



## Test Report

Product Name : Wireless Extender  
Model No. : WAP-5836  
FCC ID. : L9V-COMTREND5836

Applicant : Comtrend Corporation  
Address : 3F-1, 10 Lane 609, Chongxin Rd., Section 5,  
Sanchong Dist, New Taipei City 24159, Taiwan

Date of Receipt : 2012/02/07  
Issued Date : 2012/04/10  
Report No. : 122154R-RFUSP42V01  
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 : 2012/04/10

Report No. : 122154R-RFUSP42V01



Product Name : Wireless Extender  
 Applicant : Comtrend Corporation  
 Address : 3F-1, 10 Lane 609, Chongxin Rd., Section 5, Sanchong Dist,  
 New Taipei City 24159, Taiwan  
 Manufacturer : Ayecom Technology Co., Ltd.  
 Model No. : WAP-5836  
 FCC ID. : L9V-COMTREND5836  
 EUT Voltage : AC 100-120V 50-60Hz  
 Trade Name : Comtrend  
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2010  
 ANSI C63.4: 2009  
 Test Result : Complied

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.

Documented By : Sandy Chuang  
 ( Sandy Chuang / Adm. Specialist )

Reviewed By : JuBo Shen  
 ( JuBo Shen / Engineer )

Approved By : Roy Wang  
 ( Roy Wang / Manager )

## TABLE OF CONTENTS

| Description                               | Page |
|---|------|
| 1. General Information.....               | 5    |
| 1.1. EUT Description .....                | 5    |
| 1.2. Operational Description.....         | 10   |
| 1.3. Test Mode .....                      | 11   |
| 1.4. Tested System Details.....           | 12   |
| 1.5. Configuration of tested System ..... | 12   |
| 1.6. EUT Exercise Software .....          | 13   |
| 1.7. Test Facility.....                   | 14   |
| 2. Conducted Emission .....               | 16   |
| 2.1. Test Equipment.....                  | 16   |
| 2.2. Test Setup .....                     | 16   |
| 2.3. Limits .....                         | 17   |
| 2.4. Test Procedure .....                 | 17   |
| 2.5. Test Specification.....              | 17   |
| 2.6. Uncertainty .....                    | 17   |
| 2.7. Test Result.....                     | 18   |
| 2.8. Test Photo .....                     | 20   |
| 3. Peak Power Output .....                | 21   |
| 3.1. Test Equipment.....                  | 21   |
| 3.2. Test Setup .....                     | 21   |
| 3.3. Test procedures.....                 | 21   |
| 3.4. Limits .....                         | 21   |
| 3.5. Test Specification.....              | 21   |
| 3.6. Uncertainty .....                    | 21   |
| 3.7. Test Result.....                     | 22   |
| 4. Radiated Emission .....                | 51   |
| 4.1. Test Equipment.....                  | 51   |
| 4.2. Test Setup .....                     | 51   |
| 4.3. Limits .....                         | 52   |
| 4.4. Test Procedure .....                 | 52   |
| 4.5. Test Specification.....              | 52   |
| 4.6. Uncertainty .....                    | 52   |
| 4.7. Test Result.....                     | 53   |
| 4.8. Test Photo .....                     | 75   |

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|                  |                                 |     |
|------------------|---------------------------------|-----|
| 5.               | RF antenna conducted test ..... | 77  |
| 5.1.             | Test Equipment.....             | 77  |
| 5.2.             | Test Setup .....                | 77  |
| 5.3.             | Limits .....                    | 78  |
| 5.4.             | Test Procedure .....            | 78  |
| 5.5.             | Test Specification.....         | 78  |
| 5.6.             | Uncertainty .....               | 78  |
| 5.7.             | Test Result.....                | 79  |
| 6.               | Occupied Bandwidth .....        | 100 |
| 6.1.             | Test Equipment.....             | 100 |
| 6.2.             | Test Setup .....                | 100 |
| 6.3.             | Test Procedures .....           | 100 |
| 6.4.             | Limits .....                    | 100 |
| 6.5.             | Test Specification.....         | 100 |
| 6.6.             | Uncertainty .....               | 100 |
| 6.7.             | Test Result.....                | 101 |
| 7.               | Power Density .....             | 119 |
| 7.1.             | Test Equipment.....             | 119 |
| 7.2.             | Test Setup .....                | 119 |
| 7.3.             | Limits .....                    | 119 |
| 7.4.             | Test Procedures .....           | 119 |
| 7.5.             | Test Specification.....         | 119 |
| 7.6.             | Uncertainty .....               | 119 |
| 7.7.             | Test Result.....                | 120 |
| Attachement..... |                                 | 140 |
|                  | EUT Photograph.....             | 140 |

## 1. General Information

### 1.1. EUT Description

|   |  |
|---|--|
| Product Name  | Wireless Extender  |
| Product Type  | WLAN(3TX,3RX)  |
| Trade Name  | Comtrend   |
| Model No.   | WAP-5836   |
| Frequency Range -IEEE 802.11a & IEEE 802.11n (20MHz)_5.8GHz | 5745~5825MHz   |
| Frequency Range- IEEE 802.11n (40MHz)_5.8GHz                | 5755~5795MHz   |
| Channel Number - IEEE 802.11a & IEEE 802.11n (20MHz)_5.8GHz | 5  |
| Channel Number - IEEE 802.11n (40MHz)_5.8GHz                | 2  |
| Type of Modulation (IEEE 802.11a/n)                         | Orthogonal Frequency Division Multiplexing (OFDM)  |
| Data Speed (IEEE 802.11a)                                   | 6Mbps,9Mbps,12Mbps,18Mbps,24Mbps,36Mbps,48Mbps,54Mbps                                    |
| 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   |
| Channel Control   | Auto   |
| Antenna Type  | PCB Antenna  |

| Component     |   |
|---------------|---|
| LAN Cable     | Non-Shielded, 1.5m, 2PCS  |
| Power Adapter | DVE, DSA-12G-12 AUS 120120, 2PCS<br>I/P: 100-120V 50-60Hz 0.3A<br>O/P: 12.0V $\overline{=}$ 1A<br>Cable Out: Non-Shielded, 1.5m |

ANT-TX / Rx & Bandwidth

| ANT-TX / RX | SINGLE-TX |       | THREE-TX |       | RX    |       |
|-------------|-----------|-------|----------|-------|-------|-------|
|             | 20MHz     | 40MHz | 20MHz    | 40MHz | 20MHz | 40MHz |
| IEEE802.11a | ✓         |       |          |       | ✓     |       |
| IEEE802.11n |           |       | ✓        | ✓     | ✓     | ✓     |

ANT (TX / RX)



IEEE 802.11n

| 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 (Note1) |       |
|           |            |     |                    |                   |       |                   |       | 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 (Note1) |       |
|           |            |     |                    |                   |       |                   |       | 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 <sub>BPSCS</sub> | N <sub>CBPS</sub> |       | N <sub>DBPS</sub> |       | Data Rate(Mb/s) |       |                  |       |
|-----------|------------|-----|--------------------|-------------------|-------|-------------------|-------|-----------------|-------|------------------|-------|
|           |            |     |                    | 20MHz             | 40MHz | 20MHz             | 40MHz | 800ns GI        |       | 400ns GI (Note1) |       |
|           |            |     |                    |                   |       |                   |       | 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 <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 802.11a & IEEE 802.11n (20MHz) - 5.8GHz

| Working Frequency of Each Channel(5745~5850MHz) |           |         |           |         |           |         |           |
|---|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel   | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 149   | 5745MHz   | 153     | 5765MHz   | 157     | 5785MHz   | 161     | 5805MHz   |
| 165   | 5825MHz   |         |           |         |           |         |           |

IEEE 802.11n (40MHz) - 5.8GHz

| Working Frequency of Each Channel(5745~5850MHz) |           |         |           |
|---|-----------|---------|-----------|
| Channel   | Frequency | Channel | Frequency |
| 151   | 5755MHz   | 159     | 5795MHz   |

Note:

1. This device is a Wireless Extender including 5GHz a/n (3x4) 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: 122154R-RFUSP46V01
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 122154R-RFUSP37V02 under Declaration of Conformity.

**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 |
|----|------------------|

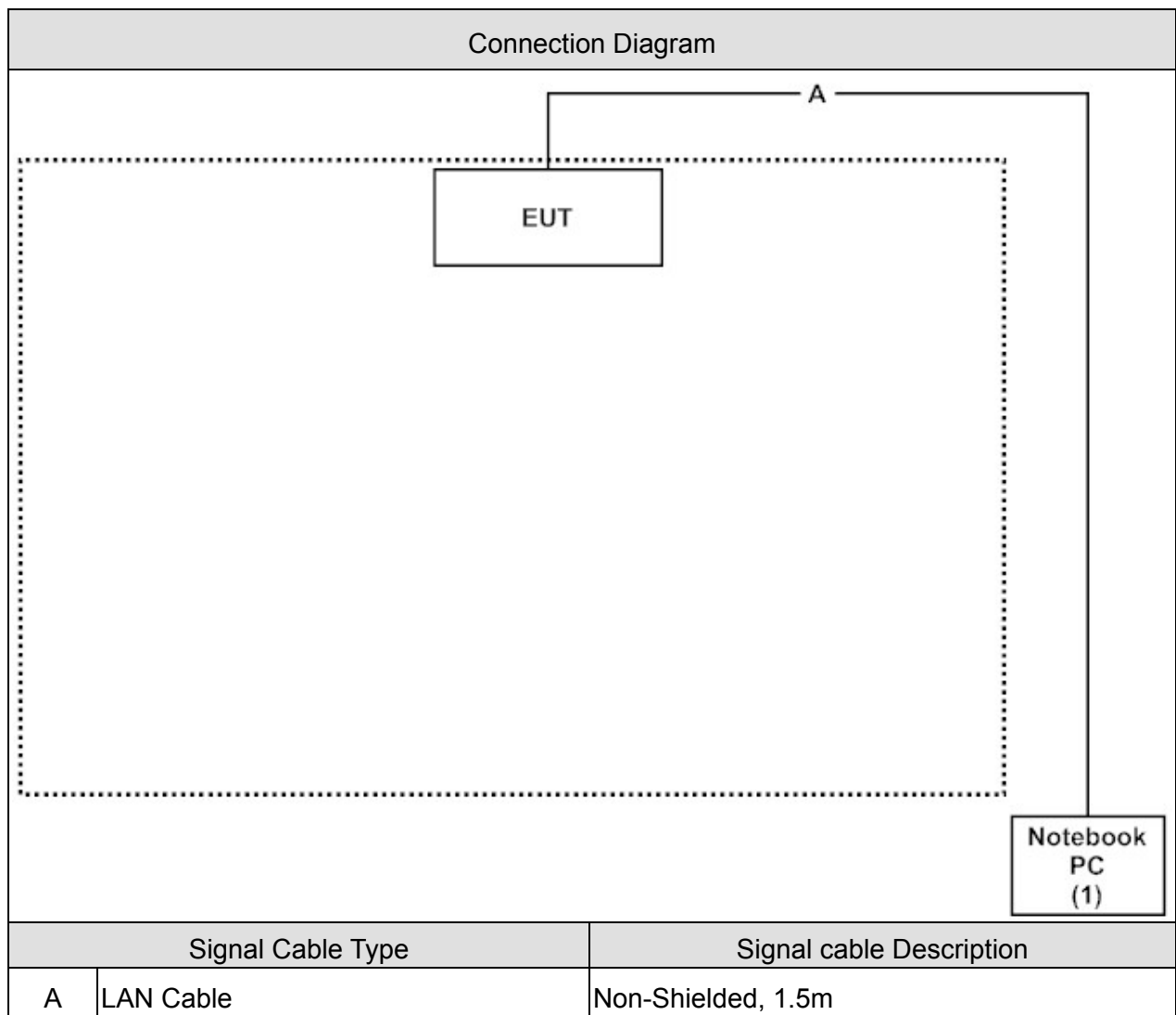
| Test Items                     | Mode       | Channel       | Antenna | Result   |
|--------------------------------|------------|---------------|---------|----------|
| Conducted Emission             | 11n(40MHz) | 151           | 0+1+2   | Complies |
| Peak Power Output              | a          | 149/ 157/ 165 | 0       | Complies |
|                                | 11n(20MHz) | 149/ 157/ 165 | 0+1+2   | Complies |
|                                | 11n(40MHz) | 151/ 159      | 0+1+2   | Complies |
| Radiated Emission<br>(under1G) | a          | 157           | 0       | Complies |
|                                | 11n(20MHz) | 157           | 0+1+2   | Complies |
|                                | 11n(40MHz) | 159           | 0+1+2   | Complies |
| Radiated Emission<br>(above1G) | a          | 149/ 157/ 165 | 0       | Complies |
|                                | 11n(20MHz) | 149/ 157/ 165 | 0+1+2   | Complies |
|                                | 11n(40MHz) | 151/ 159      | 0+1+2   | Complies |
| RF antenna<br>conducted test   | a          | 149/ 165      | 0       | Complies |
|                                | 11n(20MHz) | 149/ 165      | 0/1/2   | Complies |
|                                | 11n(40MHz) | 151/ 159      | 0/1/2   | Complies |
| Occupied Bandwidth             | a          | 149/ 157/ 165 | 0       | Complies |
|                                | 11n(20MHz) | 149/ 157/ 165 | 0/1/2   | Complies |
|                                | 11n(40MHz) | 151/ 159      | 0/1/2   | Complies |
| Power Density                  | a          | 149/ 157/ 165 | 0       | Complies |
|                                | 11n(20MHz) | 149/ 157/ 165 | 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 | DELL         | PP37L     | CD8BNG1    | 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 | Execute the "CL1800_lab_Tool.exe" program on the EUT.         |
| 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<br>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<br>Peak Power Output (DSSS)            | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 45       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |
| Temperature (°C)           | FCC PART 15 C 15.247<br>Radiated Emission (DSSS)            | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 65       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |
| Temperature (°C)           | FCC PART 15 C 15.247<br>RF antenna conducted test<br>(DSSS) | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 45       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |
| Temperature (°C)           | FCC PART 15 C 15.247<br>Band Edge (DSSS)                    | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 48       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |
| Temperature (°C)           | FCC PART 15 C 15.247<br>Occupied Bandwidth (DSSS)           | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 45       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |
| Temperature (°C)           | FCC PART 15 C 15.247<br>Power Density (DSSS)                | 15 - 35             | 25       |
| Humidity (%RH)             |   | 25 - 75             | 45       |
| Barometric pressure (mbar) |   | 860 - 1060          | 950-1000 |

Site Description: September 27, 2010 File on  
Federal Communications Commission  
Laboratory Division  
7435 Oakland Mills Road  
Columbia, MD 21046  
Registration Number: 365520  
Accredited by TAF  
Accreditation Number: 1313  
Effective through: December 27, 2013



Accredited by NVLAP  
NVLAP Lab Code: 200347-0  
Effective through: September 30, 2012



Site Name: Quietek Corporation

Site Address: No.75-1, Wang-Yeh Valley, Yung-Hsing,  
Chiung-Lin, Hsin-Chu County,  
Taiwan  
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E-Mail : [service@quietek.com](mailto:service@quietek.com)

**2. Conducted Emission**

**2.1. Test Equipment**

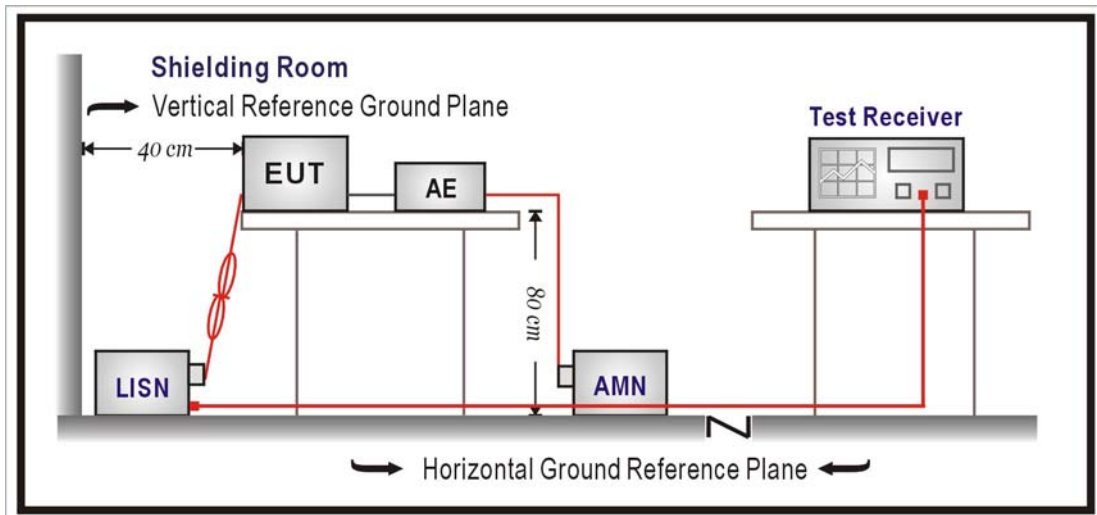
The following test equipments are used during the test:

**Conducted Emission / SR3**

| Instrument    | Manufacturer | Model No. | Serial No  | Next Cal. Date |
|---------------|--------------|-----------|------------|----------------|
| LISN          | R&S          | ENV216    | 100096     | 2012/09/06     |
| LISN          | R&S          | ESH3-Z5   | 836679/022 | 2013/02/06     |
| Test Receiver | R&S          | ESCS 30   | 825442/017 | 2013/01/01     |

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

**2.2. Test Setup**



**2.3. Limits**

| <b>FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)</b> |       |       |
|---|-------|-------|
| Frequency<br>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 Jan. 2012 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: 2010

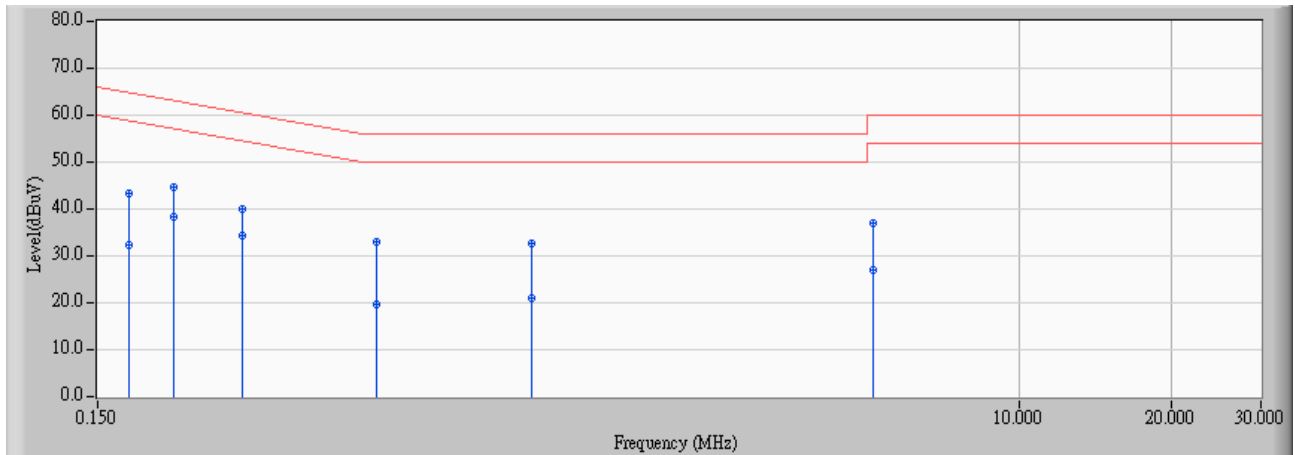
**2.6. Uncertainty**

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



2.7. Test Result

|                                      |                                |
|--------------------------------------|--------------------------------|
| Site : SR3                           | Time : 2012/03/16 - 15:18      |
| Limit : CISPR_B_00M_QP               | Margin : 6                     |
| Probe : SR3 LISN(16A)-1_0907 - Line1 | Power : AC 120V/60Hz           |
| EUT : Wireless Extender              | Note : TX_802.11n(40M)_5755MHz |

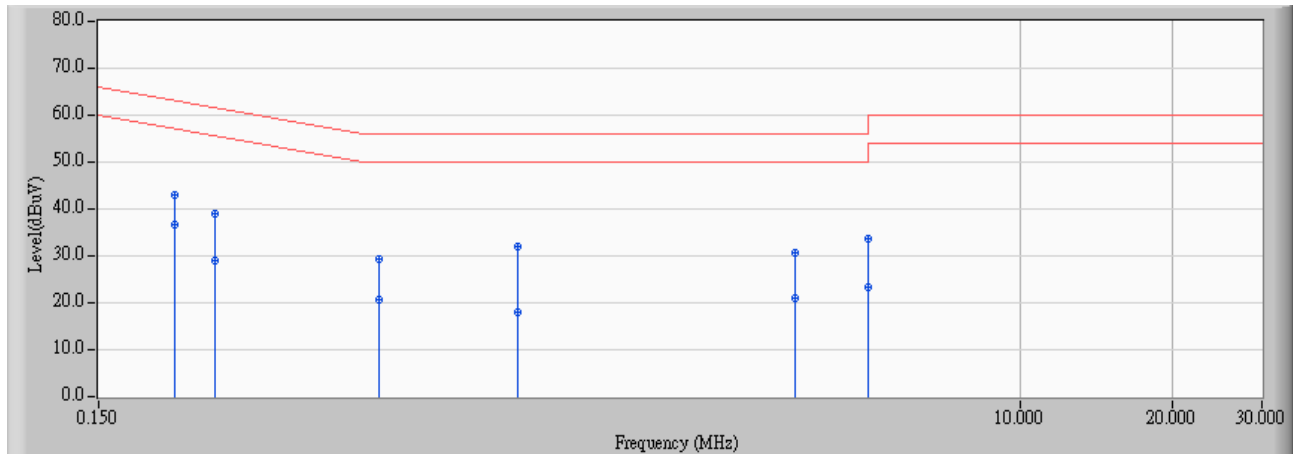


|    | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|----|-----------------|---------------------|----------------------|----------------------|-------------|--------------|---------------|
| 1  | 0.173           | 9.656               | 33.840               | 43.496               | -21.298     | 64.794       | QUASPEAK      |
| 2  | 0.173           | 9.656               | 22.820               | 32.476               | -22.318     | 54.794       | AVERAGE       |
| 3  | 0.212           | 9.659               | 35.040               | 44.699               | -18.408     | 63.107       | QUASPEAK      |
| 4  | * 0.212         | 9.659               | 28.840               | 38.499               | -14.608     | 53.107       | AVERAGE       |
| 5  | 0.291           | 9.670               | 30.280               | 39.950               | -20.557     | 60.507       | QUASPEAK      |
| 6  | 0.291           | 9.670               | 24.700               | 34.370               | -16.137     | 50.507       | AVERAGE       |
| 7  | 0.533           | 9.706               | 23.200               | 32.907               | -23.093     | 56.000       | QUASPEAK      |
| 8  | 0.533           | 9.706               | 9.910                | 19.617               | -26.383     | 46.000       | AVERAGE       |
| 9  | 1.080           | 9.792               | 22.800               | 32.592               | -23.408     | 56.000       | QUASPEAK      |
| 10 | 1.080           | 9.792               | 11.130               | 20.922               | -25.078     | 46.000       | AVERAGE       |
| 11 | 5.146           | 10.061              | 26.980               | 37.040               | -22.960     | 60.000       | QUASPEAK      |
| 12 | 5.146           | 10.061              | 16.900               | 26.960               | -23.040     | 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 : 2012/03/16 - 15:31      |
| Limit : CISPR_B_00M_QP               | Margin : 6                     |
| Probe : SR3_LISN(16A)-1_0907 - Line2 | Power : AC 120V/60Hz           |
| EUT : Wireless Extender              | Note : TX_802.11n(40M)_5755MHz |



|    | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|----|-----------------|---------------------|----------------------|----------------------|-------------|--------------|---------------|
| 1  | 0.212           | 9.669               | 33.440               | 43.109               | -19.998     | 63.107       | QUASPEAK      |
| 2  | * 0.212         | 9.669               | 26.950               | 36.619               | -16.488     | 53.107       | AVERAGE       |
| 3  | 0.255           | 9.675               | 29.160               | 38.835               | -22.743     | 61.577       | QUASPEAK      |
| 4  | 0.255           | 9.675               | 19.240               | 28.915               | -22.663     | 51.577       | AVERAGE       |
| 5  | 0.537           | 9.715               | 19.560               | 29.275               | -26.725     | 56.000       | QUASPEAK      |
| 6  | 0.537           | 9.715               | 11.030               | 20.745               | -25.255     | 46.000       | AVERAGE       |
| 7  | 1.009           | 9.781               | 22.220               | 32.001               | -23.999     | 56.000       | QUASPEAK      |
| 8  | 1.009           | 9.781               | 8.300                | 18.081               | -27.919     | 46.000       | AVERAGE       |
| 9  | 3.568           | 10.012              | 20.800               | 30.811               | -25.189     | 56.000       | QUASPEAK      |
| 10 | 3.568           | 10.012              | 11.080               | 21.091               | -24.909     | 46.000       | AVERAGE       |
| 11 | 4.978           | 10.084              | 23.520               | 33.604               | -22.396     | 56.000       | QUASPEAK      |
| 12 | 4.978           | 10.084              | 13.220               | 23.304               | -22.696     | 46.000       | 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**

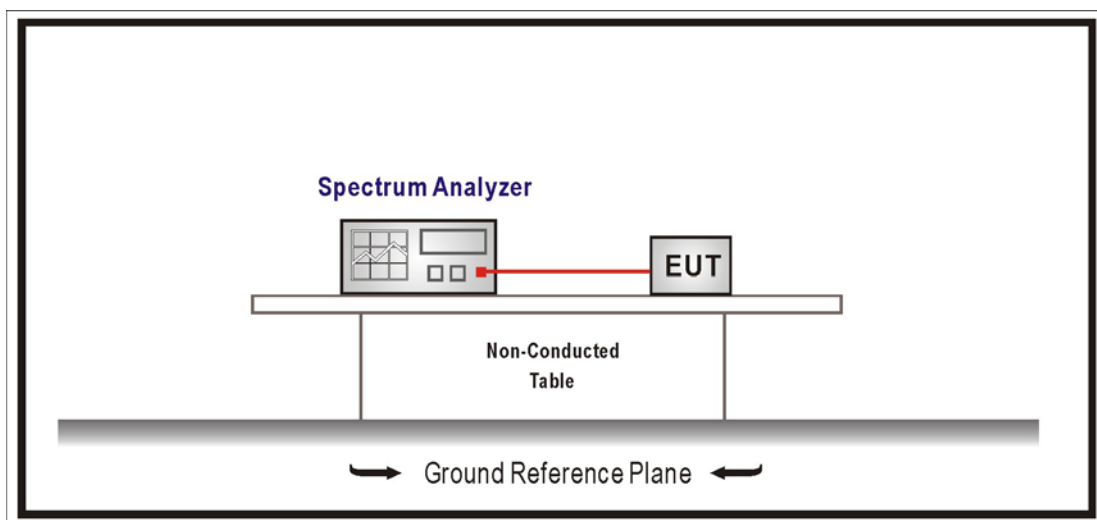
The following test equipments are used during the test:

**Peak Power Output / SR7**

| Instrument        | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S          | FSP       | 100561    | 2013/02/19     |

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 Jan. 2012 KDB558074, Section 5.2.1.2 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: 2010

**3.6. Uncertainty**

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

**3.7. Test Result**

|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

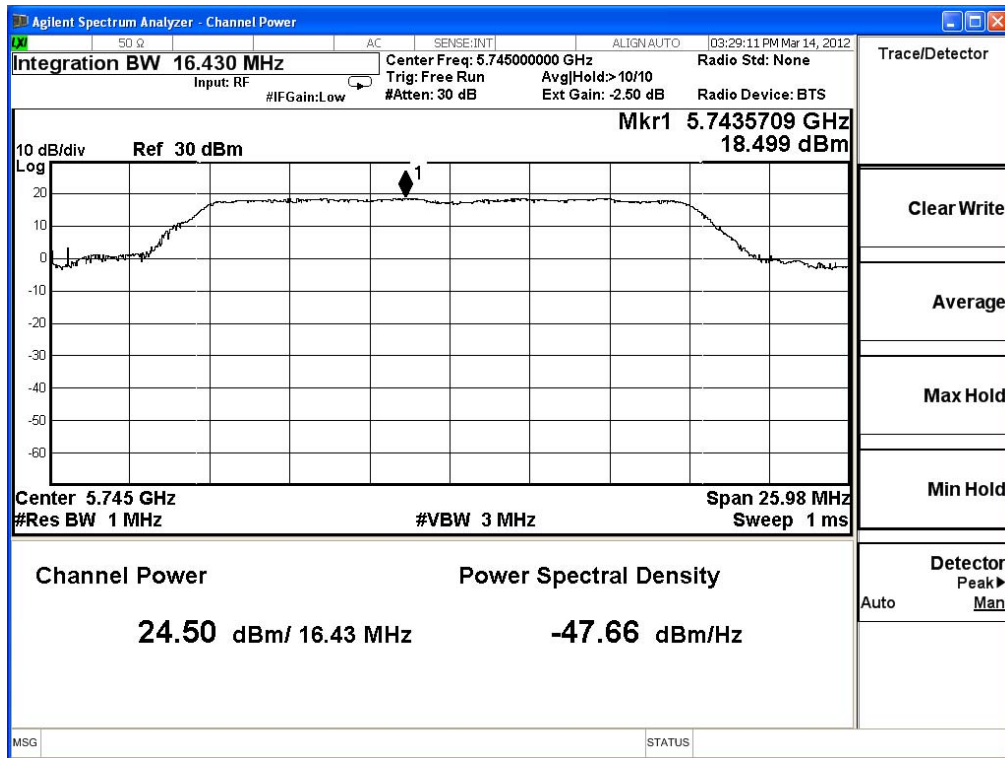
| IEEE 802.11 a ANT 0(MAIN) |                 |                     |               |        |
|---------------------------|-----------------|---------------------|---------------|--------|
| Channel No.               | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                       | 5745            | 24.50               | 1Watt= 30 dBm | Pass   |
| 157                       | 5785            | 23.95               | 1Watt= 30 dBm | Pass   |
| 165                       | 5825            | 22.93               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 6Mbps.

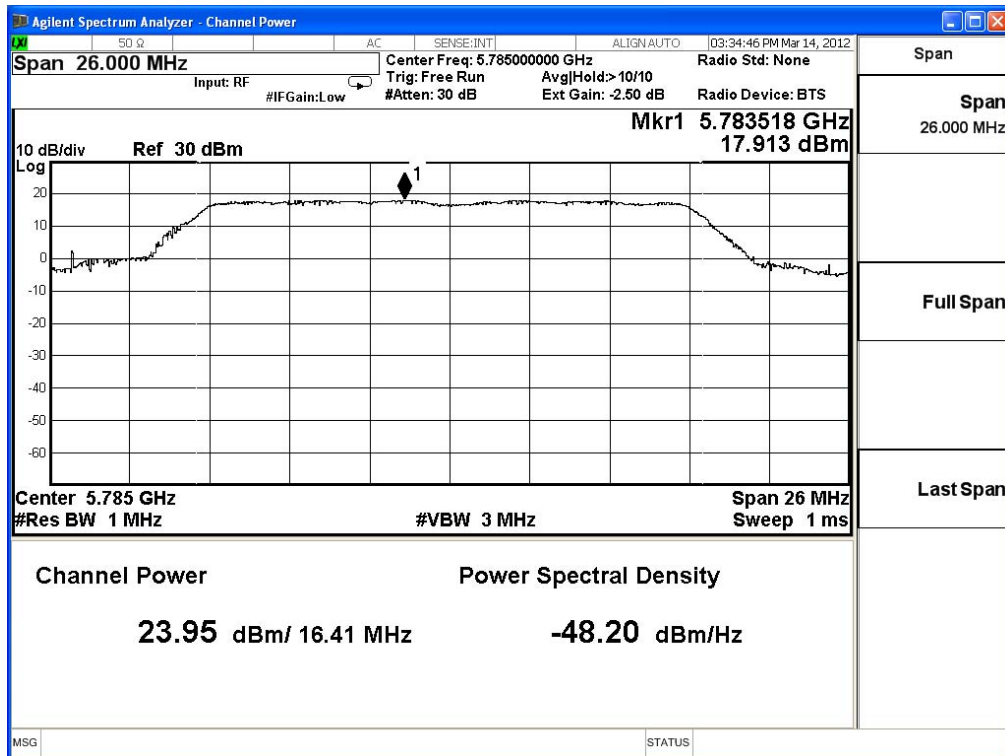
| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       | Required Limit |
|                         |                 | 6         | 12    | 18    | 24    | 36    | 48    | 54    |                |
| 149                     | 5745            | 24.50     | 24.48 | 24.49 | 24.47 | 24.45 | 24.46 | 24.47 | 1 Watt=30dBm   |
| 157                     | 5785            | 23.95     | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 22.93     | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

Note: Measure Level =Reading value + cable loss

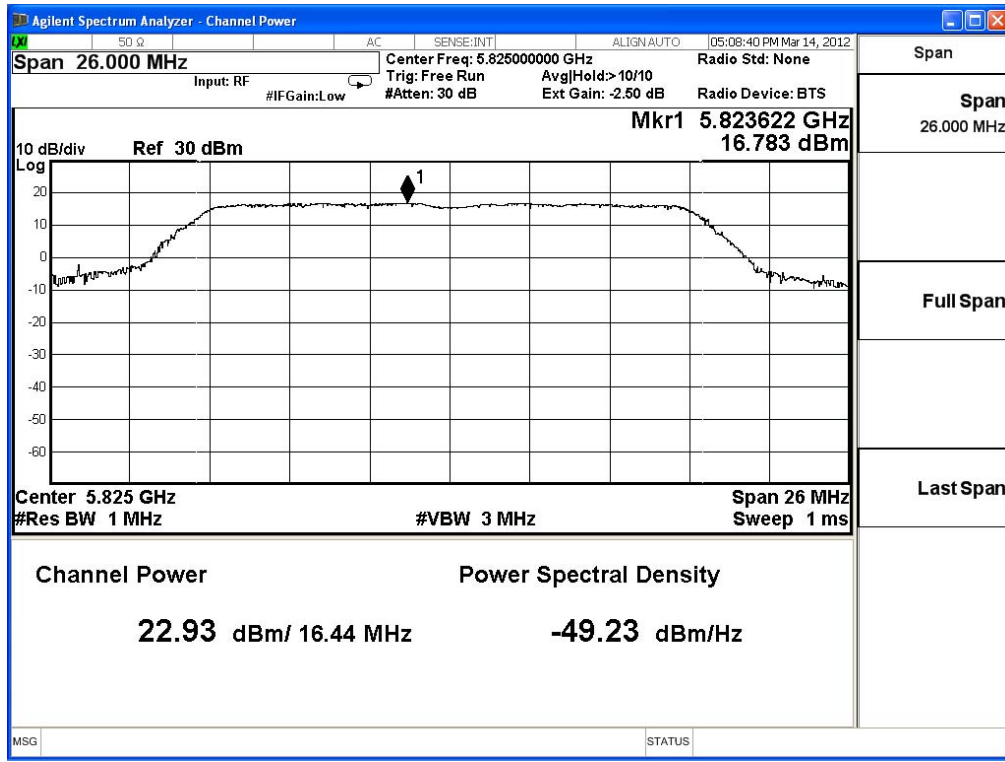
**Channel 149**



**Channel 157**



**Channel 165**



|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/07/11        | Test Site | SR7 |

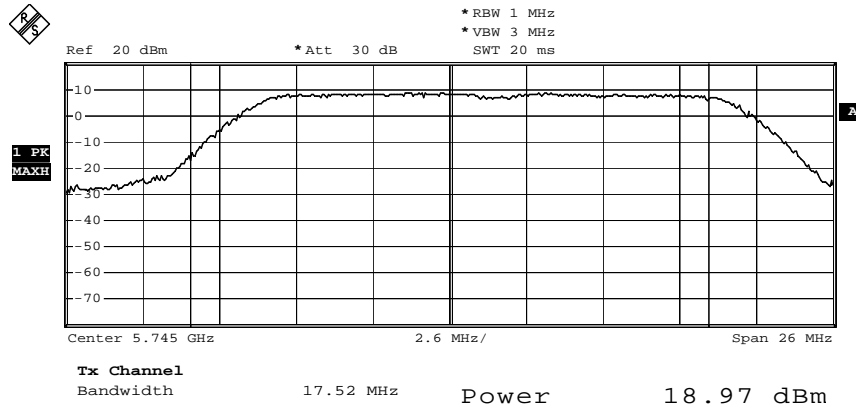
| IEEE 802.11 a ANT 0(AUX) |                 |                     |               |        |
|--------------------------|-----------------|---------------------|---------------|--------|
| Channel No.              | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                      | 5745            | 18.97               | 1Watt= 30 dBm | Pass   |
| 157                      | 5785            | 17.03               | 1Watt= 30 dBm | Pass   |
| 165                      | 5825            | 18.14               | 1Watt= 30 dBm | 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            | 18.97     | 18.95 | 18.96 | 18.94 | 18.92 | 18.93 | 18.91 | 1 Watt=30dBm   |
| 157                     | 5785            | 17.03     | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 18.14     | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

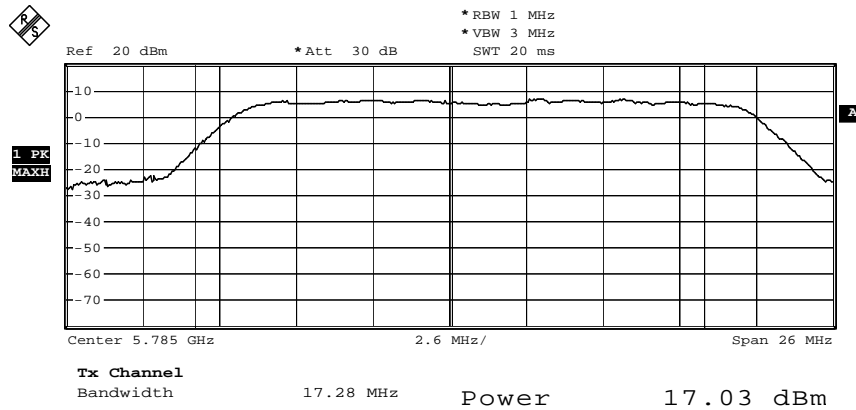
Note: Measure Level =Reading value + cable loss

**Channel 149**



Date: 11.JUL.2012 12:26:07

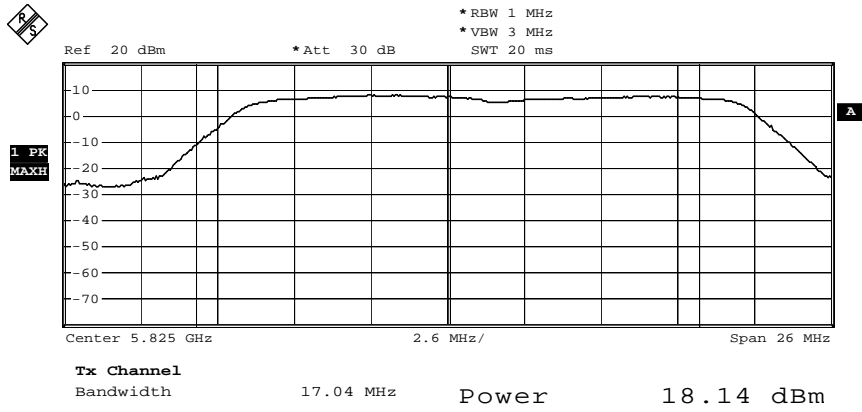
**Channel 157**



Date: 11.JUL.2012 12:14:38



**Channel 165**



Date: 11.JUL.2012 12:23:42

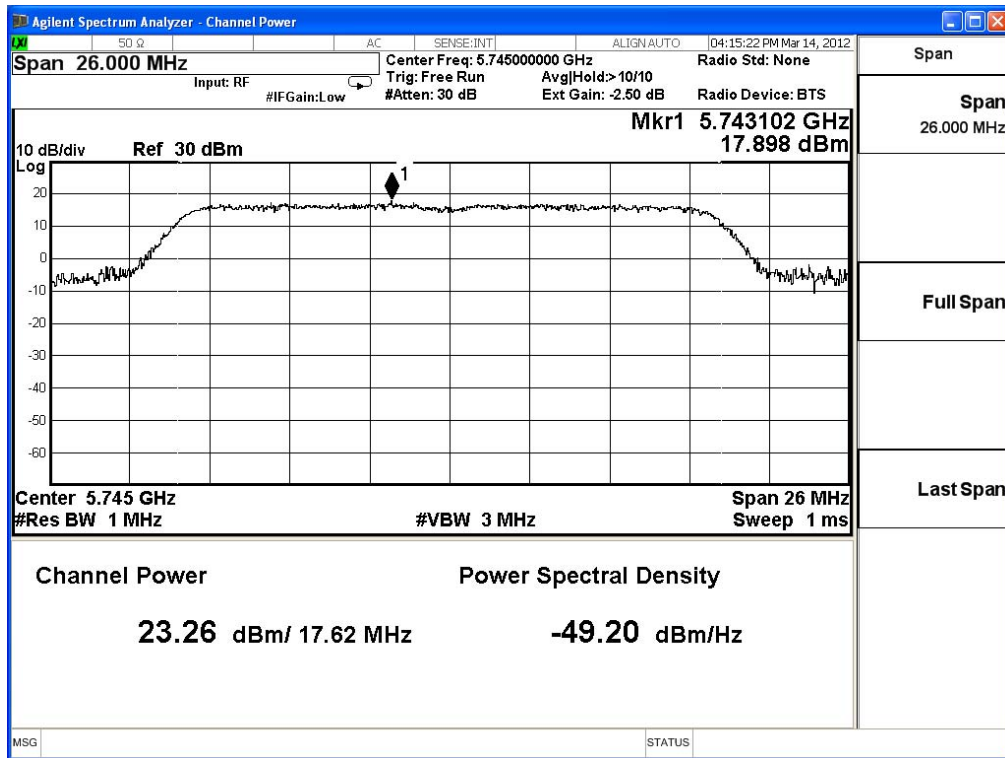
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (20MHz), ANT 0 (MAIN) |                 |                     |               |        |
|------------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                        | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                                | 5745            | 23.26               | 1Watt= 30 dBm | Pass   |
| 157                                | 5785            | 21.71               | 1Watt= 30 dBm | Pass   |
| 165                                | 5825            | 19.87               | 1Watt= 30 dBm | Pass   |

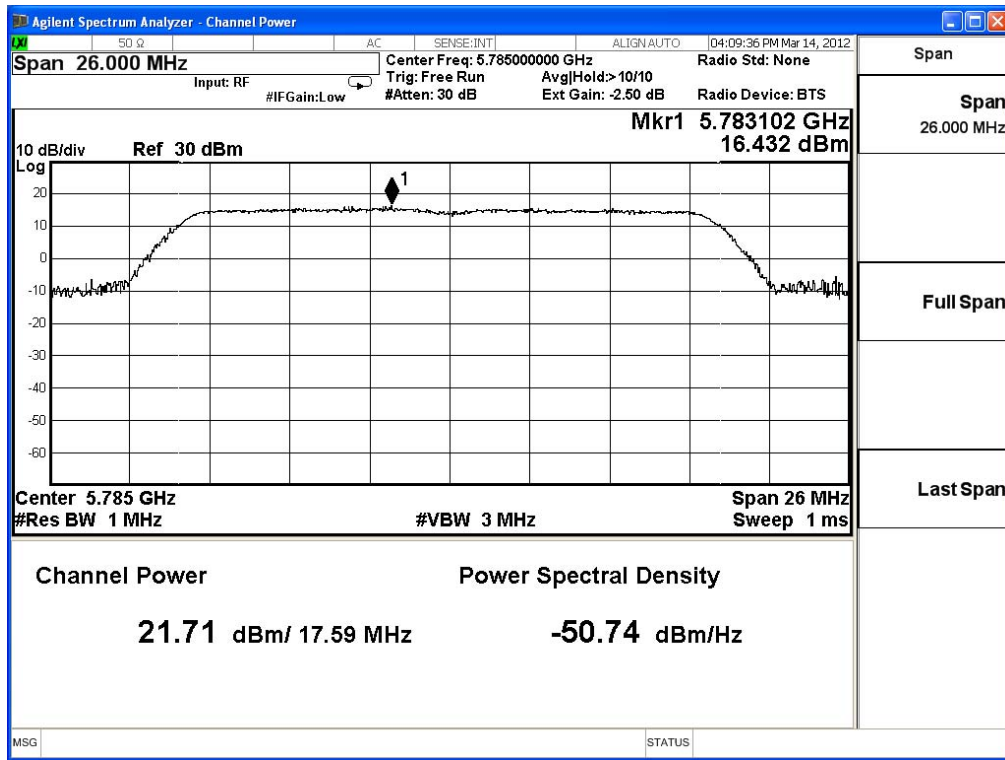
The worst emission of data rate is 19.5 Mbps.

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 19.5      | 39    | 58.5  | 78    | 117   | 156   | 175.5 | 195   |                |
| 149                     | 5745            | 23.26     | 23.25 | 23.24 | 23.23 | 23.24 | 23.20 | 23.21 | 23.20 | 1 Watt=30dBm   |
| 157                     | 5785            | 21.71     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 19.87     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

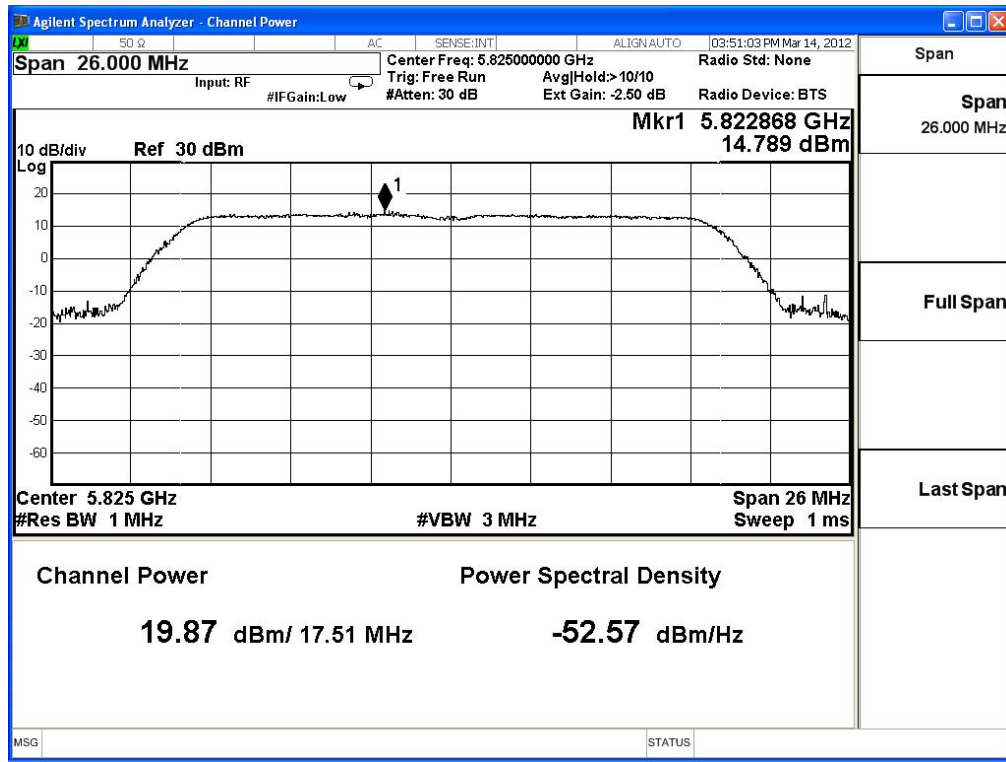
**Channel 149**



**Channel 157**



**Channel 165**



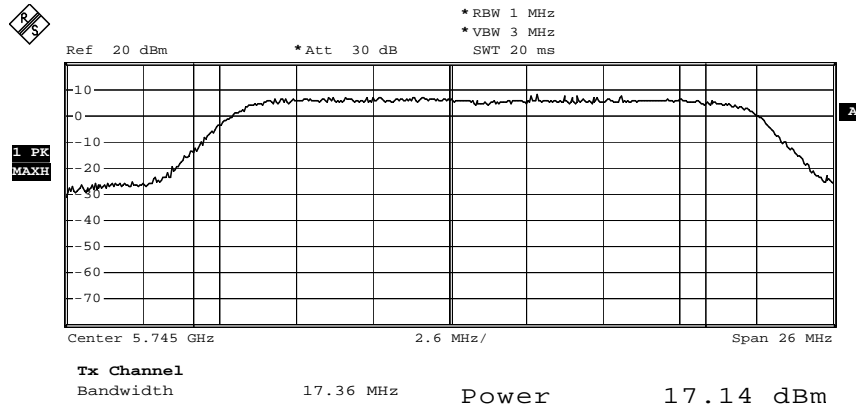
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/07/11        | Test Site | SR7 |

| IEEE 802.11n (20MHz), ANT 0 (AUX) |                 |                     |               |        |
|-----------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                       | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                               | 5745            | 17.14               | 1Watt= 30 dBm | Pass   |
| 157                               | 5785            | 17.09               | 1Watt= 30 dBm | Pass   |
| 165                               | 5825            | 18.46               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 19.5 Mbps.

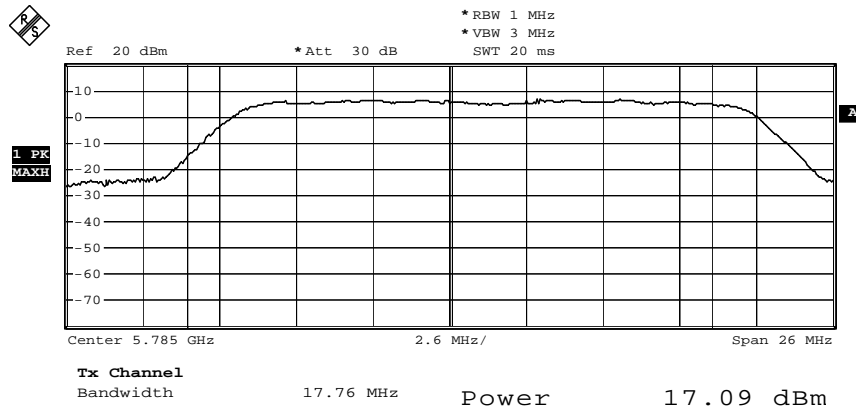
| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 19.5      | 39    | 58.5  | 78    | 117   | 156   | 175.5 | 195   |                |
| 149                     | 5745            | 17.14     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 157                     | 5785            | 17.09     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 18.46     | 18.45 | 18.43 | 18.44 | 18.42 | 18.41 | 18.40 | 18.38 | 1 Watt=30dBm   |

**Channel 149**



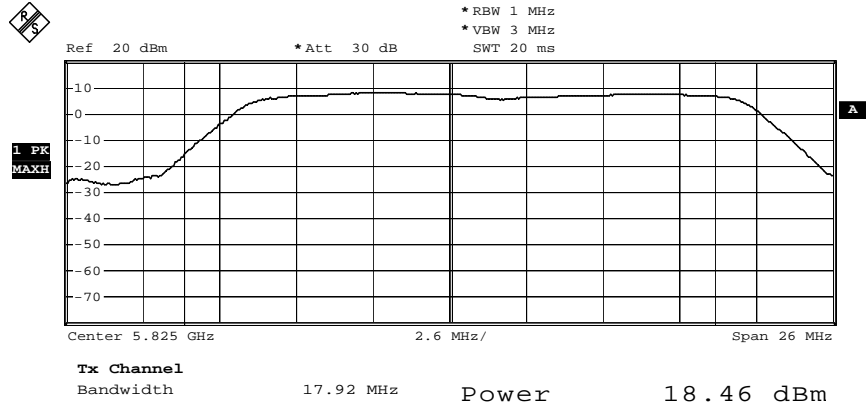
Date: 11.JUL.2012 12:05:21

**Channel 157**



Date: 11.JUL.2012 12:13:14

**Channel 165**



Date: 11.JUL.2012 12:22:18

|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

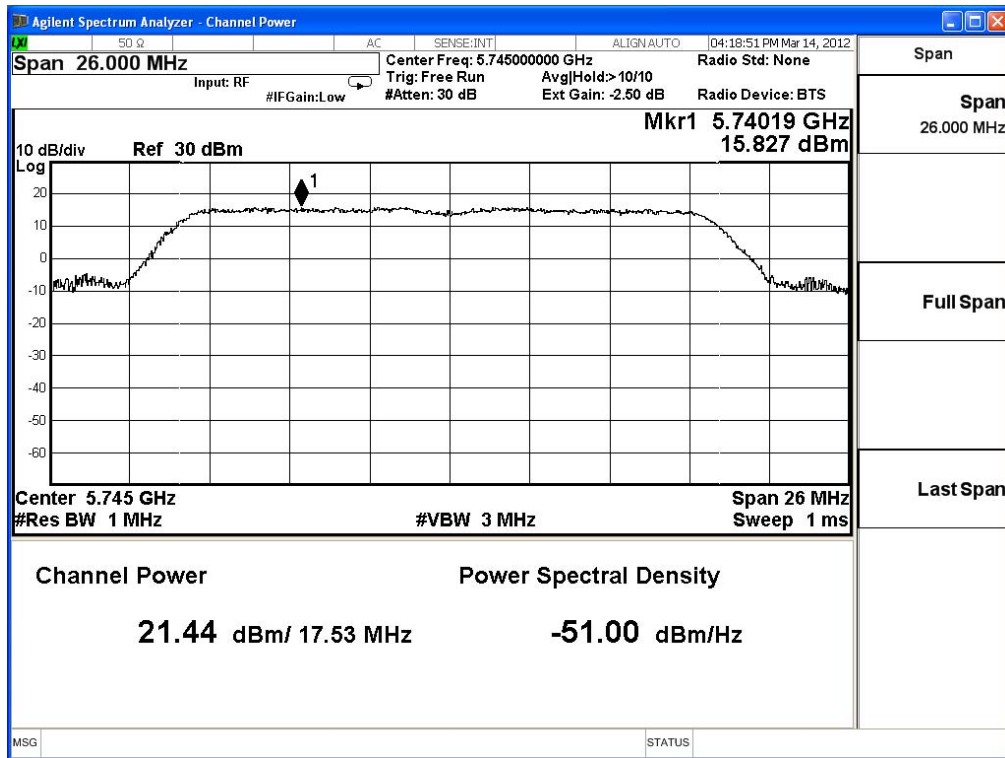
| IEEE 802.11n (20MHz), (ANT 1) |                 |                     |               |        |
|-------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                   | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                           | 5745            | 21.44               | 1Watt= 30 dBm | Pass   |
| 157                           | 5785            | 21.10               | 1Watt= 30 dBm | Pass   |
| 165                           | 5825            | 19.93               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 19.5 Mbps.

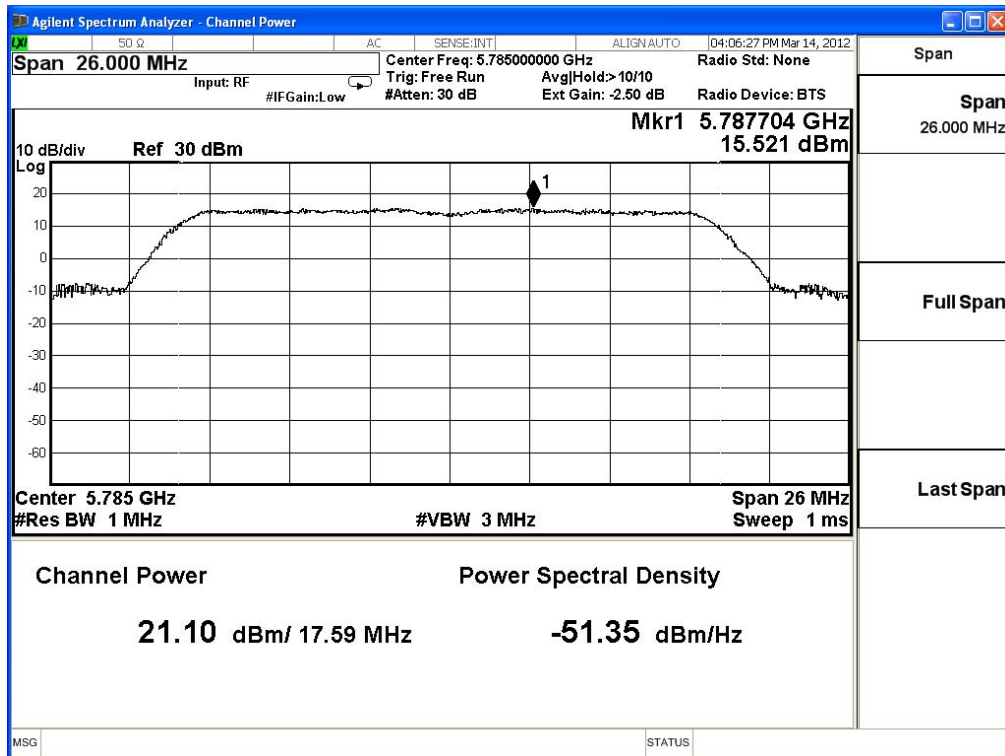
| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 19.5      | 39    | 58.5  | 78    | 117   | 156   | 175.5 | 195   |                |
| 149                     | 5745            | 21.44     | 21.42 | 21.43 | 21.40 | 21.41 | 21.39 | 21.38 | 21.40 | 1 Watt=30dBm   |
| 157                     | 5785            | 21.10     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 19.93     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |



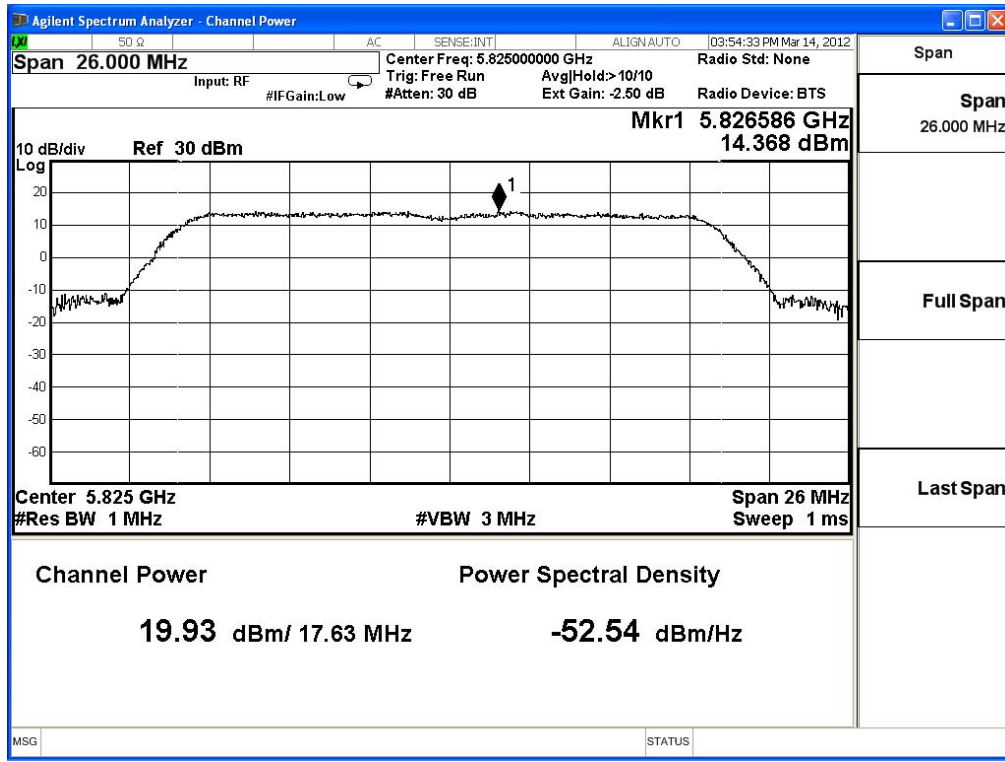
**Channel 149**



**Channel 157**



**Channel 165**



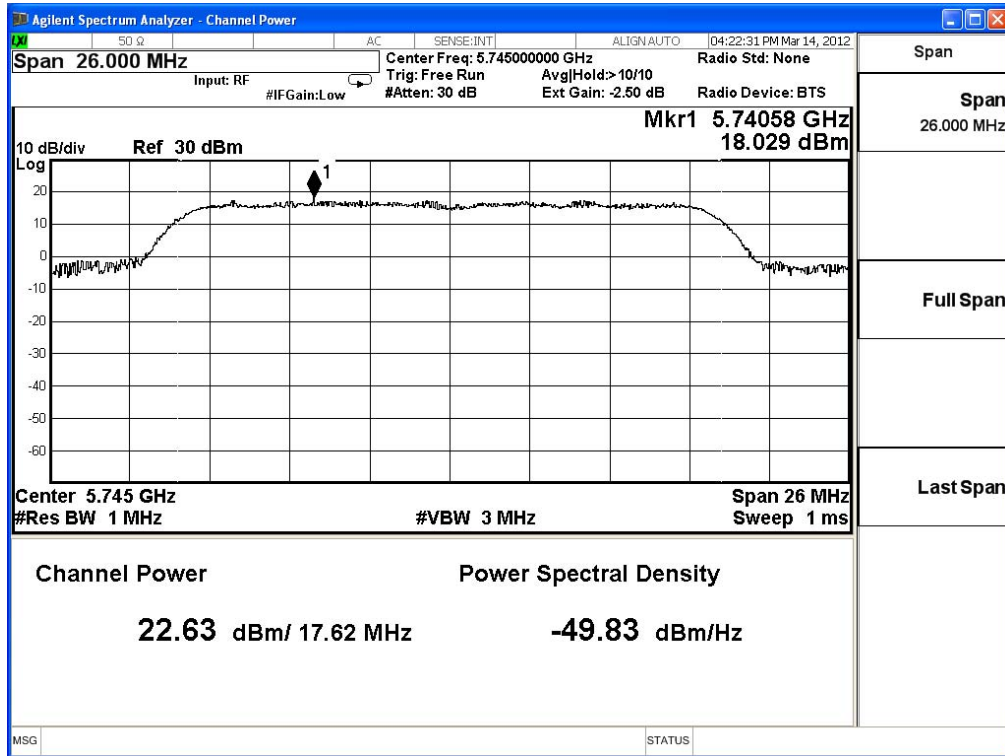
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (20MHz), (ANT 2) |                 |                     |               |        |
|-------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                   | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                           | 5745            | 22.63               | 1Watt= 30 dBm | Pass   |
| 157                           | 5785            | 21.76               | 1Watt= 30 dBm | Pass   |
| 165                           | 5825            | 20.29               | 1Watt= 30 dBm | Pass   |

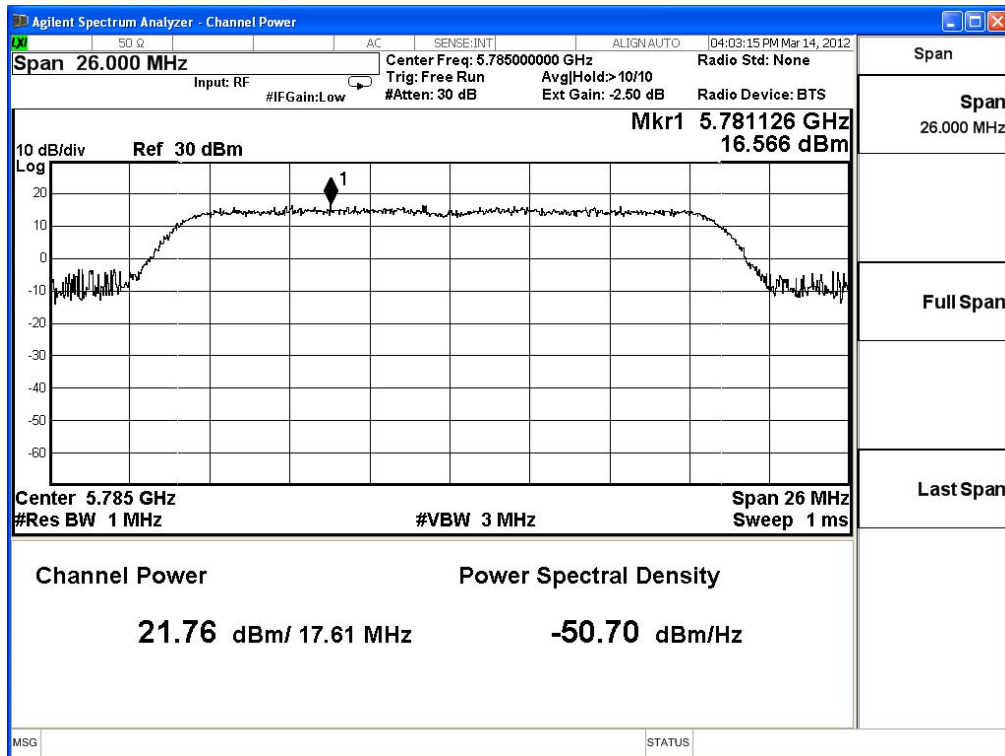
The worst emission of data rate is 19.5 Mbps.

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 19.5      | 39    | 58.5  | 78    | 117   | 156   | 175.5 | 195   |                |
| 149                     | 5745            | 22.63     | 22.61 | 22.62 | 22.60 | 22.58 | 22.59 | 22.57 | 22.56 | 1 Watt=30dBm   |
| 157                     | 5785            | 21.76     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 20.29     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

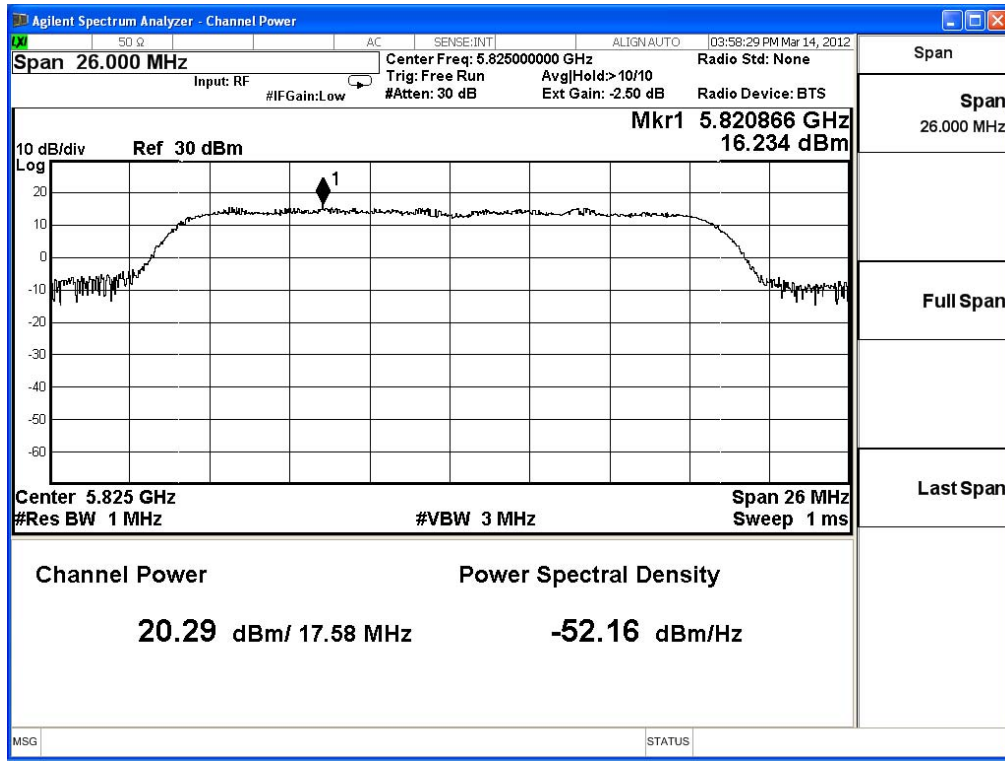
**Channel 149**



**Channel 157**



**Channel 165**



|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (20MHz) (ANT 0+1+2) |                 |                     |               |        |
|----------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                      | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 149                              | 5745            | 27.28               | 1Watt= 30 dBm | Pass   |
| 157                              | 5785            | 26.30               | 1Watt= 30 dBm | Pass   |
| 165                              | 5825            | 24.81               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 19.5 Mbps.

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 19.5      | 39    | 58.5  | 78    | 117   | 156   | 175.5 | 195   |                |
| 149                     | 5745            | 27.28     | 27.26 | 27.27 | 27.25 | 27.26 | 27.21 | 27.23 | 27.22 | 1 Watt=30dBm   |
| 157                     | 5785            | 26.30     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |
| 165                     | 5825            | 24.81     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

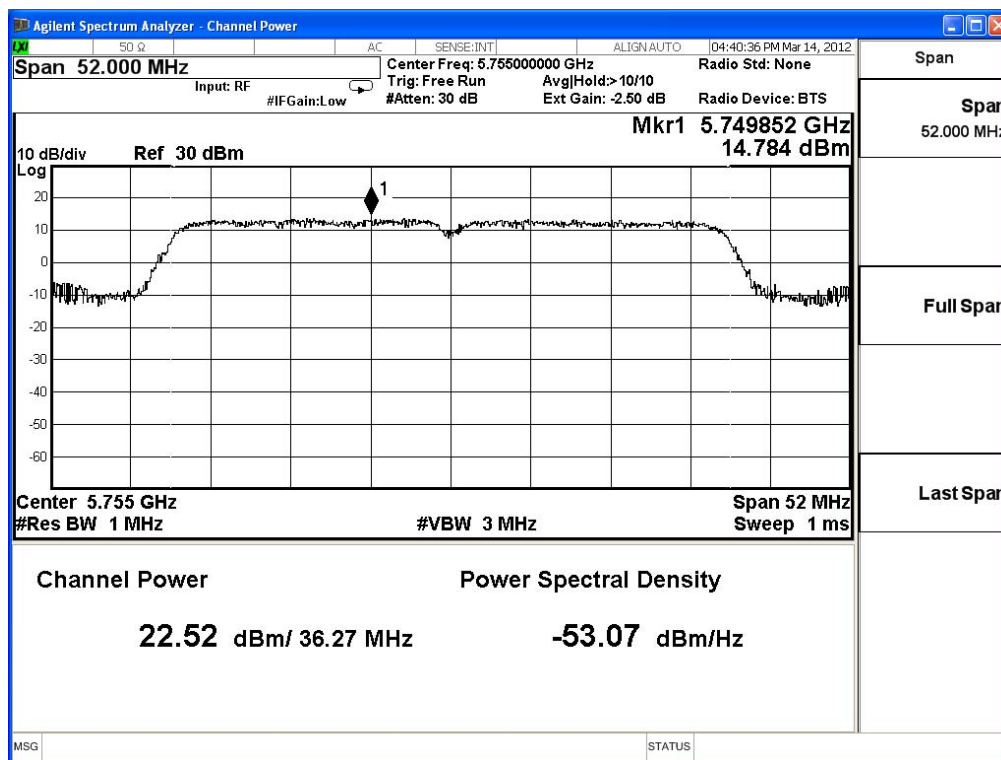
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (40MHz), ANT 0 (MAIN) |                 |                     |               |        |
|------------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                        | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 151                                | 5755            | 22.52               | 1Watt= 30 dBm | Pass   |
| 159                                | 5795            | 20.72               | 1Watt= 30 dBm | Pass   |

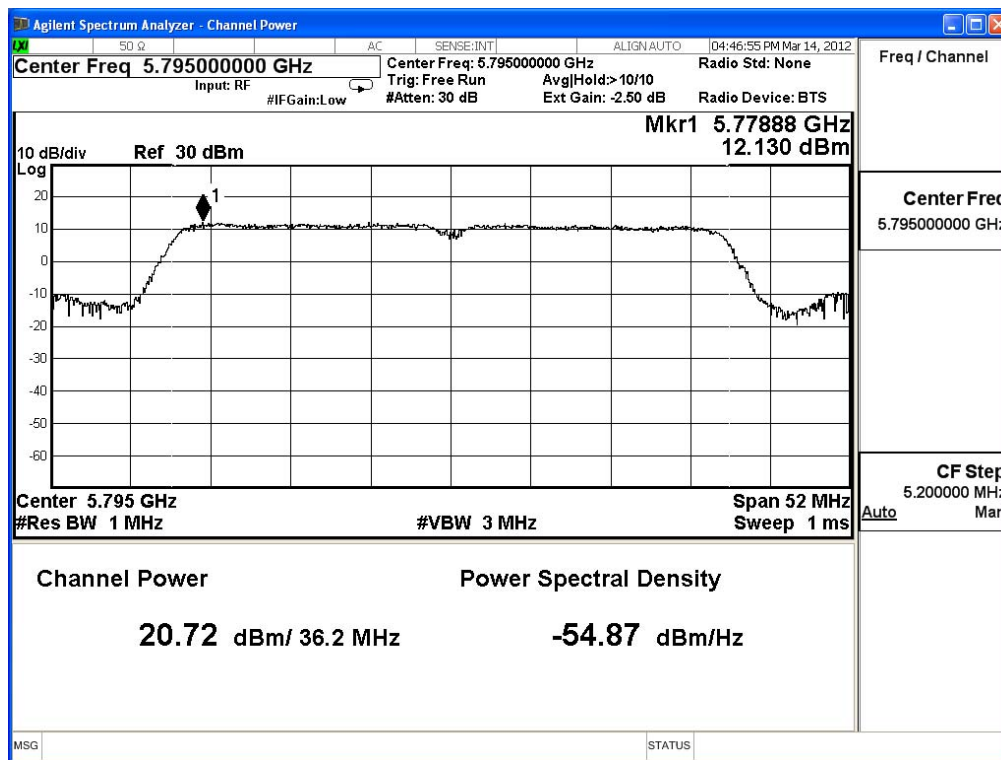
The worst emission of data rate is 40.5Mbps

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 40.5      | 81.0  | 121.5 | 162.0 | 243.0 | 324.0 | 364.5 | 405.0 |                |
| 151                     | 5755            | 22.52     | 22.50 | 22.51 | 22.48 | 22.49 | 22.47 | 22.45 | 22.46 | 1 Watt=30dBm   |
| 159                     | 5795            | 20.72     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

## Channel 151



## Channel 159





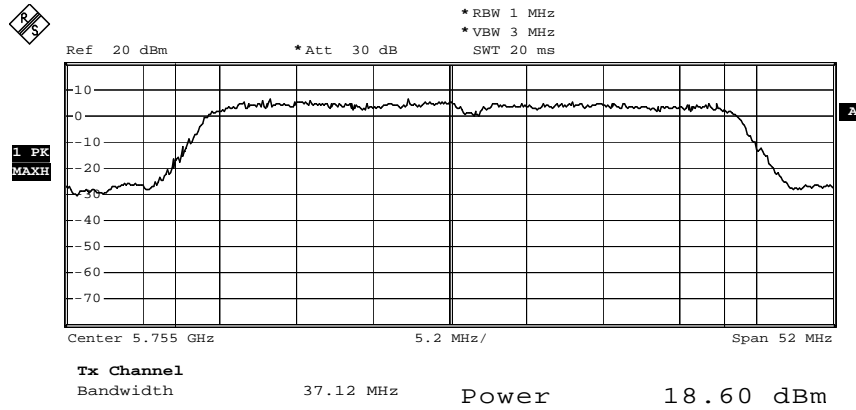
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/07/11        | Test Site | SR7 |

| IEEE 802.11n (40MHz), ANT 0 (AUX) |                 |                     |               |        |
|-----------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                       | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 151                               | 5755            | 18.60               | 1Watt= 30 dBm | Pass   |
| 159                               | 5795            | 18.55               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 40.5Mbps

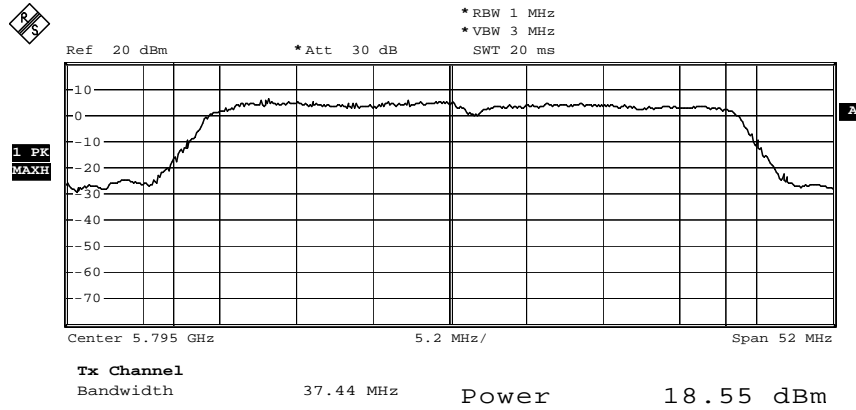
| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 40.5      | 81.0  | 121.5 | 162.0 | 243.0 | 324.0 | 364.5 | 405.0 |                |
| 151                     | 5755            | 18.60     | 18.59 | 18.58 | 18.57 | 18.56 | 18.55 | 18.54 | 18.52 | 1 Watt=30dBm   |
| 159                     | 5795            | 18.55     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

**Channel 151**



Date: 11.JUL.2012 12:44:33

**Channel 159**



Date: 11.JUL.2012 12:39:08

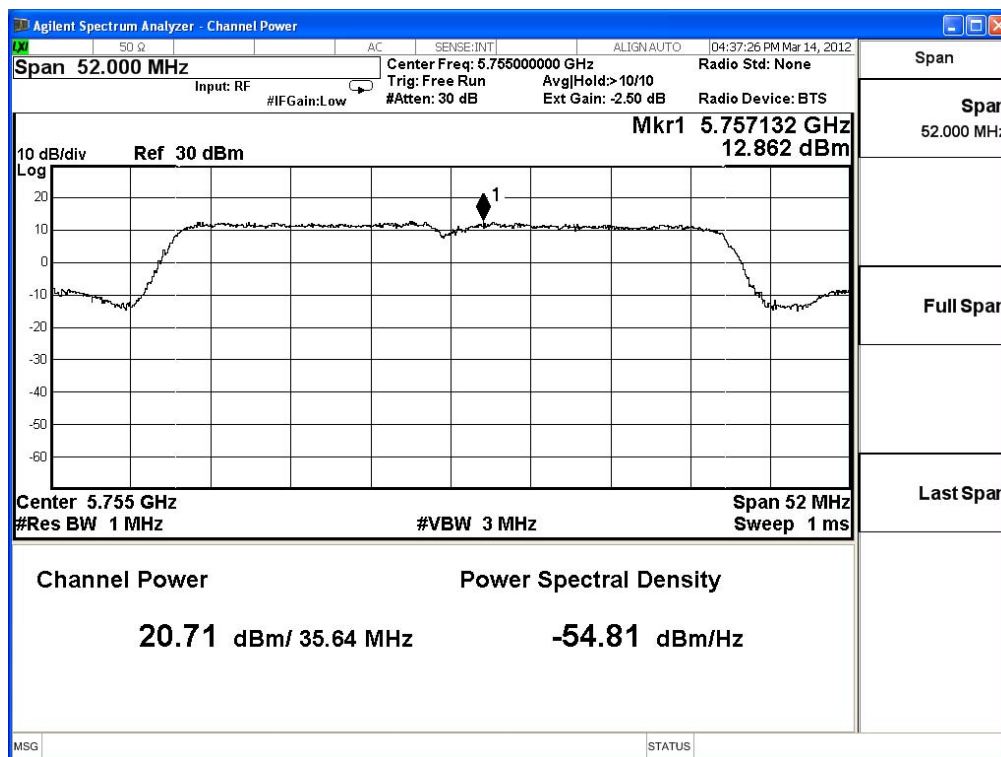
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (40MHz), (ANT 1) |                 |                     |               |        |
|-------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                   | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 151                           | 5755            | 20.71               | 1Watt= 30 dBm | Pass   |
| 159                           | 5795            | 19.95               | 1Watt= 30 dBm | Pass   |

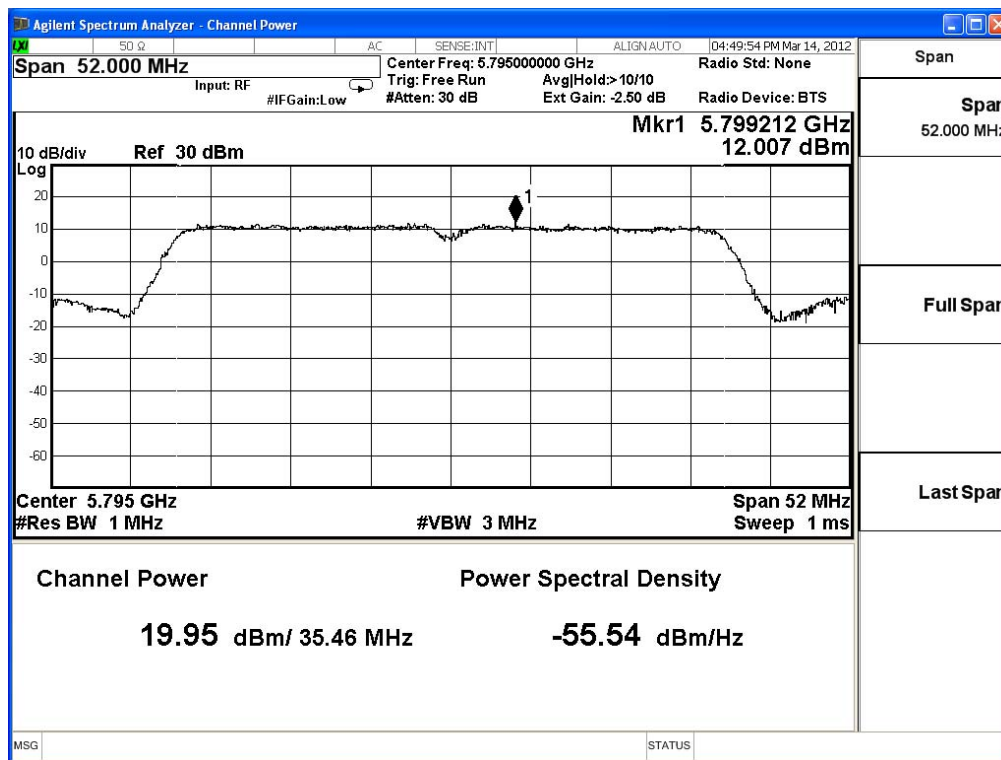
The worst emission of data rate is 40.5Mbps

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 40.5      | 81.0  | 121.5 | 162.0 | 243.0 | 324.0 | 364.5 | 405.0 |                |
| 151                     | 5755            | 20.71     | 20.70 | 20.68 | 20.69 | 20.67 | 20.65 | 20.66 | 20.64 | 1 Watt=30dBm   |
| 159                     | 5795            | 19.95     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

**Channel 151**



**Channel 159**



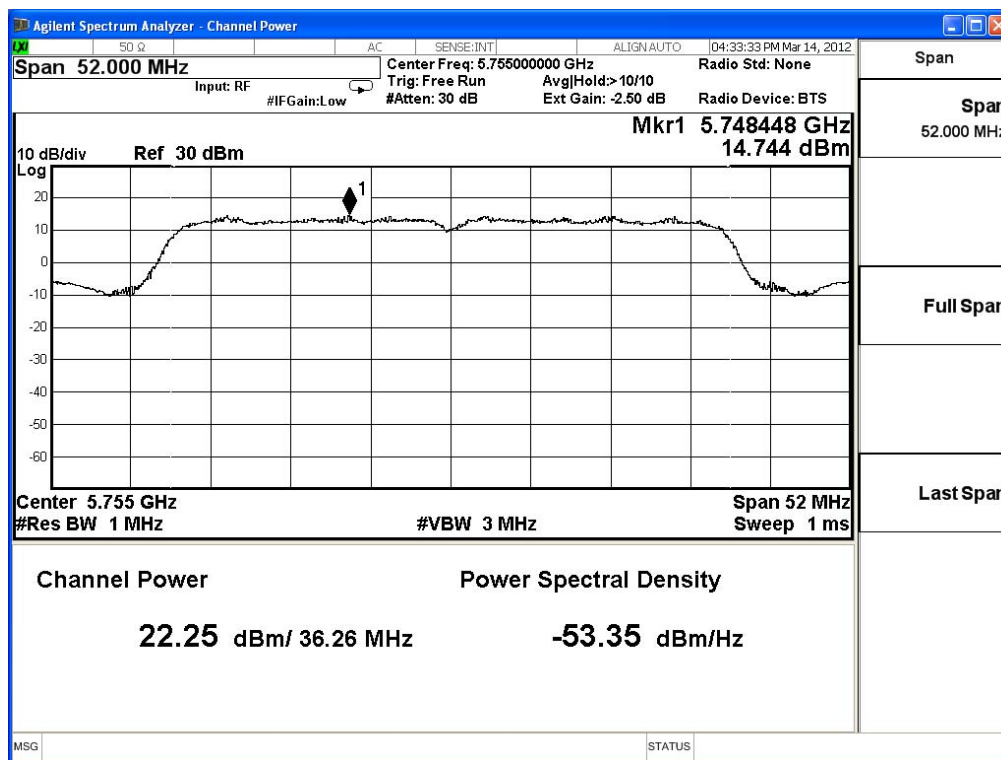
|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE 802.11n (40MHz), (ANT 2) |                 |                     |               |        |
|-------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                   | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 151                           | 5755            | 22.25               | 1Watt= 30 dBm | Pass   |
| 159                           | 5795            | 20.64               | 1Watt= 30 dBm | Pass   |

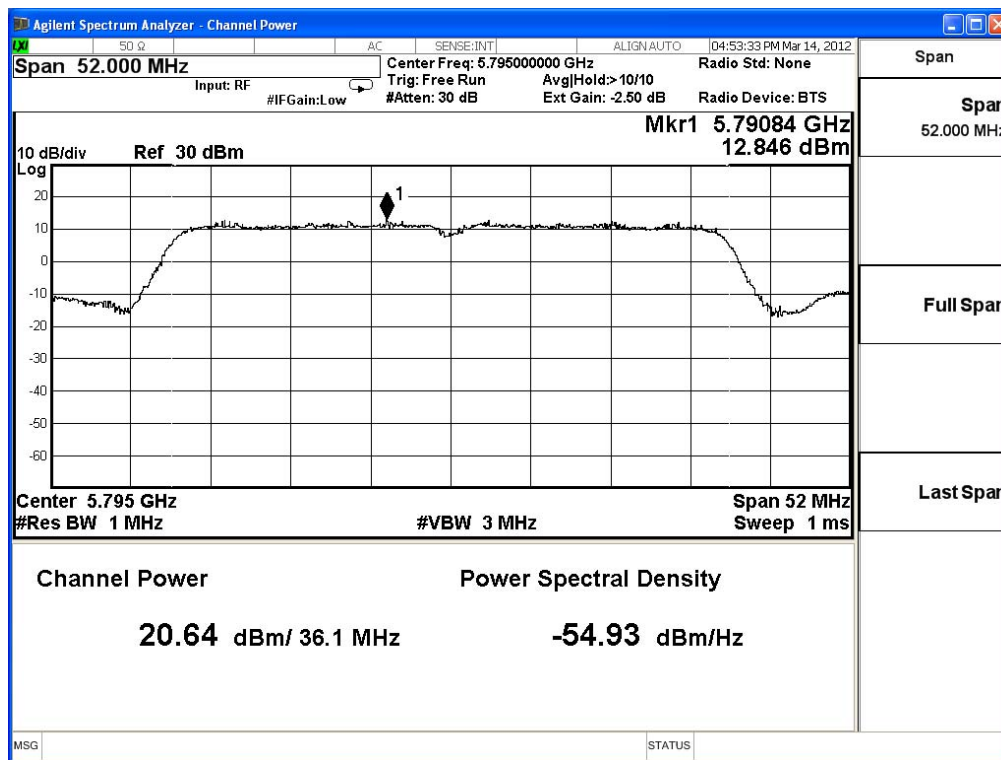
The worst emission of data rate is 40.5Mbps

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 40.5      | 81.0  | 121.5 | 162.0 | 243.0 | 324.0 | 364.5 | 405.0 |                |
| 151                     | 5755            | 22.25     | 22.24 | 22.22 | 22.23 | 22.21 | 22.20 | 22.18 | 22.19 | 1 Watt=30dBm   |
| 159                     | 5795            | 20.64     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |

**Channel 151**



**Channel 159**





|              |                   |           |     |
|--------------|-------------------|-----------|-----|
| Product      | Wireless Extender |           |     |
| Test Item    | Peak Power Output |           |     |
| Test Mode    | Mode 1: Transmit  |           |     |
| Date of Test | 2012/03/14        | Test Site | SR7 |

| IEEE802.11n (40MHz) (ANT 0+1+2) |                 |                     |               |        |
|---------------------------------|-----------------|---------------------|---------------|--------|
| Channel No.                     | Frequency (MHz) | Measure Level (dBm) | Limit (dBm)   | Result |
| 151                             | 5755            | 26.67               | 1Watt= 30 dBm | Pass   |
| 159                             | 5795            | 25.22               | 1Watt= 30 dBm | Pass   |

The worst emission of data rate is 40.5Mbps

| Peak Power Output (dBm) |                 |           |       |       |       |       |       |       |       |                |
|-------------------------|-----------------|-----------|-------|-------|-------|-------|-------|-------|-------|----------------|
| Channel No              | Frequency (MHz) | Data Rate |       |       |       |       |       |       |       | Required Limit |
|                         |                 | 40.5      | 81.0  | 121.5 | 162.0 | 243.0 | 324.0 | 364.5 | 405.0 |                |
| 151                     | 5755            | 26.67     | 26.66 | 26.65 | 22.63 | 22.64 | 22.61 | 22.60 | 22.58 | 1 Watt=30dBm   |
| 159                     | 5795            | 25.22     | --    | --    | --    | --    | --    | --    | --    | 1 Watt=30dBm   |



4. Radiated Emission

4.1. Test Equipment

The following test equipments are used during the test:

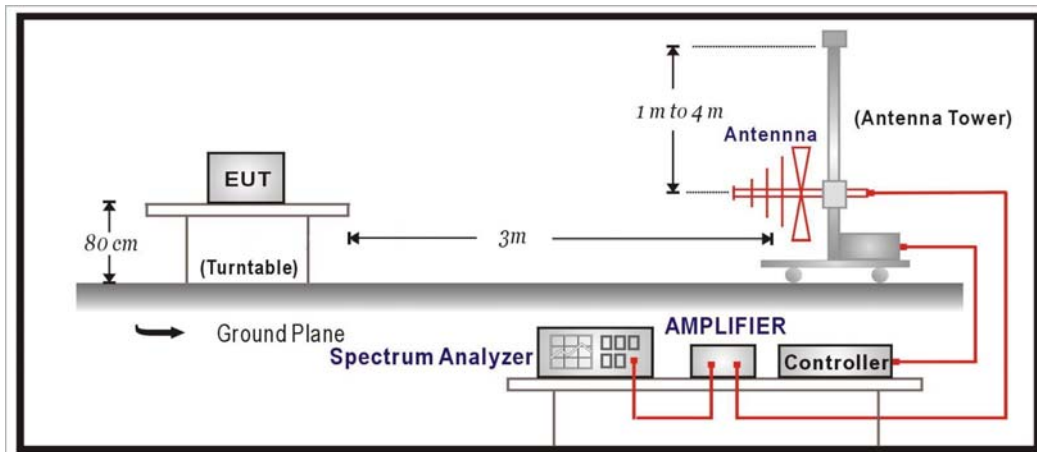
Radiated Emission / CB1

| Instrument                       | Manufacturer    | Model No.            | Serial No   | Next Cal. Date |
|----------------------------------|-----------------|----------------------|-------------|----------------|
| Bilog Antenna                    | SCHAFFNER       | CBL6112B             | 2895        | 2012/08/14     |
| Double Ridged Guide Horn Antenna | Schwarzback     | BBHA 9120D           | 743         | 2013/02/02     |
| Pre-Amplifier                    | MITEQ           | AMF-4D-005180-24-10P | 888003      | 2012/12/05     |
| Pre-Amplifier                    | QuieTek         | AP-025C              | CHM-0706049 | 2013/02/02     |
| Spectrum Analyzer                | Agilent         | E4440A               | MY46187335  | 2013/02/07     |
| Coaxial Cable                    | Huber+Suhner AG | Sucoflex 102         | 25623/2     | 2013/03/04     |

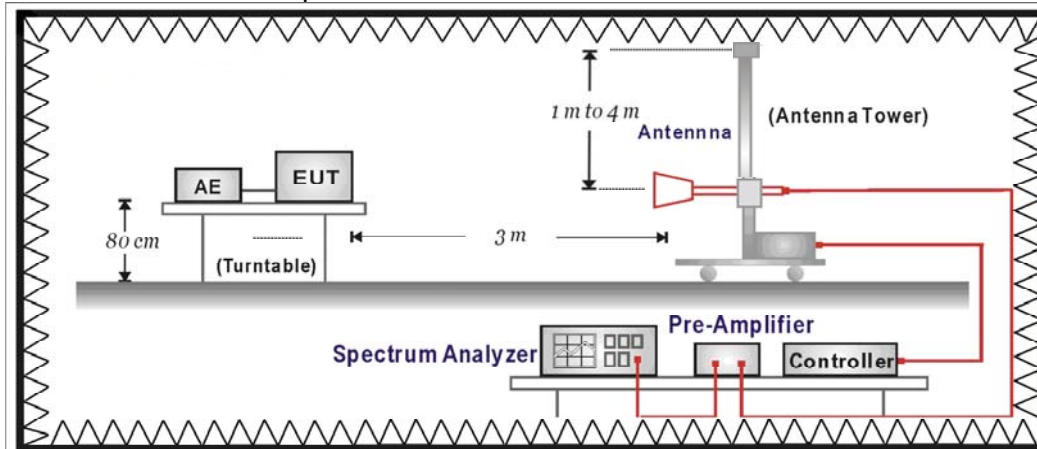
Note: 1. All equipments that need to calibrate are with calibration period of 1 year.

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.

| <b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b> |        |        |
|--|--------|--------|
| Frequency<br>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 Jan. 2012 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: 2010

**4.6. Uncertainty**

The measurement uncertainty

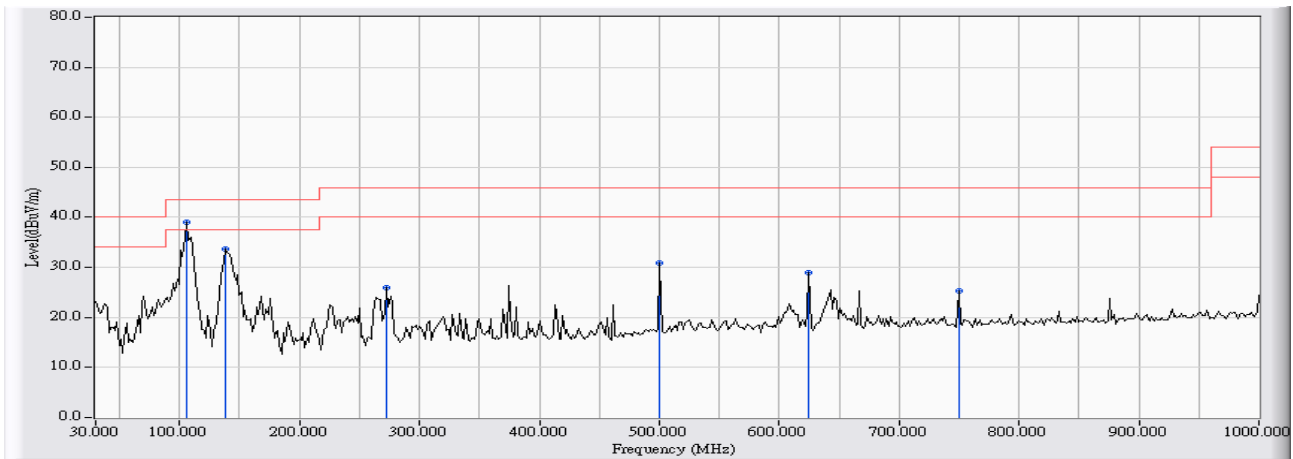
30MHz~1GHz as ±3.43dB

1GHz~26.5Ghz as ±3.65dB

4.7. Test Result

30MHz-1GHz Spurious

|   |                           |
|---|---------------------------|
| Site : CB1                                    | Time : 2012/03/17 - 15:36 |
| Limit : FCC CLASS_B_03M_QP                    | Margin : 6                |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL | Power : AC 120V/60Hz      |
| EUT : Wireless Extender                       | Note : TX_802.11a_5785MHz |

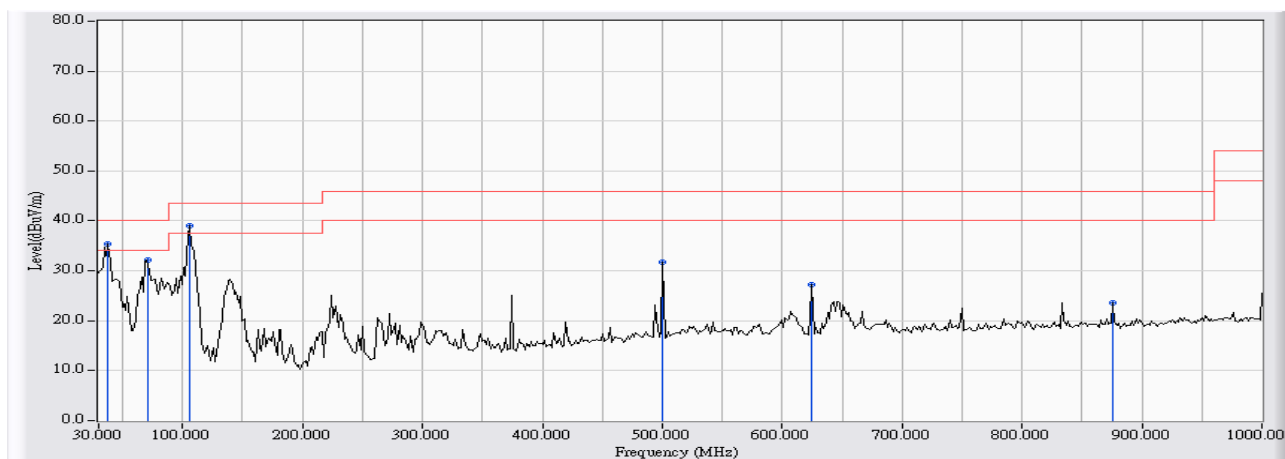


|   |   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | * | 105.983         | -13.004             | 51.944               | 38.940                 | -4.560      | 43.500         | QUASPEAK      |
| 2 |   | 138.317         | -12.849             | 46.589               | 33.741                 | -9.759      | 43.500         | QUASPEAK      |
| 3 |   | 272.500         | -10.709             | 36.698               | 25.989                 | -20.011     | 46.000         | QUASPEAK      |
| 4 |   | 500.450         | -5.372              | 36.198               | 30.827                 | -15.173     | 46.000         | QUASPEAK      |
| 5 |   | 624.933         | -4.207              | 33.158               | 28.951                 | -17.049     | 46.000         | QUASPEAK      |
| 6 |   | 749.417         | -3.297              | 28.675               | 25.379                 | -20.621     | 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 : 2012/03/17 - 15:40 |
| Limit : FCC CLASS B_03M_QP                  | Margin : 6                |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL | Power : AC 120V/60Hz      |
| EUT : Wireless Extender                     | Note : TX_802.11a_5785MHz |

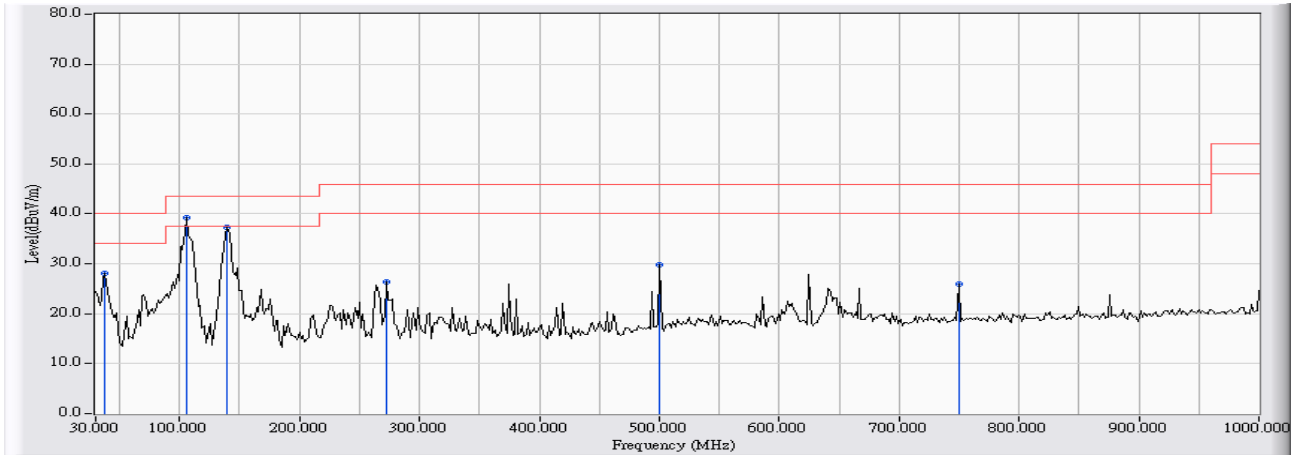


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | 38.083          | -11.772             | 47.087               | 35.316                 | -4.684      | 40.000         | QUASPEAK      |
| 2 | 70.417          | -17.720             | 49.879               | 32.159                 | -7.841      | 40.000         | QUASPEAK      |
| 3 | * 105.983       | -13.004             | 52.034               | 39.030                 | -4.470      | 43.500         | QUASPEAK      |
| 4 | 500.450         | -5.372              | 37.102               | 31.731                 | -14.269     | 46.000         | QUASPEAK      |
| 5 | 624.933         | -4.207              | 31.402               | 27.195                 | -18.805     | 46.000         | QUASPEAK      |
| 6 | 875.517         | -2.164              | 25.685               | 23.521                 | -22.479     | 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 : 2012/03/17 - 15:47      |
| Limit : FCC CLASS B_03M_QP                    | Margin : 6                     |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL | Power : AC 120V/60Hz           |
| EUT : Wireless Extender                       | Note : TX_802.11n(20M)_5785MHz |

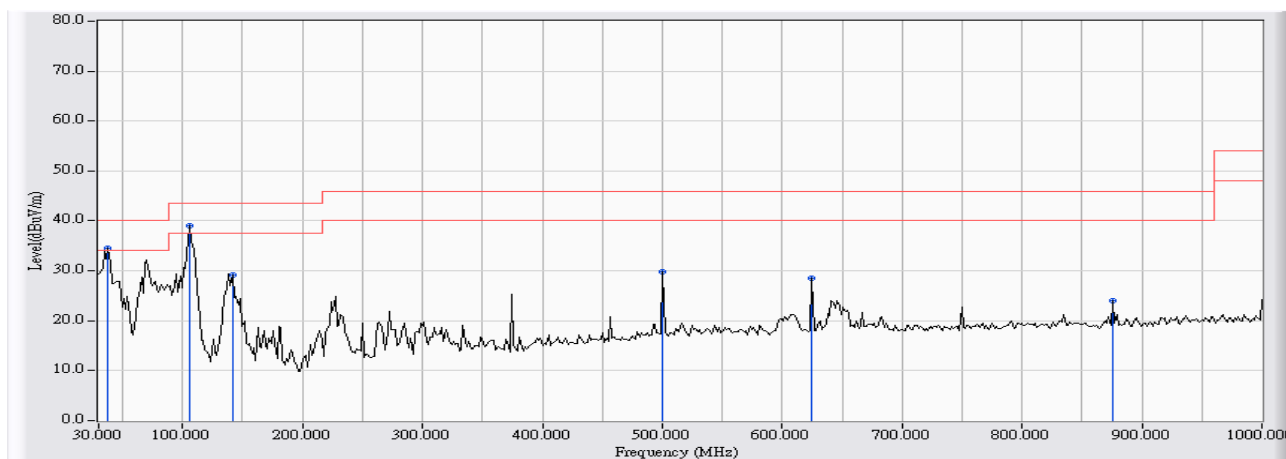


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | 38.083          | -11.772             | 39.928               | 28.157                 | -11.843     | 40.000         | QUASPEAK      |
| 2 | * 105.983       | -13.004             | 52.319               | 39.315                 | -4.185      | 43.500         | QUASPEAK      |
| 3 | 139.933         | -12.941             | 50.363               | 37.423                 | -6.077      | 43.500         | QUASPEAK      |
| 4 | 272.500         | -10.709             | 36.994               | 26.285                 | -19.715     | 46.000         | QUASPEAK      |
| 5 | 500.450         | -5.372              | 35.290               | 29.919                 | -16.081     | 46.000         | QUASPEAK      |
| 6 | 749.417         | -3.297              | 29.271               | 25.975                 | -20.025     | 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 : 2012/03/17 - 15:52      |
| Limit : FCC CLASS B_03M_QP                  | Margin : 6                     |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL | Power : AC 120V/60Hz           |
| EUT : Wireless Extender                     | Note : TX_802.11n(20M)_5785MHz |

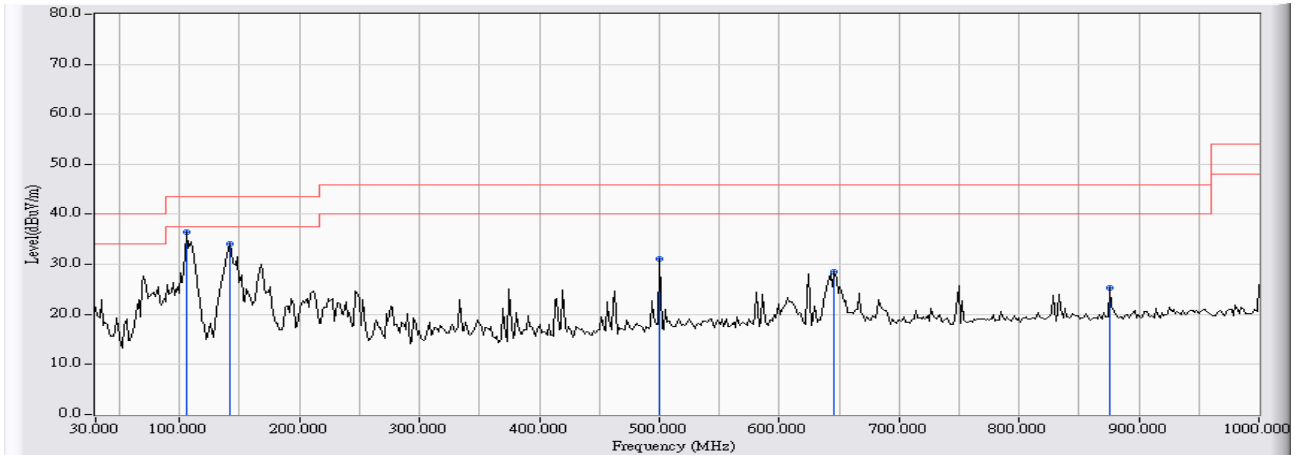


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | 38.083          | -11.772             | 46.217               | 34.446                 | -5.554      | 40.000         | QUASPEAK      |
| 2 | * 105.983       | -13.004             | 52.118               | 39.114                 | -4.386      | 43.500         | QUASPEAK      |
| 3 | 141.550         | -13.023             | 42.176               | 29.152                 | -14.348     | 43.500         | QUASPEAK      |
| 4 | 500.450         | -5.372              | 35.181               | 29.810                 | -16.190     | 46.000         | QUASPEAK      |
| 5 | 624.933         | -4.207              | 32.654               | 28.447                 | -17.553     | 46.000         | QUASPEAK      |
| 6 | 875.517         | -2.164              | 26.280               | 24.116                 | -21.884     | 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 : 2012/03/17 - 14:31      |
| Limit : FCC CLASS B_03M_QP                    | Margin : 6                     |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - HORIZONTAL | Power : AC 120V/60Hz           |
| EUT : Wireless Extender                       | Note : TX_802.11n(40M)_5795MHz |

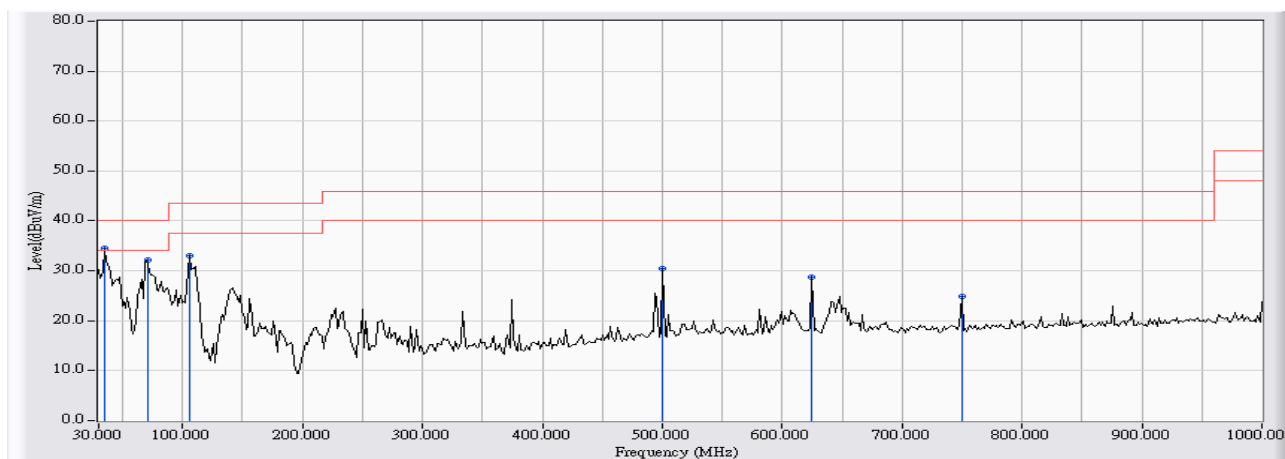


|   |   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | * | 105.983         | -13.004             | 49.455               | 36.451                 | -7.049      | 43.500         | QUASPEAK      |
| 2 |   | 141.550         | -13.023             | 47.179               | 34.155                 | -9.345      | 43.500         | QUASPEAK      |
| 3 |   | 500.450         | -5.372              | 36.414               | 31.043                 | -14.957     | 46.000         | QUASPEAK      |
| 4 |   | 645.950         | -4.103              | 32.523               | 28.420                 | -17.580     | 46.000         | QUASPEAK      |
| 5 |   | 875.517         | -2.164              | 27.436               | 25.272                 | -20.728     | 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 : 2012/03/17 - 14:38      |
| Limit : FCC CLASS B_03M_QP                  | Margin : 6                     |
| Probe : CB1_FCC_EFS_30-1G-1_0901 - VERTICAL | Power : AC 120V/60Hz           |
| EUT : Wireless Extender                     | Note : TX_802.11n(40M)_5795MHz |



|   |   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | * | 34.850          | -10.798             | 45.315               | 34.517                 | -5.483      | 40.000         | QUASIPeAK     |
| 2 |   | 70.417          | -17.720             | 49.996               | 32.276                 | -7.724      | 40.000         | QUASIPeAK     |
| 3 |   | 105.983         | -13.004             | 46.083               | 33.079                 | -10.421     | 43.500         | QUASIPeAK     |
| 4 |   | 500.450         | -5.372              | 35.896               | 30.525                 | -15.475     | 46.000         | QUASIPeAK     |
| 5 |   | 624.933         | -4.207              | 32.936               | 28.729                 | -17.271     | 46.000         | QUASIPeAK     |
| 6 |   | 749.417         | -3.297              | 28.107               | 24.811                 | -21.189     | 46.000         | QUASIPeAK     |

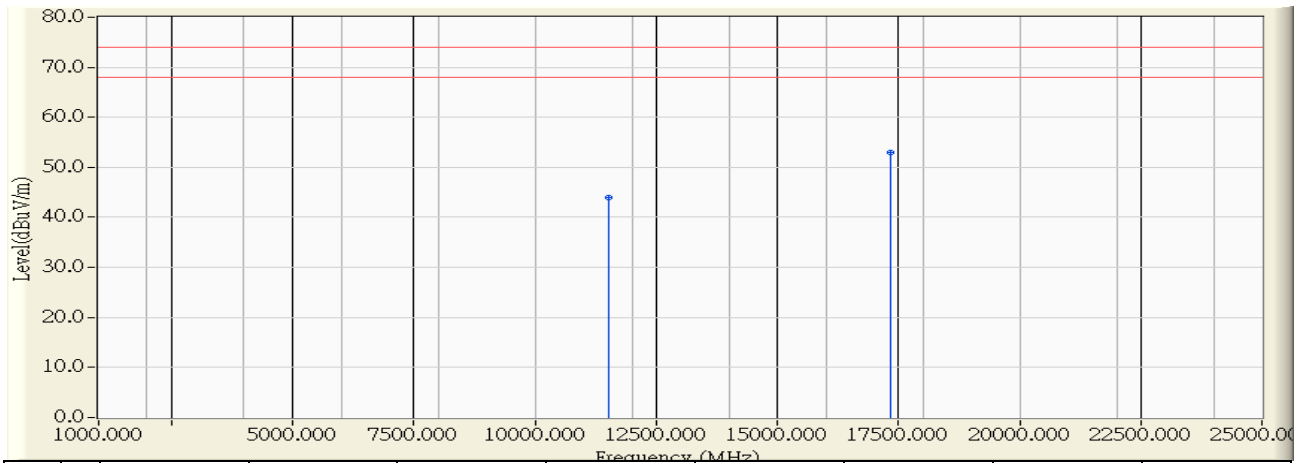
Note:

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 : CB1                                    | Time : 2012/03/16 - 18:36 |
| 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 : TX_802.11a_5745MHz |



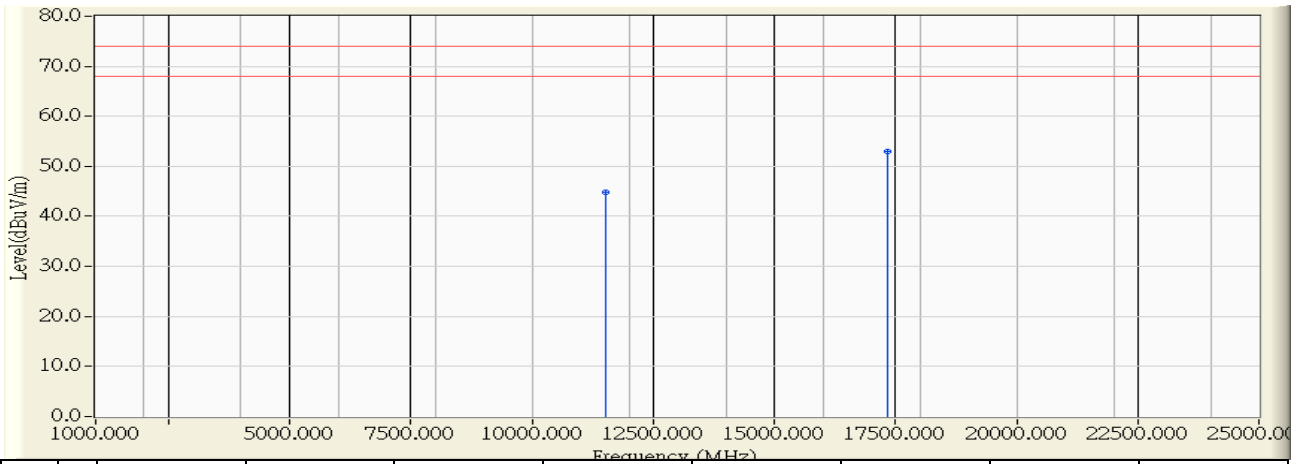
|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11516.300       | 12.111              | 31.900               | 44.011                 | -29.989     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17327.000     | 16.114              | 36.770               | 52.884                 | -21.116     | 74.000              | 54.000                 | PEAK          |

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

File# : 122154R - Page: 230

|   |                           |
|---|---------------------------|
| Engineer :                                  |                           |
| Site : CB1                                  | Time : 2012/03/16 - 18:42 |
| 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 : TX_802.11a_5745MHz |

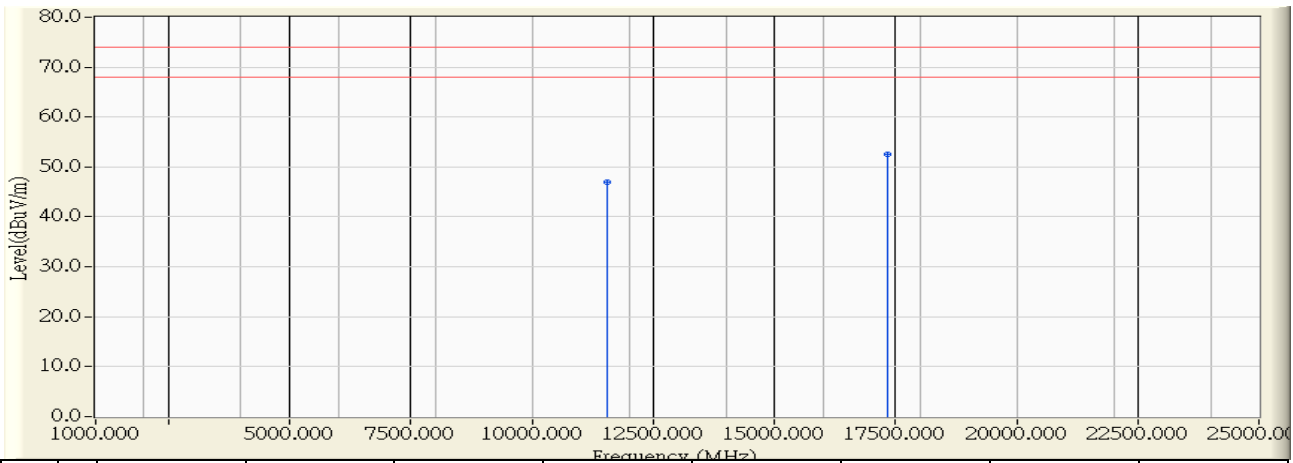


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11511.900       | 12.116              | 32.750               | 44.866                 | -29.134     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17334.000     | 16.143              | 36.920               | 53.063                 | -20.937     | 74.000              | 54.000                 | PEAK          |

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

|   |                           |
|---|---------------------------|
| Site : CB1                                    | Time : 2012/03/16 - 18:32 |
| 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 : TX_802.11a_5785MHz |

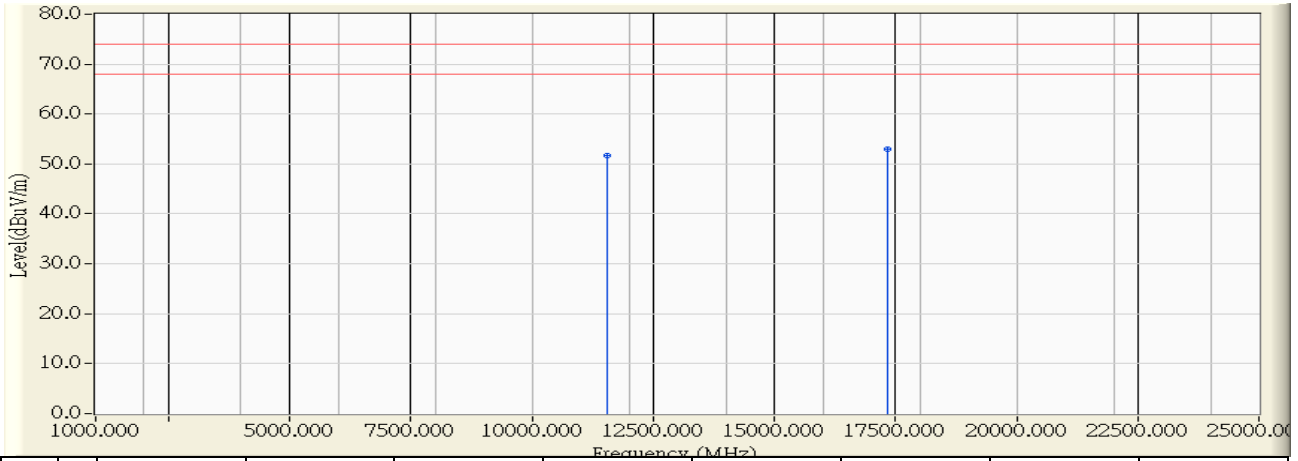


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11567.800       | 12.050              | 34.930               | 46.981                 | -27.019     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17336.400     | 16.153              | 36.290               | 52.443                 | -21.557     | 74.000              | 54.000                 | 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 : 2012/03/16 - 18:26 |
| 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 : TX_802.11a_5785MHz |

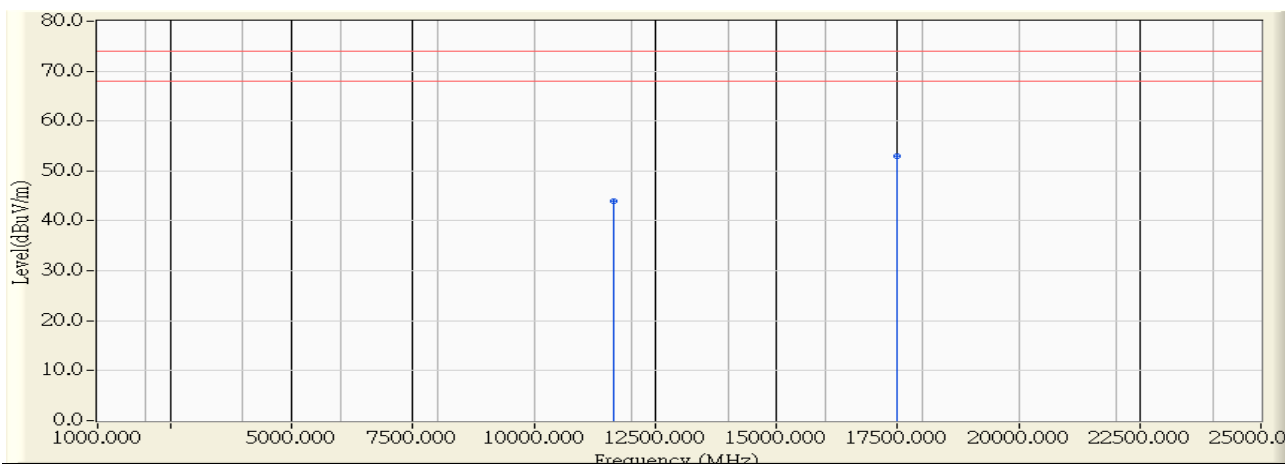


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11567.600       | 12.050              | 39.610               | 51.661                 | -22.339     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17343.700     | 16.183              | 36.790               | 52.972                 | -21.028     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:22 |
| 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 : TX_802.11a_5825MHz |

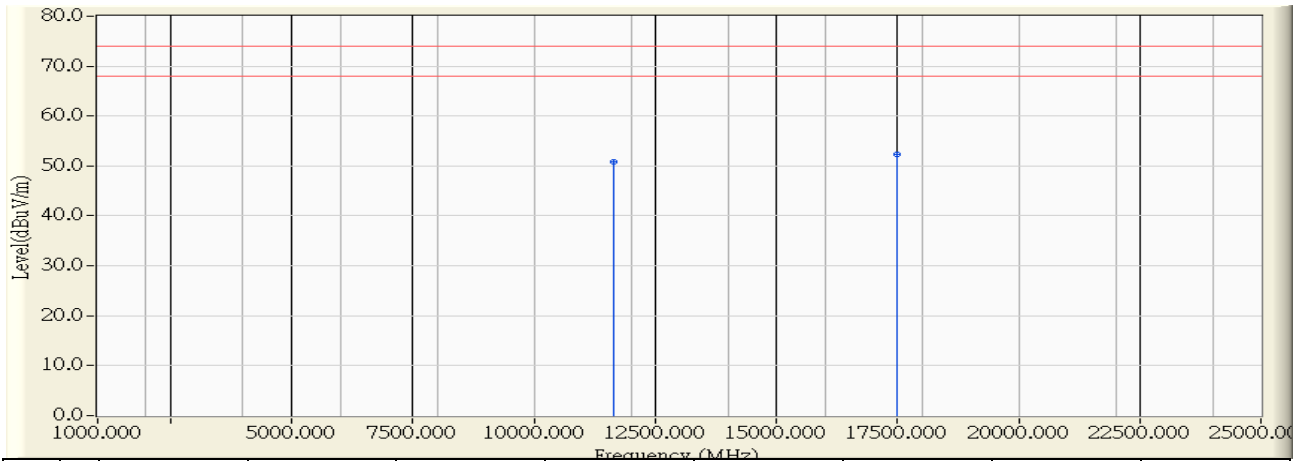


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11646.600       | 11.960              | 32.050               | 44.010                 | -29.990     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17498.500     | 16.835              | 36.100               | 52.936                 | -21.064     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:29 |
| 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 : TX_802.11a_5825MHz |

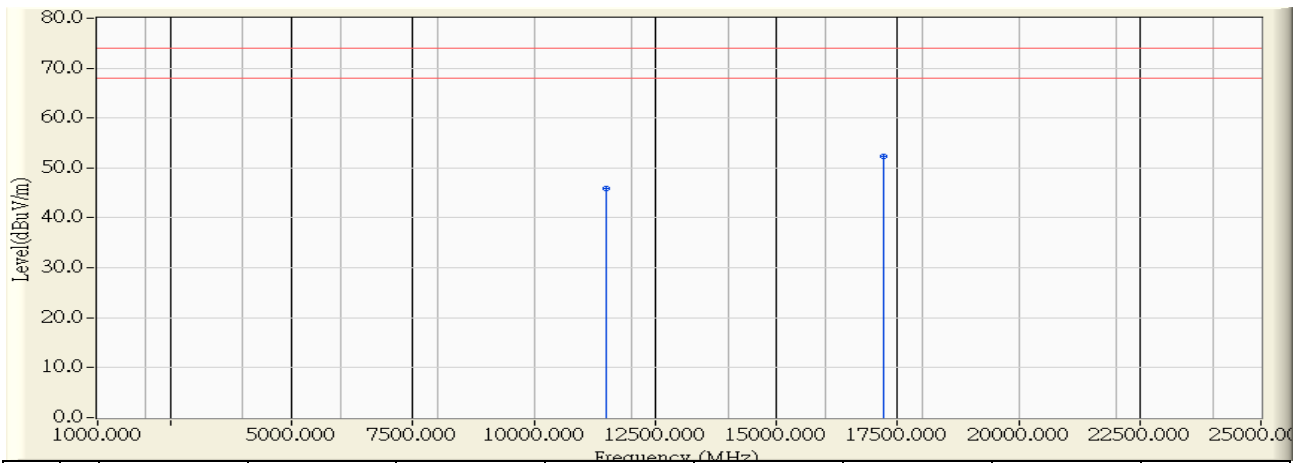


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11647.800       | 11.958              | 38.970               | 50.928                 | -23.072     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17481.100     | 16.741              | 35.560               | 52.301                 | -21.699     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:08      |
| 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 : TX_802.11n(20M)_5745MHz |

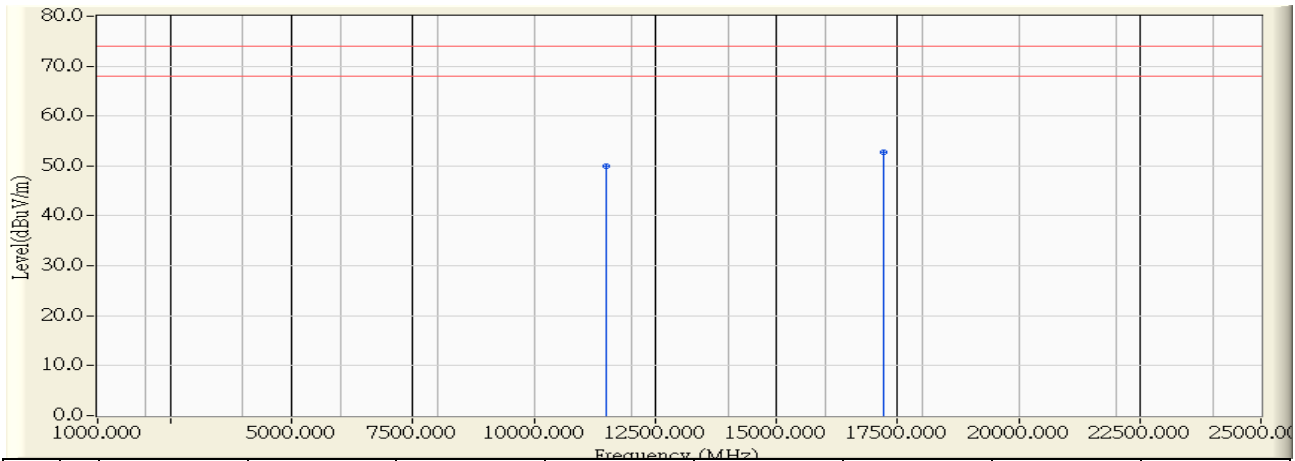


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11491.000       | 12.134              | 33.740               | 45.874                 | -28.126     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17228.700     | 15.715              | 36.620               | 52.335                 | -21.665     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:16      |
| 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 : TX_802.11n(20M)_5745MHz |



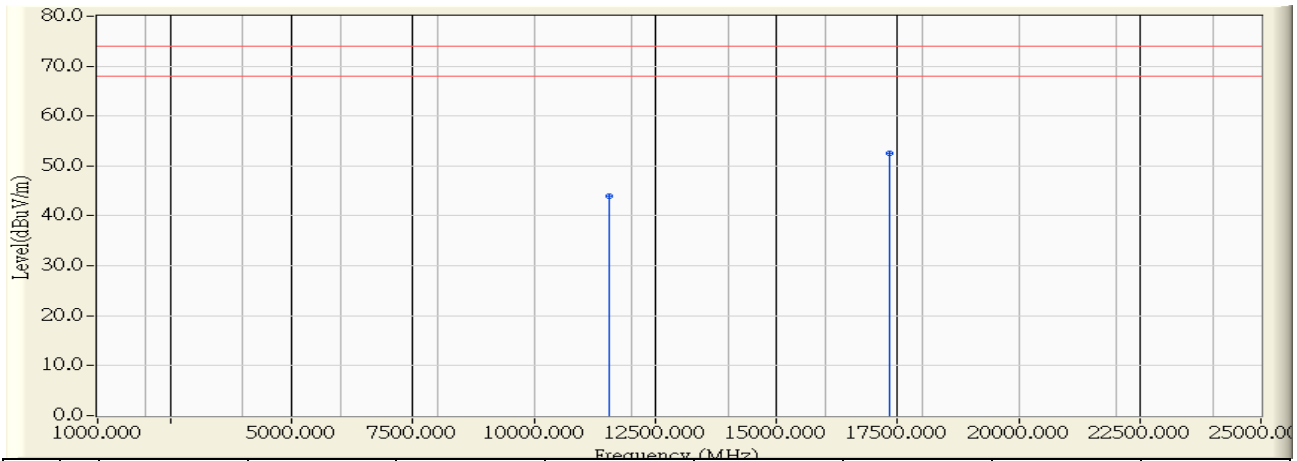
|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11489.100       | 12.137              | 37.760               | 49.896                 | -24.104     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17216.200     | 15.664              | 37.080               | 52.744                 | -21.256     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:22      |
| 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 : TX_802.11n(20M)_5785MHz |

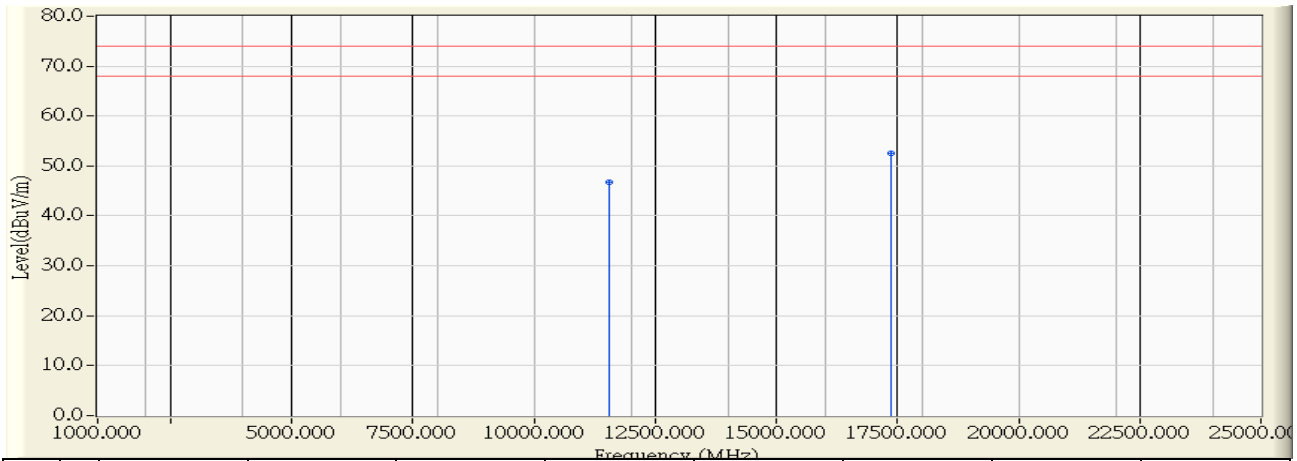


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11556.700       | 12.064              | 31.860               | 43.924                 | -30.076     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17347.200     | 16.196              | 36.320               | 52.517                 | -21.483     | 74.000              | 54.000                 | 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 : 2012/03/16 - 19:34      |
| 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 : TX_802.11n(20M)_5785MHz |

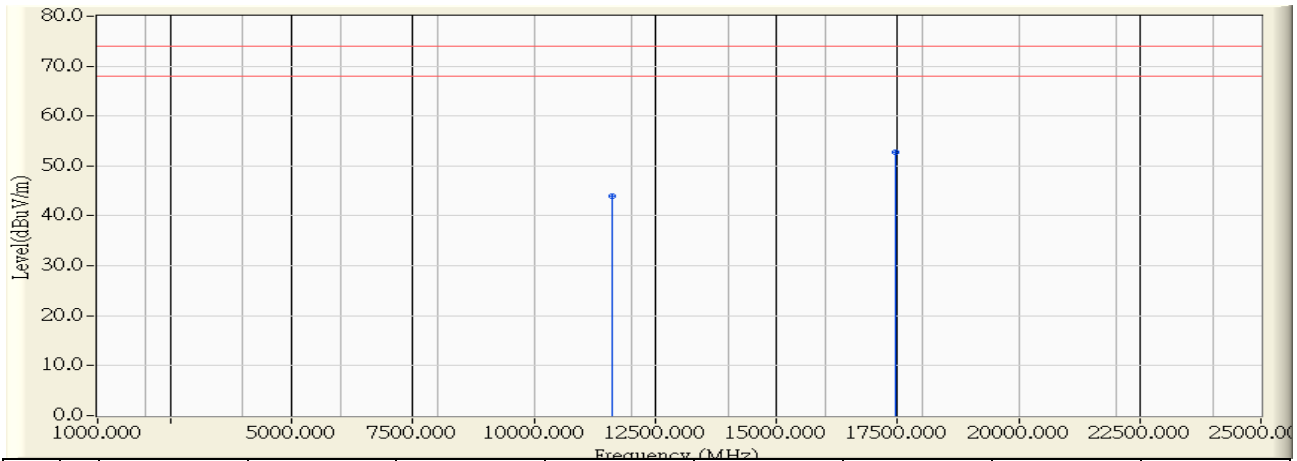


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11565.000       | 12.054              | 34.660               | 46.714                 | -27.286     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17359.300     | 16.246              | 36.290               | 52.536                 | -21.464     | 74.000              | 54.000                 | 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 : 2012/03/16 - 18:49      |
| 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 : TX_802.11n(20M)_5825MHz |

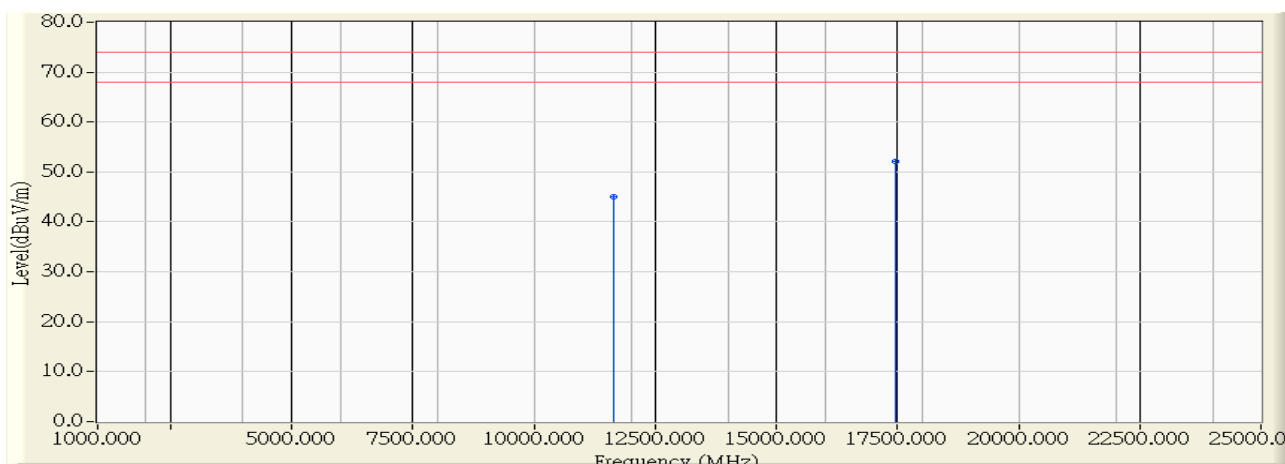


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11611.100       | 12.001              | 31.970               | 43.971                 | -30.029     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17453.500     | 16.629              | 36.170               | 52.799                 | -21.201     | 74.000              | 54.000                 | 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 : 2012/03/16 - 18:57      |
| 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 : TX_802.11n(20M)_5825MHz |

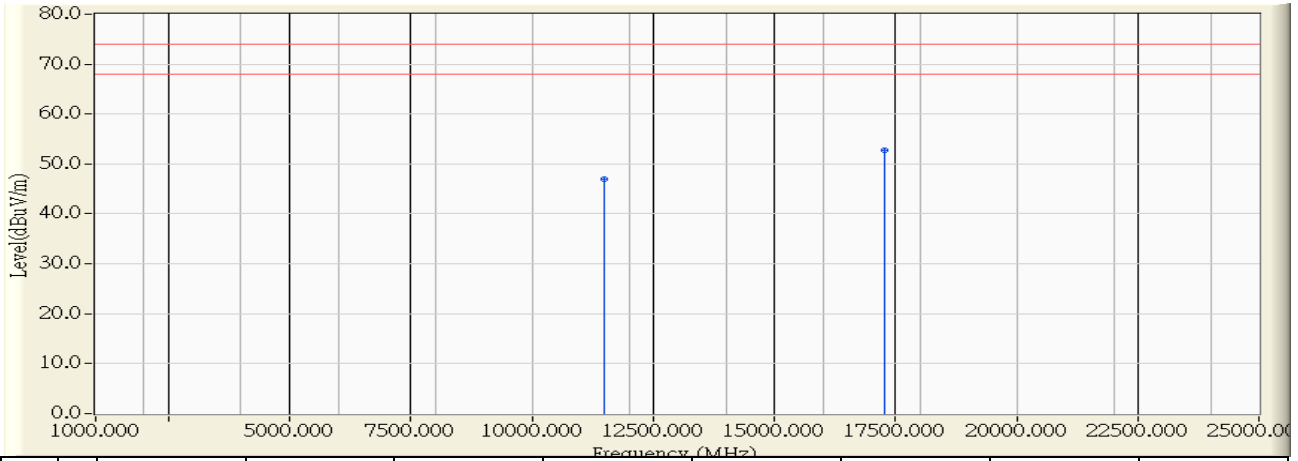


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11645.600       | 11.961              | 33.180               | 45.141                 | -28.859     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17457.200     | 16.644              | 35.580               | 52.224                 | -21.776     | 74.000              | 54.000                 | 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 : 2012/03/16 - 17:53      |
| 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 : TX_802.11n(40M)_5755MHz |

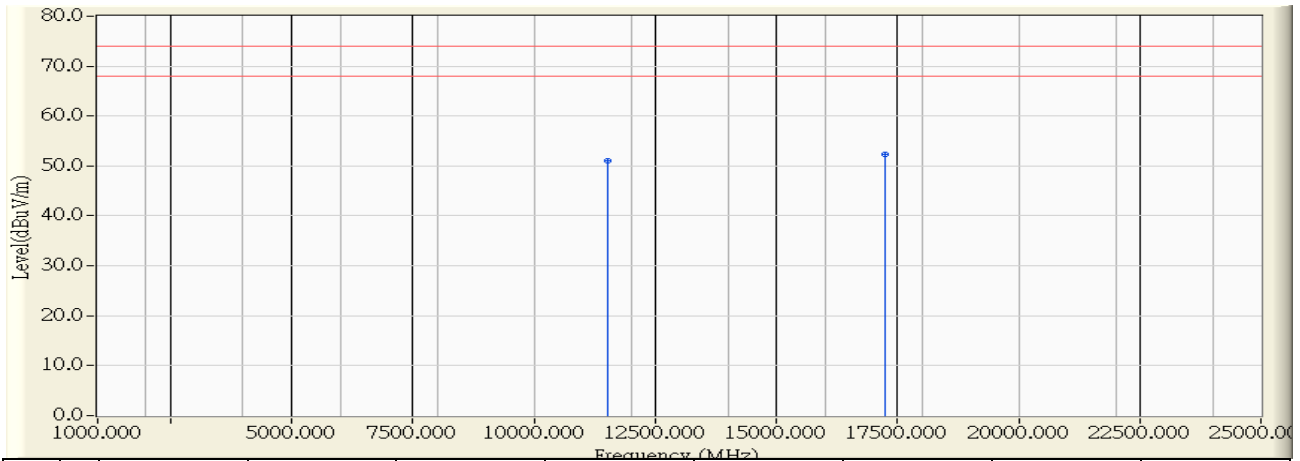


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11504.200       | 12.124              | 34.810               | 46.934                 | -27.066     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17265.800     | 15.865              | 36.850               | 52.716                 | -21.284     | 74.000              | 54.000                 | 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 : 2012/03/16 - 17:51      |
| 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 : TX_802.11n(40M)_5755MHz |

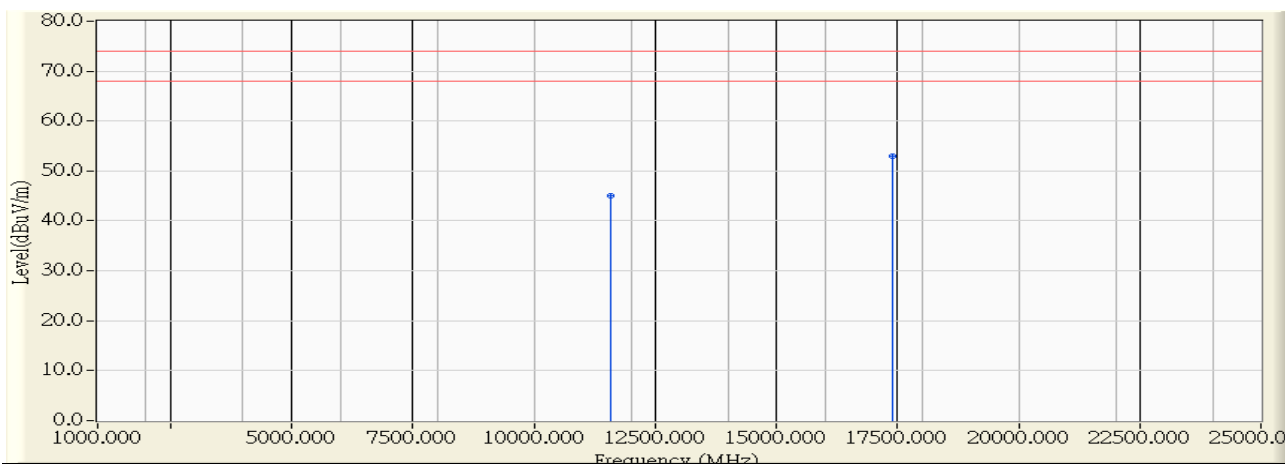


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11509.000       | 12.119              | 39.000               | 51.119                 | -22.881     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17245.600     | 15.784              | 36.550               | 52.333                 | -21.667     | 74.000              | 54.000                 | 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 : 2012/03/16 - 17:56      |
| 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 : TX_802.11n(40M)_5795MHz |

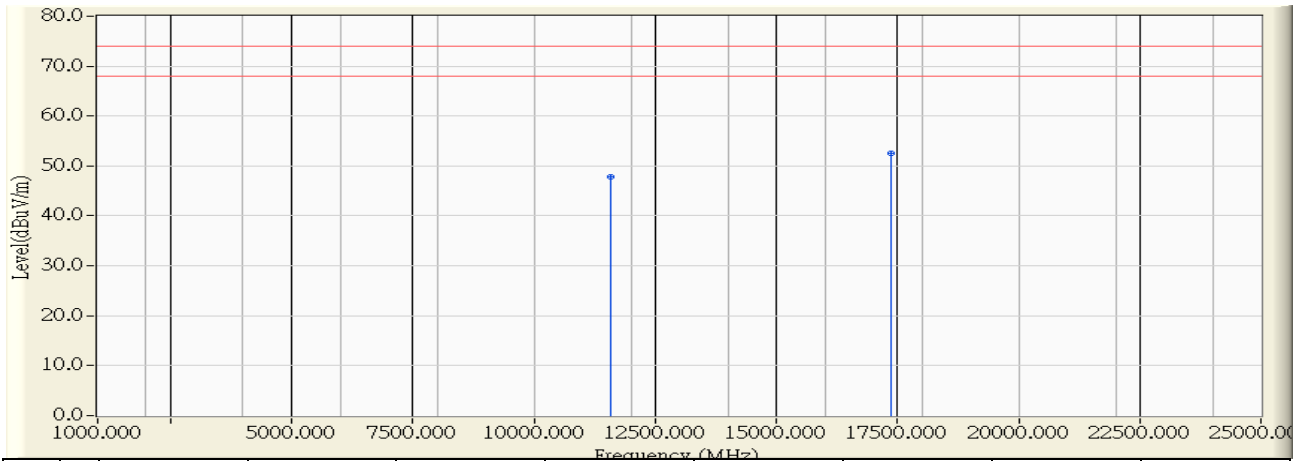


|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11590.100       | 12.025              | 33.040               | 45.065                 | -28.935     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17387.400     | 16.360              | 36.540               | 52.900                 | -21.100     | 74.000              | 54.000                 | 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 : 2012/03/16 - 18:01      |
| 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 : TX_802.11n(40M)_5795MHz |



|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Average Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|---------------------|------------------------|---------------|
| 1 | 11589.100       | 12.026              | 35.820               | 47.846                 | -26.154     | 74.000              | 54.000                 | PEAK          |
| 2 | * 17378.600     | 16.324              | 36.280               | 52.604                 | -21.396     | 74.000              | 54.000                 | 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:

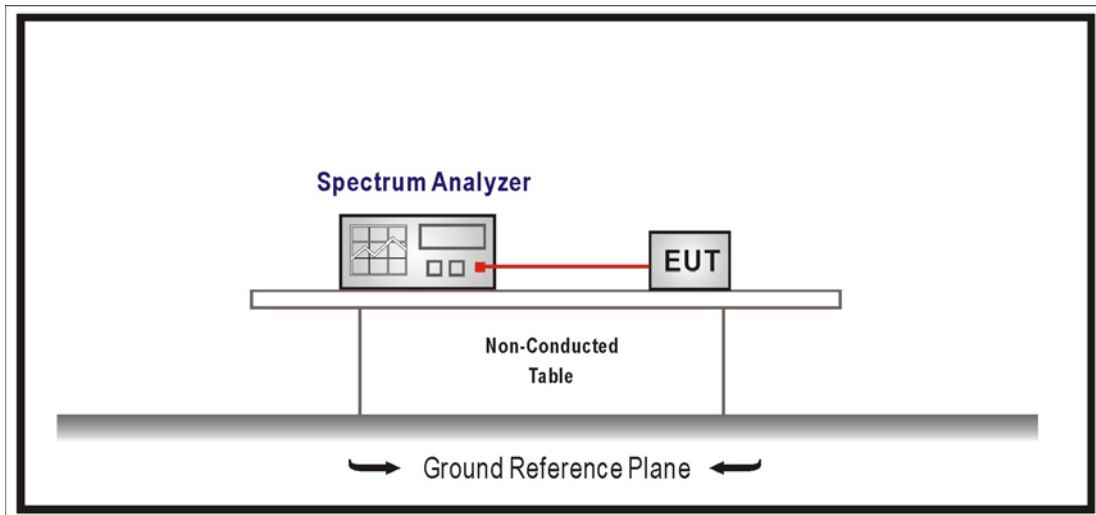
**RF antenna conducted test / SR7**

| Instrument        | Manufacturer | Model No. | Serial No | Next Cal. Date |
|-------------------|--------------|-----------|-----------|----------------|
| Spectrum Analyzer | R&S          | FSP       | 100561    | 2013/02/19     |

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. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on 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 Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

### 5.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2010

### 5.6. Uncertainty

Conducted is defined as  $\pm 1.27$ dB

5.7. Test Result

|              |                           |           |     |
|--------------|---------------------------|-----------|-----|
| Product      | Wireless Extender         |           |     |
| Test Item    | RF antenna conducted test |           |     |
| Test Mode    | Mode 1: Transmit          |           |     |
| Date of Test | 2012/03/15                | Test Site | SR7 |

IEEE 802.11a, Antenna Gain: 2dBi Duty Cycle: 1

| Channel No. | Frequency (MHz) | Measure Level (dBc) | Limit (dBc) | Result |
|-------------|-----------------|---------------------|-------------|--------|
| 149         | 5745            | 43.626              | ≥20         | Pass   |
| 165         | 5825            | 49.900              | ≥20         | Pass   |

Channel 149 (5745MHz)



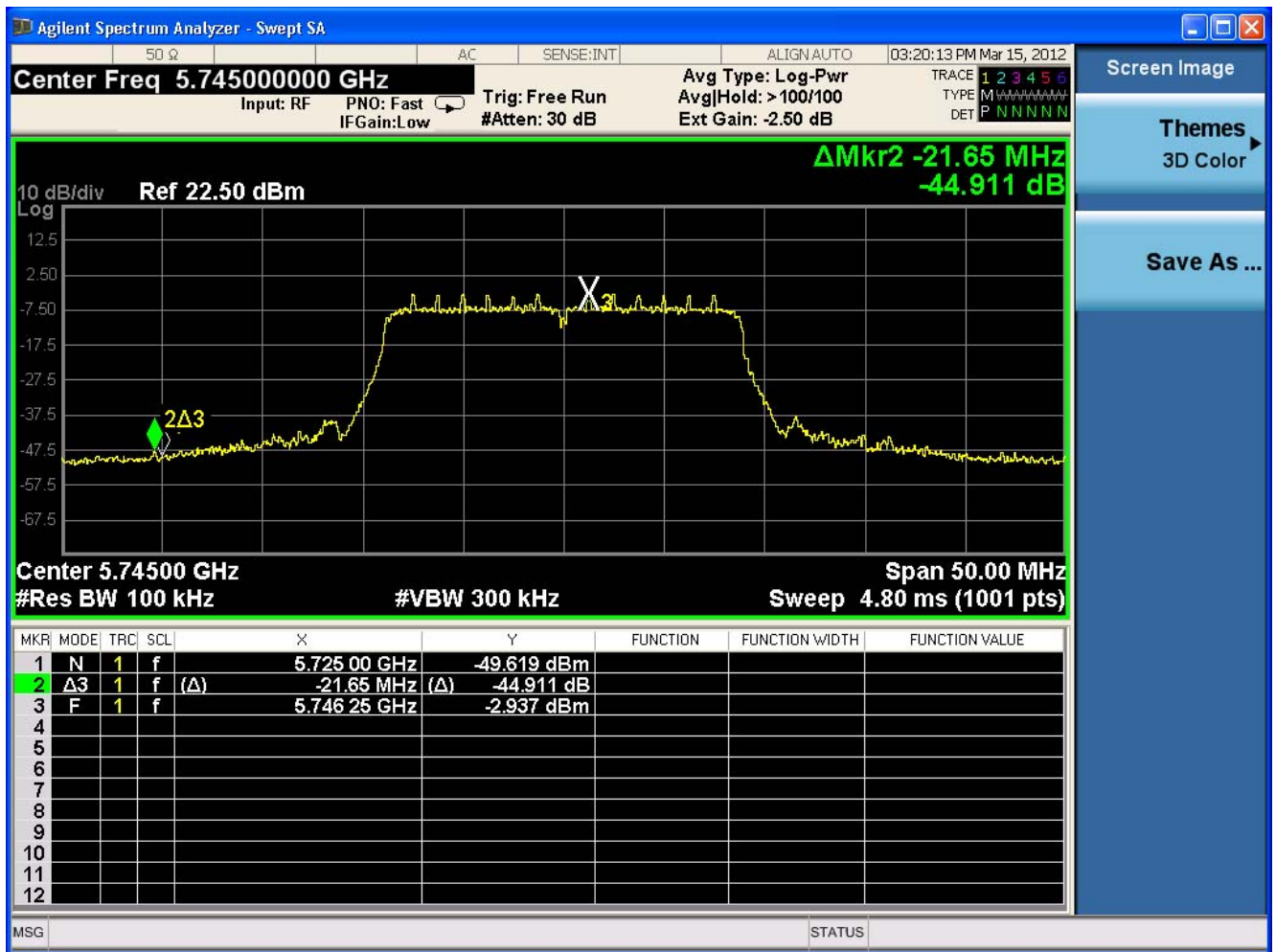
## Channel 165 (5825MHz)



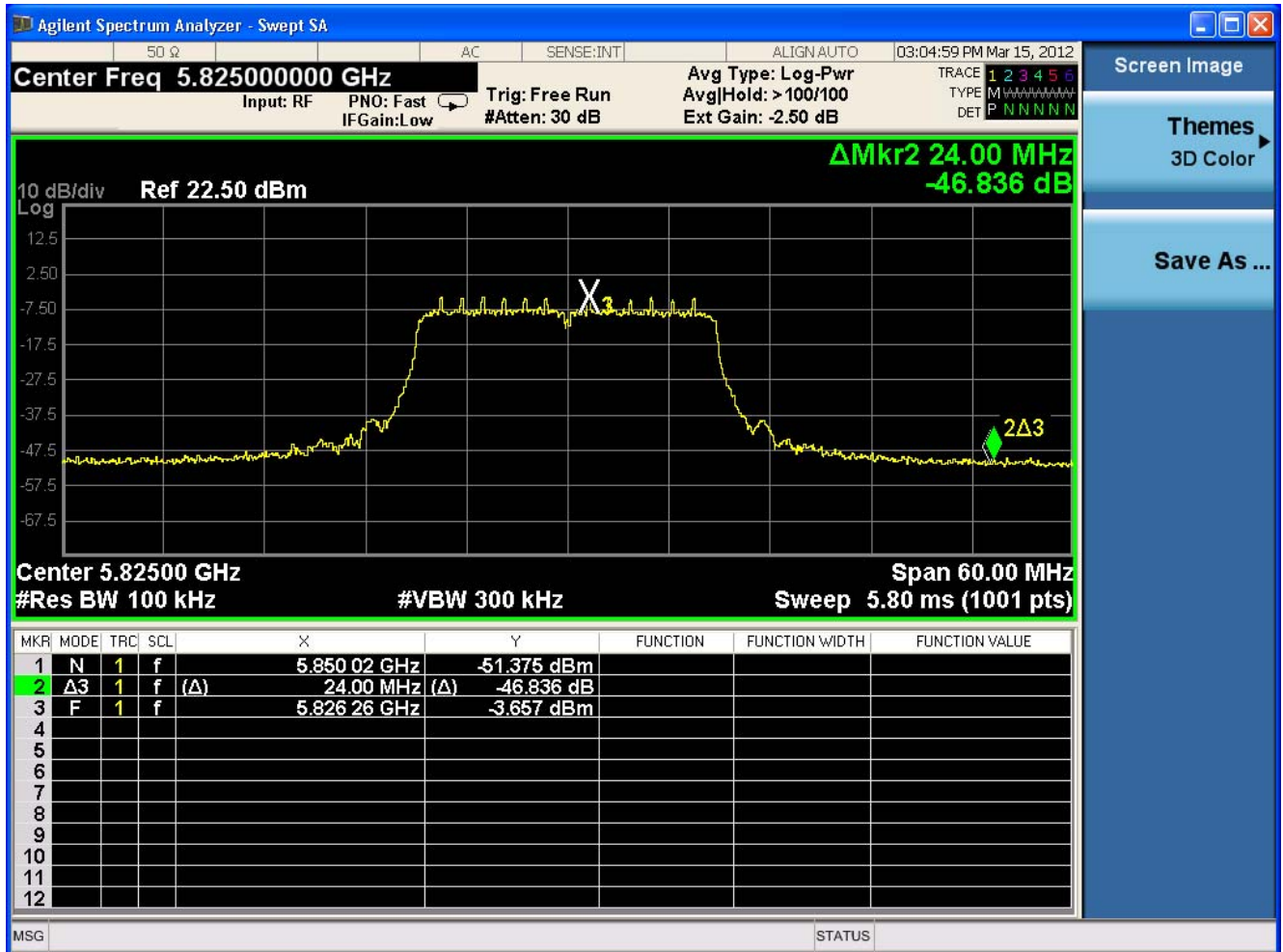
|              |                           |           |     |
|--------------|---------------------------|-----------|-----|
| Product      | Wireless Extender         |           |     |
| Test Item    | RF antenna conducted test |           |     |
| Test Mode    | Mode 1: Transmit          |           |     |
| Date of Test | 2012/03/15                | Test Site | SR7 |

| IEEE 802.11n (20MHz), (ANT 0) Antenna Gain: 2dBi Duty Cycle: 1 |                 |                     |             |        |
|--|-----------------|---------------------|-------------|--------|
| Channel No.  | Frequency (MHz) | Measure Level (dBc) | Limit (dBc) | Result |
| 149  | 5745            | 44.911              | $\geq 20$   | Pass   |
| 165  | 5825            | 46.836              | $\geq 20$   | Pass   |

### Channel 149 (5745MHz)



## Channel 165 (5825MHz)

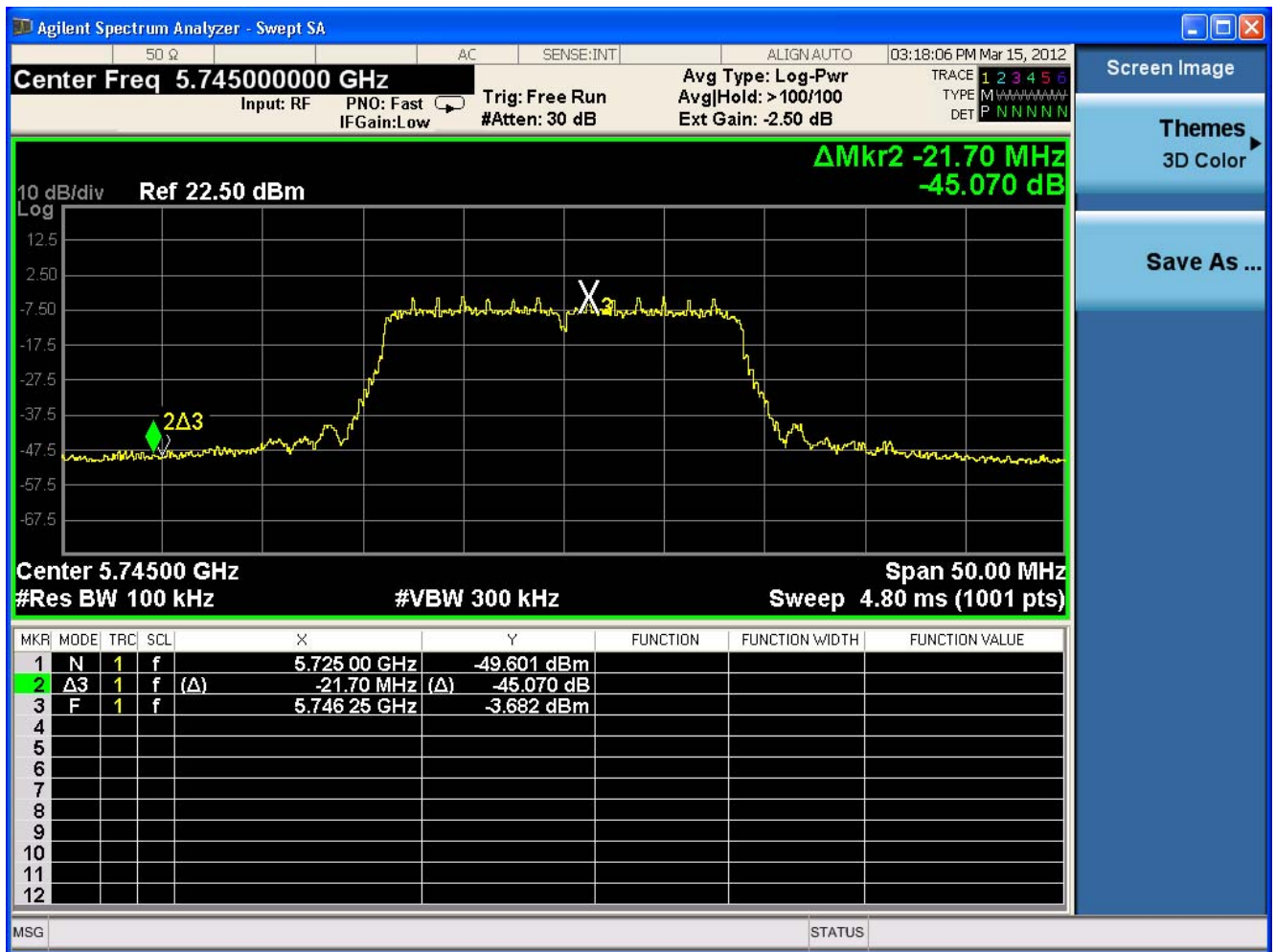


|              |                           |           |     |
|--------------|---------------------------|-----------|-----|
| Product      | Wireless Extender         |           |     |
| Test Item    | RF antenna conducted test |           |     |
| Test Mode    | Mode 1: Transmit          |           |     |
| Date of Test | 2012/03/15                | Test Site | SR7 |

IEEE 802.11n (20MHz), (ANT 1) Antenna Gain: 2dBi Duty Cycle: 1

| Channel No. | Frequency (MHz) | Measure Level (dBc) | Limit (dBc) | Result |
|-------------|-----------------|---------------------|-------------|--------|
| 149         | 5745            | 45.070              | ≥ 20        | Pass   |
| 165         | 5825            | 46.169              | ≥ 20        | Pass   |

### Channel 149 (5745MHz)



## Channel 165 (5825MHz)

