

FCC RF Test Report

APPLICANT : Axesstel, Inc.
EQUIPMENT : CDMA 1xEV-DO Rev.A WiFi
Gateway, Dual-Band 800/1900MHz
BRAND NAME : Axesstel, Inc.
MODEL NAME : MV441
FCC ID : PH7MV441
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Apr. 20, 2011 and completely tested on May 21, 2011. We, SPORTON INTERNATIONAL (KUNSAHN) 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 (KUNSAHN) INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR142022	Rev. 01	Initial issue of report	May 26, 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	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output	$\leq 30\text{dBm}$	Pass	-
0	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 18.69 dB at 0.46 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.17 dB at 250.05 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Axesstel, Inc.

6815 Flanders Drive, Suite 210, San Diego, CA92121, USA

1.2 Manufacturer

Asiatelco Technologies Co.

#289 Bisheng Road, Building-8, 3F, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201204, China

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	CDMA 1xEV-DO Rev.A WiFi Gateway, Dual-Band 800/1900MHz
Brand Name	Axesstel, Inc.
Model Name	MV441
FCC ID	PH7MV441
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 18.64 dBm (0.07 W) 802.11g : 21.19 dBm (0.132 W) 802.11n (BW 20MHz) : 22.14 dBm (0.16 W) 802.11n (BW 40MHz) : 23.68 dBm (0.23 W)
Antenna Type	Dipole Antenna with gain 2.00 dBi
HW Version	PWB:T0057342C-G
SW Version	MV401 Router IMG 110331
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark:

1. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
2. 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(KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 / FAX: +86-0512-5790-0958	
Test Site No.	Sporton Site No.	
	CO01-KS	03CH01-KS

1.5 Applied Standards

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

- FCC Part 15 Subpart 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 (Certification), recorded in a separate test report.



1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Acer	ZG8	HLZUNDP-1Q	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
2.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
3.	Base Station	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
4.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m

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	Chain	2.4GHz 802.11b RF Power (dBm)			
			DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	A	18.58	18.52	18.63	18.64
CH 06	2437 MHz	A	18.05	18.21	18.23	18.33
CH 11	2462 MHz	A	17.34	17.56	17.57	17.63
CH 01	2412 MHz	B	14.83	14.92	14.94	15.02
CH 06	2437 MHz	B	14.57	14.68	14.75	14.76
CH 11	2462 MHz	B	13.96	14.13	14.17	14.21

Channel	Frequency	Chain	2.4GHz 802.11g RF Power (dBm)							
			OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	A	20.56	20.71	20.36	20.61	21.19	20.56	20.83	20.82
CH 06	2437 MHz	A	20.48	20.24	19.87	20.07	20.76	20.12	20.56	20.52
CH 11	2462 MHz	A	20.12	19.35	19.12	19.27	19.75	19.32	19.82	19.81
CH 01	2412 MHz	B	17.52	16.78	16.87	16.72	17.32	16.78	17.21	17.18
CH 06	2437 MHz	B	17.24	16.52	16.48	16.44	17.08	16.54	16.95	17.02
CH 11	2462 MHz	B	16.68	15.97	15.81	15.85	16.42	15.96	16.38	16.58

Channel	Frequency	Chain	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
			OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
CH 01	2412 MHz	A	20.82	20.54	20.88	20.21	20.07	20.12	20.32	20.52
CH 06	2437 MHz	A	20.46	20.13	20.56	19.86	19.63	19.82	20.05	20.16
CH 11	2462 MHz	A	19.84	19.52	19.67	19.25	19.02	18.96	19.54	18.86
CH 01	2412 MHz	B	17.17	16.87	17.16	16.37	16.42	16.62	17.02	16.87
CH 06	2437 MHz	B	16.56	16.17	16.61	15.96	15.88	16.01	16.45	16.38
CH 11	2462 MHz	B	16.16	15.84	16.08	15.58	15.39	15.02	15.84	15.81
Channel	Frequency	Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
CH 01	2412 MHz	A+B(A)	19.32	20.02	19.84	19.66	20.32	20.12	19.96	20.06
		A+B(B)	16.82	16.92	17.12	17.13	17.34	17.85	17.61	17.02
		A+B	21.26	21.75	21.70	21.59	22.09	22.14	21.95	21.81
CH 06	2437 MHz	A+B(A)	19.08	19.68	19.05	19.75	20.07	19.96	19.72	19.75
		A+B(B)	16.34	16.55	16.96	17.08	16.96	16.87	17.14	16.98
		A+B	20.93	21.40	21.14	21.63	21.80	21.69	21.63	21.59
CH 11	2462 MHz	A+B(A)	18.25	18.76	18.74	18.66	18.89	19.02	19.26	19.26
		A+B(B)	15.87	15.96	16.24	16.18	16.34	16.73	16.82	16.35
		A+B	20.23	20.59	20.68	20.60	20.81	21.03	21.22	21.05

Channel	Frequency	Chain	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)							
			OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
CH 03	2422 MHz	A	19.91	19.98	20.02	20.35	19.36	20.12	19.84	19.15
CH 06	2437 MHz	A	19.86	19.88	19.89	20.12	19.35	20.11	19.75	18.77
CH 09	2452 MHz	A	19.84	19.11	19.54	19.65	19.26	19.89	19.02	18.75
CH 03	2422 MHz	B	16.85	16.34	16.25	16.72	16.87	17.34	16.12	16.14
CH 06	2437 MHz	B	16.65	15.87	15.86	16.24	16.52	17.24	15.82	16.02
CH 09	2452 MHz	B	16.08	15.72	15.82	16.15	16.16	16.89	15.75	15.92
Channel	Frequency	Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
CH 03	2422 MHz	A+B(A)	20.28	19.84	19.76	20.16	21.02	19.78	19.15	18.65
		A+B(B)	16.82	17.25	17.25	17.04	19.25	16.75	16.65	15.89
		A+B	21.90	21.75	21.69	21.88	23.23	21.53	21.09	20.50
CH 06	2437 MHz	A+B(A)	20.17	19.56	19.45	20.07	21.88	20.02	19.05	18.56
		A+B(B)	16.78	17.08	17.05	16.86	18.98	17.02	17.25	16.84
		A+B	21.81	21.50	21.42	21.77	23.68	21.78	21.25	20.79
CH 09	2452 MHz	A+B(A)	19.84	19.32	19.17	19.75	21.23	19.65	18.75	18.53
		A+B(B)	15.88	16.72	16.78	16.75	18.74	16.12	16.07	15.68
		A+B	21.31	21.22	21.15	21.51	23.17	21.24	20.62	20.35

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 24Mbps for 802.11g, MCS13 for 802.11n (BW 20MHz), and MCS12 for 802.11n (BW 40MHz) for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing.
3. For MIMO mode, each radio port was individually measured, and then summed together according to the FCC KDB Pub 66291. For example, the 802.11n (BW=20MHz) at channel 01 (2412MHz), MCS8, the wording of A+B(A) represents that the power measured at chain A under MIMO mode is 20.12dBm, and the A+B(B) represents that the power measured at chain B, then the summation A+B is 23.27dBm from the formula $10\log [(A \text{ chain in mW}) + (B \text{ chain in mW})]$.

2.2 Test Mode

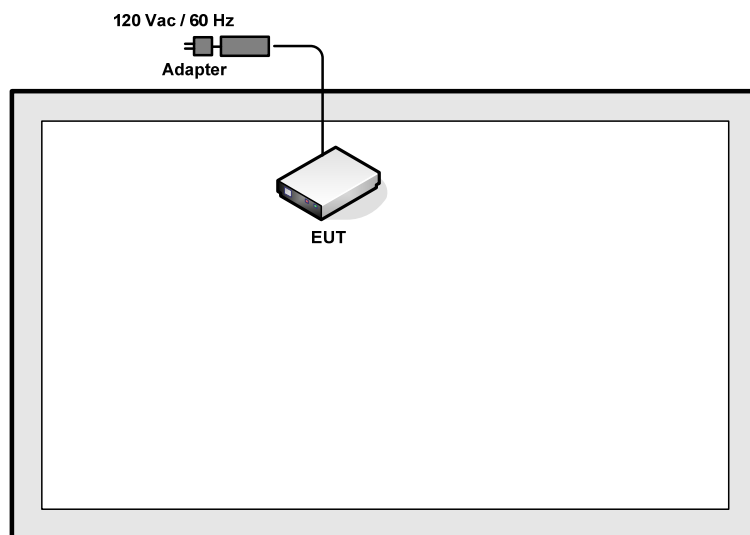
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic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

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

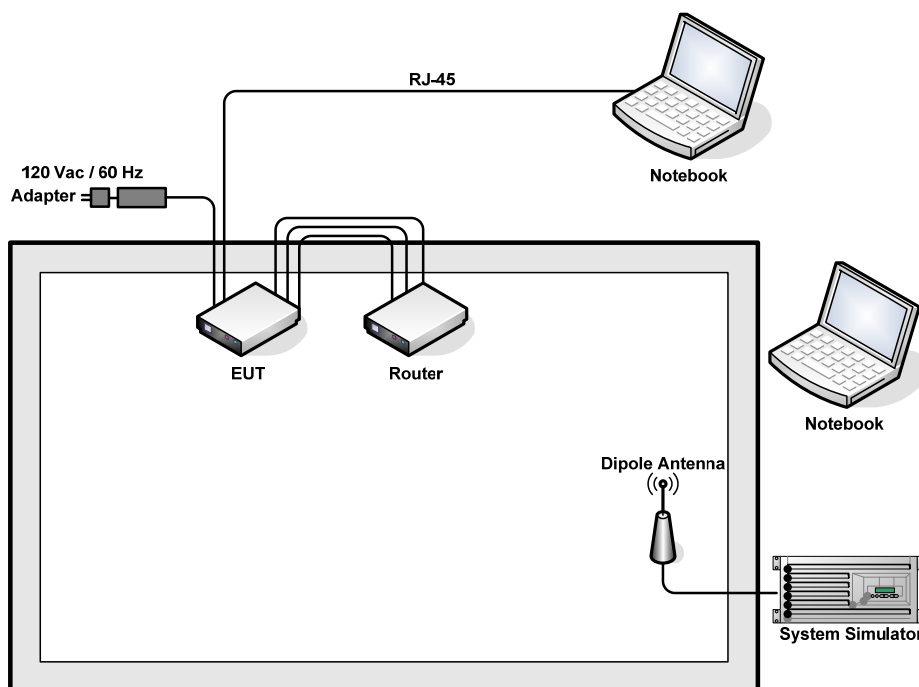
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz Mode 10: 802.11n (BW 40M)_CH03_2422 MHz Mode 11: 802.11n (BW 40M)_CH06_2437 MHz Mode 12: 802.11n (BW 40M)_CH09_2452 MHz
Radiated 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 (BW 20M)_CH01_2412 MHz Mode 8: 802.11n (BW 20M)_CH06_2437 MHz Mode 9: 802.11n (BW 20M)_CH11_2462 MHz Mode 10: 802.11n (BW 40M)_CH03_2422 MHz Mode 11: 802.11n (BW 40M)_CH06_2437 MHz Mode 12: 802.11n (BW 40M)_CH09_2452 MHz
AC Conducted Emission	Mode 1 : CDMA850 Idle + WLAN Link + LAN Link + Adapter	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>





2.4 RF Utility

The programmed RF utility "QA-RT3050" is installed in Notebook 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 Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

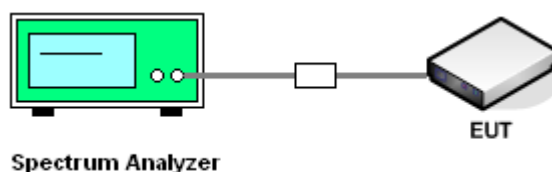
3.1.2 Measuring Instruments

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



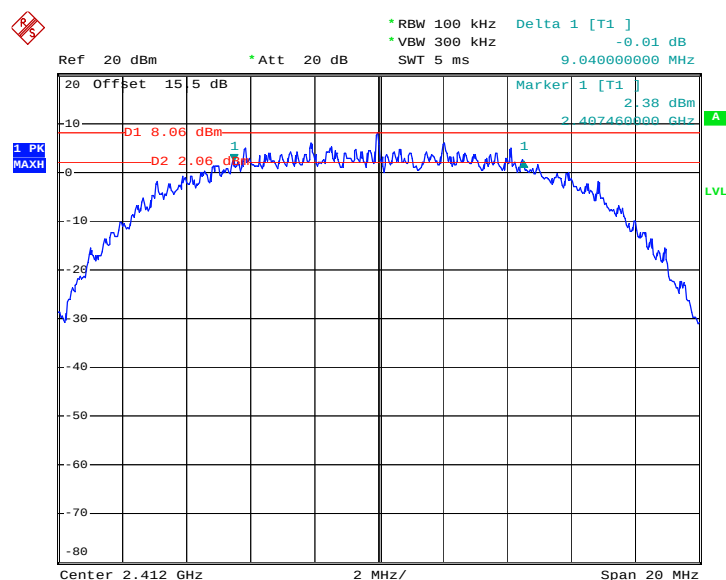


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

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

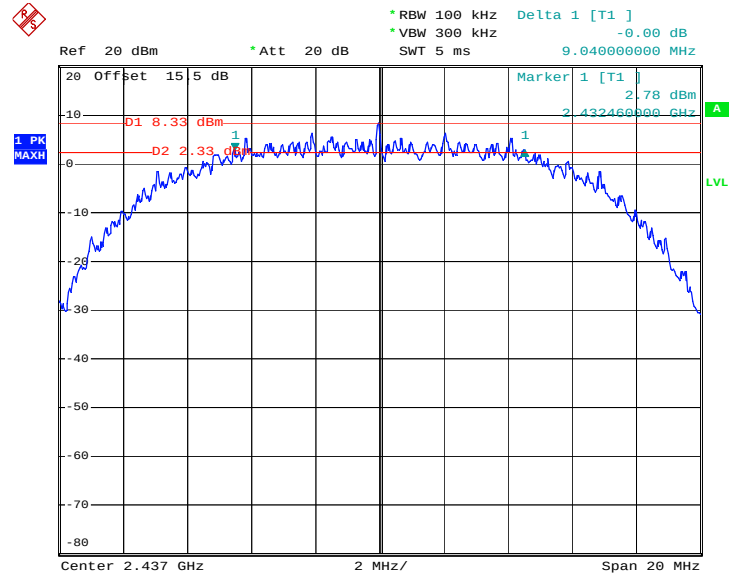
Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01- Chain A



Date: 17.MAY.2011 11:42:55

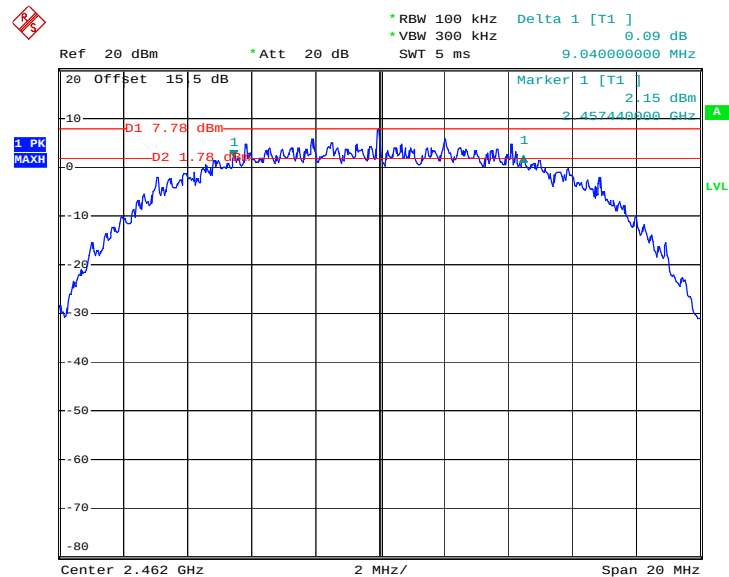


Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06- Chain A



Date: 17.MAY.2011 13:10:18

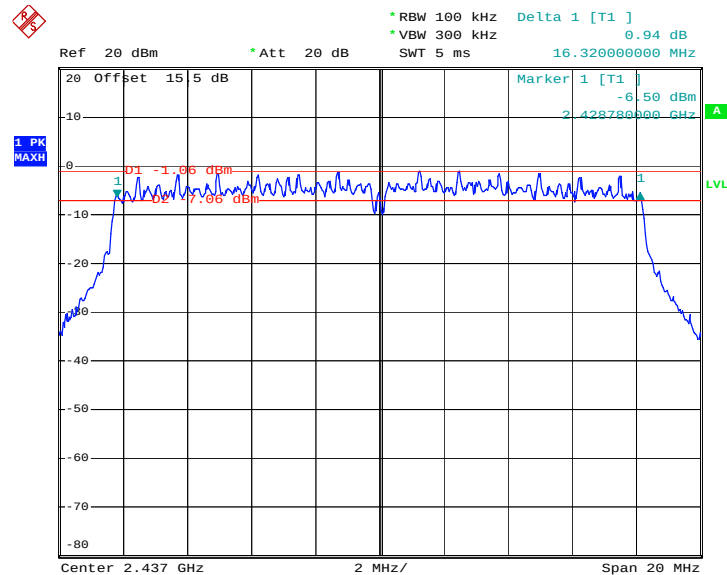
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11- Chain A



Date: 17.MAY.2011 13:13:03

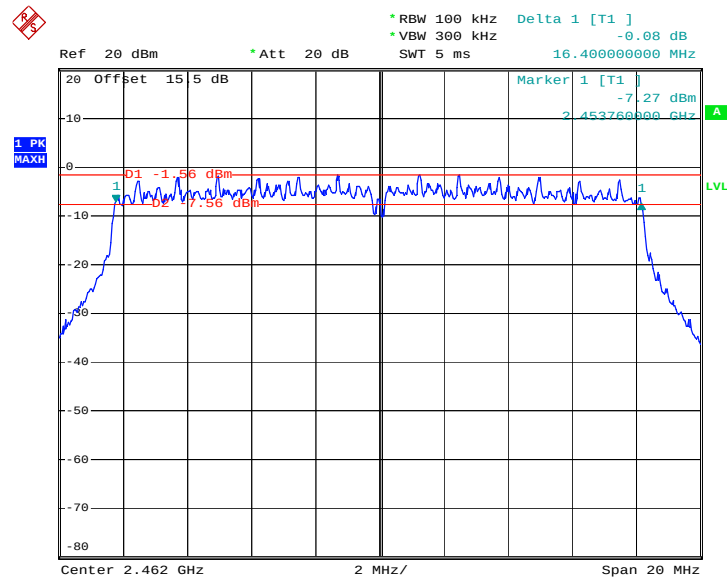


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06- Chain A



Date: 17.MAY.2011 13:49:30

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11- Chain A



Date: 17.MAY.2011 14:10:21

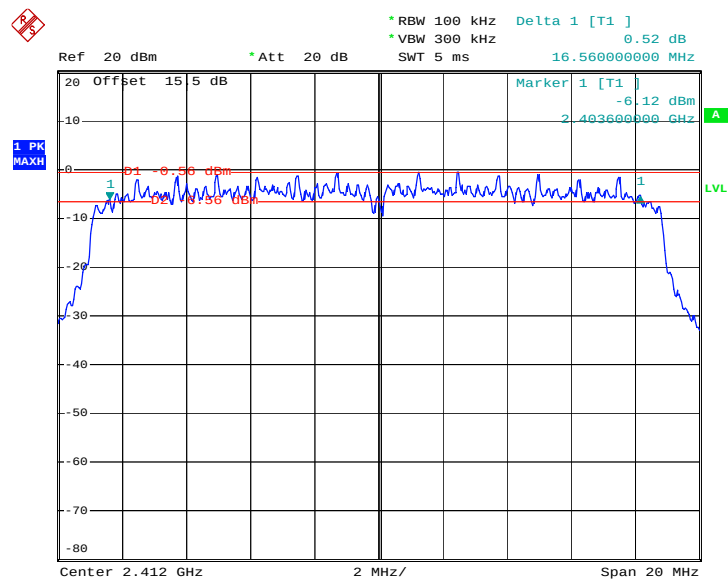


Test Mode :	Mode 7, 8, 9	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Chain	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	A+B(A)	16.56	0.5	Pass
06	2437	A+B(A)	16.64	0.5	Pass
11	2462	A+B(A)	16.36	0.5	Pass
01	2412	A+B(B)	16.52	0.5	Pass
06	2437	A+B(B)	16.28	0.5	Pass
11	2462	A+B(B)	16.56	0.5	Pass

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

01- Chain A+B(A)

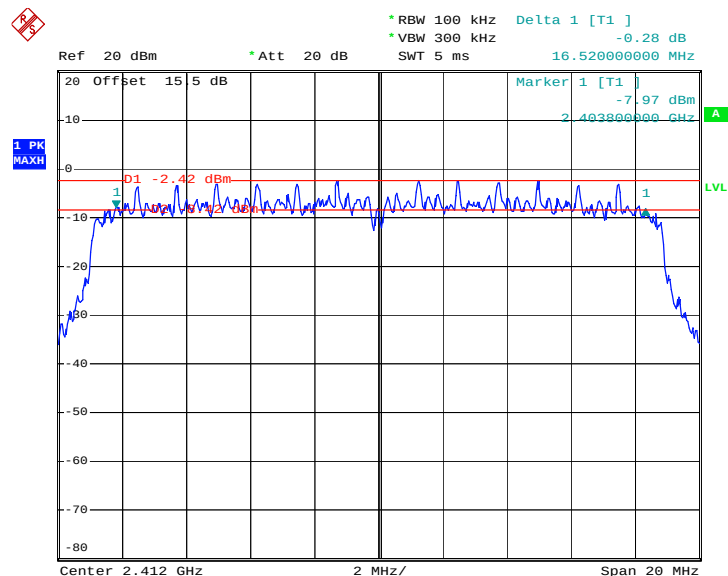


Date: 17.MAY.2011 14:30:16



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

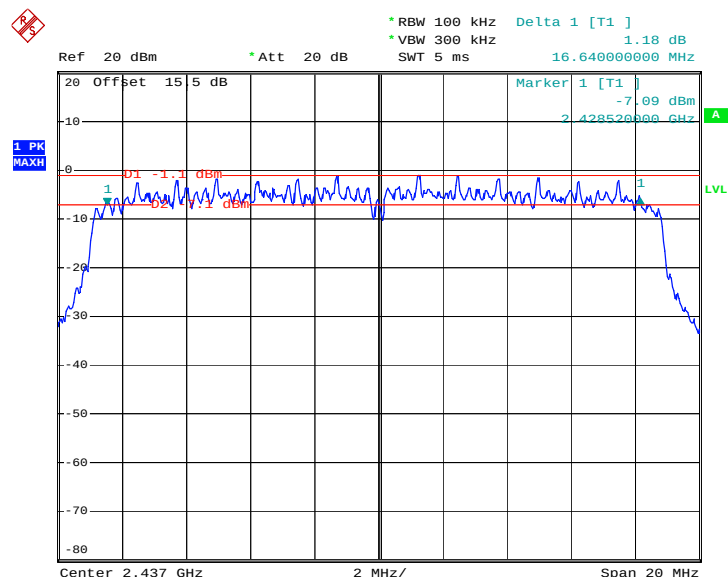
01- Chain A+B(B)



Date: 17.MAY.2011 15:36:50

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

06- Chain A+B(A)

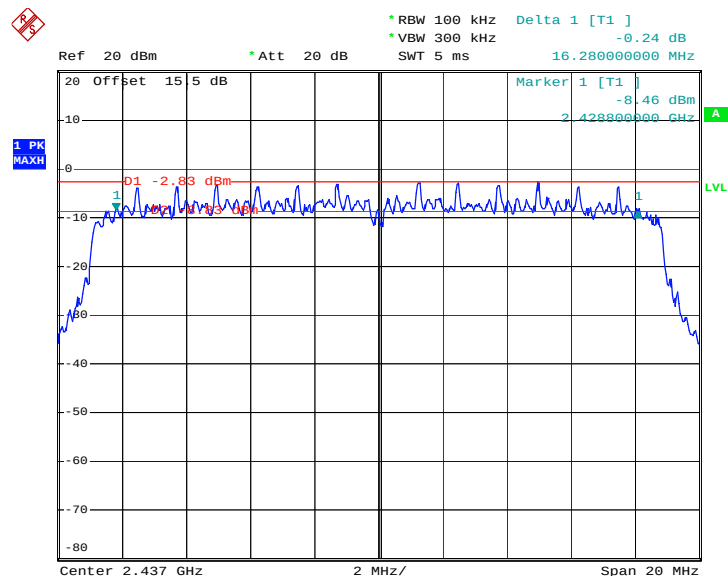


Date: 17.MAY.2011 14:47:03



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

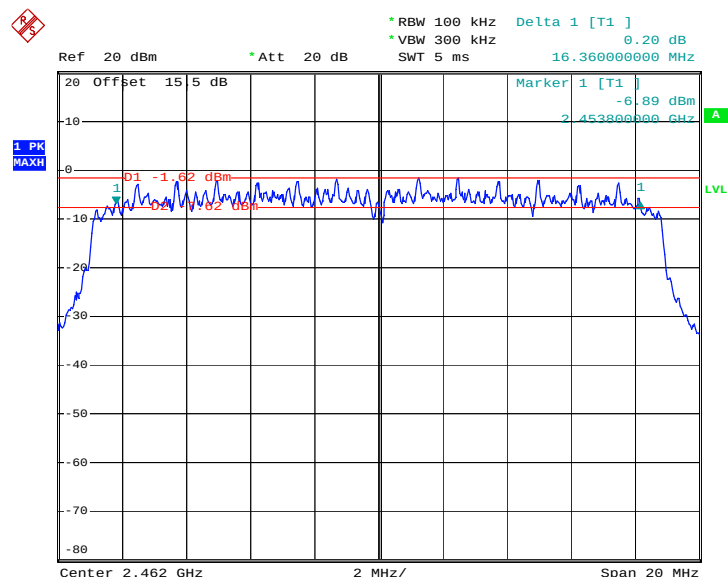
06- Chain A+B(B)



Date: 17.MAY.2011 15:51:56

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

- Chain A+B(A)

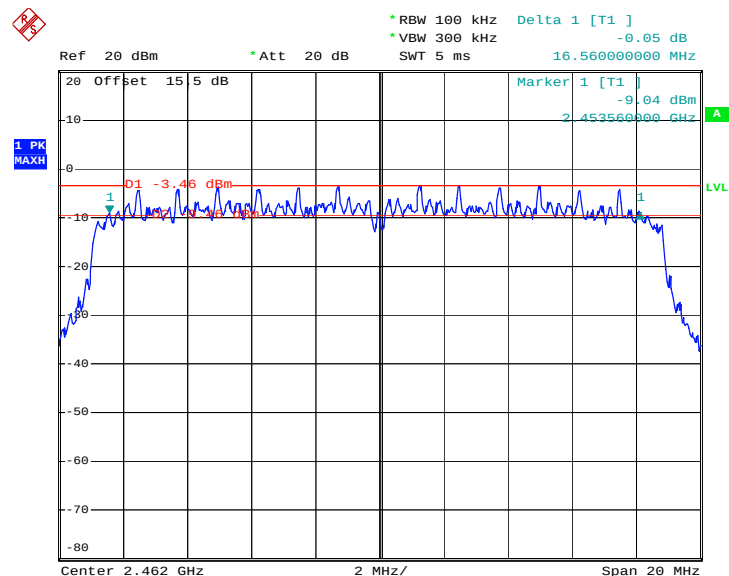


Date: 17.MAY.2011 15:00:45



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

- Chain A+B(B)



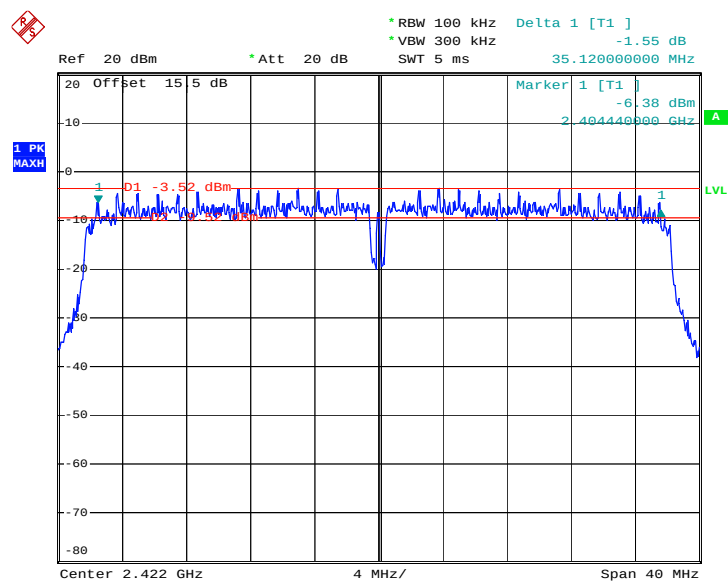
Date: 17.MAY.2011 16:14:41



Test Mode :	Mode 10, 11, 12	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Chain	802.11n (BW 40MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	A+B(A)	35.12	0.5	Pass
06	2437	A+B(A)	35.36	0.5	Pass
09	2452	A+B(A)	35.12	0.5	Pass
03	2422	A+B(B)	35.12	0.5	Pass
06	2437	A+B(B)	35.12	0.5	Pass
09	2452	A+B(B)	35.12	0.5	Pass

**Mode 10 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 03-
Chain A+B(A)**

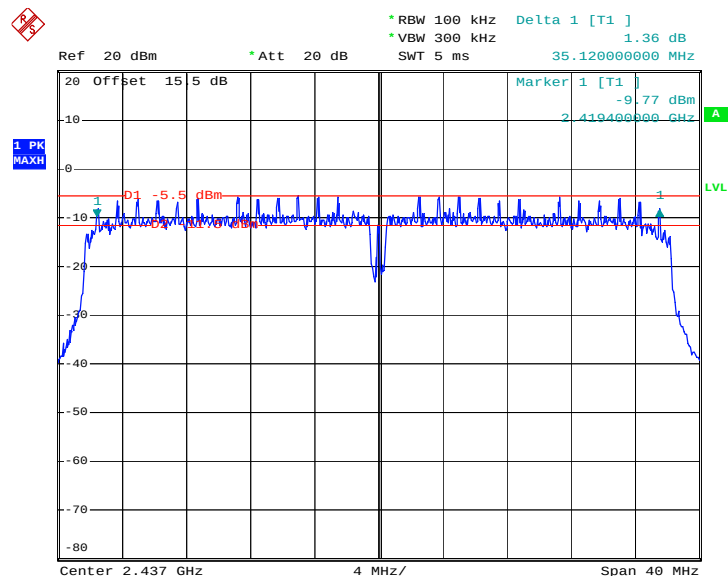


Date: 17.MAY.2011 17:26:25



Mode 11 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 06

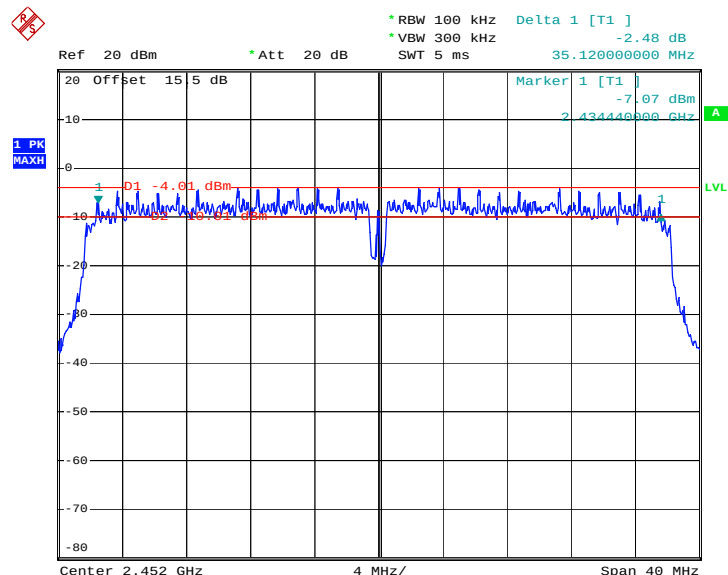
- Chain A+B(B)



Date: 17.MAY.2011 16:59:36

Mode 12 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09-

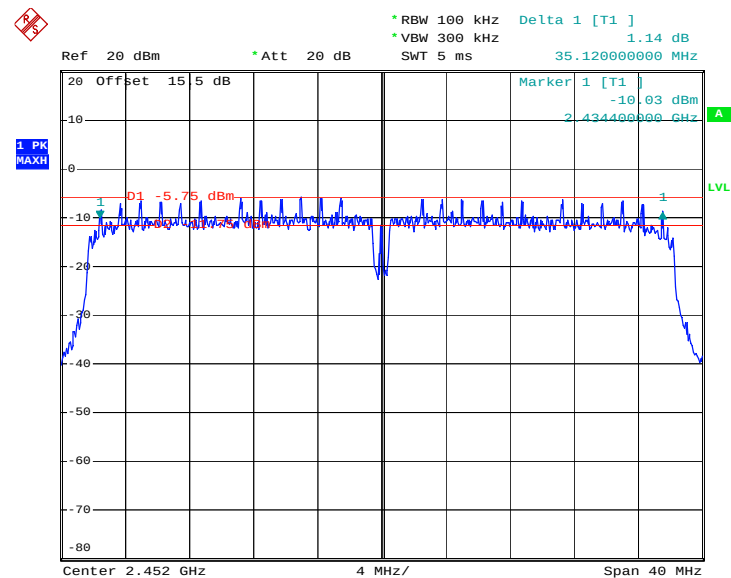
Chain A+B(A)



Date: 17.MAY.2011 18:11:20



Mode 12 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09-
Chain A+B(B)



Date: 17.MAY.2011 17:12:30

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, 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.

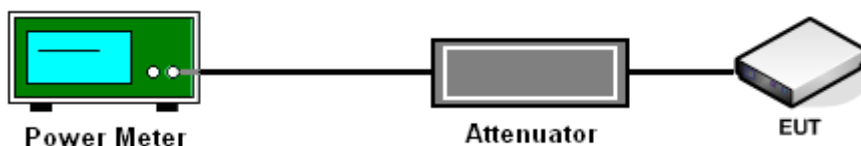
3.2.2 Measuring Instruments

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, 2, 3	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.64	30	Pass
06	2437	18.33	30	Pass
11	2462	17.63	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.19	30	Pass
06	2437	20.76	30	Pass
11	2462	19.75	30	Pass



Test Mode :	Mode 7, 8, 9	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	Chain	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	A+B	22.14	30	Pass
06	2437	A+B	21.69	30	Pass
11	2462	A+B	21.03	30	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	20~21
Test Engineer :	Fly Chen	Relative Humidity :	40~41

Channel	Frequency (MHz)	Chain	802.11n (BW 40MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	A+B	23.23	30	Pass
06	2437	A+B	23.68	30	Pass
09	2452	A+B	23.17	30	Pass

Note: The description of power measurement, please refers to the remark 3 of section 2.1 of this report.

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

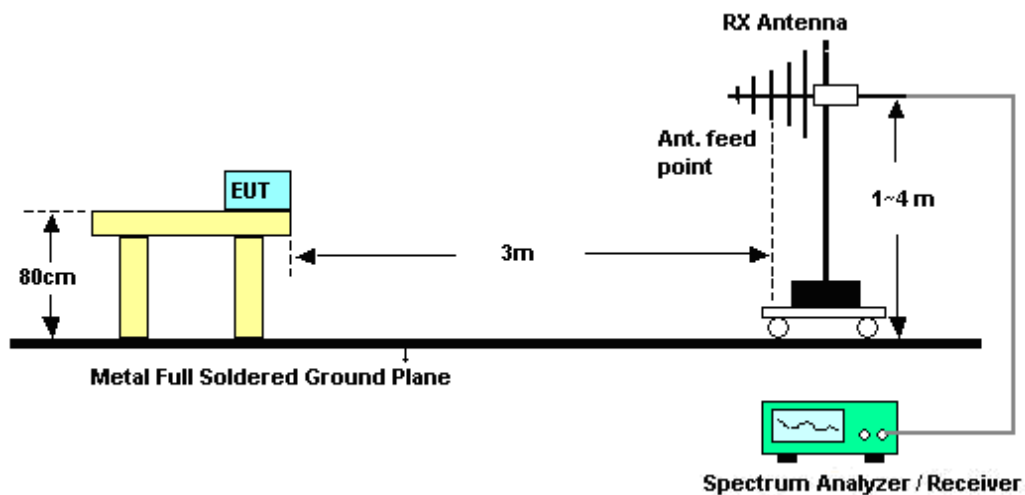
See list of measuring instruments of this test report.

3.3.3 Test Procedures

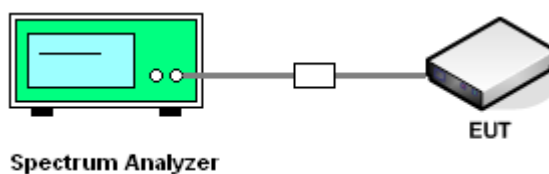
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the device complies with the use of power option 2 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 :	21~22℃
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Xin Peng

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	53.74	-20.26	74	51.46	32.86	3.47	34.05	200	232	Peak
2390	44.46	-9.54	54	42.18	32.86	3.47	34.05	200	232	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	61.15	-12.85	74	58.87	32.86	3.47	34.05	113	17	Peak
2390	48.2	-5.8	54	45.92	32.86	3.47	34.05	113	17	Average

Test Mode :	Mode 3	Temperature :	21~22℃
Test Band :	802.11b	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Xin Peng

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
2483.5	50.12	-23.88	74	47.63	33.01	3.68	34.2	200	97	Peak
2483.5	42.49	-11.51	54	40	33.01	3.68	34.2	200	97	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
2483.5	57.97	-16.03	74	55.48	33.01	3.68	34.2	165	182	Peak
2483.5	48.23	-5.77	54	45.74	33.01	3.68	34.2	165	182	Average



Test Mode :	Mode 4	Temperature :	21~22℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Xin Peng

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	50.36	-23.64	74	48.08	32.86	3.47	34.05	164	295	Peak
2390	43.08	-10.92	54	40.8	32.86	3.47	34.05	164	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	60.03	-13.97	74	57.75	32.86	3.47	34.05	100	298	Peak
2390	42.84	-11.16	54	40.56	32.86	3.47	34.05	100	298	Average

Test Mode :	Mode 6	Temperature :	21~22℃
Test Band :	802.11g	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Xin Peng

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
2483.5	47.36	-26.64	74	44.87	33.01	3.68	34.2	200	360	Peak
2483.5	43.49	-10.51	54	41	33.01	3.68	34.2	200	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	53.88	-20.12	74	51.39	33.01	3.68	34.2	200	25	Peak
2483.5	45.47	-8.53	54	42.98	33.01	3.68	34.2	200	25	Average



Test Mode :	Mode 7	Temperature :	21~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Xin Peng

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	61.95	-12.05	74	59.67	32.86	3.47	34.05	200	231	Peak
2390	40.93	-13.07	54	38.65	32.86	3.47	34.05	200	231	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	70.73	-3.27	74	68.45	32.86	3.47	34.05	128	56	Peak
2390	41.44	-12.56	54	39.16	32.86	3.47	34.05	128	56	Average

Test Mode :	Mode 9	Temperature :	21~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Xin Peng

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
2483.5	61.8	-12.2	74	59.31	33.01	3.68	34.2	200	360	Peak
2483.5	39.38	-14.62	54	36.89	33.01	3.68	34.2	200	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.64	-5.36	74	66.15	33.01	3.68	34.2	200	0	Peak
2483.5	42.45	-11.55	54	39.96	33.01	3.68	34.2	200	0	Average



Test Mode :	Mode 10	Temperature :	21~22℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	41~42%
Test Channel :	03	Test Engineer :	Xin Peng

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	60.77	-13.23	74	58.49	32.86	3.47	34.05	100	0	Peak
2390	42.4	-11.6	54	40.12	32.86	3.47	34.05	100	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	71.85	-2.15	74	69.57	32.86	3.47	34.05	200	0	Peak
2390	42.98	-11.02	54	40.7	32.86	3.47	34.05	200	0	Average

Test Mode :	Mode 12	Temperature :	21~22℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	41~42%
Test Channel :	09	Test Engineer :	Xin Peng

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	60.56	-13.44	74	58.07	33.01	3.68	34.2	100	0	Peak
2483.85	40.14	-13.86	54	37.65	33.01	3.68	34.2	100	0	Average

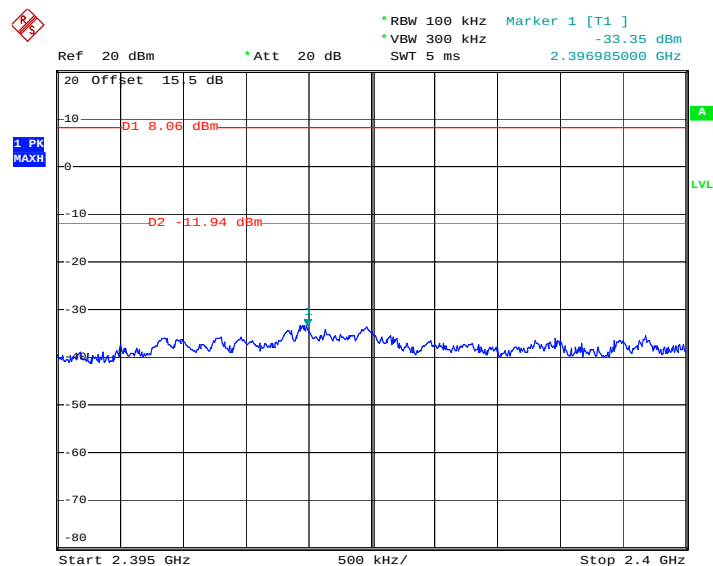
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Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.04	71.38	-2.62	74	68.89	33.01	3.68	34.2	200	360	Peak
2484.04	41.99	-12.01	54	39.5	33.01	3.68	34.2	200	360	Average



3.3.6 Test Plots of Conducted Band Edges

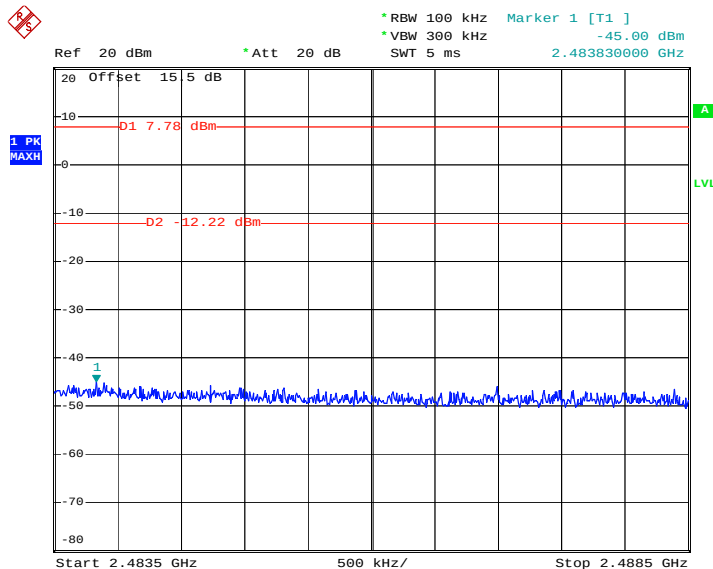
Test Mode :	Mode 1 and 3	Temperature :	20~21℃
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 17.MAY.2011 11:44:07

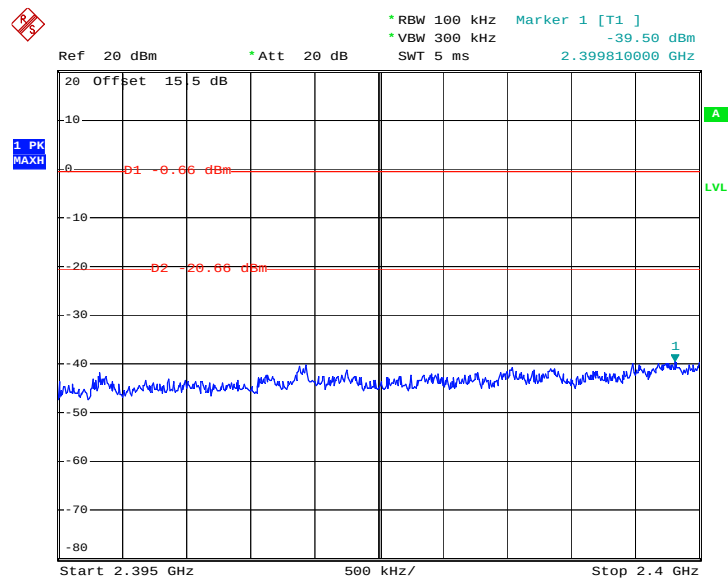
High Band Edge Plot on 802.11b Channel 11



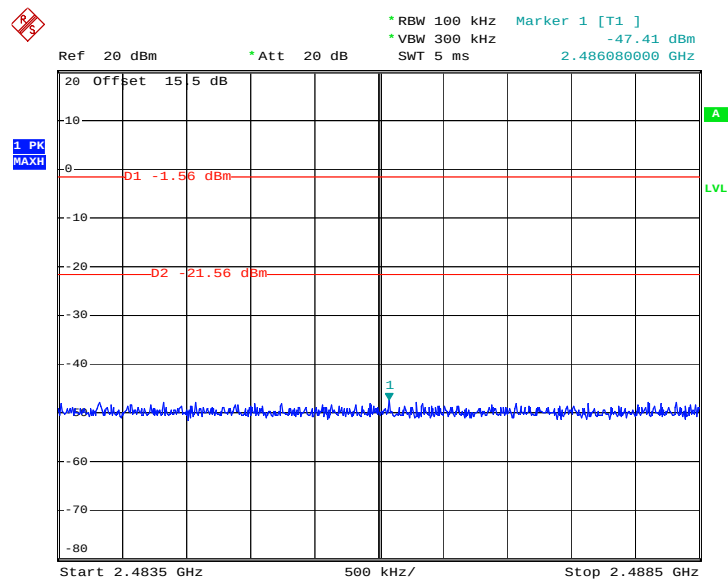
Date: 17.MAY.2011 13:13:48



Test Mode :	Mode 4 and 6	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11g Channel 01

Date: 17.MAY.2011 13:28:35

High Band Edge Plot on 802.11g Channel 11

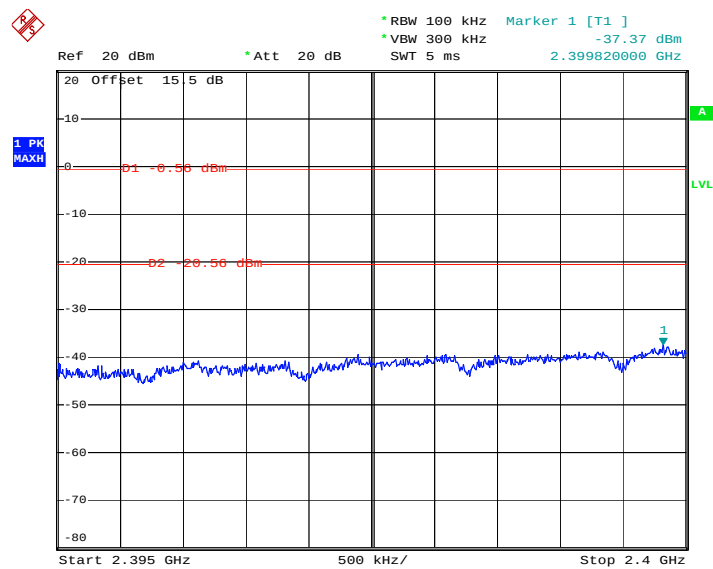
Date: 17.MAY.2011 14:11:47



Test Mode :	Mode 7 and 9	Temperature :	20~21℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

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

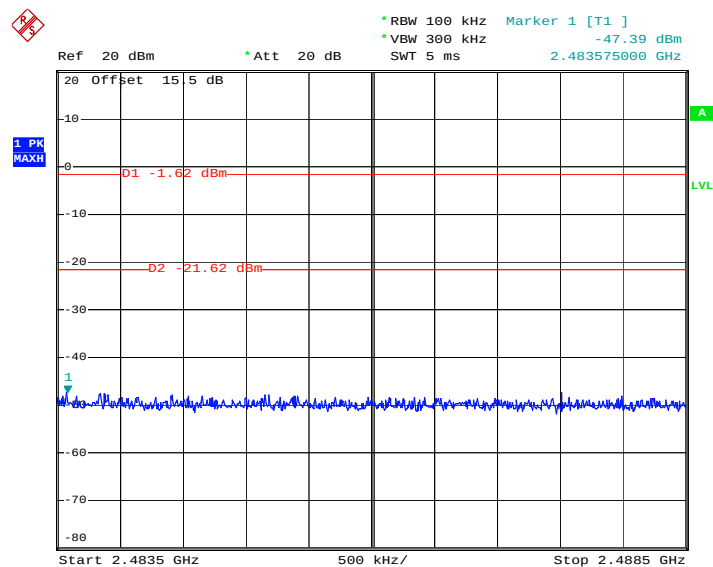
A+B(A)



Date: 17.MAY.2011 14:31:25

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

A+B(A)

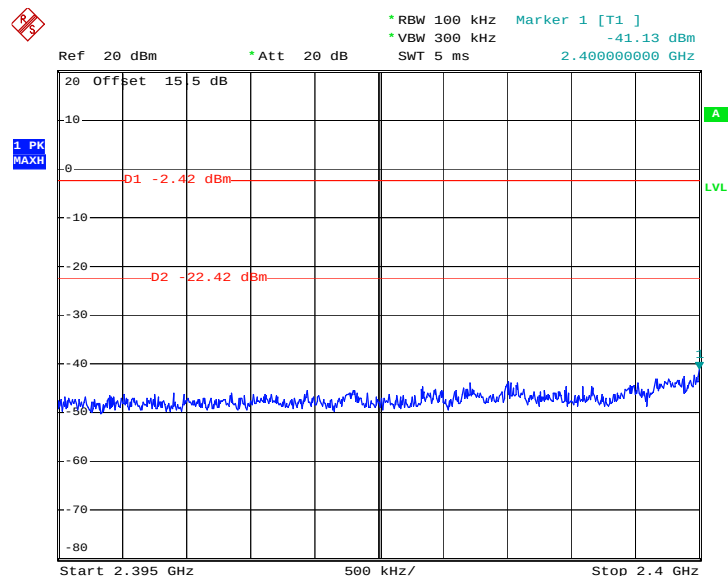


Date: 17.MAY.2011 15:01:48



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

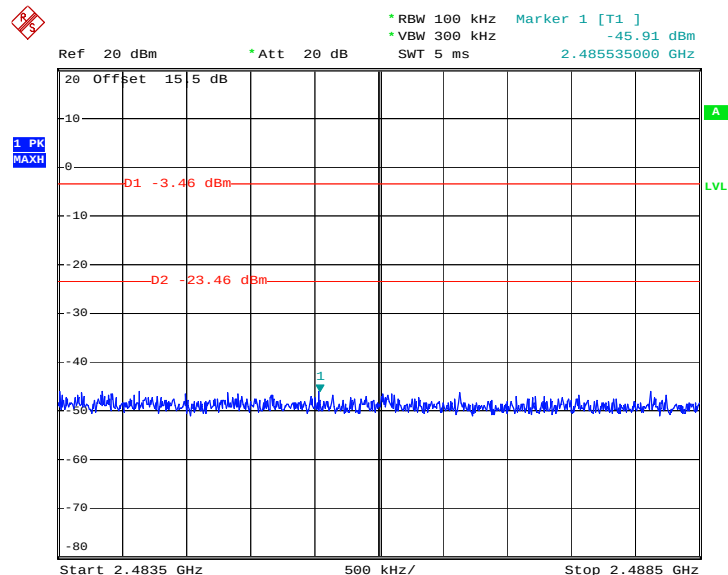
A+B(B)



Date: 17.MAY.2011 15:38:06

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

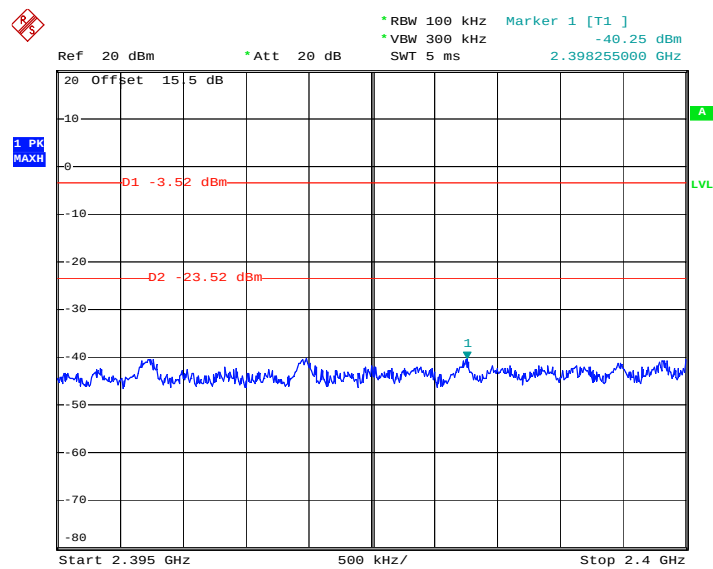
A+B(B)



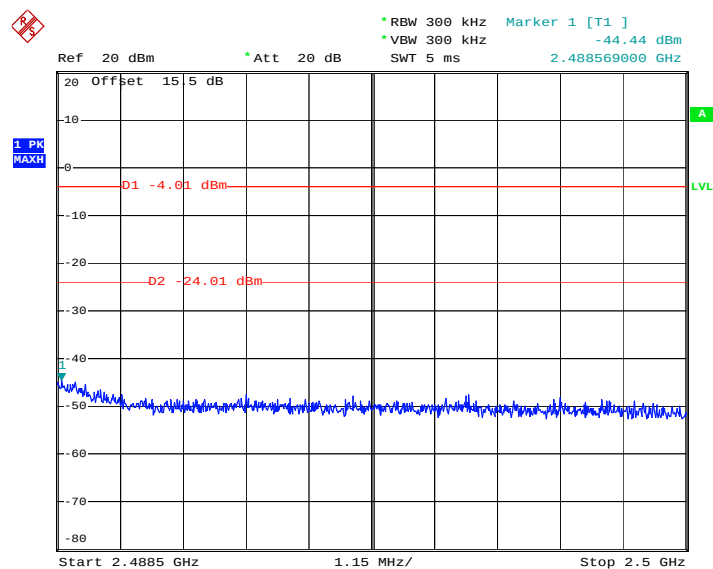
Date: 17.MAY.2011 16:15:30



Test Mode :	Mode 10 and 12	Temperature :	20~21°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	03 and 09	Test Engineer :	Fly Chen

Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03- Chain**A+B(A)**

Date: 17.MAY.2011 17:27:34

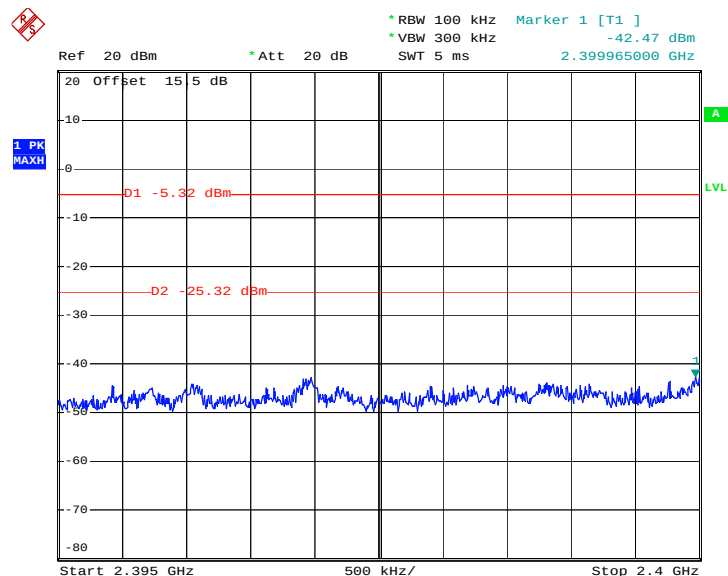
High Band Edge Plot on 802.11n (BW 40MHz) Channel 09- Chain**A+B(A)**

Date: 17.MAY.2011 18:12:11



Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03- Chain

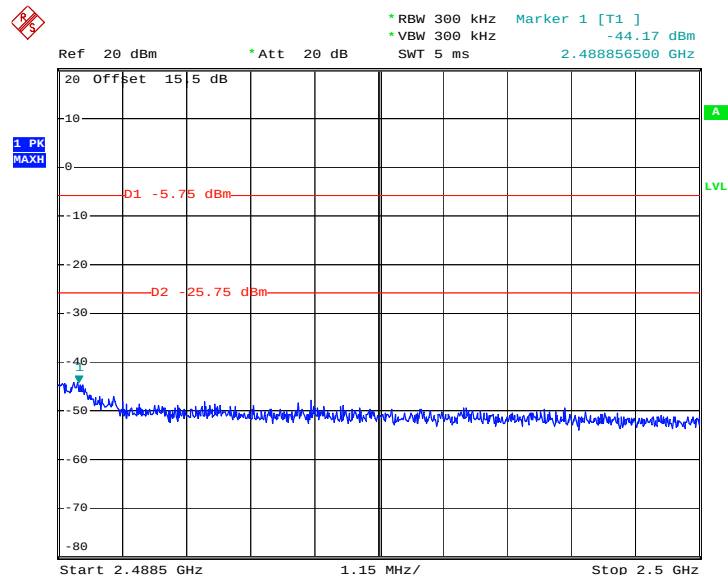
A+B(B)



Date: 17.MAY.2011 16:55:59

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09- Chain

A+B(B)



Date: 17.MAY.2011 17:13:21

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

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

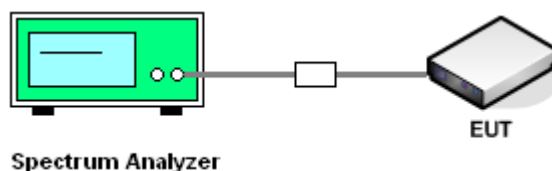
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

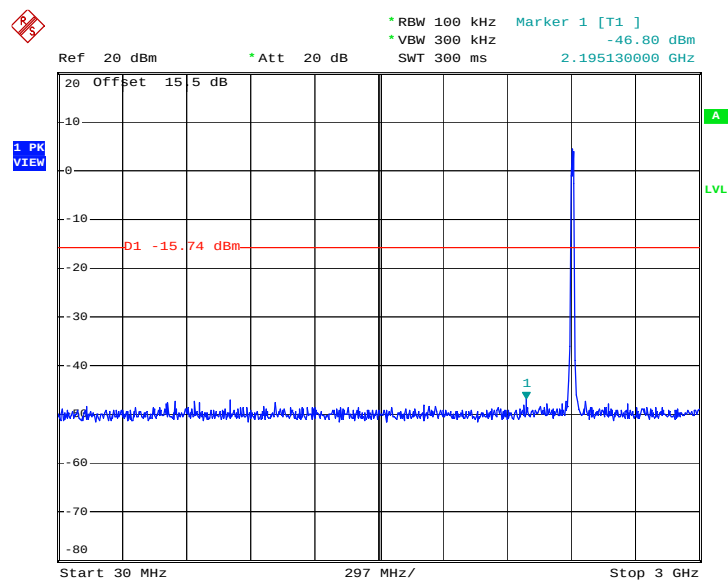
1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100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

3.4.4 Test Setup

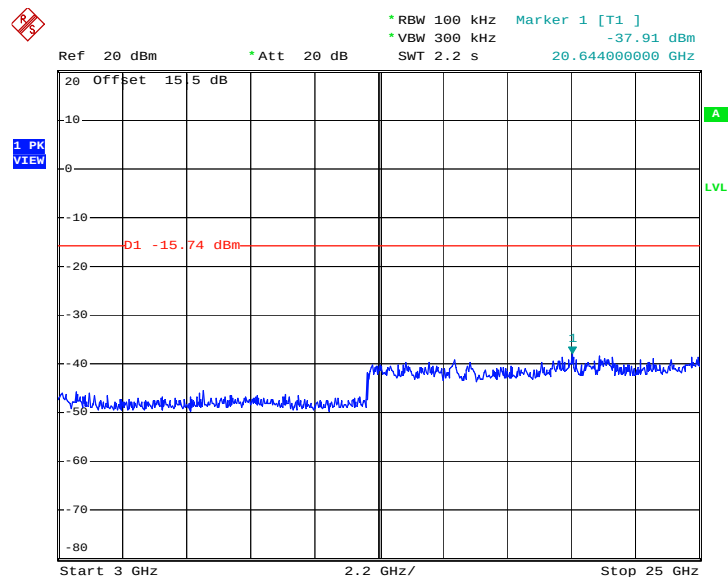


**3.4.5 Test Plots of Spurious Emission**

Test Mode :	Mode 1	Temperature :	20~21°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

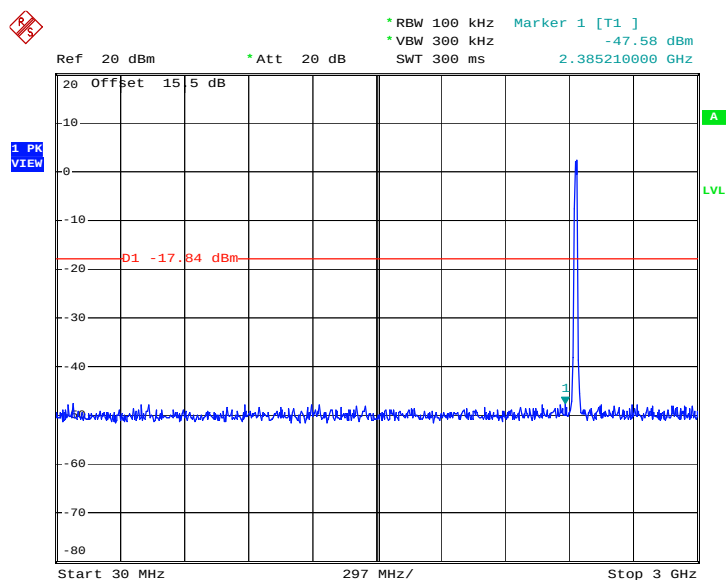
Date: 17.MAY.2011 11:44:56

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

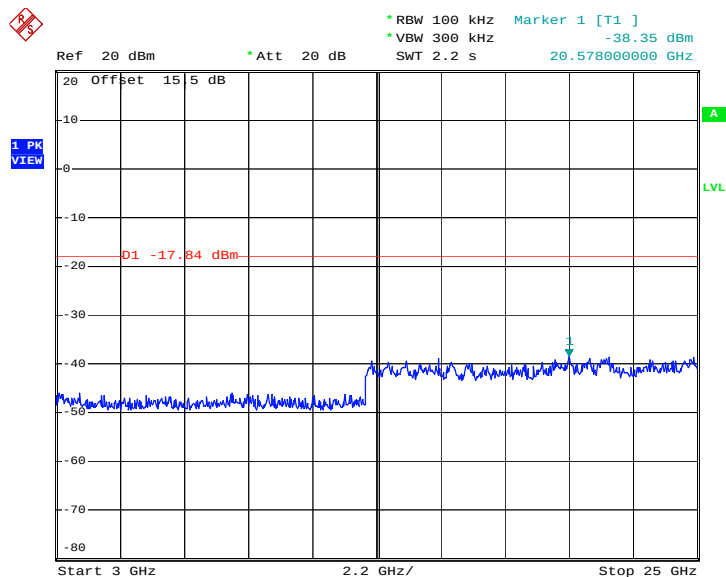
Date: 17.MAY.2011 11:45:13



Test Mode :	Mode 2	Temperature :	20~21°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

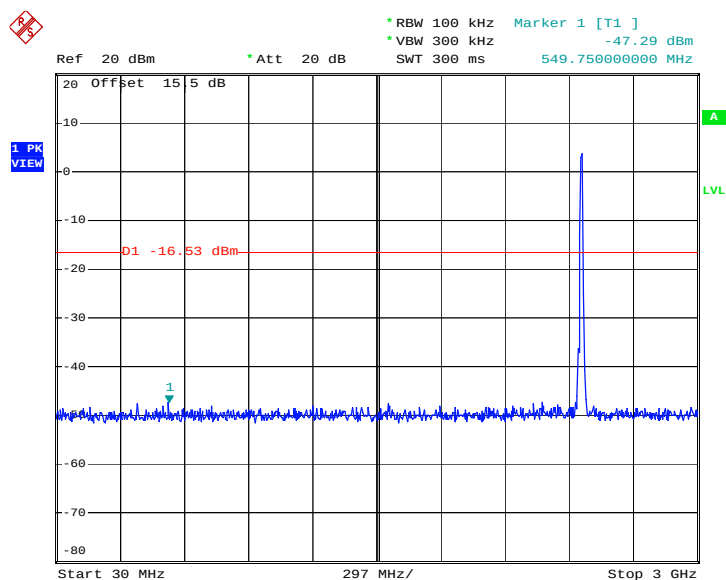
Date: 17.MAY.2011 12:03:13

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

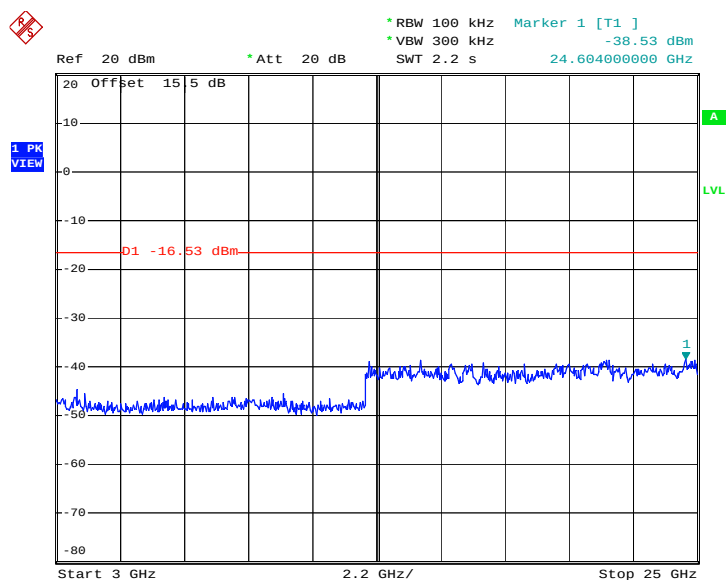
Date: 17.MAY.2011 12:03:30



Test Mode :	Mode 3	Temperature :	20~21°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

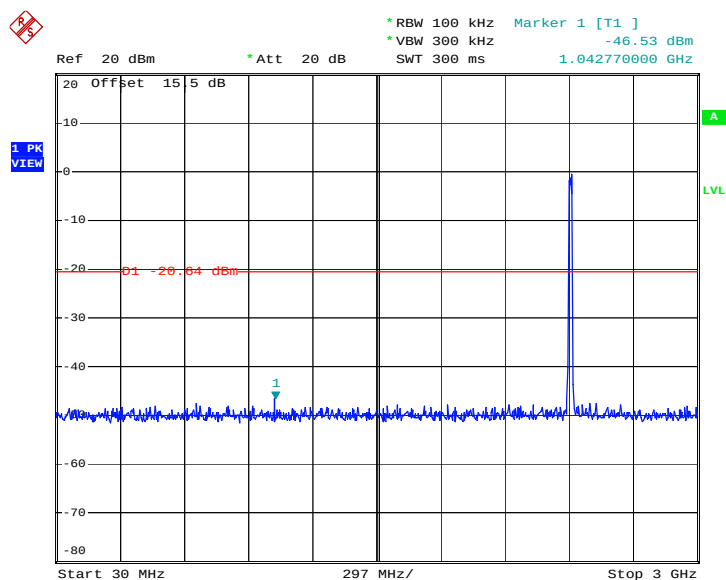
Date: 17.MAY.2011 13:14:49

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

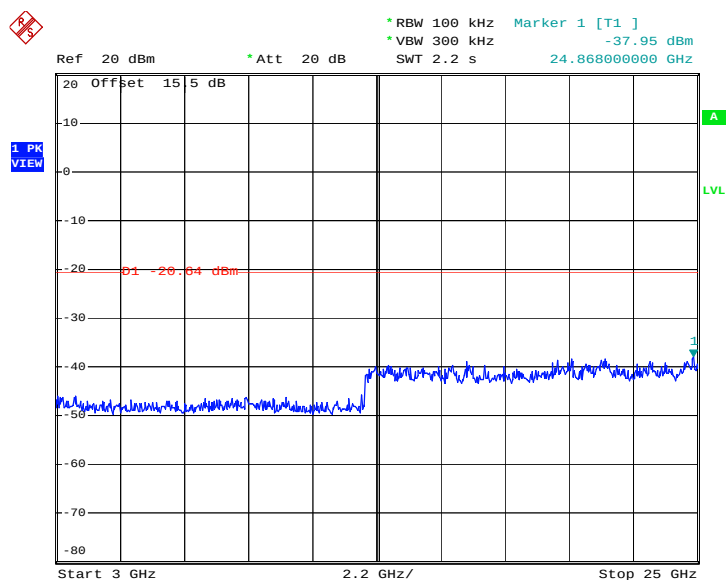
Date: 17.MAY.2011 13:15:06



Test Mode :	Mode 4	Temperature :	20~21℃
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

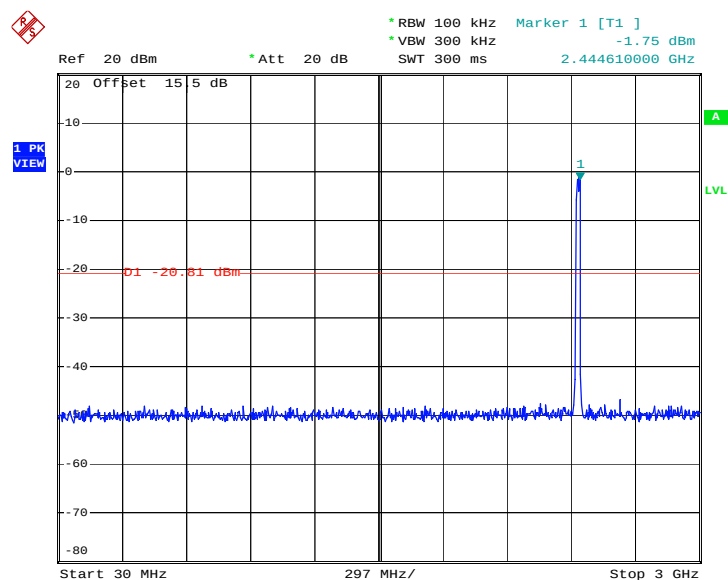
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Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

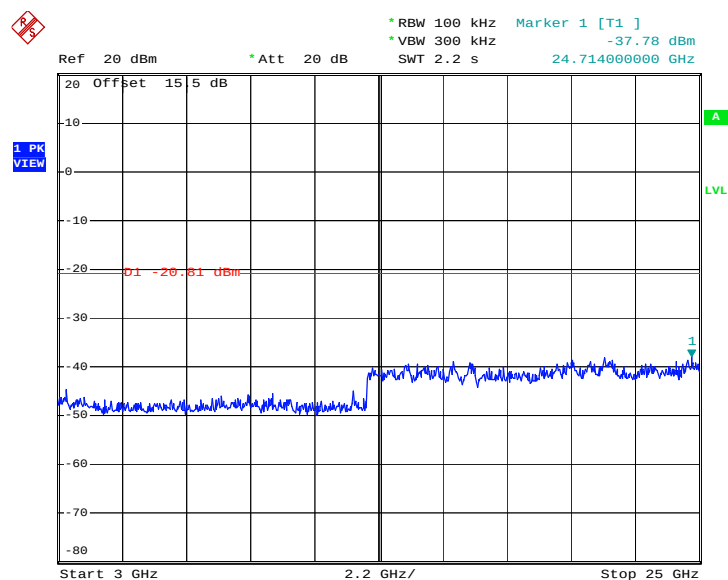
Date: 17.MAY.2011 13:30:41



Test Mode :	Mode 5	Temperature :	20~21
Test Band :	802.11g	Relative Humidity :	40~41
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

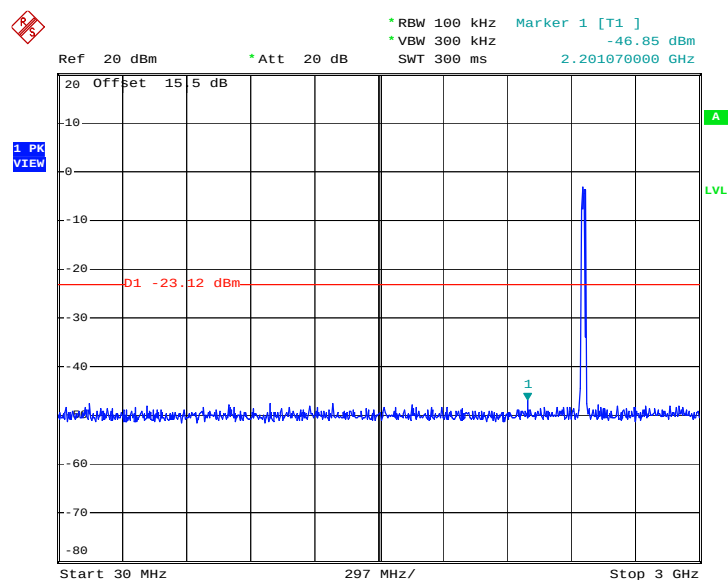
Date: 17.MAY.2011 13:52:40

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

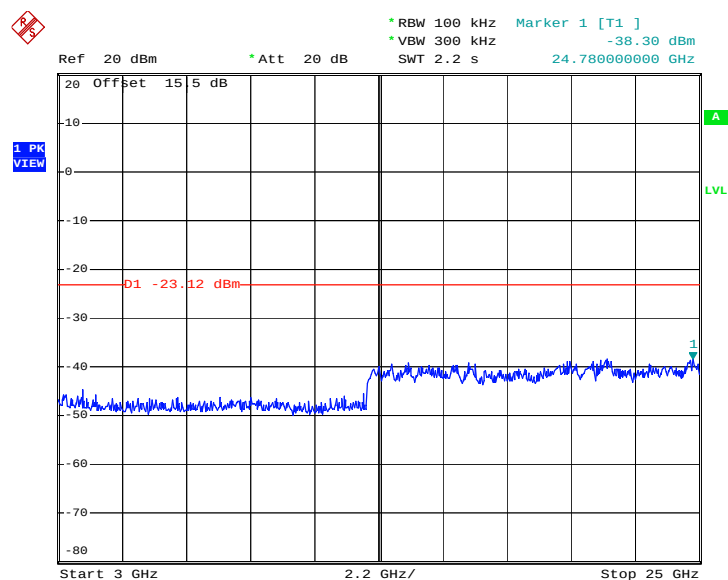
Date: 17.MAY.2011 13:52:57



Test Mode :	Mode 6	Temperature :	20~21°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 17.MAY.2011 14:12:42

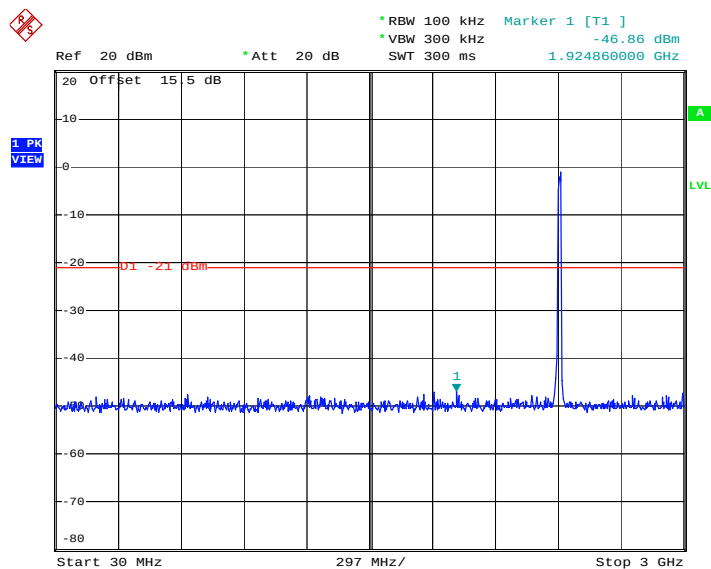
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

Date: 17.MAY.2011 14:12:59



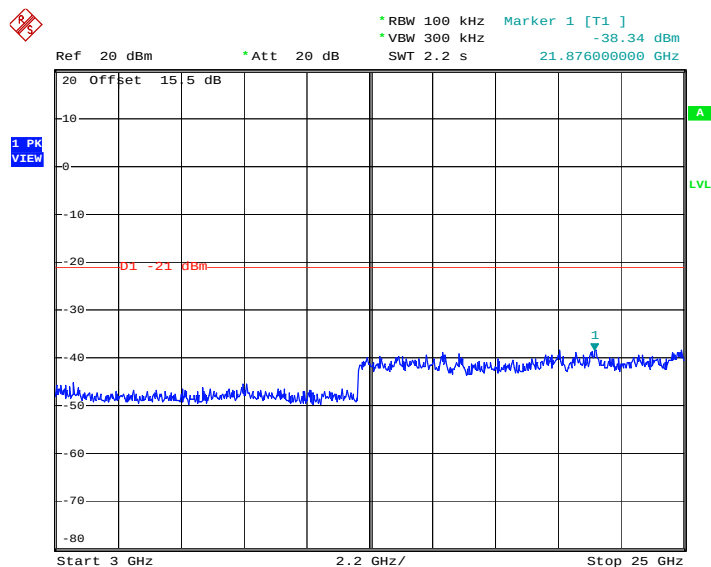
Test Mode :	Mode 7	Temperature :	20~21°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 14:32:31

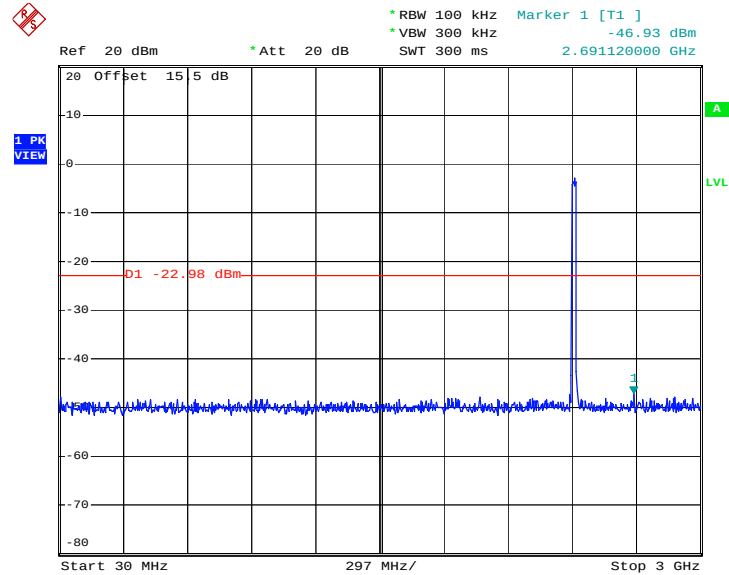
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 14:32:48

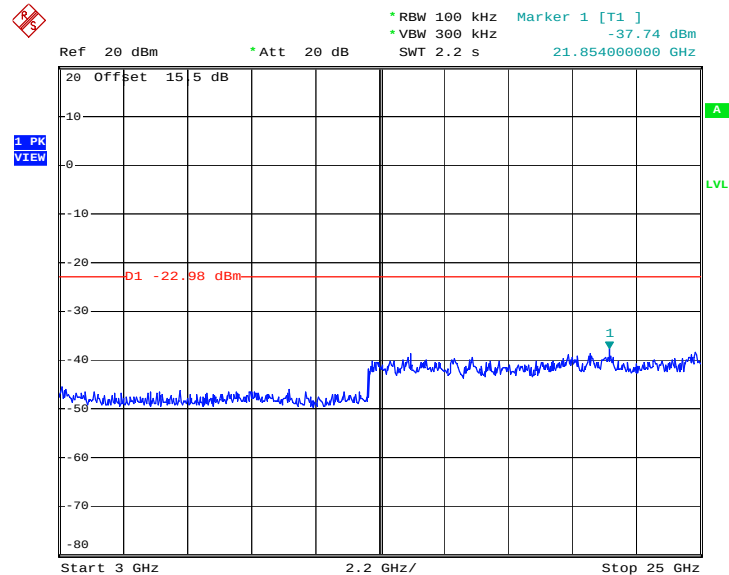


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 15:39:18

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)

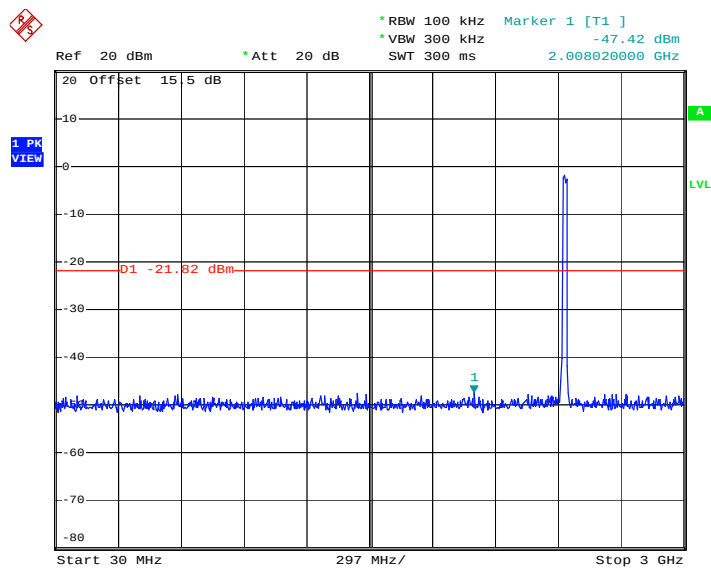


Date: 17.MAY.2011 15:39:35



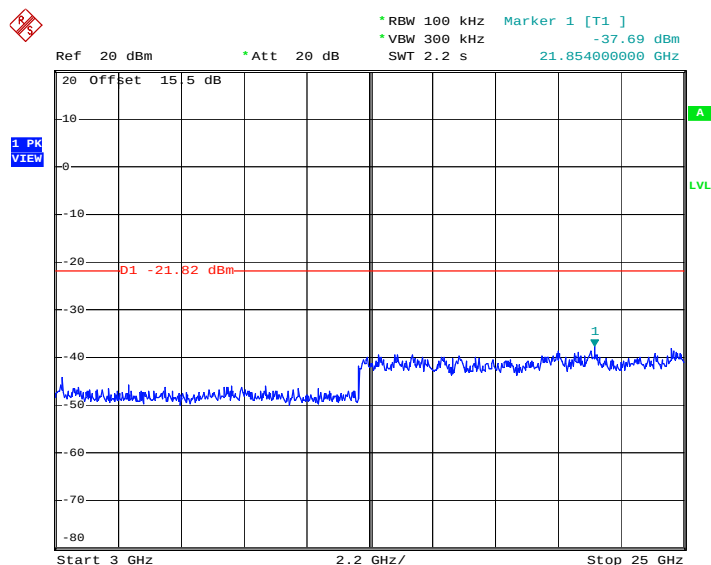
Test Mode :	Mode 8	Temperature :	20~21°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)



Date: 18.MAY.2011 17:32:59

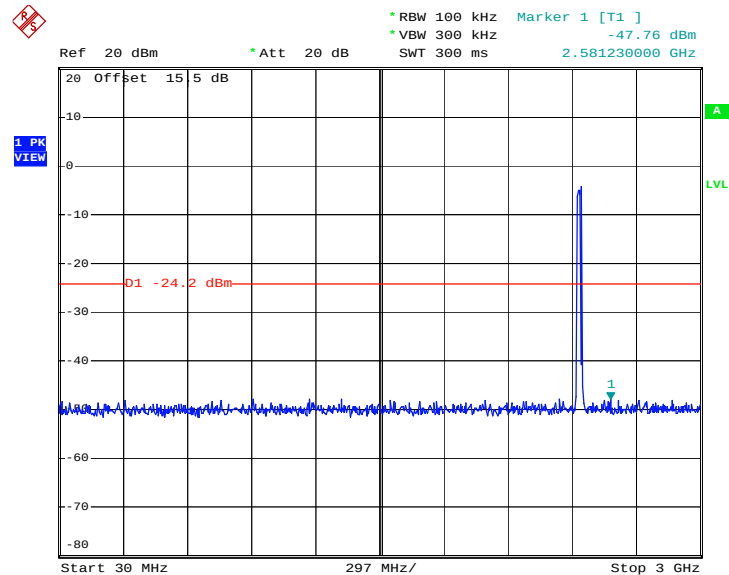
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)



Date: 18.MAY.2011 17:33:16

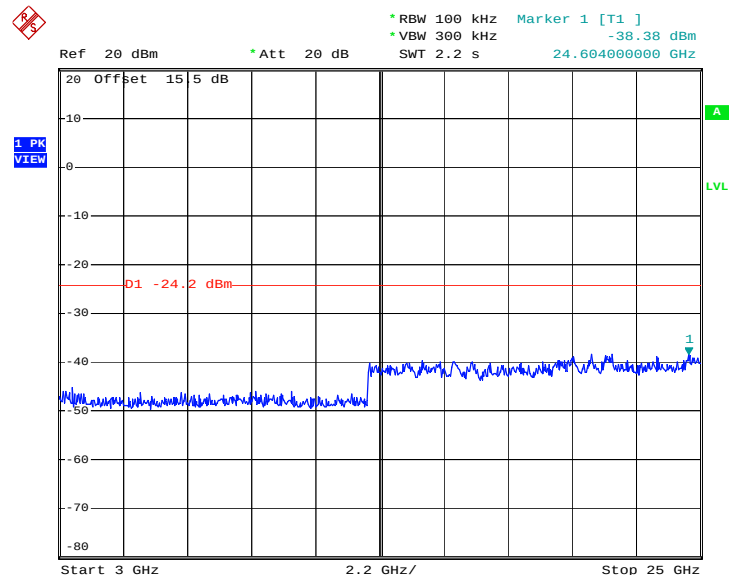


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 16:12:35

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)

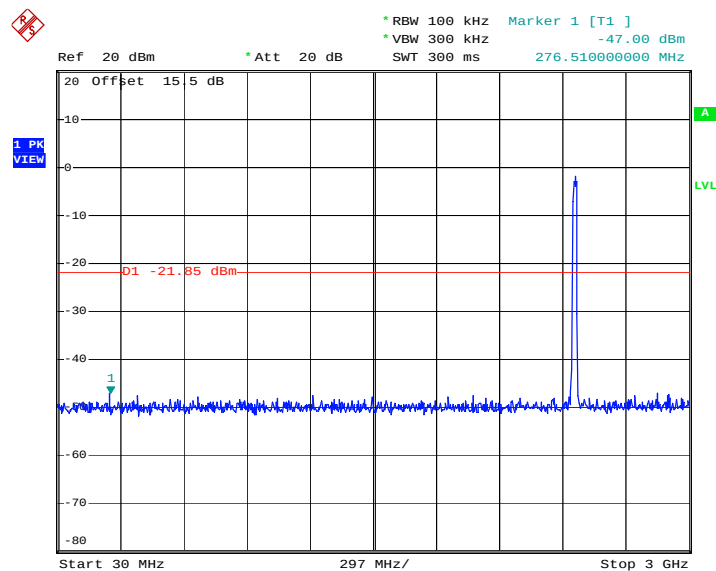


Date: 17.MAY.2011 16:12:52



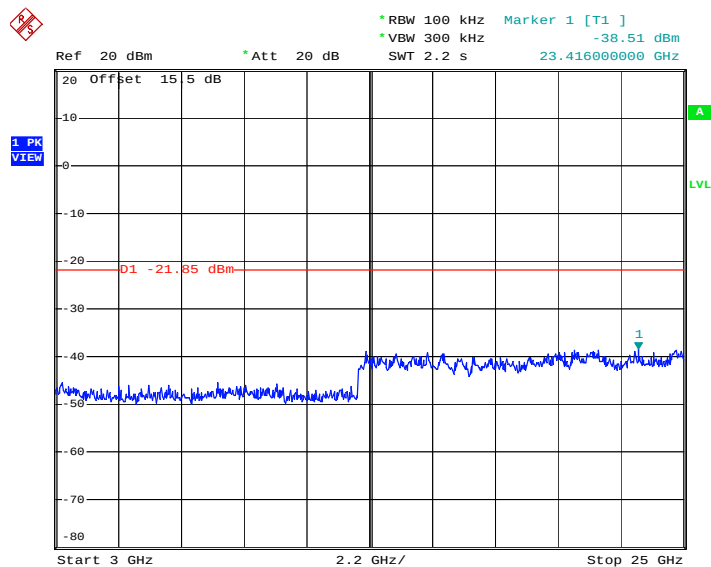
Test Mode :	Mode 9	Temperature :	20~21°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 15:02:49

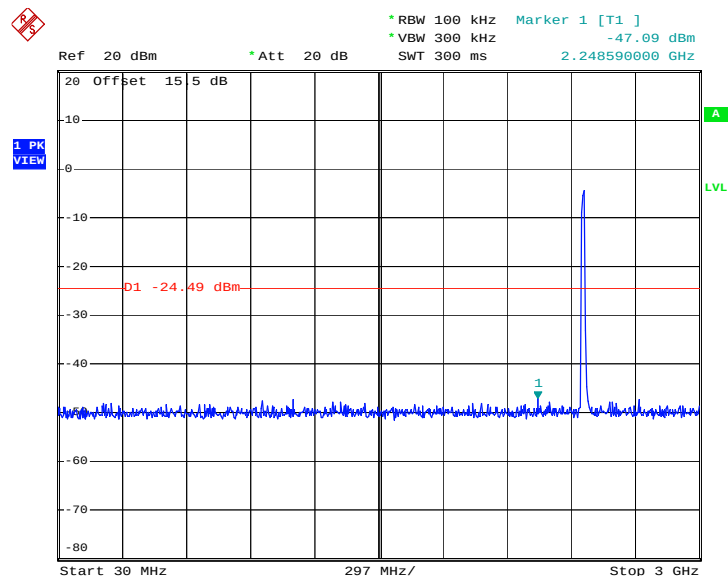
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 15:03:06

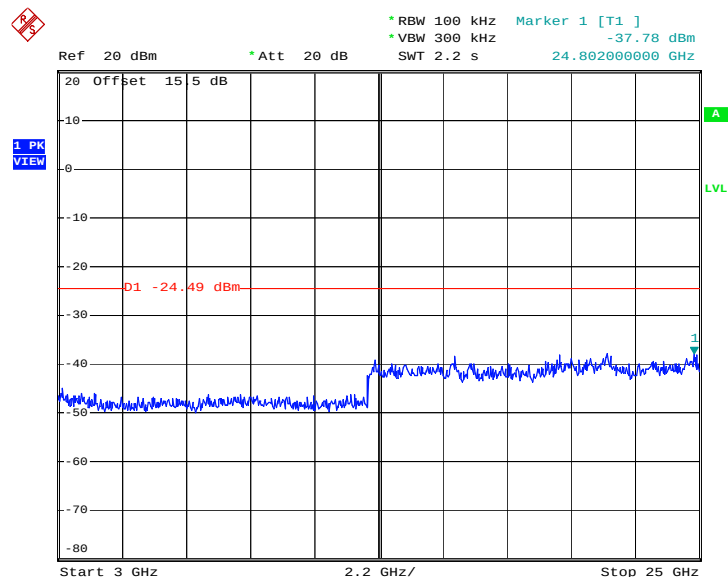


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 16:16:27

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)

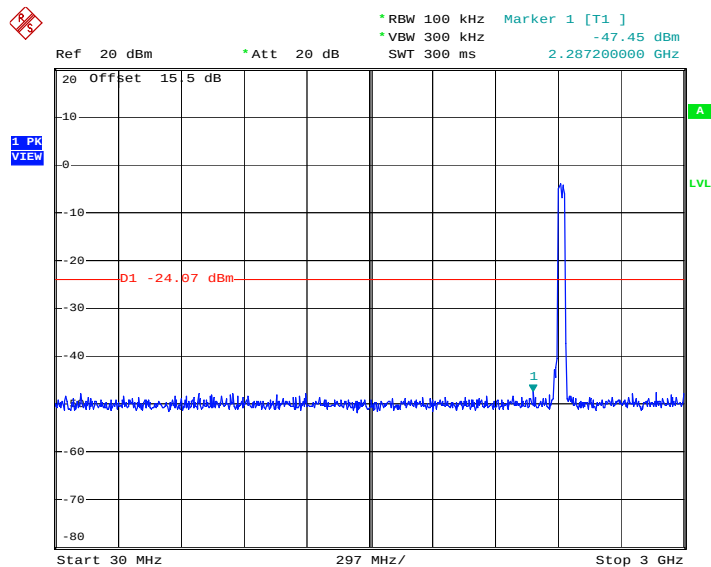


Date: 17.MAY.2011 16:16:44



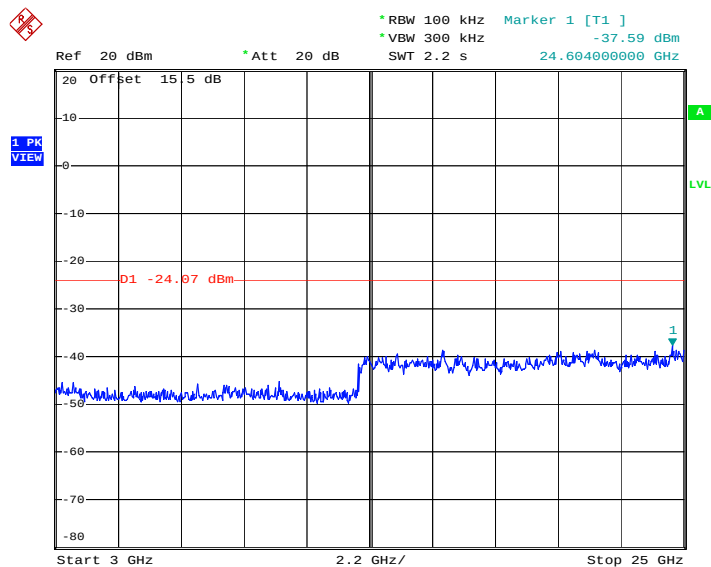
Test Mode :	Mode 10	Temperature :	20~21℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	03	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)



Date: 17.MAY.2011 17:29:08

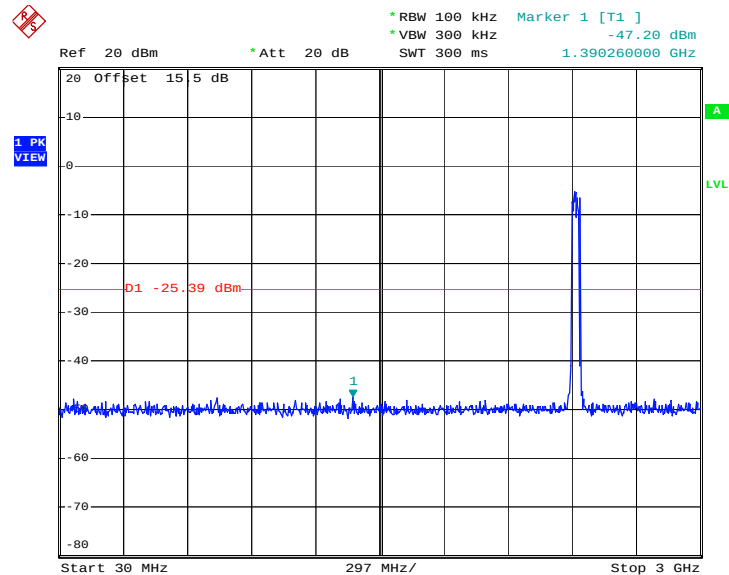
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)



Date: 17.MAY.2011 17:29:25

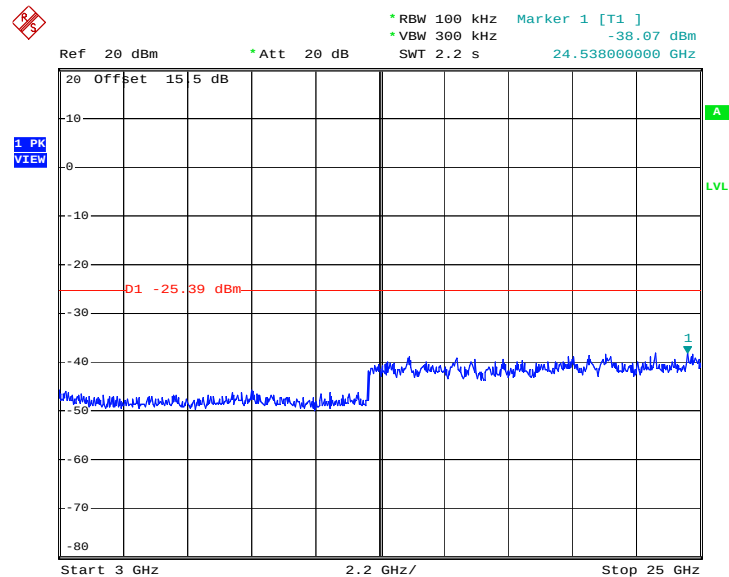


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 16:38:08

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)

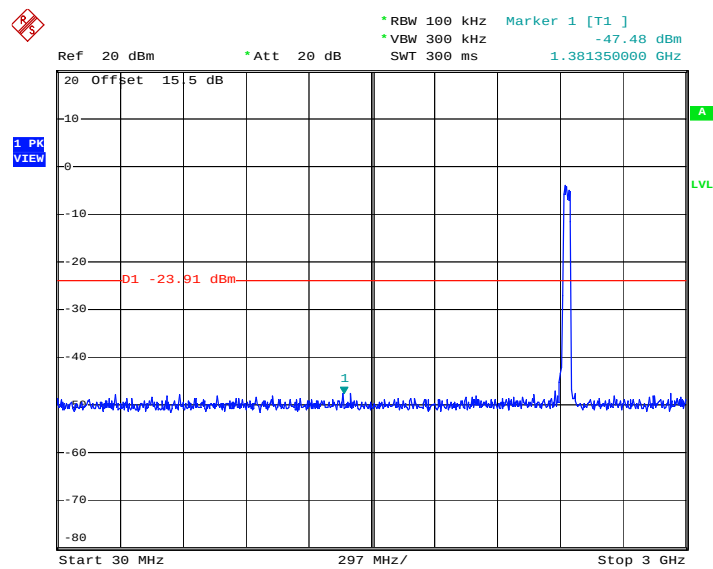


Date: 17.MAY.2011 16:38:25



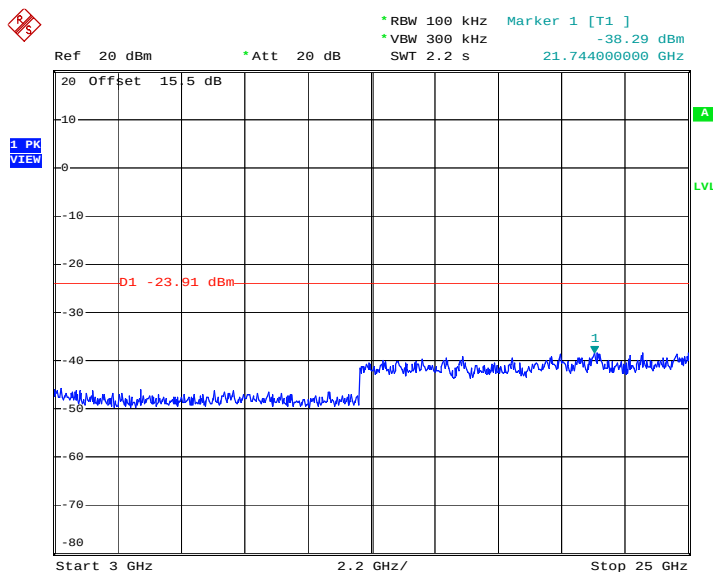
Test Mode :	Mode 11	Temperature :	20~21℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 17:41:28

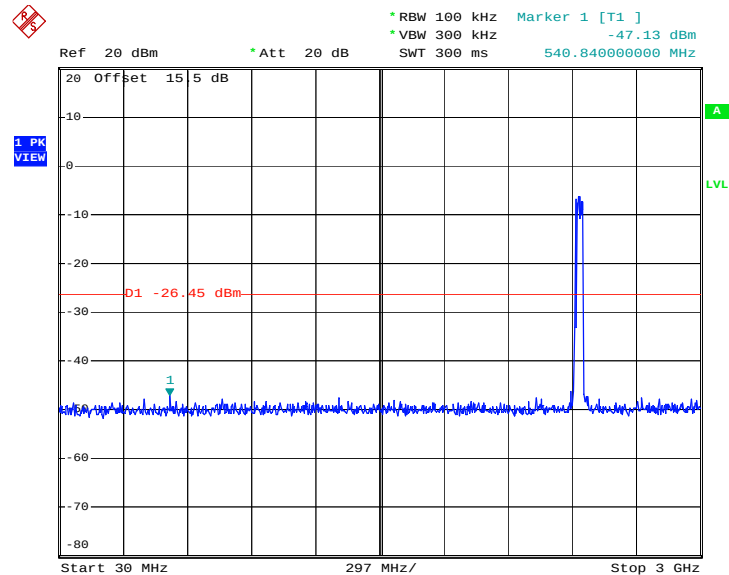
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 17:41:45

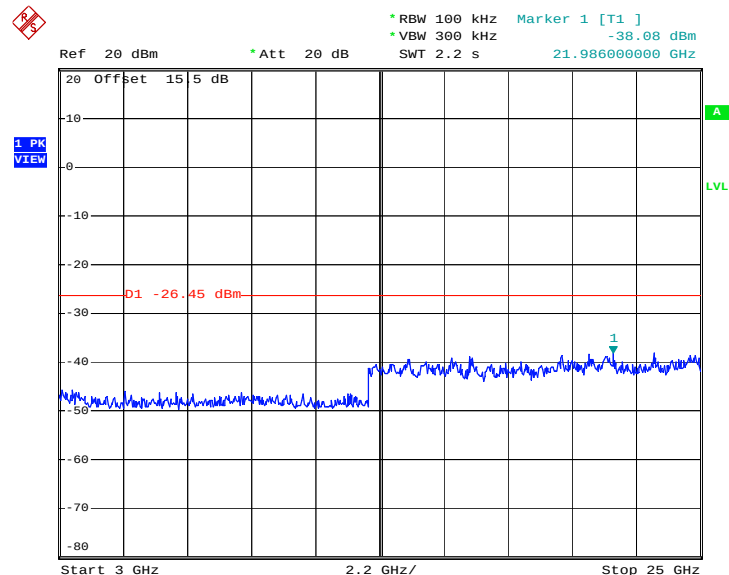


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 17:01:09

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)

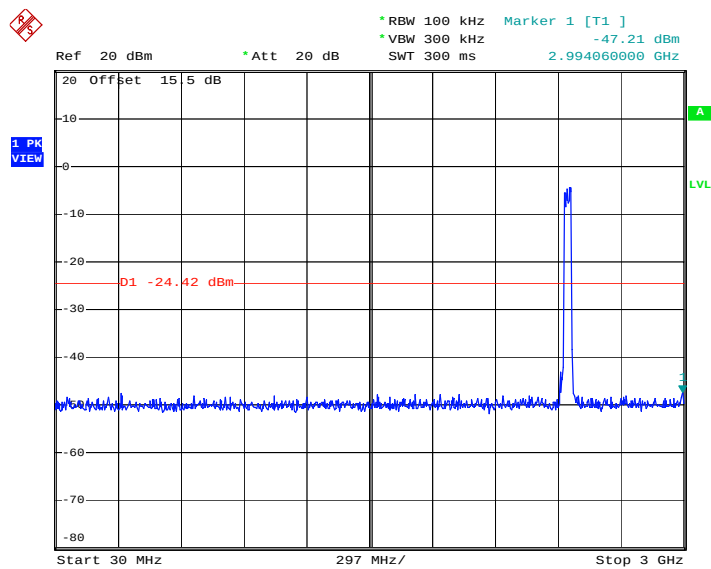


Date: 17.MAY.2011 17:01:26



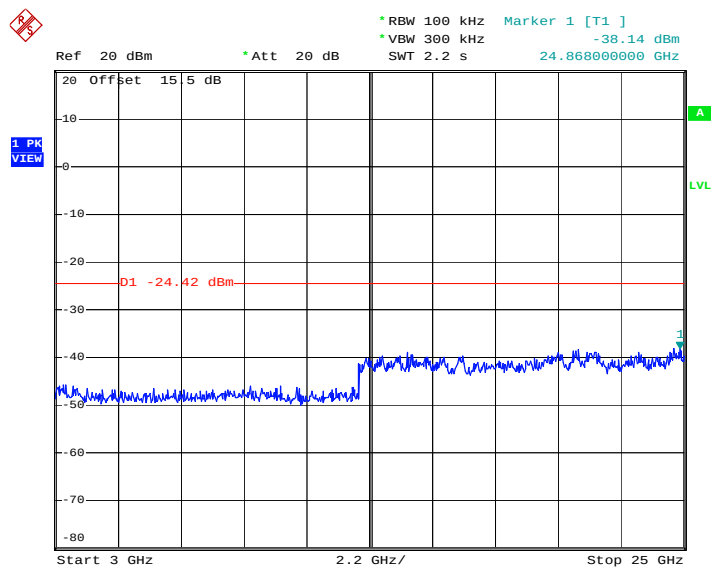
Test Mode :	Mode 12	Temperature :	20~21℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	09	Test Engineer :	Fly Chen

**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 17:57:20

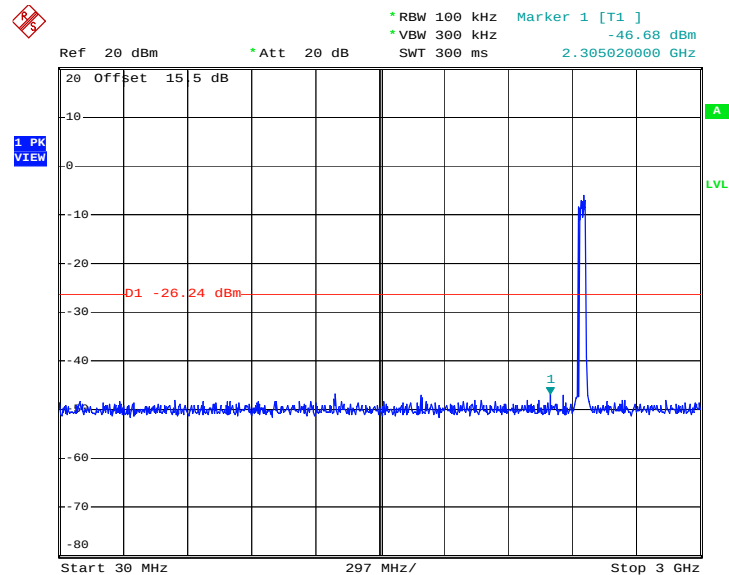
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(A)**



Date: 17.MAY.2011 17:57:38

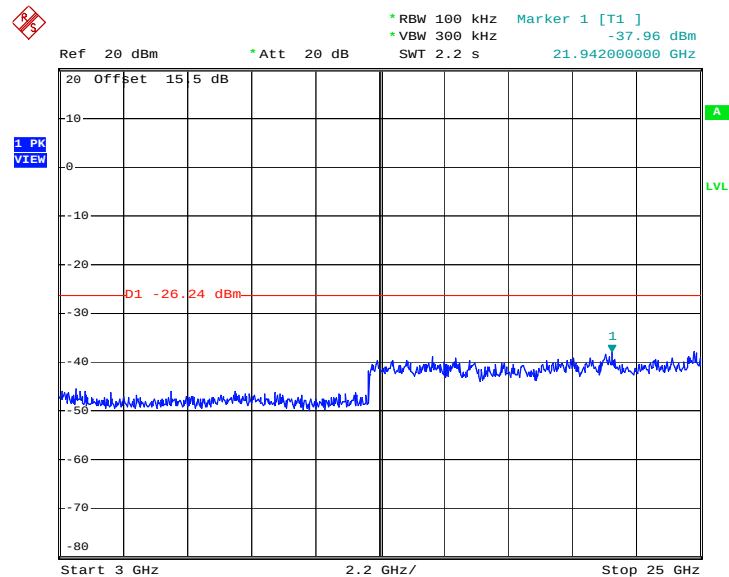


Conducted Spurious Emission Plot between 30MHz ~ 3 GHz-
Chain A+B(B)



Date: 17.MAY.2011 17:14:19

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz-
Chain A+B(B)



Date: 17.MAY.2011 17:14:36

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.

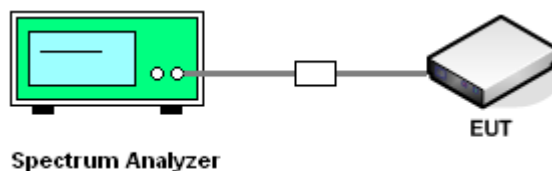
3.5.2 Measuring Instruments

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.

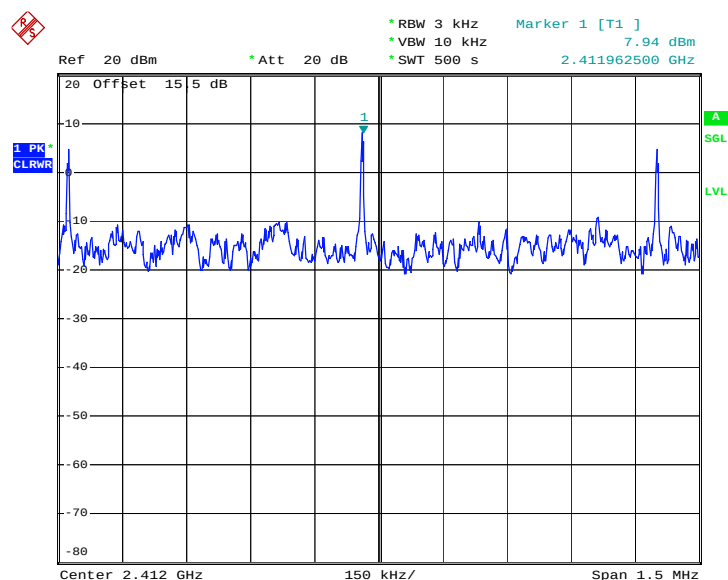
3.5.4 Test Setup



**3.5.5 Test Result of Power Spectral Density**

Test Mode :	Mode 1, 2, 3	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

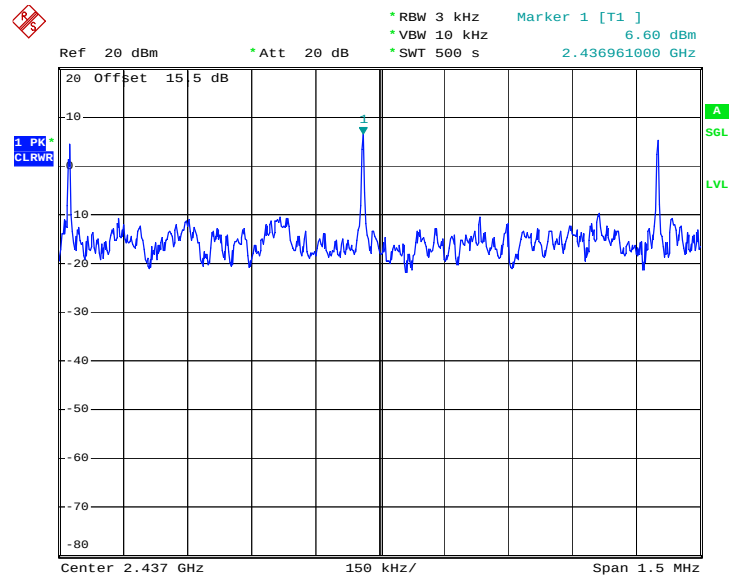
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	7.94	8	Pass
06	2437	6.60	8	Pass
11	2462	6.42	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01

Date: 17.MAY.2011 12:00:07

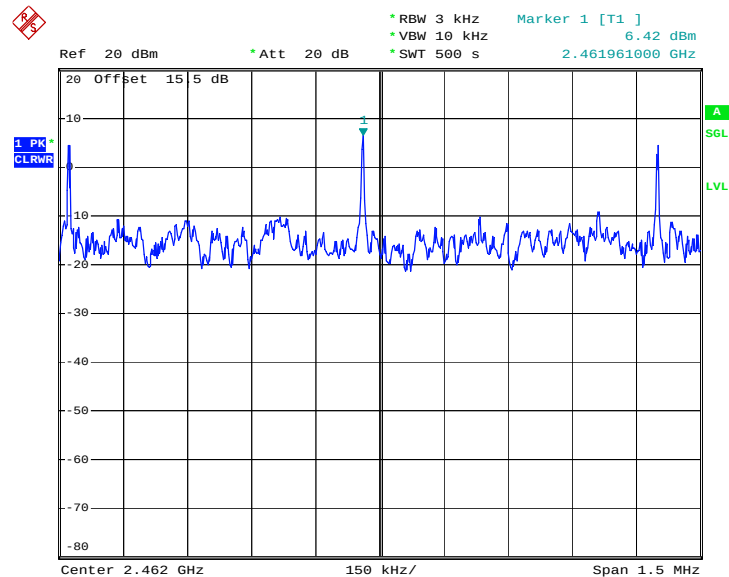


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 17.MAY.2011 13:09:05

Mode 3 : PSD Plot on 802.11b Channel 11

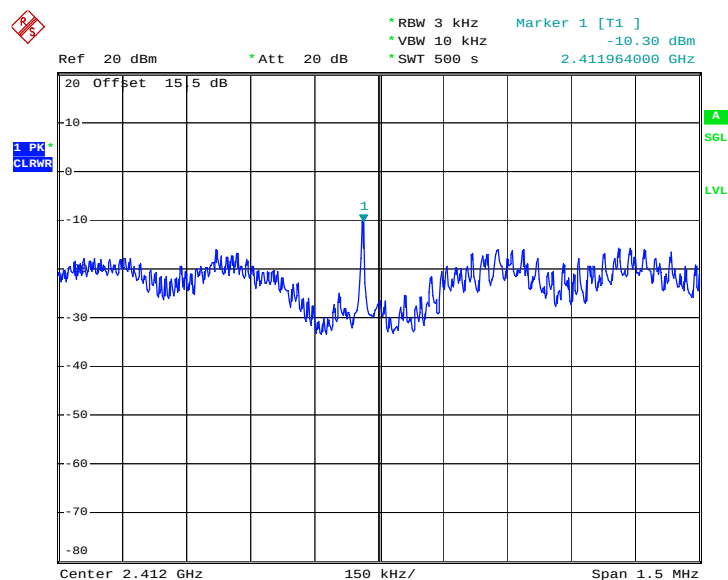


Date: 17.MAY.2011 13:24:26



Test Mode :	Mode 4, 5, 6	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

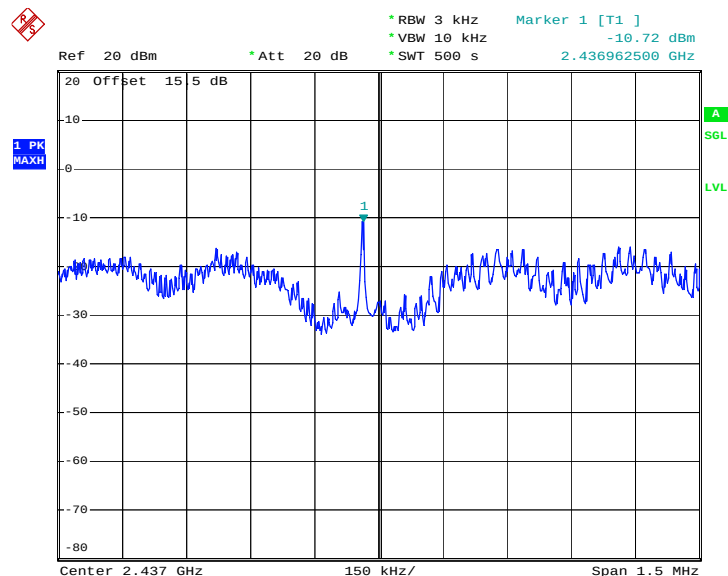
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.30	8	Pass
06	2437	-10.72	8	Pass
11	2462	-11.14	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01

Date: 17.MAY.2011 13:40:34

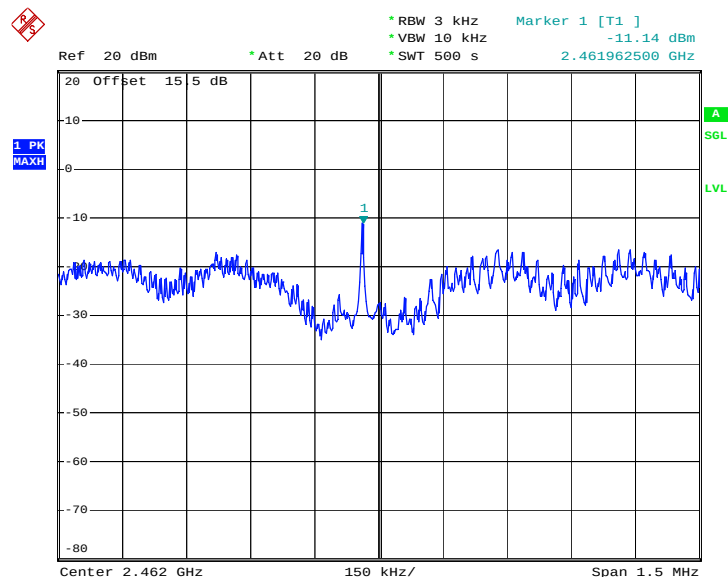


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 17.MAY.2011 14:01:41

Mode 6 : PSD Plot on 802.11g Channel 11



Date: 17.MAY.2011 14:23:25

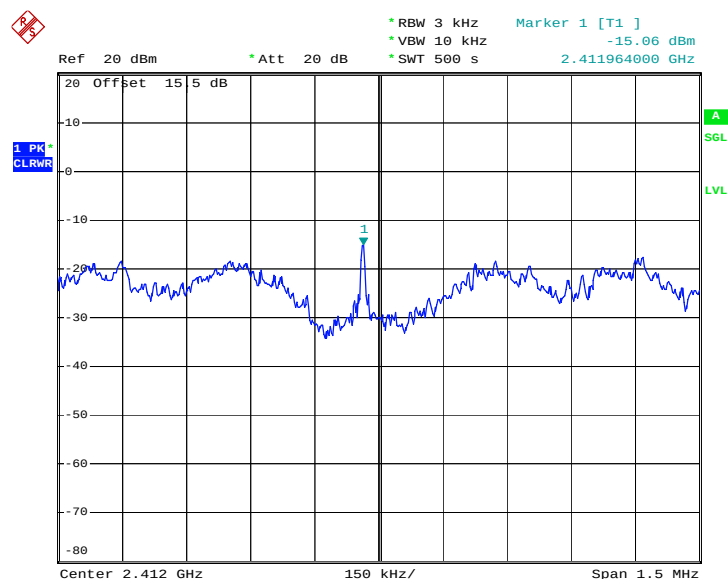


Test Mode :	Mode 7, 8, 9	Temperature :	20~21℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A+B(A)	Chain A+B(B)	Summation		
01	2412	-15.06	-17.32	-13.03	8	Pass
06	2437	-15.43	-17.64	-13.39	8	Pass
11	2462	-15.90	-17.90	-13.78	8	Pass

Note: PSD was measured at each output and summed the PSDs.

**Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01- Chain
A+B(A)**

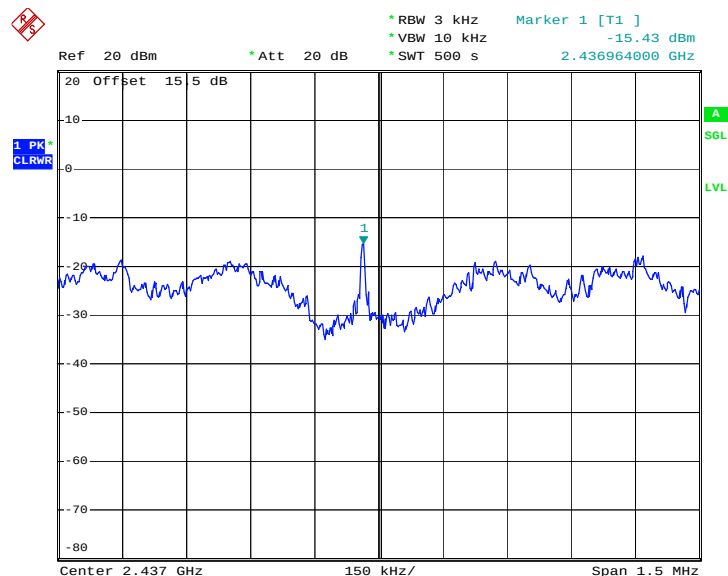


Date: 17.MAY.2011 14:41:53



Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06- Chain

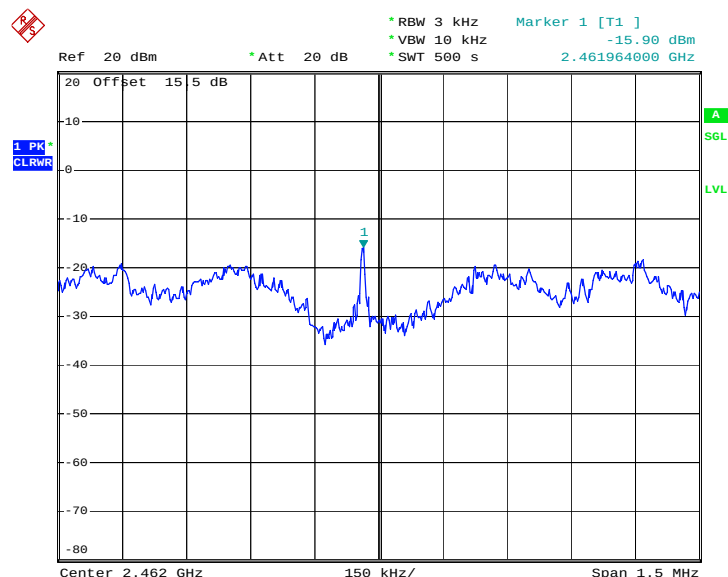
A+B(A)



Date: 17.MAY.2011 14:58:17

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11- Chain

A+B(A)

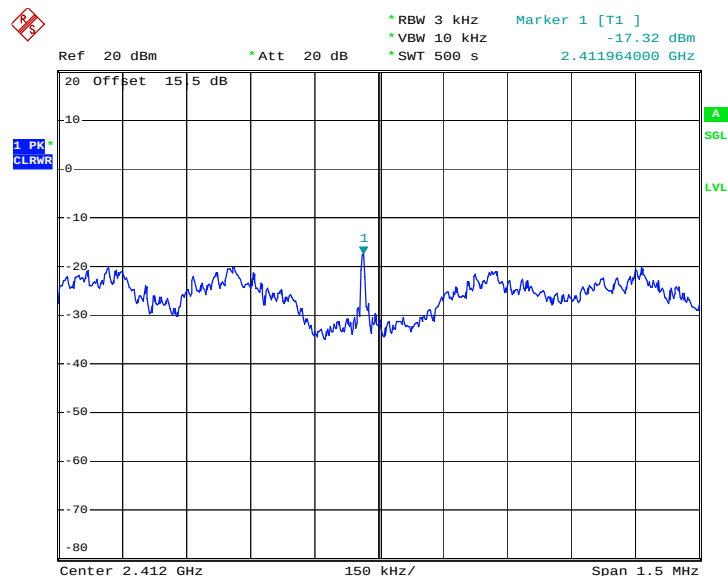


Date: 17.MAY.2011 15:34:05



Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01- Chain

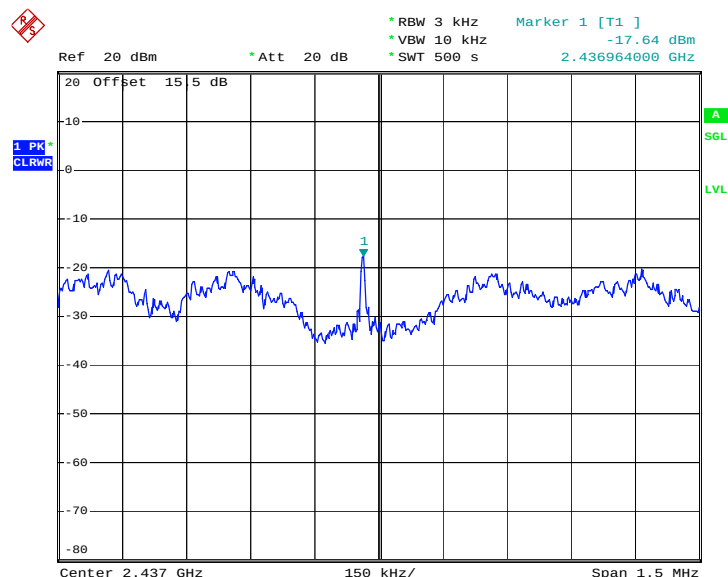
A+B(B)



Date: 17.MAY.2011 15:48:39

Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06- Chain

A+B(B)

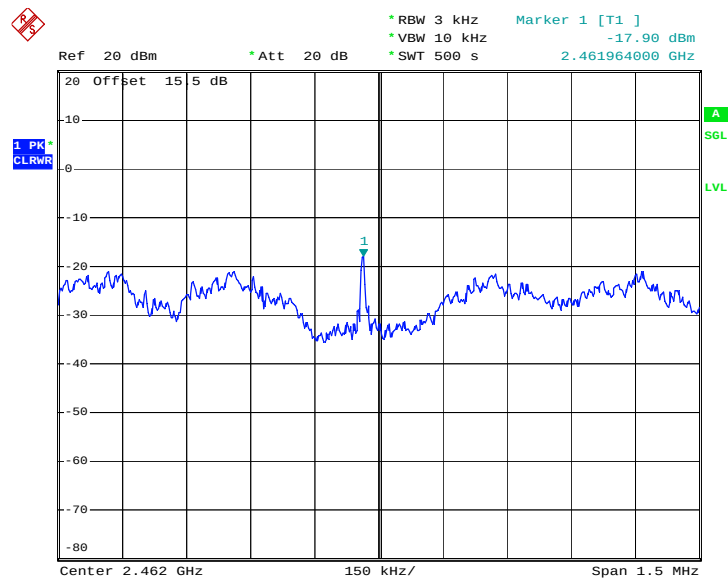


Date: 17.MAY.2011 16:12:12



Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11- Chain

A+B(B)



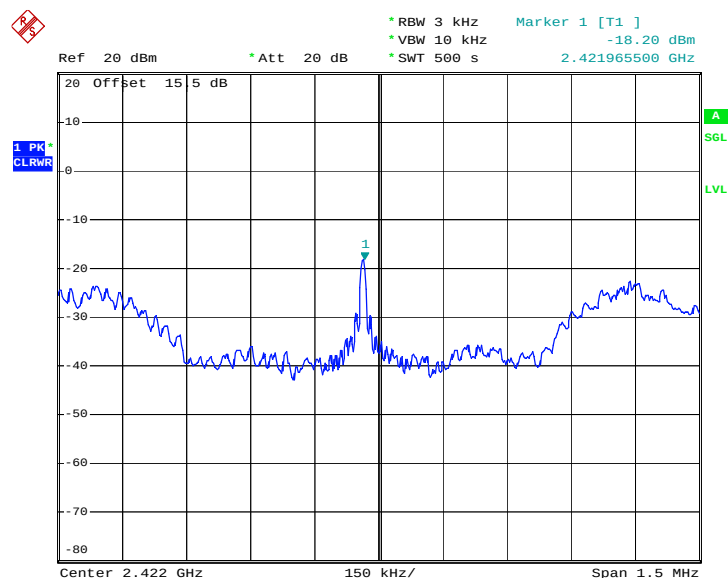
Date: 17.MAY.2011 16:25:34



Test Mode :	Mode 10, 11, 12	Temperature :	20~21
Test Engineer :	Fly Chen	Relative Humidity :	40~41

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A+B(A)	Chain A+B(B)	Summation		
03	2422	-18.20	-20.60	-16.23	8	Pass
06	2437	-18.43	-21.19	-16.58	8	Pass
09	2452	-18.70	-21.41	-16.84	8	Pass

**Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03- Chain
A+B(A)**

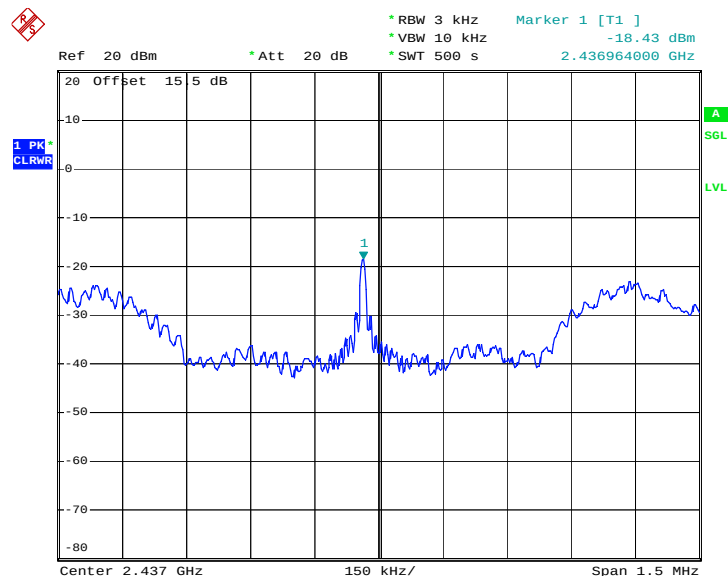


Date: 17.MAY.2011 17:38:36



Mode 11 : PSD Plot on 802.11n (BW 40MHz) Channel 06- Chain

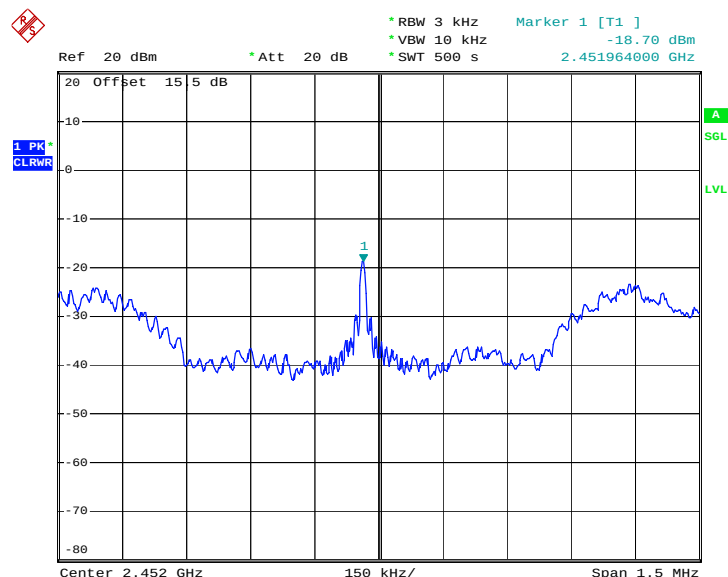
A+B(A)



Date: 17.MAY.2011 17:52:05

Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09- Chain

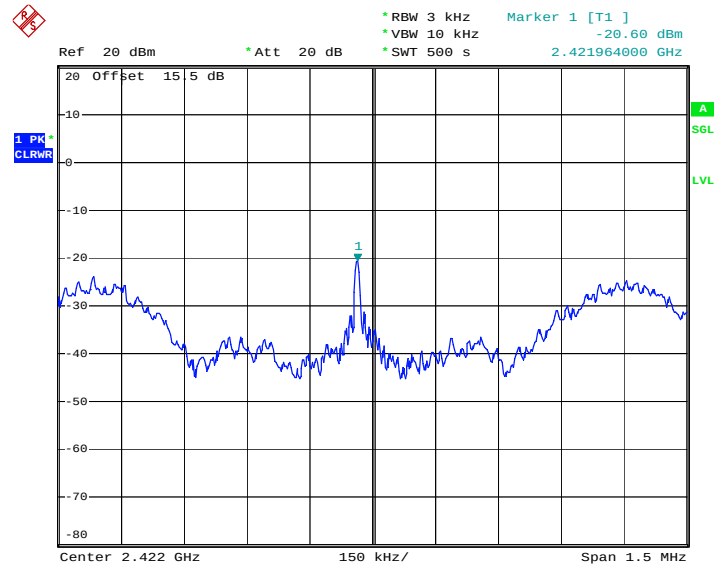
A+B(A)



Date: 17.MAY.2011 18:08:15

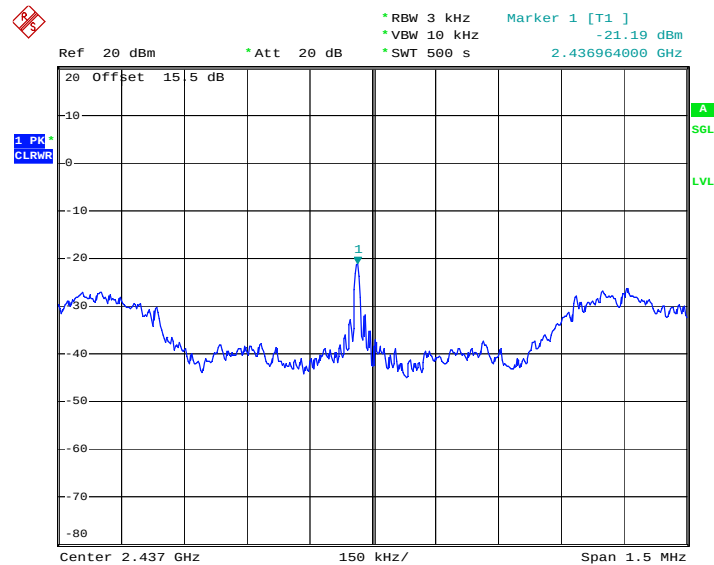


Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03- Chain
A+B(B)



Date: 17.MAY.2011 16:48:47

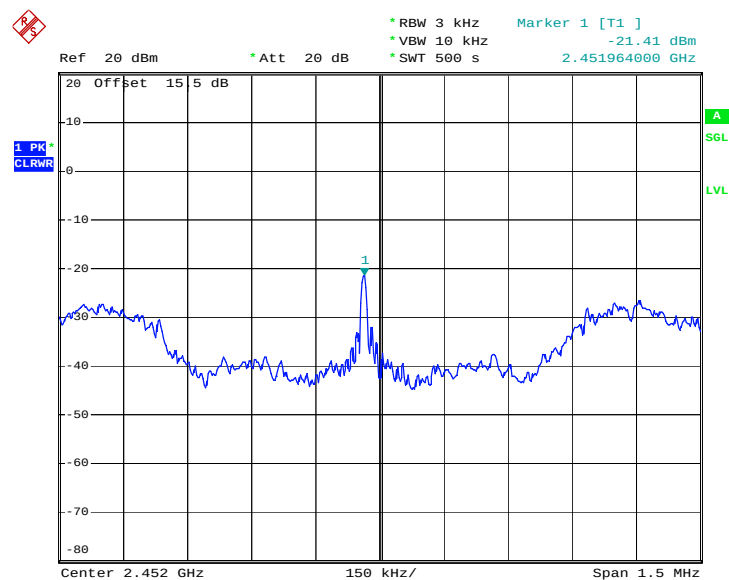
Mode 11 : PSD Plot on 802.11n (BW 40MHz) Channel 06- Chain
A+B(B)



Date: 17.MAY.2011 17:10:32



Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09- Chain
A+B(B)



Date: 17.MAY.2011 17:24:09

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

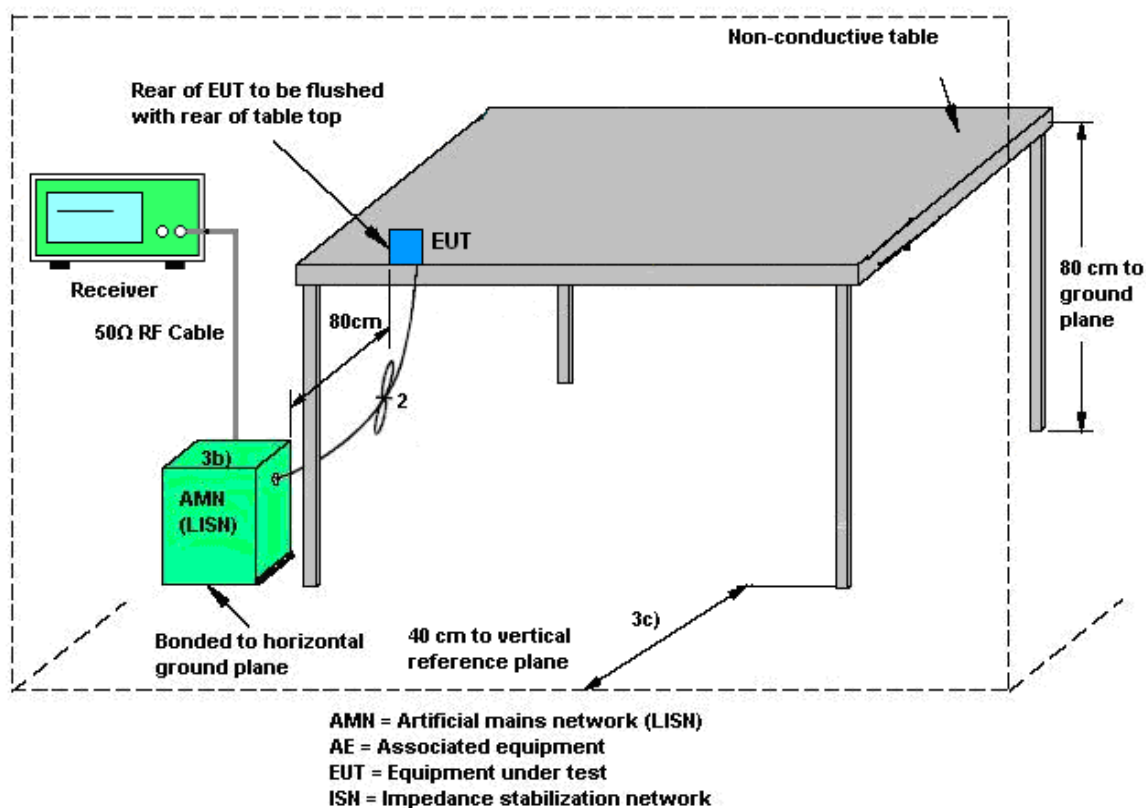
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

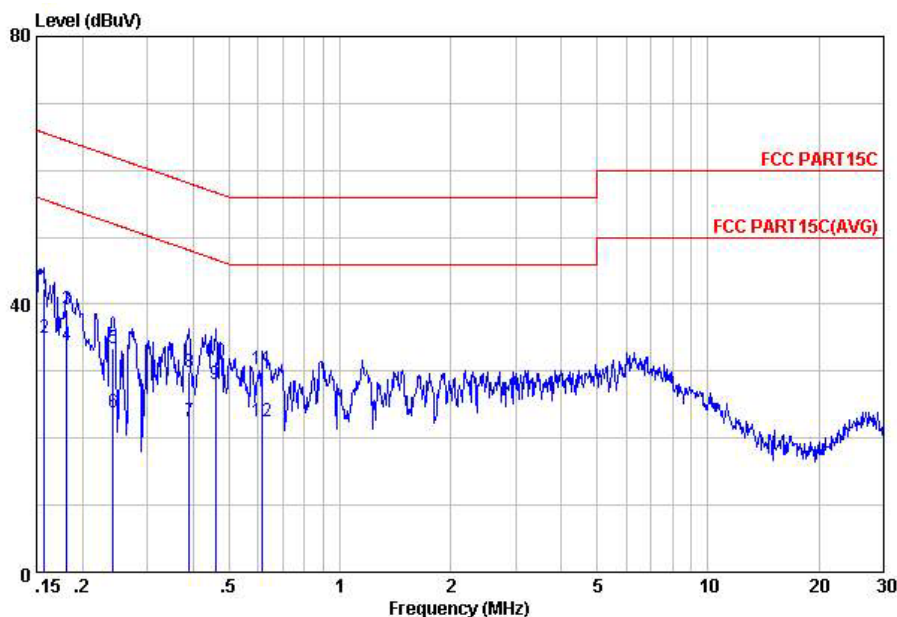
- 1.The testing follows the guidelines in ANSI C63.4-2003.
- 2.The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
- 3.Connect EUT to the power mains through a line impedance stabilization network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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~21°C
Test Engineer :	Chenmy Cheng	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA850 Idle + WLAN Link + LAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

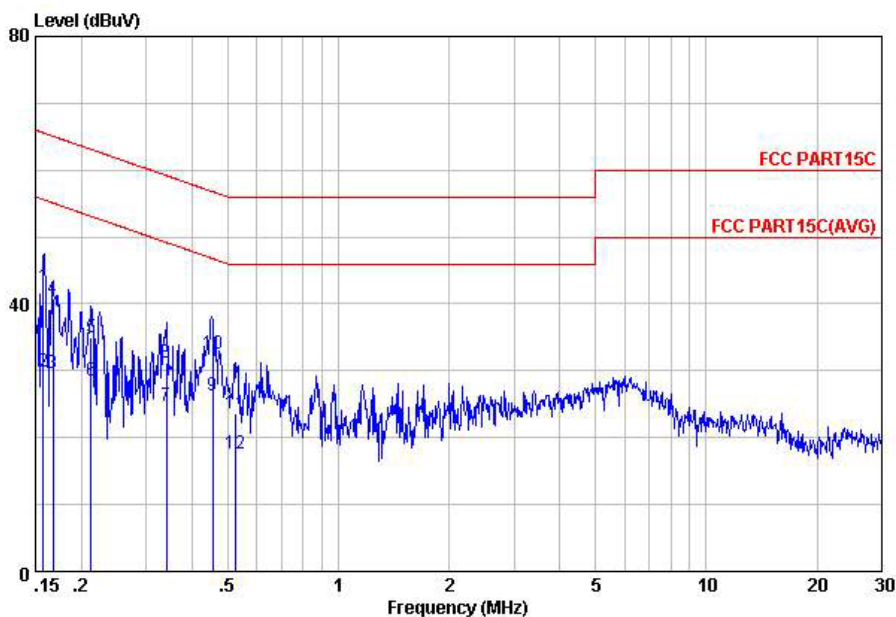


Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	42.37	-23.23	65.60	32.30	-0.07	10.14	QP
2	0.16	34.97	-20.63	55.60	24.90	-0.07	10.14	Average
3	0.18	39.28	-25.14	64.42	29.20	-0.07	10.15	QP
4	0.18	33.88	-20.54	54.42	23.80	-0.07	10.15	Average
5	0.24	33.49	-28.55	62.04	23.40	-0.07	10.16	QP
6	0.24	23.79	-28.25	52.04	13.70	-0.07	10.16	Average
7	0.39	22.61	-25.47	48.08	12.50	-0.08	10.19	Average
8	0.39	29.81	-28.27	58.08	19.70	-0.08	10.19	QP
9	0.46	28.02	-18.69	46.71	17.90	-0.08	10.20	Average
10	0.46	31.52	-25.19	56.71	21.40	-0.08	10.20	QP
11	0.62	30.34	-25.66	56.00	20.21	-0.09	10.22	QP
12	0.62	22.54	-23.46	46.00	12.41	-0.09	10.22	Average

Test Mode :	Mode 1	Temperature :	20~21°C
Test Engineer :	Chenmy Cheng	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA850 Idle + WLAN Link + LAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



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

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	42.45	-23.15	65.60	32.40	-0.09	10.14	QP
2	0.16	29.95	-25.65	55.60	19.90	-0.09	10.14	Average
3	0.17	29.56	-25.52	55.08	19.50	-0.08	10.14	Average
4	0.17	40.76	-24.32	65.08	30.70	-0.08	10.14	QP
5	0.21	34.88	-28.22	63.10	24.80	-0.07	10.15	QP
6	0.21	28.48	-24.62	53.10	18.40	-0.07	10.15	Average
7	0.34	24.70	-24.48	49.18	14.60	-0.08	10.18	Average
8	0.34	31.30	-27.88	59.18	21.20	-0.08	10.18	QP
9	0.45	26.32	-20.48	46.80	16.20	-0.08	10.20	Average
10	0.45	32.52	-24.28	56.80	22.40	-0.08	10.20	QP
11	0.52	23.63	-32.37	56.00	13.50	-0.08	10.21	QP
12	0.52	17.63	-28.37	46.00	7.50	-0.08	10.21	Average

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

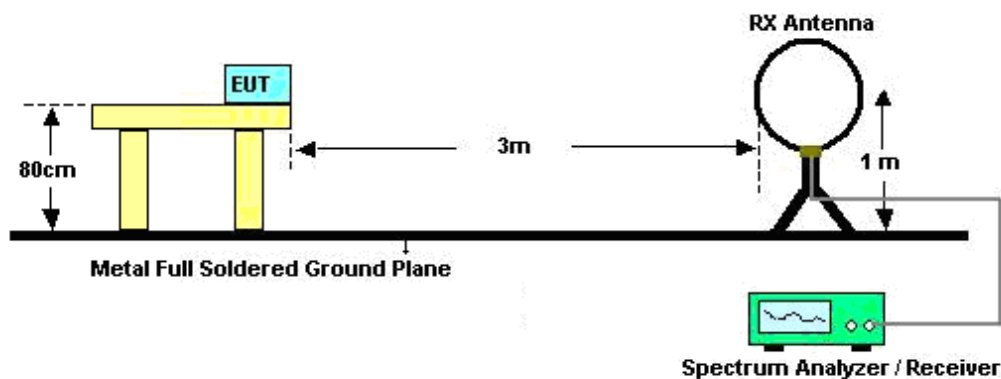
See list of measuring instruments of this test report.

3.7.3 Test Procedures

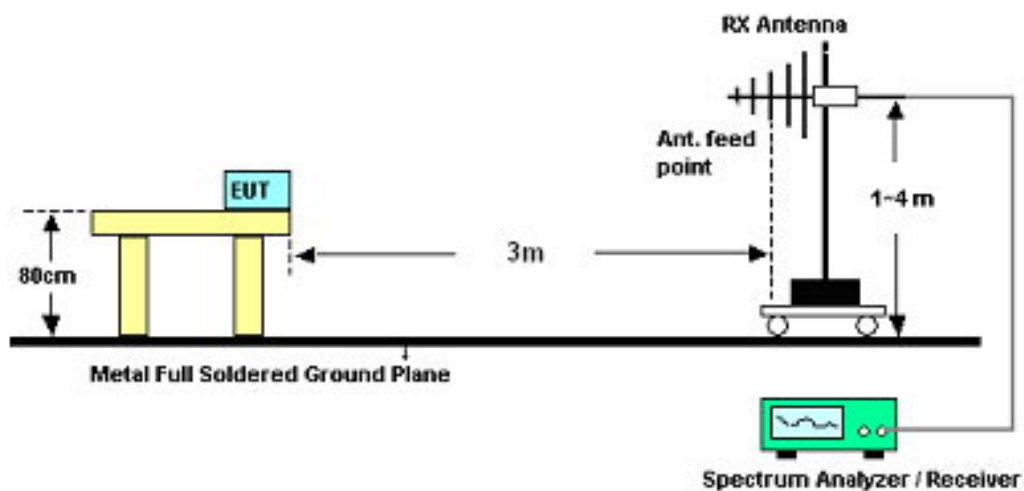
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = 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 = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (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

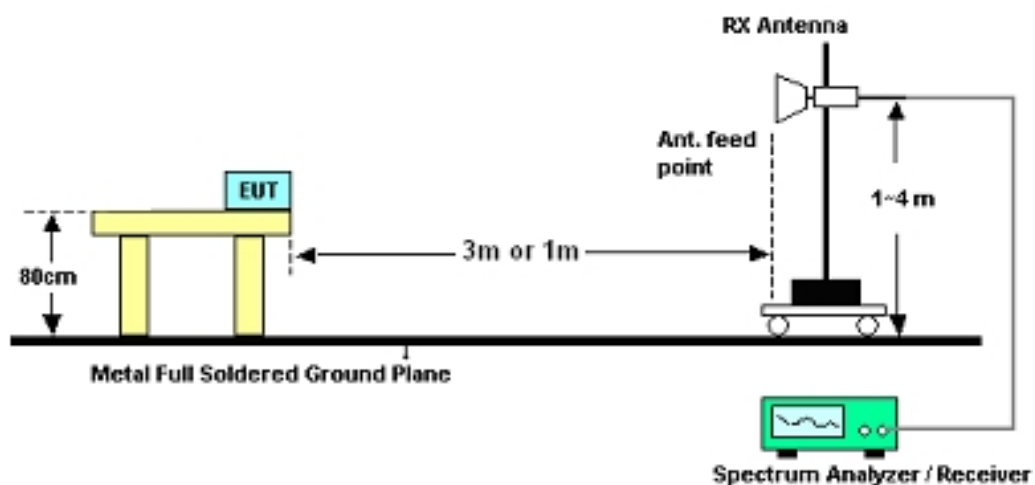
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Xin Peng	Temperature :	21~22℃	
		Relative Humidity :	41~42%	

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

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

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

Test Mode :	Mode 1	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
94.26	27.91	-15.59	43.5	47.83	9.66	0.4	29.98	—	—	Peak
125.04	32.3	-11.2	43.5	50.07	11.75	0.46	29.98	—	—	Peak
250.05	45.83	-0.17	46	63	12	0.67	29.84	100	326	QP
500.2	30.66	-15.34	46	42.23	17.2	0.96	29.73	—	—	Peak
768.3	29.15	-16.85	46	37.63	19.88	1.2	29.56	—	—	Peak
946.8	36.58	-17.42	54	44.07	20.72	1.33	29.54	—	—	Peak
2390	53.74	-20.26	74	51.46	32.86	3.47	34.05	200	232	Peak
2390	44.46	-9.54	54	42.18	32.86	3.47	34.05	200	232	Average
2412	85.65	—	—	83.32	32.89	3.52	34.08	187	110	Average
2412	104.96	—	—	102.63	32.89	3.52	34.08	187	110	Peak
2498.86	49.83	-24.17	74	47.29	33.05	3.72	34.23	200	360	Peak
2498.86	43.12	-10.88	54	40.58	33.05	3.72	34.23	200	360	Average



Test Mode :	Mode 1	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
52.41	38.96	-1.04	40	61.79	7.01	0.29	30.13	100	360	QP
94.26	37.12	-6.38	43.5	57.04	9.66	0.4	29.98	—	—	Peak
250.05	44.23	-1.77	46	61.4	12	0.67	29.84	100	147	QP
398.7	33.02	-12.98	46	46.03	15.98	0.84	29.83	—	—	Peak
624.1	31.33	-14.67	46	41.15	18.73	1.08	29.63	—	—	Peak
946.8	34.95	-19.05	54	42.44	20.72	1.33	29.54	—	—	Peak
2390	61.15	-12.85	74	58.87	32.86	3.47	34.05	113	17	Peak
2390	48.2	-5.8	54	45.92	32.86	3.47	34.05	113	17	Average
2412	93.15	—	—	90.82	32.89	3.52	34.08	139	5	Average
2412	114.52	—	—	112.19	32.89	3.52	34.08	139	5	Peak
2496.01	53.54	-20.46	74	51	33.05	3.72	34.23	200	360	Peak
2496.01	43.12	-10.88	54	40.58	33.05	3.72	34.23	200	360	Average



Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
30.54	20.11	-19.89	40	32.65	17.29	0.25	30.08	—	—	Peak
122.34	21.58	-21.92	43.5	39.32	11.78	0.45	29.97	—	—	Peak
250.05	39.83	-6.17	46	57	12	0.67	29.84	200	360	QP
500.2	26.07	-19.93	46	37.64	17.2	0.96	29.73	—	—	Peak
896.4	29.56	-16.44	46	37.3	20.45	1.3	29.49	—	—	Peak
946.8	35.04	-18.96	54	42.53	20.72	1.33	29.54	—	—	Peak
2382.39	50.87	-23.13	74	48.63	32.83	3.42	34.01	200	131	Peak
2382.39	41.56	-12.44	54	39.32	32.83	3.42	34.01	200	131	Average
2437	85.5	—	—	83.1	32.95	3.6	34.15	200	296	Average
2437	104.28	—	—	101.88	32.95	3.6	34.15	200	296	Peak
2492.21	50.74	-23.26	74	48.2	33.05	3.72	34.23	200	360	Peak
2492.21	42.66	-11.34	54	40.12	33.05	3.72	34.23	200	360	Average



Test Mode :	Mode 2	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.6	34.32	-5.68	40	56.96	7.21	0.28	30.13	100	0	Peak
81.03	32.27	-7.73	40	55.09	6.87	0.35	30.04	—	—	Peak
250.05	31.76	-14.24	46	48.93	12	0.67	29.84	—	—	Peak
384	25.16	-20.84	46	38.6	15.59	0.83	29.86	—	—	Peak
871.2	26.99	-19.01	46	34.8	20.49	1.29	29.59	—	—	Peak
946.8	35.84	-18.16	54	43.33	20.72	1.33	29.54	—	—	Peak
2382.96	56.98	-17.02	74	54.74	32.83	3.42	34.01	100	200	Peak
2382.96	44.92	-9.08	54	42.68	32.83	3.42	34.01	100	200	Average
2437	89.13	—	—	86.73	32.95	3.6	34.15	125	258	Average
2437	111.26	—	—	108.86	32.95	3.6	34.15	125	258	Peak
2490.88	56.75	-17.25	74	54.21	33.05	3.72	34.23	168	183	Peak
2490.88	43.54	-10.46	54	41	33.05	3.72	34.23	168	183	Average



Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
102.36	29.26	-14.24	43.5	47.93	10.87	0.42	29.96	—	—	Peak
142.59	24.76	-18.74	43.5	43.62	10.64	0.49	29.99	—	—	Peak
250.05	39.52	-6.48	46	56.69	12	0.67	29.84	200	360	Peak
499.5	24.71	-21.29	46	36.29	17.19	0.96	29.73	—	—	Peak
876.1	28.2	-17.8	46	35.99	20.48	1.29	29.56	—	—	Peak
946.8	35.01	-18.99	54	42.5	20.72	1.33	29.54	—	—	Peak
2390	47.19	-26.81	74	44.91	32.86	3.47	34.05	200	360	Peak
2390	40.28	-13.72	54	38	32.86	3.47	34.05	200	360	Average
2462	84.03	—	—	81.58	32.98	3.64	34.17	198	295	Average
2462	102.5	—	—	100.05	32.98	3.64	34.17	198	295	Peak
2483.5	50.12	-23.88	74	47.63	33.01	3.68	34.2	200	97	Peak
2483.5	42.49	-11.51	54	40	33.01	3.68	34.2	200	97	Average



Test Mode :	Mode 3	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.6	34.35	-5.65	40	56.99	7.21	0.28	30.13	200	0	Peak
102.09	28.74	-14.76	43.5	47.55	10.74	0.41	29.96	—	—	Peak
250.05	30.61	-15.39	46	47.78	12	0.67	29.84	—	—	Peak
384	23.52	-22.48	46	36.96	15.59	0.83	29.86	—	—	Peak
876.1	30.65	-15.35	46	38.44	20.48	1.29	29.56	—	—	Peak
946.8	34.4	-19.6	54	41.89	20.72	1.33	29.54	—	—	Peak
2367.57	54.8	-19.2	74	52.59	32.81	3.38	33.98	100	360	Peak
2367.57	42.21	-11.79	54	40	32.81	3.38	33.98	100	360	Average
2462	90.31	—	—	87.86	32.98	3.64	34.17	112	34	Average
2462	111.54	—	—	109.09	32.98	3.64	34.17	112	34	Peak
2483.5	57.97	-16.03	74	55.48	33.01	3.68	34.2	165	182	Peak
2483.5	48.23	-5.77	54	45.74	33.01	3.68	34.2	165	182	Average



Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
88.86	29.38	-14.12	43.5	50.37	8.61	0.39	29.99	—	—	Peak
102.36	28.09	-15.41	43.5	46.76	10.87	0.42	29.96	—	—	Peak
250.05	41.61	-4.39	46	58.78	12	0.67	29.84	200	360	Peak
500.2	29.02	-16.98	46	40.59	17.2	0.96	29.73	—	—	Peak
876.1	28.63	-17.37	46	36.42	20.48	1.29	29.56	—	—	Peak
940.5	33.48	-20.52	54	40.99	20.69	1.33	29.53	—	—	Peak
2390	50.36	-23.64	74	48.08	32.86	3.47	34.05	164	295	Peak
2390	43.08	-10.92	54	40.8	32.86	3.47	34.05	164	295	Average
2412	71.16	—	—	68.83	32.89	3.52	34.08	186	110	Average
2412	100.24	—	—	97.91	32.89	3.52	34.08	186	110	Peak
2483.5	40.61	-13.39	54	38.12	33.01	3.68	34.2	200	0	Average
2483.5	46.9	-27.1	74	44.41	33.01	3.68	34.2	200	0	Peak



Test Mode :	Mode 4	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
52.14	33.68	-6.32	40	56.51	7.01	0.29	30.13	100	0	Peak
81.03	30.97	-9.03	40	53.79	6.87	0.35	30.04	—	—	Peak
250.05	33.09	-12.91	46	50.26	12	0.67	29.84	—	—	Peak
500.2	23.02	-22.98	46	34.59	17.2	0.96	29.73	—	—	Peak
873.3	27.72	-18.28	46	35.53	20.48	1.29	29.58	—	—	Peak
946.8	33.31	-20.69	54	40.8	20.72	1.33	29.54	—	—	Peak
2390	60.03	-13.97	74	57.75	32.86	3.47	34.05	100	298	Peak
2390	42.84	-11.16	54	40.56	32.86	3.47	34.05	100	298	Average
2412	74.84	—	—	72.51	32.89	3.52	34.08	145	36	Average
2412	109.54	—	—	107.21	32.89	3.52	34.08	145	36	Peak
2483.5	49.67	-24.33	74	47.18	33.01	3.68	34.2	100	0	Peak
2483.5	41.63	-12.37	54	39.14	33.01	3.68	34.2	100	0	Average



Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
49.44	16.26	-23.74	40	38.36	7.75	0.28	30.13	—	—	Peak
128.01	22.78	-20.72	43.5	40.57	11.72	0.47	29.98	—	—	Peak
250.05	36.59	-9.41	46	53.76	12	0.67	29.84	200	360	Peak
500.2	28.99	-17.01	46	40.56	17.2	0.96	29.73	—	—	Peak
768.3	28.21	-17.79	46	36.69	19.88	1.2	29.56	—	—	Peak
946.8	35.4	-18.6	54	42.89	20.72	1.33	29.54	—	—	Peak
2384.1	50	-24	74	47.76	32.83	3.42	34.01	100	360	Peak
2384.1	41.31	-12.69	54	39.07	32.83	3.42	34.01	100	360	Average
2437	78.08	—	—	75.68	32.95	3.6	34.15	166	299	Average
2437	99.05	—	—	96.65	32.95	3.6	34.15	166	299	Peak
2483.5	47.85	-26.15	74	45.36	33.01	3.68	34.2	100	360	Peak
2483.5	39.92	-14.08	54	37.43	33.01	3.68	34.2	100	360	Average



Test Mode :	Mode 5	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.06	33.65	-6.35	40	56.29	7.21	0.28	30.13	200	360	Peak
81.03	31.03	-8.97	40	53.85	6.87	0.35	30.04	—	—	Peak
250.05	27.01	-18.99	46	44.18	12	0.67	29.84	—	—	Peak
384	24.37	-21.63	46	37.81	15.59	0.83	29.86	—	—	Peak
607.3	25.41	-20.59	46	35.33	18.63	1.07	29.62	—	—	Peak
946.8	33.91	-20.09	54	41.4	20.72	1.33	29.54	—	—	Peak
2384.29	57.19	-16.81	74	54.95	32.83	3.42	34.01	141	0	Peak
2384.29	42.96	-11.04	54	40.72	32.83	3.42	34.01	141	0	Average
2437	75.62	—	—	73.22	32.95	3.6	34.15	143	186	Average
2437	107.82	—	—	105.42	32.95	3.6	34.15	143	186	Peak
2489.36	55.54	-18.46	74	53	33.05	3.72	34.23	200	0	Peak
2489.36	42.12	-11.88	54	39.58	33.05	3.72	34.23	200	0	Average



Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
49.44	16.13	-23.87	40	38.23	7.75	0.28	30.13	—	—	Peak
128.01	22.88	-20.62	43.5	40.67	11.72	0.47	29.98	—	—	Peak
250.05	37.97	-8.03	46	55.14	12	0.67	29.84	200	0	Peak
500.2	29.14	-16.86	46	40.71	17.2	0.96	29.73	—	—	Peak
768.3	26.25	-19.75	46	34.73	19.88	1.2	29.56	—	—	Peak
946.8	34.34	-19.66	54	41.83	20.72	1.33	29.54	—	—	Peak
2390	47.28	-26.72	74	45	32.86	3.47	34.05	200	360	Peak
2390	40.38	-13.62	54	38.1	32.86	3.47	34.05	200	360	Average
2462	73.23	—	—	70.78	32.98	3.64	34.17	200	360	Average
2462	98.11	—	—	95.66	32.98	3.64	34.17	200	360	Peak
2483.5	47.36	-26.64	74	44.87	33.01	3.68	34.2	200	360	Peak
2483.5	43.49	-10.51	54	41	33.01	3.68	34.2	200	360	Average



Test Mode :	Mode 6	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.33	33.37	-6.63	40	56.01	7.21	0.28	30.13	100	360	Peak
81.03	31.35	-8.65	40	54.17	6.87	0.35	30.04	—	—	Peak
250.05	28.97	-17.03	46	46.14	12	0.67	29.84	—	—	Peak
623.4	26.84	-19.16	46	36.66	18.73	1.08	29.63	—	—	Peak
876.8	27.1	-18.9	46	34.89	20.48	1.29	29.56	—	—	Peak
940.5	35.21	-18.79	54	42.72	20.69	1.33	29.53	—	—	Peak
2390	51.6	-22.4	74	49.32	32.86	3.47	34.05	200	0	Peak
2390	41.28	-12.72	54	39	32.86	3.47	34.05	200	0	Average
2462	74.75	—	—	72.3	32.98	3.64	34.17	136	27	Average
2462	106.03	—	—	103.58	32.98	3.64	34.17	136	27	Peak
2483.5	53.88	-20.12	74	51.39	33.01	3.68	34.2	200	25	Peak
2483.5	45.47	-8.53	54	42.98	33.01	3.68	34.2	200	25	Average



Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
88.86	29.44	-14.06	43.5	50.43	8.61	0.39	29.99	—	—	Peak
128.01	23.85	-19.65	43.5	41.64	11.72	0.47	29.98	—	—	Peak
250.05	41.69	-4.31	46	58.86	12	0.67	29.84	200	360	Peak
500.2	28.71	-17.29	46	40.28	17.2	0.96	29.73	—	—	Peak
768.3	26.97	-19.03	46	35.45	19.88	1.2	29.56	—	—	Peak
946.8	34.41	-19.59	54	41.9	20.72	1.33	29.54	—	—	Peak
2390	61.95	-12.05	74	59.67	32.86	3.47	34.05	200	231	Peak
2390	40.93	-13.07	54	38.65	32.86	3.47	34.05	200	231	Average
2412	67.16	—	—	64.83	32.89	3.52	34.08	200	0	Average
2412	101.45	—	—	99.12	32.89	3.52	34.08	200	0	Peak
2483.5	46.9	-27.1	74	44.41	33.01	3.68	34.2	200	0	Peak
2483.5	37.9	-16.1	54	35.41	33.01	3.68	34.2	200	0	Average



Test Mode :	Mode 7	Temperature :	21~22℃
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.87	33.54	-6.46	40	56.37	7.01	0.29	30.13	200	360	Peak
81.03	31.81	-8.19	40	54.63	6.87	0.35	30.04	—	—	Peak
250.05	25.32	-20.68	46	42.49	12	0.67	29.84	—	—	Peak
442.1	25.74	-20.26	46	38.37	16.27	0.89	29.79	—	—	Peak
873.3	26.61	-19.39	46	34.42	20.48	1.29	29.58	—	—	Peak
946.8	34.56	-19.44	54	42.05	20.72	1.33	29.54	—	—	Peak
2390	70.73	-3.27	74	68.45	32.86	3.47	34.05	128	56	Peak
2390	41.44	-12.56	54	39.16	32.86	3.47	34.05	128	56	Average
2412	59.87	—	—	57.54	32.89	3.52	34.08	116	318	Average
2412	110.34	—	—	108.01	32.89	3.52	34.08	116	318	Peak
2483.5	53.95	-20.05	74	51.46	33.01	3.68	34.2	100	360	Peak
2483.5	36.62	-17.38	54	34.13	33.01	3.68	34.2	100	360	Average



Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
88.86	24.28	-19.22	43.5	45.27	8.61	0.39	29.99	—	—	Peak
128.01	24.47	-19.03	43.5	42.26	11.72	0.47	29.98	—	—	Peak
250.05	38.6	-7.4	46	55.77	12	0.67	29.84	100	360	Peak
500.2	25.75	-20.25	46	37.32	17.2	0.96	29.73	—	—	Peak
768.3	27.92	-18.08	46	36.4	19.88	1.2	29.56	—	—	Peak
946.8	35.5	-18.5	54	42.99	20.72	1.33	29.54	—	—	Peak
2383.15	52.46	-21.54	74	50.22	32.83	3.42	34.01	200	360	Peak
2383.15	37.64	-16.36	54	35.4	32.83	3.42	34.01	200	360	Average
2437	56.28	—	—	53.88	32.95	3.6	34.15	167	296	Average
2437	100.33	—	—	97.93	32.95	3.6	34.15	167	296	Peak
2483.5	50.46	-23.54	74	47.97	33.01	3.68	34.2	200	360	Peak
2483.5	40.71	-13.29	54	38.22	33.01	3.68	34.2	200	360	Average



Test Mode :	Mode 8	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.87	33.14	-6.86	40	55.97	7.01	0.29	30.13	100	360	Peak
81.03	32.48	-7.52	40	55.3	6.87	0.35	30.04	—	—	Peak
250.05	29.49	-16.51	46	46.66	12	0.67	29.84	—	—	Peak
442.1	24.98	-21.02	46	37.61	16.27	0.89	29.79	—	—	Peak
871.2	28.08	-17.92	46	35.89	20.49	1.29	29.59	—	—	Peak
946.8	34.89	-19.11	54	42.38	20.72	1.33	29.54	—	—	Peak
2390	60.64	-13.36	74	58.36	32.86	3.47	34.05	200	360	Peak
2390	41.62	-12.38	54	39.34	32.86	3.47	34.05	200	360	Average
2437	62.65	—	—	60.25	32.95	3.6	34.15	200	360	Average
2437	108.99	—	—	106.59	32.95	3.6	34.15	200	360	Peak
2483.5	58.62	-15.38	74	56.13	33.01	3.68	34.2	200	360	Peak
2483.5	39.35	-14.65	54	36.86	33.01	3.68	34.2	200	360	Average



Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
49.44	16.13	-23.87	40	38.23	7.75	0.28	30.13	—	—	Peak
128.01	22.88	-20.62	43.5	40.67	11.72	0.47	29.98	—	—	Peak
250.05	39.97	-6.03	46	57.14	12	0.67	29.84	200	0	Peak
500.2	29.14	-16.86	46	40.71	17.2	0.96	29.73	—	—	Peak
768.3	26.25	-19.75	46	34.73	19.88	1.2	29.56	—	—	Peak
946.8	33.34	-20.66	54	40.83	20.72	1.33	29.54	—	—	Peak
2390	47.19	-26.81	74	44.91	32.86	3.47	34.05	200	360	Peak
2390	39.38	-14.62	54	37.1	32.86	3.47	34.05	200	360	Average
2462	56.49	—	—	54.04	32.98	3.64	34.17	100	360	Average
2462	100.58	—	—	98.13	32.98	3.64	34.17	100	360	Peak
2483.5	61.8	-12.2	74	59.31	33.01	3.68	34.2	200	360	Peak
2483.5	39.38	-14.62	54	36.89	33.01	3.68	34.2	200	360	Average



Test Mode :	Mode 9	Temperature :	21~22℃
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.87	33.16	-6.84	40	55.99	7.01	0.29	30.13	200	0	Peak
81.03	32.32	-7.68	40	55.14	6.87	0.35	30.04	-	-	Peak
250.05	32.66	-13.34	46	49.83	12	0.67	29.84	-	-	Peak
442.1	23.88	-22.12	46	36.51	16.27	0.89	29.79	-	-	Peak
871.2	27.24	-18.76	46	35.05	20.49	1.29	29.59	-	-	Peak
946.8	34.33	-19.67	54	41.82	20.72	1.33	29.54	-	-	Peak
2390	53.85	-20.15	74	51.57	32.86	3.47	34.05	200	360	Peak
2390	37.94	-16.06	54	35.66	32.86	3.47	34.05	200	360	Average
2462	61.41	-	-	58.96	32.98	3.64	34.17	200	191	Average
2462	108.34	-	-	105.89	32.98	3.64	34.17	200	191	Peak
2483.5	68.64	-5.36	74	66.15	33.01	3.68	34.2	200	0	Peak
2483.5	42.45	-11.55	54	39.96	33.01	3.68	34.2	200	0	Average



Test Mode :	Mode 10	Temperature :	21~22℃
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	Polarization :	Horizontal
Remark :	2422 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
49.71	15.77	-24.23	40	37.87	7.75	0.28	30.13	—	—	Peak
88.86	20.25	-23.25	43.5	41.24	8.61	0.39	29.99	—	—	Peak
250.05	37.2	-8.8	46	54.37	12	0.67	29.84	100	0	Peak
500.2	28.74	-17.26	46	40.31	17.2	0.96	29.73	—	—	Peak
768.3	28.51	-17.49	46	36.99	19.88	1.2	29.56	—	—	Peak
946.8	35.48	-18.52	54	42.97	20.72	1.33	29.54	—	—	Peak
2390	60.77	-13.23	74	58.49	32.86	3.47	34.05	100	0	Peak
2390	42.4	-11.6	54	40.12	32.86	3.47	34.05	100	0	Average
2422	54.94	—	—	52.58	32.92	3.56	34.12	100	227	Average
2422	95.64	—	—	93.28	32.92	3.56	34.12	100	227	Peak
2483.5	38.92	-15.08	54	36.43	33.01	3.68	34.2	100	0	Average
2483.5	47.74	-26.26	74	45.25	33.01	3.68	34.2	100	0	Peak



Test Mode :	Mode 10	Temperature :	21~22℃
Test Channel :	03	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	Polarization :	Vertical
Remark :	2422 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
51.33	33.42	-6.58	40	56.06	7.21	0.28	30.13	100	0	Peak
81.03	32.28	-7.72	40	55.1	6.87	0.35	30.04	—	—	Peak
250.05	27.56	-18.44	46	44.73	12	0.67	29.84	—	—	Peak
621.3	26.89	-19.11	46	36.72	18.72	1.08	29.63	—	—	Peak
871.2	27.17	-18.83	46	34.98	20.49	1.29	29.59	—	—	Peak
946.8	34.74	-19.26	54	42.23	20.72	1.33	29.54	—	—	Peak
2390	71.85	-2.15	74	69.57	32.86	3.47	34.05	200	0	Peak
2390	42.98	-11.02	54	40.7	32.86	3.47	34.05	200	0	Average
2422	58.94	—	—	56.58	32.92	3.56	34.12	200	360	Average
2422	106.46	—	—	104.1	32.92	3.56	34.12	200	360	Peak
2483.5	52.74	-21.26	74	50.25	33.01	3.68	34.2	200	360	Peak
2483.5	39.27	-14.73	54	36.78	33.01	3.68	34.2	200	360	Average



Test Mode :	Mode 11	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
49.17	16.26	-23.74	40	38.36	7.75	0.28	30.13	—	—	Peak
128.01	24.63	-18.87	43.5	42.42	11.72	0.47	29.98	—	—	Peak
250.05	38.18	-7.82	46	55.35	12	0.67	29.84	200	0	Peak
500.2	29.04	-16.96	46	40.61	17.2	0.96	29.73	—	—	Peak
871.2	28.45	-17.55	46	36.26	20.49	1.29	29.59	—	—	Peak
946.8	35.24	-18.76	54	42.73	20.72	1.33	29.54	—	—	Peak
2390	50.66	-23.34	74	48.38	32.86	3.47	34.05	100	360	Peak
2390	37.9	-16.1	54	35.62	32.86	3.47	34.05	100	360	Average
2437	58.58	—	—	56.18	32.95	3.6	34.15	100	360	Average
2437	95.99	—	—	93.59	32.95	3.6	34.15	100	360	Peak
2483.5	47.41	-26.59	74	44.92	33.01	3.68	34.2	100	360	Peak
2483.5	36.89	-17.11	54	34.4	33.01	3.68	34.2	100	360	Average



Test Mode :	Mode 11	Temperature :	21~22℃
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	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
51.06	30.67	-9.33	40	53.31	7.21	0.28	30.13	—	—	Peak
81.03	29.89	-10.11	40	52.71	6.87	0.35	30.04	—	—	Peak
250.32	39.7	-6.3	46	56.87	12	0.67	29.84	200	0	Peak
437.9	25.38	-20.62	46	38.04	16.25	0.89	29.8	—	—	Peak
876.1	27.74	-18.26	46	35.53	20.48	1.29	29.56	—	—	Peak
946.8	34.65	-19.35	54	42.14	20.72	1.33	29.54	—	—	Peak
2390	60	-14	74	57.72	32.86	3.47	34.05	100	0	Peak
2390	41.2	-12.8	54	38.92	32.86	3.47	34.05	100	0	Average
2437	60.56	—	—	58.16	32.95	3.6	34.15	175	175	Average
2437	105.13	—	—	102.73	32.95	3.6	34.15	175	175	Peak
2483.5	54.69	-19.31	74	52.2	33.01	3.68	34.2	100	0	Peak
2483.5	39.59	-14.41	54	37.1	33.01	3.68	34.2	100	0	Average



Test Mode :	Mode 12	Temperature :	21~22℃
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	Polarization :	Horizontal
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
88.86	30.52	-12.98	43.5	51.51	8.61	0.39	29.99	—	—	Peak
102.36	27.98	-15.52	43.5	46.65	10.87	0.42	29.96	—	—	Peak
250.05	38.22	-7.78	46	55.39	12	0.67	29.84	200	0	Peak
500.2	27.56	-18.44	46	39.13	17.2	0.96	29.73	—	—	Peak
615	25.94	-20.06	46	35.83	18.67	1.07	29.63	—	—	Peak
946.8	34.77	-19.23	54	42.26	20.72	1.33	29.54	—	—	Peak
2390	47.96	-26.04	74	45.68	32.86	3.47	34.05	100	0	Peak
2390	36.71	-17.29	54	34.43	32.86	3.47	34.05	100	0	Average
2452	54.58	—	—	52.18	32.95	3.6	34.15	100	0	Average
2452	95.31	—	—	92.91	32.95	3.6	34.15	100	0	Peak
2483.85	60.56	-13.44	74	58.07	33.01	3.68	34.2	100	0	Peak
2483.85	40.14	-13.86	54	37.65	33.01	3.68	34.2	100	0	Average



Test Mode :	Mode 12	Temperature :	21~22℃
Test Channel :	09	Relative Humidity :	41~42%
Test Engineer :	Xin Peng	Polarization :	Vertical
Remark :	2452 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
52.14	33.16	-6.84	40	55.99	7.01	0.29	30.13	100	360	Peak
81.03	31.93	-8.07	40	54.75	6.87	0.35	30.04	—	—	Peak
250.05	28.82	-17.18	46	45.99	12	0.67	29.84	—	—	Peak
450.5	24.62	-21.38	46	37.2	16.31	0.9	29.79	—	—	Peak
871.2	28.16	-17.84	46	35.97	20.49	1.29	29.59	—	—	Peak
946.8	34.77	-19.23	54	42.26	20.72	1.33	29.54	—	—	Peak
2366.05	57.04	-16.96	74	54.83	32.81	3.38	33.98	200	360	Peak
2366.05	38.99	-15.01	54	36.78	32.81	3.38	33.98	200	360	Average
2452	53.87	—	—	51.47	32.95	3.6	34.15	200	360	Average
2452	105.4	—	—	103	32.95	3.6	34.15	200	360	Peak
2484.04	71.38	-2.62	74	68.89	33.01	3.68	34.2	200	360	Peak
2484.04	41.99	-12.01	54	39.5	33.01	3.68	34.2	200	360	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 Dipole Antenna without connector 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. The MIMO mode is completely uncorrelated gain, therefore, the antenna gain is equal to single antenna gain.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 24, 2010	Aug. 23, 2011	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 24, 2010	Aug. 23, 2011	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 28, 2010	Dec. 27, 2011	Conducted (TH01-KS)
DC Power Supply	TOPWARD	3306D	N/A	N/A	N/A	N/A	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 22, 2010	Jun. 21, 2011	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Jan. 07, 2011	Jan. 06, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 10, 2010	Nov. 09, 2011	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 16, 2010	Nov. 15, 2011	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 07, 2010	Dec. 06, 2011	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592 G	060004	30MHz~2GHz	Dec. 09, 2010	Dec. 08, 2011	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Jan. 07, 2011	Jan. 06, 2012	Radiation (03CH01-KS)
Active horn antenna	com-power	AHA-118	701023	1G-18GHz	Nov. 09, 2010	Nov. 08, 2011	Radiation (03CH01-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Jan. 06, 2011	Jan. 05, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA9170	BBHA170249	15-40GHz	Oct. 15, 2010	Oct. 14, 2011	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jul. 28, 2011	Radiation (03CH01-KS)

5 Uncertainty of Evaluation

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

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

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

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

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

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