



FCC RF Test Report

APPLICANT : TCL Communication Ltd.
EQUIPMENT : GSM Quad-band / UMTS Quad-band / LTE
hexa-band mobile phone
BRAND NAME : alcatel
MODEL NAME : 6055P
FCC ID : 2ACCJA019
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Mar. 31, 2016 and testing was completed on May 23, 2016. 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.

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR611504-04C	Rev. 01	Initial issue of report	May 26, 2016

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 0.73 dB at 2483.520 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 17.92 dB at 0.190 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

TCL Communication Ltd.

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

1.2 Manufacturer

TCL Communication Ltd.

5F, C building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	GSM Quad-band / UMTS Quad-band / LTE hexa-band mobile phone
Brand Name	alcatel
Model Name	6055P
FCC ID	2ACCJA019
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/ HSPA+/LTE/NFC/ WLAN 2.4GHz 802.11b/g/n HT20/ WLAN 5GHz 802.11a/n HT20/HT40/ Bluetooth v3.0+EDR/ Bluetooth v4.0 LE/ Bluetooth v4.2 LE
IMEI Code	Conducted: 358476070057715/358476070057723 Conduction: 358476070060750/358476070060768 Radiation: 358476070057715/358476070057723
HW Version	PIO
SW Version	A2E
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2472 MHz
Maximum (Peak) Output Power to Antenna	802.11b : 21.23 dBm (0.1327 W) 802.11g : 22.17 dBm (0.1648 W) 802.11n HT20 : 22.27 dBm (0.1687 W) 802.11n HT40 : 20.13 dBm (0.1030 W)
Antenna Type/Gain	IFA Antenna with gain -2.50 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 Specification of Accessory

Specification of Accessory				
AC Adapter 1	Brand Name	ALCATEL onetouch	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 400mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AG0C2		
AC Adapter 2	Brand Name	ALCATEL onetouch	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 350mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AG0C4		
AC Adapter 3	Brand Name	N/A	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AG4C1		
AC Adapter 4	Brand Name	alcatel	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 350mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AGAC4		
AC Adapter 5	Brand Name	alcatel	Model Name	UC13US
	Power Rating	I/P: 100-240Vac, 500mA, O/P: 5Vdc, 2000mA		
	P/N	CBA0059AGAC1		
Battery 1	Brand Name	ALCATEL onetouch	Model Name	TLp026EJ
	Power Rating	3.85Vdc, 2610mAh		
Battery 2	Brand Name	ALCATEL onetouch	Model Name	TLp026E2
	Power Rating	3.84Vdc, 2610mAh		
Battery 3	Brand Name	alcatel	Model Name	TLp026EJ
	Power Rating	3.85Vdc, 2610mAh		
Battery 4	Brand Name	alcatel	Model Name	TLp026E2
	Power Rating	3.84Vdc, 2610mAh		
USB Cable 1	Brand Name	N/A	Model Name	CDA0000043C8
	Signal Line Type	1.0m shielded without core		
USB Cable 2	Brand Name	N/A	Model Name	CDA0000043C2
	Signal Line Type	1.0m shielded without core		
Earphone 1	Brand Name	alcatel	Model Name	J22C
	Signal Line Type	1.4m non-shielded without core		
	P/N	CCB0029A10CC		
Earphone 2	Brand Name	alcatel	Model Name	J22H
	Signal Line Type	1.0m non-shielded without core		
	P/N	CCB0047A10CC		

Note: The adapter 4, 5 and battery 3, 4 are just with different logo, all the designs are identical with adapter 2, 3 and battery 1, 2.

1.7 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	03CH03-KS	CO01-KS	306251

Note: The test site complies with ANSI C63.4 2014 requirement.

1.8 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 v03r05
- 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. 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	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442	-	-

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	21.23	CH 11	21.08	21.11	21.18
CH 06	2437 MHz	19.58				
CH 11	2462 MHz	20.94				
CH 12	2467 MHz	3.92				
CH 13	2472 MHz	3.64				

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	21.69	CH 11	22.04	21.96	22.03	22.14	22.05	21.95	22.13
CH 06	2437 MHz	20.78								
CH 11	2462 MHz	22.17								
CH 12	2467 MHz	8.94								
CH 13	2472 MHz	9.15								



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	21.79	CH 11	22.15	22.08	22.17	22.10	22.24	22.25	21.98
CH 06	2437 MHz	20.92								
CH 11	2462 MHz	22.27								
CH 12	2467 MHz	9.35								
CH 13	2472 MHz	9.25								

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	19.15	CH 09	19.78	19.69	19.88	19.91	19.82	19.90	19.68
CH 06	2437 MHz	19.20								
CH 09	2452 MHz	20.13								
CH 10	2457 MHz	20.11								
CH 11	2462 MHz	20.05								

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>

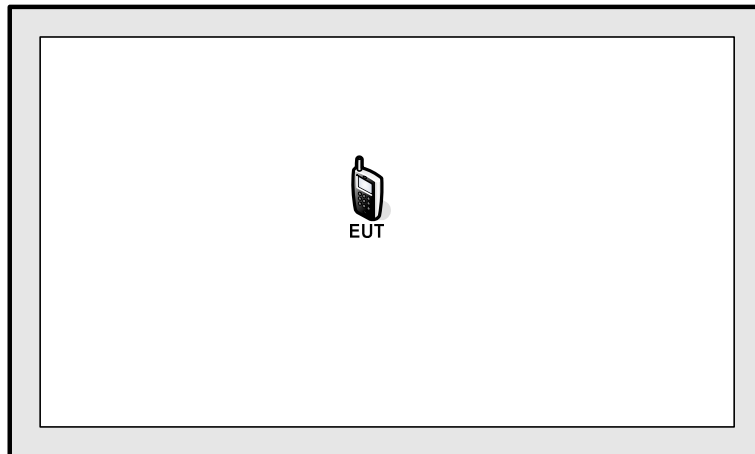
Modulation	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0

Test Cases	
AC Conducted Emission	Mode 1: GSM850 Idle + Bluetooth Link + WLAN Link(2.4G) + Earphone 1 + USB Cable 1(Charging from Adapter 1) + Battery 1
Remark: For Radiated Test Cases, The tests were performed with Adapter 1, Earphone 1, Battery 1, and USB Cable 1, And Battery 2 only verified the worst case of Battery 1.	

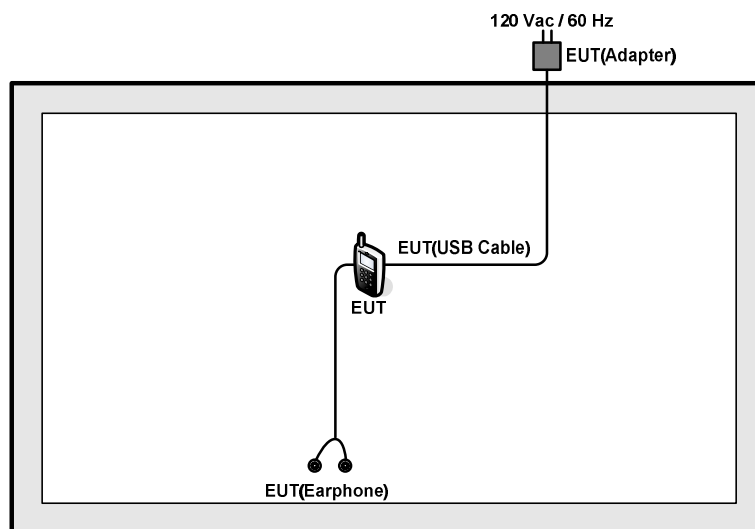
2.4 Connection Diagram of Test System

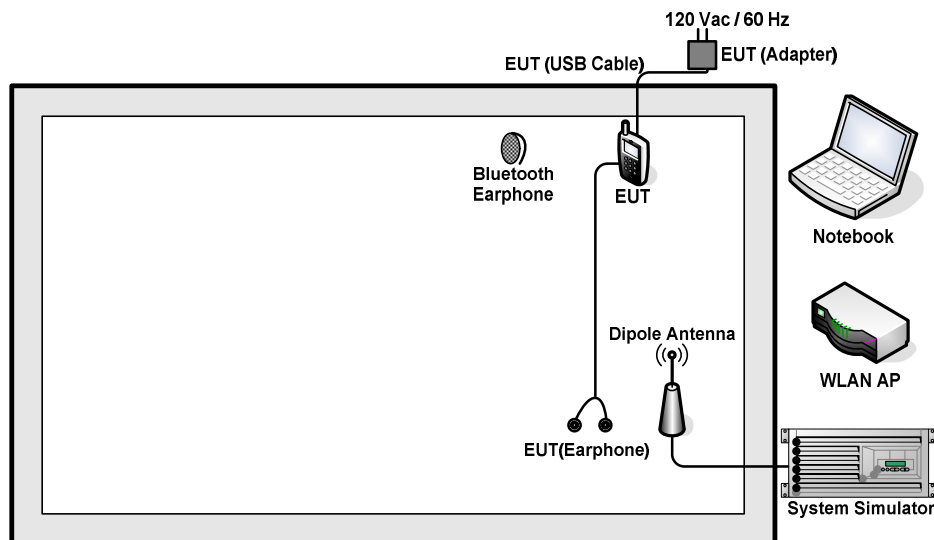
<WLAN Tx Mode>

For WLAN 2.4G 502.11b/n HT20



For WLAN 2.4G 502.11g/n HT40



<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	Anritus	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	LINKSYS	WRT600N	Q87WRT600NV11	N/A	Unshielded, 1.8 m
3.	Notebook	Lenovo	G480	PRC4	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Nokia	BH-106	QTLBH-106	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 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 + attenuator factor.

Following shows an offset computation example with cable loss 5.8 dB.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 5.8 \text{ (dB)}\end{aligned}$$

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

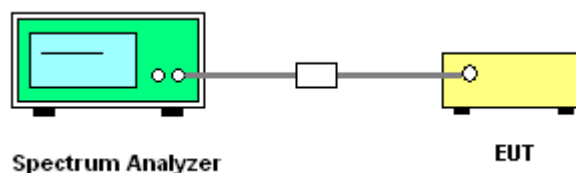
3.1.2 Measuring Instruments

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 v03r05.
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.

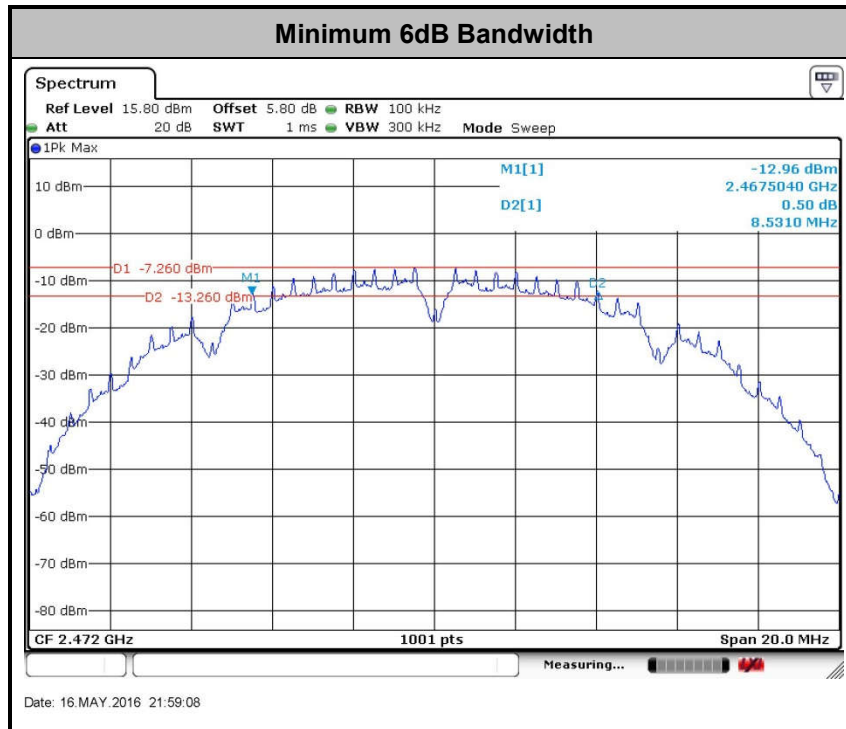
3.1.4 Test Setup





3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A of this test report.



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.

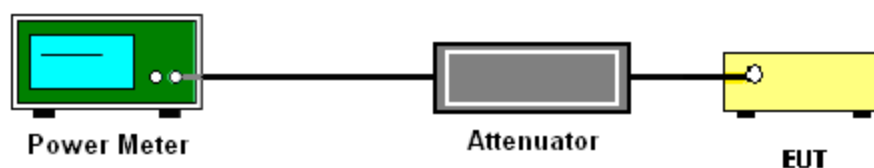
3.2.2 Measuring Instruments

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 v03r05 section 9.1.2 PKPM1 Peak power meter method.
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.

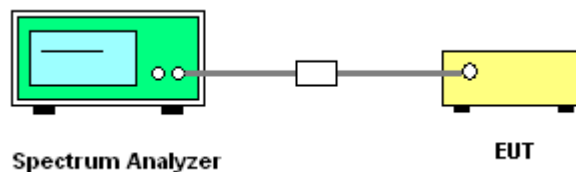
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

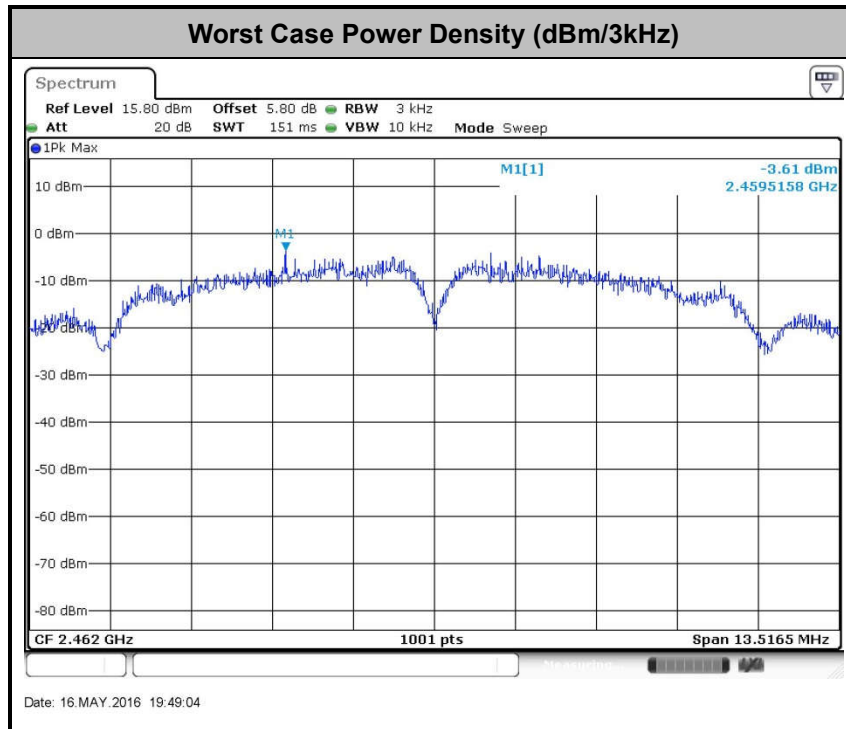
1. The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum 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

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).

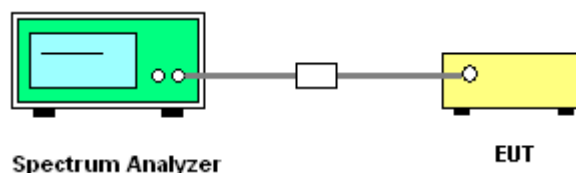
3.4.2 Measuring Instruments

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 v03r05.
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.

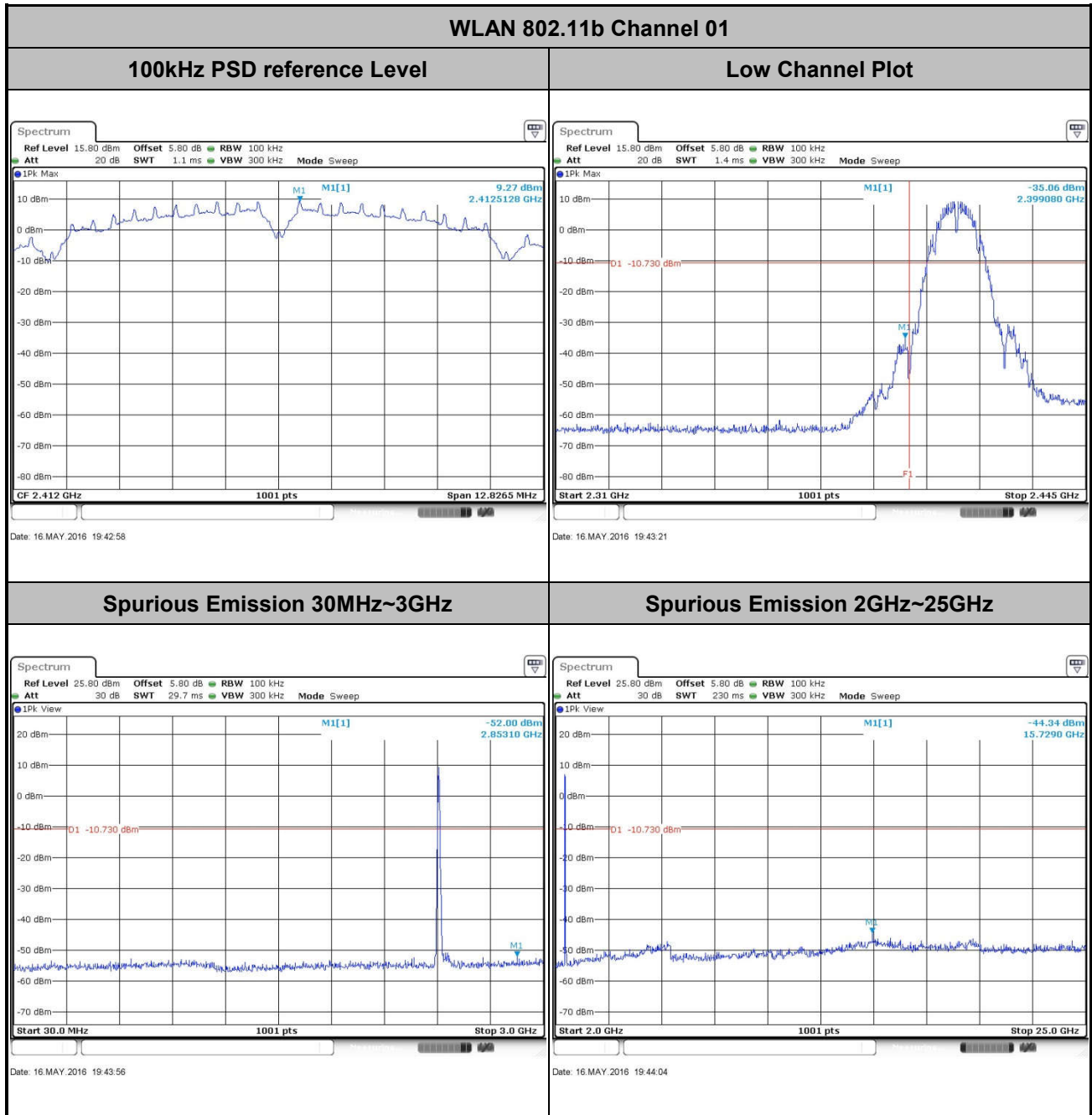
3.4.4 Test Setup





3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	2.4GHz Low	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Issac Song

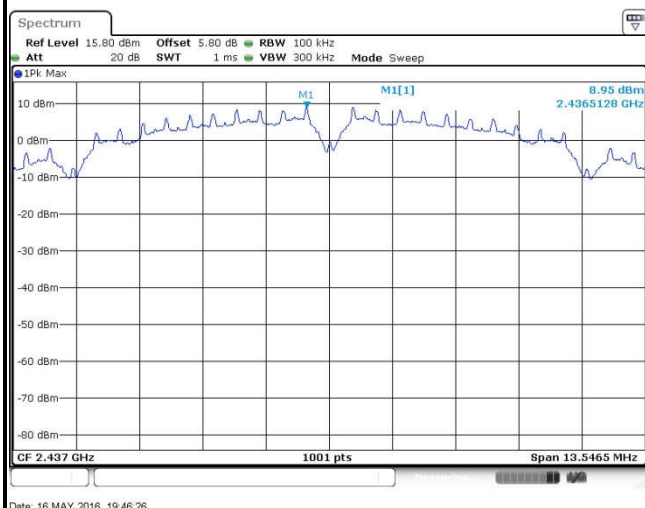




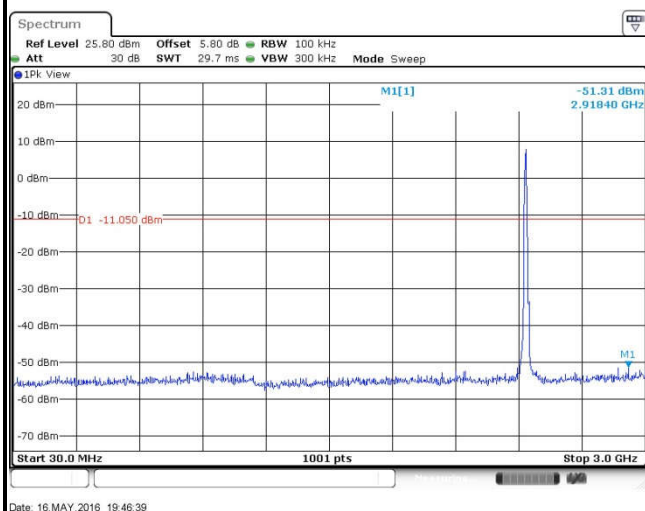
Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	49~51%
Test Channel :	06	Test Engineer :	Issac Song

WLAN 802.11b Channel 06

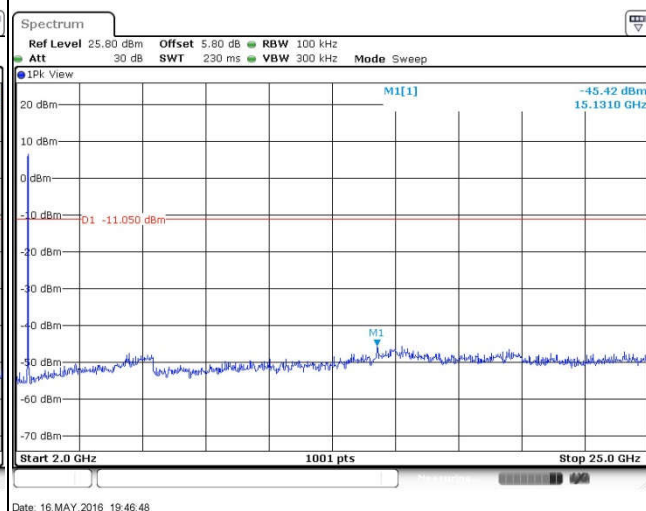
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz

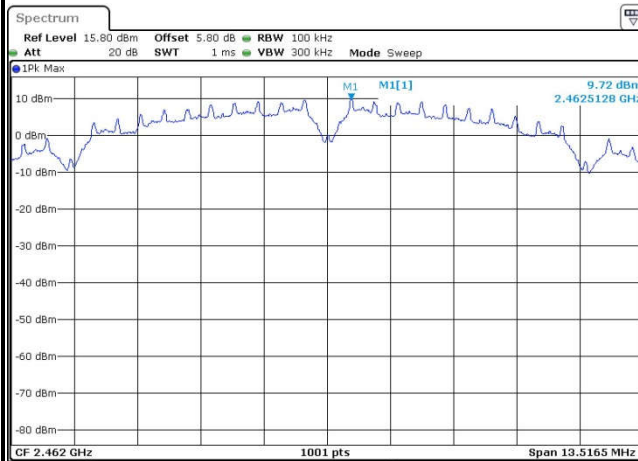


Spurious Emission 2GHz~25GHz

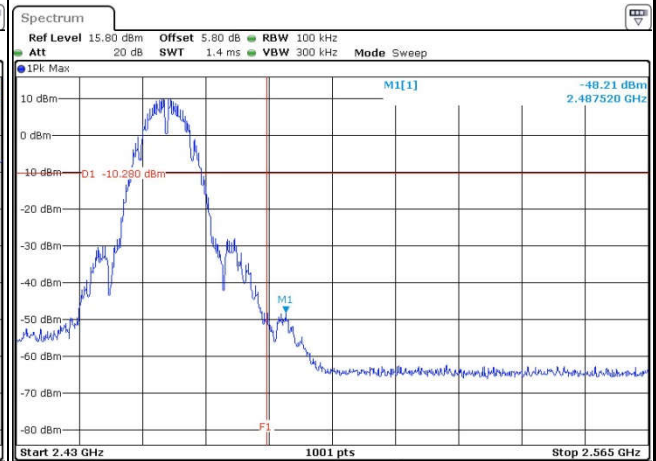




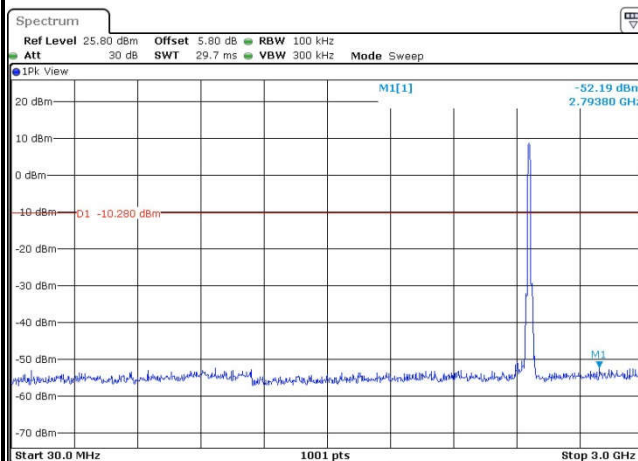
Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Issac Song

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

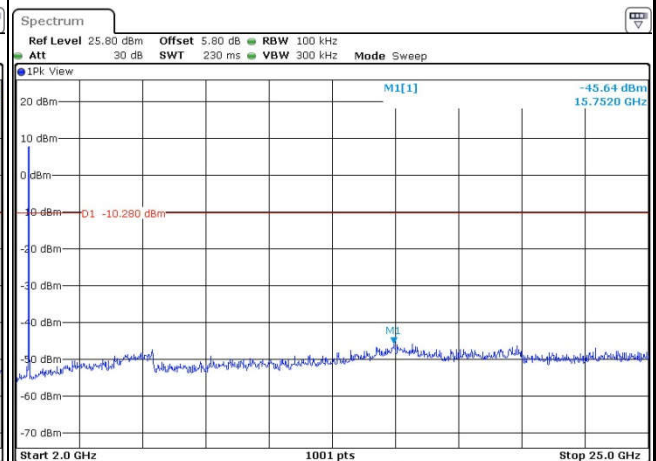
Date: 16.MAY.2016 19:49:38

High Channel Plot

Date: 16.MAY.2016 19:50:01

Spurious Emission 30MHz~3GHz

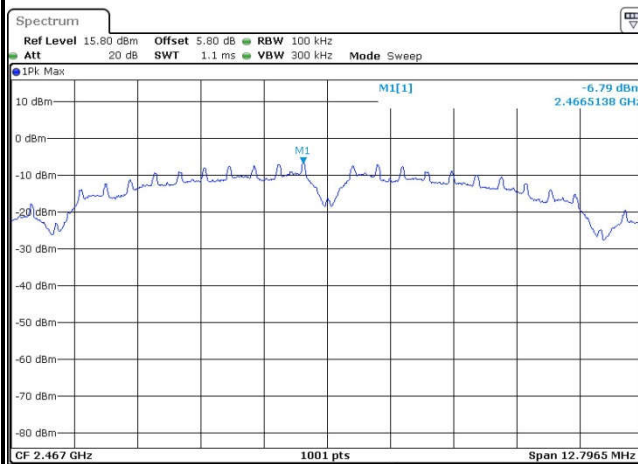
Date: 16.MAY.2016 19:50:56

Spurious Emission 2GHz~25GHz

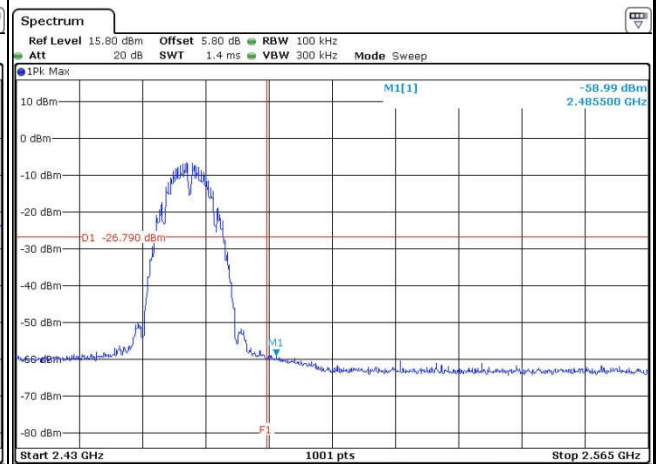
Date: 16.MAY.2016 19:51:04



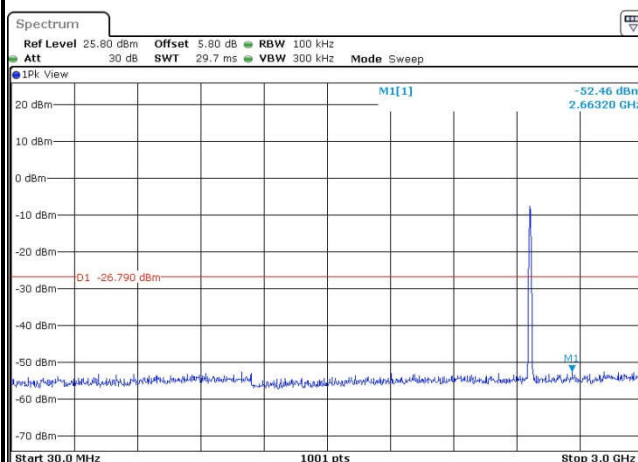
Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	12	Test Engineer :	Issac Song

WLAN 802.11b Channel 12**100kHz PSD reference Level**

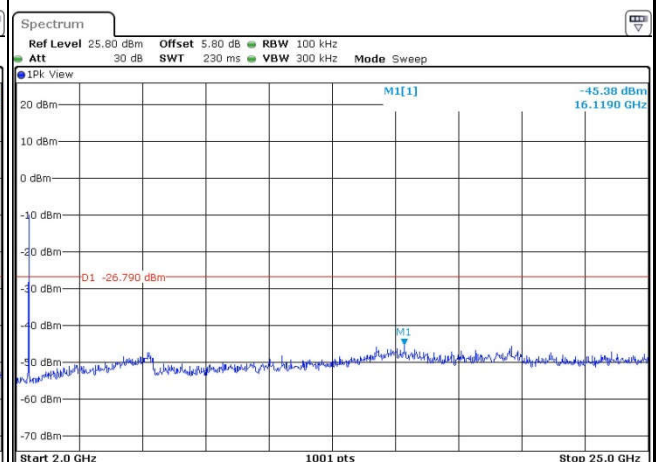
Date: 16.MAY.2016 21:53:40

High Channel Plot

Date: 16.MAY.2016 21:55:50

Spurious Emission 30MHz~3GHz

Date: 16.MAY.2016 21:56:54

Spurious Emission 2GHz~25GHz

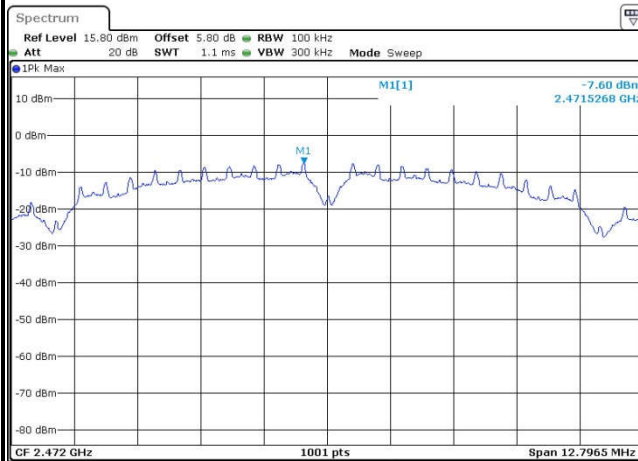
Date: 16.MAY.2016 21:57:02



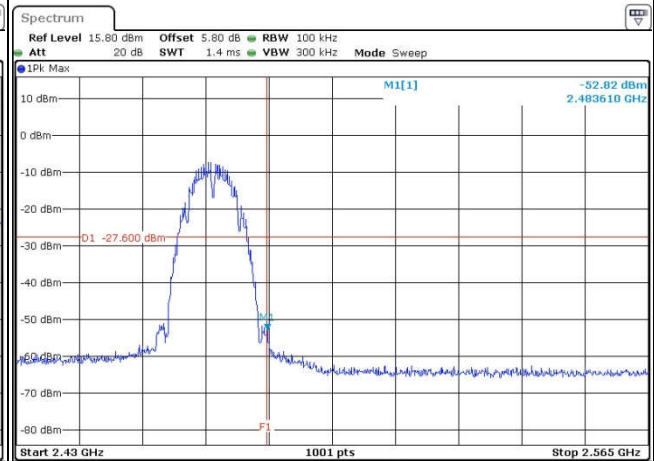
Test Mode :	802.11b	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	13	Test Engineer :	Issac Song

WLAN 802.11b Channel 13

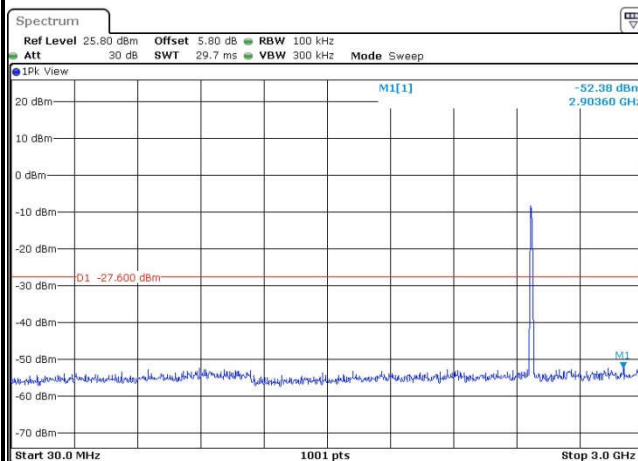
100kHz PSD reference Level



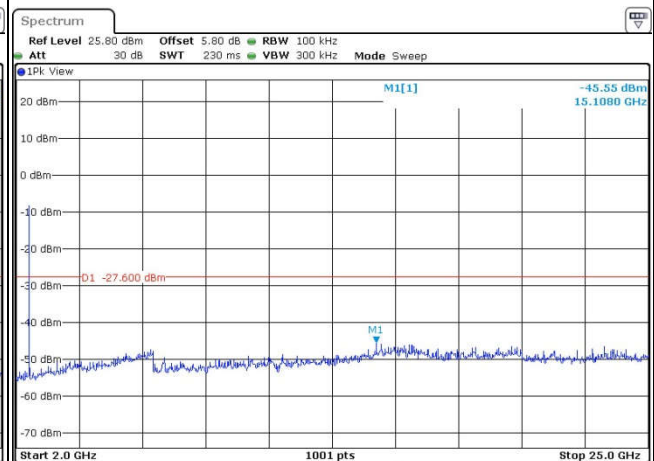
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

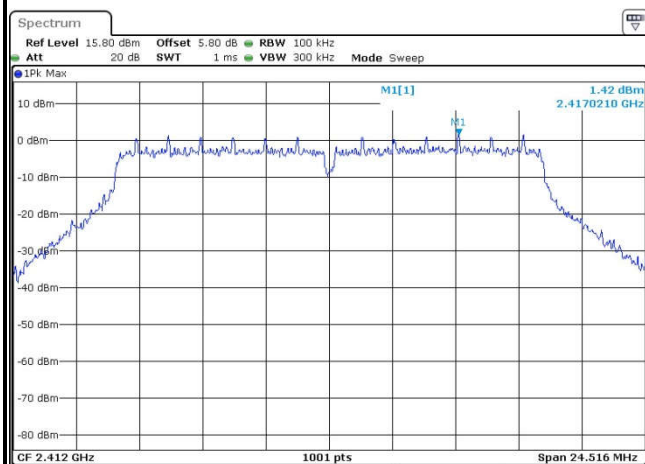




Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	2.4GHz Low	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Issac Song

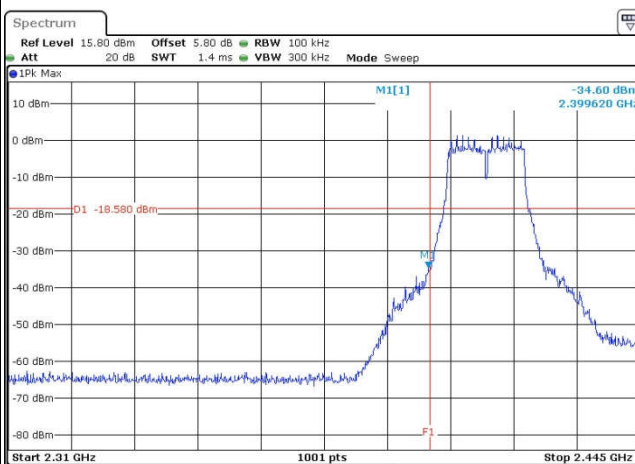
WLAN 802.11g Channel 01

100kHz PSD reference Level



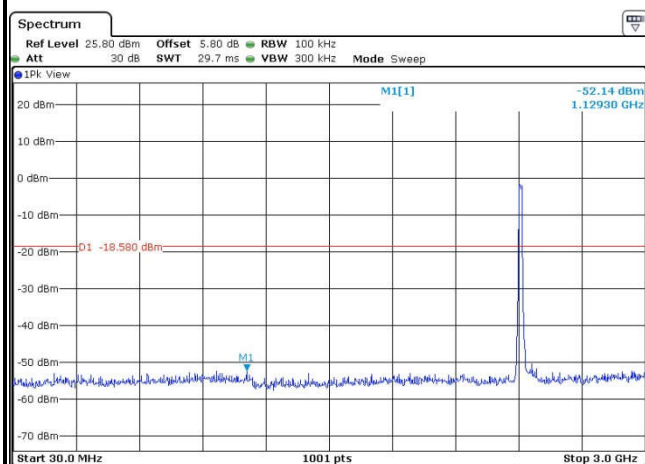
Date: 16.MAY.2016 19:54:02

Low Channel Plot



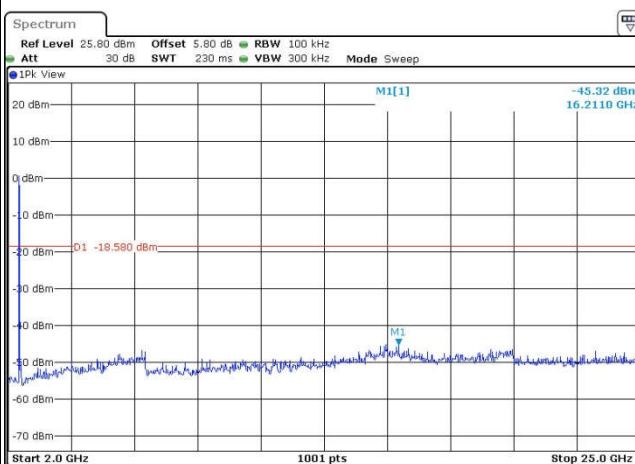
Date: 16.MAY.2016 19:54:27

Spurious Emission 30MHz~3GHz



Date: 16.MAY.2016 19:57:12

Spurious Emission 2GHz~25GHz



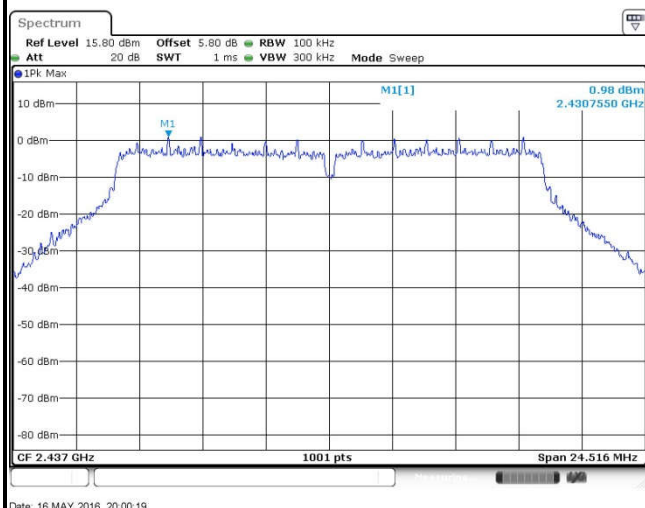
Date: 16.MAY.2016 19:55:42



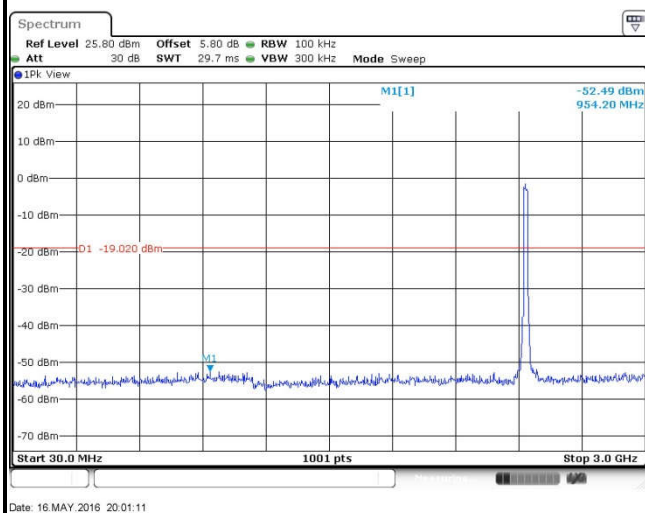
Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	49~51%
Test Channel :	06	Test Engineer :	Issac Song

WLAN 802.11g Channel 06

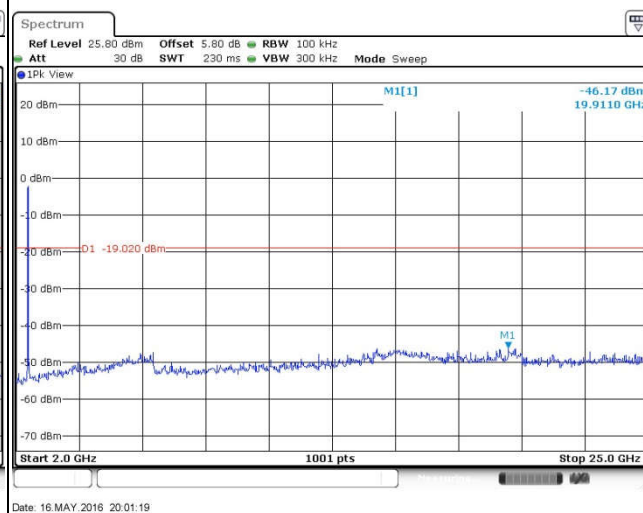
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz

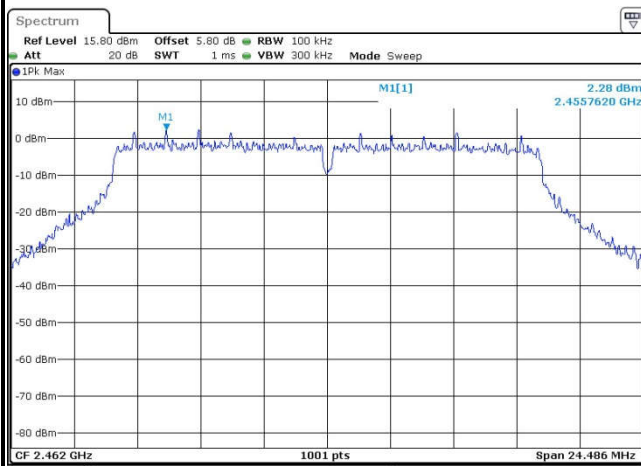
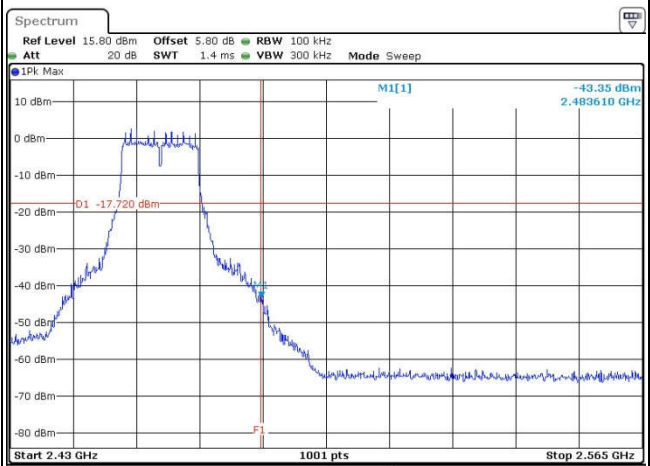
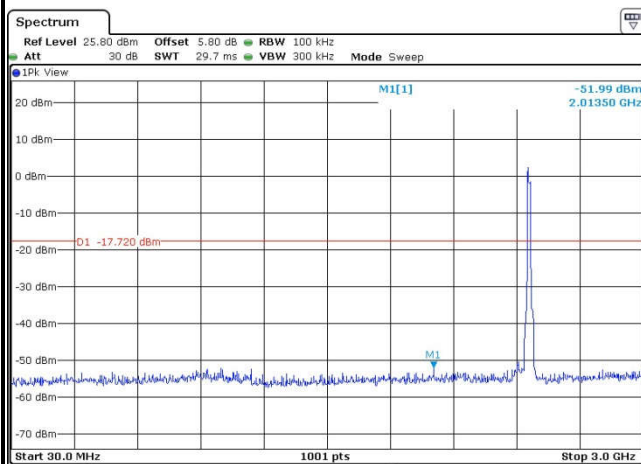
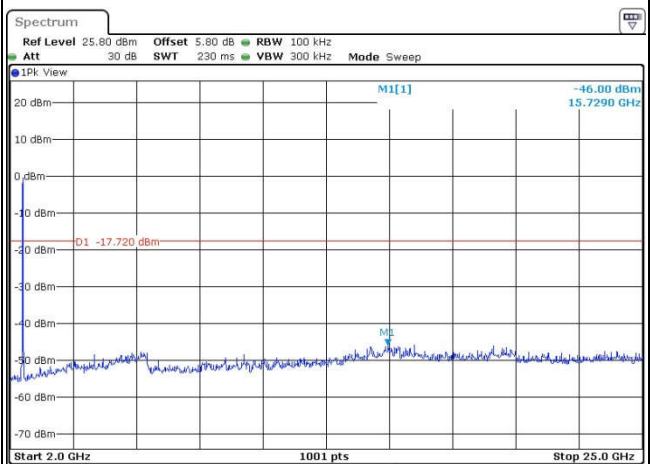


Spurious Emission 2GHz~25GHz





Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Issac Song

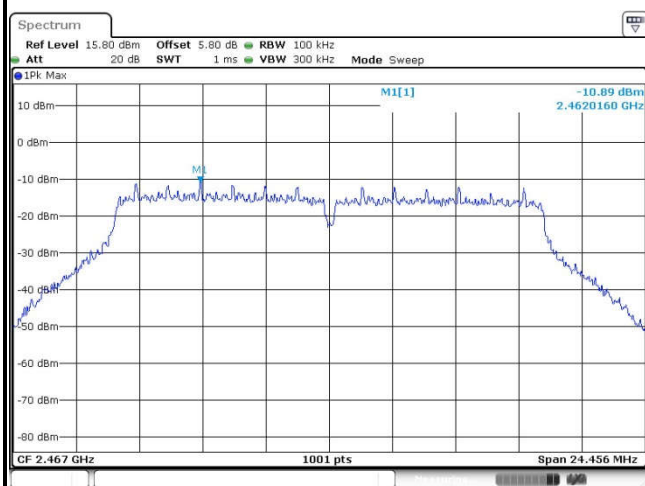
WLAN 802.11g Channel 11**100kHz PSD reference Level****High Channel Plot****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



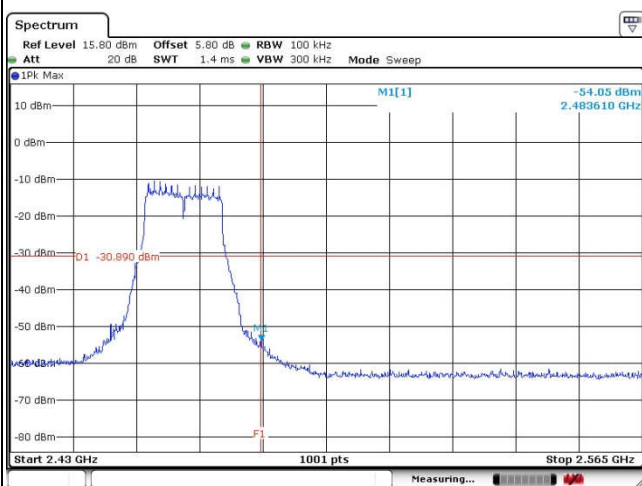
Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	12	Test Engineer :	Issac Song

WLAN 802.11g Channel 12

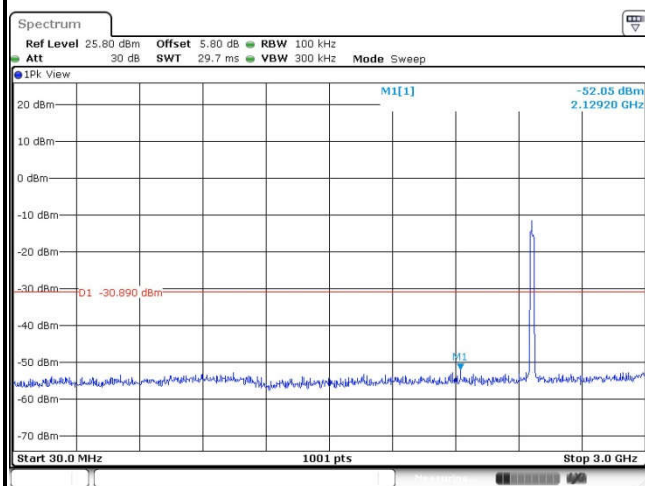
100kHz PSD reference Level



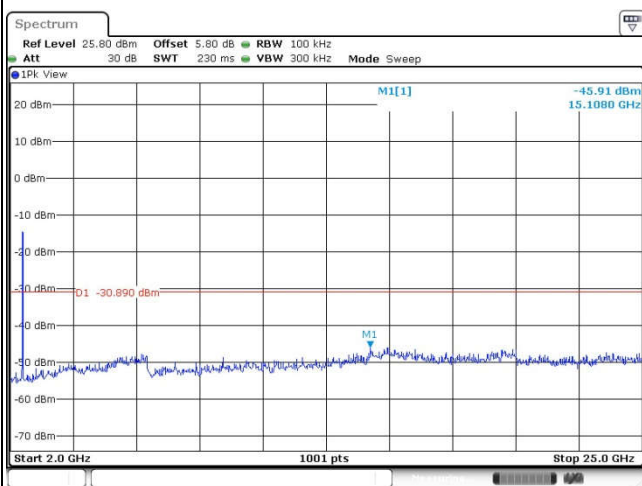
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

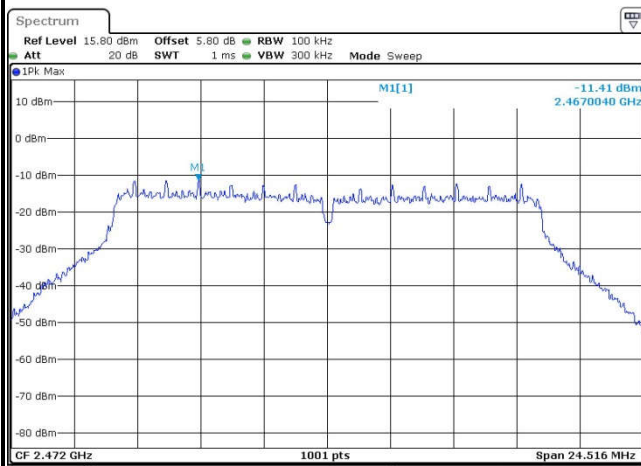




Test Mode :	802.11g	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	13	Test Engineer :	Issac Song

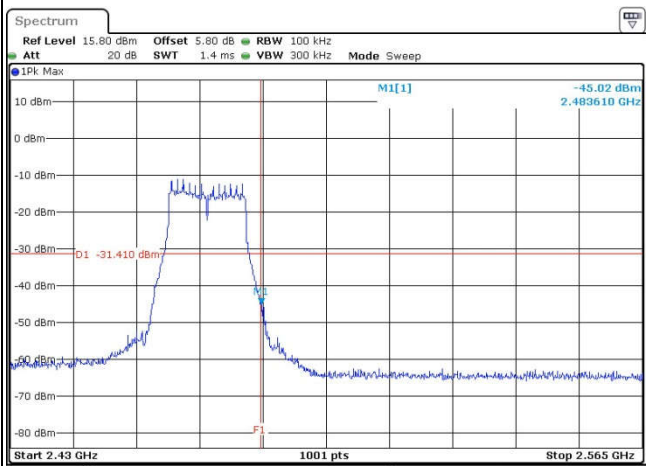
WLAN 802.11g Channel 13

100kHz PSD reference Level



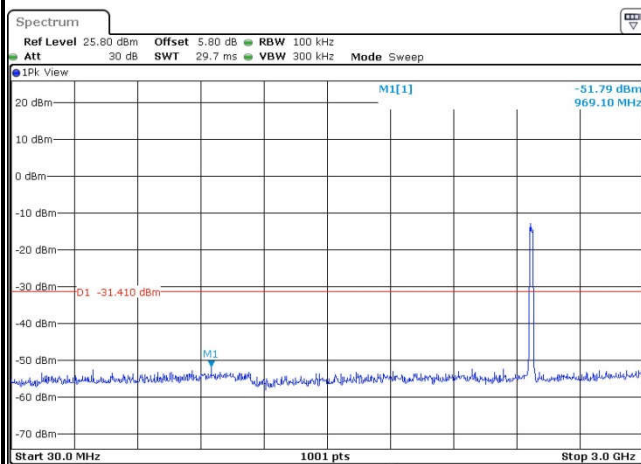
Date: 16.MAY.2016 22:04:15

High Channel Plot



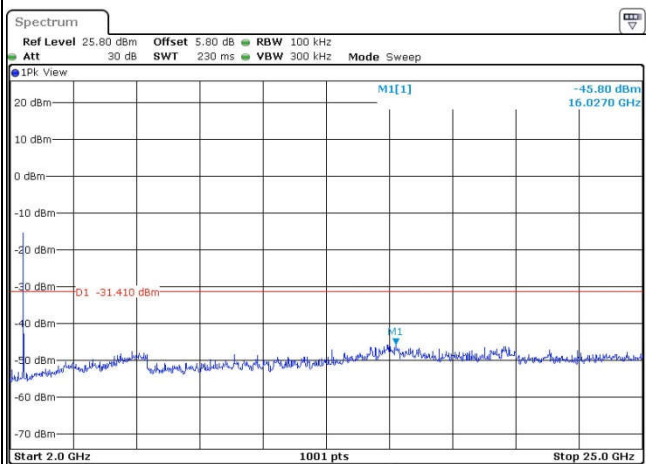
Date: 16.MAY.2016 22:04:29

Spurious Emission 30MHz~3GHz



Date: 16.MAY.2016 22:55:14

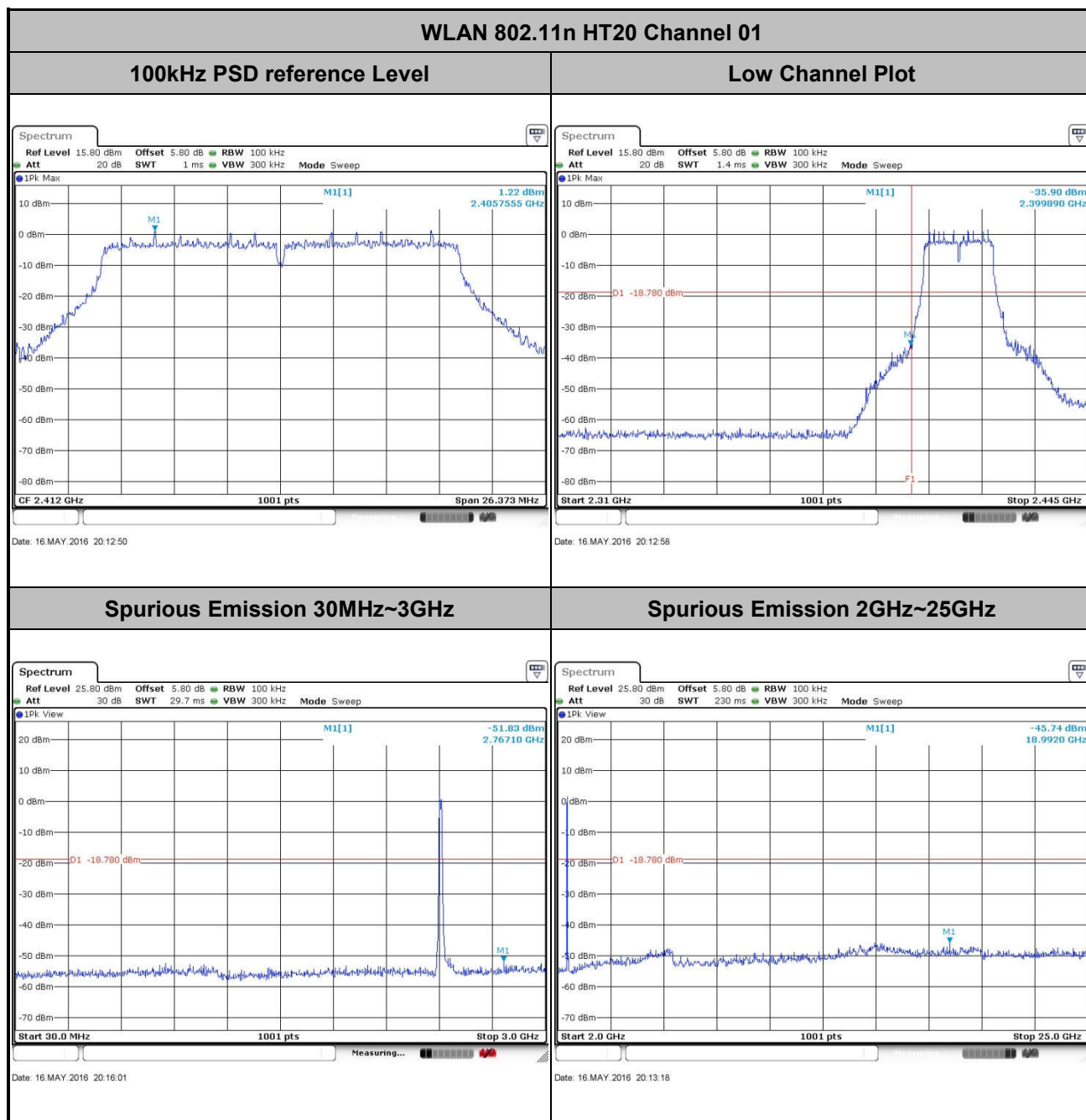
Spurious Emission 2GHz~25GHz



Date: 16.MAY.2016 22:55:23

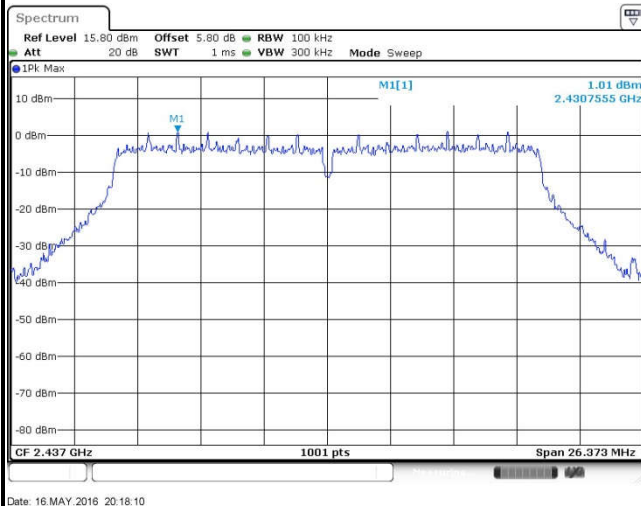
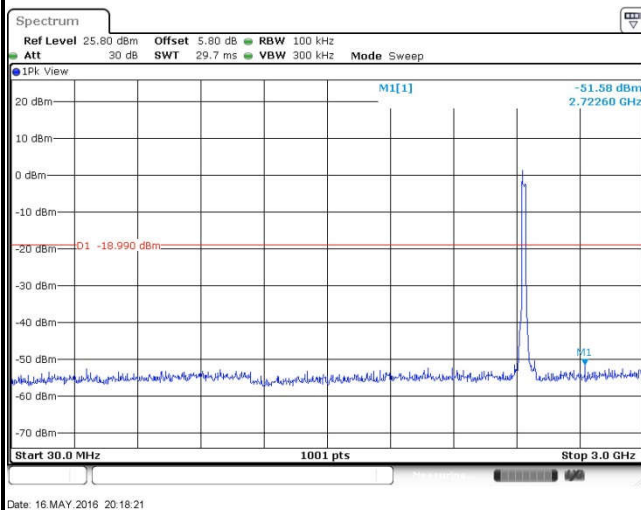
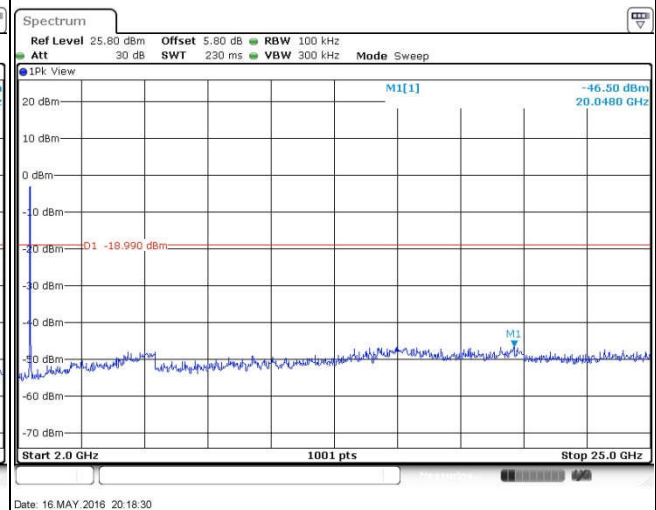


Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	2.4GHz Low	Relative Humidity :	49~51%
Test Channel :	01	Test Engineer :	Issac Song





Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	49~51%
Test Channel :	06	Test Engineer :	Issac Song

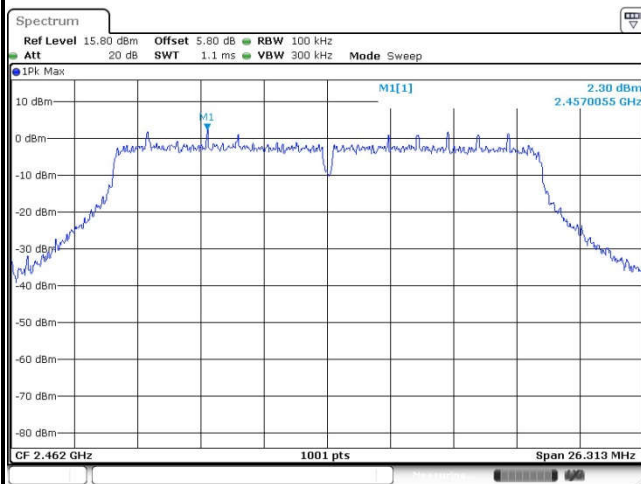
WLAN 802.11n HT20 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



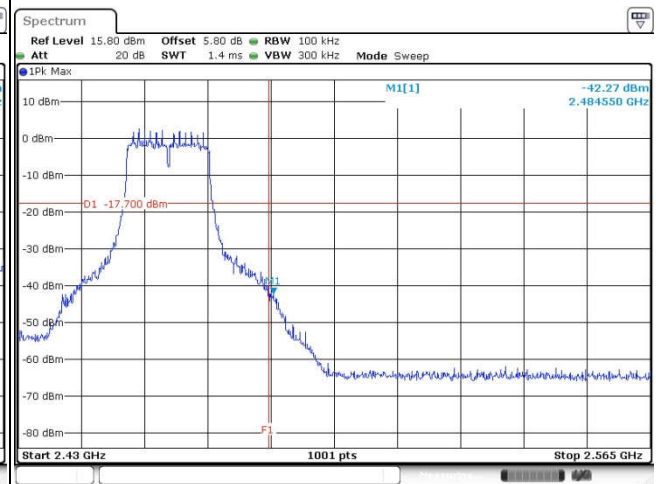
Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Issac Song

WLAN 802.11n HT20 Channel 11

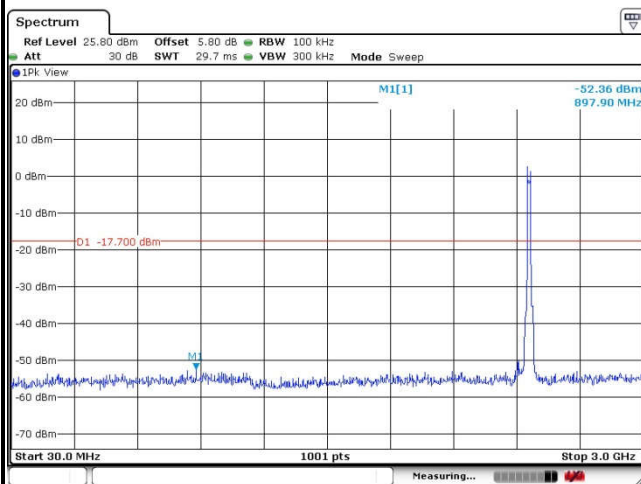
100kHz PSD reference Level



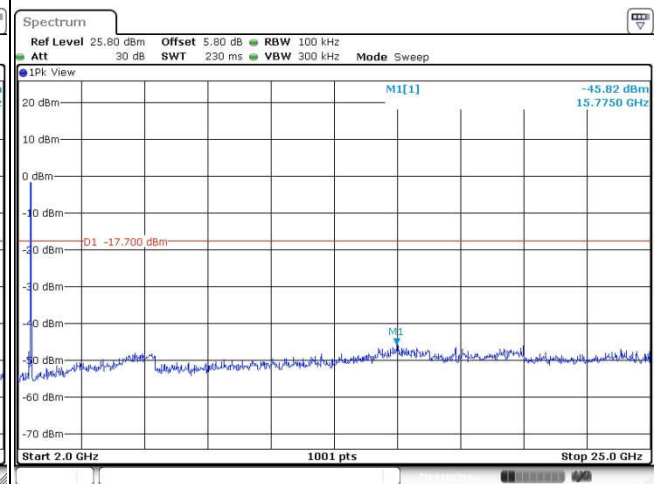
High Channel Plot



Spurious Emission 30MHz~3GHz

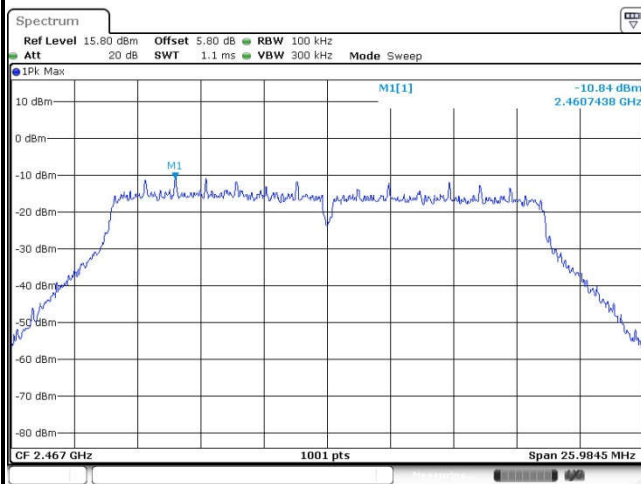


Spurious Emission 2GHz~25GHz

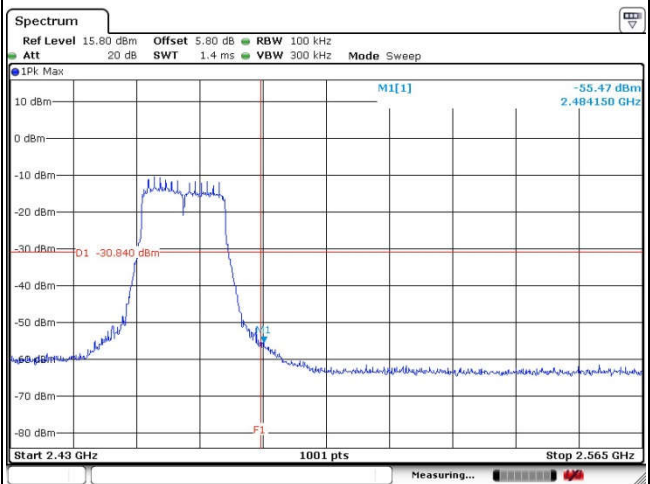




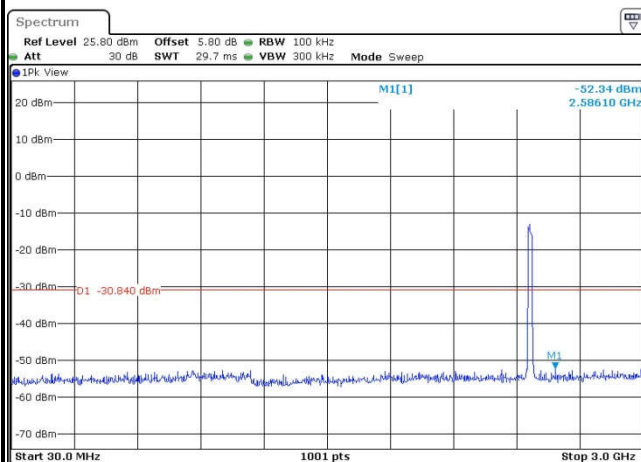
Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	12	Test Engineer :	Issac Song

WLAN 802.11n HT20 Channel 12**100kHz PSD reference Level**

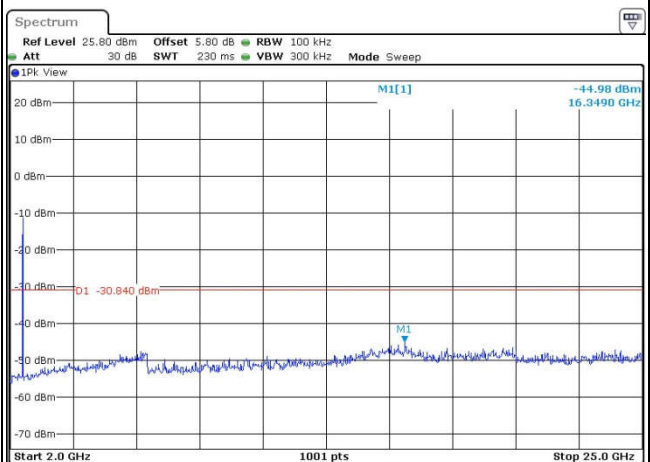
Date: 16.MAY.2016 22:18:33

High Channel Plot

Date: 16.MAY.2016 22:20:07

Spurious Emission 30MHz~3GHz

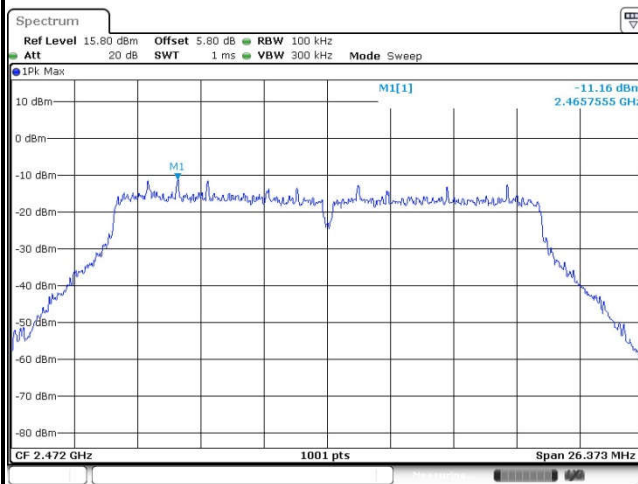
Date: 16.MAY.2016 22:22:18

Spurious Emission 2GHz~25GHz

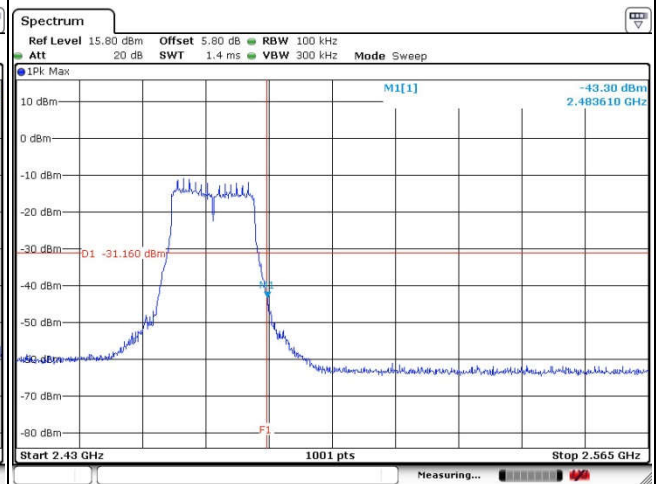
Date: 16.MAY.2016 22:22:26



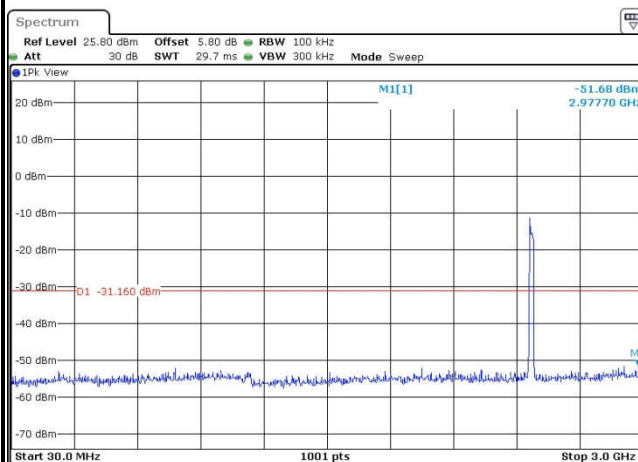
Test Mode :	802.11n HT20	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	13	Test Engineer :	Issac Song

WLAN 802.11n HT20 Channel 13**100kHz PSD reference Level**

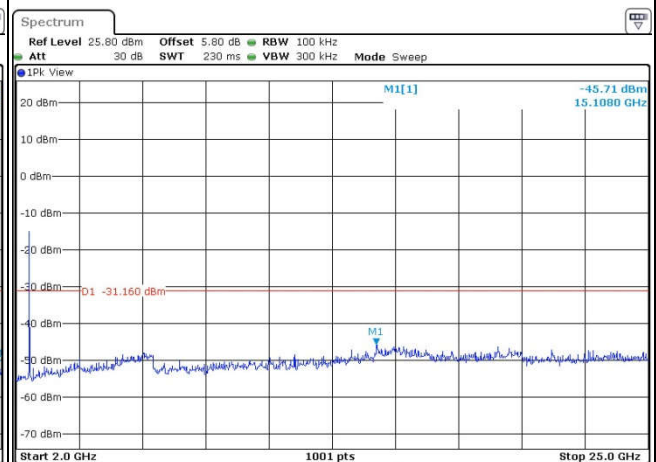
Date: 16.MAY.2016 22:24:20

High Channel Plot

Date: 16.MAY.2016 22:26:31

Spurious Emission 30MHz~3GHz

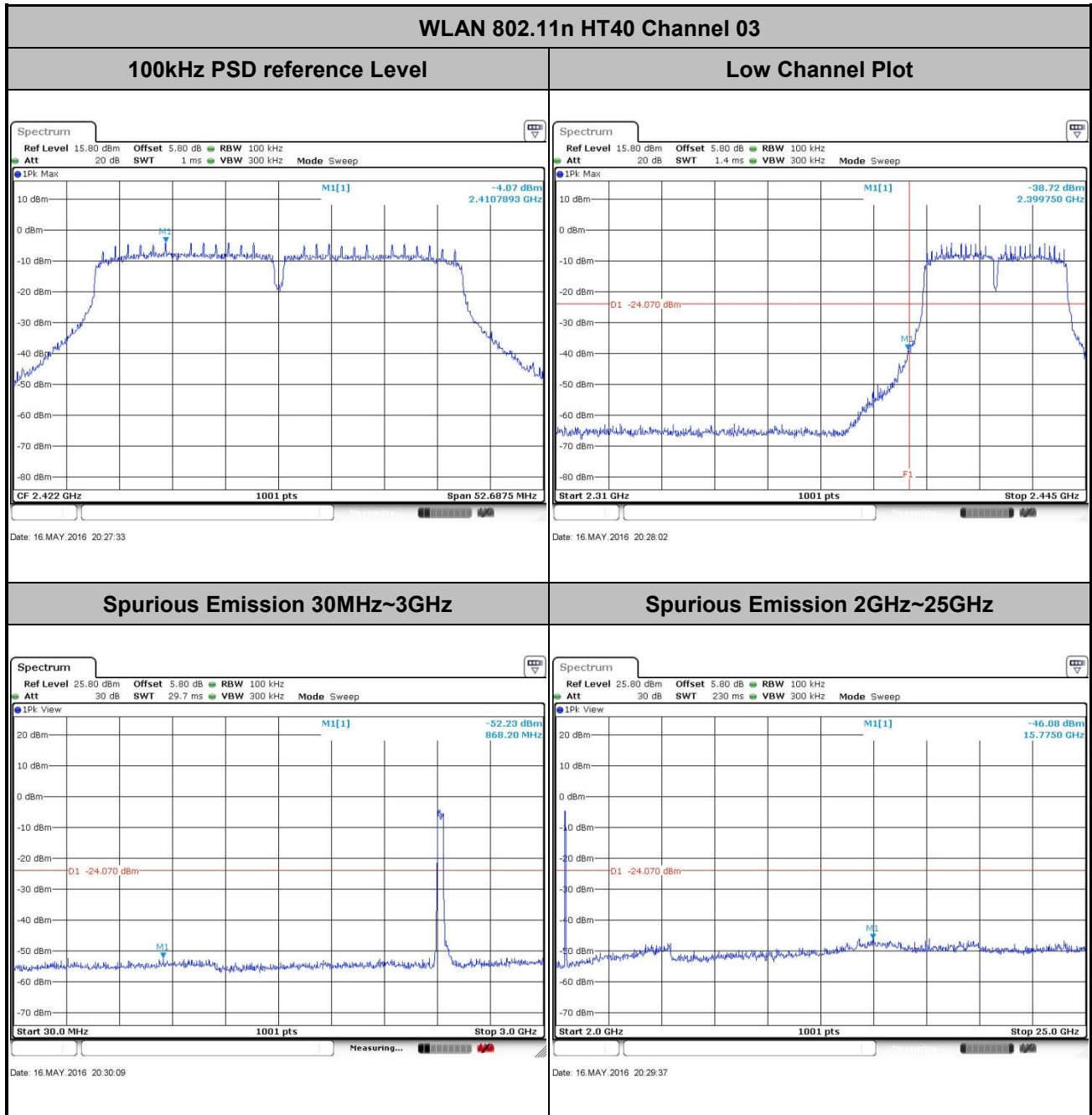
Date: 16.MAY.2016 22:30:36

Spurious Emission 2GHz~25GHz

Date: 16.MAY.2016 22:30:45

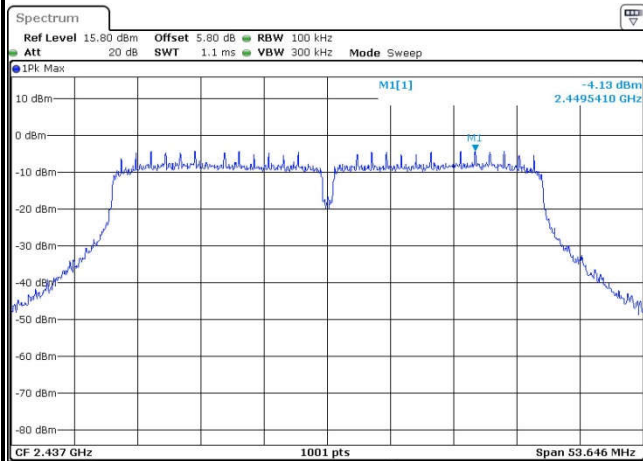


Test Mode :	802.11n HT40	Temperature :	24~25°C
Test Band :	2.4GHz Low	Relative Humidity :	49~51%
Test Channel :	03	Test Engineer :	Issac Song

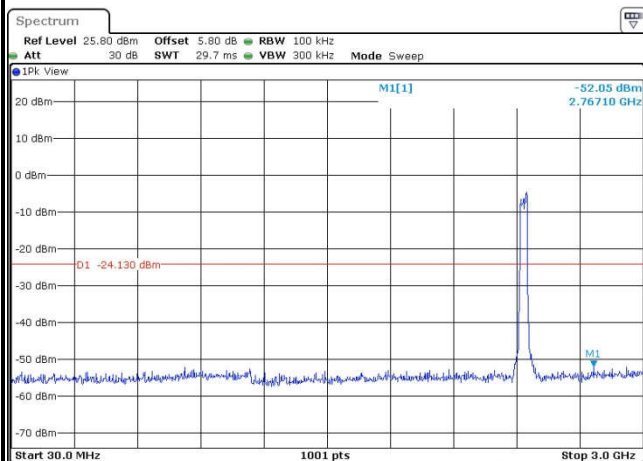




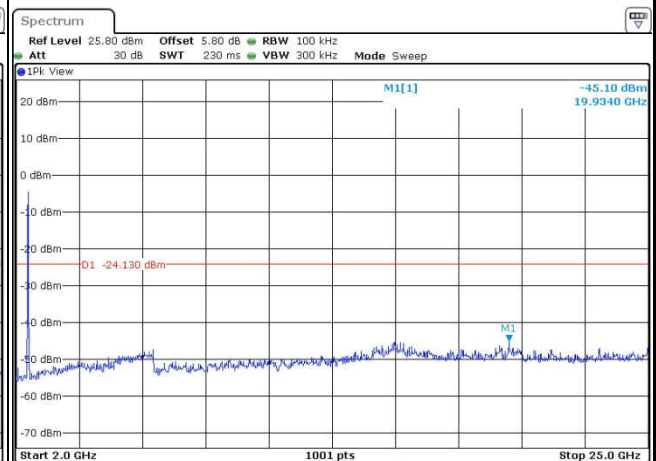
Test Mode :	802.11n HT40	Temperature :	24~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	49~51%
Test Channel :	06	Test Engineer :	Issac Song

WLAN 802.11n HT40 Channel 06**100kHz PSD reference Level**

Date: 16.MAY.2016 21:14:25

Spurious Emission 30MHz~3GHz

Date: 16.MAY.2016 21:15:21

Spurious Emission 2GHz~25GHz

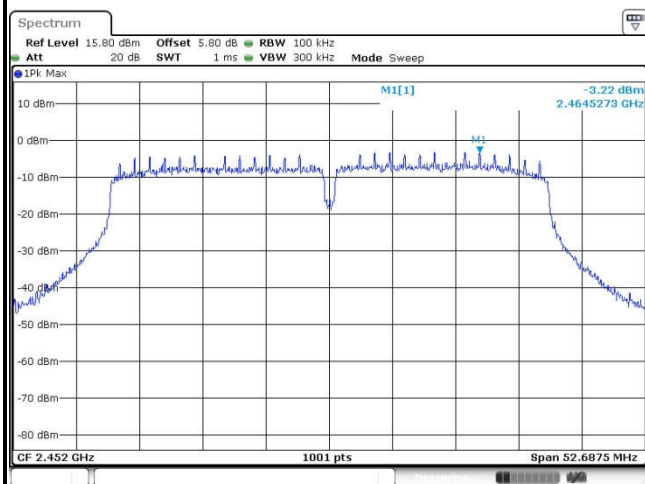
Date: 16.MAY.2016 21:15:29



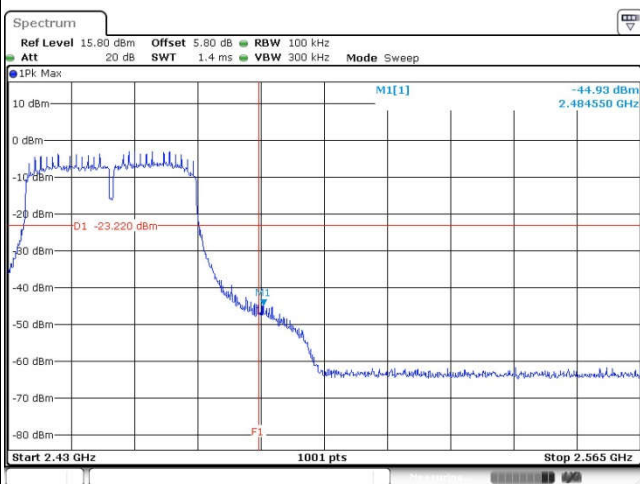
Test Mode :	802.11n HT40	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	09	Test Engineer :	Issac Song

WLAN 802.11n HT40 Channel 09

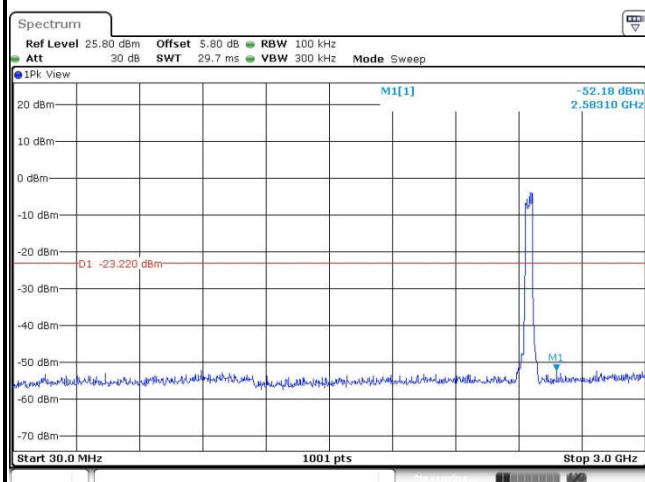
100kHz PSD reference Level



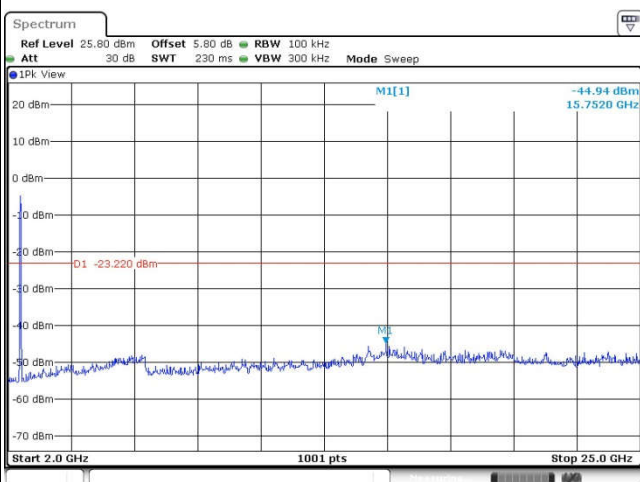
High Channel Plot



Spurious Emission 30MHz~3GHz

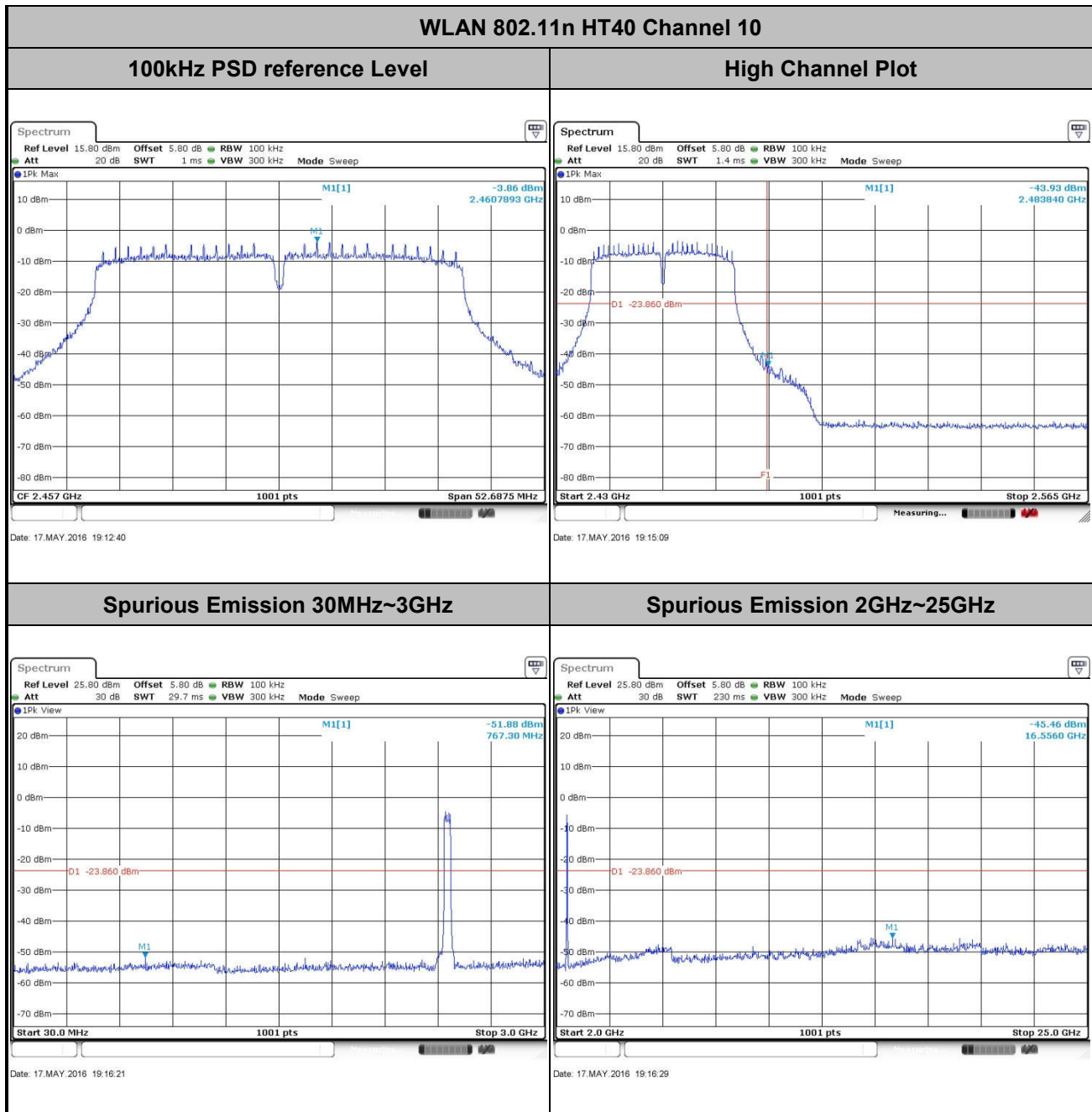


Spurious Emission 2GHz~25GHz



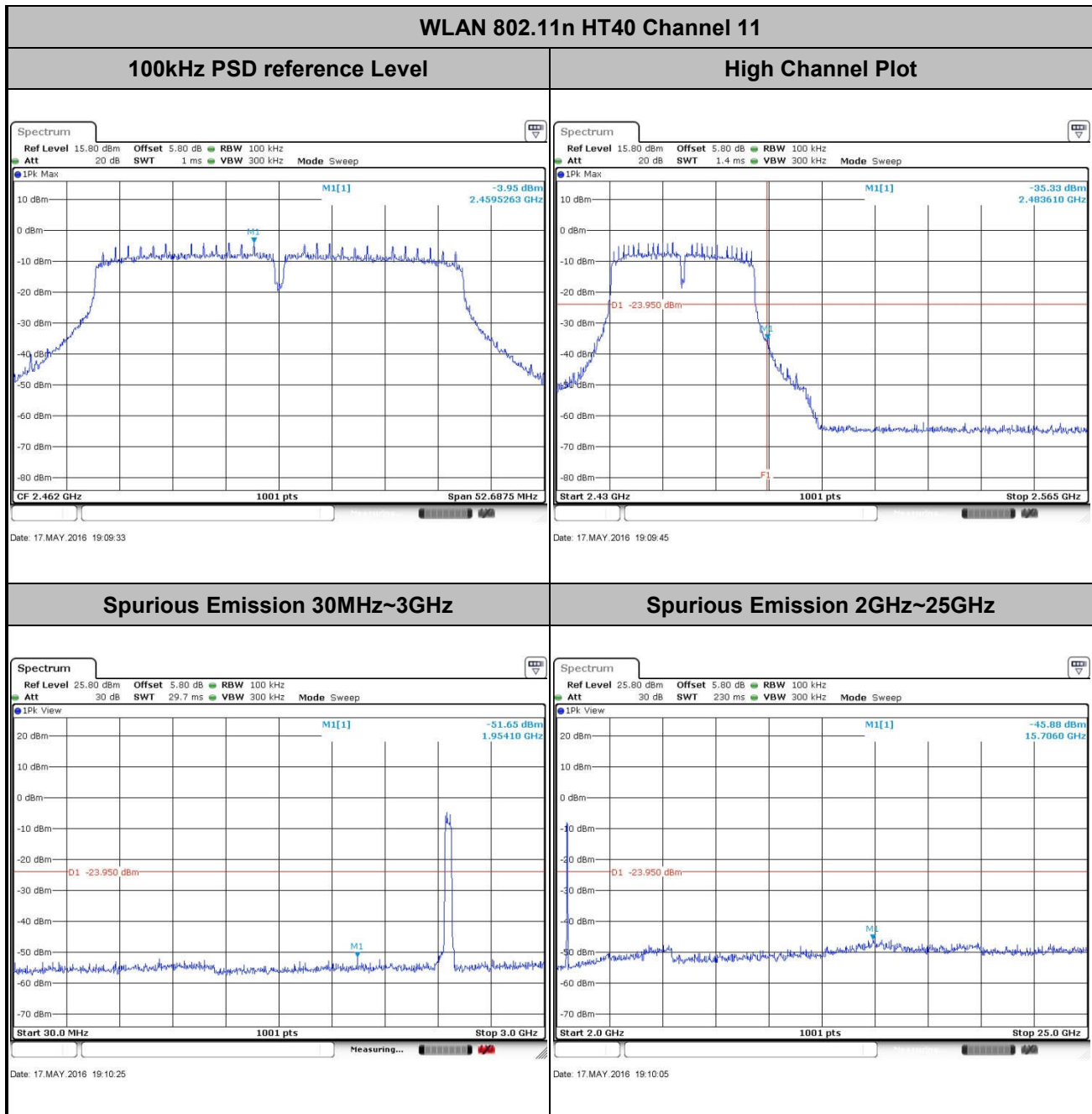


Test Mode :	802.11n HT40	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	10	Test Engineer :	Issac Song





Test Mode :	802.11n HT40	Temperature :	24~25°C
Test Band :	2.4GHz High	Relative Humidity :	49~51%
Test Channel :	11	Test Engineer :	Issac Song



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

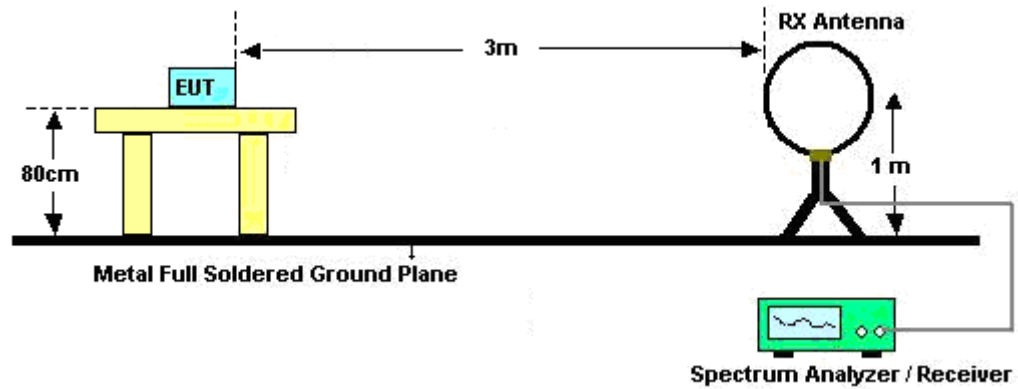
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r05.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the 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:

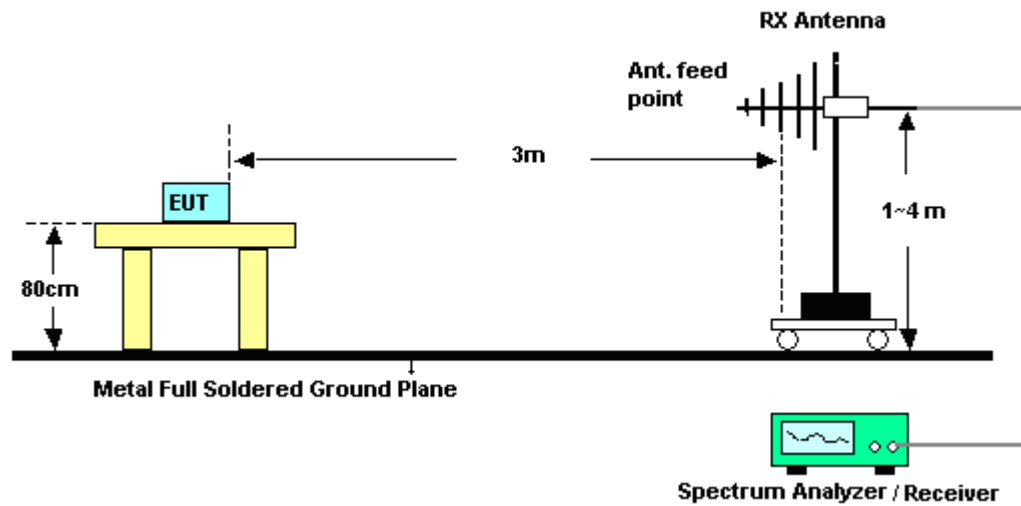
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

3.5.4 Test Setup

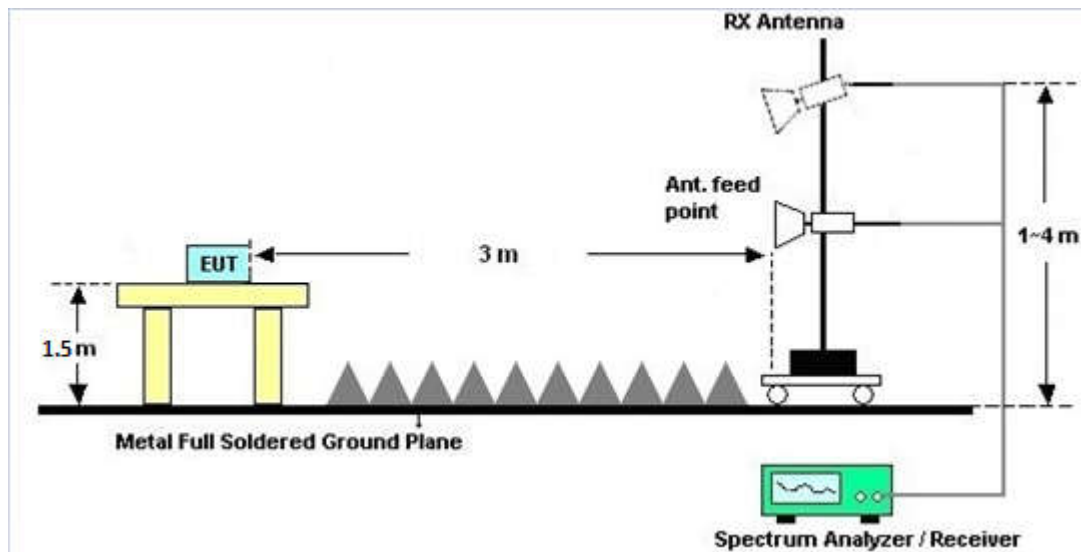
For radiated emissions below 30MHz



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 Duty Cycle

Please refer to Appendix C.

3.5.8 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.

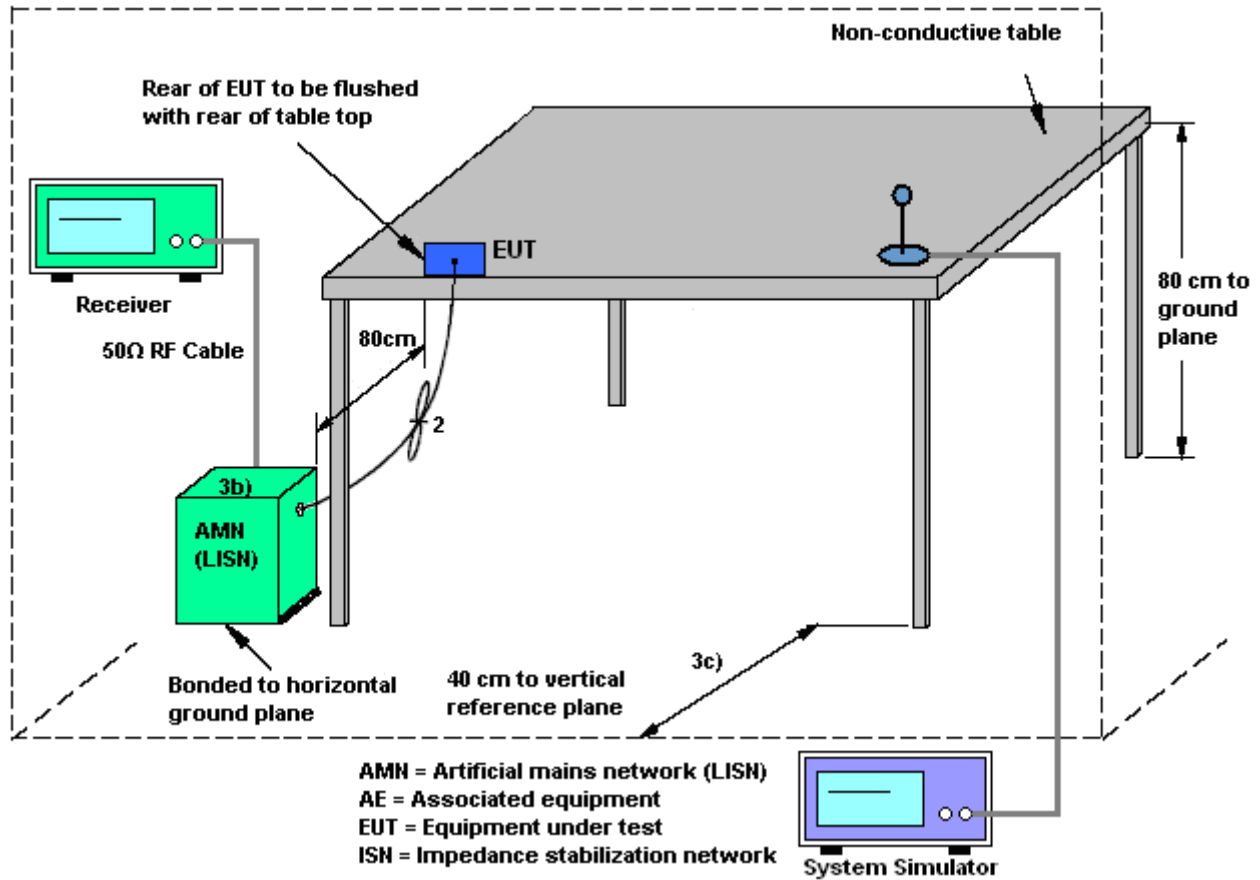
3.6.2 Measuring Instruments

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.

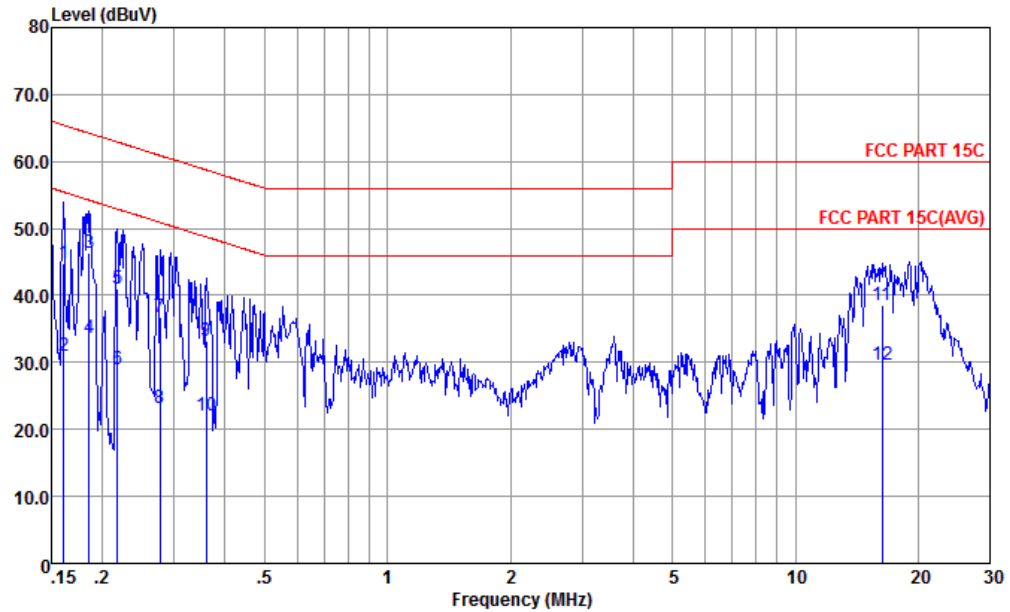
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Amos Zhang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link(2.4G) + Earphone 1 + USB Cable 1(Charging from Adapter 1) + Battery 1		



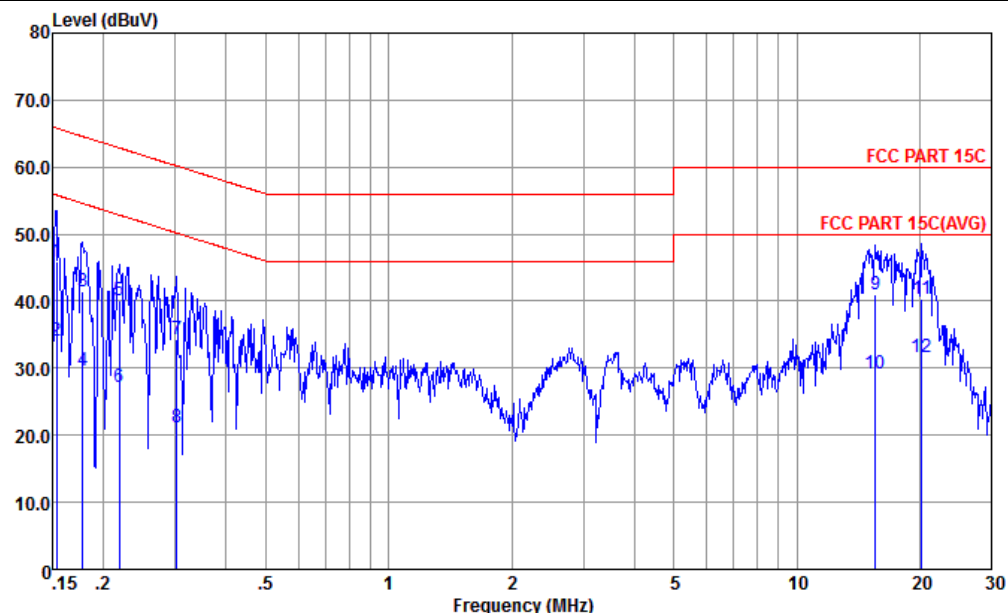
Site : CO01-KS
Condition : FCC PART 15C LISN-L-20151024 LINE

mode : Mode 1
: 356133070060750/356136070060768 #9

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.16	44.87	-20.56	65.43	34.30	0.46	10.11	QP
2	0.16	30.87	-24.56	55.43	20.30	0.46	10.11	Average
3 *	0.19	46.32	-17.92	64.24	35.90	0.30	10.12	QP
4	0.19	33.72	-20.52	54.24	23.30	0.30	10.12	Average
5	0.22	40.95	-21.97	62.92	30.60	0.22	10.13	QP
6	0.22	28.95	-23.97	52.92	18.60	0.22	10.13	Average
7	0.28	36.67	-24.23	60.90	26.31	0.22	10.14	QP
8	0.28	23.27	-27.63	50.90	12.91	0.22	10.14	Average
9	0.36	33.29	-25.45	58.74	22.90	0.23	10.16	QP
10	0.36	21.99	-26.75	48.74	11.60	0.23	10.16	Average
11	16.31	38.59	-21.41	60.00	27.90	0.26	10.43	QP
12	16.31	29.59	-20.41	50.00	18.90	0.26	10.43	Average



Test Mode :	Mode 1	Temperature :	22~24℃
Test Engineer :	Amos Zhang	Relative Humidity :	44~46%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link(2.4G) + Earphone 1 + USB Cable 1(Charging from Adapter 1) + Battery 1		



Site : CO01-KS
Condition : FCC PART 15C LISN-N-20151024 NEUTRAL

mode : Mode 1
: 356133070060750/356136070060768 #9

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	46.01	-19.81	65.82	35.60	0.30	10.11	QP
2	0.15	34.01	-21.81	55.82	23.60	0.30	10.11	Average
3	0.18	41.53	-23.06	64.59	31.10	0.31	10.12	QP
4	0.18	29.63	-24.96	54.59	19.20	0.31	10.12	Average
5	0.22	40.04	-22.84	62.88	29.60	0.31	10.13	QP
6	0.22	27.24	-25.64	52.88	16.80	0.31	10.13	Average
7	0.30	34.26	-25.93	60.19	23.80	0.31	10.15	QP
8	0.30	21.06	-29.13	50.19	10.60	0.31	10.15	Average
9	15.55	40.97	-19.03	60.00	30.30	0.27	10.40	QP
10	15.55	29.27	-20.73	50.00	18.60	0.27	10.40	Average
11	20.27	40.39	-19.61	60.00	29.60	0.25	10.54	QP
12 *	20.27	31.69	-18.31	50.00	20.90	0.25	10.54	Average

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna 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	FSV30	101338	10Hz~30GHz	Apr. 22, 2016	May 16, 2016~ May 17, 2016	Apr. 21, 2017	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 20, 2016	May 16, 2016~ May 17, 2016	Jan. 19, 2017	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 20, 2016	May 16, 2016~ May 17, 2016	Jan. 19, 2017	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 04, 2015	Apr. 18, 2016	May 03, 2016	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060103	9kHz~30MHz	Oct. 24, 2015	Apr. 18, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060105	9kHz~30MHz	Oct. 24, 2015	Apr. 18, 2016	Oct. 23, 2016	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	AC 0V~300V, 45Hz~1000Hz	Oct. 24, 2015	Apr. 18, 2016	Oct. 23, 2016	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Ma x 30dBm	Sep. 10, 2015	Apr. 20, 2016 May 23, 2016	Sep. 09, 2016	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY551502 44	10Hz~44GHz	Jun. 05, 2015	Apr. 20, 2016 May 23, 2016	Jun. 04, 2016	Radiation (03CH03-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Nov. 10, 2015	Apr. 20, 2016 May 23, 2016	Nov. 09, 2016	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	23182	25MHz~2GHz	Mar. 12, 2016	Apr. 20, 2016 May 23, 2016	Mar. 11, 2017	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-135 6	1GHz~18GHz	Jun. 25, 2015	Apr. 20, 2016 May 23, 2016	Jun. 24, 2016	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18Ghz~40Ghz	Oct. 10, 2015	Apr. 20, 2016 May 23, 2016	Oct. 09, 2016	Radiation (03CH03-KS)
Amplifier	Burgeon	BPA-530	102212	0.01MHz~3000M Hz	Aug. 10, 2015	Apr. 20, 2016 May 23, 2016	Aug. 09, 2016	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Oct. 24, 2015	Apr. 20, 2016 May 23, 2016	Oct. 23, 2016	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Apr. 20, 2016 May 23, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 20, 2016 May 23, 2016	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required



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% ($U = 2Uc(y)$)	4.5dB
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Appendix A. Conducted Test Results

A1 - DTS Part

Test Engineer:	Issac Song	Temperature:	24~25	°C
Test Date:	2016/5/16 ~ 2016/5/17	Relative Humidity:	49~51	%

TEST RESULTS DATA
6dB and 99% Occupied Bandwidth

2.4GHz Band								
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	99% Occupied BW (MHz)	6dB BW (MHz)	6dB BW Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	13.69	8.55	0.50	Pass
11b	1Mbps	1	6	2437	13.69	9.03	0.50	Pass
11b	1Mbps	1	11	2462	13.79	9.01	0.50	Pass
11b	1Mbps	1	12	2467	13.34	8.53	0.50	Pass
11b	1Mbps	1	13	2472	13.49	8.53	0.50	Pass
11g	6Mbps	1	1	2412	18.48	16.34	0.50	Pass
11g	6Mbps	1	6	2437	18.53	16.34	0.50	Pass
11g	6Mbps	1	11	2462	18.38	16.32	0.50	Pass
11g	6Mbps	1	12	2467	18.33	16.30	0.50	Pass
11g	6Mbps	1	13	2472	18.53	16.34	0.50	Pass
HT20	MCS0	1	1	2412	19.23	17.58	0.50	Pass
HT20	MCS0	1	6	2437	19.23	17.58	0.50	Pass
HT20	MCS0	1	11	2462	19.13	17.54	0.50	Pass
HT20	MCS0	1	12	2467	19.23	17.32	0.50	Pass
HT20	MCS0	1	13	2472	19.38	17.58	0.50	Pass
HT40	MCS0	1	3	2422	36.46	35.13	0.50	Pass
HT40	MCS0	1	6	2437	36.86	35.76	0.50	Pass
HT40	MCS0	1	9	2452	36.56	35.13	0.50	Pass
HT40	MCS0	1	10	2457	36.46	35.13	0.50	Pass
HT40	MCS0	1	11	2462	36.46	35.13	0.50	Pass

TEST RESULTS DATA
Peak Power Table

2.4GHz Band										
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Peak Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
11b	1Mbps	1	1	2412	21.23	30.00	-2.50	18.73	36.00	Pass
11b	1Mbps	1	6	2437	19.58	30.00	-2.50	17.08	36.00	Pass
11b	1Mbps	1	11	2462	20.94	30.00	-2.50	18.44	36.00	Pass
11b	1Mbps	1	12	2467	3.92	30.00	-2.50	1.42	36.00	Pass
11b	1Mbps	1	13	2472	3.64	30.00	-2.50	1.14	36.00	Pass
11g	6Mbps	1	1	2412	21.69	30.00	-2.50	19.19	36.00	Pass
11g	6Mbps	1	6	2437	20.78	30.00	-2.50	18.28	36.00	Pass
11g	6Mbps	1	11	2462	22.17	30.00	-2.50	19.67	36.00	Pass
11g	6Mbps	1	12	2467	8.94	30.00	-2.50	6.44	36.00	Pass
11g	6Mbps	1	13	2472	9.15	30.00	-2.50	6.65	36.00	Pass
HT20	MCS0	1	1	2412	21.79	30.00	-2.50	19.29	36.00	Pass
HT20	MCS0	1	6	2437	20.92	30.00	-2.50	18.42	36.00	Pass
HT20	MCS0	1	11	2462	22.27	30.00	-2.50	19.77	36.00	Pass
HT20	MCS0	1	12	2467	9.35	30.00	-2.50	6.85	36.00	Pass
HT20	MCS0	1	13	2472	9.25	30.00	-2.50	6.75	36.00	Pass
HT40	MCS0	1	3	2422	19.15	30.00	-2.50	16.65	36.00	Pass
HT40	MCS0	1	6	2437	19.20	30.00	-2.50	16.70	36.00	Pass
HT40	MCS0	1	9	2452	20.13	30.00	-2.50	17.63	36.00	Pass
HT40	MCS0	1	10	2457	20.11	30.00	-2.50	17.61	36.00	Pass
HT40	MCS0	1	11	2462	20.05	30.00	-2.50	17.55	36.00	Pass

TEST RESULTS DATA
Average Power Table
(Reporting Only)

2.4GHz Band						
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power (dBm)
11b	1Mbps	1	1	2412	0.88	18.43
11b	1Mbps	1	6	2437	0.88	17.88
11b	1Mbps	1	11	2462	0.88	17.87
11b	1Mbps	1	12	2467	0.88	1.15
11b	1Mbps	1	13	2472	0.88	0.88
11g	6Mbps	1	1	2412	-0.38	12.88
11g	6Mbps	1	6	2437	-0.38	11.84
11g	6Mbps	1	11	2462	-0.38	13.43
11g	6Mbps	1	12	2467	-0.38	-0.56
11g	6Mbps	1	13	2472	-0.38	-0.38
HT20	MCS0	1	1	2412	-0.47	13.19
HT20	MCS0	1	6	2437	-0.47	12.10
HT20	MCS0	1	11	2462	-0.47	13.64
HT20	MCS0	1	12	2467	-0.47	-0.33
HT20	MCS0	1	13	2472	-0.47	-0.47
HT40	MCS0	1	3	2422	10.35	9.72
HT40	MCS0	1	6	2437	10.35	9.80
HT40	MCS0	1	9	2452	10.35	10.56
HT40	MCS0	1	10	2457	10.35	10.28
HT40	MCS0	1	11	2462	10.35	10.35

TEST RESULTS DATA
Peak Power Density

2.4GHz Band								
Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Peak PSD (dBm /3kHz)	DG (dBi)	Peak PSD Limit (dBm /3kHz)	Pass/Fail
11b	1Mbps	1	1	2412	-4.89	-2.50	8.00	Pass
11b	1Mbps	1	6	2437	-3.81	-2.50	8.00	Pass
11b	1Mbps	1	11	2462	-3.61	-2.50	8.00	Pass
11b	1Mbps	1	12	2467	-20.65	-2.50	8.00	Pass
11b	1Mbps	1	13	2472	-21.86	-2.50	8.00	Pass
11g	6Mbps	1	1	2412	-12.51	-2.50	8.00	Pass
11g	6Mbps	1	6	2437	-11.95	-2.50	8.00	Pass
11g	6Mbps	1	11	2462	-12.17	-2.50	8.00	Pass
11g	6Mbps	1	12	2467	-25.27	-2.50	8.00	Pass
11g	6Mbps	1	13	2472	-25.96	-2.50	8.00	Pass
HT20	MCS0	1	1	2412	-12.37	-2.50	8.00	Pass
HT20	MCS0	1	6	2437	-13.46	-2.50	8.00	Pass
HT20	MCS0	1	11	2462	-12.06	-2.50	8.00	Pass
HT20	MCS0	1	12	2467	-25.76	-2.50	8.00	Pass
HT20	MCS0	1	13	2472	-25.57	-2.50	8.00	Pass
HT40	MCS0	1	3	2422	-19.38	-2.50	8.00	Pass
HT40	MCS0	1	6	2437	-18.32	-2.50	8.00	Pass
HT40	MCS0	1	9	2452	-18.39	-2.50	8.00	Pass
HT40	MCS0	1	10	2457	-18.48	-2.50	8.00	Pass
HT40	MCS0	1	11	2462	-17.91	-2.50	8.00	Pass



Appendix B. Radiated Spurious Emission

For Battery 1

2.4GHz 2400~2483.5MHz

WIFI 802.11b (Band Edge @ 3m)

WIFI Ant.	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2360.76	52.18	-21.82	74	56.75	26.91	5.54	37.02	145	308	P	H
		2389.47	39.94	-14.06	54	44.37	27	5.59	37.02	145	308	A	H
	*	2413.277	95.25	-	-	99.51	27.13	5.61	37	145	308	P	H
	*	2413.36	92.81	-	-	97.07	27.13	5.61	37	145	308	A	H
		2388.03	51.19	-22.81	74	55.62	27	5.59	37.02	105	237	P	V
		2390	40.43	-13.57	54	44.86	27	5.59	37.02	105	237	A	V
	*	2413.277	101.06	-	-	105.32	27.13	5.61	37	105	237	P	V
	*	2413.36	98.6	-	-	102.86	27.13	5.61	37	105	237	A	V
802.11b CH 06 2437MHz	*	2435.655	94.96	-	-	99.06	27.26	5.63	36.99	100	130	P	H
	*	2435.905	92.43	-	-	96.53	27.26	5.63	36.99	100	130	A	H
	*	2435.822	98.41	-	-	102.51	27.26	5.63	36.99	100	236	P	V
	*	2435.905	95.95	-	-	100.05	27.26	5.63	36.99	100	236	A	V



802.11b CH 11 2462MHz	*	2463.209	96.88	-	-	100.66	27.51	5.67	36.96	100	136	P	H
	*	2463.293	94.38	-	-	98.16	27.51	5.67	36.96	100	136	A	H
		2498.64	51.99	-22.01	74	55.44	27.77	5.71	36.93	100	136	P	H
		2487.92	41.22	-12.78	54	44.67	27.77	5.71	36.93	100	136	A	H
	*	2463.126	99.01	-	-	102.79	27.51	5.67	36.96	100	227	P	V
	*	2463.209	96.53	-	-	100.31	27.51	5.67	36.96	100	227	A	V
		2486.12	52.71	-21.29	74	56.32	27.64	5.69	36.94	100	227	P	V
		2483.6	41.67	-12.33	54	45.28	27.64	5.69	36.94	100	227	A	V
802.11b CH 12 2467MHz	*	2465.798	97.07	-	-	100.85	27.51	5.67	36.96	100	137	P	H
	*	2465.965	94.6	-	-	98.38	27.51	5.67	36.96	100	137	A	H
		2483.52	56.21	-17.79	74	59.82	27.64	5.69	36.94	100	137	P	H
		2483.52	48.92	-5.08	54	52.53	27.64	5.69	36.94	100	137	A	H
	*	2465.715	99.83	-	-	103.61	27.51	5.67	36.96	127	227	P	V
	*	2465.965	97.34	-	-	101.12	27.51	5.67	36.96	127	227	A	V
		2483.52	57.2	-16.8	74	60.81	27.64	5.69	36.94	127	227	P	V
		2483.52	50.8	-3.2	54	54.41	27.64	5.69	36.94	127	227	A	V
802.11b CH 13 2472MHz	*	2470.808	83.5	-	-	87.11	27.64	5.69	36.94	100	127	P	H
	*	2470.892	81.01	-	-	84.62	27.64	5.69	36.94	100	127	A	H
		2487.72	52.01	-21.99	74	55.46	27.77	5.71	36.93	100	127	P	H
		2483.52	41.14	-12.86	54	44.75	27.64	5.69	36.94	100	127	A	H
	*	2470.892	93.17	-	-	96.78	27.64	5.69	36.94	125	230	P	V
	*	2470.892	90.68	-	-	94.29	27.64	5.69	36.94	125	230	A	V
		2485.12	53.18	-20.82	74	56.79	27.64	5.69	36.94	125	230	P	V
		2483.52	44.74	-9.26	54	48.35	27.64	5.69	36.94	125	230	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	40.91	-33.09	74	62.37	31.51	9.13	62.1	100	360	P	H
		4824	38.15	-35.85	74	59.61	31.51	9.13	62.1	100	0	P	V
802.11b CH 06 2437MHz		4875	39.33	-34.67	74	60.57	31.59	9.2	62.03	100	360	P	H
		7311	40.42	-33.58	74	54.25	34.03	11.3	59.16	100	0	P	H
		4875	38.32	-35.68	74	59.56	31.59	9.2	62.03	100	0	P	V
		7311	38.45	-35.55	74	52.28	34.03	11.3	59.16	100	360	P	V
802.11b CH 11 2462MHz		4923	35.46	-38.54	74	56.49	31.67	9.27	61.97	100	360	P	H
		7386	44.14	-29.86	74	57.68	34.29	11.29	59.12	100	0	P	H
		4923	38.18	-35.82	74	59.21	31.67	9.27	61.97	100	0	P	V
		7386	39.25	-34.75	74	52.79	34.29	11.29	59.12	100	360	P	V
802.11b CH 12 2467MHz		4935	34.79	-39.21	74	55.82	31.67	9.27	61.97	100	360	P	H
		7401	42.77	-31.23	74	56.32	34.34	11.29	59.18	100	0	P	H
		4935	33.35	-40.65	74	54.38	31.67	9.27	61.97	100	0	P	V
		7401	39.32	-34.68	74	52.87	34.34	11.29	59.18	100	360	P	V
802.11b CH 13 2472MHz		4944	37.62	-36.38	74	58.58	31.69	9.3	61.95	100	360	P	H
		7416	38.98	-35.02	74	52.53	34.34	11.29	59.18	100	0	P	H
		4944	35.95	-38.05	74	56.91	31.69	9.3	61.95	100	0	P	V
		7416	41.19	-32.81	74	54.74	34.34	11.29	59.18	100	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
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		2389.74	54.28	-19.72	74	58.71	27	5.59	37.02	117	252	P	H
		2389.65	41.56	-12.44	54	45.99	27	5.59	37.02	117	252	A	H
	*	2414.613	98.73	-	-	102.99	27.13	5.61	37	117	252	P	H
	*	2416.867	90.87	-	-	95.13	27.13	5.61	37	117	252	A	H
		2388.3	51.6	-22.4	74	56.03	27	5.59	37.02	400	272	P	V
		2390	41.1	-12.9	54	45.53	27	5.59	37.02	400	272	A	V
	*	2412.525	96.28	-	-	100.54	27.13	5.61	37	400	272	P	V
	*	2416.115	87.9	-	-	92.16	27.13	5.61	37	400	272	A	V
802.11g CH 06 2437MHz	*	2439.078	99.03	-	-	102.96	27.39	5.65	36.97	111	252	P	H
	*	2444.004	90.8	-	-	94.73	27.39	5.65	36.97	111	252	A	H
	*	2439.162	97.13	-	-	101.06	27.39	5.65	36.97	316	129	P	V
	*	2443.503	89.04	-	-	92.97	27.39	5.65	36.97	316	129	A	V



802.11g CH 11 2462MHz	*	2457.114	99.92	-	-	103.7	27.51	5.67	36.96	122	252	P	H
	*	2457.448	91.65	-	-	95.43	27.51	5.67	36.96	122	252	A	H
		2483.68	62.65	-11.35	74	66.26	27.64	5.69	36.94	122	252	P	H
		2483.52	46.26	-7.74	54	49.87	27.64	5.69	36.94	122	252	A	H
	*	2462.208	99.61	-	-	103.39	27.51	5.67	36.96	356	126	P	V
	*	2457.448	91.21	-	-	94.99	27.51	5.67	36.96	356	126	A	V
		2483.64	61.83	-12.17	74	65.44	27.64	5.69	36.94	356	126	P	V
		2483.52	45.84	-8.16	54	49.45	27.64	5.69	36.94	356	126	A	V
802.11g CH 12 2467MHz	*	2462.291	99.55	-	-	103.33	27.51	5.67	36.96	100	251	P	H
	*	2461.707	91.47	-	-	95.25	27.51	5.67	36.96	100	251	A	H
		2483.76	68.37	-5.63	74	71.98	27.64	5.69	36.94	100	251	P	H
		2483.52	52.43	-1.57	54	56.04	27.64	5.69	36.94	100	251	A	H
	*	2462.041	100.09	-	-	103.87	27.51	5.67	36.96	356	127	P	V
	*	2462.124	91.51	-	-	95.29	27.51	5.67	36.96	356	127	A	V
		2484.84	68.47	-5.53	74	72.08	27.64	5.69	36.94	356	127	P	V
		2483.52	51.73	-2.27	54	55.34	27.64	5.69	36.94	356	127	A	V
802.11g CH 13 2472MHz	*	2476.486	90.23	-	-	93.84	27.64	5.69	36.94	137	159	P	H
	*	2476.319	81.54	-	-	85.15	27.64	5.69	36.94	137	159	A	H
		2483.56	65.27	-8.73	74	68.88	27.64	5.69	36.94	137	159	P	H
		2483.52	50.2	-3.8	54	53.81	27.64	5.69	36.94	137	159	A	H
	*	2467.635	85.47	-	-	89.25	27.51	5.67	36.96	313	279	P	V
	*	2465.213	77.23	-	-	81.01	27.51	5.67	36.96	313	279	A	V
		2483.56	61.97	-12.03	74	65.58	27.64	5.69	36.94	313	279	P	V
		2483.52	47.18	-6.82	54	50.79	27.64	5.69	36.94	313	279	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	37.37	-36.63	74	58.83	31.51	9.13	62.1	100	360	P	H
		7236	39.51	-34.49	74	53.57	33.82	11.31	59.19	100	0	P	H
		4824	35.85	-38.15	74	57.31	31.51	9.13	62.1	100	0	P	V
		7236	39.37	-34.63	74	53.43	33.82	11.31	59.19	100	360	P	V
802.11g CH 06 2437MHz		4875	36.52	-37.48	74	57.76	31.59	9.2	62.03	100	360	P	H
		7311	39.16	-34.84	74	52.99	34.03	11.3	59.16	100	0	P	H
		4875	34.74	-39.26	74	55.98	31.59	9.2	62.03	100	0	P	V
		7311	38.97	-35.03	74	52.8	34.03	11.3	59.16	100	360	P	V
802.11g CH 11 2462MHz		4923	36.81	-37.19	74	57.84	31.67	9.27	61.97	100	360	P	H
		7386	39.21	-34.79	74	52.75	34.29	11.29	59.12	100	0	P	H
		4923	33.12	-40.88	74	54.15	31.67	9.27	61.97	100	0	P	V
		7386	39.41	-34.59	74	52.95	34.29	11.29	59.12	100	360	P	V
802.11g CH 12 2467MHz		4935	35.59	-38.41	74	56.62	31.67	9.27	61.97	100	360	P	H
		7401	39.16	-34.84	74	52.71	34.34	11.29	59.18	100	0	P	H
		4935	34.14	-39.86	74	55.17	31.67	9.27	61.97	100	0	P	V
		7401	38.07	-35.93	74	51.62	34.34	11.29	59.18	100	360	P	V
802.11g CH 13 2472MHz		4944	36.4	-37.6	74	57.36	31.69	9.3	61.95	100	360	P	H
		7416	40.86	-33.14	74	54.41	34.34	11.29	59.18	100	0	P	H
		4944	35.96	-38.04	74	56.92	31.69	9.3	61.95	100	0	P	V
		7416	39.24	-34.76	74	52.79	34.34	11.29	59.18	100	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

WIFI 802.11n HT20 (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)
802.11n HT20 CH 01 2412MHz		2325.84	51.61	-22.39	74	56.3	26.82	5.5	37.01	319	235	P	H
		2390	40.95	-13.05	54	45.38	27	5.59	37.02	319	235	A	H
	*	2416.616	98.64	-	-	102.9	27.13	5.61	37	319	235	P	H
	*	2418.454	90.15	-	-	94.41	27.13	5.61	37	319	235	A	H
		2389.11	55.78	-18.22	74	60.21	27	5.59	37.02	300	83	P	V
		2390	41.97	-12.03	54	46.4	27	5.59	37.02	300	83	A	V
	*	2413.945	99.17	-	-	103.43	27.13	5.61	37	300	83	P	V
	*	2416.199	90.95	-	-	95.21	27.13	5.61	37	300	83	A	V
802.11n HT20 CH 06 2437MHz	*	2432.732	91.26	-	-	95.36	27.26	5.63	36.99	103	306	P	H
	*	2429.81	83.22	-	-	87.32	27.26	5.63	36.99	103	306	A	H
	*	2429.81	95.01	-	-	99.11	27.26	5.63	36.99	100	99	P	V
	*	2429.476	87	-	-	91.1	27.26	5.63	36.99	100	99	A	V



802.11n HT20 CH 11 2462MHz	*	2465.046	94.01	-	-	97.79	27.51	5.67	36.96	100	0	P	H
	*	2466.8	85.47	-	-	89.25	27.51	5.67	36.96	100	0	A	H
		2484.28	60.88	-13.12	74	64.49	27.64	5.69	36.94	100	0	P	H
		2483.64	44.69	-9.31	54	48.3	27.64	5.69	36.94	100	0	A	H
	*	2467.051	97.98	-	-	101.76	27.51	5.67	36.96	100	39	P	V
	*	2466.049	89.76	-	-	93.54	27.51	5.67	36.96	100	39	A	V
		2484.08	64.55	-9.45	74	68.16	27.64	5.69	36.94	100	39	P	V
		2483.68	47.84	-6.16	54	51.45	27.64	5.69	36.94	100	39	A	V
802.11n HT20 CH 12 2467MHz	*	2463.543	93.43	-	-	97.21	27.51	5.67	36.96	100	0	P	H
	*	2463.627	84.91	-	-	88.69	27.51	5.67	36.96	100	0	A	H
		2483.76	63.18	-10.82	74	66.79	27.64	5.69	36.94	100	0	P	H
		2483.68	47.7	-6.3	54	51.31	27.64	5.69	36.94	100	0	A	H
	*	2462.041	97.5	-	-	101.28	27.51	5.67	36.96	100	45	P	V
	*	2462.792	89.23	-	-	93.01	27.51	5.67	36.96	100	45	A	V
		2483.76	67.64	-6.36	74	71.25	27.64	5.69	36.94	100	45	P	V
		2483.52	51.61	-2.39	54	55.22	27.64	5.69	36.94	100	45	A	V
802.11n HT20 CH 13 2472MHz	*	2468.553	93.14	-	-	96.92	27.51	5.67	36.96	100	52	P	H
	*	2467.468	84.98	-	-	88.76	27.51	5.67	36.96	100	52	A	H
		2483.52	67.8	-6.2	74	71.41	27.64	5.69	36.94	100	52	P	H
		2483.52	53.25	-0.75	54	56.86	27.64	5.69	36.94	100	52	A	H
	*	2468.47	88.26	-	-	92.04	27.51	5.67	36.96	119	235	P	V
	*	2467.301	80.4	-	-	84.18	27.51	5.67	36.96	119	235	A	V
		2483.52	60.18	-13.82	74	63.79	27.64	5.69	36.94	119	235	P	V
		2483.52	47.06	-6.94	54	50.67	27.64	5.69	36.94	119	235	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. 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	36.83	-37.17	74	58.29	31.51	9.13	62.1	100	360	P	H
		4824	35.63	-38.37	74	57.09	31.51	9.13	62.1	100	0	P	V
802.11n HT20 CH 06 2437MHz		4875	36.95	-37.05	74	58.19	31.59	9.2	62.03	100	360	P	H
		7311	38.73	-35.27	74	52.56	34.03	11.3	59.16	100	0	P	H
		4875	33.65	-40.35	74	54.89	31.59	9.2	62.03	100	0	P	V
		7311	40.53	-33.47	74	54.36	34.03	11.3	59.16	100	360	P	V
802.11n HT20 CH 11 2462MHz		4923	35.52	-38.48	74	56.55	31.67	9.27	61.97	100	360	P	H
		7386	40.98	-33.02	74	54.52	34.29	11.29	59.12	100	0	P	H
		4923	33.16	-40.84	74	54.19	31.67	9.27	61.97	100	0	P	V
		7386	39.85	-34.15	74	53.39	34.29	11.29	59.12	100	360	P	V
802.11n HT20 CH 12 2467MHz		4935	38.09	-35.91	74	59.12	31.67	9.27	61.97	100	360	P	H
		7401	39.88	-34.12	74	53.43	34.34	11.29	59.18	100	0	P	H
		4935	35.19	-38.81	74	56.22	31.67	9.27	61.97	100	0	P	V
		7401	38.27	-35.73	74	51.82	34.34	11.29	59.18	100	360	P	V
802.11n HT20 CH 13 2472MHz		4944	36.42	-37.58	74	57.38	31.69	9.3	61.95	100	360	P	H
		7416	39.41	-34.59	74	52.96	34.34	11.29	59.18	100	0	P	H
		4944	36.59	-37.41	74	57.55	31.69	9.3	61.95	100	0	P	V
		7416	39.35	-34.65	74	52.9	34.34	11.29	59.18	100	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
WIFI 802.11n HT40 (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)
802.11n HT40 CH 03 2422MHz		2377.95	50.88	-23.12	74	55.38	26.95	5.57	37.02	100	37	P	H
		2368.95	41.47	-12.53	54	45.97	26.95	5.57	37.02	100	37	A	H
	*	2433.149	93.52	-	-	97.62	27.26	5.63	36.99	100	37	P	H
	*	2435.154	85.12	-	-	89.22	27.26	5.63	36.99	100	37	A	H
		2494.4	52.18	-21.82	74	55.63	27.77	5.71	36.93	100	37	P	H
		2486.96	42.29	-11.71	54	45.9	27.64	5.69	36.94	100	37	A	H
		2337.81	50.97	-23.03	74	55.6	26.86	5.52	37.01	343	77	P	V
		2387.94	41.28	-12.72	54	45.71	27	5.59	37.02	343	77	A	V
	*	2417.535	90.65	-	-	94.91	27.13	5.61	37	343	77	P	V
	*	2413.026	82.37	-	-	86.63	27.13	5.61	37	343	77	A	V
		2497.32	52.32	-21.68	74	55.77	27.77	5.71	36.93	343	77	P	V
		2493.16	42.18	-11.82	54	45.63	27.77	5.71	36.93	343	77	A	V
802.11n HT40 CH 06 2437MHz		2360.76	51.41	-22.59	74	55.98	26.91	5.54	37.02	100	148	P	H
		2343.12	41.40	-12.60	54	46.03	26.86	5.52	37.01	100	148	A	H
	*	2448.43	93.20	-	-	97.13	27.39	5.65	36.97	100	148	P	H
	*	2449.265	84.71	-	-	88.64	27.39	5.65	36.97	100	148	A	H
		2484.44	52.38	-21.62	74	55.99	27.64	5.69	36.94	100	148	P	H
		2484.92	42.67	-11.33	54	46.28	27.64	5.69	36.94	100	148	A	H
		2370.66	51.39	-22.61	74	55.89	26.95	5.57	37.02	341	57	P	V
		2389.02	41.38	-12.62	54	45.81	27	5.59	37.02	341	57	A	V
	*	2442.501	92.21	-	-	96.14	27.39	5.65	36.97	341	57	P	V
	*	2448.931	83.39	-	-	87.32	27.39	5.65	36.97	341	57	A	V
		2491.96	52.04	-21.96	74	55.49	27.77	5.71	36.93	341	57	P	V
		2493.08	42.19	-11.81	54	45.64	27.77	5.71	36.93	341	57	A	V



802.11n HT40 CH 09 2452MHz		2338.44	51.49	-22.51	74	56.12	26.86	5.52	37.01	100	131	P	H
		2389.02	41.14	-12.86	54	45.57	27	5.59	37.02	100	131	A	H
	*	2455.611	94.39	-	-	98.17	27.51	5.67	36.96	100	131	P	H
	*	2462.041	85.88	-	-	89.66	27.51	5.67	36.96	100	131	A	H
		2484.12	56.74	-17.26	74	60.35	27.64	5.69	36.94	100	131	P	H
		2483.56	44.43	-9.57	54	48.04	27.64	5.69	36.94	100	131	A	H
		2389.11	50.74	-23.26	74	55.17	27	5.59	37.02	304	129	P	V
		2380.65	41.06	-12.94	54	45.56	26.95	5.57	37.02	304	129	A	V
	*	2456.613	92.25	-	-	96.03	27.51	5.67	36.96	304	129	P	V
	*	2462.375	83.74	-	-	87.52	27.51	5.67	36.96	304	129	A	V
		2484.12	53.95	-20.05	74	57.56	27.64	5.69	36.94	304	129	P	V
		2484.08	43.22	-10.78	54	46.83	27.64	5.69	36.94	304	129	A	V
802.11n HT40 CH 10 2457MHz		2366.43	50.67	-23.33	74	55.24	26.91	5.54	37.02	100	130	P	H
		2355.18	41.19	-12.81	54	45.76	26.91	5.54	37.02	100	130	A	H
	*	2464.712	94.41	-	-	98.19	27.51	5.67	36.96	100	130	P	H
	*	2444.756	85.71	-	-	89.64	27.39	5.65	36.97	100	130	A	H
		2484.28	58.14	-15.86	74	61.75	27.64	5.69	36.94	100	130	P	H
		2483.8	45.9	-8.1	54	49.51	27.64	5.69	36.94	100	130	A	H
		2378.49	50.65	-23.35	74	55.15	26.95	5.57	37.02	115	349	P	V
		2363.1	41.21	-12.79	54	45.78	26.91	5.54	37.02	115	349	A	V
	*	2460.538	90.8	-	-	94.58	27.51	5.67	36.96	115	349	P	V
	*	2459.201	82.24	-	-	86.02	27.51	5.67	36.96	115	349	A	V
		2484.16	58.4	-15.6	74	62.01	27.64	5.69	36.94	115	349	P	V
		2483.52	43.8	-10.2	54	47.41	27.64	5.69	36.94	115	349	A	V



802.11n HT40 CH 11 2462MHz		2375.07	51.85	-22.15	74	56.35	26.95	5.57	37.02	100	132	P	H
		2388.48	41.18	-12.82	54	45.61	27	5.59	37.02	100	132	A	H
	*	2451.52	92.78	-	-	96.71	27.39	5.65	36.97	100	132	P	H
	*	2448.764	84.56	-	-	88.49	27.39	5.65	36.97	100	132	A	H
		2483.72	67.93	-6.07	74	71.54	27.64	5.69	36.94	100	132	P	H
		2483.52	53.27	-0.73	54	56.88	27.64	5.69	36.94	100	132	A	H
		2324.85	51.03	-22.97	74	55.72	26.82	5.5	37.01	304	238	P	V
		2382.81	41.34	-12.66	54	45.84	26.95	5.57	37.02	304	238	A	V
	*	2450.935	89.25	-	-	93.18	27.39	5.65	36.97	304	238	P	V
	*	2449.766	80.91	-	-	84.84	27.39	5.65	36.97	304	238	A	V
		2483.68	62.58	-11.42	74	66.19	27.64	5.69	36.94	304	238	P	V
		2483.56	48.1	-5.9	54	51.71	27.64	5.69	36.94	304	238	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 HT40 (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)
802.11n		4845	36.53	-37.47	74	57.93	31.53	9.15	62.08	100	360	P	H
HT40		7266	37.9	-36.1	74	51.83	33.93	11.31	59.17	100	0	P	H
CH 03		4845	36.22	-37.78	74	57.62	31.53	9.15	62.08	100	0	P	V
2422MHz		7266	37.99	-36.01	74	51.92	33.93	11.31	59.17	100	360	P	V
802.11n		4875	35.95	-38.05	74	57.19	31.59	9.2	62.03	100	360	P	H
HT40		7311	38.88	-35.12	74	52.71	34.03	11.3	59.16	100	0	P	H
CH 06		4875	35.86	-38.14	74	57.1	31.59	9.2	62.03	100	0	P	V
2437MHz		7311	38.77	-35.23	74	52.6	34.03	11.3	59.16	100	360	P	V
802.11n		4905	36.95	-37.05	74	58.05	31.64	9.25	61.99	100	360	P	H
HT40		7356	38.09	-35.91	74	51.74	34.19	11.29	59.13	100	0	P	H
CH 09		4905	35.7	-38.3	74	56.8	31.64	9.25	61.99	100	0	P	V
2452MHz		7356	37.4	-36.6	74	51.05	34.19	11.29	59.13	100	360	P	V
802.11n		4914	35.56	-38.44	74	56.66	31.64	9.25	61.99	100	360	P	H
HT40		7371	39.33	-34.67	74	52.93	34.24	11.29	59.13	100	0	P	H
CH 10		4914	34.89	-39.11	74	55.99	31.64	9.25	61.99	100	0	P	V
2457MHz		7371	39.63	-34.37	74	53.23	34.24	11.29	59.13	100	360	P	V
802.11n		4923	35.97	-38.03	74	57	31.67	9.27	61.97	100	360	P	H
HT40		7386	39.39	-34.61	74	52.93	34.29	11.29	59.12	100	0	P	H
CH 11		4875	34.01	-39.99	74	55.25	31.59	9.2	62.03	100	360	P	V
2462MHz		7386	39.58	-34.42	74	53.12	34.29	11.29	59.12	100	0	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



For Battery 2

2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (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)
802.11n HT40 CH 11 2462MHz		2359.77	50.88	-23.12	74	55.45	26.91	5.54	37.02	107	128	P	H
		2382.36	41.18	-12.82	54	45.68	26.95	5.57	37.02	107	128	A	H
	*	2455.11	90.98	-	-	94.76	27.51	5.67	36.96	107	128	P	H
	*	2459.786	82.5	-	-	86.28	27.51	5.67	36.96	107	128	A	H
		2483.88	68.11	-5.89	74	71.72	27.64	5.69	36.94	107	128	P	H
		2483.52	52.03	-1.97	54	55.64	27.64	5.69	36.94	107	128	A	H
		2381.64	51.28	-22.72	74	55.78	26.95	5.57	37.02	100	175	P	V
		2389.92	41.26	-12.74	54	45.69	27	5.59	37.02	100	175	A	V
	*	2456.947	91.28	-	-	95.06	27.51	5.67	36.96	100	175	P	V
	*	2452.438	83.5	-	-	87.43	27.39	5.65	36.97	100	175	A	V
		2483.56	67.83	-6.17	74	71.44	27.64	5.69	36.94	100	175	P	V
		2483.52	53.03	-0.97	54	56.64	27.64	5.69	36.94	100	175	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz
WIFI 802.11n HT40 (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)
802.11n		4923	36.67	-37.33	74	57.7	31.67	9.27	61.97	100	360	P	H
HT40		7386	38.98	-35.02	74	52.52	34.29	11.29	59.12	100	0	P	H
CH 11		4923	35.53	-38.47	74	56.56	31.67	9.27	61.97	100	0	P	V
2462MHz		7386	40.36	-33.64	74	53.9	34.29	11.29	59.12	100	360	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



Emission below 1GHz

2.4GHz WIFI 802.11n HT40 (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 802.11n HT40 LF		36.79	20.47	-19.53	40	35.82	16.42	0.73	32.5	-	-	P	H
		58.13	27.19	-12.81	40	51.7	7.12	0.91	32.54	107	211	P	H
		216.24	13.4	-32.6	46	32.49	11.52	1.73	32.34	-	-	P	H
		288.02	18.31	-27.69	46	33.97	14.5	2.04	32.2	-	-	P	H
		323.91	18.99	-27.01	46	33.69	15.33	2.21	32.24	-	-	P	H
		756.53	24.66	-21.34	46	32.07	20.92	3.49	31.82	-	-	P	H
		30	27.01	-12.99	40	40.37	18.6	0.65	32.61	-	-	P	V
		58.13	32.38	-7.62	40	56.89	7.12	0.91	32.54	123	291	P	V
		77.53	17.33	-22.67	40	39.59	9.2	1.07	32.53	-	-	P	V
		252.13	19.95	-26.05	46	37.37	13.27	1.75	32.44	-	-	P	V
		323.91	21.23	-24.77	46	35.93	15.33	2.21	32.24	-	-	P	V
		878.75	26.82	-19.18	46	32.09	22.59	3.79	31.65	-	-	P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

**Note symbol**

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



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

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(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)

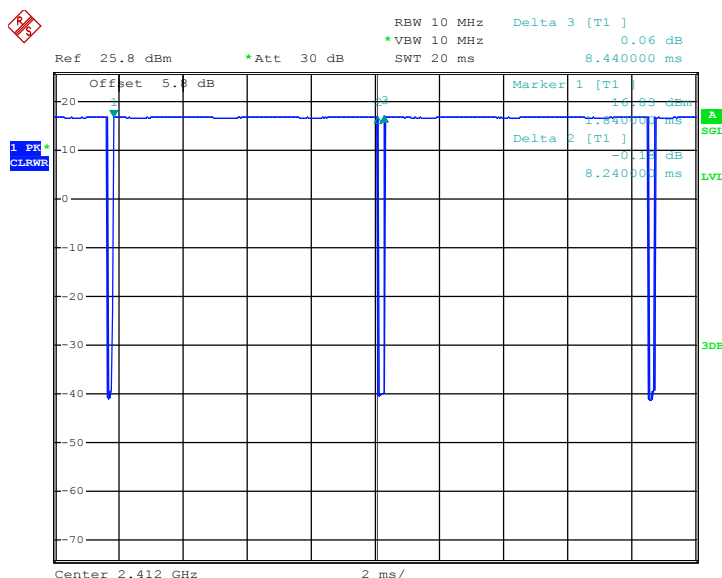
= -10.46(dB)

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

Appendix C. Duty Cycle Plots

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	97.63	8.24	0.12	300Hz
802.11g	87.26	1.37	0.73	1kHz
2.4GHz 802.11n HT20	86.62	1.28	0.78	1kHz
2.4GHz 802.11n HT40	76.43	0.64	1.56	3kHz

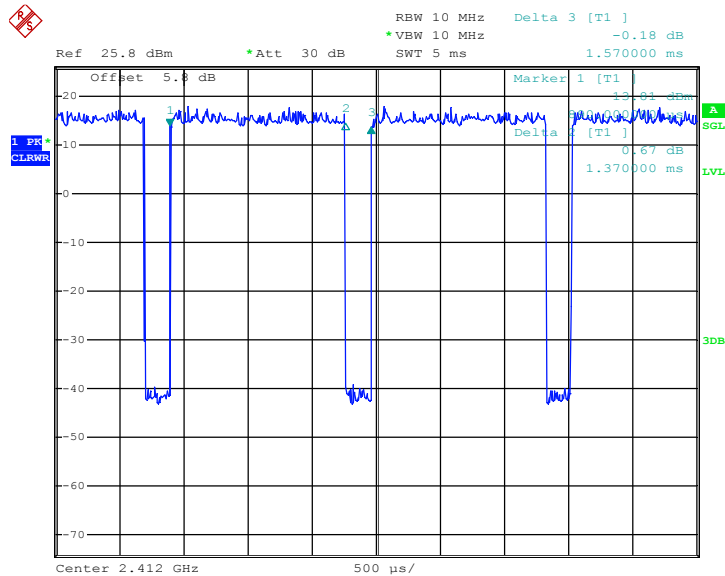
802.11b



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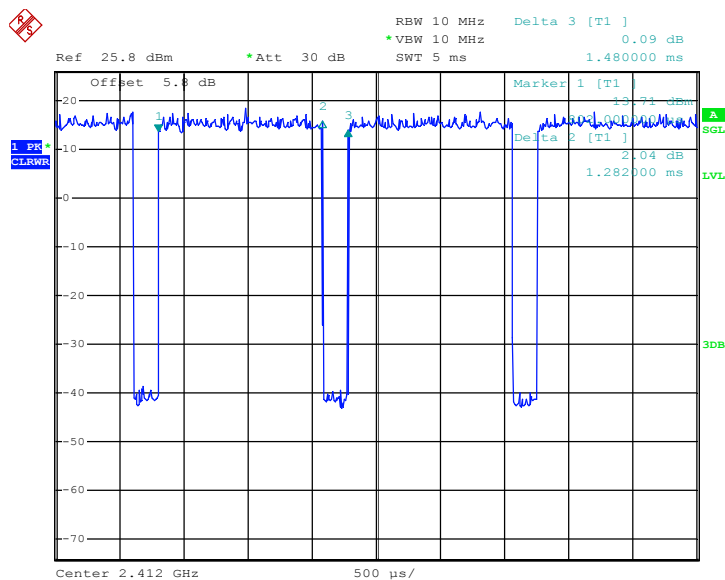


802.11g



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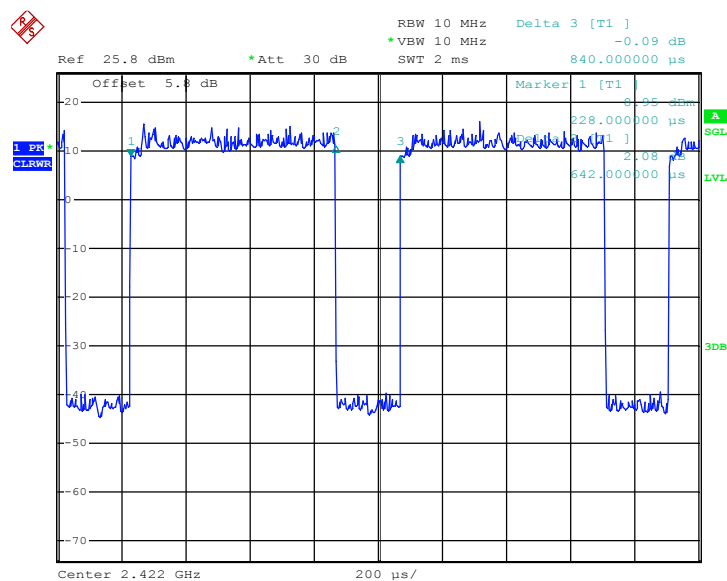
2.4GHz 802.11n HT20



Date: 20.APR.2016 15:55:25



2.4GHz 802.11n HT40



Date: 20.APR.2016 16:03:21