FCC RF Test Report

APPLICANT	:	Brightstar Corporation
EQUIPMENT	:	Smart Phone
BRAND NAME	:	Avvio, PULSARE
MODEL NAME	:	Avvio 786S, Avvio 786, Pulsare 786S, Pulsare 786
FCC ID	:	WVBA786X
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Sep. 26, 2014 and testing was completed on Oct. 30, 2014. We, SPORTON INTERNATIONAL (SHENZHEN) 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
2353

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR492607C	Rev. 01	Initial issue of report	Nov. 24, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	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 1.78 dB at 7311.000 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 5.36 dB at 0.380 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Brightstar Corporation
9725 NW 117th Ave., Miami, Florida, FL 33178, United States

1.2 Manufacturer

Lakia Networks Co., Ltd.
2F, Unit A, Technology Service Building, Software Garden 1, Xiamen, Fujian, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Phone
Brand Name	Avvio, PULSARE
Model Name	Avvio 786S, Avvio 786, Pulsare 786S, Pulsare 786
FCC ID	WVBA786X
EUT supports Radios application	GSM/GPRS/EGPRS(Downlink Only)/WCDMA/HSPA/ HSPA+ (Downlink Only)/ WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	F1Q_V1.3_W25_20140630
SW Version	Avvio786S.W25.V1.0
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are four types of EUT for this project. The differences between them are summary below:

Sample List	Model name	Brand name	SIM Slots
Sample 1	Avvio 786	Avvio	1
Sample 2	Avvio 786S	Avvio	2
Sample 3	PULSARE 786	PULSARE	1
Sample 4	PULSARE 786S	PULSARE	2

These models are identical on hardware except the SIM slots. The different model with different brand is for market purpose.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz
Maximum (Peak) Output Power to Antenna	802.11b : 17.38 dBm (0.0547 W) 802.11g : 20.81 dBm (0.1205 W) 802.11n HT20 : 20.51 dBm (0.1125 W) 802.11n HT40 : 21.00 dBm (0.1259 W)
Antenna Type	802.11b/g/n : FPCB Antenna with gain -1.5 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 Modification of EUT

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

1.6 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.	
Test Site Location	1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton Site No.**	
	TH01-SZ	CO01-SZ

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

1.7 Applicable Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
- ANSI C63.4-2003

Remark:

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

2 Test Configuration of Equipment Under Test

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

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

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

2.1 Carrier Frequency Channel

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

2.2 Pre-Scanned RF Power

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

2.4GHz 802.11b RF Output Power (dBm)						
Power vs. Channel			Power vs. Data Rate			
Channel	Frequency (MHz)	Data Rate 1Mbps	Channel	2Mbps	5.5Mbps	11Mbps
CH 01	2412 MHz	17.14	CH 11	17.31	17.23	17.20
CH 06	2437 MHz	17.16				
CH 11	2462 MHz	**17.38**				

2.4GHz 802.11g RF Output Power (dBm)									
Power vs. Channel			Power vs. Data Rate						
Channel	Frequency (MHz)	Data Rate 6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 01	2412 MHz	20.64	CH 11	20.53	20.47	20.39	20.37	20.36	20.32	20.30
CH 06	2437 MHz	20.73								
CH 11	2462 MHz	**20.81**								

2.4GHz 802.11n HT20 RF Output Power (dBm)									
Power vs. Channel			Power vs. MCS Index						
Channel	Frequency (MHz)	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	20.37	CH 11	20.46	20.40	20.37	20.36	20.32	20.29	20.28
CH 06	2437 MHz	20.44								
CH 11	2462 MHz	**20.51**								

2.4GHz 802.11n HT40 RF Output Power (dBm)									
Power vs. Channel			**Power vs. MCS Index**						
Channel	**Frequency (MHz)**	**MCS Index MCS0**	**Channel**	**MCS1**	**MCS2**	**MCS3**	**MCS4**	**MCS5**	**MCS6**	**MCS7**
CH 03	2422 MHz	20.72	CH 06	20.59	20.55	20.43	20.37	20.33	20.31	20.27
CH 06	2437 MHz	**21.00**								
CH 09	2452 MHz	20.41								

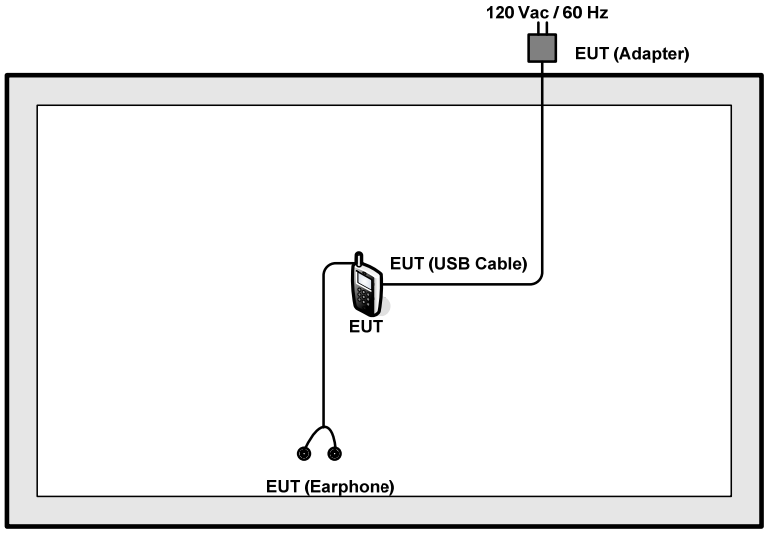
2.3 Test Mode

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

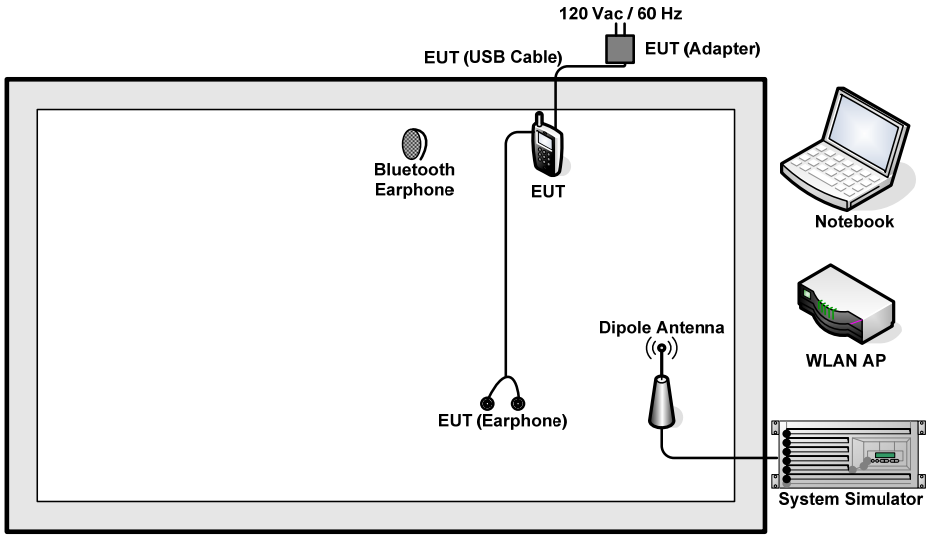
Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB BW Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
	Conducted Band Edge	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
		802.11n HT40	**MCS0**	**3/9**
	Conducted Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
Radiated TCs	**Radiated Band Edge**	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT20	**MCS0**	**1/11**
		802.11n HT40	**MCS0**	**3/9**
	Radiated Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT20	**MCS0**	**1/6/11**
		802.11n HT40	**MCS0**	**3/6/9**
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + USB Cable (Charging from Adapter) + SIM1			
Remark: For radiated test cases, the tests were performance with adapter, earphone, and USB cable.				

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	CMW 500	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-815	KA2IR815A1	N/A	Unshielded, 1.8 m
3.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-108	PYAHS-107W	N/A	N/A

2.6 EUT Operation Test Setup

For WLAN function, the 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 7.5 dB and 10dB attenuator.

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

= 7.5 + 10 = 17.5 (dB)

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

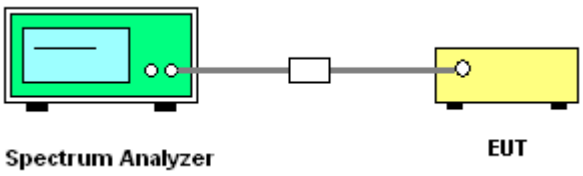
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup

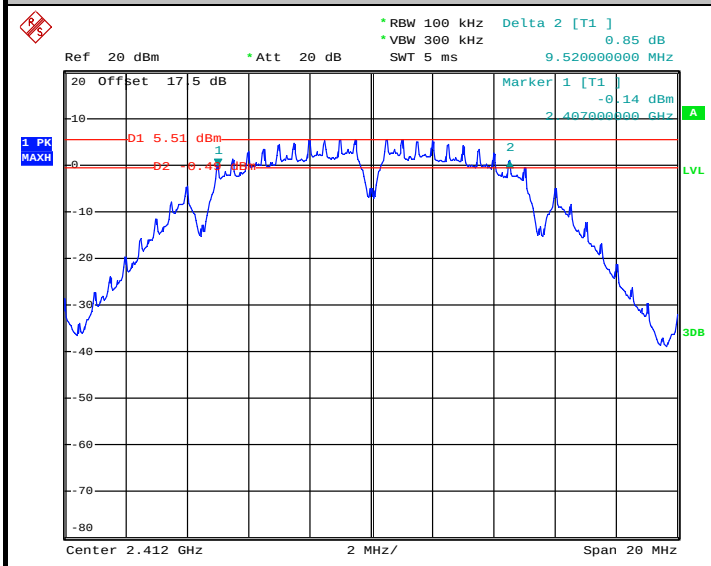


3.1.5 Test Result of 6dB Bandwidth

Test Band :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Tiny You	Relative Humidity :	50~53%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	9.52	0.5	Pass
11b	1Mbps	1	6	2437	9.52	0.5	Pass
11b	1Mbps	1	11	2462	10.00	0.5	Pass
11g	6Mbps	1	1	2412	15.46	0.5	Pass
11g	6Mbps	1	6	2437	15.32	0.5	Pass
11g	6Mbps	1	11	2462	15.64	0.5	Pass
HT20	MCS0	1	1	2412	15.32	0.5	Pass
HT20	MCS0	1	6	2437	15.44	0.5	Pass
HT20	MCS0	1	11	2462	16.08	0.5	Pass
HT40	MCS0	1	3	2422	35.12	0.5	Pass
HT40	MCS0	1	6	2437	35.20	0.5	Pass
HT40	MCS0	1	9	2452	35.12	0.5	Pass

Minimum 6dB Bandwidth



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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

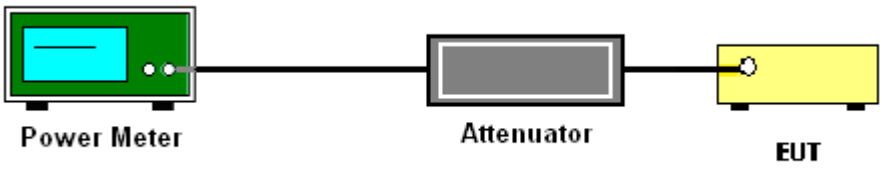
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Tiny You	Relative Humidity :	50~53%

Mod.	Data Rate	N_{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	17.14	30	-1.50	Pass
11b	1Mbps	1	6	2437	17.16	30	-1.50	Pass
11b	1Mbps	1	11	2462	17.38	30	-1.50	Pass
11g	6Mbps	1	1	2412	20.64	30	-1.50	Pass
11g	6Mbps	1	6	2437	20.73	30	-1.50	Pass
11g	6Mbps	1	11	2462	20.81	30	-1.50	Pass
HT20	MCS0	1	1	2412	20.37	30	-1.50	Pass
HT20	MCS0	1	6	2437	20.44	30	-1.50	Pass
HT20	MCS0	1	11	2462	20.51	30	-1.50	Pass
HT40	MCS0	1	3	2422	20.72	30	-1.50	Pass
HT40	MCS0	1	6	2437	21.00	30	-1.50	Pass
HT40	MCS0	1	9	2452	20.41	30	-1.50	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	Temperature :	24~26℃
Test Engineer :	Tiny You	Relative Humidity :	50~53%

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	0.07	14.37	30	-1.50	Pass
11b	1Mbps	1	6	2437	0.07	14.41	30	-1.50	Pass
11b	1Mbps	1	11	2462	0.07	14.78	30	-1.50	Pass
11g	6Mbps	1	1	2412	0.50	12.39	30	-1.50	Pass
11g	6Mbps	1	6	2437	0.50	12.57	30	-1.50	Pass
11g	6Mbps	1	11	2462	0.50	12.81	30	-1.50	Pass
HT20	MCS0	1	1	2412	0.54	12.47	30	-1.50	Pass
HT20	MCS0	1	6	2437	0.54	12.50	30	-1.50	Pass
HT20	MCS0	1	11	2462	0.54	12.86	30	-1.50	Pass
HT40	MCS0	1	3	2422	1.01	10.14	30	-1.50	Pass
HT40	MCS0	1	6	2437	1.01	12.36	30	-1.50	Pass
HT40	MCS0	1	9	2452	1.01	10.27	30	-1.50	Pass

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup

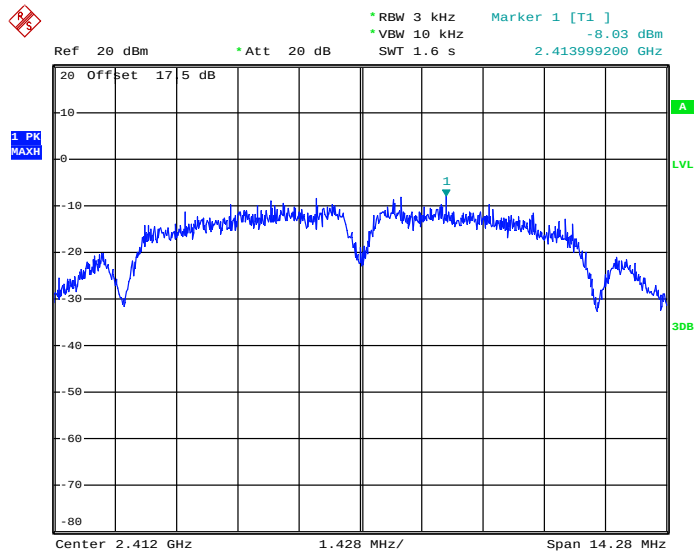
3.3.5 Test Result of Power Spectral Density

Test Mode :	2.4GHz	Temperature :	24~26℃
Test Engineer :	Tiny You	Relative Humidity :	50~53%

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	-8.03	8	-1.50	Pass
11b	1Mbps	1	6	2437	-9.29	8	-1.50	Pass
11b	1Mbps	1	11	2462	-8.88	8	-1.50	Pass
11g	6Mbps	1	1	2412	-12.57	8	-1.50	Pass
11g	6Mbps	1	6	2437	-12.40	8	-1.50	Pass
11g	6Mbps	1	11	2462	-11.69	8	-1.50	Pass
HT20	MCS0	1	1	2412	-12.84	8	-1.50	Pass
HT20	MCS0	1	6	2437	-12.58	8	-1.50	Pass
HT20	MCS0	1	11	2462	-12.65	8	-1.50	Pass
HT40	MCS0	1	3	2422	-17.77	8	-1.50	Pass
HT40	MCS0	1	6	2437	-16.64	8	-1.50	Pass
HT40	MCS0	1	9	2452	-18.51	8	-1.50	Pass

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

Worst Case Power Density (dBm/3kHz)



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3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

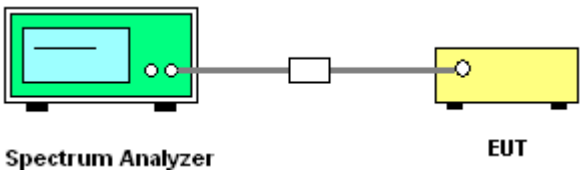
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup

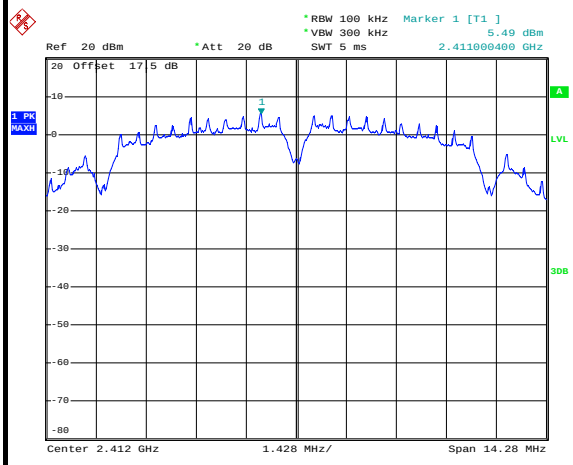


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

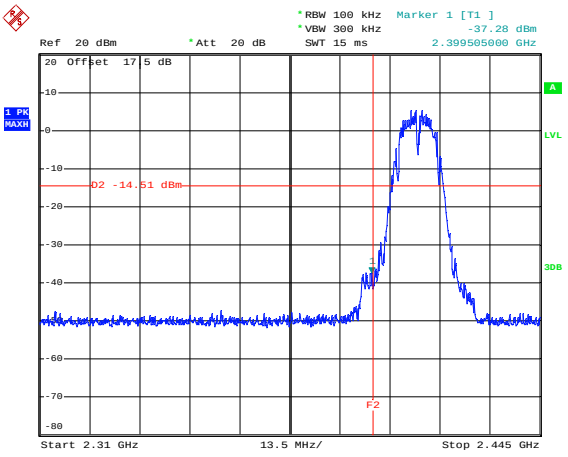
Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	2.4GHz Low	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Tiny You

WLAN 802.11b Channel 01

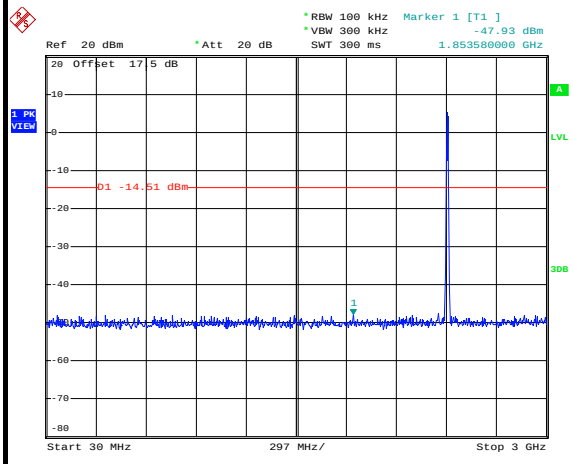
100kHz PSD reference Level



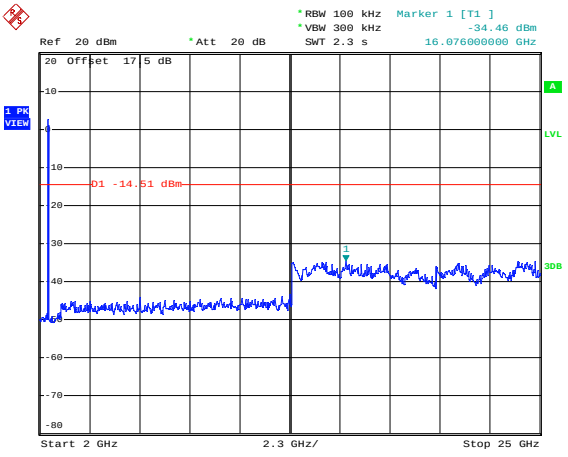
Low Channel Plot



Spurious Emission 30MHz~3GHz



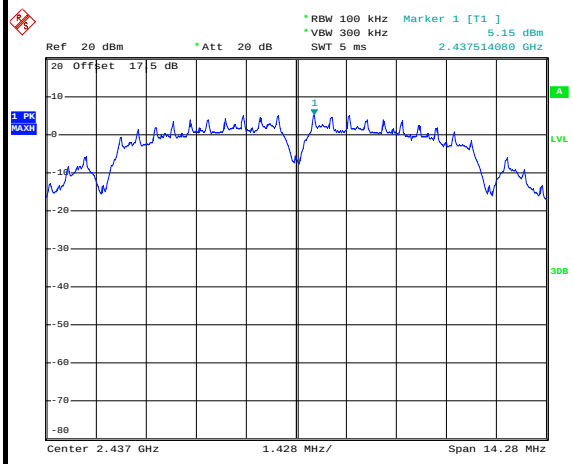
Spurious Emission 2GHz~25GHz



Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Tiny You

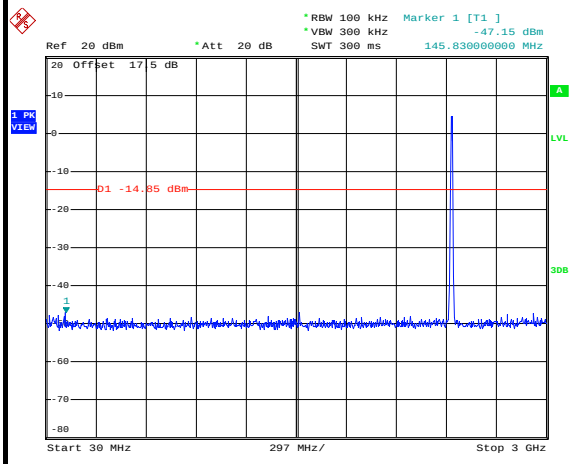
WLAN 802.11b Channel 06

100kHz PSD reference Level



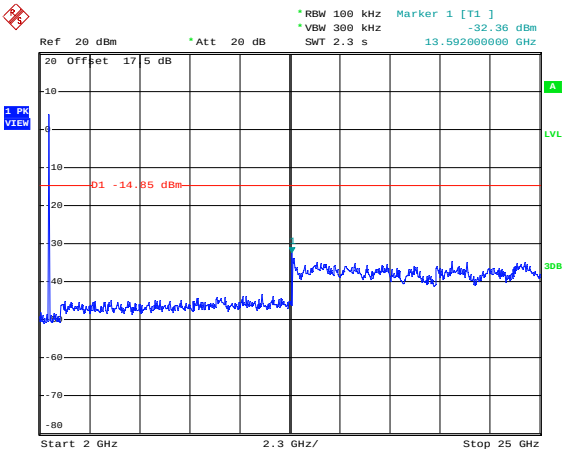
Date: 11.OCT.2014 19:26:47

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 19:27:07

Spurious Emission 2GHz~25GHz

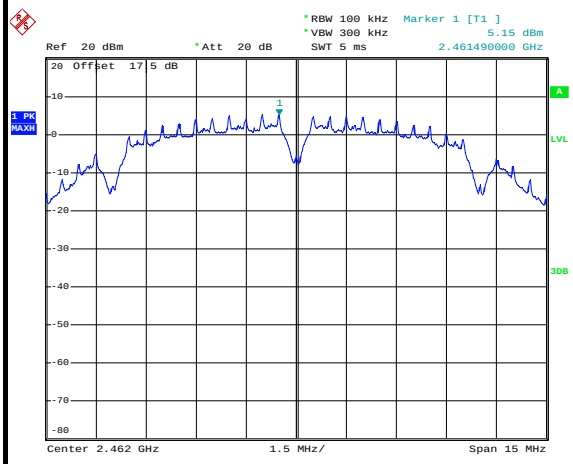


Date: 11.OCT.2014 19:27:26

Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	2.4GHz High	**Relative Humidity :**	50~53%
Test Channel :	11	**Test Engineer :**	Tiny You

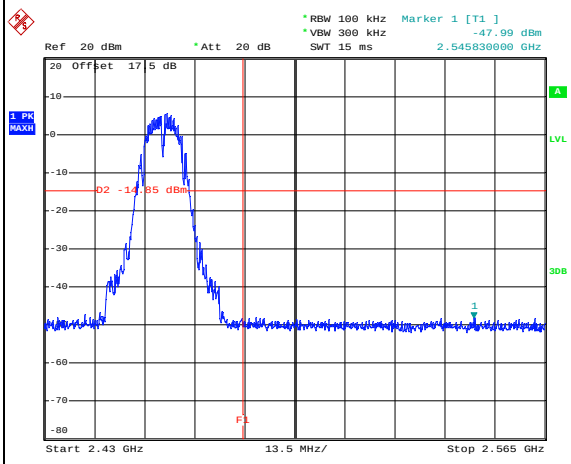
WLAN 802.11b Channel 11

100kHz PSD reference Level



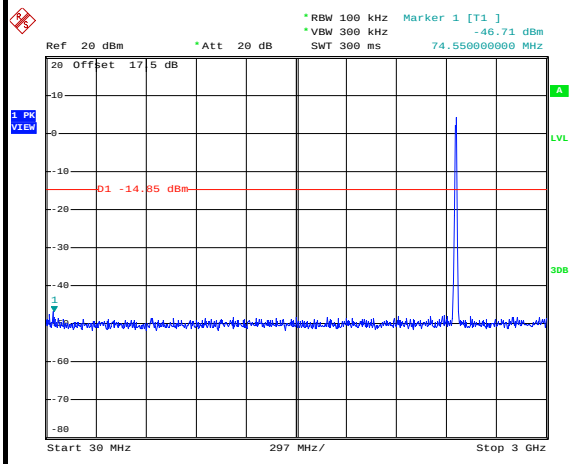
Date: 11.OCT.2014 19:49:34

High Channel Plot



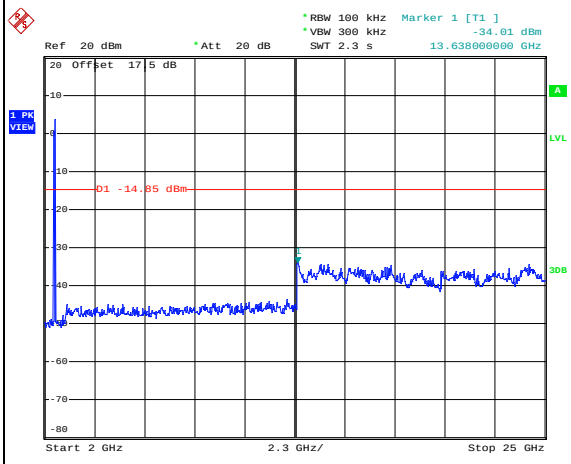
Date: 11.OCT.2014 19:49:48

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 19:50:07

Spurious Emission 2GHz~25GHz

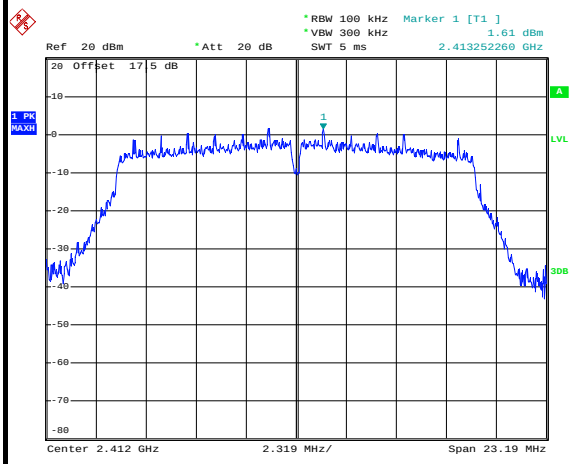


Date: 11.OCT.2014 19:50:26

Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	2.4GHz Low	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Tiny You

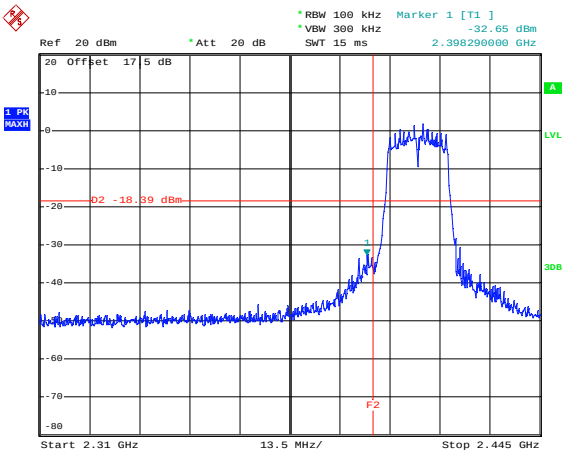
WLAN 802.11g Channel 01

100kHz PSD reference Level



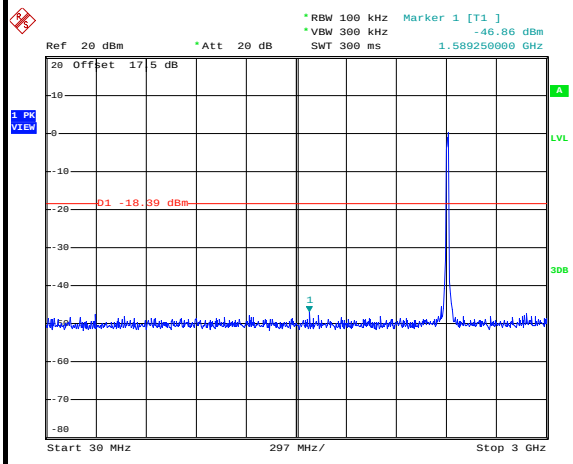
Date: 11.OCT.2014 20:35:24

Low Channel Plot



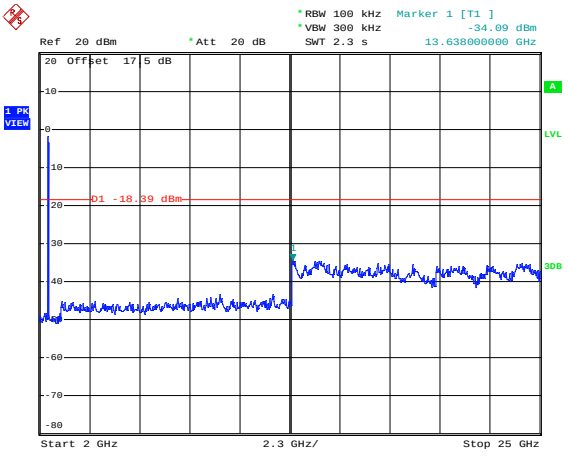
Date: 11.OCT.2014 20:35:38

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 20:41:33

Spurious Emission 2GHz~25GHz

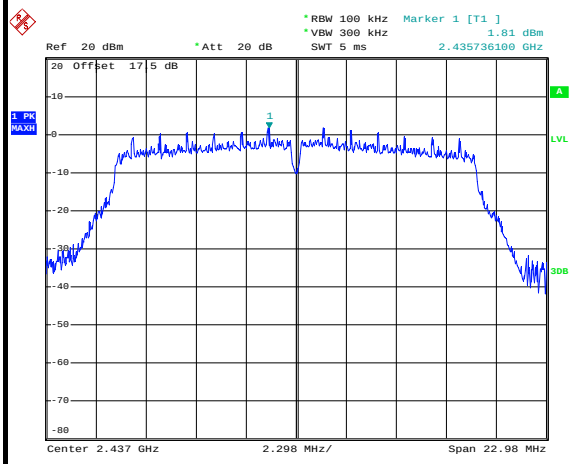


Date: 11.OCT.2014 20:41:51

Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Tiny You

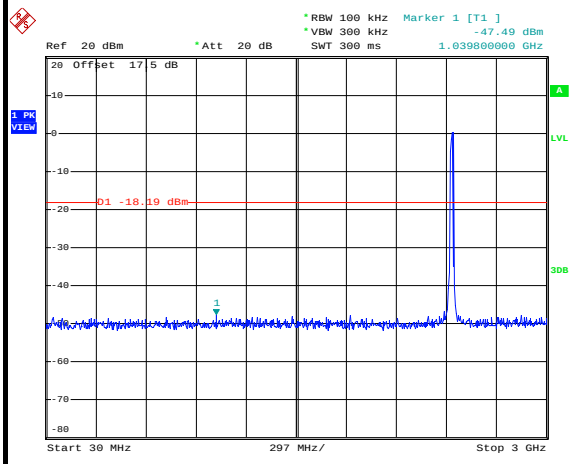
WLAN 802.11g Channel 06

100kHz PSD reference Level



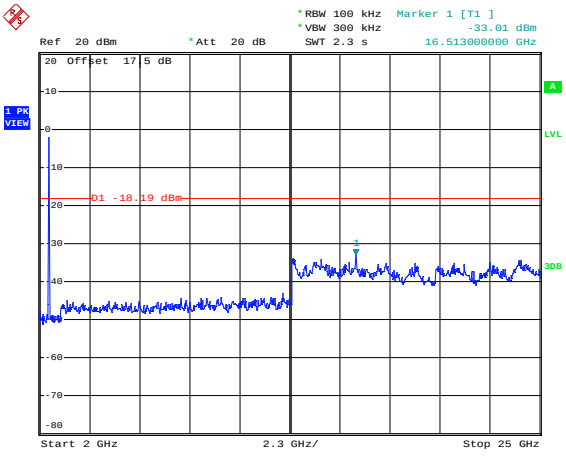
Date: 11.OCT.2014 20:19:49

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 20:20:09

Spurious Emission 2GHz~25GHz

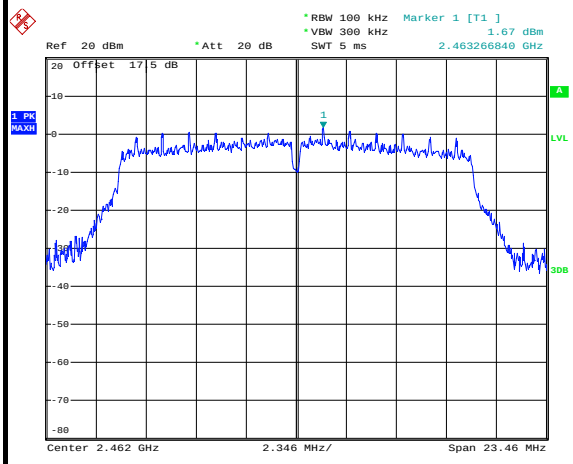


Date: 11.OCT.2014 20:20:27

Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	2.4GHz High	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Tiny You

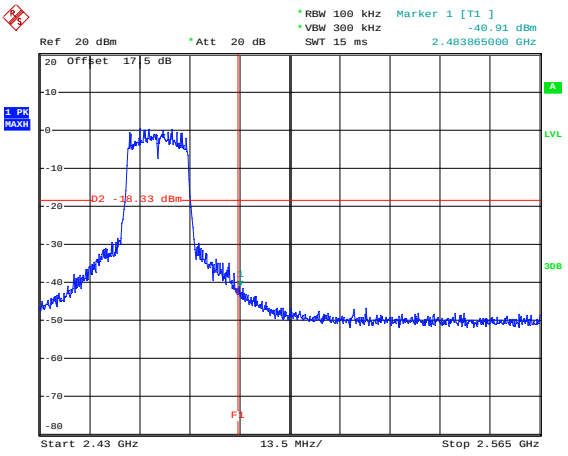
WLAN 802.11g Channel 11

100kHz PSD reference Level



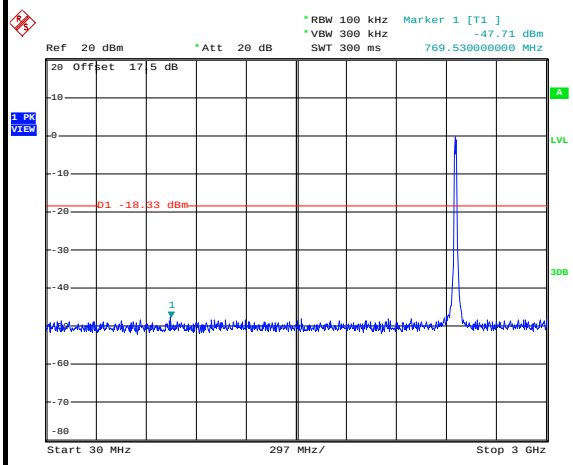
Date: 11.OCT.2014 20:05:04

High Channel Plot



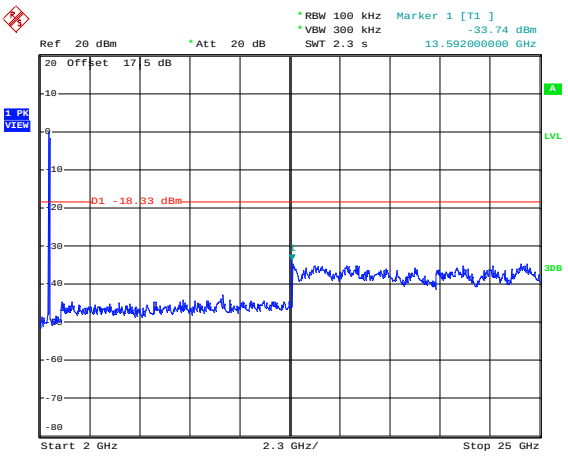
Date: 11.OCT.2014 20:05:18

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 20:05:37

Spurious Emission 2GHz~25GHz

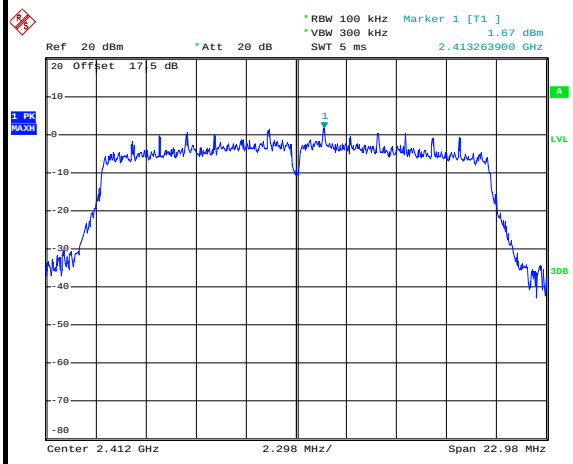


Date: 11.OCT.2014 20:05:56

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	2.4GHz Low	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Tiny You

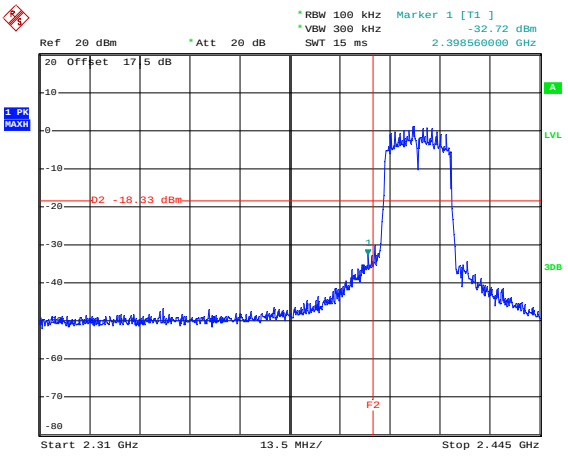
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



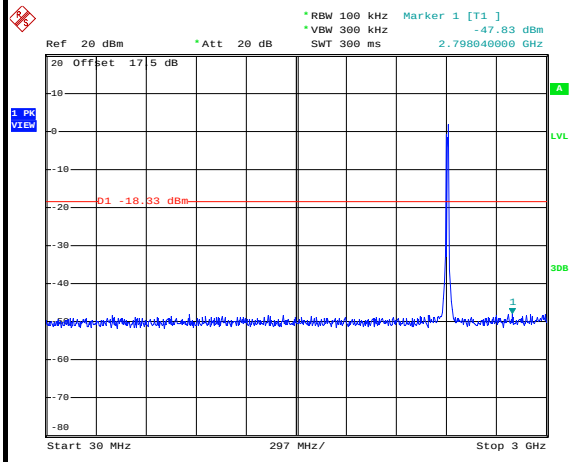
Date: 11.OCT.2014 20:51:41

Low Channel Plot



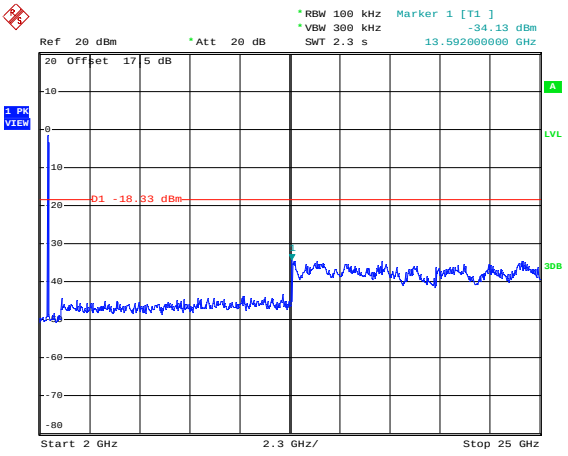
Date: 11.OCT.2014 20:51:55

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 20:52:14

Spurious Emission 2GHz~25GHz

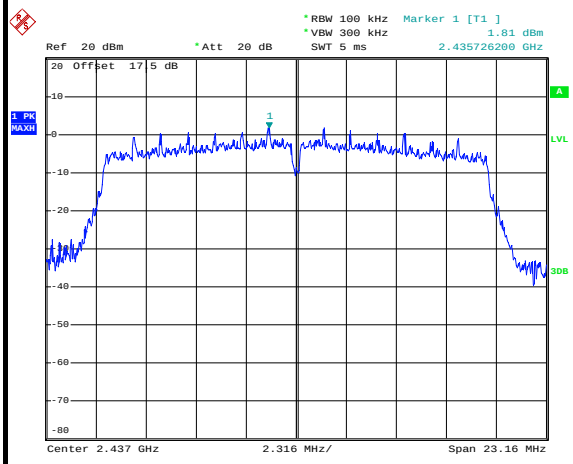


Date: 11.OCT.2014 20:52:32

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Tiny You

WLAN 802.11n HT20 Channel 06

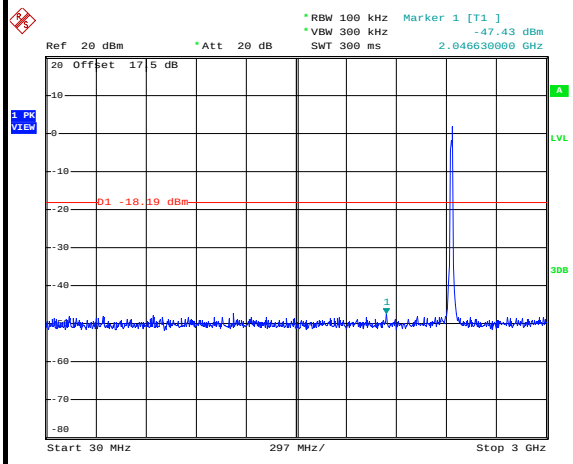
100kHz PSD reference Level



Date: 11.OCT.2014 21:07:29

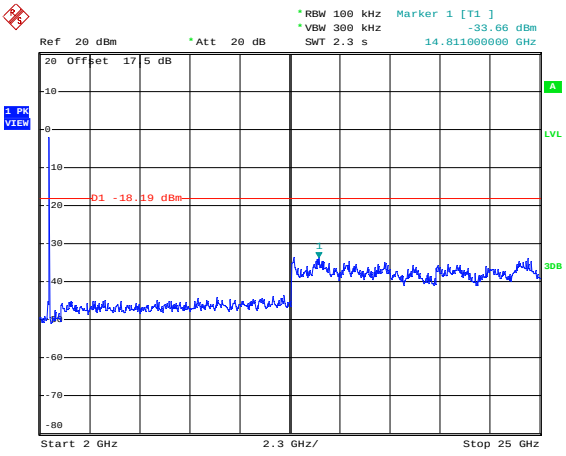
Mid Channel Plot

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 21:10:25

Spurious Emission 2GHz~25GHz

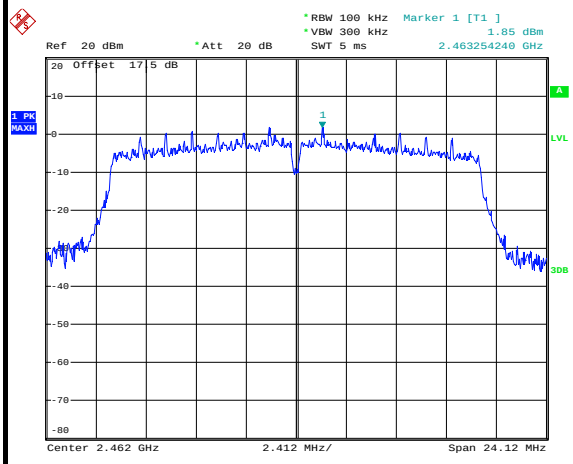


Date: 11.OCT.2014 21:10:43

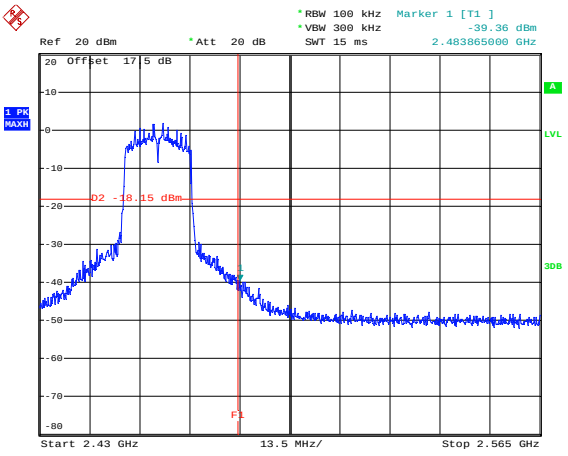
Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	2.4GHz High	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Tiny You

WLAN 802.11n HT20 Channel 11

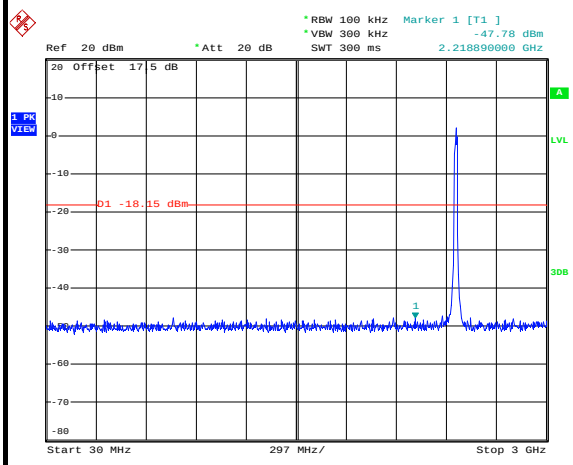
100kHz PSD reference Level



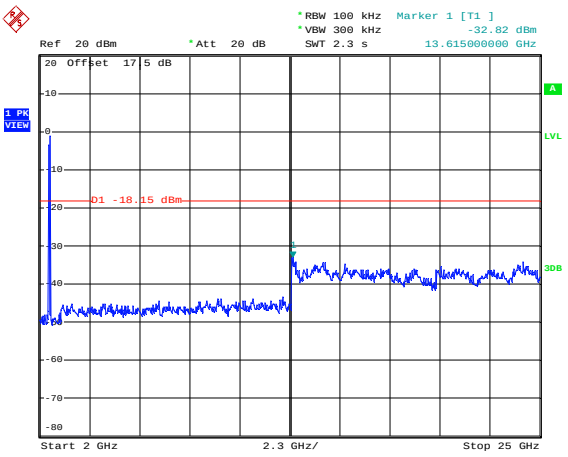
High Channel Plot



Spurious Emission 30MHz~3GHz



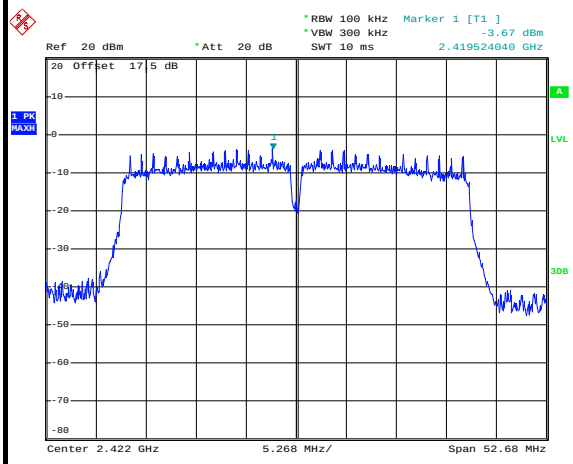
Spurious Emission 2GHz~25GHz



Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Band :	2.4GHz Low	Relative Humidity :	50~53%
Test Channel :	03	Test Engineer :	Tiny You

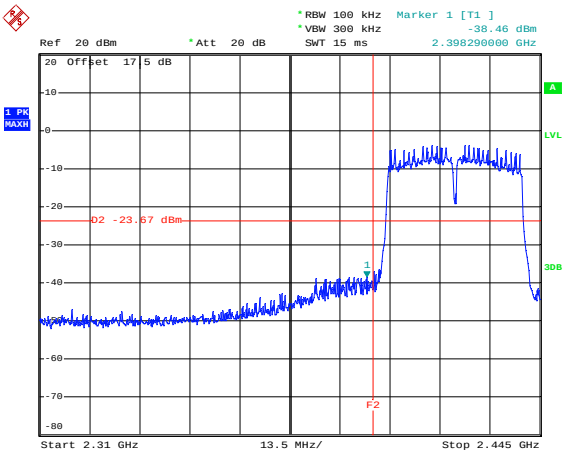
WLAN 802.11n HT40 Channel 03

100kHz PSD reference Level



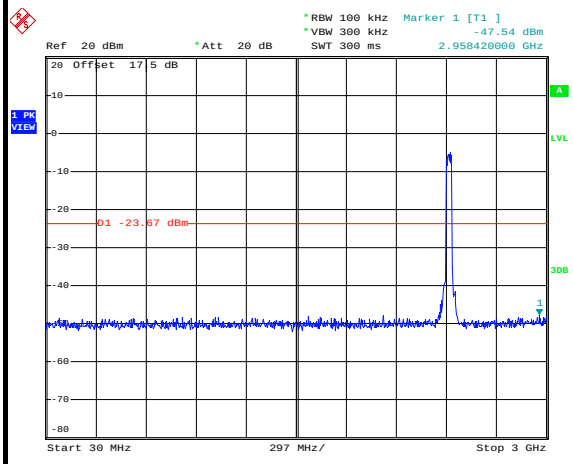
Date: 11.OCT.2014 21:51:08

Low Channel Plot



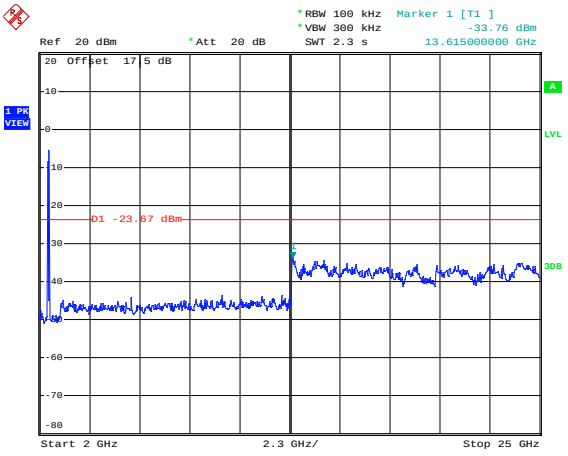
Date: 11.OCT.2014 21:51:22

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 21:51:41

Spurious Emission 2GHz~25GHz

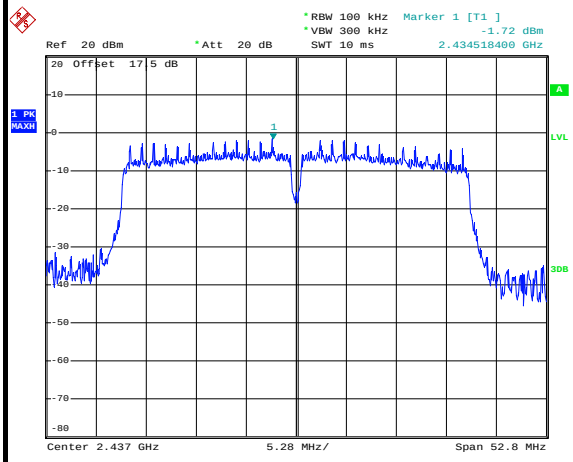


Date: 11.OCT.2014 21:52:00

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Band :	2.4GHz Mid	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Tiny You

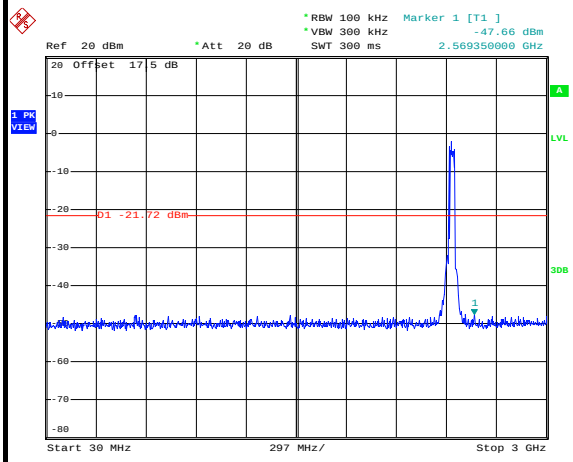
WLAN 802.11n HT40 Channel 06

100kHz PSD reference Level



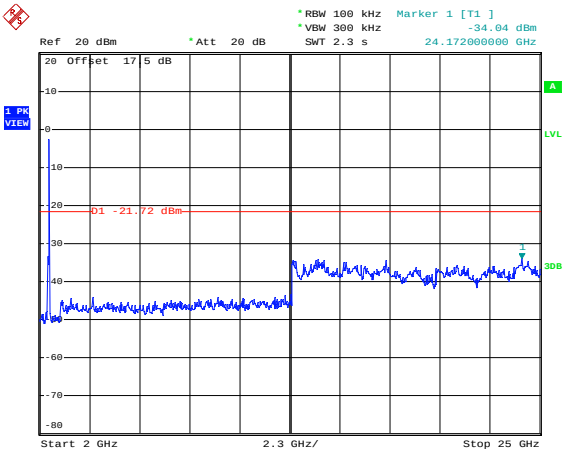
Date: 11.OCT.2014 21:58:23

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 21:58:43

Spurious Emission 2GHz~25GHz

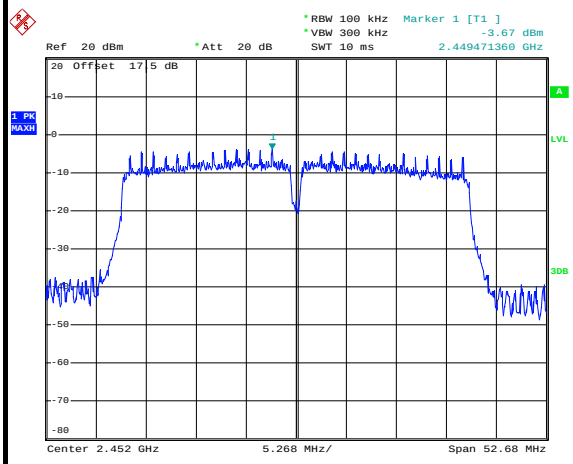


Date: 11.OCT.2014 21:59:02

Test Mode :	802.11n HT40	Temperature :	24~26℃
Test Band :	2.4GHz High	Relative Humidity :	50~53%
Test Channel :	09	Test Engineer :	Tiny You

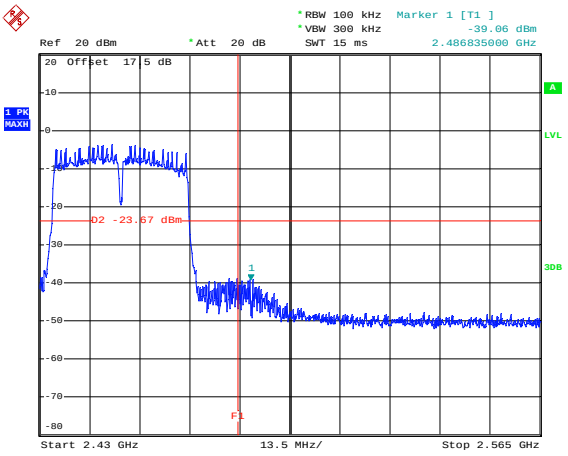
WLAN 802.11n HT40 Channel 09

100kHz PSD reference Level



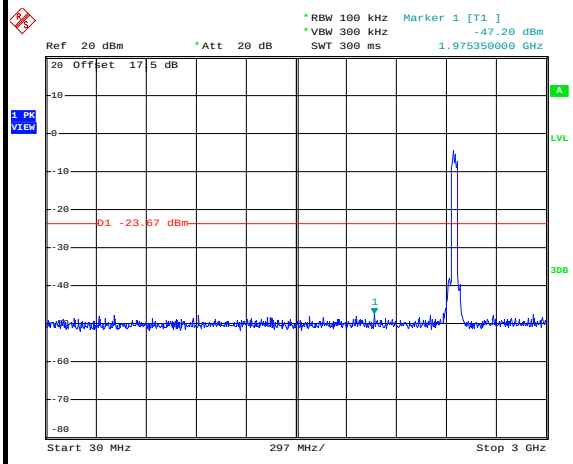
Date: 11.OCT.2014 22:03:25

High Channel Plot



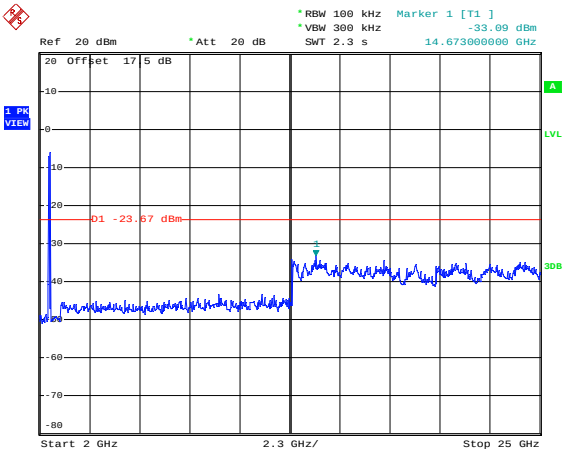
Date: 11.OCT.2014 22:03:39

Spurious Emission 30MHz~3GHz



Date: 11.OCT.2014 22:03:59

Spurious Emission 2GHz~25GHz



Date: 11.OCT.2014 22:04:17

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

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

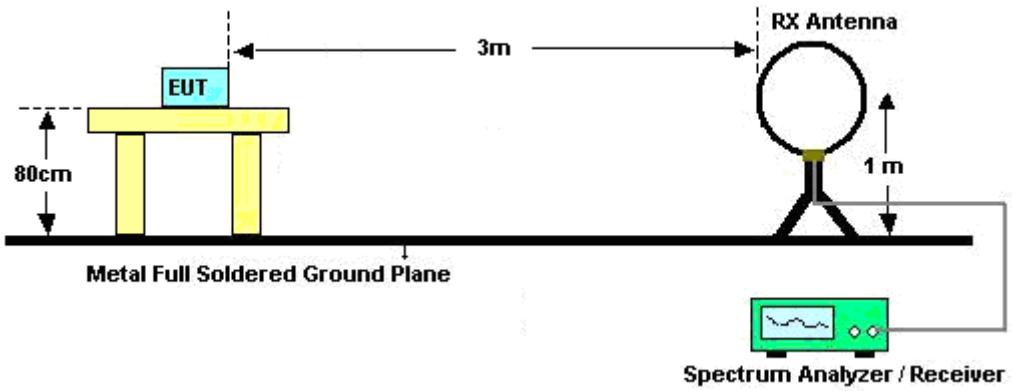
3.5.3 Test Procedures

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

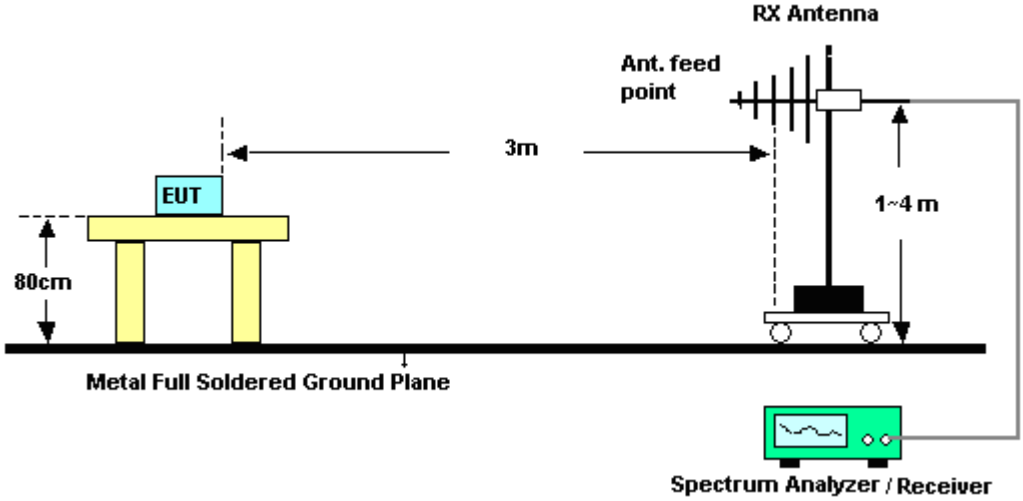
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	98.31	-	-	10Hz
802.11g	89.07	1.39	0.72	1kHz
2.4GHz 802.11n HT20	88.37	1.30	0.77	1kHz
2.4GHz 802.11n HT40	79.33	0.65	1.54	3kHz

3.5.4 Test Setup

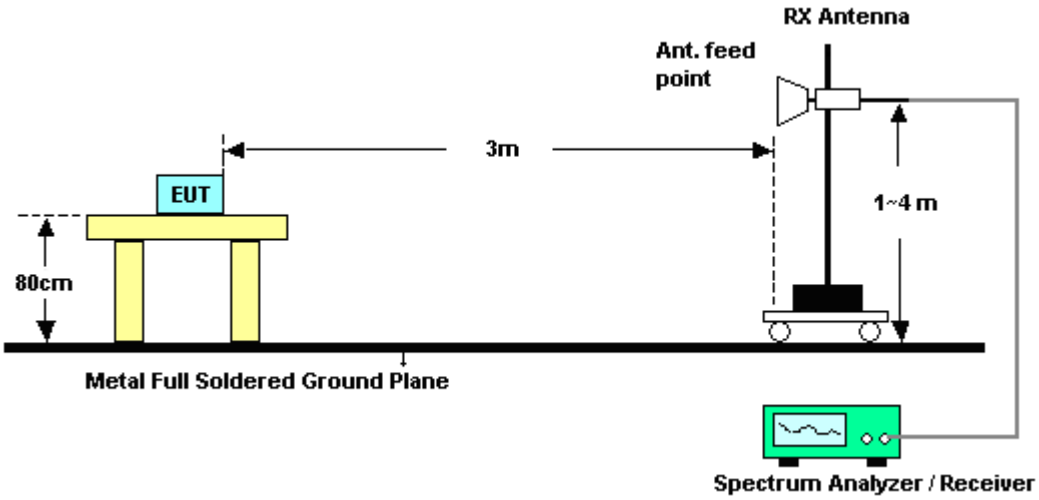
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Simon Lu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.5	51.52	-22.48	74	52.95	32.01	2.64	36.08	119	24	Peak
2386.68	41.57	-12.43	54	43	32.01	2.64	36.08	119	24	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
2328.27	47.39	-26.61	74	49.47	31.76	2.59	36.43	100	125	Peak
2386.32	36.37	-17.63	54	37.8	32.01	2.64	36.08	100	125	Average

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Simon Lu

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
2485.63	51.08	-22.92	74	51.85	32.34	2.68	35.79	113	46	Peak
2483.8	37.45	-16.55	54	38.22	32.34	2.68	35.79	113	46	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.6	48.42	-25.58	74	49.08	32.4	2.68	35.74	100	345	Peak
2500	35.5	-18.5	54	36.16	32.4	2.68	35.74	100	345	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Simon Lu

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
2389.02	62.33	-11.67	74	63.76	32.01	2.64	36.08	134	339	Peak
2390	41.7	-12.3	54	43.13	32.01	2.64	36.08	134	339	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
2388.66	55.05	-18.95	74	56.48	32.01	2.64	36.08	124	34	Peak
2389.65	36.71	-17.29	54	38.14	32.01	2.64	36.08	124	34	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Simon Lu

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	71.43	-2.57	74	72.2	32.34	2.68	35.79	158	329	Peak
2483.56	46.61	-7.39	54	47.38	32.34	2.68	35.79	158	329	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
2484.04	66.92	-7.08	74	67.69	32.34	2.68	35.79	195	267	Peak
2483.74	44.02	-9.98	54	44.79	32.34	2.68	35.79	195	267	Average

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	01	Test Engineer :	Simon Lu

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
2389.74	64.01	-9.99	74	65.44	32.01	2.64	36.08	116	246	Peak
2389.92	41.11	-12.89	54	42.54	32.01	2.64	36.08	116	246	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	58.35	-15.65	74	59.78	32.01	2.64	36.08	149	190	Peak
2390	38.63	-15.37	54	40.06	32.01	2.64	36.08	149	290	Average

Test Mode :	802.11n HT20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	11	Test Engineer :	Simon Lu

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
2483.8	68.83	-5.17	74	69.6	32.34	2.68	35.79	116	173	Peak
2483.5	48.95	-5.05	54	49.72	32.34	2.68	35.79	116	173	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
2483.5	60.58	-13.42	74	61.35	32.34	2.68	35.79	101	311	Peak
2483.5	40.19	-13.81	54	40.96	32.34	2.68	35.79	101	311	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	42~43%
Test Channel :	03	Test Engineer :	Simon Lu

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
2388.21	63.94	-10.06	74	65.37	32.01	2.64	36.08	200	214	Peak
2389.56	44.29	-9.71	54	45.72	32.01	2.64	36.08	200	214	Average
2483.59	48.37	-25.63	74	49.14	32.34	2.68	35.79	197	215	Peak
2489.68	35.77	-18.23	54	36.43	32.4	2.68	35.74	197	215	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
2388.48	59.44	-14.56	74	60.87	32.01	2.64	36.08	100	237	Peak
2386.77	38.79	-15.21	54	40.22	32.01	2.64	36.08	100	237	Average
2485.54	51.74	-22.26	74	52.51	32.34	2.68	35.79	200	257	Peak
2486.53	36.23	-17.77	54	37	32.34	2.68	35.79	200	257	Average

Test Mode :	802.11n HT40	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	42~43%
Test Channel :	09	Test Engineer :	Simon Lu

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
2383.98	52.51	-21.49	74	54.08	31.95	2.64	36.16	191	217	Peak
2389.56	36.64	-17.36	54	38.07	32.01	2.64	36.08	191	217	Average
2484.61	67.1	-6.9	74	67.87	32.34	2.68	35.79	110	0	Peak
2484.1	39.42	-14.58	54	40.19	32.34	2.68	35.79	110	0	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
2377.14	51.67	-22.33	74	53.24	31.95	2.64	36.16	105	293	Peak
2390	36.67	-17.33	54	38.1	32.01	2.64	36.08	105	293	Average
2485.09	66.52	-7.48	74	67.29	32.34	2.68	35.79	200	285	Peak
2484.46	38.42	-15.58	54	39.19	32.34	2.68	35.79	200	285	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 :**	42~43%
Test Engineer :	Simon Lu	**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	98.27	-	-	99.55	32.08	2.66	36.02	119	24	Peak
2412	91.95	-	-	93.23	32.08	2.66	36.02	119	24	Average
4824	44.99	-29.01	74	43.66	34.2	3.78	36.65	152	10	Peak

Test Mode :	802.11b	**Temperature :**	22~23°C
Test Channel :	01	**Relative Humidity :**	42~43%
Test Engineer :	Simon Lu	**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	92.31	-	-	93.59	32.08	2.66	36.02	100	125	Peak
2412	85.44	-	-	86.72	32.08	2.66	36.02	100	125	Average
4824	45.34	-28.66	74	44.01	34.2	3.78	36.65	100	58	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	101.43	-	-	102.47	32.21	2.66	35.91	117	30	Peak
2437	95.13	-	-	96.17	32.21	2.66	35.91	117	30	Average
4874	44.77	-29.23	74	43.63	34.2	3.78	36.84	100	69	Peak
7312	46.41	-27.59	74	44.82	35.72	4.73	38.86	152	300	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	92.83	-	-	93.87	32.21	2.66	35.91	147	132	Peak
2437	86.64	-	-	87.68	32.21	2.66	35.91	147	132	Average
4874	44.34	-29.66	74	43.2	34.2	3.78	36.84	100	331	Peak
7312	48.5	-25.5	74	46.91	35.72	4.73	38.86	164	52	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	101.72	-	-	102.63	32.27	2.67	35.85	112	24	Peak
2462	95.32	-	-	96.23	32.27	2.67	35.85	112	24	Average
4924	43.96	-30.04	74	43.01	34.2	3.78	37.03	100	79	Peak
7386	47.15	-26.85	74	45.81	35.76	4.77	39.19	100	164	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	95.11	-	-	96.02	32.27	2.67	35.85	102	307	Peak
2462	88.89	-	-	89.8	32.27	2.67	35.85	102	307	Average
4924	43.96	-30.04	74	43.01	34.2	3.78	37.03	160	120	Peak
7386	47.82	-26.18	74	46.48	35.76	4.77	39.19	100	54	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	100.98	-	-	102.26	32.08	2.66	36.02	134	339	Peak
2412	89.68	-	-	90.96	32.08	2.66	36.02	134	339	Average
4824	44.63	-29.37	74	43.3	34.2	3.78	36.65	116	241	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2412	93.31	-	-	94.59	32.08	2.66	36.02	124	34	Peak
2412	81.16	-	-	82.44	32.08	2.66	36.02	124	34	Average
4824	44.71	-29.29	74	43.38	34.2	3.78	36.65	102	258	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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
31.94	26.54	-13.46	40	40.78	18.22	0.19	32.65	-	-	Peak
51.34	25.59	-14.41	40	49.45	8.44	0.31	32.61	-	-	Peak
74.62	21.39	-18.61	40	44.96	8.61	0.47	32.65	-	-	Peak
100.81	19.57	-23.93	43.5	40.46	11.31	0.43	32.63	-	-	Peak
150.28	21.55	-21.95	43.5	41.59	11.7	0.82	32.56	-	-	Peak
597.45	31.75	-14.25	46	43.78	18.81	1.18	32.02	100	0	Peak
2437	99.31	-	-	100.35	32.21	2.66	35.91	200	320	Peak
2437	88.78	-	-	89.82	32.21	2.66	35.91	200	320	Average
4874	44.17	-29.83	74	43.03	34.2	3.78	36.84	125	254	Peak
7311	66.92	-7.08	74	65.33	35.72	4.73	38.86	159	315	Peak
7311	52.22	-1.78	54	50.63	35.72	4.73	38.86	159	315	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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
30.97	29.64	-10.36	40	43.4	18.71	0.19	32.66	100	225	QP
51.34	34.58	-5.42	40	58.44	8.44	0.31	32.61	-	-	Peak
66.86	29.95	-10.05	40	54.53	7.57	0.47	32.62	-	-	Peak
133.79	23.8	-19.7	43.5	44.15	11.57	0.67	32.59	-	-	Peak
359.8	20.59	-25.41	46	36.75	15.29	0.9	32.35	-	-	Peak
597.45	33.58	-12.42	46	45.61	18.81	1.18	32.02	-	-	Peak
2437	93.32	-	-	94.36	32.21	2.66	35.91	100	69	Peak
2437	80.89	-	-	81.93	32.21	2.66	35.91	100	69	Average
4874	43.65	-30.35	74	42.51	34.2	3.78	36.84	145	187	Peak
7311	58.76	-15.24	74	57.17	35.72	4.73	38.86	156	263	Peak
7311	45.22	-8.78	54	43.63	35.72	4.73	38.86	156	263	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	103.2	-	-	104.11	32.27	2.67	35.85	159	327	Peak
2462	92.06	-	-	92.97	32.27	2.67	35.85	159	327	Average
4924	44.46	-29.54	74	43.51	34.2	3.78	37.03	116	258	Peak
7386	46.9	-27.1	74	45.56	35.76	4.77	39.19	102	254	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	98.21	-	-	99.12	32.27	2.67	35.85	195	270	Peak
2462	87.43	-	-	88.34	32.27	2.67	35.85	195	270	Average
4924	43.66	-30.34	74	42.71	34.2	3.78	37.03	118	36	Peak
7386	46.71	-27.29	74	45.37	35.76	4.77	39.19	129	348	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	98.71	-	-	99.99	32.08	2.66	36.02	116	246	Peak
2412	86.8	-	-	88.08	32.08	2.66	36.02	116	246	Average
4824	44.84	-29.16	74	43.51	34.2	3.78	36.65	103	69	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	95.41	-	-	96.69	32.08	2.66	36.02	149	290	Peak
2412	83.59	-	-	84.87	32.08	2.66	36.02	149	290	Average
4824	45.08	-28.92	74	43.75	34.2	3.78	36.65	124	49	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	99.81	-	-	100.85	32.21	2.66	35.91	118	133	Peak
2437	89.36	-	-	90.4	32.21	2.66	35.91	118	133	Average
4874	44.18	-29.82	74	43.04	34.2	3.78	36.84	116	254	Peak
7311	55.28	-18.72	74	53.69	35.72	4.73	38.86	100	156	Peak
7311	41.07	-12.93	54	39.48	35.72	4.73	38.86	100	156	Average

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	93.82	-	-	94.86	32.21	2.66	35.91	112	282	Peak
2437	80.88	-	-	81.92	32.21	2.66	35.91	112	282	Average
4874	44.68	-29.32	74	43.54	34.2	3.78	36.84	100	3	Peak
7311	54.09	-19.91	74	52.5	35.72	4.73	38.86	116	341	Peak
7311	40.14	-13.86	54	38.55	35.72	4.73	38.86	116	341	Average

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	99.72	-	-	100.63	32.27	2.67	35.85	116	173	Peak
2462	88.37	-	-	89.28	32.27	2.67	35.85	116	173	Average
4924	43.53	-30.47	74	42.58	34.2	3.78	37.03	106	25	Peak
7386	56.66	-17.34	74	55.32	35.76	4.77	39.19	102	256	Peak
7386	41.31	-12.69	54	39.97	35.76	4.77	39.19	102	256	Average

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	94.06	-	-	94.97	32.27	2.67	35.85	101	311	Peak
2462	81.87	-	-	82.78	32.27	2.67	35.85	101	311	Average
4924	44.19	-29.81	74	43.24	34.2	3.78	37.03	115	347	Peak
7386	48.48	-25.52	74	47.14	35.76	4.77	39.19	100	67	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	1. 2422 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
2422	93.67	-	-	94.83	32.14	2.66	35.96	197	215	Peak
2422	82.3	-	-	83.46	32.14	2.66	35.96	197	215	Average
4844	44.48	-29.52	74	43.22	34.2	3.78	36.72	100	245	Peak
7266	48.72	-25.28	74	47.02	35.71	4.72	38.73	137	138	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	03	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	1. 2422 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
2422	89.76	-	-	90.92	32.14	2.66	35.96	200	257	Peak
2422	78.49	-	-	79.65	32.14	2.66	35.96	200	257	Average
4844	44.11	-29.89	74	42.85	34.2	3.78	36.72	152	304	Peak
7266	47.18	-26.82	74	45.48	35.71	4.72	38.73	100	214	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	96.08	-	-	97.12	32.21	2.66	35.91	116	26	Peak
2437	84.45	-	-	85.49	32.21	2.66	35.91	116	26	Average
4874	43.93	-30.07	74	42.79	34.2	3.78	36.84	115	24	Peak
7312	46.73	-27.27	74	45.14	35.72	4.73	38.86	105	21	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	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	96.08	-	-	97.12	32.21	2.66	35.91	100	110	Peak
2437	84.55	-	-	85.59	32.21	2.66	35.91	100	110	Average
4874	44.01	-29.99	74	42.87	34.2	3.78	36.84	106	58	Peak
7312	46.66	-27.34	74	45.07	35.72	4.73	38.86	167	24	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Horizontal
Remark :	1. 2452 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
2452	94.41	-	-	95.44	32.21	2.67	35.91	191	217	Peak
2452	83.33	-	-	84.36	32.21	2.67	35.91	191	217	Average
4904	43.87	-30.13	74	42.85	34.2	3.78	36.96	100	124	Peak
7356	47.69	-26.31	74	46.25	35.74	4.76	39.06	200	316	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~23°C
Test Channel :	09	Relative Humidity :	42~43%
Test Engineer :	Simon Lu	Polarization :	Vertical
Remark :	1. 2452 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
2452	92.42	-	-	93.45	32.21	2.67	35.91	105	293	Peak
2452	80.95	-	-	81.98	32.21	2.67	35.91	105	293	Average
4904	44.03	-29.97	74	43.01	34.2	3.78	36.96	158	216	Peak
7356	47.02	-26.98	74	45.58	35.74	4.76	39.06	125	254	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

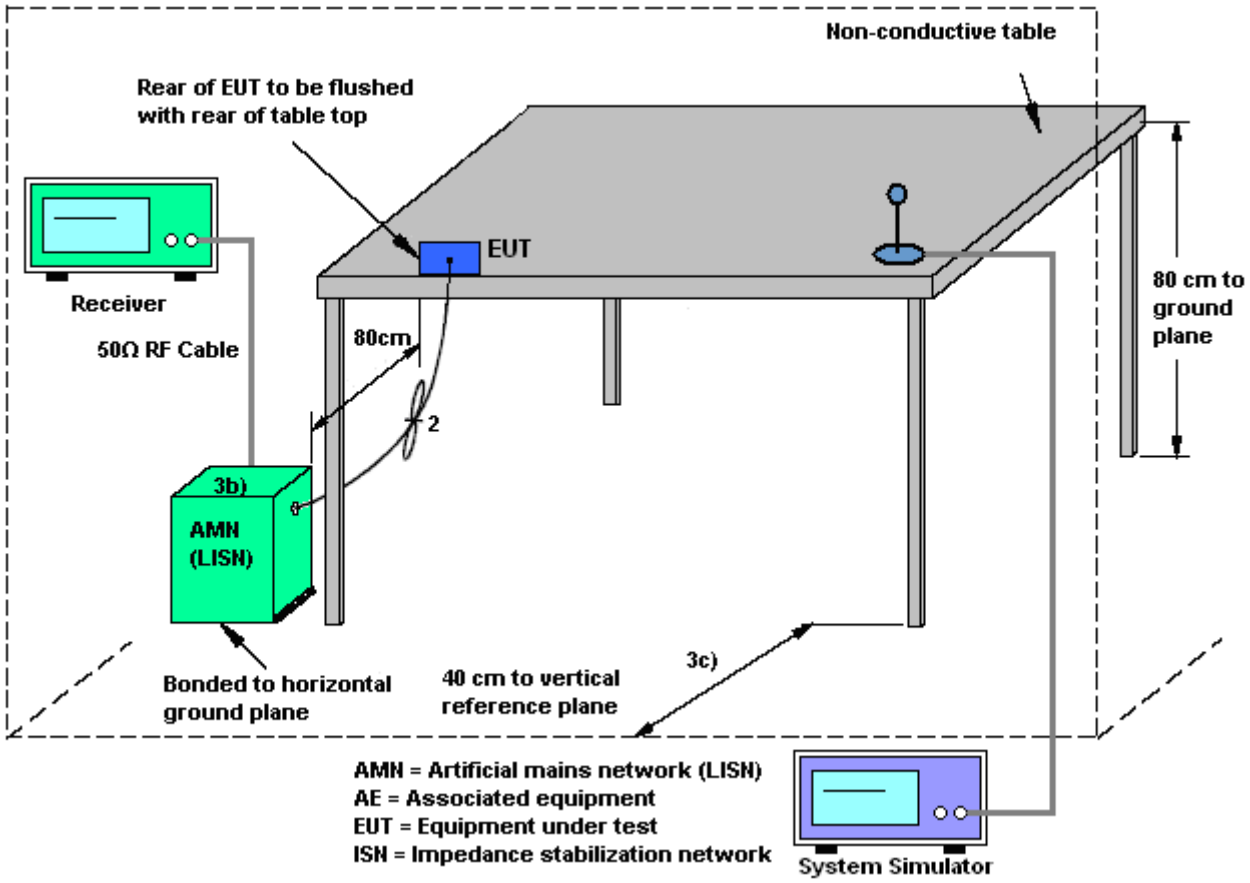
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

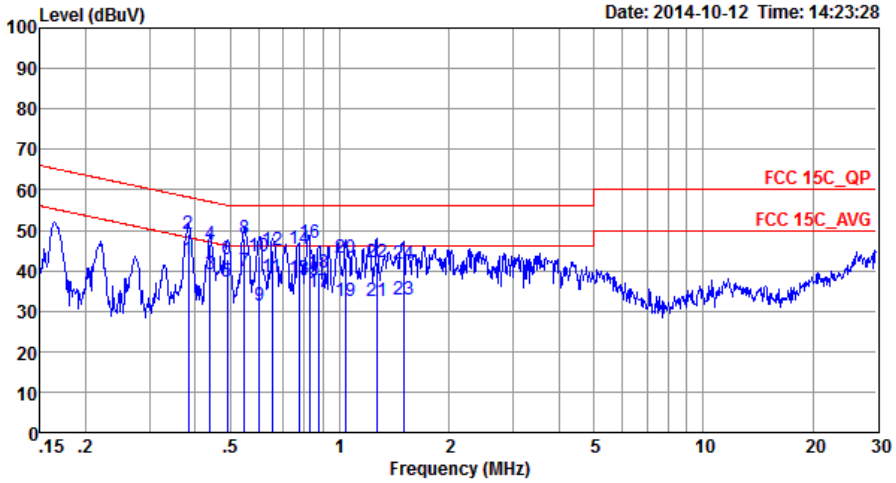
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (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 :	21~22℃
Test Engineer :	Jack Tian	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + USB Cable (Charging from Adapter) + SIM1		

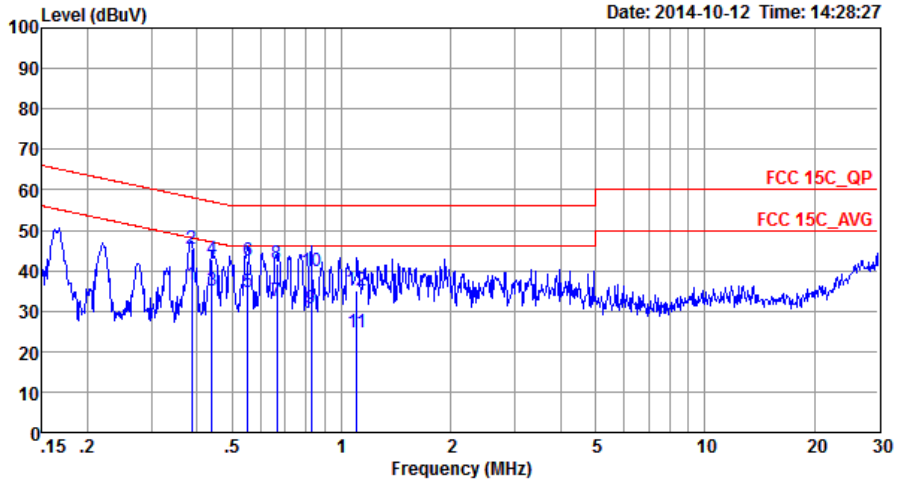


Site : CO01-SZ
Condition: FCC 15C_QP LISN_L_20140304 LINE

Mode : Mode 1
IMEI : 351701039986086/351701039986094

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.38	42.85	-5.36	48.21	32.39	0.28	10.18	Average
2		0.38	49.15	-9.06	58.21	38.69	0.28	10.18	QP
3		0.44	39.15	-7.92	47.07	28.70	0.29	10.16	Average
4		0.44	46.65	-10.42	57.07	36.20	0.29	10.16	QP
5		0.49	37.26	-8.88	46.14	26.80	0.30	10.16	Average
6		0.49	42.76	-13.38	56.14	32.30	0.30	10.16	QP
7		0.55	39.92	-6.08	46.00	29.50	0.27	10.15	Average
8		0.55	47.92	-8.08	56.00	37.50	0.27	10.15	QP
9		0.60	31.28	-14.72	46.00	20.90	0.23	10.15	Average
10		0.60	43.68	-12.32	56.00	33.30	0.23	10.15	QP
11		0.65	38.26	-7.74	46.00	27.90	0.21	10.15	Average
12		0.65	45.16	-10.84	56.00	34.80	0.21	10.15	QP
13		0.77	37.95	-8.05	46.00	27.60	0.20	10.15	Average
14		0.77	45.55	-10.45	56.00	35.20	0.20	10.15	QP
15		0.83	37.77	-8.23	46.00	27.40	0.22	10.15	Average
16		0.83	46.77	-9.23	56.00	36.40	0.22	10.15	QP
17		0.88	34.58	-11.42	46.00	24.20	0.23	10.15	Average
18		0.88	39.58	-16.42	56.00	29.20	0.23	10.15	QP
19		1.04	32.51	-13.49	46.00	22.10	0.26	10.15	Average
20		1.04	43.31	-12.69	56.00	32.90	0.26	10.15	QP
21		1.26	32.51	-13.49	46.00	22.10	0.25	10.16	Average
22		1.26	41.91	-14.09	56.00	31.50	0.25	10.16	QP
23		1.50	32.91	-13.09	46.00	22.50	0.24	10.17	Average
24		1.50	41.81	-14.19	56.00	31.40	0.24	10.17	QP

Test Mode :	Mode 1	Temperature :	21~22℃
Test Engineer :	Jack Tian	Relative Humidity :	41~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + Earphone + USB Cable (Charging from Adapter) + SIM1		



Site : CO01-SZ
Condition: FCC 15C_QP LISN_N_20140304 NEUTRAL

Mode : Mode 1
IMEI : 351701039986086/351701039986094

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.39	36.36	-11.76	48.12	25.80	0.39	10.17	Average
2		0.39	45.26	-12.86	58.12	34.70	0.39	10.17	QP
3		0.44	35.16	-11.91	47.07	24.60	0.40	10.16	Average
4		0.44	42.66	-14.41	57.07	32.10	0.40	10.16	QP
5	*	0.55	34.51	-11.49	46.00	24.00	0.36	10.15	Average
6		0.55	42.51	-13.49	56.00	32.00	0.36	10.15	QP
7		0.66	32.33	-13.67	46.00	21.90	0.28	10.15	Average
8		0.66	41.53	-14.47	56.00	31.10	0.28	10.15	QP
9		0.83	30.54	-15.46	46.00	20.10	0.29	10.15	Average
10		0.83	39.94	-16.06	56.00	29.50	0.29	10.15	QP
11		1.10	24.89	-21.11	46.00	14.39	0.34	10.16	Average
12		1.10	35.19	-20.81	56.00	24.69	0.34	10.16	QP

3.7 Antenna Requirements

3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Mar. 03, 2014	Oct. 11, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	13dBm ~-20dBm	Mar. 03, 2014	Oct. 11, 2014	Mar. 02, 2015	Conducted (TH01-SZ)
Power Sensor	Dare	RPR3006W	TH01SZ00019	0.3GHz~6GHz	Mar. 14, 2014	Oct. 11, 2014	Mar. 13, 2015	Conducted (TH01-SZ)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Oct. 25, 2014	Oct. 30, 2014	Oct. 24, 2015	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP30	101399	9kHz~30GHz	May 04, 2014	Oct. 30, 2014	May 03, 2015	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 08, 2014	Oct. 30, 2014	Oct. 07, 2015	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Jan. 08, 2014	Oct. 30, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Jan. 08, 2014	Oct. 30, 2014	Jan. 07, 2015	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 18, 2013	Oct. 30, 2014	Nov. 17, 2014	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Mar. 10, 2014	Oct. 30, 2014	Mar. 09, 2015	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161073	1MHz~1GHz	May 04, 2014	Oct. 30, 2014	May 03, 2015	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02371	1GHz~26.5GHz	Oct. 26, 2014	Oct. 30, 2014	Oct. 25, 2015	Radiation (03CH01-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Oct. 30, 2014	NCR	Radiation (03CH01-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Oct. 30, 2014	NCR	Radiation (03CH01-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Oct. 30, 2014	NCR	Radiation (03CH01-KS)
ESCIO TEST Receiver	R&S	ESCI	100724	9kHz~3GHz	Feb. 21, 2014	Oct. 12, 2014	Feb. 20, 2015	Conduction (CO01-SZ)
AC LISN	EMCO	3816/2SH	00103912	9kHz~30MHz	Mar. 04, 2014	Oct. 12, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Mar. 04, 2014	Oct. 12, 2014	Mar. 03, 2015	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Dec. 17, 2013	Oct. 12, 2014	Dec. 16, 2014	Conduction (CO01-SZ)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.3**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.5**