

FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : LTE Ufi
BRAND NAME : ZTE
MODEL NAME : MF97G
FCC ID : SRQ-MF97G
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product testing was completed on May 26, 2015. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR542003C	Rev. 01	Initial issue of report	May 28, 2015

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 1.84 dB at 2483.520 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.07 dB at 0.160 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 Product Feature of Equipment Under Test

Product Feature	
Equipment	LTE Ufi
Brand Name	ZTE
Model Name	MF97G
FCC ID	SRQ-MF97G
EUT supports Radios application	WLAN 2.4GHz 802.11b/g/n HT20/ WLAN 5GHz 802.11a/n HT20/HT40/ Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
HW Version	d96C
SW Version	SPRO2GV1.0.0B01
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 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 : 19.86 dBm (0.0968 W) 802.11g : 20.89 dBm (0.1227 W) 802.11n HT20 : 22.52 dBm (0.1786 W)		
Antenna Type/Gain	WLAN for Chain Port 0: IFA Antenna with gain 0.40 dBi WLAN for Chain Port 1: IFA Antenna with gain 1.18 dBi		
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)		
Antenna Function for Transmitter		Chain Port 0	Chain Port 1
	802.11 b	V	V
	802.11 g	V	V
	802.11 n SISO	V	V
	802.11 n MIMO	V	V



1.5 Modification of EUT

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

1.6 Testing Location

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.
	TH01-KS	03CH02-KS	CO01-KS	418269

Note: The test site complies with ANSI C63.4 2009 requirement.

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
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01
- ♦ ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. FCC permits the use of the 1.5 meter table as an alternative in C63.10-2013 through inquiry tracking number 961829.
3. 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 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 Peak Power (dBm)							
Power vs. Channel				Power vs. Data Rate			
Channel	Frequency (MHz)	Chain Port	Data Rate 1Mbps	Channel	2Mbps	5.5Mbps	11Mbps
CH 01	2412	0	17.67	CH 11	18.51	18.36	18.58
CH 06	2437	0	18.47				
CH 11	2462	0	18.66				
CH 01	2412	1	16.58	CH 11	19.78	19.74	19.73
CH 06	2437	1	18.18				
CH 11	2462	1	19.86				

2.4GHz 802.11g Peak Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain Port	Data Rate 6Mbps	Channel	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
CH 01	2412	0	19.52	CH 06	19.69	19.78	19.67	20.85	20.86	20.73	20.48
CH 06	2437	0	19.96								20.89
CH 11	2462	0	19.65								20.56
CH 01	2412	1	17.44	CH 11	19.16	19.22	19.33	20.17	20.36	20.54	19.59
CH 06	2437	1	18.37								20.12
CH 11	2462	1	18.85								20.59

2.4GHz 802.11n HT20 Peak Power (dBm)											
Power vs. Channel				Power vs. MCS Index							
Channel	Frequency (MHz)	Chain Port	MCS Index MCS0	Channel	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412	0	19.96	CH 06	20.66	20.35	21.28	21.74	21.87	21.86	21.12
CH 06	2437	0	20.71								21.91
CH 11	2462	0	20.36								21.61
CH 01	2412	1	19.62	CH 06	20.64	20.61	21.88	21.93	21.97	22.13	20.48
CH 06	2437	1	21.34								22.15
CH 11	2462	1	20.73								21.71
CH 01	2412	0+1(0)	18.29	CH 06	18.82	18.46	19.64	19.09	19.59	19.57	19.36
CH 06	2437	0+1(0)	18.72								19.69
CH 11	2462	0+1(0)	18.65								19.65
CH 01	2412	0+1(1)	17.37	CH 06	17.95	18.19	19.28	19.21	18.95	19.29	18.49
CH 06	2437	0+1(1)	18.35								19.32
CH 11	2462	0+1(1)	18.12								19.26
CH 01	2412	0+1	20.86	CH 06	21.42	21.34	22.47	22.16	22.29	22.44	21.96
CH 06	2437	0+1	21.55								22.52
CH 11	2462	0+1	21.40								22.47

Note: Chain Port 0+1 is a calculated result from sum of the power Chain Port 0+1(0) and Chain Port 0+1(1).

2.3 Test Mode

Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates from the power table described in section 2.2.

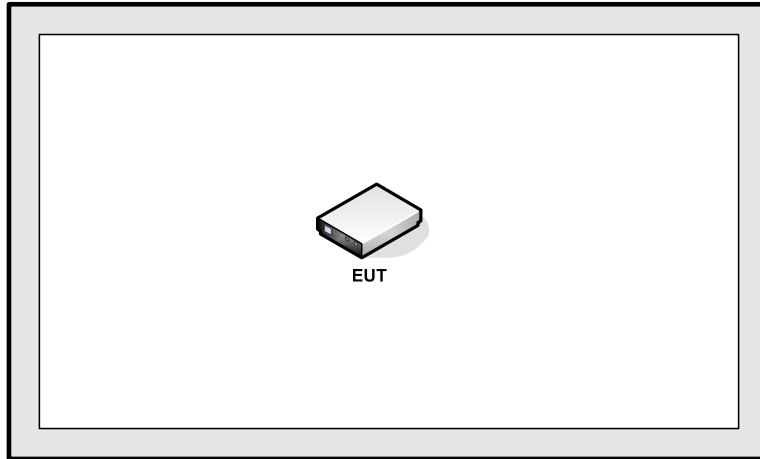
<2.4GHz>

Modulation	Data Rate
802.11b	1 Mbps
802.11g	54 Mbps
802.11n HT20	MCS7

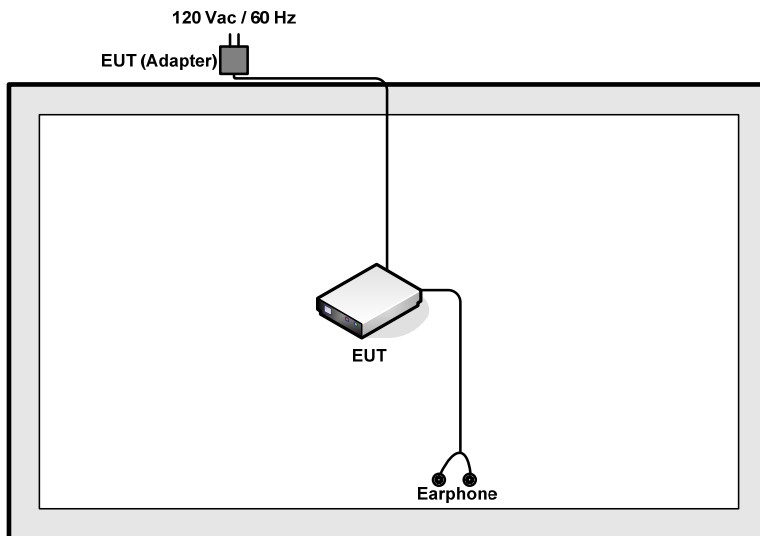
Test Cases	
AC Conducted Emission	Mode 1 : Bluetooth Link + WLAN (2.4G) Link + Adapter + Earphone
Remark: For Radiated TCs, the tests were performed with adapter and earphone.	

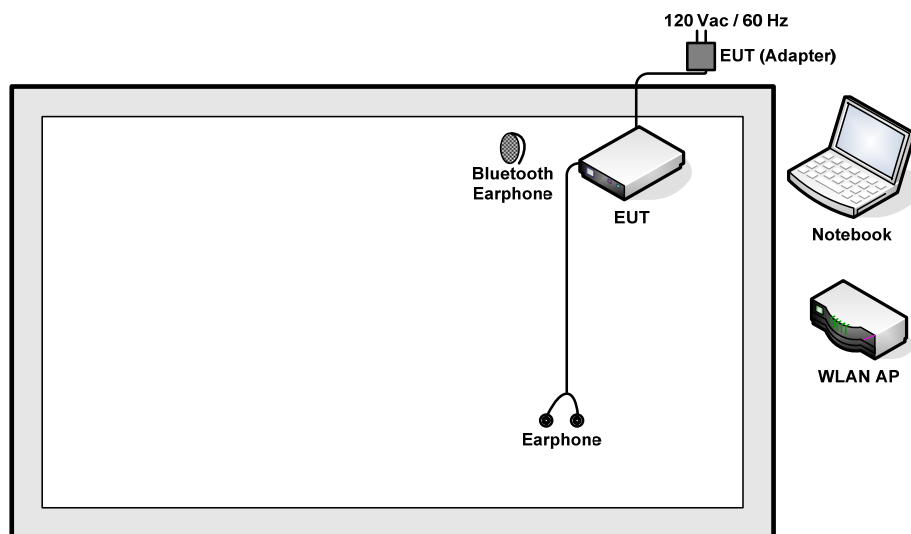
2.4 Connection Diagram of Test System

<WLAN 2.4GHz 802.11g Chain Port 1 Tx Mode>



<WLAN 2.4GHz 802.11b/g/n HT20 Tx Mode>



<AC Conducted Emission Mode>


2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	LINKSYS	WRT600N	Q87-WRT600NV11	N/A	Unshielded, 1.8 m
2.	Notebook	Lenovo	G480	N/A	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
3.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	N/A	N/A
4.	Earphone	Lenovo	SH100	N/A	Unshielded, 1.2 m	N/A

2.6 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously 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 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.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 6.0 dB.

Offset (dB) = RF cable loss(dB) = 6.0 (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.

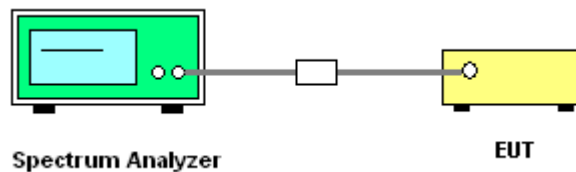
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

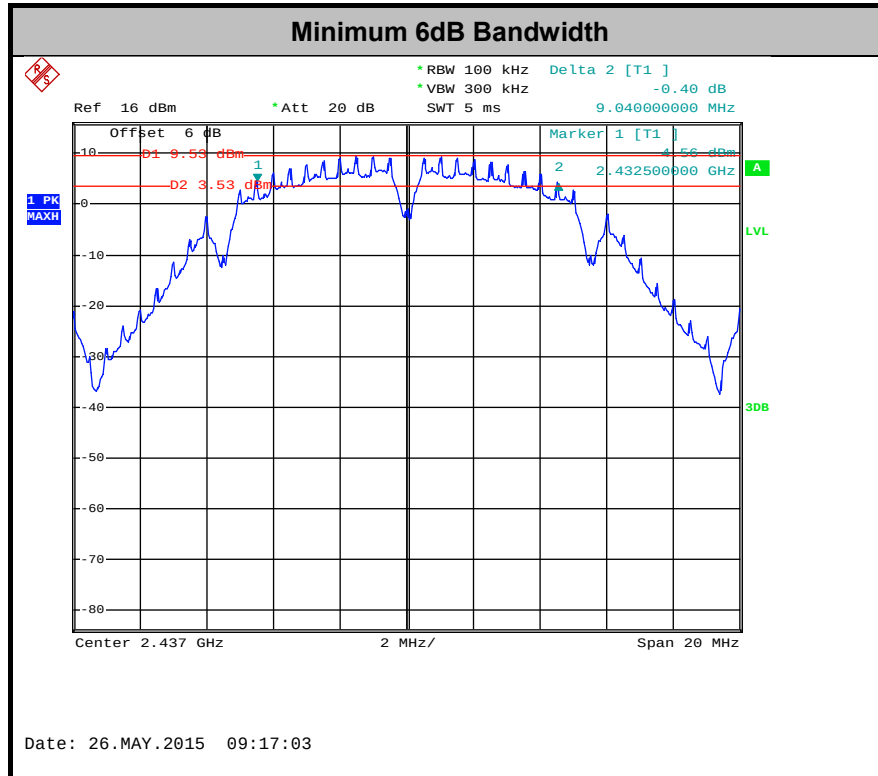
1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit 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

Please refer to Appendix A of this test report.



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.

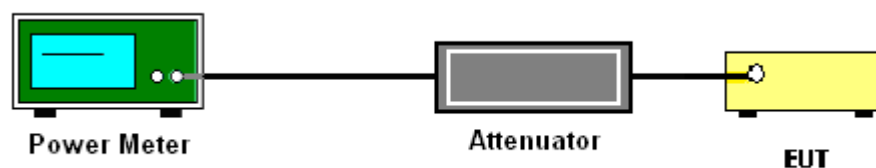
3.2.2 Measuring Instruments

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

Please refer to Appendix A of this test report.

3.2.6 Test Result of Average output Power (Reporting Only)

Please refer to Appendix A of this test report.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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

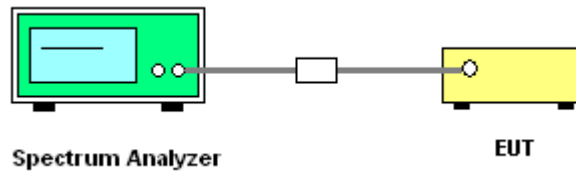
Method (1): Measure and sum the spectra across the outputs.

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

spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

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

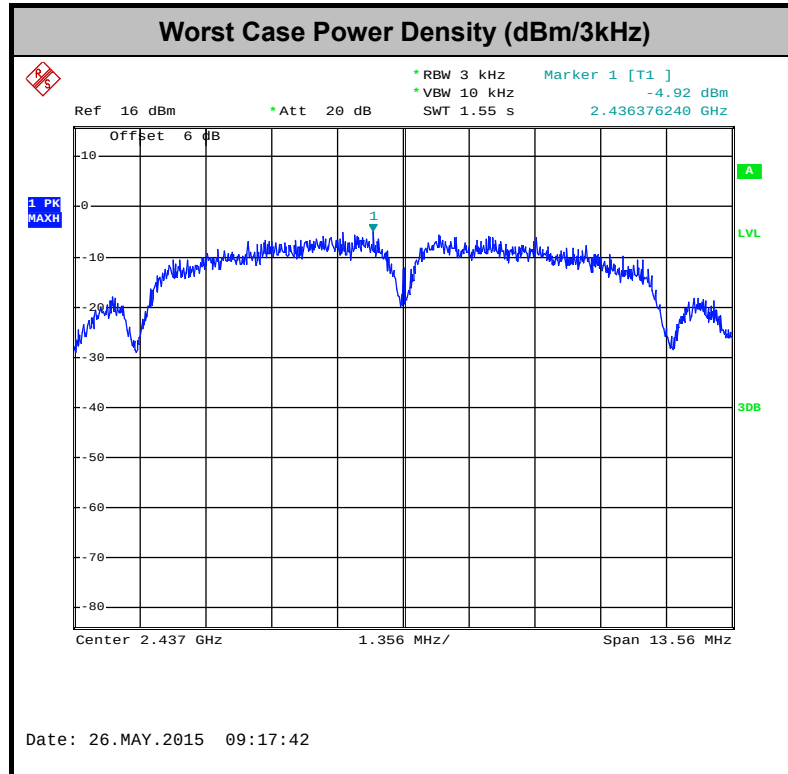
3.3.4 Test Setup





3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A of this test report.



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

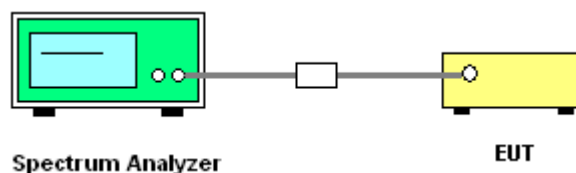
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup





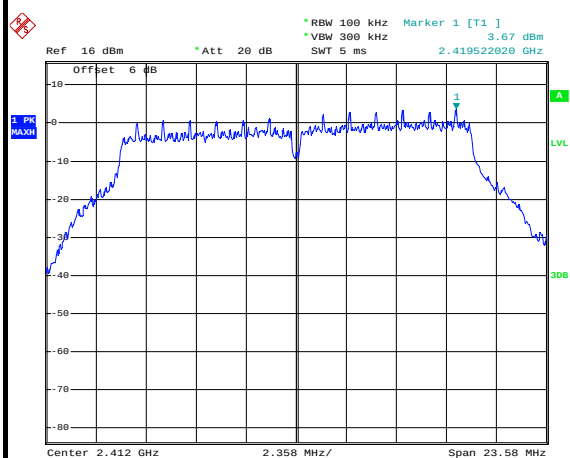
3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Number of TX = 1, Chain Port 0 (Measured)

Number of TX :	1	Chain Port:	0
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Ocean Song

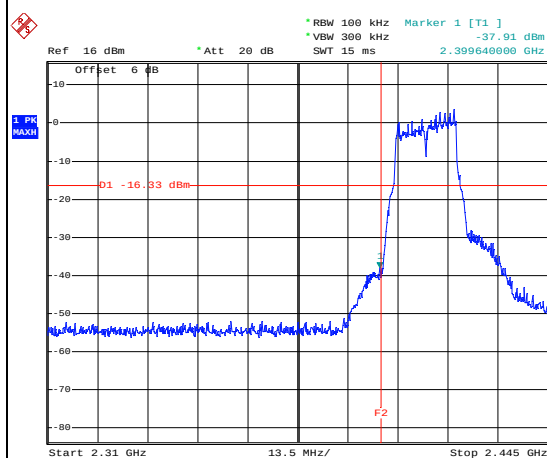
WLAN 802.11g Channel 01

100kHz PSD reference Level



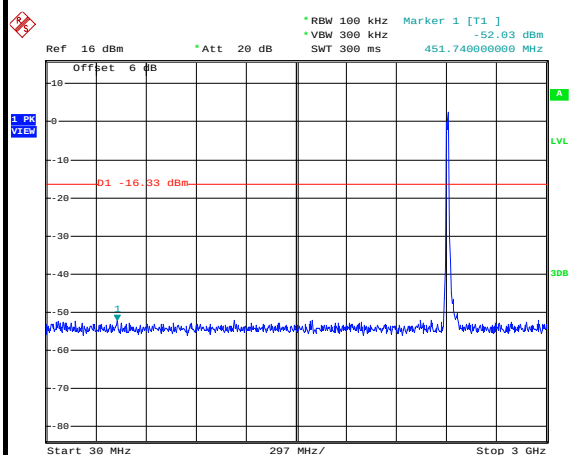
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Low Channel Plot



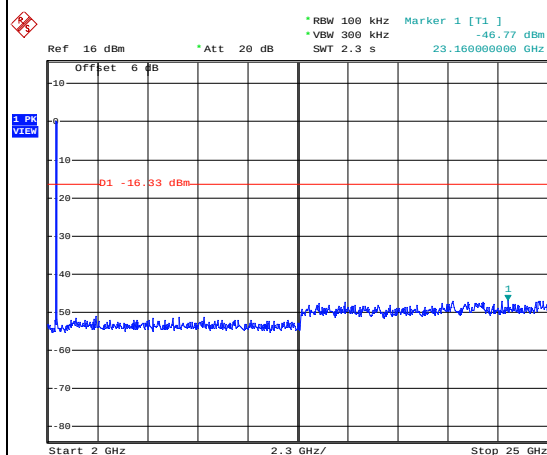
Date: 26.MAY.2015 09:30:05

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 09:30:35

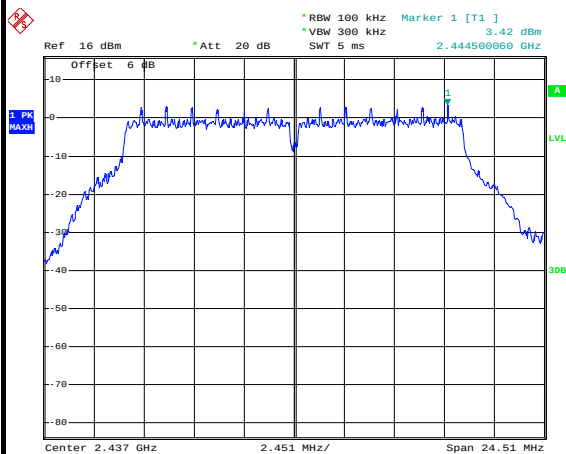
Spurious Emission 2GHz~25GHz



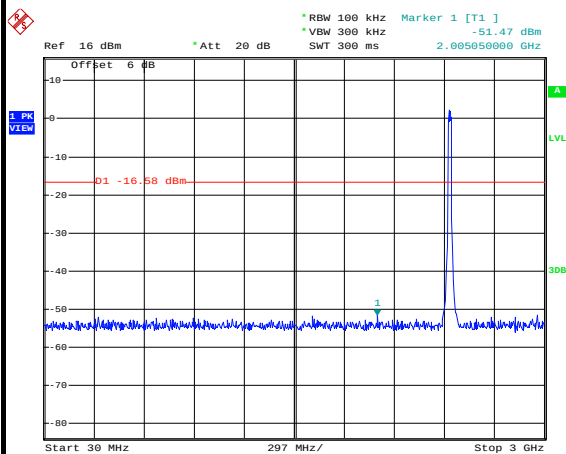
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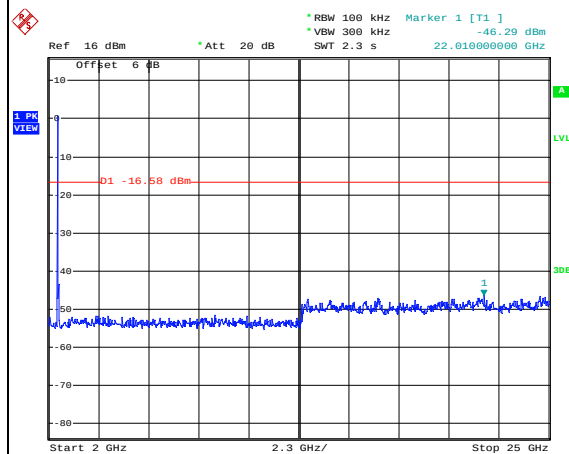
Number of TX :	1	Chain Port:	0
Test Mode :	802.11g	Temperature :	21~25℃
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Ocean Song

WLAN 802.11g Channel 06**100kHz PSD reference Level**

Date: 26.MAY.2015 09:35:12

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 09:35:36

Spurious Emission 2GHz~25GHz

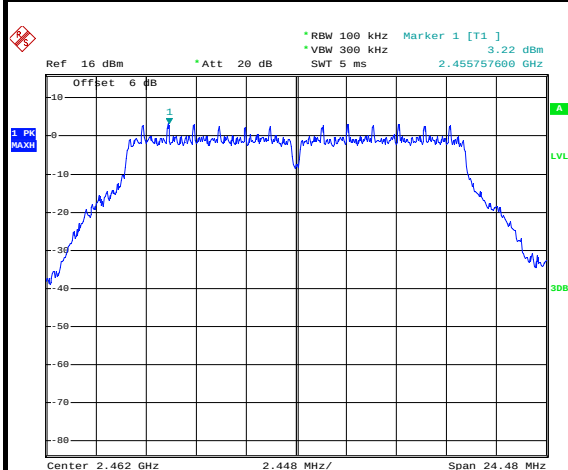
Date: 26.MAY.2015 09:35:54



Number of TX :	1	Chain Port:	0
Test Mode :	802.11g	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Ocean Song

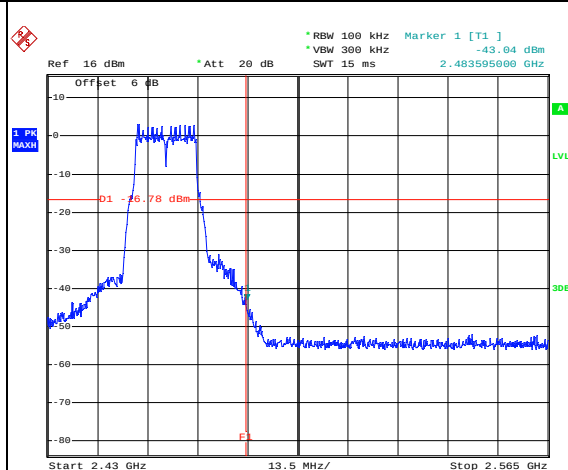
WLAN 802.11g Channel 11

100kHz PSD reference Level



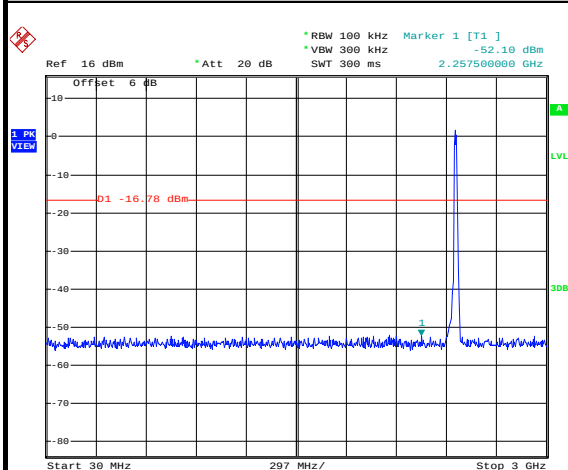
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High Channel Plot



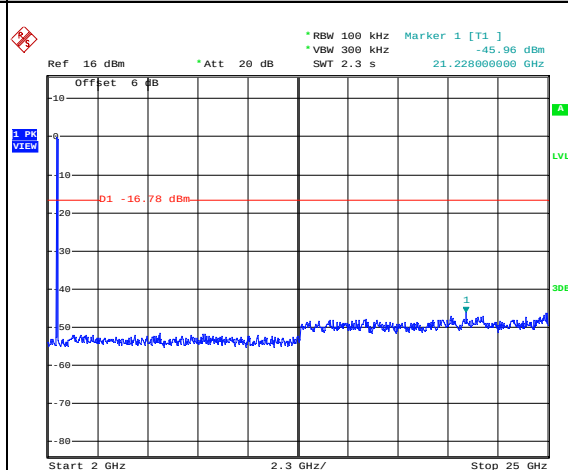
Date: 26.MAY.2015 09:39:50

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 09:40:16

Spurious Emission 2GHz~25GHz



Date: 26.MAY.2015 09:40:34

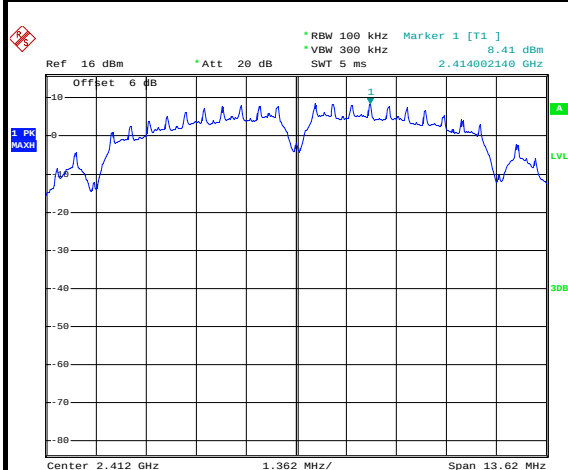


Number of TX = 1, Chain Port 1 (Measured)

Number of TX	1	Chain Port:	1
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Ocean Song

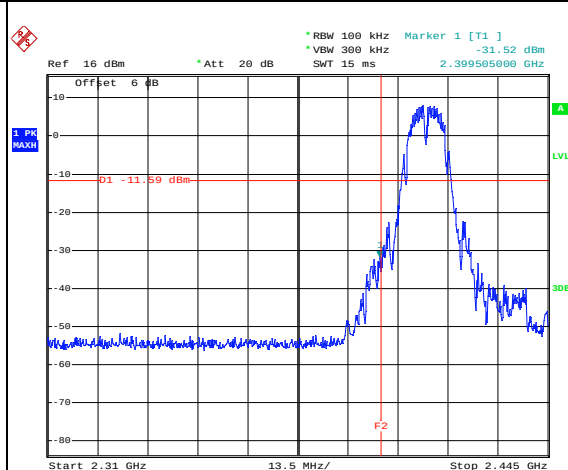
WLAN 802.11b Channel 01

100kHz PSD reference Level



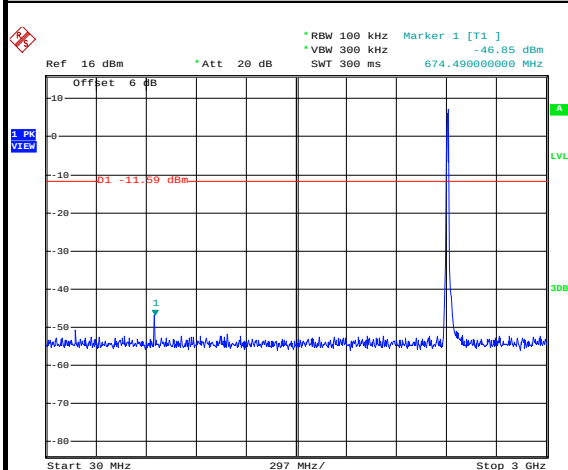
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Low Channel Plot



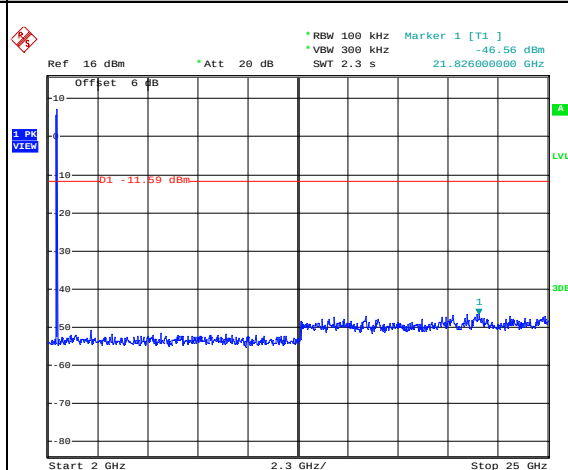
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Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 09:15:05

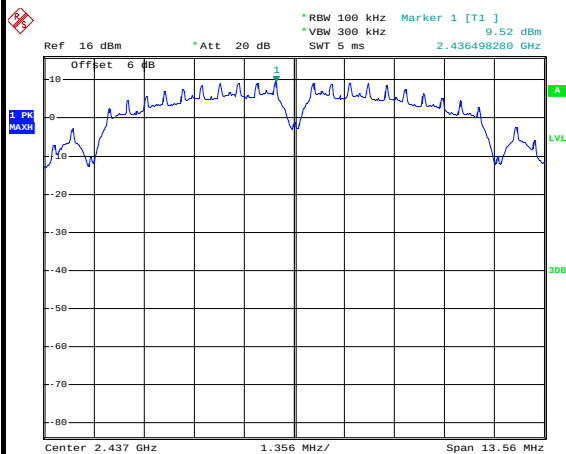
Spurious Emission 2GHz~25GHz



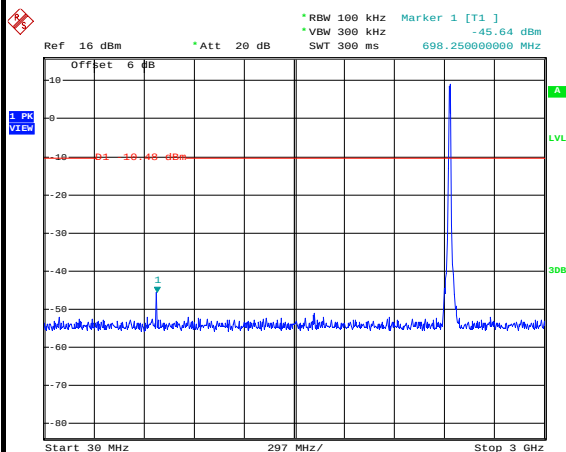
Date: 26.MAY.2015 09:15:23



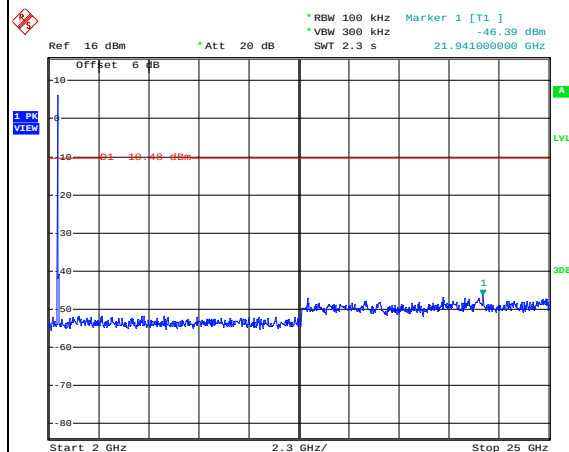
Number of TX :	1	Chain Port:	1
Test Mode :	802.11b	Temperature :	21~25℃
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Ocean Song

WLAN 802.11b Channel 06**100kHz PSD reference Level**

Date: 26.MAY.2015 09:18:05

Spurious Emission 30MHz~3GHz

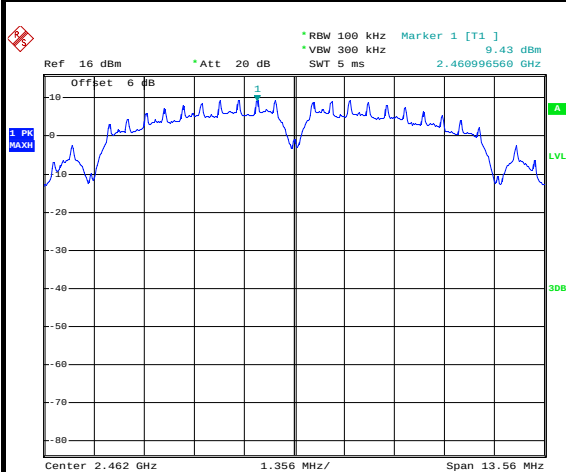
Date: 26.MAY.2015 09:18:26

Spurious Emission 2GHz~25GHz

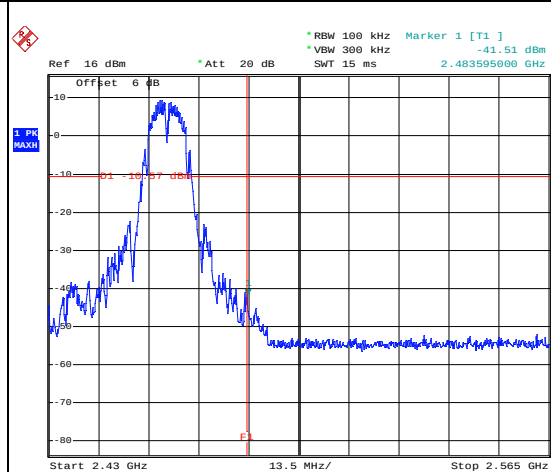
Date: 26.MAY.2015 09:18:44



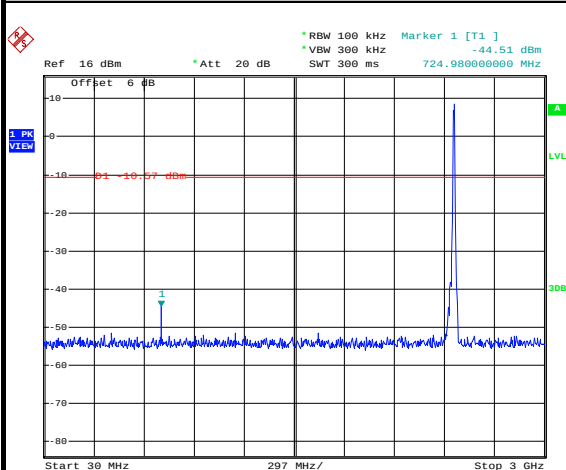
Number of TX :	1	Chain Port:	1
Test Mode :	802.11b	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Ocean Song

WLAN 802.11b Channel 11**100kHz PSD reference Level**

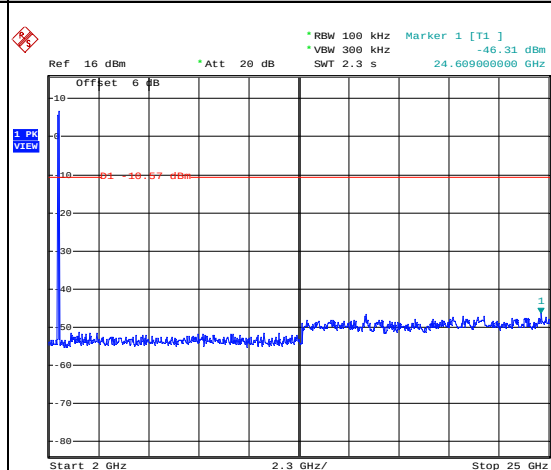
Date: 26.MAY.2015 09:21:19

High Channel Plot

Date: 26.MAY.2015 09:22:05

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 09:22:32

Spurious Emission 2GHz~25GHz

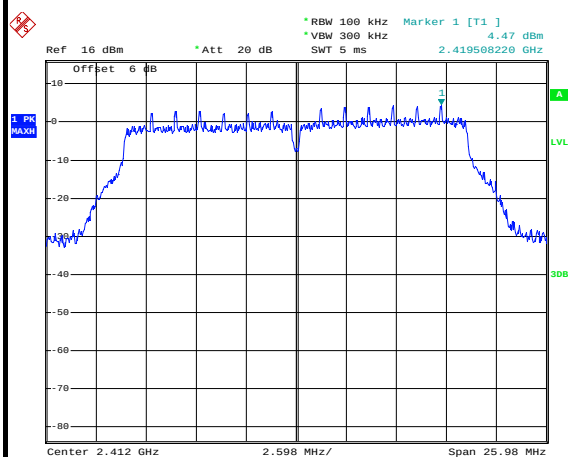
Date: 26.MAY.2015 09:22:50



Number of TX :	1	Chain Port:	1
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Ocean Song

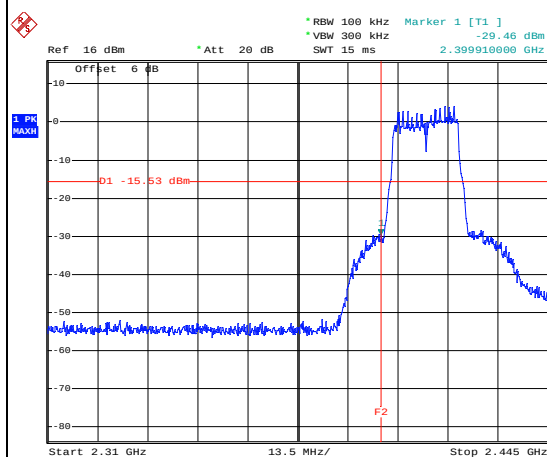
WLAN 802.11n HT20 Channel 01

100kHz PSD reference Level



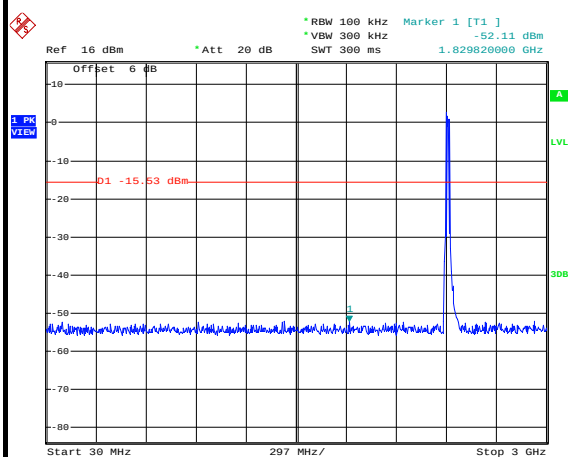
Date: 26.MAY.2015 09:46:57

Low Channel Plot



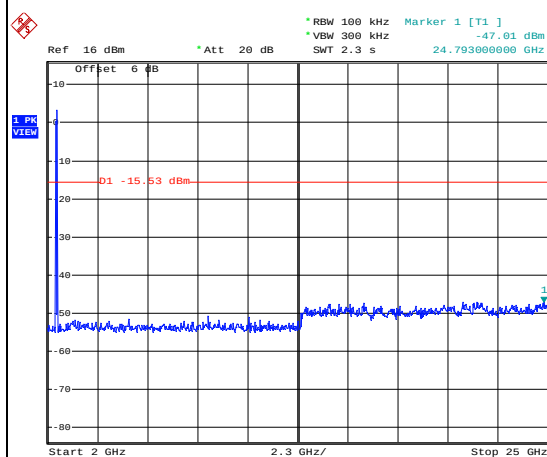
Date: 26.MAY.2015 09:47:25

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 09:48:29

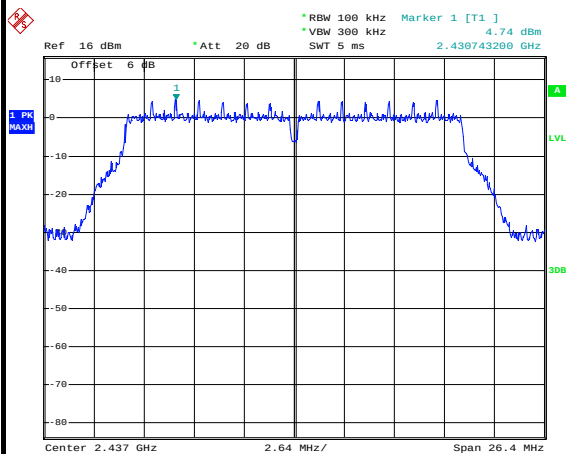
Spurious Emission 2GHz~25GHz



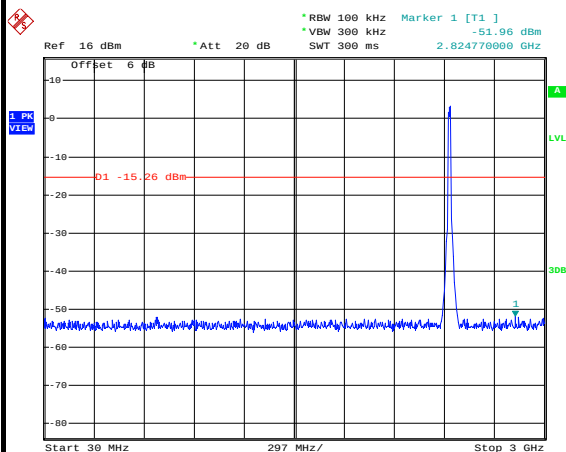
Date: 26.MAY.2015 09:48:47



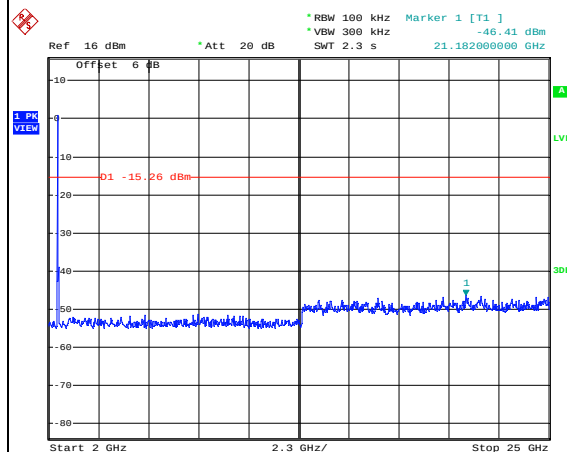
Number of TX :	1	Chain Port:	1
Test Mode :	802.11n HT20	Temperature :	21~25℃
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Ocean Song

WLAN 802.11n HT20 Channel 06**100kHz PSD reference Level**

Date: 26.MAY.2015 09:52:03

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 09:52:26

Spurious Emission 2GHz~25GHz

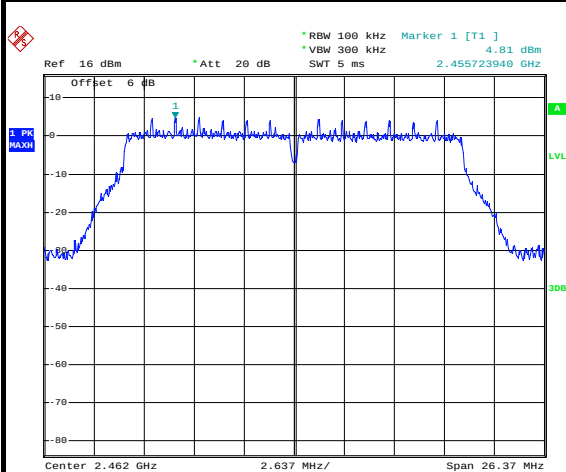
Date: 26.MAY.2015 09:52:44



Number of TX :	1	Chain Port:	1
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Ocean Song

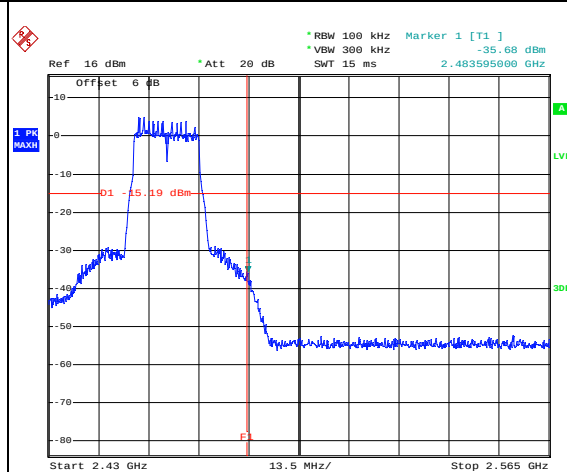
WLAN 802.11n HT20 Channel 11

100kHz PSD reference Level



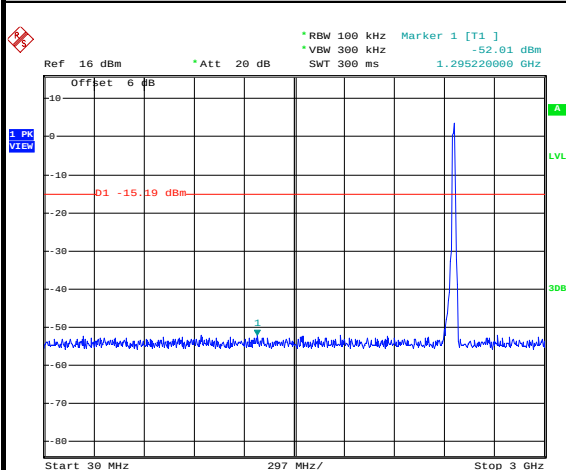
Date: 26.MAY.2015 09:56:52

High Channel Plot



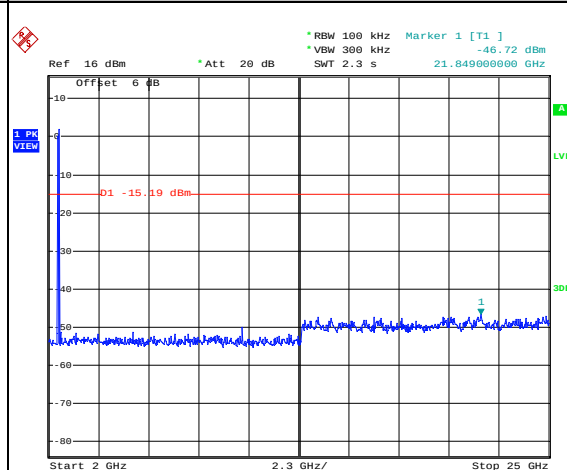
Date: 26.MAY.2015 09:58:08

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 09:58:38

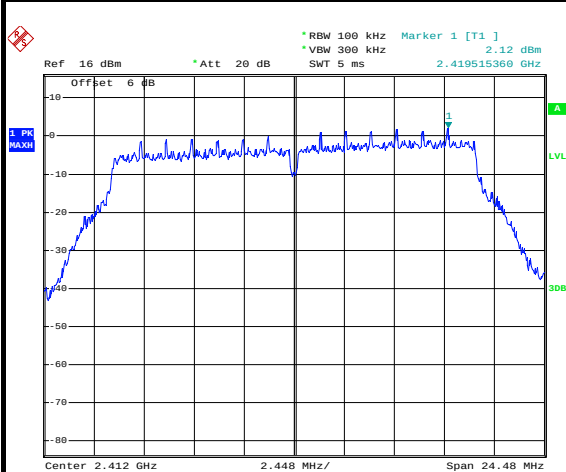
Spurious Emission 2GHz~25GHz



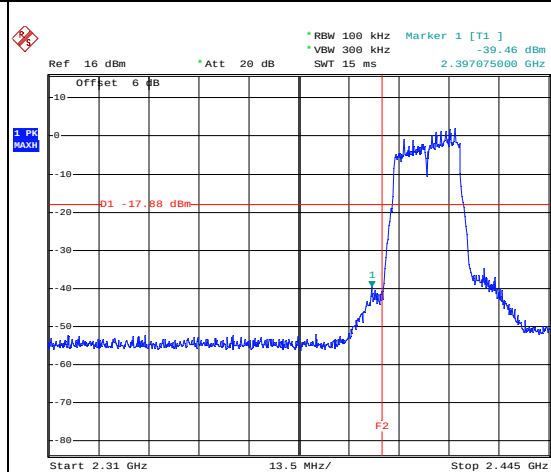
Date: 26.MAY.2015 09:58:56

**Number of TX = 2, Chain Port 0+1(0) (Measured)**

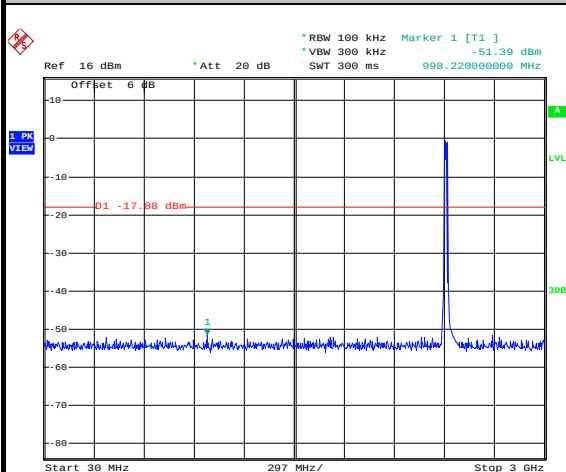
Number of TX :	2	Chain Port:	0+1(0)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Ocean Song

WLAN 802.11n HT20 Channel 01**100kHz PSD reference Level**

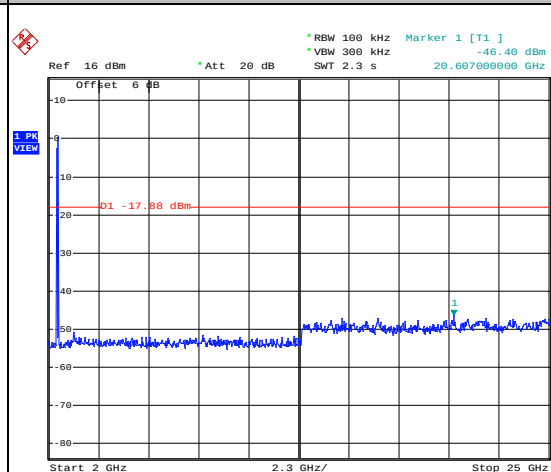
Date: 26.MAY.2015 10:36:50

Low Channel Plot

Date: 26.MAY.2015 10:37:11

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 10:37:35

Spurious Emission 2GHz~25GHz

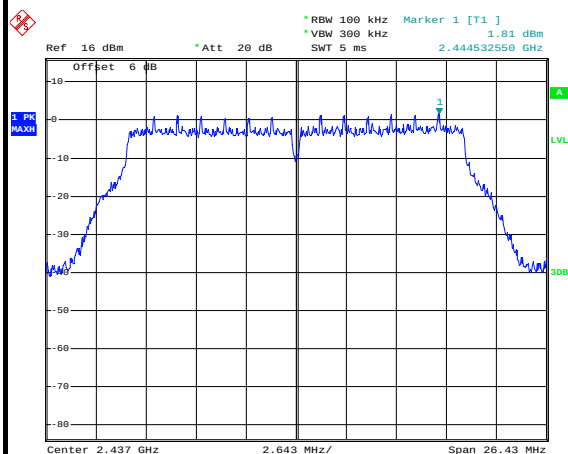
Date: 26.MAY.2015 10:37:52



Number of TX :	2	Chain Port:	0+1(0)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Ocean Song

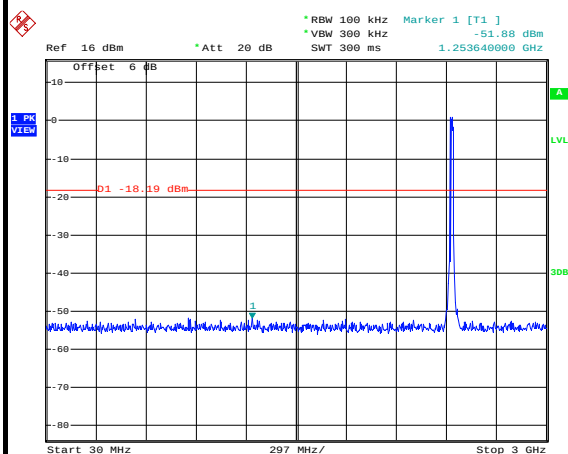
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



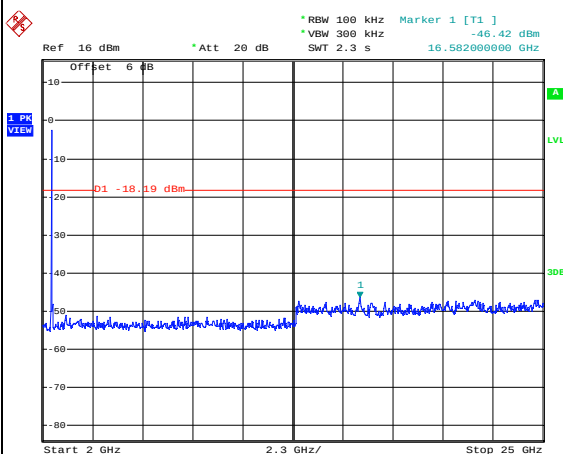
Date: 26.MAY.2015 10:31:17

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 10:33:13

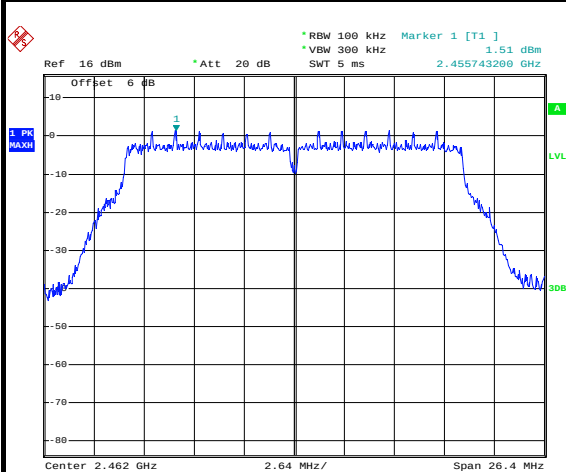
Spurious Emission 2GHz~25GHz



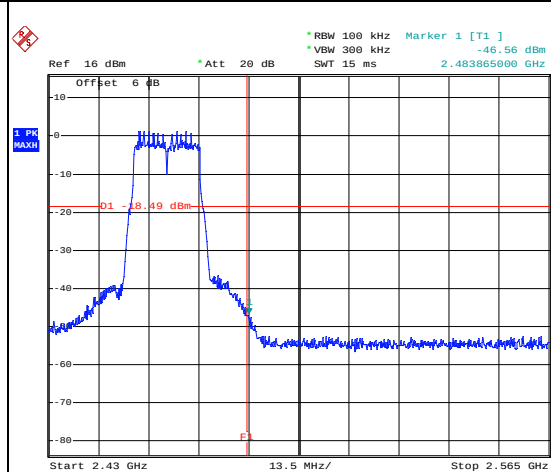
Date: 26.MAY.2015 10:33:31



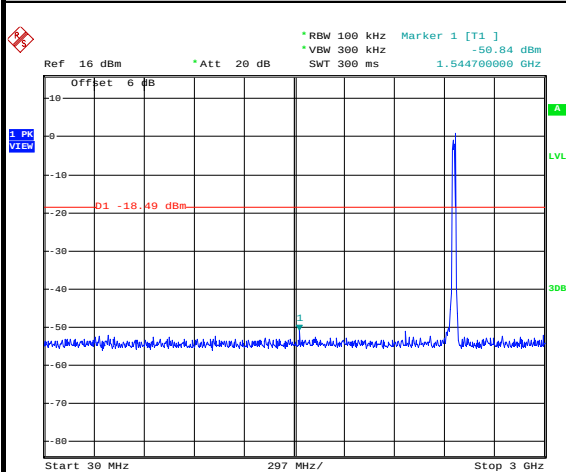
Number of TX :	2	Chain Port:	0+1(0)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Ocean Song

WLAN 802.11n HT20 Channel 11**100kHz PSD reference Level**

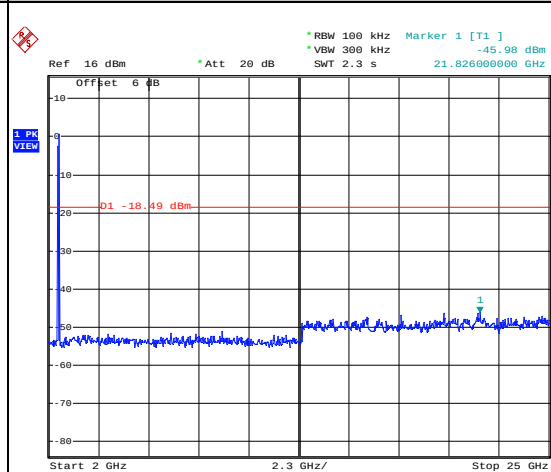
Date: 26.MAY.2015 10:27:21

High Channel Plot

Date: 26.MAY.2015 10:27:39

Spurious Emission 30MHz~3GHz

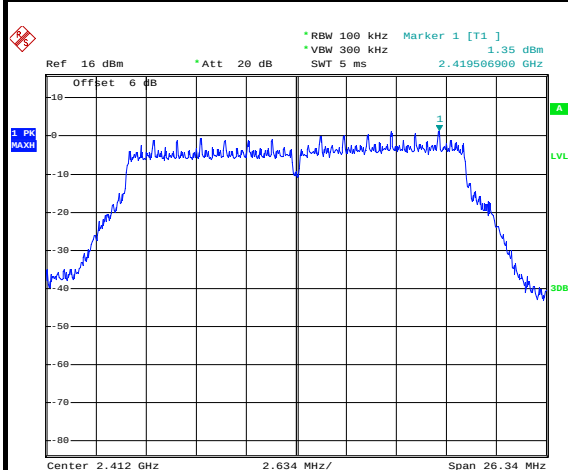
Date: 26.MAY.2015 10:28:07

Spurious Emission 2GHz~25GHz

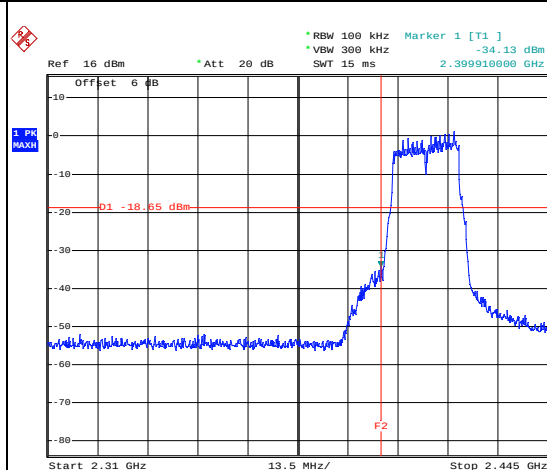
Date: 26.MAY.2015 10:28:25

**Number of TX = 2, Chain Port 0+1(1) (Measured)**

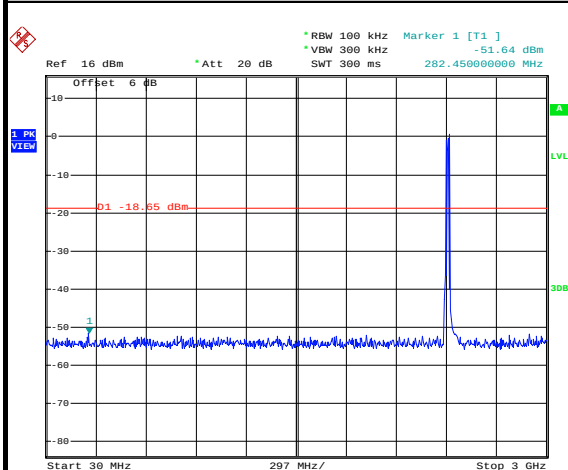
Number of TX :	2	Chain Port:	0+1(1)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Ocean Song

WLAN 802.11n HT20 Channel 01**100kHz PSD reference Level**

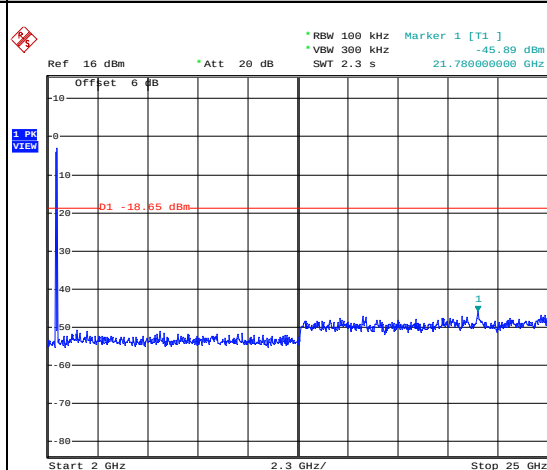
Date: 26.MAY.2015 10:08:33

Low Channel Plot

Date: 26.MAY.2015 10:09:09

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 10:09:53

Spurious Emission 2GHz~25GHz

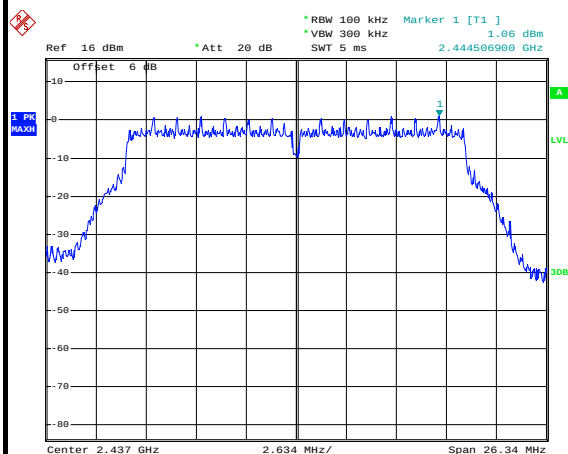
Date: 26.MAY.2015 10:10:11



Number of TX :	2	Chain Port:	0+1(1)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Ocean Song

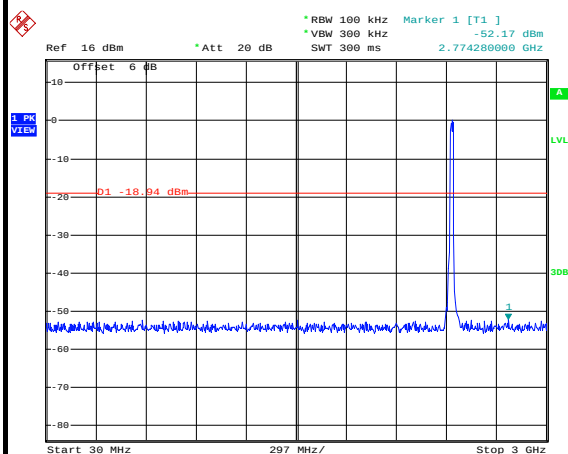
WLAN 802.11n HT20 Channel 06

100kHz PSD reference Level



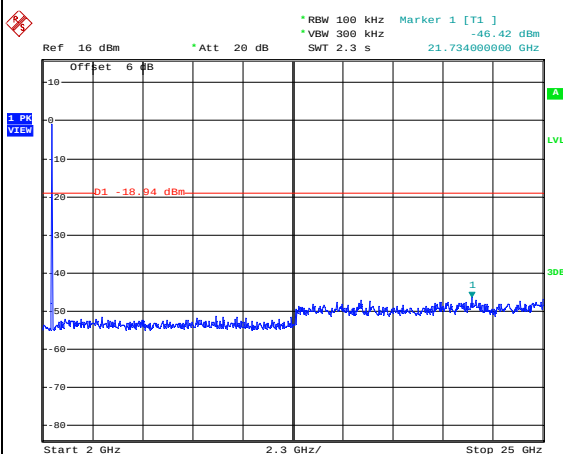
Date: 26.MAY.2015 10:13:56

Spurious Emission 30MHz~3GHz



Date: 26.MAY.2015 10:14:28

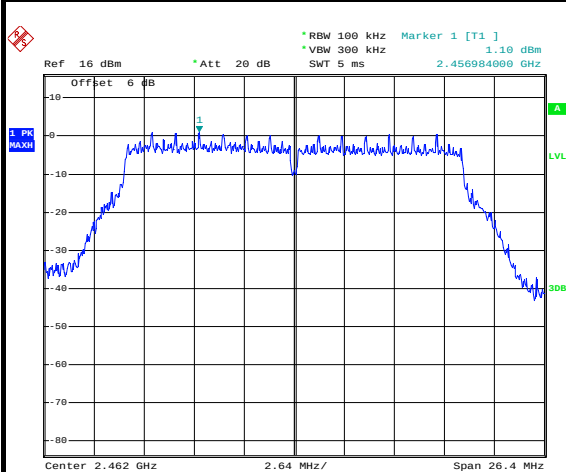
Spurious Emission 2GHz~25GHz



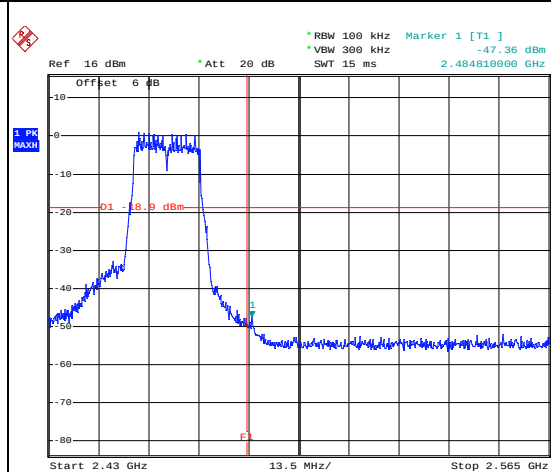
Date: 26.MAY.2015 10:14:46



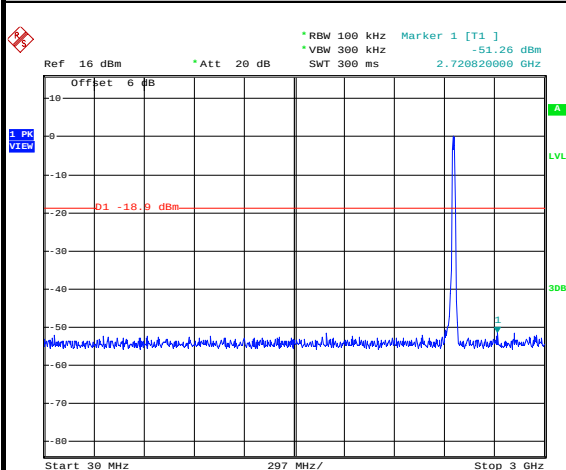
Number of TX :	2	Chain Port:	0+1(1)
Test Mode :	802.11n HT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Ocean Song

WLAN 802.11n HT20 Channel 11**100kHz PSD reference Level**

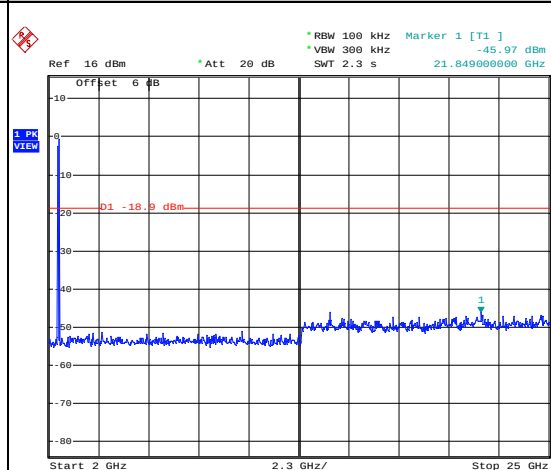
Date: 26.MAY.2015 10:18:33

High Channel Plot

Date: 26.MAY.2015 10:21:52

Spurious Emission 30MHz~3GHz

Date: 26.MAY.2015 10:22:54

Spurious Emission 2GHz~25GHz

Date: 26.MAY.2015 10:23:12

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 for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively 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.

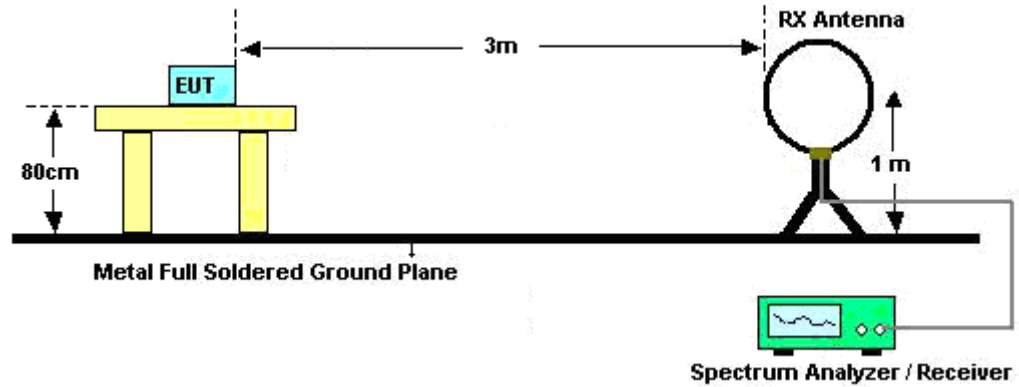
For average measurement:

 - 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.

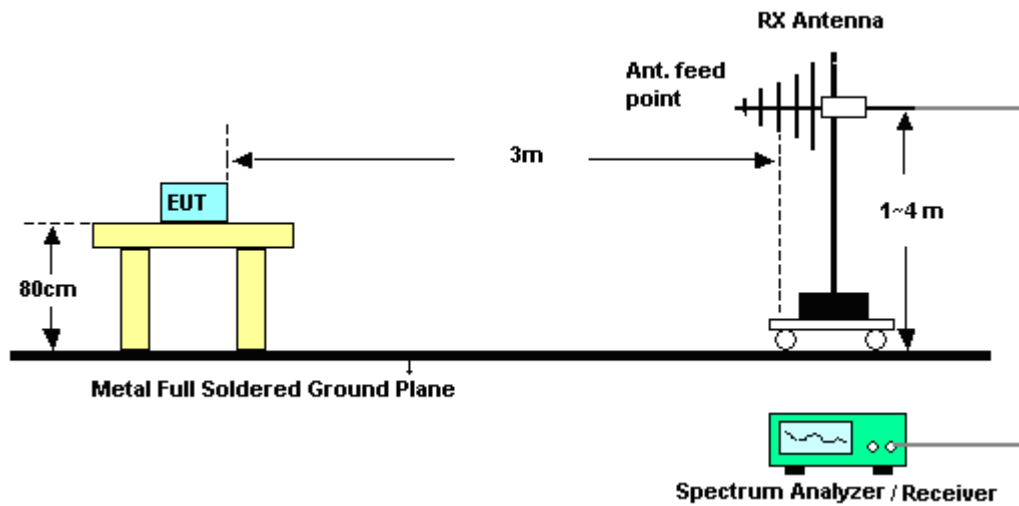
Chain Port	Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
0	802.11b	99.08	-	-	10Hz
1	802.11b	99.31	-	-	10Hz
0	802.11g	63.38	0.18	5.56	10kHz
1	802.11g	63.38	0.18	5.56	10kHz
0+1	2.4GHz 802.11n HT20	62.22	0.17	5.95	10kHz

3.5.4 Test Setup

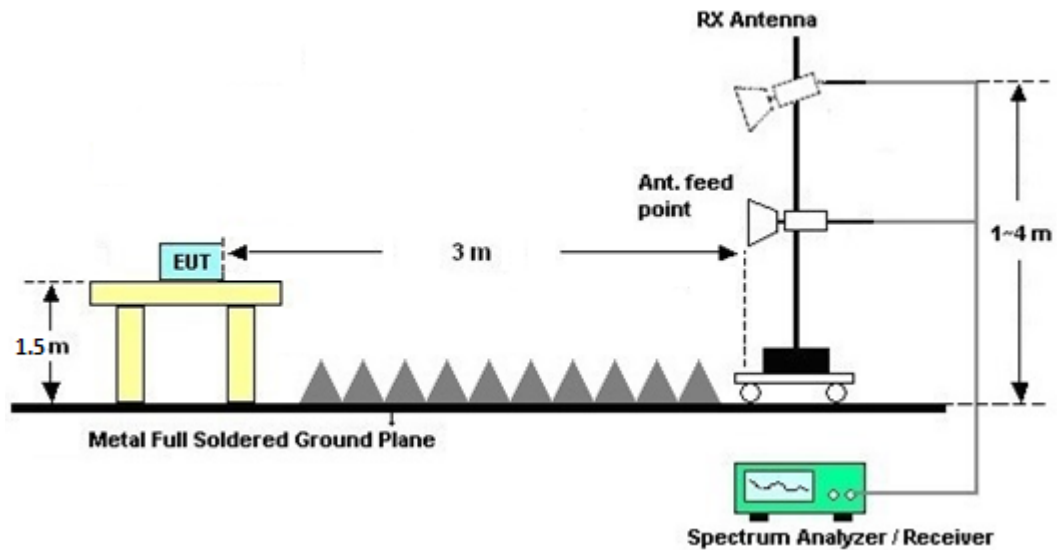
For radiated emissions below 30MHz



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

Please refer to Appendix B.

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

Please refer to Appendix B.

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.

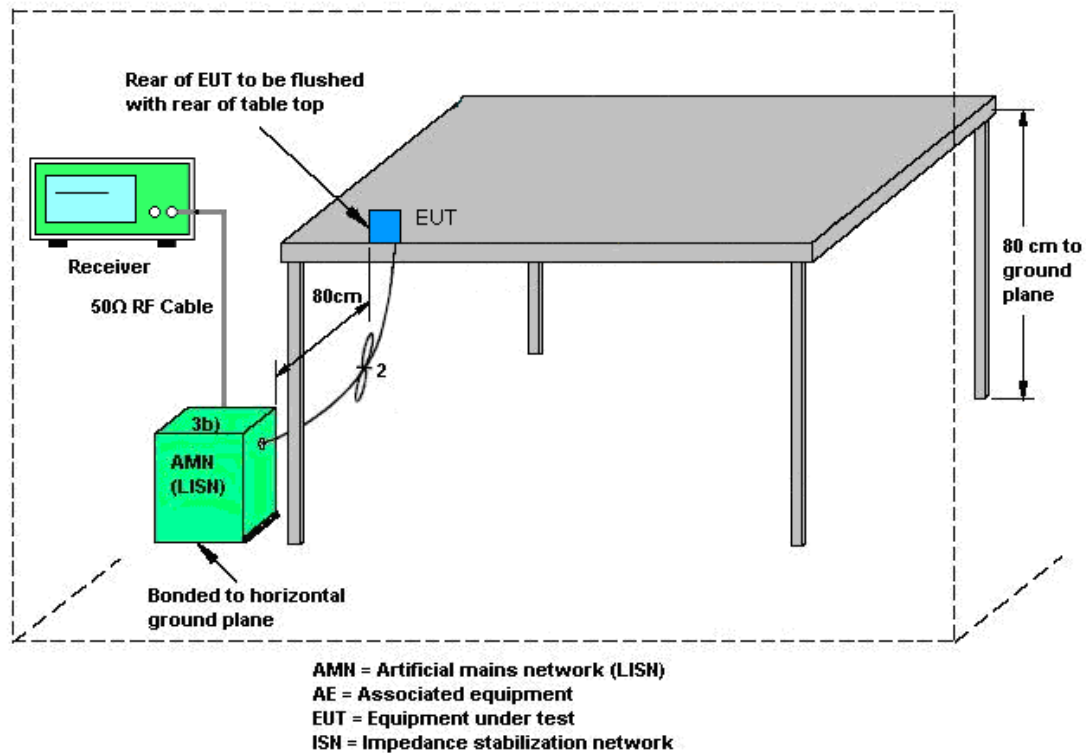
3.6.2 Measuring Instruments

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.

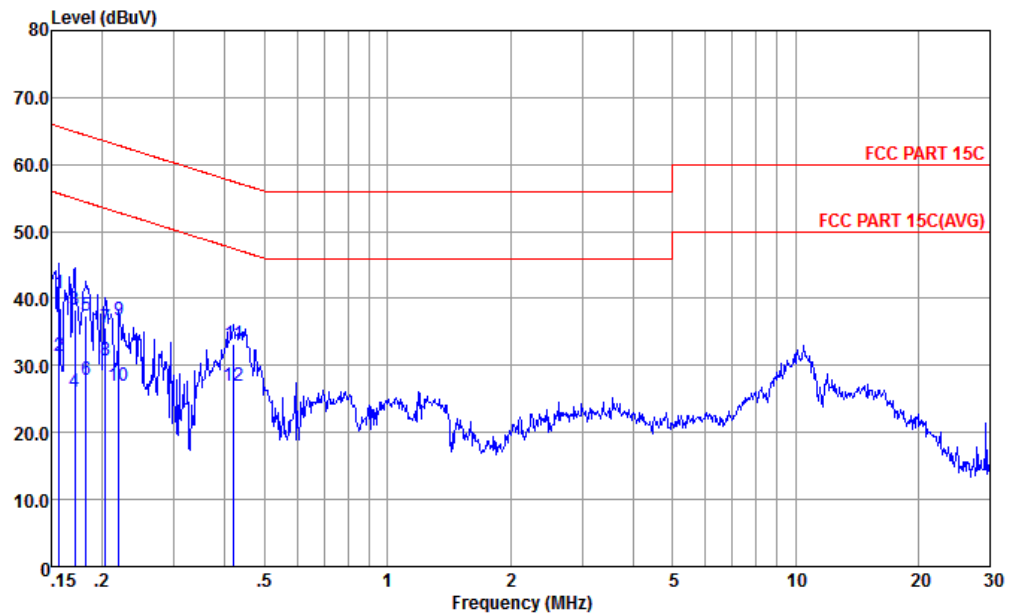
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Amos Zhang	Relative Humidity :	37~39%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Link + WLAN (2.4G) Link + Adapter + Earphone		

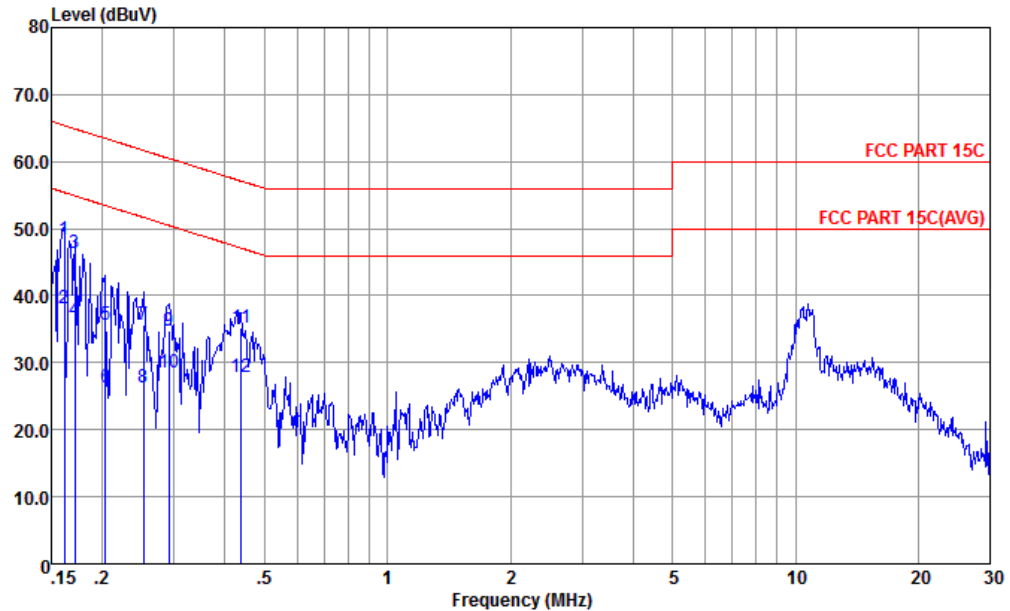


Site : CO01-KS
Condition : FCC PART 15C LISN-L20140306 LINE

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	40.83	-24.82	65.65	28.60	1.85	10.38	QP
2	0.16	31.33	-24.32	55.65	19.10	1.85	10.38	Average
3	0.17	38.26	-26.64	64.90	26.30	1.53	10.43	QP
4	0.17	26.16	-28.74	54.90	14.20	1.53	10.43	Average
5	0.18	37.42	-26.95	64.37	25.70	1.25	10.47	QP
6	0.18	27.92	-26.45	54.37	16.20	1.25	10.47	Average
7	0.20	35.69	-27.76	63.45	24.20	0.99	10.50	QP
8	0.20	30.79	-22.66	53.45	19.30	0.99	10.50	Average
9	0.22	36.77	-26.06	62.83	25.30	0.96	10.51	QP
10	0.22	27.07	-25.76	52.83	15.60	0.96	10.51	Average
11	0.42	33.11	-24.35	57.46	22.20	0.29	10.62	QP
12 *	0.42	27.01	-20.45	47.46	16.10	0.29	10.62	Average



Test Mode :	Mode 1	Temperature :	22~24
Test Engineer :	Amos Zhang	Relative Humidity :	37~39
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Link + WLAN (2.4G) Link + Adapter + Earphone		



Site : CO01-KS
Condition : FCC PART 15C LISN-N20140306 NEUTRAL

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1 *	0.16	48.31	-17.07	65.38	36.20	1.71	10.40	QP
2	0.16	38.21	-17.17	55.38	26.10	1.71	10.40	Average
3	0.17	46.43	-18.47	64.90	34.50	1.50	10.43	QP
4	0.17	36.23	-18.67	54.90	24.30	1.50	10.43	Average
5	0.20	35.69	-27.76	63.45	24.20	0.99	10.50	QP
6	0.20	26.39	-27.06	53.45	14.90	0.99	10.50	Average
7	0.25	35.62	-26.07	61.69	24.20	0.89	10.53	QP
8	0.25	26.32	-25.37	51.69	14.90	0.89	10.53	Average
9	0.29	34.84	-25.66	60.50	23.50	0.77	10.57	QP
10	0.29	28.54	-21.96	50.50	17.20	0.77	10.57	Average
11	0.44	35.28	-21.83	57.11	24.30	0.36	10.62	QP
12	0.44	27.88	-19.23	47.11	16.90	0.36	10.62	Average



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	Oct. 28, 2014	May 26, 2015	Oct. 27, 2015	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	30MHz~40GHz	Jan. 23, 2015	May 26, 2015	Jan. 22, 2016	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 23, 2015	May 26, 2015	Jan. 22, 2016	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz; Max 30dBm	Sep. 29, 2014	May 05, 2015	Sep. 28, 2015	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz; Max 30dBm	Sep. 25, 2014	May 05, 2015	Sep. 24, 2015	Radiation (03CH02-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 13, 2014	May 05, 2015	Nov. 12, 2015	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz~2GHz	Sep. 13, 2014	May 05, 2015	Sep. 12, 2015	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	May 05, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	May 05, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
SHF-EHF Horn	com-power	AH-840	101070	18GHz~40GHz	Sep. 04, 2014	May 05, 2015	Sep. 03, 2015	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz ~1000MHz / 32 dB	May 04, 2014	May 05, 2015	May 03, 2015	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A023 84	1GHz~26.5GHz	Oct. 28, 2014	May 05, 2015	Oct. 27, 2015	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002 473	N/A	NCR	May 05, 2015	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	May 05, 2015	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	May 05, 2015	NCR	Radiation (03CH02-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 04, 2014	Apr. 24, 2015	May 03, 2015	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 25, 2014	Apr. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 25, 2014	Apr. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 25, 2014	Apr. 24, 2015	Oct. 24, 2015	Conduction (CO01-KS)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.3dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.1dB
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Appendix A. Conducted Test Results

Test Engineer:	Ocean Song	Temperature:	21~25	°C
Test Date:	2015/5/26	Relative Humidity:	51~54	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	99% Occupied BW (MHz)		6dB BW (MHz)		6dB BW Limit (MHz)	Pass/Fail
					Ant 0	Ant 1	Ant 0	Ant 1		
11b	1Mbps	1	1	2412		12.15		9.08	0.50	Pass
11b	1Mbps	1	6	2437		12.10		9.04	0.50	Pass
11b	1Mbps	1	11	2462		12.10		9.04	0.50	Pass
11g	54Mbps	1	1	2412	18.40		15.72		0.50	Pass
11g	54Mbps	1	6	2437	18.70		16.34		0.50	Pass
11g	54Mbps	1	11	2462	18.30		16.32		0.50	Pass
HT20	MCS7	1	1	2412		19.25		17.32	0.50	Pass
HT20	MCS7	1	6	2437		19.35		17.60	0.50	Pass
HT20	MCS7	1	11	2462		19.30		17.58	0.50	Pass
HT20	MCS7	2	1	2412	18.95	19.10	16.32	17.56	0.50	Pass
HT20	MCS7	2	6	2437	19.25	19.10	17.62	17.56	0.50	Pass
HT20	MCS7	2	11	2462	19.10	19.10	17.60	17.60	0.50	Pass

TEST RESULTS DATA
Peak Output Power

2.4GHz Band																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	
11b	1Mbps	1	1	2412	17.67	16.58		30.00	30.00	0.40	1.18	18.07	17.76	36.00	36.00	Pass
11b	1Mbps	1	6	2437	18.47	18.18		30.00	30.00	0.40	1.18	18.87	19.36	36.00	36.00	Pass
11b	1Mbps	1	11	2462	18.66	19.86		30.00	30.00	0.40	1.18	19.06	21.04	36.00	36.00	Pass
11g	54Mbps	1	1	2412	20.48	19.59		30.00	30.00	0.40	1.18	20.88	20.77	36.00	36.00	Pass
11g	54Mbps	1	6	2437	20.89	20.12		30.00	30.00	0.40	1.18	21.29	21.30	36.00	36.00	Pass
11g	54Mbps	1	11	2462	20.56	20.59		30.00	30.00	0.40	1.18	20.96	21.77	36.00	36.00	Pass
HT20	MCS7	1	1	2412	21.12	20.48		30.00	30.00	0.40	1.18	21.52	21.66	36.00	36.00	Pass
HT20	MCS7	1	6	2437	21.91	22.15		30.00	30.00	0.40	1.18	22.31	23.33	36.00	36.00	Pass
HT20	MCS7	1	11	2462	21.61	21.71		30.00	30.00	0.40	1.18	22.01	22.89	36.00	36.00	Pass
HT20	MCS7	2	1	2412	19.36	18.49	21.96	30.00		3.81		25.77		36.00		Pass
HT20	MCS7	2	6	2437	19.69	19.32	22.52	30.00		3.81		26.33		36.00		Pass
HT20	MCS7	2	11	2462	19.65	19.26	22.47	30.00		3.81		26.28		36.00		Pass

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

TEST RESULTS DATA
Average Output Power

2.4GHz Band									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power (dBm)		
					Ant 0	Ant 1	Ant 0	Ant 1	SUM
11b	1Mbps	1	1	2412	0.04	0.03	14.58	13.94	
11b	1Mbps	1	6	2437	0.04	0.03	15.17	15.18	
11b	1Mbps	1	11	2462	0.04	0.03	15.41	16.04	
11g	54Mbps	1	1	2412	0.28	0.29	12.95	10.86	
11g	54Mbps	1	6	2437	0.28	0.29	13.67	11.83	
11g	54Mbps	1	11	2462	0.28	0.29	13.37	12.87	
HT20	MCS7	1	1	2412	0.32	0.34	13.63	13.69	
HT20	MCS7	1	6	2437	0.32	0.34	14.60	14.95	
HT20	MCS7	1	11	2462	0.32	0.34	14.33	14.50	
HT20	MCS7	2	1	2412	0.31	0.34	11.07	10.49	13.80
HT20	MCS7	2	6	2437	0.31	0.34	12.06	11.49	14.80
HT20	MCS7	2	11	2462	0.31	0.34	11.77	11.15	14.49

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

TEST RESULTS DATA
Peak Power Spectral Density

2.4GHz Band												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak PSD (dBm/3kHz)			DG (dBi)		Peak PSD Limit (dBm/3kHz)		Pass/Fail
					Ant 0	Ant 1	Worse + 3.01	Ant 0	Ant 1	Ant 0	Ant 1	
11b	1Mbps	1	1	2412		-6.31	-	0.40	1.18	8.00	8.00	Pass
11b	1Mbps	1	6	2437		-4.92		0.40	1.18	8.00	8.00	Pass
11b	1Mbps	1	11	2462		-4.95		0.40	1.18	8.00	8.00	Pass
11g	54Mbps	1	1	2412	-11.40			0.40	1.18	8.00	8.00	Pass
11g	54Mbps	1	6	2437	-11.22			0.40	1.18	8.00	8.00	Pass
11g	54Mbps	1	11	2462	-9.92			0.40	1.18	8.00	8.00	Pass
HT20	MCS7	1	1	2412		-9.79		0.40	1.18	8.00	8.00	Pass
HT20	MCS7	1	6	2437		-9.38		0.40	1.18	8.00	8.00	Pass
HT20	MCS7	1	11	2462		-9.57		0.40	1.18	8.00	8.00	Pass
HT20	MCS7	2	1	2412	-12.89	-14.17	-9.88	3.81		8.00		Pass
HT20	MCS7	2	6	2437	-13.25	-13.07	-10.06	3.81		8.00		Pass
HT20	MCS7	2	11	2462	-13.41	-12.72	-9.71	3.81		8.00		Pass

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



Appendix B. Radiated Test Results

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.56	55.56	-18.44	74	55.29	27.58	7.07	34.38	221	156	P	H
		2389.74	37.43	-16.57	54	37.16	27.58	7.07	34.38	221	156	A	H
	*	2413.026	107.4	-	-	107.08	27.6	7.11	34.39	221	156	P	H
	*	2412.692	102.2	-	-	101.88	27.6	7.11	34.39	221	156	A	H
		2389.92	53.38	-20.62	74	53.11	27.58	7.07	34.38	150	93	P	V
		2389.83	36.04	-17.96	54	35.77	27.58	7.07	34.38	150	93	A	V
	*	2413.026	102.27	-	-	101.95	27.6	7.11	34.39	150	93	P	V
	*	2411.189	97.2	-	-	96.9	27.6	7.09	34.39	150	93	A	V
802.11b CH 06 2437MHz	*	2438.41	105.9	-	-	105.53	27.64	7.13	34.4	271	163	P	H
	*	2437.742	100.61	-	-	100.24	27.64	7.13	34.4	271	163	A	H
	*	2438.493	101.31	-	-	100.94	27.64	7.13	34.4	160	89	P	V
	*	2437.825	95.95	-	-	95.58	27.64	7.13	34.4	160	89	A	V
802.11b CH 11 2462MHz	*	2463.376	104.54	-	-	104.15	27.65	7.15	34.41	260	160	P	H
	*	2461.206	99.31	-	-	98.92	27.65	7.15	34.41	260	160	A	H
		2484.32	57.08	-16.92	74	56.63	27.67	7.19	34.41	260	160	P	H
		2483.52	42.65	-11.35	54	42.22	27.67	7.17	34.41	260	160	A	H
	*	2460.621	101.82	-	-	101.43	27.65	7.15	34.41	150	67	P	V
	*	2461.289	96.53	-	-	96.14	27.65	7.15	34.41	150	67	A	V
		2484.68	53.9	-20.1	74	53.45	27.67	7.19	34.41	150	67	P	V
		2483.52	39.7	-14.3	54	39.27	27.67	7.17	34.41	150	67	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	49.68	-24.32	74	43.31	31.55	9.8	34.98	200	300	P	H
		4824	48.82	-25.18	74	42.45	31.55	9.8	34.98	220	150	P	V
802.11b CH 06 2437MHz		4874	50.73	-23.27	74	44.19	31.62	9.84	34.92	200	150	P	H
		7311	49.3	-24.7	74	35.47	36.51	12.26	34.94	150	360	P	H
		4874	50.68	-23.32	74	44.14	31.62	9.84	34.92	200	250	P	V
		7311	49.52	-24.48	74	35.69	36.51	12.26	34.94	150	200	P	V
802.11b CH 11 2462MHz		4923	43.81	-30.19	74	37.08	31.7	9.88	34.85	160	156	P	H
		7386	49.41	-24.59	74	35.41	36.54	12.43	34.97	200	180	P	H
		4923	46.08	-27.92	74	39.35	31.7	9.88	34.85	200	180	P	V
		7386	50.15	-23.85	74	36.15	36.54	12.43	34.97	150	170	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2389.38	51.89	-22.11	74	51.62	27.58	7.07	34.38	150	30	P	H
		2389.56	40.39	-13.61	54	40.12	27.58	7.07	34.38	150	30	A	H
	*	2411.189	107.39	-	-	107.09	27.6	7.09	34.39	150	30	P	H
	*	2415.114	98.46	-	-	98.14	27.6	7.11	34.39	150	30	A	H
		2389.29	49.97	-24.03	74	49.7	27.58	7.07	34.38	173	97	P	V
		2389.83	39.43	-14.57	54	39.16	27.58	7.07	34.38	173	97	A	V
	*	2411.356	103.65	-	-	103.35	27.6	7.09	34.39	173	97	P	V
	*	2415.281	94.64	-	-	94.32	27.6	7.11	34.39	173	97	A	V
802.11g CH 06 2437MHz	*	2443.837	104.03	-	-	103.66	27.64	7.13	34.4	220	37	P	H
	*	2444.422	94.61	-	-	94.24	27.64	7.13	34.4	220	37	A	H
	*	2443.837	103.23	-	-	102.86	27.64	7.13	34.4	150	166	P	V
	*	2444.422	93.9	-	-	93.53	27.64	7.13	34.4	150	166	A	V
802.11g CH 11 2462MHz	*	2454.776	104.74	-	-	104.35	27.65	7.15	34.41	150	22	P	H
	*	2454.776	94.65	-	-	94.26	27.65	7.15	34.41	150	22	A	H
		2483.52	63.79	-10.21	74	63.36	27.67	7.17	34.41	150	22	P	H
	!	2483.56	49.19	-4.81	54	48.76	27.67	7.17	34.41	150	22	A	H
		2454.776	102.92	-	-	102.53	27.65	7.15	34.41	150	94	P	V
		2469.472	93.05	-	-	92.64	27.65	7.17	34.41	150	94	A	V
	*	2483.64	62.59	-11.41	74	62.14	27.67	7.19	34.41	150	94	P	V
	*	2483.52	47.67	-6.33	54	47.24	27.67	7.17	34.41	150	94	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	49.6	-24.4	74	43.23	31.55	9.8	34.98	200	150	P	H
		4824	49.89	-24.11	74	43.52	31.55	9.8	34.98	160	200	P	V
802.11g CH 06 2437MHz		4874	49.68	-24.32	74	43.14	31.62	9.84	34.92	160	150	P	H
		7311	49.08	-24.92	74	35.25	36.51	12.26	34.94	200	180	P	H
		4874	48.78	-25.22	74	42.24	31.62	9.84	34.92	200	150	P	V
		7311	50.08	-23.92	74	36.25	36.51	12.26	34.94	160	200	P	V
802.11g CH 11 2462MHz		4924	49.44	-24.56	74	42.71	31.7	9.88	34.85	200	150	P	H
		7386	49.09	-24.91	74	35.09	36.54	12.43	34.97	200	360	P	H
		4924	49.06	-24.94	74	42.33	31.7	9.88	34.85	200	180	P	V
		7386	47.38	-26.62	74	33.38	36.54	12.43	34.97	200	180	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b(LF)

WIFI Ant. 0	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
2.4GHz 802.11b LF		32.91	28.48	-11.52	40	44.55	18.2	0.98	35.25	-	-	P	H
		53.28	30.94	-9.06	40	56.98	7.85	1.52	35.41	-	-	P	H
	!	65.89	34.31	-5.69	40	60.82	6.68	1.77	34.96	175	26	P	H
		110.51	28.8	-14.7	43.5	50.4	11.91	1.8	35.31	-	-	P	H
		151.25	25.48	-18.02	43.5	46.68	11.16	2.57	34.93	-	-	P	H
		195.87	31.21	-12.29	43.5	54.49	9.54	2.25	35.07	-	-	P	H
		53.28	29.43	-10.57	40	55.47	7.85	1.52	35.41	-	-	P	V
	!	67.83	35.95	-4.05	40	62.25	6.84	1.77	34.91	175	99	P	V
		88.2	25.66	-17.84	43.5	48.59	10.28	1.88	35.09	-	-	P	V
		111.48	25.16	-18.34	43.5	46.77	11.89	1.8	35.3	-	-	P	V
		152.22	25.91	-17.59	43.5	47.14	11.13	2.57	34.93	-	-	P	V
		195.87	26.39	-17.11	43.5	49.67	9.54	2.25	35.07	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11g(LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		32.91	28.48	-11.52	40	44.55	18.2	0.98	35.25			P	H
		53.28	30.94	-9.06	40	56.98	7.85	1.52	35.41			P	H
	!	65.89	34.31	-5.69	40	60.82	6.68	1.77	34.96	158	29	P	H
		110.51	29.8	-13.7	43.5	51.4	11.91	1.8	35.31			P	H
		151.25	25.48	-18.02	43.5	46.68	11.16	2.57	34.93			P	H
		195.87	32.21	-11.29	43.5	55.49	9.54	2.25	35.07			P	H
		32.91	32.21	-7.79	40	48.28	18.2	0.98	35.25			P	V
	!	53.28	35.43	-4.57	40	61.47	7.85	1.52	35.41			P	V
	!	67.83	36.95	-3.05	40	63.25	6.84	1.77	34.91	157	20	P	V
		111.48	30.16	-13.34	43.5	51.77	11.89	1.8	35.3			P	V
		192.96	30.75	-12.75	43.5	53.9	9.65	2.25	35.05			P	V
		226.91	27.09	-18.91	46	49.11	10.48	2.47	34.97			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2389.29	47.68	-26.32	74	47.41	27.58	7.07	34.38	210	164	P	H
		2389.92	36.31	-17.69	54	36.04	27.58	7.07	34.38	210	164	A	H
	*	2413.36	97.97	-	-	97.65	27.6	7.11	34.39	210	164	P	H
	*	2411.189	92.85	-	-	92.55	27.6	7.09	34.39	210	164	A	H
		2362.56	47.47	-26.53	74	47.14	27.65	7.06	34.38	207	165	P	V
		2389.83	35.84	-18.16	54	35.57	27.58	7.07	34.38	207	165	A	V
	*	2413.36	100.56	-	-	100.24	27.6	7.11	34.39	207	165	P	V
	*	2412.775	95.12	-	-	94.8	27.6	7.11	34.39	207	165	A	V
802.11b CH 06 2437MHz	*	2435.571	97.14	-	-	96.78	27.62	7.13	34.39	249	158	P	H
	*	2436.239	92.12	-	-	91.76	27.62	7.13	34.39	249	158	A	H
	*	2438.493	102.64	-	-	102.27	27.64	7.13	34.4	248	158	P	V
	*	2436.239	97.47	-	-	97.11	27.62	7.13	34.39	248	158	A	V
802.11b CH 11 2462MHz	*	2460.538	108.69	-	-	108.3	27.65	7.15	34.41	150	302	P	H
	*	2461.206	103.5	-	-	103.11	27.65	7.15	34.41	150	302	A	H
		2483.64	58.21	-15.79	74	57.76	27.67	7.19	34.41	150	302	P	H
	!	2483.52	52.16	-1.84	54	51.73	27.67	7.17	34.41	150	302	A	H
	*	2460.621	99.73	-	-	99.34	27.65	7.15	34.41	245	158	P	V
	*	2461.206	94.54	-	-	94.15	27.65	7.15	34.41	245	158	A	V
		2483.8	49.52	-24.48	74	49.07	27.67	7.19	34.41	245	158	P	V
		2483.52	40.7	-13.3	54	40.27	27.67	7.17	34.41	245	158	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11b CH 01 2412MHz		4824	48.29	-25.71	74	41.92	31.55	9.8	34.98	200	350	P	H
		4824	49.14	-24.86	74	42.77	31.55	9.8	34.98	200	300	P	V
802.11b CH 06 2437MHz		4874	49.48	-24.52	74	42.94	31.62	9.84	34.92	200	360	P	H
		7311	49.11	-24.89	74	35.28	36.51	12.26	34.94	200	150	P	H
		4874	50.24	-23.76	74	43.7	31.62	9.84	34.92	150	160	P	V
		7311	49.28	-24.72	74	35.45	36.51	12.26	34.94	200	170	P	V
802.11b CH 11 2462MHz		4924	49.12	-24.88	74	42.39	31.7	9.88	34.85	150	150	P	H
		7386	49.3	-24.7	74	35.3	36.54	12.43	34.97	190	150	P	H
		4924	49.68	-24.32	74	42.95	31.7	9.88	34.85	200	330	P	V
		7386	49.72	-24.28	74	35.72	36.54	12.43	34.97	250	150	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11g (Band Edge @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		2349.24	43.6	-30.4	74	43.26	27.68	7.04	34.38	150	346	P	H
		2313.6	32.34	-21.66	54	31.96	27.75	7.01	34.38	150	346	A	H
	*	2418.871	89.04	-	-	88.72	27.6	7.11	34.39	150	346	P	H
	*	2415.281	79.49	-	-	79.17	27.6	7.11	34.39	150	346	A	H
		2389.65	53.67	-20.33	74	53.4	27.58	7.07	34.38	186	270	P	V
		2389.92	39.07	-14.93	54	38.8	27.58	7.07	34.38	186	270	A	V
	*	2418.871	105.87	-	-	105.55	27.6	7.11	34.39	186	270	P	V
	*	2419.372	96.15	-	-	95.83	27.6	7.11	34.39	186	270	A	V
802.11g CH 06 2437MHz	*	2429.893	88.76	-	-	88.4	27.62	7.13	34.39	150	141	P	H
	*	2430.812	78.63	-	-	78.27	27.62	7.13	34.39	150	141	A	H
	*	2443.921	104.67	-	-	104.3	27.64	7.13	34.4	150	279	P	V
	*	2444.506	94.99	-	-	94.62	27.64	7.13	34.4	150	279	A	V
802.11g CH 11 2462MHz	*	2454.776	89.69	-	-	89.3	27.65	7.15	34.41	150	140	P	H
	*	2454.692	79.71	-	-	79.32	27.65	7.15	34.41	150	140	A	H
		2483.64	48.2	-25.8	74	47.75	27.67	7.19	34.41	150	140	P	H
		2483.92	34.11	-19.89	54	33.66	27.67	7.19	34.41	150	140	A	H
	*	2454.776	105.42	-	-	105.03	27.65	7.15	34.41	150	290	P	V
	*	2455.277	95.38	-	-	94.99	27.65	7.15	34.41	150	290	A	V
		2483.52	65.15	-8.85	74	64.72	27.67	7.17	34.41	150	290	P	V
	!	2483.52	50.34	-3.66	54	49.91	27.67	7.17	34.41	150	290	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI Ant. 1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11g CH 01 2412MHz		4824	49.91	-24.09	74	43.54	31.55	9.8	34.98	200	180	P	H
		4824	49.04	-24.96	74	42.67	31.55	9.8	34.98	200	360	P	V
802.11g CH 06 2437MHz		4874	49.81	-24.19	74	43.27	31.62	9.84	34.92	200	150	P	H
		7311	48.91	-25.09	74	35.08	36.51	12.26	34.94	200	180	P	H
		4874	49.21	-24.79	74	42.67	31.62	9.84	34.92	250	240	P	V
		7311	49.51	-24.49	74	35.68	36.51	12.26	34.94	200	360	P	V
802.11g CH 11 2462MHz		4924	49.49	-24.51	74	42.76	31.7	9.88	34.85	200	250	P	H
		7386	50.03	-23.97	74	36.03	36.54	12.43	34.97	200	360	P	H
		4924	50.41	-23.59	74	43.68	31.7	9.88	34.85	150	180	P	V
		7386	50.66	-23.34	74	36.66	36.54	12.43	34.97	200	360	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11b(LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11b LF		32.91	29.48	-10.52	40	45.55	18.2	0.98	35.25	-	-	P	H
		53.28	31.94	-8.06	40	57.98	7.85	1.52	35.41	-	-	P	H
		65.89	33.31	-6.69	40	59.82	6.68	1.77	34.96	157	95	P	H
		110.51	28.8	-14.7	43.5	50.4	11.91	1.8	35.31	-	-	P	H
		151.25	28.48	-15.02	43.5	49.68	11.16	2.57	34.93	-	-	P	H
		195.87	33.21	-10.29	43.5	56.49	9.54	2.25	35.07	-	-	P	H
		32.91	30.21	-9.79	40	46.28	18.2	0.98	35.25	-	-	P	V
		53.28	33.43	-6.57	40	59.47	7.85	1.52	35.41	-	-	P	V
	!	67.83	35.95	-4.05	40	62.25	6.84	1.77	34.91	148	29	P	V
		111.48	32.16	-11.34	43.5	53.77	11.89	1.8	35.3	-	-	P	V
		152.22	31.91	-11.59	43.5	53.14	11.13	2.57	34.93	-	-	P	V
		192.96	32.75	-10.75	43.5	55.9	9.65	2.25	35.05	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11g(LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11g LF		32.91	30.48	-9.52	40	46.55	18.2	0.98	35.25	-	-	P	H
		53.28	31.94	-8.06	40	57.98	7.85	1.52	35.41	-	-	P	H
	!	65.89	35.31	-4.69	40	61.82	6.68	1.77	34.96	100	230	P	H
		110.51	29.8	-13.7	43.5	51.4	11.91	1.8	35.31	-	-	P	H
		148.34	27.28	-16.22	43.5	48.42	11.23	2.57	34.94	-	-	P	H
		195.87	32.21	-11.29	43.5	55.49	9.54	2.25	35.07	-	-	P	H
	!	53.28	34.43	-5.57	40	60.47	7.85	1.52	35.41	-	-	P	V
	!	67.83	35.95	-4.05	40	62.25	6.84	1.77	34.91	145	69	P	V
		111.48	29.16	-14.34	43.5	50.77	11.89	1.8	35.3	-	-	P	V
		144.46	31.09	-12.41	43.5	52.79	11.3	1.95	34.95	-	-	P	V
		152.22	30.91	-12.59	43.5	52.14	11.13	2.57	34.93	-	-	P	V
		192.96	31.75	-11.75	43.5	54.9	9.65	2.25	35.05	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		2389.83	56.74	-17.26	74	56.47	27.58	7.07	34.38	189	217	P	H
		2389.74	41.2	-12.8	54	40.93	27.58	7.07	34.38	189	217	A	H
	*	2415.03	106.65	-	-	106.33	27.6	7.11	34.39	189	217	P	H
	*	2414.529	97.61	-	-	97.29	27.6	7.11	34.39	189	217	A	H
		2389.56	51.55	-22.45	74	51.28	27.58	7.07	34.38	230	132	P	V
		2389.83	38.73	-15.27	54	38.46	27.58	7.07	34.38	230	132	A	V
	*	2414.529	105.45	-	-	105.13	27.6	7.11	34.39	230	132	P	V
	*	2414.446	96.51	-	-	96.19	27.6	7.11	34.39	230	132	A	V
802.11n HT20 CH 06 2437MHz	*	2445.174	105.49	-	-	105.12	27.64	7.13	34.4	185	224	P	H
	*	2445.174	96.82	-	-	96.45	27.64	7.13	34.4	185	224	A	H
	*	2444.84	103.82	-	-	103.45	27.64	7.13	34.4	225	141	P	V
	*	2442.167	94.48	-	-	94.11	27.64	7.13	34.4	225	141	A	V
802.11n HT20 CH 11 2462MHz	*	2456.947	106.47	-	-	106.08	27.65	7.15	34.41	159	332	P	H
	*	2469.639	96.82	-	-	96.41	27.65	7.17	34.41	159	332	A	H
		2483.88	66.19	-7.81	74	65.74	27.67	7.19	34.41	159	332	P	H
	!	2484.24	49.71	-4.29	54	49.26	27.67	7.19	34.41	159	332	A	H
	*	2470.307	104.01	-	-	103.6	27.65	7.17	34.41	300	150	P	V
	*	2470.056	94.69	-	-	94.28	27.65	7.17	34.41	300	150	A	V
		2484.48	63.24	-10.76	74	62.79	27.67	7.19	34.41	300	150	P	V
		2484.68	45.64	-8.36	54	45.19	27.67	7.19	34.41	300	150	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI Ant. 0+1	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
802.11n HT20 CH 01 2412MHz		4824	45.38	-28.62	74	39.01	31.55	9.8	34.98	150	8	P	H
		4824	44.11	-29.89	74	37.74	31.55	9.8	34.98	159	218	P	V
802.11n HT20 CH 06 2437MHz		4875	45.43	-28.57	74	38.89	31.62	9.84	34.92	157	26	P	H
		7386	47.56	-26.44	74	33.56	36.54	12.43	34.97	178	95	P	H
		4875	45.92	-28.08	74	39.38	31.62	9.84	34.92	148	69	P	V
		7311	46.97	-27.03	74	33.14	36.51	12.26	34.94	188	30	P	V
802.11n HT20 CH 11 2462MHz		4923	44.79	-29.21	74	38.06	31.7	9.88	34.85	150	29	P	H
		7386	48.76	-25.24	74	34.76	36.54	12.43	34.97	189	211	P	H
		4923	44.82	-29.18	74	38.09	31.7	9.88	34.85	145	197	P	V
		7386	47.98	-26.02	74	33.98	36.54	12.43	34.97	150	147	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

Emission below 1GHz

2.4GHz WIFI 802.11n HT20(LF)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
2.4GHz 802.11n HT20 LF		32.91	30.48	-9.52	40	46.55	18.2	0.98	35.25	-	-	P	H
		53.28	31.94	-8.06	40	57.98	7.85	1.52	35.41	-	-	P	H
	!	65.89	35.31	-4.69	40	61.82	6.68	1.77	34.96	168	25	P	H
		110.51	29.8	-13.7	43.5	51.4	11.91	1.8	35.31	-	-	P	H
		148.34	27.28	-16.22	43.5	48.42	11.23	2.57	34.94	-	-	P	H
		195.87	33.21	-10.29	43.5	56.49	9.54	2.25	35.07	-	-	P	H
	!	32.91	34.21	-5.79	40	50.28	18.2	0.98	35.25	-	-	P	V
	!	53.28	36.43	-3.57	40	62.47	7.85	1.52	35.41	-	-	P	V
	!	67.83	35.86	-4.14	40	62.16	6.84	1.77	34.91	152	147	QP	V
		127.97	31.63	-11.87	43.5	53.22	11.6	1.95	35.14	-	-	P	V
		144.46	33.09	-10.41	43.5	54.79	11.3	1.95	34.95	-	-	P	V
		192.96	34.75	-8.75	43.5	57.9	9.65	2.25	35.05	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												



Emission below 1GHz

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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
0+1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

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

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

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m)– 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

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

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

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m)– 54(dBμV/m)

= -10.46(dB)

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