

FCC RF Test Report

APPLICANT : Scituate L.L.C.
EQUIPMENT : Wireless Device
MODEL NAME : JK76PL
FCC ID : 2ACBE-0610
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Nov. 28, 2014 and testing was completed on Dec. 10, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

Report No. : FR4N2858
Report Version : Rev. 01
Page Number : 1 of 36

Report Template No.: BU5-FR15CWL Version 1.0

TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Product Feature of Equipment Under Test.....	5
1.3 Product Specification subjective to this standard	5
1.4 Modification of EUT	5
1.5 Testing Location	6
1.6 Applicable Standards.....	6
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	7
2.1 Carrier Frequency Channel	7
2.2 Pre-Scanned RF Power.....	8
2.3 Test Mode.....	9
2.4 Connection Diagram of Test System.....	10
2.5 Support Unit used in test configuration and system	10
2.6 EUT Operation Test Setup	10
2.7 Measurement Results Explanation Example.....	11
3 TEST RESULT	12
3.1 6dB Bandwidth Measurement	12
3.2 Output Power Measurement.....	14
3.3 Power Spectral Density Measurement	17
3.4 Conducted Band Edges and Spurious Emission Measurement	20
3.5 Radiated Band Edges and Spurious Emission Measurement	30
3.6 Antenna Requirements.....	34
4 LIST OF MEASURING EQUIPMENT	35
5 UNCERTAINTY OF EVALUATION	36

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4N2858	Rev. 01	Initial issue of report	Dec. 15, 2014

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 0.85 dB at 2483.520 MHz
-	15.207	AC Conducted Emission	15.207(a)	Not Required	EUT is powered on by battery only without any AC power port.
3.6	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Scituate L.L.C.

3100 West Ray Road Suite 201 Chandler, Arizona 85226

1.2 Product Feature of Equipment Under Test

Product Feature	
Equipment	Wireless Device
Model Name	JK76PL
FCC ID	2ACBE-0610
EUT supports Radios application	WLAN 11b/g/n HT20
EUT Stage	Production Unit

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

1.3 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 : 22.38 dBm (0.1730 W) 802.11g : 24.27 dBm (0.2673 W) 802.11n HT20 : 24.18 dBm (0.2618 W)
Antenna Type	802.11b/g/n : Fixed Internal Antenna type with gain 0.93 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 Modification of EUT

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

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH02-HY	03CH05-HY

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

1.6 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02
- ♦ ANSI C63.10-2009

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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: radiated emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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 mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	22.38	22.34	22.36	22.34

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	24.27	24.23	24.24	24.20	24.24	24.13	24.26	24.26

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	24.18	24.01	24.05	23.96	23.96	24.04	24.15	24.13

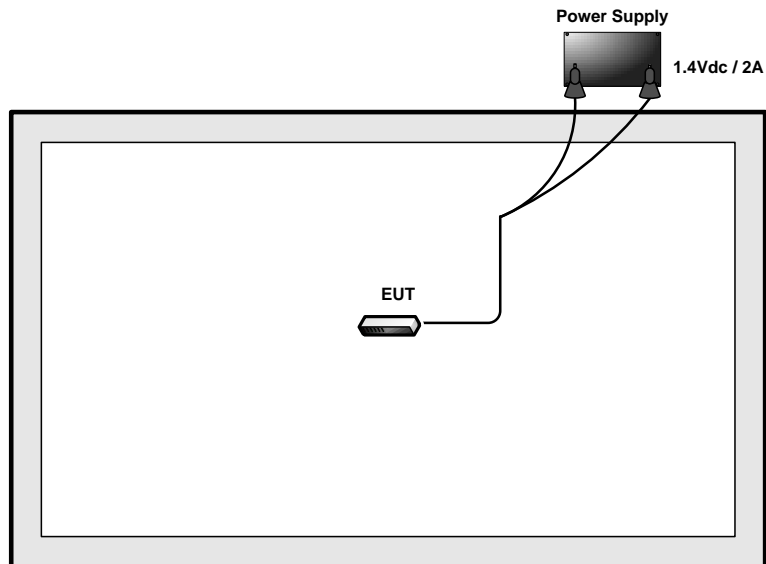
2.3 Test Mode

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

Test Cases					
	Test Items	Mode	Data Rate	Test Channel	Remark
Conducted TCs	6dB and Power Spectral Density	802.11b	1 Mbps	1/6/11	-
		802.11g	6 Mbps	1/6/11	-
		802.11n HT20	MCS0	1/6/11	-
	Output Power	802.11b	1 Mbps	1/6/11	-
		802.11g	6 Mbps	1/2/6/11	-
		802.11n HT20	MCS0	1/2/6/10/11	-
	Conducted Band Edge	802.11b	1 Mbps	1/11	-
		802.11g	6 Mbps	1/11	-
		802.11n HT20	MCS0	1/11	-
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11	-
		802.11g	6 Mbps	1/6/11	-
		802.11n HT20	MCS0	1/6/11	-
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/6/11	-
		802.11g	6 Mbps	1/2/6/11	-
		802.11g	6 Mbps	1	EUT with Plastic Loop
		802.11n HT20	MCS0	1/2/6/10/11	-
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11	-
		802.11g	6 Mbps	1/6/11	-
		802.11g	6 Mbps	1	EUT with Plastic Loop
		802.11n HT20	MCS0	1/6/11	-

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	PSS-2005	N/A	N/A	Unshielded, 1.8 m

2.6 EUT Operation Test Setup

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

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

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.

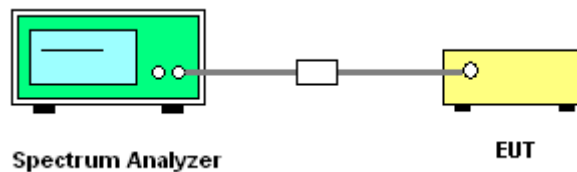
3.1.2 Measuring Instruments

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 v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. Measure and record the results in the test report.

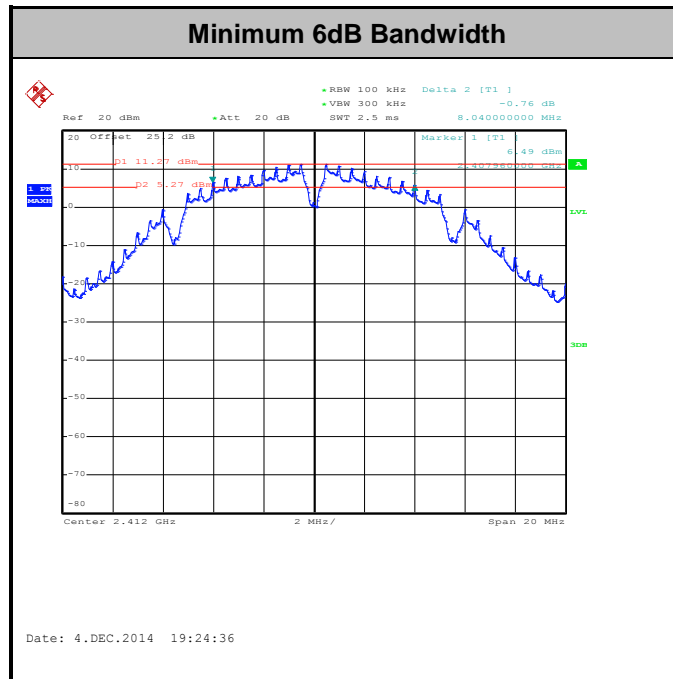
3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Band :	2.4GHz	Temperature :	21~26°C
Test Engineer :	Osolemio Chang	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
11b	1Mbps	1	1	2412	8.04	0.5	Pass
11b	1Mbps	1	6	2437	8.08	0.5	Pass
11b	1Mbps	1	11	2462	8.04	0.5	Pass
11g	6Mbps	1	1	2412	15.12	0.5	Pass
11g	6Mbps	1	6	2437	15.12	0.5	Pass
11g	6Mbps	1	11	2462	15.12	0.5	Pass
HT20	MCS0	1	1	2412	15.12	0.5	Pass
HT20	MCS0	1	6	2437	15.12	0.5	Pass
HT20	MCS0	1	11	2462	15.12	0.5	Pass



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

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

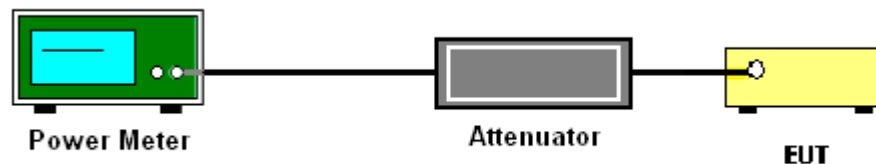
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	2.4GHz	Temperature :	21~26°C
Test Engineer :	Osolemio Chang	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	RF Output Power (dBm)	Power Limit (dBm)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	22.38	30	0.93	Pass
11b	1Mbps	1	6	2437	21.63	30	0.93	Pass
11b	1Mbps	1	11	2462	20.86	30	0.93	Pass
11g	6Mbps	1	1	2412	22.48	30	0.93	Pass
11g	6Mbps	1	2	2417	23.26	30	0.93	Pass
11g	6Mbps	1	6	2437	24.27	30	0.93	Pass
11g	6Mbps	1	11	2462	23.03	30	0.93	Pass
HT20	MCS0	1	1	2412	22.54	30	0.93	Pass
HT20	MCS0	1	2	2417	23.53	30	0.93	Pass
HT20	MCS0	1	6	2437	24.18	30	0.93	Pass
HT20	MCS0	1	10	2457	23.88	30	0.93	Pass
HT20	MCS0	1	11	2462	22.64	30	0.93	Pass

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

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	2.4GHz	Temperature :	21~26°C
Test Engineer :	Osolemio Chang	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Duty Factor (dB)	Average Output Power (dBm)
11b	1Mbps	1	1	2412	0.00	19.14
11b	1Mbps	1	6	2437	0.00	18.40
11b	1Mbps	1	11	2462	0.00	17.67
11g	6Mbps	1	1	2412	0.12	12.03
11g	6Mbps	1	2	2417	0.12	14.27
11g	6Mbps	1	6	2437	0.12	16.75
11g	6Mbps	1	11	2462	0.12	13.86
HT20	MCS0	1	1	2412	0.13	11.94
HT20	MCS0	1	2	2417	0.13	14.15
HT20	MCS0	1	6	2437	0.13	16.63
HT20	MCS0	1	10	2457	0.13	16.58
HT20	MCS0	1	11	2462	0.13	12.71

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

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

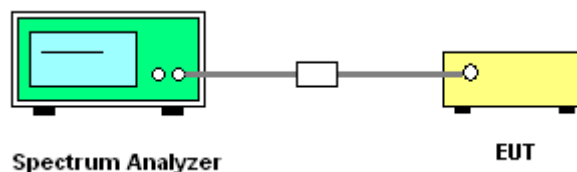
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



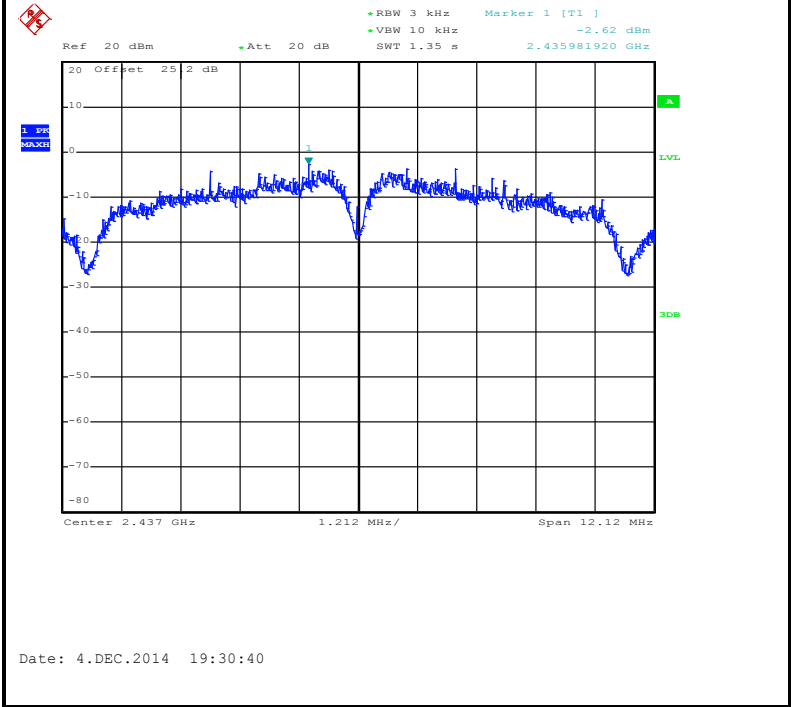
3.3.5 Test Result of Power Spectral Density

Test Mode :	2.4GHz	Temperature :	21~26°C
Test Engineer :	Osolemio Chang	Relative Humidity :	45~54%

Mod.	Data Rate	N _{TX}	Channel	Freq. (MHz)	Peak Power Density (dBm/3kHz)	Max. Limits (dBm/3kHz)	DG (dBi)	Pass/Fail
11b	1Mbps	1	1	2412	-3.35	8	0.93	Pass
11b	1Mbps	1	6	2437	-2.62	8	0.93	Pass
11b	1Mbps	1	11	2462	-3.90	8	0.93	Pass
11g	6Mbps	1	1	2412	-7.90	8	0.93	Pass
11g	6Mbps	1	6	2437	-8.21	8	0.93	Pass
11g	6Mbps	1	11	2462	-7.08	8	0.93	Pass
HT20	MCS0	1	1	2412	-7.57	8	0.93	Pass
HT20	MCS0	1	6	2437	-7.38	8	0.93	Pass
HT20	MCS0	1	11	2462	-7.88	8	0.93	Pass

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

Worst Case Power Density (dBm/3kHz)



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

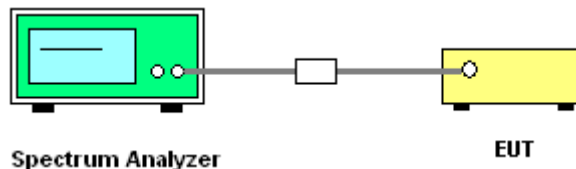
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

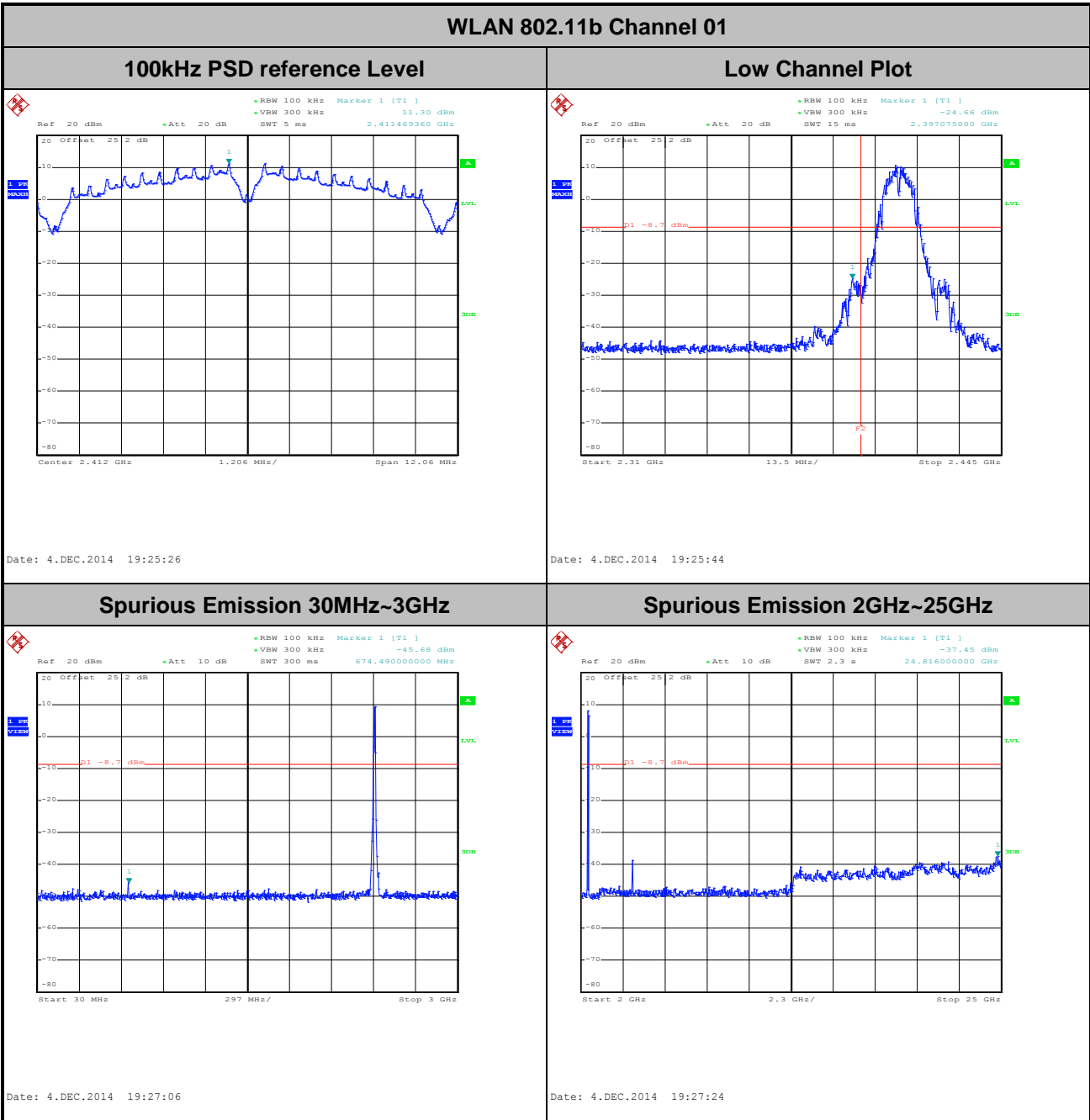
1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit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

3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges and Spurious Emission

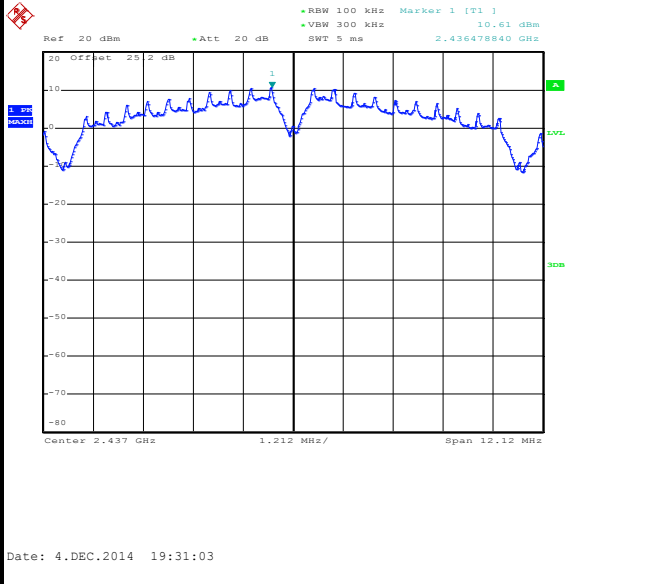
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang



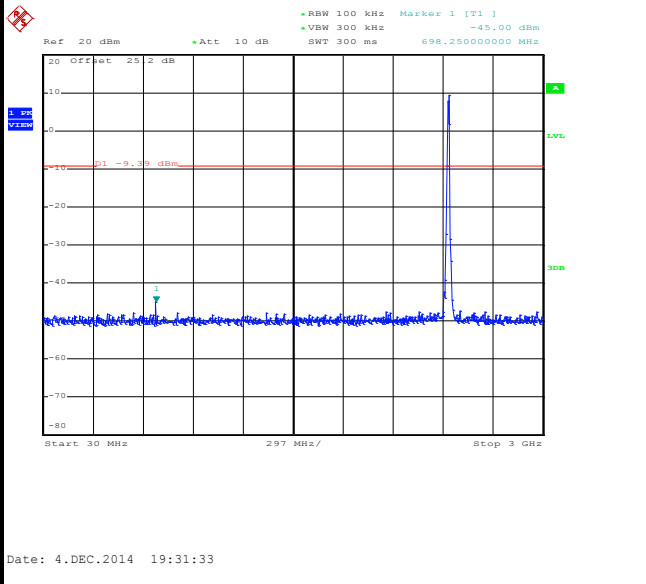
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang

WLAN 802.11b Channel 06

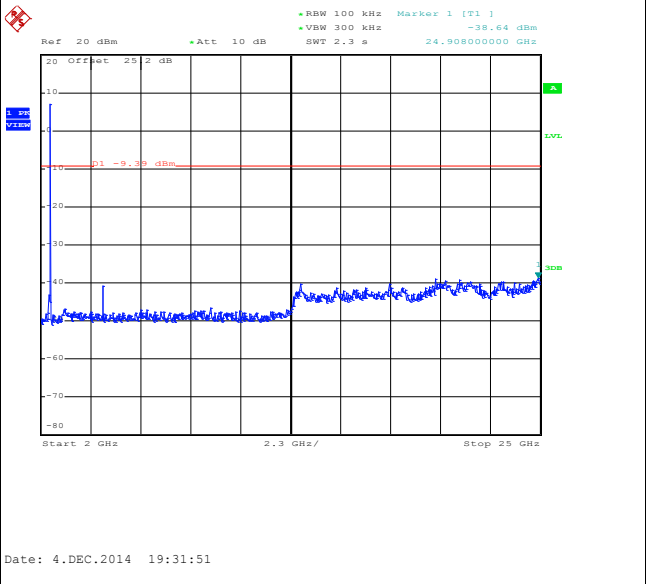
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



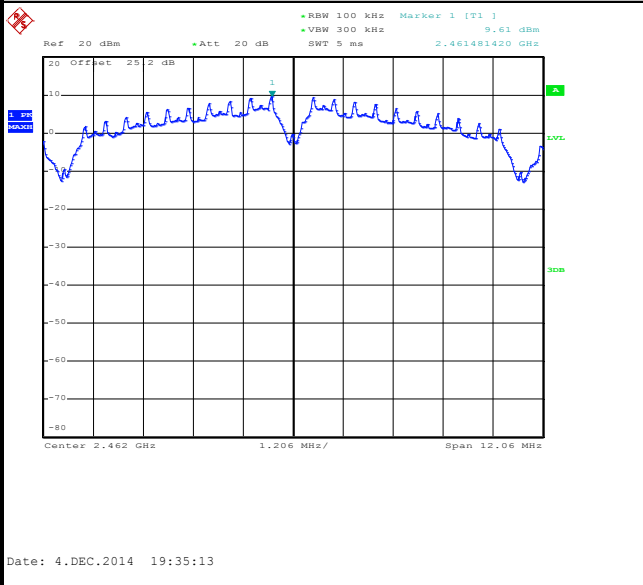
Spurious Emission 2GHz~25GHz



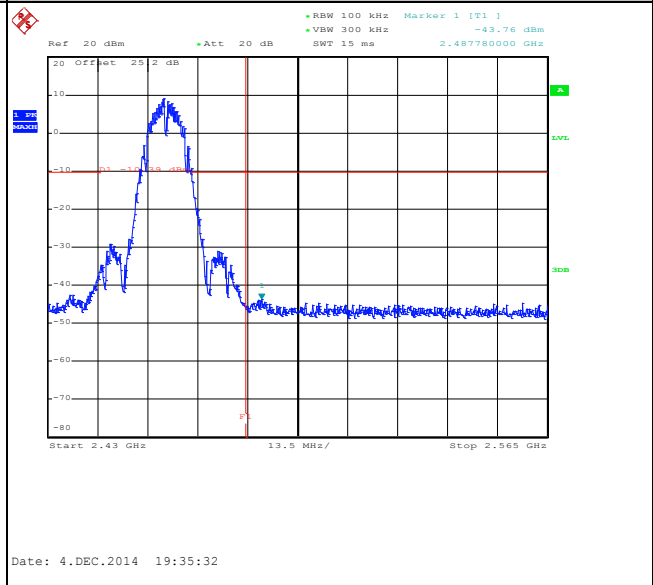
Test Mode :	802.11b	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang

WLAN 802.11b Channel 11

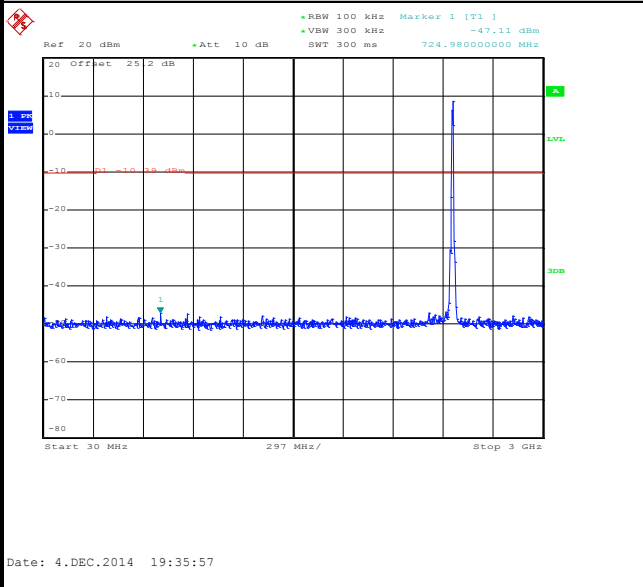
100kHz PSD reference Level



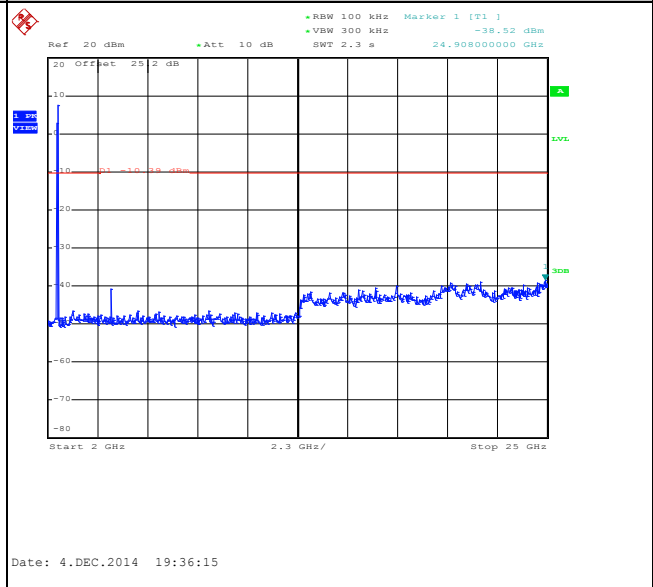
High Channel Plot



Spurious Emission 30MHz~3GHz



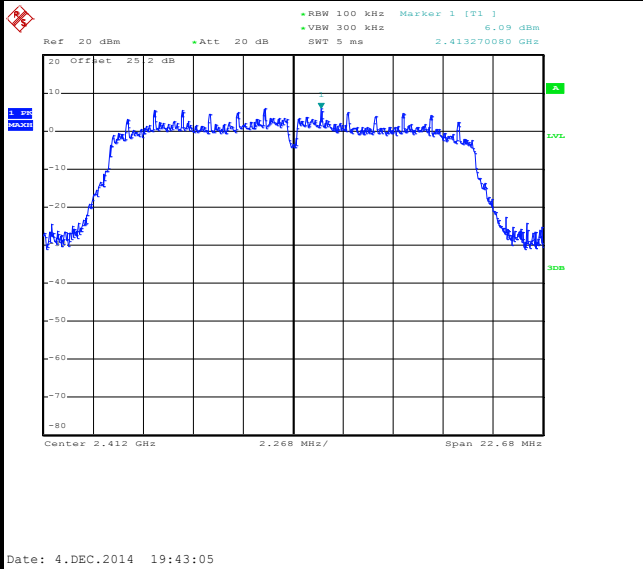
Spurious Emission 2GHz~25GHz



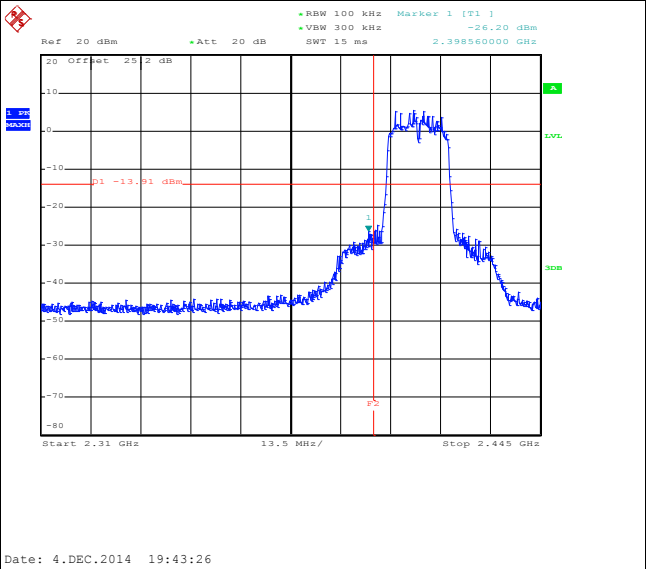
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang

WLAN 802.11g Channel 01

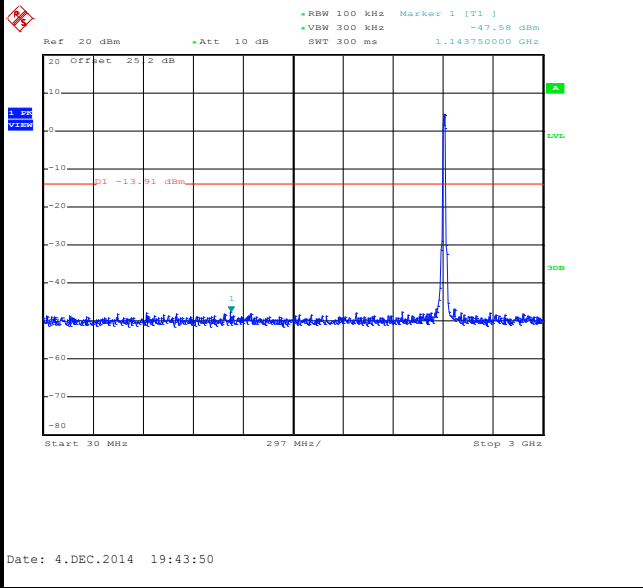
100kHz PSD reference Level



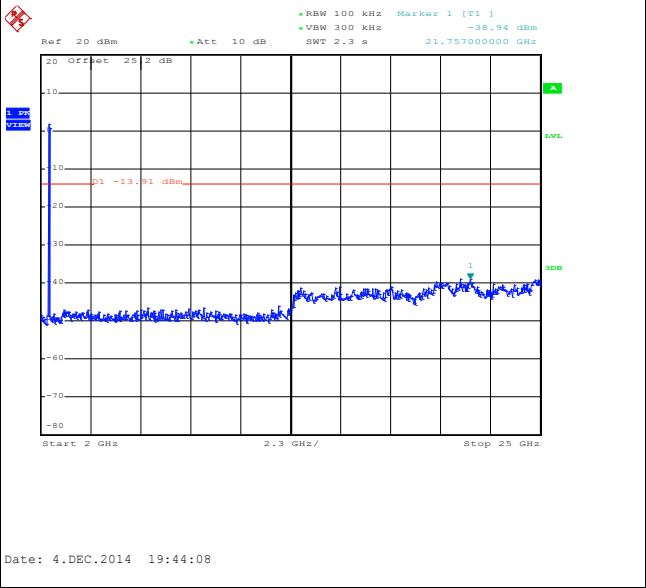
Low Channel Plot



Spurious Emission 30MHz~3GHz



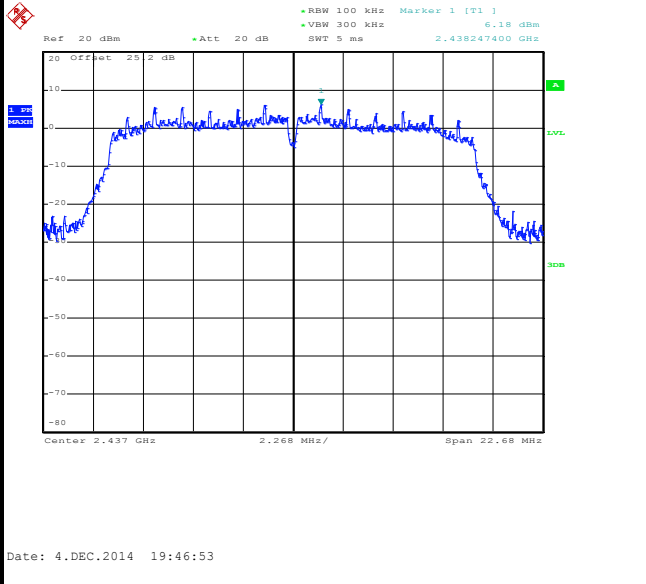
Spurious Emission 2GHz~25GHz



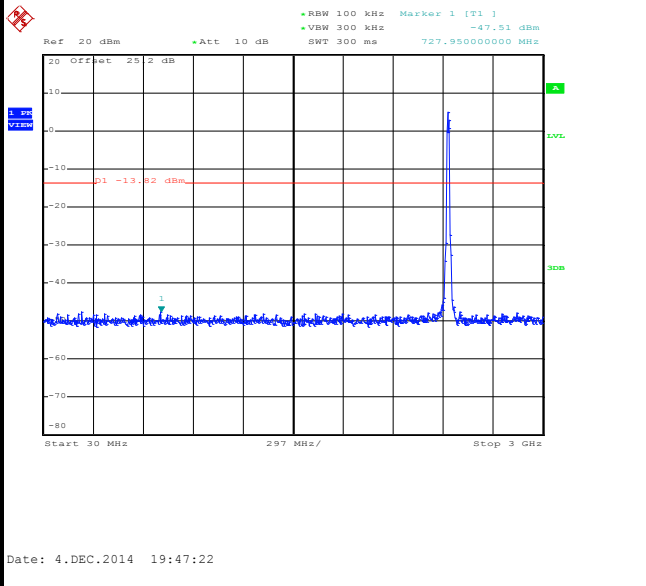
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang

WLAN 802.11g Channel 06

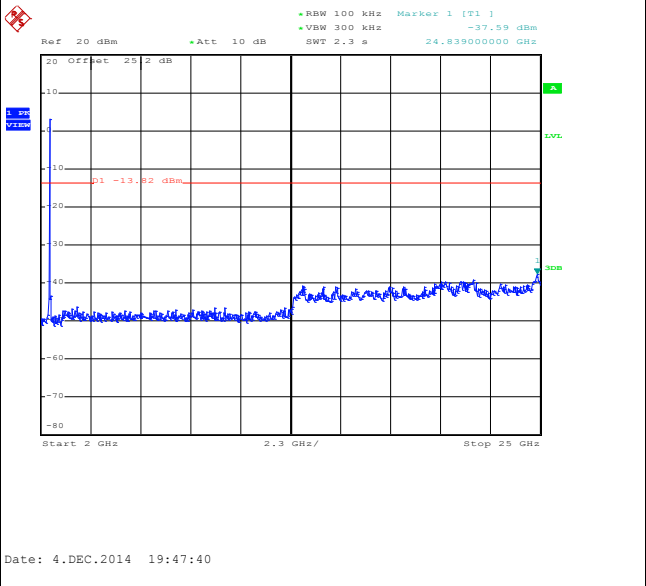
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



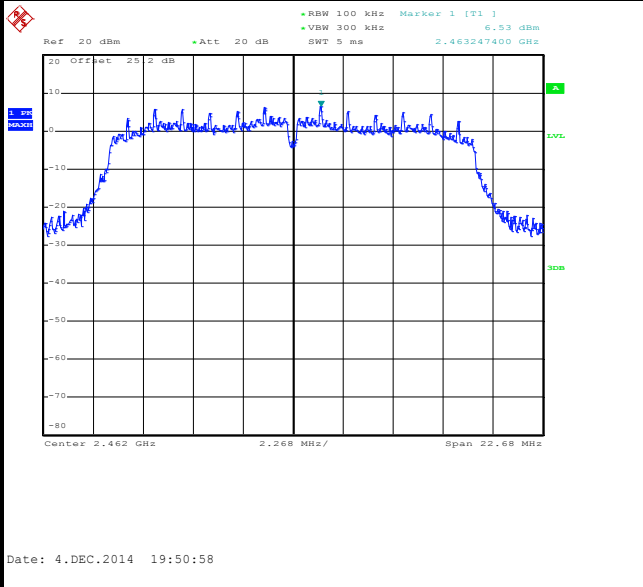
Spurious Emission 2GHz~25GHz



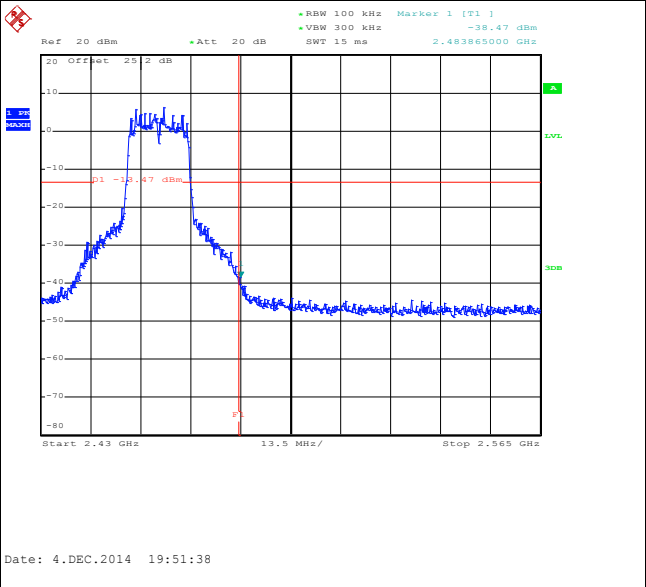
Test Mode :	802.11g	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang

WLAN 802.11g Channel 11

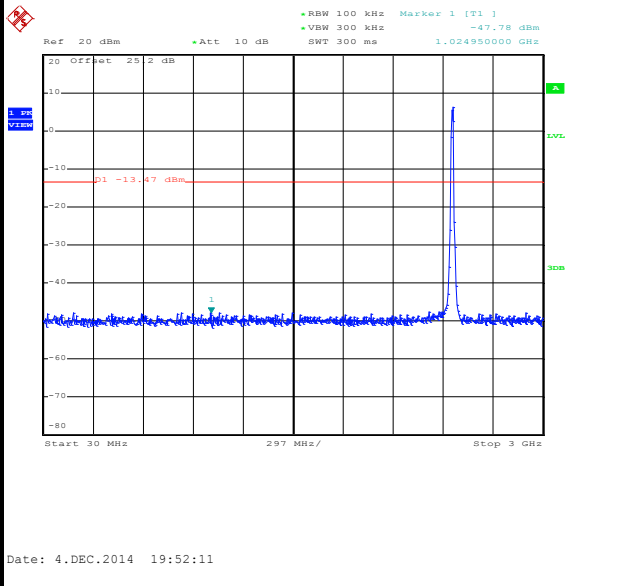
100kHz PSD reference Level



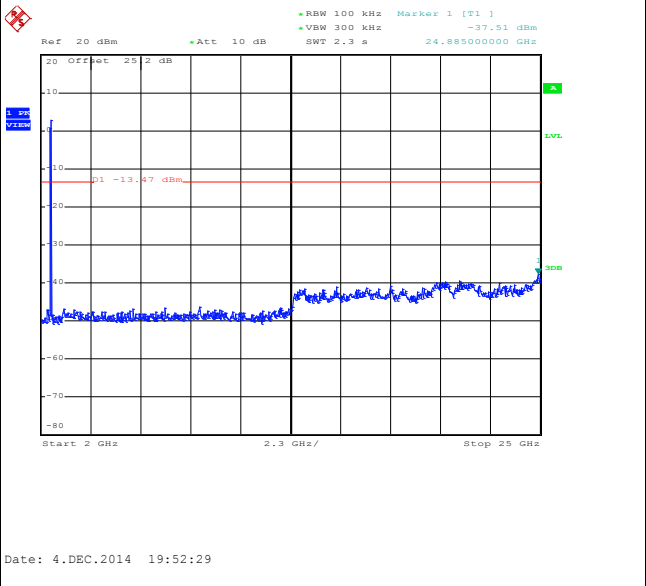
High Channel Plot



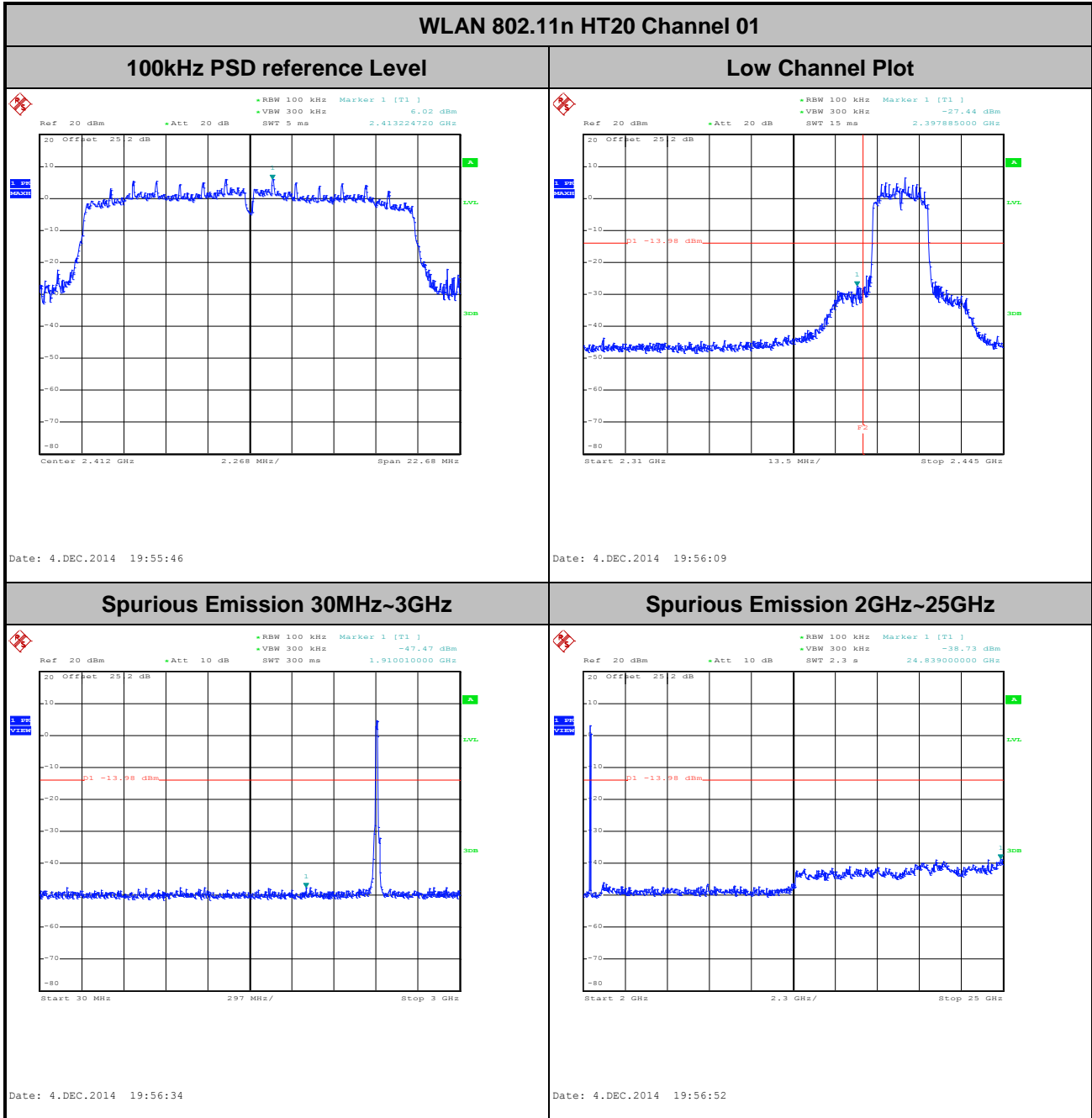
Spurious Emission 30MHz~3GHz



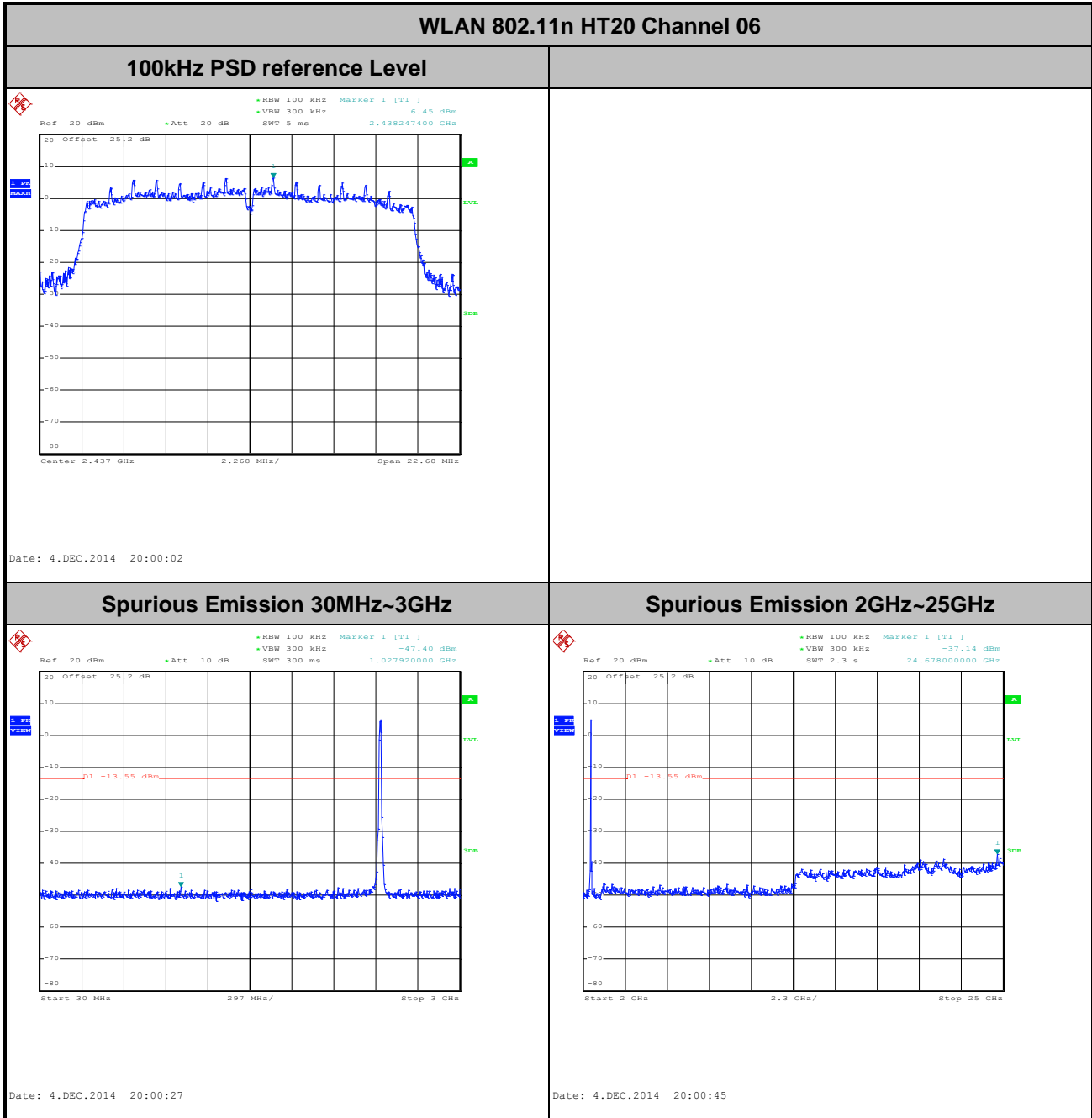
Spurious Emission 2GHz~25GHz



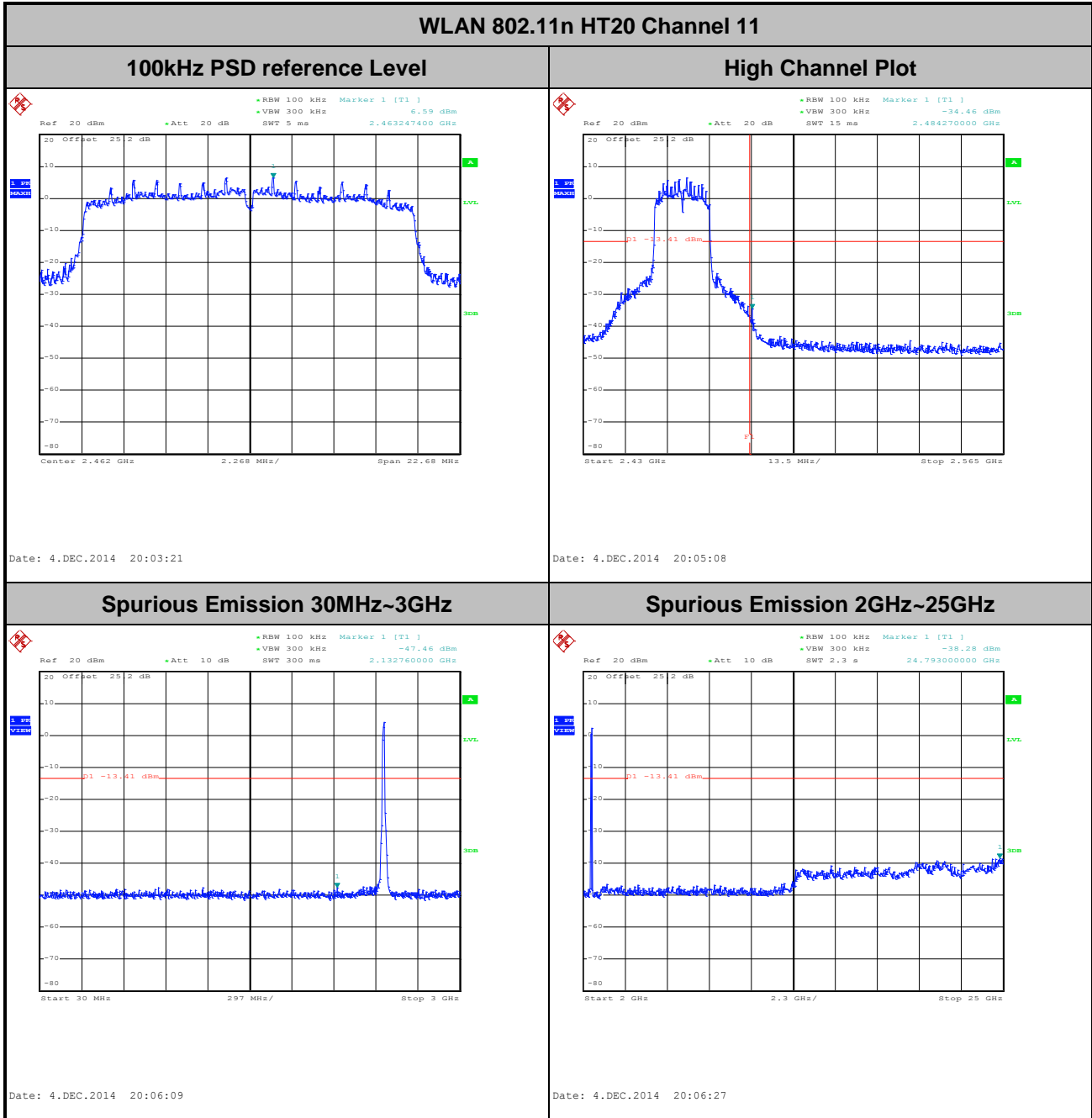
Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Low	Relative Humidity :	45~54%
Test Channel :	01	Test Engineer :	Osolemio Chang



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz Mid	Relative Humidity :	45~54%
Test Channel :	06	Test Engineer :	Osolemio Chang



Test Mode :	802.11n HT20	Temperature :	21~26°C
Test Band :	2.4GHz High	Relative Humidity :	45~54%
Test Channel :	11	Test Engineer :	Osolemio Chang



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

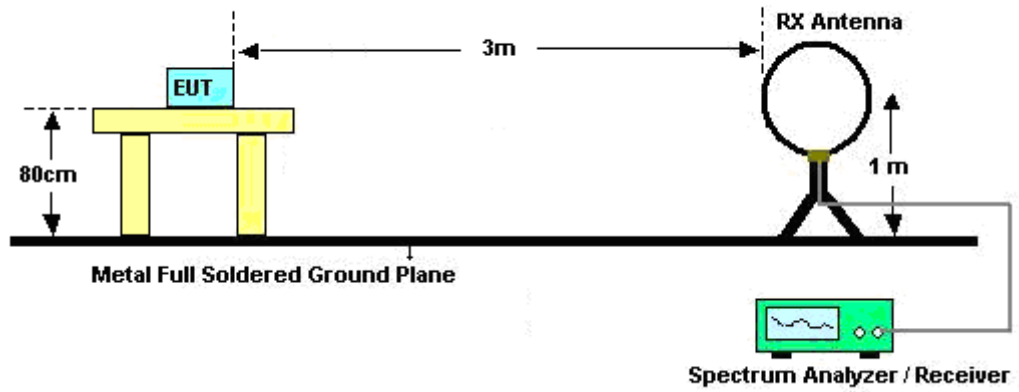
For average measurement:

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

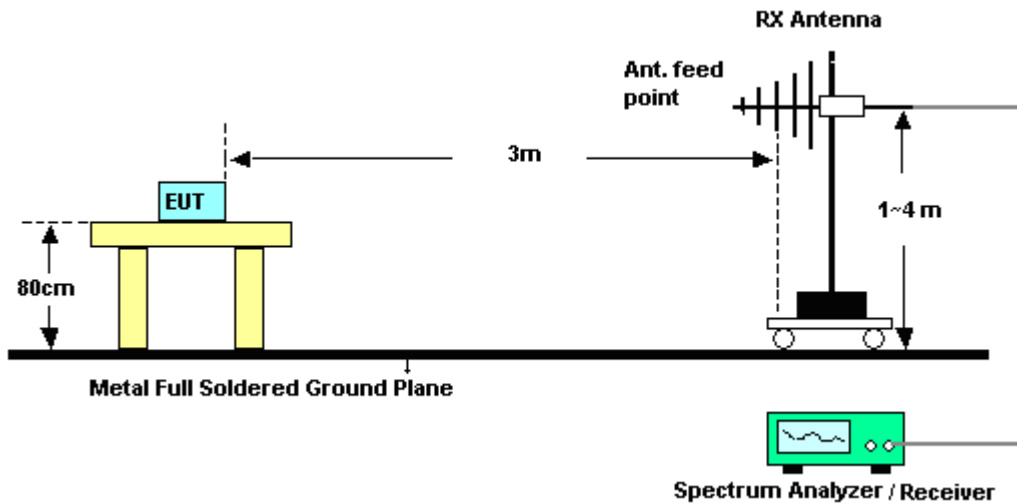
Band	Duty Cycle(%)	T(μ s)	1/T(kHz)	VBW Setting
802.11b	100	-	-	10Hz
802.11g	97.22	1400	0.714285714	1kHz
2.4GHz 802.11n HT20	97.06	1320	0.757575758	1kHz

3.5.4 Test Setup

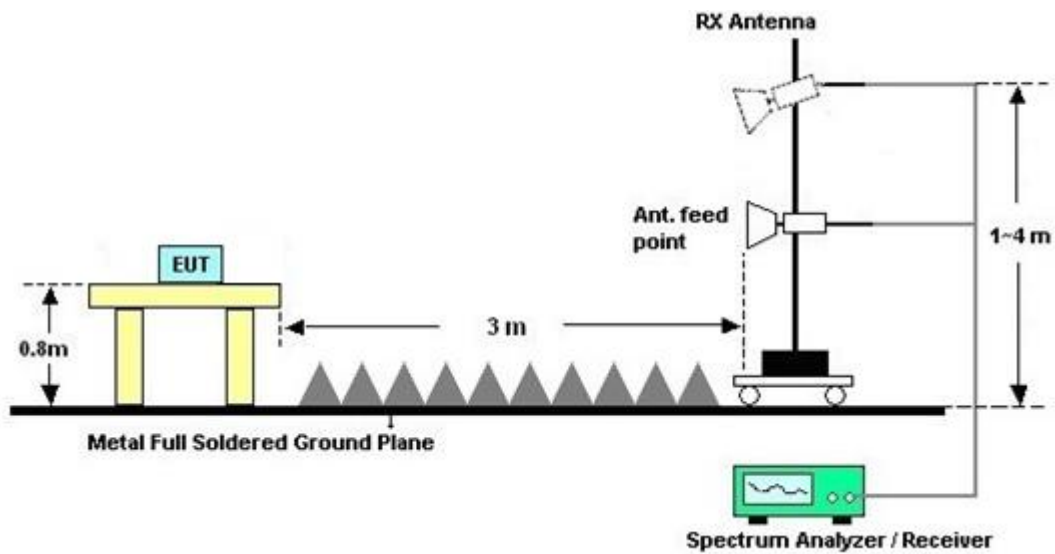
For radiated emissions below 30MHz



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 A.

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

Please refer to Appendix A.

3.6 Antenna Requirements

3.6.1 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.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 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	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Dec. 03, 2014 ~ Dec. 08, 2014	Jun. 08, 2015	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Aug. 09, 2014	Dec. 03, 2014 ~ Dec. 08, 2014	Aug. 08, 2015	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 09, 2014	Dec. 03, 2014 ~ Dec. 08, 2014	Aug. 08, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Jun. 08, 2015	Radiation (03CH05-HY)
Bilog Antenna	Schaffner	CBL6111C	2725	30MHz~1GHz	Sep. 27, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Sep. 26, 2015	Radiation (03CH05-HY)
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-124 1	1GHz~18GHz	Apr. 16, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Apr. 15, 2015	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	18GHz~40GHz	Oct. 02, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Oct. 01, 2015	Radiation (03CH05-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1590074	100kHz~18GHz	Jul. 07, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Jul. 06, 2015	Radiation (03CH05-HY)
Preamplifier	EMCI	EMC011830	980148	DC~18GHz	Jun. 23, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Jun. 22, 2015	Radiation (03CH05-HY)
Preamplifier	COM-POWER	PA-103	161075	9kHz~30MHz	Apr. 15, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Apr. 14, 2015	Radiation (03CH05-HY)
Preamplifier	Miteq	TTA0204	1872107	18GHz~40GHz	May 23, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	May 22, 2015	Radiation (03CH05-HY)
Turn Table	HD	HD100	420/611	0 - 360 degree	N/A	Dec. 06, 2014 ~ Dec. 10, 2014	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	HD100	240/666	1 m - 4 m	N/A	Dec. 06, 2014 ~ Dec. 10, 2014	N/A	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	100315	9 kHz~30 MHz	Jul. 28, 2014	Dec. 06, 2014 ~ Dec. 10, 2014	Jul. 27, 2015	Radiation (03CH05-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.10
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Appendix A. Radiated Spurious Emission

15C 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		2388.21	61.21	-12.79	74	57.47	32.77	4.62	33.65	266	143	P	H	
		2386.32	49.04	-4.96	54	45.3	32.77	4.62	33.65	266	143	A	H	
	*	2411	113.22	-	-	109.39	32.81	4.65	33.63	266	143	P	H	
	*	2411	108.22	-	-	104.39	32.81	4.65	33.63	266	143	A	H	
													H	
														H
			2389.47	58.94	-15.06	74	55.2	32.77	4.62	33.65	400	85	P	V
			2390	46.44	-7.56	54	42.7	32.77	4.62	33.65	400	85	A	V
	*		2411	110.87	-	-	107.04	32.81	4.65	33.63	400	85	P	V
	*		2411	105.94	-	-	102.11	32.81	4.65	33.63	400	85	A	V
														V
														V
802.11b CH 06 2437MHz		2388.21	57.48	-16.52	74	53.74	32.77	4.62	33.65	257	143	P	H	
		2389.92	44.79	-9.21	54	41.05	32.77	4.62	33.65	257	143	A	H	
	*	2436	112.62	-	-	108.71	32.85	4.68	33.62	257	143	P	H	
	*	2436	108.05	-	-	104.14	32.85	4.68	33.62	257	143	A	H	
			2485.76	56.46	-17.54	74	52.34	32.96	4.73	33.57	257	143	P	H
			2483.52	43.07	-10.93	54	38.95	32.96	4.73	33.57	257	143	A	H
			2385.78	55.33	-18.67	74	51.59	32.77	4.62	33.65	314	294	P	V
			2390	42.11	-11.89	54	38.37	32.77	4.62	33.65	314	294	A	V
	*		2436	105.88	-	-	101.97	32.85	4.68	33.62	314	294	P	V
	*		2436	100.96	-	-	97.05	32.85	4.68	33.62	314	294	A	V
			2488.44	55.05	-18.95	74	50.88	33	4.73	33.56	314	294	P	V
			2483.96	42.26	-11.74	54	38.14	32.96	4.73	33.57	314	294	A	V

802.11b CH 11 2462MHz	*	2461	112.01	-	-	107.98	32.92	4.7	33.59	318	143	P	H
	*	2461	107.12	-	-	103.09	32.92	4.7	33.59	318	143	A	H
		2486.36	58.25	-15.75	74	54.13	32.96	4.73	33.57	318	143	P	H
		2483.52	45.32	-8.68	54	41.2	32.96	4.73	33.57	318	143	A	H
													H
													H
	*	2461	104.91	-	-	100.88	32.92	4.7	33.59	385	293	P	V
	*	2461	100.62	-	-	96.59	32.92	4.7	33.59	385	293	A	V
		2487.08	56.67	-17.33	74	52.55	32.96	4.73	33.57	385	293	P	V
		2483.6	42.73	-11.27	54	38.61	32.96	4.73	33.57	385	293	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11b (Harmonic @ 3m)

WIFI	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		4824	44.9	-29.1	74	61.94	35.03	6.54	58.61	100	0	P	H
													H
													H
													H
		4824	42.69	-31.31	74	59.73	35.03	6.54	58.61	100	0	P	V
													V
													V
													V
802.11b CH 06 2437MHz		4875	44.84	-29.16	74	61.78	35.02	6.56	58.52	100	0	P	H
		7311	42.23	-31.77	74	55.76	36.39	8.24	58.16	100	0	P	H
													H
													H
		4875	41.54	-32.46	74	58.48	35.02	6.56	58.52	100	0	P	V
		7311	42.22	-31.78	74	55.75	36.39	8.24	58.16	100	0	P	V
													V
													V
802.11b CH 11 2462MHz		4923	43.23	-30.77	74	60.05	35.01	6.59	58.42	100	0	P	H
		7386	42.79	-31.21	74	56.35	36.44	8.31	58.31	100	0	P	H
													H
													H
		4923	41.91	-32.09	74	58.73	35.01	6.59	58.42	100	0	P	V
		7386	41.57	-32.43	74	55.13	36.44	8.31	58.31	100	0	P	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11g (Band Edge @ 3m)

WIFI	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)	
802.11g CH 01 2412MHz		2390	68.59	-5.41	74	64.85	32.77	4.62	33.65	330	141	P	H	
		2390	53.03	-0.97	54	49.29	32.77	4.62	33.65	330	141	A	H	
	*	2411	113.13	-	-	109.3	32.81	4.65	33.63	330	141	P	H	
	*	2411	101.23	-	-	97.4	32.81	4.65	33.63	330	141	A	H	
													H	
														H
			2390	66.58	-7.42	74	62.84	32.77	4.62	33.65	400	87	P	V
			2390	50.87	-3.13	54	47.13	32.77	4.62	33.65	400	87	A	V
	*		2413	110.08	-	-	106.25	32.81	4.65	33.63	400	87	P	V
	*		2413	98.97	-	-	95.14	32.81	4.65	33.63	400	87	A	V
														V
														V
802.11g CH 02 2417MHz		2388.75	69.59	-4.41	74	65.85	32.77	4.62	33.65	108	210	P	H	
		2389.83	52.14	-1.86	54	48.4	32.77	4.62	33.65	108	210	A	H	
	*	2418	115.07	-	-	111.24	32.81	4.65	33.63	108	210	P	H	
	*	2418	104.27	-	-	100.44	32.81	4.65	33.63	108	210	A	H	
													H	
														H
			2389.2	61.94	-12.06	74	58.2	32.77	4.62	33.65	394	261	P	V
			2389.92	47.46	-6.54	54	43.72	32.77	4.62	33.65	394	261	A	V
	*		2417	108.58	-	-	104.75	32.81	4.65	33.63	394	261	P	V
	*		2417	97.45	-	-	93.62	32.81	4.65	33.63	394	261	A	V
														V
														V

802.11g CH 06 2437MHz		2388.93	58.81	-15.19	74	55.07	32.77	4.62	33.65	322	142	P	H
		2389.74	45.98	-8.02	54	42.24	32.77	4.62	33.65	322	142	A	H
	*	2438	116.36	-	-	112.39	32.89	4.68	33.6	322	142	P	H
	*	2438	104.69	-	-	100.72	32.89	4.68	33.6	322	142	A	H
		2485.04	57.55	-16.45	74	53.43	32.96	4.73	33.57	322	142	P	H
		2483.64	44.51	-9.49	54	40.39	32.96	4.73	33.57	322	142	A	H
		2389.2	57.85	-16.15	74	54.11	32.77	4.62	33.65	393	90	P	V
		2389.2	44.45	-9.55	54	40.71	32.77	4.62	33.65	393	90	A	V
	*	2438	112.01	-	-	108.04	32.89	4.68	33.6	393	90	P	V
	*	2438	101.97	-	-	98	32.89	4.68	33.6	393	90	A	V
		2490.64	56.07	-17.93	74	51.9	33	4.73	33.56	393	90	P	V
		2483.56	43.87	-10.13	54	39.75	32.96	4.73	33.57	393	90	A	V
802.11g CH 11 2462MHz	*	2462	113.76	-	-	109.73	32.92	4.7	33.59	318	143	P	H
	*	2462	102.99	-	-	98.96	32.92	4.7	33.59	318	143	A	H
		2484.04	69.09	-4.91	74	64.97	32.96	4.73	33.57	318	143	P	H
		2483.52	53.15	-0.85	54	49.03	32.96	4.73	33.57	318	143	A	H
													H
													H
	*	2461	106.31	-	-	102.28	32.92	4.7	33.59	387	293	P	V
	*	2461	96.18	-	-	92.15	32.92	4.7	33.59	387	293	A	V
		2483.68	60.47	-13.53	74	56.35	32.96	4.73	33.57	387	293	P	V
		2483.68	46.95	-7.05	54	42.83	32.96	4.73	33.57	387	293	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11g (Harmonic @ 3m)

WIFI	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)	
802.11g CH 01 2412MHz		4824	40.86	-33.14	74	57.9	35.03	6.54	58.61	100	0	P	H	
													H	
													H	
													H	
		4824	40.25	-33.75	74	57.29	35.03	6.54	58.61	100	0	P	V	
														V
														V
														V
802.11g CH 06 2437MHz		4875	41.03	-32.97	74	57.97	35.02	6.56	58.52	100	0	P	H	
		7311	42.58	-31.42	74	56.11	36.39	8.24	58.16	100	0	P	H	
													H	
													H	
		4875	42.44	-31.56	74	59.38	35.02	6.56	58.52	100	0	P	V	
		7311	41.85	-32.15	74	55.38	36.39	8.24	58.16	100	0	P	V	
														V
														V
802.11g CH 11 2462MHz		4923	40.56	-33.44	74	57.38	35.01	6.59	58.42	100	0	P	H	
		7386	42.06	-31.94	74	55.62	36.44	8.31	58.31	100	0	P	H	
													H	
													H	
		4923	42.16	-31.84	74	58.98	35.01	6.59	58.42	100	0	P	V	
		7386	41.71	-32.29	74	55.27	36.44	8.31	58.31	100	0	P	V	
														V
														V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.													

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	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)	
802.11n HT20 CH 01 2412MHz		2387.76	68.57	-5.43	74	64.83	32.77	4.62	33.65	328	141	P	H	
		2390	53.03	-0.97	54	49.29	32.77	4.62	33.65	328	141	A	H	
	*	2411	110.59	-	-	106.76	32.81	4.65	33.63	328	141	P	H	
	*	2411	100.61	-	-	96.78	32.81	4.65	33.63	328	141	A	H	
													H	
													H	
			2388.66	67.06	-6.94	74	63.32	32.77	4.62	33.65	400	85	P	V
			2390	52.13	-1.87	54	48.39	32.77	4.62	33.65	400	85	A	V
	*		2411	109.61	-	-	105.78	32.81	4.65	33.63	400	85	P	V
	*		2411	98.53	-	-	94.7	32.81	4.65	33.63	400	85	A	V
													V	
													V	
802.11n HT20 CH 02 2417MHz		2388.66	68.47	-5.53	74	64.73	32.77	4.62	33.65	108	212	P	H	
		2389.83	52.09	-1.91	54	48.35	32.77	4.62	33.65	108	212	A	H	
	*	2418	114.87	-	-	111.04	32.81	4.65	33.63	108	212	P	H	
	*	2418	103.73	-	-	99.9	32.81	4.65	33.63	108	212	A	H	
													H	
													H	
			2389.56	60.2	-13.8	74	56.46	32.77	4.62	33.65	315	263	P	V
			2389.74	45.6	-8.4	54	41.86	32.77	4.62	33.65	315	263	A	V
	*		2418	108.64	-	-	104.81	32.81	4.65	33.63	315	263	P	V
	*		2418	97.1	-	-	93.27	32.81	4.65	33.63	315	263	A	V
													V	
													V	

802.11n HT20 CH 06 2437MHz		2389.92	60.03	-13.97	74	56.29	32.77	4.62	33.65	322	141	P	H
		2389.29	46.24	-7.76	54	42.5	32.77	4.62	33.65	322	141	A	H
	*	2436	114.68	-	-	110.77	32.85	4.68	33.62	322	141	P	H
	*	2436	104.35	-	-	100.44	32.85	4.68	33.62	322	141	A	H
		2483.84	57.79	-16.21	74	53.67	32.96	4.73	33.57	322	141	P	H
		2483.68	44.69	-9.31	54	40.57	32.96	4.73	33.57	322	141	A	H
		2380.47	55.25	-18.75	74	51.56	32.73	4.62	33.66	314	295	P	V
		2389.11	43.11	-10.89	54	39.37	32.77	4.62	33.65	314	295	A	V
	*	2435	107.82	-	-	103.91	32.85	4.68	33.62	314	295	P	V
	*	2435	97.6	-	-	93.69	32.85	4.68	33.62	314	295	A	V
		2486.68	55.8	-18.2	74	51.68	32.96	4.73	33.57	314	295	P	V
		2484.12	43.09	-10.91	54	38.97	32.96	4.73	33.57	314	295	A	V
802.11n HT20 CH 10 2457MHz	*	2456	113.14	-	-	109.11	32.92	4.7	33.59	199	140	P	H
	*	2456	103.4	-	-	99.37	32.92	4.7	33.59	199	140	A	H
		2483.64	63.74	-10.26	74	59.62	32.96	4.73	33.57	199	140	P	H
		2483.52	50.33	-3.67	54	46.21	32.96	4.73	33.57	199	140	A	H
													H
													H
	*	2458	107.77	-	-	103.74	32.92	4.7	33.59	389	297	P	V
	*	2458	97.5	-	-	93.47	32.92	4.7	33.59	389	297	A	V
		2484.08	57.42	-16.58	74	53.3	32.96	4.73	33.57	389	297	P	V
		2483.68	44.86	-9.14	54	40.74	32.96	4.73	33.57	389	297	A	V
												V	
												V	

802.11n HT20 CH 11 2462MHz	*	2463	112.26	-	-	108.23	32.92	4.7	33.59	255	145	P	H
	*	2463	102.04	-	-	98.01	32.92	4.7	33.59	255	145	A	H
		2483.56	67.87	-6.13	74	63.75	32.96	4.73	33.57	255	145	P	H
		2483.6	52.18	-1.82	54	48.06	32.96	4.73	33.57	255	145	A	H
													H
													H
	*	2461	105.53	-	-	101.5	32.92	4.7	33.59	386	293	P	V
	*	2461	95.01	-	-	90.98	32.92	4.7	33.59	386	293	A	V
		2483.8	62.21	-11.79	74	58.09	32.96	4.73	33.57	386	293	P	V
		2483.52	46.37	-7.63	54	42.25	32.96	4.73	33.57	386	293	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C 2.4GHz 2400~2483.5MHz

WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	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)
802.11n HT20 CH 01 2412MHz		4824	40.96	-33.04	74	58	35.03	6.54	58.61	100	0	P	H
													H
													H
													H
		4824	39.91	-34.09	74	56.95	35.03	6.54	58.61	100	0	P	V
													V
													V
802.11n HT20 CH 06 2437MHz		4875	41.47	-32.53	74	58.41	35.02	6.56	58.52	100	0	P	H
		7311	41.54	-32.46	74	55.07	36.39	8.24	58.16	100	0	P	H
													H
													H
		4875	41.89	-32.11	74	58.83	35.02	6.56	58.52	100	0	P	V
		7311	41.75	-32.25	74	55.28	36.39	8.24	58.16	100	0	P	V
													V
802.11n HT20 CH 11 2462MHz		4923	40.84	-33.16	74	57.66	35.01	6.59	58.42	100	0	P	H
		7386	42.03	-31.97	74	55.59	36.44	8.31	58.31	100	0	P	H
													H
													H
		4923	41.92	-32.08	74	58.74	35.01	6.59	58.42	100	0	P	V
		7386	41.94	-32.06	74	55.5	36.44	8.31	58.31	100	0	P	V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												

15C Emission below 1GHz

2.4GHz WIFI 802.11g (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		37.29	32.28	-7.72	40	48.55	14.8	0.74	31.81	-	-	P	H	
		113.16	36.28	-7.22	43.5	55.4	11.5	1.16	31.78	122	36	P	H	
		252.21	38.4	-7.6	46	55.82	12.7	1.65	31.77	-	-	P	H	
		387.5	33.54	-12.46	46	47.92	15.42	1.99	31.79	-	-	P	H	
		456.1	34.35	-11.65	46	46.74	17.32	2.14	31.85	-	-	P	H	
		479.9	33.62	-12.38	46	45.6	17.7	2.19	31.87	-	-	P	H	
														H
														H
														H
														H
														H
														H
			69.15	33.08	-6.92	40	57.63	6.32	0.92	31.79	155	161	P	V
			124.23	34.92	-8.58	43.5	53.92	11.58	1.2	31.78	-	-	P	V
			240.06	37.36	-8.64	46	56.12	11.4	1.61	31.77	-	-	P	V
			456.1	32.1	-13.9	46	44.49	17.32	2.14	31.85	-	-	P	V
			528.2	31.83	-14.17	46	43.28	18.19	2.29	31.93	-	-	P	V
			777.4	35.59	-10.41	46	42.65	22.1	2.79	31.95	-	-	P	V
														V
														V
													V	
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													

15C 2.4GHz 2400~2483.5MHz (With the plastic loop installed on device)

WIFI 802.11g (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)	
802.11g CH 01 2412MHz		2390	66.07	-7.93	74	62.33	32.77	4.62	33.65	109	227	P	H	
		2389.92	51.4	-2.6	54	47.66	32.77	4.62	33.65	109	227	A	H	
	*	2413	111.65	-	-	107.82	32.81	4.65	33.63	109	227	P	H	
	*	2413	100.14	-	-	96.31	32.81	4.65	33.63	109	227	A	H	
													H	
													H	
			2389.83	64.01	-9.99	74	60.27	32.77	4.62	33.65	392	241	P	V
			2390	47.85	-6.15	54	44.11	32.77	4.62	33.65	392	241	A	V
	*		2413	107.4	-	-	103.57	32.81	4.65	33.63	392	241	P	V
	*		2413	96.7	-	-	92.87	32.81	4.65	33.63	392	241	A	V
													V	
													V	
Remark	1. No other spurious found. 2. All results are PASS against limit line.													

15C 2.4GHz 2400~2483.5MHz (With the plastic loop installed on device)

WIFI 802.11g (Harmonic @ 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)
802.11g CH 01 2412MHz		4824	40.49	-33.51	74	57.53	35.03	6.54	58.61	100	0	P	H
													H
													H
													H
		4824	40.81	-33.19	74	57.85	35.03	6.54	58.61	100	0	P	V
													V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

Note symbol

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

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

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

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

For Peak Limit @ 2390MHz:

- 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)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- 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)
- 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”.