FCC RF Test Report

APPLICANT	:	Motorola Solutions, Inc.
EQUIPMENT	:	Enterprise Digital Assistant (EDA)
BRAND NAME	:	Motorola
MODEL NAME	:	MC4597
FCC ID	:	UZ7MC4597
STANDARD	:	FCC Part 15 Subpart E
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure TX

The product was received on Apr. 23, 2012 and completely tested on Oct. 31, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR250901C	Rev. 01	Initial issue of report	Dec. 05, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	≤ 17, 24, 30 dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	≤ 4, 11, 17 dBm (depend on band)	Pass	-
3.4	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 15.40 dB at 0.310 MHz
3.5	15.407(b)	A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 5.62 dB at 5150 MHz
3.6	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13dB	Pass	-
3.7	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Solutions, Inc.
One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Inventec Appliances Corp.
37, Wugong 5th Road, New Taipei industrial Park, Wugu District, New Taipei City, Taiwan 24890

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Digital Assistant (EDA)
Brand Name	Motorola
Model Name	MC4597
FCC ID	UZ7MC4597
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz
Maximum Output Power to Antenna	**<5150 MHz ~ 5250 MHz>** 802.11a : 14.99 dBm / 0.0316 W **<5250 MHz ~ 5350 MHz>** 802.11a : 15.16 dBm / 0.0328 W **<5470 MHz ~ 5725 MHz>** 802.11a : 14.92 dBm / 0.0310 W
Antenna Type	PIFA Antenna with gain 4.20 dBi
HW Version	DVT2.3
SW Version	BSP9.351
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.	Mobile Computing Terminal	OS Version	BSP9.351
2.	-	OEM Name	MC45
3.	-	OEM Version	DVT2.3
4.	Wireless (Fusion)	Part Number	WM-AG-AT-02-C
5.	-	Version	3.40.0.0.56

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 789033 D01 General UNII Test Procedures v01r02
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issued 8
- IC RSS-Gen Issue 3

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

There are two bandwidth systems for the device.

For 20MHz bandwidth systems, use Channel 36, 44, 48, 52, 60, 64, 100, 116, 140

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 134.

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5150-5250 MHz Band 1	36	5180	44	5220
	38	5190	46	5230
	40	5200	48	5240
	42	5210	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5250-5350 MHz Band 2	52	5260	60	5300
	54	5270	62	5310
	56	5280	64	5320
	58	5290	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5470-5725 MHz Band 3	100	5500	116	5580
	102	5510	118	5590
	104	5520	132	5660
	108	5540	134	5670
	110	5550	136	5680
	112	5560	140	5700

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11a modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		OFDM Data Rate							
		6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
CH 36	5180 MHz	12.18	11.90	11.96	11.94	11.89	11.86	12.08	11.06
CH 44	5220 MHz	14.99	14.59	14.55	14.72	14.57	12.74	11.74	10.67
CH 48	5240 MHz	14.61	14.35	14.33	14.52	14.50	12.57	11.59	10.69
CH 52	5260 MHz	**15.16**	15.12	15.07	14.98	15.05	12.88	12.47	11.11
CH 60	5300 MHz	15.05	15.00	14.92	15.01	14.97	13.47	12.40	11.34
CH 64	5320 MHz	12.43	12.35	12.22	12.23	12.14	12.16	12.40	11.17
CH 100	5500 MHz	12.47	12.35	12.19	12.27	12.21	12.27	12.23	11.15
CH 116	5580 MHz	14.92	14.85	14.80	14.88	14.81	13.02	12.08	10.97
CH 140	5700 MHz	8.99	8.95	8.87	8.87	8.83	8.70	8.87	8.80

2.3 Test Mode

The EUT has been associated with peripherals pursuant and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

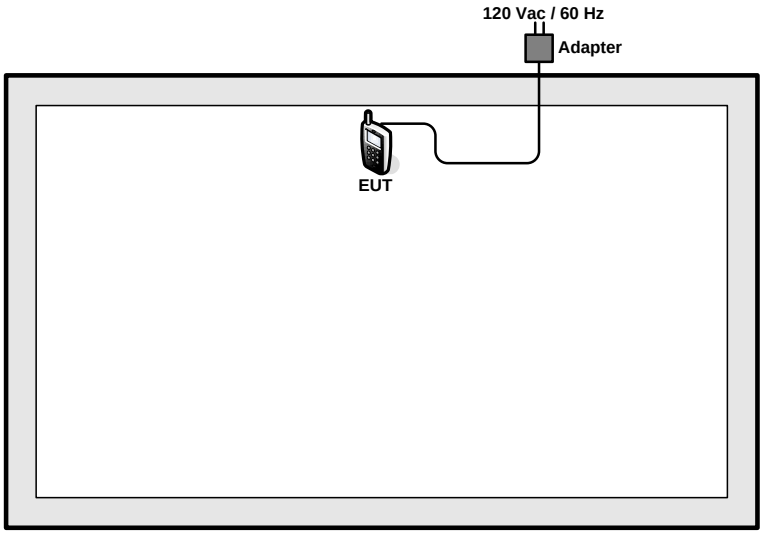
The following tables are showing the test modes as the worst cases (X plane) and recorded in this report.

<table>
<tr><th colspan="2">Test Cases</th></tr>
<tr><th>Test Item</th><th>802.11a (Modulation : OFDM)</th></tr>
<tr><td>Conducted TCs</td><td>
<table>
<tr><th>Test Mode</th><th>802.11a</th></tr>
<tr><td>CH36</td><td>1</td></tr>
<tr><td>CH44</td><td>2</td></tr>
<tr><td>CH48</td><td>3</td></tr>
<tr><td>CH52</td><td>4</td></tr>
<tr><td>CH60</td><td>5</td></tr>
<tr><td>CH64</td><td>6</td></tr>
<tr><td>CH100</td><td>7</td></tr>
<tr><td>CH116</td><td>8</td></tr>
<tr><td>CH140</td><td>9</td></tr>
</table>
</td></tr>
</table>

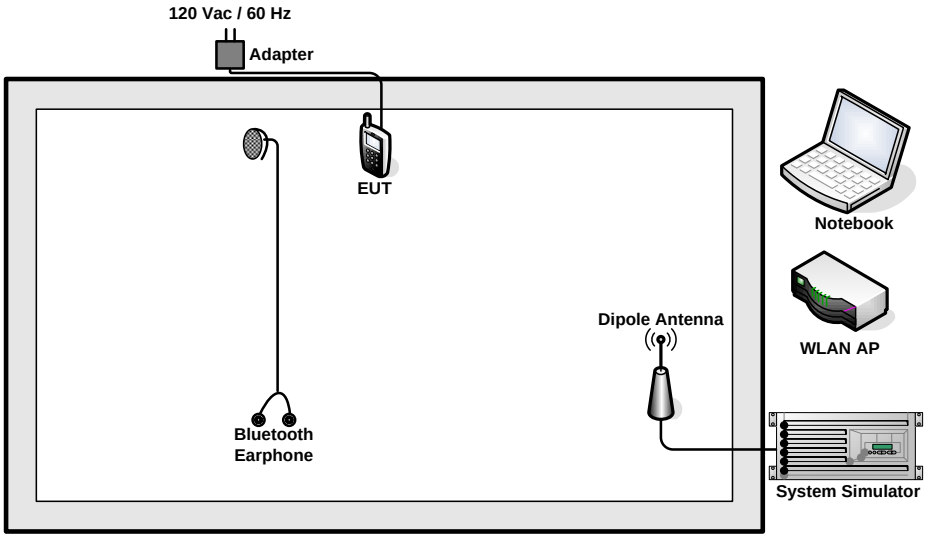
<table>
<tr><th colspan="2">Test Cases</th></tr>
<tr><td>Radiated TCs</td><td>
<table>
<tr><th>Test Mode</th><th>802.11a</th></tr>
<tr><td>CH36</td><td>1</td></tr>
<tr><td>CH44</td><td>2</td></tr>
<tr><td>CH48</td><td>3</td></tr>
<tr><td>CH52</td><td>4</td></tr>
<tr><td>CH60</td><td>5</td></tr>
<tr><td>CH64</td><td>6</td></tr>
<tr><td>CH100</td><td>7</td></tr>
<tr><td>CH116</td><td>8</td></tr>
<tr><td>CH140</td><td>9</td></tr>
</table>
</td></tr>
<tr><td>AC Conducted Emission</td><td>Mode 1 : GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter)
Mode 2 : WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Scanner + USB Cable (Charging from Adapter)</td></tr>
<tr><td colspan="2">Remark:
1. For conducted emission, the worst case is mode 2; all the test data were reported.
2. “Bluetooth Link” stands for terminal linked to headset by Bluetooth function.
3. “WLAN Link” stands for terminal associated with AP at 2.4GHz or 5GHz band.
4. “GPS Rx” stands for receive signals from GPS station continuously.
5. “Scanner” stands for scanning and decoding a barcode by scanner.
6. The battery (03 Rev A) and battery (01 Rev C) spec are the same, only difference is label.</td></tr>
</table>

2.4 Connection Diagram of Test System

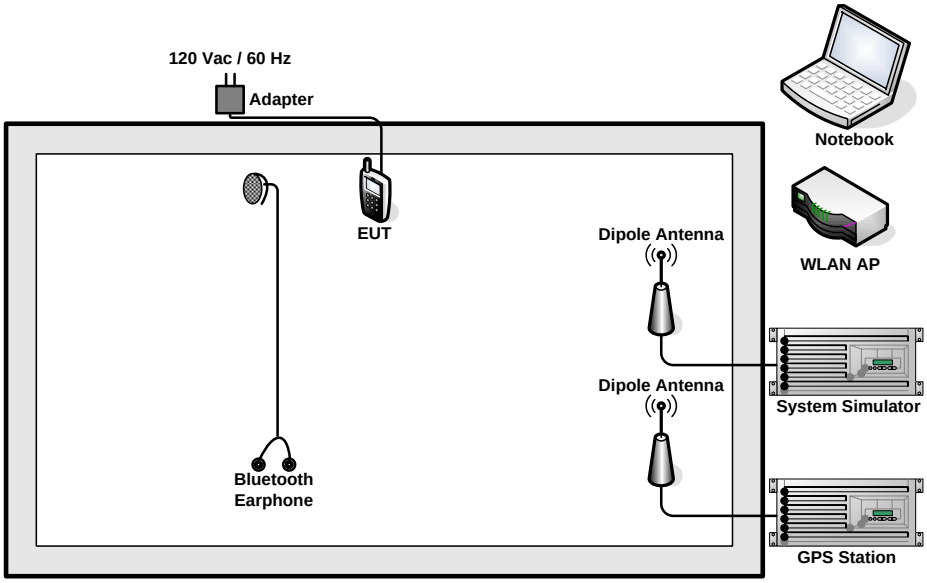
<WLAN Tx Mode>



<AC Conducted Emission Mode>



<EUT with Adapter in GPS Rx Mode>



2.5 RF Utility

The programmed RF Utility “FCC Test” installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 26dB & 99% Bandwidth Measurement

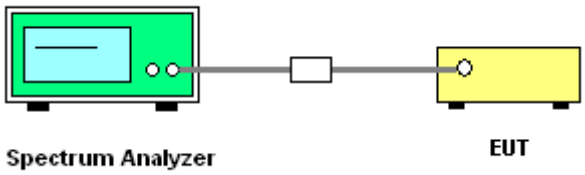
3.1.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.2 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02. Section D) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1MHz and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

3.1.3 Test Setup

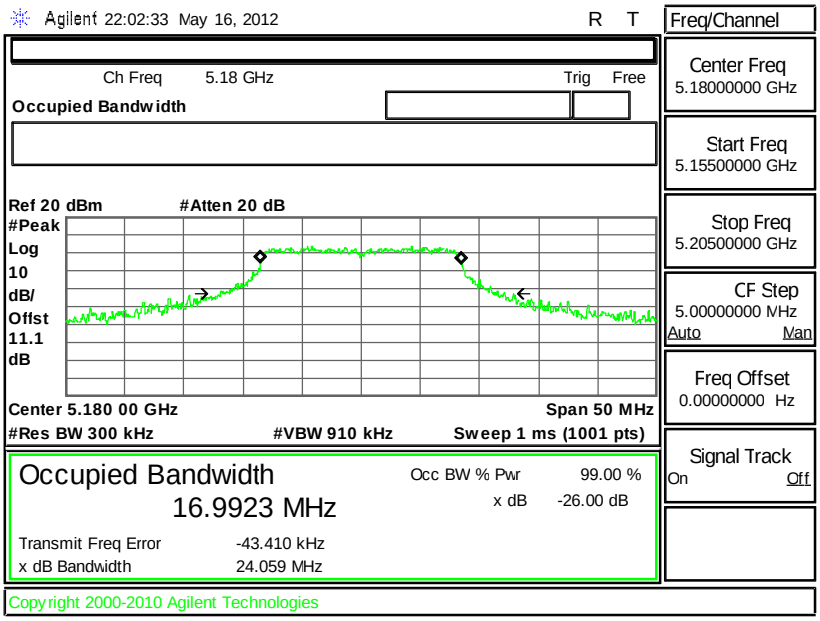


3.1.4 Test Result of 26dB Bandwidth Plots

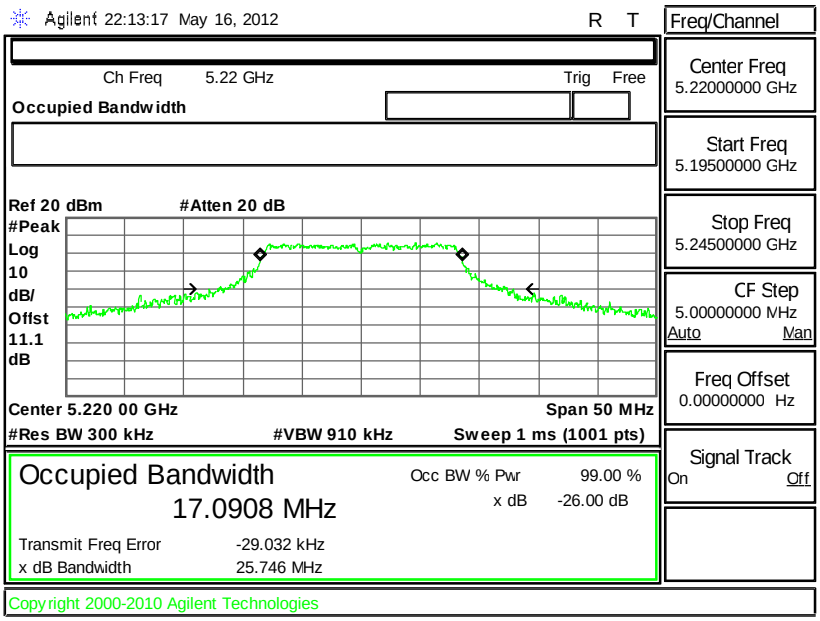
Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	24.059	N/A
44	5220	25.746	N/A
48	5240	28.043	N/A
52	5260	29.513	N/A
60	5300	27.622	N/A
64	5320	26.530	N/A
100	5500	26.917	N/A
116	5580	36.571	N/A
140	5700	26.395	N/A

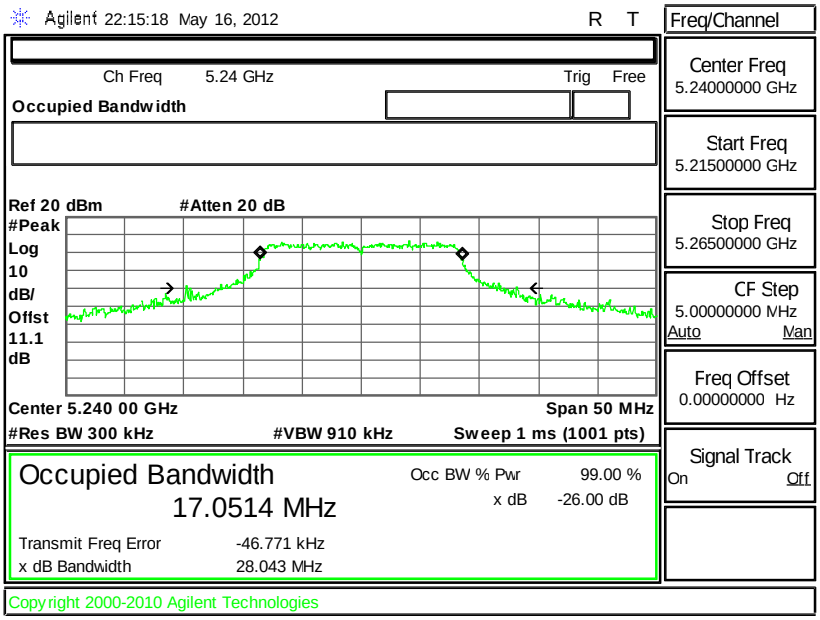
26 dB Bandwidth Plot on 802.11a Channel 36



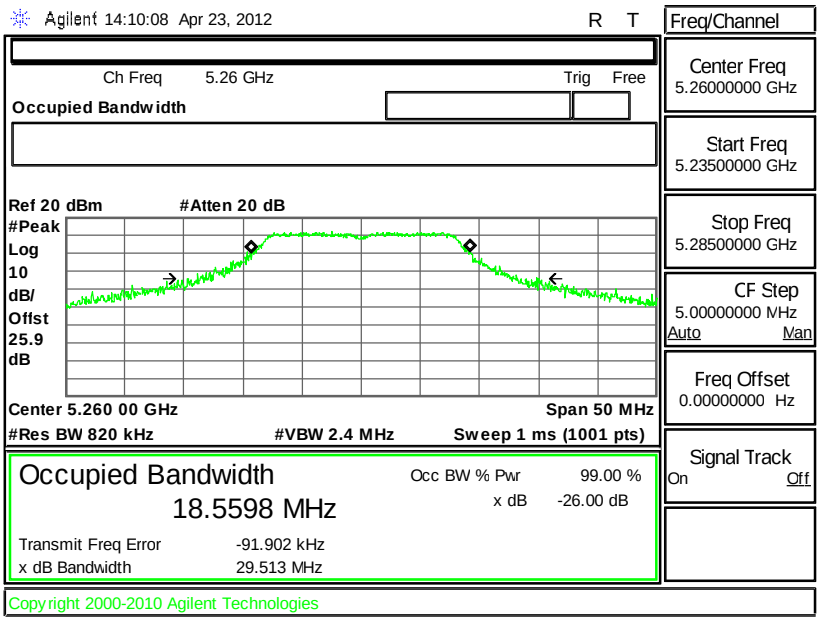
26 dB Bandwidth Plot on 802.11a Channel 44



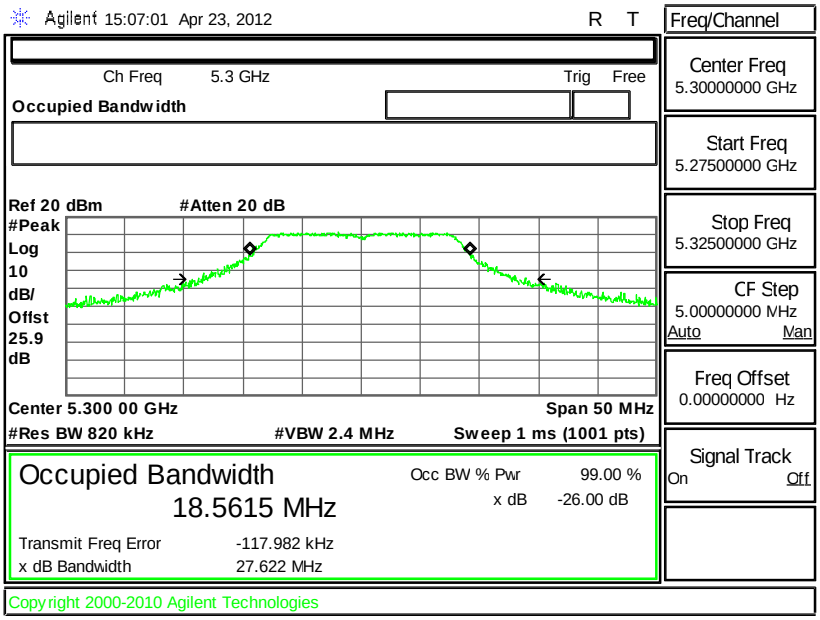
26 dB Bandwidth Plot on 802.11a Channel 48



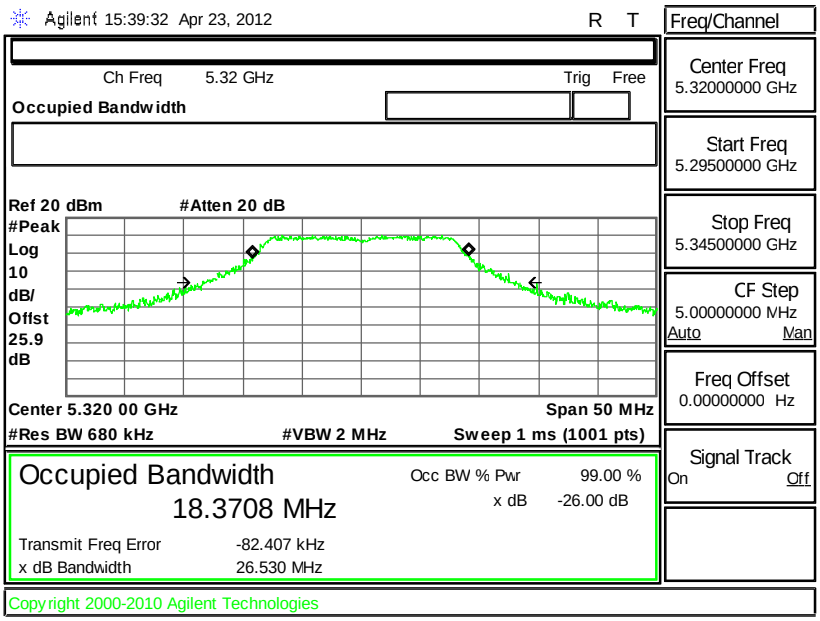
26 dB Bandwidth Plot on 802.11a Channel 52



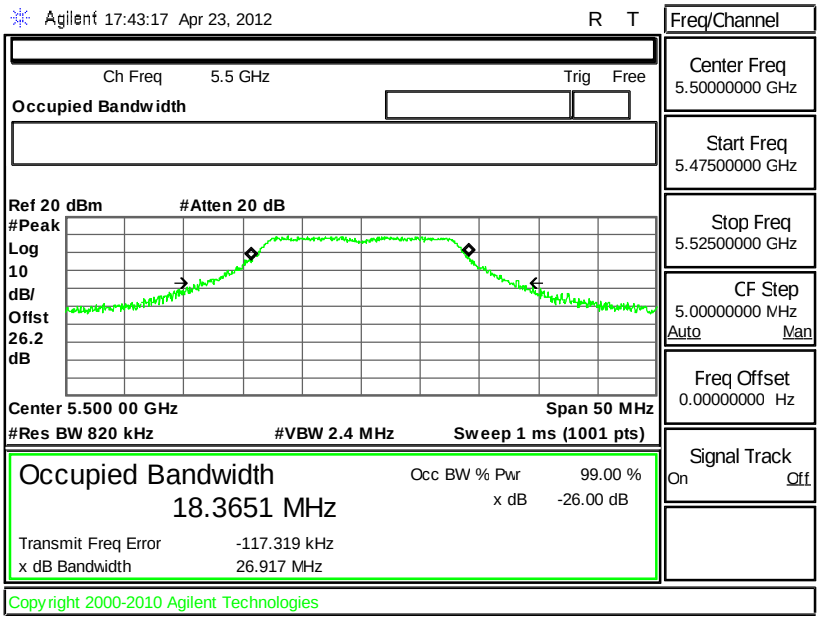
26 dB Bandwidth Plot on 802.11a Channel 60



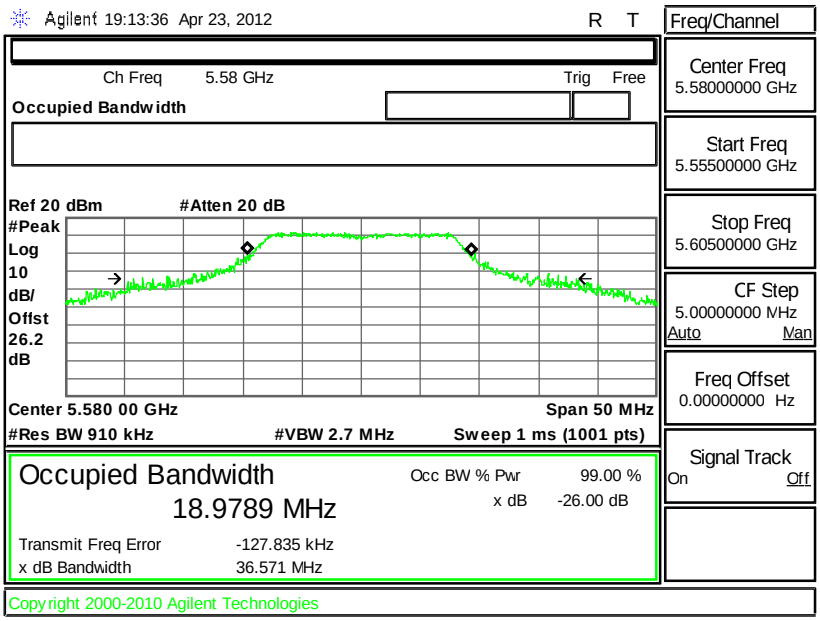
26 dB Bandwidth Plot on 802.11a Channel 64



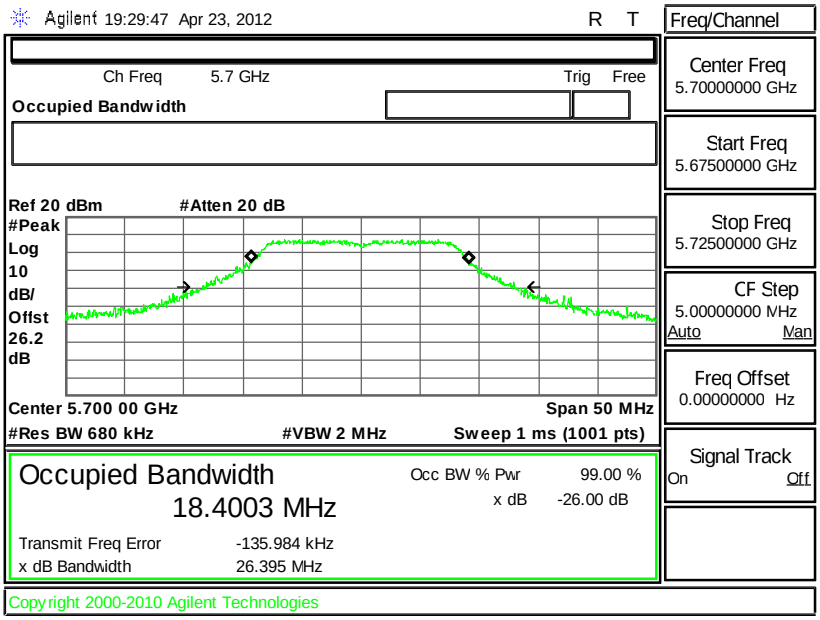
26 dB Bandwidth Plot on 802.11a Channel 100



26 dB Bandwidth Plot on 802.11a Channel 116



26 dB Bandwidth Plot on 802.11a Channel 140

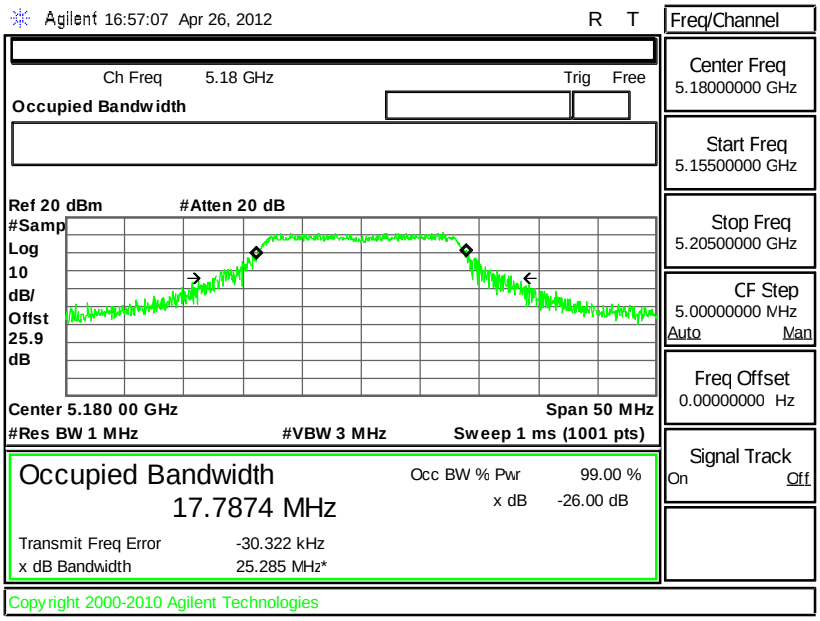


3.1.5 Test Result of 99% Bandwidth Plots

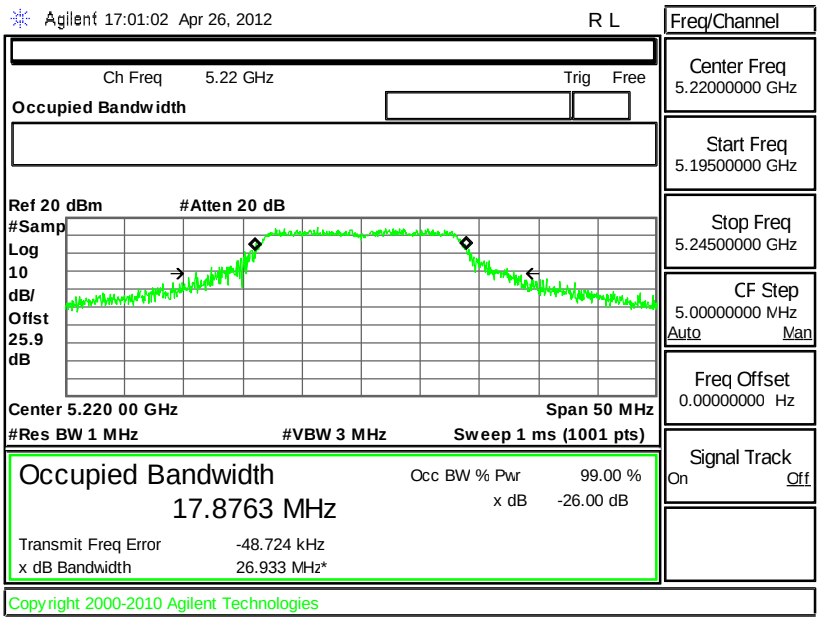
Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 99% Bandwidth (MHz)	Pass/Fail
36	5180	17.7874	N/A
44	5220	17.8763	N/A
48	5240	17.9924	N/A
52	5260	17.8298	N/A
60	5300	17.9698	N/A
64	5320	17.9126	N/A
100	5500	17.9572	N/A
116	5580	18.2242	N/A
140	5700	18.0773	N/A

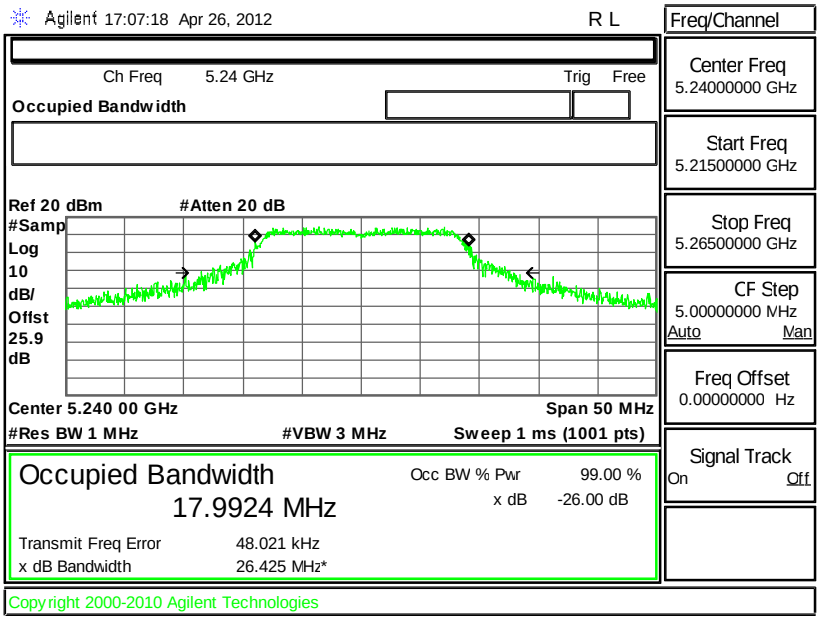
99% Bandwidth Plot on 802.11a Channel 36



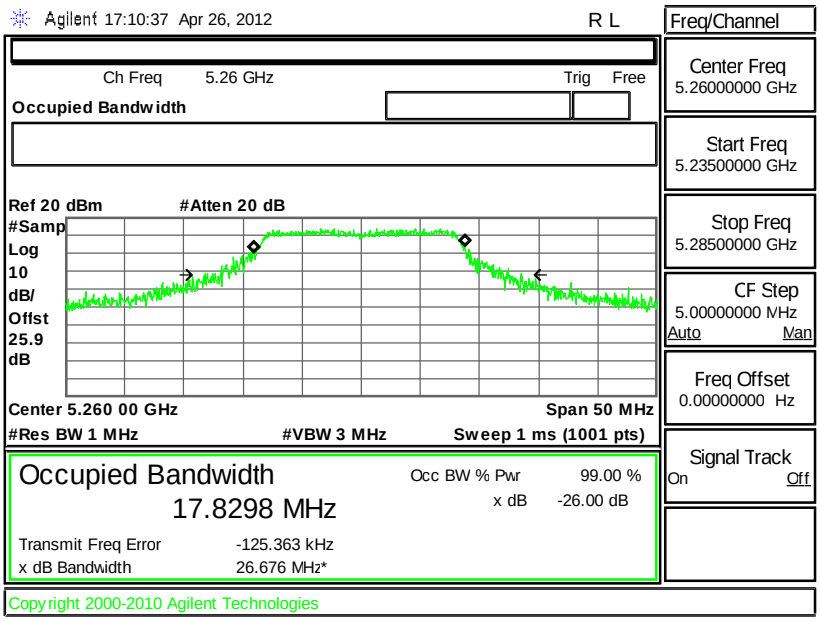
99% Bandwidth Plot on 802.11a Channel 44



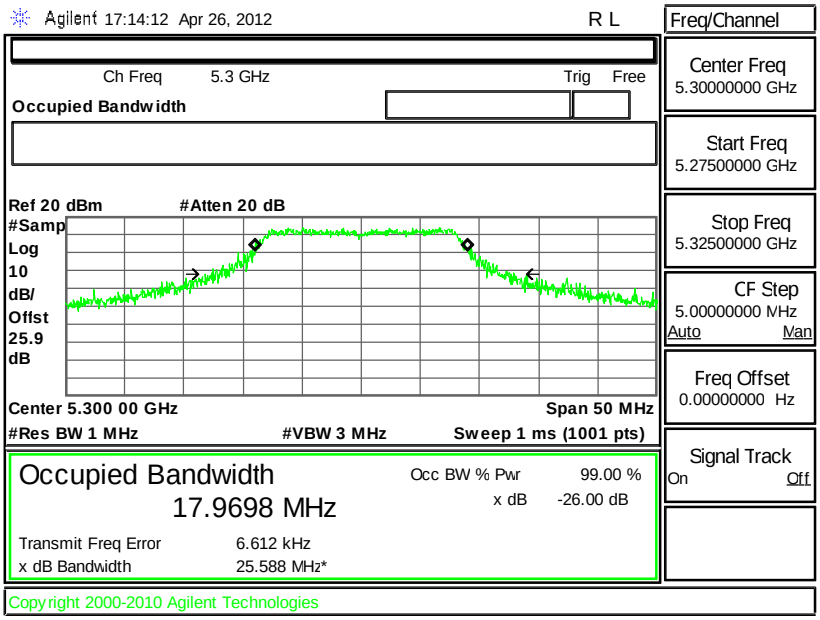
99% Bandwidth Plot on 802.11a Channel 48



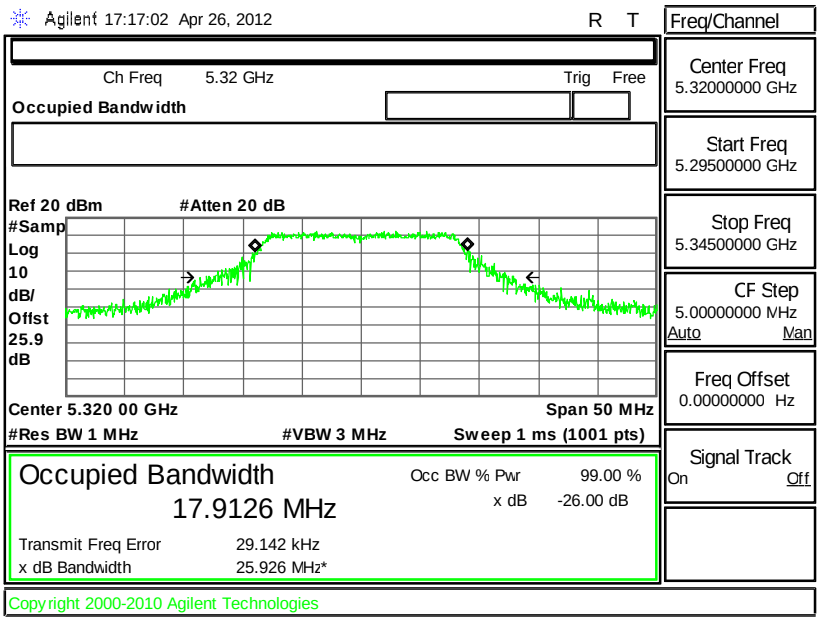
99% Bandwidth Plot on 802.11a Channel 52



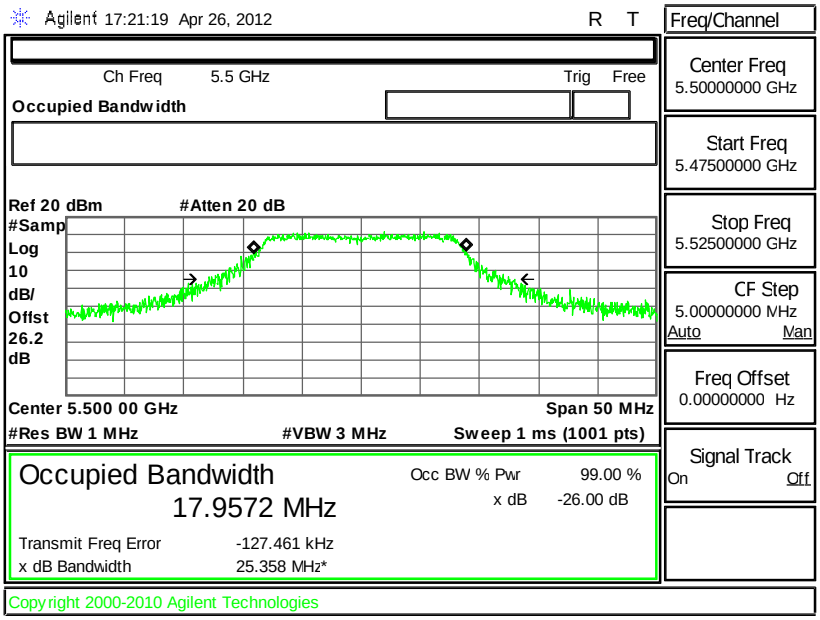
99% Bandwidth Plot on 802.11a Channel 60



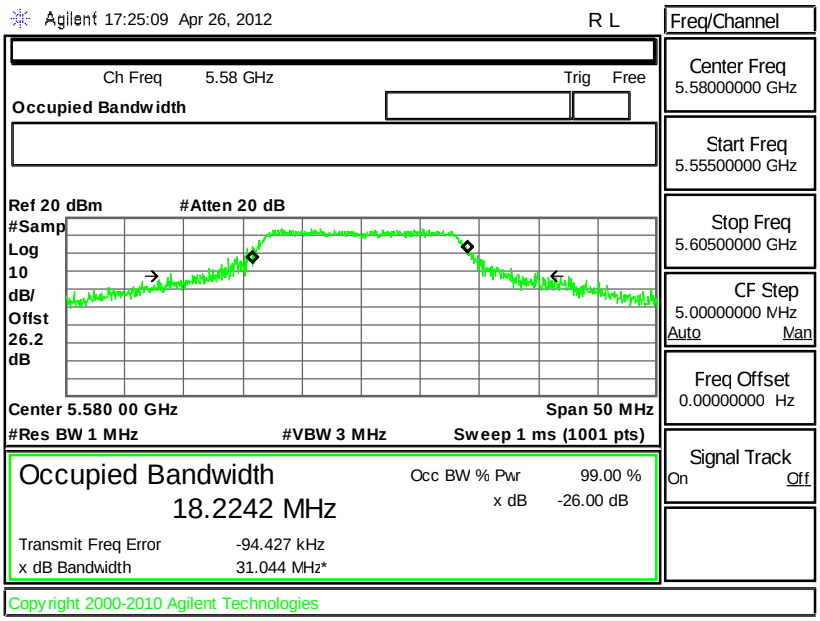
99% Bandwidth Plot on 802.11a Channel 64



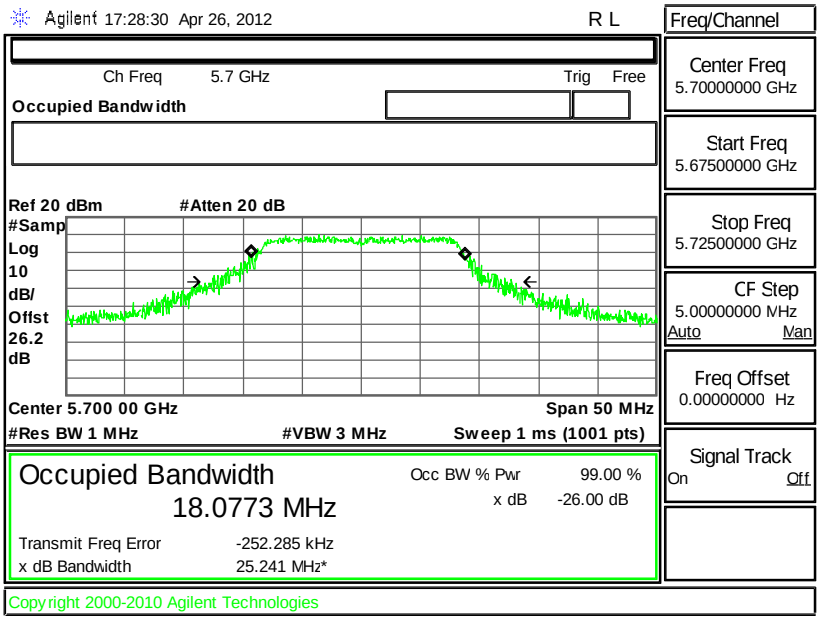
99% Bandwidth Plot on 802.11a Channel 100



99% Bandwidth Plot on 802.11a Channel 116



99% Bandwidth Plot on 802.11a Channel 140



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, where B is the 26 dB emissions bandwidth in MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

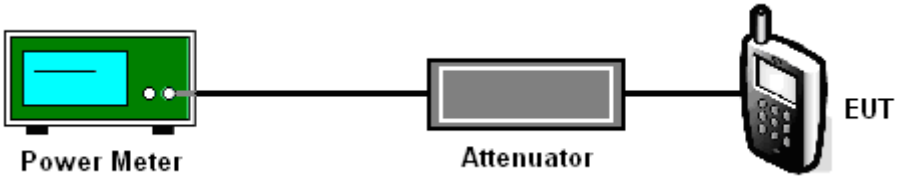
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~9	**Temperature :**	24~26℃
Test Engineer :	Kenny Chen	**Relative Humidity :**	45~49%
Duty Cycle	92.50%	**Duty Factor**	0.34dB

Channel	Frequency (MHz)	802.11a Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	11.84	12.18	17	Pass
44	5220	14.65	14.99	17	Pass
48	5240	14.27	14.61	17	Pass
52	5260	14.82	15.16	24	Pass
60	5300	14.71	15.05	24	Pass
64	5320	12.09	12.43	24	Pass
100	5500	12.13	12.47	24	Pass
116	5580	14.58	14.92	24	Pass
140	5700	8.65	8.99	24	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW)
3. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10log (26dB BW)

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.15–5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1MHz band. For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.
Section E) Peak power spectral density (PPSD).
Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

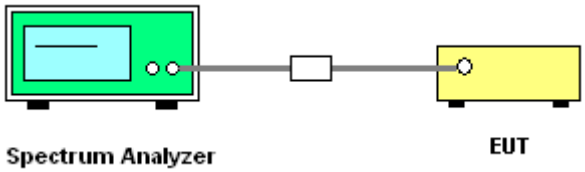
 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r02.
   - Measure the duty cycle.
   - Set span to encompass the entire emission bandwidth (EBW) of the signal.
   - Set RBW = 1 MHz.
   - Set VBW ≥ 3 MHz.
   - Number of points in sweep ≥ 2 Span / RBW.
   - Sweep time = auto.
   - Detector = sample
   - Trace average at least 100 traces in power averaging mode.
   - Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.

3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

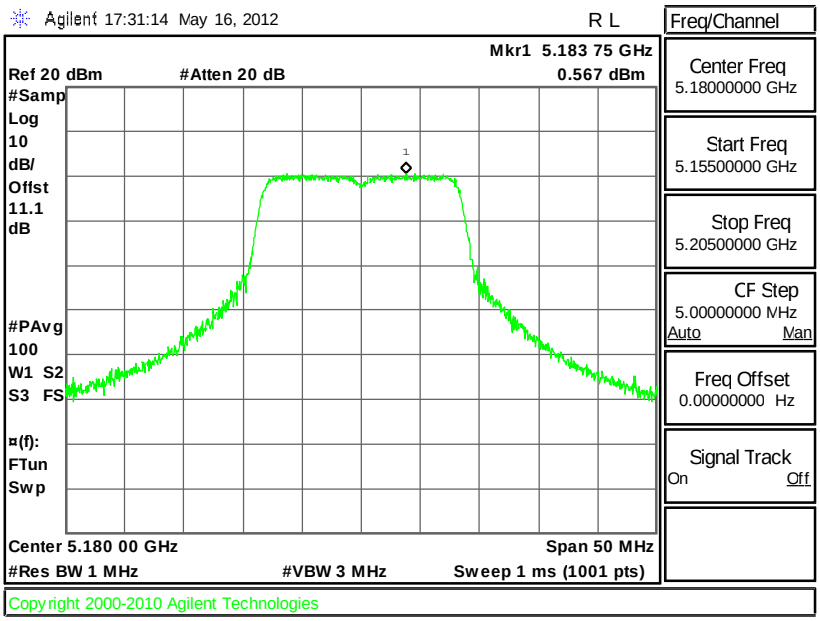
Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	45~49%
Duty Cycle	92.50%	Duty Factor	0.34dB

Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm)	Pass/Fail
		Measured	Final		
36	5180	0.567	0.906	4	Pass
44	5220	3.286	3.625	4	Pass
48	5240	3.169	3.508	4	Pass
52	5260	6.645	6.984	11	Pass
60	5300	6.915	7.254	11	Pass
64	5320	5.207	5.546	11	Pass
100	5500	3.906	4.245	11	Pass
116	5580	6.584	6.923	11	Pass
140	5700	2.407	2.746	11	Pass

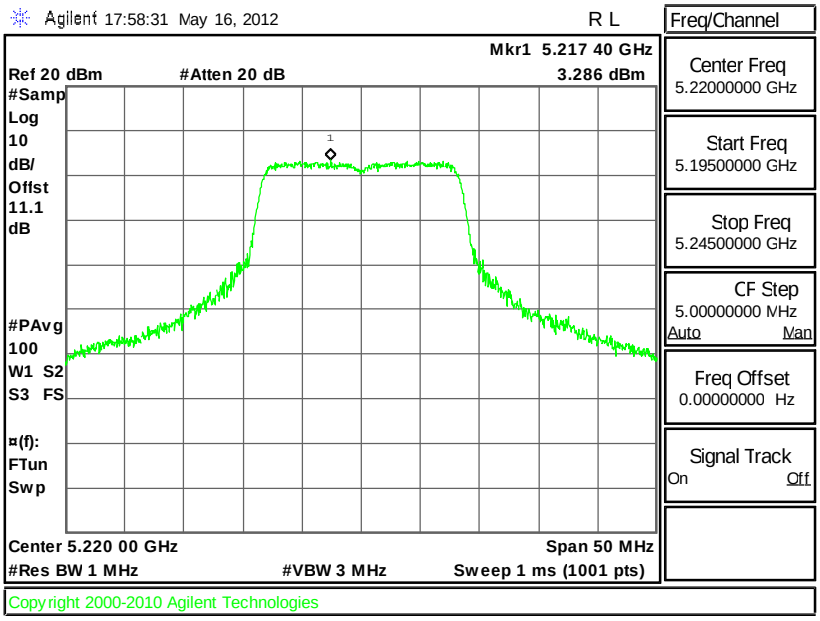
Note: Result of Final PSD equals to Measured PSD adds the duty factor if less than 98%.

3.3.6 Test Result of Power Spectral Density Plots

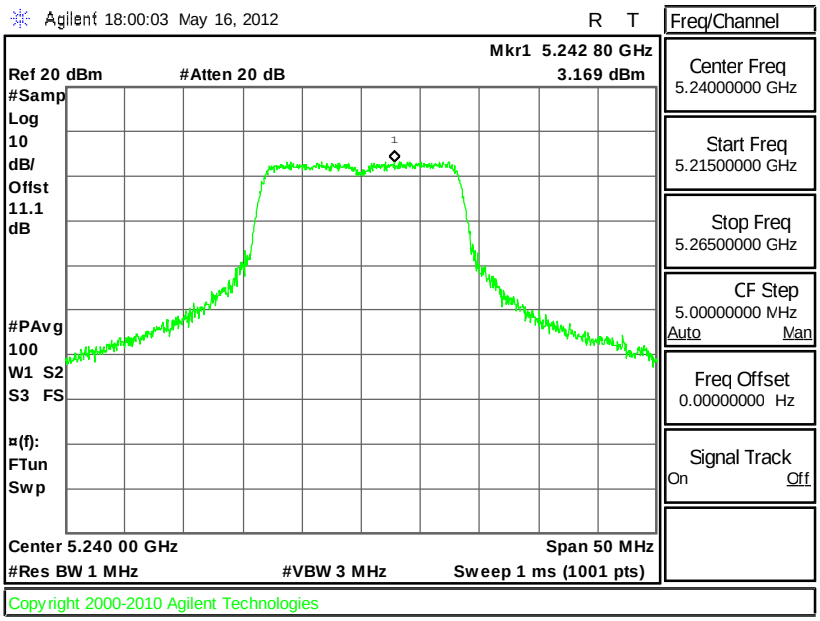
PSD Plot on 802.11a Channel 36



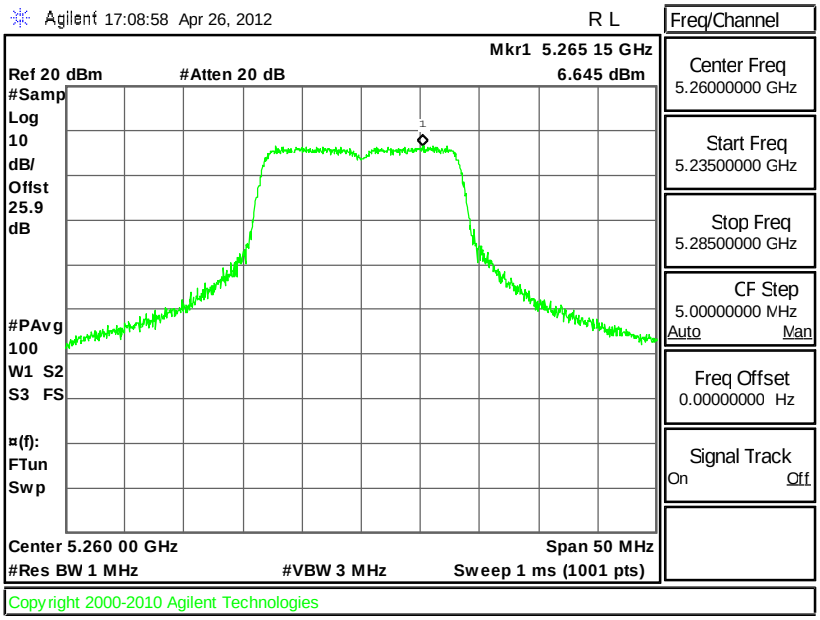
PSD Plot on 802.11a Channel 44



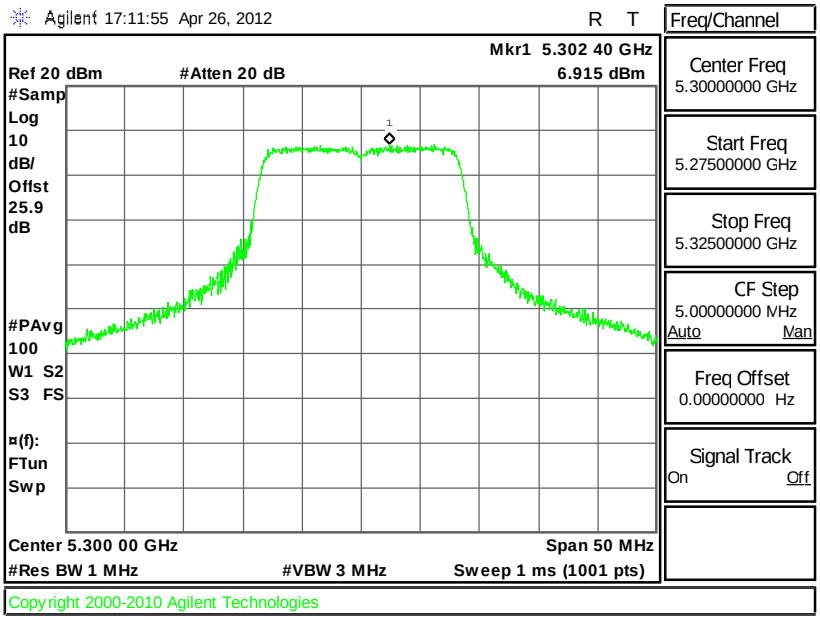
PSD Plot on 802.11a Channel 48



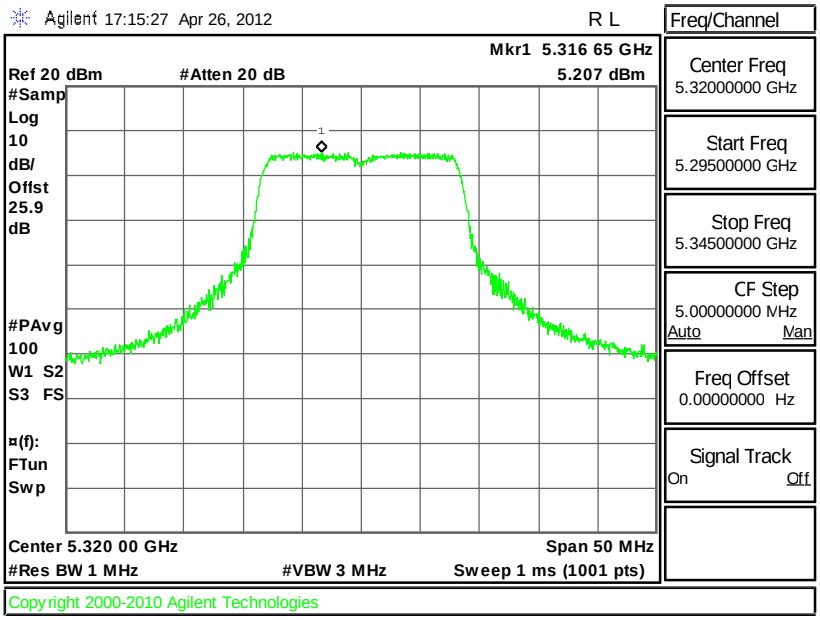
PSD Plot on 802.11a Channel 52



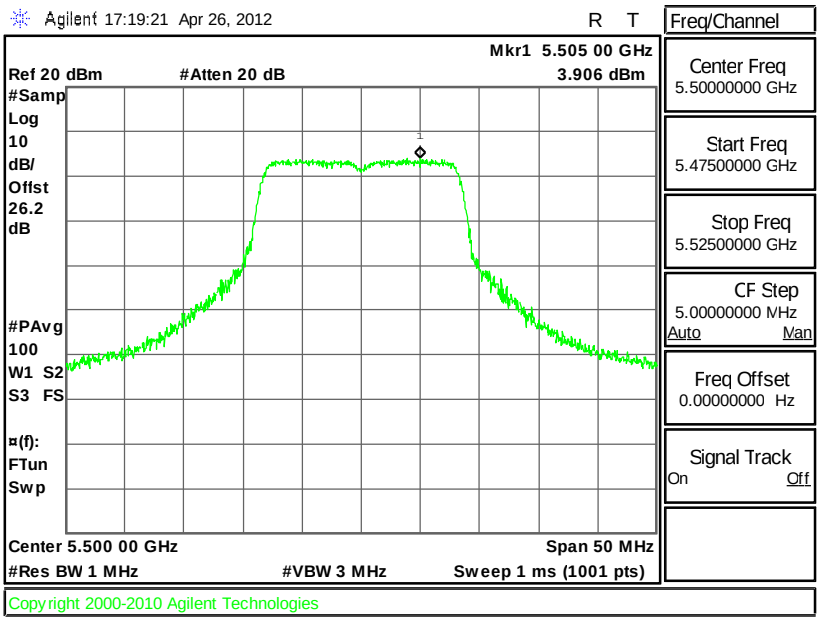
PSD Plot on 802.11a Channel 60



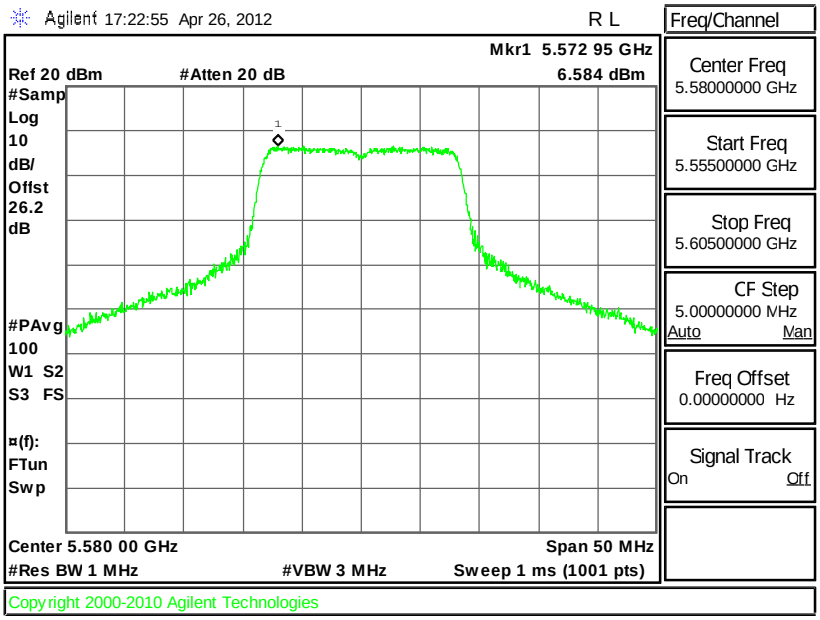
PSD Plot on 802.11a Channel 64



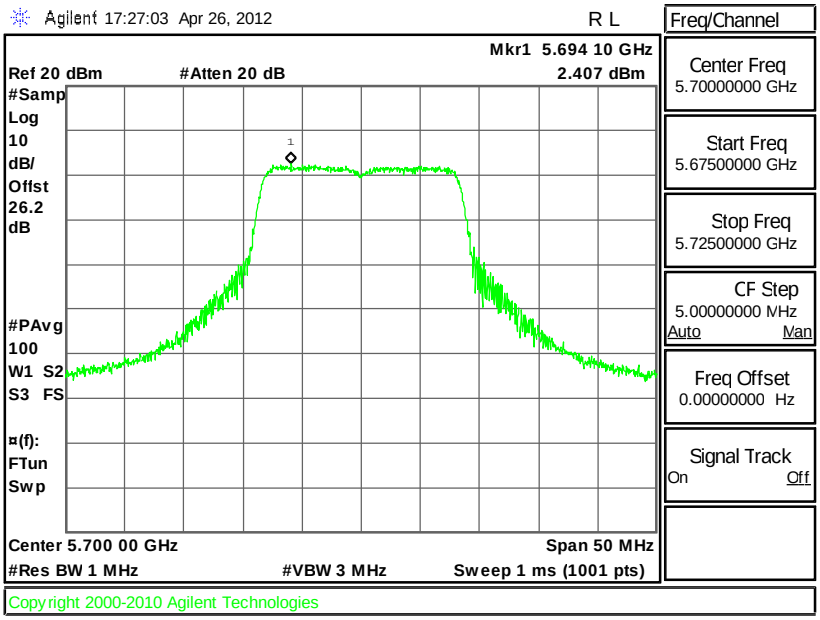
PSD Plot on 802.11a Channel 100



PSD Plot on 802.11a Channel 116



PSD Plot on 802.11a Channel 140



3.4 AC Conducted Emission Measurement

3.4.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

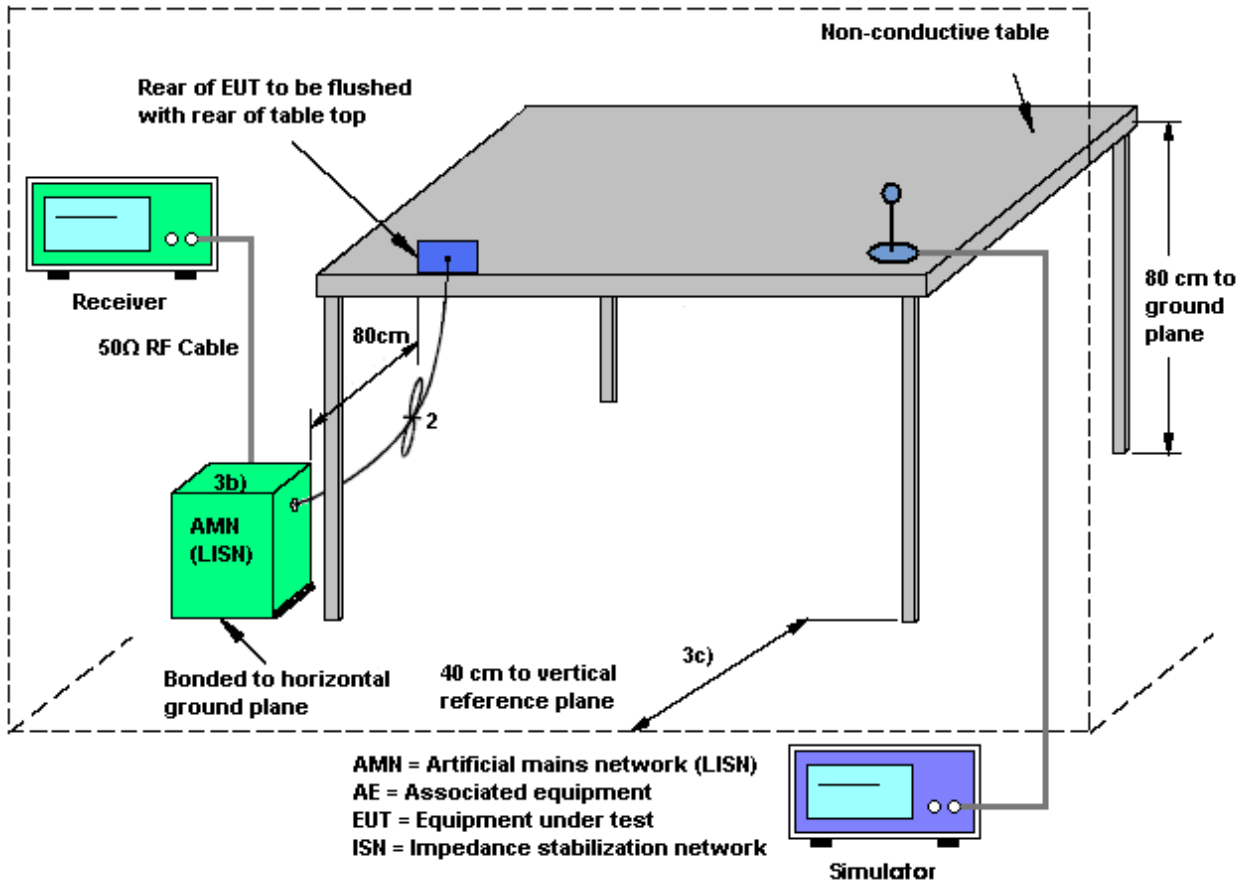
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

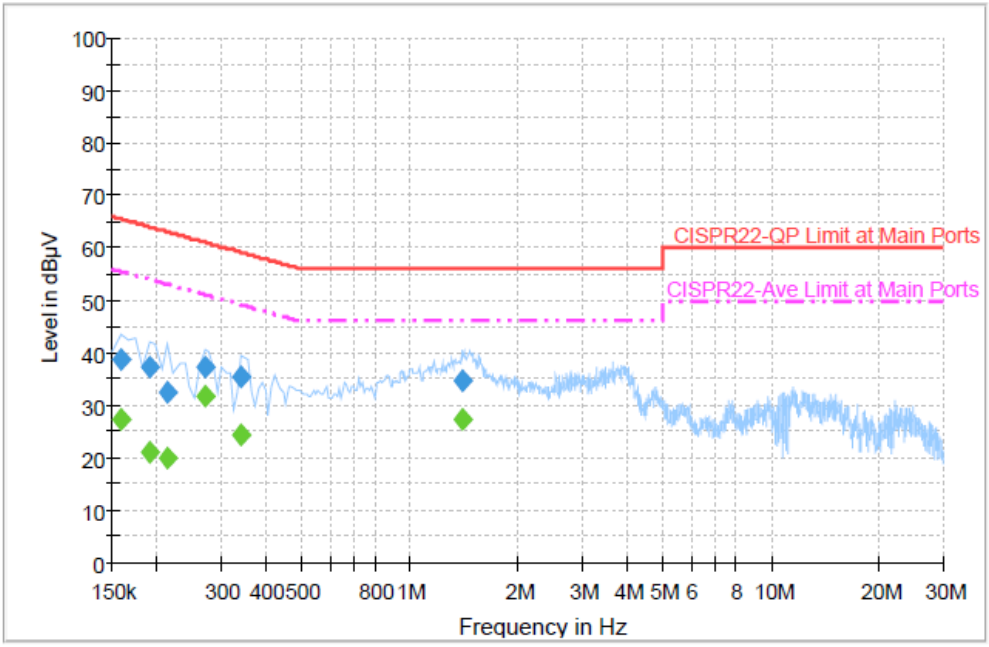
1. Please follow the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.4.4 Test Setup



3.4.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	52~54%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



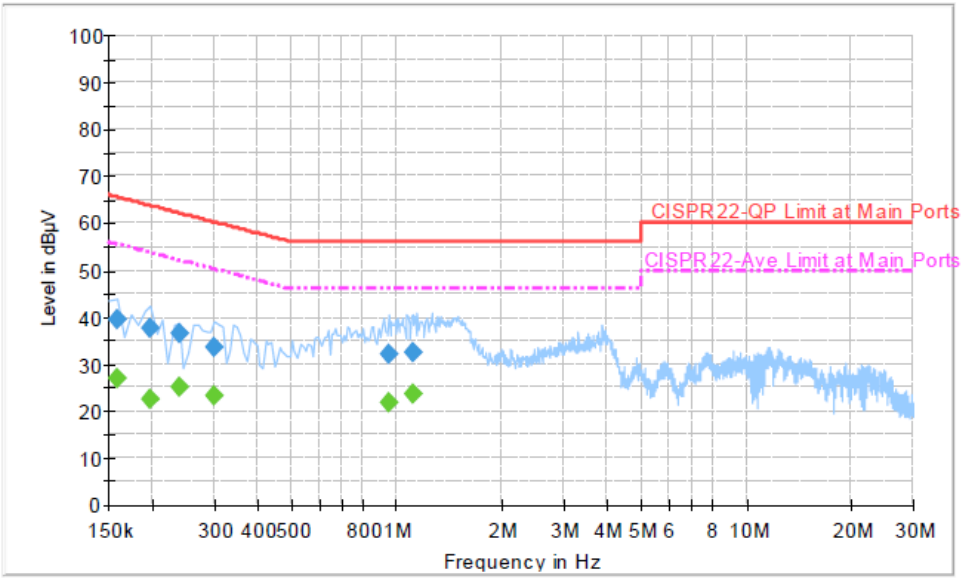
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	38.6	Off	L1	19.4	27.0	65.6
0.190000	37.1	Off	L1	19.4	26.9	64.0
0.214000	32.3	Off	L1	19.4	30.7	63.0
0.270000	37.3	Off	L1	19.4	23.8	61.1
0.342000	35.3	Off	L1	19.4	23.9	59.2
1.398000	34.7	Off	L1	19.4	21.3	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	27.3	Off	L1	19.4	28.3	55.6
0.190000	20.9	Off	L1	19.4	33.1	54.0
0.214000	20.1	Off	L1	19.4	32.9	53.0
0.270000	31.8	Off	L1	19.4	19.3	51.1
0.342000	24.3	Off	L1	19.4	24.9	49.2
1.398000	27.2	Off	L1	19.4	18.8	46.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (5G) Link + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



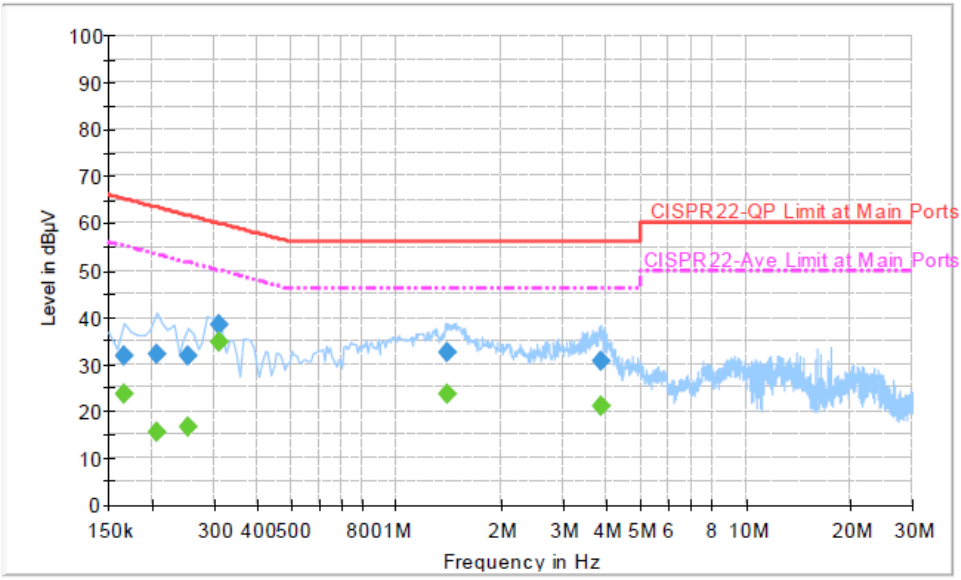
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	39.6	Off	N	19.4	26.0	65.6
0.198000	37.5	Off	N	19.4	26.2	63.7
0.238000	36.5	Off	N	19.4	25.7	62.2
0.302000	33.7	Off	N	19.4	26.5	60.2
0.950000	32.2	Off	N	19.4	23.8	56.0
1.110000	32.5	Off	N	19.5	23.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	26.8	Off	N	19.4	28.8	55.6
0.198000	22.5	Off	N	19.4	31.2	53.7
0.238000	25.2	Off	N	19.4	27.0	52.2
0.302000	23.2	Off	N	19.4	27.0	50.2
0.950000	21.7	Off	N	19.4	24.3	46.0
1.110000	23.7	Off	N	19.5	22.3	46.0

Test Mode :	Mode 2	Temperature :	20~22℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	52~54%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Scanner + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



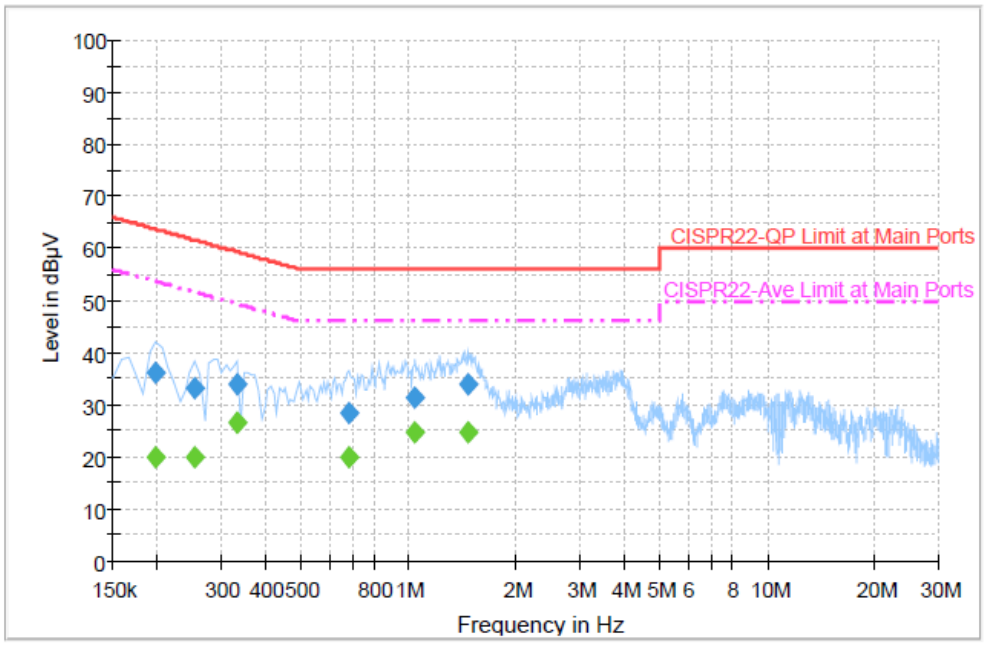
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	31.8	Off	L1	19.4	33.4	65.2
0.206000	32.1	Off	L1	19.4	31.3	63.4
0.254000	31.6	Off	L1	19.4	30.0	61.6
0.310000	38.4	Off	L1	19.4	21.6	60.0
1.406000	32.6	Off	L1	19.4	23.4	56.0
3.870000	30.7	Off	L1	19.5	25.3	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	23.5	Off	L1	19.4	31.7	55.2
0.206000	15.6	Off	L1	19.4	37.8	53.4
0.254000	16.6	Off	L1	19.4	35.0	51.6
0.310000	34.6	Off	L1	19.4	15.4	50.0
1.406000	23.7	Off	L1	19.4	22.3	46.0
3.870000	21.2	Off	L1	19.5	24.8	46.0

Test Mode :	Mode 2	**Temperature :**	20~22℃
Test Engineer :	Kai-Chun Chu	**Relative Humidity :**	52~54%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	WCDMA Band V Idle + WLAN (5G) Link + Bluetooth Link + Scanner + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	36.1	Off	N	19.4	27.6	63.7
0.254000	33.3	Off	N	19.4	28.3	61.6
0.334000	34.0	Off	N	19.4	25.4	59.4
0.686000	28.3	Off	N	19.5	27.7	56.0
1.046000	31.3	Off	N	19.5	24.7	56.0
1.462000	33.9	Off	N	19.5	22.1	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	20.1	Off	N	19.4	33.6	53.7
0.254000	20.0	Off	N	19.4	31.6	51.6
0.334000	26.4	Off	N	19.4	23.0	49.4
0.686000	19.8	Off	N	19.5	26.2	46.0
1.046000	24.6	Off	N	19.5	21.4	46.0
1.462000	24.8	Off	N	19.5	21.2	46.0

3.5 Unwanted Radiated Emission Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.5.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz.

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m).

(2) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

Note: The following formula is used to convert the EIRP to field strength.

$$E=\frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts)

EIRP (dBm)	Field Strength at 3m (dBuV/m)
-17	78.3
- 27	68.3

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The testing follows the guidelines in and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement and FCC KDB 789033 D01 General UNII Test Procedures v01r02.

   Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 KHz
   - VBW = 300 KHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

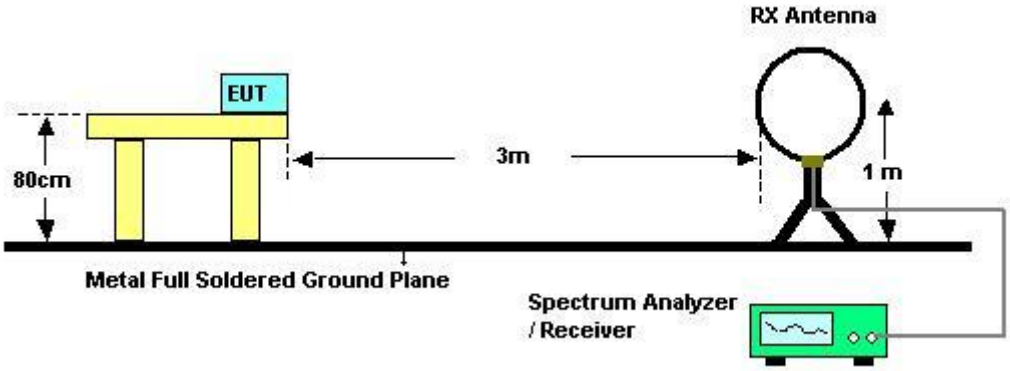
   - The setting follows the G) 5) of FCC KDB 789033.
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

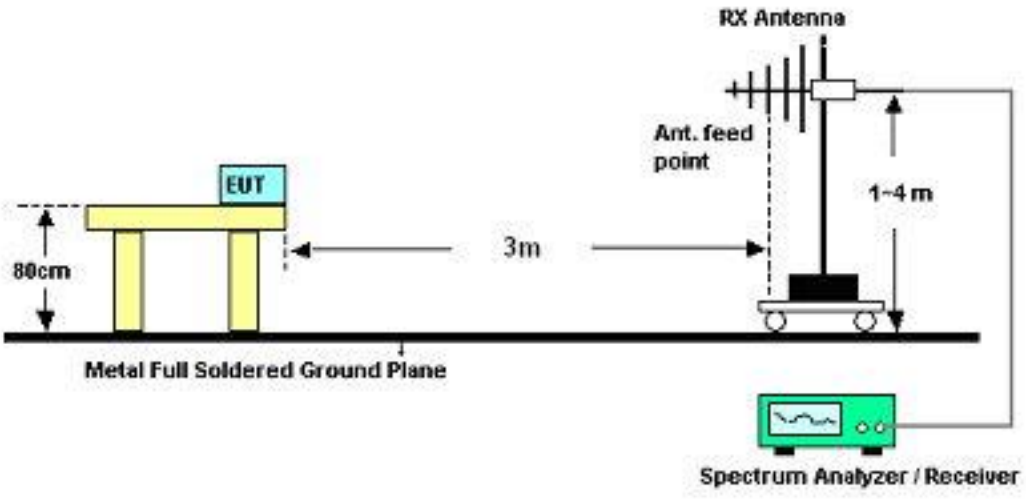
   - The setting follows G) 6) of FCC KDB 789033.
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
2. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
3. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
4. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
5. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
6. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

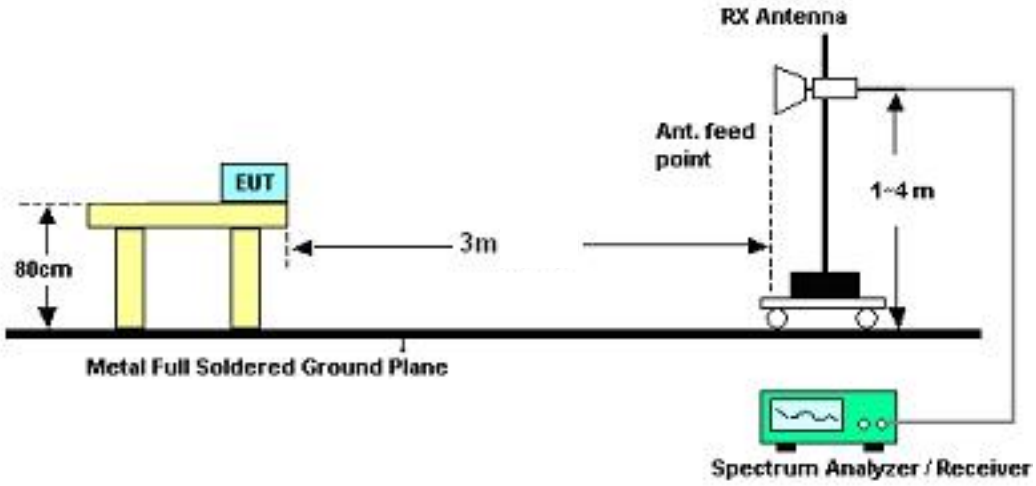
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result

3.5.6.1 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	36	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	68.38	-5.62	74	57.72	34.22	9.41	32.97	110	0	Peak
5150	48.24	-5.76	54	37.58	34.22	9.41	32.97	110	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	65.74	-8.26	74	55.08	34.22	9.41	32.97	100	297	Peak
5150	46.93	-7.07	54	36.27	34.22	9.41	32.97	100	297	Average

Test Mode :	Mode 3	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	48	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5358.63	57.2	-16.8	74	45.97	34.38	9.78	32.93	100	324	Peak
5358.63	44.31	-9.69	54	33.08	34.38	9.78	32.93	100	324	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5365.14	58.59	-15.41	74	47.35	34.39	9.78	32.93	100	261	Peak
5365.14	45.76	-8.24	54	34.52	34.39	9.78	32.93	100	261	Average

Test Mode :	Mode 4	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	52	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	56.63	-17.37	74	45.97	34.22	9.41	32.97	100	323	Peak
5150	44.84	-9.16	54	34.18	34.22	9.41	32.97	100	323	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5150	54.39	-19.61	74	43.73	34.22	9.41	32.97	100	264	Peak
5150	43.17	-10.83	54	32.51	34.22	9.41	32.97	100	264	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	64	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	60.77	-13.23	74	49.15	34.81	9.74	32.93	100	316	Peak
5350	46.58	-7.42	54	34.96	34.81	9.74	32.93	100	316	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	59.17	-14.83	74	47.55	34.81	9.74	32.93	100	282	Peak
5350	45.28	-8.72	54	33.66	34.81	9.74	32.93	100	282	Average

Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	100	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	60.33	-13.67	74	48.83	34.47	9.94	32.91	100	317	Peak
5470	46.13	-7.87	54	34.63	34.47	9.94	32.91	100	317	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	57.72	-16.28	74	46.22	34.47	9.94	32.91	102	268	Peak
5470	44.76	-9.24	54	33.26	34.47	9.94	32.91	102	268	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	46~47%
Test Channel :	140	Test Engineer :	Kai Wang and David Yang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	61.01	-12.99	74	49.54	34.81	9.92	33.26	114	348	Peak
5725	45.41	-8.59	54	33.94	34.81	9.92	33.26	114	348	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	55.79	-18.21	74	44.32	34.81	9.92	33.26	100	258	Peak
5725	44.08	-9.92	54	32.61	34.81	9.92	33.26	100	258	Average

3.5.6.2 Test Results of Unwanted Radiated Emissions (9kHz ~ 30MHz)

Temperature :	23~24°C	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.5.6.3 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	**Temperature :**	23~24°C
Test Channel :	36	**Relative Humidity :**	46~47%
Test Engineer :	Kai Wang and David Yang	**Polarization :**	Horizontal
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.22	-16.78	40	34.56	20	0.53	31.87	-	-	Peak
53.22	23.35	-16.65	40	46.8	7.5	0.72	31.67	100	135	Peak
153.66	22.48	-21.02	43.5	41.67	10.99	1.21	31.39	-	-	Peak
492.5	19.67	-26.33	46	30.22	17.94	2.42	30.91	-	-	Peak
715.1	22.79	-23.21	46	29.49	20.82	2.98	30.5	-	-	Peak
916.7	24.77	-21.23	46	28.87	23.35	3.38	30.83	-	-	Peak
5150	48.24	-5.76	54	37.58	34.22	9.41	32.97	110	0	Average
5150	68.38	-5.62	74	57.72	34.22	9.41	32.97	110	0	Peak
5180	98.74	-	-	88.01	34.25	9.45	32.97	110	0	Average
5180	109.56	-	-	98.83	34.25	9.45	32.97	110	0	Peak
5350	44.5	-9.5	54	33.31	34.38	9.74	32.93	110	0	Average
5350	55.95	-18.05	74	44.76	34.38	9.74	32.93	110	0	Peak
15540	50.36	-23.64	74	55.04	40.26	14.11	59.05	100	0	Peak

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	5180 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.76	-17.24	40	34.1	20	0.53	31.87	100	215	Peak
91.02	23.87	-19.63	43.5	45.85	8.72	0.95	31.65	-	-	Peak
153.66	25.21	-18.29	43.5	44.4	10.99	1.21	31.39	-	-	Peak
451.2	20.72	-25.28	46	32.5	17.07	2.3	31.15	-	-	Peak
623.4	23.67	-22.33	46	31.37	19.99	2.76	30.45	-	-	Peak
876.1	24.67	-21.33	46	29.19	22.86	3.31	30.69	-	-	Peak
5150	46.93	-7.07	54	36.27	34.22	9.41	32.97	100	297	Average
5150	65.74	-8.26	74	55.08	34.22	9.41	32.97	100	297	Peak
5180	95.68	-	-	84.95	34.25	9.45	32.97	100	297	Average
5180	106.25	-	-	95.52	34.25	9.45	32.97	100	297	Peak
5350	42.86	-11.14	54	31.67	34.38	9.74	32.93	100	297	Average
5350	55.82	-18.18	74	44.63	34.38	9.74	32.93	100	297	Peak
15540	48.41	-25.59	74	53.09	40.26	14.11	59.05	100	0	Peak

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	5220 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	24.26	-15.74	40	35.6	20	0.53	31.87	100	245	Peak
53.22	23.6	-16.4	40	47.05	7.5	0.72	31.67	-	-	Peak
146.64	22.32	-21.18	43.5	41.25	11.27	1.21	31.41	-	-	Peak
470.1	18.77	-27.23	46	30.01	17.47	2.35	31.06	-	-	Peak
611.5	20.98	-25.02	46	28.87	19.89	2.72	30.5	-	-	Peak
871.2	24.61	-21.39	46	29.16	22.81	3.3	30.66	-	-	Peak
5150	46.22	-7.78	54	35.56	34.22	9.41	32.97	123	360	Average
5150	58.19	-15.81	74	47.53	34.22	9.41	32.97	123	360	Peak
5220	101.08	-	-	90.24	34.27	9.53	32.96	123	360	Average
5220	111.74	-	-	100.9	34.27	9.53	32.96	123	360	Peak
5350	45.67	-8.33	54	34.48	34.38	9.74	32.93	123	360	Average
5350	58.42	-15.58	74	47.23	34.38	9.74	32.93	123	360	Peak
10440	50.77	-23.23	74	62.63	37.36	11.21	60.43	100	0	Peak
15660	42.22	-11.78	54	46.45	40.48	14.17	58.88	137	26	Average
15660	54.66	-19.34	74	58.9	40.48	14.16	58.88	137	26	Peak

Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5220 MHz is fundamental signal which can be ignored. 2. 10440 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.42	-16.58	40	34.76	20	0.53	31.87	100	214	Peak
91.02	25.59	-17.91	43.5	47.57	8.72	0.95	31.65	-	-	Peak
153.66	26.29	-17.21	43.5	45.48	10.99	1.21	31.39	-	-	Peak
451.2	20.27	-25.73	46	32.05	17.07	2.3	31.15	-	-	Peak
623.4	22.61	-23.39	46	30.31	19.99	2.76	30.45	-	-	Peak
922.3	25.05	-20.95	46	29.06	23.43	3.39	30.83	-	-	Peak
5150	44.04	-9.96	54	33.38	34.22	9.41	32.97	102	265	Average
5150	54.55	-19.45	74	43.89	34.22	9.41	32.97	102	265	Peak
5220	98.71	-	-	87.87	34.27	9.53	32.96	102	265	Average
5220	109.44	-	-	98.6	34.27	9.53	32.96	102	265	Peak
5350	45.35	-8.65	54	34.16	34.38	9.74	32.93	102	265	Average
5350	56.25	-17.75	74	45.06	34.38	9.74	32.93	102	265	Peak
10440	48.82	-25.18	74	60.68	37.36	11.21	60.43	100	0	Peak
15660	50.99	-23.01	74	55.22	40.48	14.17	58.88	100	0	Peak

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	24.51	-15.49	40	35.85	20	0.53	31.87	100	245	Peak
49.17	23.64	-16.36	40	46.08	8.5	0.69	31.63	-	-	Peak
153.66	22.19	-21.31	43.5	41.38	10.99	1.21	31.39	-	-	Peak
488.3	19.08	-26.92	46	29.76	17.84	2.41	30.93	-	-	Peak
718.6	22.57	-23.43	46	29.22	20.88	2.98	30.51	-	-	Peak
920.9	24.74	-21.26	46	28.77	23.41	3.39	30.83	-	-	Peak
5150	45.77	-8.23	54	35.11	34.22	9.41	32.97	100	324	Average
5150	58.17	-15.83	74	47.51	34.22	9.41	32.97	100	324	Peak
5240	101.08	-	-	90.17	34.29	9.57	32.95	100	324	Average
5240	111.97	-	-	101.11	34.29	9.53	32.96	100	324	Peak
5358.63	44.31	-9.69	54	33.08	34.38	9.78	32.93	100	324	Average
5358.63	57.2	-16.8	74	45.97	34.38	9.78	32.93	100	324	Peak
10480	50.9	-23.1	74	62.78	37.39	11.14	60.41	100	0	Peak
15720	43.87	-10.13	54	47.86	40.6	14.2	58.79	100	25	Average
15720	55.79	-18.21	74	59.77	40.6	14.21	58.79	100	25	Peak

Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5240 MHz is fundamental signal which can be ignored. 2. 10480 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.2	-16.8	40	34.54	20	0.53	31.87	100	39	Peak
91.02	25.92	-17.58	43.5	47.9	8.72	0.95	31.65	-	-	Peak
153.66	26.21	-17.29	43.5	45.4	10.99	1.21	31.39	-	-	Peak
319.6	21.36	-24.64	46	36.82	13.85	1.81	31.12	-	-	Peak
666.8	21.84	-24.16	46	29.04	20.33	2.87	30.4	-	-	Peak
912.5	24.71	-21.29	46	28.88	23.29	3.37	30.83	-	-	Peak
5150	43.7	-10.3	54	33.04	34.22	9.41	32.97	100	261	Average
5150	55.33	-18.67	74	44.67	34.22	9.41	32.97	100	261	Peak
5240	98.31	-	-	87.4	34.29	9.57	32.95	100	261	Average
5240	110.71	-	-	99.8	34.29	9.57	32.95	100	261	Peak
5365.14	45.76	-8.24	54	34.52	34.39	9.78	32.93	100	261	Average
5365.14	58.59	-15.41	74	47.35	34.39	9.78	32.93	100	261	Peak
10480	49.71	-24.29	74	61.59	37.39	11.14	60.41	100	0	Peak
15720	50.8	-23.2	74	54.79	40.6	14.2	58.79	100	0	Peak

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10520 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.49	-14.51	40	36.83	20	0.53	31.87	100	314	Peak
49.17	24.94	-15.06	40	47.38	8.5	0.69	31.63	-	-	Peak
153.66	21.56	-21.94	43.5	40.75	10.99	1.21	31.39	-	-	Peak
314.7	25.23	-20.77	46	40.87	13.72	1.8	31.16	-	-	Peak
620.6	21.88	-24.12	46	29.63	19.96	2.75	30.46	-	-	Peak
904.1	25.44	-20.56	46	29.76	23.16	3.35	30.83	-	-	Peak
5150	44.84	-9.16	54	34.18	34.22	9.41	32.97	100	323	Average
5150	56.63	-17.37	74	45.97	34.22	9.41	32.97	100	323	Peak
5260	99.49	-	-	88.51	34.31	9.62	32.95	100	323	Average
5260	110.39	-	-	99.41	34.31	9.62	32.95	100	323	Peak
5370.41	43.84	-10.16	54	32.6	34.39	9.78	32.93	100	323	Average
5370.41	56.38	-17.62	74	45.14	34.39	9.78	32.93	100	323	Peak
10520	49.02	-24.98	74	60.75	37.42	11.21	60.36	100	0	Peak
15780	44.06	-9.94	54	47.84	40.7	14.23	58.71	100	14	Average
15780	57.95	-16.05	74	61.73	40.7	14.23	58.71	100	14	Peak

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 10520 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	24.58	-15.42	40	35.92	20	0.53	31.87	100	59	Peak
91.02	24.9	-18.6	43.5	46.88	8.72	0.95	31.65	-	-	Peak
153.66	26.5	-17	43.5	45.69	10.99	1.21	31.39	-	-	Peak
384	16.98	-29.02	46	30.63	15.58	2.11	31.34	-	-	Peak
623.4	23.83	-22.17	46	31.53	19.99	2.76	30.45	-	-	Peak
899.2	24.89	-21.11	46	29.28	23.09	3.34	30.82	-	-	Peak
5150	43.17	-10.83	54	32.51	34.22	9.41	32.97	100	264	Average
5150	54.39	-19.61	74	43.73	34.22	9.41	32.97	100	264	Peak
5260	98.46	-	-	87.48	34.31	9.62	32.95	100	264	Average
5260	109.51	-	-	98.53	34.31	9.62	32.95	100	264	Peak
5350.26	44.62	-9.38	54	33.43	34.38	9.74	32.93	100	264	Average
5350.26	57.35	-16.65	74	46.16	34.38	9.74	32.93	100	264	Peak
10520	48.71	-25.29	74	60.44	37.42	11.21	60.36	100	0	Peak
15780	43.72	-10.28	54	47.5	40.7	14.23	58.71	100	29	Average
15780	55.99	-18.01	74	59.77	40.7	14.23	58.71	100	29	Peak

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.59	-14.41	40	36.93	20	0.53	31.87	100	249	Peak
49.17	24.3	-15.7	40	46.74	8.5	0.69	31.63	-	-	Peak
153.66	22.34	-21.16	43.5	41.53	10.99	1.21	31.39	-	-	Peak
314	17.88	-28.12	46	33.56	13.69	1.8	31.17	-	-	Peak
734.7	22.56	-23.44	46	28.95	21.11	3.02	30.52	-	-	Peak
933.5	25.05	-20.95	46	28.87	23.6	3.42	30.84	-	-	Peak
5150	45.68	-8.32	54	35.02	34.22	9.41	32.97	100	314	Average
5150	56.39	-17.61	74	45.73	34.22	9.41	32.97	100	314	Peak
5300	101.15	-	-	90.09	34.34	9.66	32.94	100	314	Average
5300	111.83	-	-	100.77	34.34	9.66	32.94	100	314	Peak
5350	47.99	-6.01	54	36.8	34.38	9.74	32.93	100	314	Average
5350	59.19	-14.81	74	48	34.38	9.74	32.93	100	314	Peak
10600	50.53	-23.47	74	61.69	37.5	11.51	60.17	100	0	Peak
15900	45.23	-8.77	54	48.56	40.91	14.3	58.54	100	346	Average
15900	57.1	-16.9	74	60.38	40.94	14.3	58.52	100	346	Peak

Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	5300 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	24.98	-15.02	40	36.32	20	0.53	31.87	100	310	Peak
91.02	25.07	-18.43	43.5	47.05	8.72	0.95	31.65	-	-	Peak
153.66	26.46	-17.04	43.5	45.65	10.99	1.21	31.39	-	-	Peak
451.2	21.19	-24.81	46	32.97	17.07	2.3	31.15	-	-	Peak
726.3	22.88	-23.12	46	29.4	20.99	3	30.51	-	-	Peak
932.1	25.47	-20.53	46	29.31	23.58	3.42	30.84	-		Peak
5150	44.67	-9.33	54	34.01	34.22	9.41	32.97	100	267	Average
5150	55.85	-18.15	74	45.19	34.22	9.41	32.97	100	267	Peak
5300	100.81	-	-	89.75	34.34	9.66	32.94	100	267	Average
5300	111.32	-	-	100.26	34.34	9.66	32.94	100	267	Peak
5350	47.13	-6.87	54	35.94	34.38	9.74	32.93	100	267	Average
5350	59.12	-14.88	74	47.93	34.38	9.74	32.93	100	267	Peak
10600	47.37	-26.63	74	58.53	37.5	11.51	60.17	100	0	Peak
15900	42.39	-11.61	54	45.72	40.91	14.3	58.54	100	245	Average
15900	53.87	-20.13	74	57.15	40.94	14.3	58.52	100	245	Peak

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.48	-14.52	40	36.82	20	0.53	31.87	100	329	Peak
49.17	24.2	-15.8	40	46.64	8.5	0.69	31.63	-	-	Peak
153.66	22.17	-21.33	43.5	41.36	10.99	1.21	31.39	-	-	Peak
451.2	17.78	-28.22	46	29.56	17.07	2.3	31.15	-	-	Peak
693.4	22.31	-23.69	46	29.3	20.55	2.93	30.47	-	-	Peak
916.7	24.76	-21.24	46	28.86	23.35	3.38	30.83	-	-	Peak
5150	44.02	-9.98	54	33.29	34.29	9.41	32.97	100	316	Average
5150	54.29	-19.71	74	43.56	34.29	9.41	32.97	100	316	Peak
5320	97.32	-	-	85.84	34.72	9.7	32.94	100	316	Average
5320	109.25	-	-	97.77	34.72	9.7	32.94	100	316	Peak
5350	46.58	-7.42	54	34.96	34.81	9.74	32.93	100	316	Average
5350	60.77	-13.23	74	49.15	34.81	9.74	32.93	100	316	Peak
10640	44.64	-29.36	74	55.49	37.54	11.71	60.1	100	0	Peak
15960	41.42	-12.58	54	44.51	41.04	14.32	58.45	100	359	Average
15960	53.44	-20.56	74	56.53	41.04	14.32	58.45	100	359	Peak

Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	5320 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.27	-16.73	40	34.61	20	0.53	31.87	-	-	Peak
91.02	24.44	-19.06	43.5	46.42	8.72	0.95	31.65	-	-	Peak
153.66	27	-16.5	43.5	46.19	10.99	1.21	31.39	100	136	Peak
451.2	20.52	-25.48	46	32.3	17.07	2.3	31.15	-	-	Peak
623.4	23.15	-22.85	46	30.85	19.99	2.76	30.45	-	-	Peak
890.8	25.07	-20.93	46	29.52	23	3.33	30.78	-	-	Peak
5150	43.33	-10.67	54	32.6	34.29	9.41	32.97	100	282	Average
5150	52.49	-21.51	74	41.76	34.29	9.41	32.97	100	282	Peak
5320	94.18	-	-	82.7	34.72	9.7	32.94	100	282	Average
5320	105.55	-	-	94.07	34.72	9.7	32.94	100	282	Peak
5350	45.28	-8.72	54	33.66	34.81	9.74	32.93	100	282	Average
5350	59.17	-14.83	74	47.55	34.81	9.74	32.93	100	282	Peak
10640	43.08	-30.92	74	54.03	37.54	11.61	60.1	100	0	Peak
15960	49.49	-24.51	74	52.58	41.04	14.32	58.45	100	0	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 16500 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.52	-14.48	40	36.86	20	0.53	31.87	100	119	Peak
49.17	24.2	-15.8	40	46.64	8.5	0.69	31.63	-	-	Peak
153.66	22.12	-21.38	43.5	41.31	10.99	1.21	31.39	-	-	Peak
502.3	19.54	-26.46	46	29.86	18.13	2.45	30.9	-	-	Peak
729.8	22.54	-23.46	46	29	21.04	3.01	30.51	-	-	Peak
934.9	24.84	-21.16	46	28.64	23.62	3.42	30.84	-	-	Peak
5470	46.13	-7.87	54	34.63	34.47	9.94	32.91	100	317	Average
5470	60.33	-13.67	74	48.83	34.47	9.94	32.91	100	317	Peak
5500	96.22	-	-	84.6	34.5	10.02	32.9	100	317	Average
5500	107.53	-	-	95.91	34.5	10.02	32.9	100	317	Peak
5725	43.29	-10.71	54	31.82	34.81	9.92	33.26	100	317	Average
5725	50.68	-23.32	74	39.21	34.81	9.92	33.26	100	317	Peak
11000	46.75	-27.25	74	54.93	37.9	13.22	59.3	100	0	Peak
16500	44.58	-9.42	54	46.42	41.4	14.06	57.3	100	129	Average
16500	56	-18	74	57.84	41.4	14.06	57.3	100	129	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 16500 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.3	-14.7	40	36.64	20	0.53	31.87	100	24	Peak
91.02	23.95	-19.55	43.5	45.93	8.72	0.95	31.65	-	-	Peak
153.66	26.3	-17.2	43.5	45.49	10.99	1.21	31.39	-	-	Peak
451.2	19.48	-26.52	46	31.26	17.07	2.3	31.15	-	-	Peak
623.4	24.18	-21.82	46	31.88	19.99	2.76	30.45	-	-	Peak
932.1	24.98	-21.02	46	28.82	23.58	3.42	30.84	-	-	Peak
5470	44.76	-9.24	54	33.26	34.47	9.94	32.91	102	268	Average
5470	57.72	-16.28	74	46.22	34.47	9.94	32.91	102	268	Peak
5500	92.86	-	-	81.24	34.5	10.02	32.9	102	268	Average
5500	104.32	-	-	92.7	34.5	10.02	32.9	102	268	Peak
5725	43.38	-10.62	54	31.91	34.81	9.92	33.26	102	268	Average
5725	50.99	-23.01	74	39.52	34.81	9.92	33.26	102	268	Peak
11000	45.61	-28.39	74	53.79	37.9	13.22	59.3	100	0	Peak
16500	43.96	-10.04	54	45.8	41.4	14.06	57.3	101	78	Average
16500	52.33	-21.67	74	54.17	41.4	14.06	57.3	101	78	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 16740 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	24.69	-15.31	40	36.03	20	0.53	31.87	100	245	Peak
49.17	23.77	-16.23	40	46.21	8.5	0.69	31.63	-	-	Peak
153.66	22	-21.5	43.5	41.19	10.99	1.21	31.39	-	-	Peak
493.2	20.33	-25.67	46	30.85	17.96	2.43	30.91	-	-	Peak
711.6	22.82	-23.18	46	29.58	20.77	2.97	30.5	-	-	Peak
920.2	24.89	-21.11	46	28.92	23.41	3.39	30.83	-	-	Peak
5470	46	-8	54	34.5	34.47	9.94	32.91	100	308	Average
5470	57.11	-16.89	74	45.61	34.47	9.94	32.91	100	308	Peak
5580	98.34	-	-	86.77	34.6	9.99	33.02	100	308	Average
5580	109.68	-	-	98.11	34.6	9.99	33.02	100	308	Peak
5725	43.74	-10.26	54	32.27	34.81	9.92	33.26	100	308	Average
5725	52.78	-21.22	74	41.31	34.81	9.92	33.26	100	308	Peak
11160	46.15	-27.85	74	53.87	37.99	13.2	58.91	100	0	Peak
16740	47.77	-6.23	54	49.31	41.83	14.17	57.54	100	117	Average
16740	62	-12	74	63.54	41.83	14.17	57.54	100	117	Peak

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 16740 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.05	-16.95	40	34.39	20	0.53	31.87	100	138	Peak
91.02	25.05	-18.45	43.5	47.03	8.72	0.95	31.65	-	-	Peak
153.66	26.04	-17.46	43.5	45.23	10.99	1.21	31.39	-	-	Peak
351.8	20.2	-25.8	46	34.9	14.72	1.99	31.41	-	-	Peak
570.2	22.14	-23.86	46	31.21	19.29	2.61	30.97	-	-	Peak
923.7	25.79	-20.21	46	29.77	23.45	3.4	30.83	-	-	Peak
5470	44.82	-9.18	54	33.32	34.47	9.94	32.91	100	268	Average
5470	55.28	-18.72	74	43.78	34.47	9.94	32.91	100	268	Peak
5580	95.16	-	-	83.59	34.6	9.99	33.02	100	268	Average
5580	106.57	-	-	95	34.6	9.99	33.02	100	268	Peak
5725	43.66	-10.34	54	32.19	34.81	9.92	33.26	100	268	Average
5725	53.2	-20.8	74	41.73	34.81	9.92	33.26	100	268	Peak
16740	43.52	-10.48	54	45.06	41.83	14.17	57.54	100	268	Average
16740	58.33	-15.67	74	59.87	41.83	14.17	57.54	100	268	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Horizontal
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 17100 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	24.79	-15.21	40	36.13	20	0.53	31.87	100	169	Peak
49.17	23.85	-16.15	40	46.29	8.5	0.69	31.63	-	-	Peak
153.66	22.01	-21.49	43.5	41.2	10.99	1.21	31.39	-	-	Peak
300.7	18.13	-27.87	46	34.29	13.33	1.77	31.26	-	-	Peak
725.6	23.35	-22.65	46	29.88	20.98	3	30.51	-	-	Peak
918.8	25.05	-20.95	46	29.12	23.38	3.38	30.83	-	-	Peak
5470	43.86	-10.14	54	32.36	34.47	9.94	32.91	114	348	Average
5470	52.72	-21.28	74	41.22	34.47	9.94	32.91	114	348	Peak
5700	93.81	-	-	82.33	34.77	9.93	33.22	114	348	Average
5700	105	-	-	93.52	34.77	9.93	33.22	114	348	Peak
5725	45.41	-8.59	54	33.94	34.81	9.92	33.26	114	348	Average
5725	61.01	-12.99	74	49.54	34.81	9.92	33.26	114	348	Peak
17100	41.82	-12.18	54	42.97	42.2	14.33	57.68	100	142	Average
17100	54.05	-19.95	74	55.2	42.2	14.33	57.68	100	142	Peak

Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	46~47%
Test Engineer :	Kai Wang and David Yang	Polarization :	Vertical
Remark :	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz, 5725 MHz, and 17100 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	24.79	-15.21	40	36.13	20	0.53	31.87	100	214	Peak
91.02	25.57	-17.93	43.5	47.55	8.72	0.95	31.65	-	-	Peak
153.66	26.78	-16.72	43.5	45.97	10.99	1.21	31.39	-	-	Peak
493.2	20.54	-25.46	46	31.06	17.96	2.43	30.91	-	-	Peak
676.6	22.53	-23.47	46	29.66	20.41	2.89	30.43	-	-	Peak
936.3	25.7	-20.3	46	29.47	23.64	3.43	30.84	-	-	Peak
5470	43.67	-10.33	54	32.17	34.47	9.94	32.91	100	258	Average
5470	52.22	-21.78	74	40.72	34.47	9.94	32.91	100	258	Peak
5700	89.48	-	-	78	34.77	9.93	33.22	100	258	Average
5700	100.4	-	-	88.92	34.77	9.93	33.22	100	258	Peak
5725	44.08	-9.92	54	32.61	34.81	9.92	33.26	100	258	Average
5725	55.79	-18.21	74	44.32	34.81	9.92	33.26	100	258	Peak
17100	50.78	-23.22	74	51.93	42.2	14.33	57.68	100	0	Peak

3.6 Peak Excursion Ratio Measurement

3.6.1 Limit of Peak Excursion Ratio

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

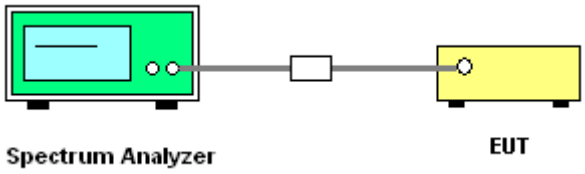
3.6.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r02.

Section F) Peak excursion measurement

1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
   *Set RBW = 1MHz.
   *Set VBW ≥ 3MHz.
   *Detector = peak.
   *Trace mode = max-hold.
   *Allow the sweeps to continue until the trace stabilizes.
   *Use the peak search function to find the peak of the spectrum.
4. Use the procedure found under section 3.3 to measure the PPSD.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

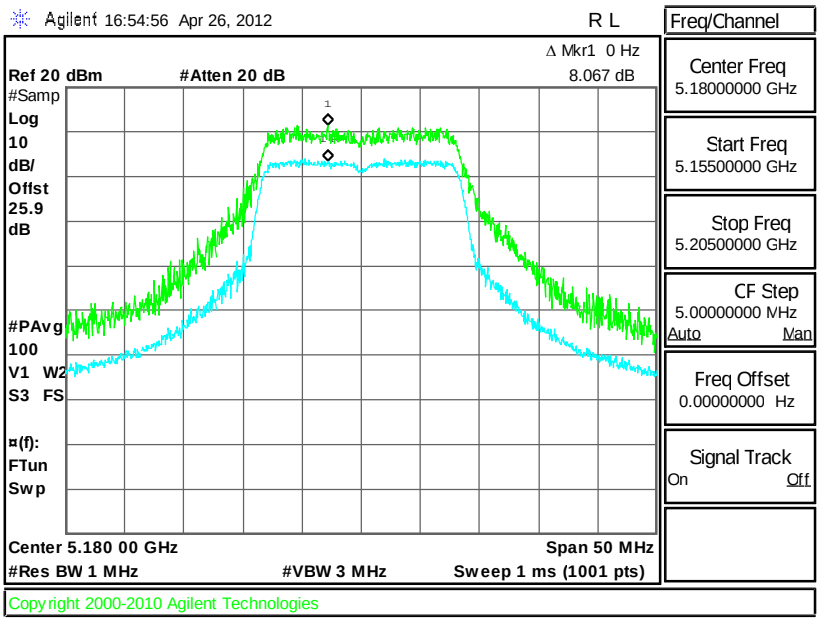
3.6.4 Test Setup



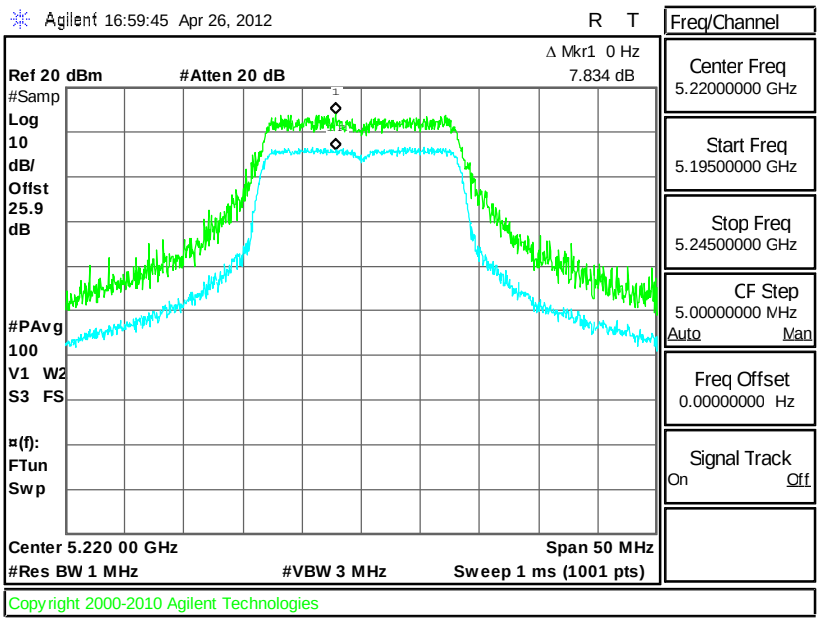
3.6.5 Test Result of Peak Excursion Ratio

Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	45~49%

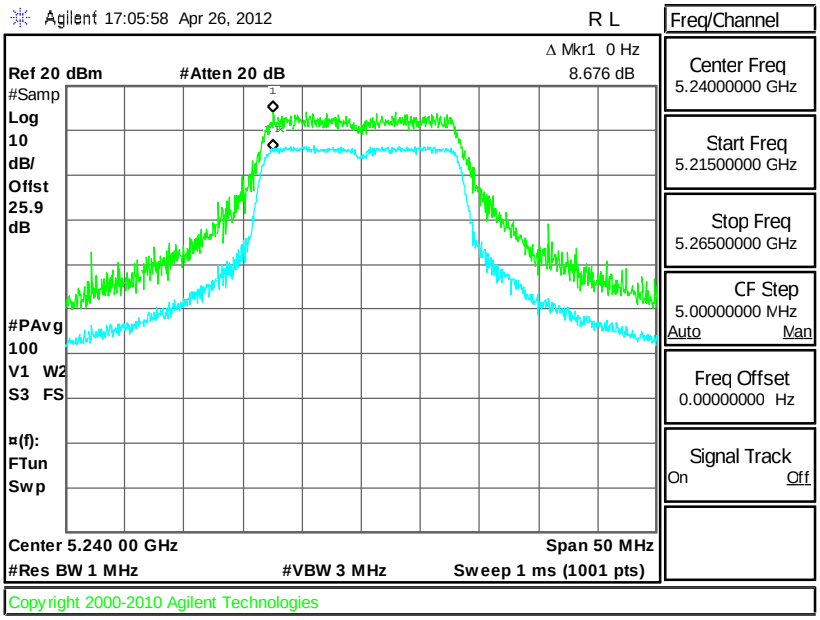
Peak Excursion Ratio Plot on 802.11a Channel 36



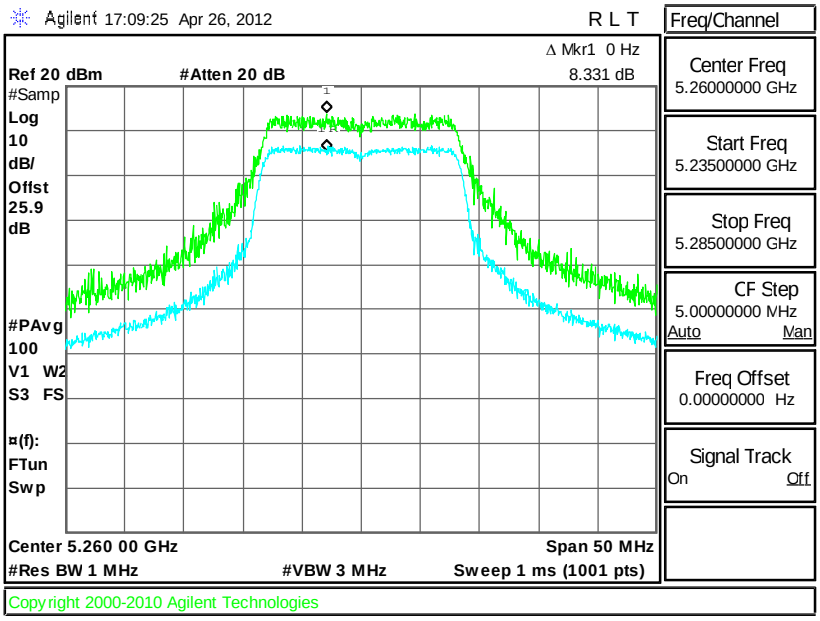
Peak Excursion Ratio Plot on 802.11a Channel 44



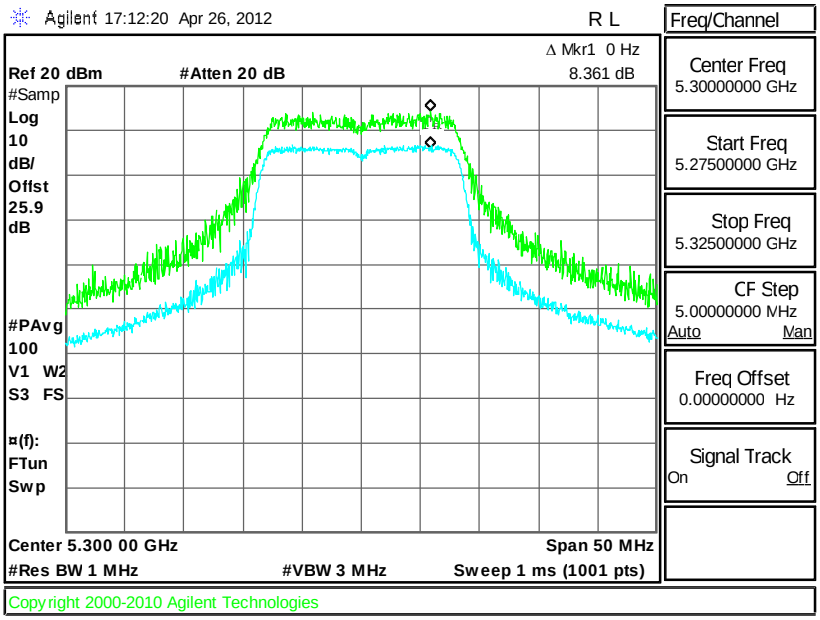
Peak Excursion Ratio Plot on 802.11a Channel 48



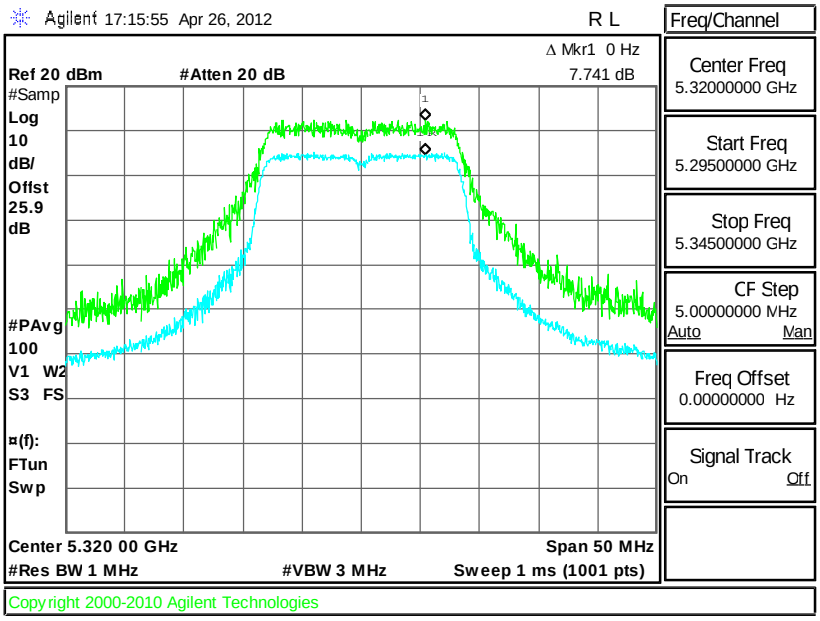
Peak Excursion Ratio Plot on 802.11a Channel 52



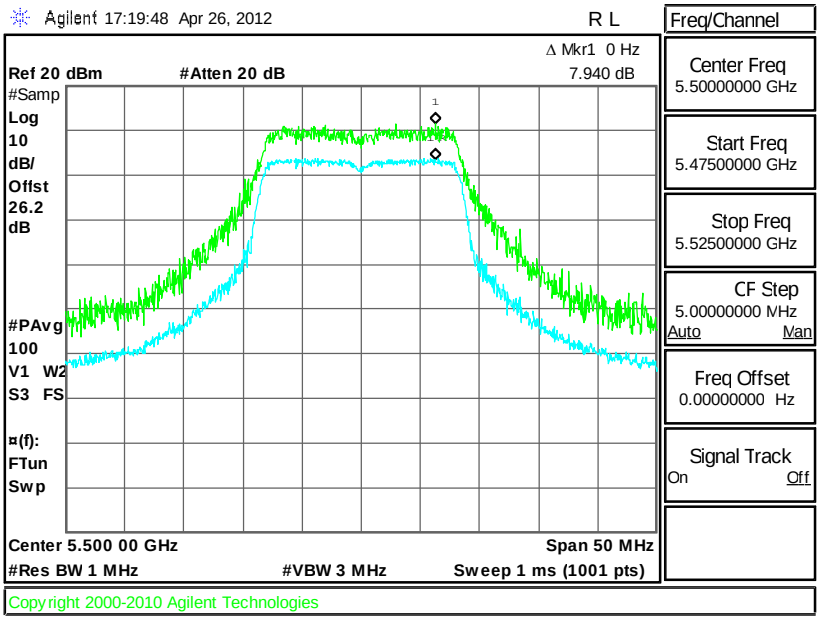
Peak Excursion Ratio Plot on 802.11a Channel 60



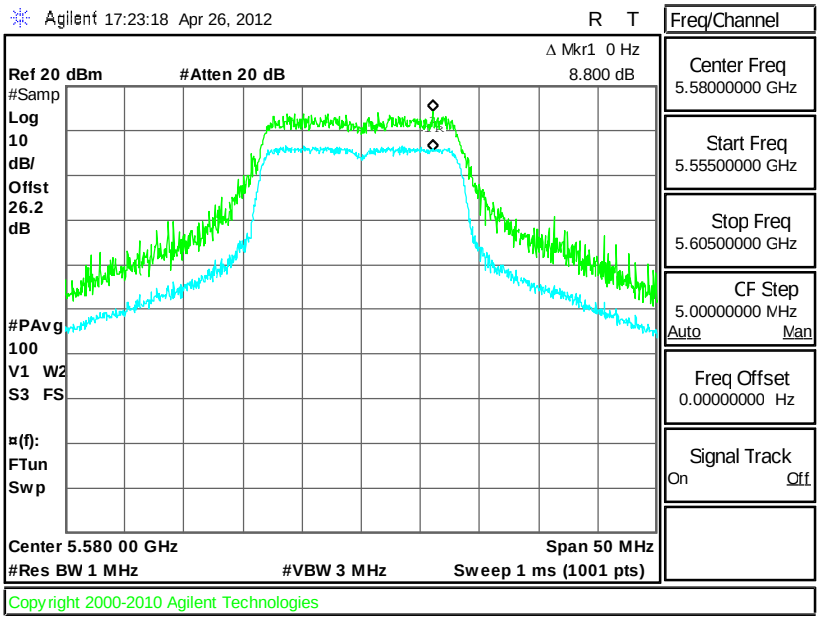
Peak Excursion Ratio Plot on 802.11a Channel 64



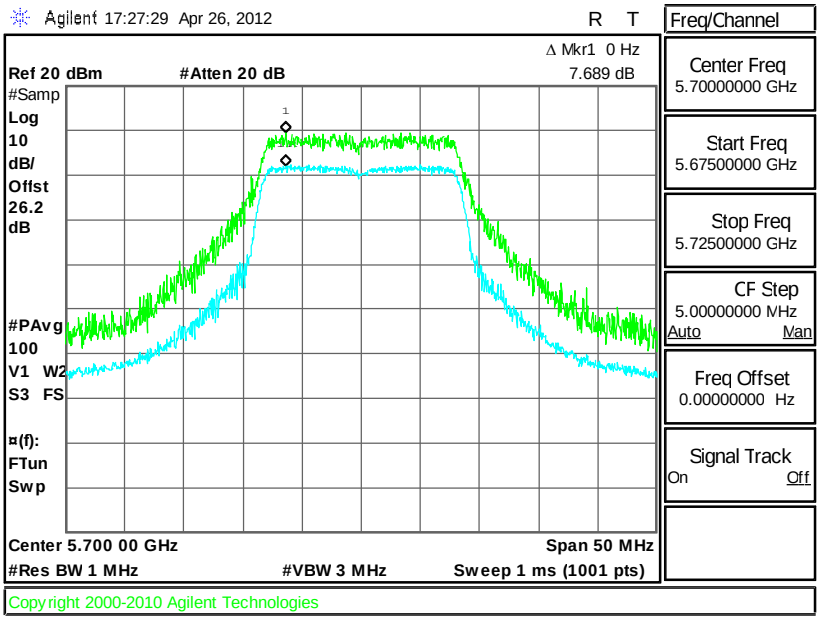
Peak Excursion Ratio Plot on 802.11a Channel 100



Peak Excursion Ratio Plot on 802.11a Channel 116



Peak Excursion Ratio Plot on 802.11a Channel 140



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Result of Automatically Discontinue Transmission

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

3.8 Frequency Stability Measurement

3.8.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

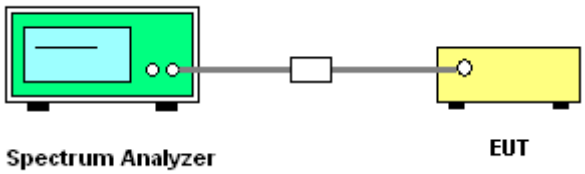
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

1. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
2. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
3. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

3.8.4 Test Setup



3.8.5 Test Result of Frequency Stability

Test Mode :	Mode 1~9	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.68	5188.28	-3.86
44	5220	5211.70	5228.30	0.00
48	5240	5231.70	5248.28	-1.91
52	5260	5251.68	5268.28	-3.80
60	5300	5291.70	5308.28	-1.89
64	5320	5311.68	5328.28	-3.76
100	5500	5491.68	5508.28	-3.64
116	5580	5571.68	5588.28	-3.58
140	5700	5691.68	5708.28	-3.51

3.9 Antenna Requirements

3.9.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.9.2 Antenna Connected Construction

Non-standard connector used.

3.9.3 Antenna Gain

The antenna gain is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Agilent	E4446A	MY50180136	3Hz~44GHz	Apr. 17, 2012	Apr. 23, 2012 ~ Oct. 30, 2012	Apr. 16, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Apr. 23, 2012 ~ Sep. 16, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Sep. 16, 2012 ~ Oct. 30, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Apr. 23, 2012 ~ Sep. 16, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Sep. 16, 2012 ~ Oct. 30, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 10, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 10, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 10, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 10, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	May 10, 2012	Jul. 27, 2013	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	May 10, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	May 20, 2012 ~ Oct. 06, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Oct. 06, 2012 ~ Oct. 31, 2012	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	May 20, 2012 ~ Oct. 31, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	May 20, 2012 ~ Aug. 01, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Aug. 01, 2012 ~ Oct. 31, 2012	Jul. 31, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	May 20, 2012 ~ Oct. 31, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	May 20, 2012 ~ Oct. 31, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	May 20, 2012 ~ Aug. 20, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Sep. 03, 2012 ~ Oct. 31, 2012	Sep. 02, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	May 20, 2012 ~ Oct. 31, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Jul. 03, 2012 ~ Oct. 31, 2012	Jul. 02, 2014	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP250901 as below.