FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	3600
FCC ID	:	IHDT56QD2
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Sep. 11, 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

Testing Laboratory
1190

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

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APPENDIX A. ORIGINAL REPORT

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR491144C	Rev. 01	The Bluetooth and WLAN circuitry of this variant model (3600) is identical to that of the parent product (4054), based on the product equality declaration by the manufacturer.	Oct. 10, 2014

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	3600
FCC ID	IHDT56QD2
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz: WLAN 11b/g/n HT20 WLAN 11ac VHT20 5 GHz: WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 EDR Bluetooth v4.0 - LE
HW Version	P2
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	2412 MHz ~ 2462 MHz
Antenna Type / Gain	**<Ant 1>** 802.11b/g/n/ac : Monopole(IFA) Antenna with gain -2.90 dBi Beamforming : 2.48 dBi **<Ant 2>** 802.11b/g/n/ac : Monopole(ILA) Antenna with gain -4.60 dBi Beamforming : 2.48 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

1.5 Modification of EUT

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

Appendix A. Original Report

Please refer to Sporton report number FR480670C as below.

FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	4054
FCC ID	:	IHDT56QD1
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Aug. 06, 2014 and testing was completed on Sep. 15, 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

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

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APPENDIX A. TEST RESULT OF RADIATED EMISSION

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR480670C	Rev. 01	Initial issue of report	Sep. 30, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.40 dB at 2390.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 14.00 dB at 1.198 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	4054
FCC ID	IHDT56QD1
IMEI	990005300017812 990005300016731
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz WLAN 11b/g/n HT20 WLAN 11ac VHT20 5GHz WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 EDR Bluetooth v4.0 - LE
HW Version	P2
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.

Accessory List	
AC Adapter	Brand Name : Motorola
	Model Name : SPN5864A
Earphone	Brand Name : Motorola
	Model Name : SJYN1305A
USB Cable	Brand Name : Motorola
	Model Name : SKN6448A
Battery	Brand Name : LG
	Model Name : EZ30

1.4 Product Specification subjective to this standard

<table>
<tr><th colspan="2">Product Specification subjective to this standard</th></tr>
<tr><td>Tx/Rx Channel Frequency Range</td><td>802.11b/g/n/ac : 2412 MHz ~ 2462 MHz</td></tr>
<tr><td>Maximum Output Power to antenna</td><td>802.11b : 23.31 dBm (0.2143 W)
802.11g : 27.23 dBm (0.5284 W)
802.11n HT20 : 27.49 dBm (0.5610 W)
802.11ac VHT20 : 27.31 dBm (0.5383 W)</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>802.11b : 11.70MHz
802.11g : 19.50MHz
802.11n HT20 : 19.15MHz
802.11ac VHT20 : 19.05MHz</td></tr>
<tr><td>Antenna Type / Gain</td><td><Ant 1>
802.11b/g/n/ac : Monopole(IFA) Antenna with gain -2.90 dBi
Beamforming : 2.48 dBi
<Ant 2>
802.11b/g/n/ac : Monopole(ILA) Antenna with gain -4.60 dBi
Beamforming : 2.48 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)</td></tr>
<tr><td>Antenna Function for Transmitter</td><td>
<table>
<tr><th></th><th>Ant. 1</th><th>Ant. 2</th></tr>
<tr><td>802.11 b MIMO</td><td>V</td><td>V</td></tr>
<tr><td>802.11 g MIMO</td><td>V</td><td>V</td></tr>
<tr><td>802.11 n MIMO</td><td>V</td><td>V</td></tr>
<tr><td>802.11 ac MIMO</td><td>V</td><td>V</td></tr>
</table>
</td></tr>
</table>

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	03CH06-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
- KDB 648474 D03 Handset Wireless Chargers Battery Covers v01r02
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
- 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 (X 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 and 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		

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.

<CDD Ant. 1+2>

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412MHz	22.81	22.40	22.36	22.52
CH 06	2437MHz	**23.31**	22.89	22.79	23.04
CH 11	2462MHz	22.60	22.09	22.03	21.97

Channel	Frequency	2.4GHz 802.11b Average Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412MHz	19.53	19.26	19.34	19.31
CH 06	2437MHz	19.96	19.42	19.51	19.66
CH 11	2462MHz	19.28	19.13	19.12	19.15

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412MHz	26.38	25.56	25.45	25.34	26.09	26.21	26.28	26.27
CH 06	2437MHz	**27.23**	27.03	27.01	26.95	26.96	27.19	27.19	26.91
CH 11	2462MHz	26.59	26.10	26.09	26.09	26.37	26.58	26.58	26.49

Channel	Frequency	2.4GHz 802.11g Average Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412MHz	19.50	19.16	18.93	18.96	19.32	19.10	19.19	19.30
CH 06	2437MHz	22.92	22.55	22.52	22.62	22.60	22.63	22.65	20.55
CH 11	2462MHz	19.41	19.09	19.00	19.06	19.29	19.16	19.35	19.25

Channel	Frequency	2.4GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412MHz	26.38	25.95	25.78	26.35	26.34	26.56	26.35	26.34
CH 06	2437MHz	**27.49**	27.18	27.08	27.19	27.23	27.27	27.22	24.31
CH 11	2462MHz	26.43	25.88	26.00	26.37	26.40	26.35	26.42	26.36

Channel	Frequency	2.4GHz 802.11n HT20 Average Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412MHz	20.17	19.75	19.53	19.81	20.08	19.83	18.87	18.93
CH 06	2437MHz	21.74	21.25	21.32	21.29	21.47	21.39	20.48	19.61
CH 11	2462MHz	19.49	19.13	19.27	19.48	19.47	19.33	19.46	19.48

Channel	Frequency	2.4GHz 802.11n VHT20 RF Power (dBm)								
		OFDM Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412MHz	26.32	25.90	25.79	26.19	26.88	26.31	26.26	26.18	26.25
CH 06	2437MHz	**27.31**	27.18	27.15	27.23	27.24	27.21	27.16	27.22	27.01
CH 11	2462MHz	27.12	26.54	26.52	26.69	26.84	27.21	26.86	26.67	26.78

Channel	Frequency	2.4GHz 802.11n VHT20 Average Power (dBm)								
		OFDM Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
CH 01	2412MHz	19.22	19.13	19.16	19.20	19.16	18.95	19.14	18.49	18.50
CH 06	2437MHz	22.12	21.94	21.86	22.08	22.07	20.93	20.98	20.03	19.18
CH 11	2462MHz	19.86	19.62	19.62	19.77	19.84	19.71	19.78	19.73	18.96

Note:

1. MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO Ant. 2.
2. The output power of MIMO mode is less than CDD mode, thus the CCD mode was recorded in this report.
3. For 802.11ac mode, the output power of non-Beamforming mode is less than Beamforming mode, thus the Beamforming mode was recorded in this report, and the radiation emission test of non-Beamforming mode was be excluded.

2.3 Test Mode

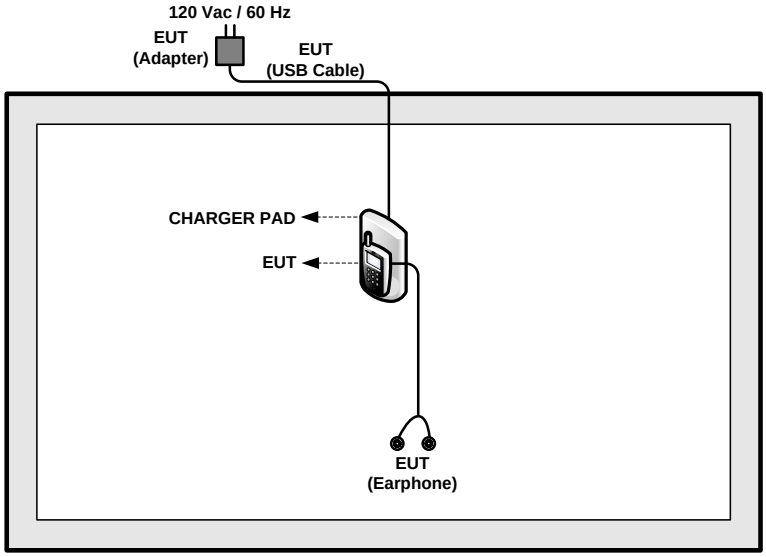
Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW Power Spectral Density Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
		802.11ac VHT20	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
		802.11ac VHT20	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
		802.11ac VHT20	MCS0	1/6/11
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
		802.11ac VHT20	MCS0	1/6/11
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	MCS0	1/6/11
		802.11ac VHT20	MCS0	1/6/11
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)			

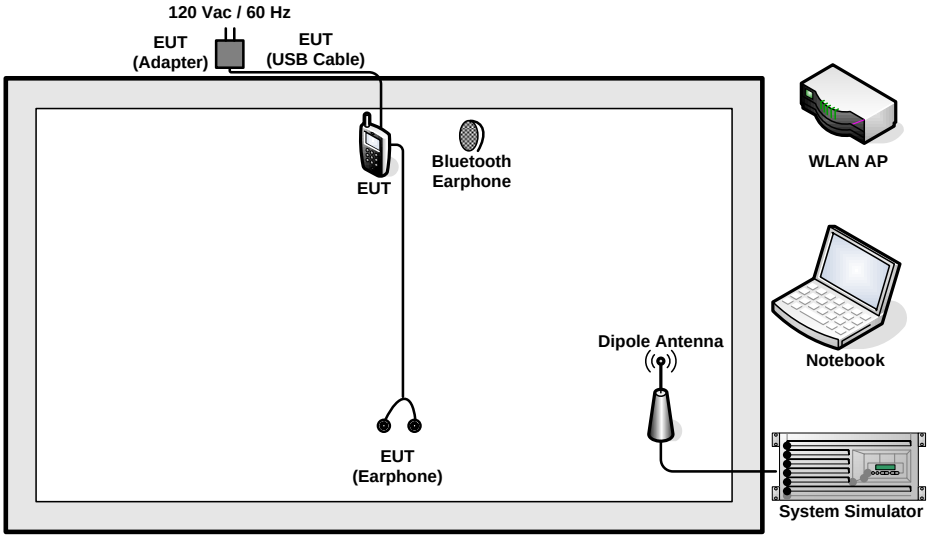
Remark: All modes and data rates and positions were investigated, and the wireless charger configuration was evaluated.

2.4 Connection Diagram of Test System

<WLAN Tx with CHARGER PAD 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.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	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
5.	CHARGER PAD	SAMSUNG	EP-P100IEWE	A3LEPP100IJWU	N/A	shielded, 1.5 m

2.6 EUT Operation Test Setup

For WLAN function, programmed RF utility, “cmd” installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

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 and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

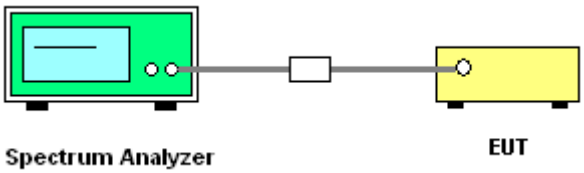
3.1.2 Measuring Instruments

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. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup

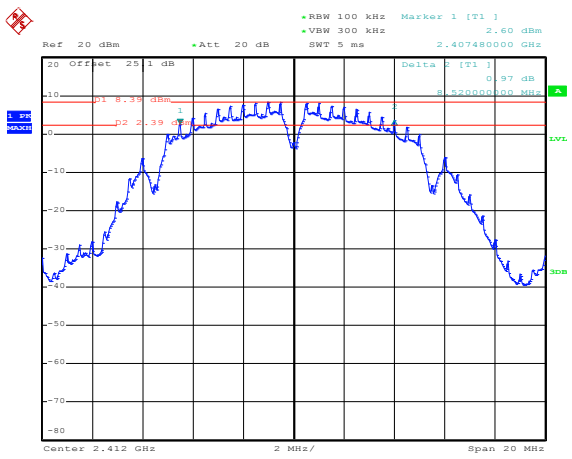


3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Test Band :	2.4GHz	Temperature :	21~25℃
Test Engineer :	Alex Lee	Relative Humidity :	51~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	99% Bandwidth (MHz)		6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
					Ant. 1	Ant. 2	Ant. 1	Ant. 2		
11b	1Mbps	2	1	2412	11.65	11.70	8.52	8.56	0.5	Pass
11b	1Mbps	2	6	2437	11.65	11.70	8.52	8.56	0.5	Pass
11b	1Mbps	2	11	2462	11.70	11.70	8.56	9.00	0.5	Pass
11g	6Mbps	2	1	2412	18.05	18.05	16.32	16.32	0.5	Pass
11g	6Mbps	2	6	2437	19.50	18.95	15.72	16.28	0.5	Pass
11g	6Mbps	2	11	2462	18.25	17.90	16.28	16.28	0.5	Pass
HT20	MCS0	2	1	2412	18.85	18.80	17.28	17.56	0.5	Pass
HT20	MCS0	2	6	2437	19.15	18.95	16.88	17.56	0.5	Pass
HT20	MCS0	2	11	2462	19.05	18.80	17.52	17.56	0.5	Pass
VHT20	MCS0	2	1	2412	18.85	18.80	16.52	17.56	0.5	Pass
VHT20	MCS0	2	6	2437	19.05	18.95	16.68	17.56	0.5	Pass
VHT20	MCS0	2	11	2462	18.90	18.85	17.28	17.56	0.5	Pass

Minimum 6dB Bandwidth



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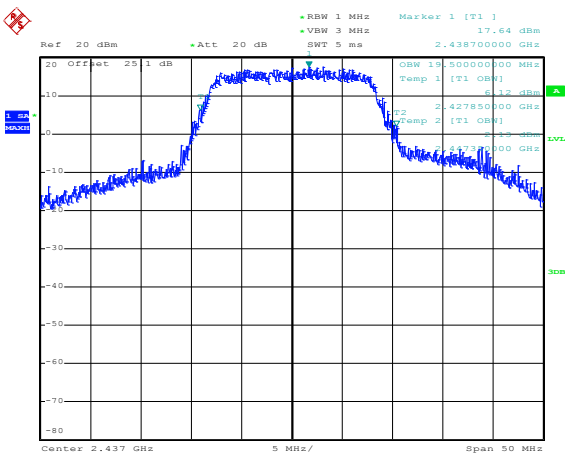
Maximum 99% Occupied Bandwidth



Date: 2.SEP.2014 22:57:20

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

3.2 Peak Output Power Measurement

3.2.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is 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.

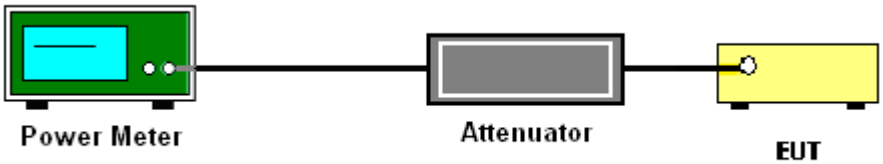
3.2.2 Measuring Instruments

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.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Band :	2.4GHz	Temperature :	21~25℃
Test Engineer :	Alex Lee	Relative Humidity :	51~54%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Max. Limit (dBm)		DG (dBi)		Pass/Fail
					Ant. 1	Ant. 2	SUM	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11b	1Mbps	2	1	2412	19.59	20.00	22.81	30.00		-0.70		Pass
11b	1Mbps	2	6	2437	20.25	20.34	23.31	30.00		-0.70		Pass
11b	1Mbps	2	11	2462	19.55	19.63	22.60	30.00		-0.70		Pass
11g	6Mbps	2	1	2412	22.89	23.81	26.38	30.00		-0.70		Pass
11g	6Mbps	2	6	2437	24.25	24.18	27.23	30.00		-0.70		Pass
11g	6Mbps	2	11	2462	23.33	23.81	26.59	30.00		-0.70		Pass
HT20	MCS0	2	1	2412	23.44	23.29	26.38	30.00		-0.70		Pass
HT20	MCS0	2	6	2437	24.49	24.46	27.49	30.00		-0.70		Pass
HT20	MCS0	2	11	2462	23.43	23.40	26.43	30.00		-0.70		Pass
VHT20	MCS0	2	1	2412	23.22	23.38	26.31	30.00		-0.70		Pass
VHT20	MCS0	2	6	2437	24.19	24.04	27.13	30.00		-0.70		Pass
VHT20	MCS0	2	11	2462	24.30	23.86	27.10	30.00		-0.70		Pass

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

3.2.6 Test Result of Average output Power (Reporting Only)

Test Band :	2.4GHz	Temperature :	21~25℃
Test Engineer :	Alex Lee	Relative Humidity :	51~54%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant. 1	Ant. 2	Ant. 1	Ant. 2	Sum Power
11b	1Mbps	2	1	2412	0.00	0.00	16.34	16.69	19.53
11b	1Mbps	2	6	2437	0.00	0.00	17.00	16.89	19.96
11b	1Mbps	2	11	2462	0.00	0.00	16.33	16.21	19.28
11g	6Mbps	2	1	2412	0.08	0.12	16.47	16.50	19.50
11g	6Mbps	2	6	2437	0.08	0.12	20.12	19.68	22.92
11g	6Mbps	2	11	2462	0.08	0.12	16.57	16.22	19.41
HT20	MCS0	2	1	2412	0.13	0.09	17.25	17.07	20.17
HT20	MCS0	2	6	2437	0.13	0.09	18.73	18.72	21.74
HT20	MCS0	2	11	2462	0.13	0.09	16.57	16.39	19.49
VHT20	MCS0	2	1	2412	0.13	0.13	16.26	16.34	19.31
VHT20	MCS0	2	6	2437	0.13	0.13	19.02	18.74	21.90
VHT20	MCS0	2	11	2462	0.13	0.13	16.76	16.81	19.80

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.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

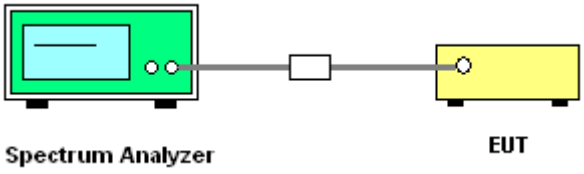
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   Method (1): Measure and sum the spectra across the outputs.

   The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

   Method (2): Measure and add 10 log (N) dB, where N is the number of outputs. (N=2)

3.3.4 Test Setup



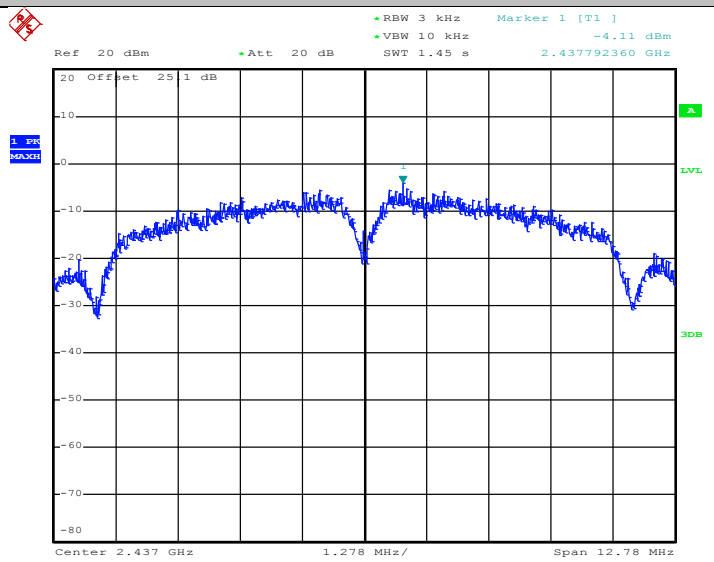
3.3.5 Test Result of Power Spectral Density

Test Band :	2.4GHz	Temperature :	21~25℃
Test Engineer :	Alex Lee	Relative Humidity :	51~54%

Mod.	Data Rate	N_{TX}	CH.	Freq. (MHz)	Peak Power Density (dBm/3kHz)			Max. Limit (dBm/3kHz)		DG (dBi)		Pass/Fail
					Ant. 1	Ant. 2	Worst +10log(2)	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
11b	1Mbps	2	1	2412	-5.46	-5.55	-2.45	8.00		-0.70		Pass
11b	1Mbps	2	6	2437	-4.11	-5.54	-1.10	8.00		-0.70		Pass
11b	1Mbps	2	11	2462	-5.11	-5.94	-2.10	8.00		-0.70		Pass
11g	6Mbps	2	1	2412	-7.65	-7.36	-4.35	8.00		-0.70		Pass
11g	6Mbps	2	6	2437	-5.08	-5.52	-2.07	8.00		-0.70		Pass
11g	6Mbps	2	11	2462	-7.22	-8.70	-4.21	8.00		-0.70		Pass
HT20	MCS0	2	1	2412	-8.84	-8.30	-5.29	8.00		-0.70		Pass
HT20	MCS0	2	6	2437	-5.39	-6.21	-2.38	8.00		-0.70		Pass
HT20	MCS0	2	11	2462	-8.40	-8.81	-5.39	8.00		-0.70		Pass
VHT20	MCS0	2	1	2412	-9.50	-8.46	-5.45	8.00		-0.70		Pass
VHT20	MCS0	2	6	2437	-6.60	-6.16	-3.15	8.00		-0.70		Pass
VHT20	MCS0	2	11	2462	-7.37	-8.31	-4.36	8.00		-0.70		Pass

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

Worst Case Power Density (dBm/3kHz)



Date: 2.SEP.2014 22:24:05

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).

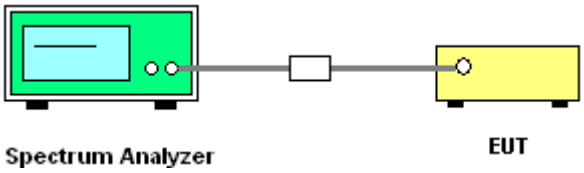
3.4.2 Measuring Instruments

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



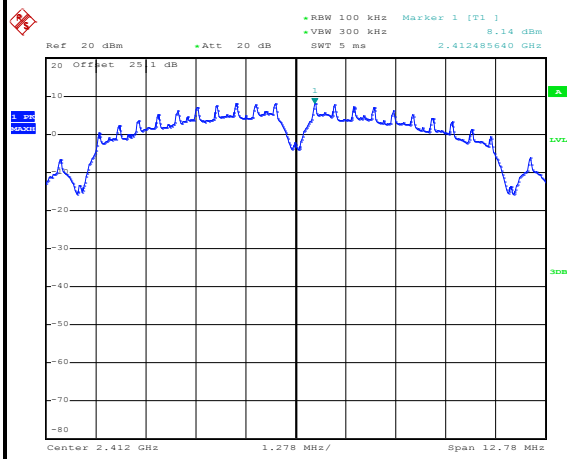
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 2, Ant. 1 (Measured)

Number of TX	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

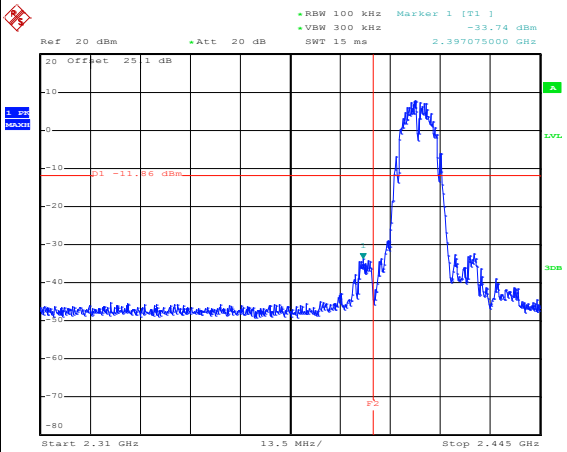
WLAN 802.11b Channel 01

100kHz PSD reference Level



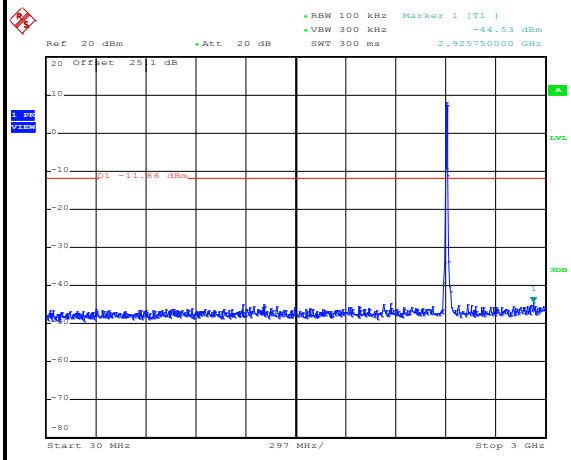
Date: 2.SEP.2014 22:10:41

Low Channel Plot



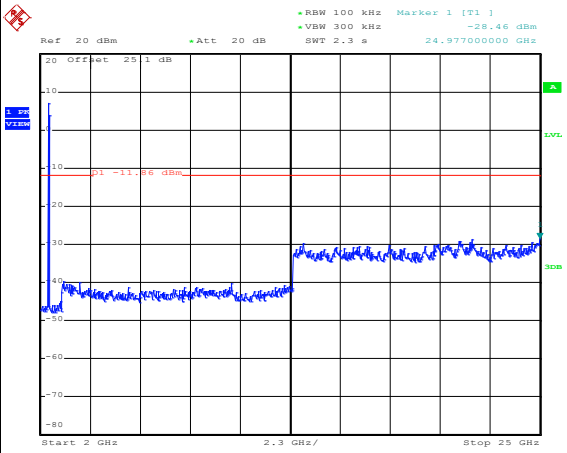
Date: 2.SEP.2014 22:11:10

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:11:58

Spurious Emission 2GHz~25GHz

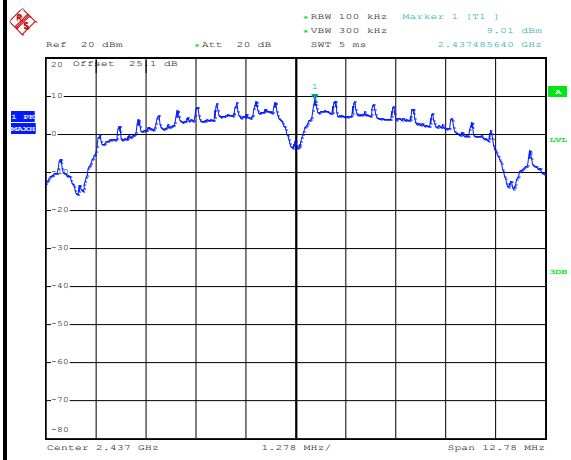


Date: 2.SEP.2014 22:12:16

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

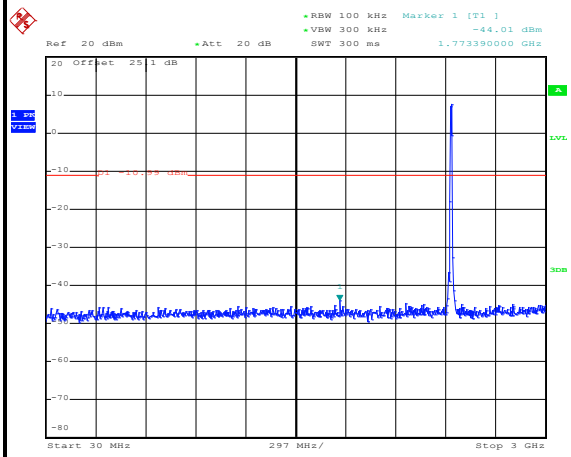
WLAN 802.11b Channel 06

100kHz PSD reference Level



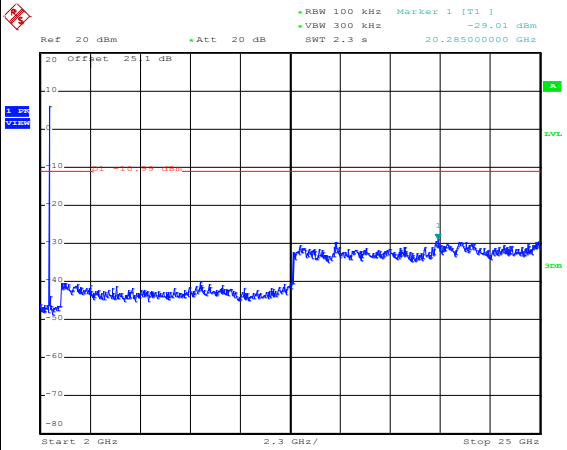
Date: 2.SEP.2014 22:25:27

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:26:19

Spurious Emission 2GHz~25GHz

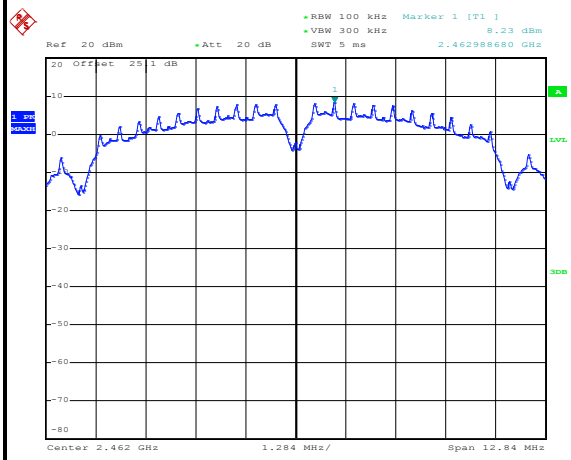


Date: 2.SEP.2014 22:26:37

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

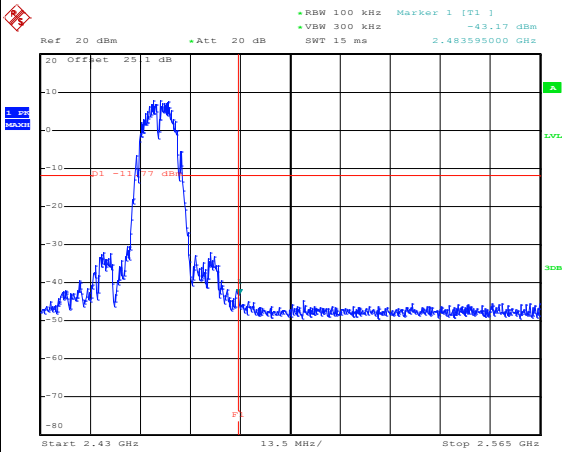
WLAN 802.11b Channel 11

100kHz PSD reference Level



Date: 2.SEP.2014 22:30:16

High Channel Plot



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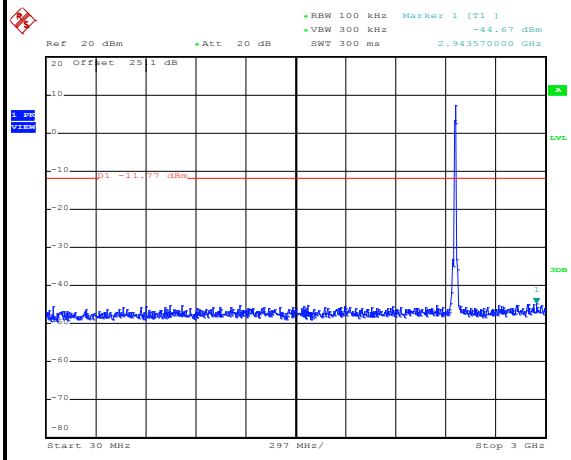
Spurious Emission 30MHz~3GHz



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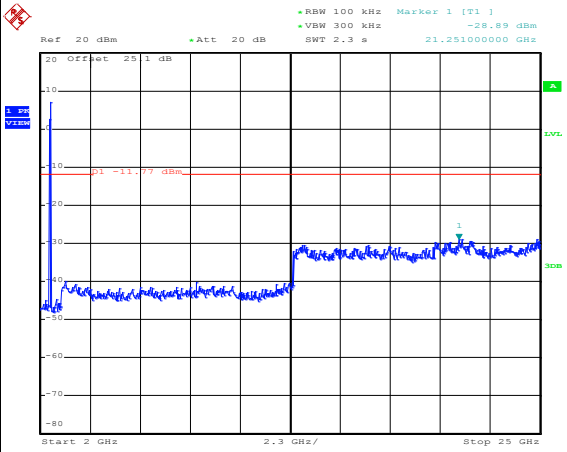
Spurious Emission 2GHz~25GHz

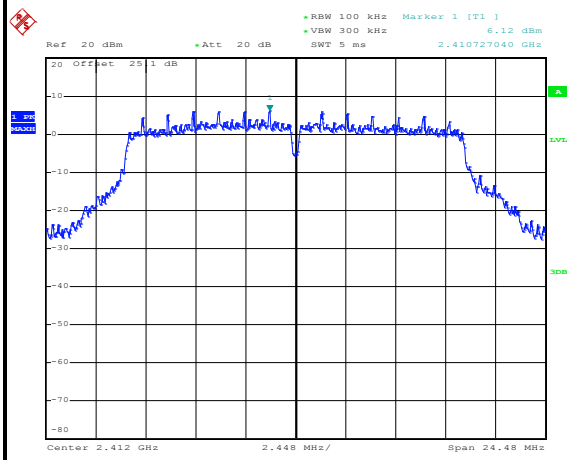


Date: 2.SEP.2014 22:33:16

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

WLAN 802.11g Channel 01

100kHz PSD reference Level



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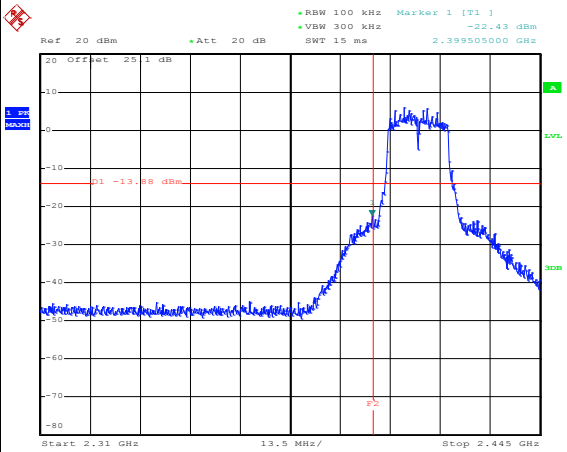
Low Channel Plot



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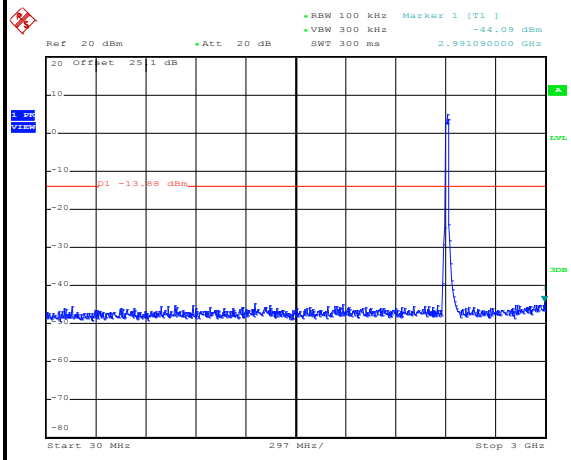
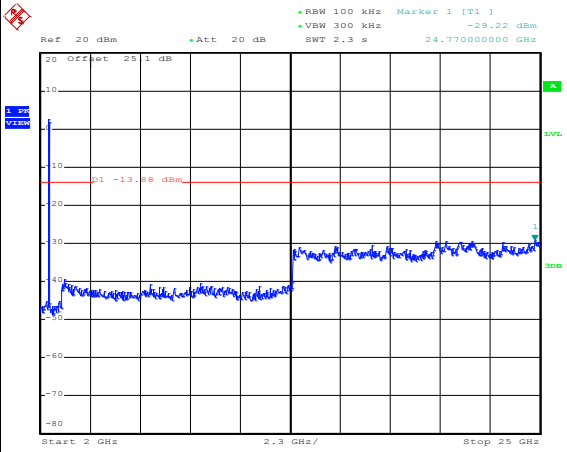
Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:09:54

Spurious Emission 2GHz~25GHz



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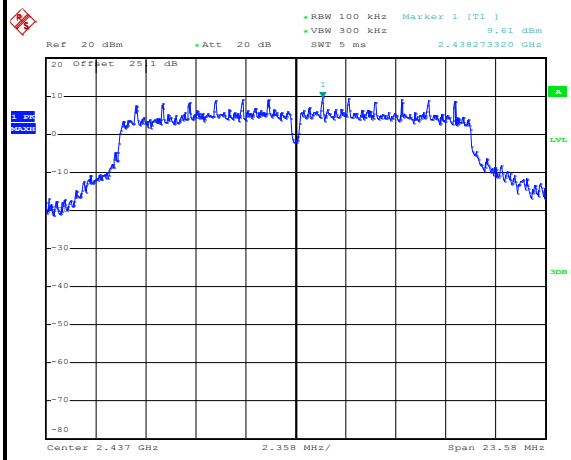
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

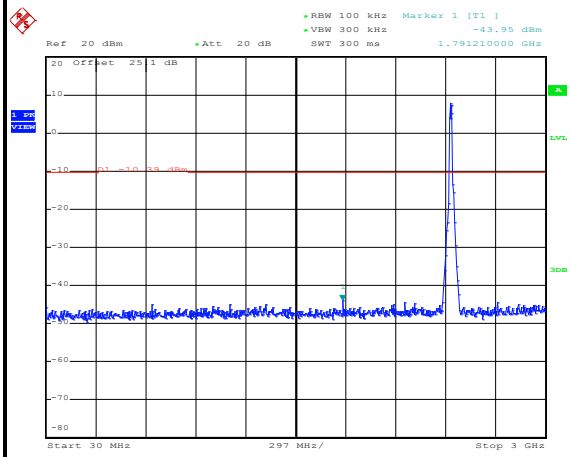
WLAN 802.11g Channel 06

100kHz PSD reference Level



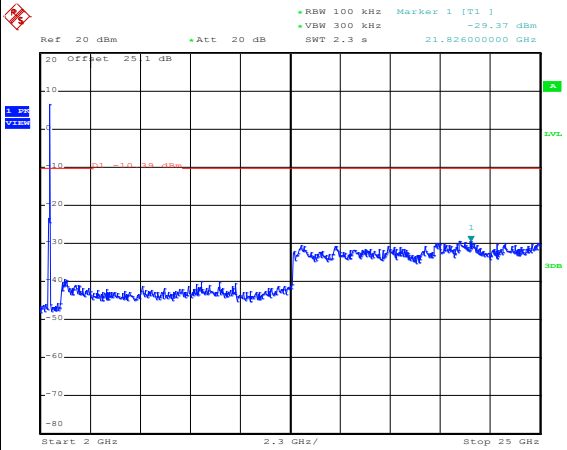
Date: 2.SEP.2014 22:56:09

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:56:29

Spurious Emission 2GHz~25GHz



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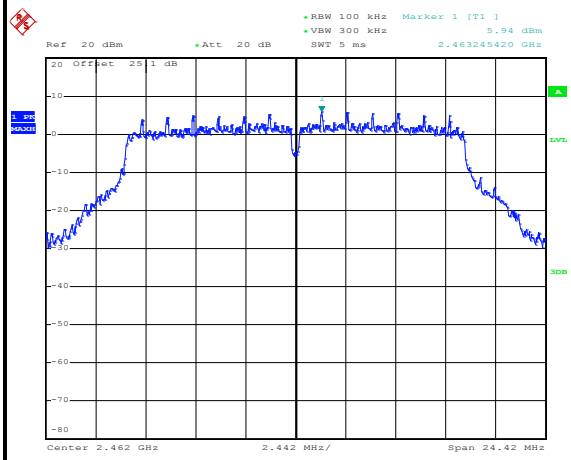
Number of TX :	2	**Ant. :**	1
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

WLAN 802.11g Channel 11

100kHz PSD reference Level



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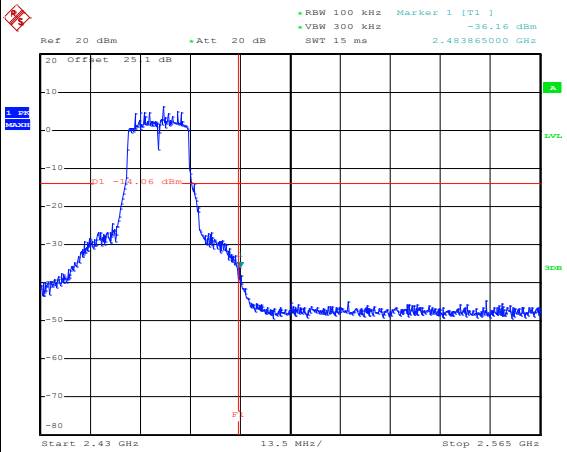
High Channel Plot



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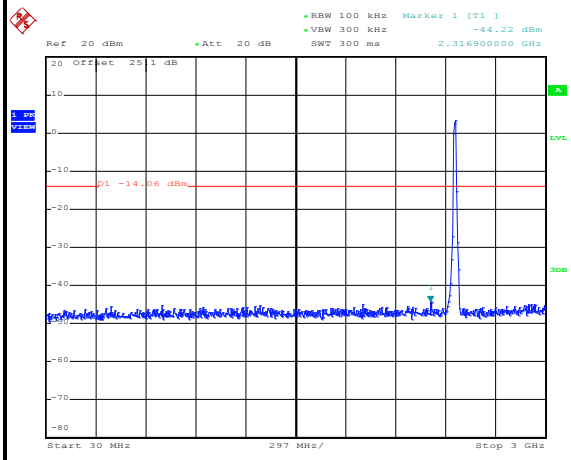
Spurious Emission 30MHz~3GHz



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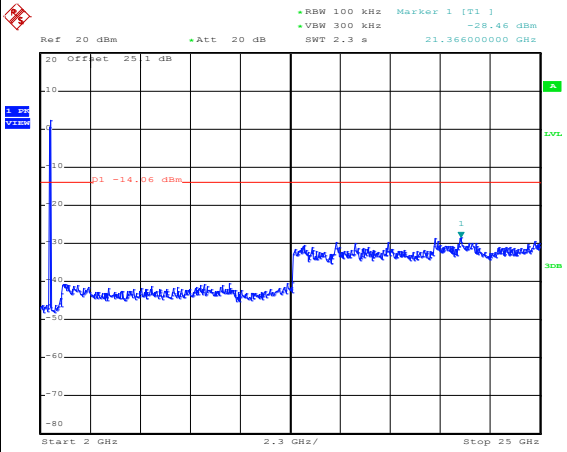
Spurious Emission 2GHz~25GHz

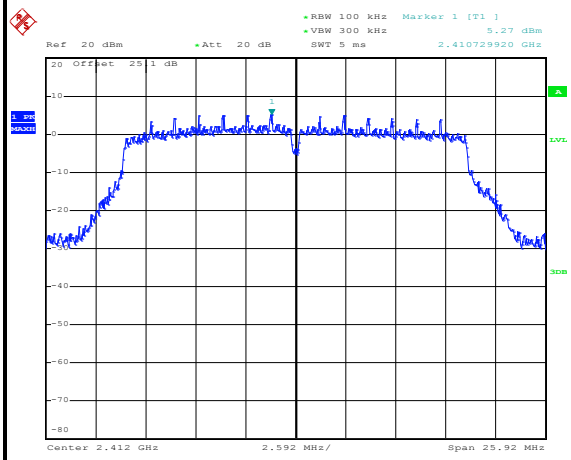


Date: 2.SEP.2014 22:51:54

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



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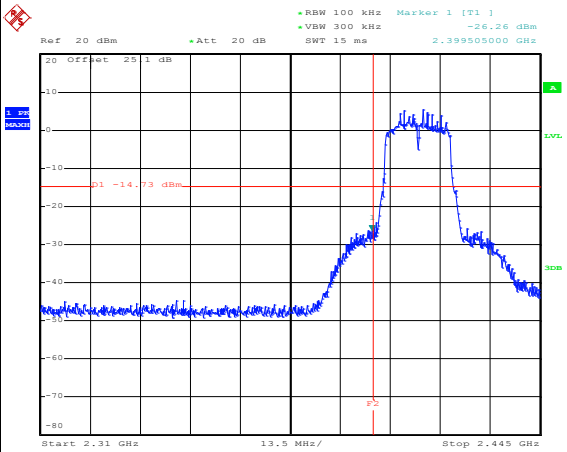
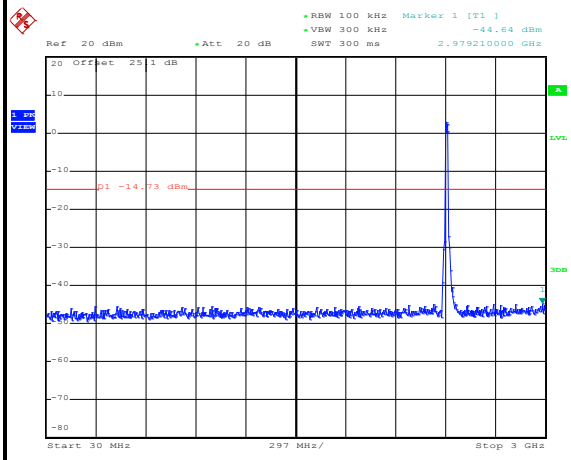
Low Channel Plot



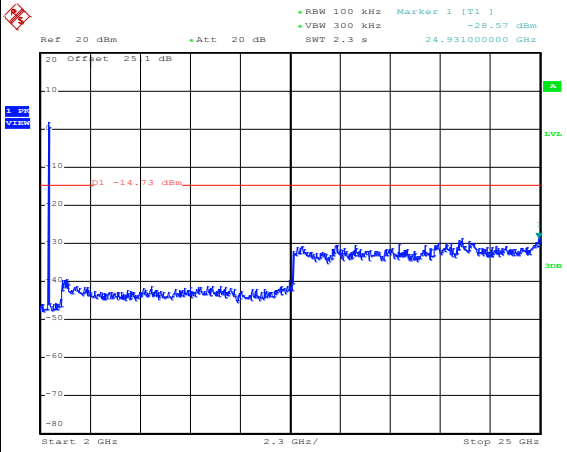
Date: 2.SEP.2014 23:14:54

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:15:24

Spurious Emission 2GHz~25GHz

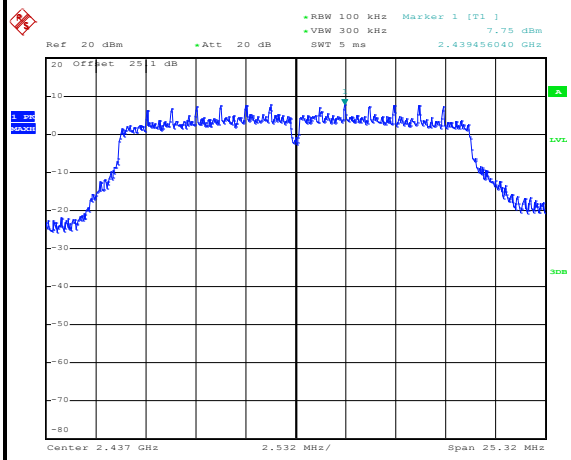


Date: 2.SEP.2014 23:15:42

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

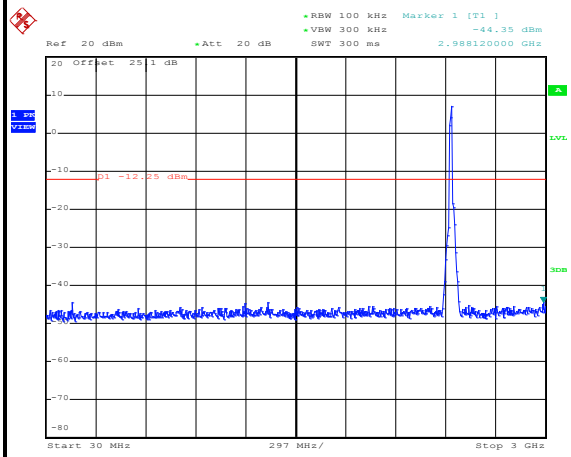
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



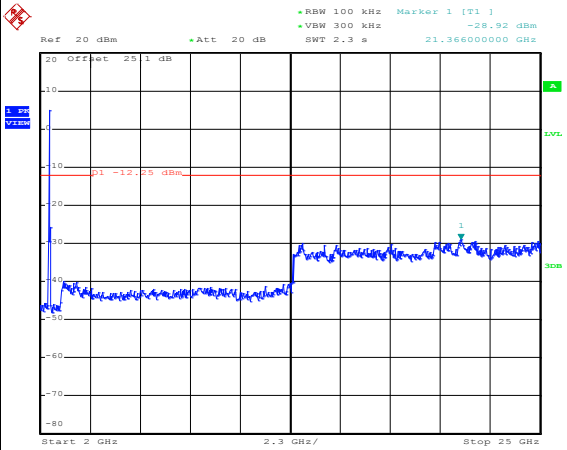
Date: 2.SEP.2014 23:28:12

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:28:52

Spurious Emission 2GHz~25GHz

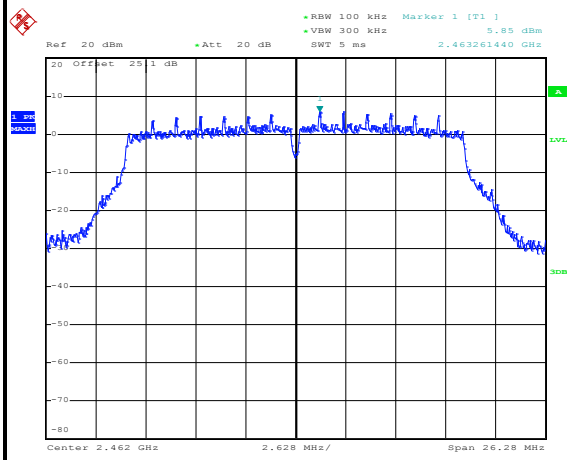


Date: 2.SEP.2014 23:29:10

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

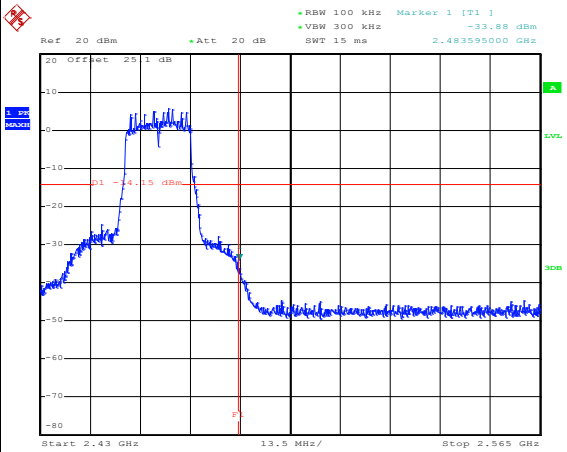
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



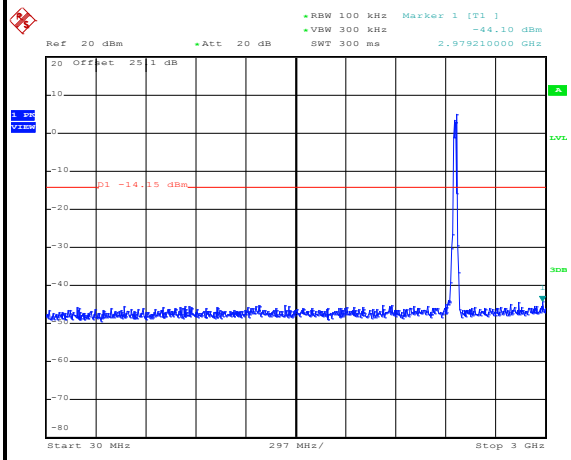
Date: 2.SEP.2014 23:33:20

High Channel Plot



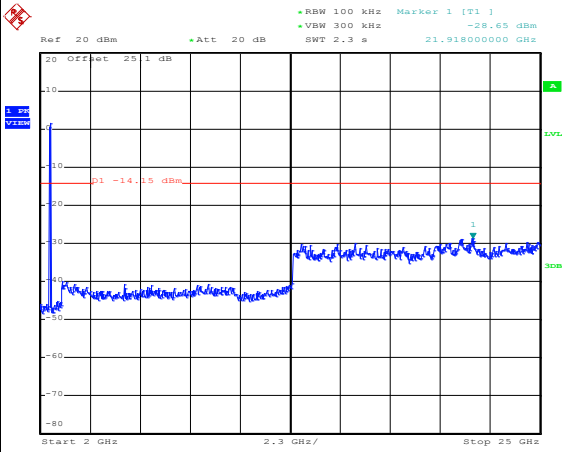
Date: 2.SEP.2014 23:34:13

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:34:41

Spurious Emission 2GHz~25GHz

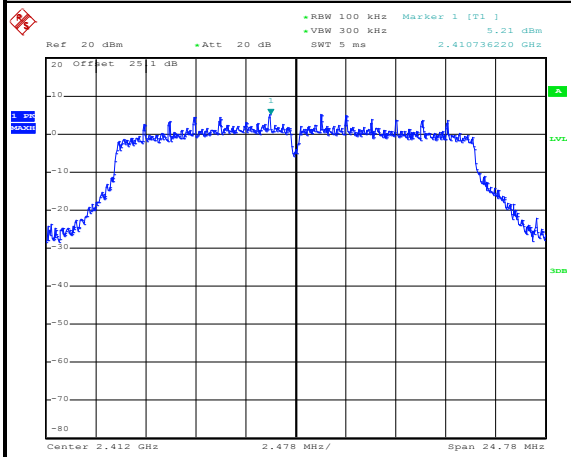


Date: 2.SEP.2014 23:34:59

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

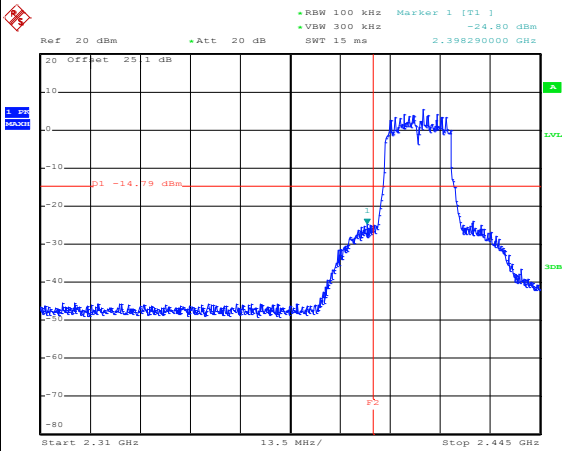
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



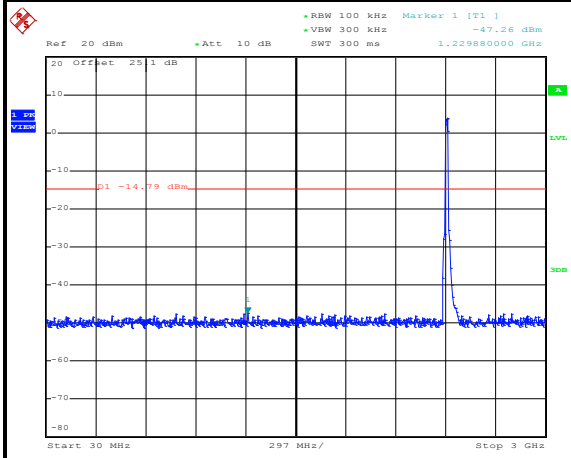
Date: 10.SEP.2014 14:47:09

Low Channel Plot



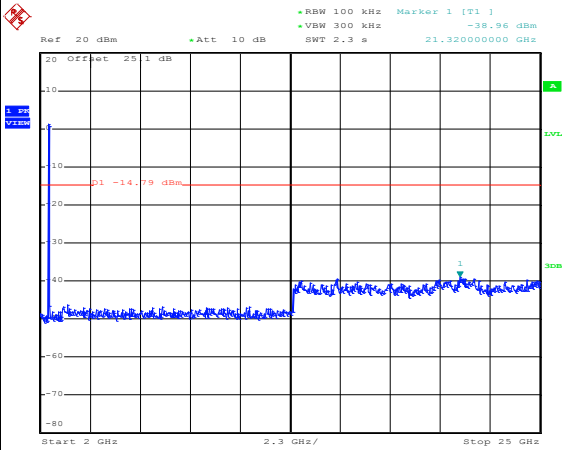
Date: 10.SEP.2014 14:47:25

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2014 14:47:46

Spurious Emission 2GHz~25GHz

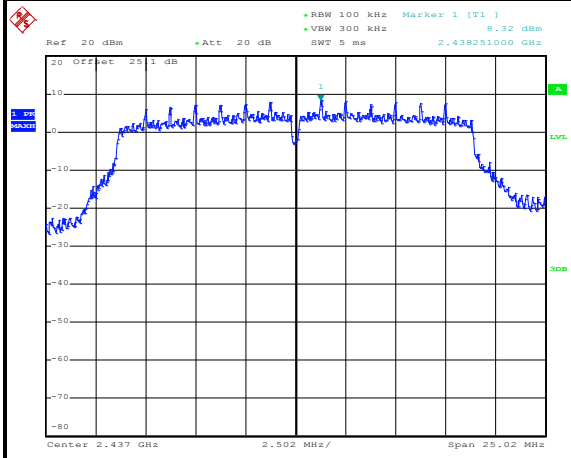


Date: 10.SEP.2014 14:48:04

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

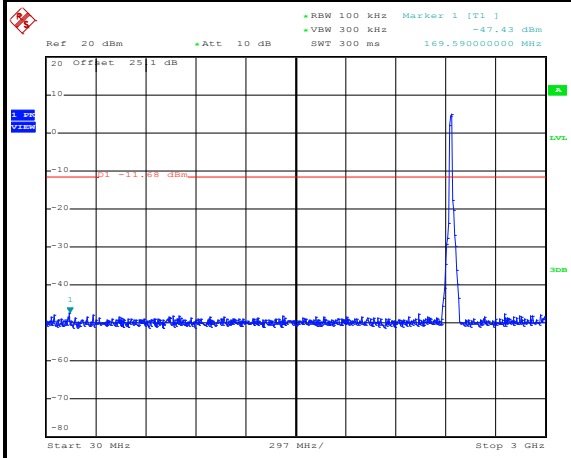
WLAN 802.11ac VHT20 Channel 06

100kHz PSD reference Level



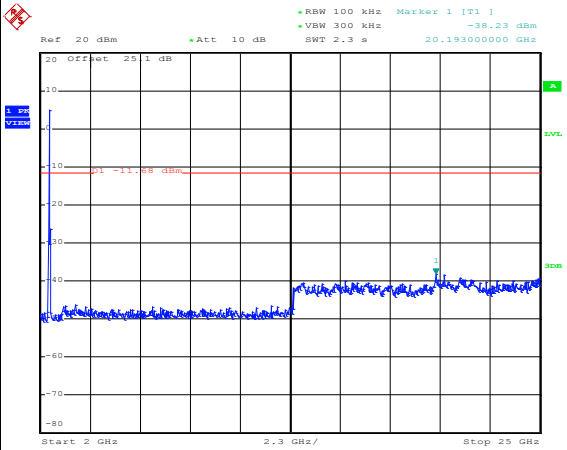
Date: 10.SEP.2014 15:00:03

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2014 15:00:43

Spurious Emission 2GHz~25GHz

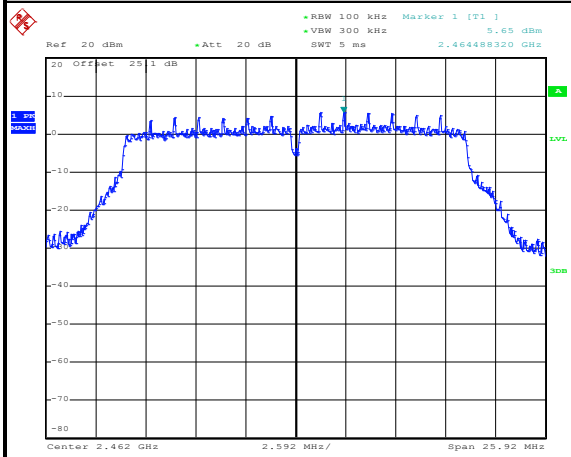


Date: 10.SEP.2014 15:01:01

Number of TX :	2	**Ant. :**	1
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

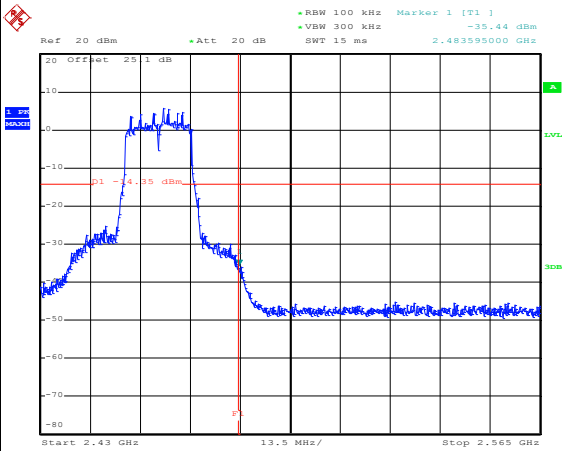
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



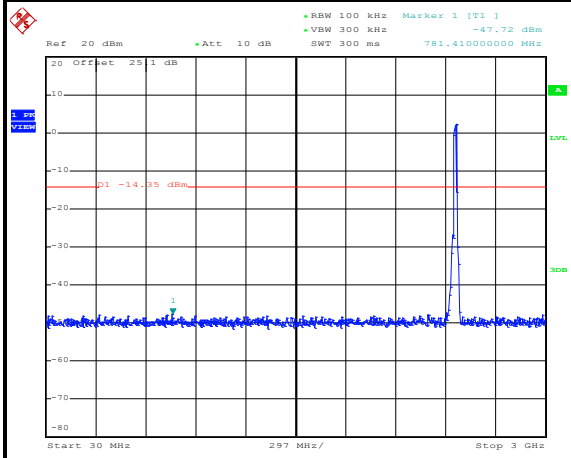
Date: 10.SEP.2014 15:08:36

High Channel Plot



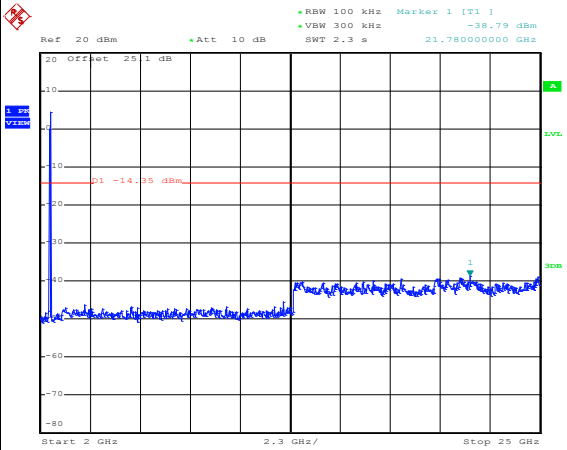
Date: 10.SEP.2014 15:10:19

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2014 15:11:19

Spurious Emission 2GHz~25GHz



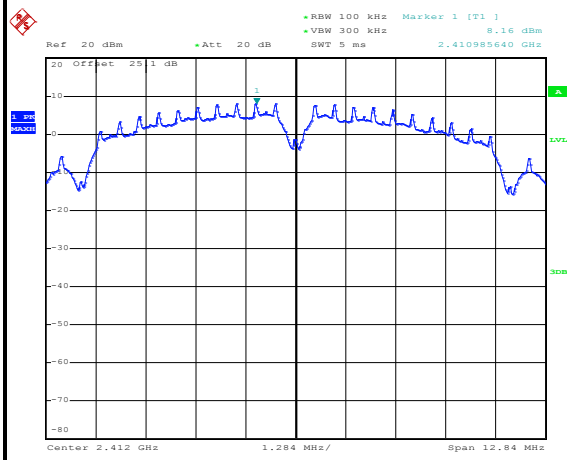
Date: 10.SEP.2014 15:11:37

Number of TX = 2, Ant. 2 (Measured)

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

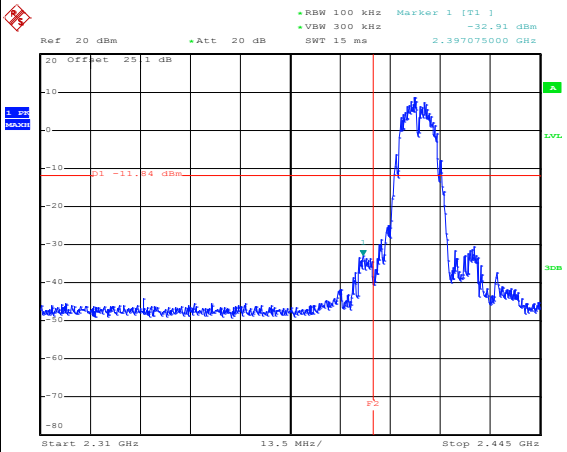
WLAN 802.11b Channel 01

100kHz PSD reference Level



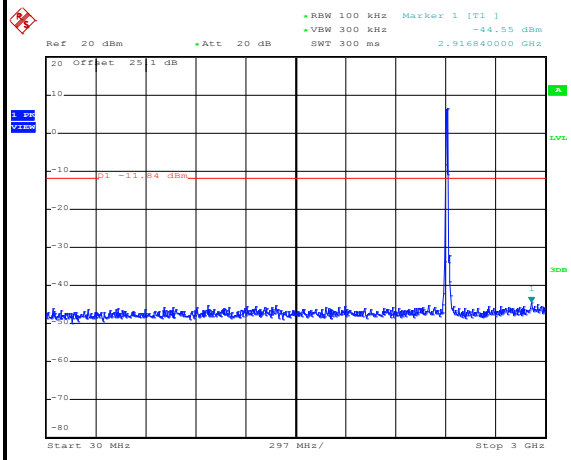
Date: 2.SEP.2014 22:15:24

Low Channel Plot



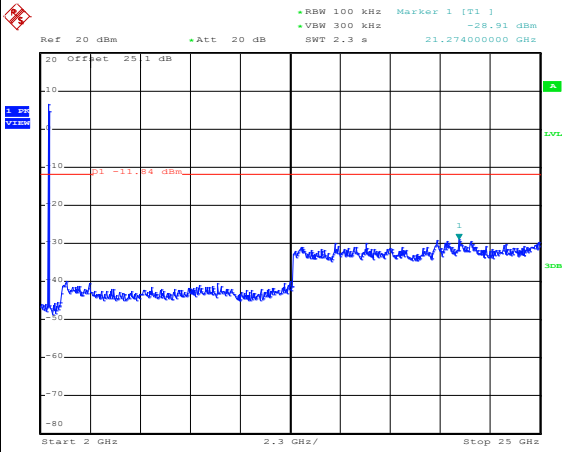
Date: 2.SEP.2014 22:15:39

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:16:11

Spurious Emission 2GHz~25GHz

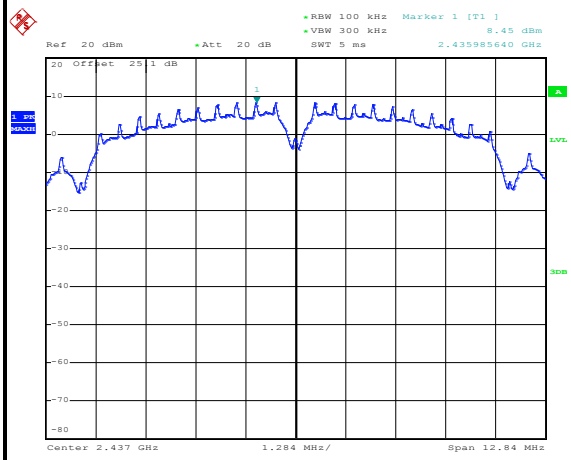


Date: 2.SEP.2014 22:16:29

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

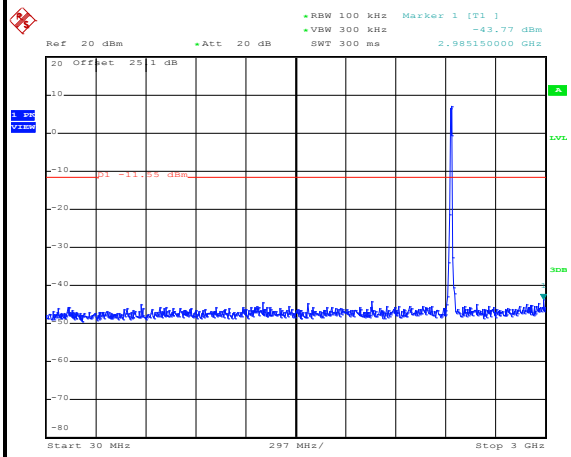
WLAN 802.11b Channel 06

100kHz PSD reference Level



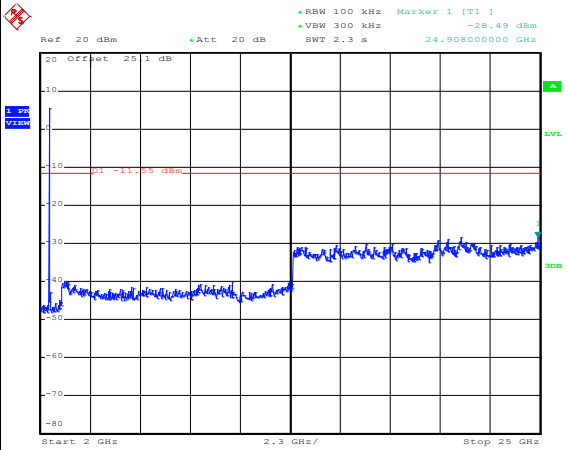
Date: 2.SEP.2014 22:20:48

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:21:31

Spurious Emission 2GHz~25GHz

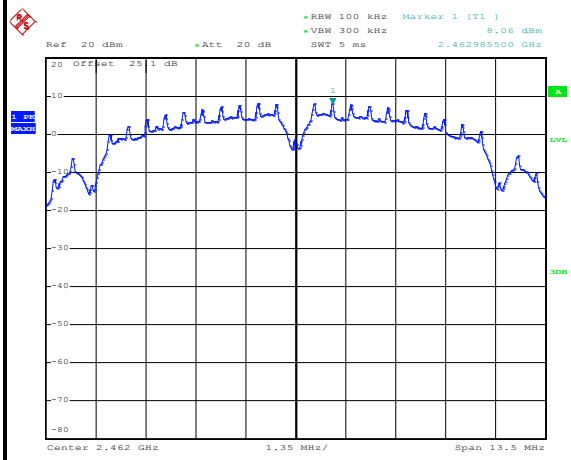


Date: 2.SEP.2014 22:21:49

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11b	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

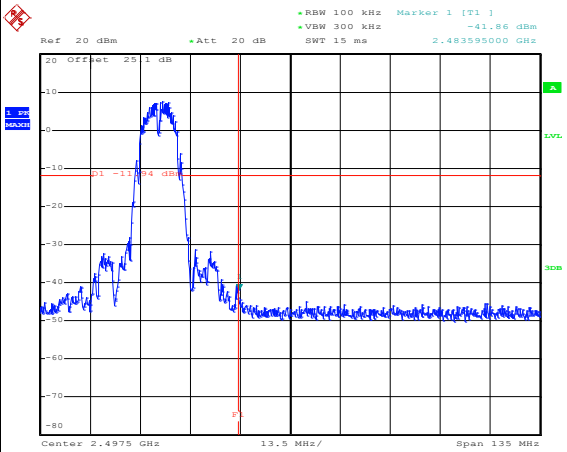
WLAN 802.11b Channel 11

100kHz PSD reference Level



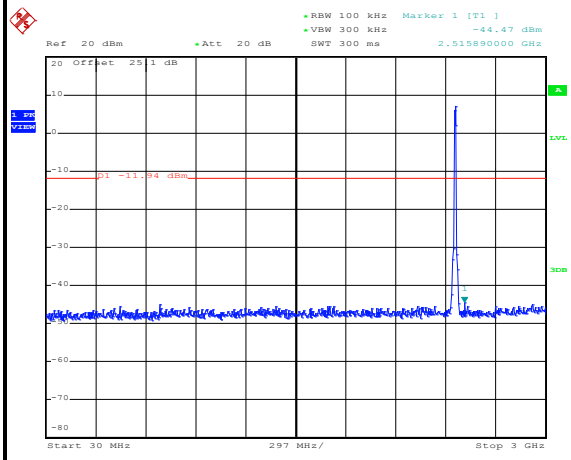
Date: 2.SEP.2014 22:35:58

High Channel Plot



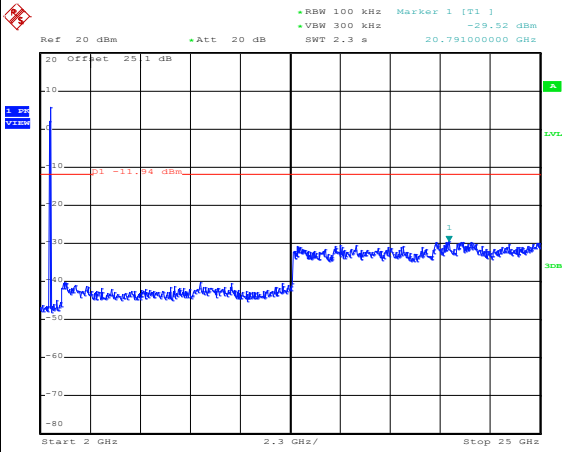
Date: 2.SEP.2014 22:40:09

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:37:07

Spurious Emission 2GHz~25GHz

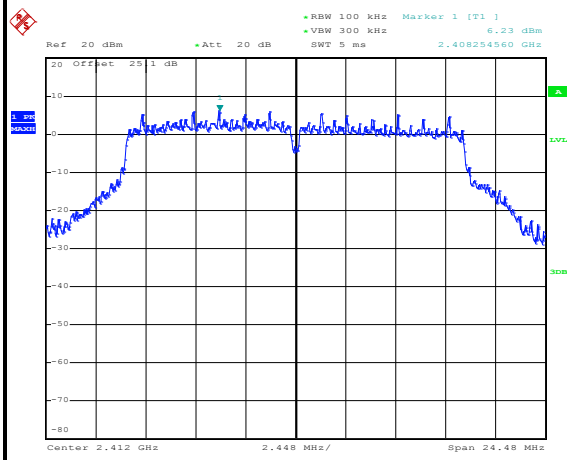


Date: 2.SEP.2014 22:37:25

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

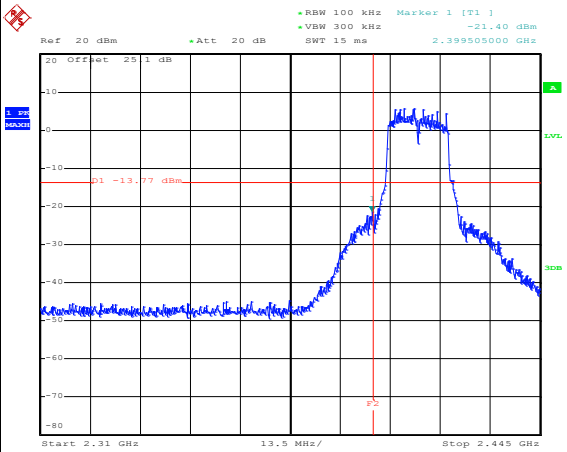
WLAN 802.11g Channel 01

100kHz PSD reference Level



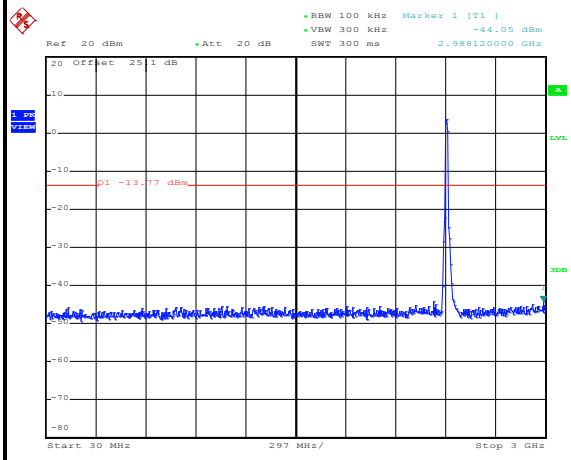
Date: 2.SEP.2014 23:04:28

Low Channel Plot



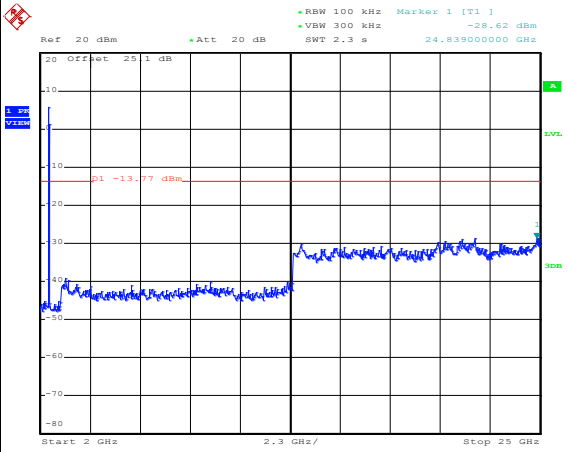
Date: 2.SEP.2014 23:04:51

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:05:14

Spurious Emission 2GHz~25GHz

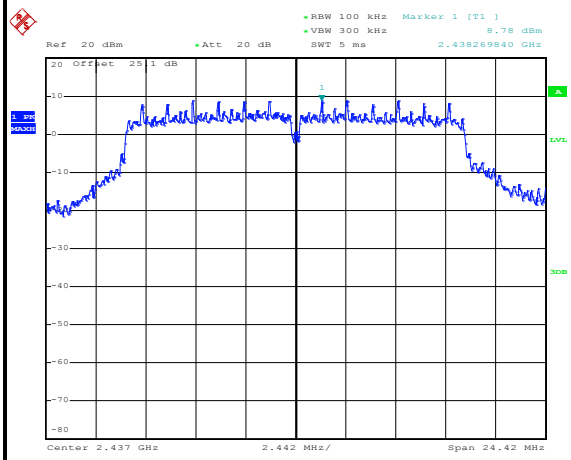


Date: 2.SEP.2014 23:05:32

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

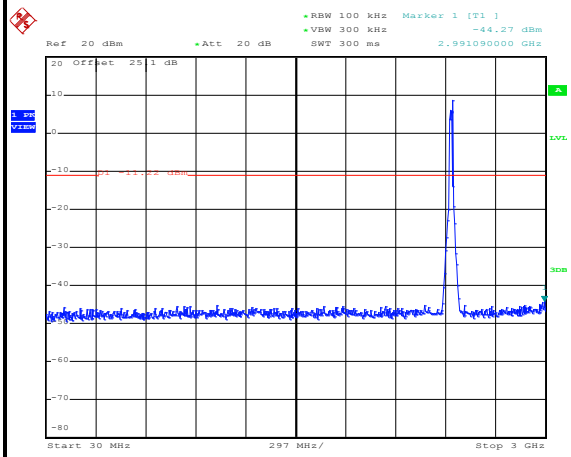
WLAN 802.11g Channel 06

100kHz PSD reference Level



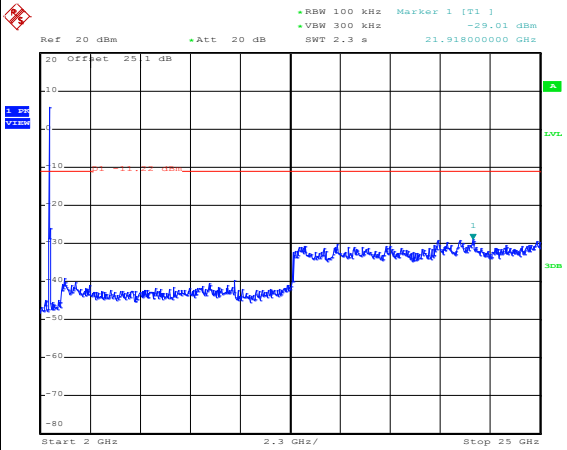
Date: 2.SEP.2014 23:00:00

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:00:46

Spurious Emission 2GHz~25GHz

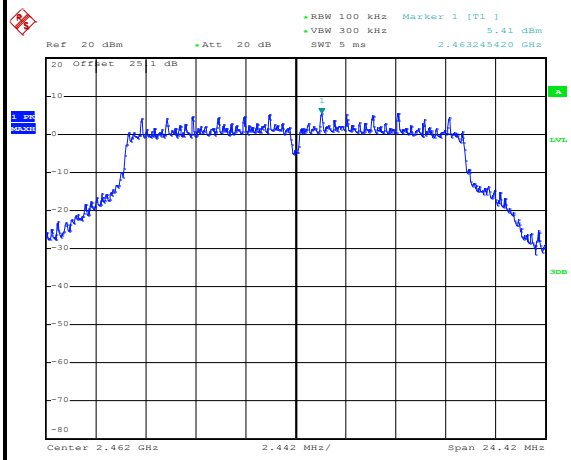


Date: 2.SEP.2014 23:01:04

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11g	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

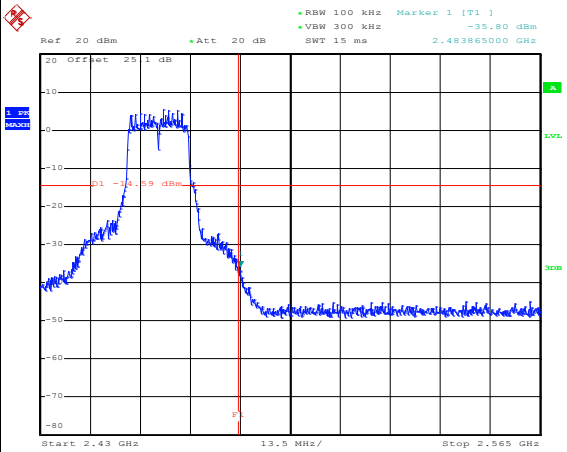
WLAN 802.11g Channel 11

100kHz PSD reference Level



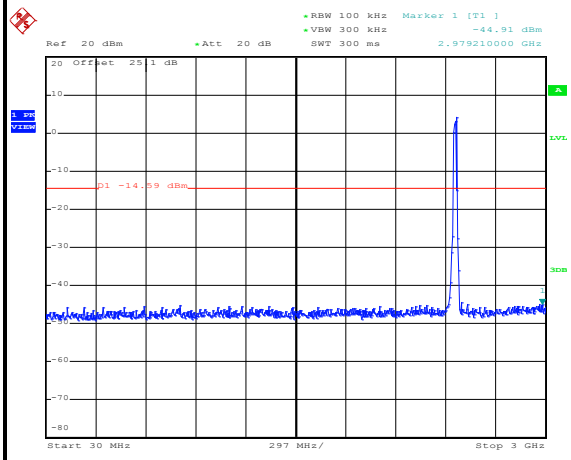
Date: 2.SEP.2014 22:43:54

High Channel Plot



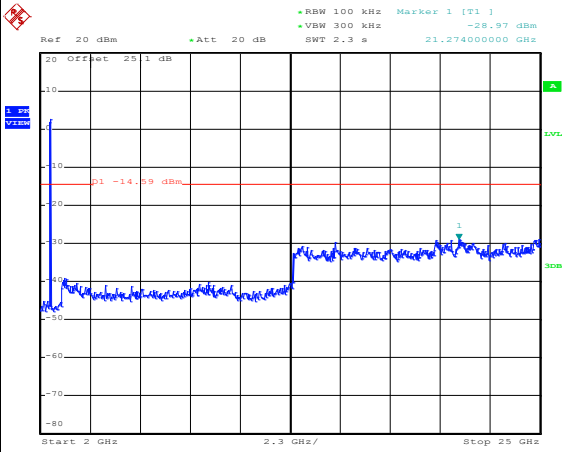
Date: 2.SEP.2014 22:45:04

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 22:45:29

Spurious Emission 2GHz~25GHz

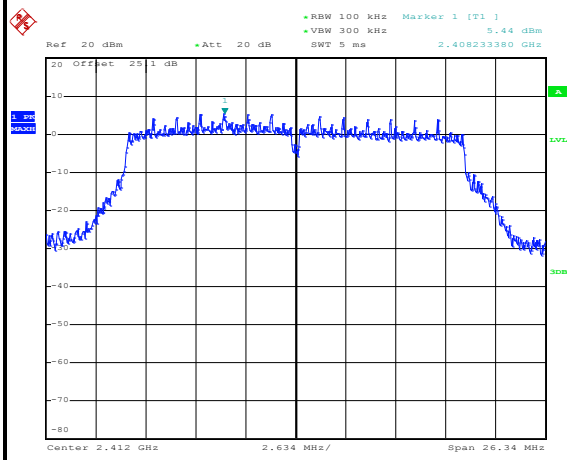


Date: 2.SEP.2014 22:45:47

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

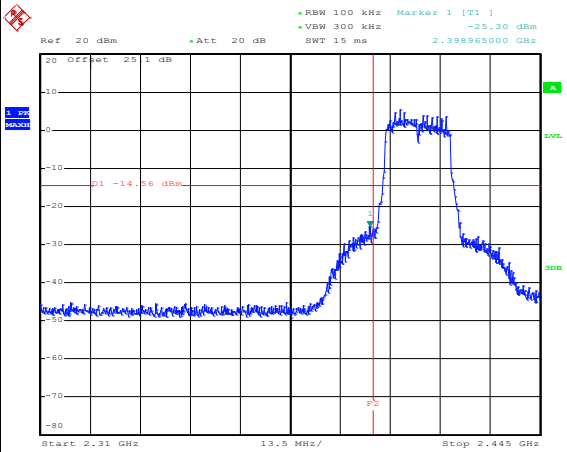
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



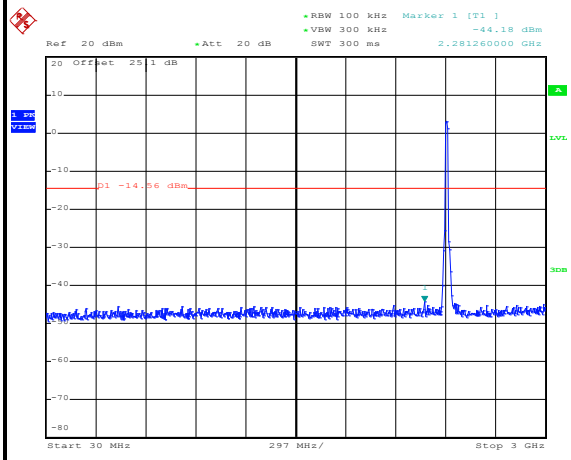
Date: 2.SEP.2014 23:19:02

Low Channel Plot



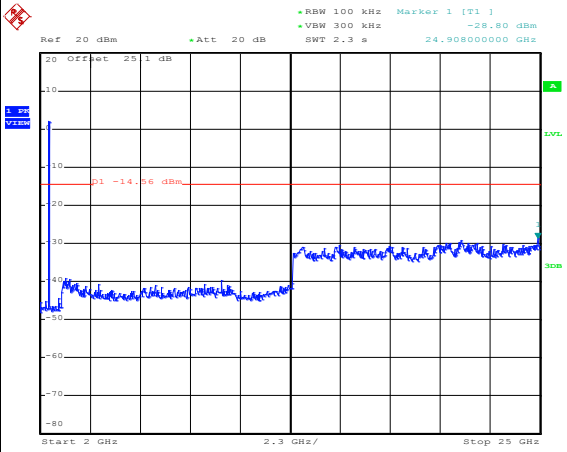
Date: 2.SEP.2014 23:19:20

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:19:44

Spurious Emission 2GHz~25GHz

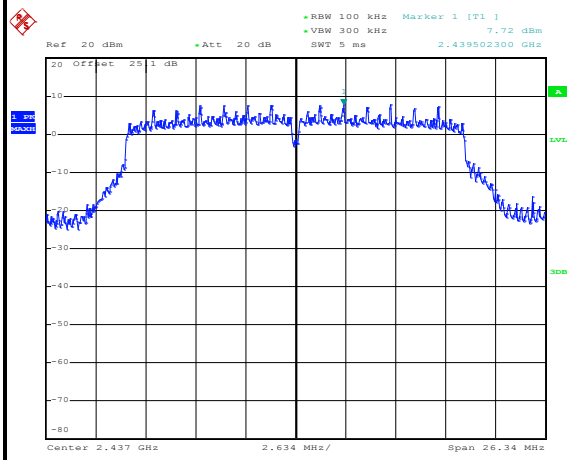


Date: 2.SEP.2014 23:20:02

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

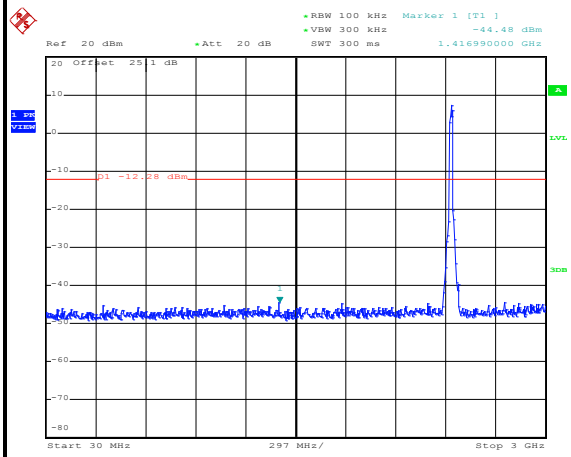
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



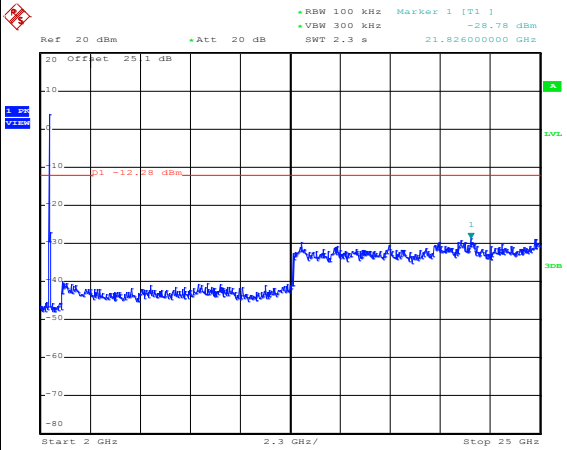
Date: 2.SEP.2014 23:23:49

Spurious Emission 30MHz~3GHz



Date: 2.SEP.2014 23:25:02

Spurious Emission 2GHz~25GHz

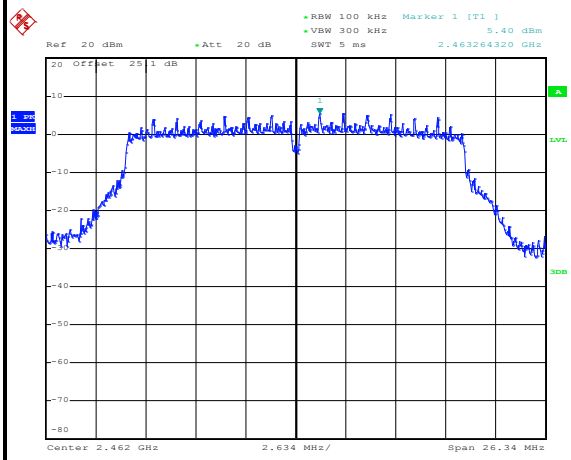


Date: 2.SEP.2014 23:25:20

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11n HT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

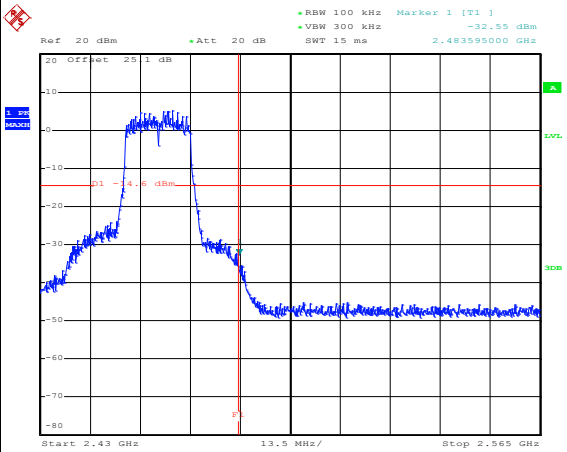
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



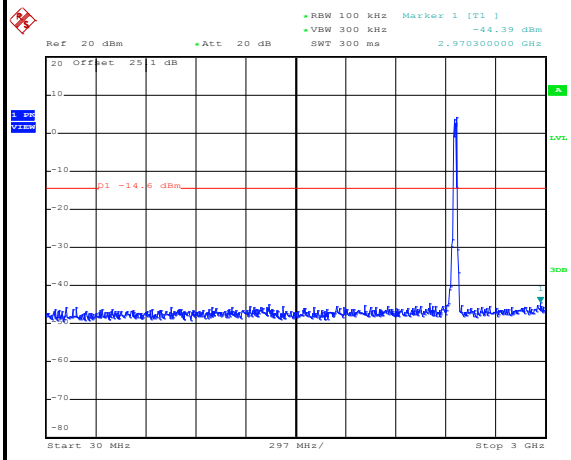
Date: 2.SEP.2014 23:38:25

High Channel Plot



Date: 2.SEP.2014 23:39:30

Spurious Emission 30MHz~3GHz



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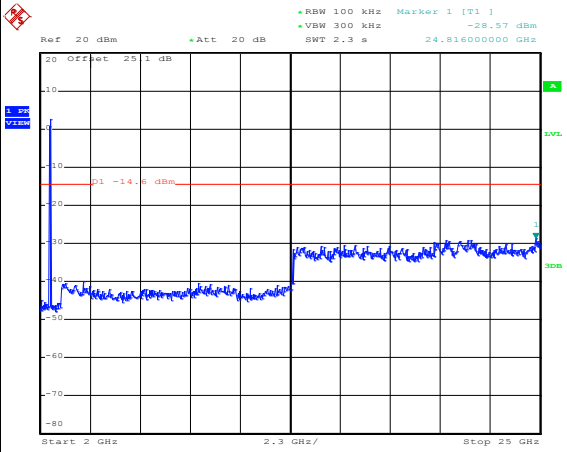
Spurious Emission 2GHz~25GHz

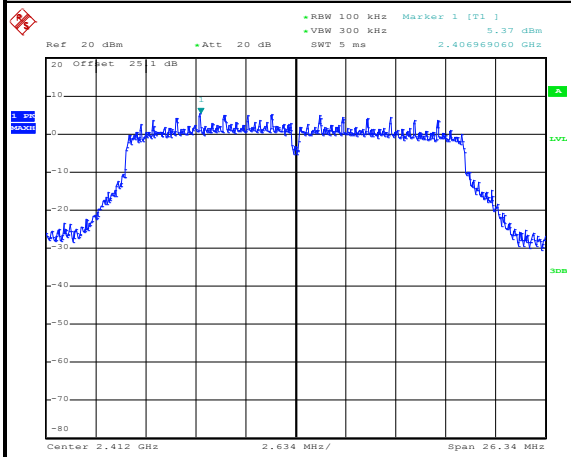


Date: 2.SEP.2014 23:40:08

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Low	**Relative Humidity :**	51~54%
Test Channel :	01	**Test Engineer :**	Alex Lee

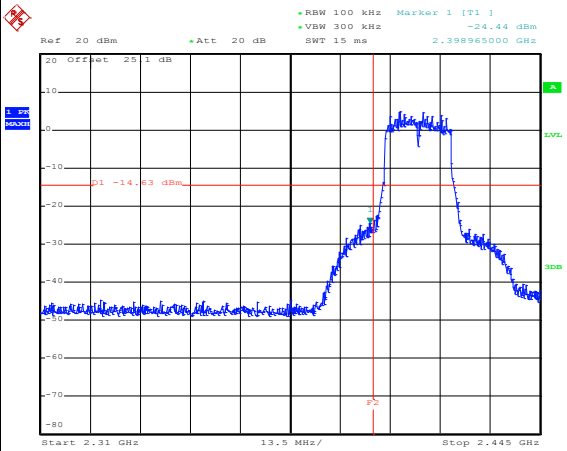
WLAN 802.11ac VHT20 Channel 01

100kHz PSD reference Level



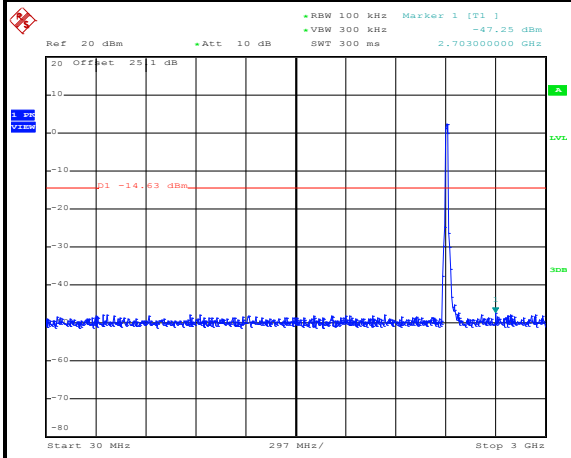
Date: 10.SEP.2014 14:43:57

Low Channel Plot



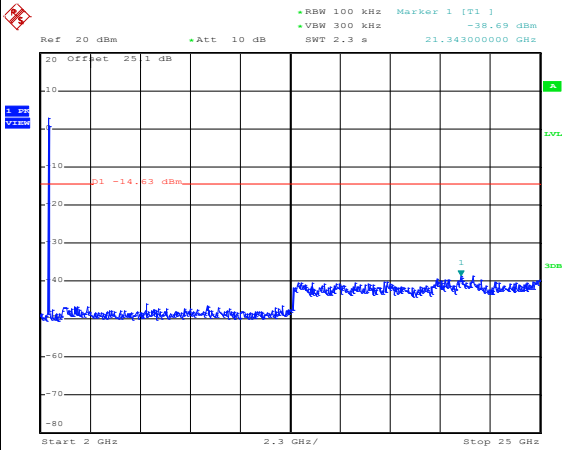
Date: 10.SEP.2014 14:44:13

Spurious Emission 30MHz~3GHz



Date: 10.SEP.2014 14:45:12

Spurious Emission 2GHz~25GHz

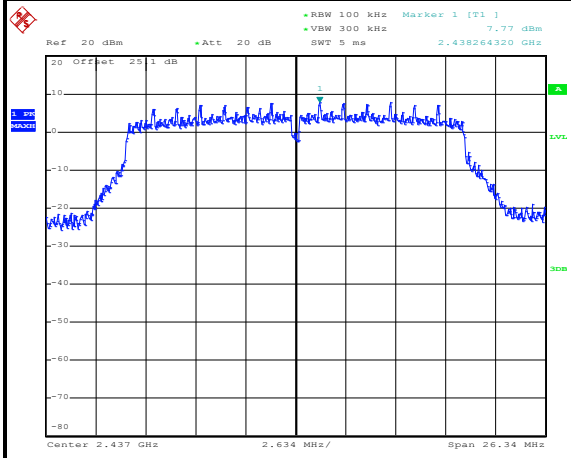


Date: 10.SEP.2014 14:45:30

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz Mid	**Relative Humidity :**	51~54%
Test Channel :	06	**Test Engineer :**	Alex Lee

WLAN 802.11ac VHT20 Channel 06

100kHz PSD reference Level



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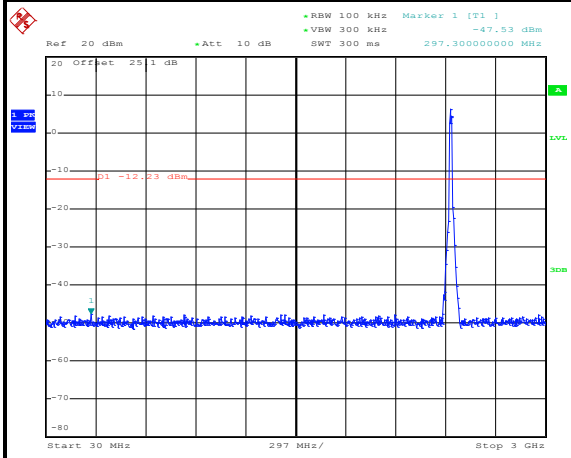
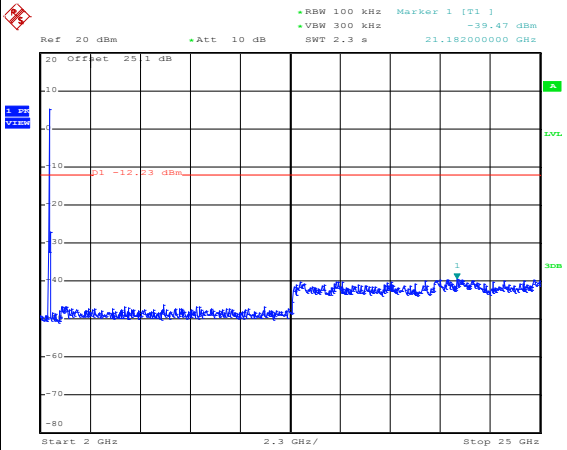
Spurious Emission 30MHz~3GHz



Date: 10.SEP.2014 15:04:00

Spurious Emission 2GHz~25GHz

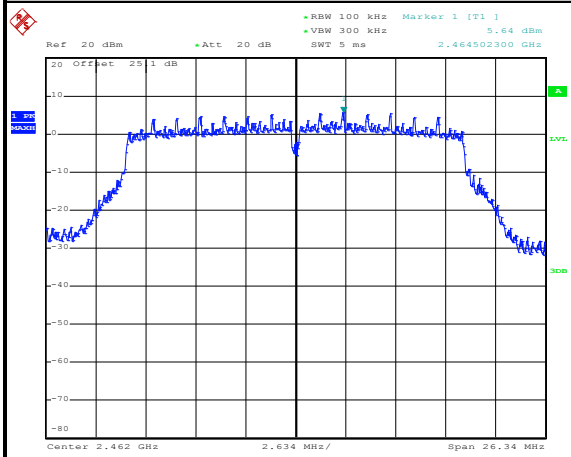


Date: 10.SEP.2014 15:04:18

Number of TX :	2	**Ant. :**	2
Test Mode :	802.11ac VHT20	**Temperature :**	21~25℃
Test Band :	2.4GHz High	**Relative Humidity :**	51~54%
Test Channel :	11	**Test Engineer :**	Alex Lee

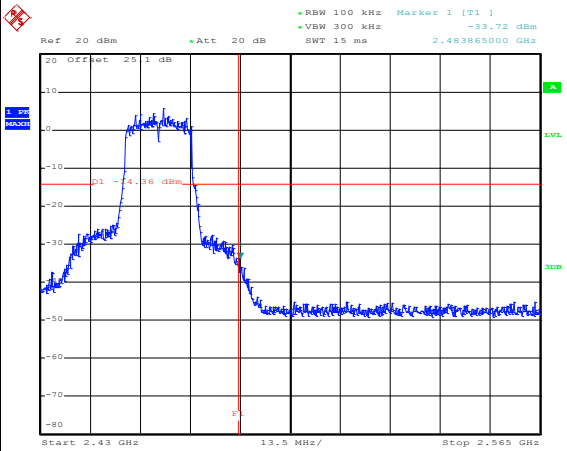
WLAN 802.11ac VHT20 Channel 11

100kHz PSD reference Level



Date: 10.SEP.2014 15:15:46

High Channel Plot



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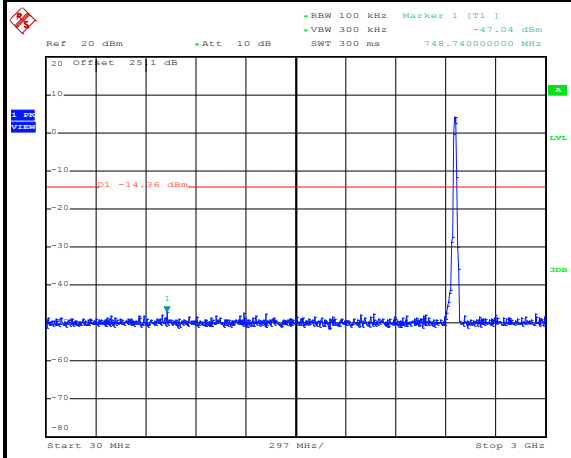
Spurious Emission 30MHz~3GHz



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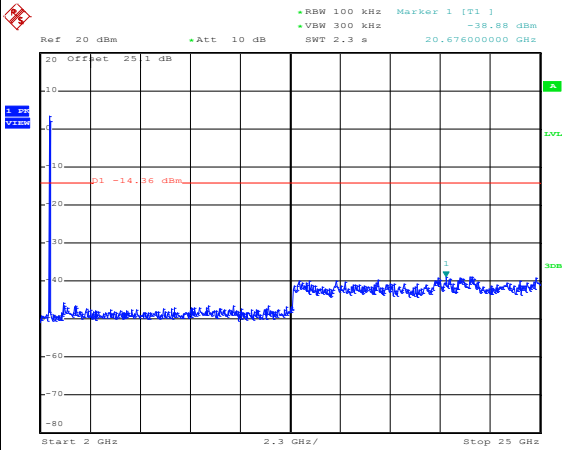
Spurious Emission 2GHz~25GHz



Date: 10.SEP.2014 15:17:11

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.

Note: Wireless charger configuration was evaluated.

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.

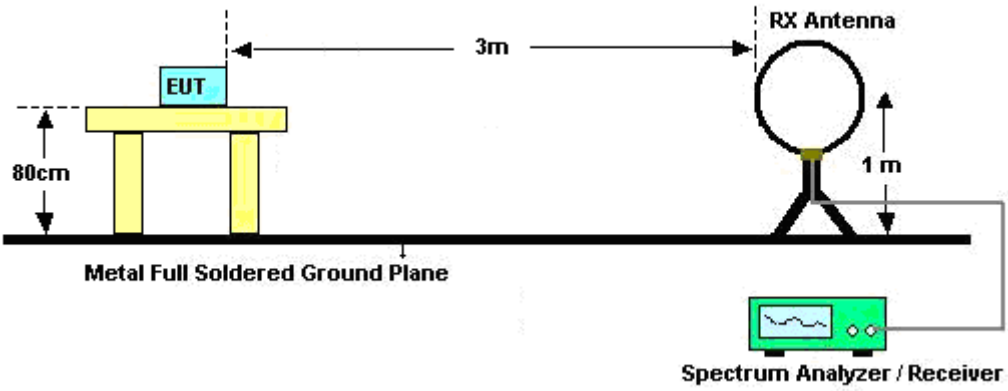
3.5.3 Test Procedure

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.

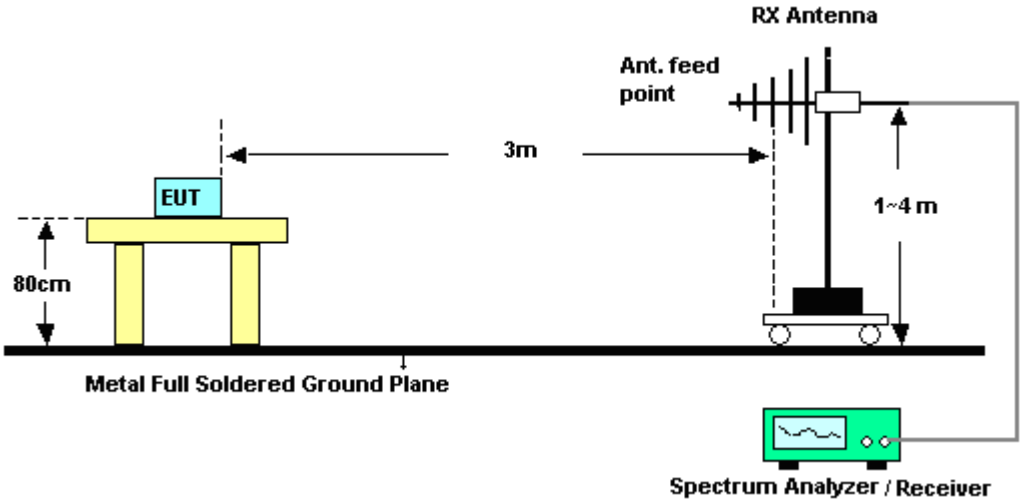
Antenna	Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
1+2	802.11b for Ant 1	100	-	-	10Hz
1+2	802.11b for Ant 2	100	-	-	
1+2	802.11g for Ant 1	98.11	-	-	1kHz
1+2	802.11g for Ant 2	97.17	2060	0.485436893	
1+2	2.4GHz 802.11g HT20 for Ant 1	96.97	1920	0.520833333	
1+2	2.4GHz 802.11g HT20 for Ant 2	97.98	1940	0.515463918	
1+2	2.4GHz 802.11g ac20 for Ant 1	97	1940	0.515463918	
1+2	2.4GHz 802.11g ac20 for Ant 2	96.97	1920	0.520833333	

3.5.4 Test Setup

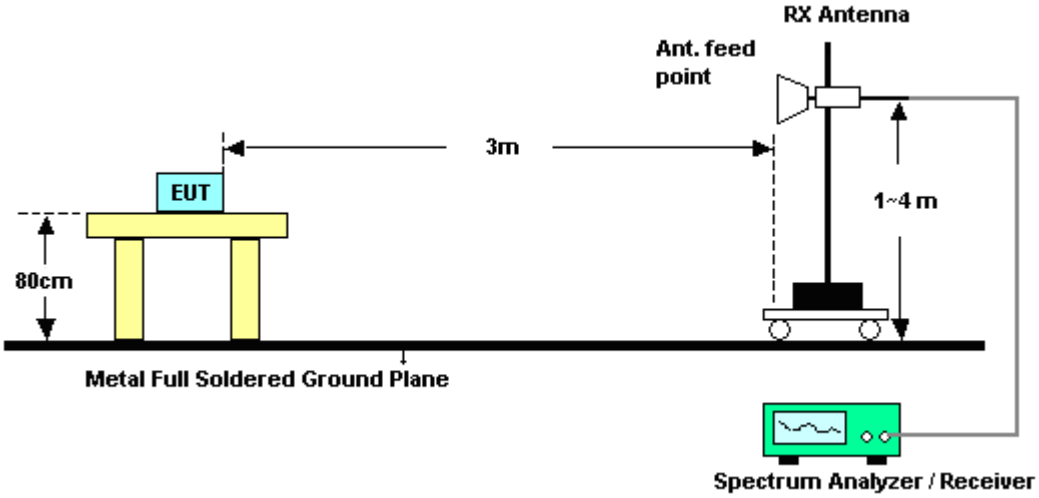
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Result

Please refer to appendix A as below.

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.

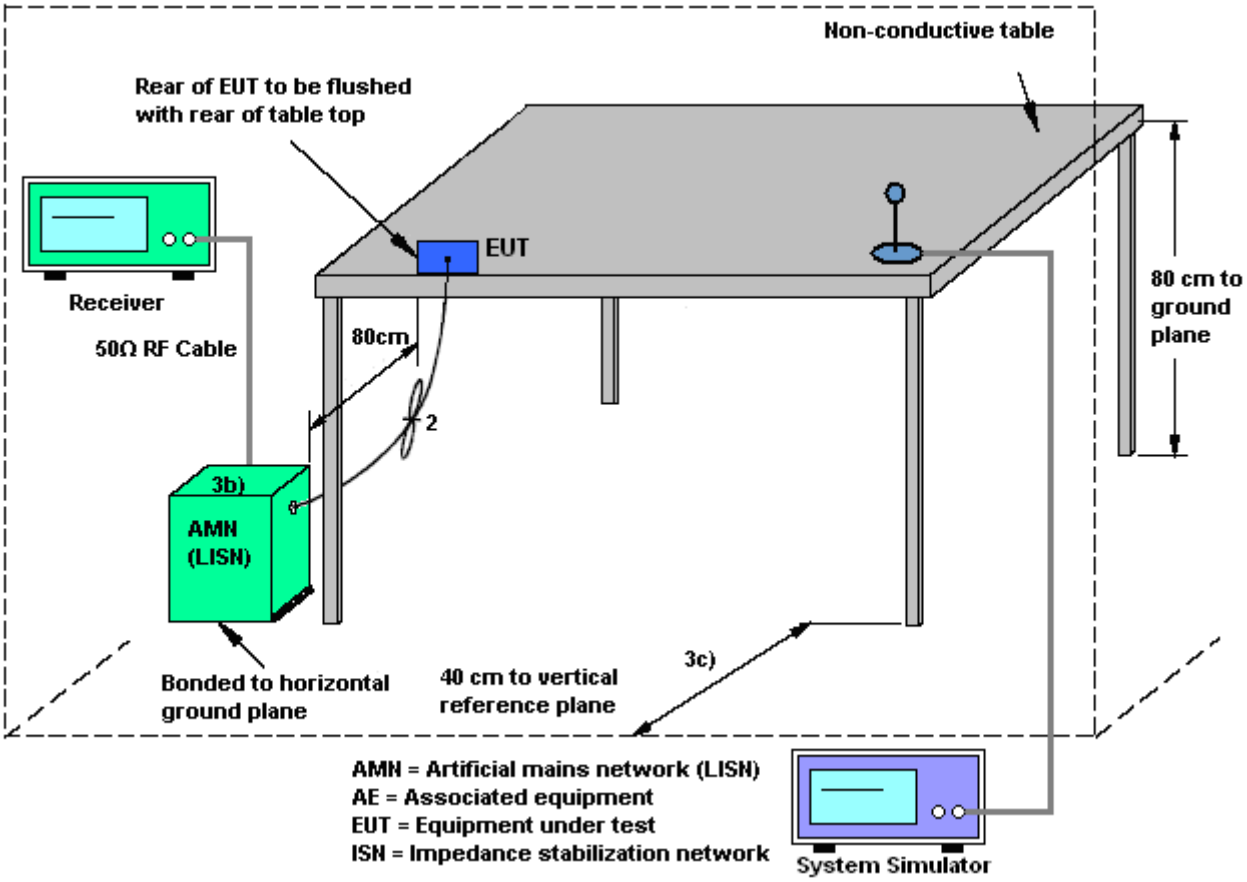
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

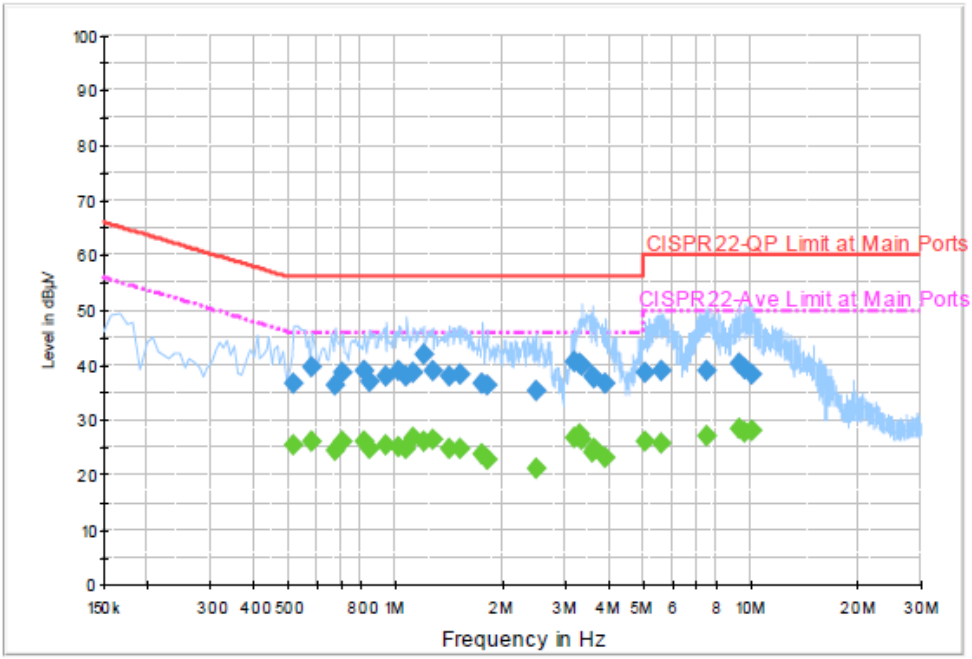
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other 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 (IF bandwidth = 9kHz) with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

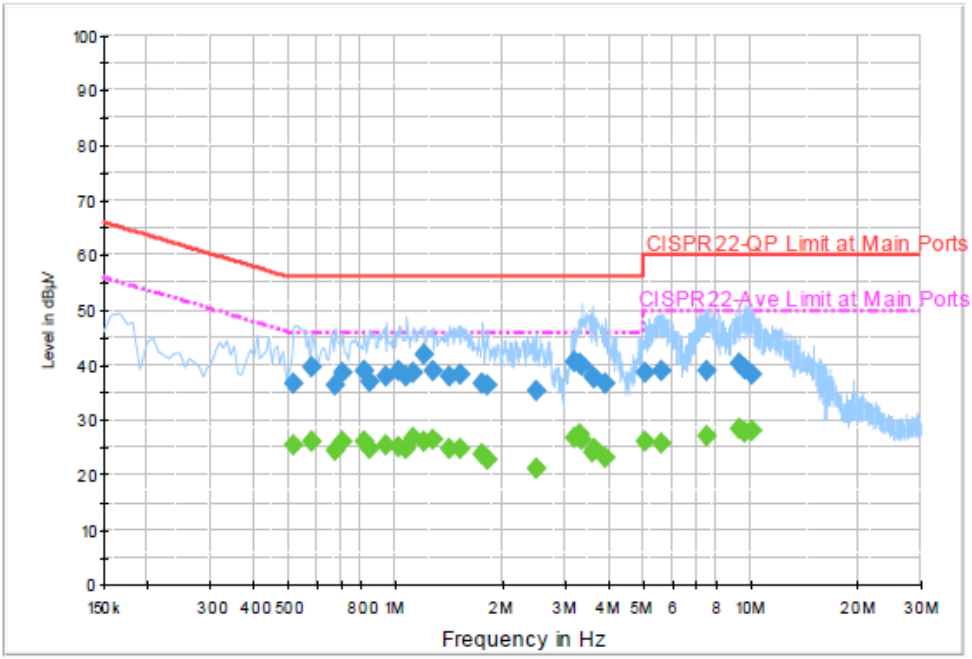
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.518000	36.7	Off	L1	19.4	19.3	56.0
0.582000	39.6	Off	L1	19.4	16.4	56.0
0.678000	36.4	Off	L1	19.5	19.6	56.0
0.710000	38.5	Off	L1	19.5	17.5	56.0
0.814000	38.9	Off	L1	19.5	17.1	56.0
0.846000	36.9	Off	L1	19.6	19.1	56.0
0.942000	37.8	Off	L1	19.5	18.2	56.0
1.022000	38.9	Off	L1	19.4	17.1	56.0
1.070000	37.9	Off	L1	19.5	18.1	56.0
1.118000	38.6	Off	L1	19.5	17.4	56.0
1.198000	42.0	Off	L1	19.5	14.0	56.0
1.270000	39.0	Off	L1	19.5	17.0	56.0
1.414000	37.9	Off	L1	19.4	18.1	56.0
1.526000	38.3	Off	L1	19.4	17.7	56.0
1.750000	36.6	Off	L1	19.6	19.4	56.0
1.806000	36.4	Off	L1	19.6	19.6	56.0
2.478000	35.3	Off	L1	19.5	20.7	56.0

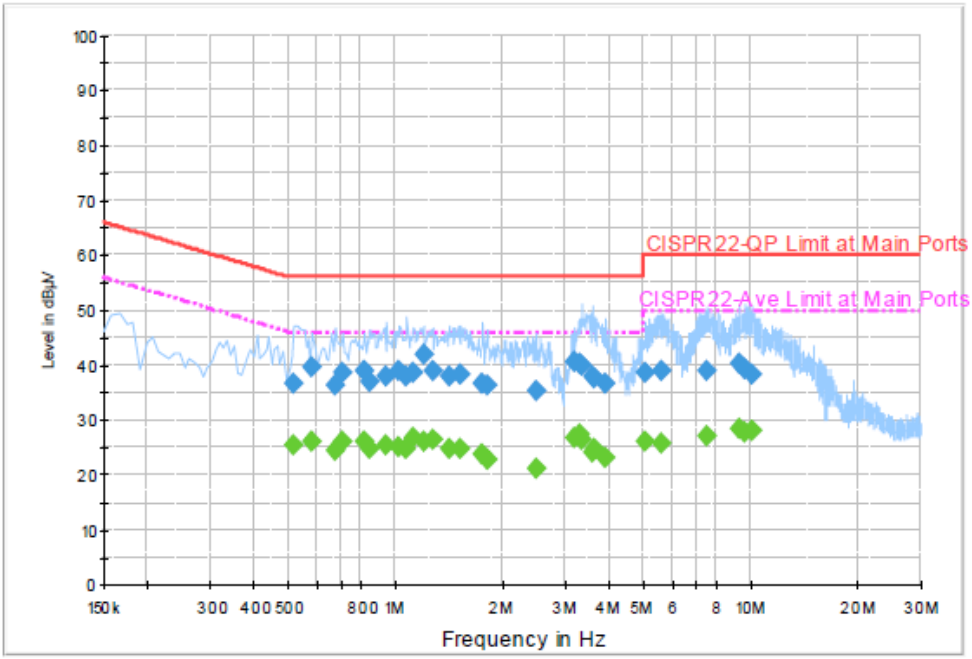
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.166000	40.5	Off	L1	19.6	15.5	56.0
3.278000	40.1	Off	L1	19.6	15.9	56.0
3.334000	40.0	Off	L1	19.6	16.0	56.0
3.566000	37.8	Off	L1	19.5	18.2	56.0
3.622000	37.6	Off	L1	19.5	18.4	56.0
3.902000	36.6	Off	L1	19.5	19.4	56.0
5.030000	38.7	Off	L1	19.6	21.3	60.0
5.622000	38.9	Off	L1	19.6	21.1	60.0
7.542000	39.1	Off	L1	19.6	20.9	60.0
9.294000	40.2	Off	L1	19.6	19.8	60.0
9.606000	39.3	Off	L1	19.7	20.7	60.0
10.022000	38.3	Off	L1	19.6	21.7	60.0

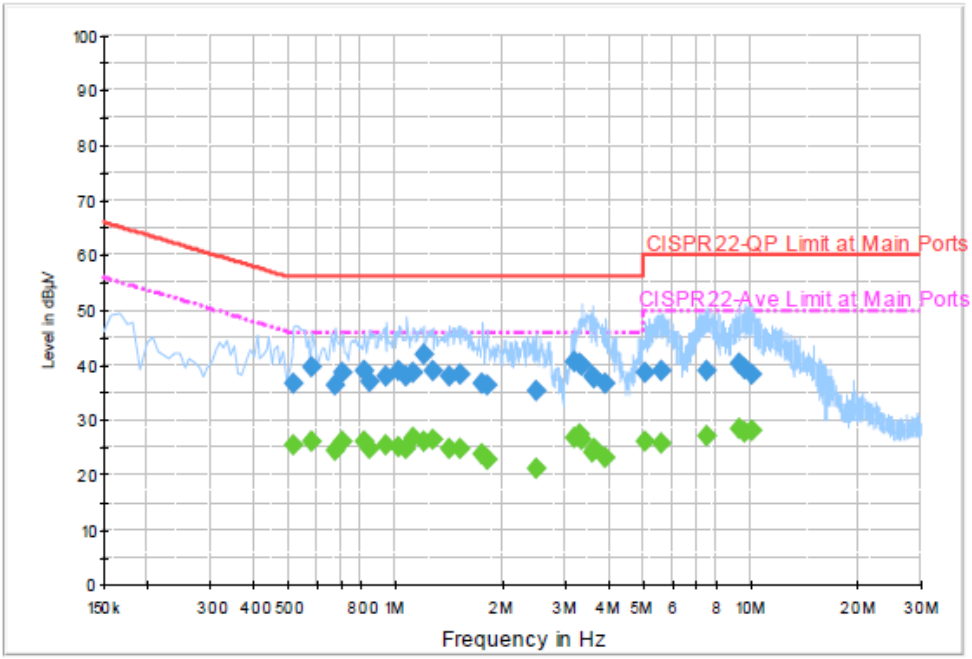
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.518000	25.4	Off	L1	19.4	20.6	46.0
0.582000	26.2	Off	L1	19.4	19.8	46.0
0.678000	24.5	Off	L1	19.5	21.5	46.0
0.710000	25.9	Off	L1	19.5	20.1	46.0
0.814000	25.9	Off	L1	19.5	20.1	46.0
0.846000	24.7	Off	L1	19.6	21.3	46.0
0.942000	25.5	Off	L1	19.5	20.5	46.0
1.022000	25.2	Off	L1	19.4	20.8	46.0
1.070000	24.7	Off	L1	19.5	21.3	46.0
1.118000	26.7	Off	L1	19.5	19.3	46.0
1.198000	26.2	Off	L1	19.5	19.8	46.0
1.270000	26.2	Off	L1	19.5	19.8	46.0
1.414000	24.8	Off	L1	19.4	21.2	46.0
1.526000	24.9	Off	L1	19.4	21.1	46.0
1.750000	23.7	Off	L1	19.6	22.3	46.0
1.806000	22.9	Off	L1	19.6	23.1	46.0
2.478000	21.2	Off	L1	19.5	24.8	46.0

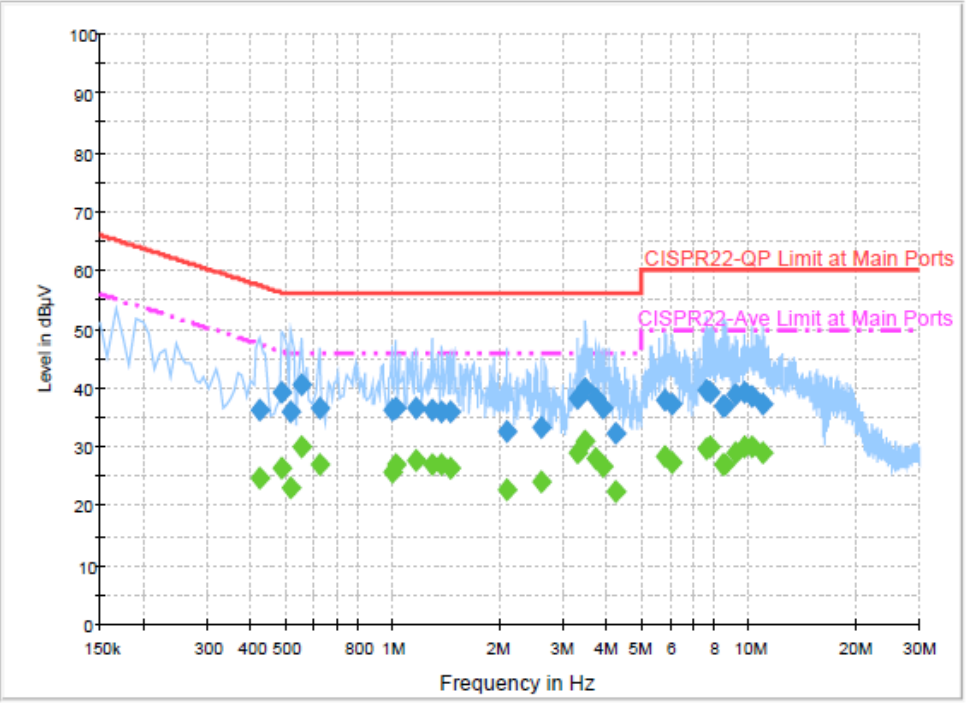
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.166000	26.8	Off	L1	19.6	19.2	46.0
3.278000	27.5	Off	L1	19.6	18.5	46.0
3.334000	26.5	Off	L1	19.6	19.5	46.0
3.566000	24.1	Off	L1	19.5	21.9	46.0
3.622000	24.6	Off	L1	19.5	21.4	46.0
3.902000	23.1	Off	L1	19.5	22.9	46.0
5.030000	26.0	Off	L1	19.6	24.0	50.0
5.622000	25.8	Off	L1	19.6	24.2	50.0
7.542000	27.0	Off	L1	19.6	23.0	50.0
9.294000	28.5	Off	L1	19.6	21.5	50.0
9.606000	27.6	Off	L1	19.7	22.4	50.0
10.022000	28.0	Off	L1	19.6	22.0	50.0

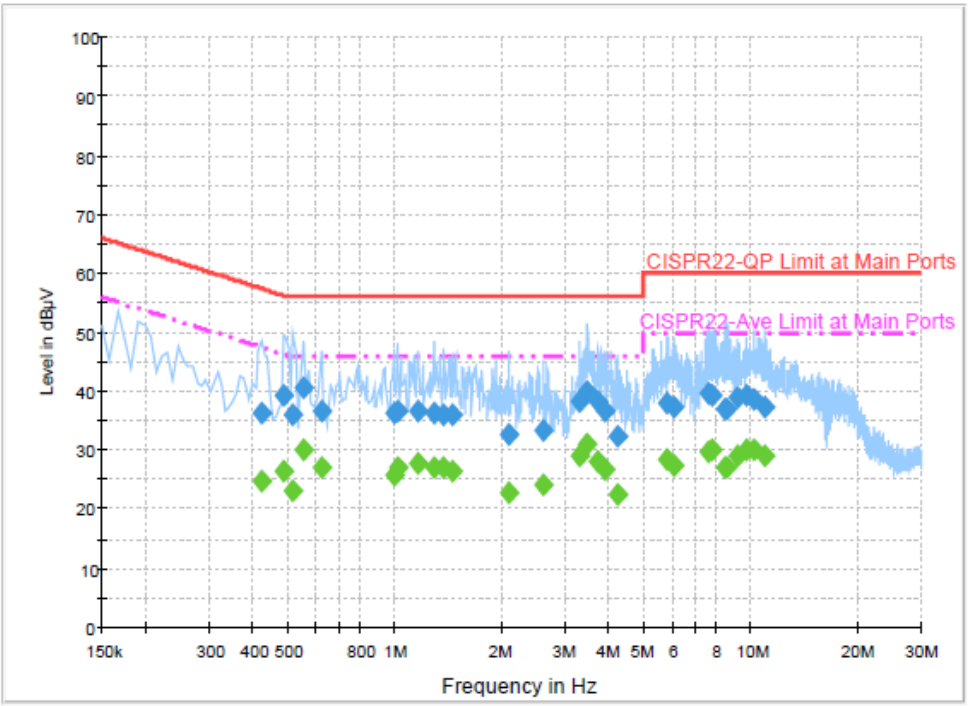
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.422000	36.2	Off	N	19.4	21.2	57.4
0.486000	39.2	Off	N	19.4	17.0	56.2
0.518000	36.0	Off	N	19.4	20.0	56.0
0.550000	40.6	Off	N	19.4	15.4	56.0
0.622000	36.6	Off	N	19.4	19.4	56.0
0.990000	36.3	Off	N	19.5	19.7	56.0
1.014000	36.7	Off	N	19.5	19.3	56.0
1.158000	36.6	Off	N	19.5	19.4	56.0
1.286000	36.2	Off	N	19.5	19.8	56.0
1.366000	36.0	Off	N	19.5	20.0	56.0
1.446000	36.0	Off	N	19.6	20.0	56.0
2.086000	32.6	Off	N	19.5	23.4	56.0
2.606000	33.3	Off	N	19.5	22.7	56.0
3.302000	38.4	Off	N	19.6	17.6	56.0
3.470000	39.8	Off	N	19.6	16.2	56.0

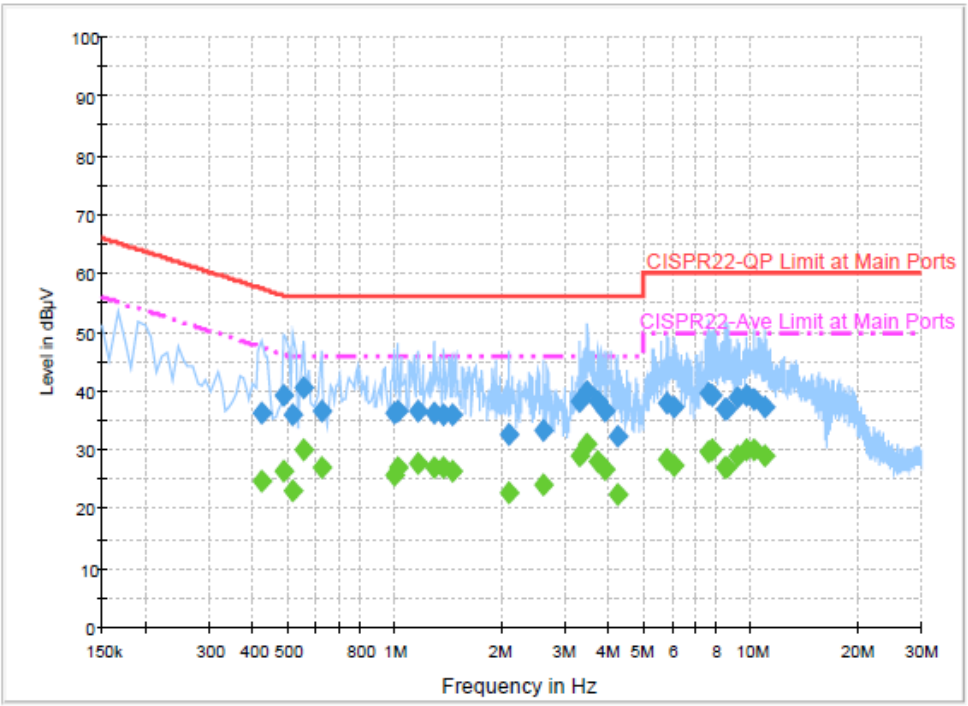
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.726000	38.1	Off	N	19.6	17.9	56.0
3.902000	36.6	Off	N	19.6	19.4	56.0
4.222000	32.3	Off	N	19.6	23.7	56.0
5.806000	37.9	Off	N	19.6	22.1	60.0
6.054000	37.2	Off	N	19.6	22.8	60.0
7.598000	39.5	Off	N	19.6	20.5	60.0
7.774000	39.2	Off	N	19.5	20.8	60.0
8.454000	37.0	Off	N	19.6	23.0	60.0
8.502000	36.9	Off	N	19.7	23.1	60.0
9.158000	39.0	Off	N	19.7	21.0	60.0
9.750000	39.1	Off	N	19.7	20.9	60.0
10.214000	38.6	Off	N	19.7	21.4	60.0
10.918000	37.2	Off	N	19.7	22.8	60.0

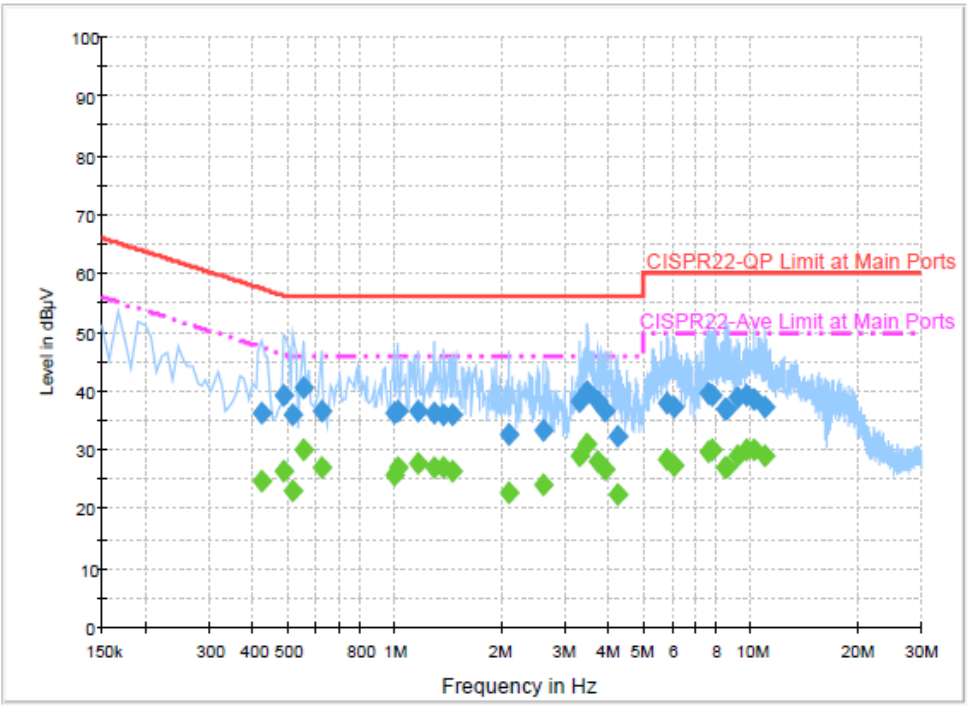
Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.422000	24.9	Off	N	19.4	22.5	47.4
0.486000	26.5	Off	N	19.4	19.7	46.2
0.518000	23.2	Off	N	19.4	22.8	46.0
0.550000	30.0	Off	N	19.4	16.0	46.0
0.622000	27.1	Off	N	19.4	18.9	46.0
0.990000	25.7	Off	N	19.5	20.3	46.0
1.014000	27.0	Off	N	19.5	19.0	46.0
1.158000	27.8	Off	N	19.5	18.2	46.0
1.286000	27.1	Off	N	19.5	18.9	46.0
1.366000	27.0	Off	N	19.5	19.0	46.0
1.446000	26.5	Off	N	19.6	19.5	46.0
2.086000	22.8	Off	N	19.5	23.2	46.0
2.606000	24.2	Off	N	19.5	21.8	46.0
3.302000	29.2	Off	N	19.6	16.8	46.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Cosmo Xu	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN(2.4GHz) Link + MP3 + Earphone + USB Cable (Charging from Adapter)		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
3.470000	30.9	Off	N	19.6	15.1	46.0
3.726000	28.0	Off	N	19.6	18.0	46.0
3.902000	26.8	Off	N	19.6	19.2	46.0
4.222000	22.4	Off	N	19.6	23.6	46.0
5.806000	28.4	Off	N	19.6	21.6	50.0
6.054000	27.3	Off	N	19.6	22.7	50.0
7.598000	29.8	Off	N	19.6	20.2	50.0
7.774000	29.9	Off	N	19.5	20.1	50.0
8.454000	26.9	Off	N	19.6	23.1	50.0
8.502000	27.0	Off	N	19.7	23.0	50.0
9.158000	29.1	Off	N	19.7	20.9	50.0
9.750000	30.2	Off	N	19.7	19.8	50.0
10.214000	30.1	Off	N	19.7	19.9	50.0
10.918000	29.0	Off	N	19.7	21.0	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

FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

For CDD and beamforming transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports CDD mode and beamforming.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	-2.90	-4.60	-0.70	-0.70	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Aug. 14, 2014 ~ Sep. 15, 2014	Jun. 08, 2015	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 09, 2014	Aug. 14, 2014 ~ Sep. 15, 2014	Aug. 08, 2015	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 09, 2014	Aug. 14, 2014 ~ Sep. 15, 2014	Aug. 08, 2015	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz ~ 2.75GHz	Nov. 15, 2013	Aug. 19, 2014	Nov. 14, 2014	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz ~ 30MHz	Dec. 12, 2013	Aug. 19, 2014	Dec. 11, 2014	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz ~ 30MHz	Dec. 04, 2013	Aug. 19, 2014	Dec. 03, 2014	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Aug. 19, 2014	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101067	9kHz ~ 30GHz	Nov. 20, 2013	Aug. 22, 2014 ~ Sep. 12, 2014	Nov. 19, 2014	Radiation (03CH06-HY)
Spectrum Analyzer	Agilent	E4408B	MY44211030	9kHz ~ 26.5GHz	Dec. 02, 2013	Aug. 22, 2014 ~ Sep. 12, 2014	Dec. 01, 2014	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/0003	20MHz ~ 1000MHz	May 06, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	May 05, 2015	Radiation (03CH06-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jul. 28, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	Jul. 27, 2015	Radiation (03CH06-HY)
Bilog Antenna	Schaffner	CBL6112B	2885	30MHz ~ 2GHz	Oct. 10, 2013	Aug. 22, 2014 ~ Sep. 12, 2014	Oct. 09, 2014	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Jul. 24, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	Jul. 23, 2015	Radiation (03CH06-HY)
Amplifier	SONOMA	310N	186713	9kHz ~ 1GHz	Apr. 16, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	Apr. 15, 2015	Radiation (03CH06-HY)
Preamplifier	EMCI	EMC051845	SN980048	1GHz ~ 18GHz	Jul. 17, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	Jul. 16, 2015	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 03, 2013	Aug. 22, 2014 ~ Sep. 12, 2014	Oct. 02, 2014	Radiation (03CH06-HY)
Preamplifier	Agilent	8449B	3008A01917	1GHz ~ 26.5GHz	Apr. 10, 2014	Aug. 22, 2014 ~ Sep. 12, 2014	Apr. 09, 2015	Radiation (03CH06-HY)
Turn Table	INN-CO	DS2000	420/650/00	0 ~ 360 degree	N/A	Aug. 22, 2014 ~ Sep. 12, 2014	N/A	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1 m ~ 4 m	N/A	Aug. 22, 2014 ~ Sep. 12, 2014	N/A	Radiation (03CH06-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

Appendix A. Radiated Spurious Emission

Test Engineer :	Luke Chang		
Temperature :	22~23°C	**Relative Humidity :**	42~43%

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		2389.83	51.65	-22.35	74	48.14	31.94	6.21	34.64	177	326	P	H
		2390	41.49	-12.51	54	37.98	31.94	6.21	34.64	177	326	A	H
	*	2412	104.24	-	-	100.72	31.95	6.21	34.64	177	326	P	H
	*	2412	99.38	-	-	95.86	31.95	6.21	34.64	177	326	A	H
													H
													H
		2390	50.49	-23.51	74	46.98	31.94	6.21	34.64	100	334	P	V
		2390	40.91	-13.09	54	37.4	31.94	6.21	34.64	100	334	A	V
	*	2412	102.62	-	-	99.1	31.95	6.21	34.64	100	334	P	V
	*	2412	97.88	-	-	94.36	31.95	6.21	34.64	100	334	A	V
													V
													V
802.11b CH 06 2437MHz		2390	48.57	-25.43	74	45.06	31.94	6.21	34.64	176	323	P	H
		2390	36.53	-17.47	54	33.02	31.94	6.21	34.64	176	323	A	H
	*	2437	105.37	-	-	101.8	31.97	6.24	34.64	176	323	P	H
	*	2437	100.46	-	-	96.9	31.96	6.24	34.64	176	323	A	H
		2483.76	49.77	-24.23	74	46.11	31.99	6.3	34.63	176	323	P	H
		2483.52	37.06	-16.94	54	33.4	31.99	6.3	34.63	176	323	A	H
		2352.57	47.9	-26.1	74	44.49	31.92	6.14	34.65	100	326	P	V
		2390	36.58	-17.42	54	33.07	31.94	6.21	34.64	100	326	A	V
	*	2435.40	103.9	-	-	100.34	31.96	6.24	34.64	100	326	P	V
	*	2436.24	98.43	-	-	94.87	31.96	6.24	34.64	100	326	A	V
		2485.28	48.9	-25.1	74	45.24	31.99	6.3	34.63	100	326	P	V
		2483.52	36.73	-17.27	54	33.07	31.99	6.3	34.63	100	326	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 11 2462MHz	*	2462	101.88	-	-	98.27	31.98	6.27	34.64	103	103	P	H
	*	2462	97.34	-	-	93.73	31.98	6.27	34.64	103	103	A	H
		2483.72	53.14	-20.86	74	49.48	31.99	6.3	34.63	103	103	P	H
		2483.64	43.09	-10.91	54	39.43	31.99	6.3	34.63	103	103	A	H
													H
													H
	*	2462	105.14	-	-	101.53	31.98	6.27	34.64	100	90	P	V
	*	2462	99.77	-	-	96.16	31.98	6.27	34.64	100	90	A	V
		2484.36	52.72	-21.28	74	49.06	31.99	6.3	34.63	100	90	P	V
		2483.52	41.98	-12.02	54	38.32	31.99	6.3	34.63	100	90	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	39.56	-34.44	74	57.41	34.36	8.6	60.81	100	0	P	H
													H
													H
													H
		4824	39.23	-34.77	74	57.08	34.36	8.6	60.81	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4875	41.31	-32.69	74	58.83	34.4	8.77	60.69	100	0	P	H
		7311	44.56	-29.44	74	57.4	35.74	11.94	60.52	100	0	P	H
													H
													H
		4875	40.73	-33.27	74	58.25	34.4	8.77	60.69	100	0	P	V
		7311	42.68	-31.32	74	55.52	35.74	11.94	60.52	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4923	40.21	-33.79	74	57.4	34.44	8.94	60.57	100	0	P	H
		7386	42.26	-31.74	74	55.12	35.72	11.98	60.56	100	0	P	H
													H
													H
		4923	39.97	-34.03	74	57.16	34.44	8.94	60.57	100	0	P	V
		7386	43.87	-30.13	74	56.73	35.72	11.98	60.56	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2390	71	-3	74	67.49	31.94	6.21	34.64	120	323	P	H
		2390	52.61	-1.39	54	49.1	31.94	6.21	34.64	120	323	A	H
	*	2406.26	108.29	-	-	104.77	31.95	6.21	34.64	120	323	P	H
	*	2406.18	97.72	-	-	94.2	31.95	6.21	34.64	120	323	A	H
													H
													H
		2389.65	65.6	-8.4	74	62.14	31.94	6.17	34.65	101	207	P	V
		2390	48.27	-5.73	54	44.76	31.94	6.21	34.64	101	207	A	V
	*	2415.11	103.81	-	-	100.29	31.95	6.21	34.64	101	207	P	V
	*	2410.52	93.85	-	-	90.33	31.95	6.21	34.64	101	207	A	V
													V
													V
802.11g CH 06 2437MHz		2387.13	58.66	-15.34	74	55.2	31.94	6.17	34.65	100	325	P	H
		2390	45.76	-8.24	54	42.25	31.94	6.21	34.64	100	325	A	H
	*	2437	110.82	-	-	107.25	31.97	6.24	34.64	100	325	P	H
	*	2437	100.28	-	-	96.71	31.97	6.24	34.64	100	325	A	H
		2483.88	60.54	-13.46	74	56.88	31.99	6.3	34.63	100	325	P	H
		2483.6	48.95	-5.05	54	45.29	31.99	6.3	34.63	100	325	A	H
		2389.65	59.91	-14.09	74	56.45	31.94	6.17	34.65	100	329	P	V
		2390	45.99	-8.01	54	42.48	31.94	6.21	34.64	100	329	A	V
	*	2437	109.63	-	-	106.06	31.97	6.24	34.64	100	329	P	V
	*	2437	99.18	-	-	95.61	31.97	6.24	34.64	100	329	A	V
		2483.68	61.14	-12.86	74	57.48	31.99	6.3	34.63	100	329	P	V
		2483.52	49.62	-4.38	54	45.96	31.99	6.3	34.63	100	329	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 11 2462MHz	*	2462	109.87	-	-	106.26	31.98	6.27	34.64	112	335	P	H
	*	2462	101.38	-	-	97.77	31.98	6.27	34.64	112	335	A	H
		2483.96	68.68	-5.32	74	65.02	31.99	6.3	34.63	112	335	P	H
		2483.56	53.13	-0.87	54	49.47	31.99	6.3	34.63	112	335	A	H
													H
													H
	*	2462	106.41	-	-	102.8	31.98	6.27	34.64	104	338	P	V
	*	2462	96.03	-	-	92.42	31.98	6.27	34.64	104	338	A	V
		2484.12	66.52	-7.48	74	62.86	31.99	6.3	34.63	104	338	P	V
		2483.88	50.23	-3.77	54	46.57	31.99	6.3	34.63	104	338	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	39.88	-34.12	74	57.73	34.36	8.6	60.81	100	0	P	H
													H
													H
													H
		4824	39.33	-34.67	74	57.18	34.36	8.6	60.81	100	0	P	V
													V
													V
													V
802.11g CH 06 2437MHz		4875	40.83	-33.17	74	58.35	34.4	8.77	60.69	100	0	P	H
		7311	43.81	-30.19	74	56.65	35.74	11.94	60.52	100	0	P	H
													H
													H
		4875	40.35	-33.65	74	57.87	34.4	8.77	60.69	100	0	P	V
		7311	43.29	-30.71	74	56.13	35.74	11.94	60.52	100	0	P	V
													V
													V
802.11g CH 11 2462MHz		4923	40.3	-33.7	74	57.49	34.44	8.94	60.57	100	0	P	H
		7386	42.7	-31.3	74	55.56	35.72	11.98	60.56	100	0	P	H
													H
													H
		4923	40.13	-33.87	74	57.32	34.44	8.94	60.57	100	0	P	V
		7386	42.41	-31.59	74	55.27	35.72	11.98	60.56	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.02	67.8	-6.2	74	64.34	31.94	6.17	34.65	147	310	P	H
		2390	51.69	-2.31	54	48.18	31.94	6.21	34.64	147	310	A	H
	*	2412	106.51	-	-	102.99	31.95	6.21	34.64	147	310	P	H
	*	2412	96.37	-	-	92.85	31.95	6.21	34.64	147	310	A	H
													H
													H
		2389.83	66.45	-7.55	74	62.94	31.94	6.21	34.64	104	209	P	V
		2390	51.2	-2.8	54	47.69	31.94	6.21	34.64	104	209	A	V
	*	2412	104.05	-	-	100.53	31.95	6.21	34.64	104	209	P	V
	*	2412	94.53	-	-	91.01	31.95	6.21	34.64	104	209	A	V
													V
													V
802.11n HT20 CH 06 2437MHz		2390	56.69	-17.31	74	53.18	31.94	6.21	34.64	183	320	P	H
		2390	42.66	-11.34	54	39.15	31.94	6.21	34.64	183	320	A	H
	*	2437	108.41	-	-	104.81	31.97	6.27	34.64	183	320	P	H
	*	2437	98.2	-	-	94.64	31.96	6.24	34.64	183	320	A	H
		2484.16	57.75	-16.25	74	54.09	31.99	6.3	34.63	183	320	P	H
		2483.52	44.25	-9.75	54	40.59	31.99	6.3	34.63	183	320	A	H
		2389.92	57.68	-16.32	74	54.17	31.94	6.21	34.64	100	330	P	V
		2389.92	42.59	-11.41	54	39.08	31.94	6.21	34.64	100	330	A	V
	*	2437	108.09	-	-	104.52	31.97	6.24	34.64	100	330	P	V
	*	2437	98.09	-	-	94.52	31.97	6.24	34.64	100	330	A	V
		2484.08	59.06	-14.94	74	55.4	31.99	6.3	34.63	100	330	P	V
		2483.52	43.74	-10.26	54	40.08	31.99	6.3	34.63	100	330	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 11 2462MHz	*	2462	108.88	-	-	105.27	31.98	6.27	34.64	112	169	P	H
	*	2462	98.64	-	-	95.03	31.98	6.27	34.64	112	169	A	H
		2483.84	66.89	-7.11	74	63.23	31.99	6.3	34.63	112	169	P	H
		2483.52	51.47	-2.53	54	47.81	31.99	6.3	34.63	112	169	A	H
													H
													H
	*	2462	104.61	-	-	101	31.98	6.27	34.64	100	219	P	V
	*	2462	94.59	-	-	90.98	31.98	6.27	34.64	100	219	A	V
		2483.76	64.59	-9.41	74	60.93	31.99	6.3	34.63	100	219	P	V
		2483.56	48.66	-5.34	54	45	31.99	6.3	34.63	100	219	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	39.98	-34.02	74	57.83	34.36	8.6	60.81	100	0	P	H
													H
													H
													H
		4824	39.17	-34.83	74	57.02	34.36	8.6	60.81	100	0	P	V
													V
													V
													V
802.11n HT20 CH 06 2437MHz		4875	41.32	-32.68	74	58.84	34.4	8.77	60.69	100	0	P	H
		7311	43.55	-30.45	74	56.39	35.74	11.94	60.52	100	0	P	H
													H
													H
		4875	40.02	-33.98	74	57.54	34.4	8.77	60.69	100	0	P	V
		7311	43.5	-30.5	74	56.34	35.74	11.94	60.52	100	0	P	V
													V
													V
802.11n HT20 CH 11 2462MHz		4923	41.15	-32.85	74	58.34	34.44	8.94	60.57	100	0	P	H
		7386	42.63	-31.37	74	55.49	35.72	11.98	60.56	100	0	P	H
													H
													H
		4923	40.57	-33.43	74	57.76	34.44	8.94	60.57	100	0	P	V
		7386	42.51	-31.49	74	55.37	35.72	11.98	60.56	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11ac VHT20 (Band Edge @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 01 2412MHz		2390	67.22	-6.78	74	63.71	31.94	6.21	34.64	124	316	P	H
		2390	53.6	-0.4	54	50.09	31.94	6.21	34.64	124	316	A	H
	*	2409.27	108.73	-	-	105.21	31.95	6.21	34.64	124	316	P	H
	*	2409.02	98.39	-	-	94.87	31.95	6.21	34.64	124	316	A	H
													H
													H
		2389.74	64.15	-9.85	74	60.69	31.94	6.17	34.65	189	22	P	V
		2390	47.7	-6.3	54	44.19	31.94	6.21	34.64	189	22	A	V
	*	2409.69	104.28	-	-	100.76	31.95	6.21	34.64	189	22	P	V
	*	2410.77	93.76	-	-	90.24	31.95	6.21	34.64	189	22	A	V
													V
													V
802.11ac VHT20 CH 06 2437MHz		2386.14	50.9	-23.1	74	47.44	31.94	6.17	34.65	101	102	P	H
		2390	38.27	-15.73	54	34.76	31.94	6.21	34.64	101	102	A	H
	*	2438.74	108.06	-	-	104.49	31.97	6.24	34.64	101	102	P	H
	*	2438.74	97.88	-	-	94.31	31.97	6.24	34.64	101	102	A	H
		2484.52	54.7	-19.3	74	51.04	31.99	6.3	34.63	101	102	P	H
		2483.68	40.95	-13.05	54	37.29	31.99	6.3	34.63	101	102	A	H
		2386.41	48.42	-25.58	74	44.96	31.94	6.17	34.65	100	126	P	V
		2389.65	37.62	-16.38	54	34.16	31.94	6.17	34.65	100	126	A	V
	*	2438.243	103.04	-	-	99.47	31.97	6.24	34.64	100	126	P	V
	*	2438.33	94.1	-	-	90.53	31.97	6.24	34.64	100	126	A	V
		2483.68	51.62	-22.38	74	47.96	31.99	6.3	34.63	100	126	P	V
		2483.52	40	-14	54	36.34	31.99	6.3	34.63	100	126	A	V

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 11 2462MHz	*	2464.21	108.34	-	-	104.73	31.98	6.27	34.64	109	200	P	H
	*	2465.80	98.61	-	-	95	31.98	6.27	34.64	109	200	A	H
		2483.52	68.91	-5.09	74	65.25	31.99	6.3	34.63	109	200	P	H
		2483.52	52.73	-1.27	54	49.07	31.99	6.3	34.63	109	200	A	H
													H
													H
	*	2456.95	107.71	-	-	104.1	31.98	6.27	34.64	169	288	P	V
	*	2458.87	96.11	-	-	92.5	31.98	6.27	34.64	169	288	A	V
		2483.56	67.54	-6.46	74	63.88	31.99	6.3	34.63	169	288	P	V
		2483.56	51.81	-2.19	54	48.15	31.99	6.3	34.63	169	288	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11ac VHT20 (Harmonic @ 3m)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11ac VHT20 CH 01 2412MHz		4824	40.5	-33.5	74	58.35	34.36	8.6	60.81	100	0	P	H
													H
													H
													H
		4824	39.17	-34.83	74	57.02	34.36	8.6	60.81	100	0	P	V
													V
													V
													V
802.11ac VHT20 CH 06 2437MHz		4874	39.78	-34.22	74	57.3	34.4	8.77	60.69	100	0	P	H
		7311	43.13	-30.87	74	55.97	35.74	11.94	60.52	100	0	P	H
													H
													H
		4874	41.37	-32.63	74	58.89	34.4	8.77	60.69	100	0	P	V
		7311	44.28	-29.72	74	57.12	35.74	11.94	60.52	100	0	P	V
													V
													V
802.11ac VHT20 CH 11 2462MHz		4926	39.92	-34.08	74	57.11	34.44	8.94	60.57	100	0	P	H
		7386	42.23	-31.77	74	55.09	35.72	11.98	60.56	100	0	P	H
													H
													H
		4926	41.96	-32.04	74	59.15	34.44	8.94	60.57	100	0	P	V
		7386	44.39	-29.61	74	57.25	35.72	11.98	60.56	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C Emission below 1GHz

2.4GHz WIFI 802.11b (LF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11b LF		168.24	30.62	-12.88	43.5	50.94	9.82	1.61	31.75	203	337	P	H
		194.16	27.8	-15.7	43.5	48.95	9.1	1.5	31.75			P	H
		267.06	19.25	-26.75	46	35.91	13.27	1.8	31.73			P	H
		447	19.24	-26.76	46	31.94	16.87	2.3	31.87			P	H
		706	22.53	-23.47	46	32.18	19.46	2.91	32.02			P	H
		832	24.29	-21.71	46	32.32	20.62	3.17	31.82			P	H
													H
													H
													H
													H
													H
													H
		35.4	25.02	-14.98	40	41.13	14.98	0.7	31.79	127	201	P	V
		99.66	23.8	-19.7	43.5	43.65	10.8	1.1	31.75			P	V
		183.36	23.79	-19.71	43.5	44.96	9.12	1.46	31.75			P	V
		541.5	21.56	-24.44	46	31.87	19.14	2.53	31.98			P	V
		844.6	23.62	-22.38	46	31.42	20.75	3.21	31.76			P	V
		874	24.4	-21.6	46	31.84	20.9	3.3	31.64			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15C Emission below 1GHz

2.4GHz WIFI 802.11g (LF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11g LF		103.44	20.28	-23.22	43.5	39.47	11.44	1.12	31.75			P	H
		168.24	30.46	-13.04	43.5	50.78	9.82	1.61	31.75	162	227	P	H
		192	28.32	-15.18	43.5	49.48	9.1	1.49	31.75			P	H
		441.4	18.78	-27.22	46	31.55	16.81	2.29	31.87			P	H
		620.6	21.89	-24.11	46	31.54	19.62	2.78	32.05			P	H
		888	24.11	-21.89	46	31.45	20.9	3.34	31.58			P	H
													H
													H
													H
													H
													H
													H
		32.7	24.1	-15.9	40	38.52	16.7	0.67	31.79	125	139	P	V
		52.14	22.57	-17.43	40	45.87	7.66	0.82	31.78			P	V
		98.04	24.47	-19.03	43.5	44.61	10.52	1.09	31.75			P	V
		448.4	18.5	-27.5	46	31.18	16.88	2.31	31.87			P	V
		625.5	22.4	-23.6	46	31.95	19.71	2.79	32.05			P	V
		863.5	24.28	-21.72	46	31.87	20.83	3.27	31.69			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15C Emission below 1GHz

2.4GHz WIFI 802.11n HT20 (LF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11n HT20 LF		62.4	17.57	-22.43	40	42.05	6.4	0.89	31.77			P	H
		105.06	19.12	-24.38	43.5	38.15	11.6	1.12	31.75			P	H
		168.24	30.11	-13.39	43.5	50.43	9.82	1.61	31.75	168	27	P	H
		507.9	19.74	-26.26	46	31.3	17.88	2.5	31.94			P	H
		634.6	22.17	-23.83	46	31.71	19.72	2.79	32.05			P	H
		844.6	24.45	-21.55	46	32.25	20.75	3.21	31.76			P	H
													H
													H
													H
													H
													H
													H
		35.4	24.58	-15.42	40	40.69	14.98	0.7	31.79	129	208	P	V
		61.32	19.52	-20.48	40	43.91	6.5	0.88	31.77			P	V
		97.5	23.21	-20.29	43.5	43.35	10.52	1.09	31.75			P	V
		475	19.68	-26.32	46	31.77	17.5	2.31	31.9			P	V
		636	22.56	-23.44	46	32.14	19.68	2.79	32.05			P	V
		770.4	22.88	-23.12	46	31.7	20.1	3.05	31.97			P	V
													V
													V
													V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

15C Emission below 1GHz

2.4GHz WIFI 802.11ac VHT20 (LF)

WIFI Ant. 1+2	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11nc VHT20 LF		0.01787	33.39	-89.17	122.56	12.86	20.24	0.29				A	H
		0.07668	26.05	-83.86	109.91	5.75	20.01	0.29				A	H
		0.09672	22.46	-85.43	107.89	2.21	19.96	0.29				QP	H
		0.12856	22.53	-82.89	105.42	2.3	19.94	0.29				A	H
		0.1408	53.74	-50.89	104.63	33.53	19.92	0.29				A	H
		0.422	41.49	-53.61	95.1	21.32	19.88	0.29				A	H
		1.594	46.78	-16.77	63.55	26.54	19.91	0.33		100	23	QP	H
		15.6	36.86	-33.14	70	16.39	20.06	0.41				QP	H
		20.923	37.95	-32.05	70	17	20.52	0.43				QP	H
		27.84	36.53	-33.47	70	15.37	20.66	0.5				QP	H
		31.35	16.14	-23.86	40	29.38	17.9	0.65	31.79				H
		65.91	14.28	-25.72	40	38.95	6.18	0.92	31.77				H
		169.32	29.3	-14.2	43.5	49.62	9.8	1.63	31.75	153	39	P	H
		419	19.18	-26.82	46	32.03	16.75	2.24	31.84				H
		763.4	22.68	-23.32	46	31.44	20.17	3.05	31.98				H
		935.6	24.83	-21.17	46	31.41	21.26	3.36	31.2				H
		0.01568	37.91	-85.79	123.7	17.36	20.26	0.29				A	V
		0.07668	29.14	-80.77	109.91	8.82	20.03	0.29				A	V
		0.09666	23.47	-84.43	107.9	3.19	19.99	0.29				QP	V
		0.13128	26.59	-78.65	105.24	6.34	19.96	0.29				A	V
		0.14064	51.71	-52.93	104.64	31.47	19.95	0.29				A	V
		0.45736	48.4	-46	94.4	28.21	19.9	0.29				A	V
		1.384	48.56	-16.22	64.78	28.32	19.93	0.31		100	314	QP	V
		11.072	35.98	-34.02	70	15.78	19.81	0.39				QP	V
		20.887	37.15	-32.85	70	16.73	19.99	0.43				QP	V
		27.56	37.33	-32.67	70	16.75	20.08	0.5				QP	V
		34.05	23.8	-16.2	40	38.81	16.1	0.68	31.79	130	281	P	V
		99.66	22.79	-20.71	43.5	42.64	10.8	1.1	31.75				V
		191.46	23.34	-20.16	43.5	44.5	9.1	1.49	31.75				V

		475	19.68	-26.32	46	31.77	17.5	2.31	31.9				V
		538	20.93	-25.07	46	31.43	18.95	2.53	31.98				V
		711.6	21.78	-24.22	46	31.3	19.56	2.93	32.01				V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

*	**Fundamental Frequency** which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).
!	Test result is **over limit** line.
P/A	**P**eak or **A**verage
H/V	**H**orizontal or **V**ertical

A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.