



# FCC RF Test Report

**APPLICANT** : Motorola Solutions, Inc.  
**EQUIPMENT** : Enterprise Tablet  
**BRAND NAME** : Motorola  
**MODEL NAME** : ET1N2  
**FCC ID** : UZ7ET1N2  
**STANDARD** : FCC Part 15 Subpart E  
**CLASSIFICATION** : (NII) Unlicensed National Information Infrastructure

The product was received on May 24, 2012 and completely tested on Jun. 09, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown 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 / Manager



## SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : UZ7ET1N2

Page Number : 1 of 120

Report Issued Date : Jun. 19, 2012

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR252422C	Rev. 01	Initial issue of report	Jun. 19, 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 0.446 MHz
3.5	15.407(b)	A9.3	Unwanted Emissions	≤ -17, -27 dBm (depend on band)&15.209(a)	Pass	Under limit 1.43 dB at 5350.000 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

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

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Tablet
Brand Name	Motorola
Model Name	ET1N2
FCC ID	UZ7ET1N2
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 : 14.59 dBm / 0.0288 W 802.11n (BW 20MHz) : 14.52 dBm / 0.0283 W <5250 MHz ~ 5350 MHz> 802.11a : 20.44 dBm / 0.1107 W 802.11n (BW 20MHz) : 20.37 dBm / 0.1089 W <5470 MHz ~ 5725 MHz> 802.11a : 21.18 dBm / 0.1312 W 802.11n (BW 20MHz) : 21.09 dBm / 0.1285 W
Antenna Type	<5150 MHz ~ 5250 MHz> PIFA Antenna with gain 1.99 dBi <5250 MHz ~ 5350 MHz> PIFA Antenna with gain 1.68 dBi <5470 MHz ~ 5725 MHz> PIFA Antenna with gain 3.25 dBi
HW Version	DV1
SW Version	91-271301-1664-0100-00-D1-051812
FW Version	D3200-SToSUGN-1580 1
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.

### 1.4 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.		
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC/IC Registration No.</b>
	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 v01r01
- ♦ ANSI C63.4-2003
- ♦ 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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Notebook	ASUS	A8M	PPD-AR5BXB6	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	Bluetooth Mobile Phone	Sony Ericsson	W980	PY7A3052091	N/A	N/A
8.	Earphone	Ergotech	ET-E200	FCC DoC	Unshielded, 1.8 m	N/A
9.	Flash Disk	Kingston	Datatraveler 100 4GB	FCC DoC	N/A	N/A
10.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
11.	Earpiece	Motorola	21-154925-01R	N/A	N/A	Unshielded, 1.3 m

## 2 Test Configuration of Equipment Under Test

### 2.1 Carrier Frequency Channel

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 RF Power

Preliminary RF power output tests were performed in different data rate and recorded the in the following table:

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	13.96	13.81	13.79	13.80	13.65	13.63	13.61	13.59
CH 44	5220 MHz	14.04	13.97	13.95	13.90	13.77	13.71	13.76	13.70
CH 48	5240 MHz	14.55	14.49	14.51	14.43	14.33	14.37	14.35	14.32
CH 52	5260 MHz	20.40	20.38	20.34	20.31	20.30	20.25	20.15	20.15
CH 60	5300 MHz	19.35	19.18	19.17	19.02	19.04	18.99	18.92	18.93
CH 64	5320 MHz	16.60	16.64	16.67	16.62	16.53	16.46	16.40	16.36
CH 100	5500 MHz	15.48	14.73	14.75	14.70	14.65	14.60	14.59	14.56
CH 116	5580 MHz	21.14	21.11	20.06	20.05	20.00	19.98	19.92	19.90
CH 140	5700 MHz	14.06	13.67	13.81	13.77	13.63	13.59	13.56	13.44
<b>Duty Cycle (%)</b>		99.15	98.94	98.88	97.53	97.04	96.06	94.87	94.25
<b>Duty Cycle Offset</b>		0.04	0.05	0.05	0.11	0.13	0.17	0.23	0.26
CH 36	5180 MHz	14.00	13.86	13.84	13.91	13.78	13.80	13.84	13.85
CH 44	5220 MHz	14.08	14.02	14.00	14.01	13.90	13.88	13.99	13.96
CH 48	5240 MHz	14.59	14.54	14.56	14.54	14.46	14.54	14.58	14.58
CH 52	5260 MHz	20.44	20.43	20.39	20.42	20.43	20.42	20.38	20.41
CH 60	5300 MHz	19.39	19.23	19.22	19.13	19.17	19.16	19.15	19.19
CH 64	5320 MHz	16.64	16.69	16.72	16.73	16.66	16.63	16.63	16.62
CH 100	5500 MHz	15.52	14.78	14.80	14.81	14.78	14.77	14.82	14.82
CH 116	5580 MHz	21.18	21.16	20.11	20.16	20.13	20.15	20.15	20.16
CH 140	5700 MHz	14.10	13.72	13.86	13.88	13.76	13.76	13.79	13.70



Channel	Frequency	5GHz 802.11a/n (BW 20MHz) mode							
		Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 36	5180 MHz	14.41	14.27	14.25	14.28	14.13	14.04	14.10	14.13
CH 44	5220 MHz	14.50	14.43	14.37	14.33	14.30	14.18	14.23	14.20
CH 48	5240 MHz	14.48	14.42	14.36	14.31	14.27	14.21	14.20	14.15
CH 52	5260 MHz	20.35	20.27	20.21	20.17	20.11	20.10	20.06	20.04
CH 60	5300 MHz	19.72	19.52	19.47	19.41	19.38	19.40	19.19	19.22
CH 64	5320 MHz	15.89	16.00	16.01	15.98	15.93	16.04	16.01	16.00
CH 100	5500 MHz	14.90	14.14	14.12	14.19	14.14	14.02	13.96	14.10
CH 116	5580 MHz	21.07	21.01	20.94	20.93	20.86	20.81	20.78	20.77
CH 140	5700 MHz	13.38	13.04	12.85	12.83	13.02	12.98	12.93	13.04
<b>Duty Cycle (%)</b>		99.45	98.81	97.39	97.14	95.90	95.21	94.19	93.59
<b>Duty Cycle Offset</b>		0.02	0.05	0.11	0.13	0.18	0.21	0.26	0.29
CH 36	5180 MHz	14.43	14.32	14.36	14.41	14.31	14.25	14.36	14.42
CH 44	5220 MHz	14.52	14.48	14.48	14.46	14.48	14.39	14.49	14.49
CH 48	5240 MHz	14.50	14.47	14.47	14.44	14.45	14.42	14.46	14.44
CH 52	5260 MHz	20.37	20.32	20.32	20.30	20.29	20.31	20.32	20.33
CH 60	5300 MHz	19.74	19.57	19.58	19.54	19.56	19.61	19.45	19.51
CH 64	5320 MHz	15.91	16.05	16.12	16.11	16.11	16.25	16.27	16.29
CH 100	5500 MHz	14.92	14.19	14.23	14.32	14.32	14.23	14.22	14.39
CH 116	5580 MHz	21.09	21.06	21.05	21.06	21.04	21.02	21.04	21.06
CH 140	5700 MHz	13.40	13.09	12.96	12.96	13.20	13.19	13.19	13.33



### 2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 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, laptop / tablet modes.

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

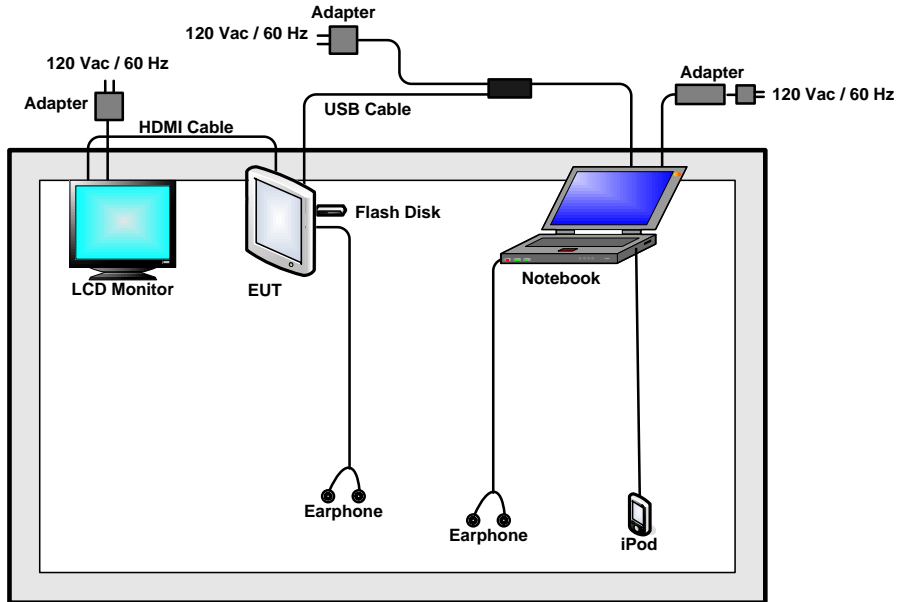
Test Cases			
Test Item	802.11a (Modulation : OFDM)		
Conducted TCs	Test Mode	802.11a	802.11a/n (BW 20MHz)
	CH36	1	10
	CH44	2	11
	CH48	3	12
	CH52	4	13
	CH60	5	14
	CH64	6	15
	CH100	7	16
	CH116	8	17
	CH140	9	18
Radiated TCs	Test Mode	802.11a	802.11a/n (BW 20MHz)
	CH36	1	10
	CH44	2	11
	CH48	3	12
	CH52	4	13
	CH60	5	14
	CH64	6	15
	CH100	7	16
	CH116	8	17
	CH140	9	18



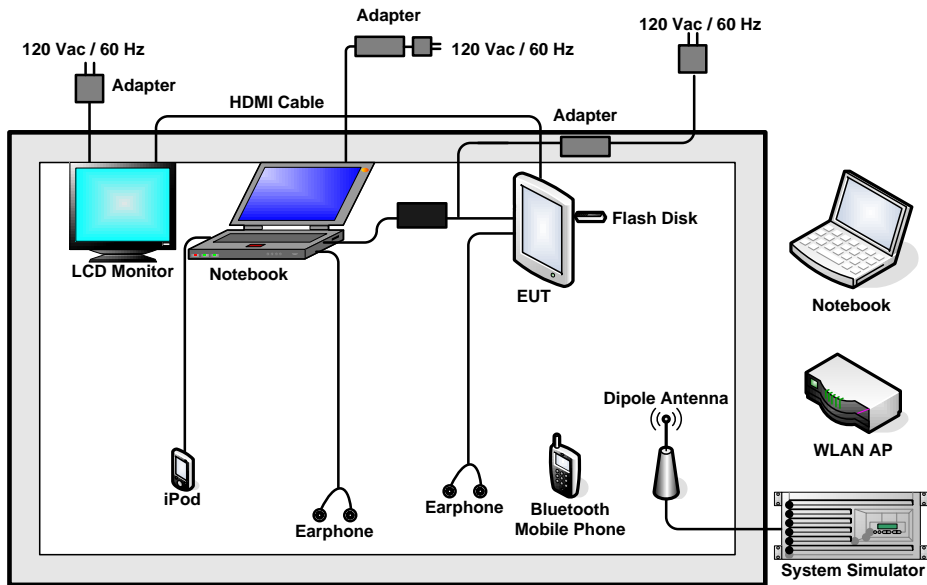
Test Cases	
<b>AC Conducted Emission</b>	Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + Micro USB Link + HDMI Cable with Monitor + Adapter + Earphone + USB Link (Data Link with Notebook)
<b>Remark:</b> <ol style="list-style-type: none"><li>1. "Bluetooth Link" stands for EUT linked to Bluetooth Mobile Phone by Bluetooth function.</li><li>2. "WLAN Link" stands for EUT associated with AP at 5GHz band.</li><li>3. "USB Link" stands for data application transferred mode between EUT and Notebook.</li><li>4. "Micro USB Link" stands for execute the programs, "Test Tool" installed in EUT for files transfer with EUT via flash disk.</li></ol>	

## 2.4 Connection Diagram of Test System

### <WLAN Tx Mode>



### <AC Conducted Emission Mode>





## **2.5 RF Utility**

The programmed RF Utility, "RF\_Regulator" is 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

There is no restriction limits for bandwidth. The maximum conducted output power can be limited by measured emission bandwidth (B). For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B.

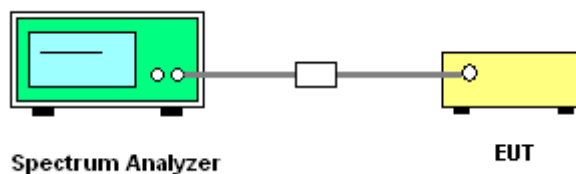
##### 3.1.1 Measuring Instruments

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 v01r01.
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%.

##### 3.1.3 Test Setup



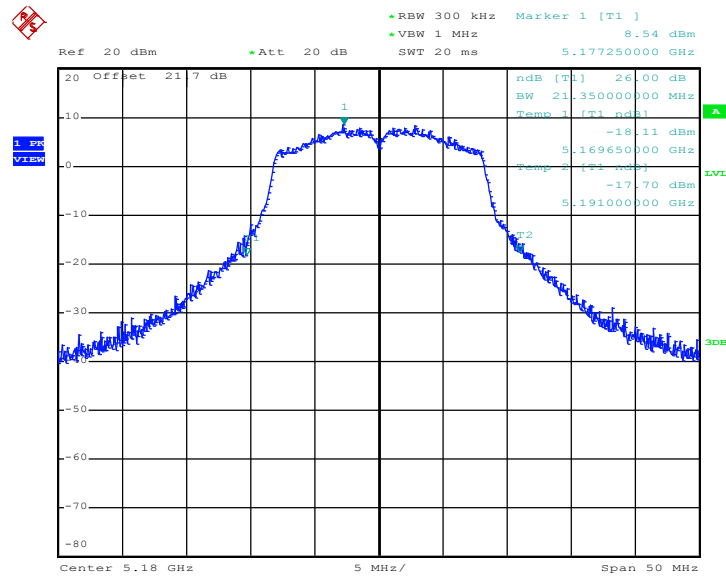


3.1.4 Test Result of 26dB Bandwidth Plots

Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	21.350	N/A
44	5220	22.400	N/A
48	5240	22.600	N/A
52	5260	31.900	N/A
60	5300	27.050	N/A
64	5320	22.450	N/A
100	5500	21.550	N/A
116	5580	34.700	N/A
140	5700	21.650	N/A

26 dB Bandwidth Plot on 802.11a Channel 36

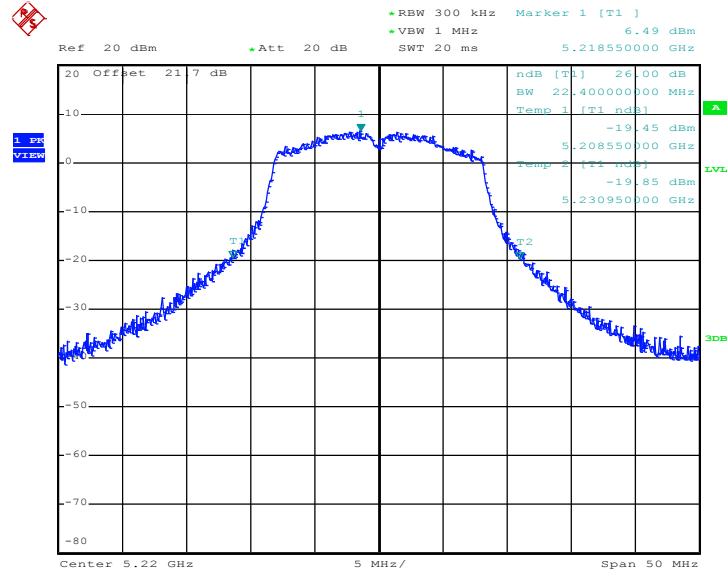


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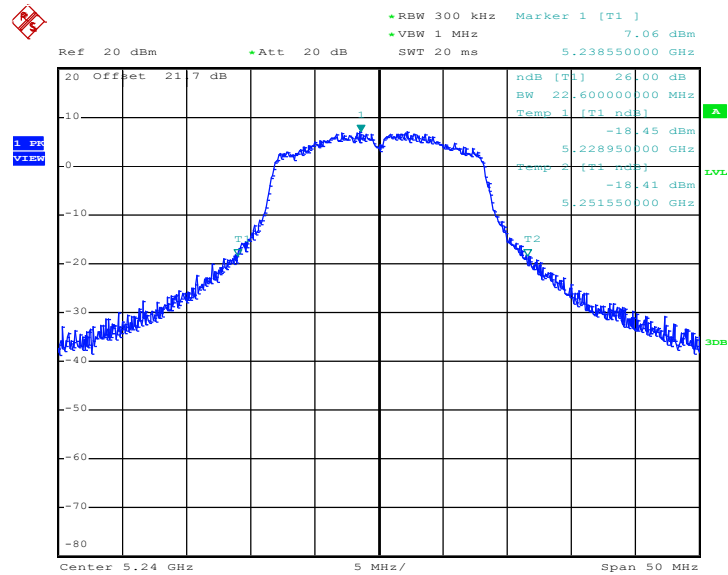


26 dB Bandwidth Plot on 802.11a Channel 44



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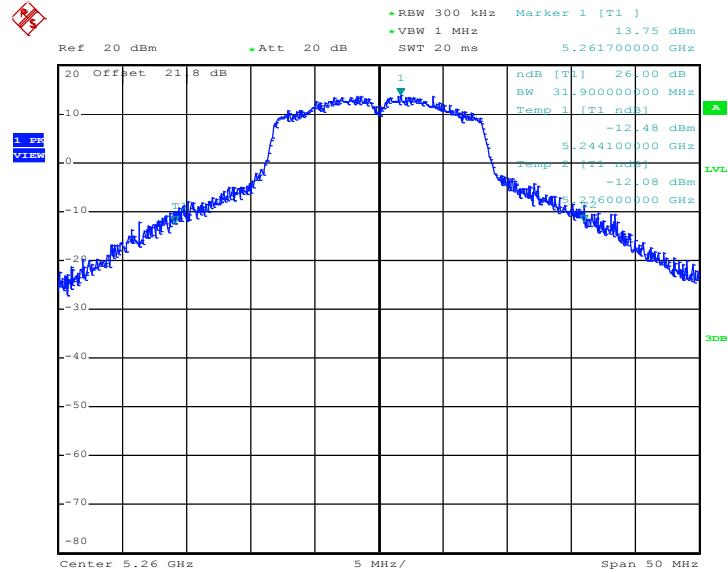
26 dB Bandwidth Plot on 802.11a Channel 48



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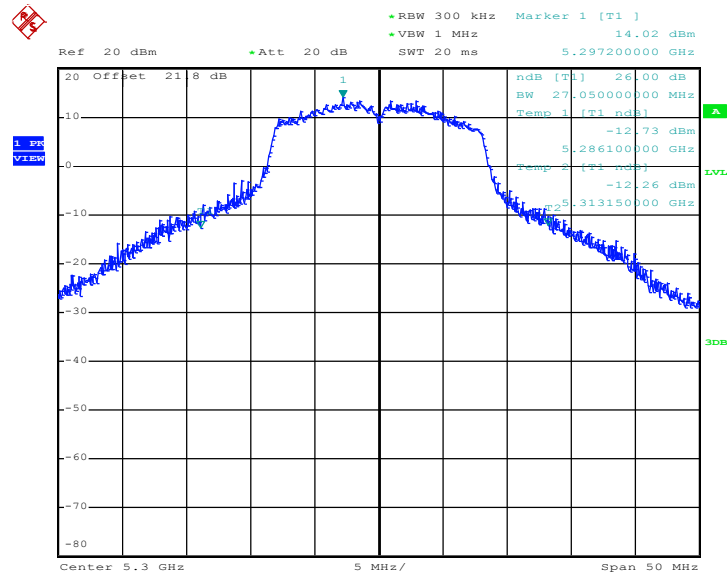


26 dB Bandwidth Plot on 802.11a Channel 52



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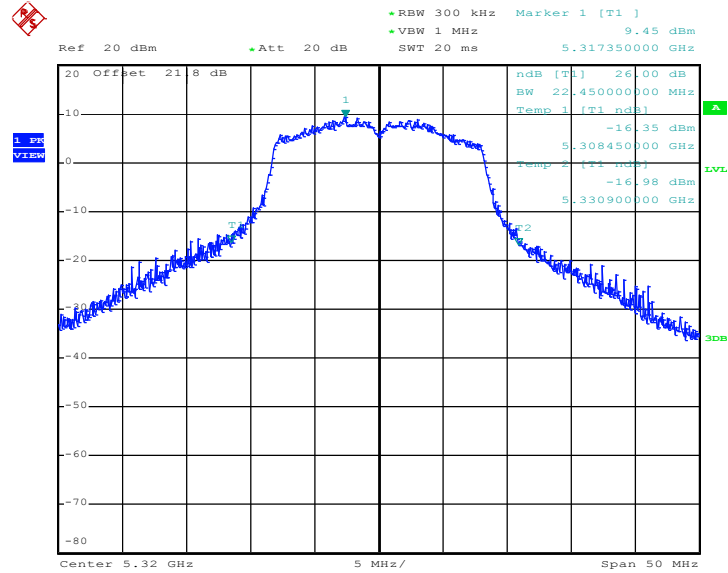
26 dB Bandwidth Plot on 802.11a Channel 60



Date: 5.JUN.2012 16:37:43

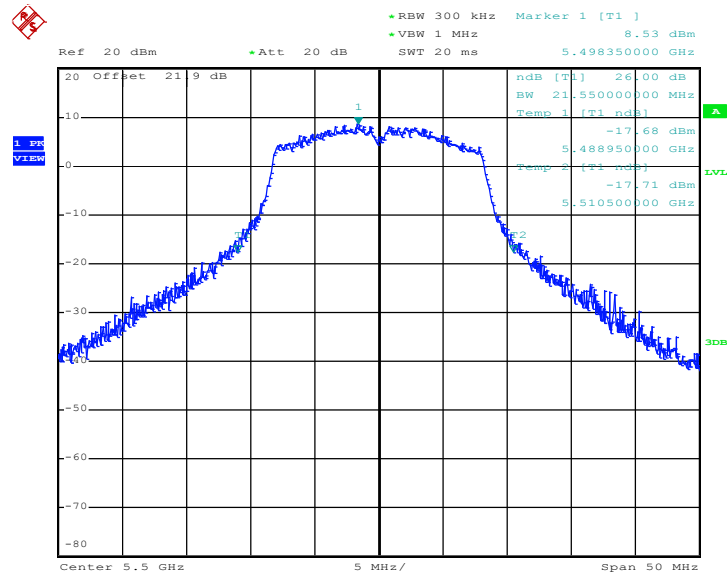


26 dB Bandwidth Plot on 802.11a Channel 64



Date: 5.JUN.2012 16:34:43

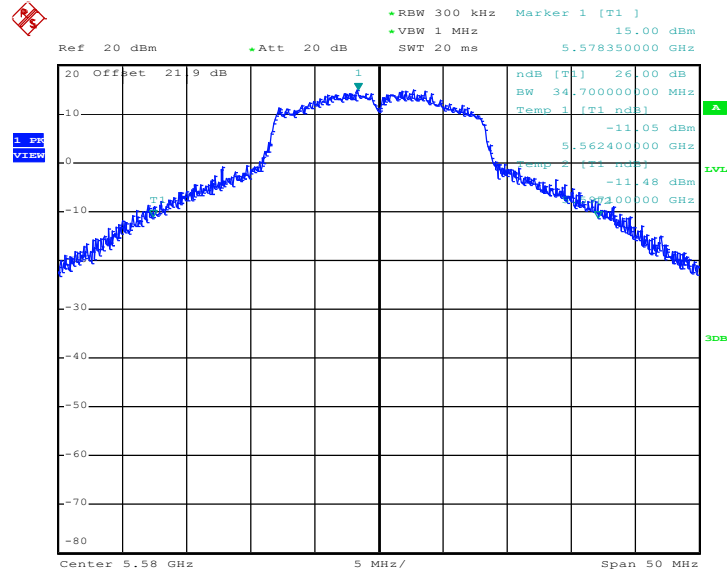
26 dB Bandwidth Plot on 802.11a Channel 100



Date: 5.JUN.2012 16:44:58

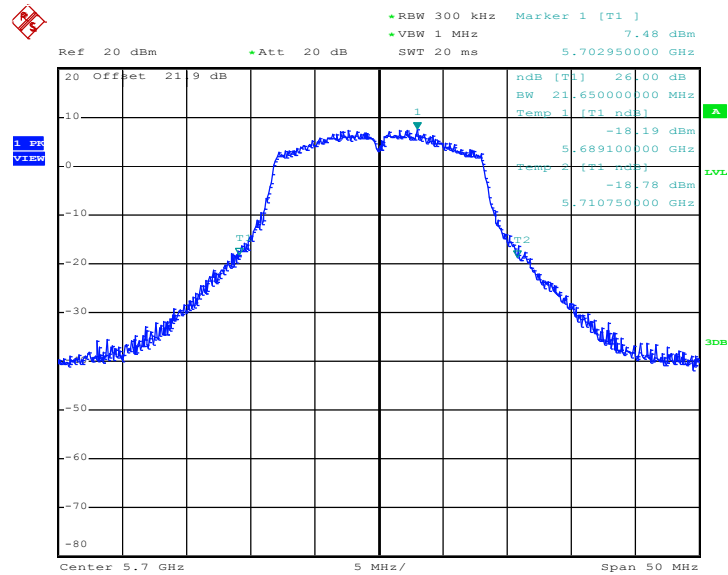


26 dB Bandwidth Plot on 802.11a Channel 116



Date: 5.JUN.2012 16:47:49

26 dB Bandwidth Plot on 802.11a Channel 140



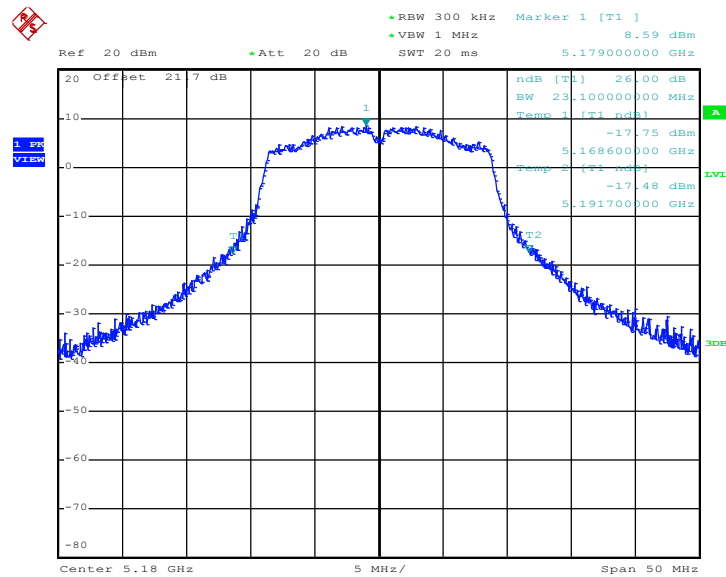
Date: 5.JUN.2012 16:52:22



Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	23.100	N/A
44	5220	23.050	N/A
48	5240	23.700	N/A
52	5260	31.300	N/A
60	5300	30.550	N/A
64	5320	23.950	N/A
100	5500	23.650	N/A
116	5580	37.650	N/A
140	5700	23.050	N/A

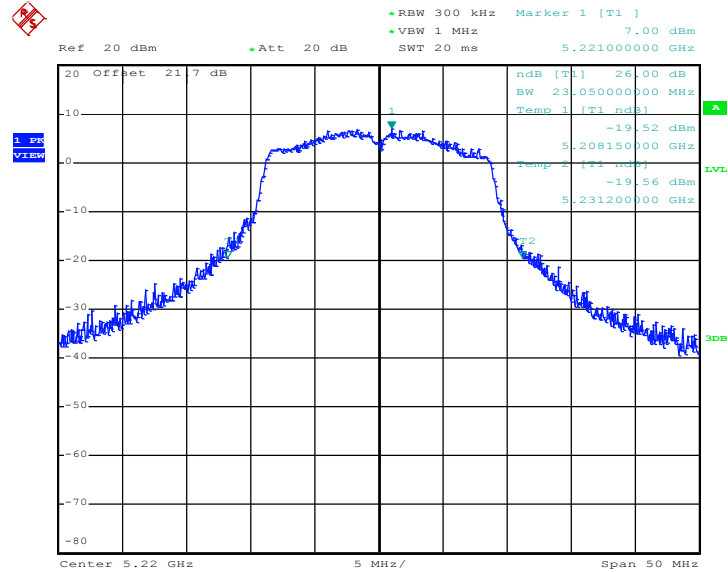
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 36



Date: 5.JUN.2012 16:14:16

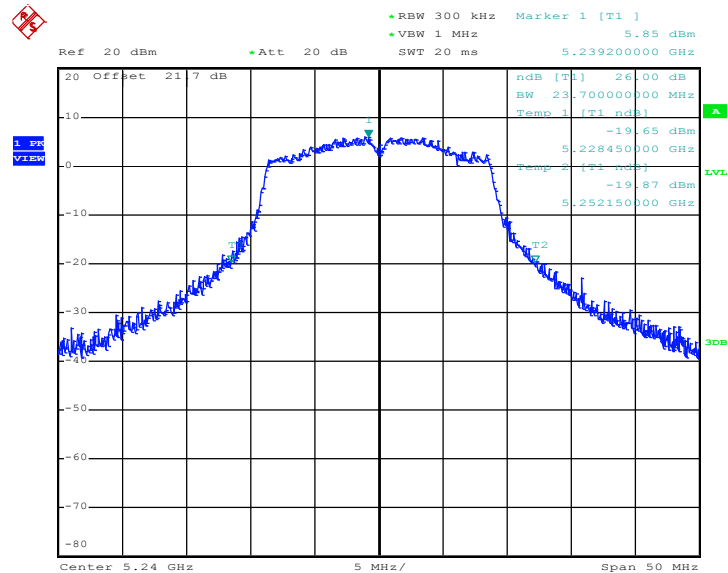


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 44



Date: 5.JUN.2012 16:07:45

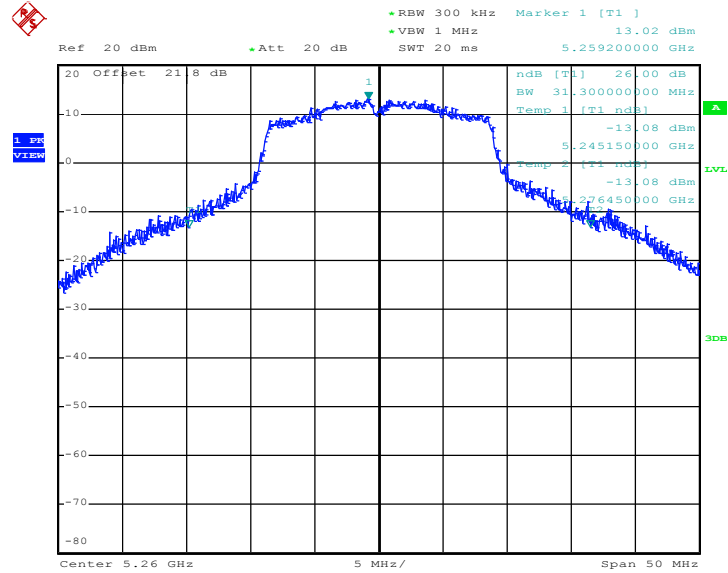
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 48



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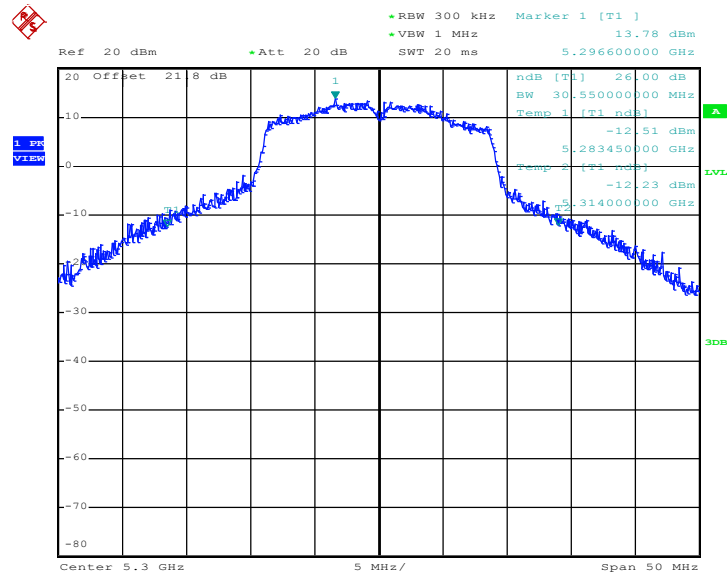


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 52



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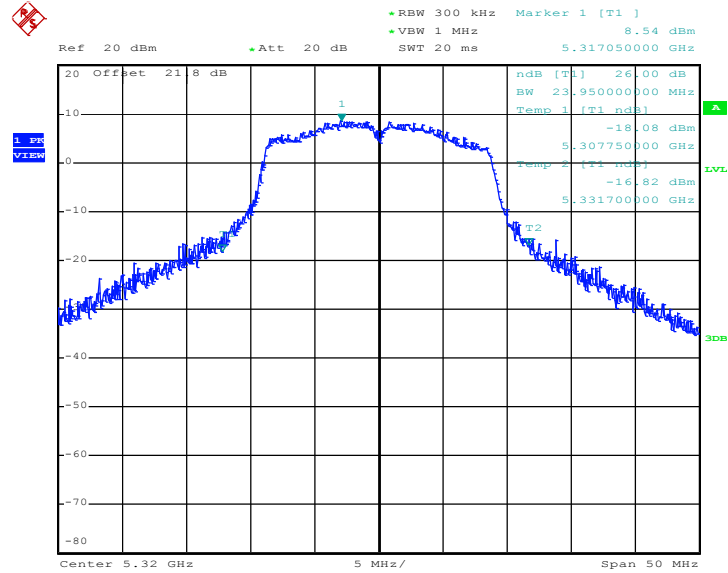
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 60



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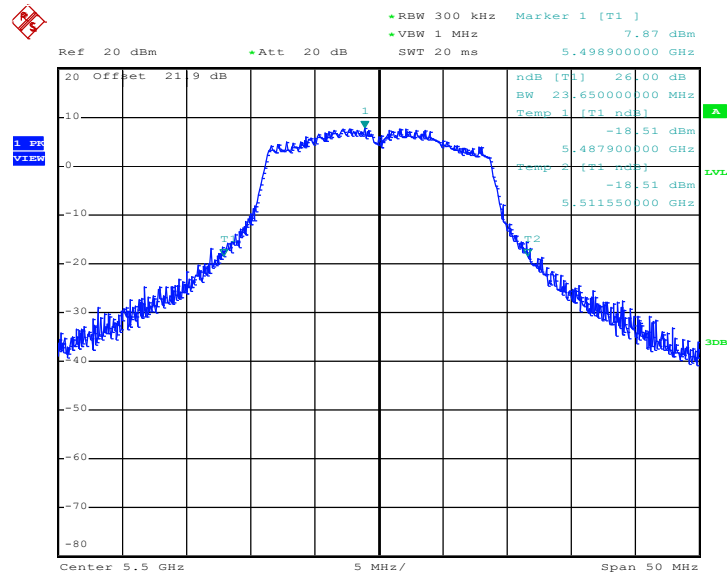


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 64



Date: 5.JUN.2012 16:31:13

26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 100

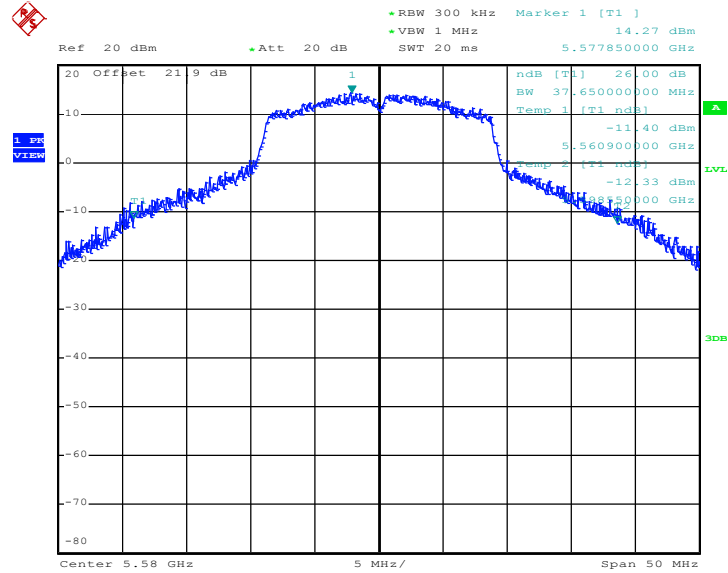


Date: 5.JUN.2012 17:02:04



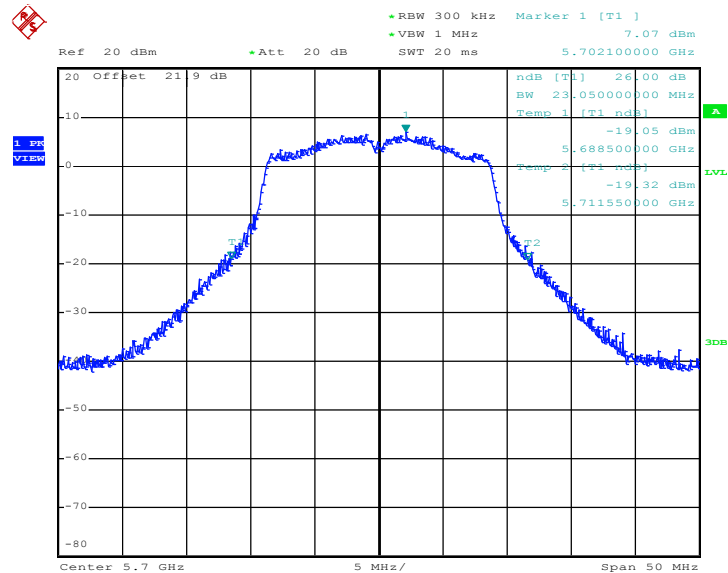


26 dB Bandwidth Plot on 802.11a Channel 116



Date: 5.JUN.2012 16:59:14

26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 140



Date: 5.JUN.2012 16:55:31

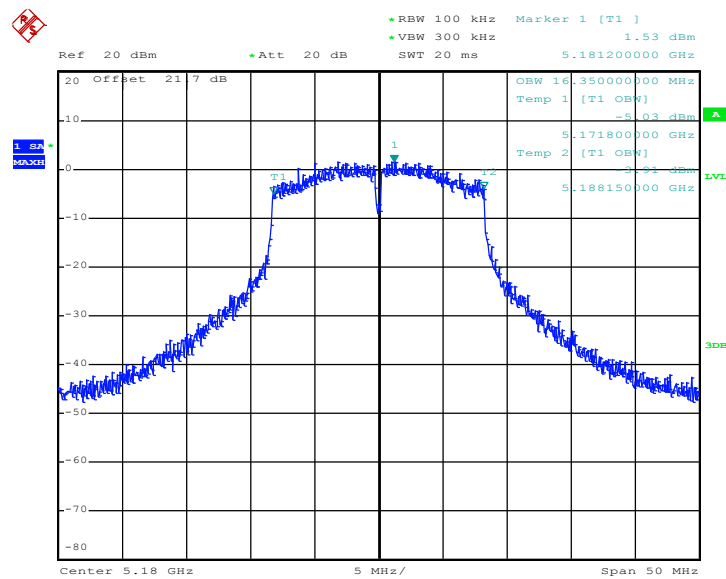


3.1.5 Test Result of 99% Bandwidth Plots

Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a 99% Bandwidth (MHz)	Pass/Fail
36	5180	16.3500	N/A
44	5220	16.4000	N/A
48	5240	16.4000	N/A
52	5260	19.0500	N/A
60	5300	17.5500	N/A
64	5320	16.4000	N/A
100	5500	16.3500	N/A
116	5580	22.5500	N/A
140	5700	16.3500	N/A

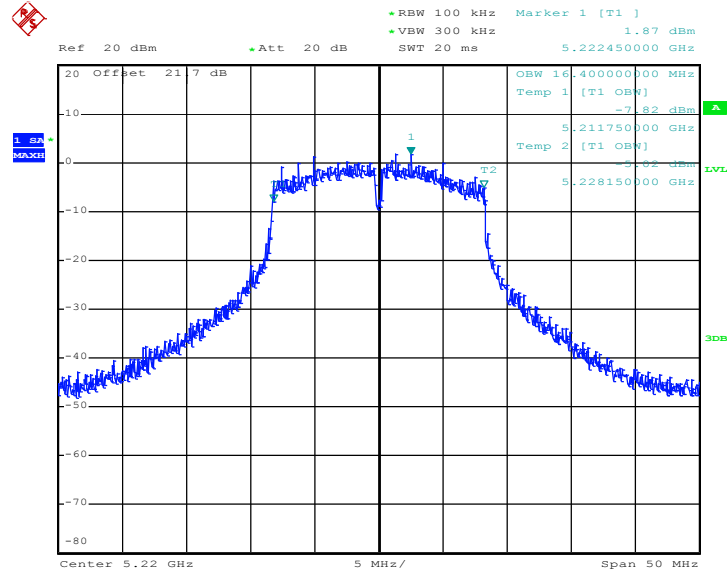
99% Bandwidth Plot on 802.11a Channel 36



Date: 5.JUN.2012 15:47:36

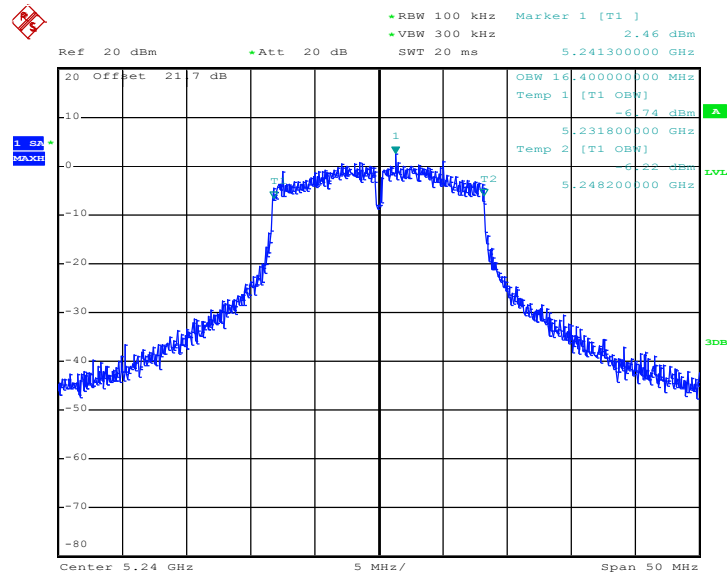


99% Bandwidth Plot on 802.11a Channel 44



Date: 5.JUN.2012 15:58:32

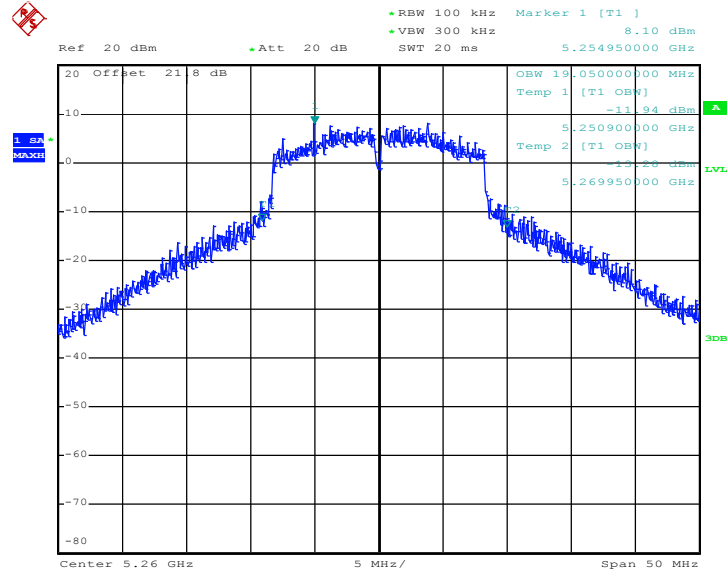
99% Bandwidth Plot on 802.11a Channel 48



Date: 5.JUN.2012 16:03:56

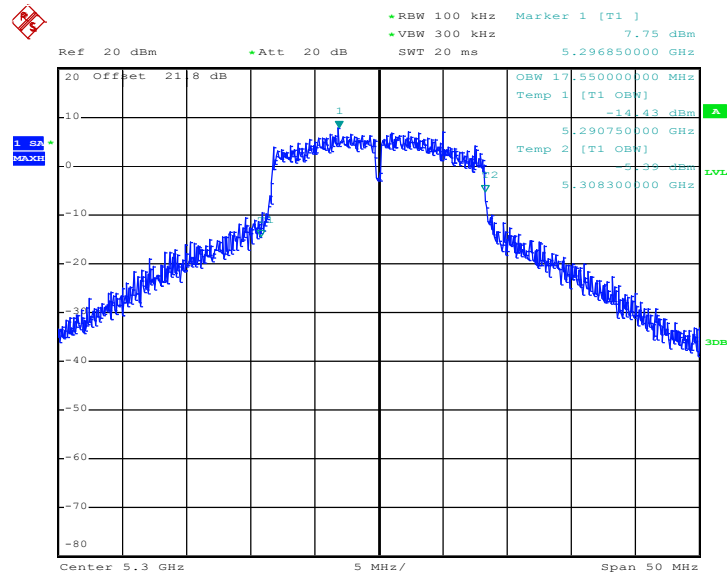


99% Bandwidth Plot on 802.11a Channel 52



Date: 5.JUN.2012 16:42:21

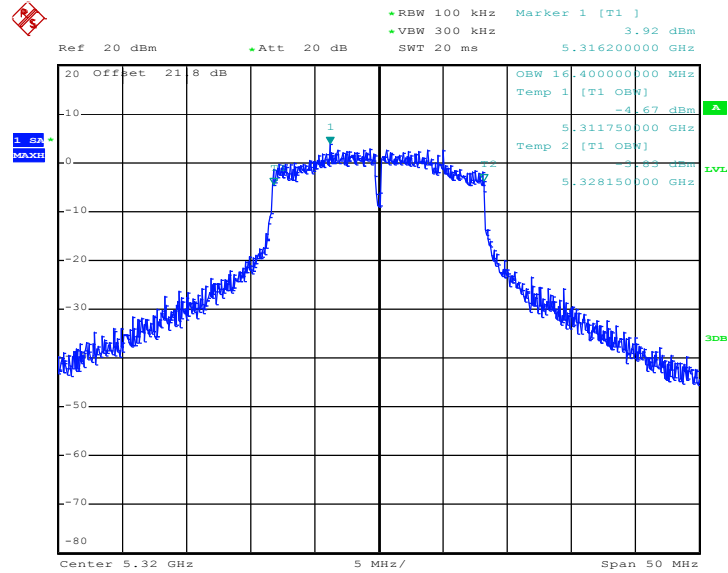
99% Bandwidth Plot on 802.11a Channel 60



Date: 5.JUN.2012 16:38:52

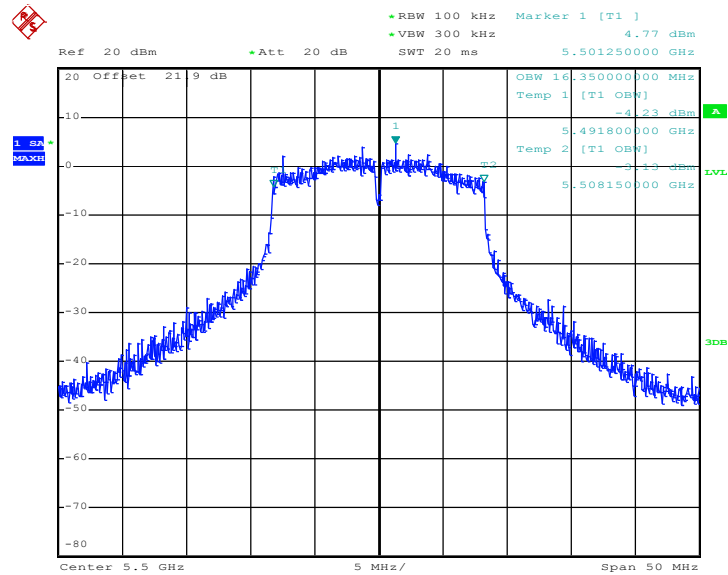


99% Bandwidth Plot on 802.11a Channel 64



Date: 5.JUN.2012 16:35:49

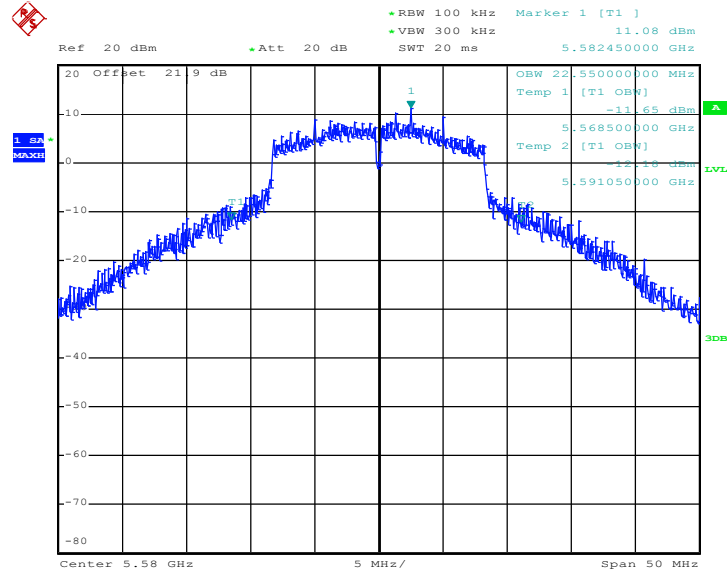
99% Bandwidth Plot on 802.11a Channel 100



Date: 5.JUN.2012 16:46:06

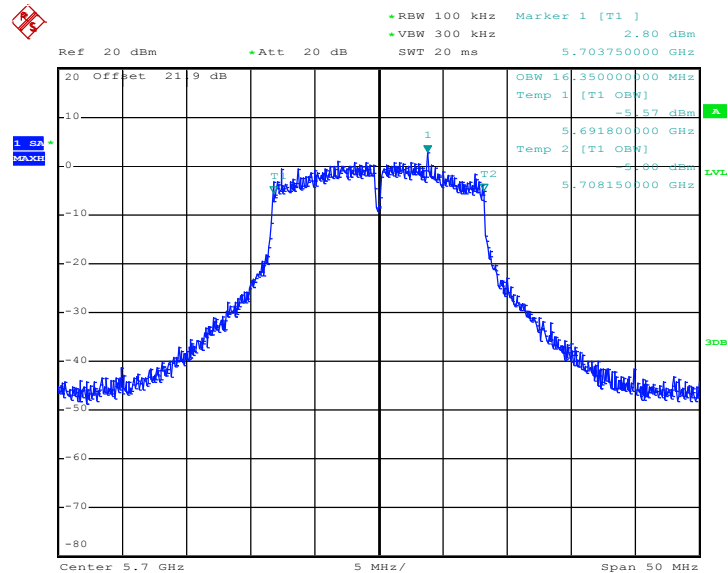


99% Bandwidth Plot on 802.11a Channel 116



Date: 5.JUN.2012 16:51:39

99% Bandwidth Plot on 802.11a Channel 140



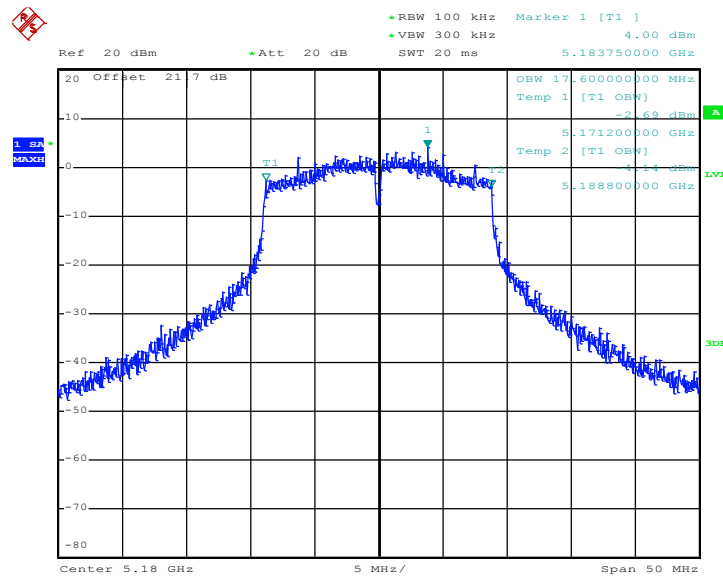
Date: 5.JUN.2012 16:54:37



Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Bandwidth (MHz)	Pass/Fail
36	5180	17.6000	N/A
44	5220	17.6000	N/A
48	5240	17.6000	N/A
52	5260	19.8000	N/A
60	5300	18.9500	N/A
64	5320	17.6500	N/A
100	5500	17.5500	N/A
116	5580	23.2000	N/A
140	5700	17.5500	N/A

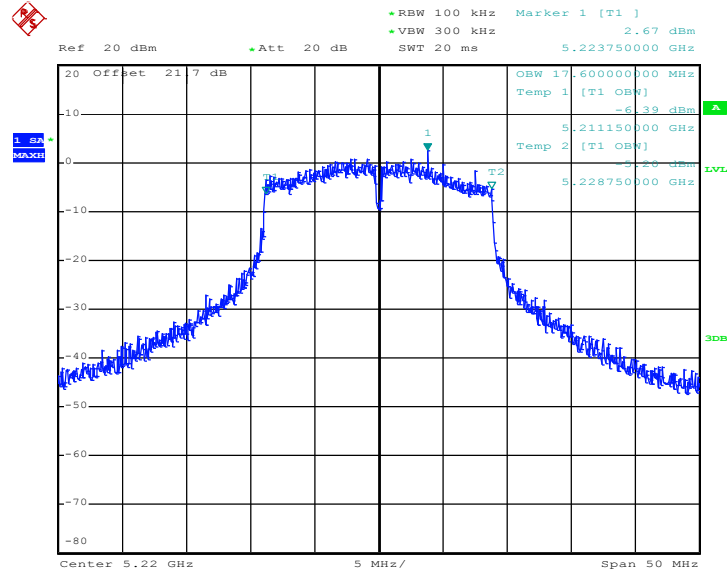
99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 36



Date: 5.JUN.2012 16:15:17

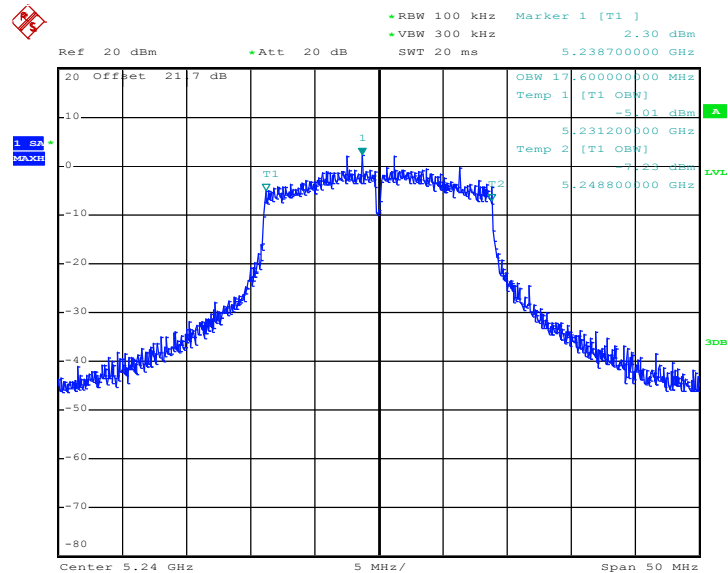


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 44



Date: 5.JUN.2012 16:09:28

99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 48

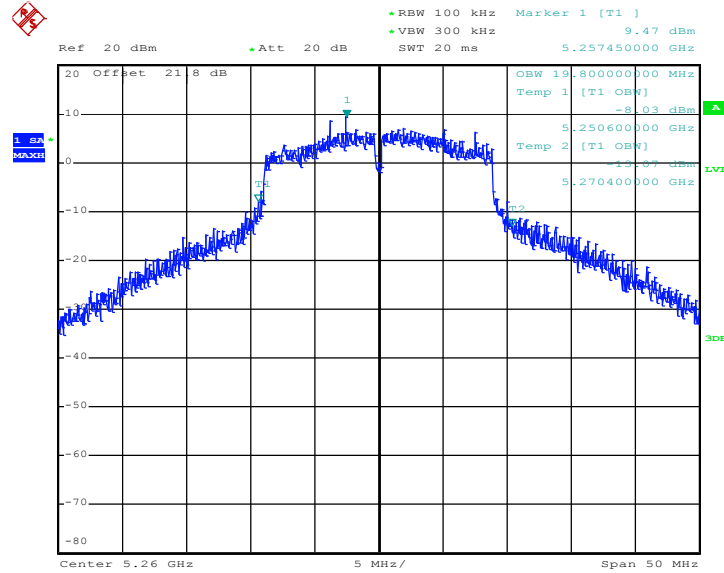


Date: 5.JUN.2012 16:06:25



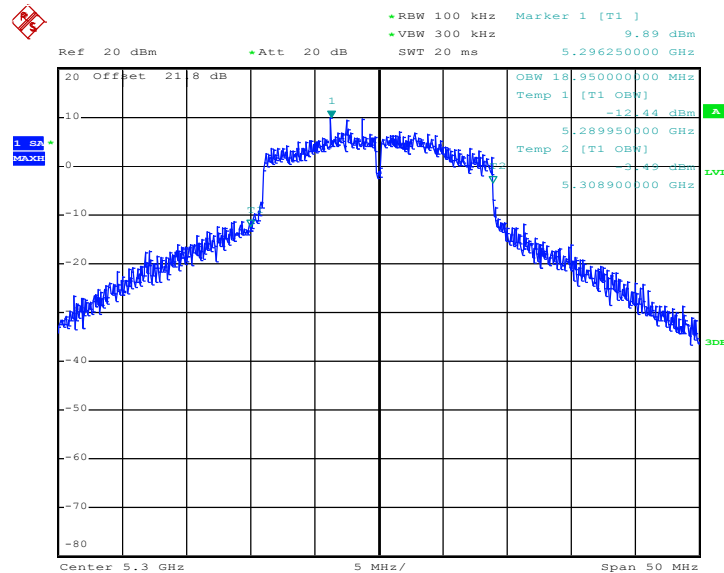


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 52



Date: 5.JUN.2012 16:24:16

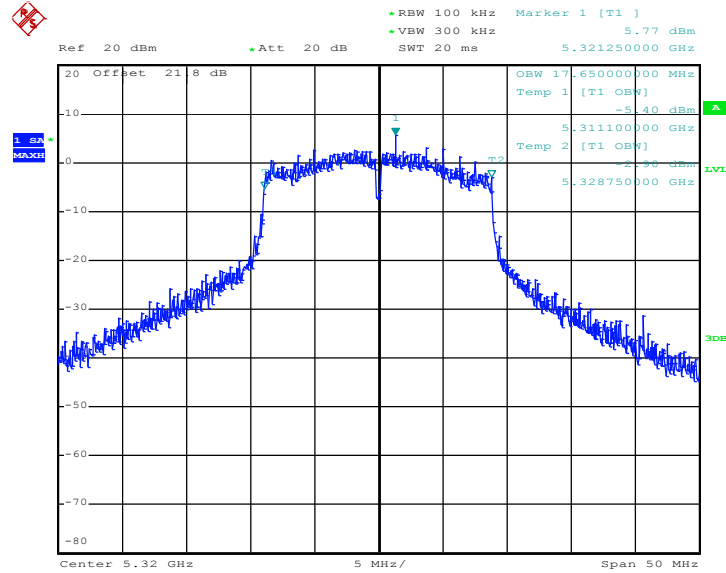
99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 60



Date: 5.JUN.2012 16:27:25

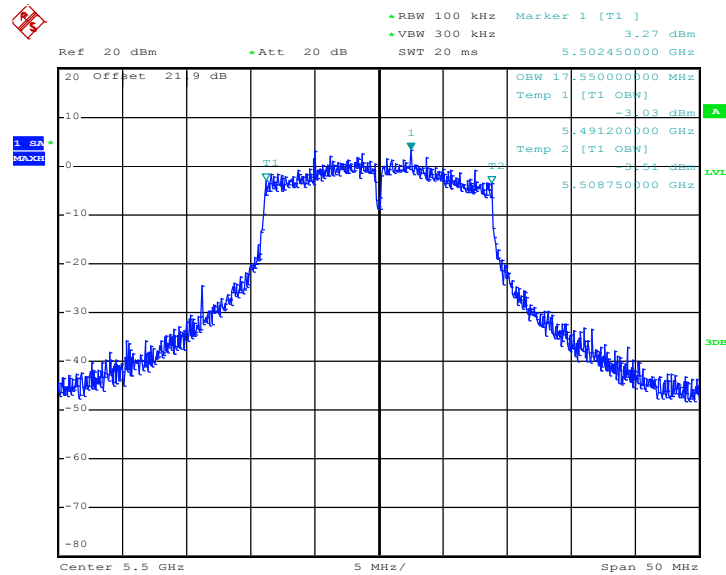


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 64



Date: 5.JUN.2012 16:33:58

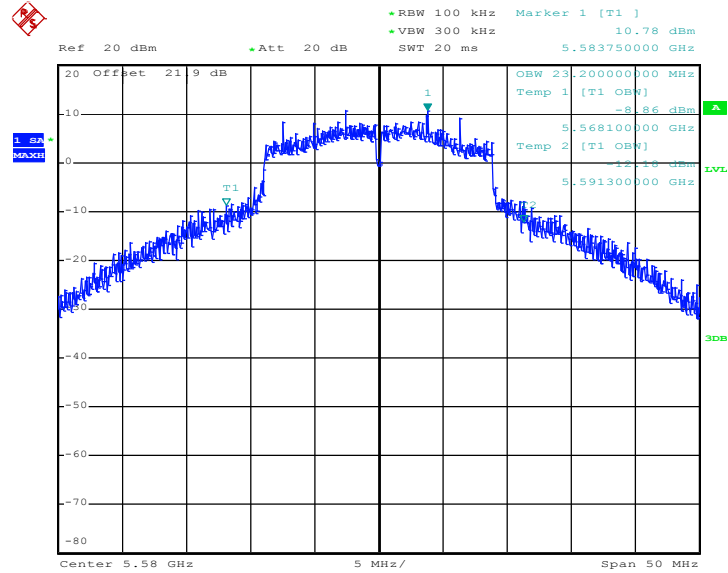
99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 100



Date: 5.JUN.2012 17:02:18

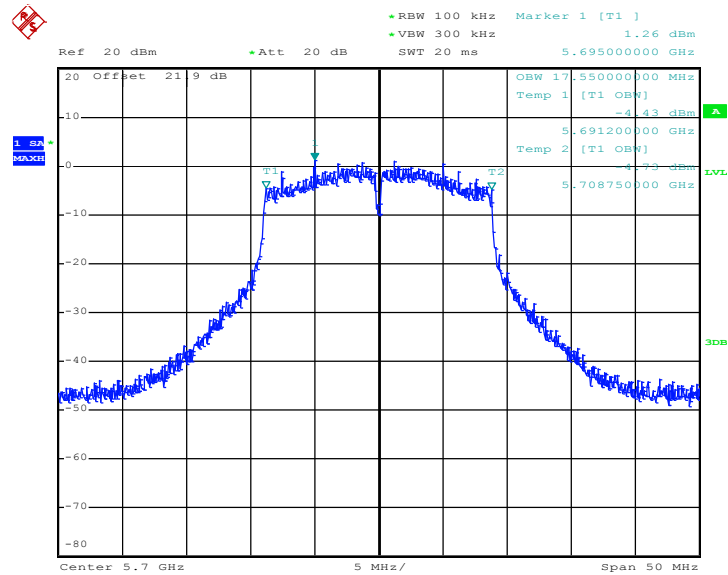


99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 116



Date: 5.JUN.2012 17:00:07

99% Bandwidth Plot on 802.11n (BW 20MHz) Channel 140



Date: 5.JUN.2012 16:58:32

## 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  $4 \text{ dBm} + 10\log B$ , 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  $11 \text{ dBm} + 10\log B$ . 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

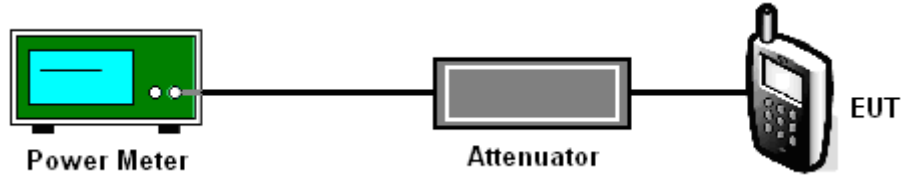
**The duty cycle of WLAN 802.11a/n were 99.15 % for 802.11a and 99.45 % for 802.11n (BW 20MHz).**

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r01.

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

- a) As an alternative to spectrum analyzer measurements, measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
  - (i) The EUT is configured to transmit continuously or to transmit with a consistent duty factor.
  - (ii) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
  - (iii) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- b) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).
- c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- d) Adjust the measurement in dBm by adding  $10 \log(1/x)$  where x is the duty cycle (e.g.,  $10 \log(1/0.25)$ )

### 3.2.4 Test Setup





3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	99.15%	Duty Factor	0.04dB

Channel	Frequency (MHz)	802.11a Output Power (dBm)		Max. Limits (dBm )	Pass/Fail
		Measured	Final		
36	5180	13.96	14.00	17	Pass
44	5220	14.04	14.08	17	Pass
48	5240	14.55	14.59	17	Pass
52	5260	20.40	20.44	24	Pass
60	5300	19.35	19.39	24	Pass
64	5320	16.60	16.64	24	Pass
100	5500	15.48	15.52	24	Pass
116	5580	21.14	21.18	24	Pass
140	5700	14.06	14.10	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 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 (26dB BW).



Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	99.45%	Duty Factor	0.02dB

Channel	Frequency (MHz)	802.11n (BW 20MHz) Output Power (dBm)		Max. Limits (dBm )	Pass/Fail
		Measured	Final		
36	5180	14.41	14.43	17	Pass
44	5220	14.50	14.52	17	Pass
48	5240	14.48	14.50	17	Pass
52	5260	20.35	20.37	24	Pass
60	5300	19.72	19.74	24	Pass
64	5320	15.89	15.91	24	Pass
100	5500	14.90	14.92	24	Pass
116	5580	21.07	21.09	24	Pass
140	5700	13.38	13.40	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 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 (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.

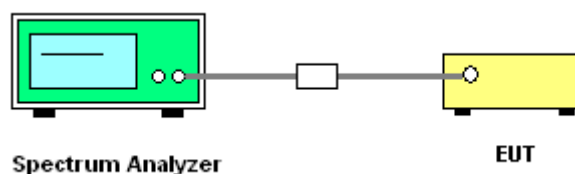
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The testing follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01r01.
  - Set span to encompass the entire emission bandwidth (EBW) of the signal.
  - Set RBW = 1 MHz.
  - Set VBW  $\geq$  3 MHz.
  - Number of points in sweep  $\geq$  2 Span / RBW.
  - Sweep time = auto.
  - Detector = sample
  - Trace average at least 100 traces in power averaging mode.
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

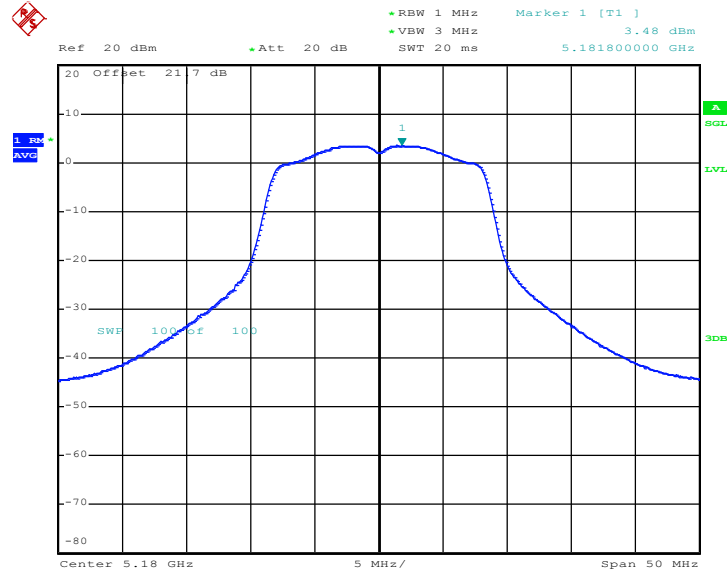
Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	99.15%	Duty Factor	0.04dB

Channel	Frequency (MHz)	802.11a PSD (dBm)		Max. Limits (dBm )	Pass/Fail
		Measured	Final		
36	5180	3.480	3.517	4	Pass
44	5220	3.610	3.647	4	Pass
48	5240	3.160	3.197	4	Pass
52	5260	8.420	8.457	11	Pass
60	5300	7.980	8.017	11	Pass
64	5320	4.120	4.157	11	Pass
100	5500	3.550	3.587	11	Pass
116	5580	9.160	9.197	11	Pass
140	5700	2.230	2.267	11	Pass

Note: Result of Final PSD equals to Measured PSD adds the duty factor.

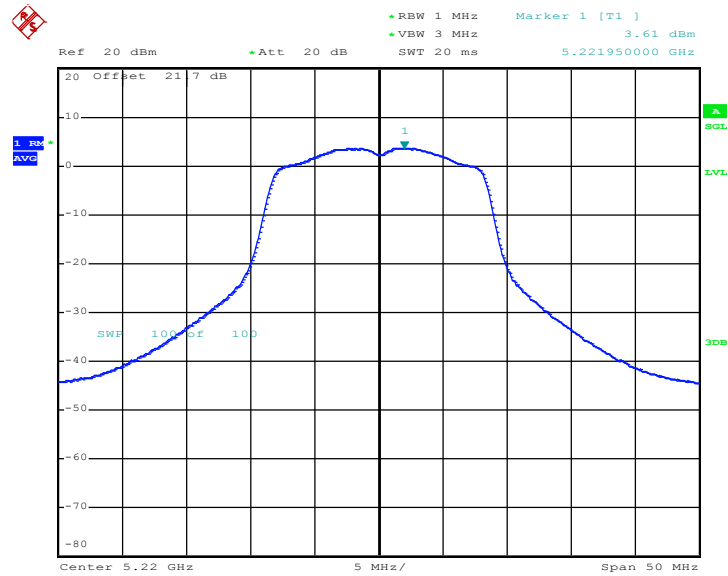


PSD Plot on 802.11a Channel 36



Date: 25.MAY.2012 22:10:25

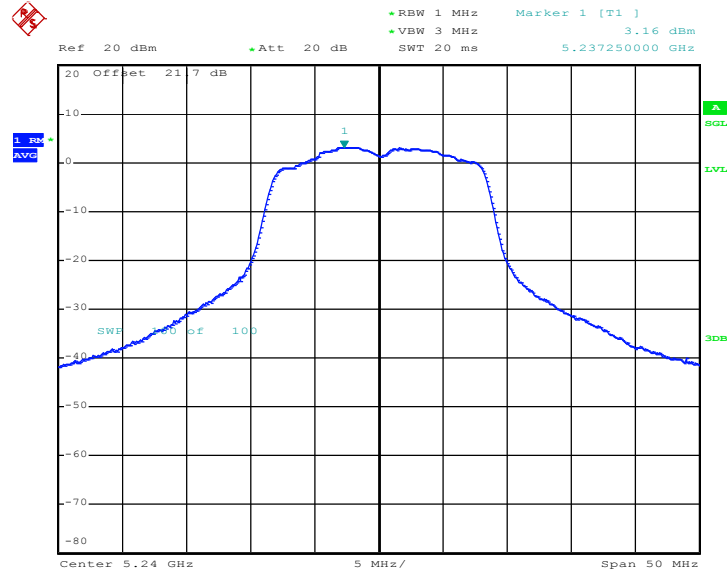
PSD Plot on 802.11a Channel 44



Date: 25.MAY.2012 22:12:43

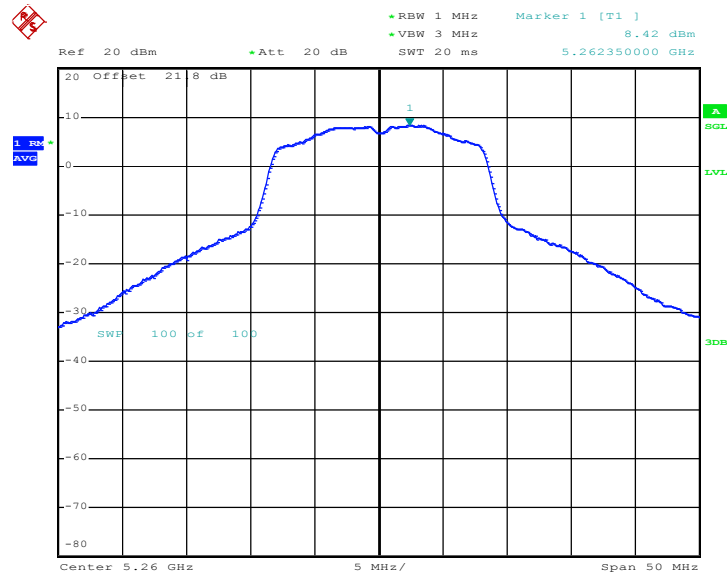


PSD Plot on 802.11a Channel 48



Date: 5.JUN.2012 17:35:22

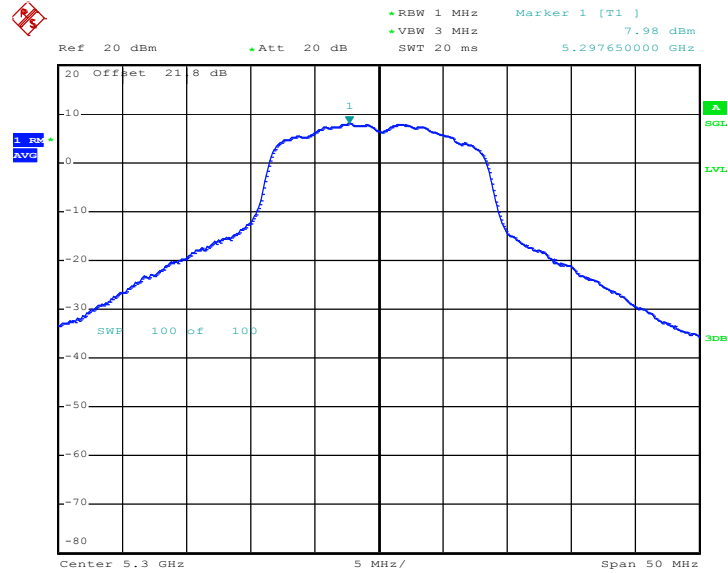
PSD Plot on 802.11a Channel 52



Date: 5.JUN.2012 16:41:49

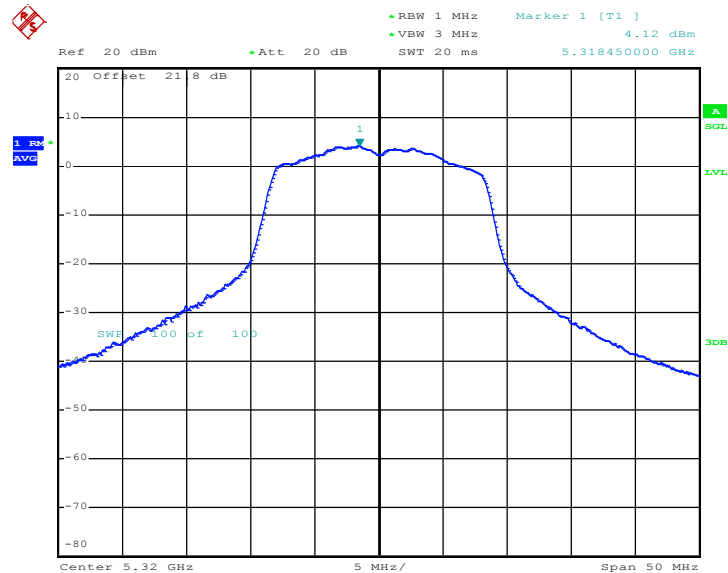


PSD Plot on 802.11a Channel 60



Date: 5.JUN.2012 16:38:17

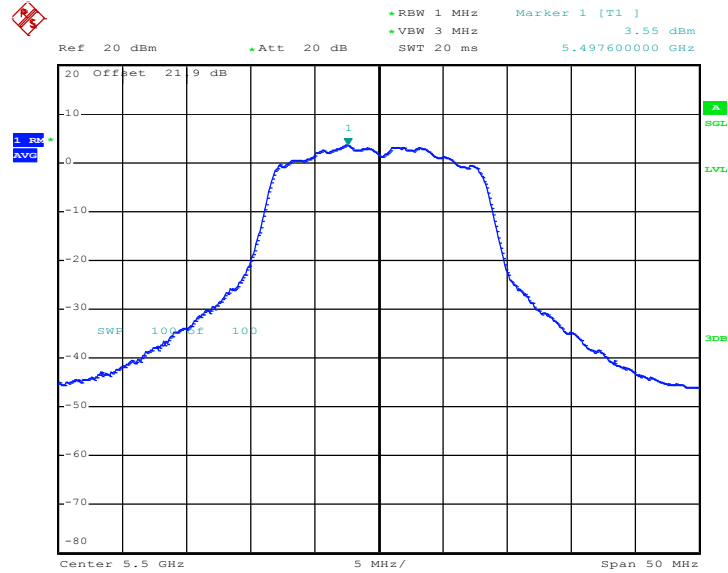
PSD Plot on 802.11a Channel 64



Date: 5.JUN.2012 16:35:15

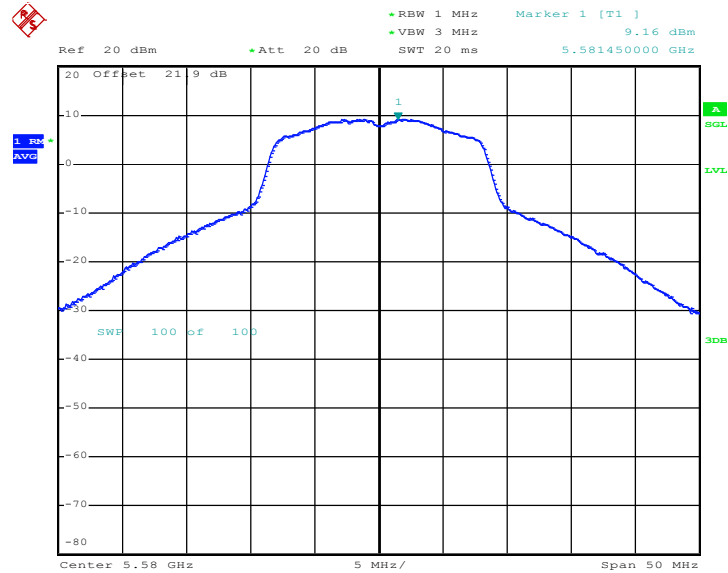


PSD Plot on 802.11a Channel 100



Date: 5.JUN.2012 16:45:34

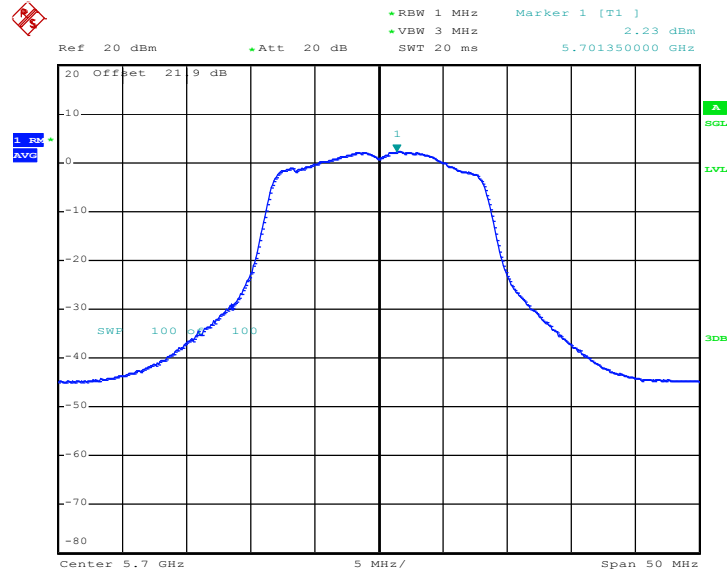
PSD Plot on 802.11a Channel 116



Date: 5.JUN.2012 16:48:10



PSD Plot on 802.11a Channel 140



Date: 5.JUN.2012 16:52:40



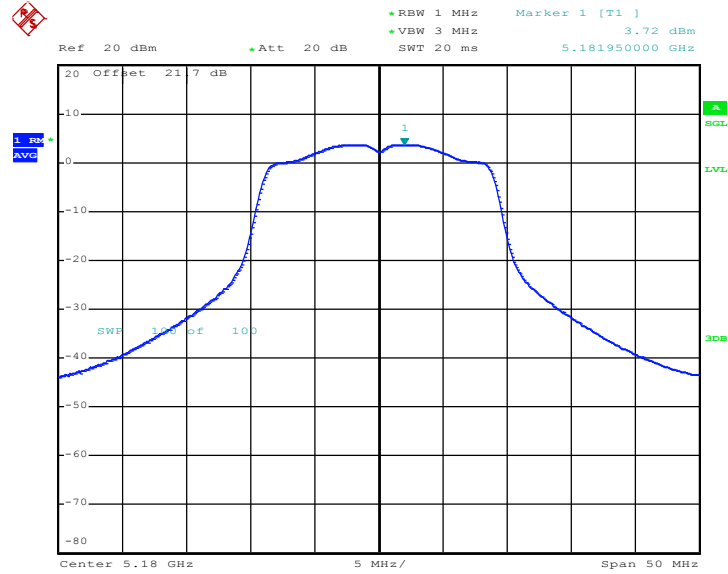
Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%
Duty Cycle	99.45%	Duty Factor	0.02dB

Channel	Frequency (MHz)	802.11n (BW 20MHz) PSD (dBm)		Max. Limits (dBm )	Pass/Fail
		Measured	Final		
36	5180	3.720	3.744	4	Pass
44	5220	3.730	3.754	4	Pass
48	5240	3.700	3.724	4	Pass
52	5260	7.730	7.754	11	Pass
60	5300	8.150	8.174	11	Pass
64	5320	3.450	3.474	11	Pass
100	5500	2.460	2.484	11	Pass
116	5580	8.990	9.014	11	Pass
140	5700	1.120	1.144	11	Pass

**Note:** Result of Final PSD equals to Measured PSD adds the duty factor.

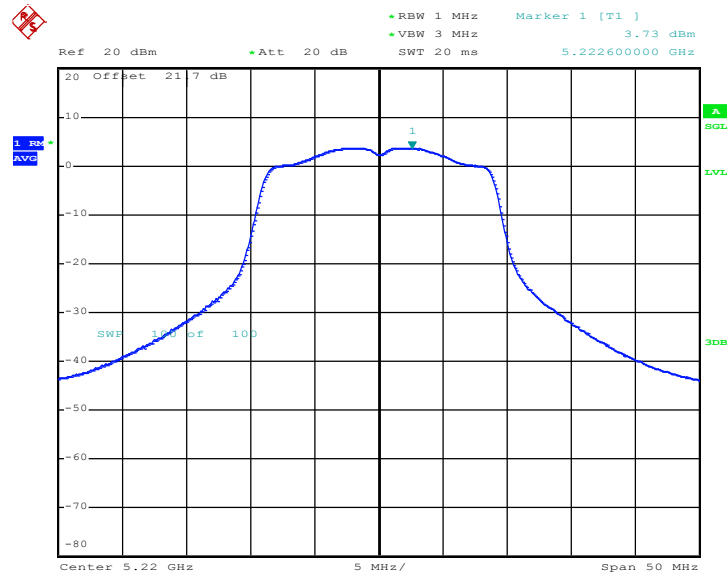


PSD Plot on 802.11n (BW 20MHz) Channel 36



Date: 25.MAY.2012 22:24:18

PSD Plot on 802.11n (BW 20MHz) Channel 44

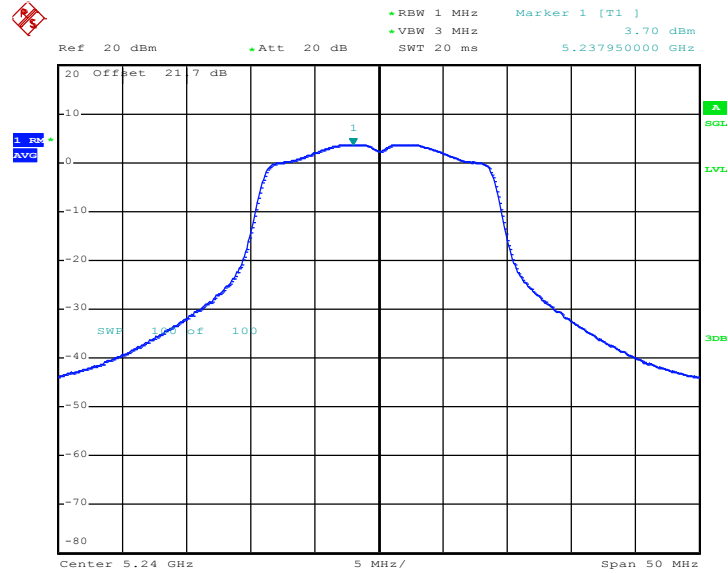


Date: 25.MAY.2012 22:18:41



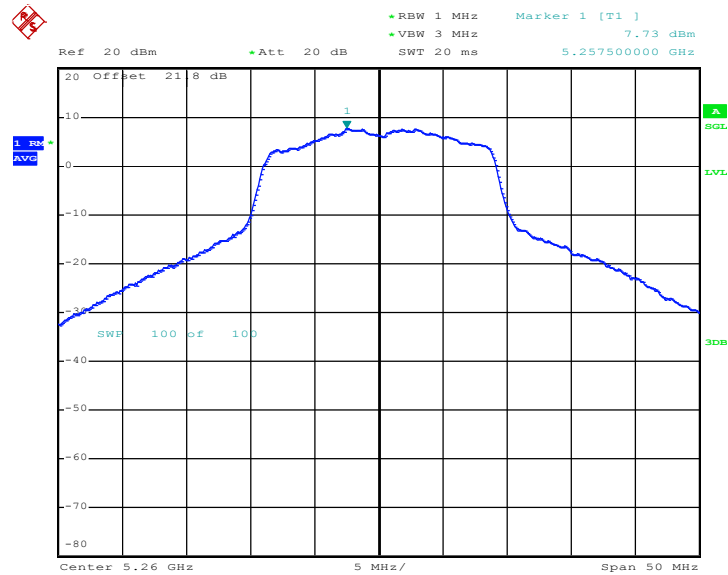


PSD Plot on 802.11n (BW 20MHz) Channel 48



Date: 25.MAY.2012 22:17:46

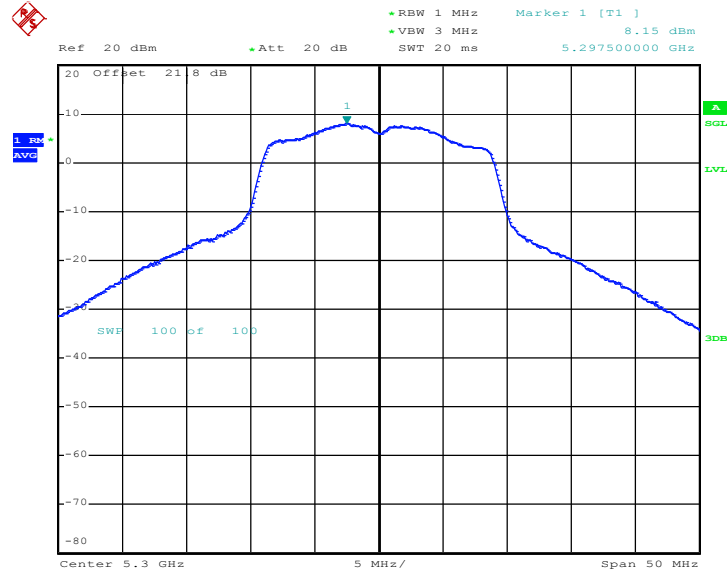
PSD Plot on 802.11n (BW 20MHz) Channel 52



Date: 5.JUN.2012 16:23:22

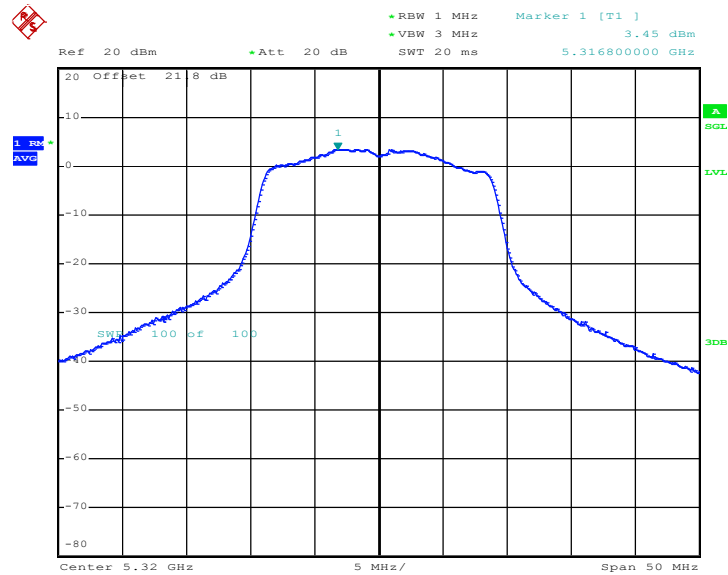


PSD Plot on 802.11n (BW 20MHz) Channel 60



Date: 5.JUN.2012 16:26:48

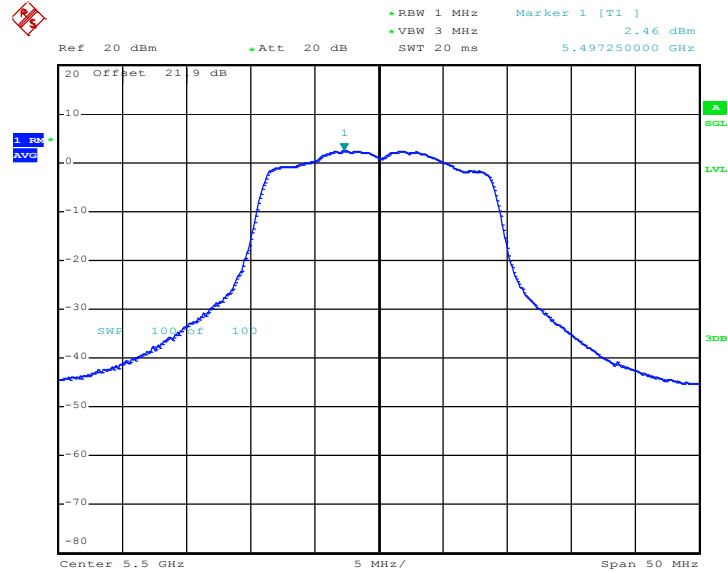
PSD Plot on 802.11n (BW 20MHz) Channel 64



Date: 5.JUN.2012 16:31:45

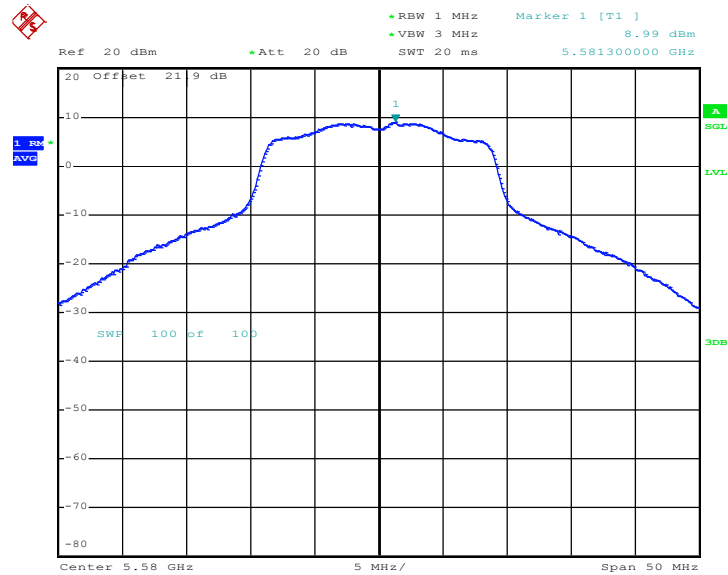


PSD Plot on 802.11n (BW 20MHz) Channel 100



Date: 5.JUN.2012 17:02:44

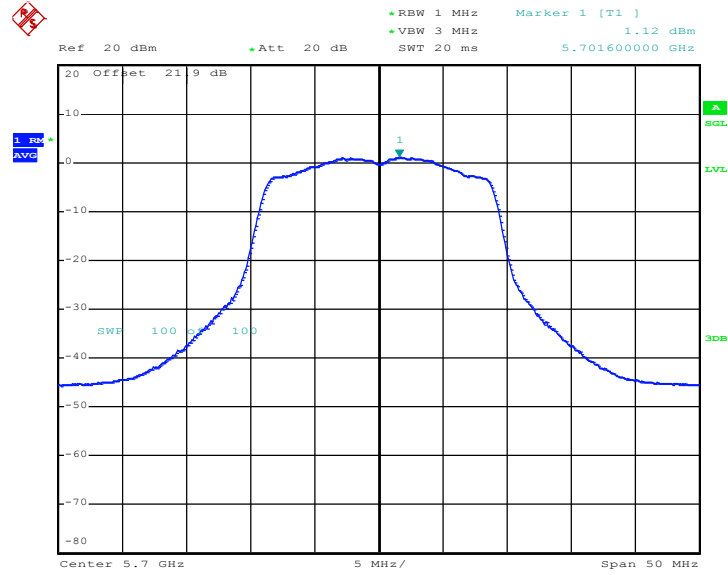
PSD Plot on 802.11n (BW 20MHz) Channel 116



Date: 5.JUN.2012 16:59:34



PSD Plot on 802.11n (BW 20MHz) Channel 140



Date: 5.JUN.2012 16:56:06

### 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.

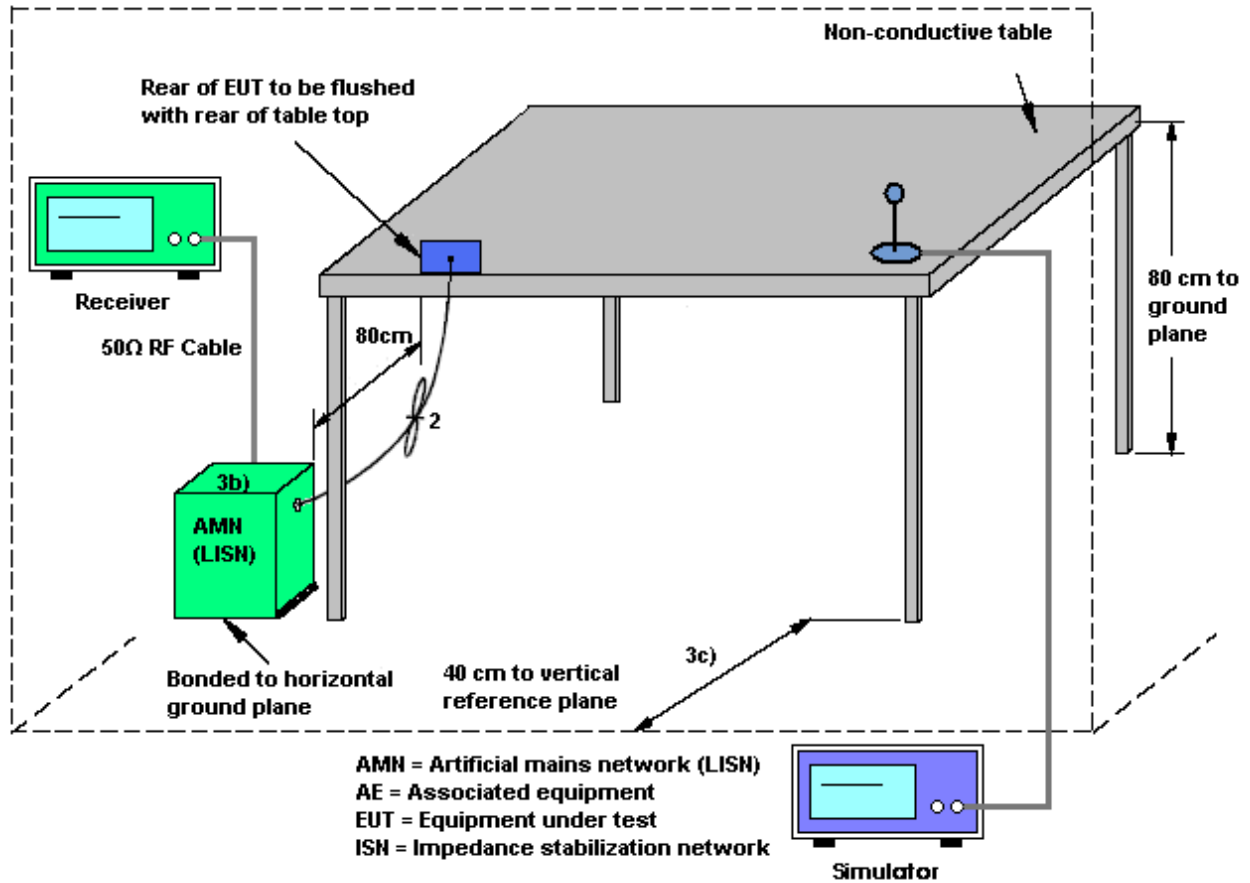
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

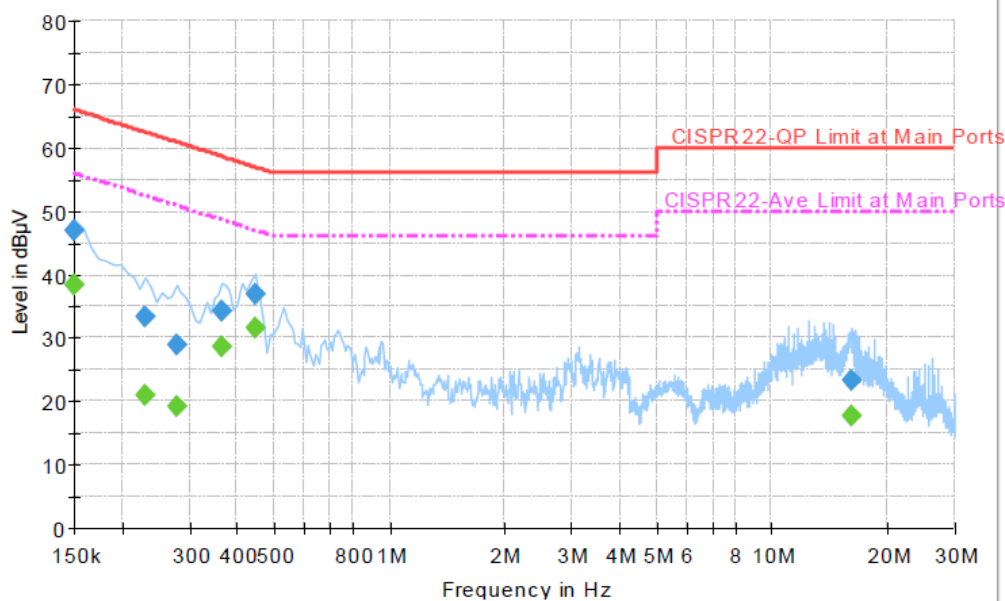
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + Micro USB Link + HDMI Cable with Monitor + Adapter + Earphone + USB Link (Data Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

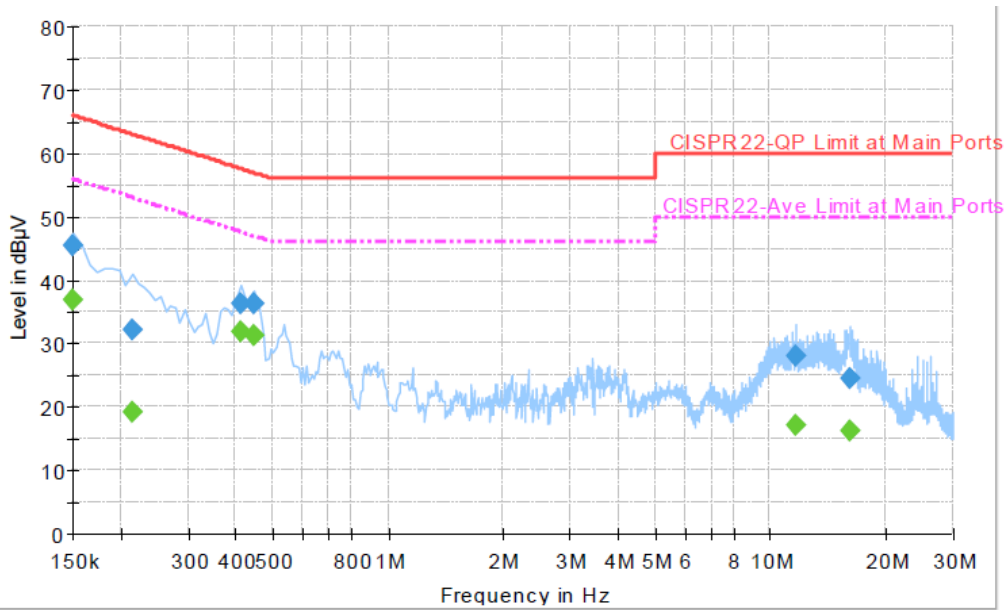
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.9	Off	L1	19.4	19.1	66.0
0.230000	33.4	Off	L1	19.4	29.0	62.4
0.278000	28.8	Off	L1	19.4	32.1	60.9
0.366000	34.1	Off	L1	19.4	24.5	58.6
0.446000	36.8	Off	L1	19.4	20.1	56.9
16.086000	23.4	Off	L1	19.6	36.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.5	Off	L1	19.4	17.5	56.0
0.230000	21.1	Off	L1	19.4	31.3	52.4
0.278000	19.1	Off	L1	19.4	31.8	50.9
0.366000	28.5	Off	L1	19.4	20.1	48.6
0.446000	31.5	Off	L1	19.4	15.4	46.9
16.086000	17.7	Off	L1	19.6	32.3	50.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + Micro USB Link + HDMI Cable with Monitor + Adapter + Earphone + USB Link (Data Link with Notebook)		
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)
0.150000	45.5	Off	N	19.4	20.5	66.0
0.214000	32.3	Off	N	19.4	30.7	63.0
0.414000	36.2	Off	N	19.5	21.4	57.6
0.446000	36.2	Off	N	19.4	20.7	56.9
11.710000	28.1	Off	N	19.6	31.9	60.0
16.230000	24.5	Off	N	19.7	35.5	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.9	Off	N	19.4	19.1	56.0
0.214000	19.1	Off	N	19.4	33.9	53.0
0.414000	31.8	Off	N	19.5	15.8	47.6
0.446000	31.2	Off	N	19.4	15.7	46.9
11.710000	17.2	Off	N	19.6	32.8	50.0
16.230000	16.3	Off	N	19.7	33.7	50.0



### 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.

(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.

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

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

### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

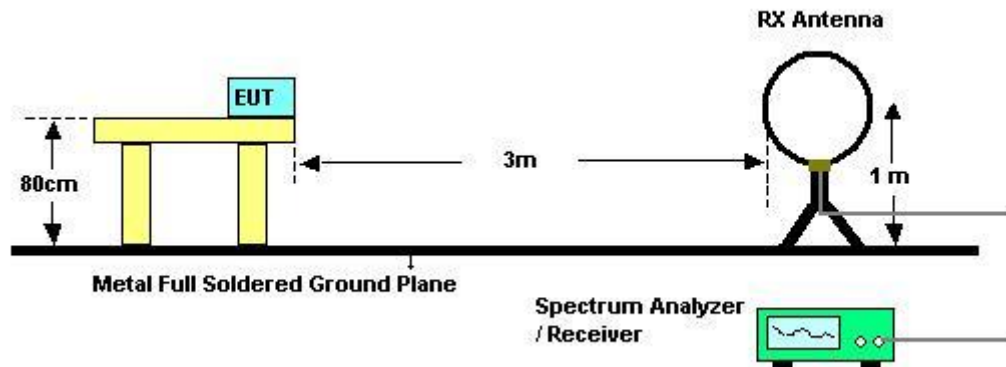
### 3.5.3 Test Procedures

1. The testing follows the guidelines in FCC KDB 789033 D01 General UNII Test Procedures v01r01.
  - (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  $\geq$  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.
    - VBW  $\geq$  1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. 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.

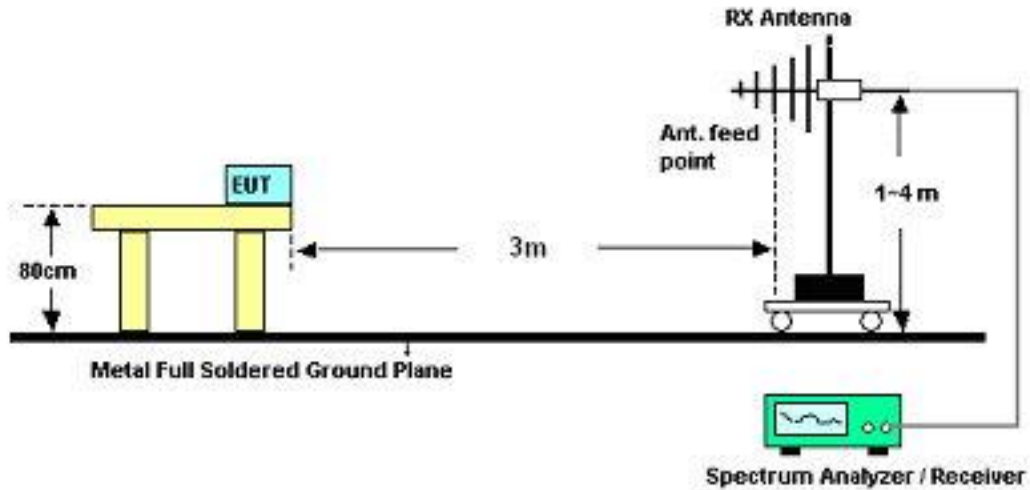
6. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. 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 testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 3.5.4 Test Setup

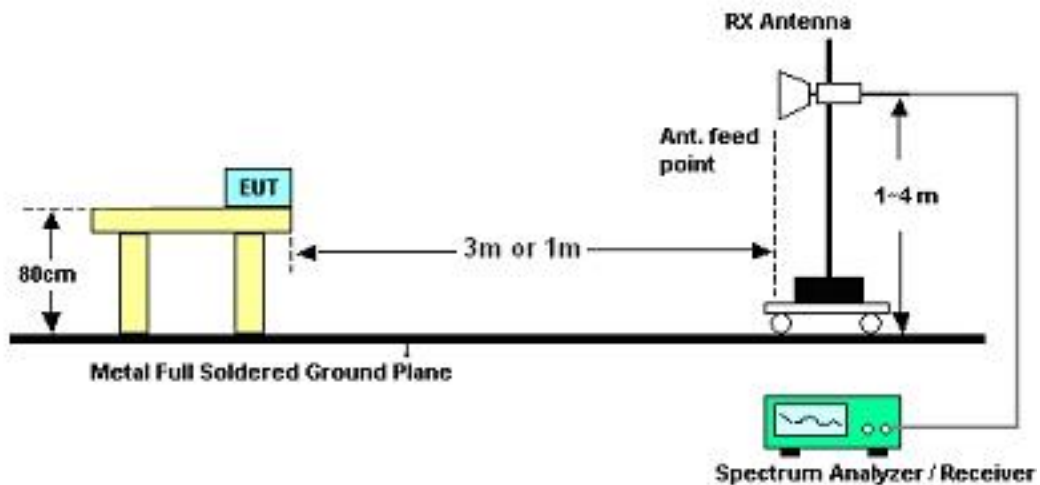
For radiated emissions below 30MHz



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

3.5.7 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	36	Test Engineer :	Gavin Wu

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	61.17	-12.83	74	50.51	34.22	9.41	32.97	100	308	Peak
5150	50.07	-3.93	54	39.41	34.22	9.41	32.97	100	308	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	60.37	-13.63	74	49.71	34.22	9.41	32.97	136	269	Peak
5150	48.74	-5.26	54	38.08	34.22	9.41	32.97	136	269	Average

Test Mode :	Mode 3	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	48	Test Engineer :	Gavin Wu

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
5369.79	54.91	-19.09	74	43.67	34.39	9.78	32.93	100	307	Peak
5369.79	42.36	-11.64	54	31.12	34.39	9.78	32.93	100	307	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
5424.35	55.05	-18.95	74	43.68	34.43	9.86	32.92	100	35	Peak
5424.35	42.06	-11.94	54	30.69	34.43	9.86	32.92	100	35	Average



Test Mode :	Mode 4	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	52	Test Engineer :	Gavin Wu

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	60.69	-13.31	74	50.03	34.22	9.41	32.97	110	313	Peak
5150	49.66	-4.34	54	39	34.22	9.41	32.97	110	313	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	61.62	-12.38	74	50.96	34.22	9.41	32.97	100	266	Peak
5150	50.01	-3.99	54	39.35	34.22	9.41	32.97	100	266	Average

Test Mode :	Mode 6	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	64	Test Engineer :	Gavin Wu

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	68.06	-5.94	74	56.87	34.38	9.74	32.93	101	234	Peak
5350	51.25	-2.75	54	40.06	34.38	9.74	32.93	101	234	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
5351.19	69.18	-4.82	74	57.99	34.38	9.74	32.93	100	264	Peak
5351.19	50.4	-3.6	54	39.21	34.38	9.74	32.93	100	264	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	100	Test Engineer :	Gavin Wu

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	61.71	-6.59	68.3	50.21	34.47	9.94	32.91	110	236	Peak

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	65.6	-2.7	68.3	54.1	34.47	9.94	32.91	100	288	Peak

Test Mode :	Mode 9	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	140	Test Engineer :	Gavin Wu

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	65.29	-3.01	68.3	53.82	34.81	9.92	33.26	101	256	Peak

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	65.92	-2.38	68.3	54.45	34.81	9.92	33.26	100	272	Peak



Test Mode :	Mode 10	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	36	Test Engineer :	Gavin Wu

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	62.92	-11.08	74	52.26	34.22	9.41	32.97	100	309	Peak
5150	49.33	-4.67	54	38.67	34.22	9.41	32.97	100	309	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	61.21	-12.79	74	50.55	34.22	9.41	32.97	100	276	Peak
5150	50.07	-3.93	54	39.41	34.22	9.41	32.97	100	276	Average

Test Mode :	Mode 12	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	48	Test Engineer :	Gavin Wu

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	52.53	-21.47	74	41.34	34.38	9.74	32.93	100	308	Peak
5350	42.53	-11.47	54	31.34	34.38	9.74	32.93	100	308	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	54.04	-19.96	74	42.85	34.38	9.74	32.93	100	271	Peak
5350	42.75	-11.25	54	31.56	34.38	9.74	32.93	100	271	Average





Test Mode :	Mode 13	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	52	Test Engineer :	Gavin Wu

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	55.82	-18.18	74	45.16	34.22	9.41	32.97	100	308	Peak
5150	44.79	-9.21	54	34.13	34.22	9.41	32.97	100	308	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	55.58	-18.42	74	44.92	34.22	9.41	32.97	100	264	Peak
5150	44.68	-9.32	54	34.02	34.22	9.41	32.97	100	264	Average

Test Mode :	Mode 15	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	64	Test Engineer :	Gavin Wu

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
5350.57	70.3	-3.7	74	59.11	34.38	9.74	32.93	101	237	Peak
5350.57	51.79	-2.21	54	40.6	34.38	9.74	32.93	101	237	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
5350.57	70.57	-3.43	74	59.38	34.38	9.74	32.93	111	267	Peak
5350.57	52.16	-1.84	54	40.97	34.38	9.74	32.93	111	267	Average



Test Mode :	Mode 16	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	100	Test Engineer :	Gavin Wu

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	65.6	-2.7	68.3	54.1	34.47	9.94	32.91	112	237	Peak

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	65.82	-2.48	68.3	54.32	34.47	9.94	32.91	100	290	Peak

Test Mode :	Mode 18	Temperature :	22~23°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	140	Test Engineer :	Gavin Wu

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	65.49	-2.81	68.3	54.02	34.81	9.92	33.26	100	32	Peak

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	66.82	-1.48	68.3	55.35	34.81	9.92	33.26	100	278	Peak



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

Temperature	22~23°C	Humidity	41~42%
Test Engineer	Gavin Wu		

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.

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

Test Mode :	Mode 1	Temperature :	22~23°C
Test Channel :	36	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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	21.88	-18.12	40	33.22	20	0.53	31.87	-	-	Peak
49.17	26.7	-13.3	40	49.14	8.5	0.69	31.63	100	163	Peak
236.28	24.04	-21.96	46	42.07	11.66	1.51	31.2	-	-	Peak
568.8	21.74	-24.26	46	30.87	19.26	2.6	30.99	-	-	Peak
813.1	25.17	-20.83	46	30.03	22.23	3.17	30.26	-	-	Peak
897.8	31.58	-14.42	46	35.98	23.08	3.34	30.82	-	-	Peak
5150	50.07	-3.93	54	39.41	34.22	9.41	32.97	100	308	Average
5150	61.17	-12.83	74	50.51	34.22	9.41	32.97	100	308	Peak
5180	105.09	-	-	94.36	34.25	9.45	32.97	100	308	Average
5180	115.15	-	-	104.42	34.25	9.45	32.97	100	308	Peak
5350	42.58	-11.42	54	31.39	34.38	9.74	32.93	100	308	Average
5350	53.55	-20.45	74	42.36	34.38	9.74	32.93	100	308	Peak



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
95.61	26.57	-16.93	43.5	47.94	9.32	0.98	31.67	-	-	Peak
178.5	25.08	-18.42	43.5	46.06	8.97	1.25	31.2	-	-	Peak
191.19	23.87	-19.63	43.5	44.9	9.01	1.28	31.32	-	-	Peak
512.1	20.61	-25.39	46	30.82	18.3	2.47	30.98	-	-	Peak
682.9	30.03	-15.97	46	37.1	20.46	2.91	30.44	-	-	Peak
796.3	31.08	-14.92	46	36.1	22.04	3.13	30.19	100	201	Peak
5150	48.74	-5.26	54	38.08	34.22	9.41	32.97	136	269	Average
5150	60.37	-13.63	74	49.71	34.22	9.41	32.97	136	269	Peak
5180	103.54	-	-	92.81	34.25	9.45	32.97	136	269	Average
5180	112.86	-	-	102.13	34.25	9.45	32.97	136	269	Peak
5350	42.48	-11.52	54	31.29	34.38	9.74	32.93	136	269	Average
5350	52.79	-21.21	74	41.6	34.38	9.74	32.93	136	269	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
32.16	21.77	-18.23	40	34.53	18.56	0.55	31.87	-	-	Peak
47.28	29.54	-10.46	40	51.25	9.3	0.67	31.68	101	141	Peak
227.64	28.78	-17.22	46	47.47	11.05	1.47	31.21	-	-	Peak
341.3	23.5	-22.5	46	38.58	14.43	1.9	31.41	-	-	Peak
568.8	22.25	-23.75	46	31.38	19.26	2.6	30.99	-	-	Peak
853	24.34	-21.66	46	29.01	22.62	3.27	30.56	-	-	Peak
5150	44.82	-9.18	54	34.16	34.22	9.41	32.97	100	304	Average
5150	56.23	-17.77	74	45.57	34.22	9.41	32.97	100	304	Peak
5220	104.8	-	-	93.96	34.27	9.53	32.96	100	304	Average
5220	114.44	-	-	103.6	34.27	9.53	32.96	100	304	Peak
5375.36	42.9	-11.1	54	31.66	34.39	9.78	32.93	100	304	Average
5375.36	54.18	-19.82	74	42.94	34.39	9.78	32.93	100	304	Peak



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
31.89	24.47	-15.53	40	37.23	18.56	0.55	31.87	-	-	Peak
48.9	29.47	-10.53	40	51.52	8.9	0.68	31.63	100	58	Peak
207.39	18.43	-25.07	43.5	38.83	9.64	1.35	31.39	-	-	Peak
625.5	25.39	-20.61	46	33.06	20	2.77	30.44	-	-	Peak
682.9	29.91	-16.09	46	36.98	20.46	2.91	30.44	-	-	Peak
796.3	30.94	-15.06	46	35.96	22.04	3.13	30.19	-	-	Peak
5150	43.59	-10.41	54	32.93	34.22	9.41	32.97	100	30	Average
5150	55.11	-18.89	74	44.45	34.22	9.41	32.97	100	30	Peak
5220	102.62	-	-	91.78	34.27	9.53	32.96	100	30	Average
5220	112.35	-	-	101.51	34.27	9.53	32.96	100	30	Peak
5382.72	42.14	-11.86	54	30.83	34.41	9.82	32.92	100	30	Average
5382.72	54.95	-19.05	74	43.64	34.41	9.82	32.92	100	30	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5240 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
32.16	25.62	-14.38	40	38.38	18.56	0.55	31.87	-	-	Peak
47.55	29.18	-10.82	40	50.86	9.3	0.67	31.65	100	139	Peak
227.64	28.93	-17.07	46	47.62	11.05	1.47	31.21	-	-	Peak
604.5	21.07	-24.93	46	29.06	19.83	2.7	30.52	-	-	Peak
712.3	22.58	-23.42	46	29.34	20.77	2.97	30.5	-	-	Peak
842.5	24.6	-21.4	46	29.3	22.53	3.25	30.48	-	-	Peak
5150	44.23	-9.77	54	33.57	34.22	9.41	32.97	100	307	Average
5150	55.18	-18.82	74	44.52	34.22	9.41	32.97	100	307	Peak
5240	105.3	-	-	94.39	34.29	9.57	32.95	100	307	Average
5240	114.78	-	-	103.87	34.29	9.57	32.95	100	307	Peak
5369.79	42.36	-11.64	54	31.12	34.39	9.78	32.93	100	307	Average
5369.79	54.91	-19.09	74	43.67	34.39	9.78	32.93	100	307	Peak



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5240 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	21.27	-18.73	40	32.61	20	0.53	31.87	-	-	Peak
49.17	29.23	-10.77	40	51.67	8.5	0.69	31.63	107	308	Peak
162.03	29.1	-14.4	43.5	48.94	10.31	1.22	31.37	-	-	Peak
682.9	29.88	-16.12	46	36.95	20.46	2.91	30.44	-	-	Peak
796.3	30.53	-15.47	46	35.55	22.04	3.13	30.19	-	-	Peak
897.8	34.62	-11.38	46	39.02	23.08	3.34	30.82	-	-	Peak
5150	42.76	-11.24	54	32.1	34.22	9.41	32.97	100	35	Average
5150	52.71	-21.29	74	42.05	34.22	9.41	32.97	100	35	Peak
5240	103.3	-	-	92.39	34.29	9.57	32.95	100	35	Average
5240	112.81	-	-	101.9	34.29	9.57	32.95	100	35	Peak
5424.35	42.06	-11.94	54	30.69	34.43	9.86	32.92	100	35	Average
5424.35	55.05	-18.95	74	43.68	34.43	9.86	32.92	100	35	Peak





<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5260 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
42.96	26.13	-13.87	40	45.54	11.7	0.64	31.75	-	-	Peak
47.82	29.31	-10.69	40	50.99	9.3	0.67	31.65	100	94	Peak
233.04	24.2	-21.8	46	42.52	11.39	1.5	31.21	-	-	Peak
454.7	22.63	-23.37	46	34.33	17.15	2.31	31.16	-	-	Peak
759.2	23.33	-22.67	46	29.22	21.49	3.08	30.46	-	-	Peak
967.1	26.5	-27.5	54	29.62	24.1	3.48	30.7	-	-	Peak
5150	49.66	-4.34	54	39	34.22	9.41	32.97	110	313	Average
5150	60.69	-13.31	74	50.03	34.22	9.41	32.97	110	313	Peak
5260	109.4	-	-	98.42	34.31	9.62	32.95	110	313	Average
5260	119.07	-	-	108.09	34.31	9.62	32.95	110	313	Peak
5362.97	50.86	-3.14	54	39.62	34.39	9.78	32.93	110	313	Average
5362.97	63.32	-10.68	74	52.08	34.39	9.78	32.93	110	313	Peak



<b>Test Mode :</b>	Mode 4	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5260 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
31.89	21.7	-18.3	40	34.46	18.56	0.55	31.87	-	-	Peak
49.17	29.46	-10.54	40	51.9	8.5	0.69	31.63	112	257	Peak
227.91	24.68	-21.32	46	43.37	11.05	1.47	31.21	-	-	Peak
625.5	25.68	-20.32	46	33.35	20	2.77	30.44	-	-	Peak
757.1	23.13	-22.87	46	29.08	21.46	3.07	30.48	-	-	Peak
796.3	30.36	-15.64	46	35.38	22.04	3.13	30.19	-	-	Peak
5150	50.01	-3.99	54	39.35	34.22	9.41	32.97	100	266	Average
5150	61.62	-12.38	74	50.96	34.22	9.41	32.97	100	266	Peak
5260	109.95	-	-	98.97	34.31	9.62	32.95	100	266	Average
5260	119.27	-	-	108.29	34.31	9.62	32.95	100	266	Peak
5353.36	50.91	-3.09	54	39.72	34.38	9.74	32.93	100	266	Average
5353.36	63.57	-10.43	74	52.38	34.38	9.74	32.93	100	266	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	20.82	-19.18	40	32.16	20	0.53	31.87	100	131	Peak
170.67	18.76	-24.74	43.5	39.33	9.47	1.23	31.27	-	-	Peak
233.04	24.01	-21.99	46	42.33	11.39	1.5	31.21	-	-	Peak
341.3	23.6	-22.4	46	38.68	14.43	1.9	31.41	-	-	Peak
568.8	21.51	-24.49	46	30.64	19.26	2.6	30.99	-	-	Peak
824.3	24.46	-21.54	46	29.26	22.34	3.2	30.34	-	-	Peak
5150	49.88	-4.12	54	39.22	34.22	9.41	32.97	100	309	Average
5150	60.58	-13.42	74	49.92	34.22	9.41	32.97	100	309	Peak
5300	107.78	-	-	96.72	34.34	9.66	32.94	100	309	Peak
5300	116.71	-	-	105.65	34.34	9.66	32.94	100	309	Peak
5354.91	51.2	-2.8	54	40.01	34.38	9.74	32.93	100	309	Average
5354.91	67.03	-6.97	74	55.84	34.38	9.74	32.93	100	309	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
31.62	21.96	-18.04	40	34.72	18.56	0.55	31.87	-	-	Peak
49.17	29.34	-10.66	40	51.78	8.5	0.69	31.63	110	200	Peak
227.64	24.2	-21.8	46	42.89	11.05	1.47	31.21	-	-	Peak
568.8	25.19	-20.81	46	34.32	19.26	2.6	30.99	-	-	Peak
682.9	29.55	-16.45	46	36.62	20.46	2.91	30.44	-	-	Peak
796.3	30.76	-15.24	46	35.78	22.04	3.13	30.19	-	-	Peak
5150	43.91	-10.09	54	33.25	34.22	9.41	32.97	100	262	Average
5150	55.3	-18.7	74	44.64	34.22	9.41	32.97	100	262	Peak
5300	107.22	-	-	96.16	34.34	9.66	32.94	100	262	Average
5300	116.99	-	-	105.93	34.34	9.66	32.94	100	262	Peak
5351.5	51.3	-2.7	54	40.11	34.38	9.74	32.93	100	262	Average
5351.5	67.63	-6.37	74	56.44	34.38	9.74	32.93	100	262	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
31.89	22.4	-17.6	40	35.16	18.56	0.55	31.87	-	-	Peak
48.9	25.78	-14.22	40	47.83	8.9	0.68	31.63	100	128	Peak
234.39	23.9	-22.1	46	42.09	11.52	1.5	31.21	-	-	Peak
454.7	22.37	-23.63	46	34.07	17.15	2.31	31.16	-	-	Peak
678.7	22.28	-23.72	46	29.38	20.43	2.9	30.43	-	-	Peak
897.8	28.62	-17.38	46	33.02	23.08	3.34	30.82	-	-	Peak
5150	42.31	-11.69	54	31.65	34.22	9.41	32.97	101	234	Average
5150	51.65	-22.35	74	40.99	34.22	9.41	32.97	101	234	Peak
5320	106.28	-	-	95.17	34.35	9.7	32.94	101	234	Average
5320	115.52	-	-	104.41	34.35	9.7	32.94	101	234	Peak
5350	51.25	-2.75	54	40.06	34.38	9.74	32.93	101	234	Average
5350	68.06	-5.94	74	56.87	34.38	9.74	32.93	101	234	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
42.96	25.1	-14.9	40	44.51	11.7	0.64	31.75	-	-	Peak
48.9	28.98	-11.02	40	51.03	8.9	0.68	31.63	120	185	Peak
227.64	24.28	-21.72	46	42.97	11.05	1.47	31.21	-	-	Peak
568.8	25.2	-20.8	46	34.33	19.26	2.6	30.99	-	-	Peak
682.9	30.34	-15.66	46	37.41	20.46	2.91	30.44	-	-	Peak
796.3	30.16	-15.84	46	35.18	22.04	3.13	30.19	-	-	Peak
5150	42.48	-11.52	54	31.82	34.22	9.41	32.97	100	264	Average
5150	53.06	-20.94	74	42.4	34.22	9.41	32.97	100	264	Peak
5320	105.95	-	-	94.84	34.35	9.7	32.94	100	264	Average
5320	115.5	-	-	104.39	34.35	9.7	32.94	100	264	Peak
5351.19	50.4	-3.6	54	39.21	34.38	9.74	32.93	100	264	Average
5351.19	69.18	-4.82	74	57.99	34.38	9.74	32.93	100	264	Peak



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
32.7	23.34	-16.66	40	36.82	17.84	0.56	31.88	-	-	Peak
42.96	26.47	-13.53	40	45.88	11.7	0.64	31.75	100	102	Peak
227.64	28.53	-17.47	46	47.22	11.05	1.47	31.21	-	-	Peak
454.7	22.11	-23.89	46	33.81	17.15	2.31	31.16	-	-	Peak
626.2	22.33	-23.67	46	29.99	20.01	2.77	30.44	-	-	Peak
806.1	24.87	-21.13	46	29.76	22.16	3.16	30.21	-	-	Peak
5470	61.71	-6.59	68.3	50.21	34.47	9.94	32.91	110	236	Peak
5500	102.89	-	-	91.27	34.5	10.02	32.9	110	236	Average
5500	111.7	-	-	100.12	34.5	9.98	32.9	110	236	Peak
5725	52.39	-15.91	68.3	40.92	34.81	9.92	33.26	110	236	Peak



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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	22.85	-17.15	40	34.19	20	0.53	31.87	-	-	Peak
49.17	29.63	-10.37	40	52.07	8.5	0.69	31.63	110	228	Peak
259.23	21.4	-24.6	46	38.35	12.72	1.58	31.25	-	-	Peak
682.9	29.54	-16.46	46	36.61	20.46	2.91	30.44	-	-	Peak
796.3	30.3	-15.7	46	35.32	22.04	3.13	30.19	-	-	Peak
918.1	25.61	-20.39	46	29.68	23.38	3.38	30.83	-	-	Peak
5470	65.6	-2.7	68.3	54.1	34.47	9.94	32.91	100	288	Peak
5500	105.18	-	-	93.56	34.5	10.02	32.9	100	288	Average
5500	113.46	-	-	101.84	34.5	10.02	32.9	100	288	Peak
5725	52.55	-15.75	68.3	41.08	34.81	9.92	33.26	100	288	Peak





<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
47.28	29.28	-10.72	40	50.99	9.3	0.67	31.68	100	313	Peak
153.12	18.41	-25.09	43.5	37.6	10.99	1.21	31.39	-	-	Peak
237.36	23.62	-22.38	46	41.57	11.73	1.52	31.2	-	-	Peak
596.8	21.95	-24.05	46	30.12	19.73	2.68	30.58	-	-	Peak
774.6	23.3	-22.7	46	28.83	21.72	3.1	30.35	-	-	Peak
856.5	25.03	-20.97	46	29.66	22.66	3.28	30.57	-	-	Peak
5470	53.52	-14.78	68.3	42.02	34.47	9.94	32.91	126	37	Peak
5580	108.02	-	-	96.45	34.6	9.99	33.02	126	37	Average
5580	116.99	-	-	105.4	34.62	9.99	33.02	126	37	Peak
5725	52.76	-15.54	68.3	41.29	34.81	9.92	33.26	126	37	Peak



Test Mode :	Mode 8	Temperature :	22~23°C
Test Channel :	116	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
43.23	22.35	-17.65	40	42.36	11.1	0.64	31.75	100	75	Peak
91.02	18.48	-25.02	43.5	40.46	8.72	0.95	31.65	-	-	Peak
216.84	17.46	-28.54	46	37.03	10.31	1.4	31.28	-	-	Peak
625.5	25.33	-20.67	46	33	20	2.77	30.44	-	-	Peak
749.4	23.81	-22.19	46	29.94	21.34	3.06	30.53	-	-	Peak
853.7	26.27	-19.73	46	30.92	22.63	3.28	30.56	-	-	Peak
5470	61	-7.3	68.3	49.5	34.47	9.94	32.91	102	277	Peak
5580	111.55	-	-	99.98	34.6	9.99	33.02	102	277	Average
5580	120.79	-	-	109.22	34.6	9.99	33.02	102	277	Peak
5725	60.98	-7.32	68.3	49.51	34.81	9.92	33.26	102	277	Peak



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
32.16	25.12	-14.88	40	37.88	18.56	0.55	31.87	106	232	Peak
42.96	23.81	-16.19	40	43.22	11.7	0.64	31.75	-	-	Peak
227.64	28.25	-17.75	46	46.94	11.05	1.47	31.21	-	-	Peak
568.8	22.34	-23.66	46	31.47	19.26	2.6	30.99	-	-	Peak
682.9	22.75	-23.25	46	29.82	20.46	2.91	30.44	-	-	Peak
785.1	24.46	-21.54	46	29.74	21.87	3.12	30.27	-	-	Peak
5470	51.73	-16.57	68.3	40.23	34.47	9.94	32.91	101	256	Peak
5700	102	-	-	90.52	34.77	9.93	33.22	101	256	Average
5700	110.98	-	-	99.5	34.77	9.93	33.22	101	256	Peak
5725	65.29	-3.01	68.3	53.82	34.81	9.92	33.26	101	256	Peak



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
48.9	29.34	-10.66	40	51.39	8.9	0.68	31.63	141	126	Peak
91.02	17.7	-25.8	43.5	39.68	8.72	0.95	31.65	-	-	Peak
227.64	24.04	-21.96	46	42.73	11.05	1.47	31.21	-	-	Peak
625.5	24.62	-21.38	46	32.29	20	2.77	30.44	-	-	Peak
682.9	29.56	-16.44	46	36.63	20.46	2.91	30.44	-	-	Peak
796.3	30.2	-15.8	46	35.22	22.04	3.13	30.19	-	-	Peak
5470	52.59	-15.71	68.3	41.09	34.47	9.94	32.91	100	272	Peak
5700	103.81	-	-	92.33	34.77	9.93	33.22	100	272	Average
5700	111.94	-	-	100.44	34.79	9.93	33.22	100	272	Peak
5725	65.92	-2.38	68.3	54.45	34.81	9.92	33.26	100	272	Peak



<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
33.24	24.11	-15.89	40	37.59	17.84	0.56	31.88	-	-	Peak
47.55	29.5	-10.5	40	51.18	9.3	0.67	31.65	100	66	Peak
150.69	21.08	-22.42	43.5	40.06	11.2	1.21	31.39	-	-	Peak
568.8	23.67	-22.33	46	32.8	19.26	2.6	30.99	-	-	Peak
682.9	23.35	-22.65	46	30.42	20.46	2.91	30.44	-	-	Peak
799.8	24.44	-21.56	46	29.36	22.1	3.14	30.16	-	-	Peak
5150	49.33	-4.67	54	38.67	34.22	9.41	32.97	100	309	Average
5150	62.92	-11.08	74	52.26	34.22	9.41	32.97	100	309	Peak
5180	103.43	-	-	92.7	34.25	9.45	32.97	100	309	Average
5180	113.28	-	-	102.55	34.25	9.45	32.97	100	309	Peak
5350	42.31	-11.69	54	31.12	34.38	9.74	32.93	100	309	Average
5350	53.83	-20.17	74	42.64	34.38	9.74	32.93	100	309	Peak



<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	36	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
49.17	29.24	-10.76	40	51.68	8.5	0.69	31.63	100	323	Peak
249.78	21.05	-24.95	46	38.08	12.6	1.53	31.16	-	-	Peak
291.63	19.22	-26.78	46	35.72	13.19	1.71	31.4	-	-	Peak
682.9	30.17	-15.83	46	37.24	20.46	2.91	30.44	-	-	Peak
796.3	30.12	-15.88	46	35.14	22.04	3.13	30.19	-	-	Peak
915.3	33.2	-12.8	46	37.32	23.33	3.38	30.83	-	-	Peak
5150	50.07	-3.93	54	39.41	34.22	9.41	32.97	100	276	Average
5150	61.21	-12.79	74	50.55	34.22	9.41	32.97	100	276	Peak
5180	104.18	-	-	93.45	34.25	9.45	32.97	100	276	Average
5180	113.95	-	-	103.22	34.25	9.45	32.97	100	276	Peak
5350	52.57	-1.43	54	41.38	34.38	9.74	32.93	100	276	Average
5350	42.17	-31.83	74	30.98	34.38	9.74	32.93	100	276	Peak



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
49.44	28.58	-11.42	40	51.02	8.5	0.69	31.63	102	116	Peak
170.67	18.77	-24.73	43.5	39.34	9.47	1.23	31.27	-	-	Peak
232.5	23.36	-22.64	46	41.68	11.39	1.5	31.21	-	-	Peak
568.8	21.94	-24.06	46	31.07	19.26	2.6	30.99	-	-	Peak
843.2	24.82	-21.18	46	29.53	22.53	3.25	30.49	-	-	Peak
985.3	27.6	-26.4	54	30.27	24.38	3.5	30.55	-	-	Peak
5150	43.71	-10.29	54	33.05	34.22	9.41	32.97	112	309	Average
5150	55.07	-18.93	74	44.41	34.22	9.41	32.97	112	309	Peak
5220	103.09	-	-	92.25	34.27	9.53	32.96	112	309	Average
5220	112.34	-	-	101.5	34.27	9.53	32.96	112	309	Peak
5350	42.09	-11.91	54	30.9	34.38	9.74	32.93	112	309	Average
5350	53.11	-20.89	74	41.92	34.38	9.74	32.93	112	309	Peak



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	44	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
48.9	29.4	-10.6	40	51.45	8.9	0.68	31.63	100	109	Peak
217.38	24.54	-21.46	46	44.11	10.31	1.4	31.28	-	-	Peak
227.64	24.12	-21.88	46	42.81	11.05	1.47	31.21	-	-	Peak
682.9	29.84	-16.16	46	36.91	20.46	2.91	30.44	-	-	Peak
739.6	25.25	-20.75	46	31.53	21.2	3.04	30.52	-	-	Peak
796.3	29.89	-16.11	46	34.91	22.04	3.13	30.19	-	-	Peak
5150	44.35	-9.65	54	33.69	34.22	9.41	32.97	100	269	Average
5150	56.75	-17.25	74	46.09	34.22	9.41	32.97	100	269	Peak
5220	103.78	-	-	92.94	34.27	9.53	32.96	100	269	Average
5220	113.67	-	-	102.83	34.27	9.53	32.96	100	269	Peak
5350	42.62	-11.38	54	31.43	34.38	9.74	32.93	100	269	Average
5350	54.94	-19.06	74	43.75	34.38	9.74	32.93	100	269	Peak





<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5240 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
31.35	19.69	-20.31	40	31.74	19.28	0.54	31.87	100	287	Peak
170.67	18.48	-25.02	43.5	39.05	9.47	1.23	31.27	-	-	Peak
284.61	17.05	-28.95	46	33.73	13.08	1.66	31.42	-	-	Peak
568.8	22.28	-23.72	46	31.41	19.26	2.6	30.99	-	-	Peak
682.9	22.4	-23.6	46	29.47	20.46	2.91	30.44	-	-	Peak
845.3	24.56	-21.44	46	29.24	22.56	3.26	30.5	-	-	Peak
5150	42.89	-11.11	54	32.23	34.22	9.41	32.97	100	308	Average
5150	53.76	-20.24	74	43.1	34.22	9.41	32.97	100	308	Peak
5240	103.36	-	-	92.45	34.29	9.57	32.95	100	308	Average
5240	112.87	-	-	101.96	34.29	9.57	32.95	100	308	Peak
5350	42.53	-11.47	54	31.34	34.38	9.74	32.93	100	308	Average
5350	52.53	-21.47	74	41.34	34.38	9.74	32.93	100	308	Peak



<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	48	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5240 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
31.89	22.14	-17.86	40	34.9	18.56	0.55	31.87	-	-	Peak
48.9	28.96	-11.04	40	51.01	8.9	0.68	31.63	133	303	Peak
209.55	18.32	-25.18	43.5	38.61	9.77	1.36	31.42	-	-	Peak
568.8	25.81	-20.19	46	34.94	19.26	2.6	30.99	-	-	Peak
682.9	29.49	-16.51	46	36.56	20.46	2.91	30.44	-	-	Peak
835.5	24.64	-21.36	46	29.39	22.45	3.23	30.43	-	-	Peak
5150	43.3	-10.7	54	32.64	34.22	9.41	32.97	100	271	Average
5150	53.67	-20.33	74	43.01	34.22	9.41	32.97	100	271	Peak
5240	103.56	-	-	92.65	34.29	9.57	32.95	100	271	Average
5240	113.1	-	-	102.18	34.3	9.57	32.95	100	271	Peak
5350	42.75	-11.25	54	31.56	34.38	9.74	32.93	100	271	Average
5350	54.04	-19.96	74	42.85	34.38	9.74	32.93	100	271	Peak



<b>Test Mode :</b>	Mode 13	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5260 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
49.17	28.49	-11.51	40	50.93	8.5	0.69	31.63	115	92	Peak
153.66	17.66	-25.84	43.5	36.85	10.99	1.21	31.39	-	-	Peak
284.61	17.77	-28.23	46	34.45	13.08	1.66	31.42	-	-	Peak
512.1	20.23	-25.77	46	30.44	18.3	2.47	30.98	-	-	Peak
731.9	23.1	-22.9	46	29.52	21.08	3.02	30.52	-	-	Peak
862.8	23.86	-22.14	46	28.46	22.73	3.29	30.62	-	-	Peak
5150	44.79	-9.21	54	34.13	34.22	9.41	32.97	100	308	Average
5150	55.82	-18.18	74	45.16	34.22	9.41	32.97	100	308	Peak
5260	108.39	-	-	97.41	34.31	9.62	32.95	100	308	Average
5260	117.6	-	-	106.68	34.3	9.57	32.95	100	308	Peak
5352.12	44.09	-9.91	54	32.9	34.38	9.74	32.93	100	308	Average
5352.12	56.46	-17.54	74	45.27	34.38	9.74	32.93	100	308	Peak



<b>Test Mode :</b>	Mode 13	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	52	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5260 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
48.9	29.57	-10.43	40	51.62	8.9	0.68	31.63	106	164	Peak
70.23	20.08	-19.92	40	44.73	6.3	0.84	31.79	-	-	Peak
222.78	22.88	-23.12	46	41.94	10.72	1.44	31.22	-	-	Peak
512.1	21.38	-24.62	46	31.59	18.3	2.47	30.98	-	-	Peak
682.9	29.57	-16.43	46	36.64	20.46	2.91	30.44	-	-	Peak
836.2	25.84	-20.16	46	30.58	22.46	3.23	30.43	-	-	Peak
5150	44.68	-9.32	54	34.02	34.22	9.41	32.97	100	264	Average
5150	55.58	-18.42	74	44.92	34.22	9.41	32.97	100	264	Peak
5260	109.97	-	-	98.99	34.31	9.62	32.95	100	264	Average
5260	119.23	-	-	108.31	34.3	9.57	32.95	100	264	Peak
5351.81	45.54	-8.46	54	34.35	34.38	9.74	32.93	100	264	Average
5351.81	57.9	-16.1	74	46.71	34.38	9.74	32.93	100	264	Peak



<b>Test Mode :</b>	Mode 14	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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	20.42	-19.58	40	31.76	20	0.53	31.87	105	198	Peak
170.67	19.49	-24.01	43.5	40.06	9.47	1.23	31.27	-	-	Peak
237.36	23.34	-22.66	46	41.29	11.73	1.52	31.2	-	-	Peak
454.7	22.53	-23.47	46	34.23	17.15	2.31	31.16	-	-	Peak
636	21.98	-24.02	46	29.49	20.09	2.8	30.4	-	-	Peak
800.5	24.53	-21.47	46	29.45	22.1	3.14	30.16	-	-	Peak
5150	42.74	-11.26	54	32.08	34.22	9.41	32.97	100	242	Average
5150	54.53	-19.47	74	43.87	34.22	9.41	32.97	100	242	Peak
5300	107.51	-	-	96.45	34.34	9.66	32.94	100	242	Average
5300	116.93	-	-	105.87	34.34	9.66	32.94	100	242	Peak
5350.26	50.85	-3.15	54	39.66	34.38	9.74	32.93	100	242	Average
5350.26	69.09	-4.91	74	57.9	34.38	9.74	32.93	100	242	Peak



<b>Test Mode :</b>	Mode 14	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	60	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	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
32.16	24.08	-15.92	40	36.84	18.56	0.55	31.87	100	218	Peak
43.23	21.27	-18.73	40	41.28	11.1	0.64	31.75	-	-	Peak
260.85	24.11	-21.89	46	41.02	12.75	1.6	31.26	-	-	Peak
568.8	24.9	-21.1	46	34.03	19.26	2.6	30.99	-	-	Peak
682.9	29.71	-16.29	46	36.78	20.46	2.91	30.44	-	-	Peak
823.6	25.56	-20.44	46	30.37	22.33	3.2	30.34	-	-	Peak
5150	43.47	-10.53	54	32.81	34.22	9.41	32.97	110	270	Average
5150	54.4	-19.6	74	43.74	34.22	9.41	32.97	110	270	Peak
5300	109.19	-	-	98.13	34.34	9.66	32.94	110	270	Average
5300	119.1	-	-	108.04	34.34	9.66	32.94	110	270	Peak
5350.57	52.4	-1.6	54	41.21	34.38	9.74	32.93	110	270	Average
5350.57	69.59	-4.41	74	58.4	34.38	9.74	32.93	110	270	Peak



<b>Test Mode :</b>	Mode 15	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	64	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	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
49.17	29.57	-10.43	40	52.01	8.5	0.69	31.63	100	71	Peak
170.67	18.72	-24.78	43.5	39.29	9.47	1.23	31.27	-	-	Peak
236.82	23.5	-22.5	46	41.53	11.66	1.51	31.2	-	-	Peak
307	17.96	-28.04	46	33.88	13.51	1.79	31.22	-	-	Peak
568.8	22.29	-23.71	46	31.42	19.26	2.6	30.99	-	-	Peak
786.5	24.4	-21.6	46	29.64	21.9	3.12	30.26	-	-	Peak
5150	41.17	-12.83	54	30.51	34.22	9.41	32.97	101	237	Average
5150	51.94	-22.06	74	41.28	34.22	9.41	32.97	101	237	Peak
5320	105.16	-	-	94.05	34.35	9.7	32.94	101	237	Average
5320	114.83	-	-	103.72	34.35	9.7	32.94	101	237	Peak
5350.57	51.79	-2.21	54	40.6	34.38	9.74	32.93	101	237	Average
5350.57	70.3	-3.7	74	59.11	34.38	9.74	32.93	101	237	Peak



Test Mode :	Mode 15	Temperature :	22~23°C
Test Channel :	64	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
42.96	23.03	-16.97	40	42.44	11.7	0.64	31.75	-	-	Peak
150.96	15.83	-27.67	43.5	34.88	11.13	1.21	31.39	-	-	Peak
238.17	19.32	-26.68	46	37.21	11.79	1.52	31.2	-	-	Peak
398	20.49	-25.51	46	33.9	15.95	2.14	31.5	-	-	Peak
568.8	24.93	-21.07	46	34.06	19.26	2.6	30.99	-	-	Peak
682.9	29.39	-16.61	46	36.46	20.46	2.91	30.44	100	82	Peak
5150	41.62	-12.38	54	30.96	34.22	9.41	32.97	111	267	Average
5150	52.9	-21.1	74	42.24	34.22	9.41	32.97	111	267	Peak
5320	106.44	-	-	95.33	34.35	9.7	32.94	111	267	Average
5320	115.95	-	-	104.84	34.35	9.7	32.94	111	267	Peak
5350.57	52.16	-1.84	54	40.97	34.38	9.74	32.93	111	267	Average
5350.57	70.57	-3.43	74	59.38	34.38	9.74	32.93	111	267	Peak





<b>Test Mode :</b>	Mode 16	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
47.82	29.73	-10.27	40	51.41	9.3	0.67	31.65	100	52	Peak
170.67	18.77	-24.73	43.5	39.34	9.47	1.23	31.27	-	-	Peak
227.64	29.01	-16.99	46	47.7	11.05	1.47	31.21	-	-	Peak
341.3	23.52	-22.48	46	38.6	14.43	1.9	31.41	-	-	Peak
568.8	23.4	-22.6	46	32.53	19.26	2.6	30.99	-	-	Peak
897.8	27.53	-18.47	46	31.93	23.08	3.34	30.82	-	-	Peak
5470	65.6	-2.7	68.3	54.1	34.47	9.94	32.91	112	237	Peak
5500	102.45	-	-	90.83	34.5	10.02	32.9	112	237	Average
5500	112.3	-	-	100.68	34.5	10.02	32.9	112	237	Peak
5725	52.66	-15.64	68.3	41.19	34.81	9.92	33.26	112	237	Peak



<b>Test Mode :</b>	Mode 16	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	100	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5500 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
31.35	19.95	-20.05	40	32	19.28	0.54	31.87	-	-	Peak
209.01	17.93	-25.57	43.5	38.21	9.77	1.36	31.41	-	-	Peak
227.64	24.07	-21.93	46	42.76	11.05	1.47	31.21	-	-	Peak
568.8	26.06	-19.94	46	35.19	19.26	2.6	30.99	-	-	Peak
682.9	29.6	-16.4	46	36.67	20.46	2.91	30.44	-	-	Peak
796.3	29.62	-16.38	46	34.64	22.04	3.13	30.19	100	43	Peak
5470	65.82	-2.48	68.3	54.32	34.47	9.94	32.91	100	290	Peak
5500	103.03	-	-	91.41	34.5	10.02	32.9	100	290	Average
5500	112.94	-	-	101.32	34.5	10.02	32.9	100	290	Peak
5725	53.17	-15.13	68.3	41.7	34.81	9.92	33.26	100	290	Peak



<b>Test Mode :</b>	Mode 17	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
47.82	29.64	-10.36	40	51.32	9.3	0.67	31.65	100	74	Peak
170.67	18.88	-24.62	43.5	39.45	9.47	1.23	31.27	-	-	Peak
227.64	28.53	-17.47	46	47.22	11.05	1.47	31.21	-	-	Peak
341.3	23.97	-22.03	46	39.05	14.43	1.9	31.41	-	-	Peak
454.7	22.46	-23.54	46	34.16	17.15	2.31	31.16	-	-	Peak
897.8	28.75	-17.25	46	33.15	23.08	3.34	30.82	-	-	Peak
5470	61.47	-6.83	68.3	49.97	34.47	9.94	32.91	101	320	Peak
5580	107.82	-	-	96.25	34.6	9.99	33.02	101	320	Average
5580	118.08	-	-	106.51	34.6	9.99	33.02	101	320	Peak
5725	61.45	-6.85	68.3	49.98	34.81	9.92	33.26	101	320	Peak



<b>Test Mode :</b>	Mode 17	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	116	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5580 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
49.17	29.23	-10.77	40	51.67	8.5	0.69	31.63	100	32	Peak
91.02	18.69	-24.81	43.5	40.67	8.72	0.95	31.65	-	-	Peak
227.64	24.73	-21.27	46	43.42	11.05	1.47	31.21	-	-	Peak
454.7	20.54	-25.46	46	32.24	17.15	2.31	31.16	-	-	Peak
568.8	26.14	-19.86	46	35.27	19.26	2.6	30.99	-	-	Peak
682.9	30.28	-15.72	46	37.35	20.46	2.91	30.44	-	-	Peak
5470	61.33	-6.97	68.3	49.83	34.47	9.94	32.91	101	278	Peak
5580	110.6	-	-	99.03	34.6	9.99	33.02	101	278	Average
5580	120.17	-	-	108.6	34.6	9.99	33.02	101	278	Peak
5725	61.85	-6.45	68.3	50.38	34.81	9.92	33.26	101	278	Peak



<b>Test Mode :</b>	Mode 18	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
49.44	29.77	-10.23	40	52.21	8.5	0.69	31.63	100	91	Peak
113.7	15.96	-27.54	43.5	35.52	11.07	1.07	31.7	-	-	Peak
233.85	23.94	-22.06	46	42.19	11.46	1.5	31.21	-	-	Peak
341.3	23.58	-22.42	46	38.66	14.43	1.9	31.41	-	-	Peak
398	22.27	-23.73	46	35.68	15.95	2.14	31.5	-	-	Peak
454.7	22.36	-23.64	46	34.06	17.15	2.31	31.16	-	-	Peak
5470	52.69	-15.61	68.3	41.19	34.47	9.94	32.91	100	32	Peak
5700	101.28	-	-	89.8	34.77	9.93	33.22	100	32	Average
5700	110.64	-	-	99.16	34.77	9.93	33.22	100	32	Peak
5725	65.49	-2.81	68.3	54.02	34.81	9.92	33.26	100	32	Peak



<b>Test Mode :</b>	Mode 18	<b>Temperature :</b>	22~23°C
<b>Test Channel :</b>	140	<b>Relative Humidity :</b>	41~42%
<b>Test Engineer :</b>	Gavin Wu	<b>Polarization :</b>	Vertical
<b>Remark :</b>	1. 5700 MHz is fundamental signal which can be ignored. 2. 5470 MHz and 5725 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
48.9	29.2	-10.8	40	51.25	8.9	0.68	31.63	100	71	Peak
170.67	16.77	-26.73	43.5	37.34	9.47	1.23	31.27	-	-	Peak
227.64	24.65	-21.35	46	43.34	11.05	1.47	31.21	-	-	Peak
341.3	19	-27	46	34.08	14.43	1.9	31.41	-	-	Peak
682.9	29.56	-16.44	46	36.63	20.46	2.91	30.44	-	-	Peak
796.3	30.11	-15.89	46	35.13	22.04	3.13	30.19	-	-	Peak
5470	52.79	-15.51	68.3	41.29	34.47	9.94	32.91	100	278	Peak
5700	102.97	-	-	91.49	34.77	9.93	33.22	100	278	Average
5700	112.3	-	-	100.82	34.77	9.93	33.22	100	278	Peak
5725	66.82	-1.48	68.3	55.35	34.81	9.92	33.26	100	278	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.

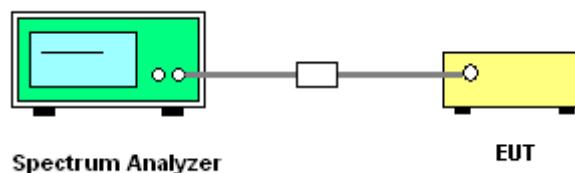
### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

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 = 1 MHz.
  - \*Set VBW  $\geq$  3 MHz.
  - \*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

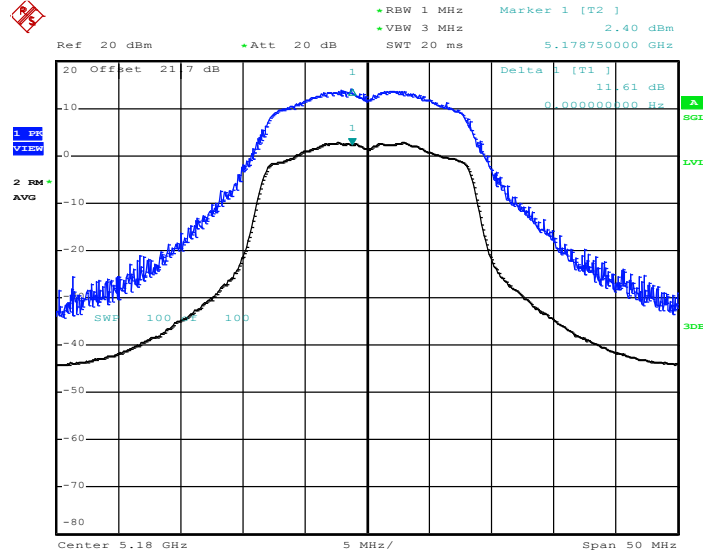




### 3.6.5 Test Result of Peak Excursion Ratio

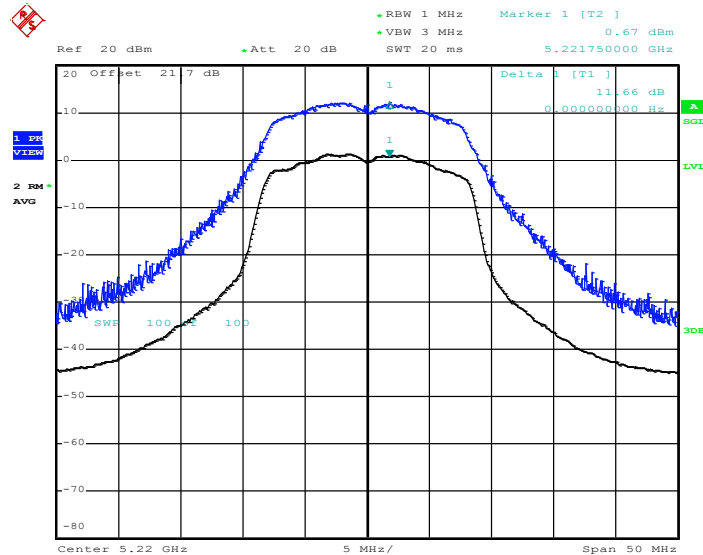
Test Mode :	Mode 1~9	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11a Channel 36



Date: 5.JUN.2012 15:47:23

Peak Excursion Ratio Plot on 802.11a Channel 44

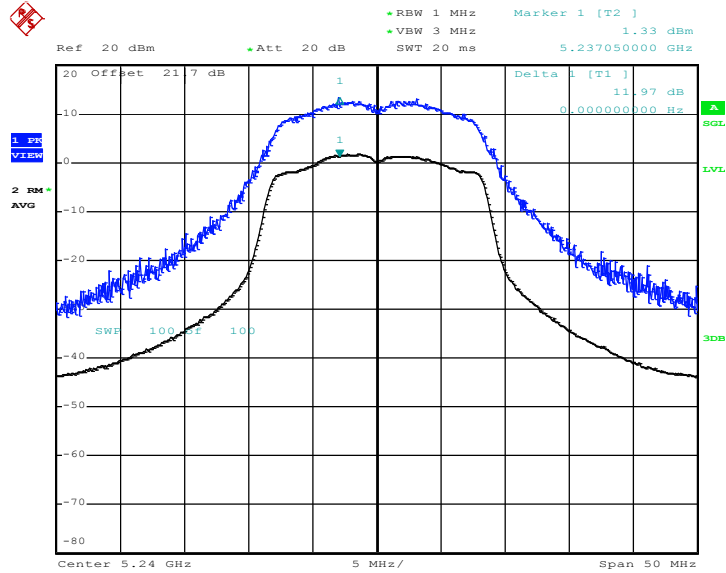


Date: 5.JUN.2012 15:58:18



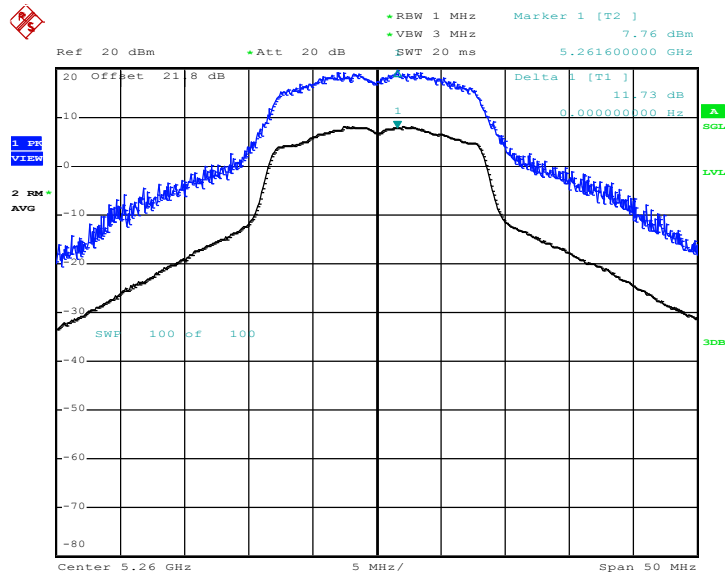


Peak Excursion Ratio Plot on 802.11a Channel 48



Date: 5.JUN.2012 16:02:09

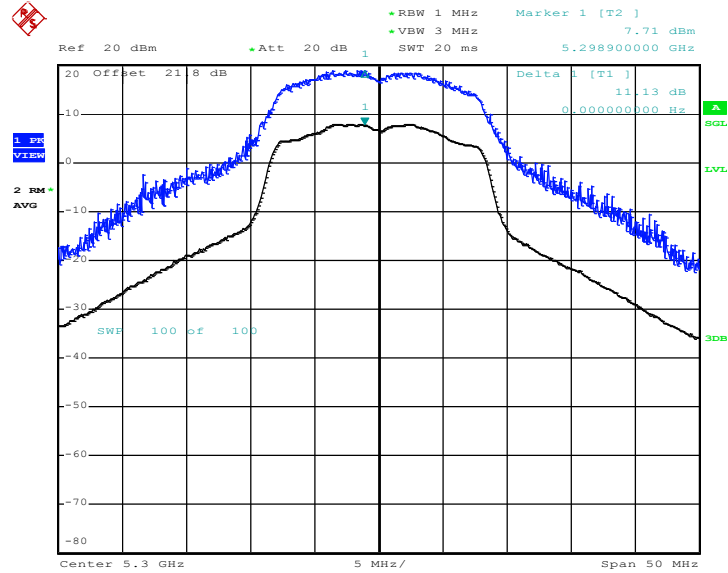
Peak Excursion Ratio Plot on 802.11a Channel 52



Date: 5.JUN.2012 16:42:08

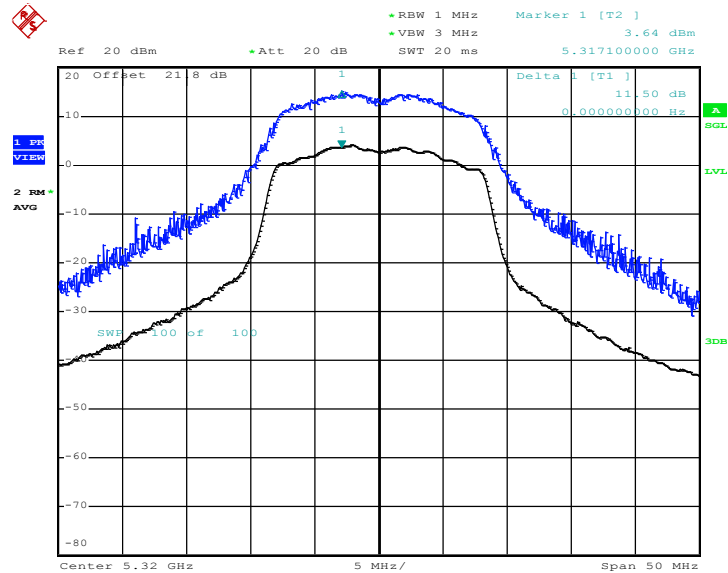


Peak Excursion Ratio Plot on 802.11a Channel 60



Date: 5.JUN.2012 16:38:39

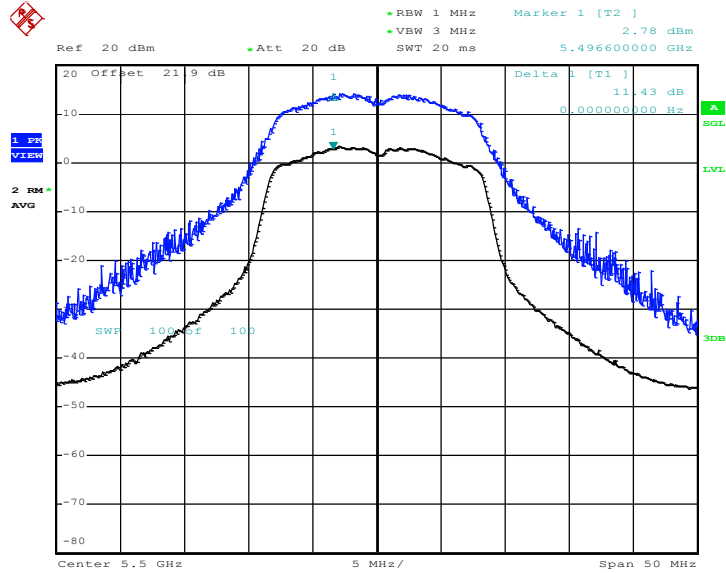
Peak Excursion Ratio Plot on 802.11a Channel 64



Date: 5.JUN.2012 16:35:36

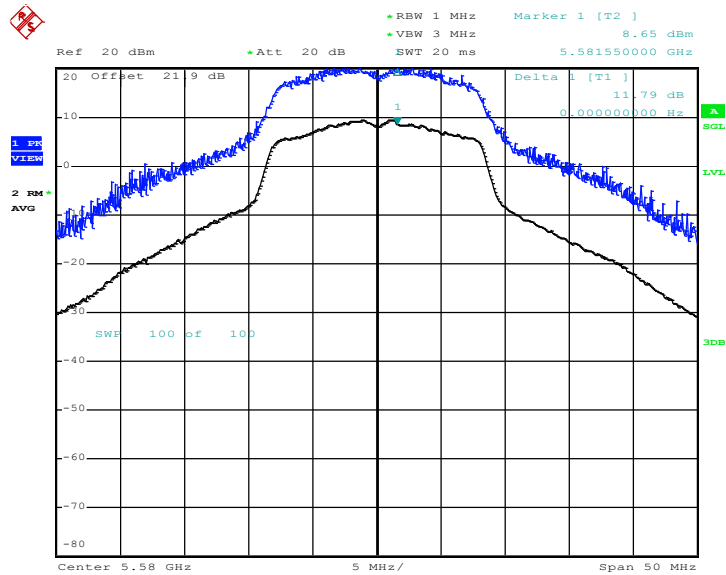


Peak Excursion Ratio Plot on 802.11a Channel 100



Date: 5.JUN.2012 16:45:53

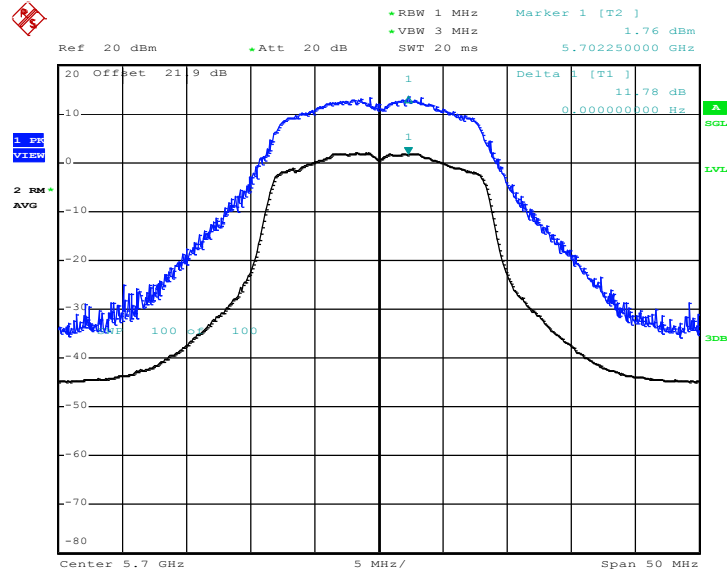
Peak Excursion Ratio Plot on 802.11a Channel 116



Date: 5.JUN.2012 16:48:36



Peak Excursion Ratio Plot on 802.11a Channel 140

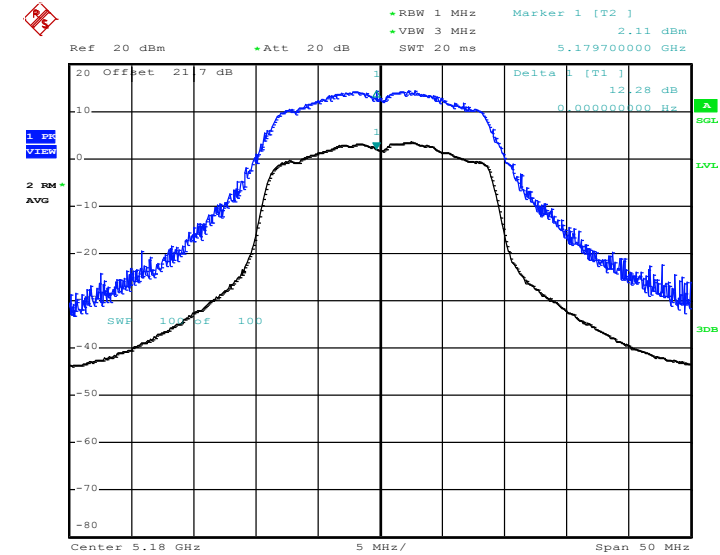


Date: 5.JUN.2012 16:53:00



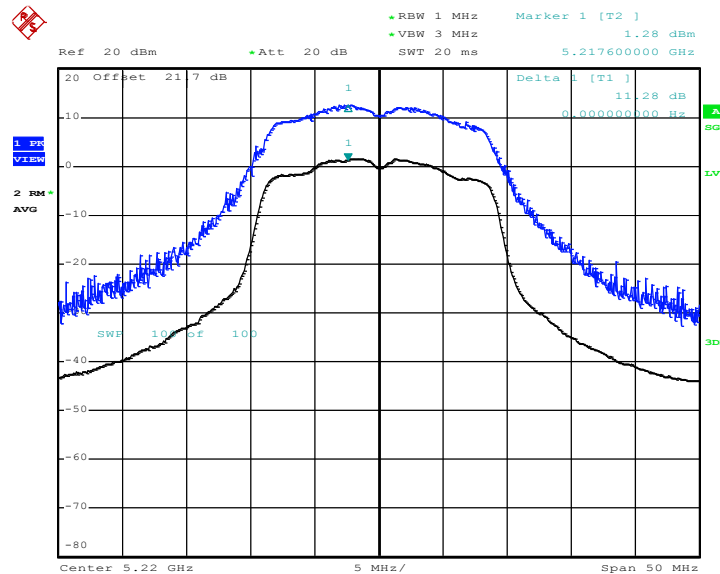
Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 36



Date: 5.JUN.2012 16:15:05

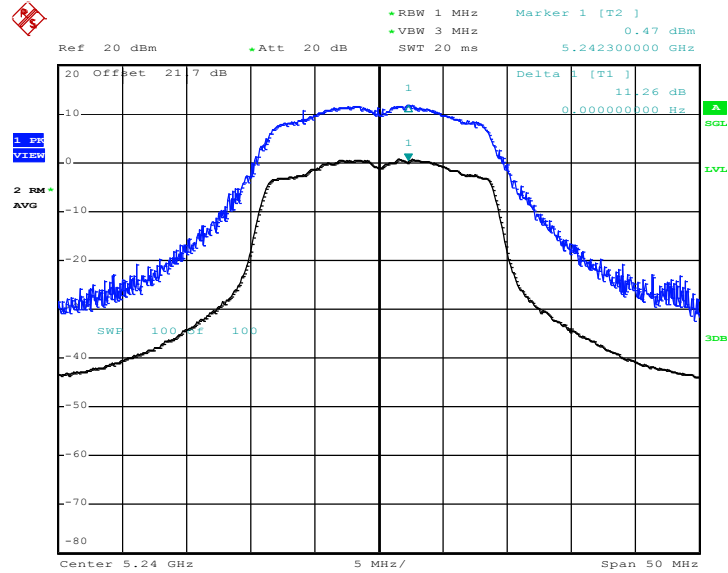
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 44



Date: 5.JUN.2012 16:09:01

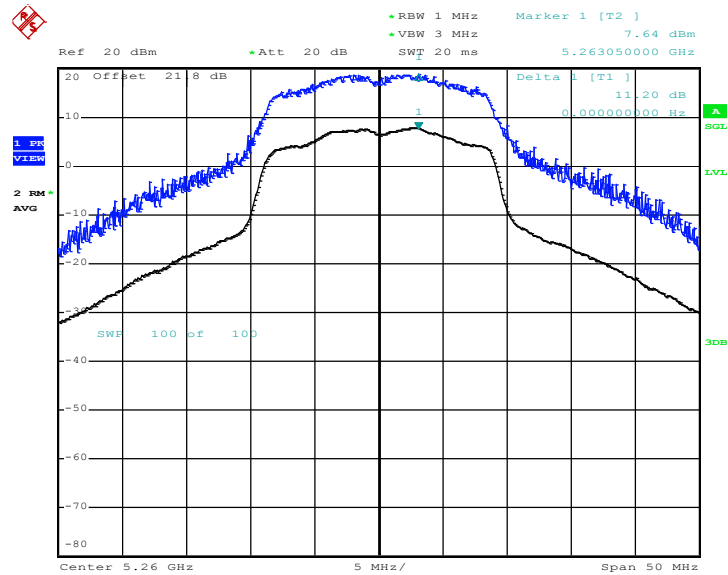


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 48



Date: 5.JUN.2012 16:06:12

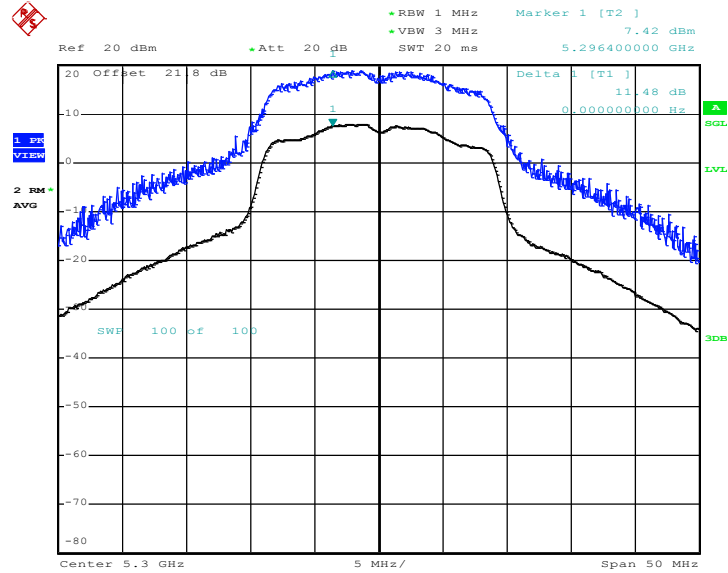
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 52



Date: 5.JUN.2012 16:24:37

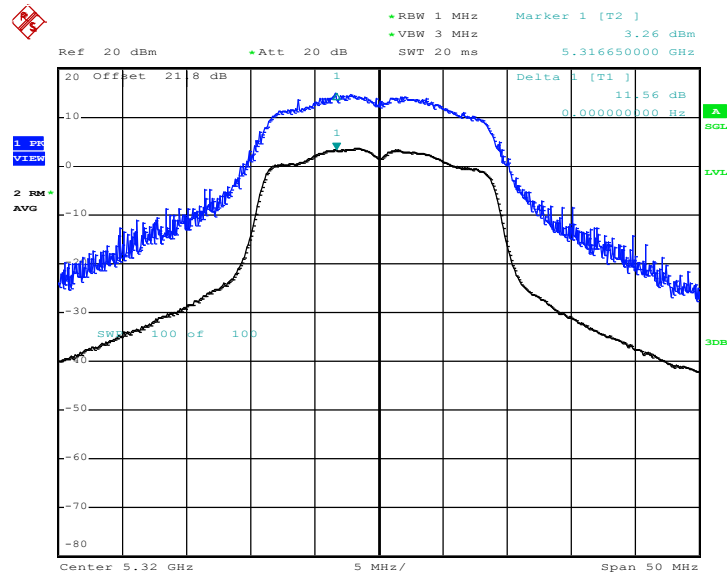


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 60



Date: 5.JUN.2012 16:27:09

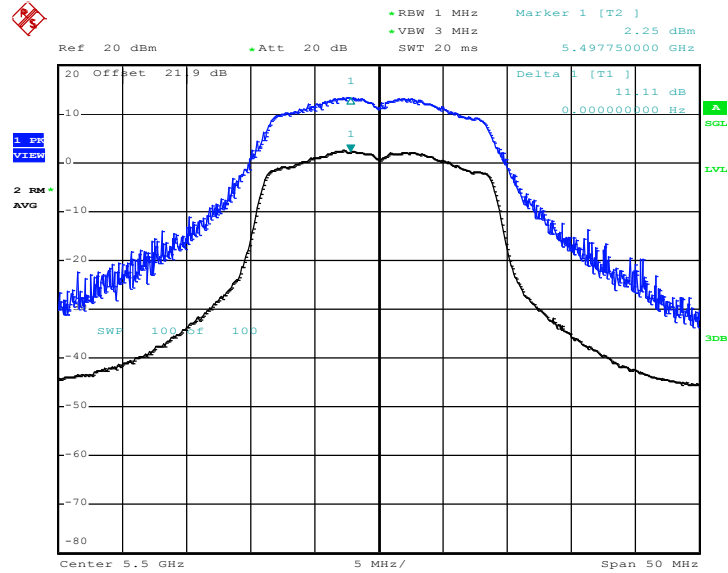
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 64



Date: 5.JUN.2012 16:32:13

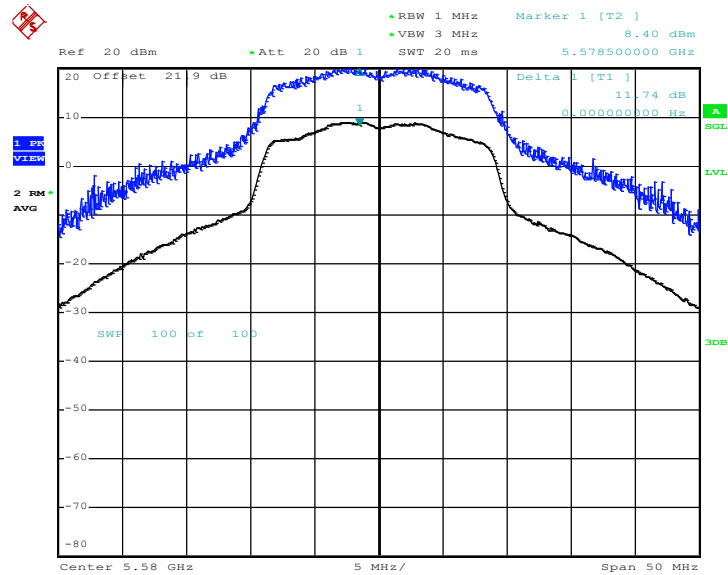


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 100



Date: 5.JUN.2012 17:08:11

Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 116

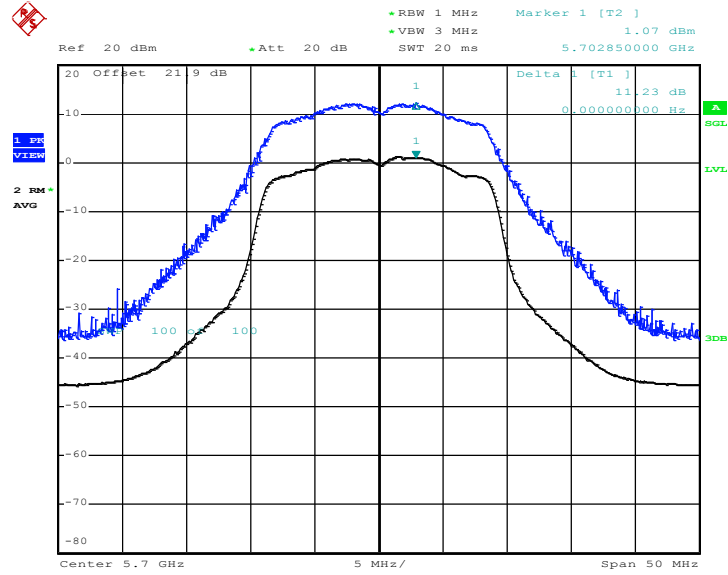


Date: 5.JUN.2012 16:59:53





Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 140



Date: 5.JUN.2012 16:56:29



## **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.

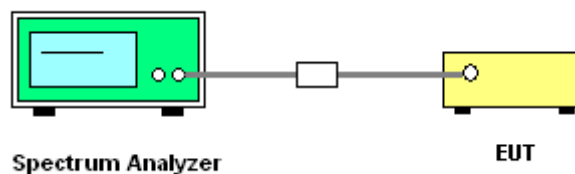
### 3.8.2 Measuring Instruments

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°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.80	5188.20	0.00
44	5220	5211.80	5228.15	-4.79
48	5240	5231.80	5248.25	4.77
52	5260	5251.80	5268.20	0.00
60	5300	5291.75	5308.15	-9.43
64	5320	5311.75	5328.20	-4.70
100	5500	5491.75	5508.15	-9.09
116	5580	5571.80	5588.30	8.96
140	5700	5691.80	5708.20	0.00

Test Mode :	Mode 10~18	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.20	5188.80	0.00
44	5220	5211.10	5228.75	-14.37
48	5240	5231.20	5248.80	0.00
52	5260	5251.20	5268.80	0.00
60	5300	5291.15	5308.85	0.00
64	5320	5311.10	5328.80	-9.40
100	5500	5491.15	5508.75	-9.09
116	5580	5571.20	5588.80	0.00
140	5700	5691.25	5708.80	4.39



## **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	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	May 25, 2012~ Jun. 09, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	May 25, 2012~ Jun. 09, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	May 25, 2012~ Jun. 09, 2012	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 24, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 24, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 24, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 24, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117997	N/A	Aug. 22, 2011	May 24, 2012	Aug. 21, 2013	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	May 25, 2012~ Jun. 01, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	May 25, 2012~ Jun. 01, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	May 25, 2012~ Jun. 01, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	May 25, 2012~ Jun. 01, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	May 25, 2012~ Jun. 01, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	May 25, 2012~ Jun. 01, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	May 25, 2012~ Jun. 01, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	May 25, 2012~ Jun. 01, 2012	Jul. 28, 2012	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
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### 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
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		



**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 $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty Uc(y)</b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))</b>	<b>4.72</b>				





## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP252422 as below.