

FCC RF Test Report

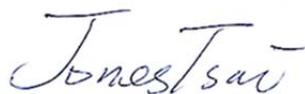
APPLICANT : ZTE CORPORATION
EQUIPMENT : CDMA LTE multi-mode Digital Mobile Phone
BRAND NAME : ZTE
MODEL NAME : ZTE N9835
FCC ID : SRQ-ZTEN9835
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Dec. 20, 2013 and testing was completed on Feb. 10, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown to be compliant with the applicable technical standards.

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



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



Testing Laboratory
2627

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



TABLE OF CONTENTS

REVISION HISTORY..... 3

SUMMARY OF TEST RESULT 4

1 GENERAL DESCRIPTION 5

 1.1 Applicant 5

 1.2 Manufacturer 5

 1.3 Feature of Equipment Under Test 5

 1.4 Product Specification of Equipment Under Test 6

 1.5 Modification of EUT 7

 1.6 Testing Site 7

 1.7 Applied Standards 7

2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST 8

 2.1 Carrier Frequency Channel 8

 2.2 Pre-Scanned RF Power 9

 2.3 Test Mode 11

 2.4 Connection Diagram of Test System 13

 2.5 Support Unit used in test configuration and system 14

 2.6 Description of RF Function Operation Test Setup 14

 2.7 Measurement Results Explanation Example 14

3 TEST RESULT 15

 3.1 6dB Bandwidth Measurement 15

 3.2 Output Power Measurement 18

 3.3 Power Spectral Density Measurement 21

 3.4 Conducted Band Edges and Spurious Emission Measurement 24

 3.5 Radiated Band Edges and Spurious Emission Measurement 41

 3.6 AC Conducted Emission Measurement 65

 3.7 Antenna Requirements 69

4 LIST OF MEASURING EQUIPMENT 70

5 UNCERTAINTY OF EVALUATION 71

APPENDIX A. SETUP PHOTOGRAPHS

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 20\text{dBc}$	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 1.58 dB at 2483.860 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 13.75 dB at 0.560 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.2 Manufacturer

ZTE CORPORATION

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	CDMA LTE multi-mode Digital Mobile Phone
Brand Name	ZTE
Model Name	ZTE N9835
FCC ID	SRQ-ZTEN9835
EUT supports Radios application	CDMA/EV-DO/LTE/WLAN 11abgn HT20/802.11ac VHT80/Bluetooth v3.0 + EDR/Bluetooth v4.0 LE/NFC
HW Version	cxhA
SW Version	N9835V1.0.0B01
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 of Equipment Under Test

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n/ac : 5745 MHz ~ 5825 MHz
Maximum Output Power to Antenna	<2412 MHz ~ 2462 MHz> 802.11b : 18.26 dBm (0.0670 W) 802.11g : 22.58 dBm (0.1811 W) 802.11n HT20 : 22.45 dBm (0.1758 W) <5745 MHz ~ 5825 MHz> 802.11a : 20.21 dBm (0.1050 W) 802.11n HT20 : 20.54 dBm (0.1132 W) 802.11ac VHT80 : 20.93 dBm (0.1239 W)
Antenna Type	802.11b/g/n : PIFA Antenna with gain 1.00 dBi 802.11a/n/ac : PIFA Antenna with gain 1.00 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928

Note: The test site complies with ANSI C63.4 2003 requirement.

1.7 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz) and radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

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

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

2.1 Carrier Frequency Channel

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	159	5795
	151	5755	161	5805
	153	5765	165	5825
	155	5775	-	-
	157	5785	-	-

2.2 Pre-Scanned RF Power

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

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	18.26	17.55	17.47	18.24
CH 06	2437 MHz	16.91	16.87	16.83	17.52
CH 11	2462 MHz	17.04	16.82	16.82	17.45

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	2412 MHz	22.58	22.57	22.37	22.35	22.35	22.29	22.28	22.36
CH 06	2437 MHz	21.62	21.37	21.56	21.39	21.44	21.34	21.06	20.97
CH 11	2462 MHz	21.82	21.68	21.94	22.14	21.58	21.67	21.78	21.13

Channel	Frequency	2.4GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	22.45	22.23	22.36	22.39	22.31	22.41	22.34	22.26
CH 06	2437 MHz	21.65	21.68	21.57	21.49	21.56	21.74	21.34	21.49
CH 11	2462 MHz	21.59	21.81	21.36	21.84	21.67	21.69	21.93	21.62



Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 149	5745 MHz	20.21	19.43	19.72	19.64	19.29	19.59	19.84	18.99
CH 157	5785 MHz	20.01	19.72	19.81	19.63	19.47	19.29	19.14	18.87
CH 165	5825 MHz	19.87	19.58	19.63	19.58	19.02	19.49	18.86	18.79

Channel	Frequency	5GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 149	5745 MHz	20.54	20.45	20.50	20.48	20.53	20.50	20.44	20.12
CH 157	5785 MHz	20.40	20.15	19.94	20.35	20.11	19.94	20.11	20.02
CH 165	5825 MHz	20.07	19.94	20.12	20.32	20.41	20.36	20.28	20.31

Channel	Frequency	5GHz 802.11ac VHT80 RF Power (dBm)									
		OFDM Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
CH 155	5775 MHz	20.93	20.15	20.84	20.51	20.31	20.08	20.27	20.21	20.27	20.31



2.3 Test Mode

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

<2.4GHz>

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



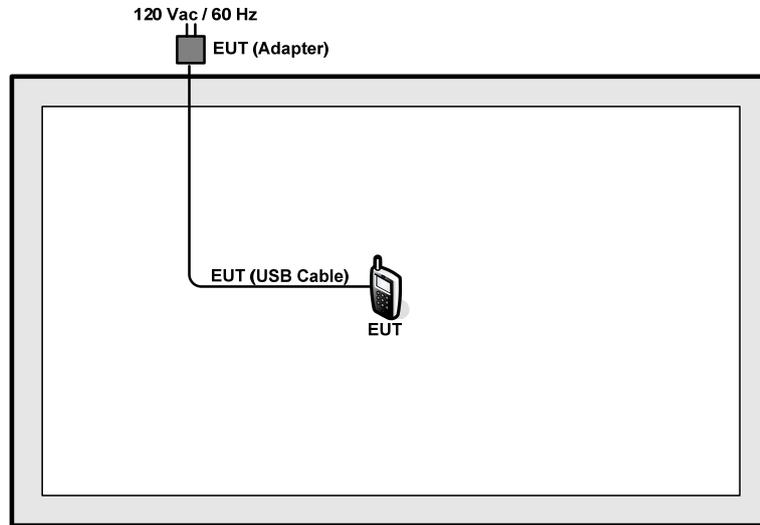
<5GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB BW Power Spectral Density	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11ac VHT80	MCS0	155
	Output Power	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11ac VHT80	MCS0	155
	Conducted Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	MCS0	149/165
		802.11ac VHT80	MCS0	/
	Conducted Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11ac VHT80	MCS0	155
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	/
		802.11n HT20	MCS0	/
		802.11ac VHT80	MCS0	/
	Radiated Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	MCS0	149/157/165
		802.11ac VHT80	MCS0	155

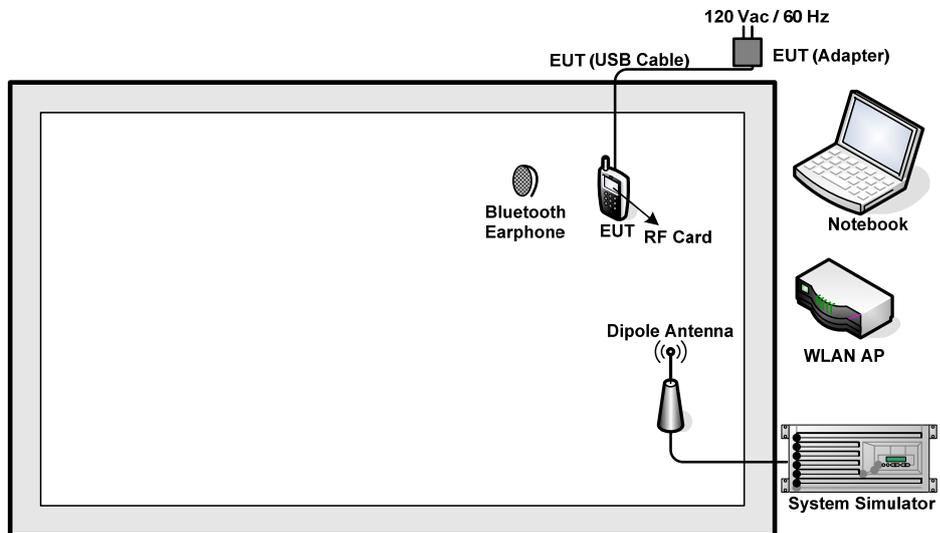
Test Cases	
AC Conducted Emission	Mode 1 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN 2.4GHz Link + USB Cable (Charging from Adapter) + NFC Tx Mode 2 : CDMA2000 BC0 Idle + Bluetooth Link + WLAN 5GHz Link + USB Cable (Charging from Adapter) + NFC Tx
Remark: 1. For radiated TCs, the tests were performed with adapter and USB cable. 2. The worst case of conducted emission is mode 1; only the test data of it was reported.	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-855	N/A	N/A	Unshielded, 1.8 m
4.	RF Card	N/A	N/A	N/A	N/A	N/A
5.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A

2.6 Description of RF Function Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

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 5.6 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 5.6 + 10 = 15.6 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

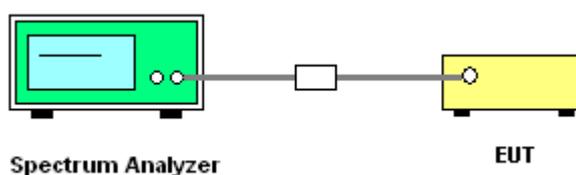
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

3.1.4 Test Setup



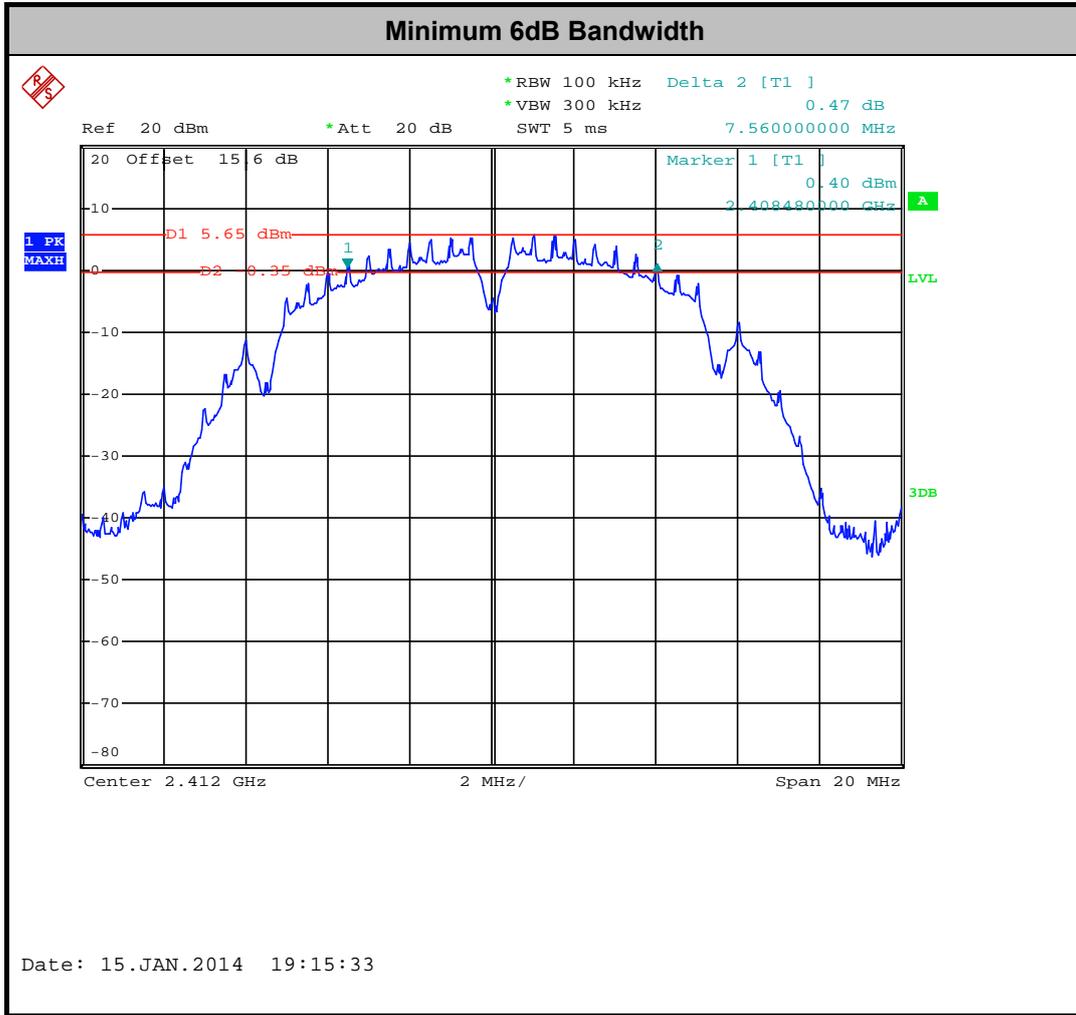


3.1.5 Test Result of 6dB Occupied Bandwidth

Test Band :	2.4GHz + 5GHz band 4	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	7.56	0.50	Pass
11b	1Mbps	1	6	2437	8.04	0.50	Pass
11b	1Mbps	1	11	2462	8.56	0.50	Pass
11g	6Mbps	1	1	2412	15.68	0.50	Pass
11g	6Mbps	1	6	2437	15.72	0.50	Pass
11g	6Mbps	1	11	2462	16.08	0.50	Pass
HT20	MCS0	1	1	2412	16.32	0.50	Pass
HT20	MCS0	1	6	2437	16.32	0.50	Pass
HT20	MCS0	1	11	2462	17.14	0.50	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11a	6Mbps	1	149	5745	16.32	0.50	Pass
11a	6Mbps	1	157	5785	16.32	0.50	Pass
11a	6Mbps	1	165	5825	16.28	0.50	Pass
HT20	MCS0	1	149	5745	17.56	0.50	Pass
HT20	MCS0	1	157	5785	17.56	0.50	Pass
HT20	MCS0	1	165	5825	17.56	0.50	Pass
VHT80	MCS0	1	155	5775	75.60	0.50	Pass



3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

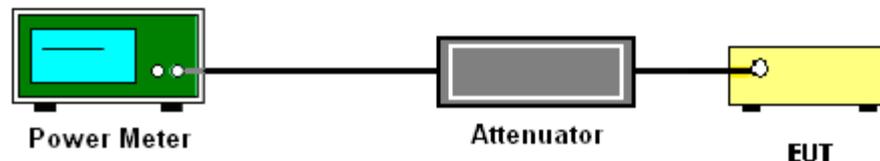
3.2.2 Measuring Instruments

See list of measuring instruments 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 v03r01.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	18.26	30.00	1.00	Pass
11b	1Mbps	1	6	2437	16.91	30.00	1.00	Pass
11b	1Mbps	1	11	2462	17.04	30.00	1.00	Pass
11g	6Mbps	1	1	2412	22.58	30.00	1.00	Pass
11g	6Mbps	1	6	2437	21.62	30.00	1.00	Pass
11g	6Mbps	1	11	2462	21.82	30.00	1.00	Pass
HT20	MCS0	1	1	2412	22.45	30.00	1.00	Pass
HT20	MCS0	1	6	2437	21.65	30.00	1.00	Pass
HT20	MCS0	1	11	2462	21.59	30.00	1.00	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	20.21	30.00	1.00	Pass
11a	6Mbps	1	157	5785	20.01	30.00	1.00	Pass
11a	6Mbps	1	165	5825	19.87	30.00	1.00	Pass
HT20	MCS0	1	149	5745	20.54	30.00	1.00	Pass
HT20	MCS0	1	157	5785	20.40	30.00	1.00	Pass
HT20	MCS0	1	165	5825	20.07	30.00	1.00	Pass
VHT80	MCS0	1	155	5775	20.93	30.00	1.00	Pass

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



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	0.06	14.85	30.00	1.00	Pass
11b	1Mbps	1	6	2437	0.06	13.64	30.00	1.00	Pass
11b	1Mbps	1	11	2462	0.06	13.68	30.00	1.00	Pass
11g	6Mbps	1	1	2412	0.29	13.86	30.00	1.00	Pass
11g	6Mbps	1	6	2437	0.29	13.26	30.00	1.00	Pass
11g	6Mbps	1	11	2462	0.29	13.31	30.00	1.00	Pass
HT20	MCS0	1	1	2412	0.33	13.06	30.00	1.00	Pass
HT20	MCS0	1	6	2437	0.33	12.54	30.00	1.00	Pass
HT20	MCS0	1	11	2462	0.33	12.63	30.00	1.00	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	0.30	12.18	30.00	1.00	Pass
11a	6Mbps	1	157	5785	0.30	11.89	30.00	1.00	Pass
11a	6Mbps	1	165	5825	0.30	11.59	30.00	1.00	Pass
HT20	MCS0	1	149	5745	0.32	12.15	30.00	1.00	Pass
HT20	MCS0	1	157	5785	0.32	11.94	30.00	1.00	Pass
HT20	MCS0	1	165	5825	0.32	11.73	30.00	1.00	Pass
VHT80	MCS0	1	155	5775	1.16	11.95	30.00	1.00	Pass

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

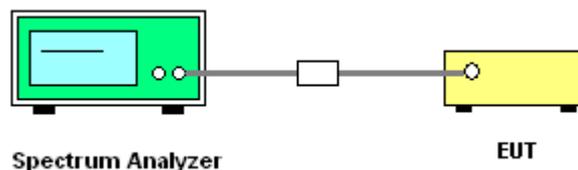
3.3.2 Measuring Instruments

See list of measuring instruments 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 v03r01
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup





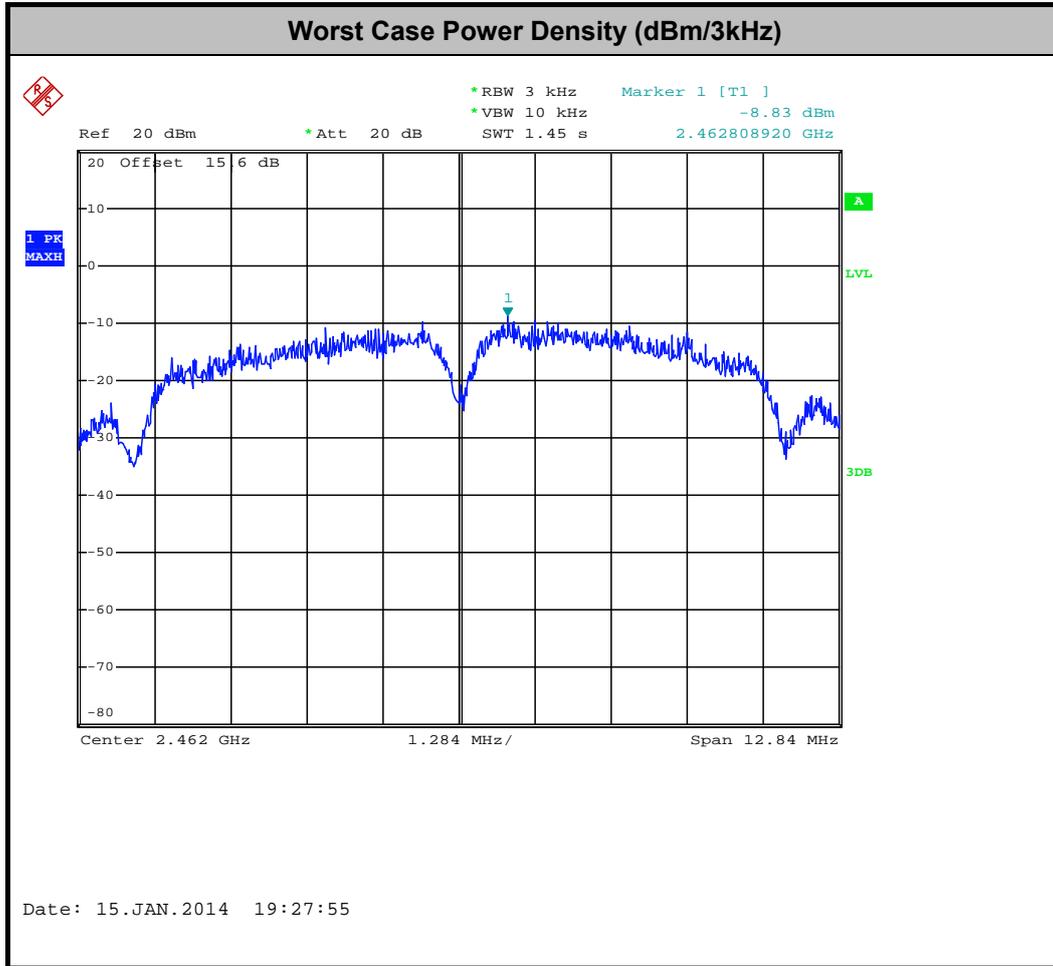
3.3.5 Test Result of Power Spectral Density

Test Mode :	2.4GHz + 5GHz band 4	Temperature :	23~24°C
Test Engineer :	Adonis Li	Relative Humidity :	47~48%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	-9.10	8	1.00	Pass
11b	1Mbps	1	6	2437	-10.07	8	1.00	Pass
11b	1Mbps	1	11	2462	-8.83	8	1.00	Pass
11g	6Mbps	1	1	2412	-11.72	8	1.00	Pass
11g	6Mbps	1	6	2437	-11.82	8	1.00	Pass
11g	6Mbps	1	11	2462	-12.24	8	1.00	Pass
HT20	MCS0	1	1	2412	-12.12	8	1.00	Pass
HT20	MCS0	1	6	2437	-13.06	8	1.00	Pass
HT20	MCS0	1	11	2462	-12.84	8	1.00	Pass

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	-13.28	8	1.00	Pass
11a	6Mbps	1	157	5785	-11.69	8	1.00	Pass
11a	6Mbps	1	165	5825	-12.20	8	1.00	Pass
HT20	MCS0	1	149	5745	-10.08	8	1.00	Pass
HT20	MCS0	1	157	5785	-10.91	8	1.00	Pass
HT20	MCS0	1	165	5825	-11.18	8	1.00	Pass
VHT80	MCS0	1	155	5775	-20.59	8	1.00	Pass

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



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).

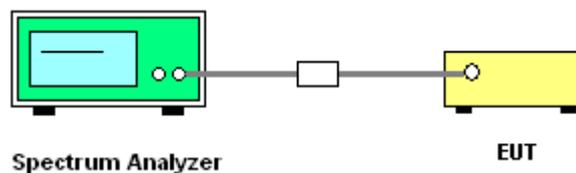
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

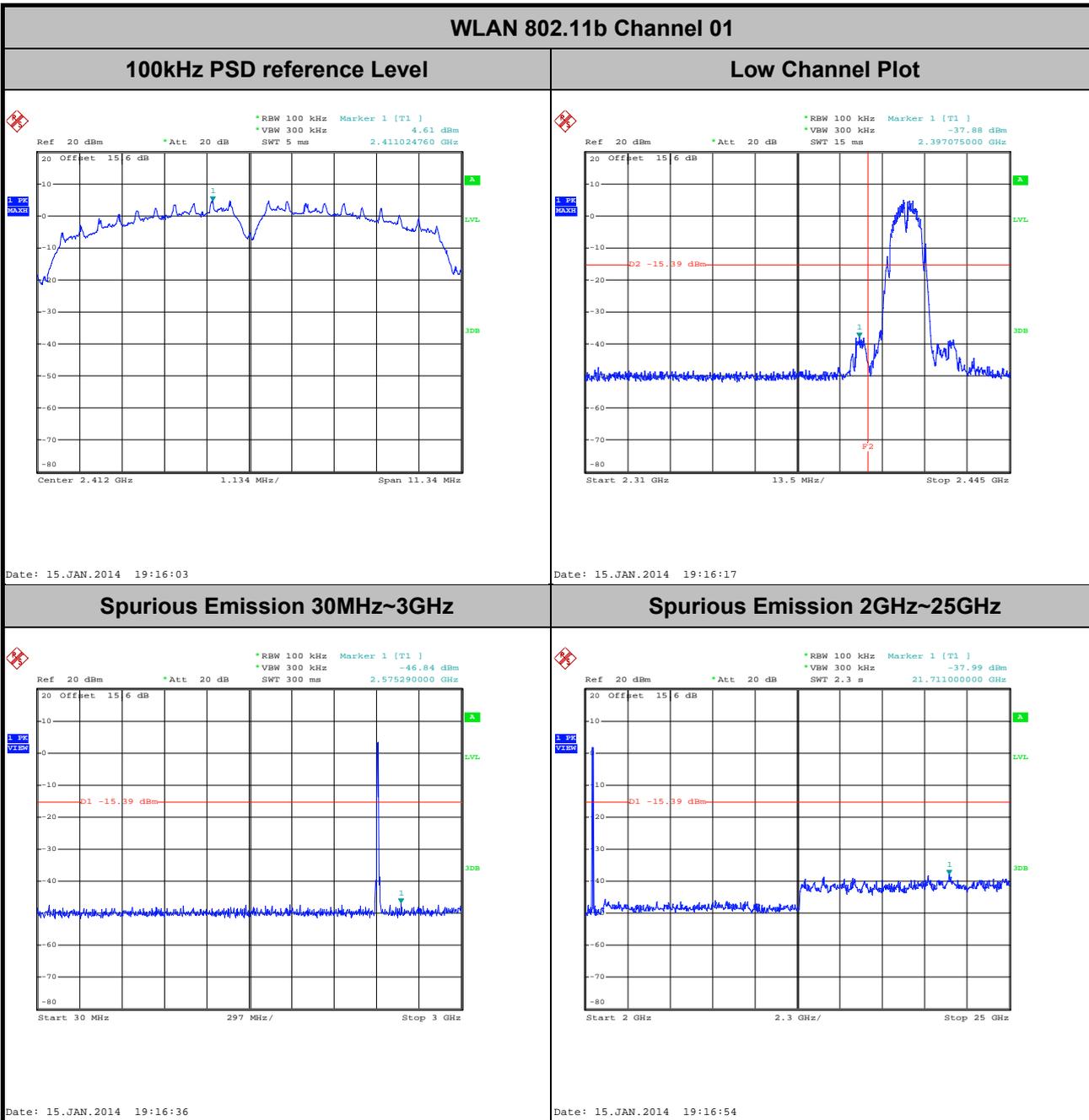
3.4.4 Test Setup





3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

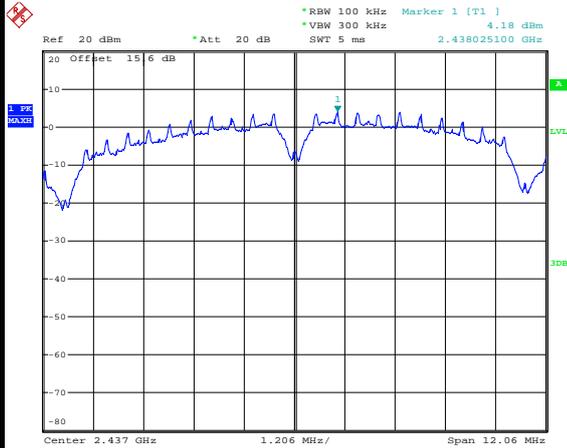




Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

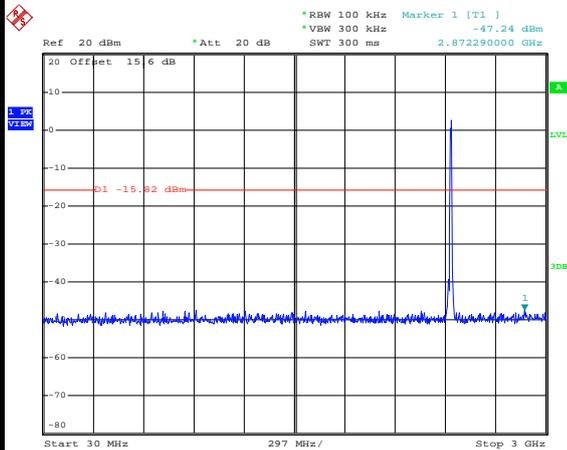
WLAN 802.11b Channel 06

100kHz PSD reference Level



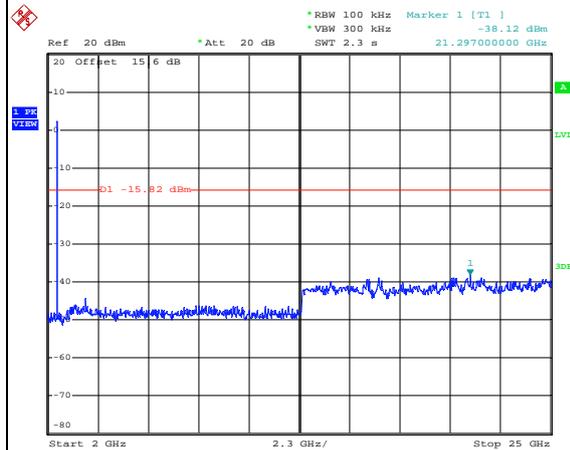
Date: 15.JAN.2014 19:23:40

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:25:04

Spurious Emission 2GHz~25GHz



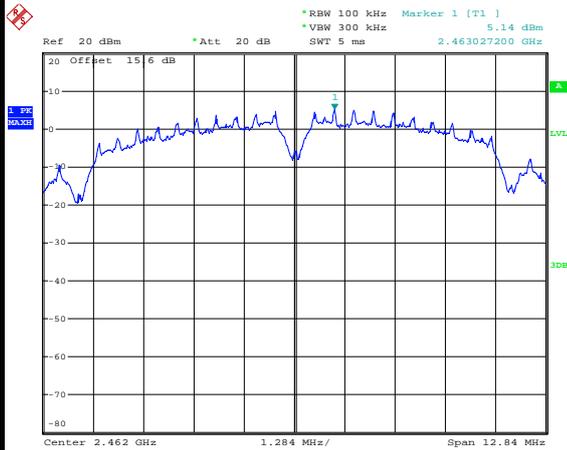
Date: 15.JAN.2014 19:25:22



Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

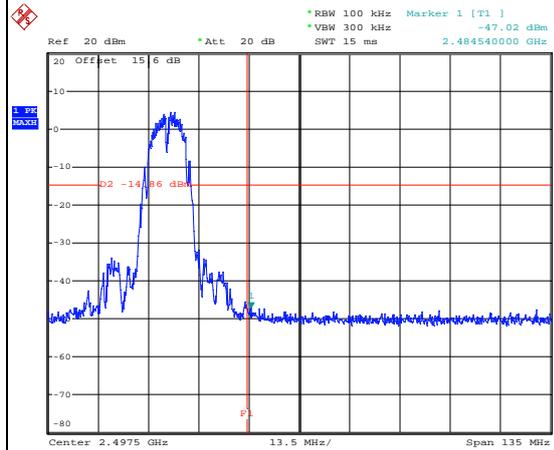
WLAN 802.11b Channel 11

100kHz PSD reference Level



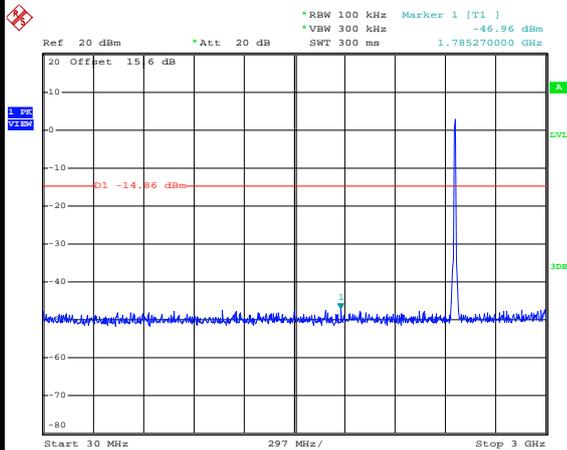
Date: 15.JAN.2014 19:28:04

High Channel Plot



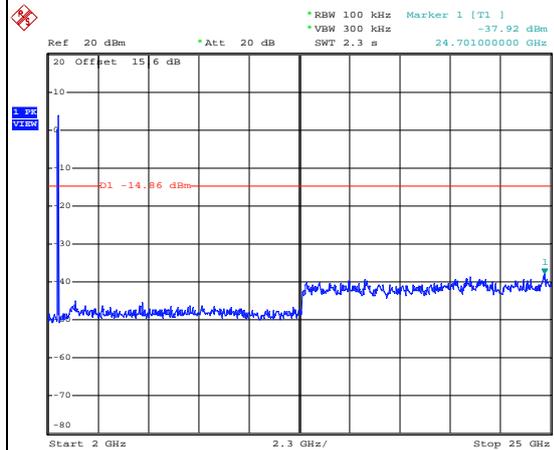
Date: 15.JAN.2014 19:30:32

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:28:37

Spurious Emission 2GHz~25GHz



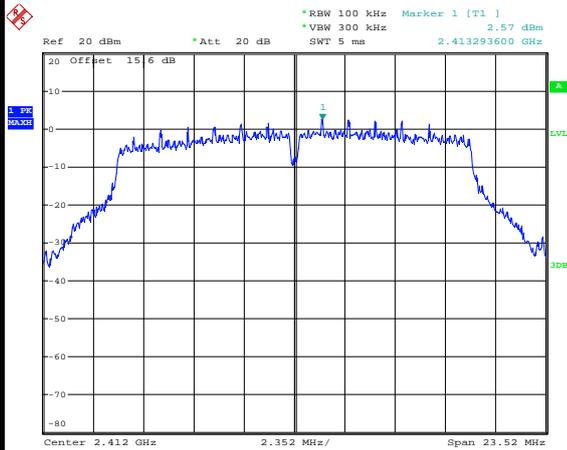
Date: 15.JAN.2014 19:28:56



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

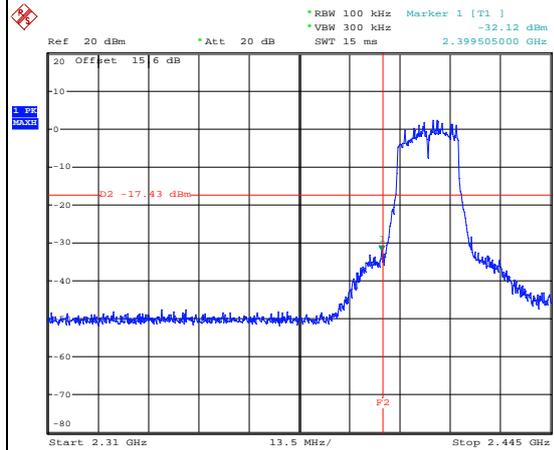
WLAN 802.11g Channel 01

100kHz PSD reference Level



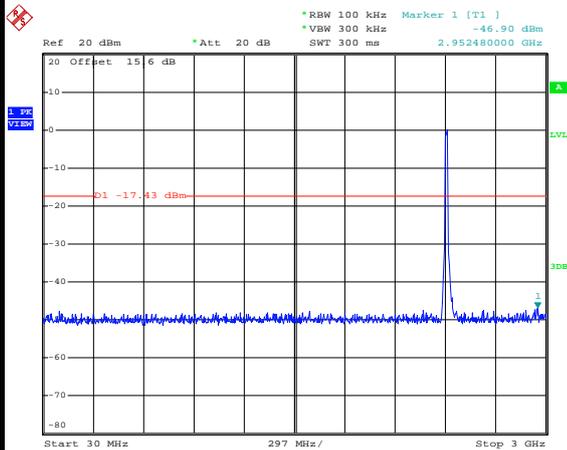
Date: 15.JAN.2014 19:34:18

Low Channel Plot



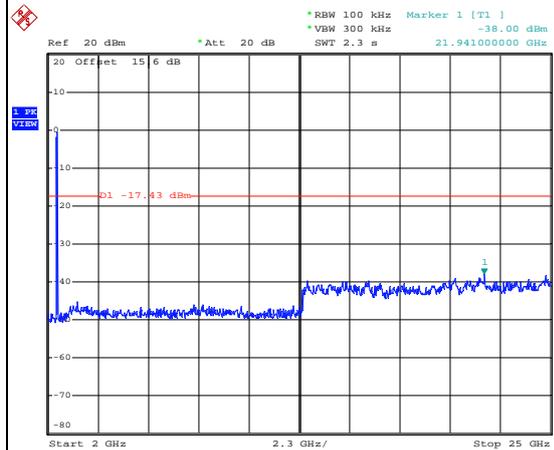
Date: 15.JAN.2014 19:34:32

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:34:51

Spurious Emission 2GHz~25GHz



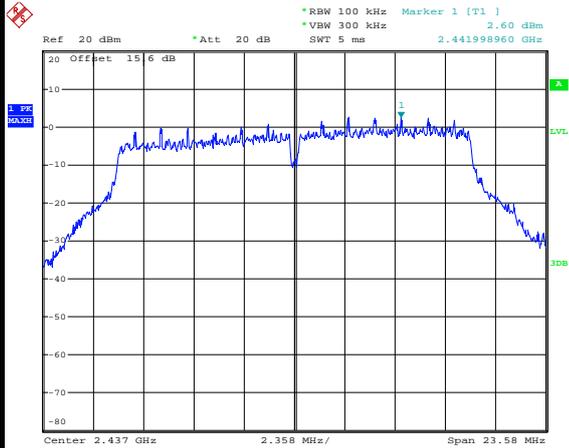
Date: 15.JAN.2014 19:35:10



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

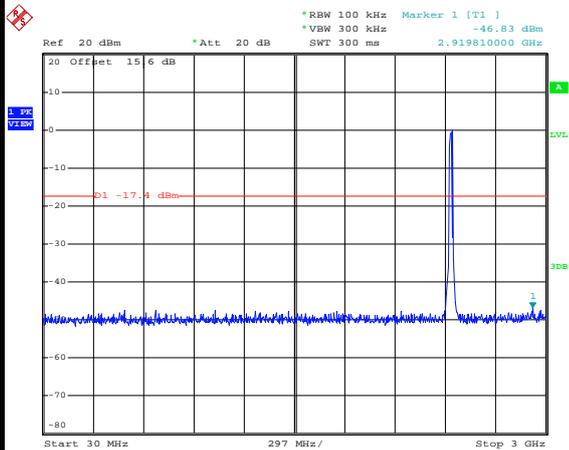
WLAN 802.11g Channel 06

100kHz PSD reference Level



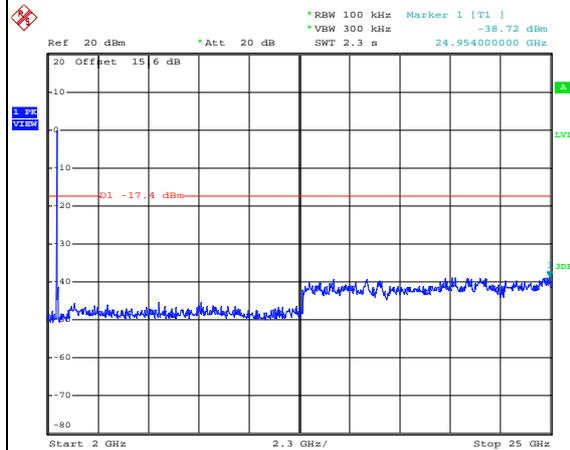
Date: 15.JAN.2014 19:37:37

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:37:57

Spurious Emission 2GHz~25GHz



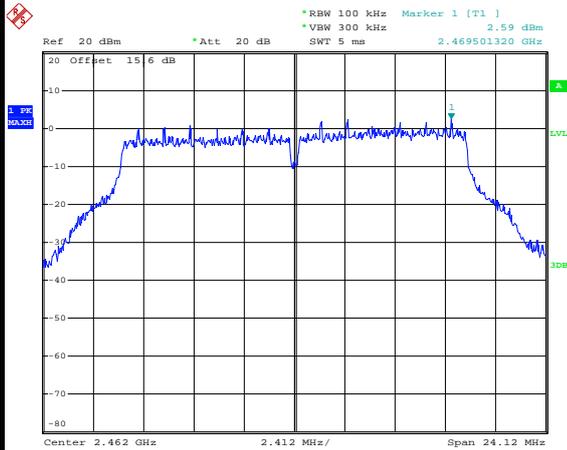
Date: 15.JAN.2014 19:38:16



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

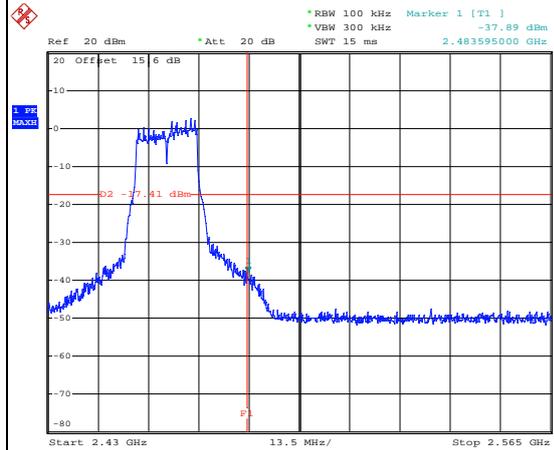
WLAN 802.11g Channel 11

100kHz PSD reference Level



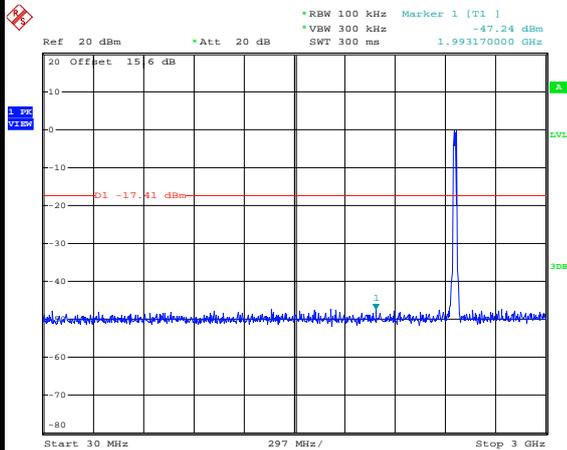
Date: 15.JAN.2014 19:41:33

High Channel Plot



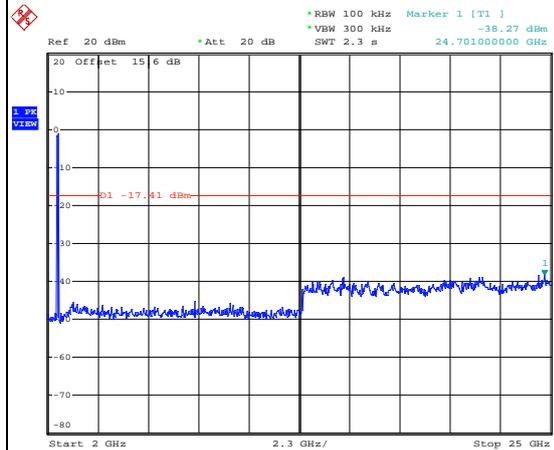
Date: 15.JAN.2014 19:41:47

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:42:06

Spurious Emission 2GHz~25GHz



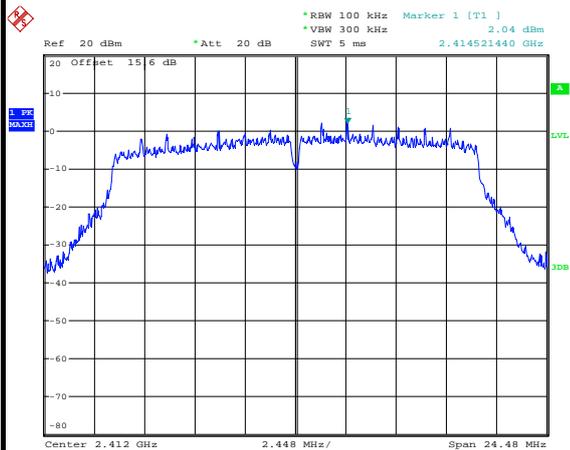
Date: 15.JAN.2014 19:42:25



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Adonis Li

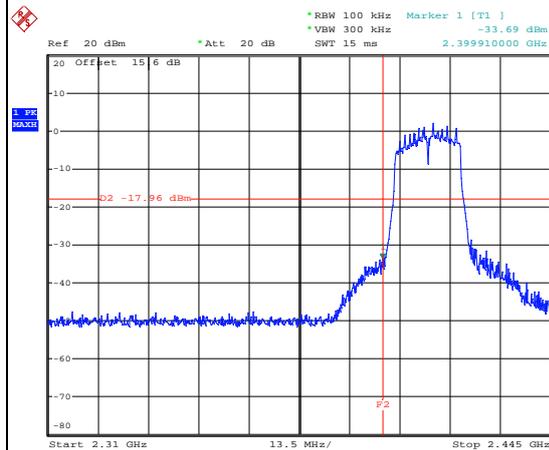
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



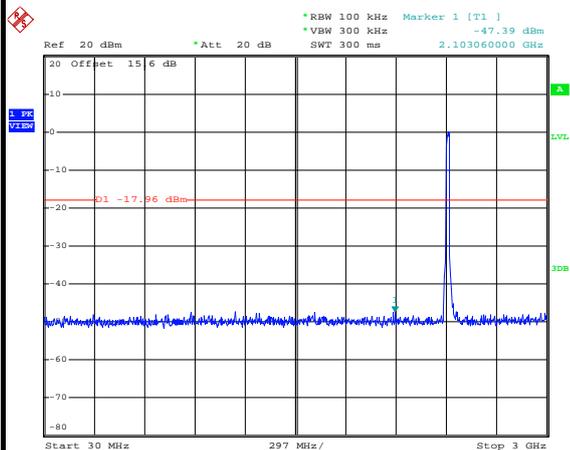
Date: 15.JAN.2014 19:46:14

Low Channel Plot



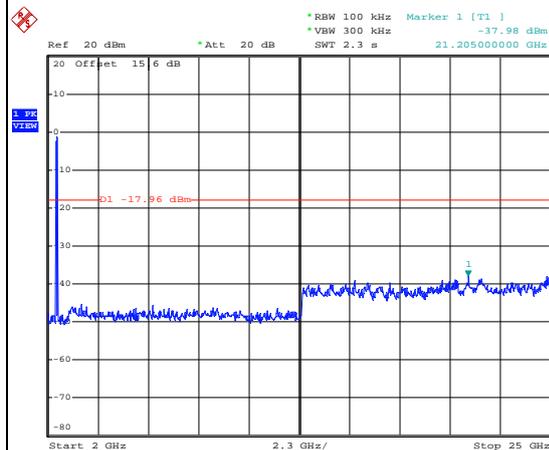
Date: 15.JAN.2014 19:46:28

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:46:48

Spurious Emission 2GHz~25GHz



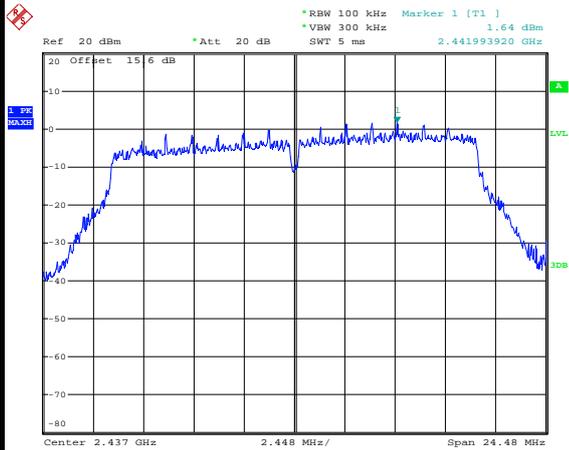
Date: 15.JAN.2014 19:47:06



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz Mid	Relative Humidity :	47~48%
Test Channel :	06	Test Engineer :	Adonis Li

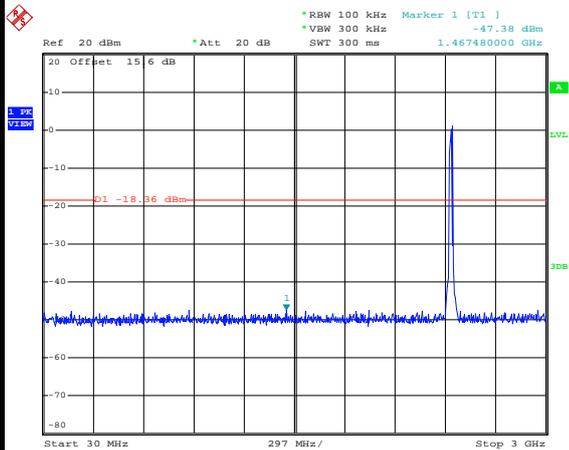
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



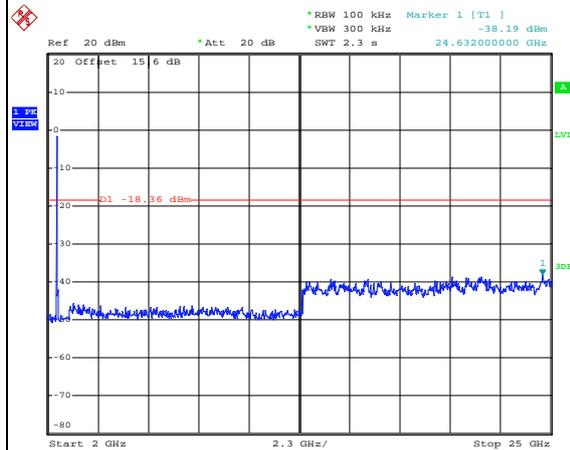
Date: 15.JAN.2014 19:49:27

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:49:47

Spurious Emission 2GHz~25GHz



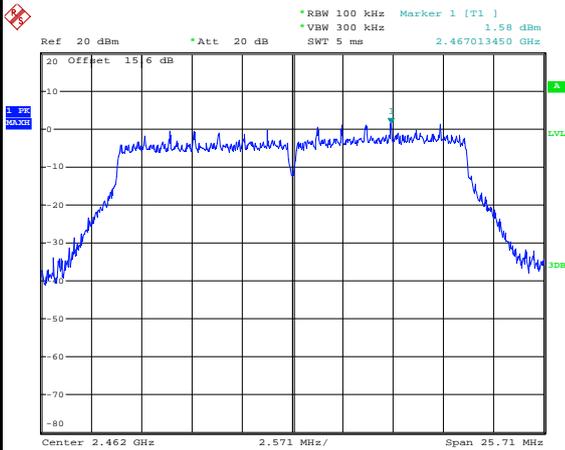
Date: 15.JAN.2014 19:50:05



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	2.4GHz High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Adonis Li

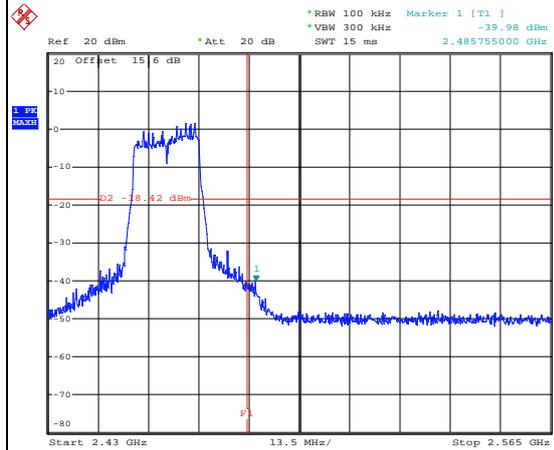
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



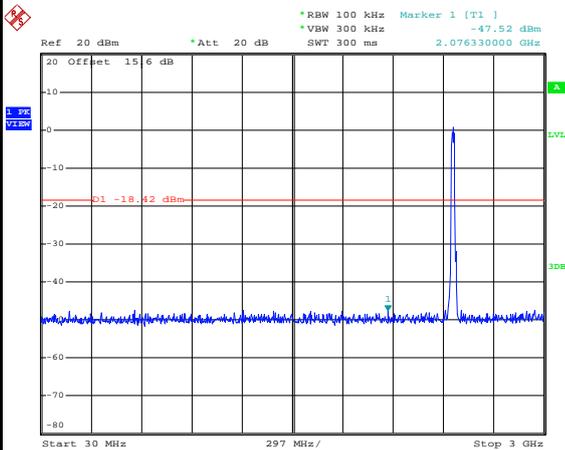
Date: 15.JAN.2014 19:52:38

High Channel Plot



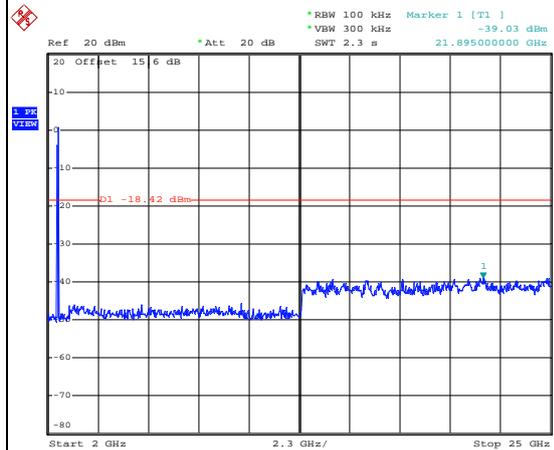
Date: 15.JAN.2014 19:52:52

Spurious Emission 30MHz~3GHz



Date: 15.JAN.2014 19:53:11

Spurious Emission 2GHz~25GHz



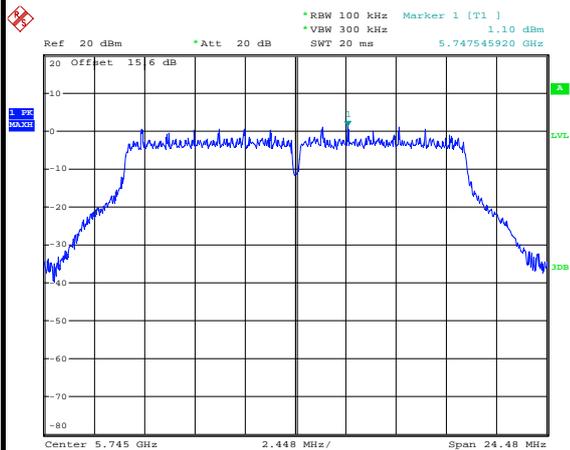
Date: 15.JAN.2014 19:53:30



Test Mode :	802.11a	Temperature :	23~24°C
Test Band :	5GHz Low	Relative Humidity :	47~48%
Test Channel :	149	Test Engineer :	Adonis Li

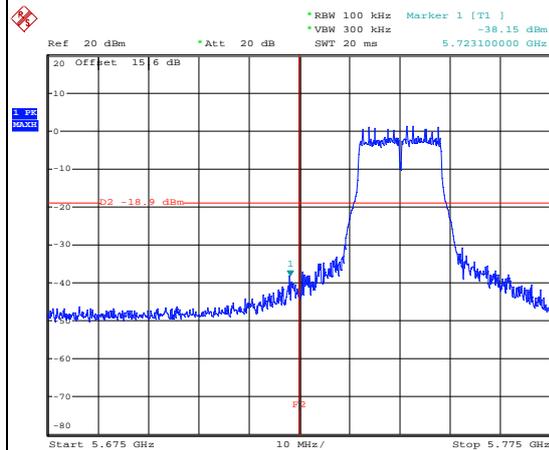
WLAN 802.11a Channel 149

100kHz PSD reference Level



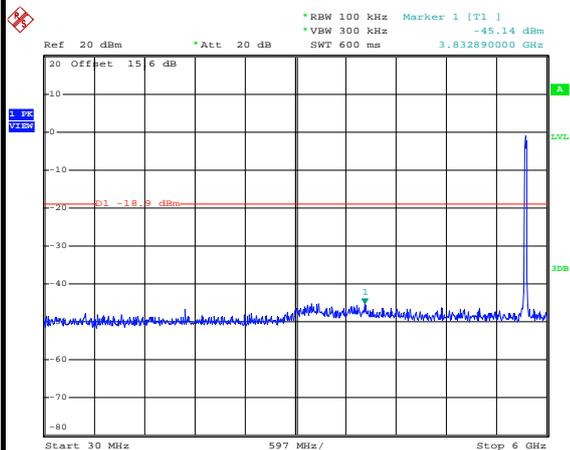
Date: 20.JAN.2014 13:35:39

Low Channel Plot



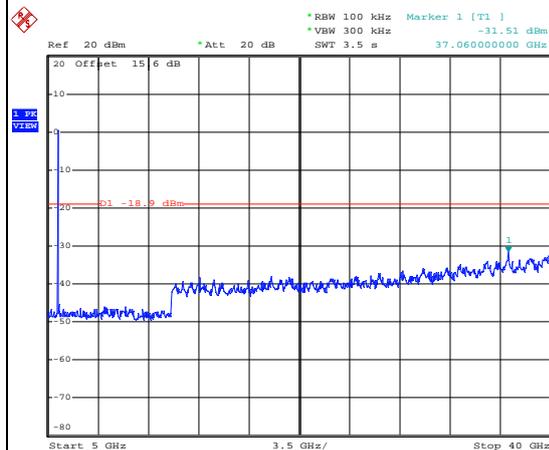
Date: 20.JAN.2014 13:35:53

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:36:13

Spurious Emission 5GHz~40GHz



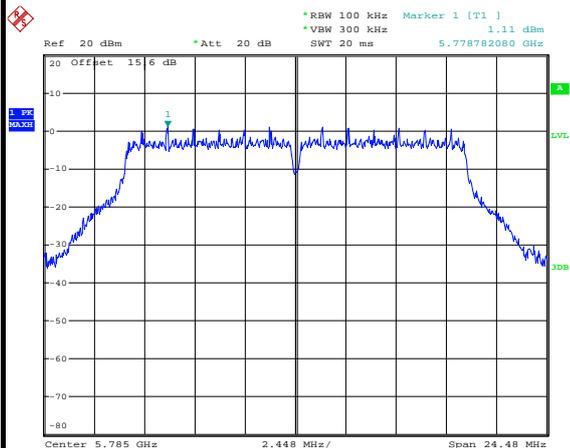
Date: 20.JAN.2014 13:36:31



Test Mode :	802.11a	Temperature :	23~24°C
Test Band :	5GHz Mid	Relative Humidity :	47~48%
Test Channel :	157	Test Engineer :	Adonis Li

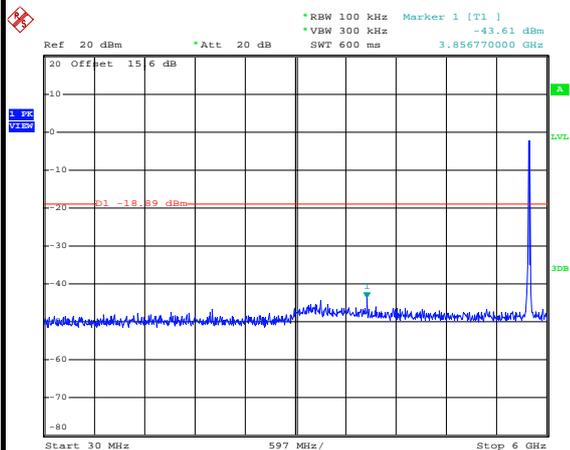
WLAN 802.11a Channel 157

100kHz PSD reference Level



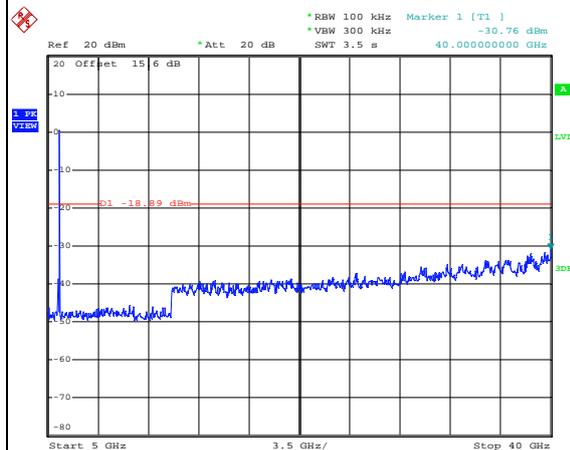
Date: 20.JAN.2014 13:38:49

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:39:08

Spurious Emission 5GHz~40GHz



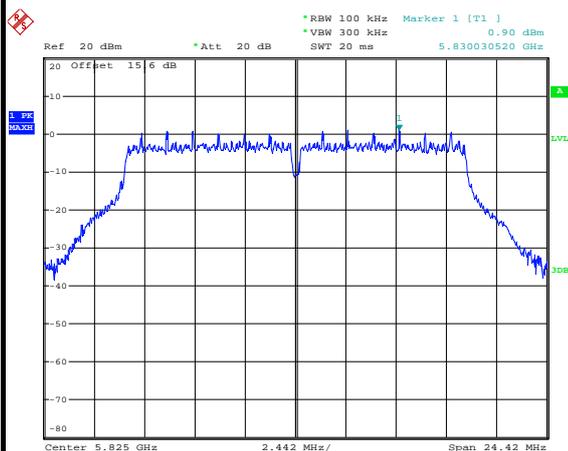
Date: 20.JAN.2014 13:39:27



Test Mode :	802.11a	Temperature :	23~24°C
Test Band :	5GHz High	Relative Humidity :	47~48%
Test Channel :	165	Test Engineer :	Adonis Li

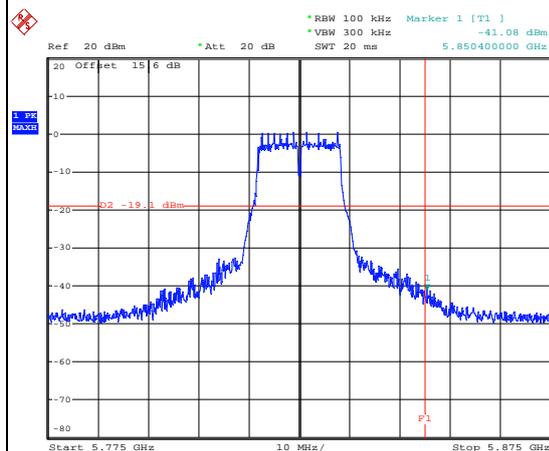
WLAN 802.11a Channel 165

100kHz PSD reference Level



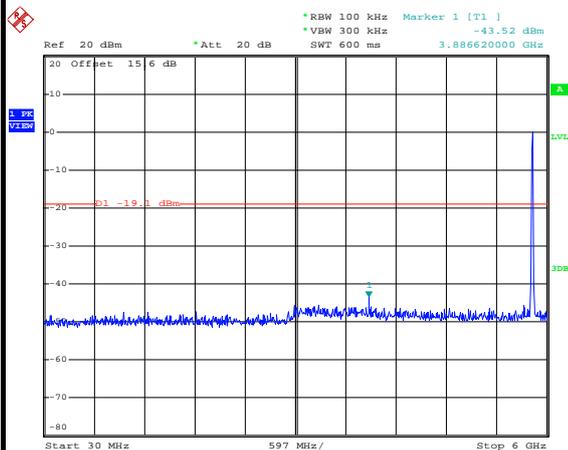
Date: 20.JAN.2014 13:41:15

High Channel Plot



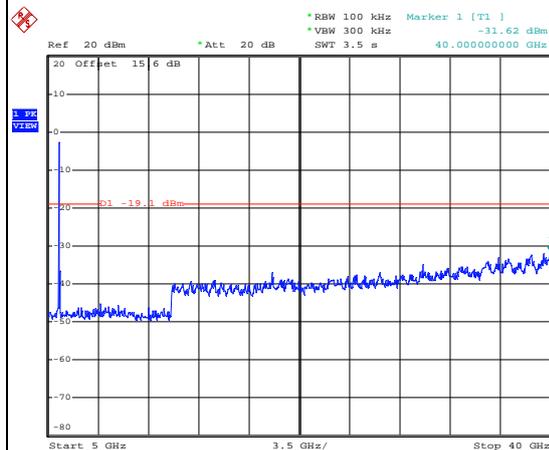
Date: 20.JAN.2014 13:41:29

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:41:48

Spurious Emission 5GHz~40GHz



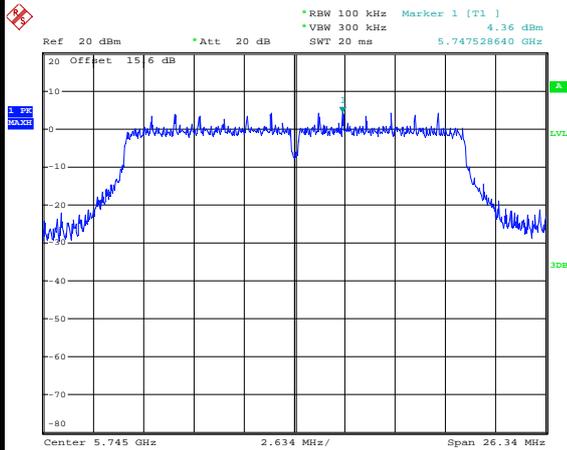
Date: 20.JAN.2014 13:42:06



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	5GHz Low	Relative Humidity :	47~48%
Test Channel :	149	Test Engineer :	Adonis Li

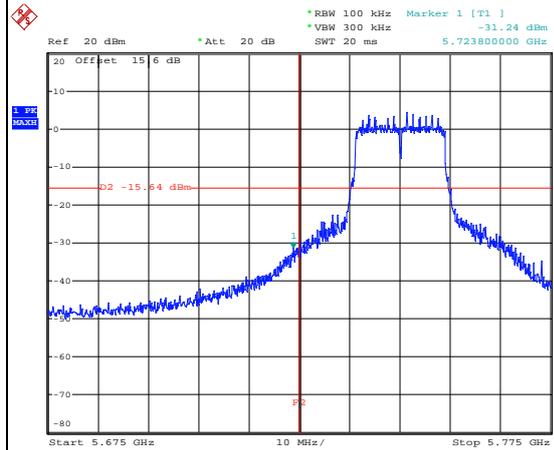
WLAN 802.11n HT20 Channel 149

100kHz PSD reference Level



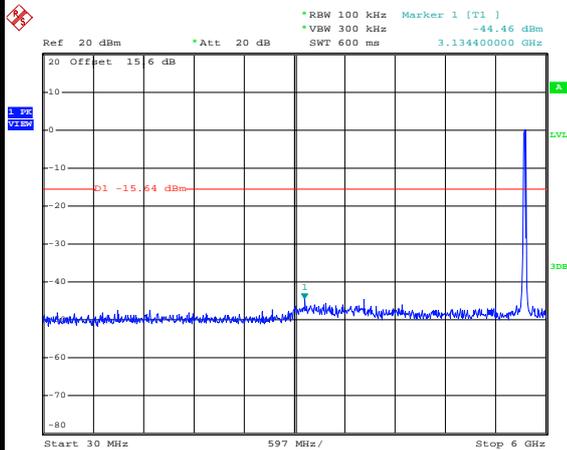
Date: 20.JAN.2014 13:48:10

Low Channel Plot



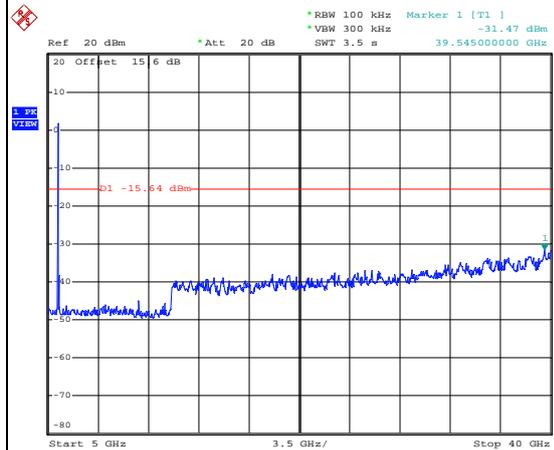
Date: 20.JAN.2014 13:48:24

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:48:44

Spurious Emission 5GHz~40GHz



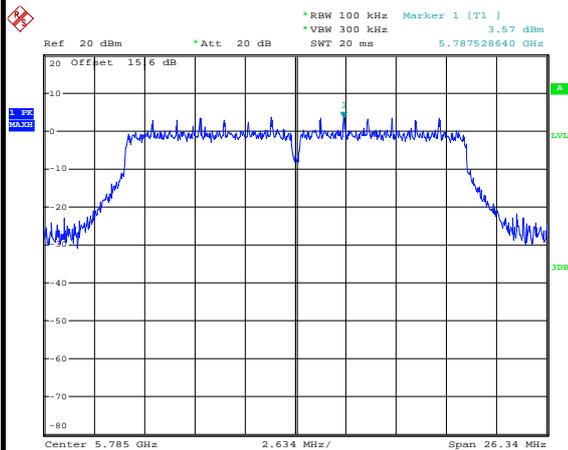
Date: 20.JAN.2014 13:49:02



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	5GHz Mid	Relative Humidity :	47~48%
Test Channel :	157	Test Engineer :	Adonis Li

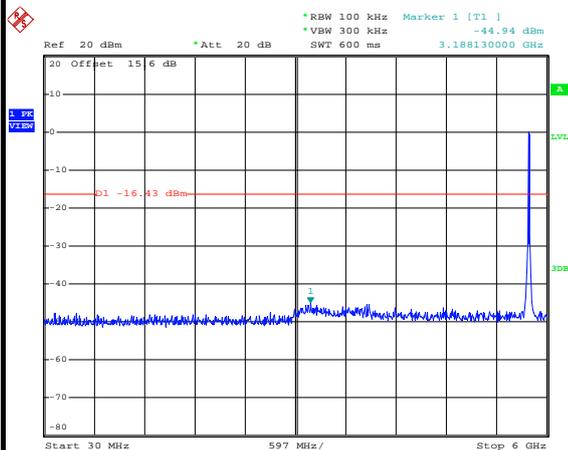
WLAN 802.11n HT20 Channel 157

100kHz PSD reference Level



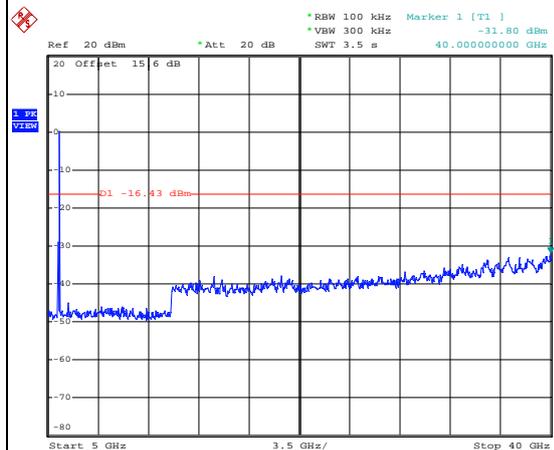
Date: 20.JAN.2014 13:52:44

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:53:04

Spurious Emission 5GHz~40GHz



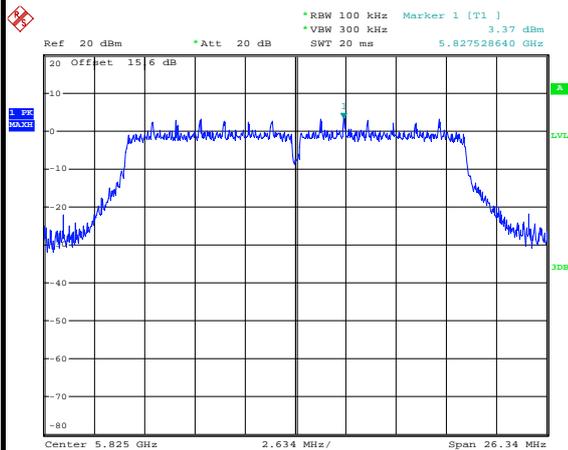
Date: 20.JAN.2014 13:53:22



Test Mode :	802.11n HT20	Temperature :	23~24°C
Test Band :	5GHz High	Relative Humidity :	47~48%
Test Channel :	165	Test Engineer :	Adonis Li

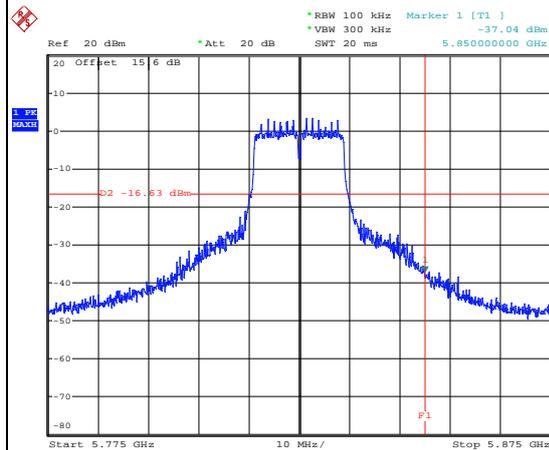
WLAN 802.11n HT20 Channel 165

100kHz PSD reference Level



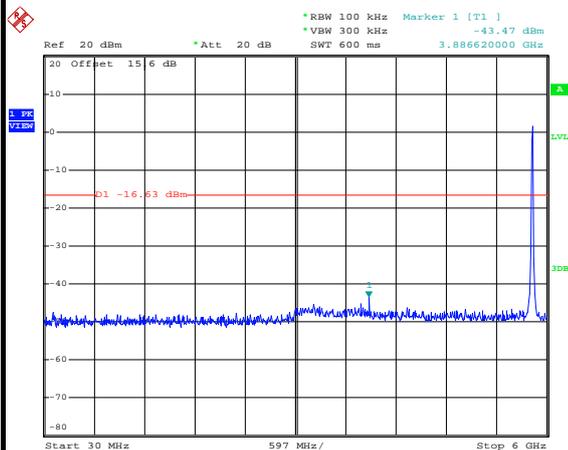
Date: 20.JAN.2014 13:56:02

High Channel Plot



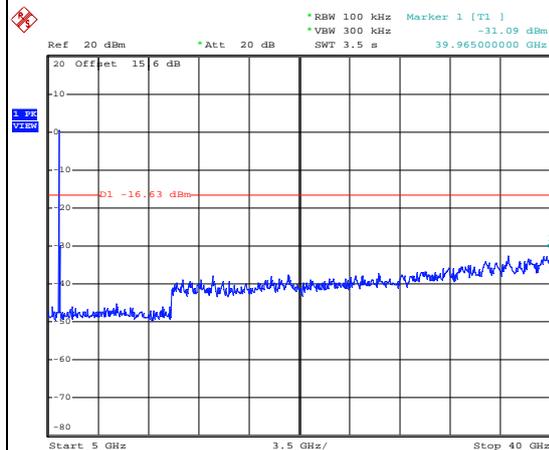
Date: 20.JAN.2014 13:56:16

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 13:56:35

Spurious Emission 5GHz~40GHz



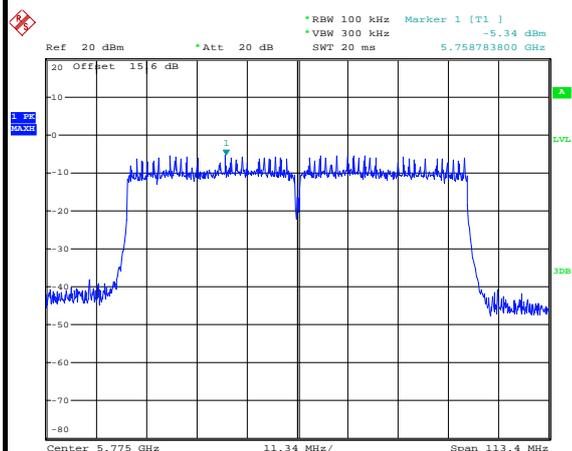
Date: 20.JAN.2014 13:56:54



Test Mode :	802.11ac VHT80	Temperature :	23~24°C
Test Band :	5GHz High	Relative Humidity :	47~48%
Test Channel :	155	Test Engineer :	Adonis Li

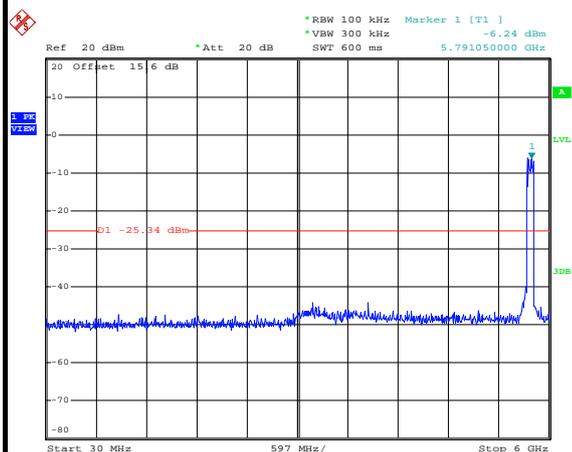
WLAN 802.11ac VHT80 Channel 155

100kHz PSD reference Level



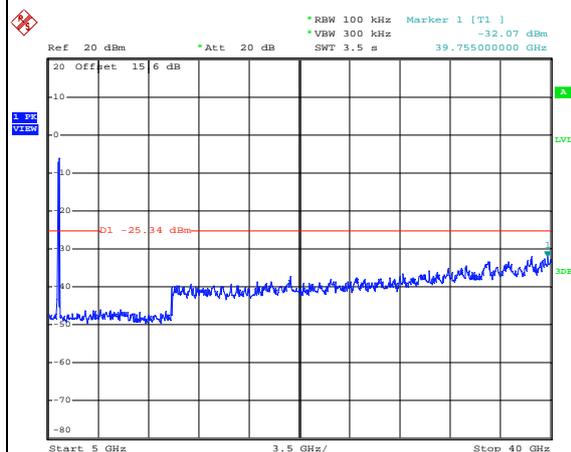
Date: 20.JAN.2014 14:01:56

Spurious Emission 30MHz~6GHz



Date: 20.JAN.2014 14:02:16

Spurious Emission 5GHz~40GHz



Date: 20.JAN.2014 14:02:35

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.



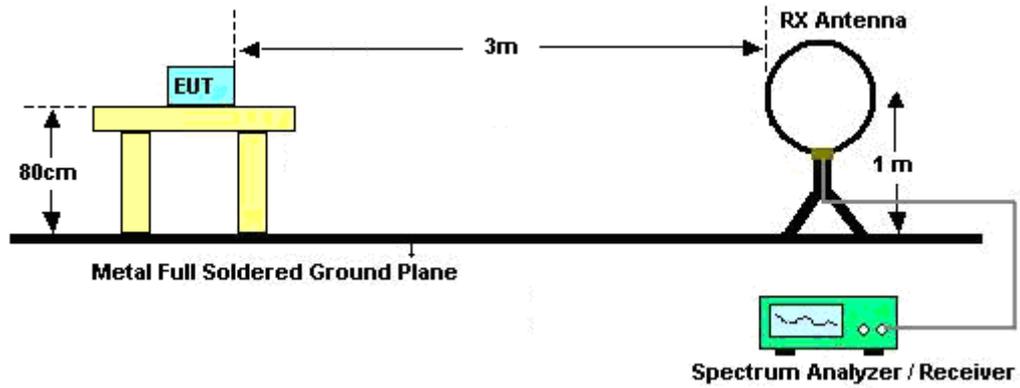
3.5.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
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; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement.
 For average measurement:
 - $VBW = 10$ Hz, when duty cycle is no less than 98 percent.
 - $VBW \geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

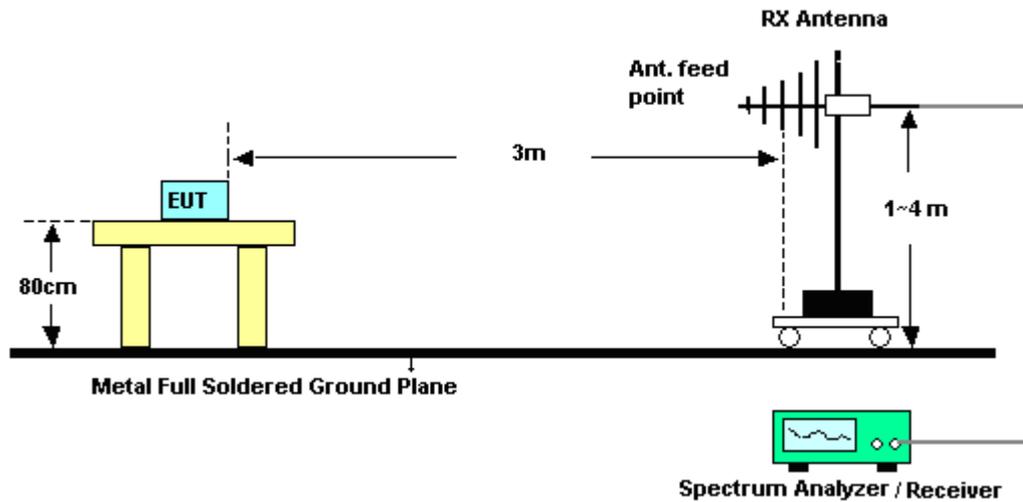
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	98.624	-	-	10Hz
802.11g	93.464	1.43	0.699	1kHz
2.4GHz 802.11n HT20	92.669	1.34	0.746	1kHz
802.11a	93.342	1.43	0.699	1kHz
5GHz 802.11n HT20	92.926	1.34	0.746	1kHz
5GHz 802.11ac VHT80	76.498	0.332	3.012	10kHz

3.5.4 Test Setup

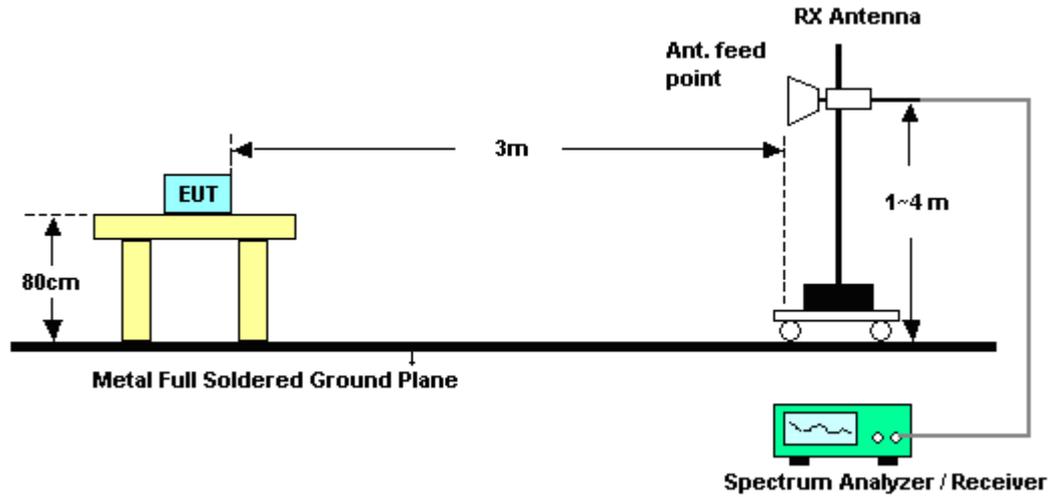
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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



3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.29	52.93	-21.07	74	49.74	32.86	3.59	33.26	200	42	Peak
2389.92	35.12	-18.88	54	31.93	32.86	3.59	33.26	200	42	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.56	52.09	-21.91	74	48.9	32.86	3.59	33.26	100	332	Peak
2389.92	34.74	-19.26	54	31.55	32.86	3.59	33.26	100	332	Average

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.68	55.25	-18.75	74	51.88	33.01	3.65	33.29	189	48	Peak
2483.5	36.34	-17.66	54	32.97	33.01	3.65	33.29	189	48	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.44	53.92	-20.08	74	50.55	33.01	3.65	33.29	100	360	Peak
2483.5	35.63	-18.37	54	32.26	33.01	3.65	33.29	100	360	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2387.49	66.94	-7.06	74	63.75	32.86	3.59	33.26	107	58	Peak
2389.83	48.86	-5.14	54	45.67	32.86	3.59	33.26	107	58	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.83	61.84	-12.16	74	58.65	32.86	3.59	33.26	100	348	Peak
2389.83	44.6	-9.4	54	41.41	32.86	3.59	33.26	100	348	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.56	71.53	-2.47	74	68.16	33.01	3.65	33.29	105	60	Peak
2483.5	48.24	-5.76	54	44.87	33.01	3.65	33.29	105	60	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.59	68.14	-5.86	74	64.77	33.01	3.65	33.29	100	353	Peak
2483.56	45.52	-8.48	54	42.15	33.01	3.65	33.29	100	353	Average



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	40~41%
Test Channel :	01	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.83	71.54	-2.46	74	68.35	32.86	3.59	33.26	109	55	Peak
2390	51.78	-2.22	54	48.59	32.86	3.59	33.26	109	55	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	67.97	-6.03	74	64.78	32.86	3.59	33.26	100	357	Peak
2389.92	48.11	-5.89	54	44.92	32.86	3.59	33.26	100	357	Average

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	40~41%
Test Channel :	11	Test Engineer :	Jun Liu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.86	72.42	-1.58	74	69.05	33.01	3.65	33.29	104	58	Peak
2483.62	46.74	-7.26	54	43.37	33.01	3.65	33.29	104	58	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.98	68	-6	74	64.63	33.01	3.65	33.29	100	356	Peak
2483.59	42.96	-11.04	54	39.59	33.01	3.65	33.29	100	357	Average



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

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

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	105.91	-	-	102.68	32.89	3.61	33.27	108	53	Peak
2412	100.79	-	-	97.56	32.89	3.61	33.27	108	53	Average
4824	47.48	-26.52	74	40.86	35.17	5.25	33.8	100	120	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	101.16	-	-	97.93	32.89	3.61	33.27	100	338	Peak
2412	95.51	-	-	92.28	32.89	3.61	33.27	100	338	Average
4824	47.24	-26.76	74	40.62	35.17	5.25	33.8	100	184	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	105.27	-	-	101.97	32.95	3.63	33.28	158	56	Peak
2437	99.88	-	-	96.58	32.95	3.63	33.28	158	56	Average
4874	46.91	-27.09	74	40.25	35.18	5.28	33.8	101	44	Peak
7312	49.1	-24.9	74	40.42	36.2	6.61	34.13	100	263	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	101.44	-	-	98.14	32.95	3.63	33.28	118	5	Peak
2437	95.94	-	-	92.64	32.95	3.63	33.28	118	5	Average
4874	46.42	-27.58	74	39.76	35.18	5.28	33.8	184	45	Peak
7312	49.27	-24.73	74	40.59	36.2	6.61	34.13	100	45	Peak



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	102.73	-	-	99.4	32.98	3.64	33.29	102	48	Peak
2462	97.23	-	-	93.9	32.98	3.64	33.29	102	48	Average
4924	47.11	-26.89	74	40.41	35.19	5.31	33.8	100	151	Peak
7386	49.06	-24.94	74	40.28	36.24	6.7	34.16	100	120	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	99.38	-	-	96.05	32.98	3.64	33.29	100	336	Peak
2462	94.08	-	-	90.75	32.98	3.64	33.29	100	336	Average
4924	46.97	-27.03	74	40.27	35.19	5.31	33.8	120	151	Peak
7386	47.67	-26.33	74	38.89	36.24	6.7	34.16	151	141	Peak



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	105.02	-	-	101.79	32.89	3.61	33.27	110	312	Peak
2412	94.35	-	-	91.12	32.89	3.61	33.27	110	312	Average
4824	46.16	-27.84	74	39.54	35.17	5.25	33.8	151	200	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	102	-	-	98.77	32.89	3.61	33.27	100	342	Peak
2412	90.91	-	-	87.68	32.89	3.61	33.27	100	342	Average
4824	45.41	-28.59	74	38.79	35.17	5.25	33.8	100	151	Peak



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	106.11	-	-	102.81	32.95	3.63	33.28	106	58	Peak
2437	95.52	-	-	92.22	32.95	3.63	33.28	106	58	Average
4874	46.37	-27.63	74	39.71	35.18	5.28	33.8	100	147	Peak
7312	47.29	-26.71	74	38.61	36.2	6.61	34.13	145	200	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	102.13	-	-	98.83	32.95	3.63	33.28	100	360	Peak
2437	91.23	-	-	87.93	32.95	3.63	33.28	100	360	Average
4874	45.78	-28.22	74	39.12	35.18	5.28	33.8	100	143	Peak
7312	46.65	-27.35	74	37.97	36.2	6.61	34.13	100	141	Peak



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	105.42	-	-	102.09	32.98	3.64	33.29	104	60	Peak
2462	94.76	-	-	91.43	32.98	3.64	33.29	104	60	Average
4924	45.25	-28.75	74	38.55	35.19	5.31	33.8	100	141	Peak
7386	48.69	-25.31	74	39.91	36.24	6.7	34.16	104	100	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2462	101.15	-	-	97.82	32.98	3.64	33.29	100	353	Peak
2462	90.29	-	-	86.96	32.98	3.64	33.29	100	353	Average
4924	45.39	-28.61	74	38.69	35.19	5.31	33.8	174	53	Peak
7386	47.54	-26.46	74	38.76	36.24	6.7	34.16	162	321	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	108.48	-	-	105.25	32.89	3.61	33.27	108	55	Peak
2412	96.48	-	-	93.25	32.89	3.61	33.27	108	55	Average
4824	46.14	-27.86	74	39.52	35.17	5.25	33.8	100	178	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	103.15	-	-	99.92	32.89	3.61	33.27	100	357	Peak
2412	90.67	-	-	87.44	32.89	3.61	33.27	100	357	Average
4824	45.78	-28.22	74	39.16	35.17	5.25	33.8	174	89	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	104.1	-	-	100.8	32.95	3.63	33.28	108	54	Peak
2437	93.35	-	-	90.05	32.95	3.63	33.28	108	54	Average
4874	45.53	-28.47	74	38.87	35.18	5.28	33.8	145	221	Peak
7312	47.33	-26.67	74	38.65	36.2	6.61	34.13	145	200	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2437	101.09	-	-	97.79	32.95	3.63	33.28	100	360	Peak
2437	88.92	-	-	85.62	32.95	3.63	33.28	100	360	Average
4874	45.63	-28.37	74	38.97	35.18	5.28	33.8	100	133	Peak
7312	47.24	-26.76	74	38.56	36.2	6.61	34.13	166	90	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.58	26.07	-13.93	40	49.04	10.03	0.62	33.62	141	78	Peak
71.71	21.91	-18.09	40	49.25	5.46	0.79	33.59	-	-	Peak
128.94	22.34	-21.16	43.5	43.18	11.71	1.04	33.59	-	-	Peak
307.42	20.61	-25.39	46	39.2	13.17	1.61	33.37	-	-	Peak
343.31	18.63	-27.37	46	35.94	14.35	1.7	33.36	-	-	Peak
690.57	18.98	-27.02	46	30.26	19.24	2.37	32.89	-	-	Peak
2462	106.94	-	-	103.61	32.98	3.64	33.29	104	58	Peak
2462	94.47	-	-	91.14	32.98	3.64	33.29	104	58	Average
4924	46.02	-27.98	74	39.32	35.19	5.31	33.8	112	332	Peak
7386	49.08	-24.92	74	40.3	36.24	6.7	34.16	147	221	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
43.58	31.07	-8.93	40	54.04	10.03	0.62	33.62	102	311	Peak
70.74	21.26	-18.74	40	48.69	5.38	0.78	33.59	-	-	Peak
128.94	17.34	-26.16	43.5	38.18	11.71	1.04	33.59	-	-	Peak
307.42	19.61	-26.39	46	38.2	13.17	1.61	33.37	-	-	Peak
604.24	17.82	-28.18	46	29.9	18.62	2.25	32.95	-	-	Peak
690.57	18.98	-27.02	46	30.26	19.24	2.37	32.89	-	-	Peak
2462	101.96	-	-	98.63	32.98	3.64	33.29	100	356	Peak
2462	89.98	-	-	86.65	32.98	3.64	33.29	100	356	Average
4924	46.25	-27.75	74	39.55	35.19	5.31	33.8	147	326	Peak
7386	47.9	-26.1	74	39.12	36.24	6.7	34.16	112	102	Peak



Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5745MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5745	105.27	-	-	97.78	35.52	5.67	33.7	102	296	Peak
5745	94.63	-	-	87.14	35.52	5.67	33.7	102	296	Average
11490	37.19	-36.81	74	57.88	4.47	8.84	34	100	151	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5745	103.48	-	-	95.99	35.52	5.67	33.7	187	275	Peak
5745	92.69	-	-	85.2	35.52	5.67	33.7	187	275	Average
11490	38.37	-35.63	74	59.06	4.47	8.84	34	100	159	Peak



Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5785	105.49	-	-	97.96	35.53	5.7	33.7	122	299	Peak
5785	94.43	-	-	86.9	35.53	5.7	33.7	122	299	Average
11571	36.13	-37.87	74	56.97	4.38	8.8	34.02	100	78	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5785	101.78	-	-	94.25	35.53	5.7	33.7	200	283	Peak
5785	91.06	-	-	83.53	35.53	5.7	33.7	200	283	Average
11571	36.51	-37.49	74	57.35	4.38	8.8	34.02	100	153	Peak



Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5825	105.2	-	-	97.59	35.55	5.76	33.7	100	298	Peak
5825	94.04	-	-	86.43	35.55	5.76	33.7	100	298	Average
11649	35.93	-38.07	74	57.05	4.2	8.73	34.05	145	184	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5825	101.55	-	-	93.94	35.55	5.76	33.7	200	276	Peak
5825	90.89	-	-	83.28	35.55	5.76	33.7	200	276	Average
11649	35.9	-38.1	74	57.02	4.2	8.73	34.05	174	154	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5745	107.85	-	-	100.36	35.52	5.67	33.7	123	294	Peak
5745	96.27	-	-	88.78	35.52	5.67	33.7	123	294	Average
11490	36.03	-37.97	74	56.72	4.47	8.84	34	123	162	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5745	106.08	-	-	98.59	35.52	5.67	33.7	187	276	Peak
5745	94.58	-	-	87.09	35.52	5.67	33.7	187	276	Average
11490	39.88	-34.12	74	60.57	4.47	8.84	34	187	200	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5785	109.08	-	-	101.55	35.53	5.7	33.7	123	294	Peak
5785	96.92	-	-	89.39	35.53	5.7	33.7	123	294	Average
11571	36.5	-37.5	74	57.34	4.38	8.8	34.02	174	48	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5785	105.91	-	-	98.38	35.53	5.7	33.7	187	280	Peak
5785	93.9	-	-	86.37	35.53	5.7	33.7	187	280	Average
11571	37.93	-36.07	74	58.77	4.38	8.8	34.02	187	200	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5825	108.79	-	-	101.18	35.55	5.76	33.7	100	298	Peak
5825	96.59	-	-	88.98	35.55	5.76	33.7	100	298	Average
11649	35.61	-38.39	74	56.73	4.2	8.73	34.05	145	44	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5825	105.84	-	-	98.23	35.55	5.76	33.7	200	269	Peak
5825	93.55	-	-	85.94	35.55	5.76	33.7	200	269	Average
11649	38.17	-35.83	74	59.29	4.2	8.73	34.05	100	236	Peak



Test Mode :	5GHz 802.11ac VHT80	Temperature :	22~23°C
Test Channel :	155	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Horizontal
Remark :	1. 5775 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5775	98.82	-	-	91.29	35.53	5.7	33.7	100	301	Peak
5775	88.04	-	-	80.51	35.53	5.7	33.7	100	301	Average
11550	36.58	-37.42	74	57.37	4.42	8.81	34.02	100	121	Peak

Test Mode :	5GHz 802.11ac VHT80	Temperature :	22~23°C
Test Channel :	155	Relative Humidity :	40~41%
Test Engineer :	Jun Liu	Polarization :	Vertical
Remark :	1. 5775 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5775	95.59	-	-	88.06	35.53	5.7	33.7	200	279	Peak
5775	85.19	-	-	77.66	35.53	5.7	33.7	200	279	Average
11550	35.88	-38.12	74	56.67	4.42	8.81	34.02	100	236	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

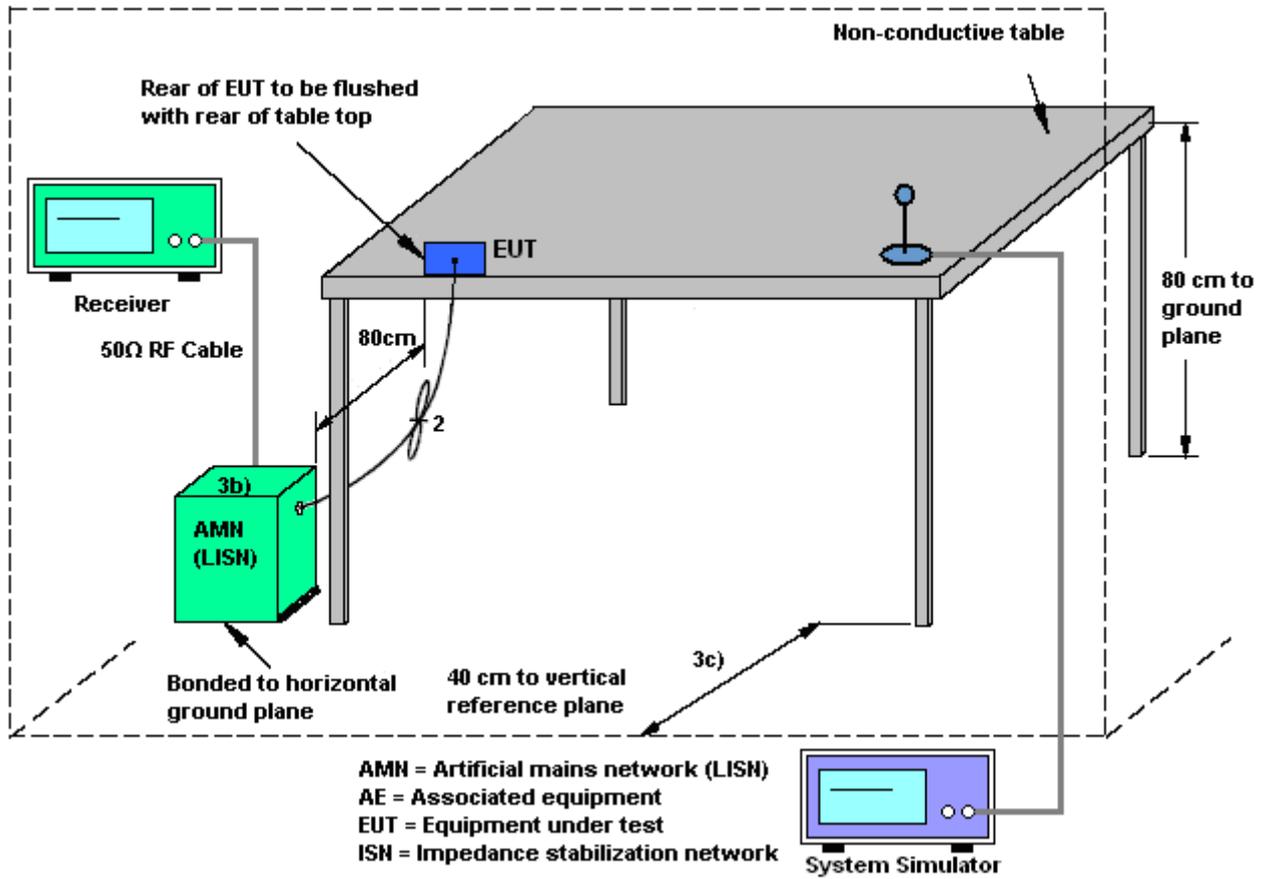
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

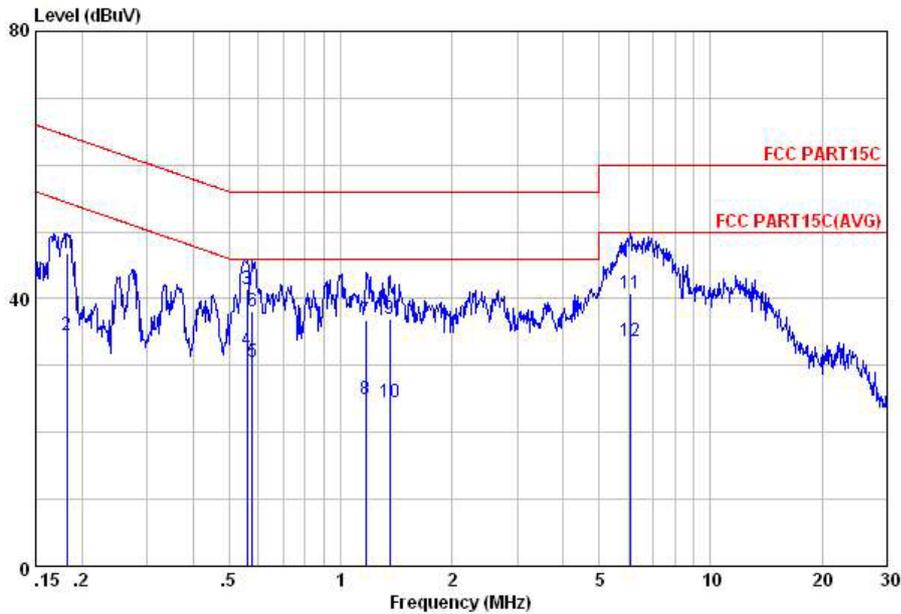
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Harvey Tang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN 2.4GHz Link + USB Cable (Charging from Adapter) + NFC Tx		

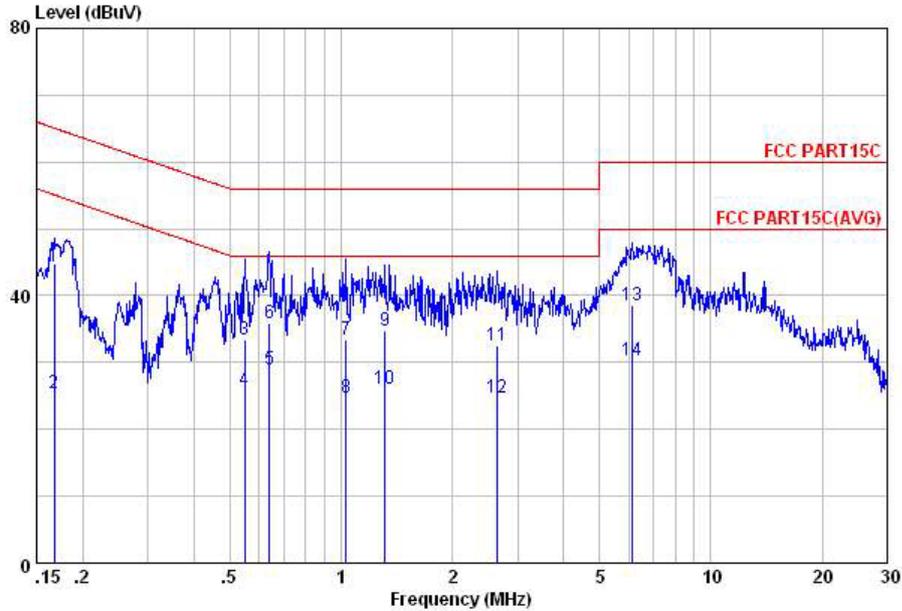


Site : C001-KS
Condition: FCC PART15C LISN-L20130306 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.18	46.86	-17.51	64.37	35.00	1.25	10.61	QP
2	0.18	34.46	-19.91	54.37	22.60	1.25	10.61	Average
3	0.56	41.45	-14.55	56.00	31.00	0.20	10.25	QP
4	0.56	32.25	-13.75	46.00	21.80	0.20	10.25	Average
5	0.58	30.55	-15.45	46.00	20.10	0.20	10.25	Average
6	0.58	38.15	-17.85	56.00	27.70	0.20	10.25	QP
7	1.17	36.68	-19.32	56.00	26.40	0.10	10.18	QP
8	1.17	24.98	-21.02	46.00	14.70	0.10	10.18	Average
9	1.36	36.98	-19.02	56.00	26.70	0.10	10.18	QP
10	1.36	24.48	-21.52	46.00	14.20	0.10	10.18	Average
11	6.09	40.89	-19.11	60.00	30.40	0.20	10.29	QP
12	6.09	33.59	-16.41	50.00	23.10	0.20	10.29	Average



Test Mode :	Mode 1	Temperature :	21~23°C
Test Engineer :	Harvey Tang	Relative Humidity :	41~43%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + Bluetooth Link + WLAN 2.4GHz Link + USB Cable (Charging from Adapter) + NFC Tx		



Site : C001-KS
 Condition: FCC PART15C LISN-N20130306 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.17	44.74	-20.34	65.08	32.50	1.59	10.65	QP
2	0.17	25.44	-29.64	55.08	13.20	1.59	10.65	Average
3	0.55	33.53	-22.47	56.00	23.00	0.28	10.25	QP
4	0.55	25.93	-20.07	46.00	15.40	0.28	10.25	Average
5	0.64	28.95	-17.05	46.00	18.50	0.22	10.23	Average
6	0.64	35.95	-20.05	56.00	25.50	0.22	10.23	QP
7	1.03	33.38	-22.62	56.00	23.10	0.10	10.18	QP
8	1.03	24.68	-21.32	46.00	14.40	0.10	10.18	Average
9	1.32	34.78	-21.22	56.00	24.50	0.10	10.18	QP
10	1.32	26.08	-19.92	46.00	15.80	0.10	10.18	Average
11	2.65	32.63	-23.37	56.00	22.30	0.12	10.21	QP
12	2.65	24.73	-21.27	46.00	14.40	0.12	10.21	Average
13	6.15	38.59	-21.41	60.00	28.10	0.20	10.29	QP
14	6.15	30.39	-19.61	50.00	19.90	0.20	10.29	Average



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 Connected Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 26, 2013	Jan. 15, 2014 ~ Jan. 20, 2014	Dec. 25, 2014	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	30MHz~40GHz	Feb. 28, 2013	Jan. 15, 2014 ~ Jan. 20, 2014	Feb. 27, 2014	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Feb. 28, 2013	Jan. 15, 2014 ~ Jan. 20, 2014	Feb. 27, 2014	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 23, 2013	Feb. 07, 2014	May 22, 2014	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Dec. 06, 2013	Feb. 07, 2014	Dec. 05, 2014	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 06, 2013	Feb. 07, 2014	Dec. 05, 2014	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	May 23, 2013	Feb. 07, 2014	May 22, 2014	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 26, 2013	Feb. 07, 2014	Dec. 25, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Nov. 22, 2013	Feb. 07, 2014	Nov. 21, 2014	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 09, 2013	Feb. 07, 2014	Oct. 08, 2014	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Feb. 07, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Feb. 07, 2014	NCR	Radiation (03CH01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Dec. 10, 2013	Jan. 14, 2014~ Feb. 10, 2014	Dec. 09, 2014	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Dec. 10, 2013	Jan. 14, 2014~ Feb. 10, 2014	Dec. 09, 2014	Conduction (CO01-KS)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz	May 23, 2013	Jan. 14, 2014~ Feb. 10, 2014	May 22, 2014	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	May 25, 2013	Jan. 14, 2014~ Feb. 10, 2014	May 24, 2014	Conduction (CO01-KS)



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 (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
---	------