

FCC RF Test Report

APPLICANT : Honeywell International Inc.
EQUIPMENT : 99EX Mobile computer
BRAND NAME : Honeywell
MODEL NAME : 99EX
FCC ID : HD599EXLG
STANDARD : FCC Part 15 Subpart E
CLASSIFICATION : Unlicensed National Information Infrastructure (UNII)

The product was received on Dec. 06, 2010 and completely tested on Feb. 10, 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:



Anderson Chiu / Deputy Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR0D0904C	Rev. 01	Initial issue of report	Jan. 31, 2011
FR0D0904C	Rev. 02	Update report for revising test data from channel 120 to channel 116.	Feb. 11, 2011
FR0D0904C	Rev. 03	Update report for revising address of applicant and manufacturer	Feb. 18, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.403(i)	A9.2	26dB & 99% Bandwidth	-	Pass	-
3.2	15.407(a)	A9.2	Maximum Conducted Output Power	$\leq 17, 24, 30$ 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 16.4 dB at 0.350 MHz
3.7	15.407(b)	A9.3	Transmitter Radiated Emission	$\leq -17, -27$ dBm (depend on band)&15.209(a)	Pass	Under limit 7.32 dB at 32.70 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

Honeywell International Inc.

9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.2 Manufacturer

Honeywell International Inc.

9680 Old Bailes Road, Fort Mill, SC 29707 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	99EX Mobile computer
Brand Name	Honeywell
Model Name	99EX
FCC ID	HD599EXLG
Tx/Rx Frequency Range	5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz
Maximum Output Power to Antenna	<5150 MHz ~ 5250 MHz> 802.11a : 15.29 dBm / 0.034 W 802.11n (BW 20MHz) : 15.10 dBm / 0.032 W <5250 MHz ~ 5350 MHz> 802.11a : 15.20 dBm / 0.033 W 802.11n (BW 20MHz) : 15.12 dBm / 0.033 W <5470 MHz ~ 5725 MHz> 802.11a : 15.40 dBm / 0.035 W 802.11n (BW 20MHz) : 15.40 dBm / 0.035 W
Antenna Type	PIFA Antenna with gain 3.5 dBi
HW Version	5
SW Version	26.02
Type of Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
5.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	Cradle	Honeywell	99EX-HB	N/A	N/A	N/A
9.	Adapter	ENG	3A-902DB12	N/A	N/A	N/A
10.	USB Cable	N/A	N/A	N/A	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

802.11a Carrier Frequency Channel							
Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	132	5660	136	5680	140	5700

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

2.2 RF Power

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

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 36	5180 MHz	15.29	15.27	14.29	14.22	13.23	13.15	11.67	11.69
CH 44	5220 MHz	15.27	15.26	14.30	14.31	13.33	13.25	11.66	11.73
CH 48	5240 MHz	15.27	15.22	14.31	14.24	13.28	13.15	11.74	11.60
CH 52	5260 MHz	15.08	15.03	14.21	14.05	13.12	13.03	11.90	11.88
CH 60	5300 MHz	15.08	15.07	14.16	14.09	13.08	13.11	11.51	11.53
CH 64	5320 MHz	15.20	15.16	14.25	14.17	13.14	13.11	11.54	11.57
CH 100	5500 MHz	15.11	15.07	14.10	14.08	13.02	13.45	11.88	11.82
CH 116	5580 MHz	15.40	15.37	14.53	14.43	13.37	13.23	11.70	11.62
CH 140	5700 MHz	15.20	15.18	14.22	14.07	13.12	13.01	11.92	11.87

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		Data Rate							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 36	5180 MHz	15.10	14.06	14.00	13.05	13.02	11.85	11.83	10.54
CH 44	5220 MHz	15.02	14.10	14.04	13.06	13.34	11.83	11.82	10.91
CH 48	5240 MHz	15.09	14.04	14.10	13.06	13.38	11.89	11.83	10.97
CH 52	5260 MHz	15.03	14.02	14.00	13.04	13.40	11.88	11.81	10.96
CH 60	5300 MHz	15.08	14.11	14.05	13.11	13.40	11.88	11.81	10.93
CH 64	5320 MHz	15.12	14.14	14.07	13.05	13.05	11.91	11.84	10.92
CH 100	5500 MHz	15.38	14.46	14.30	13.28	13.21	11.57	11.50	10.77
CH 116	5580 MHz	15.39	14.42	14.34	13.29	13.19	11.61	11.56	10.65
CH 140	5700 MHz	15.40	14.50	14.43	13.33	13.28	11.70	11.59	10.77

Remark:

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

2.3 Test Mode

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

Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

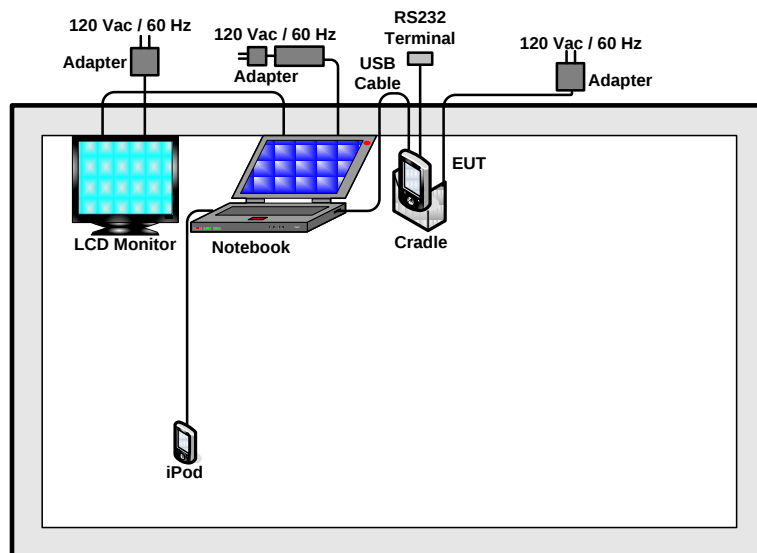
The following tables are showing the test modes as the worst cases and recorded in this report.

Test Cases	
Test Item	802.11a/n (Modulation : OFDM)
Conducted TCs	■ Mode 1: 802.11a_CH36_5180 MHz ■ Mode 2: 802.11a_CH44_5220 MHz ■ Mode 3: 802.11a_CH48_5240 MHz ■ Mode 4: 802.11a_CH52_5260 MHz ■ Mode 5: 802.11a_CH60_5300 MHz ■ Mode 6: 802.11a_CH64_5320 MHz ■ Mode 7: 802.11a_CH100_5500 MHz ■ Mode 8: 802.11a_CH116_5580 MHz ■ Mode 9: 802.11a_CH140_5700 MHz ■ Mode 10: 802.11n_CH36_5180 MHz (BW 20M) ■ Mode 11: 802.11n_CH44_5220 MHz (BW 20M) ■ Mode 12: 802.11n_CH48_5240 MHz (BW 20M) ■ Mode 13: 802.11n_CH52_5260 MHz (BW 20M) ■ Mode 14: 802.11n_CH60_5300 MHz (BW 20M) ■ Mode 15: 802.11n_CH64_5320 MHz (BW 20M) ■ Mode 16: 802.11n_CH100_5500 MHz (BW 20M) ■ Mode 17: 802.11n_CH116_5580 MHz (BW 20M) ■ Mode 18: 802.11n_CH140_5700 MHz (BW 20M)

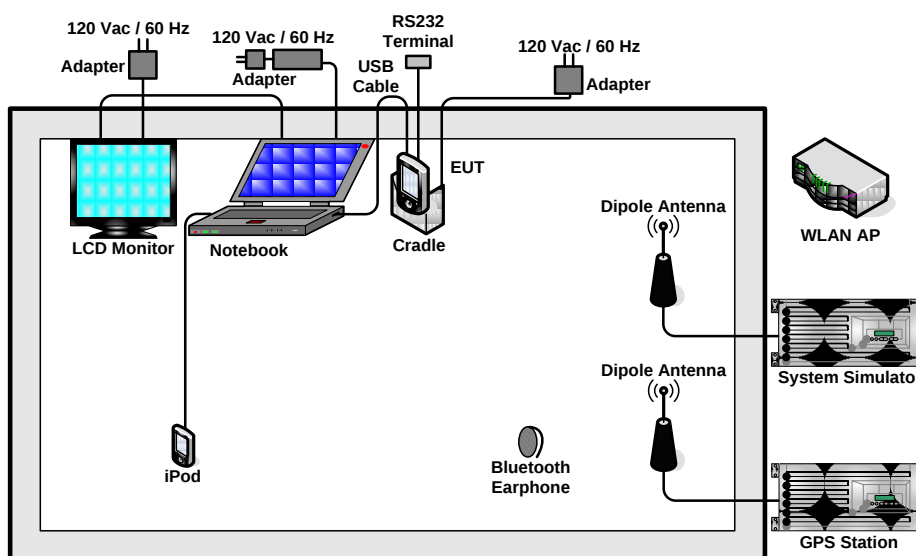
Test Item	802.11a/n (Modulation : OFDM)
Radiated TCs	■ Mode 1: 802.11a_CH36_5180 MHz + TC ■ Mode 2: 802.11a_CH44_5220 MHz + TC ■ Mode 3: 802.11a_CH48_5240 MHz + TC ■ Mode 4: 802.11a_CH52_5260 MHz + TC ■ Mode 5: 802.11a_CH60_5300 MHz + TC ■ Mode 6: 802.11a_CH64_5320 MHz + TC ■ Mode 7: 802.11a_CH100_5500 MHz + TC ■ Mode 8: 802.11a_CH116_5580 MHz + TC ■ Mode 9: 802.11a_CH140_5700 MHz + TC ■ Mode 10: 802.11n_CH36_5180 MHz (BW 20M) + TC ■ Mode 11: 802.11n_CH44_5220 MHz (BW 20M) + TC ■ Mode 12: 802.11n_CH48_5240 MHz (BW 20M) + TC ■ Mode 13: 802.11n_CH52_5260 MHz (BW 20M) + TC ■ Mode 14: 802.11n_CH60_5300 MHz (BW 20M) + TC ■ Mode 15: 802.11n_CH64_5320 MHz (BW 20M) + TC ■ Mode 16: 802.11n_CH100_5500 MHz (BW 20M) + TC ■ Mode 17: 802.11n_CH116_5580 MHz (BW 20M) + TC ■ Mode 18: 802.11n_CH140_5700 MHz (BW 20M) + TC
AC Conducted Emission	Mode 1 : WCDMA Band II Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Scanner + Cradle + Adapter + RS232 Terminal + USB Cable (Link with Notebook)
Remark: TC stands for Test Configuration, and consists of USB cable, RS232 terminal, cradle, and adapter.	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF Utility “TI1273 WLAN FCC” is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 26dB & 99% Bandwidth Measurement

3.1.1 Limit of 26dB & 99% 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. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W (30dBm) or 17 dBm + 10log B.

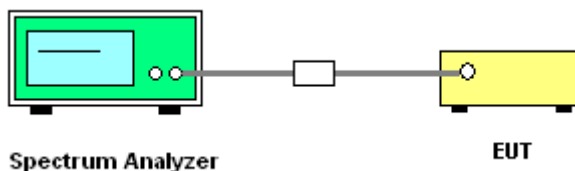
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

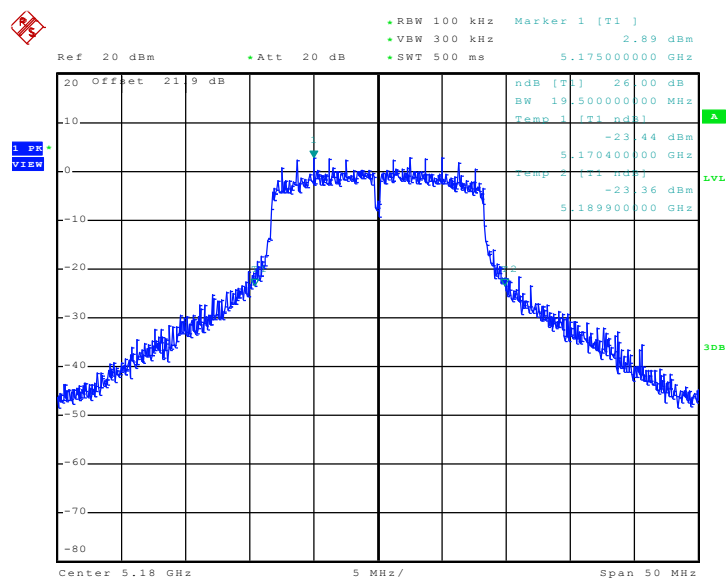


3.1.5 Test Result of 26dB Bandwidth

Test Mode :	Mode 1~9	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11a 26dB Bandwidth (MHz)	Pass/Fail
36	5180	19.50	Pass
44	5220	19.10	Pass
48	5240	19.30	Pass
52	5260	18.65	Pass
60	5300	19.10	Pass
64	5320	18.70	Pass
100	5500	19.05	Pass
116	5580	19.05	Pass
140	5700	19.30	Pass

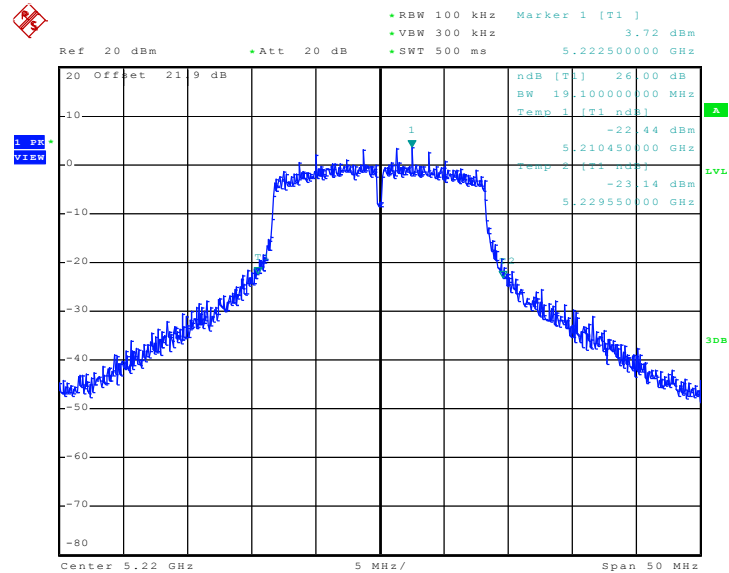
26 dB Bandwidth Plot on 802.11a Channel 36



Date: 10.DEC.2010 08:43:20

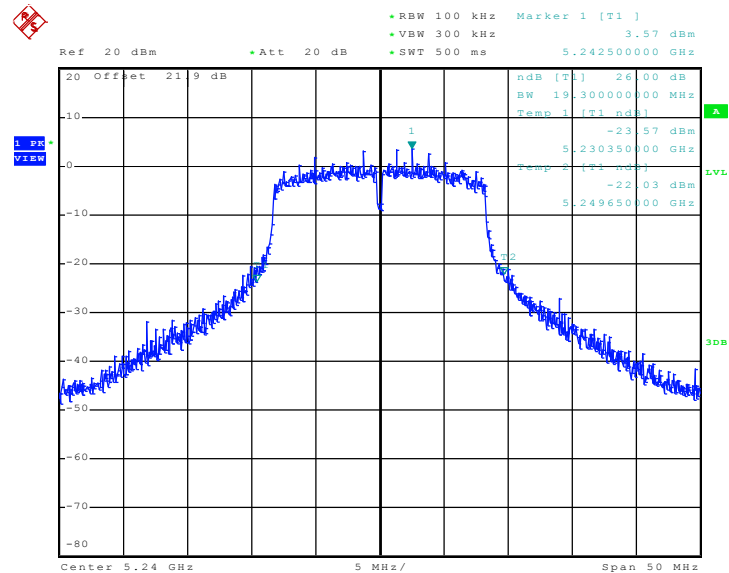


26 dB Bandwidth Plot on 802.11a Channel 44



Date: 10.DEC.2010 08:59:22

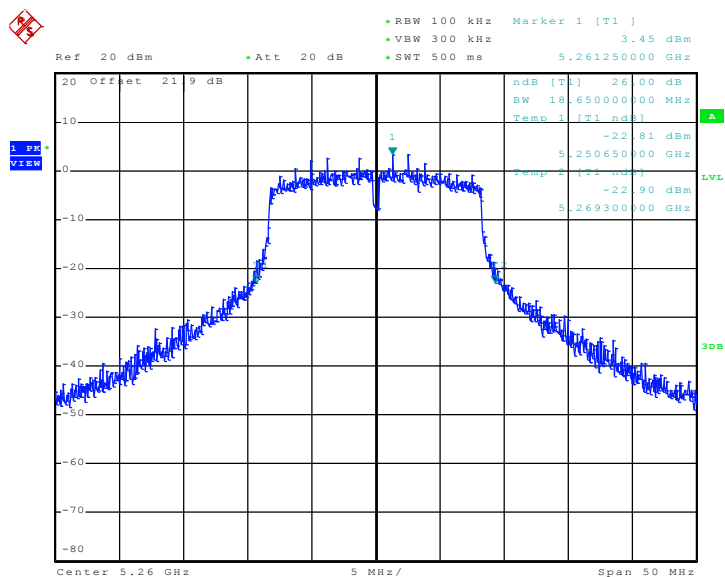
26 dB Bandwidth Plot on 802.11a Channel 48



Date: 10.DEC.2010 09:00:27

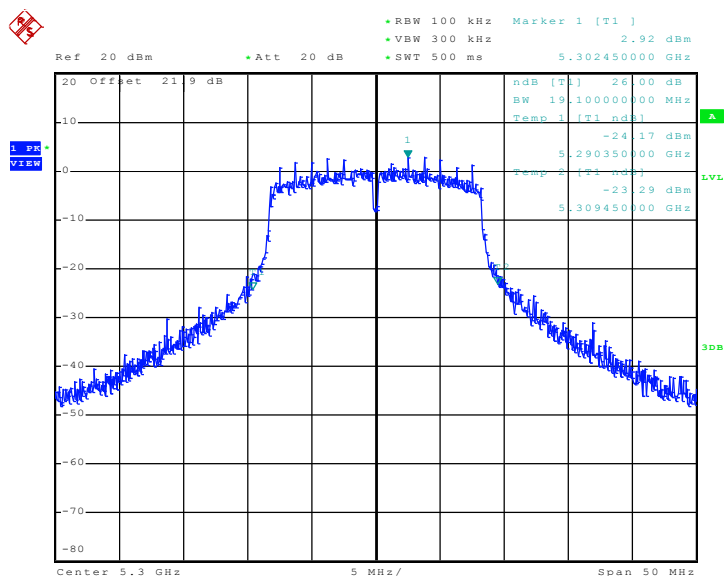


26 dB Bandwidth Plot on 802.11a Channel 52



Date: 10.DEC.2010 09:01:29

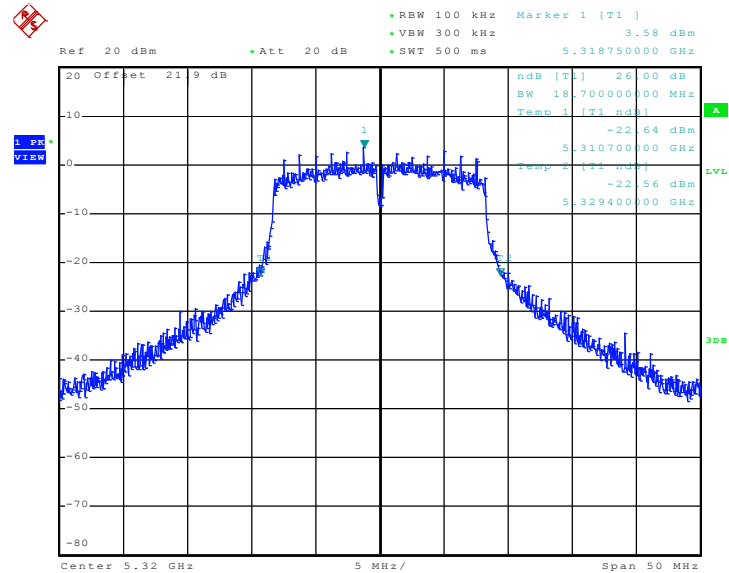
26 dB Bandwidth Plot on 802.11a Channel 60



Date: 10.DEC.2010 09:02:36

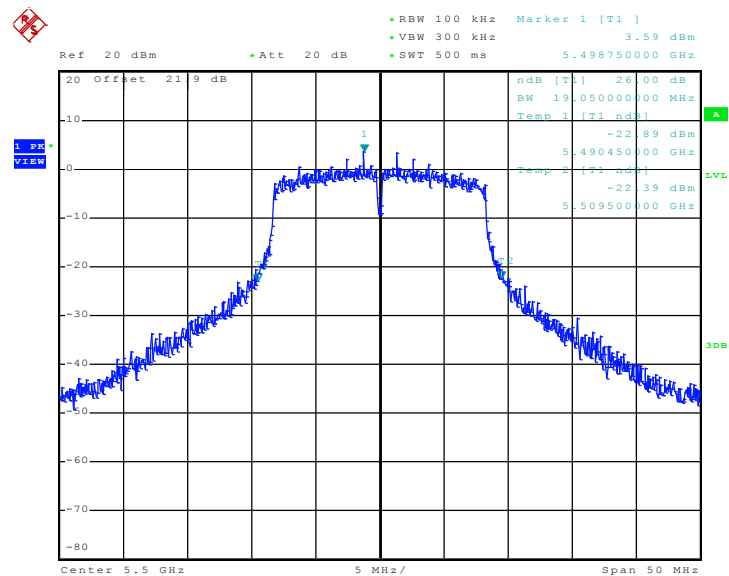


26 dB Bandwidth Plot on 802.11a Channel 64



Date: 10.DEC.2010 09:03:26

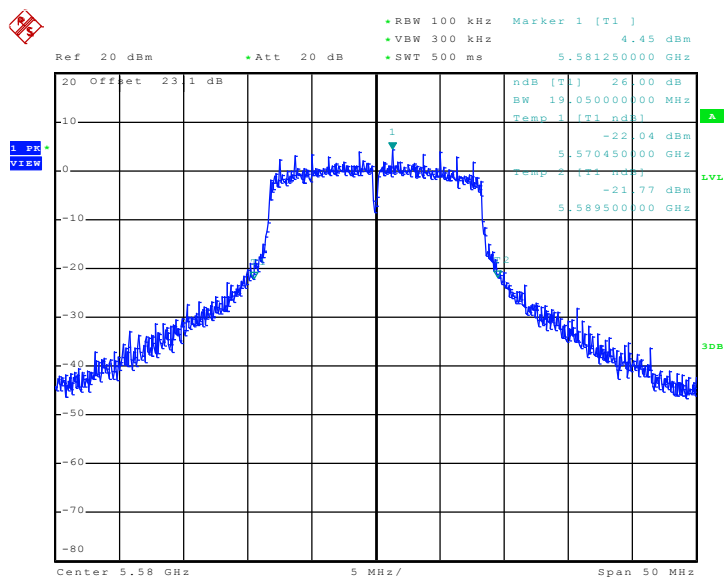
26 dB Bandwidth Plot on 802.11a Channel 100



Date: 10.DEC.2010 09:04:38

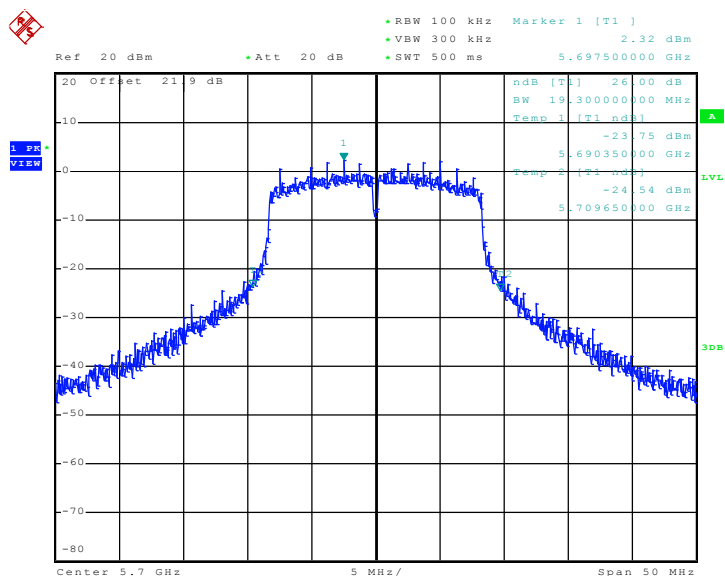


26 dB Bandwidth Plot on 802.11a Channel 116



Date: 10.FEB.2011 00:18:28

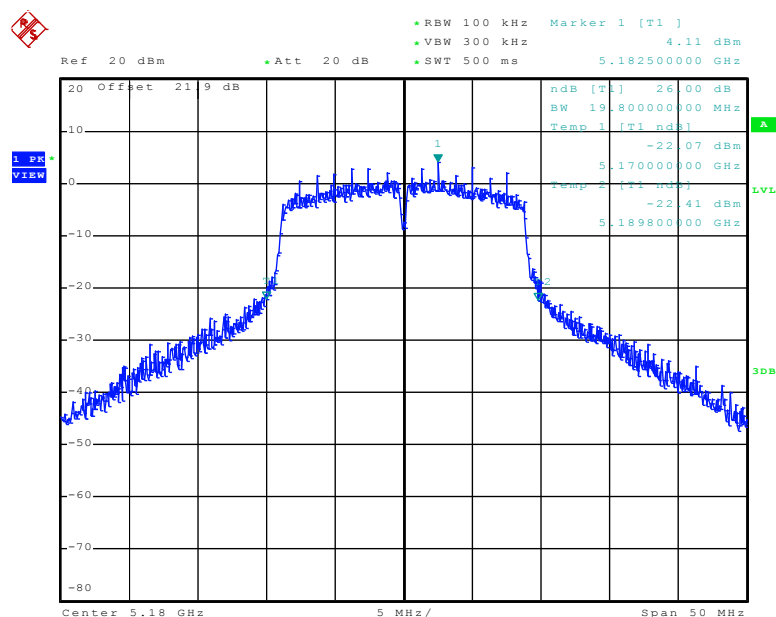
26 dB Bandwidth Plot on 802.11a Channel 140



Date: 10.DEC.2010 09:10:15

Test Mode :	Mode 10~18	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

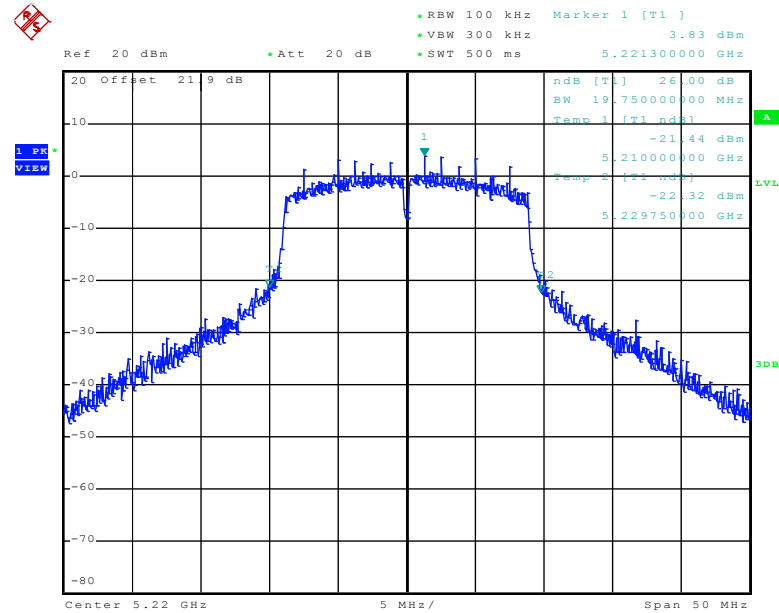
Channel	Frequency (MHz)	802.11n (BW 20MHz) 26dB Bandwidth (MHz)	Pass/Fail
36	5180	19.80	Pass
44	5220	19.75	Pass
48	5240	19.95	Pass
52	5260	19.95	Pass
60	5300	19.55	Pass
64	5320	19.75	Pass
100	5500	20.00	Pass
116	5580	20.00	Pass
140	5700	20.15	Pass

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


Date: 10.DEC.2010 09:14:05

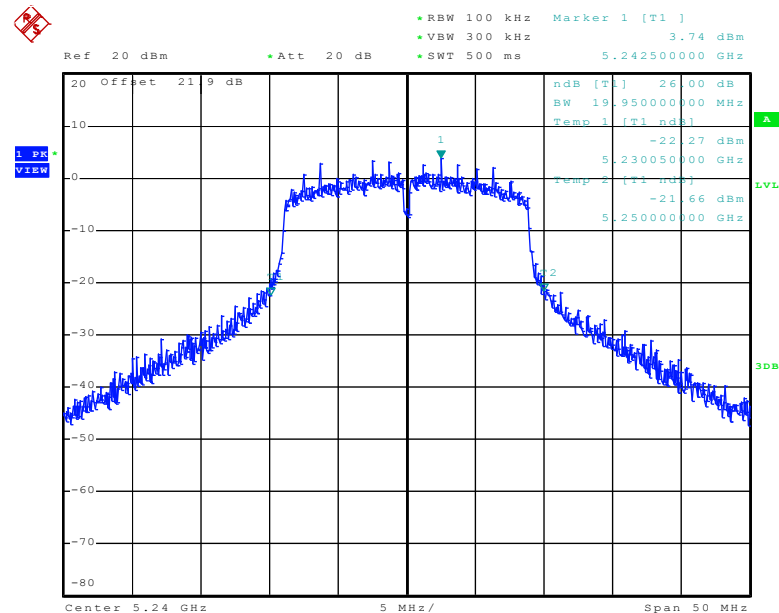


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 44



Date: 10.DEC.2010 09:16:51

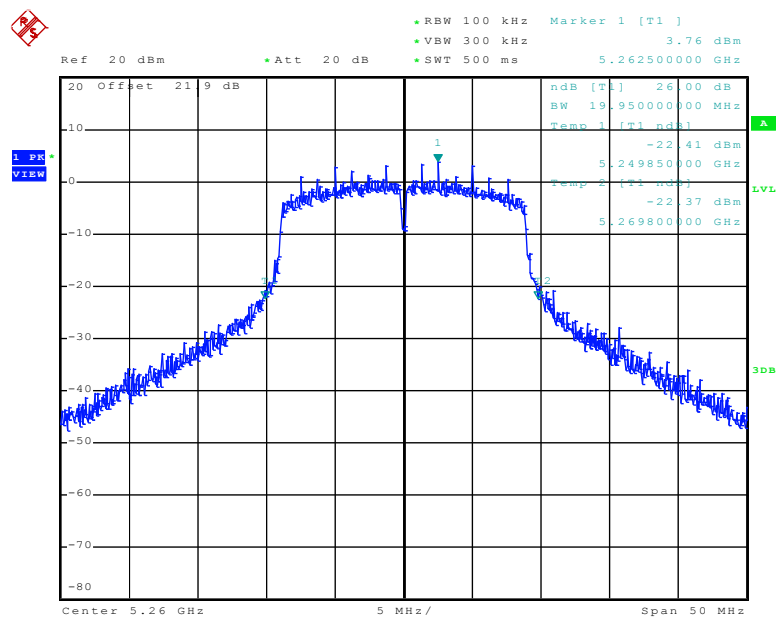
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 48



Date: 10.DEC.2010 09:19:06

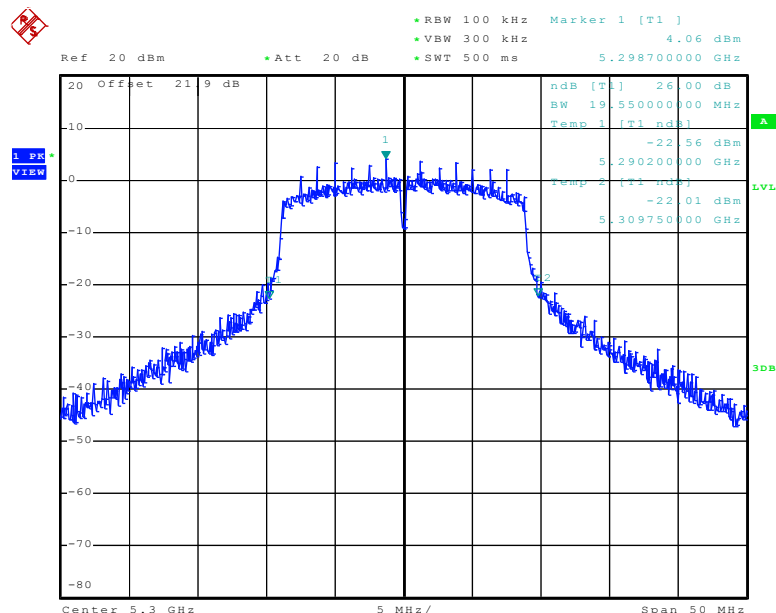


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 52



Date: 10.DEC.2010 09:21:23

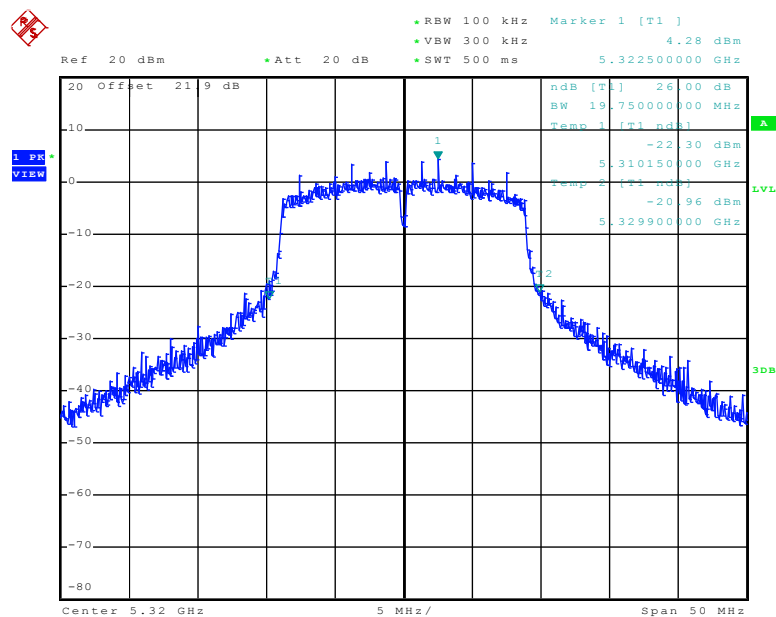
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 60



Date: 10.DEC.2010 09:22:12

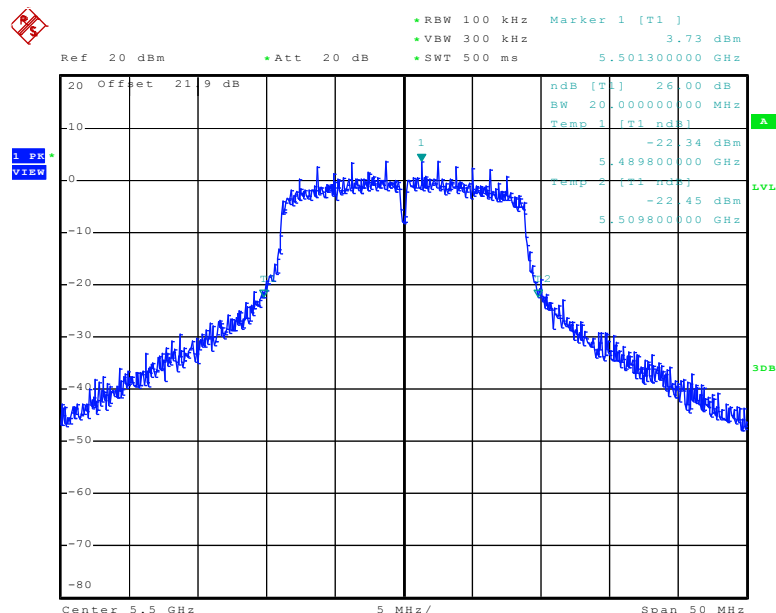


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 64



Date: 10.DEC.2010 09:24:02

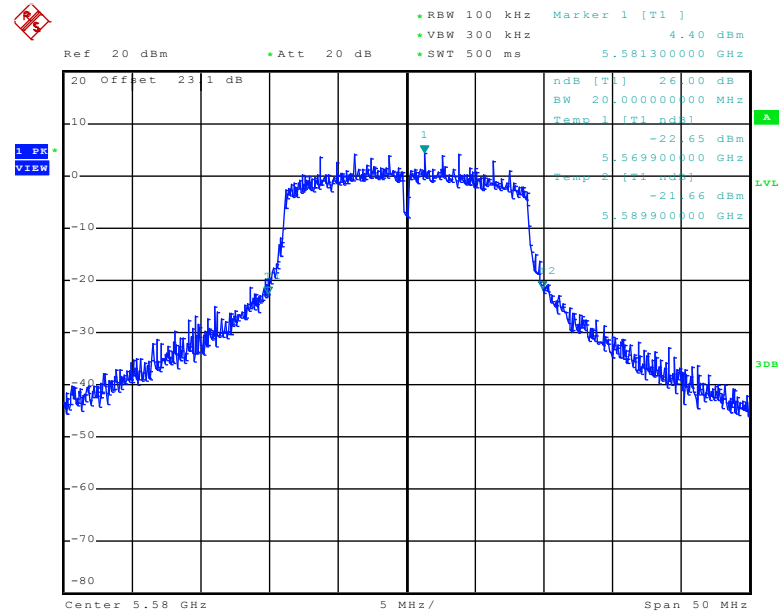
26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 100



Date: 10.DEC.2010 09:25:09

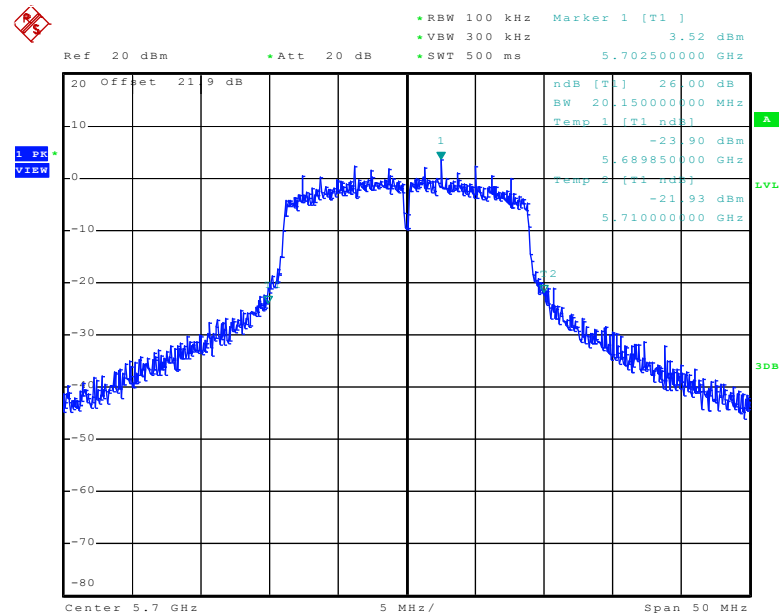


26 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 116



Date: 10.FEB.2011 01:13:12

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



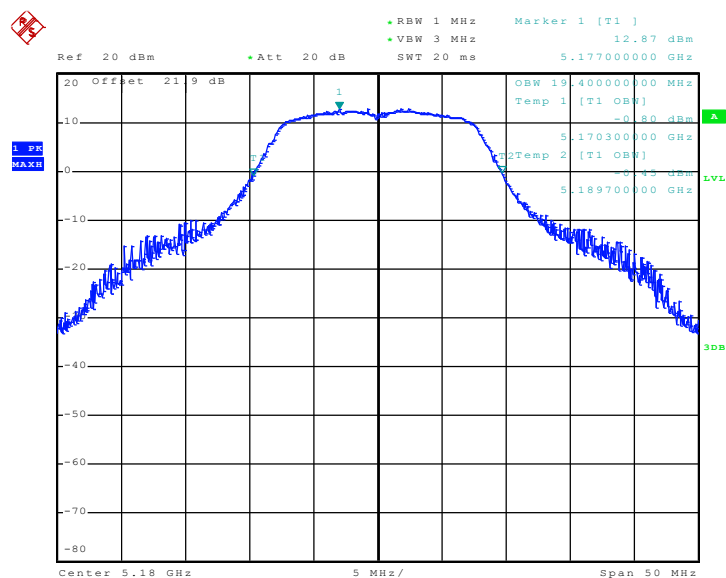
Date: 10.DEC.2010 09:26:53

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1~9	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

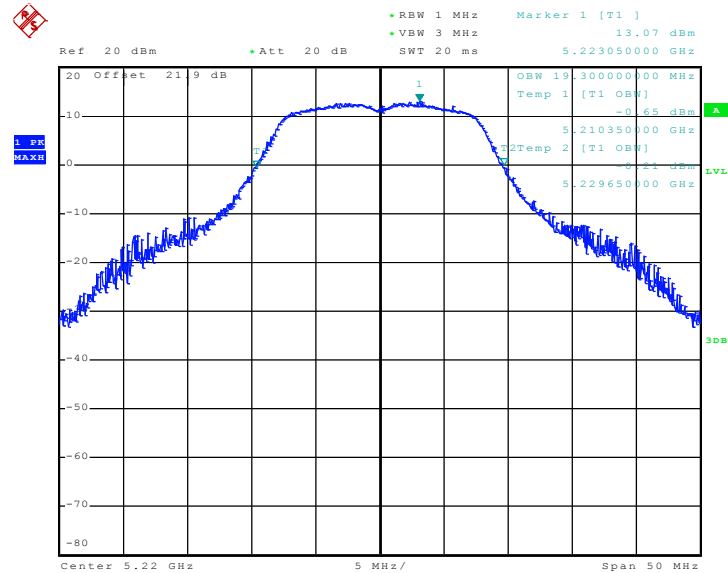
Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	19.40	Pass
44	5220	19.30	Pass
48	5240	19.25	Pass
52	5260	19.30	Pass
60	5300	19.25	Pass
64	5320	19.20	Pass
100	5500	19.20	Pass
116	5580	19.15	Pass
140	5700	19.30	Pass

99% Occupied Bandwidth Plot on 802.11a Channel 36



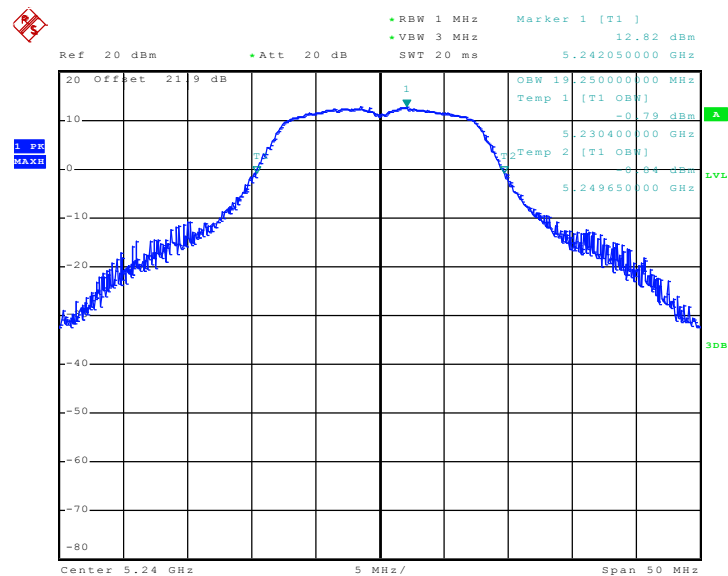
Date: 10.DEC.2010 09:59:53

99% Occupied Bandwidth Plot on 802.11a Channel 44



Date: 10.DEC.2010 10:00:51

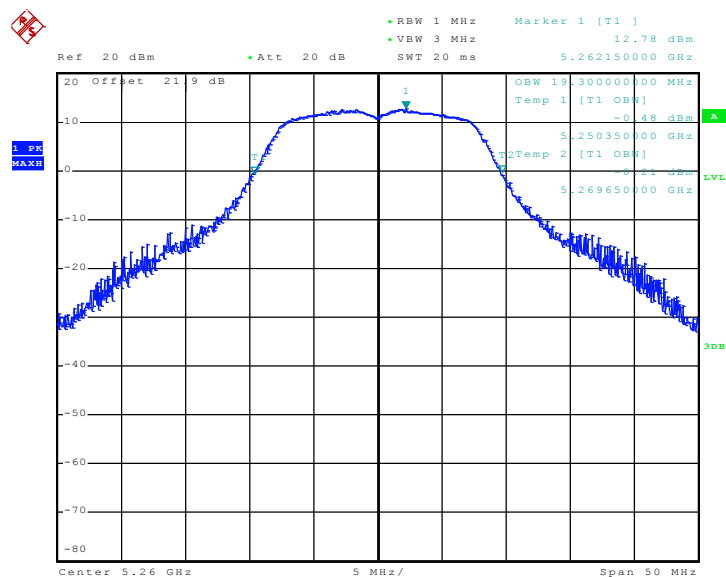
99% Occupied Bandwidth Plot on 802.11a Channel 48



Date: 10.DEC.2010 10:01:39

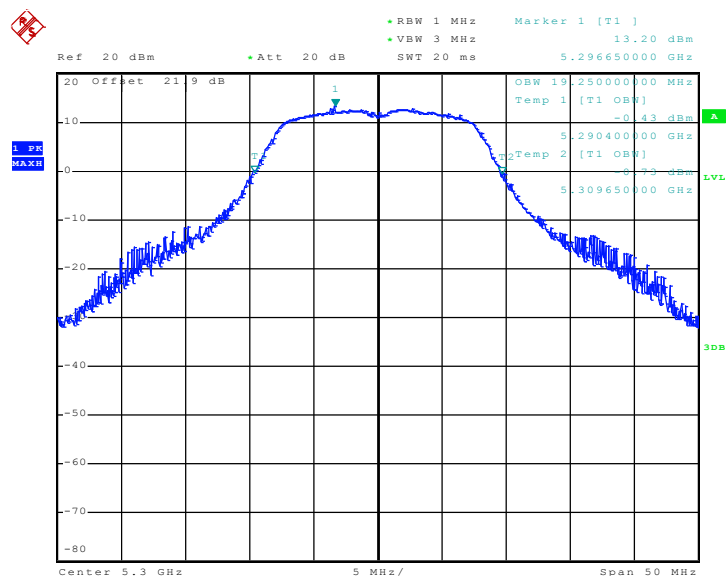


99% Occupied Bandwidth Plot on 802.11a Channel 52



Date: 10.DEC.2010 10:02:20

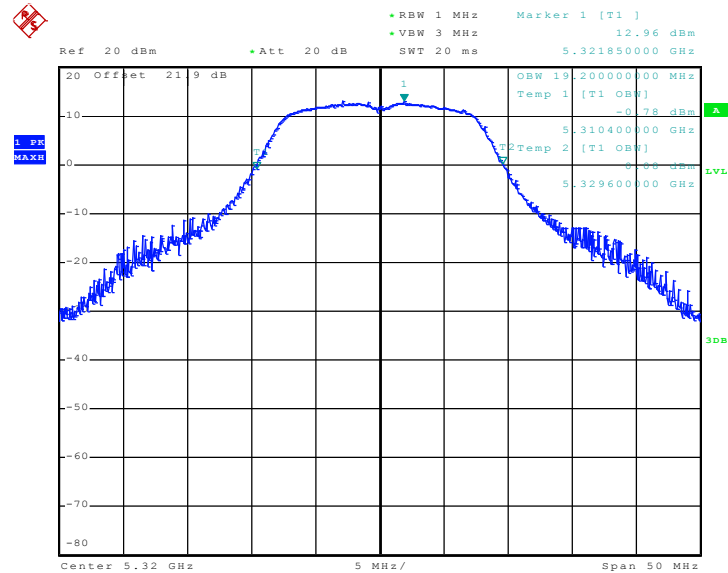
99% Occupied Bandwidth Plot on 802.11a Channel 60



Date: 10.DEC.2010 10:03:06

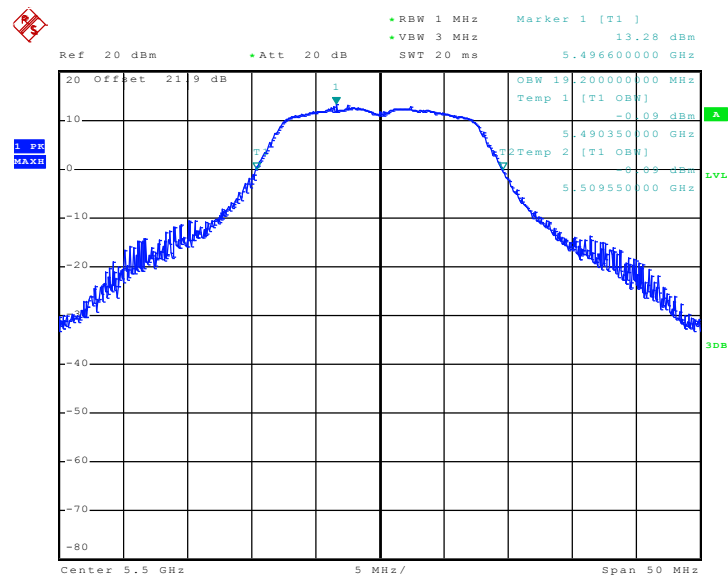


99% Occupied Bandwidth Plot on 802.11a Channel 64



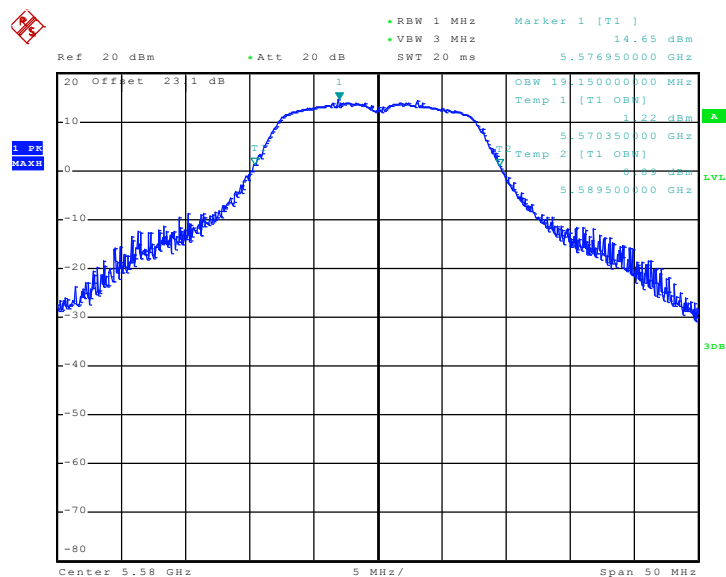
Date: 10.DEC.2010 10:03:56

99% Occupied Bandwidth Plot on 802.11a Channel 100



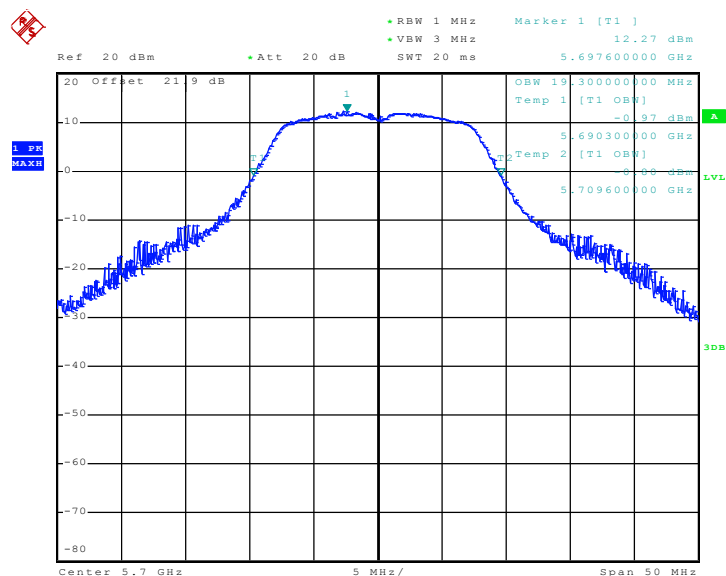
Date: 10.DEC.2010 10:05:51

99% Occupied Bandwidth Plot on 802.11a Channel 116



Date: 10.FEB.2011 00:20:18

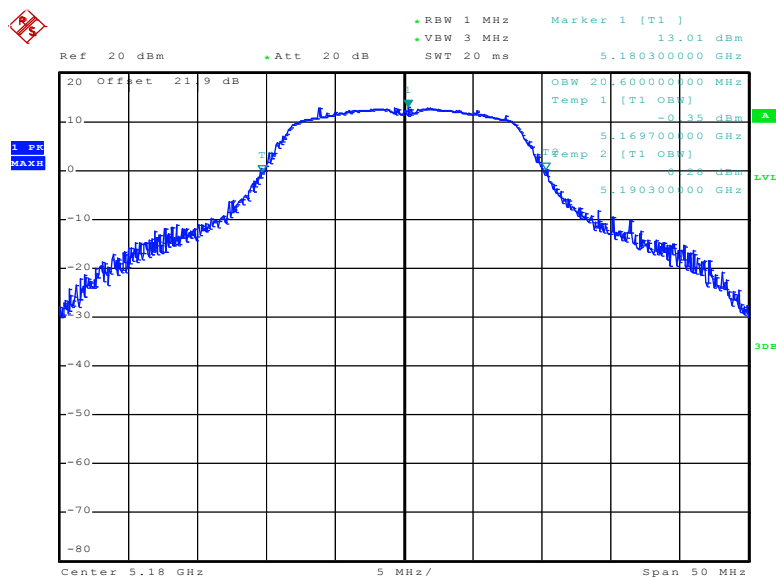
99% Occupied Bandwidth Plot on 802.11a Channel 140



Date: 10.DEC.2010 10:07:15

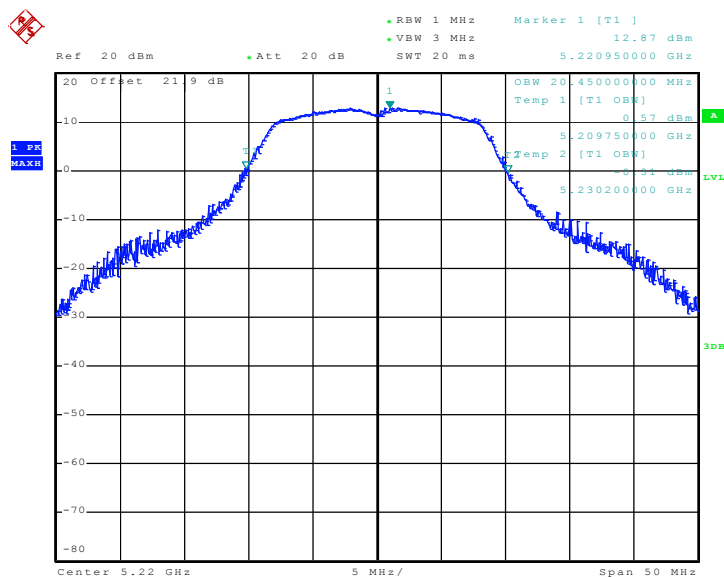
Test Mode :	Mode 10~18	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
36	5180	20.60	Pass
44	5220	20.45	Pass
48	5240	20.45	Pass
52	5260	20.35	Pass
60	5300	20.30	Pass
64	5320	20.35	Pass
100	5500	20.30	Pass
116	5580	20.15	Pass
140	5700	20.45	Pass

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


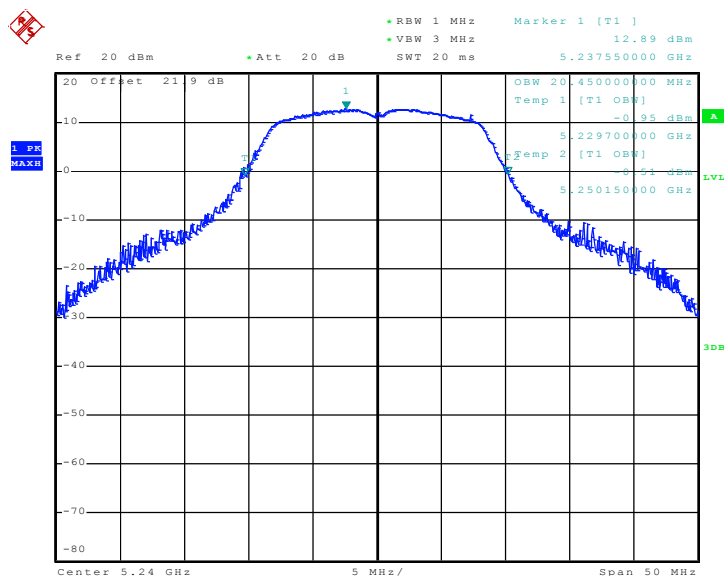
Date: 10.DEC.2010 10:17:02

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

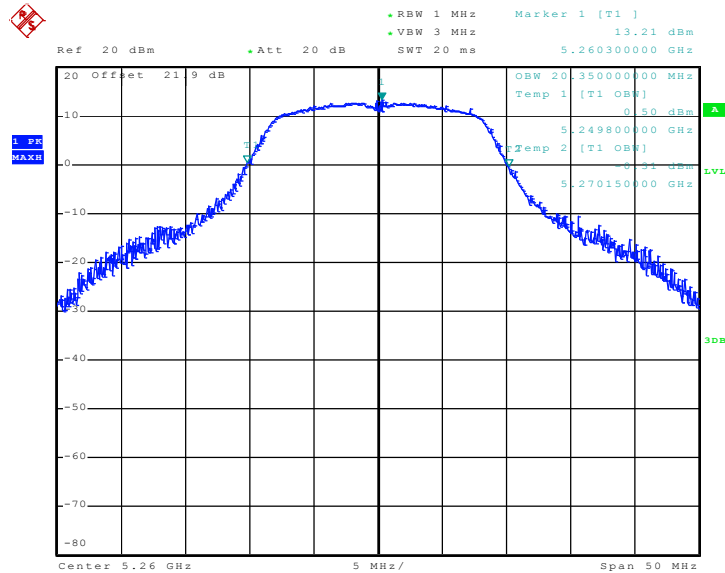


Date: 10.DEC.2010 10:18:23

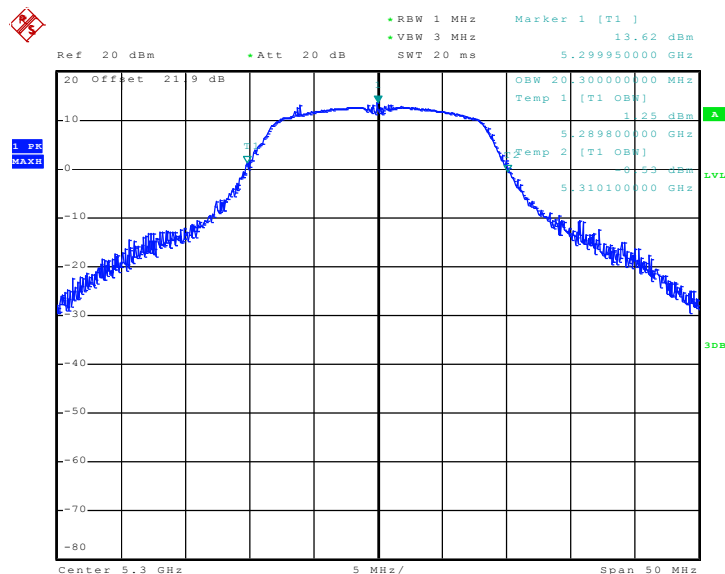
99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 48



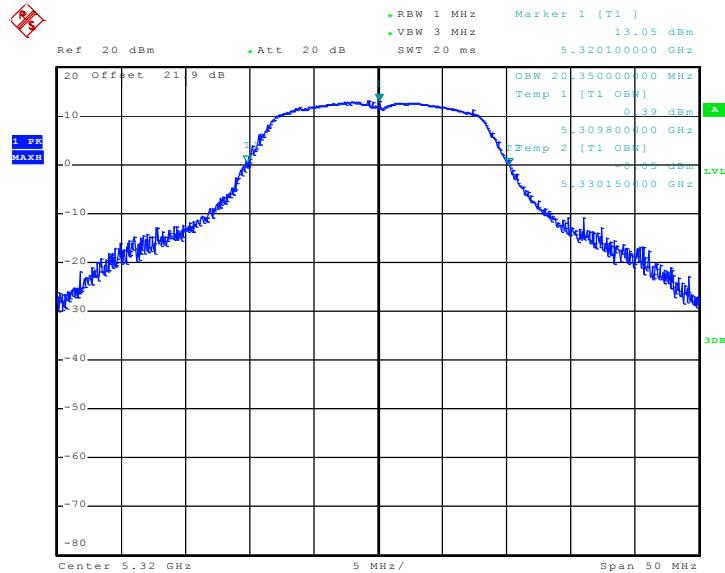
Date: 10.DEC.2010 10:19:03

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


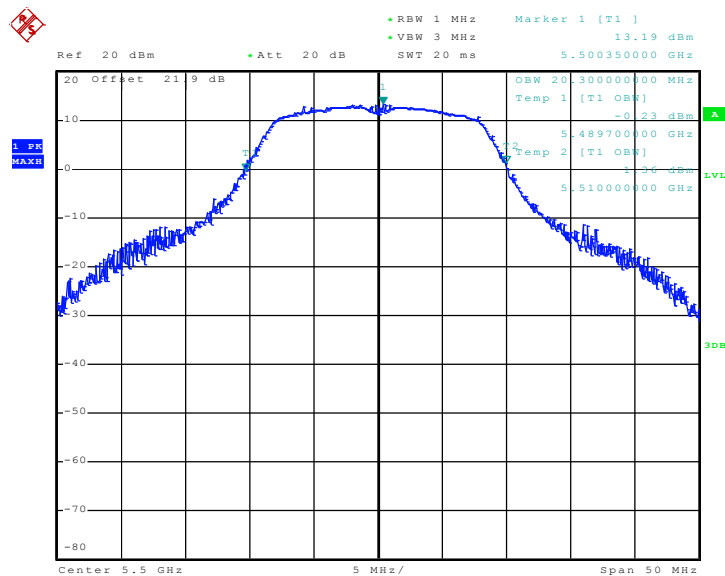
Date: 10.DEC.2010 10:19:46

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


Date: 10.DEC.2010 10:20:47

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


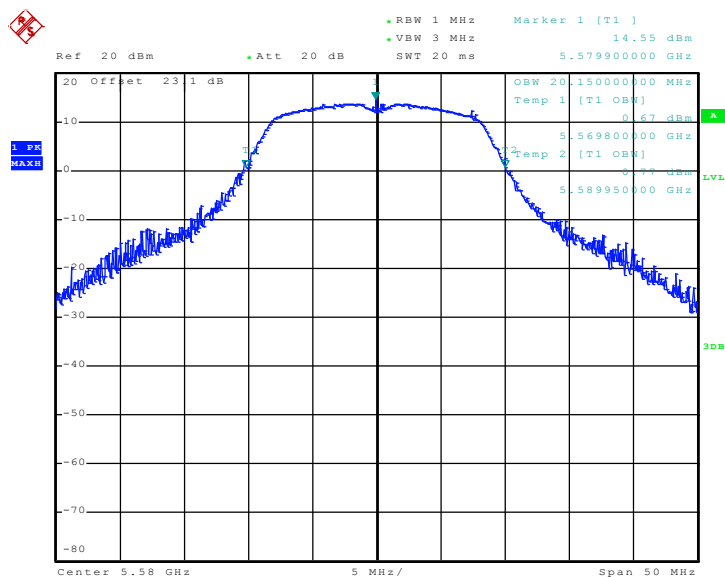
Date: 10.DEC.2010 10:21:36

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


Date: 10.DEC.2010 10:22:27

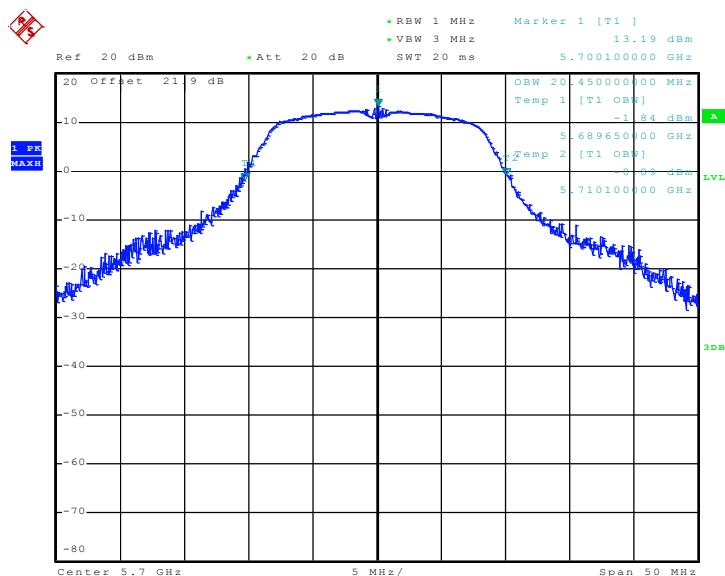


99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 116



Date: 10.FEB.2011 01:13:41

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



Date: 10.DEC.2010 10:24:02

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

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

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed the lesser of 250 mW (24dBm) or $11 \text{ dBm} + 10\log B$. If transmitting antenna directional gain is greater than 6 dBi, the peak output power and power density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

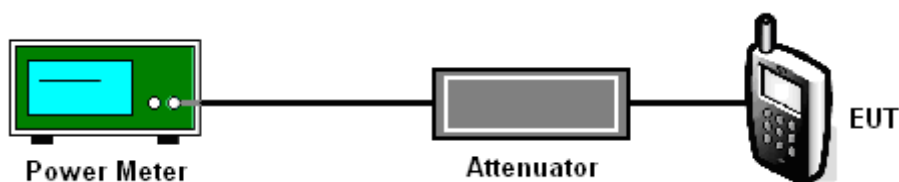
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Measure the power and record it.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Test Mode :	Mode 1~9	Temperature :	25~27℃
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	15.29	16.90	Pass
44	5220	15.27	16.81	Pass
48	5240	15.27	16.86	Pass
52	5260	15.08	23.71	Pass
60	5300	15.08	23.81	Pass
64	5320	15.20	23.72	Pass
100	5500	15.11	23.80	Pass
116	5580	15.40	23.80	Pass
140	5700	15.20	23.86	Pass

Test Mode :	Mode 10~18	Temperature :	25~27℃
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	15.10	16.97	Pass
44	5220	15.02	16.96	Pass
48	5240	15.09	17.00	Pass
52	5260	15.03	24.00	Pass
60	5300	15.08	23.91	Pass
64	5320	15.12	23.96	Pass
100	5500	15.38	24.00	Pass
116	5580	15.39	24.00	Pass
140	5700	15.40	24.00	Pass

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

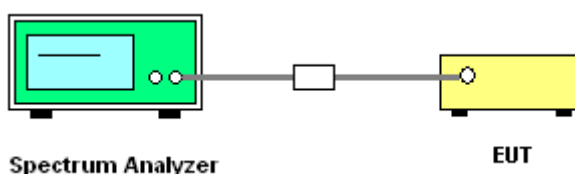
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

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

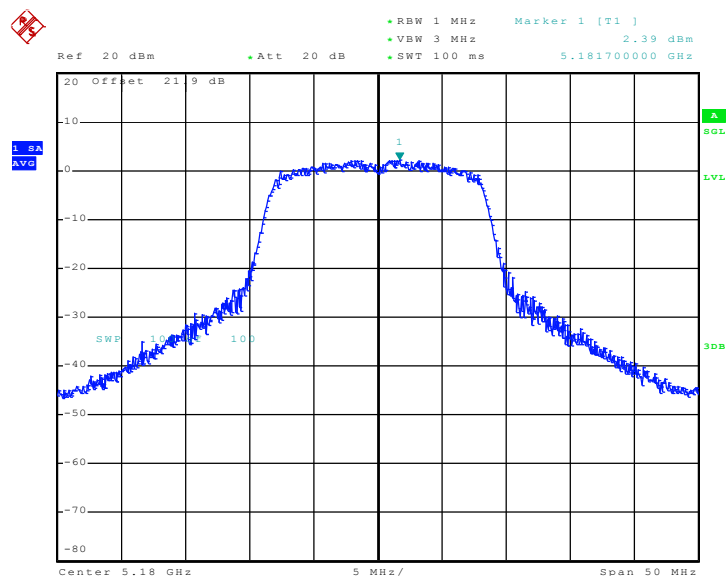


3.3.5 Test Result of Power Spectral Density

Test Mode :	Mode 1~9	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.39	4	Pass
44	5220	2.74	4	Pass
48	5240	2.21	4	Pass
52	5260	2.98	11	Pass
60	5300	3.34	11	Pass
64	5320	2.58	11	Pass
100	5500	2.61	11	Pass
116	5580	5.44	11	Pass
140	5700	1.62	11	Pass

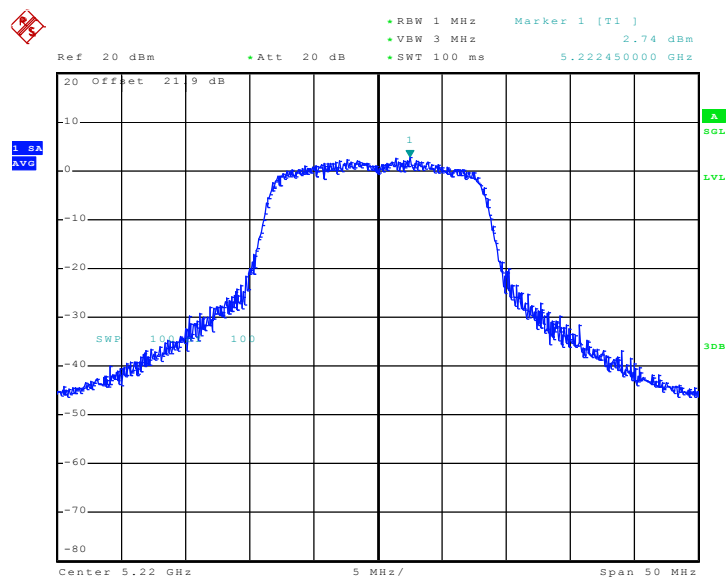
PSD Plot on 802.11a Channel 36



Date: 8.DEC.2010 16:49:43

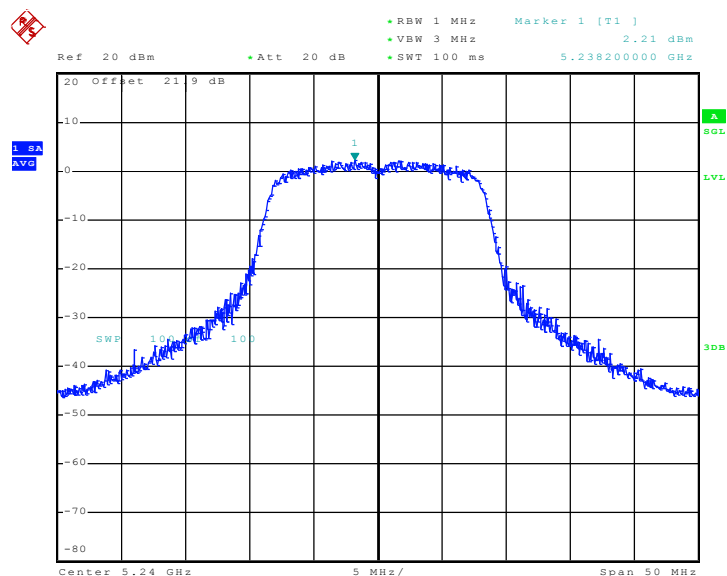


PSD Plot on 802.11a Channel 44



Date: 8.DEC.2010 16:50:33

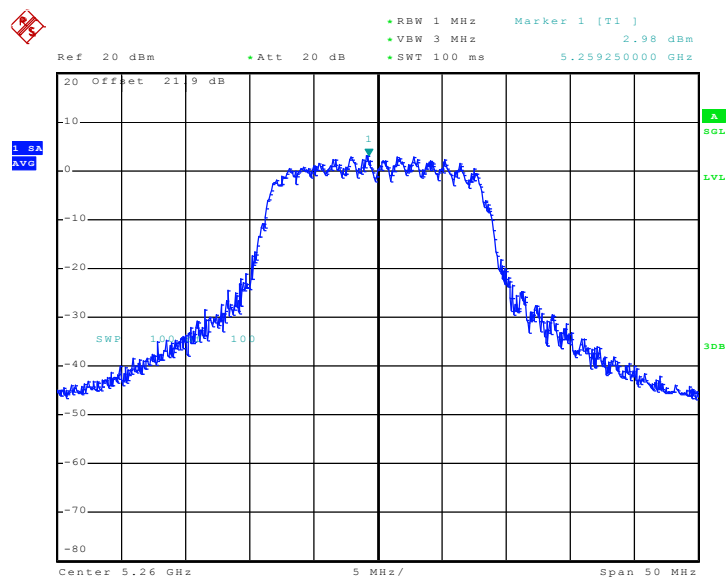
PSD Plot on 802.11a Channel 48



Date: 8.DEC.2010 16:51:50

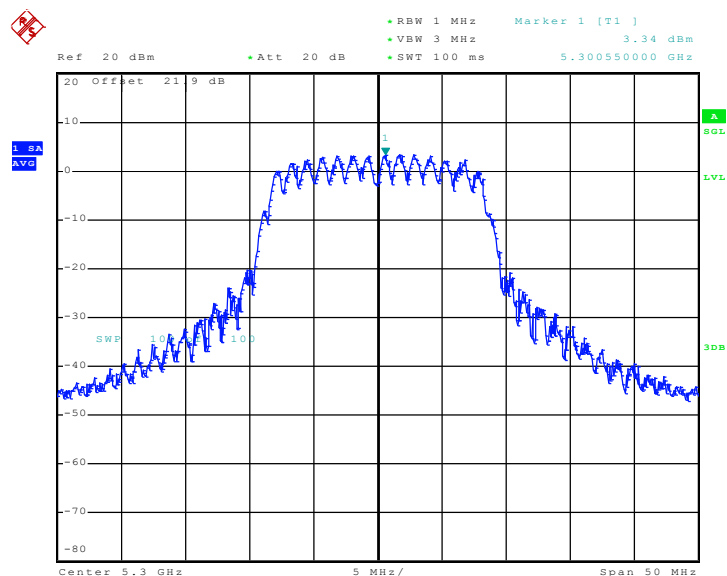


PSD Plot on 802.11a Channel 52



Date: 8.DEC.2010 16:53:06

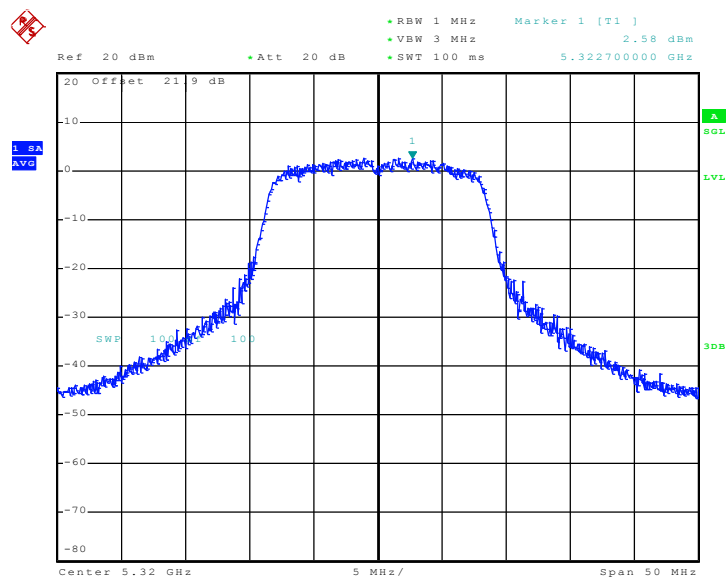
PSD Plot on 802.11a Channel 60



Date: 8.DEC.2010 16:54:01

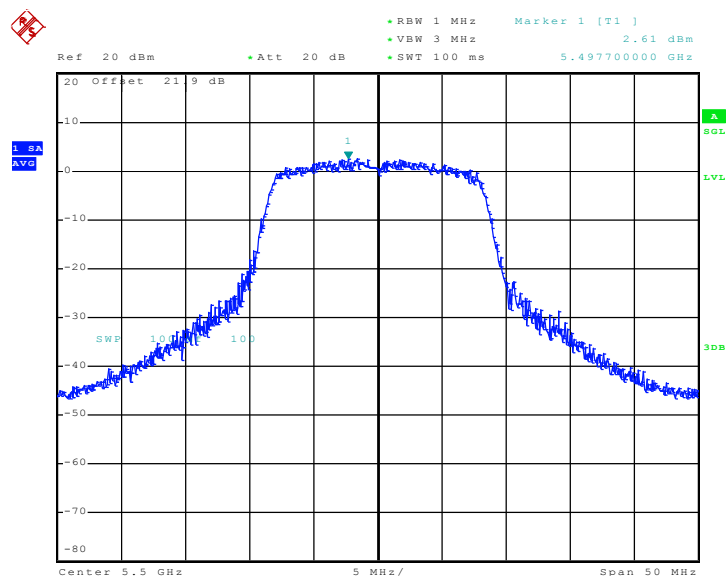


PSD Plot on 802.11a Channel 64



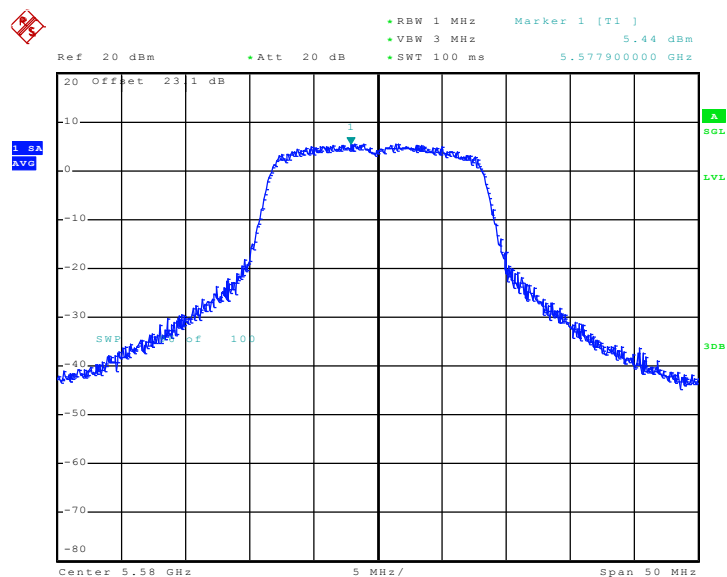
Date: 8.DEC.2010 16:55:11

PSD Plot on 802.11a Channel 100



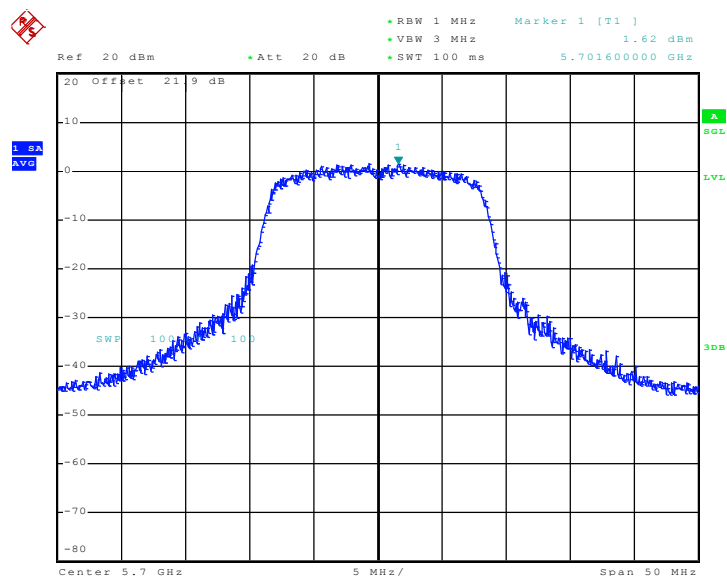
Date: 8.DEC.2010 16:56:31

PSD Plot on 802.11a Channel 116



Date: 10.FEB.2011 00:25:04

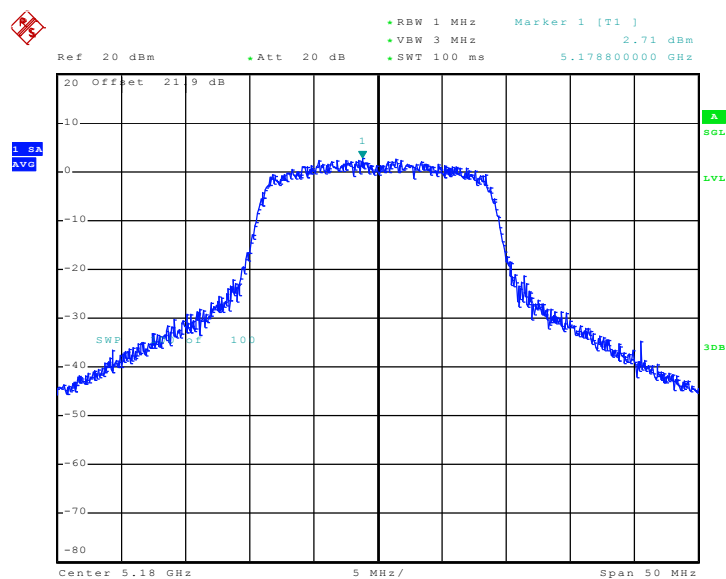
PSD Plot on 802.11a Channel 140



Date: 8.DEC.2010 16:58:00

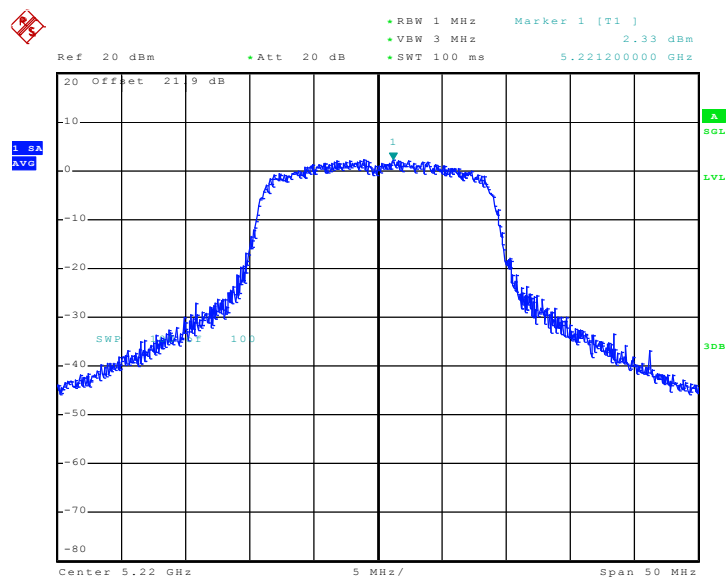
Test Mode :	Mode 10~18	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
36	5180	2.71	4	Pass
44	5220	2.33	4	Pass
48	5240	2.98	4	Pass
52	5260	2.46	11	Pass
60	5300	2.25	11	Pass
64	5320	2.84	11	Pass
100	5500	2.69	11	Pass
116	5580	5.66	11	Pass
140	5700	1.41	11	Pass

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


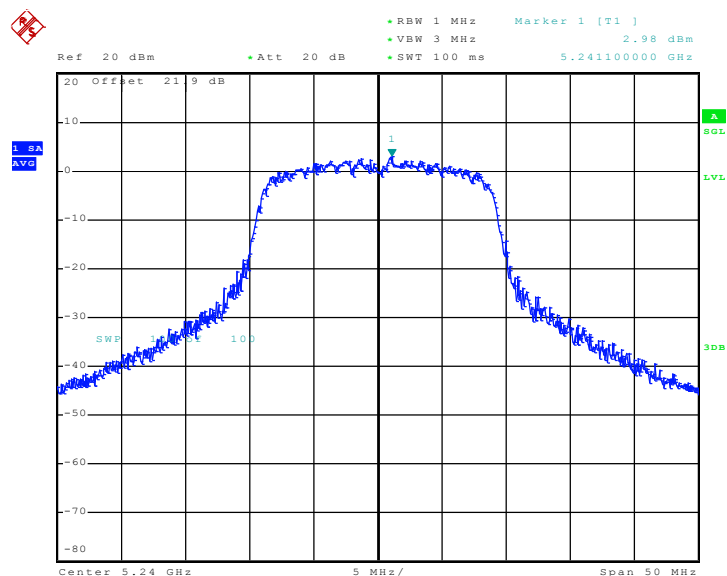
Date: 8.DEC.2010 17:21:27

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

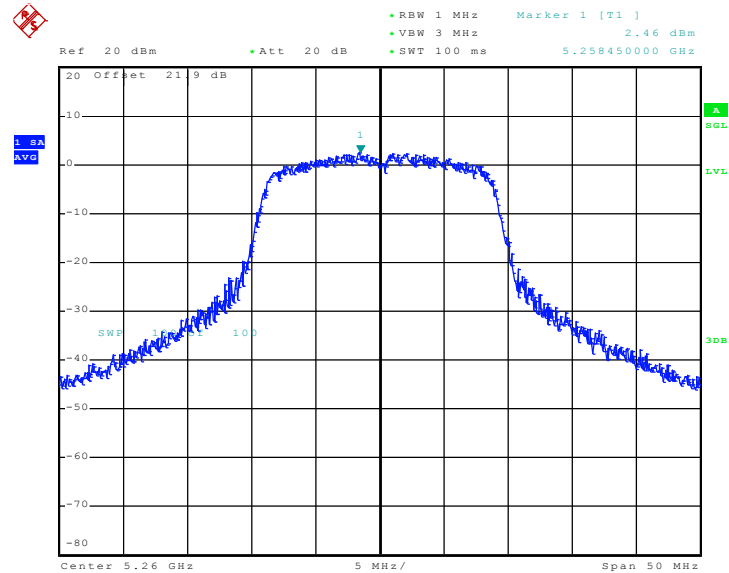


Date: 8.DEC.2010 17:22:22

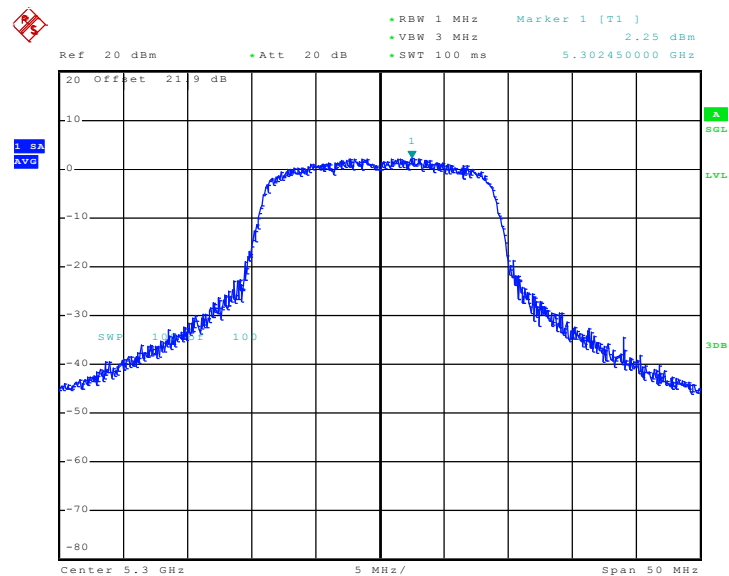
PSD Plot on 802.11n (BW 20MHz) Channel 48



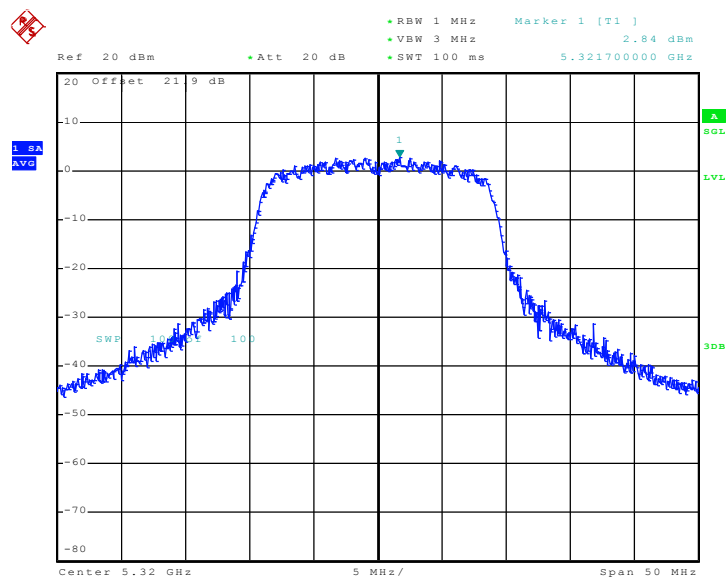
Date: 8.DEC.2010 17:23:27

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


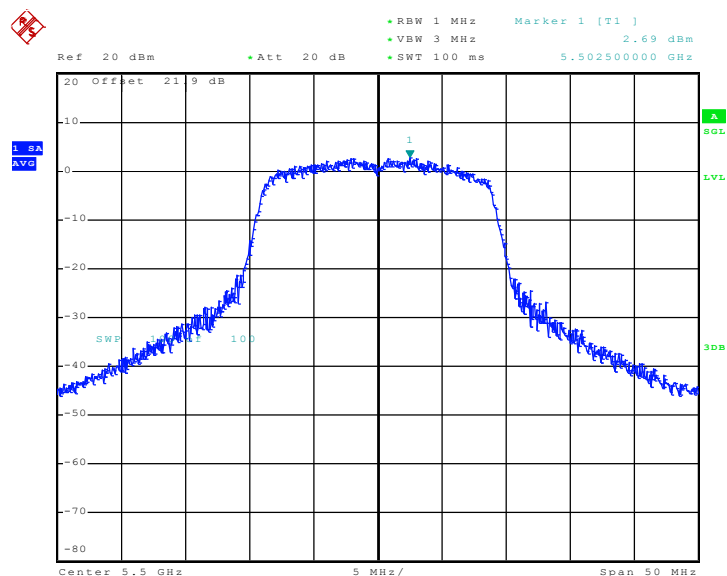
Date: 8.DEC.2010 17:24:31

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


Date: 8.DEC.2010 17:27:46

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


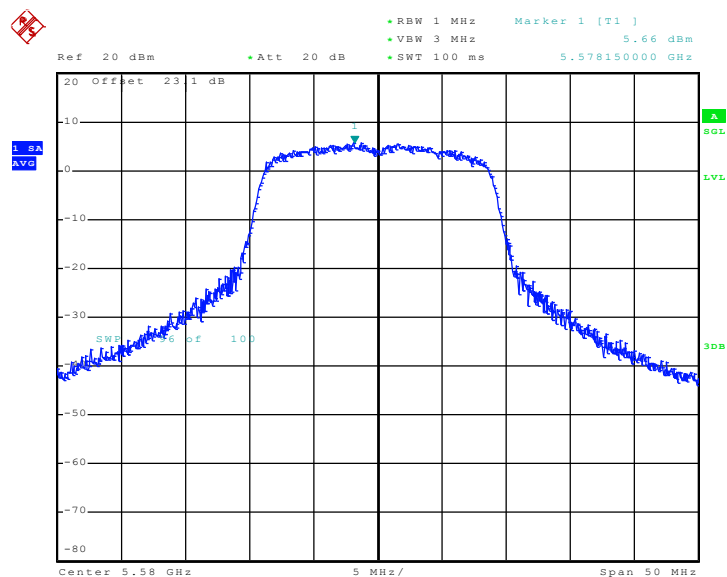
Date: 8.DEC.2010 17:26:51

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


Date: 8.DEC.2010 17:28:40

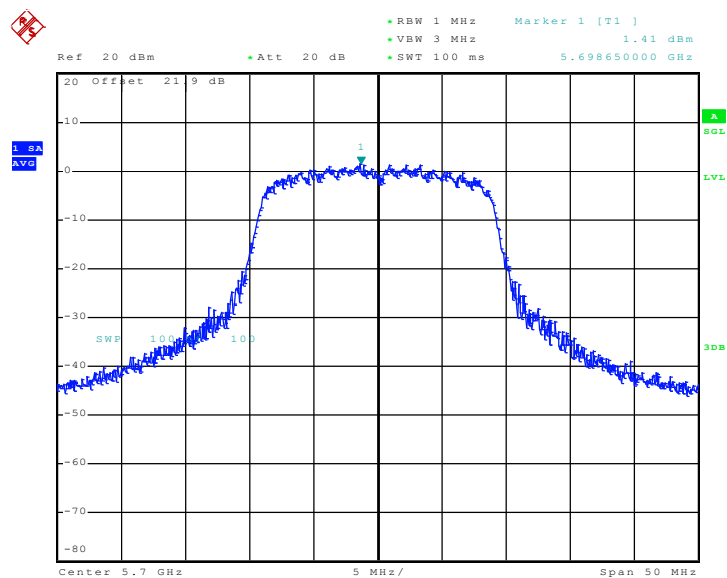


PSD Plot on 802.11n (BW 20MHz) Channel 116



Date: 10.FEB.2011 01:14:02

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



Date: 8.DEC.2010 17:29:46

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

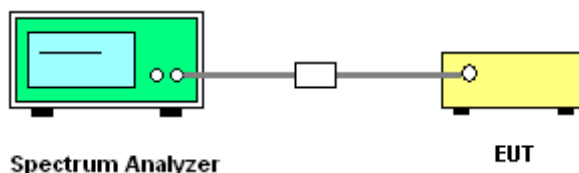
See list of measuring instruments of this test report.

3.4.3 Test Procedures

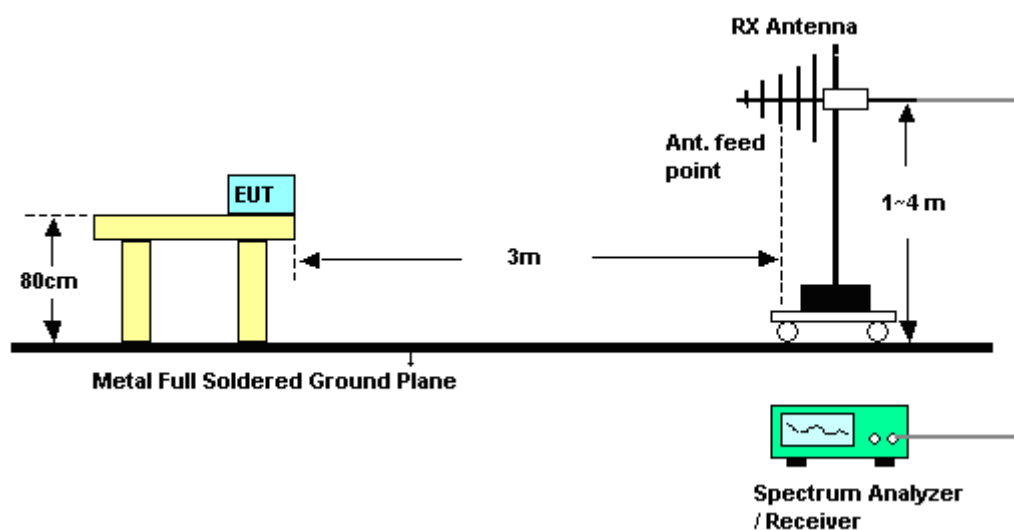
1. Set both RBW and VBW of spectrum analyzer to 1MHz with convenient frequency span including 1MHz bandwidth from band edge.
2. The band edges was measured and recorded.

3.4.4 Test Setup

<Conducted>



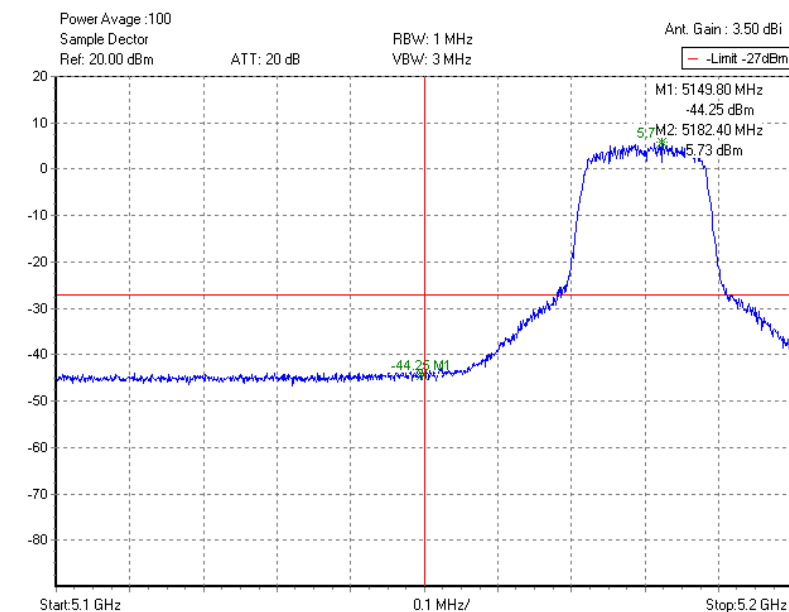
<Radiated>



3.4.5 Test Result of Conducted Band Edges

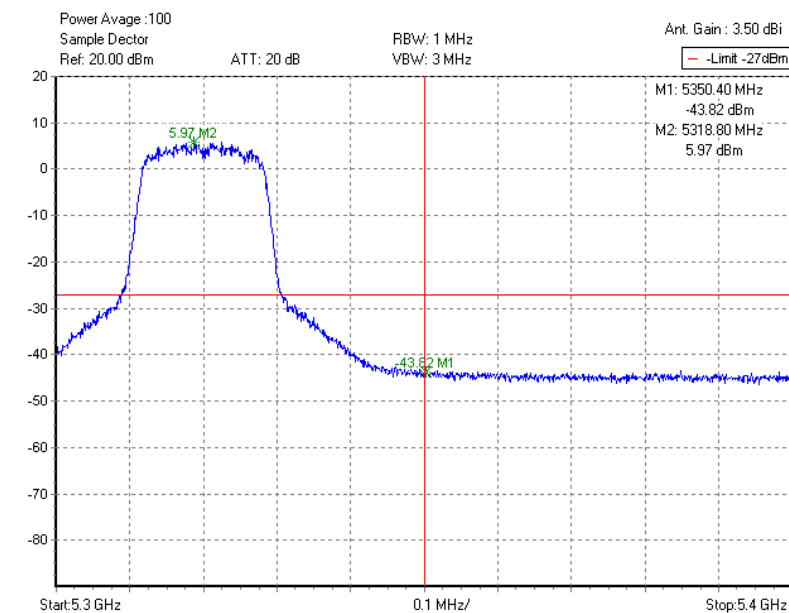
Test Mode :	Mode 1 and 6	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Low Band Edge Plot on Channel 36



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

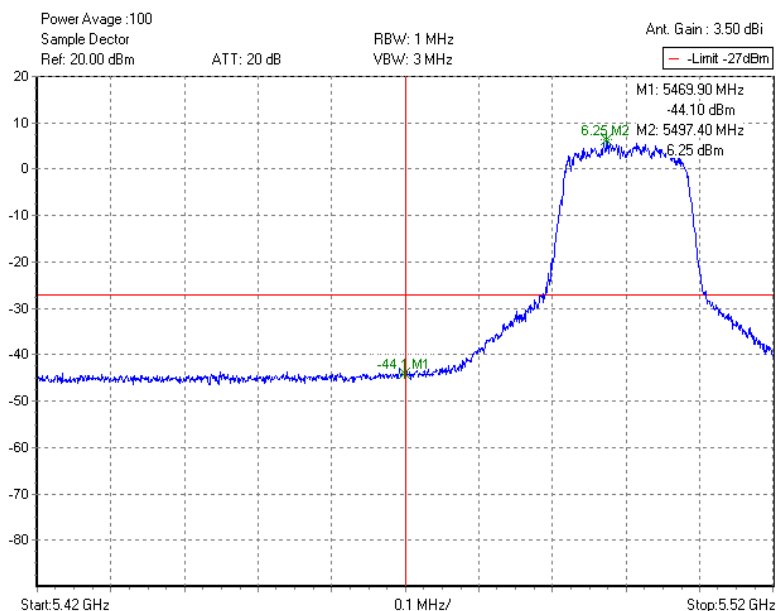
High Band Edge Plot on Channel 64



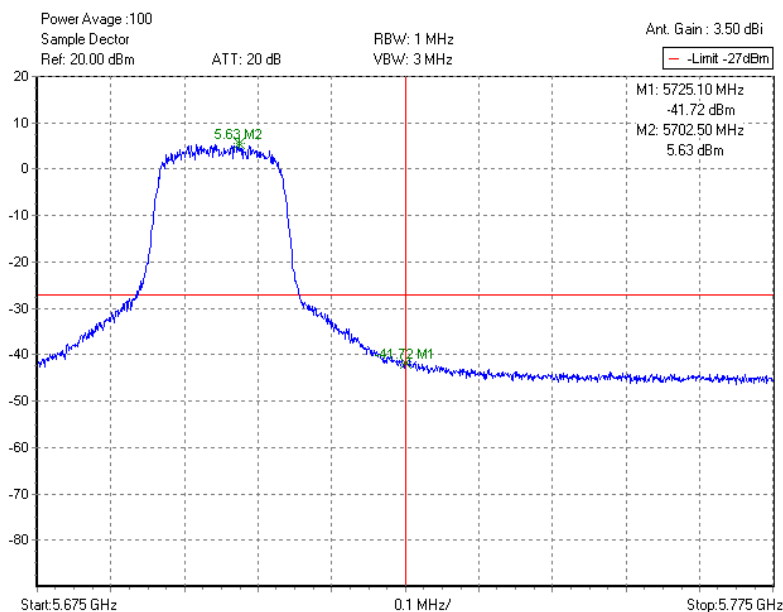
Test result was offsetted with path loss, and antenna gain.



Test Mode :	Mode 7 and 9	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

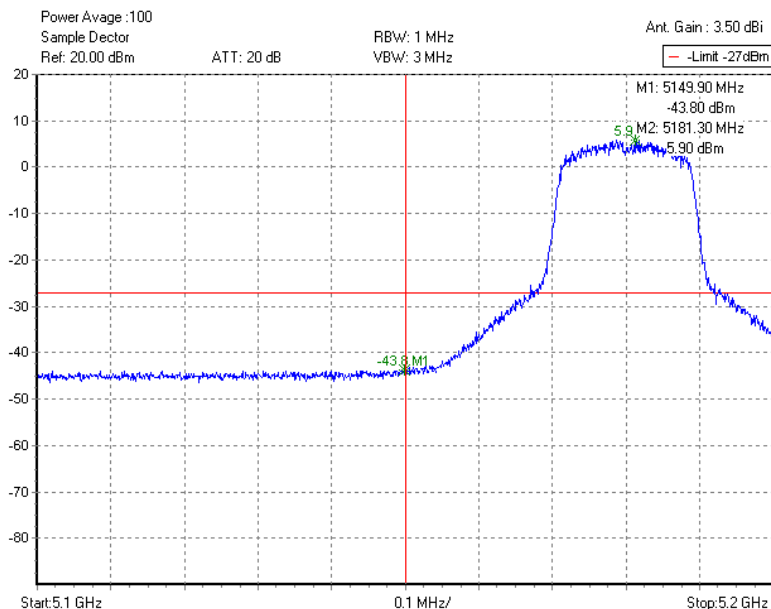
Low Band Edge Plot on Channel 100

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

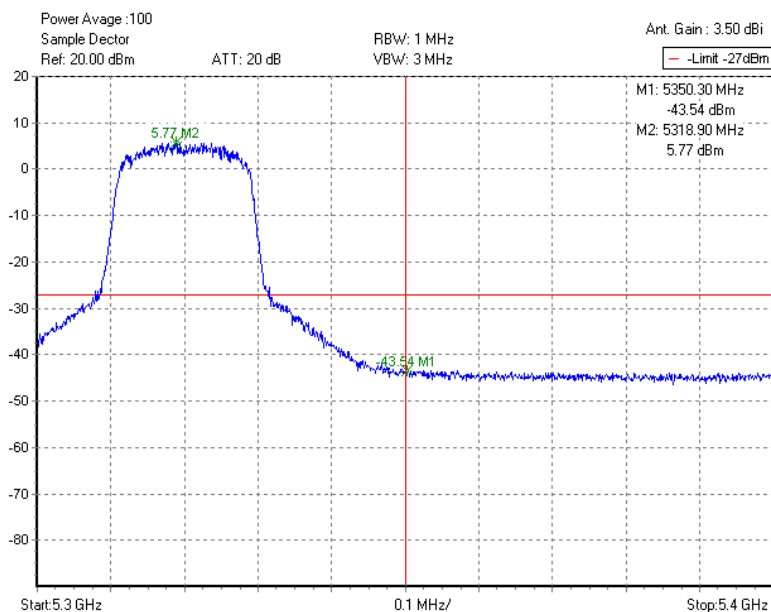
High Band Edge Plot on Channel 140

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

Test Mode :	Mode 10 and 15	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Low Band Edge Plot on Channel 36


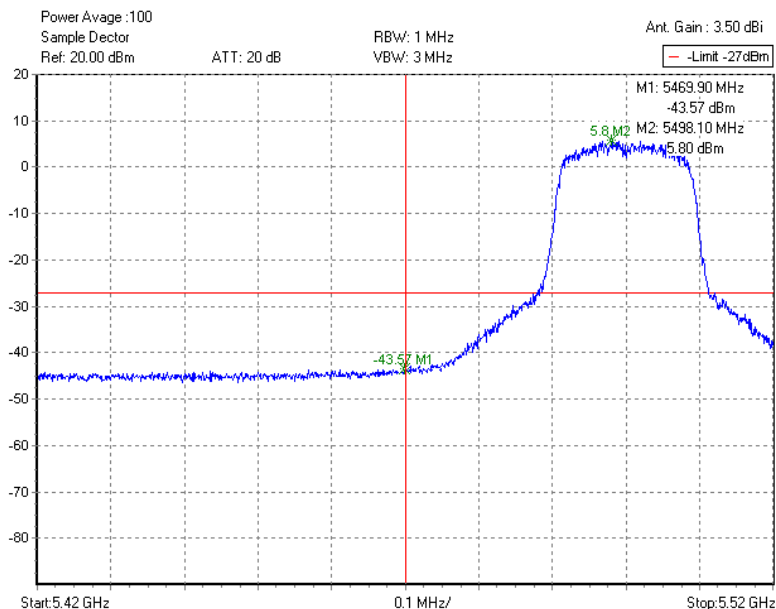
Test result was offsetted with path loss, and antenna gain.

High Band Edge Plot on Channel 64


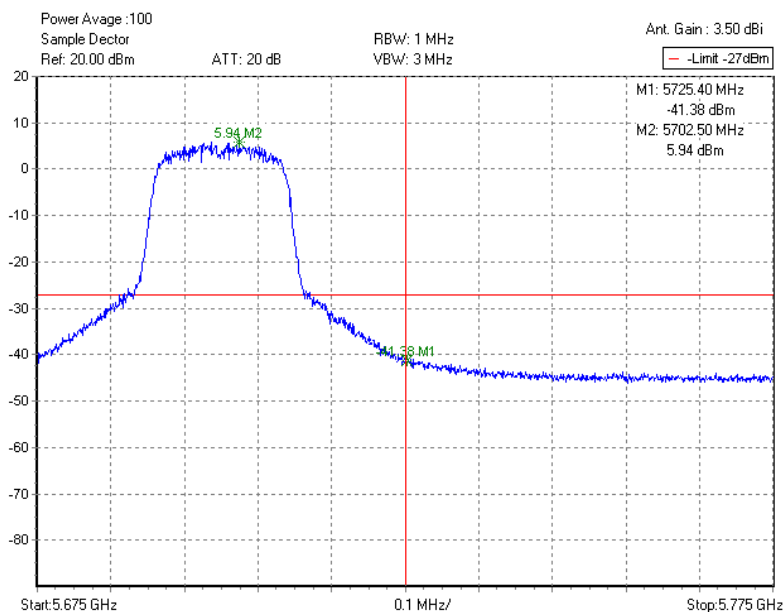
Test result was offsetted with path loss, and antenna gain.



Test Mode :	Mode 16 and 18	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Low Band Edge Plot on Channel 100

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

High Band Edge Plot on Channel 140

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

3.4.6 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	36	Test Engineer :	Ivan Jiang

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
5150.00	55.14	-18.86	74.00	46.13	34.25	9.41	34.65	112	271	Peak
5150.00	40.10	-13.90	54.00	31.09	34.25	9.41	34.65	112	271	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
5150.00	62.53	-11.47	74.00	53.52	34.25	9.41	34.65	135	352	Peak
5150.00	42.51	-11.49	54.00	33.50	34.25	9.41	34.65	135	352	Average

Test Mode :	Mode 6	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	64	Test Engineer :	Ivan Jiang

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
5350.00	58.23	-15.77	74.00	49.44	34.45	9.74	35.40	100	264	Peak
5350.00	41.74	-12.26	54.00	32.95	34.45	9.74	35.40	100	264	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
5350.00	56.57	-17.43	74.00	47.78	34.45	9.74	35.40	100	24	Peak
5350.00	41.30	-12.70	54.00	32.51	34.45	9.74	35.40	100	24	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	100	Test Engineer :	Ivan Jiang

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
5470.00	51.96	-36.34	88.30	43.29	34.57	9.94	35.84	100	255	Peak
5470.00	39.07	-29.23	68.30	30.40	34.57	9.94	35.84	100	255	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
5470.00	54.48	-33.82	88.30	45.81	34.57	9.94	35.84	100	48	Peak
5470.00	40.63	-27.67	68.30	31.96	34.57	9.94	35.84	100	48	Average

Test Mode :	Mode 9	Temperature :	23~24°C
Test Band :	802.11a	Relative Humidity :	49~50%
Test Channel :	140	Test Engineer :	Ivan Jiang

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
5725.00	60.83	-27.47	88.30	51.93	34.82	9.92	35.84	100	273	Peak
5725.00	43.79	-24.51	68.30	34.89	34.82	9.92	35.84	100	273	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
5725.00	62.31	-25.99	88.30	53.41	34.82	9.92	35.84	111	5	Peak
5725.00	47.37	-20.93	68.30	38.47	34.82	9.92	35.84	111	5	Average



Test Mode :	Mode 10	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	36	Test Engineer :	Ivan Jiang

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
5150.00	55.98	-18.02	74.00	46.97	34.25	9.41	34.65	100	271	Peak
5150.00	40.83	-13.17	54.00	31.82	34.25	9.41	34.65	100	271	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
5150.00	57.59	-16.41	74.00	48.58	34.25	9.41	34.65	123	1	Peak
5150.00	42.08	-11.92	54.00	33.07	34.25	9.41	34.65	123	1	Average

Test Mode :	Mode 15	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	64	Test Engineer :	Ivan Jiang

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
5350.00	59.35	-14.65	74.00	50.56	34.45	9.74	35.40	100	265	Peak
5350.00	41.78	-12.22	54.00	32.99	34.45	9.74	35.40	100	265	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
5350.00	58.10	-15.90	74.00	49.31	34.45	9.74	35.40	100	30	Peak
5350.00	42.25	-11.75	54.00	33.46	34.45	9.74	35.40	100	30	Average



Test Mode :	Mode 16	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	100	Test Engineer :	Ivan Jiang

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
5470.00	58.04	-30.26	88.30	49.37	34.57	9.94	35.84	173	120	Peak
5470.00	40.04	-28.26	68.30	31.37	34.57	9.94	35.84	173	120	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
5470.00	55.50	-32.80	88.30	46.83	34.57	9.94	35.84	100	47	Peak
5470.00	41.17	-27.13	68.30	32.50	34.57	9.94	35.84	100	47	Average

Test Mode :	Mode 18	Temperature :	23~24°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	49~50%
Test Channel :	140	Test Engineer :	Ivan Jiang

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
5725.00	62.09	-26.21	88.30	53.19	34.82	9.92	35.84	100	272	Peak
5725.00	45.45	-22.85	68.30	36.55	34.82	9.92	35.84	100	272	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
5725.00	66.85	-21.45	88.30	57.95	34.82	9.92	35.84	122	4	Peak
5725.00	48.39	-19.91	68.30	39.49	34.82	9.92	35.84	122	4	Average

3.5 Conducted 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.

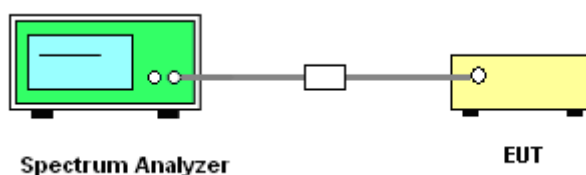
3.5.2 Measuring Instruments

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

3.5.4 Test Setup



3.5.5 Test Result

Test Mode :	Mode 1~9	Temperature :	25~27℃
Test Band :	802.11a	Relative Humidity :	54~57%
Test Channel :	36, 44, 48, 52, 60, 64, 100, 116, 140	Test Engineer :	Ken Hsu

<30 MHz ~ 3 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	903.18	-42.69	3.5	-39.19	-27
44	5220	903.18	-44.85	3.5	-41.35	-27
48	5240	65.64	-50.02	3.5	-46.52	-27
52	5260	2904.96	-49.67	3.5	-46.17	-27
60	5300	2869.32	-49.89	3.5	-46.39	-27
64	5320	65.64	-49.47	3.5	-45.97	-27
100	5500	65.64	-49.90	3.5	-46.40	-27
116	5580	2584.20	-48.65	3.5	-45.15	-27
140	5700	2922.78	-49.85	3.5	-46.35	-27

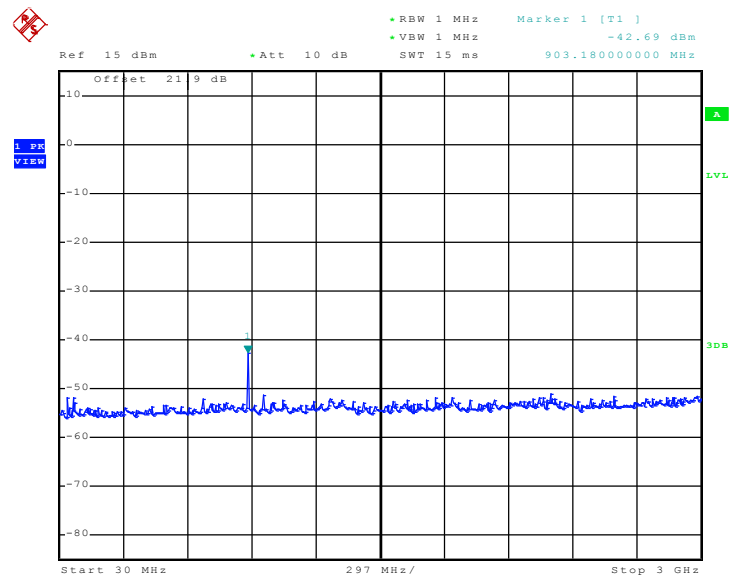
<3 GHz ~ 13.6 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	6922.0	-34.49	3.5	-30.99	-27
44	5220	6922.0	-35.07	3.5	-31.57	-27
48	5240	6922.0	-36.36	3.5	-32.86	-27
52	5260	6922.0	-35.43	3.5	-31.93	-27
60	5300	6922.0	-35.50	3.5	-32.00	-27
64	5320	6922.0	-36.83	3.5	-33.33	-27
100	5500	6900.8	-33.72	3.5	-30.22	-27
116	5580	6922.0	-35.40	3.5	-31.90	-27
140	5700	6943.2	-42.21	3.5	-38.71	-27

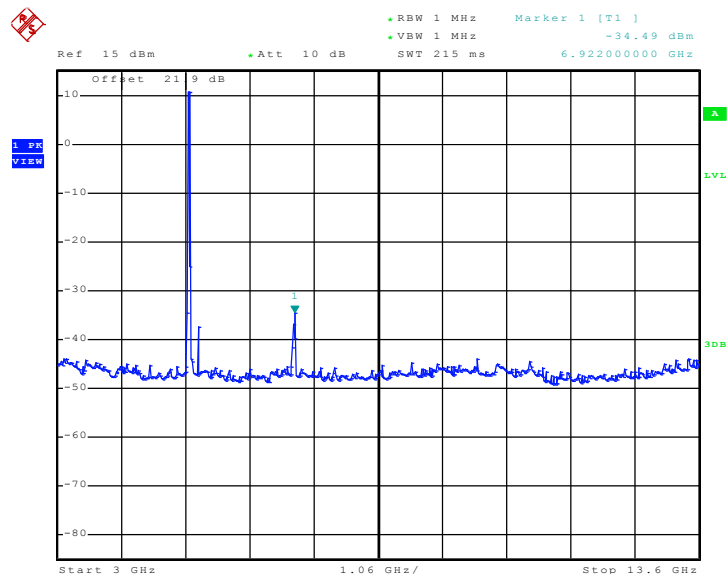
<13.6 GHz ~ 40 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	40000.0	-33.44	3.5	-29.94	-27
44	5220	39947.2	-33.73	3.5	-30.23	-27
48	5240	40000.0	-34.11	3.5	-30.61	-27
52	5260	40000.0	-33.77	3.5	-30.27	-27
60	5300	40000.0	-33.96	3.5	-30.46	-27
64	5320	40000.0	-33.75	3.5	-30.25	-27
100	5500	40000.0	-33.91	3.5	-30.41	-27
116	5580	40000.0	-31.17	3.5	-27.67	-27
140	5700	40000.0	-33.50	3.5	-30.00	-27

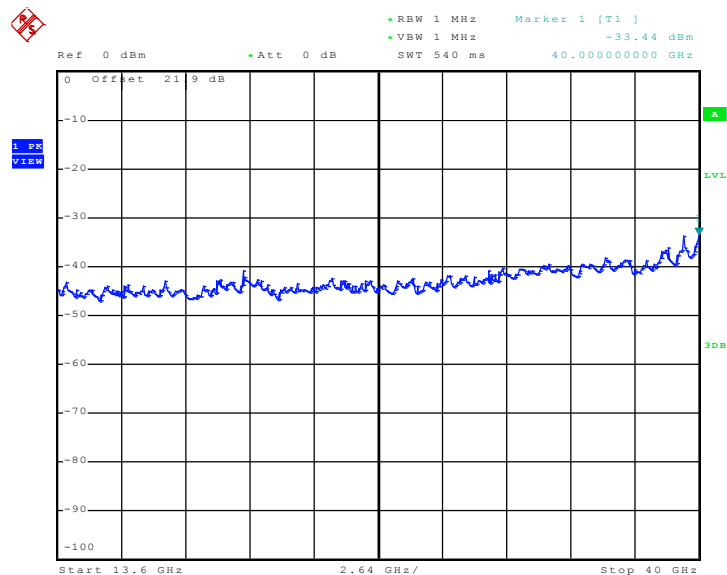
**Mode 1 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**



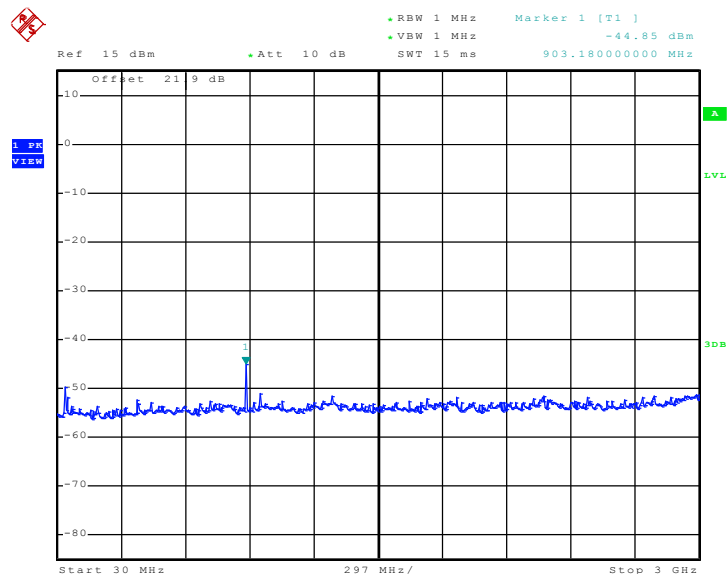
Date: 10.DEC.2010 17:11:40

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


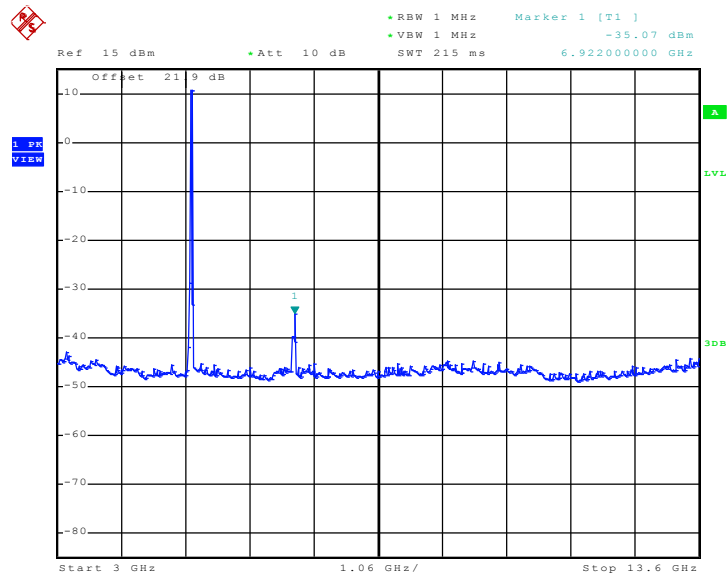
Date: 10.DEC.2010 17:11:52

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


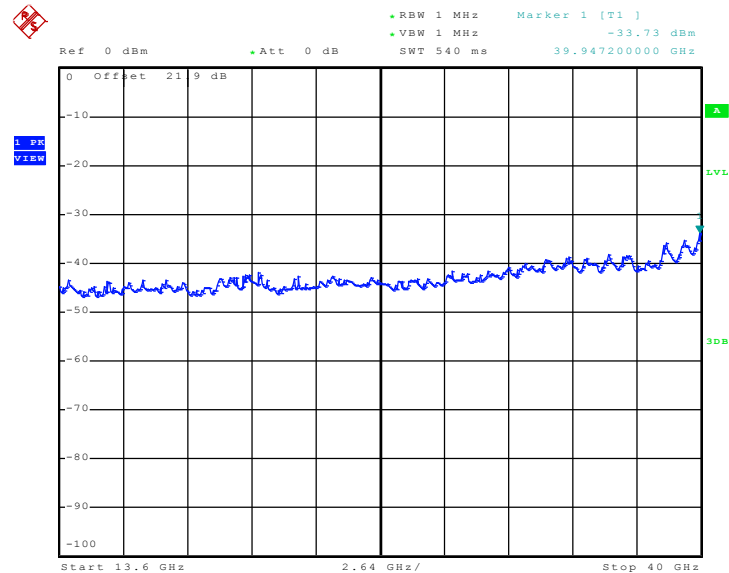
Date: 10.DEC.2010 17:12:07

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


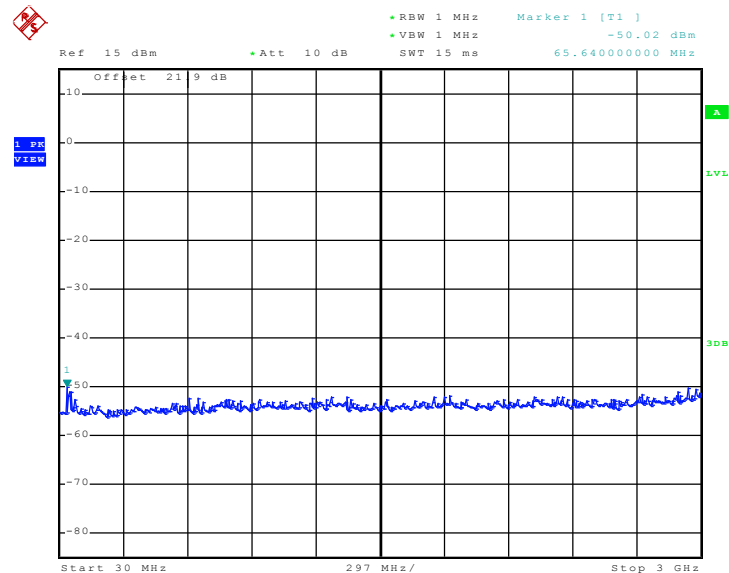
Date: 10.DEC.2010 17:12:39

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


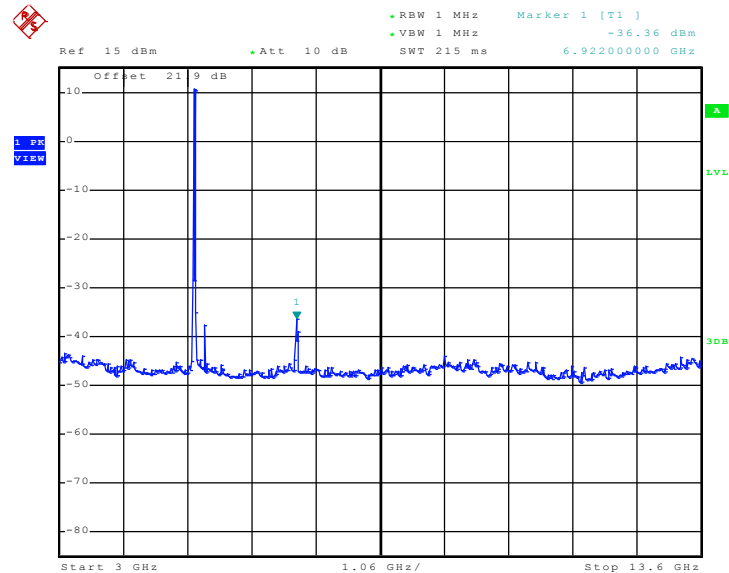
Date: 10.DEC.2010 17:12:51

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


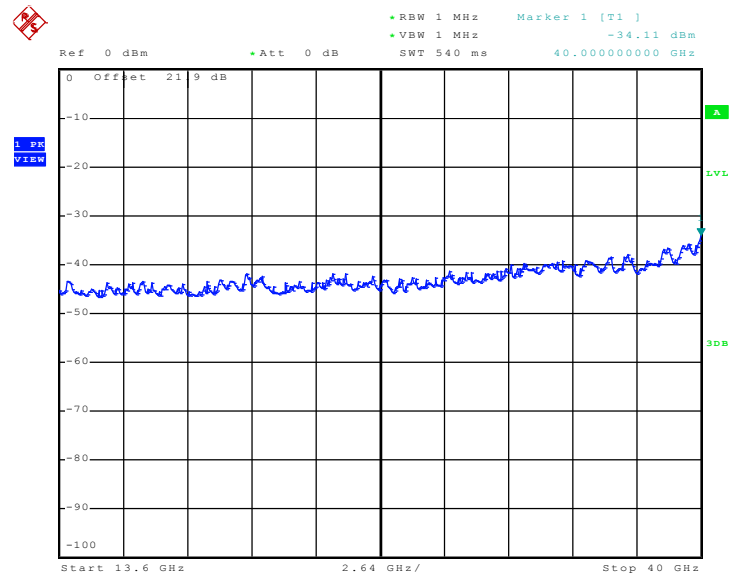
Date: 10.DEC.2010 17:13:03

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


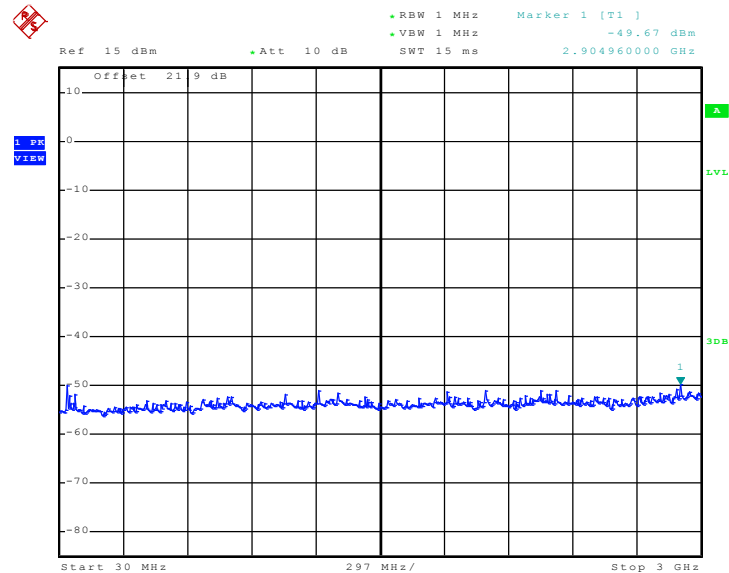
Date: 10.DEC.2010 17:13:24

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


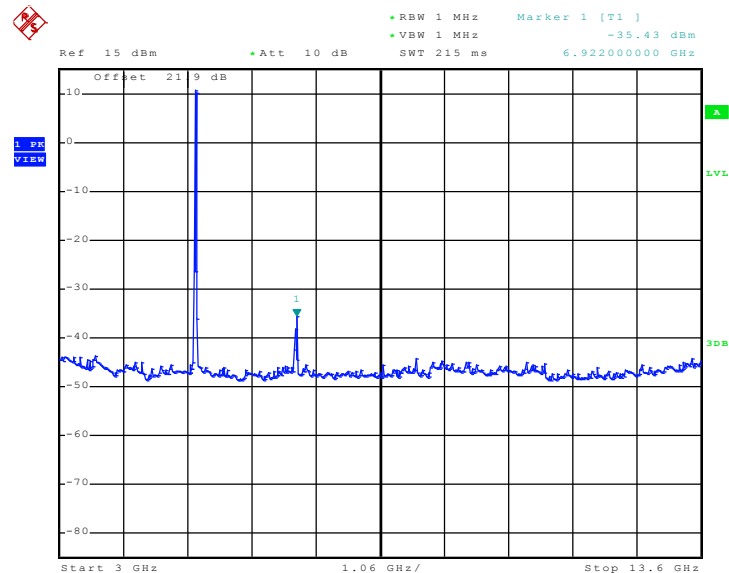
Date: 10.DEC.2010 17:13:36

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


Date: 10.DEC.2010 17:13:48

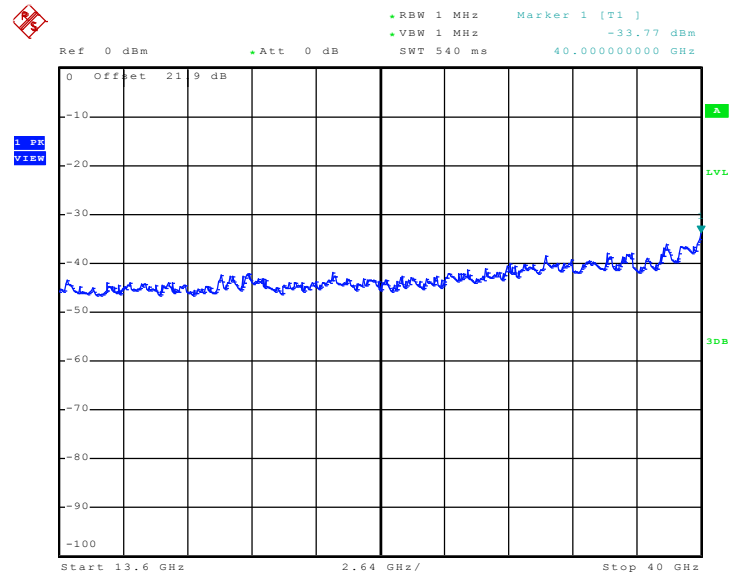
**Mode 4 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


Date: 10.DEC.2010 17:14:10

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


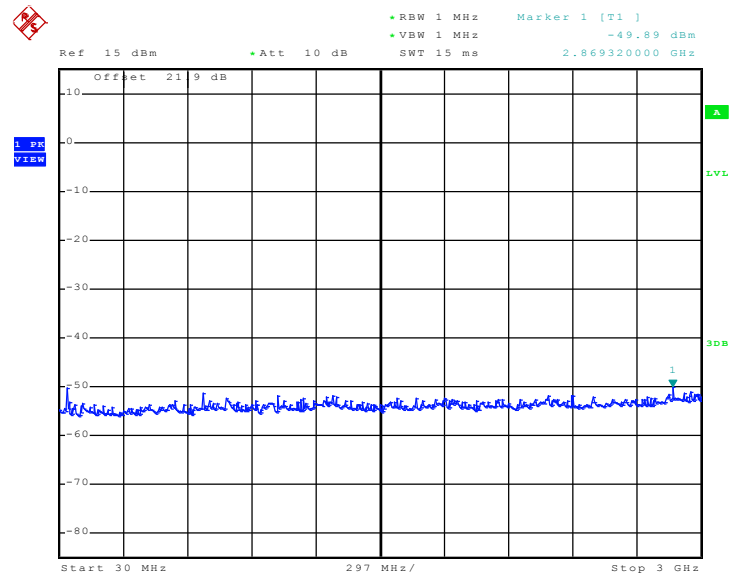
Date: 10.DEC.2010 17:14:22

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

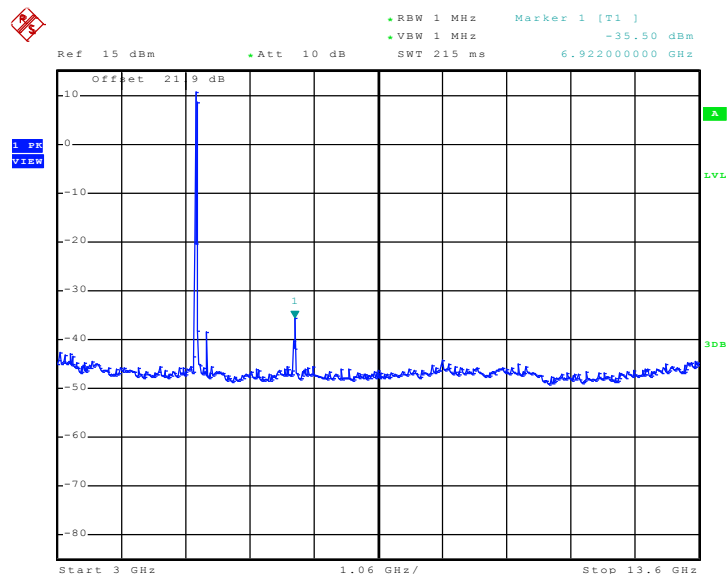


Date: 10.DEC.2010 17:14:34

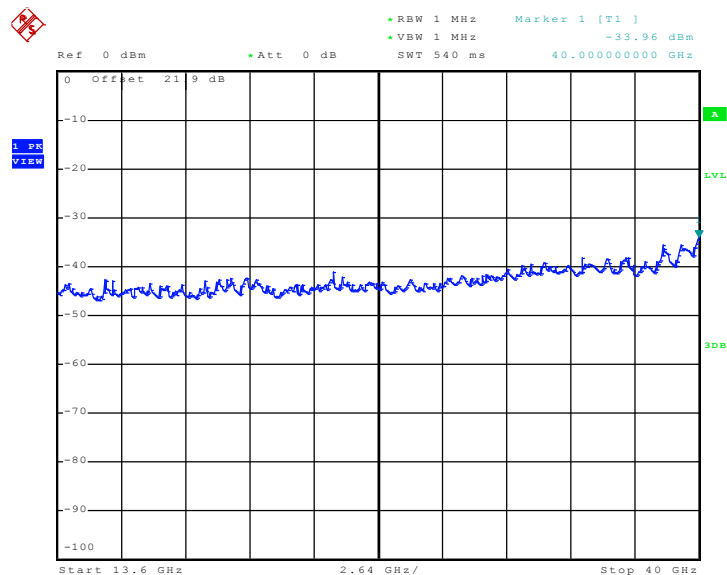
Mode 5 : Conducted Spurious Emission Plot between 802.11a 30 MHz ~ 3 GHz



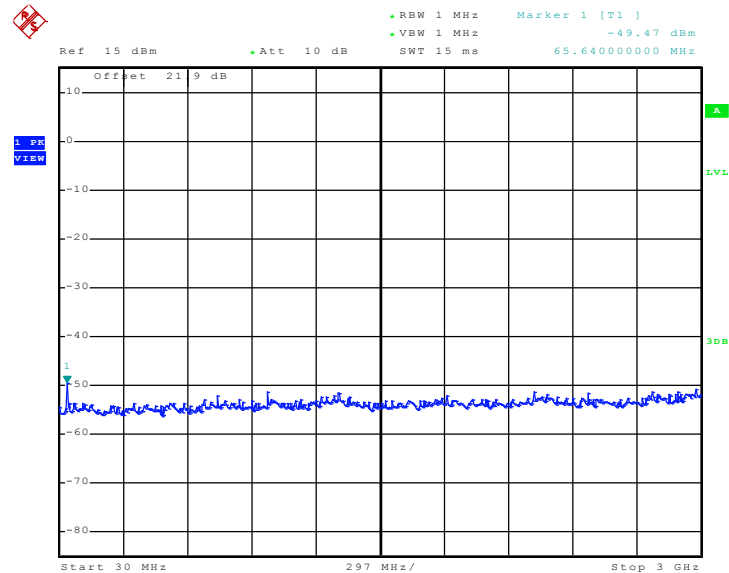
Date: 10.DEC.2010 17:14:58

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


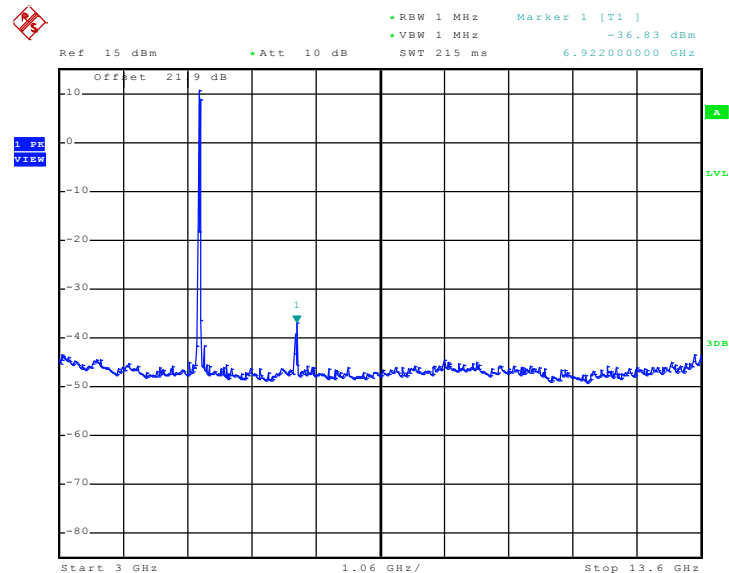
Date: 10.DEC.2010 17:15:09

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


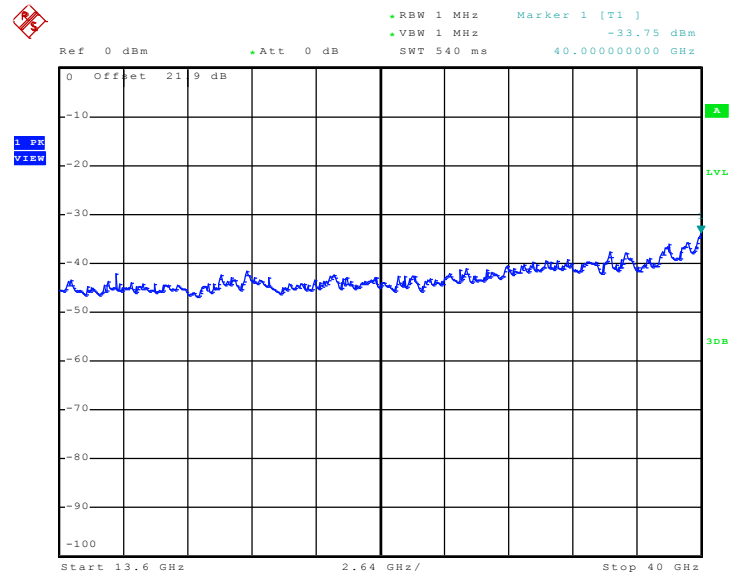
Date: 10.DEC.2010 17:15:21

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


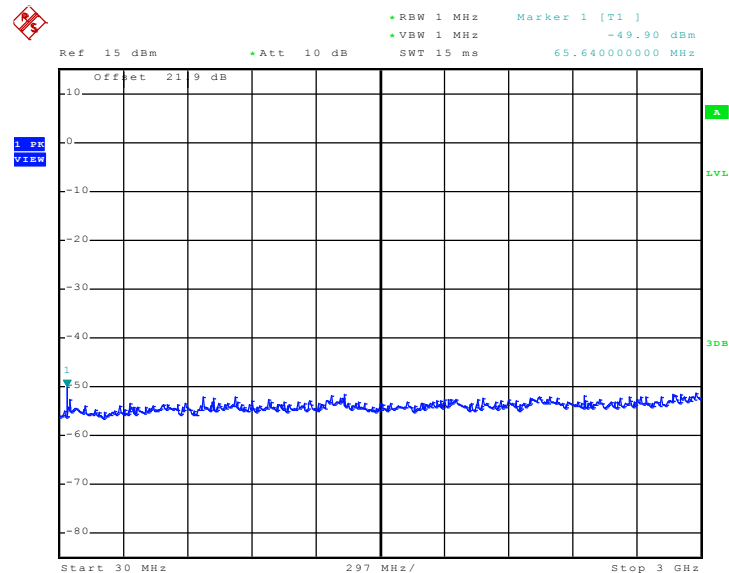
Date: 10.DEC.2010 17:16:03

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


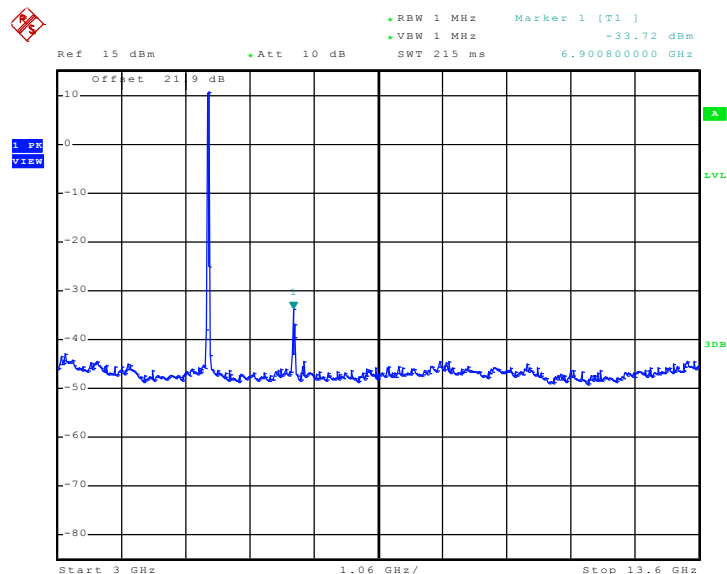
Date: 10.DEC.2010 17:16:14

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


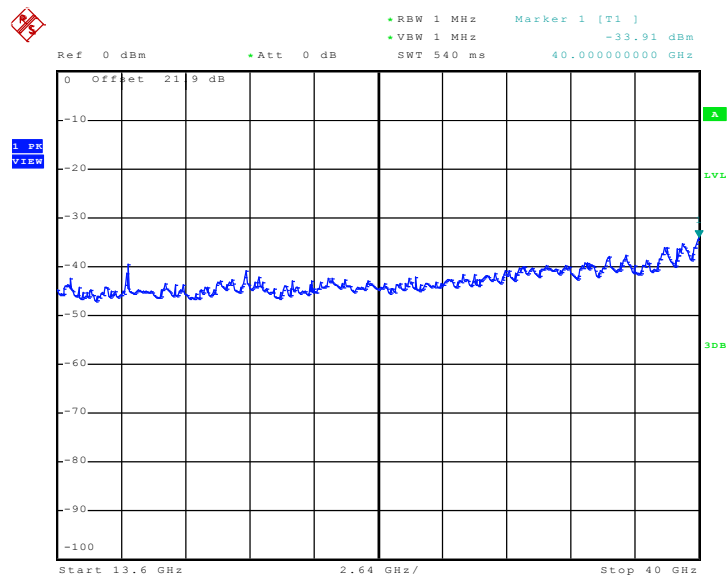
Date: 10.DEC.2010 17:16:26

**Mode 7 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


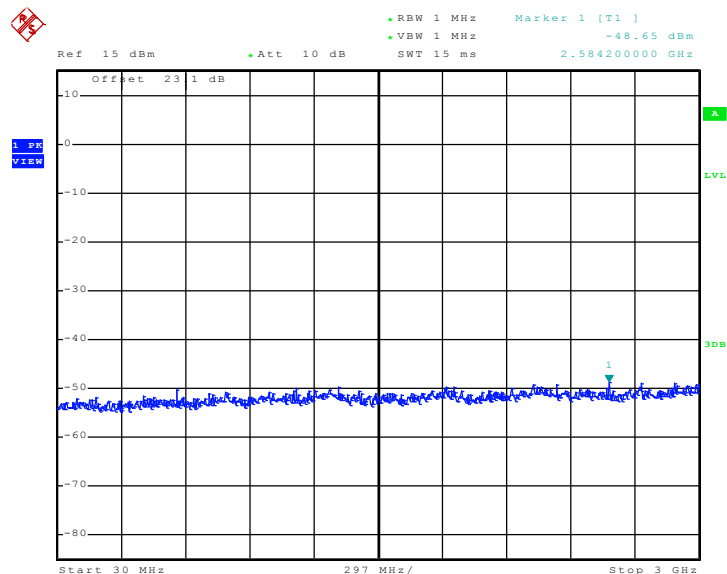
Date: 10.DEC.2010 17:17:02

**Mode 7 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


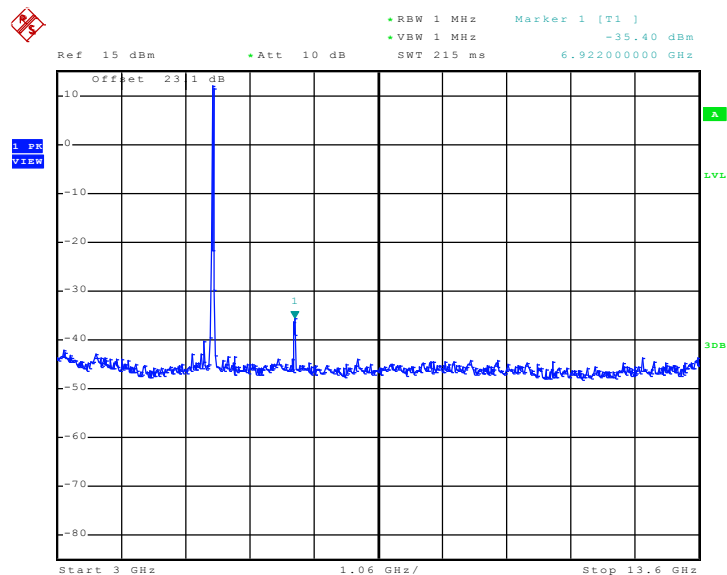
Date: 10.DEC.2010 17:17:14

**Mode 7 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


Date: 10.DEC.2010 17:17:26

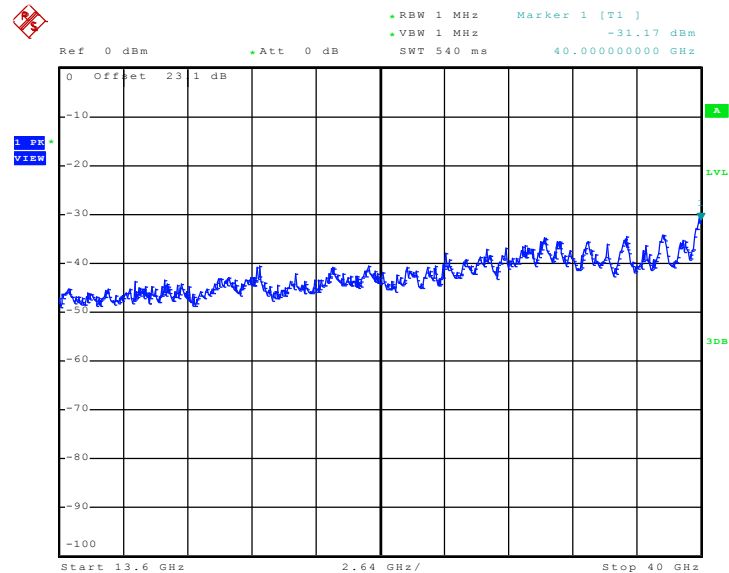
**Mode 8 : Conducted Spurious Emission Plot between
802.11a 30 MHz ~ 3 GHz**


Date: 10.FEB.2011 00:45:27

**Mode 8 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


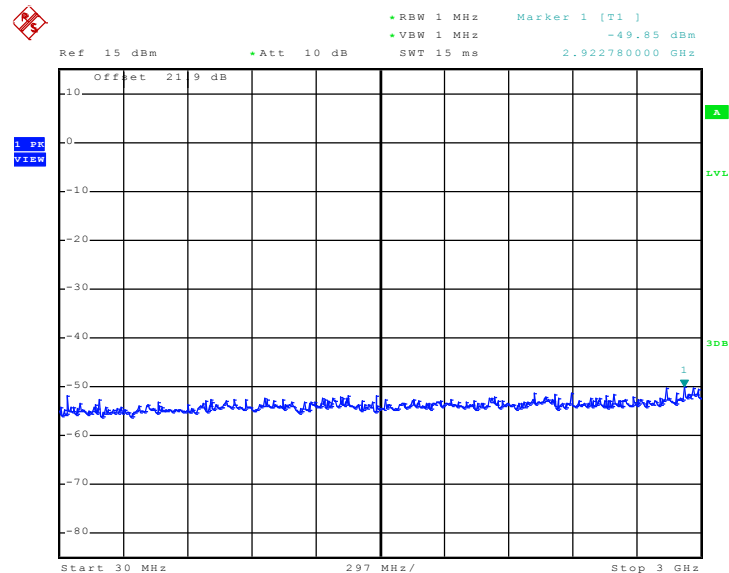
Date: 10.FEB.2011 00:50:01

Mode 8 : Conducted Spurious Emission Plot between 802.11a 13.6 GHz ~ 40 GHz

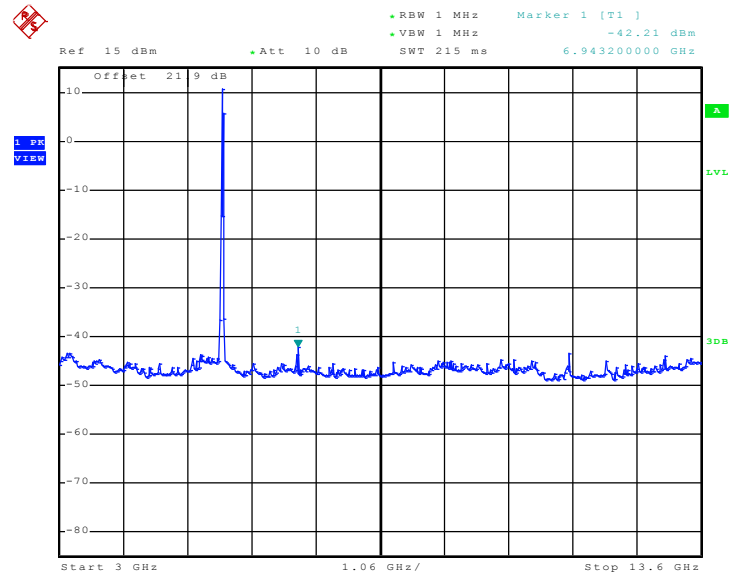


Date: 10.FEB.2011 00:53:52

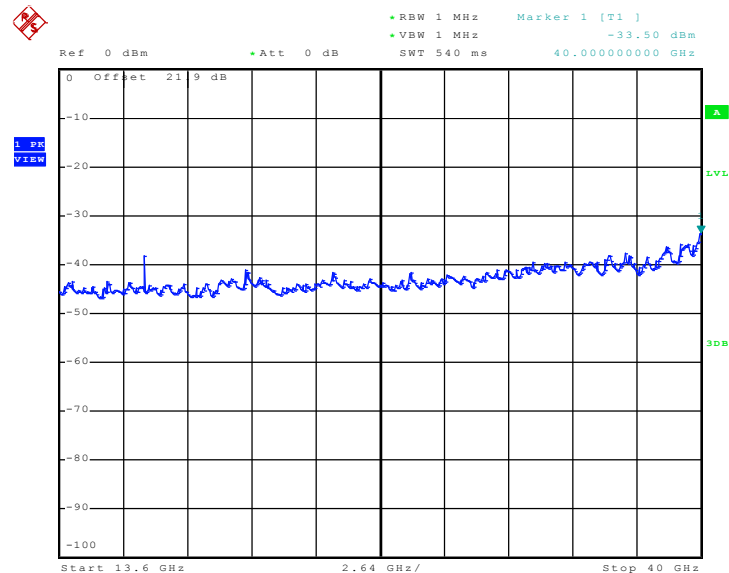
Mode 9 : Conducted Spurious Emission Plot between 802.11a 30 MHz ~ 3 GHz



Date: 10.DEC.2010 17:22:04

**Mode 9 : Conducted Spurious Emission Plot between
802.11a 3 GHz ~ 13.6 GHz**


Date: 10.DEC.2010 17:22:15

**Mode 9 : Conducted Spurious Emission Plot between
802.11a 13.6 GHz ~ 40 GHz**


Date: 10.DEC.2010 17:22:27

Test Mode :	Mode 10~18	Temperature :	25~27°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	54~57%
Test Channel :	36, 44, 48, 52, 60, 64, 100, 116, 140	Test Engineer :	Ken Hsu

<30 MHz ~ 3 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	2893.08	-50.26	3.5	-46.76	-27
44	5220	77.52	-33.08	3.5	-29.58	-27
48	5240	65.64	-49.93	3.5	-46.43	-27
52	5260	903.18	-46.01	3.5	-42.51	-27
60	5300	903.18	-40.75	3.5	-37.25	-27
64	5320	903.18	-42.49	3.5	-38.99	-27
100	5500	35.94	-46.45	3.5	-42.95	-27
116	5580	2221.86	-48.47	3.5	-44.97	-27
140	5700	903.18	-42.73	3.5	-39.23	-27

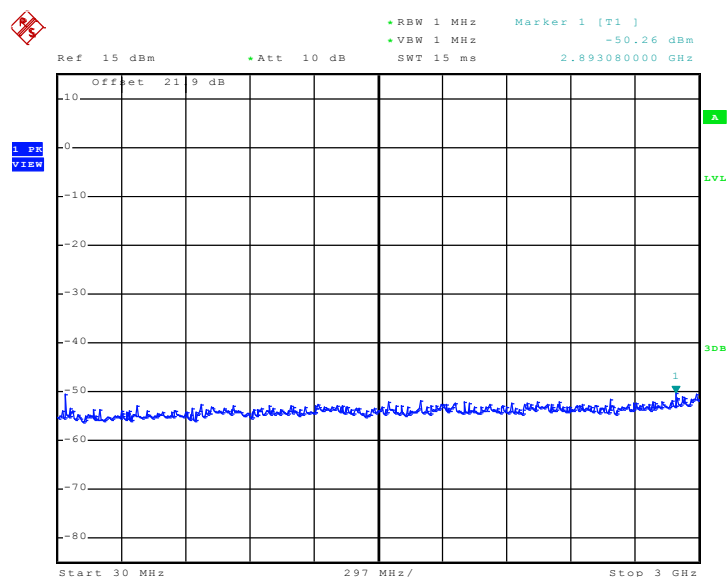
<3 GHz ~ 13.6 GHz>

Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	6922.0	-36.99	3.5	-33.49	-27
44	5220	6900.8	-37.35	3.5	-33.85	-27
48	5240	6922.0	-33.94	3.5	-30.44	-27
52	5260	6922.0	-35.34	3.5	-31.84	-27
60	5300	6922.0	-36.26	3.5	-32.76	-27
64	5320	6922.0	-39.15	3.5	-35.65	-27
100	5500	6922.0	-35.55	3.5	-32.05	-27
116	5580	6922.0	-34.93	3.5	-31.43	-27
140	5700	5544.0	-39.98	3.5	-36.48	-27

<13.6 GHz ~ 40 GHz>

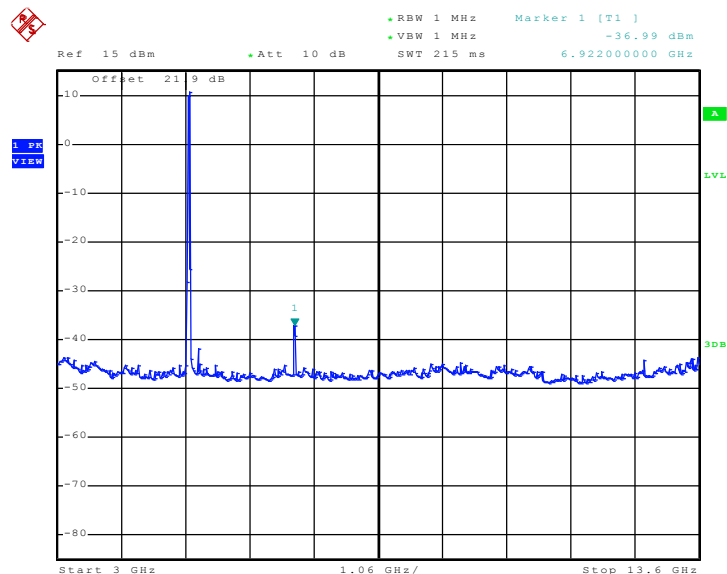
Channel	Frequency (MHz)	Frequency (MHz)	Level (dBm)	Antenna Gain (dBi)	EIRP Test Result (dBm)	Limit (dBm)
36	5180	40000.0	-33.40	3.5	-29.90	-27
44	5220	39894.4	-33.57	3.5	-30.07	-27
48	5240	40000.0	-33.11	3.5	-29.61	-27
52	5260	40000.0	-33.33	3.5	-29.83	-27
60	5300	40000.0	-33.11	3.5	-29.61	-27
64	5320	40000.0	-33.78	3.5	-30.28	-27
100	5500	40000.0	-33.51	3.5	-30.01	-27
116	5580	40000.0	-30.90	3.5	-27.40	-27
140	5700	40000.0	-33.98	3.5	-30.48	-27

**Mode 10 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**



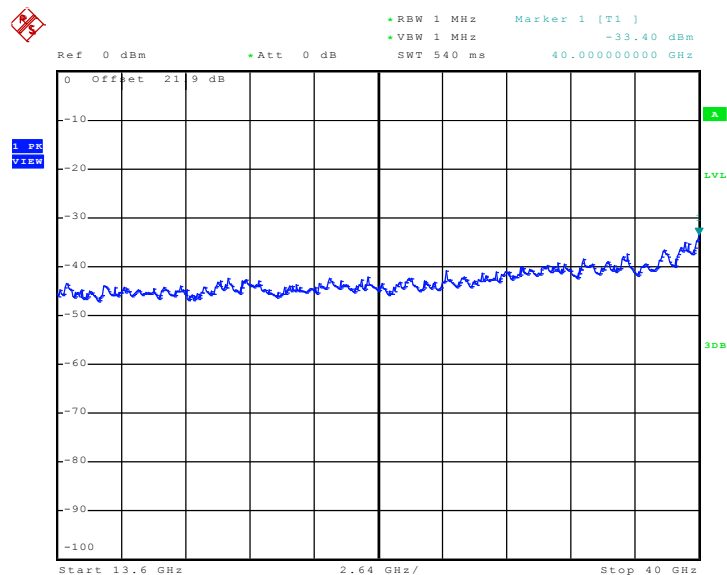
Date: 10.DEC.2010 17:28:36

Mode 10 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz

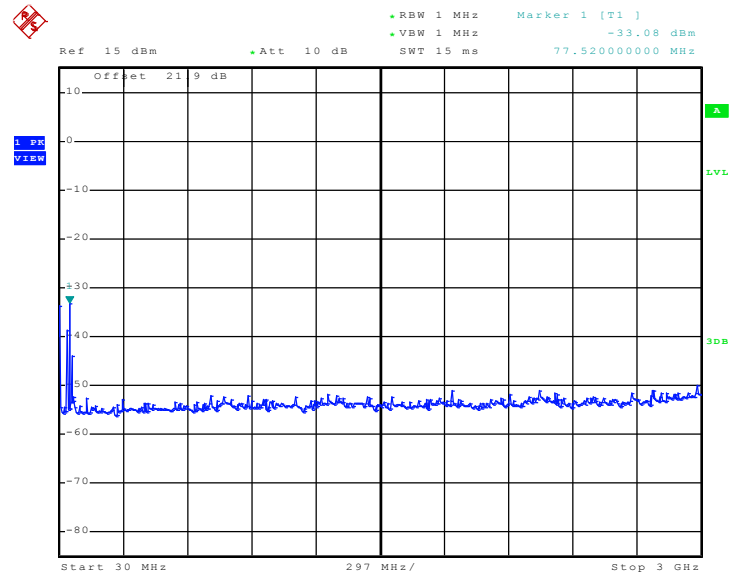


Date: 10.DEC.2010 17:28:48

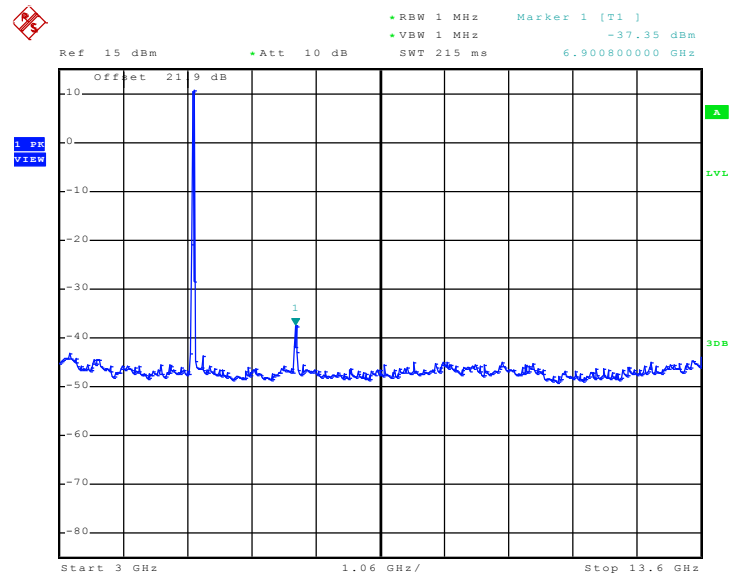
Mode 10 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz



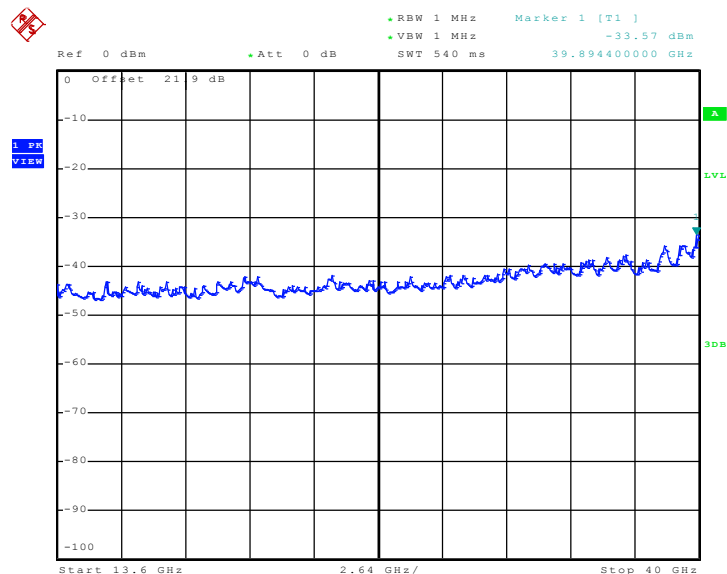
Date: 10.DEC.2010 17:29:00

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


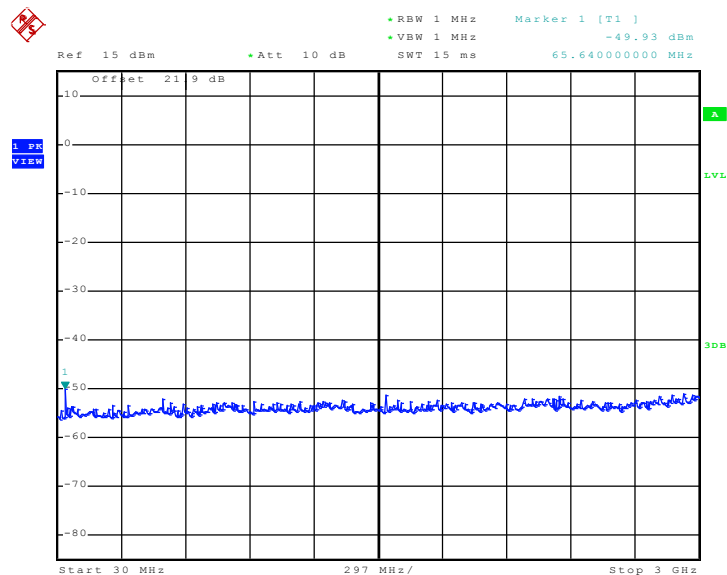
Date: 10.DEC.2010 17:29:48

**Mode 11 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


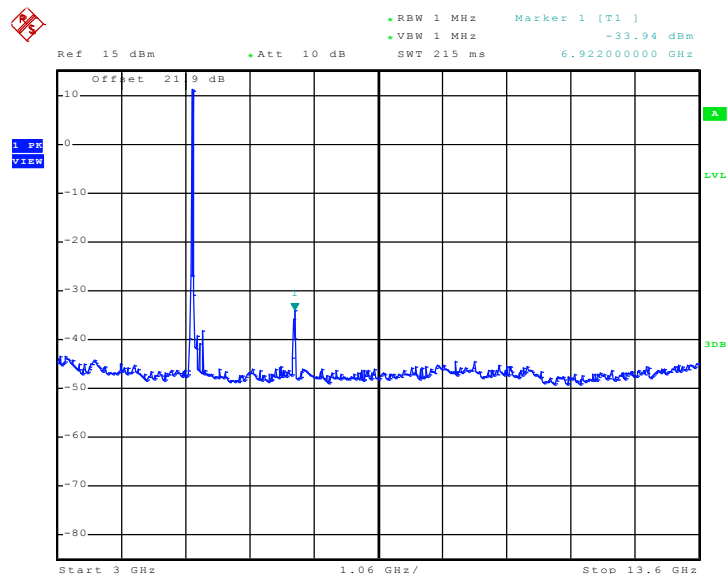
Date: 10.DEC.2010 17:30:00

**Mode 11 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


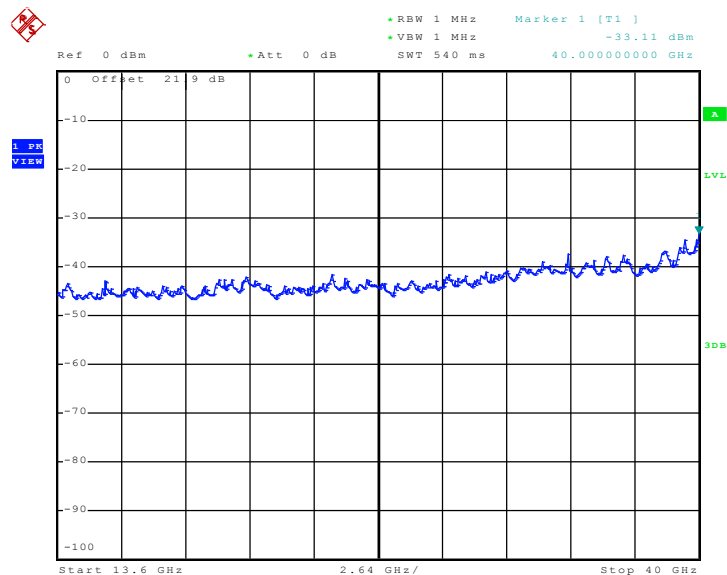
Date: 10.DEC.2010 17:30:12

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


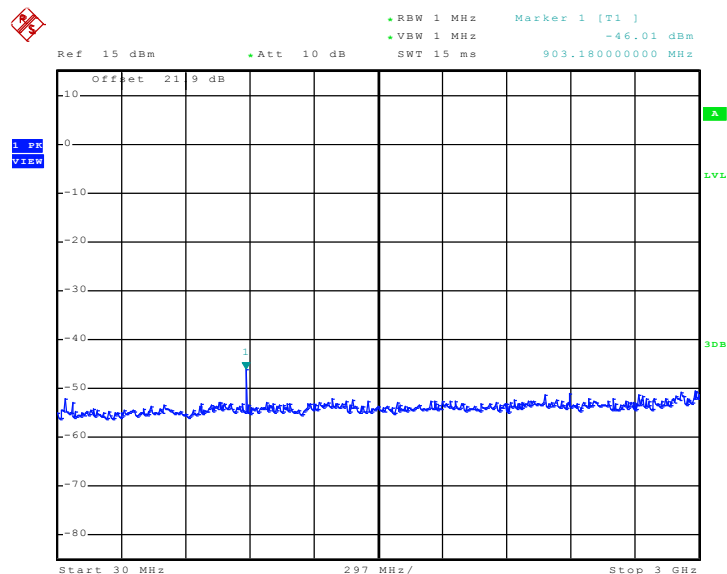
Date: 10.DEC.2010 17:30:41

**Mode 12 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


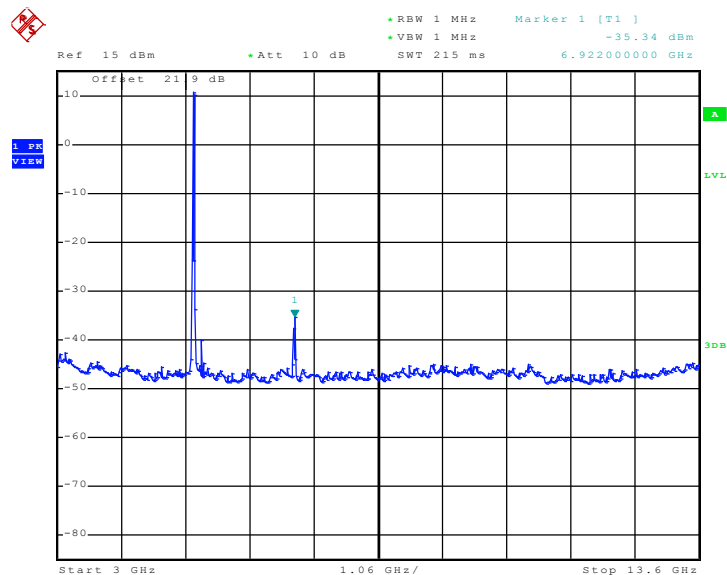
Date: 10.DEC.2010 17:30:53

**Mode 12 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


Date: 10.DEC.2010 17:31:05

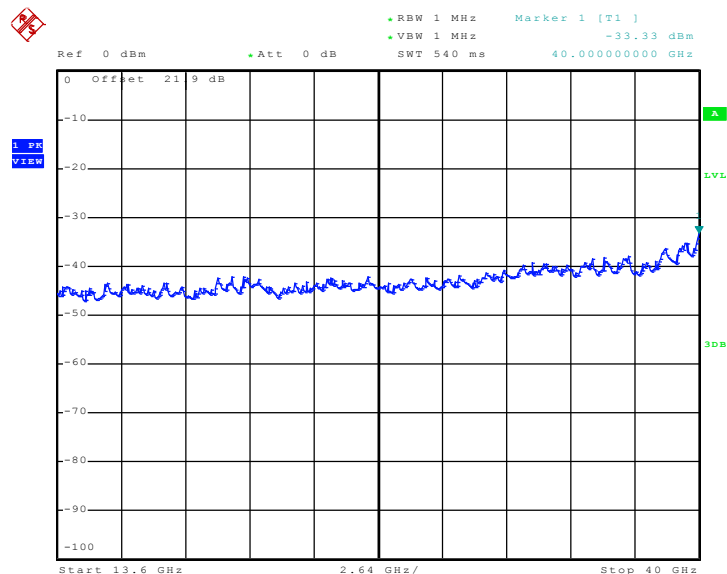
**Mode 13 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**


Date: 10.DEC.2010 17:38:47

**Mode 13 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


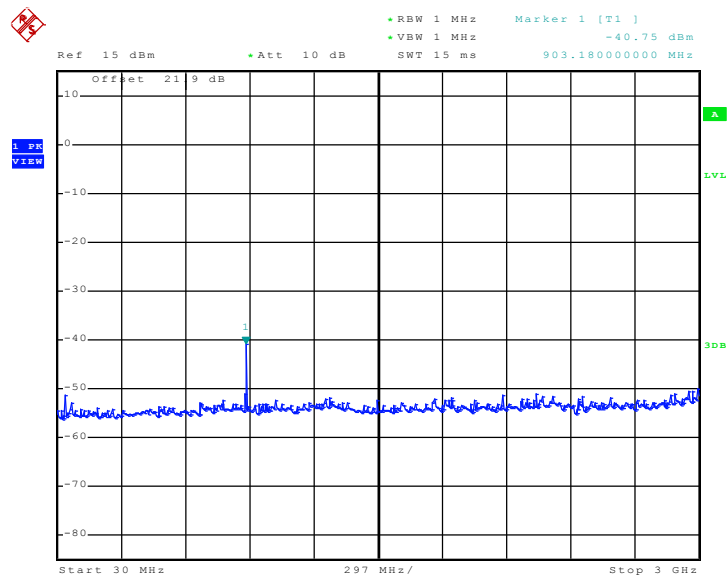
Date: 10.DEC.2010 17:38:59

**Mode 13 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**

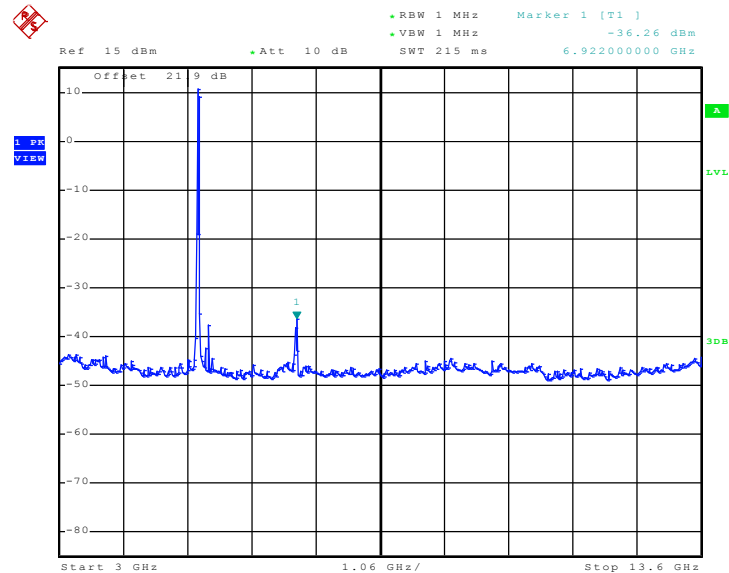


Date: 10.DEC.2010 17:39:11

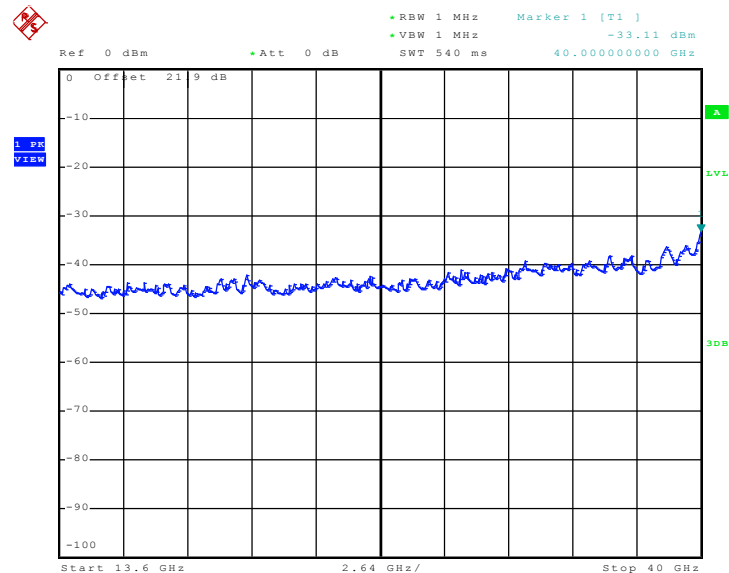
**Mode 14 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**



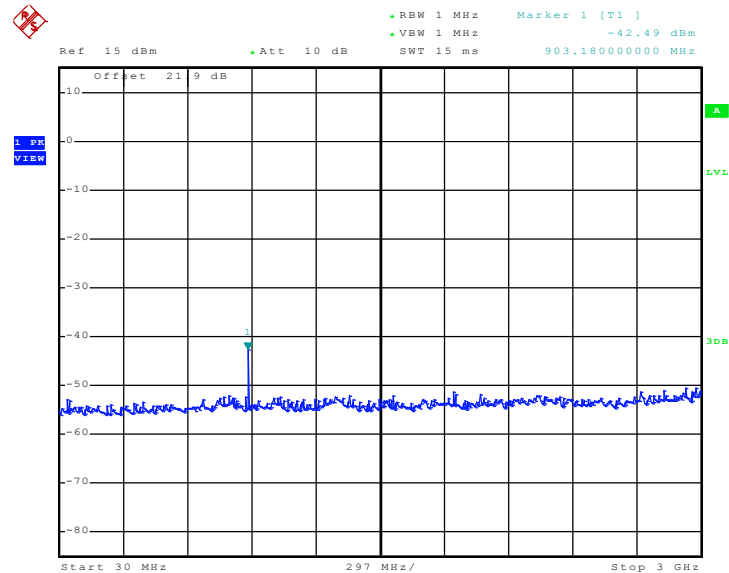
Date: 10.DEC.2010 17:40:16

**Mode 14 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


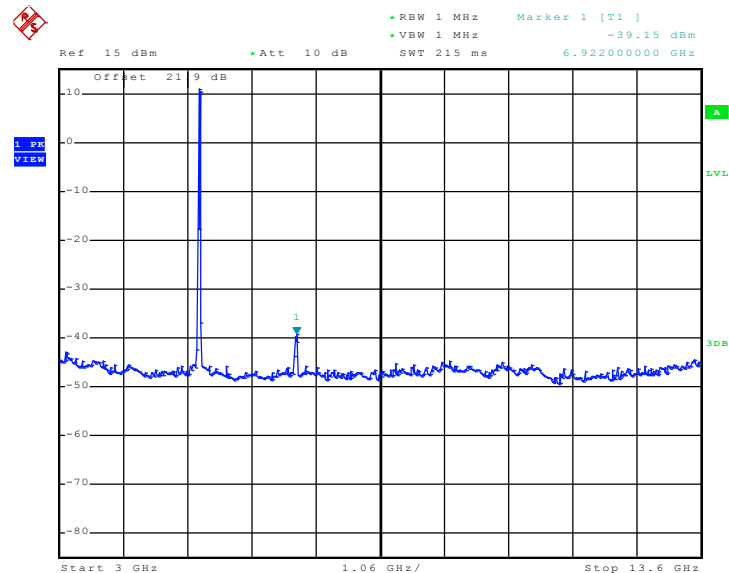
Date: 10.DEC.2010 17:40:28

**Mode 14 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


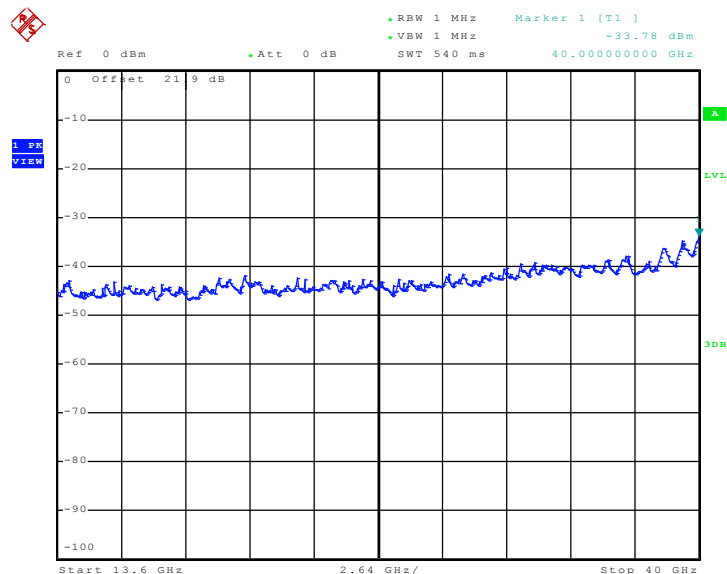
Date: 10.DEC.2010 17:40:40

**Mode 15 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**


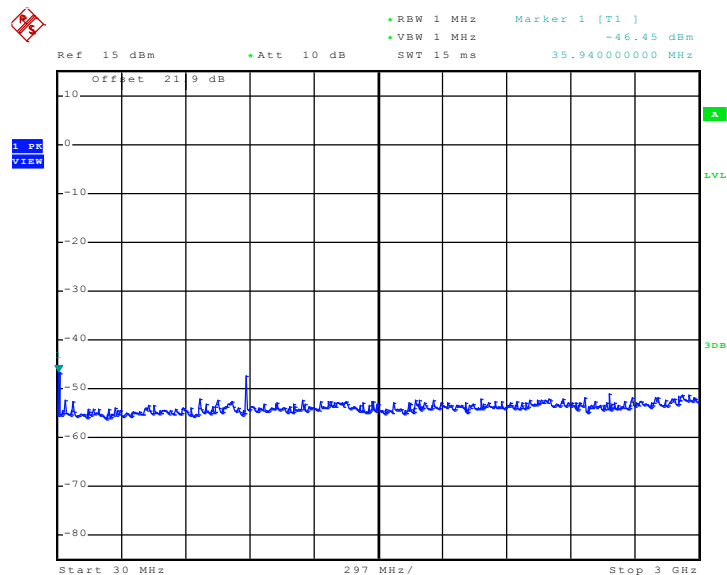
Date: 10.DEC.2010 17:41:03

**Mode 15 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


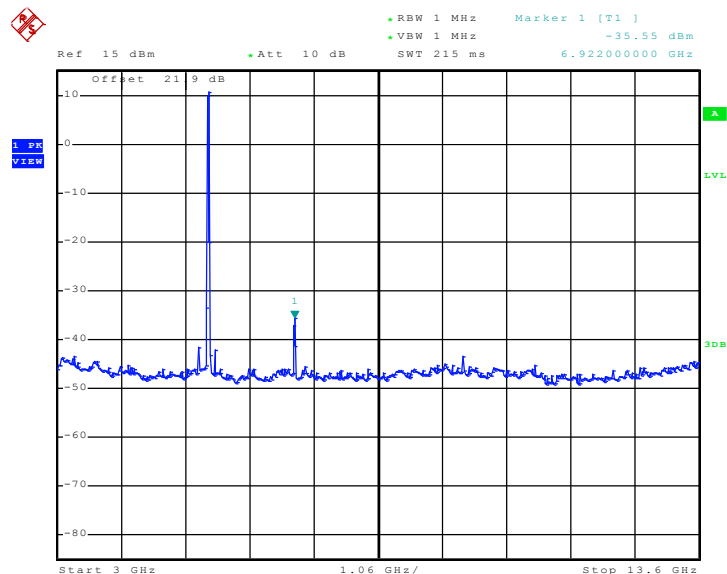
Date: 10.DEC.2010 17:41:15

**Mode 15 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


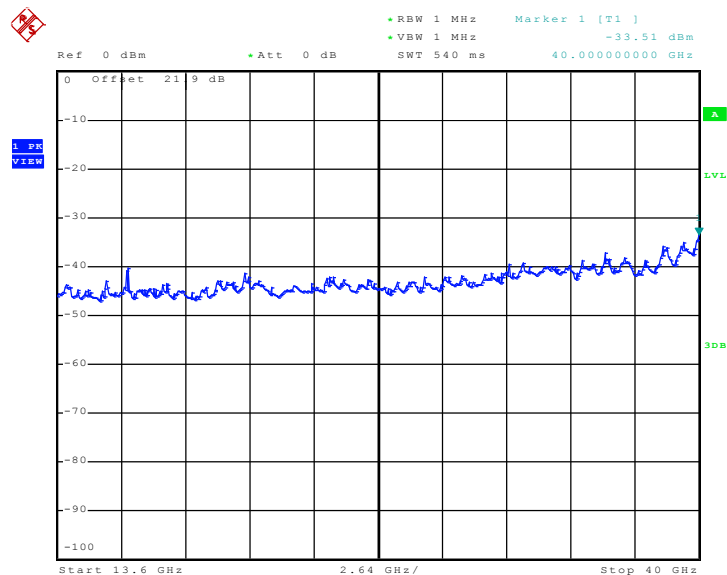
Date: 10.DEC.2010 17:41:27

**Mode 16 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**


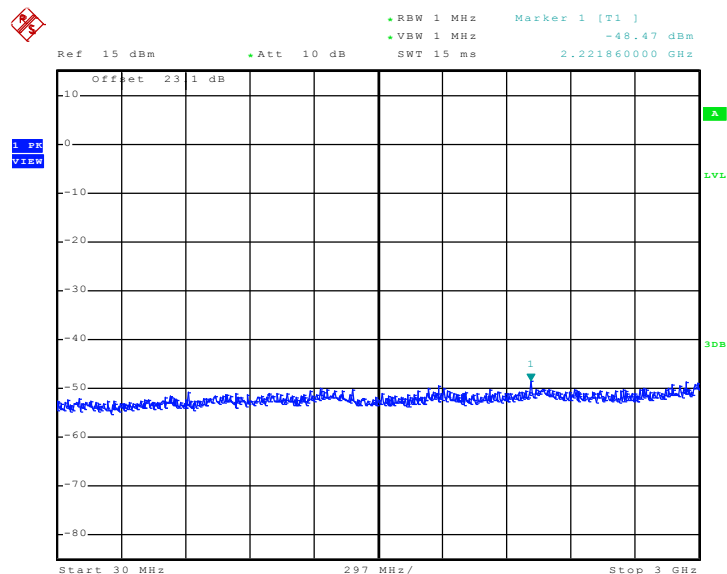
Date: 10.DEC.2010 17:48:14

**Mode 16 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


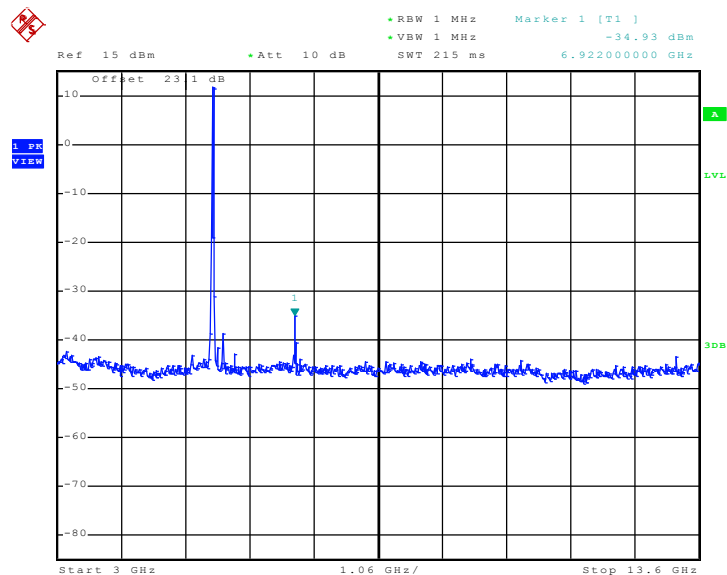
Date: 10.DEC.2010 17:48:26

**Mode 16 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


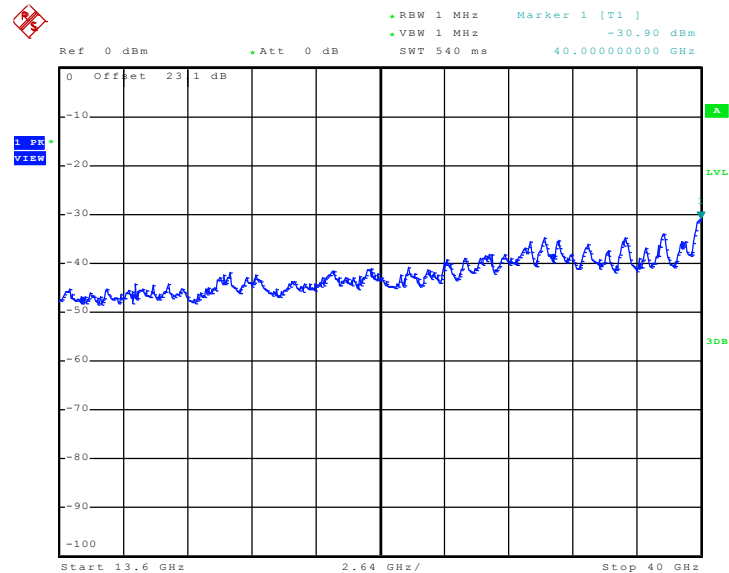
Date: 10.DEC.2010 17:48:38

**Mode 17 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**


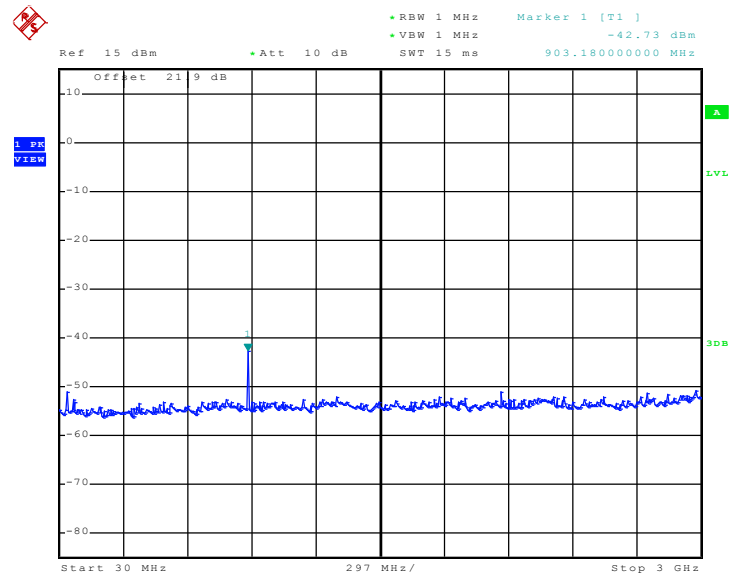
Date: 10.FEB.2011 01:04:45

**Mode 17 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


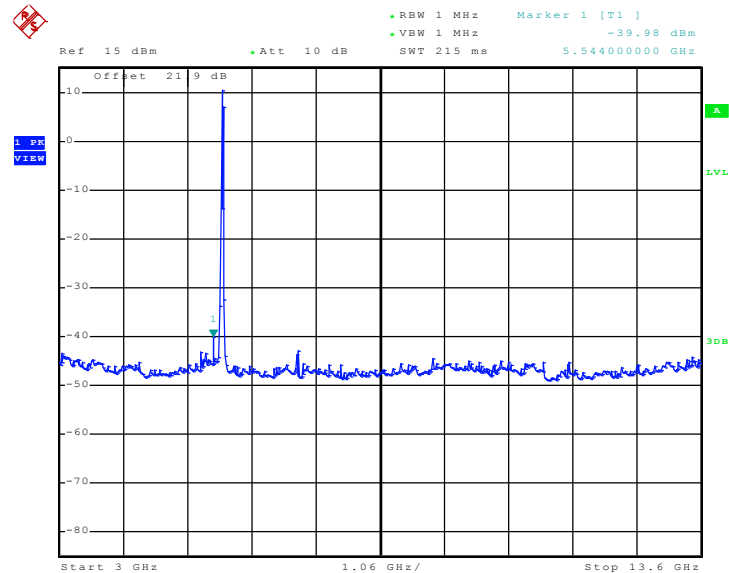
Date: 10.FEB.2011 01:03:34

**Mode 17 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


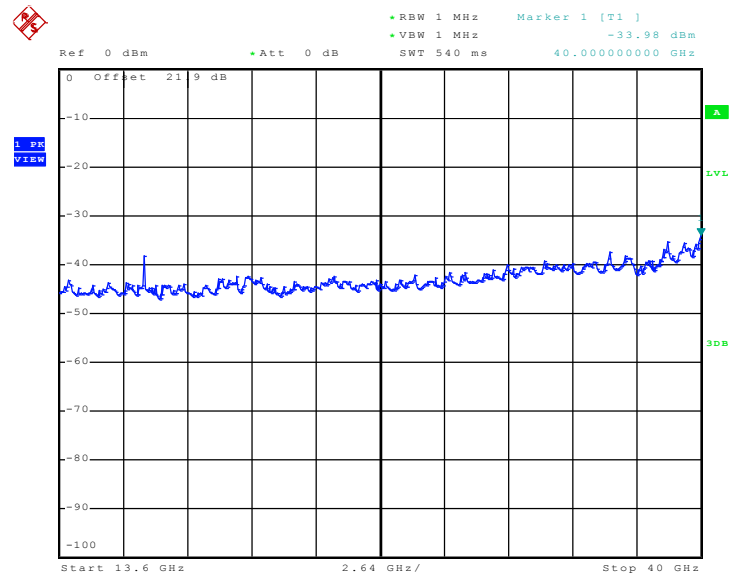
Date: 10.FEB.2011 01:02:04

**Mode 18 : Conducted Spurious Emission Plot between
802.11n 30 MHz ~ 3 GHz**


Date: 10.DEC.2010 17:43:21

**Mode 18 : Conducted Spurious Emission Plot between
802.11n 3 GHz ~ 13.6 GHz**


Date: 10.DEC.2010 17:43:33

**Mode 18 : Conducted Spurious Emission Plot between
802.11n 13.6 GHz ~ 40 GHz**


Date: 10.DEC.2010 17:43:45

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.

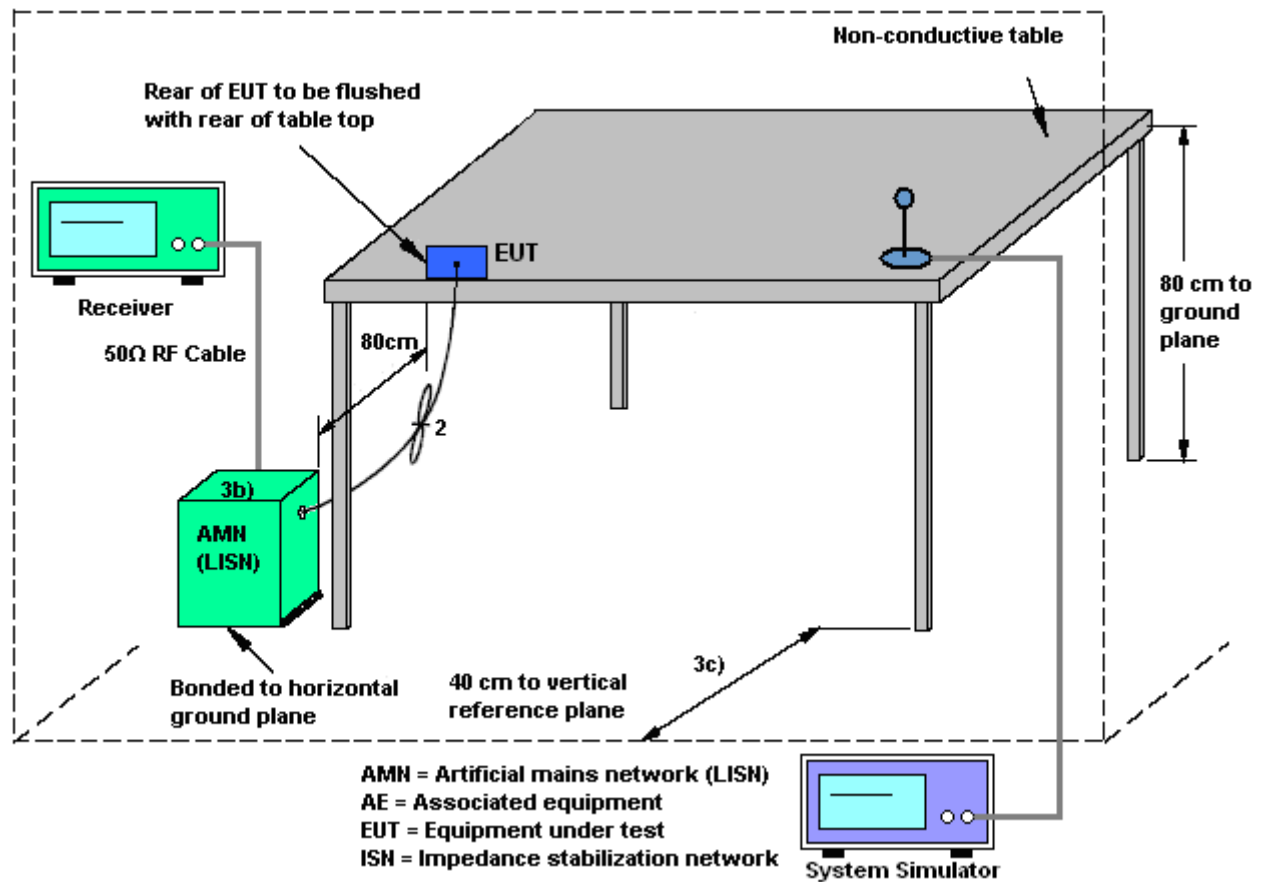
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

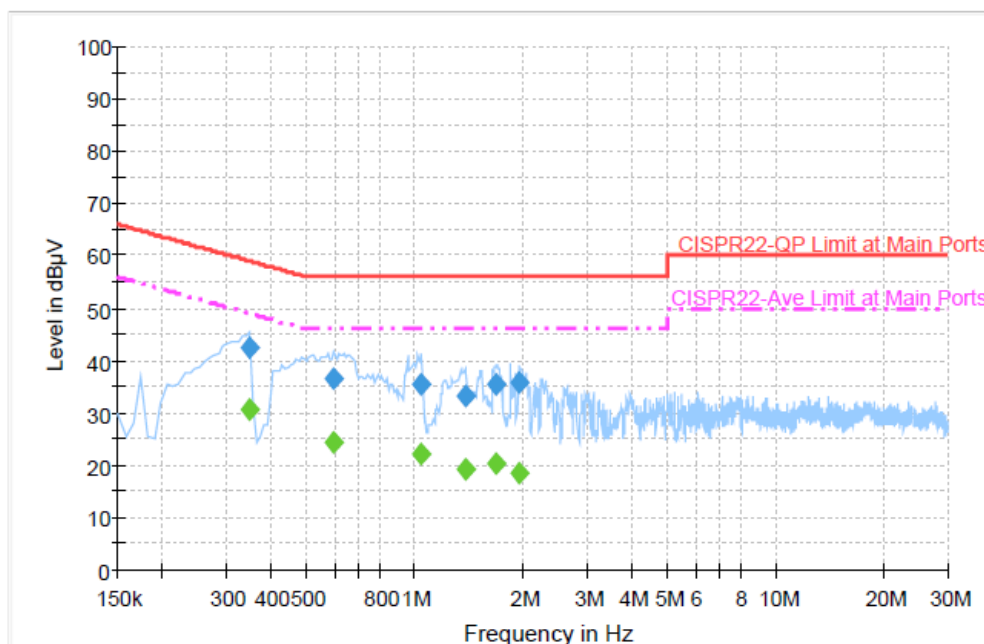
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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 :	20~23℃
Test Engineer :	Cona Huang	Relative Humidity :	43~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Scanner + Cradle + Adapter + RS232 Terminal + USB Cable (Link with Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



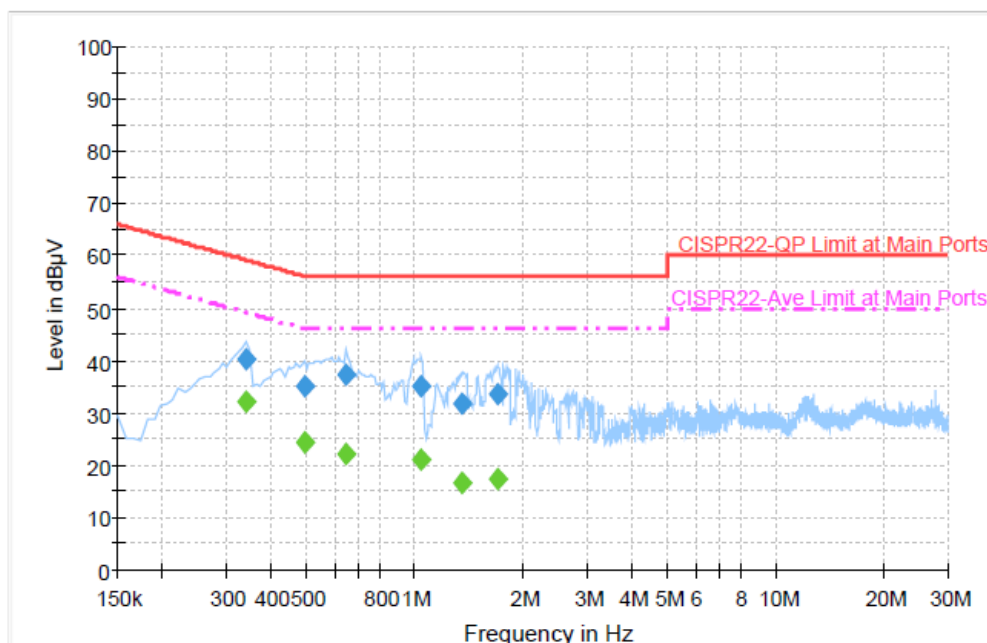
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.350000	42.6	Off	L1	19.3	16.4	59.0
0.598000	36.4	Off	L1	19.4	19.6	56.0
1.046000	35.3	Off	L1	19.4	20.7	56.0
1.382000	33.2	Off	L1	19.4	22.8	56.0
1.686000	35.4	Off	L1	19.4	20.6	56.0
1.950000	35.8	Off	L1	19.4	20.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.350000	30.6	Off	L1	19.3	18.4	49.0
0.598000	24.4	Off	L1	19.4	21.6	46.0
1.046000	22.0	Off	L1	19.4	24.0	46.0
1.382000	19.2	Off	L1	19.4	26.8	46.0
1.686000	20.2	Off	L1	19.4	25.8	46.0
1.950000	18.6	Off	L1	19.4	27.4	46.0

Test Mode :	Mode 1	Temperature :	20~23°C
Test Engineer :	Cona Huang	Relative Humidity :	43~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + Scanner + Cradle + Adapter + RS232 Terminal + USB Cable (Link with Notebook)		
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)
0.342000	40.1	Off	N	19.3	19.1	59.2
0.494000	34.9	Off	N	19.3	21.2	56.1
0.646000	37.2	Off	N	19.3	18.8	56.0
1.046000	35.1	Off	N	19.4	20.9	56.0
1.350000	31.8	Off	N	19.5	24.2	56.0
1.694000	33.4	Off	N	19.5	22.6	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.342000	32.0	Off	N	19.3	17.2	49.2
0.494000	24.3	Off	N	19.3	21.8	46.1
0.646000	22.0	Off	N	19.3	24.0	46.0
1.046000	21.1	Off	N	19.4	24.9	46.0
1.350000	16.4	Off	N	19.5	29.6	46.0
1.694000	17.3	Off	N	19.5	28.7	46.0

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

- (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.
- (4) 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

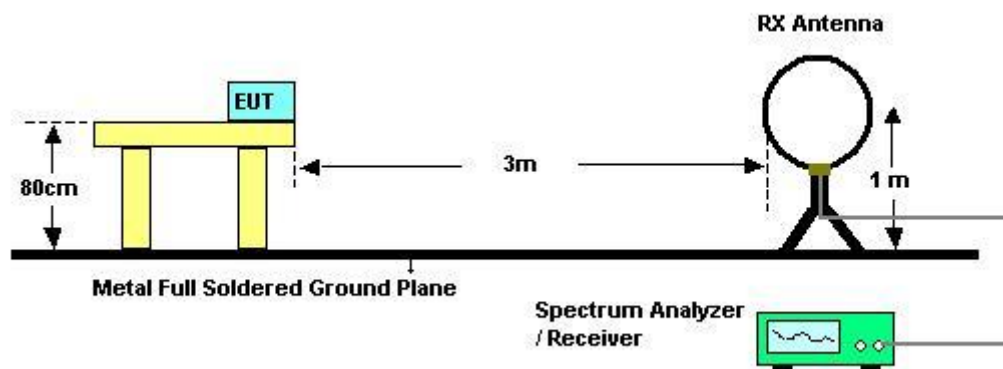
See list of measuring instruments of this test report.

3.7.3 Test Procedures

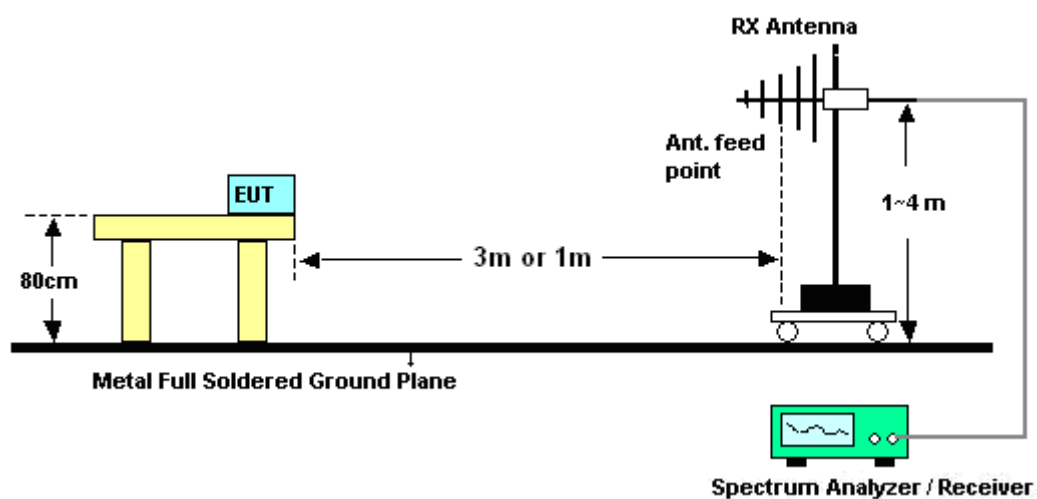
1. The testing follows the guidelines in FCC Public Notice DA 02-2138, (Measurement Guidelines of UNII)
2. The EUT was placed on a rotatable table top 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna 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	23~24°C	Humidity	49~50%
Test Engineer	Ivan Jiang		

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

Note:

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

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

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

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

Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.05	24.35	-19.15	43.50	43.71	11.12	1.08	31.56	-	-	Peak
241.41	31.09	-14.91	46.00	48.93	12.05	1.53	31.42	-	-	Peak
296.49	31.88	-14.12	46.00	48.05	13.41	1.75	31.33	-	-	Peak
354.60	32.08	-13.92	46.00	46.16	15.18	2.02	31.28	102	87	Peak
399.40	30.76	-15.24	46.00	43.24	16.56	2.14	31.18	-	-	Peak
841.80	29.59	-16.41	46.00	34.11	22.95	3.25	30.72	-	-	Peak
5150.00	40.10	-13.90	54.00	31.09	34.25	9.41	34.65	112	271	Average
5150.00	55.14	-18.86	74.00	46.13	34.25	9.41	34.65	112	271	Peak
5180.00	104.72	-	-	95.76	34.28	9.45	34.77	112	271	Peak
5180.00	94.58	-	-	85.62	34.28	9.45	34.77	112	271	Average
5350.00	37.69	-16.31	54.00	28.90	34.45	9.74	35.40	112	271	Average
5350.00	49.21	-24.79	74.00	40.42	34.45	9.74	35.40	112	271	Peak



Test Mode :	Mode 1	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	31.96	-8.04	40.00	47.07	15.80	0.56	31.47	110	166	Peak
137.73	28.48	-15.02	43.50	47.25	11.59	1.19	31.55	-	-	Peak
241.41	27.89	-18.11	46.00	45.73	12.05	1.53	31.42	-	-	Peak
330.10	27.92	-18.08	46.00	42.99	14.39	1.85	31.31	-	-	Peak
635.30	26.47	-19.53	46.00	34.39	20.16	2.80	30.88	-	-	Peak
912.50	29.08	-16.92	46.00	32.59	23.79	3.37	30.67	-	-	Peak
5150.00	42.51	-11.49	54.00	33.50	34.25	9.41	34.65	135	352	Average
5150.00	62.53	-11.47	74.00	53.52	34.25	9.41	34.65	135	352	Peak
5180.00	108.29	-	-	99.33	34.28	9.45	34.77	135	352	Peak
5180.00	97.28	-	-	88.32	34.28	9.45	34.77	135	352	Average
5350.00	37.37	-16.63	54.00	28.58	34.45	9.74	35.40	135	352	Average
5350.00	50.40	-23.60	74.00	41.61	34.45	9.74	35.40	135	352	Peak



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
115.86	25.16	-18.34	43.50	44.44	11.20	1.08	31.56	-	-	Peak
240.06	31.16	-14.84	46.00	49.07	11.98	1.53	31.42	-	-	Peak
292.98	31.03	-14.97	46.00	47.29	13.35	1.71	31.32	-	-	Peak
330.10	34.87	-11.13	46.00	49.94	14.39	1.85	31.31	100	114	Peak
380.50	29.67	-16.33	46.00	42.85	15.96	2.10	31.24	-	-	Peak
920.20	29.81	-16.19	46.00	33.18	23.89	3.39	30.65	-	-	Peak
5150.00	49.50	-24.50	74.00	40.49	34.25	9.41	34.65	100	268	Peak
5150.00	37.80	-16.20	54.00	28.79	34.25	9.41	34.65	100	268	Average
5220.00	105.50	-	-	96.55	34.32	9.53	34.90	100	268	Peak
5220.00	94.92	-	-	85.97	34.32	9.53	34.90	100	268	Average
5350.00	50.32	-23.68	74.00	41.53	34.45	9.74	35.40	100	268	Peak
5350.00	37.98	-16.02	54.00	29.19	34.45	9.74	35.40	100	268	Average



Test Mode :	Mode 2	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.70	32.28	-7.72	40.00	47.39	15.80	0.56	31.47	109	216	Peak
72.93	26.59	-13.41	40.00	50.75	6.54	0.85	31.55	-	-	Peak
138.54	28.38	-15.12	43.50	47.13	11.60	1.20	31.55	-	-	Peak
332.20	27.89	-18.11	46.00	42.86	14.48	1.86	31.31	-	-	Peak
438.60	27.05	-18.95	46.00	38.70	17.20	2.27	31.12	-	-	Peak
995.80	29.21	-24.79	54.00	31.44	24.84	3.51	30.58	-	-	Peak
5150.00	50.11	-23.89	74.00	41.10	34.25	9.41	34.65	101	347	Peak
5150.00	38.34	-15.66	54.00	29.33	34.25	9.41	34.65	101	347	Average
5220.00	109.66	-	-	100.71	34.32	9.53	34.90	101	347	Peak
5220.00	99.05	-	-	90.10	34.32	9.53	34.90	101	347	Average
5350.00	49.92	-24.08	74.00	41.13	34.45	9.74	35.40	101	347	Peak
5350.00	37.62	-16.38	54.00	28.83	34.45	9.74	35.40	101	347	Average



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5240 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
217.38	28.46	-17.54	46.00	48.18	10.34	1.40	31.46	-	-	Peak
242.22	29.91	-16.09	46.00	47.68	12.12	1.53	31.42	-	-	Peak
289.74	31.12	-14.88	46.00	47.44	13.31	1.69	31.32	-	-	Peak
330.10	34.93	-11.07	46.00	50.00	14.39	1.85	31.31	100	102	Peak
380.50	29.65	-16.35	46.00	42.83	15.96	2.10	31.24	-	-	Peak
998.60	31.04	-22.96	54.00	33.23	24.88	3.51	30.58	-	-	Peak
5150.00	49.49	-24.51	74.00	40.48	34.25	9.41	34.65	100	269	Peak
5150.00	37.78	-16.22	54.00	28.77	34.25	9.41	34.65	100	269	Average
5240.00	104.97	-	-	96.03	34.33	9.57	34.96	100	269	Peak
5240.00	94.88	-	-	85.94	34.33	9.57	34.96	100	269	Average
5350.00	50.61	-23.39	74.00	41.82	34.45	9.74	35.40	100	269	Peak
5350.00	38.07	-15.93	54.00	29.28	34.45	9.74	35.40	100	269	Average



Test Mode :	Mode 3	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5240 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.70	32.35	-7.65	40.00	47.46	15.80	0.56	31.47	116	251	Peak
137.73	28.53	-14.97	43.50	47.30	11.59	1.19	31.55	-	-	Peak
242.22	28.73	-17.27	46.00	46.50	12.12	1.53	31.42	-	-	Peak
399.40	28.83	-17.17	46.00	41.31	16.56	2.14	31.18	-	-	Peak
802.60	28.67	-17.33	46.00	33.71	22.49	3.15	30.68	-	-	Peak
934.20	29.12	-16.88	46.00	32.25	24.06	3.42	30.61	-	-	Peak
5150.00	49.86	-24.14	74.00	40.85	34.25	9.41	34.65	101	23	Peak
5150.00	38.04	-15.96	54.00	29.03	34.25	9.41	34.65	101	23	Average
5240.00	107.85	-	-	98.91	34.33	9.57	34.96	101	23	Peak
5240.00	97.78	-	-	88.84	34.33	9.57	34.96	101	23	Average
5350.00	51.96	-22.04	74.00	43.17	34.45	9.74	35.40	101	23	Peak
5350.00	37.83	-16.17	54.00	29.04	34.45	9.74	35.40	101	23	Average

Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.05	24.94	-18.56	43.50	44.30	11.12	1.08	31.56	-	-	Peak
214.14	28.61	-14.89	43.50	48.57	10.13	1.38	31.47	-	-	Peak
299.46	32.11	-13.89	46.00	48.21	13.46	1.77	31.33	-	-	Peak
330.10	35.80	-10.20	46.00	50.87	14.39	1.85	31.31	100	177	Peak
402.90	31.80	-14.20	46.00	44.22	16.61	2.15	31.18	-	-	Peak
895.00	31.35	-14.65	46.00	35.15	23.57	3.33	30.70	-	-	Peak
5150.00	50.74	-23.26	74.00	41.73	34.25	9.41	34.65	100	270	Peak
5150.00	37.92	-16.08	54.00	28.91	34.25	9.41	34.65	100	270	Average
5260.00	106.83	-	-	97.93	34.37	9.62	35.09	100	270	Peak
5260.00	95.62	-	-	86.72	34.37	9.62	35.09	100	270	Average
5350.00	50.48	-23.52	74.00	41.69	34.45	9.74	35.40	100	270	Peak
5350.00	38.10	-15.90	54.00	29.31	34.45	9.74	35.40	100	270	Average



Test Mode :	Mode 4	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.68	-7.32	40.00	47.79	15.80	0.56	31.47	141	100	Peak
65.37	26.60	-13.40	40.00	51.36	5.98	0.80	31.54	-	-	Peak
138.54	27.70	-15.80	43.50	46.45	11.60	1.20	31.55	-	-	Peak
307.00	27.41	-18.59	46.00	43.25	13.70	1.79	31.33	-	-	Peak
926.50	30.60	-15.40	46.00	33.87	23.96	3.40	30.63	-	-	Peak
995.80	30.83	-23.17	54.00	33.06	24.84	3.51	30.58	-	-	Peak
5150.00	49.78	-24.22	74.00	40.77	34.25	9.41	34.65	123	23	Peak
5150.00	37.85	-16.15	54.00	28.84	34.25	9.41	34.65	123	23	Average
5260.00	108.34	-	-	99.44	34.37	9.62	35.09	123	23	Peak
5260.00	97.75	-	-	88.85	34.37	9.62	35.09	123	23	Average
5350.00	50.02	-23.98	74.00	41.23	34.45	9.74	35.40	123	23	Peak
5350.00	38.16	-15.84	54.00	29.37	34.45	9.74	35.40	123	23	Average



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5300 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
48.90	26.16	-13.84	40.00	47.93	9.08	0.68	31.53	-	-	Peak
115.86	25.06	-18.44	43.50	44.34	11.20	1.08	31.56	-	-	Peak
220.89	31.34	-14.66	46.00	50.76	10.61	1.43	31.46	-	-	Peak
335.00	35.79	-10.21	46.00	50.69	14.54	1.87	31.31	100	55	Peak
383.30	29.62	-16.38	46.00	42.69	16.05	2.11	31.23	-	-	Peak
811.70	29.71	-16.29	46.00	34.62	22.61	3.17	30.69	-	-	Peak
5150.00	49.94	-24.06	74.00	40.93	34.25	9.41	34.65	102	265	Peak
5150.00	37.82	-16.18	54.00	28.81	34.25	9.41	34.65	102	265	Average
5300.00	104.11	-	-	95.26	34.40	9.66	35.21	102	265	Peak
5300.00	93.85	-	-	85.00	34.40	9.66	35.21	102	265	Average
5350.00	50.18	-23.82	74.00	41.39	34.45	9.74	35.40	102	265	Peak
5350.00	38.74	-15.26	54.00	29.95	34.45	9.74	35.40	102	265	Average



Test Mode :	Mode 5	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5300 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	31.97	-8.03	40.00	46.84	16.04	0.55	31.46	115	241	Peak
73.74	26.68	-13.32	40.00	50.74	6.63	0.85	31.54	-	-	Peak
138.81	28.34	-15.16	43.50	47.09	11.60	1.20	31.55	-	-	Peak
397.30	26.57	-19.43	46.00	39.12	16.50	2.14	31.19	-	-	Peak
696.90	30.07	-15.93	46.00	37.10	20.86	2.93	30.82	-	-	Peak
898.50	29.05	-16.95	46.00	32.80	23.61	3.34	30.70	-	-	Peak
5150.00	49.60	-24.40	74.00	40.59	34.25	9.41	34.65	123	24	Peak
5150.00	37.81	-16.19	54.00	28.80	34.25	9.41	34.65	123	24	Average
5300.00	108.09	-	-	99.24	34.40	9.66	35.21	123	24	Peak
5300.00	97.76	-	-	88.91	34.40	9.66	35.21	123	24	Average
5350.00	51.11	-22.89	74.00	42.32	34.45	9.74	35.40	123	24	Peak
5350.00	38.58	-15.42	54.00	29.79	34.45	9.74	35.40	123	24	Average



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.05	24.06	-19.44	43.50	43.42	11.12	1.08	31.56	-	-	Peak
242.22	29.38	-16.62	46.00	47.15	12.12	1.53	31.42	-	-	Peak
299.46	31.58	-14.42	46.00	47.68	13.46	1.77	31.33	-	-	Peak
340.60	34.41	-11.59	46.00	49.10	14.72	1.89	31.30	100	291	Peak
397.30	33.50	-12.50	46.00	46.05	16.50	2.14	31.19	-	-	Peak
780.20	26.80	-19.20	46.00	32.23	22.15	3.11	30.69	-	-	Peak
5150.00	37.63	-16.37	54.00	28.62	34.25	9.41	34.65	100	264	Average
5150.00	49.27	-24.73	74.00	40.26	34.25	9.41	34.65	100	264	Peak
5320.00	93.12	-	-	84.28	34.42	9.70	35.28	100	264	Average
5320.00	103.58	-	-	94.74	34.42	9.70	35.28	100	264	Peak
5350.00	41.74	-12.26	54.00	32.95	34.45	9.74	35.40	100	264	Average
5350.00	58.23	-15.77	74.00	49.44	34.45	9.74	35.40	100	264	Peak



Test Mode :	Mode 6	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
30.81	32.21	-7.79	40.00	46.86	16.27	0.54	31.46	104	156	Peak
138.54	27.73	-15.77	43.50	46.48	11.60	1.20	31.55	-	-	Peak
290.01	27.45	-18.55	46.00	43.77	13.31	1.69	31.32	-	-	Peak
312.60	26.56	-19.44	46.00	42.24	13.85	1.79	31.32	-	-	Peak
400.10	25.25	-20.75	46.00	37.71	16.58	2.14	31.18	-	-	Peak
948.20	29.22	-16.78	46.00	32.09	24.24	3.46	30.57	-	-	Peak
5150.00	37.76	-16.24	54.00	28.75	34.25	9.41	34.65	100	24	Average
5150.00	48.96	-25.04	74.00	39.95	34.25	9.41	34.65	100	24	Peak
5320.00	96.92	-	-	88.08	34.42	9.70	35.28	100	24	Average
5320.00	107.30	-	-	98.46	34.42	9.70	35.28	100	24	Peak
5350.00	41.30	-12.70	54.00	32.51	34.45	9.74	35.40	100	24	Average
5350.00	56.57	-17.43	74.00	47.78	34.45	9.74	35.40	100	24	Peak

Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
182.82	27.51	-15.99	43.50	48.72	9.05	1.26	31.52	-	-	Peak
240.33	29.62	-16.38	46.00	47.53	11.98	1.53	31.42	-	-	Peak
297.30	31.61	-14.39	46.00	47.76	13.43	1.75	31.33	-	-	Peak
341.30	36.48	-9.52	46.00	51.13	14.75	1.90	31.30	100	117	Peak
393.80	31.28	-14.72	46.00	43.97	16.38	2.13	31.20	-	-	Peak
996.50	29.37	-24.63	54.00	31.60	24.84	3.51	30.58	-	-	Peak
5470.00	39.07	-29.23	68.30	30.40	34.57	9.94	35.84	100	255	Average
5470.00	51.96	-36.34	88.30	43.29	34.57	9.94	35.84	100	255	Peak
5500.00	100.82	-	-	92.17	34.60	10.02	35.97	100	255	Peak
5500.00	90.15	-	-	81.50	34.60	10.02	35.97	100	255	Average
5725.00	49.70	-38.60	88.30	40.80	34.82	9.92	35.84	100	255	Peak
5725.00	37.59	-30.71	68.30	28.69	34.82	9.92	35.84	100	255	Average



Test Mode :	Mode 7	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.97	32.57	-7.43	40.00	47.68	15.80	0.56	31.47	121	106	Peak
137.73	27.61	-15.89	43.50	46.38	11.59	1.19	31.55	-	-	Peak
243.30	26.41	-19.59	46.00	44.11	12.19	1.53	31.42	-	-	Peak
397.30	25.15	-20.85	46.00	37.70	16.50	2.14	31.19	-	-	Peak
814.50	28.19	-17.81	46.00	33.06	22.64	3.18	30.69	-	-	Peak
956.60	28.72	-17.28	46.00	31.48	24.34	3.47	30.57	-	-	Peak
5470.00	40.63	-27.67	68.30	31.96	34.57	9.94	35.84	100	48	Average
5470.00	54.48	-33.82	88.30	45.81	34.57	9.94	35.84	100	48	Peak
5500.00	103.23	-	-	94.58	34.60	10.02	35.97	100	48	Peak
5500.00	92.95	-	-	84.30	34.60	10.02	35.97	100	48	Average
5725.00	37.50	-30.80	68.30	28.60	34.82	9.92	35.84	100	48	Average
5725.00	48.99	-39.31	88.30	40.09	34.82	9.92	35.84	100	48	Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
116.13	26.39	-17.11	43.50	45.67	11.20	1.08	31.56	-	-	Peak
242.49	29.45	-16.55	46.00	47.22	12.12	1.53	31.42	-	-	Peak
297.57	32.59	-13.41	46.00	48.74	13.43	1.75	31.33	-	-	Peak
332.20	34.68	-11.32	46.00	49.65	14.48	1.86	31.31	103	120	Peak
397.30	31.89	-14.11	46.00	44.44	16.50	2.14	31.19	-	-	Peak
937.00	31.72	-14.28	46.00	34.80	24.09	3.43	30.60	-	-	Peak
5470.00	51.82	-36.48	88.30	40.32	34.57	9.94	33.01	183	82	Peak
5470.00	39.71	-28.59	68.30	28.21	34.57	9.94	33.01	183	82	Average
5580.00	94.93	-	-	83.27	34.67	9.99	33.00	183	82	Average
5580.00	105.31	-	-	93.65	34.67	9.99	33.00	183	82	Peak
5725.00	51.89	-36.41	88.30	40.33	34.82	9.92	33.18	183	82	Peak
5725.00	40.11	-28.19	68.30	28.55	34.82	9.92	33.18	183	82	Average

Test Mode :	Mode 8	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
30.81	31.84	-8.16	40.00	46.49	16.27	0.54	31.46	100	218	Peak
73.74	27.01	-12.99	40.00	51.07	6.63	0.85	31.54	-	-	Peak
138.54	29.21	-14.29	43.50	47.96	11.60	1.20	31.55	-	-	Peak
397.30	29.39	-16.61	46.00	41.94	16.50	2.14	31.19	-	-	Peak
757.80	25.01	-20.99	46.00	30.84	21.80	3.07	30.70	-	-	Peak
925.80	29.15	-16.85	46.00	32.42	23.96	3.40	30.63	-	-	Peak
5470.00	51.19	-37.11	88.30	39.69	34.57	9.94	33.01	101	353	Peak
5470.00	39.71	-28.59	68.30	28.21	34.57	9.94	33.01	101	353	Average
5580.00	106.80	-	-	95.14	34.67	9.99	33.00	101	353	Peak
5580.00	96.09	-	-	84.43	34.67	9.99	33.00	101	353	Average
5725.00	52.25	-36.05	88.30	40.69	34.82	9.92	33.18	101	353	Peak
5725.00	40.17	-28.13	68.30	28.61	34.82	9.92	33.18	101	353	Average



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.86	23.78	-19.72	43.50	43.06	11.20	1.08	31.56	-	-	Peak
241.14	30.21	-15.79	46.00	48.05	12.05	1.53	31.42	-	-	Peak
294.33	31.81	-14.19	46.00	48.03	13.38	1.73	31.33	-	-	Peak
332.20	34.85	-11.15	46.00	49.82	14.48	1.86	31.31	100	46	Peak
383.30	32.61	-13.39	46.00	45.68	16.05	2.11	31.23	-	-	Peak
995.80	31.53	-22.47	54.00	33.76	24.84	3.51	30.58	-	-	Peak
5470.00	37.39	-30.91	68.30	28.72	34.57	9.94	35.84	100	273	Average
5470.00	48.87	-39.43	88.30	40.20	34.57	9.94	35.84	100	273	Peak
5700.00	93.74	-	-	84.88	34.79	9.93	35.86	100	273	Average
5700.00	104.88	-	-	96.02	34.79	9.93	35.86	100	273	Peak
5725.00	43.79	-24.51	68.30	34.89	34.82	9.92	35.84	100	273	Average
5725.00	60.83	-27.47	88.30	51.93	34.82	9.92	35.84	100	273	Peak



Test Mode :	Mode 9	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
31.89	32.09	-7.91	40.00	46.96	16.04	0.55	31.46	108	187	Peak
138.54	27.60	-15.90	43.50	46.35	11.60	1.20	31.55	-	-	Peak
228.45	27.66	-18.34	46.00	46.47	11.16	1.47	31.44	-	-	Peak
332.90	26.72	-19.28	46.00	41.69	14.48	1.86	31.31	-	-	Peak
436.50	29.10	-16.90	46.00	40.79	17.17	2.27	31.13	-	-	Peak
699.00	26.11	-19.89	46.00	33.11	20.88	2.94	30.82	-	-	Peak
5470.00	37.52	-30.78	68.30	28.85	34.57	9.94	35.84	111	5	Average
5470.00	48.51	-39.79	88.30	39.84	34.57	9.94	35.84	111	5	Peak
5700.00	97.77	-	-	88.91	34.79	9.93	35.86	111	5	Average
5700.00	108.21	-	-	99.35	34.79	9.93	35.86	111	5	Peak
5725.00	47.37	-20.93	68.30	38.47	34.82	9.92	35.84	111	5	Average
5725.00	62.31	-25.99	88.30	53.41	34.82	9.92	35.84	111	5	Peak



Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
48.90	28.18	-11.82	40.00	49.95	9.08	0.68	31.53	-	-	Peak
242.22	29.60	-16.40	46.00	47.37	12.12	1.53	31.42	-	-	Peak
295.41	33.05	-12.95	46.00	49.24	13.40	1.74	31.33	-	-	Peak
332.20	34.22	-11.78	46.00	49.19	14.48	1.86	31.31	100	201	Peak
393.80	28.39	-17.61	46.00	41.08	16.38	2.13	31.20	-	-	Peak
934.20	29.30	-16.70	46.00	32.43	24.06	3.42	30.61	-	-	Peak
5150.00	40.83	-13.17	54.00	31.82	34.25	9.41	34.65	100	271	Average
5150.00	55.98	-18.02	74.00	46.97	34.25	9.41	34.65	100	271	Peak
5180.00	105.48	-	-	96.52	34.28	9.45	34.77	100	271	Peak
5180.00	94.99	-	-	86.03	34.28	9.45	34.77	100	271	Average
5350.00	37.86	-16.14	54.00	29.07	34.45	9.74	35.40	100	271	Average
5350.00	49.50	-24.50	74.00	40.71	34.45	9.74	35.40	100	271	Peak



Test Mode :	Mode 10	Temperature :	23~24°C
Test Channel :	36	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.48	-7.52	40.00	47.59	15.80	0.56	31.47	116	280	Peak
140.70	28.60	-14.90	43.50	47.40	11.55	1.20	31.55	-	-	Peak
287.85	28.77	-17.23	46.00	45.15	13.27	1.68	31.33	-	-	Peak
330.10	26.23	-19.77	46.00	41.30	14.39	1.85	31.31	-	-	Peak
405.70	25.96	-20.04	46.00	38.31	16.66	2.16	31.17	-	-	Peak
995.80	32.28	-21.72	54.00	34.51	24.84	3.51	30.58	-	-	Peak
5150.00	42.08	-11.92	54.00	33.07	34.25	9.41	34.65	123	1	Average
5150.00	57.59	-16.41	74.00	48.58	34.25	9.41	34.65	123	1	Peak
5180.00	108.96	-	-	100.00	34.28	9.45	34.77	123	1	Peak
5180.00	98.11	-	-	89.15	34.28	9.45	34.77	123	1	Average
5350.00	37.51	-16.49	54.00	28.72	34.45	9.74	35.40	123	1	Average
5350.00	49.96	-24.04	74.00	41.17	34.45	9.74	35.40	123	1	Peak



Test Mode :	Mode 11	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
115.05	24.59	-18.91	43.50	43.95	11.12	1.08	31.56	-	-	Peak
235.74	29.42	-16.58	46.00	47.70	11.64	1.51	31.43	-	-	Peak
295.14	31.80	-14.20	46.00	48.02	13.38	1.73	31.33	-	-	Peak
341.30	35.23	-10.77	46.00	49.88	14.75	1.90	31.30	100	192	Peak
383.30	32.92	-13.08	46.00	45.99	16.05	2.11	31.23	-	-	Peak
996.50	30.33	-23.67	54.00	32.56	24.84	3.51	30.58	-	-	Peak
5150.00	49.73	-24.27	74.00	40.72	34.25	9.41	34.65	100	268	Peak
5150.00	37.91	-16.09	54.00	28.90	34.25	9.41	34.65	100	268	Average
5220.00	105.47	-	-	96.52	34.32	9.53	34.90	100	268	Peak
5220.00	95.19	-	-	86.24	34.32	9.53	34.90	100	268	Average
5350.00	50.79	-23.21	74.00	42.00	34.45	9.74	35.40	100	268	Peak
5350.00	38.08	-15.92	54.00	29.29	34.45	9.74	35.40	100	268	Average



Test Mode :	Mode 11	Temperature :	23~24°C
Test Channel :	44	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5220 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	32.40	-7.60	40.00	47.27	16.04	0.55	31.46	144	273	Peak
139.89	27.99	-15.51	43.50	46.74	11.60	1.20	31.55	-	-	Peak
291.90	27.69	-18.31	46.00	43.96	13.34	1.71	31.32	-	-	Peak
400.10	25.95	-20.05	46.00	38.41	16.58	2.14	31.18	-	-	Peak
598.20	28.29	-17.71	46.00	36.79	19.74	2.68	30.92	-	-	Peak
911.80	30.26	-15.74	46.00	33.78	23.78	3.37	30.67	-	-	Peak
5150.00	50.29	-23.71	74.00	41.28	34.25	9.41	34.65	102	30	Peak
5150.00	38.72	-15.28	54.00	29.71	34.25	9.41	34.65	102	30	Average
5220.00	110.18	-	-	101.23	34.32	9.53	34.90	102	30	Peak
5220.00	98.58	-	-	89.63	34.32	9.53	34.90	102	30	Average
5350.00	49.46	-24.54	74.00	40.67	34.45	9.74	35.40	102	30	Peak
5350.00	37.81	-16.19	54.00	29.02	34.45	9.74	35.40	102	30	Average

Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5240 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
48.90	26.36	-13.64	40.00	48.13	9.08	0.68	31.53	-	-	Peak
241.41	29.60	-16.40	46.00	47.44	12.05	1.53	31.42	-	-	Peak
297.30	31.10	-14.90	46.00	47.25	13.43	1.75	31.33	-	-	Peak
337.80	35.71	-10.29	46.00	50.50	14.63	1.88	31.30	100	133	Peak
864.90	31.02	-14.98	46.00	35.23	23.22	3.29	30.72	-	-	Peak
920.90	29.55	-16.45	46.00	32.92	23.89	3.39	30.65	-	-	Peak
5150.00	49.48	-24.52	74.00	40.47	34.25	9.41	34.65	100	269	Peak
5150.00	37.93	-16.07	54.00	28.92	34.25	9.41	34.65	100	269	Average
5240.00	105.70	-	-	96.76	34.33	9.57	34.96	100	269	Peak
5240.00	95.26	-	-	86.32	34.33	9.57	34.96	100	269	Average
5350.00	50.30	-23.70	74.00	41.51	34.45	9.74	35.40	100	269	Peak
5350.00	38.30	-15.70	54.00	29.51	34.45	9.74	35.40	100	269	Average



Test Mode :	Mode 12	Temperature :	23~24°C
Test Channel :	48	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5240 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.70	32.20	-7.80	40.00	47.31	15.80	0.56	31.47	123	257	Peak
138.81	27.79	-15.71	43.50	46.54	11.60	1.20	31.55	-	-	Peak
242.49	27.59	-18.41	46.00	45.36	12.12	1.53	31.42	-	-	Peak
332.90	28.41	-17.59	46.00	43.38	14.48	1.86	31.31	-	-	Peak
699.00	26.18	-19.82	46.00	33.18	20.88	2.94	30.82	-	-	Peak
909.70	31.67	-14.33	46.00	35.23	23.75	3.36	30.67	-	-	Peak
5150.00	51.60	-22.40	74.00	42.59	34.25	9.41	34.65	135	4	Peak
5150.00	38.49	-15.51	54.00	29.48	34.25	9.41	34.65	135	4	Average
5240.00	108.69	-	-	99.75	34.33	9.57	34.96	135	4	Peak
5240.00	98.39	-	-	89.45	34.33	9.57	34.96	135	4	Average
5350.00	49.08	-24.92	74.00	40.29	34.45	9.74	35.40	135	4	Peak
5350.00	37.65	-16.35	54.00	28.86	34.45	9.74	35.40	135	4	Average



Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
114.78	26.17	-17.33	43.50	45.62	11.03	1.07	31.55	-	-	Peak
241.41	29.65	-16.35	46.00	47.49	12.05	1.53	31.42	-	-	Peak
296.22	30.86	-15.14	46.00	47.05	13.40	1.74	31.33	-	-	Peak
330.10	34.45	-11.55	46.00	49.52	14.39	1.85	31.31	100	146	Peak
371.40	30.27	-15.73	46.00	43.75	15.69	2.08	31.25	-	-	Peak
892.20	30.79	-15.21	46.00	34.62	23.54	3.33	30.70	-	-	Peak
5150.00	49.40	-24.60	74.00	40.39	34.25	9.41	34.65	100	272	Peak
5150.00	38.01	-15.99	54.00	29.00	34.25	9.41	34.65	100	272	Average
5260.00	104.31	-	-	95.41	34.37	9.62	35.09	100	272	Peak
5260.00	93.69	-	-	84.79	34.37	9.62	35.09	100	272	Average
5350.00	49.30	-24.70	74.00	40.51	34.45	9.74	35.40	100	272	Peak
5350.00	38.06	-15.94	54.00	29.27	34.45	9.74	35.40	100	272	Average



Test Mode :	Mode 13	Temperature :	23~24°C
Test Channel :	52	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.97	32.22	-7.78	40.00	47.33	15.80	0.56	31.47	112	261	Peak
43.77	27.40	-12.60	40.00	47.13	11.13	0.64	31.50	-	-	Peak
139.62	28.23	-15.27	43.50	46.98	11.60	1.20	31.55	-	-	Peak
332.20	26.76	-19.24	46.00	41.73	14.48	1.86	31.31	-	-	Peak
699.70	26.76	-19.24	46.00	33.76	20.88	2.94	30.82	-	-	Peak
995.80	28.76	-25.24	54.00	30.99	24.84	3.51	30.58	-	-	Peak
5150.00	49.74	-24.26	74.00	40.73	34.25	9.41	34.65	111	29	Peak
5150.00	37.95	-16.05	54.00	28.94	34.25	9.41	34.65	111	29	Average
5260.00	107.79	-	-	98.89	34.37	9.62	35.09	111	29	Peak
5260.00	97.41	-	-	88.51	34.37	9.62	35.09	111	29	Average
5350.00	50.06	-23.94	74.00	41.27	34.45	9.74	35.40	111	29	Peak
5350.00	38.32	-15.68	54.00	29.53	34.45	9.74	35.40	111	29	Average



Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Horizontal
Remark :	5300 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
48.90	28.08	-11.92	40.00	49.85	9.08	0.68	31.53	-	-	Peak
222.78	28.60	-17.40	46.00	47.86	10.75	1.44	31.45	-	-	Peak
297.57	32.57	-13.43	46.00	48.72	13.43	1.75	31.33	-	-	Peak
340.60	34.32	-11.68	46.00	49.01	14.72	1.89	31.30	130	100	Peak
371.40	31.67	-14.33	46.00	45.15	15.69	2.08	31.25	-	-	Peak
892.90	29.93	-16.07	46.00	33.75	23.55	3.33	30.70	-	-	Peak
5150.00	49.66	-24.34	74.00	40.65	34.25	9.41	34.65	175	270	Peak
5150.00	37.84	-16.16	54.00	28.83	34.25	9.41	34.65	175	270	Average
5300.00	104.03	-	-	95.18	34.40	9.66	35.21	175	270	Peak
5300.00	93.74	-	-	84.89	34.40	9.66	35.21	175	270	Average
5350.00	50.98	-23.02	74.00	42.19	34.45	9.74	35.40	175	270	Peak
5350.00	39.31	-14.69	54.00	30.52	34.45	9.74	35.40	175	270	Average



Test Mode :	Mode 14	Temperature :	23~24°C
Test Channel :	60	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	Polarization :	Vertical
Remark :	5300 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.70	32.59	-7.41	40.00	47.70	15.80	0.56	31.47	100	309	Peak
73.74	27.29	-12.71	40.00	51.35	6.63	0.85	31.54	-	-	Peak
138.54	28.55	-14.95	43.50	47.30	11.60	1.20	31.55	-	-	Peak
391.70	25.84	-20.16	46.00	38.60	16.32	2.12	31.20	-	-	Peak
799.80	27.48	-18.52	46.00	32.55	22.47	3.14	30.68	-	-	Peak
1000.00	32.10	-21.90	54.00	34.28	24.89	3.51	30.58	-	-	Peak
5150.00	49.74	-24.26	74.00	40.73	34.25	9.41	34.65	101	31	Peak
5150.00	38.18	-15.82	54.00	29.17	34.25	9.41	34.65	101	31	Average
5300.00	107.30	-	-	98.45	34.40	9.66	35.21	101	31	Peak
5300.00	96.85	-	-	88.00	34.40	9.66	35.21	101	31	Average
5350.00	50.31	-23.69	74.00	41.52	34.45	9.74	35.40	101	31	Peak
5350.00	38.86	-15.14	54.00	30.07	34.45	9.74	35.40	101	31	Average

Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
48.90	27.88	-12.12	40.00	49.65	9.08	0.68	31.53	-	-	Peak
216.57	28.48	-17.52	46.00	48.27	10.27	1.40	31.46	-	-	Peak
290.82	31.41	-14.59	46.00	47.71	13.32	1.70	31.32	-	-	Peak
327.30	34.85	-11.15	46.00	50.02	14.30	1.84	31.31	107	152	Peak
817.30	28.57	-17.43	46.00	33.41	22.67	3.19	30.70	-	-	Peak
923.70	29.85	-16.15	46.00	33.17	23.92	3.40	30.64	-	-	Peak
5150.00	37.74	-16.26	54.00	28.73	34.25	9.41	34.65	100	265	Average
5150.00	49.02	-24.98	74.00	40.01	34.25	9.41	34.65	100	265	Peak
5320.00	94.35	-	-	85.51	34.42	9.70	35.28	100	265	Average
5320.00	104.96	-	-	96.12	34.42	9.70	35.28	100	265	Peak
5350.00	41.78	-12.22	54.00	32.99	34.45	9.74	35.40	100	265	Average
5350.00	59.35	-14.65	74.00	50.56	34.45	9.74	35.40	100	265	Peak



Test Mode :	Mode 15	Temperature :	23~24°C
Test Channel :	64	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.27	-7.73	40.00	47.38	15.80	0.56	31.47	100	218	Peak
137.73	28.46	-15.04	43.50	47.23	11.59	1.19	31.55	-	-	Peak
287.58	27.95	-18.05	46.00	44.33	13.27	1.68	31.33	-	-	Peak
335.00	26.85	-19.15	46.00	41.75	14.54	1.87	31.31	-	-	Peak
696.90	28.19	-17.81	46.00	35.22	20.86	2.93	30.82	-	-	Peak
995.80	30.52	-23.48	54.00	32.75	24.84	3.51	30.58	-	-	Peak
5150.00	38.05	-15.95	54.00	29.04	34.25	9.41	34.65	100	30	Average
5150.00	51.55	-22.45	74.00	42.54	34.25	9.41	34.65	100	30	Peak
5320.00	96.78	-	-	87.94	34.42	9.70	35.28	100	30	Average
5320.00	107.03	-	-	98.19	34.42	9.70	35.28	100	30	Peak
5350.00	42.25	-11.75	54.00	33.46	34.45	9.74	35.40	100	30	Average
5350.00	58.10	-15.90	74.00	49.31	34.45	9.74	35.40	100	30	Peak

Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.86	24.29	-19.21	43.50	43.57	11.20	1.08	31.56	-	-	Peak
241.14	29.94	-16.06	46.00	47.78	12.05	1.53	31.42	-	-	Peak
294.06	31.20	-14.80	46.00	47.43	13.37	1.72	31.32	-	-	Peak
332.20	36.31	-9.69	46.00	51.28	14.48	1.86	31.31	105	158	Peak
391.70	30.08	-15.92	46.00	42.84	16.32	2.12	31.20	-	-	Peak
911.80	29.67	-16.33	46.00	33.19	23.78	3.37	30.67	-	-	Peak
5470.00	40.04	-28.26	68.30	31.37	34.57	9.94	35.84	173	120	Average
5470.00	58.04	-30.26	88.30	49.37	34.57	9.94	35.84	173	120	Peak
5500.00	100.82	-	-	92.17	34.60	10.02	35.97	173	120	Peak
5500.00	90.64	-	-	81.99	34.60	10.02	35.97	173	120	Average
5725.00	37.59	-30.71	68.30	28.69	34.82	9.92	35.84	173	120	Average
5725.00	49.39	-38.91	88.30	40.49	34.82	9.92	35.84	173	120	Peak



Test Mode :	Mode 16	Temperature :	23~24°C
Test Channel :	100	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.68	-7.32	40.00	47.79	15.80	0.56	31.47	137	106	Peak
137.73	28.44	-15.06	43.50	47.21	11.59	1.19	31.55	-	-	Peak
287.85	28.13	-17.87	46.00	44.51	13.27	1.68	31.33	-	-	Peak
444.20	25.22	-20.78	46.00	36.74	17.30	2.29	31.11	-	-	Peak
803.30	27.75	-18.25	46.00	32.78	22.50	3.15	30.68	-	-	Peak
998.60	32.24	-21.76	54.00	34.43	24.88	3.51	30.58	-	-	Peak
5470.00	41.17	-27.13	68.30	32.50	34.57	9.94	35.84	100	47	Average
5470.00	55.50	-32.80	88.30	46.83	34.57	9.94	35.84	100	47	Peak
5500.00	93.15	-	-	84.50	34.60	10.02	35.97	100	47	Average
5500.00	103.75	-	-	95.10	34.60	10.02	35.97	100	47	Peak
5725.00	37.63	-30.67	68.30	28.73	34.82	9.92	35.84	100	47	Average
5725.00	49.21	-39.09	88.30	40.31	34.82	9.92	35.84	100	47	Peak



Test Mode :	Mode 17	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
115.86	24.16	-19.34	43.50	43.44	11.20	1.08	31.56	-	-	Peak
224.94	29.66	-16.34	46.00	48.77	10.89	1.45	31.45	-	-	Peak
297.57	31.47	-14.53	46.00	47.62	13.43	1.75	31.33	-	-	Peak
332.90	34.62	-11.38	46.00	49.59	14.48	1.86	31.31	133	158	Peak
368.60	32.09	-13.91	46.00	45.67	15.60	2.08	31.26	-	-	Peak
912.50	29.35	-16.65	46.00	32.86	23.79	3.37	30.67	-	-	Peak
5470.00	50.82	-37.48	88.30	39.32	34.57	9.94	33.01	182	92	5470.00
5470.00	39.82	-28.48	68.30	28.32	34.57	9.94	33.01	182	92	5470.00
5580.00	105.56	-	-	93.90	34.67	9.99	33.00	182	92	5580.00
5580.00	95.29	-	-	83.63	34.67	9.99	33.00	182	92	5580.00
5725.00	51.41	-36.89	88.30	39.85	34.82	9.92	33.18	182	92	5725.00
5725.00	40.15	-28.15	68.30	28.59	34.82	9.92	33.18	182	92	5725.00



Test Mode :	Mode 17	Temperature :	23~24°C
Test Channel :	116	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.17	-7.83	40.00	47.28	15.80	0.56	31.47	100	322	Peak
138.54	28.59	-14.91	43.50	47.34	11.60	1.20	31.55	-	-	Peak
288.93	27.14	-18.86	46.00	43.48	13.29	1.69	31.32	-	-	Peak
307.00	26.82	-19.18	46.00	42.66	13.70	1.79	31.33	-	-	Peak
772.50	26.29	-19.71	46.00	31.85	22.03	3.10	30.69	-	-	Peak
996.50	30.92	-23.08	54.00	33.15	24.84	3.51	30.58	-	-	Peak
5470.00	51.52	-36.78	88.30	40.02	34.57	9.94	33.01	101	354	Peak
5470.00	39.74	-28.56	68.30	28.24	34.57	9.94	33.01	101	354	Average
5580.00	106.67	-	-	95.01	34.67	9.99	33.00	101	354	Peak
5580.00	95.47	-	-	83.81	34.67	9.99	33.00	101	354	Average
5725.00	51.44	-36.86	88.30	39.88	34.82	9.92	33.18	101	354	Peak
5725.00	40.19	-28.11	68.30	28.63	34.82	9.92	33.18	101	354	Average



Test Mode :	Mode 18	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
48.90	26.39	-13.61	40.00	48.16	9.08	0.68	31.53	-	-	Peak
115.86	23.02	-20.48	43.50	42.30	11.20	1.08	31.56	-	-	Peak
295.41	31.84	-14.16	46.00	48.03	13.40	1.74	31.33	-	-	Peak
335.00	35.33	-10.67	46.00	50.23	14.54	1.87	31.31	114	352	Peak
377.70	31.06	-14.94	46.00	44.34	15.87	2.09	31.24	-	-	Peak
897.80	29.79	-16.21	46.00	33.54	23.61	3.34	30.70	-	-	Peak
5470.00	37.45	-30.85	68.30	28.78	34.57	9.94	35.84	100	272	Average
5470.00	48.44	-39.86	88.30	39.77	34.57	9.94	35.84	100	272	Peak
5700.00	94.05	-	-	85.19	34.79	9.93	35.86	100	272	Average
5700.00	104.43	-	-	95.57	34.79	9.93	35.86	100	272	Peak
5725.00	45.45	-22.85	68.30	36.55	34.82	9.92	35.84	100	272	Average
5725.00	62.09	-26.21	88.30	53.19	34.82	9.92	35.84	100	272	Peak
17100.00	59.81	-28.49	88.30	56.98	42.00	14.33	53.50	100	0	Peak

Test Mode :	Mode 18	Temperature :	23~24°C
Test Channel :	140	Relative Humidity :	49~50%
Test Engineer :	Ivan Jiang	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
32.70	32.41	-7.59	40.00	47.52	15.80	0.56	31.47	141	251	Peak
73.74	26.28	-13.72	40.00	50.34	6.63	0.85	31.54	-	-	Peak
138.54	27.85	-15.65	43.50	46.60	11.60	1.20	31.55	-	-	Peak
307.70	26.52	-19.48	46.00	42.36	13.70	1.79	31.33	-	-	Peak
719.30	25.65	-20.35	46.00	32.23	21.20	2.99	30.77	-	-	Peak
995.80	30.56	-23.44	54.00	32.79	24.84	3.51	30.58	-	-	Peak
5470.00	37.56	-30.74	68.30	28.89	34.57	9.94	35.84	122	4	Average
5470.00	49.41	-38.89	88.30	40.74	34.57	9.94	35.84	122	4	Peak
5700.00	98.40	-	-	89.54	34.79	9.93	35.86	122	4	Average
5700.00	108.66	-	-	99.80	34.79	9.93	35.86	122	4	Peak
5725.00	48.39	-19.91	68.30	39.49	34.82	9.92	35.84	122	4	Average
5725.00	66.85	-21.45	88.30	57.95	34.82	9.92	35.84	122	4	Peak

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.

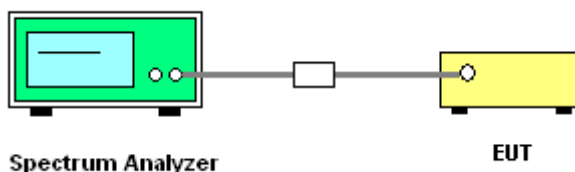
3.8.2 Measuring Instruments

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.

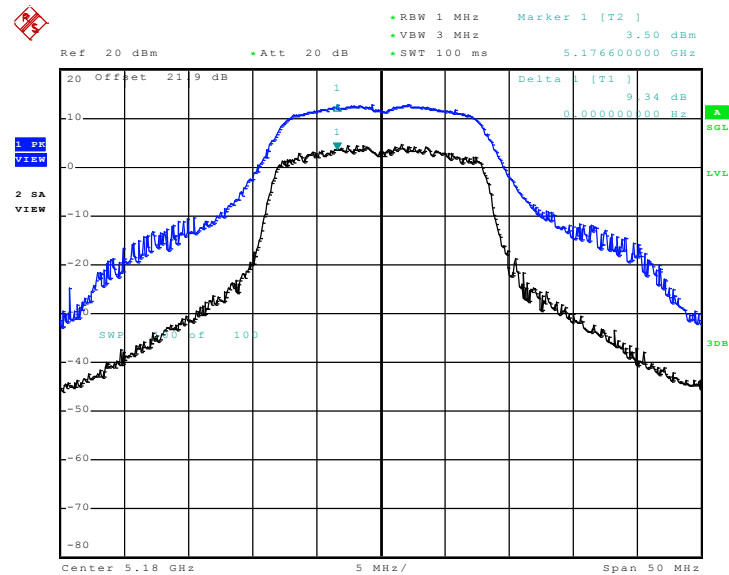
3.8.4 Test Setup



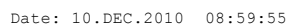
3.8.5 Test Result of Peak Excursion Ratio

Test Mode :	Mode 1~9	Temperature :	25~27℃
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Peak Excursion Ratio Plot on 802.11a Channel 36

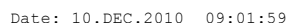


Date: 10.DEC.2010 08:43:44



Peak Excursion Ratio Plot on 802.11a Channel 48



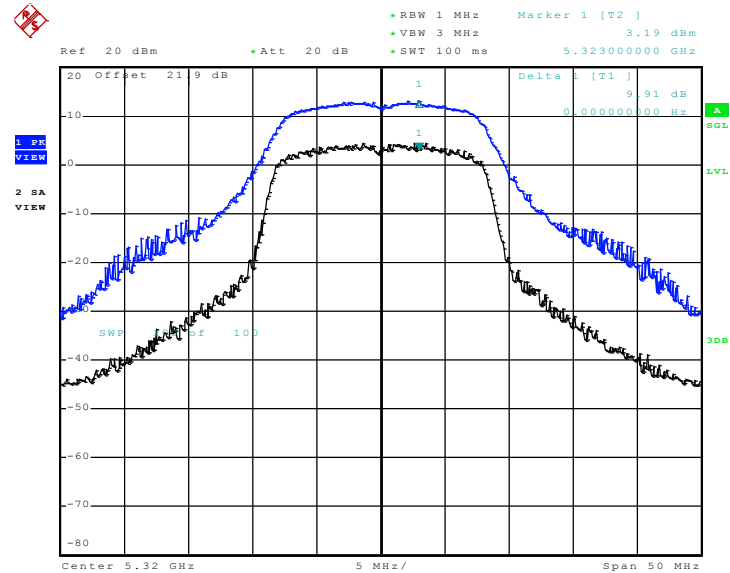


Peak Excursion Ratio Plot on 802.11a Channel 60



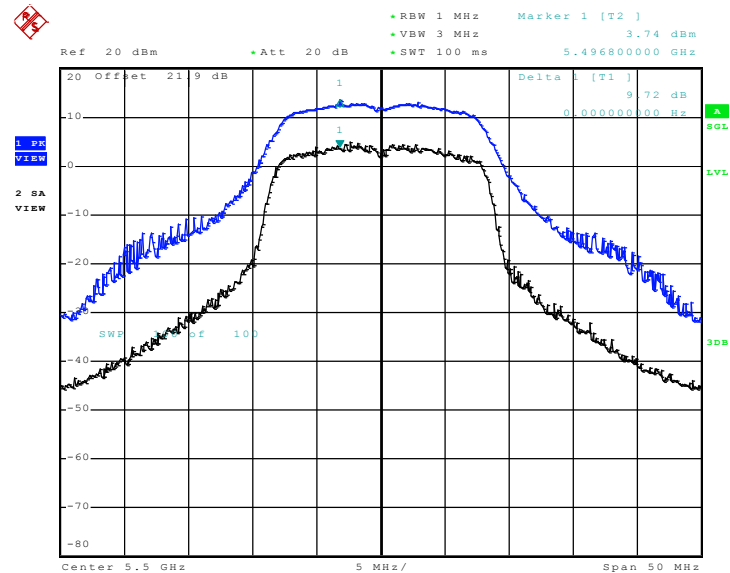


Peak Excursion Ratio Plot on 802.11a Channel 64



Date: 10.DEC.2010 09:03:53

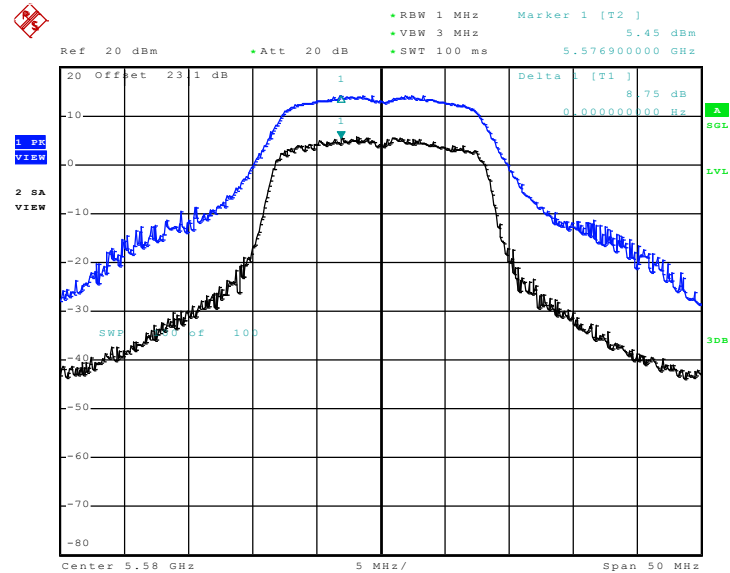
Peak Excursion Ratio Plot on 802.11a Channel 100



Date: 10.DEC.2010 09:06:51

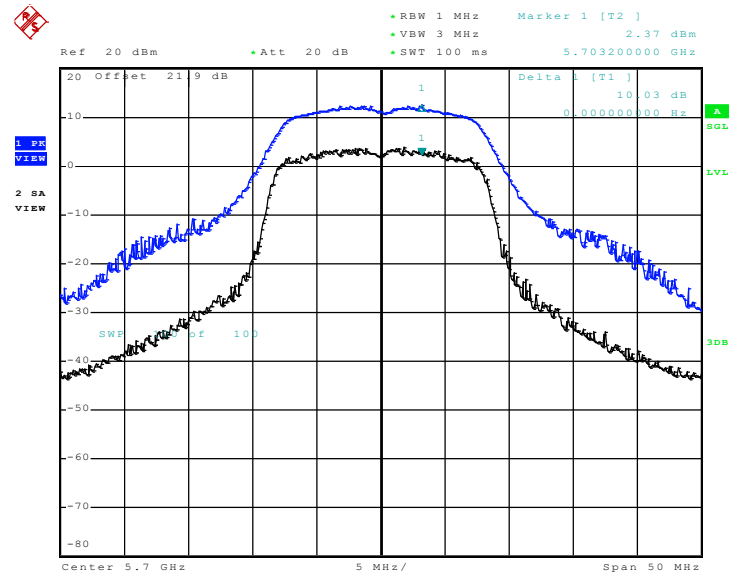


Peak Excursion Ratio Plot on 802.11a Channel 116



Date: 10.FEB.2011 00:22:05

Peak Excursion Ratio Plot on 802.11a Channel 140

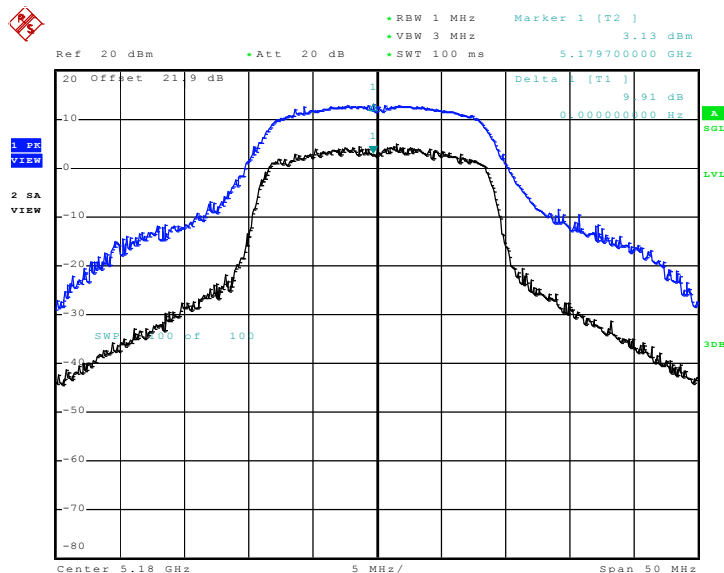


Date: 10.DEC.2010 09:10:49

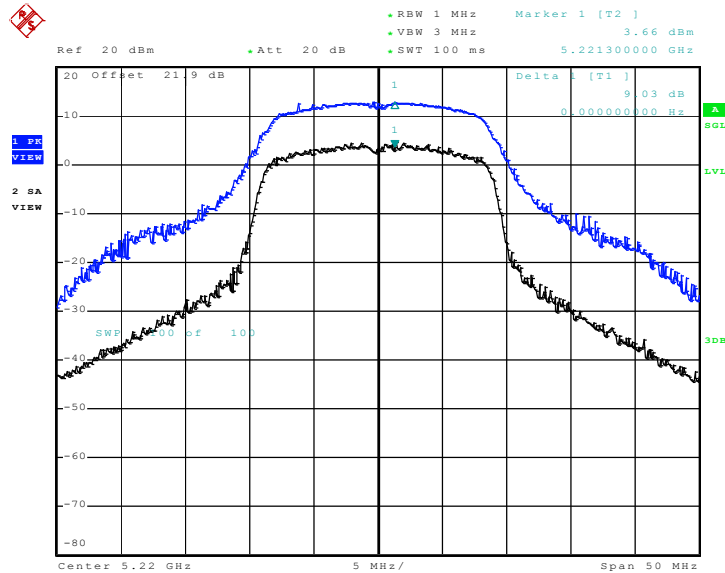


Test Mode :	Mode 10~18	Temperature :	25~27°C
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

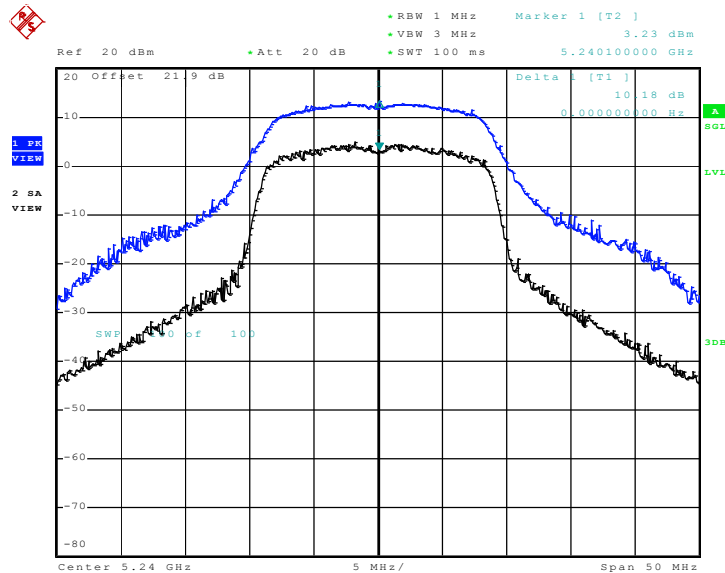
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 36



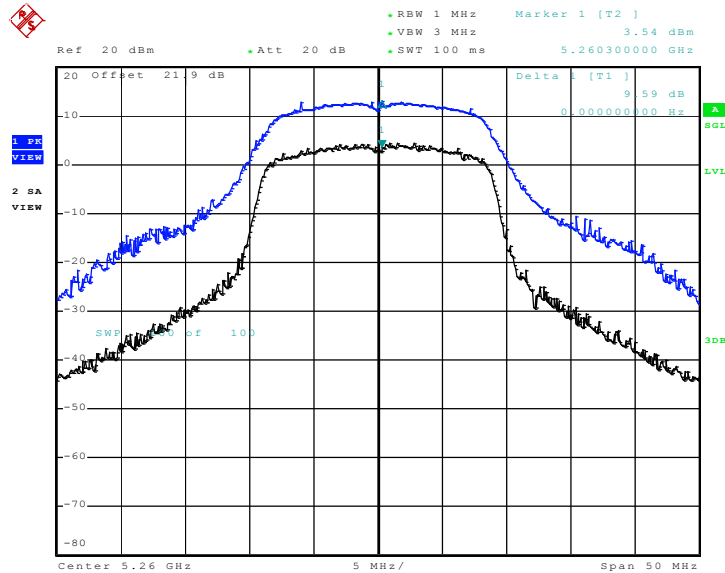
Date: 10.DEC.2010 09:14:29

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


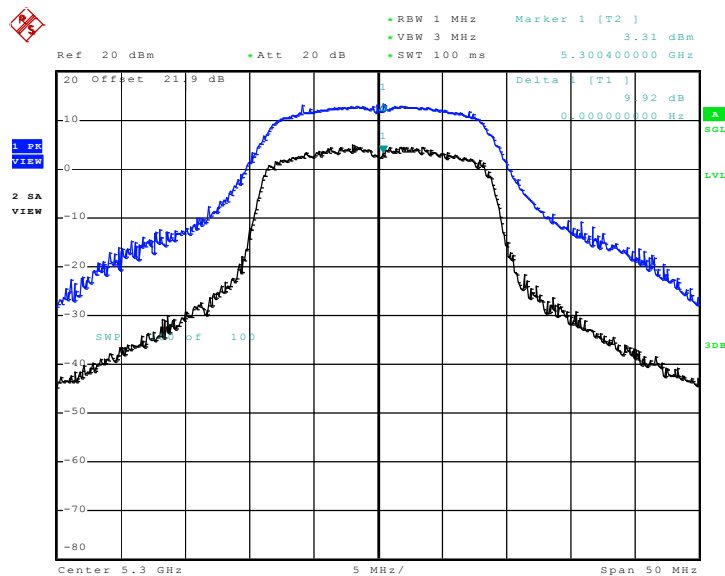
Date: 10.DEC.2010 09:17:12

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


Date: 10.DEC.2010 09:19:46

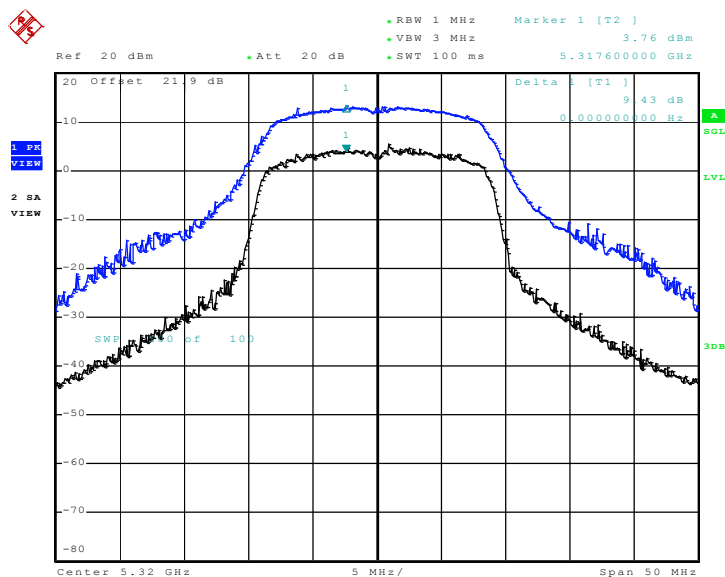
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 52


Date: 10.DEC.2010 09:21:46

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


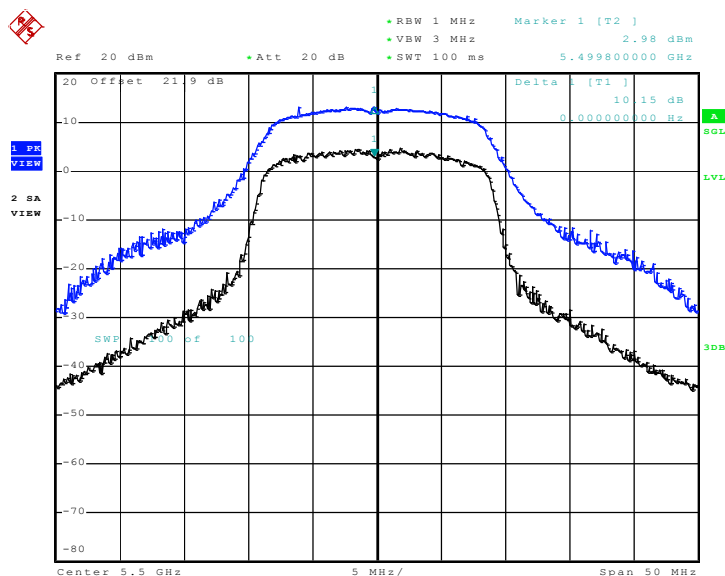
Date: 10.DEC.2010 09:22:31

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

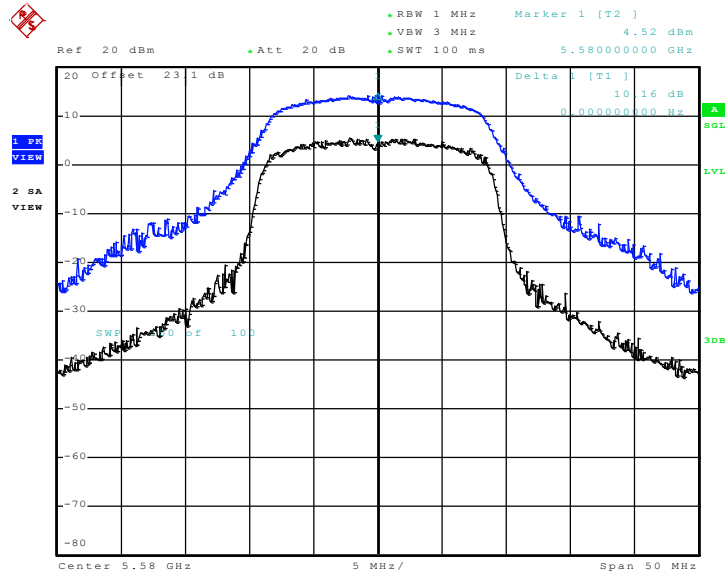


Date: 10.DEC.2010 09:24:23

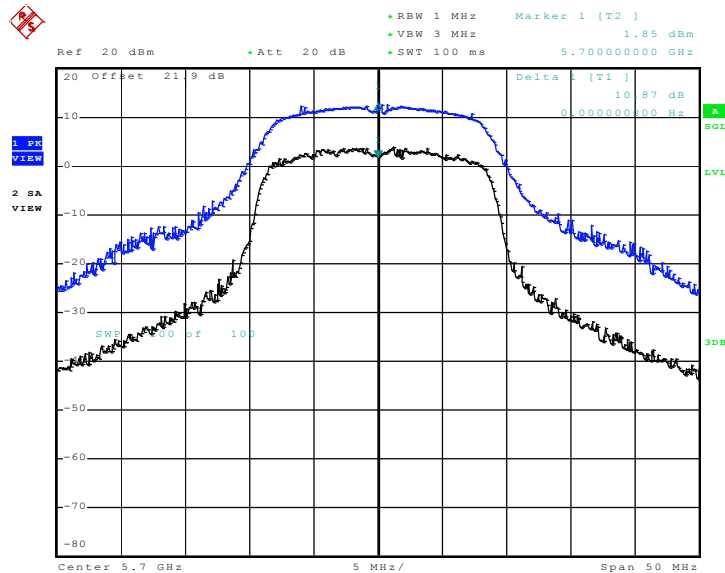
Peak Excursion Ratio Plot on 802.11n (BW 20MHz) Channel 100



Date: 10.DEC.2010 09:25:29

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


Date: 10.FEB.2011 01:14:21

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


Date: 10.DEC.2010 09:27:12

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.

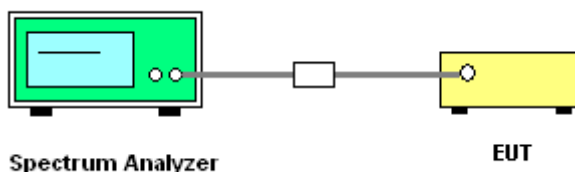
3.10.2 Measuring Instruments

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 1~9	Temperature :	25~27℃
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	Low Frequency	High Frequency	Frequency Stability (ppm)
36	5180	5171.72	5188.28	0.00
44	5220	5211.72	5228.28	0.00
48	5240	5231.72	5248.28	0.00
52	5260	5251.72	5268.28	0.00
60	5300	5291.72	5308.28	0.00
64	5320	5311.72	5328.28	0.00
100	5500	5491.72	5508.28	0.00
116	5580	5571.74	5588.26	0.00
140	5700	5691.72	5708.28	0.00

Test Mode :	Mode 10~18	Temperature :	25~27℃
Test Engineer :	Ken Hsu	Relative Humidity :	54~57%

Channel	Frequency (MHz)	Low Frequency	High Frequency	Frequency Stability (ppm)
36	5180	5171.16	5188.92	7.72
44	5220	5211.12	5228.88	0.00
48	5240	5231.16	5248.88	3.82
52	5260	5251.16	5268.88	3.80
60	5300	5291.12	5308.92	3.77
64	5320	5311.12	5328.88	0.00
100	5500	5491.08	5508.88	-3.64
116	5580	5571.10	5588.82	-7.17
140	5700	5691.12	5708.84	-3.51



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 and it is considered to meet antenna requirement of FCC.

3.11.3 Antenna Gain

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

4 List of Measuring Equipments

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101329	9kHz~30GHz	Apr. 26, 2010	Apr. 25, 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)
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)
System Simulator	R&S	CMU200	117997	N/A	May 14, 2009	May 13, 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.32 dB.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 EP0D0904 as below.