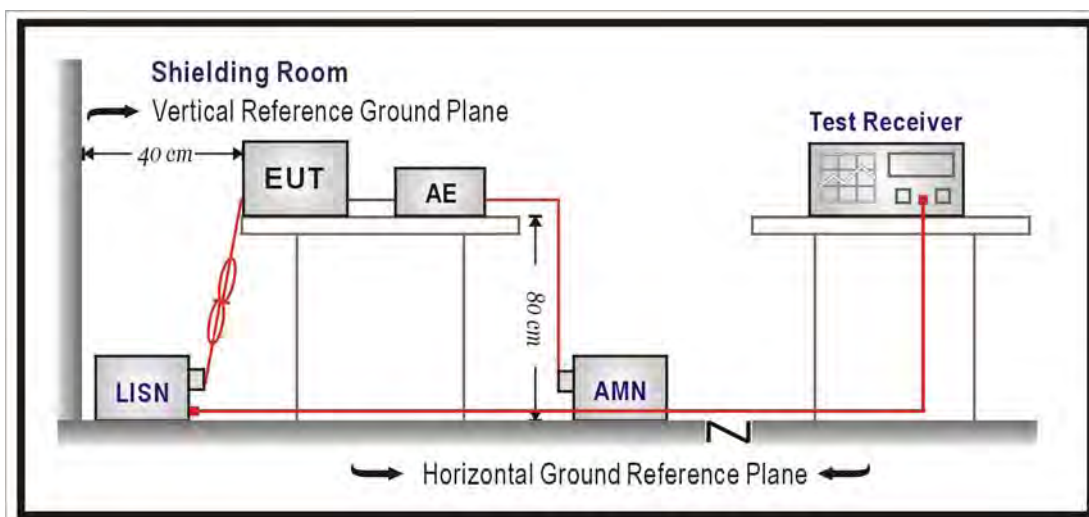
The following test equipments are used during the test:

Conducted Emission / SR3

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
LISN	R&S	ENV216	100096	2014/08/01
LISN	R&S	ESH3-Z5	836679/022	2014/01/20
Test Receiver	R&S	ESCS 30	825442/017	2014/01/01

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

### 2.2. Test Setup



**2.3. Limit**

<b>FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)</b>		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

**2.4. Test Procedure**

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

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

**2.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.207: 2012

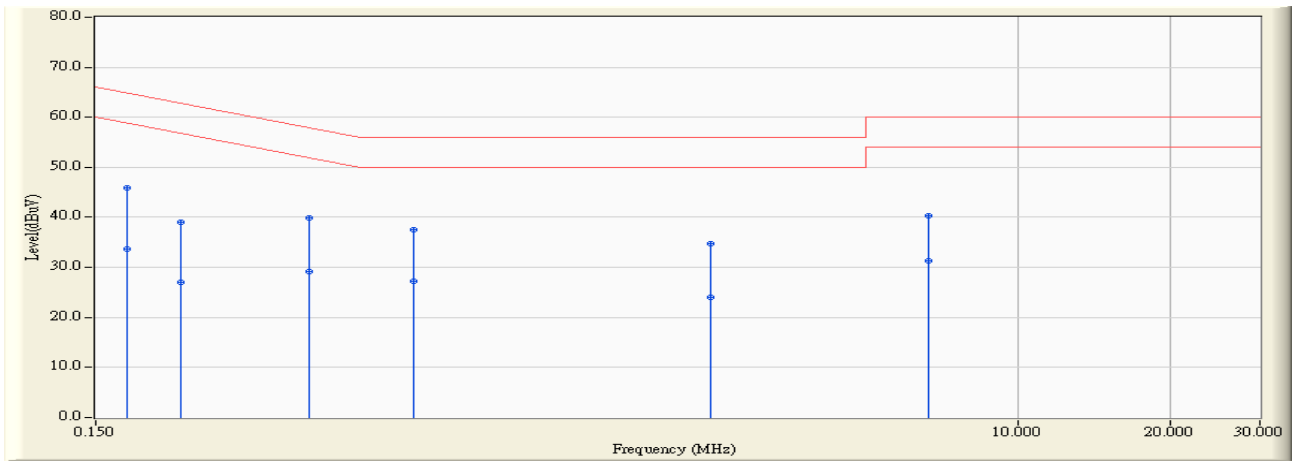
**2.6. Uncertainty**

The measurement uncertainty is defined as  $\pm 2.26$  dB.



2.7. Test Result

Site : SR3	Time : 2013/11/28 - 09:49
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line1	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MH7MHz

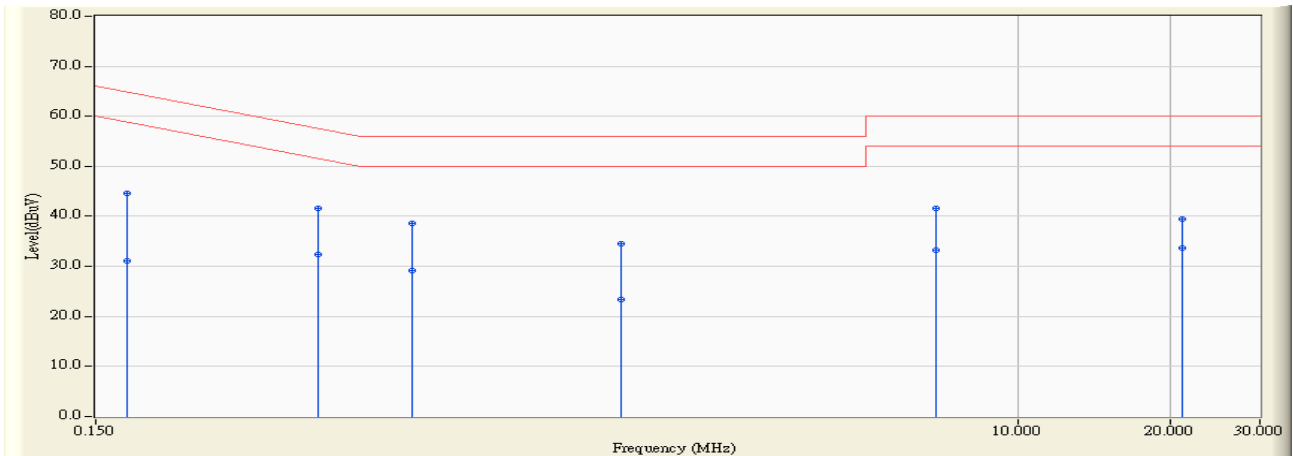


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.173	9.645	36.300	45.945	-18.849	64.794	QUASIPeAK
2		0.173	9.645	24.030	33.675	-21.119	54.794	AVERAGE
3		0.220	9.671	29.300	38.971	-23.836	62.807	QUASIPeAK
4		0.220	9.671	17.430	27.101	-25.706	52.807	AVERAGE
5	*	0.396	9.769	30.220	39.989	-17.946	57.935	QUASIPeAK
6		0.396	9.769	19.370	29.139	-18.796	47.935	AVERAGE
7		0.638	9.860	27.750	37.610	-18.390	56.000	QUASIPeAK
8		0.638	9.860	17.450	27.310	-18.690	46.000	AVERAGE
9		2.462	9.988	24.840	34.828	-21.172	56.000	QUASIPeAK
10		2.462	9.988	14.030	24.018	-21.982	46.000	AVERAGE
11		6.642	10.110	30.180	40.290	-19.710	60.000	QUASIPeAK
12		6.642	10.110	21.200	31.310	-18.690	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2013/11/28 - 10:11
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line2	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MH7MHz

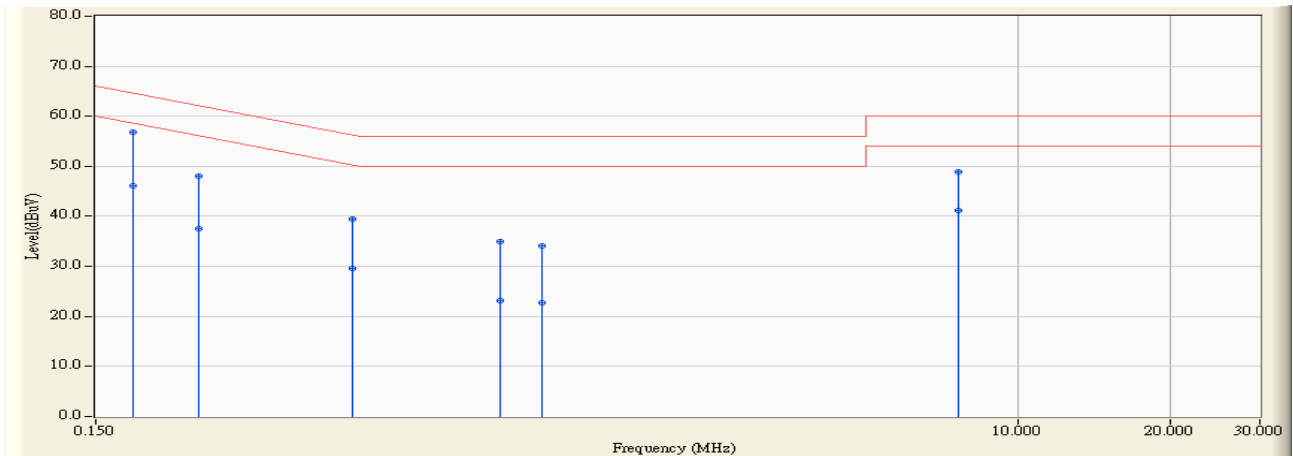


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.173	9.645	35.070	44.715	-20.079	64.794	QUASPEAK
2		0.173	9.645	21.370	31.015	-23.779	54.794	AVERAGE
3		0.412	9.769	31.920	41.689	-15.925	57.614	QUASPEAK
4	*	0.412	9.769	22.580	32.349	-15.265	47.614	AVERAGE
5		0.634	9.849	28.780	38.629	-17.371	56.000	QUASPEAK
6		0.634	9.849	19.230	29.079	-16.921	46.000	AVERAGE
7		1.642	9.940	24.620	34.560	-21.440	56.000	QUASPEAK
8		1.642	9.940	13.390	23.330	-22.670	46.000	AVERAGE
9		6.877	10.100	31.480	41.580	-18.420	60.000	QUASPEAK
10		6.877	10.100	23.160	33.260	-16.740	50.000	AVERAGE
11		21.123	10.320	29.130	39.450	-20.550	60.000	QUASPEAK
12		21.123	10.320	23.450	33.770	-16.230	50.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2013/11/28 - 10:30
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line1	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n40MHz_2437MH7MHz

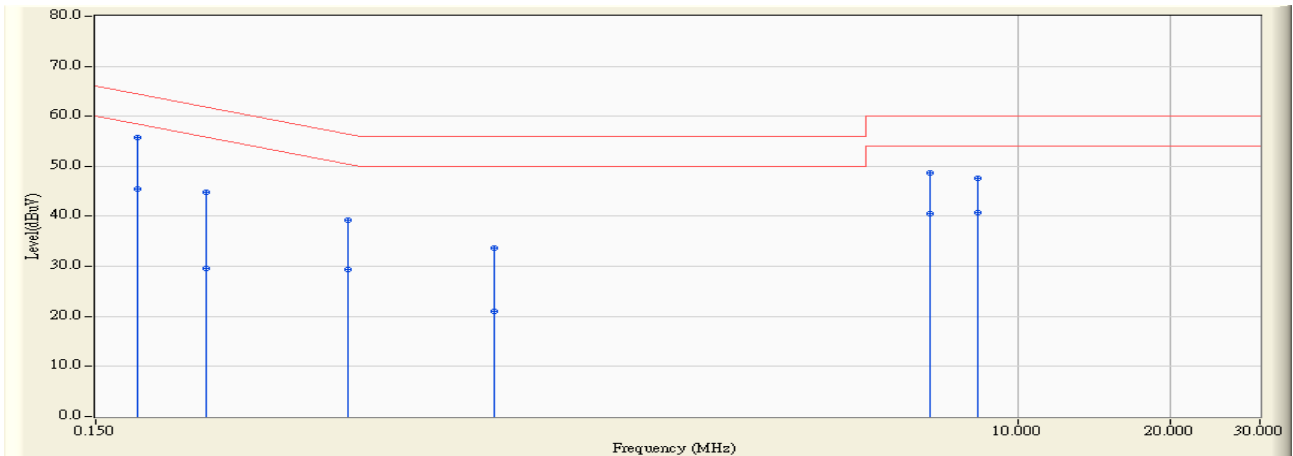


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.177	9.646	47.270	56.916	-7.693	64.609	QUASIPeAK
2		0.177	9.646	36.400	46.046	-8.563	54.609	AVERAGE
3		0.240	9.684	38.430	48.114	-13.988	62.102	QUASIPeAK
4		0.240	9.684	27.850	37.534	-14.568	52.102	AVERAGE
5		0.482	9.818	29.740	39.558	-16.746	56.304	QUASIPeAK
6		0.482	9.818	19.880	29.698	-16.606	46.304	AVERAGE
7		0.943	9.930	25.010	34.940	-21.060	56.000	QUASIPeAK
8		0.943	9.930	13.160	23.090	-22.910	46.000	AVERAGE
9		1.142	9.940	24.260	34.200	-21.800	56.000	QUASIPeAK
10		1.142	9.940	12.700	22.640	-23.360	46.000	AVERAGE
11		7.615	10.110	38.700	48.810	-11.190	60.000	QUASIPeAK
12		7.615	10.110	31.070	41.180	-8.820	50.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : SR3	Time : 2013/11/28 - 10:34
Limit : CISPR_B_00M_QP	Margin : 6
Probe : SR3_LISN(16A)-3_0813 - Line2	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n40MHz_2437MH7MHz



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.181	9.647	46.210	55.857	-8.571	64.428	QUASIPeAK
2		0.181	9.647	35.780	45.427	-9.001	54.428	AVERAGE
3		0.248	9.689	35.210	44.899	-16.936	61.835	QUASIPeAK
4		0.248	9.689	20.010	29.699	-22.136	51.835	AVERAGE
5		0.474	9.805	29.440	39.245	-17.195	56.440	QUASIPeAK
6		0.474	9.805	19.610	29.415	-17.025	46.440	AVERAGE
7		0.920	9.914	23.740	33.654	-22.346	56.000	QUASIPeAK
8		0.920	9.914	11.120	21.034	-24.966	46.000	AVERAGE
9		6.673	10.100	38.490	48.590	-11.410	60.000	QUASIPeAK
10		6.673	10.100	30.460	40.560	-9.440	50.000	AVERAGE
11		8.338	10.127	37.570	47.697	-12.303	60.000	QUASIPeAK
12		8.338	10.127	30.640	40.767	-9.233	50.000	AVERAGE

**Note:**

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

### 3. Peak Power Output

#### 3.1. Test Equipment

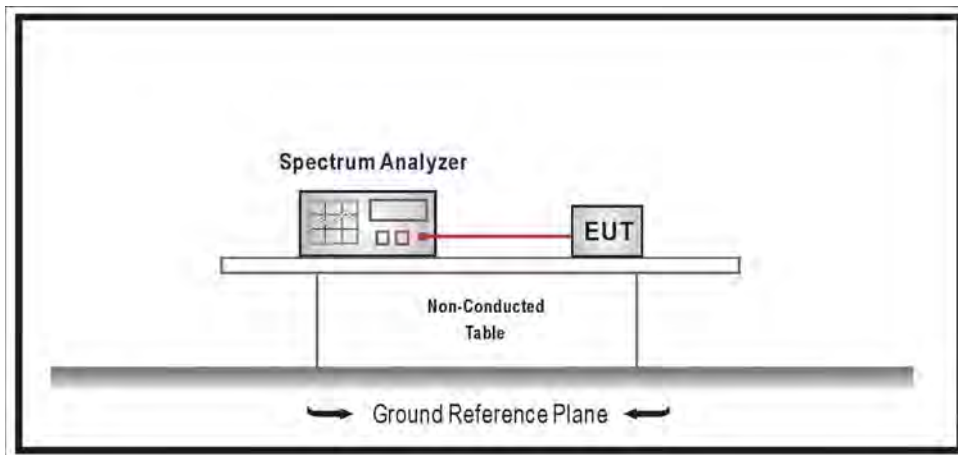
The following test equipments are used during the test:

Peak Power / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

#### 3.2. Test Setup



#### 3.3. Limit

The maximum peak power shall be less 1 Watt.

#### 3.4. Test Procedure

The EUT was tested according to DTS test procedure section 9.1.2 of KDB558074 v03r01 measurement to FCC 47CFR 15.247 requirements. Set the RBW=1MHz, Set the VBW  $\geq 3 \times$  RBW, Sweep Time=Auto, Set Peak Detector.

#### 3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

#### 3.6. Uncertainty

The measurement uncertainty is defined as  $\pm 1.27$  dB.

**3.7. Test Result**

Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

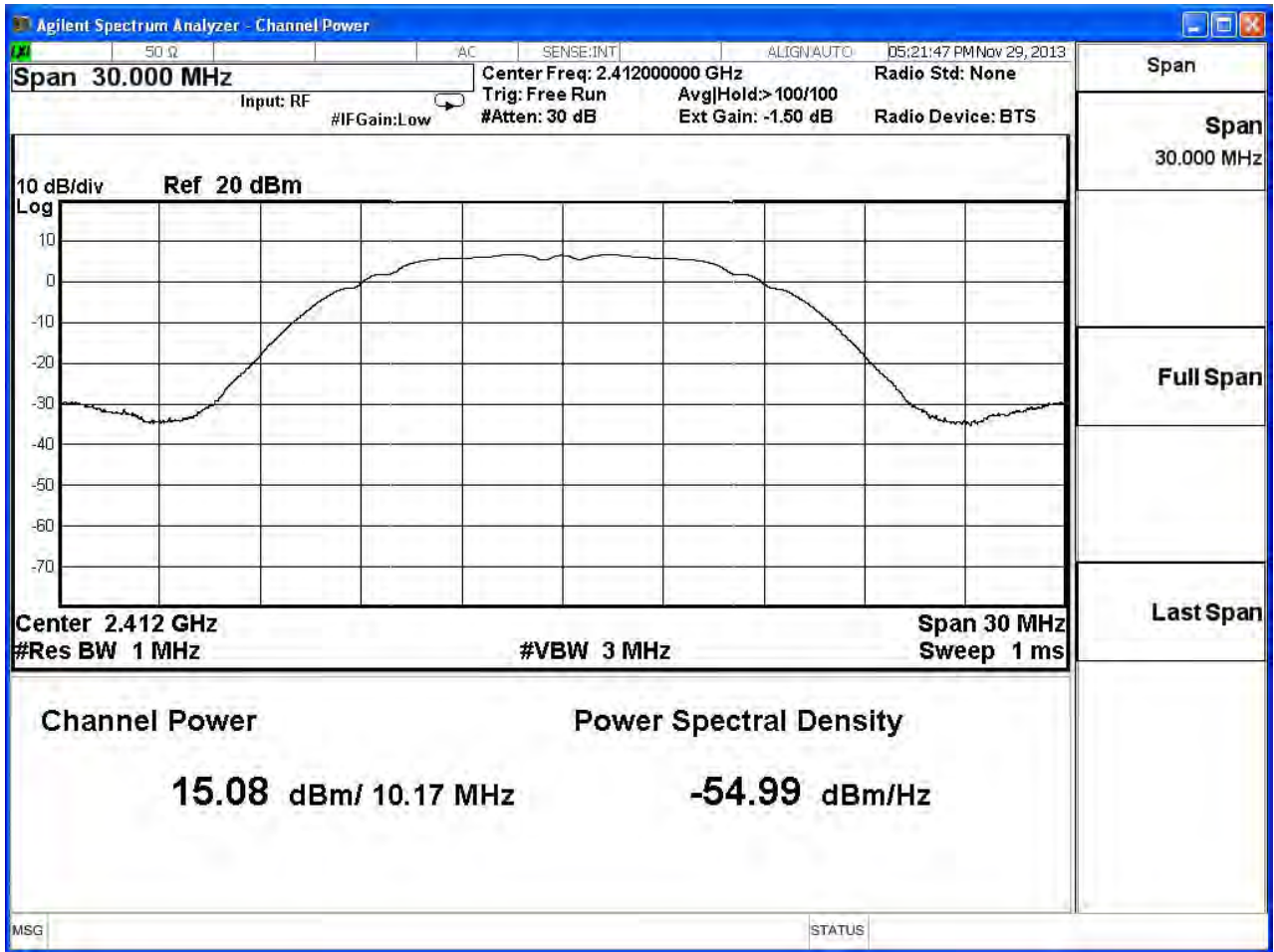
IEEE 802.11b				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	15.08	≤ 30	Pass
6	2437	15.32	≤ 30	Pass
11	2462	15.15	≤ 30	Pass

The worst emission of data rate is 1Mbps.

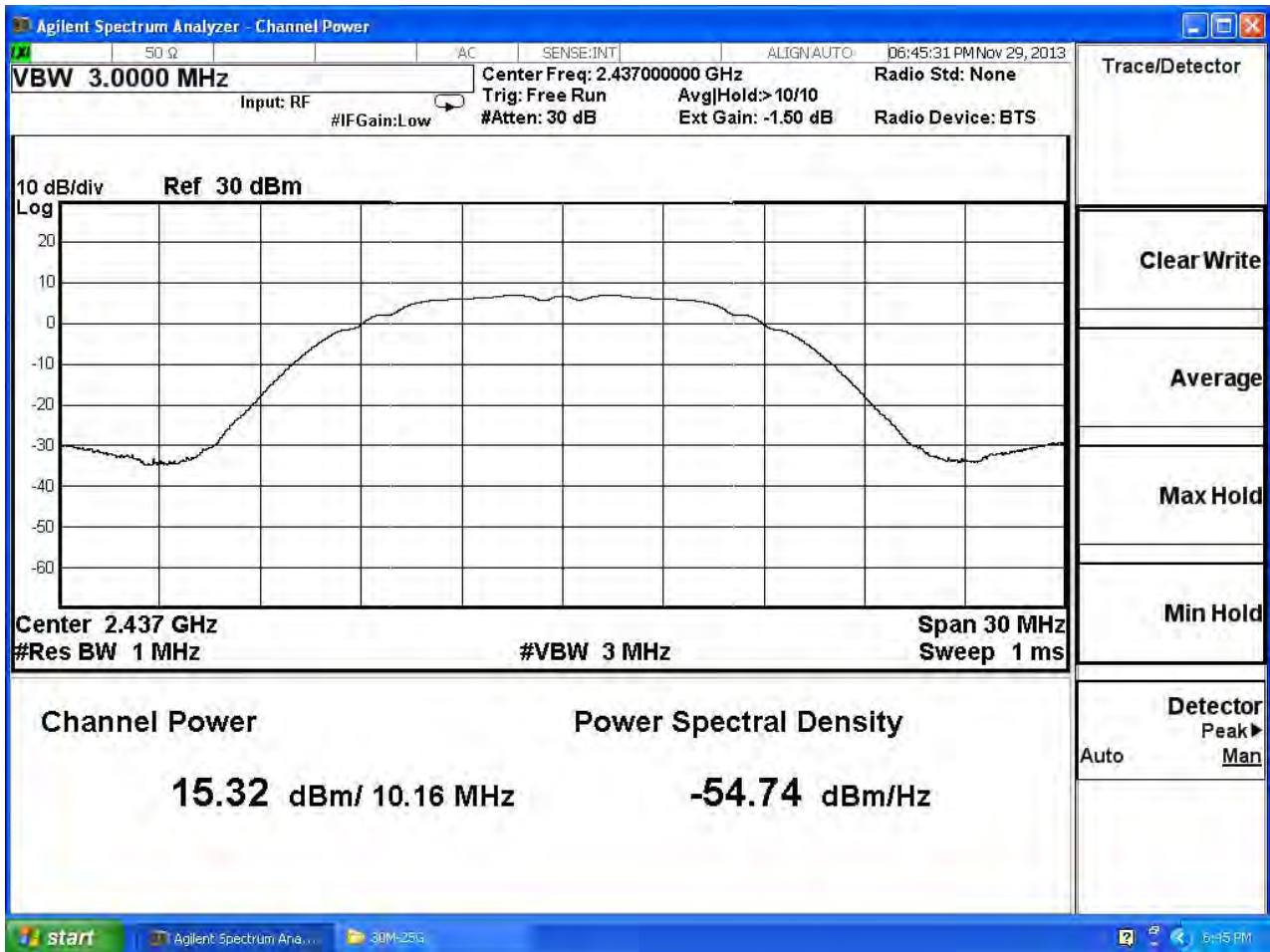
Peak Power Output Value(dBm)						
Channel No.	Frequency (MHz)	Data Rate (Mbps)				Required Limit
		1	2	5.5	11	
1	2412	15.08	--	--	--	1 Watt=30dBm
6	2437	15.32	15.12	15.00	14.78	1 Watt=30dBm
11	2462	15.15	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

**Channel 1**

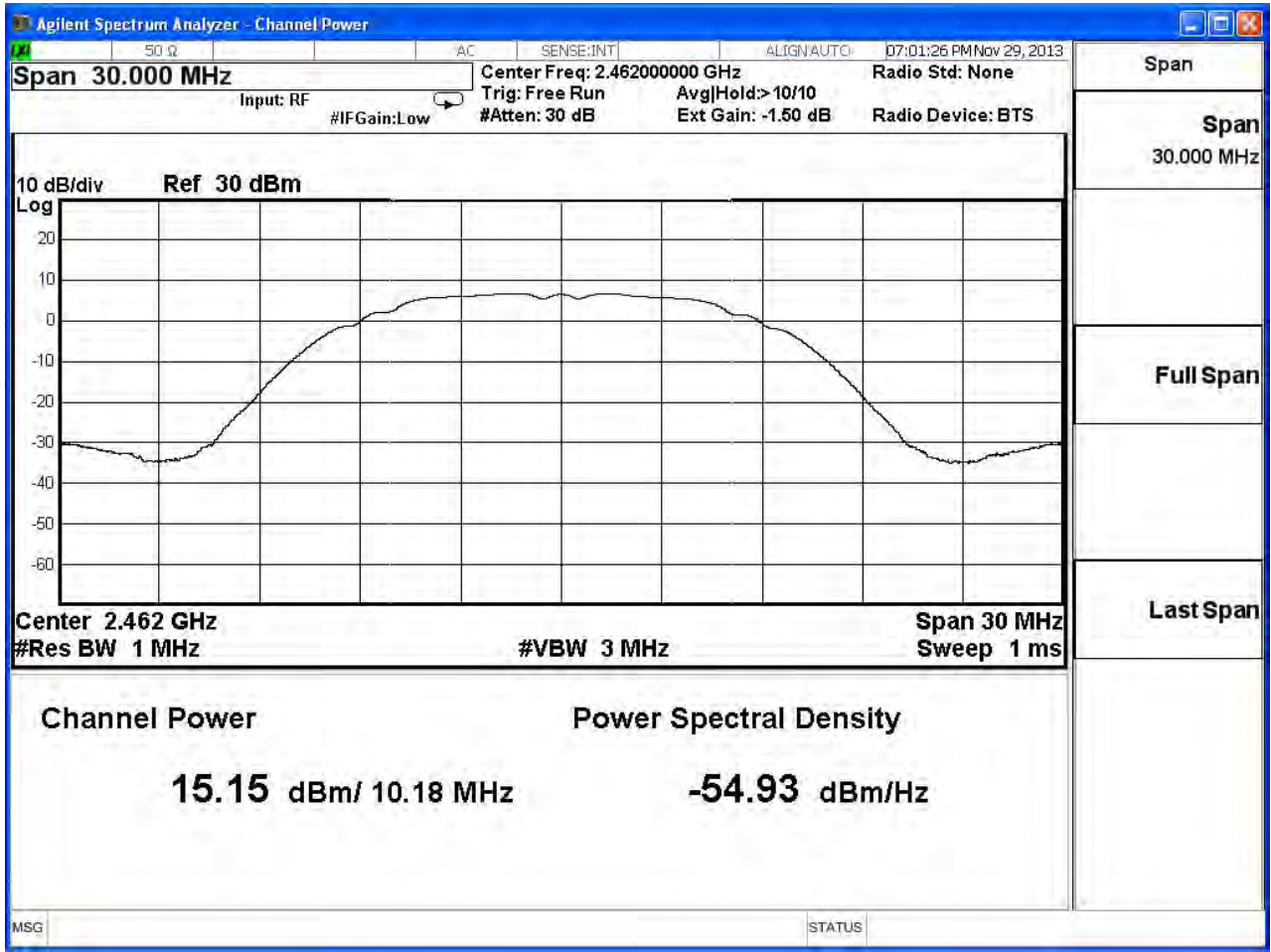


**Channel 6**





Channel 11



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

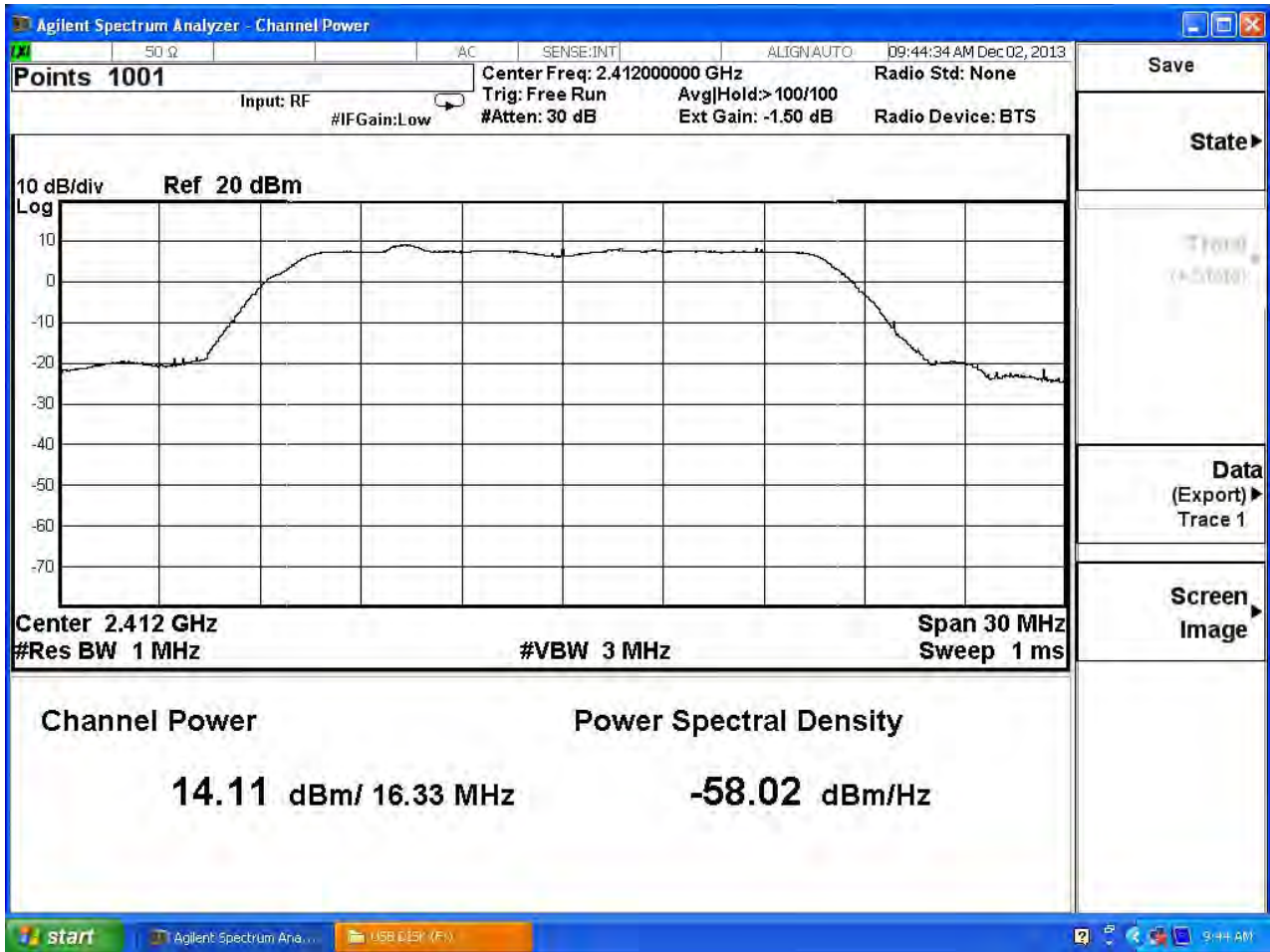
IEEE 802.11g				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	14.11	≤ 30	Pass
6	2437	15.51	≤ 30	Pass
11	2462	16.14	≤ 30	Pass

The worst emission of data rate is 6Mbps.

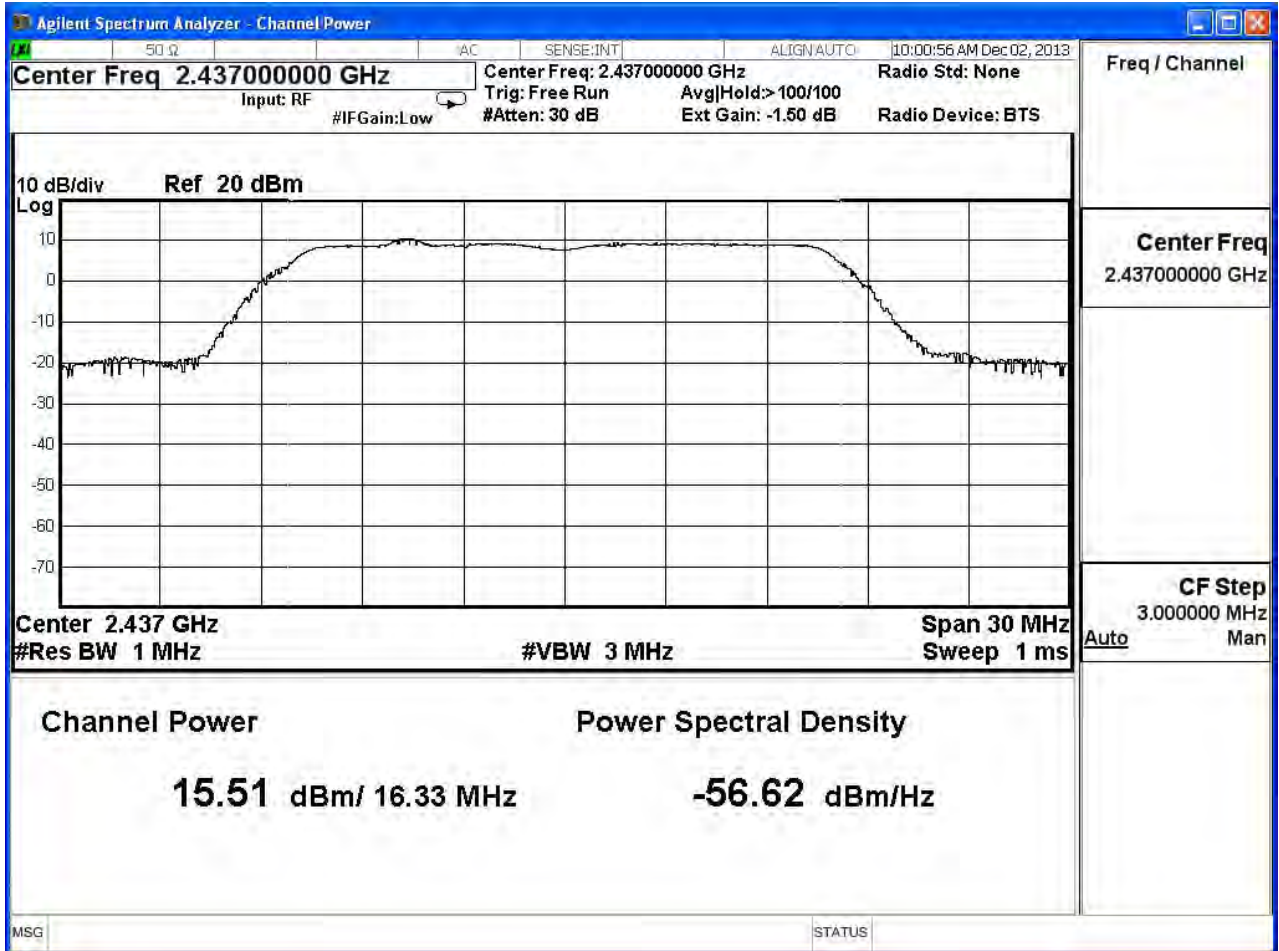
Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
1	2412	14.11	--	--	--	--	--	--	1 Watt=30dBm
6	2437	15.51	15.41	15.30	15.17	15.05	14.94	14.70	1 Watt=30dBm
11	2462	16.14	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

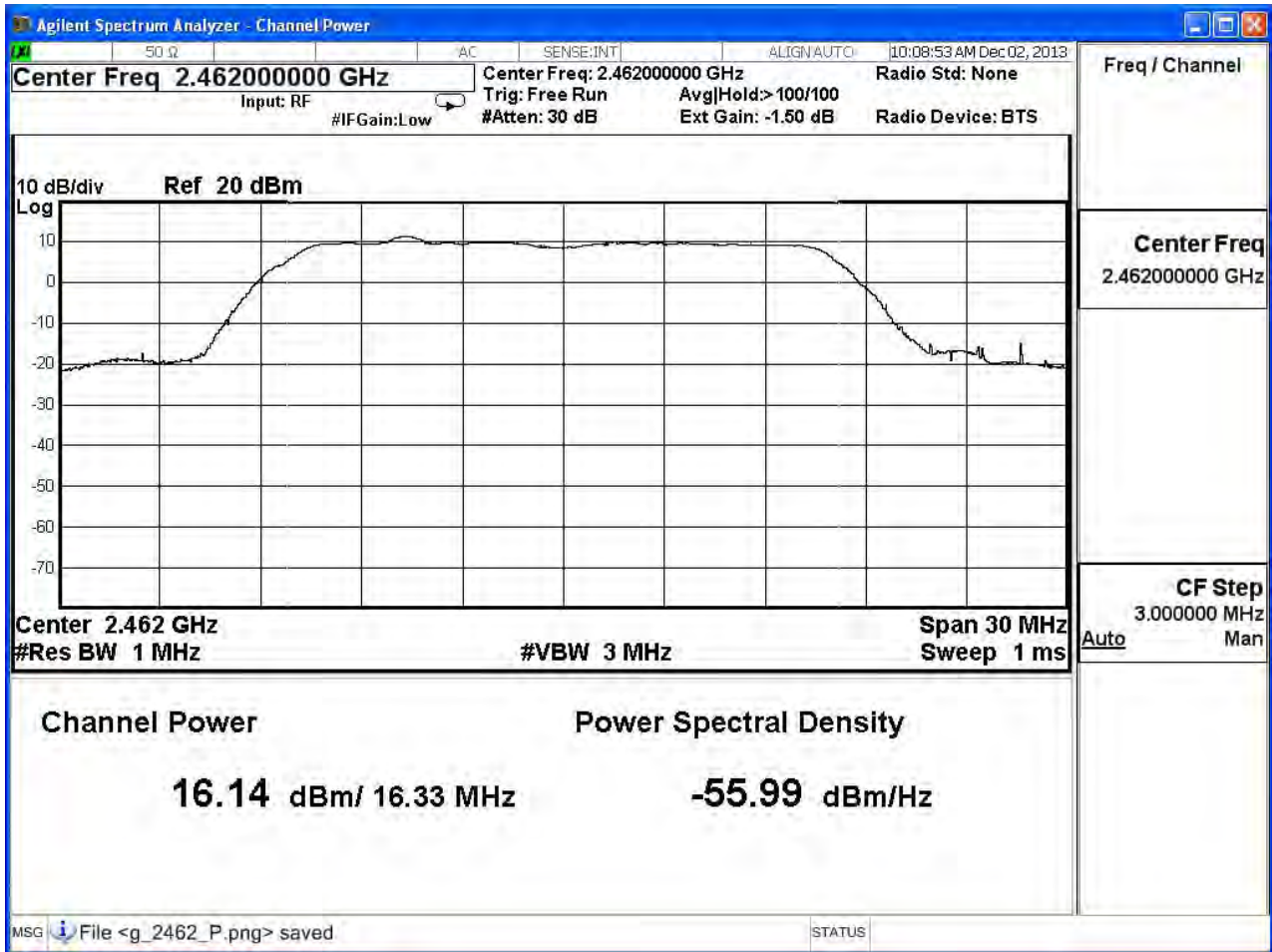
**Channel 1**



**Channel 6**



## Channel 11



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

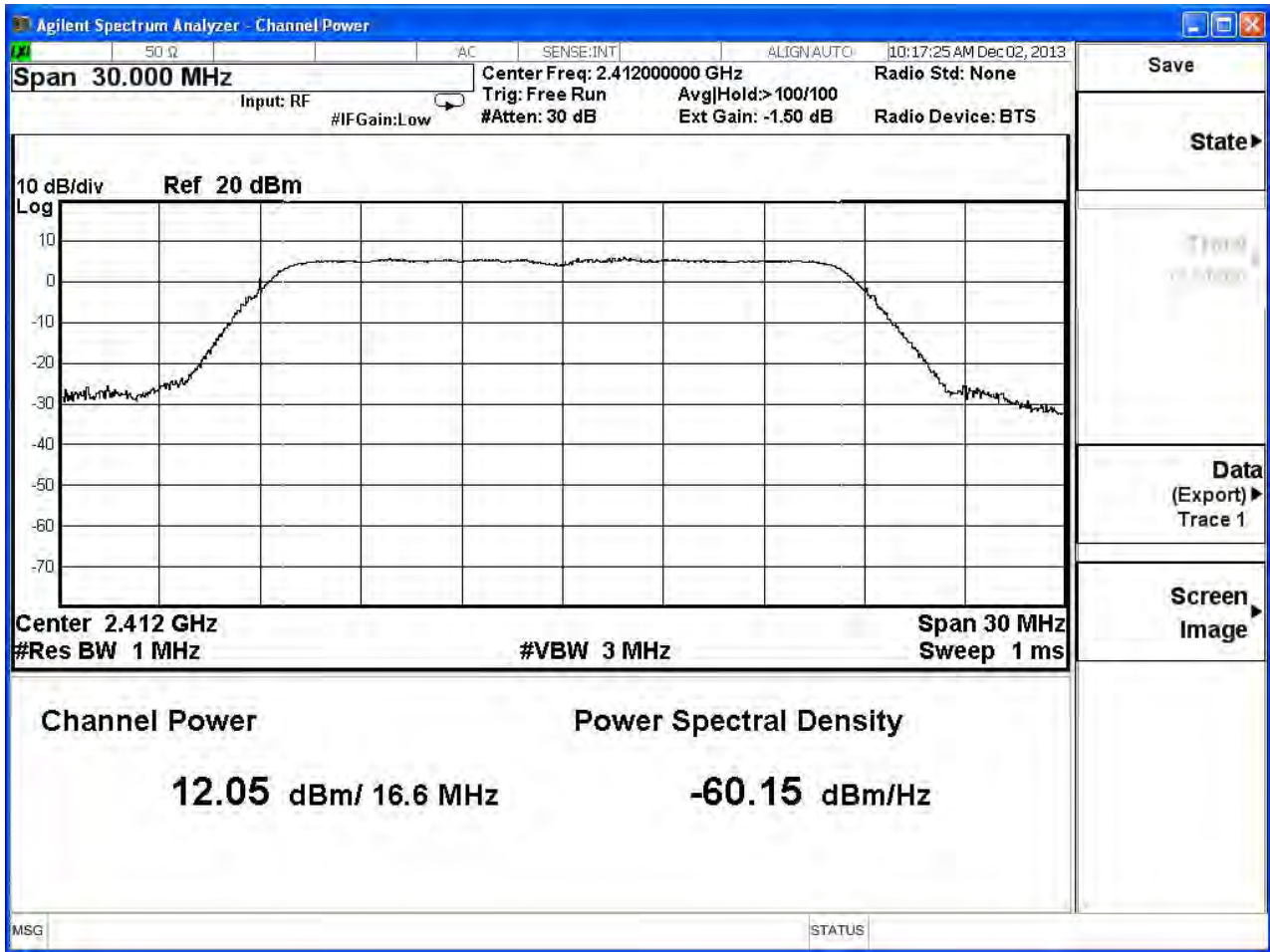
IEEE 802.11n 20MHz ANTO				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	12.05	≤ 30	Pass
6	2437	13.32	≤ 30	Pass
11	2462	13.69	≤ 30	Pass

The worst emission of data rate is 13Mbps.

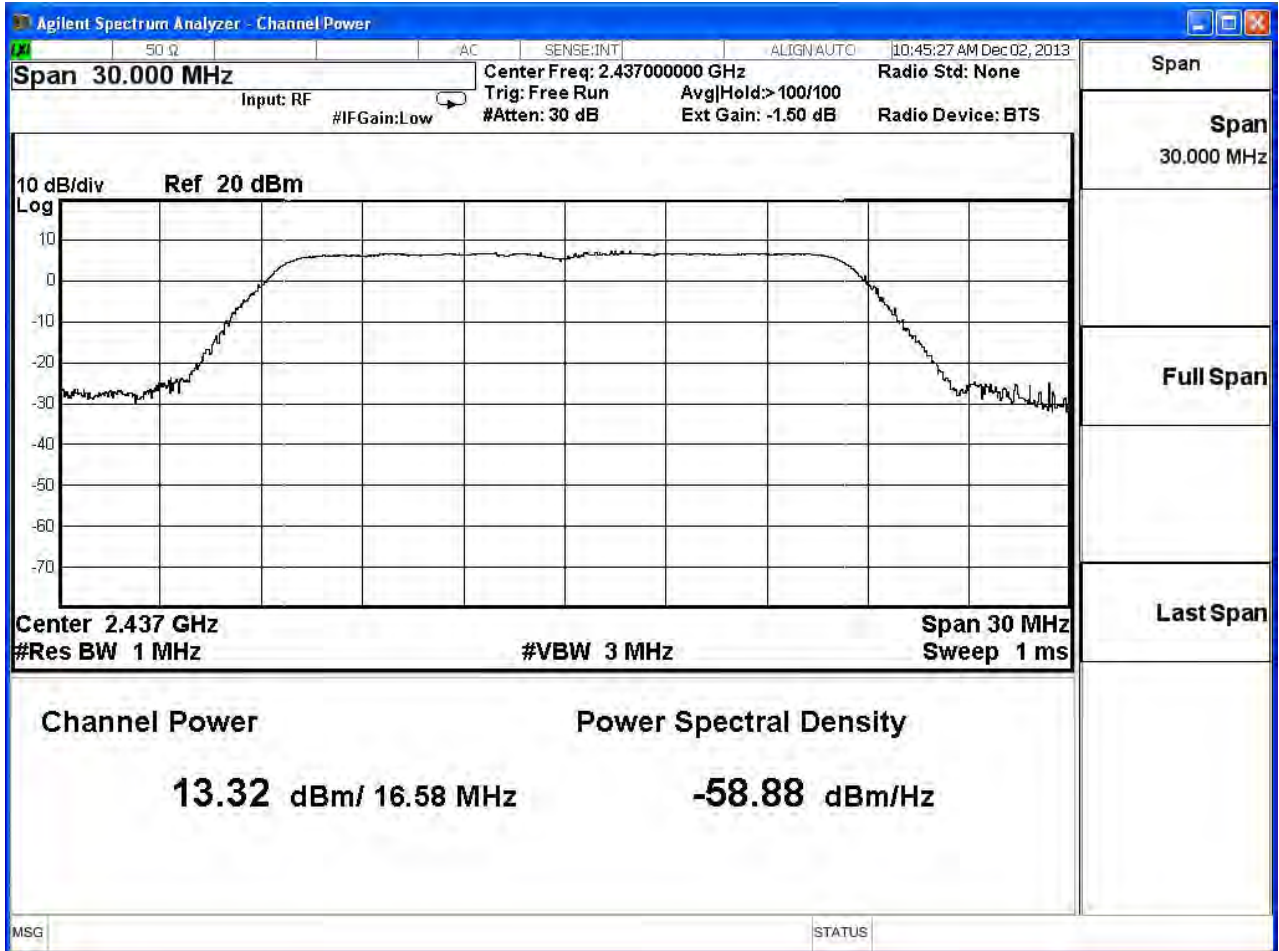
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
1	2412	12.05	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	13.32	13.08	12.88	12.77	12.51	12.39	12.15	12.04	1Watt=30dBm
11	2462	13.69	--	--	--	--	--	--	--	1Watt=30dBm

Note: Measure Level =Reading value + cable loss

**Channel 1**

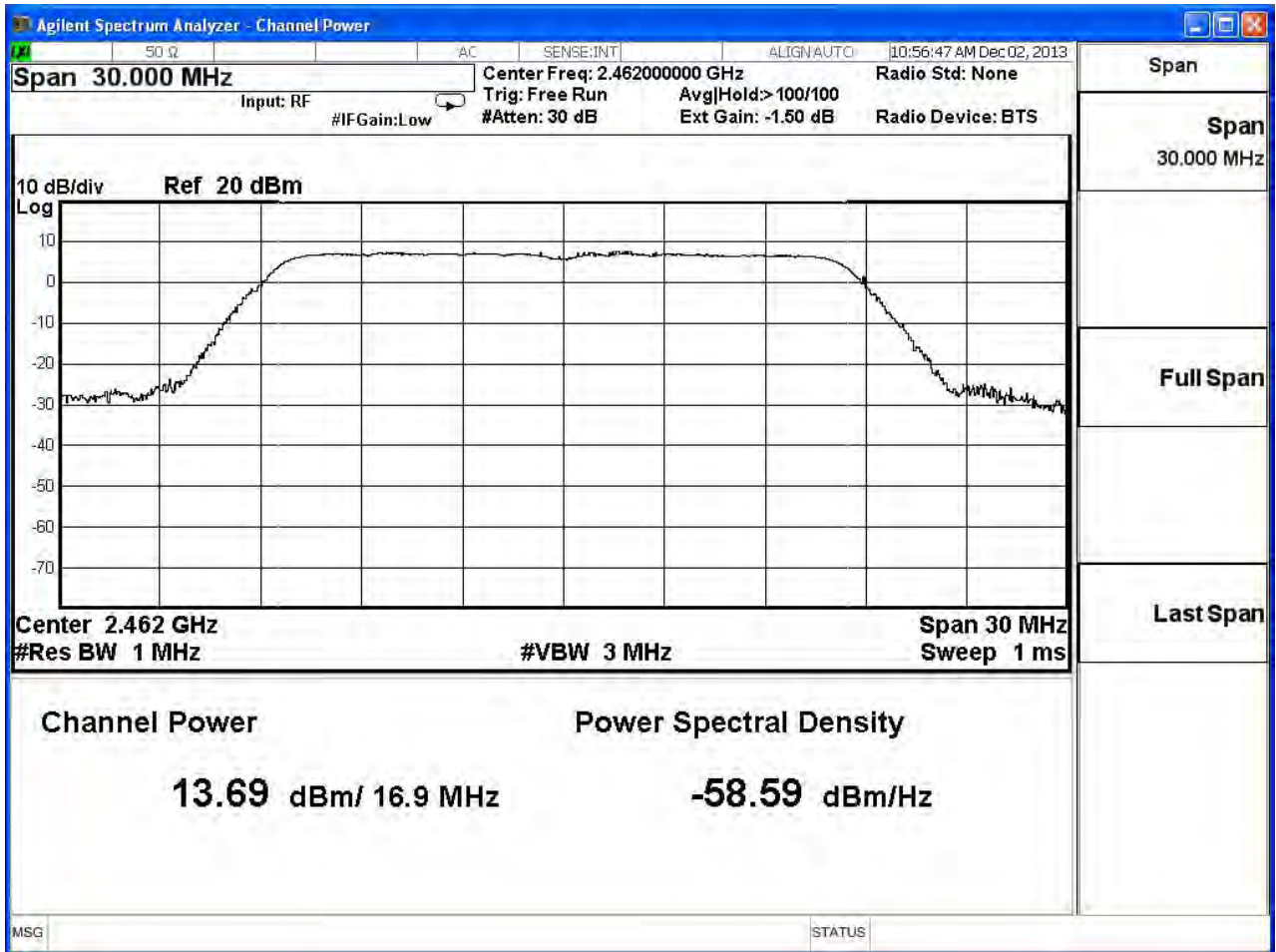


**Channel 6**





Channel 11



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

IEEE 802.11n 20MHz ANT1

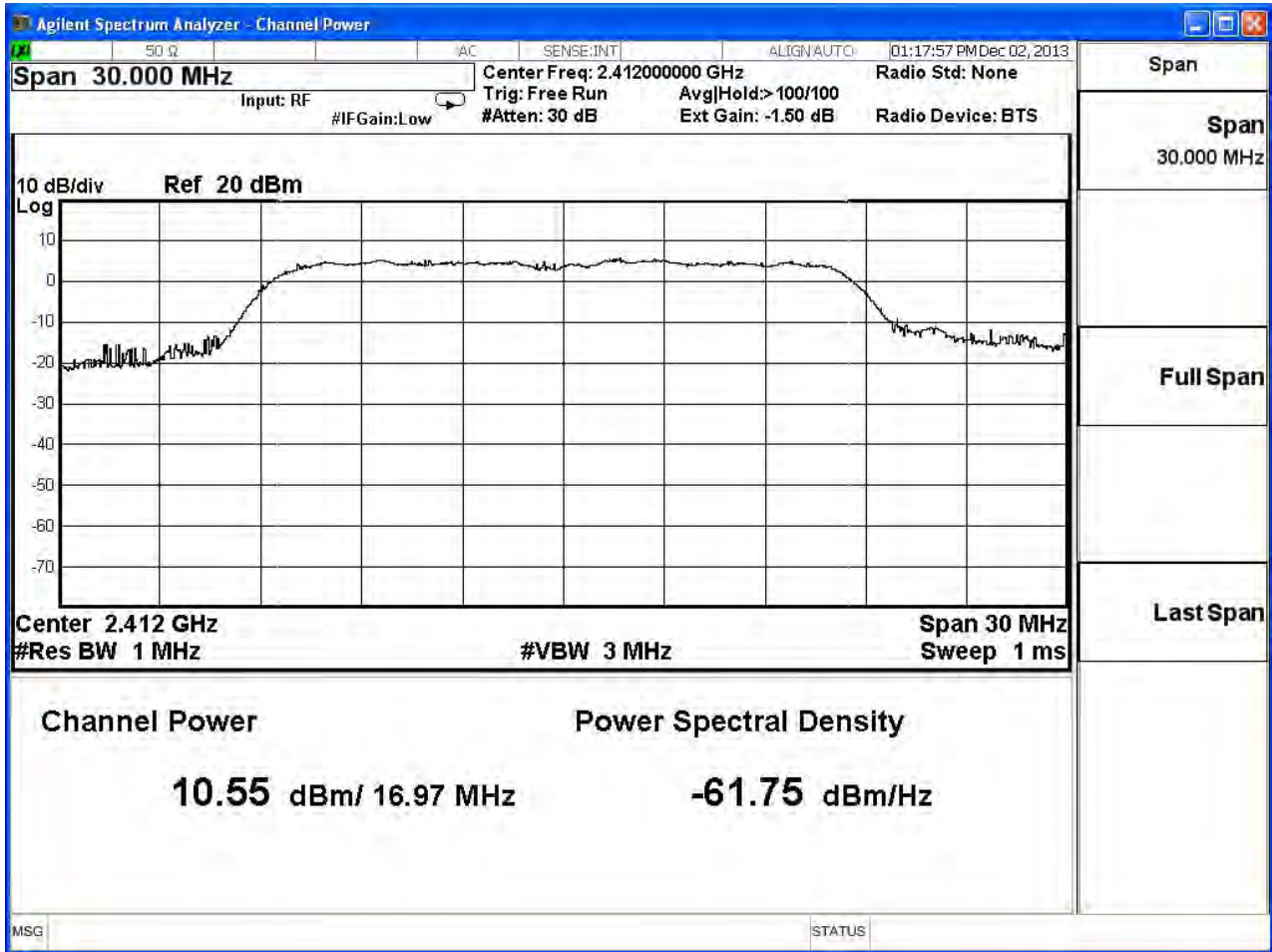
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	10.55	≤ 30	Pass
6	2437	11.44	≤ 30	Pass
11	2462	12.67	≤ 30	Pass

The worst emission of data rate is 13 Mbps.

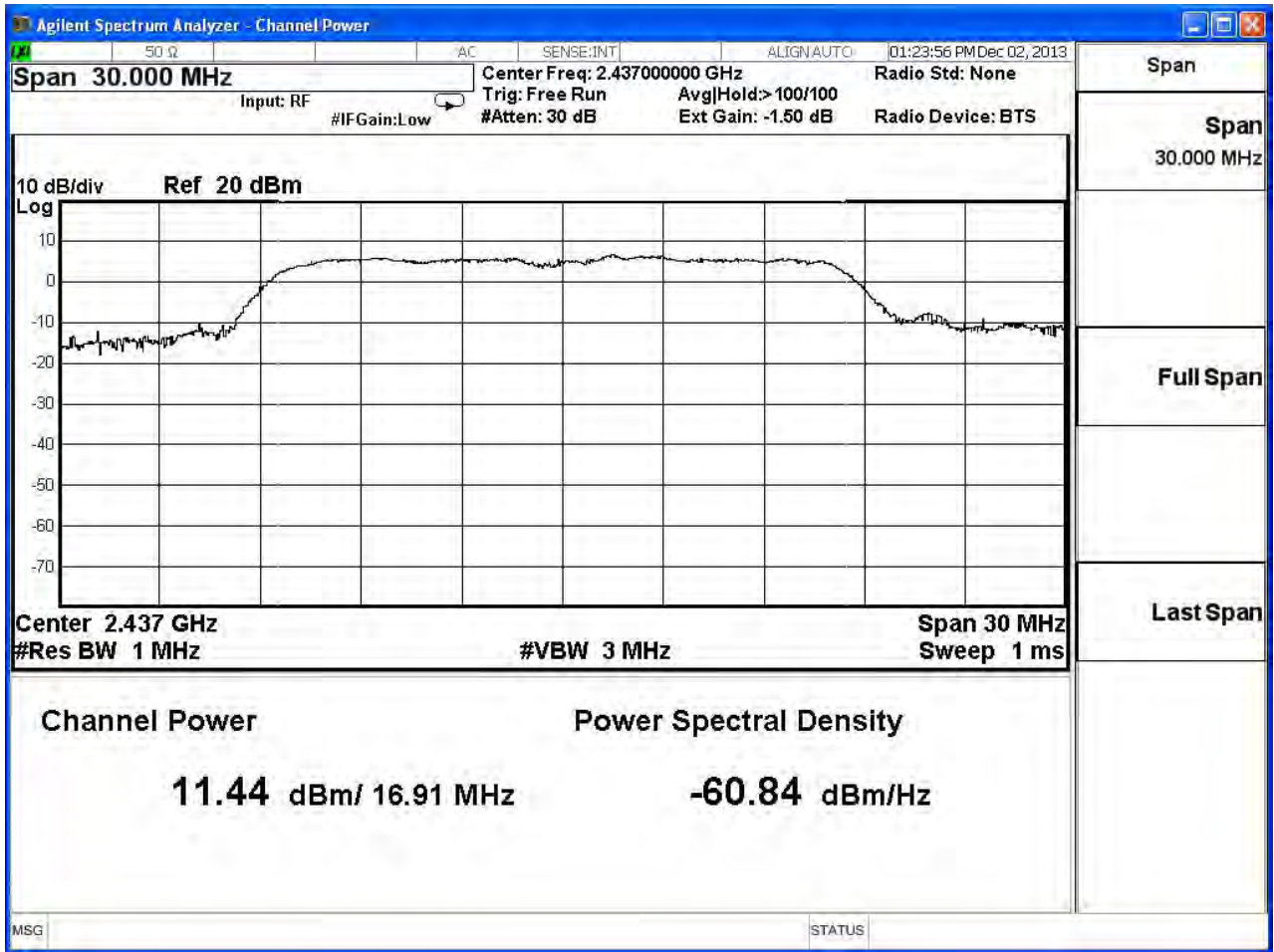
		Peak Power Output (dBm)								Required Limit
MCS Index		8	9	10	11	12	13	14	15	
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
1	2412	10.55	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	11.44	11.34	11.10	10.90	10.78	10.66	10.54	10.28	1Watt=30dBm
11	2462	12.67	--	--	--	--	--	--	--	1Watt=30dBm

Note: Measure Level =Reading value + cable loss

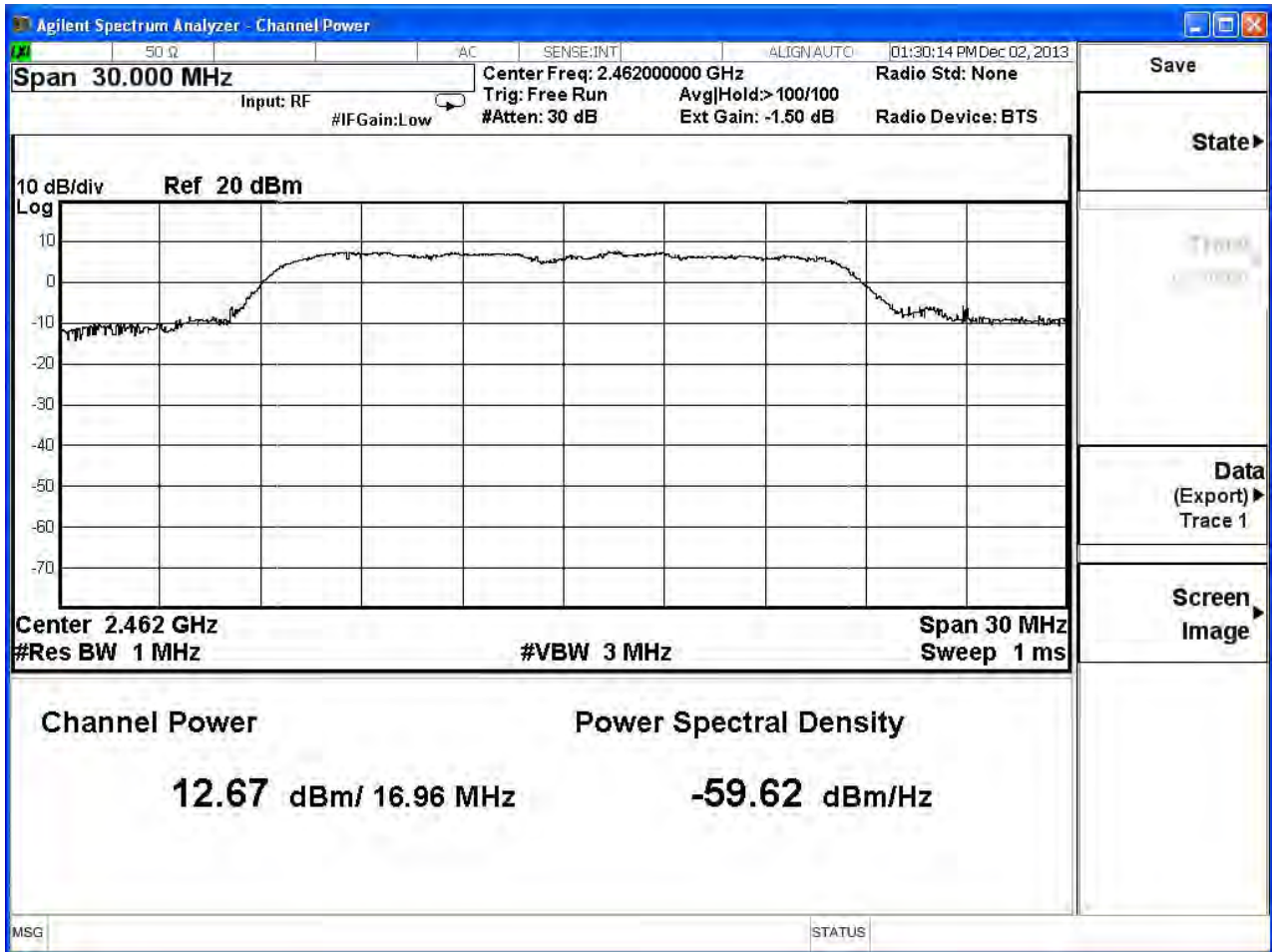
**Channel 1**



**Channel 6**



**Channel 11**



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

IEEE 802.11n 20MHz ANT0+1				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	14.37	≤ 30	Pass
6	2437	15.49	≤ 30	Pass
11	2462	16.22	≤ 30	Pass

The worst emission of data rate is 13Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		13	26	39	52	78	104	117	130	
1	2412	14.37	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	15.49	15.34	15.23	15.09	14.84	14.60	14.36	14.17	1Watt=30dBm
11	2462	16.22	--	--	--	--	--	--	--	1Watt=30dBm

Note: Measure Level =Reading value + cable loss

Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

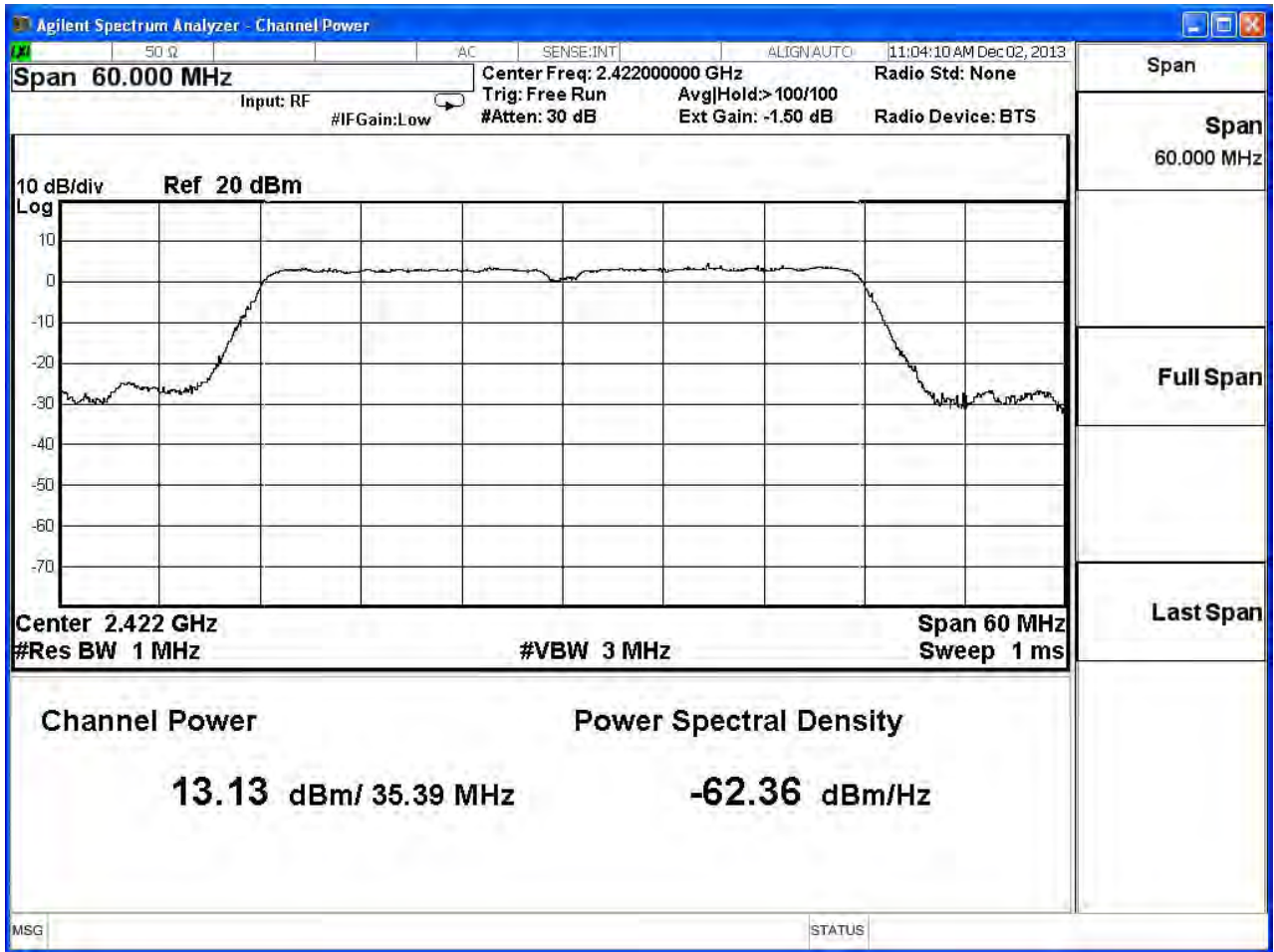
IEEE 802.11n 40MHz ANTO				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	13.13	≤ 30	Pass
6	2437	13.40	≤ 30	Pass
9	2452	14.09	≤ 30	Pass

The worst emission of data rate is 27Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
3	2422	13.13	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	13.40	13.20	13.09	12.99	12.79	12.55	12.29	12.17	1Watt=30dBm
9	2452	14.09	--	--	--	--	--	--	--	1Watt=30dBm

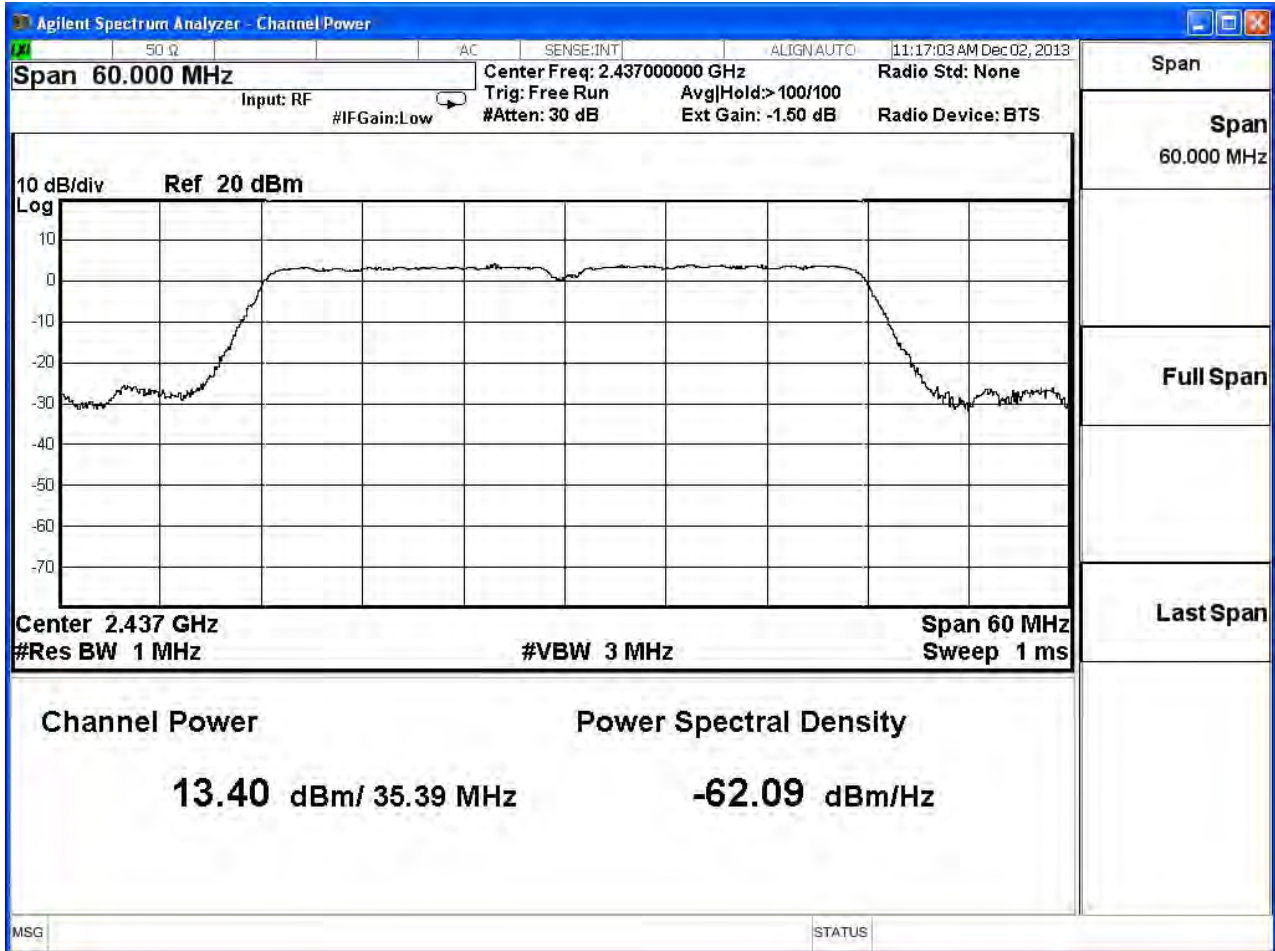
Note: Measure Level =Reading value + cable loss

**Channel 3**

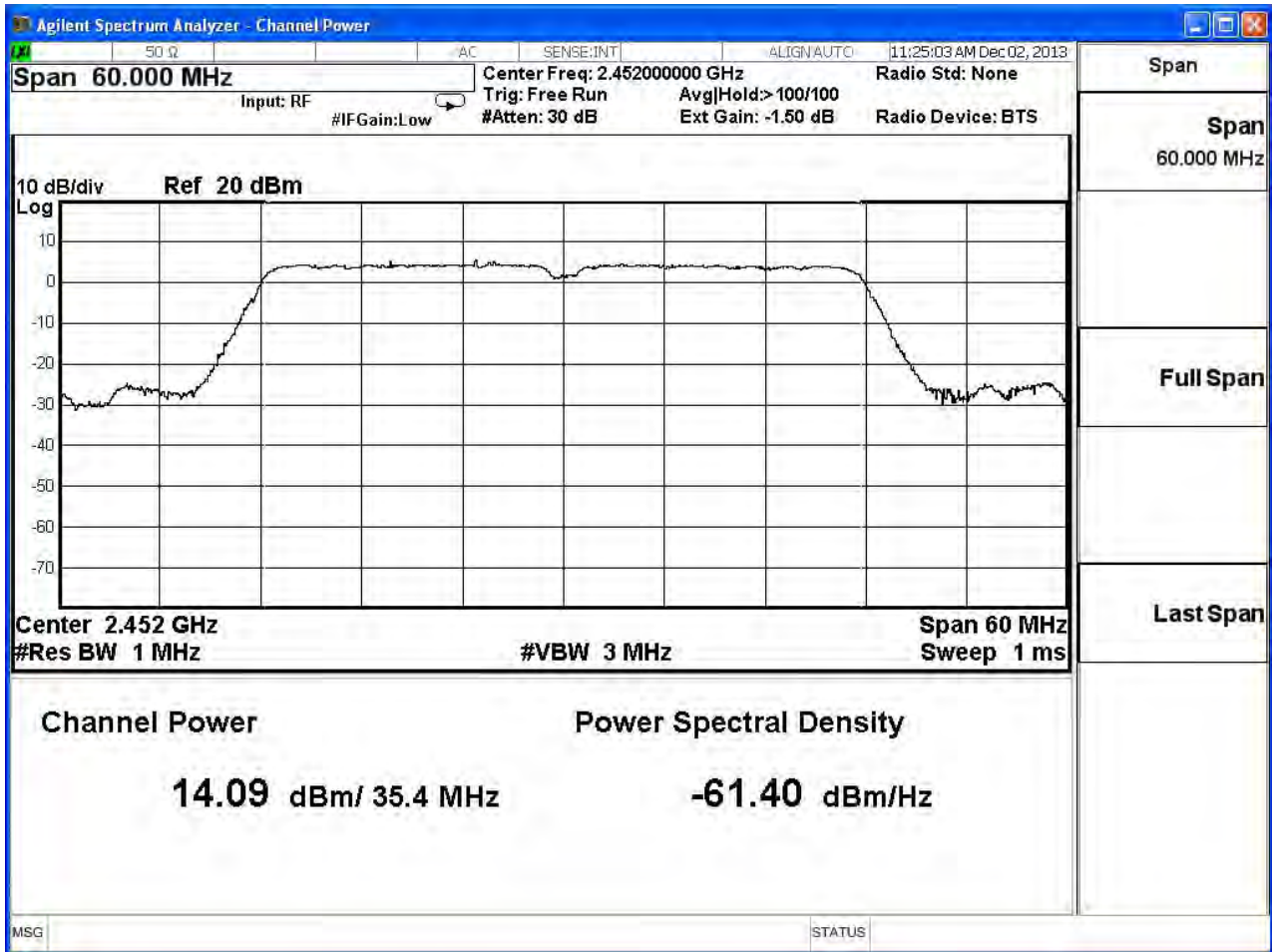




**Channel 6**



**Channel 9**



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

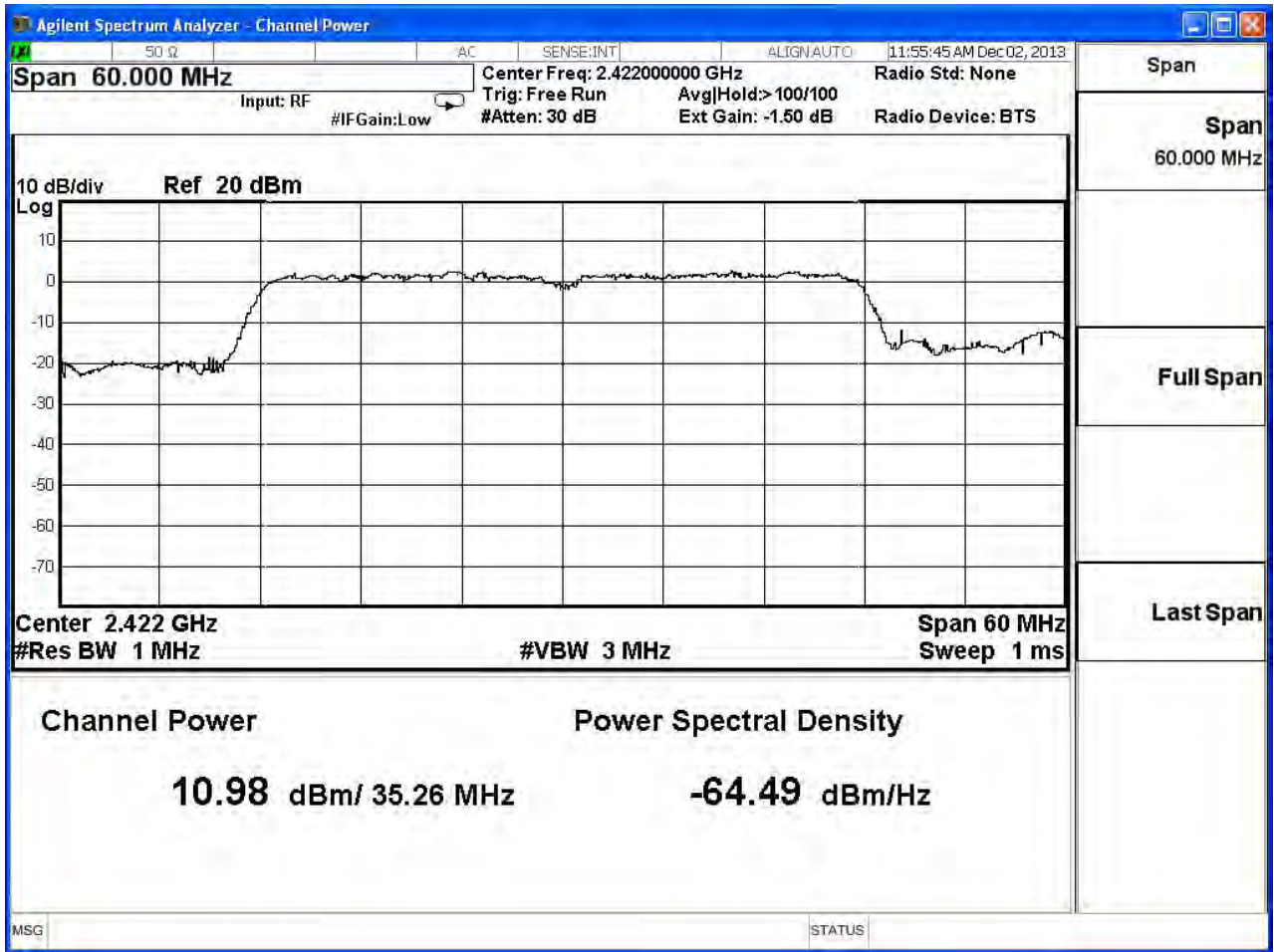
IEEE 802.11n 40MHz ANT1				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	10.98	≤ 30	Pass
6	2437	11.92	≤ 30	Pass
9	2452	12.18	≤ 30	Pass

The worst emission of data rate is 27Mbps.

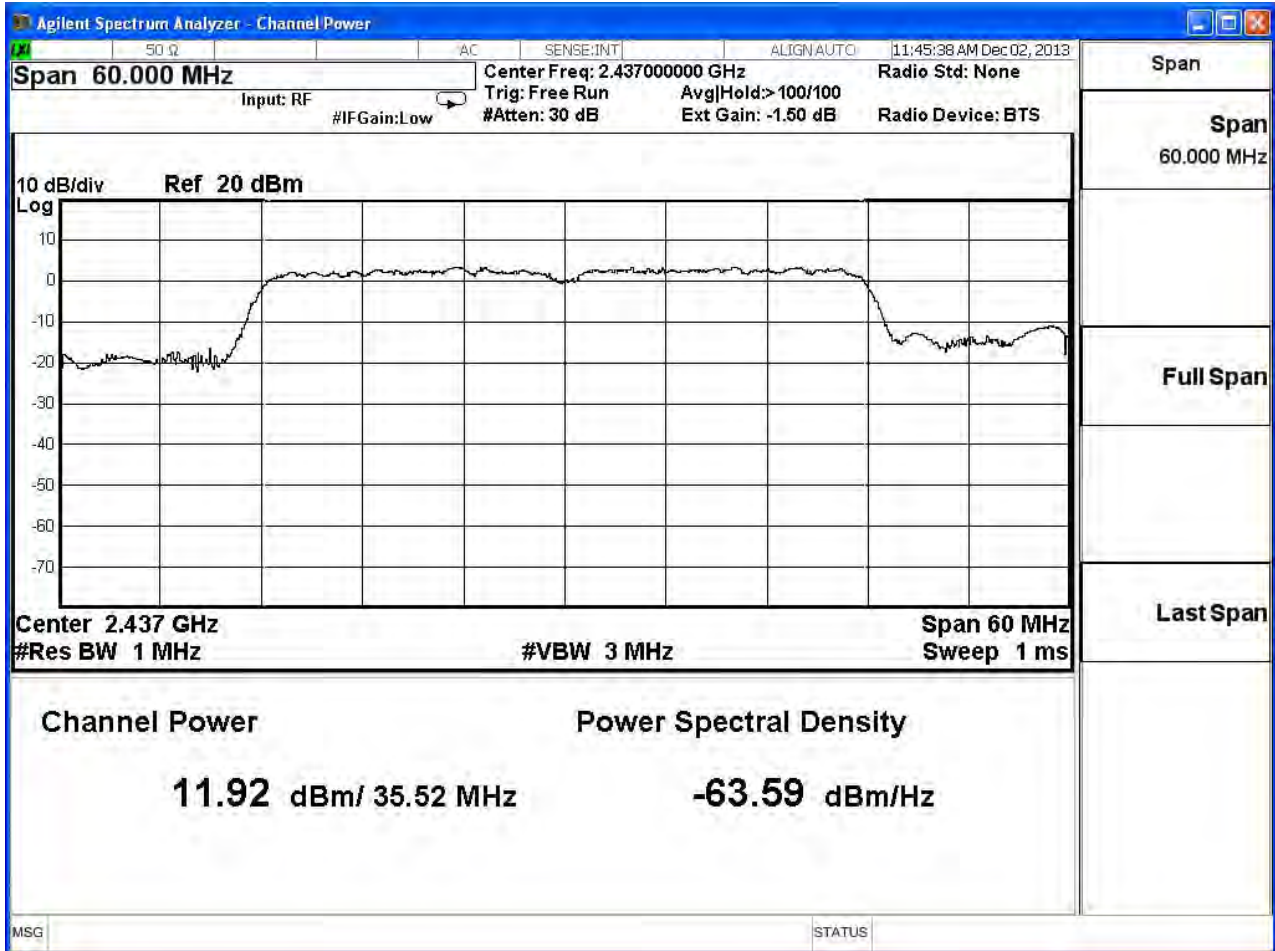
Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
3	2422	10.98	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	11.92	11.72	11.52	11.39	11.29	11.05	10.93	10.81	1Watt=30dBm
9	2452	12.18	--	--	--	--	--	--	--	1Watt=30dBm

Note: Measure Level =Reading value + cable loss

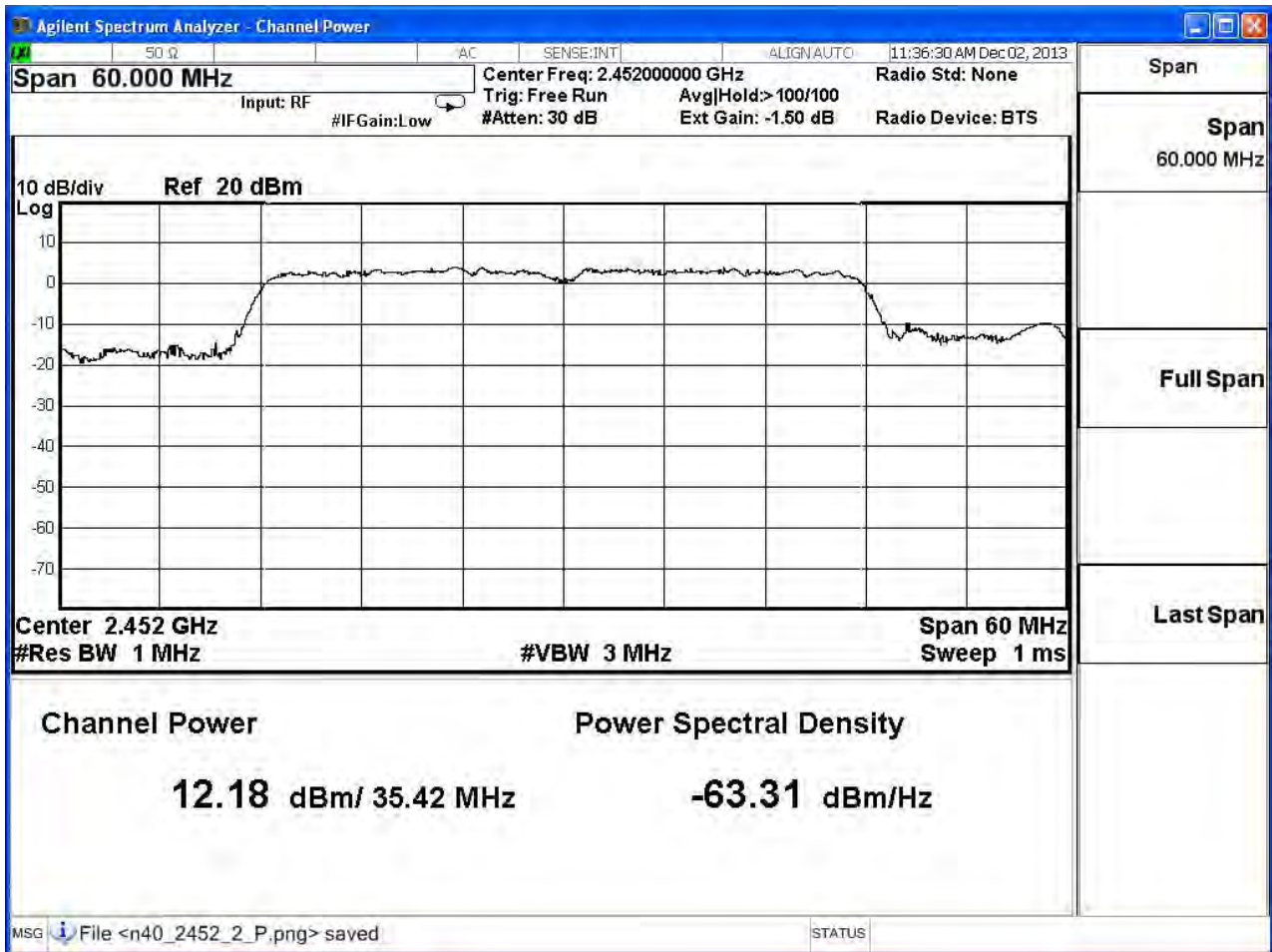
**Channel 3**



**Channel 6**



**Channel 9**



Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

IEEE 802.11n 40MHz ANT0+1				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	15.20	≤ 30	Pass
6	2437	15.73	≤ 30	Pass
9	2452	16.25	≤ 30	Pass

The worst emission of data rate is 27Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		27	54	81	108	162	216	243	270	
3	2422	15.20	--	--	--	--	--	--	--	1Watt=30dBm
6	2437	15.73	15.57	15.47	15.24	15.10	14.93	14.68	14.51	1Watt=30dBm
9	2452	16.25	--	--	--	--	--	--	--	1Watt=30dBm

Note: Measure Level =Reading value + cable loss

## 4. Radiated Emission

### 4.1. Test Equipment

The following test equipments are used during the test:

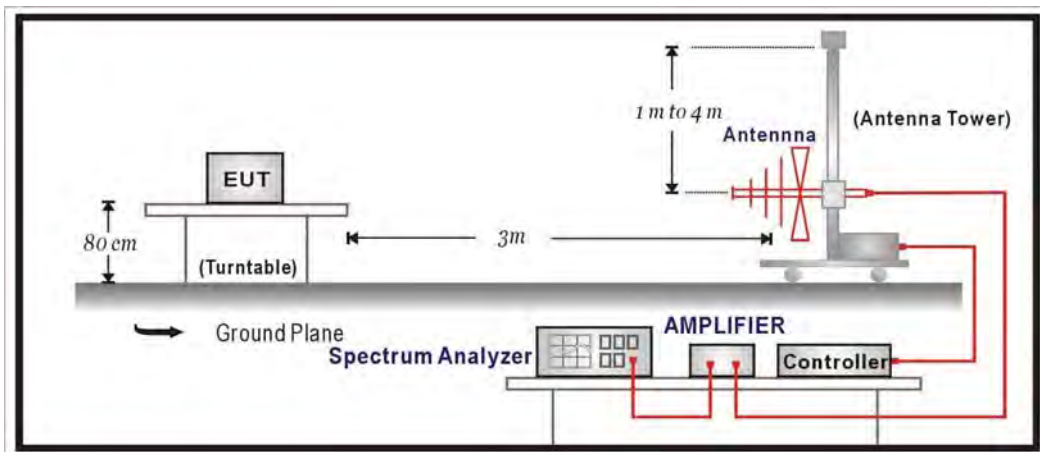
Radiated Emission / CB1

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Bilog Antenna	SCHAFFNER	CBL6112B	2895(CB1)	2014/08/14
Double Ridged Guide Horn Antenna	Schwarzback	BBHA 9120	D743	2014/02/17
Pre-Amplifier	MITEQ	AMF-4D	888003	2014/06/09
Pre-Amplifier	Quietek	AP-025C	CHM-0706049	2014/02/19
Spectrum Analyzer	Agilent	E4440A	MY46187335	2014/01/27
k Type Cable	Huber Suhner	Sucoflex 102	25623/2	2014/02/21

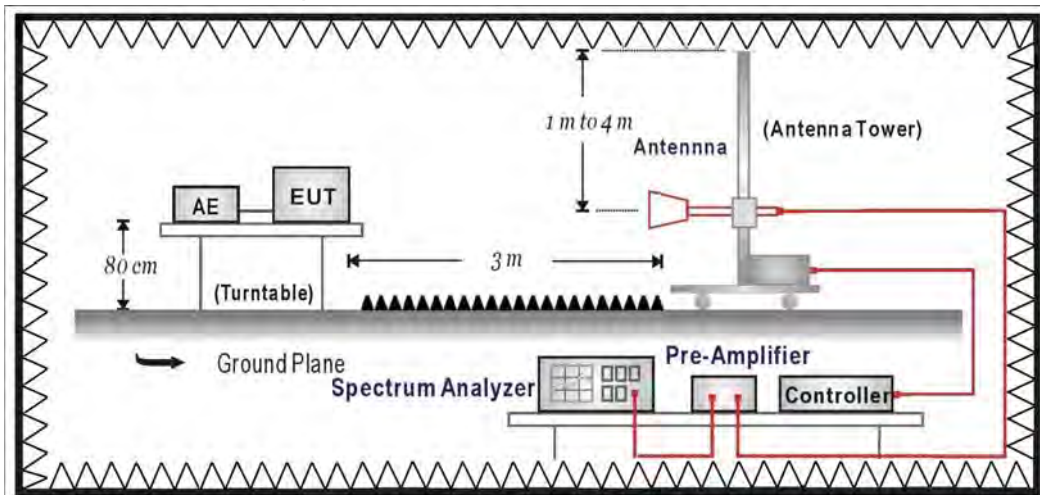
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

### 4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:





**4.3. Limit**

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 Limits</b>		
Frequency MHz	dBuV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

**4.4. Test Procedure**

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2009 on radiated measurement.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

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

**4.5. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

**4.6. Uncertainty**

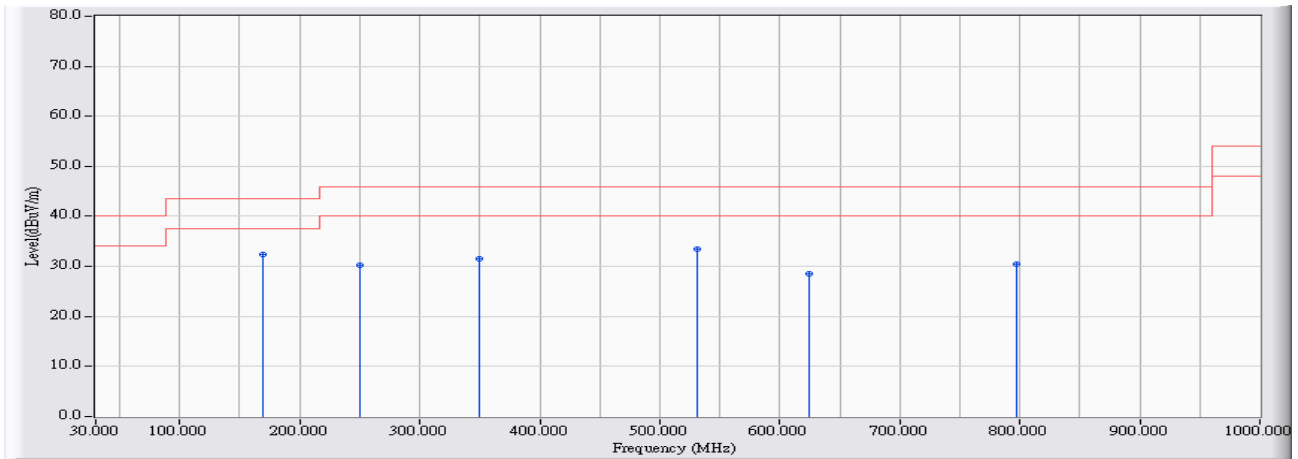
The measurement uncertainty

30MHz~1GHz as  $\pm 3.43\text{dB}$

1GHz~26.5Ghz as  $\pm 3.65\text{dB}$

**4.7. Test Result**  
**30MHz-1GHz Spurious:**

Site : CB3	Time : 2013/11/27 - 09:57
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2437MHz

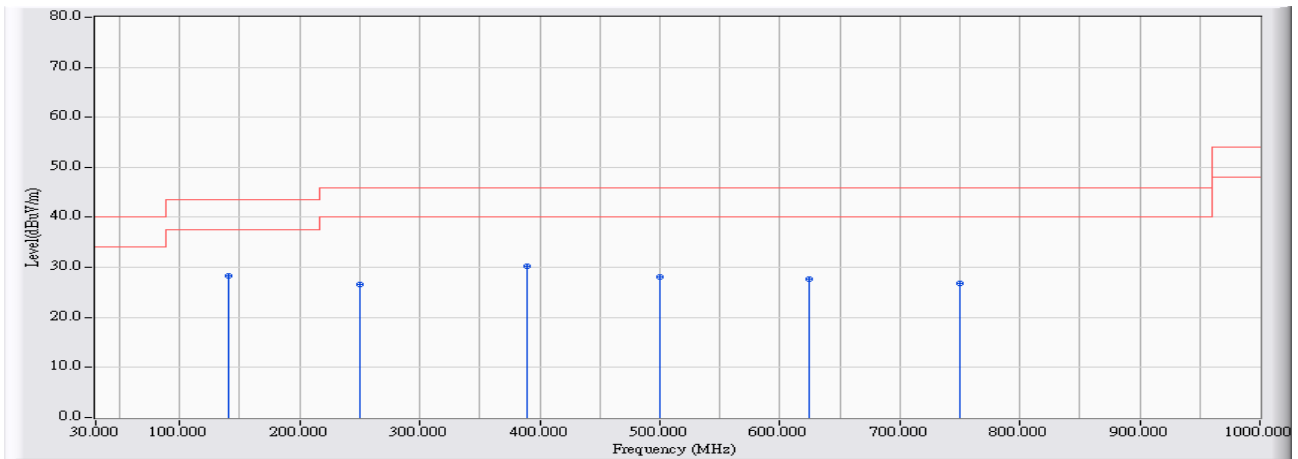


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	169.680	-24.287	56.608	32.320	-11.180	43.500	QUASIPeAK
2		250.190	-21.013	51.220	30.207	-15.793	46.000	QUASIPeAK
3		349.130	-18.819	50.369	31.550	-14.450	46.000	QUASIPeAK
4		531.490	-15.585	49.056	33.471	-12.529	46.000	QUASIPeAK
5		624.610	-15.392	43.814	28.423	-17.577	46.000	QUASIPeAK
6		797.270	-13.625	44.162	30.537	-15.463	46.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 10:02
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2437MHz

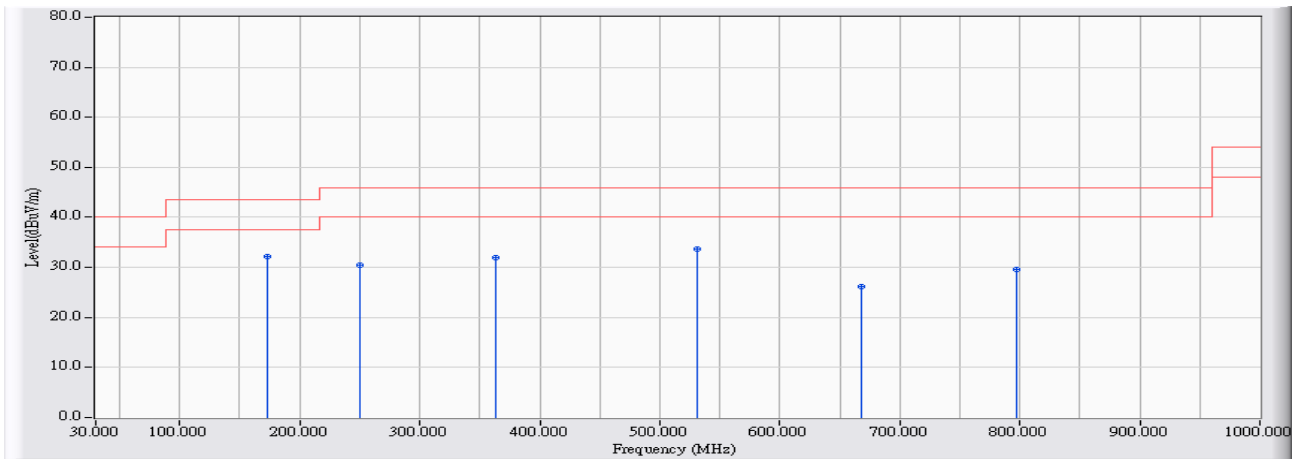


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	140.580	-22.897	51.221	28.324	-15.176	43.500	QUASIPeAK
2		250.190	-21.013	47.635	26.622	-19.378	46.000	QUASIPeAK
3		388.900	-17.823	47.987	30.164	-15.836	46.000	QUASIPeAK
4		500.450	-15.617	43.742	28.125	-17.875	46.000	QUASIPeAK
5		624.610	-15.392	42.992	27.601	-18.399	46.000	QUASIPeAK
6		749.740	-14.300	41.147	26.847	-19.153	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 10:09
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 230V
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2437MHz

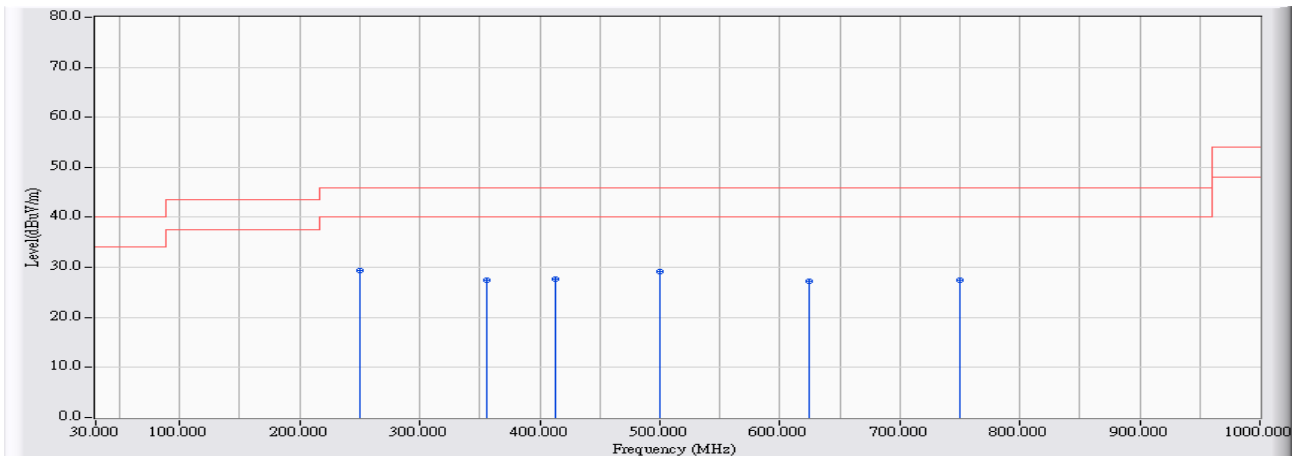


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	172.590	-24.415	56.692	32.277	-11.223	43.500	QUASIPeAK
2		250.190	-21.013	51.385	30.372	-15.628	46.000	QUASIPeAK
3		363.680	-18.455	50.425	31.971	-14.029	46.000	QUASIPeAK
4		531.490	-15.585	49.256	33.671	-12.329	46.000	QUASIPeAK
5		668.260	-15.169	41.325	26.156	-19.844	46.000	QUASIPeAK
6		797.270	-13.625	43.223	29.598	-16.402	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 10:14
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 230V
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2437MHz

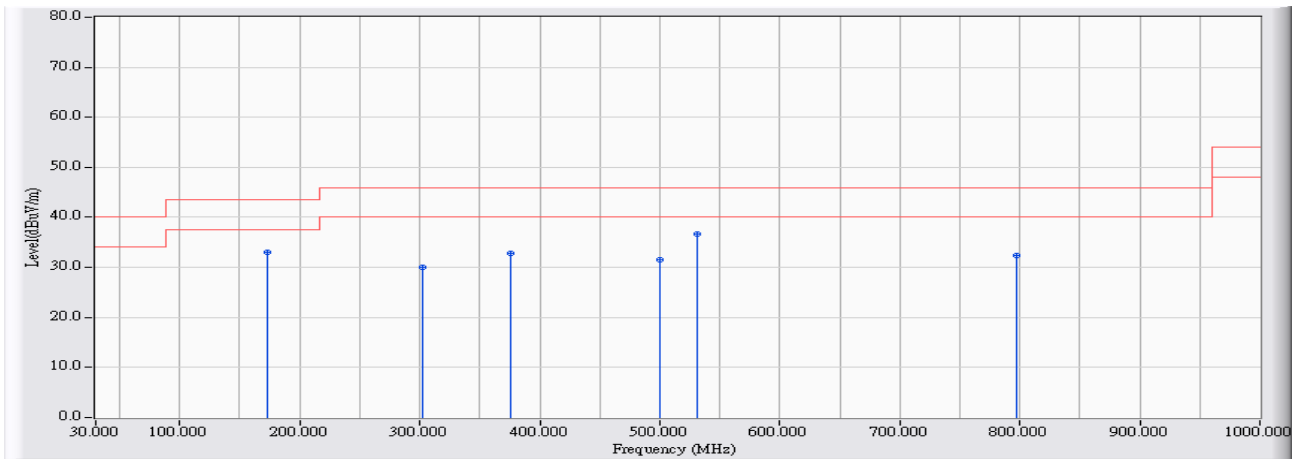


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	250.190	-21.013	50.331	29.318	-16.682	46.000	QUASIPeAK
2		355.920	-18.649	46.057	27.408	-18.592	46.000	QUASIPeAK
3		413.150	-17.292	44.955	27.663	-18.337	46.000	QUASIPeAK
4		500.450	-15.617	44.850	29.233	-16.767	46.000	QUASIPeAK
5		624.610	-15.392	42.529	27.138	-18.862	46.000	QUASIPeAK
6		749.740	-14.300	41.812	27.512	-18.488	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 10:36
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 230V
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2437MHz

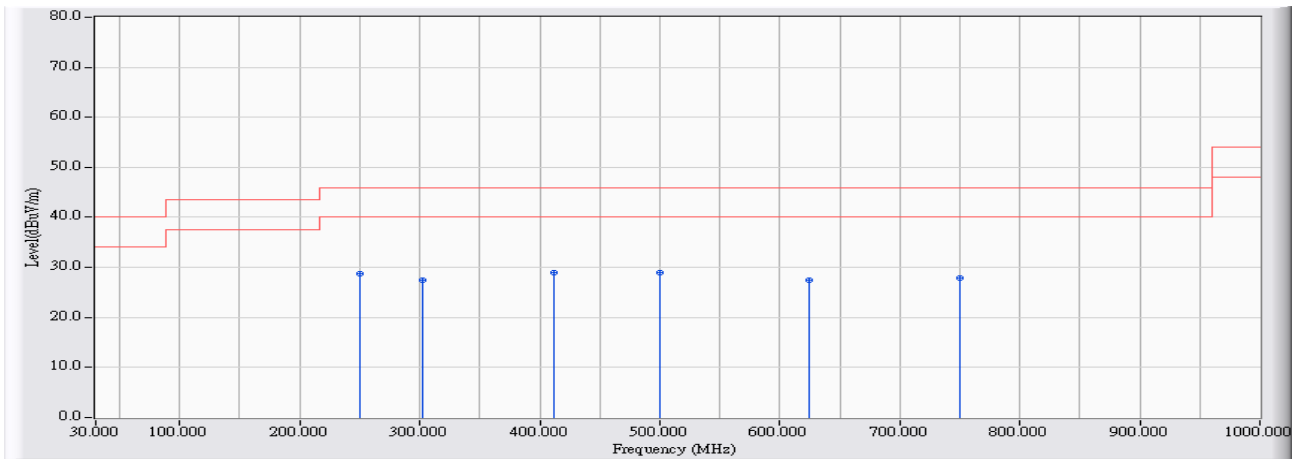


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	172.590	-24.415	57.360	32.945	-10.555	43.500	QUASIPeAK
2	302.570	-19.984	50.022	30.038	-15.962	46.000	QUASIPeAK
3	375.320	-18.163	51.039	32.876	-13.124	46.000	QUASIPeAK
4	500.450	-15.617	47.061	31.444	-14.556	46.000	QUASIPeAK
5	* 531.490	-15.585	52.179	36.594	-9.406	46.000	QUASIPeAK
6	797.270	-13.625	46.026	32.401	-13.599	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 10:40
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 230V
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2437MHz



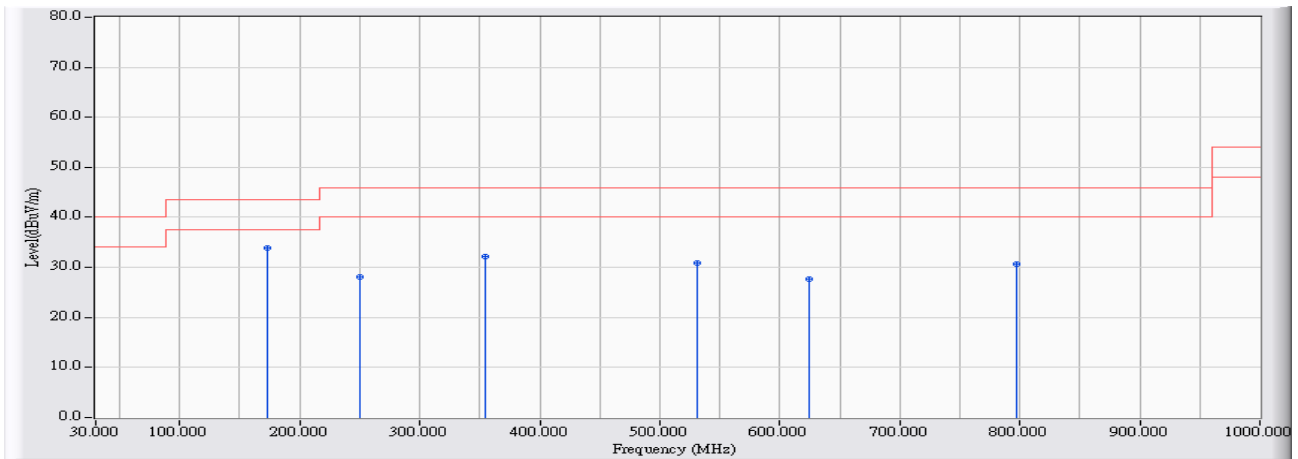
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	250.190	-21.013	49.669	28.656	-17.344	46.000	QUASIPeAK
2	302.570	-19.984	47.522	27.538	-18.462	46.000	QUASIPeAK
3	412.180	-17.310	46.163	28.852	-17.148	46.000	QUASIPeAK
4	* 500.450	-15.617	44.669	29.052	-16.948	46.000	QUASIPeAK
5	624.610	-15.392	42.910	27.519	-18.481	46.000	QUASIPeAK
6	749.740	-14.300	42.185	27.885	-18.115	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.



Site : CB3	Time : 2013/11/27 - 10:56
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MHz

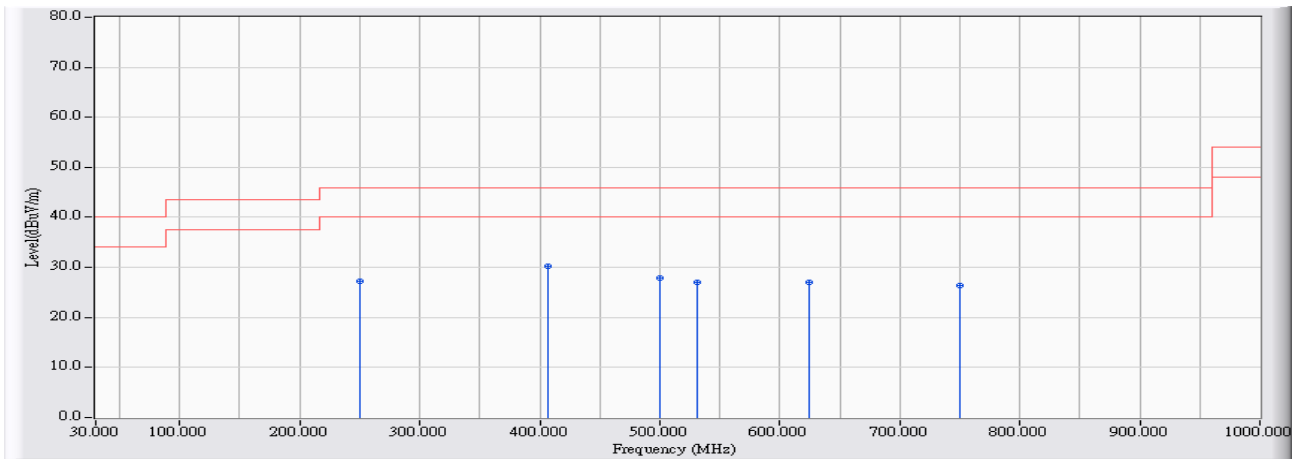


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	172.590	-24.415	58.366	33.951	-9.549	43.500	QUASIPeAK
2		250.190	-21.013	49.170	28.157	-17.843	46.000	QUASIPeAK
3		353.980	-18.697	50.921	32.224	-13.776	46.000	QUASIPeAK
4		531.490	-15.585	46.407	30.822	-15.178	46.000	QUASIPeAK
5		624.610	-15.392	42.953	27.562	-18.438	46.000	QUASIPeAK
6		797.270	-13.625	44.203	30.578	-15.422	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/27 - 11:01
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MHz

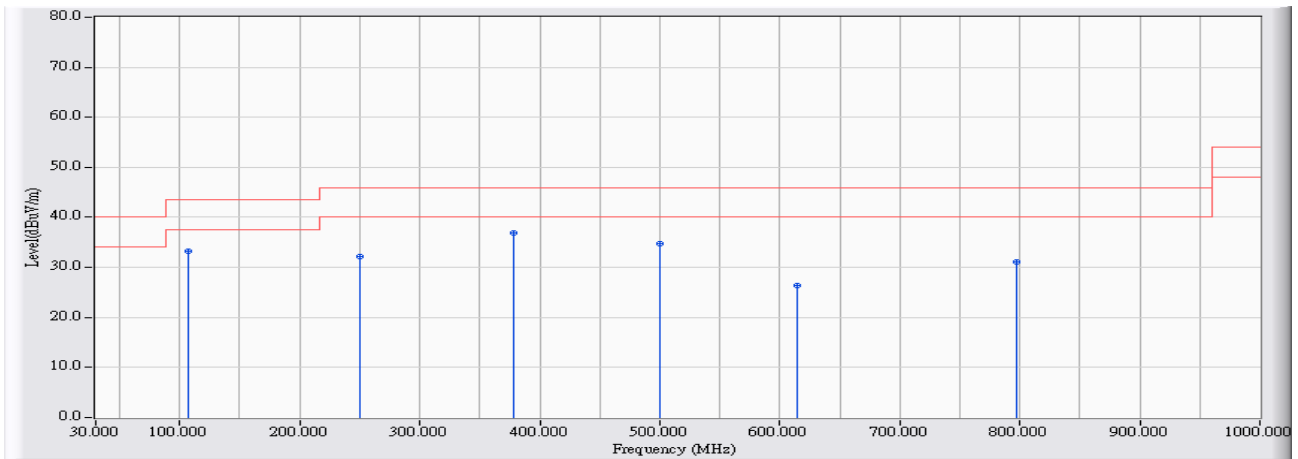


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		250.190	-21.013	48.231	27.218	-18.782	46.000	QUASIPeAK
2	*	407.330	-17.404	47.703	30.299	-15.701	46.000	QUASIPeAK
3		500.450	-15.617	43.396	27.779	-18.221	46.000	QUASIPeAK
4		531.490	-15.585	42.642	27.057	-18.943	46.000	QUASIPeAK
5		624.610	-15.392	42.497	27.106	-18.894	46.000	QUASIPeAK
6		749.740	-14.300	40.708	26.408	-19.592	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/28 - 20:40
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11b_2437MHz

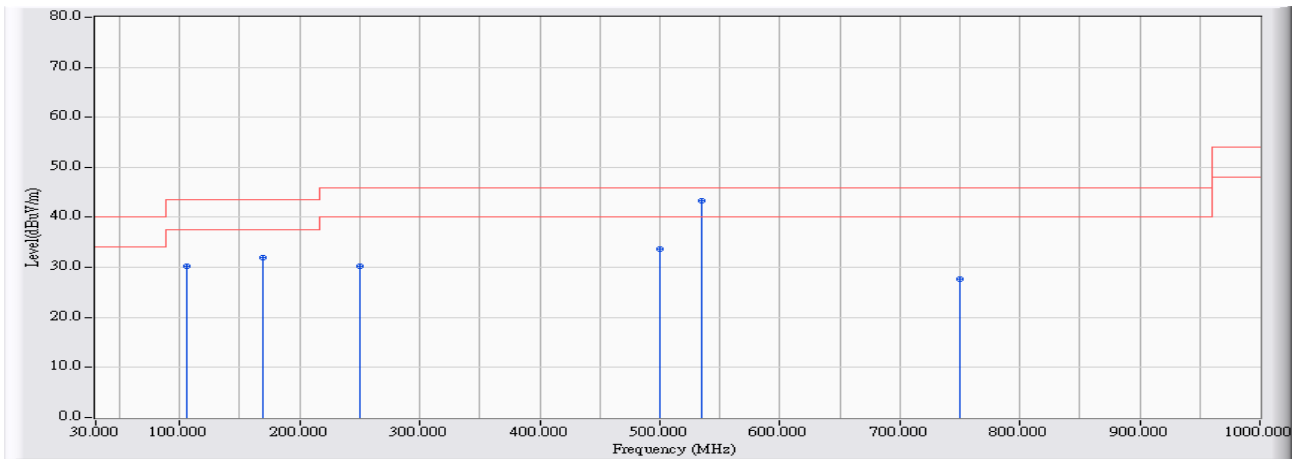


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	107.600	-22.787	55.925	33.138	-10.362	43.500	QUASIPeAK
2	250.190	-21.013	53.090	32.077	-13.923	46.000	QUASIPeAK
3	* 378.230	-18.090	55.036	36.946	-9.054	46.000	QUASIPeAK
4	500.450	-15.617	50.356	34.739	-11.261	46.000	QUASIPeAK
5	613.940	-15.446	41.751	26.305	-19.695	46.000	QUASIPeAK
6	797.270	-13.625	44.685	31.060	-14.940	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

<b>Site : CB3</b>	<b>Time : 2013/11/28 - 20:43</b>
<b>Limit : FCC_CLASS_B_03M_QP</b>	<b>Margin : 6</b>
<b>Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless N GPON HGU with 4-port GbE Switch</b>	<b>Note : Mode 2: Transmit (Power Adapter: DVE) 802.11b_2437MHz</b>

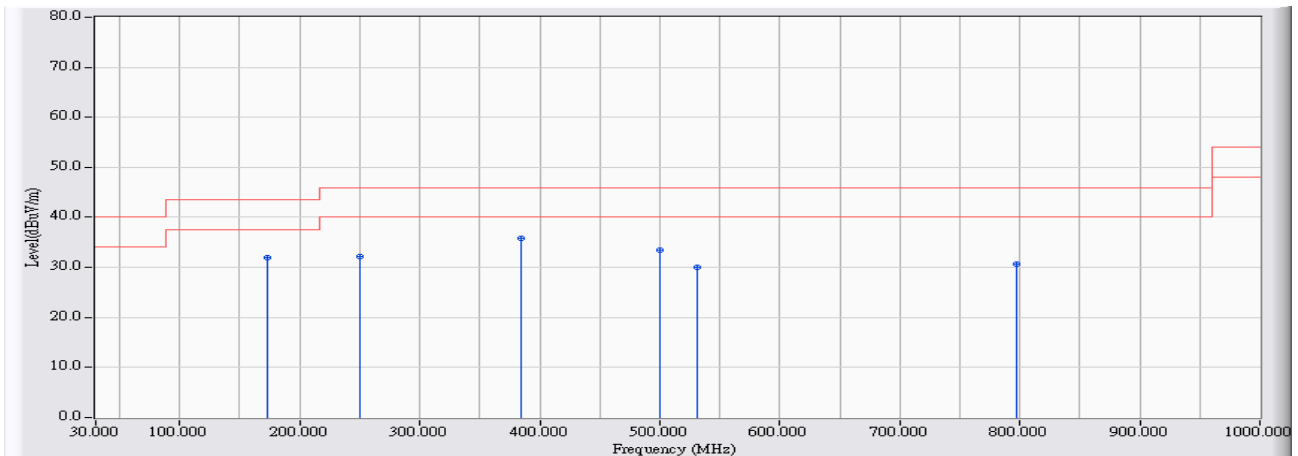


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	105.660	-22.881	53.190	30.309	-13.191	43.500	QUASPEAK
2	169.680	-24.287	56.272	31.984	-11.516	43.500	QUASPEAK
3	250.190	-21.013	51.327	30.314	-15.686	46.000	QUASPEAK
4	500.450	-15.617	49.221	33.604	-12.396	46.000	QUASPEAK
5	* 535.370	-15.582	58.921	43.339	-2.661	46.000	QUASPEAK
6	749.740	-14.300	42.031	27.731	-18.269	46.000	QUASPEAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/28 - 20:45
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11g_2437MHz

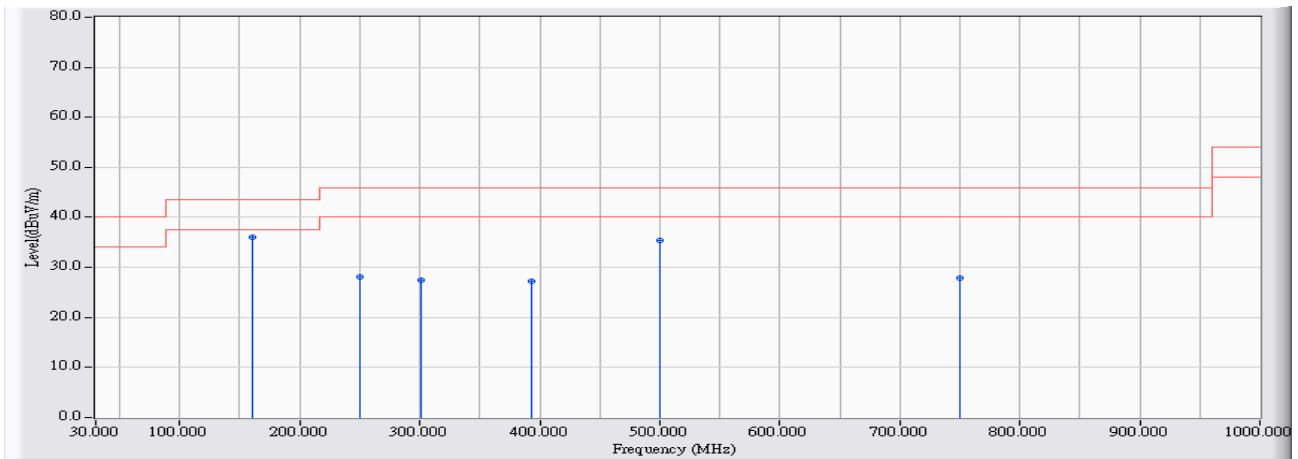


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	172.590	-24.415	56.388	31.973	-11.527	43.500	QUASIPeAK
2	250.190	-21.013	53.229	32.216	-13.784	46.000	QUASIPeAK
3	* 385.020	-17.920	53.660	35.740	-10.260	46.000	QUASIPeAK
4	500.450	-15.617	49.156	33.539	-12.461	46.000	QUASIPeAK
5	531.490	-15.585	45.626	30.041	-15.959	46.000	QUASIPeAK
6	797.270	-13.625	44.202	30.577	-15.423	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/28 - 20:47
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11g_2437MHz

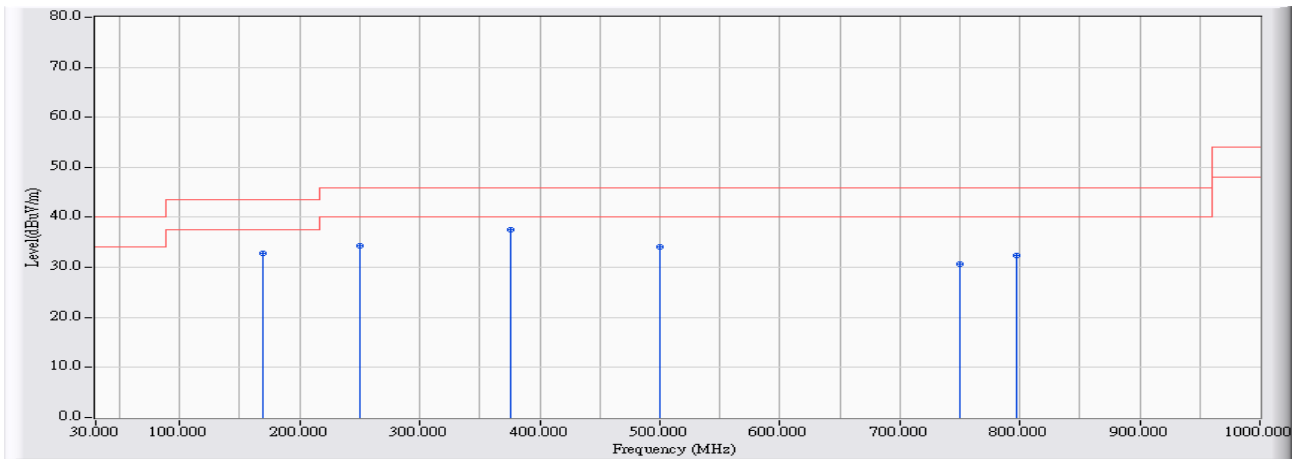


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	159.980	-23.863	60.000	36.137	-7.363	43.500	QUASIPeAK
2		250.190	-21.013	49.088	28.075	-17.925	46.000	QUASIPeAK
3		300.630	-20.033	47.525	27.492	-18.508	46.000	QUASIPeAK
4		392.780	-17.726	44.886	27.160	-18.840	46.000	QUASIPeAK
5		500.450	-15.617	51.073	35.456	-10.544	46.000	QUASIPeAK
6		749.740	-14.300	42.211	27.911	-18.089	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

<b>Site : CB3</b>	<b>Time : 2013/11/28 - 20:51</b>
<b>Limit : FCC_CLASS_B_03M_QP</b>	<b>Margin : 6</b>
<b>Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless N GPON HGU with 4-port GbE Switch</b>	<b>Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n20MHz_2437MHz</b>

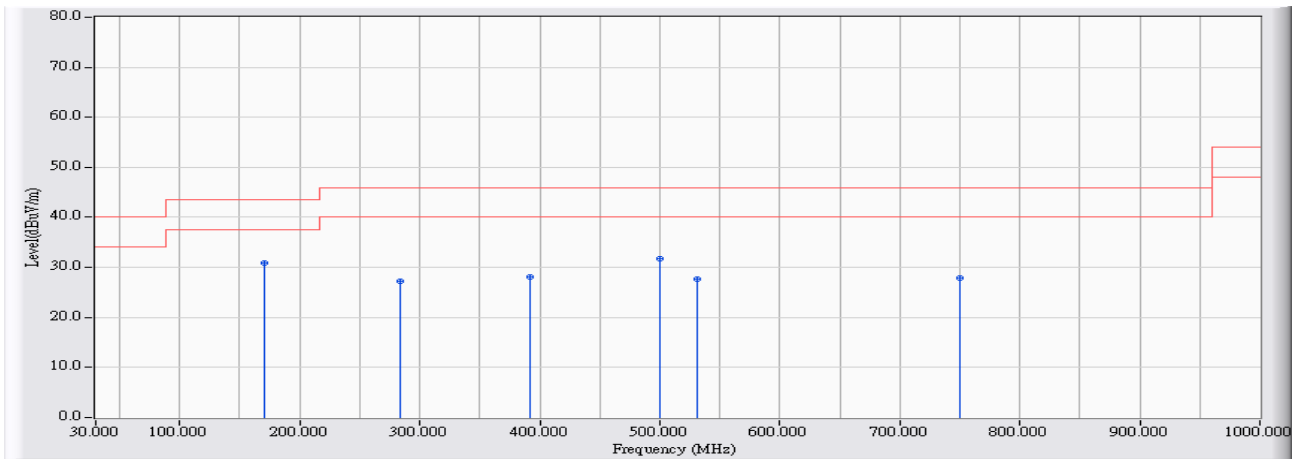


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	168.710	-24.245	57.134	32.889	-10.611	43.500	QUASIPeAK
2	250.190	-21.013	55.289	34.276	-11.724	46.000	QUASIPeAK
3	* 376.290	-18.139	55.714	37.575	-8.425	46.000	QUASIPeAK
4	500.450	-15.617	49.766	34.149	-11.851	46.000	QUASIPeAK
5	749.740	-14.300	44.882	30.582	-15.418	46.000	QUASIPeAK
6	797.270	-13.625	46.014	32.389	-13.611	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/28 - 20:56
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n20MHz_2437MHz



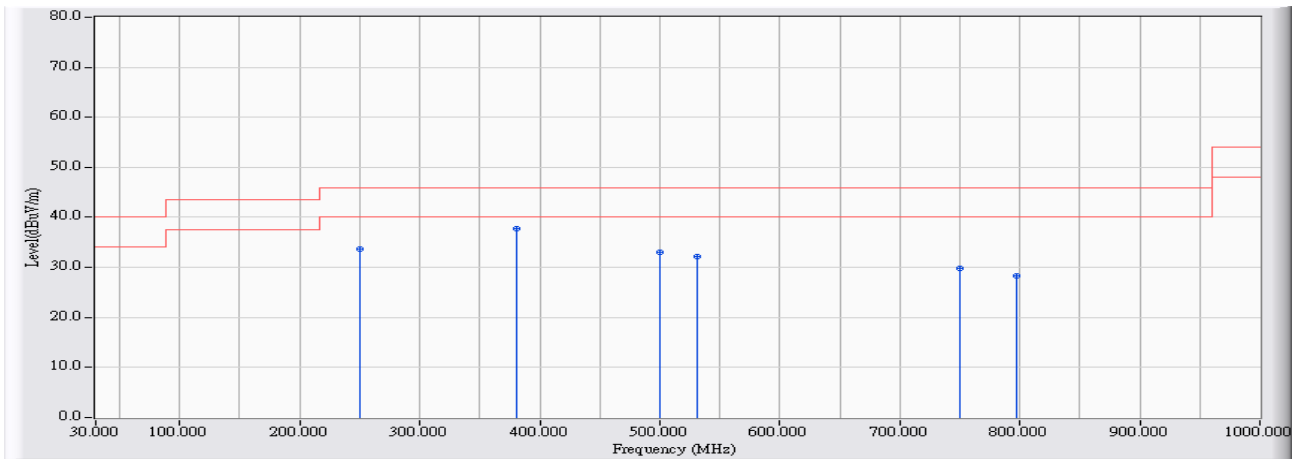
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	170.650	-24.330	55.249	30.919	-12.581	43.500	QUASIPeAK
2		283.170	-20.374	47.697	27.323	-18.677	46.000	QUASIPeAK
3		391.810	-17.750	45.952	28.202	-17.798	46.000	QUASIPeAK
4		500.450	-15.617	47.292	31.675	-14.325	46.000	QUASIPeAK
5		531.490	-15.585	43.353	27.768	-18.232	46.000	QUASIPeAK
6		749.740	-14.300	42.241	27.941	-18.059	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.



Site : CB3	Time : 2013/11/28 - 20:59
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n40MHz_2437MHz

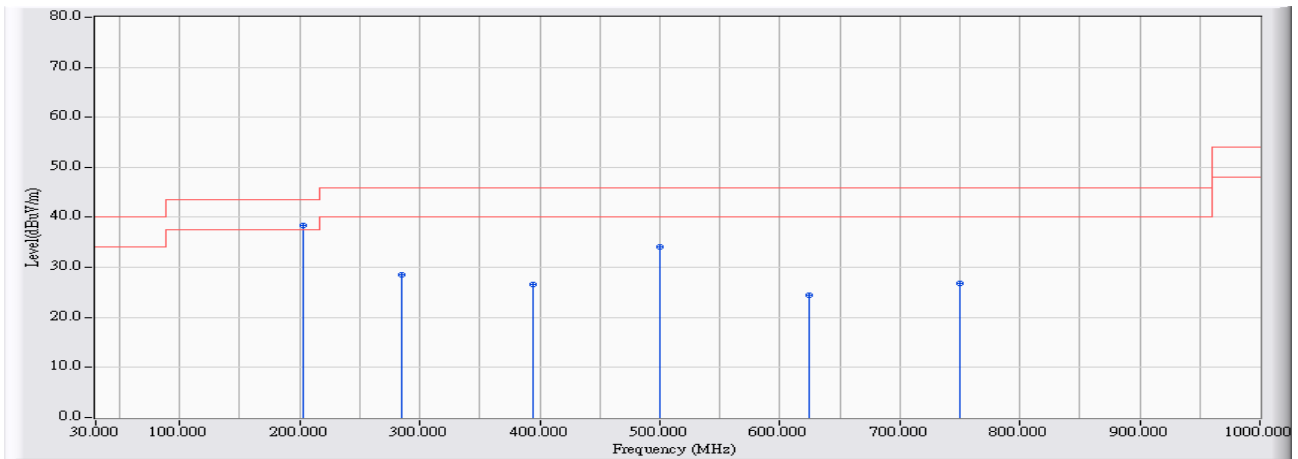


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		250.190	-21.013	54.672	33.659	-12.341	46.000	QUASIPeAK
2	*	380.170	-18.042	55.751	37.709	-8.291	46.000	QUASIPeAK
3		500.450	-15.617	48.667	33.050	-12.950	46.000	QUASIPeAK
4		531.490	-15.585	47.743	32.158	-13.842	46.000	QUASIPeAK
5		749.740	-14.300	44.056	29.756	-16.244	46.000	QUASIPeAK
6		797.270	-13.625	42.002	28.377	-17.623	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Site : CB3	Time : 2013/11/28 - 21:14
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB3_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 2: Transmit (Power Adapter: DVE) 802.11n40MHz_2437MHz



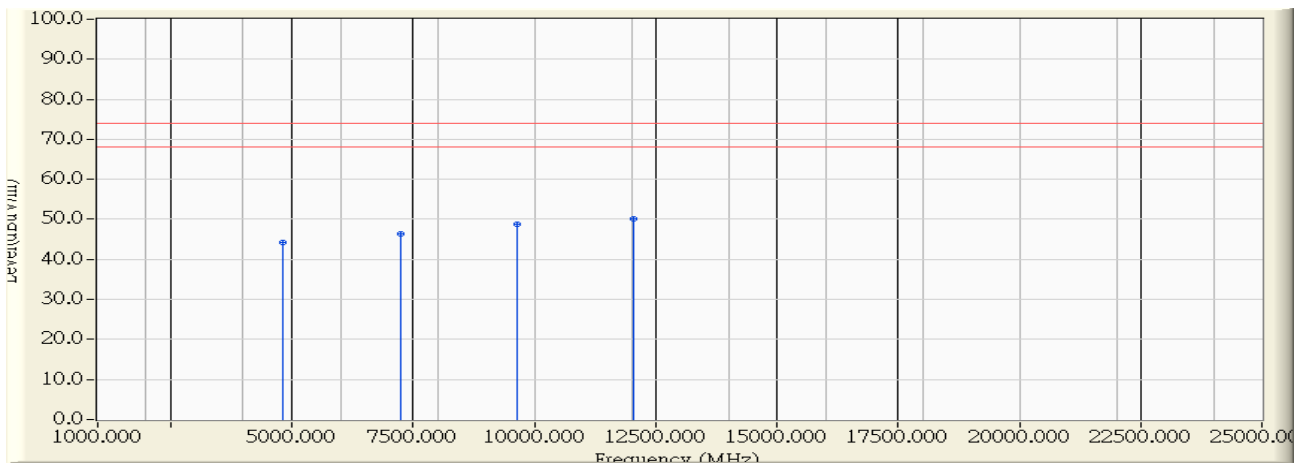
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	202.660	-24.632	63.031	38.399	-5.101	43.500	QUASIPeAK
2		285.110	-20.336	48.901	28.565	-17.435	46.000	QUASIPeAK
3		393.750	-17.702	44.337	26.635	-19.365	46.000	QUASIPeAK
4		500.450	-15.617	49.650	34.033	-11.967	46.000	QUASIPeAK
5		624.610	-15.392	39.912	24.521	-21.479	46.000	QUASIPeAK
6		749.740	-14.300	41.199	26.899	-19.101	46.000	QUASIPeAK

**Note:**

1. All Reading Levels are Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

### Above 1GHz Spurious:

Site : CB3	Time : 2013/11/27 - 14:36
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2412MHz

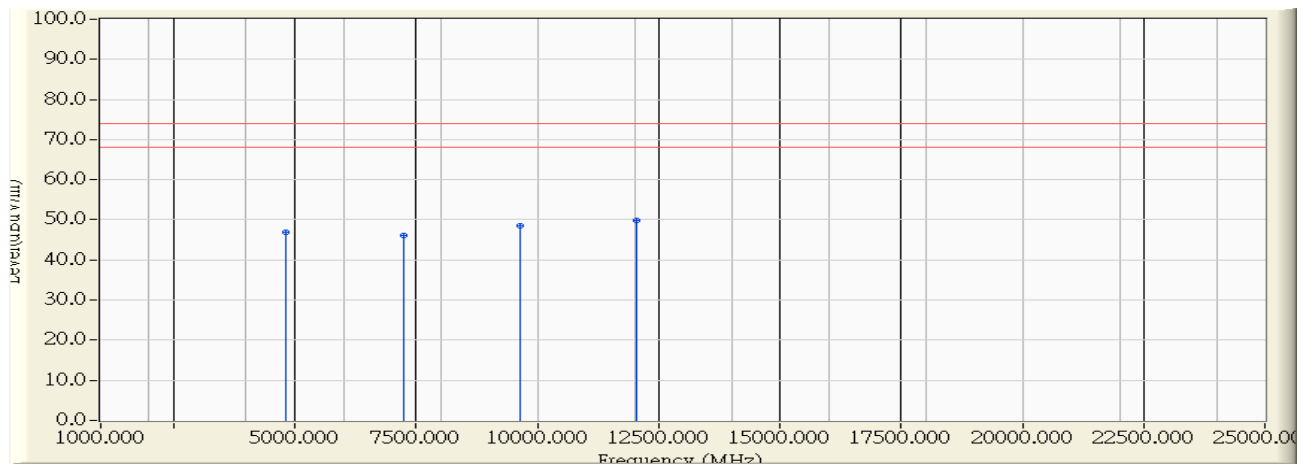


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4824.000	-0.617	44.840	44.223	-29.777	74.000	PEAK
2	7236.000	5.445	41.020	46.465	-27.535	74.000	PEAK
3	9648.000	9.226	39.510	48.736	-25.264	74.000	PEAK
4	* 12060.000	11.115	38.920	50.035	-23.965	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 14:49
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2412MHz

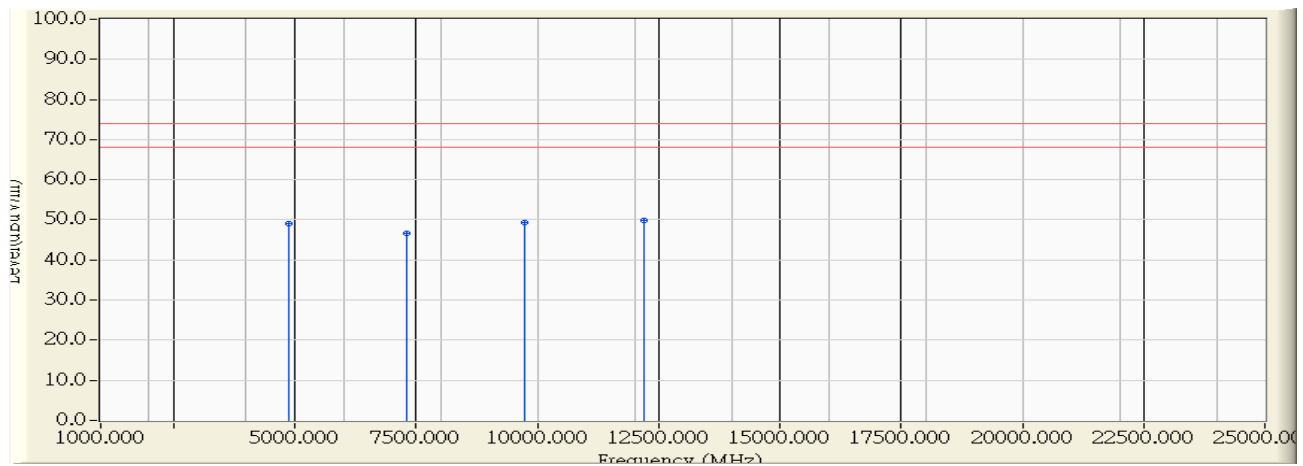


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4824.000	-0.617	47.450	46.833	-27.167	74.000	PEAK
2	7236.000	5.445	40.790	46.235	-27.765	74.000	PEAK
3	9648.000	9.226	39.330	48.556	-25.444	74.000	PEAK
4	* 12060.000	11.115	38.820	49.935	-24.065	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 15:19
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2437MHz

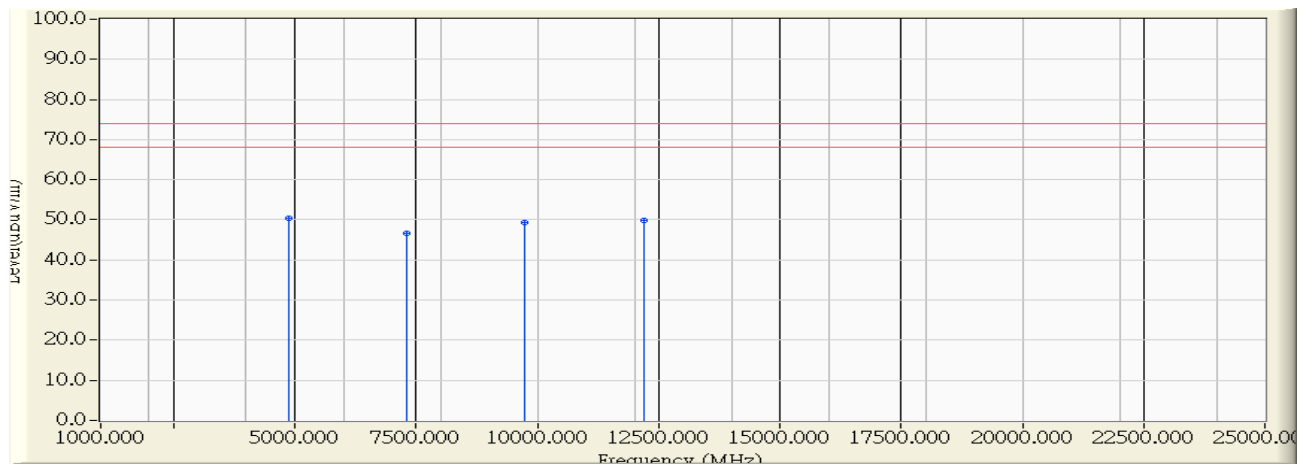


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4874.000	-0.495	49.450	48.955	-25.045	74.000	PEAK
2	7311.000	5.608	41.150	46.757	-27.243	74.000	PEAK
3	9748.000	9.873	39.510	49.383	-24.617	74.000	PEAK
4	* 12185.000	11.058	38.800	49.858	-24.142	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 15:31
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2437MHz

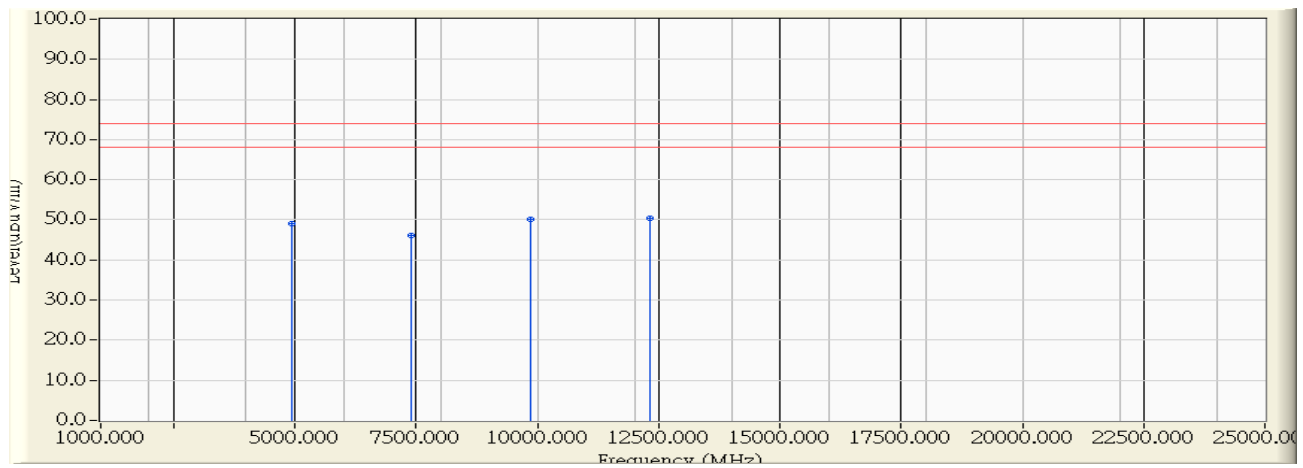


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4874.000	-0.495	50.930	50.435	-23.565	74.000	PEAK
2		7312.000	5.610	40.930	46.540	-27.460	74.000	PEAK
3		9748.000	9.873	39.380	49.253	-24.747	74.000	PEAK
4		12185.000	11.058	38.880	49.938	-24.062	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 15:49
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2462MHz

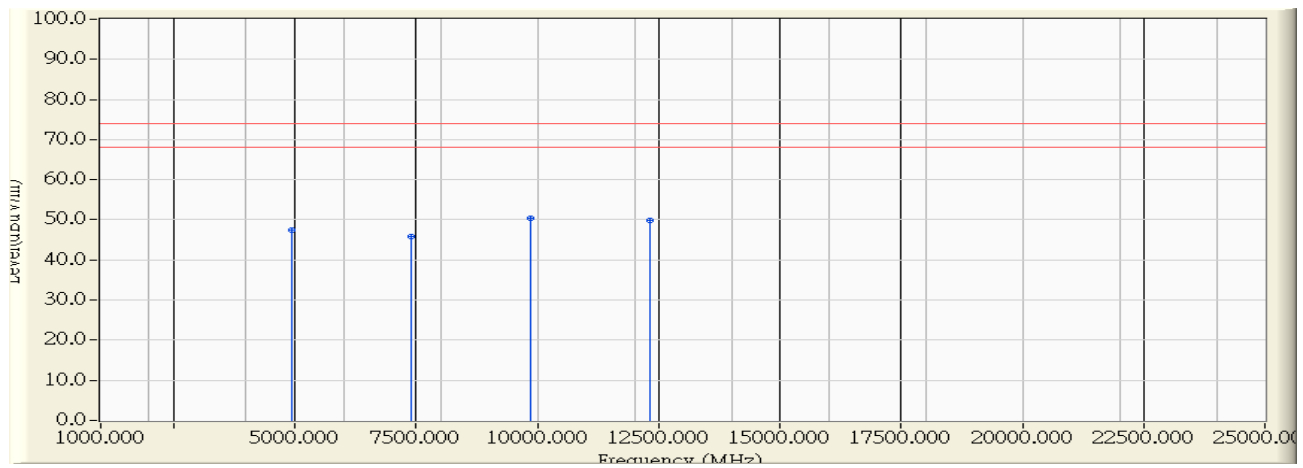


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4924.000	-0.373	49.380	49.007	-24.993	74.000	PEAK
2		7386.000	5.770	40.380	46.150	-27.850	74.000	PEAK
3		9848.000	10.521	39.610	50.131	-23.869	74.000	PEAK
4	*	12310.000	11.001	39.300	50.301	-23.699	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 15:54
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11b_2462MHz



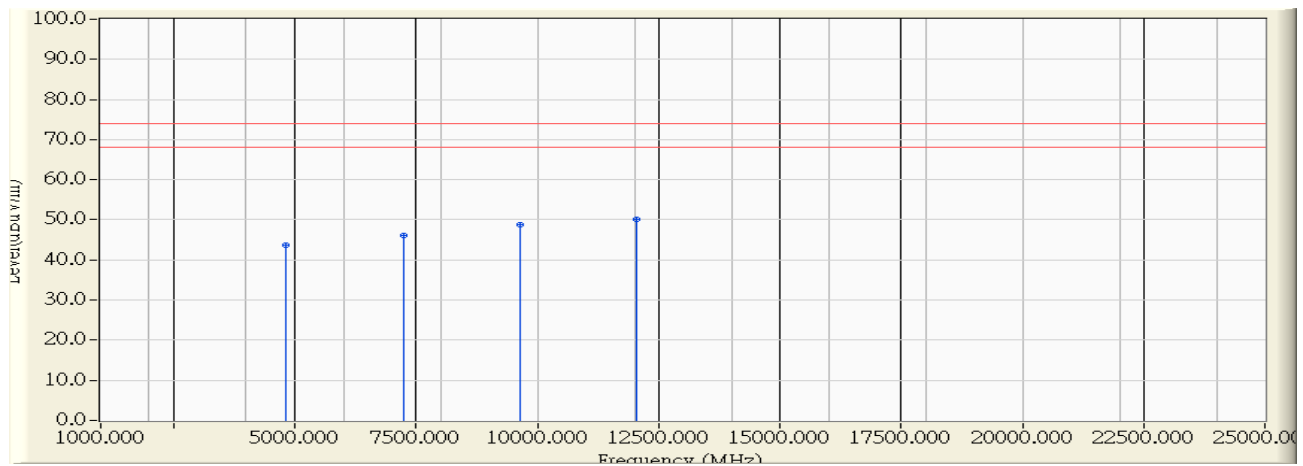
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4924.000	-0.373	47.840	47.467	-26.533	74.000	PEAK
2	7386.000	5.770	40.180	45.950	-28.050	74.000	PEAK
3	* 9848.000	10.521	39.790	50.311	-23.689	74.000	PEAK
4	12310.000	11.001	38.920	49.921	-24.079	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.



Site : CB3	Time : 2013/11/27 - 16:15
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2412MHz

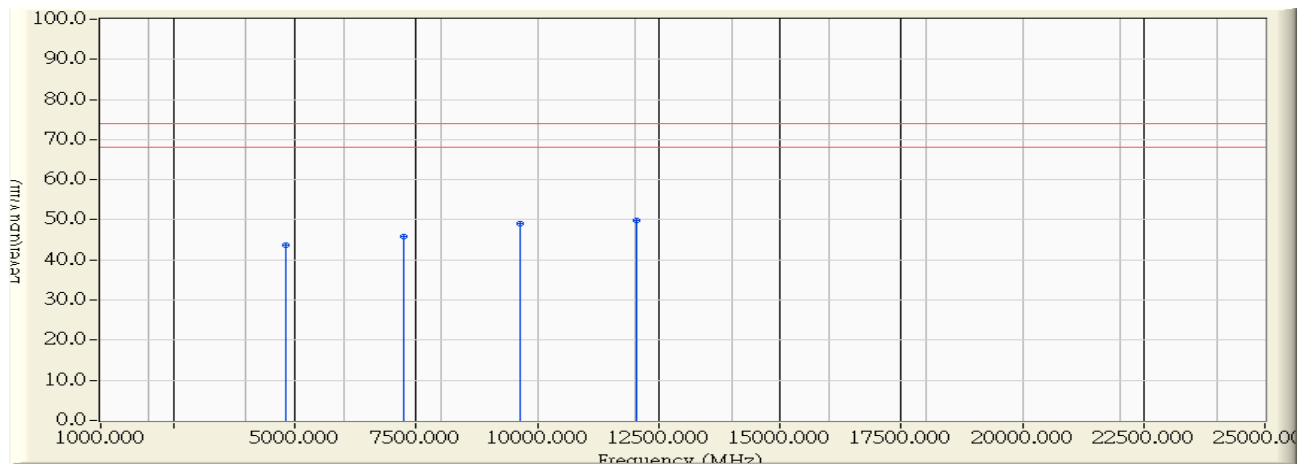


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-0.617	44.380	43.763	-30.237	74.000	PEAK
2		7236.000	5.445	40.570	46.015	-27.985	74.000	PEAK
3		9648.000	9.226	39.490	48.716	-25.284	74.000	PEAK
4	*	12060.000	11.115	38.940	50.055	-23.945	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 16:23
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2412MHz

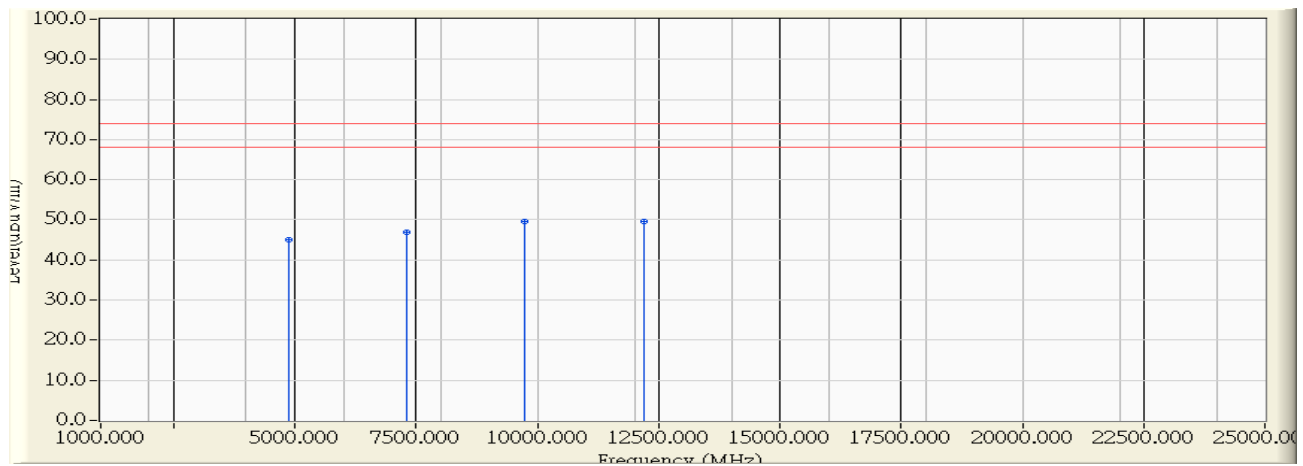


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4824.000	-0.617	44.450	43.833	-30.167	74.000	PEAK
2	7236.000	5.445	40.420	45.865	-28.135	74.000	PEAK
3	9648.000	9.226	39.750	48.976	-25.024	74.000	PEAK
4	* 12060.000	11.115	38.800	49.915	-24.085	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 16:30
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2437MHz

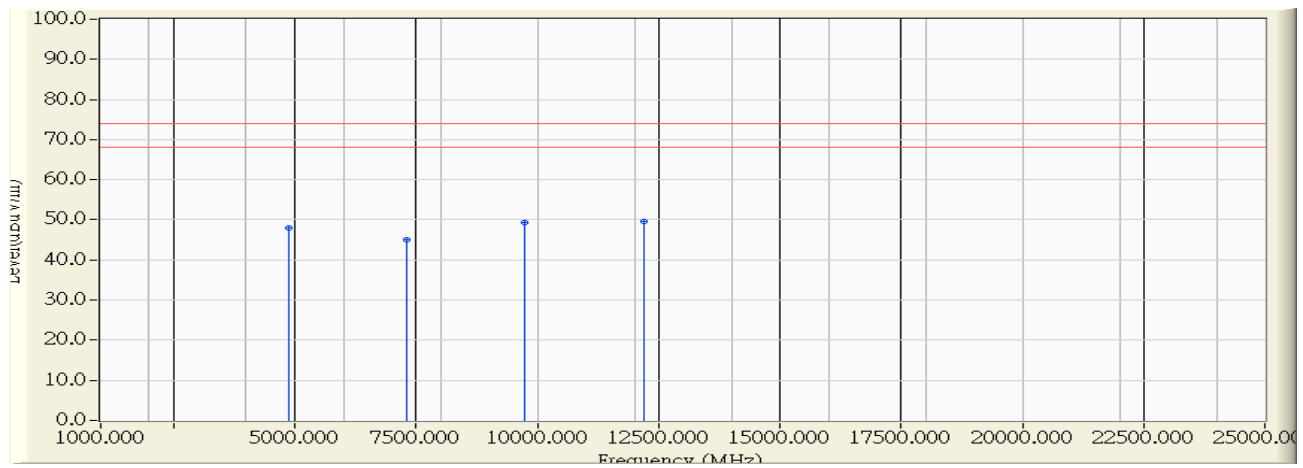


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4874.000	-0.495	45.510	45.015	-28.985	74.000	PEAK
2	7311.000	5.608	41.360	46.967	-27.033	74.000	PEAK
3	* 9748.000	9.873	39.780	49.653	-24.347	74.000	PEAK
4	12185.000	11.058	38.590	49.648	-24.352	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 16:38
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2437MHz

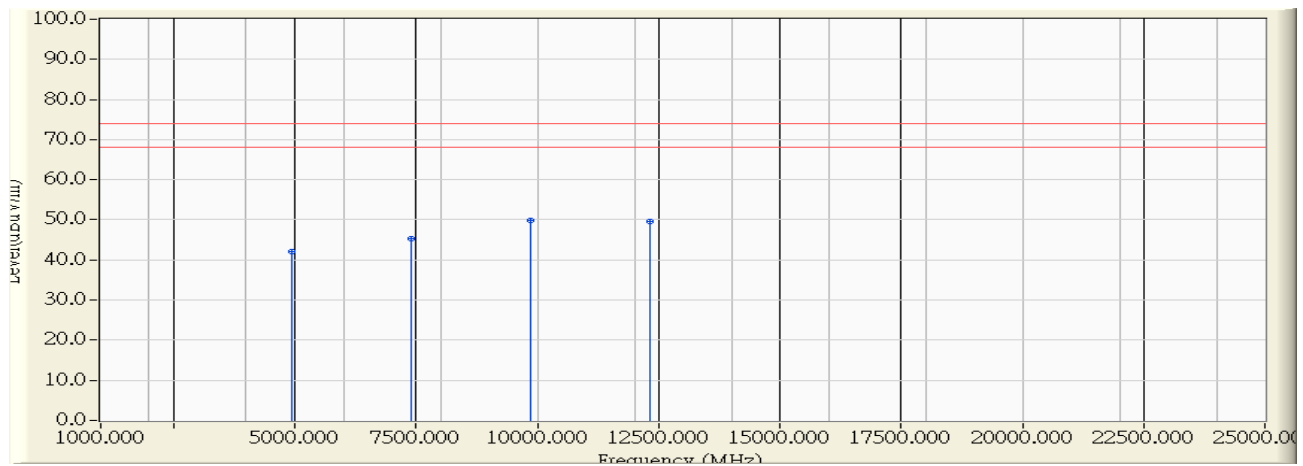


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4874.000	-0.495	48.450	47.955	-26.045	74.000	PEAK
2	7311.000	5.608	39.530	45.137	-28.863	74.000	PEAK
3	9748.000	9.873	39.470	49.343	-24.657	74.000	PEAK
4	* 12185.000	11.058	38.660	49.718	-24.282	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 16:47
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2462MHz

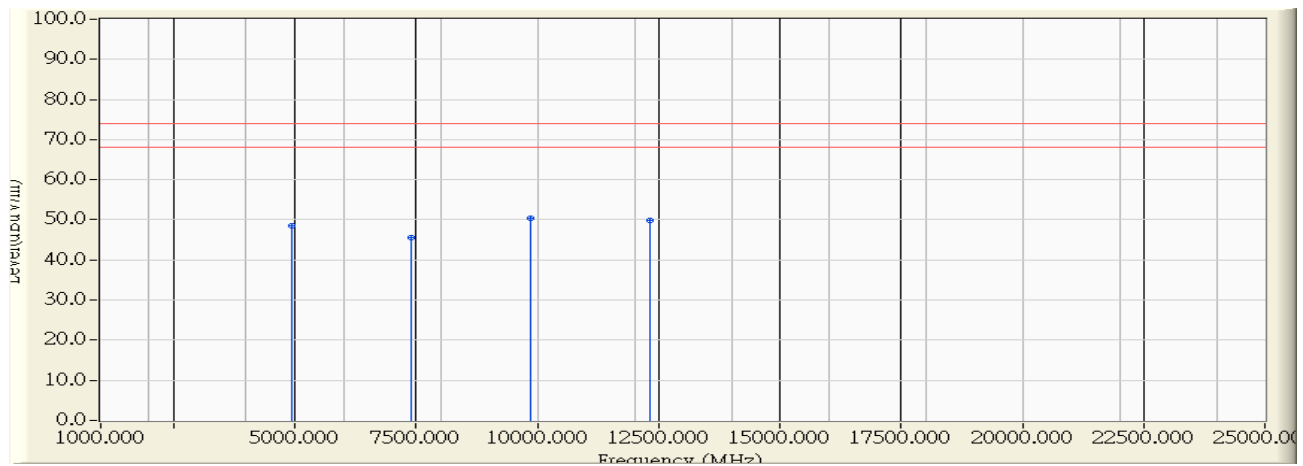


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4924.000	-0.373	42.380	42.007	-31.993	74.000	PEAK
2	7386.000	5.770	39.550	45.320	-28.680	74.000	PEAK
3	* 9848.000	10.521	39.460	49.981	-24.019	74.000	PEAK
4	12310.000	11.001	38.570	49.571	-24.429	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:03
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11g_2462MHz

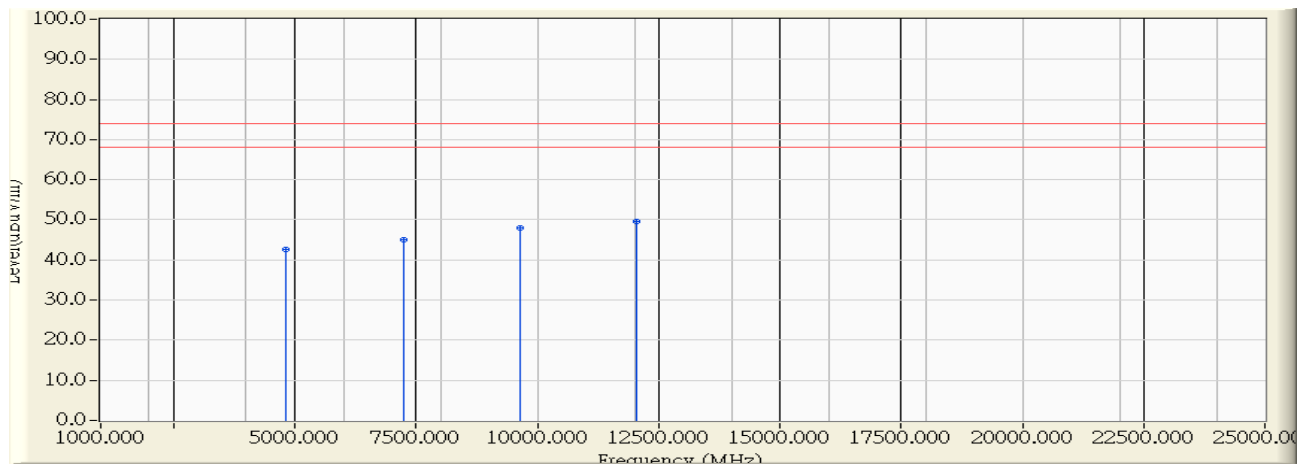


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4924.000	-0.373	48.830	48.457	-25.543	74.000	PEAK
2	7386.000	5.770	39.910	45.680	-28.320	74.000	PEAK
3	* 9848.000	10.521	39.860	50.381	-23.619	74.000	PEAK
4	12310.000	11.001	38.840	49.841	-24.159	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:10
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2412MHz

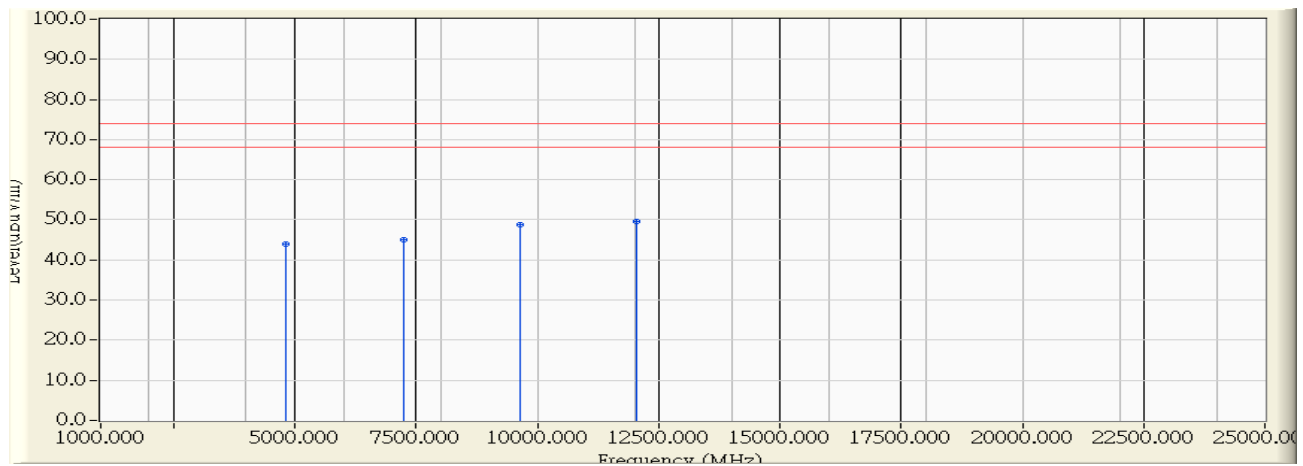


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4824.000	-0.617	43.170	42.553	-31.447	74.000	PEAK
2	7236.000	5.445	39.510	44.955	-29.045	74.000	PEAK
3	9648.000	9.226	38.720	47.946	-26.054	74.000	PEAK
4	* 12060.000	11.115	38.510	49.625	-24.375	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:15
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2412MHz



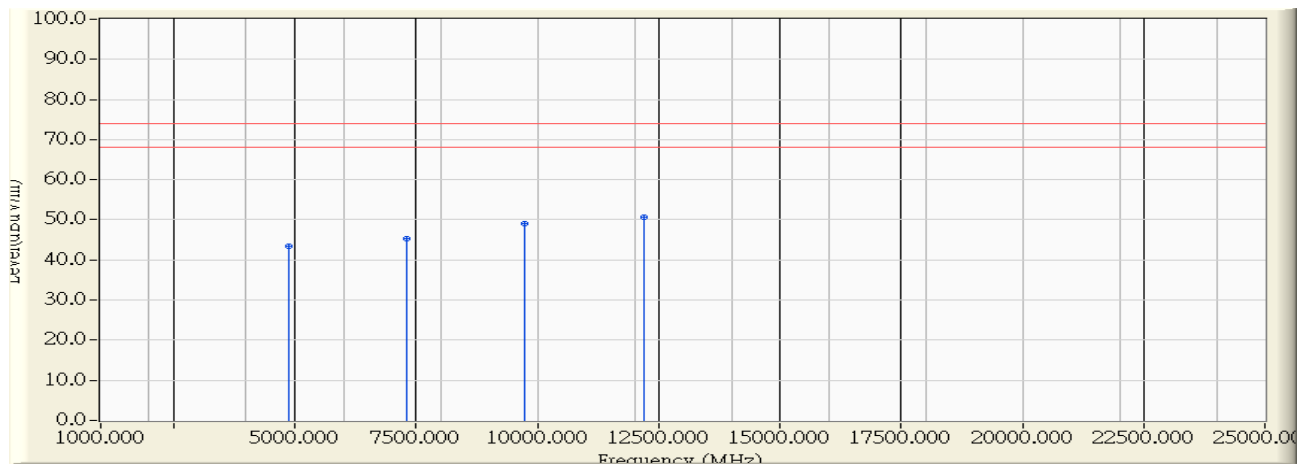
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4824.000	-0.617	44.700	44.083	-29.917	74.000	PEAK
2		7236.000	5.445	39.520	44.965	-29.035	74.000	PEAK
3		9648.000	9.226	39.490	48.716	-25.284	74.000	PEAK
4	*	12060.000	11.115	38.520	49.635	-24.365	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.



Site : CB3	Time : 2013/11/27 - 17:21
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2437MHz

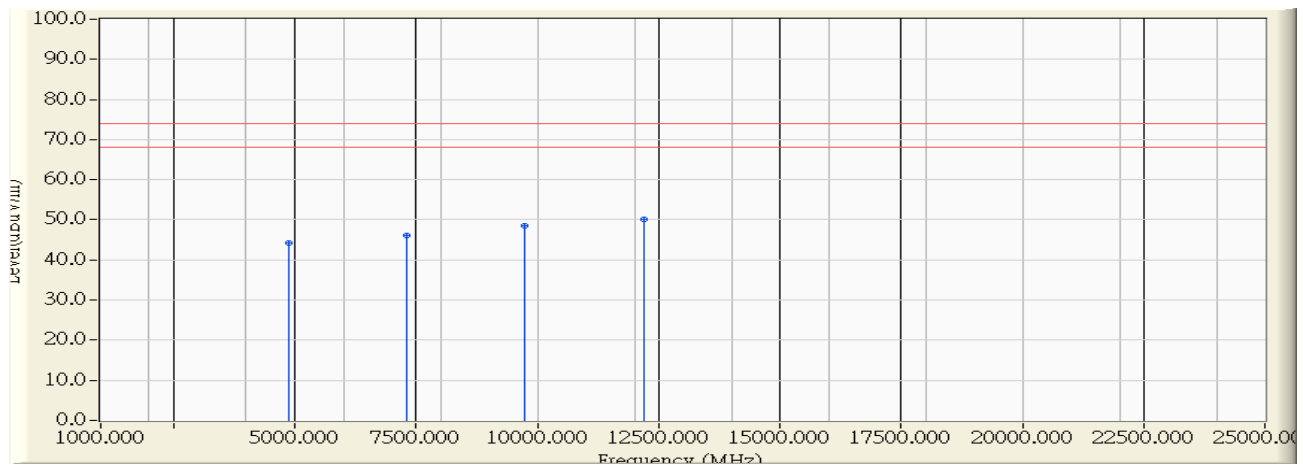


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4874.000	-0.495	43.830	43.335	-30.665	74.000	PEAK
2	7311.000	5.608	39.780	45.387	-28.613	74.000	PEAK
3	9748.000	9.873	39.210	49.083	-24.917	74.000	PEAK
4	* 12185.000	11.058	39.580	50.638	-23.362	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:27
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2437MHz

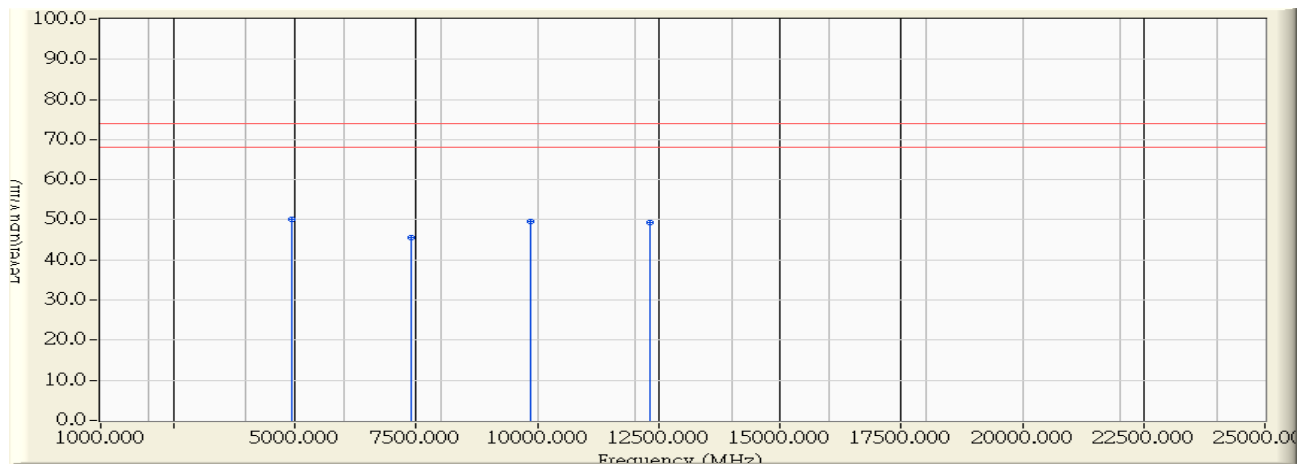


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4874.000	-0.495	44.700	44.205	-29.795	74.000	PEAK
2		7311.000	5.608	40.570	46.177	-27.823	74.000	PEAK
3		9748.000	9.873	38.710	48.583	-25.417	74.000	PEAK
4	*	12185.000	11.058	39.120	50.178	-23.822	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:36
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2462MHz

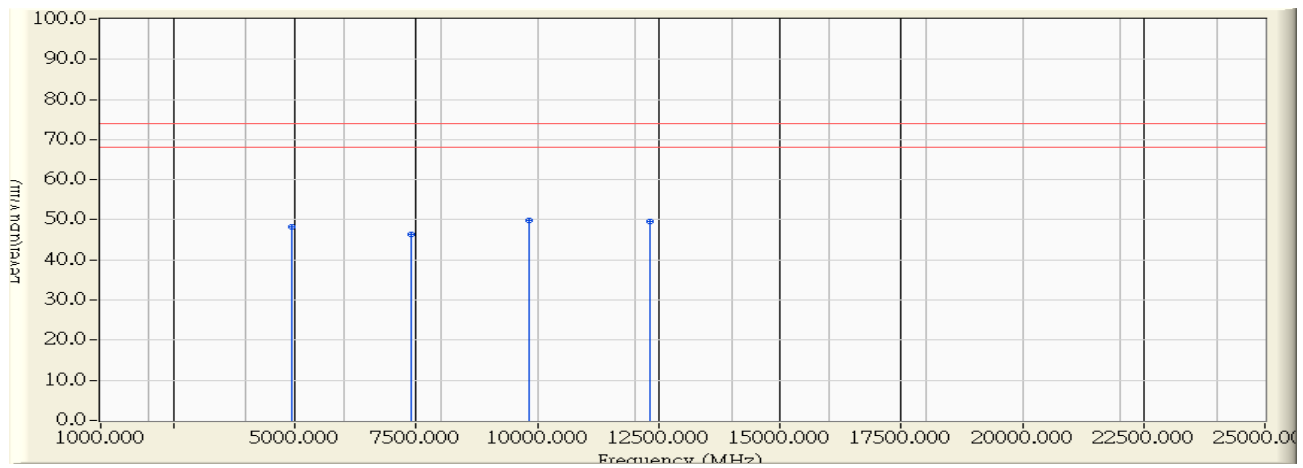


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4924.000	-0.373	50.510	50.137	-23.863	74.000	PEAK
2		7386.000	5.770	39.910	45.680	-28.320	74.000	PEAK
3		9848.000	10.521	39.210	49.731	-24.269	74.000	PEAK
4		12310.000	11.001	38.410	49.411	-24.589	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:42
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n20MHz_2462MHz

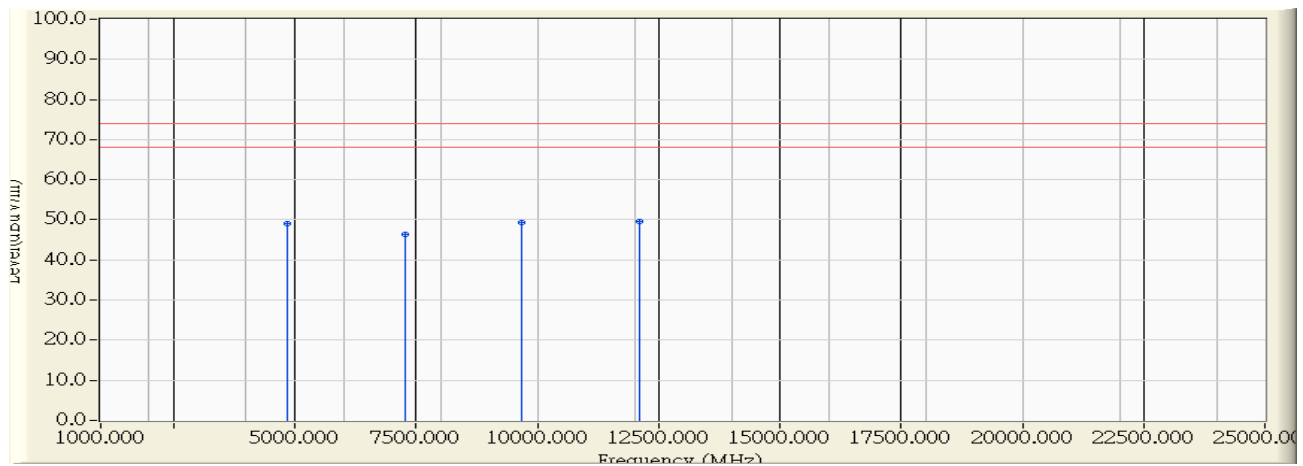


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4924.000	-0.373	48.580	48.207	-25.793	74.000	PEAK
2	7386.000	5.770	40.480	46.250	-27.750	74.000	PEAK
3	* 9843.000	10.488	39.480	49.968	-24.032	74.000	PEAK
4	12310.000	11.001	38.640	49.641	-24.359	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 17:53
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2422MHz

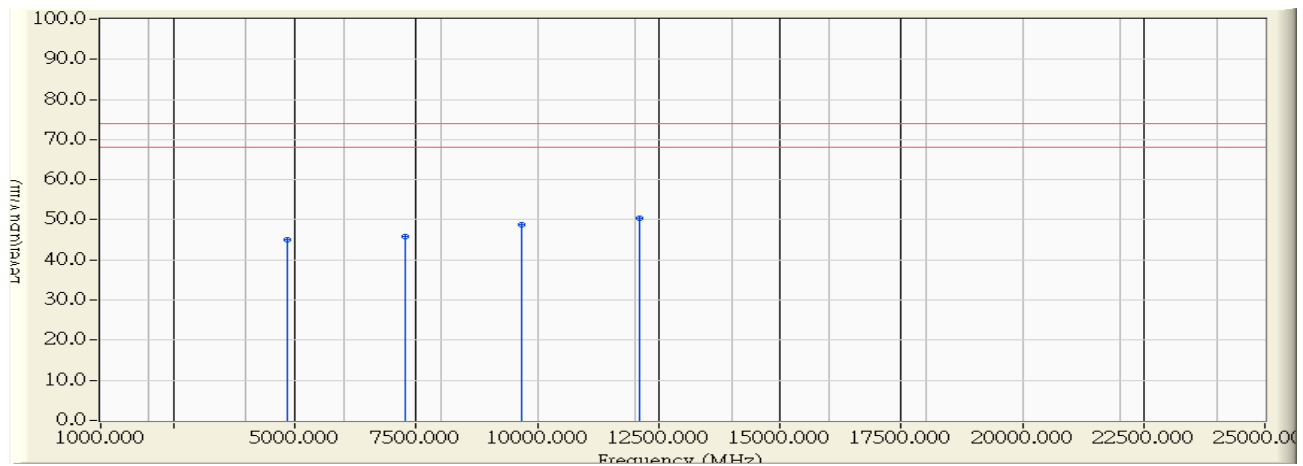


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4844.000	-0.568	49.500	48.932	-25.068	74.000	PEAK
2	7266.000	5.510	40.990	46.500	-27.500	74.000	PEAK
3	9688.000	9.485	39.810	49.295	-24.705	74.000	PEAK
4	* 12110.000	11.093	38.440	49.533	-24.467	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 18:00
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2422MHz

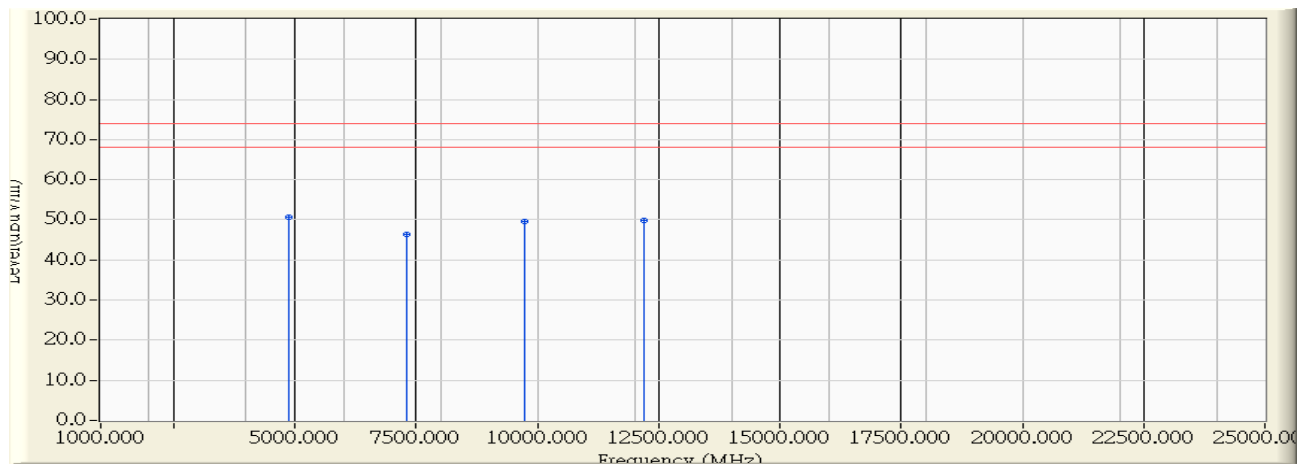


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4844.000	-0.568	45.730	45.162	-28.838	74.000	PEAK
2	7266.000	5.510	40.360	45.870	-28.130	74.000	PEAK
3	9688.000	9.485	39.380	48.865	-25.135	74.000	PEAK
4	* 12110.000	11.093	39.230	50.323	-23.677	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 20:46
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MHz

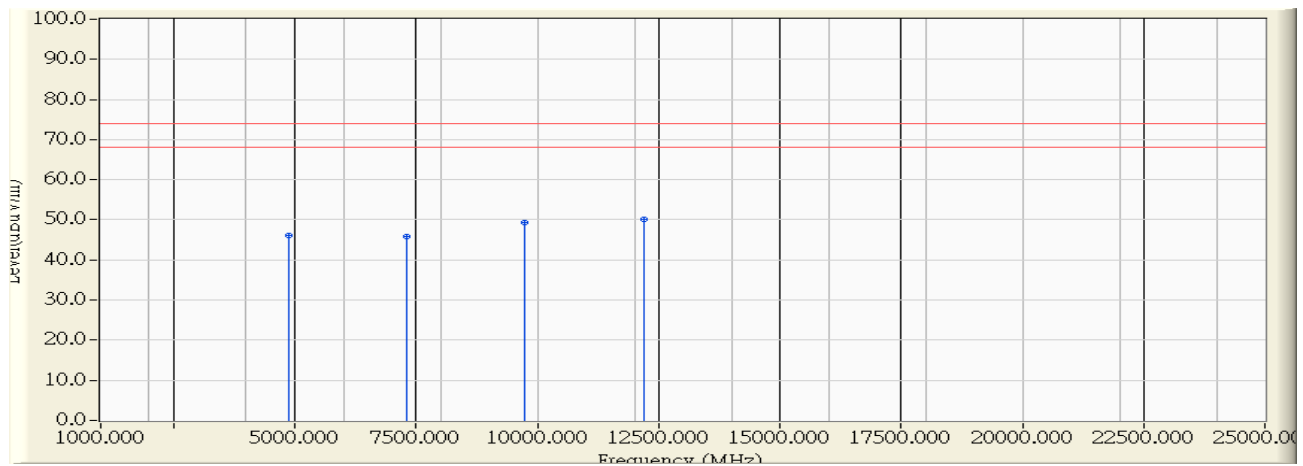


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4874.000	-0.495	51.130	50.635	-23.365	74.000	PEAK
2		7311.000	5.608	40.730	46.337	-27.663	74.000	PEAK
3		9748.000	9.873	39.650	49.523	-24.477	74.000	PEAK
4		12185.000	11.058	38.820	49.878	-24.122	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 20:52
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2437MHz



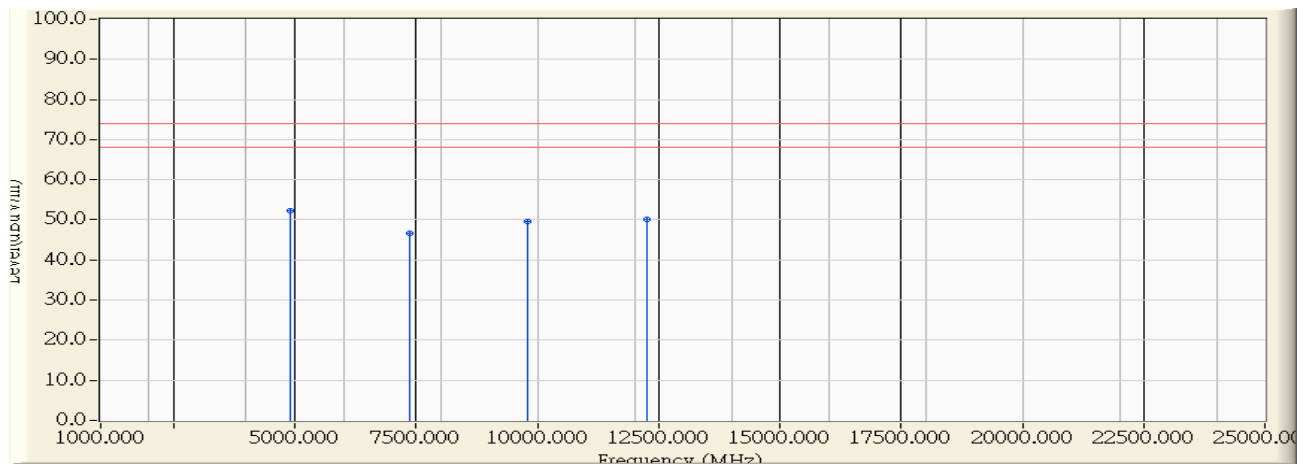
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4874.000	-0.495	46.510	46.015	-27.985	74.000	PEAK
2	7311.000	5.608	40.350	45.957	-28.043	74.000	PEAK
3	9748.000	9.873	39.580	49.453	-24.547	74.000	PEAK
4	* 12185.000	11.058	39.030	50.088	-23.912	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.



Site : CB3	Time : 2013/11/27 - 21:00
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2452MHz

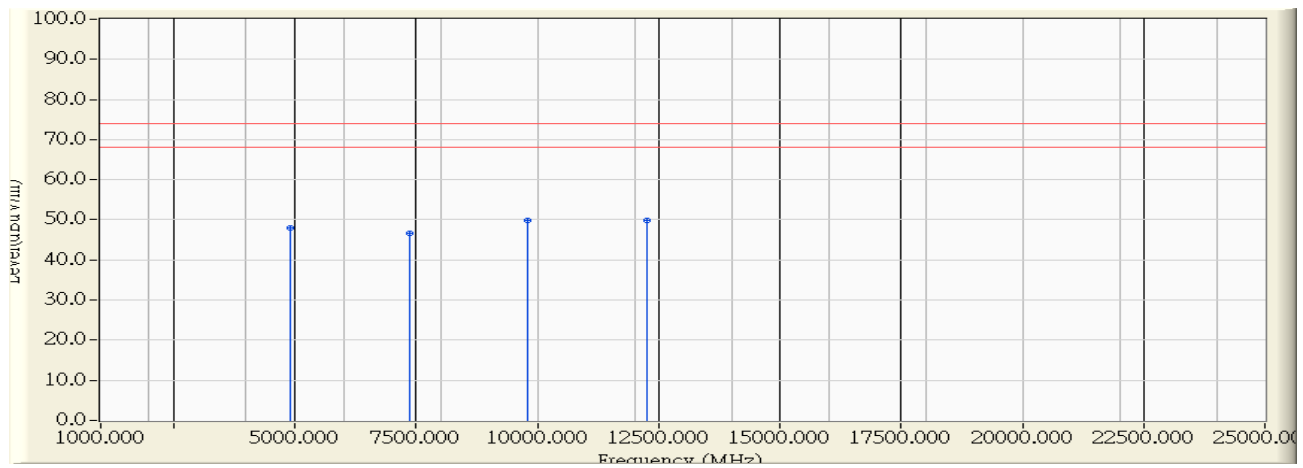


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4904.000	-0.421	52.790	52.369	-21.631	74.000	PEAK
2		7356.000	5.705	41.040	46.745	-27.255	74.000	PEAK
3		9808.000	10.262	39.270	49.532	-24.468	74.000	PEAK
4		12260.000	11.024	39.000	50.024	-23.976	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

Site : CB3	Time : 2013/11/27 - 21:08
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB3_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless N GPON HGU with 4-port GbE Switch	Note : Mode 1: Transmit (Power Adapter: YINGJU) 802.11n40MHz_2452MHz



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	4904.000	-0.421	48.310	47.889	-26.111	74.000	PEAK
2	7356.000	5.705	40.870	46.575	-27.425	74.000	PEAK
3	* 9808.000	10.262	39.670	49.932	-24.068	74.000	PEAK
4	12260.000	11.024	38.840	49.864	-24.136	74.000	PEAK

**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 = 10 Hz, 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. The Emission above 18GHz were not included is because their levels are too low.

**5. RF antenna conducted test**

**5.1. Test Equipment**

The following test equipments are used during the test:

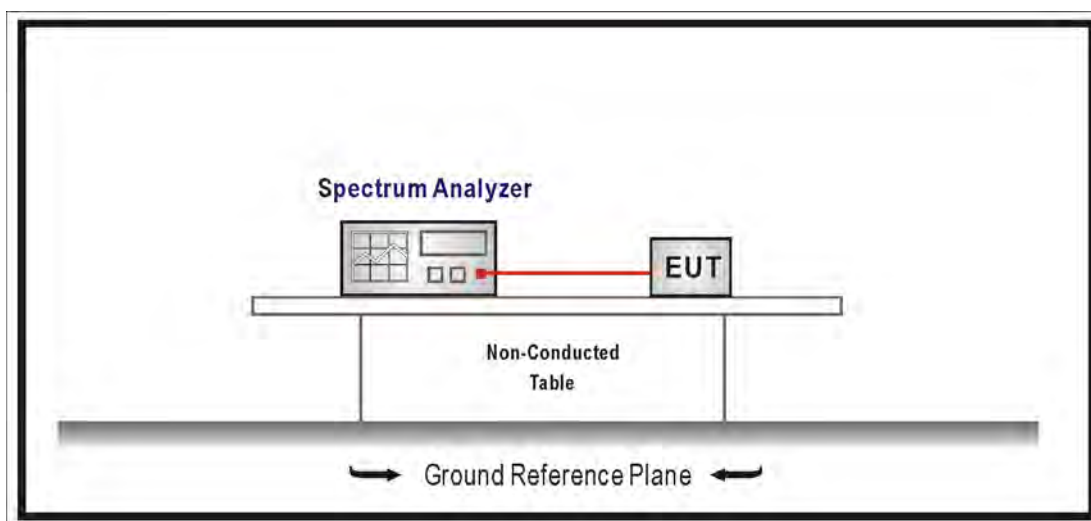
RF antenna conducted test / SR7

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A-EXA	US47140172	2014/08/05

Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

**5.2. Test Setup**

RF Antenna Conducted Measurement:



### 5.3. Limit

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 an RF conducted or 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)).

### 5.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of KDB558074 v03r01 for compliance to FCC 47CFR 15.247 requirements Set RBW = 100 kHz, Set VBW  $\geq$  3xRBW, scan up through 10th harmonic.

### 5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

### 5.6. Uncertainty

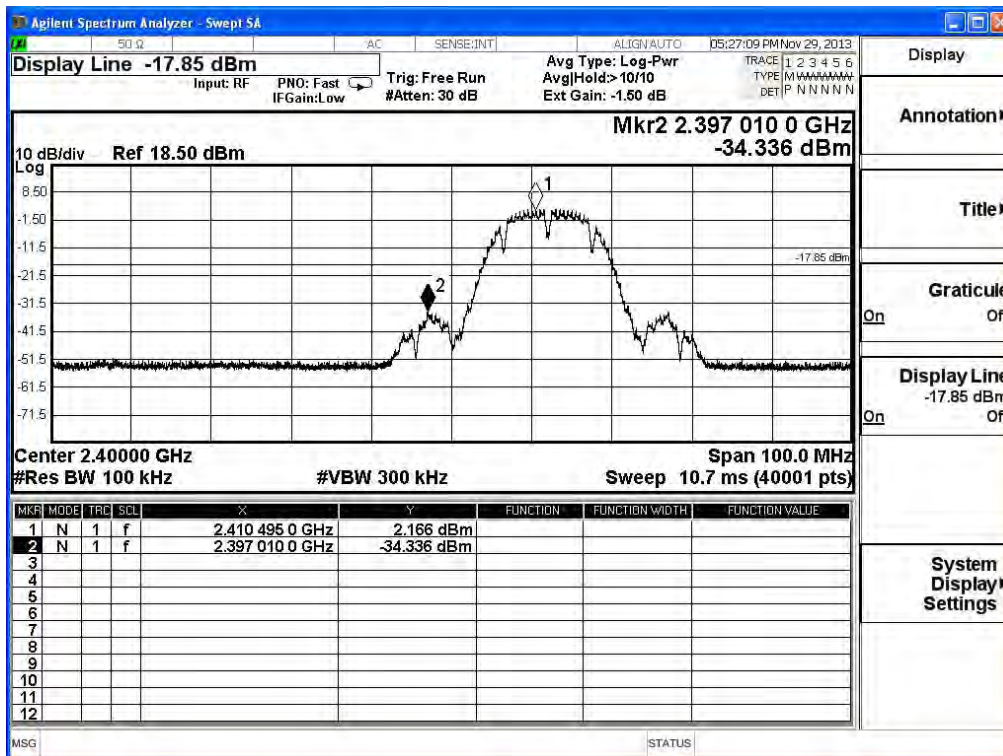
Conducted is defined as  $\pm 1.27$ dB

## 5.7. Test Result

Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

IEEE 802.11b, Duty Cycle: 1				
Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
1	2412	36.50	$\geq 20$	Pass
6	2437	55.51	$\geq 20$	Pass
11	2462	55.09	$\geq 20$	Pass

### Channel 01 (2412MHz)



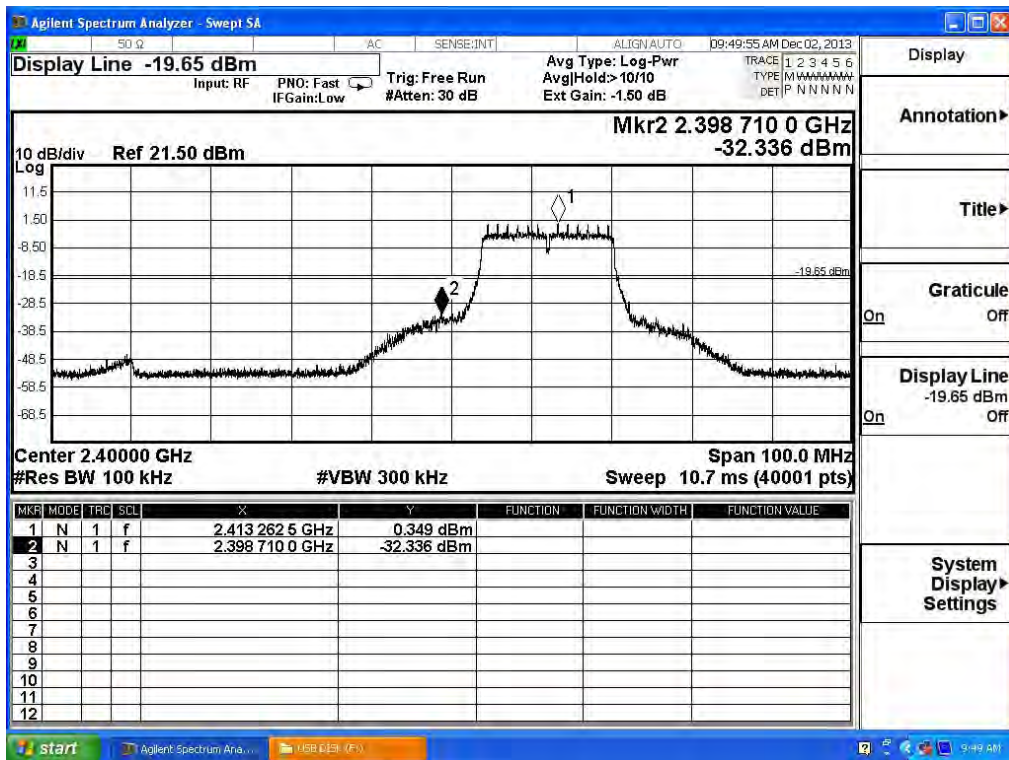


Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

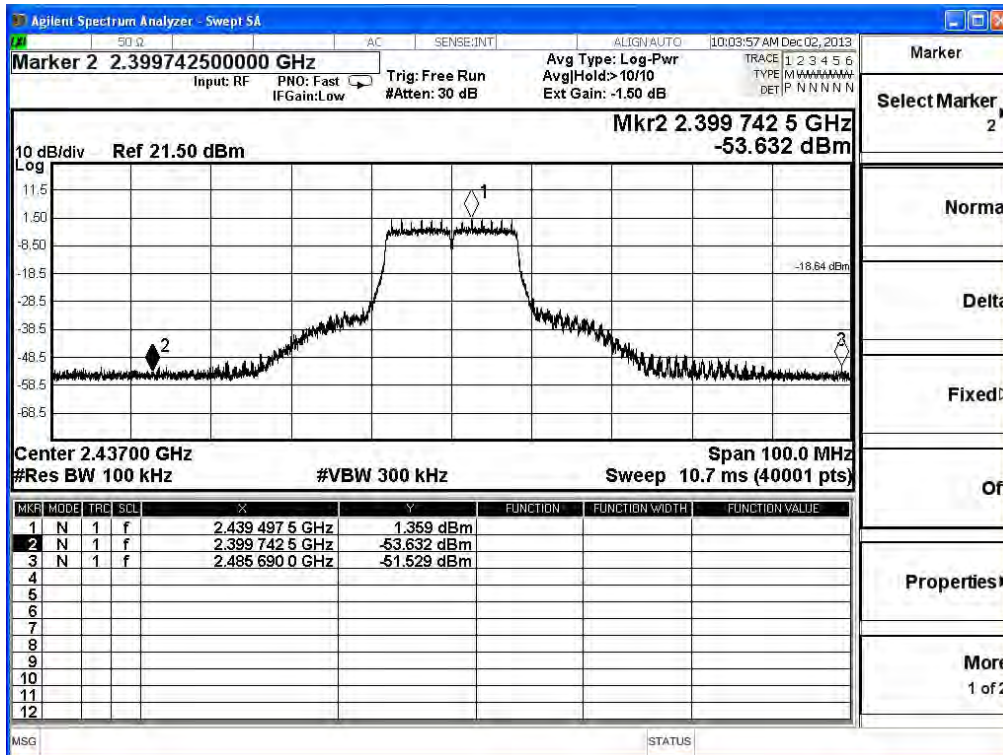
IEEE 802.11g, Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
1	2412	32.69	$\geq 20$	Pass
6	2437	52.89	$\geq 20$	Pass
11	2462	47.09	$\geq 20$	Pass

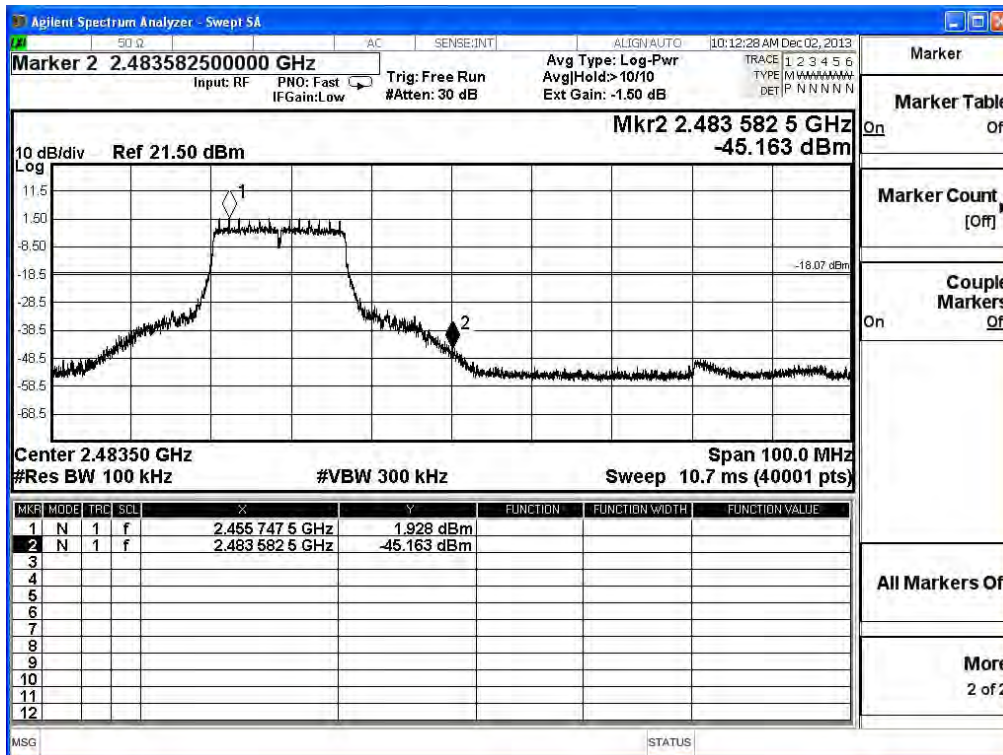
### Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



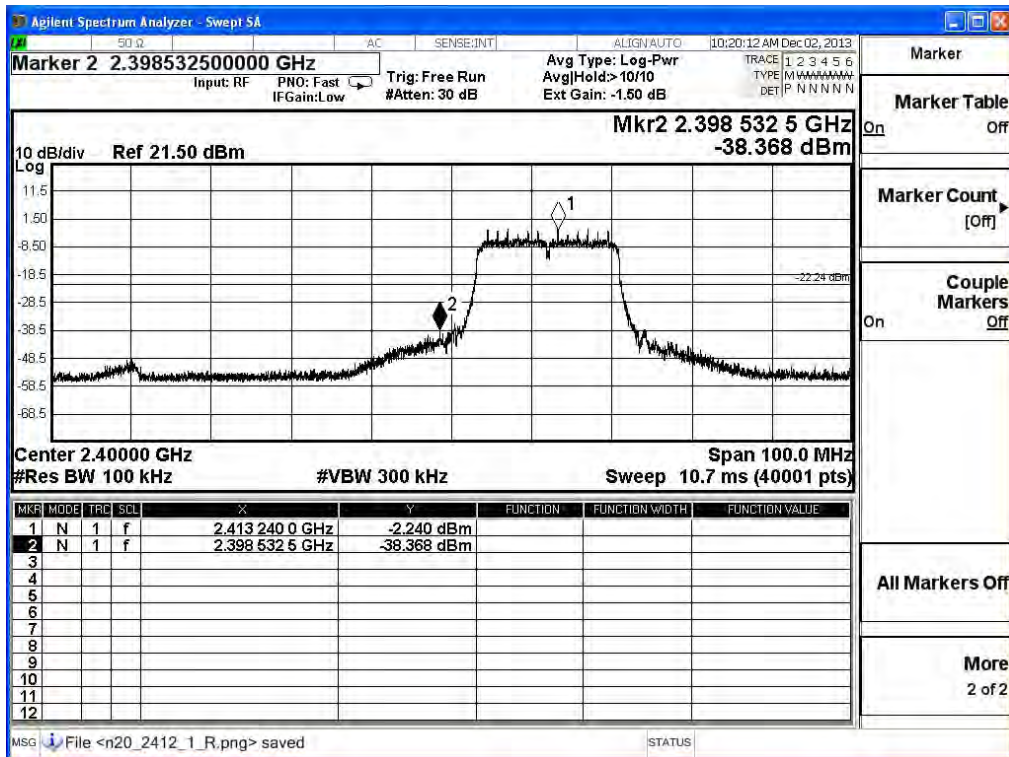


Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

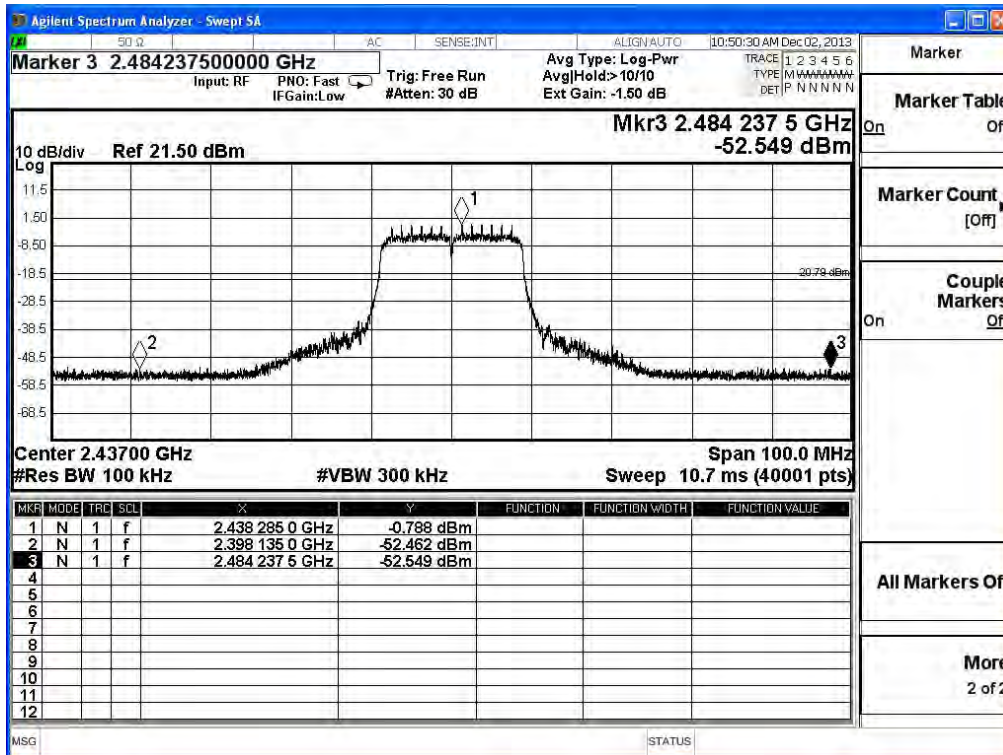
IEEE 802.11n (20MHz)(Ant 0), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
1	2412	36.13	$\geq 20$	Pass
6	2437	51.67	$\geq 20$	Pass
11	2462	49.37	$\geq 20$	Pass

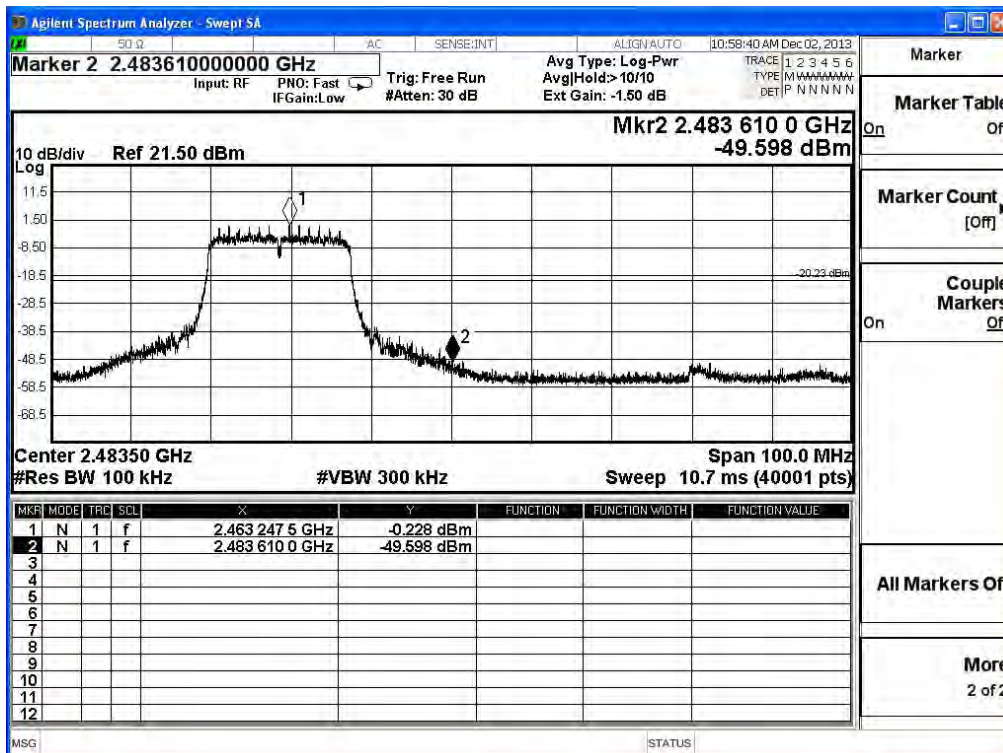
### Channel 1 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

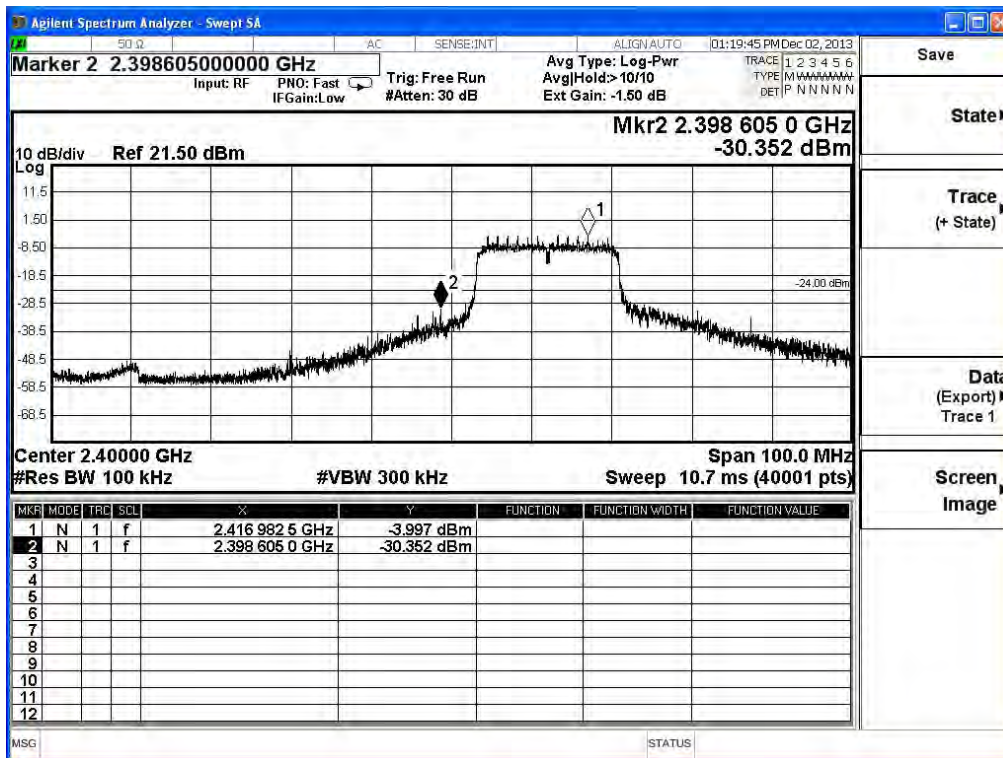


Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

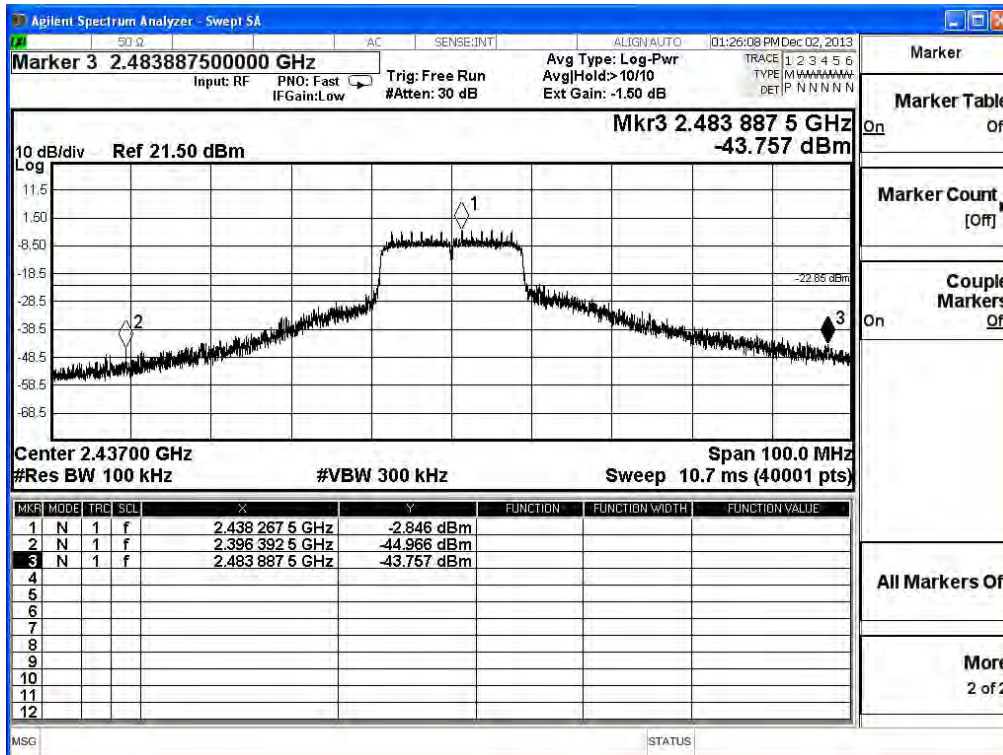
IEEE 802.11n (20MHz)(Ant 1), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
1	2412	26.36	$\geq 20$	Pass
6	2437	40.91	$\geq 20$	Pass
11	2462	27.42	$\geq 20$	Pass

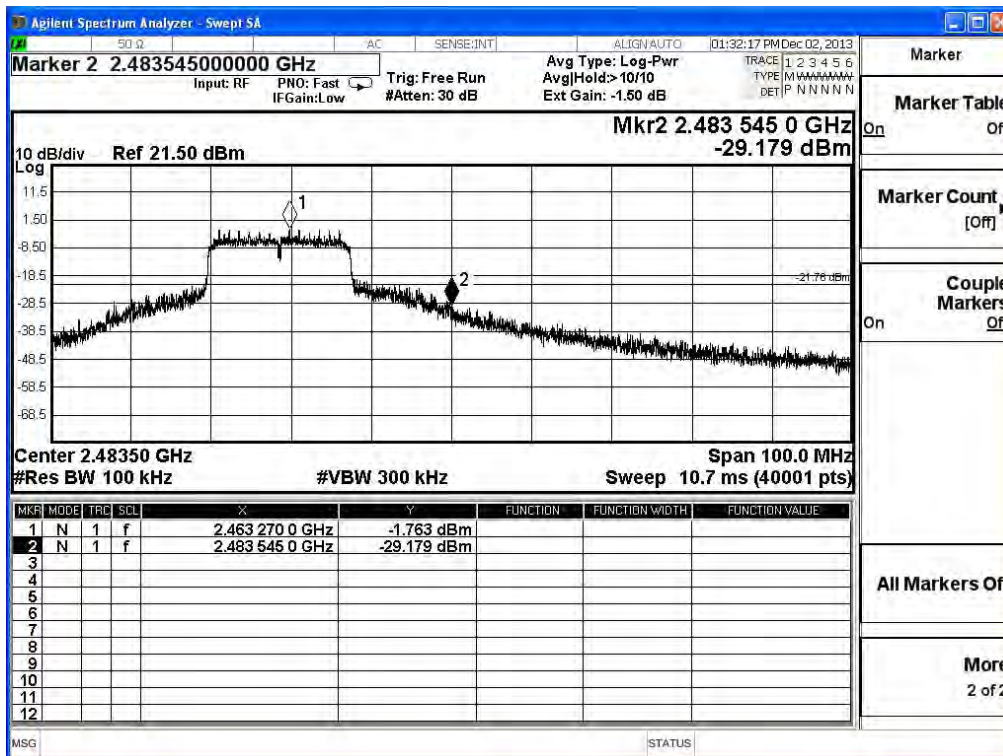
### Channel 1 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)

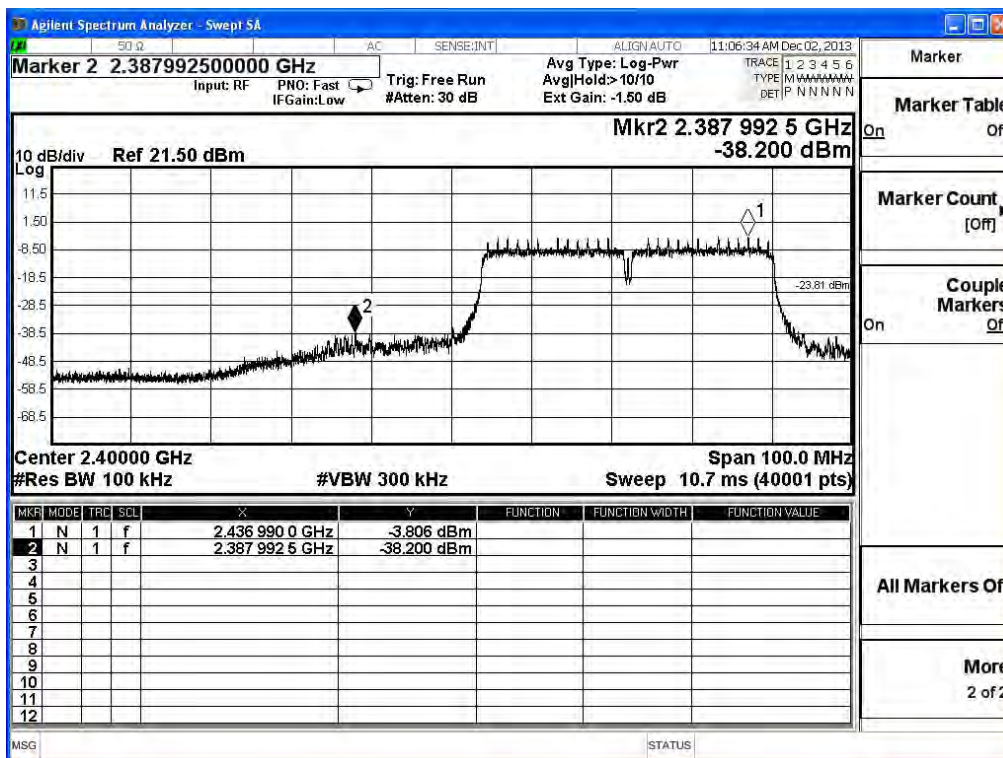


Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

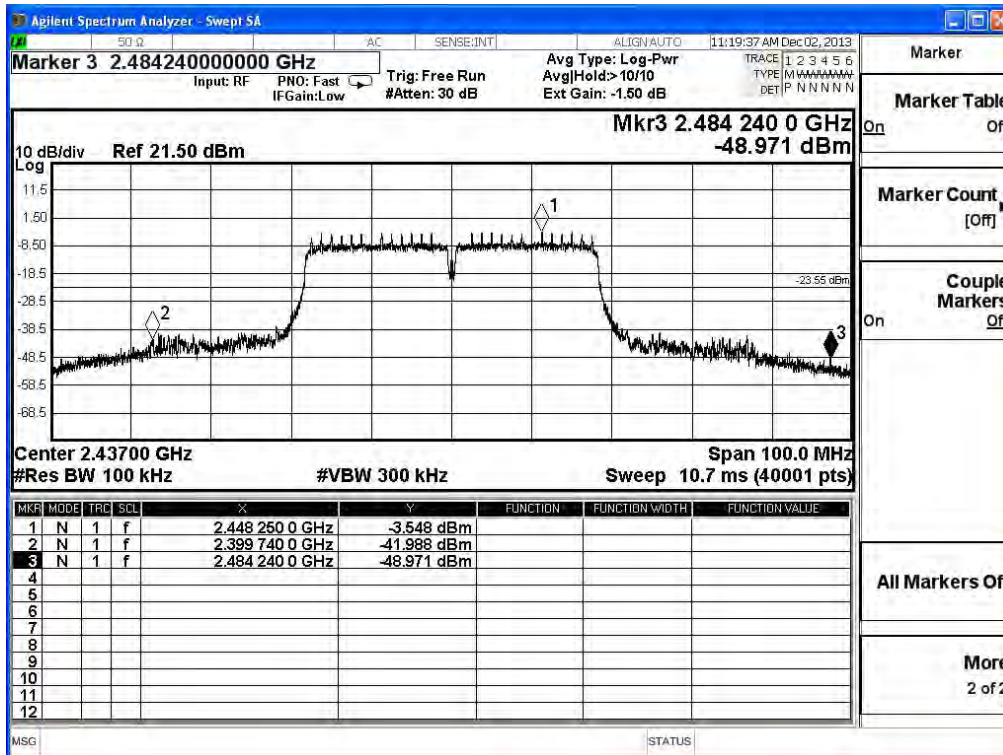
IEEE 802.11n (40MHz)(Ant 0), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
3	2422	34.39	$\geq 20$	Pass
6	2437	38.44	$\geq 20$	Pass
9	2452	36.07	$\geq 20$	Pass

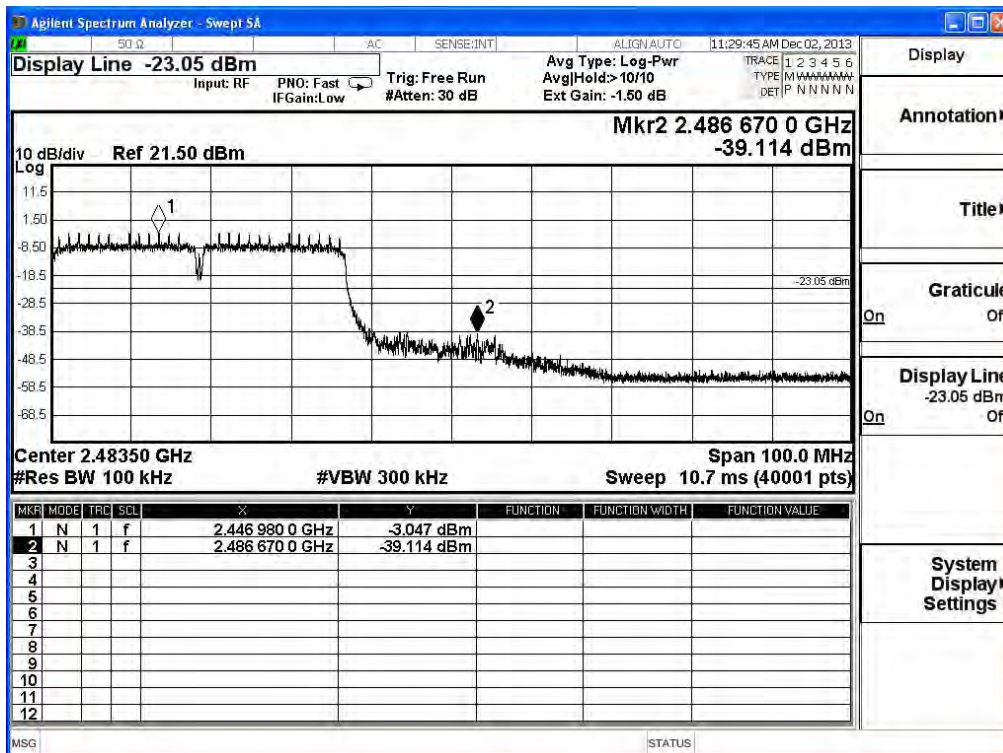
### Channel 3 (2422MHz)



Channel 06 (2437MHz)



Channel 9 (2452MHz)

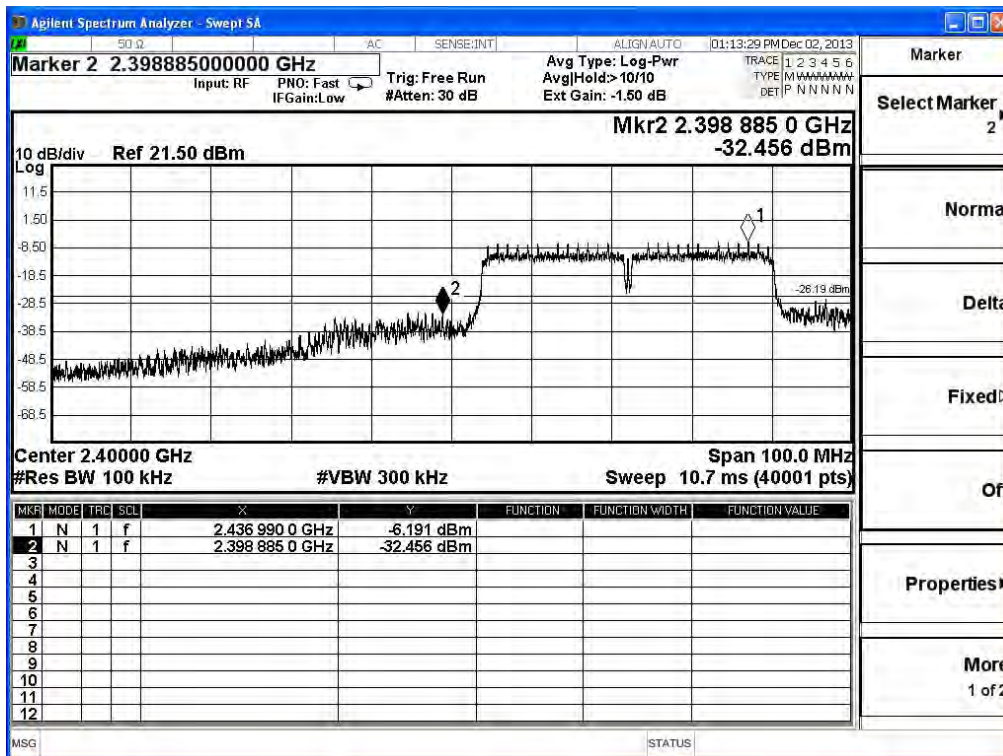


Product	Wireless N GPON HGU with 4-port GbE Switch		
Test Item	RF antenna conducted test		
Test Mode	Mode 1: Transmit		
Date of Test	2013/12/02	Test Site	SR7

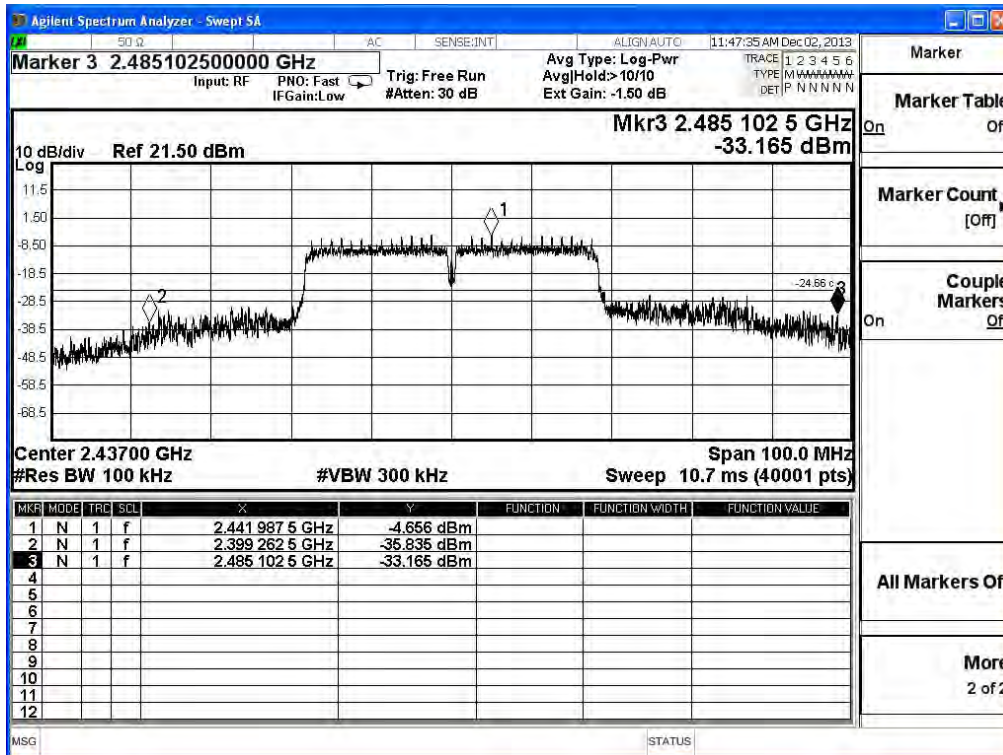
IEEE 802.11n (40MHz)(Ant 1), Duty Cycle: 1

Channel No.	Frequency (MHz)	Measure Level (dBc)	Limit (dBc)	Result
3	2422	26.27	$\geq 20$	Pass
6	2437	28.51	$\geq 20$	Pass
9	2452	22.25	$\geq 20$	Pass

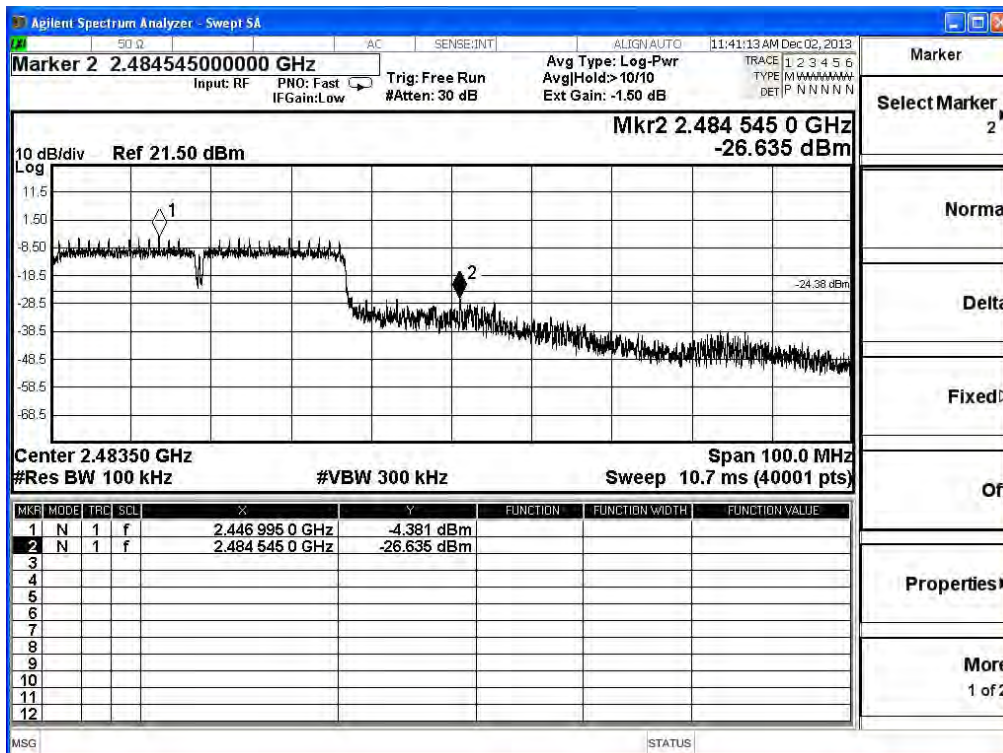
### Channel 3 (2422MHz)



Channel 06 (2437MHz)

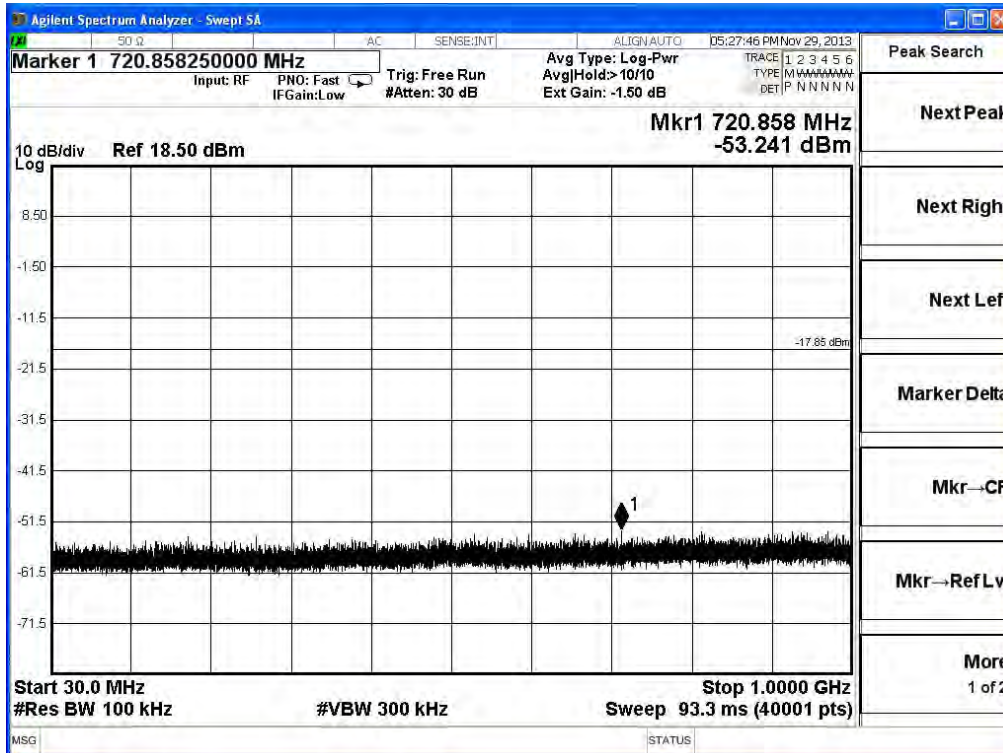


Channel 9 (2452MHz)

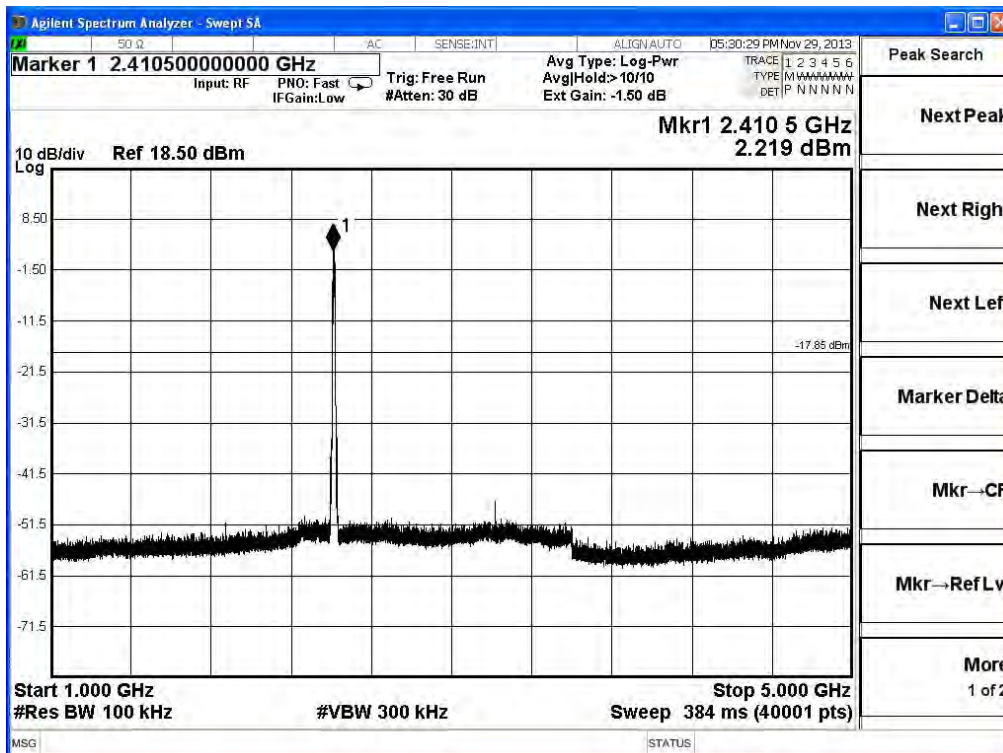




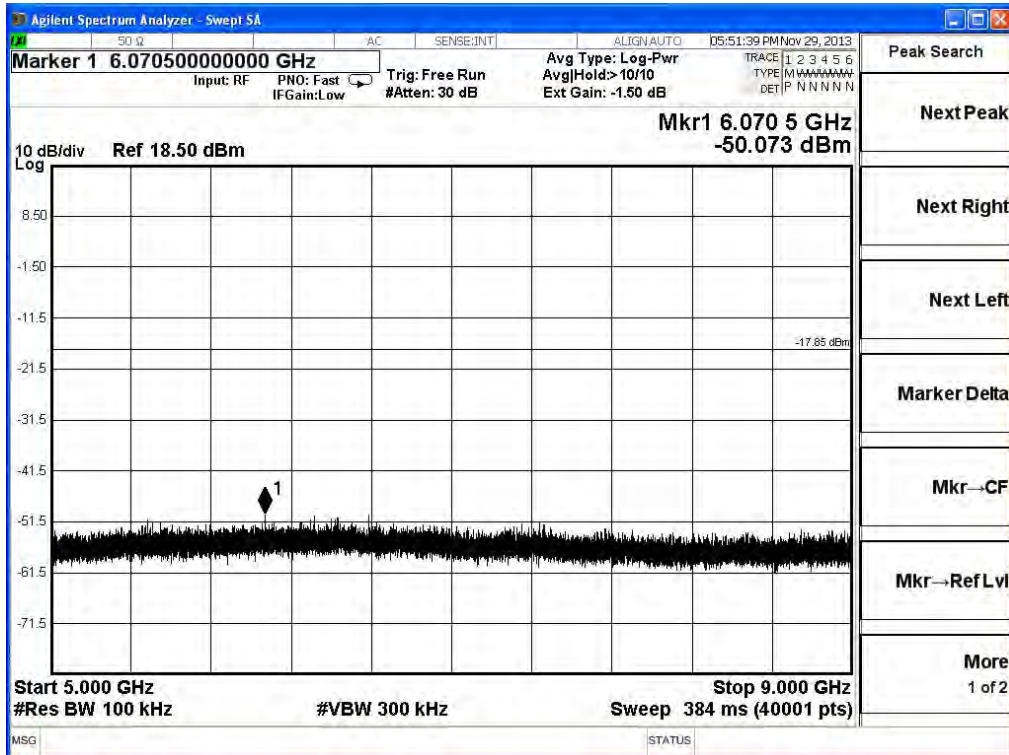
2412MHz (30MHz-1GHz)-802.11b



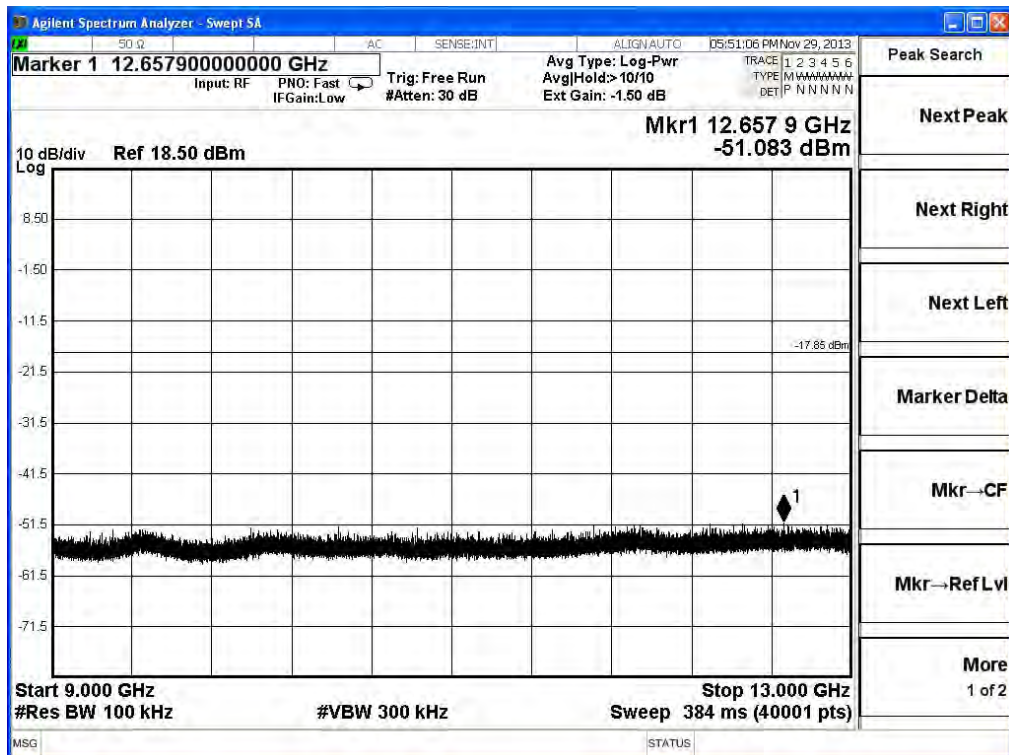
2412MHz (1GHz-5GHz) -802.11b



2412MHz (5GHz-9GHz)-802.11b

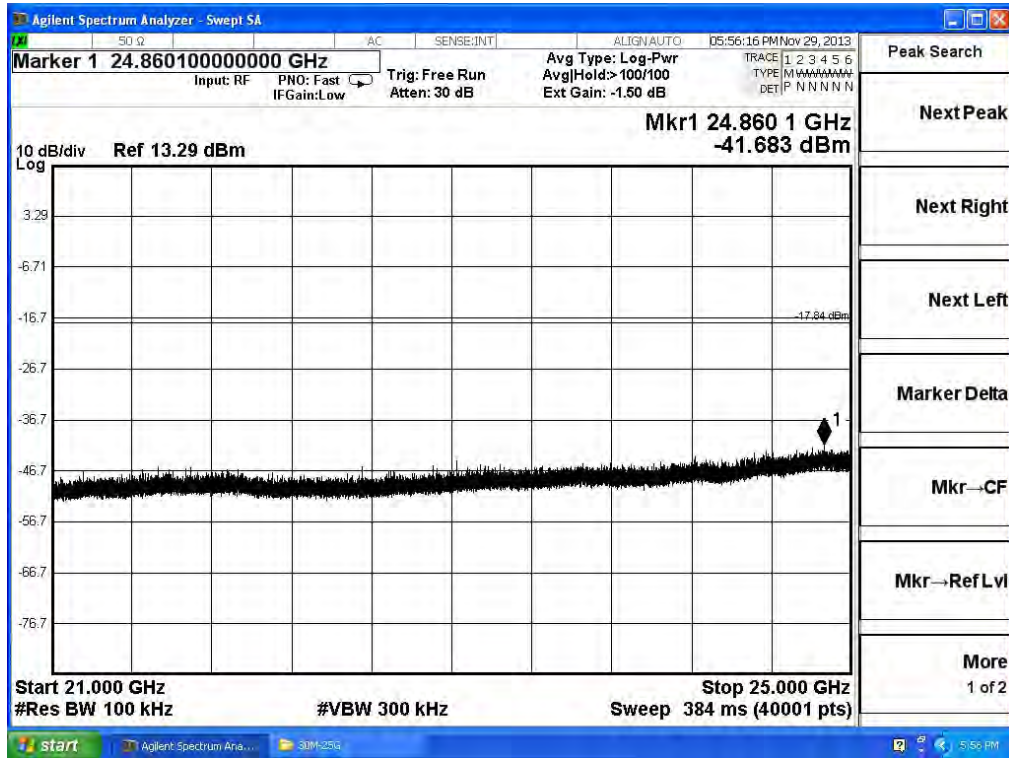


2412MHz (9GHz-13GHz) -802.11b





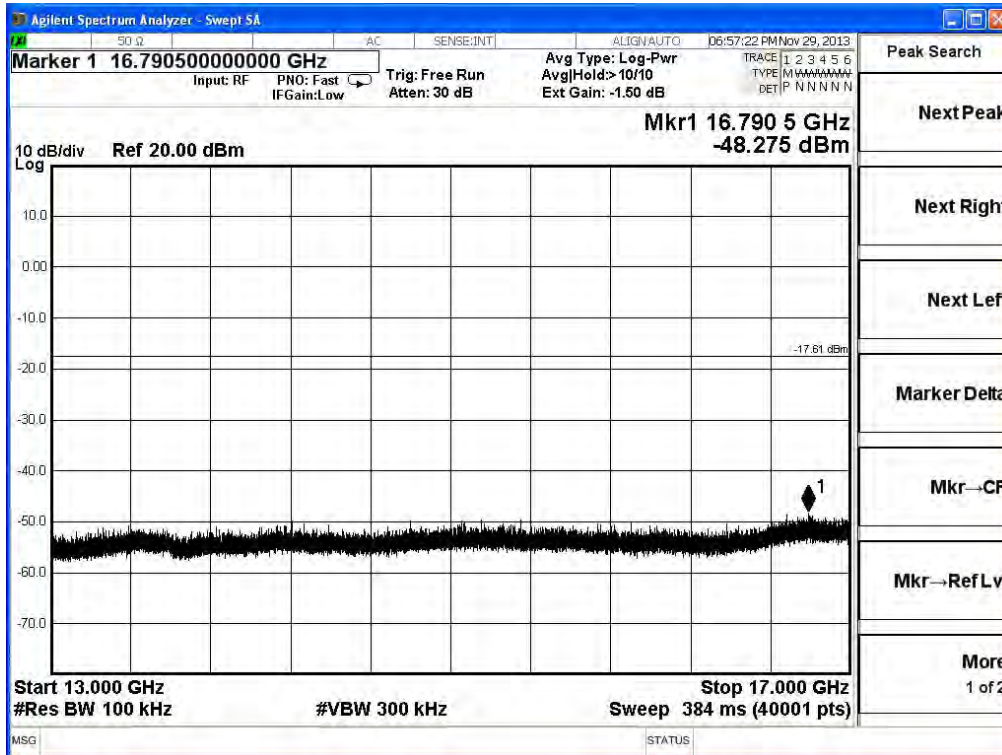
2412MHz (21GHz-25GHz)-802.11b



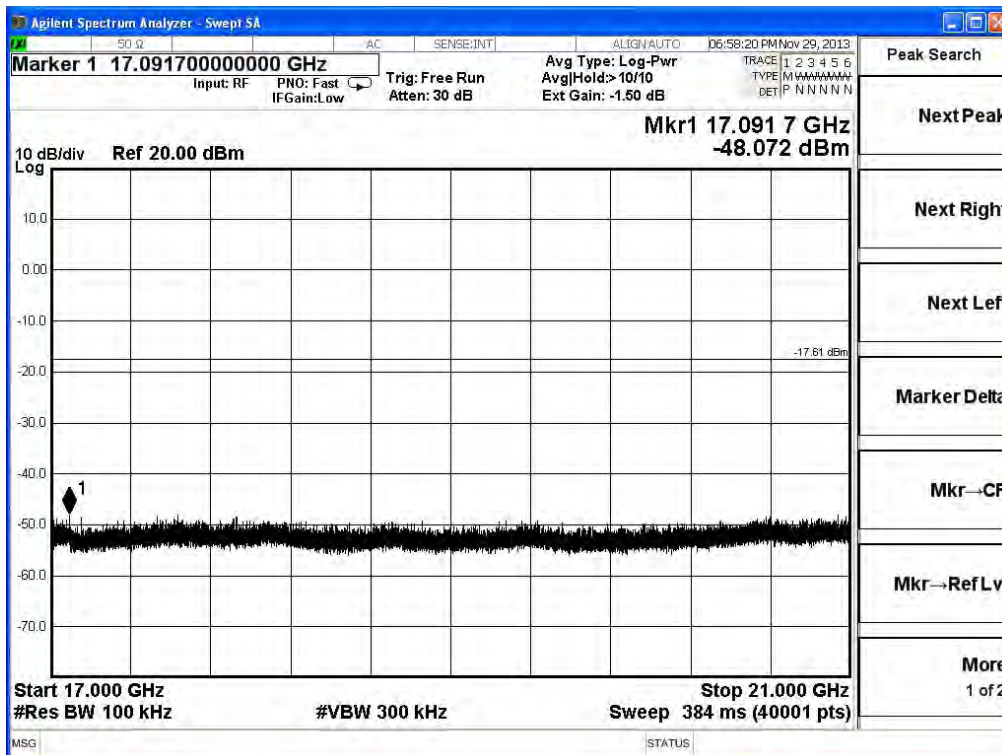




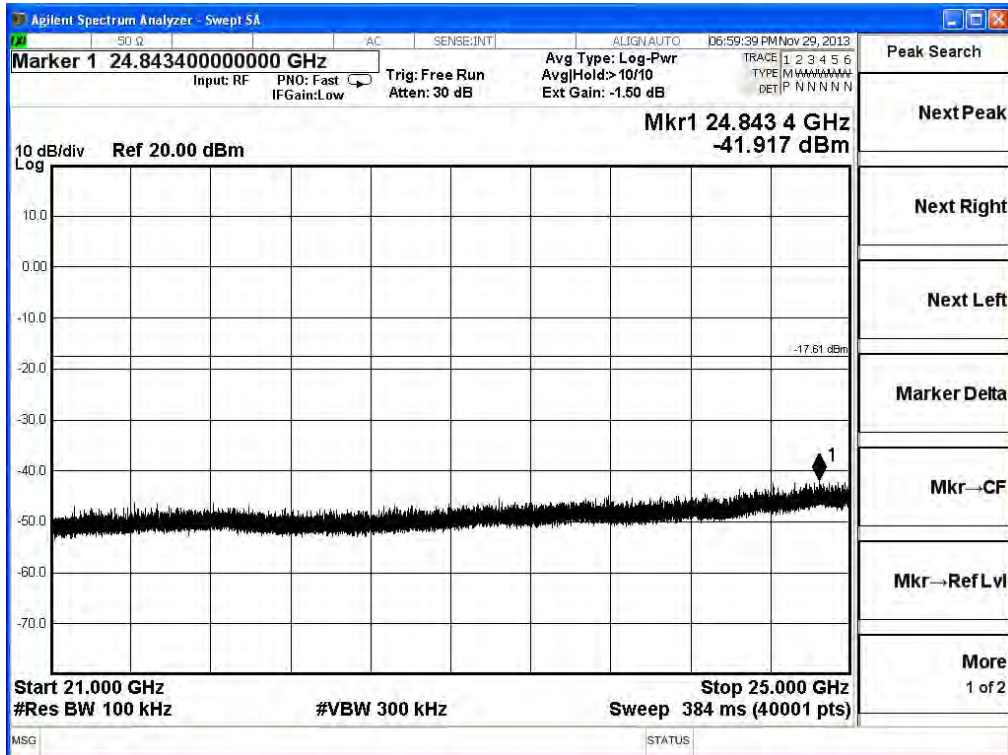
2437MHz (13GHz-17GHz) -802.11b



2437MHz (17GHz-21GHz)-802.11b

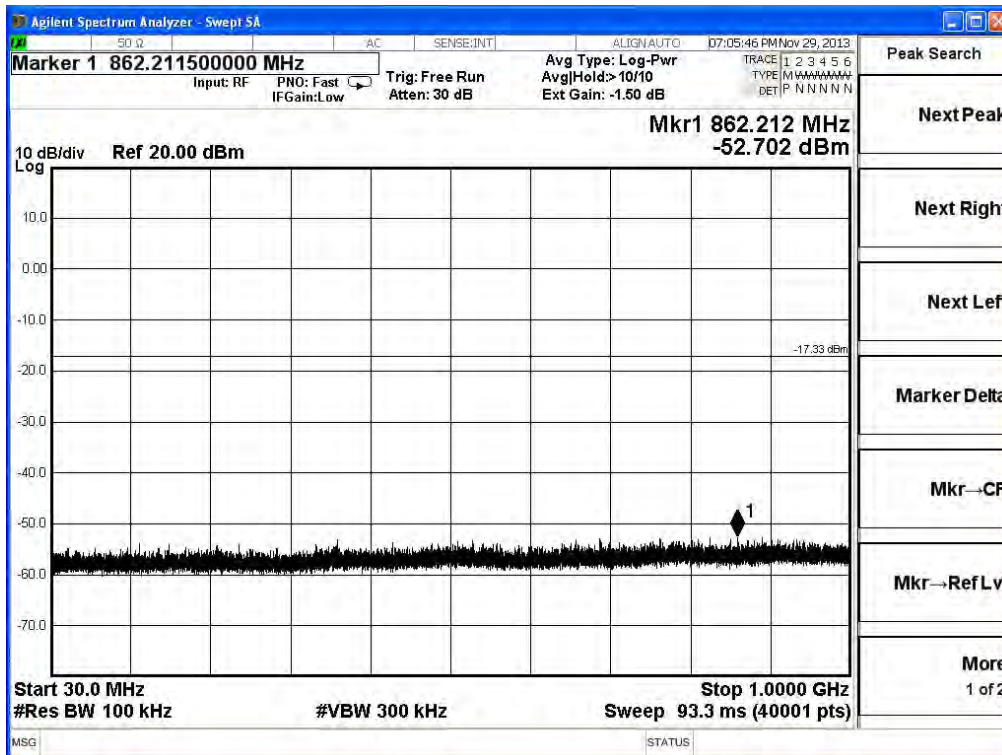


2437MHz (21GHz-25GHz) -802.11b

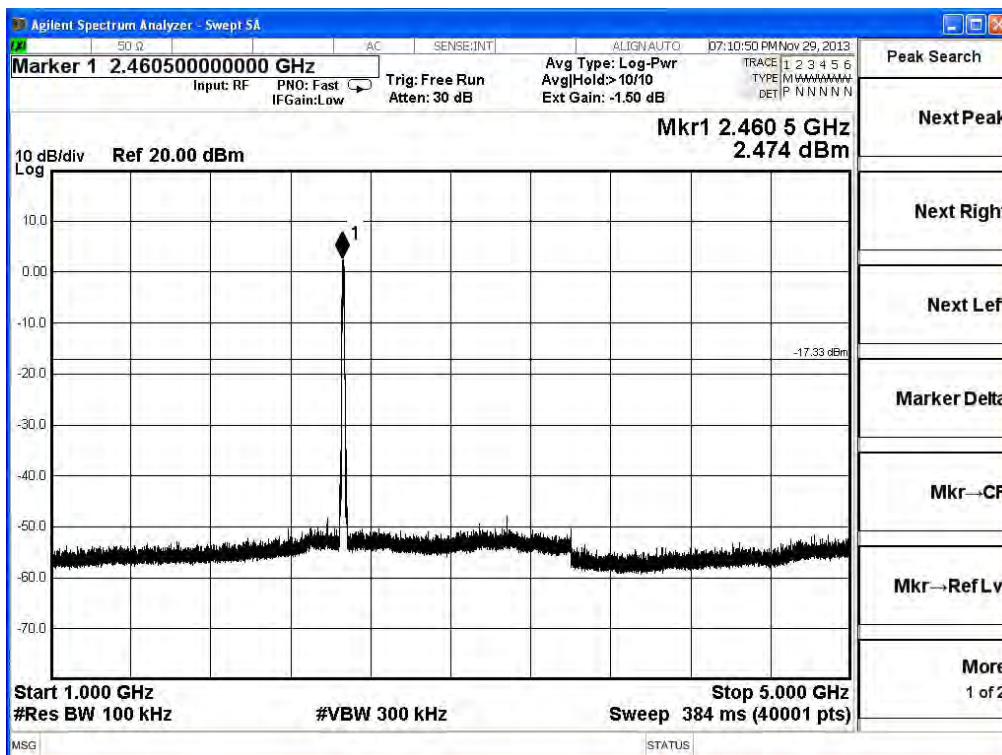




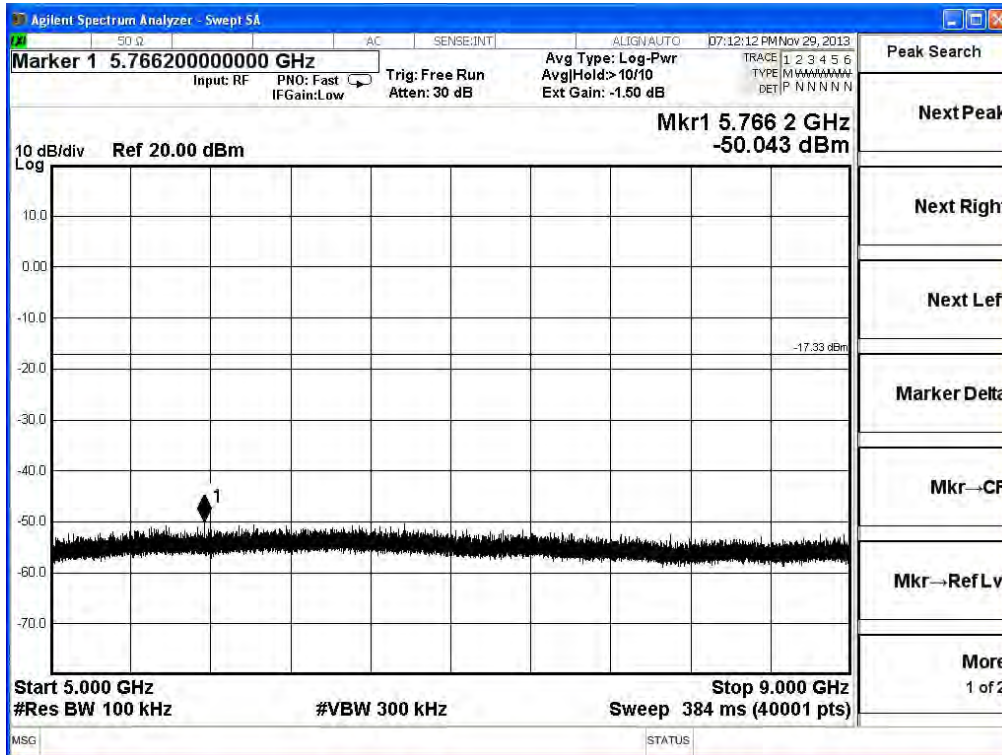
2462MHz (30MHz-1GHz)-802.11b



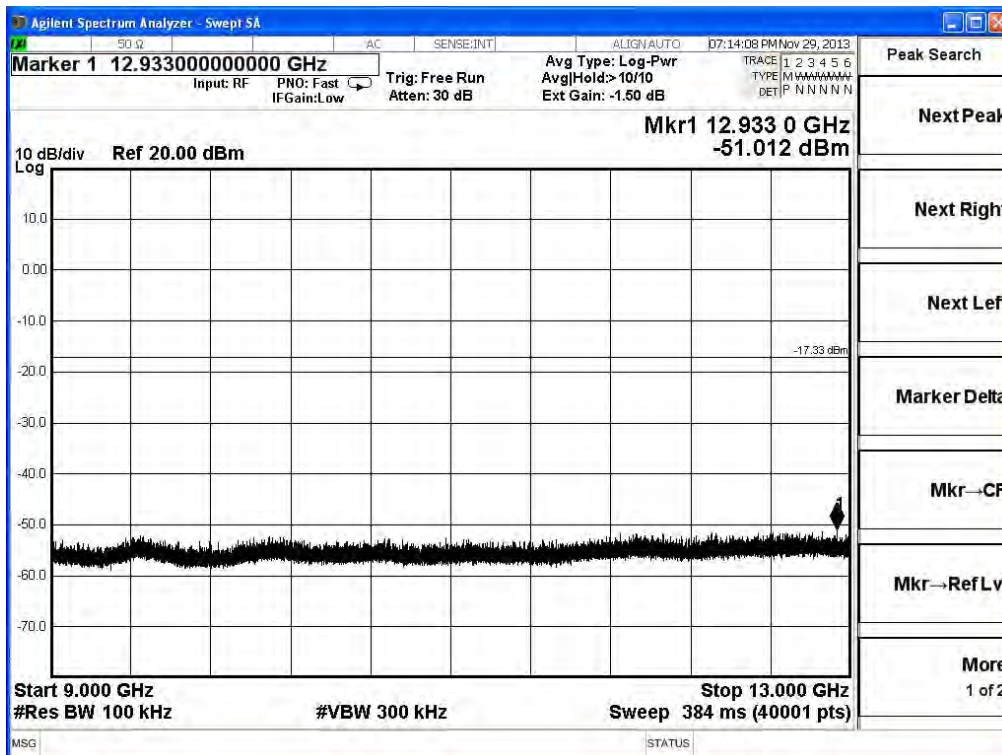
2462MHz (1GHz-5GHz) -802.11b



2462MHz (5GHz-9GHz)-802.11b

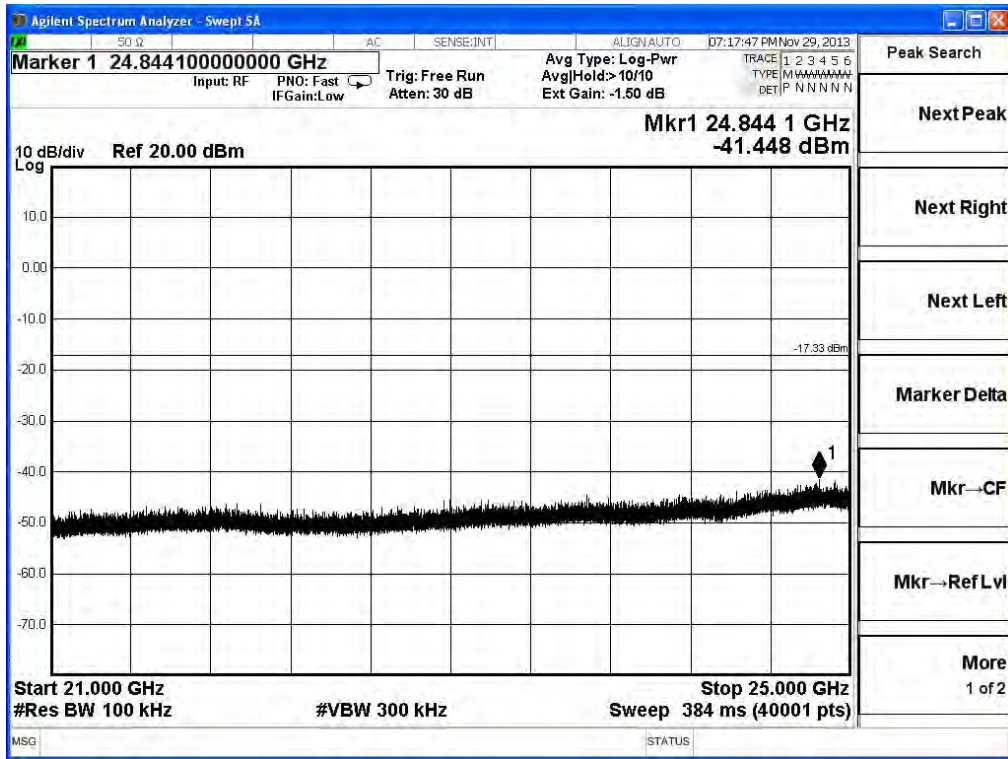


2462MHz (9GHz-13GHz) -802.11b

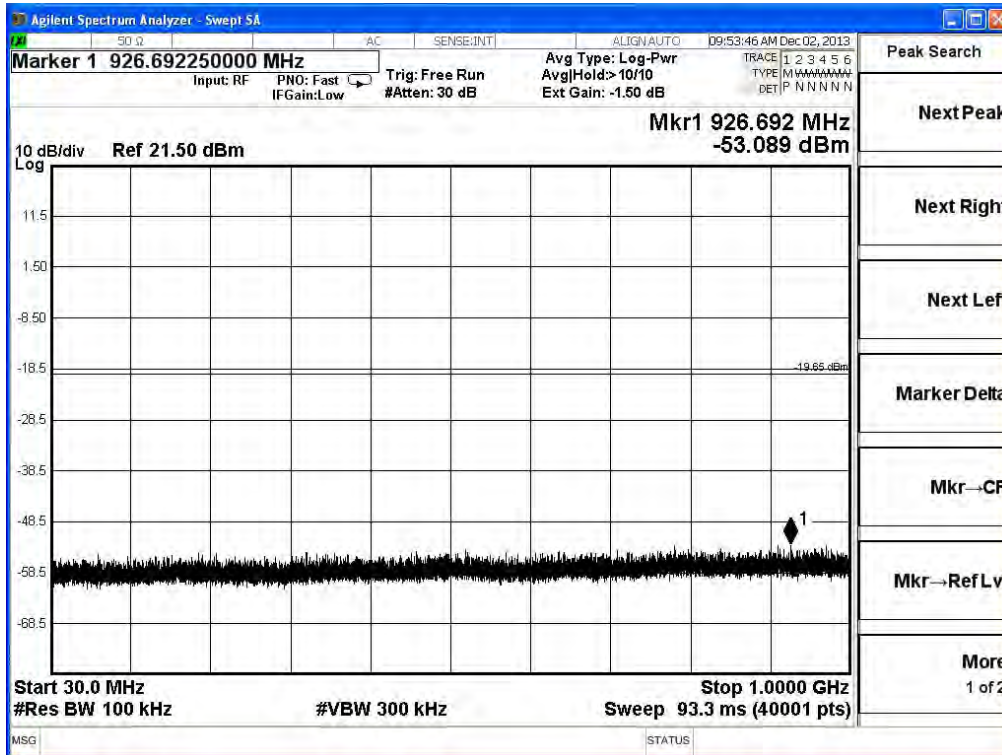




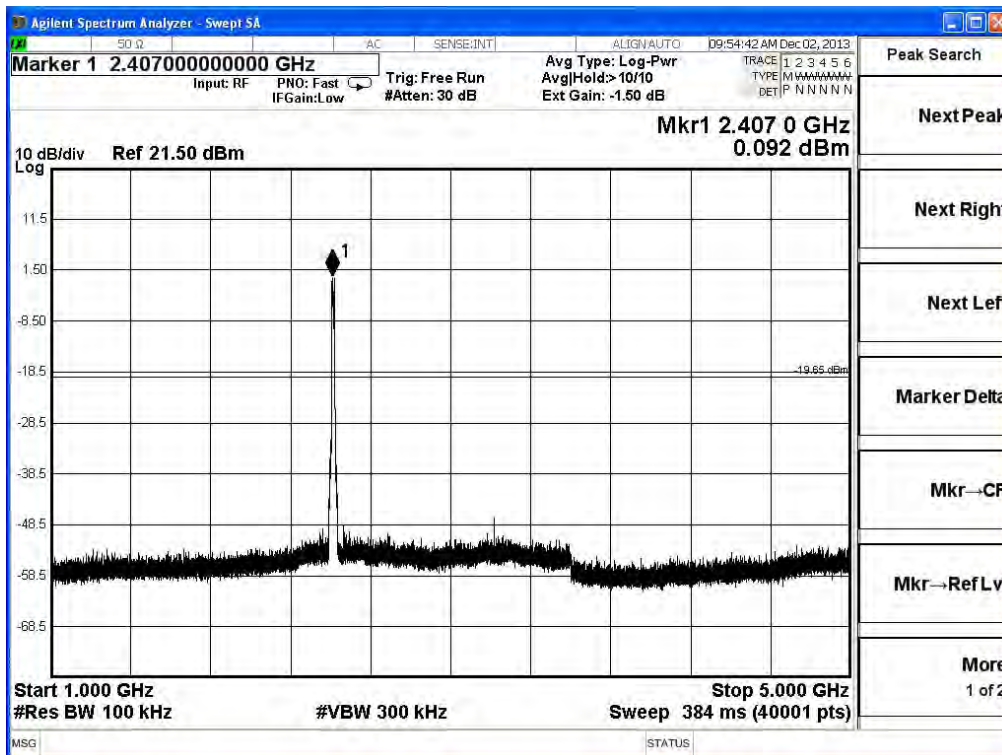
2462MHz (21GHz-25GHz)-802.11b



2412MHz (30MHz-1GHz) -802.11g



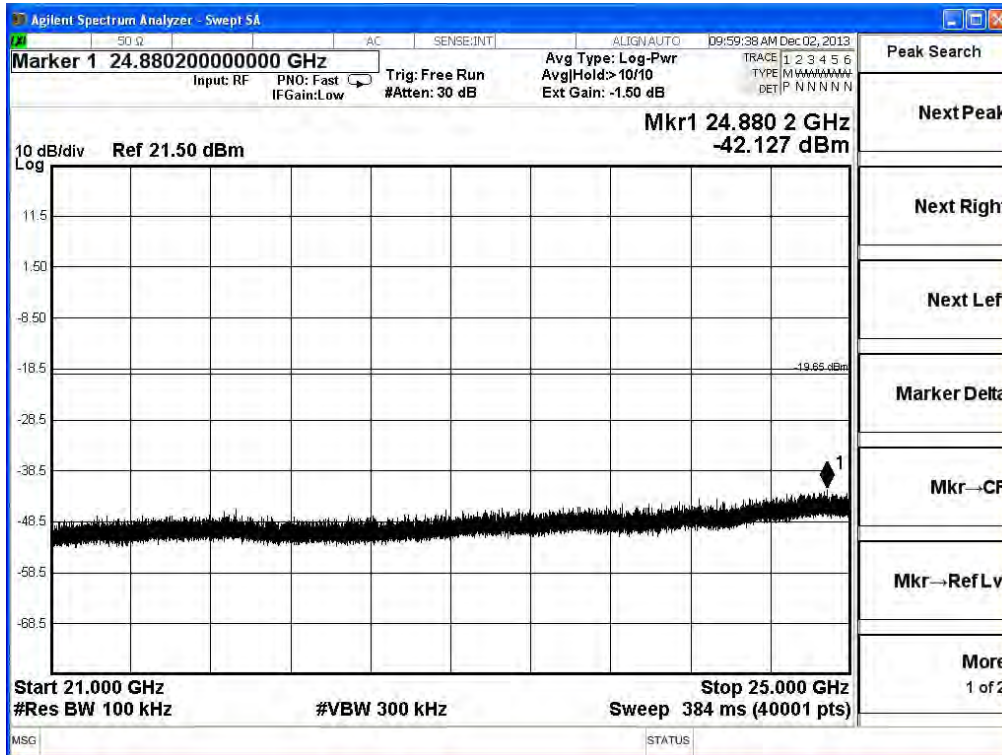
2412MHz (1GHz-5GHz)-802.11g





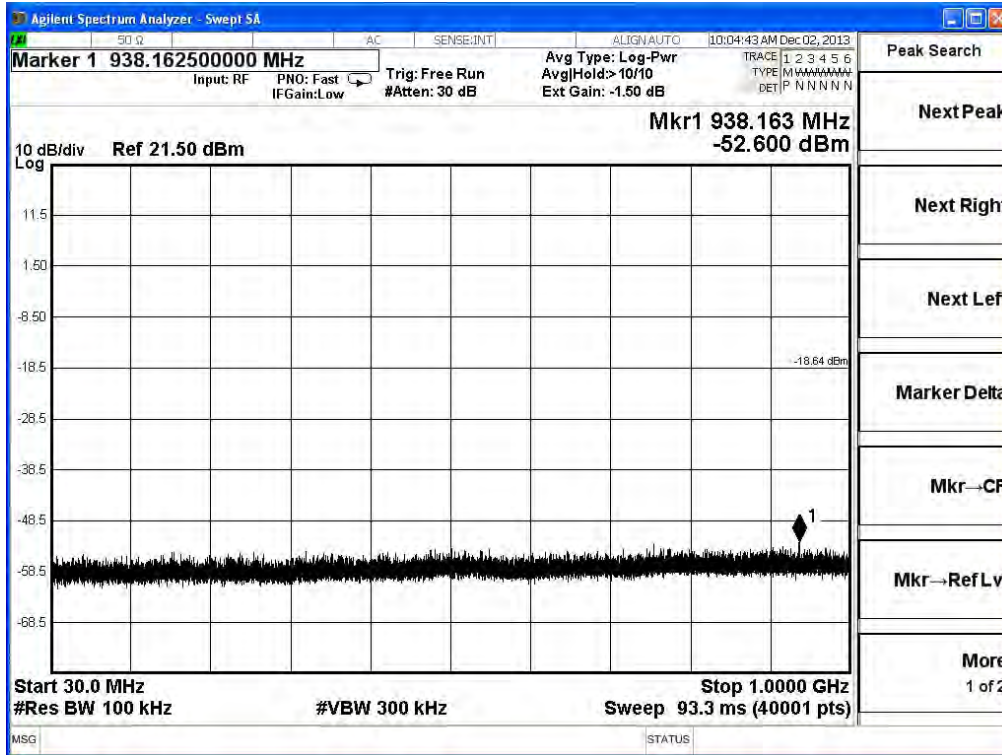


2412MHz (21GHz-25GHz) -802.11g

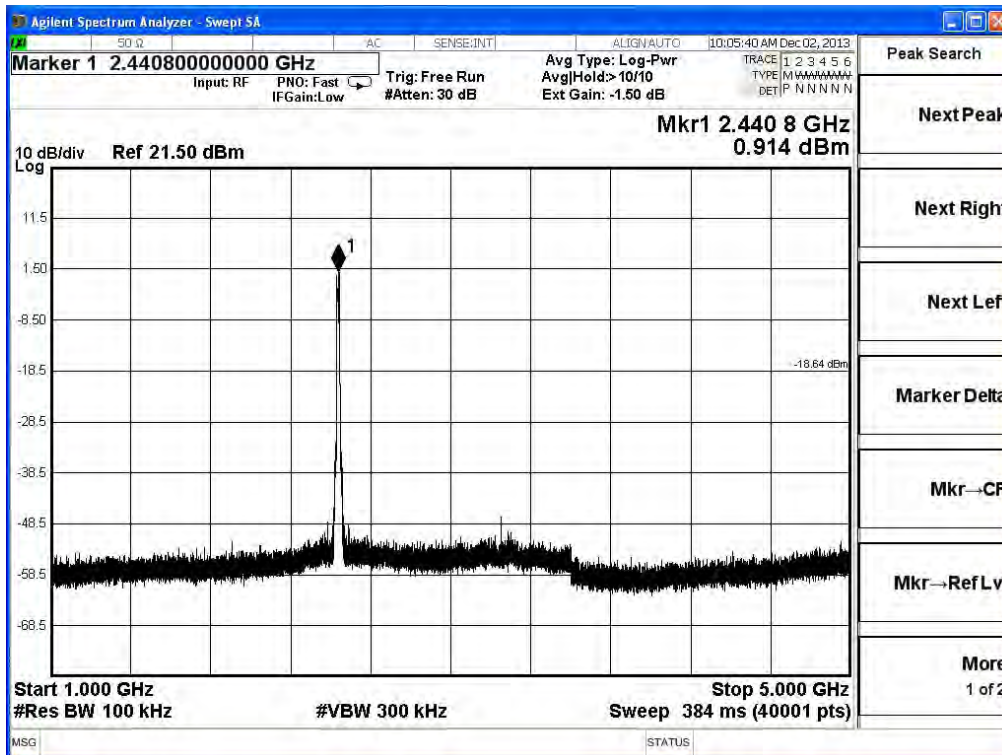




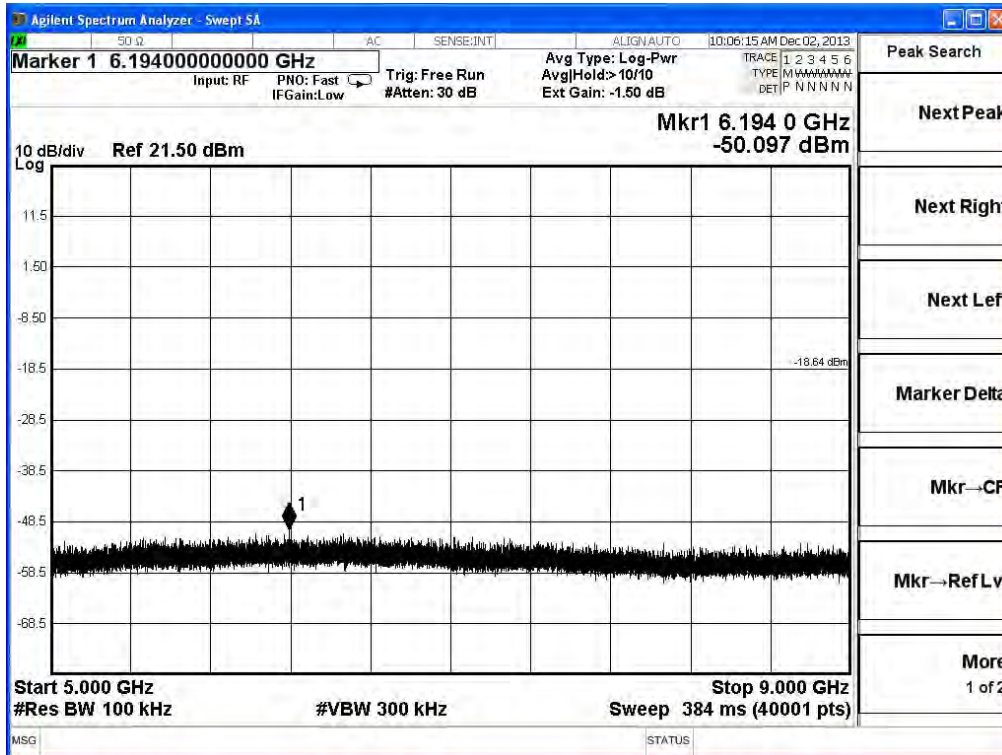
2437MHz (30MHz-1GHz)-802.11g



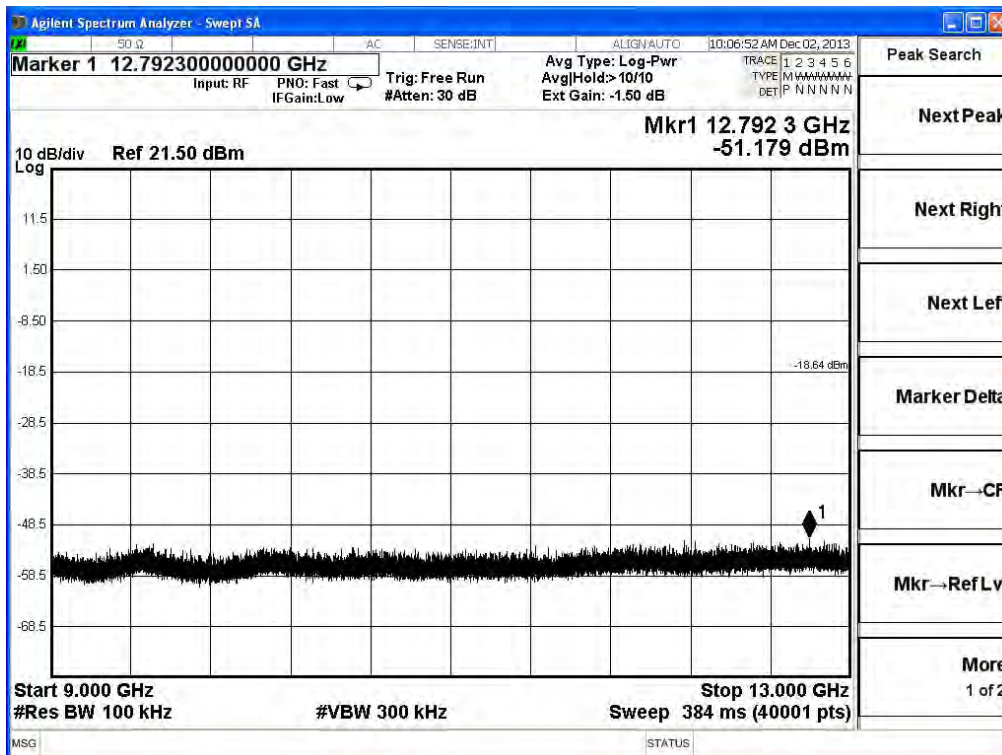
2437MHz (1GHz-5GHz) -802.11g



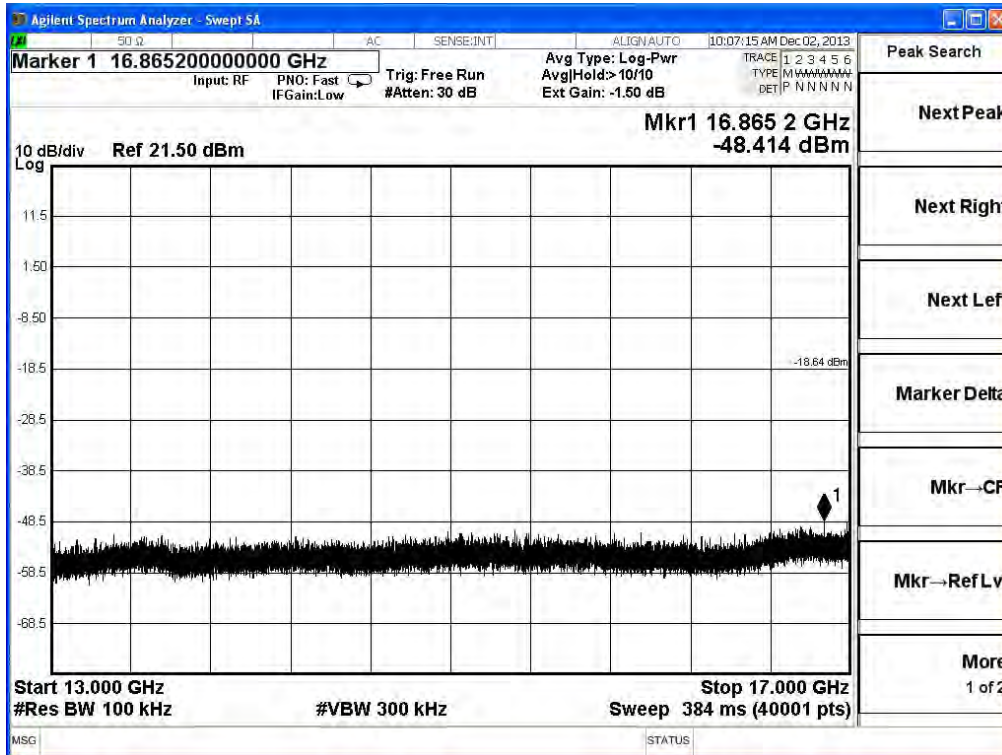
2437MHz (5GHz-9GHz)-802.11g



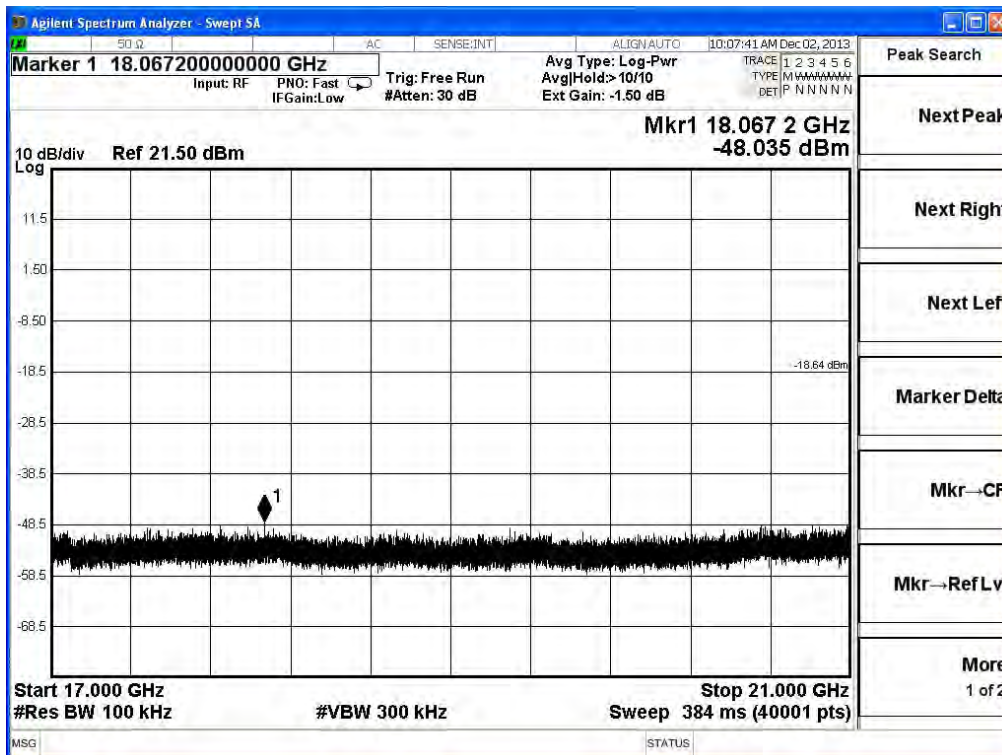
2437MHz (9GHz-13GHz) -802.11g



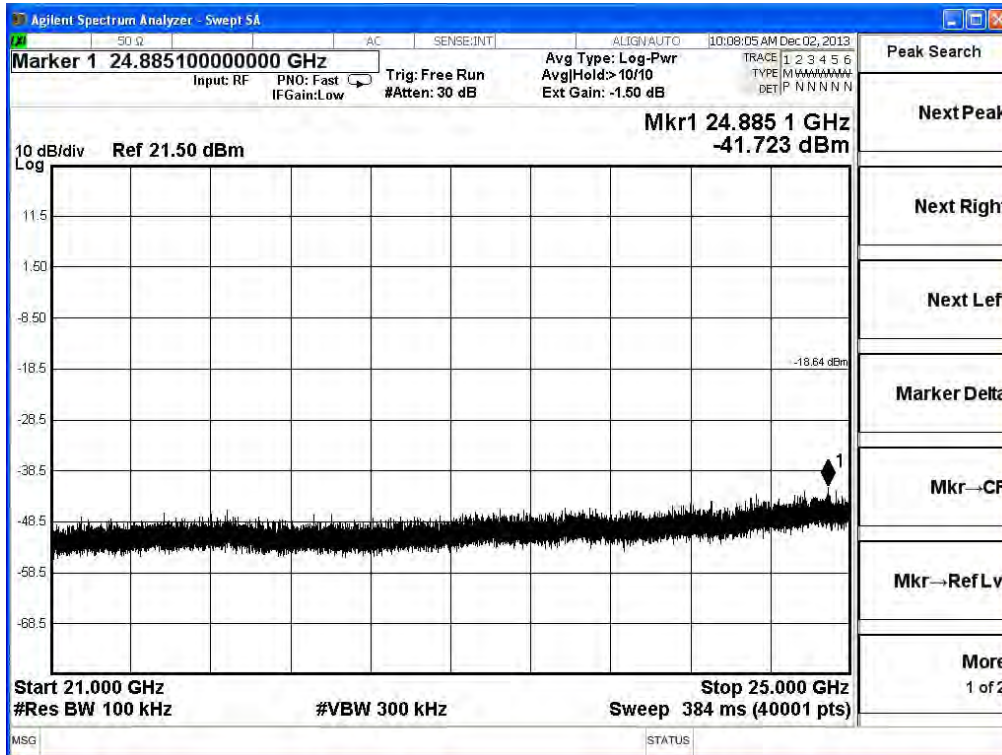
2437MHz (13GHz-17GHz)-802.11g



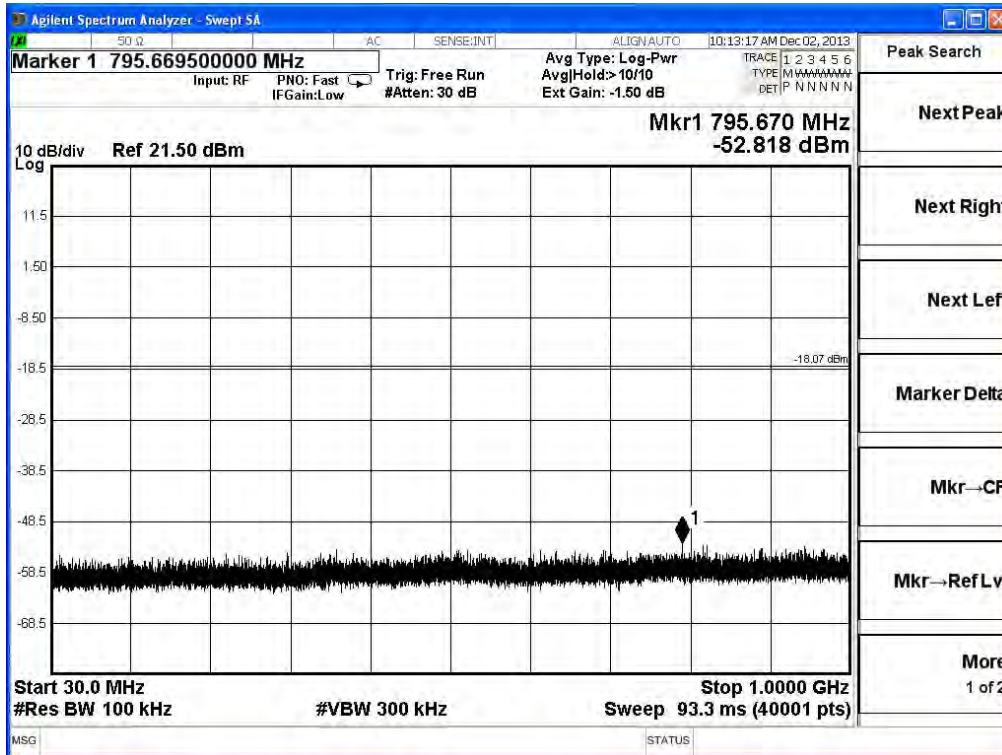
2437MHz (17GHz-21GHz) -802.11g



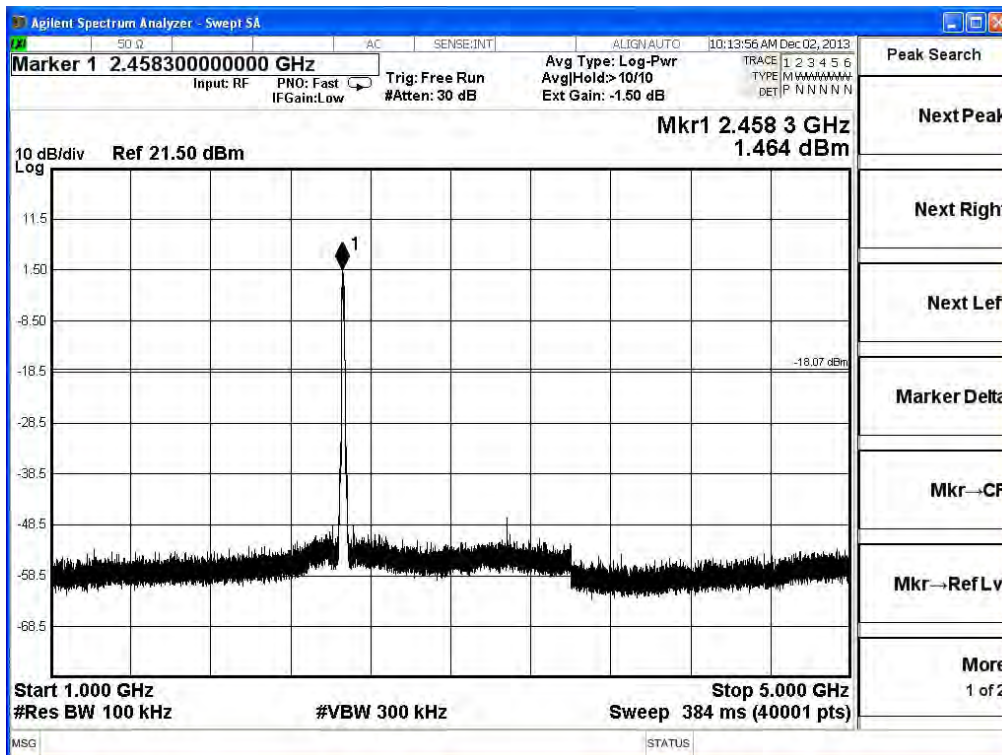
2437MHz (21GHz-25GHz)-802.11g



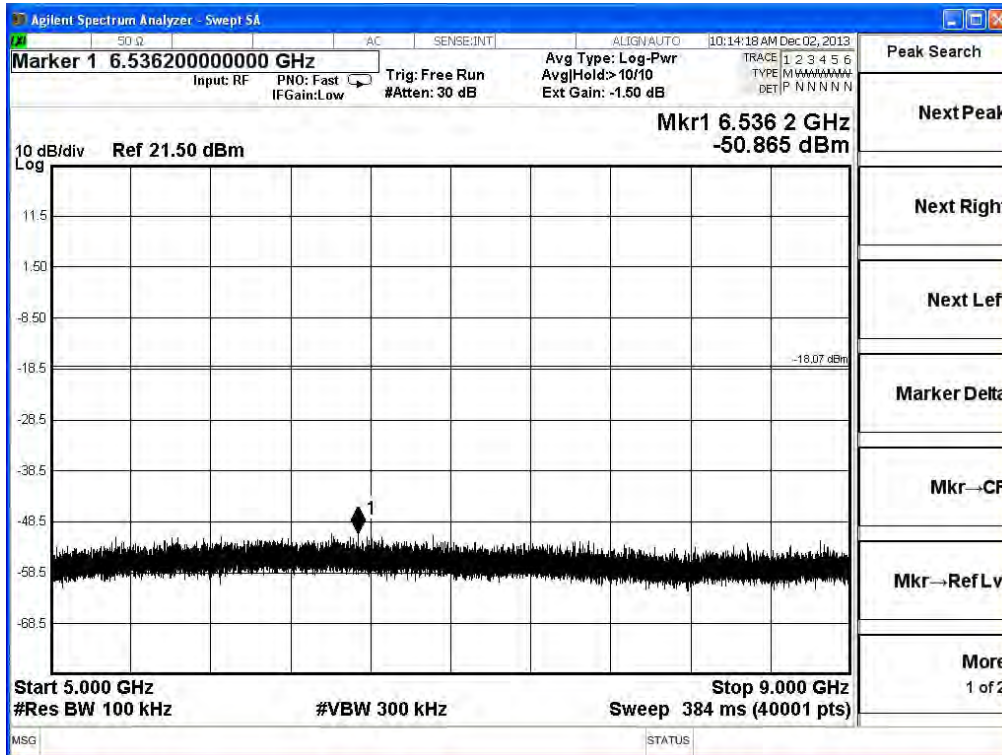
2462MHz (30MHz-1GHz) -802.11g



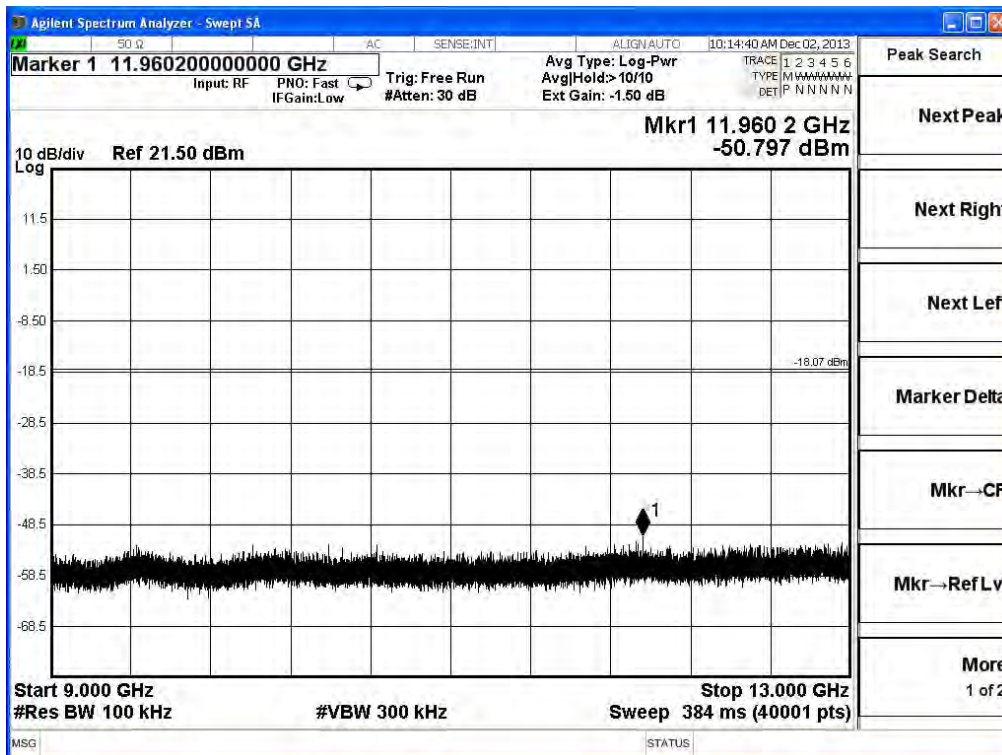
2462MHz (1GHz-5GHz)-802.11g



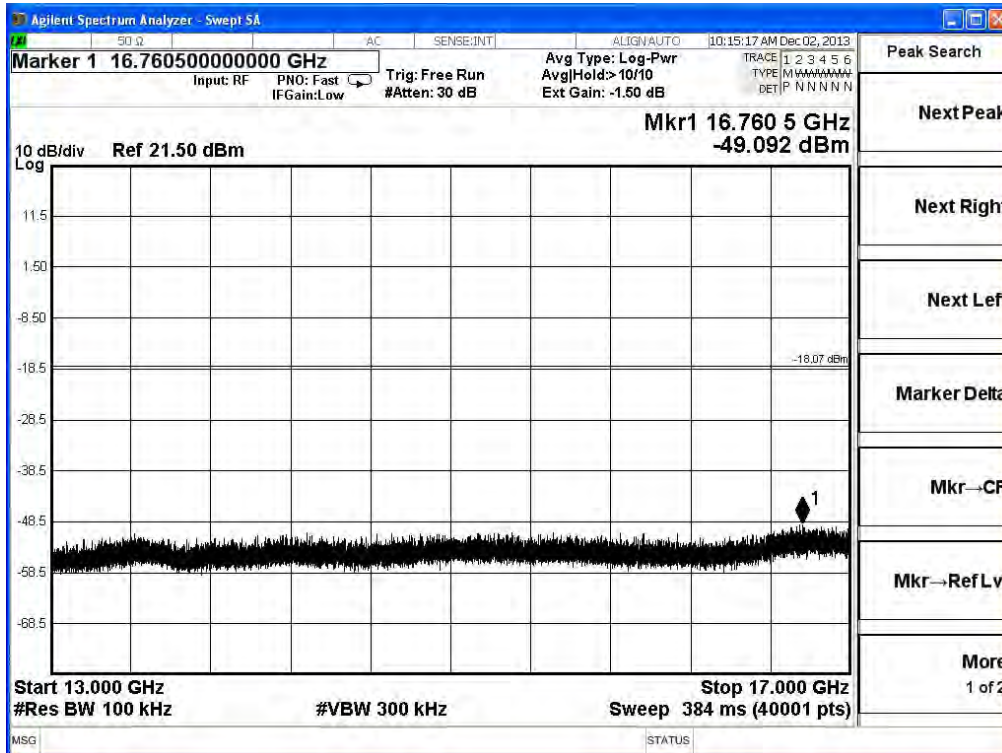
2462MHz (5GHz-9GHz) -802.11g



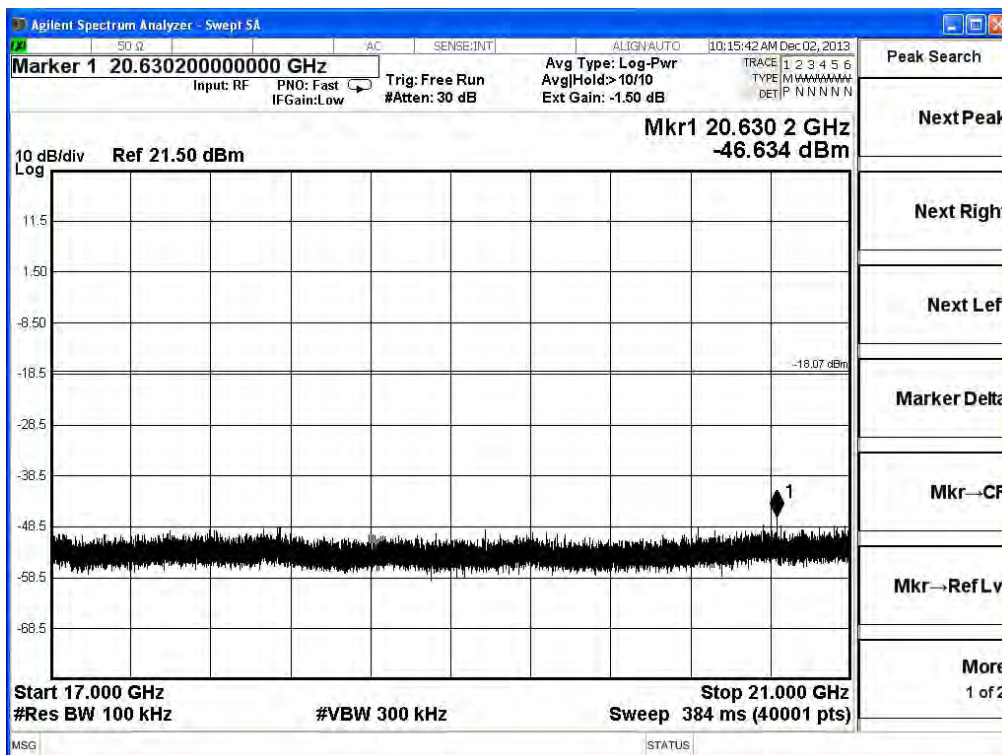
2462MHz (9GHz-13GHz) -802.11g



2462MHz (13GHz-17GHz) -802.11g



2462MHz (17GHz-21GHz)-802.11g



2462MHz (21GHz-25GHz) -802.11g

