

FCC Test Report

Product Name : Wireless Extender
Model No. : WAP-5836 v2
FCC ID. : L9VCOMTREND5836V2

Applicant : Comtrend Corporation
Address : 3F-1, 10 Lane 609, Chung Hsin Rd, Sec 5 San
Chung City, Taipei Hsien , Taiwan

Date of Receipt : 2013/11/11
Issued Date : 2013/12/05
Report No. : 13B0199R-RFUSP69V00
Report Version : V1.0



The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : 2013/12/05

Report No. : 13B0199R-RFUSP69V00



Product Name : Wireless Extender

Applicant : Comtrend Corporation

Address : 3F-1, 10 Lane 609, Chung Hsin Rd, Sec 5 San Chung City,
Taipei Hsien , Taiwan

Manufacturer : Delta Networks, Inc.

Model No. : WAP-5836 v2

FCC ID. : L9VCOMTREND5836V2

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

Trade Name : Comtrend

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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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:

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

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/>

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1. General Information

1.1. EUT Description

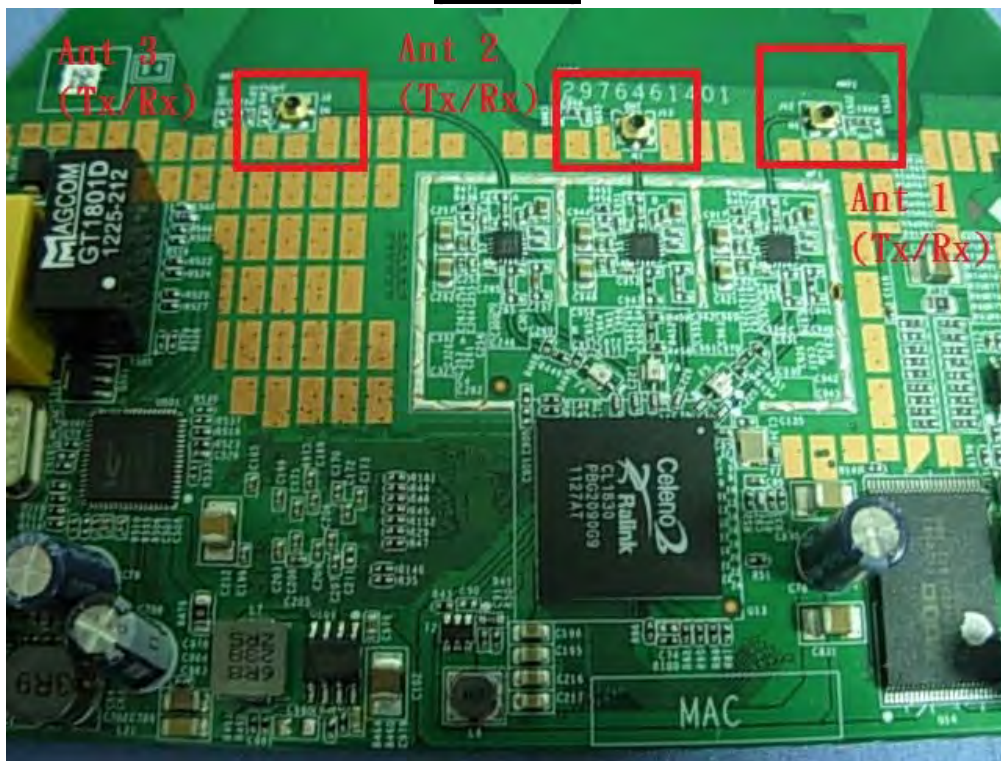
Product Name	Wireless Extender
Product Type	WLAN (3TX, 3RX)
Trade Name	Comtrend
Model No.	WAP-5836 v2
Frequency Range Channel Number -IEEE 802.11a & IEEE 802.11n (20MHz)_5GHz	5745~5805MHz / 4 Channels
Frequency Range/Channel Number - IEEE 802.11n (40MHz) _5GHz	5755~5795MHz / 2 Channels
Type of Modulation (IEEE 802.11a/n)	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed (IEEE 802.11a)	6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54 Mbps
Data Speed (IEEE 802.11n)	Support a subset of the combination of GI, MCS 0~MCS 23 and bandwidth defined in 802.11n
Antenna Gain	2dBi
Antenna Type	PCB Antenna

Component	
Power Adapter	DVE, DSA-12G-12 AUS I/P: 100-120V~50/60Hz, 0.3A O/P: +12V $\overline{\text{---}}$ 1A Cable Out: Non-Shielded, 1.5m

ANT-TX / RX & Bandwidth

ANT-TX / RX	TX			RX		
	20MHz	40MHz	80MHz	20MHz	40MHz	80MHz
IEEE802.11a	✓	✗	✗	✓	✗	✗
IEEE802.11n	✓	✓	✗	✓	✓	✗

(3TX /3RX)



IEEE 802.11n

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		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 _{BPSCS}	N _{CBPS}		N _{DBPS}		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

MCS Index	Modulation	R	N _{BPSCS}	N _{CBPS}		N _{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
16	BPSK	1/2	1	156	324	78	162	19.5	40.5	21.7	45.0
17	QPSK	1/2	2	312	648	156	324	39.0	81.0	43.3	90.0
18	QPSK	3/4	2	312	648	234	486	58.5	121.5	65.0	135.0
19	16-QAM	1/2	4	624	1296	312	648	78.0	162.0	86.7	180.0
20	16-QAM	3/4	4	624	1296	468	972	117.0	243.0	130.0	270.0
21	64-QAM	2/3	6	936	1944	624	1296	156.0	324.0	173.3	360.0
22	64-QAM	3/4	6	936	1944	702	1458	175.5	364.5	195.0	405.0
23	64-QAM	5/6	6	936	1944	780	1620	195.0	405.0	216.7	450.0

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

Table 3 – MCS parameters for TX Antenna number = 3

Symbol	Explanation
R	Code rate
N _{BPSC}	Number of coded bits per single carrier
N _{CBPS}	Number of coded bits per symbol
N _{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11a & IEEE 802.11n/ac (20MHz) - 5.8GHz

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz

IEEE 802.11n/ac (40MHz) - 5.8GHz

Working Frequency of Each Channel			
Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

Note:

1. This device is a Wireless Extender including 5GHz a/n/ac (3x3) transmitting and receiving function.
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
3. 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.
4. The function of the 5.2GHz transmitting is measured and makes a test report of the report number: 13B0199R-RFUSP43V00.
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 13B0199R-RFUSP02V00-A under Declaration of Conformity.
6. This power index value is only suitable for testing samples, it is not suitable for products of the market sells.

1.3. Test Mode

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
----	------------------

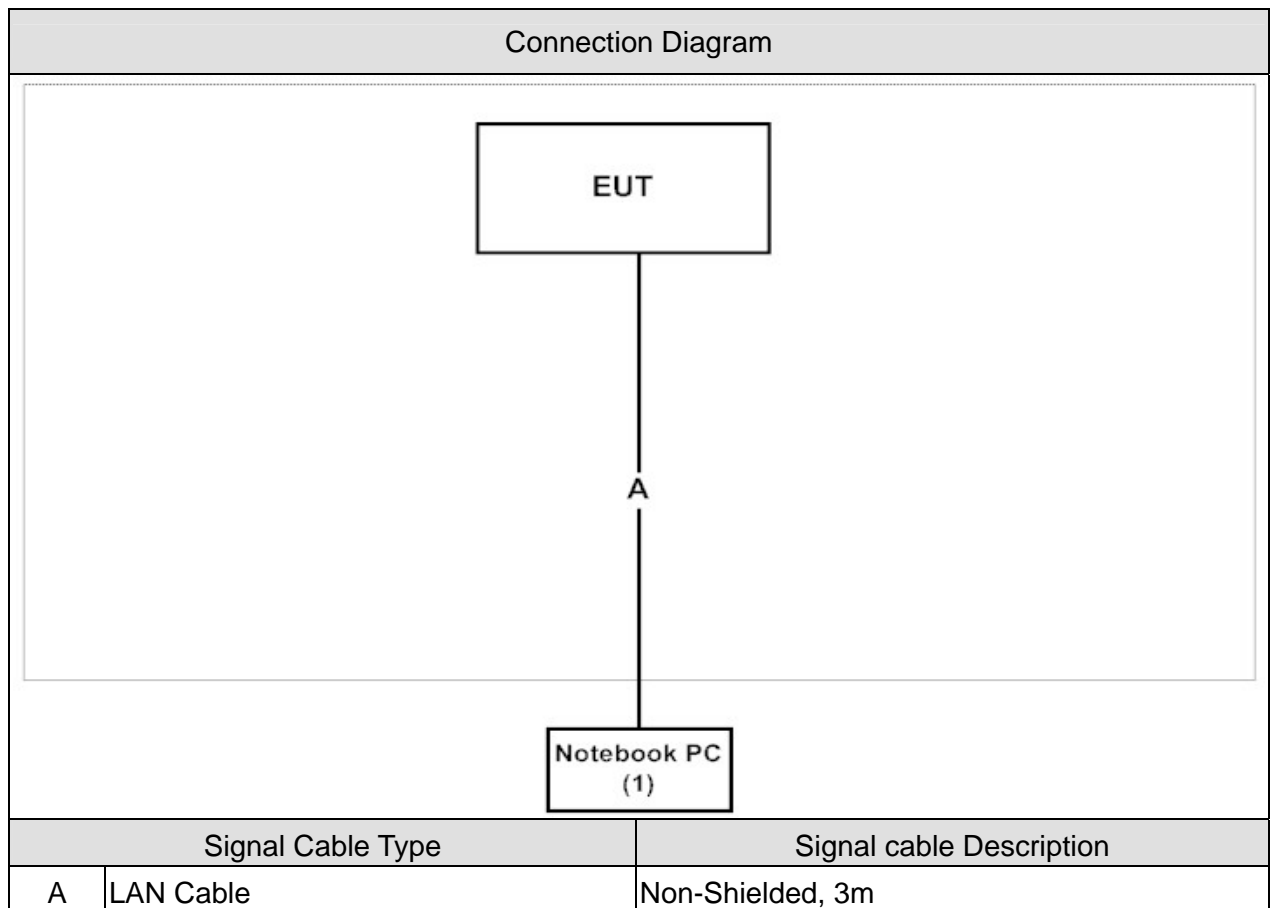
Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11n(40MHz)	159	0+1+2	Complies
Peak Power Output	a	149/ 157/ 161	0+1+2	Complies
	11n(20MHz)	149/ 157/ 161	0+1+2	Complies
	11n(40MHz)	151/ 159	0+1+2	Complies
Radiated Emission	a	149/ 157/ 161	0+1+2	Complies
	11n(20MHz)	149/ 157/ 161	0+1+2	Complies
	11n(40MHz)	151/ 159	0+1+2	Complies
RF antenna conducted test	a	149/ 161	0/1/2	Complies
	11n(20MHz)	149/ 161	0/1/2	Complies
	11n(40MHz)	151/ 159	0/1/2	Complies
Radiated Emission Band Edge	a	149/161	0+1+2	Complies
	11n(20MHz)	149/161	0+1+2	Complies
	11n(40MHz)	151/159	0+1+2	Complies
Radiated Emission Band Edge	a	149/161	0+1+2	Complies
	11n(20MHz)	149/161	0+1+2	Complies
	11n(40MHz)	151/159	0+1+2	Complies
Occupied Bandwidth	a	149/ 157/ 161	0/1/2	Complies
	11n(20MHz)	149/ 157/ 161	0/1/2	Complies
	11n(40MHz)	151/ 159	0/1/2	Complies
Power Density	a	149/ 157/ 161	0+1+2	Complies
	11n(20MHz)	149/ 157/ 161	0+1+2	Complies
	11n(40MHz)	151/ 159	0+1+2	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	ACER	MS2296	LUSCV021391150 332C2000	DoC	Non-Shielded, 2.5m one ferrite core bonded

1.5. Configuration of tested System



1.6. EUT Exercise Software

1	Setup the EUT as shown in Section 1.5.
2	Execute the test program "CL1800_lab_Tool_ver1.51" on the Notebook.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start TX" to start the continuous transmitting.
5	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	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Peak Power Output	15 - 35	20
Humidity (%RH)		25 - 75	50
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	20
Humidity (%RH)		25 - 75	50
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	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.247 Power Density	15 - 35	20
Humidity (%RH)		25 - 75	50
Barometric pressure (mbar)		860 - 1060	950-1000

2. Conducted Emission

2.1. Test Equipment

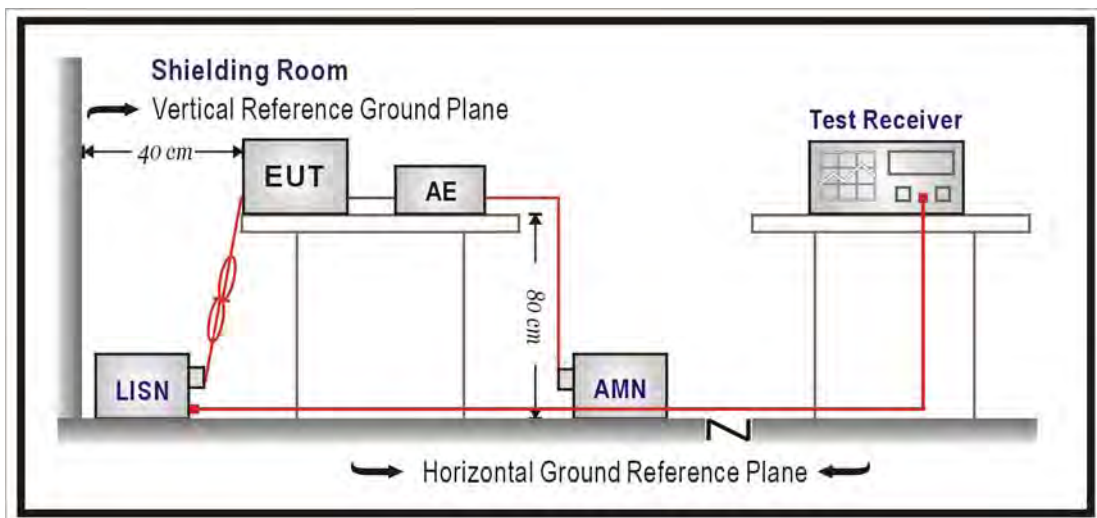
The following test equipments are used during the test:

Conducted Emission / SR2

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2014/01/24
LISN	R&S	ENV216	100092	2014/08/08
Test Receiver	R&S	ESCS 30	825442/014	2014/07/30

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

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
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 Oct. 2012 KDB5580744 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

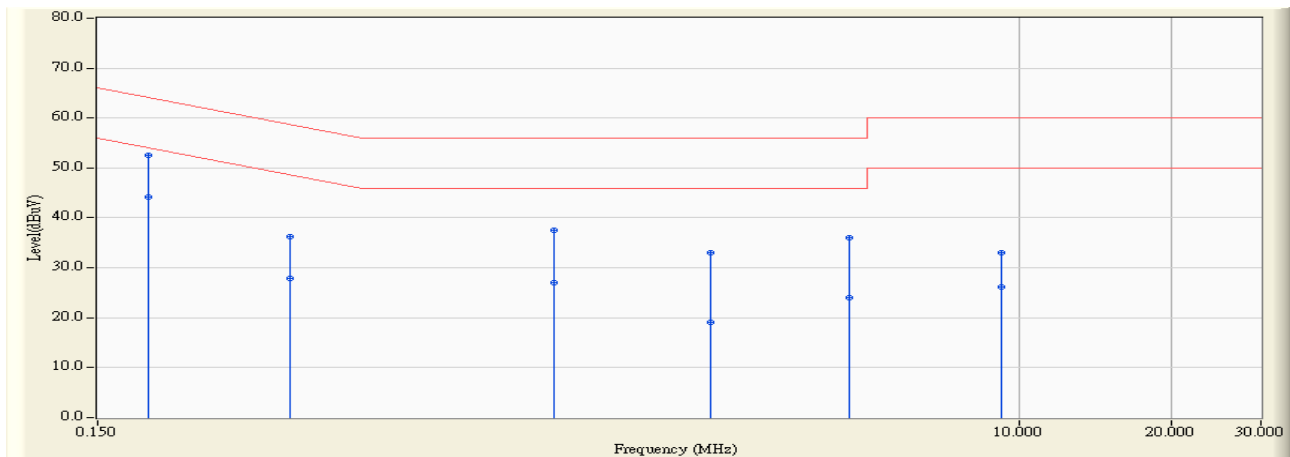
According to FCC Part 15 Subpart C Paragraph 15.207: 2012

2.6. Uncertainty

The measurement uncertainty is defined as ± 2.26 dB.

2.7. Test Result

Site : SR2	Time : 2013/12/04 - 15:27
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2_LISN(16A)-3_0822 - Line1	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : Mode 1: Transmit_802.11n 40MHz_CH159

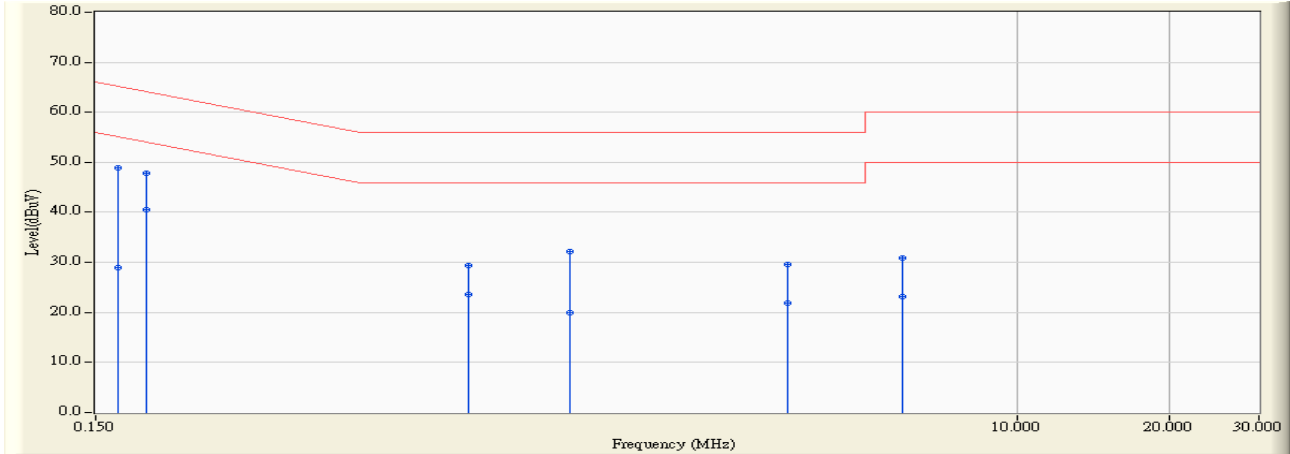


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.189	9.642	42.820	52.462	-11.616	64.078	QUASPEAK
2	* 0.189	9.642	34.540	44.182	-9.896	54.078	AVERAGE
3	0.361	9.690	26.620	36.310	-22.397	58.707	QUASPEAK
4	0.361	9.690	18.090	27.780	-20.927	48.707	AVERAGE
5	1.201	9.762	27.680	37.442	-18.558	56.000	QUASPEAK
6	1.201	9.762	17.280	27.042	-18.958	46.000	AVERAGE
7	2.455	9.867	23.100	32.967	-23.033	56.000	QUASPEAK
8	2.455	9.867	9.290	19.157	-26.843	46.000	AVERAGE
9	4.607	9.952	26.020	35.972	-20.028	56.000	QUASPEAK
10	4.607	9.952	14.170	24.122	-21.878	46.000	AVERAGE
11	9.177	10.087	22.980	33.067	-26.933	60.000	QUASPEAK
12	9.177	10.087	16.000	26.087	-23.913	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 : SR2	Time : 2013/12/04 - 15:31
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2_LISN(16A)-3_0822 - Line2	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : Mode 1: Transmit_802.11n 40MHz_CH159



	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.166	9.624	39.340	48.964	-16.213	65.177	QUASPEAK
2	0.166	9.624	19.330	28.954	-26.223	55.177	AVERAGE
3	0.189	9.631	38.180	47.811	-16.267	64.078	QUASPEAK
4	* 0.189	9.631	30.930	40.561	-13.517	54.078	AVERAGE
5	0.818	9.717	19.720	29.437	-26.563	56.000	QUASPEAK
6	0.818	9.717	13.780	23.497	-22.503	46.000	AVERAGE
7	1.302	9.753	22.360	32.113	-23.887	56.000	QUASPEAK
8	1.302	9.753	10.200	19.953	-26.047	46.000	AVERAGE
9	3.517	9.896	19.780	29.676	-26.324	56.000	QUASPEAK
10	3.517	9.896	11.930	21.826	-24.174	46.000	AVERAGE
11	5.923	9.994	20.960	30.954	-29.046	60.000	QUASPEAK
12	5.923	9.994	13.180	23.174	-26.826	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

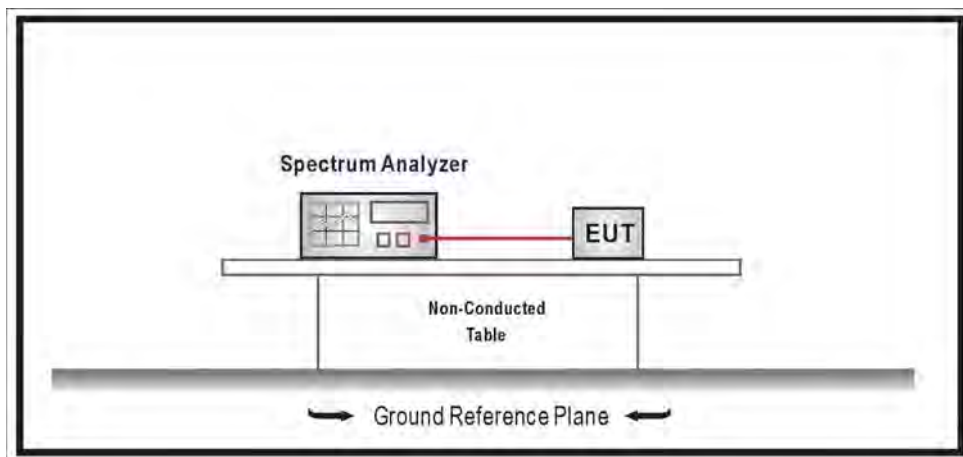
The following test equipments are used during the test:

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. Test procedures

The EUT was tested according to DTS test procedure of Oct. 2012 KDB5580744, Section 8.2.1 Measurement Procedure PK2 for compliance to FCC 47CFR 15.247 requirements.

3.4. Limits

The maximum peak power shall be less 1 Watt.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2012

3.6. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB.

3.7. Test Result

Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

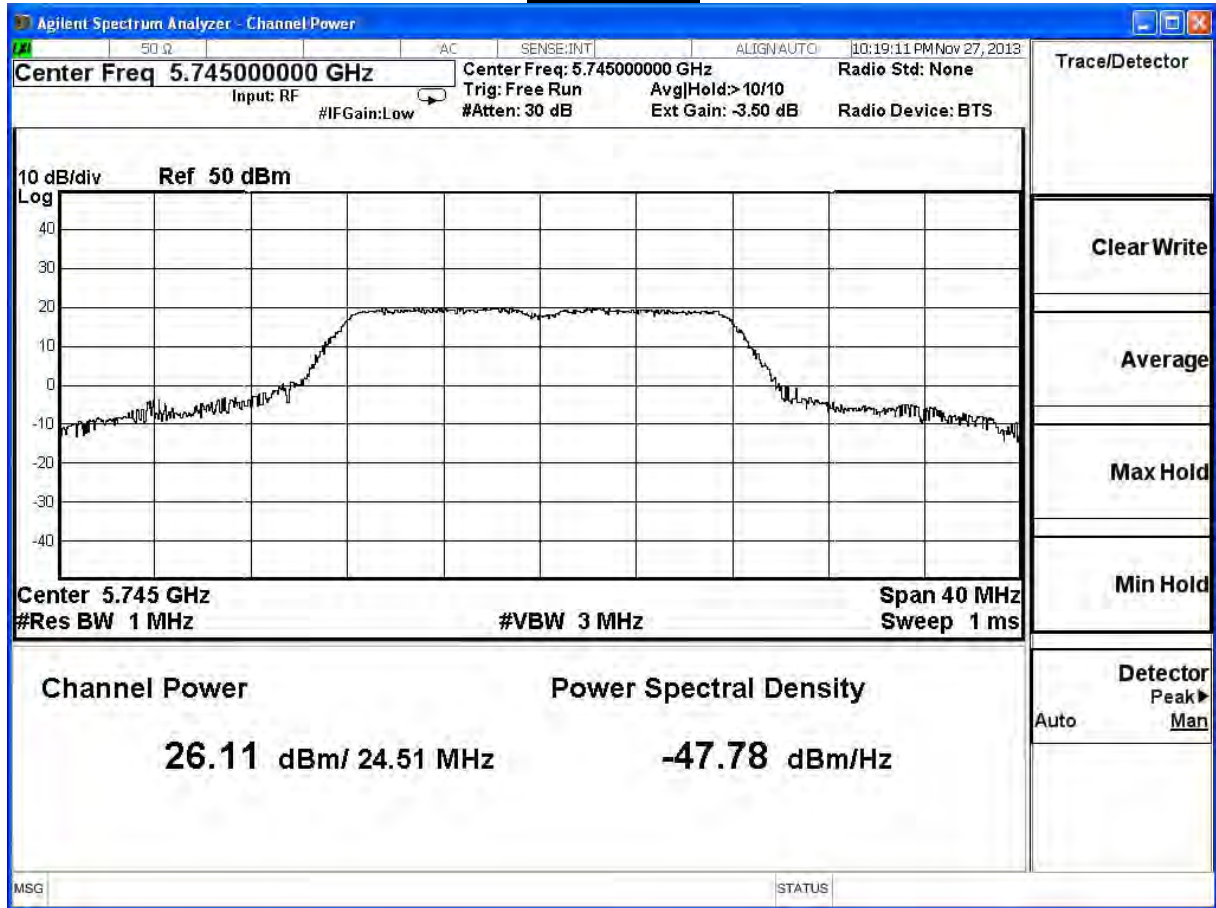
IEEE 802.11a (ANT0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	26.11	≤ 30	Pass
157	5785	24.76	≤ 30	Pass
161	5805	25.12	≤ 30	Pass

The worst emission of data rate is 6Mbps.

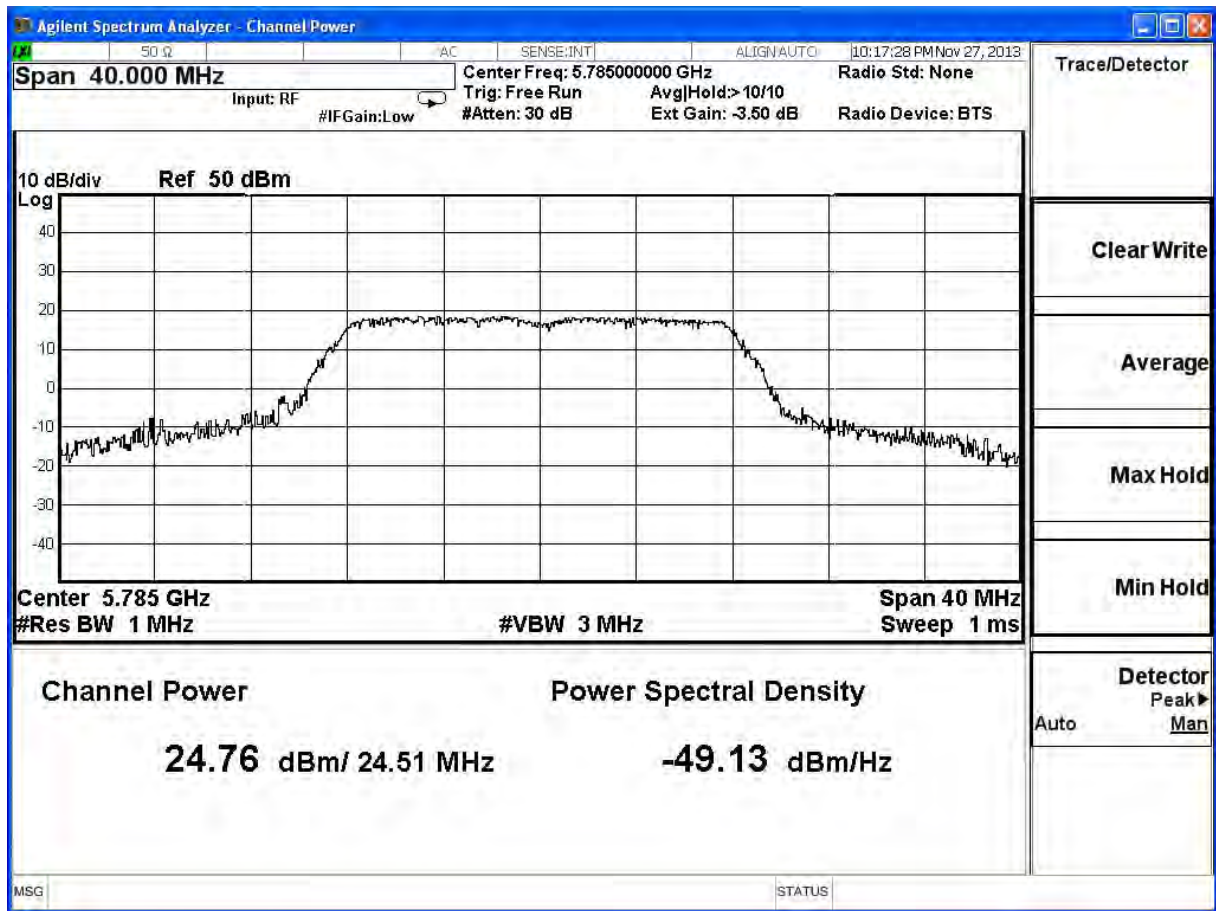
Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate							Required Limit
		6	12	18	24	36	48	54	
149	5745	26.11	--	--	--	--	--	--	1 Watt=30dBm
157	5785	24.76	24.74	24.72	24.71	24.68	24.67	24.66	1 Watt=30dBm
161	5805	25.12	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

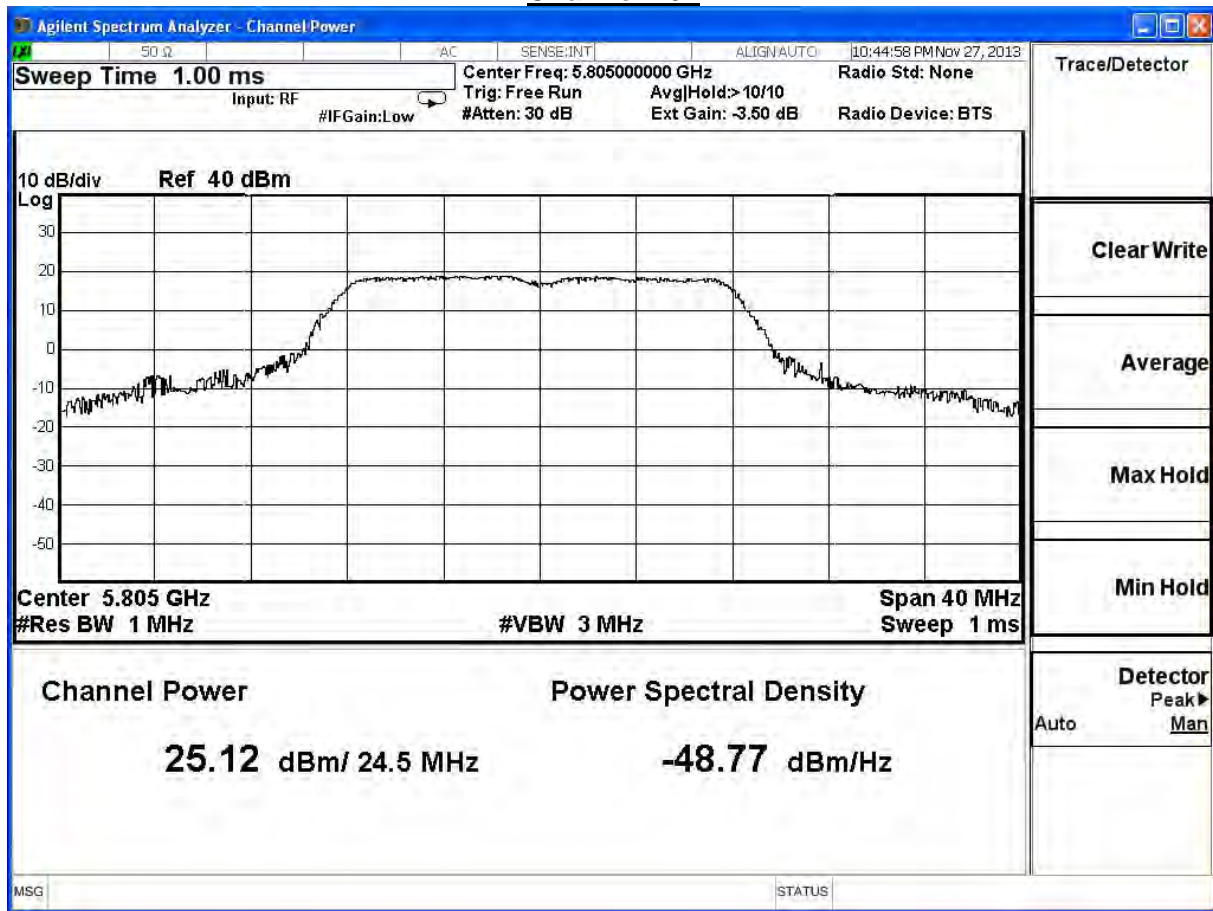
Channel 149



Channel 157



Channel 161



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

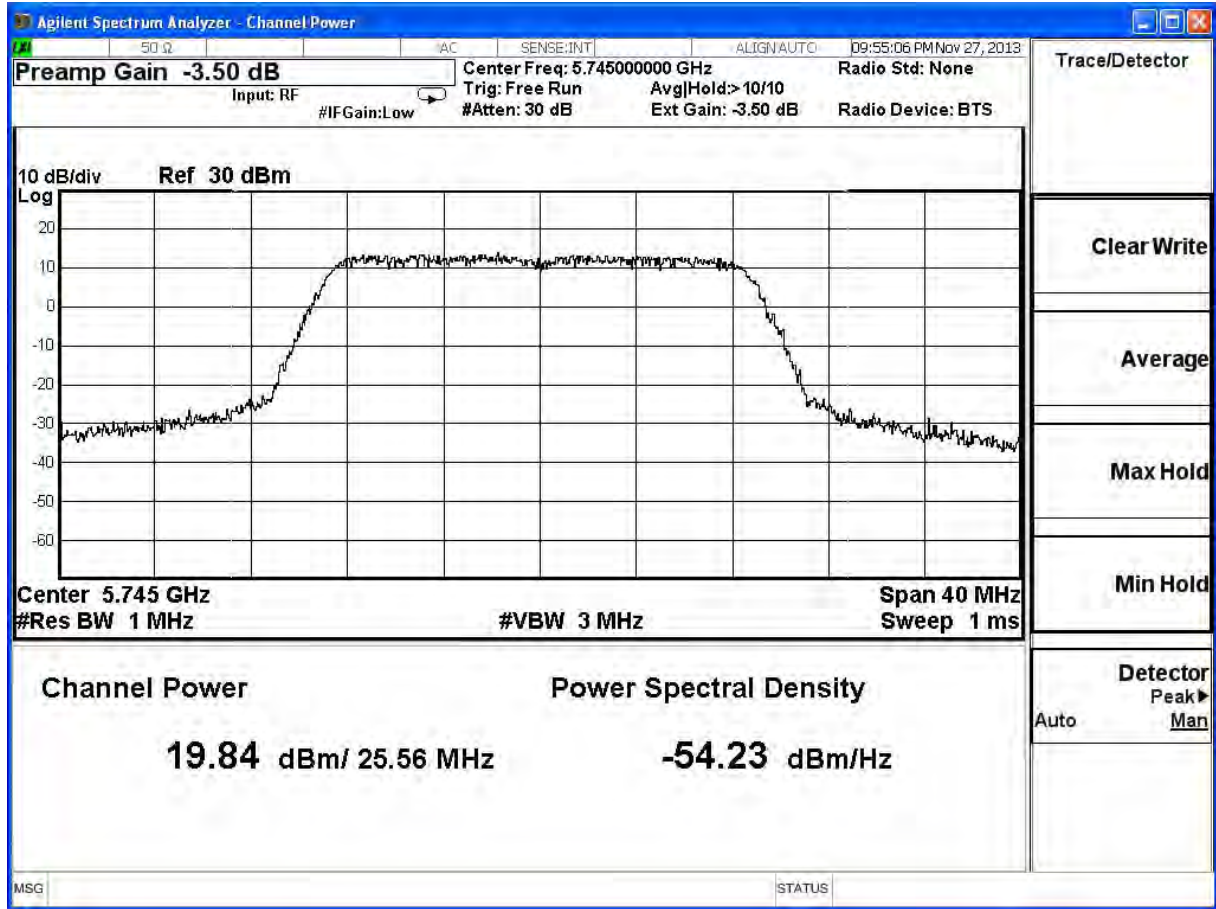
IEEE 802.11n 20MHz (ANT0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	19.84	≤ 30	Pass
157	5785	18.54	≤ 30	Pass
161	5805	20.09	≤ 30	Pass

The worst emission of data rate is 16Mbps.

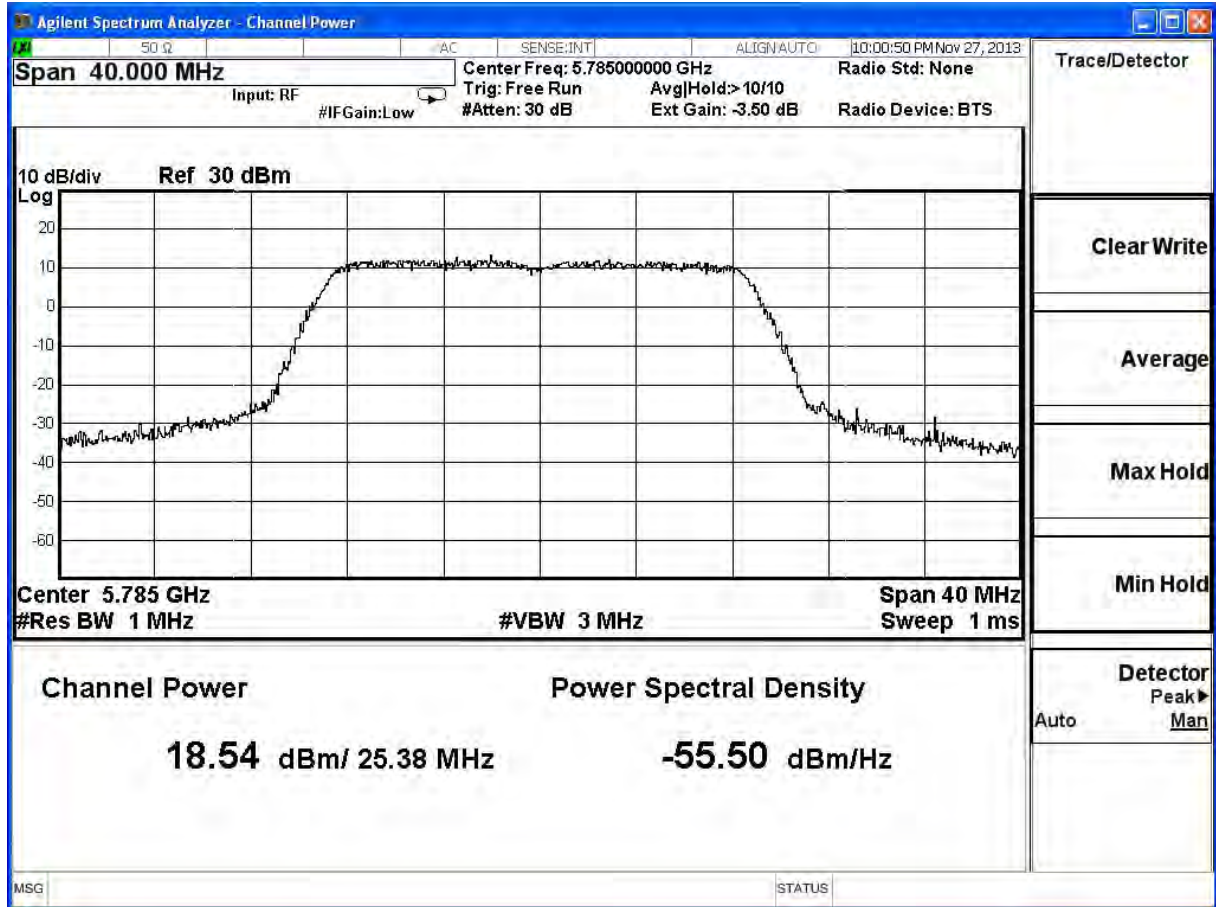
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		19.5	39	58.5	78	117	156	175.5	195	
149	5745	19.84	--	--	--	--	--	--	--	1 Watt=30dBm
157	5785	18.54	18.52	18.51	18.49	18.47	18.46	18.43	18.41	1 Watt=30dBm
161	5805	20.09	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

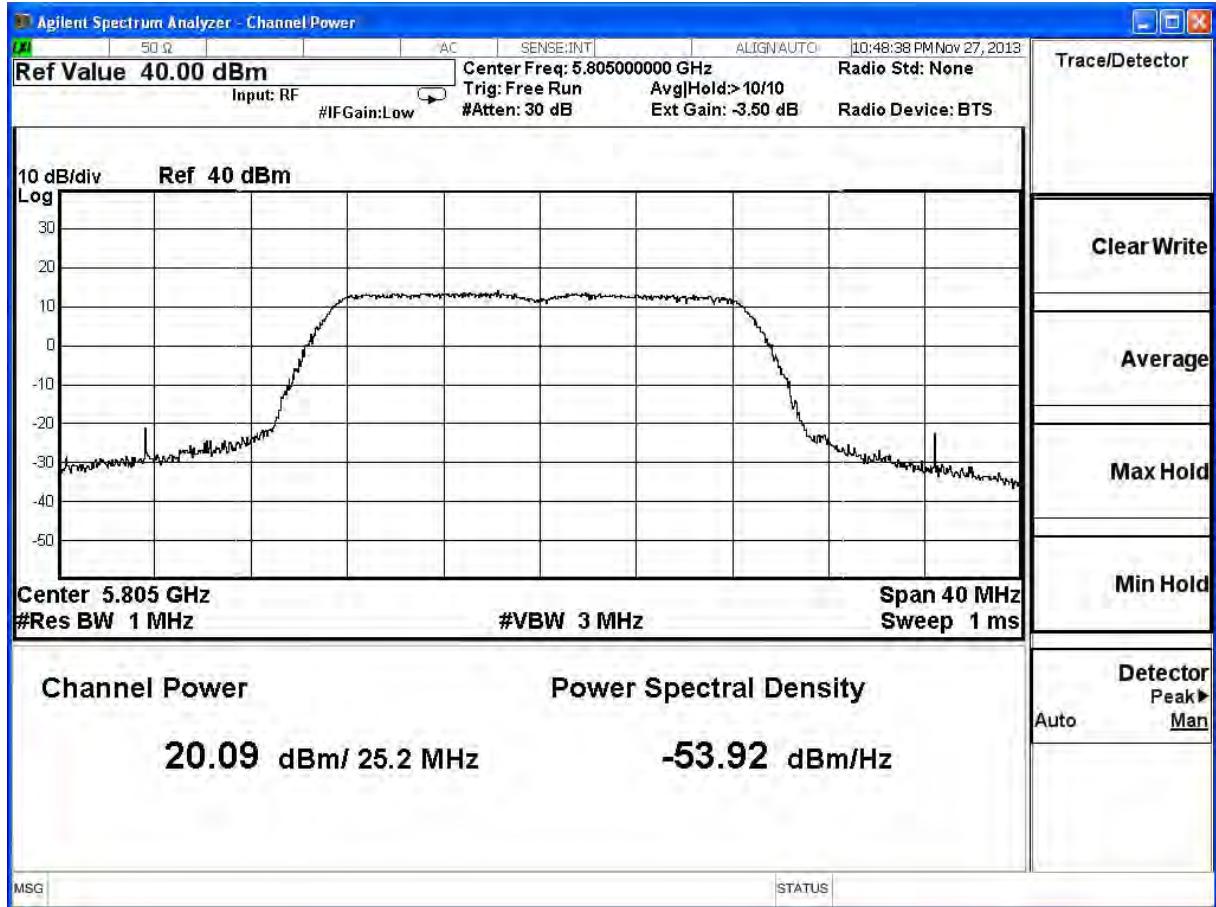
Channel 149



Channel 157



Channel 161



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

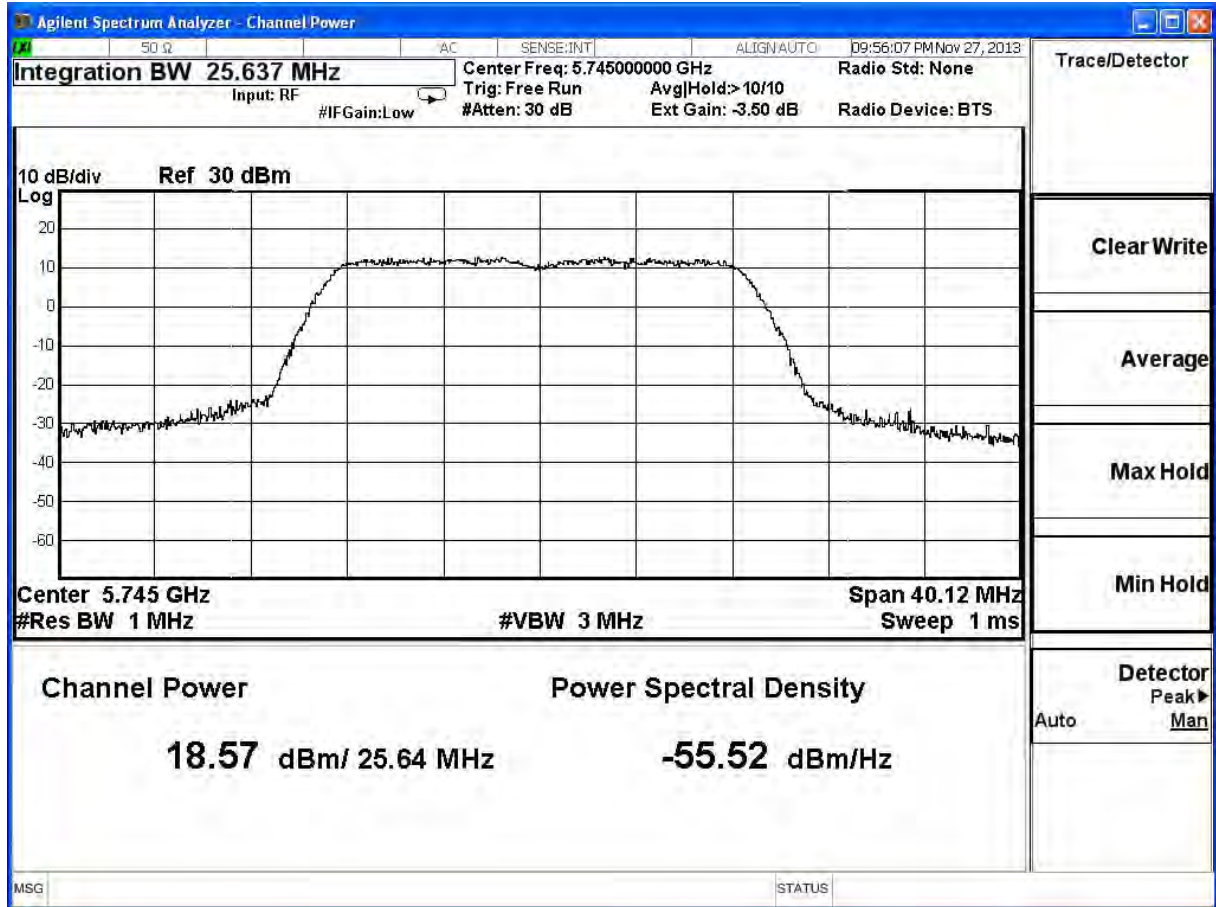
IEEE 802.11n 20MHz (ANT1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	18.57	≤ 30	Pass
157	5785	18.61	≤ 30	Pass
161	5805	19.47	≤ 30	Pass

The worst emission of data rate is 16Mbps.

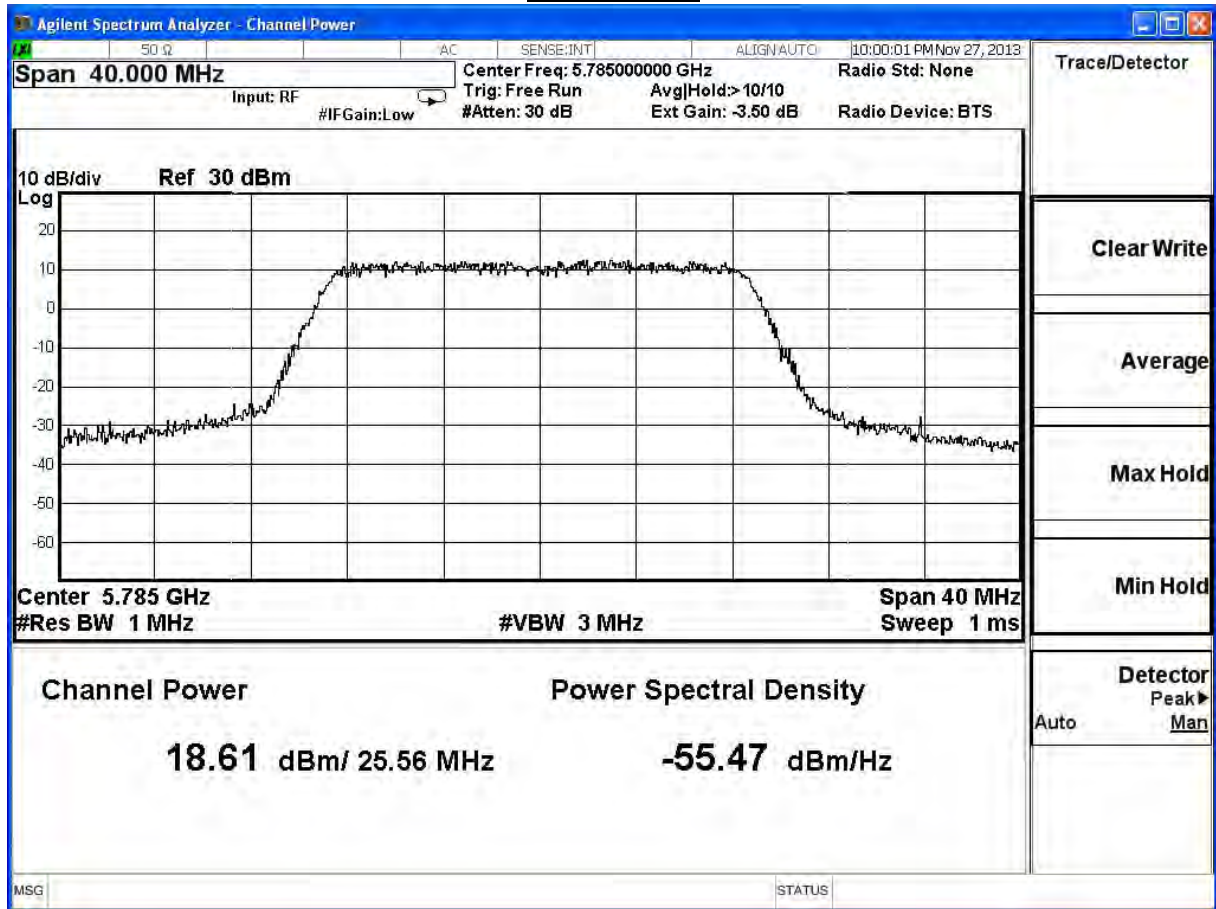
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		19.5	39	58.5	78	117	156	175.5	195	
149	5745	18.57	--	--	--	--	--	--	--	1 Watt=30dBm
157	5785	18.61	18.60	18.54	18.50	18.42	18.35	18.29	18.11	1 Watt=30dBm
161	5805	18.47	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

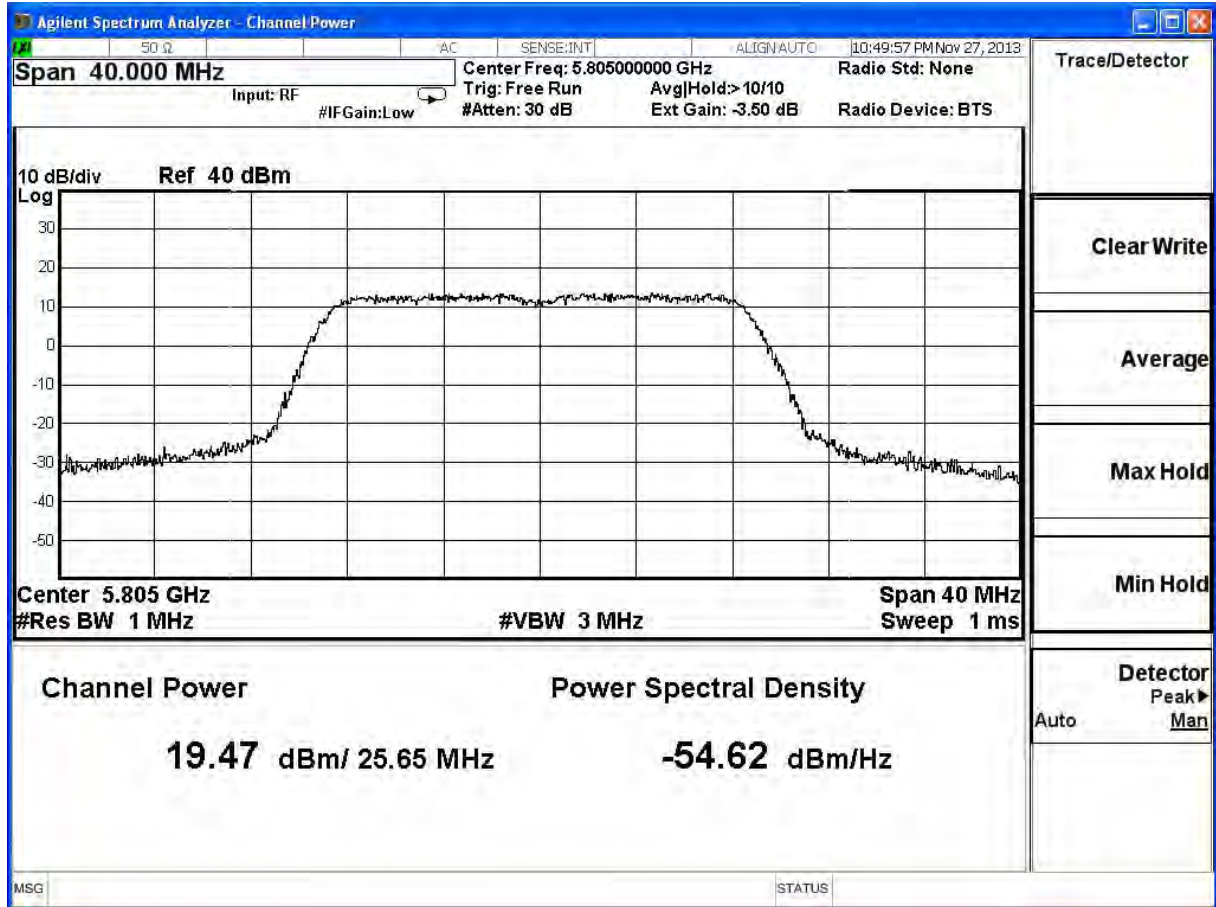
Channel 149



Channel 157



Channel 161



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

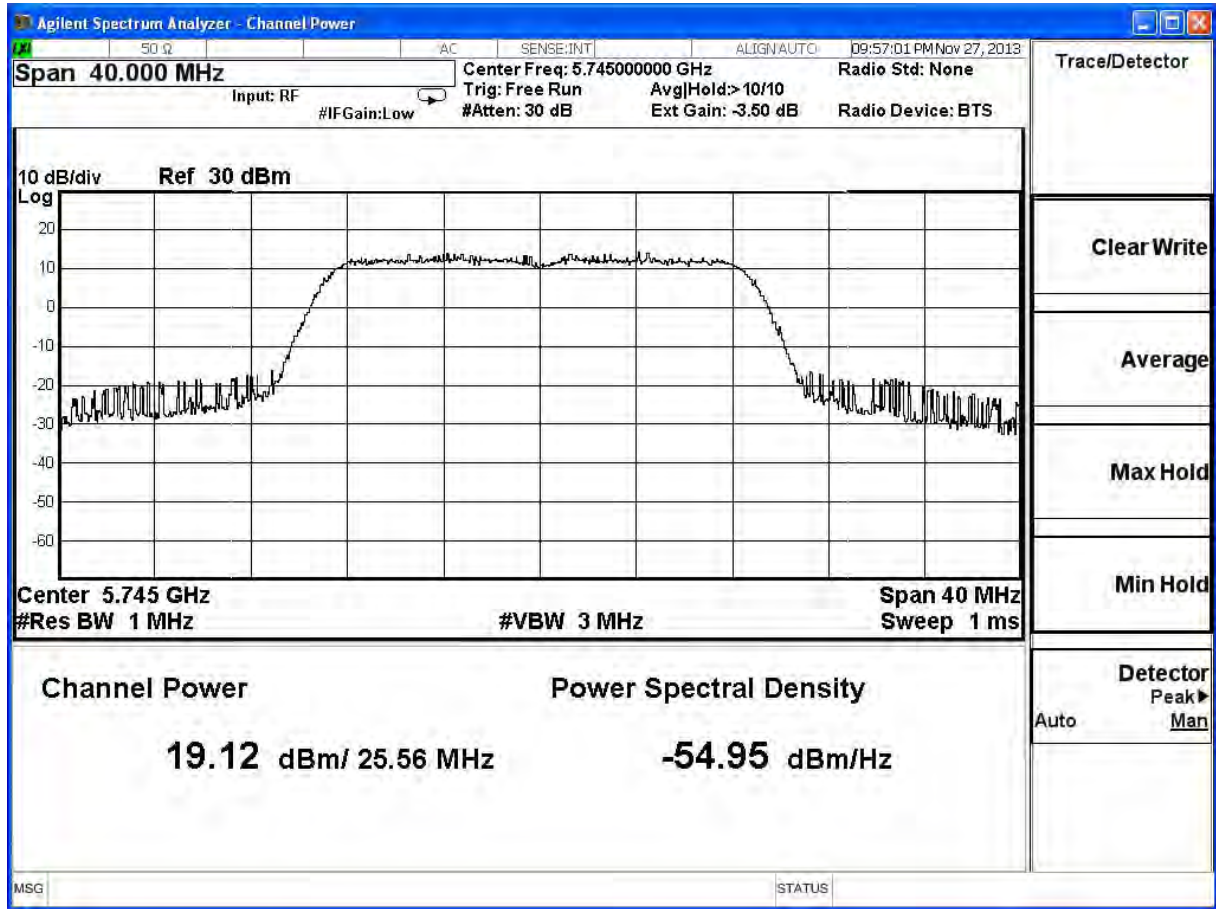
IEEE 802.11n 20MHz (ANT2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	19.12	≤ 30	Pass
157	5785	18.65	≤ 30	Pass
161	5805	18.64	≤ 30	Pass

The worst emission of data rate is 16Mbps.

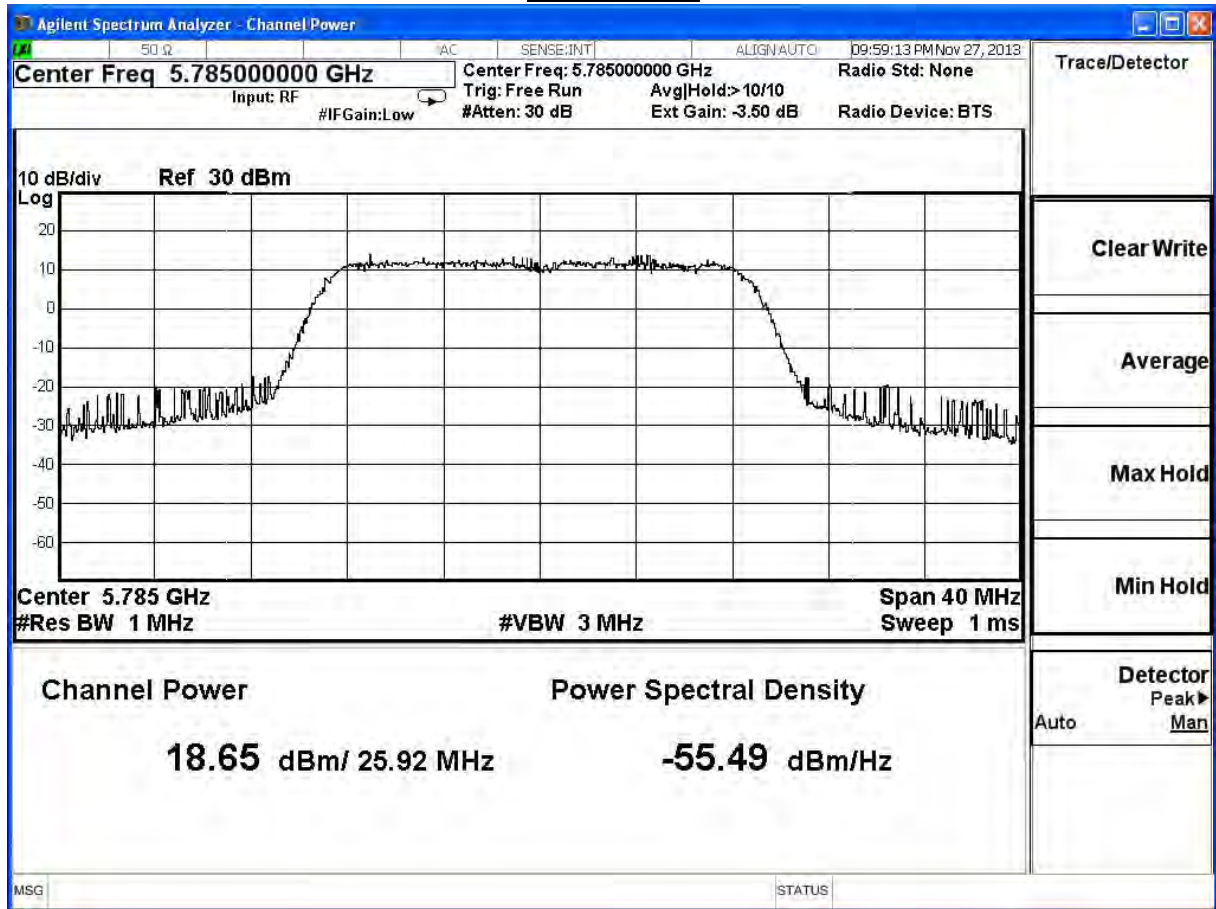
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		19.5	39	58.5	78	117	156	175.5	195	
149	5745	19.12	--	--	--	--	--	--	--	1 Watt=30dBm
157	5785	19.65	19.61	19.56	19.51	19.48	19.42	19.38	19.32	1 Watt=30dBm
161	5805	19.64	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

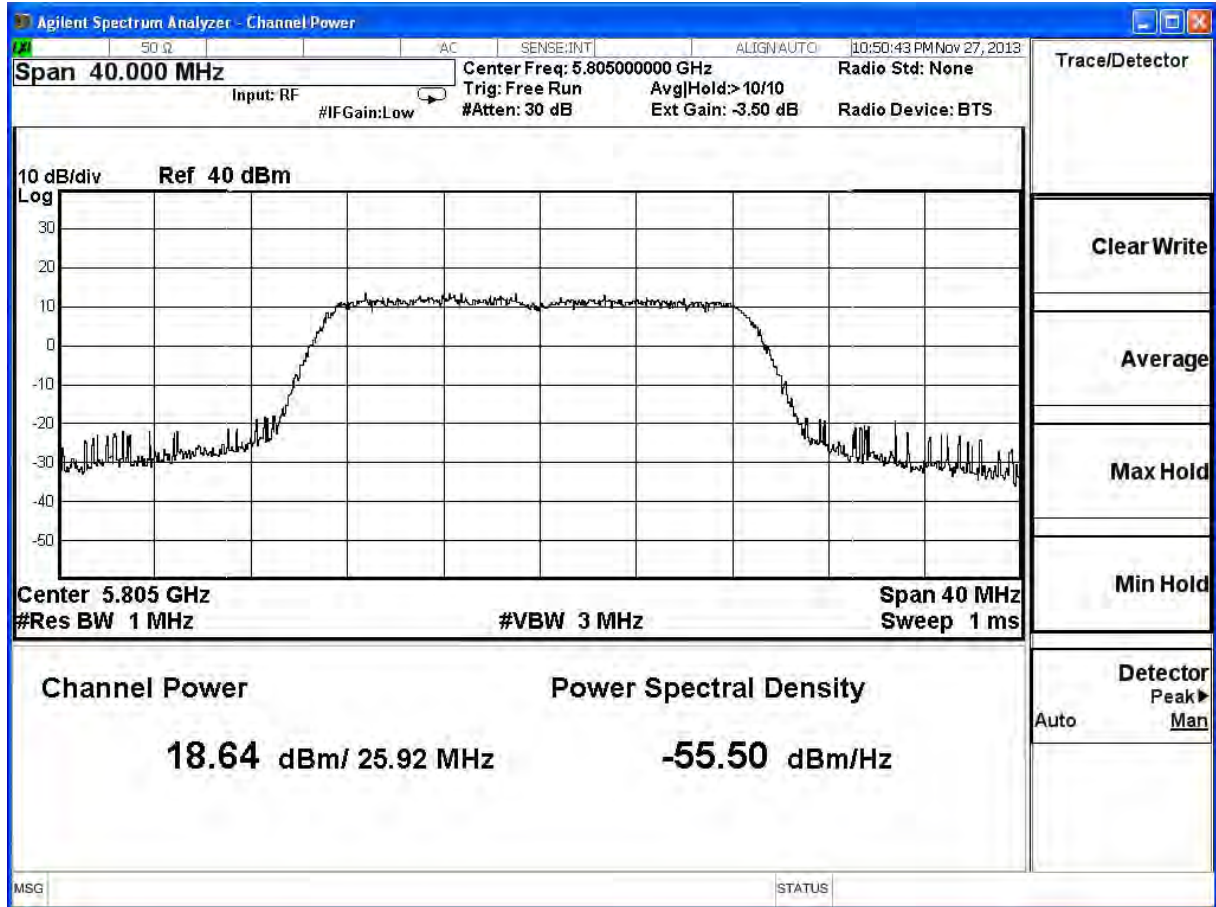
Channel 149



Channel 157



Channel 161



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

IEEE 802.11n 20MHz (ANT0+1+2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
149	5745	23.98	≤ 30	Pass
157	5785	23.37	≤ 30	Pass
161	5805	24.21	≤ 30	Pass

The worst emission of data rate is 16Mbps.

Peak Power Output (dBm)										
MCS Index		8	9	10	11	12	13	14	15	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		19.5	39	58.5	78	117	156	175.5	195	
149	5745	23.98	--	--	--	--	--	--	--	1 Watt=30dBm
157	5785	23.37	23.21	23.15	23.08	22.94	22.87	22.80	22.62	1 Watt=30dBm
161	5805	24.21	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

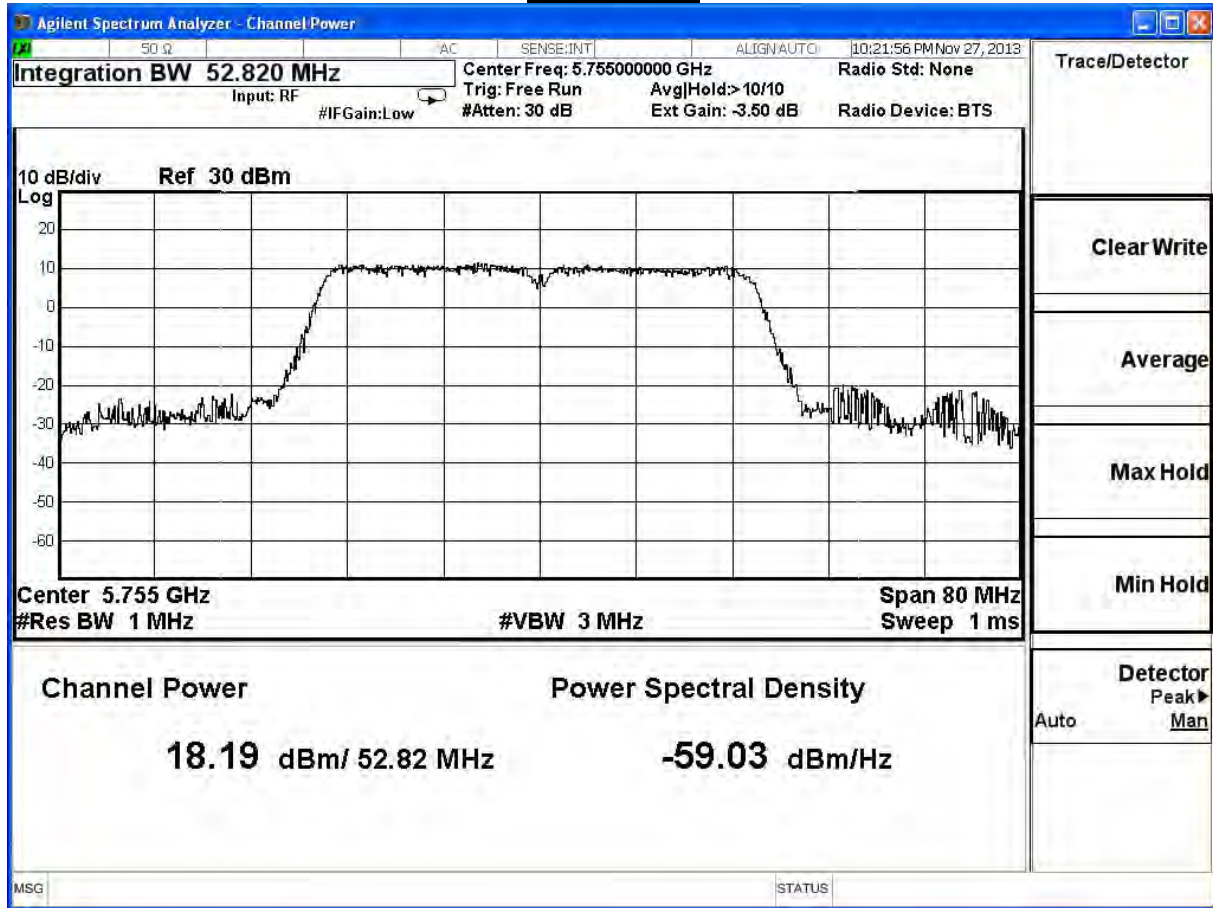
IEEE 802.11n 40MHz (ANT0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	18.19	≤ 30	Pass
159	5795	16.85	≤ 30	Pass

The worst emission of data rate is 16Mbps.

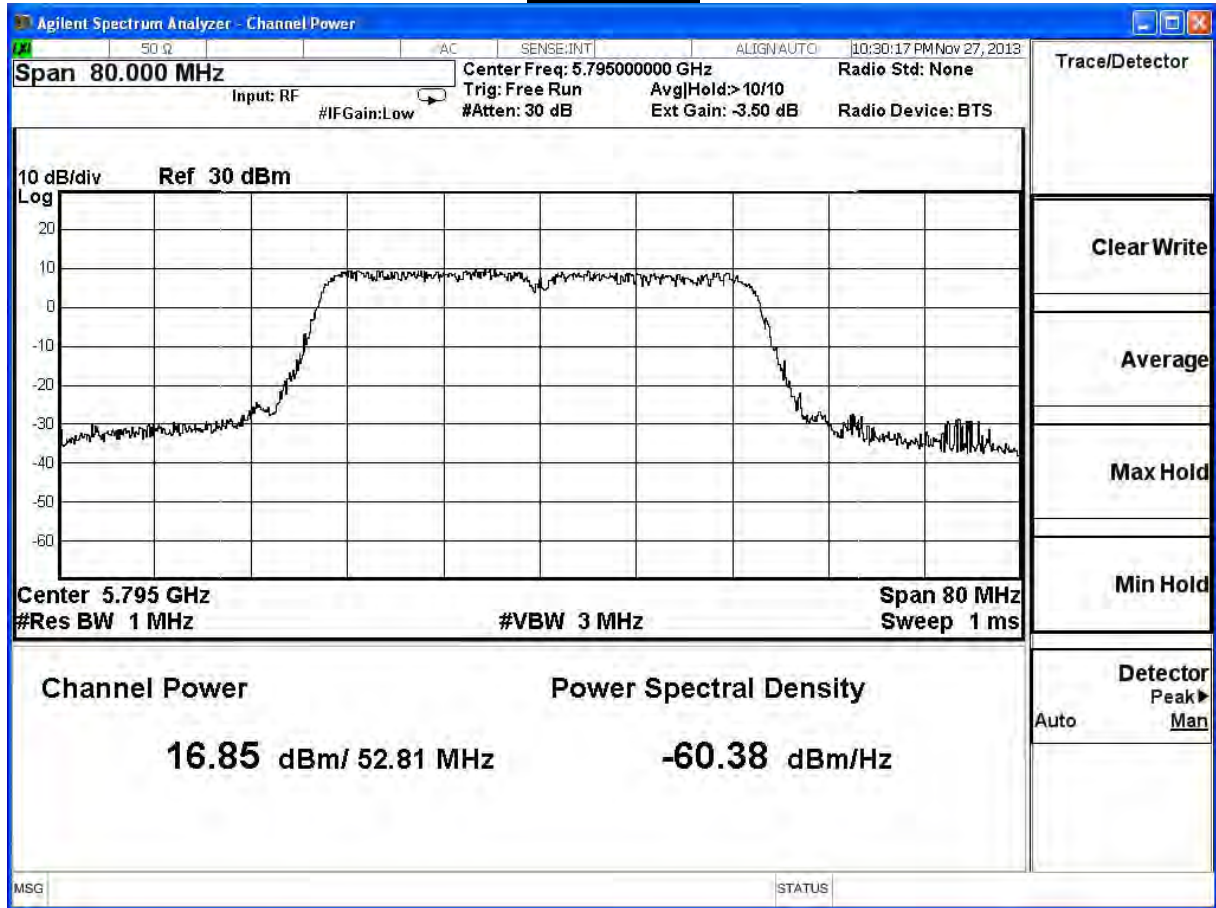
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		40.5	81.0	121.5	162.0	243.0	324.0	364.5	405.0	
151	5755	18.19	18.15	18.12	18.06	18.02	17.98	17.77	17.51	1 Watt=30dBm
159	5795	18.85	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

Channel 151



Channel 159



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

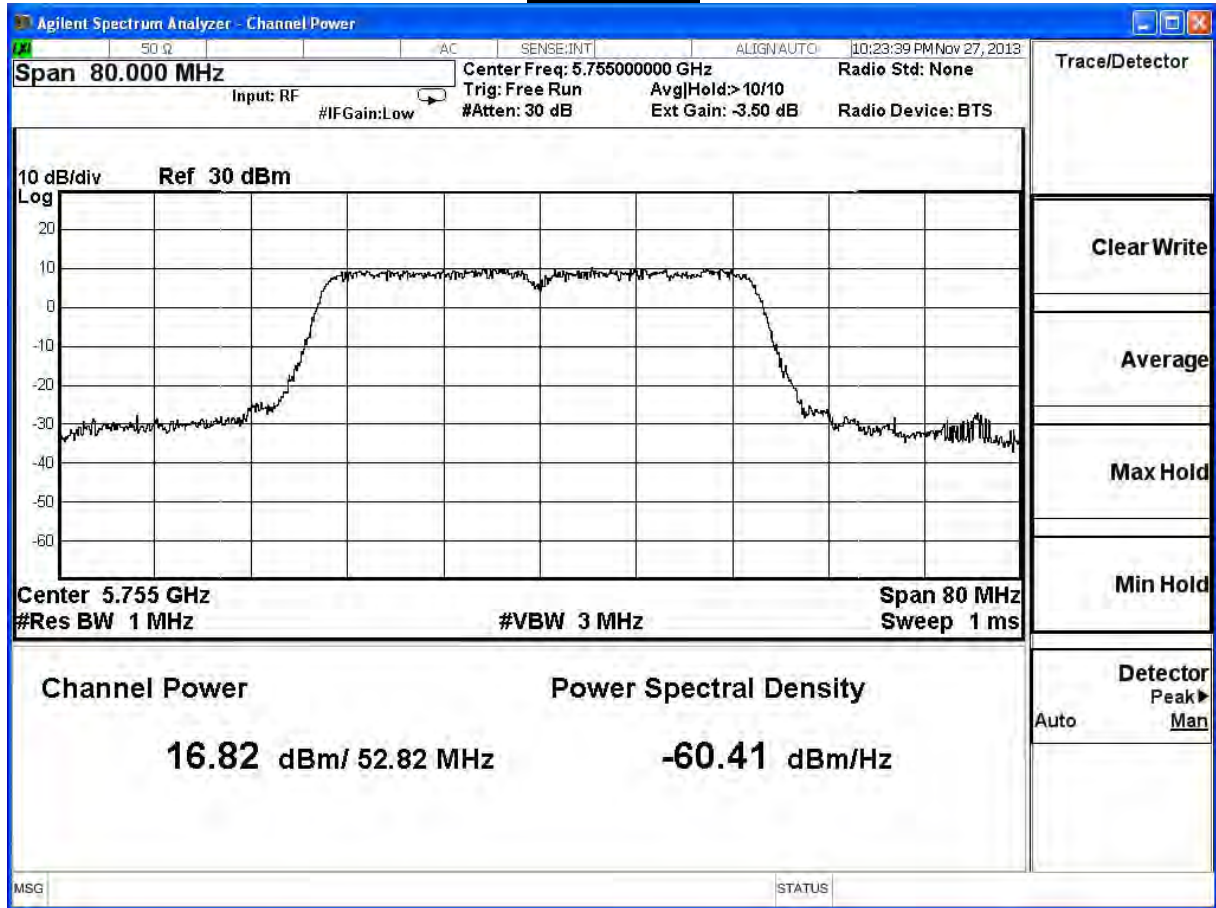
IEEE 802.11n 40MHz (ANT1) , Power Command: ch.151: 17, ch:159:17				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	16.82	≤ 30	Pass
159	5795	17.15	≤ 30	Pass

The worst emission of data rate is 16Mbps.

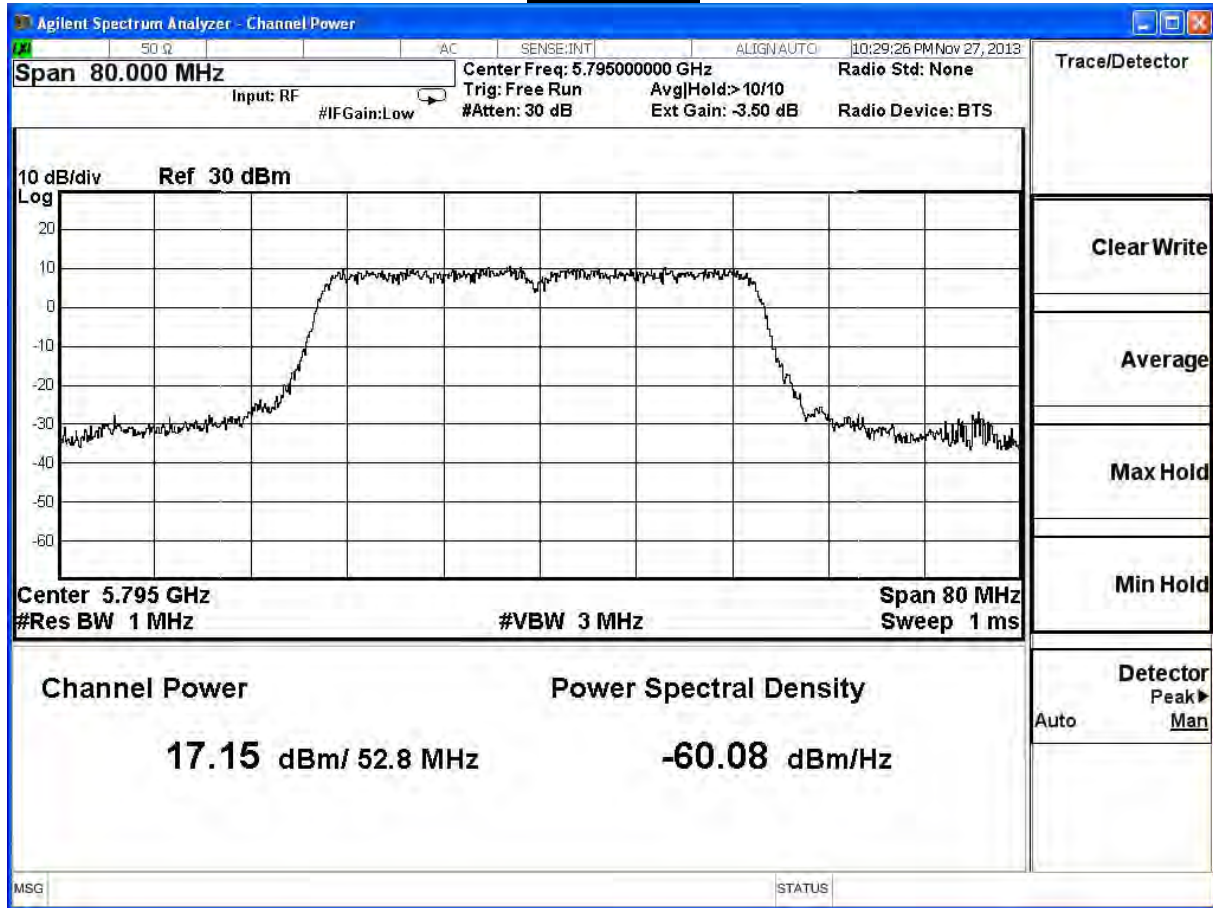
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		40.5	81.0	121.5	162.0	243.0	324.0	364.5	405.0	
151	5755	16.82	16.62	16.54	16.50	16.44	16.38	16.31	16.20	1 Watt=30dBm
159	5795	17.15	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

Channel 151



Channel 159



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

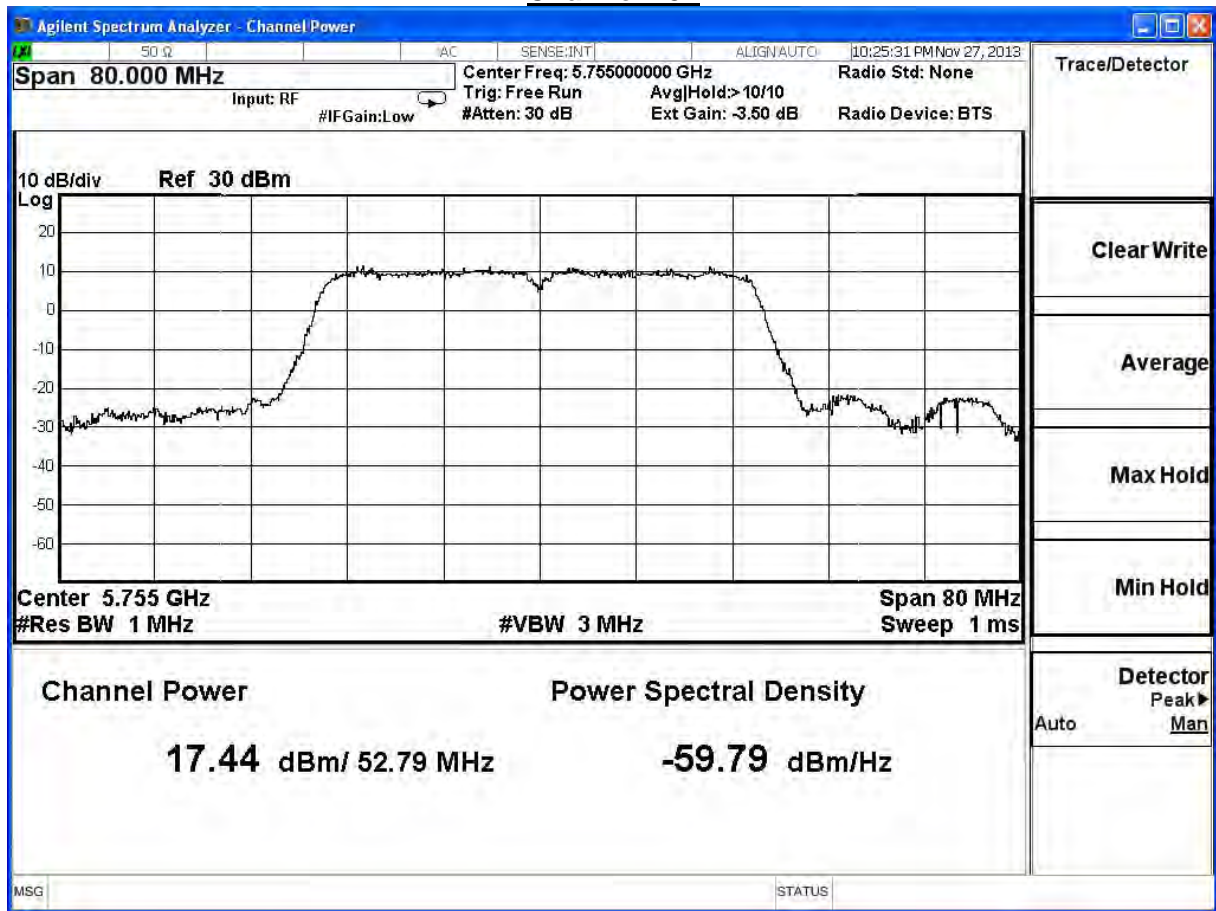
IEEE 802.11n 40MHz (ANT2)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	17.44	≤ 30	Pass
159	5795	16.86	≤ 30	Pass

The worst emission of data rate is 16Mbps.

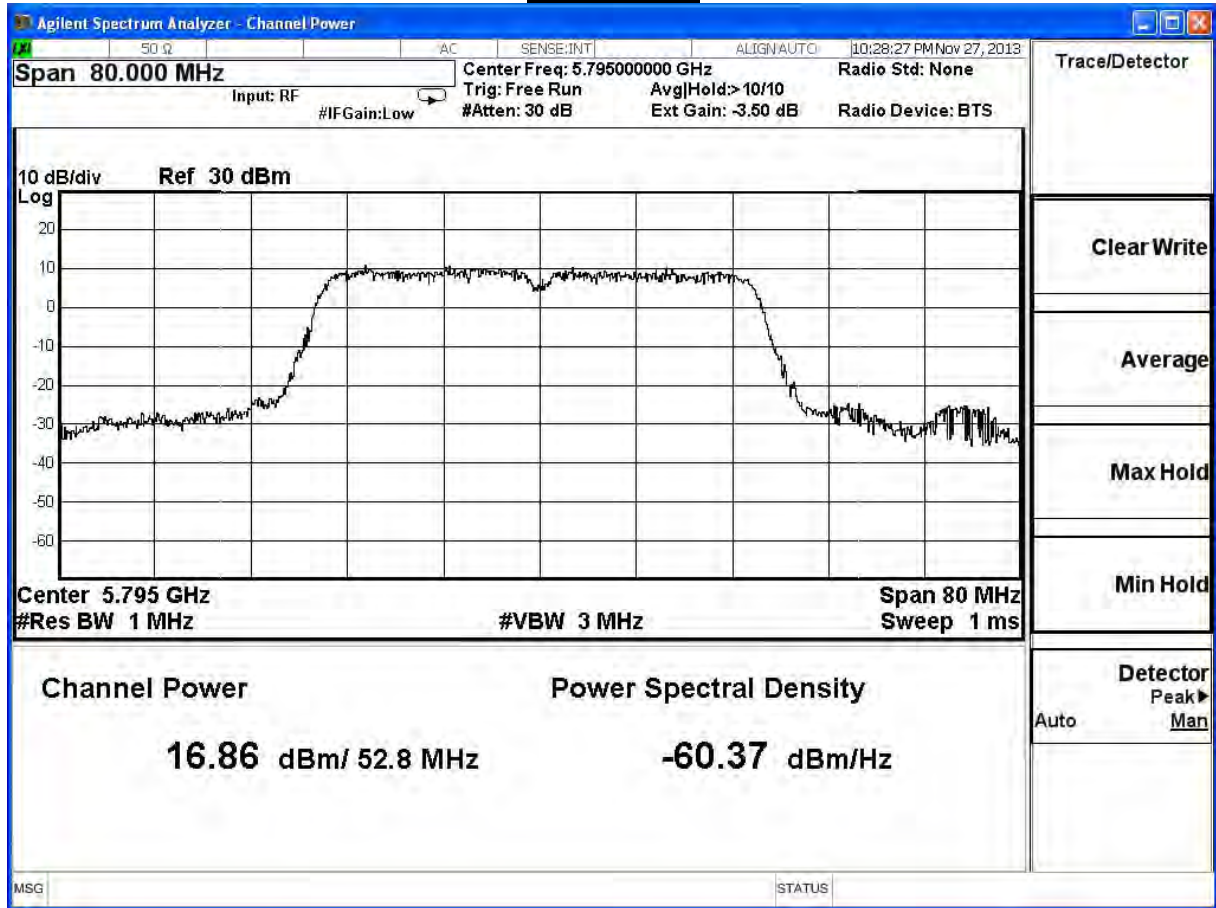
Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		40.5	81.0	121.5	162.0	243.0	324.0	364.5	405.0	
151	5755	17.44	17.62	17.55	17.51	17.48	17.40	17.33	17.20	1 Watt=30dBm
159	5795	16.86	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

Channel 151



Channel 159



Product	Wireless Extender		
Test Item	Peak Power Output		
Test Mode	Mode 1: Transmit		
Date of Test	2013/11/27	Test Site	SR7

IEEE 802.11n 40MHz (ANT0+1+2)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
151	5755	22.29	≤ 30	Pass
159	5795	21.73	≤ 30	Pass

The worst emission of data rate is 16Mbps.

Peak Power Output (dBm)										
MCS Index		16	17	18	19	20	21	22	23	Required Limit
Channel No	Frequency (MHz)	Data Rate								
		40.5	81.0	121.5	162.0	243.0	324.0	364.5	405.0	
151	5755	22.29	22.11	22.04	21.99	21.94	21.86	21.80	21.67	1 Watt=30dBm
159	5795	21.73	--	--	--	--	--	--	--	1 Watt=30dBm

Note: Measure Level =Reading value + cable loss

4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

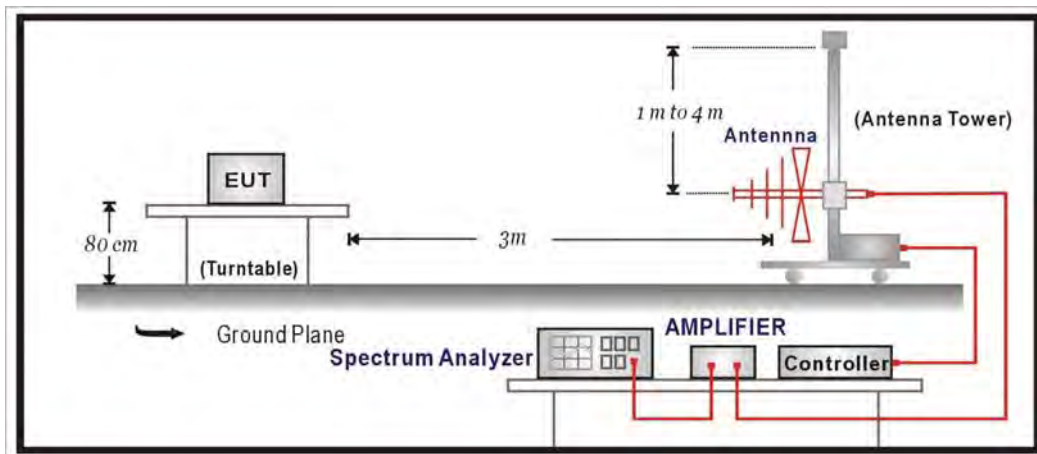
Radiated Emission / CB1

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

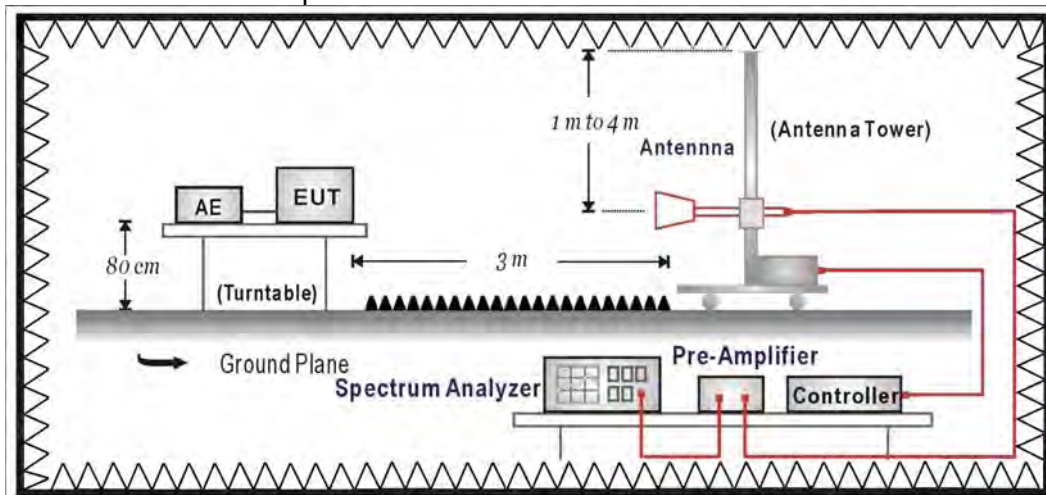
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limits

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

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency (MHz)	uV/m	dBuV/m	Measurement Distance(meter)
0.009-0.490	2400/F(kHz)	67.60	300
0.490-1.705	24000/F(kHz)	87.60	30
1.705-30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT was setup according to ANSI C63.4: 2009 and tested according to DTS test procedure of Oct. 2012 KDB5580744 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

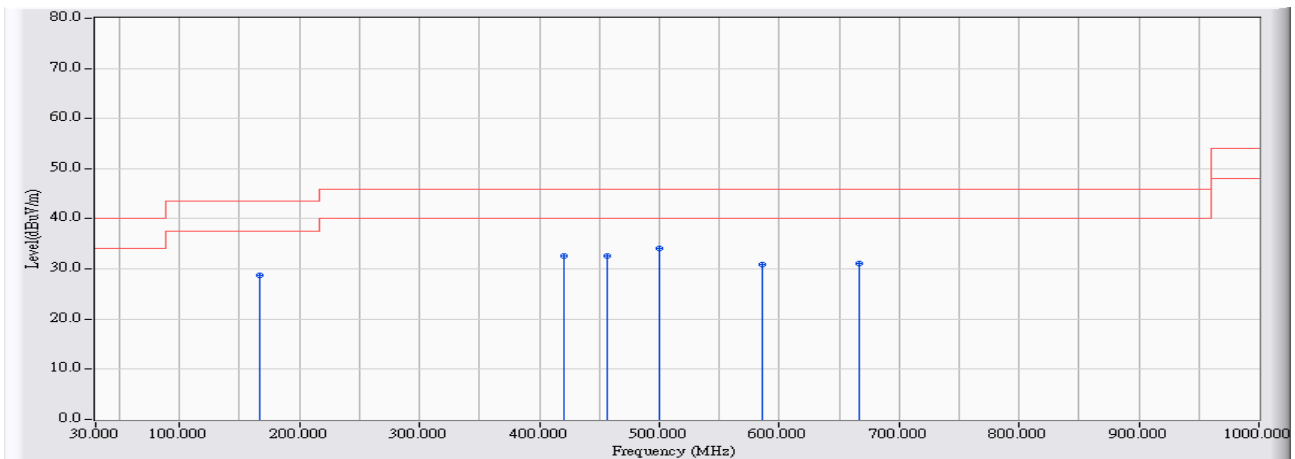
The measurement uncertainty

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 : CB1	Time : 2013/12/03 - 15:58
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

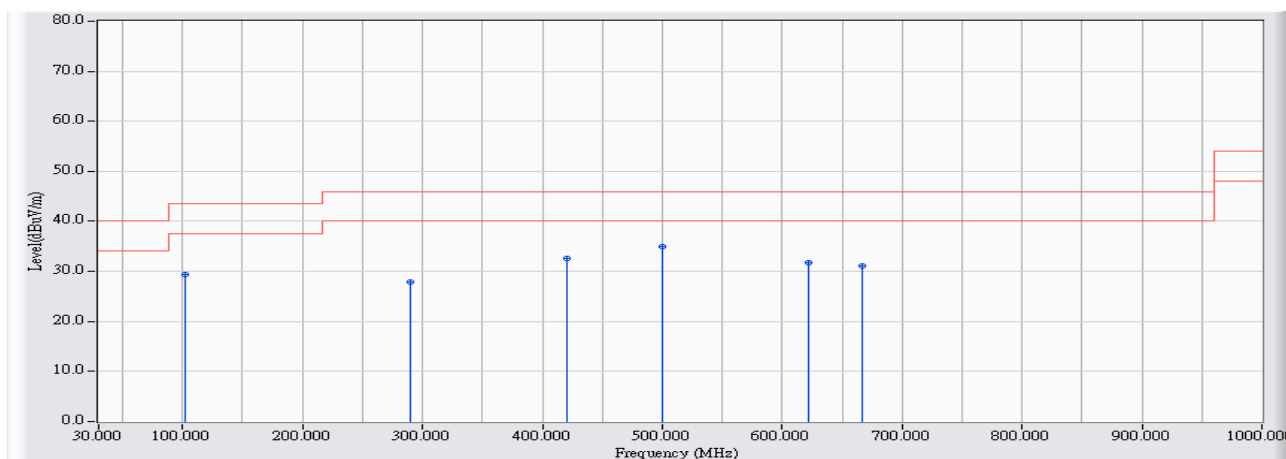


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	166.770	-24.160	53.002	28.842	-14.658	43.500	QUASPEAK
2	419.940	-17.161	49.743	32.582	-13.418	46.000	QUASPEAK
3	456.800	-16.450	48.990	32.540	-13.460	46.000	QUASPEAK
4	* 500.450	-15.617	49.644	34.027	-11.973	46.000	QUASPEAK
5	585.810	-15.531	46.391	30.860	-15.140	46.000	QUASPEAK
6	666.320	-15.179	46.257	31.078	-14.922	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 : CB1	Time : 2013/12/03 - 15:58
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

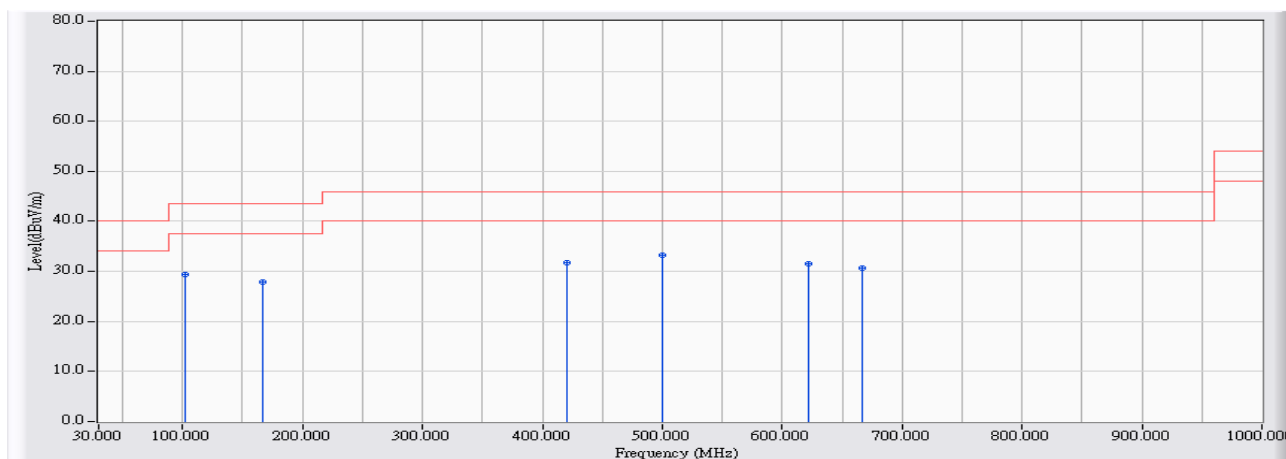


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	101.780	-23.070	52.552	29.482	-14.018	43.500	QUASPEAK
2	289.960	-20.243	48.121	27.879	-18.121	46.000	QUASPEAK
3	419.940	-17.161	49.743	32.582	-13.418	46.000	QUASPEAK
4	* 500.450	-15.617	50.483	34.866	-11.134	46.000	QUASPEAK
5	621.700	-15.406	47.225	31.819	-14.181	46.000	QUASPEAK
6	666.320	-15.179	46.257	31.078	-14.922	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 : CB1	Time : 2013/12/03 - 16:02
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n20MHz_CH157

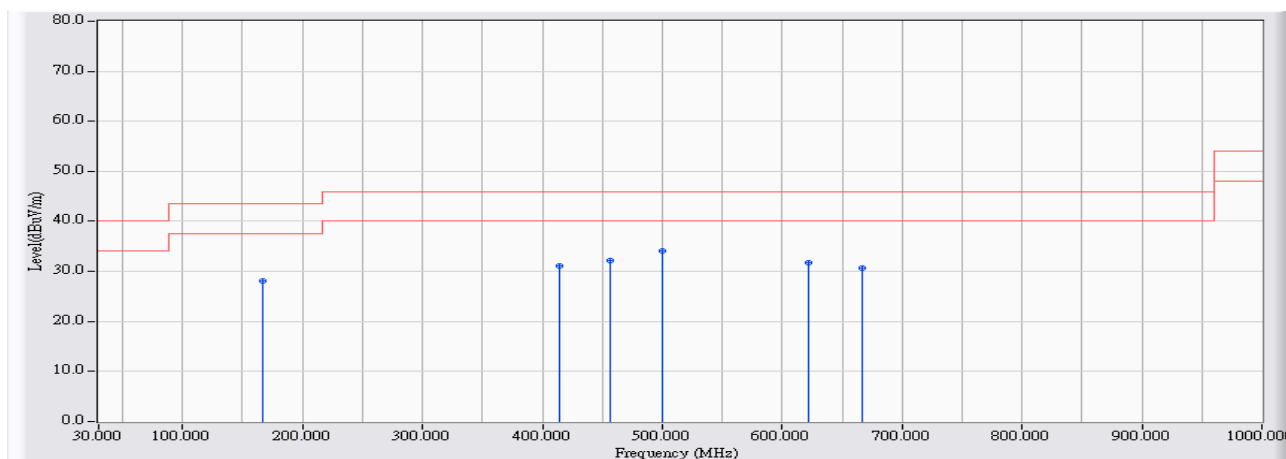


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	101.780	-23.070	52.393	29.323	-14.177	43.500	QUASPEAK
2	166.770	-24.160	52.004	27.844	-15.656	43.500	QUASPEAK
3	419.940	-17.161	48.826	31.665	-14.335	46.000	QUASPEAK
4	* 500.450	-15.617	48.888	33.271	-12.729	46.000	QUASPEAK
5	621.700	-15.406	46.909	31.503	-14.497	46.000	QUASPEAK
6	666.320	-15.179	45.932	30.753	-15.247	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 : CB1	Time : 2013/12/03 - 16:02
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH157

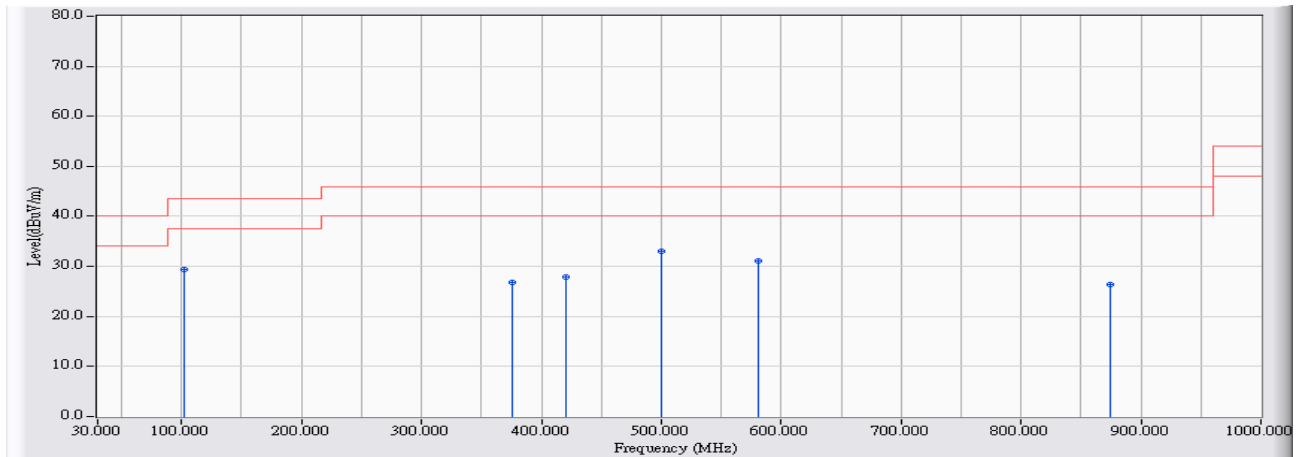


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	166.770	-24.160	52.333	28.173	-15.327	43.500	QUASPEAK
2	414.120	-17.273	48.293	31.020	-14.980	46.000	QUASPEAK
3	456.800	-16.450	48.536	32.086	-13.914	46.000	QUASPEAK
4	* 500.450	-15.617	49.807	34.190	-11.810	46.000	QUASPEAK
5	621.700	-15.406	47.123	31.717	-14.283	46.000	QUASPEAK
6	666.320	-15.179	45.809	30.630	-15.370	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 : CB1	Time : 2013/12/03 - 16:16
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n40MHz_CH159

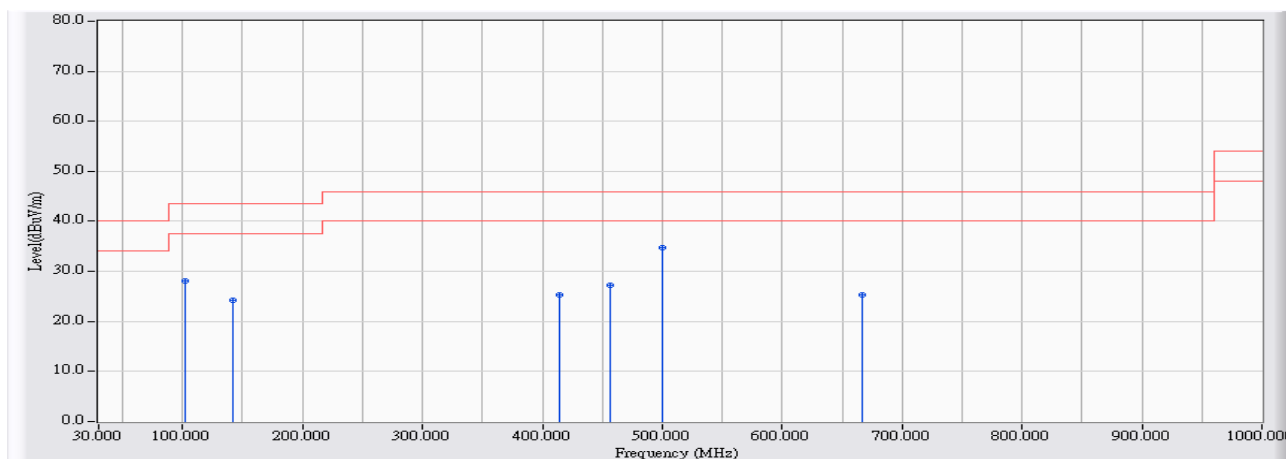


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	101.780	-23.070	52.525	29.455	-14.045	43.500	QUASPEAK
2	375.320	-18.163	45.069	26.906	-19.094	46.000	QUASPEAK
3	419.940	-17.161	44.991	27.830	-18.170	46.000	QUASPEAK
4	* 500.450	-15.617	48.706	33.089	-12.911	46.000	QUASPEAK
5	580.960	-15.536	46.631	31.095	-14.905	46.000	QUASPEAK
6	874.870	-13.393	39.689	26.296	-19.704	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 : CB1	Time : 2013/12/03 - 16:16
Limit : FCC_CLASS_B_03M_QP	Margin : 6
Probe : CB1_FCC_EFS_30-1G-2_1011 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n40MHz_CH159



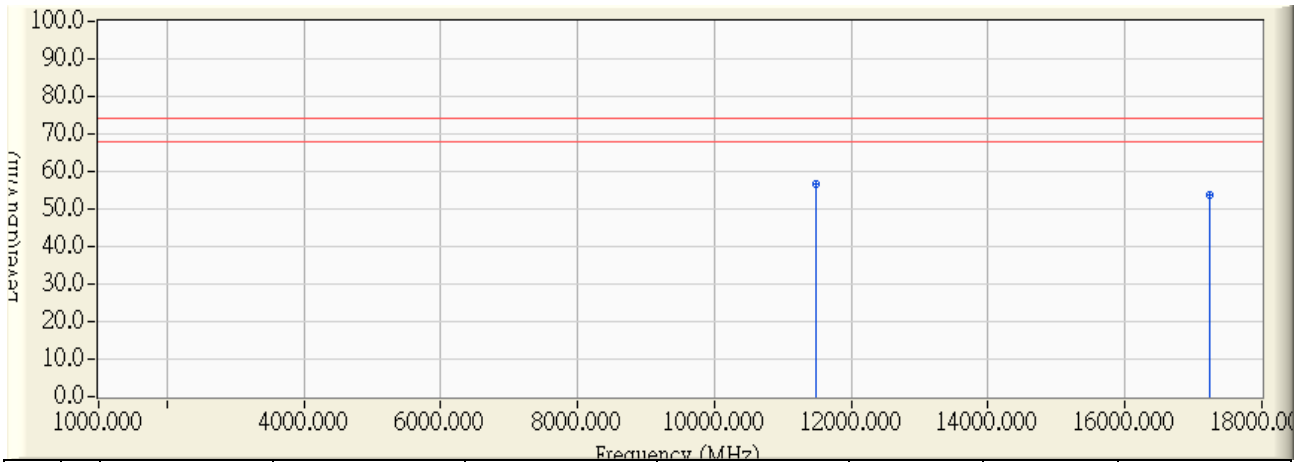
	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	101.780	-23.070	51.137	28.067	-15.433	43.500	QUASPEAK
2	141.550	-22.945	47.191	24.246	-19.254	43.500	QUASPEAK
3	414.120	-17.273	42.575	25.302	-20.698	46.000	QUASPEAK
4	456.800	-16.450	43.781	27.331	-18.669	46.000	QUASPEAK
5	* 500.450	-15.617	50.414	34.797	-11.203	46.000	QUASPEAK
6	666.320	-15.179	40.518	25.339	-20.661	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.

Above 1GHz Spurious

Site : CB1	Time : 2013/11/29 - 15:24
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH149

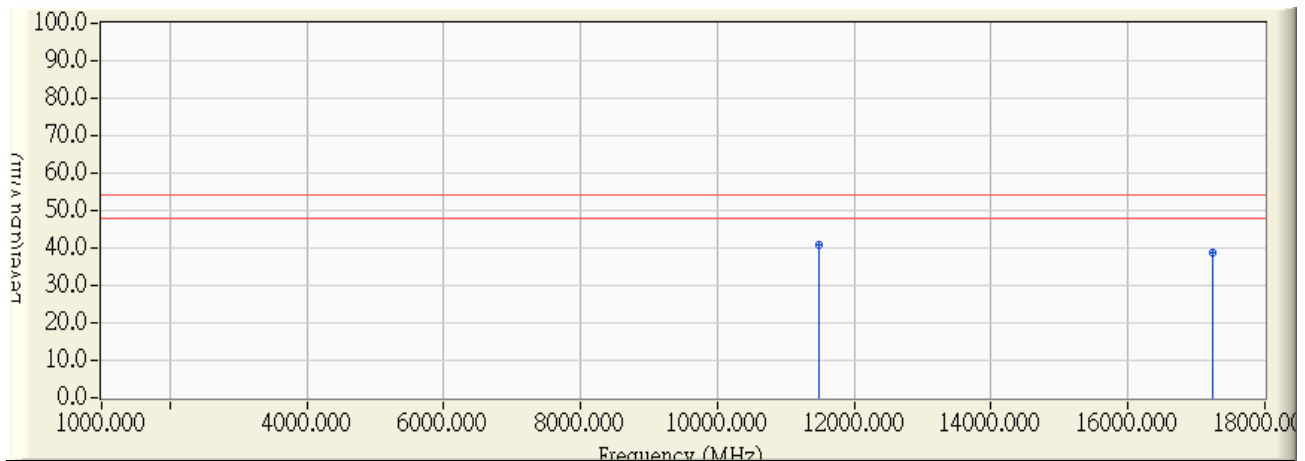


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11487.600	11.534	44.970	56.504	-17.496	74.000	PEAK
2		17237.330	15.433	38.130	53.563	-20.437	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 15:25
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH149

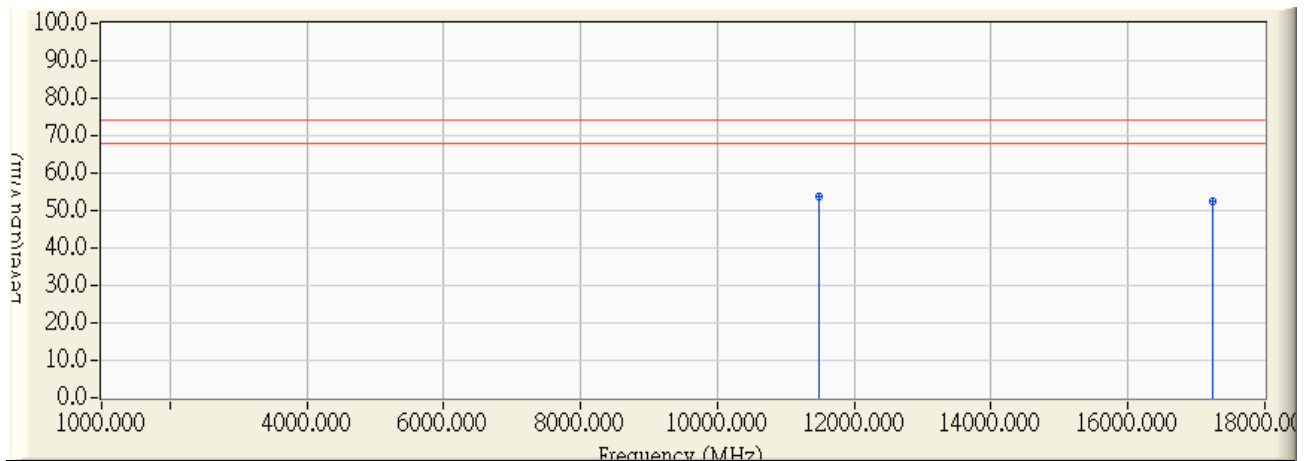


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11489.670	11.534	29.470	41.004	-12.996	54.000	AVERAGE
2		17235.530	15.424	23.260	38.685	-15.315	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/11/29 - 15:28
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH149

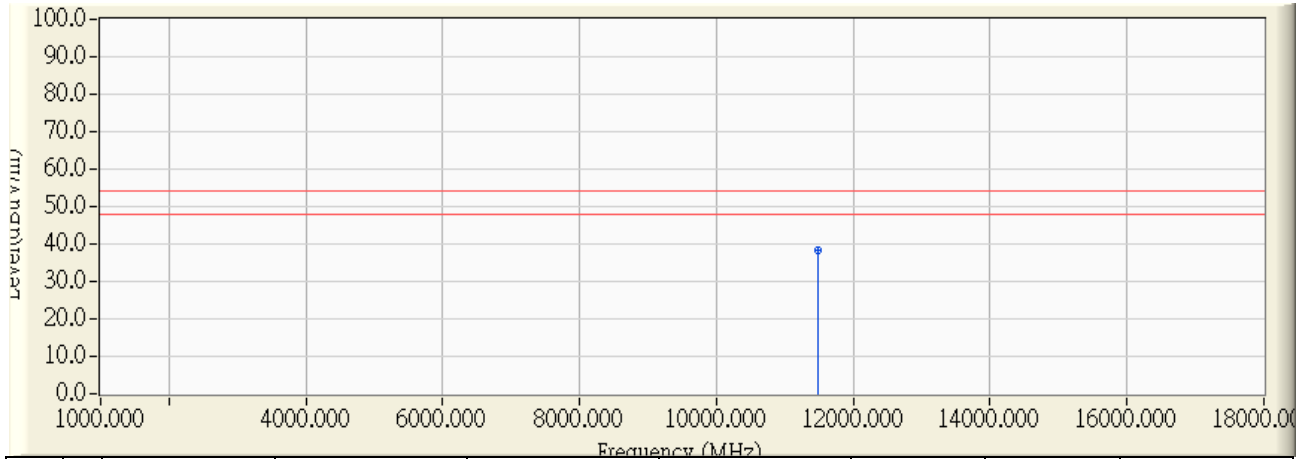


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11487.600	11.534	42.220	53.754	-20.246	74.000	PEAK
2		17236.800	15.431	37.110	52.540	-21.460	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 15:28
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH149

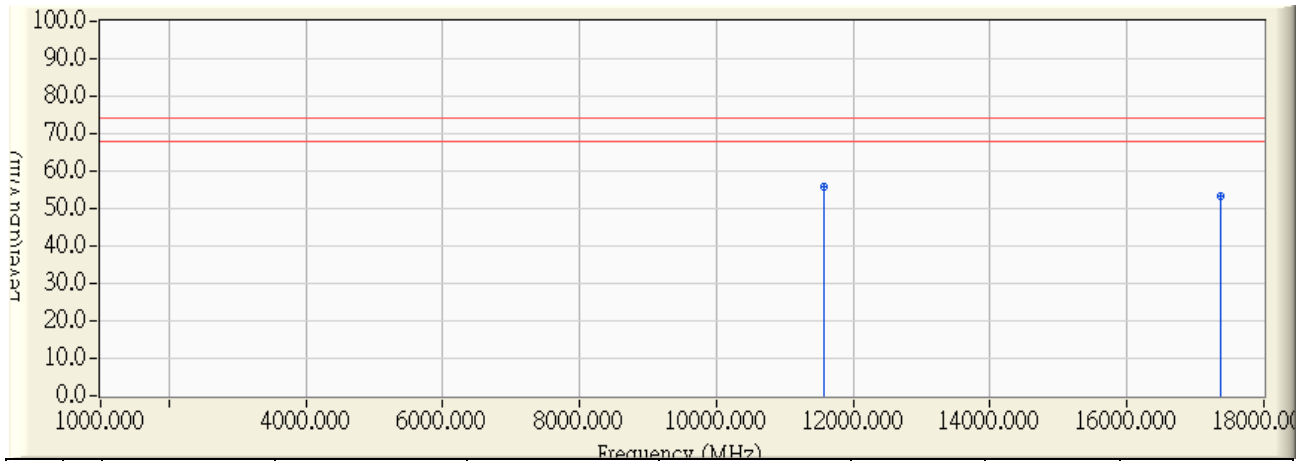


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11489.930	11.534	26.900	38.433	-15.567	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/11/29 - 15:43
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

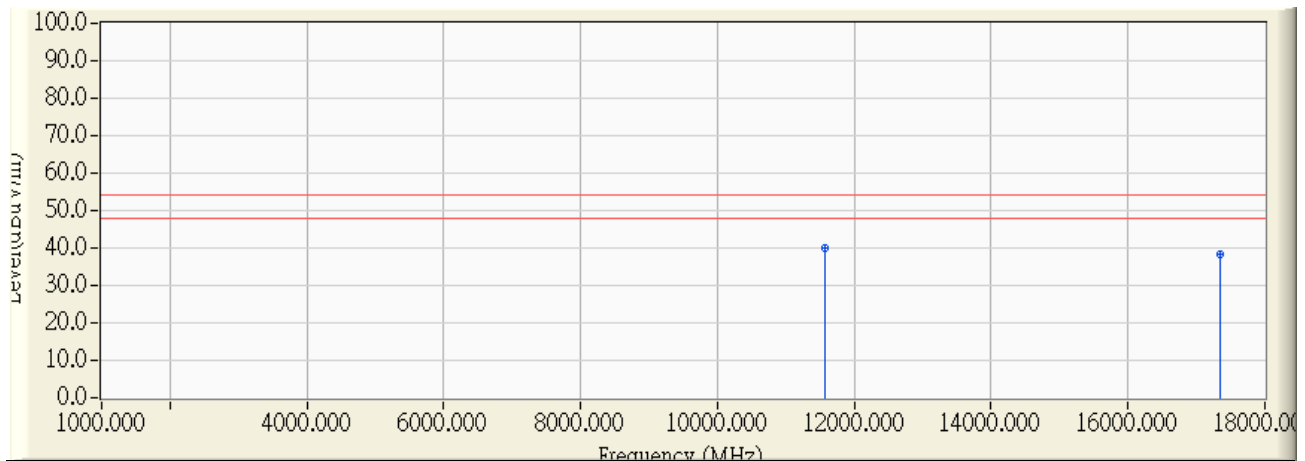


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11567.400	11.480	44.440	55.919	-18.081	74.000	PEAK
2		17367.470	16.031	37.370	53.401	-20.599	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 15:45
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

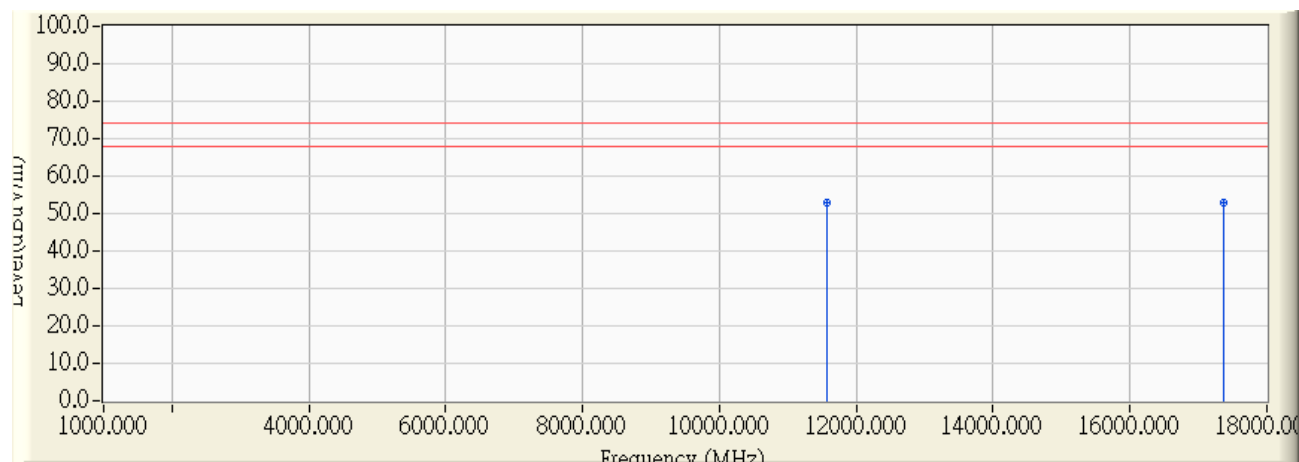


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11569.670	11.477	28.630	40.107	-13.893	54.000	AVERAGE
2		17335.730	15.885	22.570	38.455	-15.545	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/11/29 - 15:50
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

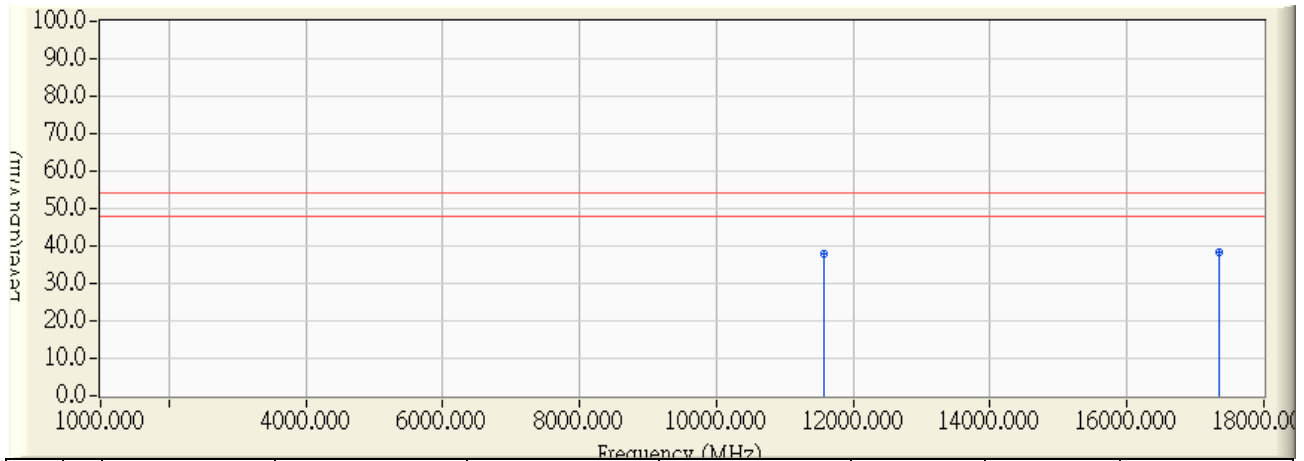


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11567.470	11.480	41.320	52.799	-21.201	74.000	PEAK
2	* 17358.800	15.992	37.020	53.011	-20.989	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 15:52
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH157

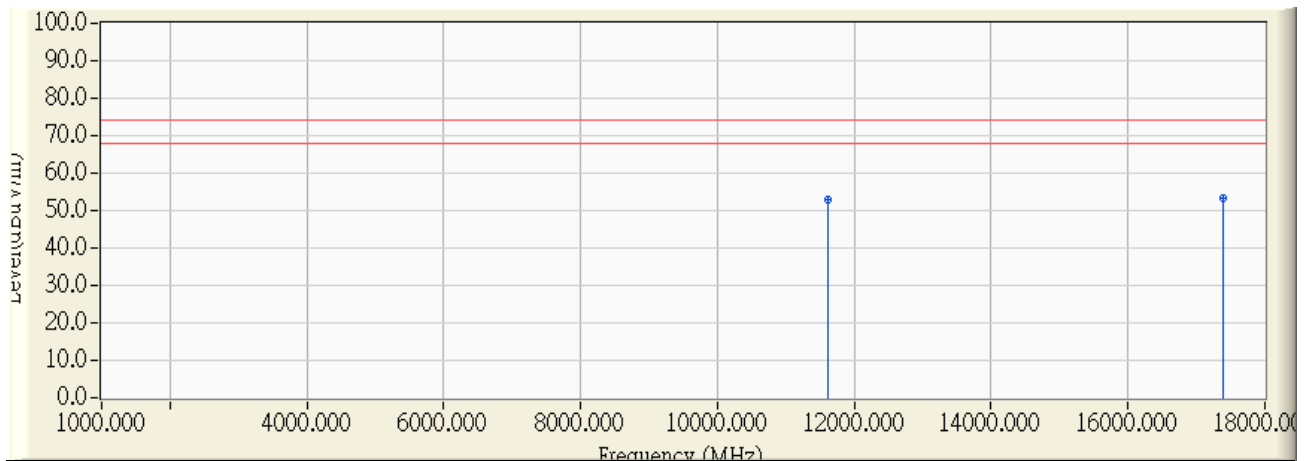


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11569.930	11.477	26.430	37.907	-16.093	54.000	AVERAGE
2	* 17336.870	15.891	22.580	38.471	-15.529	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/11/29 - 17:48
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH161

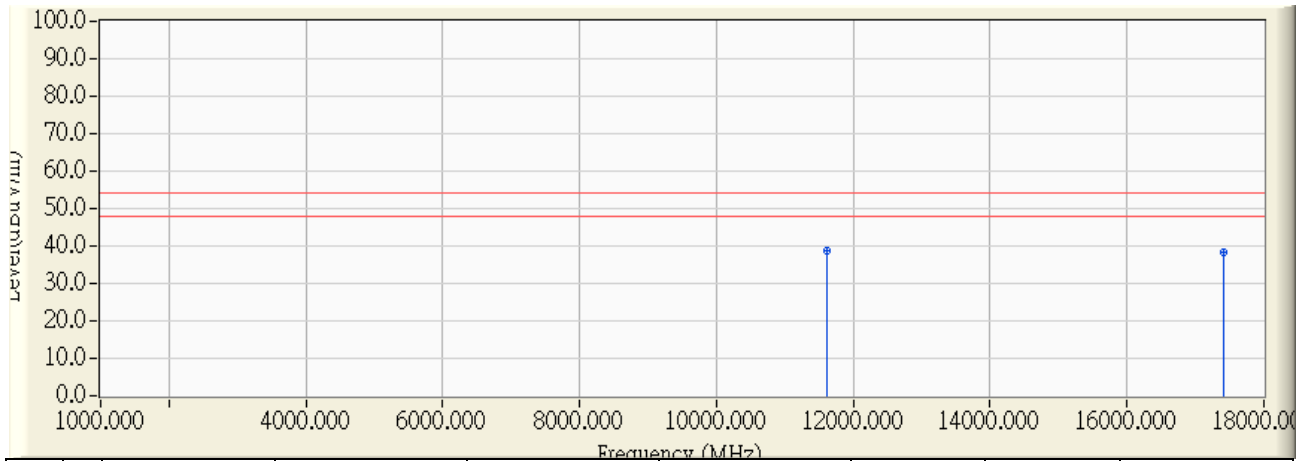


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11607.730	11.447	41.580	53.028	-20.972	74.000	PEAK
2	* 17396.930	16.167	37.070	53.237	-20.763	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 17:48
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH161

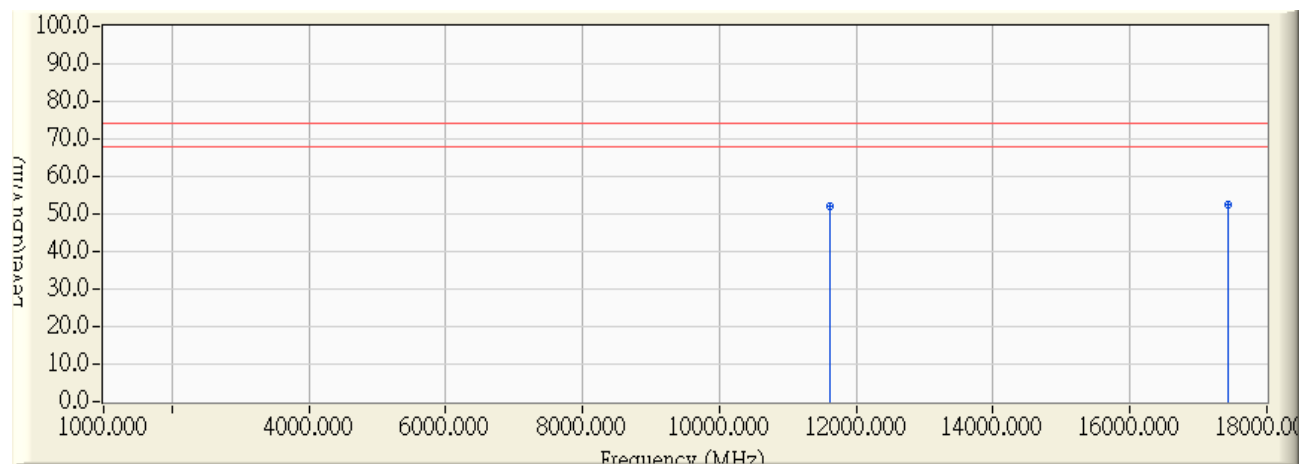


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11609.870	11.446	27.140	38.586	-15.414	54.000	AVERAGE
2		17401.070	16.185	22.340	38.526	-15.474	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/11/29 - 18:00
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211a_CH161

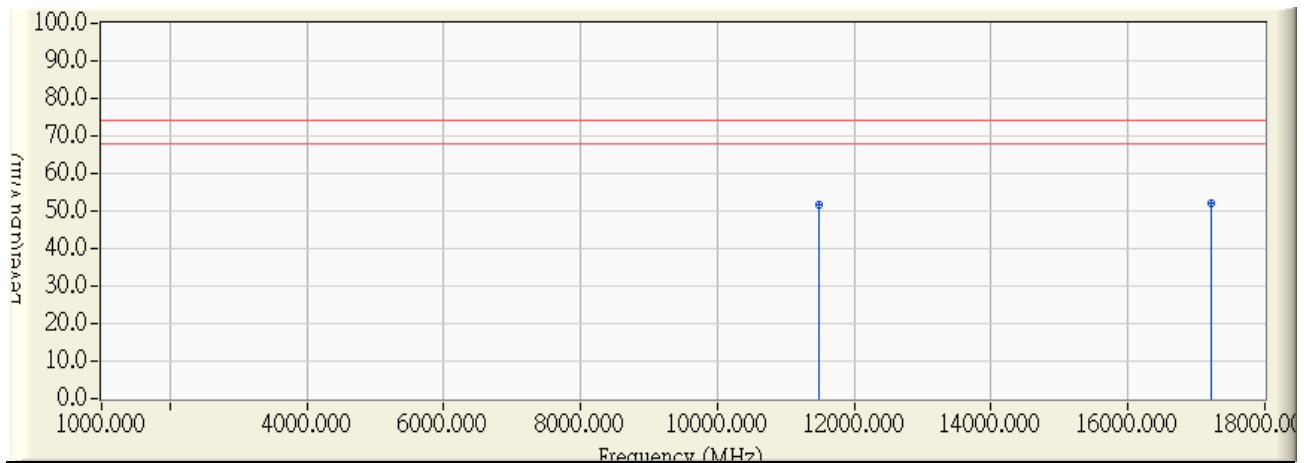


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11607.470	11.449	40.530	51.978	-22.022	74.000	PEAK
2	* 17434.870	16.341	36.310	52.651	-21.349	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 18:42
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH149

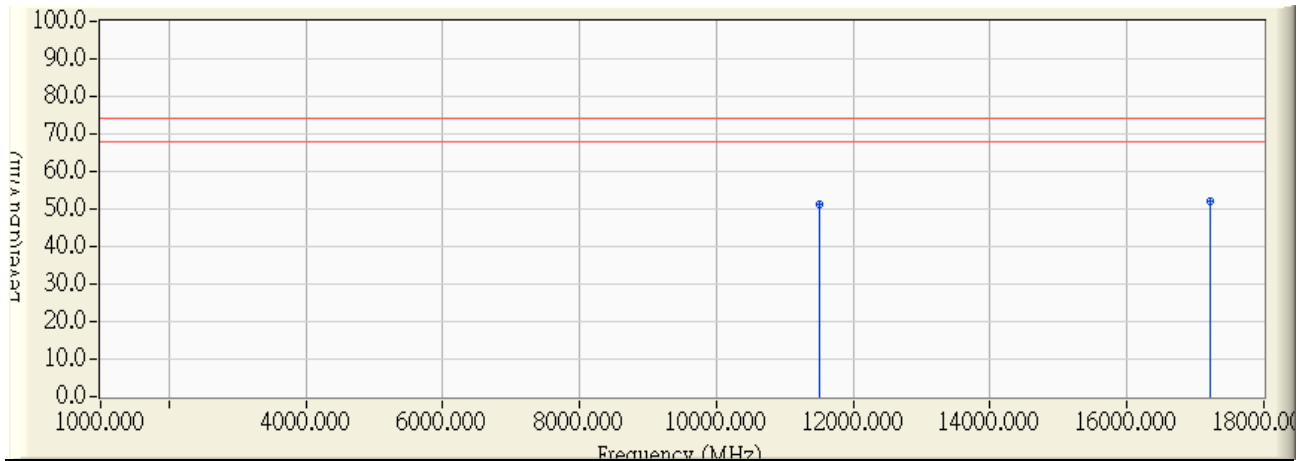


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11491.270	11.533	39.950	51.483	-22.517	74.000	PEAK
2	* 17222.600	15.365	36.880	52.245	-21.755	74.000	PEAK

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 : CB1	Time : 2013/11/29 - 18:45
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH149

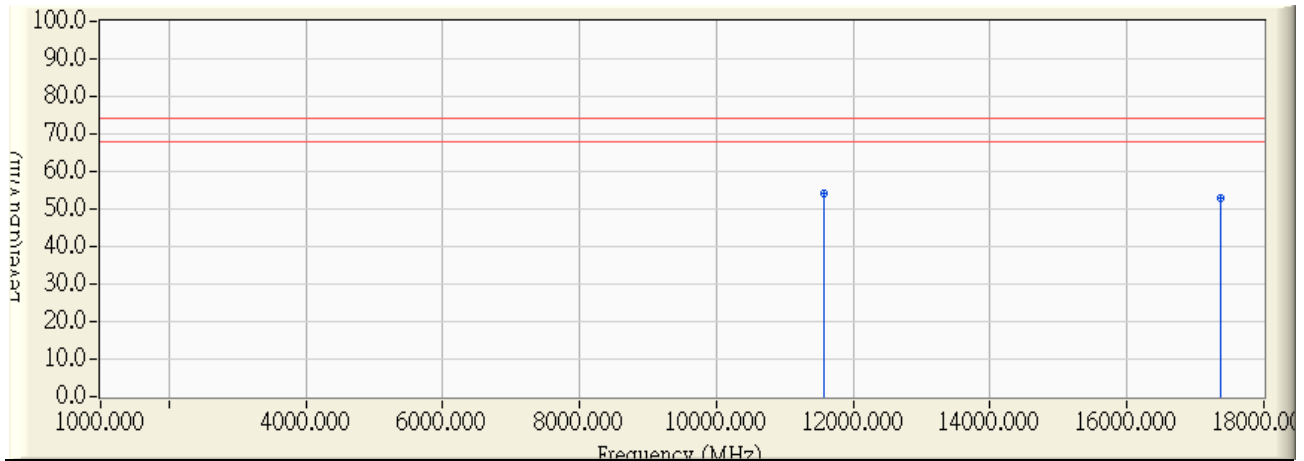


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11496.470	11.530	39.910	51.441	-22.559	74.000	PEAK
2	* 17215.270	15.331	36.730	52.061	-21.939	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:10
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH157

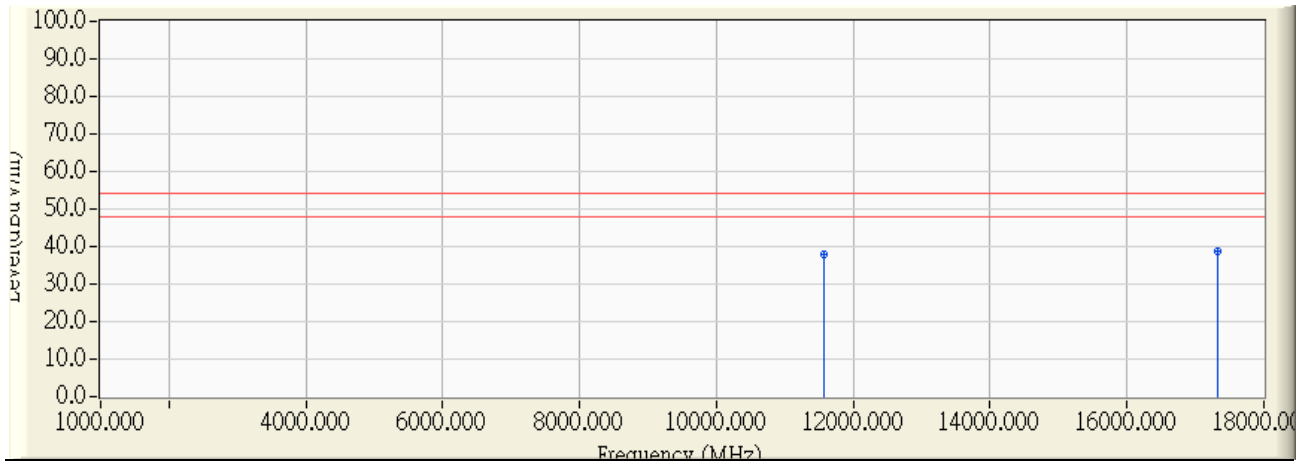


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	11569.870	11.477	42.850	54.327	-19.673	74.000	PEAK
2		17361.000	16.001	37.110	53.112	-20.888	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:12
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH157

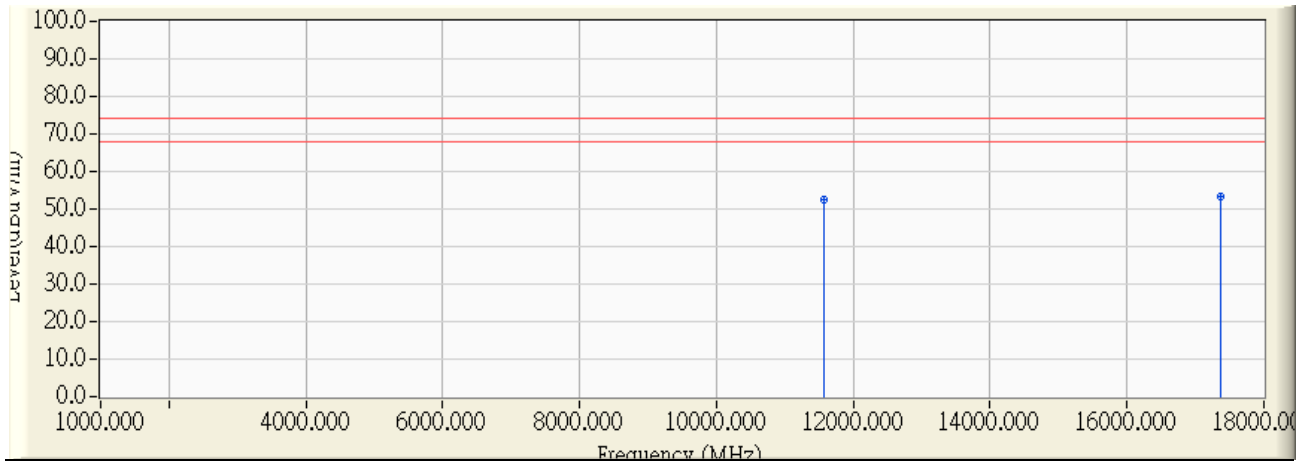


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11571.600	11.476	26.510	37.986	-16.014	54.000	AVERAGE
2	* 17335.130	15.883	23.070	38.953	-15.047	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/12/02 - 22:17
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH157

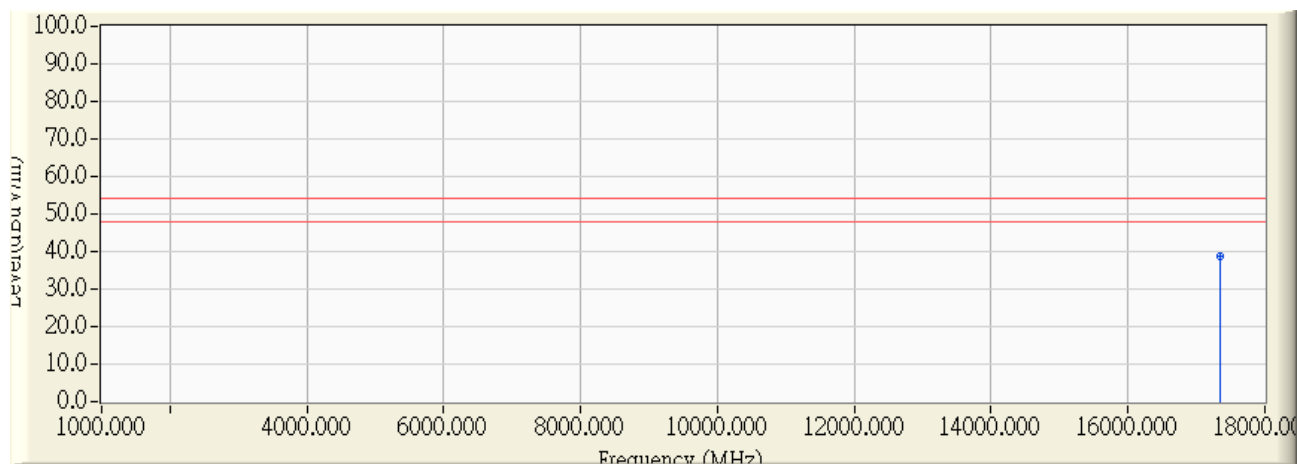


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11572.600	11.474	41.040	52.515	-21.485	74.000	PEAK
2	* 17374.000	16.062	37.240	53.301	-20.699	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:17
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH157

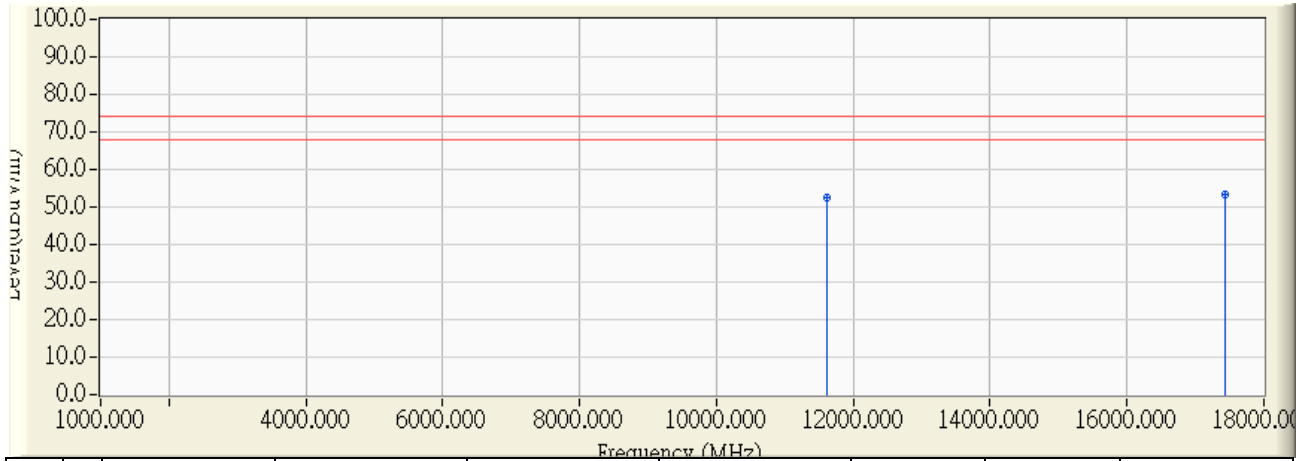


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	17335.730	15.885	23.030	38.915	-15.085	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/12/02 - 22:24
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH161

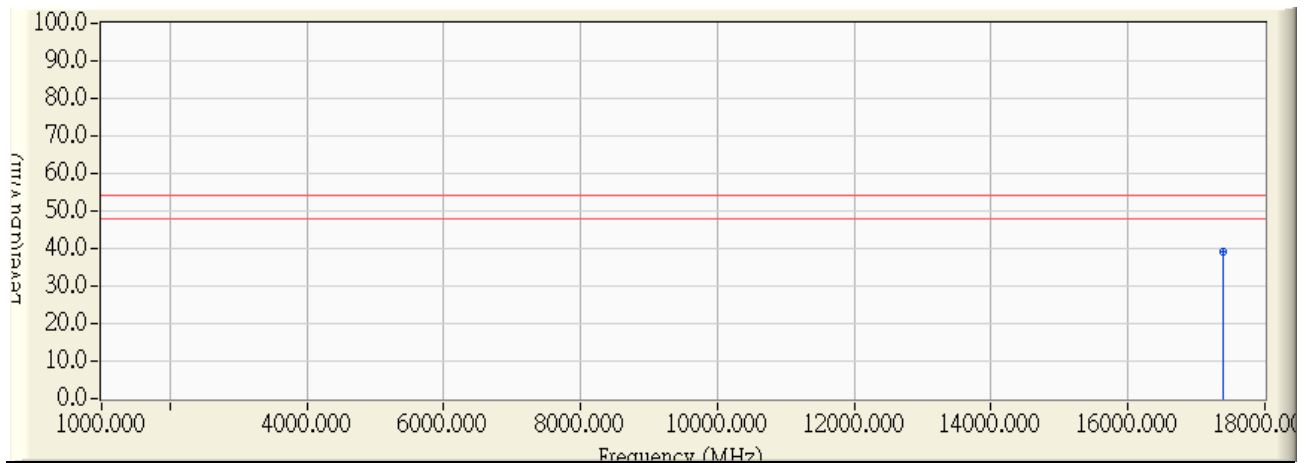


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11609.330	11.447	41.010	52.456	-21.544	74.000	PEAK
2	* 17423.130	16.287	37.020	53.307	-20.693	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:25
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH161

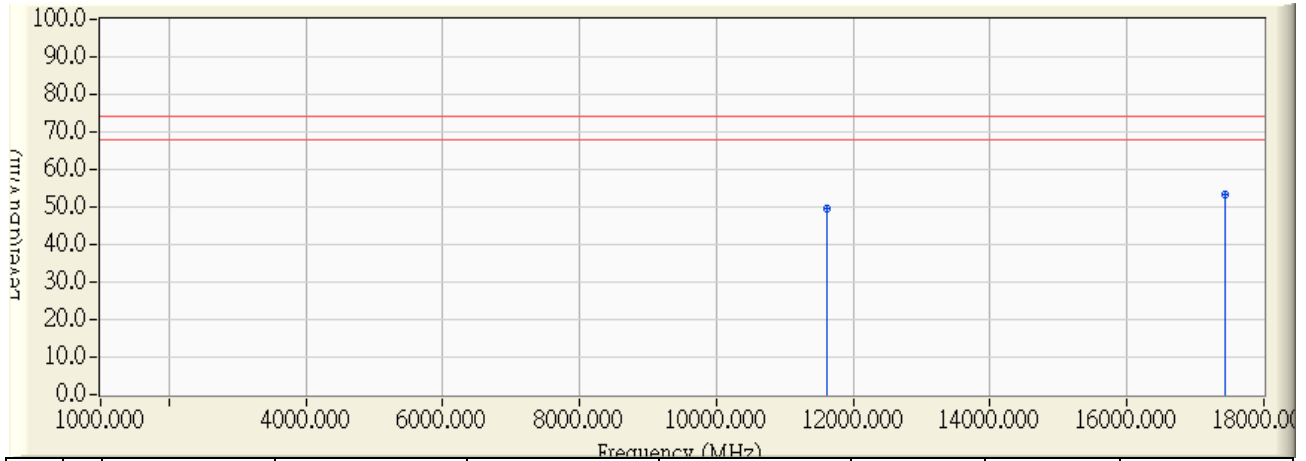


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	17398.600	16.174	22.910	39.085	-14.915	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/12/02 - 22:28
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH161

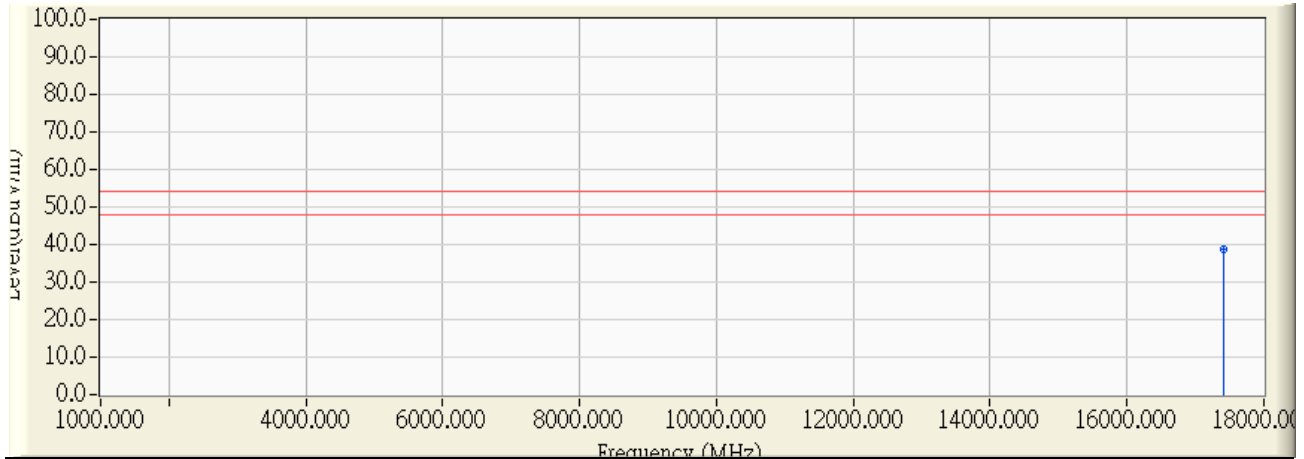


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11607.670	11.447	38.090	49.538	-24.462	74.000	PEAK
2	* 17423.930	16.292	37.010	53.301	-20.699	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:29
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 20MHz_CH161

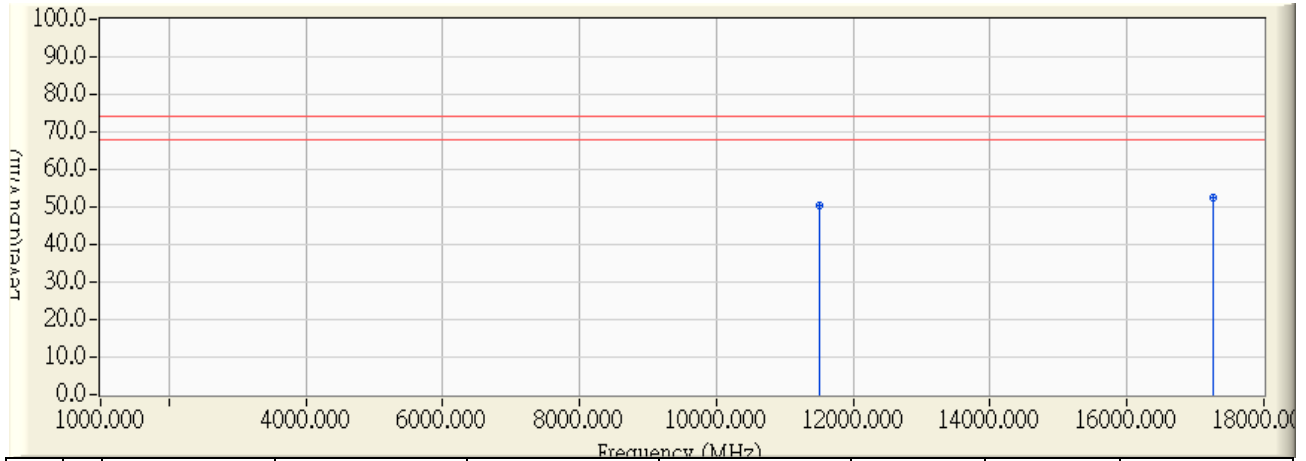


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	17403.930	16.200	22.430	38.629	-15.371	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/12/02 - 22:35
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH151

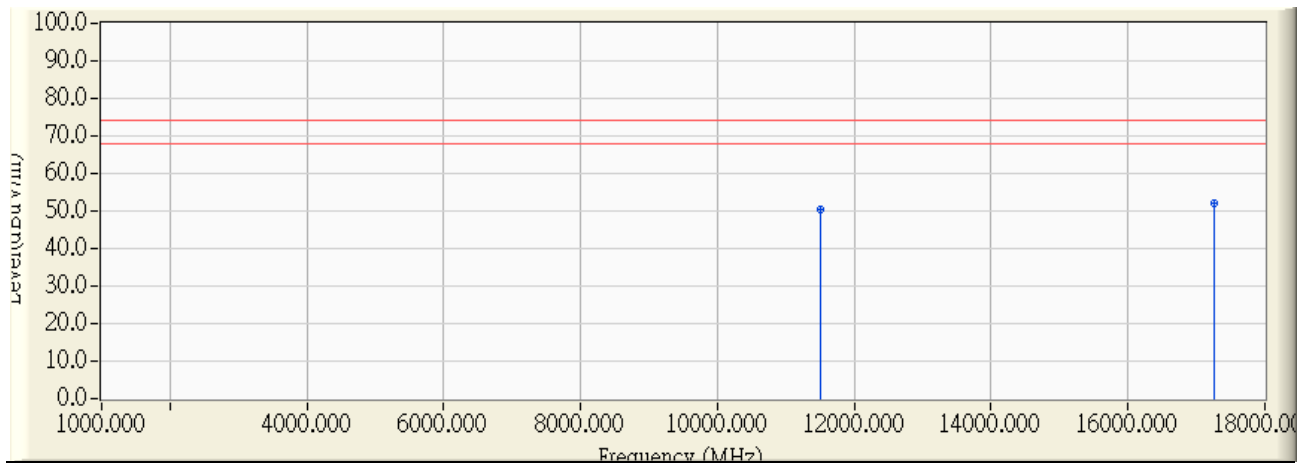


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11498.750	11.529	38.910	50.440	-23.560	74.000	PEAK
2	* 17251.420	15.498	37.010	52.508	-21.492	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:37
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH151

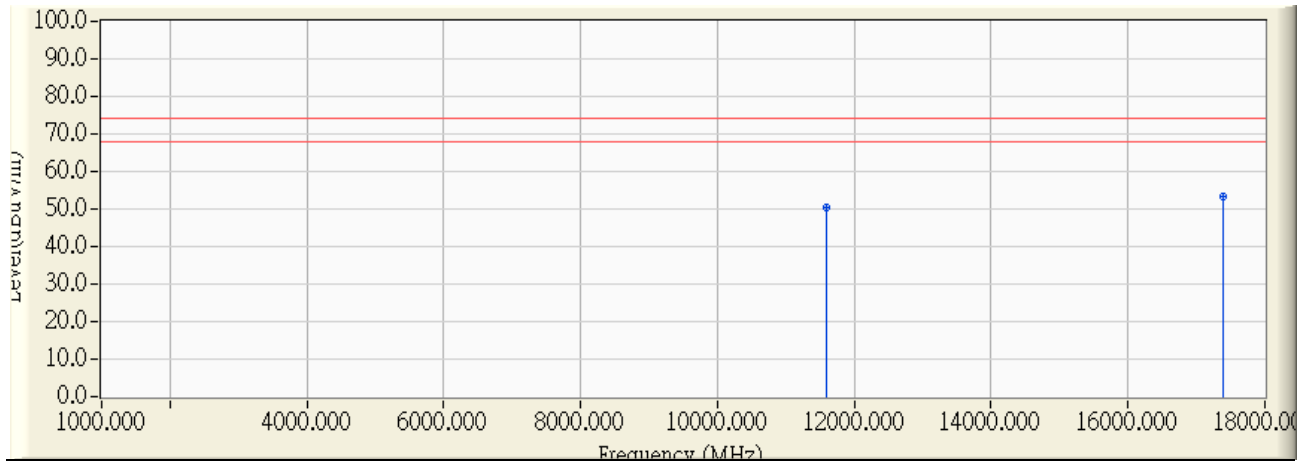


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11513.000	11.521	38.970	50.491	-23.509	74.000	PEAK
2	* 17248.670	15.485	36.510	51.995	-22.005	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:42
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH159

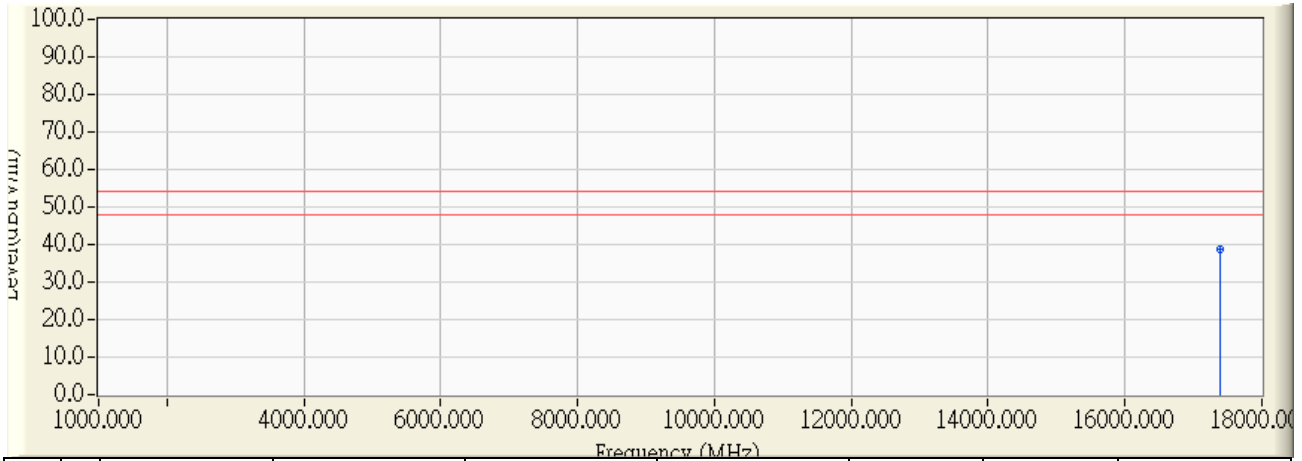


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11586.170	11.465	39.130	50.594	-23.406	74.000	PEAK
2	* 17385.750	16.115	37.140	53.255	-20.745	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:42
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - HORIZONTAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH159

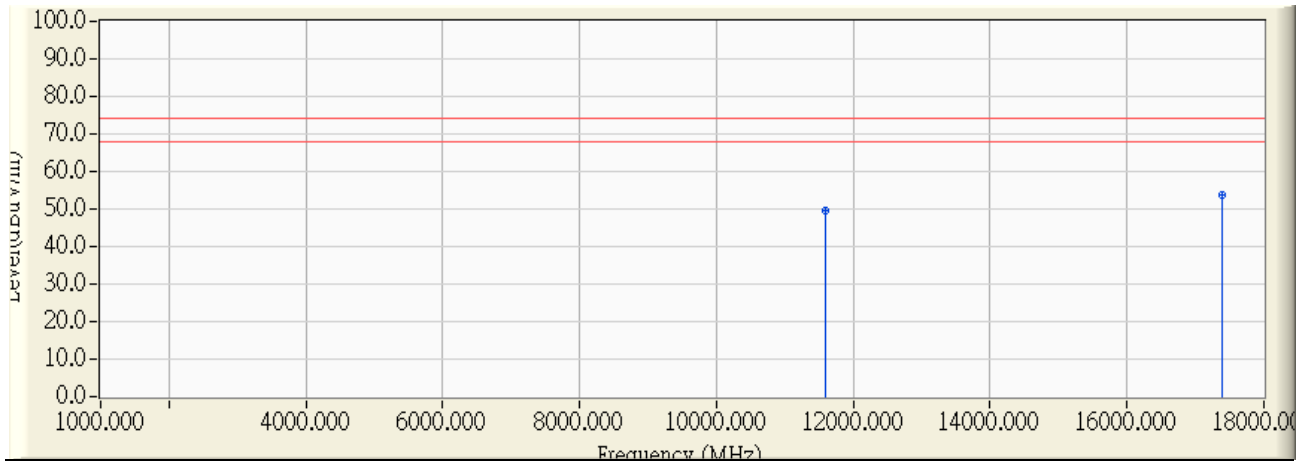


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	17400.250	16.182	22.387	38.569	-15.431	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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 : CB1	Time : 2013/12/02 - 22:45
Limit : FCC_SpartC_15.247_H_03M_PK	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH159

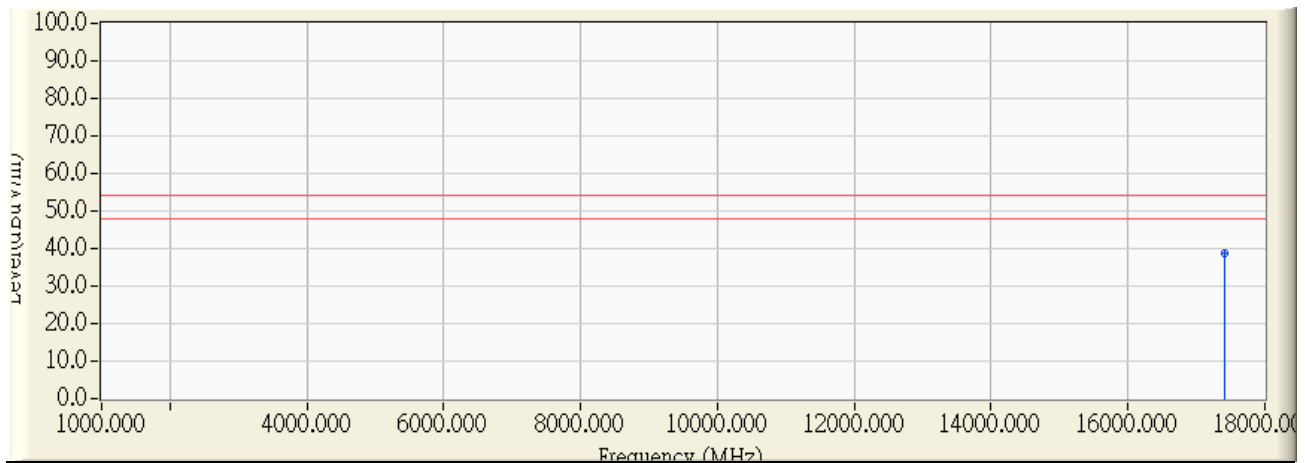


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	11587.170	11.464	38.020	49.484	-24.516	74.000	PEAK
2	* 17400.420	16.183	37.630	53.813	-20.187	74.000	PEAK

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 : CB1	Time : 2013/12/02 - 22:45
Limit : FCC_SpartC_15.247_H_03M_AV	Margin : 6
Probe : CB1_FCC_EFS_1-18G-1_0901 - VERTICAL	Power : AC 120V/60Hz
EUT : Wireless Extender	Note : 80211n 40MHz_CH159



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	17401.670	16.189	22.390	38.579	-15.421	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 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.