

FCC RF Test Report

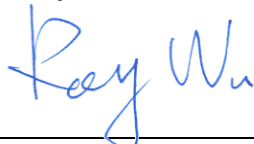
APPLICANT : Getac Technology Corporation
EQUIPMENT : Notebook PC
BRAND NAME : Getac
MODEL NAME : B300
FCC ID : QYL3X03
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : Unlicensed National Information Infrastructure (UNII)

The product was integrated the WLAN Module (Brand Name: Intel / Model Name: 633ANHMW, FCC ID: PD9633ANH) during the test.

The product was received on Feb. 15, 2011 and completely tested on Feb. 25, 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:



Roy Wu / 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.

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FCC ID : QYL3X03

Page Number : 1 of 156

Report Issued Date : Mar. 04, 2011

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR052506-04B	Rev. 01	Initial issue of report	Mar. 04, 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 3.7 dB at 23.99 MHz
3.7	15.407(b)	A9.3	Transmitter Radiated Emission	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 1.03 dB at 5150 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

Getac Technology Corporation

5F., Building A, No. 209, Sec.1, Nangang Rd., Nangang Dist., Taipei City 11568, Taiwan, R.O.C.

1.2 Manufacturer

GeTAC Technology(Kunshan) LTD.

No. 269, 2nd Road, Export Processing Zone, Changjiang South Road, Kunshan, Jiangsu, P.R.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Notebook PC
Brand Name	Getac
Model Name	B300
FCC ID	QYL3X03
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz
Maximum Output Power to Antenna	802.11a : 16.33 dBm / 0.04 W 802.11n (BW 20MHz) : 16.28 dBm / 0.04 W 802.11n (BW 40MHz) : 16.64 dBm / 0.05 W
Antenna Type	PIFA Antenna with gain -0.30 dBi
HW Version	ROA
SW Version	RO.05.070520
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.		FCC/IC Registration No.
	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart E
- ♦ FCC 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 (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	LCD Monitor	Acer	H223HQ	FCC DoC	N/A	Unshielded, 1.8 m
5.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	(RS-232) Mouse	State	MS-303	FCC DoC	Shielded, 1.3 m	N/A
9.	Modem	ACCEX	DM1414	IFAXDM1414	Shielded, 1.5 m	N/A
10.	Exchange	Sun Moon Star	SMS-4 PLUS	95180108	Shielded, 1.6 m	N/A
11.	Earphone	Ergotech	ET-E200	FCC DoC	Unshielded, 1.8 m	N/A
12.	Earphone	Kolin	Kit-7460E	FCC DoC	Unshielded, 1.6 m	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

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

802.11n (BW 40MHz) Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
38	5190	46	5230	54	5270	62	5310
102	5510	110	5550	118	5590	134	5670



2.2 RF Power

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

Channel	Frequency (MHz)	802.11a RF Power (dBm)		802.11n (BW 20MHz) RF Power (dBm)	
		Data Rate: 6Mbps		Data Rate: HT0	
		Chain C		Chain C	
CH 36	5180 MHz	15.24	14.99		
CH 48	5240 MHz	15.12	14.97		
CH 52	5260 MHz	16.17	16.28		
CH 64	5320 MHz	16.24	16.00		
CH 100	5500 MHz	16.27	16.21		
CH 116	5580 MHz	16.33	16.05		
CH 140	5700 MHz	16.02	16.22		

Channel	Frequency (MHz)	802.11n (BW 40MHz) RF Power (dBm)	
		Data Rate: HT0	
		Chain C	
CH 38	5190 MHz	16.16	
CH 46	5230 MHz	16.64	
CH 54	5270 MHz	16.28	
CH 62	5310 MHz	16.50	
CH 102	5510 MHz	16.20	
CH 118	5590 MHz	16.28	
CH 134	5670 MHz	16.41	

Remark: The EUT is programmed to transmit signals 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).

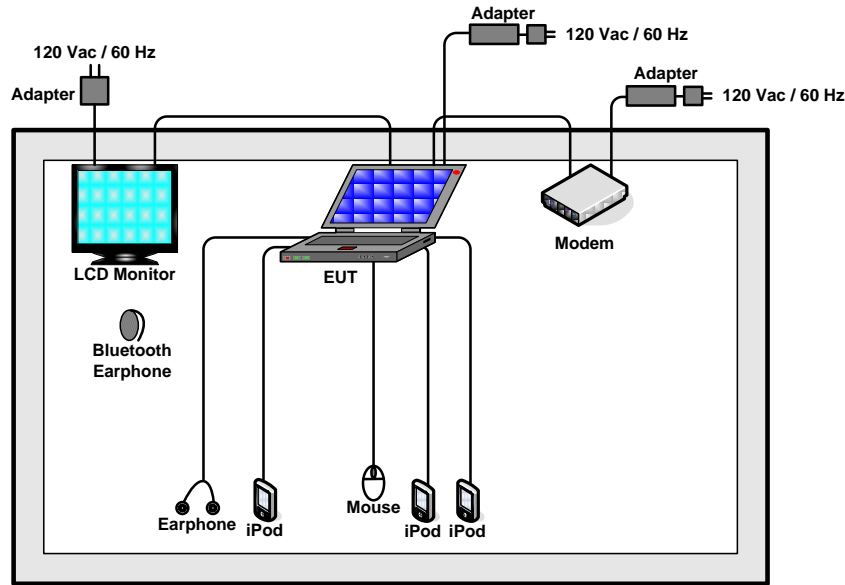
Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Conducted TCs	<ul style="list-style-type: none">■ Mode 1: 802.11a_CH36_5180 MHz■ Mode 2: 802.11a_CH48_5240 MHz■ Mode 3: 802.11a_CH52_5260 MHz■ Mode 4: 802.11a_CH64_5320 MHz■ Mode 5: 802.11a_CH100_5500 MHz■ Mode 6: 802.11a_CH116_5580 MHz■ Mode 7: 802.11a_CH140_5700 MHz■ Mode 8: 802.11n_CH36_5180 MHz (BW 20M)■ Mode 9: 802.11n_CH48_5240 MHz (BW 20M)■ Mode 10: 802.11n_CH52_5260 MHz (BW 20M)■ Mode 11: 802.11n_CH64_5320 MHz (BW 20M)■ Mode 12: 802.11n_CH100_5500 MHz(BW 20M)■ Mode 13: 802.11n_CH116_5580 MHz(BW 20M)■ Mode 14: 802.11n_CH140_5700 MHz(BW 20M)■ Mode 15: 802.11n_CH38_5190 MHz (BW 40M)■ Mode 16: 802.11n_CH46_5230 MHz (BW 40M)■ Mode 17: 802.11n_CH54_5270 MHz (BW 40M)■ Mode 18: 802.11n_CH62_5310 MHz (BW 40M)■ Mode 19: 802.11n_CH102_5510 MHz(BW 40M)■ Mode 20: 802.11n_CH118_5590 MHz(BW 40M)■ Mode 21: 802.11n_CH134_5670 MHz(BW 40M)



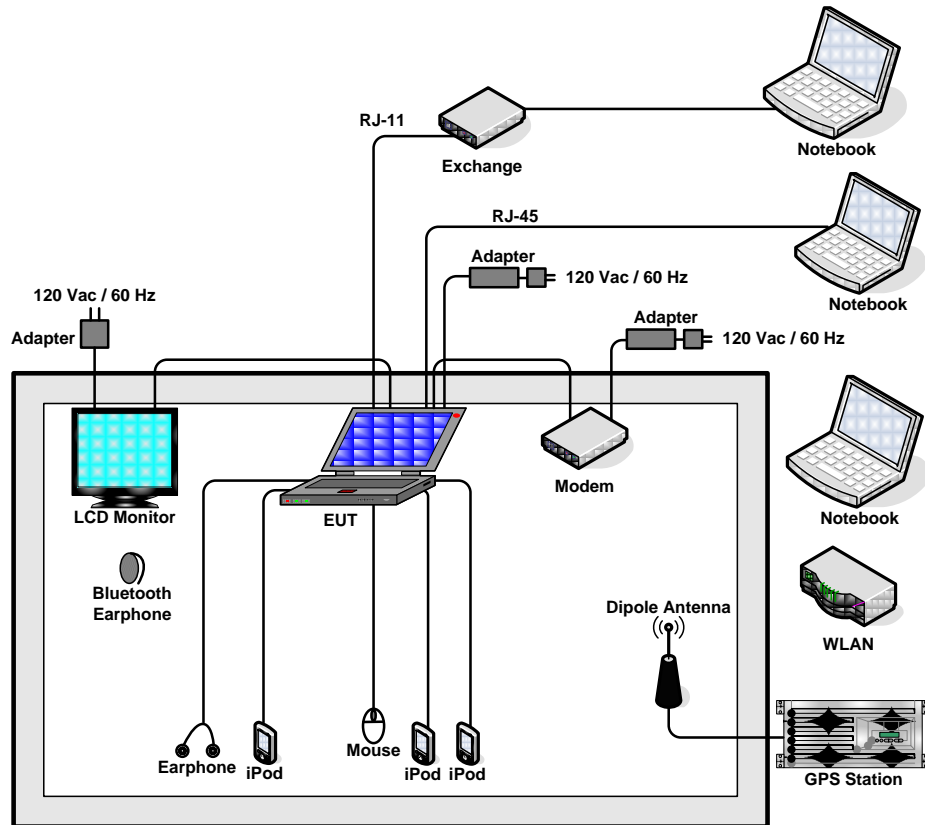
Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Radiated TCs	<ul style="list-style-type: none"> ■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH52_5260 MHz ■ Mode 3: 802.11a_CH64_5320 MHz ■ Mode 4: 802.11a_CH100_5500 MHz ■ Mode 5: 802.11a_CH116_5580 MHz ■ Mode 6: 802.11a_CH140_5700 MHz ■ Mode 7: 802.11n_CH36_5180 MHz (BW 20M) ■ Mode 8: 802.11n_CH52_5260 MHz (BW 20M) ■ Mode 9: 802.11n_CH64_5320 MHz (BW 20M) ■ Mode 10: 802.11n_CH100_5500 MHz (BW 20M) ■ Mode 11: 802.11n_CH116_5580 MHz (BW 20M) ■ Mode 12: 802.11n_CH140_5700 MHz (BW 20M) ■ Mode 13: 802.11n_CH38_5190 MHz (BW 40M) ■ Mode 14: 802.11n_CH54_5270 MHz (BW 40M) ■ Mode 15: 802.11n_CH62_5310 MHz (BW 40M) ■ Mode 16: 802.11n_CH102_5510 MHz (BW 40M) ■ Mode 17: 802.11n_CH118_5590 MHz (BW 40M) ■ Mode 18: 802.11n_CH134_5670 MHz (BW 40M)
AC Conducted Emission	WLAN Link + Bluetooth Link + Adapter +TC
Remark: <ol style="list-style-type: none"> 1. TC stands for Test Configuration, and consists of iPod, monitor, modem, exchange, earphone, mouse, GPS Rx, RJ-11, and RJ-45. 2. Mode 1~12 of radiation test only performed Band Edges. 	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.5 RF Utility

The programmed RF Utility "CRTU", 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 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B.

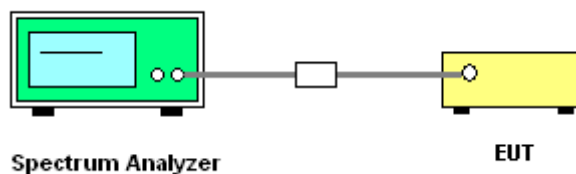
3.1.2 Measuring Instruments

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 1~7	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
		Chain C	
36	5180	17.96	Pass
48	5240	17.57	Pass
52	5260	18.79	Pass
64	5320	17.23	Pass
100	5500	16.95	Pass
116	5580	17.34	Pass
140	5700	17.35	Pass

Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
		Chain C	
36	5180	19.30	Pass
48	5240	18.36	Pass
52	5260	19.48	Pass
64	5320	18.64	Pass
100	5500	18.16	Pass
116	5580	18.51	Pass
140	5700	18.47	Pass



Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

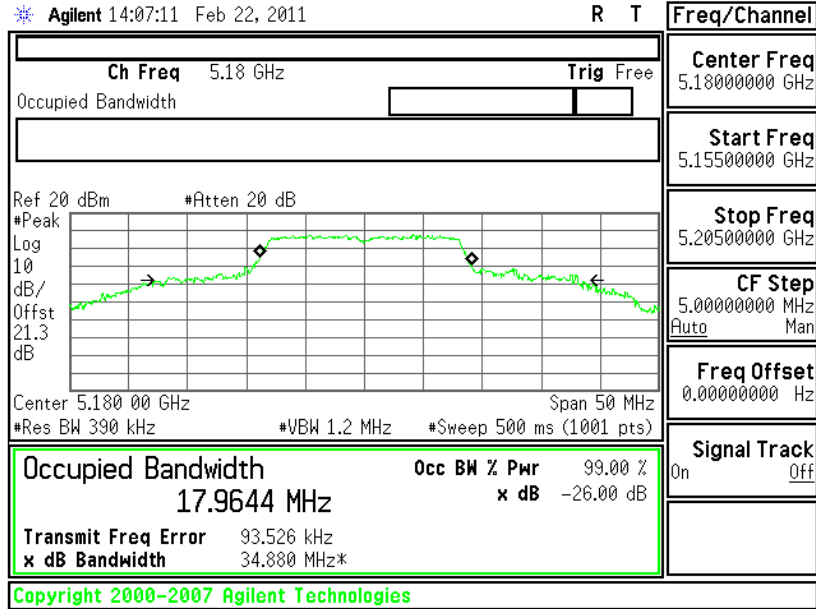
Channel	Frequency (MHz)	802.11n (BW 40MHz) 26dB Bandwidth (MHz)	Pass/Fail
		Chain C	
38	5190	36.54	Pass
46	5230	36.24	Pass
54	5270	36.63	Pass
62	5310	36.12	Pass
102	5510	35.85	Pass
118	5590	36.08	Pass
134	5670	36.17	Pass



3.1.6 Test Result of 26dB Bandwidth Plots

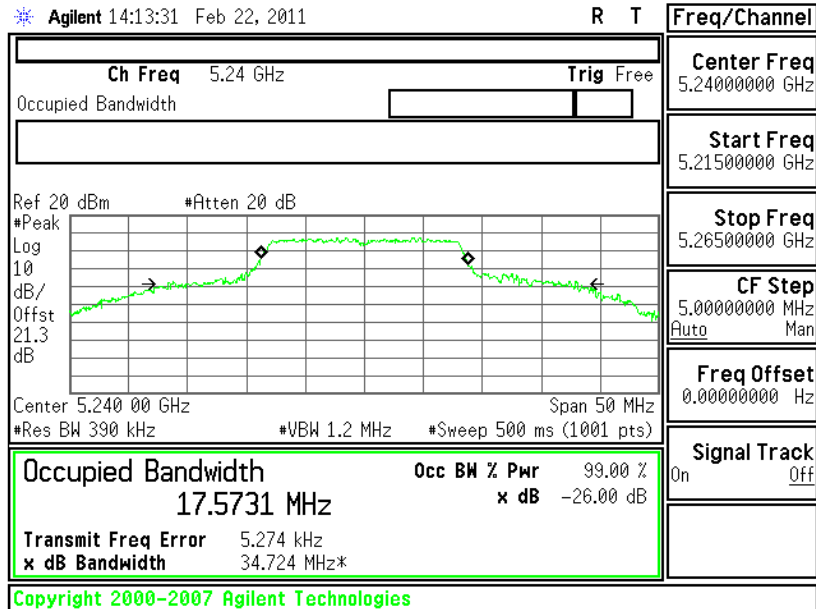
Mode 01:

26 dB Bandwidth Plot on 802.11a Channel 36 – Chain C



Mode 02:

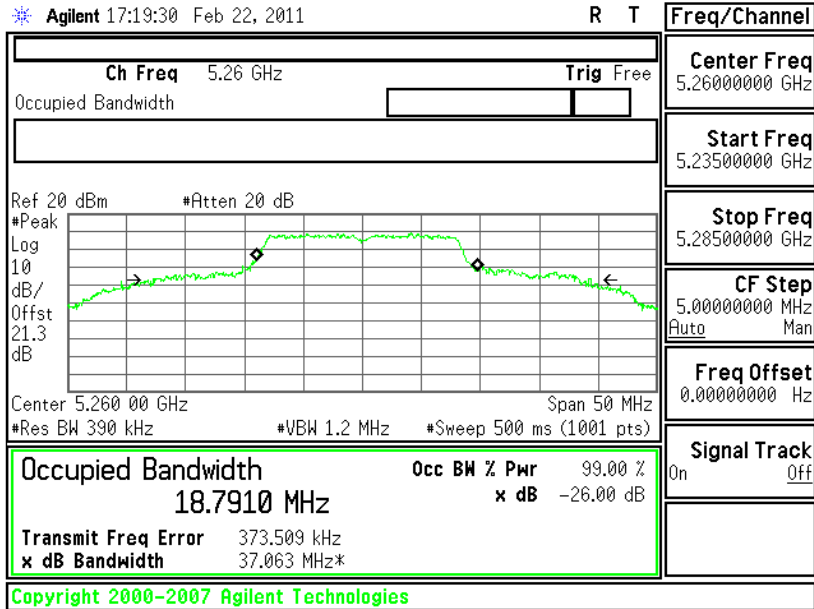
26 dB Bandwidth Plot on 802.11a Channel 48 – Chain C





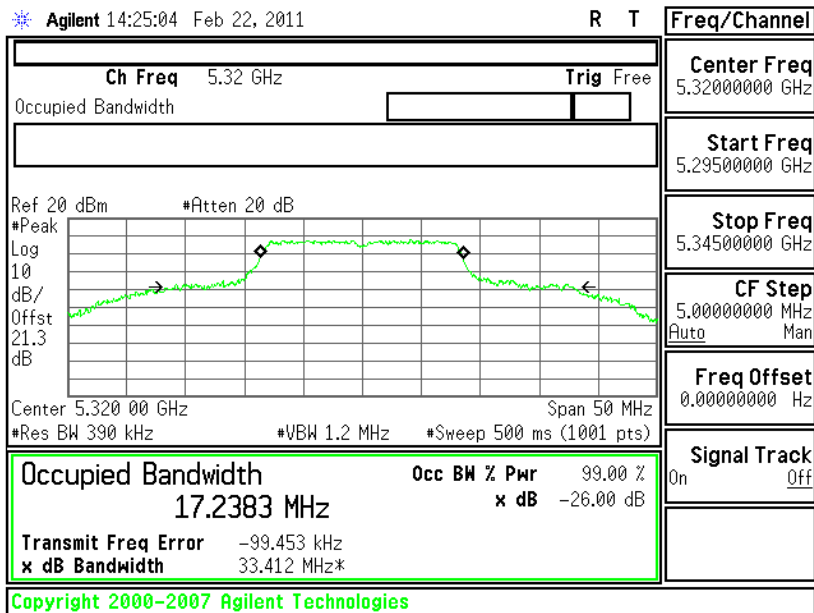
Mode 03:

26 dB Bandwidth Plot on 802.11a Channel 52 – Chain C



Mode 04:

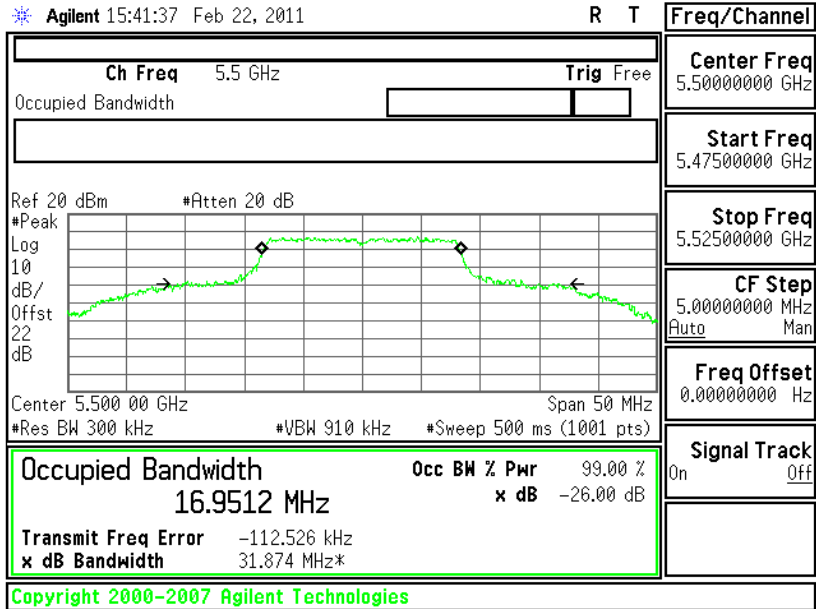
26 dB Bandwidth Plot on 802.11a Channel 64 – Chain C





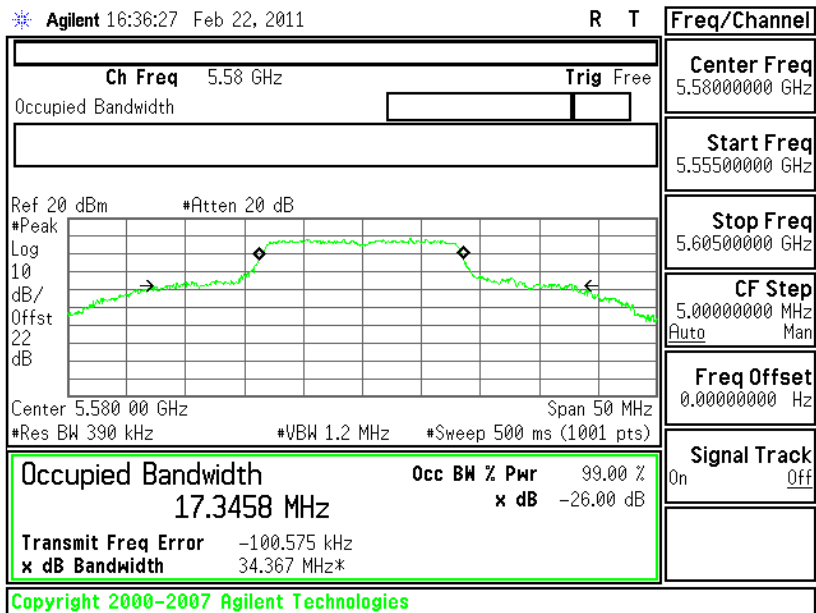
Mode 0:

26 dB Bandwidth Plot on 802.11a Channel 100 – Chain C



Mode 06:

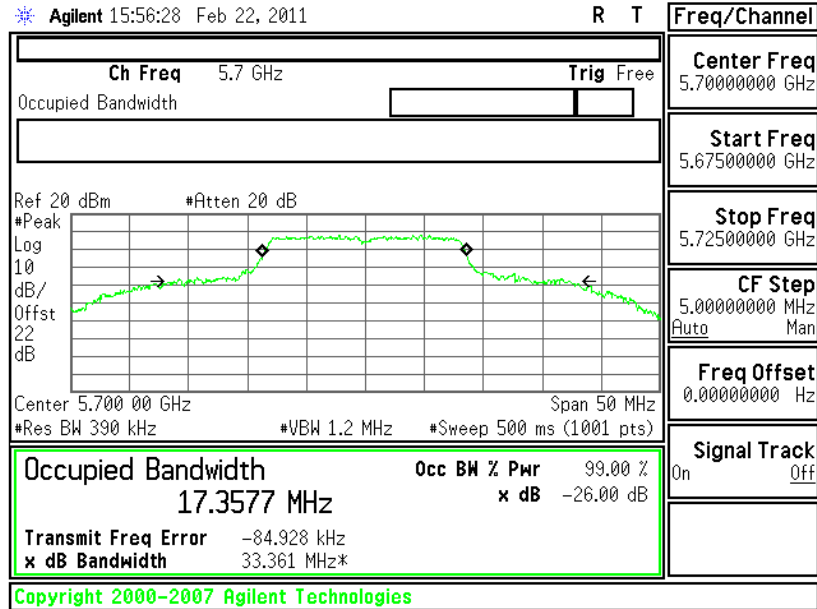
26 dB Bandwidth Plot on 802.11a Channel 116 – Chain C





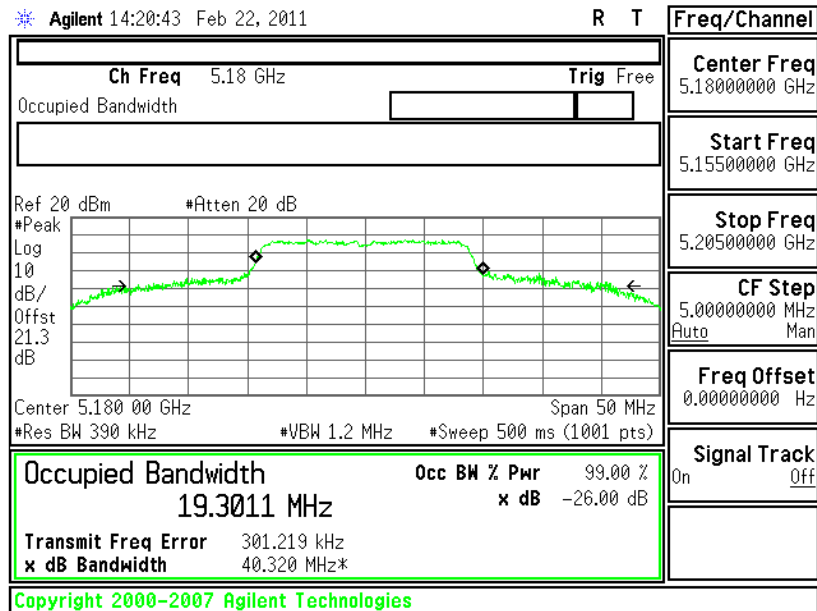
Mode 07:

26 dB Bandwidth Plot on 802.11a Channel 140 – Chain C



Mode 08:

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

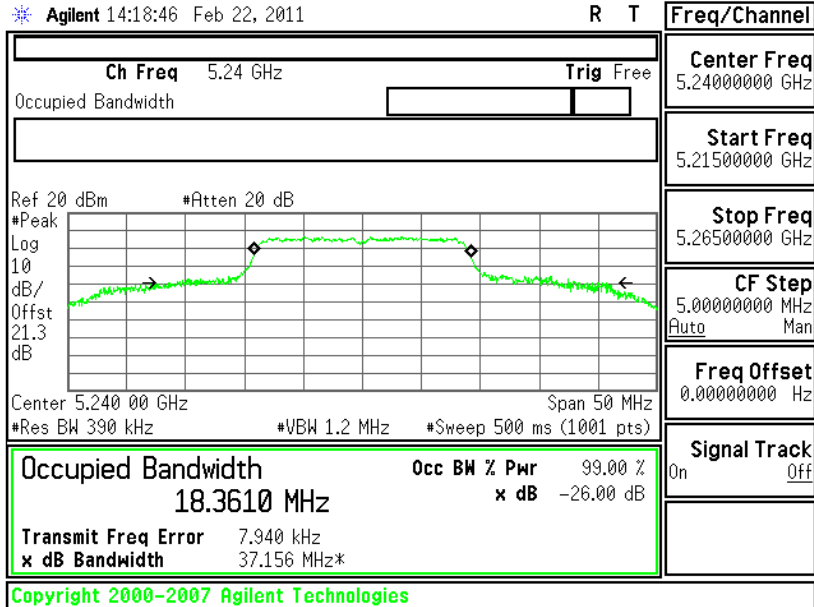




Mode 09:

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

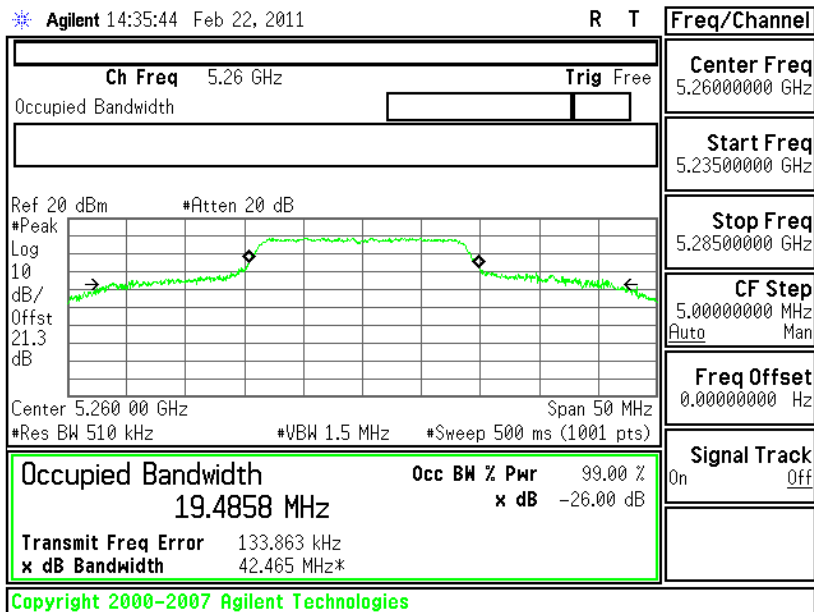
Chain C



Mode 10:

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

Chain C

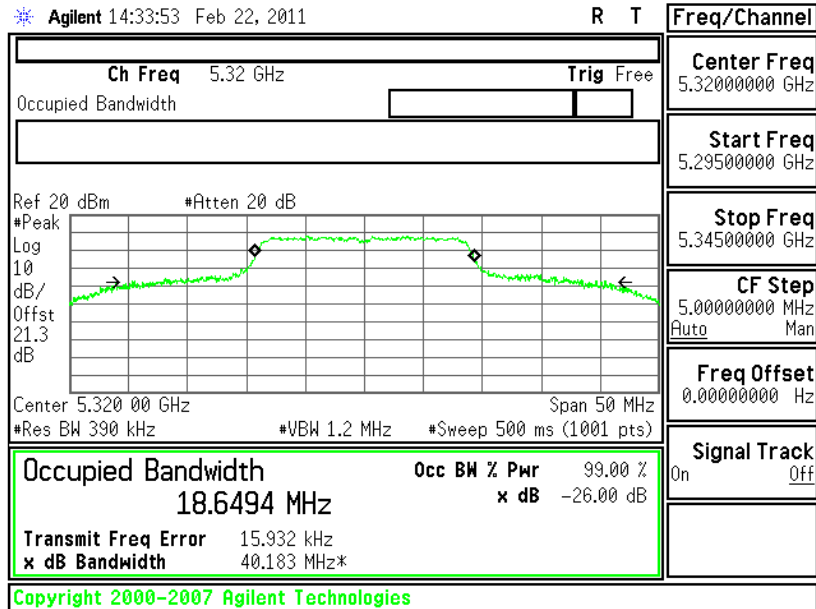




Mode 11:

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

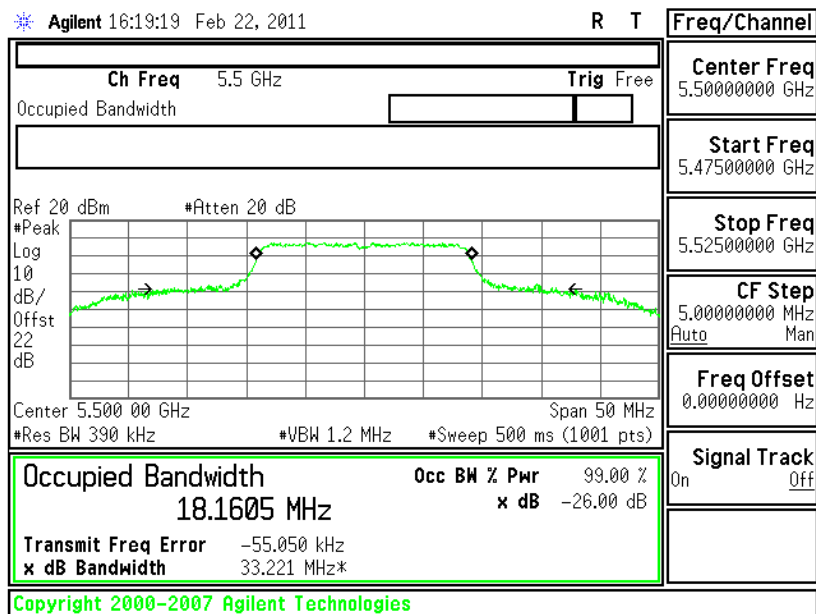
Chain C



Mode 12:

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

Chain C

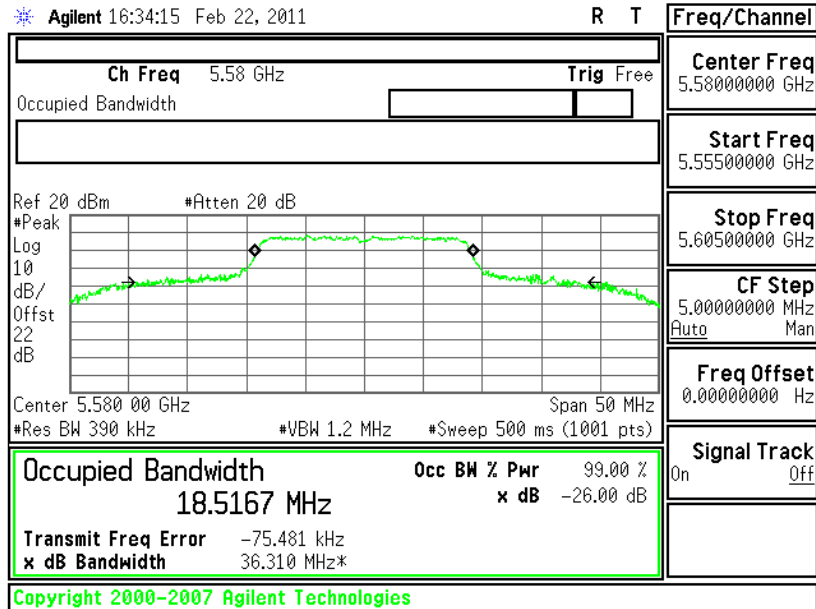




Mode 13:

26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 116 –

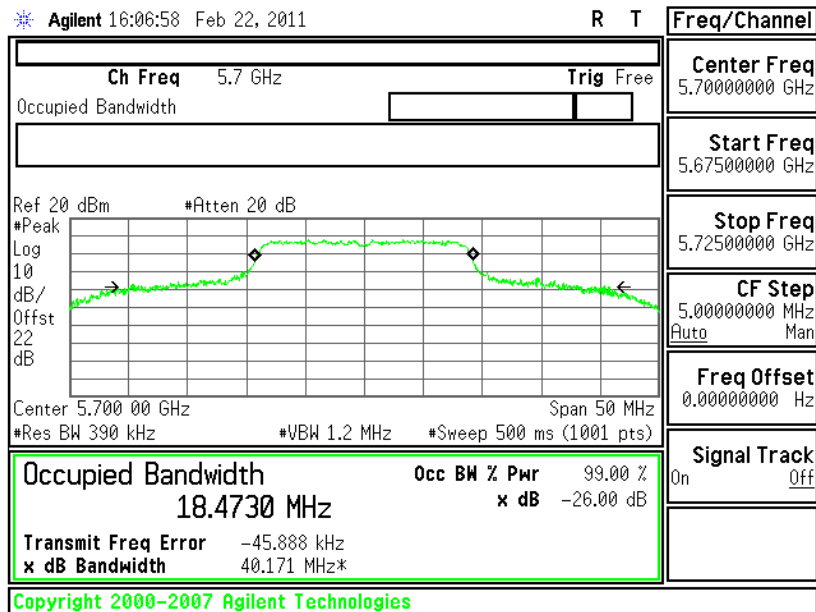
Chain C



Mode 14:

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

Chain C

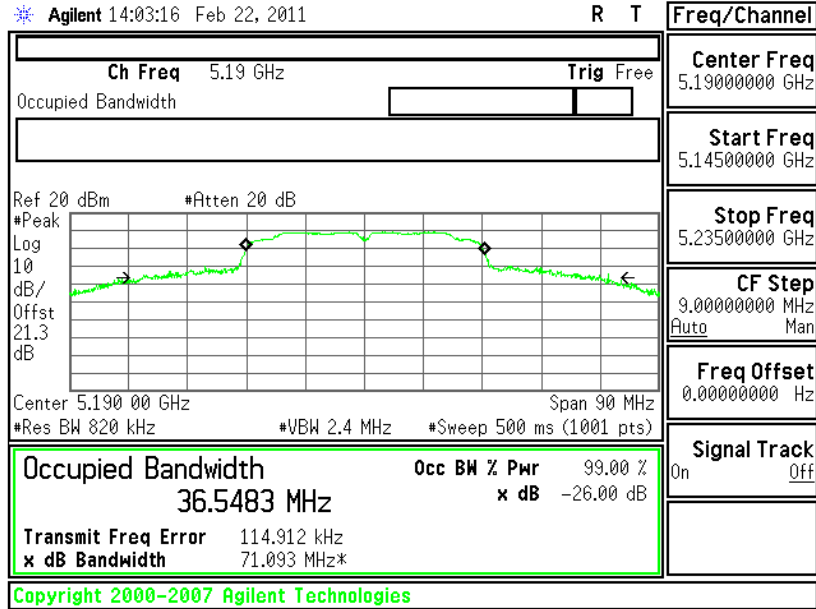




Mode 15:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 38 –

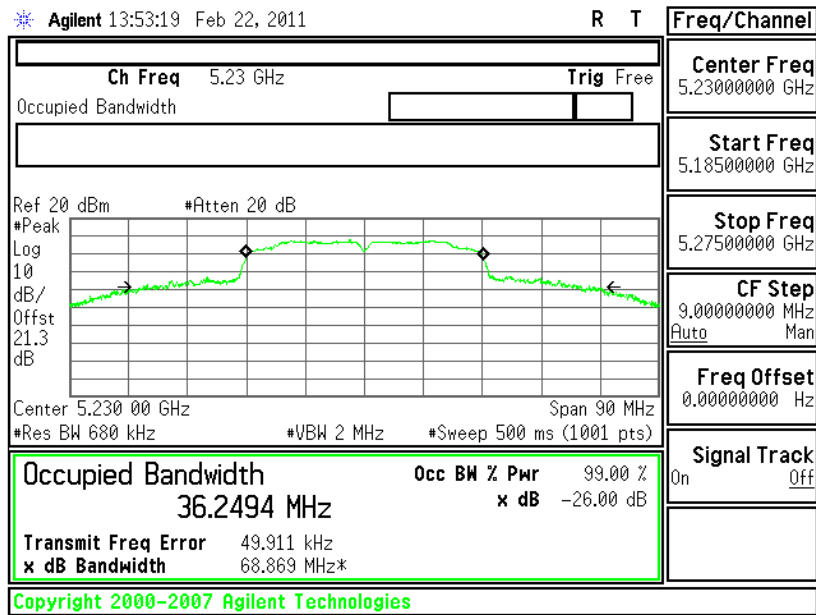
Chain C



Mode 16:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 46 –

Chain C

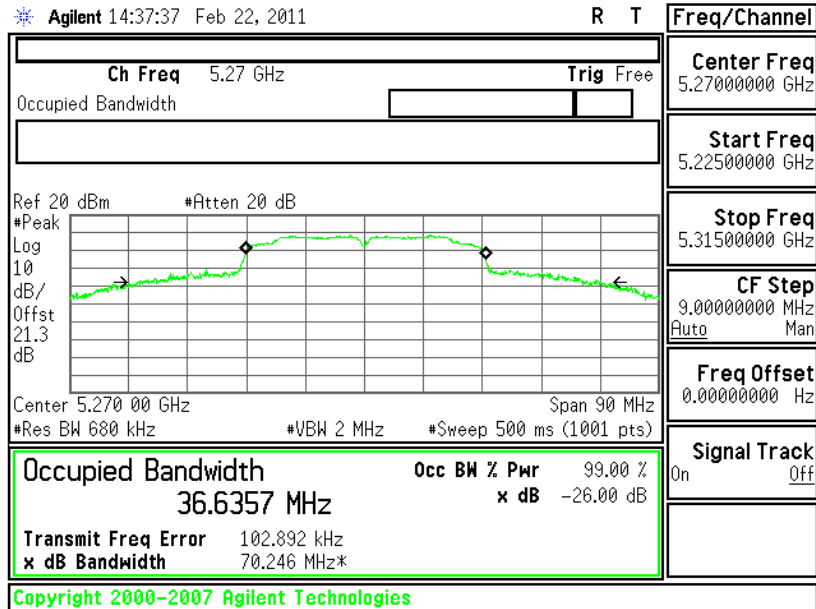




Mode 17:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 54 –

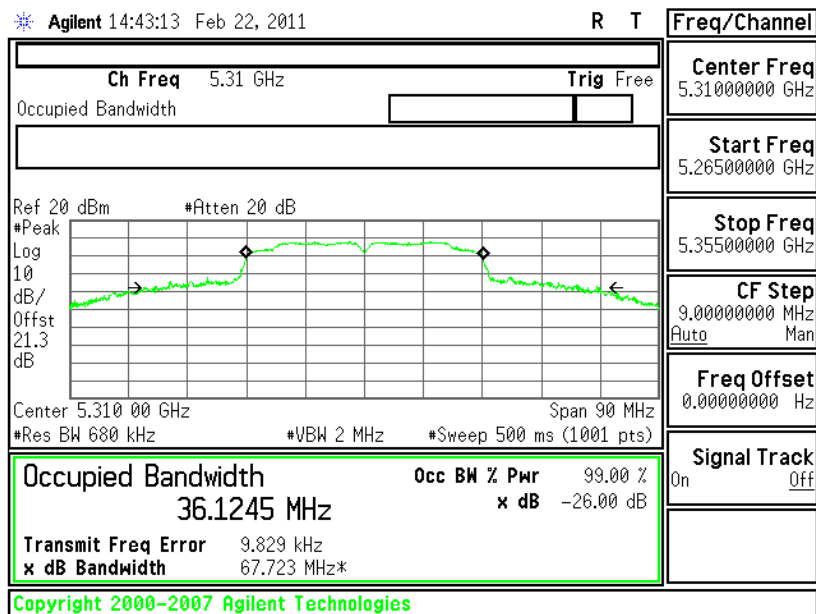
Chain C



Mode 18:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 62 –

Chain C

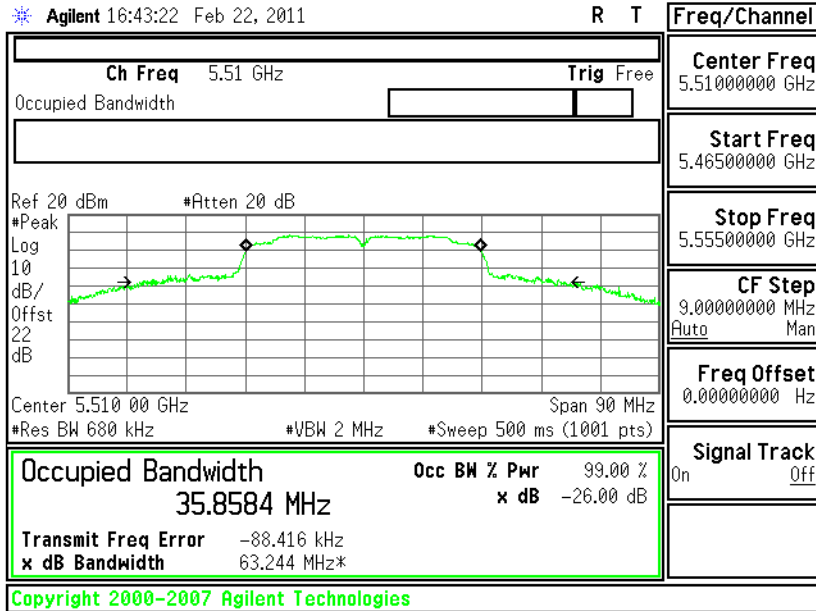




Mode 19:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 102 –

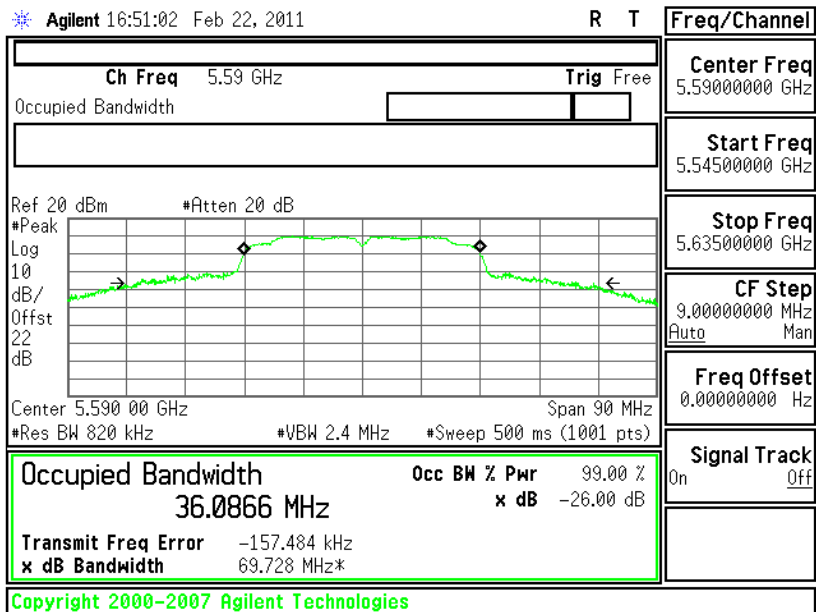
Chain C



Mode 20:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 118 –

Chain C

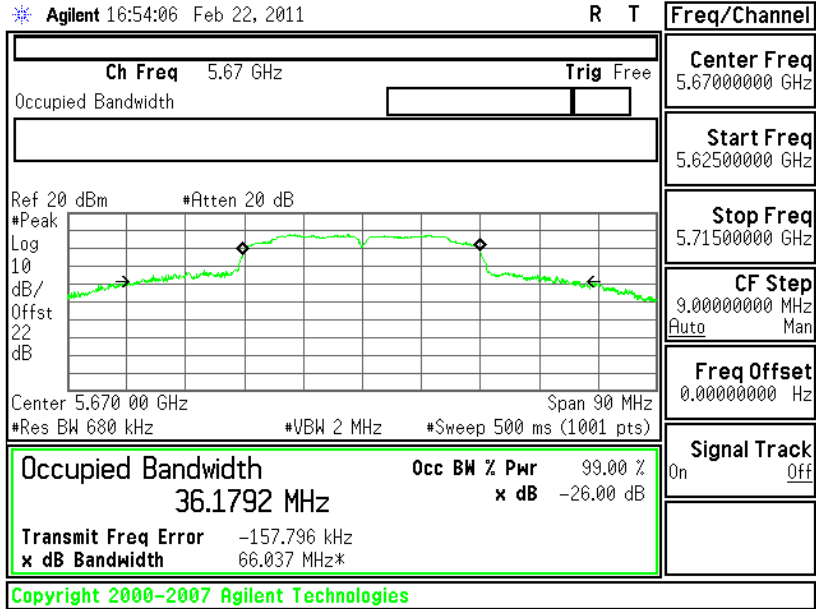




Mode 21:

26 dB Bandwidth Plot on 802.11n (BW 40 MHz) Channel 134 –

Chain C



3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

For the 5.25-5.35 GHz and 5.47~5.27 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

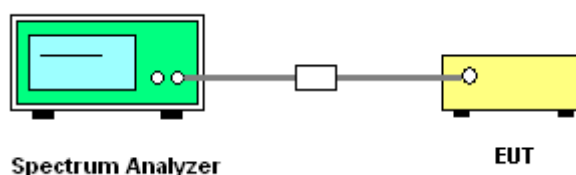
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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. Measure the power and record it.

3.2.4 Test Setup





3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~7	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
36	5180	15.24	17	Pass
48	5240	15.12	17	Pass
52	5260	16.17	24	Pass
64	5320	16.24	24	Pass
100	5500	16.27	24	Pass
116	5580	16.33	24	Pass
140	5700	16.02	24	Pass

Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
36	5180	14.99	17	Pass
48	5240	14.97	17	Pass
52	5260	16.28	24	Pass
64	5320	16.00	24	Pass
100	5500	16.21	24	Pass
116	5580	16.05	24	Pass
140	5700	16.22	24	Pass



Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

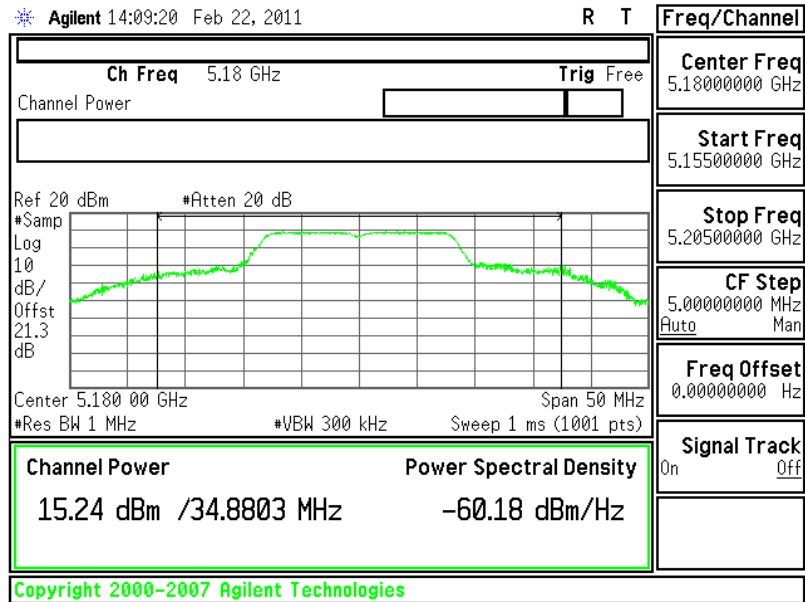
Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
38	5190	16.16	17	Pass
46	5230	16.64	17	Pass
54	5270	16.28	24	Pass
62	5310	16.50	24	Pass
102	5510	16.20	24	Pass
118	5590	16.28	24	Pass
134	5670	16.41	24	Pass



3.2.6 Test Result of Power Output Plots

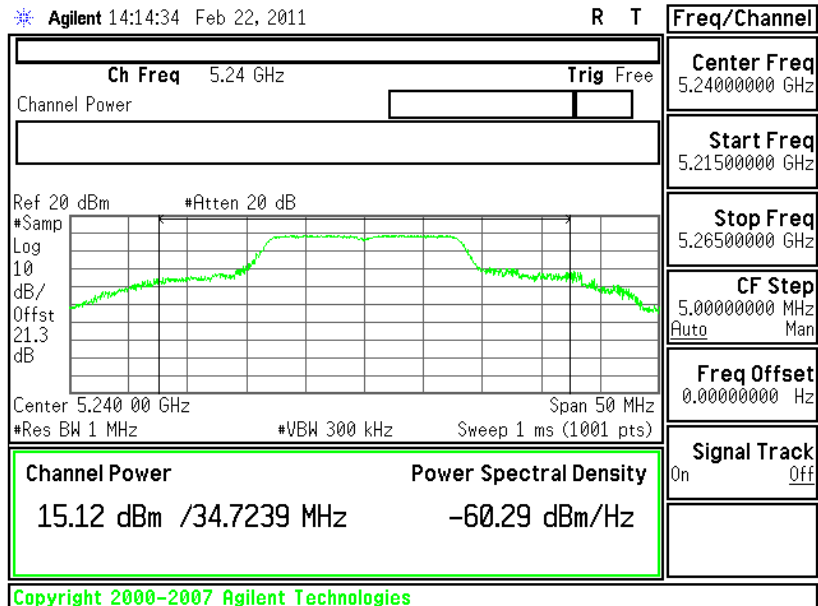
Mode 01:

Output Power Plot on 802.11a Channel 36 – Chain C



Mode 02:

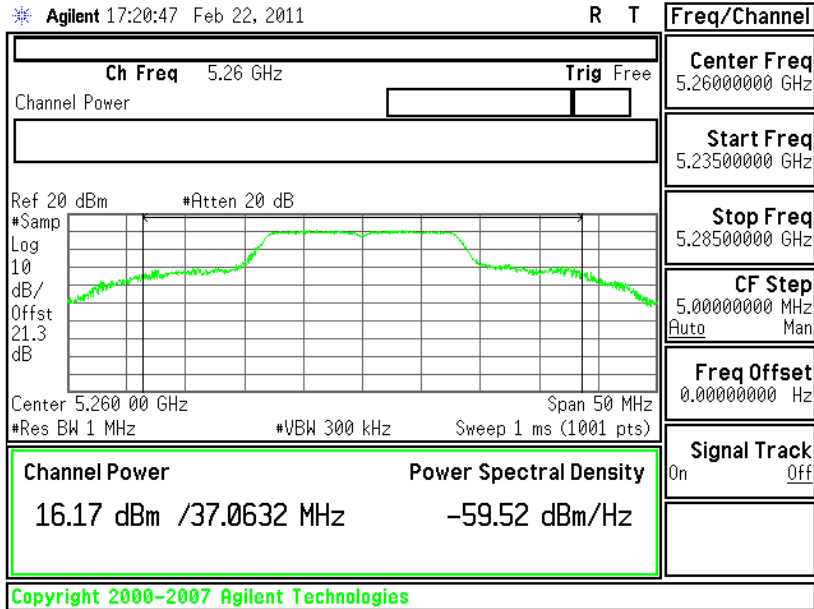
Output Power Plot on 802.11a Channel 48 – Chain C





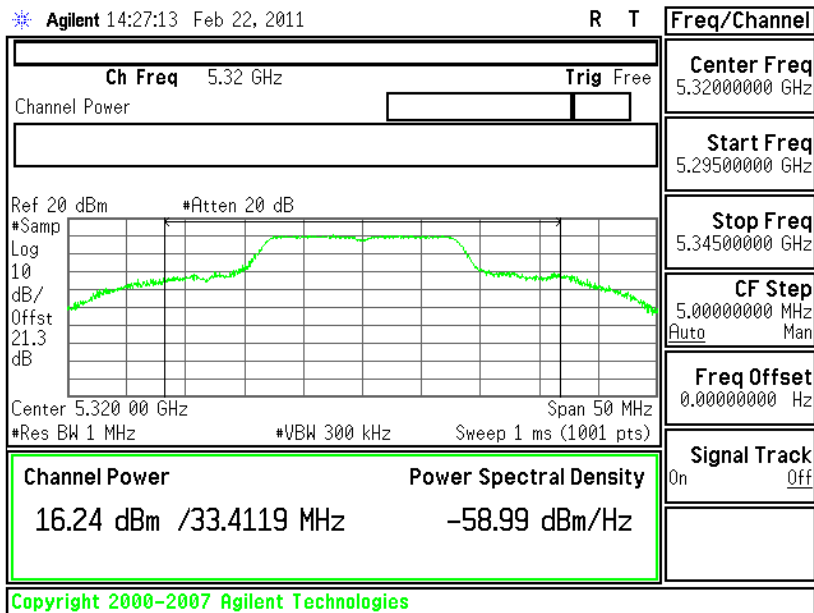
Mode 03:

Output Power Plot on 802.11a Channel 52 – Chain C



Mode 04:

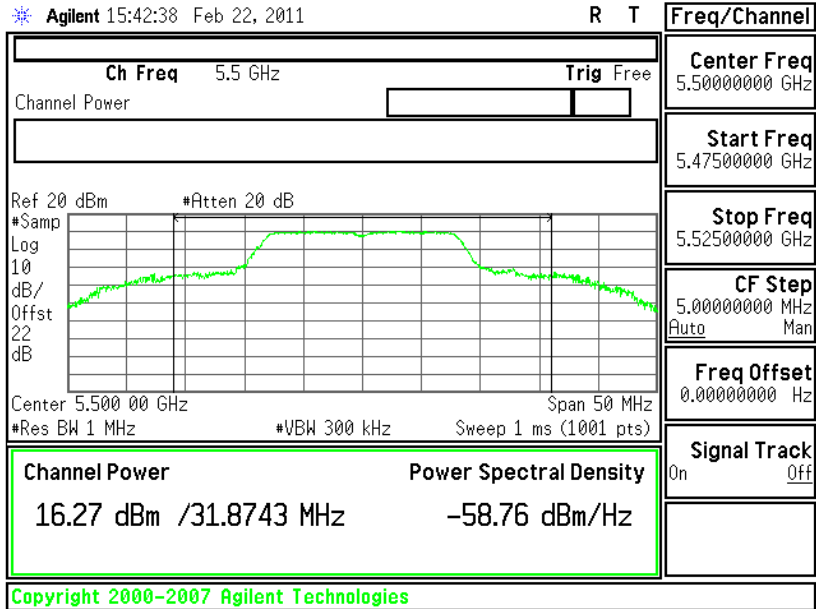
Output Power Plot on 802.11a Channel 64 – Chain C





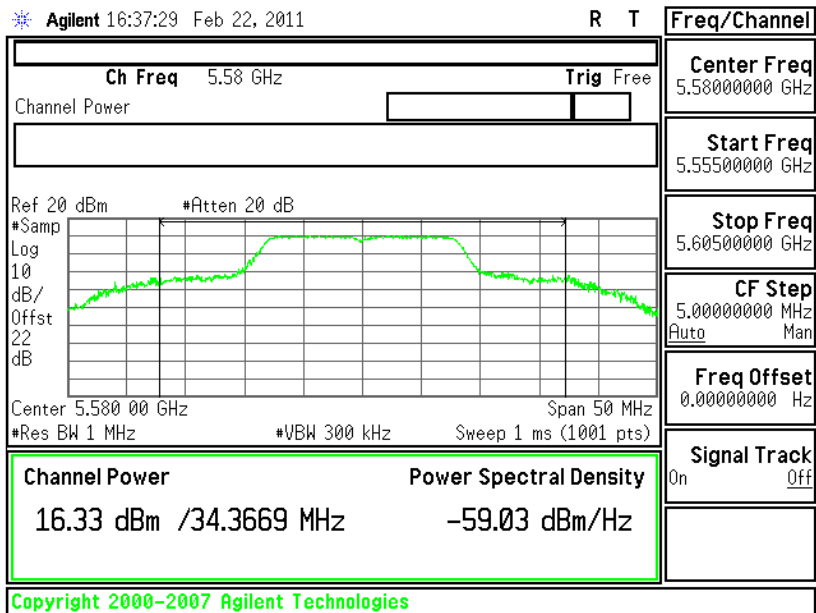
Mode 05:

Output Power Plot on 802.11a Channel 100 – Chain C



Mode 06:

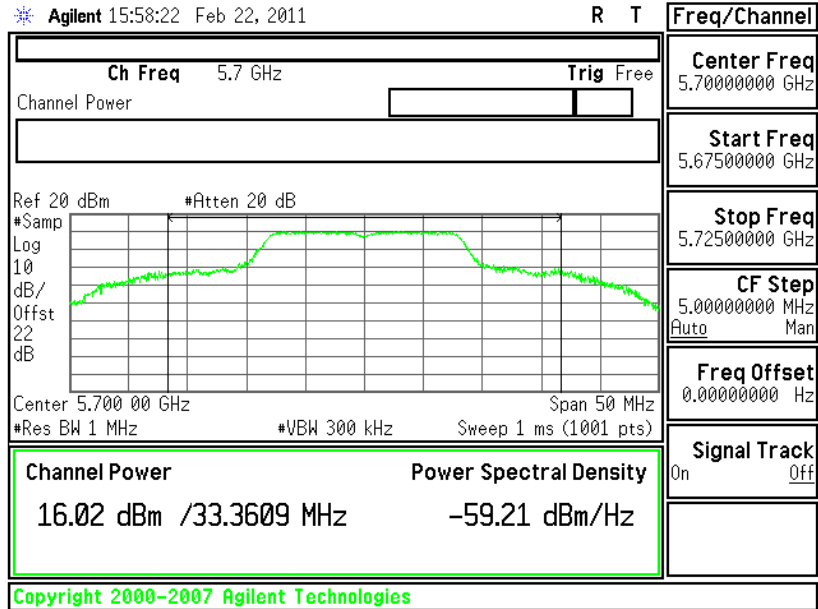
Output Power Plot on 802.11a Channel 116 – Chain C





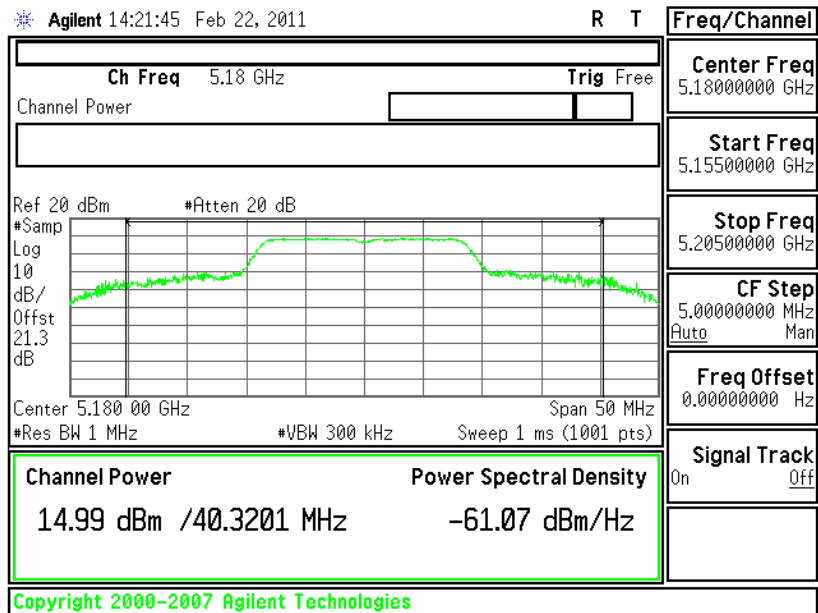
Mode 07:

Output Power Plot on 802.11a Channel 140 – Chain C



Mode 08:

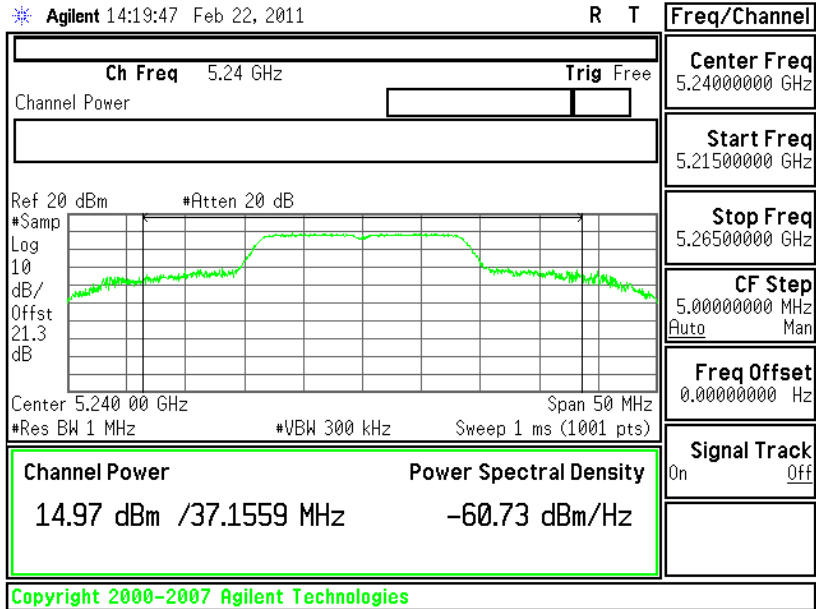
Output Power Plot on 802.11n (BW 20MHz) Channel 36 – Chain C





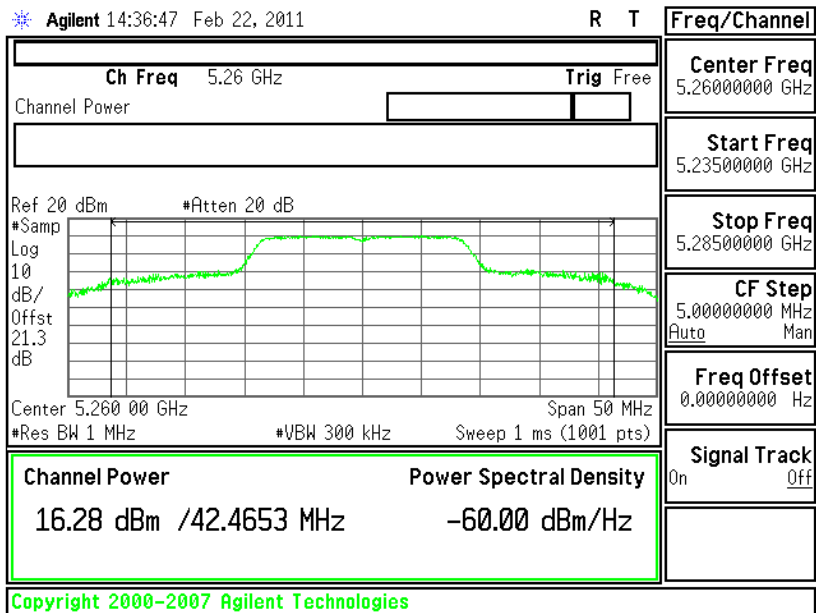
Mode 09:

Output Power Plot on 802.11n (BW 20MHz) Channel 48 – Chain C



Mode 10:

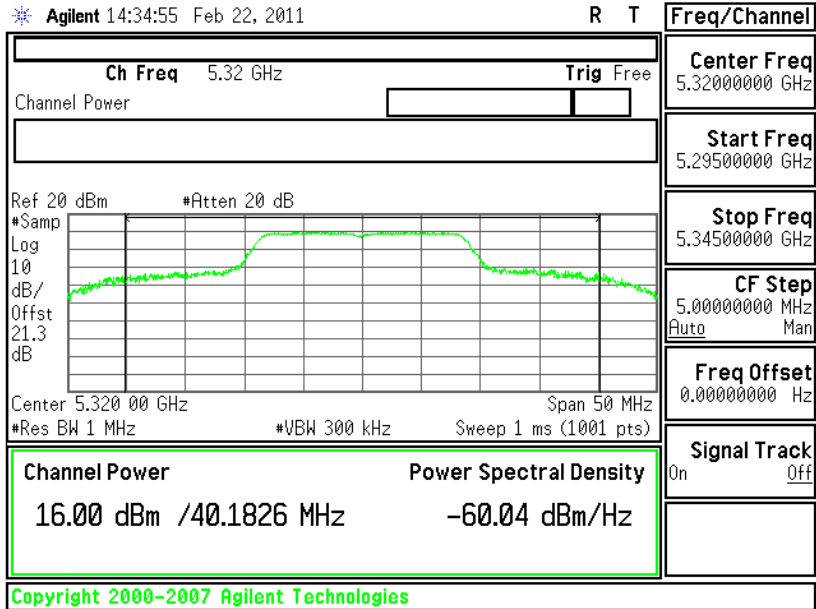
Output Power Plot on 802.11n (BW 20MHz) Channel 52 – Chain C





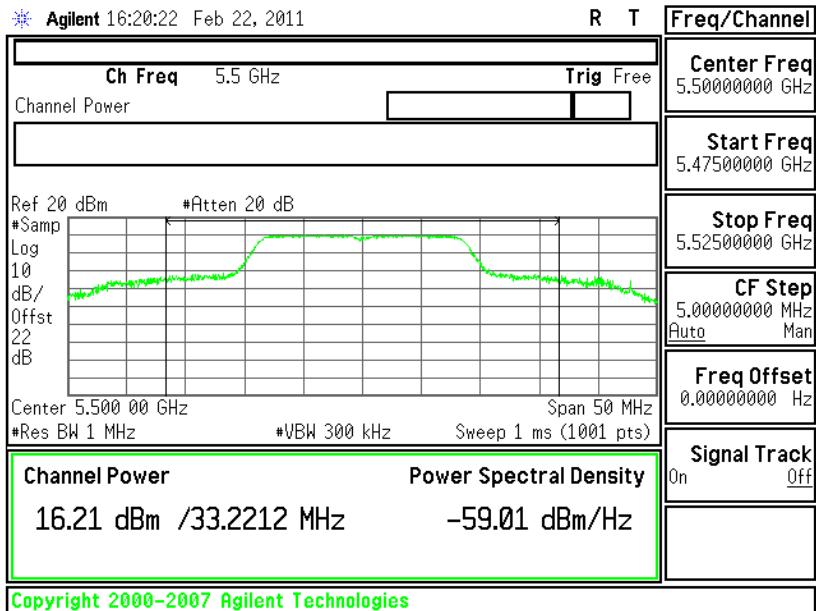
Mode 11:

Output Power Plot on 802.11n (BW 20MHz) Channel 64 – Chain C



Mode 12:

Output Power Plot on 802.11n (BW 20MHz) Channel 100 – Chain C

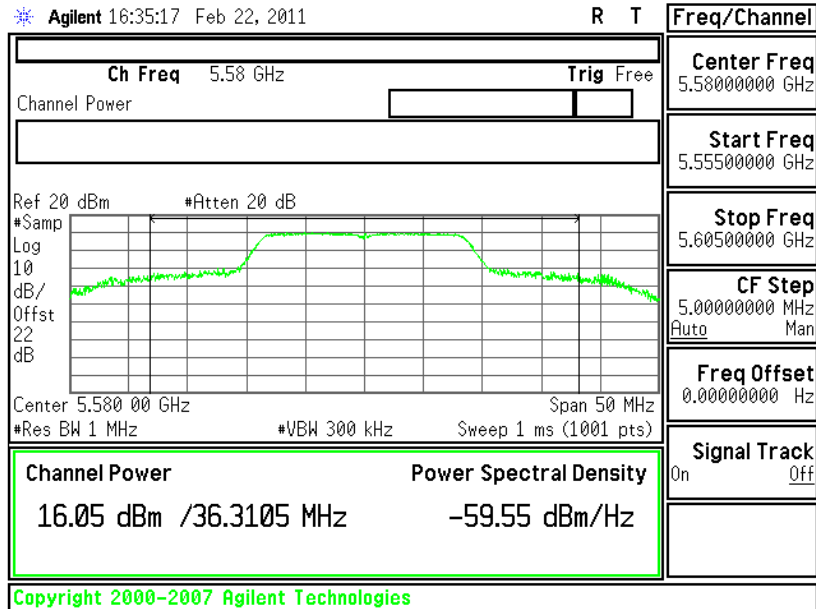




Mode 13:

Output Power Plot on 802.11n (BW 20MHz) Channel 116 – Chain

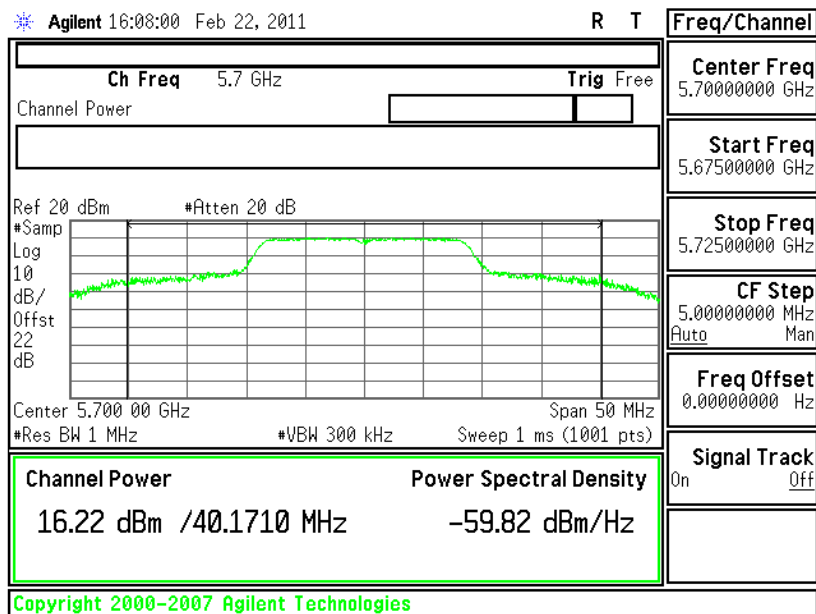
C



Mode 14:

Output Power Plot on 802.11n (BW 20MHz) Channel 140 – Chain

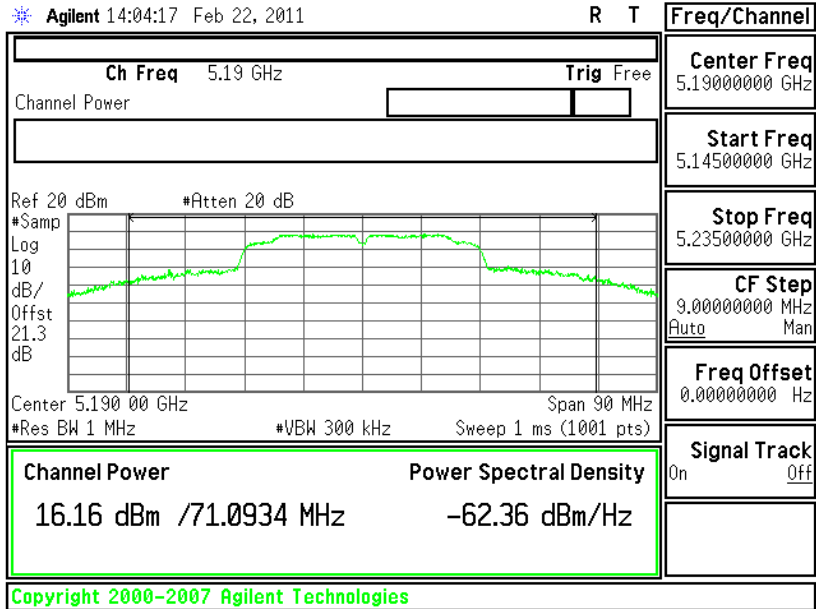
C





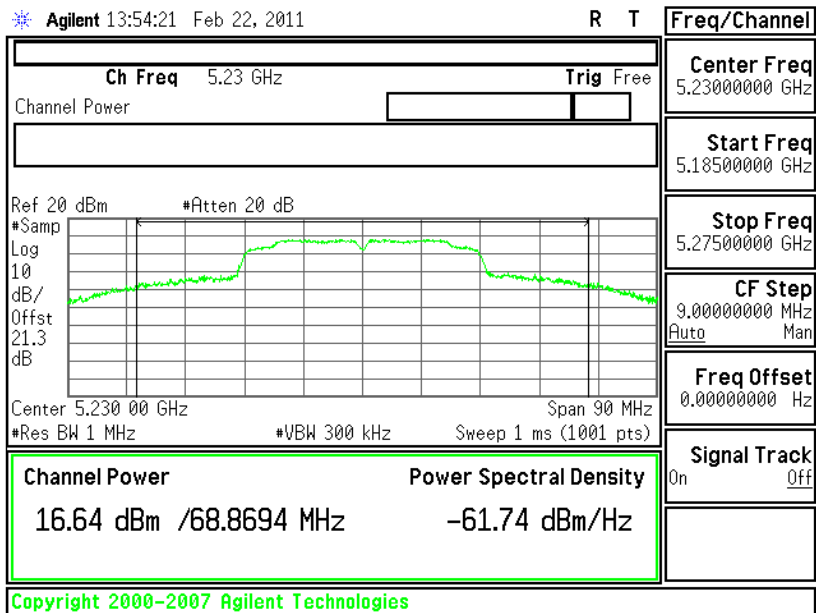
Mode 15:

Output Power Plot on 802.11n (BW 40MHz) Channel 38 – Chain C



Mode 16:

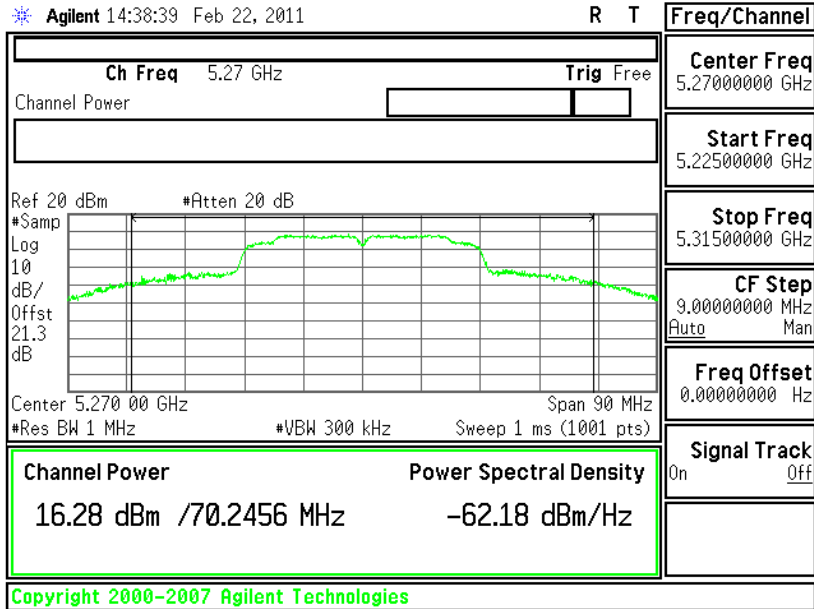
Output Power Plot on 802.11n (BW 40MHz) Channel 46 – Chain C





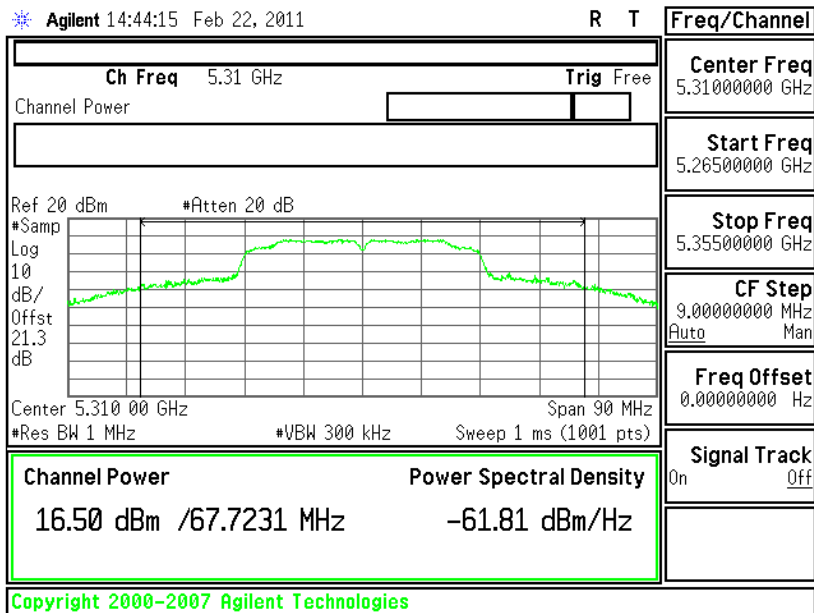
Mode 17:

Output Power Plot on 802.11n (BW 40MHz) Channel 54 – Chain C



Mode 18:

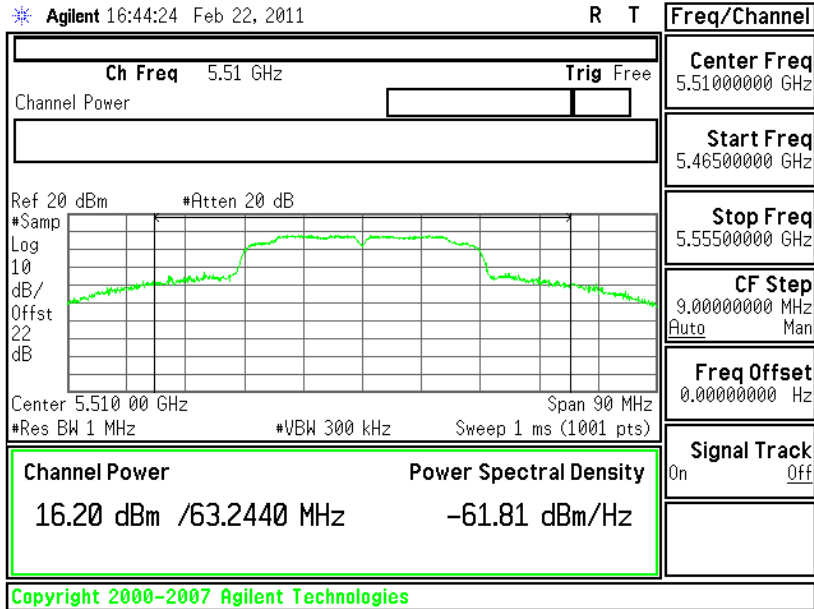
Output Power Plot on 802.11n (BW 40MHz) Channel 62 – Chain C





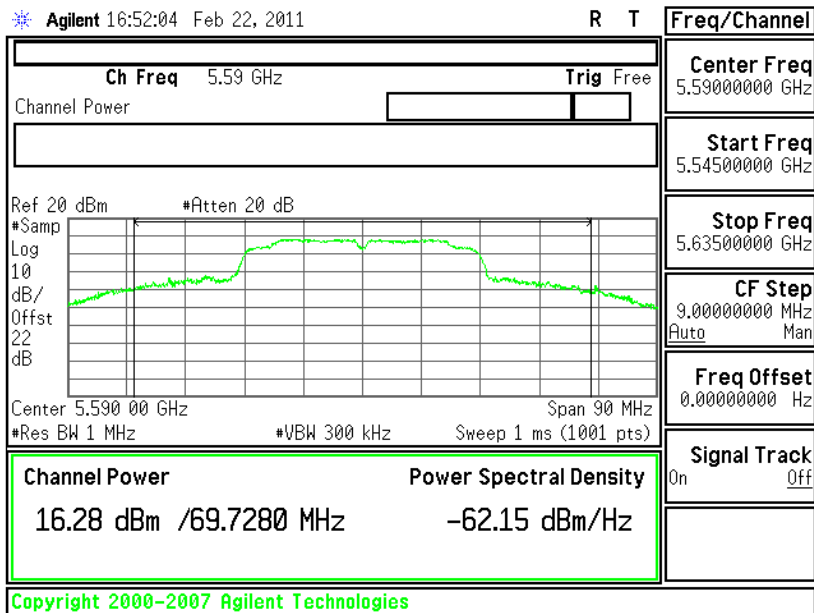
Mode 19:

Output Power Plot on 802.11n (BW 40MHz) Channel 102 – Chain C



Mode 20:

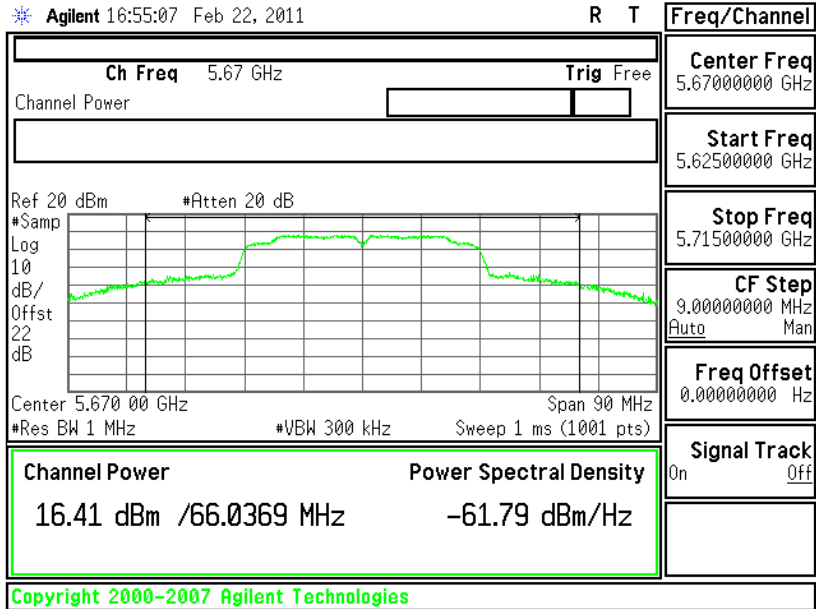
Output Power Plot on 802.11n (BW 40MHz) Channel 118 – Chain C





Mode 21:

Output Power Plot on 802.11n (BW 40MHz) Channel 134 – Chain C



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

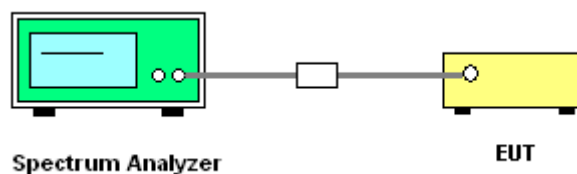
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

The transmitter output is connected to the spectrum analyzer. According to the method 3 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.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	Mode 1~7	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
36	5180	3.987	4	Pass
48	5240	3.825	4	Pass
52	5260	5.338	11	Pass
64	5320	4.827	11	Pass
100	5500	5.474	11	Pass
116	5580	5.353	11	Pass
140	5700	4.897	11	Pass

Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
36	5180	3.997	4	Pass
48	5240	3.627	4	Pass
52	5260	5.361	11	Pass
64	5320	4.648	11	Pass
100	5500	5.206	11	Pass
116	5580	5.124	11	Pass
140	5700	5.154	11	Pass



Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

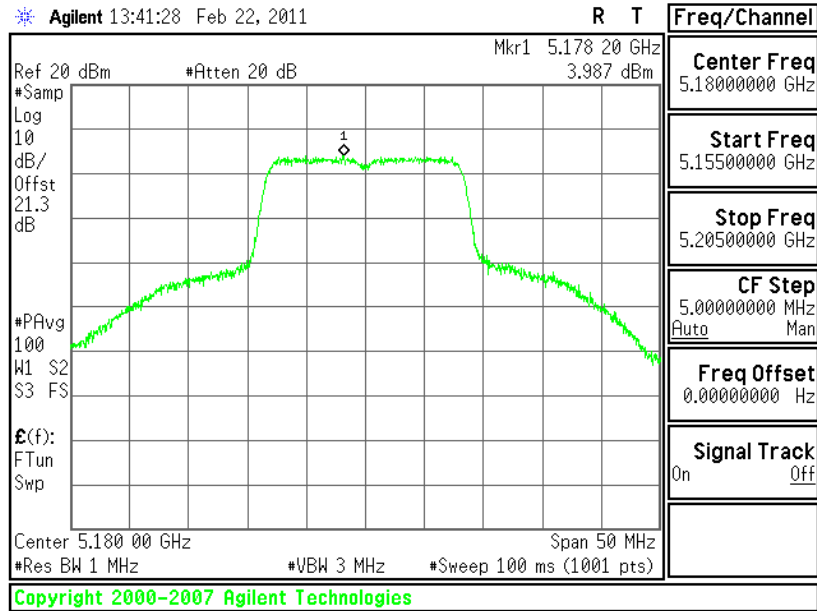
Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain C		
38	5190	2.987	4	Pass
46	5230	3.107	4	Pass
54	5270	2.900	11	Pass
62	5310	2.763	11	Pass
102	5510	3.338	11	Pass
118	5590	3.097	11	Pass
134	5670	2.855	11	Pass



3.3.6 Test Result of Power Spectral Density Plots

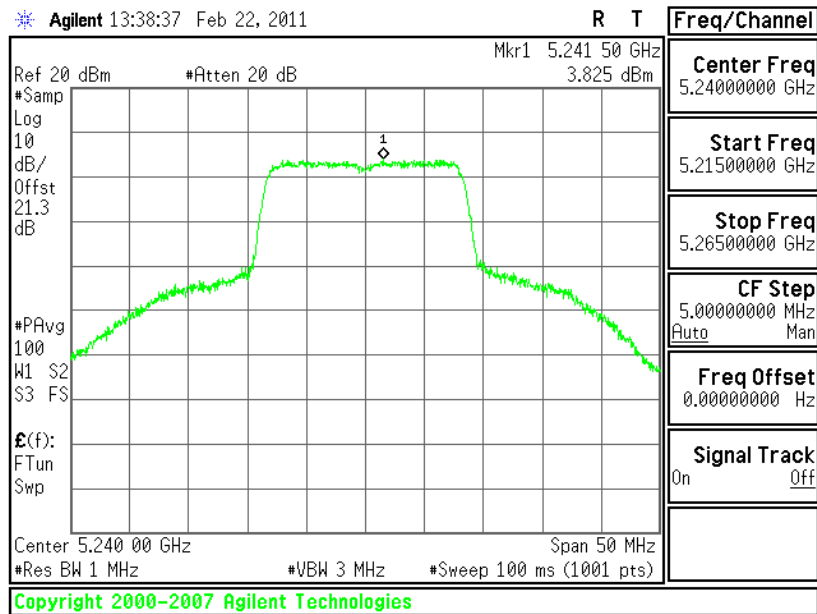
Mode 01:

PSD Plot on 802.11a Channel 36 – Chain C



Mode 02:

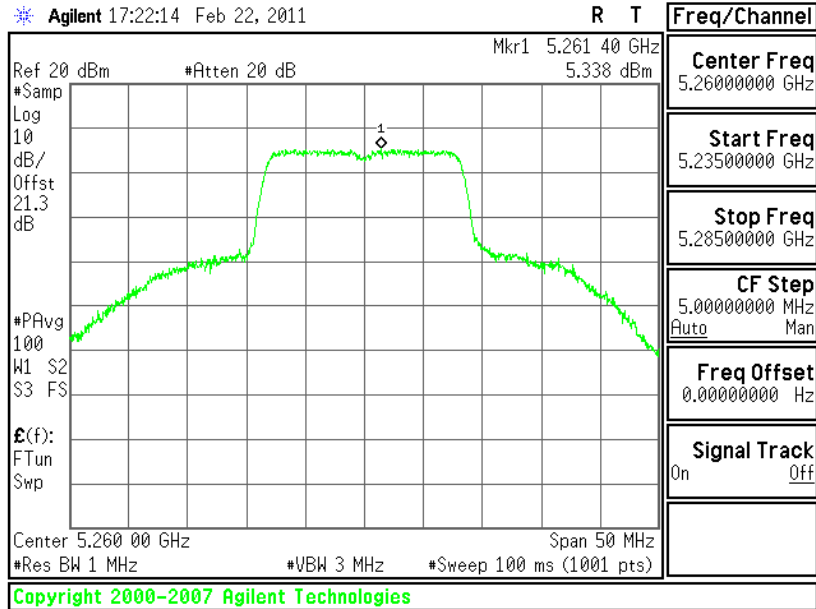
PSD Plot on 802.11a Channel 48 – Chain C





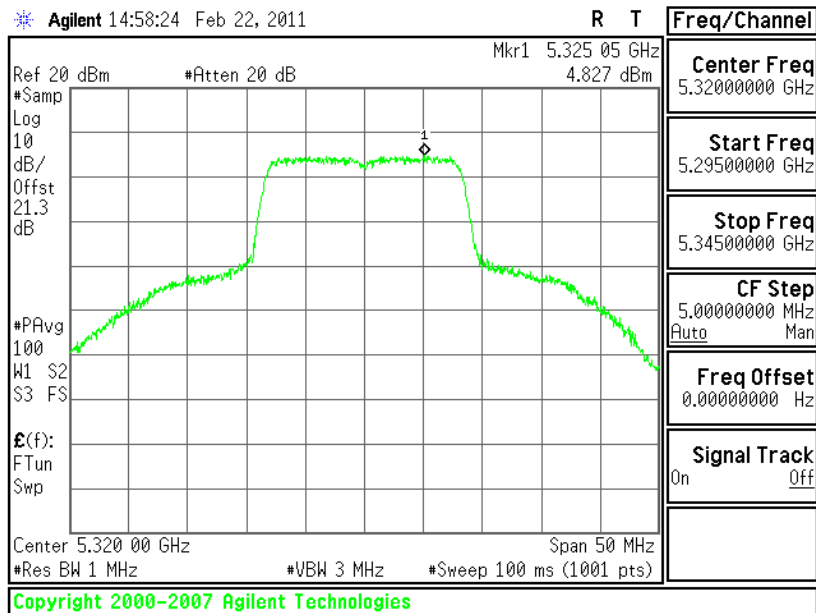
Mode 03:

PSD Plot on 802.11a Channel 52 – Chain C



Mode 04:

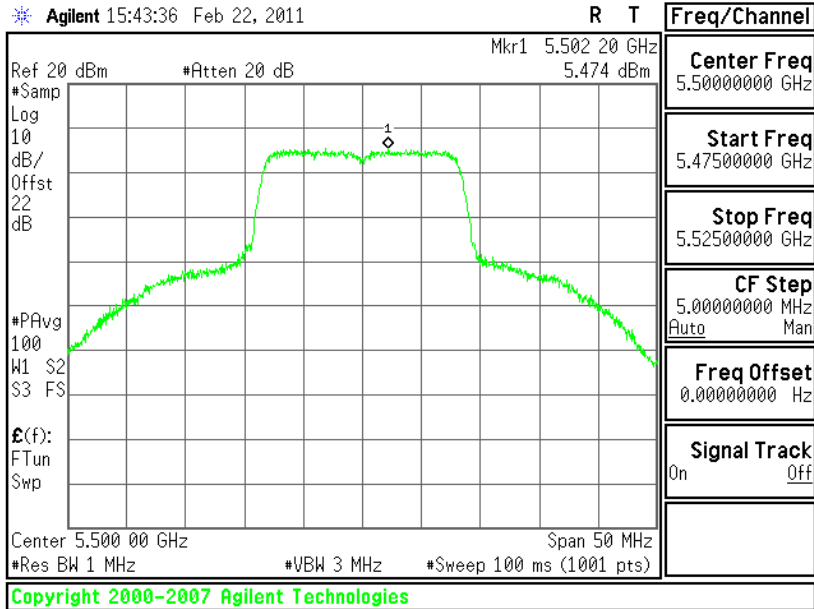
PSD Plot on 802.11a Channel 64 – Chain C





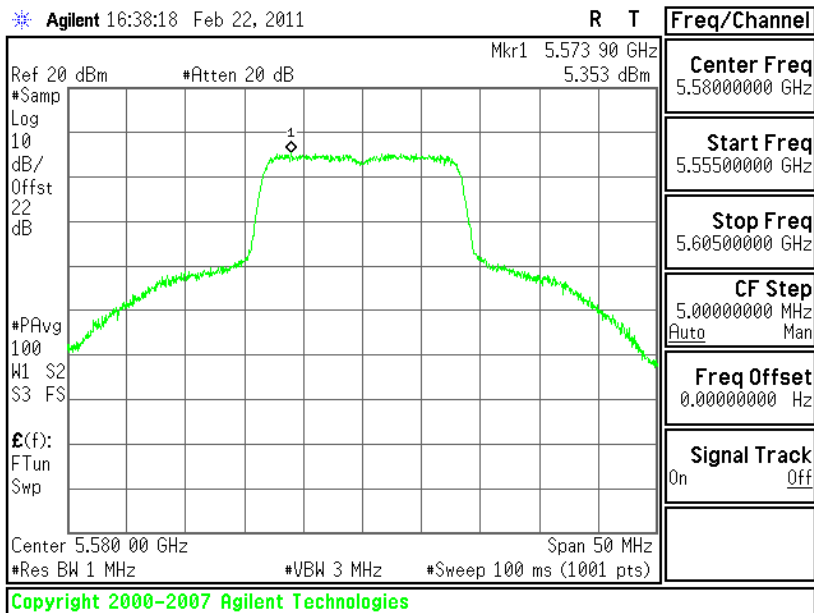
Mode 05:

PSD Plot on 802.11a Channel 100 – Chain C



Mode 06:

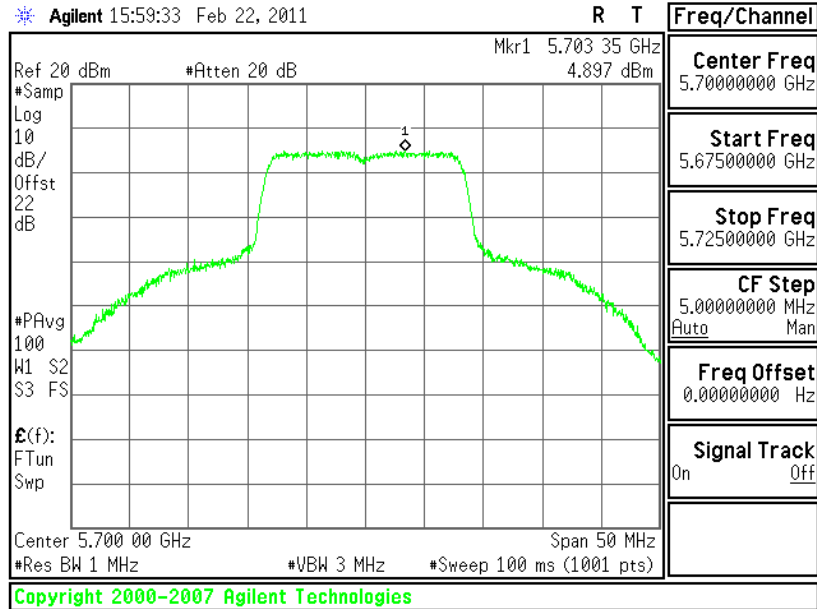
PSD Plot on 802.11a Channel 116 – Chain C





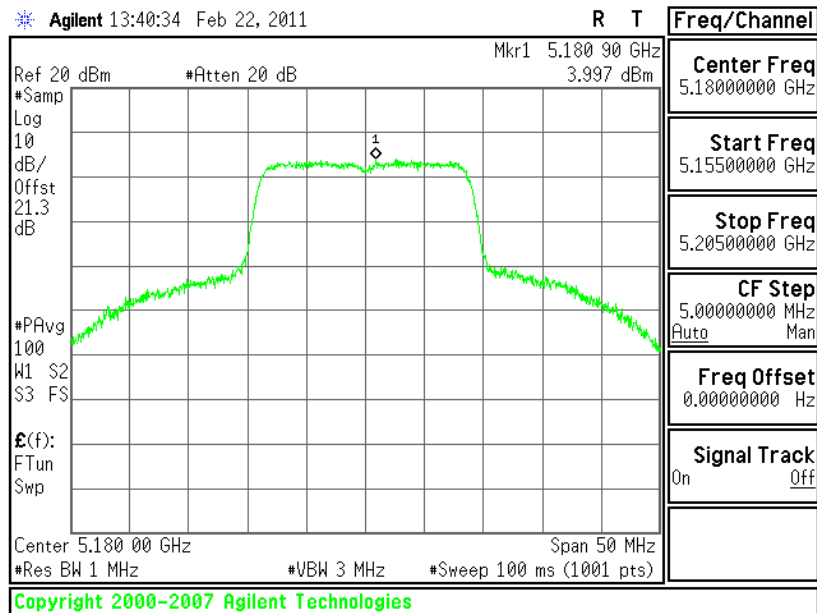
Mode 07:

PSD Plot on 802.11a Channel 140 – Chain C



Mode 08:

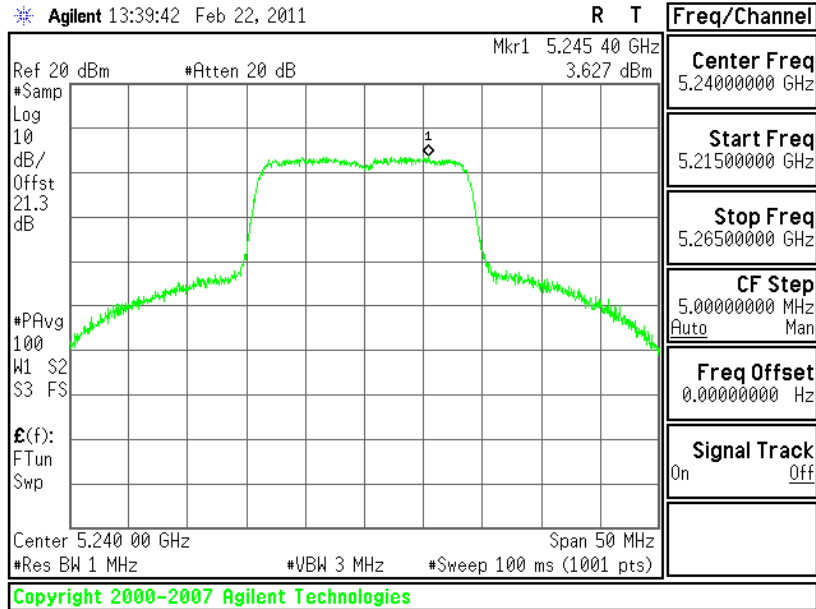
PSD Plot on 802.11n (BW 20MHz) Channel 36 – Chain C





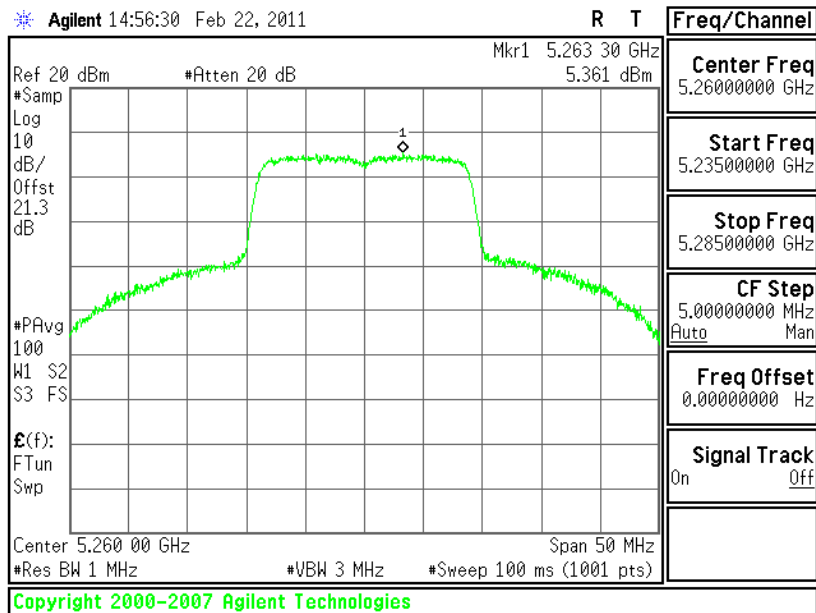
Mode 09:

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



Mode 10:

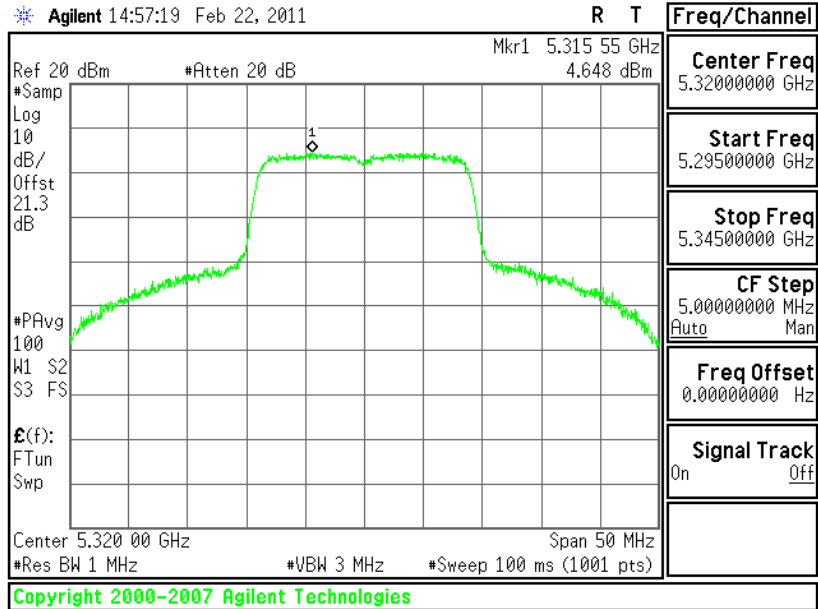
PSD Plot on 802.11n (BW 20MHz) Channel 52 – Chain C





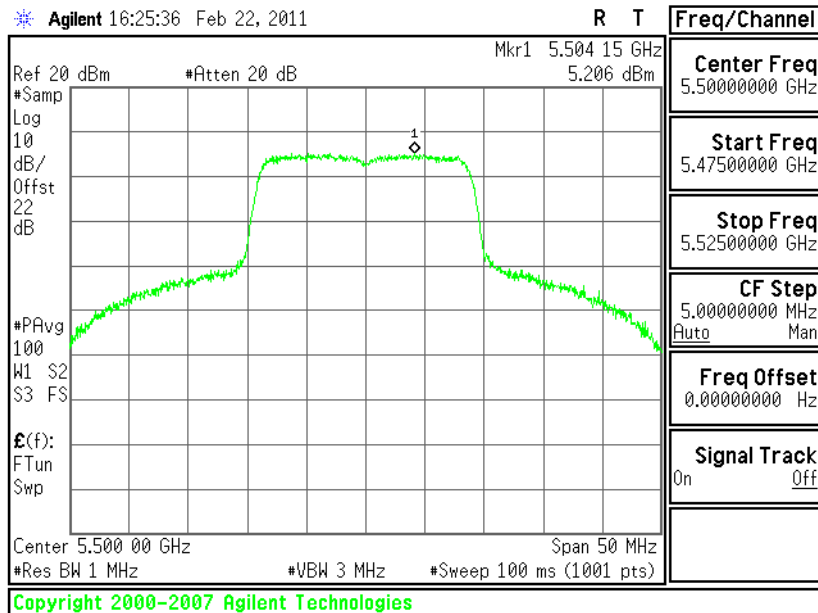
Mode 11:

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



Mode 12:

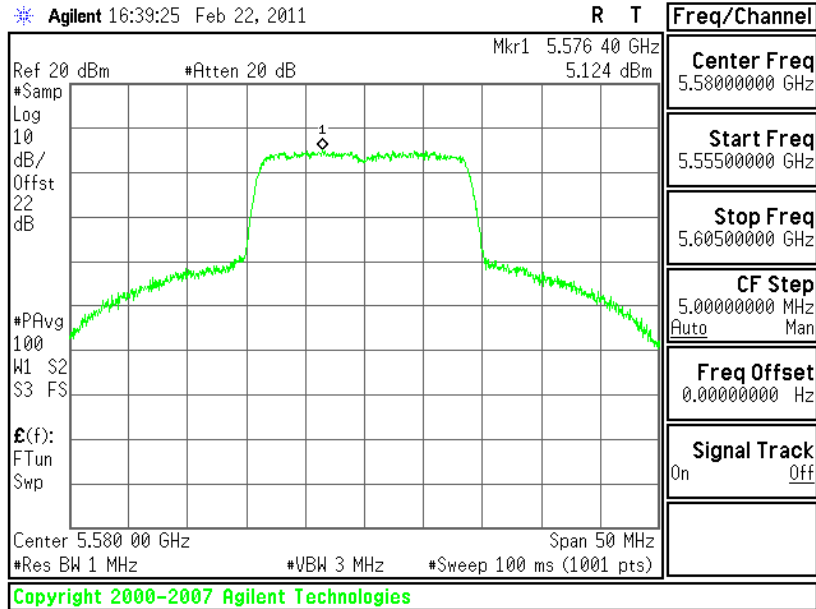
PSD Plot on 802.11n (BW 20MHz) Channel 100 – Chain C





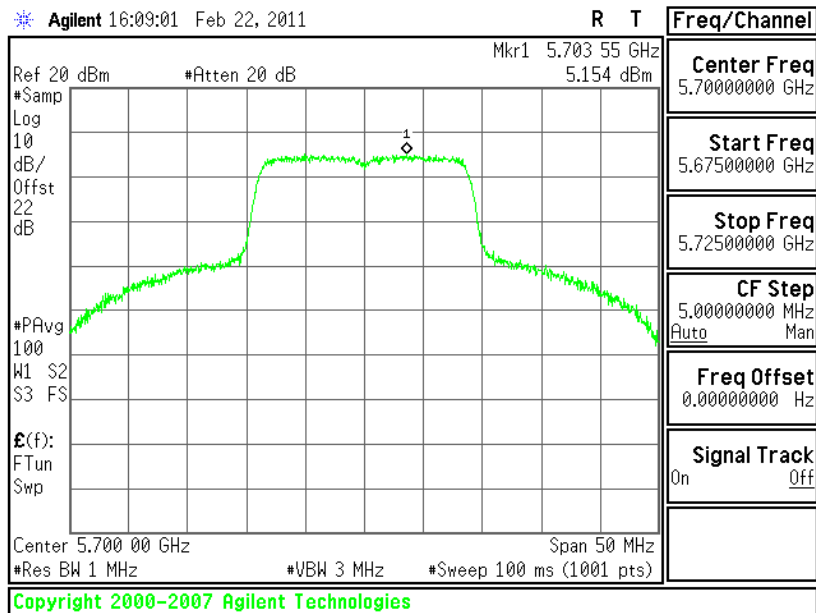
Mode 13:

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



Mode 14:

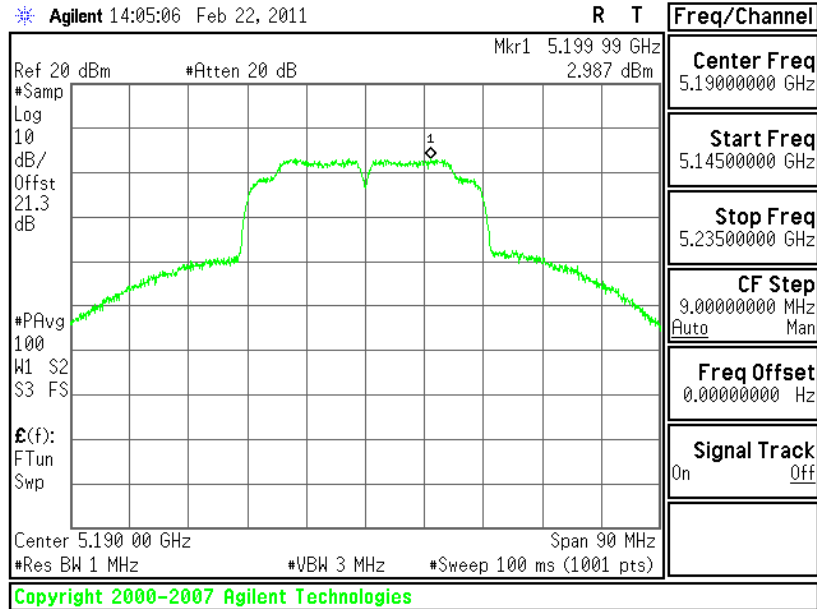
PSD Plot on 802.11n (BW 20MHz) Channel 140 – Chain C





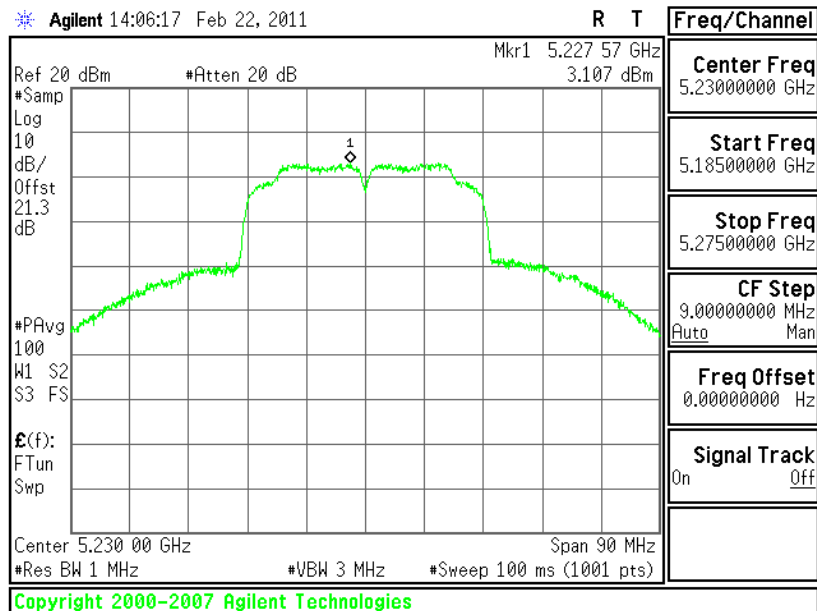
Mode 15:

PSD Plot on 802.11n (BW 40MHz) Channel 38 – Chain C



Mode 16:

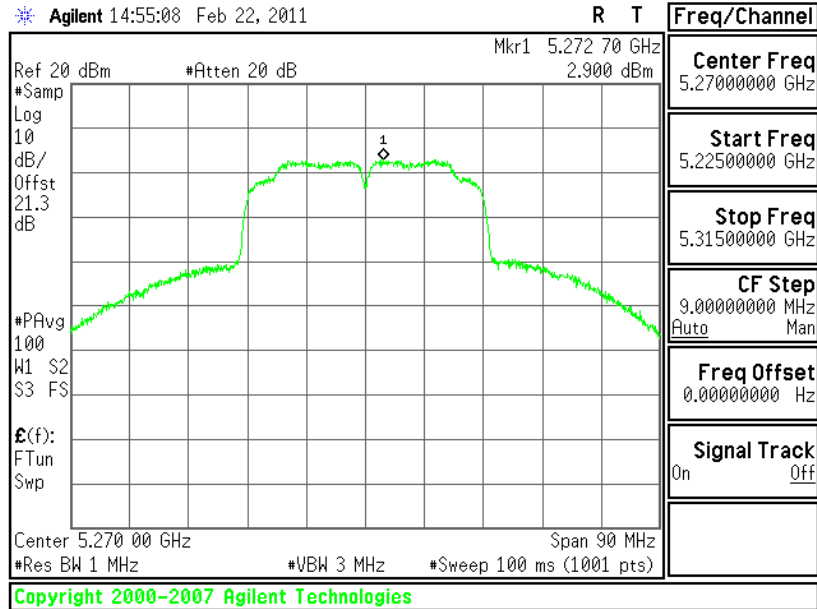
PSD Plot on 802.11n (BW 40MHz) Channel 46 – Chain C





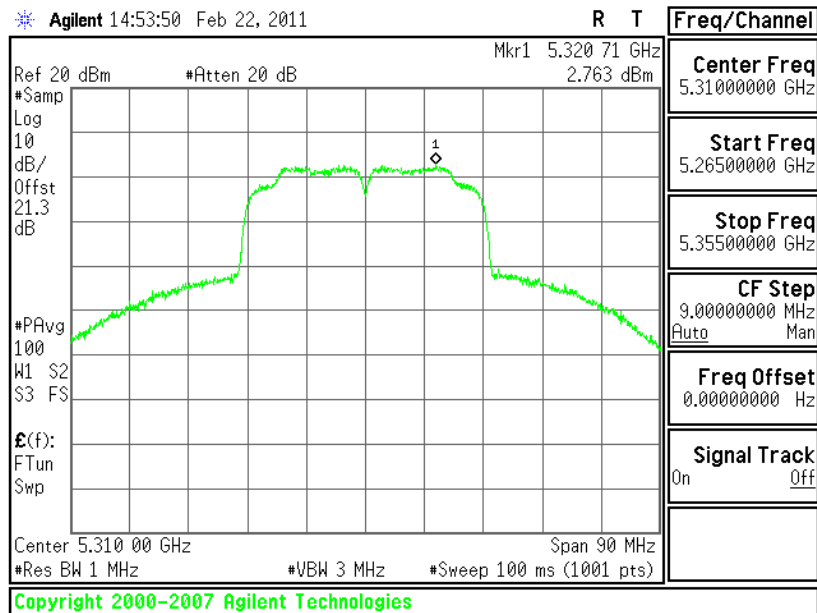
Mode 17:

PSD Plot on 802.11n (BW 40MHz) Channel 54 – Chain C



Mode 18:

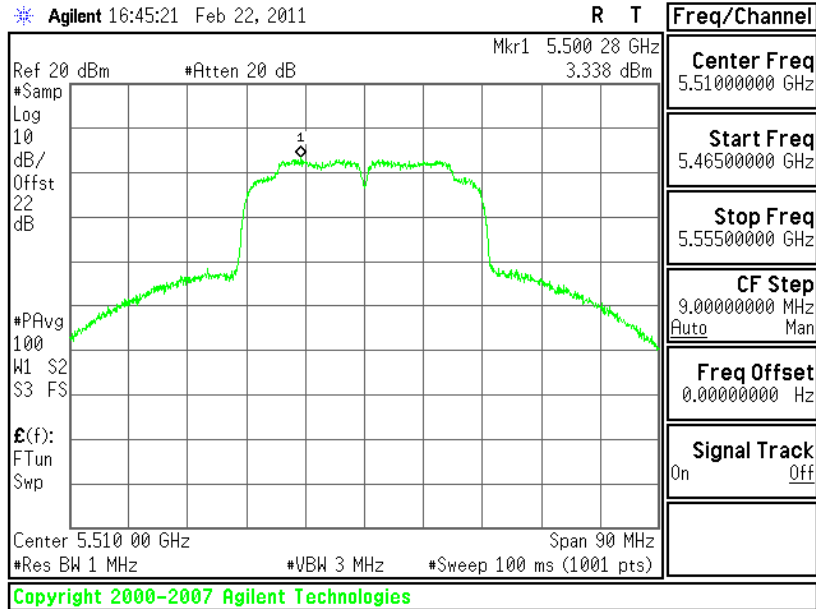
PSD Plot on 802.11n (BW 40MHz) Channel 62 – Chain C





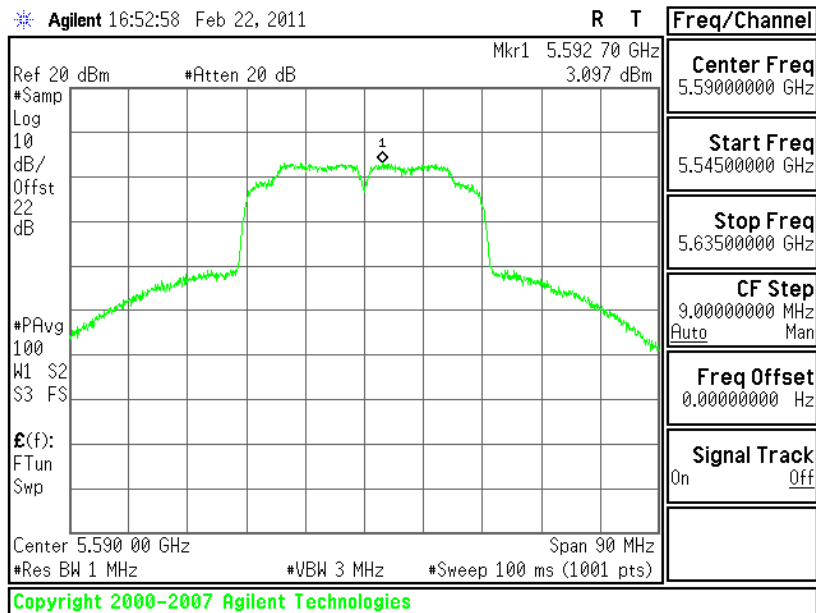
Mode 19:

PSD Plot on 802.11n (BW 40MHz) Channel 102 – Chain C



Mode 20:

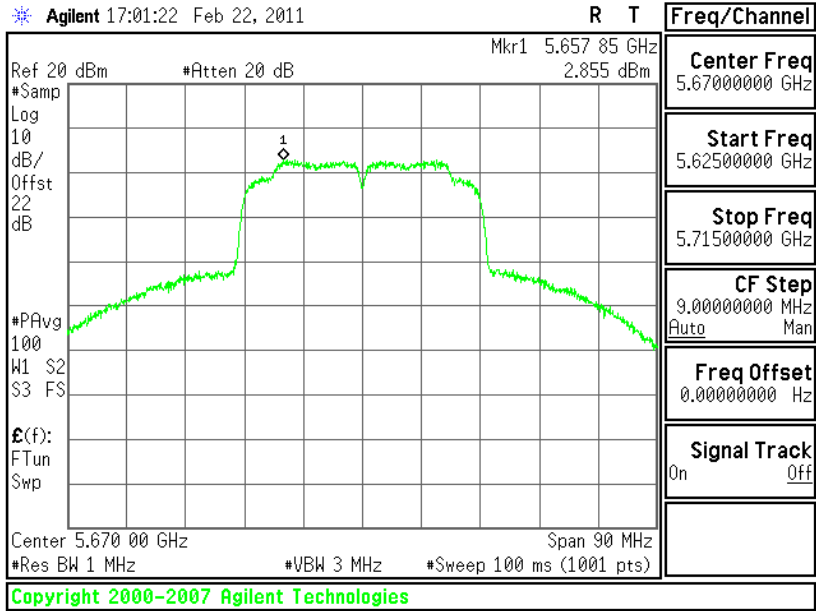
PSD Plot on 802.11n (BW 40MHz) Channel 118 – Chain C





Mode 21:

PSD Plot on 802.11n (BW 40MHz) Channel 134 – Chain C



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 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band. For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- (2) 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

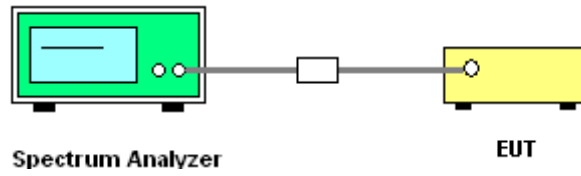
See list of measuring instruments of this test report.

3.4.3 Test Procedures

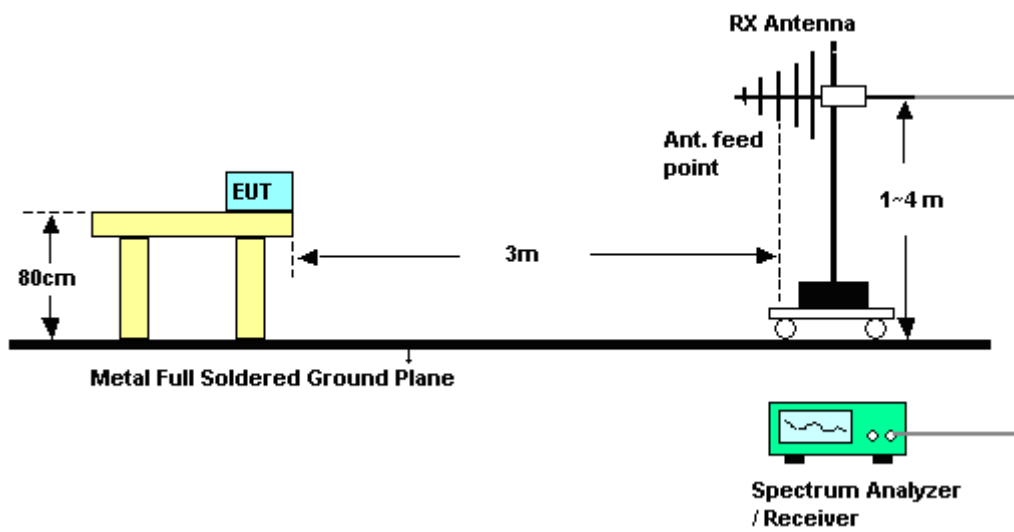
1. Set both RBW and VBW of spectrum analyzer to 1MHz with convenient frequency span including 1MHz bandwidth from band edge.
2. The band edges was measured and recorded.

3.4.4 Test Setup

<Conducted>



<Radiated>





3.4.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	36	Test Engineer :	Ivan Chiang

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	68.19	-5.81	74	58.18	34.25	9.41	33.65	106	294	Peak
5150	50.7	-3.3	54	40.69	34.25	9.41	33.65	106	294	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
5150	66.88	-7.12	74	56.87	34.25	9.41	33.65	106	310	Peak
5150	49.53	-4.47	54	39.52	34.25	9.41	33.65	106	310	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	64	Test Engineer :	Ivan Chiang

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
5350	61.6	-12.4	74	50.67	34.45	9.74	33.26	129	307	Peak
5350	47.65	-6.35	54	36.72	34.45	9.74	33.26	129	307	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
5350	61.51	-12.49	74	50.58	34.45	9.74	33.26	100	315	Peak
5350	47.73	-6.27	54	36.8	34.45	9.74	33.26	100	315	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	100	Test Engineer :	Ivan Chiang

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
5470	67.54	-20.76	88.3	56.04	34.57	9.94	33.01	108	296	Peak
5470	49.72	-18.58	68.3	38.22	34.57	9.94	33.01	108	296	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
5470	66.59	-21.71	88.3	55.09	34.57	9.94	33.01	109	309	Peak
5470	49.05	-19.25	68.3	37.55	34.57	9.94	33.01	109	309	Average

Test Mode :	Mode 6	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	140	Test Engineer :	Ivan Chiang

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
5725	64.55	-23.75	88.3	52.99	34.82	9.92	33.18	102	314	Peak
5725	49.56	-18.74	68.3	38	34.82	9.92	33.18	102	314	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
5725	66.55	-21.75	88.3	54.99	34.82	9.92	33.18	126	306	Peak
5725	50.48	-17.82	68.3	38.92	34.82	9.92	33.18	126	306	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	36	Test Engineer :	Ivan Chiang

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	68.73	-5.27	74	58.72	34.25	9.41	33.65	106	294	Peak
5150	51.5	-2.5	54	41.49	34.25	9.41	33.65	106	294	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
5150	67.2	-6.8	74	57.19	34.25	9.41	33.65	115	314	Peak
5150	49.94	-4.06	54	39.93	34.25	9.41	33.65	115	314	Average

Test Mode :	Mode 9	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	64	Test Engineer :	Ivan Chiang

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
5350	66.11	-7.89	74	55.18	34.45	9.74	33.26	103	290	Peak
5350	50.15	-3.85	54	39.22	34.45	9.74	33.26	103	290	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
5350	65.94	-8.06	74	55.01	34.45	9.74	33.26	102	312	Peak
5350	49.86	-4.14	54	38.93	34.45	9.74	33.26	102	312	Average



Test Mode :	Mode 10	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	100	Test Engineer :	Ivan Chiang

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
5470	67.95	-20.35	88.3	56.45	34.57	9.94	33.01	100	291	Peak
5470	51.51	-16.79	68.3	40.01	34.57	9.94	33.01	100	291	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
5470	67.47	-20.83	88.3	55.97	34.57	9.94	33.01	110	310	Peak
5470	51.04	-17.26	68.3	39.54	34.57	9.94	33.01	110	310	Average

Test Mode :	Mode 12	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	140	Test Engineer :	Ivan Chiang

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
5725	73.25	-15.05	88.3	61.69	34.82	9.92	33.18	116	291	Peak
5725	55	-13.3	68.3	43.44	34.82	9.92	33.18	116	291	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
5725	74.09	-14.21	88.3	62.53	34.82	9.92	33.18	116	308	Peak
5725	54.38	-13.92	68.3	42.82	34.82	9.92	33.18	116	308	Average



Test Mode :	Mode 13	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	49~50%
Test Channel :	38	Test Engineer :	Ivan Chiang

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	67.42	-6.58	74	57.41	34.25	9.41	33.65	105	297	Peak
5150	52.97	-1.03	54	42.96	34.25	9.41	33.65	105	297	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
5150	67.32	-6.68	74	57.31	34.25	9.41	33.65	137	313	Peak
5150	52.4	-1.6	54	42.39	34.25	9.41	33.65	137	313	Average

Test Mode :	Mode 15	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	49~50%
Test Channel :	62	Test Engineer :	Ivan Chiang

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
5350	65.26	-8.74	74	54.33	34.45	9.74	33.26	102	294	Peak
5350	52.18	-1.82	54	41.25	34.45	9.74	33.26	102	294	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
5350	65.54	-8.46	74	54.61	34.45	9.74	33.26	102	318	Peak
5350	51.63	-2.37	54	40.7	34.45	9.74	33.26	102	318	Average



Test Mode :	Mode 16	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	49~50%
Test Channel :	102	Test Engineer :	Ivan Chiang

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
5470	73.91	-14.39	88.3	62.41	34.57	9.94	33.01	109	296	Peak
5470	60.03	-8.27	68.3	48.53	34.57	9.94	33.01	109	296	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
5470	73.31	-14.99	88.3	61.81	34.57	9.94	33.01	130	308	Peak
5470	59.61	-8.69	68.3	48.11	34.57	9.94	33.01	130	308	Average

Test Mode :	Mode 18	Temperature :	24~25°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	49~50%
Test Channel :	134	Test Engineer :	Ivan Chiang

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
5725	61.83	-26.47	88.3	50.27	34.82	9.92	33.18	106	294	Peak
5725	47.8	-20.5	68.3	36.24	34.82	9.92	33.18	106	294	Average

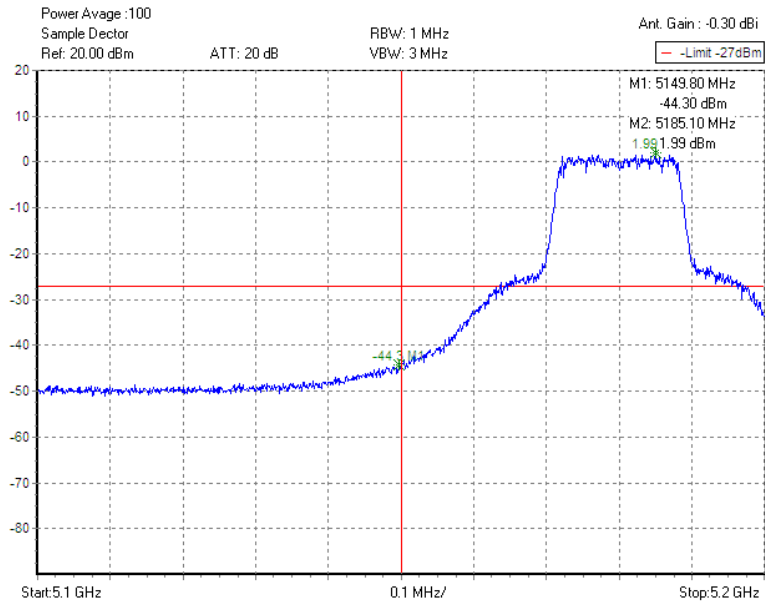
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	60.16	-28.14	88.3	48.6	34.82	9.92	33.18	117	307	Peak
5725	45.46	-22.84	68.3	33.9	34.82	9.92	33.18	117	307	Average



3.4.6 Test Result of Conducted Band Edges

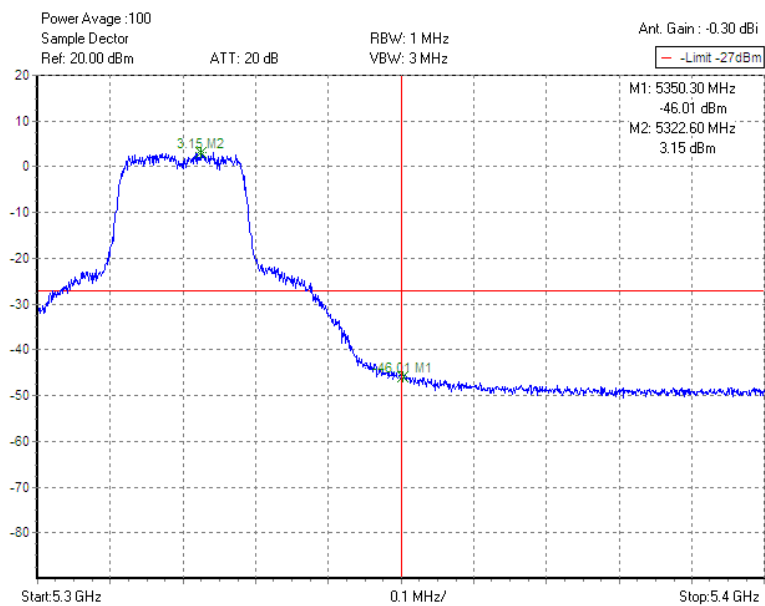
Test Mode :	Mode 1 and Mode 4	Temperature :	26~29°C
Test Band :	802.11a	Relative Humidity :	48~51%
Test Channel :	36 and 64	Test Engineer :	Alan Liu

Mode 1 : Low Band Edge Plot on Channel 36 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 4 : High Band Edge Plot on Channel 64 – Chain C

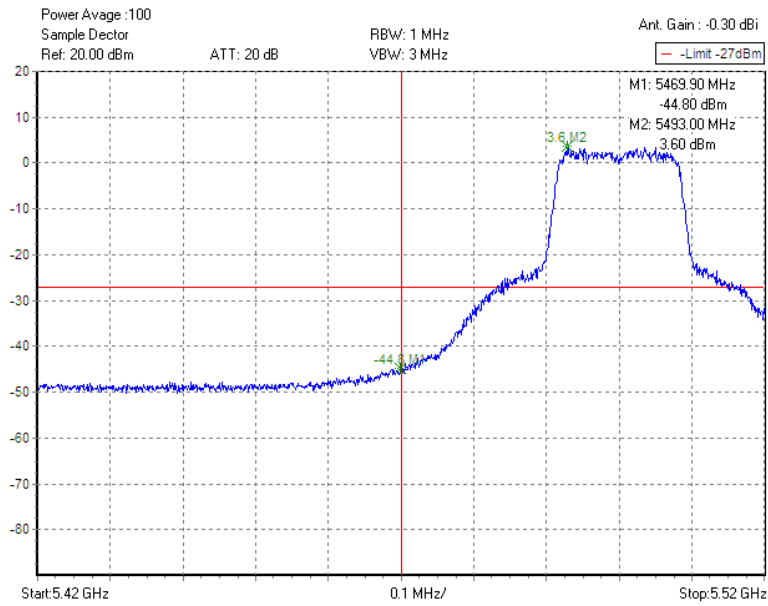


Test result was offsetted with path loss, and antenna gain.



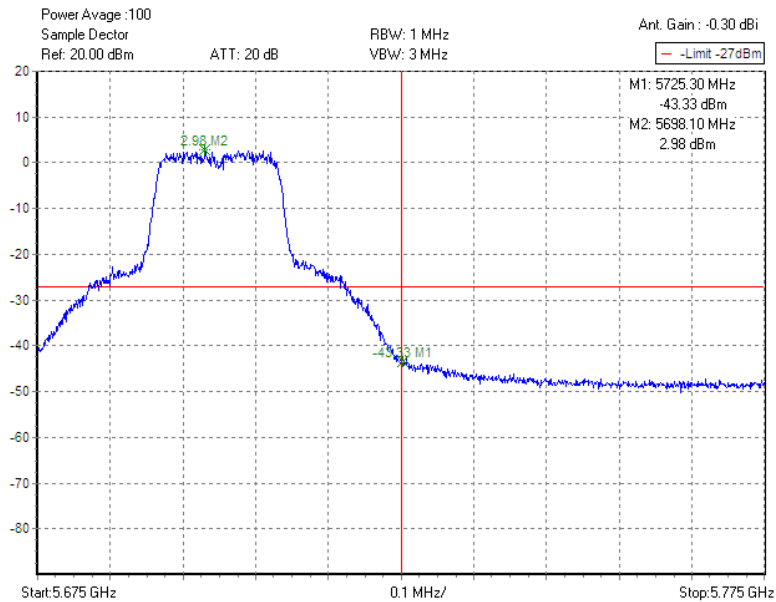
Test Mode :	Mode 5 and Mode 7	Temperature :	26~29°C
Test Band :	802.11a	Relative Humidity :	48~51%
Test Channel :	100 and 140	Test Engineer :	Alan Liu

Mode 5 : Low Band Edge Plot on Channel 100 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 7 : High Band Edge Plot on Channel 140 – Chain C

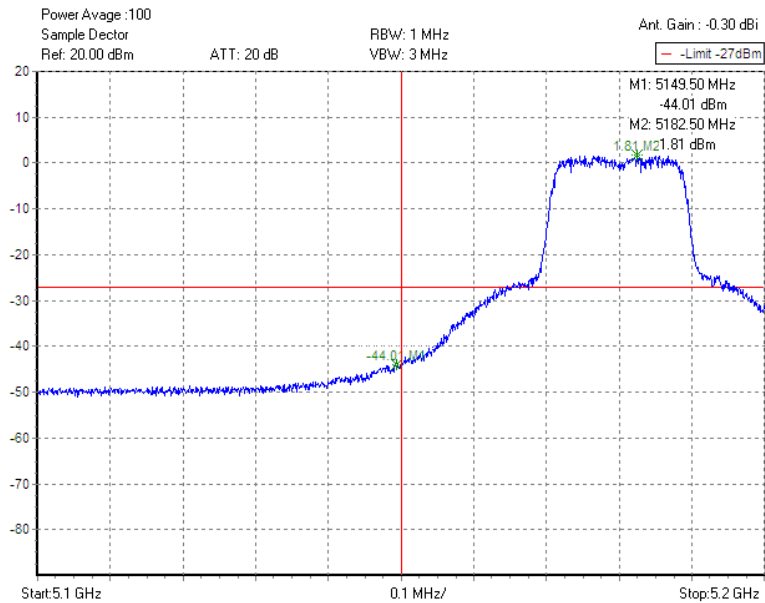


Test result was offsetted with path loss, and antenna gain.



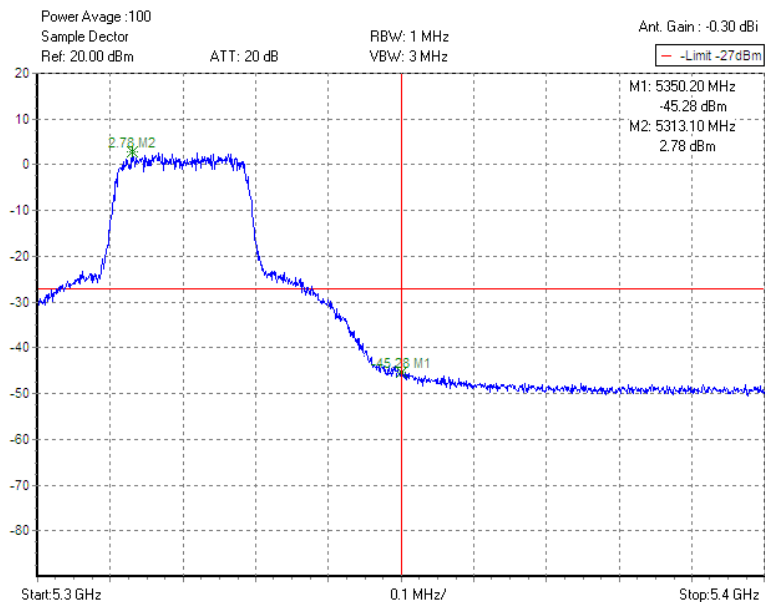
Test Mode :	Mode 8 and Mode 11	Temperature :	26~29°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	36 and 64	Test Engineer :	Alan Liu

Mode 8 : Low Band Edge Plot on Channel 36 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 11 : High Band Edge Plot on Channel 64 – Chain C

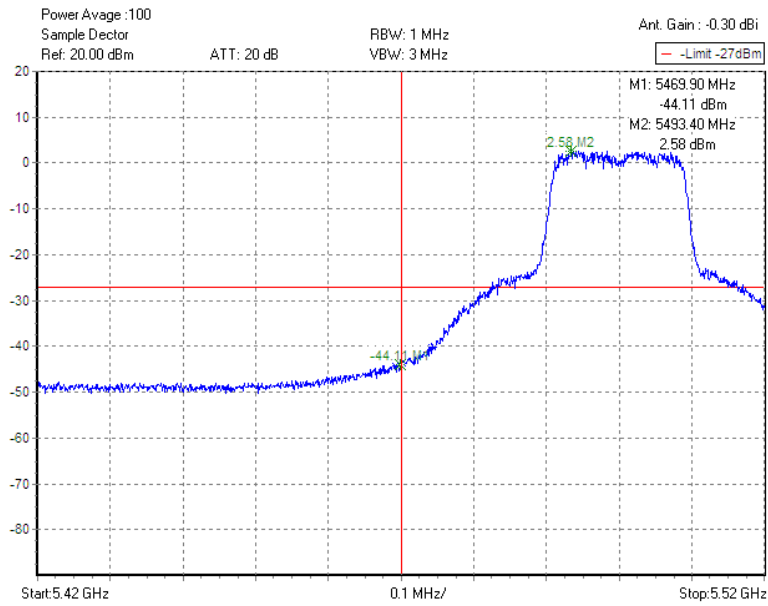


Test result was offsetted with path loss, and antenna gain.



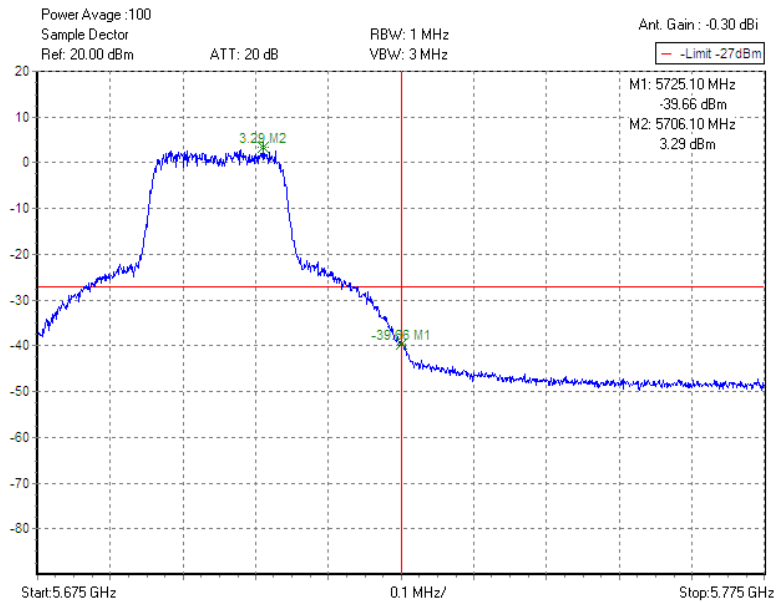
Test Mode :	Mode 12 and Mode 14	Temperature :	26~29°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	100 and 140	Test Engineer :	Alan Liu

Mode 12 : Low Band Edge Plot on Channel 100 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 14 : High Band Edge Plot on Channel 140 – Chain C

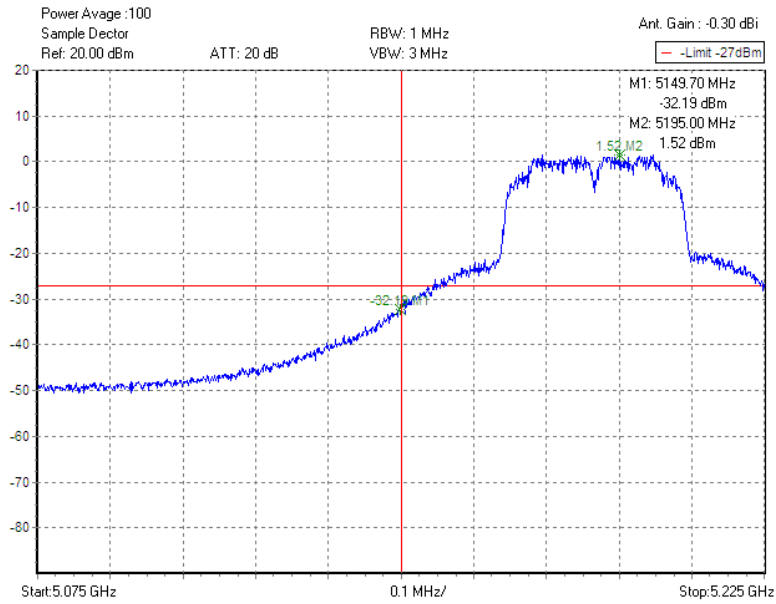


Test result was offsetted with path loss, and antenna gain.



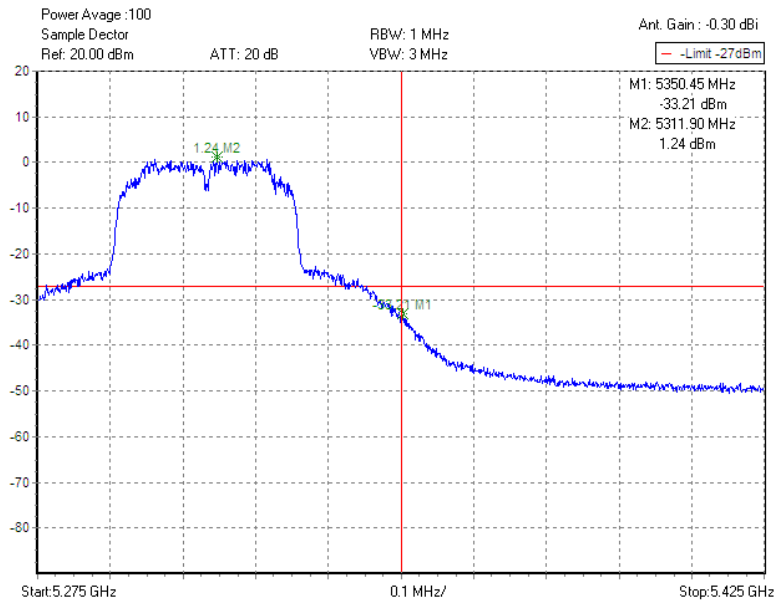
Test Mode :	Mode 15 and Mode 18	Temperature :	26~29°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	48~51%
Test Channel :	38 and 62	Test Engineer :	Alan Liu

Mode 15 : Low Band Edge Plot on Channel 38 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 18 : High Band Edge Plot on Channel 62 – Chain C

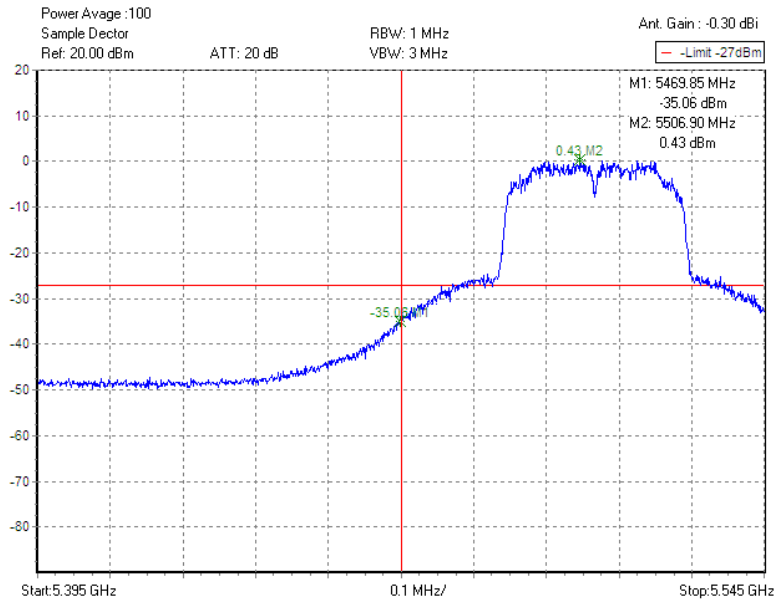


Test result was offsetted with path loss, and antenna gain.



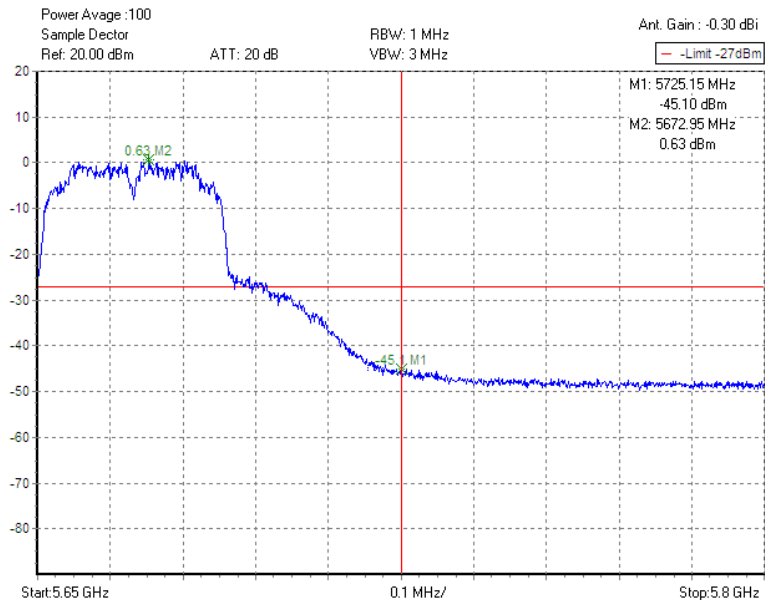
Test Mode :	Mode 19 and Mode 21	Temperature :	26~29°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	48~51%
Test Channel :	102 and 134	Test Engineer :	Alan Liu

Mode 19 : Low Band Edge Plot on Channel 102 – Chain C



Test result was offsetted with path loss, and antenna gain.

Mode 21 : High Band Edge Plot on Channel 134 – Chain C



Test result was offsetted with path loss, and antenna gain.

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 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15–5.25 GHz band.
- (3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.

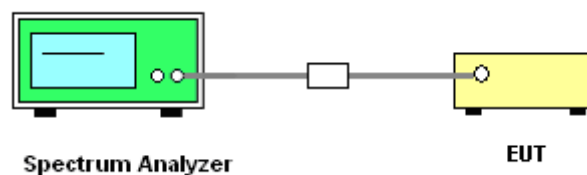
3.5.2 Measuring Instruments

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 loss cable.
2. Set RBW = VBW = 1 MHz, Video bandwidth (VBW), scan from 30 MHz to 40 GHz.

3.5.4 Test Setup

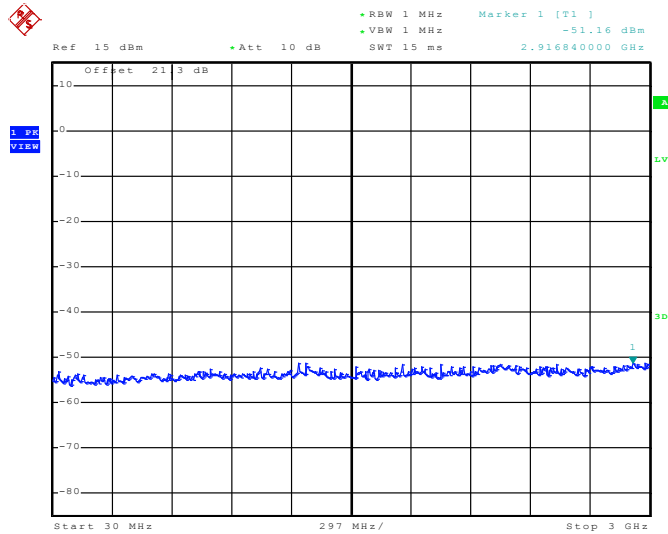




3.5.5 Test Result

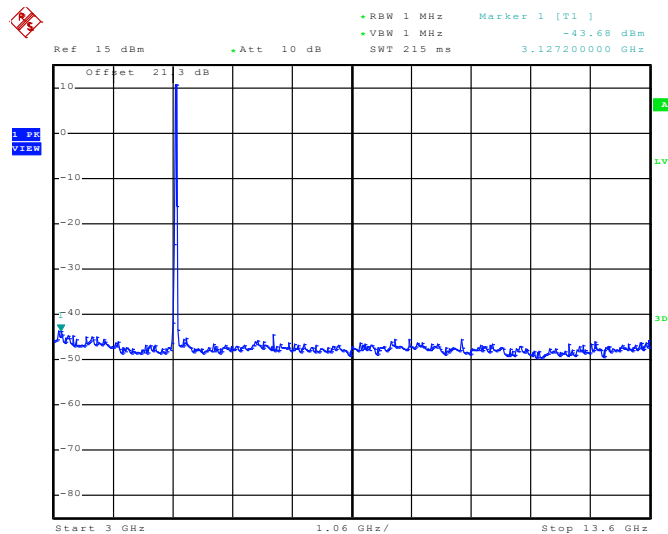
Test Mode :	Mode 1~7	Temperature :	26~29°C
Test Band :	802.11a	Relative Humidity :	48~51%
Test Channel :	36, 48, 52, 64, 100, 116, 140	Test Engineer :	Alan Liu

Mode 1:
Spurious Emission Plot on Channel 36 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 04:59:21

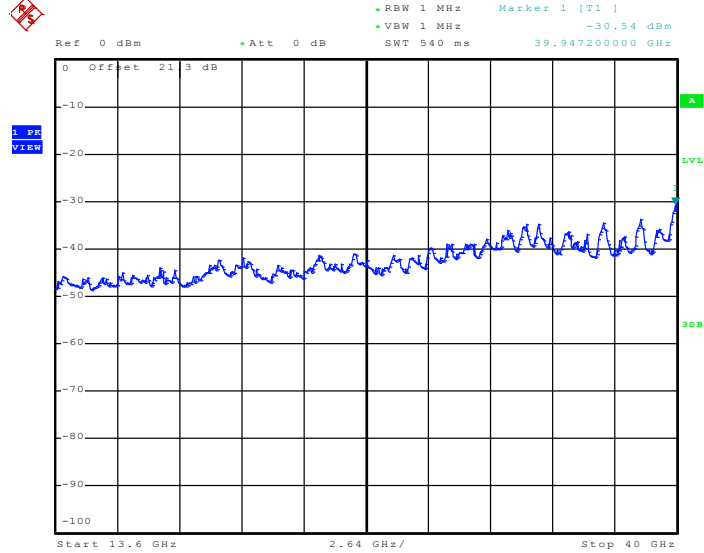
Mode 1:
Spurious Emission Plot on Channel 36 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 04:59:32

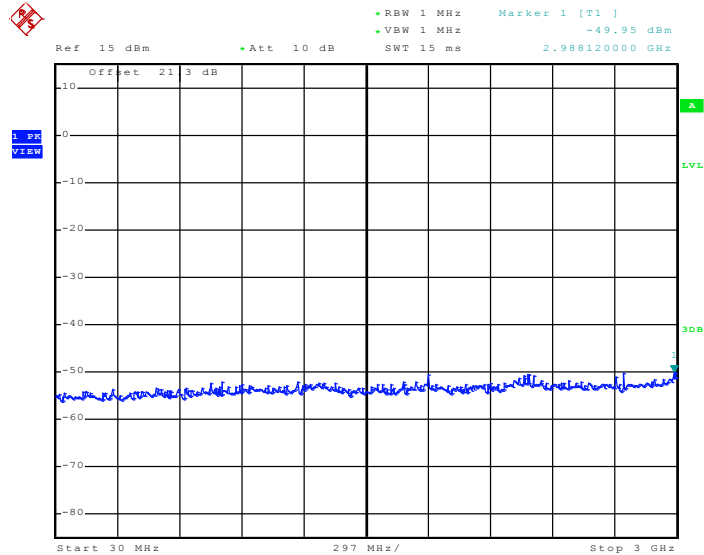


Mode 1:
Spurious Emission Plot on Channel 36 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 04:59:44

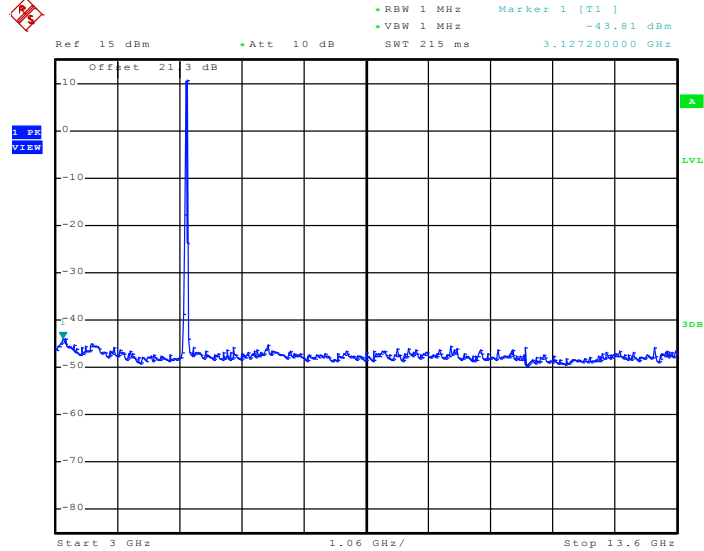
Mode 2:
Spurious Emission Plot on Channel 48 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:00:03

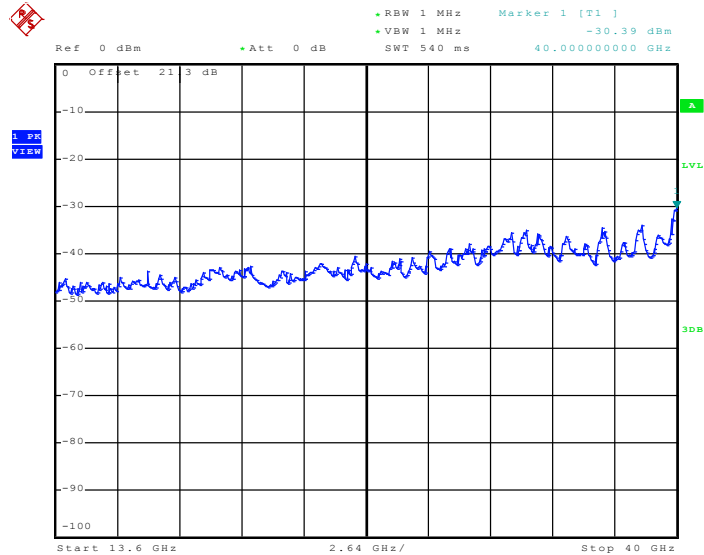


Mode 2:
Spurious Emission Plot on Channel 48 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:00:15

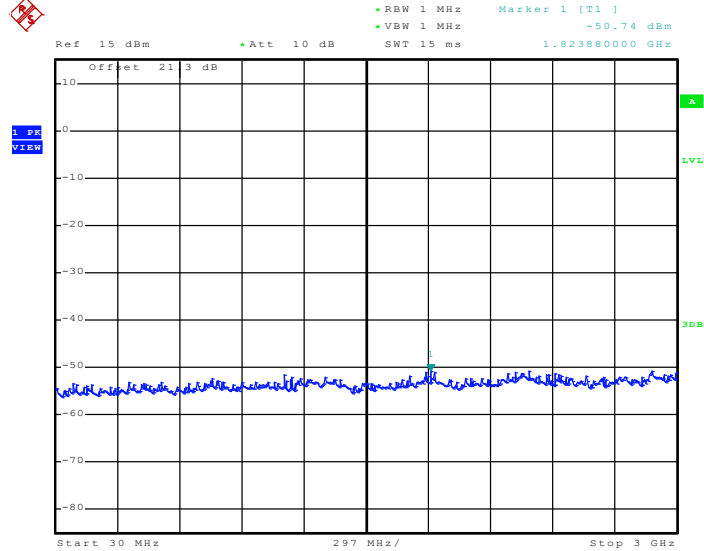
Mode 2:
Spurious Emission Plot on Channel 48 between 13.6 GHz~40 GHz
GHz - Chain C



Date: 23.FEB.2011 05:00:26

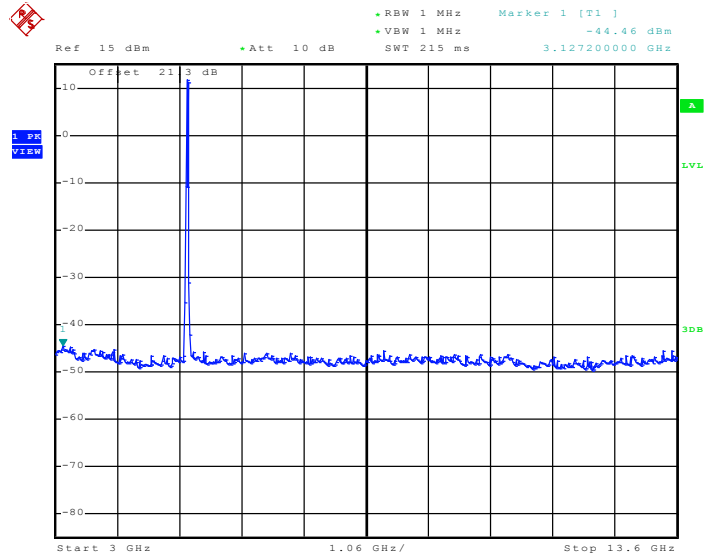


Mode 3:
Spurious Emission Plot on Channel 52 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:00:51

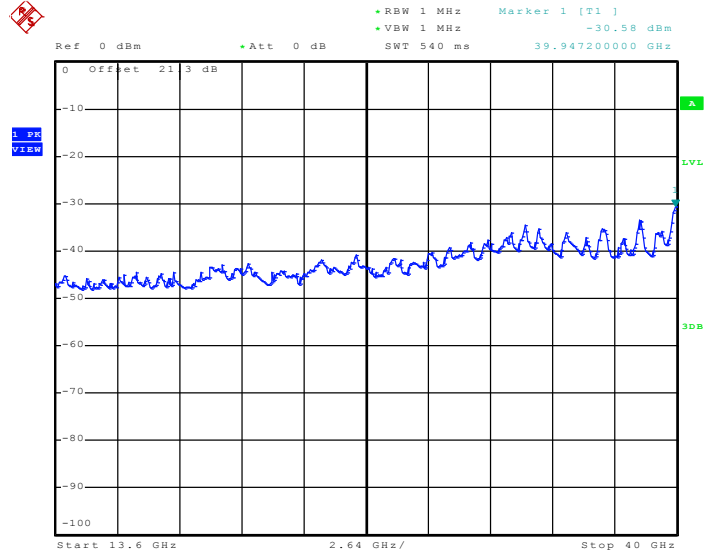
Mode 3:
Spurious Emission Plot on Channel 52 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:01:02

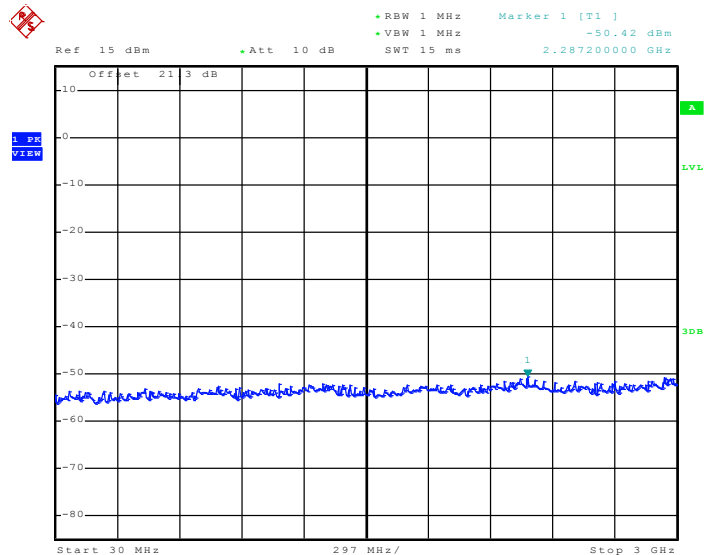


Mode 3:
Spurious Emission Plot on Channel 52 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:01:14

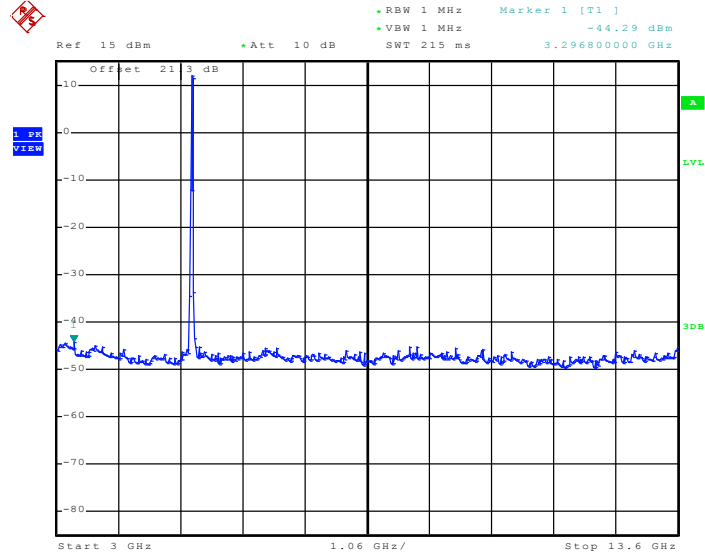
Mode 4:
Spurious Emission Plot on Channel 64 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:01:47

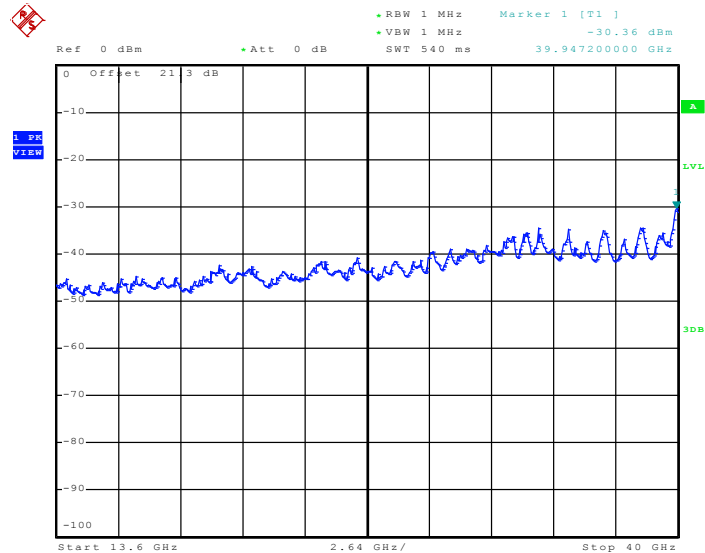


Mode 4:
Spurious Emission Plot on Channel 64 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:01:58

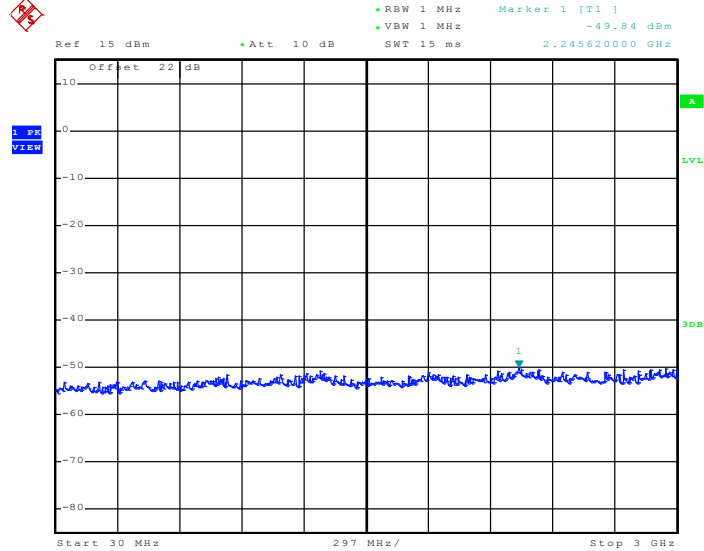
Mode 4:
Spurious Emission Plot on Channel 64 between 13.6 GHz~40 GHz
GHz - Chain C



Date: 23.FEB.2011 05:02:09

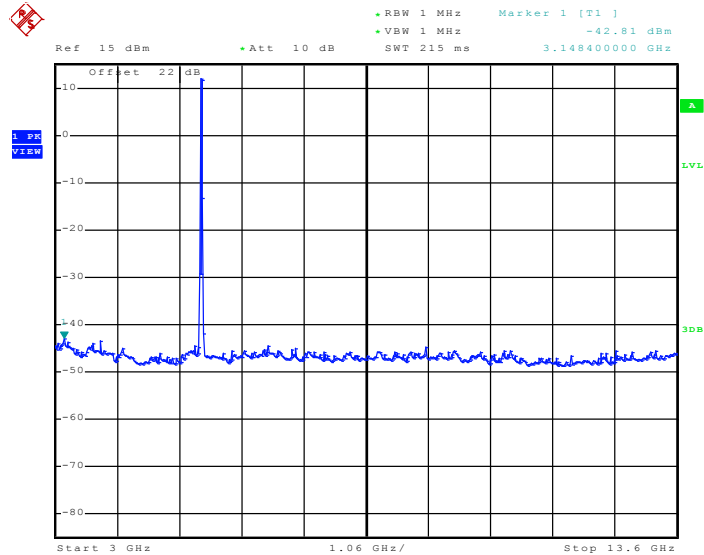


Mode 5:
Spurious Emission Plot on Channel 100 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:02:36

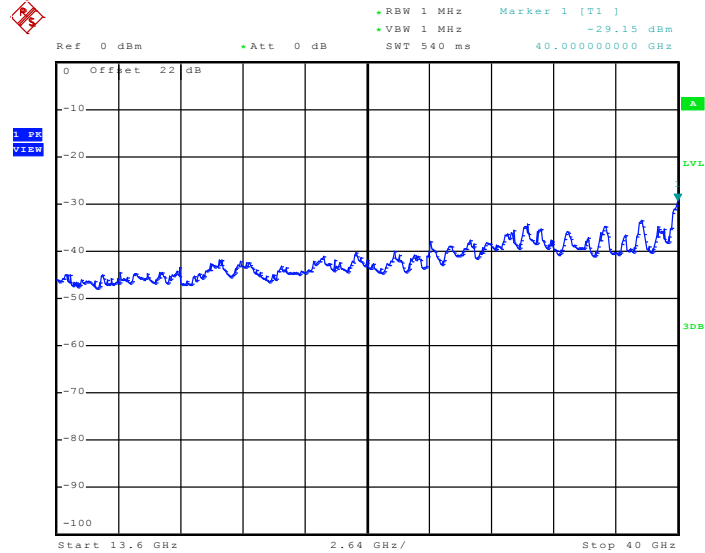
Mode 5:
Spurious Emission Plot on Channel 100 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:02:48

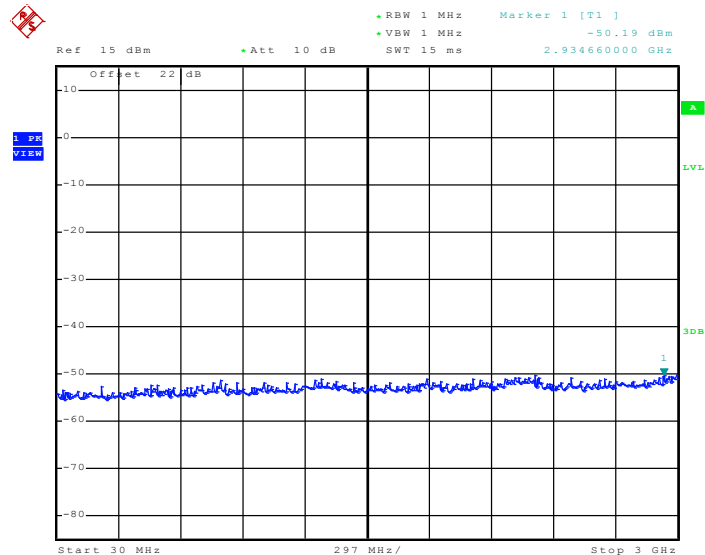


Mode 5:
Spurious Emission Plot on Channel 100 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:02:59

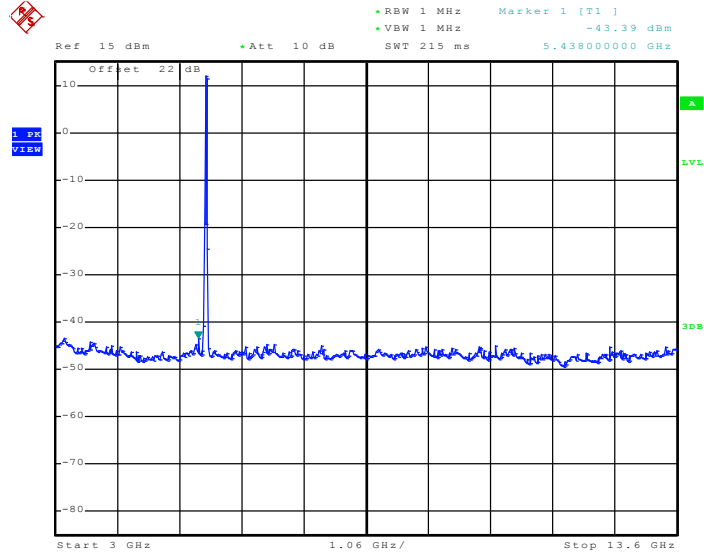
Mode 6:
Spurious Emission Plot on Channel 116 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:03:22

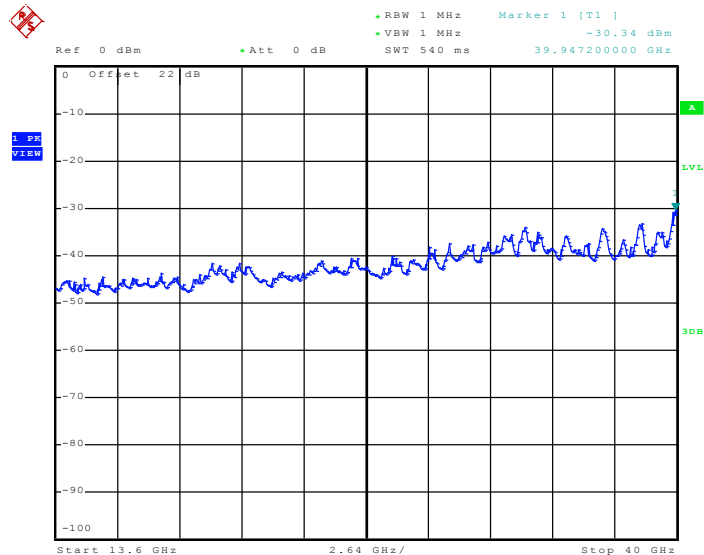


Mode 6:
Spurious Emission Plot on Channel 116 between 3 GHz~13.6 GHz - Chain C



Date: 23.FEB.2011 05:03:34

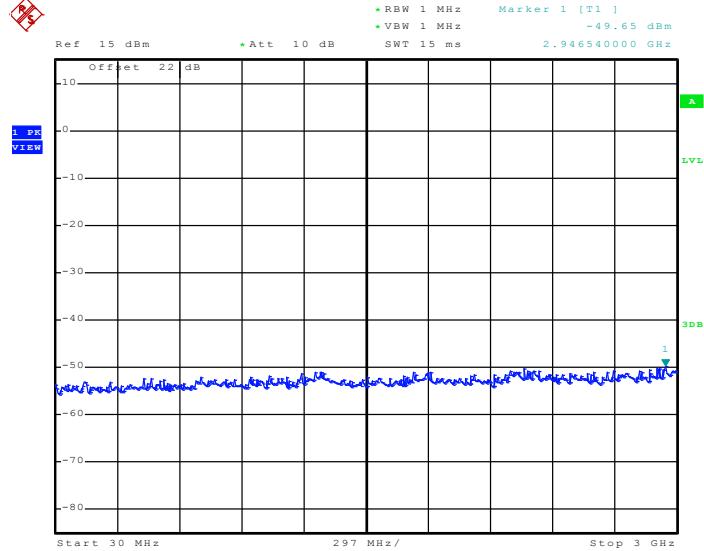
Mode 6:
Spurious Emission Plot on Channel 116 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:03:45

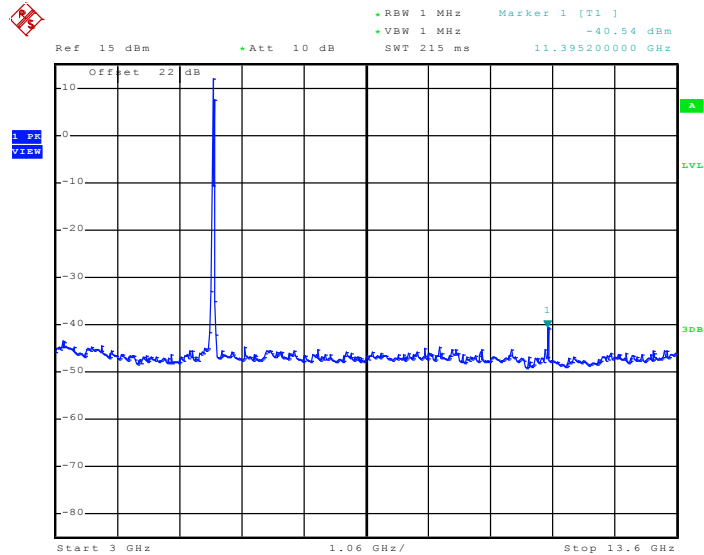


Mode 7:
Spurious Emission Plot on Channel 140 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:04:12

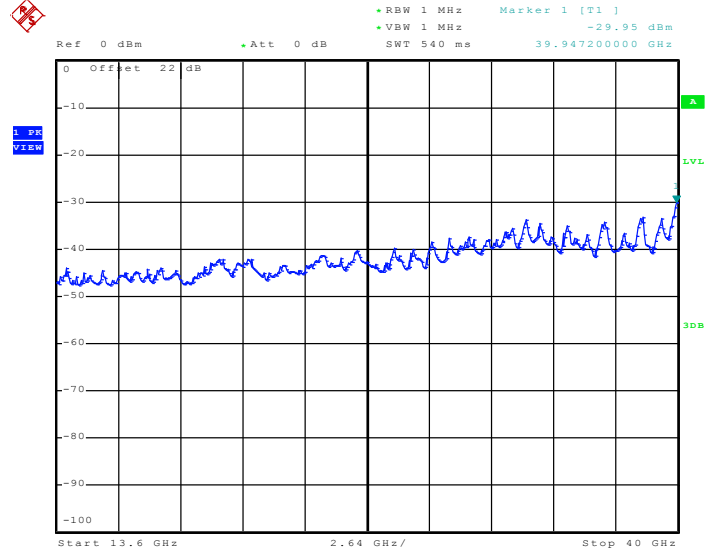
Mode 7:
Spurious Emission Plot on Channel 140 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:04:23



Mode 7:
Spurious Emission Plot on Channel 140 between 13.6 GHz~40 GHz - Chain C

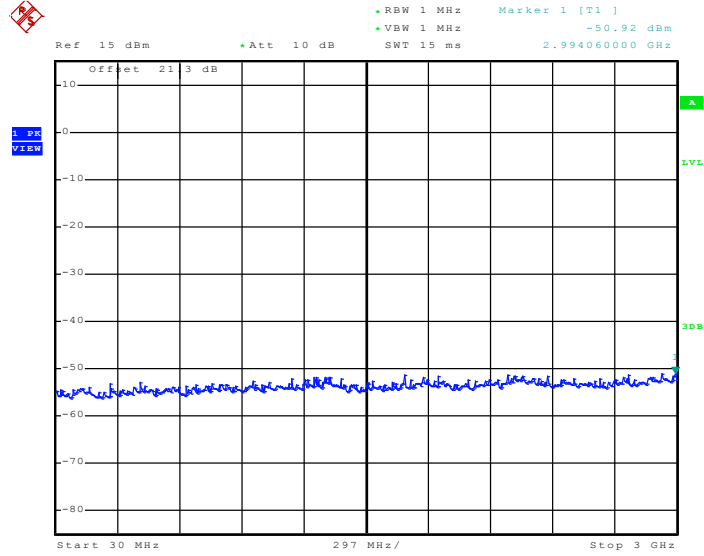


Date: 23.FEB.2011 05:04:34



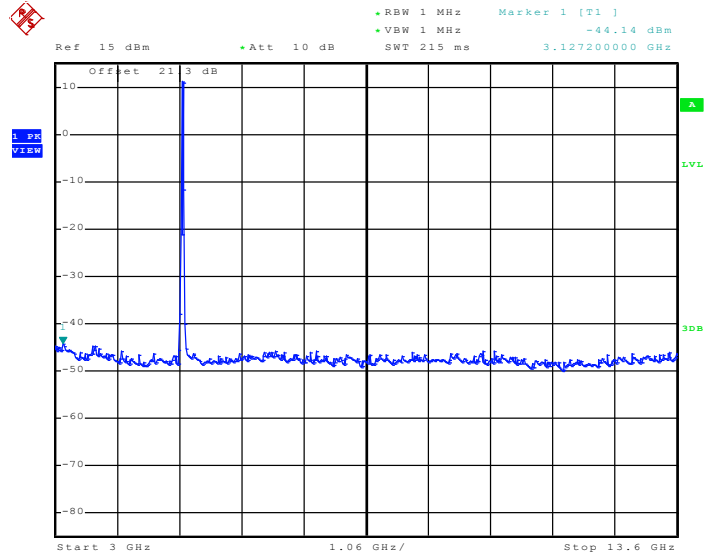
Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	48~51%
Test Channel :	36, 48, 52, 64, 100, 116, 140	Test Engineer :	Alan Liu

Mode 8:
Spurious Emission Plot on Channel 36 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:08:58

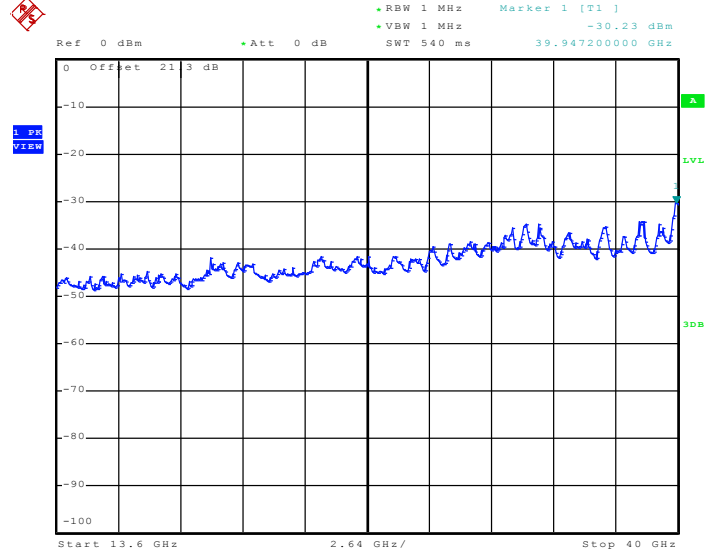
Mode 8:
Spurious Emission Plot on Channel 36 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:09:09

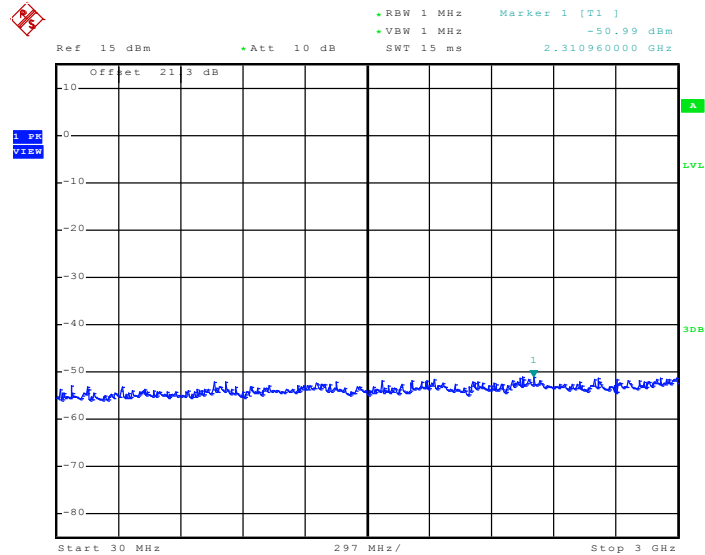


Mode 8:
Spurious Emission Plot on Channel 36 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:09:21

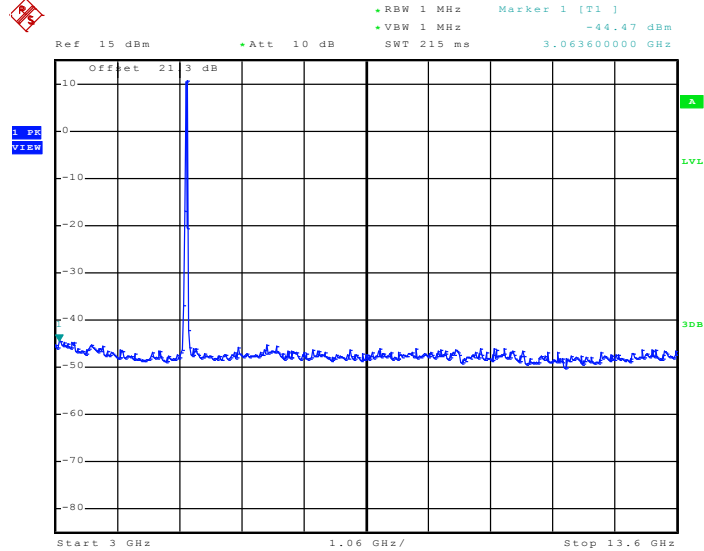
Mode 9:
Spurious Emission Plot on Channel 48 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:10:20

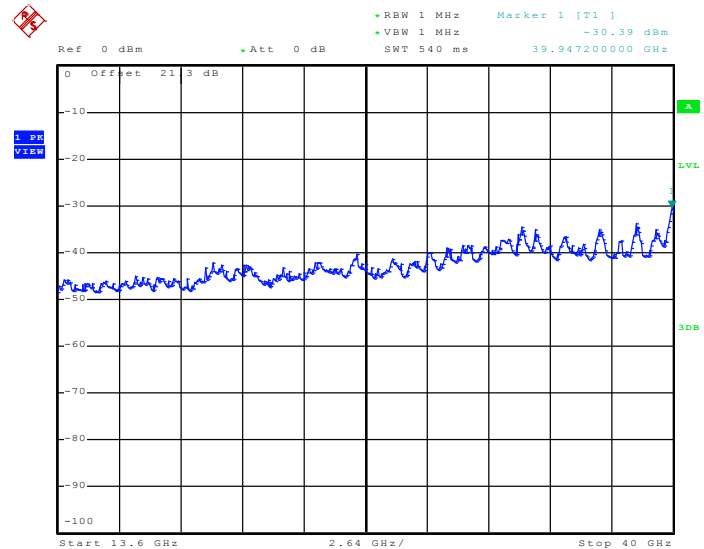


Mode 9:
Spurious Emission Plot on Channel 48 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:10:32

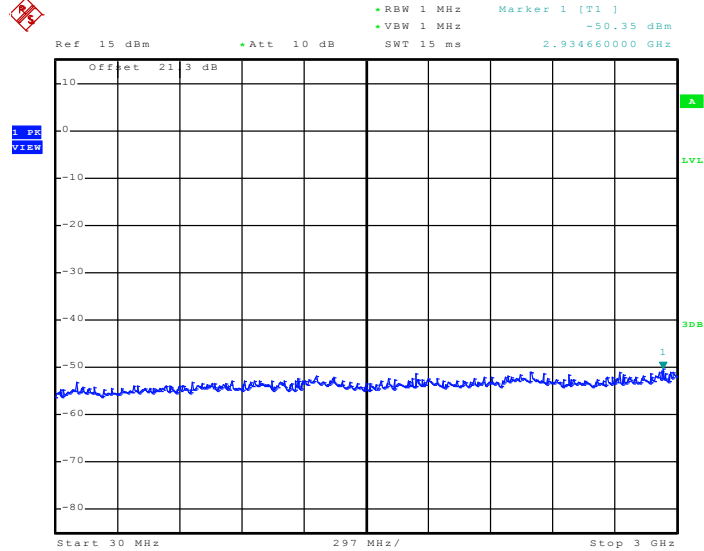
Mode 9:
Spurious Emission Plot on Channel 48 between 13.6 GHz~40 GHz
GHz - Chain C



Date: 23.FEB.2011 05:10:43

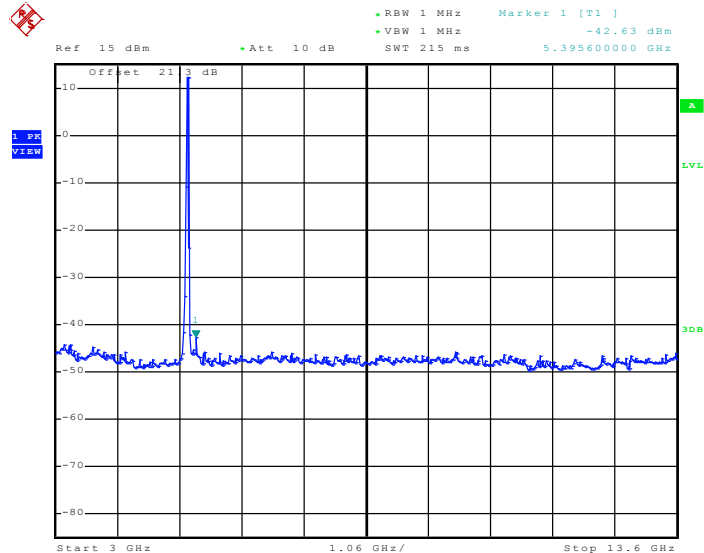


Mode 10:
Spurious Emission Plot on Channel 52 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:11:07

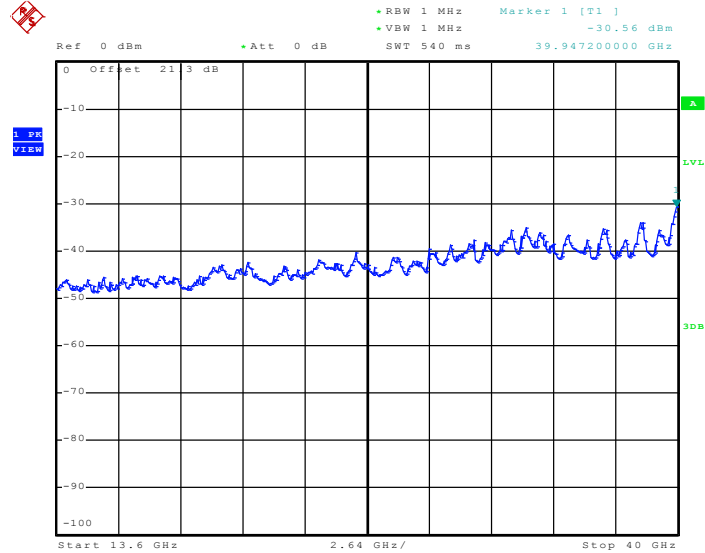
Mode 10:
Spurious Emission Plot on Channel 52 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:11:18

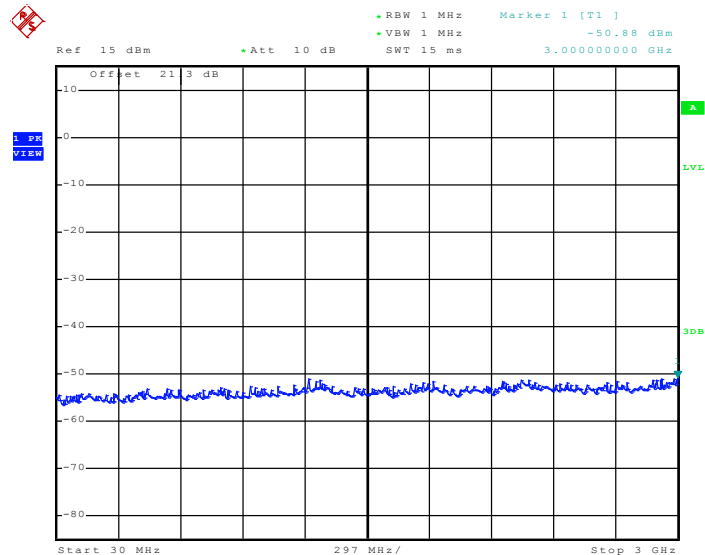


Mode 10:
Spurious Emission Plot on Channel 52 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:11:30

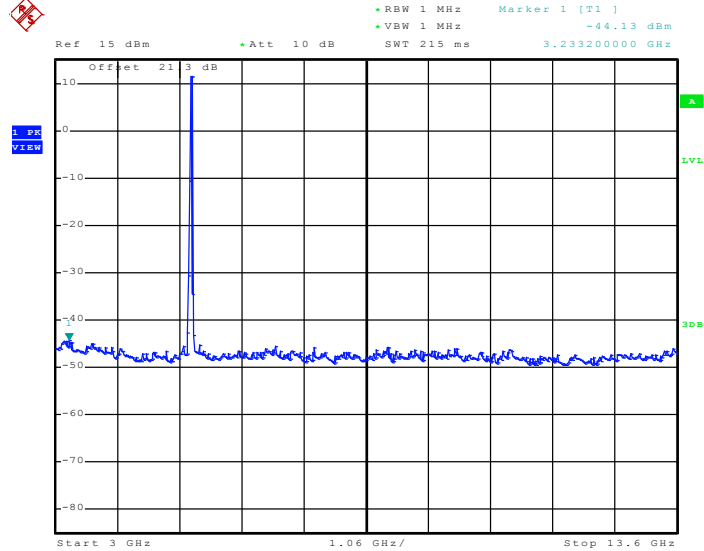
Mode 11:
Spurious Emission Plot on Channel 64 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:11:48

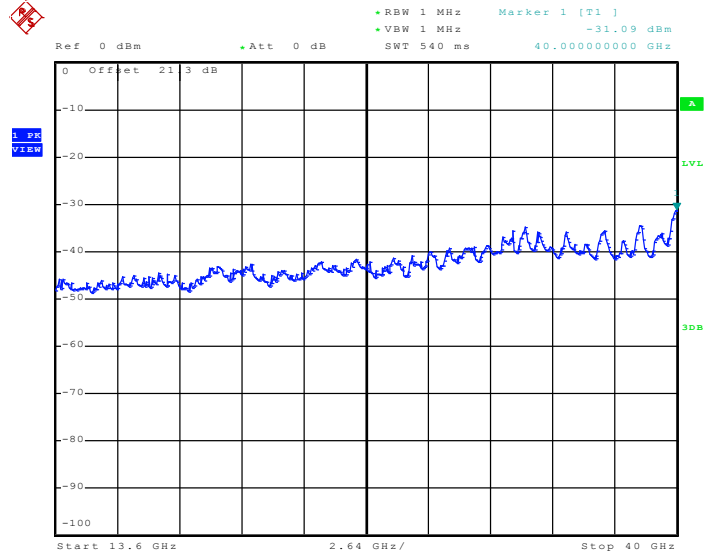


Mode 11:
Spurious Emission Plot on Channel 64 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:12:00

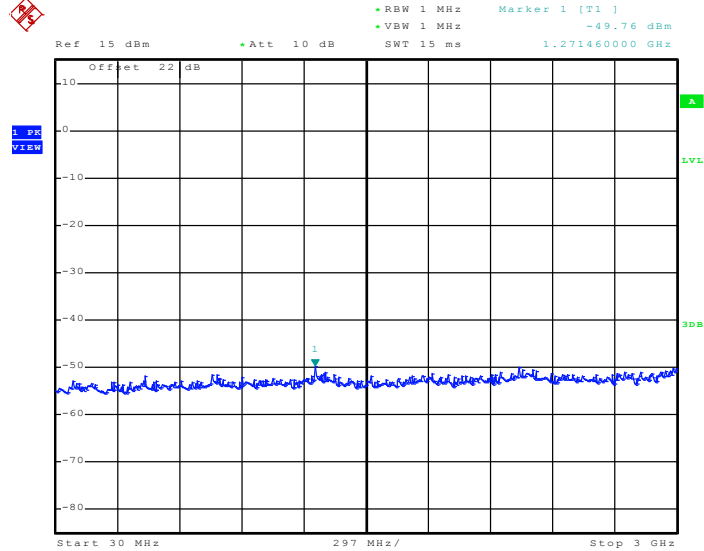
Mode 11:
Spurious Emission Plot on Channel 64 between 13.6 GHz~40 GHz
GHz - Chain C



Date: 23.FEB.2011 05:12:11

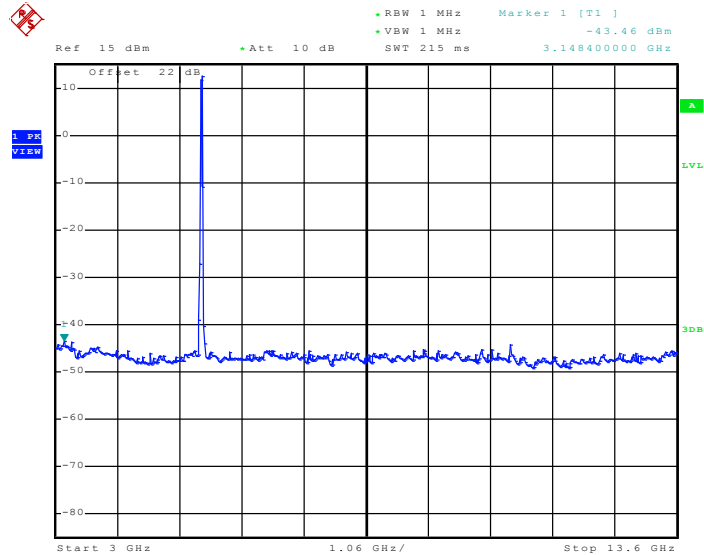


Mode 12:
Spurious Emission Plot on Channel 100 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:12:42

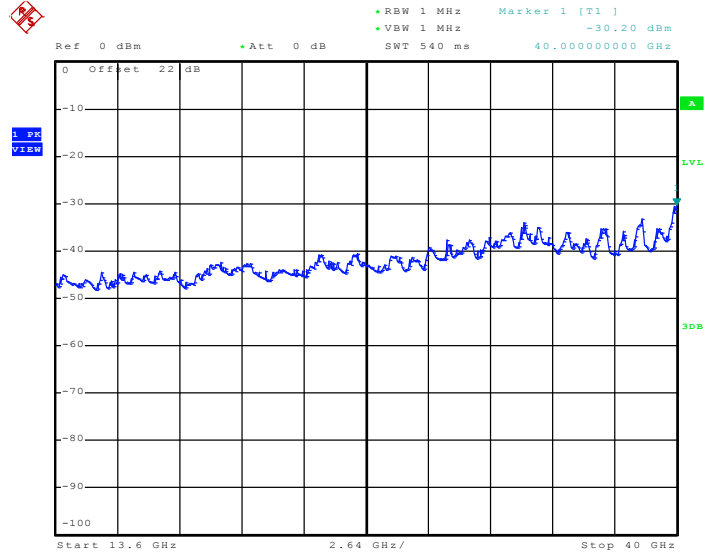
Mode 12:
Spurious Emission Plot on Channel 100 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:12:53

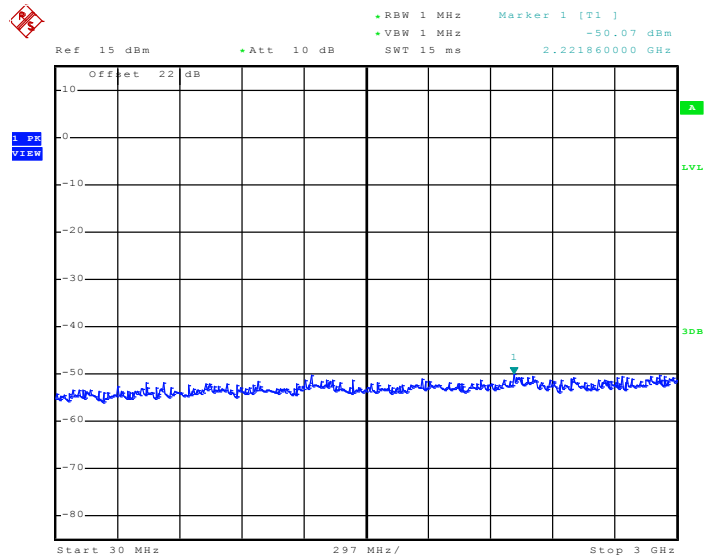


Mode 12:
Spurious Emission Plot on Channel 100 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:13:05

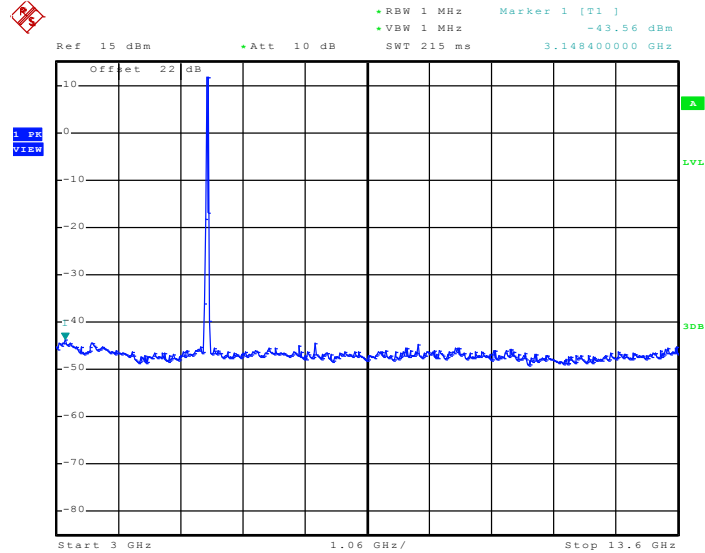
Mode 13:
Spurious Emission Plot on Channel 116 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:13:25

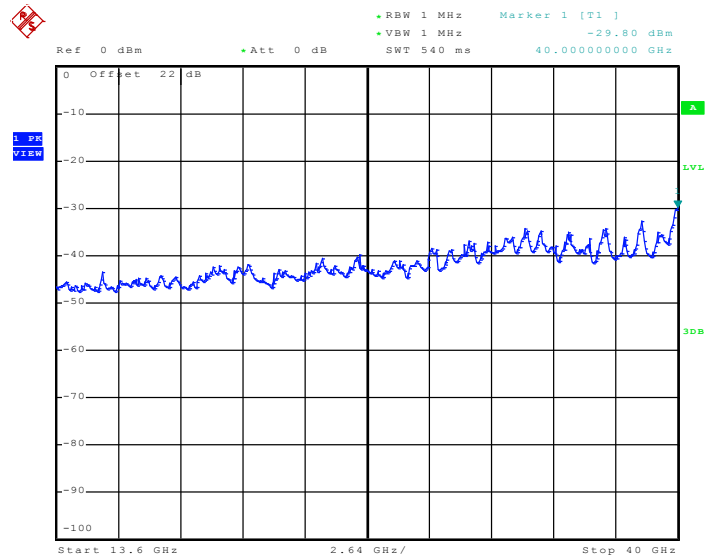


Mode 13:
Spurious Emission Plot on Channel 116 between 3 GHz~13.6 GHz - Chain C



Date: 23.FEB.2011 05:13:37

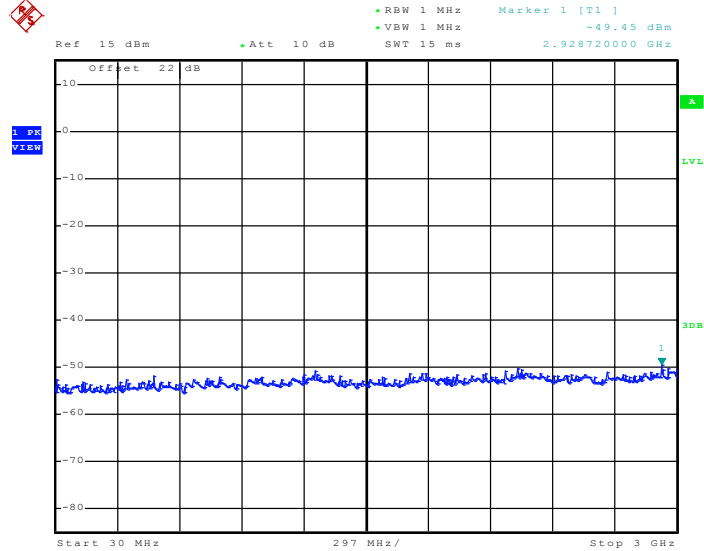
Mode 13:
Spurious Emission Plot on Channel 116 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:13:48

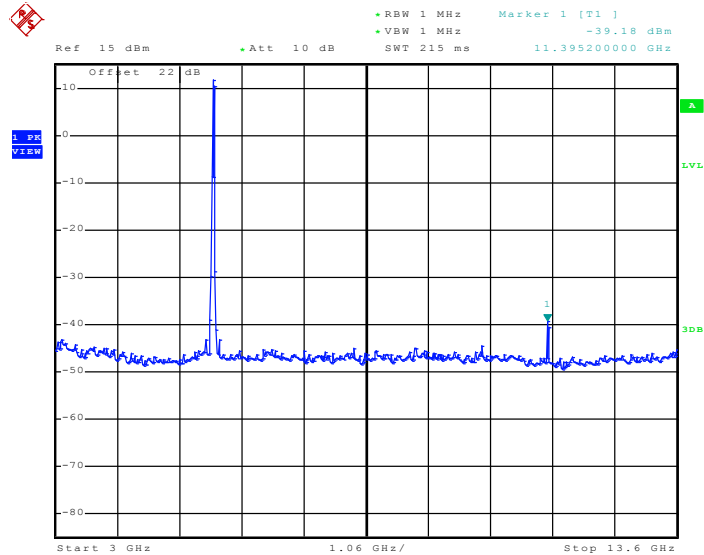


Mode 14:
Spurious Emission Plot on Channel 140 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:14:14

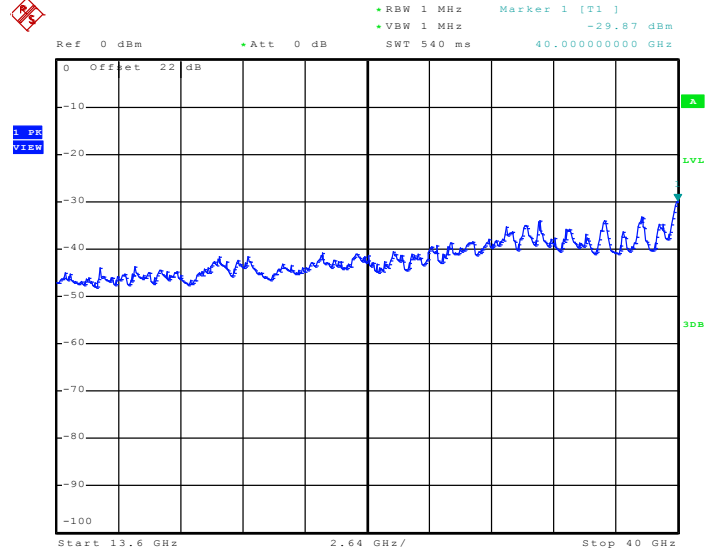
Mode 14:
Spurious Emission Plot on Channel 140 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:14:26



**Mode 14:
Spurious Emission Plot on Channel 140 between 13.6 GHz~40 GHz - Chain C**

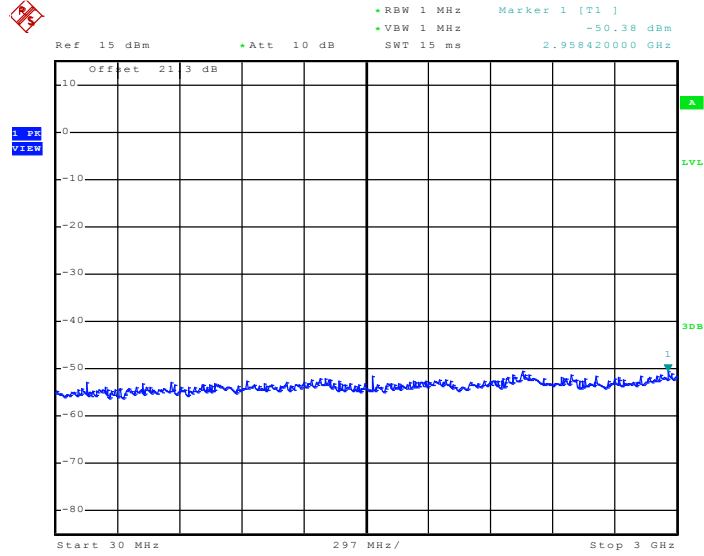


Date: 23.FEB.2011 05:14:37



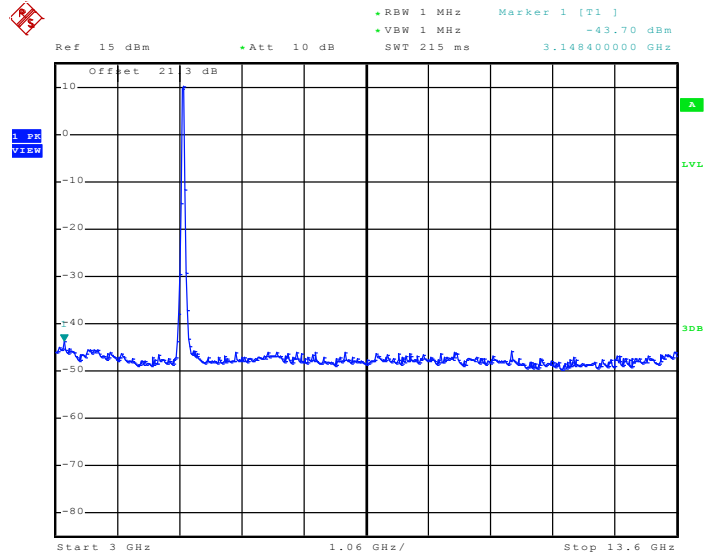
Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Band :	802.11a	Relative Humidity :	48~51%
Test Channel :	38, 46, 54, 62, 102, 118, 134	Test Engineer :	Alan Liu

Mode 15:
Spurious Emission Plot on Channel 38 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:18:38

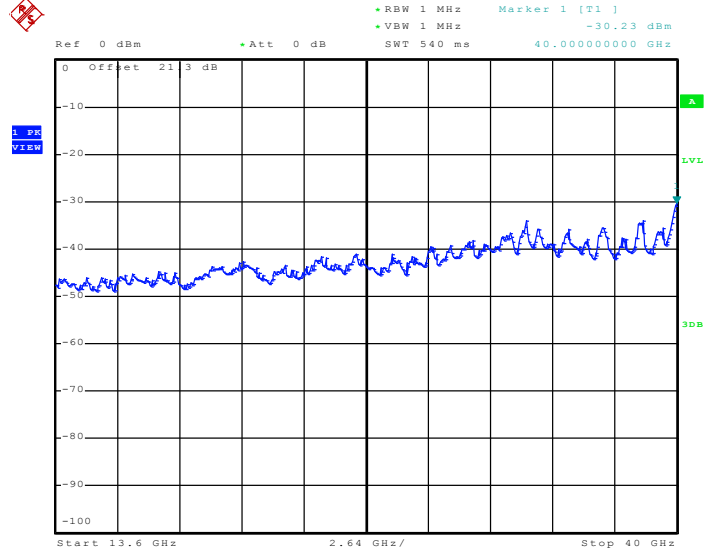
Mode 15:
Spurious Emission Plot on Channel 38 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:18:50

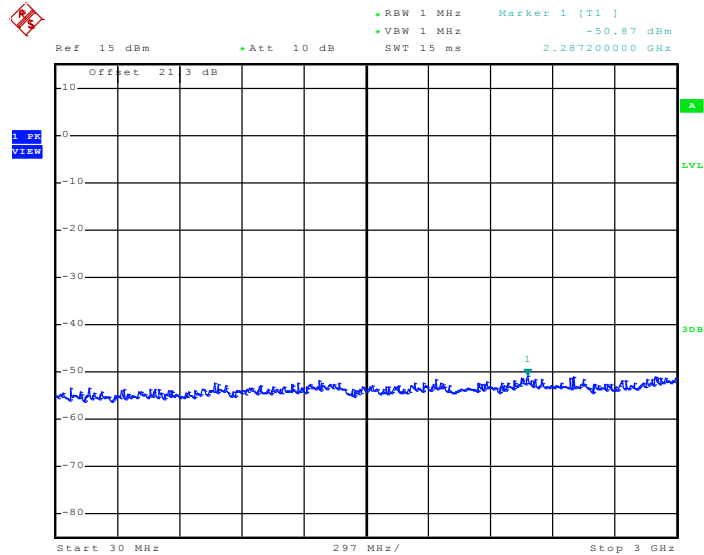


Mode 15:
Spurious Emission Plot on Channel 38 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:19:01

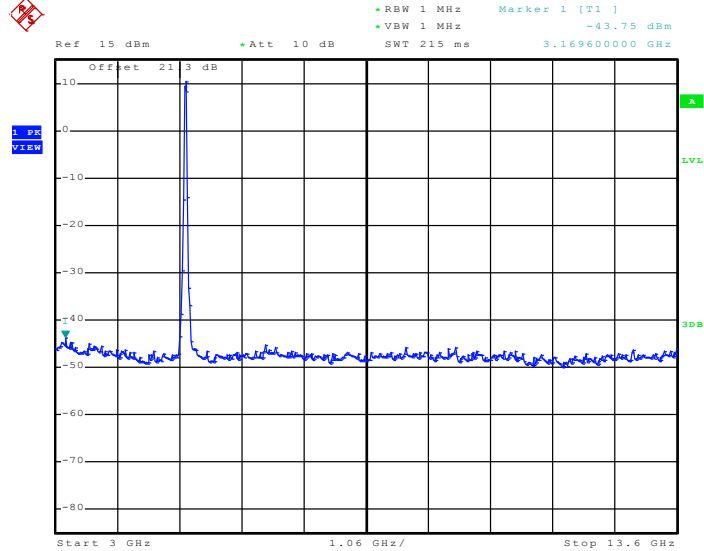
Mode 16:
Spurious Emission Plot on Channel 46 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:19:20

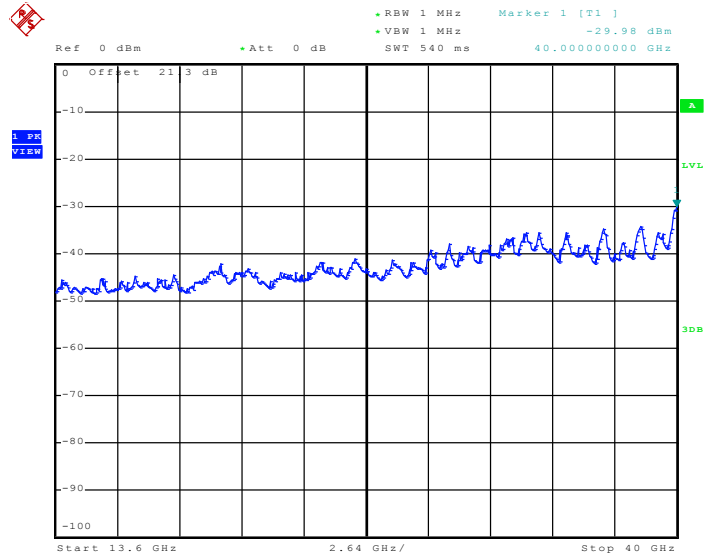


Mode 16:
Spurious Emission Plot on Channel 46 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:19:31

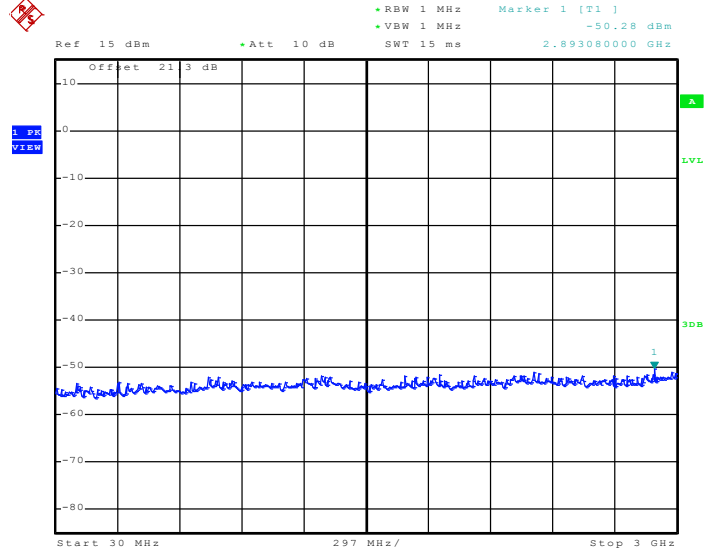
Mode 16:
Spurious Emission Plot on Channel 46 between 13.6 GHz~40 GHz
GHz - Chain C



Date: 23.FEB.2011 05:19:43

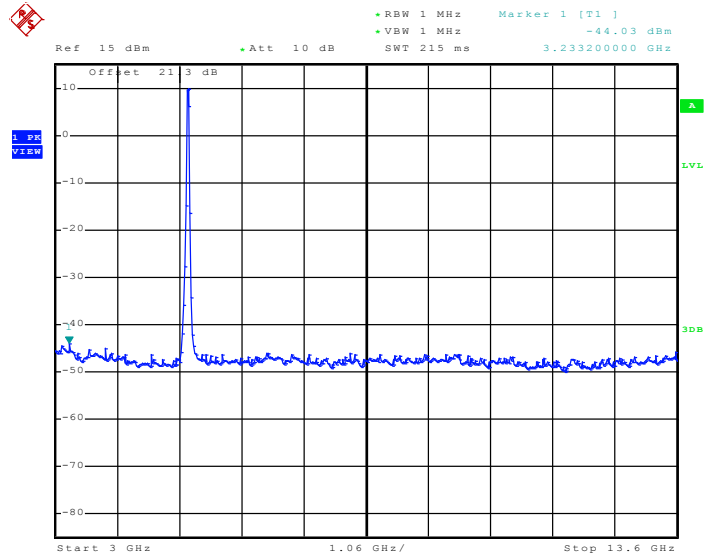


Mode 17:
Spurious Emission Plot on Channel 54 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:20:04

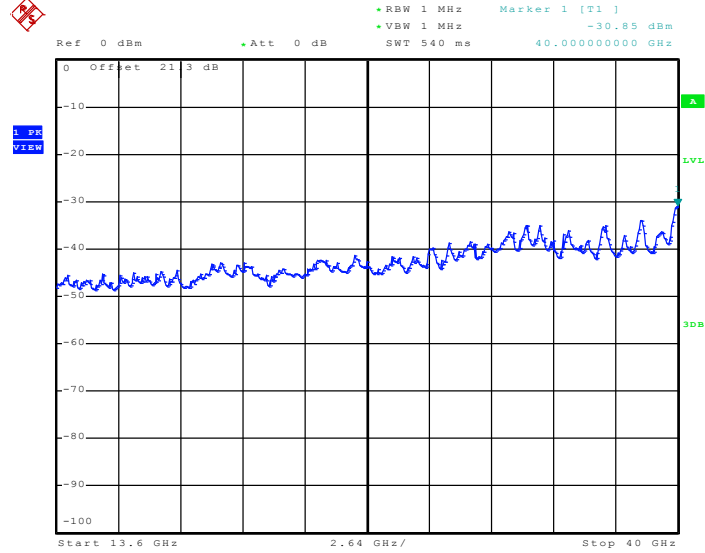
Mode 17:
Spurious Emission Plot on Channel 54 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:20:15

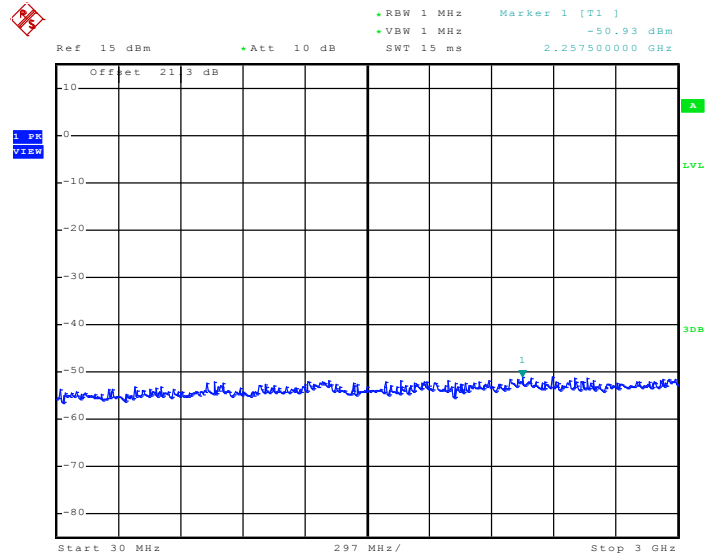


Mode 17:
Spurious Emission Plot on Channel 54 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:20:27

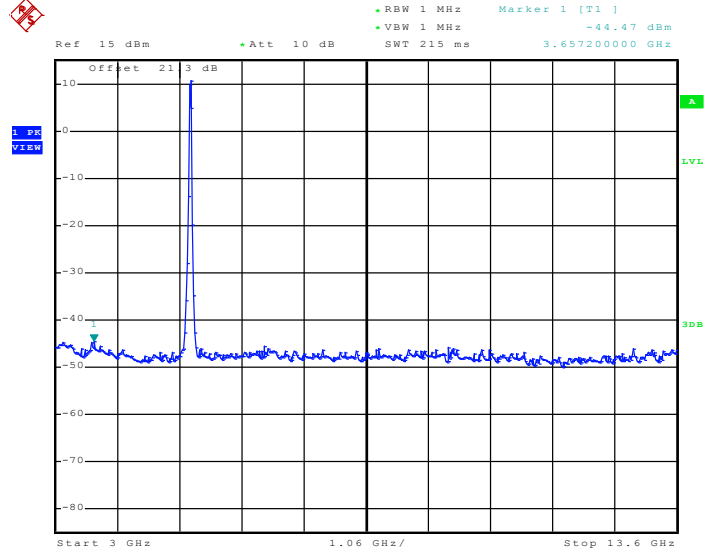
Mode 18:
Spurious Emission Plot on Channel 62 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:20:48

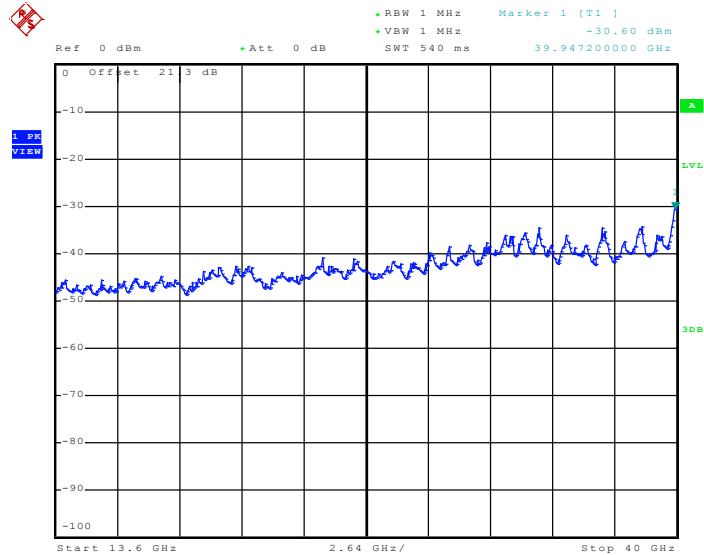


Mode 18:
Spurious Emission Plot on Channel 62 between 3 GHz~13.6 GHz
- Chain C



Date: 23.FEB.2011 05:21:00

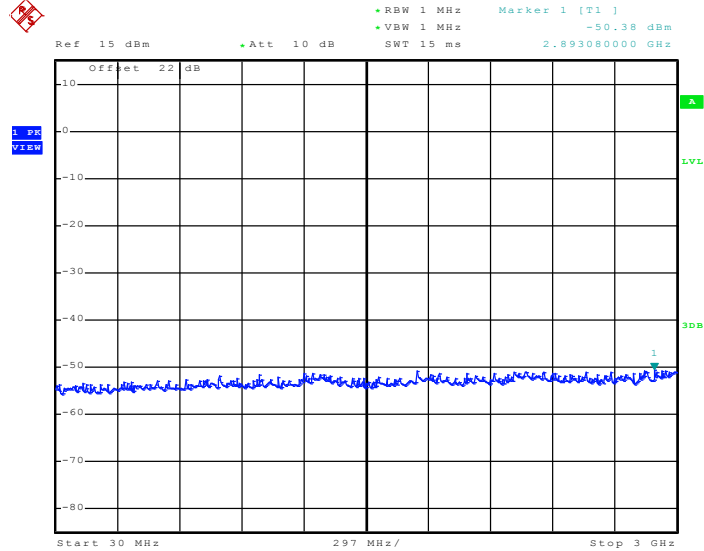
Mode 18:
Spurious Emission Plot on Channel 62 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:21:11

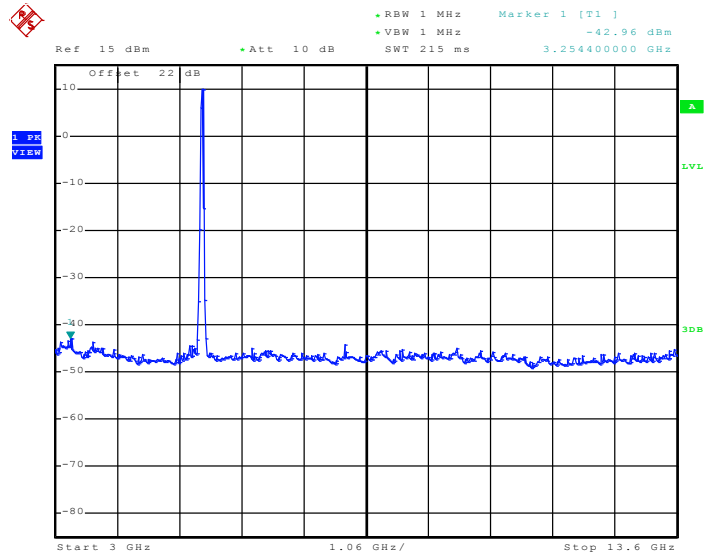


Mode 19:
Spurious Emission Plot on Channel 102 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:21:33

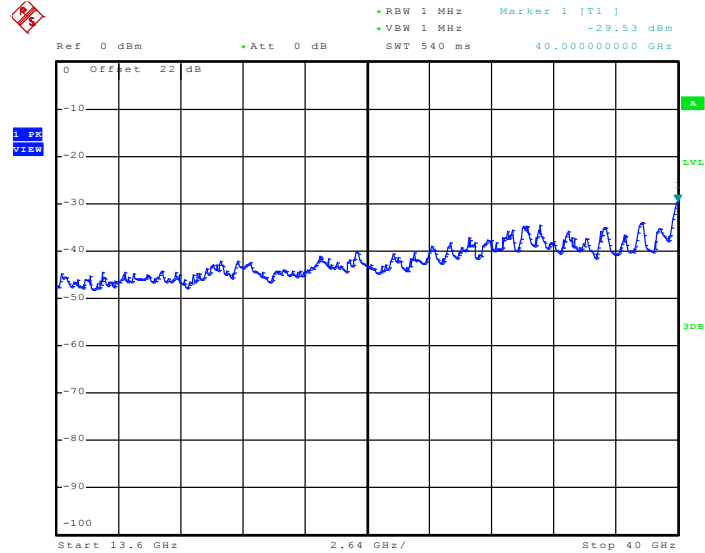
Mode 19:
Spurious Emission Plot on Channel 102 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:21:44

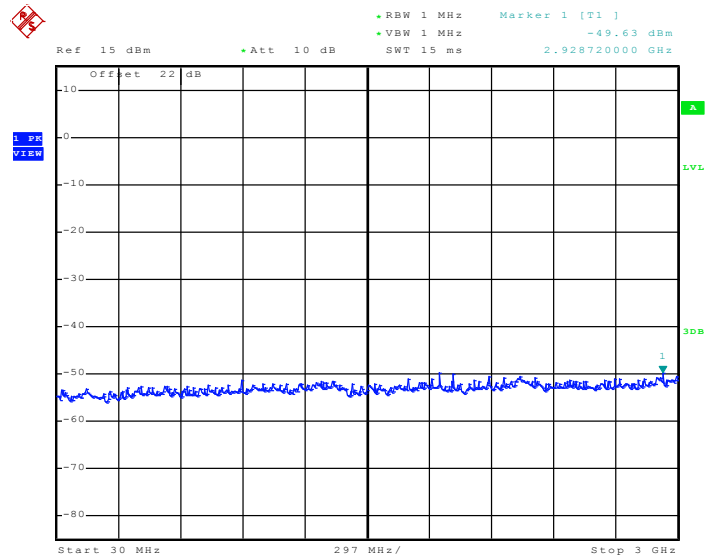


Mode 19:
Spurious Emission Plot on Channel 102 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:21:55

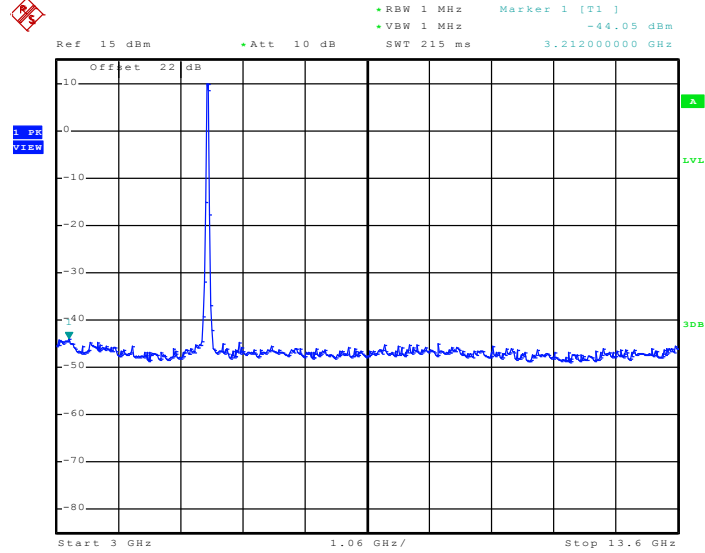
Mode 20:
Spurious Emission Plot on Channel 118 between 30 MHz~3 GHz - Chain C



Date: 23.FEB.2011 05:22:20

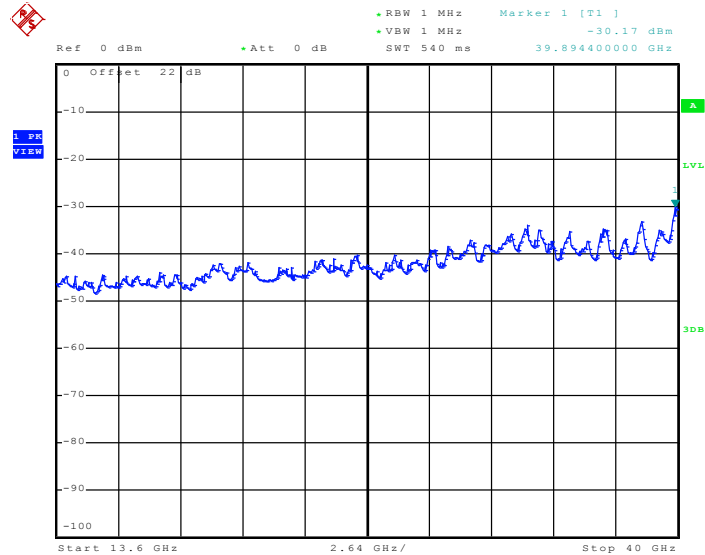


Mode 20:
Spurious Emission Plot on Channel 118 between 3 GHz~13.6 GHz - Chain C



Date: 23.FEB.2011 05:22:31

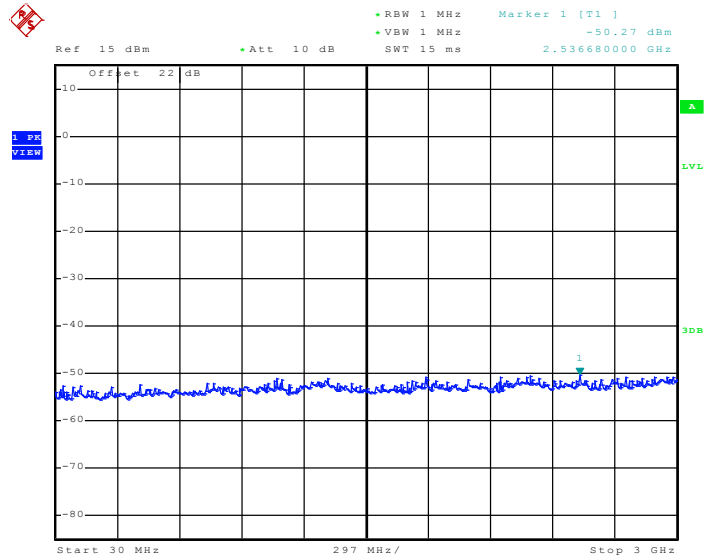
Mode 20:
Spurious Emission Plot on Channel 118 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:22:43

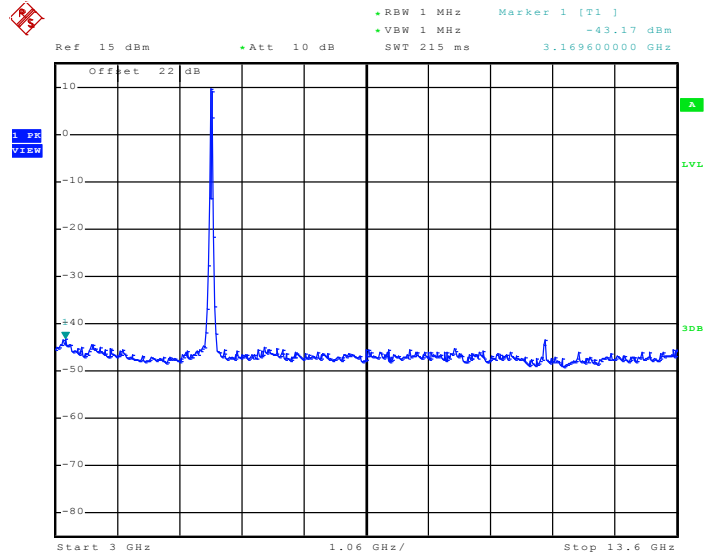


Mode 21:
Spurious Emission Plot on Channel 134 between 30 MHz~3 GHz
- Chain C



Date: 23.FEB.2011 05:23:31

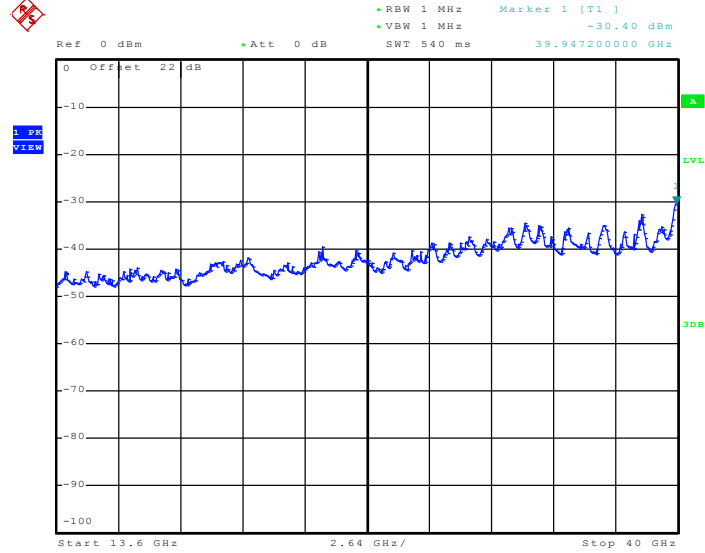
Mode 21:
Spurious Emission Plot on Channel 134 between 3 GHz~13.6 GHz
GHz - Chain C



Date: 23.FEB.2011 05:23:42



Mode 21:
Spurious Emission Plot on Channel 134 between 13.6 GHz~40 GHz - Chain C



Date: 23.FEB.2011 05:23:53

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.

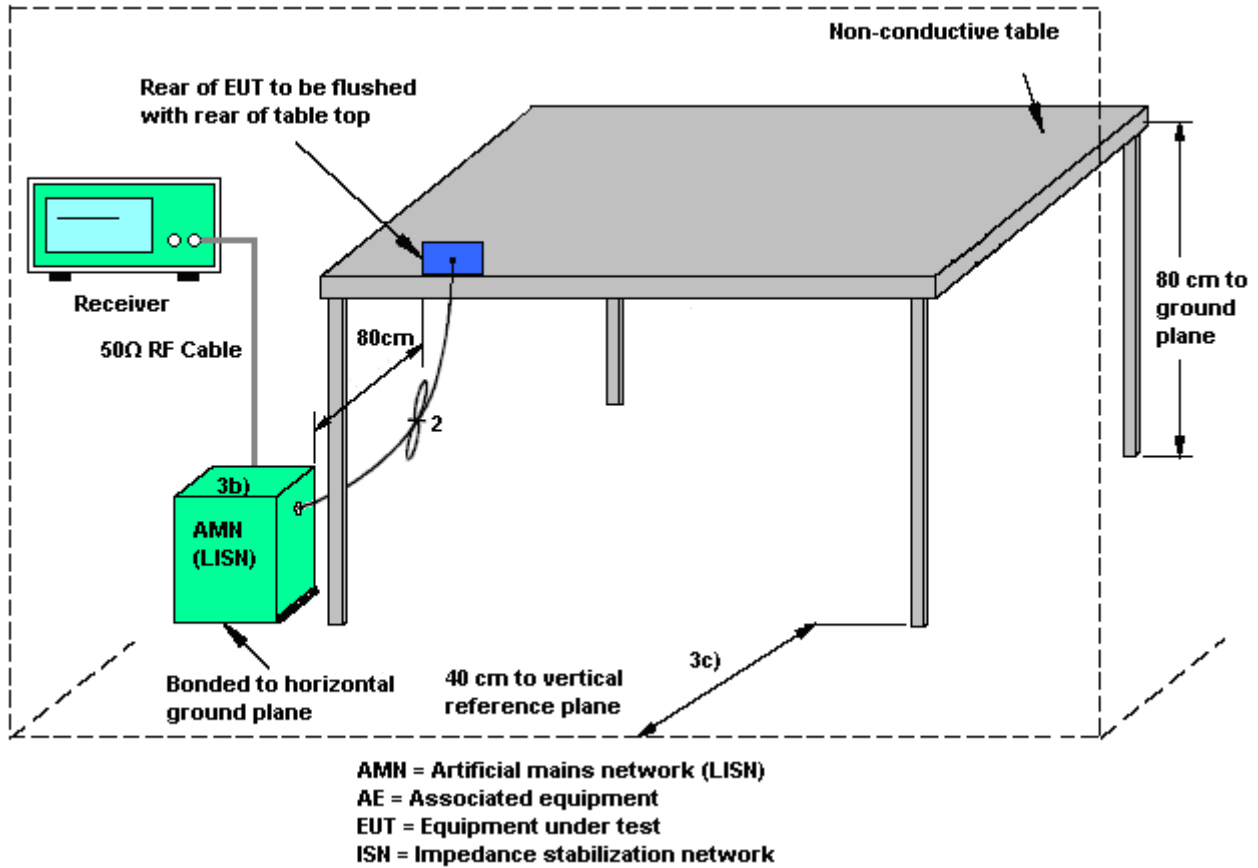
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

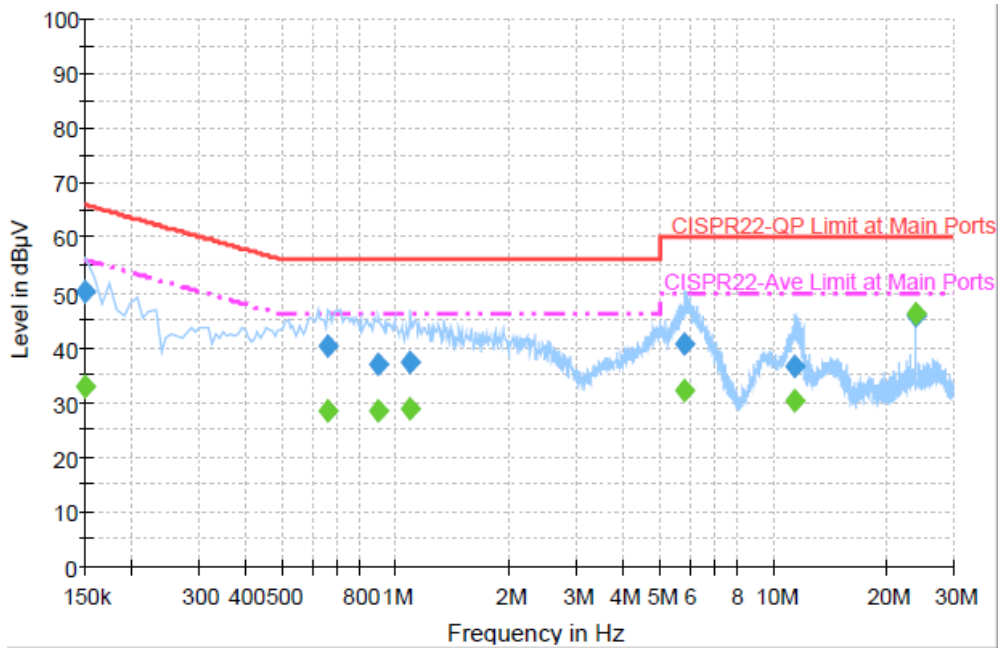
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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 :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + Bluetooth Link + Adapter +TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



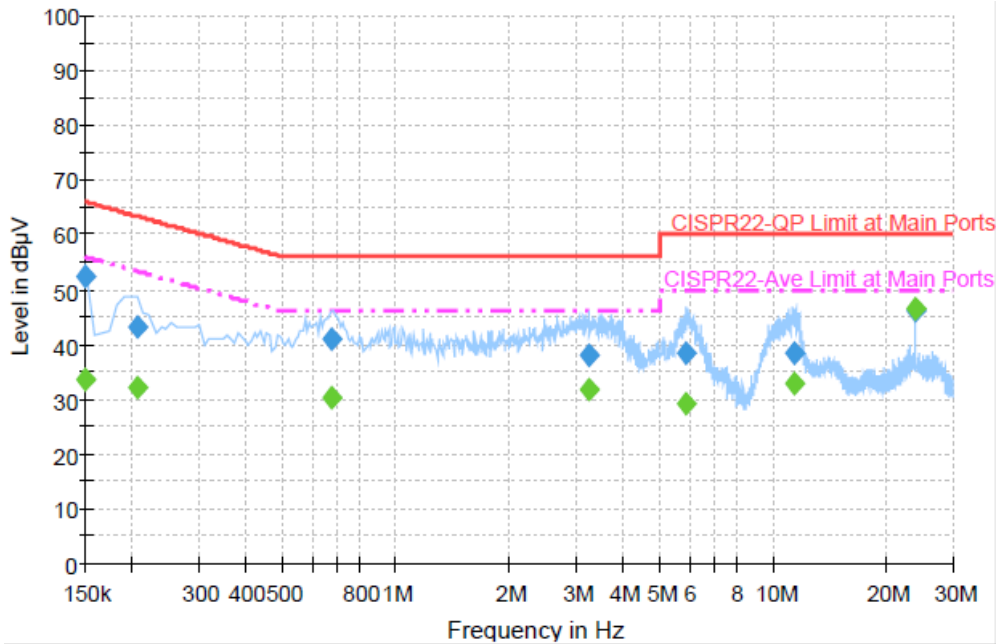
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	50.3	Off	L1	19.5	15.7	66.0
0.662000	40.3	Off	L1	19.5	15.7	56.0
0.902000	37.0	Off	L1	19.5	19.0	56.0
1.094000	37.4	Off	L1	19.4	18.6	56.0
5.838000	40.5	Off	L1	19.5	19.5	60.0
11.374000	36.6	Off	L1	19.6	23.4	60.0
23.998000	45.7	Off	L1	19.7	14.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	32.9	Off	L1	19.5	23.1	56.0
0.662000	28.4	Off	L1	19.5	17.6	46.0
0.902000	28.4	Off	L1	19.5	17.6	46.0
1.094000	28.7	Off	L1	19.4	17.3	46.0
5.838000	32.0	Off	L1	19.5	18.0	50.0
11.374000	30.1	Off	L1	19.6	19.9	50.0
23.998000	46.3	Off	L1	19.7	3.7	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + Bluetooth Link + Adapter +TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	52.5	Off	N	19.5	13.5	66.0
0.206000	43.2	Off	N	19.5	20.2	63.4
0.678000	40.9	Off	N	19.5	15.1	56.0
3.246000	38.0	Off	N	19.5	18.0	56.0
5.878000	38.5	Off	N	19.5	21.5	60.0
11.406000	38.4	Off	N	19.6	21.6	60.0
23.998000	46.0	Off	N	19.9	14.0	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.5	Off	N	19.5	22.5	56.0
0.206000	32.0	Off	N	19.5	21.4	53.4
0.678000	30.4	Off	N	19.5	15.6	46.0
3.246000	31.9	Off	N	19.5	14.1	46.0
5.878000	29.0	Off	N	19.5	21.0	50.0
11.406000	32.9	Off	N	19.6	17.1	50.0
23.998000	46.3	Off	N	19.9	3.7	50.0

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

- (4) 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.
- (5) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.
- (6) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
- (7) The provisions of Section 15.205 Restricted bands of operation of this part apply to intentional radiators operating under this section.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

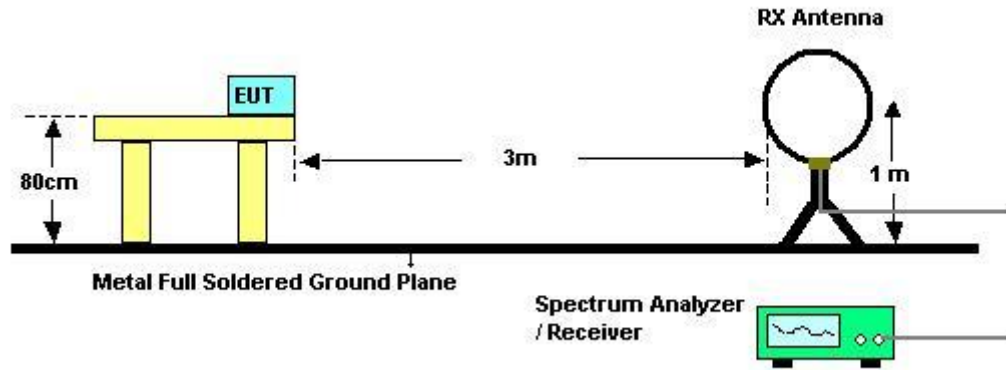


3.7.3 Test Procedures

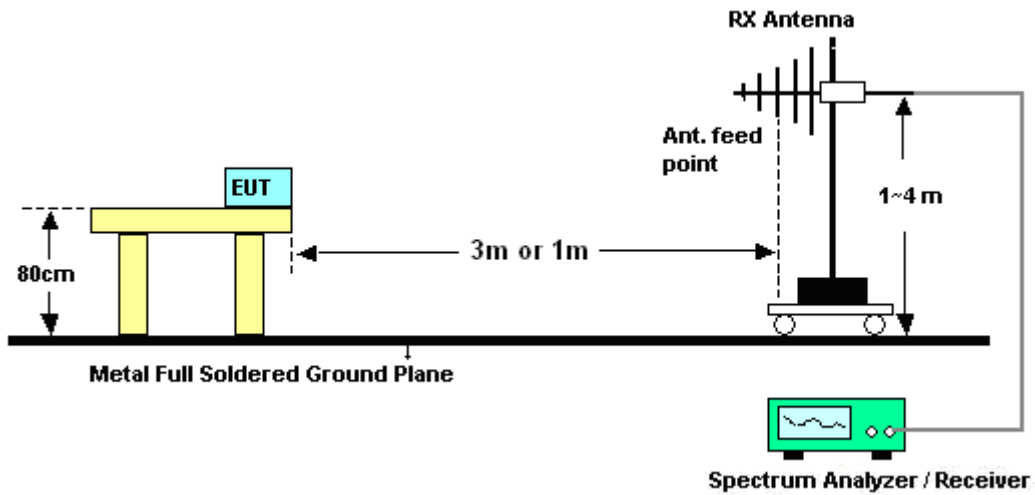
1. The testing follows the guidelines in FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna 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 above 30MHz





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

Temperature	24~25°C	Humidity	49~50%
Test Engineer	Ivan Chiang		

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 (5MHz ~ 7MHz)

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
5150	68.19	-5.81	74	58.18	34.25	9.41	33.65	106	294	Peak
5150	50.7	-3.3	54	40.69	34.25	9.41	33.65	106	294	Average
5180	109.24	-	-	99.11	34.28	9.45	33.6	106	294	Peak
5180	98.61	-	-	88.48	34.28	9.45	33.6	106	294	Average
5350	39.95	-14.05	54	29.02	34.45	9.74	33.26	106	294	Average
5350	51.15	-22.85	74	40.22	34.45	9.74	33.26	106	294	Peak

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
5150	66.88	-7.12	74	56.87	34.25	9.41	33.65	106	310	Peak
5150	49.53	-4.47	54	39.52	34.25	9.41	33.65	106	310	Average
5180	107.45	-	-	97.32	34.28	9.45	33.6	106	310	Peak
5180	97.65	-	-	87.52	34.28	9.45	33.6	106	310	Average
5350	40.14	-13.86	54	29.21	34.45	9.74	33.26	106	310	Average
5350	51.07	-22.93	74	40.14	34.45	9.74	33.26	106	310	Peak



Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5260 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
5150	39.84	-14.16	54	29.83	34.25	9.41	33.65	116	296	Average
5150	52.43	-21.57	74	42.42	34.25	9.41	33.65	116	296	Peak
5260	98.12	-	-	87.54	34.37	9.62	33.41	116	296	Average
5260	108.08	-	-	97.61	34.35	9.57	33.45	116	296	Peak
5350	40.14	-13.86	54	29.21	34.45	9.74	33.26	116	296	Average
5350	51.72	-22.28	74	40.79	34.45	9.74	33.26	116	296	Peak

Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5260 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
5150	39.35	-14.65	54	29.34	34.25	9.41	33.65	115	306	Average
5150	52.85	-21.15	74	42.84	34.25	9.41	33.65	115	306	Peak
5260	97.84	-	-	87.26	34.37	9.62	33.41	115	306	Average
5260	107.68	-	-	97.1	34.37	9.62	33.41	115	306	Peak
5350	40.35	-13.65	54	29.42	34.45	9.74	33.26	115	306	Average
5350	52.05	-21.95	74	41.12	34.45	9.74	33.26	115	306	Peak



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5320 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
5150	50.81	-23.19	74	40.8	34.25	9.41	33.65	129	307	Peak
5150	38.91	-15.09	54	28.9	34.25	9.41	33.65	129	307	Average
5320	108.15	-	-	97.34	34.42	9.7	33.31	129	307	Peak
5320	98.29	-	-	87.48	34.42	9.7	33.31	129	307	Average
5350	61.6	-12.4	74	50.67	34.45	9.74	33.26	129	307	Peak
5350	47.65	-6.35	54	36.72	34.45	9.74	33.26	129	307	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5320 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
5150	50.65	-23.35	74	40.64	34.25	9.41	33.65	100	315	Peak
5150	39.18	-14.82	54	29.17	34.25	9.41	33.65	100	315	Average
5320	107.86	-	-	97.05	34.42	9.7	33.31	100	315	Peak
5320	98.05	-	-	87.24	34.42	9.7	33.31	100	315	Average
5350	47.73	-6.27	54	36.8	34.45	9.74	33.26	100	315	Average
5350	61.51	-12.49	74	50.58	34.45	9.74	33.26	100	315	Peak



Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5500 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
5470	67.54	-20.76	88.3	56.04	34.57	9.94	33.01	108	296	Peak
5470	49.72	-18.58	68.3	38.22	34.57	9.94	33.01	108	296	Average
5500	109.26	-	-	97.55	34.6	10.02	32.91	108	296	Peak
5500	99.07	-	-	87.36	34.6	10.02	32.91	108	296	Average
5725	40.05	-28.25	68.3	28.49	34.82	9.92	33.18	108	296	Average
5725	51.02	-37.28	88.3	39.46	34.82	9.92	33.18	108	296	Peak

Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5500 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
5470	66.59	-21.71	88.3	55.09	34.57	9.94	33.01	109	309	Peak
5470	49.05	-19.25	68.3	37.55	34.57	9.94	33.01	109	309	Average
5500	108.87	-	-	97.16	34.6	10.02	32.91	109	309	Peak
5500	98.95	-	-	87.24	34.6	10.02	32.91	109	309	Average
5725	40.12	-28.18	68.3	28.56	34.82	9.92	33.18	109	309	Average
5725	51.22	-37.08	88.3	39.66	34.82	9.92	33.18	109	309	Peak



Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5580 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
5460	40.74	-13.26	54	29.24	34.57	9.94	33.01	106	298	Average
5460	52.45	-21.55	74	40.95	34.57	9.94	33.01	106	298	Peak
5580	108.63	-	-	96.97	34.67	9.99	33	106	298	Peak
5580	98.46	-	-	86.8	34.67	9.99	33	106	298	Average
5725	51.68	-16.62	68.3	40.12	34.82	9.92	33.18	106	298	Peak

Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5580 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
5460	40.91	-13.09	54	29.41	34.57	9.94	33.01	114	329	Average
5460	52.31	-21.69	74	40.81	34.57	9.94	33.01	114	329	Peak
5580	98.23	-	-	86.57	34.67	9.99	33	114	329	Average
5580	108.49	-	-	96.79	34.67	10	32.97	114	329	Peak
5725	51.48	-16.82	68.3	39.92	34.82	9.92	33.18	114	329	Peak



Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5700 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
5470	51.05	-37.25	88.3	39.55	34.57	9.94	33.01	102	314	Peak
5470	39.69	-28.61	68.3	28.19	34.57	9.94	33.01	102	314	Average
5700	108.76	-	-	97.19	34.79	9.93	33.15	102	314	Peak
5700	98.55	-	-	86.98	34.79	9.93	33.15	102	314	Average
5725	49.56	-18.74	68.3	38	34.82	9.92	33.18	102	314	Average
5725	64.55	-23.75	88.3	52.99	34.82	9.92	33.18	102	314	Peak

Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5700 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
5470	50.55	-37.75	88.3	39.05	34.57	9.94	33.01	126	306	Peak
5470	39.69	-28.61	68.3	28.19	34.57	9.94	33.01	126	306	Average
5700	108.21	-	-	96.64	34.79	9.93	33.15	126	306	Peak
5700	98.1	-	-	86.53	34.79	9.93	33.15	126	306	Average
5725	50.48	-17.82	68.3	38.92	34.82	9.92	33.18	126	306	Average
5725	66.55	-21.75	88.3	54.99	34.82	9.92	33.18	126	306	Peak



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
5150	68.73	-5.27	74	58.72	34.25	9.41	33.65	106	294	Peak
5150	51.5	-2.5	54	41.49	34.25	9.41	33.65	106	294	Average
5180	109.06	-	-	98.93	34.28	9.45	33.6	106	294	Peak
5180	98.69	-	-	88.56	34.28	9.45	33.6	106	294	Average
5350	39.99	-14.01	54	29.06	34.45	9.74	33.26	106	294	Average
5350	51.04	-22.96	74	40.11	34.45	9.74	33.26	106	294	Peak

Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	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
5150	67.2	-6.8	74	57.19	34.25	9.41	33.65	115	314	Peak
5150	49.94	-4.06	54	39.93	34.25	9.41	33.65	115	314	Average
5180	107.98	-	-	97.85	34.28	9.45	33.6	115	314	Peak
5180	97.98	-	-	87.85	34.28	9.45	33.6	115	314	Average
5350	40.31	-13.69	54	29.38	34.45	9.74	33.26	115	314	Average
5350	51.72	-22.28	74	40.79	34.45	9.74	33.26	115	314	Peak



Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5260 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
5150	39.71	-14.29	54	29.7	34.25	9.41	33.65	104	293	Average
5150	52.71	-21.29	74	42.7	34.25	9.41	33.65	104	293	Peak
5260	99.75	-	-	89.17	34.37	9.62	33.41	104	293	Average
5260	109.61	-	-	99.03	34.37	9.62	33.41	104	293	Peak
5350	40.67	-13.33	54	29.74	34.45	9.74	33.26	104	293	Average
5350	54.12	-19.88	74	43.19	34.45	9.74	33.26	104	293	Peak

Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5260 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
5150	39.92	-14.08	54	29.91	34.25	9.41	33.65	105	308	Average
5150	51.2	-22.8	74	41.19	34.25	9.41	33.65	105	308	Peak
5260	97.65	-	-	87.07	34.37	9.62	33.41	105	308	Average
5260	108.24	-	-	97.66	34.37	9.62	33.41	105	308	Peak
5350	40.41	-13.59	54	29.48	34.45	9.74	33.26	105	308	Average
5350	52.63	-21.37	74	41.7	34.45	9.74	33.26	105	308	Peak



Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5320 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
5150	50.57	-23.43	74	40.56	34.25	9.41	33.65	103	290	Peak
5150	39.13	-14.87	54	29.12	34.25	9.41	33.65	103	290	Average
5320	109.07	-	-	98.26	34.42	9.7	33.31	103	290	Peak
5320	99.28	-	-	88.47	34.42	9.7	33.31	103	290	Average
5350	50.15	-3.85	54	39.22	34.45	9.74	33.26	103	290	Average
5350	66.11	-7.89	74	55.18	34.45	9.74	33.26	103	290	Peak

Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5320 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
5150	50.99	-23.01	74	40.98	34.25	9.41	33.65	102	312	Peak
5150	39.39	-14.61	54	29.38	34.25	9.41	33.65	102	312	Average
5320	109	-	-	98.19	34.42	9.7	33.31	102	312	Peak
5320	99.16	-	-	88.35	34.42	9.7	33.31	102	312	Average
5350	49.86	-4.14	54	38.93	34.45	9.74	33.26	102	312	Average
5350	65.94	-8.06	74	55.01	34.45	9.74	33.26	102	312	Peak



Test Mode :	Mode 10	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5500 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
5470	67.95	-20.35	88.3	56.45	34.57	9.94	33.01	100	291	Peak
5470	51.51	-16.79	68.3	40.01	34.57	9.94	33.01	100	291	Average
5500	109.92	-	-	98.32	34.58	9.98	32.96	100	291	Peak
5500	99.83	-	-	88.12	34.6	10.02	32.91	100	291	Average
5725	40.14	-28.16	68.3	28.58	34.82	9.92	33.18	100	291	Average
5725	51.73	-36.57	88.3	40.17	34.82	9.92	33.18	100	291	Peak

Test Mode :	Mode 10	Temperature :	24~25°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5500 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
5470	67.47	-20.83	88.3	55.97	34.57	9.94	33.01	110	310	Peak
5470	51.04	-17.26	68.3	39.54	34.57	9.94	33.01	110	310	Average
5500	109.35	-	-	97.75	34.58	9.98	32.96	110	310	Peak
5500	99.36	-	-	87.65	34.6	10.02	32.91	110	310	Average
5725	40.16	-28.14	68.3	28.6	34.82	9.92	33.18	110	310	Average
5725	52.61	-35.69	88.3	41.05	34.82	9.92	33.18	110	310	Peak



Test Mode :	Mode 11	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5580 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
5460	53.36	-20.64	74	41.88	34.55	9.94	33.01	118	296	Peak
5460	40.94	-13.06	54	29.46	34.55	9.94	33.01	118	296	Average
5580	98.63	-	-	86.97	34.67	9.99	33	118	296	Average
5580	108.31	-	-	96.65	34.67	9.99	33	118	296	Peak
5725	52.13	-16.17	68.3	40.57	34.82	9.92	33.18	118	296	Peak

Test Mode :	Mode 11	Temperature :	24~25°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5580 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
5460	40.88	-13.12	54	29.4	34.55	9.94	33.01	117	308	Average
5460	52.34	-21.66	74	40.86	34.55	9.94	33.01	117	308	Peak
5580	108.16	-	-	96.5	34.67	9.99	33	117	308	Peak
5580	97.7	-	-	86.04	34.67	9.99	33	117	308	Average
5725	51.91	-16.39	68.3	40.35	34.82	9.92	33.18	117	308	Peak



Test Mode :	Mode 12	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5700 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
5470	50.3	-38	88.3	38.8	34.57	9.94	33.01	116	291	Peak
5470	39.57	-28.73	68.3	28.07	34.57	9.94	33.01	116	291	Average
5700	108.64	-	-	97.07	34.79	9.93	33.15	116	291	Peak
5700	98.48	-	-	86.91	34.79	9.93	33.15	116	291	Average
5725	55	-13.3	68.3	43.44	34.82	9.92	33.18	116	291	Average
5725	73.25	-15.05	88.3	61.69	34.82	9.92	33.18	116	291	Peak

Test Mode :	Mode 12	Temperature :	24~25°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5700 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
5470	50.82	-37.48	88.3	39.32	34.57	9.94	33.01	116	308	Peak
5470	39.81	-28.49	68.3	28.31	34.57	9.94	33.01	116	308	Average
5700	107.79	-	-	96.22	34.79	9.93	33.15	116	308	Peak
5700	97.88	-	-	86.31	34.79	9.93	33.15	116	308	Average
5725	54.38	-13.92	68.3	42.82	34.82	9.92	33.18	116	308	Average
5725	74.09	-14.21	88.3	62.53	34.82	9.92	33.18	116	308	Peak



Test Mode :	Mode 13	Temperature :	24~25°C
Test Channel :	38	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5190 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
121.26	24.4	-19.1	43.5	43.31	11.54	1.11	31.56	-	-	Peak
240.06	31.76	-14.24	46	49.67	11.98	1.53	31.42	-	-	Peak
287.85	35.99	-10.01	46	52.37	13.27	1.68	31.33	121	207	Peak
365.8	34.14	-11.86	46	47.82	15.51	2.07	31.26	-	-	Peak
383.3	35.98	-10.02	46	49.05	16.05	2.11	31.23	-	-	Peak
867.7	25.22	-20.78	46	29.38	23.26	3.3	30.72	-	-	Peak
5150	52.97	-1.03	54	42.96	34.25	9.41	33.65	105	297	Average
5150	67.42	-6.58	74	57.41	34.25	9.41	33.65	105	297	Peak
5190	93.55	-	-	83.33	34.28	9.49	33.55	105	297	Average
5190	103.61	-	-	93.48	34.28	9.45	33.6	105	297	Peak
5350	51.76	-22.24	74	40.83	34.45	9.74	33.26	105	297	Peak
5350	40.11	-13.89	54	29.18	34.45	9.74	33.26	105	297	Average



Test Mode :	Mode 13	Temperature :	24~25°C
Test Channel :	38	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5190 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
99.66	29.44	-14.06	43.5	50.2	9.79	0.99	31.54	-	-	Peak
119.37	31.15	-12.35	43.5	50.16	11.45	1.1	31.56	100	267	Peak
223.05	30.91	-15.09	46	50.17	10.75	1.44	31.45	-	-	Peak
365.8	29.4	-16.6	46	43.08	15.51	2.07	31.26	-	-	Peak
500.2	24.97	-21.03	46	35.36	18.23	2.45	31.07	-	-	Peak
668.2	26.29	-19.71	46	33.73	20.53	2.88	30.85	-	-	Peak
5150	52.4	-1.6	54	42.39	34.25	9.41	33.65	137	313	Average
5150	67.32	-6.68	74	57.31	34.25	9.41	33.65	137	313	Peak
5190	92.77	-	-	82.55	34.28	9.49	33.55	137	313	Average
5190	103.05	-	-	92.92	34.28	9.45	33.6	137	313	Peak
5350	50.32	-23.68	74	39.39	34.45	9.74	33.26	137	313	Peak
5350	39.99	-14.01	54	29.06	34.45	9.74	33.26	137	313	Average



Test Mode :	Mode 14	Temperature :	24~25°C
Test Channel :	54	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5270 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
162.3	29.43	-14.07	43.5	49.47	10.26	1.22	31.52	-	-	Peak
240.06	31.48	-14.52	46	49.39	11.98	1.53	31.42	-	-	Peak
292.98	34.21	-11.79	46	50.47	13.35	1.71	31.32	-	-	Peak
335	33	-13	46	47.9	14.54	1.87	31.31	-	-	Peak
383.3	35.78	-10.22	46	48.85	16.05	2.11	31.23	102	314	Peak
430.9	29.21	-16.79	46	41.02	17.07	2.25	31.13	-	-	Peak
5150	50.34	-23.66	74	40.33	34.25	9.41	33.65	102	296	Peak
5150	39.66	-14.34	54	29.65	34.25	9.41	33.65	102	296	Average
5270	108.41	-	-	97.82	34.38	9.62	33.41	102	296	Peak
5270	97.69	-	-	87.11	34.37	9.62	33.41	102	296	Average
5350	56.02	-17.98	74	45.09	34.45	9.74	33.26	102	296	Peak
5350	43.44	-10.56	54	32.51	34.45	9.74	33.26	102	296	Average



Test Mode :	Mode 14	Temperature :	24~25°C
Test Channel :	54	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5270 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
97.77	29.62	-13.88	43.5	50.6	9.57	0.99	31.54	-	-	Peak
118.29	30.81	-12.69	43.5	49.92	11.36	1.09	31.56	-	-	Peak
214.14	31.21	-12.29	43.5	51.17	10.13	1.38	31.47	100	159	Peak
309.8	28.48	-17.52	46	44.26	13.76	1.79	31.33	-	-	Peak
365.8	29.43	-16.57	46	43.11	15.51	2.07	31.26	-	-	Peak
699.7	26.39	-19.61	46	33.39	20.88	2.94	30.82	-	-	Peak
5150	52.41	-21.59	74	42.4	34.25	9.41	33.65	124	310	Peak
5150	39.73	-14.27	54	29.72	34.25	9.41	33.65	124	310	Average
5270	107.99	-	-	97.4	34.38	9.62	33.41	124	310	Peak
5270	97.33	-	-	86.75	34.37	9.62	33.41	124	310	Average
5350	53.82	-20.18	74	42.89	34.45	9.74	33.26	124	310	Peak
5350	42.14	-11.86	54	31.21	34.45	9.74	33.26	124	310	Average



Test Mode :	Mode 15	Temperature :	24~25°C
Test Channel :	62	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5310 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
120.18	24.13	-19.37	43.5	43.06	11.53	1.1	31.56	-	-	Peak
240.06	32.54	-13.46	46	50.45	11.98	1.53	31.42	-	-	Peak
287.85	33.49	-12.51	46	49.87	13.27	1.68	31.33	-	-	Peak
383.3	35.88	-10.12	46	48.95	16.05	2.11	31.23	100	287	Peak
430.9	29.49	-16.51	46	41.3	17.07	2.25	31.13	-	-	Peak
744.5	23	-23	46	29.06	21.6	3.05	30.71	-	-	Peak
5150	39.05	-14.95	54	29.04	34.25	9.41	33.65	102	294	Average
5150	49.34	-24.66	74	39.33	34.25	9.41	33.65	102	294	Peak
5310	94.12	-	-	83.31	34.42	9.7	33.31	102	294	Average
5310	104.77	-	-	94.07	34.4	9.66	33.36	102	294	Peak
5350	65.26	-8.74	74	54.33	34.45	9.74	33.26	102	294	Peak
5350	52.18	-1.82	54	41.25	34.45	9.74	33.26	102	294	Average



Test Mode :	Mode 15	Temperature :	24~25°C
Test Channel :	62	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5310 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
120.18	31.12	-12.38	43.5	50.05	11.53	1.1	31.56	104	216	Peak
216.57	30.81	-15.19	46	50.6	10.27	1.4	31.46	-	-	Peak
287.85	27.83	-18.17	46	44.21	13.27	1.68	31.33	-	-	Peak
335	29.27	-16.73	46	44.17	14.54	1.87	31.31	-	-	Peak
500.2	24.19	-21.81	46	34.58	18.23	2.45	31.07	-	-	Peak
867.7	25.86	-20.14	46	30.02	23.26	3.3	30.72	-	-	Peak
5150	39.15	-14.85	54	29.14	34.25	9.41	33.65	102	318	Average
5150	49.8	-24.2	74	39.79	34.25	9.41	33.65	102	318	Peak
5310	93.68	-	-	82.87	34.42	9.7	33.31	102	318	Average
5310	104.15	-	-	93.34	34.42	9.7	33.31	102	318	Peak
5350	65.54	-8.46	74	54.61	34.45	9.74	33.26	102	318	Peak
5350	51.63	-2.37	54	40.7	34.45	9.74	33.26	102	318	Average



Test Mode :	Mode 16	Temperature :	24~25°C
Test Channel :	102	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5510 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
119.1	24.74	-18.76	43.5	43.75	11.45	1.1	31.56	-	-	Peak
240.06	32.23	-13.77	46	50.14	11.98	1.53	31.42	-	-	Peak
287.85	33.62	-12.38	46	50	13.27	1.68	31.33	-	-	Peak
335	33.87	-12.13	46	48.77	14.54	1.87	31.31	-	-	Peak
383.3	35.66	-10.34	46	48.73	16.05	2.11	31.23	100	195	Peak
954.5	26.25	-19.75	46	29.04	24.32	3.46	30.57	-	-	Peak
5470	60.03	-8.27	68.3	48.53	34.57	9.94	33.01	109	296	Average
5470	73.91	-14.39	88.3	62.41	34.57	9.94	33.01	109	296	Peak
5510	97.46	-	-	85.75	34.6	10.02	32.91	109	296	Average
5510	107.88	-	-	96.15	34.62	10.02	32.91	109	296	Peak
5725	51.53	-36.77	88.3	39.97	34.82	9.92	33.18	109	296	Peak
5725	40.12	-28.18	68.3	28.56	34.82	9.92	33.18	109	296	Average



Test Mode :	Mode 16	Temperature :	24~25°C
Test Channel :	102	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5510 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
99.66	29.14	-14.36	43.5	49.9	9.79	0.99	31.54	-	-	Peak
120.18	30.93	-12.57	43.5	49.86	11.53	1.1	31.56	120	321	Peak
213.33	30.9	-12.6	43.5	50.93	10.06	1.38	31.47	-	-	Peak
365.8	29.3	-16.7	46	42.98	15.51	2.07	31.26	-	-	Peak
570.9	28.13	-17.87	46	37.15	19.32	2.61	30.95	-	-	Peak
609.4	28.37	-17.63	46	36.69	19.87	2.72	30.91	-	-	Peak
5470	59.61	-8.69	68.3	48.11	34.57	9.94	33.01	130	308	Average
5470	73.31	-14.99	88.3	61.81	34.57	9.94	33.01	130	308	Peak
5510	97.14	-	-	85.43	34.6	10.02	32.91	130	308	Average
5510	107.62	-	-	95.89	34.62	10.02	32.91	130	308	Peak
5725	52.23	-36.07	88.3	40.67	34.82	9.92	33.18	130	308	Peak
5725	40.11	-28.19	68.3	28.55	34.82	9.92	33.18	130	308	Average



Test Mode :	Mode 17	Temperature :	24~25°C
Test Channel :	118	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5590 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
166.62	23.35	-20.15	43.5	43.68	9.96	1.23	31.52	-	-	Peak
240.06	32.53	-13.47	46	50.44	11.98	1.53	31.42	-	-	Peak
287.85	34.84	-11.16	46	51.22	13.27	1.68	31.33	100	85	Peak
365.8	34.8	-11.2	46	48.48	15.51	2.07	31.26	-	-	Peak
430.9	29.69	-16.31	46	41.5	17.07	2.25	31.13	-	-	Peak
900.6	28.62	-17.38	46	32.34	23.64	3.34	30.7	-	-	Peak
5470	54.2	-14.1	68.3	42.7	34.57	9.94	33.01	108	294	Peak
5590	97.18	-	-	85.5	34.69	9.99	33	108	294	Average
5590	107.54	-	-	95.88	34.67	9.99	33	108	294	Peak
5725	52.42	-15.88	68.3	40.86	34.82	9.92	33.18	108	294	Peak



Test Mode :	Mode 17	Temperature :	24~25°C
Test Channel :	118	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5590 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
99.66	29.31	-14.19	43.5	50.07	9.79	0.99	31.54	-	-	Peak
119.91	31.27	-12.23	43.5	50.2	11.53	1.1	31.56	119	100	Peak
220.89	30.79	-15.21	46	50.21	10.61	1.43	31.46	-	-	Peak
313.3	29.17	-16.83	46	44.81	13.88	1.8	31.32	-	-	Peak
365.8	28.76	-17.24	46	42.44	15.51	2.07	31.26	-	-	Peak
830.6	24.65	-21.35	46	29.32	22.82	3.22	30.71	-	-	Peak
5470	51.75	-16.55	68.3	40.25	34.57	9.94	33.01	117	309	Peak
5590	96.37	-	-	84.69	34.69	9.99	33	117	309	Average
5590	107.36	-	-	95.7	34.67	9.99	33	117	309	Peak
5725	51.73	-16.57	68.3	40.17	34.82	9.92	33.18	117	309	Peak



Test Mode :	Mode 18	Temperature :	24~25°C
Test Channel :	134	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	5670 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
121.53	23.19	-20.31	43.5	42.1	11.54	1.11	31.56	-	-	Peak
240.06	31.47	-14.53	46	49.38	11.98	1.53	31.42	-	-	Peak
290.82	33.53	-12.47	46	49.83	13.32	1.7	31.32	-	-	Peak
335	33.29	-12.71	46	48.19	14.54	1.87	31.31	-	-	Peak
383.3	36.22	-9.78	46	49.29	16.05	2.11	31.23	121	240	Peak
430.9	29.48	-16.52	46	41.29	17.07	2.25	31.13	-	-	Peak
5470	50.81	-37.49	88.3	39.31	34.57	9.94	33.01	106	294	Peak
5470	39.88	-28.42	68.3	28.38	34.57	9.94	33.01	106	294	Average
5670	106.85	-	-	95.23	34.76	9.95	33.09	106	294	Peak
5670	96.65	-	-	85.06	34.77	9.94	33.12	106	294	Average
5725	61.83	-26.47	88.3	50.27	34.82	9.92	33.18	106	294	Peak
5725	47.8	-20.5	68.3	36.24	34.82	9.92	33.18	106	294	Average



Test Mode :	Mode 18	Temperature :	24~25°C
Test Channel :	134	Relative Humidity :	49~50%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	5670 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
99.66	28.8	-14.7	43.5	49.56	9.79	0.99	31.54	-	-	Peak
119.91	28.03	-15.47	43.5	46.96	11.53	1.1	31.56	-	-	Peak
213.33	31.12	-12.38	43.5	51.15	10.06	1.38	31.47	103	124	Peak
335	29.08	-16.92	46	43.98	14.54	1.87	31.31	-	-	Peak
500.2	24.29	-21.71	46	34.68	18.23	2.45	31.07	-	-	Peak
699.7	26.82	-19.18	46	33.82	20.88	2.94	30.82	-	-	Peak
5470	51.31	-36.99	88.3	39.81	34.57	9.94	33.01	117	307	Peak
5470	40.08	-28.22	68.3	28.58	34.57	9.94	33.01	117	307	Average
5670	106.62	-	-	94.99	34.77	9.95	33.09	117	307	Peak
5670	95.95	-	-	84.36	34.77	9.94	33.12	117	307	Average
5725	60.16	-28.14	88.3	48.6	34.82	9.92	33.18	117	307	Peak
5725	45.46	-22.84	68.3	33.9	34.82	9.92	33.18	117	307	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.

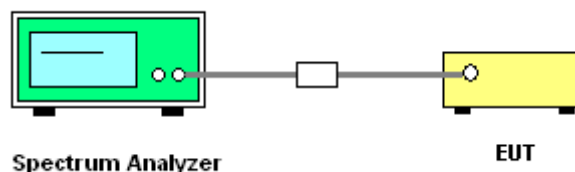
3.8.2 Measuring Instruments

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 3 of DA-02-2138.
4. 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



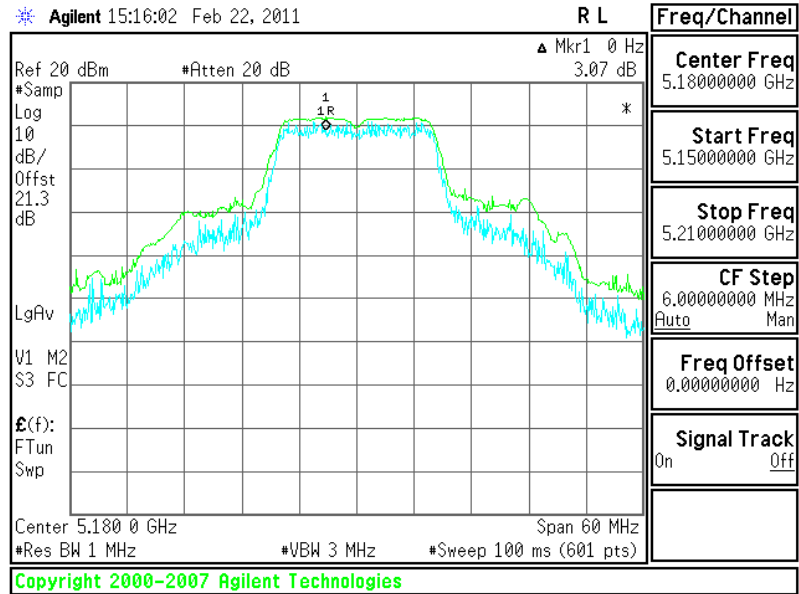


3.8.5 Test Result of Peak Excursion Ratio

Test Mode :	Mode 1~7	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

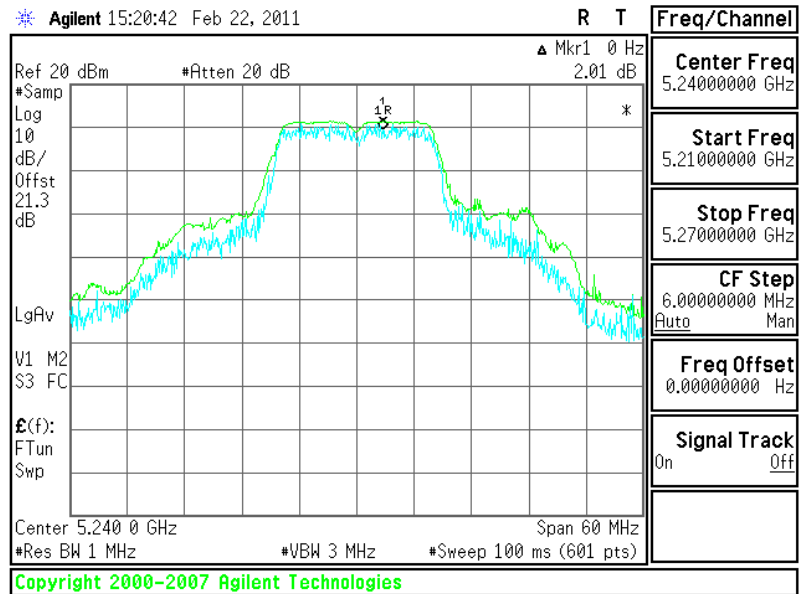
Mode 1 :

Peak Excursion Ratio Plot on 802.11a Channel 36 – Chain C



Mode 2 :

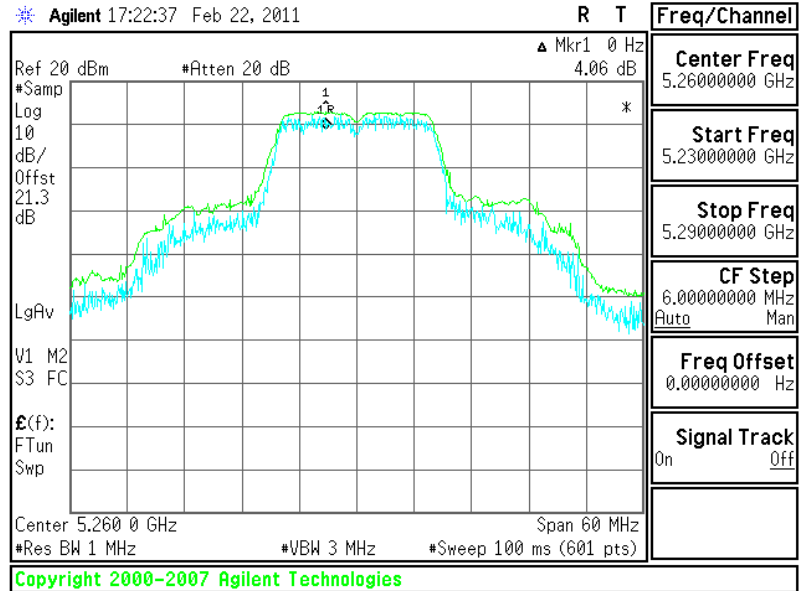
Peak Excursion Ratio Plot on 802.11a Channel 48 – Chain C





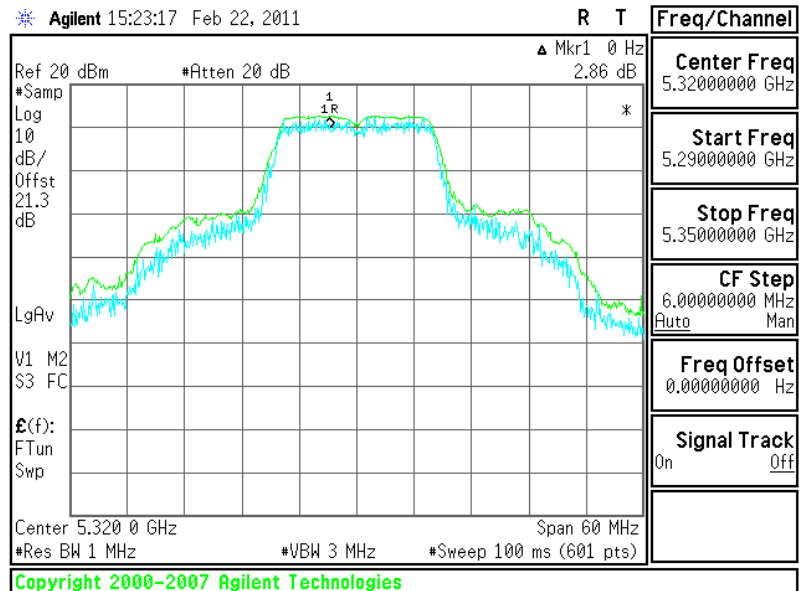
Mode 3 :

Peak Excursion Ratio Plot on 802.11a Channel 52 – Chain C



Mode 4 :

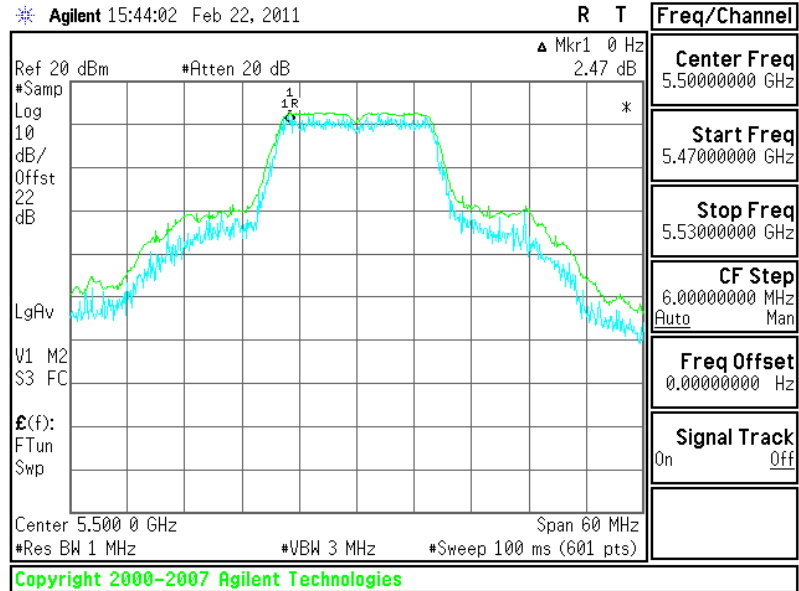
Peak Excursion Ratio Plot on 802.11a Channel 64 – Chain C





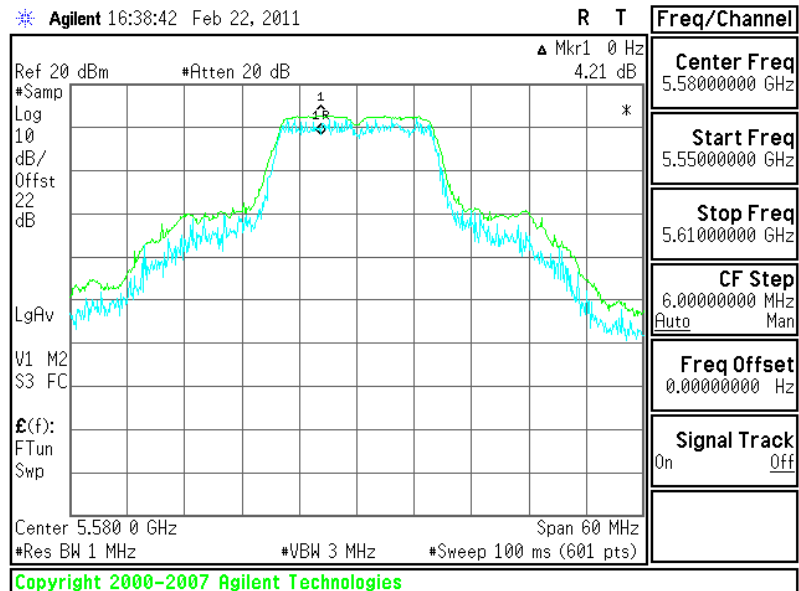
Mode 5 :

Peak Excursion Ratio Plot on 802.11a Channel 100 – Chain C



Mode 6 :

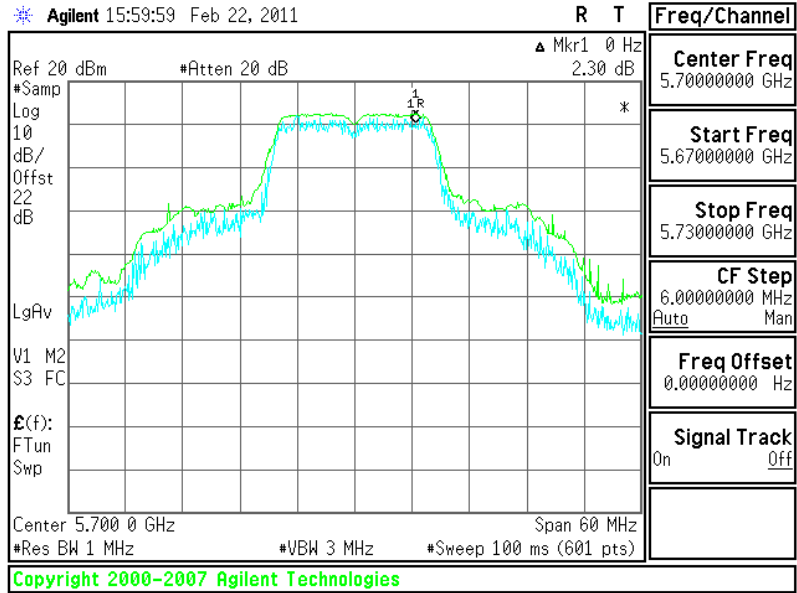
Peak Excursion Ratio Plot on 802.11a Channel 116 – Chain C





Mode 7 :

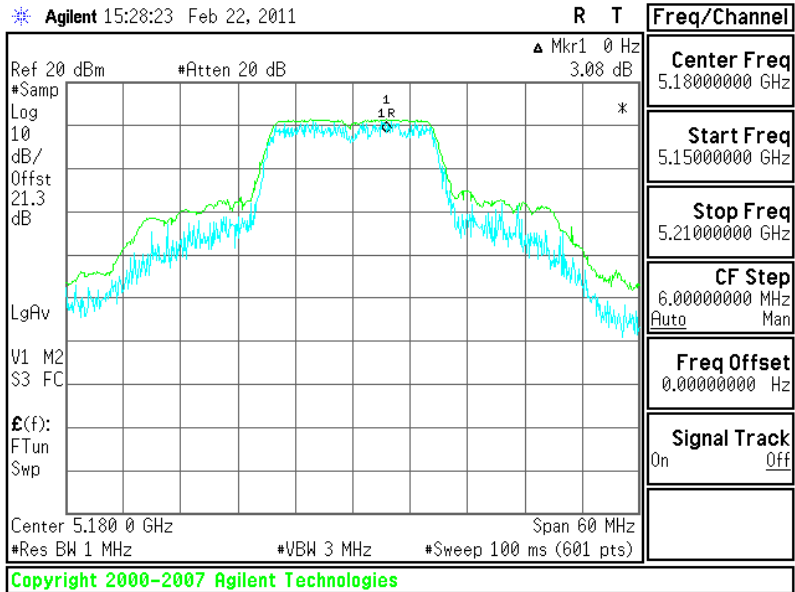
Peak Excursion Ratio Plot on 802.11a Channel 140 – Chain C



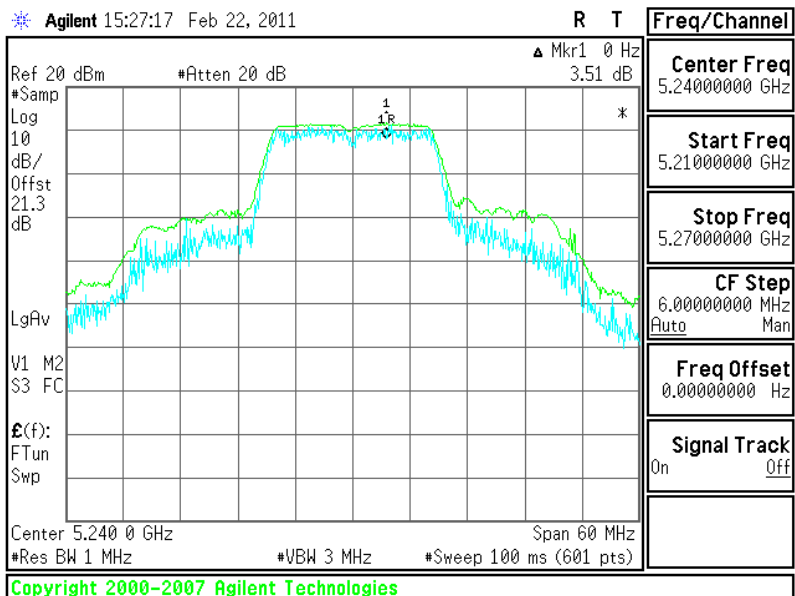


Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Mode 8 :
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 36 – Chain C



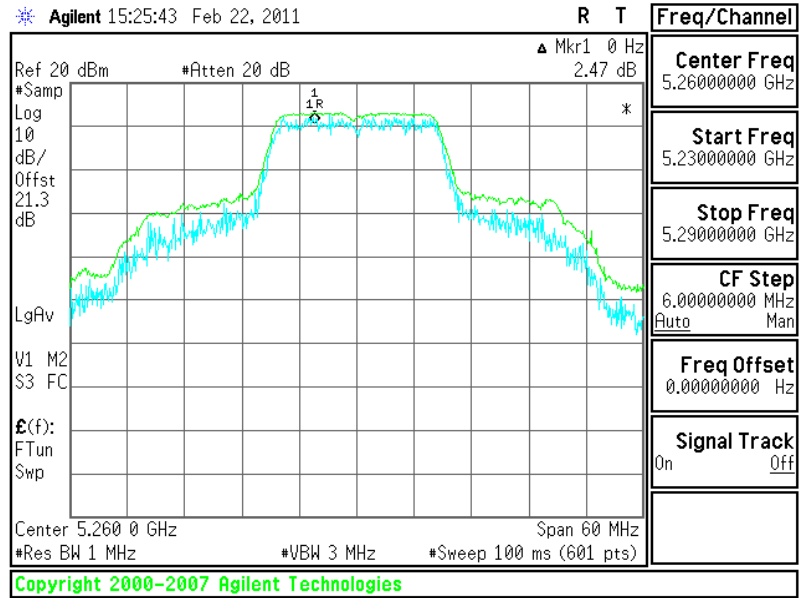
Mode 9 :
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 48 – Chain C





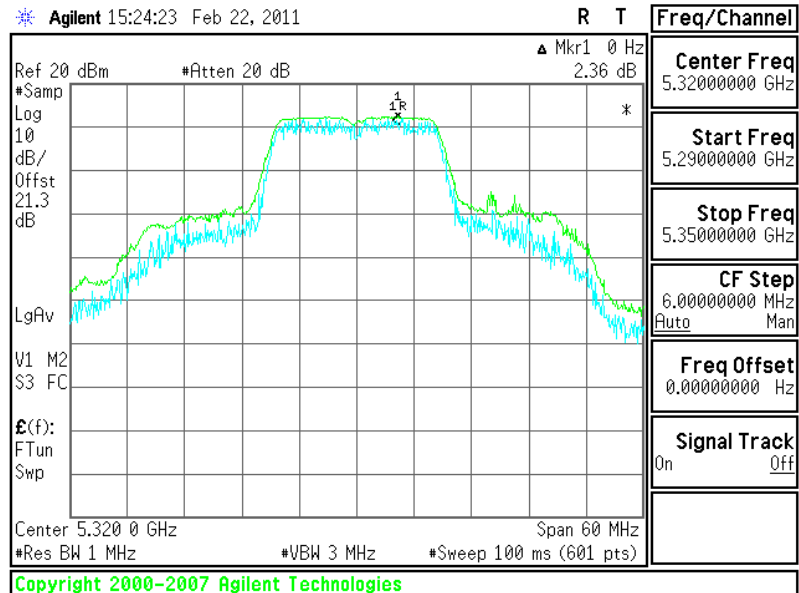
Mode 10 :

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



Mode 11 :

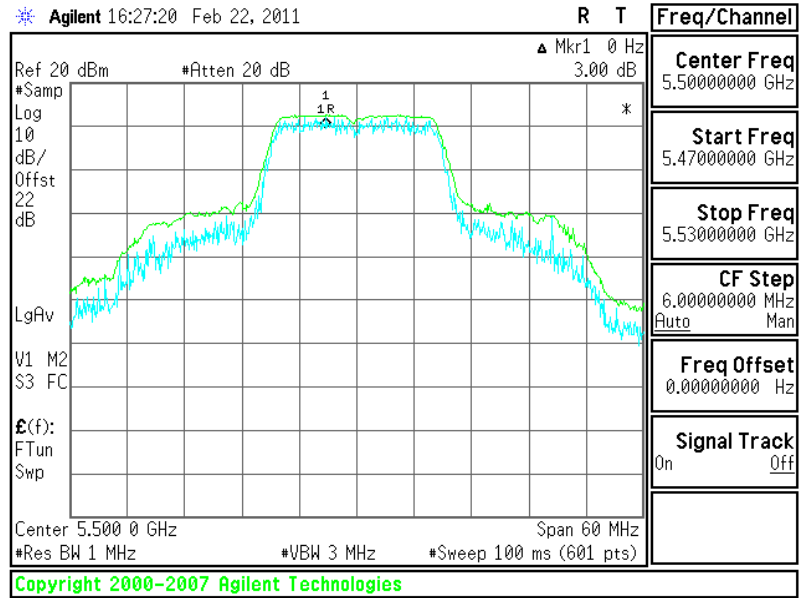
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 64 – Chain C





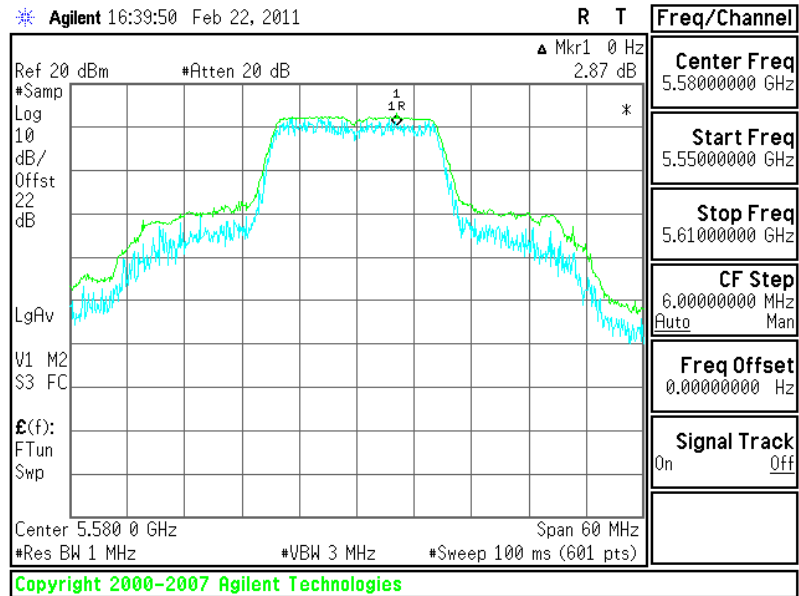
Mode 12 :

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



Mode 13 :

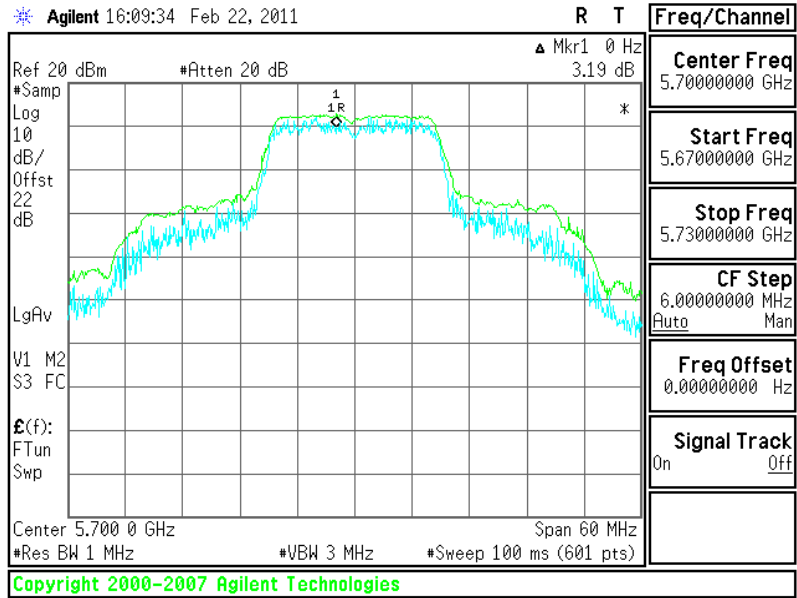
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 116 – Chain C





Mode 14 :

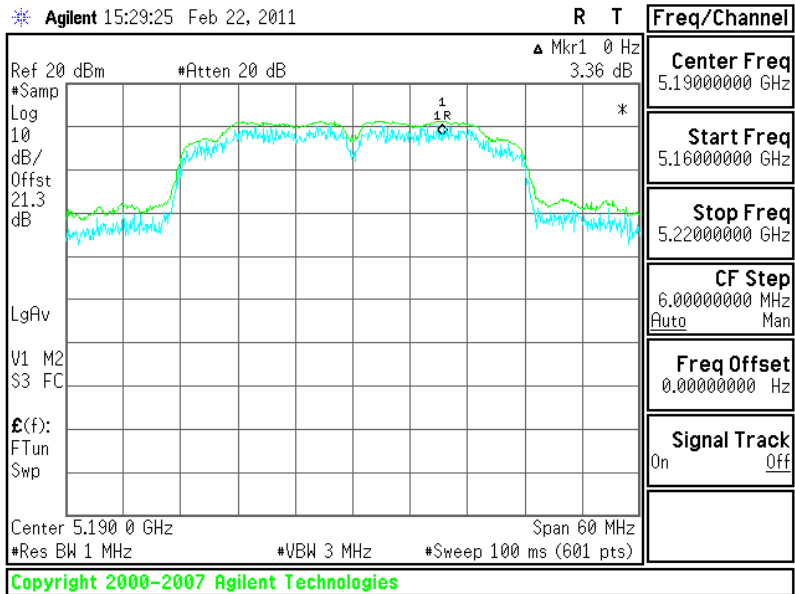
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 140 – Chain C



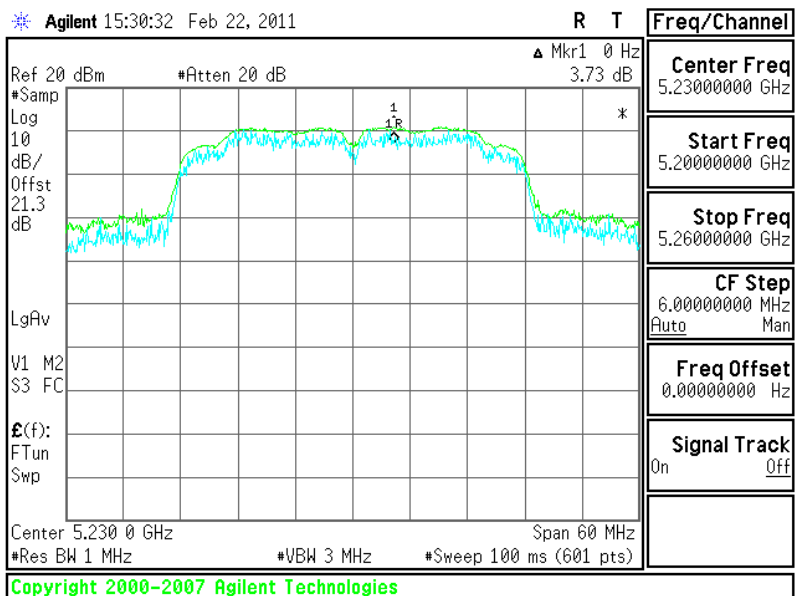


Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Mode 15 :
Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 38 – Chain C



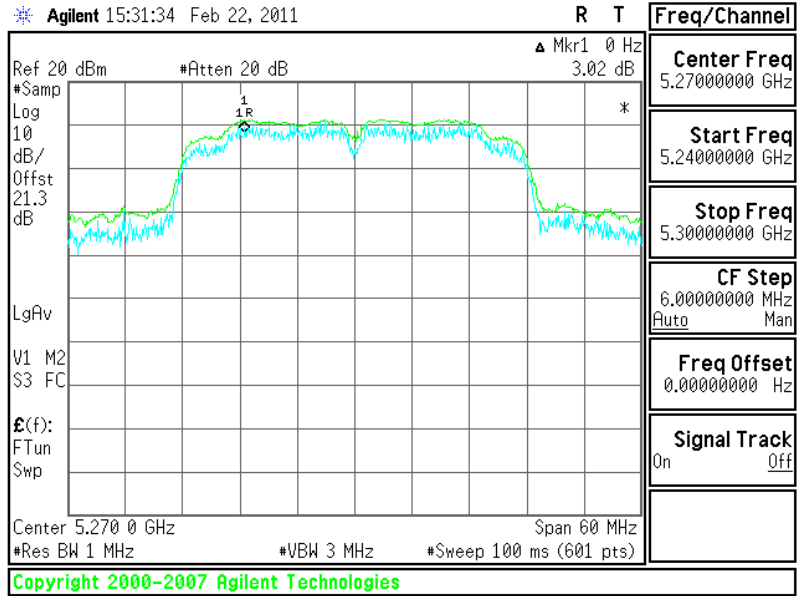
Mode 16 :
Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 46 – Chain C





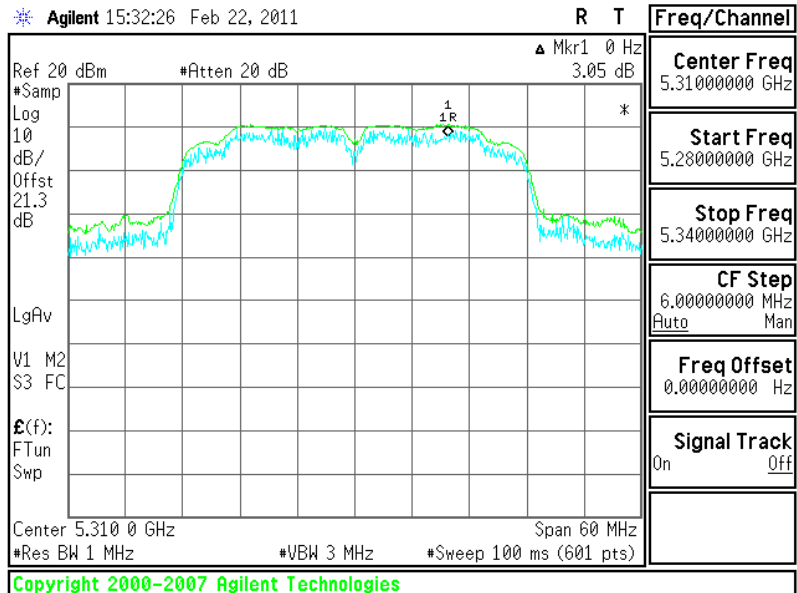
Mode 17 :

Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 54 – Chain C



Mode 18 :

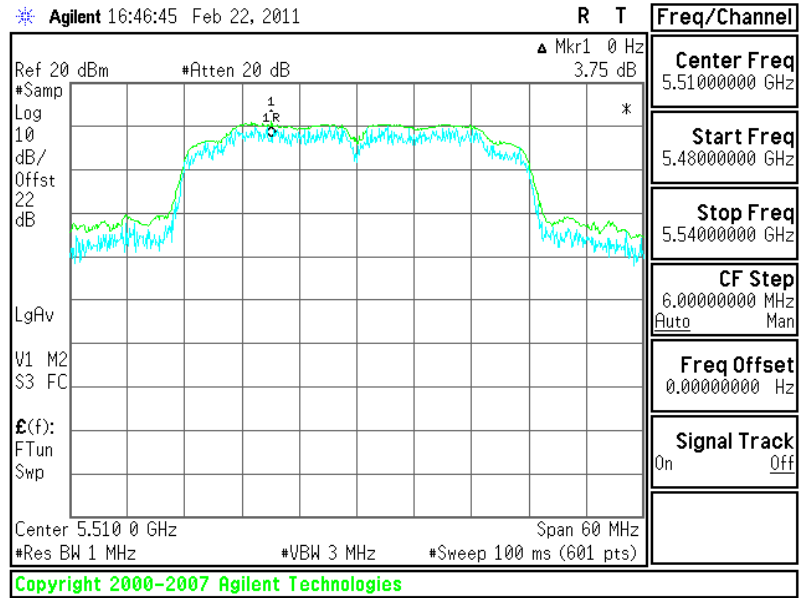
Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 62 – Chain C





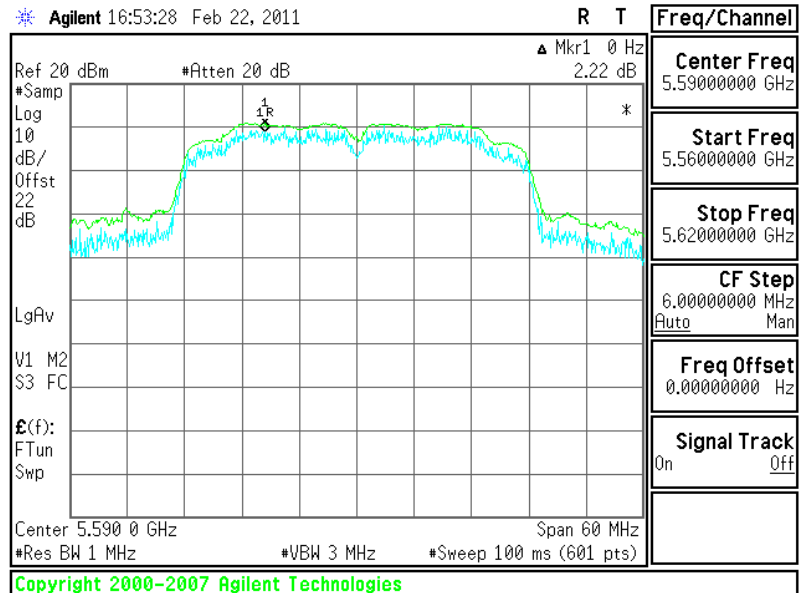
Mode 19 :

Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 102 – Chain C



Mode 20 :

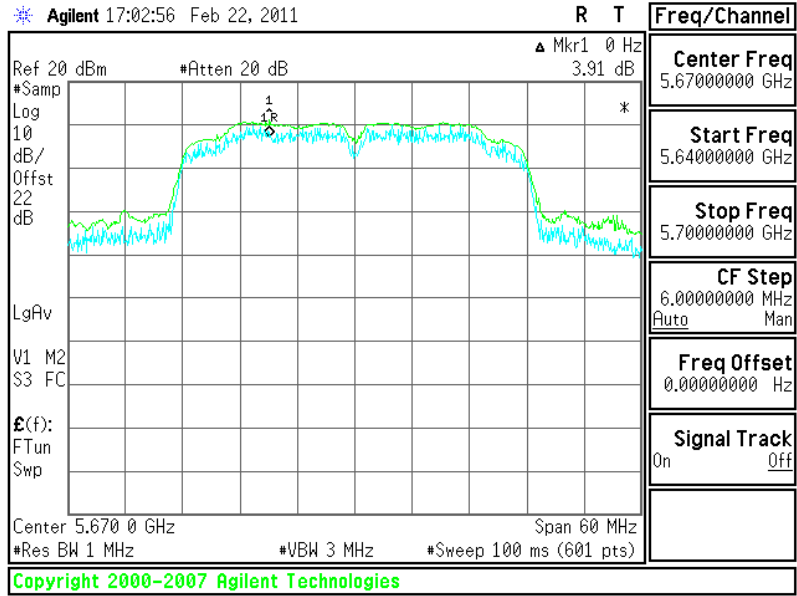
Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 118 – Chain C





Mode 21 :

Peak Excursion Ratio Plot on 802.11n (BW 40MHz) Channel 134 – Chain C





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.

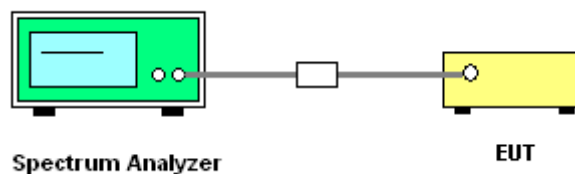
3.10.2 Measuring Instruments

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 1~7	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11a		
		Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.64	5188.24	-11.58
48	5240	5231.63	5248.28	-8.59
52	5260	5251.63	5268.24	-12.36
64	5320	5311.63	5328.24	-12.22
100	5500	5491.63	5508.24	-11.82
116	5580	5571.63	5588.24	-11.65
140	5700	5691.64	5708.24	-10.53

Test Mode :	Mode 8~14	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11n (BW 20MHz)		
		Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
36	5180	5171.03	5188.88	-8.69
48	5240	5231.03	5248.88	-8.59
52	5260	5251.03	5268.88	-8.56
64	5320	5311.03	5328.88	-8.46
100	5500	5491.03	5508.88	-8.18
116	5580	5571.03	5588.88	-8.06
140	5700	5691.04	5708.88	-7.02



Test Mode :	Mode 15~21	Temperature :	26~29°C
Test Engineer :	Alan Liu	Relative Humidity :	48~51%

Channel	Frequency (MHz)	802.11n (BW 40MHz)		
		Low Frequency (Fl)	High Frequency (Fh)	Frequency Stability (ppm)
38	5190	5172.38	5207.60	-1.93
46	5230	5212.42	5247.60	1.91
54	5270	5252.42	5287.60	1.90
62	5310	5292.18	5327.60	-20.72
102	5510	5492.14	5527.52	-30.85
118	5590	5572.16	5607.52	-28.62
134	5670	5652.18	5687.60	-19.40



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 PIFA 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
System Simulator	R&S	CMU200	117995	N/A	Mar. 19, 2009	Mar. 18, 2011	Conducted (TH02-HY)
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 11, 2010	Jun. 10, 2011	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)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 30,2010	Jul. 29, 2011	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T400A	25696	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
ISN	Teseq GmbH	ISN T800	27134	N/A	Jun. 19, 2010	Jun. 18, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000485	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
DC- LISN	R&S	ESH3-26	1000484	0.1MHz~200MHz	Jun. 17, 2010	Jun. 16, 2011	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2010	Aug. 18, 2011	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB.GAIN	Mar. 27, 2010	Mar. 26, 2011	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	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 EP052506-04 as below.