FCC RF Test Report

APPLICANT	:	4IPNET, INC.
EQUIPMENT	:	Wireless Device Server
BRAND NAME	:	4ipnet /Cipherium/USC
MODEL NAME	:	SDS200W/D200W/D200W
FCC ID	:	VZ9120001
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Sep. 15, 2011 and completely tested on Jan. 10, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager

Testing Laboratory 1190

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR191549	Rev. 01	Initial issue of report	Mar. 20, 2012
FR191549	Rev. 02	Update report for revising antenna connector description	Apr. 27, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	A8.4	Power Output	≤ 30dBm	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 3.50 dB at 0.622 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.06 dB at 2389.610 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

4IPNET, INC.
3F-3, No. 369, Fusing N. Rd., Taipei 105, Taiwan, R.O.C.

1.2 Manufacturer

4IPNET, INC.
3F-3, No. 369, Fusing N. Rd., Taipei 105, Taiwan, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Wireless Device Server
Brand Name	4ipnet /Cipherium/USC
Model Name	SDS200W/D200W/D200W
FCC ID	VZ9120001
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 : 20.20 dBm (0.1047 W) 802.11g : 24.74 dBm (0.2979 W) 802.11n (BW 20MHz) : 24.55 dBm (0.2851 W) 802.11n (BW 40MHz) : 23.74 dBm (0.2366 W)
Antenna Type	Dipole Antenna with gain 5.00 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH05-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

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, 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	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 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:

Band	2.4GHz 802.11b RF Power (dBm)			2.4GHz 802.11g RF Power (dBm)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	17.88	19.85	**20.20**	24.10	24.58	**24.74**

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)			2.4GHz 802.11n (BW 40MHz) RF Power (dBm)		
Channel	1	6	11	3	6	9
Frequency (MHz)	2412	2437	2462	2422	2437	2452
Peak Power	22.54	23.38	**24.55**	22.85	23.49	**23.74**

Remark:

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n (BW 20MHz), and MCS0 for 802.11n (BW 40MHz) for all the test cases due to the highest RF output power.
3. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

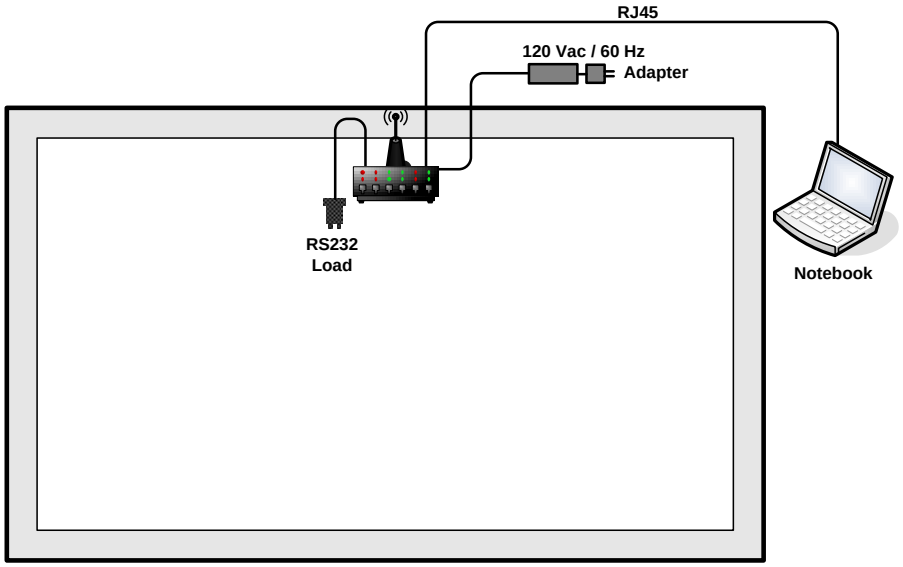
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic 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.

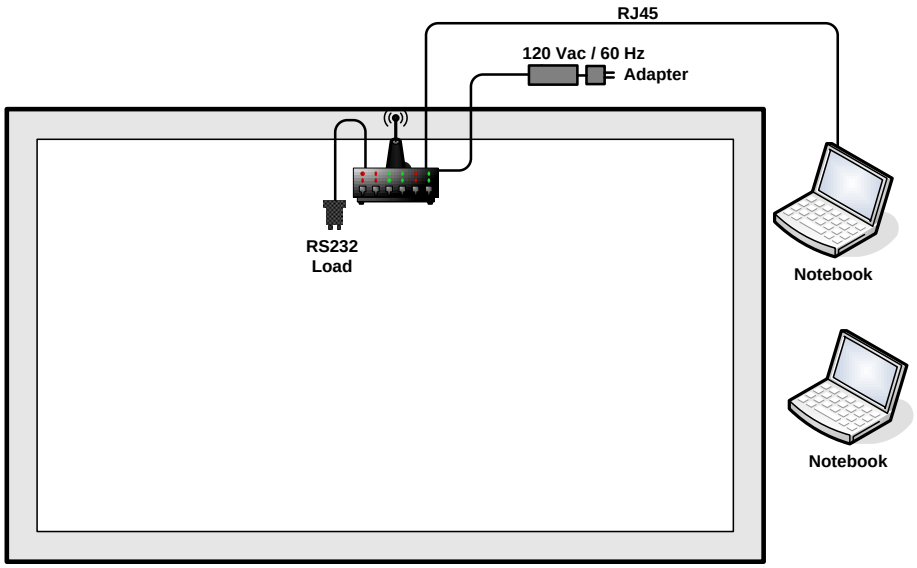
Test Cases		
Test Item	**802.11b (Modulation : DSSS)**	**802.11g/n (Modulation : OFDM)**
Conducted TCs	Mode 1 : 802.11b CH01_2412 MHz Mode 2 : 802.11b CH06_2437 MHz Mode 3 : 802.11b CH11_2462 MHz	Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n (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 + RS232 Load + Adapter	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “RT3050QA.exe” 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.

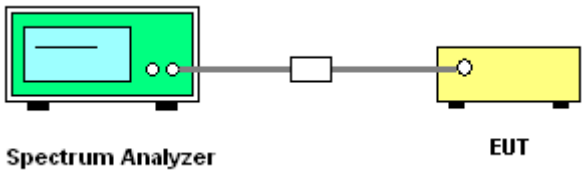
3.1.2 Measuring Instruments

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

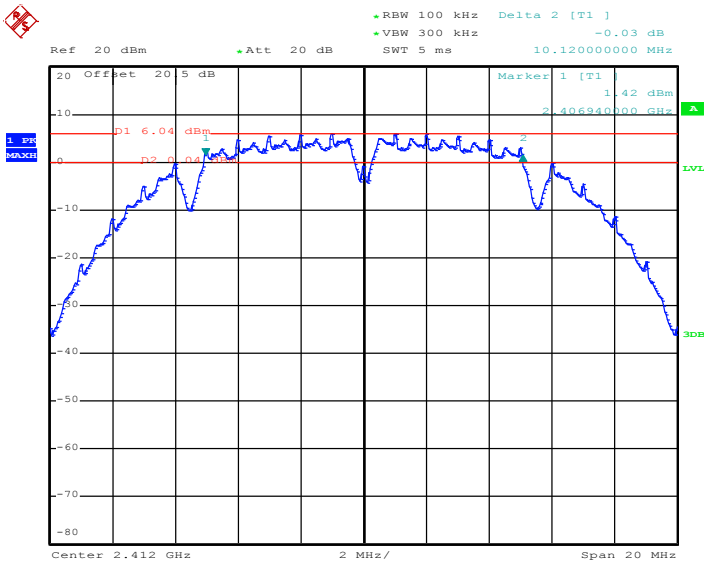


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.12	0.5	Pass
06	2437	10.16	0.5	Pass
11	2462	10.16	0.5	Pass

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



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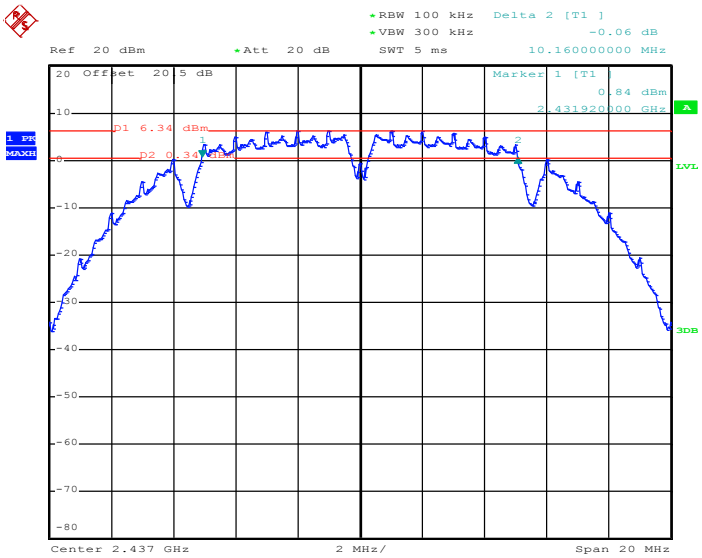
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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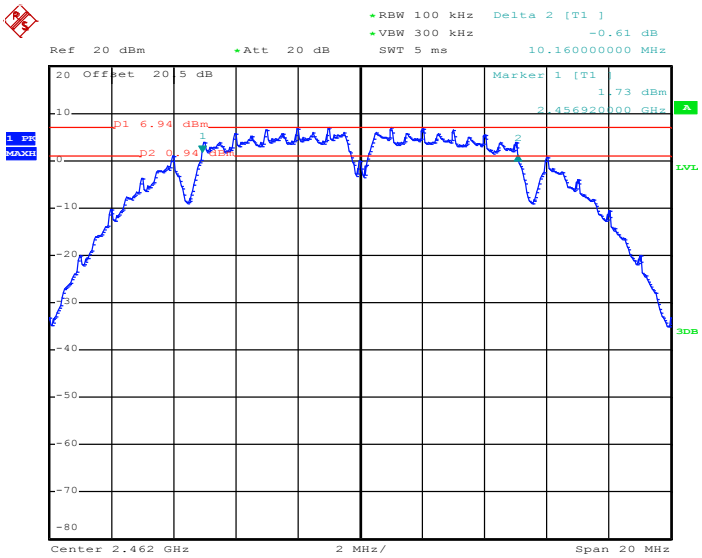
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



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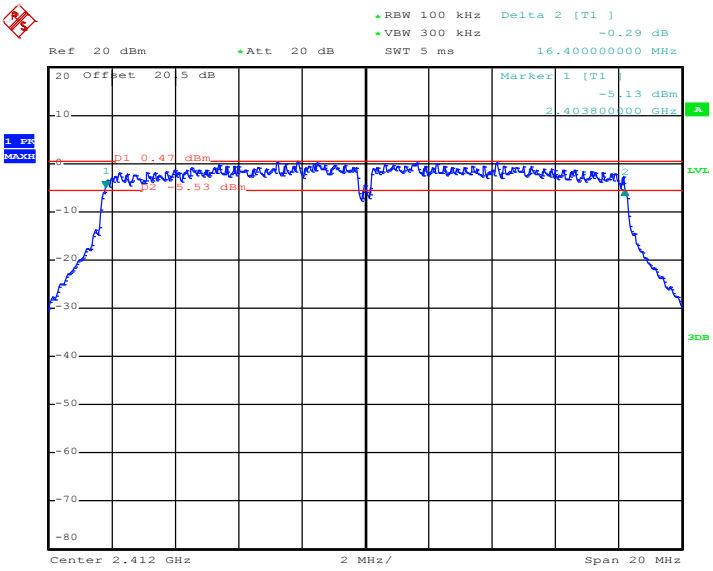
Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.40	0.5	Pass
06	2437	16.40	0.5	Pass
11	2462	16.38	0.5	Pass

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



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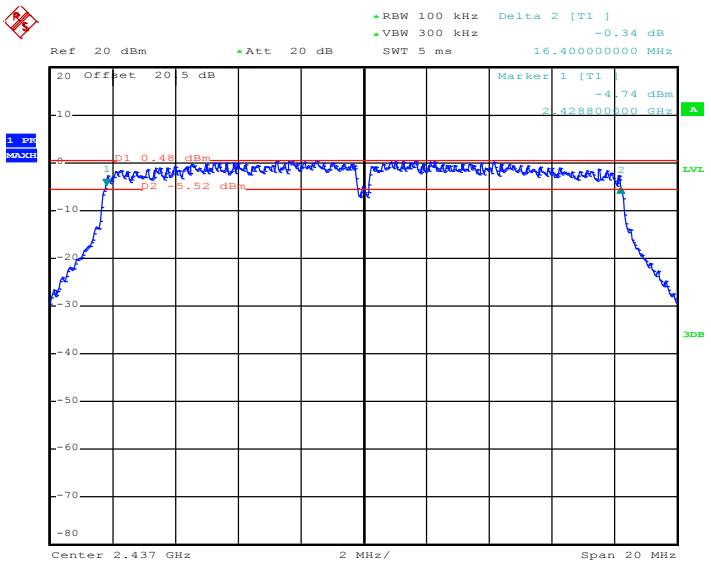
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



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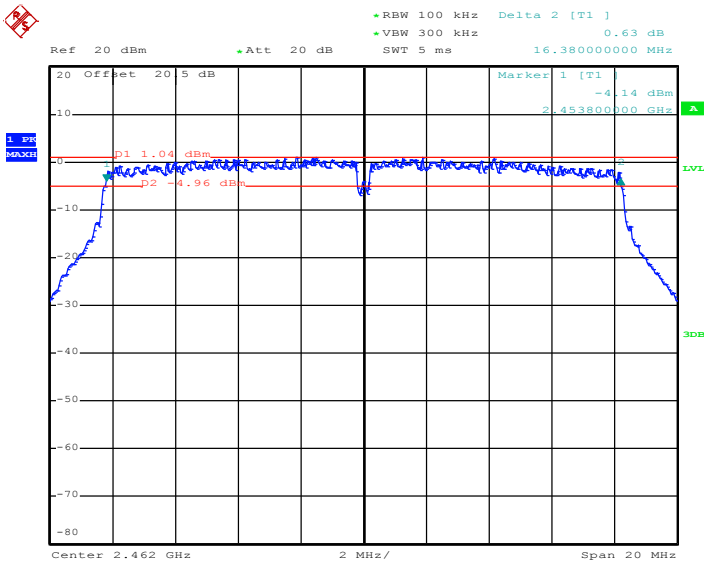
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



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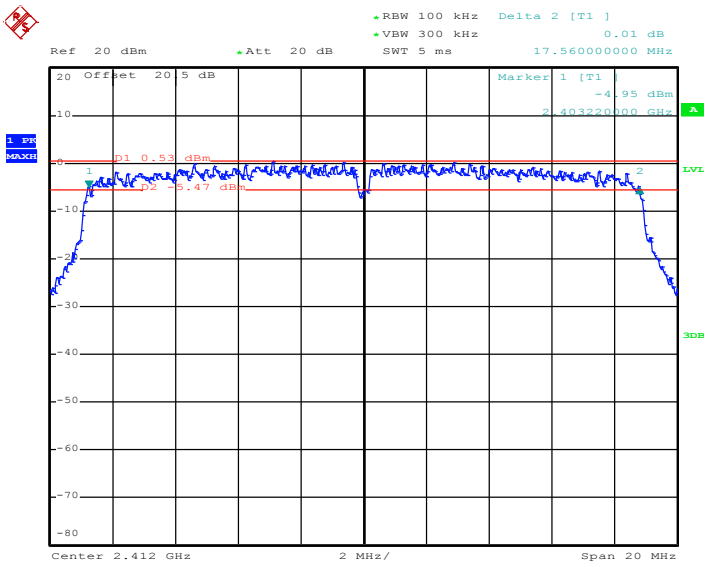
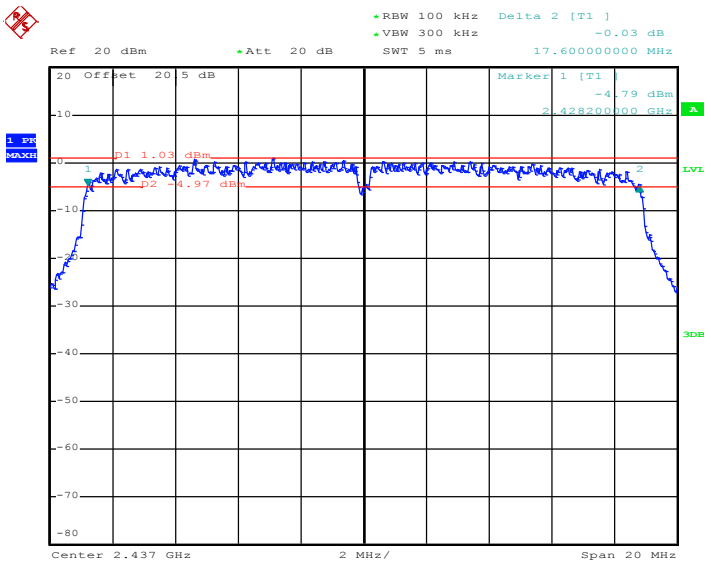
Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.56	0.5	Pass
06	2437	17.60	0.5	Pass
11	2462	17.56	0.5	Pass

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



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



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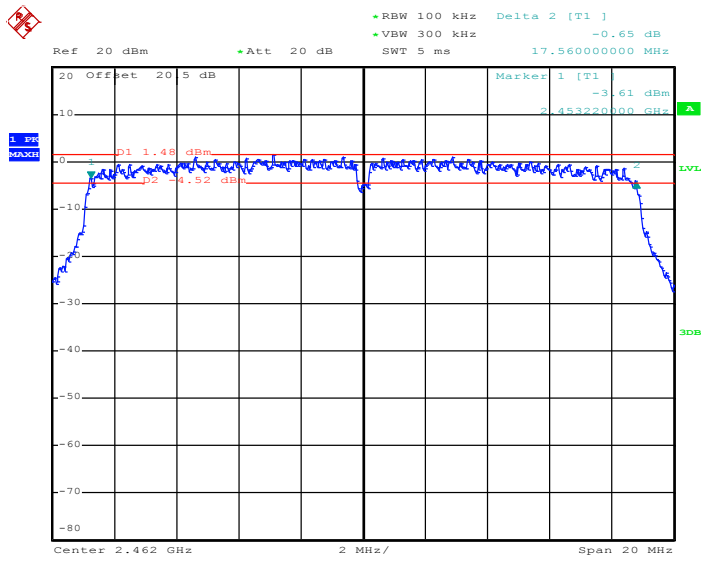
Mode 9 : 6 dB Bandwidth Plot on 802.11n(BW 20MHz) Channel 11

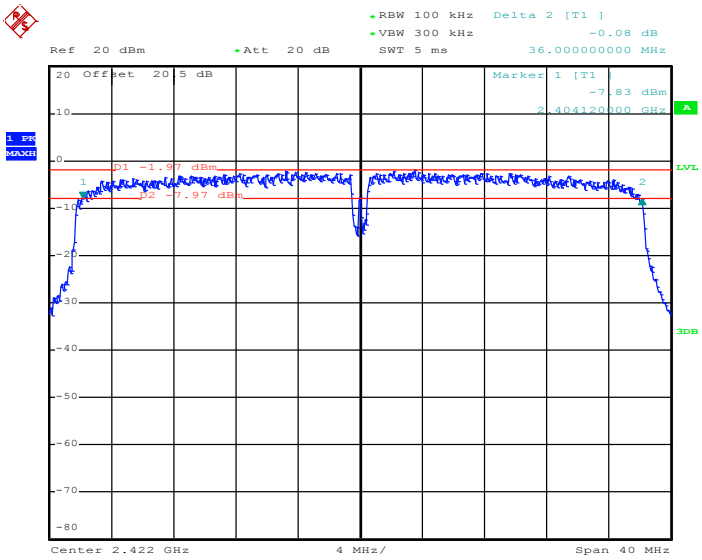


Date: 14.DEC.2011 16:24:20

Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 40MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	36.00	0.5	Pass
06	2437	35.76	0.5	Pass
09	2452	36.00	0.5	Pass

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



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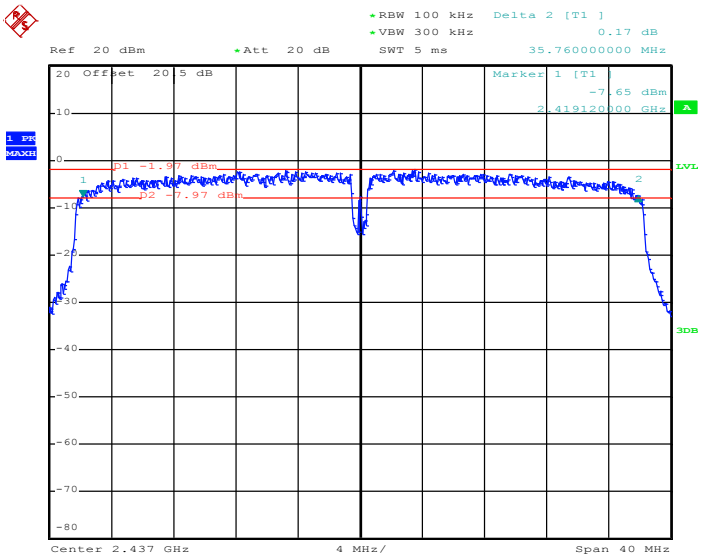
Mode 11 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 06



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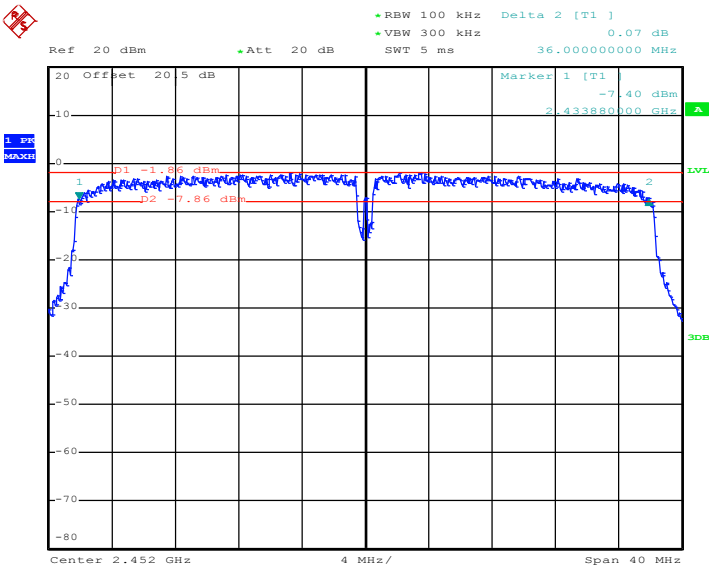
Mode 12 : 6 dB Bandwidth Plot on 802.11n(BW 40MHz) Channel 09



Date: 14.DEC.2011 17:10:40

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.

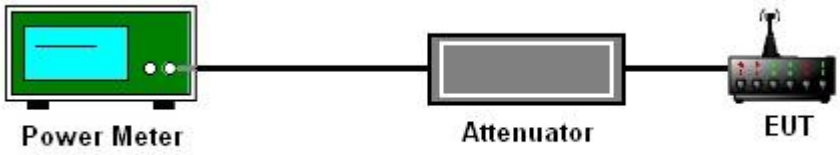
3.2.2 Measuring Instruments

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 :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.88	30	Pass
06	2437	19.85	30	Pass
11	2462	20.20	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.10	30	Pass
06	2437	24.58	30	Pass
11	2462	24.74	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.54	30	Pass
06	2437	23.38	30	Pass
11	2462	24.55	30	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	24~26
Test Engineer :	Reece Li	Relative Humidity :	52~55

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	22.85	30	Pass
06	2437	23.49	30	Pass
09	2452	23.74	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

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

3.3.2 Measuring Instruments

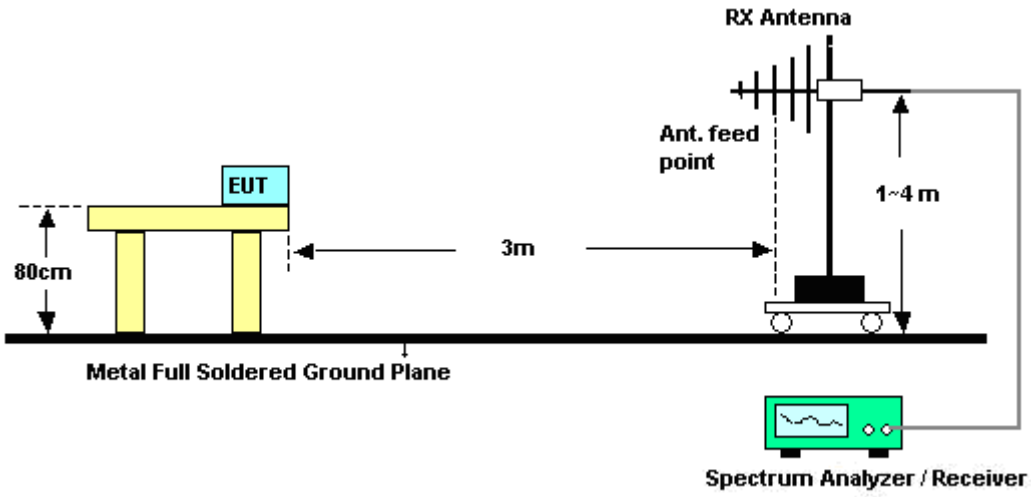
See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) ≥ RBW. Band edge emissions must be at least 20 dB 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>



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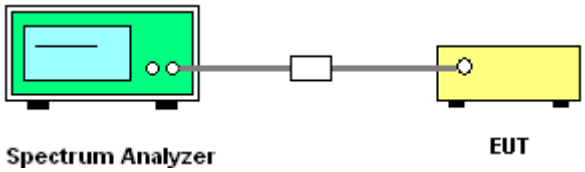


3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	20~22℃
Test Band :	802.11b	Relative Humidity :	52~54%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2388.09	47.96	-26.04	74	45.44	32.02	4.58	34.08	131	262	Peak
2388.09	35.33	-18.67	54	32.81	32.02	4.58	34.08	131	262	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
2379.16	55.53	-18.47	74	53.04	32	4.57	34.08	100	325	Peak
2379.16	42.86	-11.14	54	40.37	32	4.57	34.08	100	325	Average

Test Mode :	Mode 3	Temperature :	20~22℃
Test Band :	802.11b	Relative Humidity :	52~54%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2486.32	47.84	-26.16	74	45.19	32.09	4.64	34.08	128	254	Peak
2486.32	36.21	-17.79	54	33.56	32.09	4.64	34.08	128	254	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
2484.61	53.53	-20.47	74	50.88	32.09	4.64	34.08	100	325	Peak
2484.61	42.24	-11.76	54	39.59	32.09	4.64	34.08	100	325	Average

Test Mode :	Mode 4	Temperature :	20~22℃
Test Band :	802.11g	Relative Humidity :	52~54%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2388.28	57.3	-16.7	74	54.78	32.02	4.58	34.08	127	263	Peak
2388.28	39.8	-14.2	54	37.28	32.02	4.58	34.08	127	263	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
2389.8	67.59	-6.41	74	65.07	32.02	4.58	34.08	100	336	Peak
2389.8	47.76	-6.24	54	45.24	32.02	4.58	34.08	100	336	Average

Test Mode :	Mode 6	Temperature :	20~22℃
Test Band :	802.11g	Relative Humidity :	52~54%
Test Channel :	11	Test Engineer :	Gavin Wu

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	55.76	-18.24	74	53.11	32.09	4.64	34.08	100	112	Peak
2483.85	37.08	-16.92	54	34.43	32.09	4.64	34.08	100	112	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	64.61	-9.39	74	61.96	32.09	4.64	34.08	100	335	Peak
2483.5	45.68	-8.32	54	43.03	32.09	4.64	34.08	100	335	Average

Test Mode :	Mode 7	Temperature :	20~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~54%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2388.28	63.57	-10.43	74	61.05	32.02	4.58	34.08	127	263	Peak
2388.28	39.07	-14.93	54	36.55	32.02	4.58	34.08	127	263	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
2389.61	72.94	-1.06	74	70.42	32.02	4.58	34.08	100	324	Peak
2389.61	46.18	-7.82	54	43.66	32.02	4.58	34.08	100	324	Average

Test Mode :	Mode 9	Temperature :	20~22℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~54%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2483.66	63.22	-10.78	74	60.57	32.09	4.64	34.08	122	268	Peak
2483.66	37.64	-16.36	54	34.99	32.09	4.64	34.08	122	268	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
2484.04	70.27	-3.73	74	67.62	32.09	4.64	34.08	100	335	Peak
2484.04	46.16	-7.84	54	43.51	32.09	4.64	34.08	100	335	Average

Test Mode :	Mode 10	Temperature :	20~22℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~54%
Test Channel :	03	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	57.96	-16.04	74	55.44	32.02	4.58	34.08	128	262	Peak
2389.61	43.25	-10.75	54	40.73	32.02	4.58	34.08	128	262	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
2389.99	68.71	-5.29	74	66.19	32.02	4.58	34.08	100	319	Peak
2389.99	52.48	-1.52	54	49.96	32.02	4.58	34.08	100	319	Average

Test Mode :	Mode 12	Temperature :	20~22℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~54%
Test Channel :	09	Test Engineer :	Gavin Wu

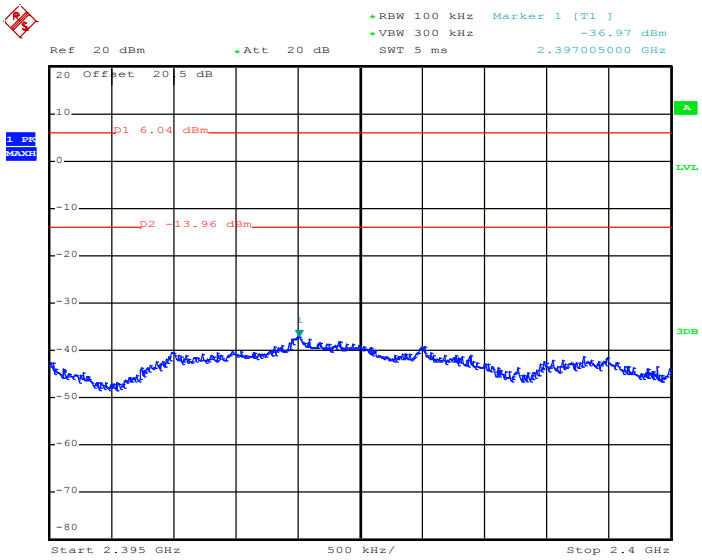
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.99	58.12	-15.88	74	55.47	32.09	4.64	34.08	100	264	Peak
2484.99	39.37	-14.63	54	36.72	32.09	4.64	34.08	100	264	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.8	69.24	-4.76	74	66.59	32.09	4.64	34.08	100	313	Peak
2484.8	48.81	-5.19	54	46.16	32.09	4.64	34.08	100	313	Average

3.3.6 Test Plots of Conducted Band Edges

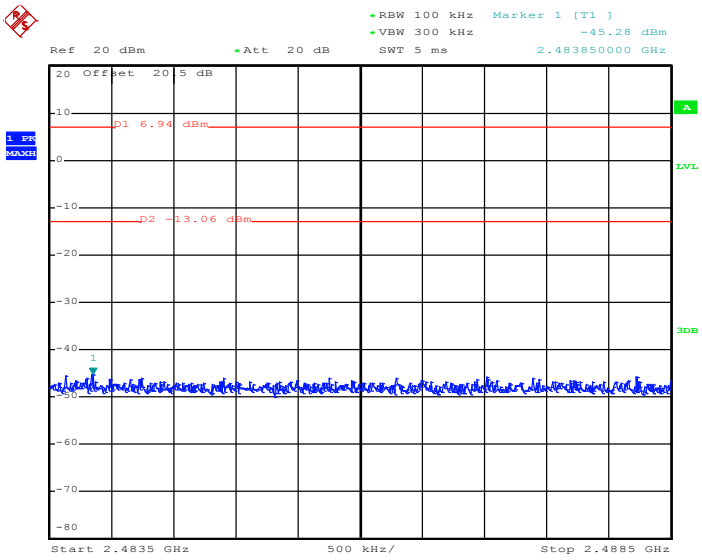
Test Mode :	Mode 1 and 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11b Channel 01



Date: 14.DEC.2011 17:49:47

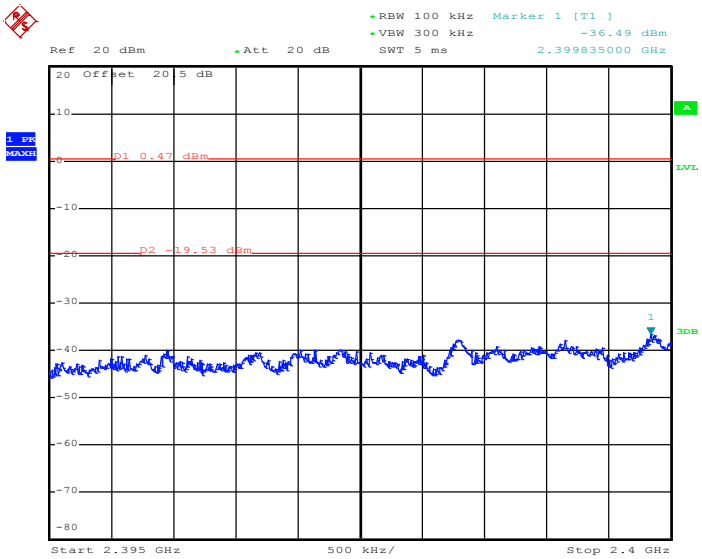
High Band Edge Plot on 802.11b Channel 11



Date: 14.DEC.2011 18:06:59

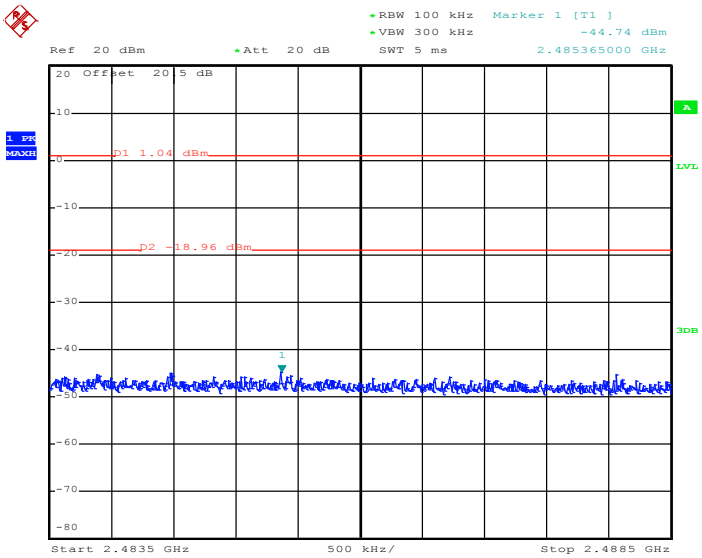
Test Mode :	Mode 4 and 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11g Channel 01



Date: 14.DEC.2011 15:07:23

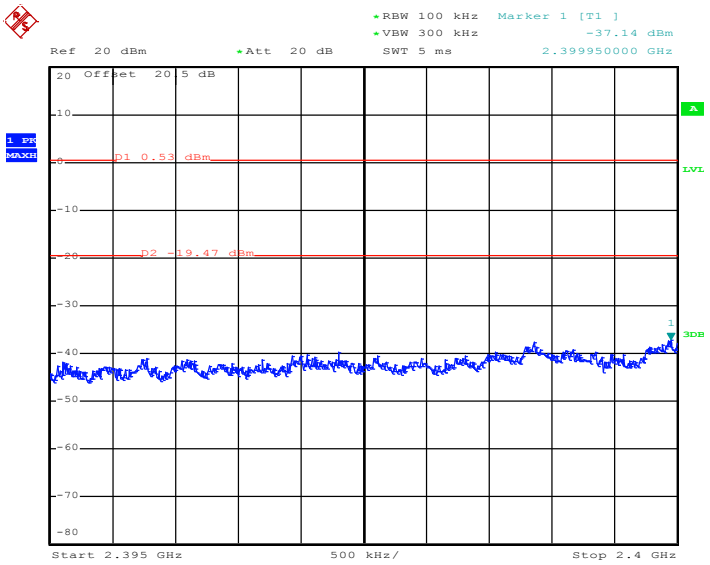
High Band Edge Plot on 802.11g Channel 11



Date: 14.DEC.2011 15:33:54

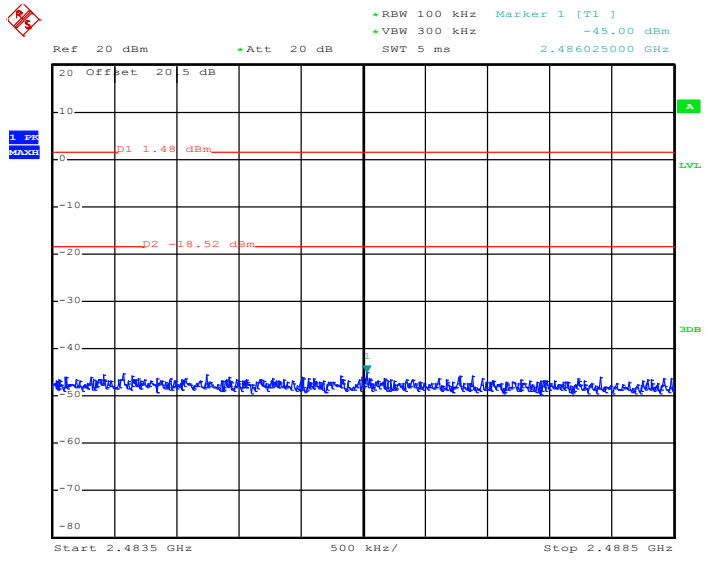
Test Mode :	Mode 7 and 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01 and 11	Test Engineer :	Reece Li

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



Date: 14.DEC.2011 15:52:09

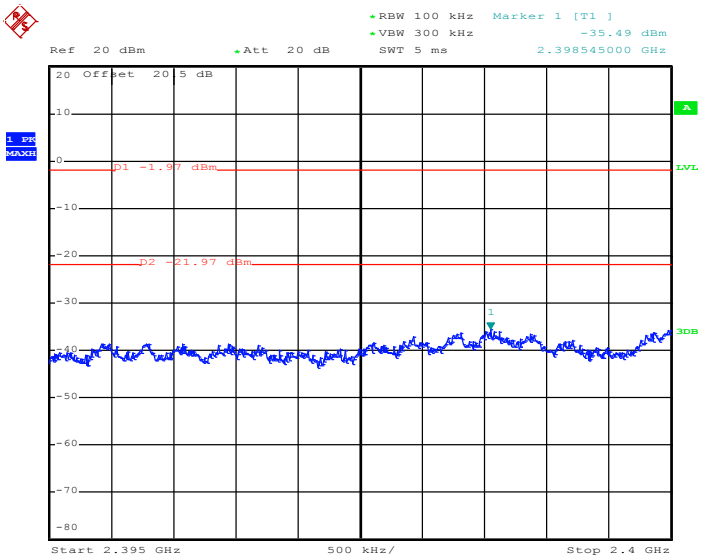
High Band Edge Plot on 802.11n (BW 20MHz) Channel 11



Date: 14.DEC.2011 16:25:07

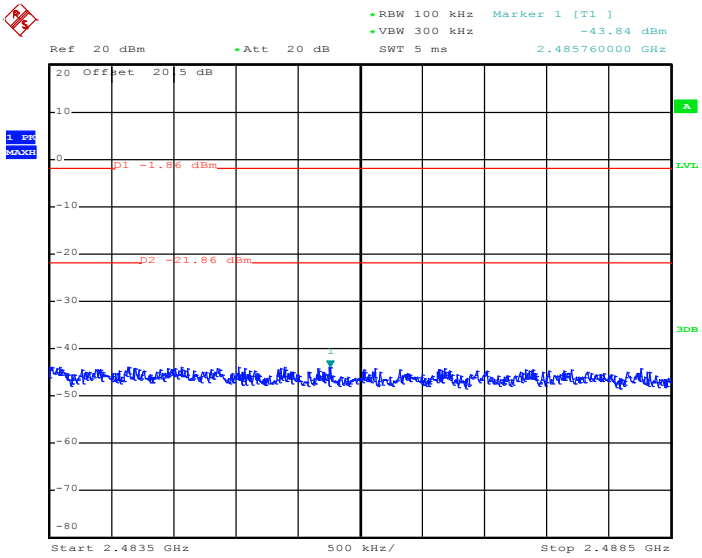
Test Mode :	Mode 10 and 12	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	03 and 09	Test Engineer :	Reece Li

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



Date: 14.DEC.2011 16:42:09

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



Date: 14.DEC.2011 17:11:05

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.

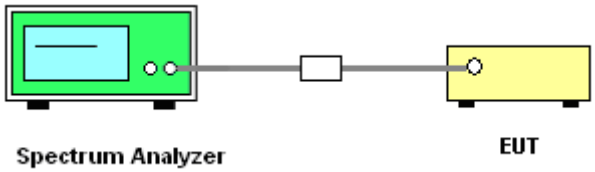
3.4.2 Measuring Instruments

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) ≥ 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.

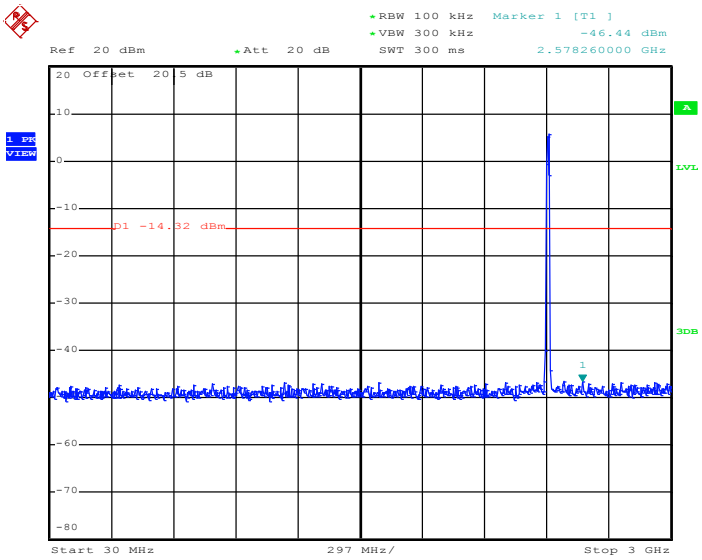
3.4.4 Test Setup



3.4.5 Test Plots of Spurious Emission

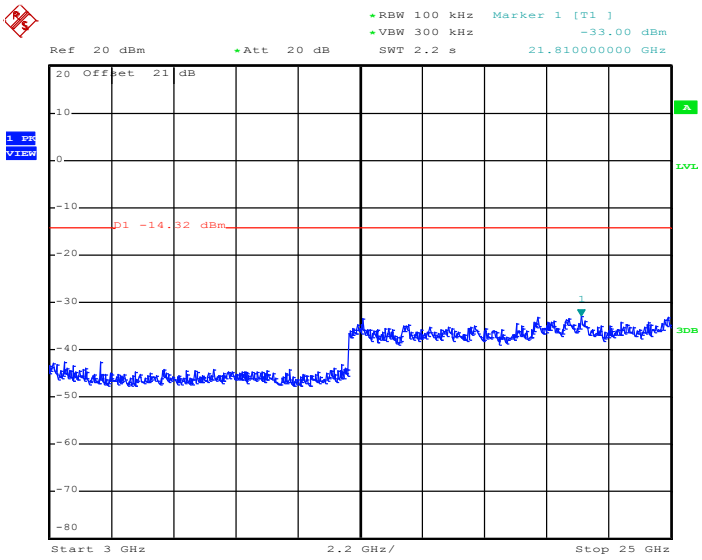
Test Mode :	Mode 1	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 14:06:29

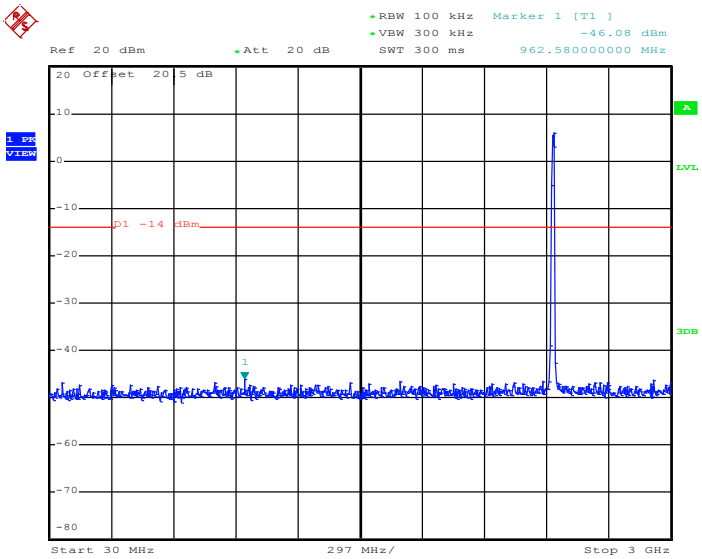
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 14:06:46

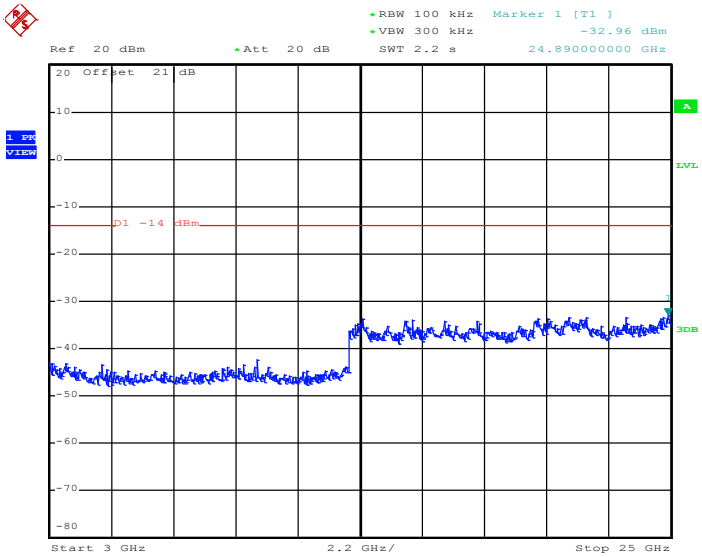
Test Mode :	Mode 2	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 14:33:57

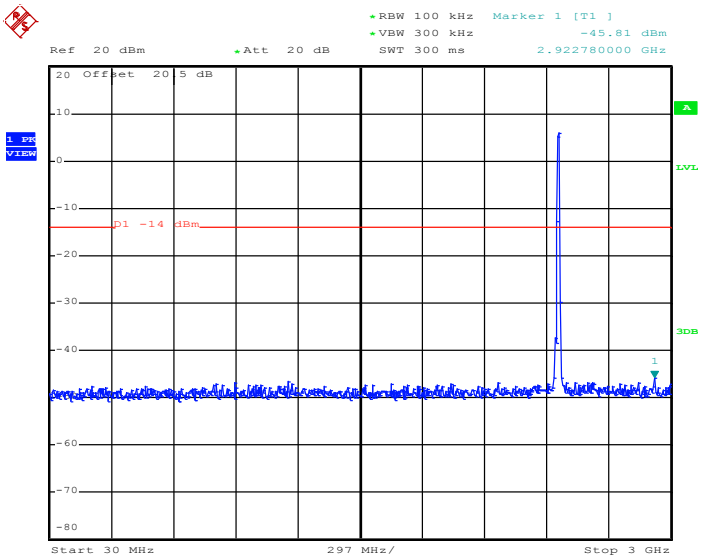
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 14:34:15

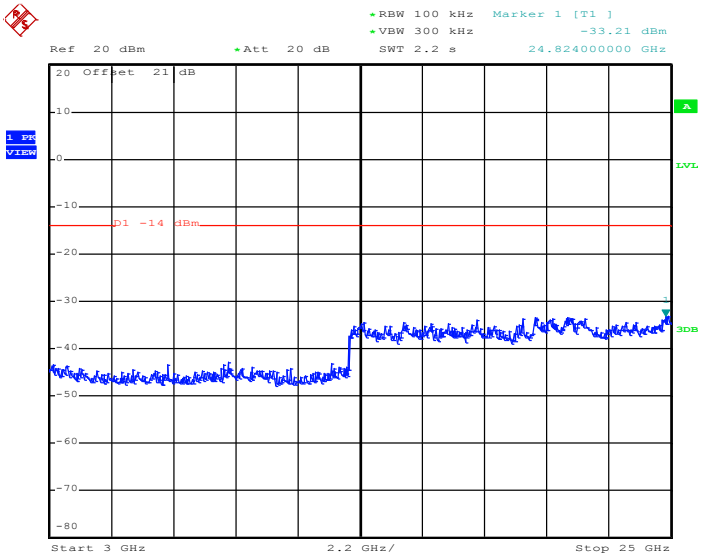
Test Mode :	Mode 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 14:52:15

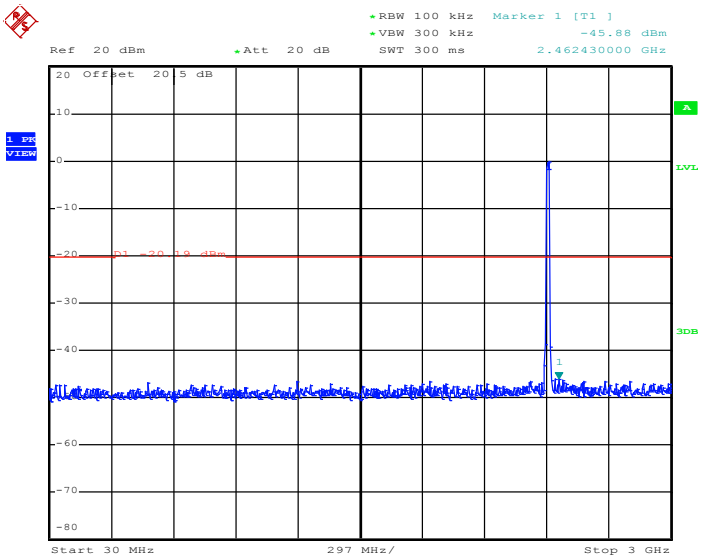
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 14:52:32

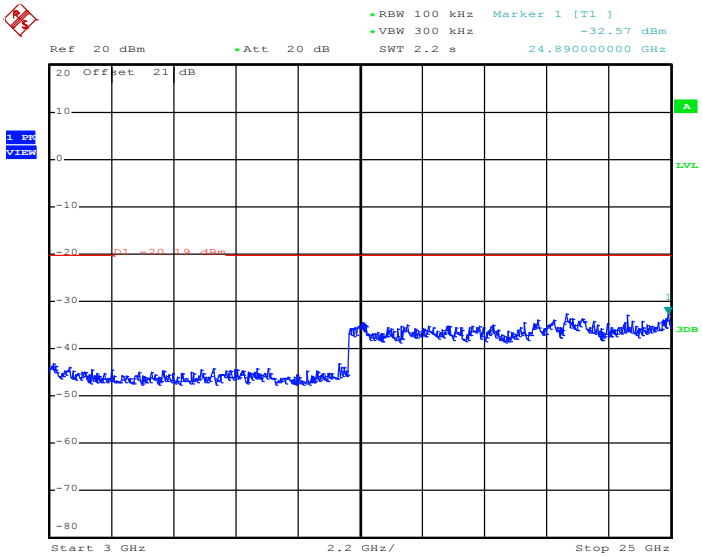
Test Mode :	Mode 4	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 15:16:22

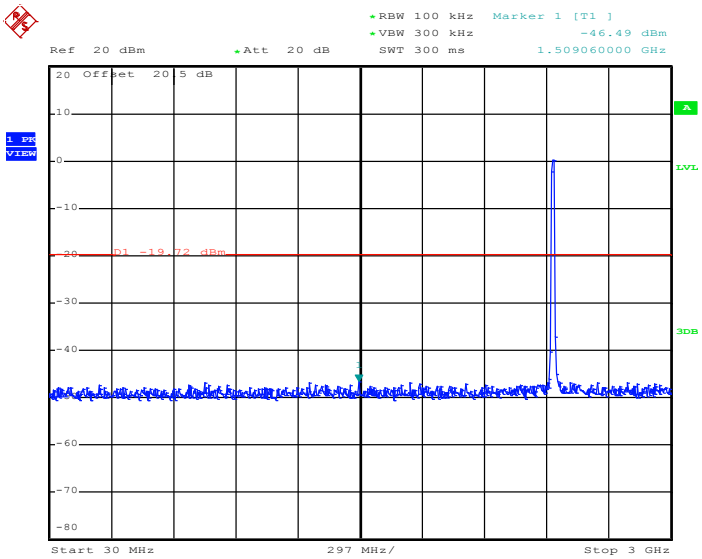
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 15:16:40

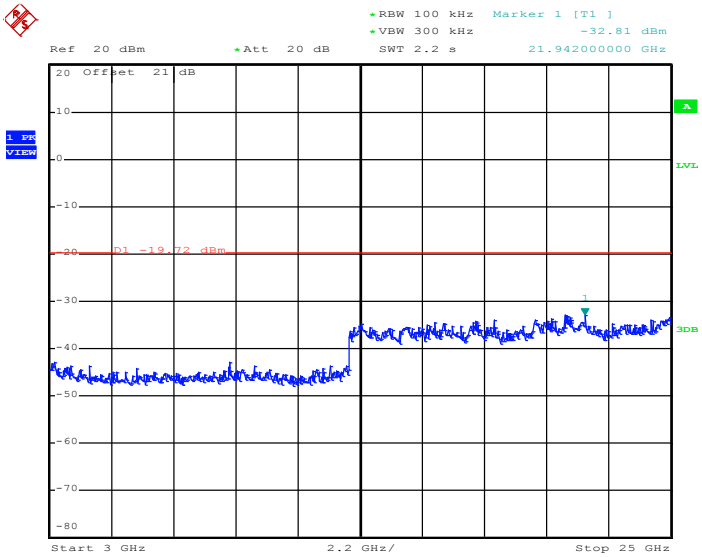
Test Mode :	Mode 5	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 15:29:26

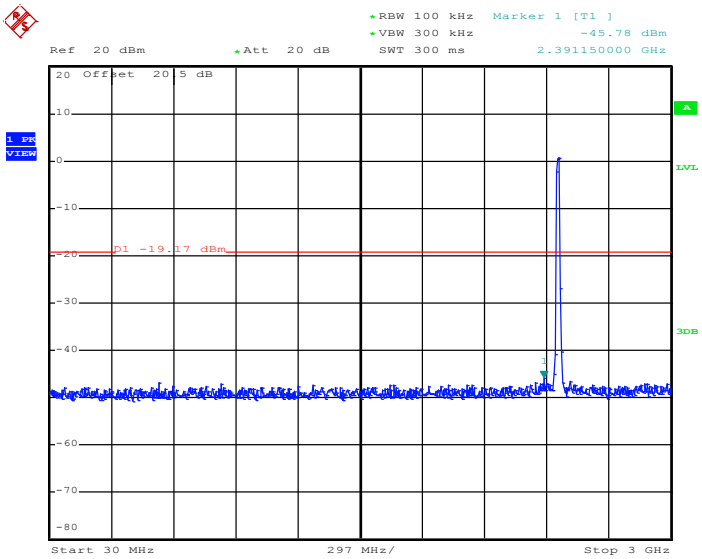
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 15:29:43

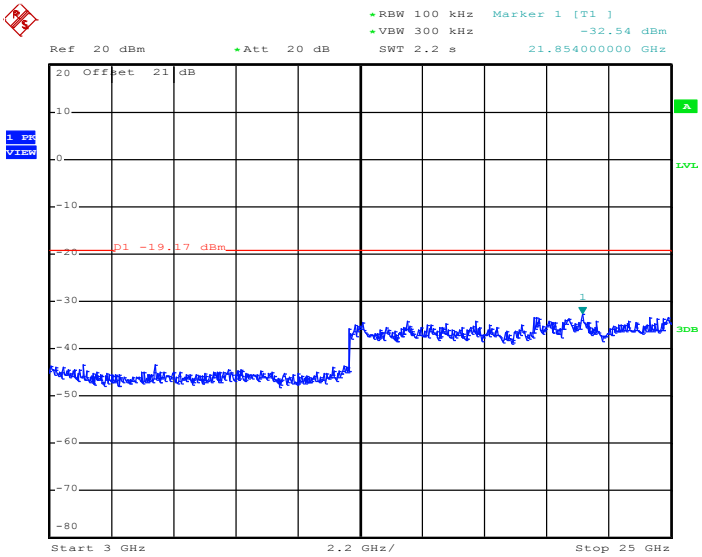
Test Mode :	Mode 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 15:43:02

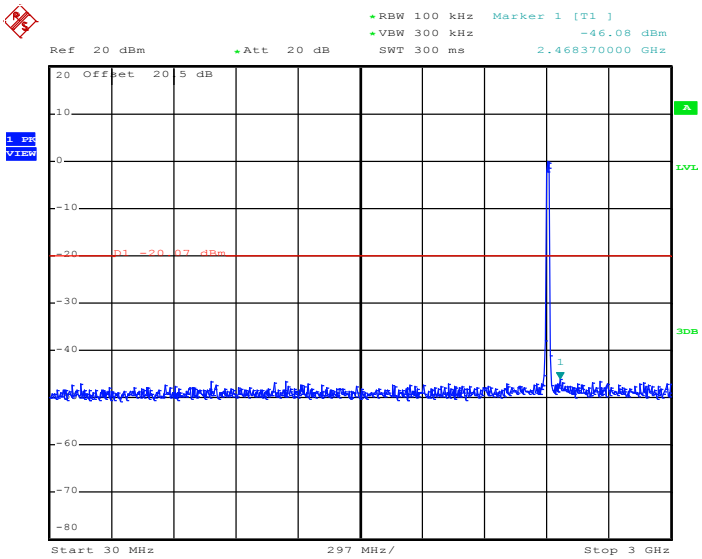
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 15:43:19

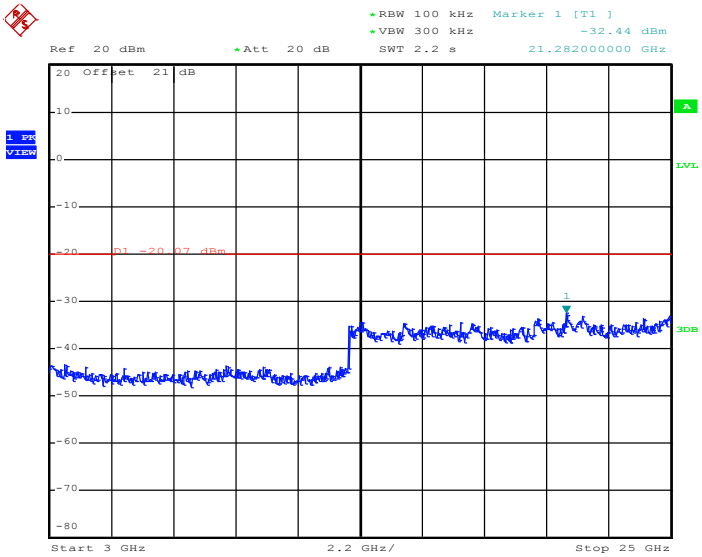
Test Mode :	Mode 7	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	01	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 16:01:22

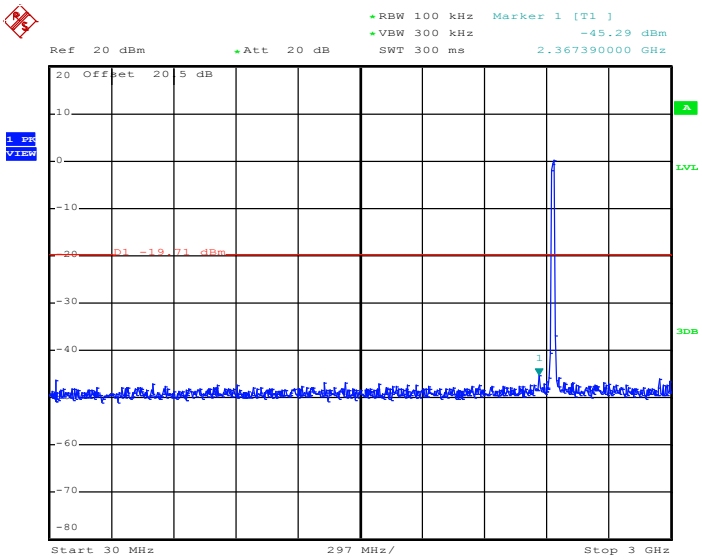
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 16:01:40

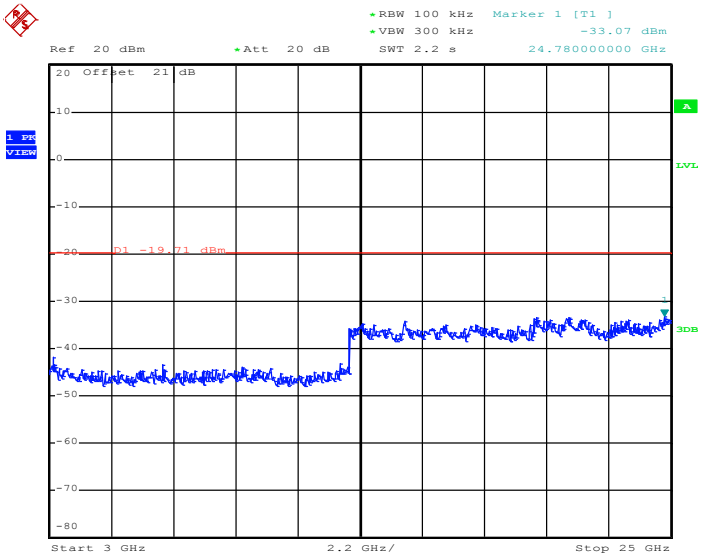
Test Mode :	Mode 8	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 16:19:42

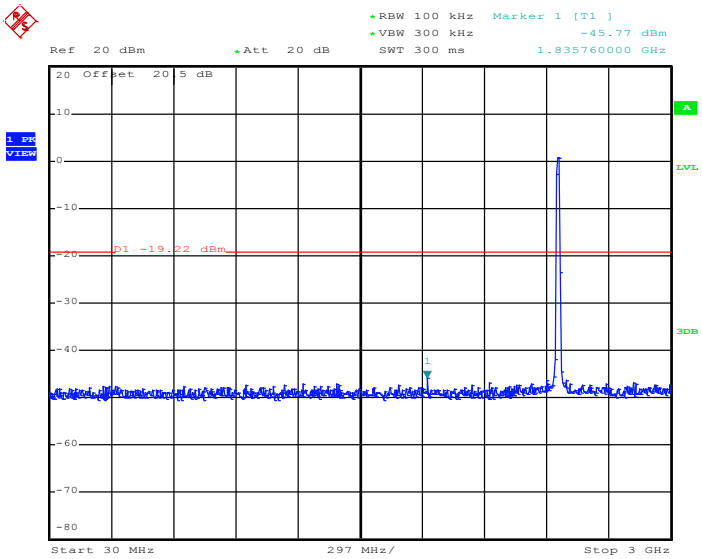
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 16:20:00

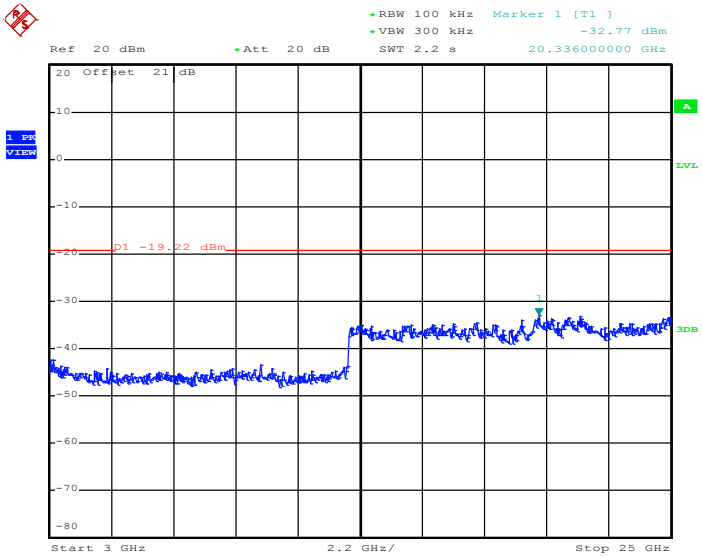
Test Mode :	Mode 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	52~55%
Test Channel :	11	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 16:34:09

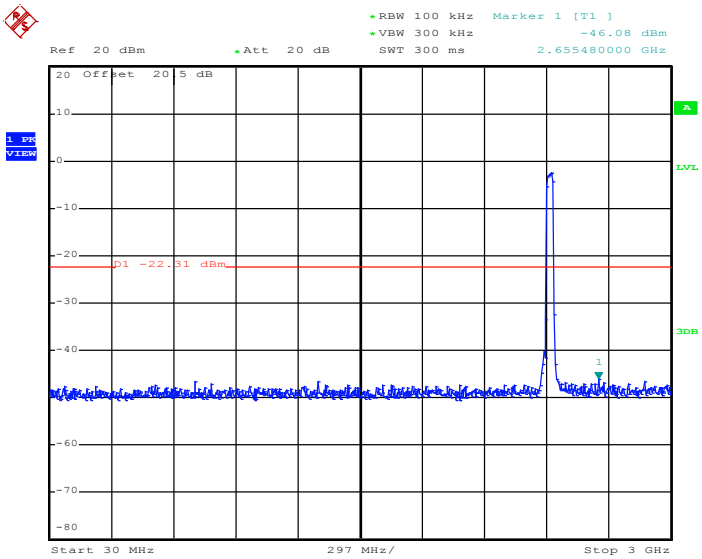
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 16:34:26

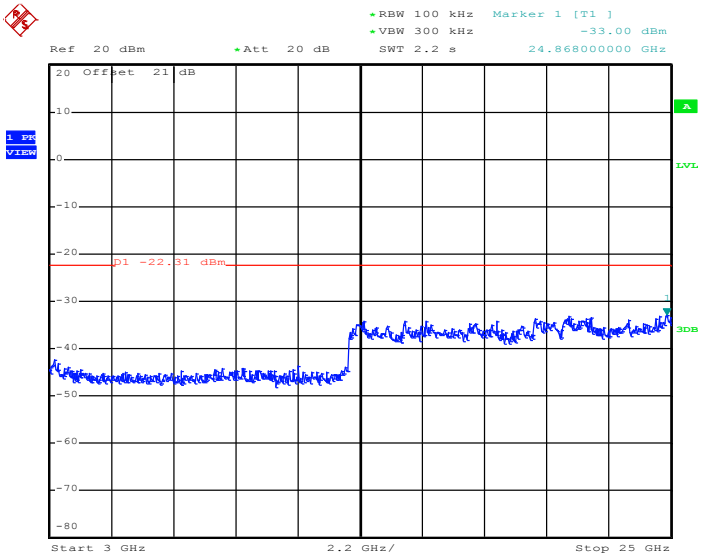
Test Mode :	Mode 10	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	03	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 16:53:13

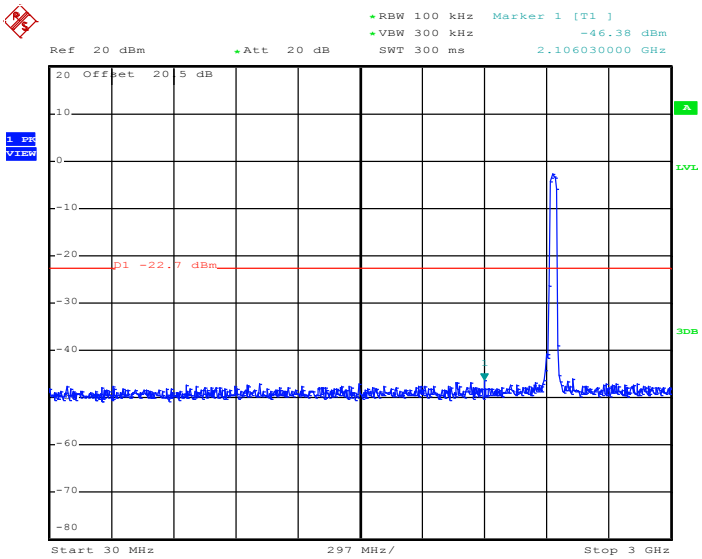
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 16:53:30

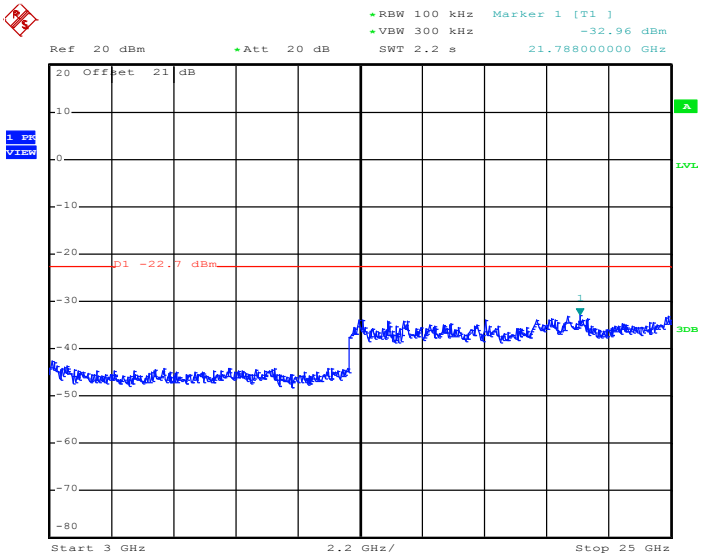
Test Mode :	Mode 11	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	06	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 17:06:17

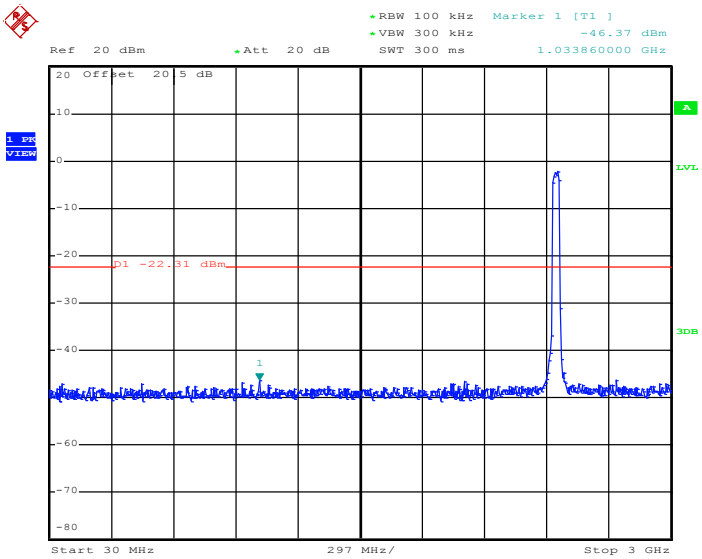
Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 17:06:35

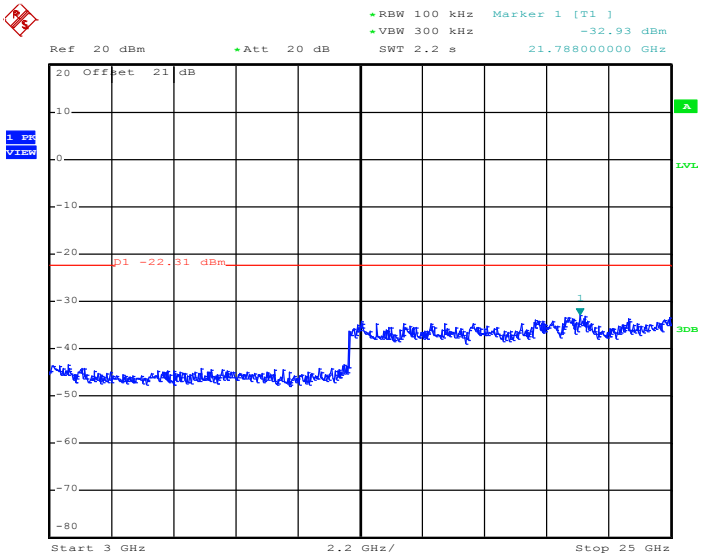
Test Mode :	Mode 12	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	52~55%
Test Channel :	09	Test Engineer :	Reece Li

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 14.DEC.2011 17:20:33

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz



Date: 14.DEC.2011 17:20:56

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.

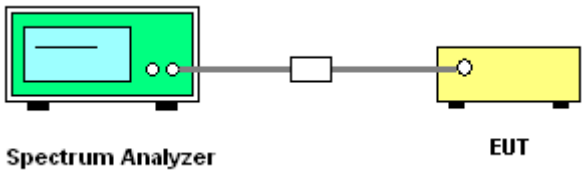
3.5.2 Measuring Instruments

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

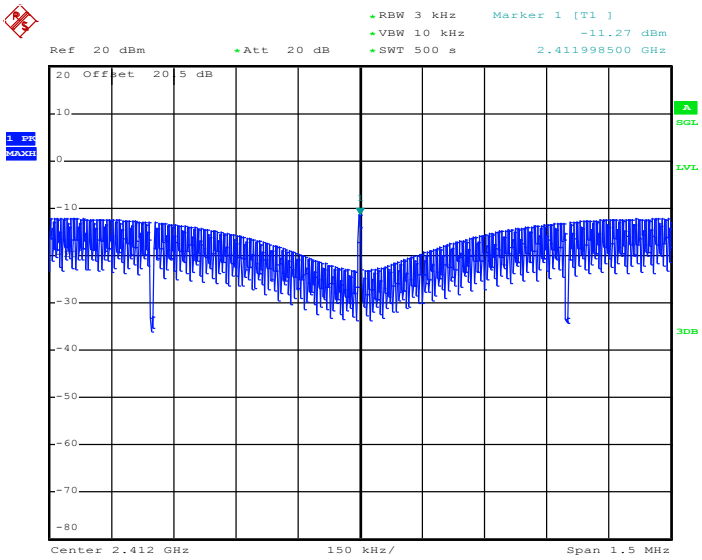


3.5.5 Test Result of Power Spectral Density

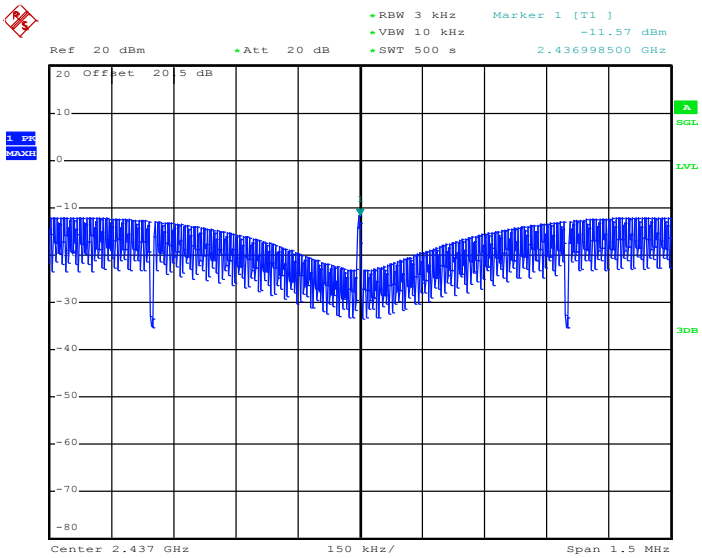
Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.27	8	Pass
06	2437	-11.57	8	Pass
11	2462	-10.61	8	Pass

Mode 1 : PSD Plot on 802.11b Channel 01

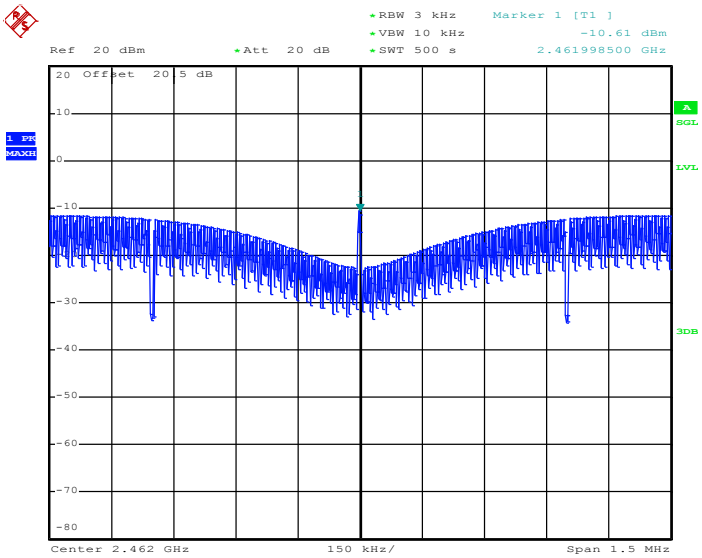


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 14.DEC.2011 14:33:36

Mode 3 : PSD Plot on 802.11b Channel 11

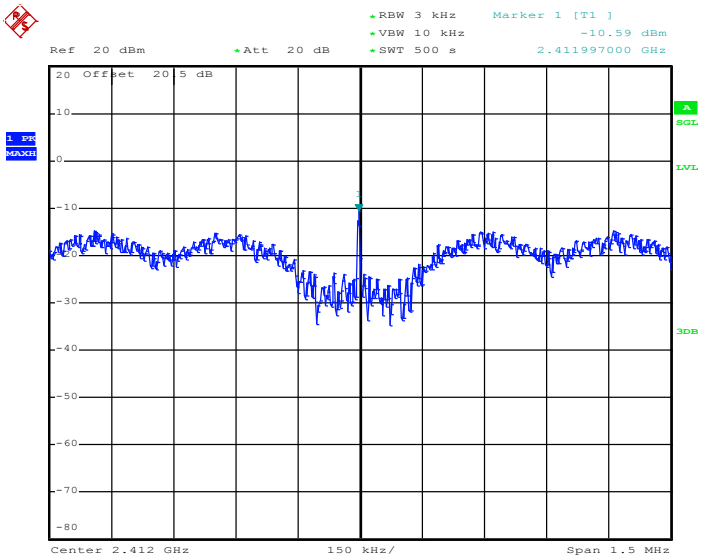


Date: 14.DEC.2011 14:49:43

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

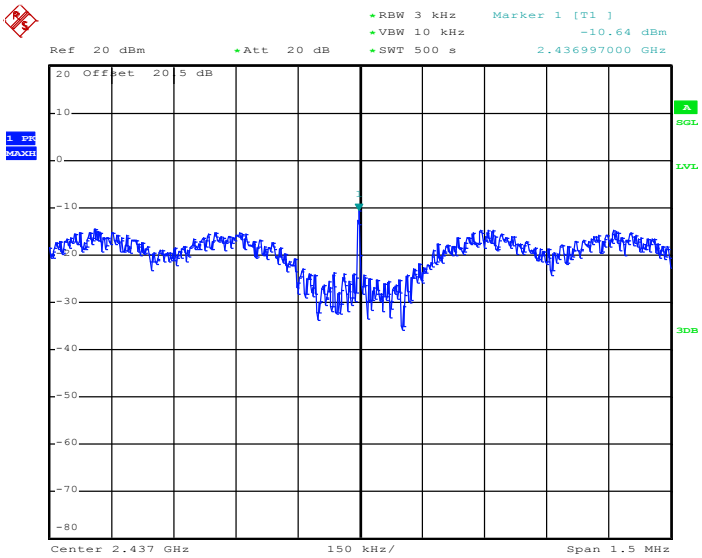
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.59	8	Pass
06	2437	-10.64	8	Pass
11	2462	-9.96	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01



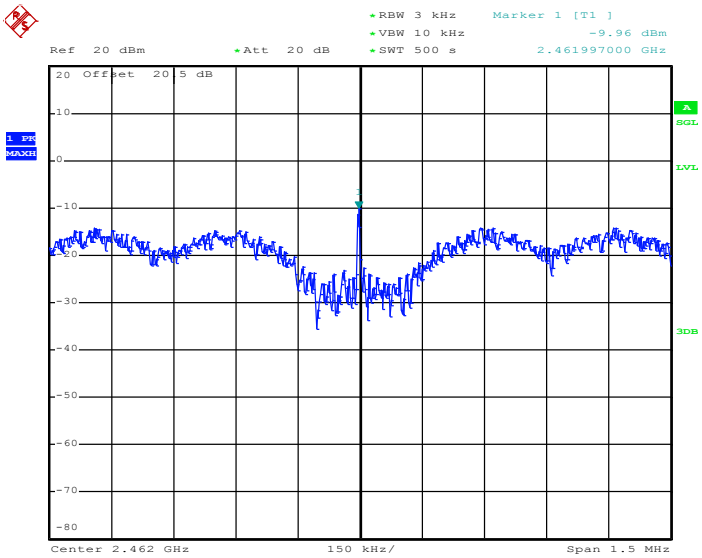
Date: 14.DEC.2011 15:16:01

Mode 5 : PSD Plot on 802.11g Channel 06



Date: 14.DEC.2011 15:29:05

Mode 6 : PSD Plot on 802.11g Channel 11

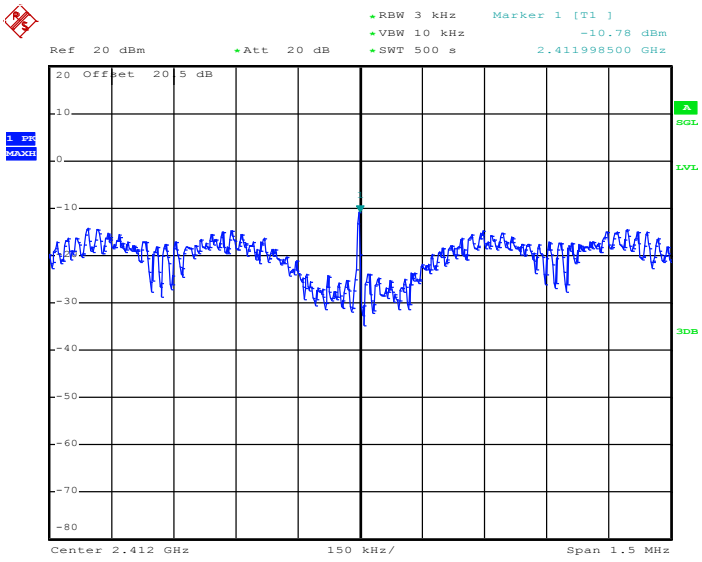


Date: 14.DEC.2011 15:42:41

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

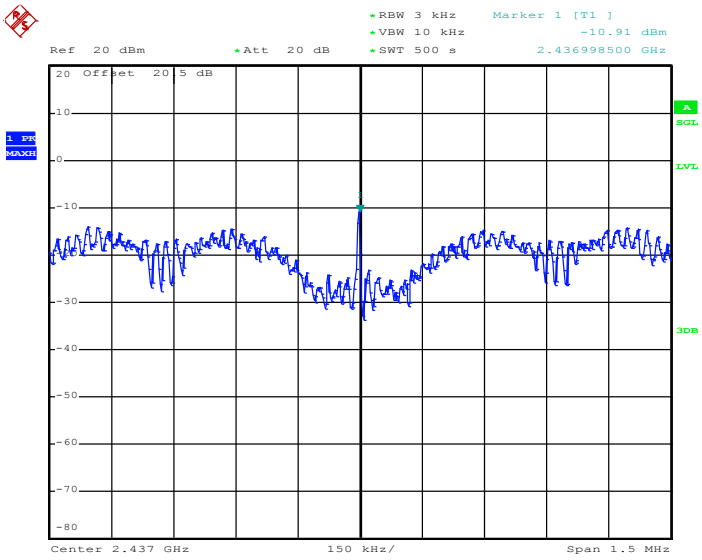
Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-10.78	8	Pass
06	2437	-10.91	8	Pass
11	2462	-10.13	8	Pass

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



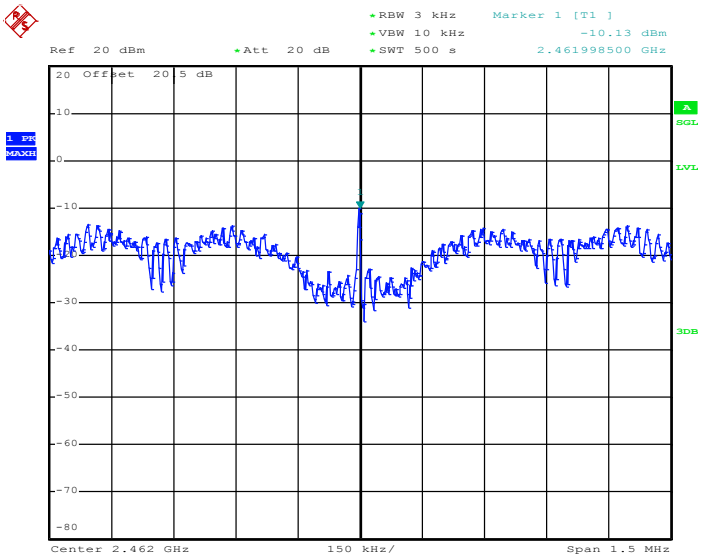
Date: 14.DEC.2011 16:01:01

Mode 8 : PSD Plot on802.11n (BW 20MHz) Channel 06



Date: 14.DEC.2011 16:19:21

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

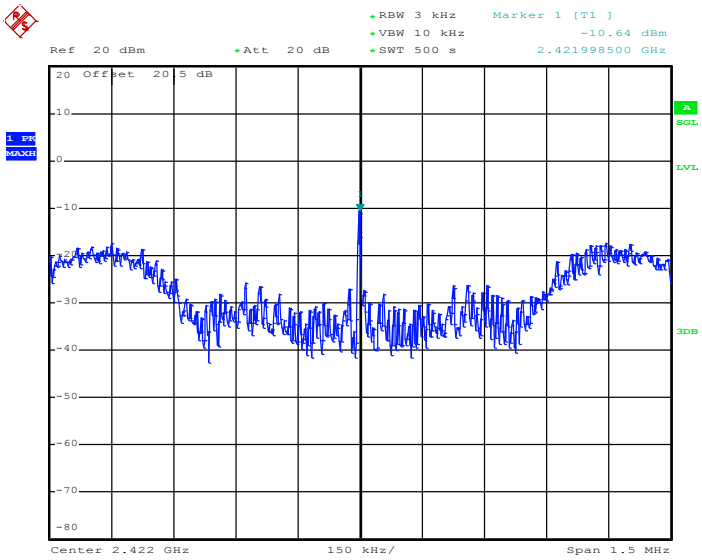


Date: 14.DEC.2011 16:33:48

Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Reece Li	Relative Humidity :	52~55%

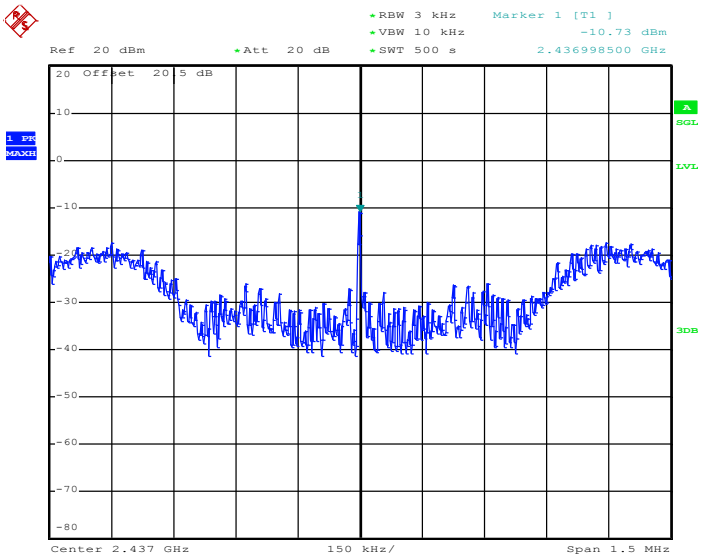
Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	-10.64	8	Pass
06	2437	-10.73	8	Pass
09	2452	-10.08	8	Pass

Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03



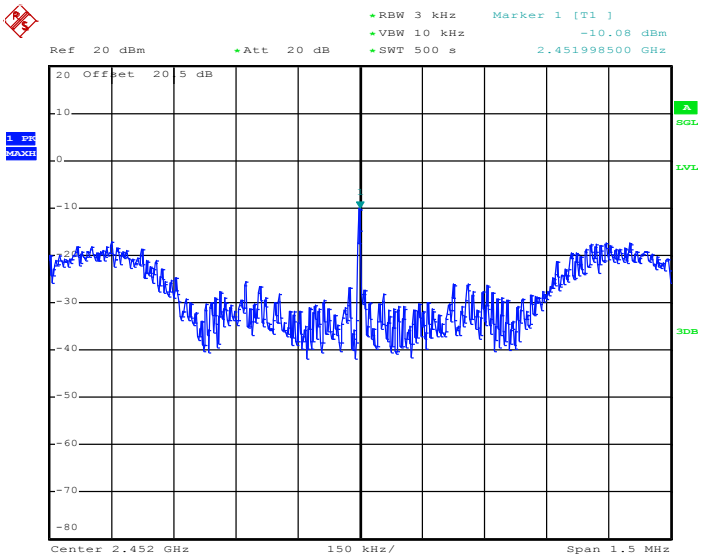
Date: 14.DEC.2011 16:51:03

Mode 11 : PSD Plot on802.11n (BW 40MHz) Channel 06



Date: 14.DEC.2011 17:05:56

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



Date: 14.DEC.2011 17:20:12

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.

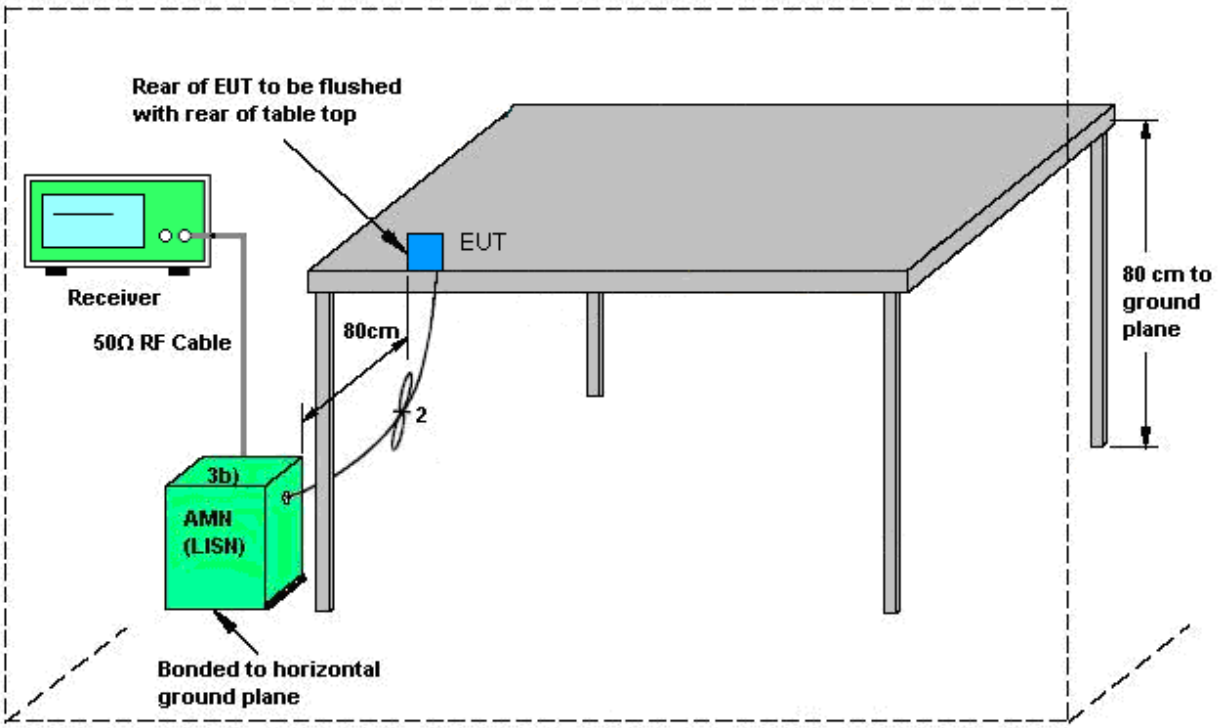
3.6.2 Measuring Instruments

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.

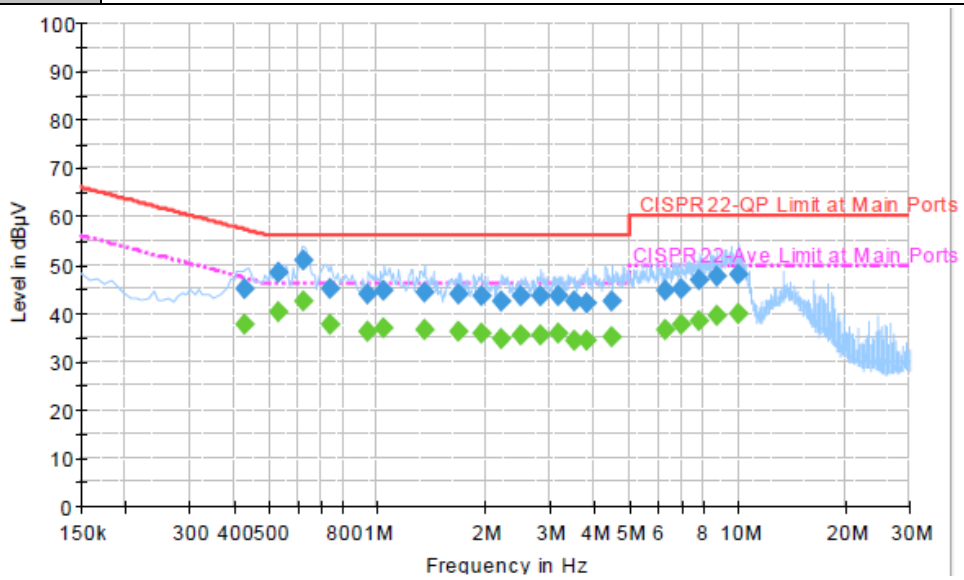
3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + LAN Link + RS232 Load + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



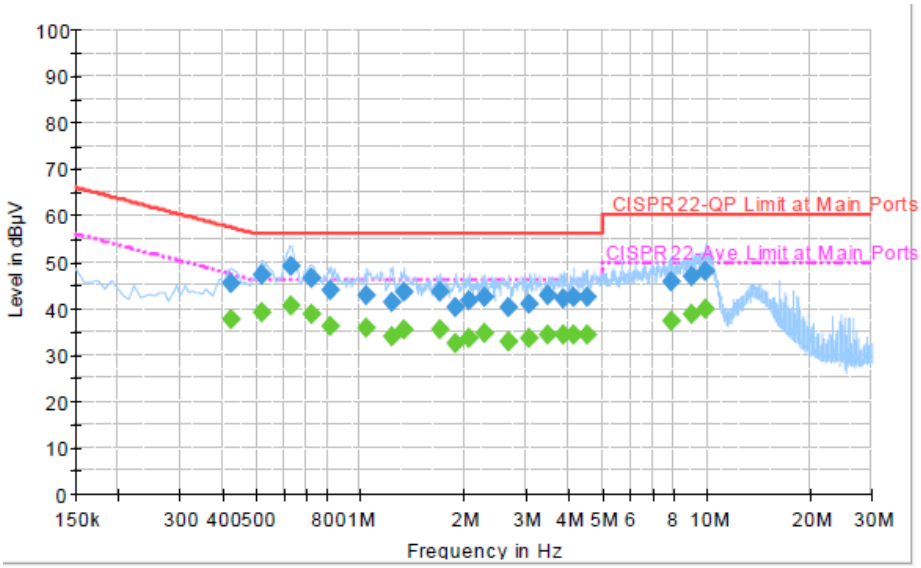
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.430000	45.2	Off	L1	19.4	12.1	57.3
0.534000	48.2	Off	L1	19.3	7.8	56.0
0.622000	50.9	Off	L1	19.3	5.1	56.0
0.742000	45.1	Off	L1	19.4	10.9	56.0
0.942000	43.8	Off	L1	19.4	12.2	56.0
1.046000	44.7	Off	L1	19.4	11.3	56.0
1.350000	44.3	Off	L1	19.4	11.7	56.0
1.670000	43.8	Off	L1	19.4	12.2	56.0
1.942000	43.7	Off	L1	19.4	12.3	56.0
2.214000	42.4	Off	L1	19.5	13.6	56.0
2.494000	43.6	Off	L1	19.4	12.4	56.0
2.838000	43.5	Off	L1	19.5	12.5	56.0
3.182000	43.7	Off	L1	19.5	12.3	56.0
3.526000	42.4	Off	L1	19.5	13.6	56.0
3.806000	42.0	Off	L1	19.5	14.0	56.0
4.462000	42.5	Off	L1	19.5	13.5	56.0
6.294000	44.5	Off	L1	19.5	15.5	60.0
7.006000	45.1	Off	L1	19.5	14.9	60.0
7.830000	46.7	Off	L1	19.5	13.3	60.0
8.742000	47.6	Off	L1	19.6	12.4	60.0
10.086000	48.0	Off	L1	19.7	12.0	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.430000	37.6	Off	L1	19.4	9.7	47.3
0.534000	40.0	Off	L1	19.3	6.0	46.0
0.622000	42.5	Off	L1	19.3	3.5	46.0
0.742000	37.5	Off	L1	19.4	8.5	46.0
0.942000	36.1	Off	L1	19.4	9.9	46.0
1.046000	36.9	Off	L1	19.4	9.1	46.0
1.350000	36.6	Off	L1	19.4	9.4	46.0
1.670000	36.0	Off	L1	19.4	10.0	46.0
1.942000	35.8	Off	L1	19.4	10.2	46.0
2.214000	34.7	Off	L1	19.5	11.3	46.0
2.494000	35.6	Off	L1	19.4	10.4	46.0
2.838000	35.4	Off	L1	19.5	10.6	46.0
3.182000	35.8	Off	L1	19.5	10.2	46.0
3.526000	34.4	Off	L1	19.5	11.6	46.0
3.806000	34.3	Off	L1	19.5	11.7	46.0
4.462000	34.9	Off	L1	19.5	11.1	46.0
6.294000	36.5	Off	L1	19.5	13.5	50.0
7.006000	37.8	Off	L1	19.5	12.2	50.0
7.830000	38.5	Off	L1	19.5	11.5	50.0
8.742000	39.4	Off	L1	19.6	10.6	50.0
10.086000	39.9	Off	L1	19.7	10.1	50.0

Test Mode :	Mode 1	Temperature :	21~23℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~52%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + LAN Link + RS232 Load + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.422000	45.5	Off	N	19.4	11.9	57.4
0.518000	47.1	Off	N	19.3	8.9	56.0
0.630000	49.2	Off	N	19.4	6.8	56.0
0.726000	46.5	Off	N	19.4	9.5	56.0
0.822000	44.0	Off	N	19.5	12.0	56.0
1.046000	42.8	Off	N	19.4	13.2	56.0
1.238000	41.3	Off	N	19.5	14.7	56.0
1.334000	43.6	Off	N	19.4	12.4	56.0
1.694000	43.7	Off	N	19.5	12.3	56.0
1.886000	40.3	Off	N	19.5	15.7	56.0
2.054000	41.7	Off	N	19.5	14.3	56.0
2.286000	42.6	Off	N	19.5	13.4	56.0
2.686000	40.2	Off	N	19.5	15.8	56.0
3.086000	40.9	Off	N	19.5	15.1	56.0
3.494000	42.7	Off	N	19.5	13.3	56.0
3.846000	42.2	Off	N	19.5	13.8	56.0
4.126000	42.4	Off	N	19.5	13.6	56.0
4.510000	42.6	Off	N	19.5	13.4	56.0
7.878000	45.7	Off	N	19.5	14.3	60.0
9.086000	46.8	Off	N	19.6	13.2	60.0
9.942000	47.9	Off	N	19.7	12.1	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.422000	37.5	Off	N	19.4	9.9	47.4
0.518000	39.2	Off	N	19.3	6.8	46.0
0.630000	40.7	Off	N	19.4	5.3	46.0
0.726000	38.6	Off	N	19.4	7.4	46.0
0.822000	36.1	Off	N	19.5	9.9	46.0
1.046000	35.8	Off	N	19.4	10.2	46.0
1.238000	33.8	Off	N	19.5	12.2	46.0
1.334000	35.4	Off	N	19.4	10.6	46.0
1.694000	35.3	Off	N	19.5	10.7	46.0
1.886000	32.3	Off	N	19.5	13.7	46.0
2.054000	33.5	Off	N	19.5	12.5	46.0
2.286000	34.8	Off	N	19.5	11.2	46.0
2.686000	32.9	Off	N	19.5	13.1	46.0
3.086000	33.7	Off	N	19.5	12.3	46.0
3.494000	34.5	Off	N	19.5	11.5	46.0
3.846000	34.2	Off	N	19.5	11.8	46.0
4.126000	34.4	Off	N	19.5	11.6	46.0
4.510000	34.5	Off	N	19.5	11.5	46.0
7.878000	37.4	Off	N	19.5	12.6	50.0
9.086000	38.6	Off	N	19.6	11.4	50.0
9.942000	39.7	Off	N	19.7	10.3	50.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.7.2 Measuring Instruments

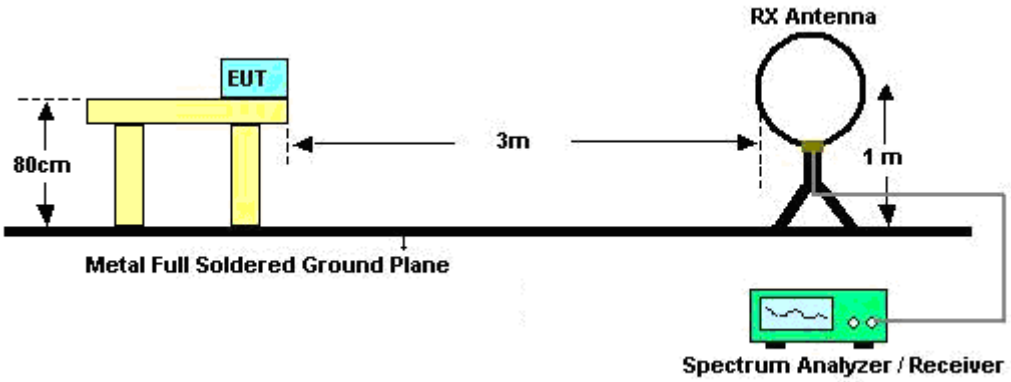
See list of measuring instruments of this test report.

3.7.3 Test Procedures

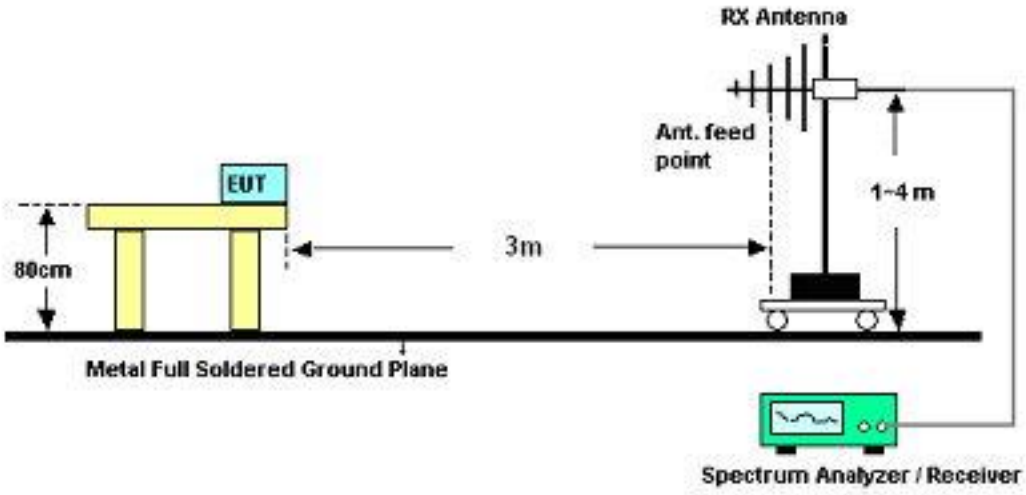
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto;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

3.7.4 Test Setup

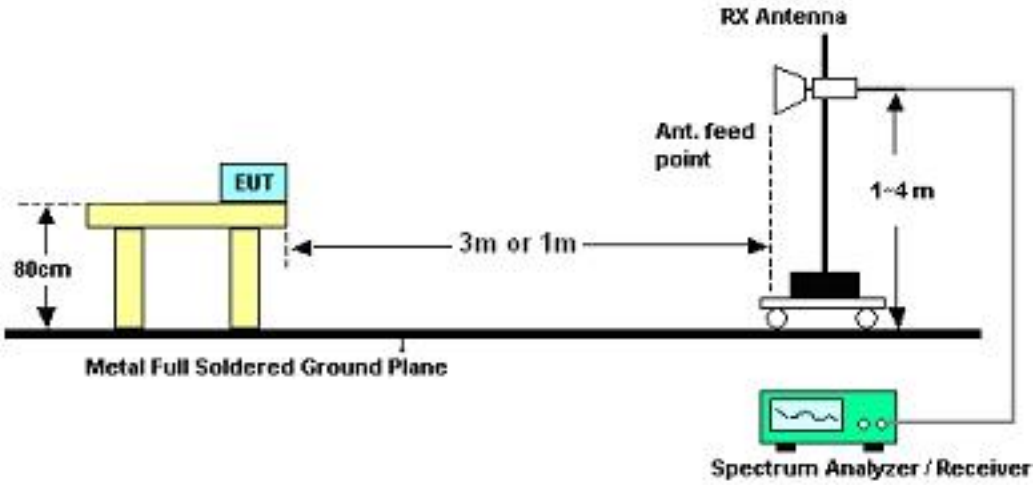
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Gavin Wu	Temperature :	20~22℃
		Relative Humidity :	52~54%

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

Note:

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

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

Test Mode :	Mode 1	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	23.7	-16.3	40	35.42	19.12	0.71	31.55	-	-	Peak
112.35	31.91	-11.59	43.5	50.77	11.5	1.16	31.52	-	-	Peak
250.05	37.61	-8.39	46	54.88	12.6	1.66	31.53	100	102	Peak
319.6	35.76	-10.24	46	51.72	13.5	1.83	31.29	-	-	Peak
640.2	35.86	-10.14	46	43.49	20.6	2.56	30.79	-	-	Peak
746.6	37.13	-8.87	46	42.57	22.37	2.74	30.55	-	-	Peak
2388.09	35.33	-18.67	54	32.81	32.02	4.58	34.08	131	262	Average
2388.09	47.96	-26.04	74	45.44	32.02	4.58	34.08	131	262	Peak
2412	94.92	-	-	92.38	32.03	4.59	34.08	131	262	Average
2412	98.34	-	-	95.8	32.03	4.59	34.08	131	262	Peak
2490	33.79	-20.21	54	31.13	32.1	4.64	34.08	131	262	Average
2490	45.94	-28.06	74	43.28	32.1	4.64	34.08	131	262	Peak
4824	50.15	-23.85	74	68.27	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 1	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 1878 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.84dBuV/m - 20dB = 87.84dBuV/m.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.67	33.12	-6.88	40	48.12	15.78	0.74	31.52	-	-	Peak
58.35	33.7	-6.3	40	58.19	6.2	0.85	31.54	-	-	Peak
125.04	37.64	-5.86	43.5	56.14	11.8	1.22	31.52	100	201	Peak
319.6	33.99	-12.01	46	49.95	13.5	1.83	31.29	-	-	Peak
640.2	35.02	-10.98	46	42.65	20.6	2.56	30.79	-	-	Peak
746.6	35.89	-10.11	46	41.33	22.37	2.74	30.55	-	-	Peak
1878	48.3	-39.54	87.84	47.45	30.88	4.15	34.18	100	325	Peak
2379.16	42.86	-11.14	54	40.37	32	4.57	34.08	100	325	Average
2379.16	55.53	-18.47	74	53.04	32	4.57	34.08	100	325	Peak
2412	104.08	-	-	101.54	32.03	4.59	34.08	100	325	Average
2412	107.84	-	-	105.3	32.03	4.59	34.08	100	325	Peak
2490	38.12	-15.88	54	35.46	32.1	4.64	34.08	100	325	Average
2490	50.06	-23.94	74	47.4	32.1	4.64	34.08	100	325	Peak
4824	52.6	-1.4	54	70.72	33.83	6.51	58.46	100	326	Average
4824	56.37	-17.63	74	74.49	33.83	6.51	58.46	100	326	Peak

Test Mode :	Mode 2	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal 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	22.3	-17.7	40	33.36	19.8	0.7	31.56	-	-	Peak
125.04	30.34	-13.16	43.5	48.84	11.8	1.22	31.52	-	-	Peak
250.05	37.22	-8.78	46	54.49	12.6	1.66	31.53	100	209	Peak
319.6	35.01	-10.99	46	50.97	13.5	1.83	31.29	-	-	Peak
746.6	37	-9	46	42.44	22.37	2.74	30.55	-	-	Peak
853.7	36.32	-9.68	46	40.53	23.36	2.93	30.5	-	-	Peak
2360	36.77	-17.23	54	34.29	31.99	4.57	34.08	126	264	Average
2360	48.2	-25.8	74	45.72	31.99	4.57	34.08	126	264	Peak
2437	95.9	-	-	93.31	32.06	4.61	34.08	126	264	Average
2437	99.9	-	-	97.31	32.06	4.61	34.08	126	264	Peak
2490	35.64	-18.36	54	32.98	32.1	4.64	34.08	126	264	Average
2490	47.95	-26.05	74	45.29	32.1	4.64	34.08	126	264	Peak
4874	47.29	-26.71	74	65.3	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 2	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 1916 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.67	33.9	-6.1	40	48.9	15.78	0.74	31.52	-	-	Peak
58.62	33.45	-6.55	40	58.04	6.1	0.86	31.55	-	-	Peak
125.04	37.41	-6.09	43.5	55.91	11.8	1.22	31.52	100	38	Peak
640.2	34.25	-11.75	46	41.88	20.6	2.56	30.79	-	-	Peak
746.6	36.34	-9.66	46	41.78	22.37	2.74	30.55	-	-	Peak
853.7	34.91	-11.09	46	39.12	23.36	2.93	30.5	-	-	Peak
1916	47.93	-41.48	89.41	46.78	31.12	4.19	34.16	100	322	Peak
2380	44.45	-9.55	54	41.95	32	4.58	34.08	100	322	Average
2380	55.11	-18.89	74	52.61	32	4.58	34.08	100	322	Peak
2437	105.47	-	-	102.88	32.06	4.61	34.08	100	322	Average
2437	109.41	-	-	106.82	32.06	4.61	34.08	100	322	Peak
2488	40.81	-13.19	54	38.15	32.1	4.64	34.08	100	322	Average
2488	52.26	-21.74	74	49.6	32.1	4.64	34.08	100	322	Peak
4874	51.93	-2.07	54	69.94	33.82	6.53	58.36	100	320	Average
4874	53.32	-20.68	74	71.33	33.82	6.53	58.36	100	320	Peak

Test Mode :	Mode 3	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal 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	21.89	-18.11	40	32.95	19.8	0.7	31.56	-	-	Peak
125.04	30.09	-13.41	43.5	48.59	11.8	1.22	31.52	-	-	Peak
250.05	37.53	-8.47	46	54.8	12.6	1.66	31.53	-	-	Peak
319.6	35.14	-10.86	46	51.1	13.5	1.83	31.29	-	-	Peak
746.6	37.67	-8.33	46	43.11	22.37	2.74	30.55	100	325	Peak
853.7	36	-10	46	40.21	23.36	2.93	30.5	-	-	Peak
2348	35.6	-18.4	54	33.16	31.98	4.55	34.09	128	254	Average
2348	47.07	-26.93	74	44.63	31.98	4.55	34.09	128	254	Peak
2462	97.12	-	-	94.51	32.07	4.62	34.08	128	254	Average
2462	100.73	-	-	98.12	32.07	4.62	34.08	128	254	Peak
2486.32	36.21	-17.79	54	33.56	32.09	4.64	34.08	128	254	Average
2486.32	47.84	-26.16	74	45.19	32.09	4.64	34.08	128	254	Peak
4924	45.96	-28.04	74	63.85	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 3	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 1954 MHz is not within a restricted band.		

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
59.16	33.37	-6.63	40	57.96	6.1	0.86	31.55	100	36	Peak
125.04	36.4	-7.1	43.5	54.9	11.8	1.22	31.52	-	-	Peak
250.05	36.66	-9.34	46	53.93	12.6	1.66	31.53	-	-	Peak
640.2	35.07	-10.93	46	42.7	20.6	2.56	30.79	-	-	Peak
746.6	36.73	-9.27	46	42.17	22.37	2.74	30.55	-	-	Peak
853.7	34.34	-11.66	46	38.55	23.36	2.93	30.5	-	-	Peak
1954	45.88	-43.27	89.15	44.4	31.35	4.26	34.13	100	325	Peak
2382	43.69	-10.31	54	41.19	32	4.58	34.08	100	325	Average
2382	55.2	-18.8	74	52.7	32	4.58	34.08	100	325	Peak
2462	105.34	-	-	102.73	32.07	4.62	34.08	100	325	Average
2462	109.15	-	-	106.54	32.07	4.62	34.08	100	325	Peak
2484.61	42.24	-11.76	54	39.59	32.09	4.64	34.08	100	325	Average
2484.61	53.53	-20.47	74	50.88	32.09	4.64	34.08	100	325	Peak
4924	50.35	-23.65	74	68.24	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 4	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal 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
58.62	21.97	-18.03	40	46.56	6.1	0.86	31.55	-	-	Peak
125.04	29.59	-13.91	43.5	48.09	11.8	1.22	31.52	-	-	Peak
250.05	37.4	-8.6	46	54.67	12.6	1.66	31.53	100	39	Peak
319.6	34.17	-11.83	46	50.13	13.5	1.83	31.29	-	-	Peak
746.6	36.86	-9.14	46	42.3	22.37	2.74	30.55	-	-	Peak
853.7	35.71	-10.29	46	39.92	23.36	2.93	30.5	-	-	Peak
2388.28	39.8	-14.2	54	37.28	32.02	4.58	34.08	127	263	Average
2388.28	57.3	-16.7	74	54.78	32.02	4.58	34.08	127	263	Peak
2412	90.34	-	-	87.8	32.03	4.59	34.08	127	263	Average
2412	100.5	-	-	97.96	32.03	4.59	34.08	127	263	Peak
2486	35.52	-18.48	54	32.87	32.09	4.64	34.08	127	263	Average
2486	47.33	-26.67	74	44.68	32.09	4.64	34.08	127	263	Peak
4824	50.38	-23.62	74	68.5	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 4	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 1878 MHz is not within a restricted band.		

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
34.86	33.21	-6.79	40	47.59	16.4	0.74	31.52	-	-	Peak
58.89	33	-7	40	57.59	6.1	0.86	31.55	-	-	Peak
125.04	37.81	-5.69	43.5	56.31	11.8	1.22	31.52	100	204	Peak
640.2	34.78	-11.22	46	42.41	20.6	2.56	30.79	-	-	Peak
746.6	36.12	-9.88	46	41.56	22.37	2.74	30.55	-	-	Peak
853.7	34.9	-11.1	46	39.11	23.36	2.93	30.5	-	-	Peak
1878	54.68	-37.19	91.87	53.83	30.88	4.15	34.18	100	336	Peak
2389.8	47.76	-6.24	54	45.24	32.02	4.58	34.08	100	336	Average
2389.8	67.59	-6.41	74	65.07	32.02	4.58	34.08	100	336	Peak
2412	99.82	-	-	97.28	32.03	4.59	34.08	100	336	Average
2412	111.87	-	-	109.33	32.03	4.59	34.08	100	336	Peak
2488	40.49	-13.51	54	37.83	32.1	4.64	34.08	100	336	Average
2488	54.14	-19.86	74	51.48	32.1	4.64	34.08	100	336	Peak
4824	39.4	-14.6	54	57.52	33.83	6.51	58.46	100	326	Average
4824	52.46	-21.54	74	70.58	33.83	6.51	58.46	100	326	Peak

Test Mode :	Mode 5	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal 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
58.62	22.76	-17.24	40	47.35	6.1	0.86	31.55	-	-	Peak
125.04	29.91	-13.59	43.5	48.41	11.8	1.22	31.52	-	-	Peak
250.05	36.94	-9.06	46	54.21	12.6	1.66	31.53	100	115	Peak
319.6	35.22	-10.78	46	51.18	13.5	1.83	31.29	-	-	Peak
746.6	36.24	-9.76	46	41.68	22.37	2.74	30.55	-	-	Peak
853.7	35.58	-10.42	46	39.79	23.36	2.93	30.5	-	-	Peak
2370	38.15	-15.85	54	35.66	32	4.57	34.08	100	267	Average
2370	49.34	-24.66	74	46.85	32	4.57	34.08	100	267	Peak
2437	89.42	-	-	86.83	32.06	4.61	34.08	100	267	Average
2437	100.11	-	-	97.52	32.06	4.61	34.08	100	267	Peak
2490	38.86	-15.14	54	36.2	32.1	4.64	34.08	100	267	Average
2490	49.74	-24.26	74	47.08	32.1	4.64	34.08	100	267	Peak
4874	43.99	-30.01	74	62	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 5	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 1916 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	33.56	-6.44	40	48.56	15.78	0.74	31.52	-	-	Peak
58.62	33.34	-6.66	40	57.93	6.1	0.86	31.55	-	-	Peak
125.04	37.31	-6.19	43.5	55.81	11.8	1.22	31.52	100	265	Peak
640.2	33.95	-12.05	46	41.58	20.6	2.56	30.79	-	-	Peak
746.6	36.26	-9.74	46	41.7	22.37	2.74	30.55	-	-	Peak
853.7	35.21	-10.79	46	39.42	23.36	2.93	30.5	-	-	Peak
1916	52.96	-37.67	90.63	51.81	31.12	4.19	34.16	119	333	Peak
2384	48.56	-5.44	54	46.06	32	4.58	34.08	119	333	Average
2384	58.88	-15.12	74	56.38	32	4.58	34.08	119	333	Peak
2437	99.85	-	-	97.26	32.06	4.61	34.08	119	333	Average
2437	110.63	-	-	108.04	32.06	4.61	34.08	119	333	Peak
2490	46.49	-7.51	54	43.83	32.1	4.64	34.08	119	333	Average
2490	57.15	-16.85	74	54.49	32.1	4.64	34.08	119	333	Peak
4874	48.17	-25.83	74	66.18	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 6	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal 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
59.43	22.21	-17.79	40	46.8	6.1	0.86	31.55	-	-	Peak
125.04	29.75	-13.75	43.5	48.25	11.8	1.22	31.52	-	-	Peak
250.05	37.91	-8.09	46	55.18	12.6	1.66	31.53	100	119	Peak
319.6	32.18	-13.82	46	48.14	13.5	1.83	31.29	-	-	Peak
746.6	36.49	-9.51	46	41.93	22.37	2.74	30.55	-	-	Peak
853.7	35.8	-10.2	46	40.01	23.36	2.93	30.5	-	-	Peak
2384	35.25	-18.75	54	32.75	32	4.58	34.08	100	112	Average
2384	47.32	-26.68	74	44.82	32	4.58	34.08	100	112	Peak
2462	90.02	-	-	87.41	32.07	4.62	34.08	100	112	Average
2462	102.1	-	-	99.49	32.07	4.62	34.08	100	112	Peak
2483.85	37.08	-16.92	54	34.43	32.09	4.64	34.08	100	112	Average
2483.85	55.76	-18.24	74	53.11	32.09	4.64	34.08	100	112	Peak
4924	42.44	-31.56	74	60.33	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 6	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 1956 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	34.2	-5.8	40	49.2	15.78	0.74	31.52	100	312	Peak
57.81	33.58	-6.42	40	58.07	6.2	0.85	31.54	-	-	Peak
125.04	37.63	-5.87	43.5	56.13	11.8	1.22	31.52	-	-	Peak
640.2	34.37	-11.63	46	42	20.6	2.56	30.79	-	-	Peak
746.6	36.68	-9.32	46	42.12	22.37	2.74	30.55	-	-	Peak
853.7	35.69	-10.31	46	39.9	23.36	2.93	30.5	-	-	Peak
1956	52.89	-39.09	91.98	51.41	31.35	4.26	34.13	100	335	Peak
2384	45.07	-8.93	54	42.57	32	4.58	34.08	100	335	Average
2384	56.19	-17.81	74	53.69	32	4.58	34.08	100	335	Peak
2462	100.28	-	-	97.67	32.07	4.62	34.08	100	335	Average
2462	111.98	-	-	109.37	32.07	4.62	34.08	100	335	Peak
2483.5	45.68	-8.32	54	43.03	32.09	4.64	34.08	100	335	Average
2483.5	64.61	-9.39	74	61.96	32.09	4.64	34.08	100	335	Peak
4924	46.66	-27.34	74	64.55	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 7	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal 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
58.89	22.77	-17.23	40	47.36	6.1	0.86	31.55	-	-	Peak
125.04	30.09	-13.41	43.5	48.59	11.8	1.22	31.52	-	-	Peak
250.05	38.29	-7.71	46	55.56	12.6	1.66	31.53	100	296	Peak
426.7	32.54	-13.46	46	44.95	16.67	2.08	31.16	-	-	Peak
746.6	38.08	-7.92	46	43.52	22.37	2.74	30.55	-	-	Peak
853.7	35.4	-10.6	46	39.61	23.36	2.93	30.5	-	-	Peak
2388.28	39.07	-14.93	54	36.55	32.02	4.58	34.08	127	263	Average
2388.28	63.57	-10.43	74	61.05	32.02	4.58	34.08	127	263	Peak
2412	88.07	-	-	85.53	32.03	4.59	34.08	127	263	Average
2412	98.57	-	-	96.03	32.03	4.59	34.08	127	263	Peak
2484	35.07	-18.93	54	32.42	32.09	4.64	34.08	127	263	Average
2484	48.7	-25.3	74	46.05	32.09	4.64	34.08	127	263	Peak
4824	44.69	-29.31	74	62.81	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 7	Temperature :	20~22℃
Test Channel :	01	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 1880 MHz is not within a restricted band.		

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
34.86	32.81	-7.19	40	47.19	16.4	0.74	31.52	-	-	Peak
58.62	33.14	-6.86	40	57.73	6.1	0.86	31.55	-	-	Peak
125.04	36.94	-6.56	43.5	55.44	11.8	1.22	31.52	100	249	Peak
640.2	34.8	-11.2	46	42.43	20.6	2.56	30.79	-	-	Peak
746.6	36.06	-9.94	46	41.5	22.37	2.74	30.55	-	-	Peak
853.7	36.2	-9.8	46	40.41	23.36	2.93	30.5	-	-	Peak
1880	49.35	-38.64	87.99	48.5	30.88	4.15	34.18	100	324	Peak
2389.61	46.18	-7.82	54	43.66	32.02	4.58	34.08	100	324	Average
2389.61	72.94	-1.06	74	70.42	32.02	4.58	34.08	100	324	Peak
2412	97.2	-	-	94.66	32.03	4.59	34.08	100	324	Average
2412	107.99	-	-	105.45	32.03	4.59	34.08	100	324	Peak
2488	39.23	-14.77	54	36.57	32.1	4.64	34.08	100	324	Average
2488	54.34	-19.66	74	51.68	32.1	4.64	34.08	100	324	Peak
4824	50.45	-23.55	74	68.57	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 8	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal 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
59.16	22.09	-17.91	40	46.68	6.1	0.86	31.55	-	-	Peak
125.04	30.08	-13.42	43.5	48.58	11.8	1.22	31.52	-	-	Peak
250.05	37.35	-8.65	46	54.62	12.6	1.66	31.53	100	214	Peak
319.6	33.24	-12.76	46	49.2	13.5	1.83	31.29	-	-	Peak
746.6	36.94	-9.06	46	42.38	22.37	2.74	30.55	-	-	Peak
853.7	34.72	-11.28	46	38.93	23.36	2.93	30.5	-	-	Peak
2390	38.41	-15.59	54	35.89	32.02	4.58	34.08	100	266	Average
2390	56.23	-17.77	74	53.71	32.02	4.58	34.08	100	266	Peak
2437	89.25	-	-	86.66	32.06	4.61	34.08	100	266	Average
2437	99.71	-	-	97.12	32.06	4.61	34.08	100	266	Peak
2490	39.63	-14.37	54	36.97	32.1	4.64	34.08	100	266	Average
2490	55.38	-18.62	74	52.72	32.1	4.64	34.08	100	266	Peak
4874	44.17	-29.83	74	62.18	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 8	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 1916 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.35	32.69	-7.31	40	44.41	19.12	0.71	31.55	-	-	Peak
59.16	33.87	-6.13	40	58.46	6.1	0.86	31.55	-	-	Peak
125.04	37.66	-5.84	43.5	56.16	11.8	1.22	31.52	100	248	Peak
432.3	35.71	-10.29	46	48.02	16.75	2.1	31.16	-	-	Peak
746.6	36.34	-9.66	46	41.78	22.37	2.74	30.55	-	-	Peak
853.7	35.55	-10.45	46	39.76	23.36	2.93	30.5	-	-	Peak
1916	52.73	-36.61	89.34	51.58	31.12	4.19	34.16	100	314	Peak
2390	49.44	-4.56	54	46.92	32.02	4.58	34.08	100	314	Average
2390	67.76	-6.24	74	65.24	32.02	4.58	34.08	100	314	Peak
2437	98.71	-	-	96.12	32.06	4.61	34.08	100	314	Average
2437	109.34	-	-	106.75	32.06	4.61	34.08	100	314	Peak
2486	46.33	-7.67	54	43.68	32.09	4.64	34.08	100	314	Average
2486	62.61	-11.39	74	59.96	32.09	4.64	34.08	100	314	Peak
4874	49.83	-24.17	74	67.84	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 9	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal 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
58.35	22.84	-17.16	40	47.33	6.2	0.85	31.54	-	-	Peak
125.04	30.75	-12.75	43.5	49.25	11.8	1.22	31.52	-	-	Peak
250.05	37.65	-8.35	46	54.92	12.6	1.66	31.53	-	-	Peak
533.1	31.73	-14.27	46	41.91	18.51	2.3	30.99	-	-	Peak
746.6	38.76	-7.24	46	44.2	22.37	2.74	30.55	100	254	Peak
853.7	35.03	-10.97	46	39.24	23.36	2.93	30.5	-	-	Peak
2310	35.91	-18.09	54	33.52	31.95	4.53	34.09	122	268	Average
2310	43.54	-30.46	74	41.15	31.95	4.53	34.09	122	268	Peak
2462	90.47	-	-	87.86	32.07	4.62	34.08	122	268	Average
2462	101.09	-	-	98.48	32.07	4.62	34.08	122	268	Peak
2483.66	37.64	-16.36	54	34.99	32.09	4.64	34.08	122	268	Average
2483.66	63.22	-10.78	74	60.57	32.09	4.64	34.08	122	268	Peak

Test Mode :	Mode 9	Temperature :	20~22℃
Test Channel :	11	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 1948 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	34.34	-5.66	40	49.34	15.78	0.74	31.52	-	-	Peak
58.35	33.78	-6.22	40	58.27	6.2	0.85	31.54	-	-	Peak
125.04	38.2	-5.3	43.5	56.7	11.8	1.22	31.52	100	305	Peak
640.2	33.84	-12.16	46	41.47	20.6	2.56	30.79	-	-	Peak
746.6	35.92	-10.08	46	41.36	22.37	2.74	30.55	-	-	Peak
853.7	35.02	-10.98	46	39.23	23.36	2.93	30.5	-	-	Peak
1948	53.24	-37.03	90.27	51.76	31.35	4.26	34.13	100	335	Peak
2382	44.58	-9.42	54	42.08	32	4.58	34.08	100	335	Average
2382	61.68	-12.32	74	59.18	32	4.58	34.08	100	335	Peak
2462	99.47	-	-	96.86	32.07	4.62	34.08	100	335	Average
2462	110.27	-	-	107.66	32.07	4.62	34.08	100	335	Peak
2484.04	46.16	-7.84	54	43.51	32.09	4.64	34.08	100	335	Average
2484.04	70.27	-3.73	74	67.62	32.09	4.64	34.08	100	335	Peak

Test Mode :	Mode 10	Temperature :	20~22℃
Test Channel :	03	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2422 MHz is fundamental signal 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
57.81	22.39	-17.61	40	46.88	6.2	0.85	31.54	-	-	Peak
125.04	30.72	-12.78	43.5	49.22	11.8	1.22	31.52	-	-	Peak
250.05	36.62	-9.38	46	53.89	12.6	1.66	31.53	-	-	Peak
319.6	33.09	-12.91	46	49.05	13.5	1.83	31.29	-	-	Peak
746.6	37.67	-8.33	46	43.11	22.37	2.74	30.55	100	286	Peak
853.7	35.41	-10.59	46	39.62	23.36	2.93	30.5	-	-	Peak
2389.61	43.25	-10.75	54	40.73	32.02	4.58	34.08	128	262	Average
2389.61	57.96	-16.04	74	55.44	32.02	4.58	34.08	128	262	Peak
2422	85.82	-	-	83.27	32.04	4.59	34.08	128	262	Average
2422	96.79	-	-	94.24	32.04	4.59	34.08	128	262	Peak
2486	35.19	-18.81	54	32.54	32.09	4.64	34.08	128	262	Average
2486	47.14	-26.86	74	44.49	32.09	4.64	34.08	128	262	Peak

Test Mode :	Mode 10	Temperature :	20~22℃
Test Channel :	03	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	2422 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.67	33.89	-6.11	40	48.89	15.78	0.74	31.52	-	-	Peak
58.62	33.75	-6.25	40	58.34	6.1	0.86	31.55	-	-	Peak
125.04	37.56	-5.94	43.5	56.06	11.8	1.22	31.52	100	135	Peak
640.2	34.26	-11.74	46	41.89	20.6	2.56	30.79	-	-	Peak
746.6	35.9	-10.1	46	41.34	22.37	2.74	30.55	-	-	Peak
853.7	35.95	-10.05	46	40.16	23.36	2.93	30.5	-	-	Peak
2389.99	52.48	-1.52	54	49.96	32.02	4.58	34.08	100	319	Average
2389.99	68.71	-5.29	74	66.19	32.02	4.58	34.08	100	319	Peak
2422	94.27	-	-	91.72	32.04	4.59	34.08	100	319	Average
2422	105.53	-	-	102.98	32.04	4.59	34.08	100	319	Peak
2488	39.81	-14.19	54	37.15	32.1	4.64	34.08	100	319	Average
2488	51.86	-22.14	74	49.2	32.1	4.64	34.08	100	319	Peak
4844	47.21	-26.79	74	65.28	33.83	6.52	58.42	100	0	Peak

Test Mode :	Mode 11	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal 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
59.16	23.31	-16.69	40	47.9	6.1	0.86	31.55	-	-	Peak
125.04	29.96	-13.54	43.5	48.46	11.8	1.22	31.52	-	-	Peak
250.05	37.47	-8.53	46	54.74	12.6	1.66	31.53	100	319	Peak
533.1	31.76	-14.24	46	41.94	18.51	2.3	30.99	-	-	Peak
746.6	37.28	-8.72	46	42.72	22.37	2.74	30.55	-	-	Peak
853.7	35.77	-10.23	46	39.98	23.36	2.93	30.5	-	-	Peak
2390	37.1	-16.9	54	34.58	32.02	4.58	34.08	100	266	Average
2390	51.08	-22.92	74	48.56	32.02	4.58	34.08	100	266	Peak
2437	86.04	-	-	83.45	32.06	4.61	34.08	100	266	Average
2437	97.03	-	-	94.44	32.06	4.61	34.08	100	266	Peak
2486	35.72	-18.28	54	33.07	32.09	4.64	34.08	100	266	Average
2486	47.82	-26.18	74	45.17	32.09	4.64	34.08	100	266	Peak

Test Mode :	Mode 11	Temperature :	20~22℃
Test Channel :	06	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	33.2	-6.8	40	48.2	15.78	0.74	31.52	-	-	Peak
58.62	33.98	-6.02	40	58.57	6.1	0.86	31.55	-	-	Peak
125.04	38.07	-5.43	43.5	56.57	11.8	1.22	31.52	100	239	Peak
640.2	34.27	-11.73	46	41.9	20.6	2.56	30.79	-	-	Peak
746.6	36.21	-9.79	46	41.65	22.37	2.74	30.55	-	-	Peak
853.7	35.72	-10.28	46	39.93	23.36	2.93	30.5	-	-	Peak
2390	46.59	-7.41	54	44.07	32.02	4.58	34.08	100	313	Average
2390	60.8	-13.2	74	58.28	32.02	4.58	34.08	100	313	Peak
2437	94.64	-	-	92.05	32.06	4.61	34.08	100	313	Average
2437	106.1	-	-	103.51	32.06	4.61	34.08	100	313	Peak
2484	41.58	-12.42	54	38.93	32.09	4.64	34.08	100	313	Average
2484	55.56	-18.44	74	52.91	32.09	4.64	34.08	100	313	Peak
4874	46.55	-27.45	74	64.56	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 12	Temperature :	20~22℃
Test Channel :	09	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2452 MHz is fundamental signal 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	22.64	-17.36	40	33.7	19.8	0.7	31.56	-	-	Peak
125.04	30.12	-13.38	43.5	48.62	11.8	1.22	31.52	-	-	Peak
250.05	37.75	-8.25	46	55.02	12.6	1.66	31.53	100	105	Peak
533.1	31.64	-14.36	46	41.82	18.51	2.3	30.99	-	-	Peak
746.6	37.03	-8.97	46	42.47	22.37	2.74	30.55	-	-	Peak
853.7	36.06	-9.94	46	40.27	23.36	2.93	30.5	-	-	Peak
2348	37.84	-16.16	54	35.4	31.98	4.55	34.09	100	264	Average
2348	48.54	-25.46	74	46.1	31.98	4.55	34.09	100	264	Peak
2452	86.55	-	-	83.96	32.06	4.61	34.08	100	264	Average
2452	97.67	-	-	95.08	32.06	4.61	34.08	100	264	Peak
2484.99	39.37	-14.63	54	36.72	32.09	4.64	34.08	100	264	Average
2484.99	58.12	-15.88	74	55.47	32.09	4.64	34.08	100	264	Peak

Test Mode :	Mode 12	Temperature :	20~22℃
Test Channel :	09	Relative Humidity :	52~54%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	2452 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	33.59	-6.41	40	48.59	15.78	0.74	31.52	100	248	Peak
58.89	30.67	-9.33	40	55.26	6.1	0.86	31.55	-	-	Peak
125.04	35.18	-8.32	43.5	53.68	11.8	1.22	31.52	-	-	Peak
500.2	30.15	-15.85	46	40.9	18.1	2.23	31.08	-	-	Peak
640.2	34.09	-11.91	46	41.72	20.6	2.56	30.79	-	-	Peak
746.6	31.01	-14.99	46	36.45	22.37	2.74	30.55	-	-	Peak
2390	44.11	-9.89	54	41.59	32.02	4.58	34.08	100	313	Average
2390	58.27	-15.73	74	55.75	32.02	4.58	34.08	100	313	Peak
2452	94.92	-	-	92.33	32.06	4.61	34.08	100	313	Average
2452	106.25	-	-	103.66	32.06	4.61	34.08	100	313	Peak
2484.8	48.81	-5.19	54	46.16	32.09	4.64	34.08	100	313	Average
2484.8	69.24	-4.76	74	66.59	32.09	4.64	34.08	100	313	Peak

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 with Reverse-SMA type RF 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	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Dec. 14, 2011~ Jan. 02, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Dec. 14, 2011~ Jan. 02, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Dec. 14, 2011~ Jan. 02, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Dec. 14, 2011~ Jan. 02, 2012	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Dec. 14, 2011~ Jan. 02, 2012	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Jan. 10, 2012	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz~30MHz	Dec. 09, 2011	Jan. 10, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz~30MHz	Dec. 06, 2011	Jan. 10, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jan. 10, 2012	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz~30GHz	Nov. 03, 2011	Dec. 19, 2011	Nov. 02, 2012	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1GHz~18GHz	N/A	Dec. 19, 2011	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz~1GHz	Oct. 22, 2011	Dec. 19, 2011	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	Dec. 19, 2011	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m~4 m	N/A	Dec. 19, 2011	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 04, 2011	Dec. 19, 2011	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	1KHz~1GHz	Mar. 29, 2011	Dec. 19, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz~18GHz	Jul. 19, 2011	Dec. 19, 2011	Jul. 18, 2012	Radiation (03CH05-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1GHz~18GHz	Feb. 21, 2011	Dec. 19, 2011	Feb. 20, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Apr. 14, 2011	Dec. 19, 2011	Apr. 13, 2012	Radiation (03CH05-HY)

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 Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(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 Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(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 Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**				

Appendix A. Photographs of EUT

Please refer to Sporton report number EP191549 as below.