

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : CDMA/LTE 7 inch Tablet
BRAND NAME : ZTE
MODEL NAME : V66
FCC ID : Q78-V66
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : FCC KDB 789033 D01 General UNII Test Procedures v01

The product was received on Sep. 15, 2011 and completely tested on Nov. 03, 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.



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 Carrier Frequency Channel	8
2.2 RF Power	9
2.3 Test Mode	10
2.4 Connection Diagram of Test System	11
2.5 RF Utility	11
3 TEST RESULT	12
3.1 26dB Bandwidth Measurement	12
3.2 Maximum Conducted Output Power Measurement	21
3.3 Power Spectral Density Measurement	30
3.4 AC Conducted Emission Measurement	39
3.5 Unwanted Emissions Measurement	43
3.6 Peak Excursion Ratio Measurement	74
3.7 Automatically Discontinue Transmission	81
3.8 Frequency Stability Measurement	82
3.9 Antenna Requirements	84
4 LIST OF MEASURING EQUIPMENT	85
5 UNCERTAINTY OF EVALUATION	86
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR191531	Rev. 01	Initial issue of report	Nov. 08, 2011
FR191531	Rev. 02	Update report of revising standard description	Nov. 11, 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	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 17.45 dB at 3.09 MHz
3.5	15.407(b)	A9.3	Unwanted Emissions	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 1.33 dB at 5360 MHz
3.6	15.407(b)	A9.3	Peak Excursion Ratio	≤ 13 dB	Pass	-
3.7	15.407(c)	A9.5	Automatically Discontinue Transmission	Discontinue Transmission	Pass	-
3.8	15.407(g)	A9.5	Frequency Stability	Within Operation Band	Pass	-
3.9	15.203 & 15.407(a)	A9.2	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

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	CDMA/LTE 7 inch Tablet
Brand Name	ZTE
Model Name	V66
FCC ID	Q78-V66
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5725 MHz ~ 5825 MHz
Maximum Output Power to Antenna	<5150 MHz ~ 5250 MHz> 802.11a : 10.41 dBm / 0.0110 W 802.11n (BW 20MHz) : 9.90 dBm / 0.0098 W <5725 MHz ~ 5825 MHz > 802.11a : 10.06 dBm / 0.0101 W 802.11n (BW 20MHz) : 9.31 dBm / 0.0085 W
Antenna Type	<5150 MHz ~ 5250 MHz> PIFA Antenna with gain 2 dBi <5725 MHz ~ 5825 MHz> PIFA Antenna with gain 2 dBi
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

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

1.4 Testing Site

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 KDB 789033 D01 General UNII Test Procedures v01
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issued 8
- ♦ IC RSS-Gen Issue 3

Remark:

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
4.	Notebook	Dell	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 1.84m DC O/P: Shielded, 0.9m
5.	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
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
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	10.41	9.97	10.00	9.55	9.53	9.29	9.26	9.36
CH 40	5200 MHz	10.04	9.83	9.96	9.33	9.45	9.08	9.04	9.01
CH 44	5220 MHz	9.82	9.69	9.67	9.19	9.13	8.93	8.93	8.85
CH 48	5240 MHz	9.69	9.45	9.22	9.17	9.13	8.90	8.70	8.73
CH 149	5745 MHz	9.90	8.48	8.44	8.25	8.20	7.89	7.70	7.74
CH 153	5765 MHz	8.97	8.90	8.67	8.65	8.58	8.21	8.10	8.05
CH 157	5785 MHz	9.19	9.17	9.24	8.90	8.83	8.61	8.41	8.29
CH 161	5805 MHz	9.33	9.27	9.25	8.89	8.66	8.56	8.39	8.37

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	10.06	10.03	9.94	9.59	9.49	9.57	9.40	9.25
CH 40	5200 MHz	9.65	9.56	9.65	9.53	9.32	9.29	9.22	9.13
CH 44	5220 MHz	9.34	9.57	9.49	9.45	9.23	9.19	9.13	9.13
CH 48	5240 MHz	9.50	9.42	9.39	9.37	9.12	9.04	9.02	8.86
CH 149	5745 MHz	9.12	8.04	7.00	6.63	6.43	6.43	6.40	6.35
CH 153	5765 MHz	8.40	8.56	7.19	7.13	7.10	6.85	6.82	6.84
CH 157	5785 MHz	9.10	8.73	7.61	7.59	7.42	7.19	7.19	7.19
CH 161	5805 MHz	9.31	8.63	7.71	7.58	7.66	7.29	7.36	7.22

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).

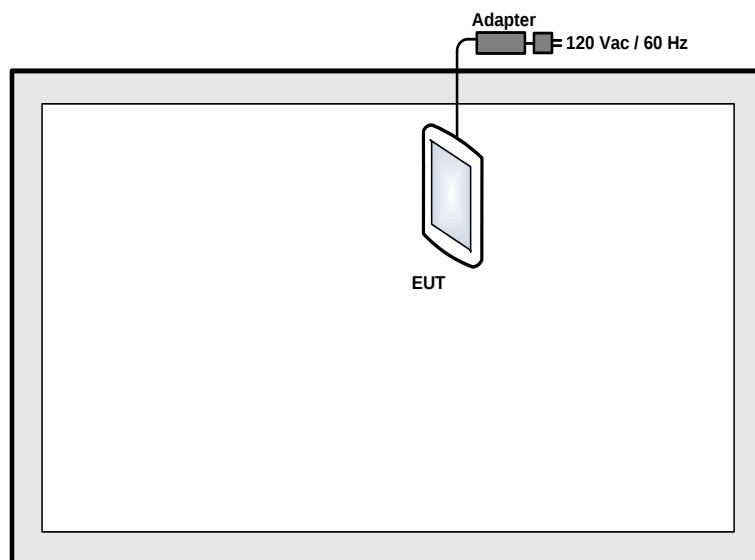
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

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

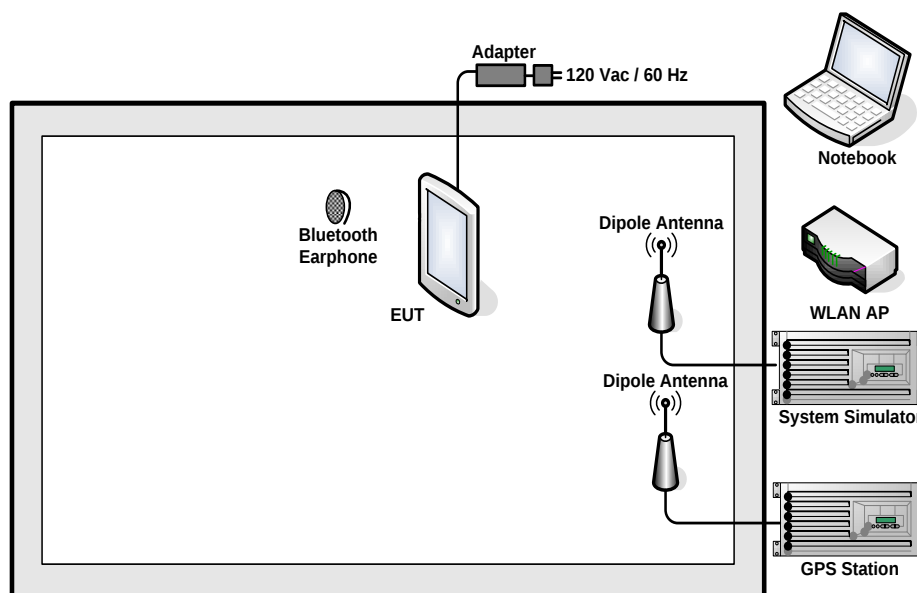
Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Conducted TCs	■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH40_5200 MHz ■ Mode 3: 802.11a_CH44_5220 MHz ■ Mode 4: 802.11a_CH149_5745 MHz ■ Mode 5: 802.11a_CH157_5765 MHz ■ Mode 6: 802.11a_CH161_5805 MHz ■ Mode 7: 802.11a_CH36_5180 MHz (BW 20M) ■ 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 : GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + USB Cable (Charging from Adapter)

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF Utility "TI1273 FCC", 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

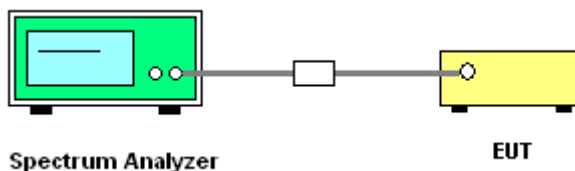
3.1.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.2 Test Procedures

1. The testing follows FCC KDB 789033 D01 General UNII Test Procedures v01.
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

3.1.3 Test Setup



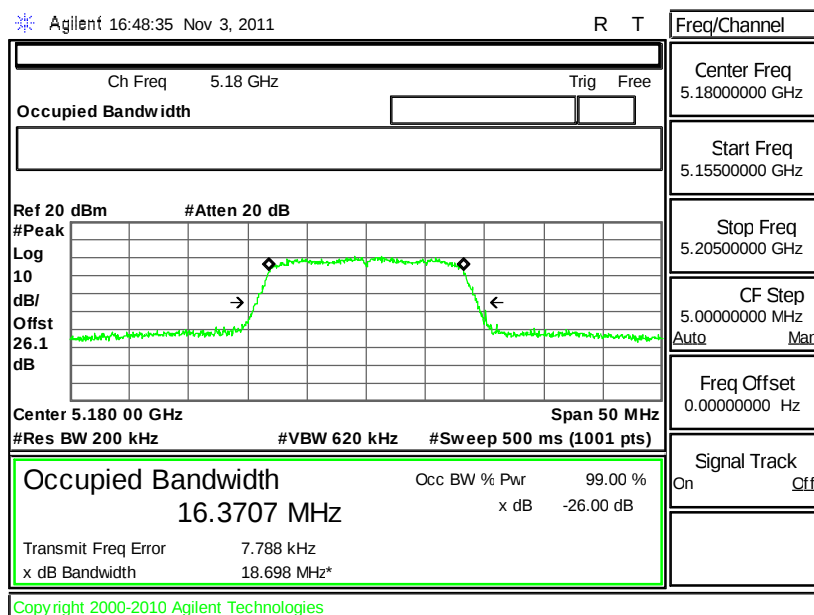
3.1.4 Test Result of 26dB Bandwidth

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

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	18.698	N/A
40	5200	18.738	N/A
44	5220	18.796	N/A
149	5745	18.783	N/A
157	5785	18.733	N/A
161	5805	18.714	N/A

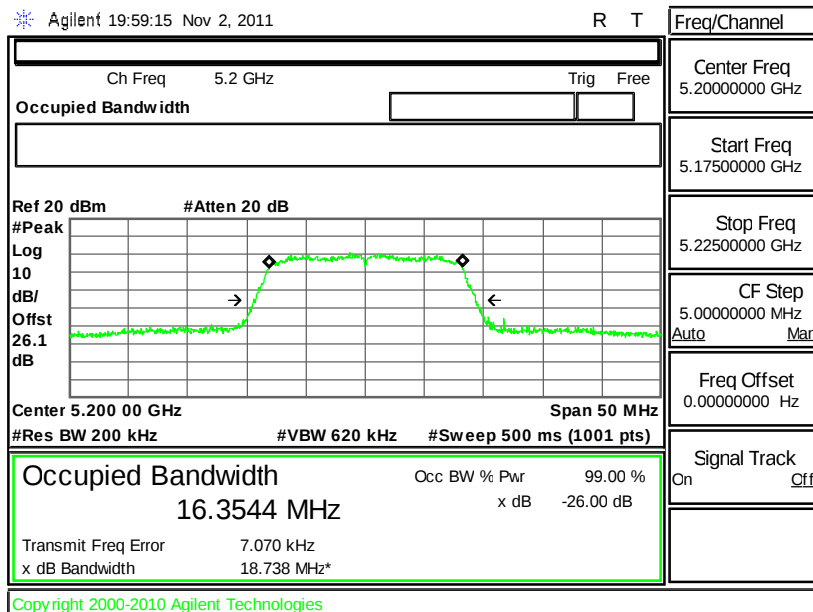
Note: N/A , 26dB bandwidth is reporting only.

26 dB Bandwidth Plot on 802.11a Channel 36

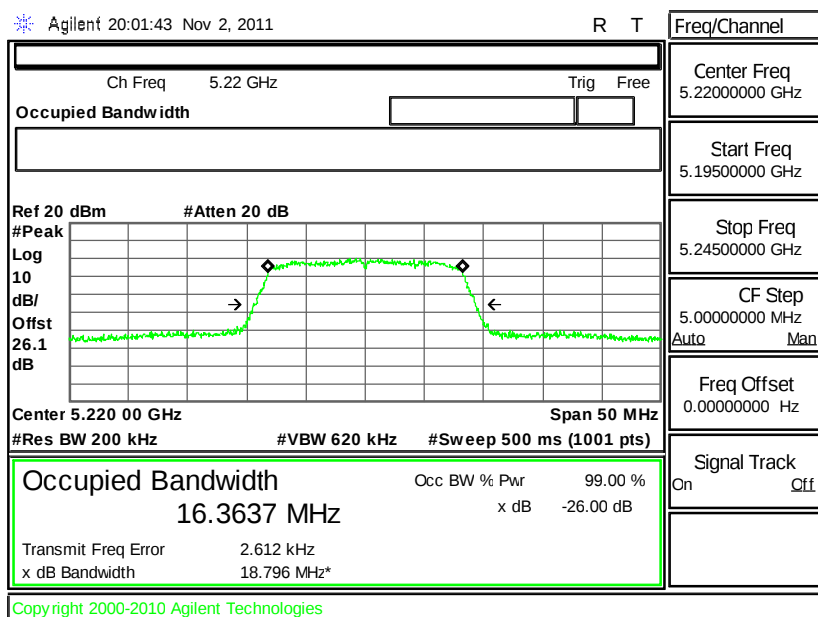




26 dB Bandwidth Plot on 802.11a Channel 40

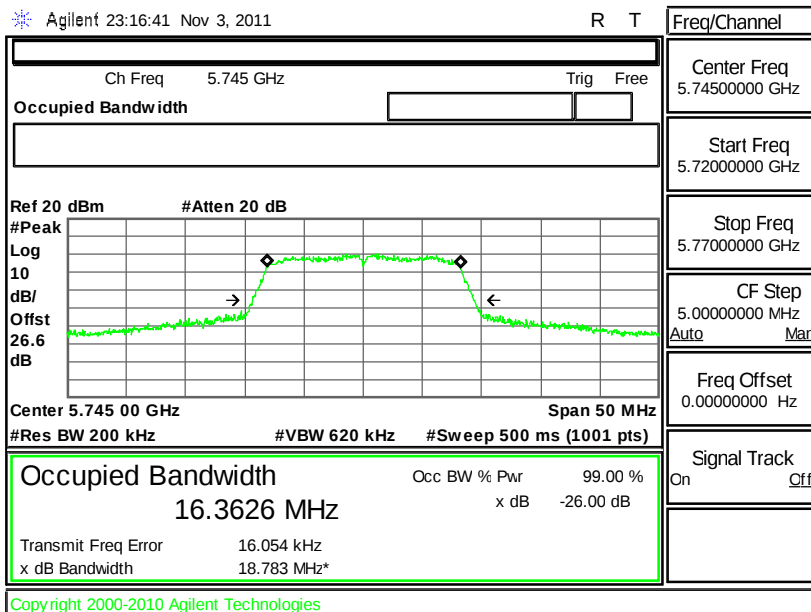


26 dB Bandwidth Plot on 802.11a Channel 44

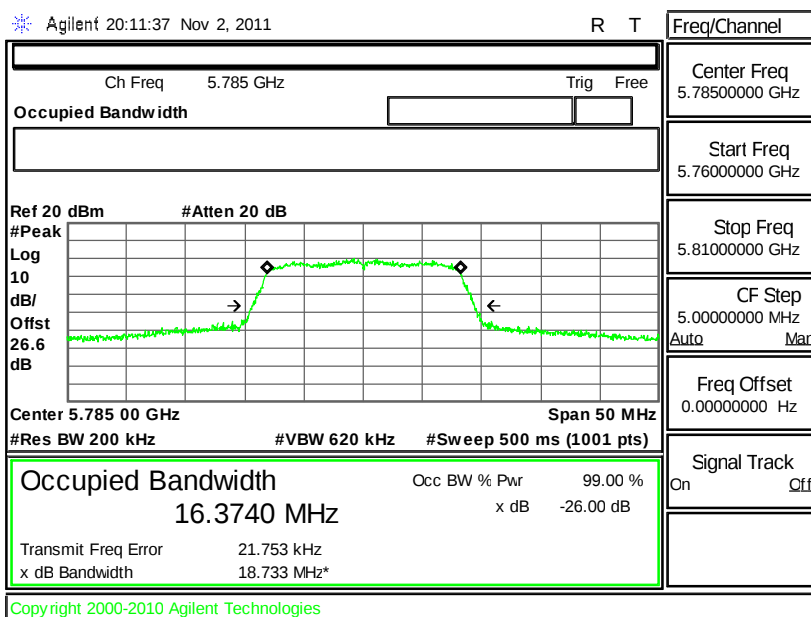




26 dB Bandwidth Plot on 802.11a Channel 149

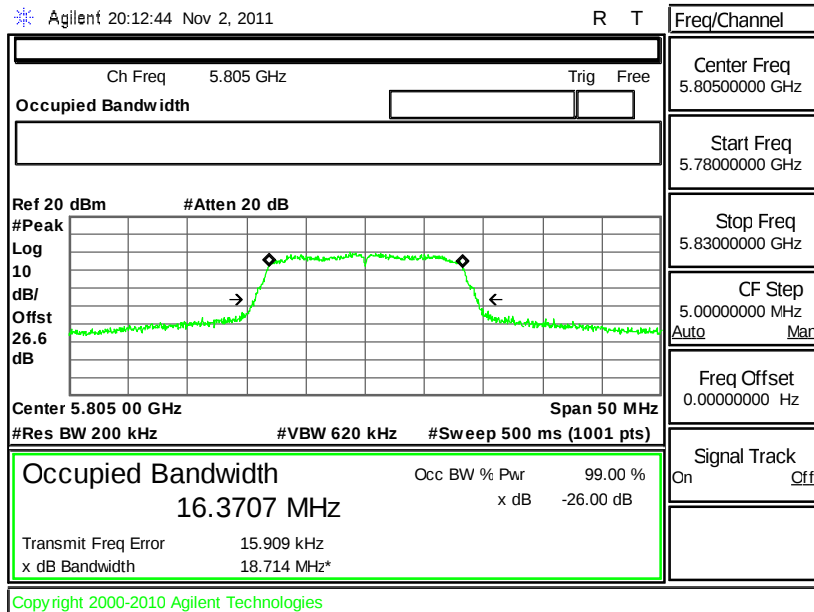


26 dB Bandwidth Plot on 802.11a Channel 157





26 dB Bandwidth Plot on 802.11a Channel 161

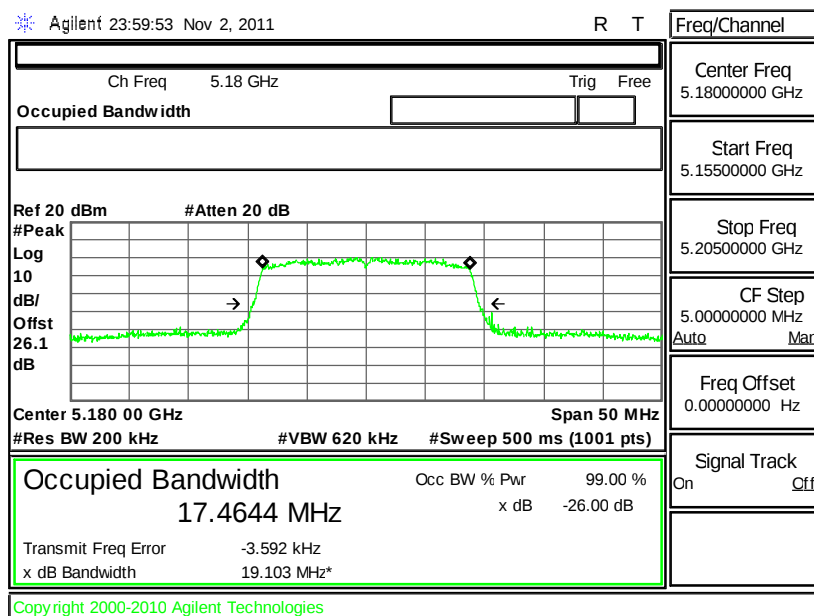




Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	45~49%

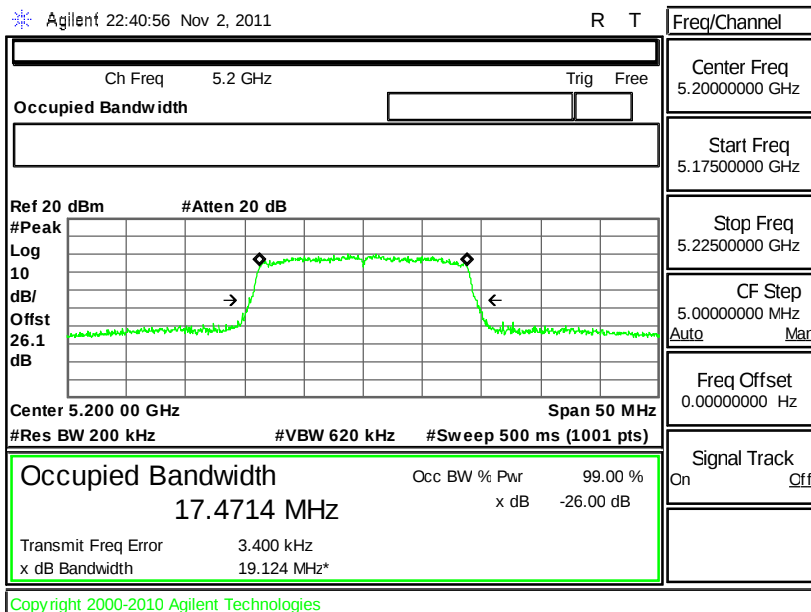
Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	19.103	N/A
40	5200	19.124	N/A
44	5220	19.111	N/A
149	5745	19.067	N/A
157	5785	19.081	N/A
161	5805	19.041	N/A

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

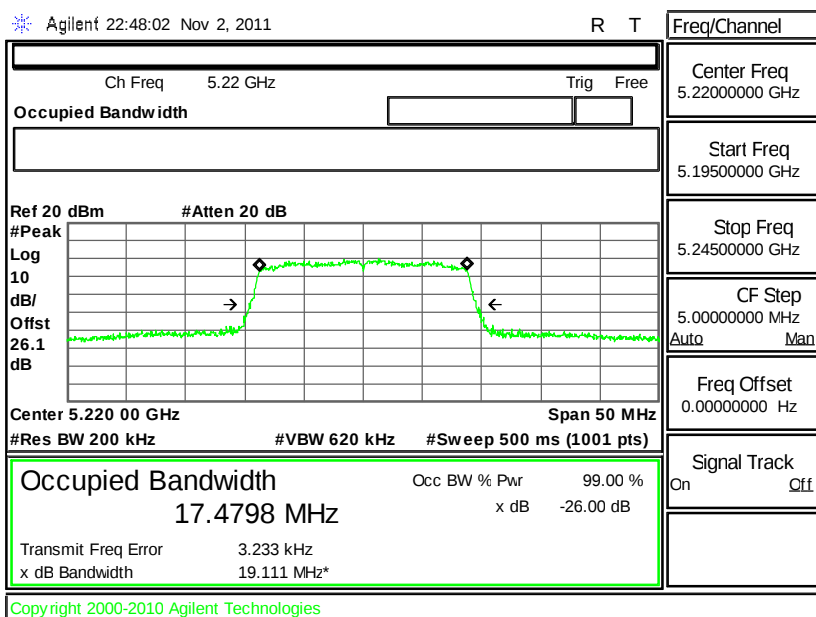
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 36



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

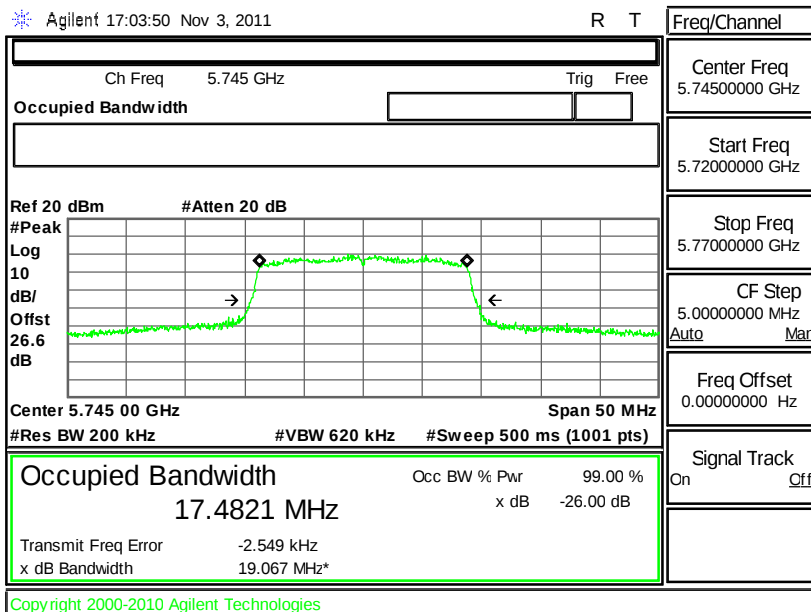


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 44

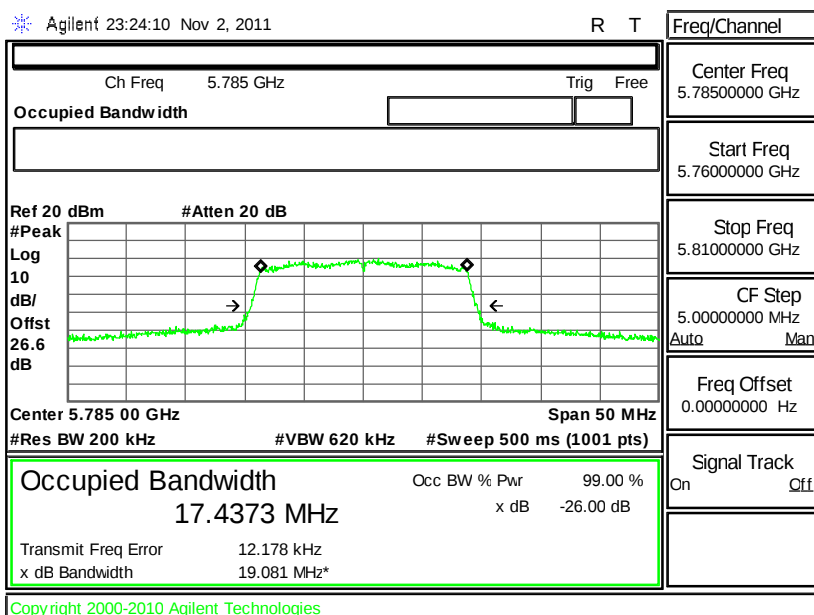




26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 149

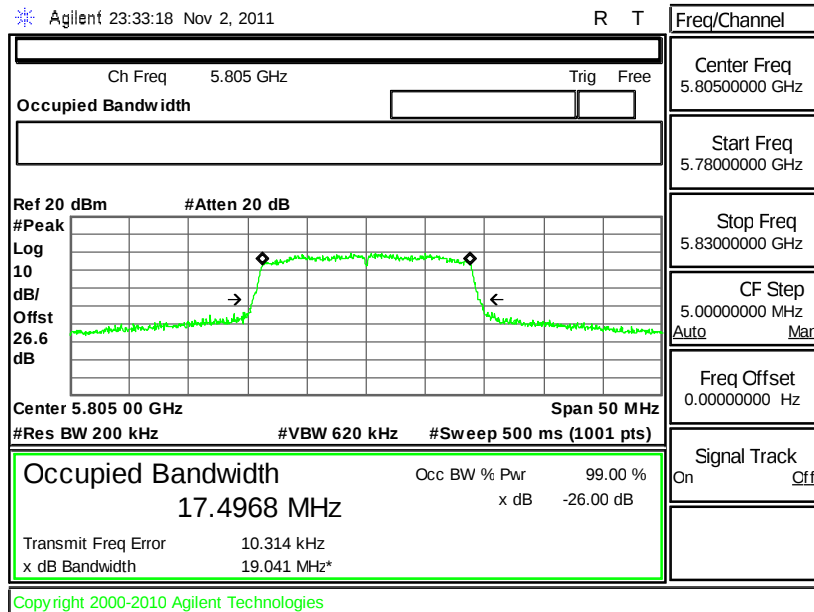


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 157





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

The duty cycle of WLAN 802.11a/n were 100 % for 802.11a and 100 % for 802.11n (BW 20MHz).

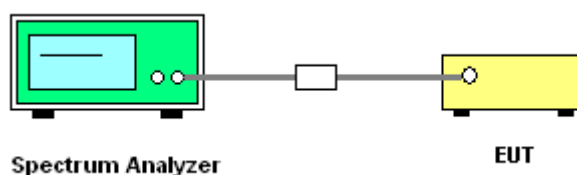
1. The testing follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = Sample
 - Trace average at least 100 traces in power averaging mode.
 - Compute power by integrating the spectrum across the 26 dB EBW of the signal using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. If the spectrum analyzer does not have a band power function, sum the spectrum levels at 1 MHz intervals extending across the 26 dB EBW of the spectrum.

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 10.41 dBm which is the reading of spectrum analyzer with offset cable loss (0.5 dB), and attenuator loss (25.6 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 :	Book Lin	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	26dB BW (MHz)	Max. Limits (dBm)	Pass/Fail
36	5180	10.41	18.698	16.72	Pass
40	5200	10.04	18.738	16.73	Pass
44	5220	9.82	18.796	16.74	Pass
149	5745	9.90	18.783	29.74	Pass
157	5785	9.19	18.733	29.73	Pass
161	5805	9.33	18.714	29.72	Pass

Note:

1. For the band 5.15~5.25 GHz, the maximum conducted output power shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log (26dB BW)
4. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10log (26dB BW)

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

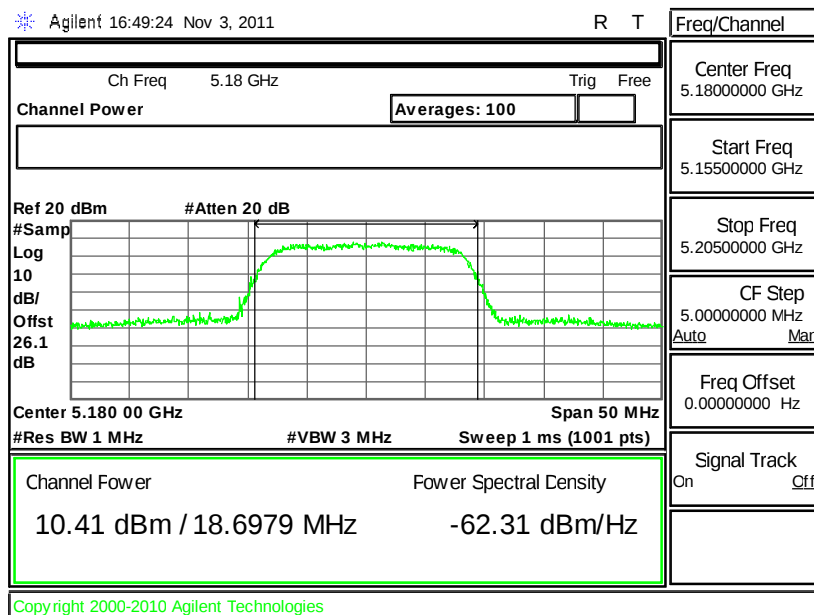
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	26dB BW (MHz)	Max. Limits (dBm)	Pass/Fail
36	5180	10.06	19.103	16.81	Pass
40	5200	9.65	19.124	16.82	Pass
44	5220	9.34	19.111	16.81	Pass
149	5745	9.12	19.067	29.80	Pass
157	5785	9.10	19.081	29.81	Pass
161	5805	9.31	19.041	29.80	Pass

Note:

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

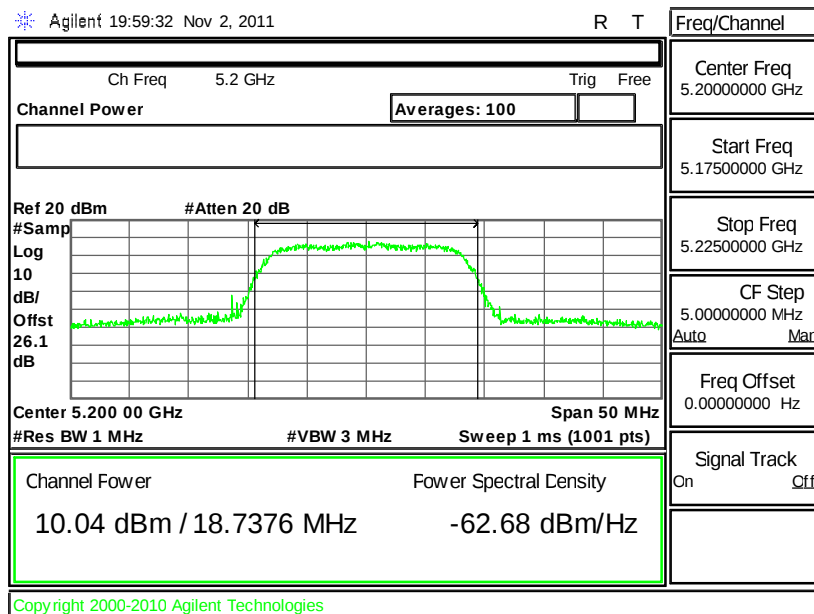
3.2.6 Test Result of Power Output Plots

Output Power Plot on 802.11a Channel 36



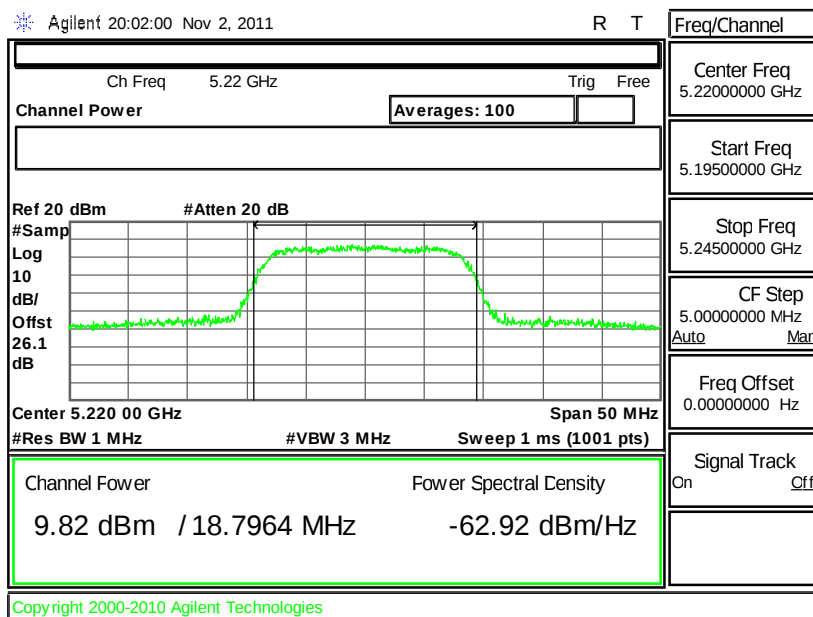
Total path loss 26.1 dB (cable loss: 0.5dB, attenuator: 25.6dB)

Output Power Plot on 802.11a Channel 40

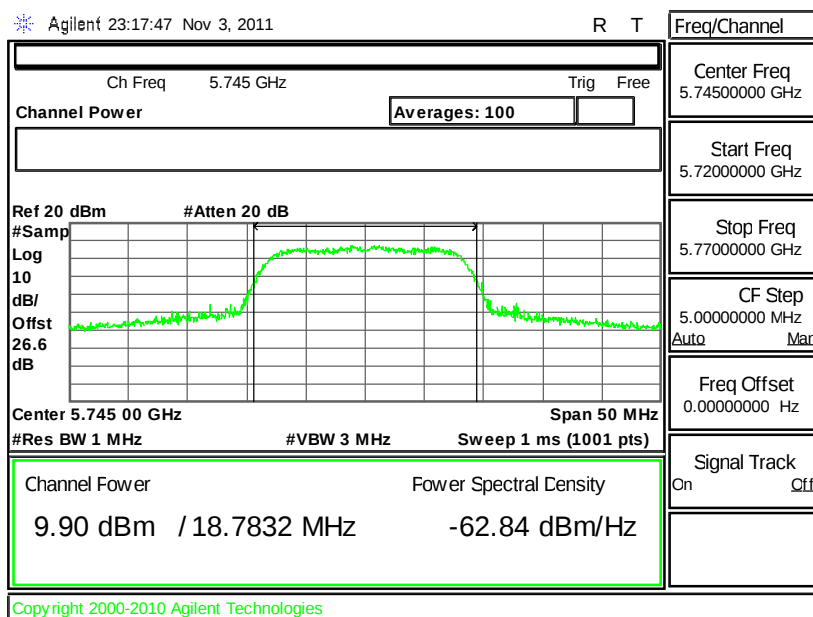




Output Power Plot on 802.11a Channel 44



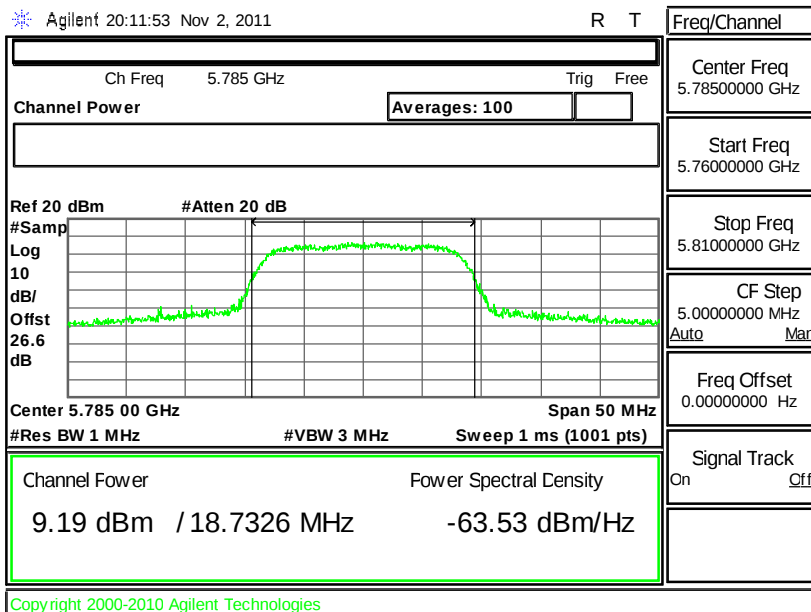
Output Power Plot on 802.11a Channel 149



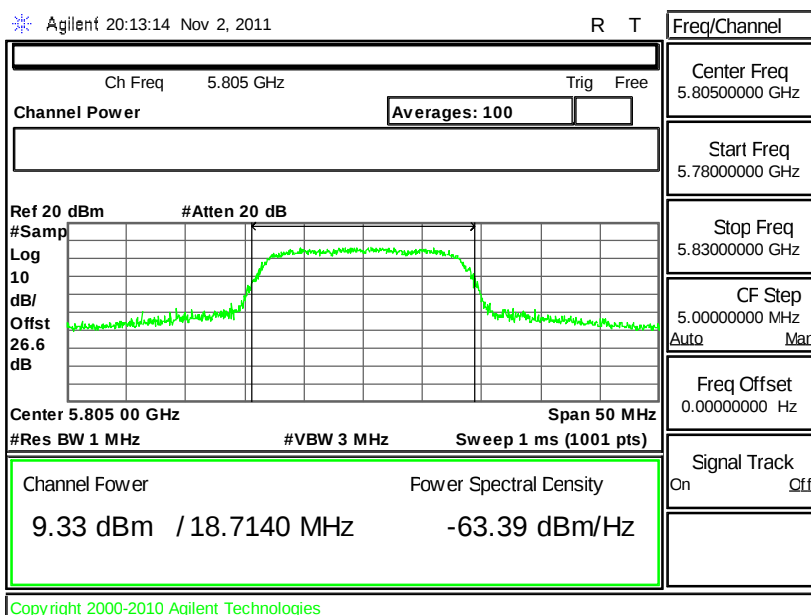
Total path loss 26.6 dB (cable loss: 0.5dB, attenuator: 26.1dB)



Output Power Plot on 802.11a Channel 157

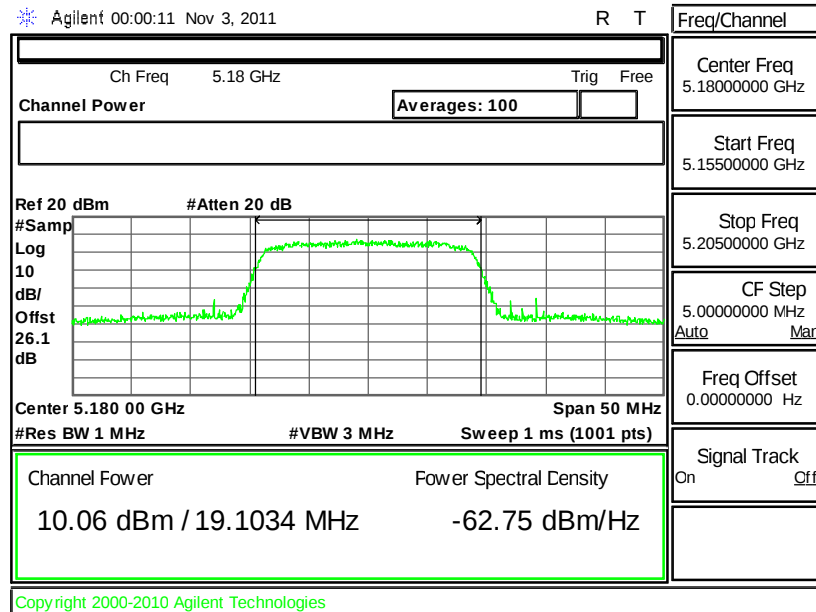


Output Power Plot on 802.11a Channel 161



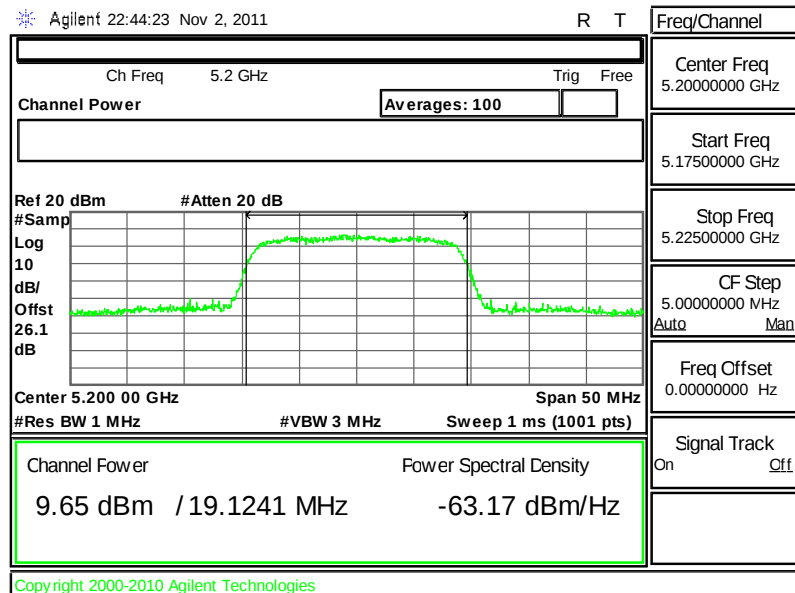


Output Power Plot on 802.11n (BW 20MHz) Channel 36



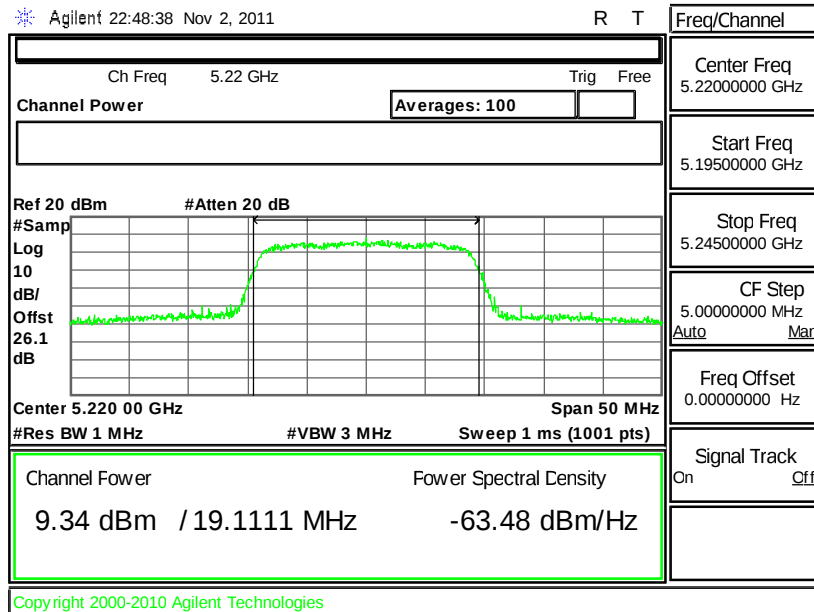
Total path loss 26.1 dB (cable loss: 0.5dB, attenuator: 25.6dB)

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

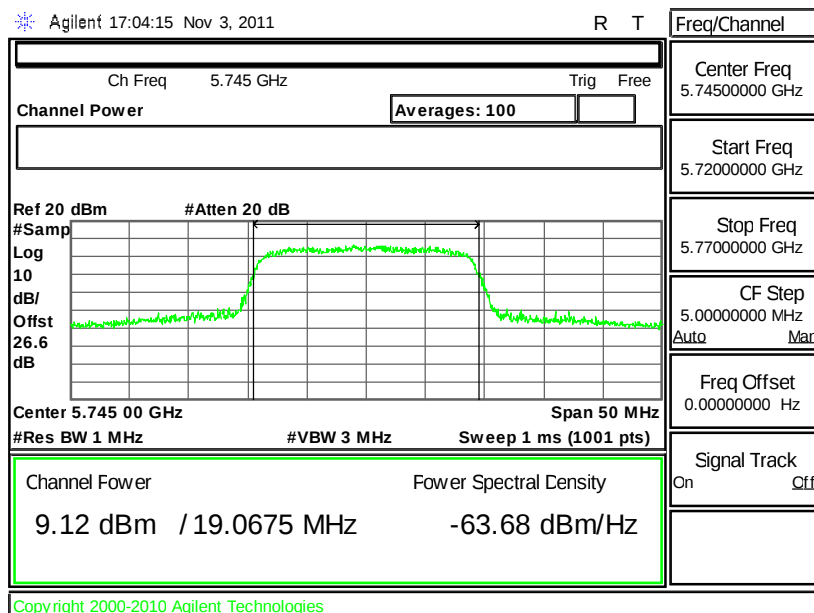




Output Power Plot on 802.11n (BW 20MHz) Channel 44



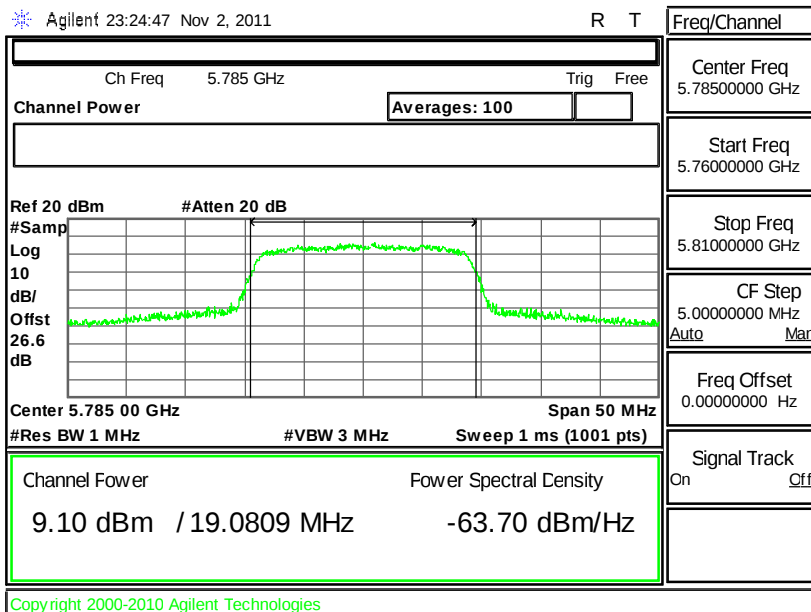
Output Power Plot on 802.11n (BW 20MHz) Channel 149



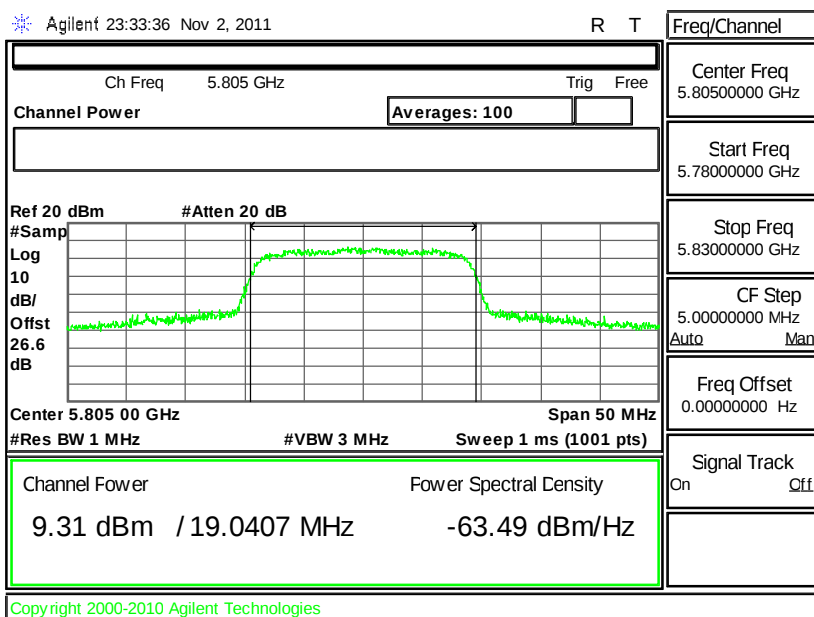
Total path loss 26.6 dB (cable loss: 0.5dB, attenuator: 26.1dB)



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 1MHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

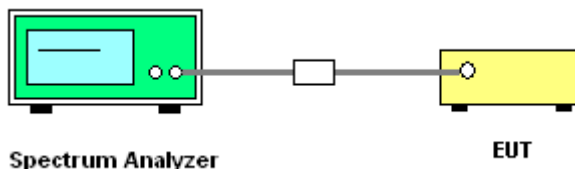
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The setting follows Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01.
 - Set span to encompass the entire emission bandwidth (EBW) of the signal.
 - Set RBW = 1 MHz.
 - Set VBW $\geq$ 3 MHz.
 - Number of points in sweep $\geq$ 2 Span / RBW.
 - Sweep time = auto.
 - Detector = Sample
 - Trace average at least 100 traces in power averaging mode.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Each plot has already offset with cable loss, and attenuator loss.
4. Use the peak search to the highest PPSD and record it.

3.3.4 Test Setup

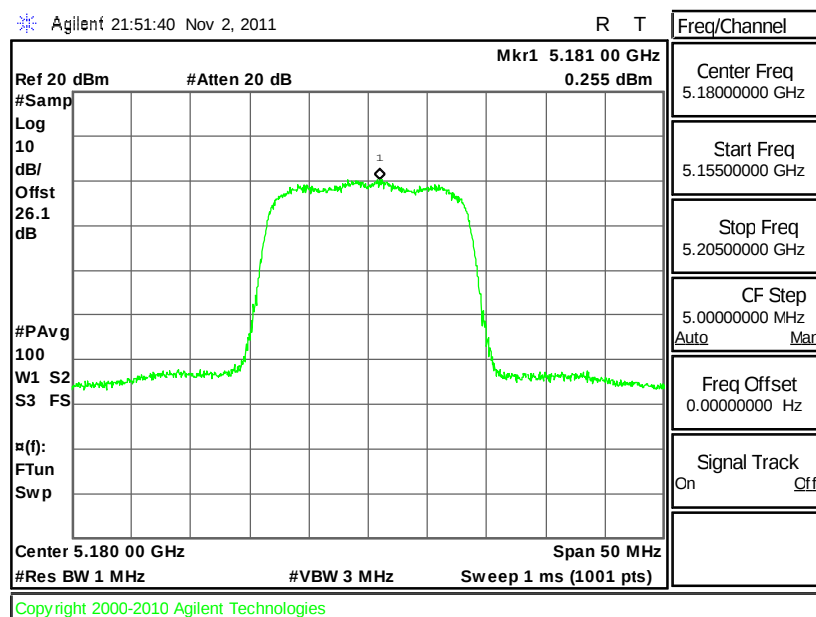


3.3.5 Test Result of Power Spectral Density

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

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	0.255	4	Pass
40	5200	-0.078	4	Pass
44	5220	-0.233	4	Pass
149	5745	-1.348	17	Pass
157	5785	-0.657	17	Pass
161	5805	-0.885	17	Pass

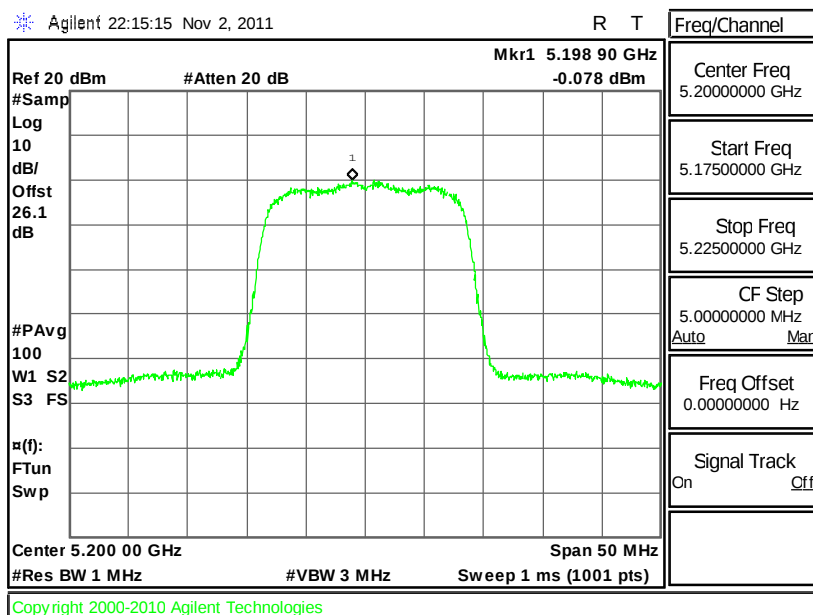
PSD Plot on 802.11a Channel 36



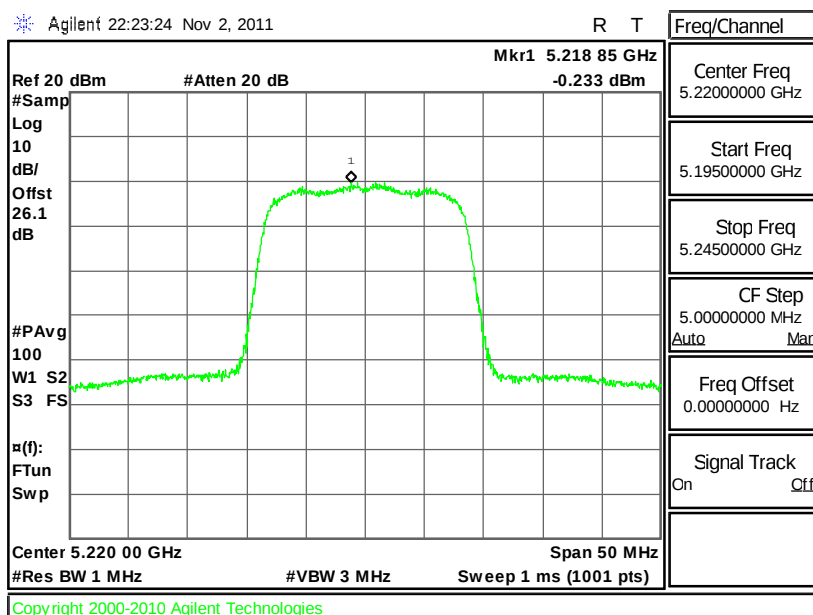
Total path loss 26.1 dB (cable loss: 0.5dB, attenuator: 25.6dB)



PSD Plot on 802.11a Channel 40

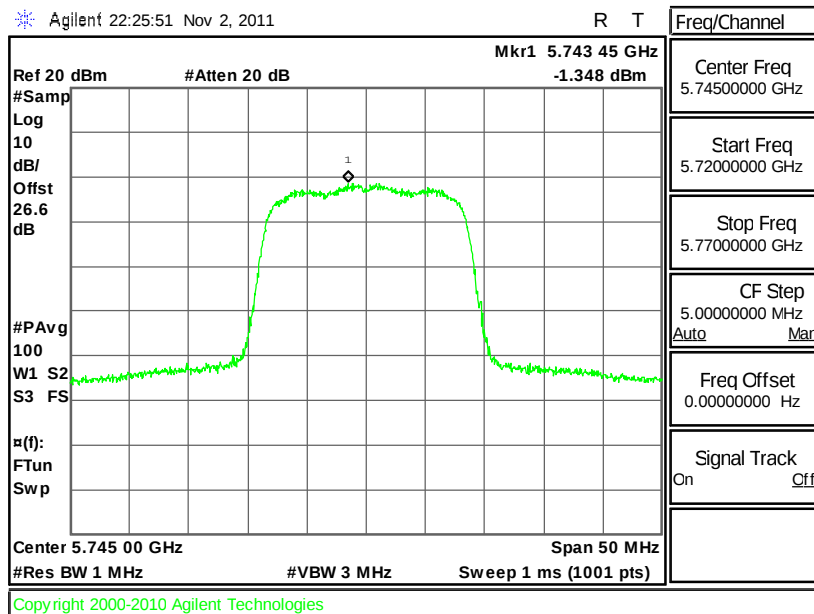


PSD Plot on 802.11a Channel 44



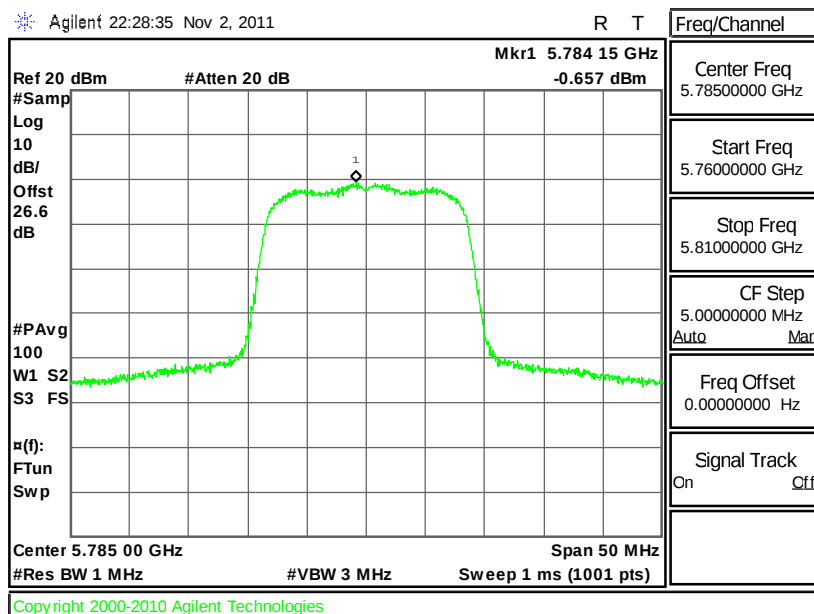


PSD Plot on 802.11a Channel 149



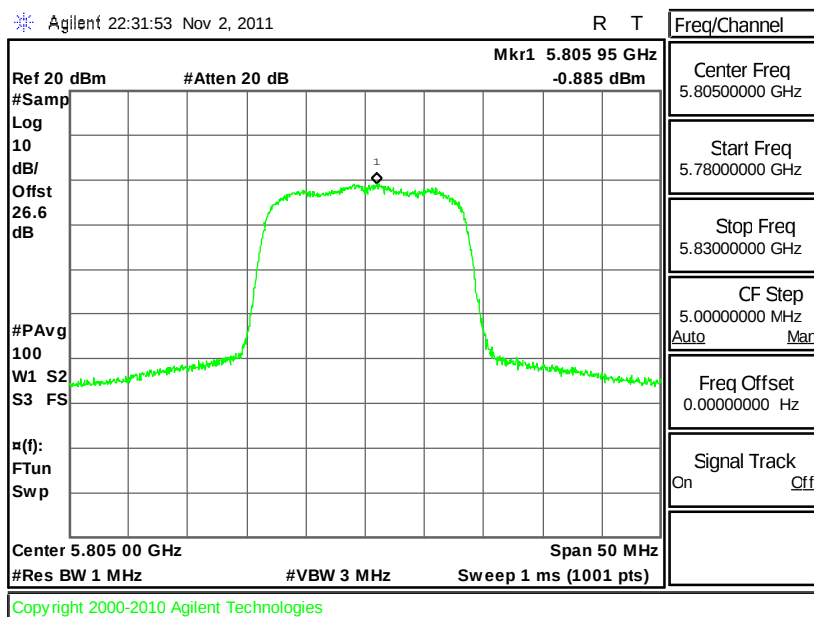
Total path loss 26.6dB (cable loss: 0.5dB, attenuator: 26.1dB)

PSD Plot on 802.11a Channel 157





PSD Plot on 802.11a Channel 161

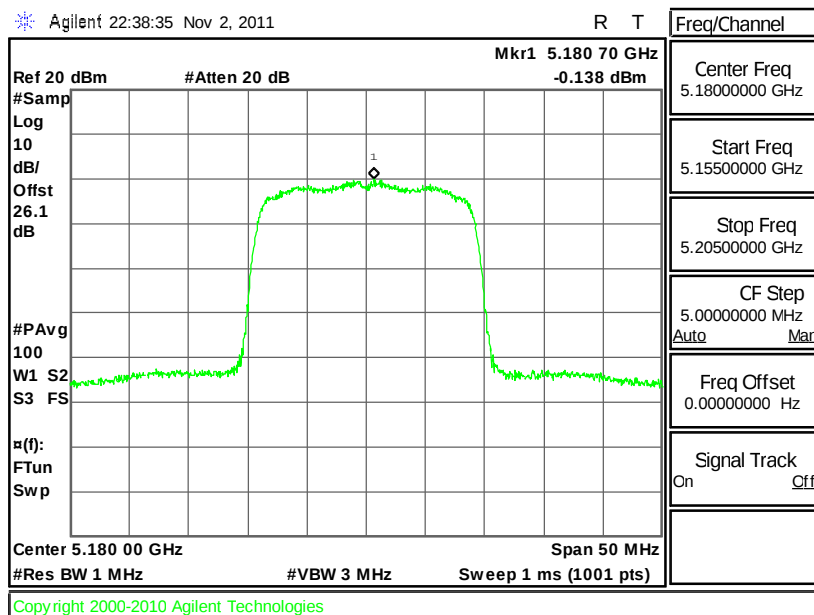




Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	45~49%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	-0.138	4	Pass
40	5200	-0.253	4	Pass
44	5220	-0.919	4	Pass
149	5745	-1.801	17	Pass
157	5785	-1.050	17	Pass
161	5805	-0.740	17	Pass

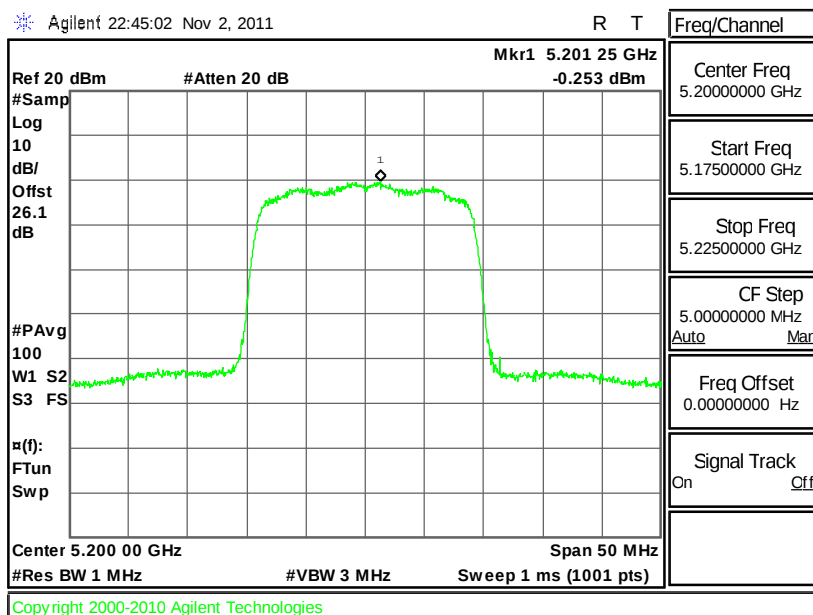
PSD Plot on 802.11n (BW 20MHz) Channel 36



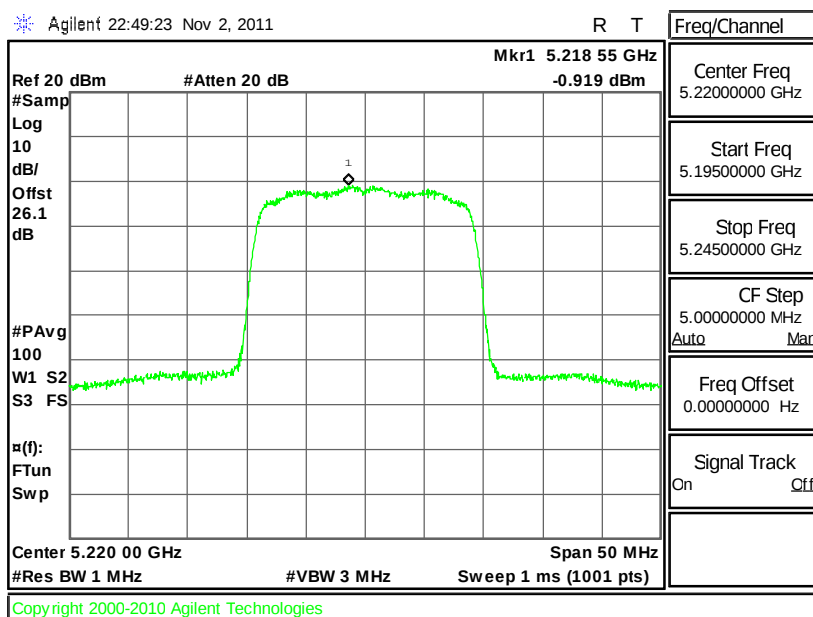
Total path loss 26.1 dB (cable loss: 0.5dB, attenuator: 25.6dB)



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

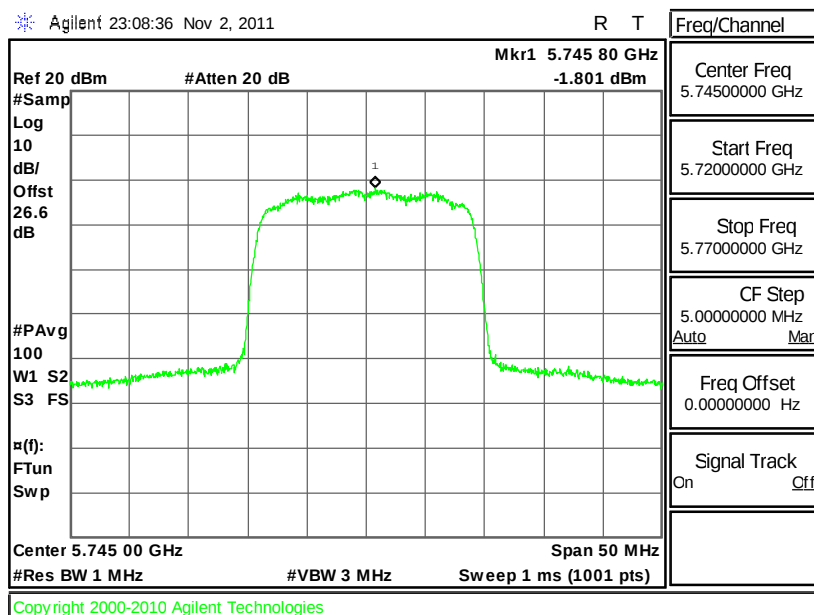


PSD Plot on 802.11n (BW 20MHz) Channel 44



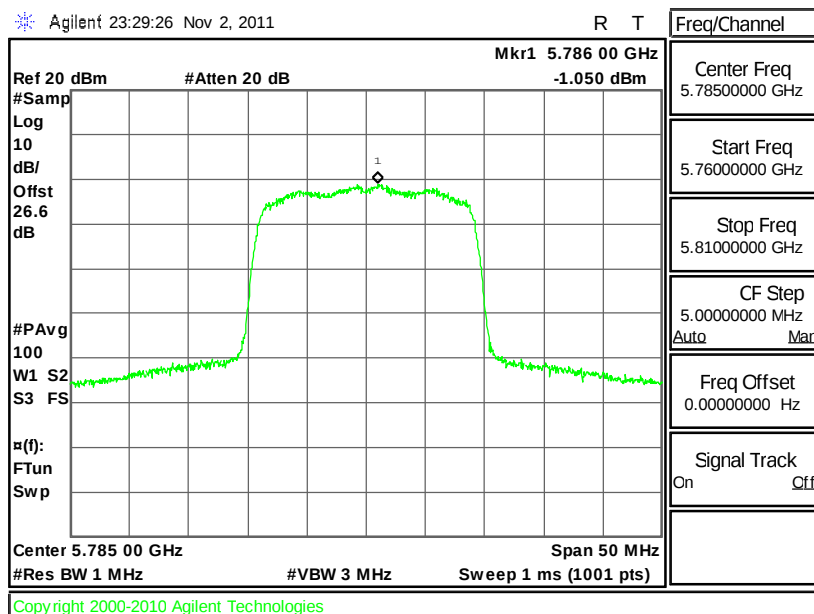


PSD Plot on 802.11n (BW 20MHz) Channel 149



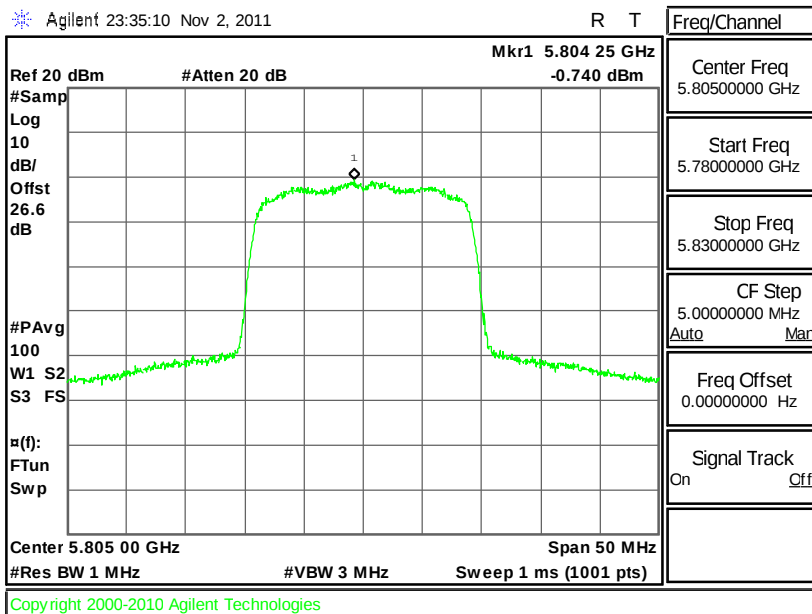
Total path loss 26.6dB (cable loss: 0.5dB, attenuator: 26.1dB)

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





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



3.4 AC Conducted Emission Measurement

3.4.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

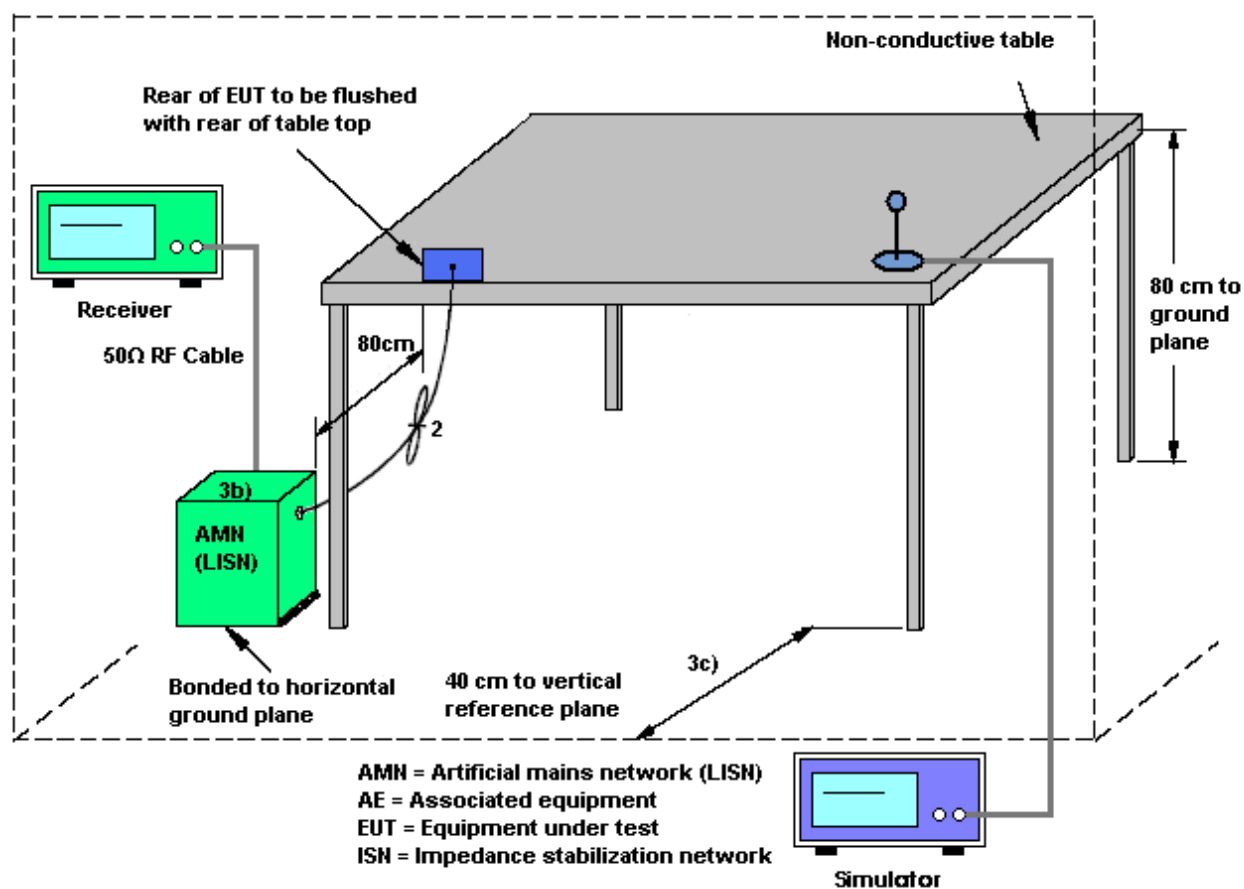
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

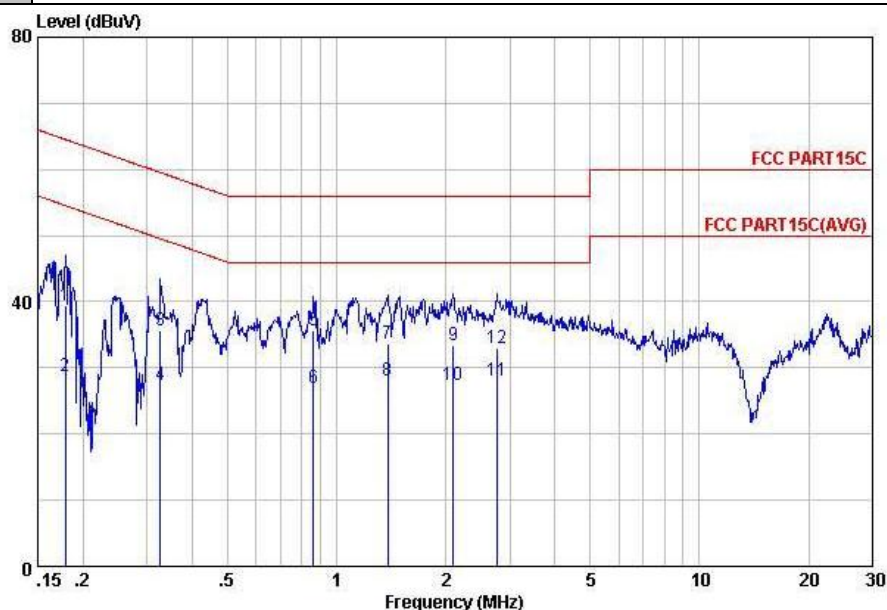
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All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

3.4.4 Test Setup



3.4.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~23℃
Test Engineer :	Alva Guo	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

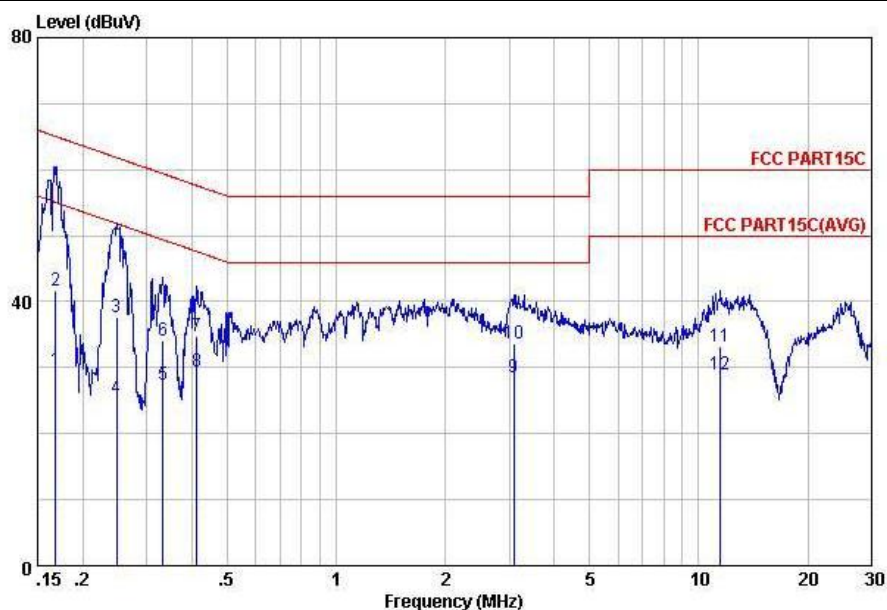


Site : C001-KS
 Condition: FCC PART15C LISN-100807 LINE
 Project : [FR] 190101
 mode : mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.18	39.48	-25.07	64.55	29.40	-0.07	10.15	QP
2	0.18	28.78	-25.77	54.55	18.70	-0.07	10.15	Average
3	0.33	35.70	-23.83	59.53	25.60	-0.08	10.18	QP
4	0.33	27.40	-22.13	49.53	17.30	-0.08	10.18	Average
5	0.86	35.55	-20.45	56.00	25.40	-0.10	10.25	QP
6	0.86	26.95	-19.05	46.00	16.80	-0.10	10.25	Average
7	1.38	33.59	-22.41	56.00	23.40	-0.10	10.29	QP
8	1.38	27.99	-18.01	46.00	17.80	-0.10	10.29	Average
9	2.10	33.52	-22.48	56.00	23.30	-0.11	10.33	QP
10	2.10	27.42	-18.58	46.00	17.20	-0.11	10.33	Average
11	2.76	28.15	-17.85	46.00	17.91	-0.12	10.36	Average
12	2.76	33.05	-22.95	56.00	22.81	-0.12	10.36	QP



Test Mode :	Mode 1	Temperature :	22~23°C
Test Engineer :	Alva Guo	Relative Humidity :	42~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + GPS Rx + Camera + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 NEUTRAL
Project : [FR] 190101
mode : mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	29.56	-25.47	55.03	19.50	-0.08	10.14	Average
2	0.17	41.66	-23.37	65.03	31.60	-0.08	10.14	QP
3	0.25	37.59	-24.23	61.82	27.50	-0.07	10.16	QP
4	0.25	25.49	-26.33	51.82	15.40	-0.07	10.16	Average
5	0.33	27.40	-22.00	49.40	17.30	-0.08	10.18	Average
6	0.33	34.20	-25.20	59.40	24.10	-0.08	10.18	QP
7	0.41	34.71	-22.88	57.59	24.60	-0.08	10.19	QP
8	0.41	29.51	-18.08	47.59	19.40	-0.08	10.19	Average
9	3.09	28.55	-17.45	46.00	18.30	-0.12	10.37	Average
10	3.09	33.55	-22.45	56.00	23.30	-0.12	10.37	QP
11	11.50	33.26	-26.74	60.00	22.89	-0.11	10.48	QP
12	11.50	29.06	-20.94	50.00	18.69	-0.11	10.48	Average

3.5 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

3.5.1 Limit of Unwanted Emissions

- (1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27dBm/MHz. For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/m); for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m).
- (2) Unwanted spurious emissions fallen in restricted bands per FCC Part 15.205 shall comply with the general field strength limits set forth in § 15.209 as below table,

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

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

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

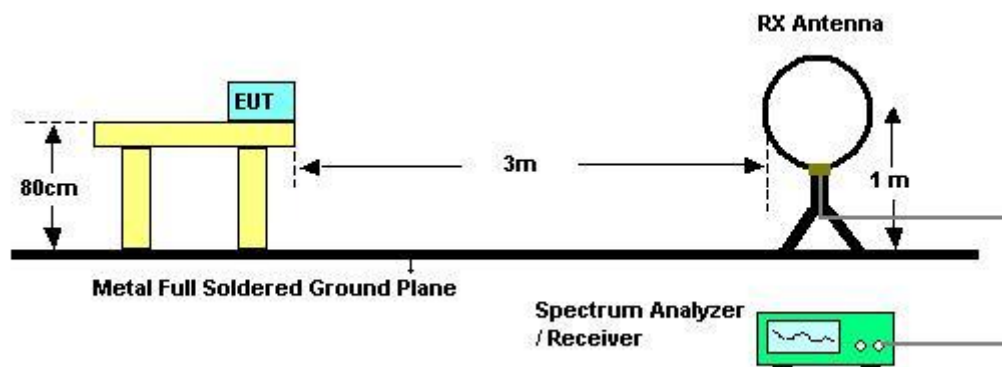
3.5.3 Test Procedures

1. The testing follows the guidelines in FCC KDB 789033 D01 General UNII Test Procedures v01.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 KHz
 - VBW = 300 KHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - The setting follows the G) 5) of FCC KDB 789033.
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold
 - (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - The setting follows G) 6) of FCC KDB 789033.
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.

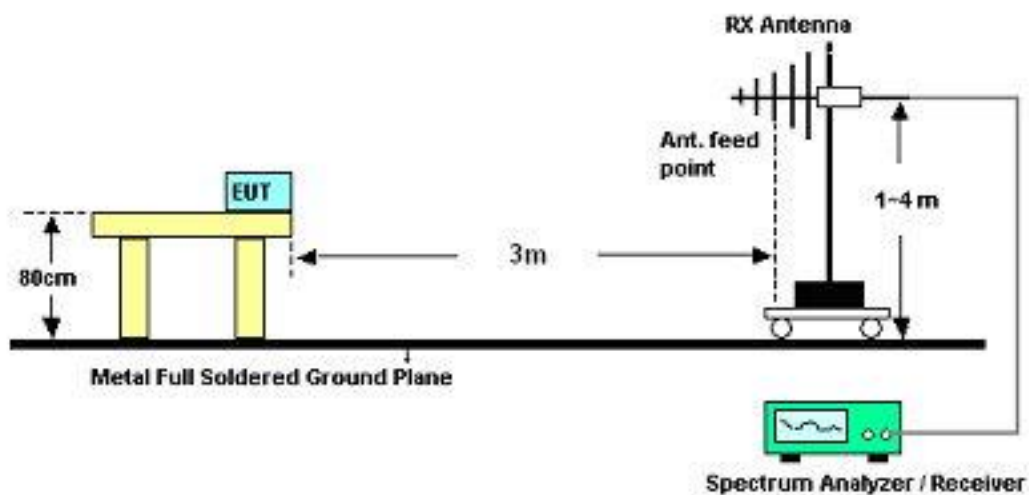
6. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
7. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.5.4 Test Setup

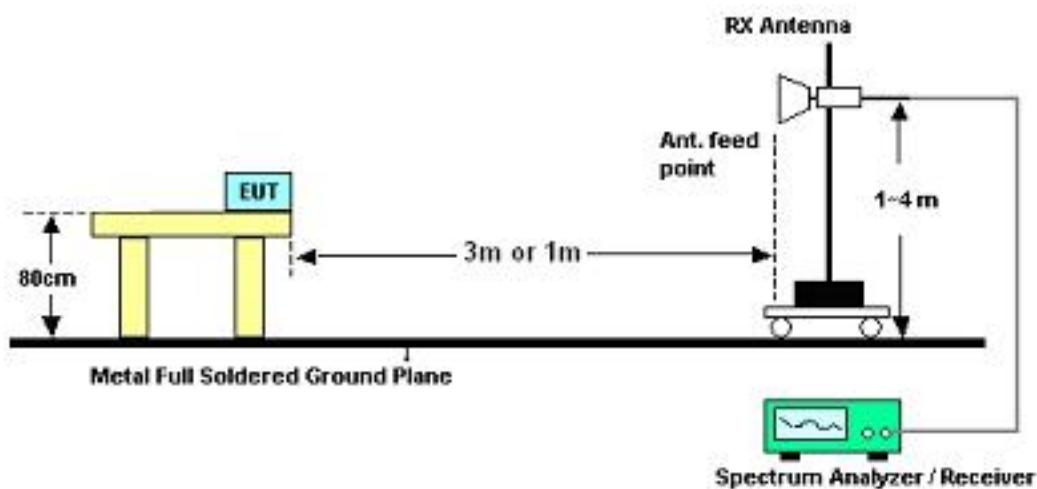
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Result

3.5.5.1 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	42~43%
Test Channel :	36	Test Engineer :	Jack Li

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
5150	51.03	-22.97	74	43.28	35.25	5.11	32.61	100	116	Peak
5150	39.21	-14.79	54	31.46	35.25	5.11	32.61	100	116	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	54.01	-19.99	74	46.09	35.2	5.01	32.29	100	12	Peak
5020	45.18	-8.82	54	37.26	35.2	5.01	32.29	100	12	Average

Test Mode :	Mode 3	Temperature :	22~23°C
Test Band :	802.11a	Relative Humidity :	42~43%
Test Channel :	44	Test Engineer :	Jack Li

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	55.43	-18.57	74	48.06	35.34	5.34	33.31	100	226	Peak
5380	48.04	-5.96	54	40.67	35.34	5.34	33.31	100	226	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	58.4	-15.6	74	51.03	35.34	5.34	33.31	100	258	Peak
5380	50.54	-3.46	54	43.17	35.34	5.34	33.31	100	258	Average



Test Mode :	Mode 7	Temperature :	22~23°C
Test Band :	802.11 n (BW 20MHz)	Relative Humidity :	42~43%
Test Channel :	36	Test Engineer :	Jack Li

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
5122	51.45	-22.55	74	43.66	35.23	5.08	32.52	100	183	Peak
5122	39.4	-14.6	54	31.61	35.23	5.08	32.52	100	183	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	56.66	-17.34	74	48.74	35.2	5.01	32.29	100	352	Peak
5020	49.53	-4.47	54	41.61	35.2	5.01	32.29	100	352	Average

Test Mode :	Mode 9	Temperature :	22~23°C
Test Band :	802.11 n (BW 20MHz)	Relative Humidity :	42~43%
Test Channel :	44	Test Engineer :	Jack Li

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	53.97	-20.03	74	46.6	35.34	5.34	33.31	102	134	Peak
5380	45.98	-8.02	54	38.61	35.34	5.34	33.31	102	134	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	58.9	-15.1	74	51.53	35.34	5.34	33.31	102	122	Peak
5380	49.94	-4.06	54	42.57	35.34	5.34	33.31	102	122	Average

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

Temperature	22~23°C	Humidity	42~43%
Test Engineer	Jack Li		

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.

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

Test Mode :	Mode 1	Temperature :	22~23°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
32.16	31.29	-8.71	40	44.59	16.55	0.24	30.09	-	-	Peak
257.07	24.71	-21.29	46	41.79	12.1	0.68	29.86	-	-	Peak
288.93	29.53	-16.47	46	45.93	12.84	0.71	29.95	-	-	Peak
384	28.85	-17.15	46	42.29	15.59	0.83	29.86	-	-	Peak
575.8	30.77	-15.23	46	40.83	18.55	1.04	29.65	-	-	Peak
824.3	37.71	-8.29	46	45.91	20.16	1.26	29.62	100	18	Peak
5150	51.03	-22.97	74	43.28	35.25	5.11	32.61	100	116	Peak
5150	39.21	-14.79	54	31.46	35.25	5.11	32.61	100	116	Average
5180	96.62	-	-	88.92	35.26	5.14	32.7	100	32	Peak
5180	83.49	-	-	75.79	35.26	5.14	32.7	100	32	Average
5250	49.6	-18.7	68.3	42.03	35.28	5.21	32.92	100	203	Peak
5364	43.51	-10.49	54	36.13	35.33	5.32	33.27	100	323	Average
5364	53.61	-20.39	74	46.23	35.33	5.32	33.27	100	323	Peak



Test Mode :	Mode 1	Temperature :	22~23°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
44.58	31.64	-8.36	40	51.9	9.6	0.27	30.13	102	351	Peak
52.14	29.85	-10.15	40	52.68	7.01	0.29	30.13	-	-	Peak
76.71	29.51	-10.49	40	53.15	6.06	0.35	30.05	-	-	Peak
575.8	30.42	-15.58	46	40.48	18.55	1.04	29.65	-	-	Peak
824.3	36.68	-9.32	46	44.88	20.16	1.26	29.62	-	-	Peak
937.7	26.05	-19.95	46	33.58	20.68	1.32	29.53	-	-	Peak
5020	54.01	-19.99	74	46.09	35.2	5.01	32.29	100	12	Peak
5020	45.18	-8.82	54	37.26	35.2	5.01	32.29	100	12	Average
5180	87.87	-	-	80.17	35.26	5.14	32.7	100	328	Average
5180	101.42	-	-	93.72	35.26	5.14	32.7	100	328	Peak
5250	51.54	-16.76	68.3	43.97	35.28	5.21	32.92	100	32	Peak
5350	52.2	-21.8	74	44.79	35.32	5.31	33.22	100	221	Peak
5350	43.03	-10.97	54	35.62	35.32	5.31	33.22	100	221	Average

Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	40	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.86	21.8	-21.7	43.5	42.79	8.61	0.39	29.99	-	-	Peak
190.65	34.56	-8.94	43.5	55.38	8.55	0.58	29.95	101	67	Peak
254.1	33.07	-12.93	46	50.19	12.06	0.67	29.85	-	-	Peak
476.4	23.9	-22.1	46	35.95	16.78	0.93	29.76	-	-	Peak
870.5	25.16	-20.84	46	32.97	20.49	1.29	29.59	-	-	Peak
936.3	28.55	-17.45	46	36.09	20.67	1.32	29.53	-	-	Peak
5150	39.37	-14.63	54	31.62	35.25	5.11	32.61	100	18	Average
5150	50.29	-23.71	74	42.54	35.25	5.11	32.61	100	18	Peak
5200	83.39	-	-	75.72	35.26	5.16	32.75	100	29	Average
5200	97.48	-	-	89.81	35.26	5.16	32.75	100	29	Peak
5250	49.92	-18.38	68.3	42.35	35.28	5.21	32.92	100	227	Peak
5360	51.39	-2.61	54	43.98	35.32	5.31	33.22	100	334	Average
5360	61.04	-12.96	74	53.63	35.32	5.31	33.22	100	334	Peak



Test Mode :	Mode 2	Temperature :	22~23°C
Test Channel :	40	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.05	29.22	-10.78	40	43.52	15.56	0.23	30.09	112	329	Peak
144.75	24.37	-19.13	43.5	43.41	10.45	0.5	29.99	-	-	Peak
190.38	26.74	-16.76	43.5	47.6	8.5	0.58	29.94	-	-	Peak
444.9	27.37	-18.63	46	39.98	16.28	0.9	29.79	-	-	Peak
476.4	23.86	-22.14	46	35.91	16.78	0.93	29.76	-	-	Peak
942.6	28.4	-25.6	54	35.9	20.7	1.33	29.53	-	-	Peak
5150	51	-23	74	43.25	35.25	5.11	32.61	100	220	Peak
5150	41.37	-12.63	54	33.62	35.25	5.11	32.61	100	220	Average
5200	89.25	-	-	81.58	35.26	5.16	32.75	100	221	Average
5200	102.33	-	-	94.66	35.26	5.16	32.75	100	221	Peak
5250	51.77	-16.53	68.3	44.2	35.28	5.21	32.92	100	306	Peak
5360	52.67	-1.33	54	45.26	35.32	5.31	33.22	100	182	Average
5360	59.66	-14.34	74	52.25	35.32	5.31	33.22	100	182	Peak



Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.27	24.02	-15.98	40	35.84	18	0.26	30.08	121	135	Peak
190.65	26.83	-16.67	43.5	47.65	8.55	0.58	29.95	-	-	Peak
254.37	26.23	-19.77	46	43.35	12.06	0.67	29.85	-	-	Peak
444.9	22.62	-23.38	46	35.23	16.28	0.9	29.79	-	-	Peak
871.2	25.53	-20.47	46	33.34	20.49	1.29	29.59	-	-	Peak
936.3	28.39	-17.61	46	35.93	20.67	1.32	29.53	-	-	Peak
5150	39.87	-14.13	54	32.12	35.25	5.11	32.61	100	101	Average
5150	50.37	-23.63	74	42.62	35.25	5.11	32.61	100	101	Peak
5220	82.92	-	-	75.28	35.27	5.17	32.8	100	102	Average
5220	96.65	-	-	89.01	35.27	5.17	32.8	100	102	Peak
5250	50.27	-18.03	68.3	42.7	35.28	5.21	32.92	100	256	Peak
5380	55.43	-18.57	74	48.06	35.34	5.34	33.31	100	226	Peak
5380	48.04	-5.96	54	40.67	35.34	5.34	33.31	100	226	Average



Test Mode :	Mode 3	Temperature :	22~23°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.86	27.67	-12.33	40	42.43	15.1	0.23	30.09	120	0	Peak
88.86	22.35	-21.15	43.5	43.34	8.61	0.39	29.99	-	-	Peak
190.65	23.59	-19.91	43.5	44.41	8.55	0.58	29.95	-	-	Peak
476.4	23.93	-22.07	46	35.98	16.78	0.93	29.76	-	-	Peak
871.2	24.53	-21.47	46	32.34	20.49	1.29	29.59	-	-	Peak
944.7	28.24	-25.76	54	35.74	20.71	1.33	29.54	-	-	Peak
5060	54.44	-19.56	74	46.57	35.22	5.05	32.4	100	122	Peak
5060	46.53	-7.47	54	38.66	35.22	5.05	32.4	100	122	Average
5220	87.29	-	-	79.65	35.27	5.17	32.8	100	226	Average
5220	101.56	-	-	93.92	35.27	5.17	32.8	100	226	Peak
5250	51.76	-16.54	68.3	44.19	35.28	5.21	32.92	100	214	Peak
5380	58.4	-15.6	74	51.03	35.34	5.34	33.31	100	258	Peak
5380	50.54	-3.46	54	43.17	35.34	5.34	33.31	100	258	Average

Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.27	23.5	-16.5	40	35.32	18	0.26	30.08	114	167	Peak
190.65	24.55	-18.95	43.5	45.37	8.55	0.58	29.95	-	-	Peak
254.37	25.14	-20.86	46	42.26	12.06	0.67	29.85	-	-	Peak
444.9	24.86	-21.14	46	37.47	16.28	0.9	29.79	-	-	Peak
872.6	26.41	-19.59	46	34.22	20.48	1.29	29.58	-	-	Peak
936.3	27.95	-18.05	46	35.49	20.67	1.32	29.53	-	-	Peak
5725	49.37	-18.93	68.3	41.85	35.52	5.55	33.55	100	18	Peak
5745	89.06	-	-	81.56	35.52	5.56	33.58	100	102	Peak
5745	75.09	-	-	67.59	35.52	5.56	33.58	100	102	Average
5825	47.1	-21.2	68.3	39.66	35.55	5.63	33.74	100	182	Peak



Test Mode :	Mode 4	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.05	26.41	-13.59	40	40.71	15.56	0.23	30.09	135	249	Peak
143.94	23.45	-20.05	43.5	42.39	10.55	0.5	29.99	-	-	Peak
190.65	26.06	-17.44	43.5	46.88	8.55	0.58	29.95	-	-	Peak
476.4	24.56	-21.44	46	36.61	16.78	0.93	29.76	-	-	Peak
871.2	26.01	-19.99	46	33.82	20.49	1.29	29.59	-	-	Peak
949.6	27.88	-26.12	54	35.36	20.73	1.33	29.54	-	-	Peak
5725	48.23	-20.07	68.3	40.61	35.52	5.55	33.55	100	0	Peak
5745	77.79	-	-	70.29	35.52	5.56	33.58	196	0	Average
5745	90.82	-	-	83.32	35.52	5.56	33.58	196	0	Peak
5825	48.1	-20.2	68.3	40.66	35.55	5.63	33.74	100	0	Peak



Test Mode :	Mode 5	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.54	23.94	-16.06	40	36.48	17.29	0.25	30.08	103	348	Peak
190.65	26.22	-17.28	43.5	47.04	8.55	0.58	29.95	-	-	Peak
254.1	26.76	-19.24	46	43.88	12.06	0.67	29.85	-	-	Peak
444.9	23.36	-22.64	46	35.97	16.28	0.9	29.79	-	-	Peak
873.3	26.41	-19.59	46	34.22	20.48	1.29	29.58	-	-	Peak
936.3	27.92	-18.08	46	35.46	20.67	1.32	29.53	-	-	Peak
5725	47.77	-20.53	68.3	40.25	35.52	5.55	33.55	100	203	Peak
5785	87.49	-	-	80.01	35.53	5.59	33.64	100	0	Peak
5785	74.3	-	-	66.82	35.53	5.59	33.64	100	0	Average
5825	48.04	-20.26	68.3	40.6	35.55	5.63	33.74	100	187	Peak



Test Mode :	Mode 5	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
35.13	24.86	-15.14	40	39.62	15.1	0.23	30.09	167	329	Peak
144.75	22.82	-20.68	43.5	41.86	10.45	0.5	29.99	-	-	Peak
190.65	25.57	-17.93	43.5	46.39	8.55	0.58	29.95	-	-	Peak
444.9	25.27	-20.73	46	37.88	16.28	0.9	29.79	-	-	Peak
871.2	25.53	-20.47	46	33.34	20.49	1.29	29.59	-	-	Peak
941.9	27.99	-26.01	54	35.49	20.7	1.33	29.53	-	-	Peak
5725	47.62	-20.68	68.3	40.1	35.52	5.55	33.55	100	145	Peak
5785	89.89	-	-	82.41	35.53	5.59	33.64	100	117	Peak
5785	75.69	-	-	68.21	35.53	5.59	33.64	100	117	Average
5825	46.31	-21.99	68.3	38.87	35.55	5.63	33.74	100	263	Peak



Test Mode :	Mode 6	Temperature :	22~23°C
Test Channel :	161	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.86	19.8	-23.7	43.5	40.79	8.61	0.39	29.99	-	-	Peak
190.38	26.76	-16.74	43.5	47.62	8.5	0.58	29.94	100	0	Peak
254.1	24.07	-21.93	46	41.19	12.06	0.67	29.85	-	-	Peak
476.4	23.9	-22.1	46	35.95	16.78	0.93	29.76	-	-	Peak
870.5	25.16	-20.84	46	32.97	20.49	1.29	29.59	-	-	Peak
944.7	29.97	-24.03	54	37.47	20.71	1.33	29.54	-	-	Peak
5725	47.46	-20.84	68.3	39.94	35.52	5.55	33.55	100	181	Peak
5805	87.38	-	-	79.92	35.55	5.62	33.71	150	0	Peak
5805	74.3	-	-	66.84	35.55	5.62	33.71	150	0	Average
5825	47.44	-20.86	68.3	40	35.55	5.63	33.74	128	221	Peak



Test Mode :	Mode 6	Temperature :	22~23°C
Test Channel :	161	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.32	27.41	-12.59	40	41.71	15.56	0.23	30.09	100	0	Peak
88.86	22.06	-21.44	43.5	43.05	8.61	0.39	29.99	-	-	Peak
190.38	24.74	-18.76	43.5	45.6	8.5	0.58	29.94	-	-	Peak
476.4	23.86	-22.14	46	35.91	16.78	0.93	29.76	-	-	Peak
871.2	26.39	-19.61	46	34.2	20.49	1.29	29.59	-	-	Peak
944.7	30.76	-23.24	54	38.26	20.71	1.33	29.54	-	-	Peak
5725	47.69	-26.41	68.3	40.17	35.52	5.55	33.55	100	0	Peak
5805	86.93	-	-	79.47	35.55	5.62	33.71	129	306	Peak
5805	72.81	-	-	65.35	35.55	5.62	33.71	129	306	Average
5825	47.54	-26.56	68.3	40.1	35.55	5.63	33.74	100	0	Peak



Test Mode :	Mode 7	Temperature :	22~23°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.81	20.64	-19.36	40	33.18	17.29	0.25	30.08	-	-	Peak
88.86	19.52	-23.98	43.5	40.51	8.61	0.39	29.99	-	-	Peak
190.65	26.56	-16.94	43.5	47.38	8.55	0.58	29.95	100	0	Peak
476.4	23.65	-22.35	46	35.7	16.78	0.93	29.76	-	-	Peak
872.6	25.43	-20.57	46	33.24	20.48	1.29	29.58	-	-	Peak
944.7	30.72	-23.28	54	38.22	20.71	1.33	29.54	-	-	Peak
5122	39.4	-14.6	54	31.61	35.23	5.08	32.52	100	183	Average
5122	51.45	-22.55	74	43.66	35.23	5.08	32.52	100	183	Peak
5180	81.6	-	-	73.9	35.26	5.14	32.7	100	287	Average
5180	96.55	-	-	88.85	35.26	5.14	32.7	100	287	Peak
5250	49.84	-18.46	68.3	42.27	35.28	5.21	32.92	100	117	Peak
5350	41.13	-12.87	54	33.72	35.32	5.31	33.22	100	328	Average
5350	52.91	-21.09	74	45.5	35.32	5.31	33.22	100	328	Peak

Test Mode :	Mode 7	Temperature :	22~23°C
Test Channel :	36	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
35.13	26.93	-13.07	40	41.69	15.1	0.23	30.09	100	0	Peak
143.67	21.59	-21.91	43.5	40.53	10.55	0.5	29.99	-	-	Peak
190.65	24.81	-18.69	43.5	45.63	8.55	0.58	29.95	-	-	Peak
476.4	24.38	-21.62	46	36.43	16.78	0.93	29.76	-	-	Peak
873.3	26.27	-19.73	46	34.08	20.48	1.29	29.58	-	-	Peak
944.7	30.27	-23.73	54	37.77	20.71	1.33	29.54	-	-	Peak
5020	49.53	-4.47	54	41.61	35.2	5.01	32.29	100	352	Average
5020	56.66	-17.34	74	48.74	35.2	5.01	32.29	100	352	Peak
5180	87.56	-	-	79.86	35.26	5.14	32.7	100	183	Average
5180	101.06	-	-	93.36	35.26	5.14	32.7	100	183	Peak
5250	52.49	-15.81	68.3	44.92	35.28	5.21	32.92	100	248	Peak
5360	44.39	-9.61	54	36.98	35.32	5.31	33.22	100	98	Average
5360	54.77	-19.23	74	47.36	35.32	5.31	33.22	100	98	Peak

Test Mode :	Mode 8	Temperature :	22~23°C
Test Channel :	40	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.27	21.5	-18.5	40	33.32	18	0.26	30.08	-	-	Peak
222.51	27.69	-18.31	46	46.79	10.25	0.62	29.97	100	0	Peak
254.37	24.14	-21.86	46	41.26	12.06	0.67	29.85	-	-	Peak
317.5	21.68	-24.32	46	37.43	13.45	0.75	29.95	-	-	Peak
508.6	26.56	-19.44	46	37.96	17.36	0.96	29.72	-	-	Peak
871.2	25.55	-20.45	46	33.36	20.49	1.29	29.59	-	-	Peak
5086	54.35	-19.65	74	46.51	35.22	5.06	32.44	121	169	Peak
5086	42.21	-11.79	54	34.37	35.22	5.06	32.44	121	169	Average
5200	80.72	-	-	73.05	35.26	5.16	32.75	115	191	Average
5200	95.21	-	-	87.54	35.26	5.16	32.75	115	191	Peak
5250	52.45	-15.85	68.3	44.88	35.28	5.21	32.92	100	270	Peak
5360	59.66	-14.34	74	52.25	35.32	5.31	33.22	200	112	Peak
5360	48.84	-5.16	54	41.43	35.32	5.31	33.22	200	112	Average

Test Mode :	Mode 8	Temperature :	22~23°C
Test Channel :	40	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
33.78	29.21	-10.79	40	43.51	15.56	0.23	30.09	100	0	Peak
143.13	23.87	-19.63	43.5	42.81	10.55	0.5	29.99	-	-	Peak
238.98	17	-29	46	34.71	11.46	0.66	29.83	-	-	Peak
508.6	28.54	-17.46	46	39.94	17.36	0.96	29.72	-	-	Peak
745.2	22.16	-23.84	46	30.67	19.86	1.18	29.55	-	-	Peak
936.3	28.06	-17.94	46	35.6	20.67	1.32	29.53	-	-	Peak
5054	45.15	-8.85	54	37.27	35.21	5.03	32.36	108	279	Average
5054	54.61	-19.39	74	46.73	35.21	5.03	32.36	108	279	Peak
5200	86.52	-	-	78.85	35.26	5.16	32.75	114	167	Average
5200	104.65	-	-	96.98	35.26	5.16	32.75	114	167	Peak
5250	53.16	-15.14	68.3	45.59	35.28	5.21	32.92	110	203	Peak
5360	58.22	-15.78	74	50.81	35.32	5.31	33.22	102	134	Peak
5360	46.2	-7.8	54	38.79	35.32	5.31	33.22	102	134	Average

Test Mode :	Mode 9	Temperature :	22~23°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
31.62	19.96	-20.04	40	33.26	16.55	0.24	30.09	-	-	Peak
222.51	21.8	-24.2	46	40.9	10.25	0.62	29.97	-	-	Peak
254.1	31.07	-14.93	46	48.19	12.06	0.67	29.85	100	0	Peak
444.2	26.49	-19.51	46	39.12	16.27	0.89	29.79	-	-	Peak
771.1	22.8	-23.2	46	31.27	19.88	1.21	29.56	-	-	Peak
944.7	30.97	-23.03	54	38.47	20.71	1.33	29.54	-	-	Peak
5118	54.15	-19.85	74	46.36	35.23	5.08	32.52	111	89	Peak
5118	45.59	-8.41	54	37.8	35.23	5.08	32.52	111	89	Average
5220	79.92	-	-	72.28	35.27	5.17	32.8	125	189	Average
5220	96.18	-	-	88.54	35.27	5.17	32.8	125	189	Peak
5250	52.37	-15.93	68.3	44.8	35.28	5.21	32.92	100	108	Peak
5380	53.97	-20.03	74	46.6	35.34	5.34	33.31	102	134	Peak
5380	45.98	-8.02	54	38.61	35.34	5.34	33.31	102	134	Average



Test Mode :	Mode 9	Temperature :	22~23°C
Test Channel :	44	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.05	29.22	-10.78	40	43.52	15.56	0.23	30.09	100	0	Peak
144.75	21.37	-22.13	43.5	40.41	10.45	0.5	29.99	-	-	Peak
190.38	25.74	-17.76	43.5	46.6	8.5	0.58	29.94	-	-	Peak
444.9	27.37	-18.63	46	39.98	16.28	0.9	29.79	-	-	Peak
816.6	28.09	-17.91	46	36.41	20.03	1.26	29.61	-	-	Peak
944.7	31.76	-22.24	54	39.26	20.71	1.33	29.54	-	-	Peak
5006	46.04	-7.96	54	38.12	35.2	5.01	32.29	136	158	Average
5006	54.56	-19.44	74	46.64	35.2	5.01	32.29	136	158	Peak
5220	87.42	-	-	79.78	35.27	5.17	32.8	110	190	Average
5220	101.92	-	-	94.28	35.27	5.17	32.8	110	190	Peak
5250	55.42	-12.88	68.3	47.85	35.28	5.21	32.92	152	201	Peak
5380	49.94	-4.06	54	42.57	35.34	5.34	33.31	102	122	Average
5380	58.9	-15.1	74	51.53	35.34	5.34	33.31	102	122	Peak



Test Mode :	Mode 10	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
30.54	21.94	-18.06	40	34.48	17.29	0.25	30.08	-	-	Peak
88.86	20.22	-23.28	43.5	41.21	8.61	0.39	29.99	-	-	Peak
190.65	27.22	-16.28	43.5	48.04	8.55	0.58	29.95	100	0	Peak
476.4	22.46	-23.54	46	34.51	16.78	0.93	29.76	-	-	Peak
871.2	25.38	-20.62	46	33.19	20.49	1.29	29.59	-	-	Peak
944.7	29.95	-24.05	54	37.45	20.71	1.33	29.54	-	-	Peak
5725	51.74	-16.56	68.3	44.12	35.52	5.55	33.55	100	203	Peak
5745	89.69	-	-	82.19	35.52	5.56	33.58	116	167	Peak
5745	74.67	-	-	67.17	35.52	5.56	33.58	116	167	Average
5825	50.73	-17.57	68.3	43.29	35.55	5.63	33.74	100	206	Peak



Test Mode :	Mode 10	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.05	26.02	-13.98	40	40.32	15.56	0.23	30.09	100	0	Peak
143.67	21.17	-22.33	43.5	40.11	10.55	0.5	29.99	-	-	Peak
190.65	24.57	-18.93	43.5	45.39	8.55	0.58	29.95	-	-	Peak
476.4	24.06	-21.94	46	36.11	16.78	0.93	29.76	-	-	Peak
871.2	25.53	-20.47	46	33.34	20.49	1.29	29.59	-	-	Peak
944.7	28.56	-25.44	54	36.06	20.71	1.33	29.54	-	-	Peak
5725	48.2	-20.1	68.3	40.68	35.52	5.55	33.55	100	203	Peak
5745	91.32	-	-	83.82	35.52	5.56	33.58	182	358	Peak
5745	77.69	-	-	70.19	35.52	5.56	33.58	182	358	Average
5825	46.84	-21.46	68.3	39.4	35.55	5.63	33.74	200	301	Peak



Test Mode :	Mode 11	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
88.86	18.97	-24.53	43.5	39.96	8.61	0.39	29.99	-	-	Peak
190.65	26.55	-16.95	43.5	47.37	8.55	0.58	29.95	100	0	Peak
254.37	24.14	-21.86	46	41.26	12.06	0.67	29.85	-	-	Peak
476.4	23.17	-22.83	46	35.22	16.78	0.93	29.76	-	-	Peak
871.2	25.55	-20.45	46	33.36	20.49	1.29	29.59	-	-	Peak
944.7	27.97	-26.03	54	35.47	20.71	1.33	29.54	-	-	Peak
5725	47.55	-20.75	68.3	40.03	35.52	5.55	33.55	100	308	Peak
5785	86.4	-	-	78.92	35.53	5.59	33.64	199	143	Peak
5785	73.48	-	-	66	35.53	5.59	33.64	199	143	Average
5825	46.74	-21.56	68.3	39.3	35.55	5.63	33.74	141	211	Peak



Test Mode :	Mode 11	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.86	26.8	-13.2	40	41.56	15.1	0.23	30.09	100	0	Peak
144.75	22.16	-21.34	43.5	41.2	10.45	0.5	29.99	-	-	Peak
190.65	25.06	-18.44	43.5	45.88	8.55	0.58	29.95	-	-	Peak
476.4	24.56	-21.44	46	36.61	16.78	0.93	29.76	-	-	Peak
872.6	25.68	-20.32	46	33.49	20.48	1.29	29.58	-	-	Peak
944.7	28.22	-25.78	54	35.72	20.71	1.33	29.54	-	-	Peak
5725	46.93	-21.37	68.3	39.41	35.52	5.55	33.55	170	200	Peak
5785	89.04	-	-	81.56	35.53	5.59	33.64	200	58	Peak
5785	77.85	-	-	70.37	35.53	5.59	33.64	200	58	Average
5825	46.43	-21.87	68.3	38.99	35.55	5.63	33.74	131	228	Peak



Test Mode :	Mode 12	Temperature :	22~23°C
Test Channel :	161	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
31.62	19.77	-20.23	40	33.07	16.55	0.24	30.09	-	-	Peak
190.65	26.83	-16.67	43.5	47.65	8.55	0.58	29.95	-	-	Peak
254.37	24.23	-21.77	46	41.35	12.06	0.67	29.85	-	-	Peak
444.9	22.62	-23.38	46	35.23	16.28	0.9	29.79	-	-	Peak
572.3	22.62	-23.38	46	32.71	18.54	1.03	29.66	-	-	Peak
915.3	30.73	-15.27	46	38.39	20.53	1.31	29.5	100	0	Peak
5725	47.48	-20.82	68.3	39.96	35.52	5.55	33.55	100	182	Peak
5805	86.17	-	-	78.71	35.55	5.62	33.71	198	207	Peak
5805	73.68	-	-	66.22	35.55	5.62	33.71	198	207	Average
5825	47.52	-20.78	68.3	40.08	35.55	5.63	33.74	100	0	Peak



Test Mode :	Mode 12	Temperature :	22~23°C
Test Channel :	161	Relative Humidity :	42~43%
Test Engineer :	Jack Li	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
34.86	26.67	-13.33	40	41.43	15.1	0.23	30.09	100	0	Peak
143.67	21.54	-21.96	43.5	40.48	10.55	0.5	29.99	-	-	Peak
190.65	24.59	-18.91	43.5	45.41	8.55	0.58	29.95	-	-	Peak
476.4	23.93	-22.07	46	35.98	16.78	0.93	29.76	-	-	Peak
871.2	24.53	-21.47	46	32.34	20.49	1.29	29.59	-	-	Peak
944.7	28.24	-25.76	54	35.74	20.71	1.33	29.54	-	-	Peak
5725	47.7	-20.6	68.3	40.18	35.52	5.55	33.55	100	123	Peak
5805	90.63	-	-	83.17	35.55	5.62	33.71	158	29	Peak
5805	76.14	-	-	68.68	35.55	5.62	33.71	158	29	Average
5825	47.92	-20.38	68.3	40.48	35.55	5.63	33.74	100	152	Peak

3.6 Peak Excursion Ratio Measurement

3.6.1 Limit of Peak Excursion Ratio

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

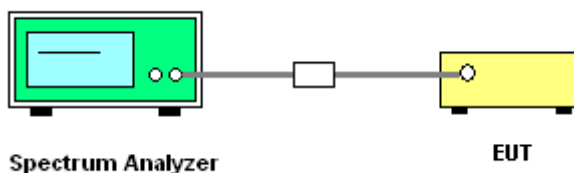
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

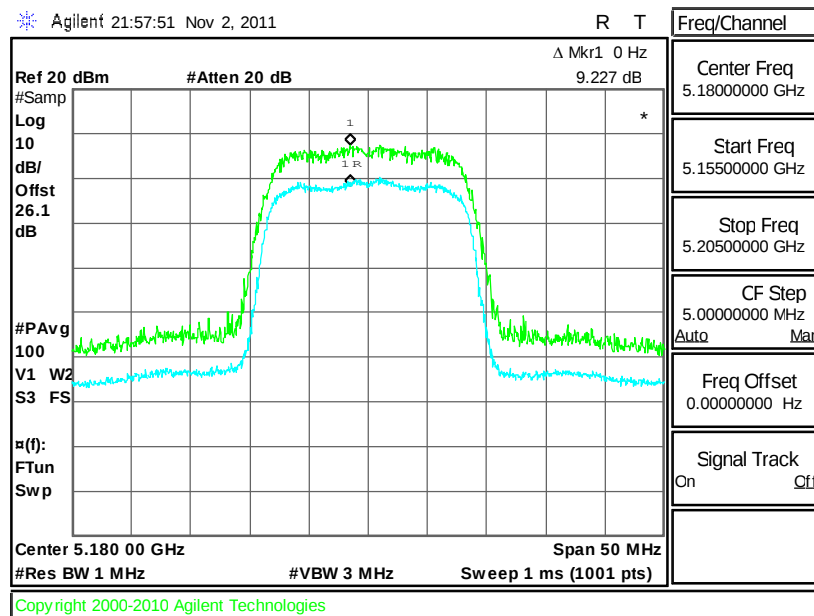
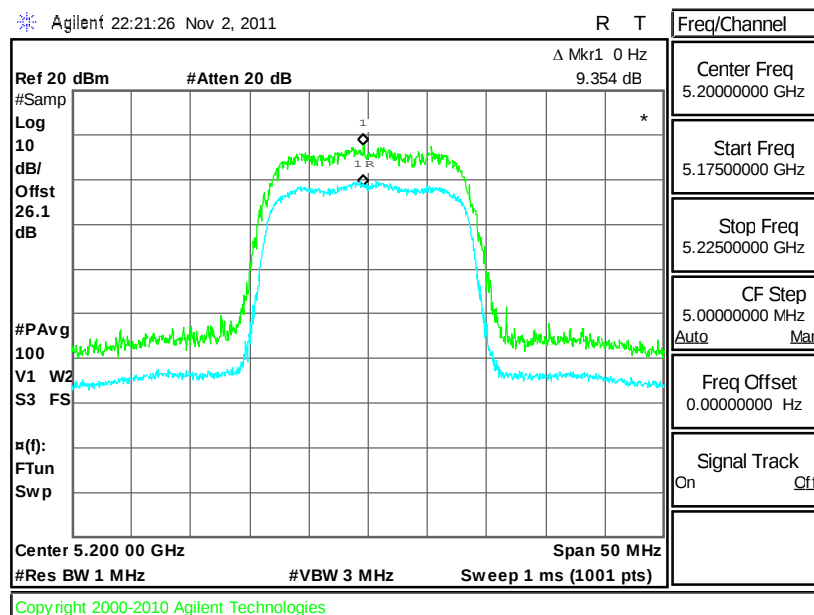
1. The transmitter output is connected to the spectrum analyzer.
2. Set the spectrum analyzer span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
 - * Set RBW = 1 MHz.
 - *Set VBW $\leq$ 3 MHz.
 - *Detector = peak.
 - *Trace mode = max-hold.
 - *Allow the sweeps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

3.6.4 Test Setup



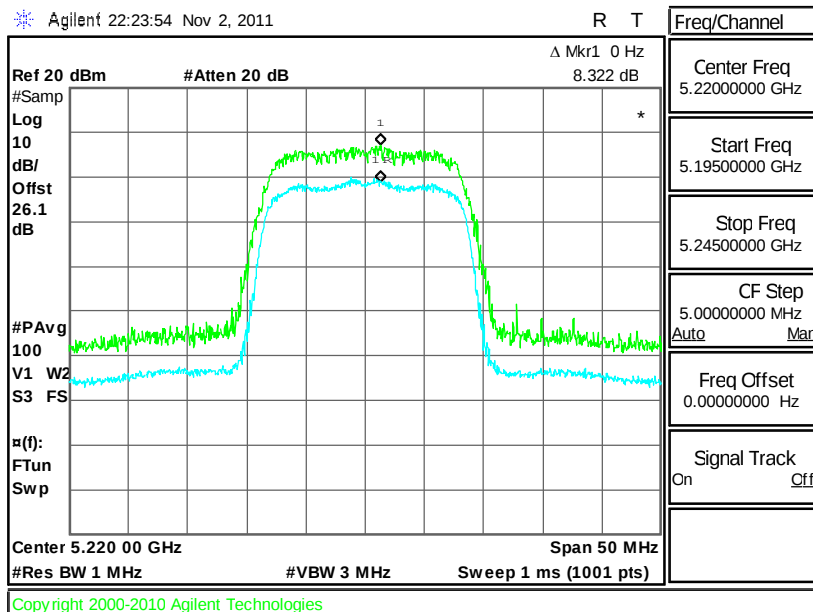
3.6.5 Test Result of Peak Excursion Ratio

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

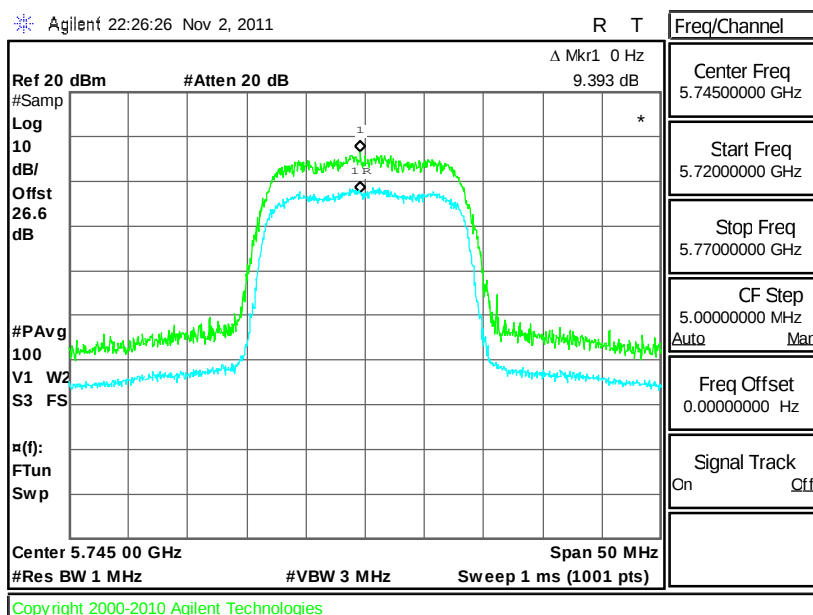
Peak Excursion Ratio Plot on 802.11a Channel 36

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

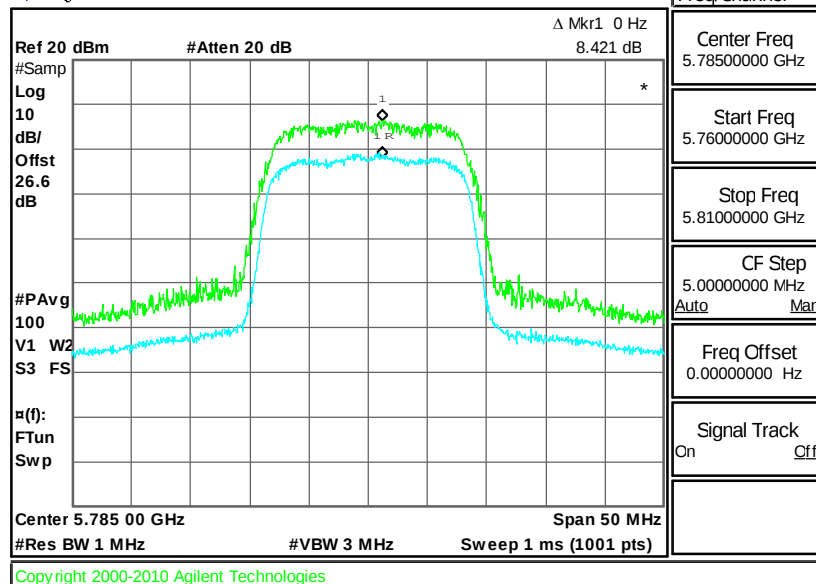




Peak Excursion Ratio Plot on 802.11a Channel 157

Agilent 22:29:11 Nov 2, 2011

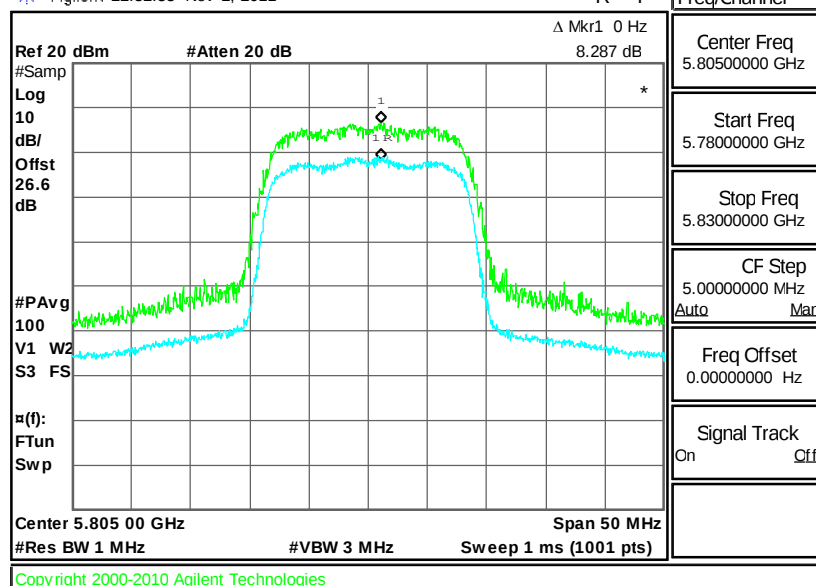
R T



Peak Excursion Ratio Plot on 802.11a Channel 161

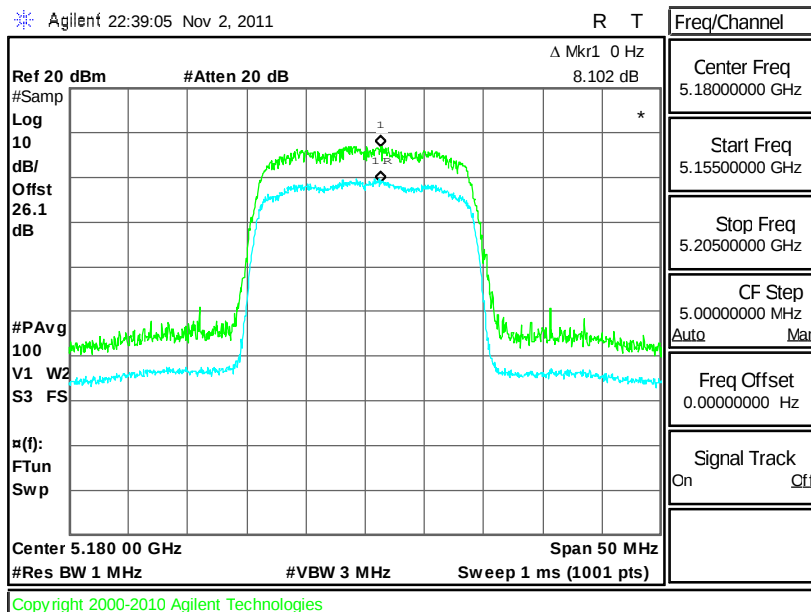
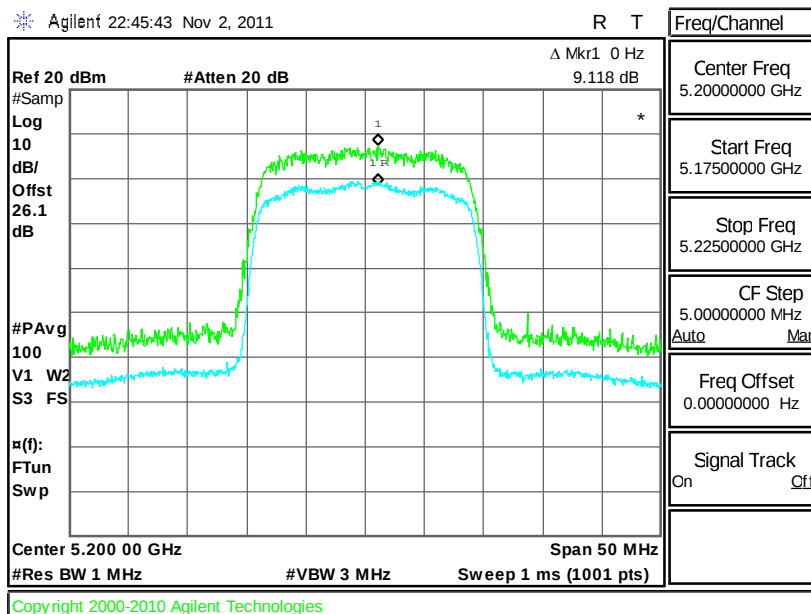
Agilent 22:32:33 Nov 2, 2011

R T



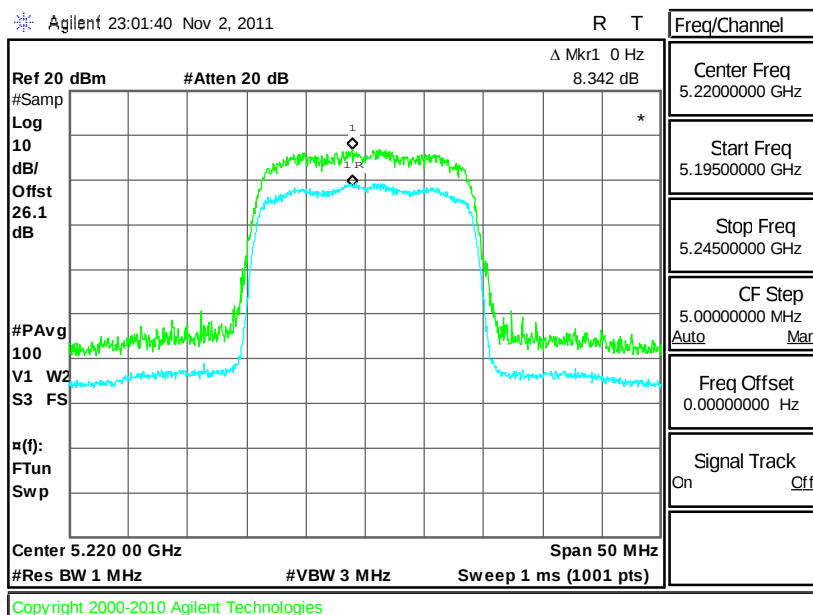


Test Mode :	Mode 7~12	Temperature :	24~26°C
Test Engineer :	Book Lin	Relative Humidity :	45~49%

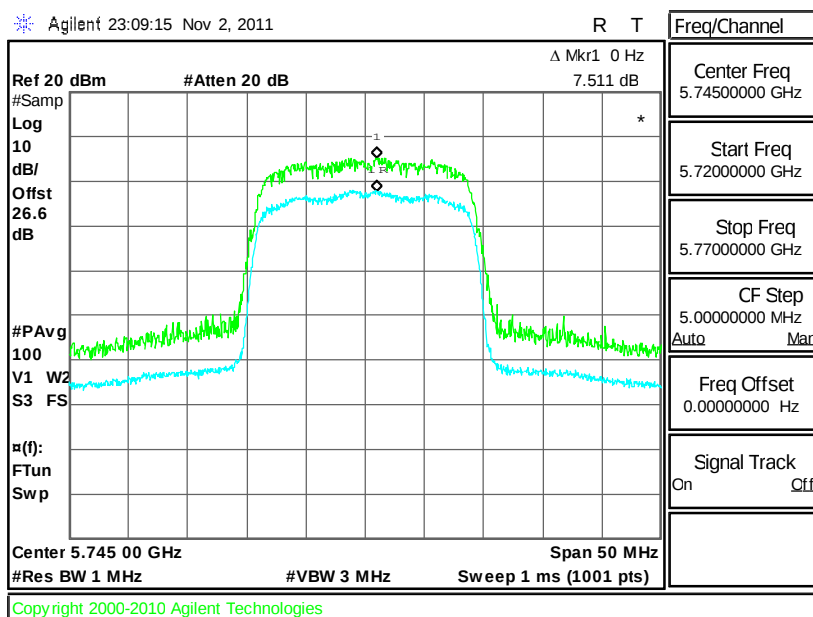
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 36**Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 40**



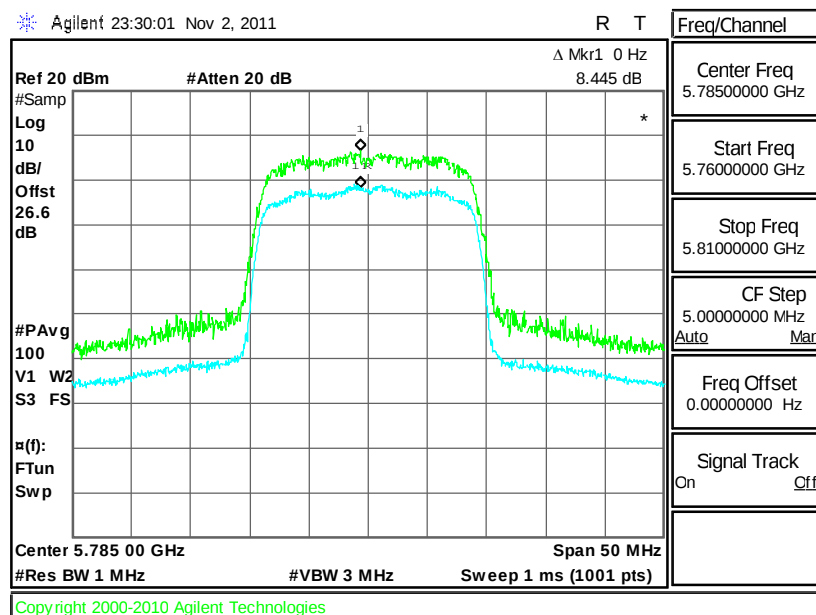
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 44



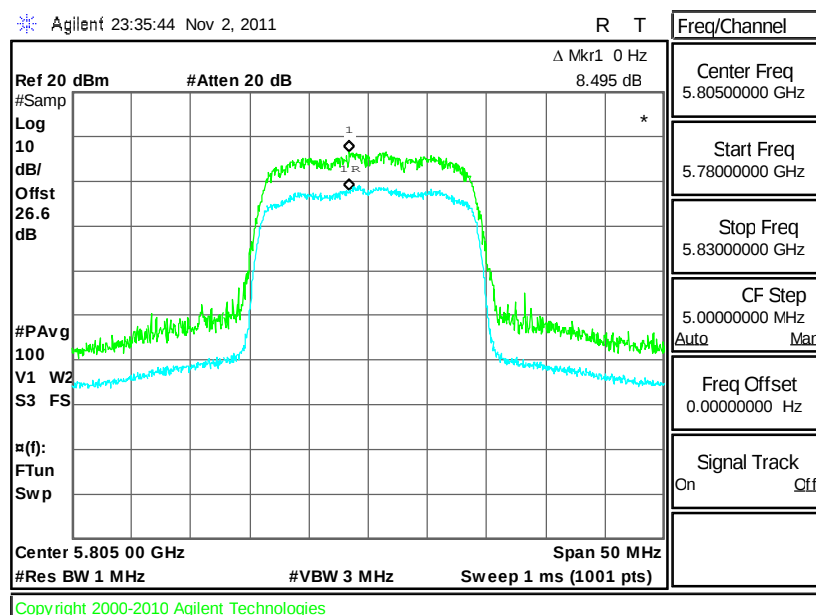
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 149



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



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



3.7 Automatically Discontinue Transmission

3.7.1 Limit of Automatically Discontinue Transmission

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

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Result of Automatically Discontinue Transmission

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

3.8 Frequency Stability Measurement

3.8.1 Limit of Frequency Stability

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

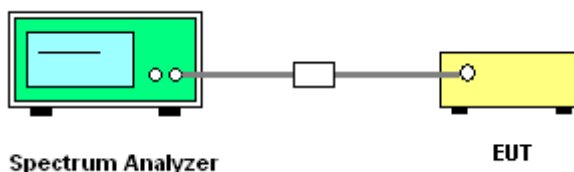
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

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

3.8.4 Test Setup



3.8.5 Test Result of Frequency Stability

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

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.725	5188.275	0.00
40	5200	5191.725	5208.275	0.00
44	5220	5211.725	5228.275	0.00
149	5745	5736.725	5753.275	0.00
157	5785	5776.725	5793.275	0.00
161	5805	5796.750	5813.275	2.15

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

Channel	Frequency (MHz)	Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.125	5188.875	0.00
40	5200	5191.175	5208.850	2.40
44	5220	5211.125	5228.875	0.00
149	5745	5736.125	5753.900	2.18
157	5785	5776.125	5793.900	2.16
161	5805	5796.175	5813.875	4.31

3.9 Antenna Requirements

3.9.1 Standard Applicable

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

3.9.2 Antenna Connected Construction

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

3.9.3 Antenna Gain

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

4 List of Measuring Equipment

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. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Sep. 17, 2012	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)
EMI Test Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 02, 2011	Jun. 01, 2012	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	ABP0000008 11	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)
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Jun. 02, 2011	Jun. 01, 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	060029	9KHz~2GHz	Jan. 10, 2011	Jan. 09, 2012	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)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15-40GHz	Oct. 11, 2011	Oct. 10, 2012	Radiation (03CH01-KS)

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				