



FCC RF Test Report

APPLICANT : Westell Inc.
EQUIPMENT : VersaLink Wireless Gateway
BRAND NAME : WESTELL
MODEL NAME : B90-755xxx-yy, x and y can be 0-9, a-z, A-Z or blank, for different software and same hardware.

The following models are the same as the top model in hardware, except there is no USB port and no external power on/off switch:

B90-755025-15

The following models are the same as the top model in hardware, except there is no external power on/off switch:

B90-755072-15

The following models are the same as the top model in hardware, except there is no USB port.”

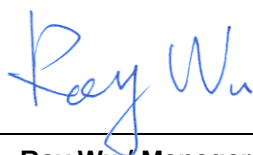
B90-755075-15

FCC ID : CH8B755
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Dec. 29, 2010 and completely tested on Mar. 18, 2011. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / 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
FR0D2914	Rev. 01	Initial issue of report	Mar. 23, 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	-
3.3	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 7.19 dB at 0.42 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.32 dB at 2483.66 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Westell Inc.

750 North Commons Drive, Aurora, IL 60504, USA

1.2 Manufacturer

Askey Technology (Jiangsu) Ltd.

No. 1388, Jiao Tong Road, WuJiang Economic-Technological Development Area, Jiangsu Province,
P.R.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	VersaLink Wireless Gateway
Brand Name	WESTELL
Model Name	B90-755xxx-yy, x and y can be 0-9, a-z, A-Z or blank, for different software and same hardware. The following models are the same as the top model in hardware, except there is no USB port and no external power on/off switch: B90-755025-15 The following models are the same as the top model in hardware, except there is no external power on/off switch: B90-755072-15 The following models are the same as the top model in hardware, except there is no USB port.” B90-755075-15
Sample 1	Model : B90-755015-15 with transformer 52237
Sample 2	Model : B90-755015-15 with transformer EP-174SG
FCC ID	CH8B755
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 : 20.63 dBm (0.12 W) 802.11g : 26.61 dBm (0.46 W) 802.11n (BW 20MHz) : 29.11 dBm (0.81 W) 802.11n (BW 40MHz) : 24.74 dBm (0.30 W)
Antenna Type	Fixed Internal Antenna with gain 2.70 dBi
HW Version	REV2
SW Version	VER:05.03.00
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 (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.	CO	ASKEY	AMA1011	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	Acer	TravelMate 3250	PD9WM3945ABG	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Router	Linksys	WAG54G2	FCC DoC	Unshielded, 2.0 m	N/A
4.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	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	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	20.48	20.35	20.35	20.45
CH 06	2437 MHz	A	20.43	20.49	20.56	20.63
CH 11	2462 MHz	A	20.41	20.35	20.41	20.51
CH 01	2412 MHz	B	19.37	19.49	19.38	19.50
CH 06	2437 MHz	B	19.62	19.68	19.63	19.75
CH 11	2462 MHz	B	19.22	19.15	19.35	19.44

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	20.95	20.67	20.39	20.62	20.45	20.21	20.02	20.65
CH 06	2437 MHz	A	26.45	26.55	26.25	26.45	26.61	26.22	23.11	22.55
CH 11	2462 MHz	A	21.24	22.13	21.23	21.17	21.64	21.53	21.03	21.43
CH 01	2412 MHz	B	18.92	19.17	19.37	19.25	19.12	19.11	18.54	18.75
CH 06	2437 MHz	B	25.03	25.01	25.05	25.13	25.21	25.14	22.12	21.52
CH 11	2462 MHz	B	19.56	20.35	19.39	19.82	19.9	19.02	18.88	19.25

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	19.75	19.53	19.14	19.05	19.23	19.15	19.17	19.15
CH 06	2437 MHz	A	26.62	26.53	26.12	26.21	26.12	24.62	22.78	21.53
CH 11	2462 MHz	A	20.55	20.3	20.25	20.14	20.25	20.62	20.38	20.42
CH 01	2412 MHz	B	17.53	17.25	17.31	17.24	17.32	17.02	17.2	17.35
CH 06	2437 MHz	B	24.81	24.67	24.71	24.83	24.46	22.64	21.25	20.06
CH 11	2462 MHz	B	18.53	17.82	18.57	18.52	18.25	18.32	17.85	17.91
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)	20.53	20.07	20.41	19.68	20.52	20.53	20.57	19.87
		A+B(B)	19.65	19.18	19.05	19.01	19.23	19.12	18.57	18.90
		A+B	23.12	22.66	22.79	22.37	22.93	22.89	22.69	22.42
CH 06	2437 MHz	A+B(A)	26.50	26.29	26.51	26.35	26.04	25.54	23.72	21.52
		A+B(B)	25.65	25.65	25.59	25.57	25.25	24.05	22.13	21.35
		A+B	29.11	28.99	29.08	28.99	28.67	27.87	26.01	24.45
CH 11	2462 MHz	A+B(A)	21.31	21.02	21.76	21.05	21.16	21.75	21.55	21.15
		A+B(B)	19.88	19.27	19.76	19.42	19.41	19.36	19.56	19.46
		A+B	23.66	23.24	23.88	23.32	23.38	23.73	23.68	23.40

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	18.95	17.18	17.25	17.02	16.97	17.66	17.23	17.35
CH 06	2437 MHz	A	22.64	21.13	20.97	21.05	21.32	21.53	21.17	19.56
CH 09	2452 MHz	A	20.52	18.93	18.73	18.57	18.55	19.36	19.13	18.42
CH 03	2422 MHz	B	16.74	14.95	14.35	14.88	15.03	15.01	14.84	14.87
CH 06	2437 MHz	B	20.83	19.63	19.25	19.18	19.16	19.73	19.32	18.19
CH 09	2452 MHz	B	18.22	16.2	16.54	16.23	16.95	16.91	16.35	16.34
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)	18.25	18.12	18.23	18.11	18.15	17.48	17.63	17.75
		A+B(B)	17.07	17.18	16.91	16.54	17.13	16.77	16.72	16.86
		A+B	20.71	20.69	20.63	20.41	20.68	20.15	20.21	20.34
CH 06	2437 MHz	A+B(A)	22.03	21.85	21.48	22.07	21.88	21.24	21.35	20.03
		A+B(B)	21.35	21.20	21.14	21.35	20.35	20.84	20.51	19.50
		A+B	24.71	24.55	24.32	24.74	24.19	24.05	23.96	22.78
CH 09	2452 MHz	A+B(A)	20.03	20.02	19.34	19.54	19.72	19.68	19.58	19.67
		A+B(B)	18.64	18.34	18.15	18.04	18.35	18.06	18.02	18.56
		A+B	22.40	22.27	21.80	21.86	22.10	21.96	21.88	22.16

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 11Mbps for 802.11b, 24Mbps for 802.11g, MCS8 for 802.11n (BW 20MHz), and MCS11 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.

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).

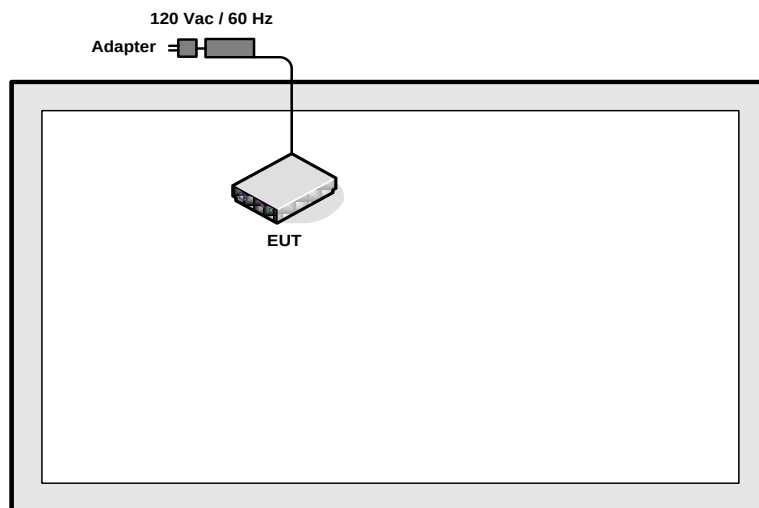
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

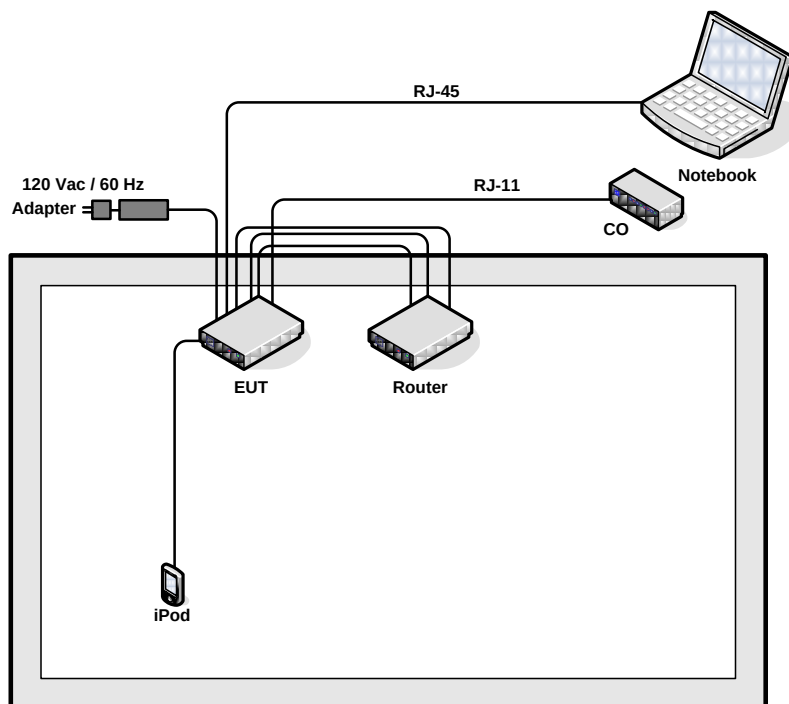
Test Cases		
Test Item	802.11b (Modulation : DSSS)	802.11g/n (Modulation : OFDM)
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (BW 20M)_CH01_2412 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 : WLAN Link + LAN Link + Adapter + TC + RJ-11 for sample 1	
Remark:		
1. TC stands for Test Configuration, and consists of iPod, CO, RJ-45, router, and notebook.		
2. Only sample 1 was used for radiated test.		

2.3 Connection Diagram of Test System

<For Radiation Test Mode>



<AC Conducted Emission Mode>





2.4 RF Utility

The programmed RF utility "ASKEY RT4515W-D27 RF Command Ver. 4" 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 Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

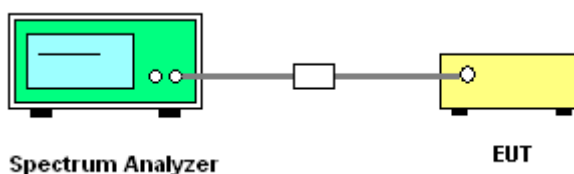
3.1.2 Measuring Instruments

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

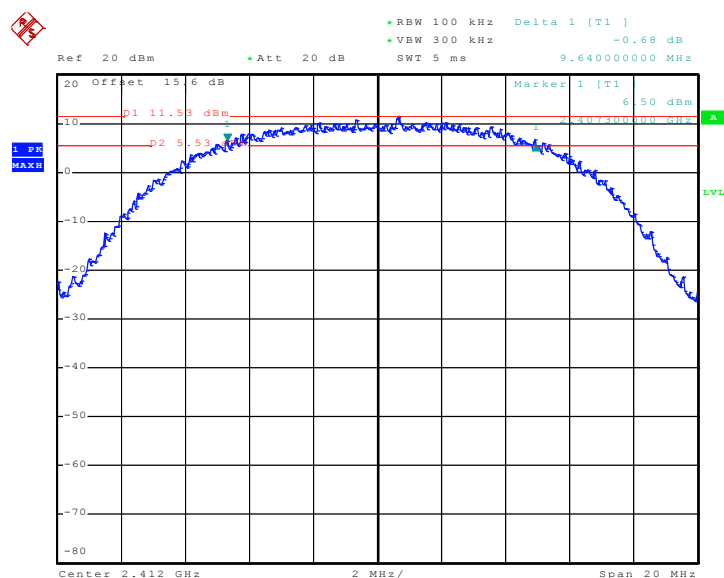


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	21~22℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

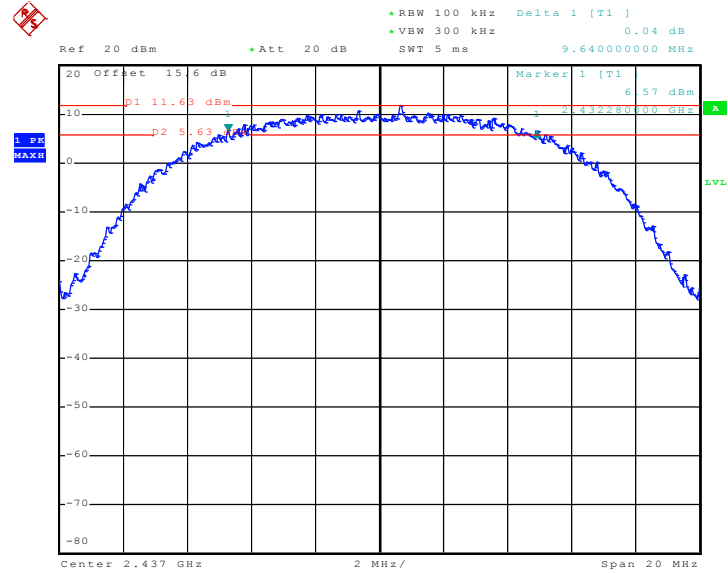
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.64	0.5	Pass
06	2437	9.64	0.5	Pass
11	2462	9.68	0.5	Pass

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



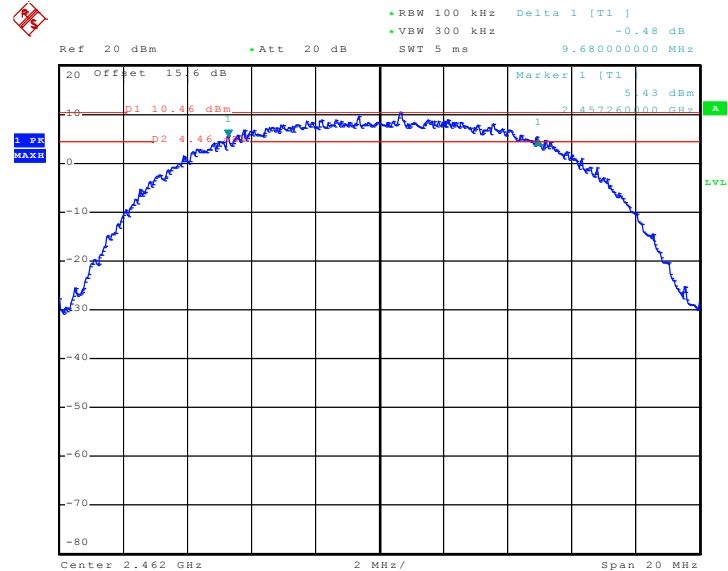
TH-01

Date: 17.MAR.2011 16:33:41

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


TH-01

Date: 17.MAR.2011 16:51:21

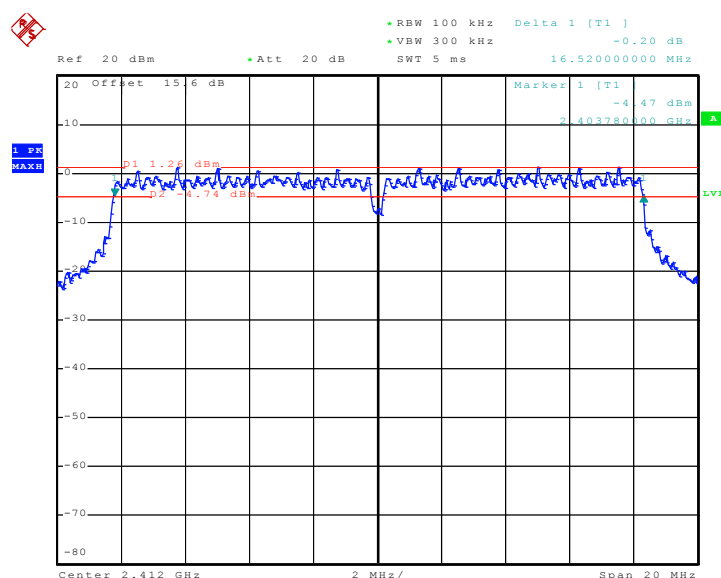
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11 - Chain A


TH-01

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Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

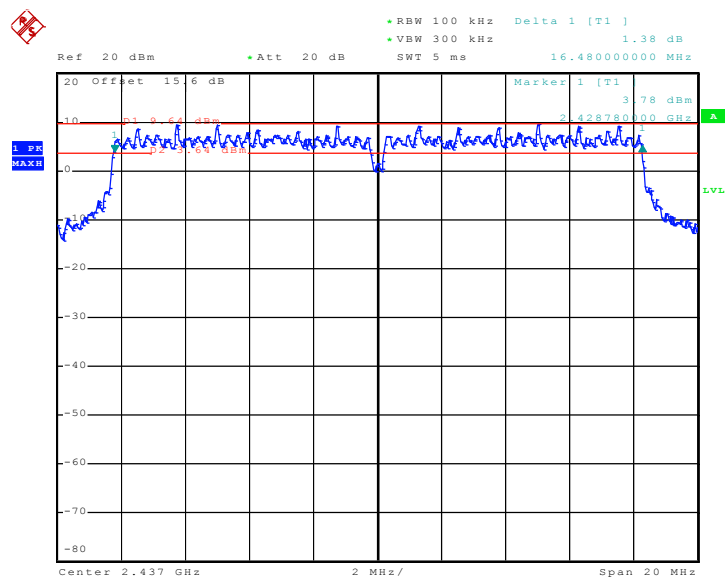
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.52	0.5	Pass
06	2437	16.48	0.5	Pass
11	2462	16.48	0.5	Pass

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


TH-01

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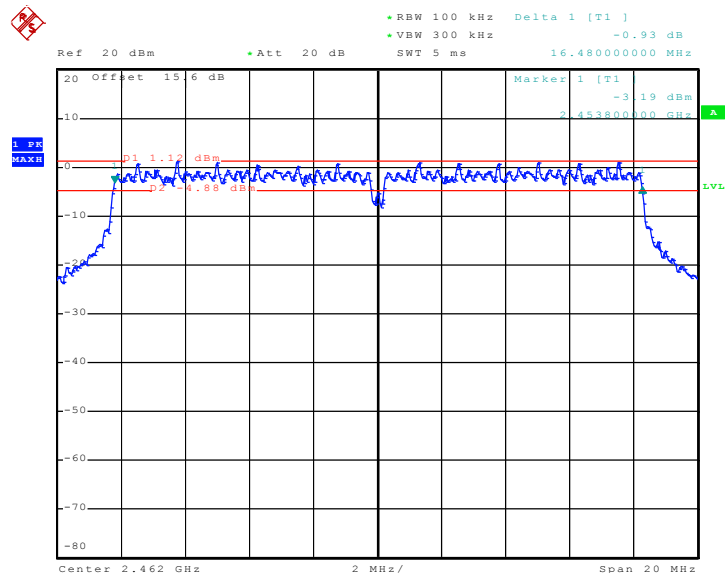
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 - Chain A



TH-01

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



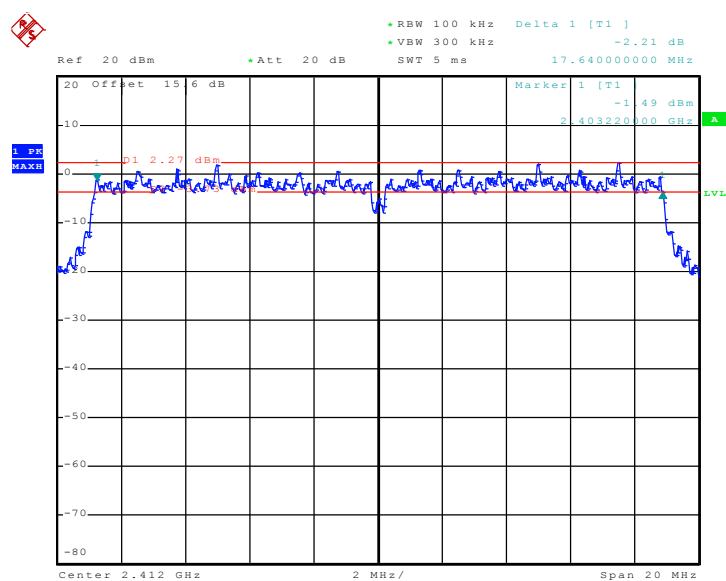
TH-01

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Test Mode :	Mode 7, 8, 9	Temperature :	21~22°C
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

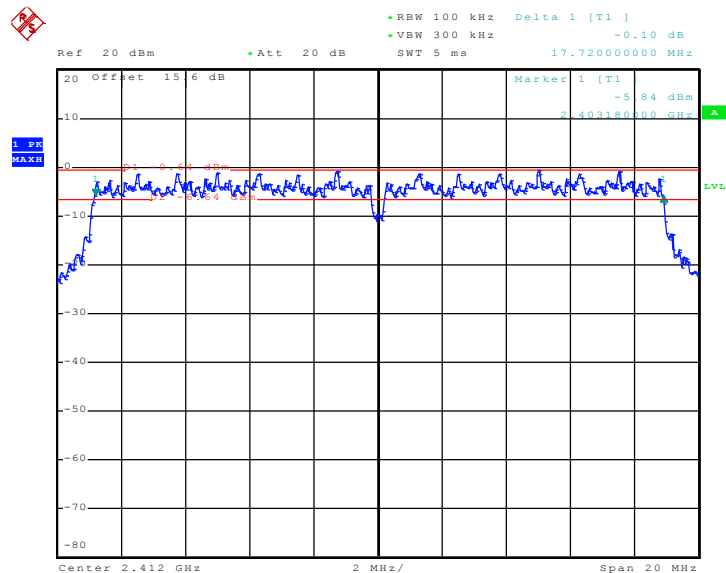
Channel	Frequency (MHz)	Chain	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	A+B(A)	17.64	0.5	Pass
06	2437	A+B(A)	17.68	0.5	Pass
11	2462	A+B(A)	17.64	0.5	Pass
01	2412	A+B(B)	17.72	0.5	Pass
06	2437	A+B(B)	17.64	0.5	Pass
11	2462	A+B(B)	17.76	0.5	Pass

**Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01
- Chain A+B(A)**



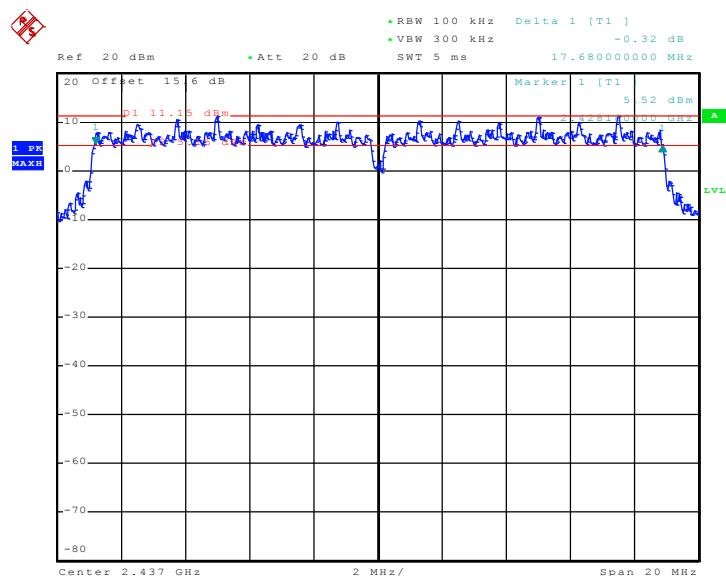
TH-01

Date: 17.MAR.2011 18:33:36

Mode 7 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 01
- Chain A+B(B)


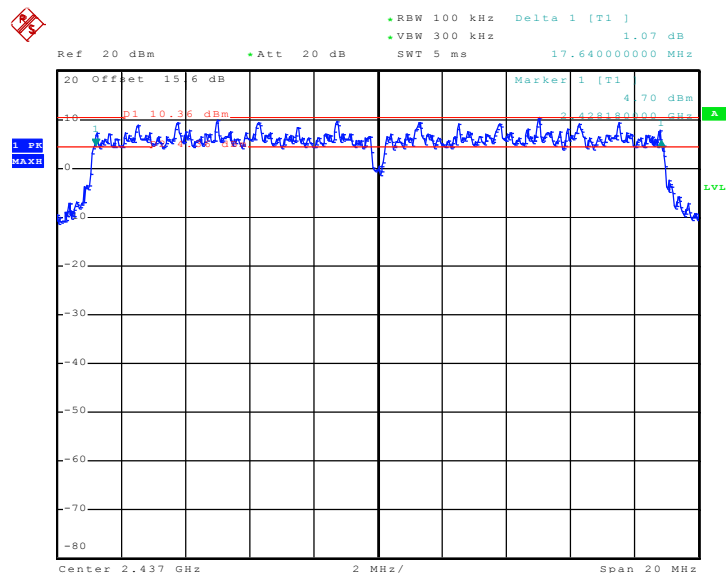
TH-01

Date: 17.MAR.2011 19:22:59

Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06
- Chain A+B(A)


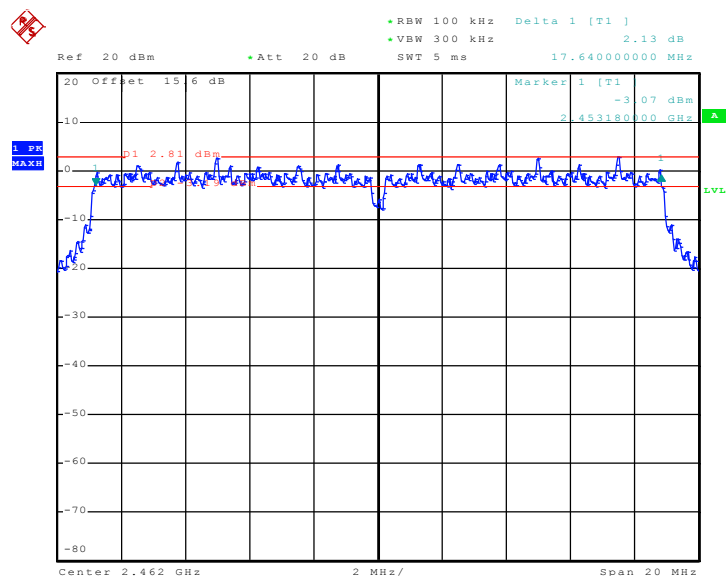
TH-01

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Mode 8 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 06
- Chain A+B(B)


TH-01

Date: 17.MAR.2011 21:40:56

Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11
- Chain A+B(A)


TH-01

Date: 17.MAR.2011 19:05:01



• RBW 100 kHz Delta 1 [T1]
 • VBW 300 kHz -0.32 dB
 Ref 20 dBm • Att 20 dB
 SWT 5 ms 17.760000000 MHz

2.462 GHz 2 MHz/ 2.45314000 GHz
 Center 2.462 GHz Span 20 MHz

P1 2.11 dBm
 1.89 Hz

Marker 1 [T1]
 -3.39 dBm
 2.45314000 GHz

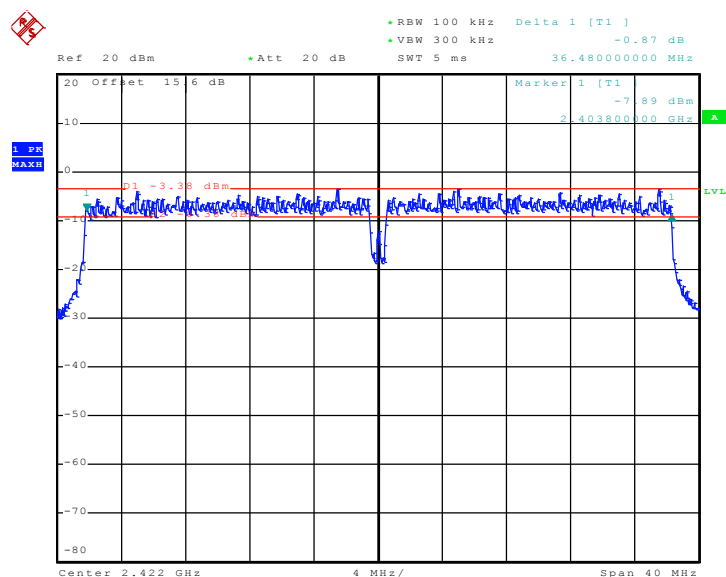
TH-01

Date: 17.MAR.2011 19:54:44

Test Mode :	Mode 10, 11, 12	Temperature :	21~22°C
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)	36.48	0.5	Pass
06	2437	A+B(A)	36.48	0.5	Pass
09	2452	A+B(A)	36.56	0.5	Pass
03	2422	A+B(B)	36.40	0.5	Pass
06	2437	A+B(B)	36.48	0.5	Pass
09	2452	A+B(B)	36.48	0.5	Pass

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

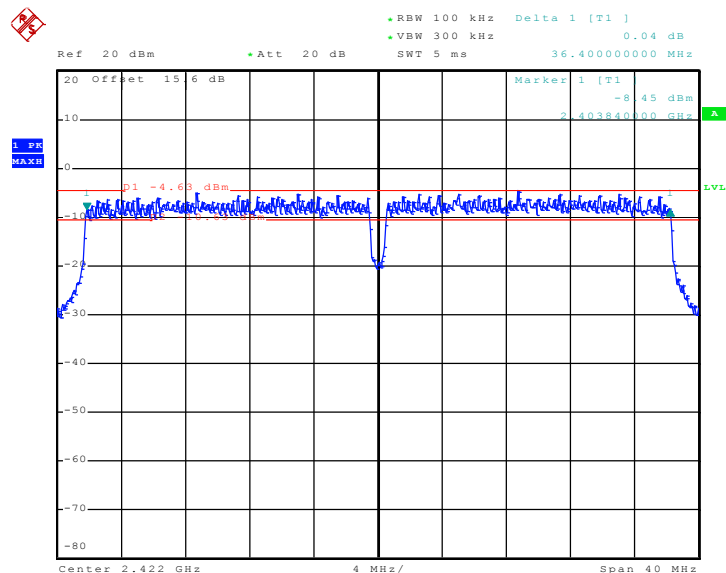


TH-01

Date: 17.MAR.2011 21:23:05

Mode 10 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 03

- Chain A+B(B)

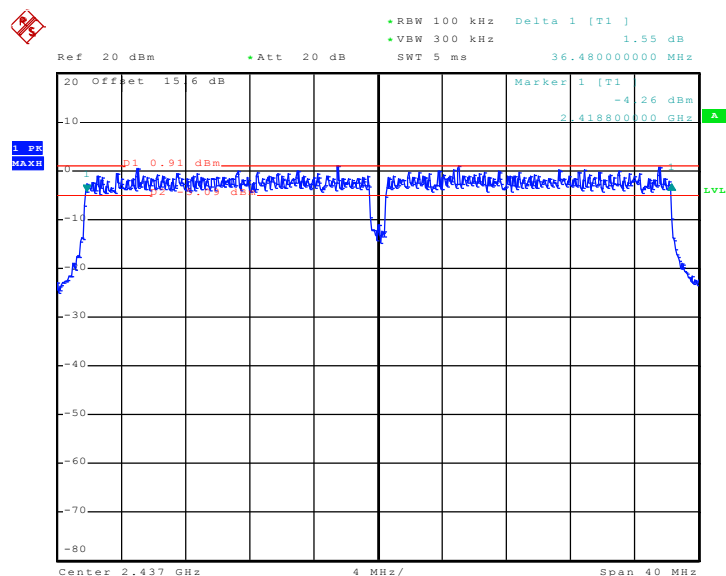


TH-01

Date: 17.MAR.2011 20:10:09

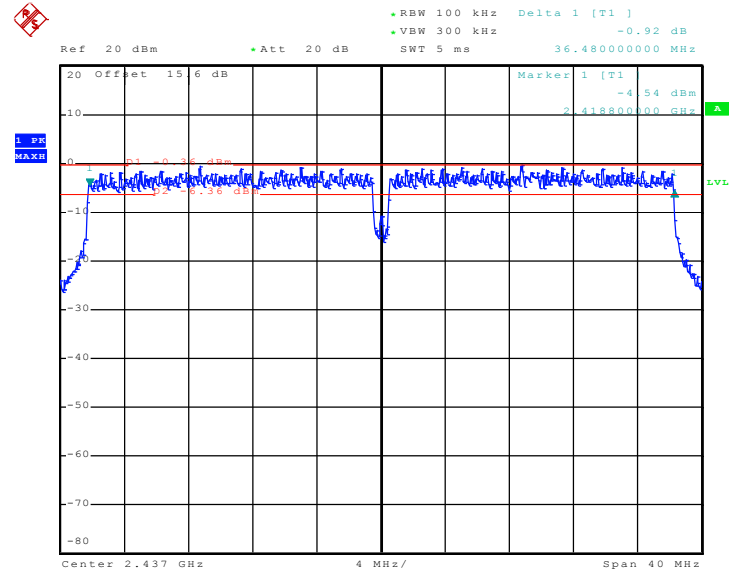
Mode 11 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 06

- Chain A+B(A)



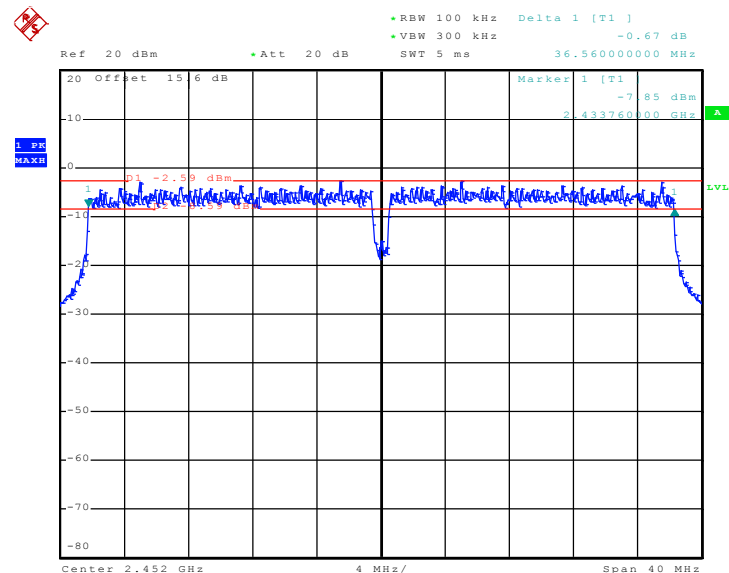
TH-01

Date: 17.MAR.2011 21:10:07

Mode 11 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 06
- Chain A+B(B)


TH-01

Date: 17.MAR.2011 20:25:13

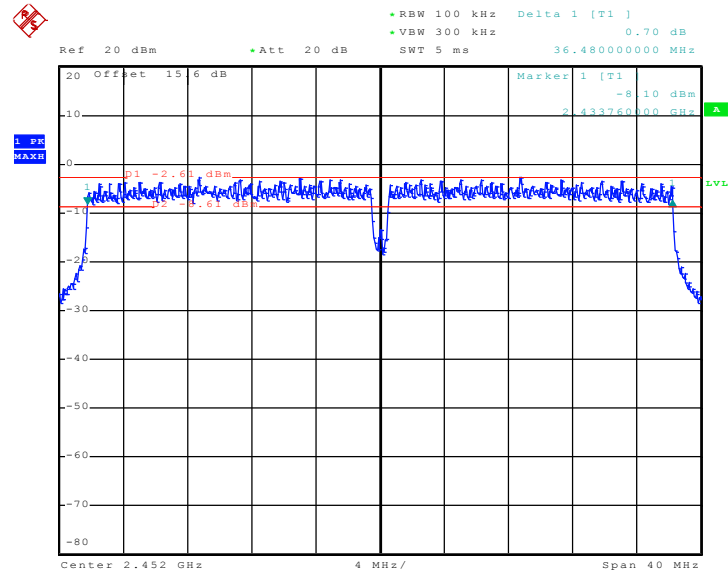
Mode 12 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09
- Chain A+B(A)


TH-01

Date: 17.MAR.2011 20:54:17



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



TH-01

Date: 17.MAR.2011 20:39:14

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.

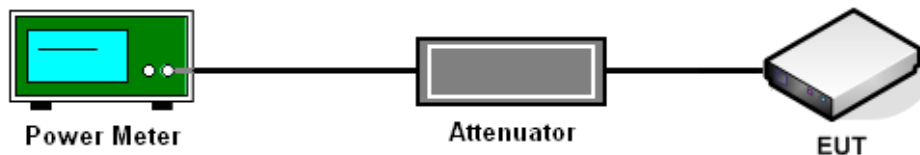
3.2.2 Measuring Instruments

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 :	21~22℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.45	30	Pass
06	2437	20.63	30	Pass
11	2462	20.51	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	21~22℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.45	30	Pass
06	2437	26.61	30	Pass
11	2462	21.64	30	Pass

Test Mode :	Mode 7~9	Temperature :	21~22℃
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	23.12	30	Pass
06	2437	A+B	29.11	30	Pass
11	2462	A+B	23.66	30	Pass

Test Mode :	Mode 10~12	Temperature :	21~22℃
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	20.41	30	Pass
06	2437	A+B	24.74	30	Pass
09	2452	A+B	21.86	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

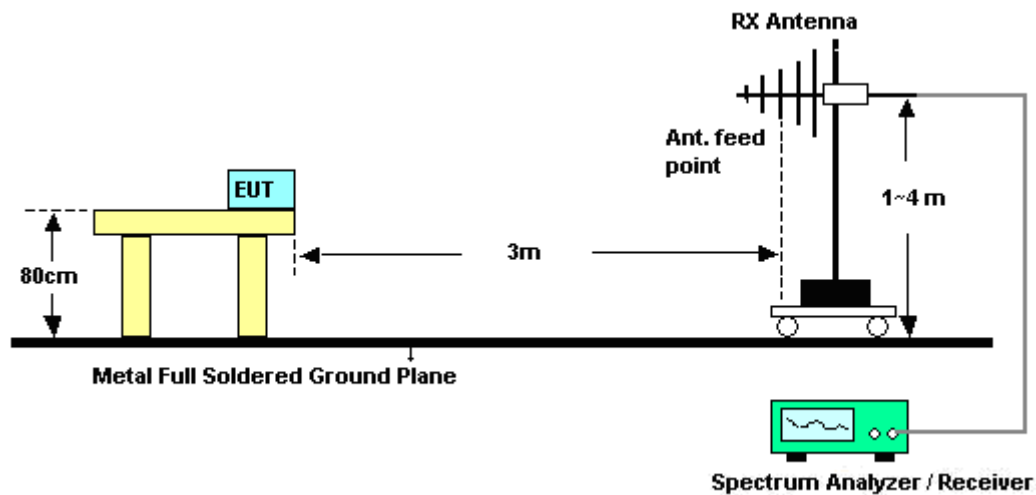
See list of measuring instruments of this test report.

3.3.3 Test Procedures

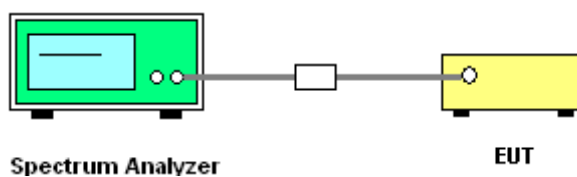
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) $\geq$ RBW. Band edge emissions must be at least 20 dB down from the highest emission level within the authorized 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 :	22~23℃
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Cloud 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
2386.76	58.76	-15.24	74	56.48	32.86	3.47	34.05	103	96	Peak
2386.76	49.39	-4.61	54	47.11	32.86	3.47	34.05	103	96	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
2348.38	56	-18	74	53.83	32.78	3.33	33.94	102	158	Peak
2348.38	42.11	-11.89	54	39.94	32.78	3.33	33.94	102	158	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Cloud 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	54.42	-19.58	74	51.93	33.01	3.68	34.2	100	97	Peak
2483.5	44.59	-9.41	54	42.1	33.01	3.68	34.2	100	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	54.87	-19.13	74	52.38	33.01	3.68	34.2	100	44	Peak
2483.5	45.93	-8.07	54	43.44	33.01	3.68	34.2	100	44	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Cloud 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	62.37	-11.63	74	60.09	32.86	3.47	34.05	101	95	Peak
2390	49.51	-4.49	54	47.23	32.86	3.47	34.05	101	95	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	61.5	-12.5	74	59.22	32.86	3.47	34.05	105	25	Peak
2390	46.4	-7.6	54	44.12	32.86	3.47	34.05	105	25	Average

Test Mode :	Mode 6	Temperature :	22~23℃
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Cloud 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	101	97	Peak
2483.5	47.83	-6.17	54	45.34	33.01	3.68	34.2	101	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	67.12	-6.88	74	64.63	33.01	3.68	34.2	101	22	Peak
2483.5	49.2	-4.8	54	46.71	33.01	3.68	34.2	101	22	Average

Test Mode :	Mode 7	Temperature :	22~23℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Cloud 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
2389.8	69.27	-4.73	74	66.99	32.86	3.47	34.05	104	61	Peak
2389.8	48.6	-5.4	54	46.32	32.86	3.47	34.05	104	61	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	60.06	-13.94	74	57.78	32.86	3.47	34.05	109	327	Peak
2390	46.59	-7.41	54	44.31	32.86	3.47	34.05	109	327	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Cloud 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
2484.61	66.4	-7.6	74	63.91	33.01	3.68	34.2	101	95	Peak
2484.61	49.53	-4.47	54	47.04	33.01	3.68	34.2	101	95	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	67.03	-6.97	74	64.54	33.01	3.68	34.2	100	22	Peak
2483.66	52.11	-1.89	54	49.62	33.01	3.68	34.2	100	22	Average



Test Mode :	Mode 10	Temperature :	22~23℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	03	Test Engineer :	Cloud 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	67.28	-6.72	74	65	32.86	3.47	34.05	103	94	Peak
2390	52.17	-1.83	54	49.89	32.86	3.47	34.05	103	94	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	63.58	-10.42	74	61.3	32.86	3.47	34.05	100	24	Peak
2390	49.09	-4.91	54	46.81	32.86	3.47	34.05	100	24	Average

Test Mode :	Mode 12	Temperature :	22~23℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	09	Test Engineer :	Cloud Peng

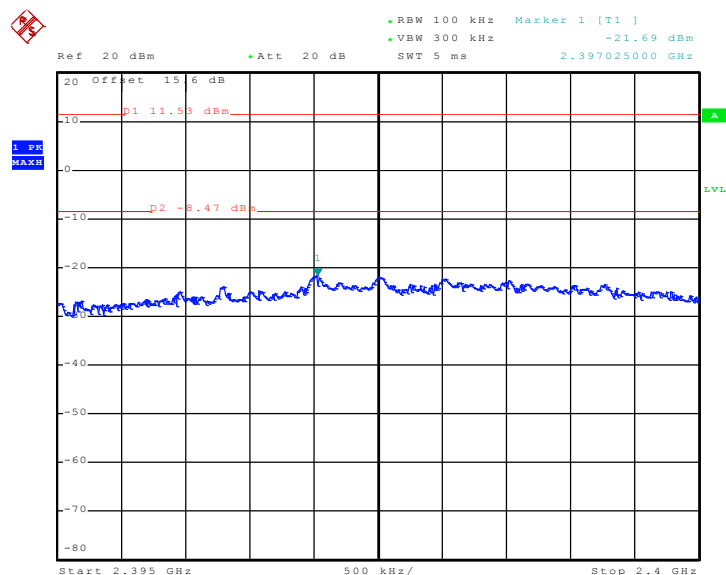
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.8	69.2	-4.8	74	66.71	33.01	3.68	34.2	100	152	Peak
2484.8	51.16	-2.84	54	48.67	33.01	3.68	34.2	100	152	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	70.25	-3.75	74	67.76	33.01	3.68	34.2	102	21	Peak
2483.5	52.86	-1.14	54	50.37	33.01	3.68	34.2	102	21	Average

3.3.6 Test Plots of Conducted Band Edges

Test Mode :	Mode 1 and 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

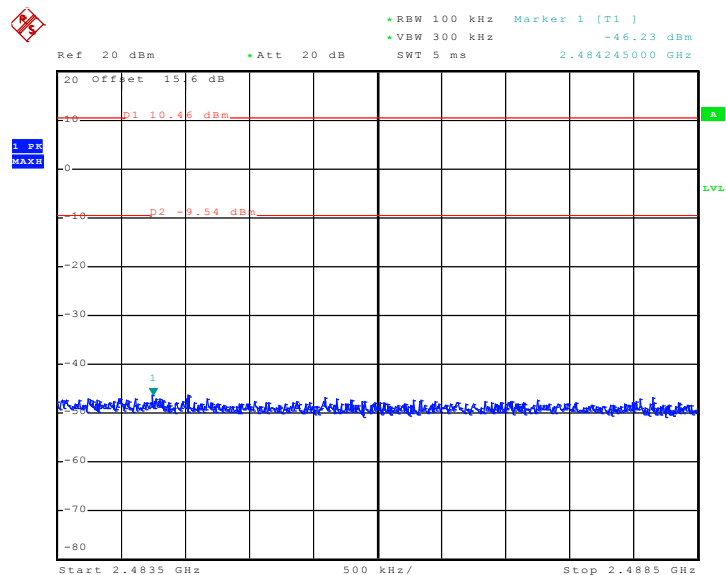
Low Band Edge Plot on 802.11b Channel 01



TH-01

Date: 17.MAR.2011 16:36:06

High Band Edge Plot on 802.11b Channel 11



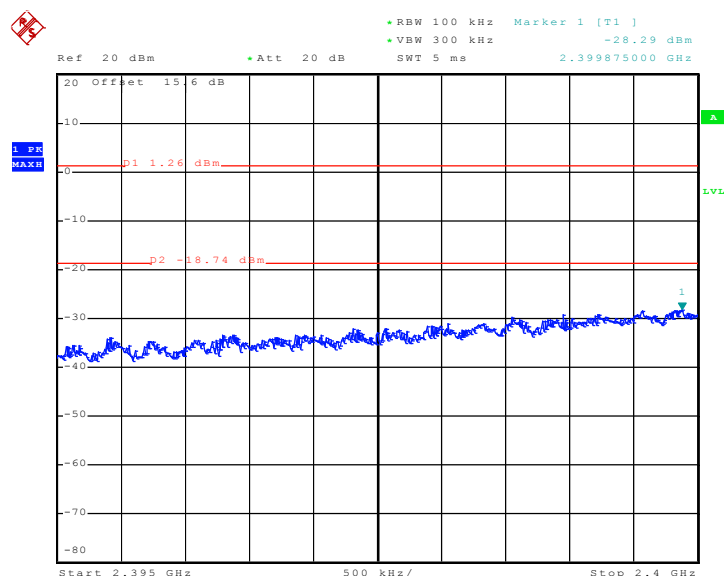
TH-01

Date: 17.MAR.2011 17:06:08



Test Mode :	Mode 4 and 6	Temperature :	21~22℃
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01 and 11	Test Engineer :	Fly Chen

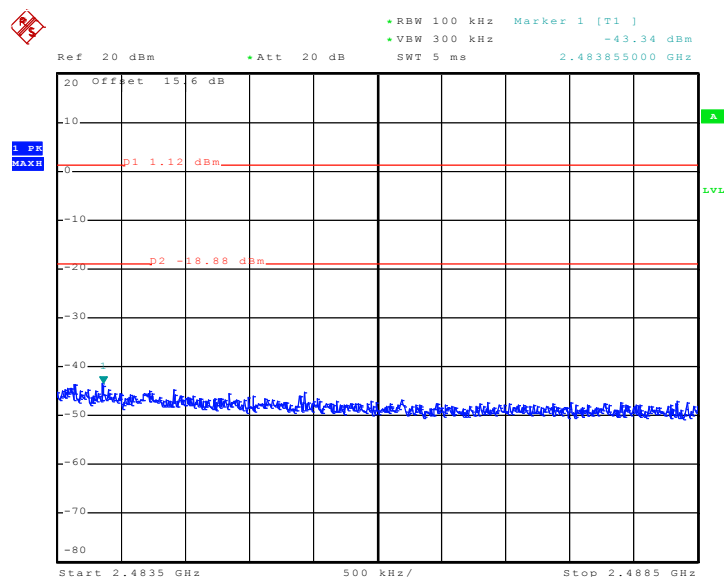
Low Band Edge Plot on 802.11g Channel 01



TH-01

Date: 17 MAR 2011 17:22:31

High Band Edge Plot on 802.11g Channel 11



TH-01

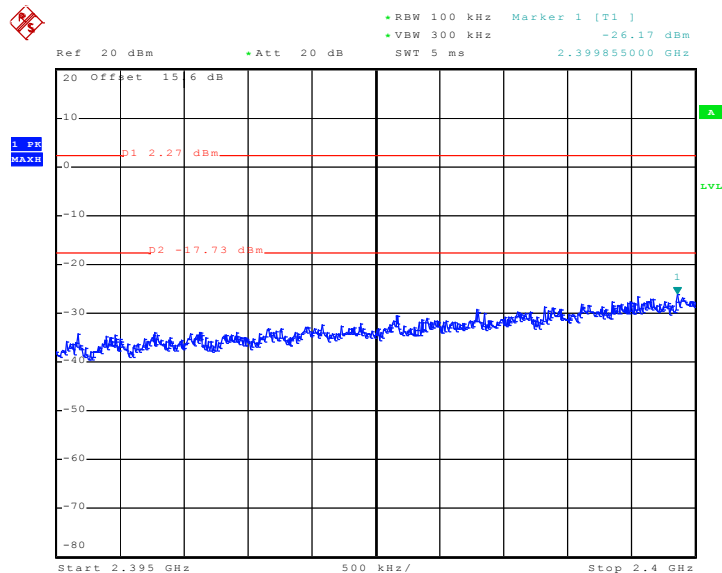
Date: 17.MAR.2011 17:58:22



Test Mode :	Mode 7 and 9	Temperature :	21~22℃
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)

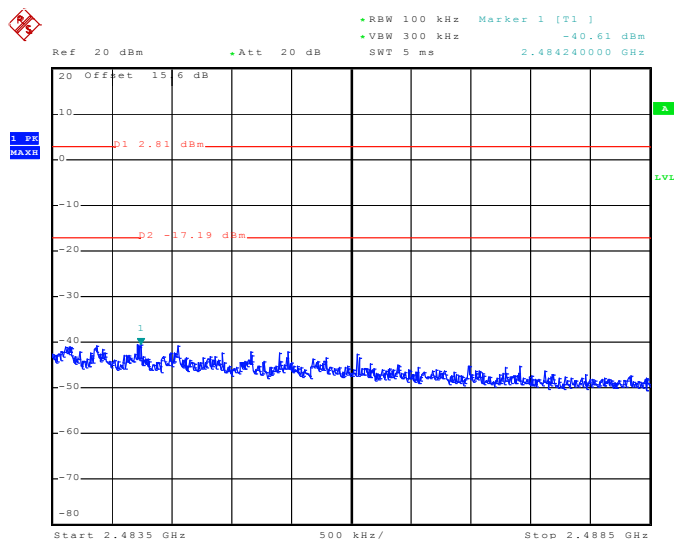


TH-01

Date: 17.MAR.2011 18:34:49

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

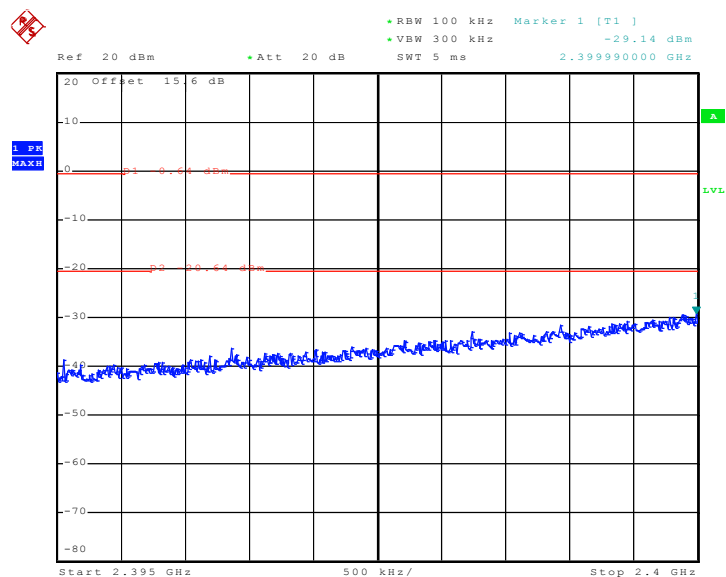
A+B(A)



TH-01

Date: 17.MAR.2011 19:05:56

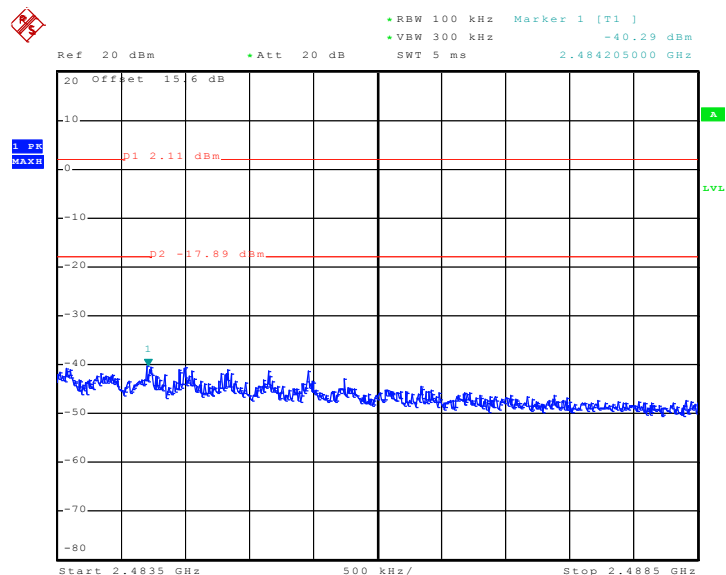
Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01 - Chain A+B(B)



TH-01

Date: 17.MAR.2011 19:24:22

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



TH-01

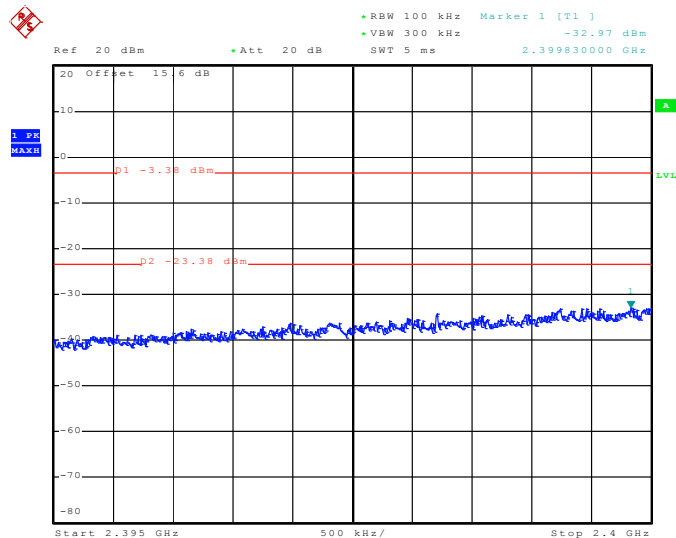
Date: 17.MAR.2011 19:55:33



Test Mode :	Mode 10 and 12	Temperature :	21~22℃
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)

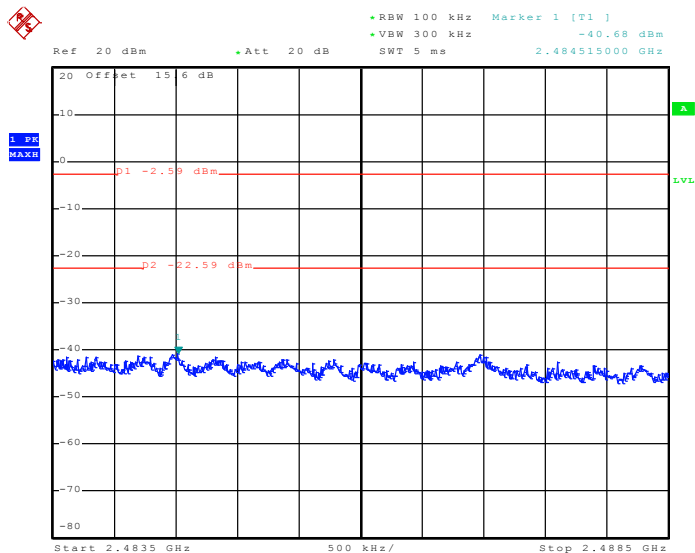


TH-01

Date: 17.MAR.2011 21:24:15

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

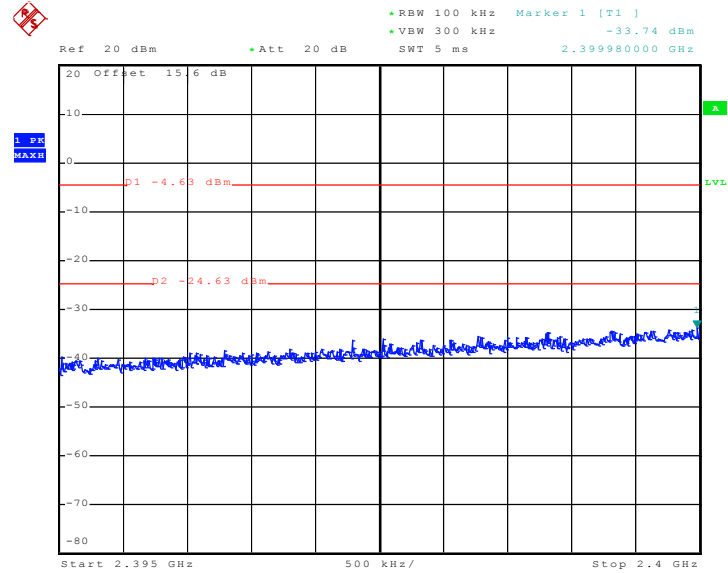
A+B(A)



TH-01

Date: 17.MAR.2011 20:55:03

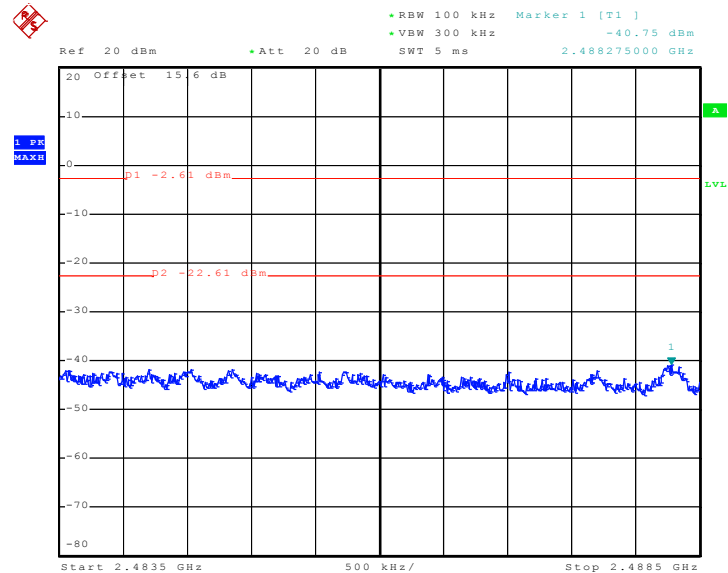
Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03- Chain A+B(B)



TH-01

Date: 17.MAR.2011 20:11:17

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



TH-01

Date: 17.MAR.2011 20:39:41

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.

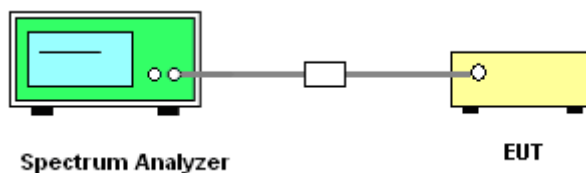
3.4.2 Measuring Instruments

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.

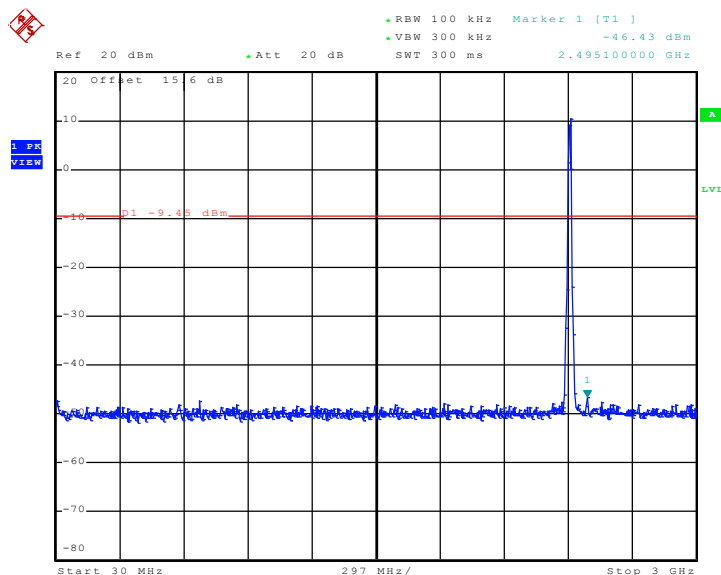
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

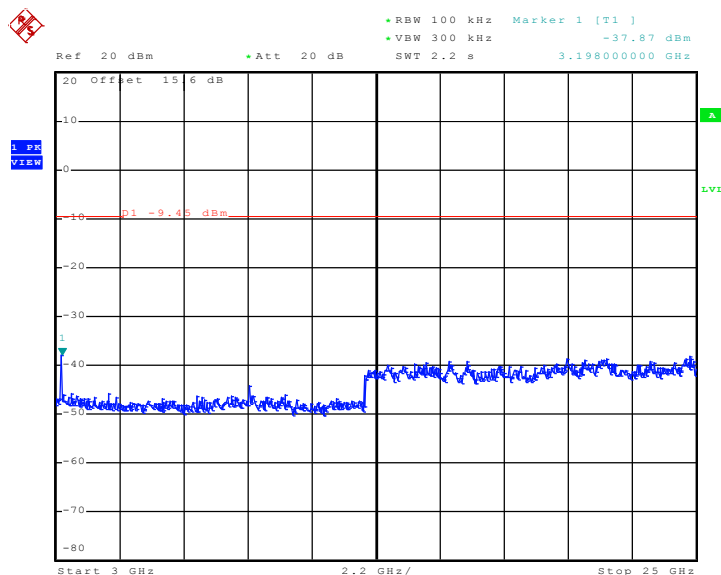
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A



TH-01

Date: 17.MAR.2011 16:37:12

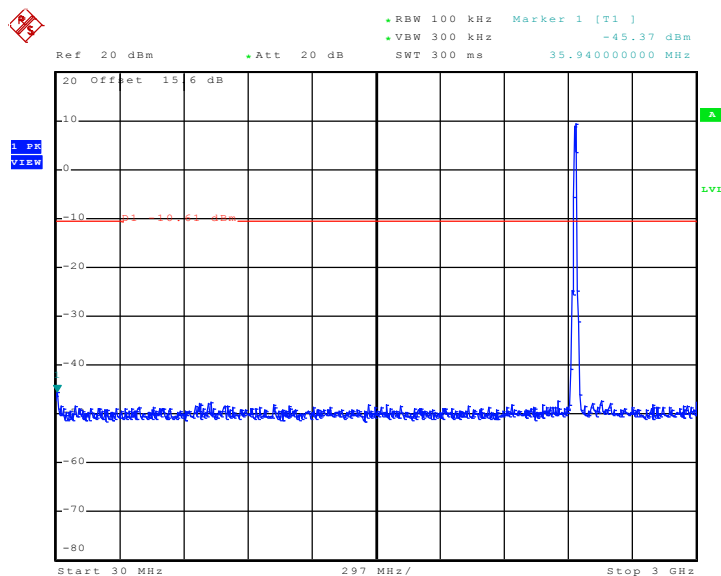
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A



TH-01

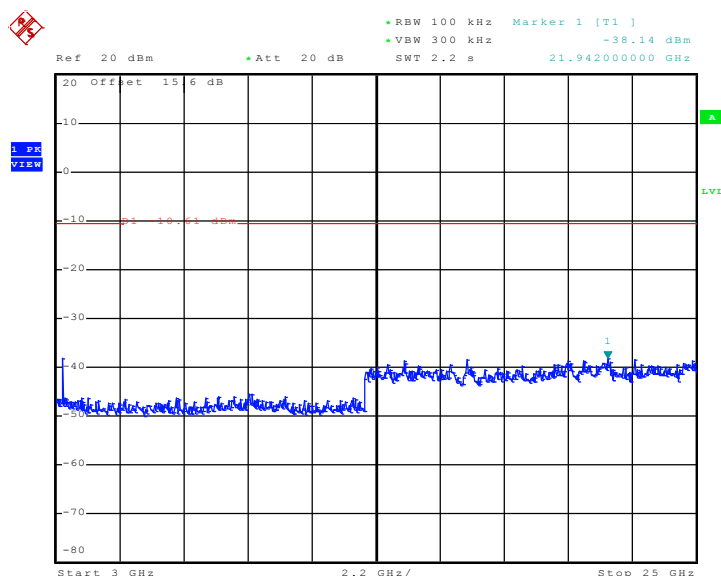
Date: 17.MAR.2011 16:37:29

Test Mode :	Mode 2	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A


TH-01

Date: 17.MAR.2011 21:58:31

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A


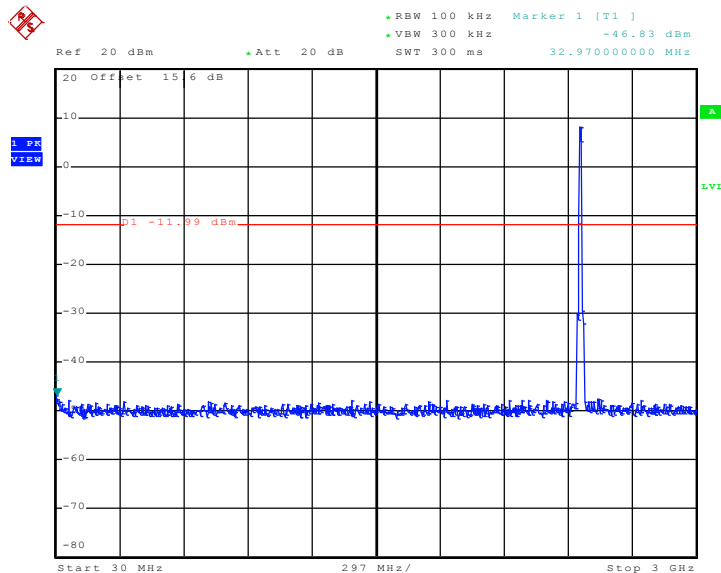
TH-01

Date: 17.MAR.2011 21:58:48



Test Mode :	Mode 3	Temperature :	21~22°C
Test Band :	802.11b	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

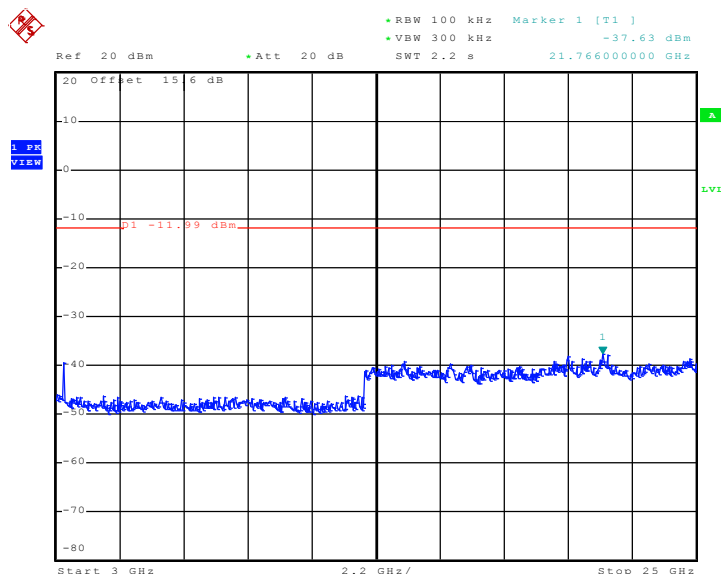
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A



TH-01

Date: 17.MAR.2011 17:07:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A



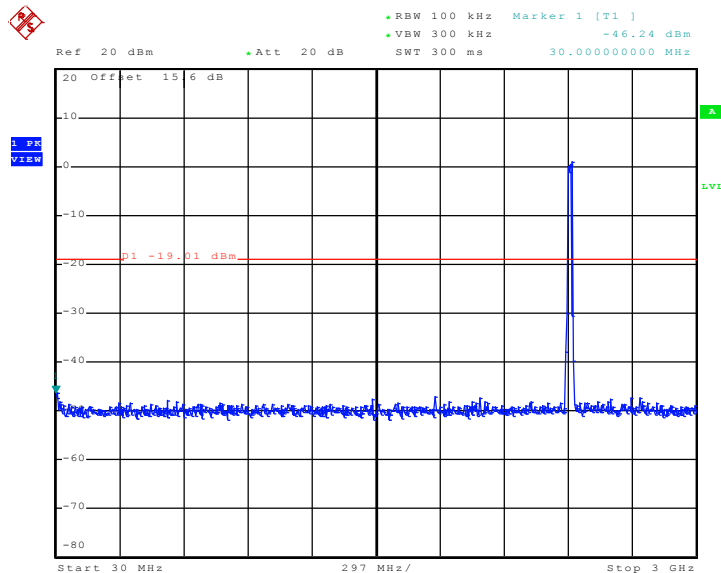
TH-01

Date: 17.MAR.2011 17:08:05



Test Mode :	Mode 4	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

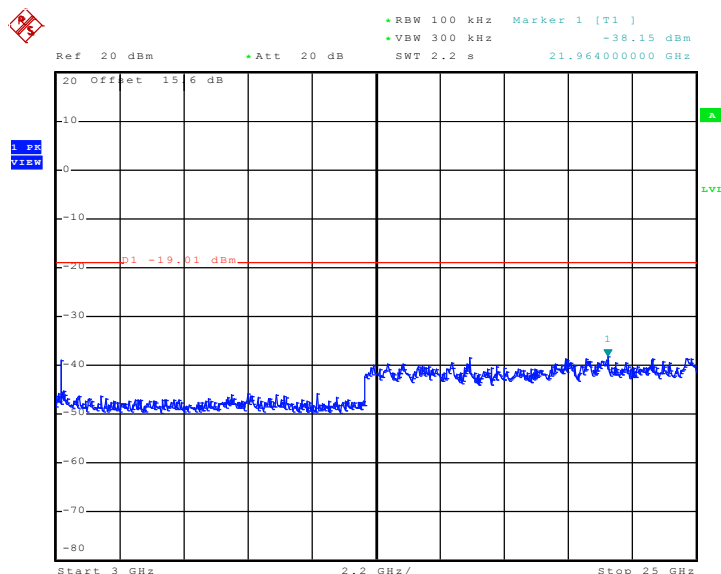
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A



TH-01

Date: 17.MAR.2011 17:24:35

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A



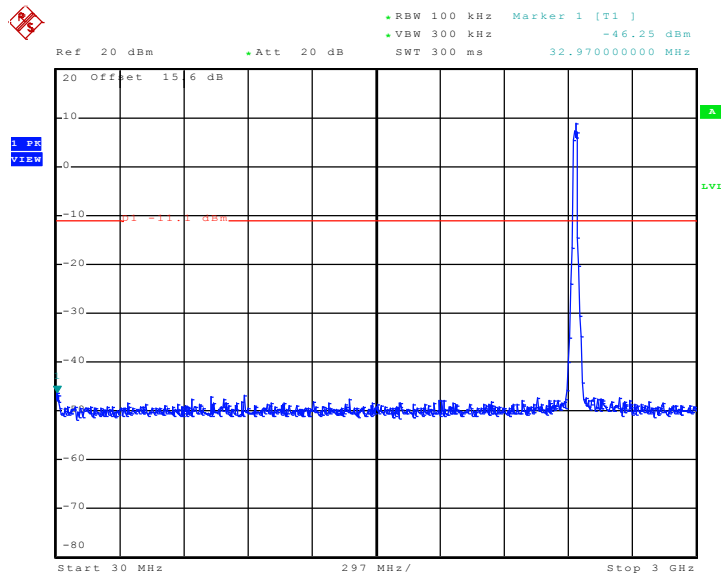
TH-01

Date: 17.MAR.2011 17:24:52



Test Mode :	Mode 5	Temperature :	21~22
Test Band :	802.11g	Relative Humidity :	40~41
Test Channel :	06	Test Engineer :	Fly Chen

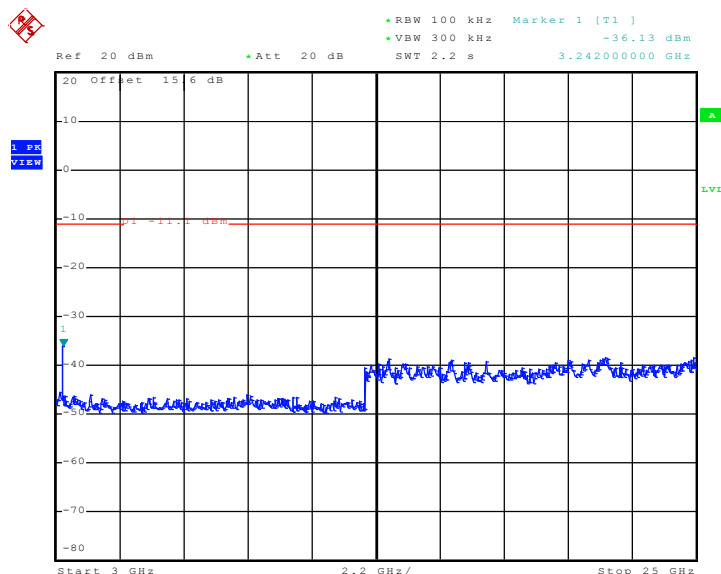
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A



TH-01

Date: 17.MAR.2011 17:41:26

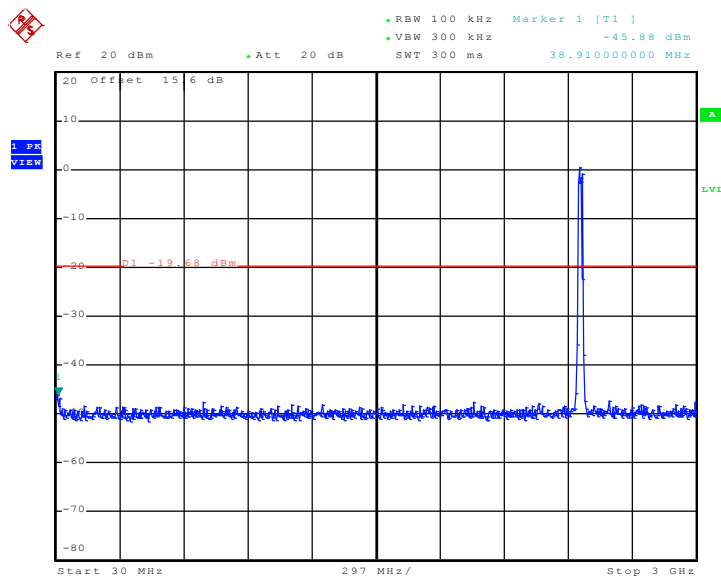
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A



TH-01

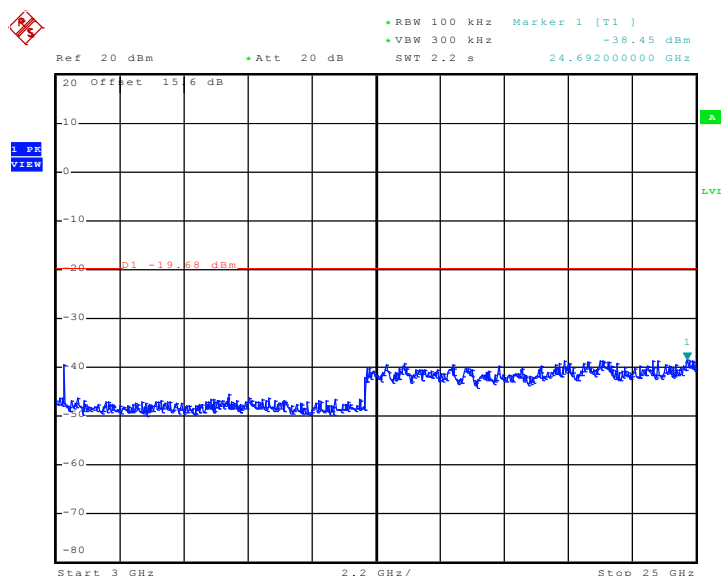
Date: 17.MAR.2011 17:41:44

Test Mode :	Mode 6	Temperature :	21~22°C
Test Band :	802.11g	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz – Chain A


TH-01

Date: 17.MAR.2011 22:02:16

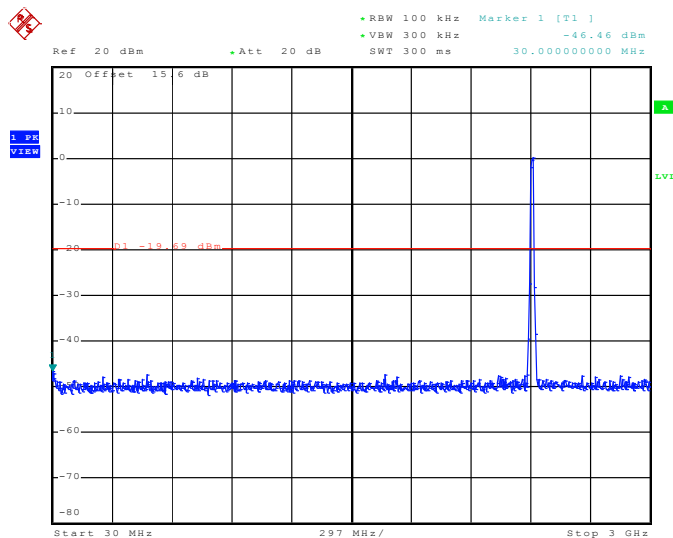
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz – Chain A


TH-01

Date: 17.MAR.2011 22:02:33

Test Mode :	Mode 7	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Fly Chen

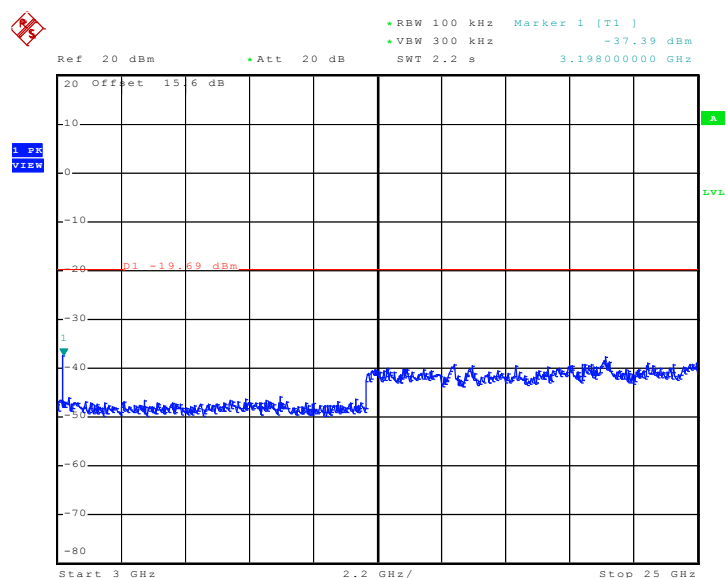
**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)**



TH-01

Date: 17.MAR.2011 19:18:28

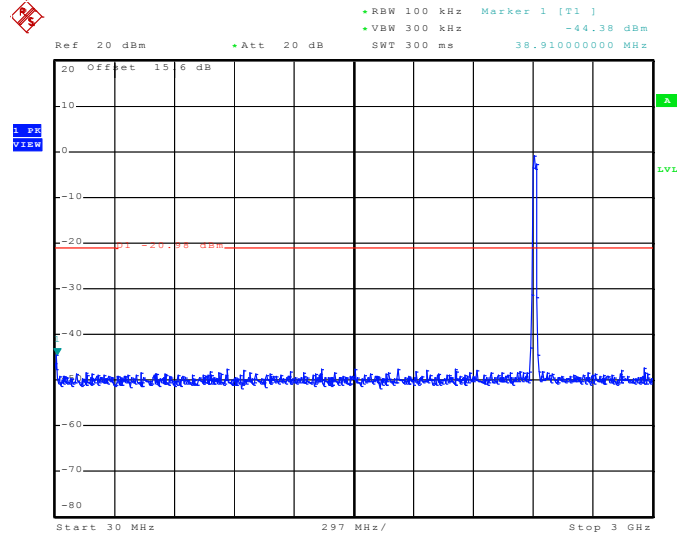
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(A)**



TH-01

Date: 17 MAR 2011 19:18:45

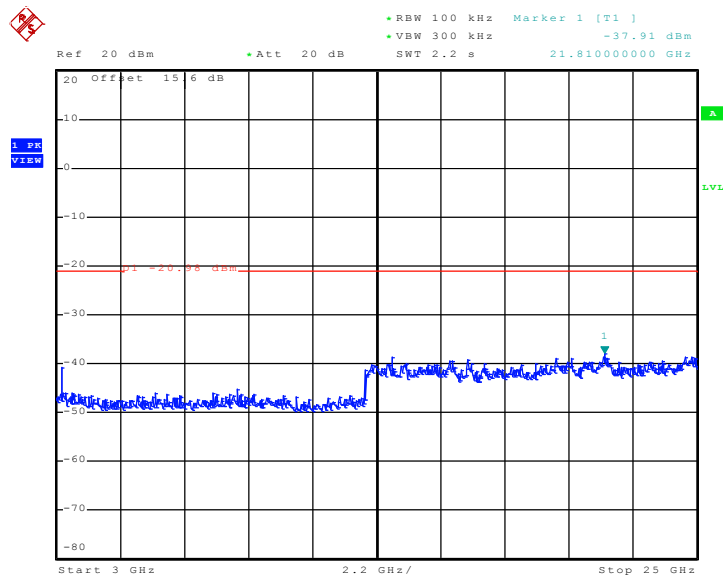
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain A+B(B)



TH-01

Date: 17.MAR.2011 19:25:58

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

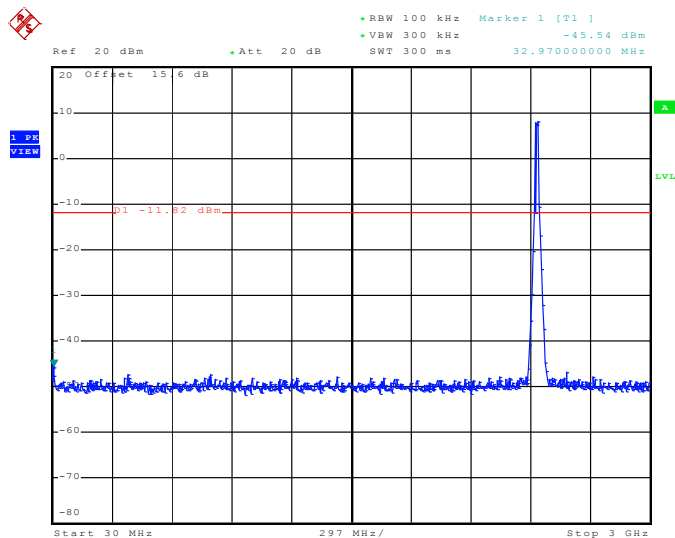


TH-01

Date: 17.MAR.2011 19:26:15

Test Mode :	Mode 8	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

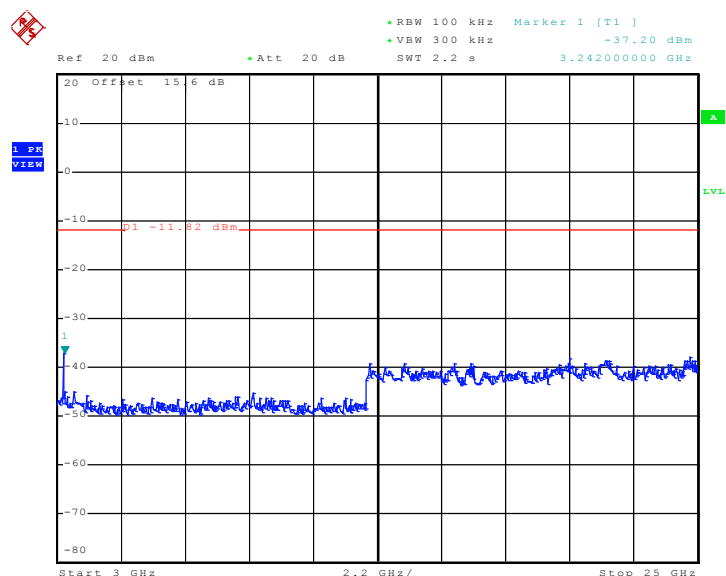
**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)**



TH-01

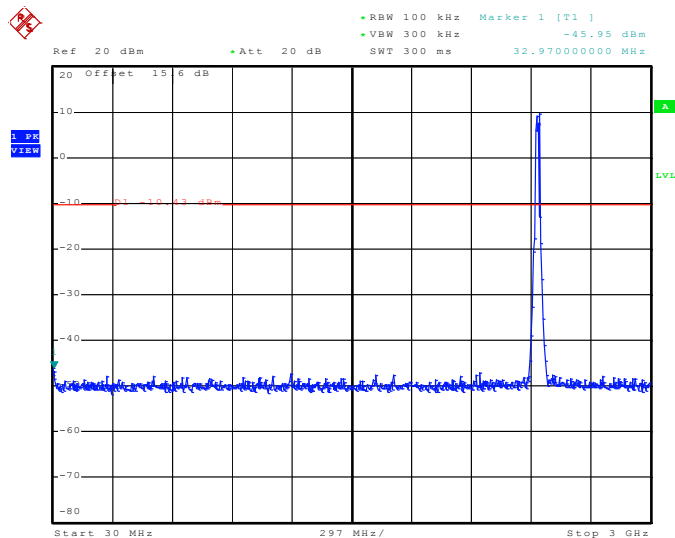
Date: 17.MAR.2011 18:50:58

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



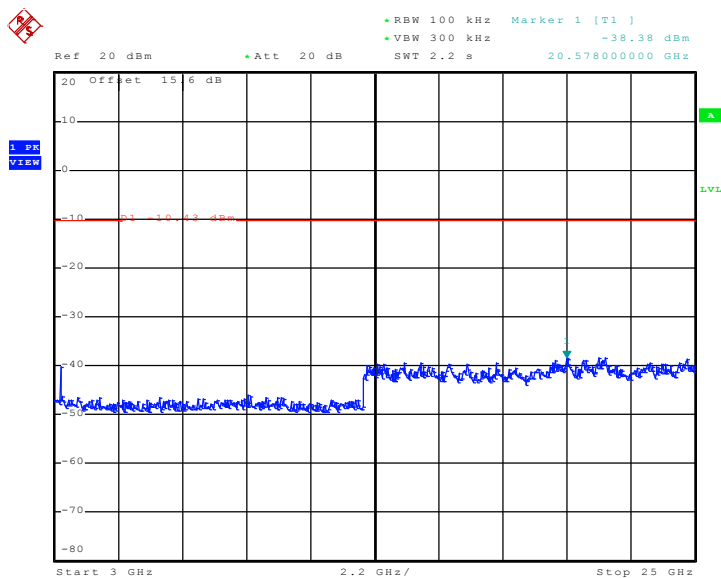
TH-01

Date: 17.MAR.2011 18:51:15

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


TH-01

Date: 17.MAR.2011 21:42:06

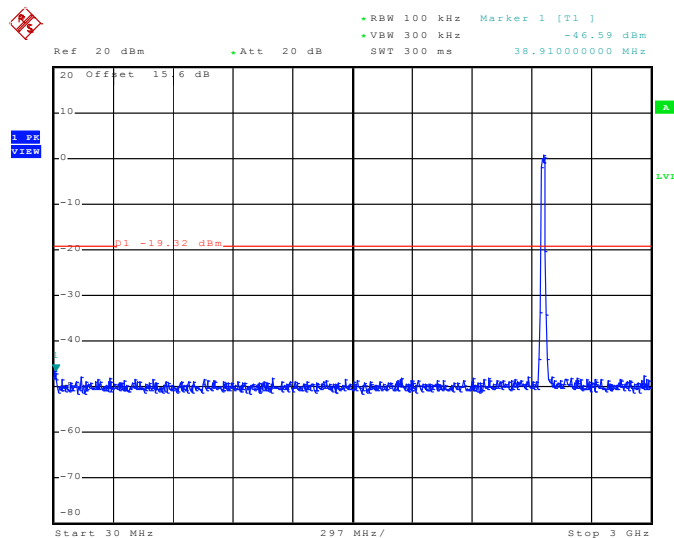
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(B)


TH-01

Date: 17.MAR.2011 21:42:23

Test Mode :	Mode 9	Temperature :	21~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Fly Chen

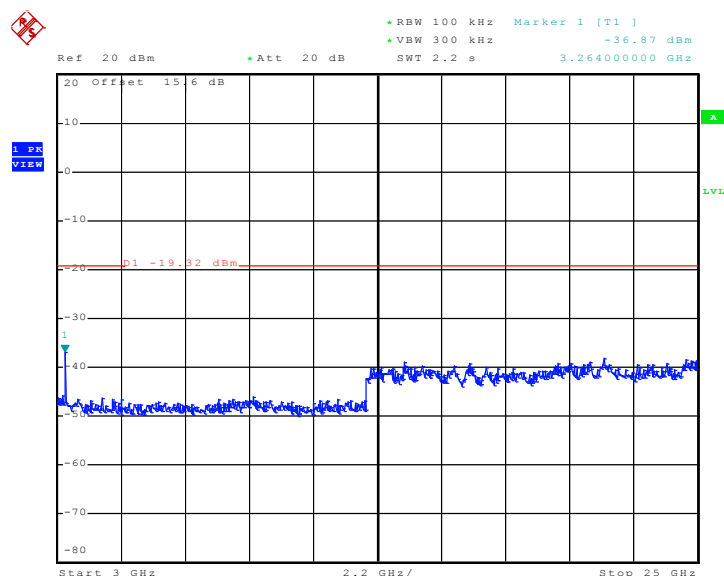
**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)**



TH-01

Date: 17.MAR.2011 19:07:21

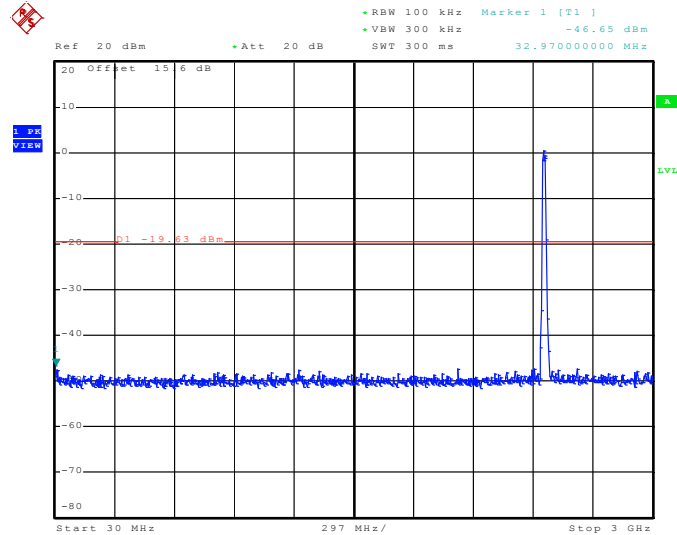
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(A)**



TH-01

Date: 17.MAR.2011 19:07:38

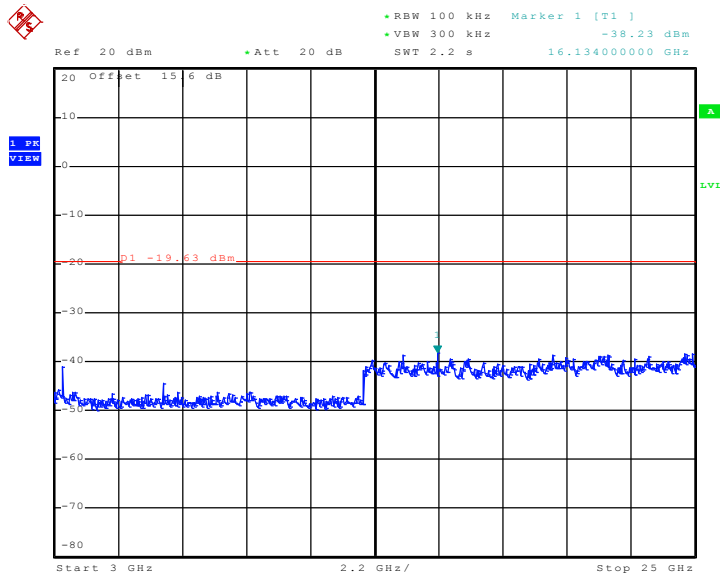
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain A+B(B)



TH-01

Date: 17.MAR.2011 19:56:57

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



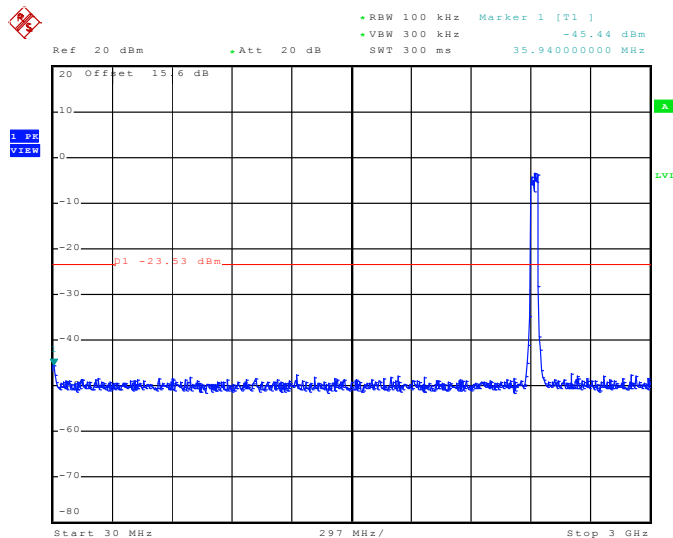
TH-01

Date: 17.MAR.2011 19:57:13



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

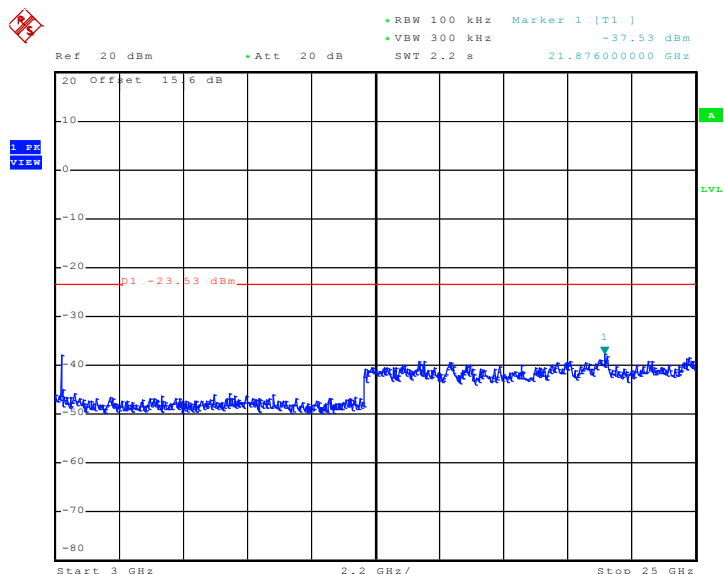
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)



TH-01

Date: 17.MAR.2011 21:25:08

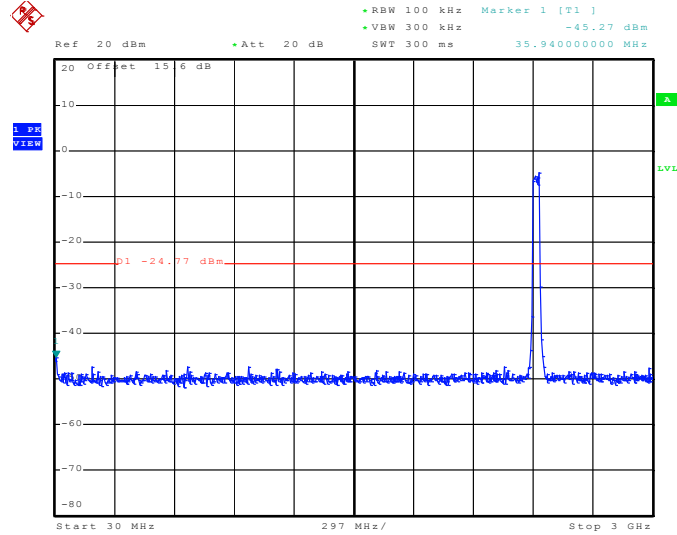
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(A)



TH-01

Date: 17.MAR.2011 21:25:25

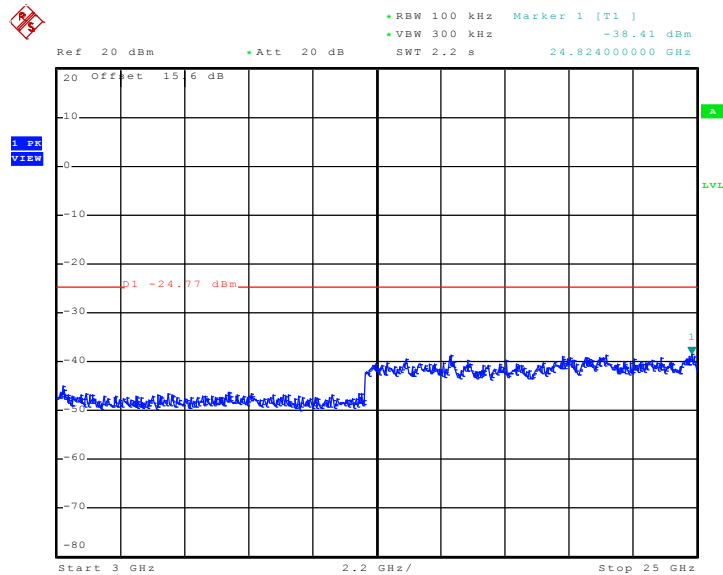
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain A+B(B)



TH-01

Date: 17.MAR.2011 20:12:11

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

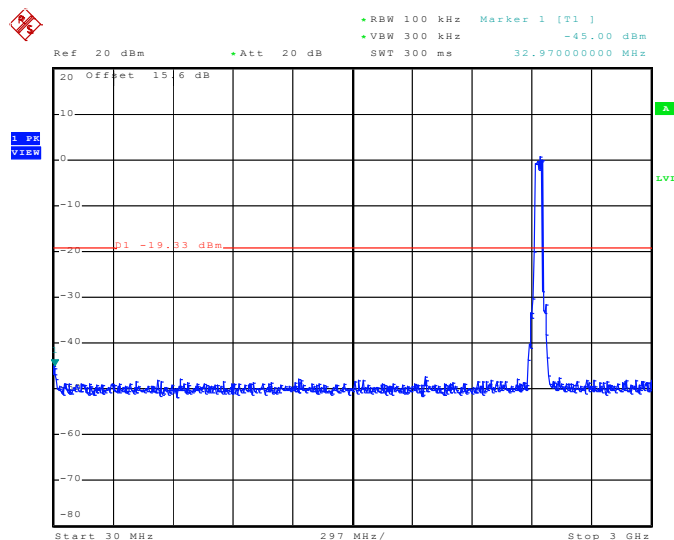


TH-01

Date: 17.MAR.2011 20:12:28

Test Mode :	Mode 11	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	06	Test Engineer :	Fly Chen

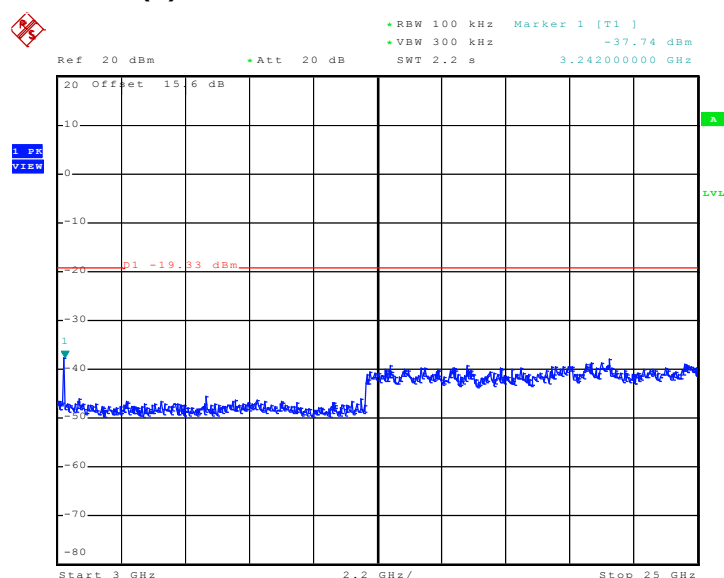
**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)**



TH-01

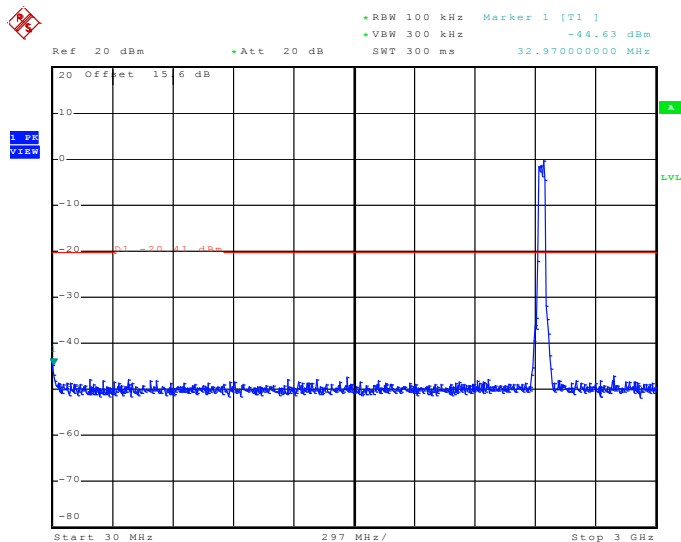
Date: 17.MAR.2011 21:10:57

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



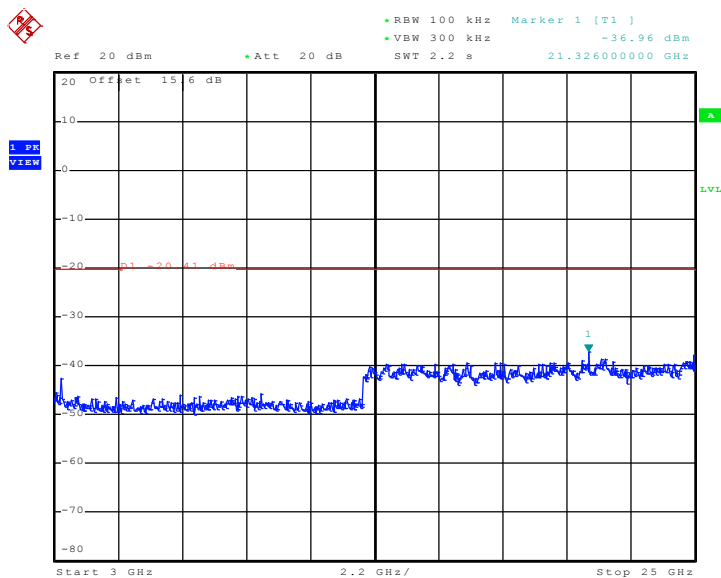
TH-01

Date: 17.MAR.2011 21:11:14

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


TH-01

Date: 17.MAR.2011 20:27:30

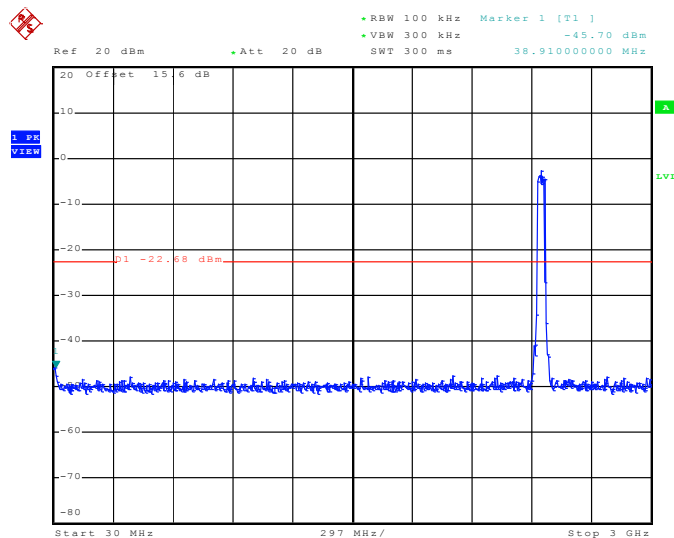
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(B)


TH-01

Date: 17.MAR.2011 20:27:55

Test Mode :	Mode 12	Temperature :	21~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~41%
Test Channel :	09	Test Engineer :	Fly Chen

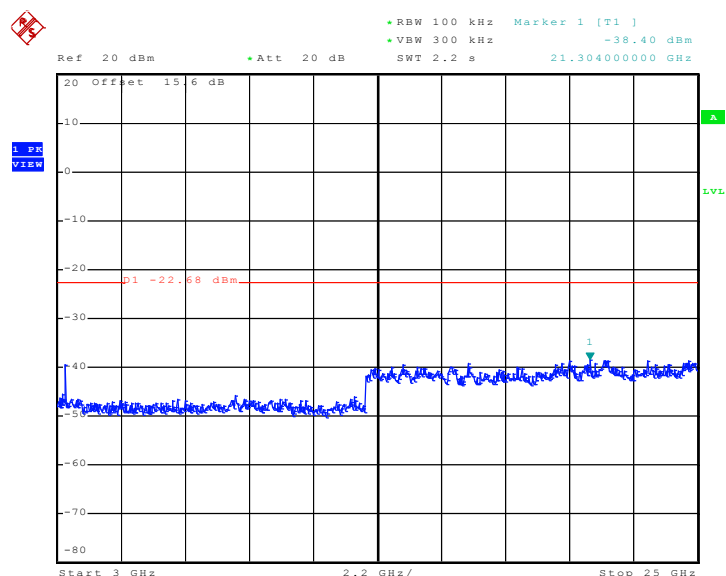
**Conducted Spurious Emission Plot between 30MHz ~ 3 GHz -
Chain A+B(A)**



TH-01

Date: 17.MAR.2011 20:57:27

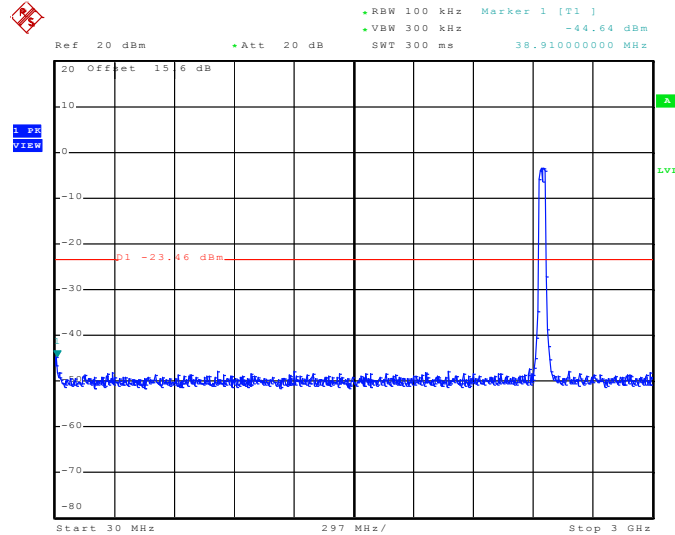
**Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz -
Chain A+B(A)**



TH-01

Date: 17.MAR.2011 20:57:44

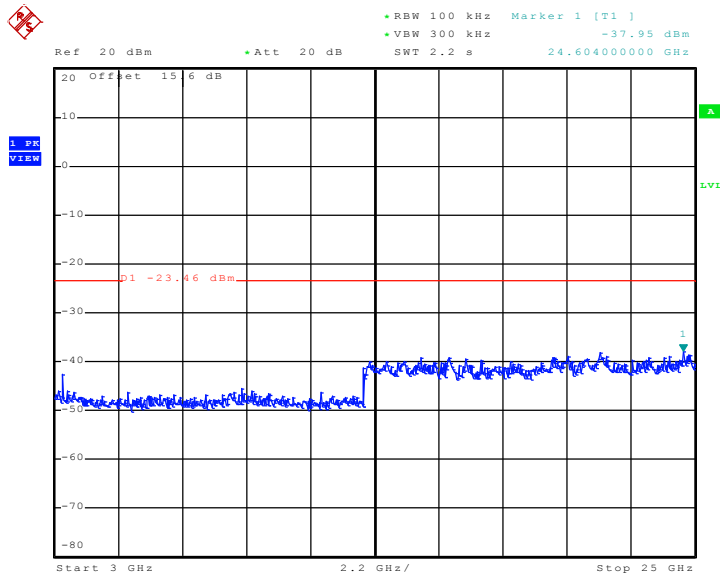
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz - Chain A+B(B)



TH-01

Date: 17.MAR.2011 20:41:06

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



TH-01

Date: 17.MAR.2011 20:41:23

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.

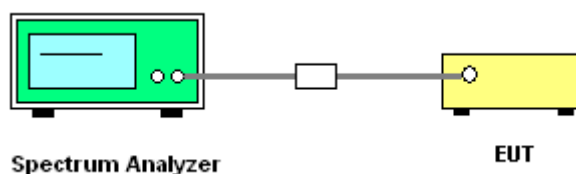
3.5.2 Measuring Instruments

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

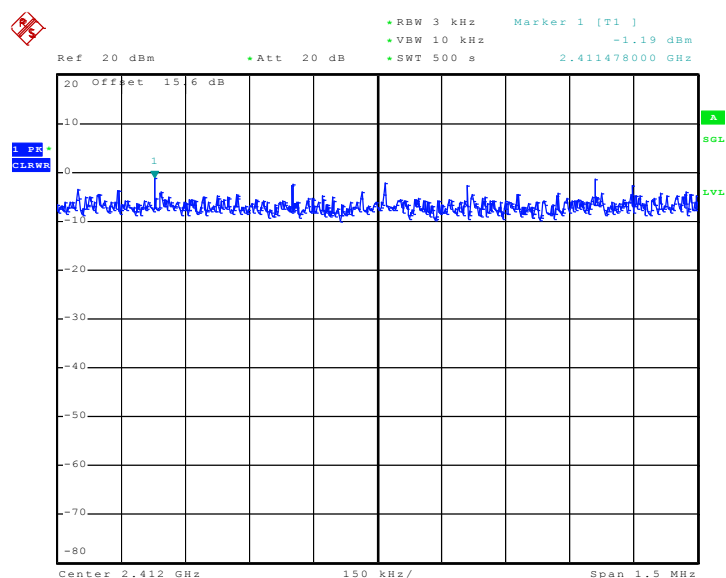


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	21~22℃
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

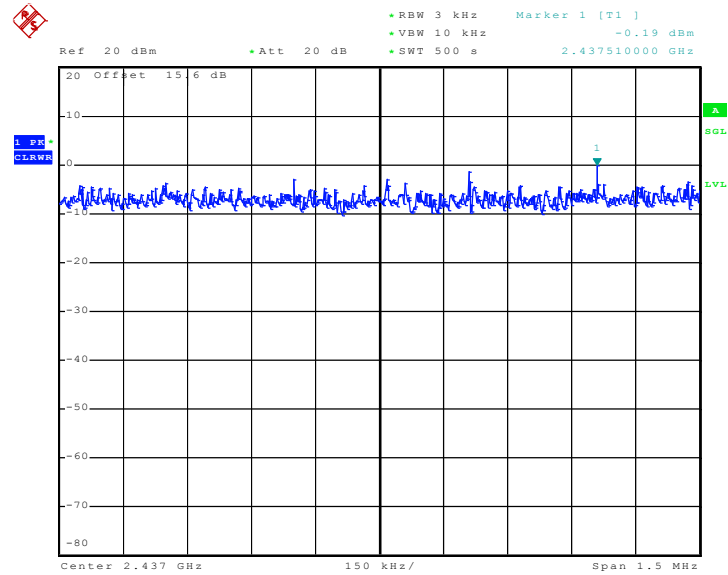
Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-1.19	8	Pass
06	2437	-0.19	8	Pass
11	2462	-2.87	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01 – Chain A



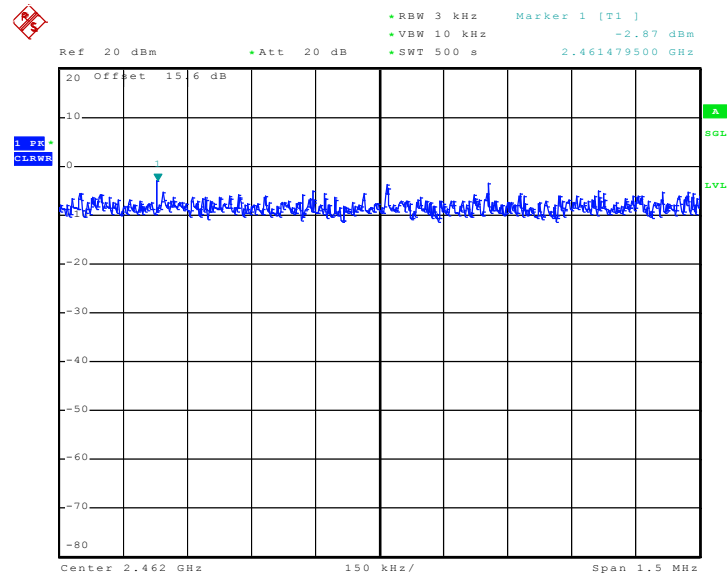
TH-01

Date: 17.MAR.2011 16:47:59

Mode 2 : PSD Plot on 802.11b Channel 06 – Chain A


TH-01

Date: 17.MAR.2011 17:02:19

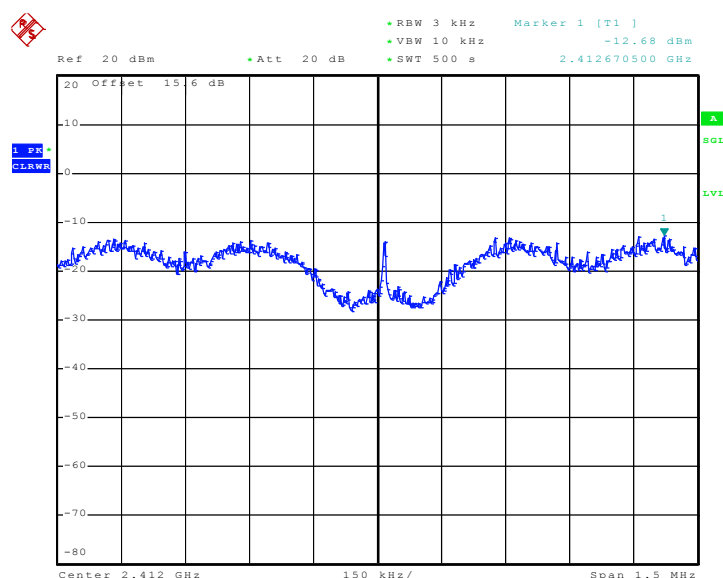
Mode 3 : PSD Plot on 802.11b Channel 11 – Chain A


TH-01

Date: 17.MAR.2011 17:17:56

Test Mode :	Mode 4, 5, 6	Temperature :	21~22°C
Test Engineer :	Fly Chen	Relative Humidity :	40~41%

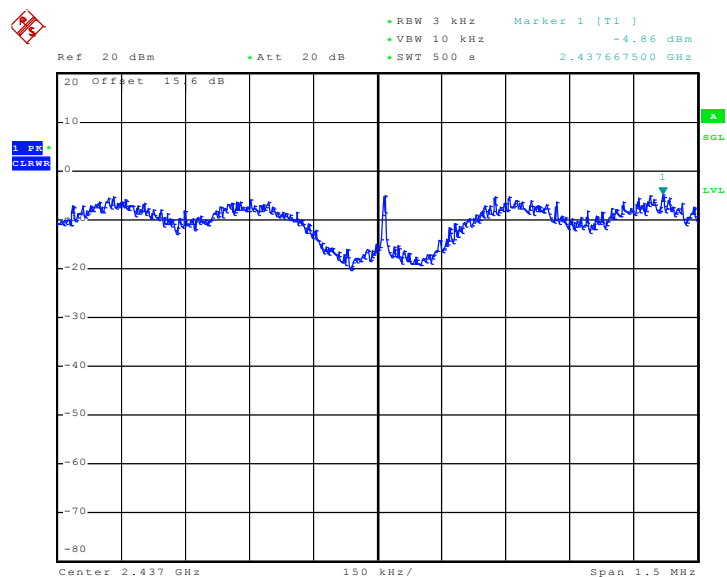
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-12.68	8	Pass
06	2437	-4.86	8	Pass
11	2462	-9.82	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01 – Chain A


TH-01

Date: 17.MAR.2011 17:34:37

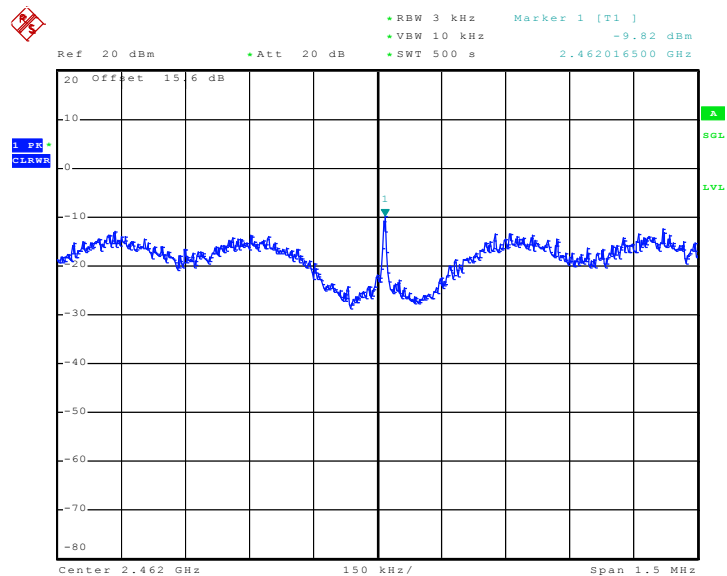
Mode 5 : PSD Plot on 802.11g Channel 06 – Chain A



TH-01

Date: 17.MAR.2011 17:50:33

Mode 6 : PSD Plot on 802.11g Channel 11 – Chain A



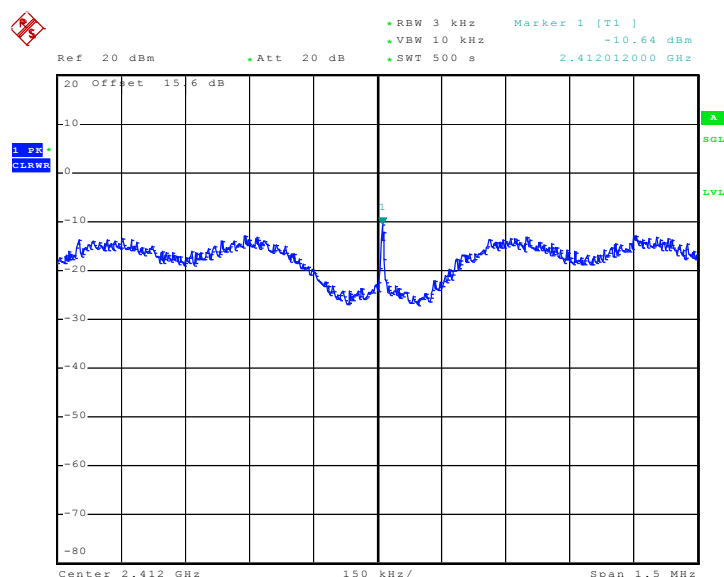
TH-01

Date: 17.MAR.2011 18:21:03

Test Mode :	Mode 7~9	Temperature :	21~22°C
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	-10.64	-15.17	-9.33	8	Pass
06	2437	-4.18	-5.19	-1.65	8	Pass
11	2462	-12.50	-12.35	-9.41	8	Pass

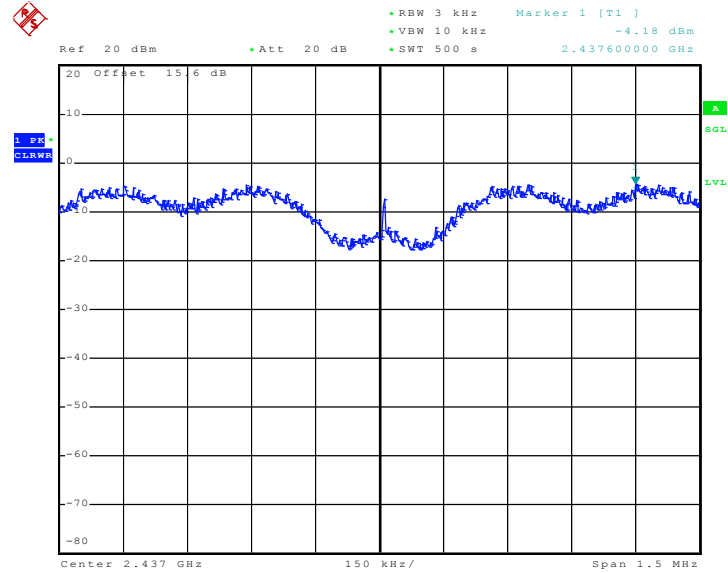
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01 - Chain A+B(A)



TH-01

Date: 17.MAR.2011 18:45:41

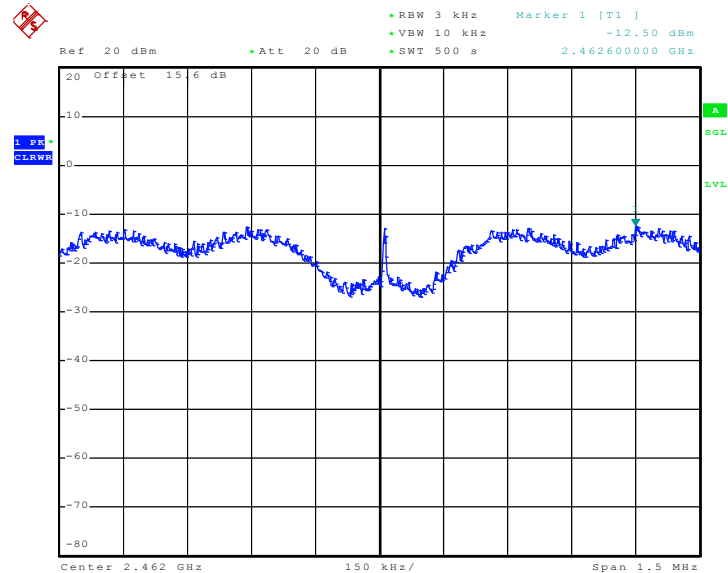
Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06 - Chain A+B(A)



TH-01

Date: 17.MAR.2011 19:00:28

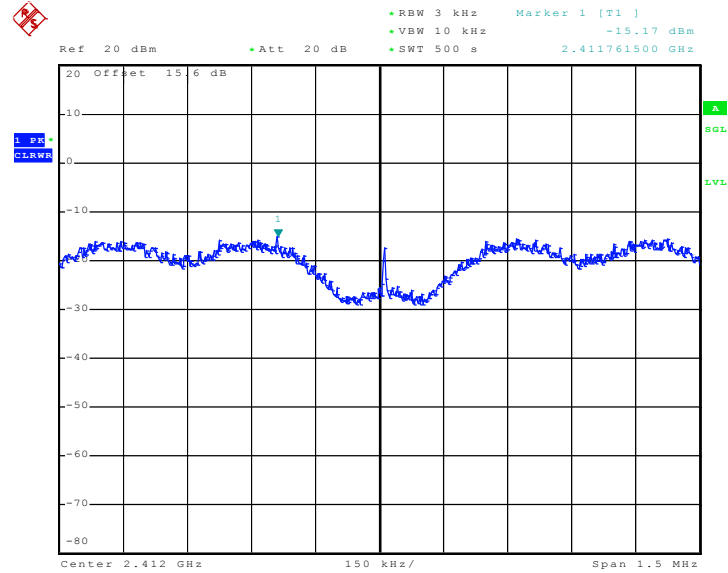
Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11 - Chain A+B(A)



TH-01

Date: 17.MAR.2011 19:16:53

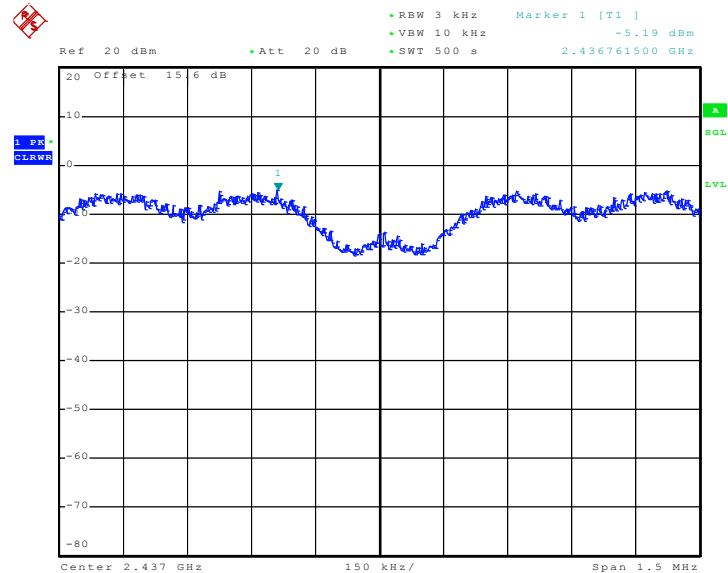
Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01 - Chain
A+B(B)



TH-01

Date: 17.MAR.2011 19:36:02

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



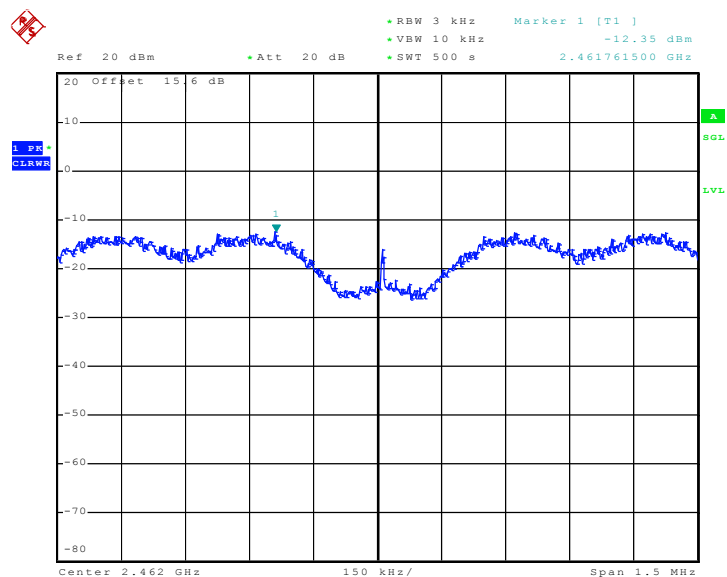
TH-01

Date: 17.MAR.2011 21:51:27



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

A+B(B)



TH-01

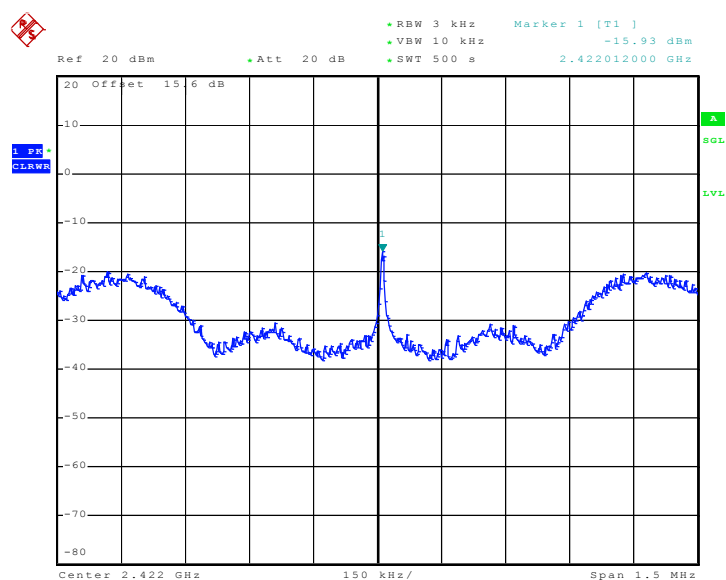
Date: 17.MAR.2011 20:06:06



Test Mode :	Mode 10~12	Temperature :	21~22
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	-15.93	-21.05	-14.77	8	Pass
06	2437	-15.66	-13.38	-11.36	8	Pass
09	2452	-19.34	-18.87	-16.09	8	Pass

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

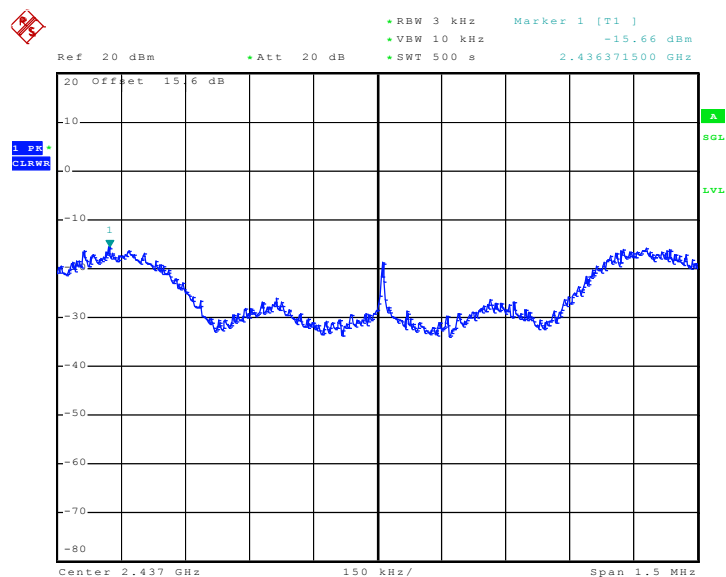


TH-01

Date: 17.MAR.2011 21:34:43

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

A+B(A)

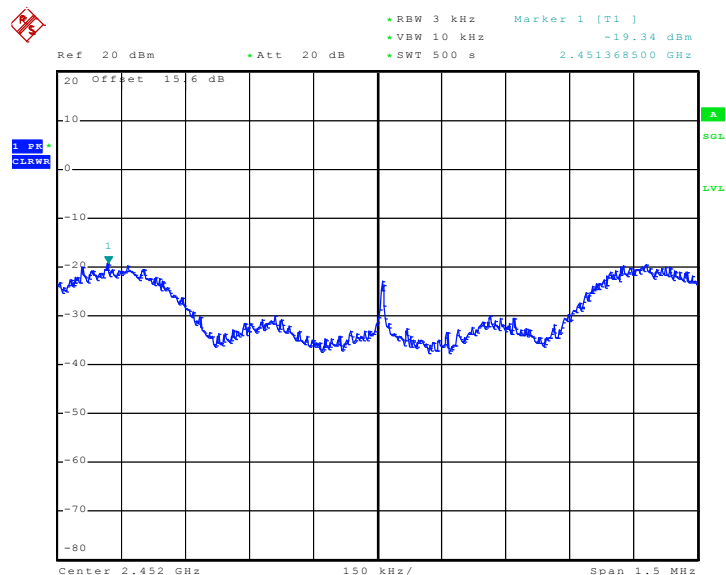


TH-01

Date: 17.MAR.2011 22:14:36

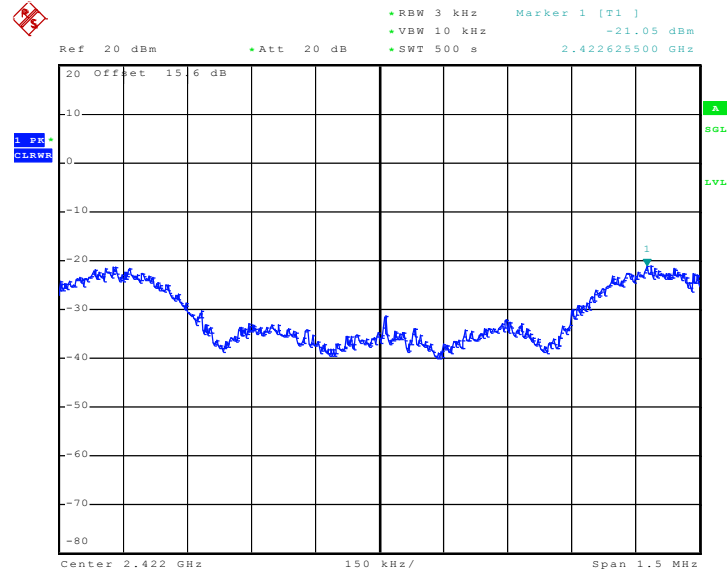
Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain

A+B(A)



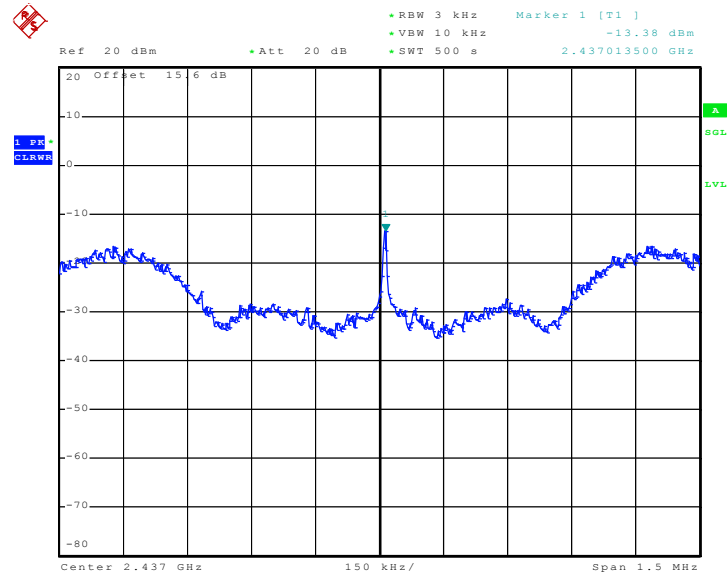
TH-01

Date: 17.MAR.2011 21:06:29

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


TH-01

Date: 17.MAR.2011 20:21:31

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


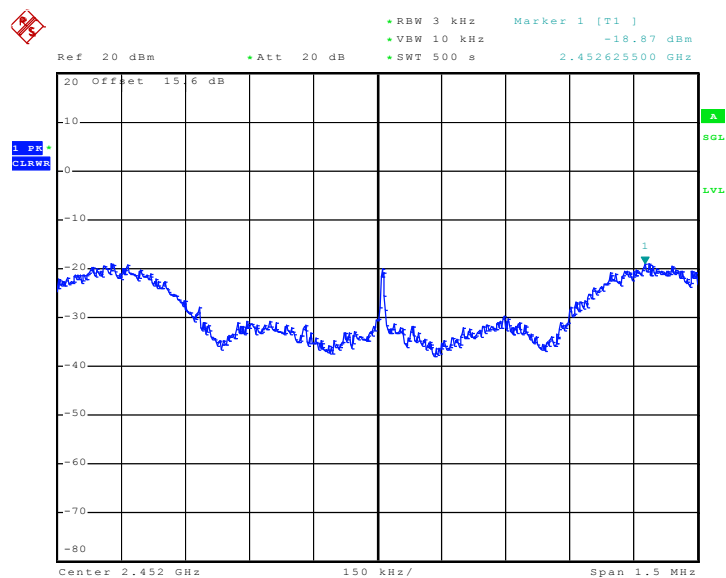
TH-01

Date: 17.MAR.2011 22:25:39



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

A+B(B)



TH-01

Date: 17.MAR.2011 20:50:15

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.

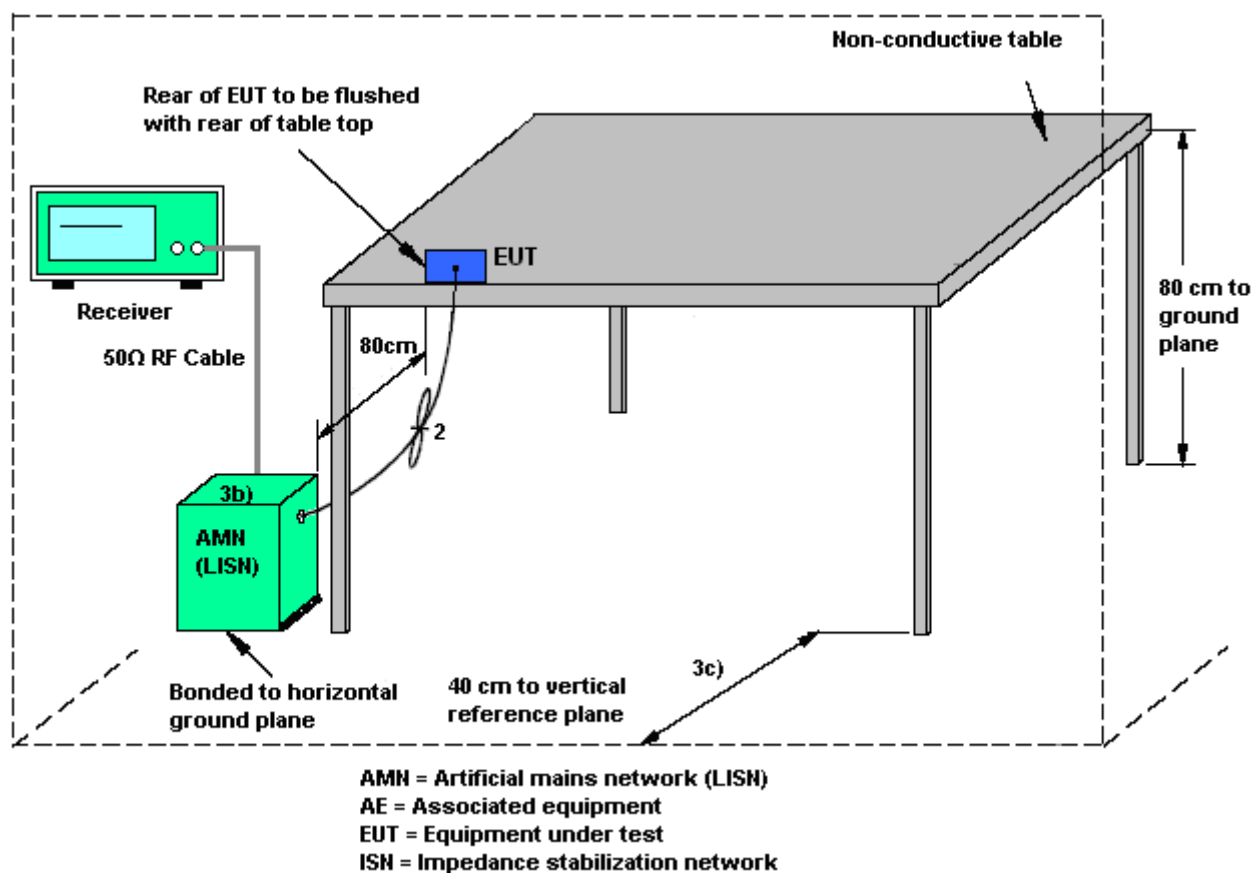
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

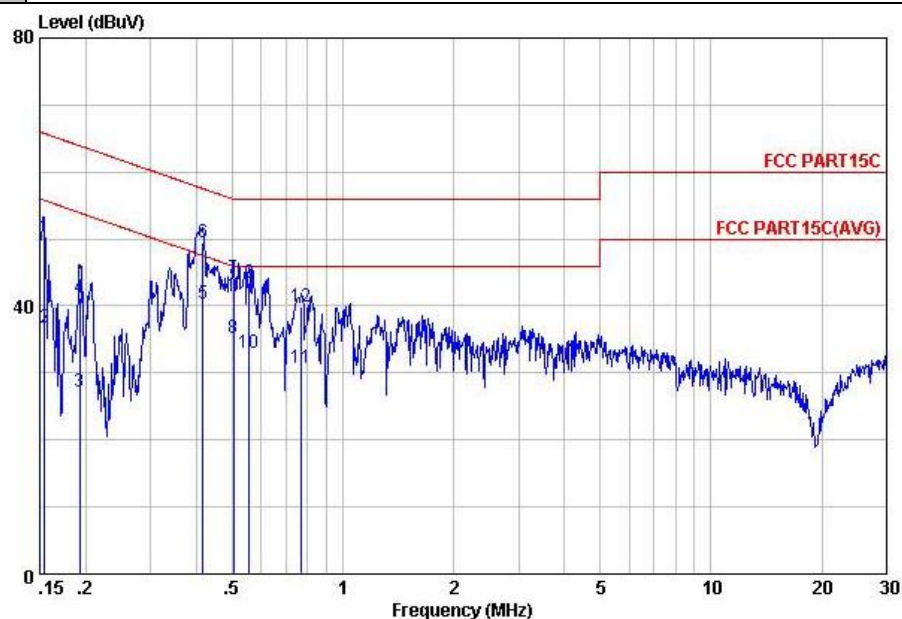
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	22~23°C
Test Engineer :	Cloud Peng	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + LAN Link + Adapter + TC + RJ-11 for sample 1		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



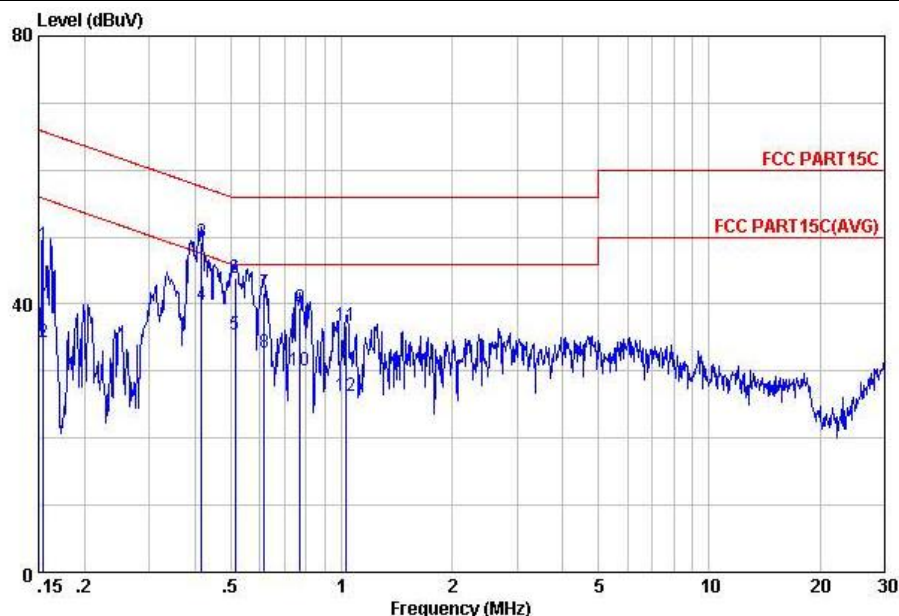
Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE

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	0.15	50.26	-15.50	65.76	39.90	-0.07	10.43	QP
2	0.15	36.86	-18.90	55.76	26.50	-0.07	10.43	Average
3	0.19	27.23	-26.70	53.93	16.90	-0.07	10.40	Average
4	0.19	41.33	-22.60	63.93	31.00	-0.07	10.40	QP
5	0.42	40.34	-7.19	47.53	30.00	-0.08	10.42	Average
6	0.42	49.54	-7.99	57.53	39.20	-0.08	10.42	QP
7	0.51	44.15	-11.85	56.00	33.80	-0.08	10.43	QP
8	0.51	35.25	-10.75	46.00	24.90	-0.08	10.43	Average
9	0.56	43.35	-12.65	56.00	33.00	-0.08	10.43	QP
10	0.56	32.95	-13.05	46.00	22.60	-0.08	10.43	Average
11	0.77	30.65	-15.35	46.00	20.29	-0.09	10.45	Average
12	0.77	39.95	-16.05	56.00	29.59	-0.09	10.45	QP



Test Mode :	Mode 1	Temperature :	22~23℃
Test Engineer :	Cloud Peng	Relative Humidity :	40~41%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + LAN Link + Adapter + TC + RJ-11 for sample 1		
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	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15	48.84	-16.91	65.75	38.50	-0.09	10.43	QP
2	0.15	34.34	-21.41	55.75	24.00	-0.09	10.43	Average
3	0.42	49.24	-8.26	57.50	38.90	-0.08	10.42	QP
4	0.42	39.94	-7.56	47.50	29.60	-0.08	10.42	Average
5	0.51	35.35	-10.65	46.00	25.00	-0.08	10.43	Average
6	0.51	43.95	-12.05	56.00	33.60	-0.08	10.43	QP
7	0.62	41.76	-14.24	56.00	31.40	-0.08	10.44	QP
8	0.62	32.66	-13.34	46.00	22.30	-0.08	10.44	Average
9	0.77	39.36	-16.64	56.00	28.99	-0.08	10.45	QP
10	0.77	30.16	-15.84	46.00	19.79	-0.08	10.45	Average
11	1.03	36.78	-19.22	56.00	26.40	-0.09	10.47	QP
12	1.03	26.38	-19.62	46.00	16.00	-0.09	10.47	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

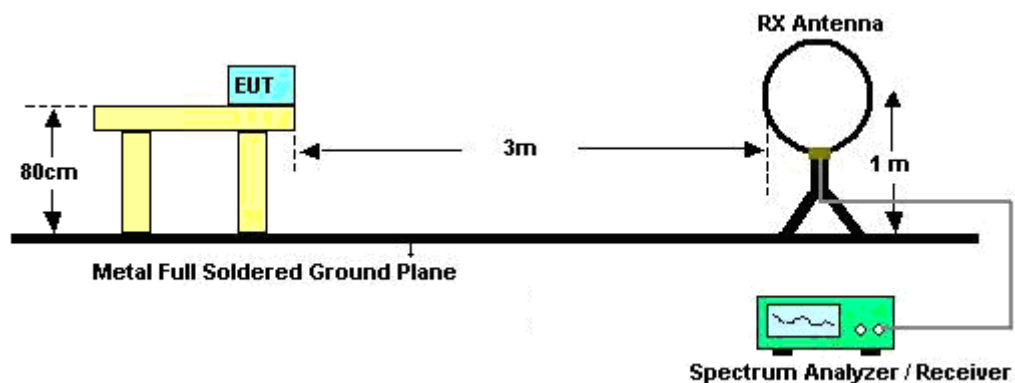
See list of measuring instruments of this test report.

3.7.3 Test Procedures

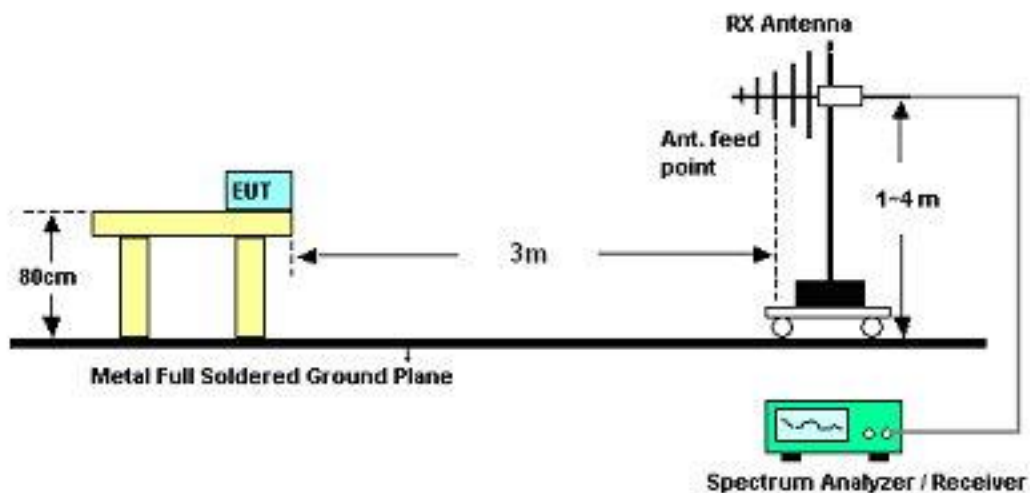
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - 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)
- 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

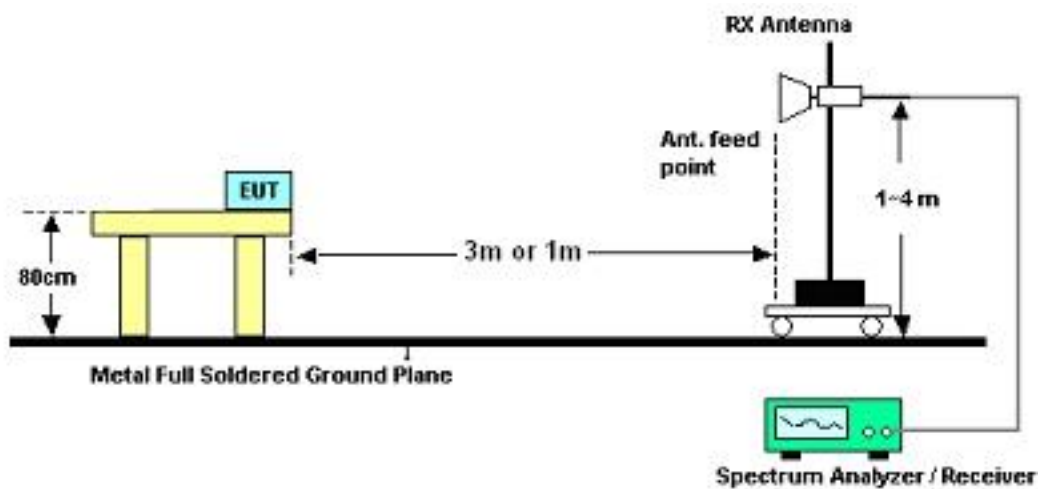
For radiated emissions below 30MHz



For radiated emissions 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Cloud Peng	Temperature :	22~23℃	
		Relative Humidity :	40~41%	

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 :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
141.24	35.16	-8.34	43.5	53.94	10.73	0.49	30	-	-	Peak
166.62	32.26	-11.24	43.5	52.33	9.31	0.54	29.92	-	-	Peak
250.05	33.31	-12.69	46	50.48	12	0.67	29.84	-	-	Peak
500.2	41.83	-4.17	46	53.4	17.2	0.96	29.73	200	360	QP
850.2	42.13	-3.87	46	50	20.51	1.28	29.66	174	64	QP
900.6	43.37	-3.63	46	50.01	20.45	1.3	29.48	100	85	QP
2386.76	58.76	-15.24	74	56.48	32.86	3.47	34.05	103	96	Peak
2386.76	49.39	-4.61	54	47.11	32.86	3.47	34.05	103	96	Average
2412	115.02	-	-	112.69	32.89	3.52	34.08	101	98	Peak
2412	106.62	-	-	104.29	32.89	3.52	34.08	101	98	Average
2491.45	54.26	-19.74	74	51.72	33.05	3.72	34.23	121	145	Peak
2491.45	44.98	-9.02	54	42.44	33.05	3.72	34.23	121	145	Average
4826	50.33	-23.67	74	42.46	35.17	4.97	32.27	200	53	Peak
4826	42.36	-11.64	54	34.49	35.17	4.97	32.27	200	53	Average

Test Mode :	Mode 1	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.46	-3.54	40	60.5	5.68	0.34	30.06	155	43	QP
200.1	34.43	-9.07	43.5	54.85	9	0.59	30.01	-	-	Peak
233.58	35.05	-10.95	46	53.09	11.17	0.65	29.86	-	-	Peak
332.9	38.75	-7.25	46	53.85	14.05	0.79	29.94	-	-	Peak
500.2	38.16	-7.84	46	49.73	17.2	0.96	29.73	-	-	Peak
666.8	37.95	-8.05	46	47.51	19.01	1.1	29.67	-	-	Peak
2348.38	56	-18	74	53.83	32.78	3.33	33.94	102	158	Peak
2348.38	42.11	-11.89	54	39.94	32.78	3.33	33.94	102	158	Average
2412	113.23	-	-	110.9	32.89	3.52	34.08	103	20	Peak
2412	105.8	-	-	103.47	32.89	3.52	34.08	103	20	Average
2492.97	54.58	-19.42	74	52.04	33.05	3.72	34.23	105	252	Peak
2492.97	44.69	-9.31	54	42.15	33.05	3.72	34.23	105	252	Average
4826	51.78	-22.22	74	43.91	35.17	4.97	32.27	180	12	Peak
4826	42.86	-11.14	54	34.99	35.17	4.97	32.27	180	12	Average



Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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	33	-10.5	43.5	53.99	8.61	0.39	29.99	-	-	Peak
166.62	34.12	-9.38	43.5	54.19	9.31	0.54	29.92	-	-	Peak
250.32	33.98	-12.02	46	51.15	12	0.67	29.84	-	-	Peak
500.2	42.83	-3.17	46	54.4	17.2	0.96	29.73	200	324	QP
850.2	42.23	-3.77	46	50.1	20.51	1.28	29.66	100	48	QP
950.3	43.43	-10.57	54	50.91	20.73	1.33	29.54	-	-	Peak
2373.46	62.47	-11.53	74	60.23	32.83	3.42	34.01	102	96	Peak
2373.46	48.12	-5.88	54	45.88	32.83	3.42	34.01	102	96	Average
2437	107.09	-	-	104.69	32.95	3.6	34.15	102	64	Average
2437	115.19	-	-	112.79	32.95	3.6	34.15	102	64	Peak
2490.12	51.14	-22.86	74	48.6	33.05	3.72	34.23	15	48	Peak
2490.12	40.31	-13.69	54	37.77	33.05	3.72	34.23	15	48	Average



Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.16	-3.84	40	60.2	5.68	0.34	30.06	100	66	QP
141.24	36.42	-7.08	43.5	55.2	10.73	0.49	30	-	-	Peak
200.1	29.57	-13.93	43.5	49.99	9	0.59	30.01	-	-	Peak
500.2	37.13	-8.87	46	48.7	17.2	0.96	29.73	-	-	Peak
666.8	39.4	-6.6	46	48.96	19.01	1.1	29.67	-	-	Peak
850.2	37.99	-8.01	46	45.86	20.51	1.28	29.66	-	-	Peak
2352.94	52.03	-21.97	74	49.82	32.81	3.38	33.98	120	23	Peak
2352.94	41.33	-12.67	54	39.12	32.81	3.38	33.98	120	23	Average
2437	106.05	-	-	103.65	32.95	3.6	34.15	100	20	Average
2437	114.27	-	-	111.87	32.95	3.6	34.15	100	20	Peak
2483.66	51.17	-22.83	74	48.68	33.01	3.68	34.2	125	74	Peak
2483.66	39.57	-14.43	54	37.08	33.01	3.68	34.2	125	74	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
88.86	28.33	-15.17	43.5	49.32	8.61	0.39	29.99	-	-	Peak
166.62	29.37	-14.13	43.5	49.44	9.31	0.54	29.92	-	-	Peak
233.58	34.81	-11.19	46	52.85	11.17	0.65	29.86	-	-	Peak
500.2	42.84	-3.16	46	54.41	17.2	0.96	29.73	-	-	Peak
850.2	42.89	-3.11	46	50.76	20.51	1.28	29.66	200	0	Peak
950.3	43.26	-10.74	54	50.74	20.73	1.33	29.54	-	-	Peak
2382.77	56.02	-17.98	74	53.78	32.83	3.42	34.01	101	95	Peak
2382.77	46.83	-7.17	54	44.59	32.83	3.42	34.01	101	95	Average
2462	105.55	-	-	103.1	32.98	3.64	34.17	102	95	Average
2462	114.14	-	-	111.69	32.98	3.64	34.17	102	95	Peak
2483.5	54.42	-19.58	74	51.93	33.01	3.68	34.2	100	97	Peak
2483.5	44.59	-9.41	54	42.1	33.01	3.68	34.2	100	97	Average



Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.26	-3.74	40	60.3	5.68	0.34	30.06	100	85	QP
166.62	36.92	-6.58	43.5	56.99	9.31	0.54	29.92	-	-	Peak
233.31	33.77	-12.23	46	51.81	11.17	0.65	29.86	-	-	Peak
500.2	41.18	-4.82	46	52.75	17.2	0.96	29.73	-	-	Peak
666.8	39.34	-6.66	46	48.9	19.01	1.1	29.67	-	-	Peak
950.3	38.43	-15.57	54	45.91	20.73	1.33	29.54	-	-	Peak
2382.2	52.16	-21.84	74	49.92	32.83	3.42	34.01	104	52	Peak
2382.2	42.61	-11.39	54	40.37	32.83	3.42	34.01	104	52	Average
2462	105.91	-	-	103.46	32.98	3.64	34.17	101	325	Average
2462	114.17	-	-	111.72	32.98	3.64	34.17	101	325	Peak
2483.5	54.87	-19.13	74	52.38	33.01	3.68	34.2	100	44	Peak
2483.5	45.93	-8.07	54	43.44	33.01	3.68	34.2	100	44	Average



Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
141.24	30.64	-12.86	43.5	49.42	10.73	0.49	30	-	-	Peak
166.62	30.88	-12.62	43.5	50.95	9.31	0.54	29.92	-	-	Peak
233.58	33.29	-12.71	46	51.33	11.17	0.65	29.86	-	-	Peak
666.8	40.01	-5.99	46	49.57	19.01	1.1	29.67	-	-	Peak
850.2	42.29	-3.71	46	50.16	20.51	1.28	29.66	200	360	Peak
950.3	43.12	-10.88	54	50.6	20.73	1.33	29.54	-	-	Peak
2390	62.37	-11.63	74	60.09	32.86	3.47	34.05	101	95	Peak
2390	49.51	-4.49	54	47.23	32.86	3.47	34.05	101	95	Average
2412	97.4	-	-	95.07	32.89	3.52	34.08	103	97	Average
2412	108.42	-	-	106.09	32.89	3.52	34.08	103	97	Peak
2491.45	52	-22	74	49.46	33.05	3.72	34.23	120	54	Peak
2491.45	37.47	-16.53	54	34.93	33.05	3.72	34.23	120	54	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.26	-3.74	40	60.3	5.68	0.34	30.06	100	98	QP
166.62	38.81	-4.69	43.5	58.88	9.31	0.54	29.92	-	-	Peak
233.58	36.11	-9.89	46	54.15	11.17	0.65	29.86	-	-	Peak
500.2	37.68	-8.32	46	49.25	17.2	0.96	29.73	-	-	Peak
600.3	35.2	-10.8	46	45.15	18.6	1.07	29.62	-	-	Peak
824.3	42.67	-3.33	46	50.87	20.16	1.26	29.62	-	-	Peak
2390	61.5	-12.5	74	59.22	32.86	3.47	34.05	105	25	Peak
2390	46.4	-7.6	54	44.12	32.86	3.47	34.05	105	25	Average
2412	94.62	-	-	92.29	32.89	3.52	34.08	101	21	Average
2412	106.65	-	-	104.32	32.89	3.52	34.08	101	21	Peak
2497.15	52.94	-21.06	74	50.4	33.05	3.72	34.23	120	12	Peak
2497.15	39.65	-14.35	54	37.11	33.05	3.72	34.23	120	12	Average



Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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	30.57	-12.93	43.5	51.56	8.61	0.39	29.99	-	-	Peak
166.62	30.71	-12.79	43.5	50.78	9.31	0.54	29.92	-	-	Peak
233.58	35.53	-10.47	46	53.57	11.17	0.65	29.86	-	-	Peak
500.2	42.08	-3.92	46	53.65	17.2	0.96	29.73	-	-	Peak
850.2	42.36	-3.64	46	50.23	20.51	1.28	29.66	100	360	Peak
950.3	42.94	-11.06	54	50.42	20.73	1.33	29.54	-	-	Peak
2365.86	59.79	-14.21	74	57.58	32.81	3.38	33.98	145	247	Peak
2365.86	44.42	-9.58	54	42.21	32.81	3.38	33.98	145	247	Average
2437	116.13	-	-	113.73	32.95	3.6	34.15	100	64	Peak
2437	103.2	-	-	100.8	32.95	3.6	34.15	100	64	Average
2487.46	56.01	-17.99	74	53.52	33.01	3.68	34.2	154	58	Peak
2487.46	41.09	-12.91	54	38.6	33.01	3.68	34.2	154	58	Average

Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.46	-3.54	40	60.5	5.68	0.34	30.06	100	85	QP
141.24	37.31	-6.19	43.5	56.09	10.73	0.49	30	-	-	Peak
166.62	36.69	-6.81	43.5	56.76	9.31	0.54	29.92	-	0	Peak
600.3	35.49	-10.51	46	45.44	18.6	1.07	29.62	-	-	Peak
825	41.98	-4.02	46	50.16	20.18	1.26	29.62	100	0	Peak
950.3	37.57	-16.43	54	45.05	20.73	1.33	29.54	-	-	Peak
2358.64	52.93	-21.07	74	50.72	32.81	3.38	33.98	105	241	Peak
2358.64	41.24	-12.76	54	39.03	32.81	3.38	33.98	105	241	Average
2437	113.61	-	-	111.21	32.95	3.6	34.15	102	23	Peak
2437	102.2	-	-	99.8	32.95	3.6	34.15	102	23	Average
2483.5	57.1	-16.9	74	54.61	33.01	3.68	34.2	154	311	Peak
2483.5	42.68	-11.32	54	40.19	33.01	3.68	34.2	154	311	Average
4870	51.01	-22.99	74	43.12	35.18	4.98	32.27	163	154	Peak
4870	41.31	-12.69	54	33.42	35.18	4.98	32.27	163	154	Average



Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
88.86	28.5	-15	43.5	49.49	8.61	0.39	29.99	-	-	Peak
166.62	29.1	-14.4	43.5	49.17	9.31	0.54	29.92	-	-	Peak
233.58	34.2	-11.8	46	52.24	11.17	0.65	29.86	-	-	Peak
332.9	39.58	-6.42	46	54.68	14.05	0.79	29.94	-	-	Peak
500.2	39.67	-6.33	46	51.24	17.2	0.96	29.73	-	-	Peak
850.2	42.22	-3.78	46	50.09	20.51	1.28	29.66	100	0	Peak
2377.83	53.39	-20.61	74	51.15	32.83	3.42	34.01	102	54	Peak
2377.83	42.81	-11.19	54	40.57	32.83	3.42	34.01	102	54	Average
2462	96.54	-	-	94.09	32.98	3.64	34.17	103	96	Average
2462	107.26	-	-	104.81	32.98	3.64	34.17	103	96	Peak
2483.5	61.8	-12.2	74	59.31	33.01	3.68	34.2	101	97	Peak
2483.5	47.83	-6.17	54	45.34	33.01	3.68	34.2	101	97	Average

Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	35.26	-4.74	40	59.3	5.68	0.34	30.06	100	56	QP
166.62	36.5	-7	43.5	56.57	9.31	0.54	29.92	-	-	Peak
233.58	32.77	-13.23	46	50.81	11.17	0.65	29.86	-	-	Peak
500.2	36.77	-9.23	46	48.34	17.2	0.96	29.73	-	-	Peak
836.9	35.48	-10.52	46	43.49	20.37	1.27	29.65	-	-	Peak
950.3	36.8	-17.2	54	44.28	20.73	1.33	29.54	-	-	Peak
2386.76	50.98	-23.02	74	48.7	32.86	3.47	34.05	125	248	Peak
2386.76	39.46	-14.54	54	37.18	32.86	3.47	34.05	125	248	Average
2462	107.88	-	-	105.43	32.98	3.64	34.17	100	326	Peak
2462	95.68	-	-	93.23	32.98	3.64	34.17	100	326	Average
2483.5	49.2	-4.8	54	46.71	33.01	3.68	34.2	101	22	Average
2483.5	67.12	-6.88	74	64.63	33.01	3.68	34.2	101	22	Peak

Test Mode :	Mode 7	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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	27.93	-15.57	43.5	48.92	8.61	0.39	29.99	-	-	Peak
166.62	29.64	-13.86	43.5	49.71	9.31	0.54	29.92	-	-	Peak
233.58	33.73	-12.27	46	51.77	11.17	0.65	29.86	-	-	Peak
500.2	40.9	-5.1	46	52.47	17.2	0.96	29.73	-	-	Peak
850.2	42.23	-3.77	46	50.1	20.51	1.28	29.66	100	360	Peak
950.3	41.93	-12.07	54	49.41	20.73	1.33	29.54	-	-	Peak
2389.8	69.27	-4.73	74	66.99	32.86	3.47	34.05	104	61	Peak
2389.8	48.6	-5.4	54	46.32	32.86	3.47	34.05	104	61	Average
2412	108.34	-	-	106.01	32.89	3.52	34.08	100	185	Peak
2412	97	-	-	94.67	32.89	3.52	34.08	100	185	Average
2483.5	54.31	-19.69	74	51.82	33.01	3.68	34.2	152	45	Peak
2483.5	42.04	-11.96	54	39.55	33.01	3.68	34.2	152	45	Average



Test Mode :	Mode 7	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.26	-3.74	40	60.3	5.68	0.34	30.06	100	56	QP
166.62	38.55	-4.95	43.5	58.62	9.31	0.54	29.92	-	-	Peak
233.58	36.03	-9.97	46	54.07	11.17	0.65	29.86	-	-	Peak
666.8	37.84	-8.16	46	47.4	19.01	1.1	29.67	-	-	Peak
833.4	38.88	-7.12	46	46.93	20.32	1.27	29.64	-	-	Peak
950.3	38.24	-15.76	54	45.72	20.73	1.33	29.54	-	-	Peak
2390	60.06	-13.94	74	57.78	32.86	3.47	34.05	109	327	Peak
2390	46.59	-7.41	54	44.31	32.86	3.47	34.05	109	327	Average
2412	106.25	-	-	103.92	32.89	3.52	34.08	102	21	Peak
2412	95.01	-	-	92.68	32.89	3.52	34.08	102	21	Average
2493.35	52.42	-21.58	74	49.88	33.05	3.72	34.23	120	251	Peak
2493.35	39.44	-14.56	54	36.9	33.05	3.72	34.23	120	251	Average



Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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	28.48	-15.02	43.5	49.47	8.61	0.39	29.99	-	-	Peak
233.58	34.23	-11.77	46	52.27	11.17	0.65	29.86	-	-	Peak
250.05	31.81	-14.19	46	48.98	12	0.67	29.84	-	-	Peak
500.2	42.97	-3.03	46	54.54	17.2	0.96	29.73	100	0	Peak
850.2	42.2	-3.8	46	50.07	20.51	1.28	29.66	-	-	Peak
950.3	42.19	-11.81	54	49.67	20.73	1.33	29.54	-	-	Peak
2378.59	58.63	-15.37	74	56.39	32.83	3.42	34.01	108	54	Peak
2378.59	43.49	-10.51	54	41.25	32.83	3.42	34.01	108	54	Average
2437	113.93	-	-	111.53	32.95	3.6	34.15	104	96	Peak
2437	102.74	-	-	100.34	32.95	3.6	34.15	104	96	Average
2492.59	55.79	-18.21	74	53.25	33.05	3.72	34.23	147	311	Peak
2492.59	40.9	-13.1	54	38.36	33.05	3.72	34.23	147	311	Average



Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.16	-3.84	40	60.2	5.68	0.34	30.06	100	56	QP
141.24	36.39	-7.11	43.5	55.17	10.73	0.49	30	-	-	Peak
166.62	35.23	-8.27	43.5	55.3	9.31	0.54	29.92	-	-	Peak
666.8	37.52	-8.48	46	47.08	19.01	1.1	29.67	-	-	Peak
850.2	38.1	-7.9	46	45.97	20.51	1.28	29.66	-	-	Peak
950.3	37.41	-16.59	54	44.89	20.73	1.33	29.54	-	-	Peak
2369.09	54.67	-19.33	74	52.43	32.83	3.42	34.01	108	54	Peak
2369.09	40.43	-13.57	54	38.19	32.83	3.42	34.01	108	54	Average
2437	114.61	-	-	112.21	32.95	3.6	34.15	100	22	Peak
2437	101.62	-	-	99.22	32.95	3.6	34.15	100	22	Average
2499.62	55.53	-18.47	74	52.99	33.05	3.72	34.23	157	84	Peak
2499.62	41.93	-12.07	54	39.39	33.05	3.72	34.23	157	84	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
88.86	28.6	-14.9	43.5	49.59	8.61	0.39	29.99	-	-	Peak
166.62	31.46	-12.04	43.5	51.53	9.31	0.54	29.92	-	-	Peak
233.58	34.52	-11.48	46	52.56	11.17	0.65	29.86	-	-	Peak
500.2	41.81	-4.19	46	53.38	17.2	0.96	29.73	-	-	Peak
850.2	42.24	-3.76	46	50.11	20.51	1.28	29.66	100	0	Peak
950.3	41.86	-12.14	54	49.34	20.73	1.33	29.54	-	-	Peak
2378.59	53.99	-20.01	74	51.75	32.83	3.42	34.01	102	142	Peak
2378.59	41.06	-12.94	54	38.82	32.83	3.42	34.01	102	142	Average
2462	108.33	-	-	105.88	32.98	3.64	34.17	101	188	Peak
2462	97.55	-	-	95.1	32.98	3.64	34.17	101	188	Average
2484.61	49.53	-4.47	54	47.04	33.01	3.68	34.2	101	95	Average
2484.61	66.4	-7.6	74	63.91	33.01	3.68	34.2	101	95	Peak

Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.06	-3.94	40	60.1	5.68	0.34	30.06	100	85	QP
166.62	37.35	-6.15	43.5	57.42	9.31	0.54	29.92	-	-	Peak
233.58	31.98	-14.02	46	50.02	11.17	0.65	29.86	-	-	Peak
449.8	34.63	-11.37	46	47.22	16.3	0.9	29.79	-	-	Peak
600.3	35.78	-10.22	46	45.73	18.6	1.07	29.62	-	-	Peak
849.5	35.97	-10.03	46	43.84	20.51	1.28	29.66	-	-	Peak
2388.09	51.04	-22.96	74	48.76	32.86	3.47	34.05	102	321	Peak
2388.09	38.35	-15.65	54	36.07	32.86	3.47	34.05	102	321	Average
2462	108.24	-	-	105.79	32.98	3.64	34.17	100	325	Peak
2462	97.33	-	-	94.88	32.98	3.64	34.17	100	325	Average
2483.66	52.11	-1.89	54	49.62	33.01	3.68	34.2	100	22	Average
2483.66	67.03	-6.97	74	64.54	33.01	3.68	34.2	100	22	Peak



Test Mode :	Mode 10	Temperature :	22~23℃
Test Channel :	03	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
88.86	29.07	-14.43	43.5	50.06	8.61	0.39	29.99	-	-	Peak
166.62	28.39	-15.11	43.5	48.46	9.31	0.54	29.92	-	-	Peak
233.58	31.6	-14.4	46	49.64	11.17	0.65	29.86	-	-	Peak
332.9	40.78	-5.22	46	55.88	14.05	0.79	29.94	100	360	Peak
900.6	39.28	-6.72	46	47.01	20.45	1.3	29.48	-	-	Peak
950.3	39.45	-14.55	54	46.93	20.73	1.33	29.54	-	-	Peak
2390	67.28	-6.72	74	65	32.86	3.47	34.05	103	94	Peak
2390	52.17	-1.83	54	49.89	32.86	3.47	34.05	103	94	Average
2422	104.62	-	-	102.26	32.92	3.56	34.12	100	183	Peak
2422	82.27	-	-	79.91	32.92	3.56	34.12	100	183	Average
2484.23	53.87	-20.13	74	51.38	33.01	3.68	34.2	152	14	Peak
2484.23	41.68	-12.32	54	39.19	33.01	3.68	34.2	152	14	Average

Test Mode :	Mode 10	Temperature :	22~23℃
Test Channel :	03	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.21	-3.79	40	60.25	5.68	0.34	30.06	100	85	QP
166.62	37.45	-6.05	43.5	57.52	9.31	0.54	29.92	-	-	Peak
233.31	29.89	-16.11	46	47.93	11.17	0.65	29.86	-	-	Peak
449.8	35.08	-10.92	46	47.67	16.3	0.9	29.79	-	-	Peak
600.3	35.82	-10.18	46	45.77	18.6	1.07	29.62	-	-	Peak
849.5	35.62	-10.38	46	43.49	20.51	1.28	29.66	-	-	Peak
2390	63.58	-10.42	74	61.3	32.86	3.47	34.05	100	24	Peak
2390	49.09	-4.91	54	46.81	32.86	3.47	34.05	100	24	Average
2422	103.16	-	-	100.8	32.92	3.56	34.12	103	324	Peak
2422	88.15	-	-	85.79	32.92	3.56	34.12	103	324	Average
2497.53	53.36	-20.64	74	50.82	33.05	3.72	34.23	102	125	Peak
2497.53	41.33	-12.67	54	38.79	33.05	3.72	34.23	102	125	Average



Test Mode :	Mode 11	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
166.62	29.12	-14.38	43.5	49.19	9.31	0.54	29.92	-	-	Peak
233.58	33.27	-12.73	46	51.31	11.17	0.65	29.86	-	-	Peak
250.05	33.39	-12.61	46	50.56	12	0.67	29.84	-	-	Peak
500.2	40.97	-5.03	46	52.54	17.2	0.96	29.73	-	-	Peak
850.2	41.3	-4.7	46	49.17	20.51	1.28	29.66	100	0	Peak
950.3	42.28	-11.72	54	49.76	20.73	1.33	29.54	-	-	Peak
2389.23	66.8	-7.2	74	64.52	32.86	3.47	34.05	100	360	Peak
2390	51.53	-2.47	54	49.25	32.86	3.47	34.05	100	88	Average
2437	106.77	-	-	104.37	32.95	3.6	34.15	100	360	Peak
2437	96.01	-	-	93.61	32.95	3.6	34.15	100	88	Average
2483.5	50.14	-3.86	54	47.65	33.01	3.68	34.2	100	89	Average
2483.85	66.7	-7.3	74	64.21	33.01	3.68	34.2	100	360	Peak

Test Mode :	Mode 11	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.36	-3.64	40	60.4	5.68	0.34	30.06	100	65	QP
166.62	36.65	-6.85	43.5	56.72	9.31	0.54	29.92	-	-	Peak
233.58	34.3	-11.7	46	52.34	11.17	0.65	29.86	-	-	Peak
600.3	36.33	-9.67	46	46.28	18.6	1.07	29.62	-	-	Peak
666.8	38.57	-7.43	46	48.13	19.01	1.1	29.67	-	-	Peak
950.3	38.57	-15.43	54	46.05	20.73	1.33	29.54	-	-	Peak
2389.8	51.13	-2.87	54	48.85	32.86	3.47	34.05	100	26	Average
2390	65.1	-8.9	74	62.82	32.86	3.47	34.05	100	360	Peak
2437	109.62	-	-	107.22	32.95	3.6	34.15	100	360	Peak
2437	100.2	-	-	97.8	32.95	3.6	34.15	100	23	Average
2483.66	71.59	-2.41	74	69.1	33.01	3.68	34.2	100	360	Peak
2483.66	53.68	-0.32	54	51.19	33.01	3.68	34.2	100	232	Average



Test Mode :	Mode 12	Temperature :	22~23℃
Test Channel :	09	Relative Humidity :	40~41%
Test Engineer :	Cloud 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	29.46	-14.04	43.5	50.45	8.61	0.39	29.99	-	-	Peak
233.58	32.8	-13.2	46	50.84	11.17	0.65	29.86	-	-	Peak
250.05	33.77	-12.23	46	50.94	12	0.67	29.84	-	-	Peak
500.2	40.32	-5.68	46	51.89	17.2	0.96	29.73	-	-	Peak
850.2	41.58	-4.42	46	49.45	20.51	1.28	29.66	100	145	Peak
950.3	39.58	-14.42	54	47.06	20.73	1.33	29.54	-	-	Peak
2385.62	53.69	-20.31	74	51.41	32.86	3.47	34.05	154	154	Peak
2385.62	41.26	-12.74	54	38.98	32.86	3.47	34.05	154	154	Average
2452	105.42	-	-	103.02	32.95	3.6	34.15	100	187	Peak
2452	89.95	-	-	87.55	32.95	3.6	34.15	100	187	Average
2484.8	51.16	-2.84	54	48.67	33.01	3.68	34.2	100	152	Average
2484.8	69.2	-4.8	74	66.71	33.01	3.68	34.2	100	152	Peak



Test Mode :	Mode 12	Temperature :	22~23℃
Test Channel :	09	Relative Humidity :	40~41%
Test Engineer :	Cloud 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
73.2	36.46	-3.54	40	60.5	5.68	0.34	30.06	100	86	QP
166.62	36.14	-7.36	43.5	56.21	9.31	0.54	29.92	-	-	Peak
233.58	34.36	-11.64	46	52.4	11.17	0.65	29.86	-	-	Peak
666.8	40.03	-5.97	46	49.59	19.01	1.1	29.67	-	-	Peak
824.3	41.06	-4.94	46	49.26	20.16	1.26	29.62	100	8	Peak
950.3	38.27	-15.73	54	45.75	20.73	1.33	29.54	-	-	Peak
2388.09	51.35	-22.65	74	49.07	32.86	3.47	34.05	142	241	Peak
2388.09	38.02	-15.98	54	35.74	32.86	3.47	34.05	142	241	Average
2452	88.05	-	-	85.65	32.95	3.6	34.15	100	294	Average
2452	104.81	-	-	102.41	32.95	3.6	34.15	100	294	Peak
2483.5	70.25	-3.75	74	67.76	33.01	3.68	34.2	102	21	Peak
2483.5	52.86	-1.14	54	50.37	33.01	3.68	34.2	102	21	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 Fixed Internal 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.

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	ESC17	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	ESC1	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	BBHA 9170	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				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP0D2914 as below.