FCC RF Test Report

APPLICANT	:	Honeywell International Inc.
EQUIPMENT	:	99EX Mobile computer
BRAND NAME	:	Honeywell
MODEL NAME	:	99EX
FCC ID	:	HD599EXL0
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	Digital Transmission System (DTS)

The product was received on Dec. 06, 2010 and completely tested on Jan. 04, 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 the compliance with the applicable technical standards.

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

Reviewed by:

Anderson Chiu

Anderson Chiu / Deputy Manager

Testing Laboratory
1190

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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APPENDIX A. PHOTOGRAPHS OF EUT

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR0D0904-02B	Rev. 01	Initial issue of report	Jan. 31, 2011
FR0D0904-02B	Rev. 02	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	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 19.9 dB at 0.478 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.11 dB at 48.90 MHz
3.8	15.203 & 15.247(b)	A8.4	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	HD599EXL0
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	**<2400 MHz ~ 2483.5 MHz>** 802.11b : 19.67 dBm (0.093 W) 802.11g : 24.06 dBm (0.255 W) 802.11n (BW 20MHz) : 24.10 dBm (0.257 W) **<5725 MHz ~ 5850 MHz>** 802.11a : 22.69 dBm (0.186 W) 802.11n (BW 20MHz) : 22.65 dBm (0.184 W)
Antenna Type	802.11b/g/n : PIFA Antenna with gain 2.5 dBi 802.11a/n : PIFA Antenna with gain 3.5 dBi
HW Version	5
SW Version	26.02
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : 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 Digital Transmission System (DTS).
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 1st 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	03CH07HY	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 C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 8

Remark:

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

1.6 Ancillary Equipment List

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

2 Test Configuration of Equipment Under Test

2.1 RF Power

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

Channel	Frequency	802.11b RF Power (dBm)			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	19.55	-	-	-
CH 06	2437 MHz	**19.67**	19.65	19.41	19.41
CH 11	2462 MHz	19.61	-	-	-

Channel	Frequency	802.11g RF Power (dBm)							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	21.65	-	-	-	-	-	-	-
CH 06	2437 MHz	**24.06**	24.04	24.01	23.99	23.54	23.54	22.62	22.75
CH 11	2462 MHz	22.52	-	-	-	-	-	-	-

Channel	Frequency	802.11n (BW 20MHz) RF Power (dBm)							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	21.18	-	-	-	-	-	-	-
CH 06	2437 MHz	**24.10**	23.92	23.94	23.52	23.20	23.38	22.77	21.59
CH 11	2462 MHz	21.59	-	-	-	-	-	-	-

Channel	Frequency	802.11a RF Power (dBm)							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	**22.69**	22.62	22.48	22.30	22.10	21.98	21.51	21.68
CH157	5785 MHz	22.50	22.41	22.24	22.21	22.37	22.14	21.55	21.78
CH165	5825 MHz	22.39	22.31	22.23	22.08	22.10	22.03	21.54	21.24

Channel	Frequency	802.11n (BW 20MHz) RF Power (dBm)							
		6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH149	5745 MHz	**22.65**	22.60	22.33	22.17	22.04	22.00	21.39	20.70
CH157	5785 MHz	22.50	22.30	22.37	22.06	22.07	22.07	21.35	21.18
CH165	5825 MHz	22.32	22.14	22.00	21.72	22.09	21.93	21.47	21.17

Remark: The EUT is programmed to transmit signals continuously for all testing.

2.2 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: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

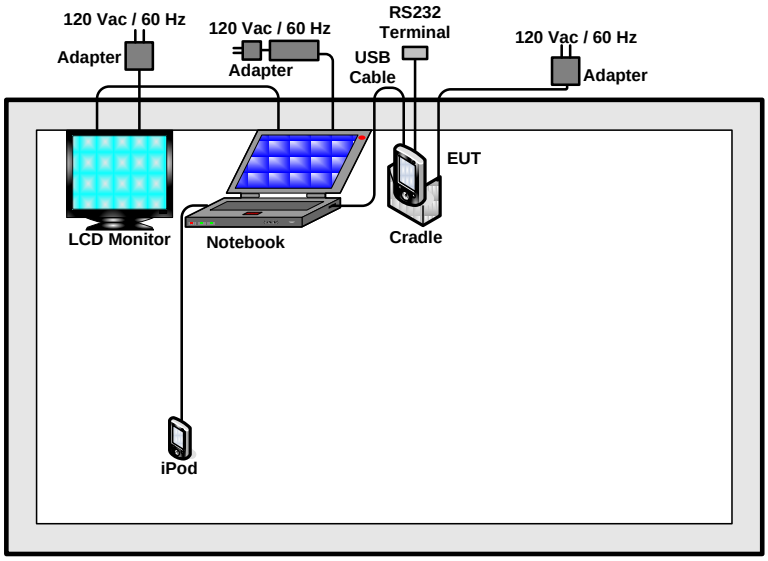
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

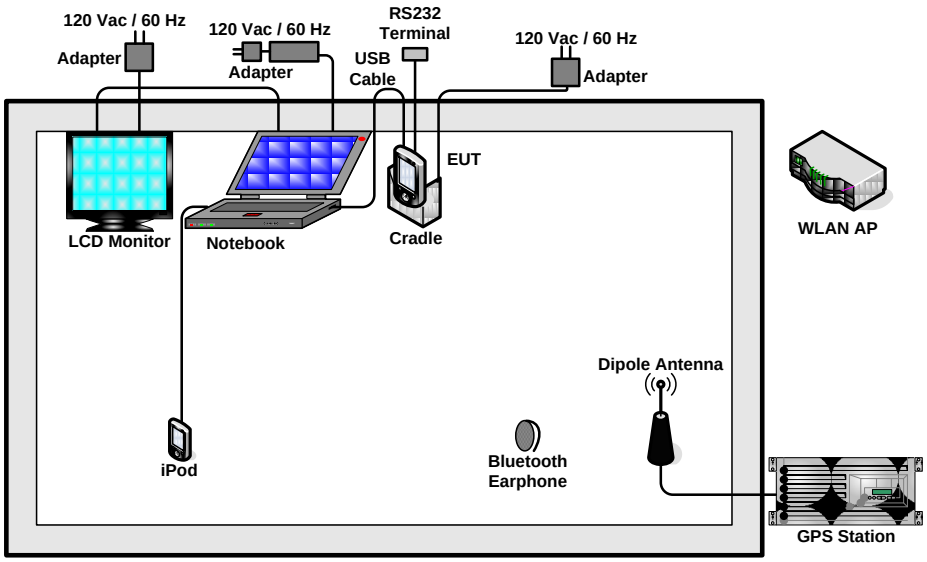
Test Cases		
Test Item	**802.11b (Modulation : DSSS)** **802.11g/n (Modulation : OFDM)**	**802.11a/n (Modulation : OFDM)**
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz + TC Mode 2: 802.11b_CH06_2437 MHz + TC Mode 3: 802.11b_CH11_2462 MHz + TC Mode 4: 802.11g_CH01_2412 MHz + TC Mode 5: 802.11g_CH06_2437 MHz + TC Mode 6: 802.11g_CH11_2462 MHz + TC Mode 7: 802.11n_CH01_2412 MHz (BW 20M) + TC Mode 8: 802.11n_CH06_2437 MHz (BW 20M) + TC Mode 9: 802.11n_CH11_2462 MHz (BW 20M) + TC	Mode 10: 802.11a_CH149_5745 MHz + TC Mode 11: 802.11a_CH157_5785 MHz + TC Mode 12: 802.11a_CH165_5825 MHz + TC Mode 13: 802.11n_CH149_5745 MHz (BW 20M) + TC Mode 14: 802.11n_CH157_5785 MHz (BW 20M) + TC Mode 15: 802.11n_CH165_5825 MHz (BW 20M) + TC
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (2.4G) 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.		

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 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 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

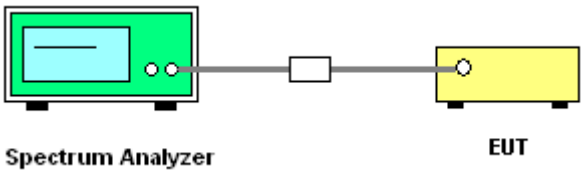
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1~3	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.04	0.5	Pass
06	2437	9.04	0.5	Pass
11	2462	9.04	0.5	Pass

Test Mode :	Mode 4~6	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.64	0.5	Pass
06	2437	15.66	0.5	Pass
11	2462	15.66	0.5	Pass

Test Mode :	Mode 7~9	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.80	0.5	Pass
06	2437	16.50	0.5	Pass
11	2462	15.32	0.5	Pass

Test Mode :	Mode 10~12	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.65	0.5	Pass
157	5785	15.50	0.5	Pass
165	5825	15.30	0.5	Pass

Test Mode :	Mode 13~15	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MH) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.30	0.5	Pass
157	5785	15.60	0.5	Pass
165	5825	15.15	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1~3	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.08	Pass
06	2437	14.12	Pass
11	2462	14.16	Pass

Test Mode :	Mode 4~6	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.72	Pass
06	2437	19.00	Pass
11	2462	18.68	Pass

Test Mode :	Mode 7~9	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.76	Pass
06	2437	19.92	Pass
11	2462	19.68	Pass

Test Mode :	Mode 10~12	Temperature :	22~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	40~43%

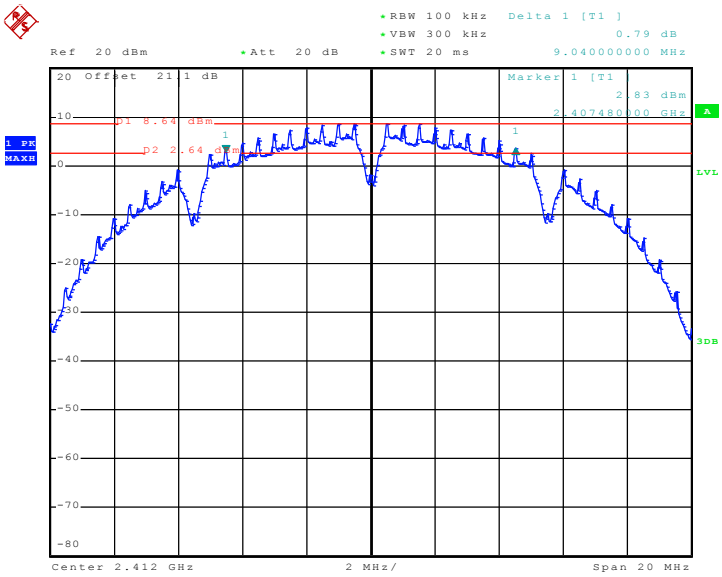
Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	19.30	Pass
157	5785	19.25	Pass
165	5825	19.40	Pass

Test Mode :	Mode 13~15	Temperature :	22~24℃
Test Engineer :	Ken Hsu	Relative Humidity :	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	20.35	Pass
157	5785	20.35	Pass
165	5825	20.35	Pass

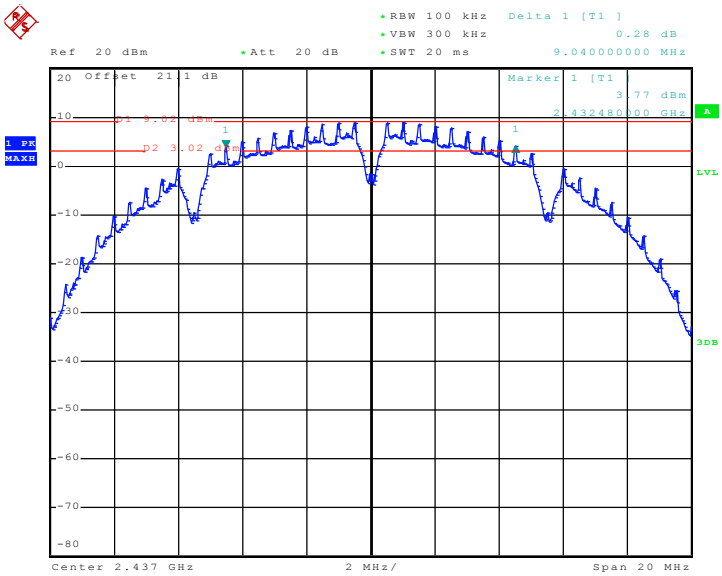
3.1.7 Test Result of 6dB Bandwidth Plots

Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



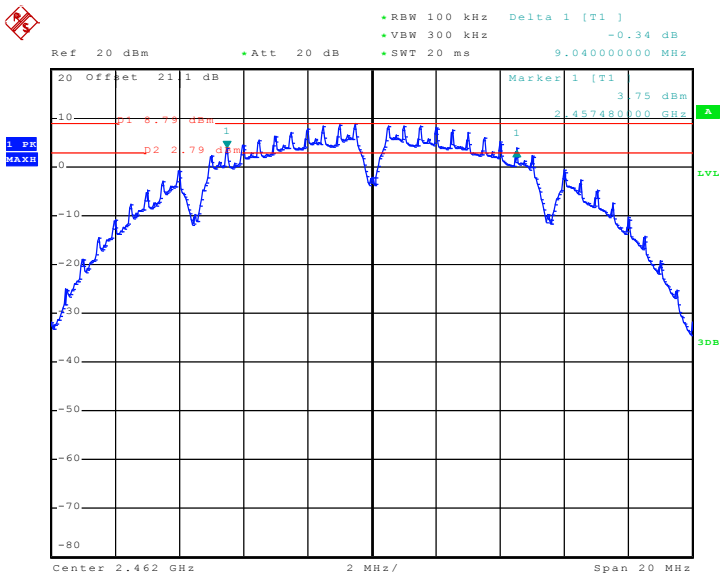
Date: 9.DEC.2010 11:11:03

Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



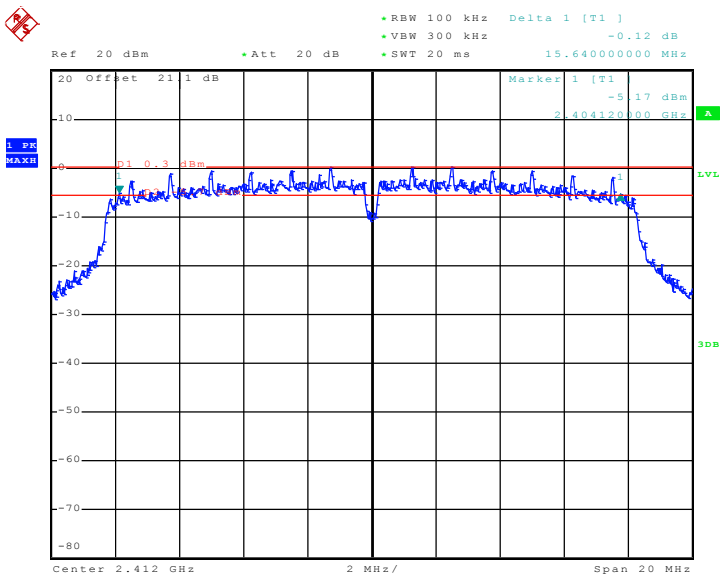
Date: 9.DEC.2010 11:26:06

Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



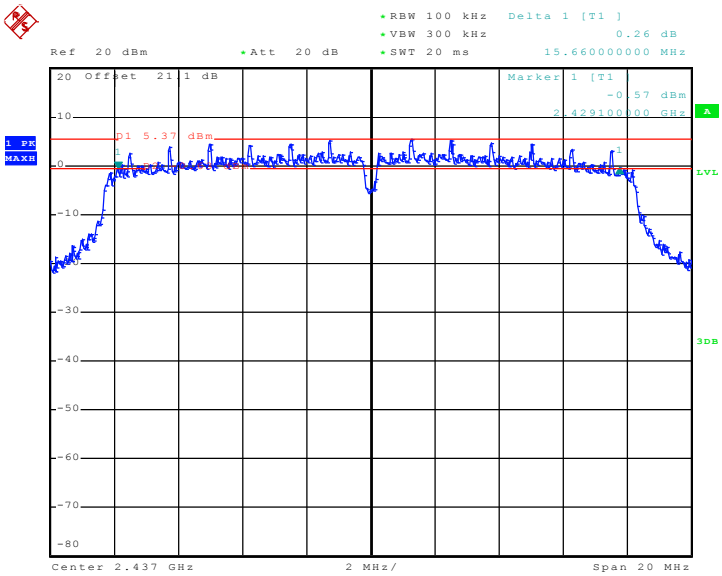
Date: 9.DEC.2010 11:37:38

Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



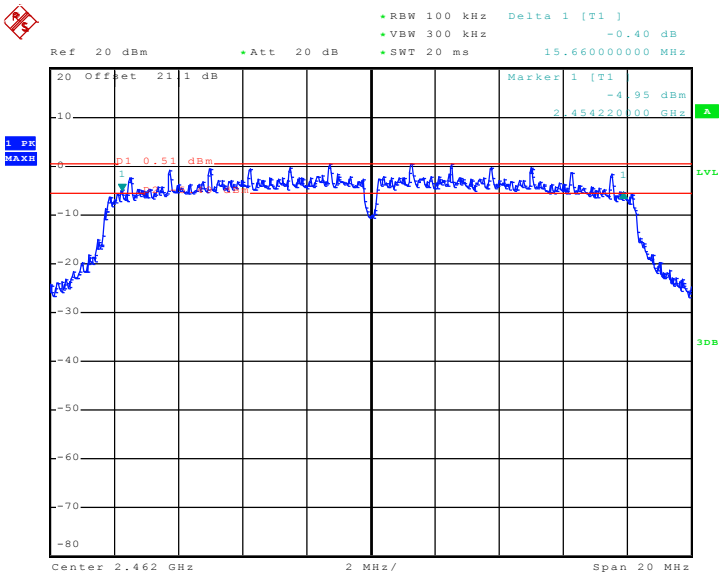
Date: 9.DEC.2010 11:59:48

Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



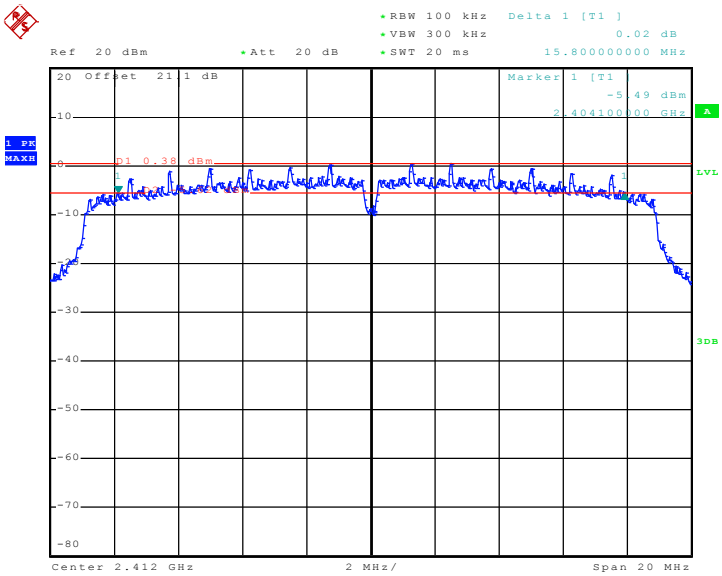
Date: 9.DEC.2010 12:34:46

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



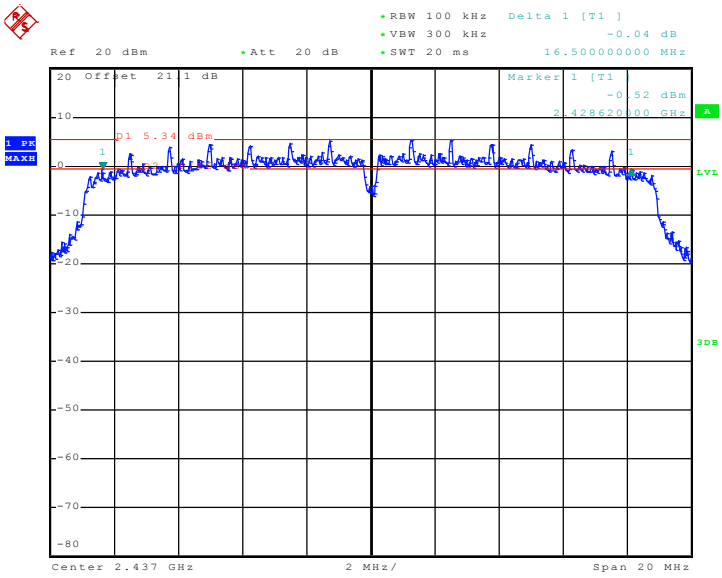
Date: 9.DEC.2010 14:30:36

Mode 7 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 01



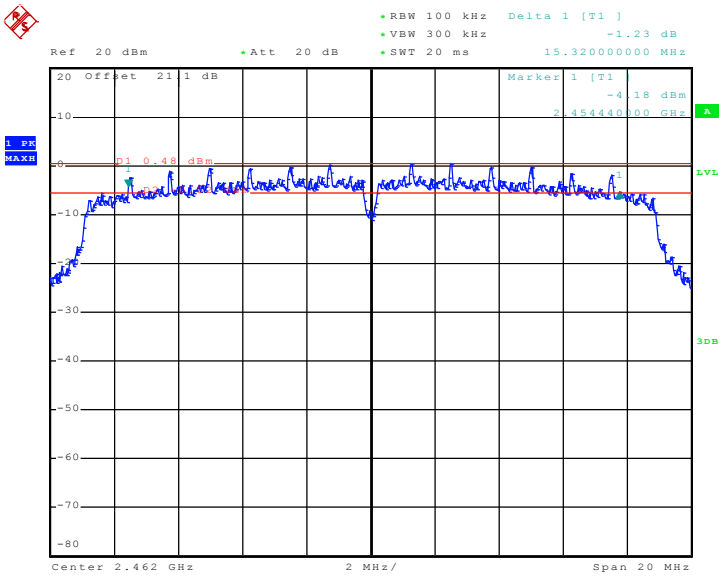
Date: 9.DEC.2010 13:45:56

Mode 8 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 06



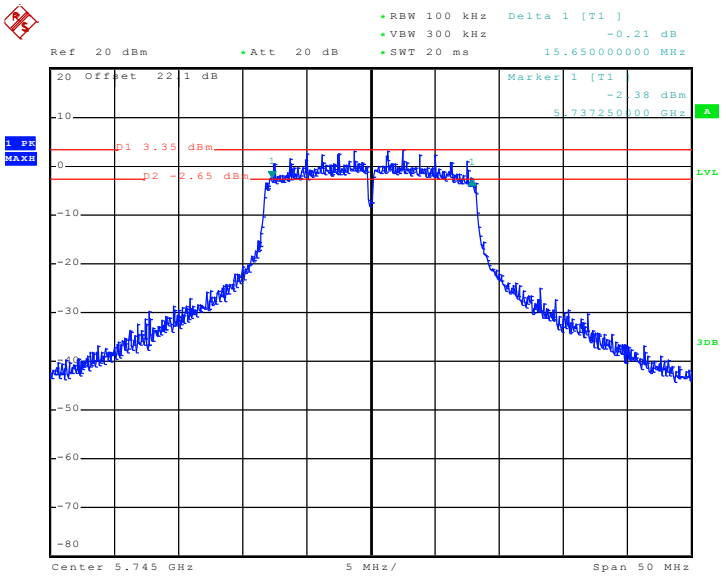
Date: 9.DEC.2010 14:03:13

Mode 9 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 11



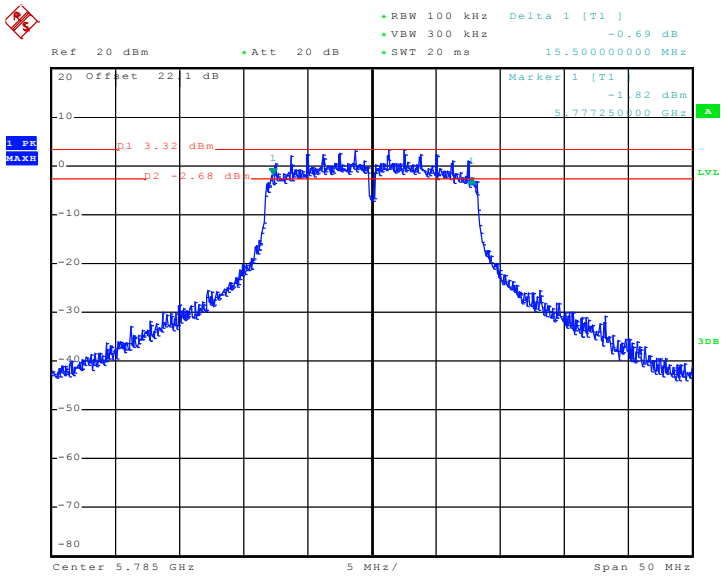
Date: 9.DEC.2010 14:10:52

Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149



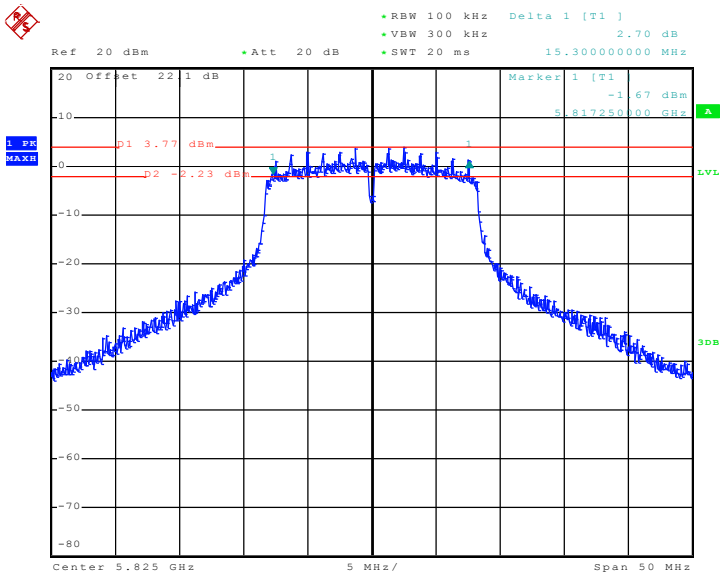
Date: 9.DEC.2010 14:51:29

Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157



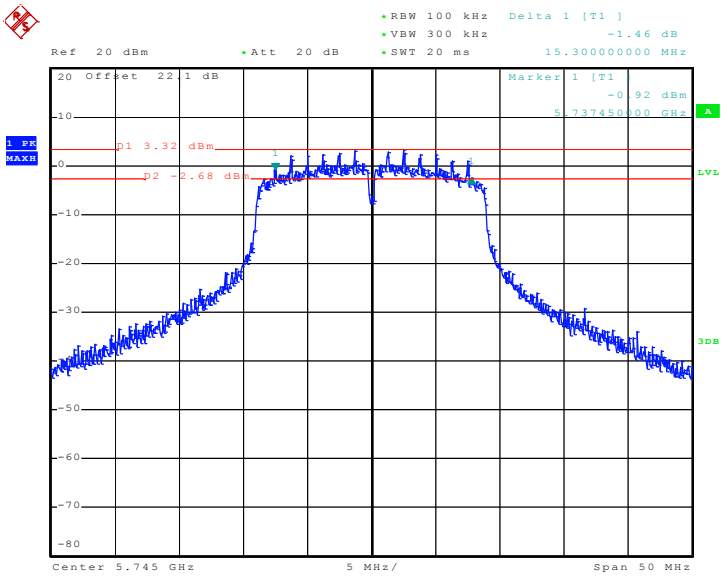
Date: 9.DEC.2010 15:13:36

Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165



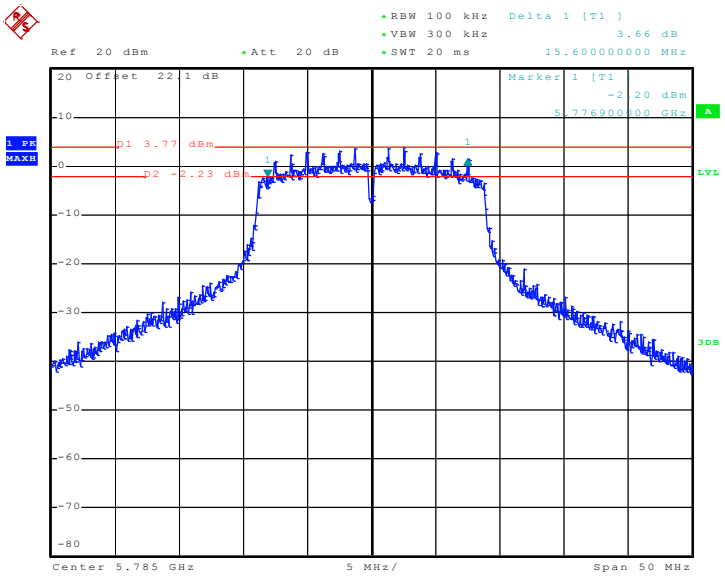
Date: 9.DEC.2010 15:26:14

Mode 13: 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 149



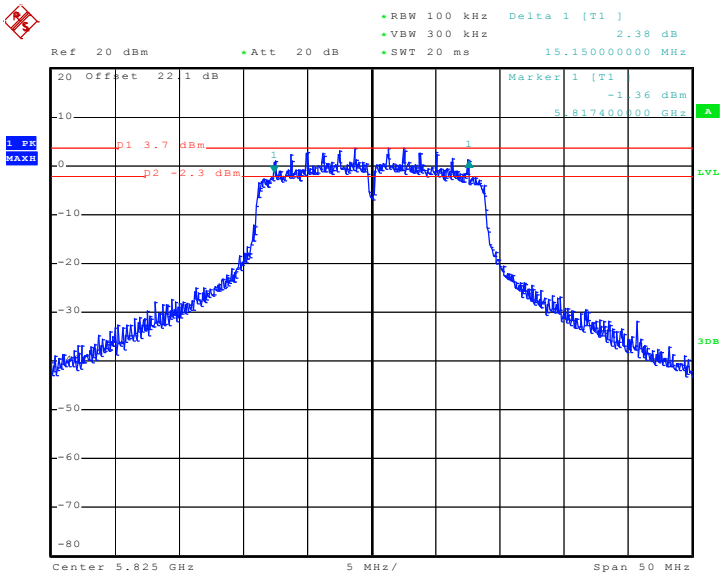
Date: 9.DEC.2010 15:39:46

Mode 14: 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 157



Date: 9.DEC.2010 15:43:23

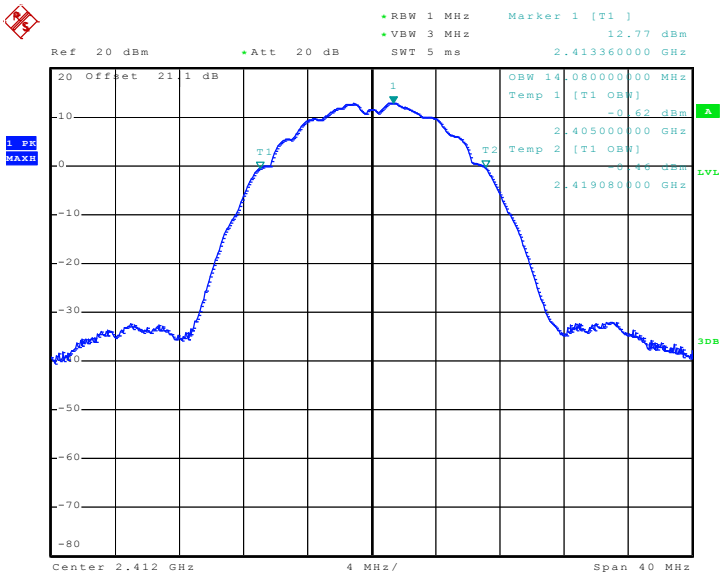
Mode 15: 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 165



Date: 9.DEC.2010 15:46:34

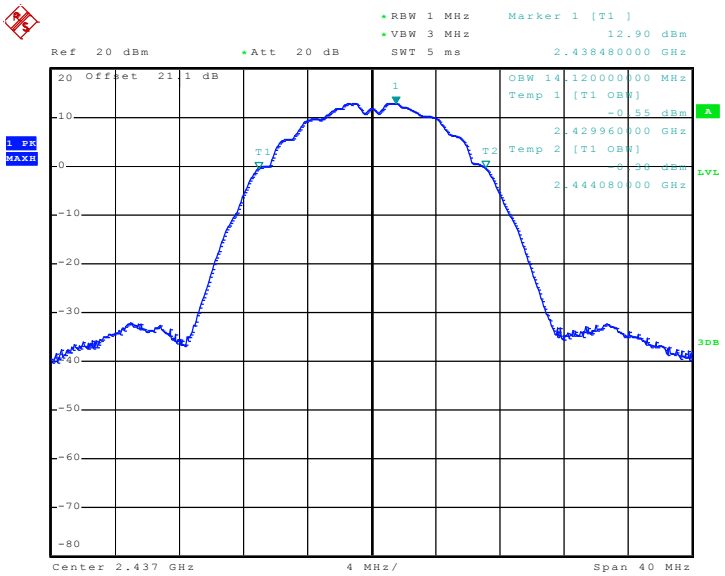
3.1.8 Test Result of 99% Bandwidth Plots

Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



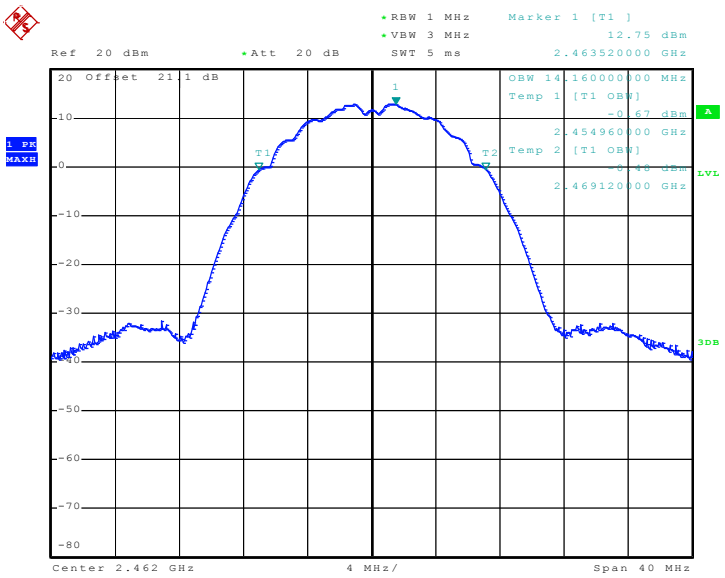
Date: 9.DEC.2010 11:13:19

Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



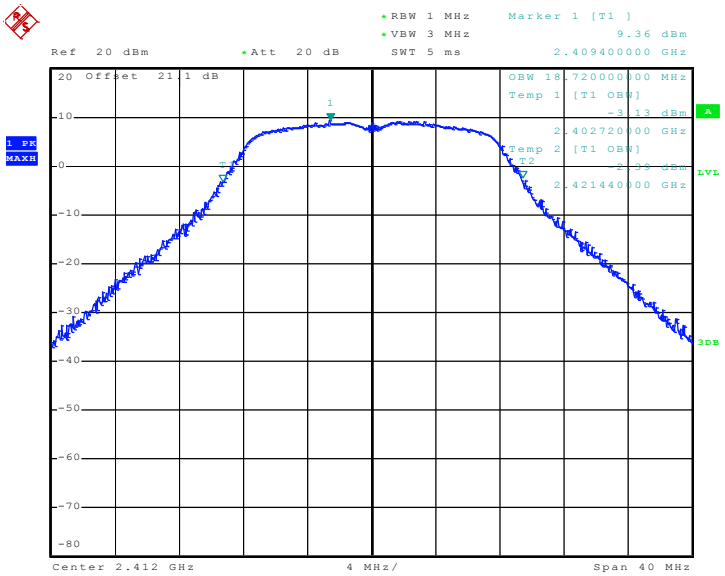
Date: 9.DEC.2010 11:26:37

Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



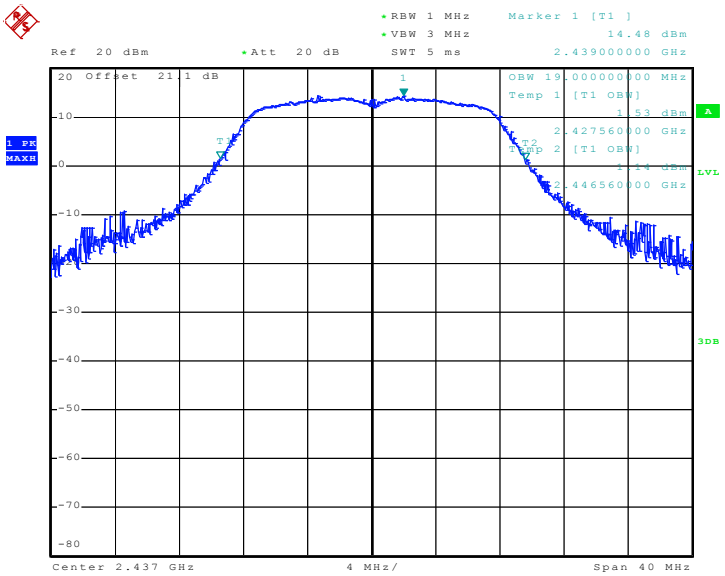
Date: 9.DEC.2010 11:39:02

Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



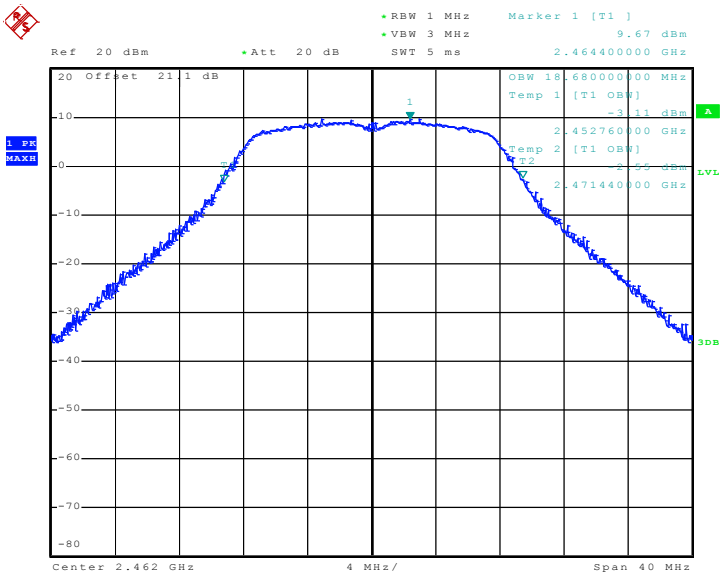
Date: 9.DEC.2010 12:01:39

Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



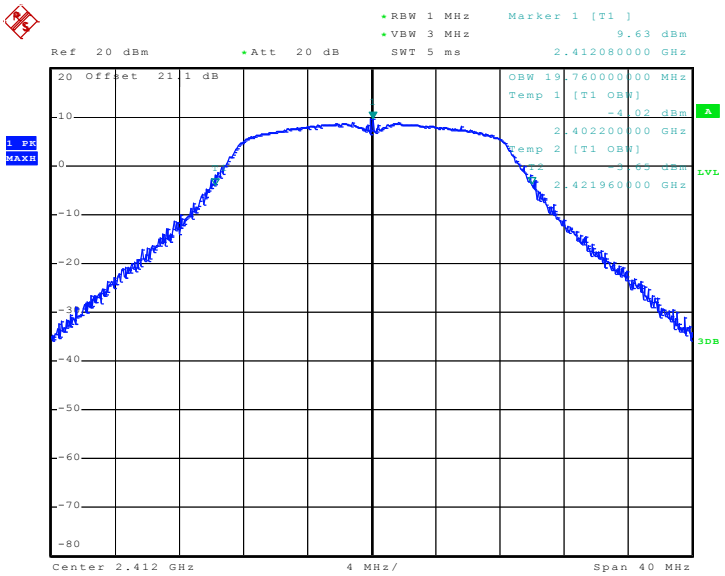
Date: 9.DEC.2010 12:35:29

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



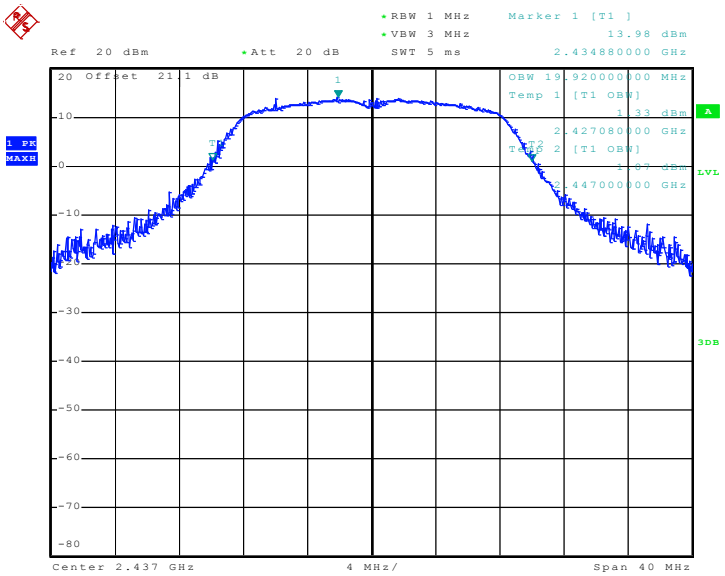
Date: 9.DEC.2010 13:32:39

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 01



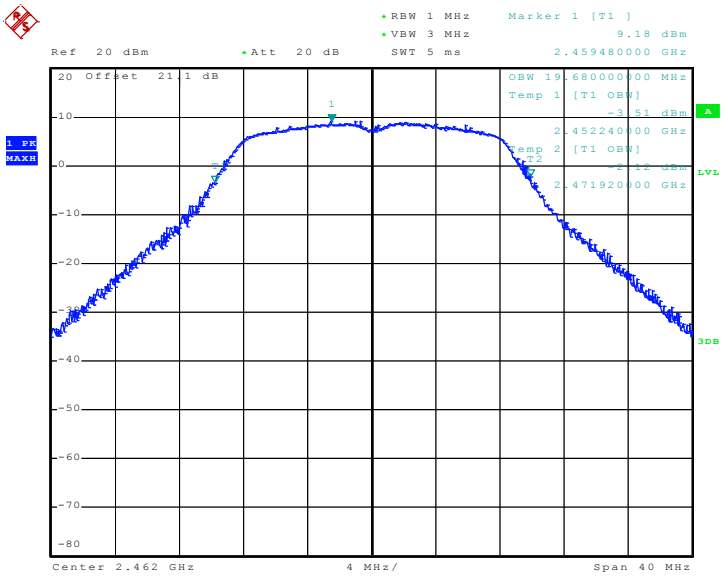
Date: 9.DEC.2010 13:47:58

Mode 8 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 06



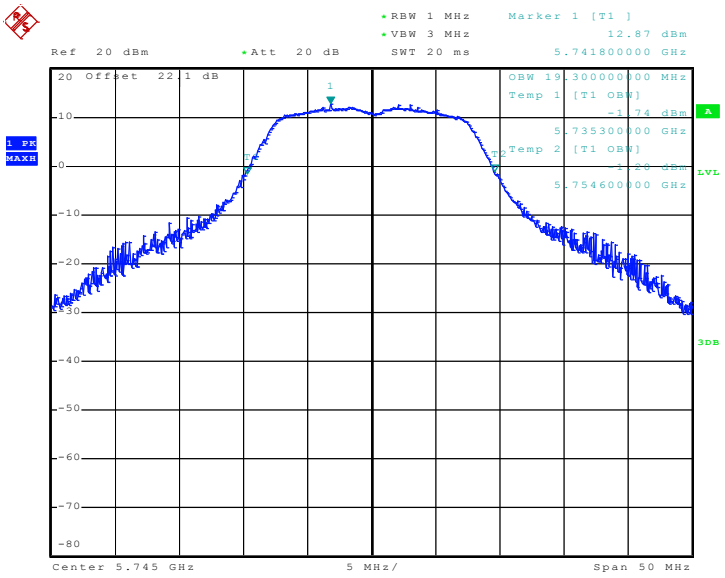
Date: 9.DEC.2010 14:08:22

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 11



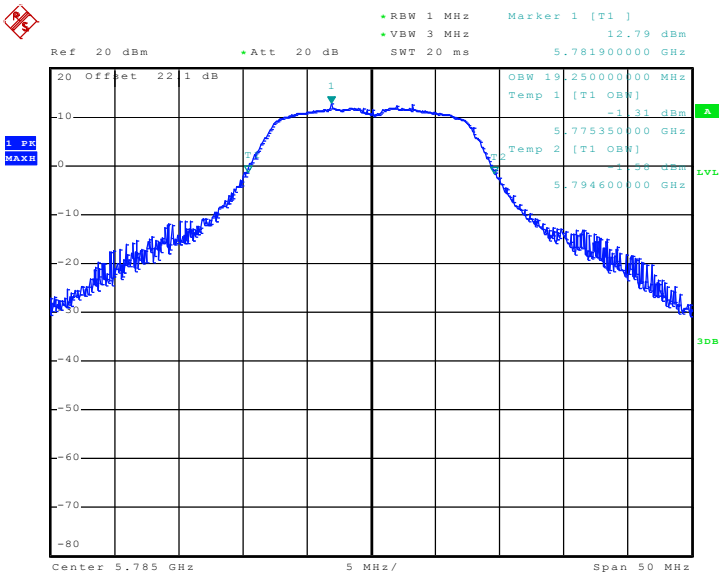
Date: 9.DEC.2010 14:11:22

Mode 10: 99% Occupied Bandwidth Plot on 802.11a Channel 149



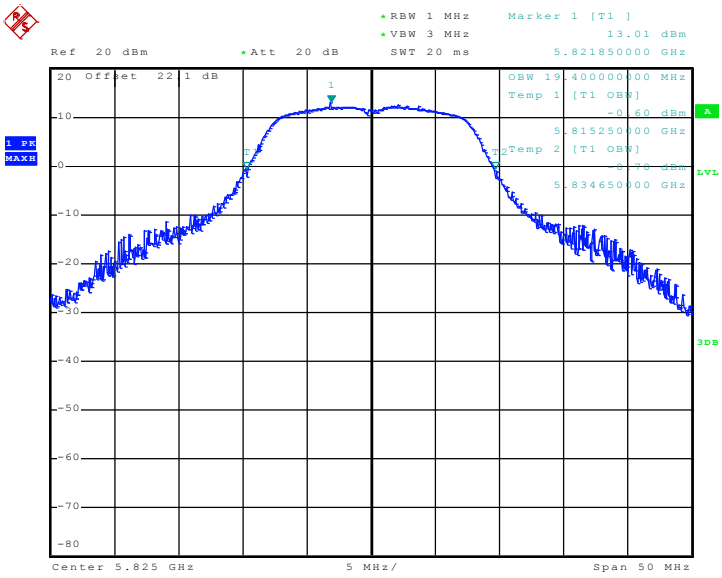
Date: 9.DEC.2010 14:53:56

Mode 11: 99% Occupied Bandwidth Plot on 802.11a Channel 157



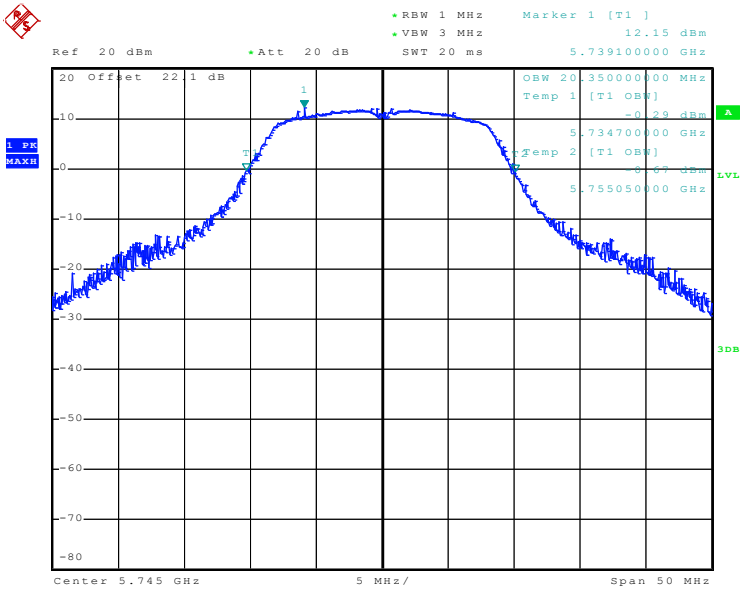
Date: 9.DEC.2010 15:14:18

Mode 12: 99% Occupied Bandwidth Plot on 802.11a Channel 165



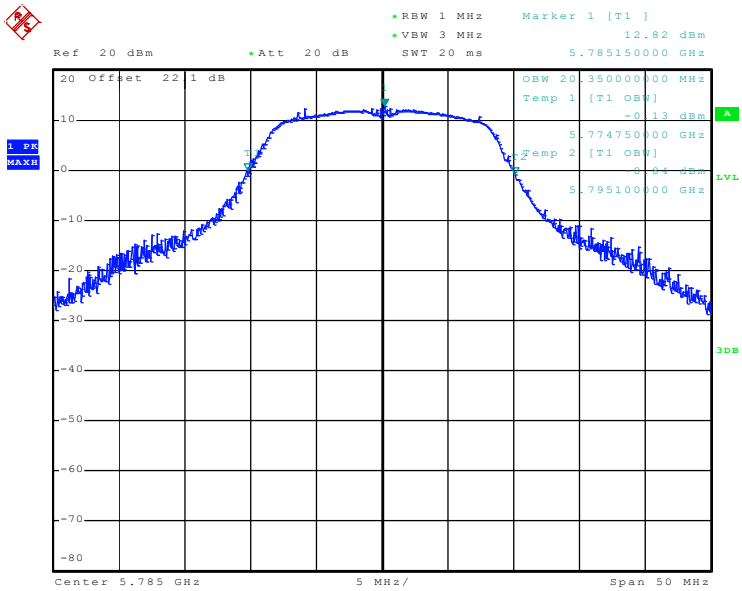
Date: 9.DEC.2010 15:27:22

Mode 13: 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 149



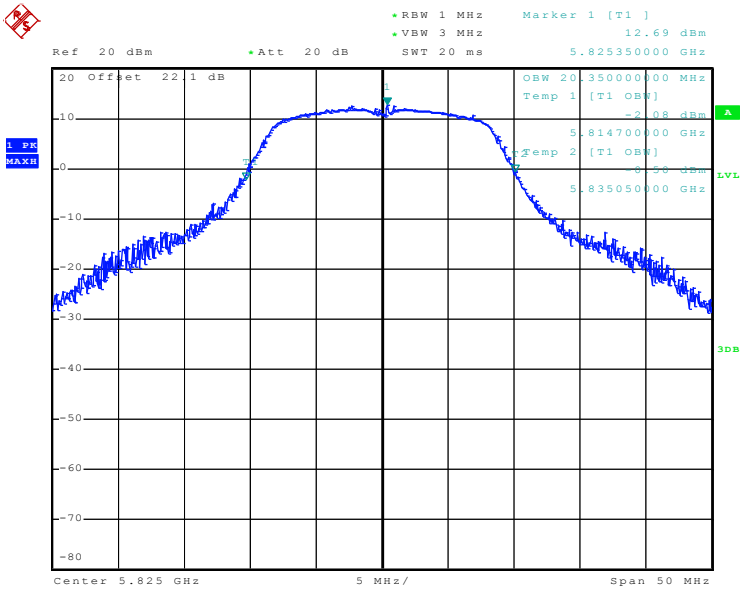
Date: 9.DEC.2010 15:40:46

Mode 14: 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 157



Date: 9.DEC.2010 15:43:54

Mode 15: 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 165



Date: 9.DEC.2010 15:47:33

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

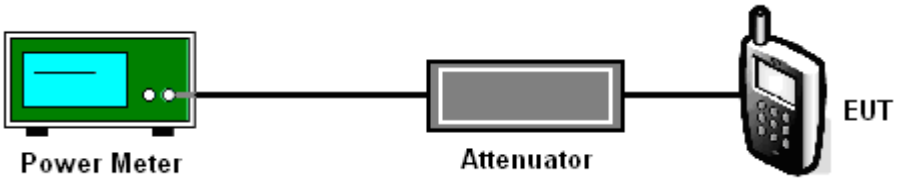
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1~3	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.55	30	Pass
06	2437	19.67	30	Pass
11	2462	19.61	30	Pass

Test Mode :	Mode 4~6	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.65	30	Pass
06	2437	24.06	30	Pass
11	2462	22.52	30	Pass

Test Mode :	Mode 7~9	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.18	30	Pass
06	2437	24.10	30	Pass
11	2462	21.59	30	Pass

Test Mode :	Mode 10~12	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	22.69	30	Pass
157	5785	22.50	30	Pass
165	5825	22.39	30	Pass

Test Mode :	Mode 13~15	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	22.65	30	Pass
157	5785	22.50	30	Pass
165	5825	22.32	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.3.2 Measuring Instruments

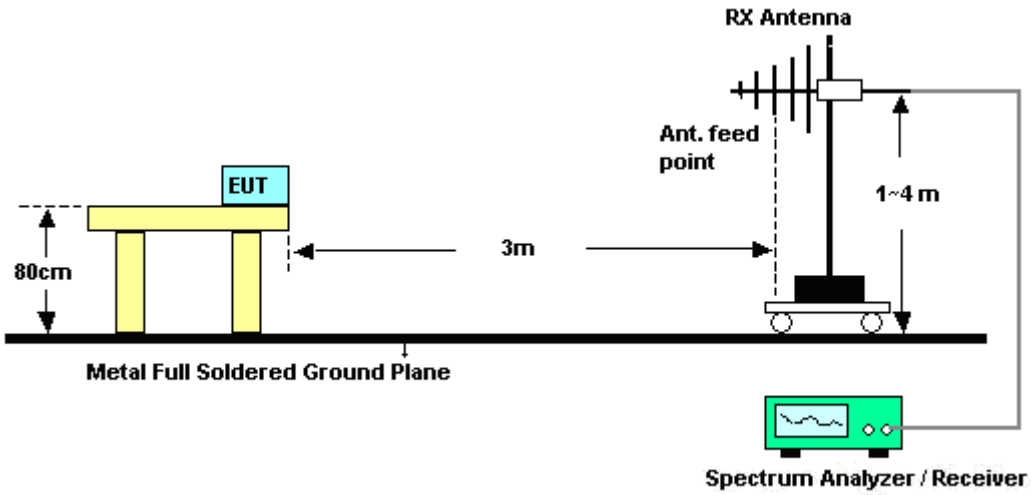
See list of measuring instruments of this test report.

3.3.3 Test Procedures

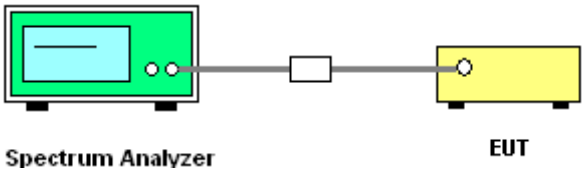
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	**Temperature :**	22~23°C
Test Band :	802.11b	**Relative Humidity :**	49~50%
Test Channel :	01	**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
2383.34	57.13	-16.87	74.00	52.79	32.16	6.03	33.85	100	293	Peak
2383.34	45.44	-8.56	54.00	41.10	32.16	6.03	33.85	100	293	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
2388.66	50.19	-23.81	74.00	45.83	32.18	6.03	33.85	100	7	Peak
2388.66	37.02	-16.98	54.00	32.66	32.18	6.03	33.85	100	7	Average

Test Mode :	Mode 3	**Temperature :**	22~23°C
Test Band :	802.11b	**Relative Humidity :**	49~50%
Test Channel :	11	**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
2499.05	55.56	-18.44	74.00	50.98	32.30	6.18	33.90	122	293	Peak
2499.05	43.02	-10.98	54.00	38.44	32.30	6.18	33.90	122	293	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
2483.85	50.18	-23.82	74.00	45.62	32.28	6.18	33.90	102	8	Peak
2483.85	35.91	-18.09	54.00	31.35	32.28	6.18	33.90	102	8	Average

Test Mode :	Mode 4	**Temperature :**	22~23°C
Test Band :	802.11g	**Relative Humidity :**	49~50%
Test Channel :	01	**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
2390.00	61.70	-12.30	74.00	57.34	32.18	6.03	33.85	101	293	Peak
2390.00	42.53	-11.47	54.00	38.17	32.18	6.03	33.85	101	293	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
2390.00	52.07	-21.93	74.00	47.71	32.18	6.03	33.85	100	128	Peak
2390.00	36.39	-17.61	54.00	32.03	32.18	6.03	33.85	100	128	Average

Test Mode :	Mode 6	**Temperature :**	22~23°C
Test Band :	802.11g	**Relative Humidity :**	49~50%
Test Channel :	11	**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
2483.85	58.64	-15.36	74.00	54.08	32.28	6.18	33.90	100	294	Peak
2483.85	41.57	-12.43	54.00	37.01	32.28	6.18	33.90	100	294	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	51.31	-22.69	74.00	46.75	32.28	6.18	33.90	100	10	Peak
2483.66	36.60	-17.40	54.00	32.04	32.28	6.18	33.90	100	10	Average

Test Mode :	Mode 7	**Temperature :**	22~23°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	49~50%
Test Channel :	01	**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
2389.61	63.35	-10.65	74.00	58.99	32.18	6.03	33.85	125	295	Peak
2389.61	44.03	-9.97	54.00	39.67	32.18	6.03	33.85	125	295	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
2390.00	51.07	-22.93	74.00	46.71	32.18	6.03	33.85	100	128	Peak
2390.00	35.39	-18.61	54.00	31.03	32.18	6.03	33.85	100	128	Average

Test Mode :	Mode 9	**Temperature :**	22~23°C
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	49~50%
Test Channel :	11	**Test Engineer :**	Ivan Jiang

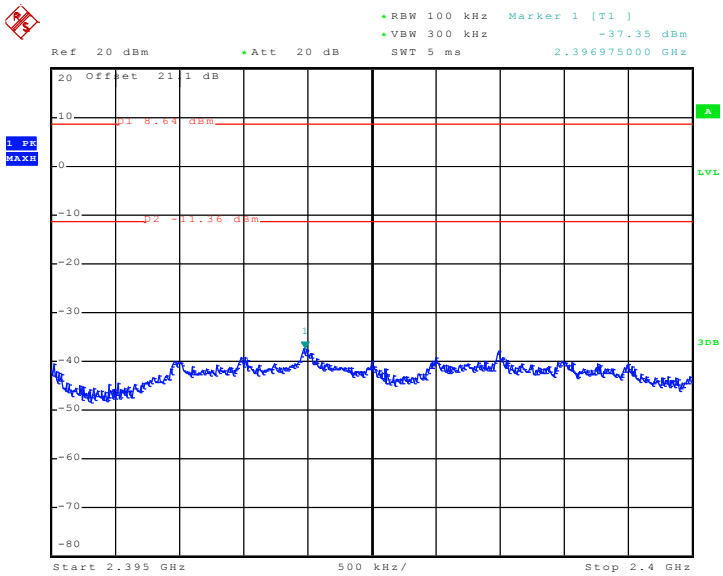
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.50	61.26	-12.74	74.00	56.70	32.28	6.18	33.90	122	293	Peak
2483.50	43.28	-10.72	54.00	38.72	32.28	6.18	33.90	122	293	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
2483.50	54.75	-19.25	74.00	50.19	32.28	6.18	33.90	200	320	Peak
2483.50	38.31	-15.69	54.00	33.75	32.28	6.18	33.90	200	320	Average

3.3.6 Test Result of Conducted Band Edges

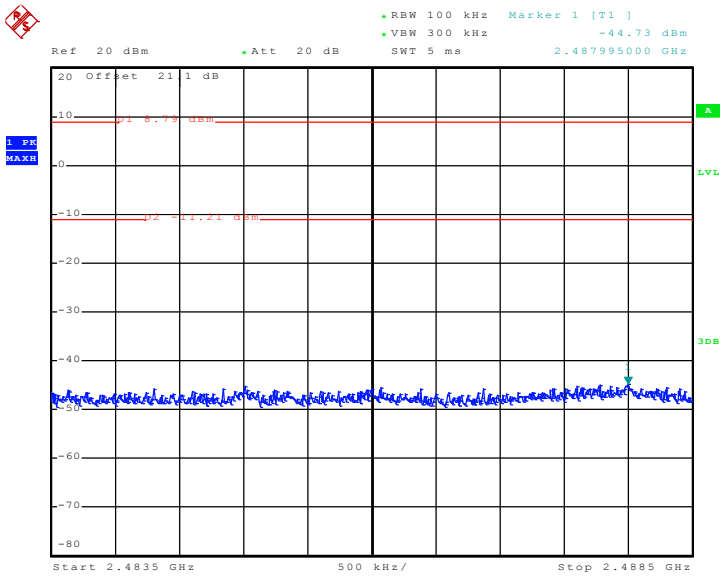
Test Mode :	Mode 1 and 3	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	40~43%
Test Channel :	01 and 11	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11b Channel 01



Date: 9.DEC.2010 11:12:27

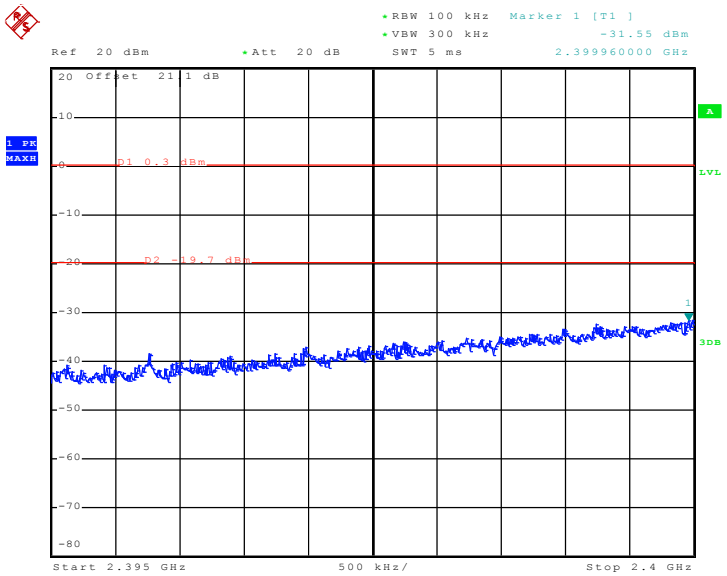
High Band Edge Plot on 802.11b Channel 11



Date: 9.DEC.2010 11:38:36

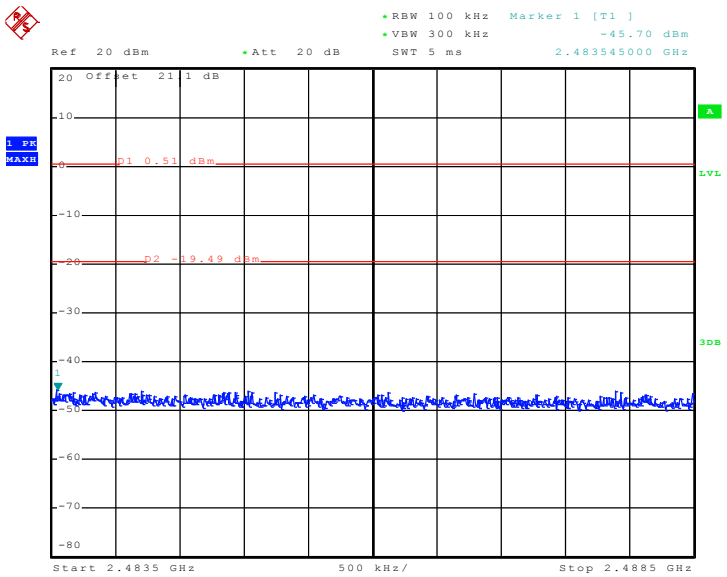
Test Mode :	Mode 4 and 6	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	40~43%
Test Channel :	01 and 11	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11g Channel 01



Date: 9.DEC.2010 12:01:13

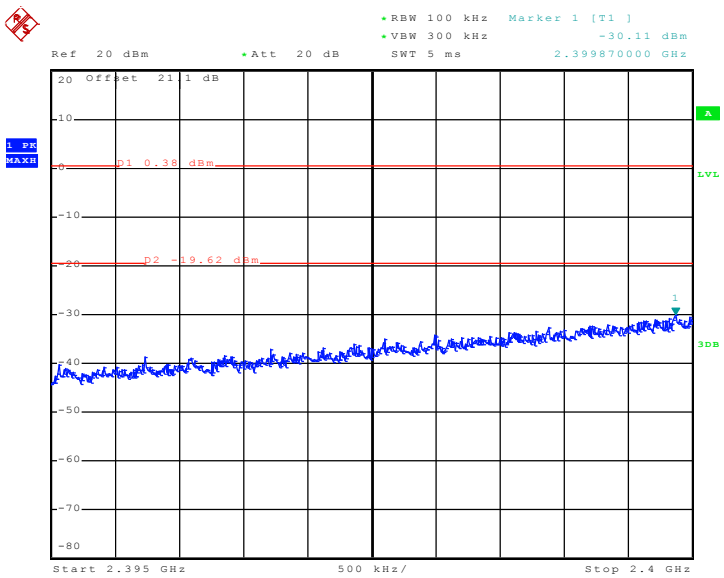
High Band Edge Plot on 802.11g Channel 11



Date: 9.DEC.2010 14:31:27

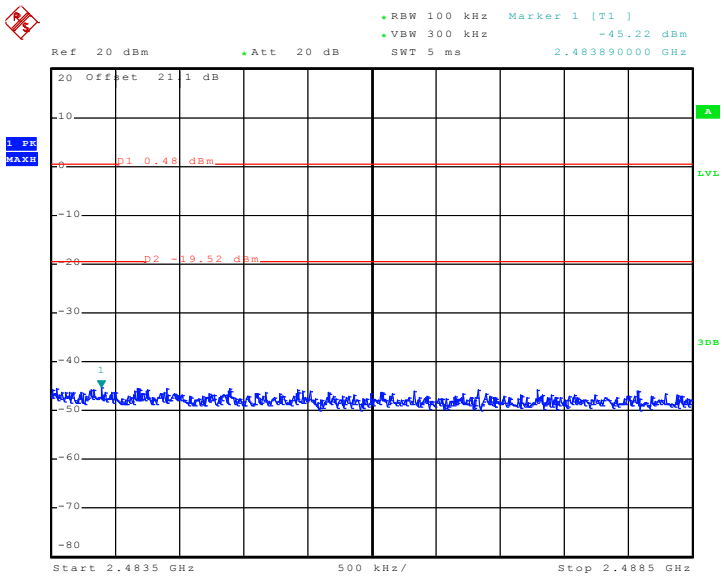
Test Mode :	Mode 7 and 9	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	40~43%
Test Channel :	01 and 11	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01



Date: 9.DEC.2010 13:47:31

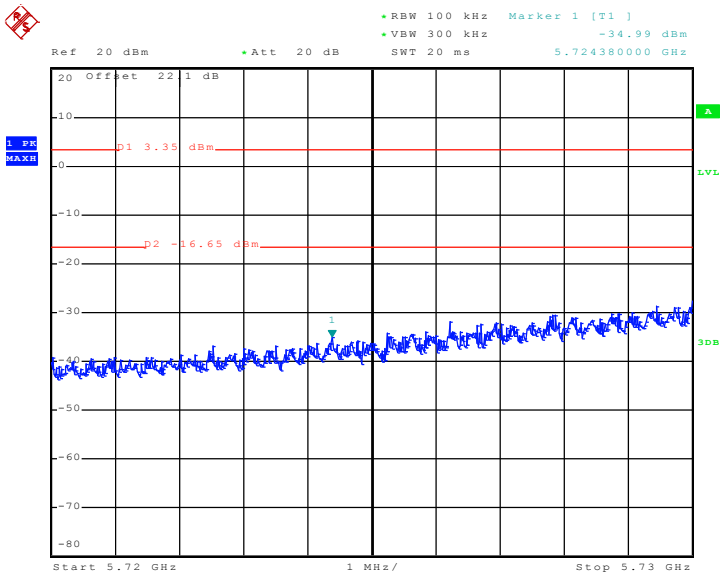
High Band Edge Plot on 802.11n (BW 20MHz) Channel 11



Date: 9.DEC.2010 14:12:07

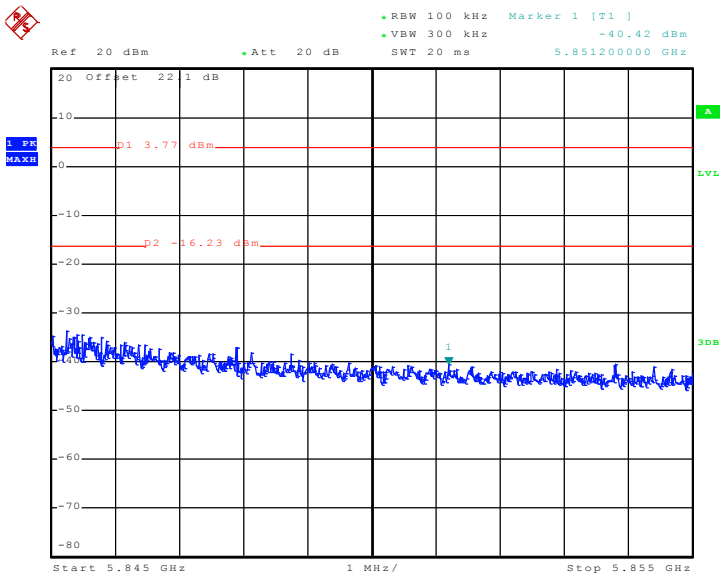
Test Mode :	Mode 10 and 12	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	40~43%
Test Channel :	149 and 165	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11a Channel 149



Date: 9.DEC.2010 14:51:58

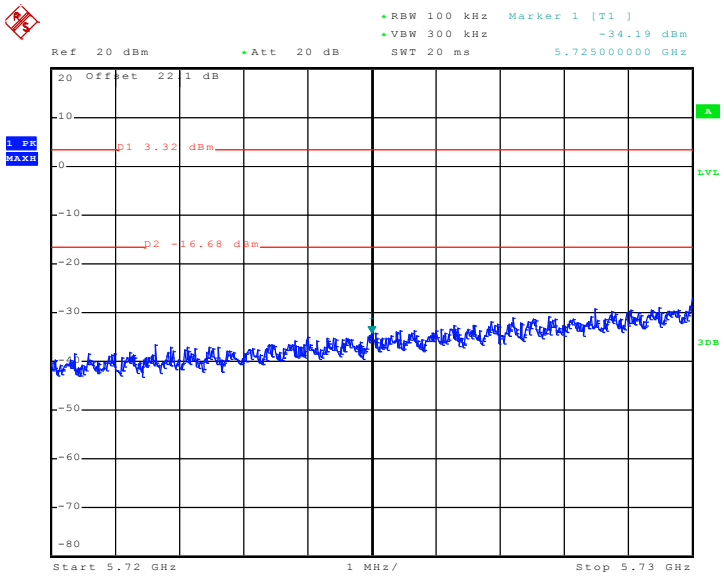
High Band Edge Plot on 802.11a Channel 165



Date: 9.DEC.2010 15:26:56

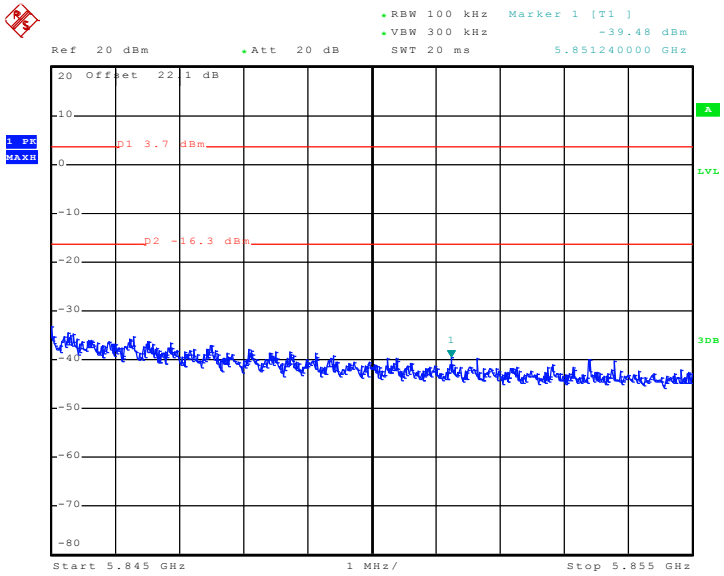
Test Mode :	Mode 13 and 15	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	40~43%
Test Channel :	149 and 165	**Test Engineer :**	Ken Hsu

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 149



Date: 9.DEC.2010 15:40:20

High Band Edge Plot on 802.11n (BW 20MHz) Channel 165



Date: 9.DEC.2010 15:47:07

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

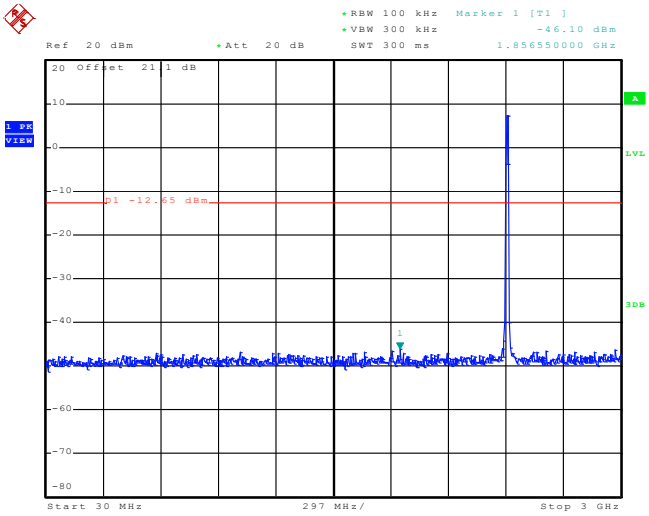
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

3.4.4 Test Setup

3.4.5 Test Result

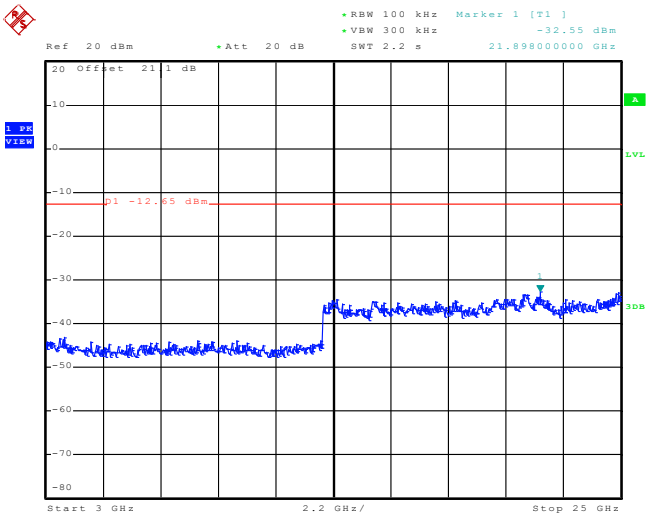
Test Mode :	Mode 1~3	**Temperature :**	22~24℃
Test Band :	802.11b	**Relative Humidity :**	40~43%
Test Channel :	01, 06, 11	**Test Engineer :**	Ken Hsu

Mode 1: Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz



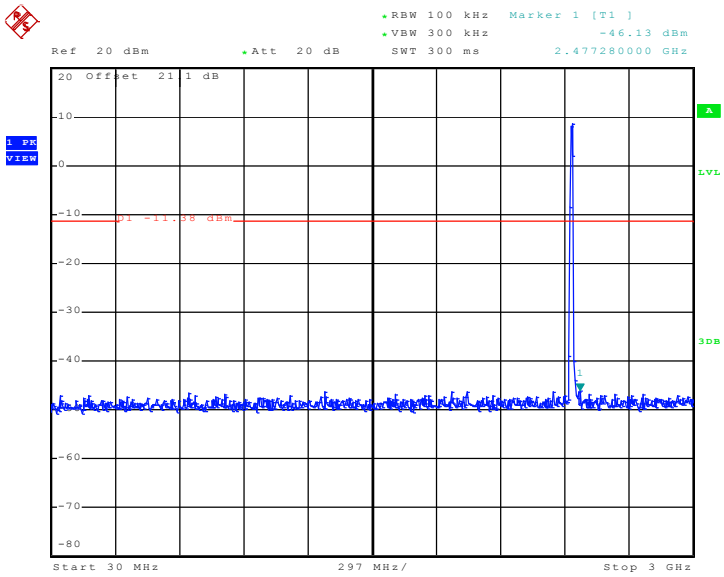
Date: 9.DEC.2010 14:23:20

Mode 1: Conducted Spurious Emission Plot on 802.11b between 3 GHz ~25 GHz



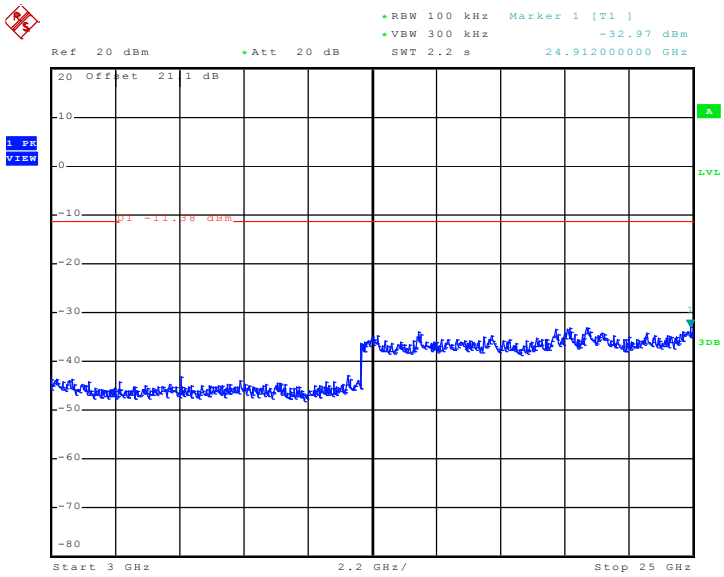
Date: 9.DEC.2010 14:23:38

Mode 2: Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz



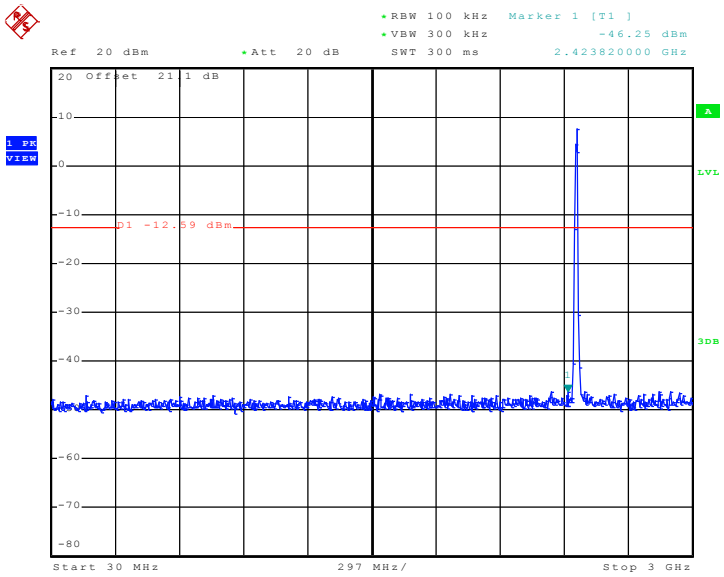
Date: 9.DEC.2010 14:24:10

Mode 2: Conducted Spurious Emission Plot on 802.11b between 3 GHz ~ 25 GHz



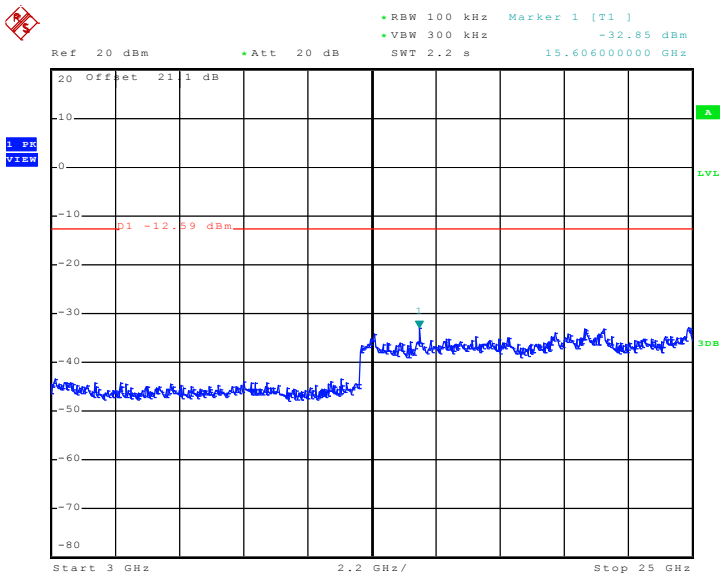
Date: 9.DEC.2010 14:24:27

Mode 3: Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz



Date: 9.DEC.2010 14:25:01

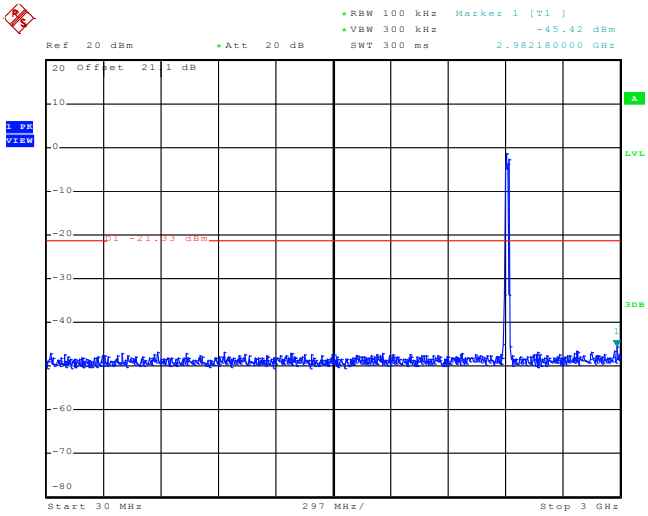
Mode 3: Conducted Spurious Emission Plot on 802.11b between 3 GHz ~25 GHz



Date: 9.DEC.2010 14:25:18

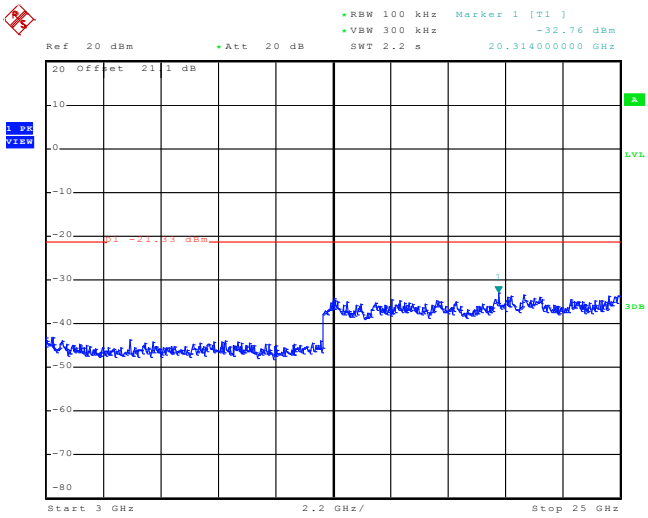
Test Mode :	Mode 4~6	**Temperature :**	22~24℃
Test Band :	802.11g	**Relative Humidity :**	40~43%
Test Channel :	01, 06, 11	**Test Engineer :**	Ken Hsu

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



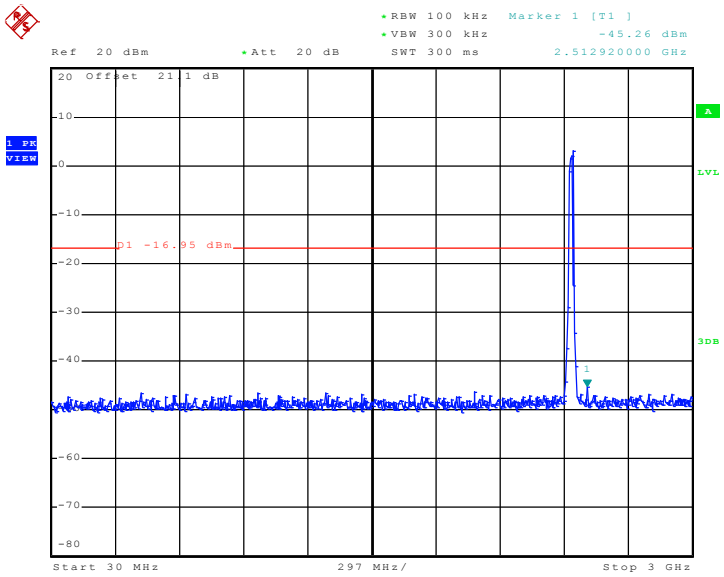
Date: 9.DEC.2010 14:26:40

Mode 4: Conducted Spurious Emission Plot on 802.11g between 3 GHz ~ 25 GHz



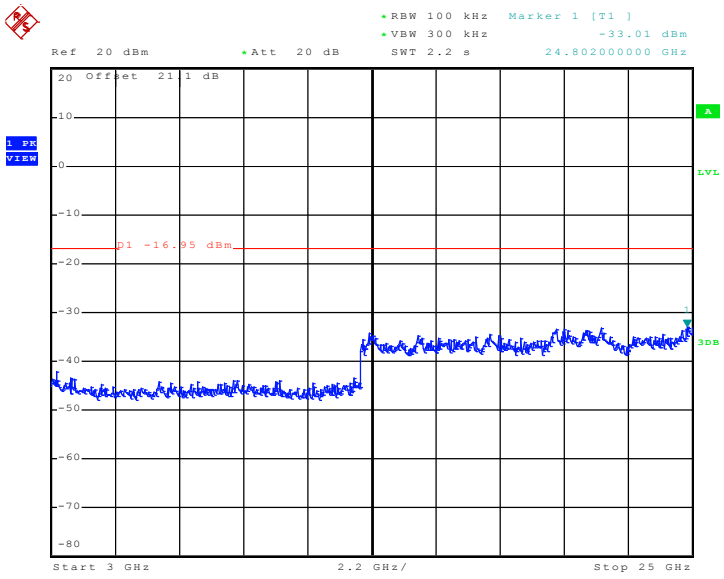
Date: 9.DEC.2010 14:26:57

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



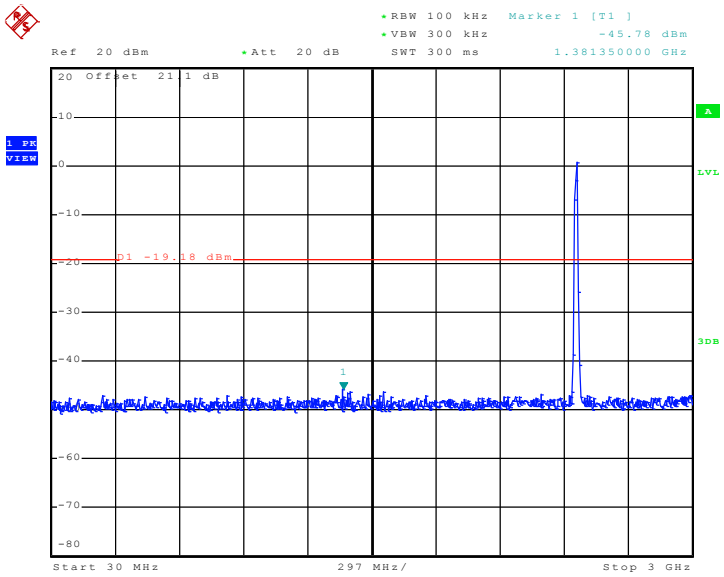
Date: 9.DEC.2010 14:27:52

Mode 5: Conducted Spurious Emission Plot on 802.11g between 3 GHz ~ 25 GHz



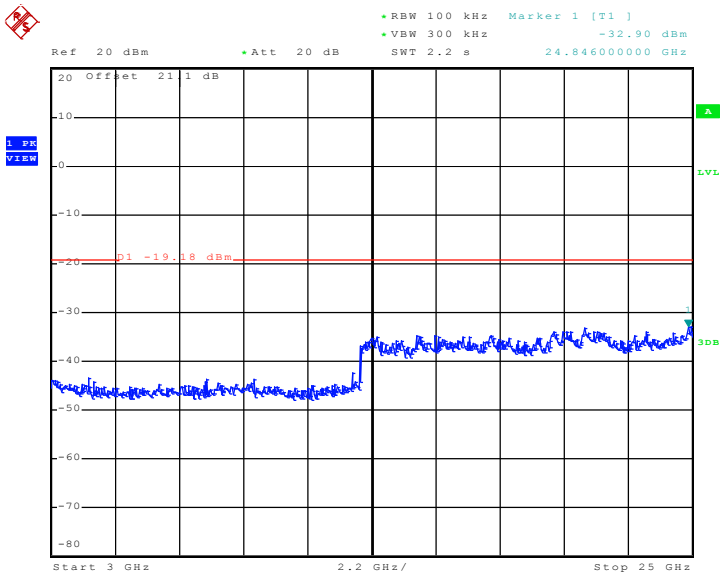
Date: 9.DEC.2010 14:28:09

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



Date: 9.DEC.2010 14:28:47

Mode 6: Conducted Spurious Emission Plot on 802.11g between 3 GHz ~ 25 GHz

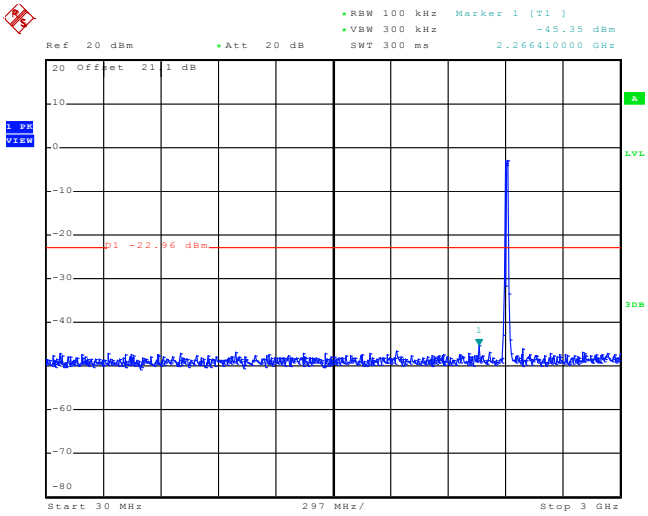


Date: 9.DEC.2010 14:29:04

Test Mode :	Mode 7~9	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20HMz)	**Relative Humidity :**	40~43%
Test Channel :	01, 06, 11	**Test Engineer :**	Ken Hsu

Mode 7: Conducted Spurious Emission Plot on

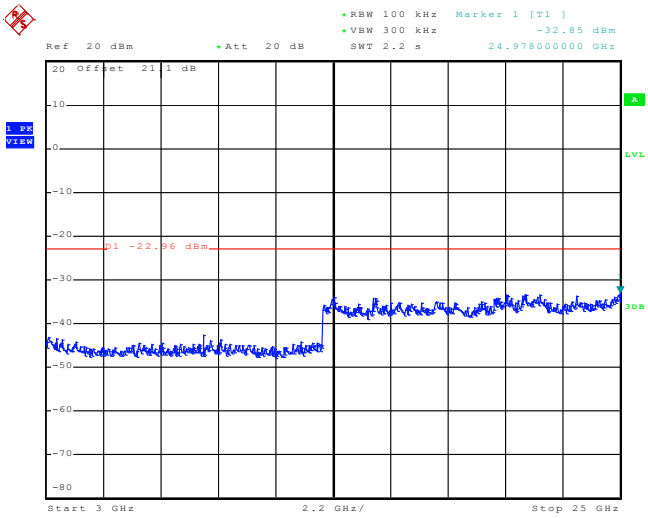
802.11n (BW 20HMz) between 30 MHz~3 GHz



Date: 9.DEC.2010 14:33:32

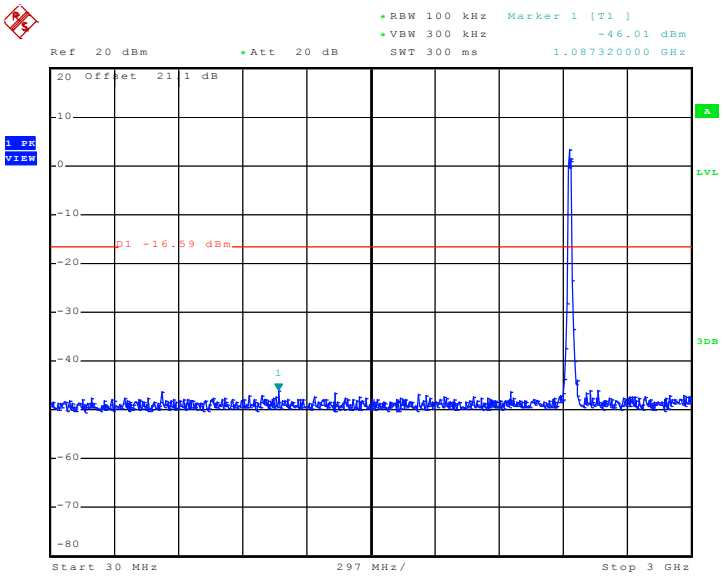
Mode 7: Conducted Spurious Emission Plot on

802.11n (BW 20HMz) between 3 GHz ~ 25 GHz



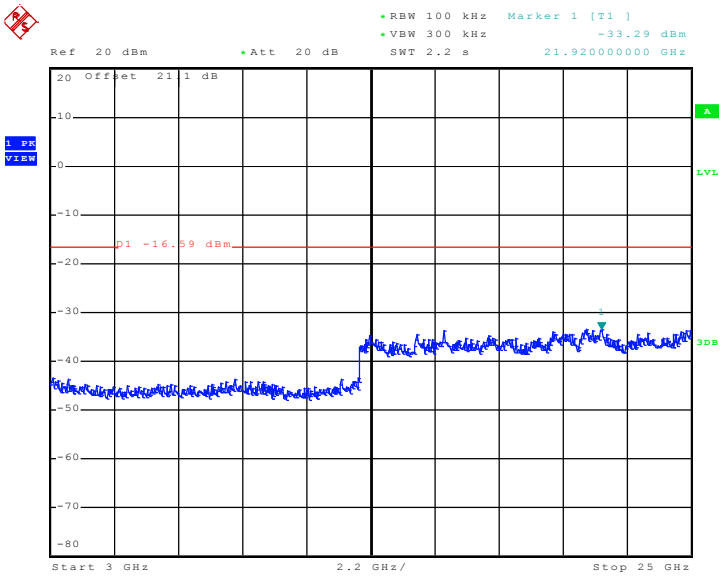
Date: 9.DEC.2010 14:33:49

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



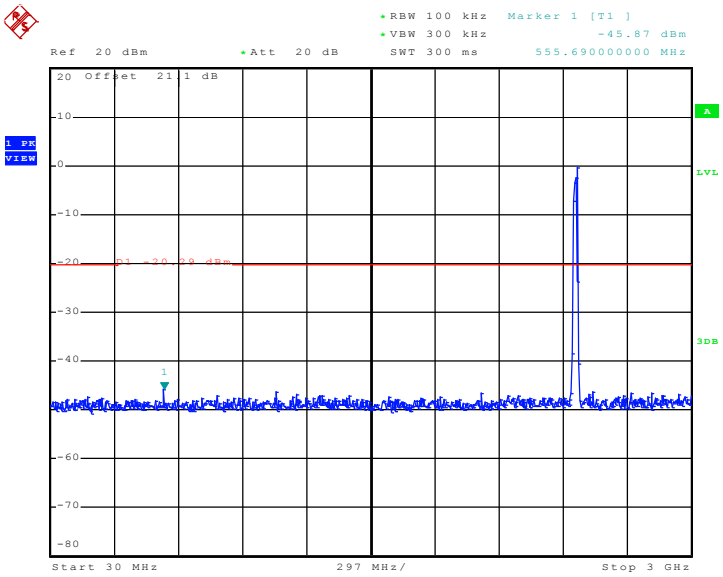
Date: 9.DEC.2010 14:36:18

Mode 8: Conducted Spurious Emission Plot on 802.11n (BW 20HMz) between 3 GHz ~ 25 GHz



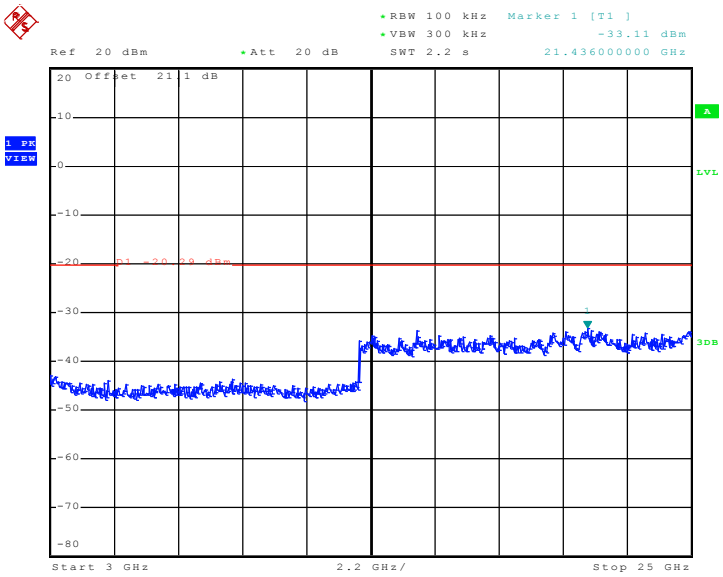
Date: 9.DEC.2010 14:36:35

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



Date: 9.DEC.2010 14:35:03

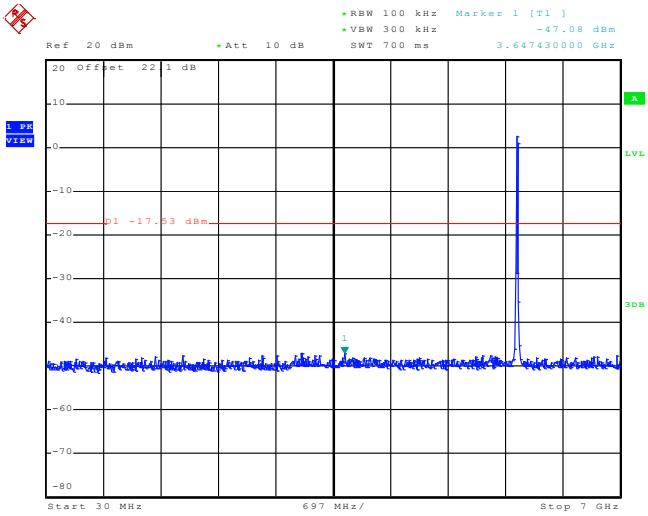
Mode 9: Conducted Spurious Emission Plot on 802.11n (BW 20HMz) between 3 GHz ~ 25 GHz



Date: 9.DEC.2010 14:35:21

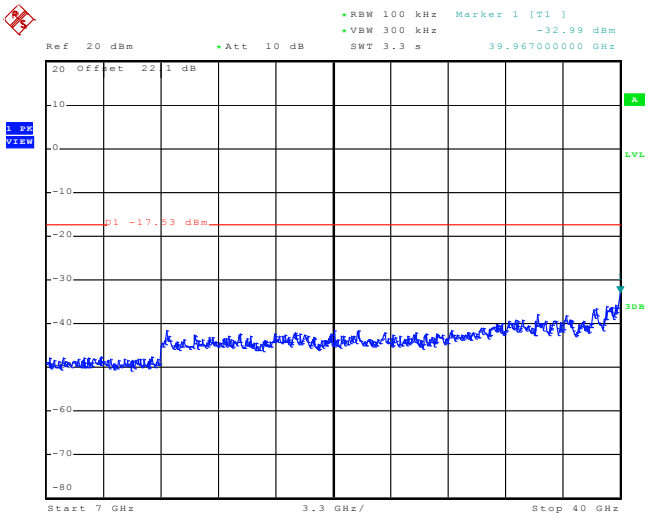
Test Mode :	Mode 10~12	**Temperature :**	22~24℃
Test Band :	802.11a	**Relative Humidity :**	40~43%
Test Channel :	149, 157, 165	**Test Engineer :**	Ken Hsu

Mode 10: Conducted Spurious Emission Plot on 802.11a between 30 MHz~7 GHz



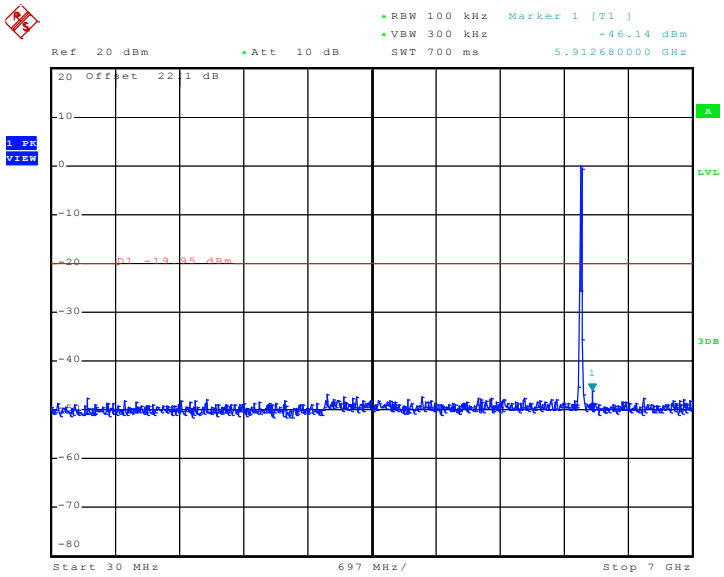
Date: 9.DEC.2010 15:11:20

Mode 10: Conducted Spurious Emission Plot on 802.11a between 7 GHz ~ 40GHz



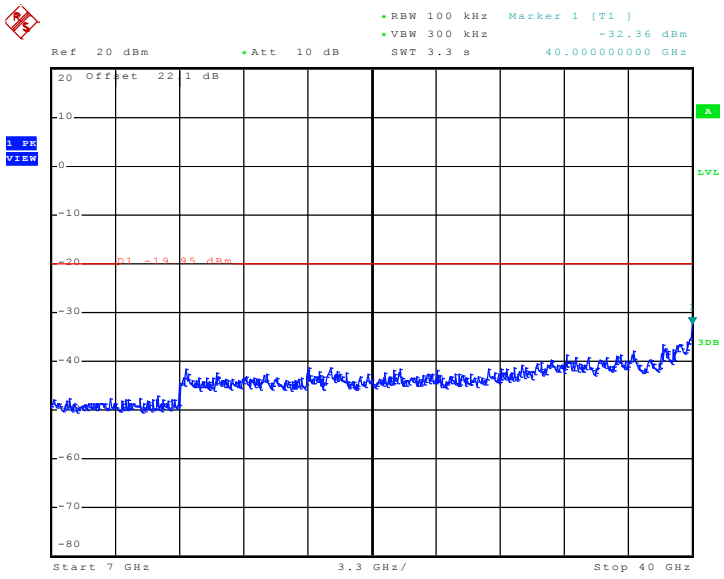
Date: 9.DEC.2010 15:11:37

Mode 11: Conducted Spurious Emission Plot on 802.11a between 30 MHz~7 GHz



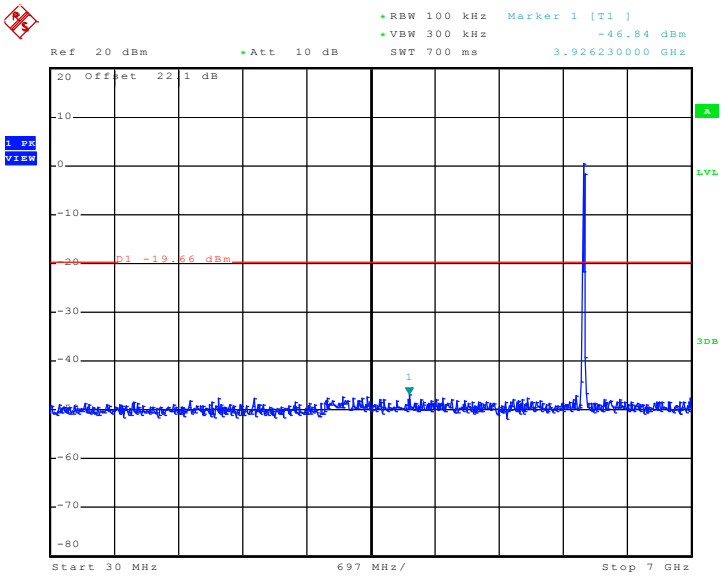
Date: 9.DEC.2010 15:14:39

Mode 11: Conducted Spurious Emission Plot on 802.11a between 7 GHz ~ 40GHz



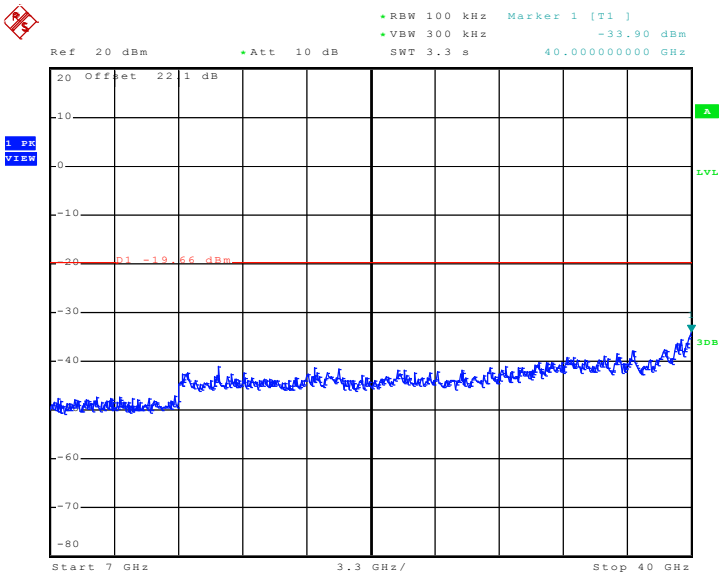
Date: 9.DEC.2010 15:14:57

Mode 12: Conducted Spurious Emission Plot on 802.11a between 30 MHz~7 GHz



Date: 9.DEC.2010 15:27:44

Mode 12: Conducted Spurious Emission Plot on 802.11a between 7 GHz ~ 40GHz

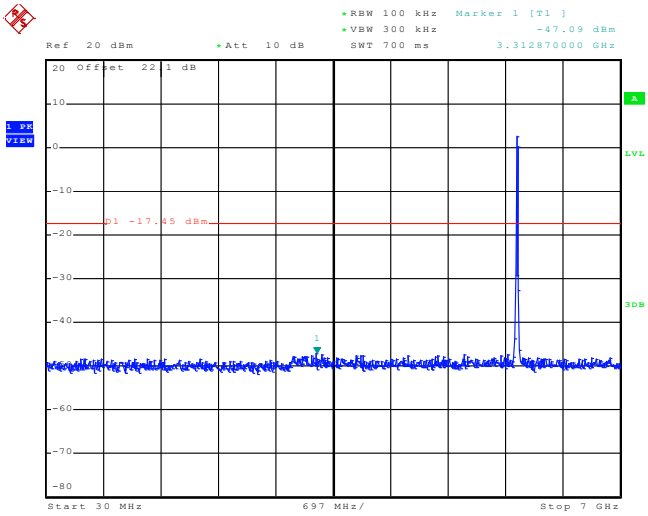


Date: 9.DEC.2010 15:28:02

Test Mode :	Mode 13~15	**Temperature :**	22~24℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	40~43%
Test Channel :	149, 157, 165	**Test Engineer :**	Ken Hsu

Mode 13: Conducted Spurious Emission Plot on

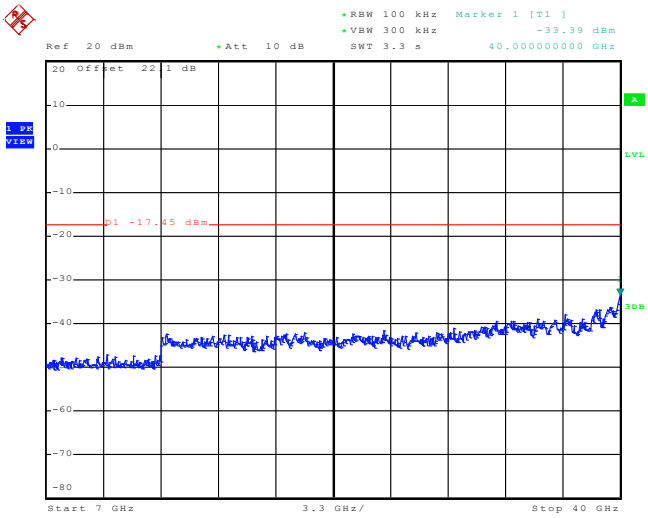
802.11n (BW 20MHz) between 30 MHz~7 GHz



Date: 9.DEC.2010 15:41:08

Mode 13: Conducted Spurious Emission Plot on

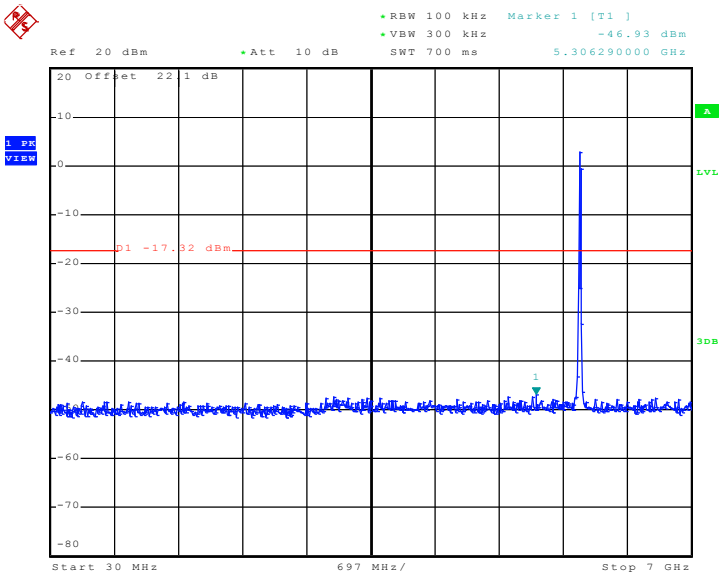
802.11n (BW 20MHz) between 7 GHz ~ 40GHz



Date: 9.DEC.2010 15:41:25

Mode 14: Conducted Spurious Emission Plot on

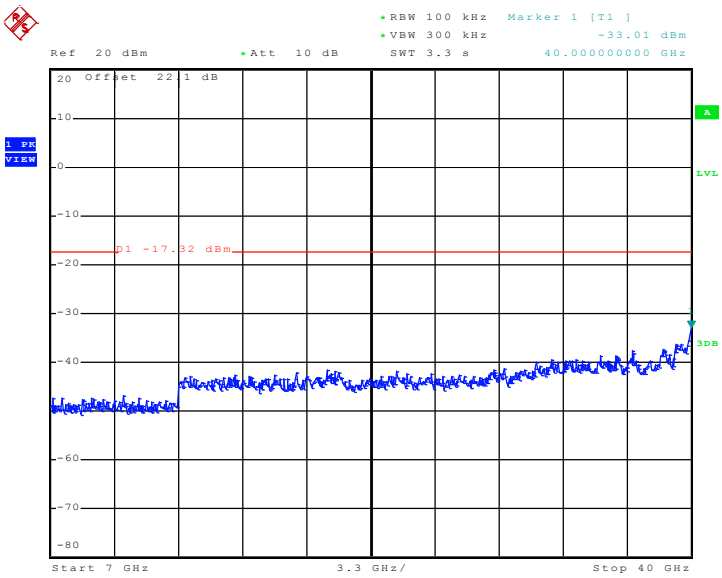
802.11n (BW 20MHz) between 30 MHz~7 GHz



Date: 9.DEC.2010 15:44:16

Mode 14: Conducted Spurious Emission Plot on

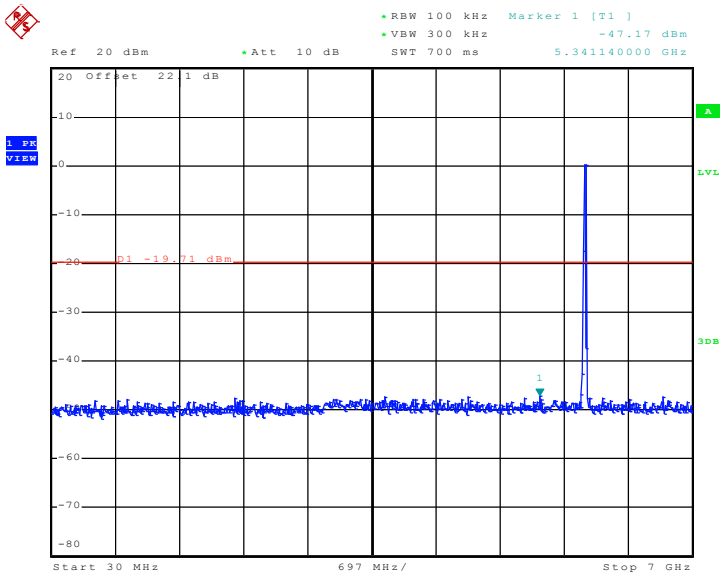
802.11n (BW 20MHz) between 7 GHz ~ 40GHz



Date: 9.DEC.2010 15:44:33

Mode 15: Conducted Spurious Emission Plot on

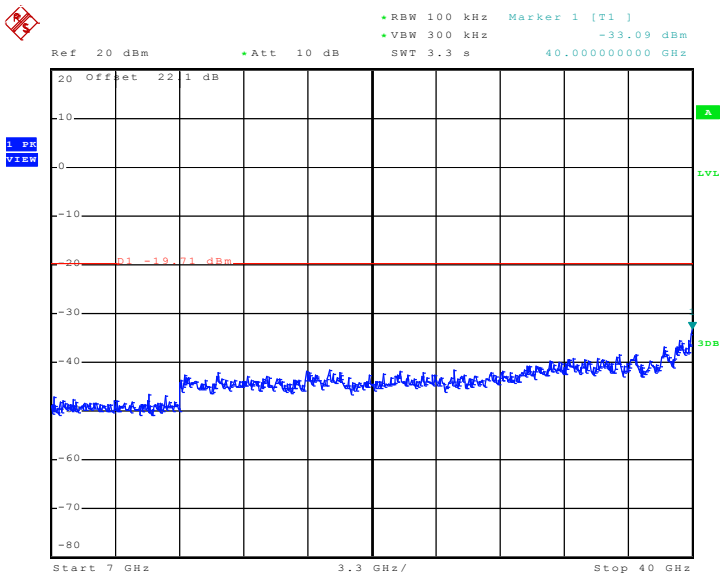
802.11n (BW 20MHz) between 30 MHz~7 GHz



Date: 9.DEC.2010 15:47:55

Mode 15: Conducted Spurious Emission Plot on

802.11n (BW 20MHz) between 7 GHz ~ 40GHz



Date: 9.DEC.2010 15:48:12

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

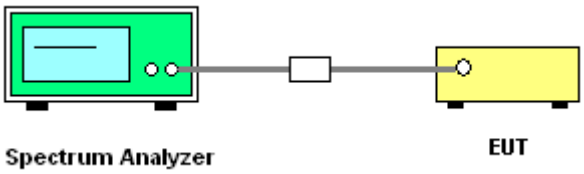
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1~3	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-3.99	8	Pass
06	2437	-3.80	8	Pass
11	2462	-4.14	8	Pass

Test Mode :	Mode 4~ 6	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-13.07	8	Pass
06	2437	-8.08	8	Pass
11	2462	-13.00	8	Pass

Test Mode :	Mode 7~9	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.87	8	Pass
06	2437	-7.93	8	Pass
11	2462	-12.75	8	Pass

Test Mode :	Mode 10~12	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

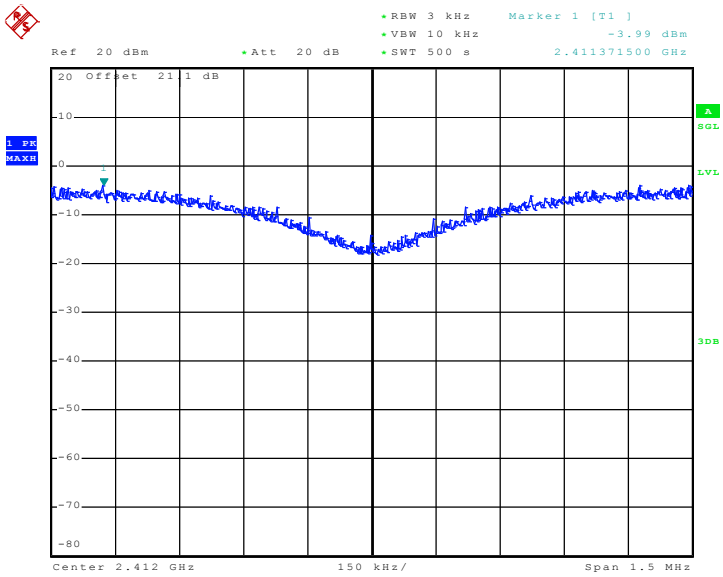
Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-10.24	8	Pass
157	5785	-10.31	8	Pass
165	5825	-9.93	8	Pass

Test Mode :	Mode 13~15	**Temperature :**	22~24℃
Test Engineer :	Ken Hsu	**Relative Humidity :**	40~43%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-9.99	8	Pass
157	5785	-9.45	8	Pass
165	5825	-9.60	8	Pass

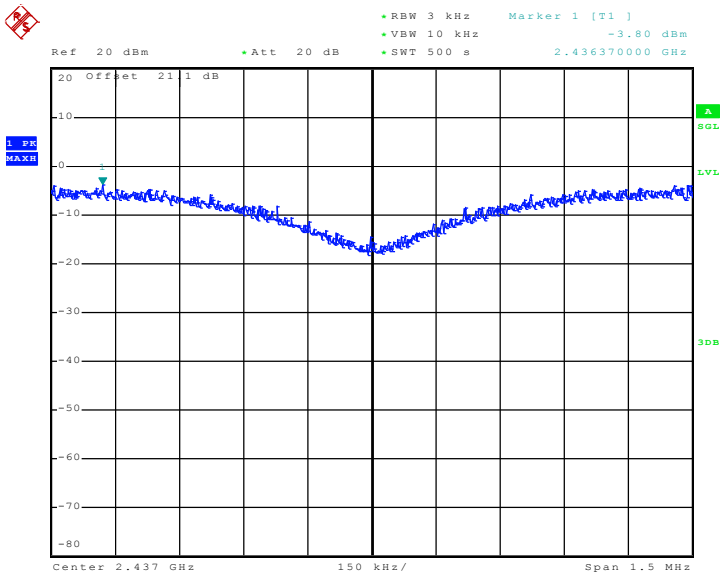
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



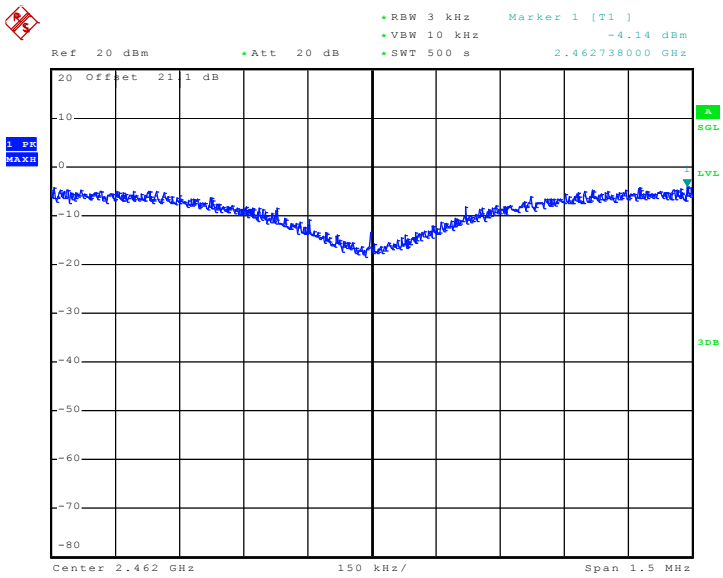
Date: 9.DEC.2010 11:22:47

Mode 2 : PSD Plot on 802.11b Channel 06



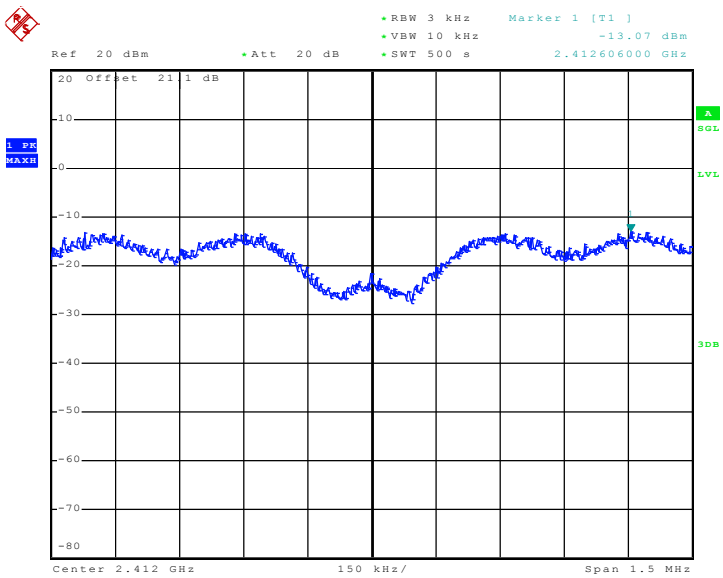
Date: 9.DEC.2010 11:35:51

Mode 3 : PSD Plot on 802.11b Channel 11



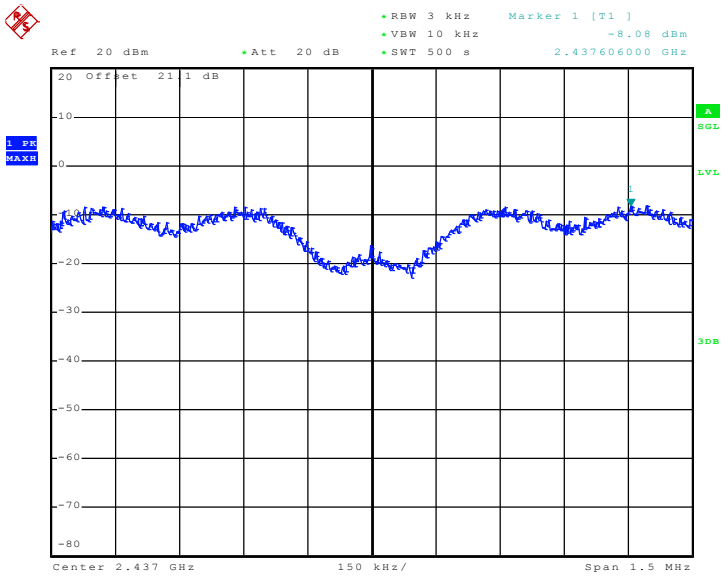
Date: 9.DEC.2010 11:47:48

Mode 4 : PSD Plot on 802.11g Channel 01



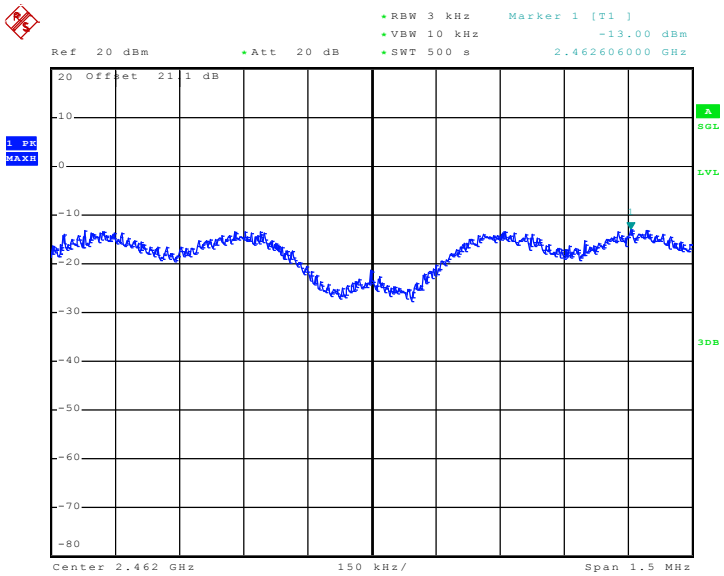
Date: 9.DEC.2010 12:31:37

Mode 5 : PSD Plot on 802.11g Channel 06



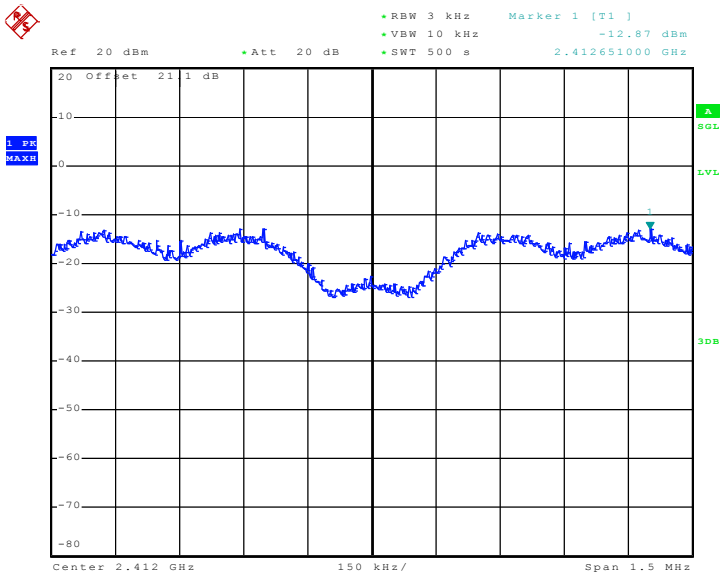
Date: 9.DEC.2010 13:11:11

Mode 6 : PSD Plot on 802.11g Channel 11



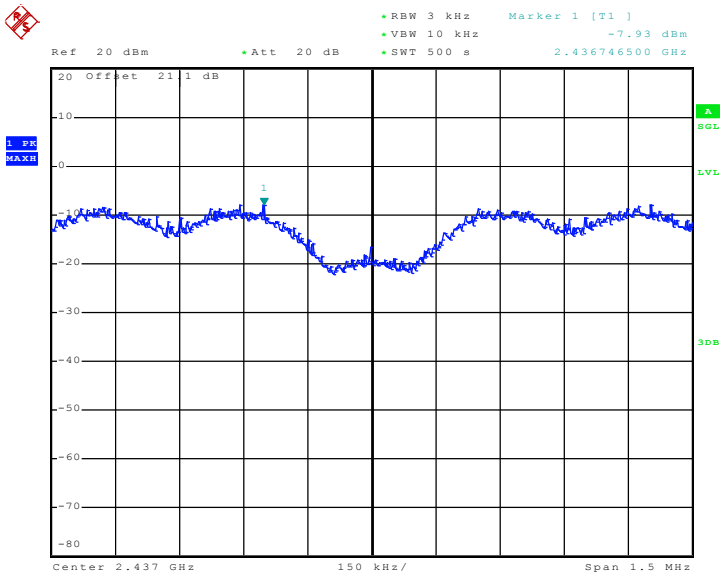
Date: 9.DEC.2010 13:30:32

Mode 7 : PSD Plot on 802.11n (BW 20HMz) Channel 01



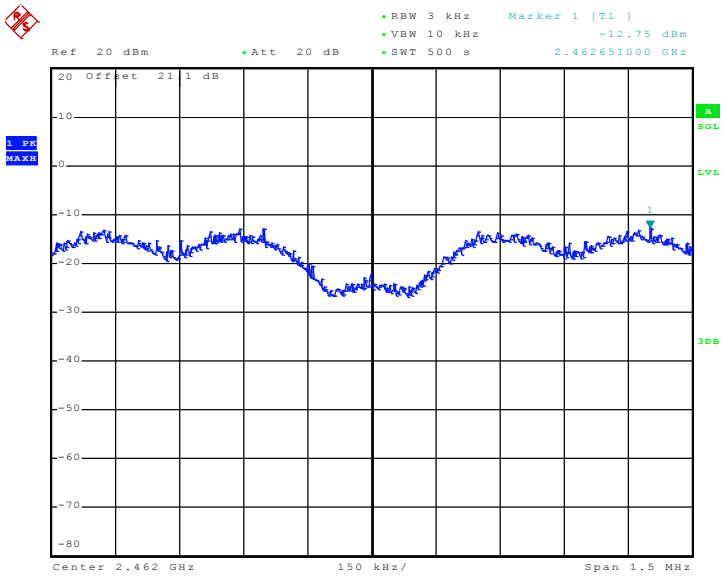
Date: 9.DEC.2010 13:56:32

Mode 8 : PSD Plot on 802.11n (BW 20HMz) Channel 06



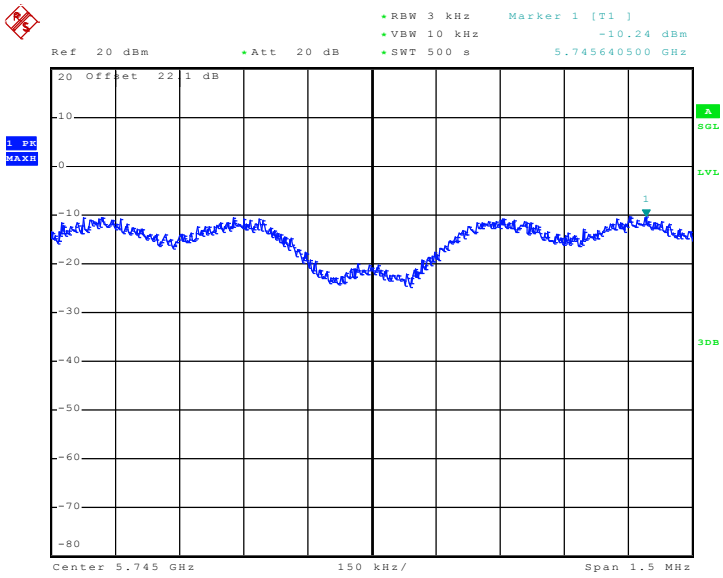
Date: 9.DEC.2010 14:47:13

Mode 9 : PSD Plot on 802.11n (BW 20HMz) Channel 11



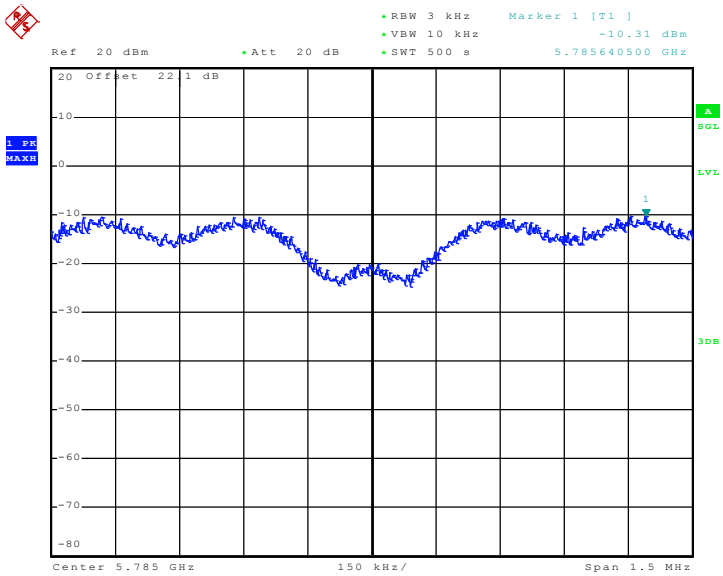
Date: 9.DEC.2010 14:21:25

Mode 10: PSD Plot on 802.11a Channel 149



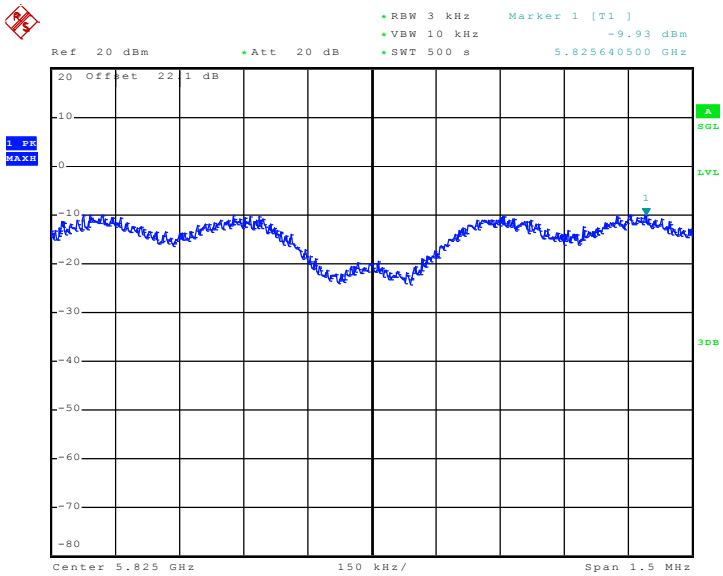
Date: 9.DEC.2010 15:04:40

Mode 11: PSD Plot on 802.11a Channel 157



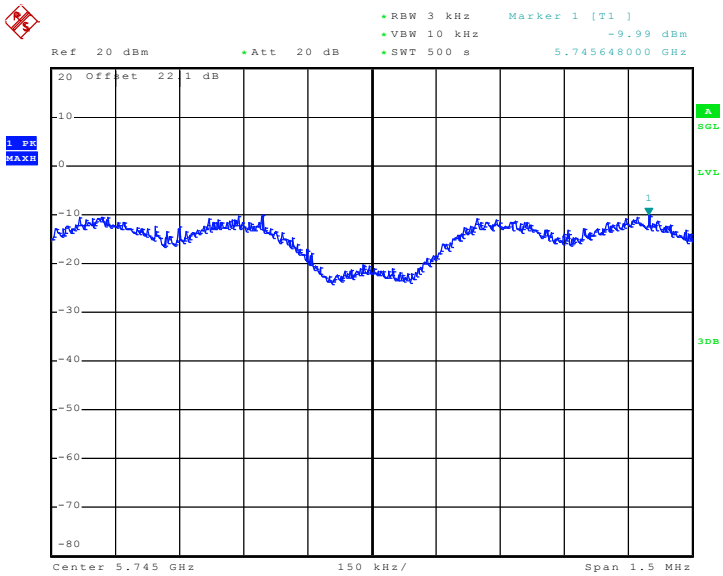
Date: 9.DEC.2010 15:24:26

Mode 12: PSD Plot on 802.11a Channel 165



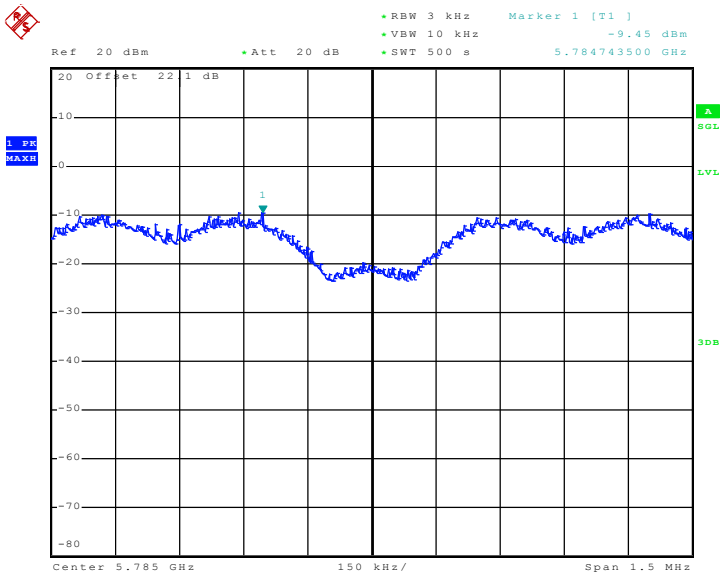
Date: 9.DEC.2010 15:36:55

Mode 13: PSD Plot on 802.11n (BW 20HMz) Channel 149



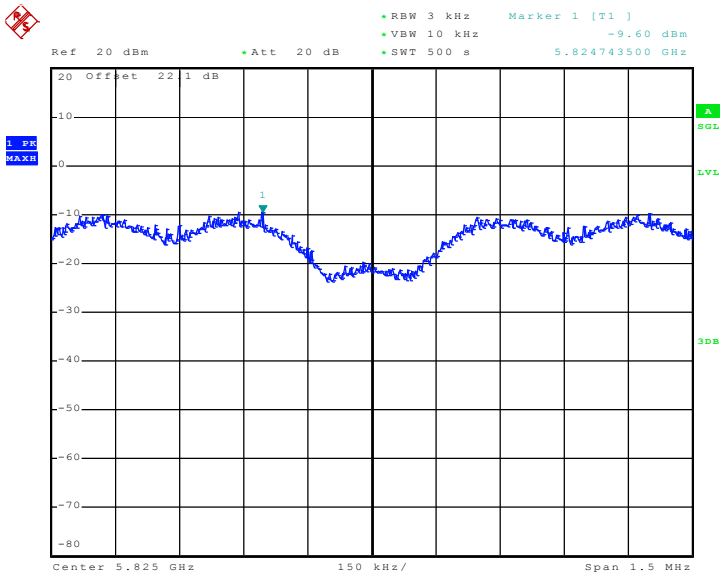
Date: 9.DEC.2010 15:57:19

Mode 14: PSD Plot on 802.11n (BW 20HMz) Channel 157



Date: 9.DEC.2010 16:06:20

Mode 15: PSD Plot on 802.11n (BW 20HMz) Channel 165



Date: 9.DEC.2010 16:16:27

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.

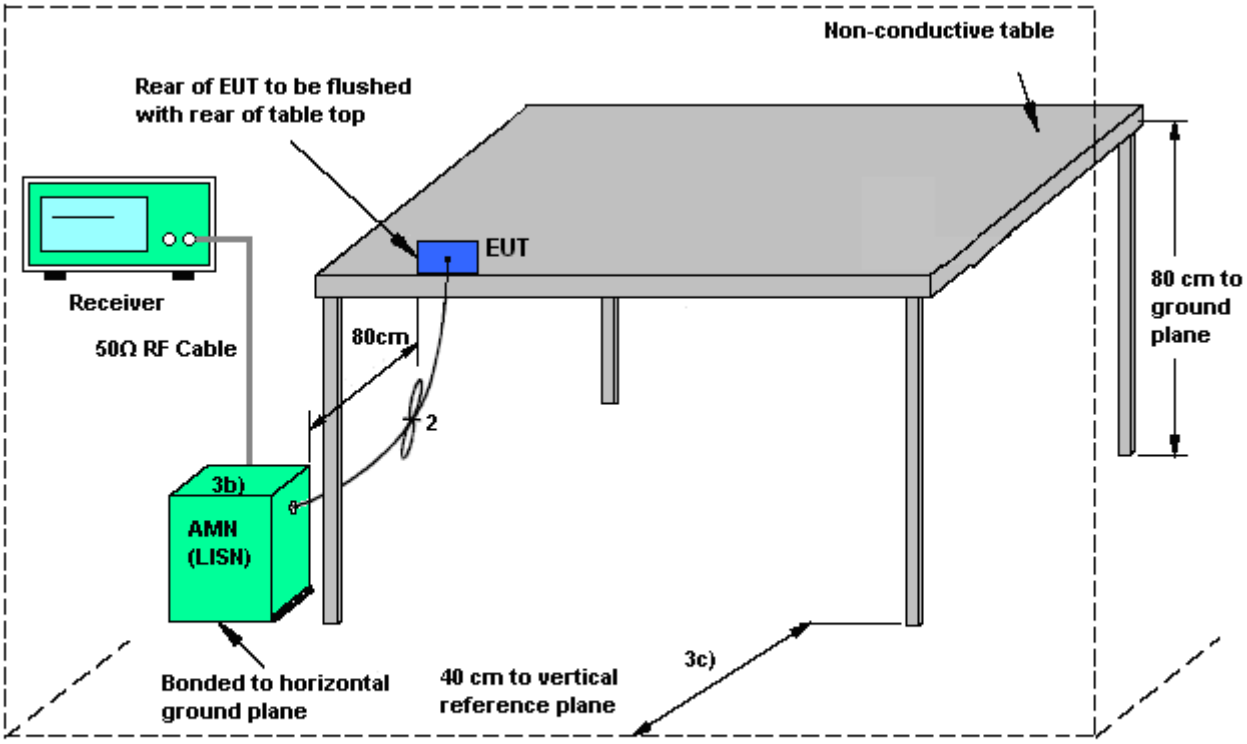
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

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

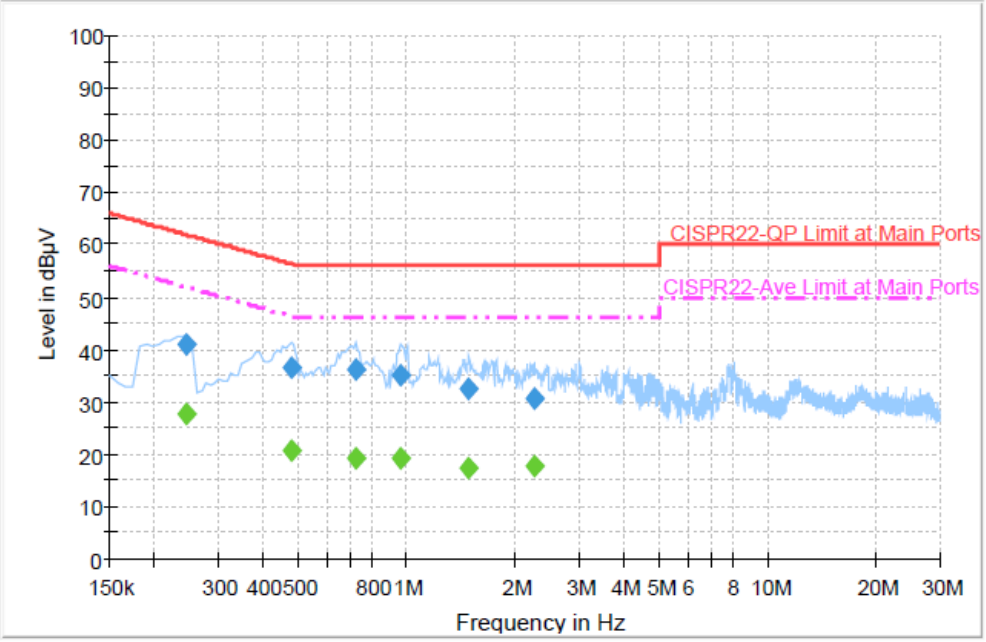
3.6.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cona Huang	**Relative Humidity :**	30~32%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	Bluetooth Link + WLAN (2.4G) 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.		



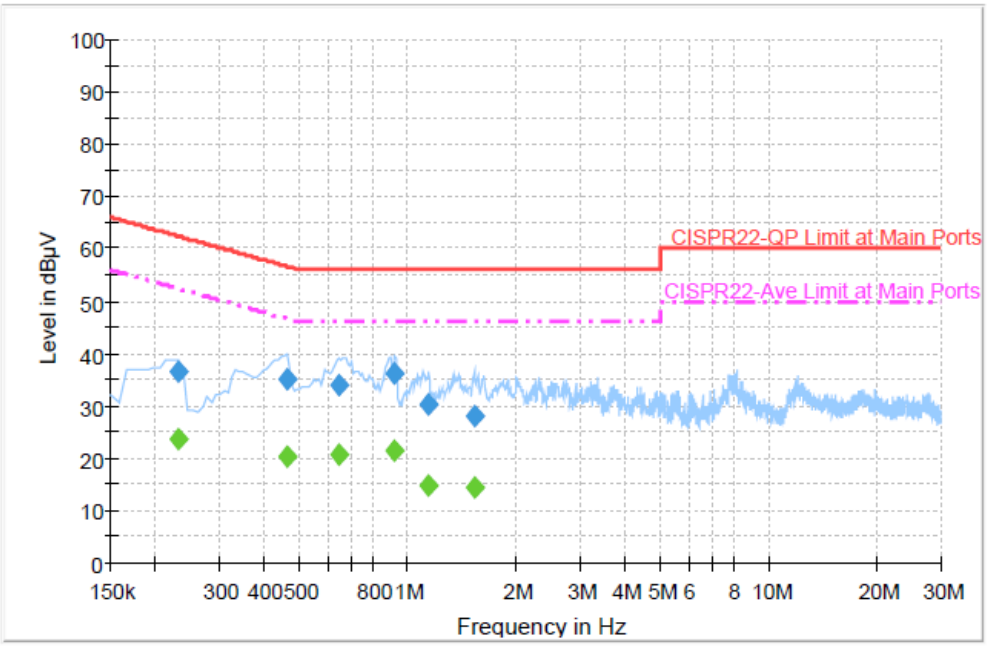
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.246000	40.9	Off	L1	19.4	21.0	61.9
0.478000	36.5	Off	L1	19.4	19.9	56.4
0.726000	36.1	Off	L1	19.4	19.9	56.0
0.966000	34.9	Off	L1	19.4	21.1	56.0
1.486000	32.4	Off	L1	19.4	23.6	56.0
2.246000	30.5	Off	L1	19.5	25.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.246000	27.7	Off	L1	19.4	24.2	51.9
0.478000	20.6	Off	L1	19.4	25.8	46.4
0.726000	19.0	Off	L1	19.4	27.0	46.0
0.966000	19.1	Off	L1	19.4	26.9	46.0
1.486000	17.5	Off	L1	19.4	28.5	46.0
2.246000	17.5	Off	L1	19.5	28.5	46.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cona Huang	**Relative Humidity :**	30~32%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	Bluetooth Link + WLAN (2.4G) 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)
0.230000	36.6	Off	N	19.4	25.8	62.4
0.462000	35.2	Off	N	19.3	21.5	56.7
0.646000	34.1	Off	N	19.3	21.9	56.0
0.918000	36.1	Off	N	19.4	19.9	56.0
1.142000	30.1	Off	N	19.4	25.9	56.0
1.526000	28.1	Off	N	19.4	27.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.230000	23.8	Off	N	19.4	28.6	52.4
0.462000	20.4	Off	N	19.3	26.3	46.7
0.646000	20.6	Off	N	19.3	25.4	46.0
0.918000	21.4	Off	N	19.4	24.6	46.0
1.142000	14.8	Off	N	19.4	31.2	46.0
1.526000	14.4	Off	N	19.4	31.6	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

3.7.2 Measuring Instruments

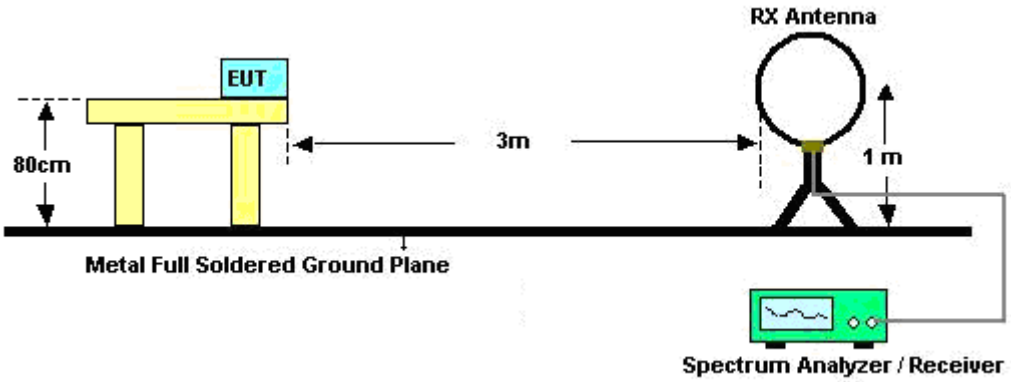
See list of measuring instruments of this test report.

3.7.3 Test Procedures

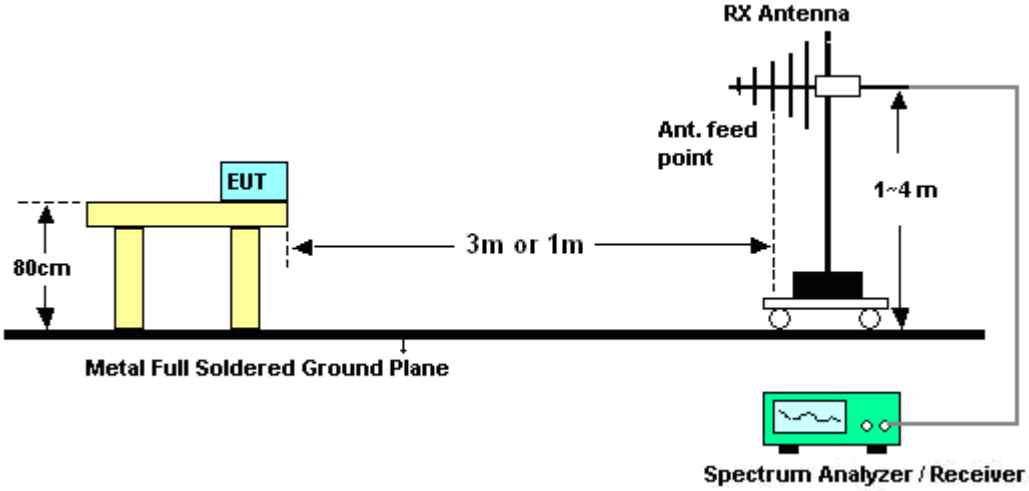
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

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)

Test Engineer :	Ivan Jiang	Temperature :	22~23°C
		Relative Humidity :	49~50%

Frequency (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 (specific distance / 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 :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2412 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
30.00	26.38	-13.62	40.00	40.80	16.51	0.53	31.46	-	-	Peak
113.70	21.23	-22.27	43.50	40.76	10.95	1.07	31.55	-	-	Peak
233.58	20.76	-25.24	46.00	39.19	11.50	1.50	31.43	-	-	Peak
332.20	35.26	-10.74	46.00	50.23	14.48	1.86	31.31	100	87	Peak
399.40	33.81	-12.19	46.00	46.29	16.56	2.14	31.18	-	-	Peak
1000.00	32.22	-21.78	54.00	34.40	24.89	3.51	30.58	-	-	Peak
2383.34	57.13	-16.87	74.00	52.79	32.16	6.03	33.85	100	293	Peak
2383.34	45.44	-8.56	54.00	41.10	32.16	6.03	33.85	100	293	Average
2412.00	110.56	-	-	106.16	32.20	6.07	33.87	100	293	Peak
2412.00	106.77	-	-	102.37	32.20	6.07	33.87	100	293	Average
2492.00	35.86	-18.14	54.00	31.28	32.30	6.18	33.90	100	293	Average
2492.00	57.18	-16.82	74.00	52.60	32.30	6.18	33.90	100	293	Peak

Test Mode :	Mode 1	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2412 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
30.00	32.74	-7.26	40.00	47.16	16.51	0.53	31.46	-	-	Peak
182.82	33.48	-10.02	43.50	54.69	9.05	1.26	31.52	-	-	Peak
200.37	37.15	-6.35	43.50	58.14	9.17	1.32	31.48	100	67	Peak
377.00	32.59	-13.41	46.00	45.87	15.87	2.09	31.24	-	-	Peak
620.60	25.43	-20.57	46.00	33.58	20.00	2.75	30.90	-	-	Peak
791.40	30.86	-15.14	46.00	36.08	22.33	3.13	30.68	-	-	Peak
2388.66	50.19	-23.81	74.00	45.83	32.18	6.03	33.85	100	7	Peak
2388.66	37.02	-16.98	54.00	32.66	32.18	6.03	33.85	100	7	Average
2412.00	101.92	-	-	97.52	32.20	6.07	33.87	100	7	Peak
2412.00	97.44	-	-	93.04	32.20	6.07	33.87	100	7	Average
2494.00	34.14	-19.86	54.00	29.56	32.30	6.18	33.90	100	7	Average
2494.00	46.38	-27.62	74.00	41.80	32.30	6.18	33.90	100	7	Peak

Test Mode :	Mode 2	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2437 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	31.67	-8.33	40.00	53.44	9.08	0.68	31.53	100	48	Peak
146.10	30.86	-12.64	43.50	49.93	11.28	1.21	31.56	-	-	Peak
227.10	34.94	-11.06	46.00	53.91	11.02	1.46	31.45	-	-	Peak
321.70	34.87	-11.13	46.00	50.22	14.15	1.82	31.32	-	-	Peak
598.20	23.26	-22.74	46.00	31.76	19.74	2.68	30.92	-	-	Peak
906.90	30.94	-15.06	46.00	34.54	23.72	3.36	30.68	-	-	Peak
2388.00	50.78	-23.22	74.00	46.42	32.18	6.03	33.85	124	297	Peak
2388.00	38.98	-15.02	54.00	34.62	32.18	6.03	33.85	124	297	Average
2437.00	111.21	-	-	106.74	32.24	6.11	33.88	124	297	Peak
2437.00	107.59	-	-	103.12	32.24	6.11	33.88	124	297	Average
2494.00	49.58	-24.42	74.00	45.00	32.30	6.18	33.90	124	297	Peak
2494.00	36.73	-17.27	54.00	32.15	32.30	6.18	33.90	124	297	Average

Test Mode :	Mode 2	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2437 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	33.89	-6.11	40.00	55.66	9.08	0.68	31.53	100	66	Peak
84.54	28.50	-11.50	40.00	51.34	7.80	0.90	31.54	-	-	Peak
296.49	35.50	-10.50	46.00	51.67	13.41	1.75	31.33	-	-	Peak
369.30	31.75	-14.25	46.00	45.30	15.63	2.08	31.26	-	-	Peak
758.50	28.99	-17.01	46.00	34.81	21.81	3.07	30.70	-	-	Peak
996.50	31.23	-22.77	54.00	33.46	24.84	3.51	30.58	-	-	Peak
2390.00	48.75	-25.25	74.00	44.39	32.18	6.03	33.85	170	347	Peak
2390.00	35.16	-18.84	54.00	30.80	32.18	6.03	33.85	170	347	Average
2437.00	107.49	-	-	103.02	32.24	6.11	33.88	170	347	Peak
2437.00	103.87	-	-	99.40	32.24	6.11	33.88	170	347	Average
2486.00	46.74	-27.26	74.00	42.18	32.28	6.18	33.90	170	347	Peak
2486.00	34.89	-19.11	54.00	30.33	32.28	6.18	33.90	170	347	Average

Test Mode :	Mode 3	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2462 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	32.10	-7.90	40.00	53.87	9.08	0.68	31.53	100	57	Peak
162.57	32.89	-10.61	43.50	52.99	10.20	1.22	31.52	-	-	Peak
219.81	35.60	-10.40	46.00	55.10	10.54	1.42	31.46	-	-	Peak
326.60	36.17	-9.83	46.00	51.34	14.30	1.84	31.31	-	-	Peak
526.10	26.80	-19.20	46.00	36.70	18.62	2.50	31.02	-	-	Peak
853.00	29.57	-16.43	46.00	33.95	23.08	3.27	30.73	-	-	Peak
2380.00	48.38	-25.62	74.00	44.04	32.16	6.03	33.85	122	293	Peak
2380.00	36.69	-17.31	54.00	32.35	32.16	6.03	33.85	122	293	Average
2462.00	110.43	-	-	105.92	32.26	6.14	33.89	122	293	Peak
2462.00	106.53	-	-	102.02	32.26	6.14	33.89	122	293	Average
2499.05	55.56	-18.44	74.00	50.98	32.30	6.18	33.90	122	293	Peak
2499.05	43.02	-10.98	54.00	38.44	32.30	6.18	33.90	122	293	Average

Test Mode :	Mode 3	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2462 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	33.34	-6.66	40.00	55.11	9.08	0.68	31.53	100	315	Peak
201.18	36.41	-7.09	43.50	57.40	9.17	1.32	31.48	-	-	Peak
221.97	35.37	-10.63	46.00	54.72	10.68	1.43	31.46	-	-	Peak
366.50	34.48	-11.52	46.00	48.13	15.54	2.07	31.26	-	-	Peak
623.40	26.04	-19.96	46.00	34.15	20.03	2.76	30.90	-	-	Peak
1000.00	31.46	-22.54	54.00	33.64	24.89	3.51	30.58	-	-	Peak
2358.00	33.56	-20.44	54.00	29.28	32.13	5.99	33.84	102	8	Average
2358.00	46.04	-27.96	74.00	41.76	32.13	5.99	33.84	102	8	Peak
2462.00	98.61	-	-	94.10	32.26	6.14	33.89	102	8	Average
2462.00	102.18	-	-	97.67	32.26	6.14	33.89	102	8	Peak
2483.85	50.18	-23.82	74.00	45.62	32.28	6.18	33.90	102	8	Peak
2483.85	35.91	-18.09	54.00	31.35	32.28	6.18	33.90	102	8	Average

Test Mode :	Mode 4	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2412 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	32.03	-7.97	40.00	53.80	9.08	0.68	31.53	100	68	Peak
173.10	34.60	-8.90	43.50	55.35	9.53	1.24	31.52	-	-	Peak
220.89	34.86	-11.14	46.00	54.28	10.61	1.43	31.46	-	-	Peak
326.60	35.72	-10.28	46.00	50.89	14.30	1.84	31.31	-	-	Peak
526.10	24.02	-21.98	46.00	33.92	18.62	2.50	31.02	-	-	Peak
996.50	32.33	-21.67	54.00	34.56	24.84	3.51	30.58	-	-	Peak
2390.00	61.70	-12.30	74.00	57.34	32.18	6.03	33.85	101	293	Peak
2390.00	42.53	-11.47	54.00	38.17	32.18	6.03	33.85	101	293	Average
2412.00	107.14	-	-	102.74	32.20	6.07	33.87	101	293	Peak
2412.00	96.39	-	-	91.99	32.20	6.07	33.87	101	293	Average
2494.00	34.24	-19.76	54.00	29.66	32.30	6.18	33.90	101	293	Average
2494.00	52.34	-21.66	74.00	47.76	32.30	6.18	33.90	101	293	Peak

Test Mode :	Mode 4	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2412 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	32.59	-7.41	40.00	54.36	9.08	0.68	31.53	-	-	Peak
182.01	36.04	-7.46	43.50	57.26	9.05	1.26	31.53	-	-	Peak
207.93	36.37	-7.13	43.50	56.84	9.65	1.35	31.47	100	111	Peak
371.40	33.67	-12.33	46.00	47.15	15.69	2.08	31.25	-	-	Peak
419.00	24.90	-21.10	46.00	36.96	16.88	2.21	31.15	-	-	Peak
995.80	33.60	-20.40	54.00	35.83	24.84	3.51	30.58	-	-	Peak
2390.00	52.07	-21.93	74.00	47.71	32.18	6.03	33.85	100	128	Peak
2390.00	36.39	-17.61	54.00	32.03	32.18	6.03	33.85	100	128	Average
2412.00	98.98	-	-	94.58	32.20	6.07	33.87	100	128	Peak
2412.00	88.78	-	-	84.38	32.20	6.07	33.87	100	128	Average
2494.00	33.47	-20.53	54.00	28.89	32.30	6.18	33.90	100	128	Average
2494.00	45.88	-28.12	74.00	41.30	32.30	6.18	33.90	100	128	Peak

Test Mode :	Mode 5	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2437 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	31.93	-8.07	40.00	53.70	9.08	0.68	31.53	100	98	Peak
214.41	34.16	-9.34	43.50	54.12	10.13	1.38	31.47	-	-	Peak
229.26	37.49	-8.51	46.00	56.30	11.16	1.47	31.44	-	-	Peak
316.10	35.59	-10.41	46.00	51.14	13.97	1.80	31.32	-	-	Peak
498.10	27.14	-18.86	46.00	37.57	18.20	2.44	31.07	-	-	Peak
805.40	35.60	-10.40	46.00	40.60	22.53	3.15	30.68	-	-	Peak
2380.00	38.89	-15.11	54.00	34.55	32.16	6.03	33.85	100	293	Average
2380.00	60.39	-13.61	74.00	56.05	32.16	6.03	33.85	100	293	Peak
2437.00	100.36	-	-	95.89	32.24	6.11	33.88	100	293	Average
2437.00	110.89	-	-	106.44	32.22	6.11	33.88	100	293	Peak
2484.00	54.56	-19.44	74.00	50.00	32.28	6.18	33.90	100	293	Peak
2484.00	38.21	-15.79	54.00	33.65	32.28	6.18	33.90	100	293	Average

Test Mode :	Mode 5	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2437 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	33.00	-7.00	40.00	54.77	9.08	0.68	31.53	-	-	Peak
205.77	36.56	-6.94	43.50	57.18	9.51	1.34	31.47	100	55	Peak
295.41	38.06	-7.94	46.00	54.25	13.40	1.74	31.33	-	-	Peak
300.00	37.84	-8.16	46.00	53.94	13.46	1.77	31.33	-	-	Peak
598.20	26.59	-19.41	46.00	35.09	19.74	2.68	30.92	-	-	Peak
995.80	32.00	-22.00	54.00	34.23	24.84	3.51	30.58	-	-	Peak
2390.00	54.26	-19.74	74.00	49.90	32.18	6.03	33.85	170	346	Peak
2390.00	35.47	-18.53	54.00	31.11	32.18	6.03	33.85	170	346	Average
2437.00	108.30	-	-	103.83	32.24	6.11	33.88	170	346	Peak
2437.00	98.31	-	-	93.84	32.24	6.11	33.88	170	346	Average
2484.00	48.55	-25.45	74.00	43.99	32.28	6.18	33.90	170	346	Peak
2484.00	35.22	-18.78	54.00	30.66	32.28	6.18	33.90	170	346	Average

Test Mode :	Mode 6	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2462 MHz are 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
52.41	32.47	-7.53	40.00	55.54	7.76	0.71	31.54	100	55	Peak
170.13	34.41	-9.09	43.50	54.93	9.77	1.23	31.52	-	-	Peak
233.58	34.86	-11.14	46.00	53.29	11.50	1.50	31.43	-	-	Peak
330.10	33.74	-12.26	46.00	48.81	14.39	1.85	31.31	-	-	Peak
399.40	31.31	-14.69	46.00	43.79	16.56	2.14	31.18	-	-	Peak
830.60	32.07	-13.93	46.00	36.74	22.82	3.22	30.71	-	-	Peak
2380.00	49.80	-24.20	74.00	45.46	32.16	6.03	33.85	100	294	Peak
2380.00	35.42	-18.58	54.00	31.08	32.16	6.03	33.85	100	294	Average
2462.00	104.79	-	-	100.28	32.26	6.14	33.89	100	294	Peak
2462.00	94.69	-	-	90.18	32.26	6.14	33.89	100	294	Average
2483.85	58.64	-15.36	74.00	54.08	32.28	6.18	33.90	100	294	Peak
2483.85	41.57	-12.43	54.00	37.01	32.28	6.18	33.90	100	294	Average

Test Mode :	Mode 6	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2462 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
77.25	31.19	-8.81	40.00	54.88	6.97	0.87	31.53	-	-	Peak
168.78	35.48	-8.02	43.50	55.94	9.83	1.23	31.52	100	212	Peak
292.98	36.39	-9.61	46.00	52.65	13.35	1.71	31.32	-	-	Peak
365.80	32.26	-13.74	46.00	45.94	15.51	2.07	31.26	-	-	Peak
620.60	25.26	-20.74	46.00	33.41	20.00	2.75	30.90	-	-	Peak
996.50	30.89	-23.11	54.00	33.12	24.84	3.51	30.58	-	-	Peak
2334.00	46.16	-27.84	74.00	41.95	32.09	5.95	33.83	100	10	Peak
2334.00	33.48	-20.52	54.00	29.27	32.09	5.95	33.83	100	10	Average
2462.00	97.58	-	-	93.07	32.26	6.14	33.89	100	10	Peak
2462.00	87.52	-	-	83.01	32.26	6.14	33.89	100	10	Average
2483.66	51.31	-22.69	74.00	46.75	32.28	6.18	33.90	100	10	Peak
2483.66	36.60	-17.40	54.00	32.04	32.28	6.18	33.90	100	10	Average

Test Mode :	Mode 7	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2412 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
86.70	28.00	-12.00	40.00	50.52	8.10	0.92	31.54	-	-	Peak
148.26	32.55	-10.95	43.50	51.71	11.19	1.21	31.56	-	-	Peak
229.53	37.28	-8.72	46.00	56.01	11.23	1.48	31.44	100	112	Peak
324.50	36.23	-9.77	46.00	51.48	14.24	1.83	31.32	-	-	Peak
576.50	26.32	-19.68	46.00	35.25	19.40	2.62	30.95	-	-	Peak
932.10	31.79	-14.21	46.00	34.96	24.03	3.42	30.62	-	-	Peak
2389.61	63.35	-10.65	74.00	58.99	32.18	6.03	33.85	125	295	Peak
2389.61	44.03	-9.97	54.00	39.67	32.18	6.03	33.85	125	295	Average
2412.00	106.10	-	-	101.70	32.20	6.07	33.87	125	295	Peak
2412.00	95.82	-	-	91.42	32.20	6.07	33.87	125	295	Average
2486.00	34.37	-19.63	54.00	29.81	32.28	6.18	33.90	125	295	Average
2486.00	52.07	-21.93	74.00	47.51	32.28	6.18	33.90	125	295	Peak

Test Mode :	Mode 7	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2412 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	31.50	-8.50	40.00	46.61	15.80	0.56	31.47	-	-	Peak
185.25	35.20	-8.30	43.50	56.40	9.06	1.26	31.52	100	159	Peak
218.46	36.89	-9.11	46.00	56.54	10.40	1.41	31.46	-	-	Peak
363.00	35.59	-10.41	46.00	49.37	15.42	2.07	31.27	-	-	Peak
620.60	25.06	-20.94	46.00	33.21	20.00	2.75	30.90	-	-	Peak
996.50	30.26	-23.74	54.00	32.49	24.84	3.51	30.58	-	-	Peak
2390.00	51.07	-22.93	74.00	46.71	32.18	6.03	33.85	100	128	Peak
2390.00	35.39	-18.61	54.00	31.03	32.18	6.03	33.85	100	128	Average
2412.00	101.98	-	-	97.58	32.20	6.07	33.87	100	128	Peak
2412.00	91.78	-	-	87.38	32.20	6.07	33.87	100	128	Average
2494.00	32.47	-21.53	54.00	27.89	32.30	6.18	33.90	100	128	Average
2494.00	44.88	-29.12	74.00	40.30	32.30	6.18	33.90	100	128	Peak

Test Mode :	Mode 8	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2437 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	29.99	-10.01	40.00	51.76	9.08	0.68	31.53	-	-	Peak
169.86	35.48	-8.02	43.50	56.00	9.77	1.23	31.52	100	41	Peak
223.86	36.40	-9.60	46.00	55.59	10.82	1.44	31.45	-	-	Peak
326.60	35.17	-10.83	46.00	50.34	14.30	1.84	31.31	-	-	Peak
399.40	34.73	-11.27	46.00	47.21	16.56	2.14	31.18	-	-	Peak
903.40	34.89	-11.11	46.00	38.56	23.67	3.35	30.69	-	-	Peak
2390.00	58.58	-15.42	74.00	54.22	32.18	6.03	33.85	124	299	Peak
2390.00	38.90	-15.10	54.00	34.54	32.18	6.03	33.85	124	299	Average
2437.00	112.01	-	-	107.56	32.22	6.11	33.88	124	299	Peak
2437.00	100.83	-	-	96.36	32.24	6.11	33.88	124	299	Average
2484.00	54.51	-19.49	74.00	49.95	32.28	6.18	33.90	124	299	Peak
2484.00	37.17	-16.83	54.00	32.61	32.28	6.18	33.90	124	299	Average

Test Mode :	Mode 8	**Temperature :**	22~23°C
Test Channel :	06	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.13	32.35	-7.65	40.00	47.91	15.33	0.58	31.47	-	-	Peak
139.62	30.67	-12.83	43.50	49.42	11.60	1.20	31.55	-	-	Peak
214.14	36.22	-7.28	43.50	56.18	10.13	1.38	31.47	100	57	Peak
363.00	35.63	-10.37	46.00	49.41	15.42	2.07	31.27	-	-	Peak
620.60	25.42	-20.58	46.00	33.57	20.00	2.75	30.90	-	-	Peak
788.60	31.11	-14.89	46.00	36.38	22.29	3.12	30.68	-	-	Peak
2390.00	54.31	-19.69	74.00	49.95	32.18	6.03	33.85	171	346	Peak
2390.00	34.87	-19.13	54.00	30.51	32.18	6.03	33.85	171	346	Average
2437.00	107.76	-	-	103.31	32.22	6.11	33.88	171	346	Peak
2437.00	97.22	-	-	92.75	32.24	6.11	33.88	171	346	Average
2484.00	51.97	-22.03	74.00	47.41	32.28	6.18	33.90	171	346	Peak
2484.00	35.04	-18.96	54.00	30.48	32.28	6.18	33.90	171	346	Average

Test Mode :	Mode 9	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	2462 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
38.64	31.26	-8.74	40.00	48.72	13.43	0.61	31.50	-	-	Peak
169.05	35.97	-7.53	43.50	56.43	9.83	1.23	31.52	100	171	Peak
291.90	36.07	-9.93	46.00	52.34	13.34	1.71	31.32	-	-	Peak
323.80	36.29	-9.71	46.00	51.57	14.21	1.83	31.32	-	-	Peak
438.60	27.91	-18.09	46.00	39.56	17.20	2.27	31.12	-	-	Peak
902.70	36.83	-9.17	46.00	40.50	23.67	3.35	30.69	-	-	Peak
2380.00	50.07	-23.93	74.00	45.73	32.16	6.03	33.85	122	293	Peak
2380.00	34.62	-19.38	54.00	30.28	32.16	6.03	33.85	122	293	Average
2462.00	95.47	-	-	90.96	32.26	6.14	33.89	122	293	Average
2462.00	105.92	-	-	101.41	32.26	6.14	33.89	122	293	Peak
2483.50	61.26	-12.74	74.00	56.70	32.28	6.18	33.90	122	293	Peak
2483.50	43.28	-10.72	54.00	38.72	32.28	6.18	33.90	122	293	Average

Test Mode :	Mode 9	**Temperature :**	22~23°C
Test Channel :	11	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	2462 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
42.96	32.20	-7.80	40.00	51.47	11.59	0.64	31.50	100	212	Peak
190.38	35.42	-8.08	43.50	56.58	9.07	1.28	31.51	-	-	Peak
210.09	33.66	-9.84	43.50	53.91	9.86	1.36	31.47	-	-	Peak
363.70	37.97	-8.03	46.00	51.71	15.45	2.07	31.26	-	-	Peak
439.30	32.51	-13.49	46.00	44.13	17.22	2.28	31.12	-	-	Peak
903.40	36.09	-9.91	46.00	39.76	23.67	3.35	30.69	-	-	Peak
2318.00	46.63	-27.37	74.00	42.44	32.09	5.92	33.82	200	320	Peak
2318.00	33.42	-20.58	54.00	29.23	32.09	5.92	33.82	200	320	Average
2462.00	89.76	-	-	85.25	32.26	6.14	33.89	200	320	Average
2462.00	100.94	-	-	96.43	32.26	6.14	33.89	200	320	Peak
2483.50	54.75	-19.25	74.00	50.19	32.28	6.18	33.90	200	320	Peak
2483.50	38.31	-15.69	54.00	33.75	32.28	6.18	33.90	200	320	Average

Test Mode :	Mode 10	**Temperature :**	22~23°C
Test Channel :	149	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.63	31.95	-8.05	40.00	53.72	9.08	0.68	31.53	100	113	Peak
163.38	34.05	-9.45	43.50	54.21	10.14	1.22	31.52	-	-	Peak
225.21	36.96	-9.04	46.00	56.07	10.89	1.45	31.45	-	-	Peak
324.50	35.53	-10.47	46.00	50.78	14.24	1.83	31.32	-	-	Peak
399.40	34.40	-11.60	46.00	46.88	16.56	2.14	31.18	-	-	Peak
903.40	36.87	-9.13	46.00	40.54	23.67	3.35	30.69	-	-	Peak
5745.00	110.78	-	-	99.24	34.84	9.91	33.21	100	272	Peak
5745.00	100.55	-	-	89.01	34.84	9.91	33.21	100	272	Average

Test Mode :	Mode 10	**Temperature :**	22~23°C
Test Channel :	149	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.90	32.39	-7.61	40.00	54.16	9.08	0.68	31.53	100	55	Peak
188.22	35.25	-8.25	43.50	56.43	9.06	1.27	31.51	-	-	Peak
217.38	37.45	-8.55	46.00	57.17	10.34	1.40	31.46	-	-	Peak
302.10	37.32	-8.68	46.00	53.32	13.55	1.78	31.33	-	-	Peak
371.40	35.55	-10.45	46.00	49.03	15.69	2.08	31.25	-	-	Peak
903.40	34.41	-11.59	46.00	38.08	23.67	3.35	30.69	-	-	Peak
5745.00	112.50	-	-	100.96	34.84	9.91	33.21	100	6	Peak
5745.00	102.03	-	-	90.49	34.84	9.91	33.21	100	6	Average

Test Mode :	Mode 11	**Temperature :**	22~23°C
Test Channel :	157	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.63	30.36	-9.64	40.00	52.13	9.08	0.68	31.53	-	-	Peak
171.21	36.98	-6.52	43.50	57.62	9.65	1.23	31.52	100	112	Peak
228.18	36.07	-9.93	46.00	54.95	11.09	1.47	31.44	-	-	Peak
327.30	36.20	-9.80	46.00	51.37	14.30	1.84	31.31	-	-	Peak
598.20	24.43	-21.57	46.00	32.93	19.74	2.68	30.92	-	-	Peak
797.70	32.16	-13.84	46.00	37.28	22.42	3.14	30.68	-	-	Peak
5785.00	112.62	-	-	101.07	34.88	9.90	33.23	100	272	Peak
5785.00	102.61	-	-	91.06	34.88	9.90	33.23	100	272	Average

Test Mode :	Mode 11	**Temperature :**	22~23°C
Test Channel :	157	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
76.17	31.76	-8.24	40.00	55.56	6.88	0.86	31.54	100	221	Peak
203.34	35.93	-7.57	43.50	56.71	9.37	1.33	31.48	-	-	Peak
249.78	36.65	-9.35	46.00	53.86	12.67	1.53	31.41	-	-	Peak
301.40	35.50	-10.50	46.00	51.54	13.52	1.77	31.33	-	-	Peak
623.40	25.05	-20.95	46.00	33.16	20.03	2.76	30.90	-	-	Peak
797.70	31.03	-14.97	46.00	36.15	22.42	3.14	30.68	-	-	Peak
5785.00	112.56	-	-	101.01	34.88	9.90	33.23	100	6	Peak
5785.00	102.73	-	-	91.18	34.88	9.90	33.23	100	6	Average

Test Mode :	Mode 12	**Temperature :**	22~23°C
Test Channel :	165	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5825 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
86.70	24.62	-15.38	40.00	47.14	8.10	0.92	31.54	-	-	Peak
146.10	32.25	-11.25	43.50	51.32	11.28	1.21	31.56	-	-	Peak
219.81	36.32	-9.68	46.00	55.82	10.54	1.42	31.46	100	35	Peak
330.10	35.28	-10.72	46.00	50.35	14.39	1.85	31.31	-	-	Peak
438.60	31.54	-14.46	46.00	43.19	17.20	2.27	31.12	-	-	Peak
699.00	30.01	-15.99	46.00	37.01	20.88	2.94	30.82	-	-	Peak
5825.00	113.48	-	-	101.96	34.93	9.88	33.29	100	269	Peak
5825.00	103.41	-	-	91.89	34.93	9.88	33.29	100	269	Average
17475.00	59.30	-34.18	93.48	57.26	41.63	14.46	54.05	100	0	Peak

Test Mode :	Mode 12	**Temperature :**	22~23°C
Test Channel :	165	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5825 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
81.03	32.59	-7.41	40.00	55.86	7.37	0.89	31.53	100	115	Peak
177.69	34.87	-8.63	43.50	55.90	9.26	1.24	31.53	-	-	Peak
251.94	35.57	-10.43	46.00	52.74	12.70	1.54	31.41	-	-	Peak
366.50	35.14	-10.86	46.00	48.79	15.54	2.07	31.26	-	-	Peak
436.50	34.38	-11.62	46.00	46.07	17.17	2.27	31.13	-	-	Peak
903.40	32.47	-13.53	46.00	36.14	23.67	3.35	30.69	-	-	Peak
5825.00	113.07	-	-	101.55	34.93	9.88	33.29	107	10	Peak
5825.00	102.89	-	-	91.37	34.93	9.88	33.29	107	10	Average

Test Mode :	Mode 13	**Temperature :**	22~23°C
Test Channel :	149	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.90	27.72	-12.28	40.00	49.49	9.08	0.68	31.53	-	-	Peak
146.37	32.27	-11.23	43.50	51.34	11.28	1.21	31.56	-	-	Peak
237.90	36.74	-9.26	46.00	54.86	11.78	1.52	31.42	100	212	Peak
335.70	29.99	-16.01	46.00	44.85	14.57	1.87	31.30	-	-	Peak
436.50	28.33	-17.67	46.00	40.02	17.17	2.27	31.13	-	-	Peak
902.70	34.35	-11.65	46.00	38.02	23.67	3.35	30.69	-	-	Peak
5745.00	111.30	-	-	99.76	34.84	9.91	33.21	116	281	Peak
5745.00	100.26	-	-	88.72	34.84	9.91	33.21	116	281	Average

Test Mode :	Mode 13	**Temperature :**	22~23°C
Test Channel :	149	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
75.90	31.42	-8.58	40.00	55.30	6.80	0.86	31.54	100	221	Peak
167.97	33.84	-9.66	43.50	54.24	9.89	1.23	31.52	-	-	Peak
244.38	35.62	-10.38	46.00	53.25	12.26	1.53	31.42	-	-	Peak
368.60	35.37	-10.63	46.00	48.95	15.60	2.08	31.26	-	-	Peak
553.40	24.41	-21.59	46.00	33.78	19.05	2.56	30.98	-	-	Peak
902.70	35.76	-10.24	46.00	39.43	23.67	3.35	30.69	-	-	Peak
5745.00	112.84	-	-	101.30	34.84	9.91	33.21	100	6	Peak
5745.00	101.83	-	-	90.29	34.84	9.91	33.21	100	6	Average

Test Mode :	Mode 14	**Temperature :**	22~23°C
Test Channel :	157	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.00	28.42	-11.58	40.00	42.84	16.51	0.53	31.46	-	-	Peak
137.73	30.69	-12.81	43.50	49.46	11.59	1.19	31.55	-	-	Peak
168.78	35.43	-8.07	43.50	55.89	9.83	1.23	31.52	100	51	Peak
301.40	35.61	-10.39	46.00	51.65	13.52	1.77	31.33	-	-	Peak
489.70	26.29	-19.71	46.00	36.89	18.05	2.41	31.06	-	-	Peak
902.70	33.54	-12.46	46.00	37.21	23.67	3.35	30.69	-	-	Peak
5785.00	113.78	-	-	102.23	34.88	9.90	33.23	100	272	Peak
5785.00	102.14	-	-	90.59	34.88	9.90	33.23	100	272	Average
17355.00	57.48	-36.30	93.78	55.19	41.75	14.42	53.88	100	0	Peak

Test Mode :	Mode 14	**Temperature :**	22~23°C
Test Channel :	157	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5785 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.70	29.95	-10.05	40.00	45.06	15.80	0.56	31.47	100	151	Peak
137.73	25.77	-17.73	43.50	44.54	11.59	1.19	31.55	-	-	Peak
258.69	33.09	-12.91	46.00	50.12	12.81	1.58	31.42	-	-	Peak
360.20	33.68	-12.32	46.00	47.56	15.33	2.06	31.27	-	-	Peak
623.40	25.65	-20.35	46.00	33.76	20.03	2.76	30.90	-	-	Peak
902.70	35.19	-10.81	46.00	38.86	23.67	3.35	30.69	-	-	Peak
1332.00	53.58	-20.42	74.00	55.49	27.84	4.31	34.06	100	360	Peak
1332.00	35.39	-18.61	54.00	37.30	27.84	4.31	34.06	100	360	Average
5785.00	113.41	-	-	101.89	34.89	9.89	33.26	108	2	Peak
5785.00	102.94	-	-	91.39	34.88	9.90	33.23	108	2	Average

Test Mode :	Mode 15	**Temperature :**	22~23°C
Test Channel :	165	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Horizontal
Remark :	5825 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	32.33	-7.67	40.00	54.10	9.08	0.68	31.53	100	55	Peak
143.13	30.36	-13.14	43.50	49.29	11.42	1.20	31.55	-	-	Peak
218.73	36.45	-9.55	46.00	56.03	10.47	1.41	31.46	-	-	Peak
332.20	35.56	-10.44	46.00	50.53	14.48	1.86	31.31	-	-	Peak
441.40	24.28	-21.72	46.00	35.87	17.25	2.28	31.12	-	-	Peak
903.40	32.46	-13.54	46.00	36.13	23.67	3.35	30.69	-	-	Peak
5825.00	113.80	-	-	102.28	34.93	9.88	33.29	102	268	Peak
5825.00	102.72	-	-	91.20	34.93	9.88	33.29	102	268	Average
17475.00	58.80	-35.00	93.80	56.76	41.63	14.46	54.05	100	0	Peak

Test Mode :	Mode 15	**Temperature :**	22~23°C
Test Channel :	165	**Relative Humidity :**	49~50%
Test Engineer :	Ivan Jiang	**Polarization :**	Vertical
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.78	31.76	-8.24	40.00	47.09	15.57	0.57	31.47	100	41	Peak
85.89	29.88	-10.12	40.00	52.40	8.10	0.92	31.54	-	-	Peak
287.85	36.80	-9.20	46.00	53.18	13.27	1.68	31.33	-	-	Peak
363.70	35.09	-10.91	46.00	48.83	15.45	2.07	31.26	-	-	Peak
596.10	26.68	-19.32	46.00	35.21	19.71	2.68	30.92	-	-	Peak
903.40	36.92	-9.08	46.00	40.59	23.67	3.35	30.69	-	-	Peak
5825.00	112.30	-	-	100.78	34.93	9.88	33.29	184	347	Peak
5825.00	101.23	-	-	89.71	34.93	9.88	33.29	184	347	Average

3.8 Antenna Requirements

3.8.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	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)
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 Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(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 Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(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 Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP0D0904-02 as below.