

FCC RF Test Report

APPLICANT : Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT : Tablet PC
BRAND NAME : lenovo
MODEL NAME : 60015, 2298
FCC ID : O57A2107ATT3G
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Jun. 25, 2012 and completely tested on Jul. 05, 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 5.44 dB at 429.640 MHz for Quasi-Peak
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 13.64 dB at 1.030 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Lenovo (Shanghai) Electronics Technology Co., Ltd.

No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ, Shanghai, China

1.2 Manufacturer

Lenovo (Singapore) Pte Ltd.

151, Lorong Chuan, #02-01, New Tech Park, 556741, Singapore

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC
Brand Name	lenovo
Model Name	60015, 2298
FCC ID	O57A2107ATT3G
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/ WLAN 11bgn/Bluetooth/Bluetooth4.0
HW Version	A2-MB-H302-A
SW Version	A2107A_A404_000_002_120612_ATT
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.

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 : 17.32 dBm (0.0540 W) 802.11g : 20.16 dBm (0.1038 W) 802.11n HT-20 : 21.36 dBm (0.1368 W)
Antenna Type	PIFA Antenna with gain 2.23 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 and ANSI C63.10-2009
- ♦ 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	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	VOSTRO 1450	PPD-AR5B195	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
4.	Bluetooth Earphone	Lenovo	LBH301	N/A	N/A	N/A
5.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 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, and 11n HT-20 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

Channel	Frequency	2.4GHz 802.11b mode			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.54	16.65	16.35	16.42
CH 06	2437 MHz	17.32	16.95	16.91	17.06
CH 11	2462 MHz	16.86	16.51	16.49	16.63

Channel	Frequency	2.4GHz 802.11g mode							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	20.11	19.86	19.96	19.79	19.95	20.07	20.09	19.98
CH 06	2437 MHz	20.16	20.12	19.92	19.82	19.96	20.05	20.02	19.99
CH 11	2462 MHz	20.13	20.08	19.78	19.87	19.86	19.98	19.92	19.89

Channel	Frequency	2.4GHz 802.11n HT-20 mode							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	21.06	20.64	20.35	20.22	20.26	20.36	20.46	20.68
CH 06	2437 MHz	21.36	20.53	20.24	20.11	20.27	20.56	20.57	20.33
CH 11	2462 MHz	20.78	20.12	20.07	20.02	20.08	20.03	20.04	20.06

2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and ANSI C63.10-2009 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).

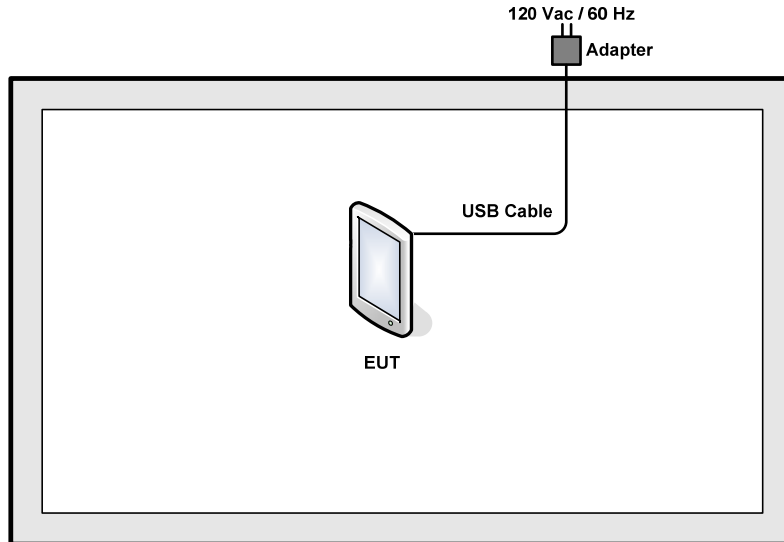
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

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

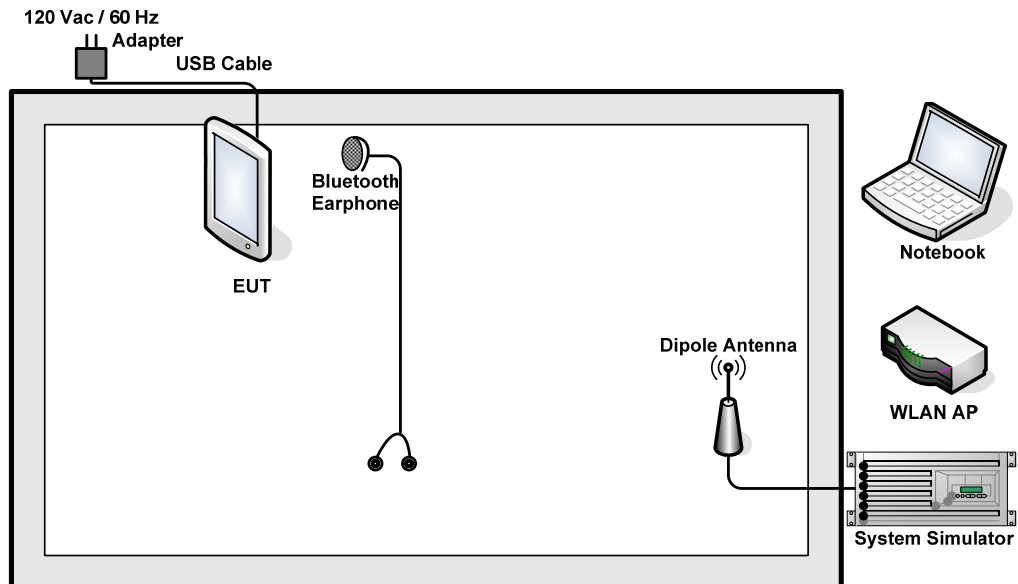
Test Cases				
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)			
	Test Mode	802.11b	802.11g	802.11n HT-20
Conducted TCs	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
Radiated TCs	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
AC Conducted Emission	Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN Link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

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

For WLAN function, key in “* # * # 4636633 # * # *” on the EUT directly. Then, the EUT will get into the engineering modes for continuous transmitting and receiving signals.

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.

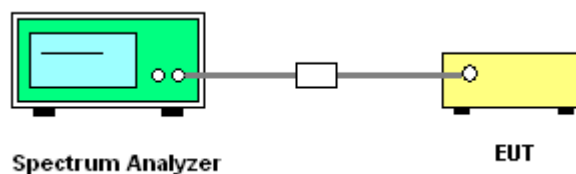
3.1.2 Measuring Instruments

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



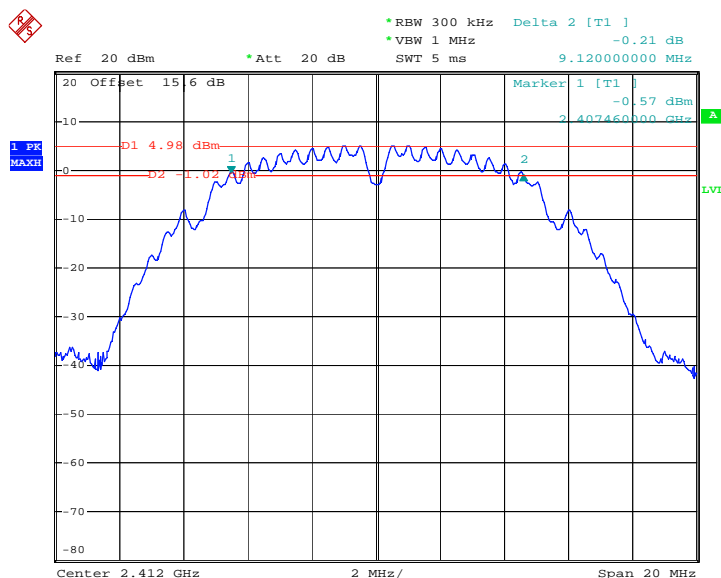


3.1.5 Test Result of 6dB Bandwidth

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	9.12	0.5	Pass
06	2437	9.14	0.5	Pass
11	2462	9.12	0.5	Pass

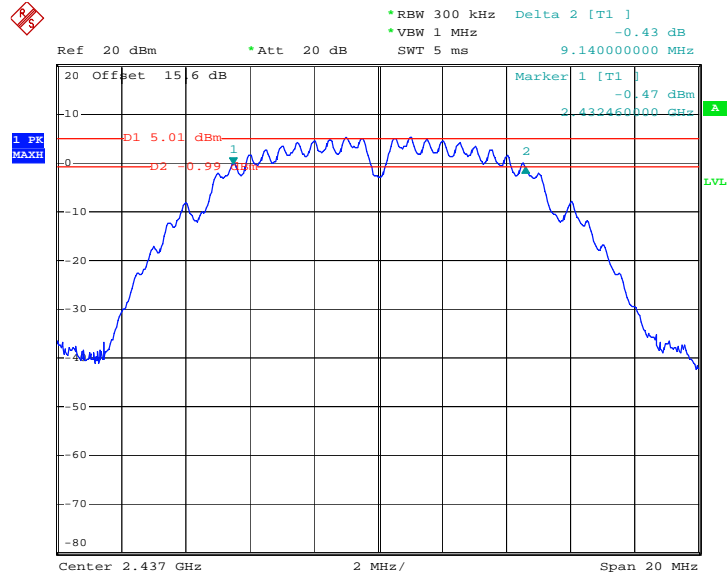
6 dB Bandwidth Plot on 802.11b Channel 01



Date: 25.JUN.2012 23:00:03

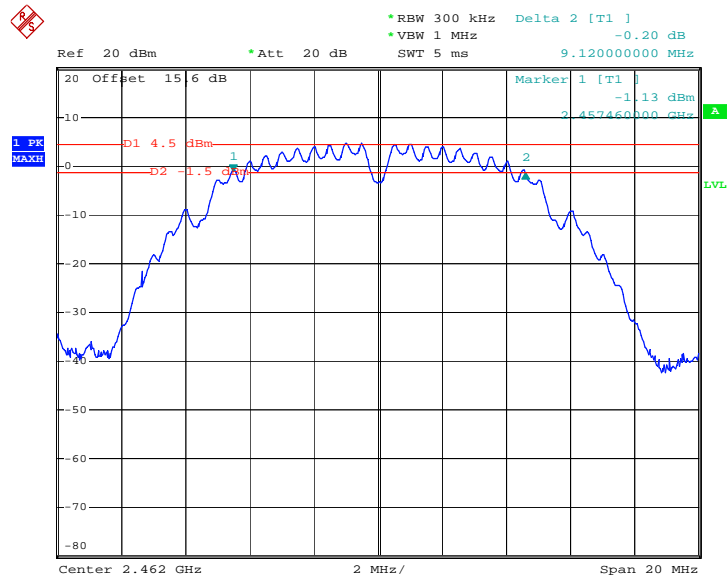


6 dB Bandwidth Plot on 802.11b Channel 06



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6 dB Bandwidth Plot on 802.11b Channel 11



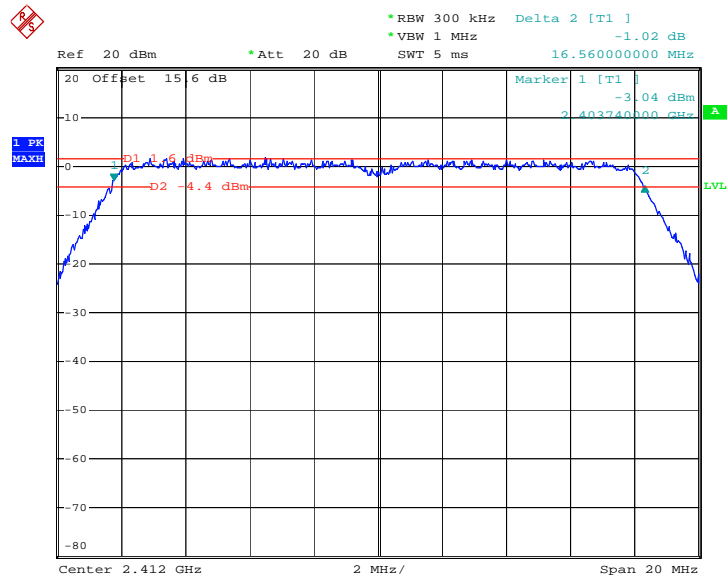
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Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.56	0.5	Pass
06	2437	16.60	0.5	Pass
11	2462	16.60	0.5	Pass

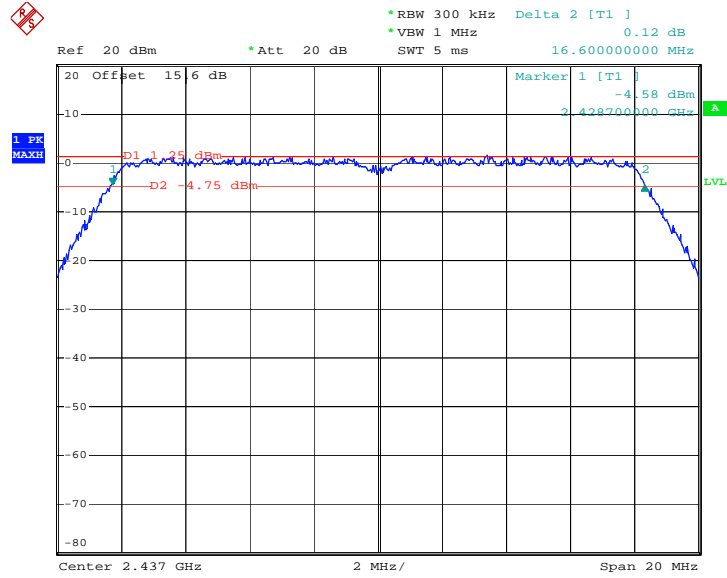
6 dB Bandwidth Plot on 802.11g Channel 01



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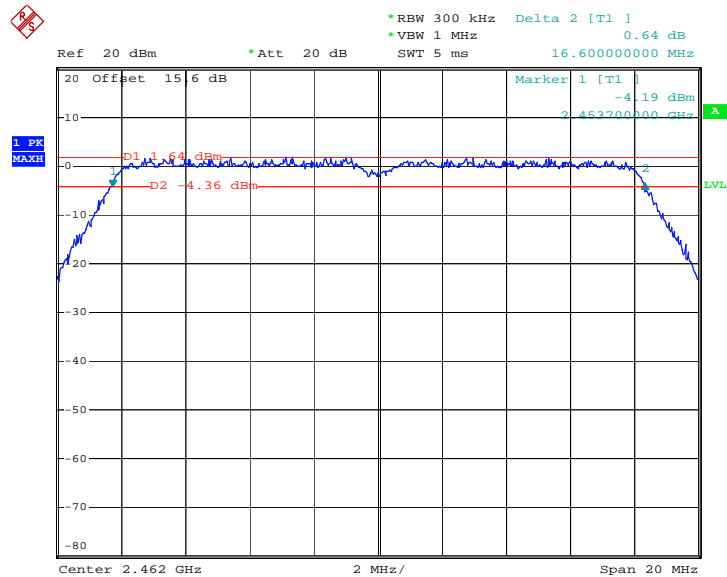


6 dB Bandwidth Plot on 802.11g Channel 06



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6 dB Bandwidth Plot on 802.11g Channel 11



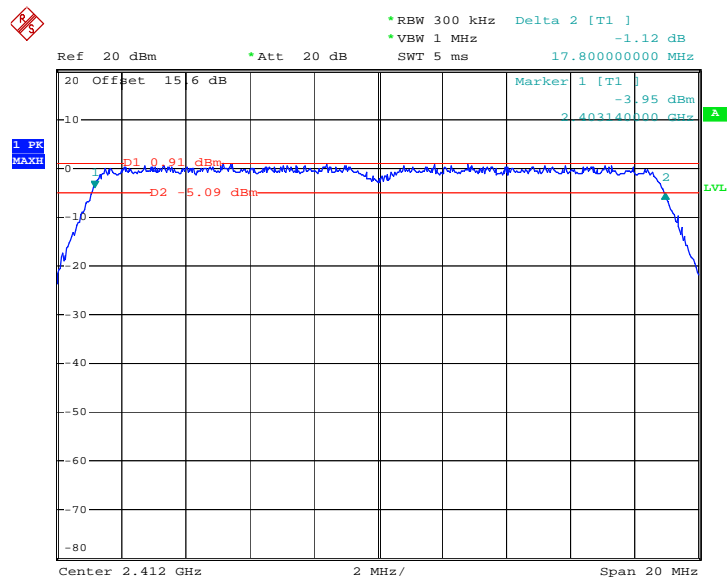
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Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

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	17.76	0.5	Pass

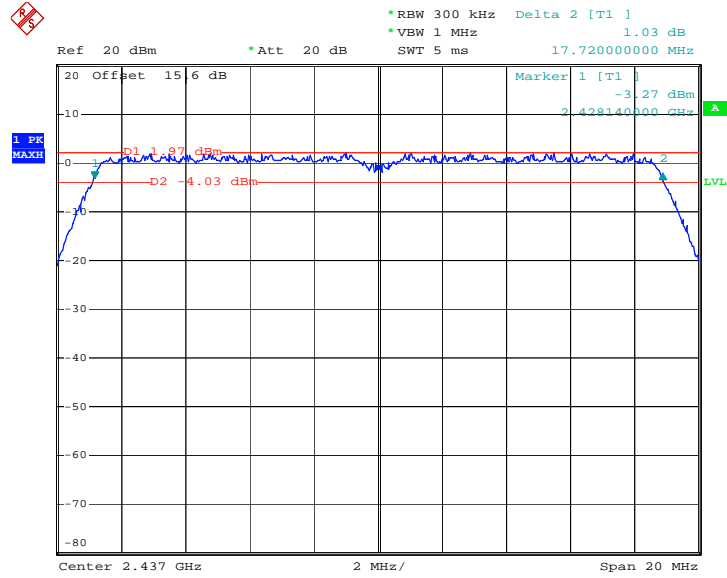
6 dB Bandwidth Plot on 802.11n HT-20 Channel 01



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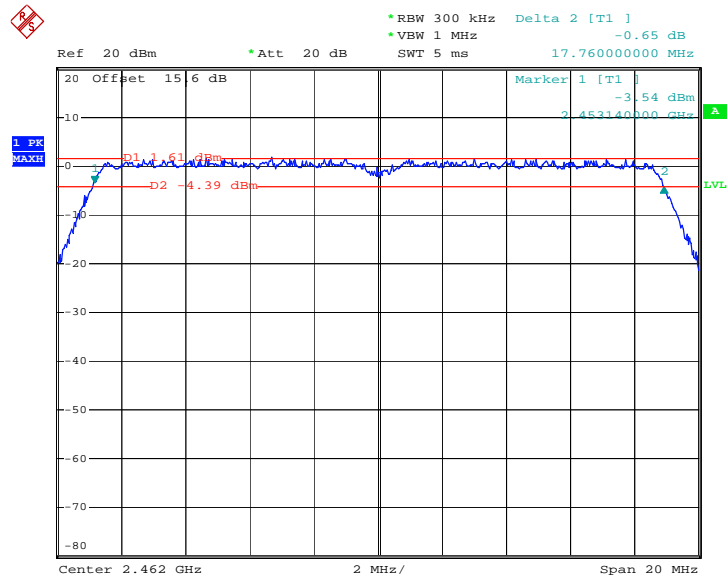


6 dB Bandwidth Plot on 802.11n HT-20 Channel 06



Date: 25.JUN.2012 23:46:18

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



Date: 25.JUN.2012 23:51:00

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.

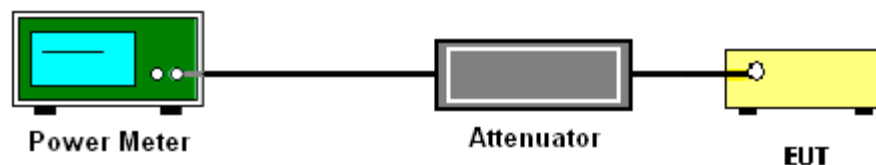
3.2.2 Measuring Instruments

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	16.54	30	Pass
06	2437	17.32	30	Pass
11	2462	16.86	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	20.11	30	Pass
06	2437	20.16	30	Pass
11	2462	20.13	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	21.06	30	Pass
06	2437	21.36	30	Pass
11	2462	20.78	30	Pass



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	89.42%	Duty Factor:	0.49dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	13.48
06	2437	14.21
11	2462	13.55

Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	61.54%	Duty Factor:	2.11dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	10.24
06	2437	10.28
11	2462	10.18

Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	59.12%	Duty Factor:	2.28dB

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)
01	2412	10.60
06	2437	10.80
11	2462	10.27

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.

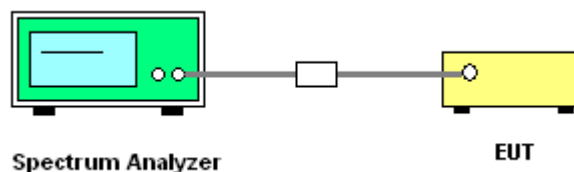
3.3.2 Measuring Instruments

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

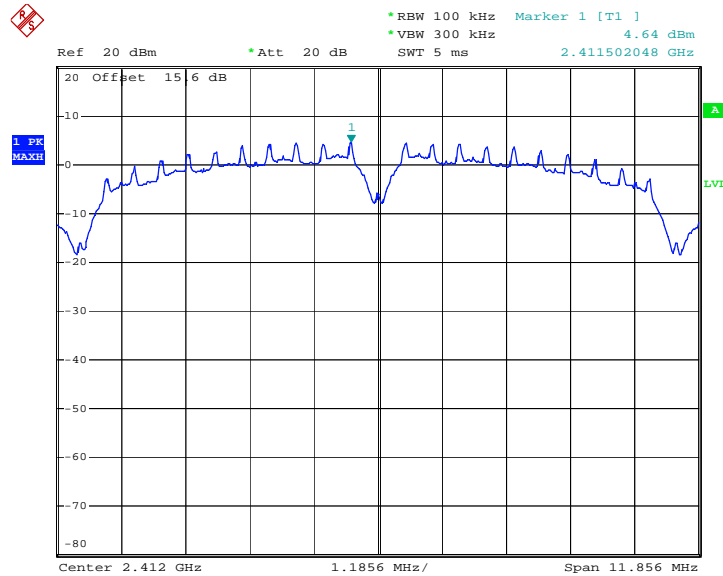
Test Mode :	802.11b	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	4.64	-10.56	8	Pass
06	2437	4.50	-10.70	8	Pass
11	2462	4.21	-10.99	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)

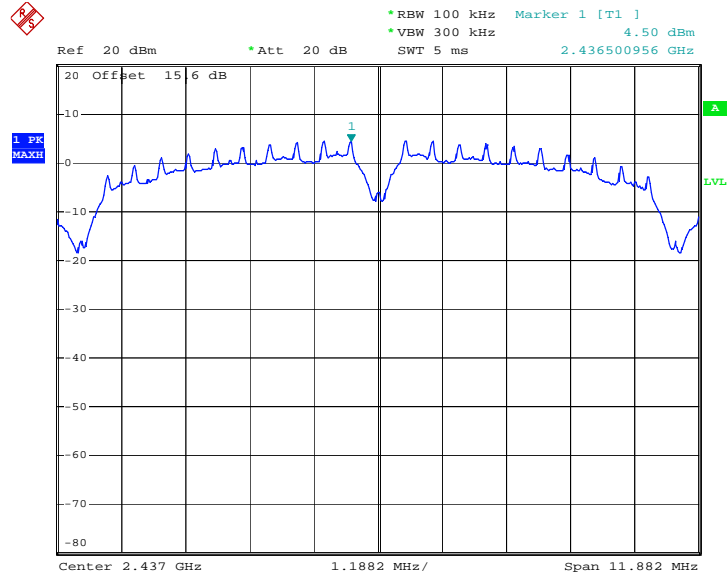
PSD Plot on 802.11b Channel 01



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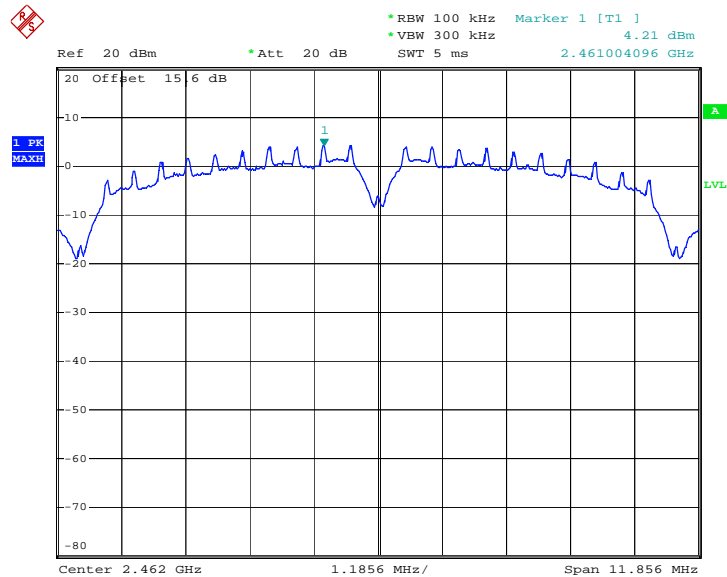


PSD Plot on 802.11b Channel 06



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PSD Plot on 802.11b Channel 11



Date: 25.JUN.2012 23:22:38



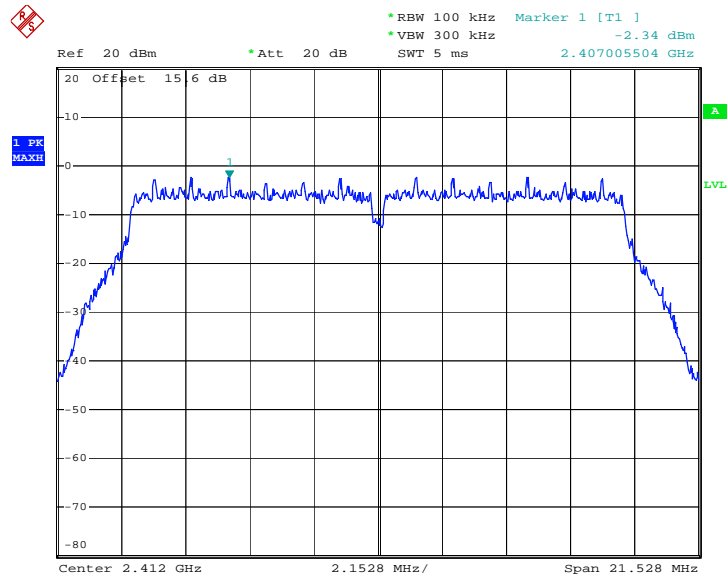
Test Mode :	802.11g	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-2.34	-17.54	8	Pass
06	2437	-2.61	-17.81	8	Pass
11	2462	-2.19	-17.39	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)

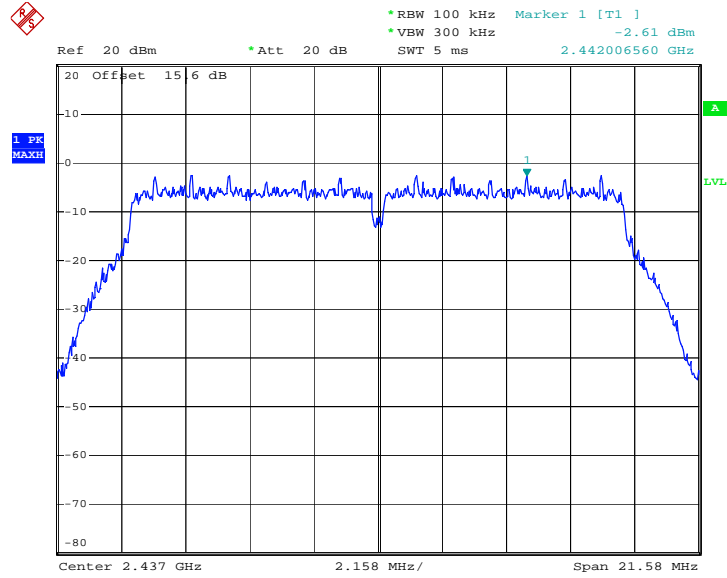
PSD Plot on 802.11g Channel 01



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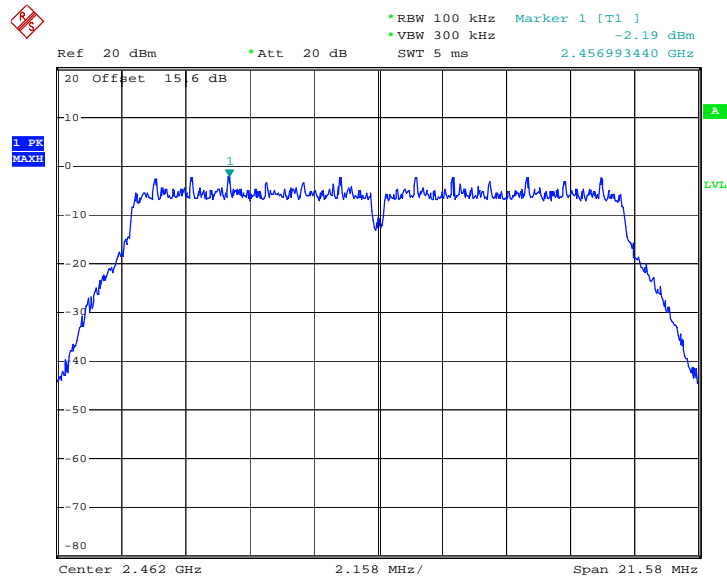


PSD Plot on 802.11g Channel 06



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PSD Plot on 802.11g Channel 11



Date: 25.JUN.2012 23:37:23



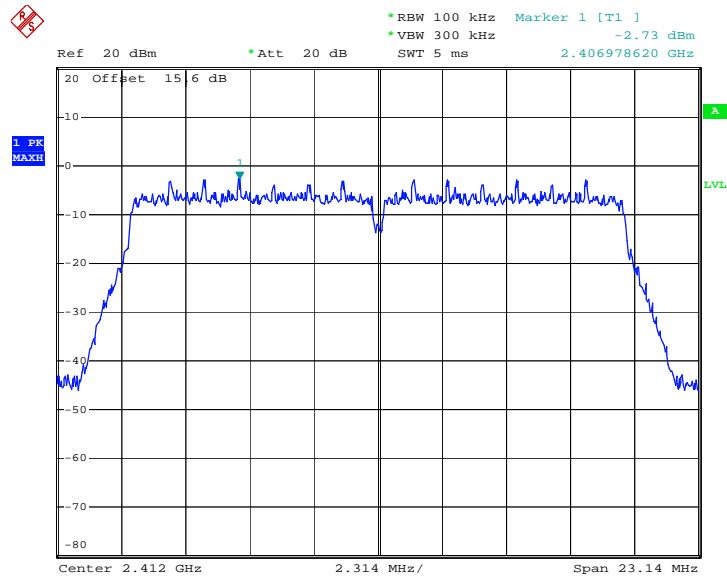
Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-2.73	-17.93	8	Pass
06	2437	-1.38	-16.58	8	Pass
11	2462	-2.21	-17.41	8	Pass

Note:

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

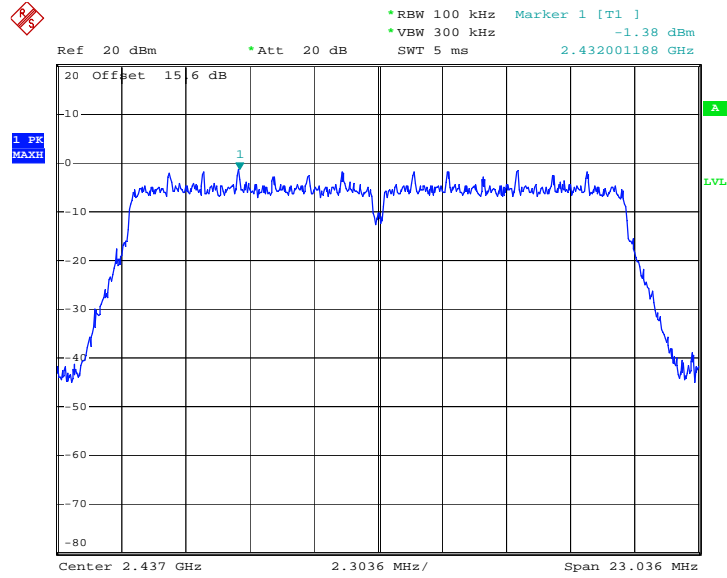
PSD Plot on 802.11n HT-20 Channel 01



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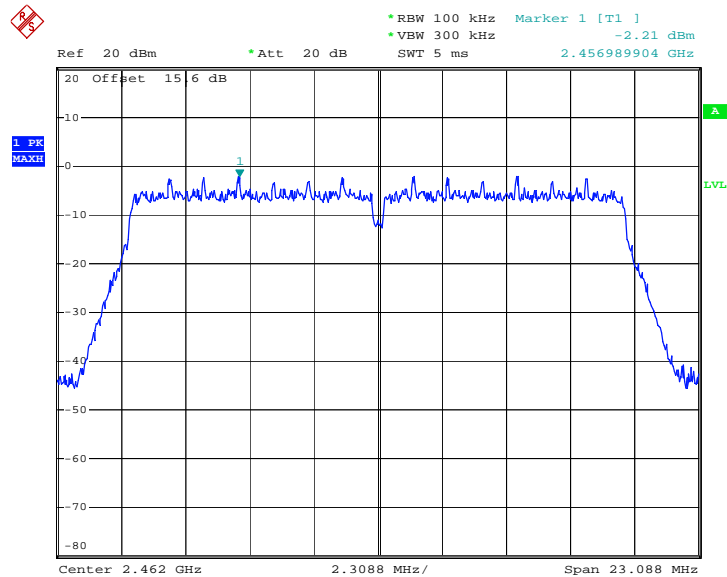


PSD Plot on 802.11n HT-20 Channel 06



Date: 25.JUN.2012 23:47:45

PSD Plot on 802.11n HT-20 Channel 11



Date: 25.JUN.2012 23:51:21

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).

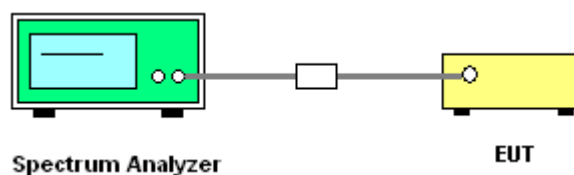
3.4.2 Measuring Instruments

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.

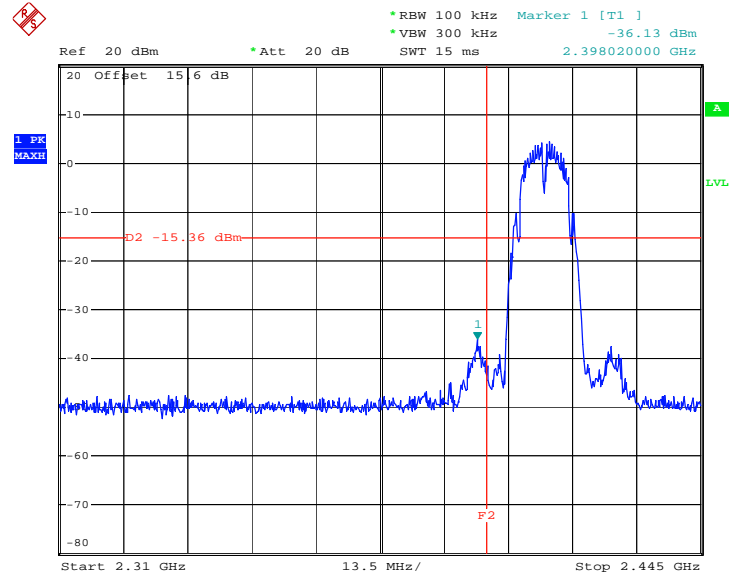
3.4.4 Test Setup



3.4.5 Test Plots of Conducted Band Edges

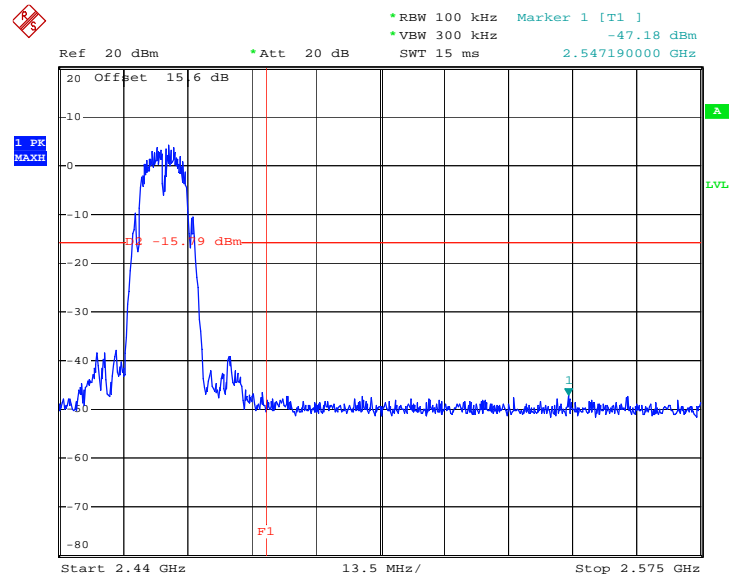
Test Mode :	802.11b	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01



Date: 25.JUN.2012 23:01:07

High Band Edge Plot on 802.11b Channel 11

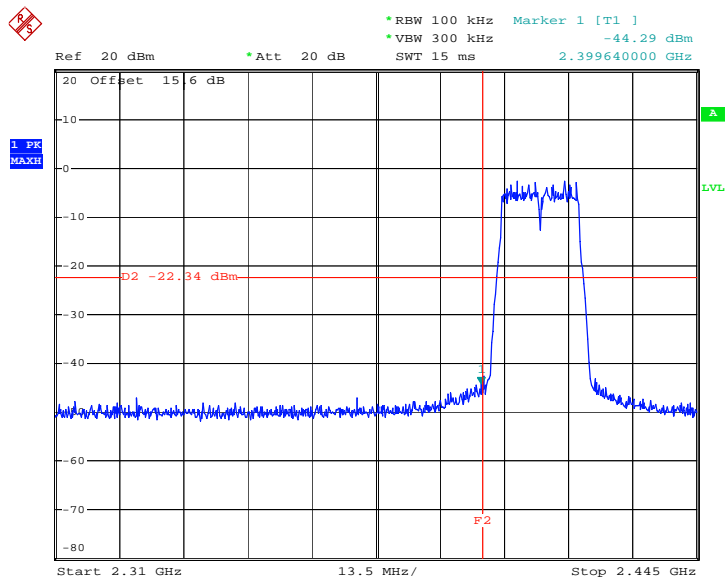


Date: 25.JUN.2012 23:22:55



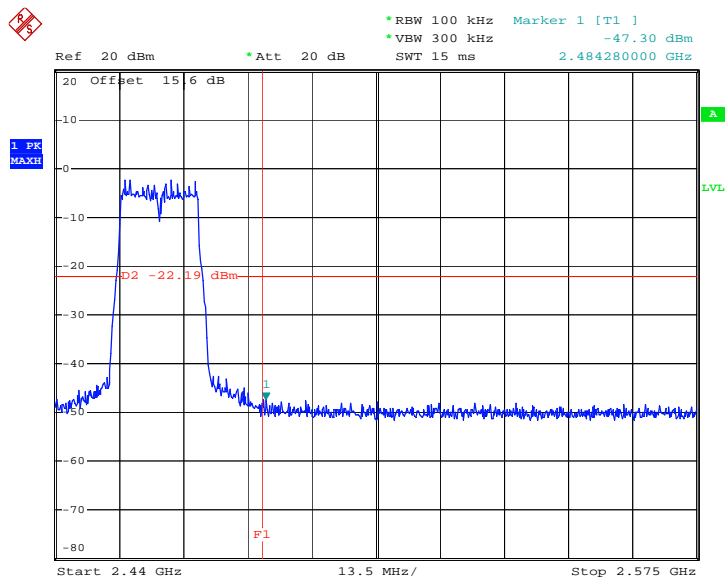
Test Mode :	802.11g	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01



Date: 25.JUN.2012 23:30:20

High Band Edge Plot on 802.11g Channel 11

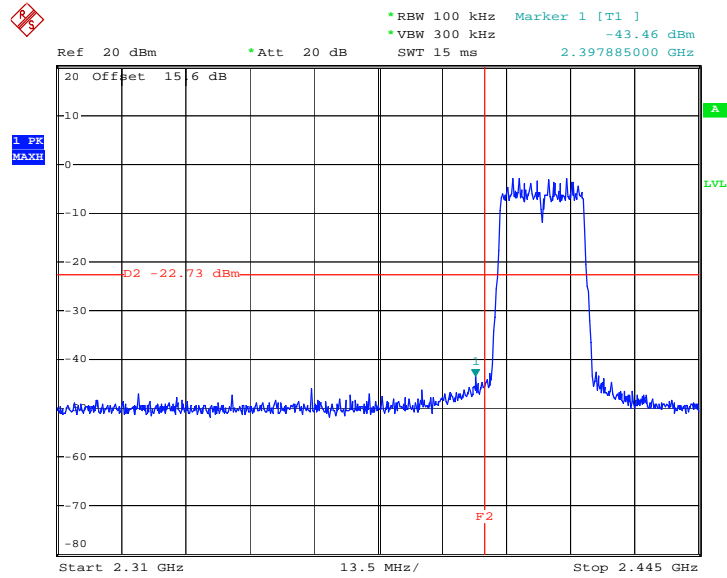


Date: 25.JUN.2012 23:38:44



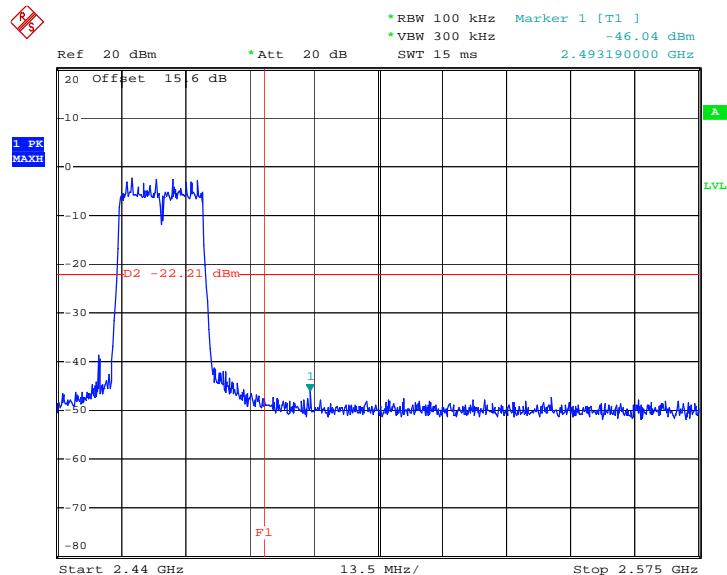
Test Mode :	802.11n HT-20	Temperature :	23~24°C
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

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



Date: 25.JUN.2012 23:43:34

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



Date: 25.JUN.2012 23:51:41

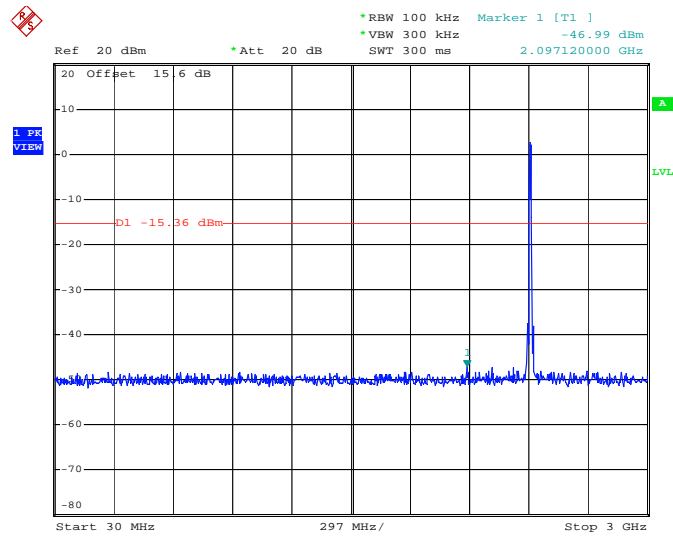


3.4.6 Test Plots of Spurious Emission

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

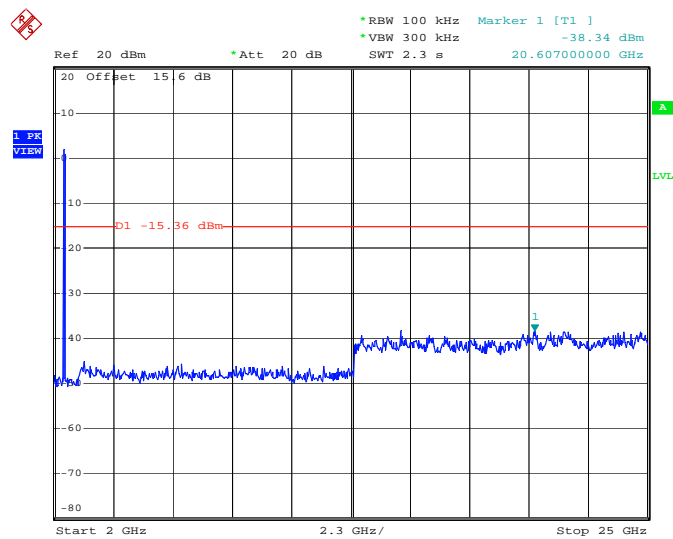
Conducted Spurious Emission Plot on Channel 01



Date: 25.JUN.2012 23:17:09

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

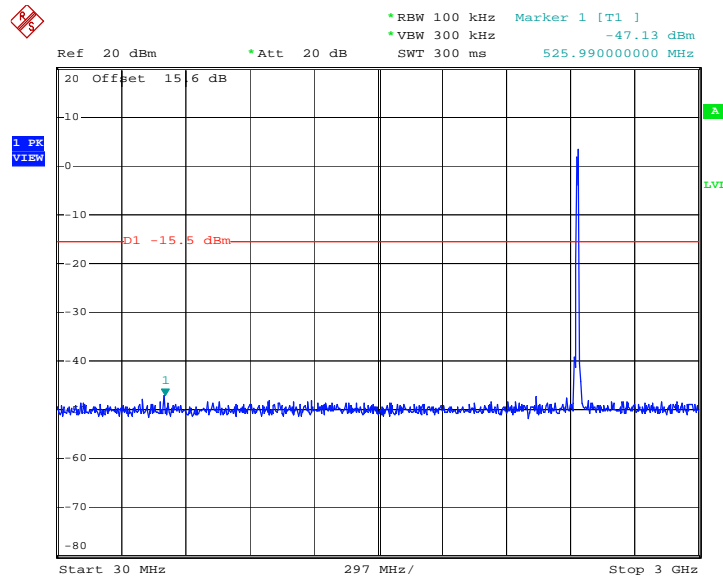


Date: 25.JUN.2012 23:14:11



802.11b 30 MHz~3 GHz

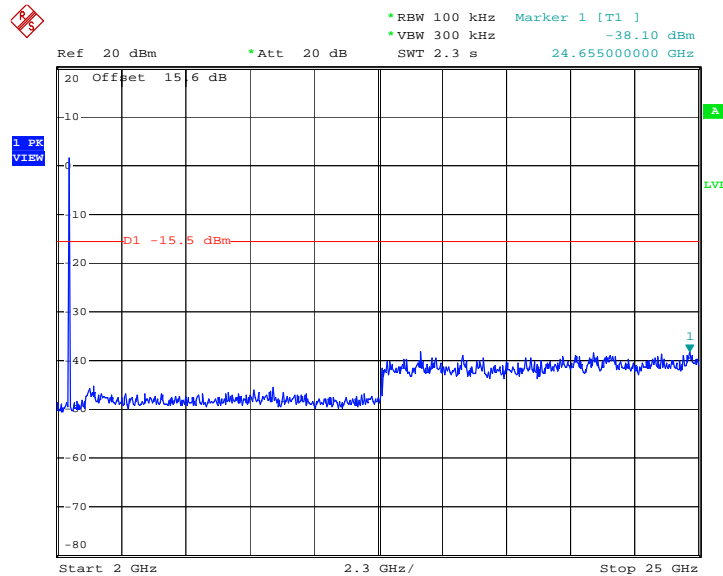
Conducted Spurious Emission Plot on Channel 06



Date: 25.JUN.2012 23:07:02

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

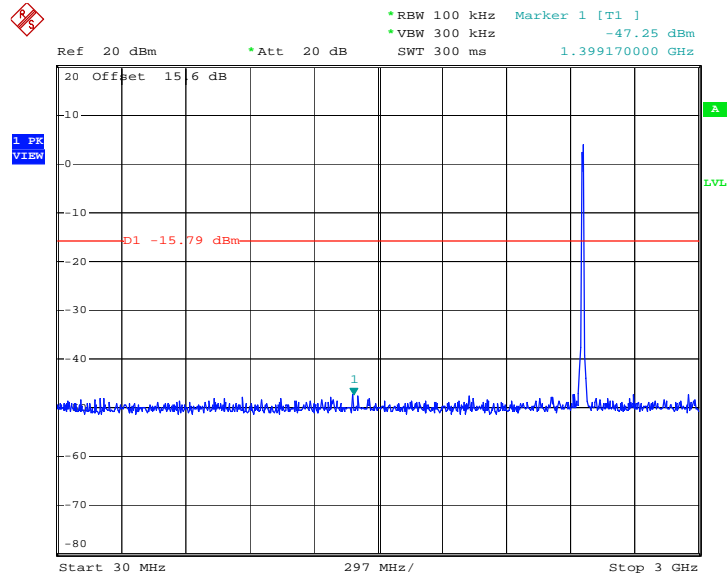


Date: 25.JUN.2012 23:07:21



802.11b 30 MHz~3 GHz

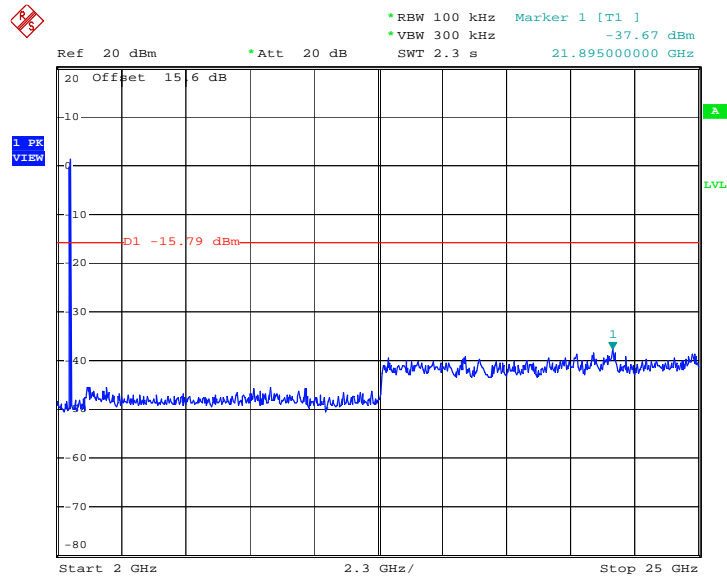
Conducted Spurious Emission Plot on Channel 11



Date: 25.JUN.2012 23:25:20

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

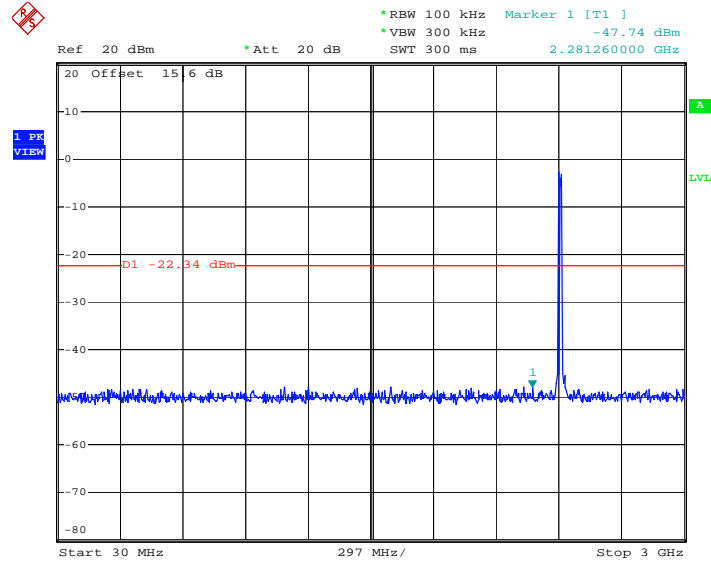


Date: 25.JUN.2012 23:25:38

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

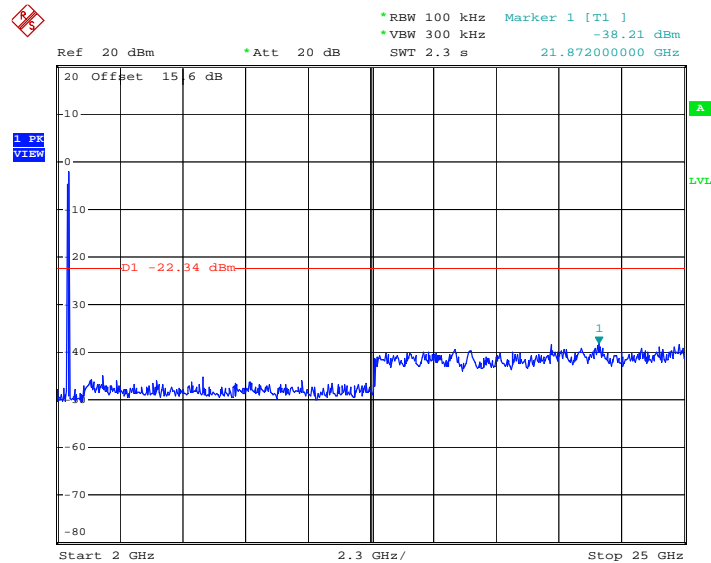
Conducted Spurious Emission Plot on Channel 01



Date: 25.JUN.2012 23:30:54

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

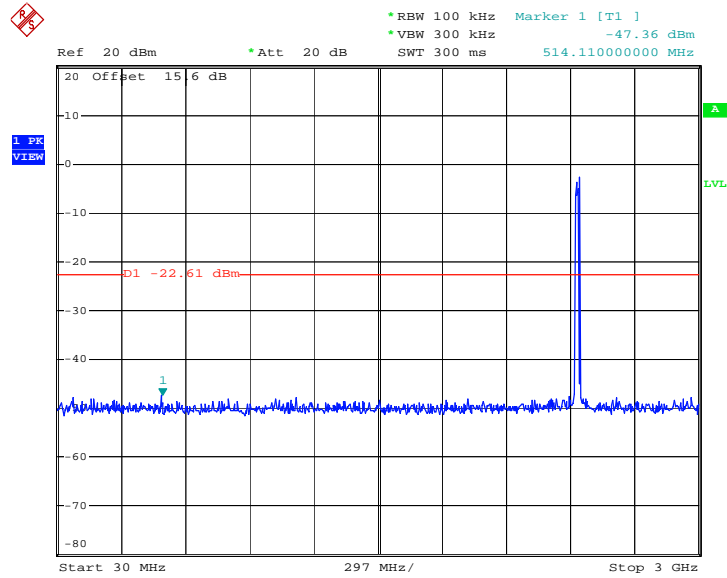


Date: 25.JUN.2012 23:31:13



802.11g 30 MHz~3 GHz

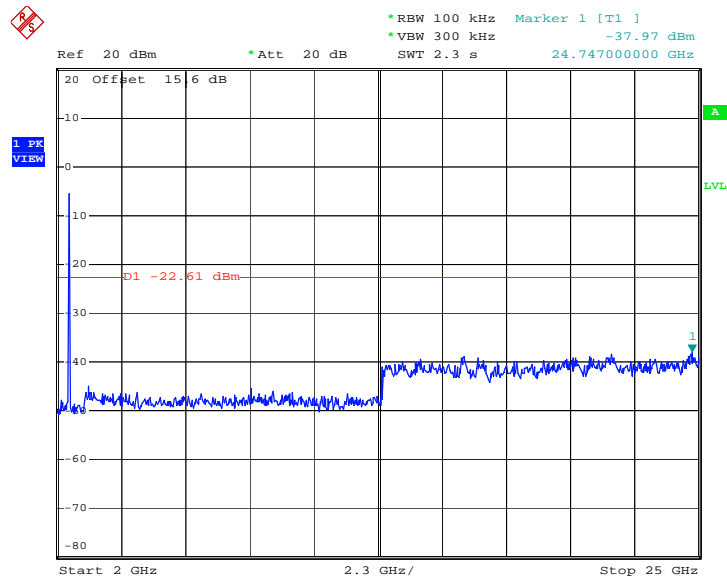
Conducted Spurious Emission Plot on Channel 06



Date: 25.JUN.2012 23:34:39

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

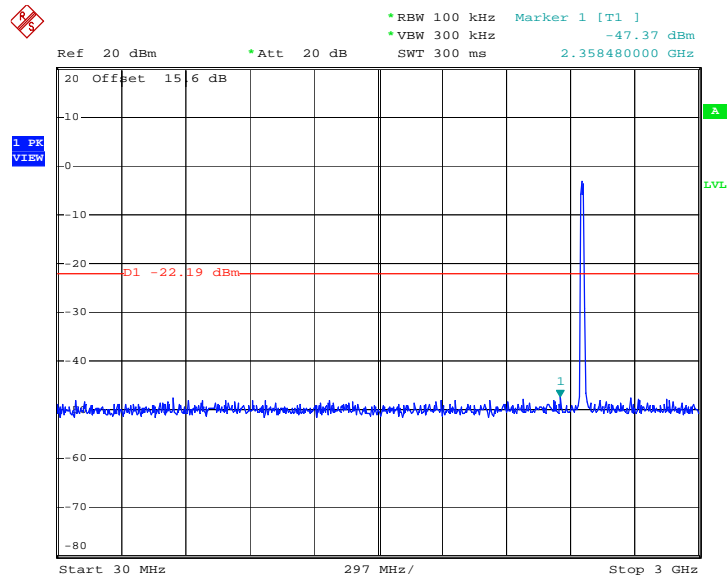


Date: 25.JUN.2012 23:34:58



802.11g 30 MHz~3 GHz

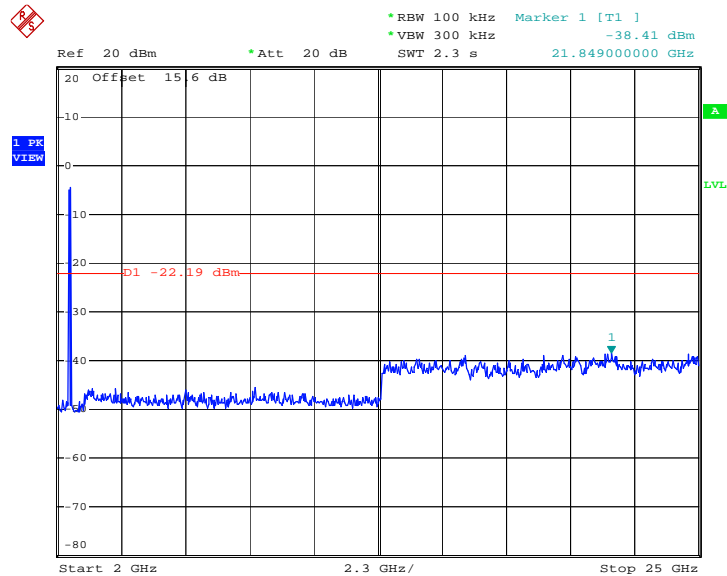
Conducted Spurious Emission Plot on Channel 11



Date: 25.JUN.2012 23:39:38

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

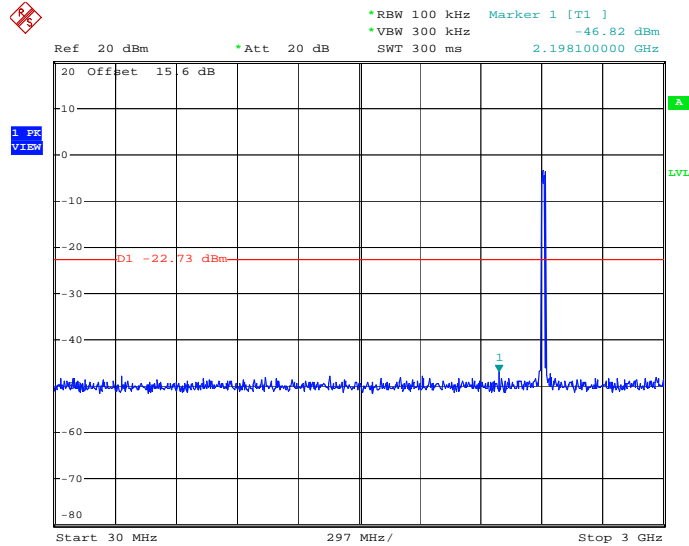


Date: 25.JUN.2012 23:39:57

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

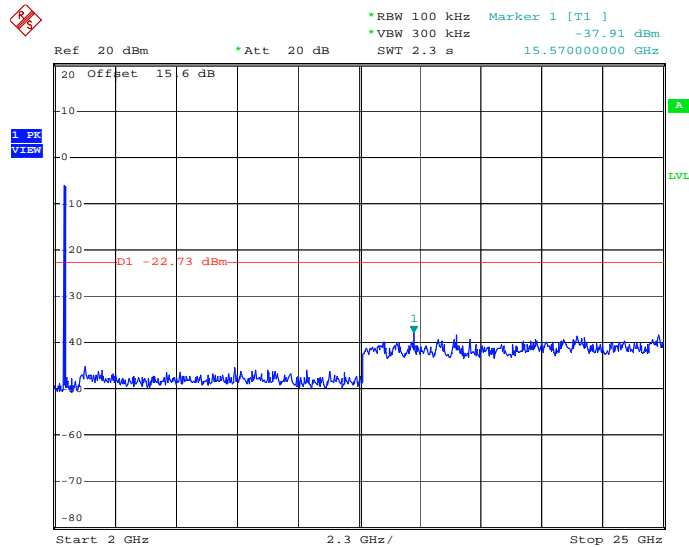
Conducted Spurious Emission Plot on Channel 01



Date: 25.JUN.2012 23:43:58

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

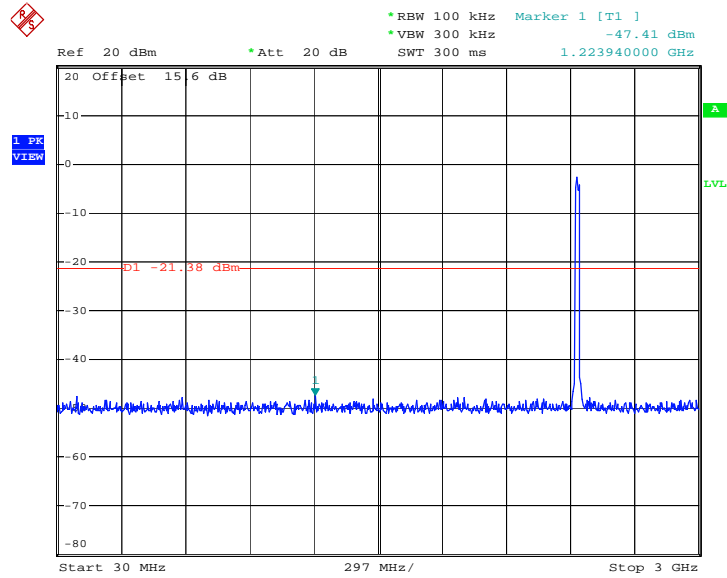


Date: 25.JUN.2012 23:44:16



802.11n HT-20 30 MHz~3 GHz

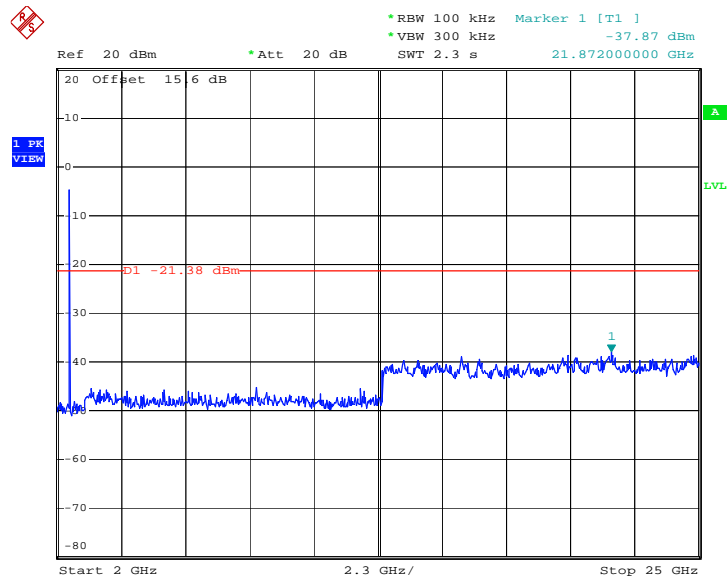
Conducted Spurious Emission Plot on Channel 06



Date: 25.JUN.2012 23:48:39

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

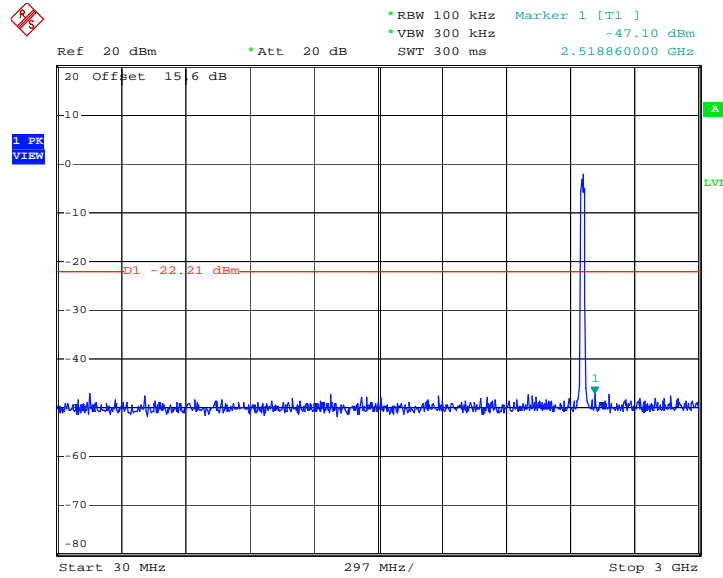


Date: 25.JUN.2012 23:48:58



802.11n HT-20 30 MHz~3 GHz

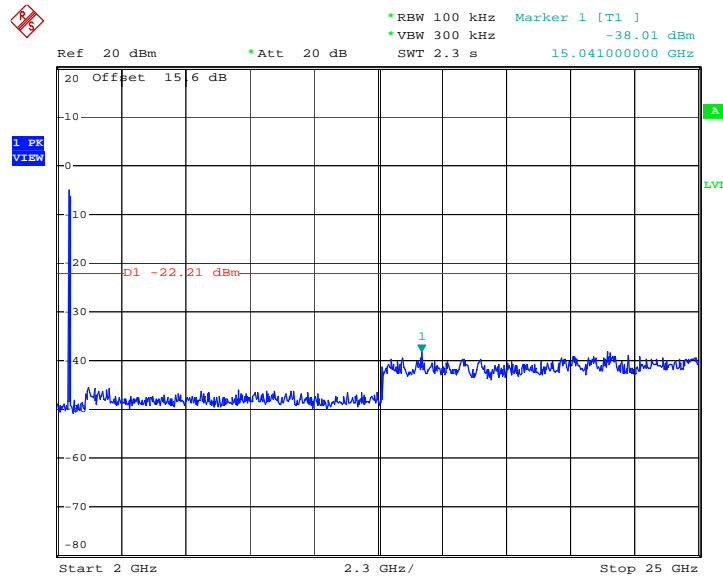
Conducted Spurious Emission Plot on Channel 11



Date: 25.JUN.2012 23:52:03

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 25.JUN.2012 23:52:21



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

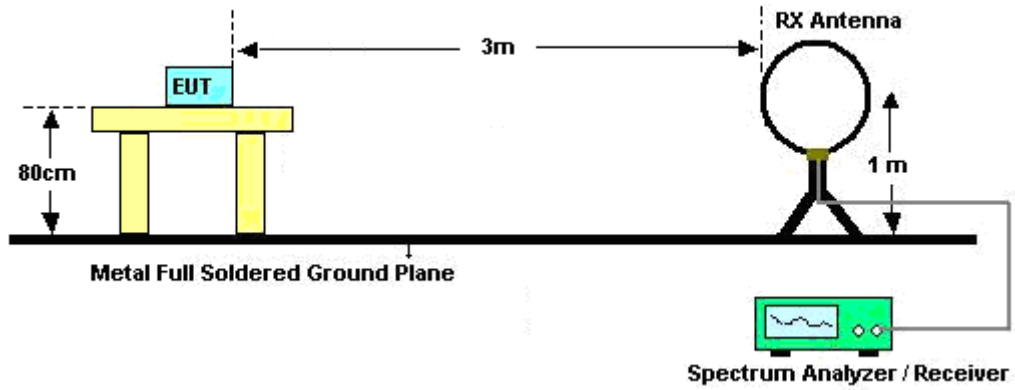
See list of measuring instruments of this test report.

3.5.3 Test Procedures

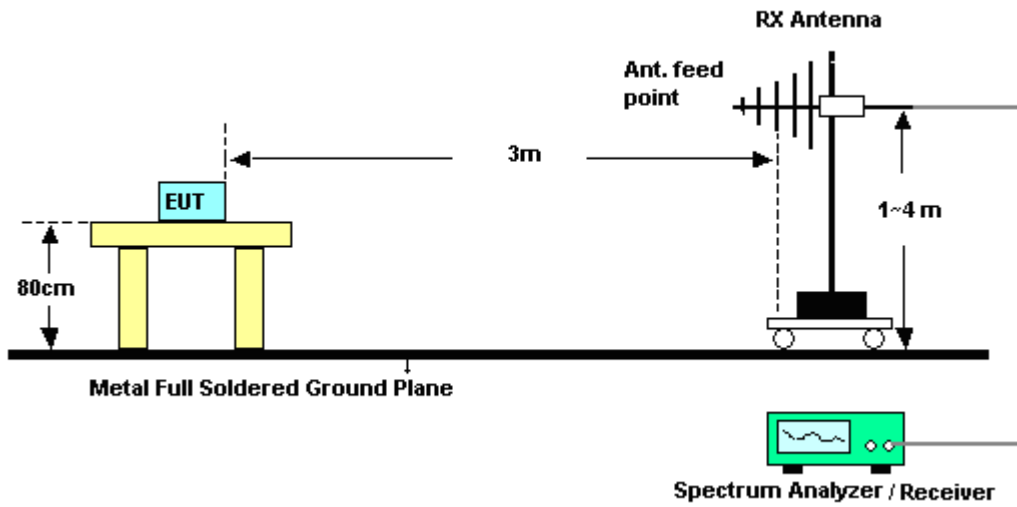
1. The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 and the guidelines in ANSI C63.10-2009 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) 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

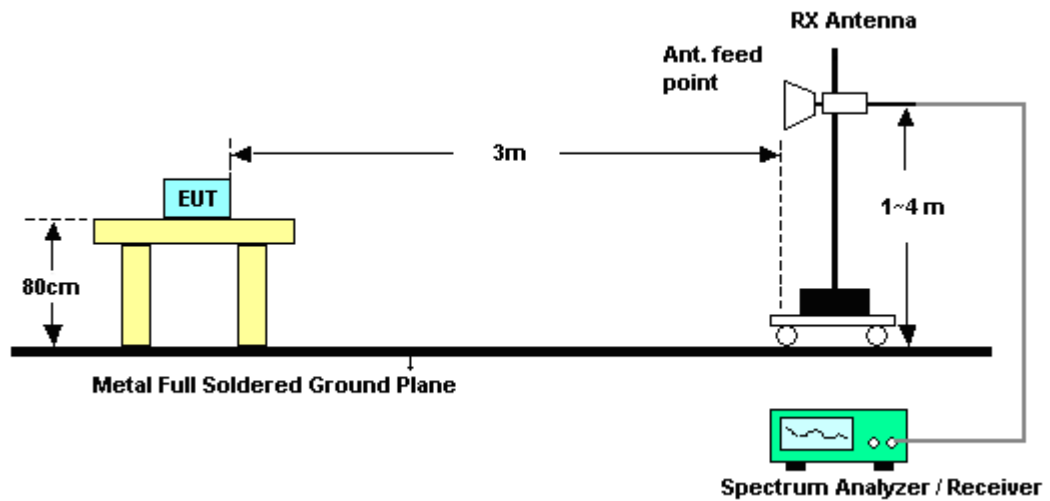
For radiated emissions below 30MHz



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 :	19~20°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
2386.76	51.82	-22.18	74	49.54	32.86	3.47	34.05	200	33	Peak
2386.76	38.71	-15.29	54	36.43	32.86	3.47	34.05	200	33	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
2385.81	50.29	-23.71	74	48.01	32.86	3.47	34.05	172	258	Peak
2385.81	37.44	-16.56	54	35.16	32.86	3.47	34.05	172	258	Average

Test Mode :	802.11b	Temperature :	19~20°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
2488.79	49.56	-24.44	74	47.02	33.05	3.72	34.23	200	76	Peak
2488.79	36.84	-17.16	54	34.3	33.05	3.72	34.23	200	76	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.23	50.51	-23.49	74	48.02	33.01	3.68	34.2	144	207	Peak
2484.23	37.65	-16.35	54	35.16	33.01	3.68	34.2	144	207	Average



Test Mode :	802.11g	Temperature :	19~20°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
2389.8	55.18	-18.82	74	52.9	32.86	3.47	34.05	200	347	Peak
2389.8	39.43	-14.57	54	37.15	32.86	3.47	34.05	200	347	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	52.33	-21.67	74	50.05	32.86	3.47	34.05	160	334	Peak
2389.99	38.77	-15.23	54	36.49	32.86	3.47	34.05	160	334	Average

Test Mode :	802.11g	Temperature :	19~20°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	50.65	-23.35	74	48.16	33.01	3.68	34.2	200	57	Peak
2483.5	37.53	-16.47	54	35.04	33.01	3.68	34.2	200	57	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.04	54.41	-19.59	74	51.92	33.01	3.68	34.2	155	0	Peak
2484.04	38.98	-15.02	54	36.49	33.01	3.68	34.2	155	0	Average



Test Mode :	802.11n HT-20	Temperature :	19~20°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	56.86	-17.14	74	54.58	32.86	3.47	34.05	120	0	Peak
2389.99	40.74	-13.26	54	38.46	32.86	3.47	34.05	120	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
2389.61	54.89	-19.11	74	52.61	32.86	3.47	34.05	159	26	Peak
2389.61	39.47	-14.53	54	37.19	32.86	3.47	34.05	159	26	Average

Test Mode :	802.11n HT-20	Temperature :	19~20°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
2483.66	55.28	-18.72	74	52.79	33.01	3.68	34.2	131	206	Peak
2483.66	40.48	-13.52	54	37.99	33.01	3.68	34.2	131	206	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	55.44	-18.56	74	52.95	33.01	3.68	34.2	200	0	Peak
2484.61	40.88	-13.12	54	38.39	33.01	3.68	34.2	200	0	Average



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

Test Mode :	802.11b	Temperature :	19~20°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
30	29.22	-10.78	40	41.04	18	0.26	30.08	-	-	Peak
93.05	27.42	-16.08	43.5	47.49	9.51	0.4	29.98	-	-	Peak
254.07	33.25	-12.75	46	50.37	12.06	0.67	29.85	-	-	Peak
336.52	36.42	-9.58	46	51.39	14.17	0.8	29.94	-	-	Peak
371.44	37.73	-8.27	46	51.71	15.09	0.83	29.9	-	-	Peak
430.61	40.1	-5.9	46	52.82	16.2	0.88	29.8	102	337	Peak
2386.76	51.82	-22.18	74	49.54	32.86	3.47	34.05	200	33	Peak
2386.76	38.71	-15.29	54	36.43	32.86	3.47	34.05	200	33	Average
2412	101.56	-	-	99.23	32.89	3.52	34.08	198	46	Peak
2412	97.26	-	-	94.93	32.89	3.52	34.08	198	46	Average
2497.34	49.95	-24.05	74	47.41	33.05	3.72	34.23	131	246	Peak
2497.34	36.75	-17.25	54	34.21	33.05	3.72	34.23	131	246	Average



Test Mode :	802.11b	Temperature :	19~20°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	34.34	-5.66	40	46.16	18	0.26	30.08	-	-	Peak
84.32	30.34	-9.66	40	52.46	7.53	0.37	30.02	-	-	Peak
177.44	25.33	-18.17	43.5	46.03	8.63	0.56	29.89	-	-	Peak
368.53	35.02	-10.98	46	49.11	14.98	0.83	29.9	-	-	Peak
437.4	38.33	-7.67	46	51	16.24	0.89	29.8	100	96	QP
939.86	31.81	-14.19	46	39.32	20.69	1.33	29.53	-	-	Peak
2385.81	50.29	-23.71	74	48.01	32.86	3.47	34.05	172	258	Peak
2385.81	37.44	-16.56	54	35.16	32.86	3.47	34.05	172	258	Average
2412	97.82	-	-	95.49	32.89	3.52	34.08	129	136	Peak
2412	93.8	-	-	91.47	32.89	3.52	34.08	129	136	Average
2492.02	49.83	-24.17	74	47.29	33.05	3.72	34.23	200	113	Peak
2492.02	36.93	-17.07	54	34.39	33.05	3.72	34.23	200	113	Average



Test Mode :	802.11b	Temperature :	19~20°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
30	29.45	-10.55	40	41.27	18	0.26	30.08	-	-	Peak
252.13	32.95	-13.05	46	50.1	12.03	0.67	29.85	-	-	Peak
339.43	36.86	-9.14	46	51.75	14.25	0.8	29.94	-	-	Peak
370.47	38.53	-7.47	46	52.55	15.05	0.83	29.9	-	-	Peak
429.64	39.45	-6.55	46	52.18	16.19	0.88	29.8	111	360	Peak
939.86	31.45	-14.55	46	38.96	20.69	1.33	29.53	-	-	Peak
2361.68	50.84	-23.16	74	48.63	32.81	3.38	33.98	144	13	Peak
2361.68	37.37	-16.63	54	35.16	32.81	3.38	33.98	144	13	Average
2437	99.49	-	-	97.09	32.95	3.6	34.15	118	158	Peak
2437	95.35	-	-	92.95	32.95	3.6	34.15	118	158	Average
2483.85	49.61	-24.39	74	47.12	33.01	3.68	34.2	120	155	Peak
2483.85	36.8	-17.2	54	34.31	33.01	3.68	34.2	120	155	Average



Test Mode :	802.11b	Temperature :	19~20°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	34.79	-5.21	40	46.61	18	0.26	30.08	-	-	Peak
84.32	29.34	-10.66	40	51.46	7.53	0.37	30.02	-	-	Peak
377.26	36.49	-9.51	46	50.2	15.34	0.83	29.88	-	-	Peak
431.58	37.98	-8.02	46	50.7	16.2	0.88	29.8	101	112	QP
542.16	28.69	-17.31	46	39.03	18.35	1	29.69	-	-	Peak
944.71	31.62	-14.38	46	39.12	20.71	1.33	29.54	-	-	Peak
2360.92	49.85	-24.15	74	47.64	32.81	3.38	33.98	112	344	Peak
2360.92	36.37	-17.63	54	34.16	32.81	3.38	33.98	112	344	Average
2437	97.96	-	-	95.56	32.95	3.6	34.15	154	0	Peak
2437	93.57	-	-	91.17	32.95	3.6	34.15	154	0	Average
2488.79	50.18	-23.82	74	47.64	33.05	3.72	34.23	200	18	Peak
2488.79	36.74	-17.26	54	34.2	33.05	3.72	34.23	200	18	Average



Test Mode :	802.11b	Temperature :	19~20°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
30	31.01	-8.99	40	42.83	18	0.26	30.08	-	-	Peak
249.22	31.29	-14.71	46	48.5	11.96	0.67	29.84	-	-	Peak
339.43	35.91	-10.09	46	50.8	14.25	0.8	29.94	-	-	Peak
369.5	38.22	-7.78	46	52.28	15.01	0.83	29.9	-	-	Peak
429.64	39.73	-6.27	46	52.46	16.19	0.88	29.8	102	349	Peak
780.78	32.55	-13.45	46	41.02	19.87	1.23	29.57	-	-	Peak
2389.61	50.36	-23.64	74	48.08	32.86	3.47	34.05	189	115	Peak
2389.61	37.55	-16.45	54	35.27	32.86	3.47	34.05	189	115	Average
2462	98.07	-	-	95.62	32.98	3.64	34.17	195	45	Peak
2462	95.77	-	-	93.32	32.98	3.64	34.17	195	45	Average
2488.79	49.56	-24.44	74	47.02	33.05	3.72	34.23	200	76	Peak
2488.79	36.84	-17.16	54	34.3	33.05	3.72	34.23	200	76	Average



Test Mode :	802.11b	Temperature :	19~20°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	34.72	-5.28	40	46.54	18	0.26	30.08	-	-	Peak
84.32	28.5	-11.5	40	50.62	7.53	0.37	30.02	-	-	Peak
375.32	37.02	-8.98	46	50.82	15.25	0.83	29.88	-	-	Peak
429.64	40.56	-5.44	46	53.29	16.19	0.88	29.8	100	90	QP
535.37	29.08	-16.92	46	39.59	18.19	0.99	29.69	-	-	Peak
939.86	31.54	-14.46	46	39.05	20.69	1.33	29.53	-	-	Peak
2372.7	50.15	-23.85	74	47.91	32.83	3.42	34.01	120	60	Peak
2372.7	36.85	-17.15	54	34.61	32.83	3.42	34.01	120	60	Average
2462	97.54	-	-	95.09	32.98	3.64	34.17	102	173	Peak
2462	91.94	-	-	89.49	32.98	3.64	34.17	102	173	Average
2484.23	50.51	-23.49	74	48.02	33.01	3.68	34.2	144	207	Peak
2484.23	37.65	-16.35	54	35.16	33.01	3.68	34.2	144	207	Average



Test Mode :	802.11g	Temperature :	19~20°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
30	30.32	-9.68	40	42.14	18	0.26	30.08	-	-	Peak
249.22	33.59	-12.41	46	50.8	11.96	0.67	29.84	-	-	Peak
336.52	36.38	-9.62	46	51.35	14.17	0.8	29.94	-	-	Peak
366.59	37.01	-8.99	46	51.17	14.92	0.83	29.91	-	-	Peak
435.46	39.6	-6.4	46	52.28	16.23	0.89	29.8	120	355	Peak
939.86	31.51	-14.49	46	39.02	20.69	1.33	29.53	-	-	Peak
2389.8	55.18	-18.82	74	52.9	32.86	3.47	34.05	200	347	Peak
2389.8	39.43	-14.57	54	37.15	32.86	3.47	34.05	200	347	Average
2412	99.13	-	-	96.8	32.89	3.52	34.08	148	160	Peak
2412	84.33	-	-	82	32.89	3.52	34.08	148	160	Average
2489.17	49.7	-24.3	74	47.16	33.05	3.72	34.23	112	34	Peak
2489.17	37.05	-16.95	54	34.51	33.05	3.72	34.23	112	34	Average



Test Mode :	802.11g	Temperature :	19~20°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	34.56	-5.44	40	46.38	18	0.26	30.08	-	-	Peak
93.05	27.69	-15.81	43.5	47.76	9.51	0.4	29.98	-	-	Peak
177.44	25.85	-17.65	43.5	46.55	8.63	0.56	29.89	-	-	Peak
369.5	35.89	-10.11	46	49.95	15.01	0.83	29.9	-	-	Peak
432.55	39.39	-6.61	46	52.1	16.21	0.88	29.8	103	112	QP
944.71	32.33	-13.67	46	39.83	20.71	1.33	29.54	-	-	Peak
2389.99	52.33	-21.67	74	50.05	32.86	3.47	34.05	160	334	Peak
2389.99	38.77	-15.23	54	36.49	32.86	3.47	34.05	160	334	Average
2412	96.65	-	-	94.32	32.89	3.52	34.08	158	360	Peak
2412	84.15	-	-	81.82	32.89	3.52	34.08	158	360	Average
2498.86	50.01	-23.99	74	47.47	33.05	3.72	34.23	103	151	Peak
2498.86	36.7	-17.3	54	34.16	33.05	3.72	34.23	103	151	Average



Test Mode :	802.11g	Temperature :	19~20°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
30	30.54	-9.46	40	42.36	18	0.26	30.08	-	-	Peak
252.13	31.8	-14.2	46	48.95	12.03	0.67	29.85	-	-	Peak
336.52	36.37	-9.63	46	51.34	14.17	0.8	29.94	-	-	Peak
371.44	36.62	-9.38	46	50.6	15.09	0.83	29.9	-	-	Peak
429.64	38.95	-7.05	46	51.68	16.19	0.88	29.8	142	317	Peak
780.78	33.06	-12.94	46	41.53	19.87	1.23	29.57	-	-	Peak
2332.8	50.18	-23.82	74	48.05	32.76	3.27	33.9	122	155	Peak
2332.8	37.72	-16.28	54	35.59	32.76	3.27	33.9	122	155	Average
2437	97.89	-	-	95.49	32.95	3.6	34.15	117	162	Peak
2437	85.66	-	-	83.26	32.95	3.6	34.15	117	162	Average
2488.6	49.79	-24.21	74	47.25	33.05	3.72	34.23	200	20	Peak
2488.6	36.75	-17.25	54	34.21	33.05	3.72	34.23	200	20	Average



Test Mode :	802.11g	Temperature :	19~20°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	34.65	-5.35	40	46.47	18	0.26	30.08	-	-	Peak
84.32	27.6	-12.4	40	49.72	7.53	0.37	30.02	-	-	Peak
340.4	29.12	-16.88	46	43.97	14.28	0.81	29.94	-	-	Peak
369.5	34.96	-11.04	46	49.02	15.01	0.83	29.9	-	-	Peak
436.43	42.95	-3.05	46	55.63	16.23	0.89	29.8	100	96	Peak
944.71	31.39	-14.61	46	38.89	20.71	1.33	29.54	-	-	Peak
2338.69	49.88	-24.12	74	47.71	32.78	3.33	33.94	143	226	Peak
2338.69	36.8	-17.2	54	34.63	32.78	3.33	33.94	143	226	Average
2437	97.15	-	-	94.75	32.95	3.6	34.15	155	359	Peak
2437	84.34	-	-	81.94	32.95	3.6	34.15	155	359	Average
2498.86	49.44	-24.56	74	46.9	33.05	3.72	34.23	100	49	Peak
2498.86	35.78	-18.22	54	33.24	33.05	3.72	34.23	100	49	Average



Test Mode :	802.11g	Temperature :	19~20°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
30	31.54	-8.46	40	43.36	18	0.26	30.08	-	-	Peak
177.44	30.46	-13.04	43.5	51.16	8.63	0.56	29.89	-	-	Peak
249.22	32.24	-13.76	46	49.45	11.96	0.67	29.84	-	-	Peak
342.34	35.91	-10.09	46	50.71	14.33	0.81	29.94	-	-	Peak
370.47	37.86	-8.14	46	51.88	15.05	0.83	29.9	-	-	Peak
428.67	38.98	-7.02	46	51.73	16.18	0.88	29.81	100	358	Peak
2327.29	49.81	-24.19	74	47.68	32.76	3.27	33.9	120	161	Peak
2327.29	36.29	-17.71	54	34.16	32.76	3.27	33.9	120	161	Average
2462	95.02	-	-	92.57	32.98	3.64	34.17	115	158	Peak
2462	83.9	-	-	81.45	32.98	3.64	34.17	115	158	Average
2483.5	50.65	-23.35	74	48.16	33.01	3.68	34.2	200	57	Peak
2483.5	37.53	-16.47	54	35.04	33.01	3.68	34.2	200	57	Average



Test Mode :	802.11g	Temperature :	19~20°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	34.09	-5.91	40	45.91	18	0.26	30.08	-	-	Peak
84.32	26.32	-13.68	40	48.44	7.53	0.37	30.02	-	-	Peak
368.53	34.44	-11.56	46	48.53	14.98	0.83	29.9	-	-	Peak
435.46	40.22	-5.78	46	52.9	16.23	0.89	29.8	101	94	QP
538.28	29.58	-16.42	46	40.02	18.26	0.99	29.69	-	-	Peak
944.71	32.16	-13.84	46	39.66	20.71	1.33	29.54	-	-	Peak
2360.16	49.97	-24.03	74	47.76	32.81	3.38	33.98	200	226	Peak
2360.16	36.43	-17.57	54	34.22	32.81	3.38	33.98	200	226	Average
2462	96.24	-	-	93.79	32.98	3.64	34.17	153	2	Peak
2462	82.44	-	-	79.99	32.98	3.64	34.17	153	2	Average
2484.04	54.41	-19.59	74	51.92	33.01	3.68	34.2	155	0	Peak
2484.04	38.98	-15.02	54	36.49	33.01	3.68	34.2	155	0	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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
30	29.82	-10.18	40	41.64	18	0.26	30.08	-	-	Peak
177.44	29.9	-13.6	43.5	50.6	8.63	0.56	29.89	-	-	Peak
249.22	33.89	-12.11	46	51.1	11.96	0.67	29.84	-	-	Peak
343.31	35.75	-10.25	46	50.53	14.35	0.81	29.94	-	-	Peak
371.44	37.06	-8.94	46	51.04	15.09	0.83	29.9	-	-	Peak
429.64	39.49	-6.51	46	52.22	16.19	0.88	29.8	114	360	Peak
2389.99	56.86	-17.14	74	54.58	32.86	3.47	34.05	120	0	Peak
2389.99	40.74	-13.26	54	38.46	32.86	3.47	34.05	120	0	Average
2412	98.98	-	-	96.65	32.89	3.52	34.08	169	60	Peak
2412	85.75	-	-	83.42	32.89	3.52	34.08	169	60	Average
2484.61	49.38	-24.62	74	46.89	33.01	3.68	34.2	200	117	Peak
2484.61	35.78	-18.22	54	33.29	33.01	3.68	34.2	200	117	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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	34.63	-5.37	40	46.45	18	0.26	30.08	-	-	Peak
84.32	26.42	-13.58	40	48.54	7.53	0.37	30.02	-	-	Peak
177.44	25.14	-18.36	43.5	45.84	8.63	0.56	29.89	-	-	Peak
369.5	36.53	-9.47	46	50.59	15.01	0.83	29.9	-	-	Peak
430.61	38.57	-7.43	46	51.29	16.2	0.88	29.8	105	102	QP
939.86	32.5	-13.5	46	40.01	20.69	1.33	29.53	-	-	Peak
2389.61	54.89	-19.11	74	52.61	32.86	3.47	34.05	159	26	Peak
2389.61	39.47	-14.53	54	37.19	32.86	3.47	34.05	159	26	Average
2412	96.67	-	-	94.34	32.89	3.52	34.08	157	0	Peak
2412	83.27	-	-	80.94	32.89	3.52	34.08	157	0	Average
2485.75	50.23	-23.77	74	47.74	33.01	3.68	34.2	200	113	Peak
2485.75	36.76	-17.24	54	34.27	33.01	3.68	34.2	200	113	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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
30	31.16	-8.84	40	42.98	18	0.26	30.08	-	-	Peak
177.44	31.23	-12.27	43.5	51.93	8.63	0.56	29.89	-	-	Peak
249.22	34.17	-11.83	46	51.38	11.96	0.67	29.84	-	-	Peak
373.38	37.6	-8.4	46	51.5	15.16	0.83	29.89	-	-	Peak
429.64	39.34	-6.66	46	52.07	16.19	0.88	29.8	110	346	Peak
780.78	33.77	-12.23	46	42.24	19.87	1.23	29.57	-	-	Peak
2381.63	50.27	-23.73	74	48.03	32.83	3.42	34.01	120	97	Peak
2381.63	37.52	-16.48	54	35.28	32.83	3.42	34.01	120	97	Average
2437	96.87	-	-	94.47	32.95	3.6	34.15	118	164	Peak
2437	84.24	-	-	81.84	32.95	3.6	34.15	118	164	Average
2492.02	49.22	-24.78	74	46.68	33.05	3.72	34.23	194	316	Peak
2492.02	35.85	-18.15	54	33.31	33.05	3.72	34.23	194	316	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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	33.61	-6.39	40	45.43	18	0.26	30.08	-	-	Peak
84.32	27.78	-12.22	40	49.9	7.53	0.37	30.02	-	-	Peak
178.41	27.53	-15.97	43.5	48.3	8.55	0.56	29.88	-	-	Peak
370.47	36.04	-9.96	46	50.06	15.05	0.83	29.9	-	-	Peak
433.52	38.7	-7.3	46	51.4	16.22	0.88	29.8	100	99	QP
939.86	32.17	-13.83	46	39.68	20.69	1.33	29.53	-	-	Peak
2345.91	49.64	-24.36	74	47.47	32.78	3.33	33.94	120	144	Peak
2345.91	36.7	-17.3	54	34.53	32.78	3.33	33.94	120	144	Average
2437	96.34	-	-	93.94	32.95	3.6	34.15	156	1	Peak
2437	83.27	-	-	80.87	32.95	3.6	34.15	156	1	Average
2496.2	49.86	-24.14	74	47.32	33.05	3.72	34.23	200	271	Peak
2496.2	37.18	-16.82	54	34.64	33.05	3.72	34.23	200	271	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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
30	29.98	-10.02	40	41.8	18	0.26	30.08	-	-	Peak
249.22	31.92	-14.08	46	49.13	11.96	0.67	29.84	-	-	Peak
337.49	37.12	-8.88	46	52.06	14.2	0.8	29.94	-	-	Peak
370.47	37.24	-8.76	46	51.26	15.05	0.83	29.9	-	-	Peak
430.61	37.67	-8.33	46	50.39	16.2	0.88	29.8	200	349	Peak
780.78	34.34	-11.66	46	42.81	19.87	1.23	29.57	-	-	Peak
2310.19	49.8	-24.2	74	47.71	32.73	3.22	33.86	100	20	Peak
2310.19	36.64	-17.36	54	34.55	32.73	3.22	33.86	100	20	Average
2462	96.05	-	-	93.6	32.98	3.64	34.17	199	58	Peak
2462	82.32	-	-	79.87	32.98	3.64	34.17	199	58	Average
2483.66	55.28	-18.72	74	52.79	33.01	3.68	34.2	131	206	Peak
2483.66	40.48	-13.52	54	37.99	33.01	3.68	34.2	131	206	Average



Test Mode :	802.11n-HT20	Temperature :	19~20°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	34.9	-5.1	40	46.72	18	0.26	30.08	-	-	Peak
84.32	26.6	-13.4	40	48.72	7.53	0.37	30.02	-	-	Peak
367.56	35.12	-10.88	46	49.25	14.95	0.83	29.91	-	-	Peak
432.55	43	-3	46	55.71	16.21	0.88	29.8	102	91	Peak
536.34	26.64	-19.36	46	37.12	18.22	0.99	29.69	-	-	Peak
939.86	32.55	-13.45	46	40.06	20.69	1.33	29.53	-	-	Peak
2384.29	50.31	-23.69	74	48.07	32.83	3.42	34.01	133	239	Peak
2384.29	37.61	-16.39	54	35.37	32.83	3.42	34.01	133	239	Average
2462	95.5	-	-	93.05	32.98	3.64	34.17	126	2	Peak
2462	83.1	-	-	80.65	32.98	3.64	34.17	126	2	Average
2484.61	55.44	-18.56	74	52.95	33.01	3.68	34.2	200	0	Peak
2484.61	40.88	-13.12	54	38.39	33.01	3.68	34.2	200	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.

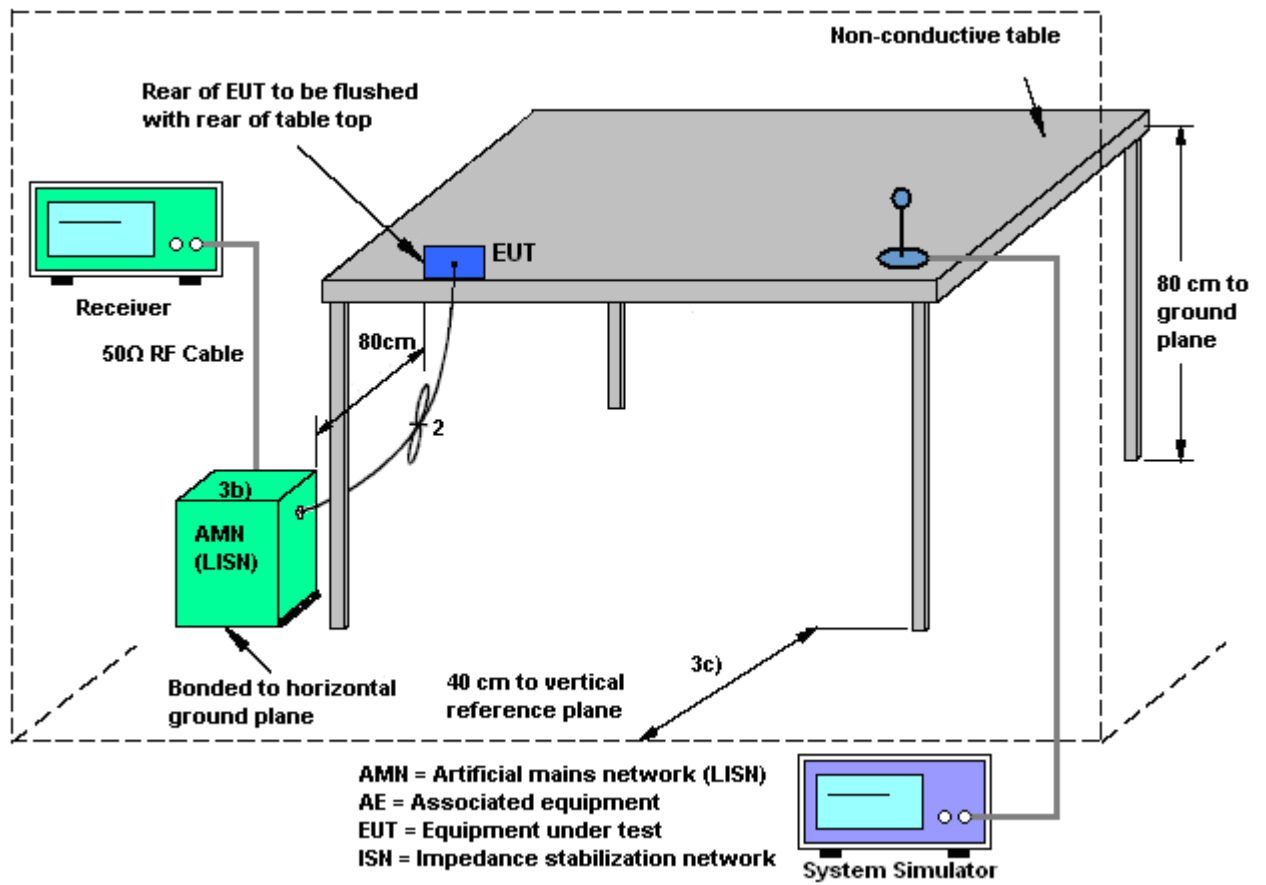
3.6.2 Measuring Instruments

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 and ANSI C63.10-2009.
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.

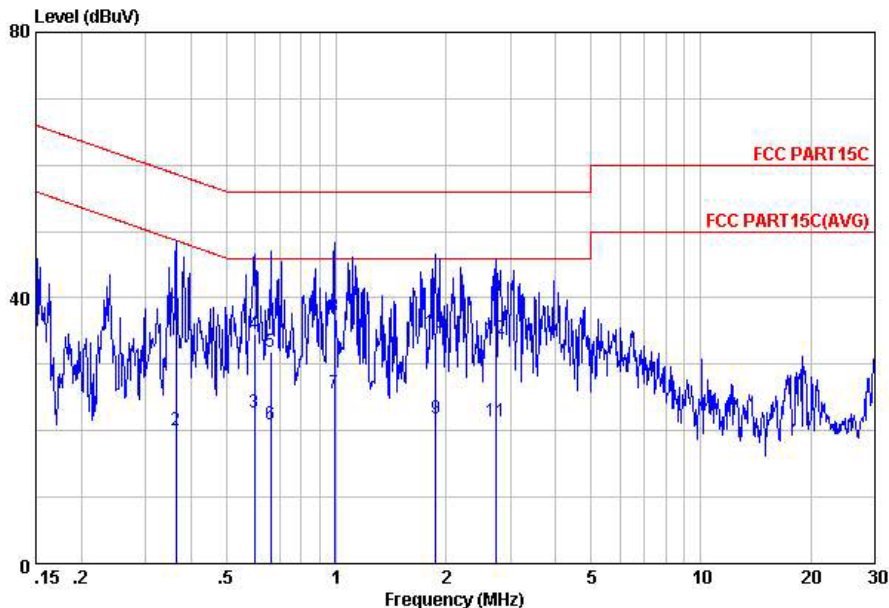
3.6.4 Test Setup





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 + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



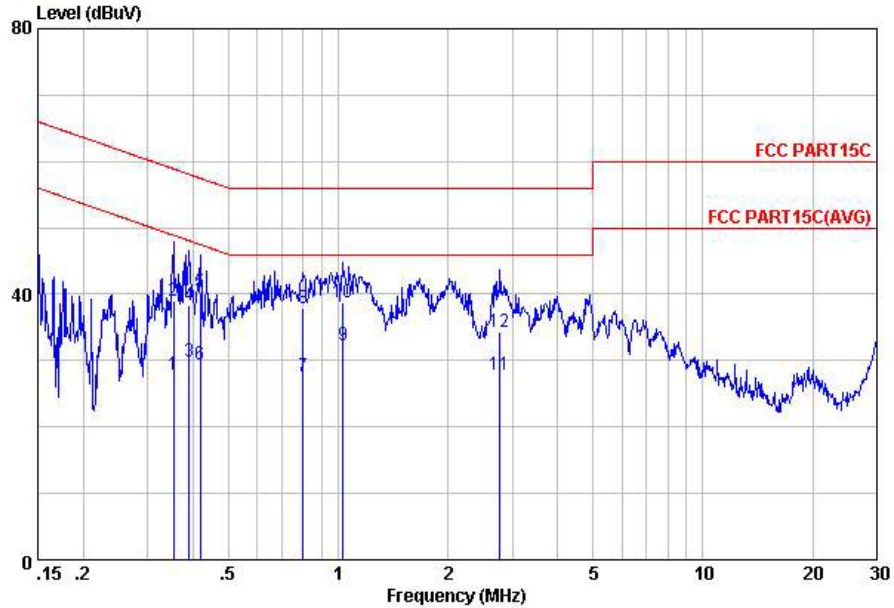
Site : C001-KS
 Condition: FCC PART15C LISN-111230 LINE

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.36	37.63	-21.02	58.65	27.10	-0.08	10.61	QP
2	0.36	20.03	-28.62	48.65	9.50	-0.08	10.61	Average
3	0.60	22.65	-23.35	46.00	12.11	-0.09	10.63	Average
4	0.60	34.55	-21.45	56.00	24.01	-0.09	10.63	QP
5	0.66	31.95	-24.05	56.00	21.40	-0.09	10.64	QP
6	0.66	21.05	-24.95	46.00	10.50	-0.09	10.64	Average
7	0.99	25.65	-20.35	46.00	15.10	-0.10	10.65	Average
8	0.99	37.15	-18.85	56.00	26.60	-0.10	10.65	QP
9	1.88	21.79	-24.21	46.00	11.20	-0.11	10.70	Average
10	1.88	34.69	-21.31	56.00	24.10	-0.11	10.70	QP
11	2.74	21.44	-24.56	46.00	10.81	-0.12	10.75	Average
12	2.74	33.84	-22.16	56.00	23.21	-0.12	10.75	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 + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Camera		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
 Condition: FCC PART15C LISN-111230 NEUTRAL

mode : Mode 1

	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.35	27.93	-20.94	48.87	17.40	-0.08	10.61	Average
2	0.35	39.03	-19.84	58.87	28.50	-0.08	10.61	QP
3	0.39	29.94	-18.14	48.08	19.40	-0.08	10.62	Average
4	0.39	38.24	-19.84	58.08	27.70	-0.08	10.62	QP
5	0.42	40.44	-17.02	57.46	29.90	-0.08	10.62	QP
6	0.42	29.34	-18.12	47.46	18.80	-0.08	10.62	Average
7	0.80	27.66	-18.34	46.00	17.09	-0.08	10.65	Average
8	0.80	37.96	-18.04	56.00	27.39	-0.08	10.65	QP
9	1.03	32.36	-13.64	46.00	21.80	-0.09	10.65	Average
10	1.03	38.86	-17.14	56.00	28.30	-0.09	10.65	QP
11	2.78	27.84	-18.16	46.00	17.20	-0.12	10.76	Average
12	2.78	34.34	-21.66	56.00	23.70	-0.12	10.76	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. 21, 2012~ Jun. 25, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Jun. 21, 2012~ Jun. 25, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Jun. 21, 2012~ Jun. 25, 2012	Aug. 22, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 23, 2011	Jun. 21, 2012~ Jun. 25, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Jun. 21, 2012~ Jun. 25, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jul. 05, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jul. 05, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jul. 05, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jul. 05, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Jul. 05, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jul. 05, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 11, 2011	Jul. 05, 2012	Oct.10, 2012	Radiation (03CH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	Jun. 27, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	Jun. 27, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	Jun. 27, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Jun. 27, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	Jun. 27, 2012	Dec. 29, 2012	Conduction (CO01-KS)



5 Uncertainty of Evaluation

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

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

Please refer to Sporton report number EP262503 as below.