

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : Vodafone Smart Tab 10
BRAND NAME : ZTE
MODEL NAME : Vodafone Smart Tab 10
FCC ID : Q78-V11A
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : Unlicensed National Information Infrastructure (UNII)

The product was received on Aug. 04, 2011 and completely tested on Sep. 07, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : Q78-V11A

Page Number : 1 of 115

Report Issued Date : Sep. 14, 2011

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR190315	Rev. 01	Initial issue of report	Sep. 14, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	$\leq 17, 24, 30$ dBm (depend on band)	Pass	-
3.3	15.407(a)	A9.2	Power Spectral Density	$\leq 4, 11, 17$ dBm (depend on band)	Pass	-
3.4	15.407(b)	A9.3	Frequency Band Edges	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	-
3.5	15.407(b)	A9.3	Spurious Emission	EIRP < -27 dBm/MHz	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 14.17 dB at 0.52 MHz
3.7	15.407(b)	A9.3	Transmitter Radiated Emission	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 0.7 dB at 3858 MHz
3.8	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.9	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.10	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.11	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Vodafone Smart Tab 10
Brand Name	ZTE
Model Name	Vodafone Smart Tab 10
FCC ID	Q78-V11A
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5725 MHz ~ 5825 MHz
Maximum Output Power to Antenna	<5150 MHz ~ 5250 MHz> 802.11a : 9.94 dBm / 0.0099 W 802.11n (BW 20MHz) : 9.92 dBm / 0.0098 W <5725 MHz ~ 5825 MHz > 802.11a : 9.88 dBm / 0.0097 W 802.11n (BW 20MHz) : 9.84 dBm / 0.0096 W
Antenna Type	<5150 MHz ~ 5250 MHz> Fixed Internal Antenna with gain 0.23 dBi <5725 MHz ~ 5825 MHz> Fixed Internal Antenna with gain -5.92 dBi
HW Version	N/A
SW Version	N/A
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Unlicensed National Information Infrastructure (UNII).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

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.
	TH02-HY

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958
Test Site No.	Sporton Site No. :
	CO01-KS ; 03CH01-KS

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issued 8

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 (Certification), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	Notebook	Acer	Trave Imate 2413Lci	QDS-BRCM1016	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

802.11a Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	132	5660	136	5680	140	5700
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n (BW 20MHz) Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	132	5660	136	5680	140	5700
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

2.2 RF Power

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

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	9.94	9.89	9.80	9.72	9.67	9.62	9.48	9.47
CH 40	5200 MHz	9.88	-	-	-	-		-	-
CH 44	5220 MHz	9.91	-	-	-	-		-	-
CH 149	5745 MHz	9.69	-	-	-	-		-	-
CH 157	5785 MHz	9.86	-	-	-	-		-	-
CH 161	5805 MHz	9.88	9.77	9.72	9.70	9.62	9.60	9.50	9.47

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 36	5180 MHz	9.92	9.91	9.77	9.70	9.52	9.48	9.40	9.37
CH 40	5200 MHz	9.81	-	-	-	-		-	-
CH 44	5220 MHz	9.91	-	-	-	-		-	-
CH 149	5745 MHz	9.61	-	-	-	-		-	-
CH 157	5785 MHz	9.80	-	-	-	-		-	-
CH 161	5805 MHz	9.84	9.83	9.65	9.56	9.38	9.28	9.26	9.20

Remark:

1. The data rates of WLAN 802.11a/n were set in 6Mbps for 802.11a and 6.5Mbps for 802.11n (BW 20MHz), for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.

2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

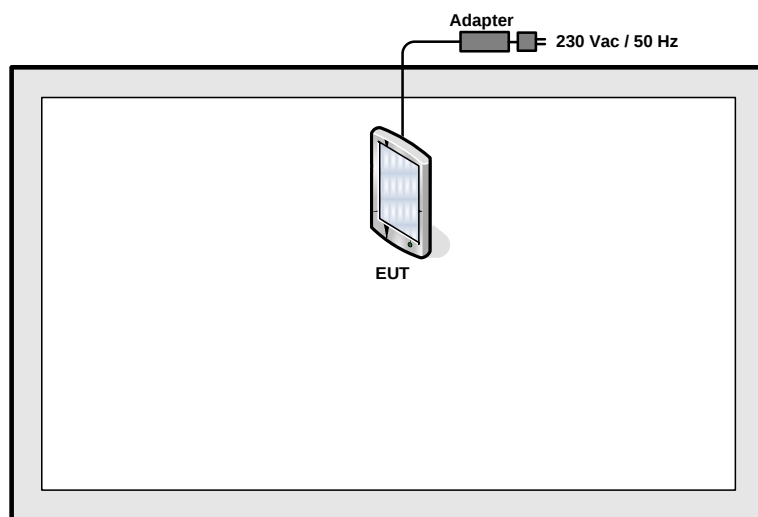
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

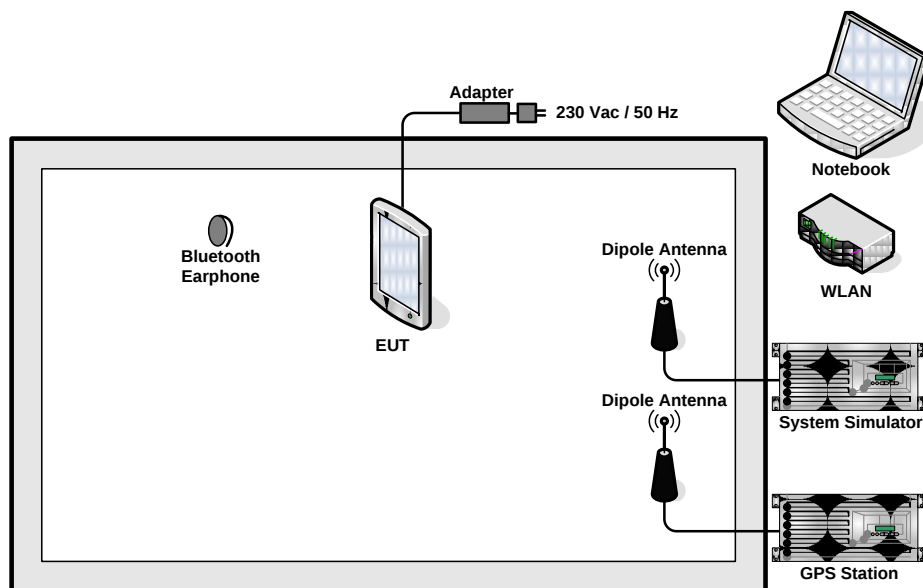
Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Conducted TCs	■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH40_5200 MHz ■ Mode 3: 802.11a_CH44_5220 MHz ■ Mode 4: 802.11a_CH149_5745 MHz ■ Mode 5: 802.11a_CH157_5765 MHz ■ Mode 6: 802.11a_CH161_5805 MHz ■ Mode 7: 802.11a_CH36_5180 MHz (BW 20M) ■ Mode 8: 802.11a_CH40_5200 MHz (BW 20M) ■ Mode 9: 802.11a_CH44_5220 MHz (BW 20M) ■ Mode 10: 802.11a_CH149_5745 MHz (BW 20M) ■ Mode 11: 802.11a_CH157_5765 MHz (BW 20M) ■ Mode 12: 802.11a_CH161_5805 MHz (BW 20M)
Radiated TCs	■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH40_5200 MHz ■ Mode 3: 802.11a_CH44_5220 MHz ■ Mode 4: 802.11a_CH149_5745 MHz ■ Mode 5: 802.11a_CH157_5765 MHz ■ Mode 6: 802.11a_CH161_5805 MHz ■ Mode 7: 802.11a_CH36_5180 MHz (BW 20M) ■ Mode 8: 802.11a_CH40_5200 MHz (BW 20M) ■ Mode 9: 802.11a_CH44_5220 MHz (BW 20M) ■ Mode 10: 802.11a_CH149_5745 MHz (BW 20M) ■ Mode 11: 802.11a_CH157_5765 MHz (BW 20M) ■ Mode 12: 802.11a_CH161_5805 MHz (BW 20M)
AC Conducted Emission	Mode 1 : GSM 850 Idle + Bluetooth Link + WLAN Link (5G) + Adapter + Camera + GPS Rx

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.5 RF Utility

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

3 Test Result

3.1 26dB Bandwidth Measurement

3.1.1 Limit 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 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W (30dBm) or 17 dBm + 10log B.

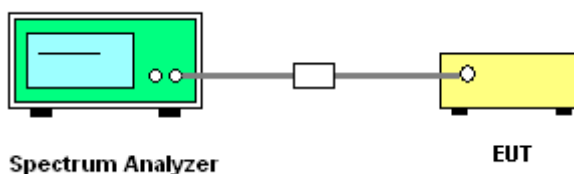
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC Public Notice DA 02-2138 (Measurement Guidelines of UNII).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Read RBW and repeat measurement as needed until the RBW/BW ratio is approximately 1%.
4. Use a RBW = approximately 1% of the emission bandwidth; Set the VBW > RBW; Use a peak detector.
5. Measure the maximum width of the emission that is 26 dB relative to the peak of the emission and 99% occupied bandwidth.

3.1.4 Test Setup



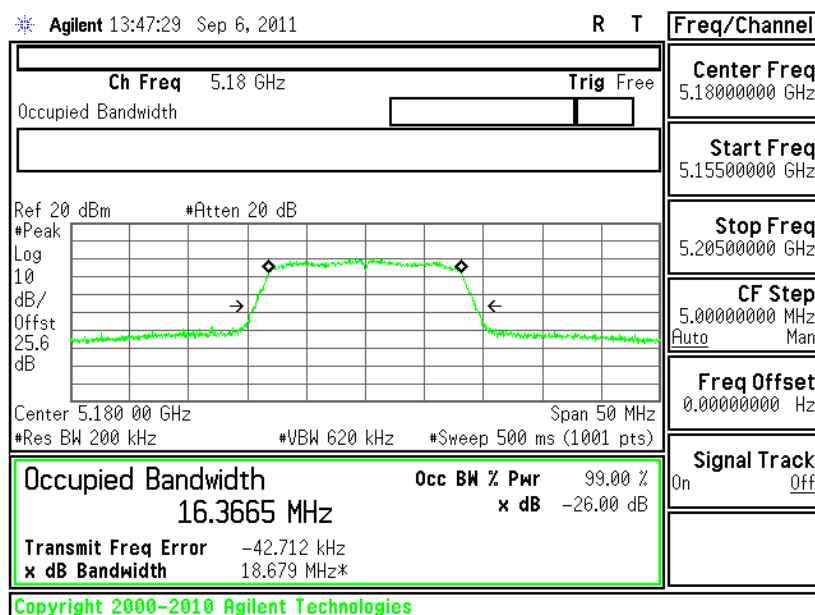
3.1.5 Test Result of 26dB Bandwidth

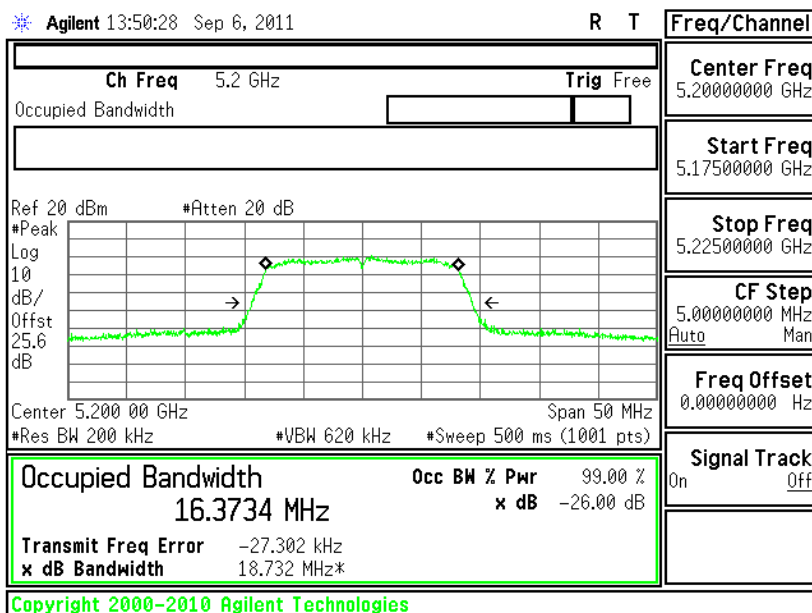
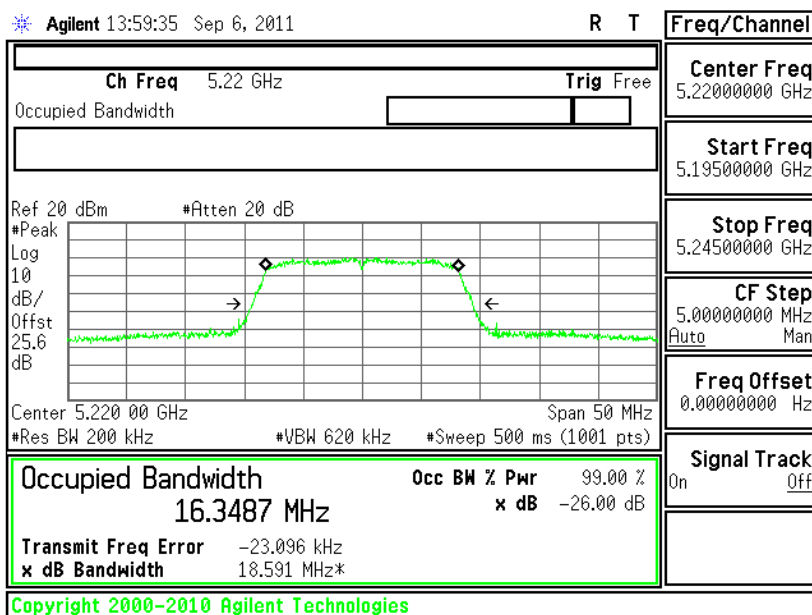
Test Mode :	Mode 1~6	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

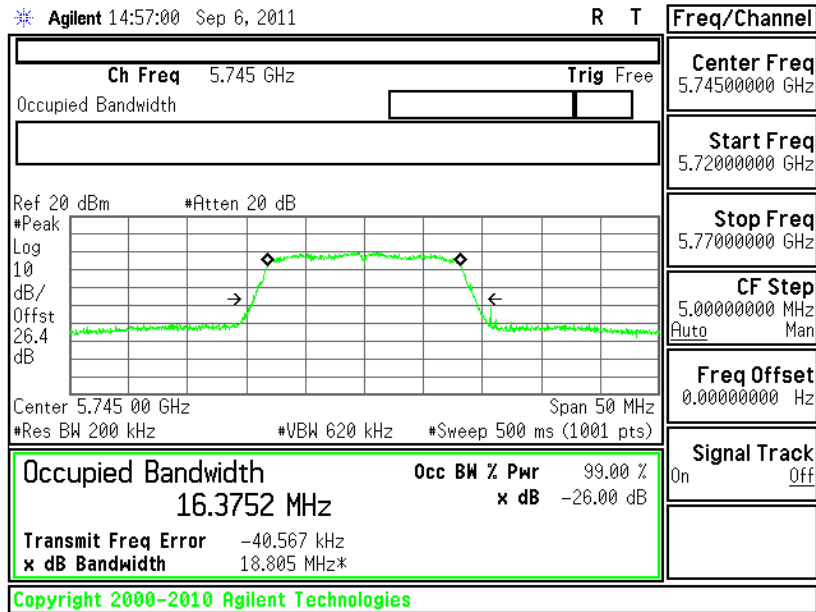
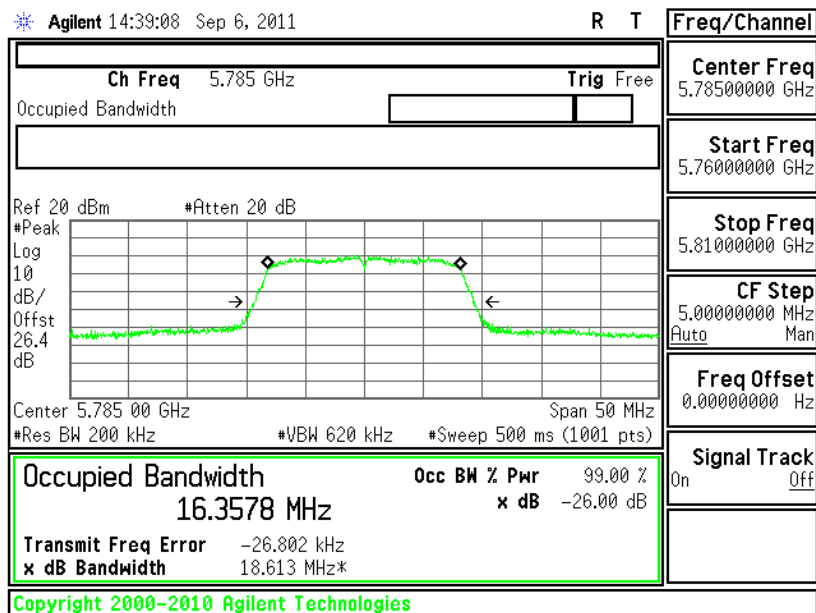
Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	18.679	N/A
40	5200	18.732	N/A
44	5220	18.591	N/A
149	5745	18.805	N/A
157	5785	18.613	N/A
161	5805	18.723	N/A

Note: N/A , 26dB bandwidth is reporting only.

26 dB Bandwidth Plot on 802.11a Channel 36

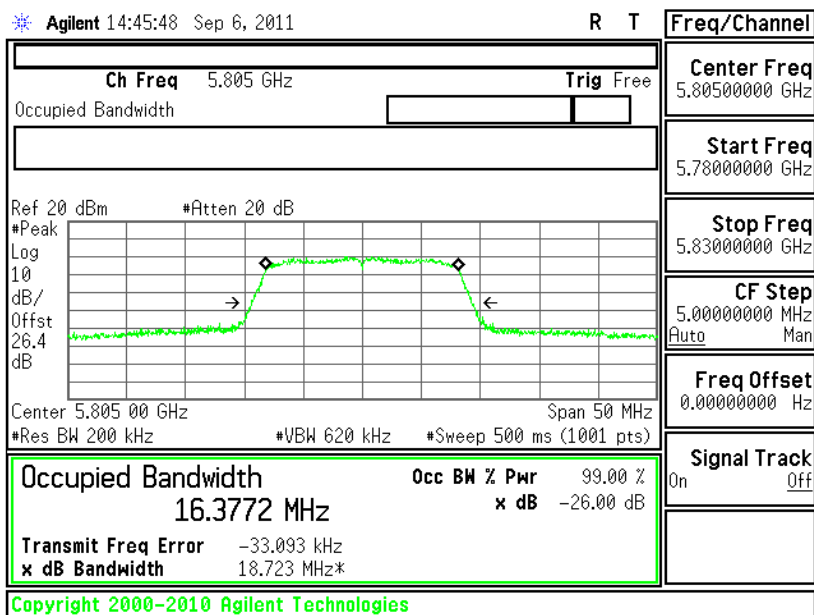


26 dB Bandwidth Plot on 802.11a Channel 40

26 dB Bandwidth Plot on 802.11a Channel 44


26 dB Bandwidth Plot on 802.11a Channel 149

26 dB Bandwidth Plot on 802.11a Channel 157




26 dB Bandwidth Plot on 802.11a Channel 161

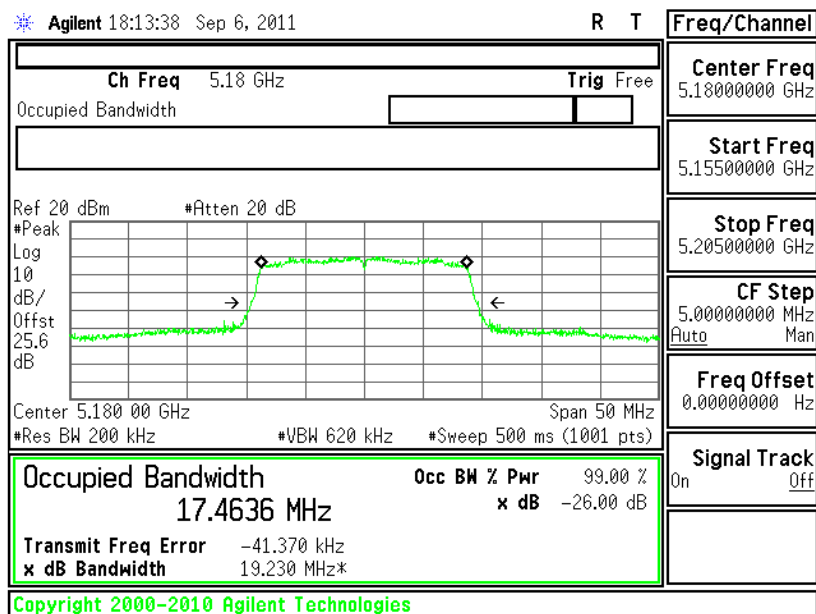


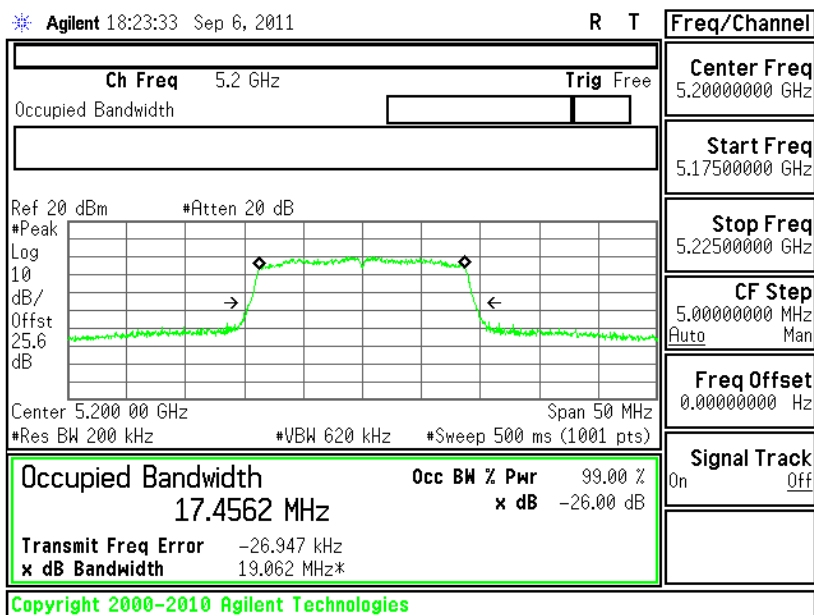
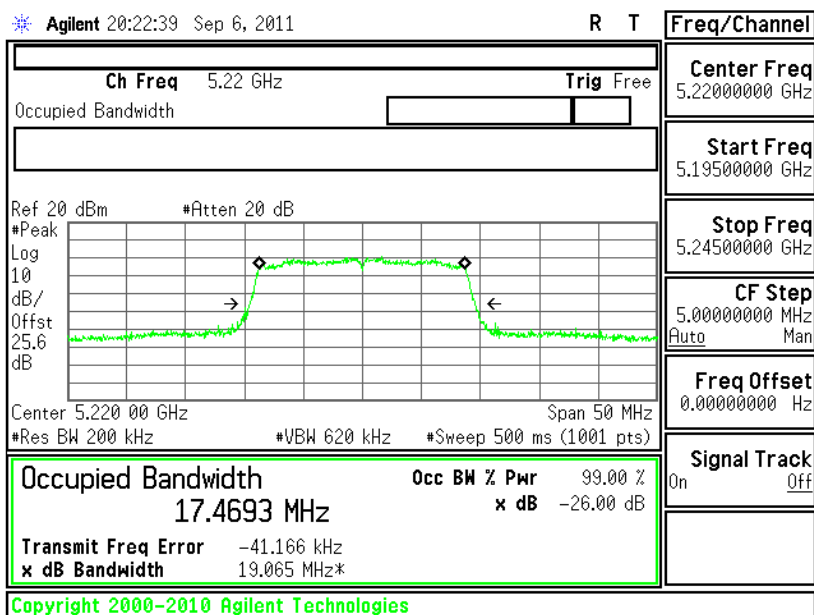


Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	19.230	N/A
40	5200	19.062	N/A
44	5220	19.065	N/A
149	5745	19.105	N/A
157	5785	19.165	N/A
161	5805	19.079	N/A

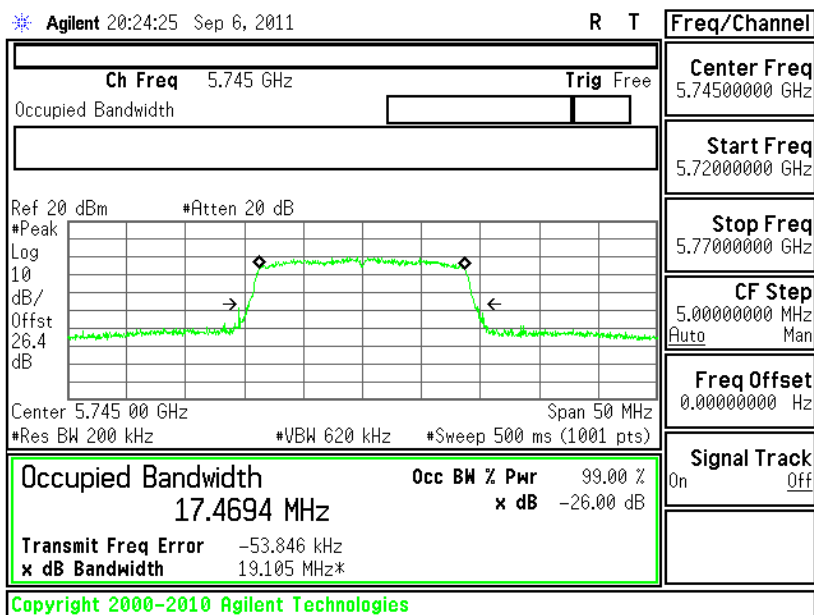
Note: N/A, 26dB Bandwidth is reporting only.

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

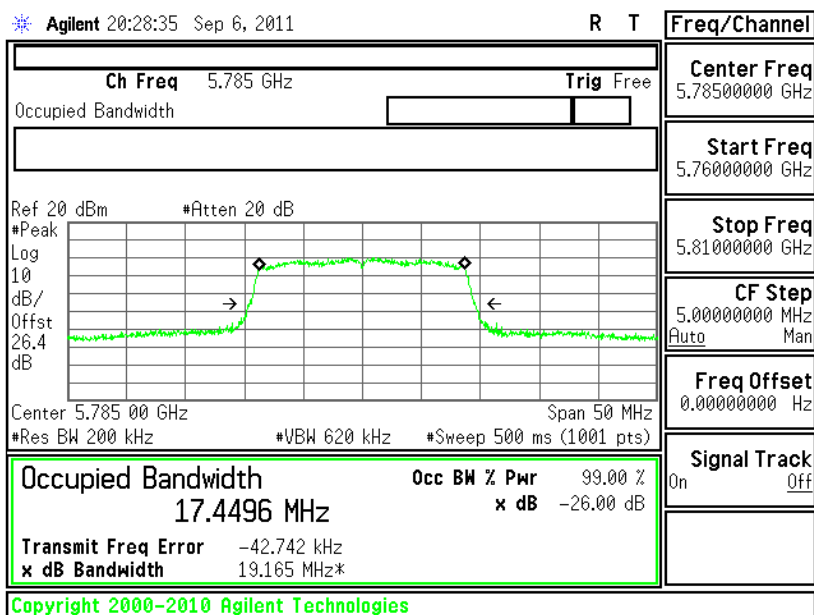
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 40

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




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 149

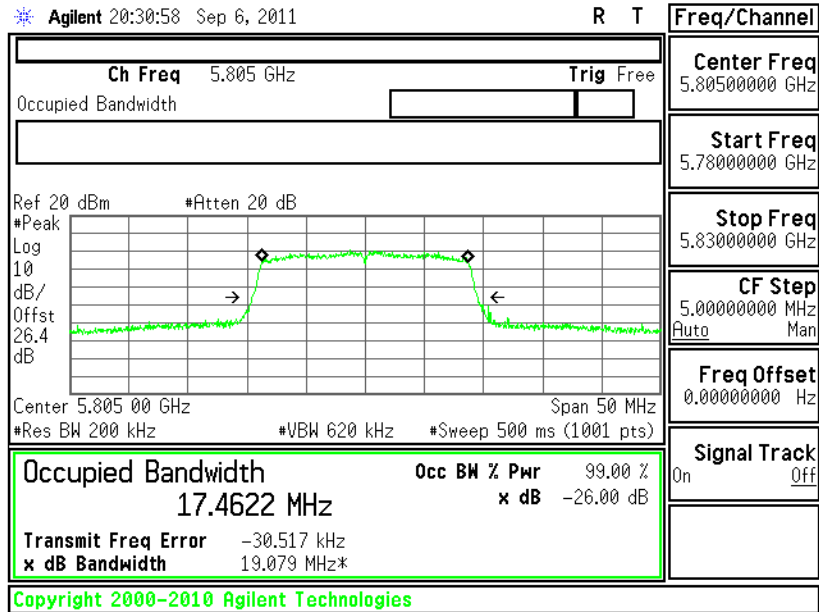


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 157





26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 161



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or $4 \text{ dBm} + 10\log B$, where B is the 26 dB emissions bandwidth in MHz. If transmitting antenna directional gain is greater than 6 dBi. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or $17 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, 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.

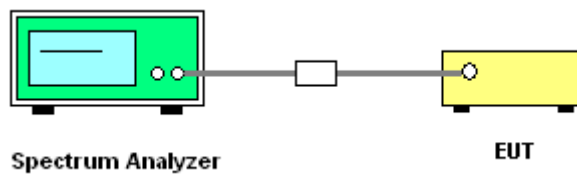
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC Public Notice DA 02-2138 (Measurement Guidelines of UNII).
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Use sample detector mode
 - Use a video trigger with the trigger level set to enable triggering only on full power pulses.
Transmitter must operate at full control power for entire sweep of every sweep.
 - Trace average 100 traces in power averaging mode.
 - Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable, as below example,
For 802.11a Channel 36, the final power in test report is 9.94 dBm which is the reading of spectrum analyzer with offset cable loss (0.4 dB), and attenuator loss (25 dB).
3. Measure the power and record it.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~6	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

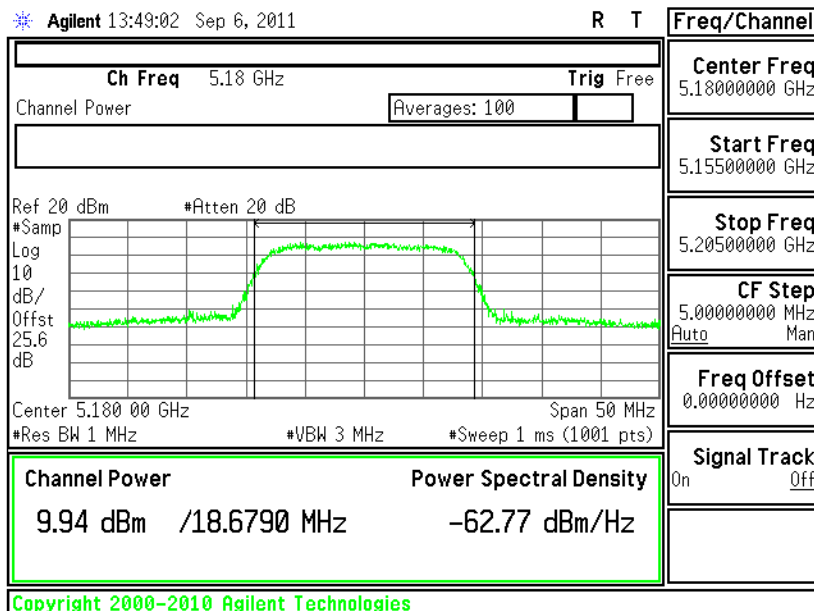
Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	9.94	16.71	Pass
40	5200	9.88	16.73	Pass
44	5220	9.91	16.69	Pass
149	5745	9.69	29.74	Pass
157	5785	9.86	29.70	Pass
161	5805	9.88	29.72	Pass

Test Mode :	Mode 7~12	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	9.92	16.84	Pass
40	5200	9.81	16.80	Pass
44	5220	9.91	16.80	Pass
149	5745	9.61	29.81	Pass
157	5785	9.80	29.83	Pass
161	5805	9.84	29.81	Pass

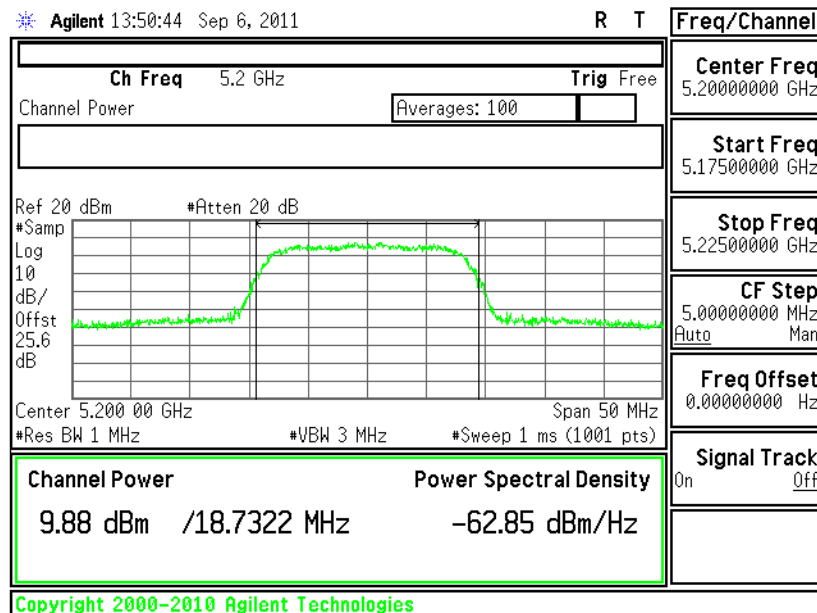
3.2.6 Test Result of Power Output Plots

Output Power Plot on 802.11a Channel 36



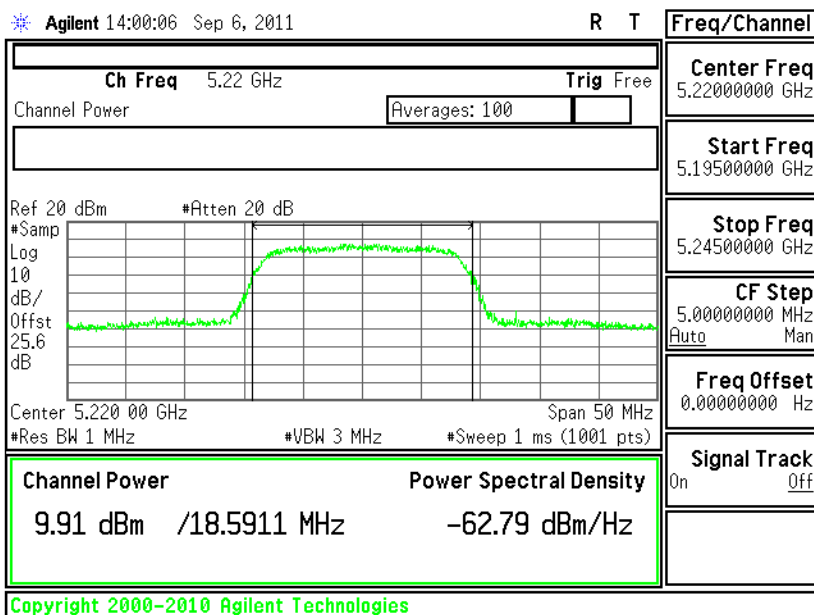
Total path loss 25.6 dB (cable loss: 0.6dB, attenuator: 25dB)

Output Power Plot on 802.11a Channel 40

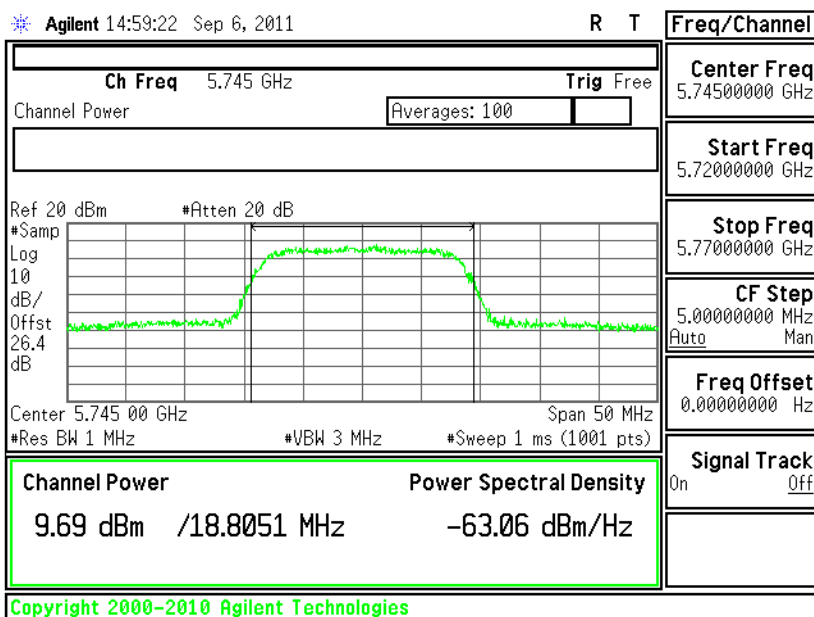




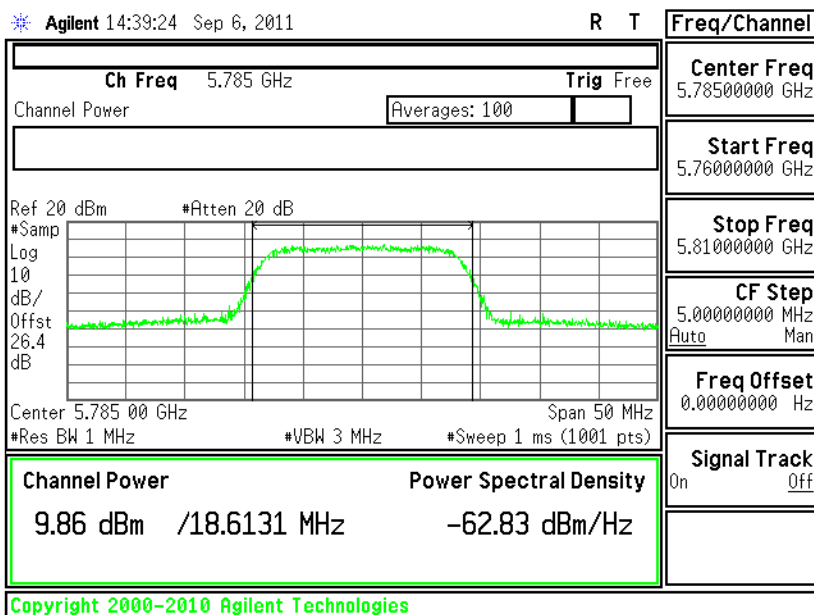
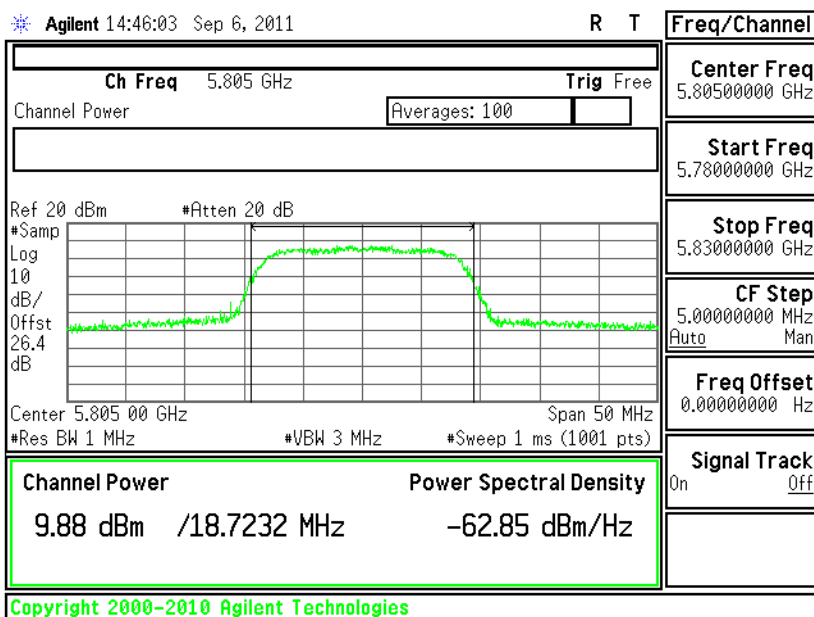
Output Power Plot on 802.11a Channel 44



Output Power Plot on 802.11a Channel 149

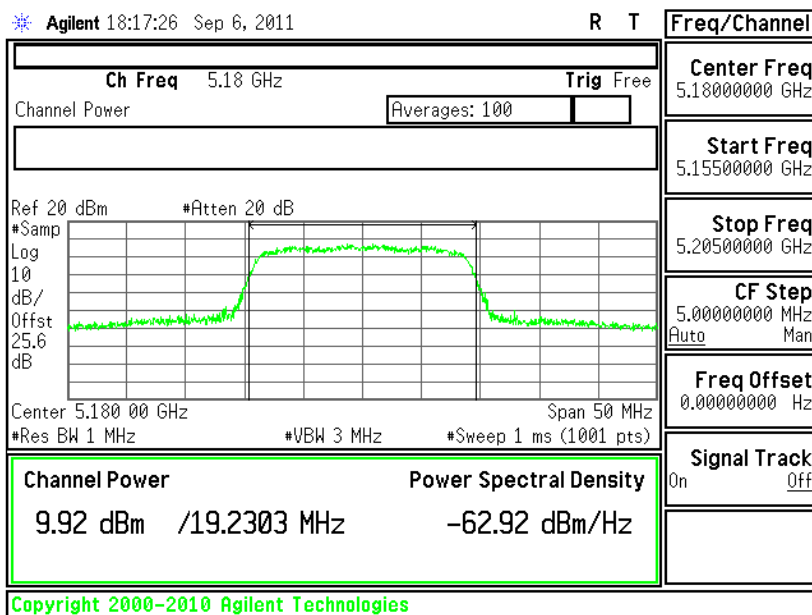


Total path loss 26.4 dB (cable loss: 1.4dB, attenuator: 25dB)

Output Power Plot on 802.11a Channel 157

Output Power Plot on 802.11a Channel 161


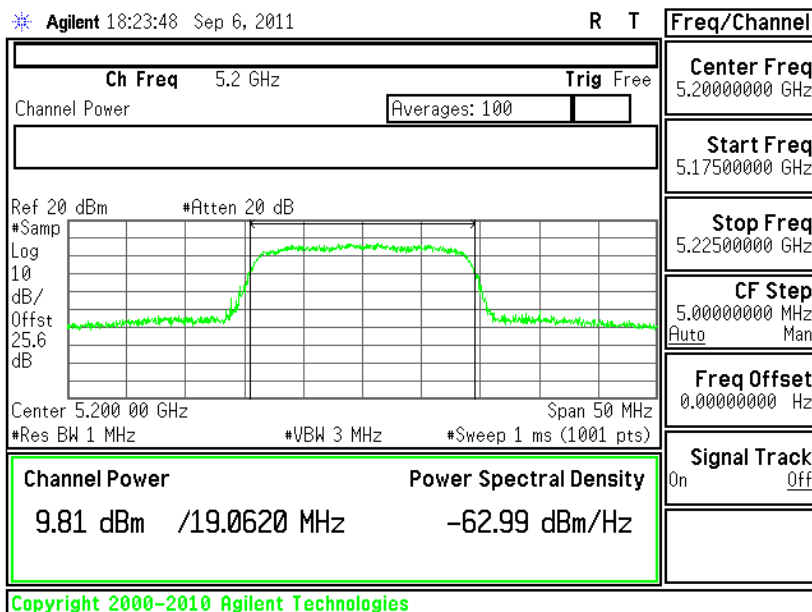


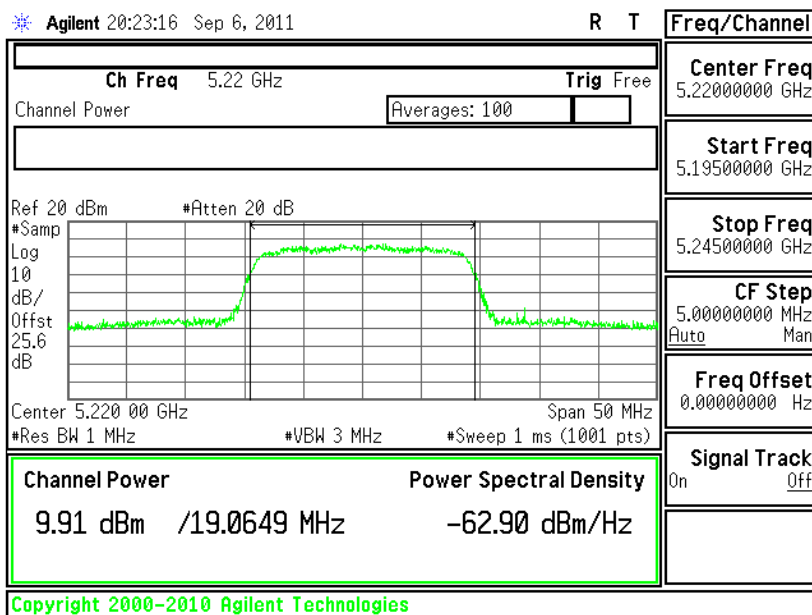
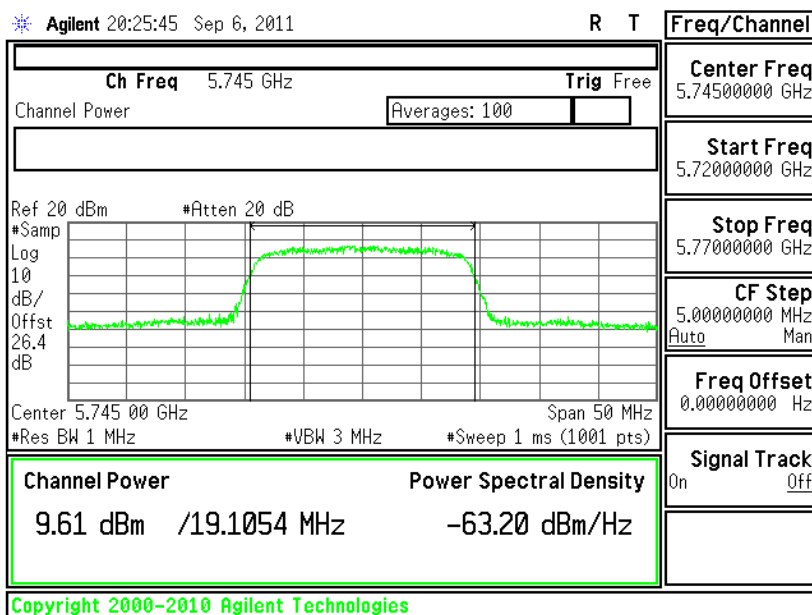
Output Power Plot on 802.11n (BW 20MHz) Channel 36



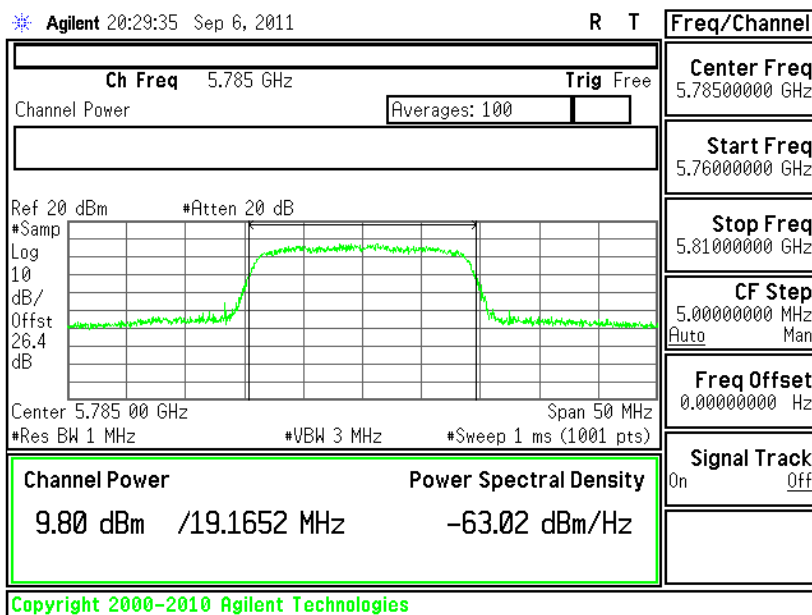
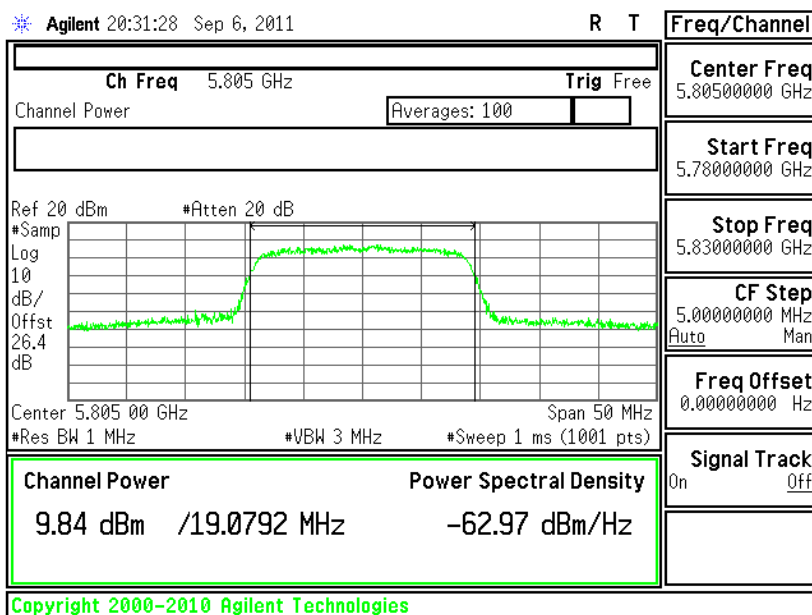
Total path loss 25.6 dB (cable loss: 0.6dB, attenuator: 25dB)

Output Power Plot on 802.11n (BW 20MHz) Channel 40



Output Power Plot on 802.11n (BW 20MHz) Channel 44

Output Power Plot on 802.11n (BW 20MHz) Channel 149


Total path loss 26.4 dB (cable loss: 1.4dB, attenuator: 25dB)

Output Power Plot on 802.11n (BW 20MHz) Channel 157

Output Power Plot on 802.11n (BW 20MHz) Channel 161


3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

For the band 5.15–5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1MHz band. For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

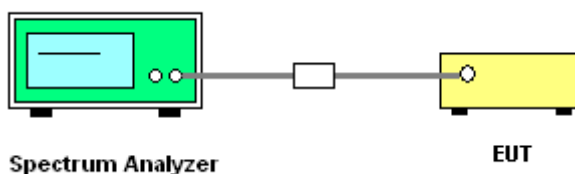
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The transmitter output is connected to the spectrum analyzer. According to the method 2 of DA-02-2138, the resolution bandwidth is set to 1 MHz, video bandwidth is 3MHz, trace average 100 traces in power averaging mode, and sample detection is used, and the analyzer is set for video averaging.
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.
4. Measure the power and record it.

3.3.4 Test Setup

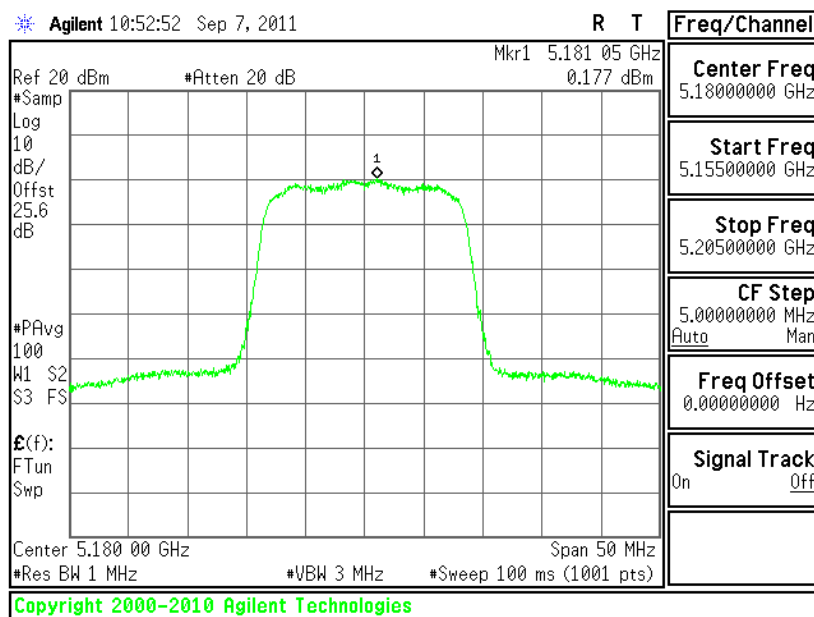


3.3.5 Test Result of Power Spectral Density

Test Mode :	Mode 1~6	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	0.177	4	Pass
40	5200	0.125	4	Pass
44	5220	0.514	4	Pass
149	5745	0.147	17	Pass
157	5785	0.210	17	Pass
161	5805	0.475	17	Pass

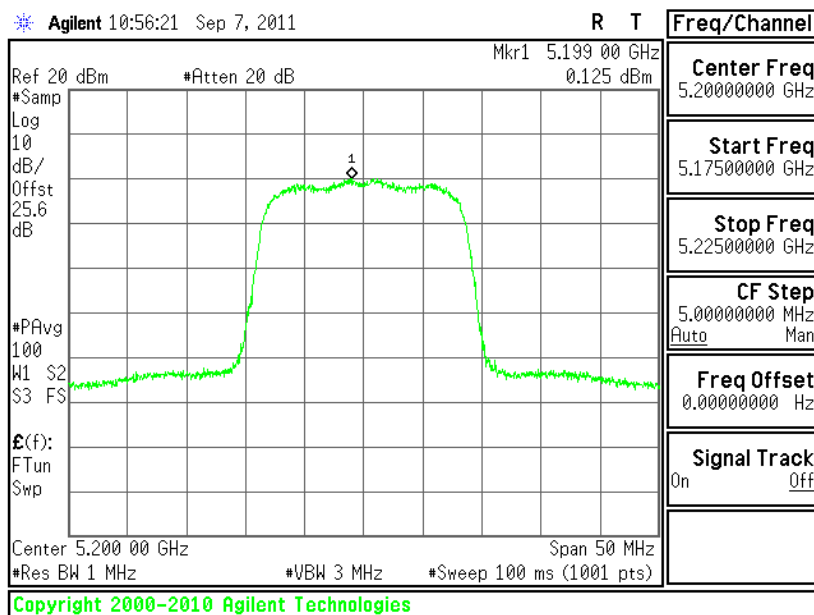
PSD Plot on 802.11a Channel 36



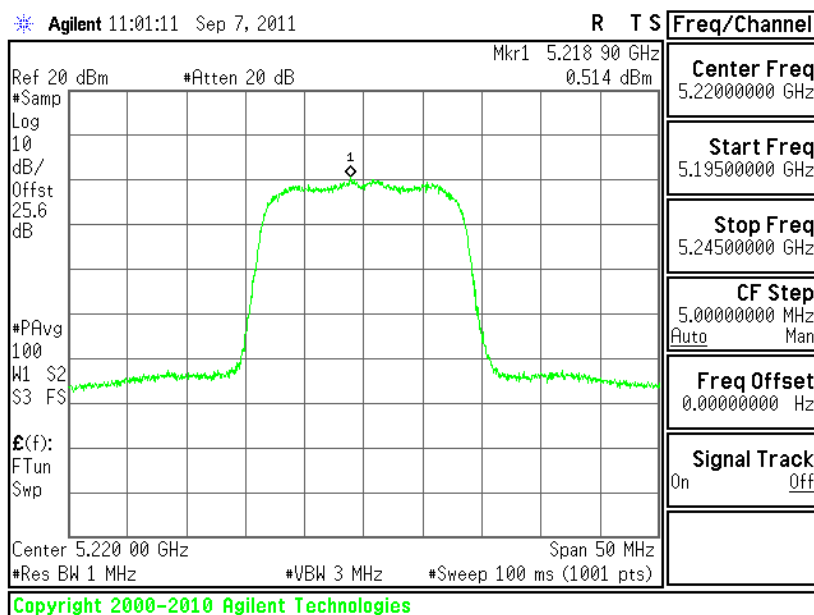
Total path loss 25.6 dB (cable loss: 0.6dB, attenuator: 25dB)



PSD Plot on 802.11a Channel 40

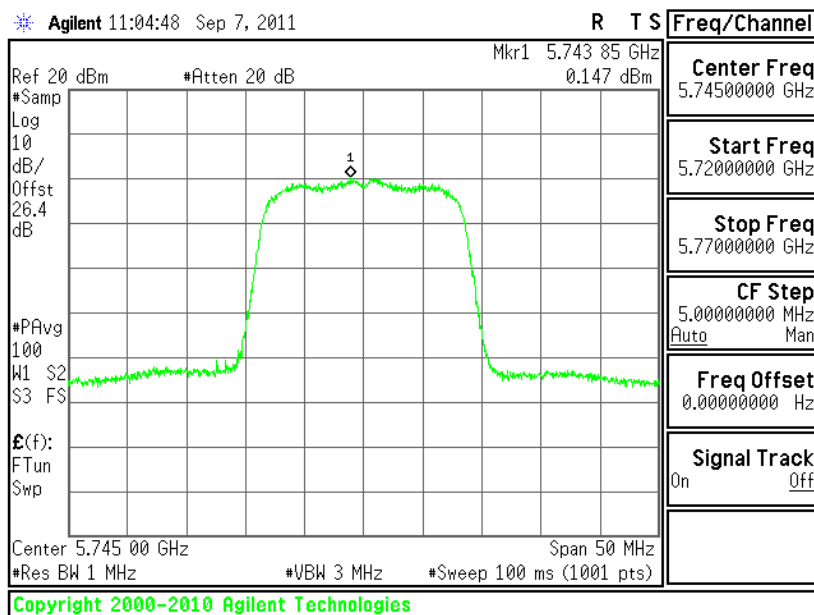


PSD Plot on 802.11a Channel 44



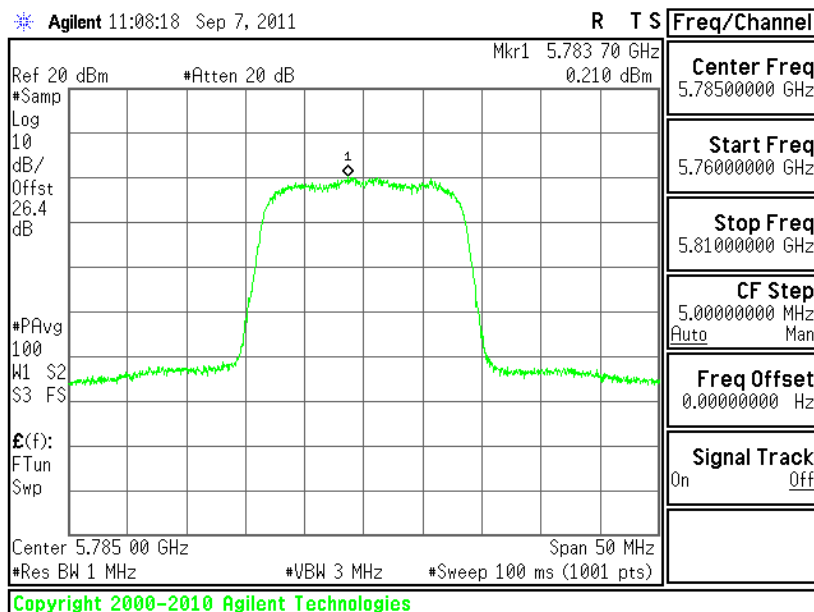


PSD Plot on 802.11a Channel 149



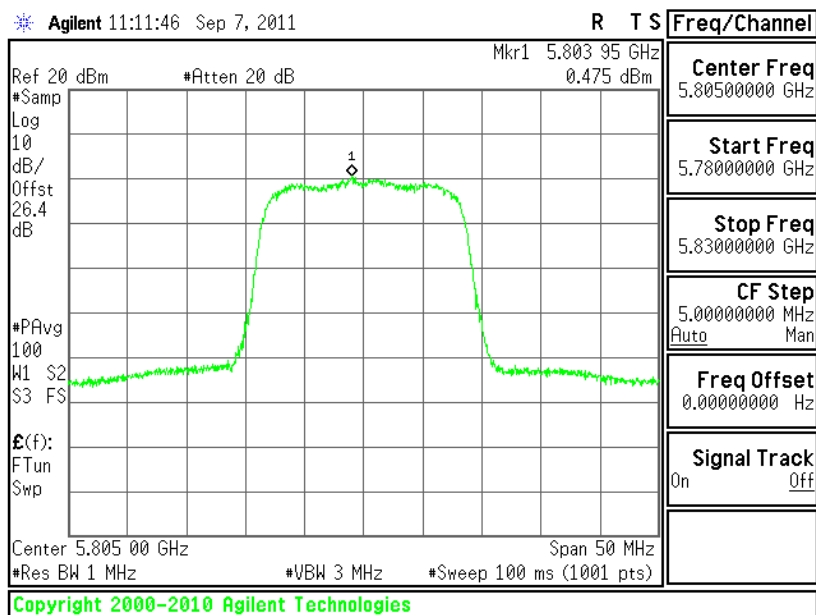
Total path loss 26.4dB (cable loss: 1.4dB, attenuator: 25dB)

PSD Plot on 802.11a Channel 157



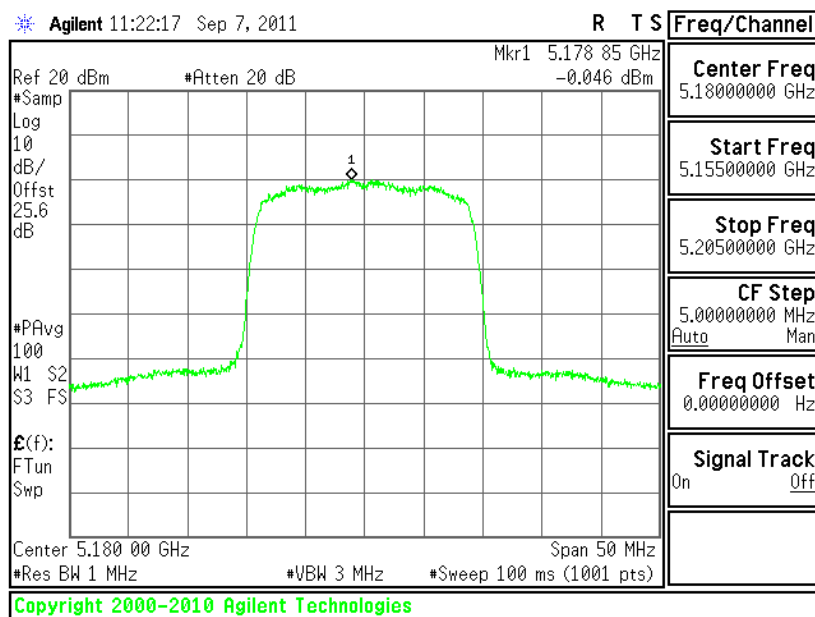


PSD Plot on 802.11a Channel 161



Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

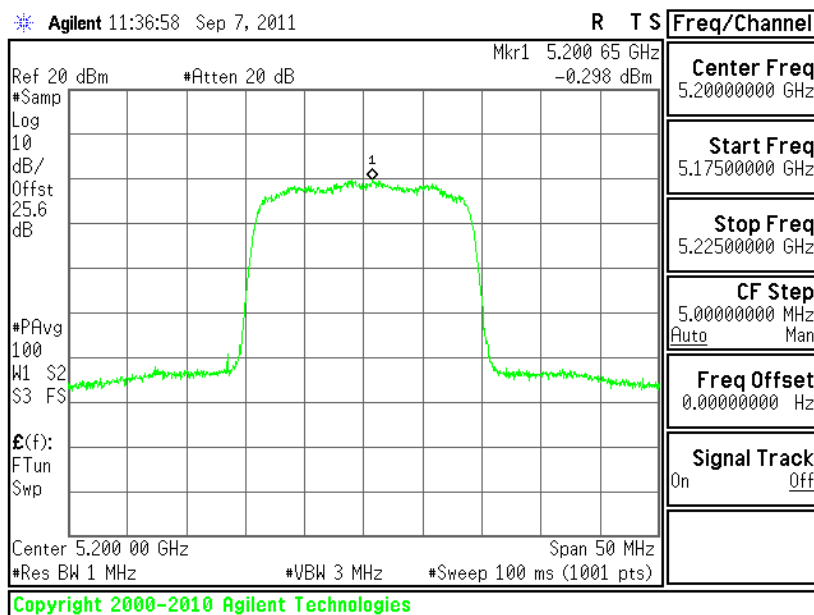
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	-0.046	4	Pass
40	5200	-0.298	4	Pass
44	5220	-0.198	4	Pass
149	5745	-0.117	17	Pass
157	5785	-0.120	17	Pass
161	5805	0.174	17	Pass

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


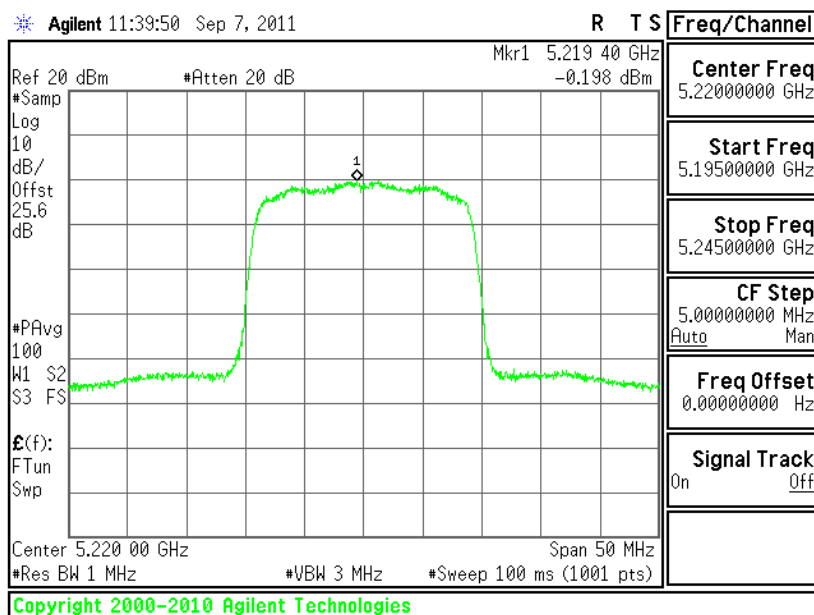
Total path loss 25.6 dB (cable loss: 0.6dB, attenuator: 25dB)



PSD Plot on 802.11n (BW 20MHz) Channel 40

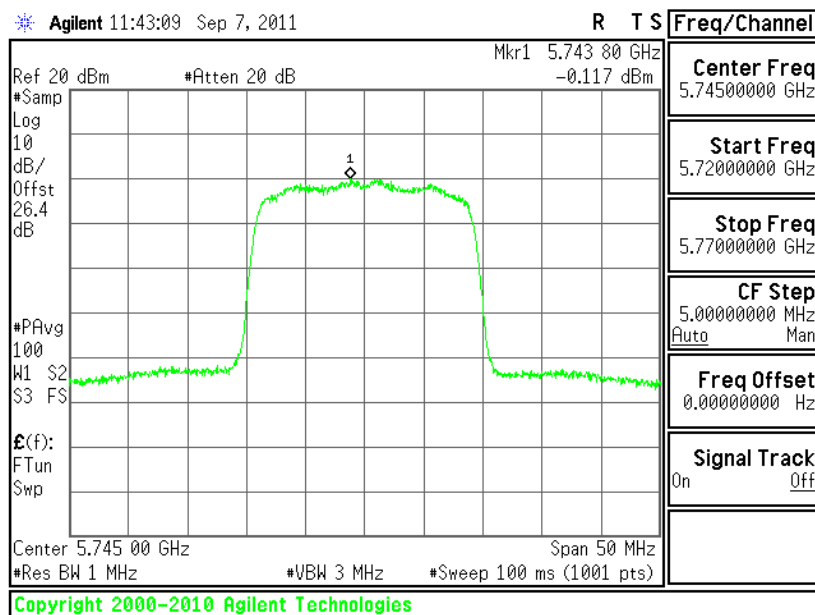


PSD Plot on 802.11n (BW 20MHz) Channel 44



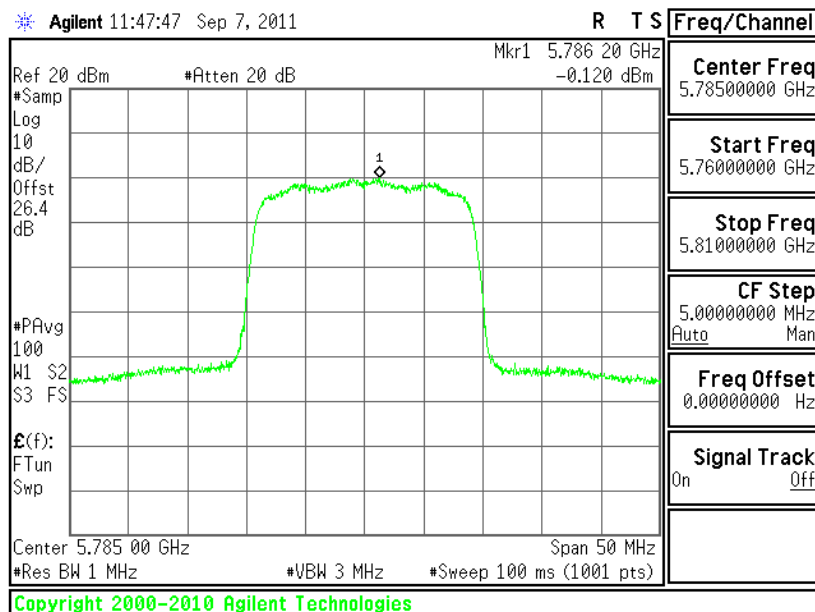


PSD Plot on 802.11n (BW 20MHz) Channel 149



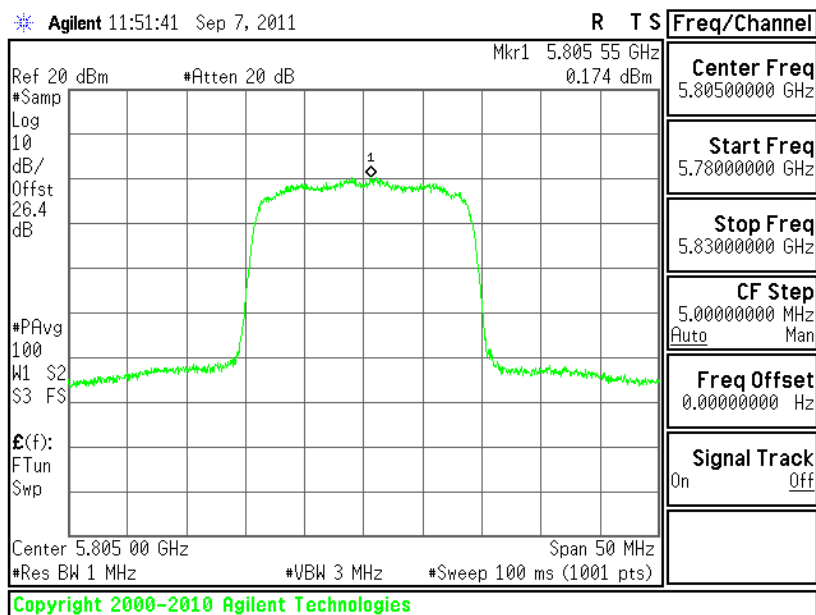
Total path loss 26.4dB (cable loss: 1.4dB, attenuator: 25dB)

PSD Plot on 802.11n (BW 20MHz) Channel 157





PSD Plot on 802.11n (BW 20MHz) Channel 161



3.4 Band Edges Measurement

3.4.1 Limit of Band Edges

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (2) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

3.4.2 Measuring Instruments

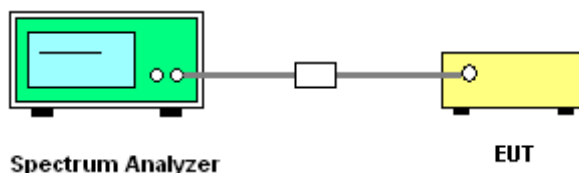
See list of measuring instruments of this test report.

3.4.3 Test Procedures

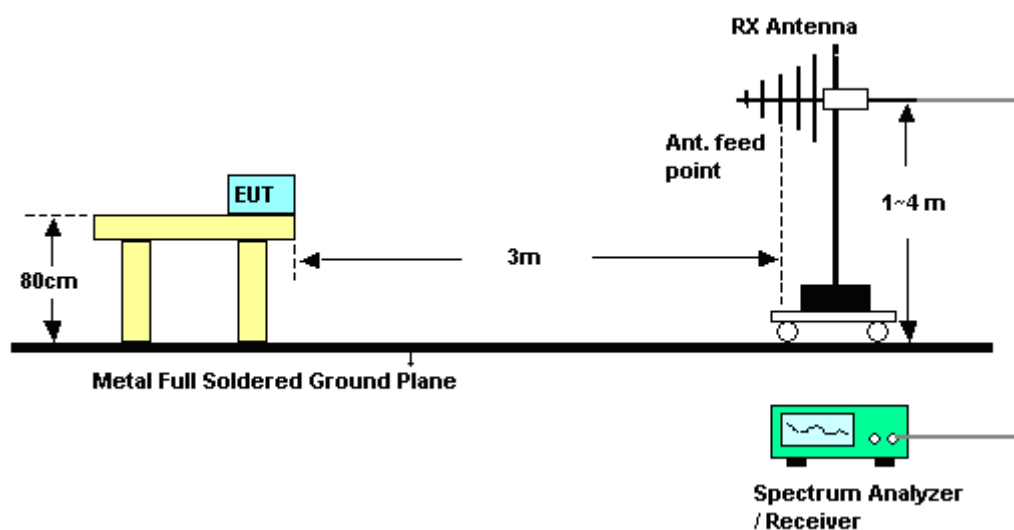
1. Set both RBW / VBW of spectrum analyzer to 1MHz / 3MHz with convenient frequency span including 1MHz bandwidth from band edge.
2. The band edges was measured and recorded.

3.4.4 Test Setup

<Conducted>



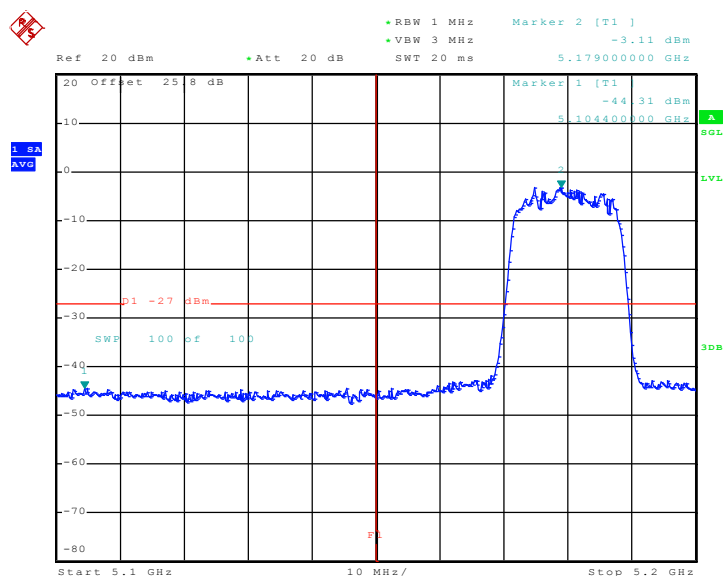
<Radiated>



3.4.5 Test Result of Conducted Band Edges

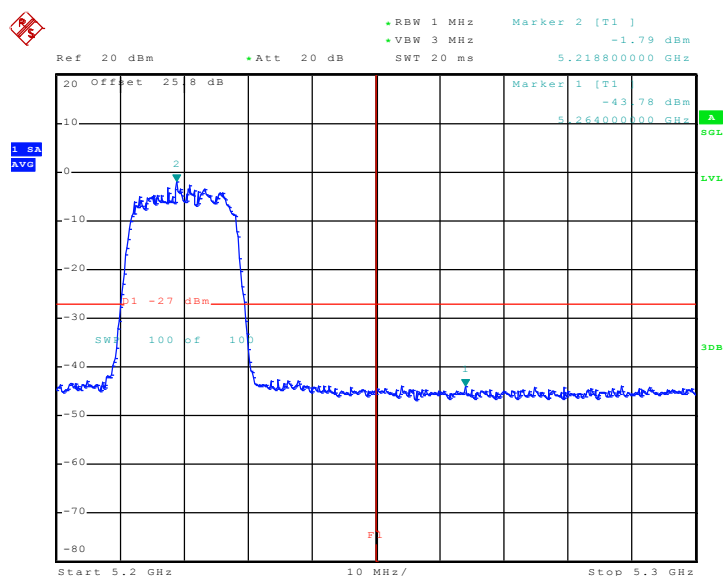
Test Mode :	Mode 1 and 3	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Low Band Edge Plot on Channel 36



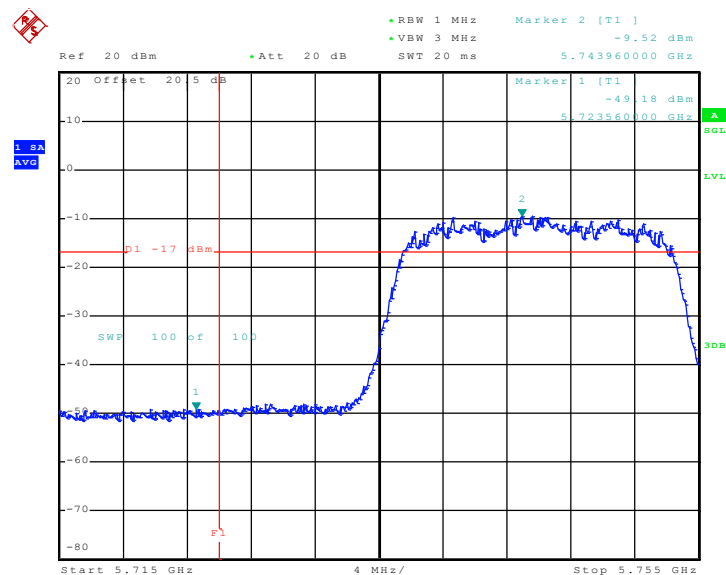
Date: 4.AUG.2011 14:14:24

High Band Edge Plot on Channel 44

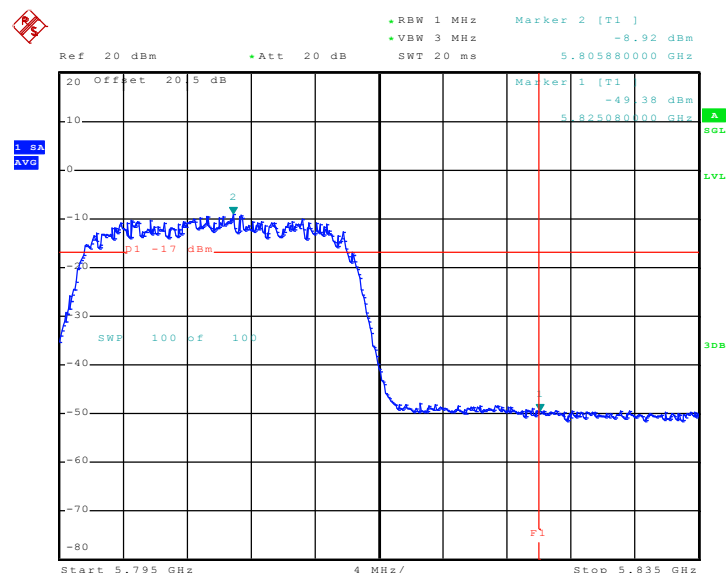


Date: 4.AUG.2011 15:20:38

Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Low Band Edge Plot on Channel 149


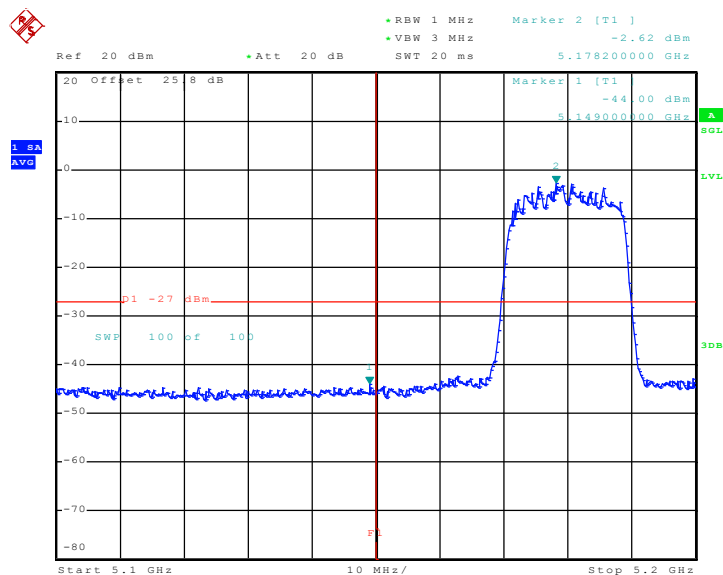
Date: 4.AUG.2011 15:27:40

High Band Edge Plot on Channel 161


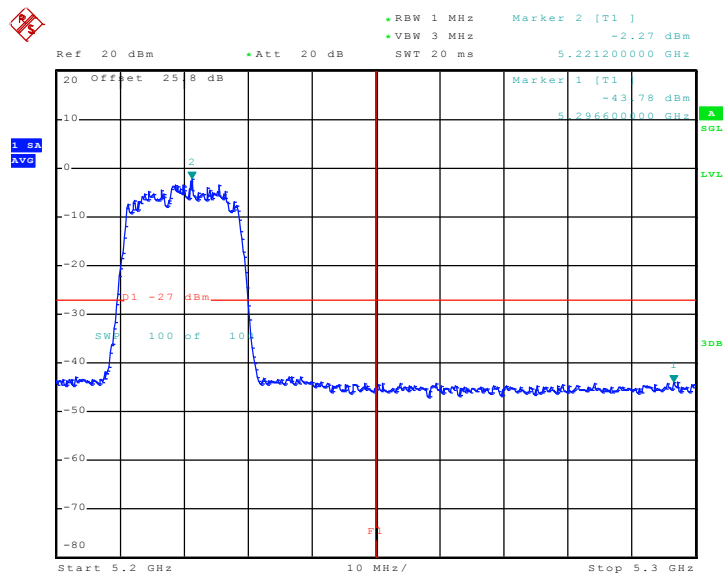
Date: 4.AUG.2011 15:36:50



Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

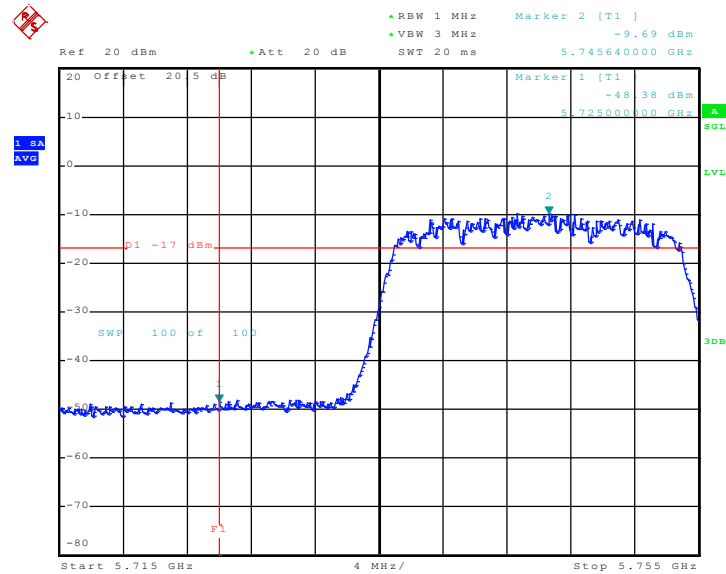
Low Band Edge Plot on Channel 36

Date: 4.AUG.2011 15:02:31

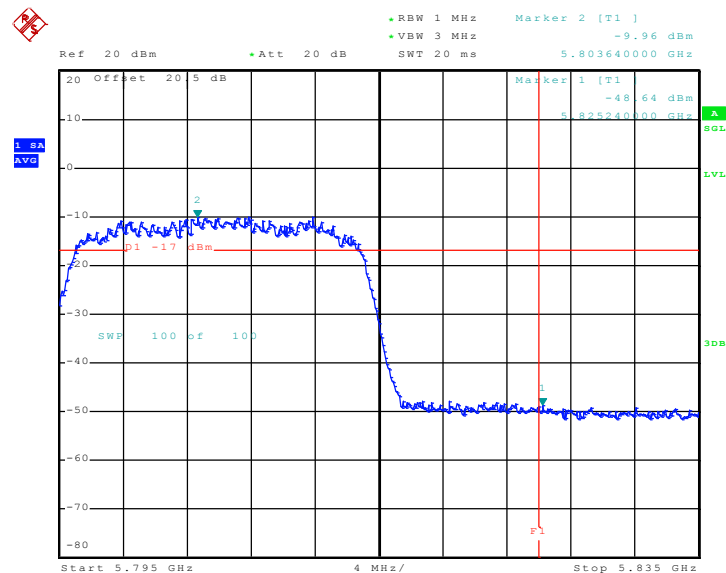
High Band Edge Plot on Channel 44

Date: 4.AUG.2011 15:22:27

Test Mode :	Mode 10 and 12	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Low Band Edge Plot on Channel 149


Date: 4.AUG.2011 15:30:06

High Band Edge Plot on Channel 161


Date: 4.AUG.2011 15:40:01

3.4.6 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	21~22°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	36	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5124	53.46	-20.54	74	45.68	35.24	5.1	32.56	100	0	Peak
5124	42.93	-11.07	54	35.15	35.24	5.1	32.56	100	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5020	55.99	-18.01	74	48.07	35.2	5.01	32.29	168	324	Peak
5020	44.15	-9.85	54	36.23	35.2	5.01	32.29	168	324	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Band :	802.11a	Relative Humidity :	41~42%
Test Channel :	44	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5380	54.5	-19.5	74	47.13	35.34	5.34	33.31	100	360	Peak
5380	44.26	-9.74	54	36.89	35.34	5.34	33.31	100	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5380	52.97	-21.03	74	45.6	35.34	5.34	33.31	100	258	Peak
5380	45.74	-8.26	54	38.37	35.34	5.34	33.31	100	258	Average



Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11 n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	36	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5074	53.76	-20.24	74	45.92	35.22	5.06	32.44	100	0	Peak
5074	42.4	-11.6	54	34.56	35.22	5.06	32.44	100	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5104	54.01	-19.99	74	46.19	35.23	5.07	32.48	100	360	Peak
5104	41.27	-12.73	54	33.45	35.23	5.07	32.48	100	360	Average

Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11 n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	44	Test Engineer :	Chenmy Cheng

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5378	53.75	-20.25	74	46.38	35.34	5.34	33.31	156	287	Peak
5378	41.58	-12.42	54	34.21	35.34	5.34	33.31	156	287	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5380	59.1	-14.9	74	51.73	35.34	5.34	33.31	104	256	Peak
5380	47.42	-6.58	54	40.05	35.34	5.34	33.31	104	256	Average

3.5 Spurious Emission

3.5.1 Limit of Spurious Emission Measurement

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.
- (2) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (3) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

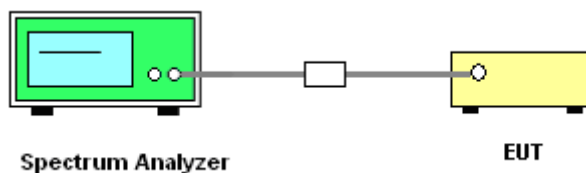
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = VBW = 1 MHz, Video bandwidth (VBW), scan from 30 MHz to 40 GHz.

3.5.4 Test Setup



3.5.5 Test Result

Test Mode :	Mode 1~6	Temperature :	24~26℃
Test Band :	802.11a	Relative Humidity :	45~49%
Test Channel :	36, 40, 44, 149, 157, 161	Test Engineer :	Alan Liu

<30 MHz ~ 3 GHz>

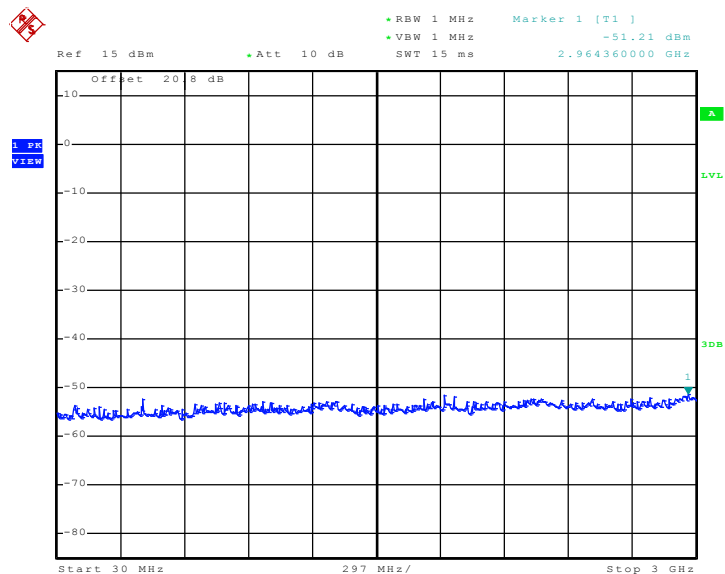
Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	2964.36	-51.21	0.23	-50.98	-27
40	5200	2964.36	-51.26	0.23	-51.03	-27
44	5220	2299.08	-51.03	0.23	-50.8	-27
149	5745	1301.16	-50.65	-5.92	-56.57	-27
157	5785	2221.86	-51.69	-5.92	-57.61	-27
161	5805	2263.44	-50.78	-5.92	-56.7	-27

<3 GHz ~ 13.6 GHz>

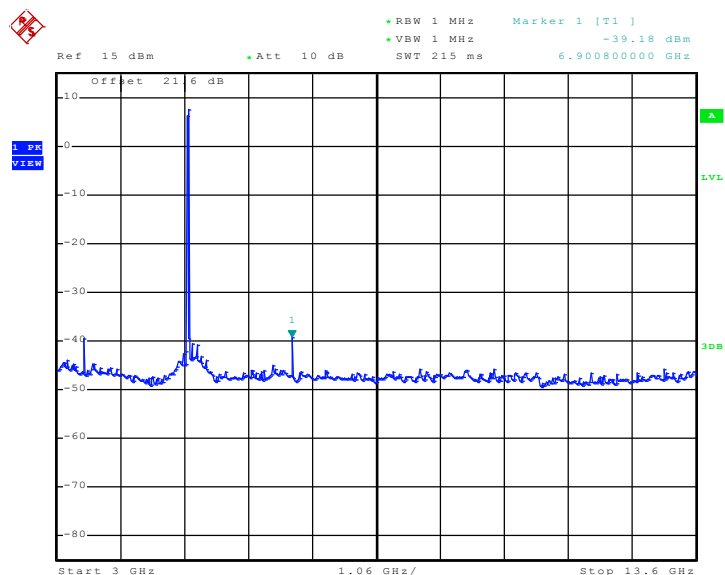
Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	6900.8	-39.18	0.23	-38.95	-27
40	5200	6922	-38.49	0.23	-38.26	-27
44	5220	5374.4	-34.53	0.23	-34.3	-27
149	5745	3826.8	-38.06	-5.92	-43.98	-27
157	5785	3848	-38.64	-5.92	-44.56	-27
161	5805	3869.2	-38.9	-5.92	-44.82	-27

<13.6 GHz ~ 40 GHz>

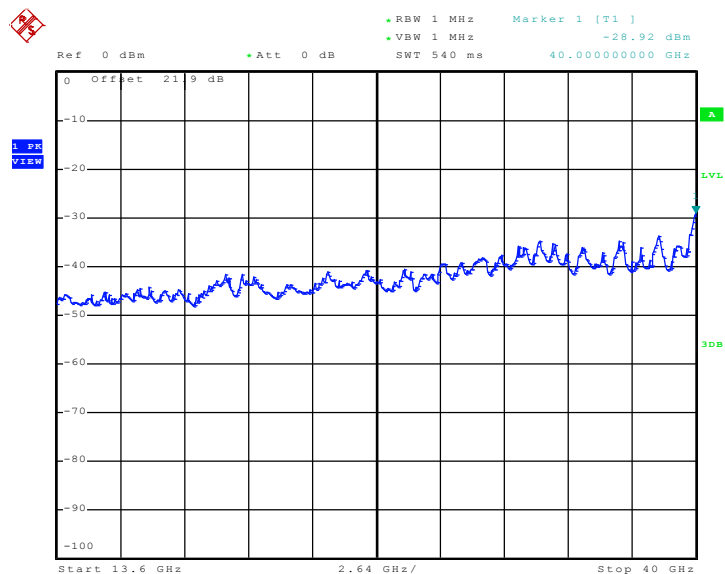
Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	40000	-28.92	0.23	-28.69	-27
40	5200	39947.2	-29.23	0.23	-29	-27
44	5220	39947.2	-30.28	0.23	-30.05	-27
149	5745	39947.2	-29.64	-5.92	-35.56	-27
157	5785	39947.2	-29.28	-5.92	-35.2	-27
161	5805	39894.4	-30.59	-5.92	-36.51	-27

**Mode 1 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


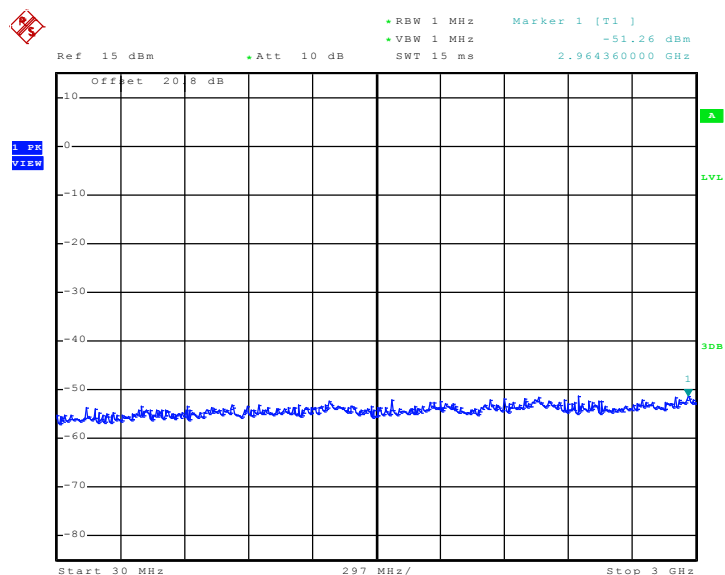
Date: 4.AUG.2011 15:56:31

**Mode 1 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


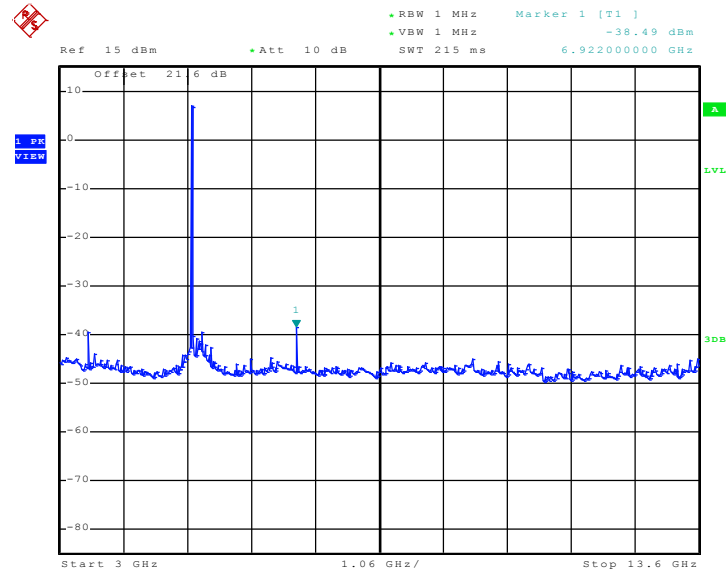
Date: 4.AUG.2011 15:56:45

**Mode 1 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


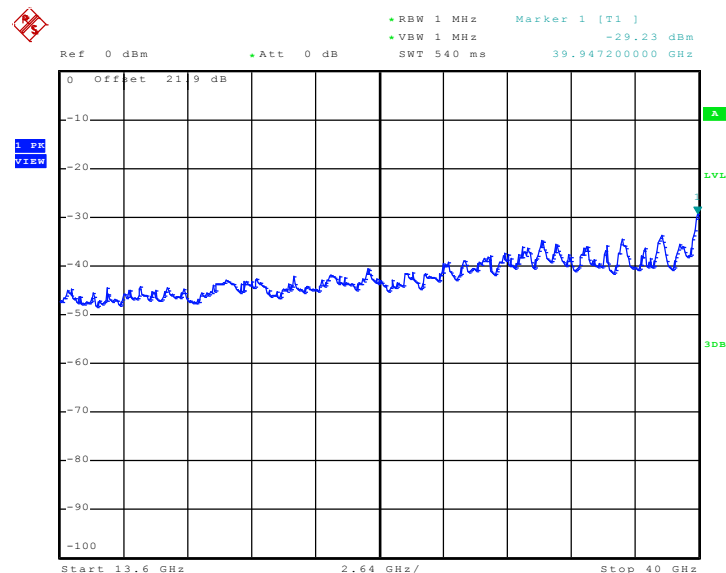
Date: 4.AUG.2011 15:56:57

**Mode 2 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


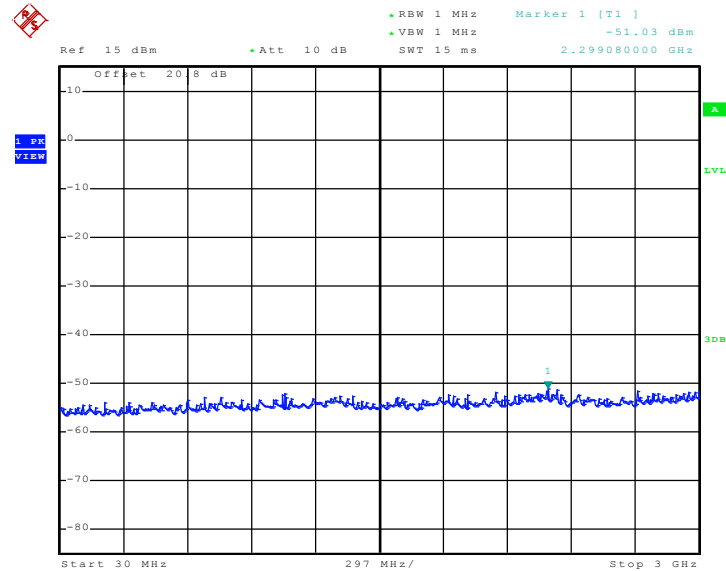
Date: 4.AUG.2011 16:01:09

**Mode 2 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


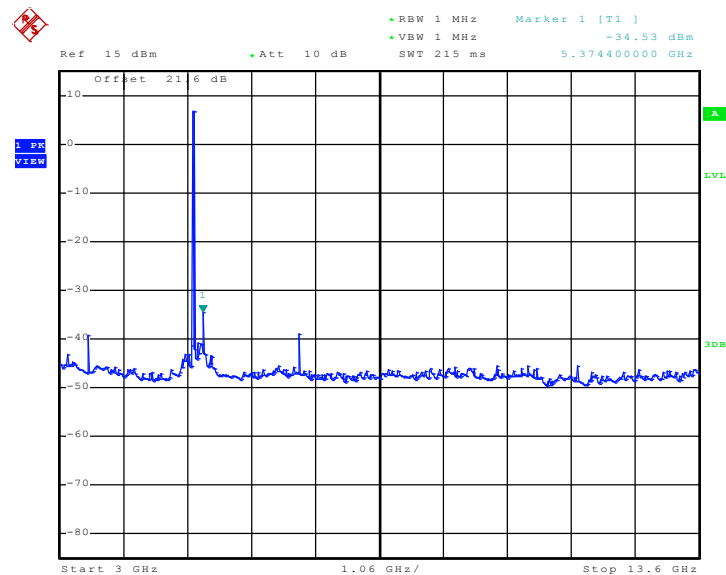
Date: 4.AUG.2011 16:01:21

**Mode 2 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


Date: 4.AUG.2011 16:01:33

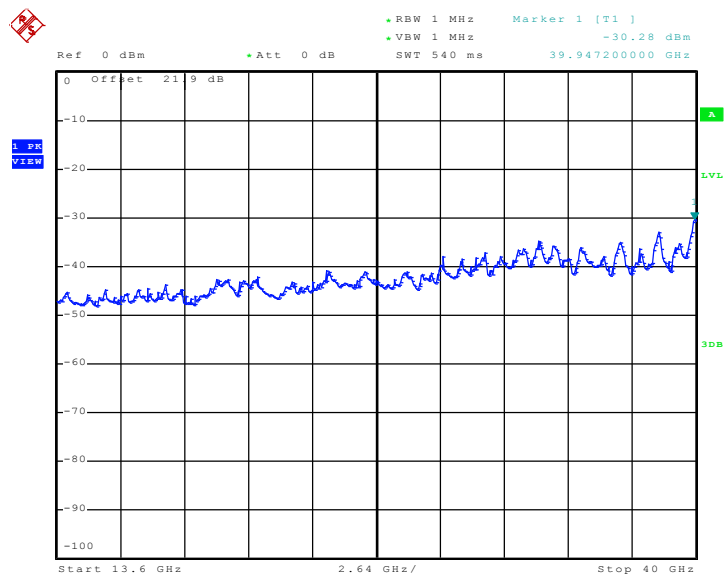
**Mode 3 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


Date: 4.AUG.2011 16:02:13

**Mode 3 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


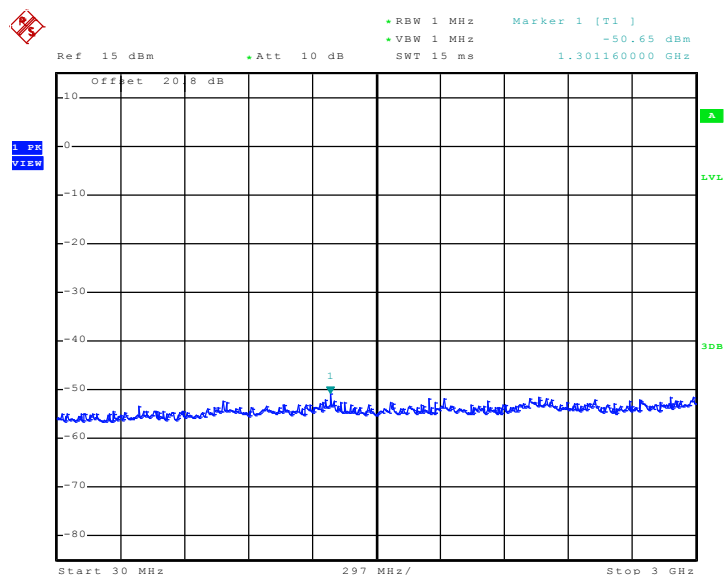
Date: 4.AUG.2011 16:02:25

Mode 3 : Conducted Spurious Emission Plot between 802.11a 13.6 GHz ~ 40 GHz

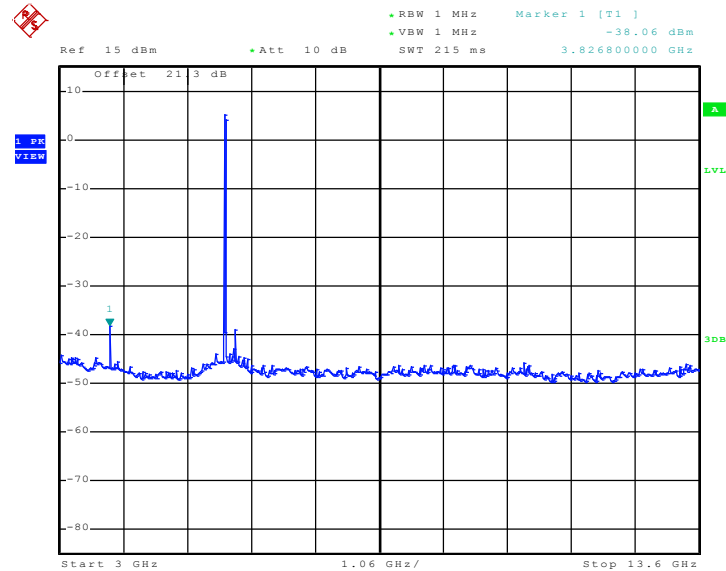


Date: 4.AUG.2011 16:02:37

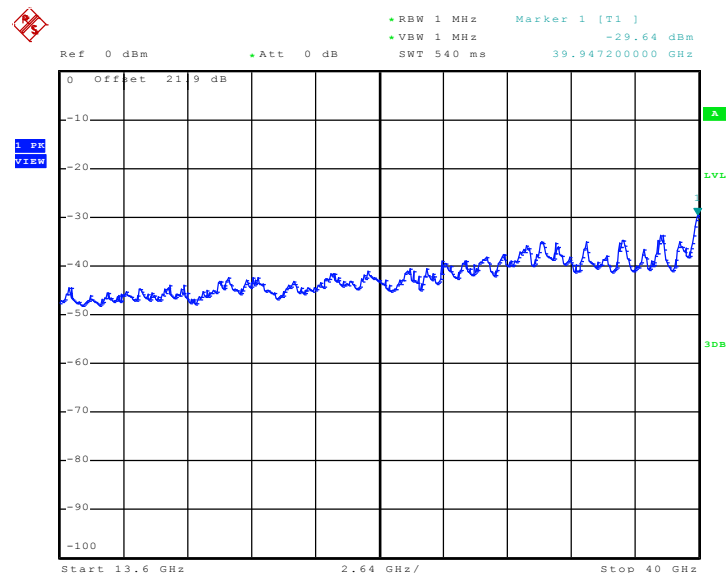
Mode 4 : Conducted Spurious Emission Plot between 802.11a 30 MHz ~ 3 GHz



Date: 4.AUG.2011 16:05:11

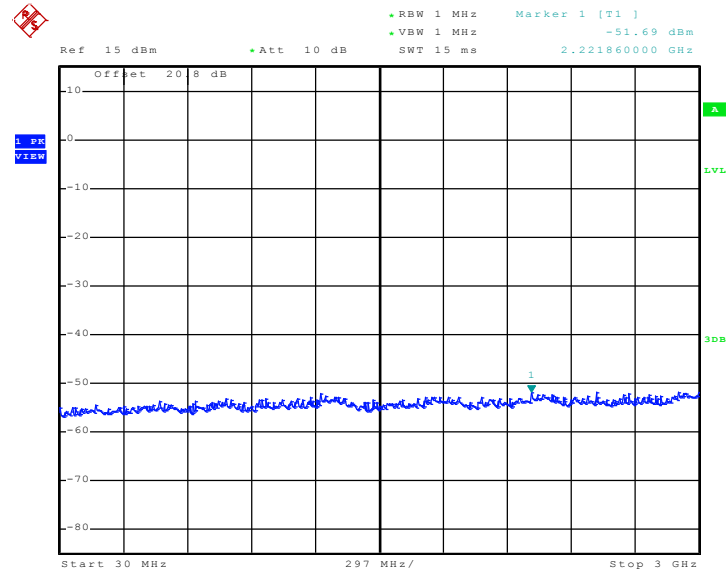
**Mode 4 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


Date: 4.AUG.2011 16:05:22

**Mode 4 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


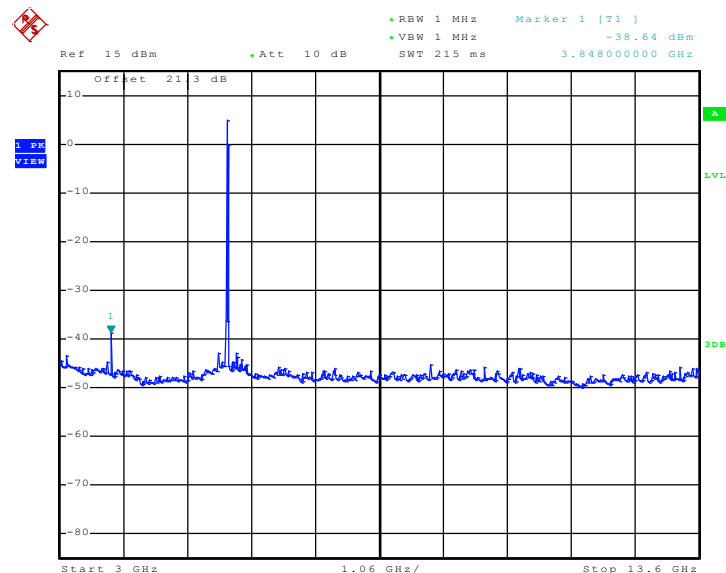
Date: 4.AUG.2011 16:05:34

Mode 5 : Conducted Spurious Emission Plot between 802.11a 30 MHz ~ 3 GHz



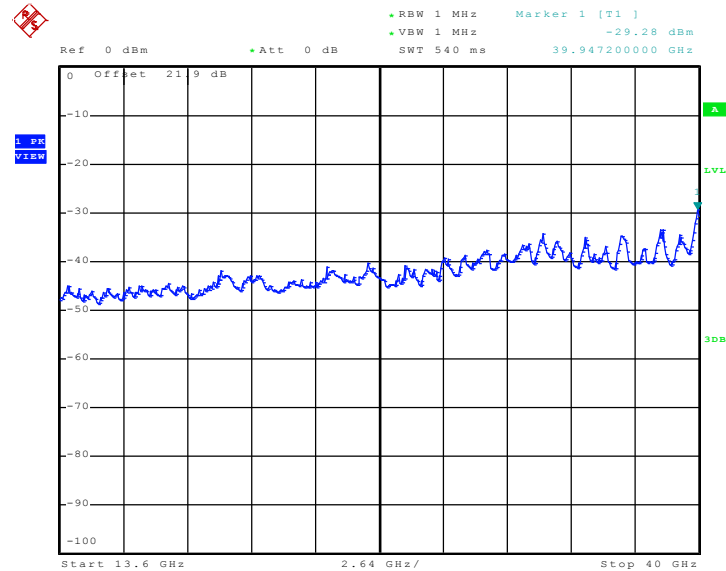
Date: 4.AUG.2011 16:06:12

Mode 5 : Conducted Spurious Emission Plot between 802.11a 3 GHz ~ 13.6 GHz



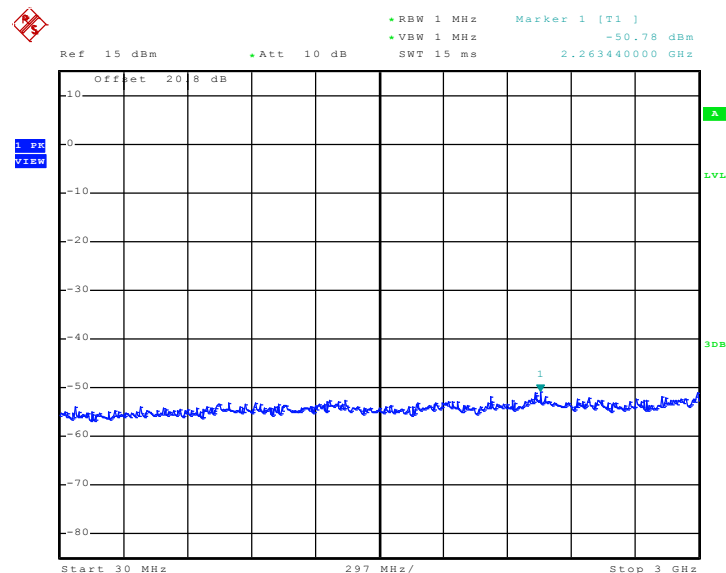
Date: 4.AUG.2011 16:06:24

Mode 5 : Conducted Spurious Emission Plot between 802.11a 13.6 GHz ~ 40 GHz

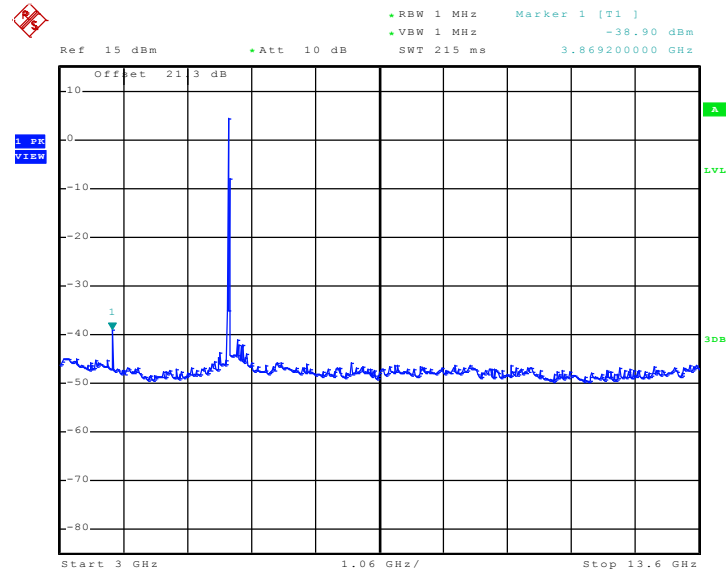


Date: 4.AUG.2011 16:06:36

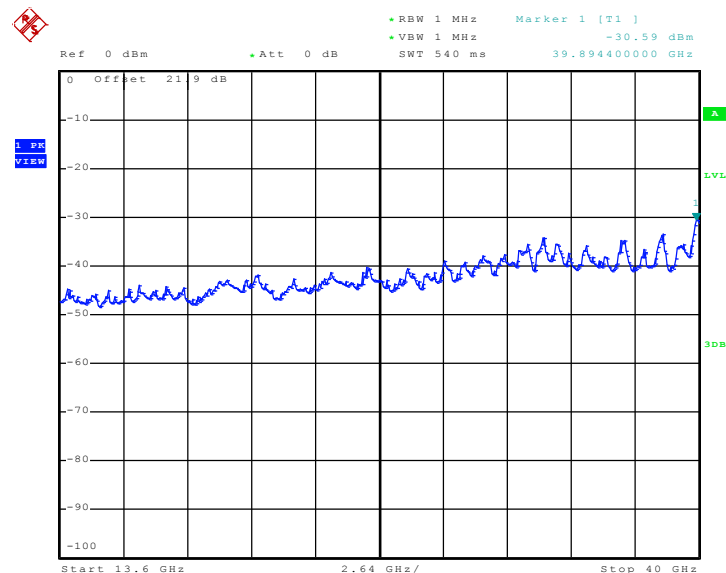
Mode 6 : Conducted Spurious Emission Plot between 802.11a 30 MHz ~ 3 GHz



Date: 4.AUG.2011 16:07:55

**Mode 6 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


Date: 4.AUG.2011 16:08:07

**Mode 6 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


Date: 4.AUG.2011 16:08:19

Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	45~49%
Test Channel :	36, 40, 44, 149, 157, 161	Test Engineer :	Alan Liu

<30 MHz ~ 3 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	1758.54	-51.52	0.23	-51.29	-27
40	5200	2893.08	-51.05	0.23	-50.82	-27
44	5220	2904.96	-50.9	0.23	-50.67	-27
149	5745	2809.92	-51.73	-5.92	-57.65	-27
157	5785	2732.7	-50.66	-5.92	-56.58	-27
161	5805	2227.8	-51.25	-5.92	-57.17	-27

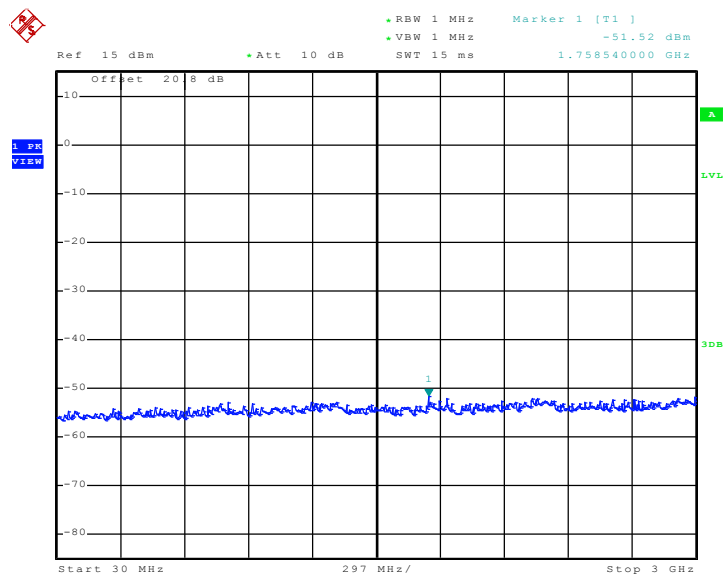
<3 GHz ~ 13.6 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	6900.8	-38.18	0.23	-37.95	-27
40	5200	6922	-36.82	0.23	-36.59	-27
44	5220	6964.4	-37.82	0.23	-37.59	-27
149	5745	3826.8	-38.7	-5.92	-44.62	-27
157	5785	3848	-38.88	-5.92	-44.8	-27
161	5805	3869.2	-38.88	-5.92	-44.8	-27

<13.6 GHz ~ 40 GHz>

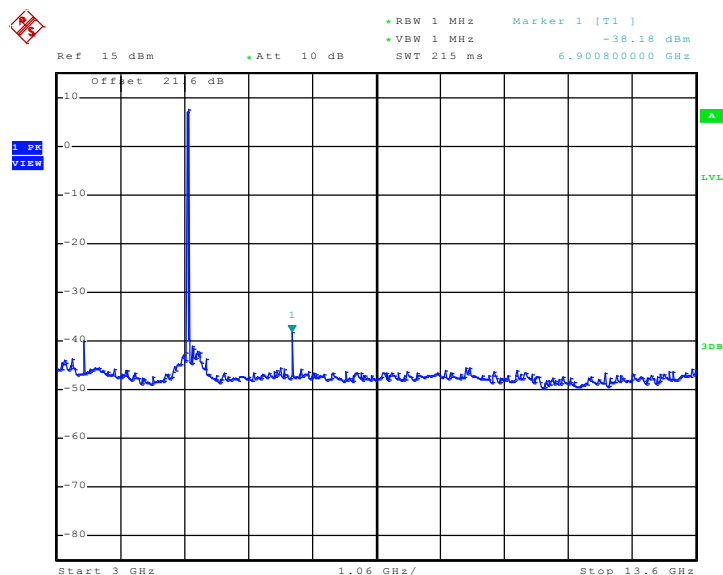
Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	40000	-29.13	0.23	-28.9	-27
40	5200	40000	-30.25	0.23	-30.02	-27
44	5220	39947.2	-30.18	0.23	-29.95	-27
149	5745	39947.2	-30.17	-5.92	-36.09	-27
157	5785	40000	-30.19	-5.92	-36.11	-27
161	5805	39947.2	-30.27	-5.92	-36.19	-27

Mode 7 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 30 MHz ~ 3 GHz



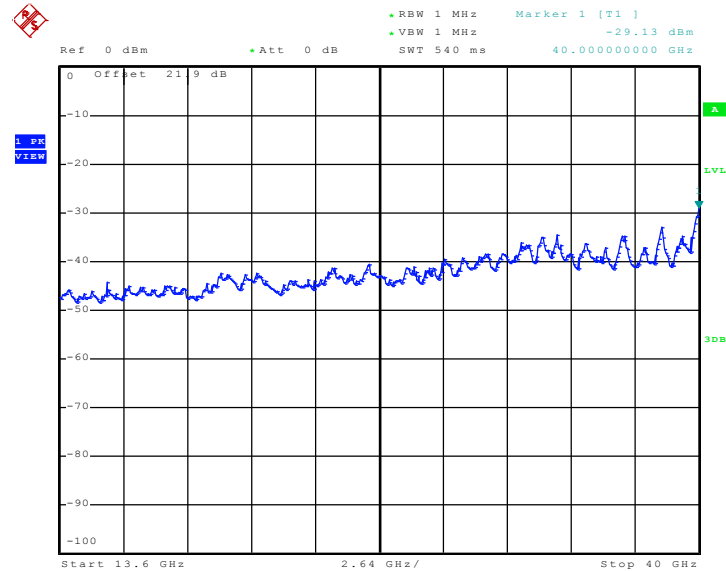
Date: 4.AUG.2011 16:11:25

Mode 7 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz



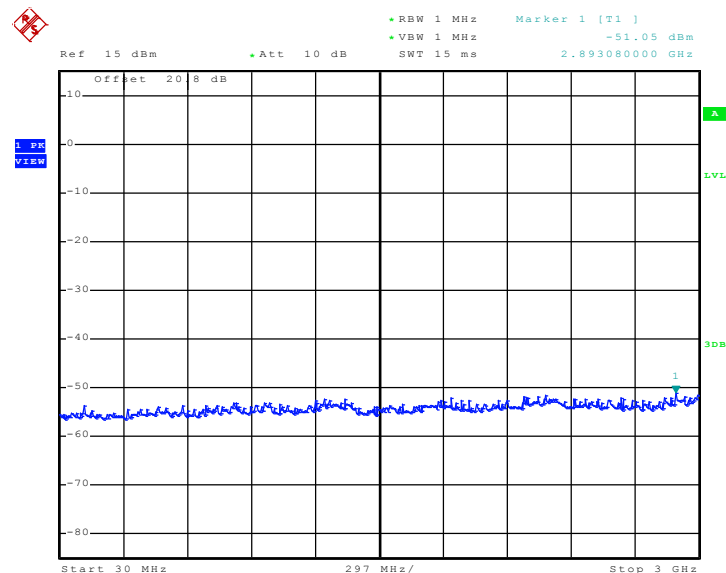
Date: 4.AUG.2011 16:11:37

Mode 7 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz



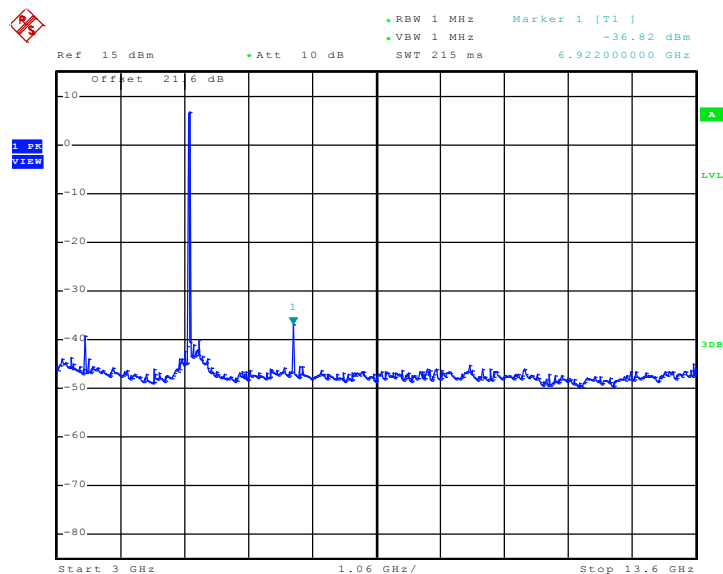
Date: 4.AUG.2011 16:11:48

Mode 8 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 30 MHz ~ 3 GHz



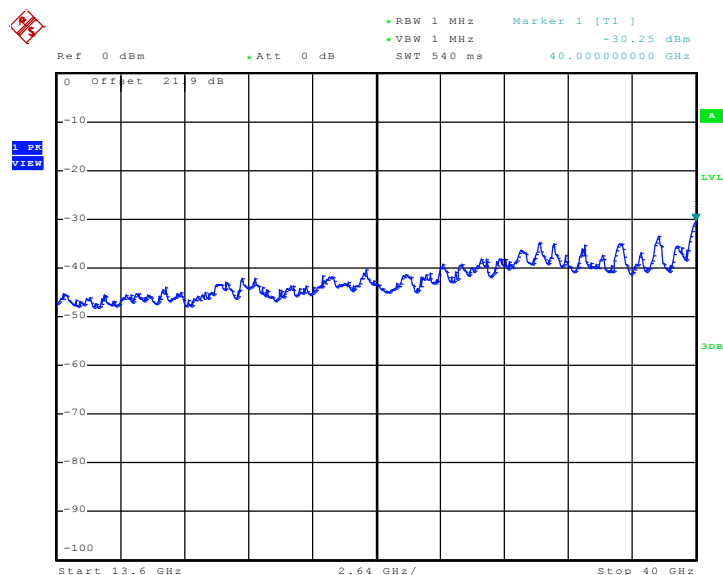
Date: 4.AUG.2011 16:12:45

**Mode 8 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz**

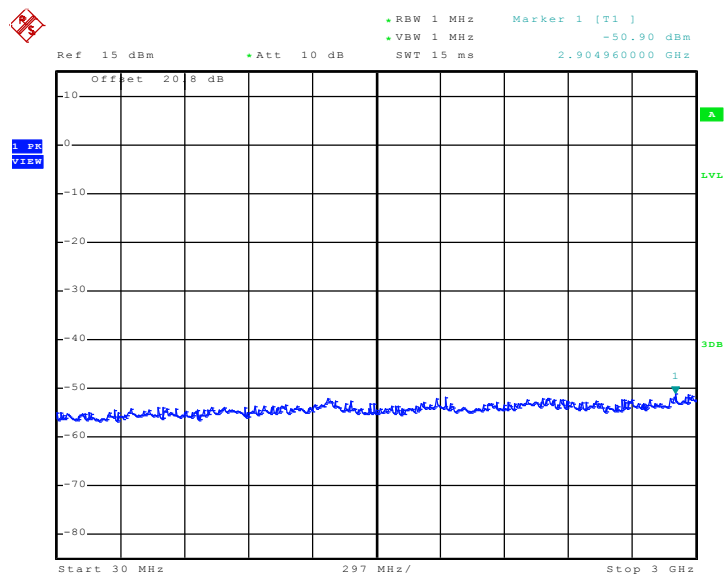


Date: 4.AUG.2011 16:12:57

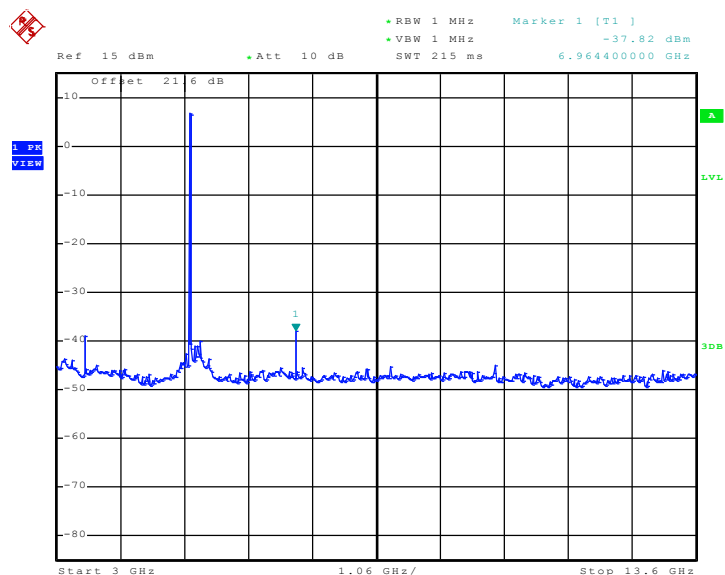
**Mode 8 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz**



Date: 4.AUG.2011 16:13:09

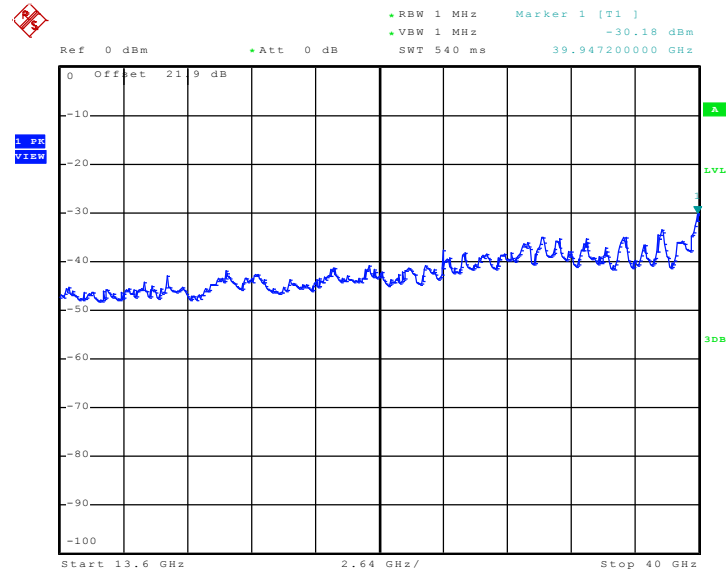
**Mode 9 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 30 MHz ~ 3 GHz**


Date: 4.AUG.2011 16:13:52

**Mode 9 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz**


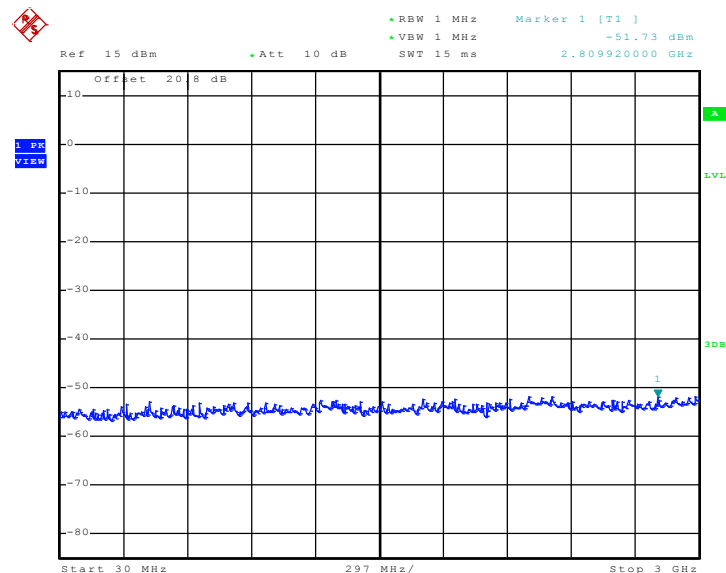
Date: 4.AUG.2011 16:14:03

Mode 9 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz



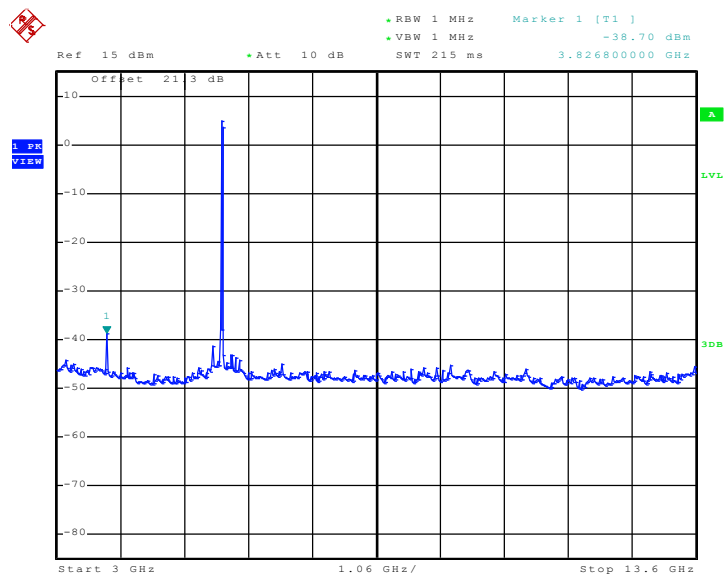
Date: 4.AUG.2011 16:14:15

Mode 10 : Conducted Spurious Emission Plot between 802.11n (BW 20MHz) 30 MHz ~ 3 GHz



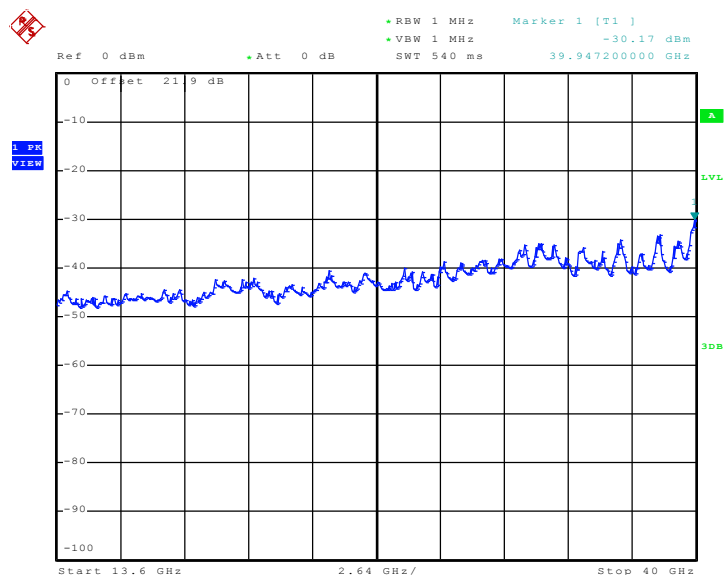
Date: 4.AUG.2011 16:14:57

**Mode 10 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz**

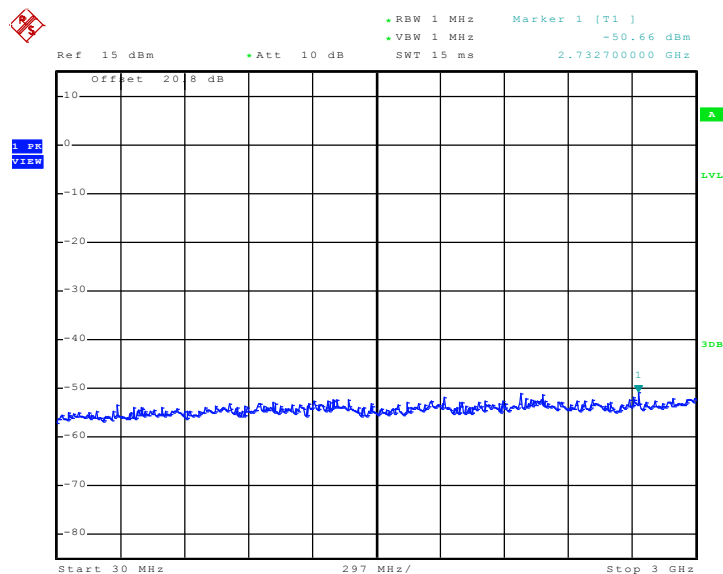


Date: 4.AUG.2011 16:15:08

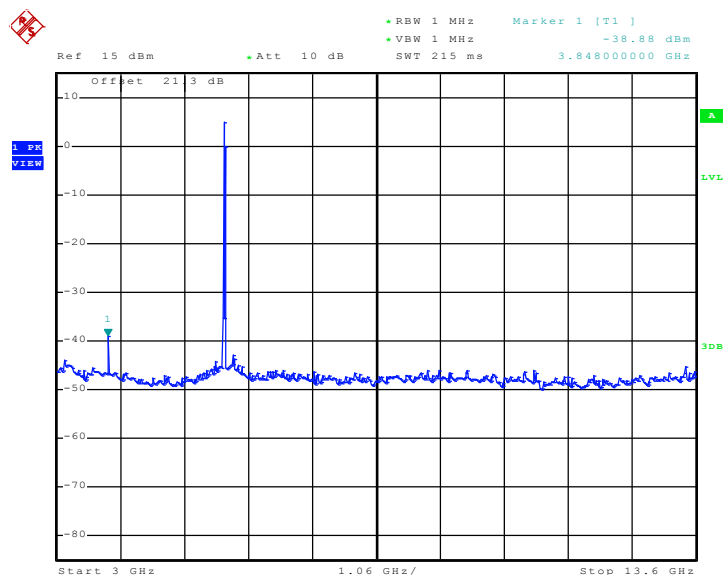
**Mode 10 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz**



Date: 4.AUG.2011 16:15:20

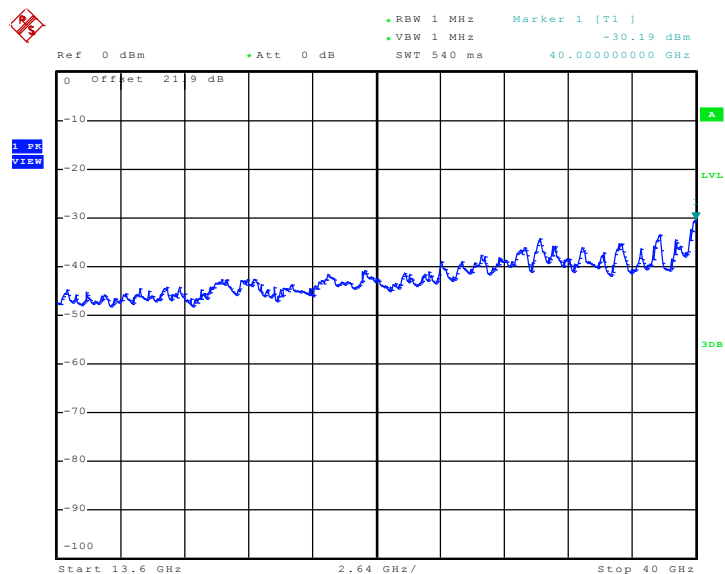
**Mode 11 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 30 MHz ~ 3 GHz**


Date: 4.AUG.2011 16:15:56

**Mode 11 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz**


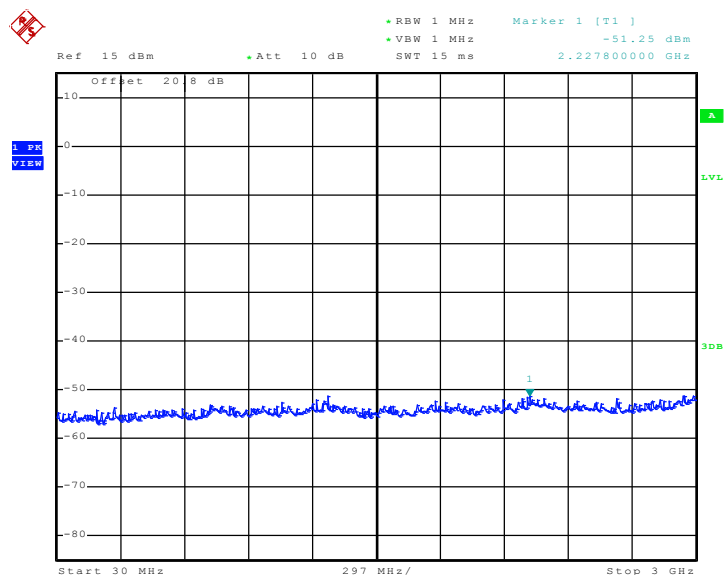
Date: 4.AUG.2011 16:16:07

**Mode 11 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz**

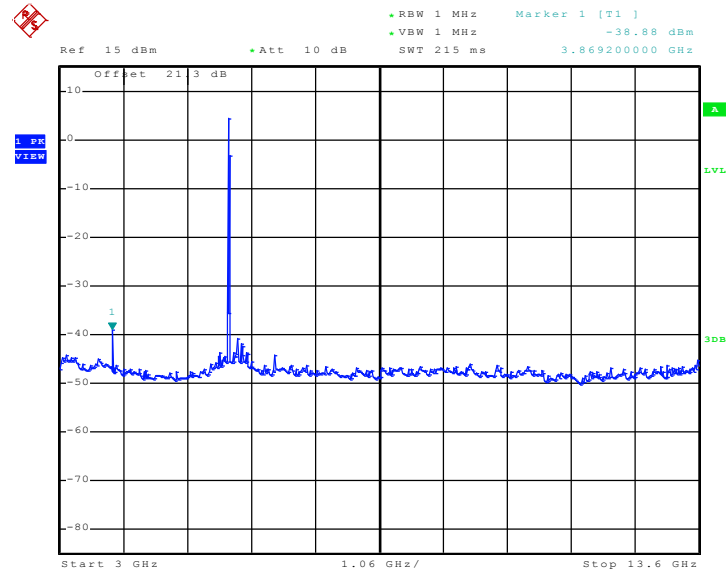


Date: 4.AUG.2011 16:16:20

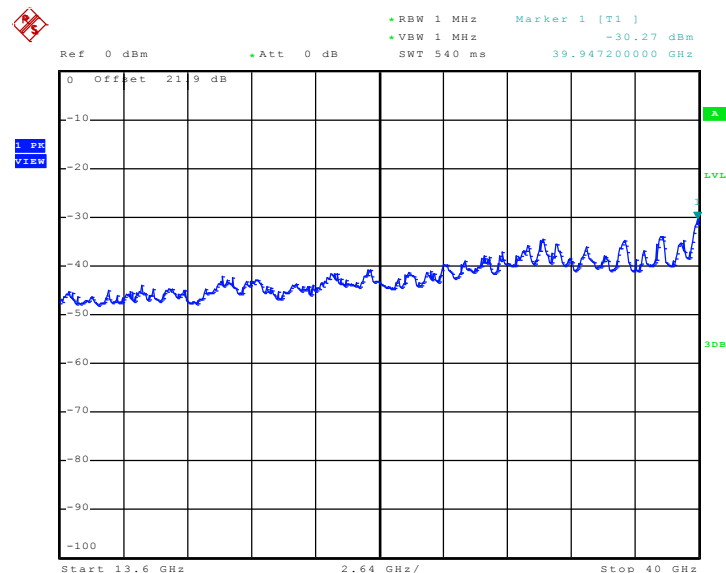
**Mode 12 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 30 MHz ~ 3 GHz**



Date: 4.AUG.2011 16:16:53

**Mode 12 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 3 GHz ~ 13.6 GHz**


Date: 4.AUG.2011 16:17:05

**Mode 12 : Conducted Spurious Emission Plot between
802.11n (BW 20MHz) 13.6 GHz ~ 40 GHz**


Date: 4.AUG.2011 16:17:16

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 (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

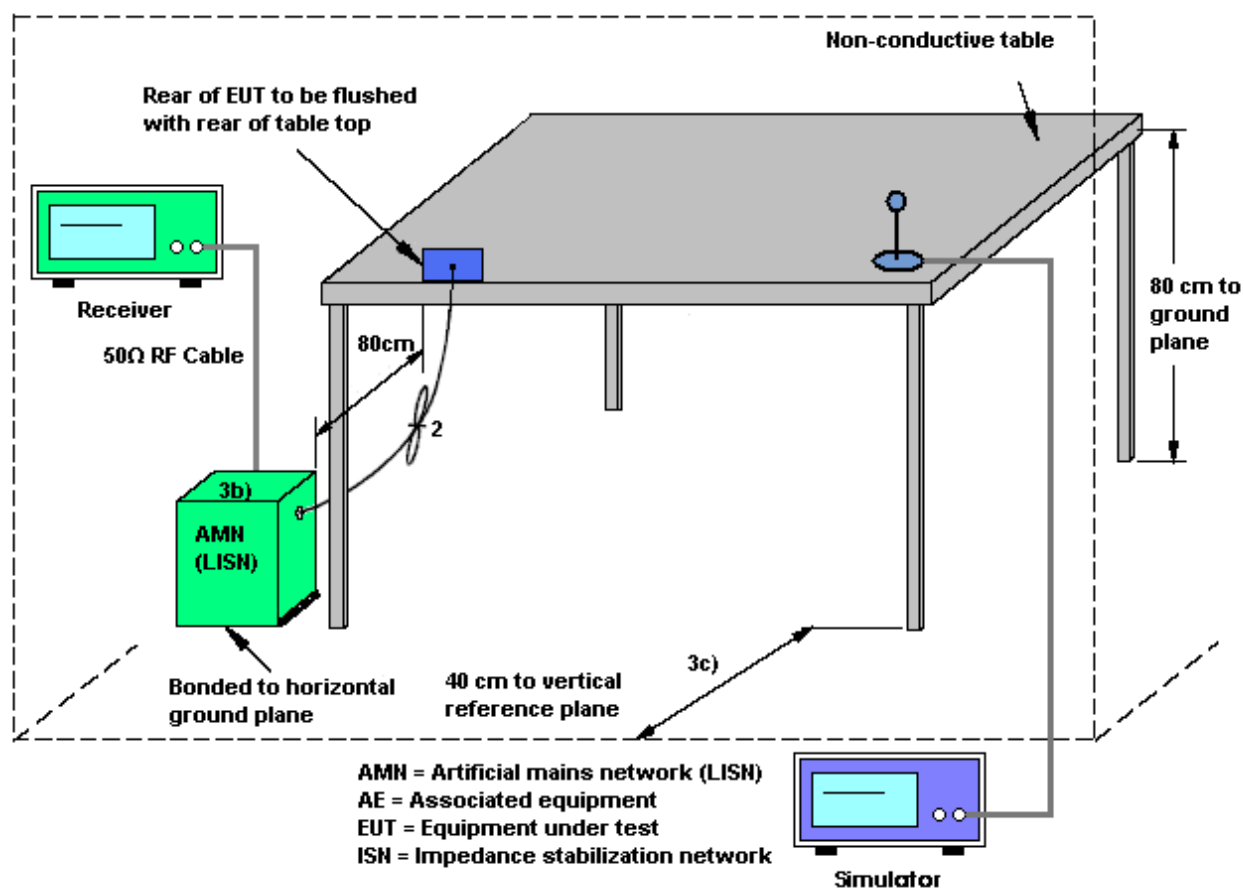
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

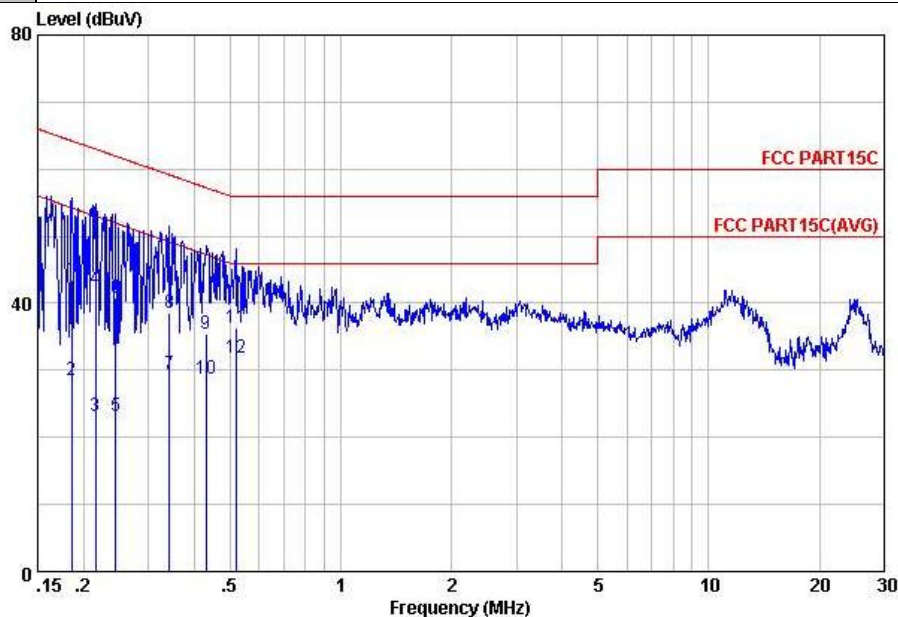
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~22℃
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link (5G) + Adapter + Camera + GPS Rx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

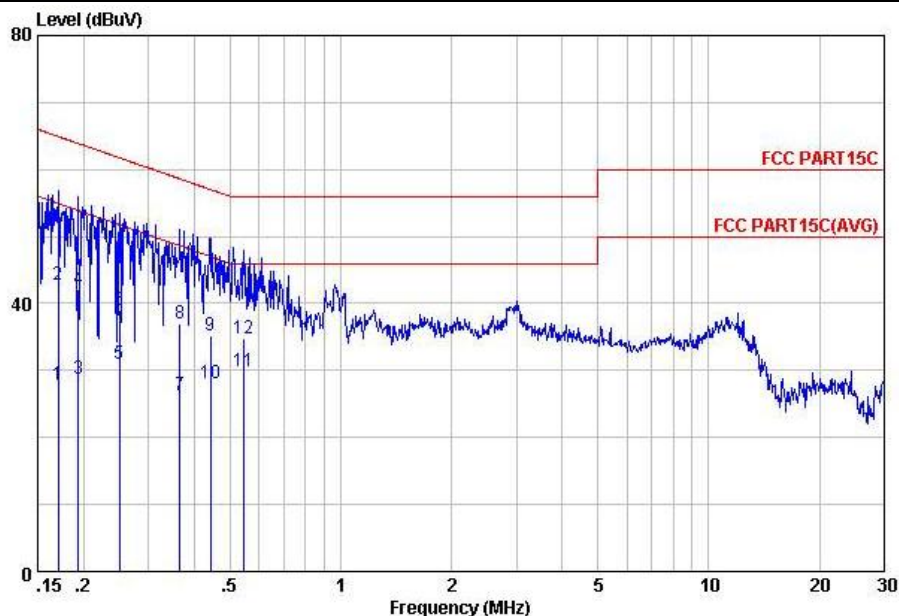


Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.19	43.38	-20.86	64.24	33.30	-0.07	10.15	QP
2	0.19	28.48	-25.76	54.24	18.40	-0.07	10.15	Average
3	0.22	23.18	-29.83	53.01	13.10	-0.07	10.15	Average
4	0.22	42.08	-20.93	63.01	32.00	-0.07	10.15	QP
5	0.24	23.09	-28.86	51.95	13.00	-0.07	10.16	Average
6	0.24	40.69	-21.26	61.95	30.60	-0.07	10.16	QP
7	0.34	29.40	-19.73	49.13	19.30	-0.08	10.18	Average
8	0.34	38.50	-20.63	59.13	28.40	-0.08	10.18	QP
9	0.43	35.42	-21.82	57.24	25.30	-0.08	10.20	QP
10	0.43	28.82	-18.42	47.24	18.70	-0.08	10.20	Average
11	0.52	36.33	-19.67	56.00	26.20	-0.08	10.21	QP
12	0.52	31.83	-14.17	46.00	21.70	-0.08	10.21	Average

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Jack Li	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + Bluetooth Link + WLAN Link (5G) + Adapter + Camera + GPS Rx		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 NEUTRAL

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.17	27.96	-26.98	54.94	17.90	-0.08	10.14	Average
2	0.17	42.86	-22.08	64.94	32.80	-0.08	10.14	QP
3	0.19	28.68	-25.21	53.89	18.60	-0.07	10.15	Average
4	0.19	42.18	-21.71	63.89	32.10	-0.07	10.15	QP
5	0.25	30.99	-20.74	51.73	20.90	-0.07	10.16	Average
6	0.25	39.09	-22.64	61.73	29.00	-0.07	10.16	QP
7	0.37	26.31	-22.30	48.61	16.21	-0.08	10.18	Average
8	0.37	37.01	-21.60	58.61	26.91	-0.08	10.18	QP
9	0.44	35.32	-21.70	57.02	25.20	-0.08	10.20	QP
10	0.44	28.12	-18.90	47.02	18.00	-0.08	10.20	Average
11	0.54	29.93	-16.07	46.00	19.80	-0.08	10.21	Average
12	0.54	34.83	-21.17	56.00	24.70	-0.08	10.21	QP

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

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

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.
- (2) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (3) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

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

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

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

3.7.2 Measuring Instruments

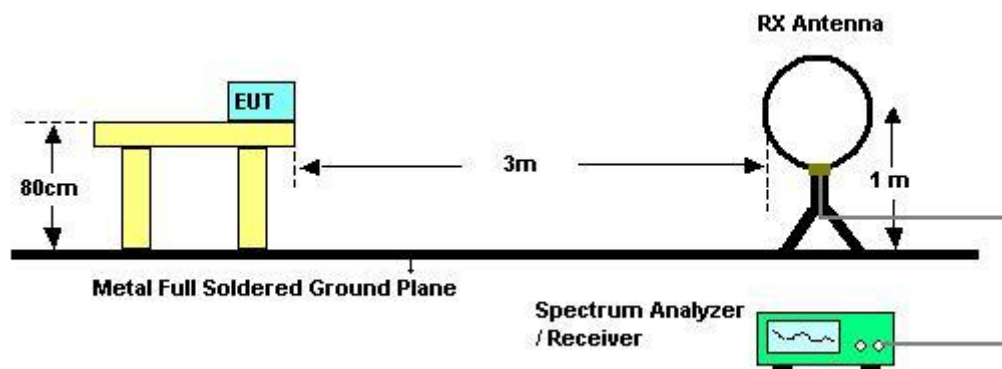
See list of measuring instruments of this test report.

3.7.3 Test Procedures

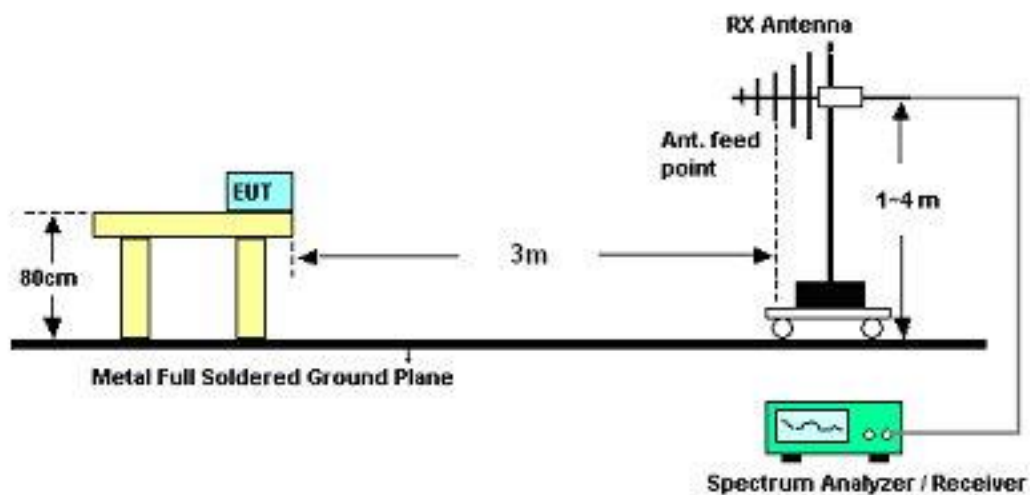
1. The testing follows the guidelines in FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
6. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
8. For testing below 1GHz, If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
9. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.7.4 Test Setup

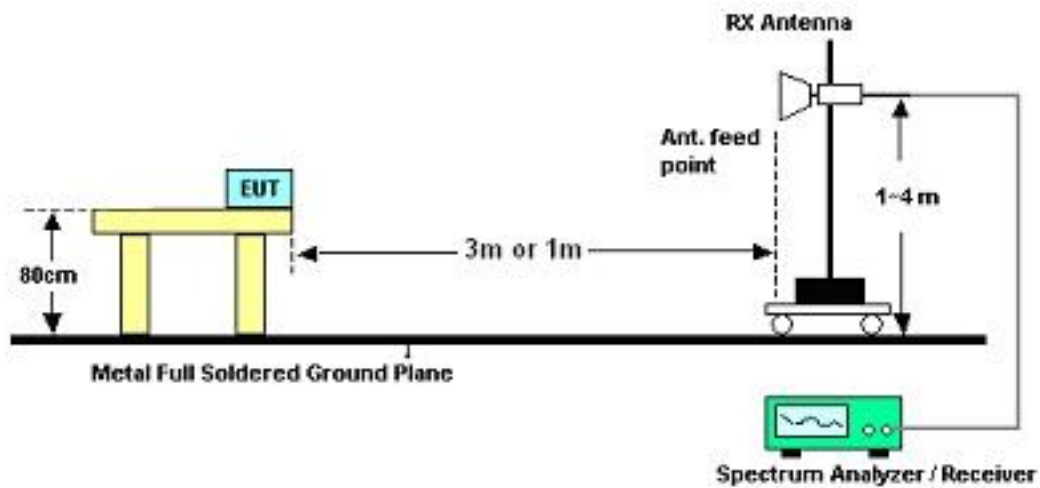
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Temperature	21~22°C	Humidity	41~42%
Test Engineer	Chenmy Cheng		

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

Note:

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

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

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

Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5180 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	19.34	-20.66	40	31.16	18	0.26	30.08	-	-	Peak
188.76	19.11	-24.39	43.5	39.99	8.49	0.57	29.94	-	-	Peak
283.26	23.61	-22.39	46	40.13	12.72	0.71	29.95	-	-	Peak
314	24.24	-21.76	46	40.09	13.36	0.74	29.95	-	-	Peak
871.9	26.42	-19.58	46	34.23	20.49	1.29	29.59	182	357	Peak
946.8	27.66	-26.34	54	35.15	20.72	1.33	29.54	-	-	Peak
5124	53.46	-20.54	74	45.68	35.24	5.1	32.56	100	0	Peak
5124	42.93	-11.07	54	35.15	35.24	5.1	32.56	100	0	Average
5180	96.94	-	-	89.24	35.26	5.14	32.7	100	314	Peak
5180	86.19	-	-	78.49	35.26	5.14	32.7	100	314	Average
5350	50.34	-23.66	74	42.93	35.32	5.31	33.22	100	360	Peak
5350	40.91	-13.09	54	33.5	35.32	5.31	33.22	100	360	Average

Test Mode :	Mode 1	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5180 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.29	24.29	-15.71	40	40.41	13.7	0.24	30.06	100	0	Peak
147.45	24.16	-19.34	43.5	43.43	10.21	0.5	29.98	-	-	Peak
283.26	20.69	-25.31	46	37.21	12.72	0.71	29.95	-	-	Peak
550.6	24.65	-21.35	46	34.83	18.5	1	29.68	-	-	Peak
566	24.95	-21.05	46	35.06	18.53	1.02	29.66	-	-	Peak
944.7	27.99	-26.01	54	35.49	20.71	1.33	29.54	-	-	Peak
5020	55.99	-18.01	74	48.07	35.2	5.01	32.29	168	324	Peak
5020	44.15	-9.85	54	36.23	35.2	5.01	32.29	168	324	Average
5180	102.43	-	-	94.73	35.26	5.14	32.7	183	97	Peak
5180	89.86	-	-	82.16	35.26	5.14	32.7	183	97	Average
5350	50.68	-23.32	74	43.27	35.32	5.31	33.22	100	360	Peak
5350	41.84	-12.16	54	34.43	35.32	5.31	33.22	100	360	Average

Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	40	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5200 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	19.92	-20.08	40	32.46	17.29	0.25	30.08	-	-	Peak
160.41	19.49	-24.01	43.5	39.3	9.6	0.53	29.94	-	-	Peak
283.26	26.28	-19.72	46	42.8	12.72	0.71	29.95	100	0	Peak
830.6	23.19	-22.81	46	31.28	20.27	1.27	29.63	-	-	Peak
872.6	25.53	-20.47	46	33.34	20.48	1.29	29.58	-	-	Peak
946.8	27.4	-26.6	54	34.89	20.72	1.33	29.54	-	-	Peak
5118	53.55	-20.45	74	45.76	35.23	5.08	32.52	100	46	Peak
5118	40.92	-13.08	54	33.13	35.23	5.08	32.52	100	46	Average
5200	98.59	-	-	90.92	35.26	5.16	32.75	100	338	Peak
5200	88.06	-	-	80.39	35.26	5.16	32.75	100	338	Average
5350	51.12	-22.88	74	43.71	35.32	5.31	33.22	100	360	Peak
5350	41.54	-12.46	54	34.13	35.32	5.31	33.22	100	360	Average

Test Mode :	Mode 2	Temperature :	21~22°C
Test Channel :	40	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5200 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	22.35	-17.65	40	38.47	13.7	0.24	30.06	100	256	Peak
108.03	21.7	-21.8	43.5	39.67	11.56	0.43	29.96	-	-	Peak
157.44	21.14	-22.36	43.5	40.86	9.71	0.52	29.95	-	-	Peak
745.9	21.85	-24.15	46	30.35	19.87	1.18	29.55	-	-	Peak
873.3	23.07	-22.93	46	30.88	20.48	1.29	29.58	-	-	Peak
946.8	27.42	-26.58	54	34.91	20.72	1.33	29.54	-	-	Peak
5120	54.42	-19.58	74	46.63	35.23	5.08	32.52	100	0	Peak
5120	42.69	-11.31	54	34.9	35.23	5.08	32.52	100	0	Average
5200	104.38	-	-	96.71	35.26	5.16	32.75	128	346	Peak
5200	92.28	-	-	84.61	35.26	5.16	32.75	128	346	Average
5360	45.75	-8.25	54	38.34	35.32	5.31	33.22	100	308	Average
5360	57.02	-16.98	74	49.61	35.32	5.31	33.22	100	308	Peak

Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	19.69	-20.31	40	32.23	17.29	0.25	30.08	100	0	Peak
166.08	18.36	-25.14	43.5	38.38	9.36	0.54	29.92	-	-	Peak
188.76	19.28	-24.22	43.5	40.16	8.49	0.57	29.94	-	-	Peak
728.4	20.56	-25.44	46	29.34	19.67	1.16	29.61	-	-	Peak
871.9	24.36	-21.64	46	32.17	20.49	1.29	29.59	-	-	Peak
946.8	26.44	-27.56	54	33.93	20.72	1.33	29.54	-	-	Peak
5150	53.2	-20.8	74	45.45	35.25	5.11	32.61	100	320	Peak
5150	41.45	-12.55	54	33.7	35.25	5.11	32.61	100	320	Average
5220	98.54	-	-	90.9	35.27	5.17	32.8	185	222	Peak
5220	86.22	-	-	78.58	35.27	5.17	32.8	185	222	Average
5380	54.5	-19.5	74	47.13	35.34	5.34	33.31	100	360	Peak
5380	44.26	-9.74	54	36.89	35.34	5.34	33.31	100	360	Average

Test Mode :	Mode 3	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	22.94	-17.06	40	39.06	13.7	0.24	30.06	200	157	Peak
133.41	21.79	-21.71	43.5	39.91	11.39	0.48	29.99	-	-	Peak
145.56	25.09	-18.41	43.5	44.21	10.37	0.5	29.99	-	-	Peak
642.3	21.61	-24.39	46	31.31	18.86	1.09	29.65	-	-	Peak
872.6	23.2	-22.8	46	31.01	20.48	1.29	29.58	-	-	Peak
946.8	27.26	-26.74	54	34.75	20.72	1.33	29.54	-	-	Peak
5072	53.98	-20.02	74	46.14	35.22	5.06	32.44	100	0	Peak
5072	43.94	-10.06	54	36.1	35.22	5.06	32.44	100	0	Average
5220	103.46	-	-	95.82	35.27	5.17	32.8	100	83	Peak
5220	91.31	-	-	83.67	35.27	5.17	32.8	100	83	Average
5380	52.97	-21.03	74	45.6	35.34	5.34	33.31	100	258	Peak
5380	45.74	-8.26	54	38.37	35.34	5.34	33.31	100	258	Average

Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
162.57	19.19	-24.31	43.5	39.1	9.49	0.53	29.93	-	-	Peak
188.76	20.2	-23.3	43.5	41.08	8.49	0.57	29.94	-	-	Peak
283.26	23.57	-22.43	46	40.09	12.72	0.71	29.95	-	-	Peak
314	23.97	-22.03	46	39.82	13.36	0.74	29.95	-	-	Peak
872.6	25.97	-20.03	46	33.78	20.48	1.29	29.58	100	0	Peak
946.8	26.83	-27.17	54	34.32	20.72	1.33	29.54	-	-	Peak
3830	49.53	-24.47	74	44.31	34.83	4.39	34	144	242	Peak
3830	47.71	-6.29	54	42.49	34.83	4.39	34	144	242	Average
5150	52	-22	74	44.25	35.25	5.11	32.61	100	79	Peak
5150	42.95	-11.05	54	35.2	35.25	5.11	32.61	100	79	Average
5350	50.74	-23.26	74	43.33	35.32	5.31	33.22	100	0	Peak
5350	41.61	-12.39	54	34.2	35.32	5.31	33.22	100	0	Average
5745	95.7	-	-	88.2	35.52	5.56	33.58	136	342	Peak
5745	85.32	-	-	77.82	35.52	5.56	33.58	136	342	Average

Test Mode :	Mode 4	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	23.31	-16.69	40	39.43	13.7	0.24	30.06	154	286	Peak
54.03	21.17	-18.83	40	44.52	6.49	0.29	30.13	-	-	Peak
134.22	22.98	-20.52	43.5	41.1	11.39	0.48	29.99	-	-	Peak
549.9	23.98	-22.02	46	34.16	18.5	1	29.68	-	-	Peak
873.3	24.98	-21.02	46	32.79	20.48	1.29	29.58	-	-	Peak
946.8	27.53	-26.47	54	35.02	20.72	1.33	29.54	-	-	Peak
3830	49.65	-24.35	74	44.43	34.83	4.39	34	144	122	Peak
3830	46.54	-7.46	54	41.32	34.83	4.39	34	144	122	Average
5150	52.13	-21.87	74	44.38	35.25	5.11	32.61	100	23	Peak
5150	42.24	-11.76	54	34.49	35.25	5.11	32.61	100	23	Average
5350	50.81	-23.19	74	43.4	35.32	5.31	33.22	100	0	Peak
5350	39.51	-14.49	54	32.1	35.32	5.31	33.22	100	0	Average
5745	100.48	-	-	92.98	35.52	5.56	33.58	100	51	Peak
5745	88.43	-	-	80.93	35.52	5.56	33.58	100	51	Average

Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
122.34	33.07	-10.43	43.5	50.81	11.78	0.45	29.97	-	-	Peak
186.6	30.15	-13.35	43.5	51.04	8.46	0.57	29.92	-	-	Peak
283.26	38.4	-7.6	46	54.92	12.72	0.71	29.95	189	321	Peak
300	28.63	-17.37	46	44.86	13	0.72	29.95	-	-	Peak
691.3	29.8	-16.2	46	39.15	19.25	1.12	29.72	-	-	Peak
946.8	28.21	-25.79	54	35.7	20.72	1.33	29.54	-	-	Peak
3858	50.24	-23.76	74	44.92	34.87	4.42	33.97	167	56	Peak
3858	49.81	-4.19	54	44.49	34.87	4.42	33.97	167	56	Average
5150	52.15	-21.85	74	44.4	35.25	5.11	32.61	100	112	Peak
5150	42.87	-11.13	54	35.12	35.25	5.11	32.61	100	112	Average
5350	50.9	-23.1	74	43.49	35.32	5.31	33.22	100	0	Peak
5350	39.99	-14.01	54	32.58	35.32	5.31	33.22	100	0	Average
5785	96.23	-	-	88.75	35.53	5.59	33.64	136	142	Peak
5785	84.37	-	-	76.89	35.53	5.59	33.64	136	342	Average

Test Mode :	Mode 5	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	22.75	-17.25	40	38.87	13.7	0.24	30.06	154	59	Peak
108.03	22.34	-21.16	43.5	40.31	11.56	0.43	29.96	-	-	Peak
147.45	25.59	-17.91	43.5	44.86	10.21	0.5	29.98	-	-	Peak
582.1	23.29	-22.71	46	33.31	18.57	1.05	29.64	-	-	Peak
872.6	25.33	-20.67	46	33.14	20.48	1.29	29.58	-	-	Peak
946.8	28.5	-25.5	54	35.99	20.72	1.33	29.54	-	-	Peak
3858	55.21	-18.79	74	49.89	34.87	4.42	33.97	128	42	Peak
3858	53.3	-0.7	54	47.98	34.87	4.42	33.97	128	42	Average
5150	52.28	-21.72	74	44.53	35.25	5.11	32.61	100	0	Peak
5150	41.75	-12.25	54	34	35.25	5.11	32.61	100	0	Average
5350	50.98	-23.02	74	43.57	35.32	5.31	33.22	100	360	Peak
5350	40.3	-13.7	54	32.89	35.32	5.31	33.22	100	360	Average
5785	102.32	-	-	94.84	35.53	5.59	33.64	100	54	Peak
5785	89.86	-	-	82.38	35.53	5.59	33.64	100	54	Average

Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	161	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5805 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.43	24.53	-15.47	40	38.34	16.04	0.24	30.09	-	-	Peak
233.58	29.26	-16.74	46	47.3	11.17	0.65	29.86	-	-	Peak
283.26	28.49	-17.51	46	45.01	12.72	0.71	29.95	-	-	Peak
314.7	25.79	-20.21	46	41.61	13.38	0.75	29.95	-	-	Peak
824.3	33.9	-12.1	46	42.1	20.16	1.26	29.62	100	0	Peak
949.6	26.93	-27.07	54	34.41	20.73	1.33	29.54	-	-	Peak
5150	52.38	-21.62	74	44.63	35.25	5.11	32.61	100	26	Peak
5150	40.16	-13.84	54	32.41	35.25	5.11	32.61	100	26	Average
5350	51.11	-22.89	74	43.7	35.32	5.31	33.22	100	132	Peak
5350	38.94	-15.06	54	31.53	35.32	5.31	33.22	100	132	Average
5805	91.11	-	-	83.65	35.55	5.62	33.71	100	0	Average
5805	104.18	-	-	96.72	35.55	5.62	33.71	100	0	Peak



Test Mode :	Mode 6	Temperature :	21~22°C
Test Channel :	161	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5805 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.43	23.37	-16.63	40	37.18	16.04	0.24	30.09	-	-	Peak
146.91	22.36	-21.14	43.5	41.63	10.21	0.5	29.98	-	-	Peak
283.26	20.71	-25.29	46	37.23	12.72	0.71	29.95	-	-	Peak
345.5	22.38	-23.62	46	37.11	14.4	0.81	29.94	-	-	Peak
824.3	32.95	-13.05	46	41.15	20.16	1.26	29.62	100	360	Peak
950.3	27.54	-26.46	54	35.02	20.73	1.33	29.54	-	-	Peak
5150	52.28	-21.72	74	44.53	35.25	5.11	32.61	100	108	Peak
5150	40.02	-13.98	54	32.27	35.25	5.11	32.61	100	108	Average
5350	50.73	-23.27	74	43.32	35.32	5.31	33.22	100	106	Peak
5350	38.74	-15.26	54	31.33	35.32	5.31	33.22	100	106	Average
5805	87.68	-	-	80.22	35.55	5.62	33.71	100	162	Average
5805	100.49	-	-	93.03	35.55	5.62	33.71	100	160	Peak



Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5180 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
146.37	17.03	-26.47	43.5	36.22	10.29	0.5	29.98	-	-	Peak
188.76	17.84	-25.66	43.5	38.72	8.49	0.57	29.94	-	-	Peak
283.26	26.74	-19.26	46	43.26	12.72	0.71	29.95	100	0	Peak
314	22.16	-23.84	46	38.01	13.36	0.74	29.95	-	-	Peak
345.5	19.62	-26.38	46	34.35	14.4	0.81	29.94	-	-	Peak
946.8	25.95	-28.05	54	33.44	20.72	1.33	29.54	-	-	Peak
3452	50.16	-23.84	74	46.01	34.25	4.16	34.26	-	-	Peak
5074	53.76	-20.24	74	45.92	35.22	5.06	32.44	100	0	Peak
5074	42.4	-11.6	54	34.56	35.22	5.06	32.44	100	0	Average
5180	95.66	-	-	87.96	35.26	5.14	32.7	100	249	Peak
5180	84.47	-	-	76.77	35.26	5.14	32.7	100	249	Average
5350	51.71	-22.29	74	44.3	35.32	5.31	33.22	100	304	Peak
5350	40.3	-13.7	54	32.89	35.32	5.31	33.22	100	304	Average

Test Mode :	Mode 7	Temperature :	21~22°C
Test Channel :	36	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5180 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.83	23.92	-16.08	40	40.04	13.7	0.24	30.06	100	356	Peak
108.03	21.55	-21.95	43.5	39.52	11.56	0.43	29.96	-	-	Peak
147.18	24.46	-19.04	43.5	43.73	10.21	0.5	29.98	-	-	Peak
535.2	21	-25	46	31.51	18.19	0.99	29.69	-	-	Peak
871.9	23.67	-22.33	46	31.48	20.49	1.29	29.59	-	-	Peak
944.7	26.69	-27.31	54	34.19	20.71	1.33	29.54	-	-	Peak
1728	52.64	-21.36	74	52.43	31.54	2.64	33.97	-	-	Peak
3454	51.11	-22.89	74	46.96	34.25	4.16	34.26	-	-	Peak
5104	54.01	-19.99	74	46.19	35.23	5.07	32.48	100	360	Peak
5104	41.27	-12.73	54	33.45	35.23	5.07	32.48	100	360	Average
5180	100.42	-	-	92.72	35.26	5.14	32.7	110	174	Peak
5180	85.17	-	-	77.47	35.26	5.14	32.7	110	174	Average
5350	51.8	-22.2	74	44.39	35.32	5.31	33.22	100	230	Peak
5350	38.75	-15.25	54	31.34	35.32	5.31	33.22	100	230	Average

Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	40	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5200 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
163.92	19.87	-23.63	43.5	39.82	9.44	0.54	29.93	-	-	Peak
188.76	18.7	-24.8	43.5	39.58	8.49	0.57	29.94	-	-	Peak
283.26	22.43	-23.57	46	38.95	12.72	0.71	29.95	-	-	Peak
314	24.61	-21.39	46	40.46	13.36	0.74	29.95	-	-	Peak
872.6	25.51	-20.49	46	33.32	20.48	1.29	29.58	100	360	Peak
946.8	26.5	-27.5	54	33.99	20.72	1.33	29.54	-	-	Peak
5132	42.3	-11.7	54	34.52	35.24	5.1	32.56	100	230	Average
5132	53.77	-20.23	74	45.99	35.24	5.1	32.56	100	230	Peak
5200	96.96	-	-	89.29	35.26	5.16	32.75	100	251	Peak
5200	86.04	-	-	78.37	35.26	5.16	32.75	100	251	Average
5360	52.69	-21.31	74	45.28	35.32	5.31	33.22	100	0	Peak
5360	39.71	-14.29	54	32.3	35.32	5.31	33.22	100	0	Average



Test Mode :	Mode 8	Temperature :	21~22°C
Test Channel :	40	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5200 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.83	23.61	-16.39	40	39.73	13.7	0.24	30.06	100	254	Peak
146.64	24.42	-19.08	43.5	43.61	10.29	0.5	29.98	-	-	Peak
283.26	21.26	-24.74	46	37.78	12.72	0.71	29.95	-	-	Peak
825.7	22.48	-23.52	46	30.66	20.18	1.26	29.62	-	-	Peak
871.9	25.32	-20.68	46	33.13	20.49	1.29	29.59	-	-	Peak
946.8	26.12	-27.88	54	33.61	20.72	1.33	29.54	-	-	Peak
5124	56.77	-17.23	74	48.99	35.24	5.1	32.56	200	169	Peak
5124	43.18	-10.82	54	35.4	35.24	5.1	32.56	200	169	Average
5200	105.21	-	-	97.54	35.26	5.16	32.75	100	129	Peak
5200	92.25	-	-	84.58	35.26	5.16	32.75	100	129	Average
5360	58.85	-15.15	74	51.44	35.32	5.31	33.22	200	39	Peak
5360	48	-6	54	40.59	35.32	5.31	33.22	200	39	Average

Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	19.88	-20.12	40	32.42	17.29	0.25	30.08	-	-	Peak
147.72	18.58	-24.92	43.5	37.85	10.21	0.5	29.98	-	-	Peak
283.26	27.11	-18.89	46	43.63	12.72	0.71	29.95	200	0	Peak
345.5	20.08	-25.92	46	34.81	14.4	0.81	29.94	-	-	Peak
706.7	21.14	-24.86	46	30.35	19.36	1.14	29.71	-	-	Peak
946.8	25.51	-28.49	54	33	20.72	1.33	29.54	-	-	Peak
1732	48.17	-25.83	74	47.96	31.54	2.64	33.97	-	-	Peak
3480	52.08	-21.92	74	47.82	34.31	4.17	34.22	-	-	Peak
5060	54.76	-19.24	74	46.89	35.22	5.05	32.4	197	102	Peak
5060	41.18	-12.82	54	33.31	35.22	5.05	32.4	197	102	Average
5220	95.63	-	-	87.99	35.27	5.17	32.8	107	296	Peak
5220	87.41	-	-	79.77	35.27	5.17	32.8	107	296	Average
5378	53.75	-20.25	74	46.38	35.34	5.34	33.31	156	287	Peak
5378	41.58	-12.42	54	34.21	35.34	5.34	33.31	156	287	Average



Test Mode :	Mode 9	Temperature :	21~22°C
Test Channel :	44	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	23.22	-16.78	40	39.34	13.7	0.24	30.06	100	0	Peak
108.03	21.37	-22.13	43.5	39.34	11.56	0.43	29.96	-	-	Peak
147.72	23.47	-20.03	43.5	42.74	10.21	0.5	29.98	-	-	Peak
733.3	22.03	-23.97	46	30.72	19.73	1.17	29.59	-	-	Peak
873.3	24.17	-21.83	46	31.98	20.48	1.29	29.58	-	-	Peak
946.8	27.13	-26.87	54	34.62	20.72	1.33	29.54	-	-	Peak
1732	53.57	-20.43	74	53.36	31.54	2.64	33.97	-	-	Peak
3480	51.54	-22.46	74	47.28	34.31	4.17	34.22	-	-	Peak
5060	55.44	-18.56	74	47.57	35.22	5.05	32.4	108	281	Peak
5060	44.61	-9.39	54	36.74	35.22	5.05	32.4	108	281	Average
5220	101.78	-	-	94.14	35.27	5.17	32.8	137	229	Peak
5220	87.98	-	-	80.34	35.27	5.17	32.8	137	229	Average
5380	59.1	-14.9	74	51.73	35.34	5.34	33.31	104	256	Peak
5380	47.42	-6.58	54	40.05	35.34	5.34	33.31	104	256	Average

Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.64	-20.36	40	32.94	16.55	0.24	30.09	164	0	Peak
147.45	20.32	-23.18	43.5	39.59	10.21	0.5	29.98	-	-	Peak
283.26	23.36	-22.64	46	39.88	12.72	0.71	29.95	-	-	Peak
314	22.37	-23.63	46	38.22	13.36	0.74	29.95	-	-	Peak
872.6	23.48	-22.52	46	31.29	20.48	1.29	29.58	-	-	Peak
946.8	25.65	-28.35	54	33.14	20.72	1.33	29.54	-	-	Peak
3830	53.36	-20.64	74	48.14	34.83	4.39	34	100	61	Peak
3830	49.66	-4.34	54	44.44	34.83	4.39	34	100	61	Average
5150	52.52	-21.48	74	44.77	35.25	5.11	32.61	156	258	Peak
5150	41.45	-12.55	54	33.7	35.25	5.11	32.61	156	258	Average
5350	40.66	-13.34	54	33.25	35.32	5.31	33.22	200	219	Average
5350	51.11	-22.89	74	43.7	35.32	5.31	33.22	200	219	Peak
5745	93.83	-	-	86.33	35.52	5.56	33.58	102	343	Peak
5745	81.44	-	-	73.94	35.52	5.56	33.58	102	343	Average

Test Mode :	Mode 10	Temperature :	21~22°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	24.4	-15.6	40	40.52	13.7	0.24	30.06	200	0	Peak
133.95	27.71	-15.79	43.5	45.83	11.39	0.48	29.99	-	-	Peak
283.8	22.35	-23.65	46	38.85	12.74	0.71	29.95	-	-	Peak
566.7	22.79	-23.21	46	32.9	18.53	1.02	29.66	-	-	Peak
872.6	25.49	-20.51	46	33.3	20.48	1.29	29.58	-	-	Peak
944.7	28.55	-25.45	54	36.05	20.71	1.33	29.54	-	-	Peak
3830	52.05	-21.95	74	46.83	34.83	4.39	34	155	124	Peak
3830	44.17	-9.83	54	38.95	34.83	4.39	34	155	124	Average
5150	51.7	-22.3	74	43.95	35.25	5.11	32.61	173	241	Peak
5150	40.55	-13.45	54	32.8	35.25	5.11	32.61	173	241	Average
5350	50.42	-23.58	74	43.01	35.32	5.31	33.22	100	29	Peak
5350	39.91	-14.09	54	32.5	35.32	5.31	33.22	100	29	Average
5745	101.66	-	-	94.16	35.52	5.56	33.58	105	325	Peak
5745	89.86	-	-	82.36	35.52	5.56	33.58	105	325	Average

Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
125.04	22.7	-20.8	43.5	40.47	11.75	0.46	29.98	-	-	Peak
210.9	19.44	-24.06	43.5	39.35	9.49	0.6	30	-	-	Peak
299.73	25.24	-20.76	46	41.47	13	0.72	29.95	100	0	Peak
308.4	24.99	-21.01	46	41.01	13.2	0.73	29.95	-	-	Peak
345.5	22.59	-23.41	46	37.32	14.4	0.81	29.94	-	-	Peak
946.8	28.15	-25.85	54	35.64	20.72	1.33	29.54	-	-	Peak
3858	52.57	-21.43	74	47.25	34.87	4.42	33.97	110	64	Peak
3858	49.47	-4.53	54	44.15	34.87	4.42	33.97	110	64	Average
5150	51.47	-22.53	74	43.72	35.25	5.11	32.61	157	228	Peak
5150	42.23	-11.77	54	34.48	35.25	5.11	32.61	157	228	Average
5350	52.39	-21.61	74	44.98	35.32	5.31	33.22	178	297	Peak
5350	40.51	-13.49	54	33.1	35.32	5.31	33.22	178	297	Average
5785	93.73	-	-	86.25	35.53	5.59	33.64	169	355	Peak
5785	81.58	-	-	74.1	35.53	5.59	33.64	169	355	Average

Test Mode :	Mode 11	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	23.33	-16.67	40	39.45	13.7	0.24	30.06	200	360	Peak
108.03	21.63	-21.87	43.5	39.6	11.56	0.43	29.96	-	-	Peak
157.44	24.4	-19.1	43.5	44.12	9.71	0.52	29.95	-	-	Peak
540.1	21.45	-24.55	46	31.84	18.31	0.99	29.69	-	-	Peak
872.6	24.41	-21.59	46	32.22	20.48	1.29	29.58	-	-	Peak
946.8	28.7	-25.3	54	36.19	20.72	1.33	29.54	-	-	Peak
3858	52.76	-21.24	74	47.44	34.87	4.42	33.97	100	330	Peak
3858	47.98	-6.02	54	42.66	34.87	4.42	33.97	100	330	Average
5150	52.68	-21.32	74	44.93	35.25	5.11	32.61	100	344	Peak
5150	40.35	-13.65	54	32.6	35.25	5.11	32.61	100	344	Average
5350	39.71	-14.29	54	32.3	35.32	5.31	33.22	187	221	Average
5350	50.83	-23.17	74	43.42	35.32	5.31	33.22	187	221	Peak
5785	101.15	-	-	93.67	35.53	5.59	33.64	132	196	Peak
5785	85.1	-	-	77.62	35.53	5.59	33.64	132	196	Average



Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	161	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	5805 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
159.6	20.96	-22.54	43.5	40.77	9.6	0.53	29.94	-	-	Peak
189.03	20.54	-22.96	43.5	41.42	8.49	0.57	29.94	-	-	Peak
283.53	27.78	-18.22	46	44.3	12.72	0.71	29.95	-	-	Peak
314.7	22.94	-23.06	46	38.76	13.38	0.75	29.95	-	-	Peak
873.3	24	-22	46	31.81	20.48	1.29	29.58	-	-	Peak
944.7	27.75	-26.25	54	35.25	20.71	1.33	29.54	-	-	Peak
3870	51.38	-22.62	74	46.01	34.89	4.43	33.95	128	66	Peak
3870	47.27	-6.73	54	41.9	34.89	4.43	33.95	128	66	Average
5150	52.23	-21.77	74	44.48	35.25	5.11	32.61	103	129	Peak
5150	40.85	-13.15	54	33.1	35.25	5.11	32.61	103	129	Average
5350	40.31	-13.69	54	32.9	35.32	5.31	33.22	128	335	Average
5350	51.47	-22.53	74	44.06	35.32	5.31	33.22	128	335	Peak
5805	93.13	-	-	85.67	35.55	5.62	33.71	130	342	Peak
5805	81.19	-	-	73.73	35.55	5.62	33.71	130	342	Average



Test Mode :	Mode 12	Temperature :	21~22°C
Test Channel :	161	Relative Humidity :	41~42%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	5805 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
37.56	23.67	-16.33	40	39.79	13.7	0.24	30.06	-	-	Peak
54.03	22.28	-17.72	40	45.63	6.49	0.29	30.13	-	-	Peak
147.99	24.76	-18.74	43.5	44.09	10.14	0.51	29.98	-	-	Peak
356	29.7	-16.3	46	44.18	14.63	0.82	29.93	-	-	Peak
872.6	34.6	-11.4	46	42.41	20.48	1.29	29.58	100	0	Peak
946.8	34.72	-19.28	54	42.21	20.72	1.33	29.54	-	-	Peak
3870	51.61	-22.39	74	46.24	34.89	4.43	33.95	100	332	Peak
3870	49.37	-4.63	54	44	34.89	4.43	33.95	100	332	Average
5150	40.65	-13.35	54	32.9	35.25	5.11	32.61	123	89	Average
5150	52.04	-21.96	74	44.29	35.25	5.11	32.61	123	89	Peak
5350	51.21	-22.79	74	43.8	35.32	5.31	33.22	200	344	Peak
5350	41.01	-12.99	54	33.6	35.32	5.31	33.22	200	344	Average
5805	99.49	-	-	92.03	35.55	5.62	33.71	102	316	Peak
5805	89.55	-	-	82.09	35.55	5.62	33.71	102	316	Average

3.8 Peak Excursion Ratio Measurement

3.8.1 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.

3.8.2 Measuring Instruments

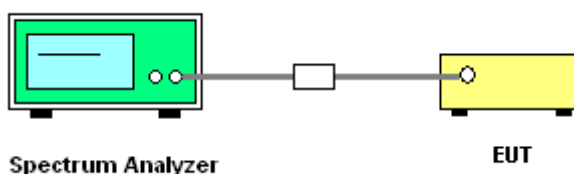
See list of measuring instruments of this test report.

3.8.3 Test Procedures

1. The transmitter output is connected to the spectrum analyzer.
2. The resolution bandwidth and video bandwidth are set as below,
Trace A: RBW=1 MHz, VBW=3 MHz
Trace B: RBW=1 MHz, VBW=300 kHz
3. Trace A is set peak detector and to Max Hold, then to View. Then the detector is readjusted to sample detector, max hold to run for 60 seconds, and the signal under this measurement condition is captured in Trace B in Accordance with the method 1 of DA-02-2138.

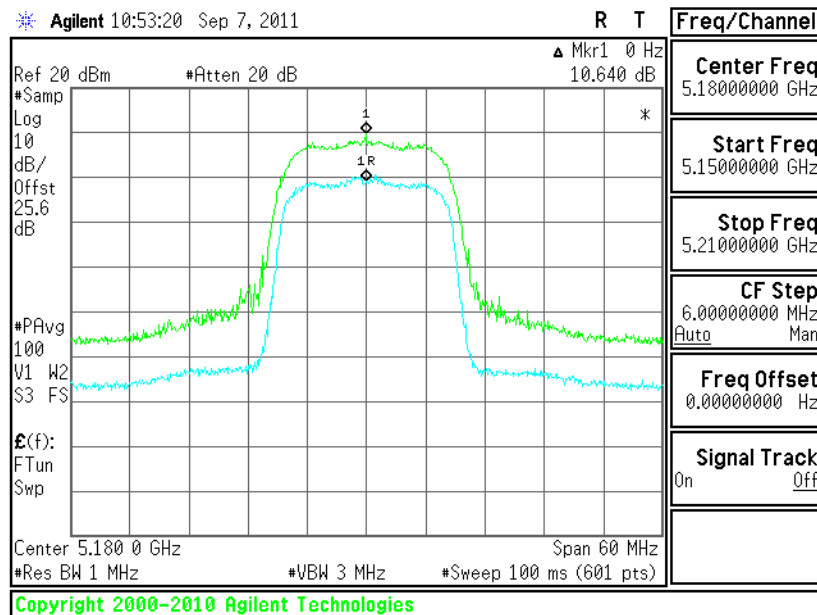
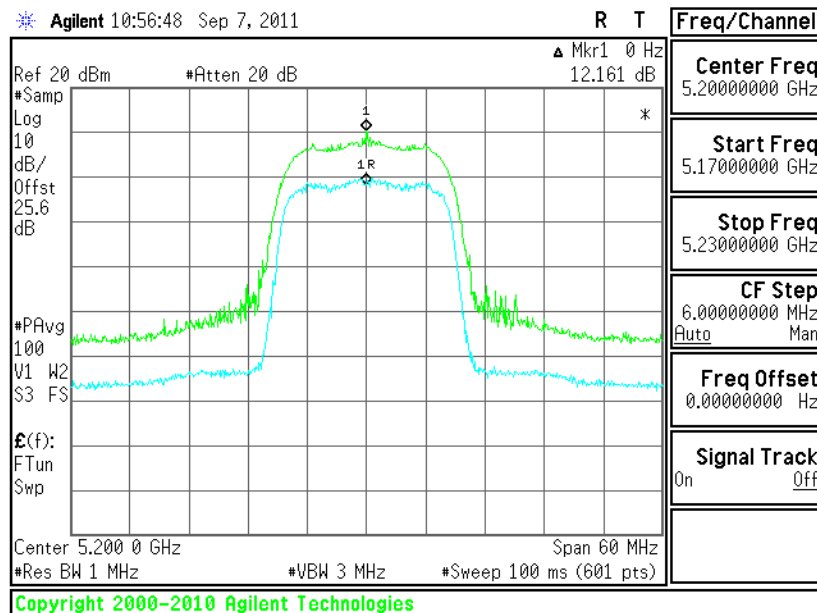
The difference between the traces is investigated. The marker is placed at the frequency, which shows the largest difference. The amplitude delta between the traces at this frequency is the peak excursion.

3.8.4 Test Setup



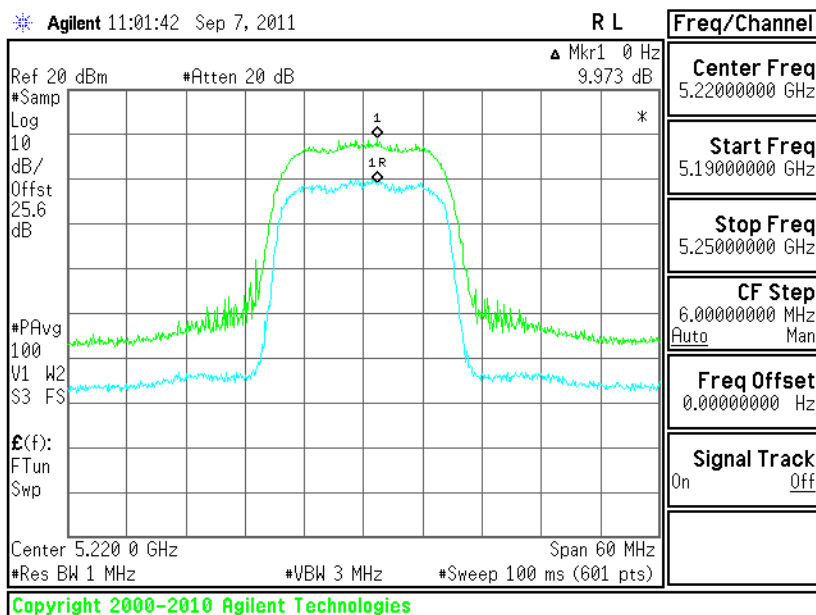
3.8.5 Test Result of Peak Excursion Ratio

Test Mode :	Mode 1~6	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

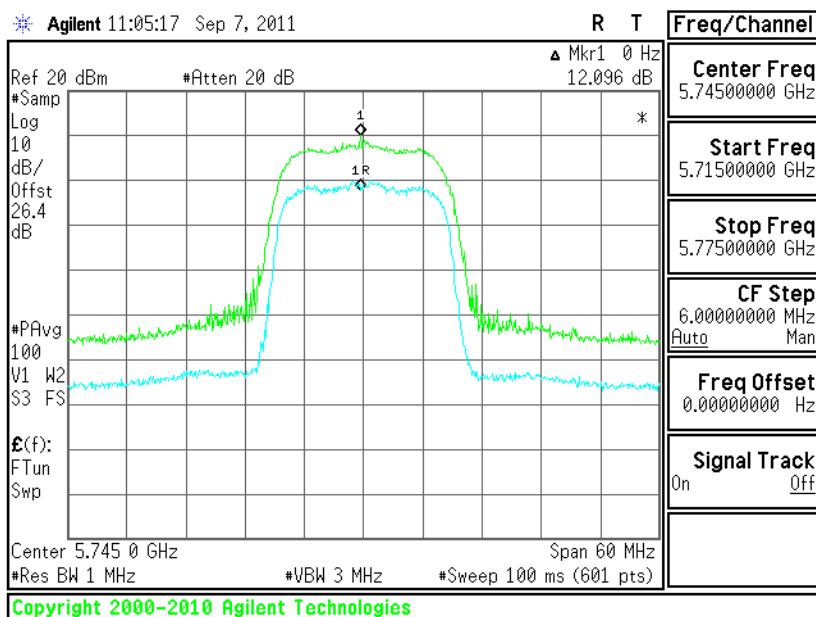
Peak Excursion Ratio Plot on 802.11a Channel 36

Peak Excursion Ratio Plot on 802.11a Channel 40




Peak Excursion Ratio Plot on 802.11a Channel 44

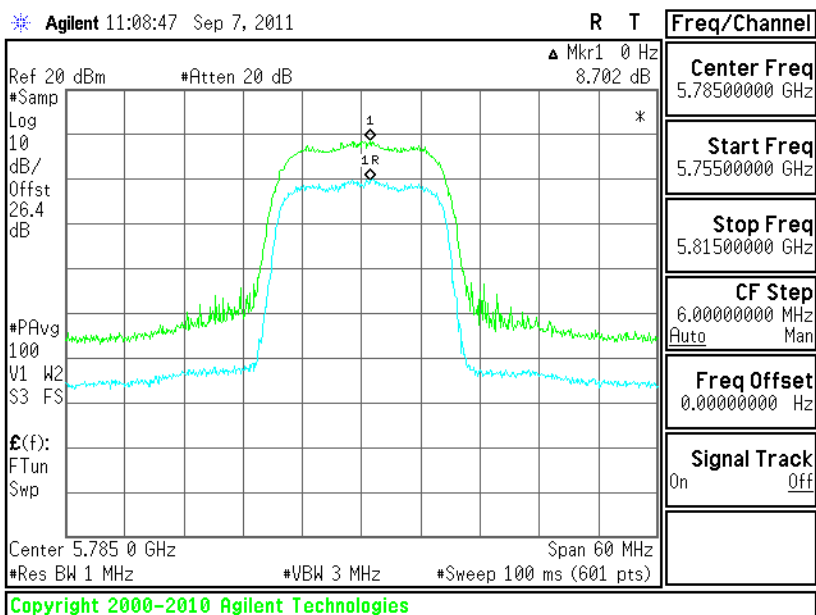


Peak Excursion Ratio Plot on 802.11a Channel 149

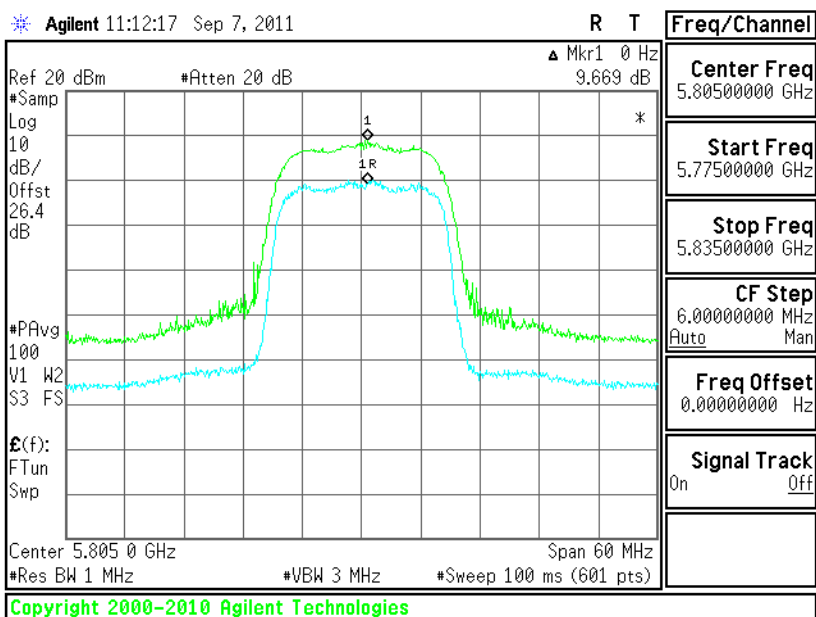




Peak Excursion Ratio Plot on 802.11a Channel 157



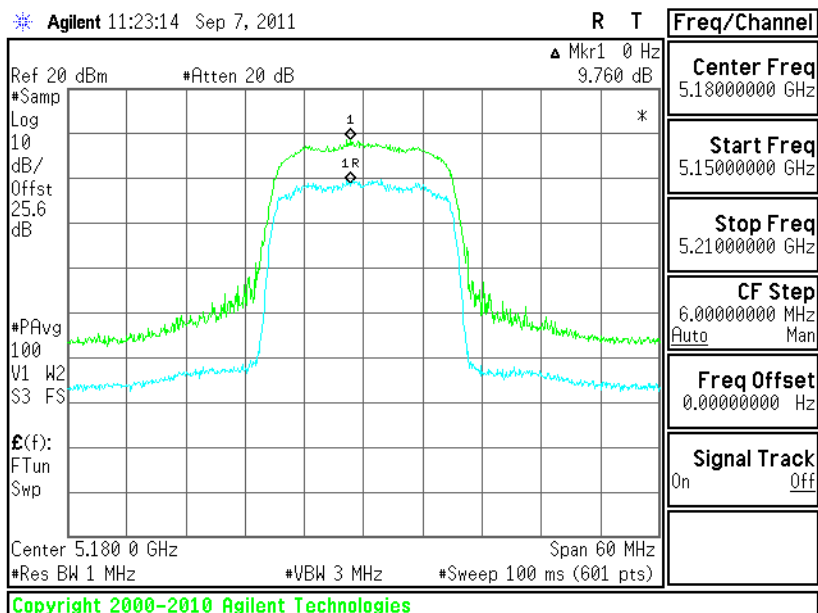
Peak Excursion Ratio Plot on 802.11a Channel 161



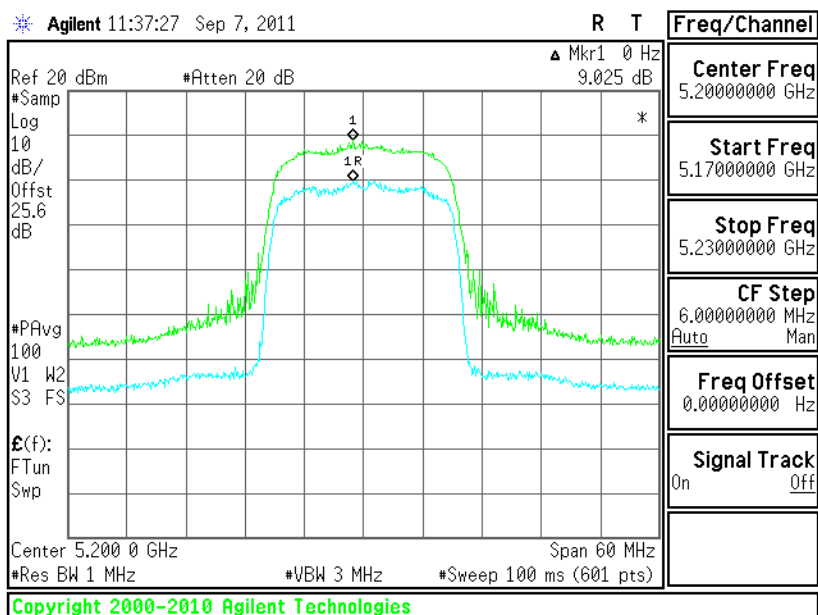


Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

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

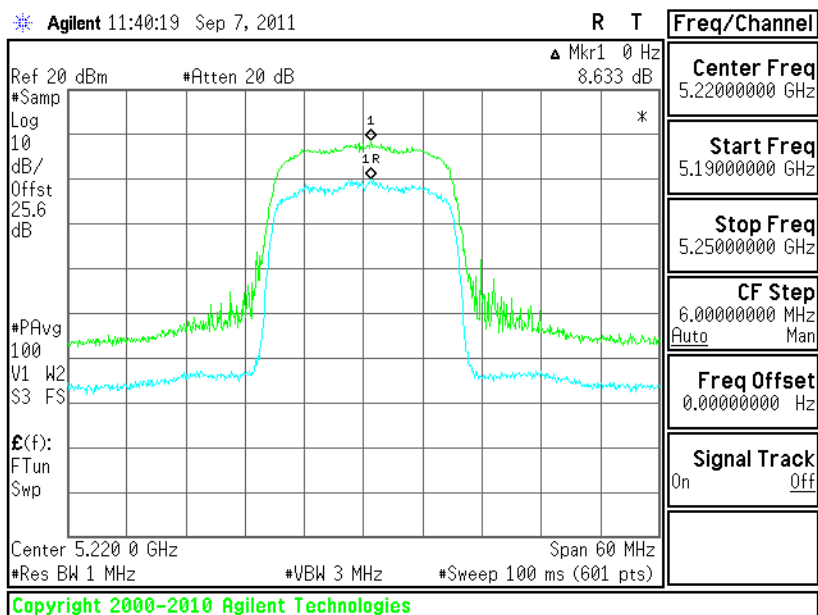


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 40

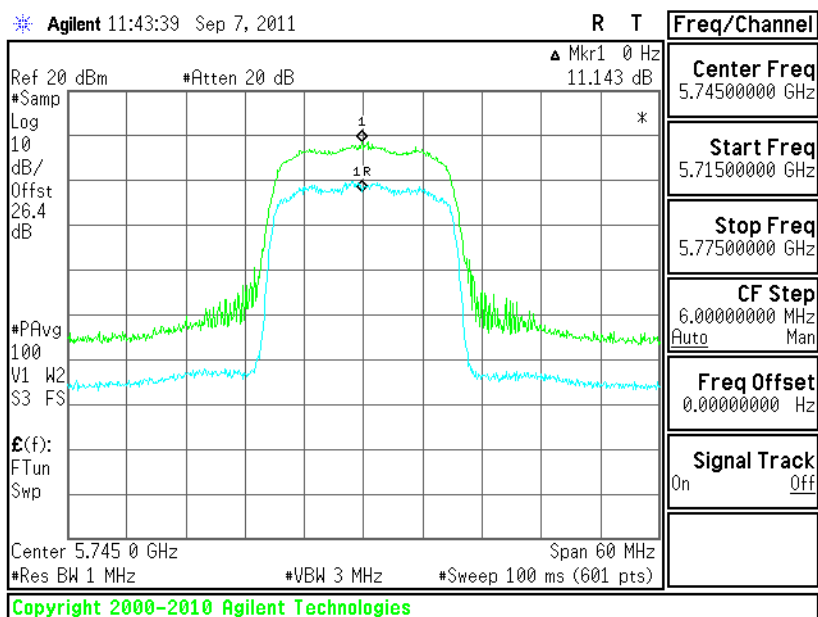




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 44

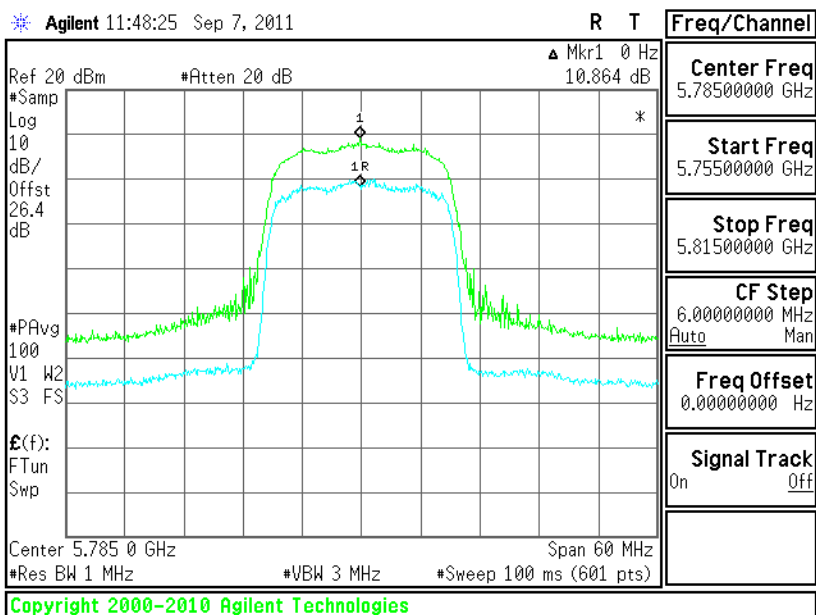


Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 149

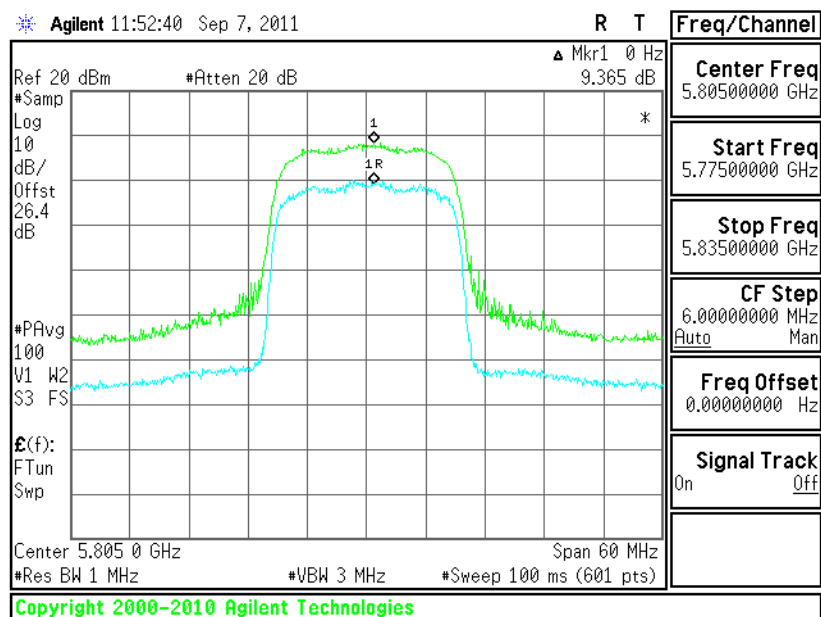




Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 157



Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 161



3.9 Automatically Discontinue Transmission

3.9.1 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.

3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

3.9.3 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.

3.10 Frequency Stability Measurement

3.10.1 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.

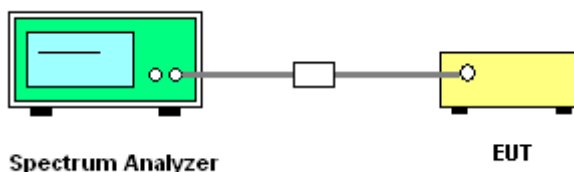
3.10.2 Measuring Instruments

See list of measuring instruments of this test report.

3.10.3 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.

3.10.4 Test Setup



3.10.5 Test Result of Frequency Stability

Test Mode :	Mode 1~6	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.71	5188.25	-3.86
40	5200	5191.71	5208.25	-3.85
44	5220	5211.67	5228.25	-7.66
149	5745	5736.67	5753.25	-6.96
157	5785	5776.71	5793.21	-6.91
161	5805	5796.67	5813.25	-6.89

Test Mode :	Mode 7~12	Temperature :	24~26℃
Test Engineer :	Alan Liu	Relative Humidity :	45~49%

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.12	5188.83	-4.83
40	5200	5191.08	5208.83	-8.65
44	5220	5211.12	5228.83	-4.79
149	5745	5736.08	5753.83	-7.83
157	5785	5776.08	5793.83	-7.78
161	5805	5796.12	5813.83	-4.31

3.11 Antenna Requirements

3.11.1 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.

3.11.2 Antenna Connected Construction

The antennas type used in this product is Fixed Internal Antenna without connector and it is considered to meet antenna requirement of FCC.

3.11.3 Antenna Gain

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

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 13, 2010	Sep. 12, 2011	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 14, 2010	Sep. 13, 2011	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 27, 2011	Jul. 26, 2012	Conducted (TH02-HY)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 22, 2010	Jun. 21, 2011	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 10, 2010	Nov. 09, 2011	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 16, 2010	Nov. 15, 2011	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 09, 2010	Dec. 08, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Active horn antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 09, 2010	Nov. 08, 2011	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Jan. 06, 2011	Jan. 05, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15G-40GHz	Oct. 15, 2010	Oct. 14, 2011	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	837587/066	Full-Band	Jan. 07, 2011	Jan. 06, 2012	-

5 Uncertainty of Evaluation

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

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

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

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

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	± 0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	± 1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	± 0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	± 2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	± 1.50	Rectangular	0.87	1	0.87
Site Imperfection	± 2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP182402 as below.