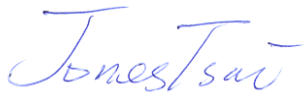
FCC RF Test Report

APPLICANT	:	LG Electronics Inc.
EQUIPMENT	:	Tablet
BRAND NAME	:	LG Electronics Inc.
MODEL NAME	:	LG-V490
FCC ID	:	ZNFV490
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on May 17, 2014 and testing was completed on Jun. 26, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in 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: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR451713C	Rev. 01	Initial issue of report	Jul. 11, 2014
FR451713C	Rev. 02	Revising the Maximum (Peak) Output Power to Antenna of 802.11g 0.6900 W to 0.0690 W in section 1.4 Product Specification subjective to this standard	Jul. 18, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-210 A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 8.10 dB at 2483.500 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 13.40 dB at 2.390 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

LG Electronics Inc.
60-39, Kasan-dong, Keumchun-ku, Seoul Korea Zip code: 153-023

1.2 Manufacturer

LG ELECTRONICS MOBILECOMM U.S.A., INC
100 SYLVAN AVENUE ENGEWOOD CLIFFS, NEW JERSEY, 07632, U.S.A.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Tablet
Brand Name	LG Electronics Inc.
Model Name	LG-V490
FCC ID	ZNFV490
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE WLAN 11a/b/g/n HT20/HT40 Bluetooth v4.0 EDR/LE
HW Version	Rev.A
SW Version	V107a-Op1-HQ
EUT Stage	Identical Prototype

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 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n: 5745~5825MHz.
Maximum (Peak) Output Power to Antenna	**<2412 MHz ~ 2462 MHz>** 802.11b : 15.25 dBm (0.0335 W) 802.11g : 18.39 dBm (0.0690 W) 802.11n HT20 : 16.47 dBm (0.4440 W) **<5745 MHz ~ 5825 MHz>** 802.11a : 18.76 dBm (0.0752 W) 802.11n HT20 : 17.73 dBm (0.0593 W) 802.11n HT40 : 18.39 dBm (0.0690 W)
Antenna Type	802.11b/g/n : PIFA Antenna type with gain 1.71 dBi 802.11a/n : PIFA Antenna type with gain -0.12 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

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: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	**Sporton Site No.**		
	TH02-HY	CO05-HY	03CH07-HY

1.7 Applicable 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 D01 DTS Meas. Guidance v03r02
- ANSI C63.4-2003

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.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals 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) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	159	5795
	151	5755	161	5805
	153	5765	165	5825
	157	5785	-	-

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and data rate associated with the highest power were chosen for full test shown in the following tables.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	15.25	15.23	15.19	15.12

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	18.39	18.27	18.34	18.35	18.28	18.31	18.33	18.34

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	16.47	16.31	16.34	16.40	16.29	16.22	16.19	16.15

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	18.76	18.70	18.69	18.70	18.67	18.61	18.65	18.58

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	17.73	17.65	17.61	17.64	17.62	17.70	17.65	17.61

5GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	18.39	18.20	18.23	18.11	18.12	18.05	18.00	18.22

2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

<2.4GHz>

Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB BW Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
	Conducted Band Edge	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
	Conducted Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
Radiated TCs	**Radiated Band Edge**	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
	Radiated Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**

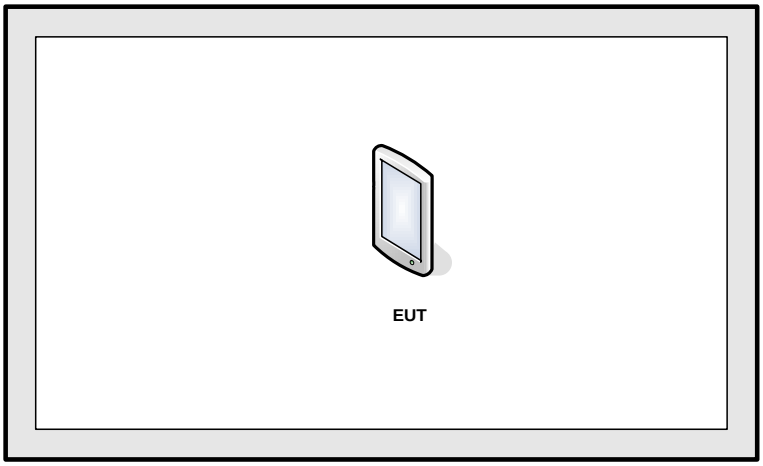
<5GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB BW Power Spectral Density	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
	Output Power	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
	Conducted Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	MCS0	149/165
		802.11n HT40	MCS0	151/159
	Conducted Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159
Radiated TCs	Radiated Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11n HT40	MCS0	151/159

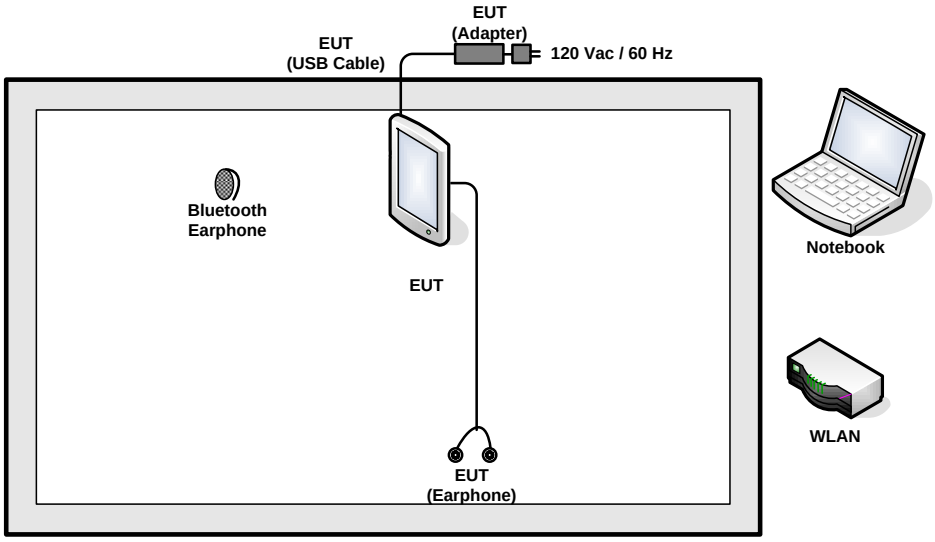
Test Cases	
AC Conducted Emission	Mode 1 : WLAN (2.4GHz) Link + Bluetooth Link + USB Cable (Charging from Adapter)

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2.6 EUT Operation Test Setup

For WLAN RF test items, an engineering test program (SW: V107a-Op1-HQ) was provided and enabled to make EUT continuous transmit/receive.

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

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.

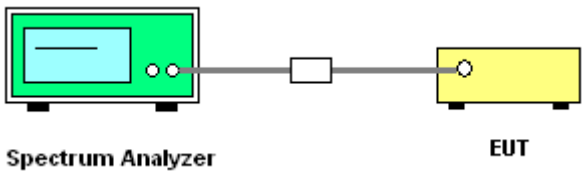
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.1.4 Test Setup



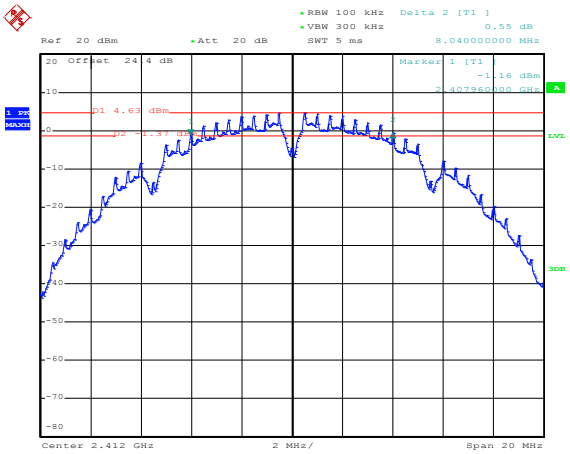
3.1.5 Test Result of 6dB Occupied Bandwidth

Test Band :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	8.04	0.5	Pass
11b	1Mbps	1	6	2437	8.08	0.5	Pass
11b	1Mbps	1	11	2462	9.00	0.5	Pass
11g	6Mbps	1	1	2412	16.28	0.5	Pass
11g	6Mbps	1	6	2437	16.08	0.5	Pass
11g	6Mbps	1	11	2462	16.04	0.5	Pass
HT20	MCS0	1	1	2412	17.04	0.5	Pass
HT20	MCS0	1	6	2437	16.36	0.5	Pass
HT20	MCS0	1	11	2462	17.30	0.5	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11a	6Mbps	1	149	5745	16.36	0.5	Pass
11a	6Mbps	1	157	5785	16.36	0.5	Pass
11a	6Mbps	1	165	5825	16.32	0.5	Pass
HT20	MCS0	1	149	5745	17.60	0.5	Pass
HT20	MCS0	1	157	5785	17.56	0.5	Pass
HT20	MCS0	1	165	5825	17.60	0.5	Pass
HT40	MCS0	1	151	5755	35.68	0.5	Pass
HT40	MCS0	1	159	5795	35.36	0.5	Pass

Minimum 6dB Bandwidth



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

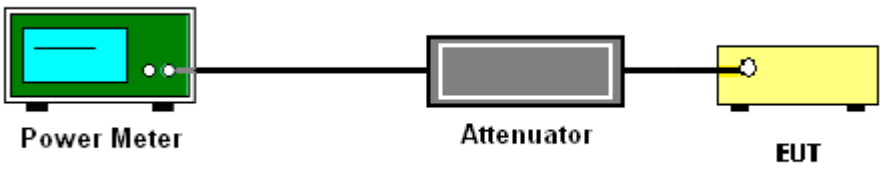
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r02.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	15.24	30	1.71	Pass
11b	1Mbps	1	6	2437	15.25	30	1.71	Pass
11b	1Mbps	1	11	2462	14.95	30	1.71	Pass
11g	6Mbps	1	1	2412	18.17	30	1.71	Pass
11g	6Mbps	1	6	2437	18.35	30	1.71	Pass
11g	6Mbps	1	11	2462	18.39	30	1.71	Pass
HT20	MCS0	1	1	2412	16.26	30	1.71	Pass
HT20	MCS0	1	6	2437	16.33	30	1.71	Pass
HT20	MCS0	1	11	2462	16.47	30	1.71	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	18.71	30	-1.13	Pass
11a	6Mbps	1	157	5785	18.76	30	-1.13	Pass
11a	6Mbps	1	165	5825	18.41	30	-1.13	Pass
HT20	MCS0	1	149	5745	17.41	30	-1.13	Pass
HT20	MCS0	1	157	5785	17.73	30	-1.13	Pass
HT20	MCS0	1	165	5825	17.17	30	-1.13	Pass
HT40	MCS0	1	151	5755	18.39	30	-1.13	Pass
HT40	MCS0	1	159	5795	18.15	30	-1.13	Pass

Note: Measured power (dBm) has offset with cable loss.

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	0.04	12.36	30	1.71	Pass
11b	1Mbps	1	6	2437	0.04	12.41	30	1.71	Pass
11b	1Mbps	1	11	2462	0.04	12.19	30	1.71	Pass
11g	6Mbps	1	1	2412	0.20	8.43	30	1.71	Pass
11g	6Mbps	1	6	2437	0.20	8.61	30	1.71	Pass
11g	6Mbps	1	11	2462	0.20	8.71	30	1.71	Pass
HT20	MCS0	1	1	2412	0.23	6.44	30	1.71	Pass
HT20	MCS0	1	6	2437	0.23	6.69	30	1.71	Pass
HT20	MCS0	1	11	2462	0.23	6.82	30	1.71	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	0.20	8.81	30	-1.13	Pass
11a	6Mbps	1	157	5785	0.20	8.99	30	-1.13	Pass
11a	6Mbps	1	165	5825	0.20	8.75	30	-1.13	Pass
HT20	MCS0	1	149	5745	0.20	7.90	30	-1.13	Pass
HT20	MCS0	1	157	5785	0.20	7.99	30	-1.13	Pass
HT20	MCS0	1	165	5825	0.20	7.73	30	-1.13	Pass
HT40	MCS0	1	151	5755	0.43	9.24	30	-1.13	Pass
HT40	MCS0	1	159	5795	0.43	9.23	30	-1.13	Pass

Note: Measured power (dBm) has offset with cable loss and duty factor.

3.3 Power Spectral Density Measurement

3.3.1 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.

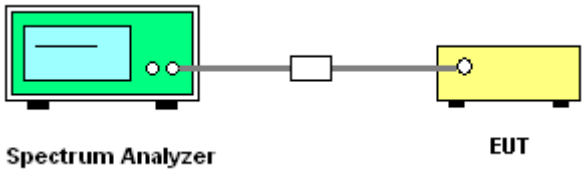
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

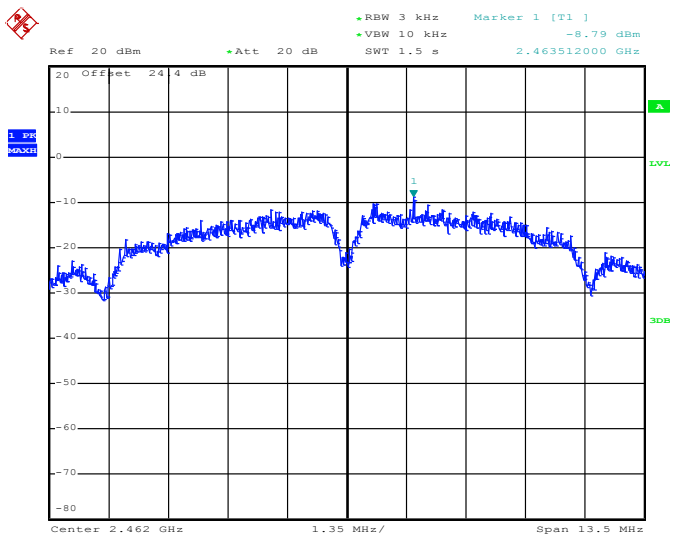
Test Mode :	2.4GHz + 5GHz band 4	Temperature :	21~26℃
Test Engineer :	Bill Kuo	Relative Humidity :	45~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	-9.45	8	1.71	Pass
11b	1Mbps	1	6	2437	-10.02	8	1.71	Pass
11b	1Mbps	1	11	2462	-8.79	8	1.71	Pass
11g	6Mbps	1	1	2412	-15.32	8	1.71	Pass
11g	6Mbps	1	6	2437	-16.57	8	1.71	Pass
11g	6Mbps	1	11	2462	-15.83	8	1.71	Pass
HT20	MCS0	1	1	2412	-18.49	8	1.71	Pass
HT20	MCS0	1	6	2437	-17.98	8	1.71	Pass
HT20	MCS0	1	11	2462	-16.71	8	1.71	Pass

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	-15.72	8	-1.13	Pass
11a	6Mbps	1	157	5785	-14.76	8	-1.13	Pass
11a	6Mbps	1	165	5825	-15.34	8	-1.13	Pass
HT20	MCS0	1	149	5745	-14.90	8	-1.13	Pass
HT20	MCS0	1	157	5785	-14.08	8	-1.13	Pass
HT20	MCS0	1	165	5825	-14.46	8	-1.13	Pass
HT40	MCS0	1	151	5755	-14.36	8	-1.13	Pass
HT40	MCS0	1	159	5795	-15.60	8	-1.13	Pass

Note: Measured power density (dBm) has offset with cable loss.

Worst Case Power Density (dBm/3kHz)



Date: 4.JUN.2014 23:00:58

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

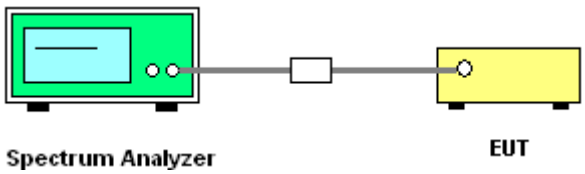
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

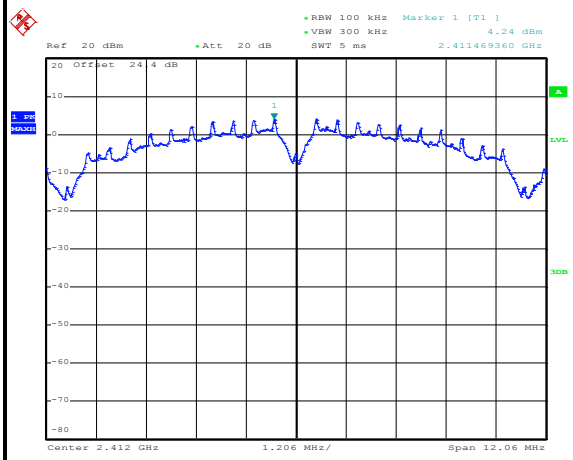


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	21~26℃
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Bill Kuo

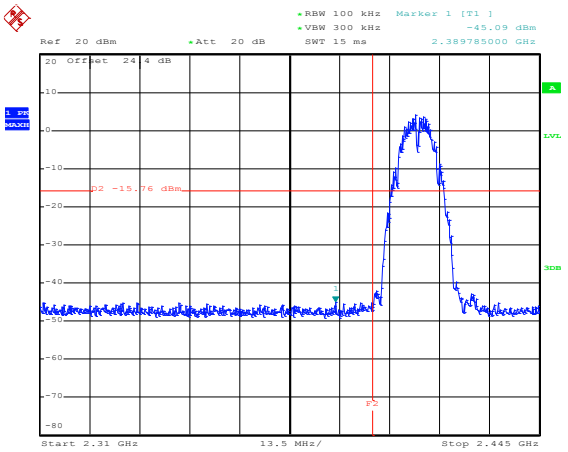
WLAN 802.11b Channel 01

100kHz PSD reference Level



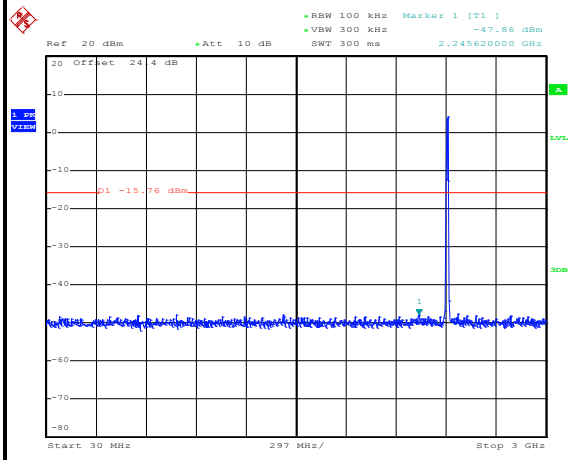
Date: 4.JUN.2014 22:39:06

Low Channel Plot



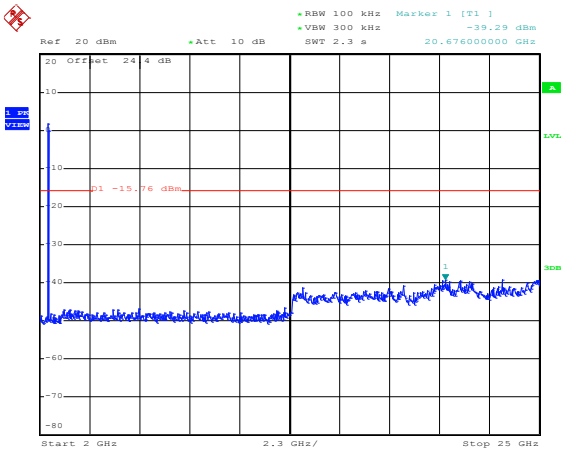
Date: 4.JUN.2014 22:39:19

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 22:39:39

Spurious Emission 2GHz~25GHz

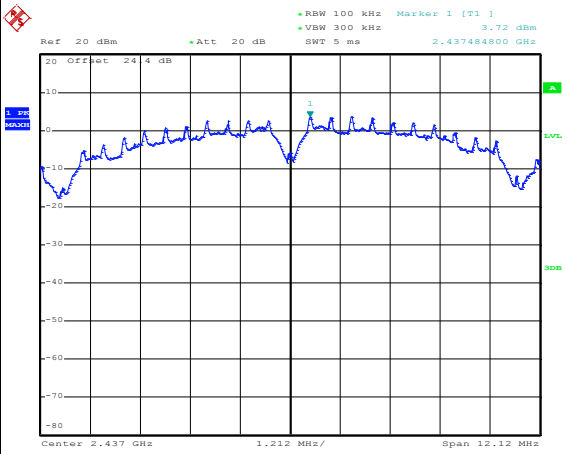


Date: 4.JUN.2014 22:39:57

Test Mode :	802.11b	**Temperature :**	21~26℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	45~54%
Test Channel :	06	**Test Engineer :**	Bill Kuo

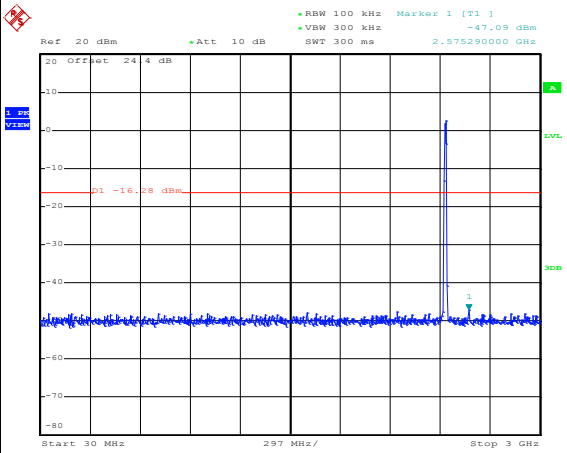
WLAN 802.11b Channel 06

100kHz PSD reference Level



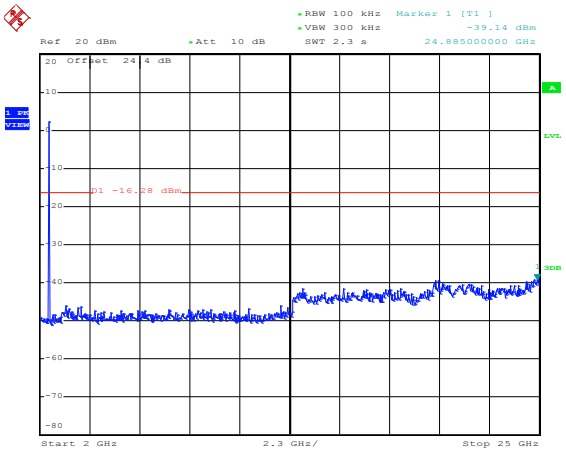
Date: 4.JUN.2014 22:42:28

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 22:42:48

Spurious Emission 2GHz~25GHz

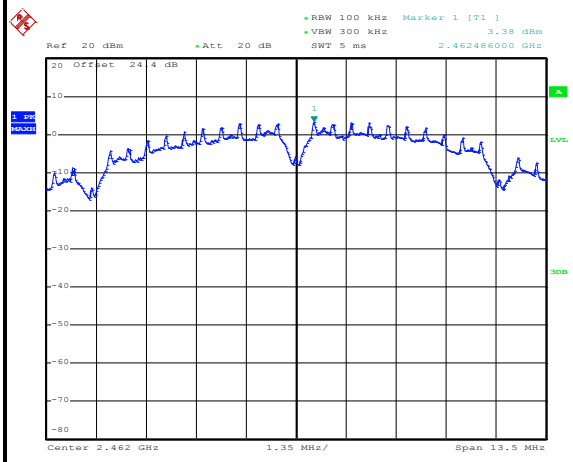


Date: 4.JUN.2014 22:43:07

Test Mode :	802.11b	Temperature :	21~26℃
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Bill Kuo

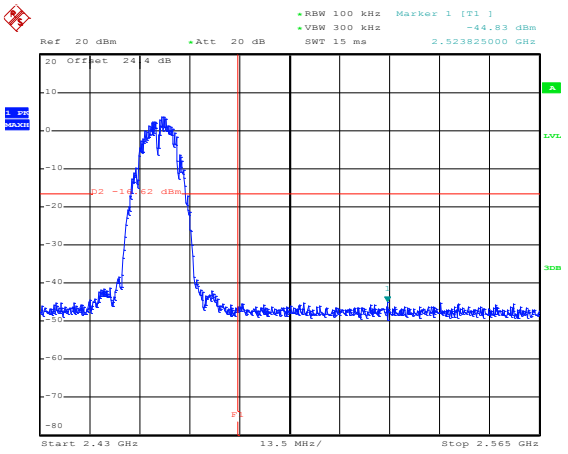
WLAN 802.11b Channel 11

100kHz PSD reference Level



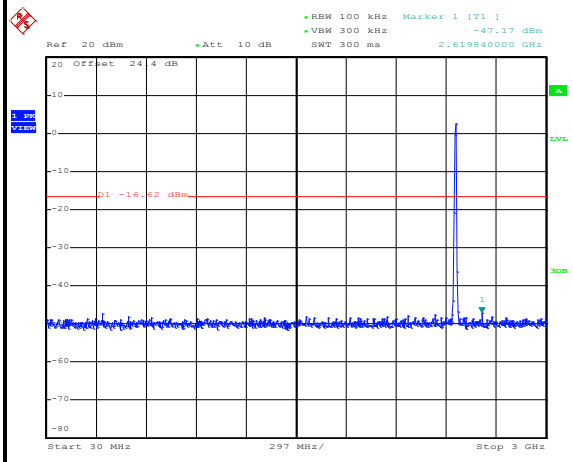
Date: 4.JUN.2014 23:01:07

High Channel Plot



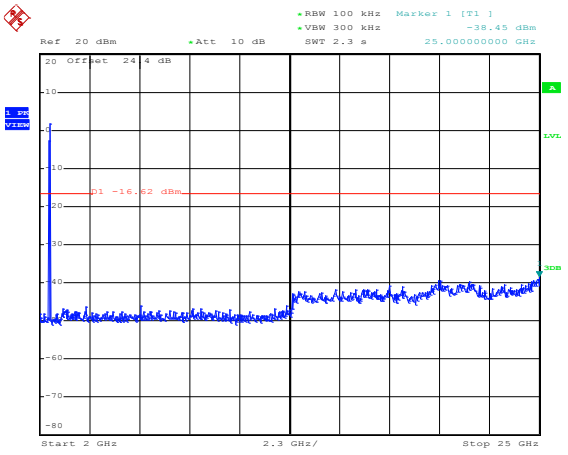
Date: 4.JUN.2014 23:01:21

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:01:40

Spurious Emission 2GHz~25GHz

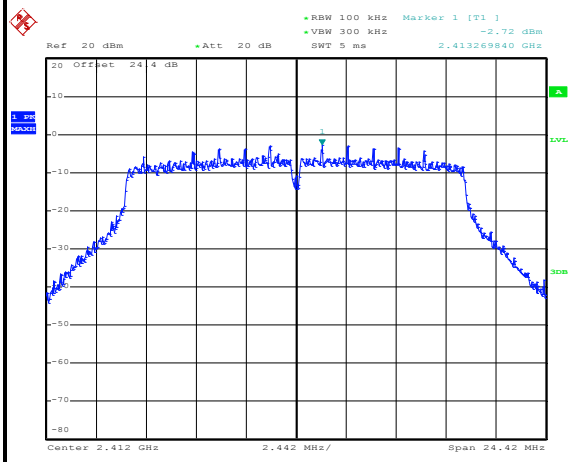


Date: 4.JUN.2014 23:01:59

Test Mode :	802.11g	Temperature :	21~26℃
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Bill Kuo

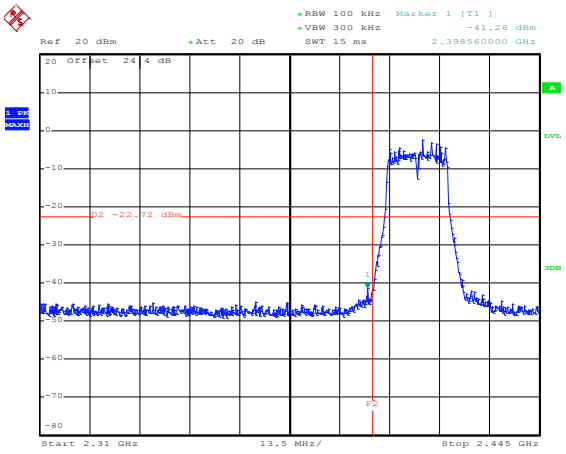
WLAN 802.11g Channel 01

100kHz PSD reference Level



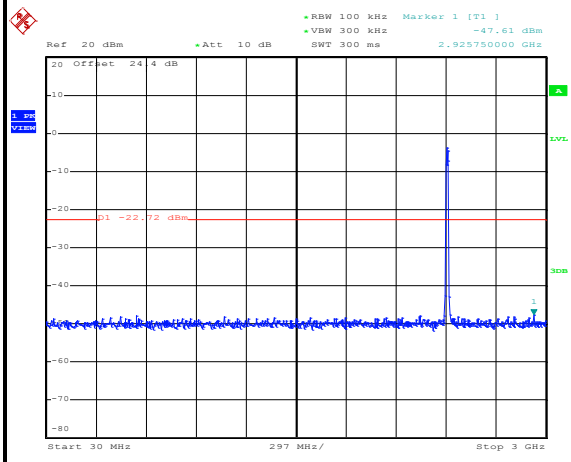
Date: 4.JUN.2014 23:11:56

Low Channel Plot



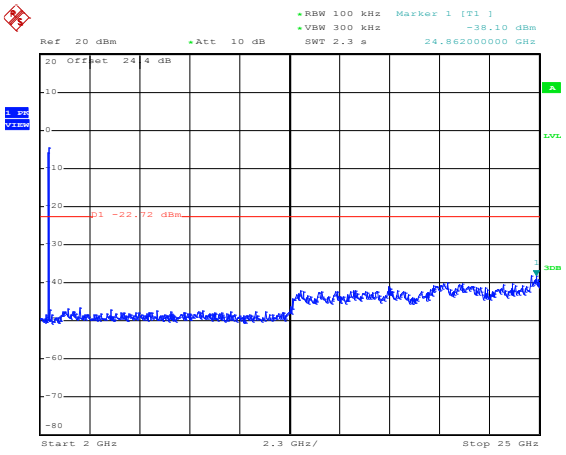
Date: 4.JUN.2014 23:12:10

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:12:29

Spurious Emission 2GHz~25GHz

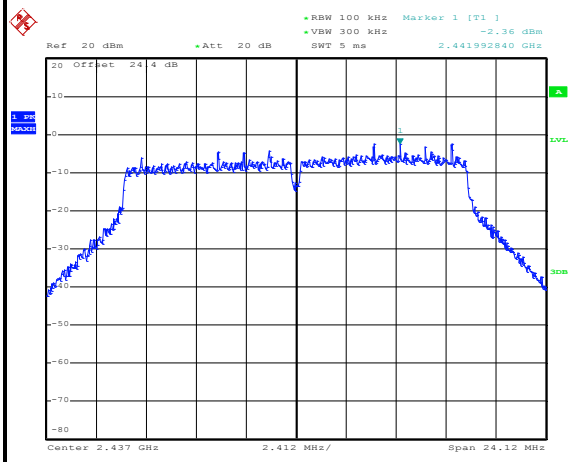


Date: 4.JUN.2014 23:12:47

Test Mode :	802.11g	Temperature :	21~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Bill Kuo

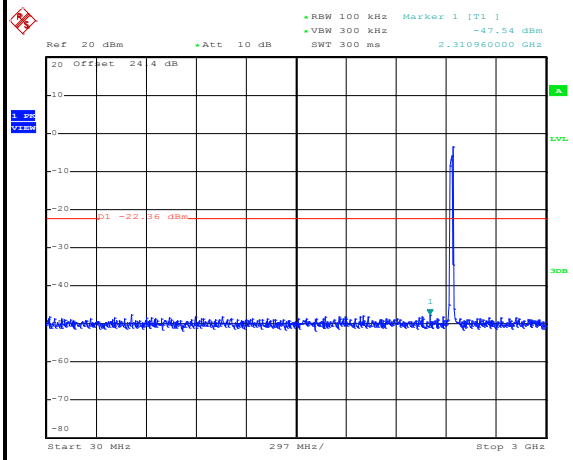
WLAN 802.11g Channel 06

100kHz PSD reference Level



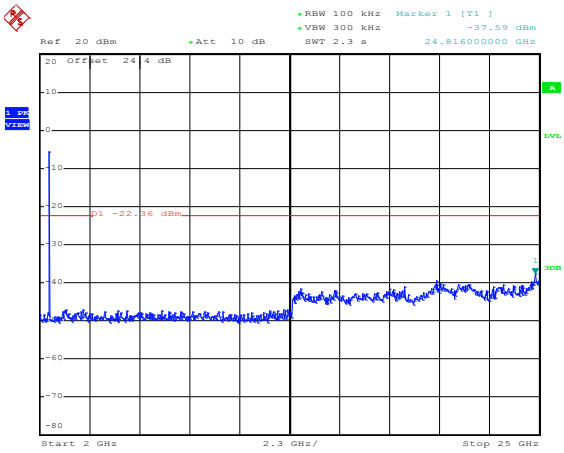
Date: 4.JUN.2014 23:08:33

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:08:53

Spurious Emission 2GHz~25GHz

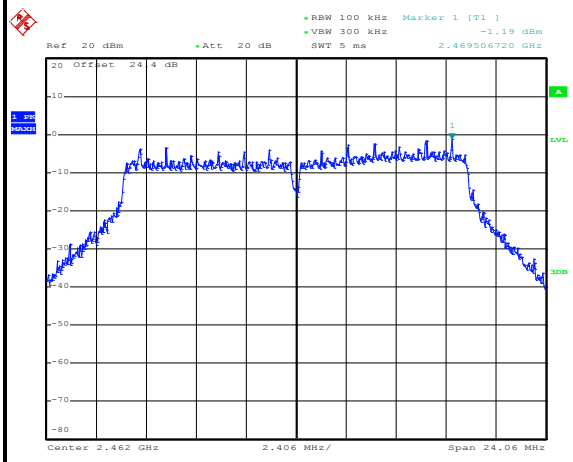


Date: 4.JUN.2014 23:09:11

Test Mode :	802.11g	**Temperature :**	21~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	45~54%
Test Channel :	11	**Test Engineer :**	Bill Kuo

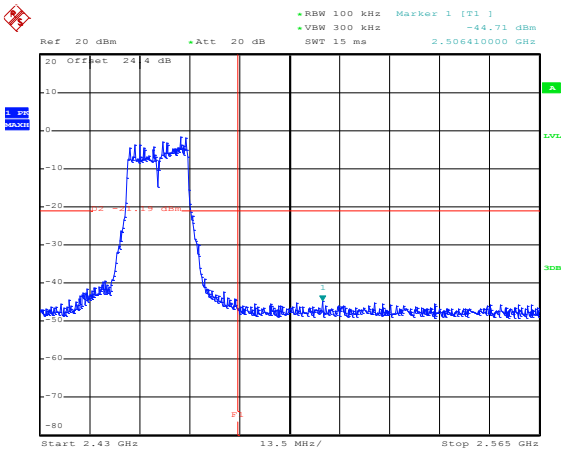
WLAN 802.11g Channel 11

100kHz PSD reference Level



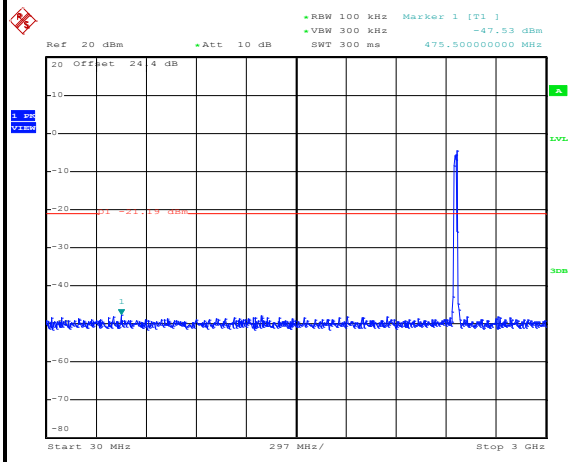
Date: 4.JUN.2014 23:04:57

High Channel Plot



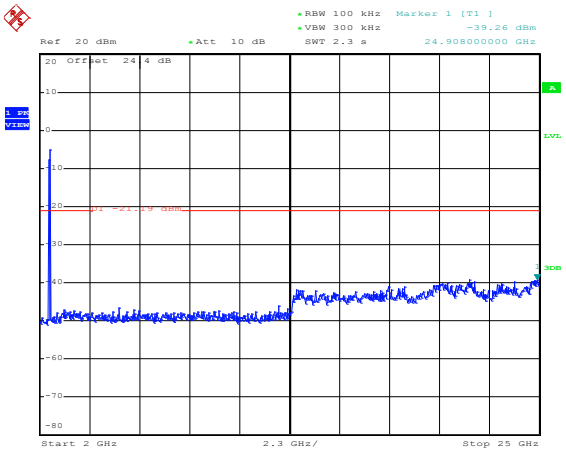
Date: 4.JUN.2014 23:05:11

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:05:31

Spurious Emission 2GHz~25GHz

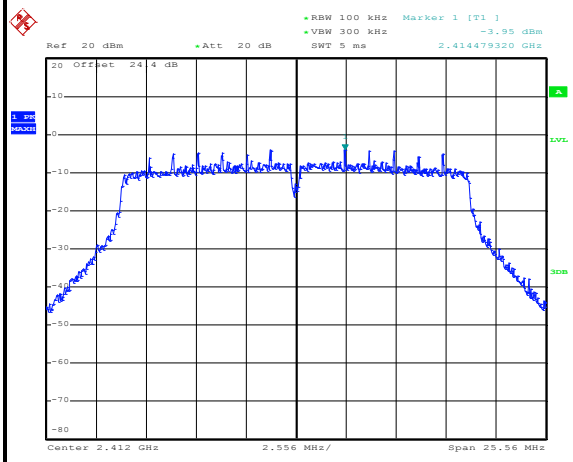


Date: 4.JUN.2014 23:05:49

Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Bill Kuo

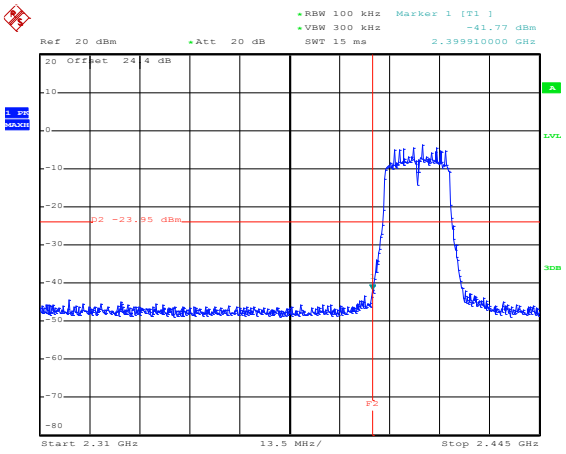
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



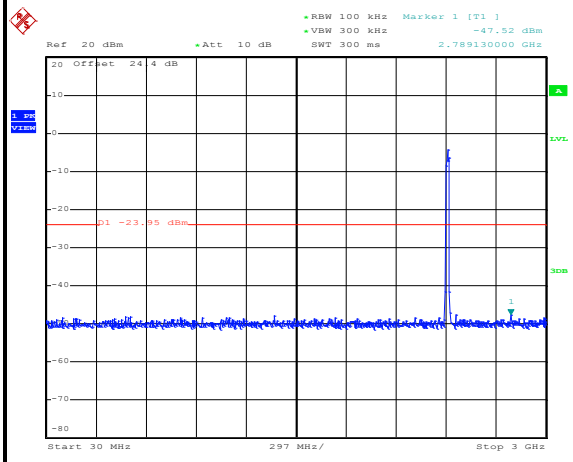
Date: 4.JUN.2014 23:16:52

Low Channel Plot



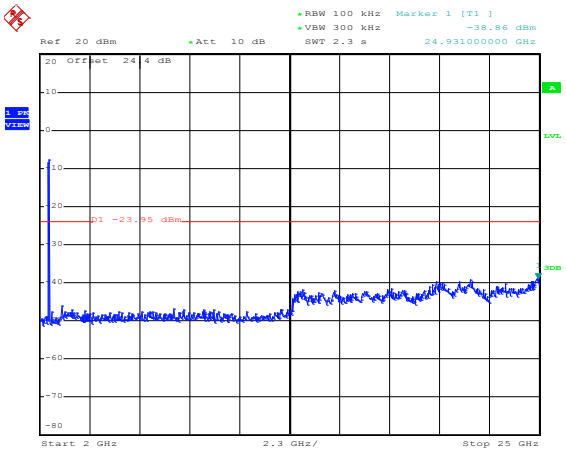
Date: 4.JUN.2014 23:17:06

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:17:25

Spurious Emission 2GHz~25GHz

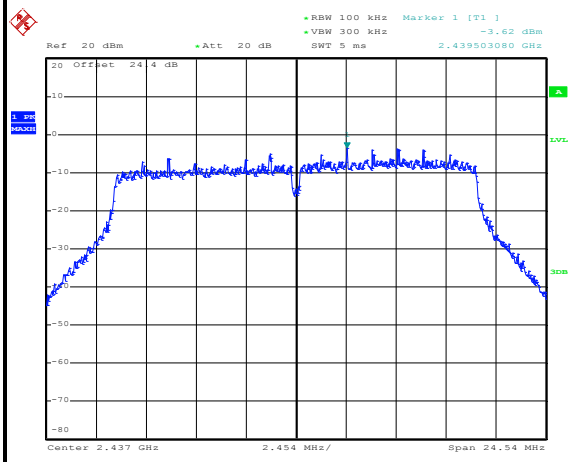


Date: 4.JUN.2014 23:17:44

Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Bill Kuo

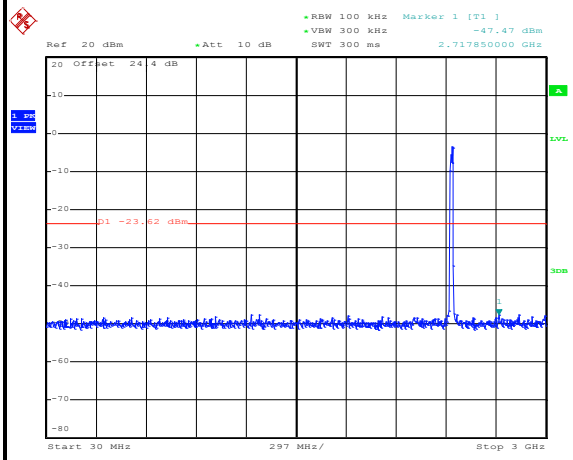
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



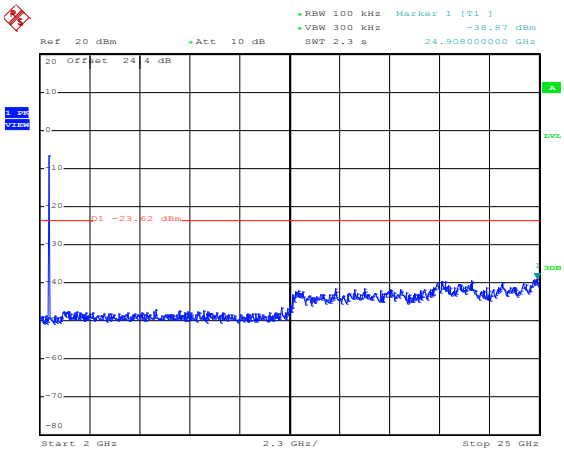
Date: 4.JUN.2014 23:19:51

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:20:10

Spurious Emission 2GHz~25GHz

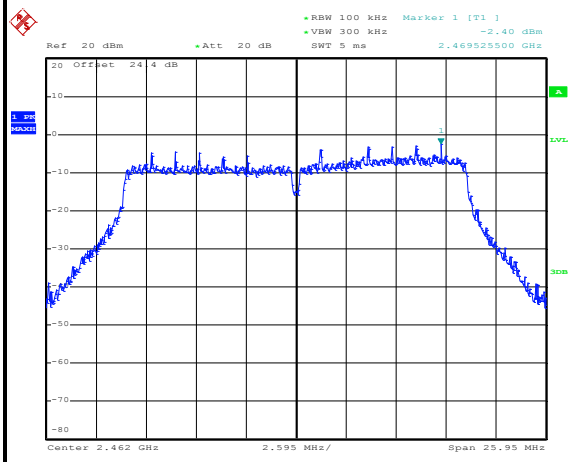


Date: 4.JUN.2014 23:20:29

Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Bill Kuo

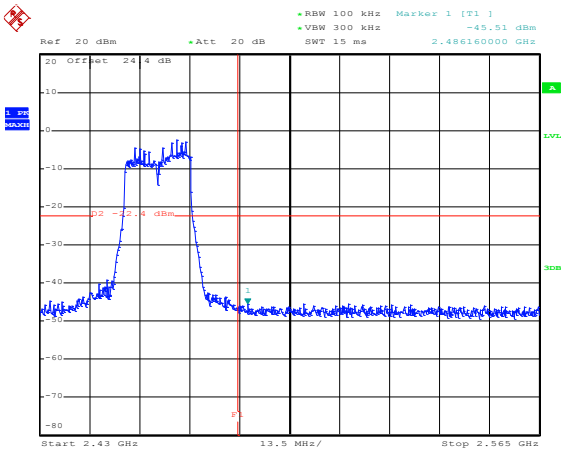
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



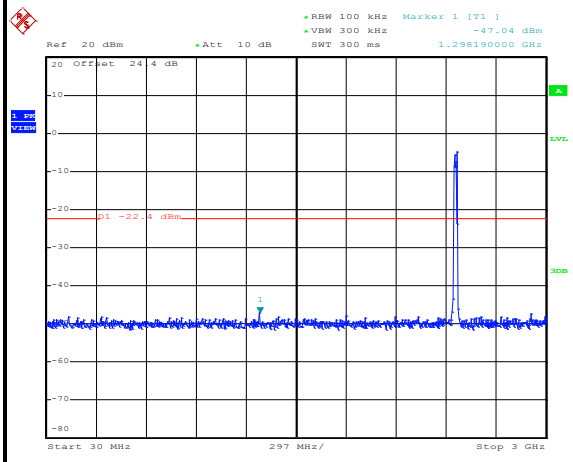
Date: 4.JUN.2014 23:22:59

High Channel Plot



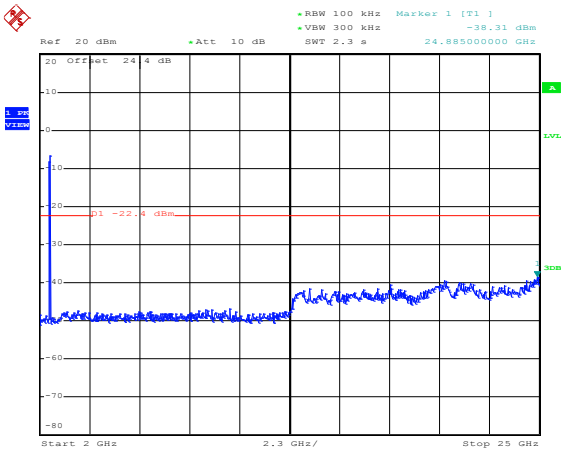
Date: 4.JUN.2014 23:24:17

Spurious Emission 30MHz~3GHz



Date: 4.JUN.2014 23:23:32

Spurious Emission 2GHz~25GHz

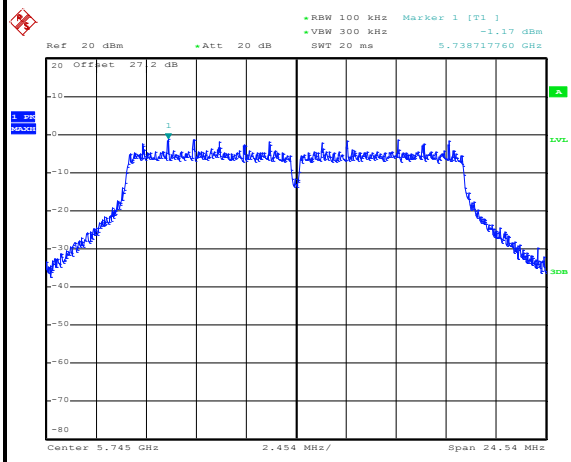


Date: 4.JUN.2014 23:23:51

Test Mode :	802.11a	Temperature :	21~26℃
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Bill Kuo

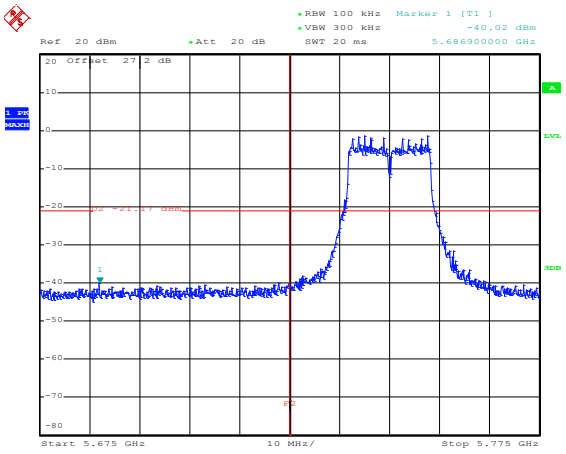
WLAN 802.11a Channel 149

100kHz PSD reference Level



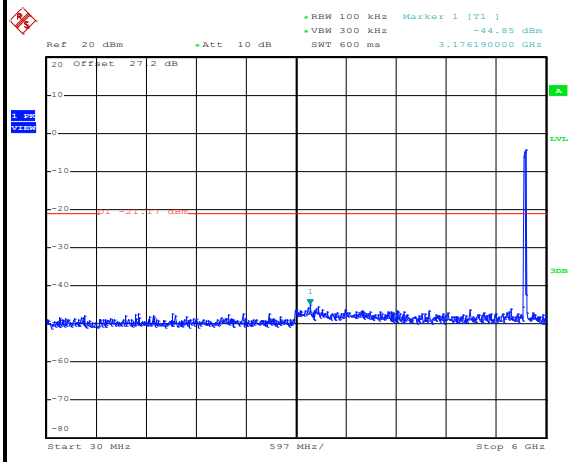
Date: 4.JUN.2014 23:27:06

Low Channel Plot



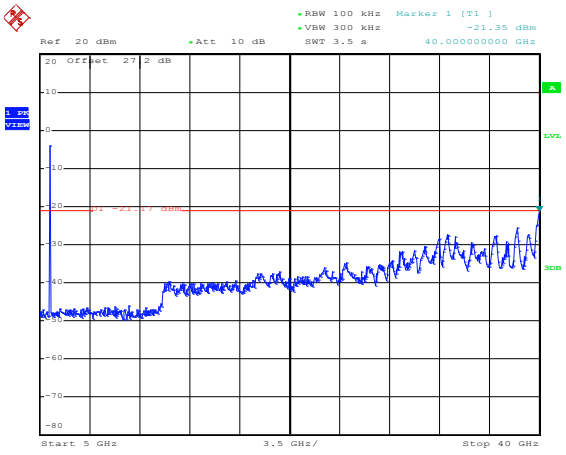
Date: 4.JUN.2014 23:27:19

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:28:43

Spurious Emission 5GHz~40GHz

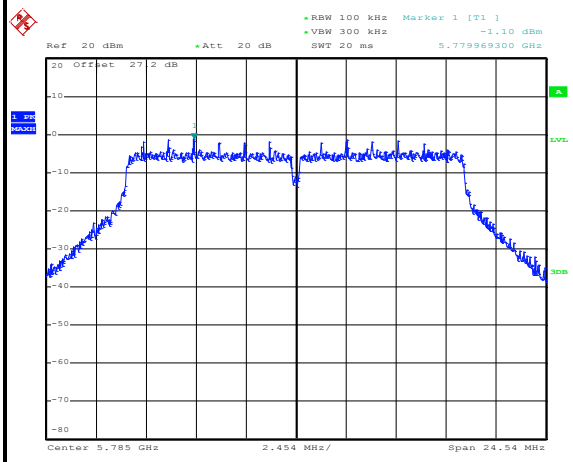


Date: 4.JUN.2014 23:29:01

Test Mode :	802.11a	**Temperature :**	21~26℃
Test Band :	5GHz Mid	**Relative Humidity :**	45~54%
Test Channel :	157	**Test Engineer :**	Bill Kuo

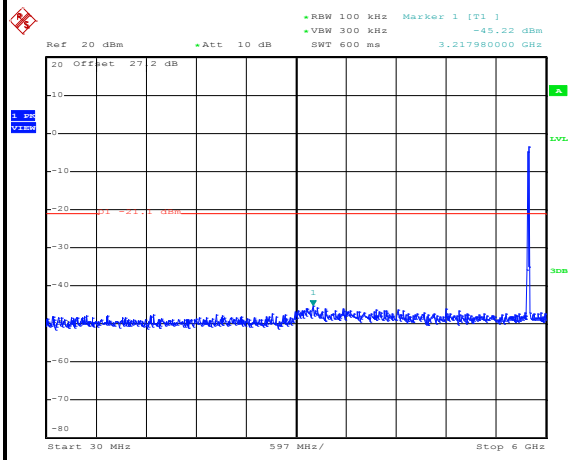
WLAN 802.11a Channel 157

100kHz PSD reference Level



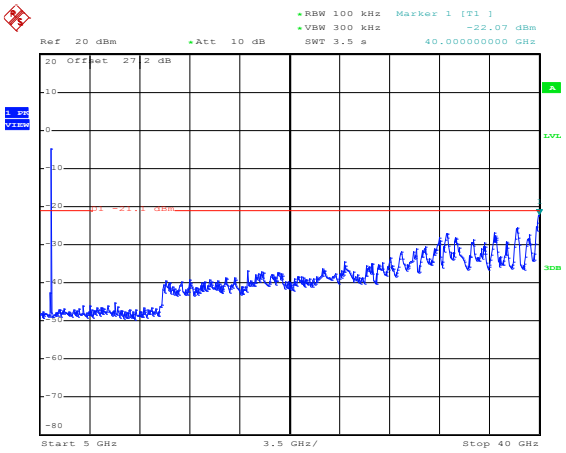
Date: 4.JUN.2014 23:31:27

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:31:47

Spurious Emission 5GHz~40GHz

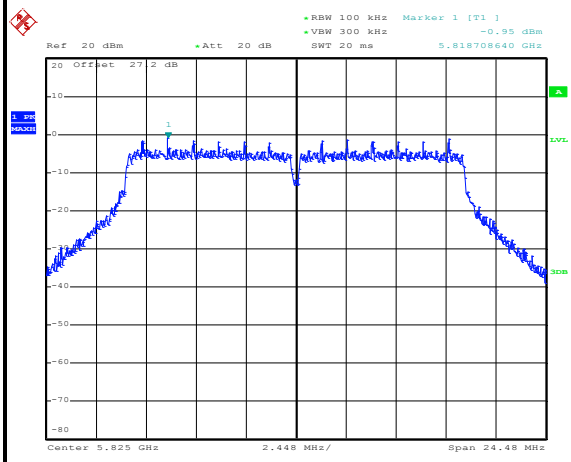


Date: 4.JUN.2014 23:32:06

Test Mode :	802.11a	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	165	**Test Engineer :**	Bill Kuo

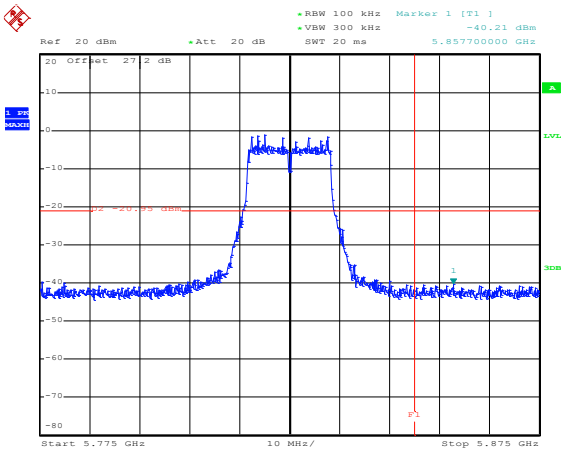
WLAN 802.11a Channel 165

100kHz PSD reference Level



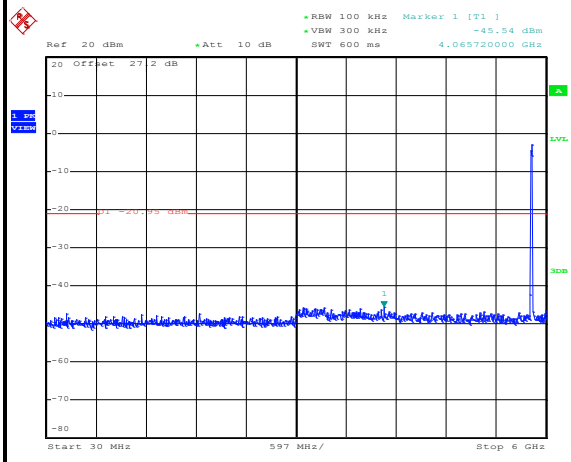
Date: 4.JUN.2014 23:39:25

High Channel Plot



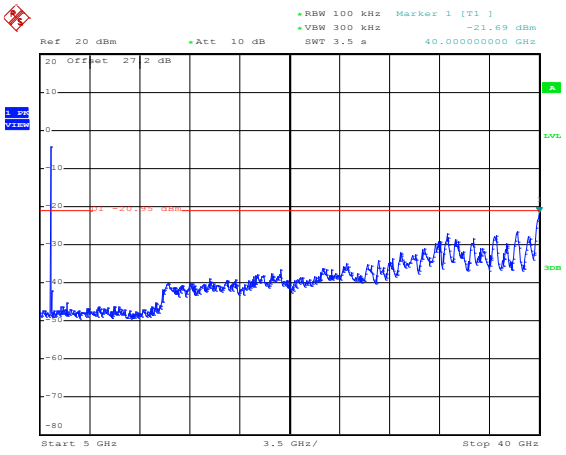
Date: 4.JUN.2014 23:39:39

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:39:58

Spurious Emission 5GHz~40GHz

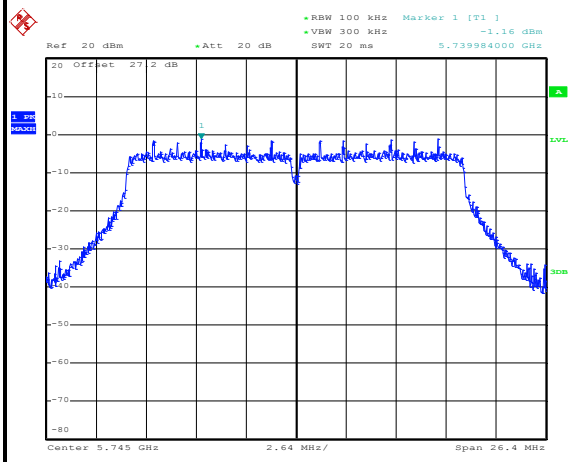


Date: 4.JUN.2014 23:40:17

Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	149	Test Engineer :	Bill Kuo

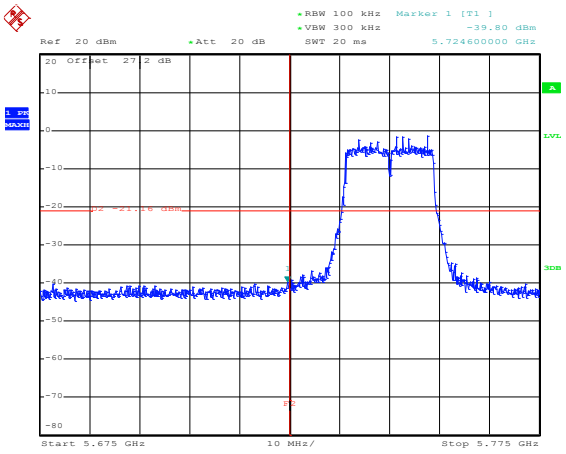
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



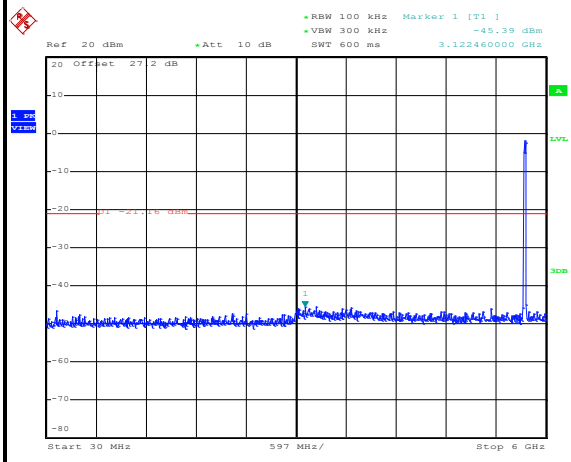
Date: 4.JUN.2014 23:49:52

Low Channel Plot



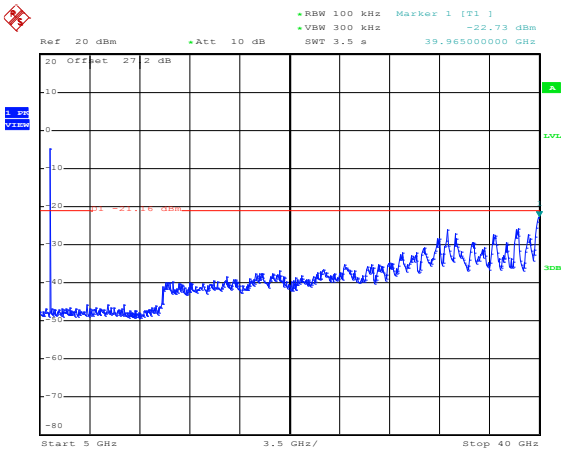
Date: 4.JUN.2014 23:51:23

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:50:25

Spurious Emission 5GHz~40GHz

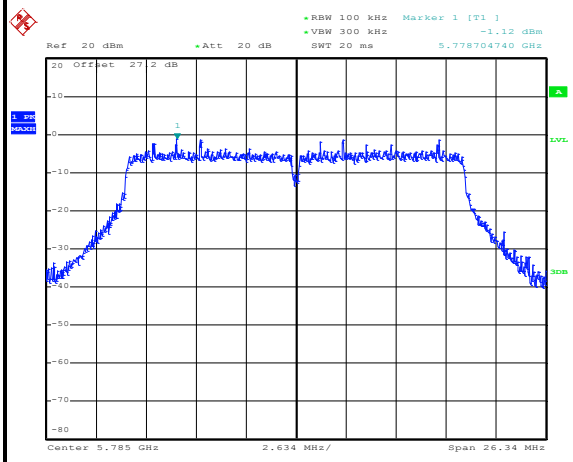


Date: 4.JUN.2014 23:50:43

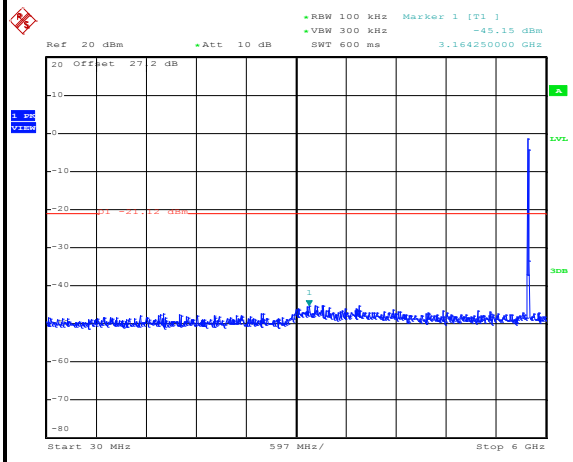
Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	5GHz Mid	Relative Humidity :	45~54%
Test Channel :	157	Test Engineer :	Bill Kuo

WLAN 802.11n HT20 Channel 157

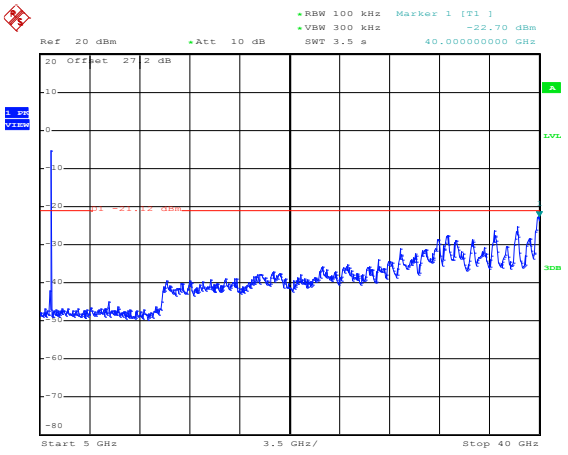
100kHz PSD reference Level



Spurious Emission 30MHz~6GHz



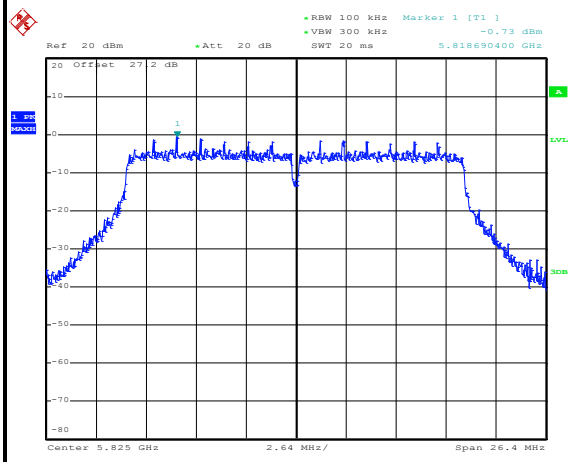
Spurious Emission 5GHz~40GHz



Test Mode :	802.11n HT20	Temperature :	21~26℃
Test Band :	5GHz High	Relative Humidity :	45~54%
Test Channel :	165	Test Engineer :	Bill Kuo

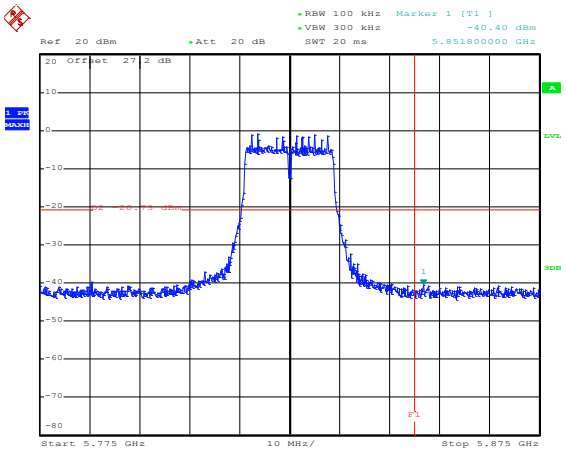
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



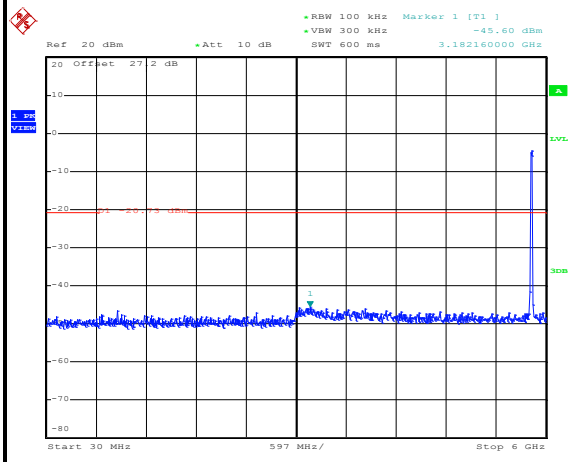
Date: 4.JUN.2014 23:43:37

High Channel Plot



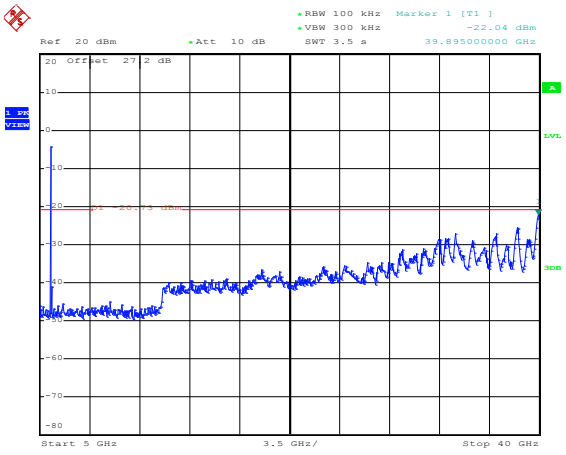
Date: 4.JUN.2014 23:43:51

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:44:11

Spurious Emission 5GHz~40GHz

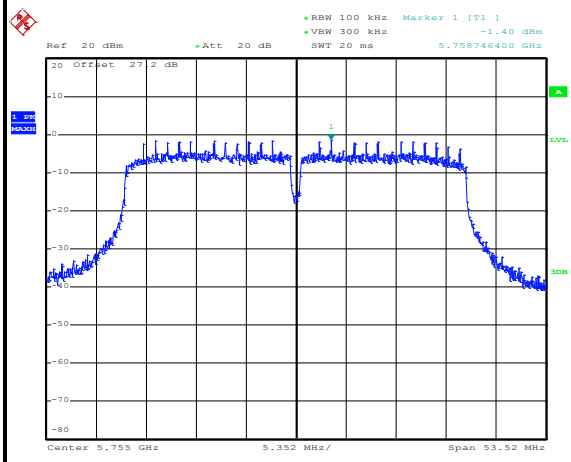


Date: 4.JUN.2014 23:44:29

Test Mode :	802.11n HT40	Temperature :	21~26℃
Test Band :	5GHz Low	Relative Humidity :	45~54%
Test Channel :	151	Test Engineer :	Bill Kuo

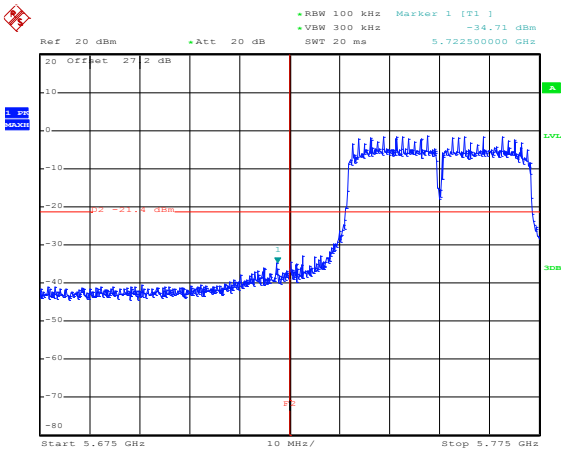
WLAN 802.11n HT40 Channel 151

100kHz PSD reference Level



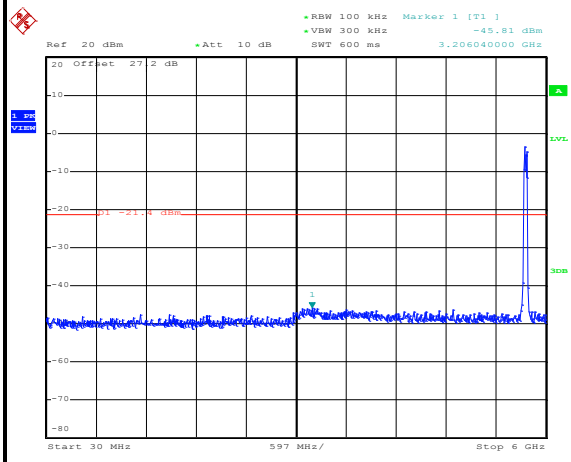
Date: 4.JUN.2014 23:54:46

Low Channel Plot



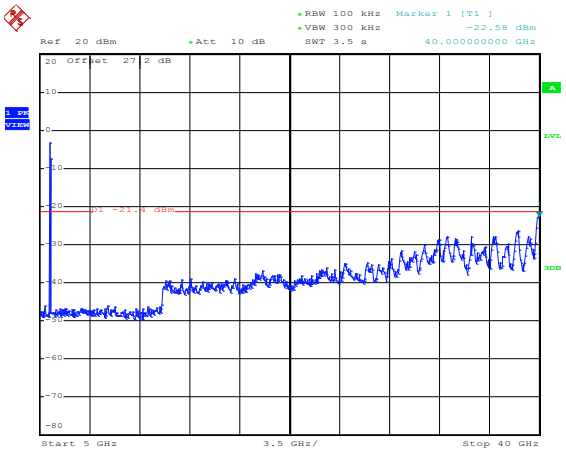
Date: 4.JUN.2014 23:55:00

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:56:53

Spurious Emission 5GHz~40GHz

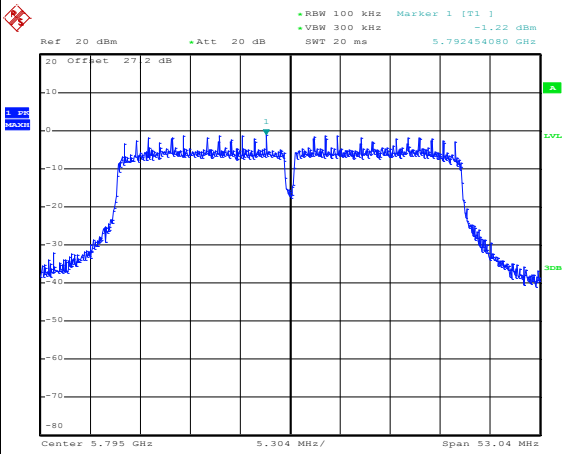


Date: 4.JUN.2014 23:57:12

Test Mode :	802.11n HT40	**Temperature :**	21~26℃
Test Band :	5GHz High	**Relative Humidity :**	45~54%
Test Channel :	159	**Test Engineer :**	Bill Kuo

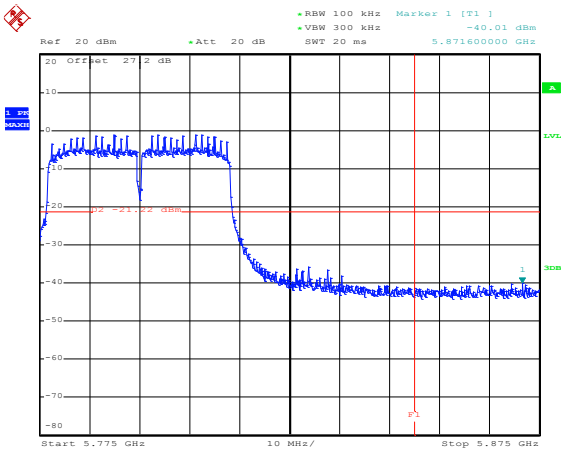
WLAN 802.11n HT40 Channel 159

100kHz PSD reference Level



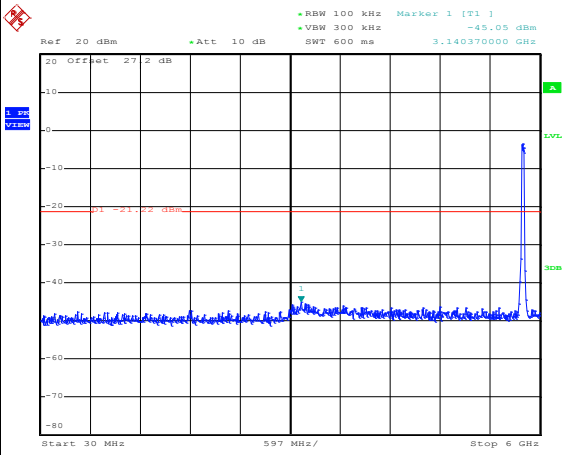
Date: 4.JUN.2014 23:58:59

High Channel Plot



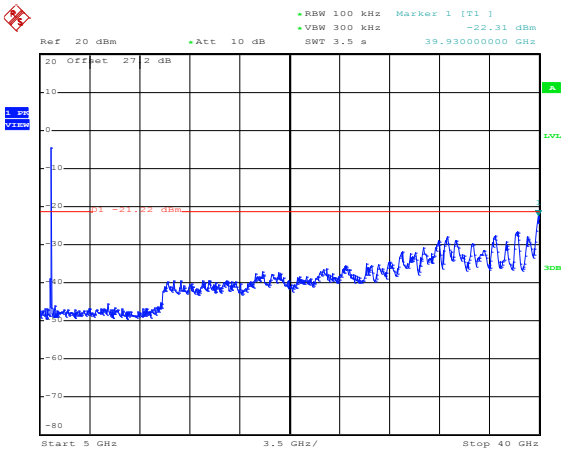
Date: 4.JUN.2014 23:59:13

Spurious Emission 30MHz~6GHz



Date: 4.JUN.2014 23:59:32

Spurious Emission 5GHz~40GHz



Date: 4.JUN.2014 23:59:51

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

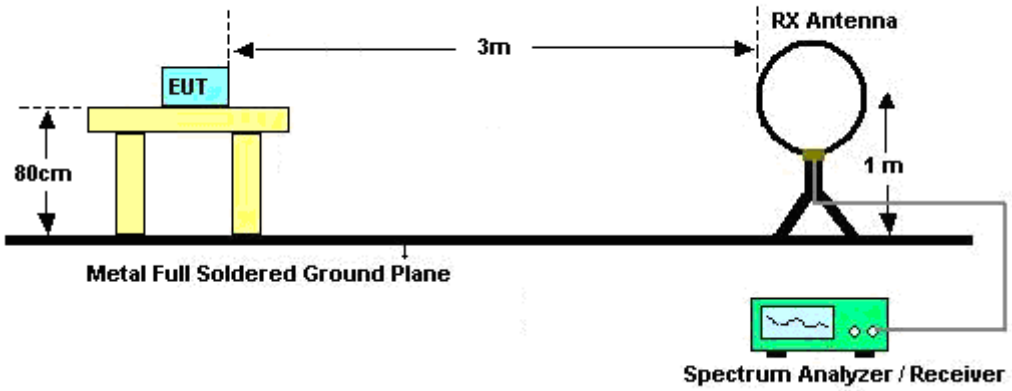
3.5.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

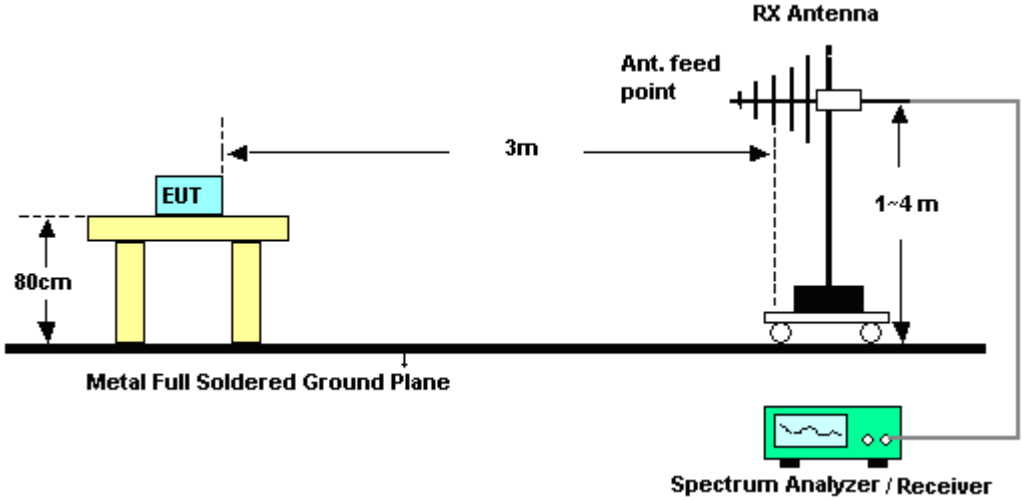
Band	Duty Cycle(%)	T(μs)	1/T(kHz)	VBW Setting
802.11b	99.09	-	-	10Hz
802.11g	95.51	2040.00	0.49	1kHz
2.4GHz 802.11n HT20	94.95	1880.00	0.53	1kHz
802.11a	95.51	2040.00	0.49	1kHz
5GHz 802.11n HT20	95.45	1890.00	0.53	1kHz
5GHz 802.11n HT40	90.59	924.00	1.08	3kHz

3.5.4 Test Setup

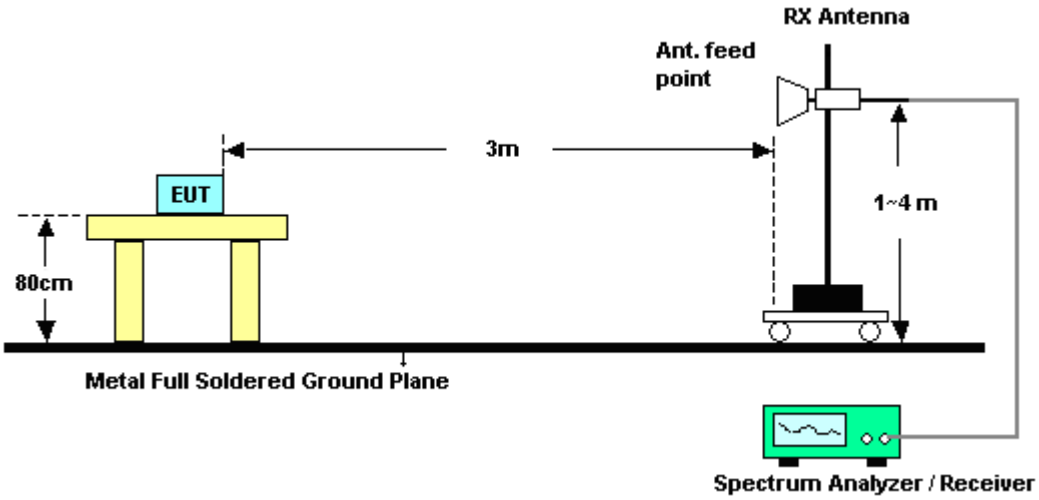
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	44~48%
Test Channel :	01	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.14	56	-18	74	51.18	32.18	6.91	34.27	101	127	Peak
2335.74	43.73	-10.27	54	39	32.11	6.84	34.22	101	127	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2362.2	55.69	-18.31	74	50.93	32.13	6.88	34.25	154	81	Peak
2335.74	42.88	-11.12	54	38.15	32.11	6.84	34.22	154	81	Average

Test Mode :	802.11b	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	44~48%
Test Channel :	11	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2495.59	56.61	-17.39	74	51.73	32.3	7.06	34.48	100	127	Peak
2483.5	43.14	-10.86	54	38.23	32.28	7.06	34.43	100	127	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.12	55.65	-18.35	74	50.72	32.3	7.06	34.43	179	104	Peak
2483.5	42.97	-11.03	54	38.06	32.28	7.06	34.43	179	104	Average

Test Mode :	802.11g	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	44~48%
Test Channel :	01	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2321.25	56.42	-17.58	74	51.75	32.09	6.8	34.22	101	130	Peak
2390	43.92	-10.08	54	39.13	32.18	6.91	34.3	101	130	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2350.05	55.68	-18.32	74	50.98	32.11	6.84	34.25	154	83	Peak
2337.63	43.84	-10.16	54	39.11	32.11	6.84	34.22	154	83	Average

Test Mode :	802.11g	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	44~48%
Test Channel :	11	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.83	63.24	-10.76	74	58.33	32.28	7.06	34.43	100	125	Peak
2483.5	45.9	-8.1	54	40.99	32.28	7.06	34.43	100	125	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.65	60.14	-13.86	74	55.23	32.28	7.06	34.43	180	104	Peak
2483.5	44.86	-9.14	54	39.95	32.28	7.06	34.43	180	104	Average

Test Mode :	802.11n HT20	Temperature :	23~25°C
Test Band :	Low	Relative Humidity :	44~48%
Test Channel :	01	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2340.69	56.29	-17.71	74	51.59	32.11	6.84	34.25	101	129	Peak
2336.64	44.77	-9.23	54	40.04	32.11	6.84	34.22	101	129	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2375.43	56.11	-17.89	74	51.34	32.16	6.88	34.27	154	84	Peak
2338.08	43.9	-10.1	54	39.17	32.11	6.84	34.22	154	84	Average

Test Mode :	802.11n HT20	Temperature :	23~25°C
Test Band :	High	Relative Humidity :	44~48%
Test Channel :	11	Test Engineer :	Stan Hsieh

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.68	62.88	-11.12	74	57.97	32.28	7.06	34.43	100	129	Peak
2483.5	44.99	-9.01	54	40.08	32.28	7.06	34.43	100	129	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.71	58.42	-15.58	74	53.51	32.28	7.06	34.43	180	98	Peak
2483.5	44.79	-9.21	54	39.88	32.28	7.06	34.43	180	98	Average

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

Note: Pre-scanned all test modes and only choose the worst case mode recorded in the test report for radiated spurious emission below 1GHz.

Test Mode :	802.11b	**Temperature :**	23~25°C
Test Channel :	01	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	104.08	-	-	99.23	32.2	6.95	34.3	101	127	Average
2412	108.16	-	-	103.31	32.2	6.95	34.3	101	127	Peak
4824	38.69	-35.31	74	54.59	34.26	8.77	58.93	100	0	Peak

Test Mode :	802.11b	**Temperature :**	23~25°C
Test Channel :	01	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	100.63	-	-	95.78	32.2	6.95	34.3	154	81	Average
2412	105.11	-	-	100.26	32.2	6.95	34.3	154	81	Peak
4824	39.93	-34.07	74	55.83	34.26	8.77	58.93	100	0	Peak

Test Mode :	802.11b	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2438 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2438	104.29	-	-	99.41	32.24	6.99	34.35	100	126	Average
2438	108.39	-	-	103.51	32.24	6.99	34.35	100	126	Peak
4875	37.25	-36.75	74	52.96	34.3	8.82	58.83	100	0	Peak
7311	42.42	-31.58	74	53.64	35.6	10.91	57.73	100	0	Peak

Test Mode :	802.11b	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	101.13	-	-	96.25	32.24	6.99	34.35	124	100	Average
2439	105.37	-	-	100.49	32.24	6.99	34.35	124	100	Peak
4875	39.3	-34.7	74	55.01	34.3	8.82	58.83	100	0	Peak
7311	42.87	-31.13	74	54.09	35.6	10.91	57.73	100	0	Peak

Test Mode :	802.11b	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	101.8	-	-	96.91	32.26	7.02	34.39	100	127	Average
2464	105.81	-	-	100.92	32.26	7.02	34.39	100	127	Peak
4923	38.34	-35.66	74	53.86	34.34	8.87	58.73	100	0	Peak
7386	43.08	-30.92	74	54.29	35.6	10.99	57.8	100	0	Peak

Test Mode :	802.11b	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2464	98.1	-	-	93.21	32.26	7.02	34.39	179	104	Average
2464	103.38	-	-	98.49	32.26	7.02	34.39	179	104	Peak
4923	37.95	-36.05	74	53.47	34.34	8.87	58.73	100	0	Peak
7386	42.66	-31.34	74	53.87	35.6	10.99	57.8	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	96.41	-	-	91.56	32.2	6.95	34.3	101	130	Average
2412	106.11	-	-	101.26	32.2	6.95	34.3	101	130	Peak
4824	38.41	-35.59	74	54.31	34.26	8.77	58.93	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	93.5	-	-	88.65	32.2	6.95	34.3	154	83	Average
2412	102.37	-	-	97.52	32.2	6.95	34.3	154	83	Peak
4824	39.33	-34.67	74	55.23	34.26	8.77	58.93	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	96.71	-	-	91.83	32.24	6.99	34.35	100	125	Average
2439	106.72	-	-	101.84	32.24	6.99	34.35	100	125	Peak
4875	38.05	-35.95	74	53.76	34.3	8.82	58.83	100	0	Peak
7311	42.53	-31.47	74	53.75	35.6	10.91	57.73	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	93.16	-	-	88.28	32.24	6.99	34.35	108	93	Average
2439	102.71	-	-	97.83	32.24	6.99	34.35	108	93	Peak
4875	38.33	-35.67	74	54.04	34.3	8.82	58.83	100	0	Peak
7311	47.48	-26.52	74	58.7	35.6	10.91	57.73	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2468 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
41.07	25.47	-14.53	40	42.74	13.3	0.63	31.2	-	-	Peak
99.12	18.71	-24.79	43.5	38.66	10.16	0.99	31.1	-	-	Peak
159.87	19.7	-23.8	43.5	39.18	10.5	1.22	31.2	-	-	Peak
372.8	24.36	-21.64	46	38.37	14.94	2.08	31.03	-	-	Peak
481.3	24.83	-21.17	46	35.61	17.63	2.38	30.79	-	-	Peak
639.5	33.47	-12.53	46	40.78	20.4	2.81	30.52	100	99	Peak
2468	96.4	-	-	91.55	32.26	7.02	34.43	100	125	Average
2468	106.01	-	-	101.16	32.26	7.02	34.43	100	125	Peak
4923	38.92	-35.08	74	54.44	34.34	8.87	58.73	100	0	Peak
7386	42.37	-31.63	74	53.58	35.6	10.99	57.8	100	0	Peak

Test Mode :	802.11g	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2468 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
82.11	17.6	-22.4	40	40.42	7.44	0.89	31.15	-	-	Peak
101.55	28.42	-15.08	43.5	48.1	10.44	1	31.12	128	57	Peak
119.1	24.06	-19.44	43.5	42.71	11.35	1.1	31.1	-	-	Peak
426	25.91	-20.09	46	37.63	16.82	2.23	30.77	-	-	Peak
482.7	22.36	-23.64	46	33.06	17.69	2.39	30.78	-	-	Peak
853	29.45	-16.55	46	33.3	23.27	3.27	30.39	-	-	Peak
2468	92.6	-	-	87.75	32.26	7.02	34.43	180	104	Average
2468	102.04	-	-	97.19	32.26	7.02	34.43	180	104	Peak
4923	39.16	-34.84	74	54.68	34.34	8.87	58.73	100	0	Peak
7386	42.93	-31.07	74	54.14	35.6	10.99	57.8	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	95.35	-	-	90.5	32.2	6.95	34.3	101	129	Average
2412	104.49	-	-	99.64	32.2	6.95	34.3	101	129	Peak
4824	38.91	-35.09	74	54.81	34.26	8.77	58.93	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	01	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2414 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2414	91.81	-	-	86.96	32.2	6.95	34.3	154	84	Average
2414	101.76	-	-	96.91	32.2	6.95	34.3	154	84	Peak
4824	38.56	-35.44	74	54.46	34.26	8.77	58.93	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	94.35	-	-	89.47	32.24	6.99	34.35	100	126	Average
2439	104.73	-	-	99.85	32.24	6.99	34.35	100	126	Peak
4875	38.47	-35.53	74	54.18	34.3	8.82	58.83	100	0	Peak
7311	42.68	-31.32	74	53.9	35.6	10.91	57.73	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	06	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2439 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2439	90.87	-	-	85.99	32.24	6.99	34.35	108	92	Average
2439	100.38	-	-	95.5	32.24	6.99	34.35	108	92	Peak
4875	38.08	-35.92	74	53.79	34.3	8.82	58.83	100	0	Peak
7311	42.93	-31.07	74	54.15	35.6	10.91	57.73	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 2468 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2468	94.71	-	-	89.86	32.26	7.02	34.43	100	129	2468
2468	104.03	-	-	99.18	32.26	7.02	34.43	100	129	2468
4923	38.42	-35.58	74	53.94	34.34	8.87	58.73	100	0	4923
7386	42.91	-31.09	74	54.12	35.6	10.99	57.8	100	0	7386

Test Mode :	2.4GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	11	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 2468 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2468	90.49	-	-	85.64	32.26	7.02	34.43	180	98	Average
2468	100.98	-	-	96.13	32.26	7.02	34.43	180	98	Peak
4923	38.13	-35.87	74	53.65	34.34	8.87	58.73	100	0	Peak
7386	42.63	-31.37	74	53.84	35.6	10.99	57.8	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	149	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5747	89.27	-	-	78.14	35.24	10.06	34.17	109	277	Average
5747	99.09	-	-	87.96	35.24	10.06	34.17	109	277	Peak
11490	46.66	-27.34	74	51.11	38.19	14.33	56.97	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	149	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5744	82.41	-	-	71.28	35.24	10.06	34.17	100	317	Average
5744	92.01	-	-	80.88	35.24	10.06	34.17	100	317	Peak
11490	45.87	-28.13	74	50.32	38.19	14.33	56.97	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.08	23.38	-16.62	40	36.02	18.28	0.54	31.46	100	289	Peak
98.85	18.24	-25.26	43.5	38.19	10.16	0.99	31.1	-	-	Peak
187.68	16.28	-27.22	43.5	37.27	8.8	1.27	31.06	-	-	Peak
372.8	23.04	-22.96	46	37.05	14.94	2.08	31.03	-	-	Peak
426	28.95	-17.05	46	40.67	16.82	2.23	30.77	-	-	Peak
554.8	21.84	-24.16	46	30.16	19.9	2.56	30.78	-	-	Peak
5783	86.91	-	-	75.8	35.27	10.07	34.23	100	353	Average
5783	97.39	-	-	86.28	35.27	10.07	34.23	100	353	Peak
11571	46.7	-27.3	74	50.77	38.3	14.41	56.78	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	28.16	-11.84	40	40.33	18.8	0.53	31.5	-	-	Peak
48.09	29.84	-10.16	40	51.26	9.1	0.68	31.2	148	341	Peak
54.03	19.96	-20.04	40	43.64	6.8	0.72	31.2	-	-	Peak
457.5	25.55	-20.45	46	36.64	17.38	2.32	30.79	-	-	Peak
639.5	35.11	-10.89	46	42.42	20.4	2.81	30.52	-	-	Peak
853	27.82	-18.18	46	31.67	23.27	3.27	30.39	-	-	Peak
5783	81.21	-	-	70.1	35.27	10.07	34.23	100	313	Average
5783	90.86	-	-	79.75	35.27	10.07	34.23	100	313	Peak
11570	46.48	-27.52	74	50.55	38.3	14.41	56.78	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	165	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5823	86.29	-	-	75.15	35.3	10.11	34.27	100	12	Average
5823	96.54	-	-	85.4	35.3	10.11	34.27	100	12	Peak
11649	46.13	-27.87	74	49.83	38.39	14.52	56.61	100	0	Peak

Test Mode :	802.11a	Temperature :	23~25°C
Test Channel :	165	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5827	82.26	-	-	71.12	35.3	10.11	34.27	101	267	Average
5827	91.74	-	-	80.6	35.3	10.11	34.27	101	267	Peak
11649	46.02	-27.98	74	49.72	38.39	14.52	56.61	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	149	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5747 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.52	28.22	-11.78	40	50.32	8.4	0.7	31.2	105	92	Peak
127.74	12.49	-31.01	43.5	30.61	11.84	1.14	31.1	-	-	Peak
193.89	18.57	-24.93	43.5	39.45	8.92	1.3	31.1	-	-	Peak
358.1	22.1	-23.9	46	36.51	14.64	2.04	31.09	-	-	Peak
426	27.37	-18.63	46	39.09	16.82	2.23	30.77	-	-	Peak
451.2	23.75	-22.25	46	34.89	17.31	2.3	30.75	-	-	Peak
5747	86.29	-	-	75.16	35.24	10.06	34.17	100	353	Average
5747	95.87	-	-	84.74	35.24	10.06	34.17	100	353	Peak
11490	46.59	-27.41	74	51.04	38.19	14.33	56.97	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	149	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5743 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	28.8	-11.2	40	41.44	18.28	0.54	31.46	144	189	Peak
53.22	25.08	-14.92	40	48.36	7.2	0.72	31.2	-	-	Peak
64.56	21.12	-18.88	40	45.52	6	0.8	31.2	-	-	Peak
447.7	25.82	-20.18	46	37.02	17.24	2.3	30.74	-	-	Peak
476.4	23.15	-22.85	46	34.02	17.56	2.37	30.8	-	-	Peak
600.3	21.06	-24.94	46	29.37	19.6	2.69	30.6	-	-	Peak
5743	81.09	-	-	69.96	35.24	10.06	34.17	100	317	Average
5743	90.8	-	-	79.67	35.24	10.06	34.17	100	317	Peak
11490	47.3	-26.7	74	51.75	38.19	14.33	56.97	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5783	86.28	-	-	75.17	35.27	10.07	34.23	100	355	Average
5783	95.81	-	-	84.7	35.27	10.07	34.23	100	355	Peak
11571	47.21	-26.79	74	51.28	38.3	14.41	56.78	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	157	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5783 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5783	80.97	-	-	69.86	35.27	10.07	34.23	102	318	Average
5783	90.39	-	-	79.28	35.27	10.07	34.23	102	318	Peak
11571	47.06	-26.94	74	51.13	38.3	14.41	56.78	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	165	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5823	86.37	-	-	75.23	35.3	10.11	34.27	110	357	Average
5823	96.03	-	-	84.89	35.3	10.11	34.27	110	357	Peak
11649	45.8	-28.2	74	49.5	38.39	14.52	56.61	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	23~25°C
Test Channel :	165	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5823 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5823	80.14	-	-	69	35.3	10.11	34.27	101	324	Average
5823	89.54	-	-	78.4	35.3	10.11	34.27	101	324	Peak
11649	46.72	-27.28	74	50.42	38.39	14.52	56.61	100	0	Peak

Test Mode :	5GHz 802.11n HT40	Temperature :	23~25°C
Test Channel :	151	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5753 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
50.25	20.69	-19.31	40	42.79	8.4	0.7	31.2	114	23	Peak
159.87	19.55	-23.95	43.5	39.03	10.5	1.22	31.2	-	-	Peak
278.4	21.71	-24.29	46	38.17	12.82	1.64	30.92	-	-	Peak
426	26.46	-19.54	46	38.18	16.82	2.23	30.77	-	-	Peak
758.5	24.68	-21.32	46	29.89	22.1	3.07	30.38	-	-	Peak
917.4	26.29	-19.71	46	29.38	23.86	3.38	30.33	-	-	Peak
5753	86.49	-	-	75.34	35.26	10.06	34.17	109	279	Average
5753	95.56	-	-	84.41	35.26	10.06	34.17	109	279	Peak
11511	46.03	-27.97	74	50.43	38.2	14.35	56.95	100	0	Peak

Test Mode :	5GHz 802.11n HT40	Temperature :	23~25°C
Test Channel :	151	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	28.84	-11.16	40	41.48	18.28	0.54	31.46	152	331	Peak
98.58	21.29	-22.21	43.5	41.24	10.16	0.99	31.1	-	-	Peak
213.33	15.32	-28.18	43.5	35.78	9.23	1.38	31.07	-	-	Peak
426	24.61	-21.39	46	36.33	16.82	2.23	30.77	-	-	Peak
460.3	24.58	-21.42	46	35.65	17.41	2.32	30.8	-	-	Peak
853	28.44	-17.56	46	32.29	23.27	3.27	30.39	-	-	Peak
5757	79.8	-	-	68.68	35.26	10.06	34.2	100	318	Average
5757	89.07	-	-	77.95	35.26	10.06	34.2	100	318	Peak
11511	46.05	-27.95	74	50.45	38.2	14.35	56.95	100	0	Peak

Test Mode :	5GHz 802.11n HT40	Temperature :	23~25°C
Test Channel :	159	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Horizontal
Remark :	1. 5797 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5797	85.03	-	-	73.89	35.28	10.09	34.23	102	28	Average
5797	95.57	-	-	84.43	35.28	10.09	34.23	102	28	Peak
11589	45.58	-28.42	74	49.56	38.32	14.44	56.74	100	0	Peak

Test Mode :	5GHz 802.11n HT40	Temperature :	23~25°C
Test Channel :	159	Relative Humidity :	44~48%
Test Engineer :	Stan Hsieh	Polarization :	Vertical
Remark :	1. 5797 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5797	80.96	-	-	69.82	35.28	10.09	34.23	101	319	Average
5797	90.14	-	-	79	35.28	10.09	34.23	101	319	Peak
11589	46.02	-27.98	74	50	38.32	14.44	56.74	100	0	Peak

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 (dBμV)	
	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.

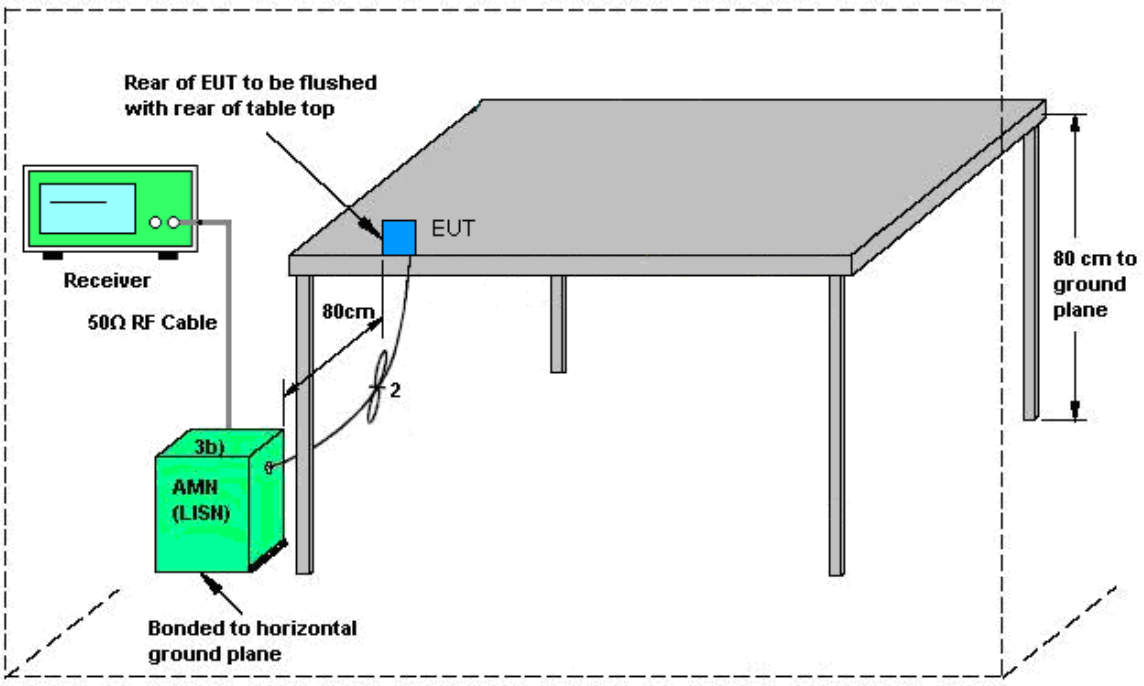
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. 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.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

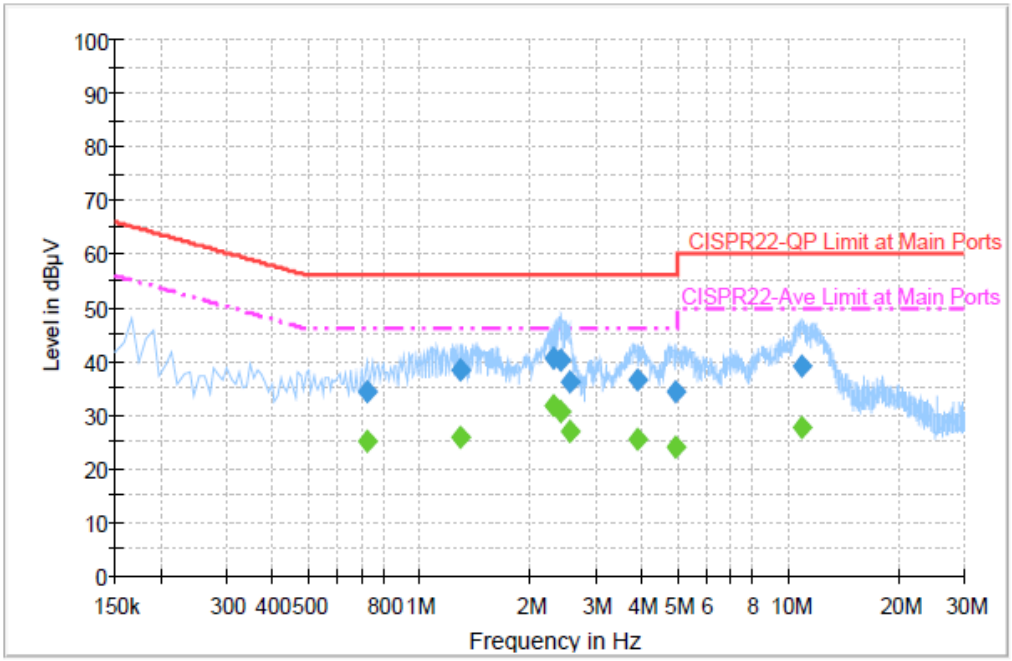
3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + USB Cable (Charging from Adapter)		



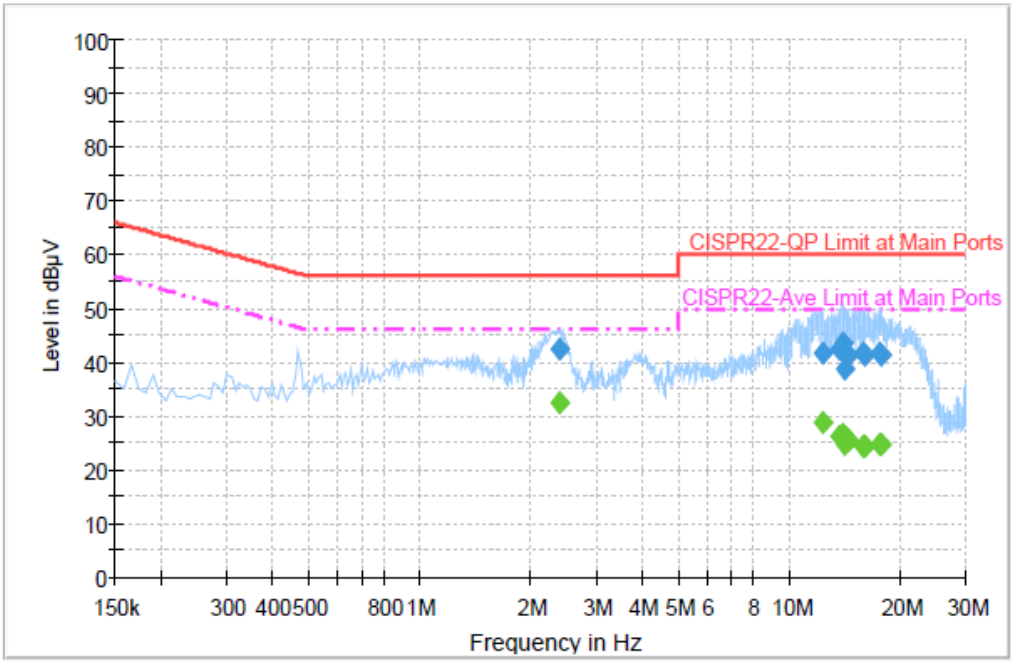
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.726000	34.5	Off	L1	19.5	21.5	56.0
1.286000	38.3	Off	L1	19.5	17.7	56.0
2.318000	40.4	Off	L1	19.5	15.6	56.0
2.430000	40.4	Off	L1	19.6	15.6	56.0
2.550000	36.2	Off	L1	19.5	19.8	56.0
3.902000	36.5	Off	L1	19.5	19.5	56.0
4.982000	34.3	Off	L1	19.7	21.7	56.0
10.822000	39.1	Off	L1	19.7	20.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.726000	25.0	Off	L1	19.5	21.0	46.0
1.286000	25.7	Off	L1	19.5	20.3	46.0
2.318000	31.7	Off	L1	19.5	14.3	46.0
2.430000	30.7	Off	L1	19.6	15.3	46.0
2.550000	27.1	Off	L1	19.5	18.9	46.0
3.902000	25.6	Off	L1	19.5	20.4	46.0
4.982000	23.9	Off	L1	19.7	22.1	46.0
10.822000	27.8	Off	L1	19.7	22.2	50.0

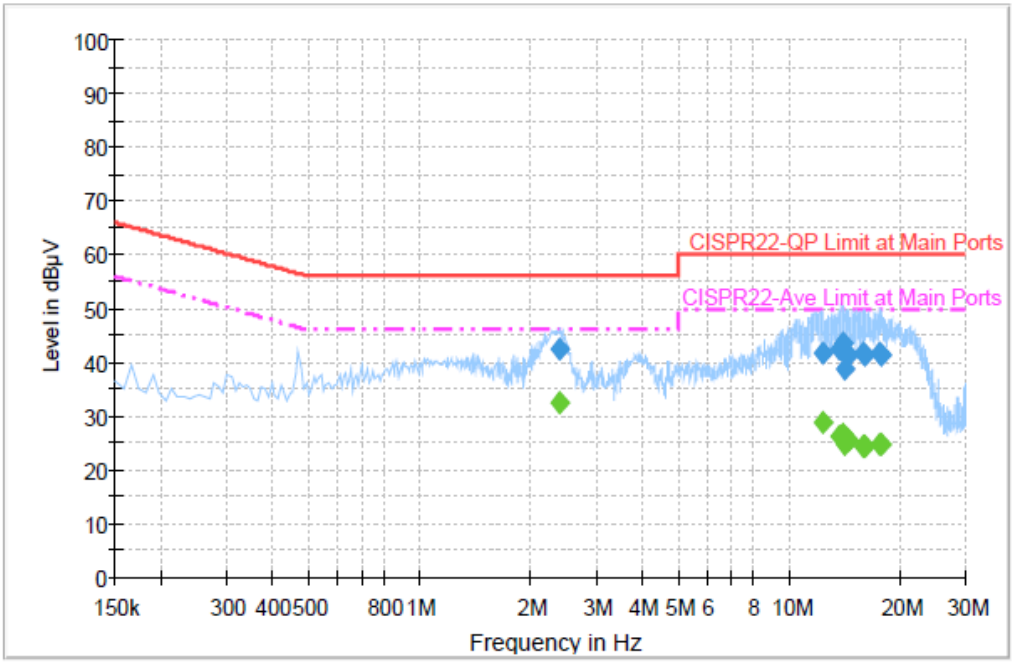
Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Cosmo Xu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + USB Cable (Charging from Adapter)		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.390000	42.3	Off	N	19.6	13.7	56.0
12.334000	41.6	Off	N	19.8	18.4	60.0
13.590000	42.5	Off	N	19.8	17.5	60.0
13.798000	42.3	Off	N	19.8	17.7	60.0
14.014000	43.5	Off	N	19.8	16.5	60.0
14.142000	38.8	Off	N	19.8	21.2	60.0
14.390000	41.2	Off	N	19.9	18.8	60.0
15.830000	41.8	Off	N	19.9	18.2	60.0
16.014000	41.5	Off	N	19.8	18.5	60.0
17.622000	41.7	Off	N	19.9	18.3	60.0
17.806000	41.5	Off	N	19.9	18.5	60.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Cosmo Xu	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4GHz) Link + Bluetooth Link + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
2.390000	32.6	Off	N	19.6	13.4	46.0
12.334000	28.9	Off	N	19.8	21.1	50.0
13.590000	26.1	Off	N	19.8	23.9	50.0
13.798000	26.0	Off	N	19.8	24.0	50.0
14.014000	26.7	Off	N	19.8	23.3	50.0
14.142000	24.6	Off	N	19.8	25.4	50.0
14.390000	25.3	Off	N	19.9	24.7	50.0
15.830000	24.5	Off	N	19.9	25.5	50.0
16.014000	24.5	Off	N	19.8	25.5	50.0
17.622000	24.9	Off	N	19.9	25.1	50.0
17.806000	24.9	Off	N	19.9	25.1	50.0

3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 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	Rohde & Schwarz	FSP40	100057	9kHz~40GHz	Oct. 23, 2013	May 21, 2014 ~ Jun. 10, 2014	Oct. 22, 2014	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 17, 2013	May 21, 2014 ~ Jun. 10, 2014	Aug. 16, 2014	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 17, 2013	May 21, 2014 ~ Jun. 10, 2014	Aug. 16, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Jun. 19, 2014	Nov. 14, 2014	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Jun. 19, 2014	Dec. 11, 2014	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Jun. 19, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jun. 19, 2014	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9 kHz~7 GHz	Sep. 06, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Sep. 05, 2014	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jun. 12, 2014 ~ Jun. 25, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/0001	9 kHz~30 MHz	Jul. 03, 2012	Jun. 12, 2014 ~ Jun. 25, 2014	Jul. 03, 2014	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30 MHz ~ 1 GHz	Oct. 10, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1 GHz~18 GHz	Aug. 22, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15 GHz- 40 GHz	Oct. 03, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz 32dB GAIN	Mar. 17, 2014	Jun. 12, 2014 ~ Jun. 25, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	1590074	DC~18 G High Gain	Jul. 09, 2013	Jun. 12, 2014 ~ Jun. 25, 2014	Jul. 08, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jun. 12, 2014 ~ Jun. 25, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Jun. 12, 2014 ~ Jun. 25, 2014	N/A	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.50**