



FCC RF Test Report

APPLICANT : TP-LINK TECHNOLOGIES CO., LTD.
EQUIPMENT : N600 Universal Dual Band WiFi Entertainment Adapter with 4 Ports
BRAND NAME : TP-LINK
MODEL NAME : TL-WA890EA
FCC ID : TE7WA890EA
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure

The product was received on Apr. 16, 2013 and completely tested on Aug. 01, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR341603B	Rev. 01	Initial issue of report	Aug. 12, 2013



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	26dB Bandwidth	-	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	$\leq 17, 24$ dBm (depend on band)	Pass	-
3.3	15.407(a)	Power Spectral Density	$\leq 4, 11$ dBm (depend on band)	Pass	-
3.4	15.407(a)(6)	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.5	15.407(b)	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 1 dB at 5725.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 10.3 dB at 0.446 MHz
3.7	15.407(g)	Frequency Stability	Within Operation Band	Pass	-
3.8	15.407(c)	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.9	15.203 & 15.407(a)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

TP-LINK TECHNOLOGIES CO., LTD.

Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

1.2 Manufacturer

TP-LINK TECHNOLOGIES CO., LTD.

Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	N600 Universal Dual Band WiFi Entertainment Adapter with 4 Ports
Brand Name	TP-LINK
Model Name	TL-WA890EA
FCC ID	TE7WA890EA
EUT supports Radios application	WLAN 11abgn
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. 5600 MHz ~ 5650 MHz is notched.

1.4 Product Specification of Equipment Under Test

Product Specification subjective to this standard													
Tx/Rx Channel Frequency Range	WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.3GHz Band: 5260 MHz ~ 5320 MHz WLAN 5.5GHz Band: 5500 MHz ~ 5700 MHz												
Maximum Output Power	<p><5180 MHz ~ 5240 MHz> 802.11a for Chain Port 0: 15.56 dBm / 0.0360 W 802.11n HT20 for Chain Port 0: 15.32 dBm / 0.0340 W 802.11n HT20 for Chain Port 0+1: 14.88 dBm / 0.0308 W 802.11n HT40 for Chain Port 0: 16.51 dBm / 0.0448 W 802.11n HT40 for Chain Port 0+1: 16.98 dBm / 0.0499 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a for Chain Port 0: 18.09 dBm / 0.0644 W 802.11n HT20 for Chain Port 0: 18.06 dBm / 0.0640 W 802.11n HT20 for Chain Port 0+1: 17.88 dBm / 0.0614 W 802.11n HT40 for Chain Port 0: 18.26 dBm / 0.0670 W 802.11n HT40 for Chain Port 0+1: 18.05 dBm / 0.0638 W</p> <p><5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz> 802.11a for Chain Port 0: 17.92 dBm / 0.0619 W 802.11n HT20 for Chain Port 0: 17.89 dBm / 0.0615 W 802.11n HT20 for Chain Port 0+1: 17.88 dBm / 0.0614 W 802.11n HT40 for Chain Port 0: 18.29 dBm / 0.0675 W 802.11n HT40 for Chain Port 0+1: 18.06 dBm / 0.0640 W</p>												
Antenna Type	Chain Port 0: PCB Antenna Chain Port 1: PCB Antenna												
Antenna Gain	<p><5180 MHz ~ 5240 MHz> Chain Port 0: 3.2 dBi Chain Port 1: 2.5 dBi</p> <p><5260 MHz ~ 5320 MHz> Chain Port 0: 3.5 dBi Chain Port 1: 1.5 dBi</p> <p><5500 MHz ~ 5580 MHz and 5660 MHz ~ 5700 MHz > Chain Port 0: 4.5 dBi Chain Port 1: 3.5 dBi</p>												
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)												
Antenna Function Description	<table border="1"> <thead> <tr> <th></th> <th>Chain Port 0</th> <th>Chain Port 1</th> </tr> </thead> <tbody> <tr> <td>802.11 a</td> <td>V</td> <td>-</td> </tr> <tr> <td>802.11 n SISO</td> <td>V</td> <td>-</td> </tr> <tr> <td>802.11 n MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table> <p>Note: MIMO mode is completely uncorrelated.</p>		Chain Port 0	Chain Port 1	802.11 a	V	-	802.11 n SISO	V	-	802.11 n MIMO	V	V
	Chain Port 0	Chain Port 1											
802.11 a	V	-											
802.11 n SISO	V	-											
802.11 n MIMO	V	V											

1.5 Modification of EUT

No modifications are made to the EUT during all test items.



1.6 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC Registration No.
	TH02-HY	CO05-HY	03CH08-HY	636805

The test site complies with ANSI C63.4 2003 requirement.

1.7 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 v01r03
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02.
- ♦ ANSI C63.10-2009

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.



2 Test Configuration of Equipment Under Test

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

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.



2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
WLAN 5.2GHz Band	36	5180	44	5220
	38	5190	46	5230
	40	5200	48	5240

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
WLAN 5.3GHz Band	52	5260	60	5300
	54	5270	62	5310
	56	5280	64	5320

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
WLAN 5.5GHz Band	100	5500	116	5580
	102	5510	132	5660
	104	5520	134	5670
	108	5540	136	5680
	110	5550	140	5700
	112	5560		

Note: The above Frequency and Channel in boldface were 802.11n HT40.



2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as following table and the highest average power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

5GHz 802.11a mode Average Power (dBm)									
Data Rate (MHz)		6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
Chain Port 0	5.2GHz Band	15.56	15.51	15.42	15.39	15.28	14.43	14.26	13.32
	5.3GHz Band	18.09	18.05	18.03	18.06	17.95	17.19	17.26	16.35
	5.5GHz Band	17.92	17.86	17.81	17.79	17.73	16.84	16.85	16.43

5GHz 802.11n HT20 mode Average Power (dBm)									
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Chain Port 0	5.2GHz Band	15.32	15.28	15.20	15.12	15.03	13.13	12.78	11.12
	5.3GHz Band	18.06	17.98	18.02	18.01	18.00	16.42	16.37	14.33
	5.5GHz Band	17.89	17.85	17.82	17.75	17.64	16.43	16.42	14.58
Data Rate (MHz)		MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Chain Port 0+1(0)	5.2GHz Band	12.06	11.76	11.94	11.84	11.98	11.74	11.69	11.80
	5.3GHz Band	15.47	15.44	15.44	15.44	15.42	15.44	15.46	15.38
	5.5GHz Band	14.96	14.78	14.81	14.95	14.87	14.69	14.71	14.69
Chain Port 0+1(1)	5.2GHz Band	11.67	11.52	11.55	11.65	11.58	11.63	11.32	11.45
	5.3GHz Band	14.17	14.15	14.12	14.10	13.98	14.04	14.11	14.15
	5.5GHz Band	14.77	14.64	14.69	14.69	14.76	14.48	14.55	14.65
Chain Port 0+1	5.2GHz Band	14.88	14.65	14.76	14.81	14.79	14.70	14.52	14.64
	5.3GHz Band	17.88	17.87	17.84	17.87	17.77	17.81	17.85	17.83
	5.5GHz Band	17.88	17.72	17.76	17.84	17.83	17.60	17.64	17.68



5GHz 802.11n HT40 mode Average Power (dBm)									
Data Rate (MHz)		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Chain Port 0	5.2GHz Band	16.51	16.43	16.48	16.34	16.45	14.55	14.60	12.34
	5.3GHz Band	18.26	18.24	18.19	18.15	18.14	16.72	16.83	14.66
	5.5GHz Band	18.29	18.27	18.24	18.18	18.15	17.09	17.03	15.47
Data Rate (MHz)		MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Chain Port 0+1(0)	5.2GHz Band	14.33	14.21	14.22	14.01	14.23	14.26	14.02	14.11
	5.3GHz Band	15.85	15.81	15.79	15.74	15.72	15.77	15.81	15.84
	5.5GHz Band	15.06	15.03	14.92	14.97	14.95	14.98	14.99	15.02
Chain Port 0+1(1)	5.2GHz Band	13.58	13.51	13.47	13.13	13.48	13.40	13.42	13.32
	5.3GHz Band	14.05	14.04	14.02	13.88	13.95	13.92	13.98	14.01
	5.5GHz Band	15.03	15.01	14.96	14.92	14.86	14.91	14.89	14.93
Chain Port 0+1	5.2GHz Band	16.98	16.88	16.87	16.60	16.88	16.86	16.74	16.74
	5.3GHz Band	18.05	18.03	18.00	17.92	17.93	17.95	18.00	18.03
	5.5GHz Band	18.06	18.03	17.95	17.96	17.92	17.96	17.95	17.99

Note:

1. Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1 (0) and Chain Port 0+1(1).
2. The data rates of WLAN 802.11a/n were set in 6Mbps for 802.11a (Chain Port 0), MCS0 for 802.11n HT20 (Chain Port 0), MCS8 for 802.11n HT20 (Chain Port 0+1), MCS0 for 802.11n HT40 (Chain Port 0), MCS8 for 802.11n HT40 (Chain Port 0+1) due to the highest RF output power.



2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

Test Cases					
	Test Items	Mode	Data rate	Test Channel	Remark
Conducted TCs	26dB BW Power Spectral Density	802.11a	6 Mbps	L/M/H	Chain Port 0
		802.11n HT20	MCS0	L/M/H	Chain Port 0
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (1)
		802.11n HT40	MCS0	L/M/H	Chain Port 0
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (1)
	Output Power	802.11a	6 Mbps	L/M/H	Chain Port 0
		802.11n HT20	MCS0	L/M/H	Chain Port 0
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (1)
		802.11n HT40	MCS0	L/M/H	Chain Port 0
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (1)
	Peak Excursion	802.11a	6 Mbps	L/M/H	Chain Port 0
		802.11n HT20	MCS0	L/M/H	Chain Port 0
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (1)
		802.11n HT40	MCS0	L/M/H	Chain Port 0
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (0)
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1 (1)
	Frequency Stability	802.11a	6 Mbps	L/M/H	Chain Port 0
		802.11n HT20	MCS0	L/M/H	Chain Port 0
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1 (0)
802.11n HT20		MCS8	L/M/H	Chain Port 0+1 (1)	
802.11n HT40		MCS0	L/M/H	Chain Port 0	
802.11n HT40		MCS8	L/M/H	Chain Port 0+1 (0)	
802.11n HT40		MCS8	L/M/H	Chain Port 0+1 (1)	



Test Cases					
	Test Items	Mode	Data rate	Test Channel	Remark
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	L/H	Chain Port 0
		802.11n HT20	MCS0	L/H	Chain Port 0
		802.11n HT20	MCS8	L/H	Chain Port 0+1
		802.11n HT40	MCS0	L/H	Chain Port 0
		802.11n HT40	MCS8	L/H	Chain Port 0+1
	Radiated Spurious Emission	802.11a	6 Mbps	L/M/H	Chain Port 0
		802.11n HT20	MCS0	L/M/H	Chain Port 0
		802.11n HT20	MCS8	L/M/H	Chain Port 0+1
		802.11n HT40	MCS0	L/M/H	Chain Port 0
		802.11n HT40	MCS8	L/M/H	Chain Port 0+1
AC Conducted Emission	Mode 1 : WLAN Idle (5GHz) + LAN Link + TC + USB Cable (Charging from Adapter)				
Remark: TC stands for Test Configuration.					



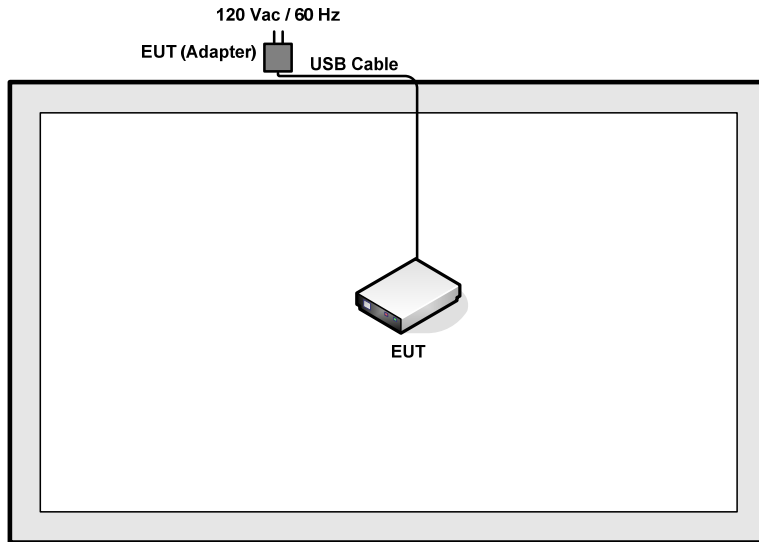
Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11a	802.11a	802.11a
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11n HT20	802.11n HT20	802.11n HT20
L	Low	36	52	100
M	Middle	44	60	116
H	High	48	64	140

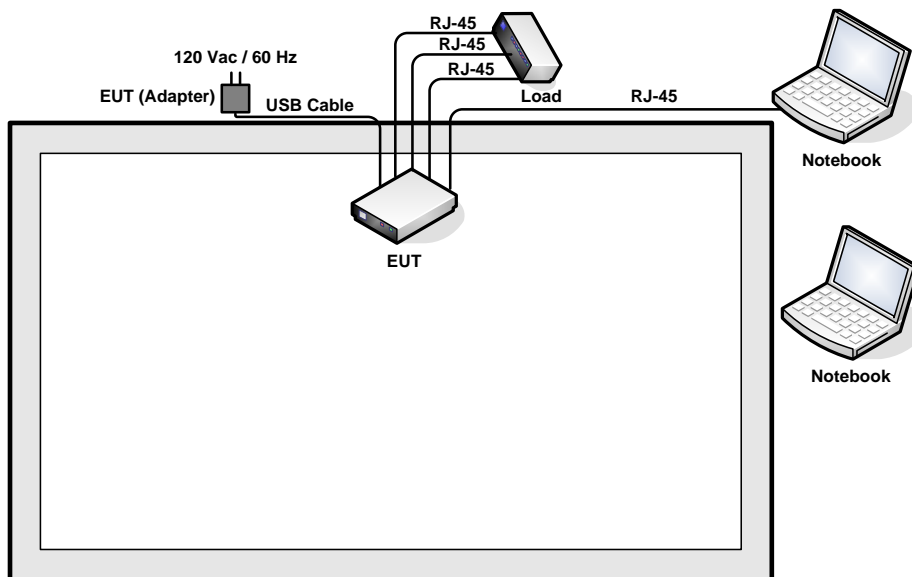
Ch. #		5.2GHz Band	5.3GHz Band	5.5GHz Band
		802.11n HT40	802.11n HT40	802.11n HT40
L	Low	38	54	102
M	Middle	-	-	110
H	High	46	62	134

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Load	N/A	N/A	N/A	N/A	N/A
2.	USB Cable	N/A	N/A	N/A	N/A	Shielded, 1.2 m
3.	Notebook	DELL	Latitude E6320	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

2.6 Description of RF Function Operation Test Setup

For WLAN function, programmed RF utility, “ADB” installed in the notebook make the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.



2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 8.7 dB and 20 dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 8.7 + 20 = 28.7 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 26dB Bandwidth Measurement

3.1.1 Description of 26dB Bandwidth

There is no restriction limits for bandwidth. The maximum conducted output power can be limited by measured emission bandwidth (B). For the band 5150-5250 MHz, 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 bands 5250-5350 MHz and 5470-5600 MHz and 5650-5725MHz, 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.

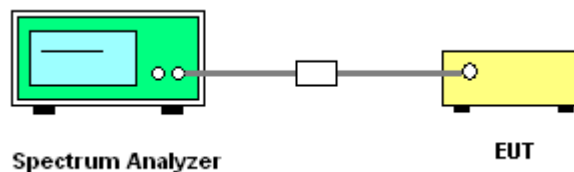
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.
Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. Measure and record the results in the test report.

3.1.4 Test Setup





3.1.5 Test Result of 26dB Bandwidth

Test Band :	5.2GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)		FCC 26dB Bandwidth Power Limit (dBm)
					Chain	Chain	
					Port 0	Port 1	
11a	6Mbps	1	36	5180	22.90	-	17
11a	6Mbps	1	44	5220	22.80	-	17
11a	6Mbps	1	48	5240	22.95	-	17
HT20	MCS0	1	36	5180	23.35	-	17
HT20	MCS0	1	44	5220	23.30	-	17
HT20	MCS0	1	48	5240	23.45	-	17
HT40	MCS0	1	38	5190	46.08	-	17
HT40	MCS0	1	46	5230	49.50	-	17
HT20	MCS8	2	36	5180	23.10	22.95	17
HT20	MCS8	2	44	5220	23.10	22.80	17
HT20	MCS8	2	48	5240	23.25	23.00	17
HT40	MCS8	2	38	5190	42.03	42.12	17
HT40	MCS8	2	46	5230	42.39	42.03	17



Test Band :	5.3GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)		FCC 26dB Bandwidth Power Limit (dBm)
					Chain	Chain	
					Port 0	Port 1	
11a	6Mbps	1	52	5260	26.40	-	24
11a	6Mbps	1	60	5300	25.45	-	24
11a	6Mbps	1	64	5320	23.60	-	24
HT20	MCS0	1	52	5260	26.60	-	24
HT20	MCS0	1	60	5300	26.40	-	24
HT20	MCS0	1	64	5320	25.05	-	24
HT40	MCS0	1	54	5270	57.24	-	24
HT40	MCS0	1	62	5310	62.55	-	24
HT20	MCS8	2	52	5260	23.15	22.90	24
HT20	MCS8	2	60	5300	23.40	22.85	24
HT20	MCS8	2	64	5320	22.85	23.60	24
HT40	MCS8	2	54	5270	42.21	42.21	24
HT40	MCS8	2	62	5310	42.48	42.03	24

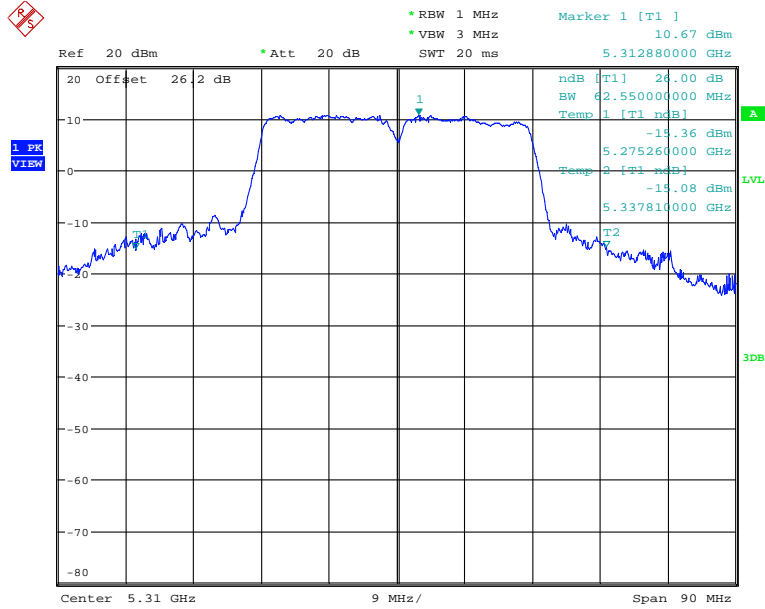


Test Band :	5.5GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	26dB Bandwidth (MHz)		FCC 26dB Bandwidth Power Limit (dBm)
					Chain	Chain	
					Port 0	Port 1	
11a	6Mbps	1	100	5500	26.45	-	24
11a	6Mbps	1	116	5580	26.50	-	24
11a	6Mbps	1	140	5700	26.45	-	24
HT20	MCS0	1	100	5500	29.45	-	24
HT20	MCS0	1	116	5580	28.30	-	24
HT20	MCS0	1	140	5700	28.70	-	24
HT40	MCS0	1	102	5510	58.32	-	24
HT40	MCS0	1	110	5550	60.21	-	24
HT40	MCS0	1	134	5670	58.68	-	24
HT20	MCS8	2	100	5500	23.20	22.90	24
HT20	MCS8	2	116	5580	22.90	22.95	24
HT20	MCS8	2	140	5700	23.05	22.55	24
HT40	MCS8	2	102	5510	42.39	42.12	24
HT40	MCS8	2	110	5550	42.21	42.57	24
HT40	MCS8	2	134	5670	42.57	42.12	24



Worst Case 26dB Bandwidth



Date: 2.JUL.2013 00:55:27

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5150-5250 MHz, 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 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the bands 5250-5350 MHz and 5470-5600 MHz and 5650-5725 MHz, bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in 1-MHz. If transmitting antenna directional gain is greater than 6 dBi, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

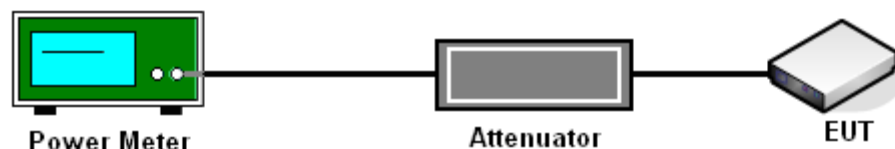
3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D01 General UNII Test Procedures v01r03.

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

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

3.2.4 Test Setup





3.2.5 Test Result of Maximum Conducted Output Power

Test Band :	5.2GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1	Sum Power			
11a	6Mbps	1	36	5180	0	-	15.56	-	-	17	3.20	Pass
11a	6Mbps	1	44	5220	0	-	14.82	-	-	17	3.20	Pass
11a	6Mbps	1	48	5240	0	-	15.29	-	-	17	3.20	Pass
HT20	MCS0	1	36	5180	0	-	15.32	-	-	17	3.20	Pass
HT20	MCS0	1	44	5220	0	-	14.84	-	-	17	3.20	Pass
HT20	MCS0	1	48	5240	0	-	15.14	-	-	17	3.20	Pass
HT40	MCS0	1	38	5190	0	-	16.51	-	-	17	3.20	Pass
HT40	MCS0	1	46	5230	0	-	16.42	-	-	17	3.20	Pass
HT20	MCS8	2	36	5180	0	0	12.06	11.67	14.88	17	2.86	Pass
HT20	MCS8	2	44	5220	0	0	11.42	11.20	14.32	17	2.86	Pass
HT20	MCS8	2	48	5240	0	0	11.87	11.78	14.84	17	2.86	Pass
HT40	MCS8	2	38	5190	0	0	14.33	13.58	16.98	17	2.86	Pass
HT40	MCS8	2	46	5230	0	0	14.11	13.72	16.93	17	2.86	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. Sum Power is a calculated result from sum of the power Chain Port 0 and Chain Port 1.
3. For the band 5150-5250 MHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW).



Test Band :	5.3GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain	Chain	Chain	Chain	Sum			
					Port 0	Port 1	Port 0	Port 1	Power			
11a	6Mbps	1	52	5260	0	-	18.09	-	-	24	3.50	Pass
11a	6Mbps	1	60	5300	0	-	17.93	-	-	24	3.50	Pass
11a	6Mbps	1	64	5320	0	-	17.81	-	-	24	3.50	Pass
HT20	MCS0	1	52	5260	0	-	18.06	-	-	24	3.50	Pass
HT20	MCS0	1	60	5300	0	-	17.73	-	-	24	3.50	Pass
HT20	MCS0	1	64	5320	0	-	17.85	-	-	24	3.50	Pass
HT40	MCS0	1	54	5270	0	-	18.26	-	-	24	3.50	Pass
HT40	MCS0	1	62	5310	0	-	17.92	-	-	24	3.50	Pass
HT20	MCS8	2	52	5260	0	0	15.28	13.97	17.68	24	2.61	Pass
HT20	MCS8	2	60	5300	0	0	15.47	14.17	17.88	24	2.61	Pass
HT20	MCS8	2	64	5320	0	0	15.38	13.63	17.60	24	2.61	Pass
HT40	MCS8	2	54	5270	0	0	15.85	14.05	18.05	24	2.61	Pass
HT40	MCS8	2	62	5310	0	0	15.61	14.13	17.94	24	2.61	Pass

Note:

1. Final Output Power equals to Measured Output Power adds the duty factor.
2. Sum Power is a calculated result from sum of the power Chain Port 0 and Chain Port 1.
3. For the 5250-5350 MHz band, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log (26dB BW).



Test Band :	5.5GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		RF Output Power (dBm)			Power Limit (dBm)	DG (dBi)	Pass/Fail
					Chain	Chain	Chain	Chain	Sum			
					Port 0	Port 1	Port 0	Port 1	Power			
11a	6Mbps	1	100	5500	0	-	17.92	-	-	24	4.50	Pass
11a	6Mbps	1	116	5580	0	-	17.82	-	-	24	4.50	Pass
11a	6Mbps	1	140	5700	0	-	17.57	-	-	24	4.50	Pass
HT20	MCS0	1	100	5500	0	-	17.89	-	-	24	4.50	Pass
HT20	MCS0	1	116	5580	0	-	17.75	-	-	24	4.50	Pass
HT20	MCS0	1	140	5700	0	-	17.62	-	-	24	4.50	Pass
HT40	MCS0	1	102	5510	0	-	18.29	-	-	24	4.50	Pass
HT40	MCS0	1	110	5550	0	-	18.08	-	-	24	4.50	Pass
HT40	MCS0	1	134	5670	0	-	17.87	-	-	24	4.50	Pass
HT20	MCS8	2	100	5500	0	0	14.96	14.77	17.88	24	4.03	Pass
HT20	MCS8	2	116	5580	0	0	15.11	14.55	17.85	24	4.03	Pass
HT20	MCS8	2	140	5700	0	0	14.31	15.09	17.73	24	4.03	Pass
HT40	MCS8	2	102	5510	0	0	15.06	15.03	18.06	24	4.03	Pass
HT40	MCS8	2	110	5550	0	0	14.81	15.16	18.00	24	4.03	Pass
HT40	MCS8	2	134	5670	0	0	14.51	14.56	17.55	24	4.03	Pass

Note:

- Final Output Power equals to Measured Output Power adds the duty factor.
- Sum Power is a calculated result from sum of the power Chain Port 0 and Chain Port 1.
- For the 5470-5600MHz and 5650-5725MHz band, 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 5150-5250 MHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. For the bands 5250-5350 MHz and 5470-5600 and 5650-5725 MHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.

Section F) Peak power spectral density (PPSD).

Note: Though the rule refers to “peak power spectral density”, the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission.

Method SA-2

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

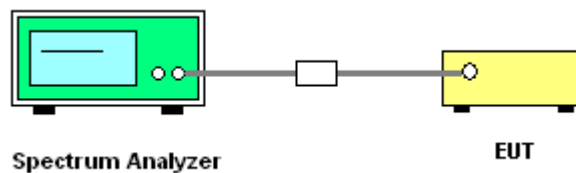
1. The testing follows Method SA-2 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.
 - Measure the duty cycle.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW \geq 3 MHz.
 - Number of points in sweep \geq 2 Span / RBW.
 - Sweep time = auto.
 - Detector = sample
 - Trace average at least 100 traces in power averaging mode.
 - Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.

2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02.

Method (1): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Test Band :	5.2GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		PSD (dBm/MHz)		Combined PSD (dBm/MHz)	Max. Limits (dBm/ MHz)	DG (dBi)	Pass/ Fail
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1				
11a	6Mbps	1	36	5180	0	-	3.63	-	-	4	3.20	Pass
11a	6Mbps	1	44	5220	0	-	3.44	-	-	4	3.20	Pass
11a	6Mbps	1	48	5240	0	-	3.50	-	-	4	3.20	Pass
HT20	MCS0	1	36	5180	0	-	3.39	-	-	4	3.20	Pass
HT20	MCS0	1	44	5220	0	-	3.34	-	-	4	3.20	Pass
HT20	MCS0	1	48	5240	0	-	3.26	-	-	4	3.20	Pass
HT40	MCS0	1	38	5190	0	-	1.99	-	-	4	3.20	Pass
HT40	MCS0	1	46	5230	0	-	1.98	-	-	4	3.20	Pass
HT20	MCS8	2	36	5180	0	0	-	-	3.75	4	5.87	Pass
HT20	MCS8	2	44	5220	0	0	-	-	3.48	4	5.87	Pass
HT20	MCS8	2	48	5240	0	0	-	-	3.72	4	5.87	Pass
HT40	MCS8	2	38	5190	0	0	-	-	2.58	4	5.87	Pass
HT40	MCS8	2	46	5230	0	0	-	-	2.53	4	5.87	Pass

Note: Combined PSD is a bin-by-bin combined of Chain Port 0 and Chain Port 1.



Test Band :	5.3GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		PSD (dBm/MHz)		Combined PSD (dBm/MHz)	Max. Limits (dBm/MHz)	DG (dBi)	Pass/Fail
					Chain	Chain	Chain	Chain				
					Port 0	Port 1	Port 0	Port 1				
11a	6Mbps	1	52	5260	0	-	4.77	-	-	11	3.50	Pass
11a	6Mbps	1	60	5300	0	-	4.71	-	-	11	3.50	Pass
11a	6Mbps	1	64	5320	0	-	4.37	-	-	11	3.50	Pass
HT20	MCS0	1	52	5260	0	-	4.41	-	-	11	3.50	Pass
HT20	MCS0	1	60	5300	0	-	4.49	-	-	11	3.50	Pass
HT20	MCS0	1	64	5320	0	-	4.01	-	-	11	3.50	Pass
HT40	MCS0	1	54	5270	0	-	1.67	-	-	11	3.50	Pass
HT40	MCS0	1	62	5310	0	-	1.95	-	-	11	3.50	Pass
HT20	MCS8	2	52	5260	0	0	-	-	4.88	11	5.62	Pass
HT20	MCS8	2	60	5300	0	0	-	-	5.12	11	5.62	Pass
HT20	MCS8	2	64	5320	0	0	-	-	4.94	11	5.62	Pass
HT40	MCS8	2	54	5270	0	0	-	-	3.94	11	5.62	Pass
HT40	MCS8	2	62	5310	0	0	-	-	3.75	11	5.62	Pass

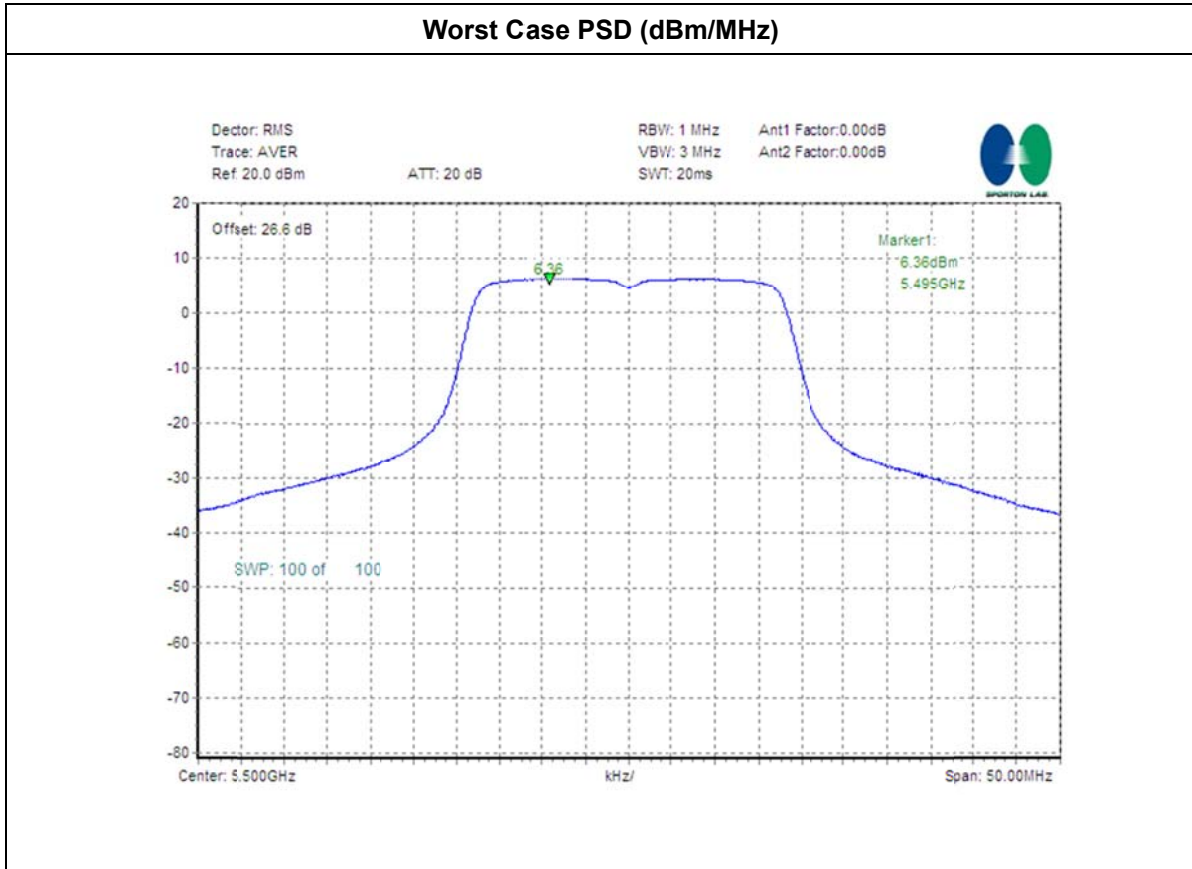
Note: Combined PSD is a bin-by-bin combined of Chain Port 0 and Chain Port 1.



Test Band :	5.5GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		PSD (dBm/MHz)		Combined PSD (dBm/MHz)	Max. Limits (dBm/MHz)	DG (dBi)	Pass/Fail
					Chain Port 0	Chain Port 1	Chain Port 0	Chain Port 1				
					11a	6Mbps	1	100				
11a	6Mbps	1	116	5580	0	-	5.42	-	-	11	4.50	Pass
11a	6Mbps	1	140	5700	0	-	4.65	-	-	11	4.50	Pass
HT20	MCS0	1	100	5500	0	-	5.29	-	-	11	4.50	Pass
HT20	MCS0	1	116	5580	0	-	5.14	-	-	11	4.50	Pass
HT20	MCS0	1	140	5700	0	-	4.36	-	-	11	4.50	Pass
HT40	MCS0	1	102	5510	0	-	1.92	-	-	11	4.50	Pass
HT40	MCS0	1	110	5550	0	-	2.35	-	-	11	4.50	Pass
HT40	MCS0	1	134	5670	0	-	1.38	-	-	11	4.50	Pass
HT20	MCS8	2	100	5500	0	0	-	-	6.36	10	7.04	Pass
HT20	MCS8	2	116	5580	0	0	-	-	5.21	10	7.04	Pass
HT20	MCS8	2	140	5700	0	0	-	-	5.52	10	7.04	Pass
HT40	MCS8	2	102	5510	0	0	-	-	3.99	10	7.04	Pass
HT40	MCS8	2	110	5550	0	0	-	-	3.58	10	7.04	Pass
HT40	MCS8	2	134	5670	0	0	-	-	3.09	10	7.04	Pass

Note: Combined PSD is a bin-by-bin combined of Chain Port 0 and Chain Port 1.



3.4 Peak Excursion Ratio Measurement

3.4.1 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.

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

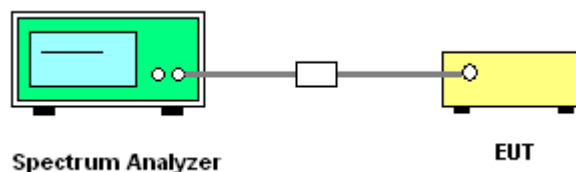
3.4.3 Test Procedures

The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01r03.

Section G) Peak excursion measurement

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

3.4.4 Test Setup





3.4.5 Test Result of Peak Excursion Ratio

Test Band :	5.2GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	36	5180	8.51	10.15	9.85	8.97	-	13	Pass
HT20	1	36	5180	8.96	9.28	9.44	9.77	-	13	Pass
HT40	1	38	5190	8.54	9.38	9.10	9.88	-	13	Pass
HT20	2	36	5180	9.39	9.81	8.89	9.00	-	13	Pass
HT40	2	38	5190	9.23	8.84	9.64	9.18	-	13	Pass

Note: All modulation measured based on the minimum data rate setting.



Test Band :	5.3GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	52	5260	8.32	10.04	9.50	8.92	-	13	Pass
HT20	1	52	5260	8.66	9.20	9.19	9.92	-	13	Pass
HT40	1	54	5270	8.48	9.48	9.55	9.39	-	13	Pass
HT20	2	52	5260	9.43	10.13	8.93	9.04	-	13	Pass
HT40	2	54	5270	9.04	8.82	9.53	8.97	-	13	Pass

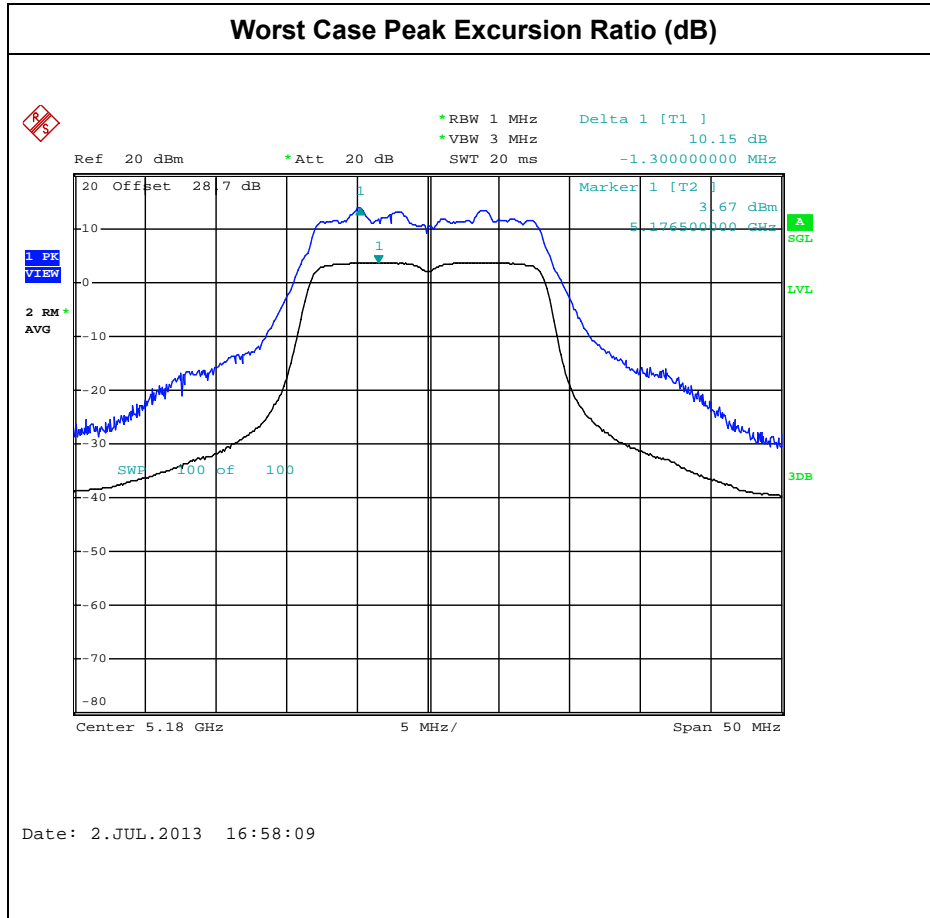
Note: All modulation measured based on the minimum data rate setting.



Test Band :	5.5GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	N _{TX}	Channel	Freq. (MHz)	Peak Excursion Ratio (dB)					Max. Limits (dB)	Pass/Fail
				BPSK	QPSK	16QAM	64QAM	256QAM		
11a	1	100	5500	8.43	9.77	9.25	9.78	-	13	Pass
HT20	1	100	5500	8.56	9.27	9.17	9.85	-	13	Pass
HT40	1	102	5510	8.74	9.38	8.83	9.94	-	13	Pass
HT20	2	100	5500	9.30	9.69	9.05	8.94	-	13	Pass
HT40	2	102	5510	9.59	8.43	9.63	8.95	-	13	Pass

Note: All modulation measured based on the minimum data rate setting.



Note: Peak Excursion Ratio (dB) = Peak – (Average + Duty Cycle Offset)

3.5 Unwanted Emissions 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 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz 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 (dBμV/m)
-17	78.3
- 27	68.3

(3) KDB789033 v01r03 H)2)c)(i) As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17



dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit.

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 ANSI C63.10-2009 test site requirement and FCC KDB 789033 D01 General UNII Test Procedures v01r03.

Section H) Unwanted emissions measurement.

(1) Procedure for Unwanted Emissions Measurements Below 1000MHz

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

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

- The setting follows the H) 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 H) 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.

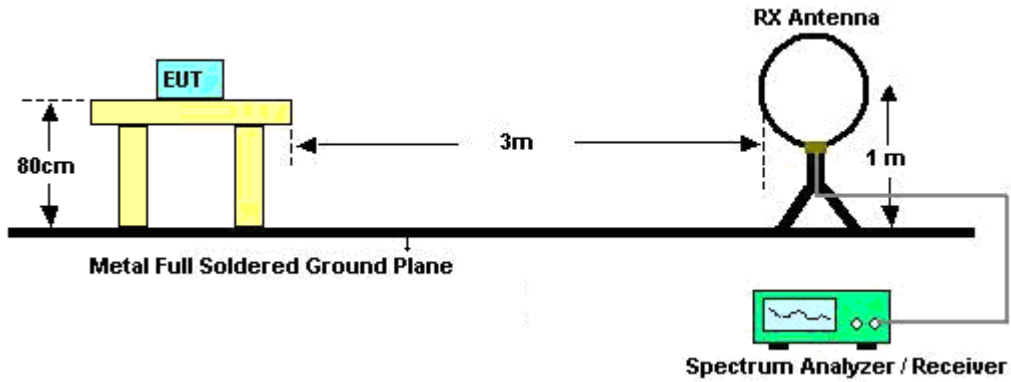


Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
5.2GHz 802.11a Chain Port 0	100	-	-	10 Hz
5.3GHz 802.11a Chain Port 0	100	-	-	10 Hz
5.5GHz 802.11a Chain Port 0	100	-	-	10 Hz
5.2GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.3GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.5GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.2GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz
5.3GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz
5.5GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz
5.2GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.3GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.5GHz 802.11n HT20 Chain Port 0	100	-	-	10 Hz
5.2GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz
5.3GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz
5.5GHz 802.11n HT20 Chain Port 0+1	100	-	-	10 Hz

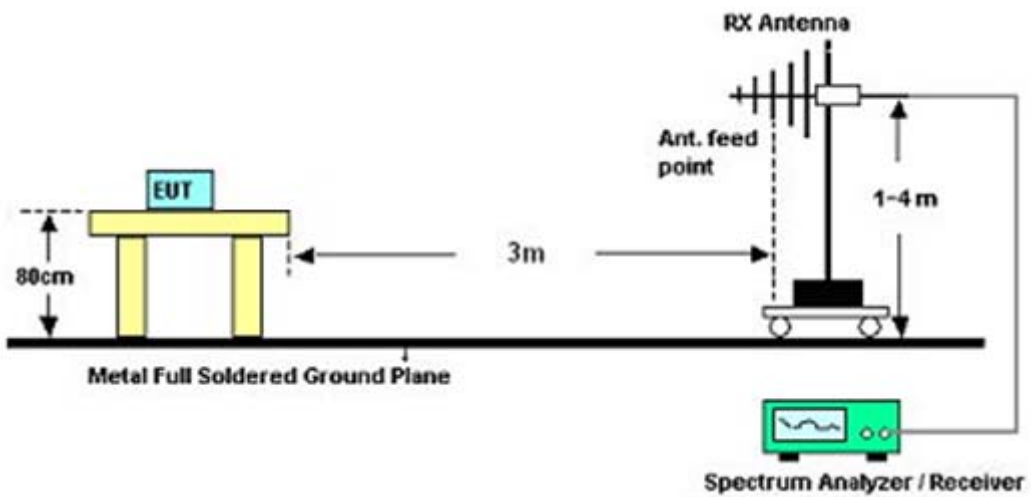
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. 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.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

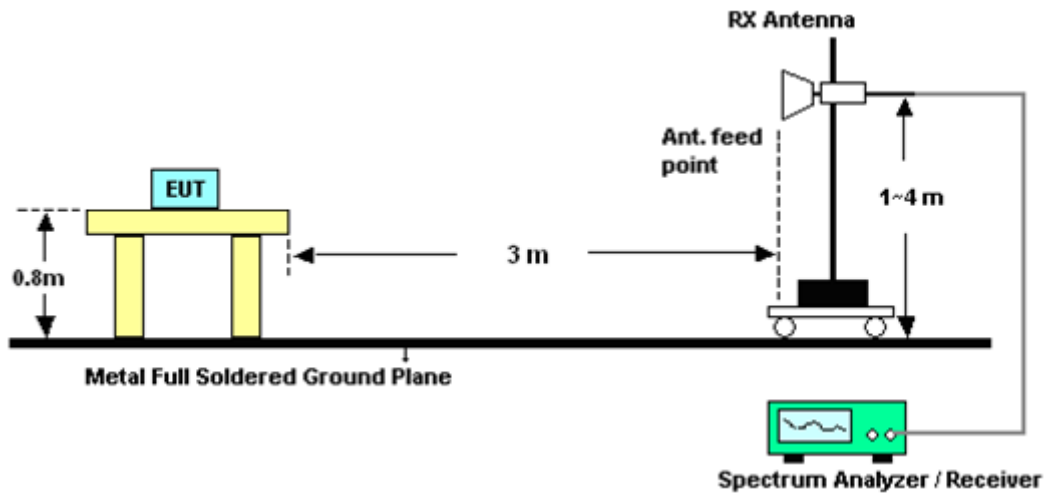
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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



3.5.6 Test Result of Radiated Band Edges

Test Mode :	802.11a – Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58.45	-15.55	74	53.2	31.36	6.85	32.96	128	107	Peak
5150	44.75	-9.25	54	39.5	31.36	6.85	32.96	128	107	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	58.15	-15.85	74	52.9	31.36	6.85	32.96	129	80	Peak
5150	44.75	-9.25	54	39.5	31.36	6.85	32.96	129	80	Average

Test Mode :	802.11a – Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59.5	-14.5	74	54.09	31.44	6.91	32.94	126	103	Peak
5350	45.5	-8.5	54	40.09	31.44	6.91	32.94	126	103	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	58.9	-15.1	74	53.49	31.44	6.91	32.94	108	0	Peak
5350	46.1	-7.9	54	40.69	31.44	6.91	32.94	108	0	Average



Test Mode :	802.11a – Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59.1	-14.9	74	53.69	31.44	6.91	32.94	123	107	Peak
5350	45.9	-8.1	54	40.49	31.44	6.91	32.94	123	107	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	58.6	-15.4	74	53.19	31.44	6.91	32.94	124	83	Peak
5350	46	-8	54	40.59	31.44	6.91	32.94	124	83	Average

Test Mode :	802.11a – Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	64.51	-3.79	68.3	58.9	31.49	7.05	32.93	122	110	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	65.71	-2.59	68.3	60.1	31.49	7.05	32.93	114	22	Peak

Remark: 5470 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.



Test Mode :	802.11a – Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	67.3	-1	68.3	61.2	31.86	7.26	33.02	119	114	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	65.31	-2.99	68.3	59.21	31.86	7.26	33.02	124	19	Peak

Remark: 5725 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58.38	-15.62	74	53.13	31.36	6.85	32.96	123	99	Peak
5150	44.95	-9.05	54	39.7	31.36	6.85	32.96	123	99	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	58.05	-15.95	74	52.8	31.36	6.85	32.96	121	1	Peak
5150	44.85	-9.15	54	39.6	31.36	6.85	32.96	121	1	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59.7	-14.3	74	54.29	31.44	6.91	32.94	124	107	Peak
5350	46.3	-7.7	54	40.89	31.44	6.91	32.94	124	107	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	59.3	-14.7	74	53.89	31.44	6.91	32.94	108	0	Peak
5350	46.1	-7.9	54	40.69	31.44	6.91	32.94	108	0	Average

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58	-16	74	52.59	31.44	6.91	32.94	124	107	Peak
5350	45.7	-8.3	54	40.29	31.44	6.91	32.94	124	107	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	58.9	-15.1	74	53.49	31.44	6.91	32.94	107	5	Peak
5350	46.1	-7.9	54	40.69	31.44	6.91	32.94	107	5	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	65.21	-8.79	74	59.6	31.49	7.05	32.93	117	108	Peak
5470	48.91	-5.09	54	43.3	31.49	7.05	32.93	117	108	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	68.11	-5.89	74	62.5	31.49	7.05	32.93	115	23	Peak
5470	51.34	-2.66	54	45.73	31.49	7.05	32.93	115	23	Average

Remark: 5470 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	68.71	-5.29	74	62.61	31.86	7.26	33.02	114	109	Peak
5725	52.4	-1.6	54	46.3	31.86	7.26	33.02	114	109	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	68.4	-5.6	74	62.3	31.86	7.26	33.02	120	33	Peak
5725	52.5	-1.5	54	46.4	31.86	7.26	33.02	120	33	Average

Remark: 5725 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	57.65	-16.35	74	52.4	31.36	6.85	32.96	112	136	Peak
5150	44.55	-9.45	54	39.3	31.36	6.85	32.96	112	136	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	57.45	-16.55	74	52.2	31.36	6.85	32.96	106	2	Peak
5150	45.15	-8.85	54	39.9	31.36	6.85	32.96	106	2	Average

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58.9	-15.1	74	53.49	31.44	6.91	32.94	110	152	Peak
5350	45.5	-8.5	54	40.09	31.44	6.91	32.94	110	152	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	58.5	-15.5	74	53.09	31.44	6.91	32.94	106	0	Peak
5350	46	-8	54	40.59	31.44	6.91	32.94	106	0	Average



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59.1	-14.9	74	53.69	31.44	6.91	32.94	100	155	Peak
5350	46	-8	54	40.59	31.44	6.91	32.94	100	155	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	60.82	-13.18	74	55.41	31.44	6.91	32.94	104	1	Peak
5350	47.29	-6.71	54	41.88	31.44	6.91	32.94	104	1	Average

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	57.11	-11.19	68.3	51.5	31.49	7.05	32.93	122	111	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	59.91	-8.39	68.3	54.3	31.49	7.05	32.93	118	105	Peak

Remark: 5470 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	61.7	-6.6	68.3	55.6	31.86	7.26	33.02	118	116	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	62.22	-6.08	68.3	56.12	31.86	7.26	33.02	108	190	Peak

Remark: 5725 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58.25	-15.75	74	53	31.36	6.85	32.96	126	107	Peak
5150	44.65	-9.35	54	39.4	31.36	6.85	32.96	126	107	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	58.45	-15.55	74	53.2	31.36	6.85	32.96	109	5	Peak
5150	45.05	-8.95	54	39.8	31.36	6.85	32.96	109	5	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59.2	-14.8	74	53.79	31.44	6.91	32.94	124	107	Peak
5350	45.5	-8.5	54	40.09	31.44	6.91	32.94	124	107	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	58.6	-15.4	74	53.19	31.44	6.91	32.94	108	0	Peak
5350	45.7	-8.3	54	40.29	31.44	6.91	32.94	108	0	Average

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	59	-15	74	53.59	31.44	6.91	32.94	122	108	Peak
5350	46.4	-7.6	54	40.99	31.44	6.91	32.94	122	108	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	58.9	-15.1	74	53.49	31.44	6.91	32.94	106	11	Peak
5350	47.3	-6.7	54	41.89	31.44	6.91	32.94	106	11	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	64.01	-9.99	74	58.4	31.49	7.05	32.93	120	111	Peak
5470	51.41	-2.59	54	45.8	31.49	7.05	32.93	120	111	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	67.24	-6.76	74	61.63	31.49	7.05	32.93	115	23	Peak
5470	52.91	-1.09	54	47.3	31.49	7.05	32.93	115	23	Average

Remark: 5470 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	60.81	-7.49	68.3	54.71	31.86	7.26	33.02	121	113	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	61.1	-7.2	68.3	55	31.86	7.26	33.02	160	349	Peak

Remark: 5725 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	60.91	-13.09	74	55.66	31.36	6.85	32.96	120	78	Peak
5150	46.82	-7.18	54	41.57	31.36	6.85	32.96	120	78	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	66.95	-7.05	74	61.7	31.36	6.85	32.96	110	0	Peak
5150	50.98	-3.02	54	45.73	31.36	6.85	32.96	110	0	Average

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	49.98	-24.02	74	44.57	31.44	6.91	32.94	122	65	Peak
5350	39.53	-14.47	54	34.12	31.44	6.91	32.94	122	65	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	57.06	-16.94	74	51.65	31.44	6.91	32.94	105	10	Peak
5350	42.78	-11.22	54	37.37	31.44	6.91	32.94	105	10	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5350	60	-14	74	54.59	31.44	6.91	32.94	118	74	Peak
5350	46.34	-7.66	54	40.93	31.44	6.91	32.94	118	74	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	70.04	-3.96	74	64.63	31.44	6.91	32.94	105	2	Peak
5350	52.24	-1.76	54	46.83	31.44	6.91	32.94	105	2	Average

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	61.94	-12.06	74	56.33	31.49	7.05	32.93	118	74	Peak
5470	48.62	-5.38	54	43.01	31.49	7.05	32.93	118	74	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5470	67.11	-6.89	74	61.5	31.49	7.05	32.93	103	0	Peak
5470	51.97	-2.03	54	46.36	31.49	7.05	32.93	103	0	Average

Remark: 5470 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong		

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	58.08	-10.22	68.3	51.98	31.86	7.26	33.02	120	70	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	58.78	-9.52	68.3	52.68	31.86	7.26	33.02	110	5	Peak

Remark: 5725 MHz is not within a restricted band, and satisfies 68.3 dBμV /m peak emission limit.

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

Note: Below 1GHz for radiated emission measurement, pre-scanned all test modes and only choose the worst case mode was recorded in the report.

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5180	91.01	-	-	85.71	31.37	6.89	32.96	128	107	Peak
5180	82.11	-	-	76.81	31.37	6.89	32.96	128	107	Average
6906	63.95	-4.35	68.3	55.3	34.69	7.75	33.79	136	111	Peak
10360	54.73	-13.57	68.3	41.18	39.38	9.49	35.32	105	13	Peak

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5180	96.32	-	-	91.02	31.37	6.89	32.96	129	80	Peak
5180	86.22	-	-	80.92	31.37	6.89	32.96	129	80	Average
6906	63.85	-4.45	68.3	55.2	34.69	7.75	33.79	110	78	Peak
10360	55.43	-12.87	68.3	41.88	39.38	9.49	35.32	100	311	Peak



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5260	96.37	-	-	91.01	31.4	6.91	32.95	126	103	Peak
5260	87.17	-	-	81.81	31.4	6.91	32.95	126	103	Average
7013	56.7	-11.6	68.3	47.8	34.93	7.87	33.9	118	114	Peak
10520	55.06	-13.24	68.3	41.19	39.63	9.6	35.36	105	18	Peak

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5260	99.34	-	-	93.98	31.4	6.91	32.95	108	0	Peak
5260	90.21	-	-	84.85	31.4	6.91	32.95	108	0	Average
7013	55.8	-12.5	68.3	46.9	34.93	7.87	33.9	100	77	Peak
10520	55.96	-12.34	68.3	42.09	39.63	9.6	35.36	100	318	Peak



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit. 3. 10640 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	98.19	-	-	92.79	31.43	6.91	32.94	123	107	Peak
5320	89.39	-	-	83.99	31.43	6.91	32.94	123	107	Average
7093	57.3	-11	68.3	48.19	35.12	8	34.01	115	107	Peak
10640	55.27	-18.73	74	41.2	39.8	9.63	35.36	108	21	Peak
10640	41.57	-12.43	54	27.5	39.8	9.63	35.36	108	21	Average

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit. 3. 10640 MHz is not within a restricted band, and satisfies both the average and peak limits of 15.209.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	101.09	-	-	95.69	31.43	6.91	32.94	132	12	Peak
5320	91.99	-	-	86.59	31.43	6.91	32.94	132	12	Average
7093	56.2	-12.1	68.3	47.09	35.12	8	34.01	103	81	Peak
10640	42.57	-11.43	54	28.5	39.8	9.63	35.36	100	322	Average
10640	55.67	-18.33	74	41.6	39.8	9.63	35.36	100	322	Peak



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5500 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
5460	59.58	-14.42	74	54	31.48	7.03	32.93	122	110	Peak
5460	45.68	-8.32	54	40.1	31.48	7.03	32.93	122	110	Average
5500	104.49	-	-	98.8	31.5	7.12	32.93	122	110	Peak
5500	95.39	-	-	89.7	31.5	7.12	32.93	122	110	Average
7333	55.26	-18.74	74	45.66	35.7	8.23	34.33	123	109	Peak
7333	48.43	-5.57	54	38.83	35.7	8.23	34.33	123	109	Average
11000	59.19	-14.81	74	44.51	40.3	9.73	35.35	108	307	Peak
11000	46.01	-7.99	54	31.33	40.3	9.73	35.35	108	307	Average

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5500 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
5460	58.48	-15.52	74	52.9	31.48	7.03	32.93	114	22	Peak
5460	45.7	-8.3	54	40.12	31.48	7.03	32.93	114	22	Average
5500	106.83	-	-	101.14	31.5	7.12	32.93	114	22	Peak
5500	97.59	-	-	91.9	31.5	7.12	32.93	114	22	Average
7333	53.93	-20.07	74	44.33	35.7	8.23	34.33	130	128	Peak
7333	47.56	-6.44	54	37.96	35.7	8.23	34.33	130	128	Average
11000	55.49	-18.51	74	40.81	40.3	9.73	35.35	100	281	Peak
11000	42.41	-11.59	54	27.73	40.3	9.73	35.35	100	281	Average



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5580 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
5580	105.16	-	-	99.19	31.63	7.3	32.96	120	113	Peak
5580	96.16	-	-	90.19	31.63	7.3	32.96	120	113	Average
7440	55.26	-18.74	74	45.5	35.96	8.28	34.48	123	102	Peak
7440	48.49	-5.51	54	38.73	35.96	8.28	34.48	123	102	Average
11160	59.15	-14.85	74	44.43	40.2	9.83	35.31	113	302	Peak
11160	45.92	-8.08	54	31.2	40.2	9.83	35.31	113	302	Average

Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5580 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
5580	106.66	-	-	100.69	31.63	7.3	32.96	112	24	Peak
5580	97.46	-	-	91.49	31.63	7.3	32.96	112	24	Average
7440	54.07	-19.93	74	44.31	35.96	8.28	34.48	130	121	Peak
7440	47.65	-6.35	54	37.89	35.96	8.28	34.48	130	121	Average
11160	55.33	-18.67	74	40.61	40.2	9.83	35.31	100	281	Peak
11160	42.4	-11.6	54	27.68	40.2	9.83	35.31	100	281	Average



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5700 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
133.79	37.84	-5.66	43.5	55.24	12.82	1.39	31.61	-	-	Peak
165.8	39.89	-3.61	43.5	56.48	13.47	1.51	31.57	-	-	Peak
200.72	38.7	-4.8	43.5	57.84	10.72	1.68	31.54	-	-	Peak
235.64	40.91	-5.09	46	58.65	12.04	1.67	31.45	-	-	Peak
272.5	43.27	-2.73	46	59.65	13.3	1.69	31.37	113	241	Peak
915.61	33.98	-12.02	46	38.57	23.99	2.54	31.12	-	-	Peak
5700	106.29	-	-	100.2	31.82	7.28	33.01	119	114	Peak
5700	97.29	-	-	91.2	31.82	7.28	33.01	119	114	Average
7600	55.75	-18.25	74	45.8	36.2	8.38	34.63	125	104	Peak
7600	49.05	-4.95	54	39.1	36.2	8.38	34.63	125	104	Average
11400	59.49	-14.51	74	44.69	40.06	9.99	35.25	110	300	Peak
11400	46.29	-7.71	54	31.49	40.06	9.99	35.25	110	300	Average



Test Mode :	802.11a - Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5700 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
48.43	34.8	-5.2	40	50.77	14.57	1.25	31.79	100	185	Peak
64.92	34.22	-5.78	40	51.87	12.92	1.22	31.79	-	-	Peak
153.19	34.86	-8.64	43.5	51.2	13.77	1.48	31.59	-	-	Peak
164.83	36.26	-7.24	43.5	52.82	13.51	1.51	31.58	-	-	Peak
270.56	33.31	-12.69	46	49.77	13.22	1.69	31.37	-	-	Peak
580.96	32.71	-13.29	46	42.11	19.64	2.28	31.32	-	-	Peak
5700	105.29	-	-	99.2	31.82	7.28	33.01	124	19	Peak
5700	96.39	-	-	90.3	31.82	7.28	33.01	124	19	Average
7600	54.51	-19.49	74	44.56	36.2	8.38	34.63	134	124	Peak
7600	48.07	-5.93	54	38.12	36.2	8.38	34.63	134	124	Average
11400	55.79	-18.21	74	40.99	40.06	9.99	35.25	100	286	Peak
11400	42.79	-11.21	54	27.99	40.06	9.99	35.25	100	286	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	91.61	-	-	86.31	31.37	6.89	32.96	123	99	Peak
5180	81.71	-	-	76.41	31.37	6.89	32.96	123	99	Average
6906	63.95	-4.35	68.3	55.3	34.69	7.75	33.79	136	111	Peak
10360	54.73	-13.57	68.3	41.18	39.38	9.49	35.32	105	13	Peak

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5180	95.28	-	-	89.98	31.37	6.89	32.96	121	1	Peak
5180	85.71	-	-	80.41	31.37	6.89	32.96	121	1	Average
6906	63.51	-4.79	68.3	54.86	34.69	7.75	33.79	113	71	Peak
10360	55.04	-13.26	68.3	41.49	39.38	9.49	35.32	100	318	Peak



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	96.4	-	-	91.04	31.4	6.91	32.95	124	107	Peak
5260	86.57	-	-	81.21	31.4	6.91	32.95	124	107	Average
7013	56.47	-11.83	68.3	47.57	34.93	7.87	33.9	115	109	Peak
10520	55	-13.3	68.3	41.13	39.63	9.6	35.36	103	15	Peak

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	99.37	-	-	94.01	31.4	6.91	32.95	108	0	Peak
5260	89.77	-	-	84.41	31.4	6.91	32.95	108	0	Average
7013	55.51	-12.79	68.3	46.61	34.93	7.87	33.9	100	83	Peak
10520	56.13	-12.17	68.3	42.26	39.63	9.6	35.36	100	312	Peak



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	98.29	-	-	92.89	31.43	6.91	32.94	124	107	Peak
5320	88.83	-	-	83.43	31.43	6.91	32.94	124	107	Average
7093	57.11	-11.19	68.3	48	35.12	8	34.01	116	103	Peak
10640	41.33	-12.67	54	27.26	39.8	9.63	35.36	110	25	Average
10640	55.12	-18.88	74	41.05	39.8	9.63	35.36	110	25	Peak

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5320	101.33	-	-	95.93	31.43	6.91	32.94	107	5	Peak
5320	91.69	-	-	86.29	31.43	6.91	32.94	107	5	Average
7093	56.02	-12.28	68.3	46.91	35.12	8	34.01	105	74	Peak
10640	55.29	-18.71	74	41.22	39.8	9.63	35.36	102	330	Peak
10640	42.31	-11.69	54	28.24	39.8	9.63	35.36	102	330	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5500 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
5460	59.58	-14.42	74	54	31.48	7.03	32.93	117	108	Peak
5460	46.08	-7.92	54	40.5	31.48	7.03	32.93	117	108	Average
5500	104.79	-	-	99.1	31.5	7.12	32.93	117	108	Peak
5500	95.59	-	-	89.9	31.5	7.12	32.93	117	108	Average
7333	55.32	-18.68	74	45.72	35.7	8.23	34.33	123	102	Peak
7333	48.98	-5.02	54	39.38	35.7	8.23	34.33	123	102	Average
11000	58.88	-15.12	74	44.2	40.3	9.73	35.35	105	307	Peak
11000	45.87	-8.13	54	31.19	40.3	9.73	35.35	105	307	Average

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5500 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
5460	61.88	-12.12	74	56.3	31.48	7.03	32.93	115	23	Peak
5460	46.78	-7.22	54	41.2	31.48	7.03	32.93	115	23	Average
5500	107.59	-	-	101.9	31.5	7.12	32.93	115	23	Peak
5500	97.69	-	-	92	31.5	7.12	32.93	115	23	Average
7333	55.02	-18.98	74	45.42	35.7	8.23	34.33	123	121	Peak
7333	48.18	-5.82	54	38.58	35.7	8.23	34.33	123	121	Average
11000	55.24	-18.76	74	40.56	40.3	9.73	35.35	100	293	Peak
11000	42.13	-11.87	54	27.45	40.3	9.73	35.35	100	293	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5580 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
5580	105.76	-	-	99.79	31.63	7.3	32.96	118	112	Peak
5580	96.06	-	-	90.09	31.63	7.3	32.96	118	112	Average
7440	55.43	-18.57	74	45.67	35.96	8.28	34.48	120	106	Peak
7440	49.1	-4.9	54	39.34	35.96	8.28	34.48	120	106	Average
11160	59	-15	74	44.28	40.2	9.83	35.31	102	310	Peak
11160	45.93	-8.07	54	31.21	40.2	9.83	35.31	102	310	Average

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5580 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
5580	106.86	-	-	100.89	31.63	7.3	32.96	113	24	Peak
5580	97.26	-	-	91.29	31.63	7.3	32.96	113	24	Average
7440	55.21	-18.79	74	45.45	35.96	8.28	34.48	120	125	Peak
7440	48.31	-5.69	54	38.55	35.96	8.28	34.48	120	125	Average
11160	55.38	-18.62	74	40.66	40.2	9.83	35.31	102	291	Peak
11160	42.32	-11.68	54	27.6	40.2	9.83	35.31	102	291	Average



Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5700 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
5700	106.09	-	-	100	31.82	7.28	33.01	114	109	Peak
5700	96.59	-	-	90.5	31.82	7.28	33.01	114	109	Average
7600	55.55	-18.45	74	45.6	36.2	8.38	34.63	125	106	Peak
7600	49.15	-4.85	54	39.2	36.2	8.38	34.63	125	106	Average
11400	59.02	-14.98	74	44.22	40.06	9.99	35.25	107	303	Peak
11400	46	-8	54	31.2	40.06	9.99	35.25	107	303	Average

Test Mode :	802.11n HT20 – Chain Port 0	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5700 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
5700	106.02	-	-	99.93	31.82	7.28	33.01	120	33	Peak
5700	96.89	-	-	90.8	31.82	7.28	33.01	120	33	Average
7600	55.25	-18.75	74	45.3	36.2	8.38	34.63	126	123	Peak
7600	48.35	-5.65	54	38.4	36.2	8.38	34.63	126	123	Average
11400	55.46	-18.54	74	40.66	40.06	9.99	35.25	100	291	Peak
11400	42.32	-11.68	54	27.52	40.06	9.99	35.25	100	291	Average



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5180	96.71	-	-	91.41	31.37	6.89	32.96	112	136	Peak
5180	85.81	-	-	80.51	31.37	6.89	32.96	112	136	Average
6906	55.87	-12.43	68.3	47.22	34.69	7.75	33.79	116	85	Peak
10360	52.56	-15.74	68.3	39.01	39.38	9.49	35.32	100	116	Peak

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	36	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5180 MHz is fundamental signal which can be ignored. 2. 6906 MHz and 10360 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5180	102.11	-	-	96.81	31.37	6.89	32.96	106	2	Peak
5180	91.21	-	-	85.91	31.37	6.89	32.96	106	2	Average
6906	55.75	-12.55	68.3	47.1	34.69	7.75	33.79	100	80	Peak
10360	54.43	-13.87	68.3	40.88	39.38	9.49	35.32	105	223	Peak



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	101.77	-	-	96.41	31.4	6.91	32.95	110	152	Peak
5260	90.67	-	-	85.31	31.4	6.91	32.95	110	152	Average
7013	56.2	-12.1	68.3	47.3	34.93	7.87	33.9	117	89	Peak
10520	52.96	-15.34	68.3	39.09	39.63	9.6	35.36	100	103	Peak

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	52	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5260 MHz is fundamental signal which can be ignored. 2. 7013 MHz and 10520 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5260	106.37	-	-	101.01	31.4	6.91	32.95	106	0	Peak
5260	95.27	-	-	89.91	31.4	6.91	32.95	106	0	Average
7013	56.4	-11.9	68.3	47.5	34.93	7.87	33.9	100	77	Peak
10520	54.36	-13.94	68.3	40.49	39.63	9.6	35.36	108	229	Peak



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.		

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
5320	102.59	-	-	97.19	31.43	6.91	32.94	100	155	Peak
5320	90.99	-	-	85.59	31.43	6.91	32.94	100	155	Average
7093	56.5	-11.8	68.3	47.39	35.12	8	34.01	117	85	Peak
10640	55.6	-18.4	74	41.53	39.8	9.63	35.36	100	98	Peak
10640	41.73	-12.27	54	27.66	39.8	9.63	35.36	100	98	Average

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	64	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5320 MHz is fundamental signal which can be ignored. 2. 7093 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.		

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
5320	107.22	-	-	101.82	31.43	6.91	32.94	104	1	Peak
5320	96.29	-	-	90.89	31.43	6.91	32.94	104	1	Average
7093	56.74	-11.56	68.3	47.63	35.12	8	34.01	100	81	Peak
10640	42.8	-11.2	54	28.73	39.8	9.63	35.36	105	223	Average
10640	55.83	-18.17	74	41.76	39.8	9.63	35.36	105	223	Peak



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5500 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
5460	58.38	-15.62	74	52.8	31.48	7.03	32.93	122	111	Peak
5460	44.88	-9.12	54	39.3	31.48	7.03	32.93	122	111	Average
5500	103.69	-	-	98	31.5	7.12	32.93	122	111	Peak
5500	92.49	-	-	86.8	31.5	7.12	32.93	122	111	Average
7333	54.04	-19.96	74	44.44	35.7	8.23	34.33	123	315	Peak
7333	47.6	-6.4	54	38	35.7	8.23	34.33	123	315	Average
11000	55.43	-18.57	74	40.75	40.3	9.73	35.35	100	95	Peak
11000	41.51	-12.49	54	26.83	40.3	9.73	35.35	100	95	Average

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	100	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5500 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
5460	58.98	-15.02	74	53.4	31.48	7.03	32.93	118	105	Peak
5460	45.08	-8.92	54	39.5	31.48	7.03	32.93	118	105	Average
5500	105.82	-	-	100.13	31.5	7.12	32.93	118	105	Peak
5500	94.19	-	-	88.5	31.5	7.12	32.93	118	105	Average
7333	54.4	-19.6	74	44.8	35.7	8.23	34.33	109	21	Peak
7333	47.8	-6.2	54	38.2	35.7	8.23	34.33	109	21	Average
11000	55.69	-18.31	74	41.01	40.3	9.73	35.35	103	227	Peak
11000	42.58	-11.42	54	27.9	40.3	9.73	35.35	103	227	Average



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5580 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
5580	103.56	-	-	97.59	31.63	7.3	32.96	119	113	Peak
5580	93.06	-	-	87.09	31.63	7.3	32.96	119	113	Average
7440	47.9	-6.1	54	38.14	35.96	8.28	34.48	120	318	Average
7440	54.4	-19.6	74	44.64	35.96	8.28	34.48	120	318	Peak
11160	41.82	-12.18	54	27.1	40.2	9.83	35.31	100	99	Average
11160	55.73	-18.27	74	41.01	40.2	9.83	35.31	100	99	Peak

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	116	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5580 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
5580	106.19	-	-	100.22	31.63	7.3	32.96	109	197	Peak
5580	95.36	-	-	89.39	31.63	7.3	32.96	109	197	Average
7440	54.57	-19.43	74	44.81	35.96	8.28	34.48	103	26	Peak
7440	48	-6	54	38.24	35.96	8.28	34.48	103	26	Average
11160	55.78	-18.22	74	41.06	40.2	9.83	35.31	105	221	Peak
11160	42.66	-11.34	54	27.94	40.2	9.83	35.31	105	221	Average



Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5700 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
5700	105.49	-	-	99.4	31.82	7.28	33.01	118	116	Peak
5700	94.51	-	-	88.42	31.82	7.28	33.01	118	116	Average
7600	54.5	-19.5	74	44.55	36.2	8.38	34.63	125	310	Peak
7600	48.1	-5.9	54	38.15	36.2	8.38	34.63	125	310	Average
11160	55.73	-18.27	74	41.01	40.2	9.83	35.31	100	99	Peak
11160	41.82	-12.18	54	27.1	40.2	9.83	35.31	100	99	Average

Test Mode :	802.11n HT20 – Chain Port 0+1	Temperature :	24°C
Test Channel :	140	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5700 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
5700	108.31	-	-	102.22	31.82	7.28	33.01	108	190	Peak
5700	96.49	-	-	90.4	31.82	7.28	33.01	108	190	Average
7600	54.8	-19.2	74	44.85	36.2	8.38	34.63	109	22	Peak
7600	48.2	-5.8	54	38.25	36.2	8.38	34.63	109	22	Average
11160	55.78	-18.22	74	41.06	40.2	9.83	35.31	105	221	Peak
11160	42.66	-11.34	54	27.94	40.2	9.83	35.31	105	221	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 6920 MHz and 10380 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5190	90.13	-	-	84.79	31.38	6.91	32.95	126	107	Peak
5190	80.83	-	-	75.49	31.38	6.91	32.95	126	107	Average
6920	63.51	-4.79	68.3	54.83	34.72	7.76	33.8	131	104	Peak
10380	54.51	-13.79	68.3	40.92	39.41	9.51	35.33	106	21	Peak

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 6920 MHz and 10380 MHz are not within restricted bands, and satisfies 68.3 dBµV /m peak emission limit.		

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
5190	93.43	-	-	88.09	31.38	6.91	32.95	109	5	Peak
5190	83.93	-	-	78.59	31.38	6.91	32.95	109	5	Average
6920	63.18	-5.12	68.3	54.5	34.72	7.76	33.8	108	75	Peak
10380	54.85	-13.45	68.3	41.26	39.41	9.51	35.33	100	320	Peak



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 7026 MHz and 10540 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	93.77	-	-	88.4	31.41	6.91	32.95	124	107	Peak
5270	83.77	-	-	78.4	31.41	6.91	32.95	124	107	Average
7026	63.87	-4.43	68.3	54.94	34.96	7.89	33.92	128	106	Peak
10540	55.1	-13.2	68.3	41.2	39.66	9.6	35.36	103	25	Peak

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 7026 MHz and 10540 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	96.57	-	-	91.2	31.41	6.91	32.95	108	0	Peak
5270	86.87	-	-	81.5	31.41	6.91	32.95	108	0	Average
7026	63.5	-4.8	68.3	54.57	34.96	7.89	33.92	103	80	Peak
10540	56.1	-12.2	68.3	42.2	39.66	9.6	35.36	100	317	Peak



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5310 MHz is fundamental signal which can be ignored. 2. 7080 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5310	95.71	-	-	90.33	31.42	6.91	32.95	122	108	Peak
5310	85.69	-	-	80.31	31.42	6.91	32.95	122	108	Average
7080	63.96	-4.34	68.3	54.88	35.09	7.98	33.99	125	103	Peak
10620	55.37	-18.63	74	41.34	39.77	9.62	35.36	100	22	Peak
10620	41.06	-12.94	54	27.03	39.77	9.62	35.36	100	22	Average

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5310 MHz is fundamental signal which can be ignored. 2. 7080 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5310	98.19	-	-	92.81	31.42	6.91	32.95	106	11	Peak
5310	88.39	-	-	83.01	31.42	6.91	32.95	106	11	Average
7080	63.1	-5.2	68.3	54.02	35.09	7.98	33.99	105	74	Peak
10620	55.57	-18.43	74	41.54	39.77	9.62	35.36	100	310	Peak
10620	42.56	-11.44	54	28.53	39.77	9.62	35.36	100	310	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5510 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
5460	61.98	-12.02	74	56.4	31.48	7.03	32.93	120	111	Peak
5460	47.48	-6.52	54	41.9	31.48	7.03	32.93	120	111	Average
5510	98.82	-	-	93.09	31.52	7.14	32.93	120	111	Peak
5510	89.02	-	-	83.29	31.52	7.14	32.93	120	111	Average
7346	55.08	-18.92	74	45.46	35.73	8.24	34.35	128	106	Peak
7346	48.51	-5.49	54	38.89	35.73	8.24	34.35	128	106	Average
11020	55.12	-18.88	74	40.44	40.29	9.74	35.35	100	26	Peak
11020	40.88	-13.12	54	26.2	40.29	9.74	35.35	100	26	Average

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5510 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
5460	60.88	-13.12	74	55.3	31.48	7.03	32.93	115	23	Peak
5460	48.08	-5.92	54	42.5	31.48	7.03	32.93	115	23	Average
5510	100.42	-	-	94.69	31.52	7.14	32.93	115	23	Peak
5510	90.52	-	-	84.79	31.52	7.14	32.93	115	23	Average
7346	54.85	-19.15	74	45.23	35.73	8.24	34.35	103	78	Peak
7346	47.96	-6.04	54	38.34	35.73	8.24	34.35	103	78	Average
11020	55.13	-18.87	74	40.45	40.29	9.74	35.35	100	308	Peak
11020	42.02	-11.98	54	27.34	40.29	9.74	35.35	100	308	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	110	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5550 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
5550	101.36	-	-	95.5	31.58	7.23	32.95	121	114	Peak
5550	91.58	-	-	85.72	31.58	7.23	32.95	121	114	Average
7400	55.48	-18.52	74	45.78	35.86	8.26	34.42	125	100	Peak
7400	49.13	-4.87	54	39.43	35.86	8.26	34.42	125	100	Average
11100	55.36	-18.64	74	40.66	40.24	9.79	35.33	100	50	Peak
11100	41.42	-12.58	54	26.72	40.24	9.79	35.33	100	50	Average

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	110	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5550 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
5550	103.16	-	-	97.3	31.58	7.23	32.95	114	343	Peak
5550	93.36	-	-	87.5	31.58	7.23	32.95	114	343	Average
7400	55.21	-18.79	74	45.51	35.86	8.26	34.42	105	74	Peak
7400	48.5	-5.5	54	38.8	35.86	8.26	34.42	105	74	Average
11100	55.58	-18.42	74	40.88	40.24	9.79	35.33	100	298	Peak
11100	42.53	-11.47	54	27.83	40.24	9.79	35.33	100	298	Average



Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5670 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
5670	102.37	-	-	96.3	31.77	7.3	33	121	113	Peak
5670	92.31	-	-	86.24	31.77	7.3	33	121	113	Average
7560	55.83	-18.17	74	45.91	36.16	8.36	34.6	121	106	Peak
7560	49.38	-4.62	54	39.46	36.16	8.36	34.6	121	106	Average
11340	55.67	-18.33	74	40.89	40.1	9.95	35.27	100	59	Peak
11340	41.21	-12.79	54	26.43	40.1	9.95	35.27	100	59	Average

Test Mode :	802.11n HT40 – Chain Port 0	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5670 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
5670	102.87	-	-	96.8	31.77	7.3	33	160	349	Peak
5670	92.87	-	-	86.8	31.77	7.3	33	160	349	Average
7560	55.5	-18.5	74	45.58	36.16	8.36	34.6	102	68	Peak
7560	48.72	-5.28	54	38.8	36.16	8.36	34.6	102	68	Average
11340	55.67	-18.33	74	40.89	40.1	9.95	35.27	100	300	Peak
11340	42.8	-11.2	54	28.02	40.1	9.95	35.27	100	300	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 6920 MHz and 10380 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5190	99.49	-	-	94.15	31.38	6.91	32.95	123	80	Peak
5190	88.15	-	-	82.81	31.38	6.91	32.95	123	80	Average
6920	64.16	-4.14	68.3	55.48	34.72	7.76	33.8	120	78	Peak
10380	55.42	-12.88	68.3	41.83	39.41	9.51	35.33	121	100	Peak

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	38	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5190 MHz is fundamental signal which can be ignored. 2. 6920 MHz and 10380 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5190	104.32	-	-	98.98	31.38	6.91	32.95	108	0	Peak
5190	92.72	-	-	87.38	31.38	6.91	32.95	108	0	Average
6920	66.26	-2.04	68.3	57.58	34.72	7.76	33.8	106	0	Peak
10380	56.3	-12	68.3	42.71	39.41	9.51	35.33	101	251	Peak



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 7026 MHz and 10540 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	101.27	-	-	95.9	31.41	6.91	32.95	121	66	Peak
5270	90.17	-	-	84.8	31.41	6.91	32.95	121	66	Average
7026	57.38	-10.92	68.3	48.45	34.96	7.89	33.92	117	92	Peak
10540	55.79	-12.51	68.3	41.89	39.66	9.6	35.36	118	84	Peak

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	54	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5270 MHz is fundamental signal which can be ignored. 2. 7026 MHz and 10540 MHz are not within restricted bands, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5270	105.58	-	-	100.21	31.41	6.91	32.95	107	9	Peak
5270	94.22	-	-	88.85	31.41	6.91	32.95	107	9	Average
7026	57.03	-11.27	68.3	48.1	34.96	7.89	33.92	100	92	Peak
10540	56.57	-11.73	68.3	42.67	39.66	9.6	35.36	100	243	Peak



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	1. 5310 MHz is fundamental signal which can be ignored. 2. 7080 MHz is not within a restricted band, and satisfies 68.3 dBµV /m peak emission limit.		

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
133.72	37.92	-5.58	43.5	55.33	12.81	1.39	31.61	-	-	Peak
165.92	39.81	-3.69	43.5	56.41	13.46	1.51	31.57	-	-	Peak
200.66	38.86	-4.64	43.5	58	10.72	1.68	31.54	-	-	Peak
235.75	41.14	-4.86	46	58.87	12.05	1.67	31.45	-	-	Peak
272.59	43.36	-2.64	46	59.74	13.3	1.69	31.37	111	201	Peak
915.54	34.19	-11.81	46	38.78	23.99	2.54	31.12	-	-	Peak
5310	101.92	-	-	96.54	31.42	6.91	32.95	125	73	Peak
5310	90.54	-	-	85.16	31.42	6.91	32.95	125	73	Average
7080	57.12	-11.18	68.3	48.04	35.09	7.98	33.99	121	91	Peak
10620	56.68	-17.32	74	42.65	39.77	9.62	35.36	106	70	Peak
10620	41.89	-12.11	54	27.86	39.77	9.62	35.36	106	70	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	62	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	1. 5310 MHz is fundamental signal which can be ignored. 2. 7080 MHz is not within a restricted band, and satisfies 68.3 dB μ V /m peak emission limit.		

Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.45	34.92	-5.08	40	50.89	14.57	1.25	31.79	103	199	Peak
64.81	34.11	-5.89	40	51.74	12.94	1.22	31.79	-	-	Peak
153.25	34.93	-8.57	43.5	51.27	13.77	1.48	31.59	-	-	Peak
164.95	36.36	-7.14	43.5	52.93	13.5	1.51	31.58	-	-	Peak
270.581	33.45	-12.55	46	49.91	13.22	1.69	31.37	-	-	Peak
580.98	32.85	-13.15	46	42.25	19.64	2.28	31.32	-	-	Peak
5310	107	-	-	101.62	31.42	6.91	32.95	105	0	Peak
5310	95.12	-	-	89.74	31.42	6.91	32.95	105	0	Average
7080	56.34	-11.96	68.3	47.26	35.09	7.98	33.99	117	87	Peak
10620	58.55	-15.45	74	44.52	39.77	9.62	35.36	103	276	Peak
10620	42.96	-11.04	54	28.93	39.77	9.62	35.36	103	276	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5510 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
5460	58.65	-15.35	74	53.07	31.48	7.03	32.93	115	74	Peak
5460	42.02	-11.98	54	36.44	31.48	7.03	32.93	115	74	Average
5510	100.94	-	-	95.21	31.52	7.14	32.93	121	72	Peak
5510	89.37	-	-	83.64	31.52	7.14	32.93	121	72	Average
7346	55.86	-18.14	74	46.24	35.73	8.24	34.35	128	88	Peak
7346	49.53	-4.47	54	39.91	35.73	8.24	34.35	128	88	Average
11020	55.97	-18.03	74	41.29	40.29	9.74	35.35	110	64	Peak
11020	42.27	-11.73	54	27.59	40.29	9.74	35.35	110	64	Average

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	102	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5510 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
5460	64.55	-9.45	74	58.97	31.48	7.03	32.93	100	5	Peak
5460	49.7	-4.3	54	44.12	31.48	7.03	32.93	100	5	Average
5510	105.4	-	-	99.67	31.52	7.14	32.93	114	4	Peak
5510	93.54	-	-	87.81	31.52	7.14	32.93	114	4	Average
7346	55.57	-18.43	74	45.95	35.73	8.24	34.35	110	88	Peak
7346	47.28	-6.72	54	37.66	35.73	8.24	34.35	110	88	Average
11020	57.21	-16.79	74	42.53	40.29	9.74	35.35	100	274	Peak
11020	42.53	-11.47	54	27.85	40.29	9.74	35.35	100	274	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	110	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5550 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
5550	100.72	-	-	94.86	31.58	7.23	32.95	121	71	Peak
5550	89.05	-	-	83.19	31.58	7.23	32.95	121	71	Average
7400	55.81	-18.19	74	46.11	35.86	8.26	34.42	116	116	Peak
7400	49.72	-4.28	54	40.02	35.86	8.26	34.42	116	116	Average
11100	56.5	-17.5	74	41.8	40.24	9.79	35.33	100	254	Peak
11100	41.62	-12.38	54	26.92	40.24	9.79	35.33	100	254	Average

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	110	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5550 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
5550	105.47	-	-	99.61	31.58	7.23	32.95	101	4	Peak
5550	93.8	-	-	87.94	31.58	7.23	32.95	101	4	Average
7400	54.38	-19.62	74	44.68	35.86	8.26	34.42	127	91	Peak
7400	46.71	-7.29	54	37.01	35.86	8.26	34.42	127	91	Average
11100	55.97	-18.03	74	41.27	40.24	9.79	35.33	108	72	Peak
11100	42.63	-11.37	54	27.93	40.24	9.79	35.33	108	72	Average



Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Horizontal
Remark :	5670 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
5670	102.27	-	-	96.2	31.77	7.3	33	121	70	Peak
5670	90.88	-	-	84.81	31.77	7.3	33	121	70	Average
7560	55.66	-18.34	74	45.74	36.16	8.36	34.6	128	107	Peak
7560	49.2	-4.8	54	39.28	36.16	8.36	34.6	128	107	Average
11340	55.36	-18.64	74	40.58	40.1	9.95	35.27	108	60	Peak
11340	41.53	-12.47	54	26.75	40.1	9.95	35.27	108	60	Average

Test Mode :	802.11n HT40 – Chain Port 0+1	Temperature :	24°C
Test Channel :	134	Relative Humidity :	68%
Test Engineer :	Anderson Hong	Polarization :	Vertical
Remark :	5670 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
5670	106.34	-	-	100.27	31.77	7.3	33	109	3	Peak
5670	94.57	-	-	88.5	31.77	7.3	33	109	3	Average
7560	55.68	-18.32	74	45.76	36.16	8.36	34.6	125	297	Peak
7560	48.3	-5.7	54	38.38	36.16	8.36	34.6	125	297	Average
11340	55.4	-18.6	74	40.62	40.1	9.95	35.27	100	268	Peak
11340	41.75	-12.25	54	26.97	40.1	9.95	35.27	100	268	Average

3.6 AC Conducted Emission Measurement

3.6.1 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 (dB μ V)	
	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.

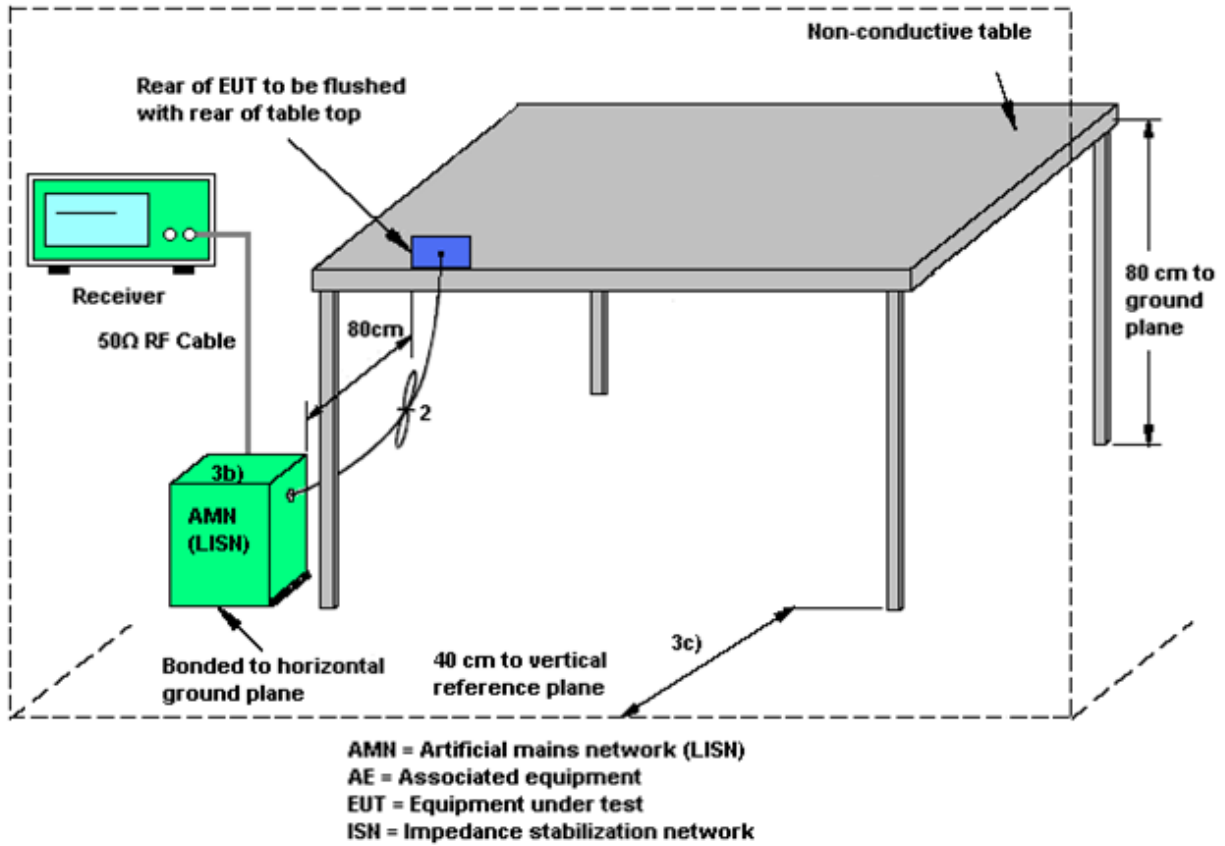
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.10-2009 test site requirement.
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.

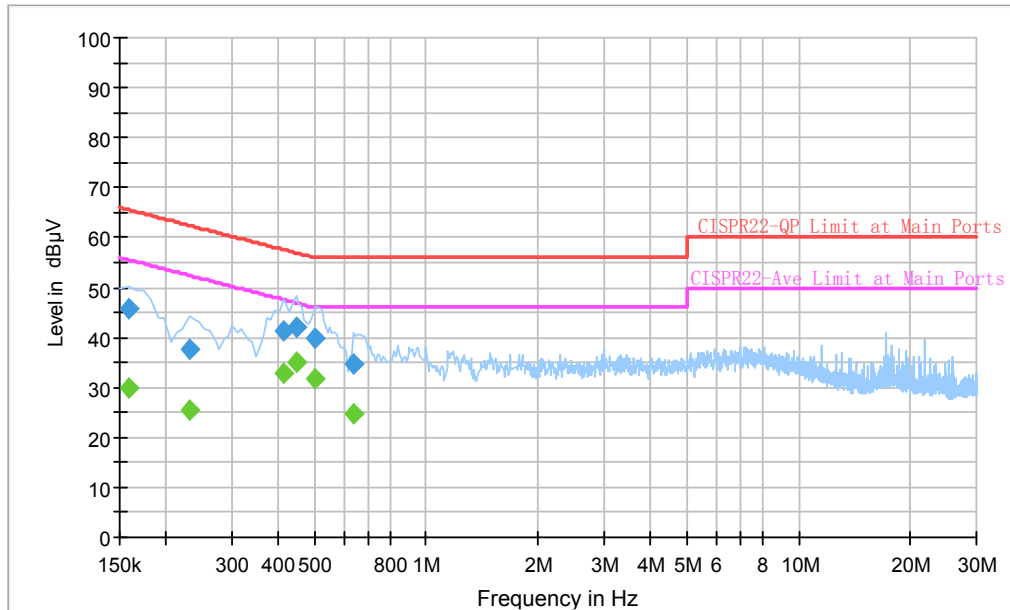
3.6.4 Test Setup



3.6.5 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 :	WLAN Idle (5GHz) + LAN Link + TC + USB Cable (Charging from Adapter)		

ENV216 Auto Test



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	45.8	Off	L1	19.3	19.8	65.6
0.230000	37.7	Off	L1	19.4	24.7	62.4
0.414000	41.3	Off	L1	19.4	16.3	57.6
0.446000	42.2	Off	L1	19.3	14.7	56.9
0.502000	39.7	Off	L1	19.3	16.3	56.0
0.638000	34.7	Off	L1	19.4	21.3	56.0

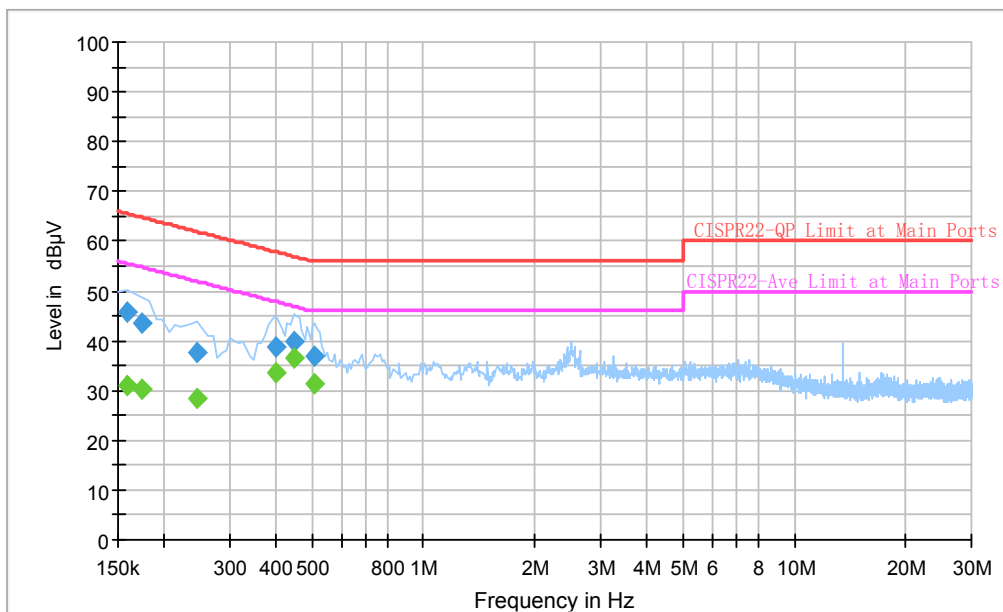
Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	30.1	Off	L1	19.3	25.5	55.6
0.230000	25.4	Off	L1	19.4	27.0	52.4
0.414000	32.7	Off	L1	19.4	14.9	47.6
0.446000	34.9	Off	L1	19.3	12.0	46.9
0.502000	31.9	Off	L1	19.3	14.1	46.0
0.638000	24.9	Off	L1	19.4	21.1	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Idle (5GHz) + LAN Link + TC + USB Cable (Charging from Adapter)		

ENV216 Auto Test



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	45.8	Off	N	19.3	19.8	65.6
0.174000	43.6	Off	N	19.4	21.2	64.8
0.246000	37.8	Off	N	19.4	24.1	61.9
0.398000	38.6	Off	N	19.5	19.3	57.9
0.446000	40.0	Off	N	19.3	16.9	56.9
0.510000	37.1	Off	N	19.4	18.9	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	31.1	Off	N	19.3	24.5	55.6
0.174000	30.3	Off	N	19.4	24.5	54.8
0.246000	28.5	Off	N	19.4	23.4	51.9
0.398000	33.7	Off	N	19.5	14.2	47.9
0.446000	36.6	Off	N	19.3	10.3	46.9
0.510000	31.3	Off	N	19.4	14.7	46.0

3.7 Frequency Stability Measurement

3.7.1 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.

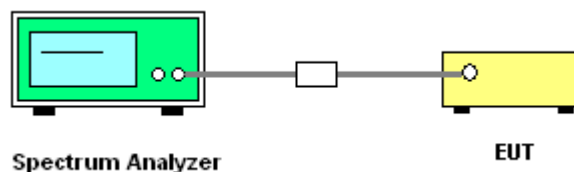
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 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.

3.7.4 Test Setup





3.7.5 Test Result of Frequency Stability

Test Band :	5.2GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Frequency (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	36	5180	5171.65	5188.25	5179.95	-9.653
11a	6Mbps	1	44	5220	5211.70	5228.30	5220.00	0
11a	6Mbps	1	48	5240	5231.70	5248.30	5240.00	0
HT20	MCS0	1	36	5180	5171.10	5188.90	5180.00	0
HT20	MCS0	1	44	5220	5211.10	5228.90	5220.00	0
HT20	MCS0	1	48	5240	5231.10	5248.90	5240.00	0
HT40	MCS0	1	38	5190	5171.82	5208.36	5190.09	17.341
HT40	MCS0	1	46	5230	5211.82	5248.18	5230.00	0
HT20	MCS8	2	36	5180	5171.05	5188.95	5180.00	0
HT20	MCS8	2	44	5220	5211.05	5228.95	5220.00	0
HT20	MCS8	2	48	5240	5231.05	5248.95	5240.00	0
HT40	MCS8	2	38	5190	5171.73	5208.27	5190.00	0
HT40	MCS8	2	46	5230	5211.64	5248.18	5229.91	-17.208

Note: Mid Frequency = (Low Frequency + High Frequency) / 2.



Test Band :	5.3GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	52	5260	5251.69	5268.29	5259.99	-1.996
11a	6Mbps	1	60	5300	5291.63	5308.30	5299.97	-6.509
11a	6Mbps	1	64	5320	5311.63	5328.27	5319.95	-9.305
HT20	MCS0	1	52	5260	5251.04	5268.96	5260.00	0
HT20	MCS0	1	60	5300	5291.03	5308.94	5299.98	-3.019
HT20	MCS0	1	64	5320	5311.06	5328.94	5320.00	0
HT40	MCS0	1	54	5270	5251.67	5288.25	5269.96	-7.262
HT40	MCS0	1	62	5310	5251.69	5268.29	5259.99	-1.996
HT20	MCS8	2	52	5260	5251.09	5268.97	5260.03	5.513
HT20	MCS8	2	60	5300	5291.09	5308.97	5300.03	5.472
HT20	MCS8	2	64	5320	5311.10	5328.90	5320.00	0
HT40	MCS8	2	54	5270	5251.73	5288.18	5269.96	-8.539
HT40	MCS8	2	62	5310	5291.73	5328.18	5309.96	-8.475

Note: Mid Frequency = (Low Frequency + High Frequency) / 2.



Test Band :	5.5GHz Band	Temperature :	24~26°C
Test Engineer :	Coyote Lin/Rover Lee	Relative Humidity :	55~58%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Low Frequency (MHz)	High Frequency (MHz)	Mid Frequency (MHz)	Frequency Stability (ppm)
11a	6Mbps	1	100	5500	5491.69	5508.29	5499.99	-1.909
11a	6Mbps	1	116	5580	5571.69	5588.29	5579.99	-1.792
11a	6Mbps	1	140	5700	5691.67	5708.27	5699.97	-5.789
HT20	MCS0	1	100	5500	5490.98	5508.98	5499.98	-4.277
HT20	MCS0	1	116	5580	5571.04	5588.94	5579.99	-1.434
HT20	MCS0	1	140	5700	5691.06	5708.94	5700.00	0
HT40	MCS0	1	102	5510	5491.69	5528.39	5510.04	7.259
HT40	MCS0	1	110	5550	5531.67	5568.18	5549.93	-13.514
HT40	MCS0	1	134	5670	5651.67	5688.25	5669.96	-6.790
HT20	MCS8	2	100	5500	5491.04	5508.96	5500.00	0
HT20	MCS8	2	116	5580	5571.04	5588.92	5579.98	-3.584
HT20	MCS8	2	140	5700	5691.04	5708.97	5700.01	0.8772
HT40	MCS8	2	102	5510	5491.82	5528.18	5510.00	0
HT40	MCS8	2	110	5550	5531.64	5568.18	5549.91	-16.216
HT40	MCS8	2	134	5670	5651.73	5688.18	5669.96	-7.937

Note: Mid Frequency = (Low Frequency + High Frequency) / 2.

3.8 Automatically Discontinue Transmission

3.8.1 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.

3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 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.

3.9 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

FCC KDB 662911 D01 Multiple Transmitter Output v02

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS}=1)$ dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

The EUT supports CDD mode.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

	Chain Port 0 Ant 1 (dBi)	Chain Port 1 Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
5.2GHz Band	3.20	2.50	2.86	5.87	0.00	0.00
5.3GHz Band	3.50	1.50	2.61	5.62	0.00	0.00
5.5GHz Band	4.50	3.50	4.03	7.04	0.00	1.04

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	R&S	CMU200	117995	N/A	Jul. 30, 2012	Jun. 23, 2013~ Jul. 02, 2013	Jul. 29, 2013	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Jun. 23, 2013~ Jul. 02, 2013	Jun. 06, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Jun. 23, 2013~ Jul. 02, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Jun. 23, 2013~ Jul. 02, 2013	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz~2.75GHz	Nov. 13, 2012	Aug. 01, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 12, 2012	Aug. 01, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 06, 2012	Aug. 01, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Aug. 01, 2013	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	ESU26	100390	20Hz~26.5GHz	Dec. 14, 2012	Jul. 07, 2013	Dec. 13, 2013	Radiation (03CH08-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9 kHz~30 MHz	Jul. 03, 2012	Jul. 07, 2013	Jul. 03, 2014	Radiation (03CH08-HY)
Bilog Antenna	Schaffner	CBL6111C	2725	30MHz~2GHz	Oct. 06, 2012	Jul. 07, 2013	Oct. 05, 2013	Radiation (03CH08-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Jul. 07, 2013	N/A	Radiation (03CH08-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Jul. 07, 2013	N/A	Radiation (03CH08-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 10, 2012	Jul. 07, 2013	Aug. 09, 2013	Radiation (03CH08-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Aug. 28, 2012	Jul. 07, 2013	Aug. 27, 2013	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GH~40GHz	Sep. 28, 2012	Jul. 07, 2013	Sep. 27, 2013	Radiation (03CH08-HY)
Pre Amplifier	COM-POWER	PA-103	161075	10-1000MHz.32 dB.GAIN	Feb. 26, 2013	Jul. 07, 2013	Feb. 25, 2014	Radiation (03CH08-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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