



FCC RF Test Report

APPLICANT : ZTE CORPORATION
EQUIPMENT : USB Modem
BRAND NAME : ZTE
MODEL NAME : MF70
FCC ID : Q78-ZTEMF70
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Jun. 21, 2012 and completely tested on Jul. 10, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager



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



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	-
			Radiated Spurious Emission		Pass	Under limit 3.02 dB at 183.260 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 6.84 dB at 12.000 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

ZTE CORPORATION

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

1.2 Manufacturer

ZTE CORPORATION

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

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	USB Modem
Brand Name	ZTE
Model Name	MF70
FCC ID	Q78-ZTEMF70
EUT supports Radios application	GSM / EGPRS / WCDMA / HSPA / HSPA+ / WLAN 11bgn
HW Version	T02
SW Version	EN_ZTE_HDV6MF70V1.0.0B03
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.

Product Specification subjective to this standard	
Tx/Rx Frequency Range	2412 MHz ~ 2462 MHz
Number of Channels	11
Carrier Frequency of Each Channel	2412+(n-1)*5 MHz; n=1~11
Maximum Output Power to Antenna	802.11b : 14.33 dBm (0.027 W) 802.11g : 21.56 dBm (0.143 W) 802.11n HT-20 : 20.15 dBm (0.104 W)
Antenna Type	PCB Antenna with gain 2.40 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.			
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH01-KS	CO01-KS	03CH01-KS	149928/4086E-1

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01
- ♦ FCC TCB Workshop 2012, April
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3

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.



1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	Monitor	Dell	E1910Hc	FCC DoC	Shielded, 1.2 m	Unshielded, 1.8 m
4.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A
5.	Notebook	DELL	P08S	QDS-BRCM1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
6.	Notebook	DELL	VOSTRO1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

2 Test Configuration of Equipment Under Test

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 as below table and the highest power data rates (11b, 11g, 11n HT-20 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line. .

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	14.33	14.15	14.32	14.31

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)	19.61	19.02	19.35	18.67	20.96	20.29	21.56	20.95

2.4GHz 802.11n HT-20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.31	19.06	19.53	20.11	20.15	20.05	18.68	17.89

2.3 Test Mode

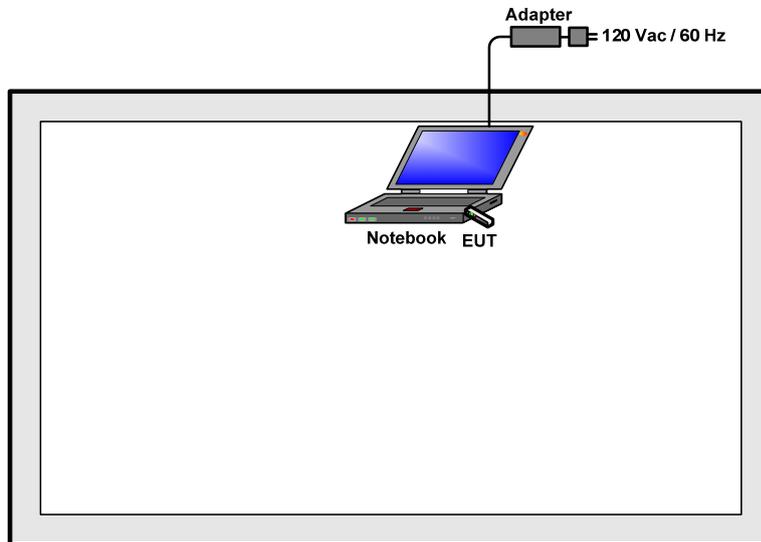
The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

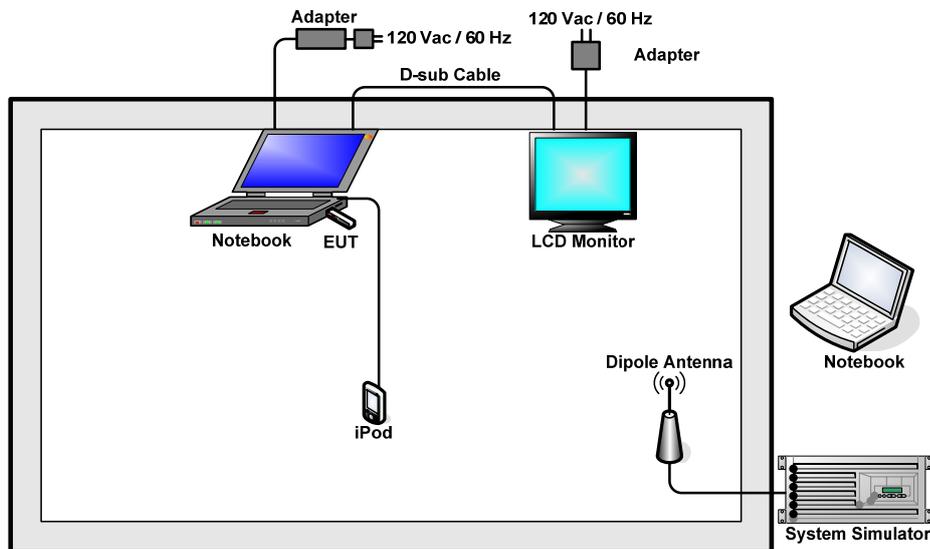
Test Cases				
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)			
	Test Mode	802.11b	802.11g	802.11n HT-20
Conducted TCs	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
Radiated TCs	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
AC Conducted Emission	Mode 1 : GSM850 (GPRS 8) Idle + WLAN Link + USB Data Link with Notebook			

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF utility "Wifi test" is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

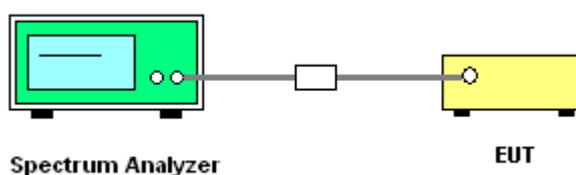
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * RBW$. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



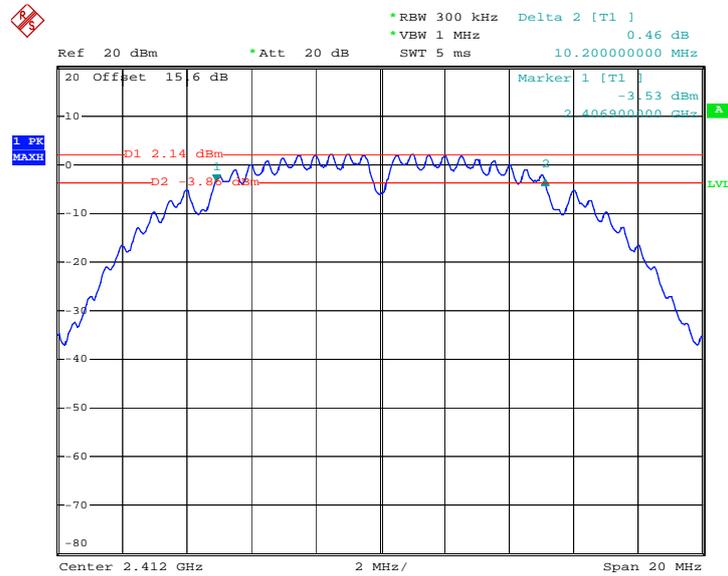


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.20	0.5	Pass
06	2437	10.20	0.5	Pass
11	2462	10.20	0.5	Pass

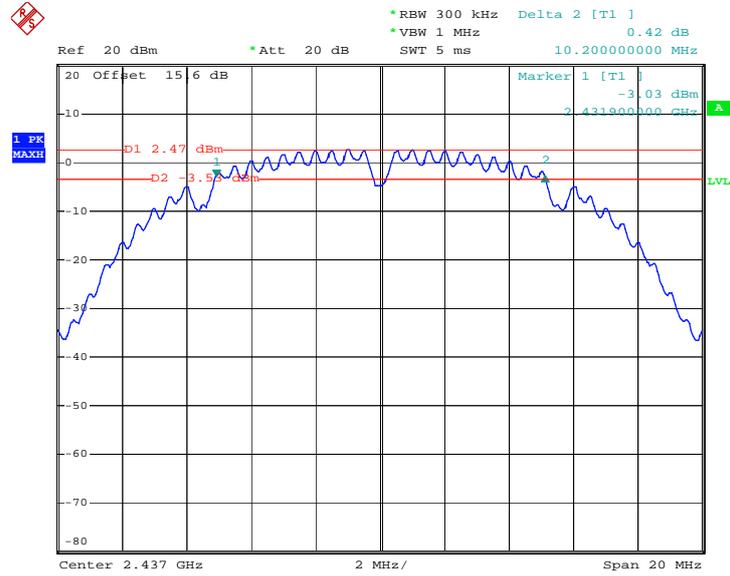
6 dB Bandwidth Plot on 802.11b Channel 01



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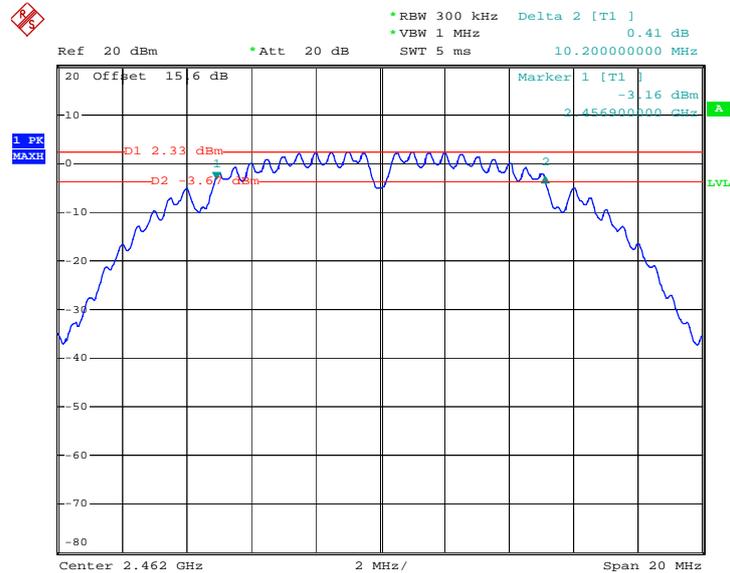


6 dB Bandwidth Plot on 802.11b Channel 06



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6 dB Bandwidth Plot on 802.11b Channel 11



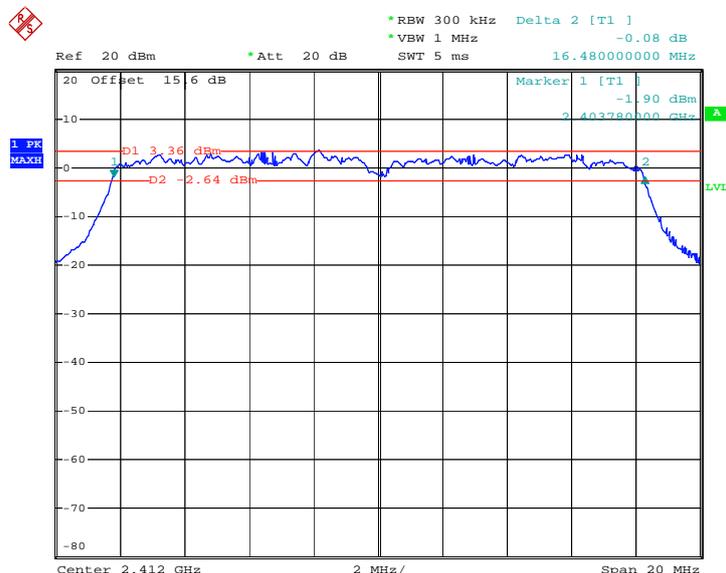
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Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.48	0.5	Pass
06	2437	16.48	0.5	Pass
11	2462	16.44	0.5	Pass

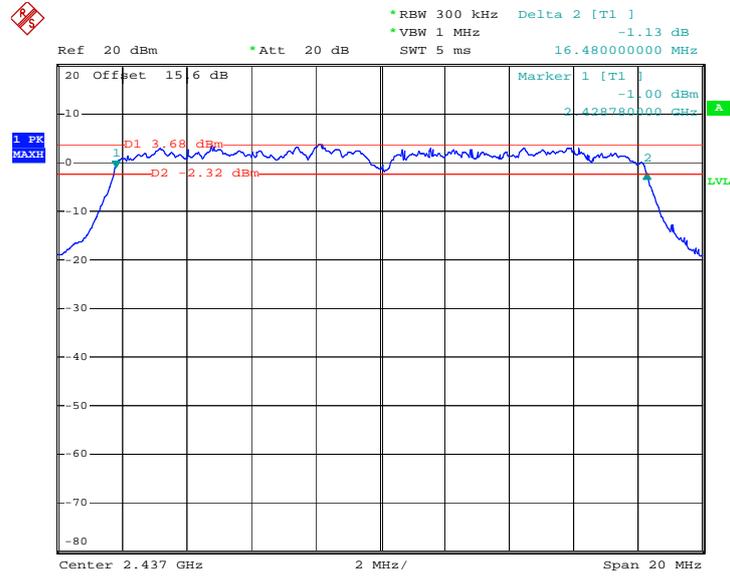
6 dB Bandwidth Plot on 802.11g Channel 01



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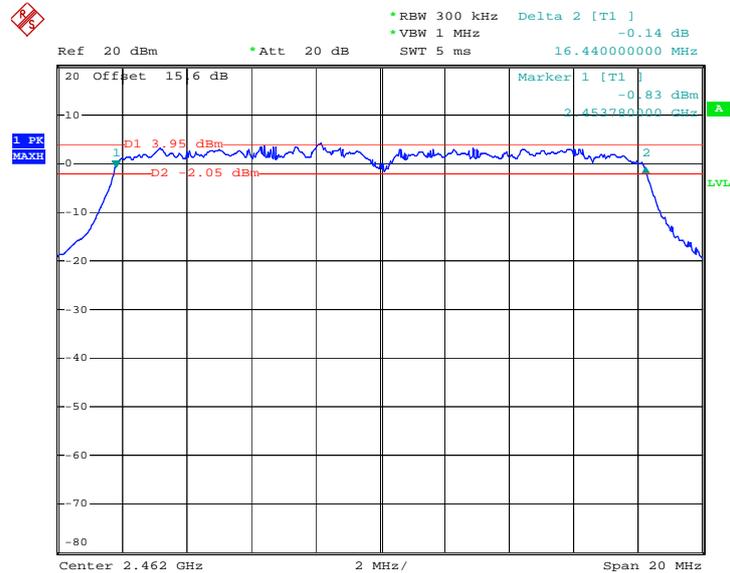


6 dB Bandwidth Plot on 802.11g Channel 06



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6 dB Bandwidth Plot on 802.11g Channel 11



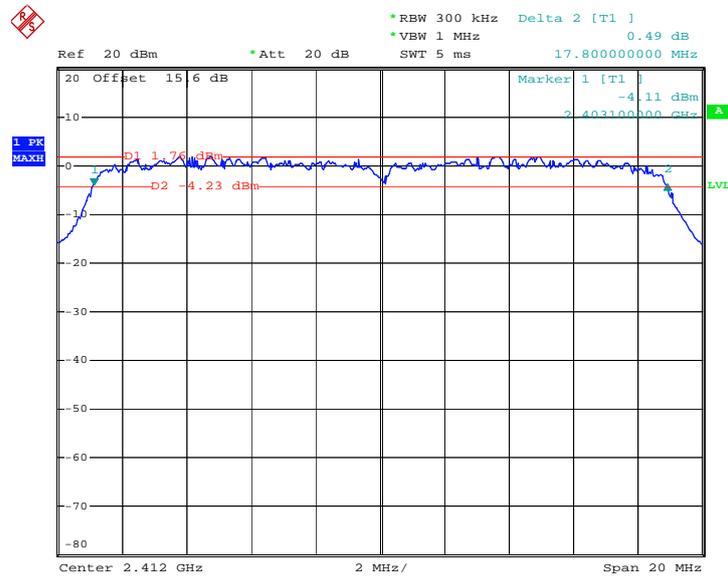
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Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.80	0.5	Pass
06	2437	17.72	0.5	Pass
11	2462	17.70	0.5	Pass

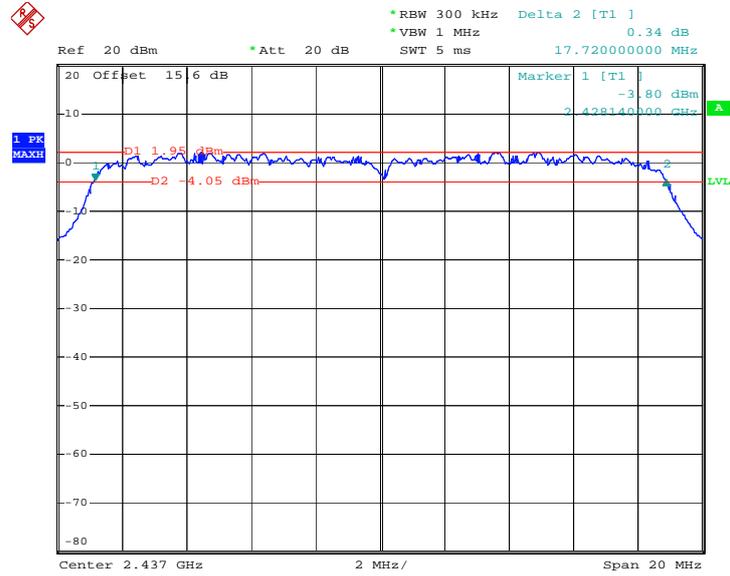
6 dB Bandwidth Plot on 802.11n HT-20 Channel 01



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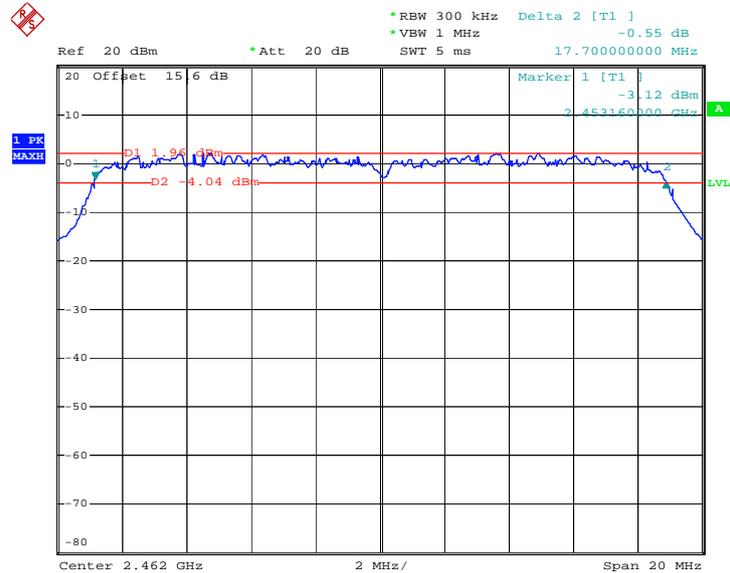


6 dB Bandwidth Plot on 802.11n HT-20 Channel 06



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6 dB Bandwidth Plot on 802.11n HT-20 Channel 11



Date: 3.JUL.2012 10:41:12

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.

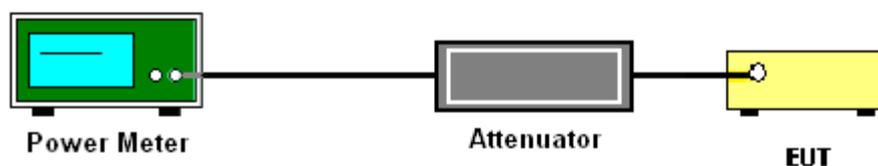
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure 7.2.1.3 Option 3(peak power meter method) of FCC KDB No. 558074 DTS Meas. Guidance DR01.
2. The RF output of EUT was connected to the power meter by a low loss cable
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	14.05	30	Pass
06	2437	13.94	30	Pass
11	2462	14.33	30	Pass

Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.39	30	Pass
06	2437	19.86	30	Pass
11	2462	21.56	30	Pass

Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.46	30	Pass
06	2437	19.51	30	Pass
11	2462	20.15	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	23~24
Test Engineer :	Zhi Lu	Relative Humidity :	47~48
Duty Cycle:	100.00%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	11.72
06	2437	11.62
11	2462	11.77

Test Mode :	802.11g	Temperature :	23~24
Test Engineer :	Zhi Lu	Relative Humidity :	47~48
Duty Cycle:	89.03%	Duty Factor:	0.50dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	10.95
06	2437	11.47
11	2462	11.61

Test Mode :	802.11n HT-20	Temperature :	23~24
Test Engineer :	Zhi Lu	Relative Humidity :	47~48
Duty Cycle:	90.40%	Duty Factor:	0.44dB

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)
01	2412	9.39
06	2437	10.13
11	2462	10.45

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

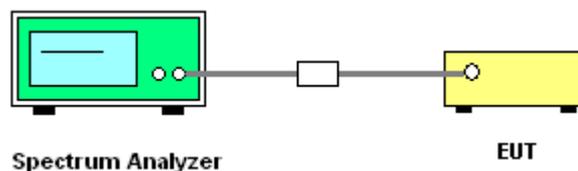
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 5.3.1 (Peak PSD) of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) \geq 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
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 in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz} = -15.2\text{ dB})$.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

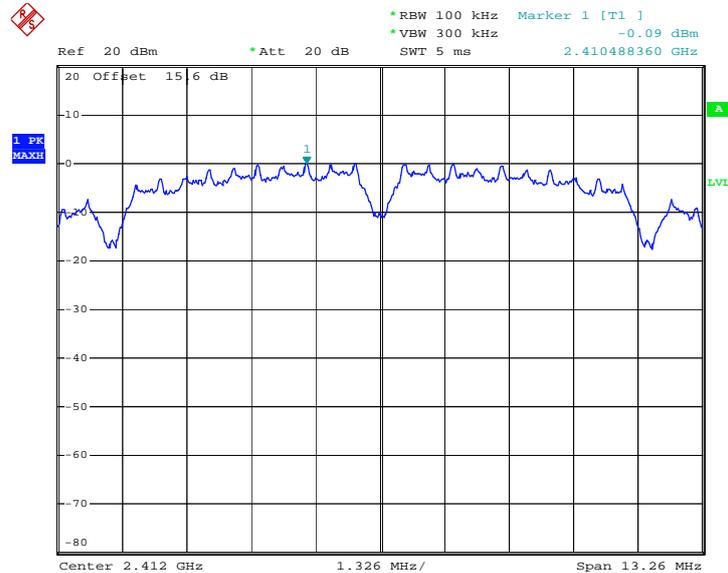
Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-0.09	-15.29	8	Pass
06	2437	0.36	-14.84	8	Pass
11	2462	0.29	-14.91	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3kHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

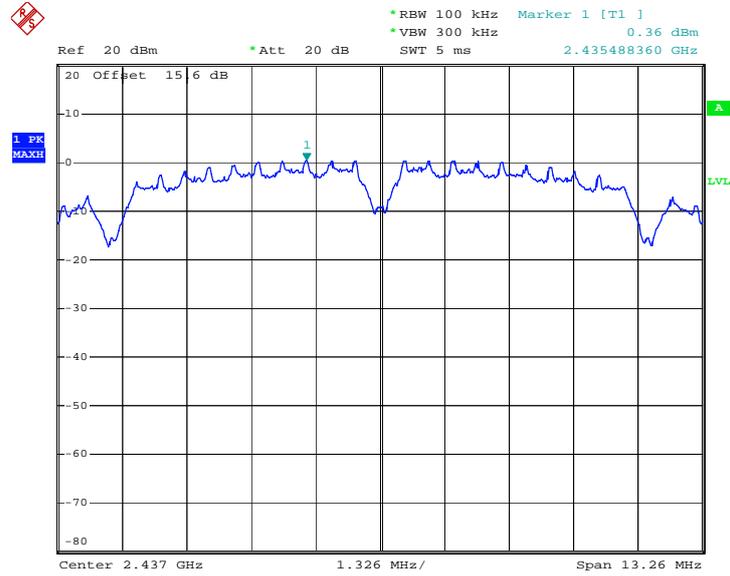
PSD Plot on 802.11b Channel 01



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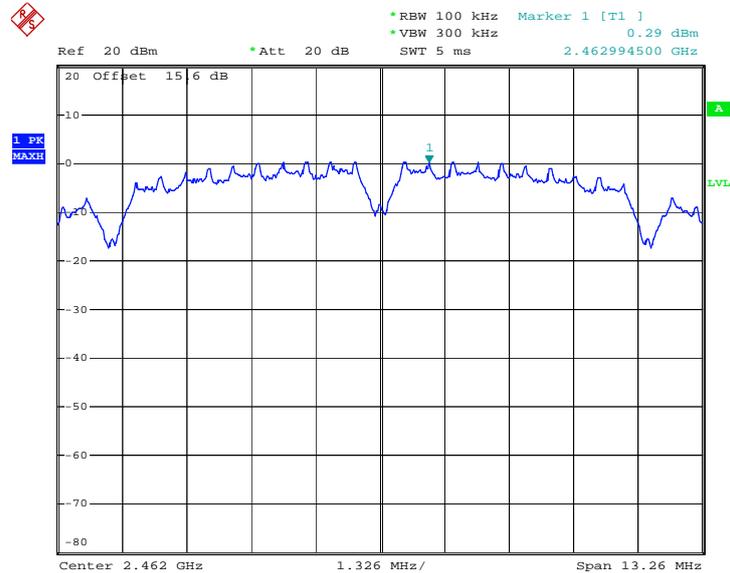


PSD Plot on 802.11b Channel 06



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PSD Plot on 802.11b Channel 11



Date: 3.JUL.2012 10:13:52



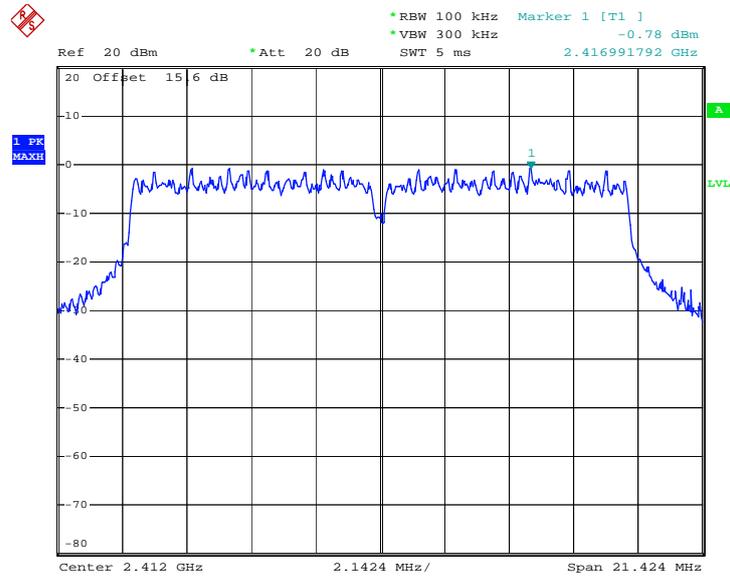
Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-0.78	-15.98	8	Pass
06	2437	-0.65	-15.85	8	Pass
11	2462	-0.55	-15.75	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. $BWCF (dB) = 10 \log (3k/100k) = -15.2 \text{ dB}$
3. $\text{Power Density/ 3KHz (dBm)} = \text{Measured power density/ 100KHz (dBm)} + BWCF (dB)$

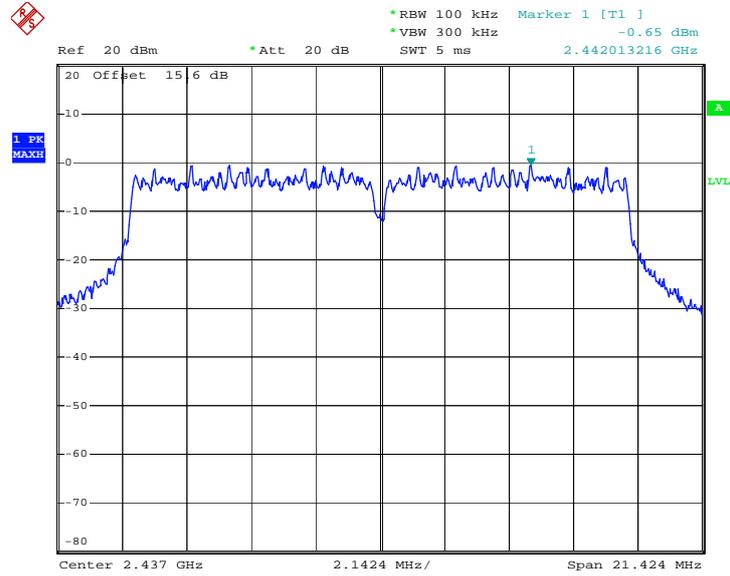
PSD Plot on 802.11g Channel 01



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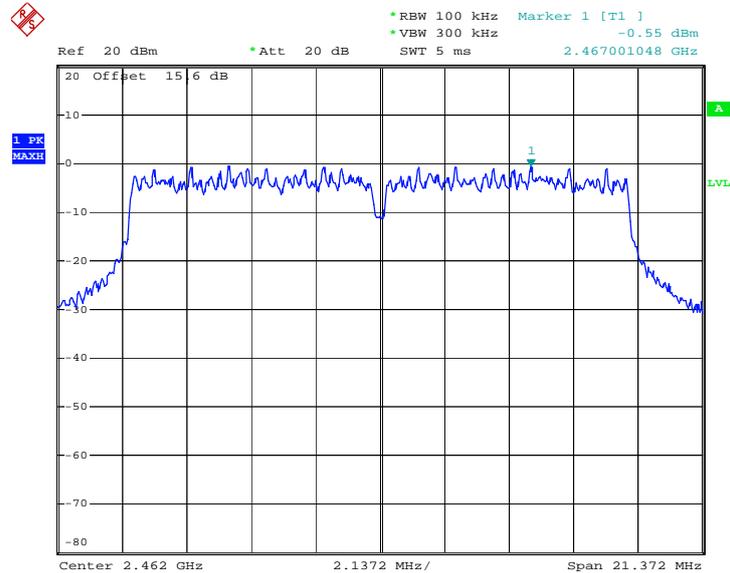


PSD Plot on 802.11g Channel 06



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PSD Plot on 802.11g Channel 11



Date: 3.JUL.2012 10:28:15



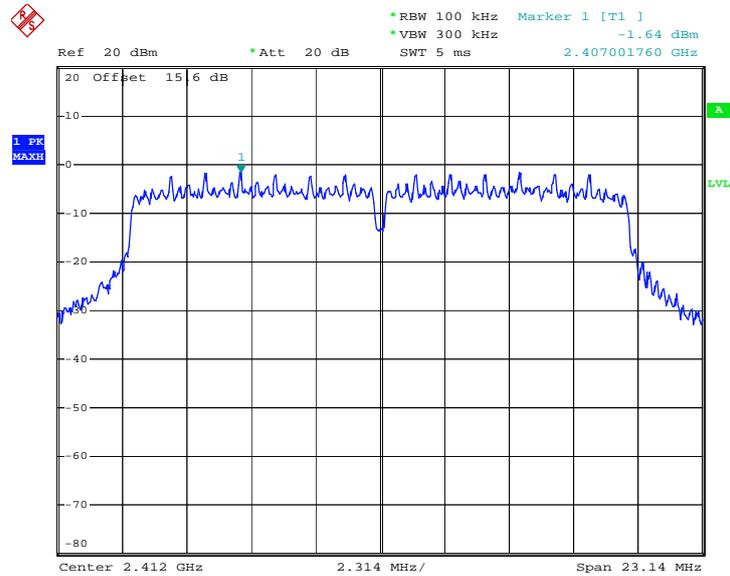
Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-1.64	-16.84	8	Pass
06	2437	-1.48	-16.68	8	Pass
11	2462	-1.46	-16.66	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

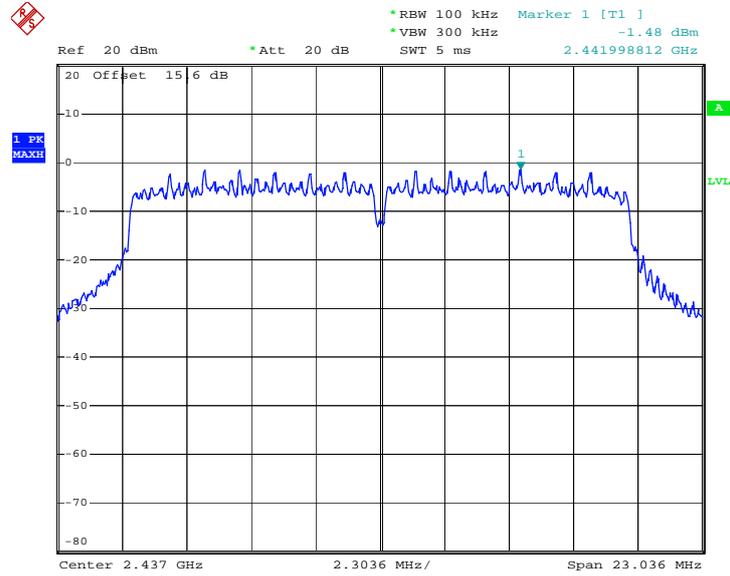
PSD Plot on 802.11n HT-20 Channel 01



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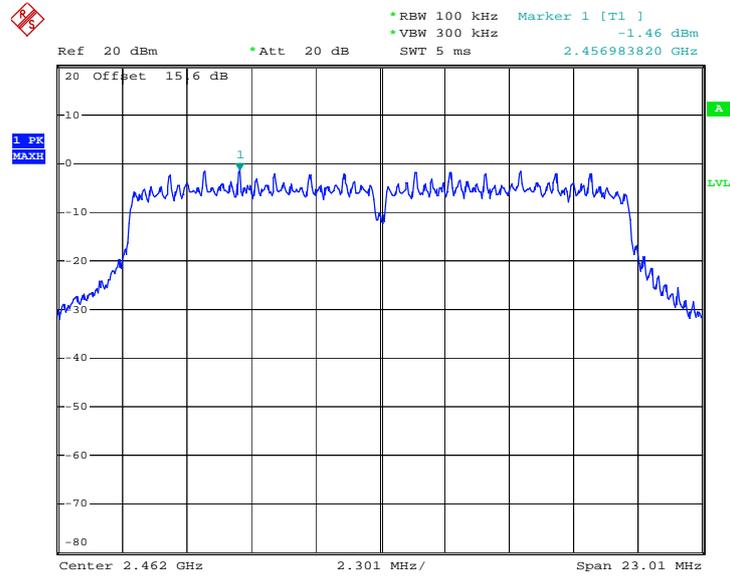


PSD Plot on 802.11n HT-20 Channel 06



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PSD Plot on 802.11n HT-20 Channel 11



Date: 3.JUL.2012 10:41:33

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

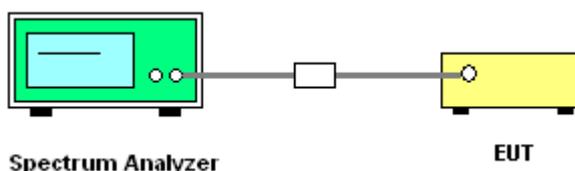
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. 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. The attenuation is set to 30dB, when maximum conducted output power procedure is used.

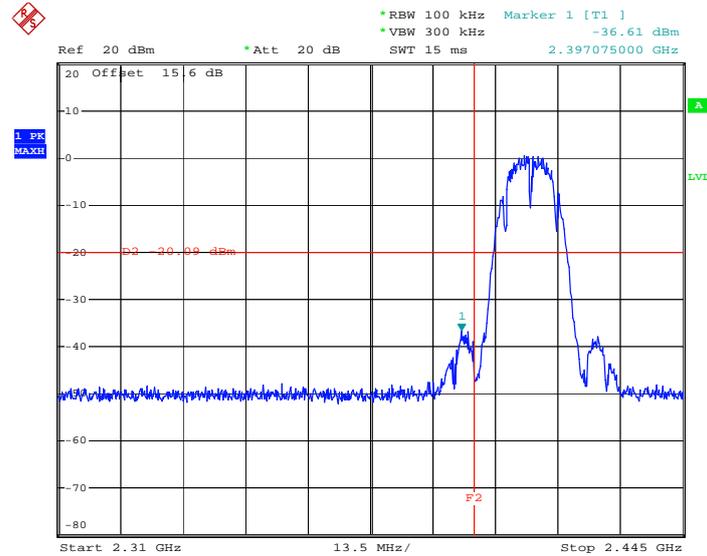
3.4.4 Test Setup



3.4.5 Test Plots of Conducted Band Edges

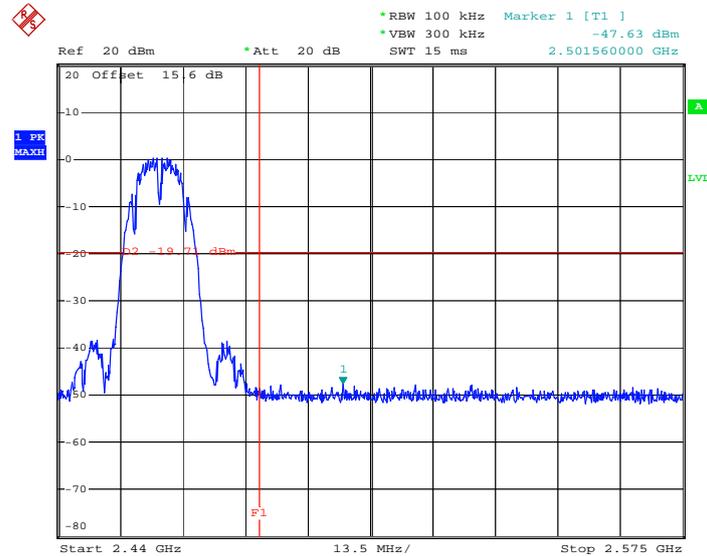
Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01



Date: 3.JUL.2012 09:58:23

High Band Edge Plot on 802.11b Channel 11

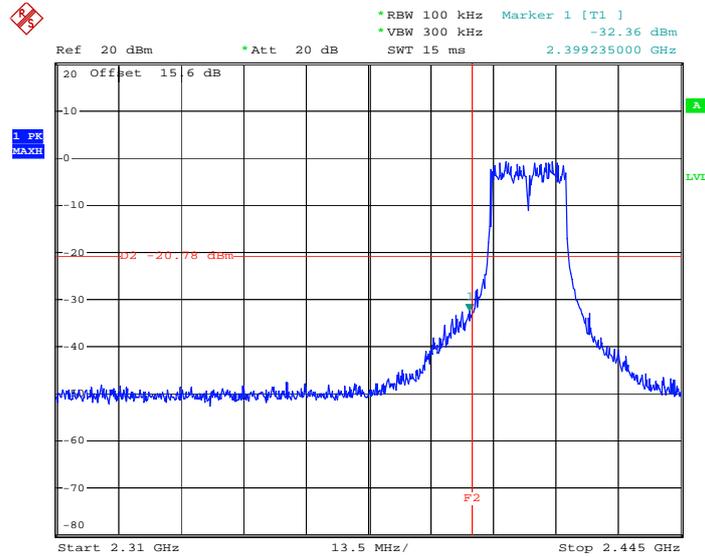


Date: 3.JUL.2012 10:14:56



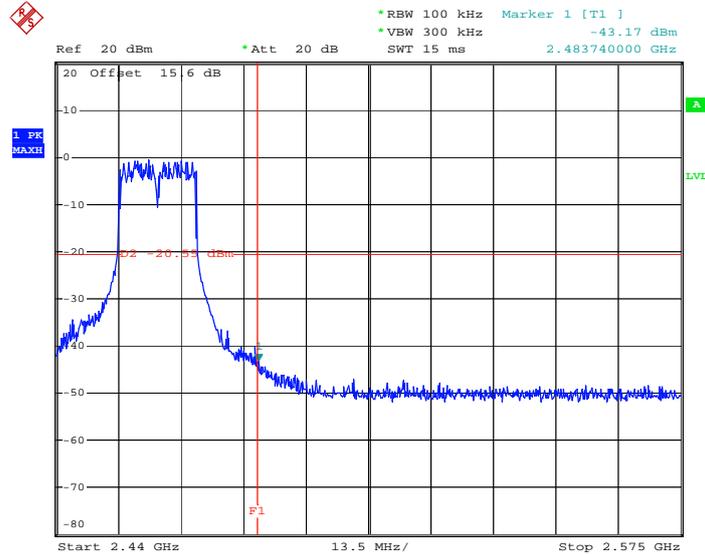
Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01



Date: 3.JUL.2012 10:20:20

High Band Edge Plot on 802.11g Channel 11

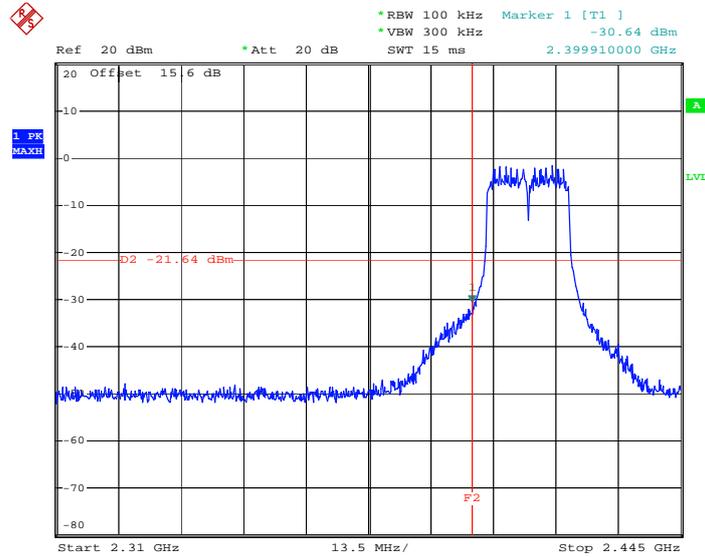


Date: 3.JUL.2012 10:28:31



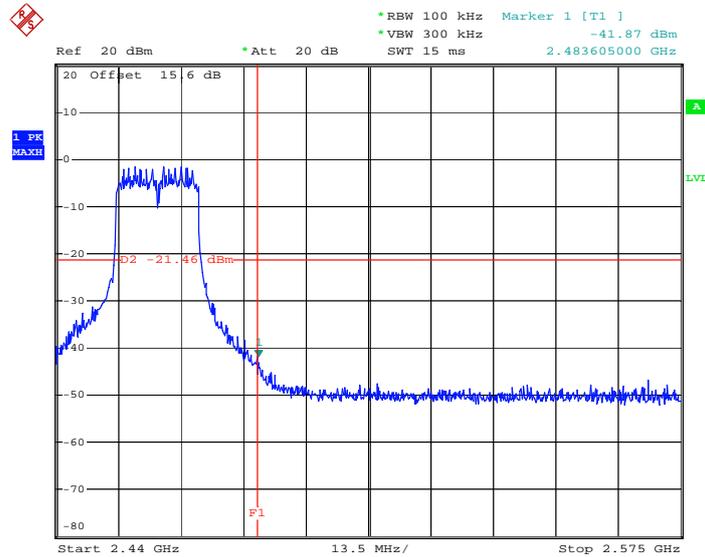
Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11n HT-20 Channel 01



Date: 3.JUL.2012 10:34:43

High Band Edge Plot on 802.11n HT-20 Channel 11



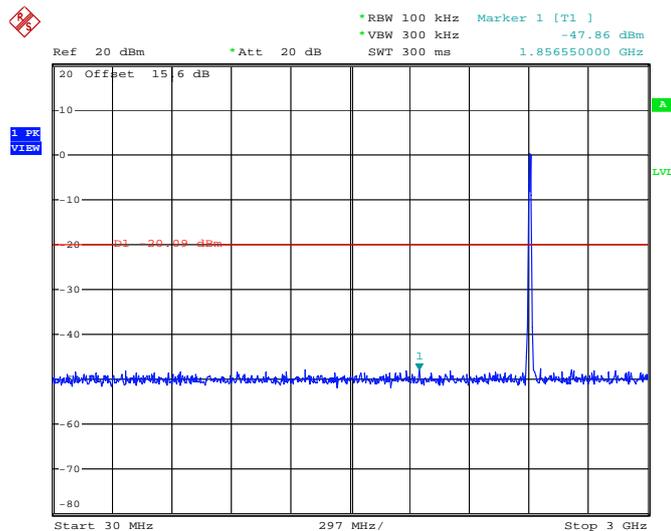
Date: 3.JUL.2012 10:42:14

3.4.6 Test Plots of Spurious Emission

Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Zhi Lu

802.11b 30 MHz~3 GHz

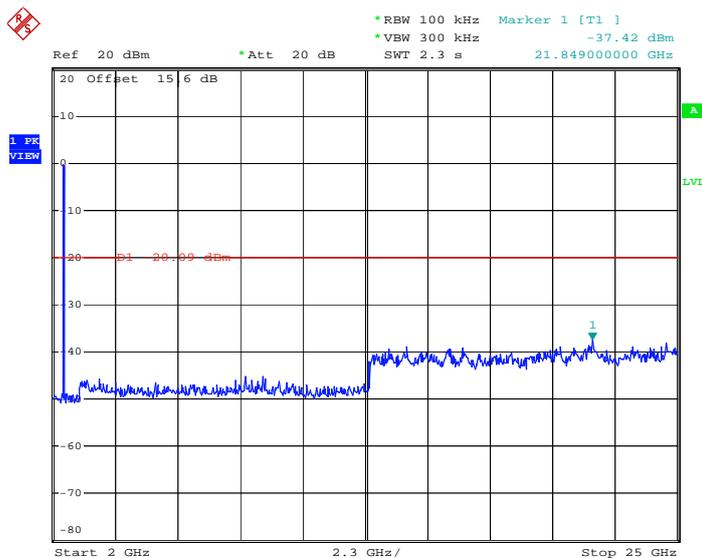
Conducted Spurious Emission Plot on Channel 01



Date: 3.JUL.2012 09:59:34

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

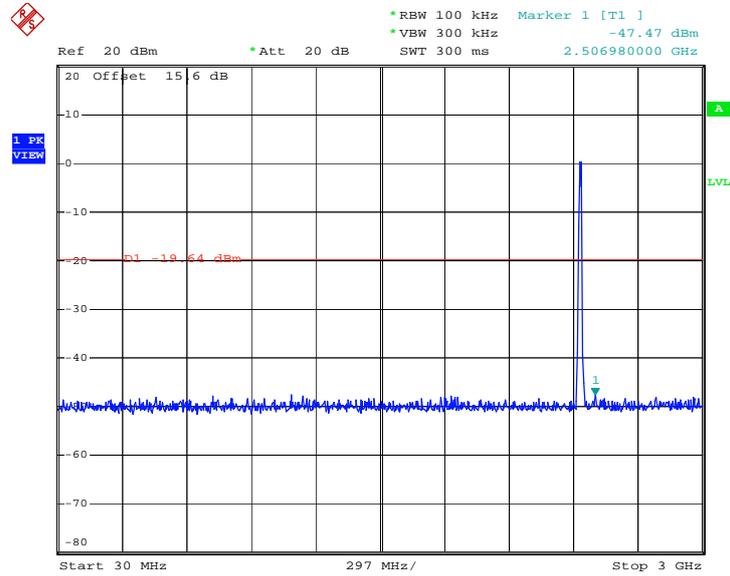


Date: 3.JUL.2012 09:59:52



802.11b 30 MHz~3 GHz

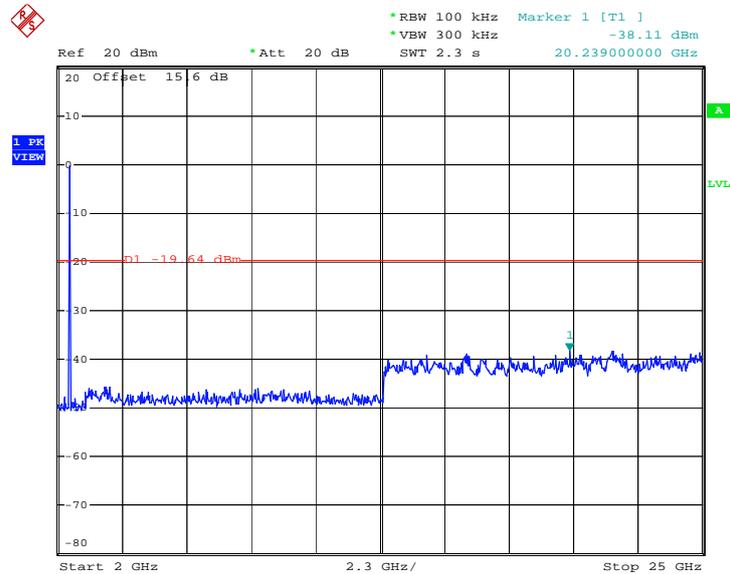
Conducted Spurious Emission Plot on Channel 06



Date: 3.JUL.2012 10:05:46

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

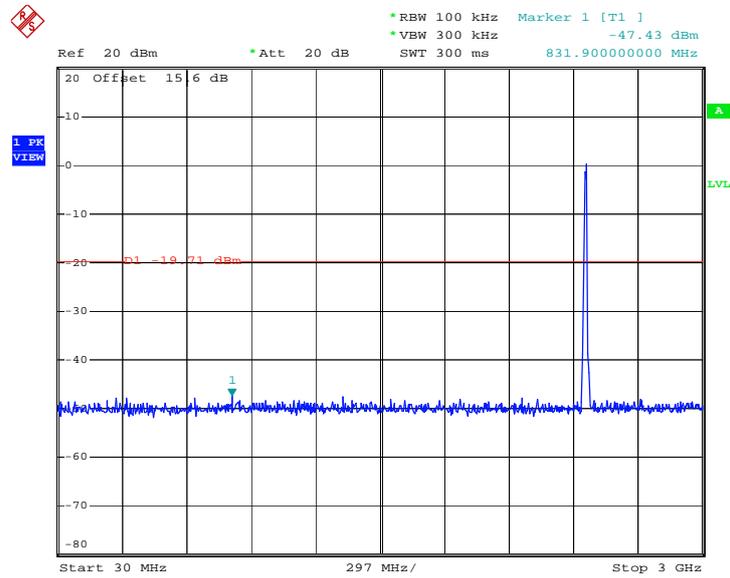


Date: 3.JUL.2012 10:06:04



802.11b 30 MHz~3 GHz

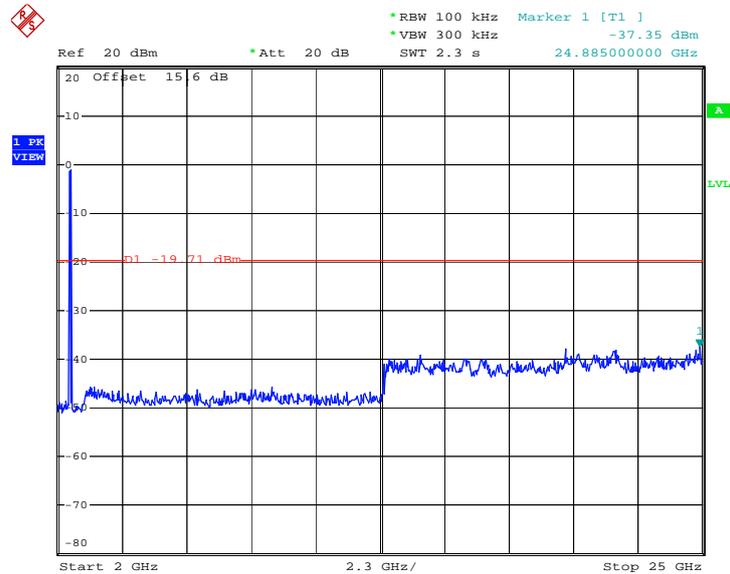
Conducted Spurious Emission Plot on Channel 11



Date: 3.JUL.2012 10:15:49

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



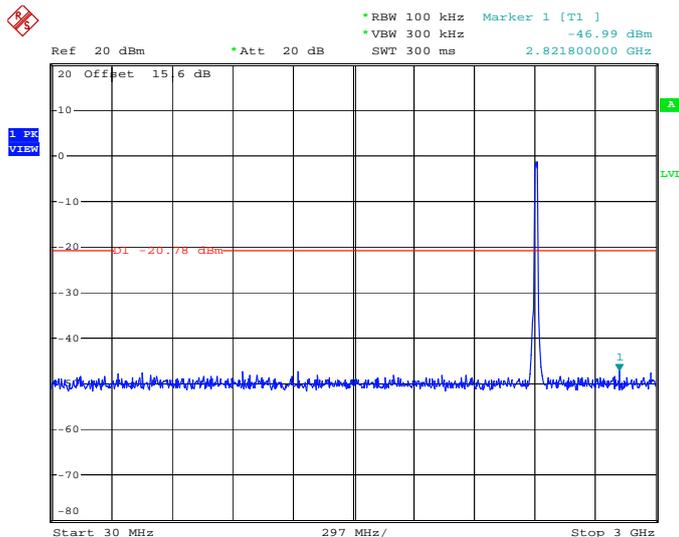
Date: 3.JUL.2012 10:16:07



Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Zhi Lu

802.11g 30 MHz~3 GHz

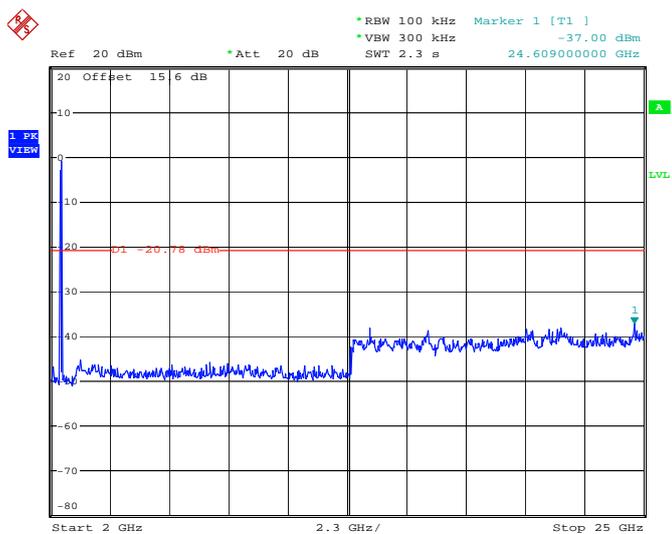
Conducted Spurious Emission Plot on Channel 01



Date: 3.JUL.2012 10:21:24

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

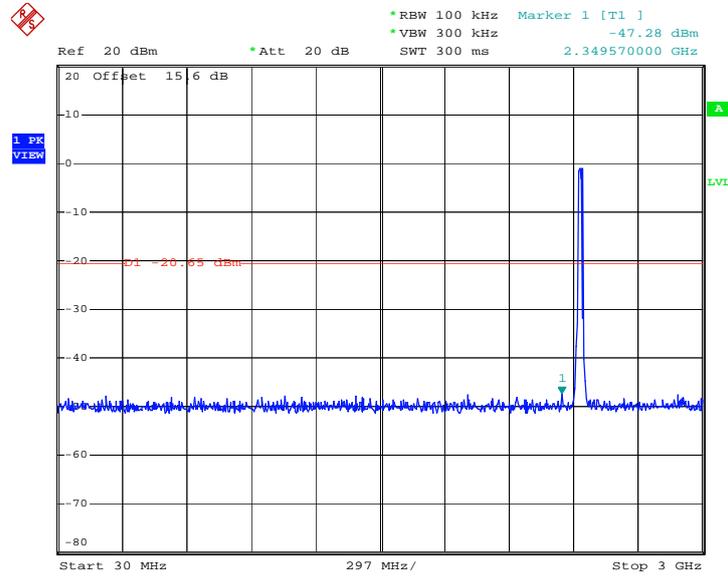


Date: 3.JUL.2012 10:21:42



802.11g 30 MHz~3 GHz

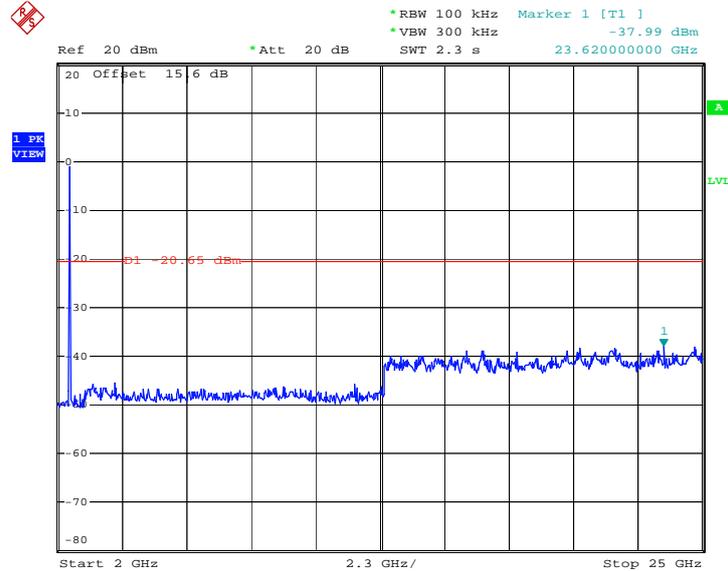
Conducted Spurious Emission Plot on Channel 06



Date: 3.JUL.2012 10:25:35

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

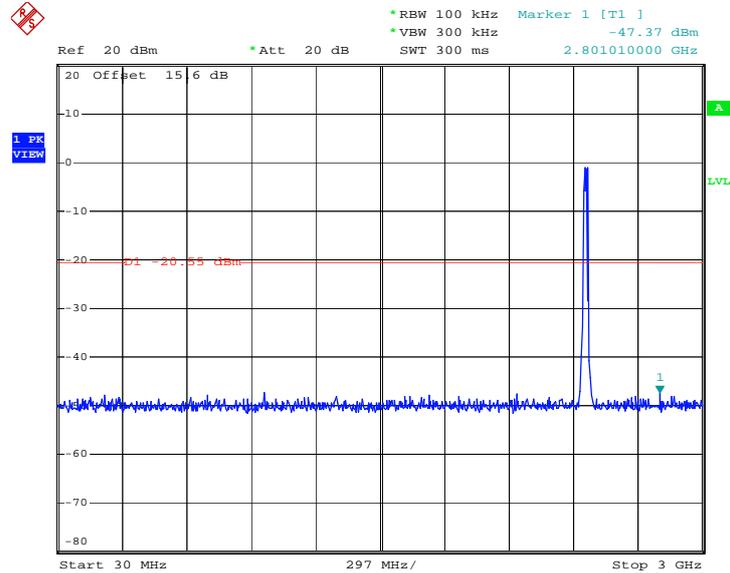


Date: 3.JUL.2012 10:25:53



802.11g 30 MHz~3 GHz

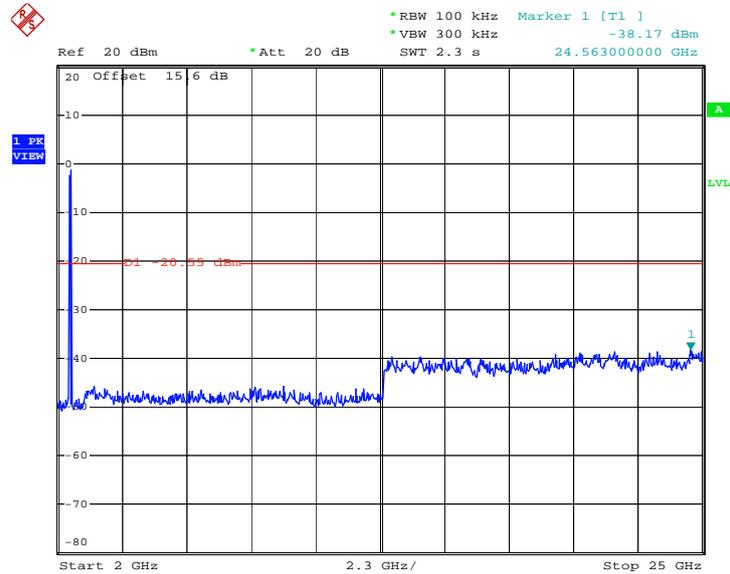
Conducted Spurious Emission Plot on Channel 11



Date: 3.JUL.2012 10:29:01

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



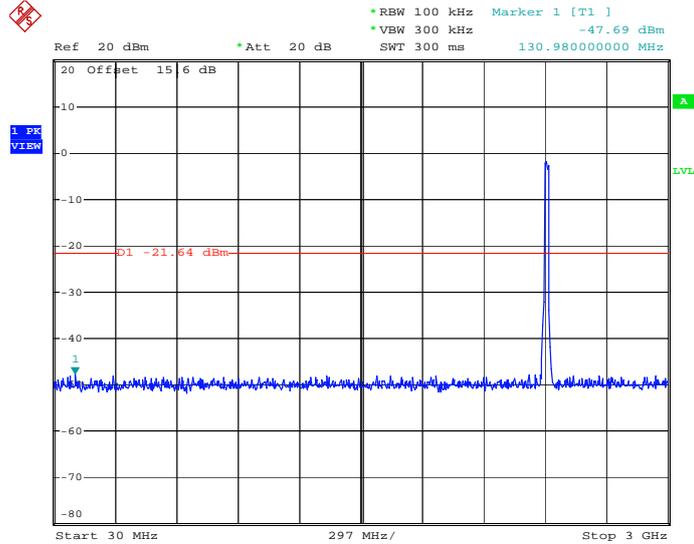
Date: 3.JUL.2012 10:29:19



Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48%
Test Channel :	01, 06, 11	Test Engineer :	Zhi Lu

802.11n HT-20 30 MHz~3 GHz

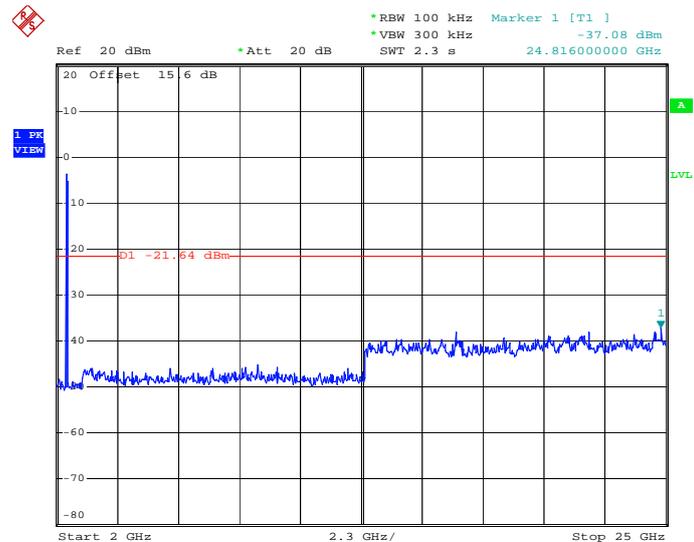
Conducted Spurious Emission Plot on Channel 01



Date: 3.JUL.2012 10:35:11

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

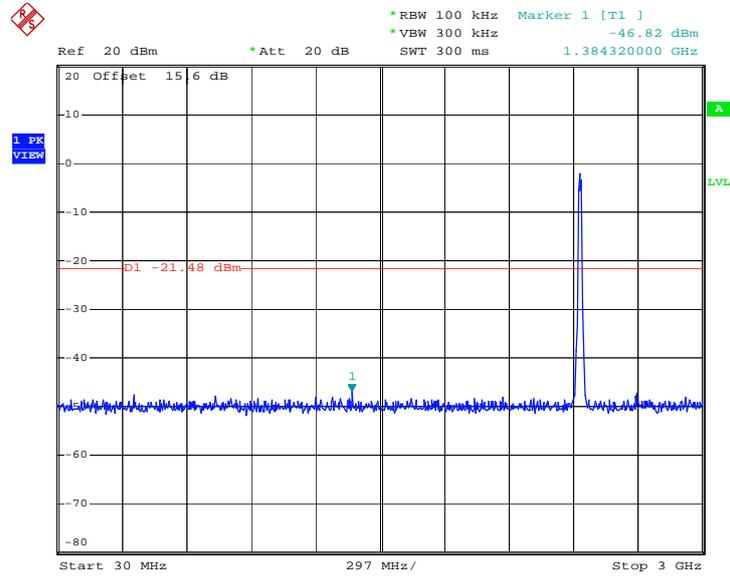


Date: 3.JUL.2012 10:35:29



802.11n HT-20 30 MHz~3 GHz

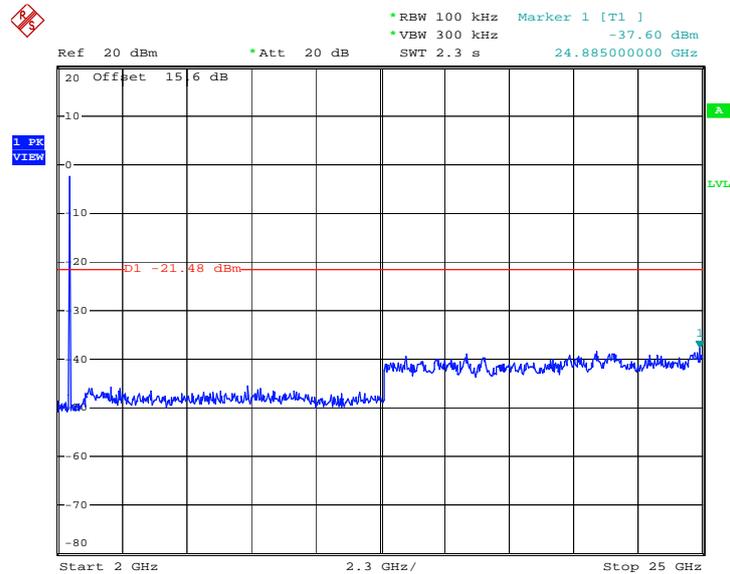
Conducted Spurious Emission Plot on Channel 06



Date: 3.JUL.2012 10:39:05

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

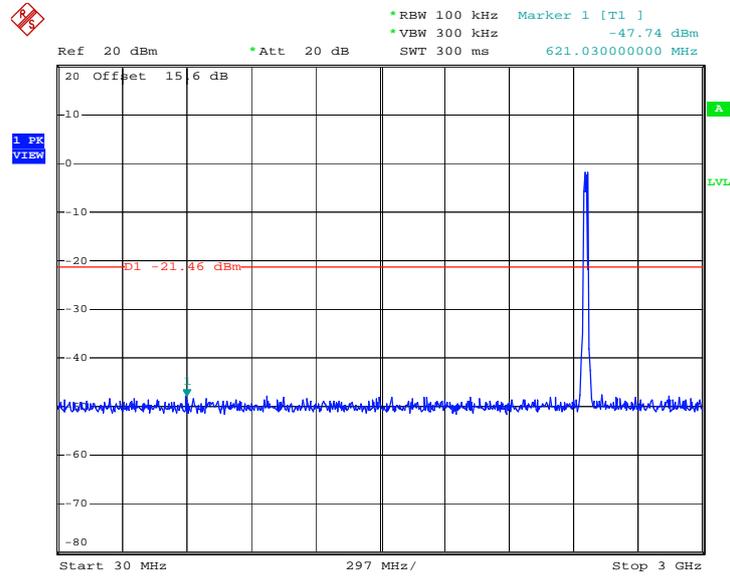


Date: 3.JUL.2012 10:39:23



802.11n HT-20 30 MHz~3 GHz

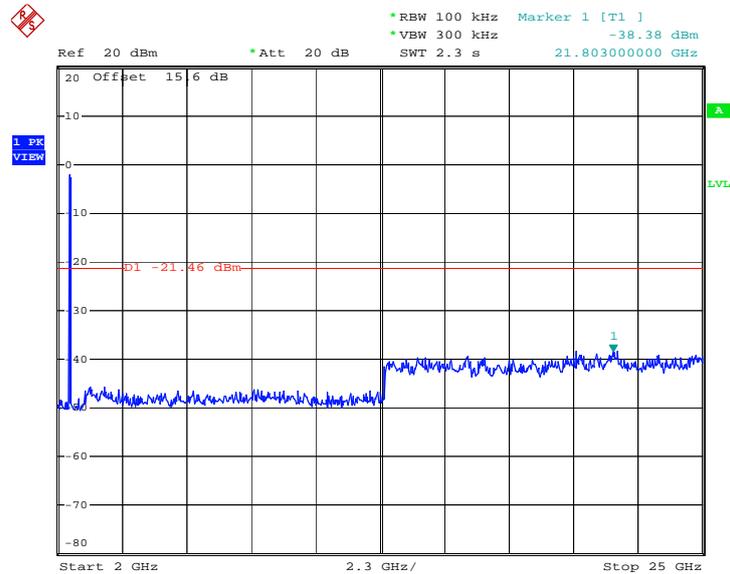
Conducted Spurious Emission Plot on Channel 11



Date: 3.JUL.2012 10:42:38

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 3.JUL.2012 10:42:57



3.5 Radiated Emission Measurement

3.5.1 Limit of Radiated Emission

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

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

3.5.2 Measuring Instruments

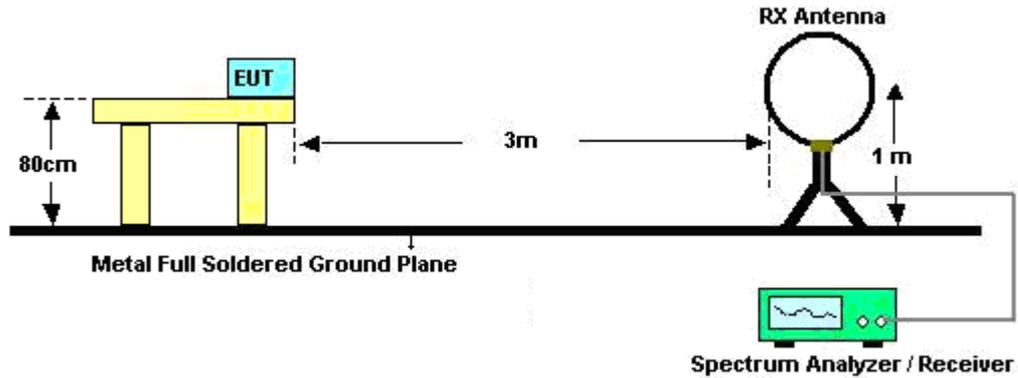
See list of measuring instruments of this test report.

3.5.3 Test Procedures

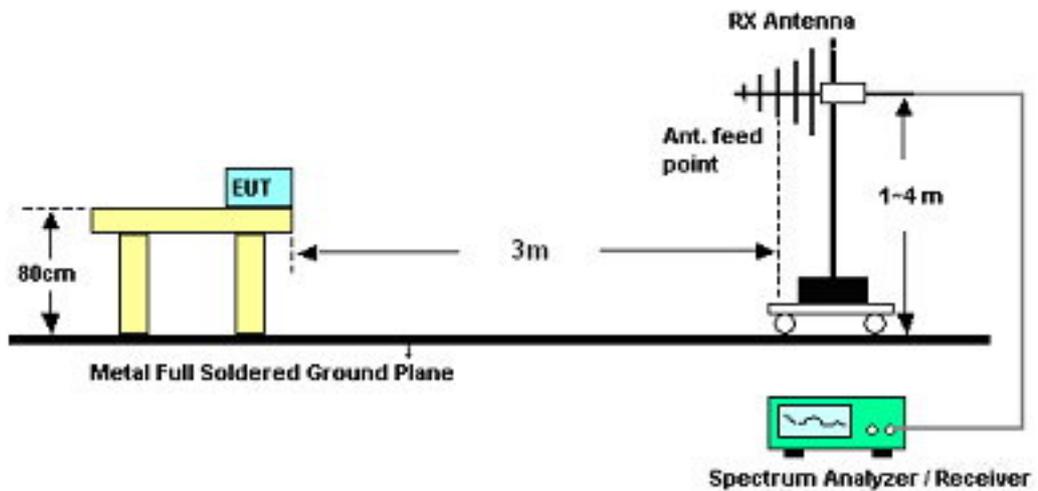
1. The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving Antenna, which was mounted on the top of a variable height Antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. If the emission level of the EUT measured by the peak detector is more than 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

3.5.4 Test Setup

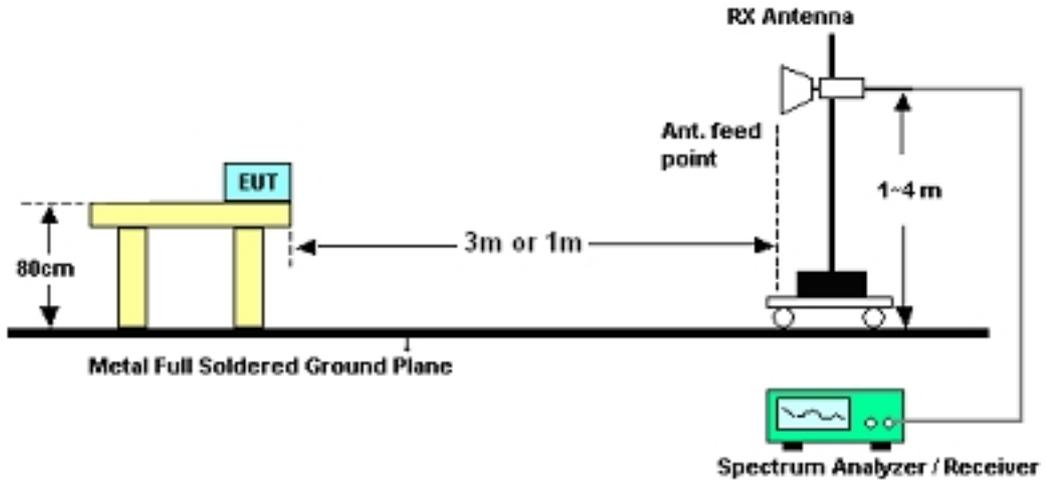
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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 Band Edges

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2372.13	49.69	-24.31	74	47.45	32.83	3.42	34.01	112	104	Peak
2372.13	36.75	-17.25	54	34.51	32.83	3.42	34.01	112	104	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2339.07	49.99	-24.01	74	47.82	32.78	3.33	33.94	145	216	Peak
2339.07	35.84	-18.16	54	33.67	32.78	3.33	33.94	145	216	Average

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2492.97	50.24	-23.76	74	47.7	33.05	3.72	34.23	100	142	Peak
2492.97	36.7	-17.3	54	34.16	33.05	3.72	34.23	100	142	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2492.4	49.61	-24.39	74	47.07	33.05	3.72	34.23	178	249	Peak
2492.4	36.7	-17.3	54	34.16	33.05	3.72	34.23	178	249	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	55.32	-18.68	74	53.04	32.86	3.47	34.05	174	20	Peak
2389.99	41.44	-12.56	54	39.16	32.86	3.47	34.05	174	20	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	52.58	-21.42	74	50.3	32.86	3.47	34.05	112	209	Peak
2389.23	39.74	-14.26	54	37.46	32.86	3.47	34.05	112	209	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	58.23	-15.77	74	55.74	33.01	3.68	34.2	155	12	Peak
2483.85	43.63	-10.37	54	41.14	33.01	3.68	34.2	155	12	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	56.71	-17.29	74	54.22	33.01	3.68	34.2	100	98	Peak
2483.5	42.77	-11.23	54	40.28	33.01	3.68	34.2	100	98	Average



Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	59.27	-14.73	74	56.99	32.86	3.47	34.05	123	360	Peak
2389.99	44.55	-9.45	54	42.27	32.86	3.47	34.05	123	360	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	53.9	-20.1	74	51.62	32.86	3.47	34.05	110	92	Peak
2389.99	40.77	-13.23	54	38.49	32.86	3.47	34.05	110	92	Average

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Jack Li

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	57.2	-16.8	74	54.71	33.01	3.68	34.2	132	0	Peak
2483.5	44.61	-9.39	54	42.12	33.01	3.68	34.2	132	0	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	56.13	-17.87	74	53.64	33.01	3.68	34.2	120	0	Peak
2483.5	42.9	-11.1	54	40.41	33.01	3.68	34.2	120	0	Average



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

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
92.08	30.65	-12.85	43.5	50.89	9.35	0.39	29.98	-	-	Peak
175.5	36.28	-7.22	43.5	56.82	8.8	0.55	29.89	-	-	Peak
228.85	40.28	-5.72	46	58.72	10.83	0.64	29.91	100	355	Peak
244.37	39.7	-6.3	46	57.12	11.75	0.66	29.83	-	-	Peak
664.38	31.61	-14.39	46	41.19	18.99	1.1	29.67	-	-	Peak
957.32	35.02	-10.98	46	42.45	20.77	1.34	29.54	-	-	Peak
2372.13	49.69	-24.31	74	47.45	32.83	3.42	34.01	112	104	Peak
2372.13	36.75	-17.25	54	34.51	32.83	3.42	34.01	112	104	Average
2412	95.94	-	-	93.61	32.89	3.52	34.08	145	0	Peak
2412	91.66	-	-	89.33	32.89	3.52	34.08	145	0	Average
2488.98	49.66	-24.34	74	47.12	33.05	3.72	34.23	200	318	Peak
2488.98	36.75	-17.25	54	34.21	33.05	3.72	34.23	200	318	Average



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.08	-5.92	40	45.9	18	0.26	30.08	-	-	Peak
185.2	39.86	-3.64	43.5	60.75	8.45	0.57	29.91	198	0	Peak
227.88	41.21	-4.79	46	59.74	10.75	0.64	29.92	-	-	Peak
476.2	34.98	-11.02	46	47.03	16.78	0.93	29.76	-	-	Peak
565.44	35.64	-10.36	46	45.75	18.53	1.02	29.66	-	-	Peak
944.71	34.86	-11.14	46	42.36	20.71	1.33	29.54	-	-	Peak
2339.07	49.99	-24.01	74	47.82	32.78	3.33	33.94	145	216	Peak
2339.07	35.84	-18.16	54	33.67	32.78	3.33	33.94	145	216	Average
2412	93.13	-	-	90.8	32.89	3.52	34.08	200	95	Peak
2412	88.92	-	-	86.59	32.89	3.52	34.08	200	95	Average
2487.84	50.04	-23.96	74	47.5	33.05	3.72	34.23	111	122	Peak
2487.84	37.55	-16.45	54	35.01	33.05	3.72	34.23	111	122	Average



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
94.02	29.21	-14.29	43.5	49.13	9.66	0.4	29.98	-	-	Peak
185.2	35.69	-7.81	43.5	56.58	8.45	0.57	29.91	-	-	Peak
234.67	41.19	-4.81	46	59.17	11.23	0.65	29.86	112	360	Peak
299.66	35.38	-10.62	46	51.61	13	0.72	29.95	-	-	Peak
446.13	31.37	-14.63	46	43.98	16.28	0.9	29.79	-	-	Peak
957.32	34.79	-11.21	46	42.22	20.77	1.34	29.54	-	-	Peak
2357.12	47.45	-26.55	74	45.24	32.81	3.38	33.98	133	156	Peak
2357.12	34.26	-19.74	54	32.05	32.81	3.38	33.98	133	156	Average
2437	95.34	-	-	92.94	32.95	3.6	34.15	178	2	Peak
2437	90.9	-	-	88.5	32.95	3.6	34.15	178	2	Average
2490.88	46.89	-27.11	74	44.35	33.05	3.72	34.23	200	247	Peak
2490.88	33.64	-20.36	54	31.1	33.05	3.72	34.23	200	247	Average



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.3	-5.7	40	46.12	18	0.26	30.08	-	-	Peak
183.26	40.48	-3.02	43.5	61.39	8.43	0.56	29.9	200	0	Peak
227.88	41.45	-4.55	46	59.98	10.75	0.64	29.92	-	-	Peak
475.23	36.43	-9.57	46	48.51	16.75	0.93	29.76	-	-	Peak
570.29	35.98	-10.02	46	46.07	18.54	1.03	29.66	-	-	Peak
957.32	34.73	-11.27	46	42.16	20.77	1.34	29.54	-	-	Peak
2333.37	47.88	-26.12	74	45.75	32.76	3.27	33.9	120	360	Peak
2333.37	34.22	-19.78	54	32.09	32.76	3.27	33.9	120	360	Average
2437	91.11	-	-	88.71	32.95	3.6	34.15	143	99	Peak
2437	87.93	-	-	85.53	32.95	3.6	34.15	143	99	Average
2492.21	46.82	-27.18	74	44.28	33.05	3.72	34.23	100	34	Peak
2492.21	33.16	-20.84	54	30.62	33.05	3.72	34.23	100	34	Average



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
93.05	29.26	-14.24	43.5	49.33	9.51	0.4	29.98	-	-	Peak
182.29	36.9	-6.6	43.5	57.81	8.42	0.56	29.89	-	-	Peak
234.67	41.36	-4.64	46	59.34	11.23	0.65	29.86	197	10	Peak
342.34	31.27	-14.73	46	46.07	14.33	0.81	29.94	-	-	Peak
475.23	31.97	-14.03	46	44.05	16.75	0.93	29.76	-	-	Peak
957.32	35.13	-10.87	46	42.56	20.77	1.34	29.54	-	-	Peak
2361.87	50.01	-23.99	74	47.8	32.81	3.38	33.98	170	289	Peak
2361.87	37	-17	54	34.79	32.81	3.38	33.98	170	289	Average
2462	97.06	-	-	94.61	32.98	3.64	34.17	176	18	Peak
2462	94.83	-	-	92.38	32.98	3.64	34.17	176	18	Average
2492.97	50.24	-23.76	74	47.7	33.05	3.72	34.23	100	142	Peak
2492.97	36.7	-17.3	54	34.16	33.05	3.72	34.23	100	142	Average



Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.11	-5.89	40	45.93	18	0.26	30.08	-	-	Peak
186.17	38.19	-5.31	43.5	59.08	8.46	0.57	29.92	-	-	Peak
227.88	40.52	-5.48	46	59.05	10.75	0.64	29.92	-	-	Peak
476.2	37.43	-8.57	46	49.48	16.78	0.93	29.76	-	-	Peak
529.55	40.92	-5.08	46	51.61	18.02	0.99	29.7	166	248	Peak
939.86	35.34	-10.66	46	42.85	20.69	1.33	29.53	-	-	Peak
2338.69	49.89	-24.11	74	47.72	32.78	3.33	33.94	146	113	Peak
2338.69	36.36	-17.64	54	34.19	32.78	3.33	33.94	146	113	Average
2462	93.32	-	-	90.87	32.98	3.64	34.17	174	98	Peak
2462	91.94	-	-	89.49	32.98	3.64	34.17	174	98	Average
2492.4	49.61	-24.39	74	47.07	33.05	3.72	34.23	178	249	Peak
2492.4	36.7	-17.3	54	34.16	33.05	3.72	34.23	178	249	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
94.02	29.1	-14.4	43.5	49.02	9.66	0.4	29.98	-	-	Peak
186.17	35.79	-7.71	43.5	56.68	8.46	0.57	29.92	-	-	Peak
227.88	39.48	-6.52	46	58.01	10.75	0.64	29.92	-	-	Peak
248.25	40.5	-5.5	46	57.75	11.92	0.67	29.84	200	0	Peak
341.37	32.58	-13.42	46	47.41	14.3	0.81	29.94	-	-	Peak
939.86	35.38	-10.62	46	42.89	20.69	1.33	29.53	-	-	Peak
2389.99	55.32	-18.68	74	53.04	32.86	3.47	34.05	174	20	Peak
2389.99	41.44	-12.56	54	39.16	32.86	3.47	34.05	174	20	Average
2412	96.25	-	-	93.92	32.89	3.52	34.08	146	1	Peak
2412	82.08	-	-	79.75	32.89	3.52	34.08	146	1	Average
2499.81	49.27	-24.73	74	46.73	33.05	3.72	34.23	200	149	Peak
2499.81	35.78	-18.22	54	33.24	33.05	3.72	34.23	200	149	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.03	-5.97	40	45.85	18	0.26	30.08	-	-	Peak
191.99	37.08	-6.42	43.5	57.87	8.59	0.58	29.96	-	-	Peak
227.88	41.8	-4.2	46	60.33	10.75	0.64	29.92	112	342	Peak
476.2	36.47	-9.53	46	48.52	16.78	0.93	29.76	-	-	Peak
568.35	34.25	-11.75	46	44.36	18.53	1.02	29.66	-	-	Peak
941.8	34.77	-11.23	46	42.27	20.7	1.33	29.53	-	-	Peak
2389.23	52.58	-21.42	74	50.3	32.86	3.47	34.05	112	209	Peak
2389.23	39.74	-14.26	54	37.46	32.86	3.47	34.05	112	209	Average
2412	94.01	-	-	91.68	32.89	3.52	34.08	101	106	Peak
2412	78.38	-	-	76.05	32.89	3.52	34.08	101	106	Average
2495.25	49.22	-24.78	74	46.68	33.05	3.72	34.23	200	44	Peak
2495.25	35.69	-18.31	54	33.15	33.05	3.72	34.23	200	44	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
185.2	34.47	-9.03	43.5	55.36	8.45	0.57	29.91	-	-	Peak
237.58	42.37	-3.63	46	60.15	11.4	0.65	29.83	199	15	Peak
343.31	33.72	-12.28	46	48.5	14.35	0.81	29.94	-	-	Peak
451.95	31.09	-14.91	46	43.66	16.32	0.9	29.79	-	-	Peak
664.38	34.45	-11.55	46	44.03	18.99	1.1	29.67	-	-	Peak
951.5	37.78	-8.22	46	45.25	20.74	1.33	29.54	-	-	Peak
2362.25	49.64	-24.36	74	47.43	32.81	3.38	33.98	168	155	Peak
2362.25	36.36	-17.64	54	34.15	32.81	3.38	33.98	168	155	Average
2437	99.33	-	-	96.93	32.95	3.6	34.15	116	0	Peak
2437	83.84	-	-	81.44	32.95	3.6	34.15	116	0	Average
2495.06	49.09	-24.91	74	46.55	33.05	3.72	34.23	200	346	Peak
2495.06	35.93	-18.07	54	33.39	33.05	3.72	34.23	200	346	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.94	33.74	-6.26	40	47.04	16.55	0.24	30.09	-	-	Peak
183.26	37.73	-5.77	43.5	58.64	8.43	0.56	29.9	-	-	Peak
227.88	41.35	-4.65	46	59.88	10.75	0.64	29.92	100	360	Peak
498.51	37.46	-8.54	46	49.05	17.18	0.96	29.73	-	-	Peak
547.01	37.7	-8.3	46	47.93	18.45	1	29.68	-	-	Peak
951.5	37.44	-8.56	46	44.91	20.74	1.33	29.54	-	-	Peak
2368.33	49.48	-24.52	74	47.27	32.81	3.38	33.98	112	19	Peak
2368.33	36.58	-17.42	54	34.37	32.81	3.38	33.98	112	19	Average
2437	99.19	-	-	96.79	32.95	3.6	34.15	101	99	Peak
2437	82.6	-	-	80.2	32.95	3.6	34.15	101	99	Average
2485.18	49.85	-24.15	74	47.36	33.01	3.68	34.2	167	314	Peak
2485.18	36.71	-17.29	54	34.22	33.01	3.68	34.2	167	314	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
94.99	29.37	-14.13	43.5	49.14	9.8	0.4	29.97	-	-	Peak
183.26	34.56	-8.94	43.5	55.47	8.43	0.56	29.9	-	-	Peak
249.22	40.87	-5.13	46	58.08	11.96	0.67	29.84	197	4	Peak
292.87	37.42	-8.58	46	53.75	12.9	0.72	29.95	-	-	Peak
328.76	34.2	-11.8	46	49.45	13.91	0.78	29.94	-	-	Peak
957.32	35.49	-10.51	46	42.92	20.77	1.34	29.54	-	-	Peak
2323.49	49.52	-24.48	74	47.39	32.76	3.27	33.9	144	153	Peak
2323.49	36.68	-17.32	54	34.55	32.76	3.27	33.9	144	153	Average
2462	99.7	-	-	97.25	32.98	3.64	34.17	112	1	Peak
2462	83.52	-	-	81.07	32.98	3.64	34.17	112	1	Average
2483.85	58.23	-15.77	74	55.74	33.01	3.68	34.2	155	12	Peak
2483.85	43.63	-10.37	54	41.14	33.01	3.68	34.2	155	12	Average



Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.33	-5.67	40	46.15	18	0.26	30.08	-	-	Peak
184.23	39.66	-3.84	43.5	60.55	8.44	0.57	29.9	122	243	Peak
231.76	39.25	-6.75	46	57.45	11.04	0.64	29.88	-	-	Peak
475.23	36.21	-9.79	46	48.29	16.75	0.93	29.76	-	-	Peak
529.55	37.2	-8.8	46	47.89	18.02	0.99	29.7	-	-	Peak
583.87	36.58	-9.42	46	46.6	18.57	1.05	29.64	-	-	Peak
2347.24	49.5	-24.5	74	47.33	32.78	3.33	33.94	120	116	Peak
2347.24	36.46	-17.54	54	34.29	32.78	3.33	33.94	120	116	Average
2462	98.25	-	-	95.8	32.98	3.64	34.17	101	96	Peak
2462	82.72	-	-	80.27	32.98	3.64	34.17	101	96	Average
2483.5	56.71	-17.29	74	54.22	33.01	3.68	34.2	100	98	Peak
2483.5	42.77	-11.23	54	40.28	33.01	3.68	34.2	100	98	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
95.96	28.12	-15.38	43.5	47.78	9.91	0.4	29.97	-	-	Peak
185.2	35.05	-8.45	43.5	55.94	8.45	0.57	29.91	-	-	Peak
242.43	40.67	-5.33	46	58.18	11.66	0.66	29.83	-	-	Peak
256.98	40.95	-5.05	46	58.03	12.1	0.68	29.86	200	0	Peak
499.48	31.89	-14.11	46	43.47	17.19	0.96	29.73	-	-	Peak
937.92	34.05	-11.95	46	41.58	20.68	1.32	29.53	-	-	Peak
2389.99	59.27	-14.73	74	56.99	32.86	3.47	34.05	123	360	Peak
2389.99	44.55	-9.45	54	42.27	32.86	3.47	34.05	123	360	Average
2412	95.19	-	-	92.86	32.89	3.52	34.08	113	2	Peak
2412	81.23	-	-	78.9	32.89	3.52	34.08	113	2	Average
2493.73	49.53	-24.47	74	46.99	33.05	3.72	34.23	164	120	Peak
2493.73	36.16	-17.84	54	33.62	33.05	3.72	34.23	164	120	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.02	-5.98	40	45.84	18	0.26	30.08	-	-	Peak
182.29	36.91	-6.59	43.5	57.82	8.42	0.56	29.89	-	-	Peak
227.88	41.06	-4.94	46	59.59	10.75	0.64	29.92	112	25	Peak
530.52	39.09	-6.91	46	49.75	18.05	0.99	29.7	-	-	Peak
587.75	35.3	-10.7	46	45.29	18.58	1.06	29.63	-	-	Peak
957.32	34.63	-11.37	46	42.06	20.77	1.34	29.54	-	-	Peak
2389.99	53.9	-20.1	74	51.62	32.86	3.47	34.05	110	92	Peak
2389.99	40.77	-13.23	54	38.49	32.86	3.47	34.05	110	92	Average
2412	92.32	-	-	89.99	32.89	3.52	34.08	100	99	Peak
2412	78.63	-	-	76.3	32.89	3.52	34.08	100	99	Average
2490.69	49.19	-24.81	74	46.65	33.05	3.72	34.23	194	234	Peak
2490.69	35.93	-18.07	54	33.39	33.05	3.72	34.23	194	234	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
93.05	29.17	-14.33	43.5	49.24	9.51	0.4	29.98	-	-	Peak
182.29	36.4	-7.1	43.5	57.31	8.42	0.56	29.89	-	-	Peak
228.85	41	-5	46	59.44	10.83	0.64	29.91	198	351	Peak
250.19	40.49	-5.51	46	57.66	12	0.67	29.84	-	-	Peak
343.31	35.29	-10.71	46	50.07	14.35	0.81	29.94	-	-	Peak
957.32	33.28	-12.72	46	40.71	20.77	1.34	29.54	-	-	Peak
2355.79	50.29	-23.71	74	48.08	32.81	3.38	33.98	120	112	Peak
2355.79	37.48	-16.52	54	35.27	32.81	3.38	33.98	120	112	Average
2437	97.61	-	-	95.21	32.95	3.6	34.15	142	10	Peak
2437	83.52	-	-	81.12	32.95	3.6	34.15	142	10	Average
2485.18	49.47	-24.53	74	46.98	33.01	3.68	34.2	200	158	Peak
2485.18	35.85	-18.15	54	33.36	33.01	3.68	34.2	200	158	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	34.06	-5.94	40	45.88	18	0.26	30.08	-	-	Peak
187.14	36.94	-6.56	43.5	57.82	8.47	0.57	29.92	-	-	Peak
227.88	40.92	-5.08	46	59.45	10.75	0.64	29.92	101	0	Peak
497.54	36.12	-9.88	46	47.73	17.16	0.96	29.73	-	-	Peak
545.07	35.15	-10.85	46	45.42	18.41	1	29.68	-	-	Peak
957.32	33.34	-12.66	46	40.77	20.77	1.34	29.54	-	-	Peak
2345.91	50.31	-23.69	74	48.14	32.78	3.33	33.94	122	146	Peak
2345.91	37.78	-16.22	54	35.61	32.78	3.33	33.94	122	146	Average
2437	97.28	-	-	94.88	32.95	3.6	34.15	101	101	Peak
2437	82.41	-	-	80.01	32.95	3.6	34.15	101	101	Average
2492.21	49.71	-24.29	74	47.17	33.05	3.72	34.23	200	19	Peak
2492.21	37.12	-16.88	54	34.58	33.05	3.72	34.23	200	19	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
93.05	34.98	-8.52	43.5	55.05	9.51	0.4	29.98	-	-	Peak
219.15	38.74	-7.26	46	58.07	10.03	0.62	29.98	-	-	Peak
234.67	41.09	-4.91	46	59.07	11.23	0.65	29.86	-	-	Peak
251.16	42.49	-3.51	46	59.65	12.01	0.67	29.84	200	11	Peak
348.16	34.25	-11.75	46	48.91	14.46	0.82	29.94	-	-	Peak
957.32	35	-11	46	42.43	20.77	1.34	29.54	-	-	Peak
2372.89	50.13	-23.87	74	47.89	32.83	3.42	34.01	167	94	Peak
2372.89	36.79	-17.21	54	34.55	32.83	3.42	34.01	167	94	Average
2462	98.17	-	-	95.72	32.98	3.64	34.17	144	0	Peak
2462	84.12	-	-	81.67	32.98	3.64	34.17	144	0	Average
2483.5	57.2	-16.8	74	54.71	33.01	3.68	34.2	132	0	Peak
2483.5	44.61	-9.39	54	42.12	33.01	3.68	34.2	132	0	Average



Test Mode :	802.11n-HT20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Jack Li	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.97	34.54	-5.46	40	47.08	17.29	0.25	30.08	103	314	Peak
190.05	36.77	-6.73	43.5	57.63	8.5	0.58	29.94	-	-	Peak
231.76	39.8	-6.2	46	58	11.04	0.64	29.88	-	-	Peak
323.91	35.95	-10.05	46	51.42	13.71	0.77	29.95	-	-	Peak
498.51	36.87	-9.13	46	48.46	17.18	0.96	29.73	-	-	Peak
547.01	38.02	-7.98	46	48.25	18.45	1	29.68	-	-	Peak
2322.73	49.83	-24.17	74	47.7	32.76	3.27	33.9	152	106	Peak
2322.73	36.35	-17.65	54	34.22	32.76	3.27	33.9	152	106	Average
2462	96.63	-	-	94.18	32.98	3.64	34.17	101	100	Peak
2462	82.37	-	-	79.92	32.98	3.64	34.17	101	100	Average
2483.5	56.13	-17.87	74	53.64	33.01	3.68	34.2	120	0	Peak
2483.5	42.9	-11.1	54	40.41	33.01	3.68	34.2	120	0	Average

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 (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

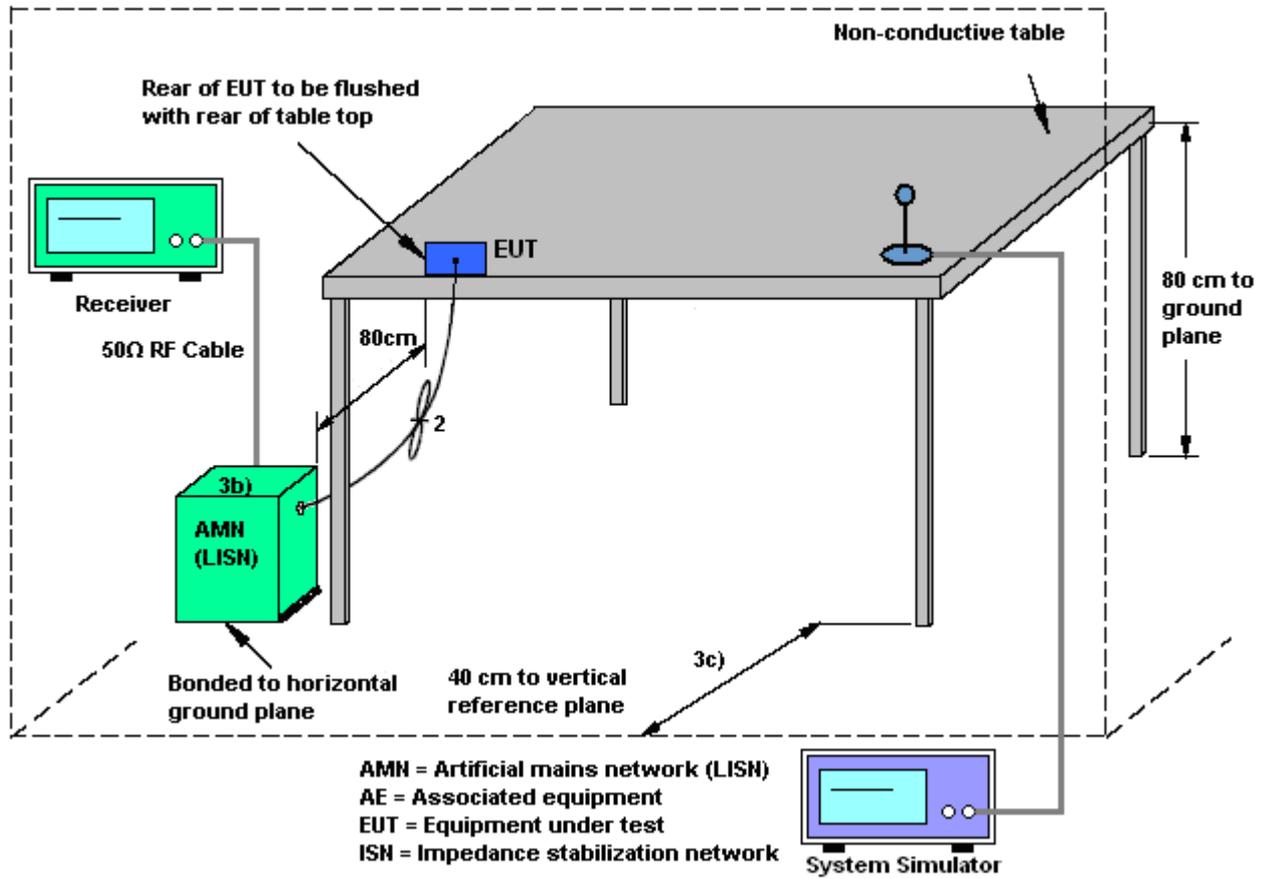
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003.
2. 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.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

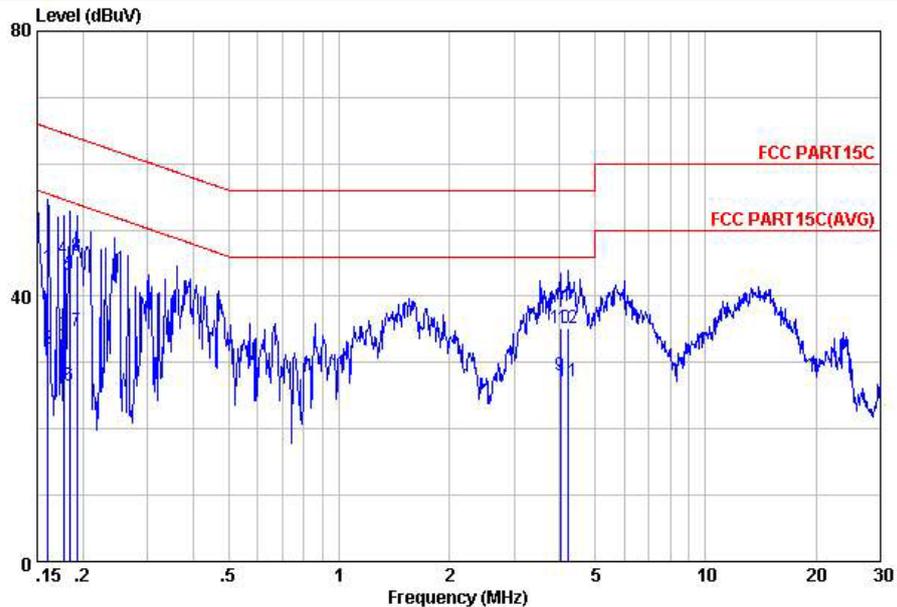
3.6.4 Test Setup





3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	19~20°C
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 (GPRS 8) Idle + WLAN Link + USB Data Link with Notebook		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

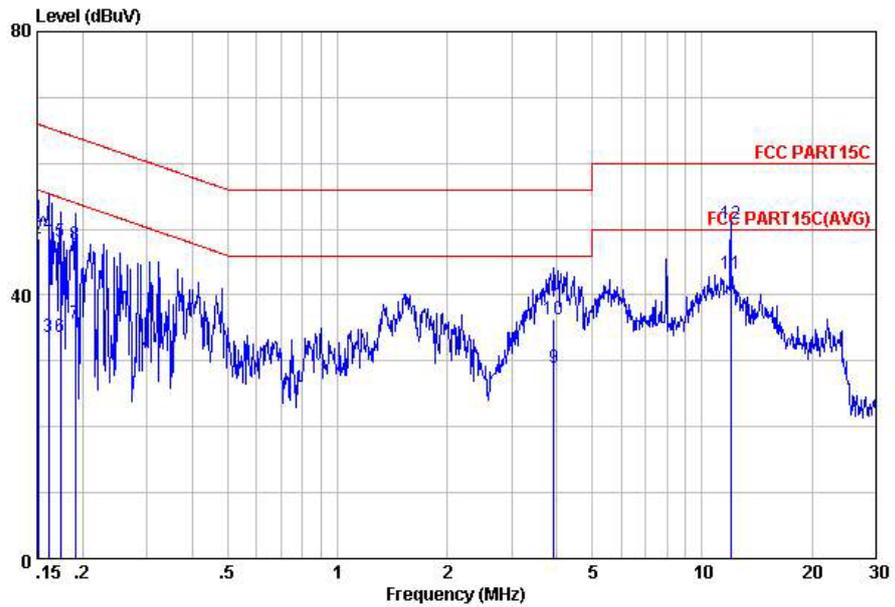


Site : C001-KS
 Condition: FCC PART15C LISN-111230 LINE
 Project : (FR) 262102
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	44.32	-21.11	65.43	34.00	-0.07	10.39	QP
2	0.16	32.12	-23.31	55.43	21.80	-0.07	10.39	Average
3	0.18	34.08	-20.56	54.64	23.70	-0.07	10.45	Average
4	0.18	45.68	-18.96	64.64	35.30	-0.07	10.45	QP
5	0.18	43.30	-21.03	64.33	32.90	-0.07	10.47	QP
6	0.18	26.60	-27.73	54.33	16.20	-0.07	10.47	Average
7	0.19	34.72	-19.21	53.93	24.30	-0.07	10.49	Average
8	0.19	46.12	-17.81	63.93	35.70	-0.07	10.49	QP
9	4.01	28.10	-17.90	46.00	17.40	-0.13	10.83	Average
10	4.01	35.30	-20.70	56.00	24.60	-0.13	10.83	QP
11	4.22	27.11	-18.89	46.00	16.41	-0.13	10.83	Average
12	4.22	35.31	-20.69	56.00	24.61	-0.13	10.83	QP



Test Mode :	Mode 1	Temperature :	19~20°C
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 (GPRS 8) Idle + WLAN Link + USB Data Link with Notebook		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
 Condition: FCC PART15C LISN-111230 NEUTRAL
 Project : (FR) 262102
 mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15	32.78	-23.18	55.96	22.50	-0.09	10.37	Average
2	0.15	48.68	-17.28	65.96	38.40	-0.09	10.37	QP
3	0.16	33.61	-21.77	55.38	23.30	-0.09	10.40	Average
4	0.16	49.31	-16.07	65.38	39.00	-0.09	10.40	QP
5	0.17	48.06	-16.71	64.77	37.70	-0.08	10.44	QP
6	0.17	33.76	-21.01	54.77	23.40	-0.08	10.44	Average
7	0.19	35.61	-18.41	54.02	25.20	-0.07	10.48	Average
8	0.19	47.61	-16.41	64.02	37.20	-0.07	10.48	QP
9	3.92	28.90	-17.10	46.00	18.20	-0.13	10.83	Average
10	3.92	36.40	-19.60	56.00	25.70	-0.13	10.83	QP
11	12.00	43.16	-6.84	50.00	32.30	-0.11	10.97	Average
12	12.00	50.86	-9.14	60.00	40.00	-0.11	10.97	QP



3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jun. 29, 2012 ~ Jul. 03, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY451015 55	N/A	Aug. 23, 2011	Jun. 29, 2012 ~ Jul. 03, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY444211 98	N/A	Aug. 23, 2011	Jun. 29, 2012 ~ Jul. 03, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Jun. 29, 2012 ~ Jul. 03, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-9605 02	N/A	Dec. 30, 2011	Jun. 29, 2012 ~ Jul. 03, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	Jul. 05, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP00000 0811	N/A	Nov. 16, 2011	Jul. 05, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/06 6	2G Full-Band	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jul. 10, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 10, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jul. 10, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jul. 10, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jul. 10, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jul. 10, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A023 70	1GHz~26.5GHz	Dec. 30, 2011	Jul. 10, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jul. 10, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA1702 49	15GHz~40GHz	Oct. 11, 2011	Jul. 10, 2012	Oct.10, 2012	Radiation (03CH01-KS)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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Appendix A. Photographs of EUT

Please refer to Sporton report number EP262102 as below.