FCC RF Test Report

APPLICANT	:	ZTE CORPORATION
EQUIPMENT	:	LTE/WCDMA FWT
BRAND NAME	:	ZTE
MODEL NAME	:	MF28B
FCC ID	:	Q78-MF28B
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on May 15, 2012 and completely tested on Jun. 19, 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

Testing Laboratory 1190

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR251501	Rev. 01	Initial issue of report	Jun. 21, 2012
FR251501	Rev. 02	Update report for revising the average power on page 43~44	Jun. 25, 2012

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	≥ 0.5MHz	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	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 0.39 dB at 2483.660 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 5.31 dB at 0.460 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 & Specification	
Equipment	LTE/WCDMA FWT
Brand Name	ZTE
Model Name	MF28B
FCC ID	Q78-MF28B
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
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 18.02 dBm (0.063 W) 802.11g : 23.34 dBm (0.216 W) 802.11n HT-20 : 24.64 dBm (0.291 W) 802.11n HT-40 : 21.24 dBm (0.133 W)
Duty Cycle	802.11b : 100.00% 802.11g : 95.74% 802.11n HT-20 : 92.46% 802.11n HT-40 : 65.45%
Antenna Type	Dipole Antenna with gain 2.05 dBi
HW Version	dw8A&dm4A
SW Version	CR_MF28BV1.0.0B01&BD_ROG_MF28BV1.0.0B01
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

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

1.4 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.	Router	D-Link	DIR-855	KA2DIR855A2	N/A	Unshielded, 1.8 m
3.	Notebook	Dell	P08S	QDS-BRC1030	N/A	AC I/P: Unshielded, 0.9 m DC O/P: Shielded, 1.8 m
4.	Notebook	Acer	ZG8	HLZUNDP-1Q	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m
5.	Notebook	Dell	PP42L	N/A	N/A	AC I/P: Unshielded, 0.8m DC O/P: Shielded, 1.8 m
6.	iPod	Apple	A1199	FCC DoC	Shielded, 1.2 m	N/A
7.	AC Power Source	Chroma	61602	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, 11n HT-20, 11n HT-40 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line. .

Channel	Frequency	Ant. Chain	2.4GHz 802.11b RF Power (dBm)			
			DSSS Data Rate			
			1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	0	17.21	17.03	17.05	17.01
CH 06	2437 MHz	0	**18.02**	17.85	17.87	18.01
CH 11	2462 MHz	0	16.42	16.21	16.18	16.05
CH 01	2412 MHz	1	16.97	16.79	16.62	16.59
CH 06	2437 MHz	1	17.85	17.67	17.65	17.81
CH 11	2462 MHz	1	16.86	16.62	16.52	16.49

Channel	Frequency	Ant. Chain	2.4GHz 802.11g RF Power (dBm)							
			OFDM Data Rate							
			6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	0	22.92	22.91	22.86	22.84	22.83	22.85	22.84	22.82
CH 06	2437 MHz	0	**23.34**	23.22	23.19	23.14	23.21	23.28	23.25	23.26
CH 11	2462 MHz	0	22.54	22.52	22.51	22.49	22.46	22.47	22.43	22.41
CH 01	2412 MHz	1	22.75	22.65	22.81	22.85	22.87	22.91	22.95	22.97
CH 06	2437 MHz	1	23.07	13.18	23.18	23.17	23.19	23.21	23.25	23.29
CH 11	2462 MHz	1	22.95	22.89	22.94	22.98	22.99	23.02	23.03	22.06

Channel	Frequency	Ant. Chain	2.4GHz 802.11n HT-20 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
			6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 01	2412 MHz	0	19.43	19.02	18.95	18.84	19.05	18.96	18.85	18.96
CH 06	2437 MHz	0	20.95	20.77	20.76	20.87	20.52	20.65	20.65	20.89
CH 11	2462 MHz	0	19.89	19.78	19.71	19.79	19.49	19.62	19.49	19.75
CH 01	2412 MHz	1	20.38	19.69	19.85	19.96	19.85	19.71	19.99	19.88
CH 06	2437 MHz	1	21.22	20.53	20.74	21.06	20.97	21.19	21.06	20.86
CH 11	2462 MHz	1	20.46	19.74	20.01	20.36	20.32	20.45	20.36	20.39
Channel	Frequency	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 01	2412 MHz	0+1(0)	20.28	20.15	20.19	20.11	20.03	19.95	19.79	19.65
		0+1(1)	20.62	20.56	20.39	20.45	20.26	20.02	20.36	20.49
		0+1	23.46	23.37	23.30	23.29	23.16	23.00	23.09	23.10
CH 06	2437 MHz	0+1(0)	21.89	21.47	21.38	21.36	21.11	21.04	21.12	21.07
		0+1(1)	21.36	21.24	21.08	21.31	21.34	20.95	21.29	21.25
		0+1	**24.64**	24.37	24.24	24.35	24.24	24.01	24.22	24.17
CH 11	2462 MHz	0+1(0)	20.84	20.39	20.26	20.19	20.06	20.01	19.95	19.89
		0+1(1)	20.86	20.65	20.56	20.51	20.43	20.39	20.41	20.47
		0+1	23.86	23.53	23.42	23.36	23.26	23.21	23.20	23.20

Channel	Frequency	Ant. Chain	2.4GHz 802.11n HT-40 RF Power (dBm)							
			OFDM Data Rate							
			MCS=0	MCS=1	MCS=2	MCS=3	MCS=4	MCS=5	MCS=6	MCS=7
			6.5 Mbps	13 Mbps	19.5 Mbps	26 Mbps	39 Mbps	52 Mbps	58.5 Mbps	65 Mbps
CH 03	2422 MHz	0	20.26	18.96	18.85	18.41	18.36	18.26	18.15	18.11
CH 06	2437 MHz	0	20.04	18.95	18.89	18.85	18.81	18.76	18.75	18.74
CH 09	2452 MHz	0	19.34	18.76	18.72	18.71	18.68	18.65	18.63	18.61
CH 03	2422 MHz	1	19.89	18.02	17.98	17.96	17.91	17.85	17.81	17.76
CH 06	2437 MHz	1	20.21	18.65	18.56	18.26	17.86	17.85	17.81	17.86
CH 09	2452 MHz	1	19.85	17.99	17.95	17.91	17.85	17.81	17.76	17.69
Channel	Frequency	Ant. Chain	MCS=8	MCS=9	MCS=10	MCS=11	MCS=12	MCS=13	MCS=14	MCS=15
			13 Mbps	26 Mbps	39 Mbps	52 Mbps	78 Mbps	104 Mbps	117 Mbps	130 Mbps
CH 03	2422 MHz	0+1(0)	18.01	17.96	17.71	17.61	17.45	17.45	17.41	17.91
		0+1(1)	18.16	17.99	17.85	17.81	17.95	17.91	18.01	18.36
		0+1	21.10	20.99	20.79	20.72	20.72	20.70	20.73	21.15
CH 06	2437 MHz	0+1(0)	18.03	17.85	17.61	17.75	17.51	17.56	17.51	18.04
		0+1(1)	18.24	18.03	17.96	17.76	17.85	17.81	17.96	18.42
		0+1	21.15	20.95	20.80	20.77	20.69	20.70	20.75	**21.24**
CH 09	2452 MHz	0+1(0)	17.01	16.86	16.81	16.74	16.71	16.65	16.61	16.56
		0+1(1)	17.85	17.75	17.75	17.85	17.96	17.91	17.85	18.02
		0+1	20.46	20.34	20.32	20.34	20.39	20.34	20.28	20.36

Remark:

1. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6 Mbps for 802.11g, 13 Mbps for 802.11n HT-20, and 130 Mbps for 802.11n HT-40 for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signals continuously for all testing

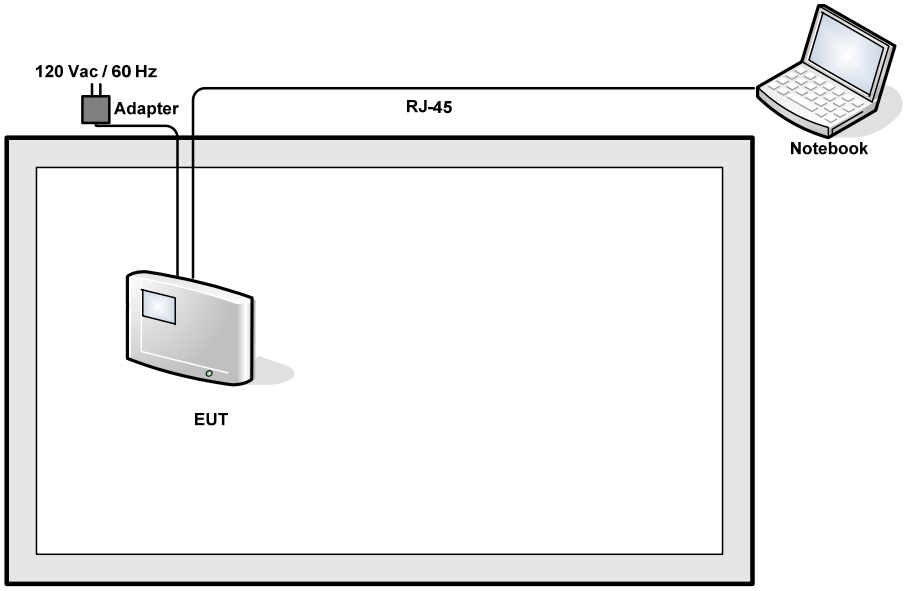
2.3 Test Mode

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).

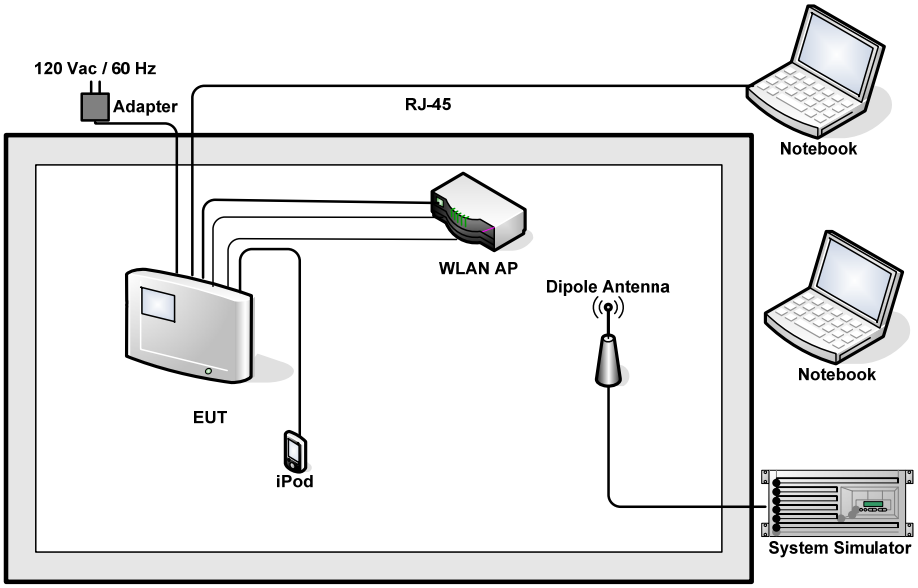
<table>
<tr><th colspan="2">Test Cases</th></tr>
<tr><th>Test Item</th><th>802.11b (Modulation : DSSS)
802.11g/n (Modulation : OFDM)</th></tr>
<tr><th>Conducted TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th><th>802.11n HT-20</th></tr>
<tr><td>CH01</td><td>1</td><td>4</td><td>7</td></tr>
<tr><td>CH06</td><td>2</td><td>5</td><td>8</td></tr>
<tr><td>CH11</td><td>3</td><td>6</td><td>9</td></tr>
</table>
<table>
<tr><th>Test Mode</th><th>802.11n HT-40</th></tr>
<tr><td>CH03</td><td>10</td></tr>
<tr><td>CH06</td><td>11</td></tr>
<tr><td>CH09</td><td>12</td></tr>
</table>
</td></tr>
<tr><th>Radiated TCs</th><td>
<table>
<tr><th>Test Mode</th><th>802.11b</th><th>802.11g</th><th>802.11n HT-20</th></tr>
<tr><td>CH01</td><td>1</td><td>4</td><td>7</td></tr>
<tr><td>CH06</td><td>2</td><td>5</td><td>8</td></tr>
<tr><td>CH11</td><td>3</td><td>6</td><td>9</td></tr>
</table>
<table>
<tr><th>Test Mode</th><th>802.11n HT-40</th></tr>
<tr><td>CH03</td><td>10</td></tr>
<tr><td>CH06</td><td>11</td></tr>
<tr><td>CH09</td><td>12</td></tr>
</table>
</td></tr>
<tr><th>AC Conducted Emission</th><td>Mode 1 ： WCDMA Band V Idle + Adapter + LAN Link + WLAN Link + TC</td></tr>
<tr><td colspan="2">Remark: TC stands for Test Configuration, and consists of iPod, Notebook, WLAN AP, and RJ-45.</td></tr>
</table>

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF utility “artyui””, 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 and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

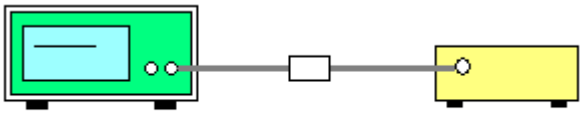
3.1.2 Measuring Instruments

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) ≥ 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

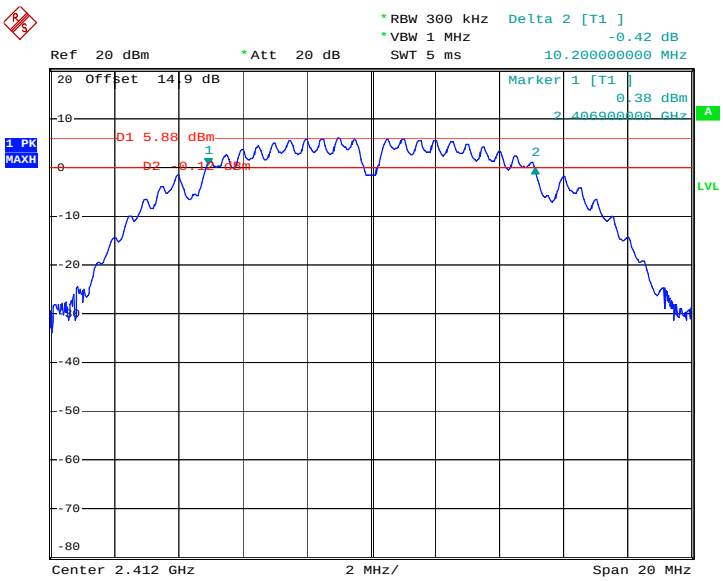


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	23~24℃
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	10.24	0.5	Pass

6 dB Bandwidth Plot on 802.11b Channel 01-Chain 0



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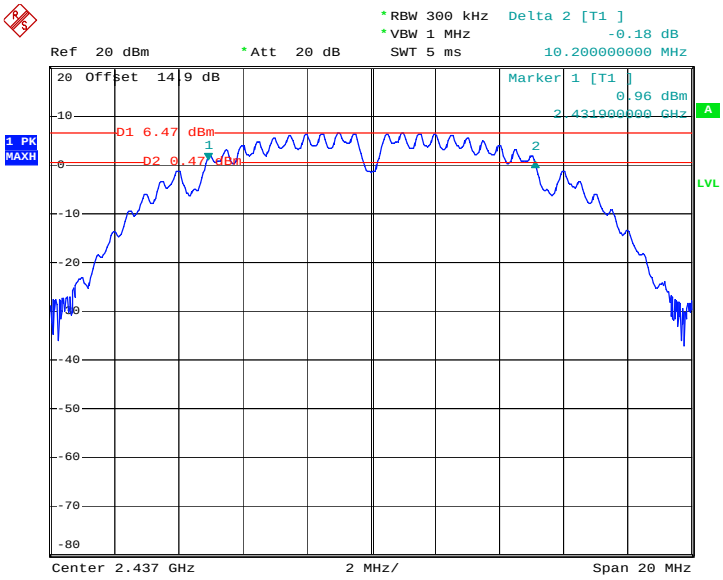
6 dB Bandwidth Plot on 802.11b Channel 06-Chain 0



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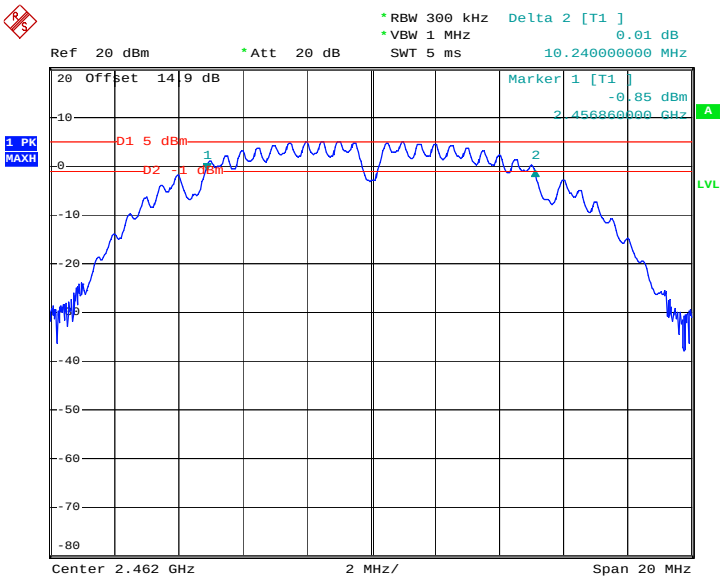
6 dB Bandwidth Plot on 802.11b Channel 11-Chain 0



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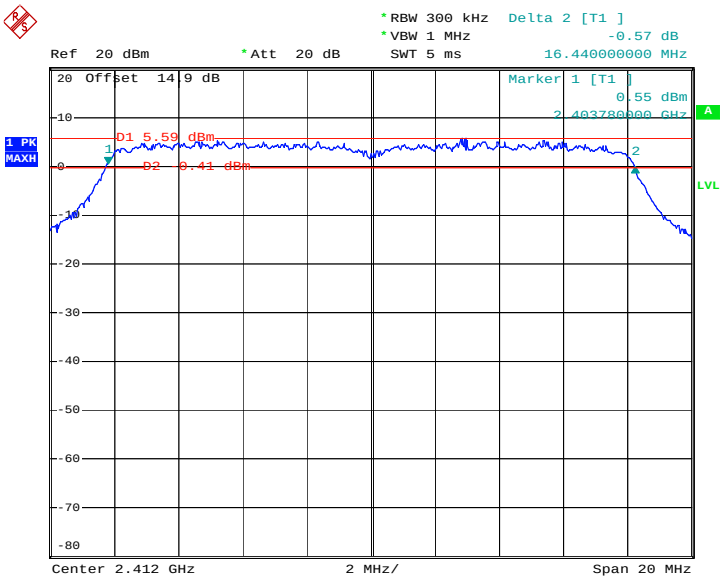
Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.44	0.5	Pass
06	2437	16.48	0.5	Pass
11	2462	16.52	0.5	Pass

6 dB Bandwidth Plot on 802.11g Channel 01-Chain 0



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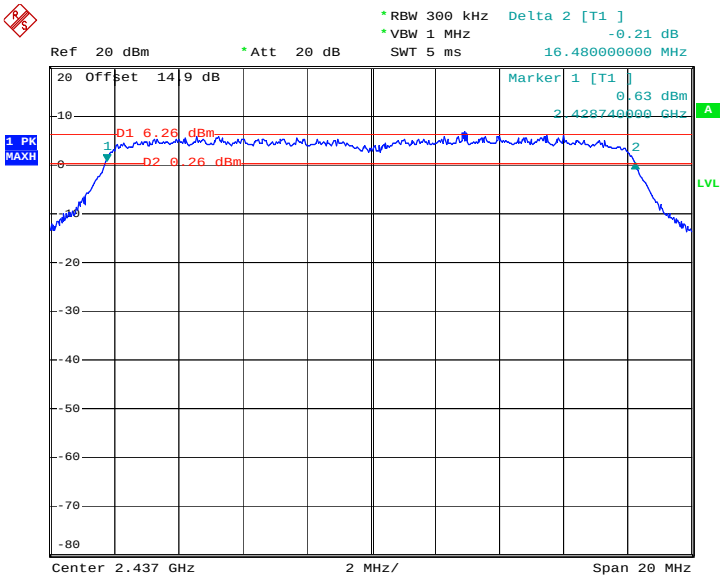
6 dB Bandwidth Plot on 802.11g Channel 06-Chain 0



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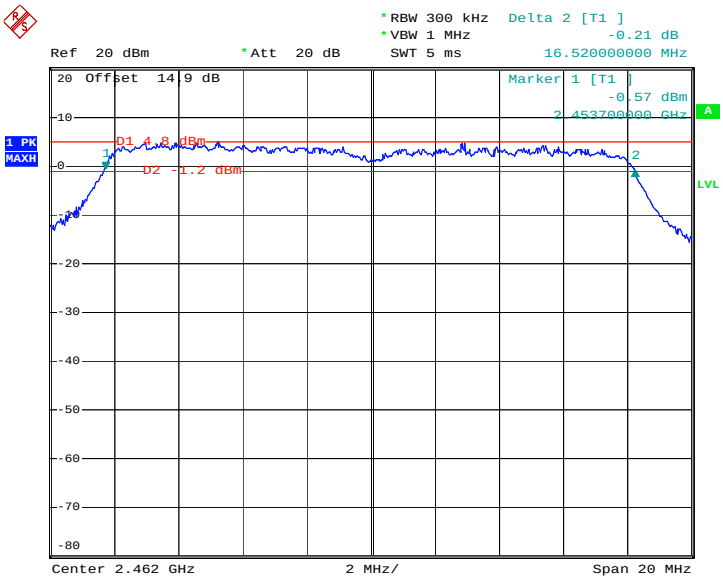
6 dB Bandwidth Plot on 802.11g Channel 11-Chain 0



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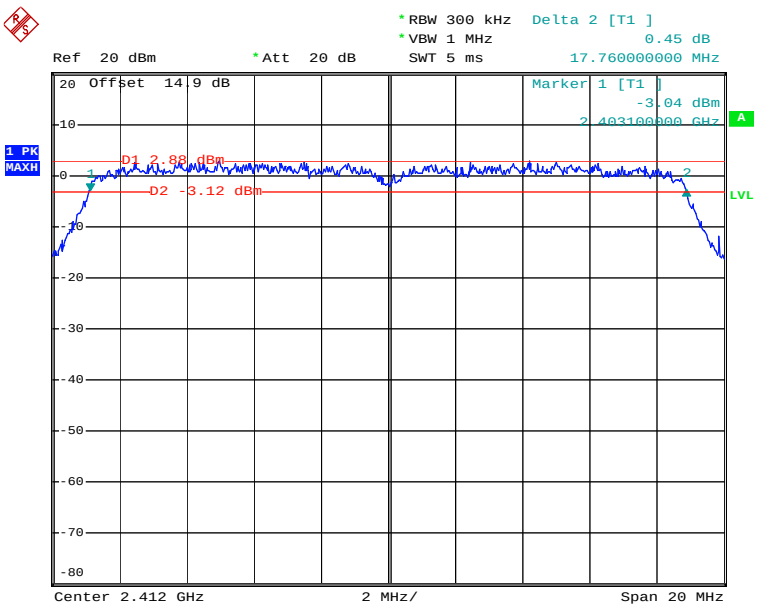
Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	0	17.76	0.5	Pass
06	2437	0	17.72	0.5	Pass
11	2462	0	17.76	0.5	Pass
01	2412	1	17.76	0.5	Pass
06	2437	1	17.72	0.5	Pass
11	2462	1	17.68	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT-20 Channel 01-Chain 0



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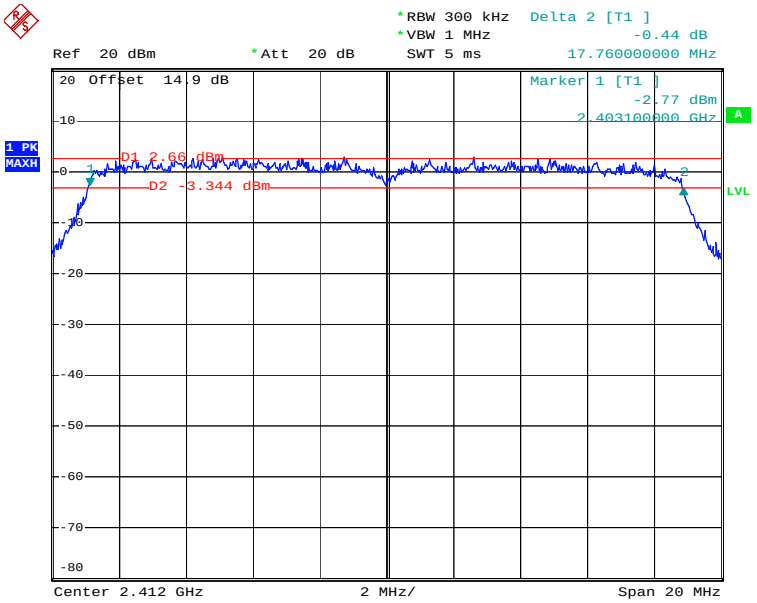
6 dB Bandwidth Plot on 802.11n HT-20 Channel 01-Chain 1



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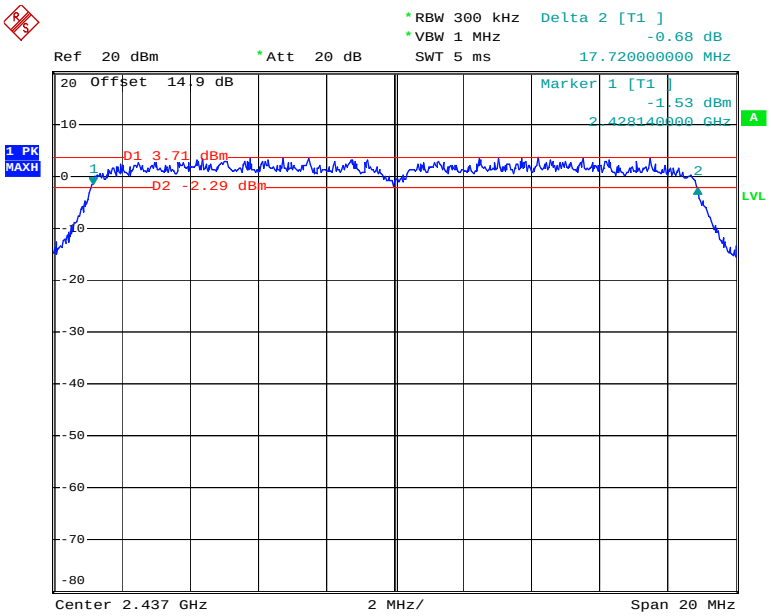
6 dB Bandwidth Plot on 802.11n HT-20 Channel 06-Chain 0



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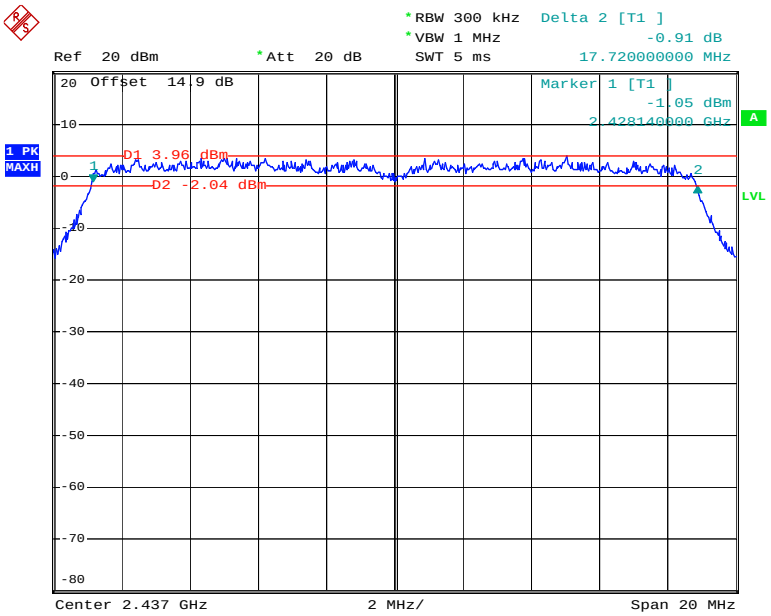
6 dB Bandwidth Plot on 802.11n HT-20 Channel 06-Chain 1



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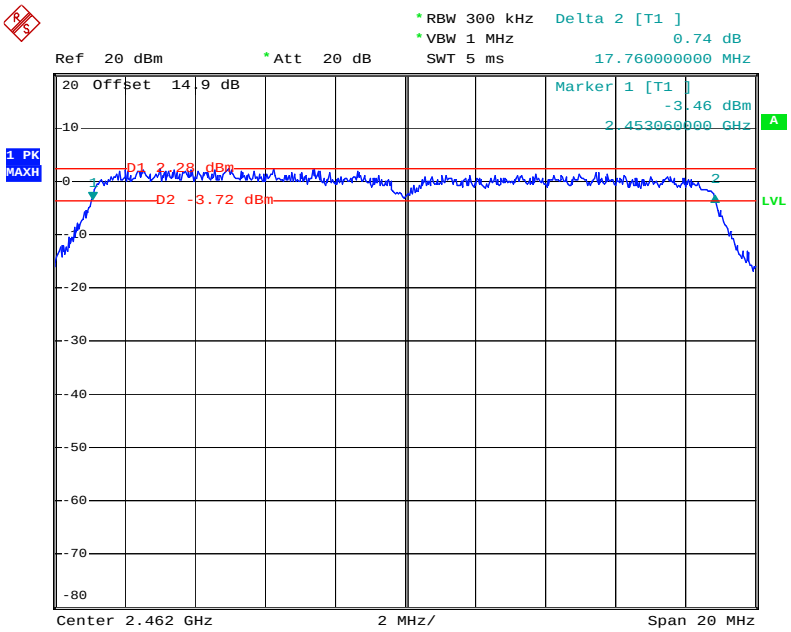
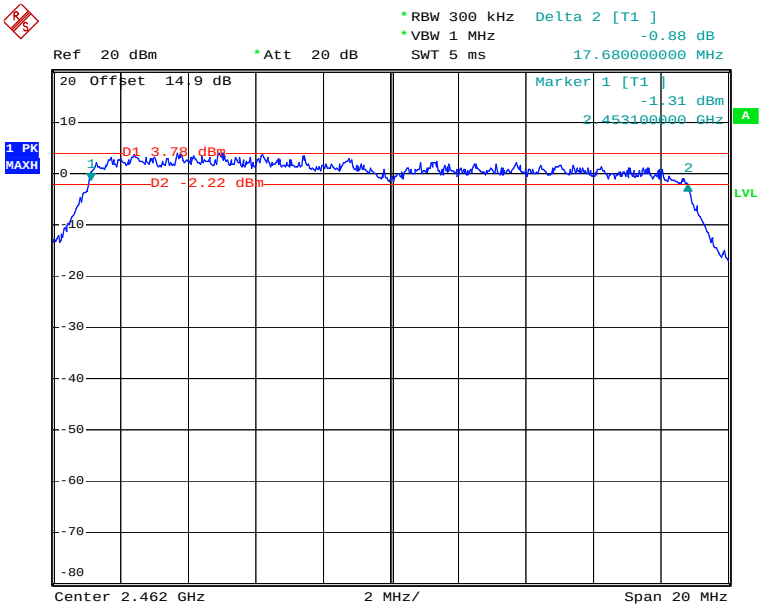
6 dB Bandwidth Plot on 802.11n HT-20 Channel 11-Chain 0



Date: 19.JUN.2012 16:13:29

6 dB Bandwidth Plot on 802.11n HT-20 Channel 11-Chain 1

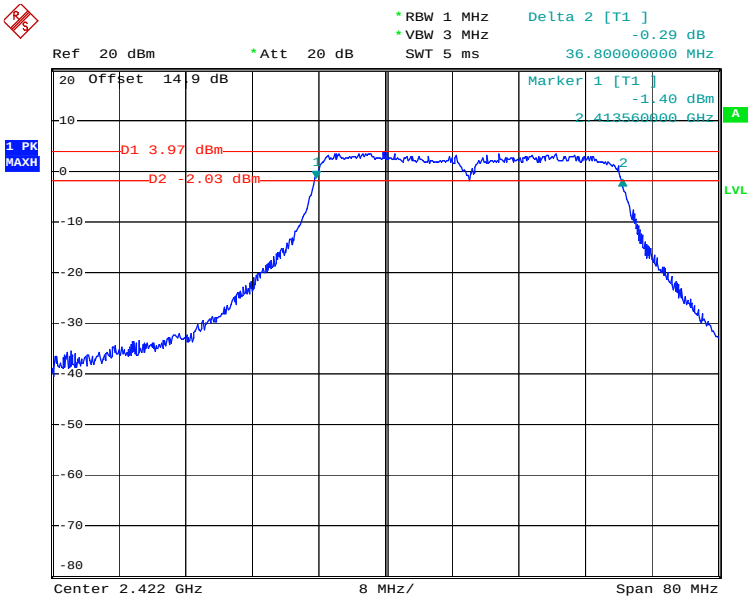


Date: 19.JUN.2012 16:24:10

Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

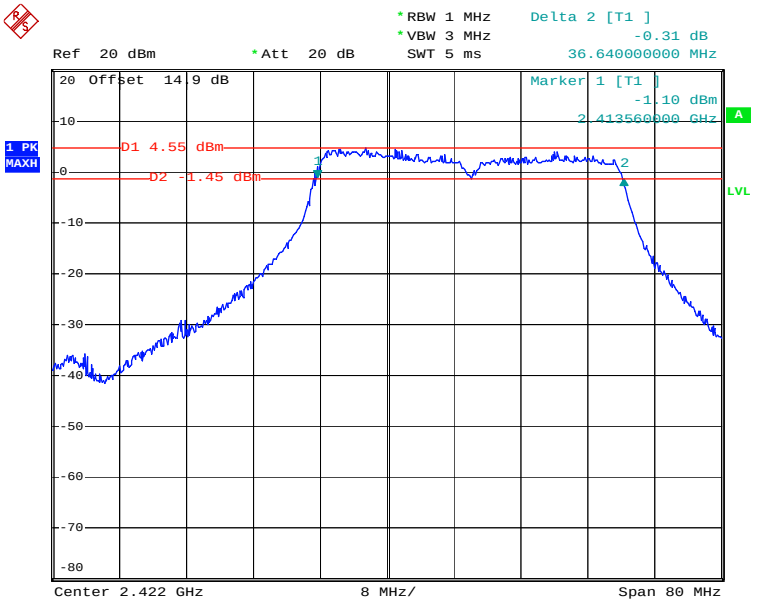
Channel	Frequency (MHz)	Chain	802.11n HT-40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	0	36.80	0.5	Pass
06	2437	0	36.16	0.5	Pass
09	2452	0	36.48	0.5	Pass
03	2422	1	36.64	0.5	Pass
06	2437	1	35.84	0.5	Pass
09	2452	1	35.84	0.5	Pass

6 dB Bandwidth Plot on 802.11n HT-40 Channel 03-Chain 0



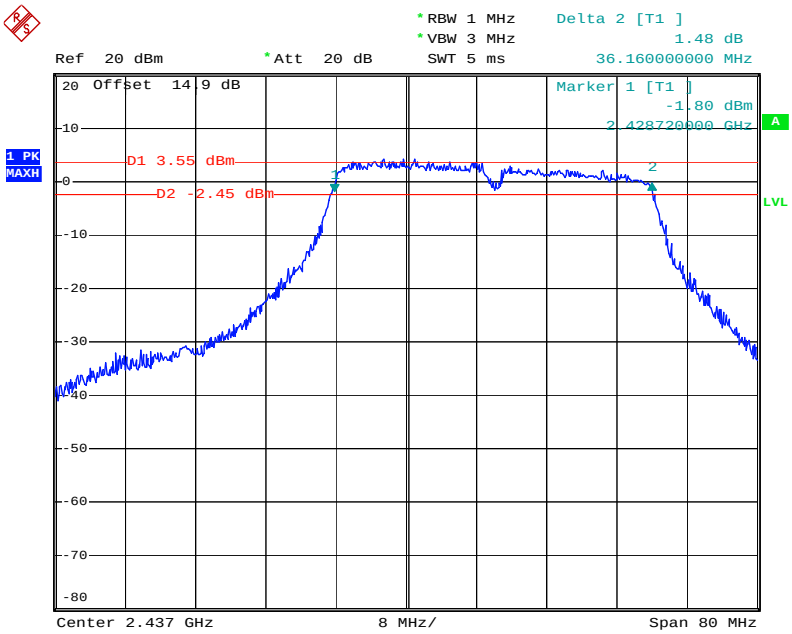
Date: 18.JUN.2012 19:14:21

6 dB Bandwidth Plot on 802.11n HT-40 Channel 03-Chain 1



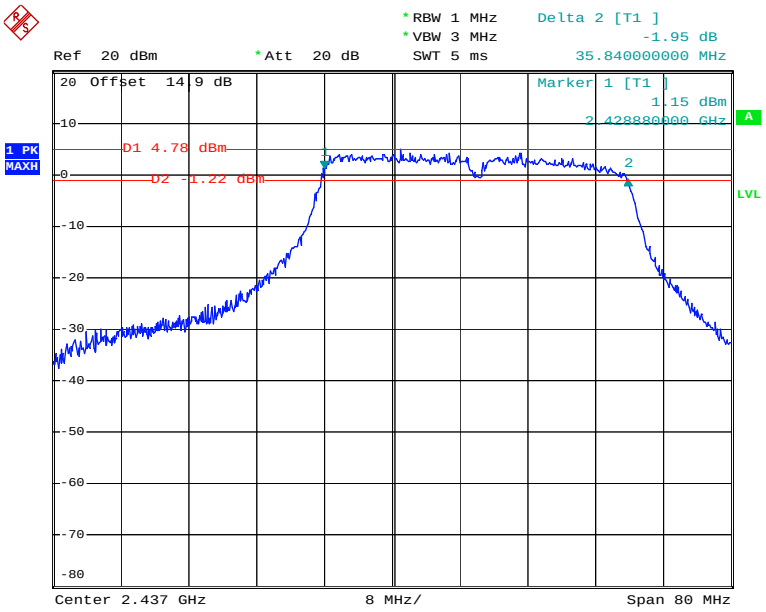
Date: 18.JUN.2012 19:36:01

6 dB Bandwidth Plot on 802.11n HT-40 Channel 06-Chain 0



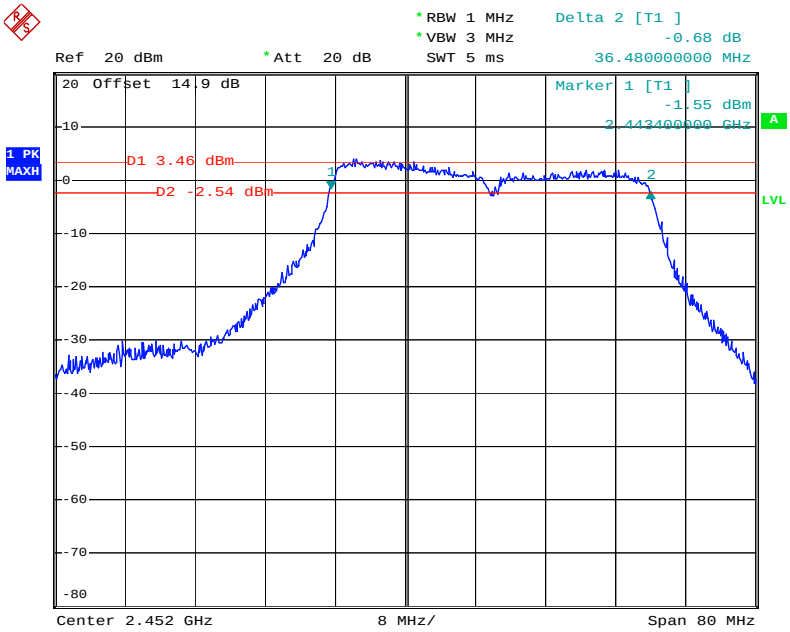
Date: 18.JUN.2012 19:24:24

6 dB Bandwidth Plot on 802.11n HT-40 Channel 06-Chain 1



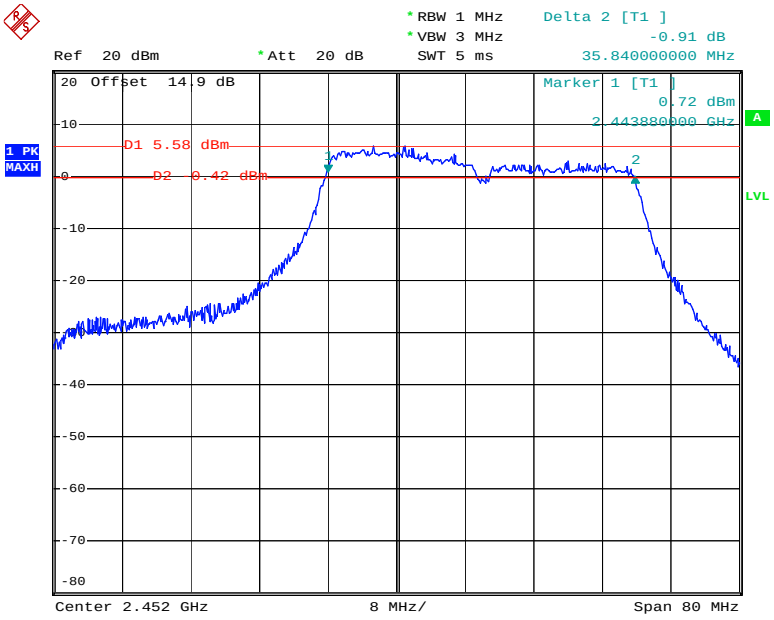
Date: 18.JUN.2012 19:46:15

6 dB Bandwidth Plot on 802.11n HT-40 Channel 09-Chain 0



Date: 18.JUN.2012 19:29:24

6 dB Bandwidth Plot on 802.11n HT-40 Channel 09-Chain 1



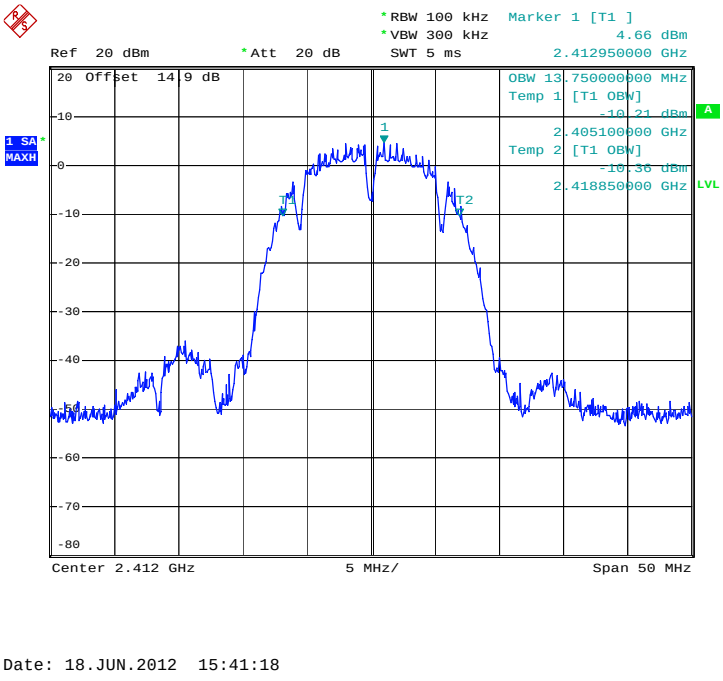
Date: 18.JUN.2012 19:51:05

3.1.6 Test Result of 99% Occupied Bandwidth

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

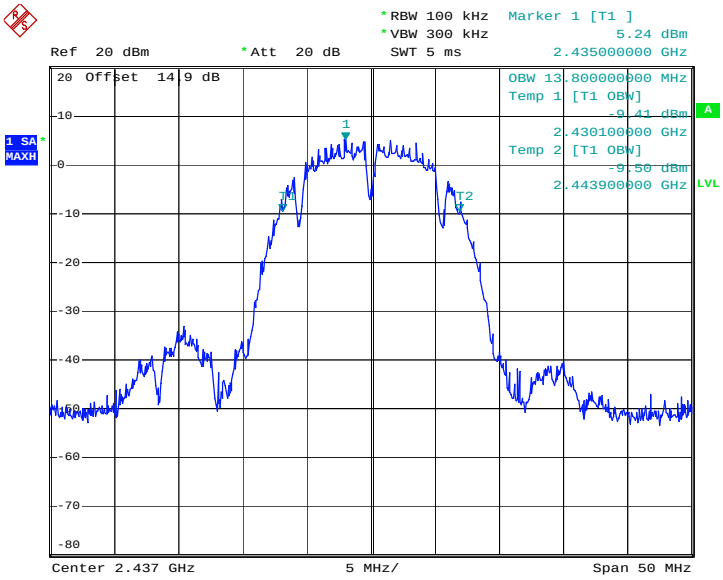
Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	13.75	Pass
06	2437	13.80	Pass
11	2462	13.90	Pass

99% Occupied Bandwidth Plot on 802.11b Channel 01-Chain 0



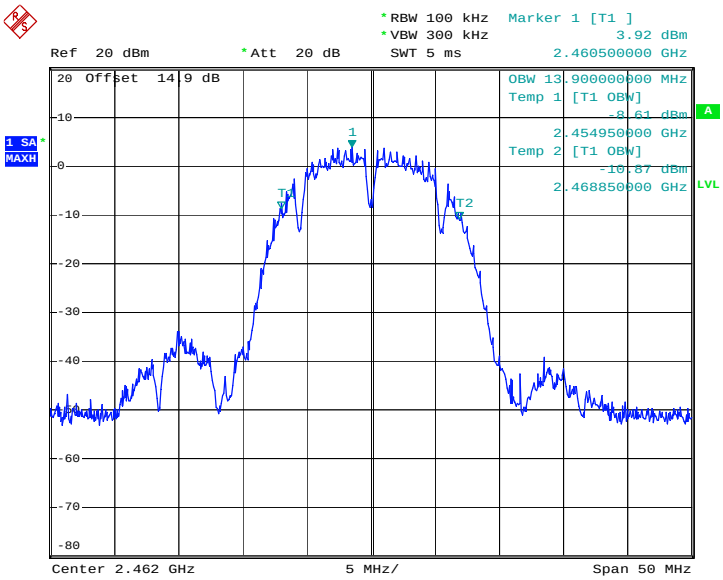
Date: 18.JUN.2012 15:41:18

99% Occupied Bandwidth Plot on 802.11b Channel 06-Chain 0



Date: 18.JUN.2012 15:47:51

99% Occupied Bandwidth Plot on 802.11b Channel 11-Chain 0

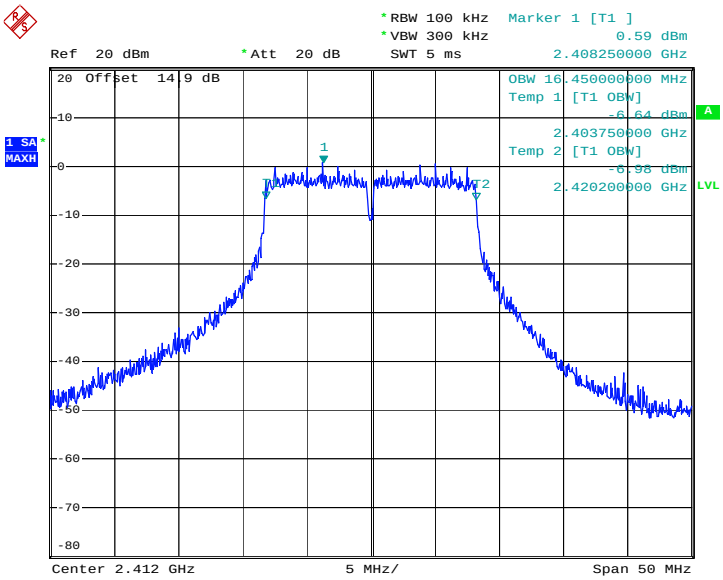


Date: 18.JUN.2012 15:53:13

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

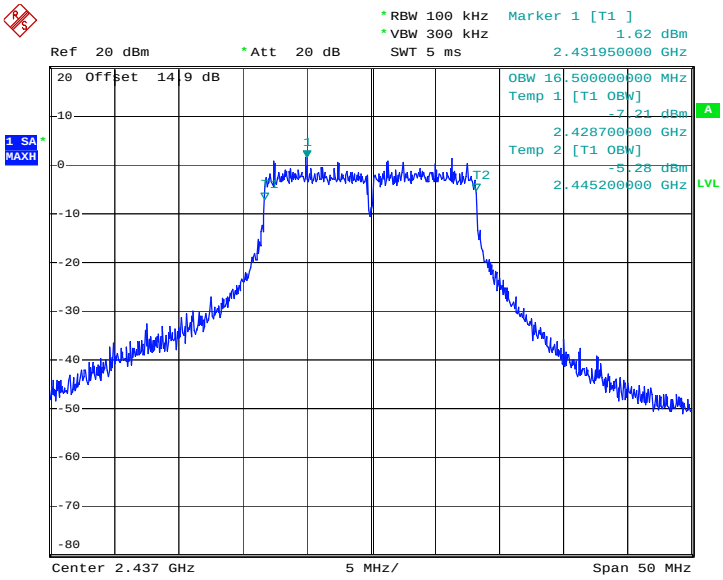
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.45	Pass
06	2437	16.50	Pass
11	2462	16.55	Pass

99% Occupied Bandwidth Plot on 802.11g Channel 01-Chain 0



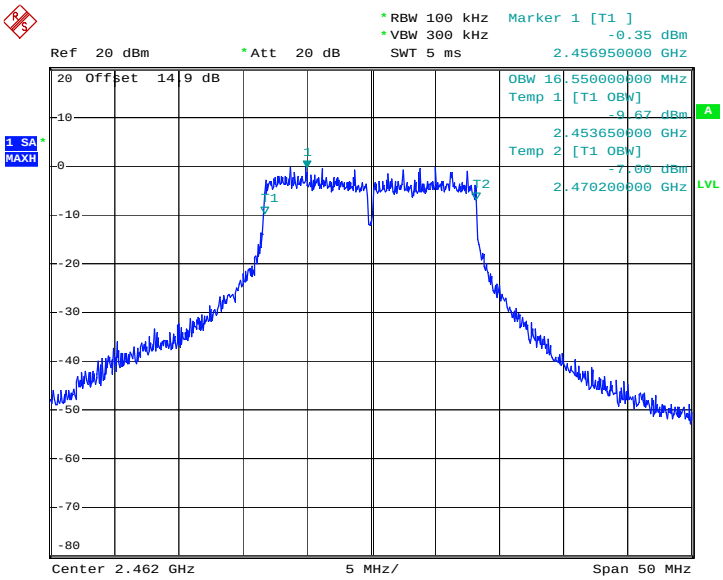
Date: 18.JUN.2012 16:16:53

99% Occupied Bandwidth Plot on 802.11g Channel 06-Chain 0



Date: 18.JUN.2012 16:20:09

99% Occupied Bandwidth Plot on 802.11g Channel 11-Chain 0

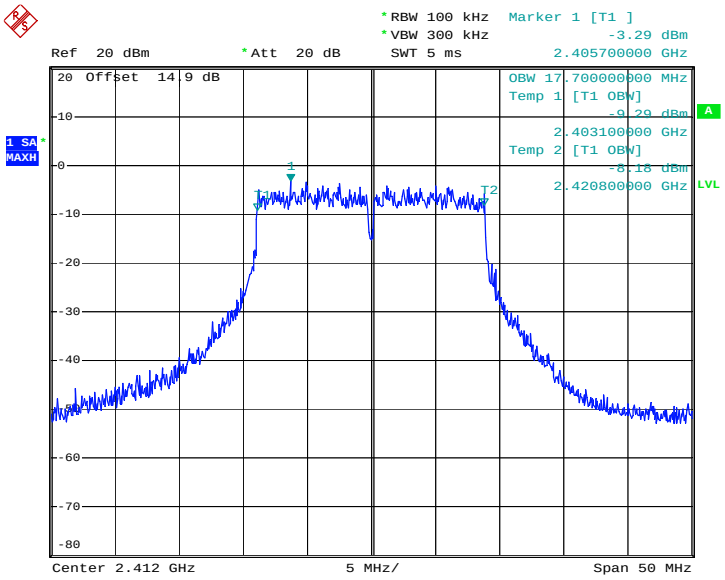


Date: 18.JUN.2012 16:24:52

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

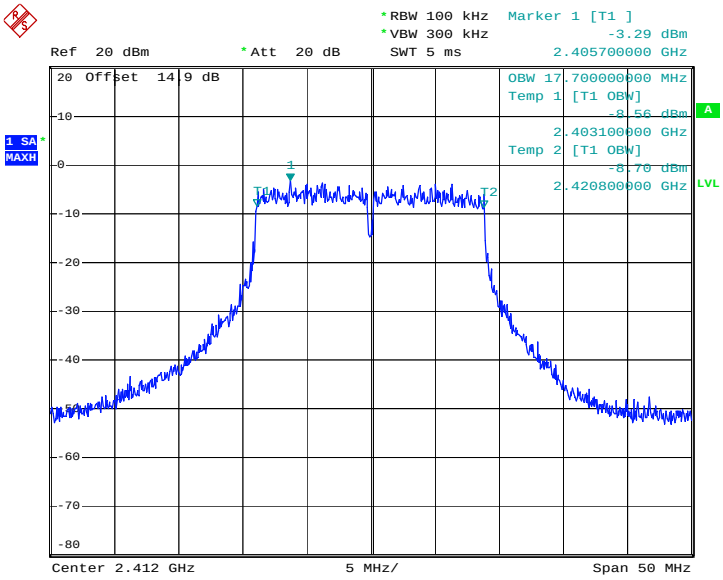
Channel	Frequency (MHz)	Chain	2.4GHz 802.11n HT-20 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	0	17.70	Pass
06	2437	0	17.65	Pass
11	2462	0	17.70	Pass
01	2412	1	17.70	Pass
06	2437	1	17.70	Pass
11	2462	1	17.75	Pass

99% Occupied Bandwidth Plot 802.11n HT-20 Channel 01-Chain 0



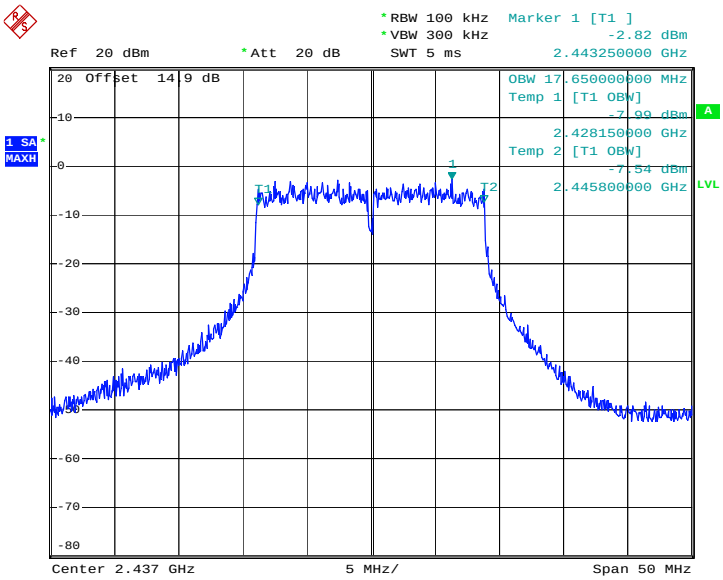
Date: 19.JUN.2012 16:07:26

99% Occupied Bandwidth Plot 802.11n HT-20 Channel 01-Chain 1



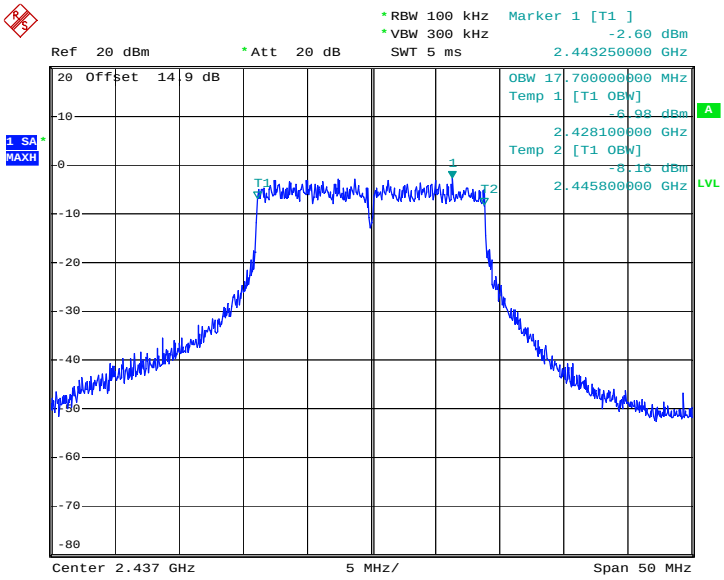
Date: 19.JUN.2012 16:35:57

99% Occupied Bandwidth Plot 802.11n HT-20 Channel 06-Chain 0



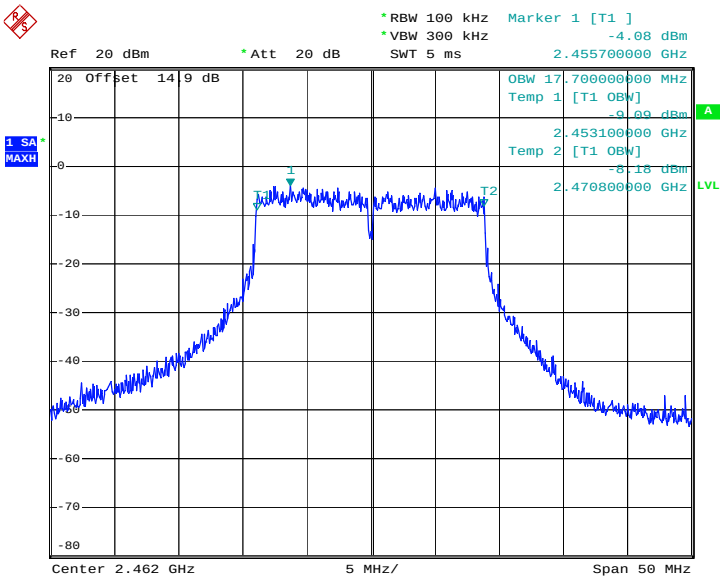
Date: 19.JUN.2012 16:11:18

99% Occupied Bandwidth Plot 802.11n HT-20 Channel 06-Chain 1



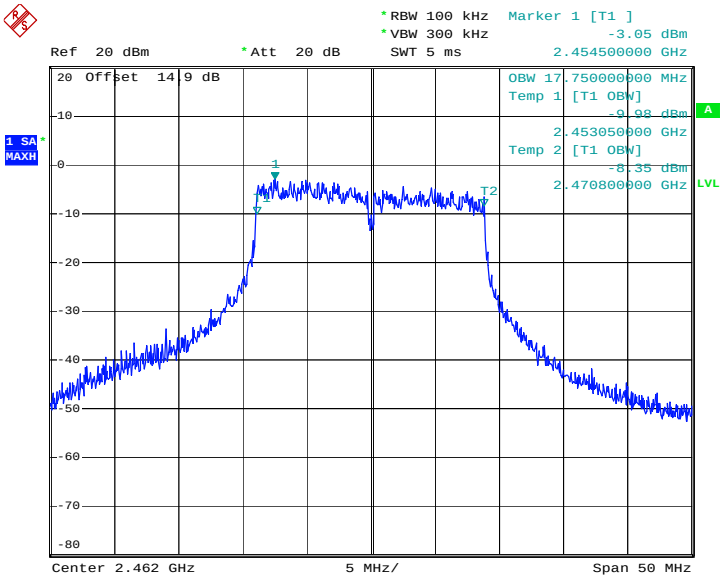
Date: 19.JUN.2012 16:31:53

99% Occupied Bandwidth Plot 802.11n HT-20 Channel 11-Chain 0



Date: 19.JUN.2012 16:15:11

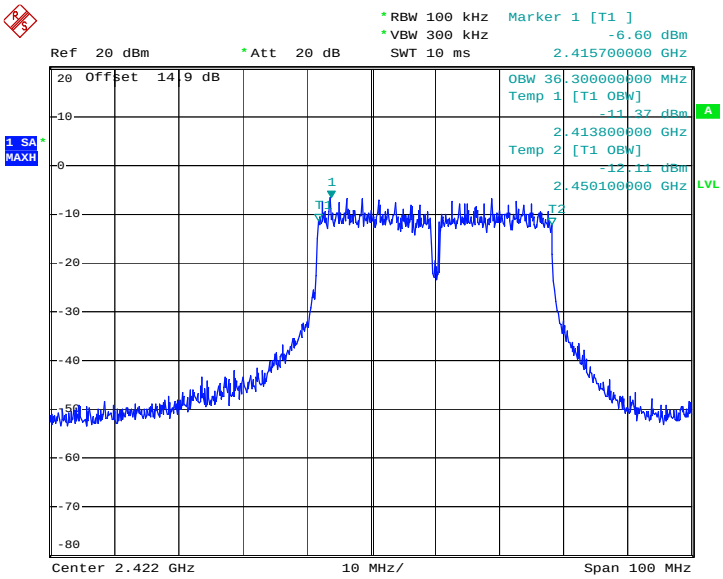
99% Occupied Bandwidth Plot 802.11n HT-20 Channel 11-Chain 1



Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

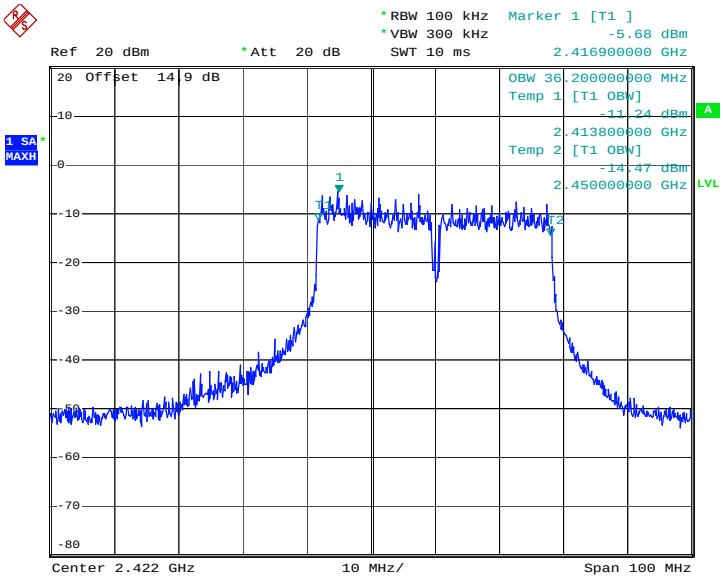
Channel	Frequency (MHz)	Chain	2.4GHz 802.11n HT-40 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	0	36.30	Pass
06	2437	0	36.10	Pass
09	2452	0	36.10	Pass
03	2422	1	36.20	Pass
06	2437	1	36.10	Pass
09	2452	1	36.20	Pass

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 03-Chain 0



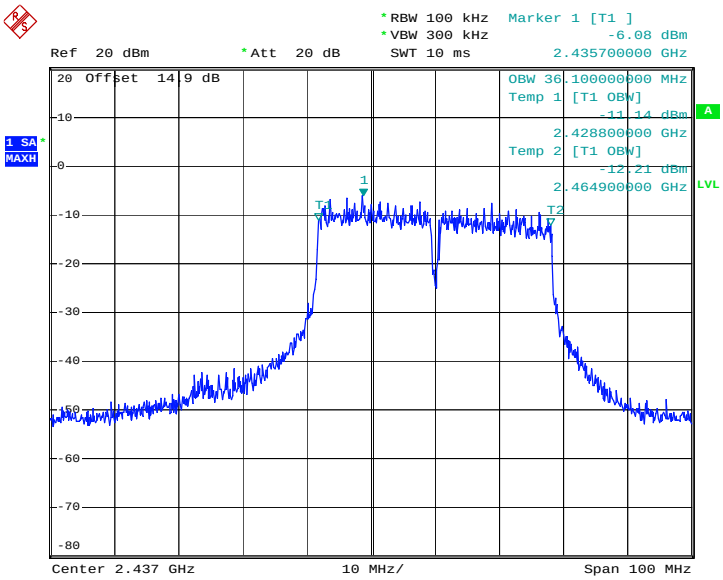
Date: 18.JUN.2012 19:20:26

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 03-Chain 1



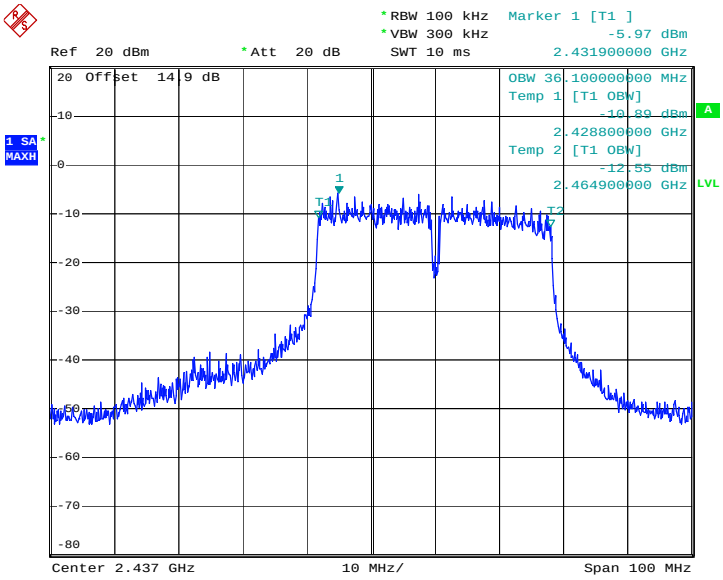
Date: 18.JUN.2012 19:38:54

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 06-Chain 0



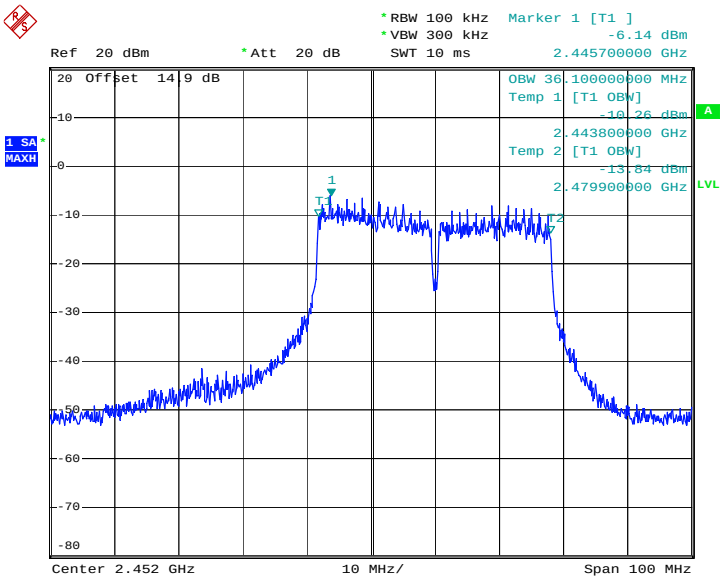
Date: 18.JUN.2012 19:25:54

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 06-Chain 1



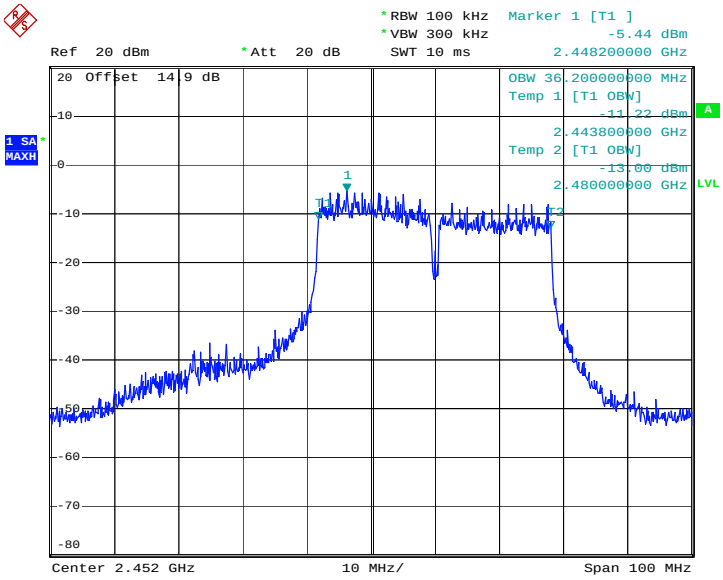
Date: 18.JUN.2012 19:48:36

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 09-Chain 0



Date: 18.JUN.2012 19:31:58

99% Occupied Bandwidth Plot 802.11n HT-40 Channel 09-Chain 1



Date: 18.JUN.2012 19:52:48

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.

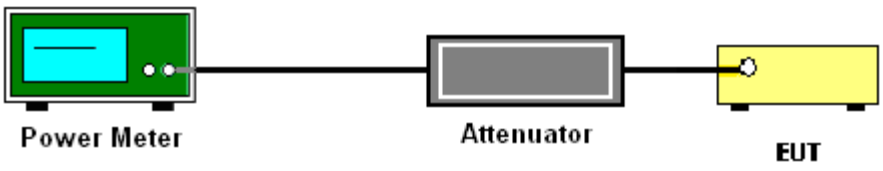
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the power meter by a low loss cable
3. Measure the power by power meter.
4. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

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

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Chain 0	Chain 1		
01	2412	17.21	16.97	30	Pass
06	2437	18.02	17.85	30	Pass
11	2462	16.42	16.86	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)		Max. Limits (dBm)	Pass/Fail
		Chain 0	Chain 1		
01	2412	22.92	22.97	30	Pass
06	2437	23.34	23.29	30	Pass
11	2462	22.54	22.06	30	Pass

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

Channel	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)					Max. Limits (dBm)	Pass/Fail
		SISO Chain 0	SISO Chain 1	MIMO Chain 0+1(0)	MIMO Chain 0+1(1)	MIMO Chain 0+1		
01	2412	19.43	20.38	20.28	20.62	23.46	30	Pass
06	2437	20.95	21.22	21.89	21.36	24.64	30	Pass
11	2462	19.89	20.46	20.84	20.86	23.86	30	Pass

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

Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11n HT-40 Peak Output Power (dBm)					Max. Limits (dBm)	Pass/Fail
		SISO Chain 0	SISO Chain 1	MIMO Chain 0+1(0)	MIMO Chain 0+1(1)	MIMO Chain 0+1		
03	2422	20.26	19.89	17.91	18.36	21.15	30	Pass
06	2437	20.04	20.21	18.04	18.42	21.24	30	Pass
09	2452	19.34	19.85	16.56	18.02	20.36	30	Pass

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

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% for Chain 0 100% for Chain 1	Duty Factor:	0.00dB for Chain 0 0.00dB for Chain 1

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)	
		Chain 0	Chain 1
01	2412	14.82	14.58
06	2437	15.68	15.31
11	2462	14.21	14.43

Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	95.74% for Chain 0 77.48% for Chain 1	Duty Factor:	0.19dB for Chain 0 1.11dB for Chain 1

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)	
		Chain 0	Chain 1
01	2412	14.27	13.53
06	2437	14.17	14.18
11	2462	13.70	13.66

Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	95.61% for SISO Chain 0 95.45% for SISO Chain 1 92.46% for MIMO Chain 0+1(0) 91.62% for MIMO Chain 0+1(1) 92.72% for MIMO Chain 0+1	Duty Factor:	0.19dB for SISO Chain 0 0.20dB for SISO Chain 1 0.34dB for MIMO Chain 0+1(0) 0.38dB for MIMO Chain 0+1(1) 0.33dB for MIMO Chain 0+1

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)				
		SISO Chain 0	SISO Chain 1	MIMO Chain 0+1(0)	MIMO Chain 0+1(1)	MIMO Chain 0+1
01	2412	9.12	10.53	10.18	10.73	13.47
06	2437	10.85	11.36	11.53	11.74	14.65
11	2462	9.87	10.69	10.36	11.11	13.76

Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%
Duty Cycle:	94.66% for SISO Chain 0 94.36% for SISO Chain 1 66.67% for MIMO Chain 0+1(0) 65.45% for MIMO Chain 0+1(1) 66.10% for MIMO Chain 0+1	Duty Factor:	0.24dB for SISO Chain 0 0.25dB for SISO Chain 1 1.76dB for MIMO Chain 0+1(0) 1.84dB for MIMO Chain 0+1(1) 1.80dB for MIMO Chain 0+1

Channel	Frequency (MHz)	802.11n HT-40 Average Output Power (dBm)				
		SISO Chain 0	SISO Chain 1	MIMO Chain 0+1(0)	MIMO Chain 0+1(1)	MIMO Chain 0+1
03	2422	7.85	7.68	7.66	8.00	10.79
06	2437	7.55	8.01	7.76	8.08	10.80
09	2452	7.26	7.63	7.15	8.74	11.00

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) >= 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 = 10log (3 kHz/100 kHz = -15.2 dB).
7. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r01.

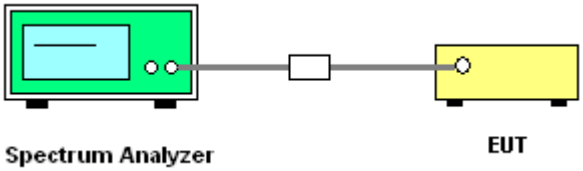
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

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

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

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

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

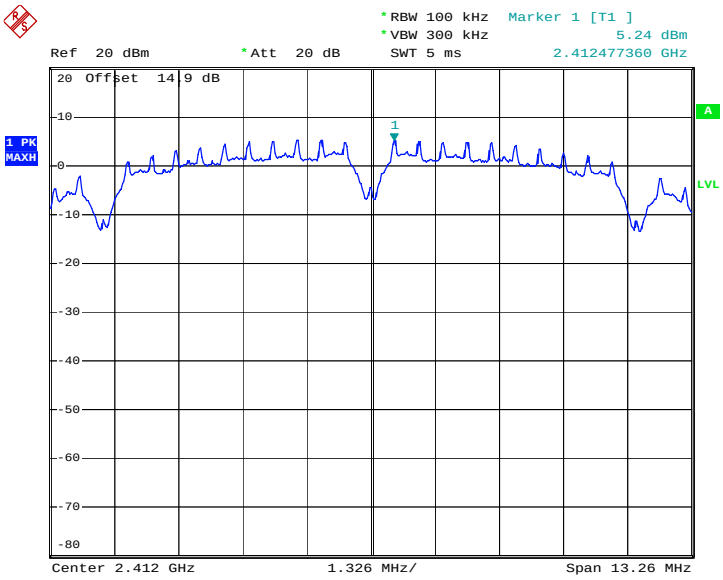
Test Mode :	802.11b	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	5.24	-9.96	8	Pass
06	2437	5.80	-9.40	8	Pass
11	2462	4.44	-10.76	8	Pass

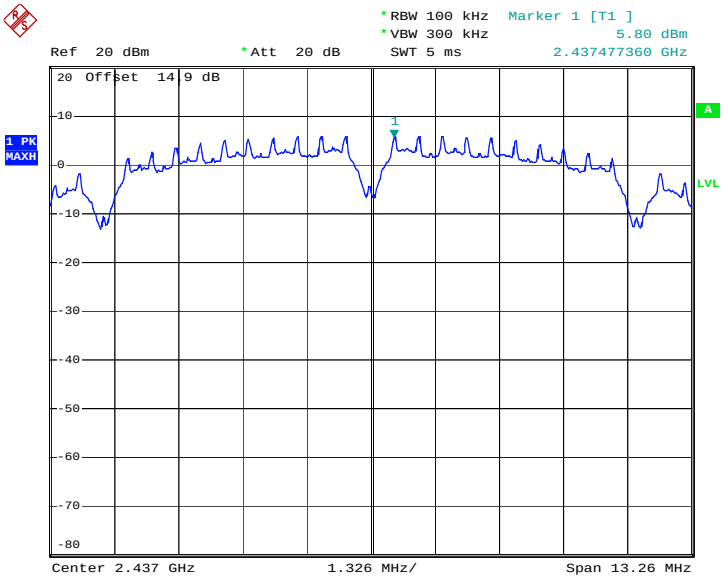
Note:

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 802.11b Channel 01 – Chain 0

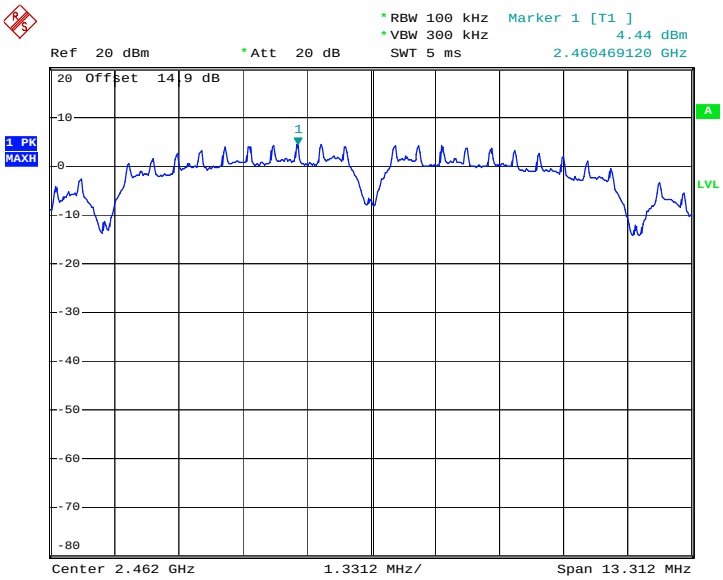


PSD Plot on 802.11b Channel 06 – Chain 0



Date: 18.JUN.2012 15:44:33

PSD Plot on 802.11b Channel 11 – Chain 0



Date: 18.JUN.2012 15:50:26

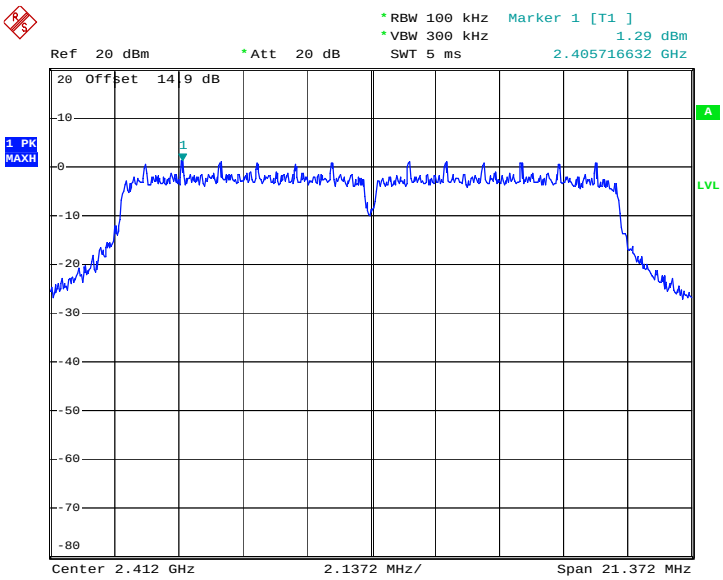
Test Mode :	802.11g	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.29	-13.91	8	Pass
06	2437	1.87	-13.33	8	Pass
11	2462	1.23	-13.97	8	Pass

Note:

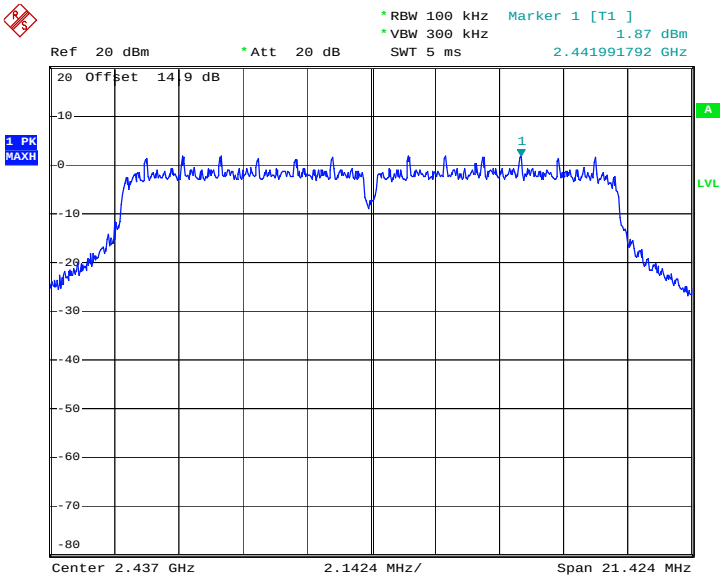
1. *Measured power density (dBm) has offset with cable loss.*
2. *BWCF (dB) = 10 log (3k/100k) = -15.2 dB*
3. *Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB)*

PSD Plot on 802.11g Channel 01 – Chain 0



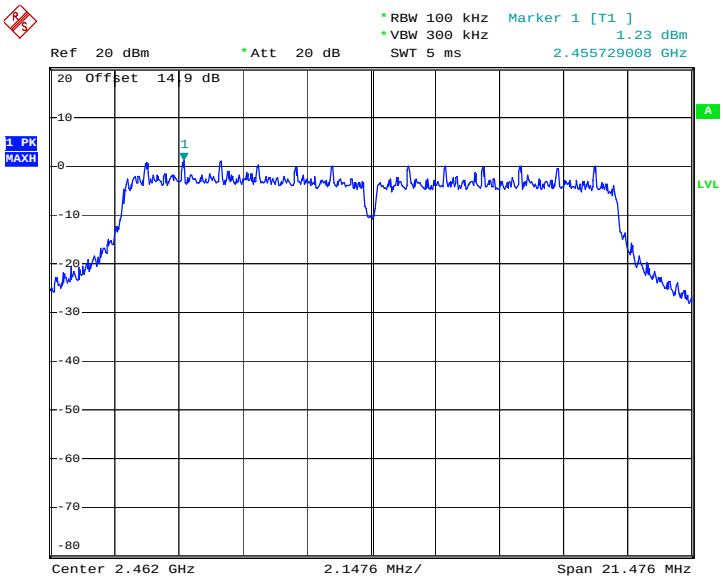
Date: 18.JUN.2012 16:15:16

PSD Plot on 802.11g Channel 06 – Chain 0



Date: 18.JUN.2012 16:19:11

PSD Plot on 802.11g Channel 11 – Chain 0



Date: 18.JUN.2012 16:22:52

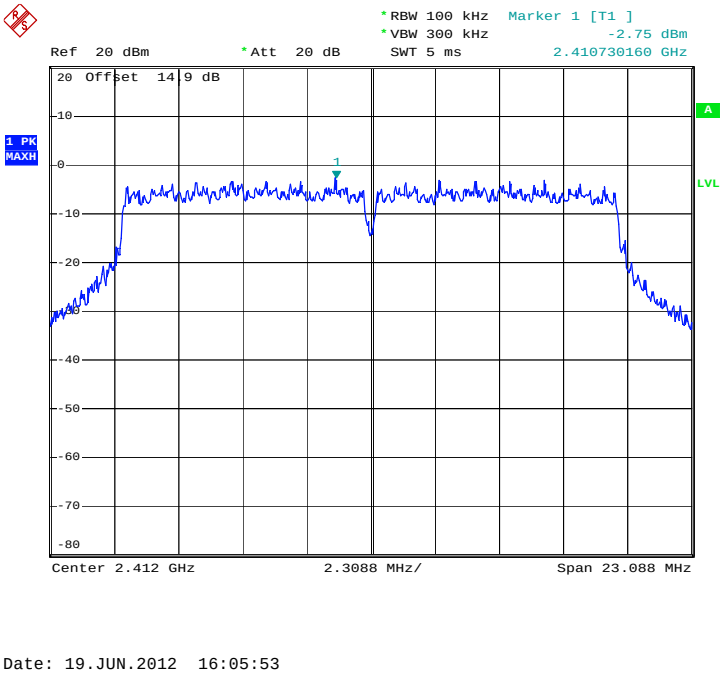
Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
			Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0	-2.75	-17.95	8	Pass
06	2437	0	-2.60	-17.80	8	Pass
11	2462	0	-3.50	-18.70	8	Pass
01	2412	1	-2.14	-17.34	8	Pass
06	2437	1	-1.92	-17.12	8	Pass
11	2462	1	-1.69	-16.89	8	Pass

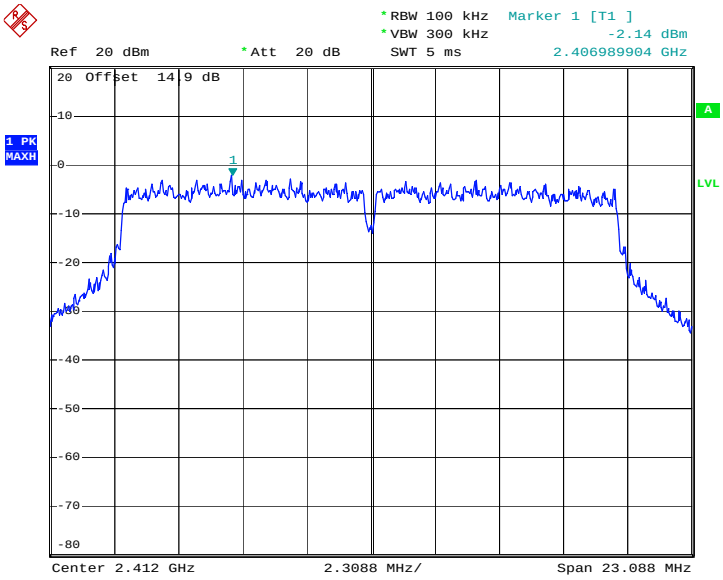
Note:

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 - Chain 0

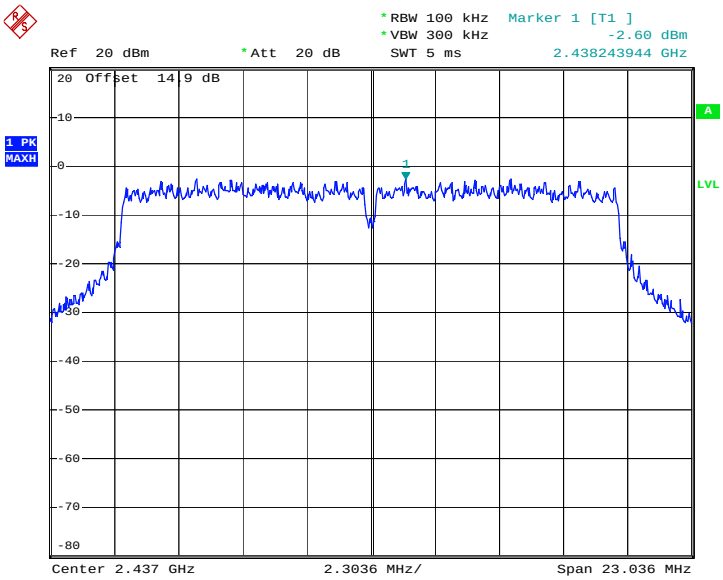


PSD Plot on 802.11n HT-20 Channel 01 - Chain 1



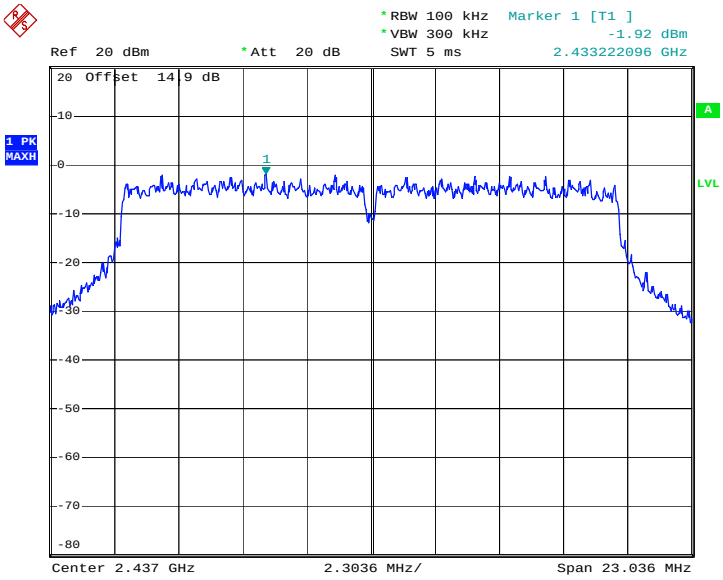
Date: 19.JUN.2012 16:34:40

PSD Plot on 802.11n HT-20 Channel 06 - Chain 0



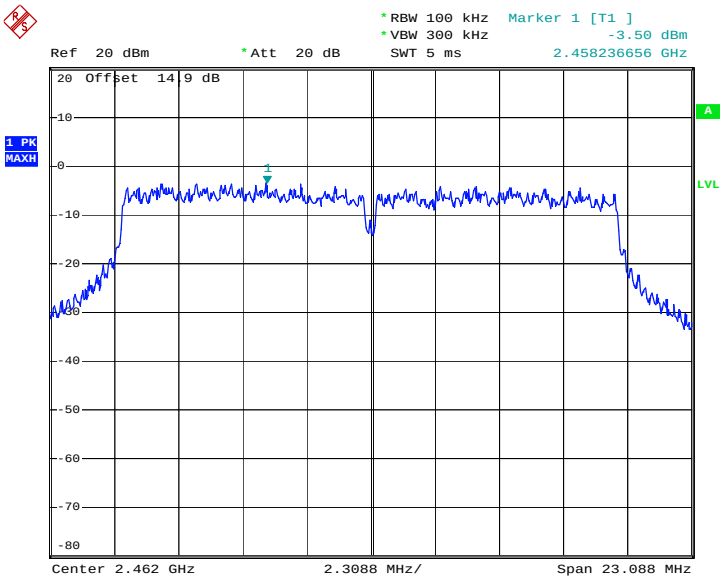
Date: 19.JUN.2012 16:10:24

PSD Plot on 802.11n HT-20 Channel 06 - Chain 1



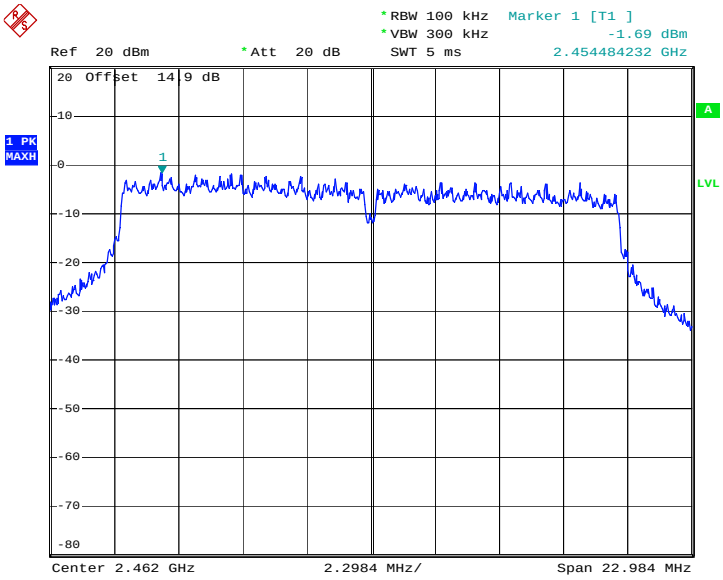
Date: 19.JUN.2012 16:30:33

PSD Plot on 802.11n HT-20 Channel 11 - Chain 0



Date: 19.JUN.2012 16:13:50

PSD Plot on 802.11n HT-20 Channel 11 - Chain 1



Date: 19.JUN.2012 16:24:30

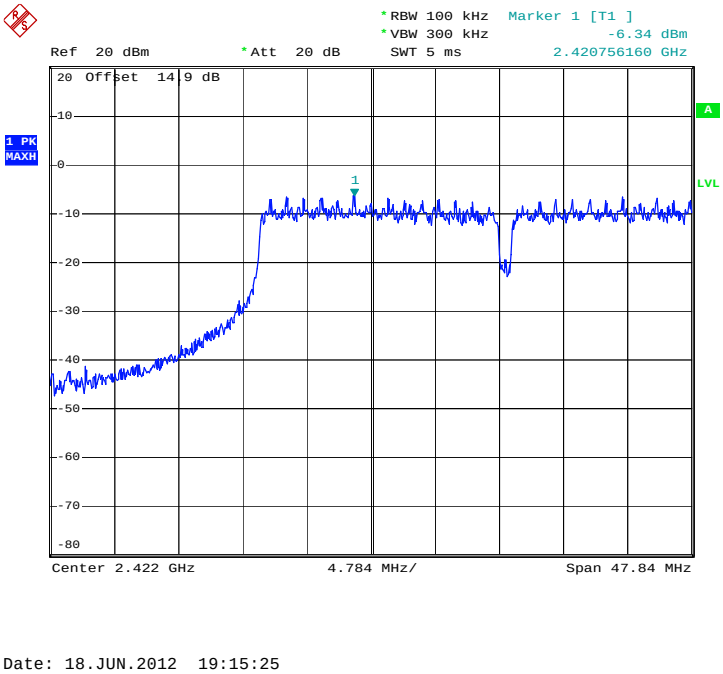
Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Engineer :	Zhi Lu	Relative Humidity :	47~48%

Channel	Frequency (MHz)	Chain	802.11n HT-40 Power Density		Max. Limits (dBm)	Pass/Fail
			Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	0	-6.34	-21.54	8	Pass
06	2437	0	-5.81	-21.01	8	Pass
09	2452	0	-6.05	-21.25	8	Pass
03	2422	1	-5.38	-20.58	8	Pass
06	2437	1	-5.23	-20.43	8	Pass
09	2452	1	-4.35	-19.55	8	Pass

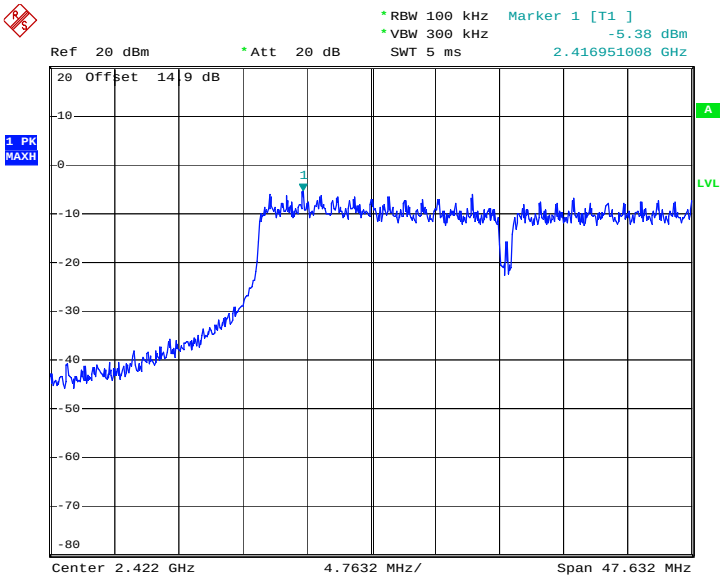
Note:

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-40 Channel 03 – Chain 0

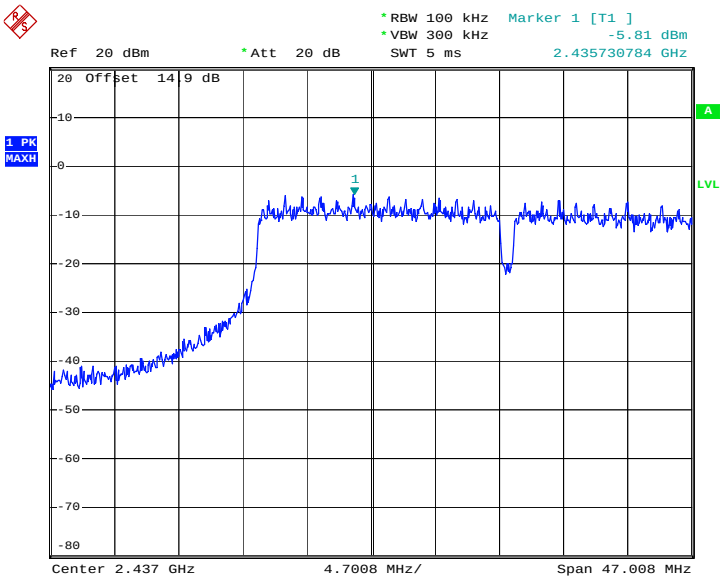


PSD Plot on 802.11n HT-40 Channel 03 - Chain 1



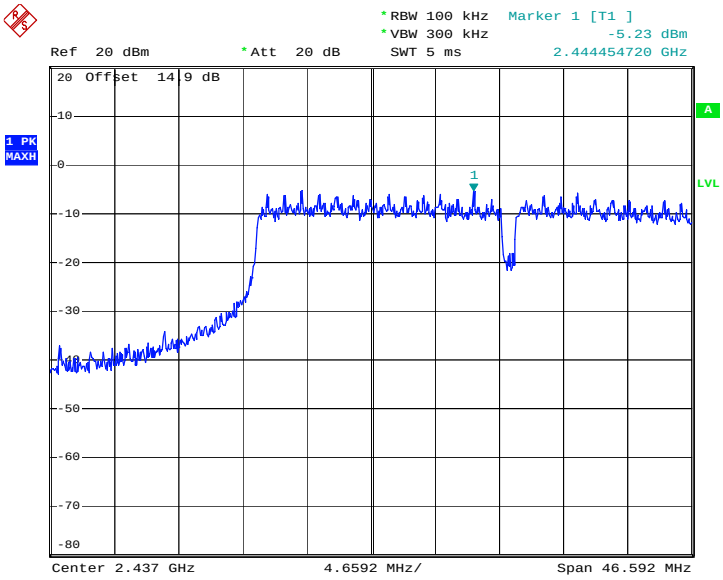
Date: 18.JUN.2012 19:36:24

PSD Plot on 802.11n HT-40 Channel 06 - Chain 0



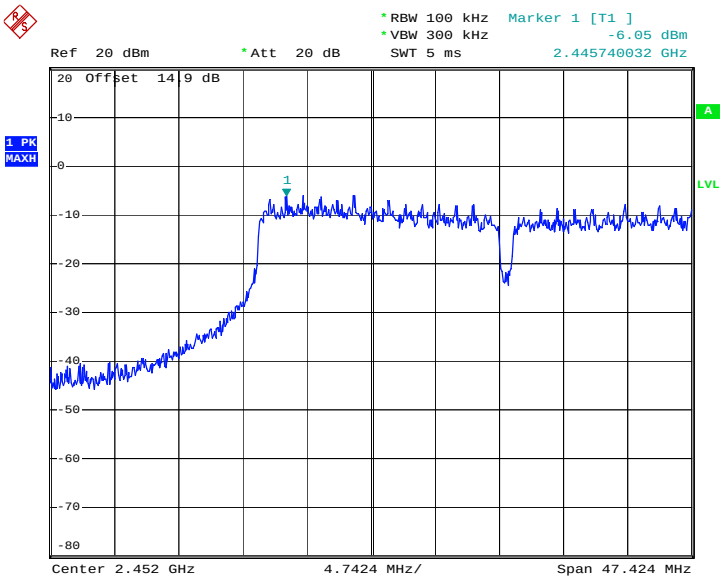
Date: 18.JUN.2012 19:24:44

PSD Plot on 802.11n HT-40 Channel 06 - Chain 1



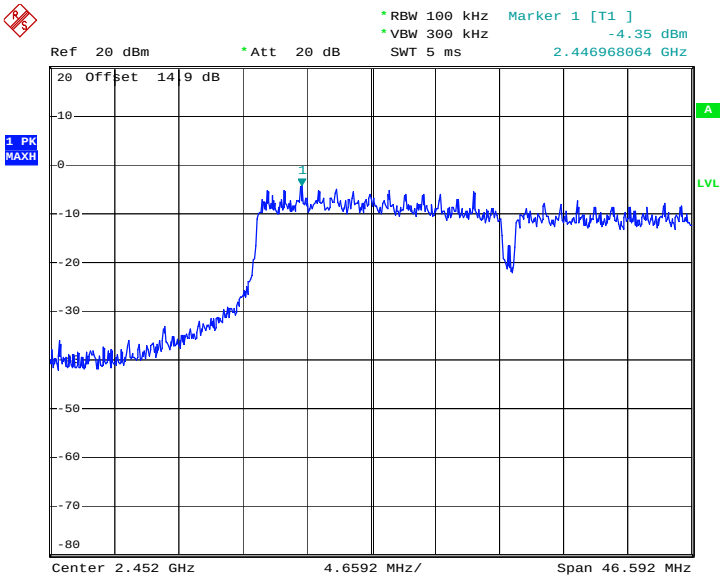
Date: 18.JUN.2012 19:46:35

PSD Plot on 802.11n HT-40 Channel 09 - Chain 0



Date: 18.JUN.2012 19:29:46

PSD Plot on 802.11n HT-40 Channel 09 - Chain 1



Date: 18.JUN.2012 19:51:26

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

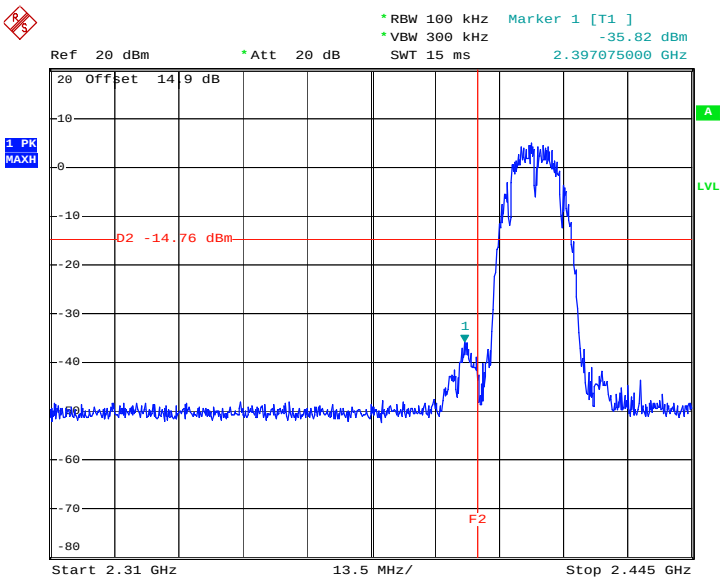
1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall 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

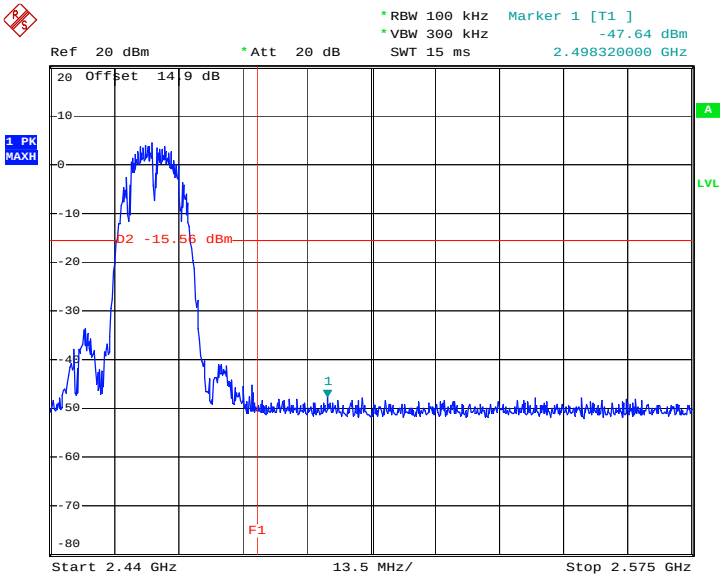
Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11b Channel 01 – Chain 0



Date: 18.JUN.2012 15:40:21

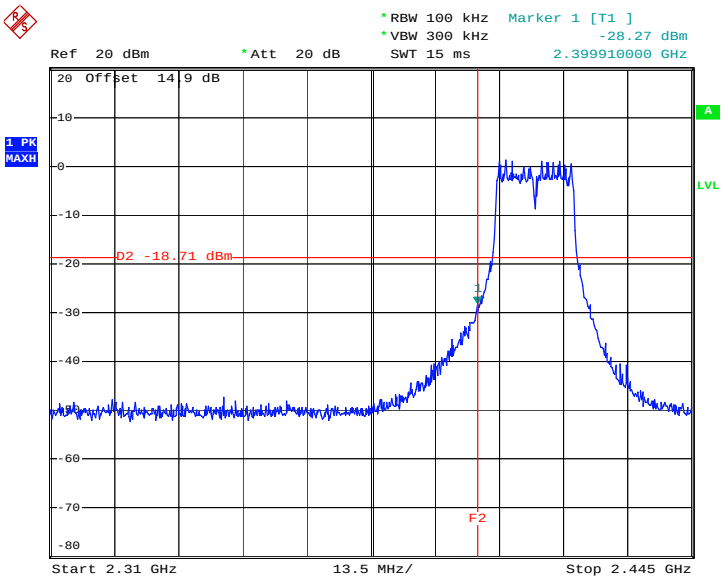
High Band Edge Plot on 802.11b Channel 11 – Chain 0



Date: 18.JUN.2012 15:51:34

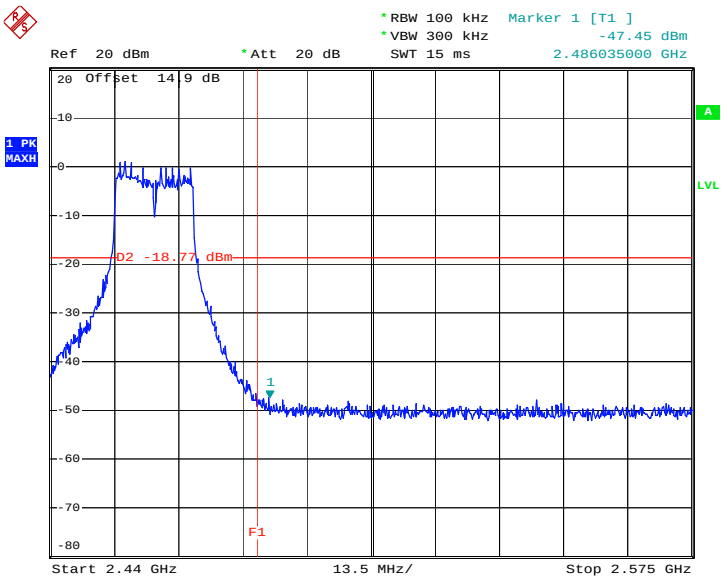
Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11g Channel 01 – Chain 0



Date: 19.JUN.2012 20:41:59

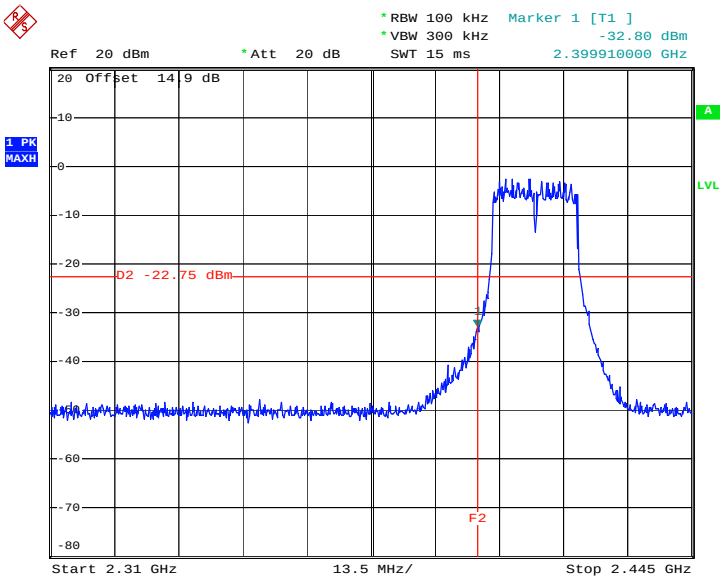
High Band Edge Plot on 802.11g Channel 11 – Chain 0



Date: 19.JUN.2012 20:38:20

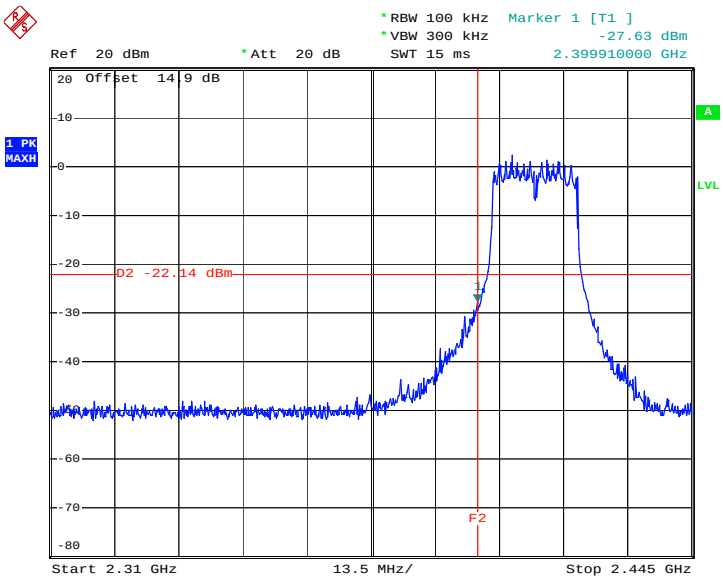
Test Mode :	802.11n HT-20	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	01 and 11	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11n HT-20 Channel 01 – Chain 0



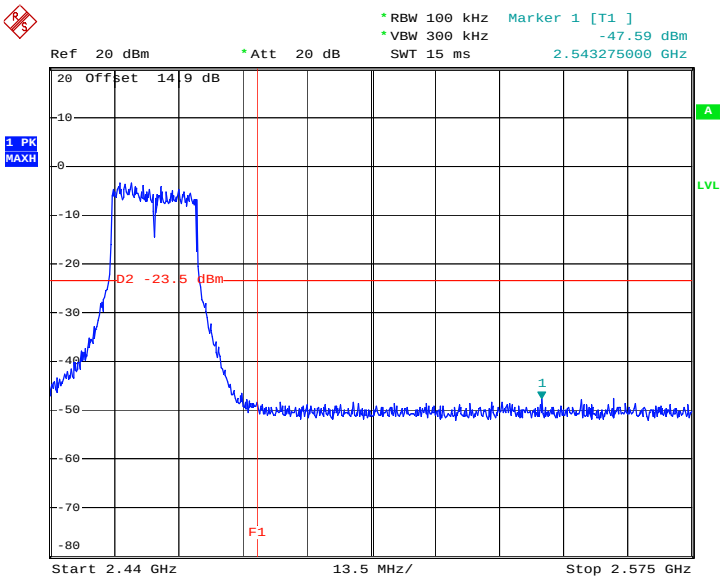
Date: 19.JUN.2012 21:07:09

High Band Edge Plot on 802.11n HT-20 Channel 01 – Chain 1



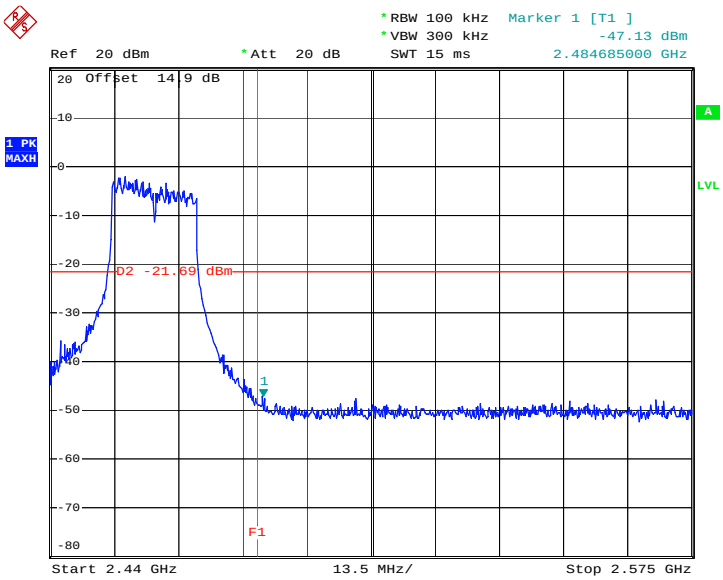
Date: 19.JUN.2012 20:49:10

Low Band Edge Plot on 802.11n HT-20 Channel 11 – Chain 0



Date: 19.JUN.2012 16:14:15

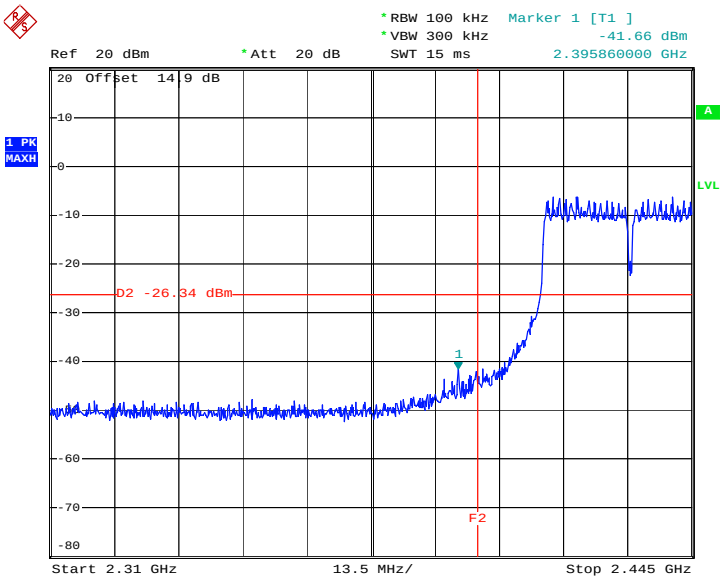
High Band Edge Plot on 802.11n HT-20 Channel 11 – Chain 1



Date: 19.JUN.2012 16:24:49

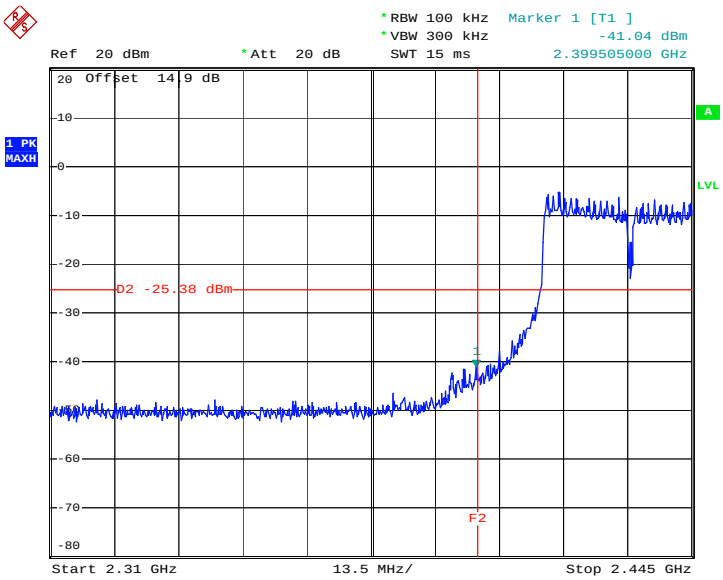
Test Mode :	802.11n HT-40	Temperature :	23~24℃
Test Band :	Low and High	Relative Humidity :	47~48%
Test Channel :	03 and 09	Test Engineer :	Zhi Lu

Low Band Edge Plot on 802.11n HT-40 Channel 03 – Chain 0



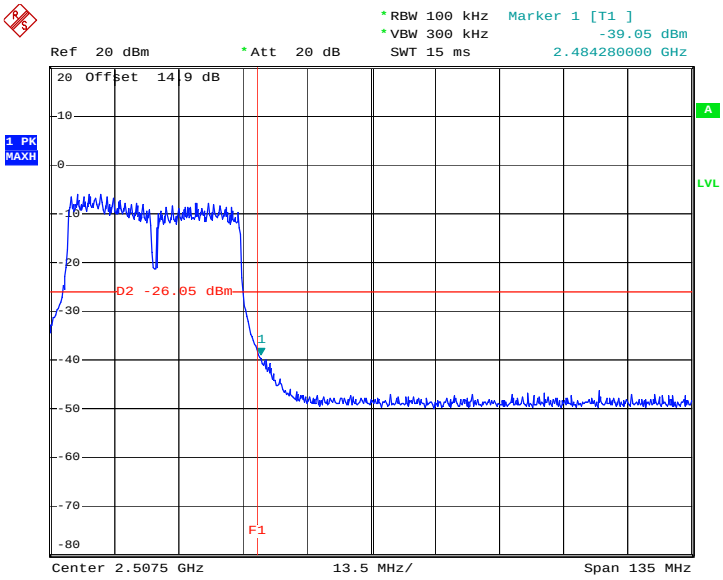
Date: 18.JUN.2012 19:17:59

Low Band Edge Plot on 802.11n HT-40 Channel 03 – Chain 1



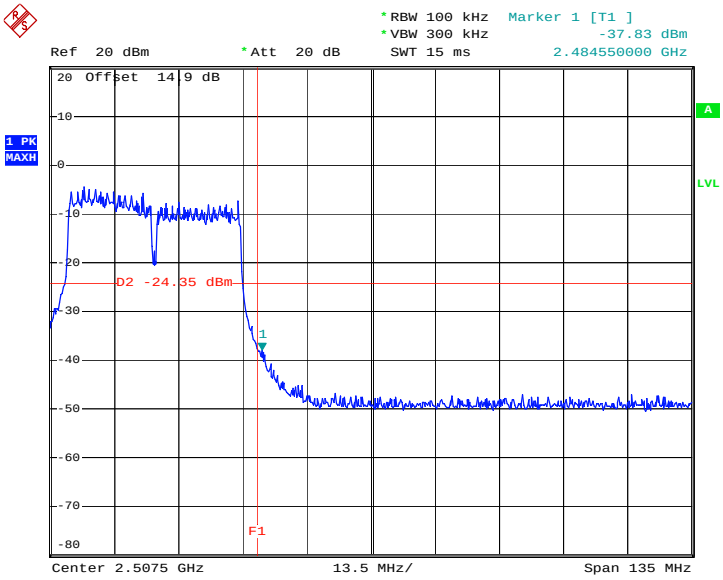
Date: 18.JUN.2012 19:37:04

Low Band Edge Plot on 802.11n HT-40 Channel 09 – Chain 0



Date: 19.JUN.2012 21:24:44

High Band Edge Plot on 802.11n HT-40 Channel 09 – Chain 1



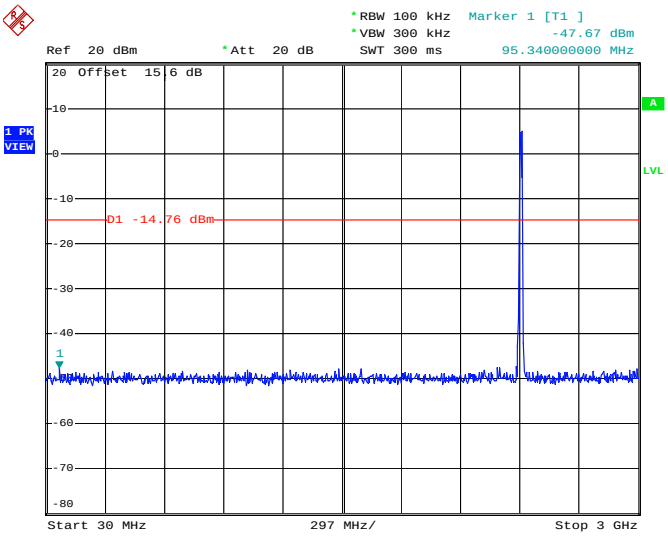
Date: 19.JUN.2012 21:02:04

3.4.6 Test Plots of Spurious Emission

Test Mode :	802.11b	Temperature :	23~24℃
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

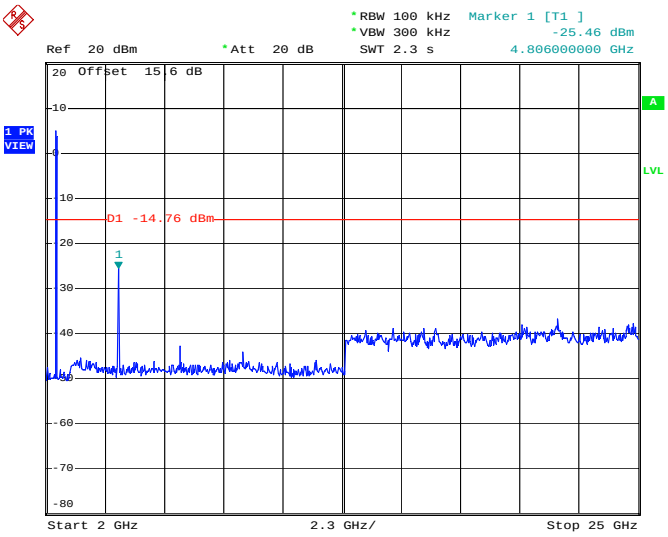
Conducted Spurious Emission Plot on Channel 01 - Chain 0



Date: 18.JUN.2012 15:40:44

802.11b 2 GHz~25 GHz

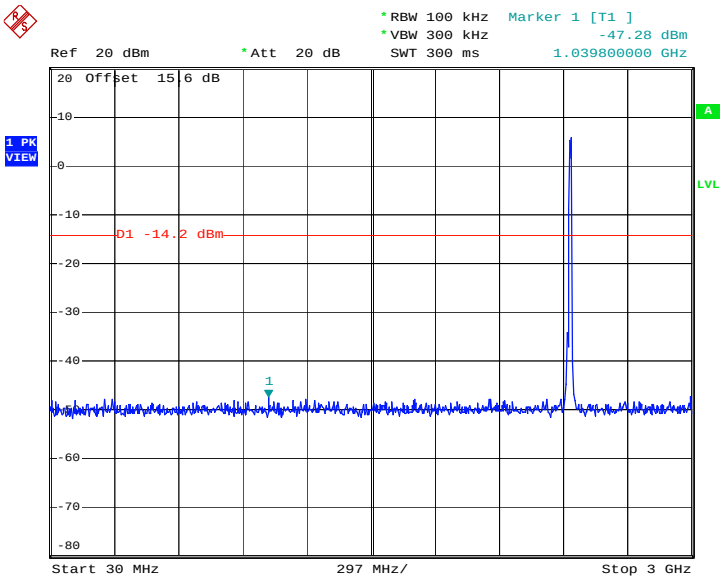
Conducted Spurious Emission Plot on Channel 01 - Chain 0



Date: 18.JUN.2012 15:41:03

802.11b 30 MHz~3 GHz

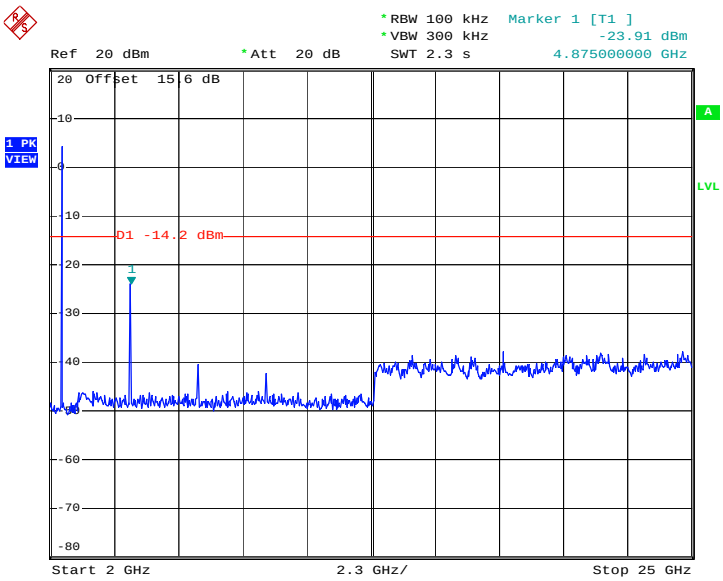
Conducted Spurious Emission Plot on Channel 06 - Chain 0



Date: 18.JUN.2012 15:47:18

802.11b 2 GHz~25 GHz

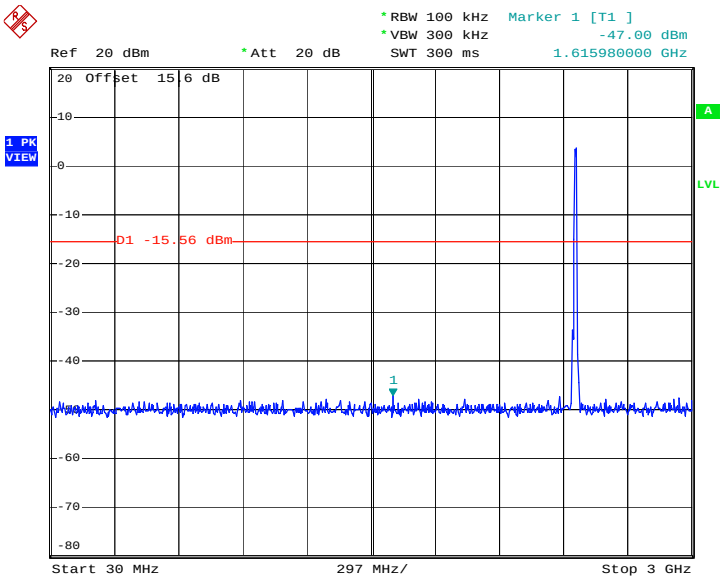
Conducted Spurious Emission Plot on Channel 06 - Chain 0



Date: 18.JUN.2012 15:47:37

802.11b 30 MHz~3 GHz

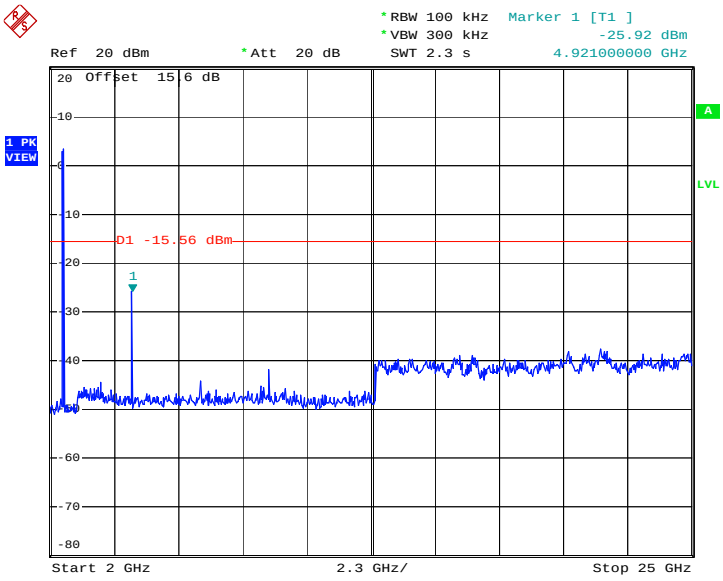
Conducted Spurious Emission Plot on Channel 11 - Chain 0



Date: 18.JUN.2012 15:52:42

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11 - Chain 0

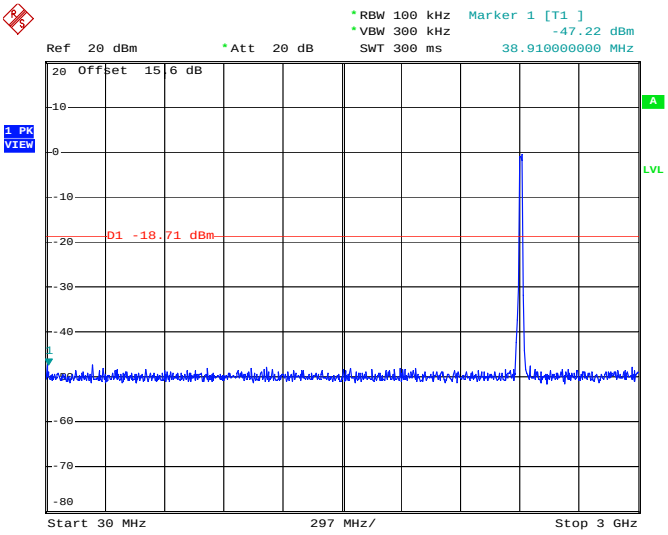


Date: 18.JUN.2012 15:53:01

Test Mode :	802.11g	Temperature :	23~24℃
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

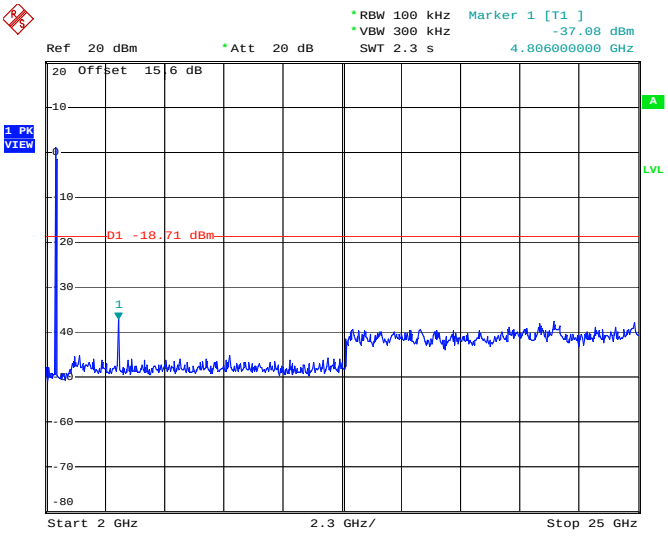
Conducted Spurious Emission Plot on Channel 01 - Chain 0



Date: 18.JUN.2012 16:16:16

802.11g 2 GHz~25 GHz

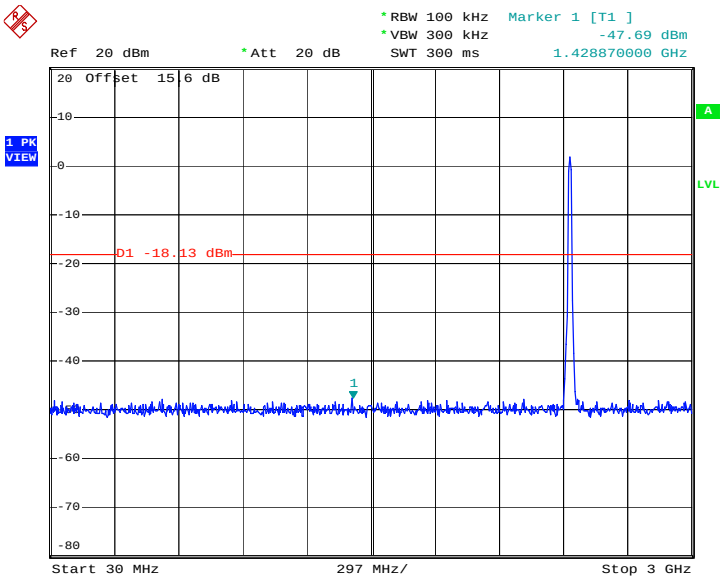
Conducted Spurious Emission Plot on Channel 01 - Chain 0



Date: 18.JUN.2012 16:16:34

802.11g 30 MHz~3 GHz

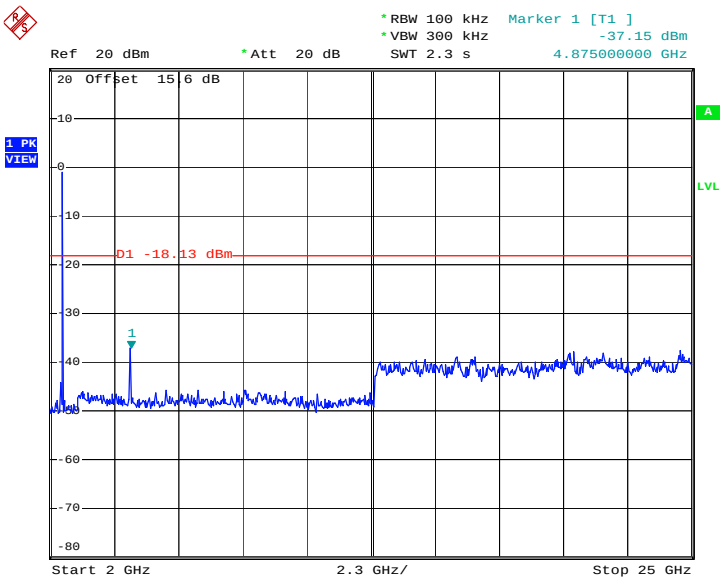
Conducted Spurious Emission Plot on Channel 06 - Chain 0



Date: 18.JUN.2012 16:19:36

802.11g 2 GHz~25 GHz

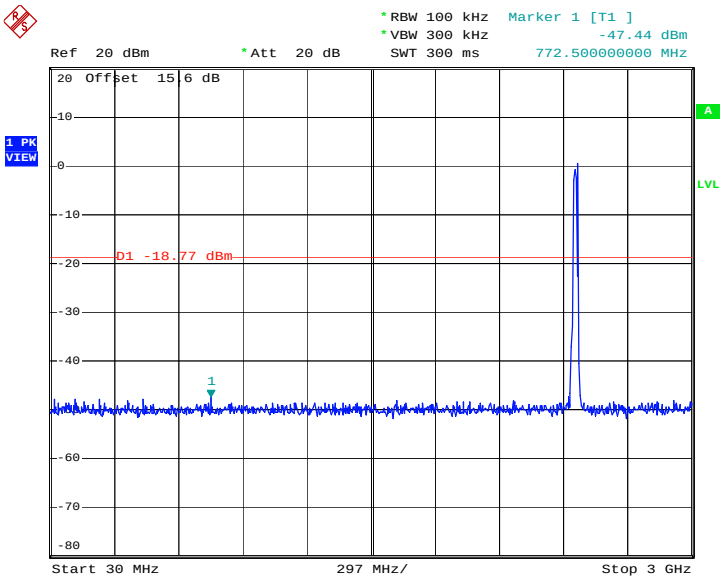
Conducted Spurious Emission Plot on Channel 06 - Chain 0



Date: 18.JUN.2012 16:19:55

802.11g 30 MHz~3 GHz

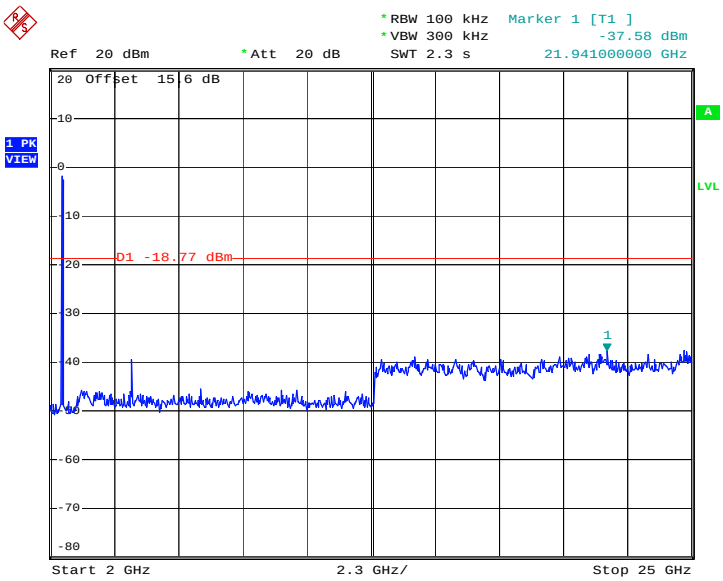
Conducted Spurious Emission Plot on Channel 11 - Chain 0



Date: 18.JUN.2012 16:24:13

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11 - Chain 0

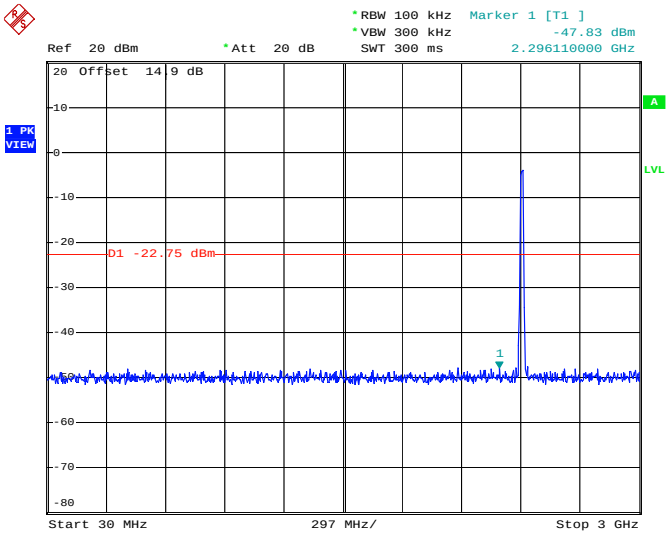


Date: 18.JUN.2012 16:24:31

Test Mode :	802.11n HT-20	Temperature :	23~24℃
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

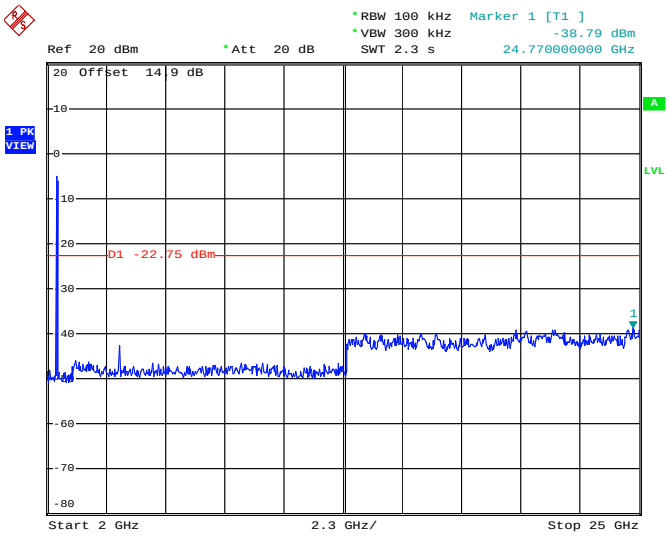
Conducted Spurious Emission Plot on Channel 01- Chain 0+1 (0)



Date: 19.JUN.2012 16:06:37

802.11n HT-20 2 GHz~25 GHz

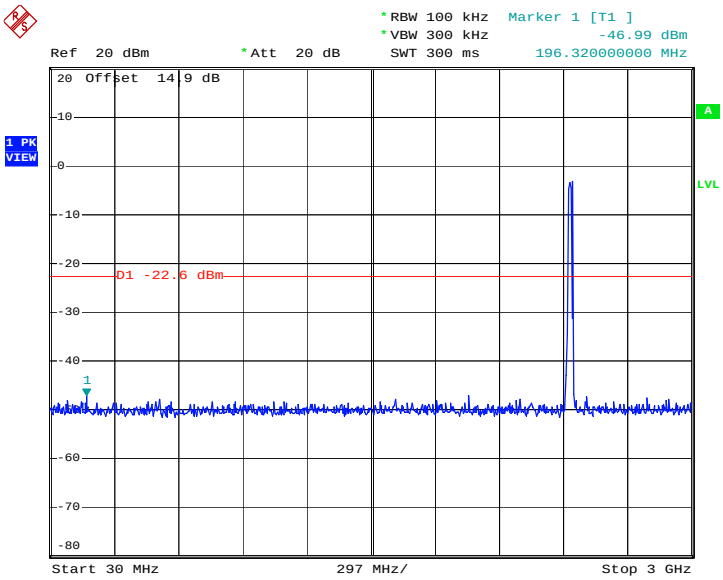
Conducted Spurious Emission Plot on Channel 01 - Chain 0+1 (0)



Date: 19.JUN.2012 16:06:56

802.11n HT-20 30 MHz~3 GHz

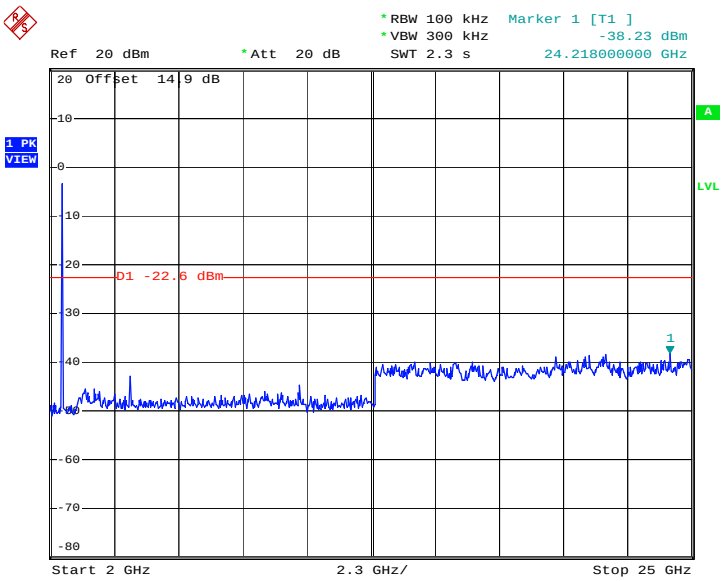
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (0)



Date: 19.JUN.2012 16:10:47

802.11n HT-20 2 GHz~25 GHz

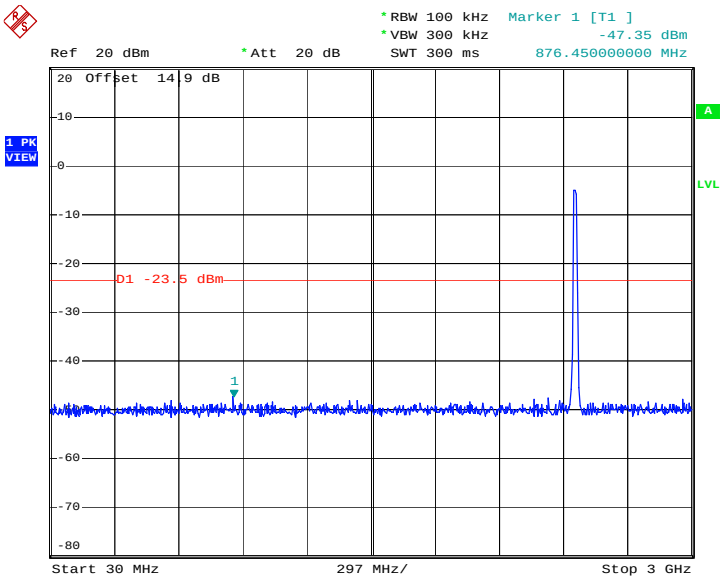
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (0)



Date: 19.JUN.2012 16:11:05

802.11n HT-20 30 MHz~3 GHz

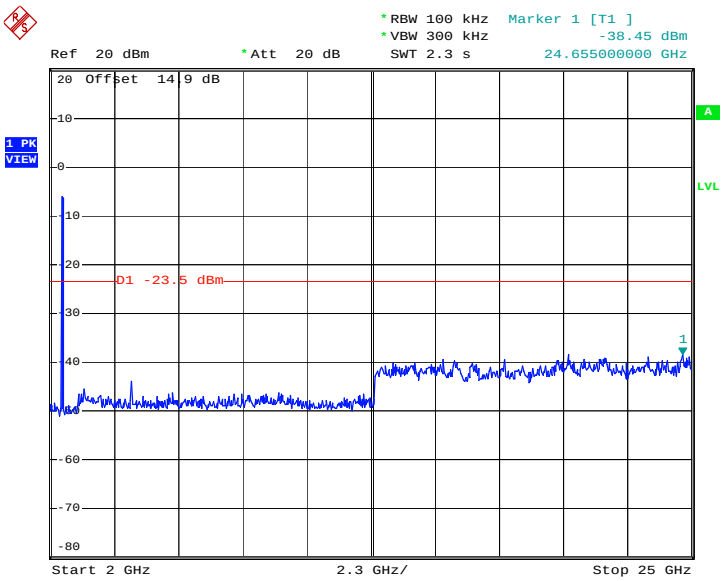
Conducted Spurious Emission Plot on Channel 11 - Chain 0+1 (0)



Date: 19.JUN.2012 16:14:36

802.11n HT-20 2 GHz~25 GHz

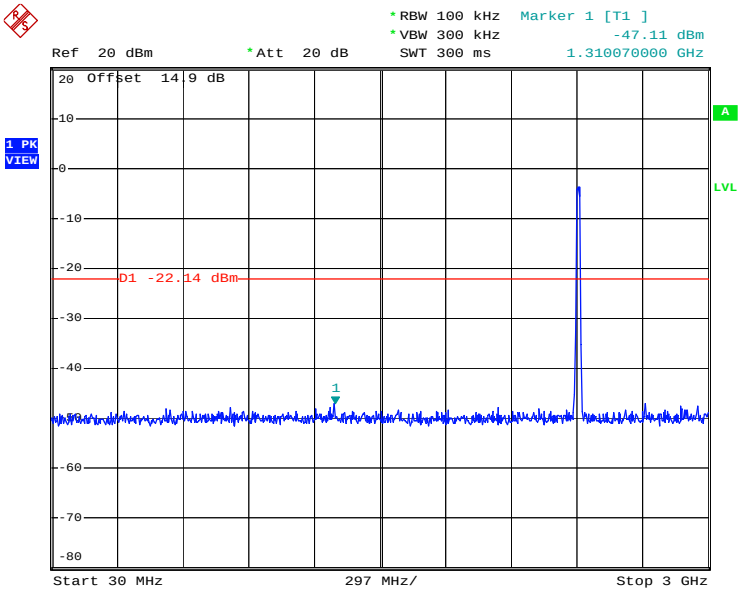
Conducted Spurious Emission Plot on Channel 11 - Chain 0+1 (0)



Date: 19.JUN.2012 16:14:54

802.11n HT-20 30 MHz~3 GHz

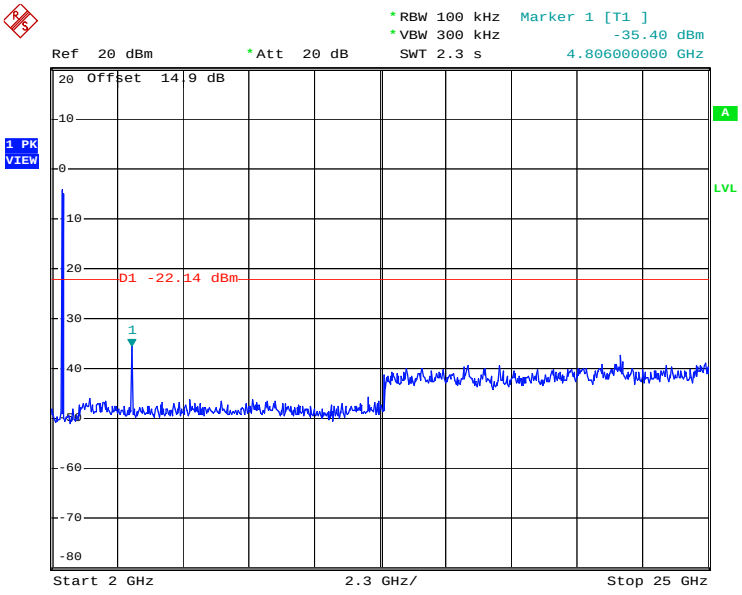
Conducted Spurious Emission Plot on Channel 01 - Chain 0+1 (1)



Date: 19.JUN.2012 16:35:17

802.11n HT-20 2 GHz~25 GHz

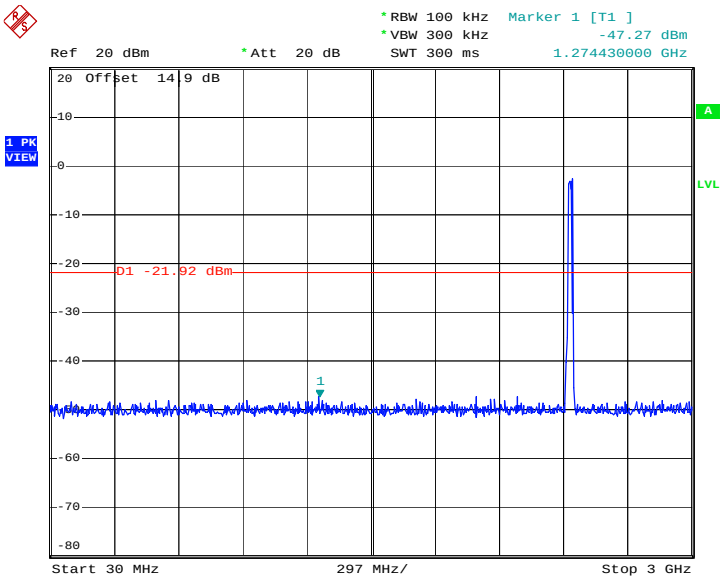
Conducted Spurious Emission Plot on Channel 01 - Chain 0+1 (1)



Date: 19.JUN.2012 16:35:36

802.11n HT-20 30 MHz~3 GHz

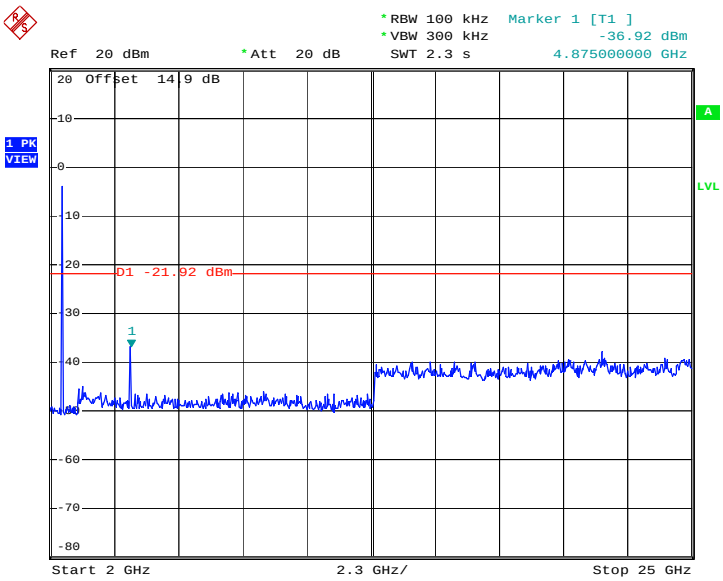
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (1)



Date: 19.JUN.2012 16:31:23

802.11n HT-20 2 GHz~25 GHz

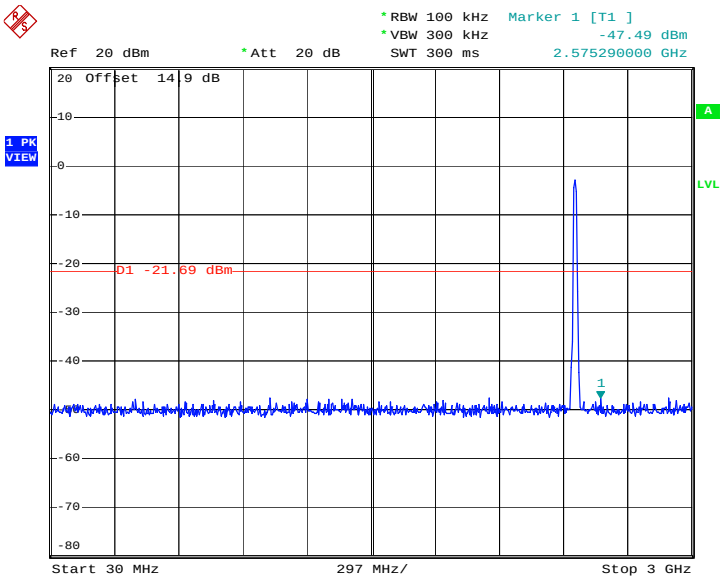
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (1)



Date: 19.JUN.2012 16:31:42

802.11n HT-20 30 MHz~3 GHz

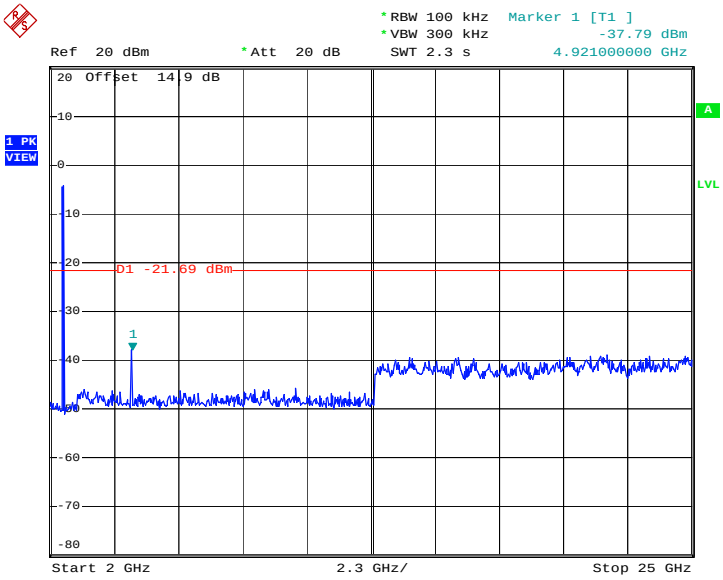
Conducted Spurious Emission Plot on Channel 11 - Chain 0+1 (1)



Date: 19.JUN.2012 16:27:25

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11 - Chain 0+1 (1)

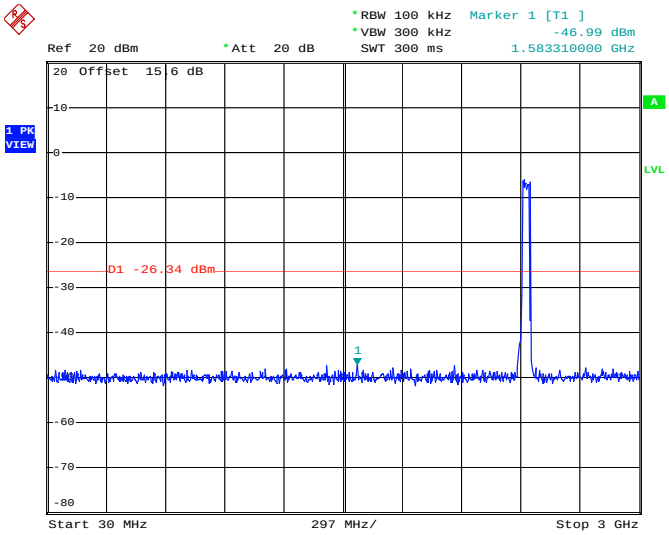


Date: 19.JUN.2012 16:27:43

Test Mode :	802.11n HT-40	Temperature :	23~24
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	47~48
Test Channel :	03, 06, 09	Test Engineer :	Zhi Lu

802.11n HT-40 30 MHz~3 GHz

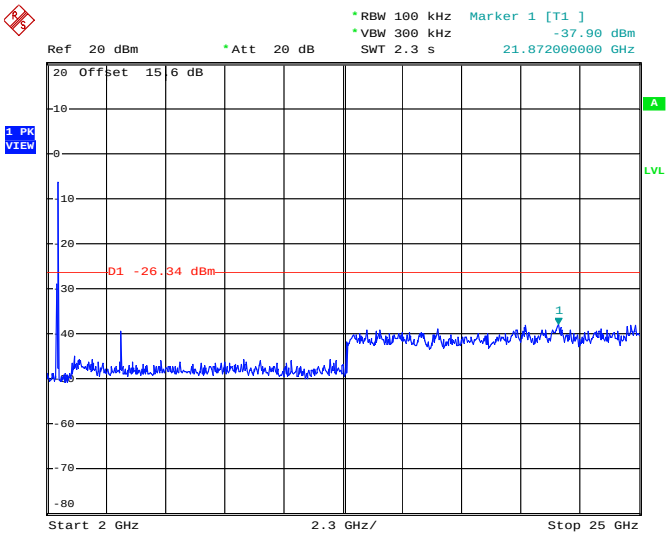
Conducted Spurious Emission Plot on Channel 03 - Chain 0+1 (0)



Date: 18.JUN.2012 19:19:21

802.11n HT-40 2 GHz~25 GHz

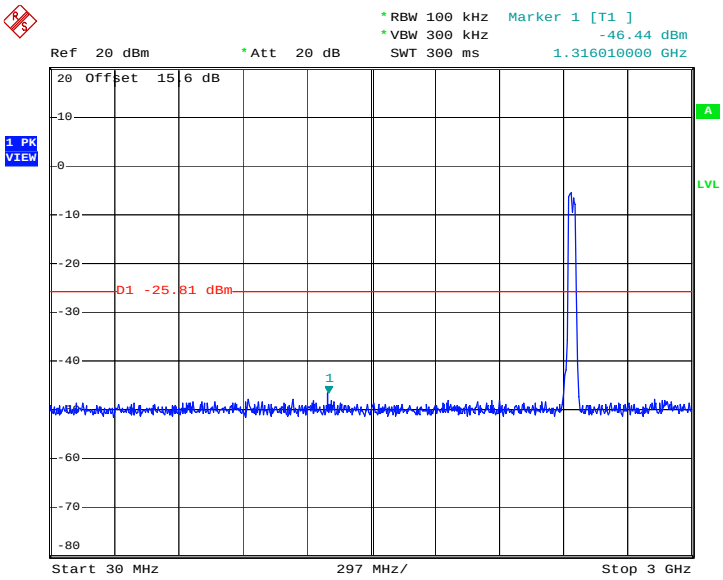
Conducted Spurious Emission Plot on Channel 03 - Chain 0+1 (0)



Date: 18.JUN.2012 19:19:39

802.11n HT-40 30 MHz~3 GHz

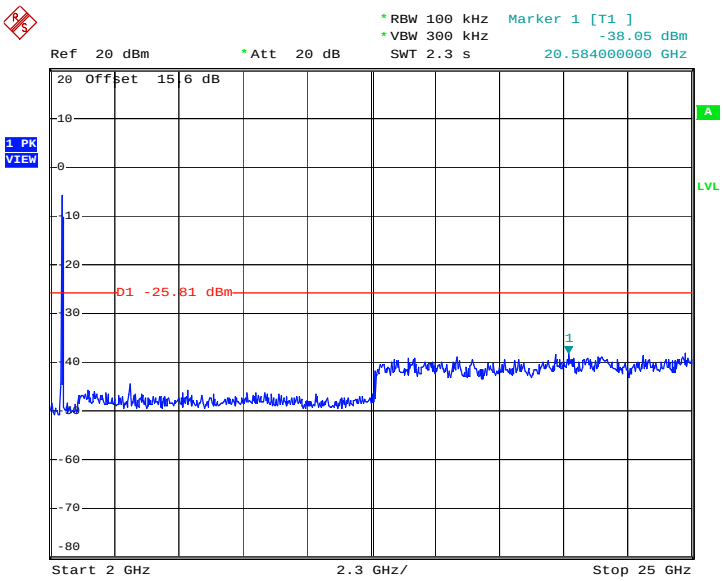
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (0)



Date: 18.JUN.2012 19:25:04

802.11n HT-40 2 GHz~25 GHz

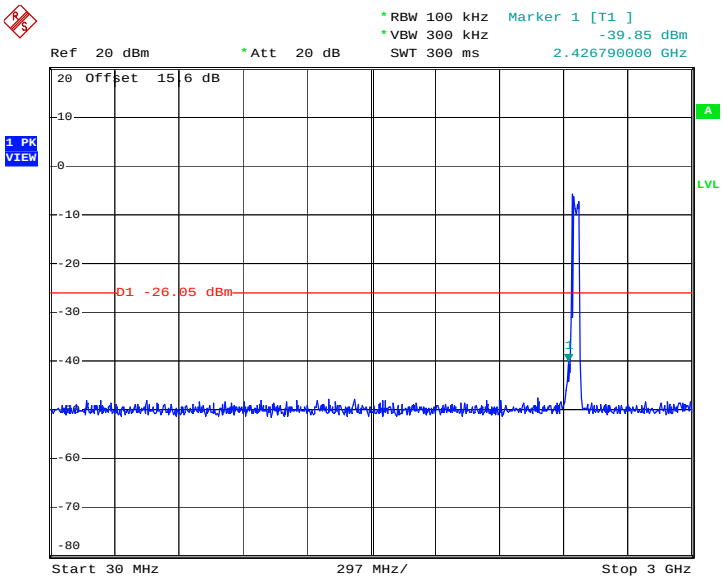
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (0)



Date: 18.JUN.2012 19:25:22

802.11n HT-40 30 MHz~3 GHz

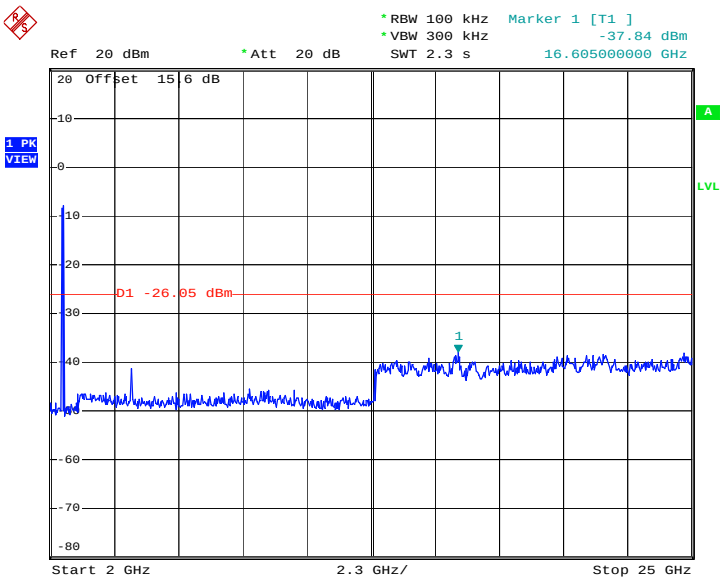
Conducted Spurious Emission Plot on Channel 09 - Chain 0+1 (0)



Date: 18.JUN.2012 19:31:27

802.11n HT-40 2 GHz~25 GHz

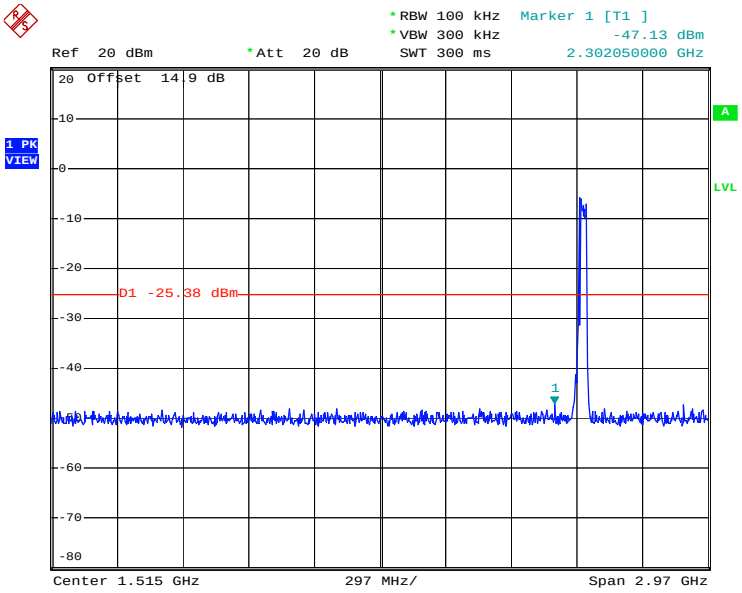
Conducted Spurious Emission Plot on Channel 09 - Chain 0+1 (0)



Date: 18.JUN.2012 19:31:46

802.11n HT-40 30 MHz~3 GHz

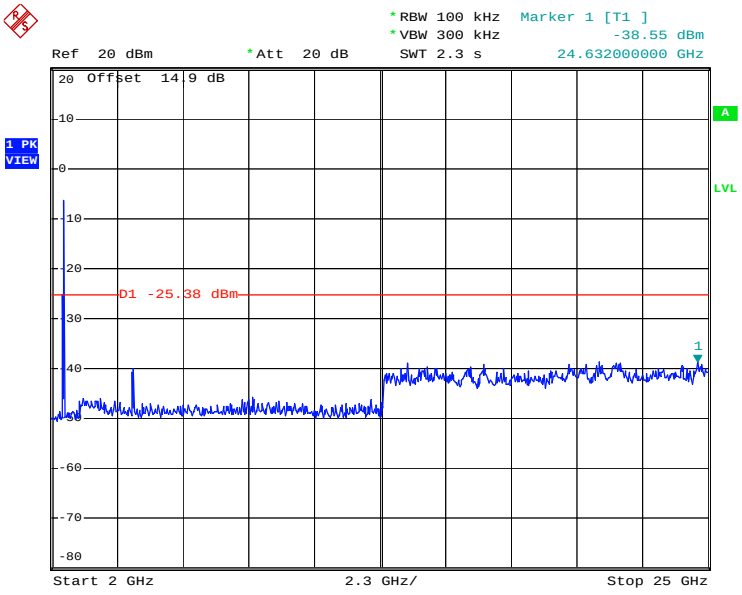
Conducted Spurious Emission Plot on Channel 03 - Chain 0+1 (1)



Date: 18.JUN.2012 20:21:45

802.11n HT-40 2 GHz~25 GHz

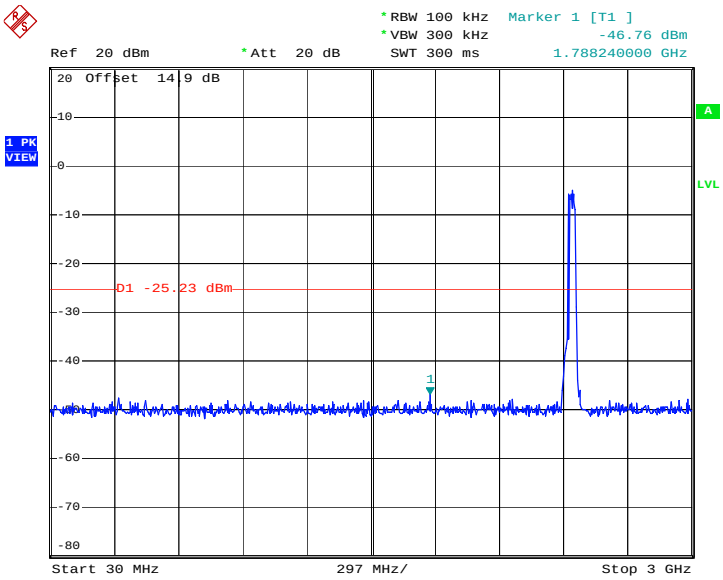
Conducted Spurious Emission Plot on Channel 03 - Chain 0+1 (1)



Date: 18.JUN.2012 20:22:03

802.11n HT-40 30 MHz~3 GHz

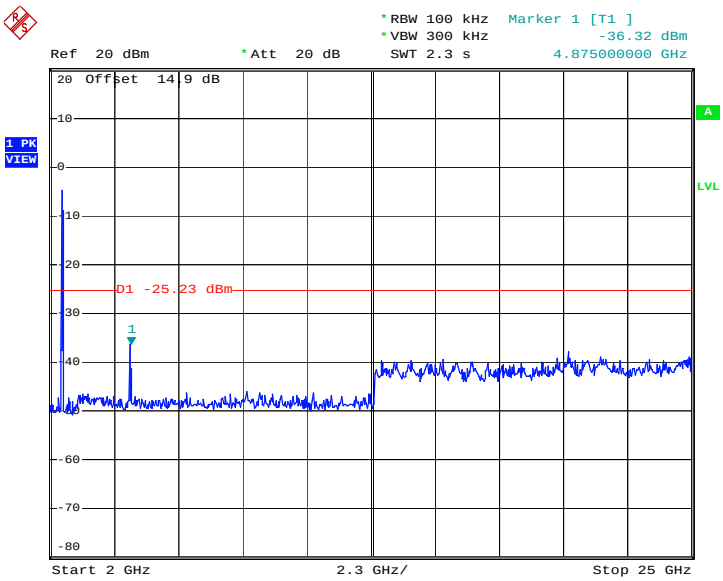
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (1)



Date: 18.JUN.2012 20:23:04

802.11n HT-40 2 GHz~25 GHz

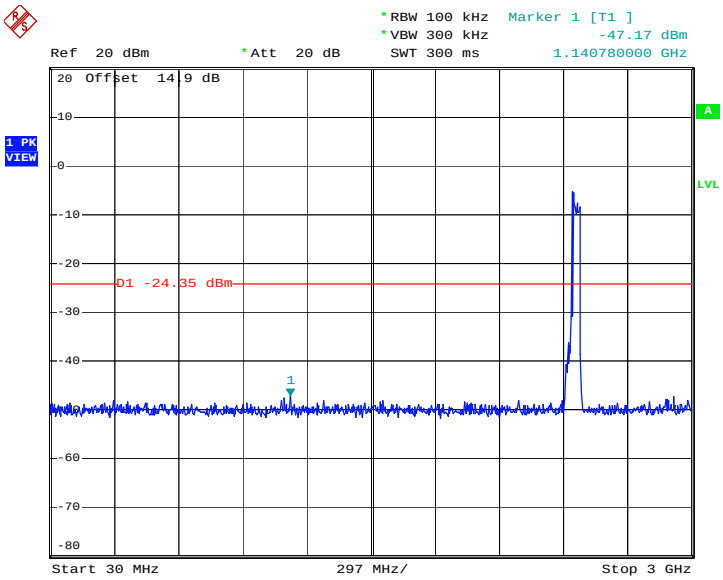
Conducted Spurious Emission Plot on Channel 06 - Chain 0+1 (1)



Date: 18.JUN.2012 20:23:22

802.11n HT-40 30 MHz~3 GHz

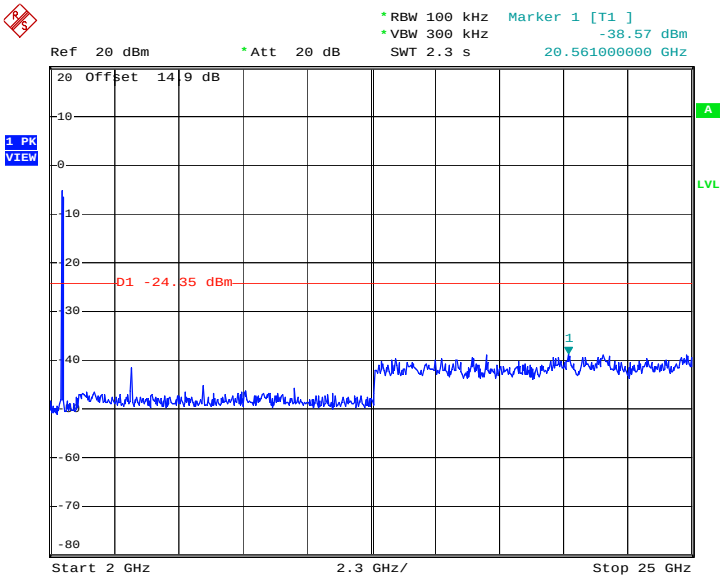
Conducted Spurious Emission Plot on Channel 09 - Chain 0+1 (1)



Date: 18.JUN.2012 20:24:28

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09 - Chain 0+1 (1)



Date: 18.JUN.2012 20:24:46

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.

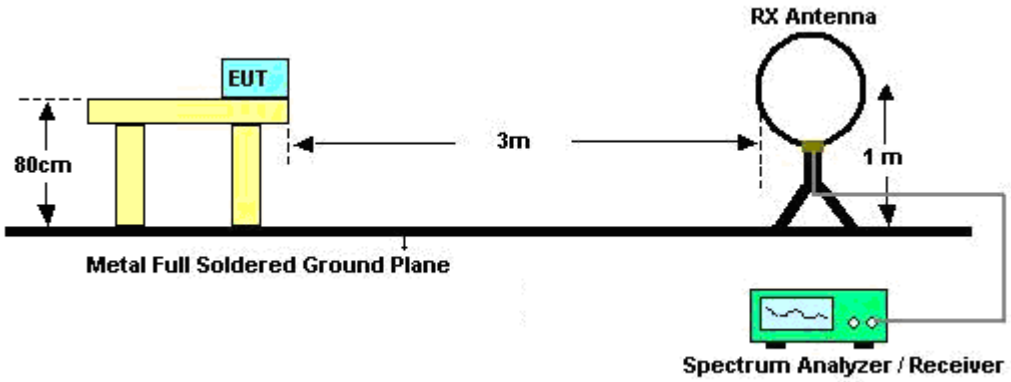
3.5.3 Test Procedures

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 ≥ 1 GHz, 100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.

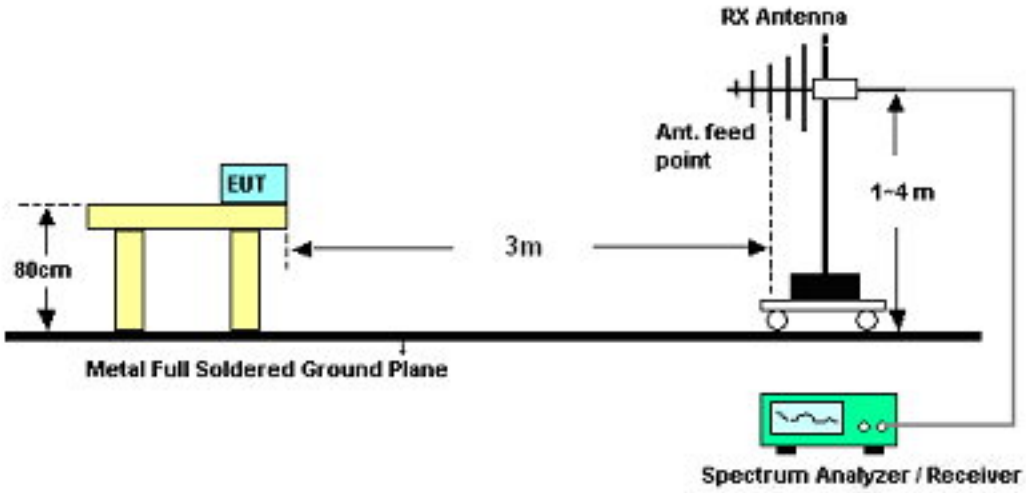
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. If the emission level of the EUT measured by the peak detector is more than 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

3.5.4 Test Setup

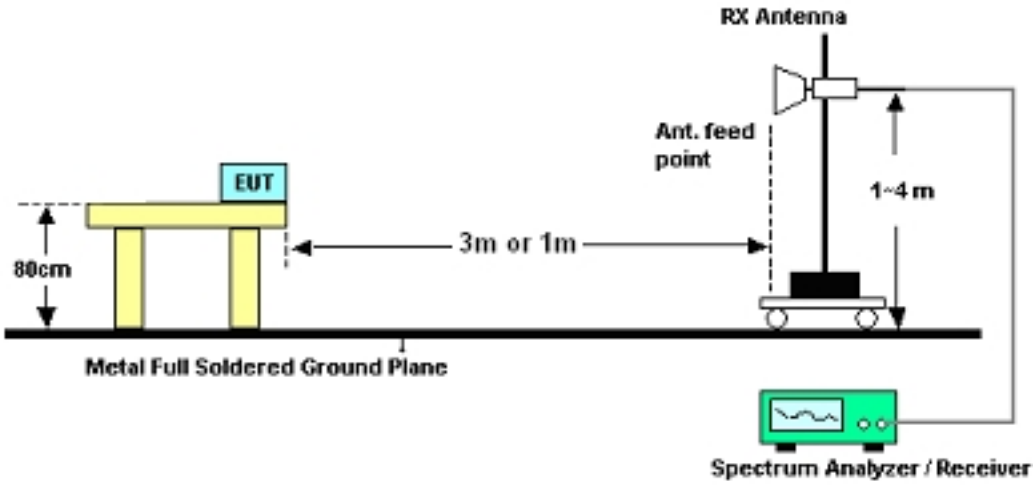
For radiated emissions below 30MHz



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 :	Mode 1	Temperature :	22~23℃
Test Band :	Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2387.14	52.47	-21.53	74	50.19	32.86	3.47	34.05	175	0	Peak
2387.14	37.48	-16.52	54	35.2	32.86	3.47	34.05	175	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
2387.9	55.03	-18.97	74	52.75	32.86	3.47	34.05	100	82	Peak
2387.9	37.53	-16.47	54	35.25	32.86	3.47	34.05	100	82	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Band :	High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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
2484.8	62.45	-11.55	74	59.96	33.01	3.68	34.2	200	40	Peak
2484.8	37.65	-16.35	54	35.16	33.01	3.68	34.2	200	40	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
2484.8	60.79	-13.21	74	58.3	33.01	3.68	34.2	100	82	Peak
2484.8	37.78	-16.22	54	35.29	33.01	3.68	34.2	100	82	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Band :	Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2388.66	56.19	-17.81	74	53.91	32.86	3.47	34.05	115	20	Peak
2388.66	40.8	-13.2	54	38.52	32.86	3.47	34.05	115	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
2386.57	59.28	-14.72	74	57	32.86	3.47	34.05	100	0	Peak
2386.57	41.59	-12.41	54	39.31	32.86	3.47	34.05	100	0	Average

Test Mode :	Mode 6	Temperature :	22~23℃
Test Band :	High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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	58.57	-15.43	74	56.08	33.01	3.68	34.2	122	10	Peak
2483.5	45.21	-8.79	54	42.72	33.01	3.68	34.2	122	10	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	63.14	-10.86	74	60.65	33.01	3.68	34.2	100	102	Peak
2483.5	46.91	-7.09	54	44.42	33.01	3.68	34.2	100	102	Average

Test Mode :	Mode 7	Temperature :	22~23℃
Test Band :	Low	Relative Humidity :	47~48%
Test Channel :	01	Test Engineer :	Chenmy Cheng

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
2387.52	50.75	-23.25	74	48.47	32.86	3.47	34.05	120	12	Peak
2387.52	37.46	-16.54	54	35.18	32.86	3.47	34.05	120	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
2389.8	51.96	-22.04	74	49.68	32.86	3.47	34.05	113	349	Peak
2389.8	38.77	-15.23	54	36.49	32.86	3.47	34.05	113	349	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Band :	High	Relative Humidity :	47~48%
Test Channel :	11	Test Engineer :	Chenmy Cheng

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	52.25	-21.75	74	49.76	33.01	3.68	34.2	100	0	Peak
2483.5	39.13	-14.87	54	36.64	33.01	3.68	34.2	100	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	52.49	-21.51	74	50	33.01	3.68	34.2	103	16	Peak
2483.5	39.16	-14.84	54	36.67	33.01	3.68	34.2	103	16	Average

Test Mode :	Mode 10	Temperature :	22~23℃
Test Band :	Low	Relative Humidity :	47~48%
Test Channel :	03	Test Engineer :	Chenmy Cheng

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
2385.43	49.82	-24.18	74	47.58	32.83	3.42	34.01	100	0	Peak
2385.43	37.42	-16.58	54	35.18	32.83	3.42	34.01	100	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	50.31	-23.69	74	48.03	32.86	3.47	34.05	100	0	Peak
2389.61	38.19	-15.81	54	35.91	32.86	3.47	34.05	100	0	Average

Test Mode :	Mode 12	Temperature :	22~23℃
Test Band :	High	Relative Humidity :	47~48%
Test Channel :	09	Test Engineer :	Chenmy Cheng

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	73.27	-0.73	74	70.78	33.01	3.68	34.2	200	201	Peak
2483.5	51.4	-2.6	54	48.91	33.01	3.68	34.2	200	201	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
2483.66	73.61	-0.39	74	71.12	33.01	3.68	34.2	100	181	Peak
2483.66	50.76	-3.24	54	48.27	33.01	3.68	34.2	100	181	Average

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

Test Mode :	Mode 1	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	22.42	-17.58	40	34.24	18	0.26	30.08	-	-	Peak
48.43	18.96	-21.04	40	40.69	8.12	0.28	30.13	-	-	Peak
433.52	20.34	-25.66	46	33.04	16.22	0.88	29.8	-	-	Peak
644.01	22.48	-23.52	46	32.17	18.87	1.09	29.65	-	-	Peak
836.07	23.34	-22.66	46	31.35	20.36	1.27	29.64	-	-	Peak
951.5	32.52	-13.48	46	39.99	20.74	1.33	29.54	100	91	Peak
2387.14	52.47	-21.53	74	50.19	32.86	3.47	34.05	175	0	Peak
2387.14	37.48	-16.52	54	35.2	32.86	3.47	34.05	175	0	Average
2412	94.23	-	-	91.9	32.89	3.52	34.08	173	3	Peak
2412	90.42	-	-	88.09	32.89	3.52	34.08	173	3	Average
2485.94	54.14	-19.86	74	51.65	33.01	3.68	34.2	155	25	Peak
2485.94	38.08	-15.92	54	35.59	33.01	3.68	34.2	155	25	Average
4824	55.5	-18.5	74	47.63	35.17	4.97	32.27	200	22	Peak
4824	52.91	-1.09	54	45.04	35.17	4.97	32.27	200	22	Average

Test Mode :	Mode 1	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
37.76	27.47	-12.53	40	43.59	13.7	0.24	30.06	-	-	Peak
48.43	25.24	-14.76	40	46.97	8.12	0.28	30.13	-	-	Peak
72.68	30.53	-9.47	40	54.71	5.55	0.34	30.07	100	26	Peak
587.75	22.2	-23.8	46	32.19	18.58	1.06	29.63	-	-	Peak
767.2	23.68	-22.32	46	32.14	19.89	1.2	29.55	-	-	Peak
951.5	32.57	-13.43	46	40.04	20.74	1.33	29.54	-	-	Peak
2387.9	55.03	-18.97	74	52.75	32.86	3.47	34.05	100	82	Peak
2387.9	37.53	-16.47	54	35.25	32.86	3.47	34.05	100	82	Average
2412	95.42	-	-	93.09	32.89	3.52	34.08	101	80	Peak
2412	91.12	-	-	88.79	32.89	3.52	34.08	101	80	Average
2487.27	54.86	-19.14	74	52.37	33.01	3.68	34.2	112	338	Peak
2487.27	37.71	-16.29	54	35.22	33.01	3.68	34.2	112	338	Average
4824	55.96	-18.04	74	48.09	35.17	4.97	32.27	100	10	Peak
4824	52.87	-1.13	54	45	35.17	4.97	32.27	100	10	Average

Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	21.92	-18.08	40	33.74	18	0.26	30.08	-	-	Peak
39.7	18.25	-21.75	40	35.72	12.3	0.25	30.02	-	-	Peak
74.62	14.91	-25.09	40	38.83	5.8	0.34	30.06	-	-	Peak
819.58	24.71	-21.29	46	32.98	20.08	1.26	29.61	-	-	Peak
951.5	31.8	-14.2	46	39.27	20.74	1.33	29.54	100	155	Peak
960.23	27.6	-26.4	54	35.01	20.79	1.34	29.54	-	-	Peak
2376.5	48.73	-25.27	74	46.49	32.83	3.42	34.01	115	227	Peak
2376.5	35.7	-18.3	54	33.46	32.83	3.42	34.01	115	227	Average
2437	95.79	-	-	93.39	32.95	3.6	34.15	200	35	Peak
2437	92.82	-	-	90.42	32.95	3.6	34.15	200	35	Average
2490.69	54.8	-19.2	74	52.26	33.05	3.72	34.23	100	0	Peak
2490.69	33.81	-20.19	54	31.27	33.05	3.72	34.23	100	0	Average
4874	54.66	-19.34	74	46.77	35.18	4.98	32.27	200	43	Peak
4874	49.86	-4.14	54	41.97	35.18	4.98	32.27	200	43	Average

Test Mode :	Mode 2	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
37.76	27.24	-12.76	40	43.36	13.7	0.24	30.06	-	-	Peak
75.59	30.71	-9.29	40	54.49	5.93	0.35	30.06	100	119	Peak
523.73	26.11	-19.89	46	37.03	17.81	0.98	29.71	-	-	Peak
890.39	24.4	-21.6	46	32.15	20.46	1.3	29.51	-	-	Peak
951.5	31.47	-14.53	46	38.94	20.74	1.33	29.54	-	-	Peak
960.23	27.48	-26.52	54	34.89	20.79	1.34	29.54	-	-	Peak
2388.85	48.21	-25.79	74	45.93	32.86	3.47	34.05	200	339	Peak
2388.85	34.44	-19.56	54	32.16	32.86	3.47	34.05	200	339	Average
2437	98.08	-	-	95.68	32.95	3.6	34.15	101	80	Peak
2437	93.72	-	-	91.32	32.95	3.6	34.15	101	80	Average
2488.79	55.26	-18.74	74	52.72	33.05	3.72	34.23	100	332	Peak
2488.79	34.7	-19.3	54	32.16	33.05	3.72	34.23	100	332	Average
4874	55.25	-18.75	74	47.36	35.18	4.98	32.27	100	88	Peak
4874	52.75	-1.25	54	44.86	35.18	4.98	32.27	100	88	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	20.64	-19.36	40	32.46	18	0.26	30.08	-	-	Peak
51.34	19.55	-20.45	40	42.19	7.21	0.28	30.13	-	-	Peak
541.19	22.37	-23.63	46	32.74	18.33	0.99	29.69	-	-	Peak
660.5	22.45	-23.55	46	32.04	18.97	1.1	29.66	-	-	Peak
939.86	28.2	-17.8	46	35.71	20.69	1.33	29.53	-	-	Peak
951.5	29.67	-16.33	46	37.14	20.74	1.33	29.54	100	0	Peak
2383.15	47.31	-26.69	74	45.07	32.83	3.42	34.01	113	146	Peak
2383.15	34.42	-19.58	54	32.18	32.83	3.42	34.01	113	146	Average
2462	98.27	-	-	95.82	32.98	3.64	34.17	199	44	Peak
2462	94.38	-	-	91.93	32.98	3.64	34.17	199	44	Average
2484.8	62.45	-11.55	74	59.96	33.01	3.68	34.2	200	40	Peak
2484.8	37.65	-16.35	54	35.16	33.01	3.68	34.2	200	40	Average

Test Mode :	Mode 3	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
37.76	27.56	-12.44	40	43.68	13.7	0.24	30.06	-	-	Peak
56.19	29.66	-10.34	40	53.52	5.98	0.3	30.14	-	-	Peak
72.68	30.33	-9.67	40	54.51	5.55	0.34	30.07	100	161	Peak
154.16	21.03	-22.47	43.5	40.63	9.84	0.52	29.96	-	-	Peak
951.5	31.42	-14.58	46	38.89	20.74	1.33	29.54	-	-	Peak
960.23	26.93	-27.07	54	34.34	20.79	1.34	29.54	-	-	Peak
2383.53	47.77	-26.23	74	45.53	32.83	3.42	34.01	155	217	Peak
2383.53	34.48	-19.52	54	32.24	32.83	3.42	34.01	155	217	Average
2462	99.15	-	-	96.7	32.98	3.64	34.17	101	80	Peak
2462	95.05	-	-	92.6	32.98	3.64	34.17	101	80	Average
2484.8	60.79	-13.21	74	58.3	33.01	3.68	34.2	100	82	Peak
2484.8	37.78	-16.22	54	35.29	33.01	3.68	34.2	100	82	Average
4924	53.77	-20.23	74	45.85	35.19	4.99	32.26	100	6	Peak
4924	49.01	-4.99	54	41.09	35.19	4.99	32.26	100	6	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	20.07	-19.93	40	31.89	18	0.26	30.08	-	-	Peak
86.26	16.31	-23.69	40	38.06	7.89	0.37	30.01	-	-	Peak
143.49	16.68	-26.82	43.5	35.62	10.55	0.5	29.99	-	-	Peak
875.84	24.54	-21.46	46	32.33	20.48	1.29	29.56	-	-	Peak
951.5	30.98	-15.02	46	38.45	20.74	1.33	29.54	100	152	Peak
960.23	27.11	-26.89	54	34.52	20.79	1.34	29.54	-	-	Peak
2388.66	56.19	-17.81	74	53.91	32.86	3.47	34.05	115	20	Peak
2388.66	40.8	-13.2	54	38.52	32.86	3.47	34.05	115	20	Average
2412	96.83	-	-	94.5	32.89	3.52	34.08	152	0	Peak
2412	86.08	-	-	83.75	32.89	3.52	34.08	152	0	Average
2491.45	49.98	-24.02	74	47.44	33.05	3.72	34.23	120	0	Peak
2491.45	37.06	-16.94	54	34.52	33.05	3.72	34.23	120	0	Average

Test Mode :	Mode 4	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
37.76	27.18	-12.82	40	43.3	13.7	0.24	30.06	-	-	Peak
71.71	29.78	-10.22	40	54.05	5.46	0.34	30.07	100	161	Peak
225.94	22.21	-23.79	46	40.93	10.59	0.63	29.94	-	-	Peak
747.8	23.02	-22.98	46	31.51	19.88	1.18	29.55	-	-	Peak
873.9	23.78	-22.22	46	31.59	20.48	1.29	29.58	-	-	Peak
951.5	30.29	-15.71	46	37.76	20.74	1.33	29.54	-	-	Peak
2386.57	59.28	-14.72	74	57	32.86	3.47	34.05	100	0	Peak
2386.57	41.59	-12.41	54	39.31	32.86	3.47	34.05	100	0	Average
2412	101.26	-	-	98.93	32.89	3.52	34.08	101	10	Peak
2412	88.81	-	-	86.48	32.89	3.52	34.08	101	10	Average
2484.8	50.46	-23.54	74	47.97	33.01	3.68	34.2	142	315	Peak
2484.8	36.76	-17.24	54	34.27	33.01	3.68	34.2	142	315	Average

Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	21.73	-18.27	40	33.55	18	0.26	30.08	-	-	Peak
234.67	18.48	-27.52	46	36.46	11.23	0.65	29.86	-	-	Peak
282.2	22.14	-23.86	46	38.68	12.7	0.71	29.95	-	-	Peak
598.42	21.31	-24.69	46	31.26	18.6	1.07	29.62	-	-	Peak
875.84	23.46	-22.54	46	31.25	20.48	1.29	29.56	-	-	Peak
951.5	29.84	-16.16	46	37.31	20.74	1.33	29.54	102	13	Peak
2387.08	51.02	-22.98	74	48.74	32.86	3.47	34.05	177	13	Peak
2387.08	37.56	-16.44	54	35.28	32.86	3.47	34.05	177	13	Average
2437	98.31	-	-	95.91	32.95	3.6	34.15	114	215	Peak
2437	86.26	-	-	83.86	32.95	3.6	34.15	114	215	Average
2492.59	50.18	-23.82	74	47.64	33.05	3.72	34.23	200	118	Peak
2492.59	37.23	-16.77	54	34.69	33.05	3.72	34.23	200	118	Average

Test Mode :	Mode 5	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
38.73	28.05	-11.95	40	44.86	12.98	0.25	30.04	-	-	Peak
73.65	30.44	-9.56	40	54.48	5.68	0.34	30.06	100	121	Peak
202.66	21.35	-22.15	43.5	41.65	9.12	0.59	30.01	-	-	Peak
293.84	25.64	-20.36	46	41.95	12.92	0.72	29.95	-	-	Peak
689.6	22.91	-23.09	46	32.28	19.23	1.12	29.72	-	-	Peak
951.5	31.14	-14.86	46	38.61	20.74	1.33	29.54	-	-	Peak
2347.05	50.47	-23.53	74	48.3	32.78	3.33	33.94	146	331	Peak
2347.05	37.59	-16.41	54	35.42	32.78	3.33	33.94	146	331	Average
2437	102.32	-	-	99.92	32.95	3.6	34.15	101	360	Peak
2437	89.25	-	-	86.85	32.95	3.6	34.15	101	360	Average
2490.69	51.56	-22.44	74	49.02	33.05	3.72	34.23	113	206	Peak
2490.69	39.18	-14.82	54	36.64	33.05	3.72	34.23	113	206	Average

Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
30.97	21.65	-18.35	40	34.19	17.29	0.25	30.08	-	-	Peak
95.96	29.78	-13.72	43.5	49.44	9.91	0.4	29.97	200	0	Peak
683.78	22.61	-23.39	46	32.01	19.19	1.12	29.71	-	-	Peak
845.77	23.76	-22.24	46	31.67	20.47	1.28	29.66	-	-	Peak
873.9	23.84	-22.16	46	31.65	20.48	1.29	29.58	-	-	Peak
951.5	31.11	-14.89	46	38.58	20.74	1.33	29.54	-	-	Peak
2387.9	53.1	-20.9	74	50.82	32.86	3.47	34.05	100	21	Peak
2387.9	38.54	-15.46	54	36.26	32.86	3.47	34.05	100	21	Average
2462	100.32	-	-	97.87	32.98	3.64	34.17	177	0	Peak
2462	88	-	-	85.55	32.98	3.64	34.17	177	0	Average
2483.5	58.57	-15.43	74	56.08	33.01	3.68	34.2	122	10	Peak
2483.5	45.21	-8.79	54	42.72	33.01	3.68	34.2	122	10	Average

Test Mode :	Mode 6	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
37.76	27.66	-12.34	40	43.78	13.7	0.24	30.06	-	-	Peak
73.65	30.33	-9.67	40	54.37	5.68	0.34	30.06	112	12	Peak
226.91	26.52	-19.48	46	45.15	10.67	0.63	29.93	-	-	Peak
756.53	22.63	-23.37	46	31.08	19.9	1.19	29.54	-	-	Peak
889.42	23.51	-22.49	46	31.26	20.46	1.3	29.51	-	-	Peak
951.5	29.09	-16.91	46	36.56	20.74	1.33	29.54	-	-	Peak
2389.8	53.79	-20.21	74	51.51	32.86	3.47	34.05	112	85	Peak
2389.8	39.16	-14.84	54	36.88	32.86	3.47	34.05	112	85	Average
2462	102.84	-	-	100.39	32.98	3.64	34.17	102	81	Peak
2462	90.98	-	-	88.53	32.98	3.64	34.17	102	81	Average
2483.5	63.14	-10.86	74	60.65	33.01	3.68	34.2	100	102	Peak
2483.5	46.91	-7.09	54	44.42	33.01	3.68	34.2	100	102	Average

Test Mode :	Mode 7	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	21.1	-18.9	40	32.92	18	0.26	30.08	-	-	Peak
540.22	22.18	-23.82	46	32.57	18.31	0.99	29.69	-	-	Peak
782.72	23.19	-22.81	46	31.68	19.86	1.23	29.58	-	-	Peak
886.51	24.72	-21.28	46	32.48	20.46	1.3	29.52	-	-	Peak
900.09	25.17	-20.83	46	32.9	20.45	1.3	29.48	-	-	Peak
951.5	31.96	-14.04	46	39.43	20.74	1.33	29.54	200	339	Peak
2387.52	50.75	-23.25	74	48.47	32.86	3.47	34.05	120	12	Peak
2387.52	37.46	-16.54	54	35.18	32.86	3.47	34.05	120	12	Average
2412	93.54	-	-	91.21	32.89	3.52	34.08	199	34	Peak
2412	80.13	-	-	77.8	32.89	3.52	34.08	199	34	Average
2486.32	49.95	-24.05	74	47.46	33.01	3.68	34.2	200	188	Peak
2486.32	37	-17	54	34.51	33.01	3.68	34.2	200	188	Average

Test Mode :	Mode 7	Temperature :	22~23℃
Test Channel :	01	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
32.91	28.68	-11.32	40	42.49	16.04	0.24	30.09	-	-	Peak
38.73	27.77	-12.23	40	44.58	12.98	0.25	30.04	-	-	Peak
73.65	30.74	-9.26	40	54.78	5.68	0.34	30.06	112	20	Peak
228.85	21.48	-24.52	46	39.92	10.83	0.64	29.91	-	-	Peak
875.84	24.01	-21.99	46	31.8	20.48	1.29	29.56	-	-	Peak
951.5	31.26	-14.74	46	38.73	20.74	1.33	29.54	-	-	Peak
2389.8	51.96	-22.04	74	49.68	32.86	3.47	34.05	113	349	Peak
2389.8	38.77	-15.23	54	36.49	32.86	3.47	34.05	113	349	Average
2412	97.19	-	-	94.86	32.89	3.52	34.08	105	0	Peak
2412	82.06	-	-	79.73	32.89	3.52	34.08	105	0	Average
2488.98	49.92	-24.08	74	47.38	33.05	3.72	34.23	172	46	Peak
2488.98	37.46	-16.54	54	34.92	33.05	3.72	34.23	172	46	Average

Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	21.86	-18.14	40	33.68	18	0.26	30.08	-	-	Peak
540.22	20.51	-25.49	46	30.9	18.31	0.99	29.69	-	-	Peak
717.73	23.17	-22.83	46	32.2	19.49	1.15	29.67	-	-	Peak
790.48	23.33	-22.67	46	31.81	19.86	1.24	29.58	-	-	Peak
906.88	24.42	-21.58	46	32.13	20.48	1.3	29.49	-	-	Peak
951.5	31.37	-14.63	46	38.84	20.74	1.33	29.54	112	30	Peak
2363.77	50.17	-23.83	74	47.96	32.81	3.38	33.98	155	206	Peak
2363.77	36.76	-17.24	54	34.55	32.81	3.38	33.98	155	206	Average
2437	96.11	-	-	93.71	32.95	3.6	34.15	200	28	Peak
2437	81.91	-	-	79.51	32.95	3.6	34.15	200	28	Average
2499.62	49.94	-24.06	74	47.4	33.05	3.72	34.23	100	0	Peak
2499.62	36.68	-17.32	54	34.14	33.05	3.72	34.23	100	0	Average

Test Mode :	Mode 8	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
38.73	27.76	-12.24	40	44.57	12.98	0.25	30.04	-	-	Peak
72.68	30.72	-9.28	40	54.9	5.55	0.34	30.07	103	339	Peak
250.19	25.13	-20.87	46	42.3	12	0.67	29.84	-	-	Peak
775.93	24.03	-21.97	46	32.51	19.87	1.22	29.57	-	-	Peak
877.78	23.54	-22.46	46	31.33	20.47	1.29	29.55	-	-	Peak
951.5	30.13	-15.87	46	37.6	20.74	1.33	29.54	-	-	Peak
2324.63	50.19	-23.81	74	48.06	32.76	3.27	33.9	163	117	Peak
2324.63	37.29	-16.71	54	35.16	32.76	3.27	33.9	163	117	Average
2437	97.36	-	-	94.96	32.95	3.6	34.15	198	306	Peak
2437	84.09	-	-	81.69	32.95	3.6	34.15	198	306	Average
2488.79	49.8	-24.2	74	47.26	33.05	3.72	34.23	110	27	Peak
2488.79	37.05	-16.95	54	34.51	33.05	3.72	34.23	110	27	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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	21.57	-18.43	40	33.39	18	0.26	30.08	-	-	Peak
579.99	21.76	-24.24	46	31.8	18.56	1.04	29.64	-	-	Peak
663.41	22.32	-23.68	46	31.9	18.99	1.1	29.67	-	-	Peak
750.71	23.46	-22.54	46	31.92	19.9	1.18	29.54	-	-	Peak
825.4	23.51	-22.49	46	31.69	20.18	1.26	29.62	-	-	Peak
951.5	31.13	-14.87	46	38.6	20.74	1.33	29.54	112	11	Peak
2388.66	51	-23	74	48.72	32.86	3.47	34.05	144	267	Peak
2388.66	37.77	-16.23	54	35.49	32.86	3.47	34.05	144	267	Average
2462	98.65	-	-	96.2	32.98	3.64	34.17	199	52	Peak
2462	84.25	-	-	81.8	32.98	3.64	34.17	199	52	Average
2483.5	52.25	-21.75	74	49.76	33.01	3.68	34.2	100	0	Peak
2483.5	39.13	-14.87	54	36.64	33.01	3.68	34.2	100	0	Average

Test Mode :	Mode 9	Temperature :	22~23℃
Test Channel :	11	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
38.73	27.47	-12.53	40	44.28	12.98	0.25	30.04	-	-	Peak
74.62	30.67	-9.33	40	54.59	5.8	0.34	30.06	200	0	Peak
272.5	20.98	-25.02	46	37.77	12.44	0.69	29.92	-	-	Peak
707.06	22.73	-23.27	46	31.94	19.36	1.14	29.71	-	-	Peak
836.07	25.84	-20.16	46	33.85	20.36	1.27	29.64	-	-	Peak
951.5	30.26	-15.74	46	37.73	20.74	1.33	29.54	-	-	Peak
2386.76	51.95	-22.05	74	49.67	32.86	3.47	34.05	200	358	Peak
2386.76	38.77	-15.23	54	36.49	32.86	3.47	34.05	200	358	Average
2462	100.28	-	-	97.83	32.98	3.64	34.17	198	307	Peak
2462	85.57	-	-	83.12	32.98	3.64	34.17	198	307	Average
2483.5	52.49	-21.51	74	50	33.01	3.68	34.2	103	16	Peak
2483.5	39.16	-14.84	54	36.67	33.01	3.68	34.2	103	16	Average

Test Mode :	Mode 10	Temperature :	22~23℃
Test Channel :	03	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2432 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	21.69	-18.31	40	33.51	18	0.26	30.08	-	-	Peak
633.34	22.1	-23.9	46	31.85	18.81	1.08	29.64	-	-	Peak
813.76	22.99	-23.01	46	31.35	19.99	1.26	29.61	-	-	Peak
873.9	24.65	-21.35	46	32.46	20.48	1.29	29.58	-	-	Peak
929.19	24.35	-21.65	46	31.92	20.63	1.32	29.52	-	-	Peak
951.5	31.01	-14.99	46	38.48	20.74	1.33	29.54	200	0	Peak
2385.43	49.82	-24.18	74	47.58	32.83	3.42	34.01	100	0	Peak
2385.43	37.42	-16.58	54	35.18	32.83	3.42	34.01	100	0	Average
2432	92.57	-	-	90.21	32.92	3.56	34.12	100	109	Peak
2432	77.97	-	-	75.61	32.92	3.56	34.12	100	109	Average
2487.65	49.63	-24.37	74	47.09	33.05	3.72	34.23	100	206	Peak
2487.65	37.79	-16.21	54	35.25	33.05	3.72	34.23	100	206	Average

Test Mode :	Mode 10	Temperature :	22~23℃
Test Channel :	03	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2432 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
33.88	36.39	-3.61	40	50.69	15.56	0.23	30.09	152	36	Peak
73.65	31.01	-8.99	40	55.05	5.68	0.34	30.06	-	-	Peak
253.1	21.73	-24.27	46	38.87	12.04	0.67	29.85	-	-	Peak
749.74	23.47	-22.53	46	31.93	19.9	1.18	29.54	-	-	Peak
878.75	23.74	-22.26	46	31.53	20.47	1.29	29.55	-	-	Peak
951.5	31.99	-14.01	46	39.46	20.74	1.33	29.54	-	-	Peak
2389.61	50.31	-23.69	74	48.03	32.86	3.47	34.05	100	0	Peak
2389.61	38.19	-15.81	54	35.91	32.86	3.47	34.05	100	0	Average
2432	95.85	-	-	93.49	32.92	3.56	34.12	100	182	Peak
2432	80.22	-	-	77.86	32.92	3.56	34.12	100	182	Average
2487.65	49.63	-24.37	74	47.09	33.05	3.72	34.23	100	201	Peak
2487.65	37.12	-16.88	54	34.58	33.05	3.72	34.23	100	201	Average

Test Mode :	Mode 11	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	Polarization :	Horizontal
Remark :	2447 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	22.26	-17.74	40	34.08	18	0.26	30.08	-	-	Peak
678.93	22.34	-23.66	46	31.79	19.14	1.11	29.7	-	-	Peak
766.23	23.3	-22.7	46	31.76	19.89	1.2	29.55	-	-	Peak
876.81	24.36	-21.64	46	32.15	20.48	1.29	29.56	-	-	Peak
951.5	33.22	-12.78	46	40.69	20.74	1.33	29.54	100	23	Peak
992.24	24.98	-29.02	54	32.03	21.06	1.41	29.52	-	-	Peak
2388.66	51.3	-22.7	74	49.02	32.86	3.47	34.05	115	206	Peak
2388.66	38.76	-15.24	54	36.48	32.86	3.47	34.05	115	206	Average
2447	81.26	-	-	78.86	32.95	3.6	34.15	198	38	Average
2447	96.68	-	-	94.28	32.95	3.6	34.15	198	38	Peak
2483.66	52.49	-21.51	74	50	33.01	3.68	34.2	200	117	Peak
2483.66	39	-15	54	36.51	33.01	3.68	34.2	200	117	Average

Test Mode :	Mode 11	Temperature :	22~23℃
Test Channel :	06	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	Polarization :	Vertical
Remark :	2447 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
37.76	27.89	-12.11	40	44.01	13.7	0.24	30.06	-	-	Peak
73.65	30.47	-9.53	40	54.51	5.68	0.34	30.06	-	-	Peak
742.95	22.9	-23.1	46	31.44	19.84	1.18	29.56	-	-	Peak
830.25	23.94	-22.06	46	32.03	20.27	1.27	29.63	-	-	Peak
895.24	39.02	-6.98	46	46.76	20.45	1.3	29.49	100	51	Peak
951.5	32.65	-13.35	46	40.12	20.74	1.33	29.54	-	-	Peak
2389.04	50.89	-23.11	74	48.61	32.86	3.47	34.05	112	349	Peak
2389.04	37.92	-16.08	54	35.64	32.86	3.47	34.05	112	349	Average
2447	82.18	-	-	79.78	32.95	3.6	34.15	102	279	Average
2447	98.51	-	-	96.11	32.95	3.6	34.15	102	279	Peak
2484.04	53.63	-20.37	74	51.14	33.01	3.68	34.2	200	0	Peak
2484.04	40.78	-13.22	54	38.29	33.01	3.68	34.2	200	0	Average

Test Mode :	Mode 12	Temperature :	22~23℃
Test Channel :	09	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
108.57	26.43	-17.07	43.5	44.28	11.68	0.43	29.96	-	-	Peak
146.4	24.31	-19.19	43.5	43.5	10.29	0.5	29.98	-	-	Peak
744.89	23.42	-22.58	46	31.93	19.86	1.18	29.55	-	-	Peak
835.1	24.33	-21.67	46	32.35	20.35	1.27	29.64	-	-	Peak
895.24	38.89	-7.11	46	46.63	20.45	1.3	29.49	100	29	Peak
951.5	31.72	-14.28	46	39.19	20.74	1.33	29.54	-	-	Peak
2374.03	49.91	-24.09	74	47.67	32.83	3.42	34.01	100	281	Peak
2374.03	37.87	-16.13	54	35.63	32.83	3.42	34.01	100	281	Average
2462	96.19	-	-	93.74	32.98	3.64	34.17	100	231	Peak
2462	80.29	-	-	77.84	32.98	3.64	34.17	100	231	Average
2483.5	73.27	-0.73	74	70.78	33.01	3.68	34.2	200	201	Peak
2483.5	51.4	-2.6	54	48.91	33.01	3.68	34.2	200	201	Average

Test Mode :	Mode 12	Temperature :	22~23℃
Test Channel :	09	Relative Humidity :	47~48%
Test Engineer :	Chenmy Cheng	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
38.73	27.84	-12.16	40	44.65	12.98	0.25	30.04	-	-	Peak
73.65	30.54	-9.46	40	54.58	5.68	0.34	30.06	100	116	Peak
711.91	22.98	-23.02	46	32.12	19.41	1.14	29.69	-	-	Peak
874.87	24.74	-21.26	46	32.54	20.48	1.29	29.57	-	-	Peak
898.15	34.86	-11.14	46	42.59	20.45	1.3	29.48	-	-	Peak
951.5	32.42	-13.58	46	39.89	20.74	1.33	29.54	-	-	Peak
2367.95	50.11	-23.89	74	47.9	32.81	3.38	33.98	100	0	Peak
2367.95	37.94	-16.06	54	35.73	32.81	3.38	33.98	100	0	Average
2462	97.78	-	-	95.33	32.98	3.64	34.17	100	168	Peak
2462	81.07	-	-	78.62	32.98	3.64	34.17	100	168	Average
2483.66	73.61	-0.39	74	71.12	33.01	3.68	34.2	100	181	Peak
2483.66	50.76	-3.24	54	48.27	33.01	3.68	34.2	100	181	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.

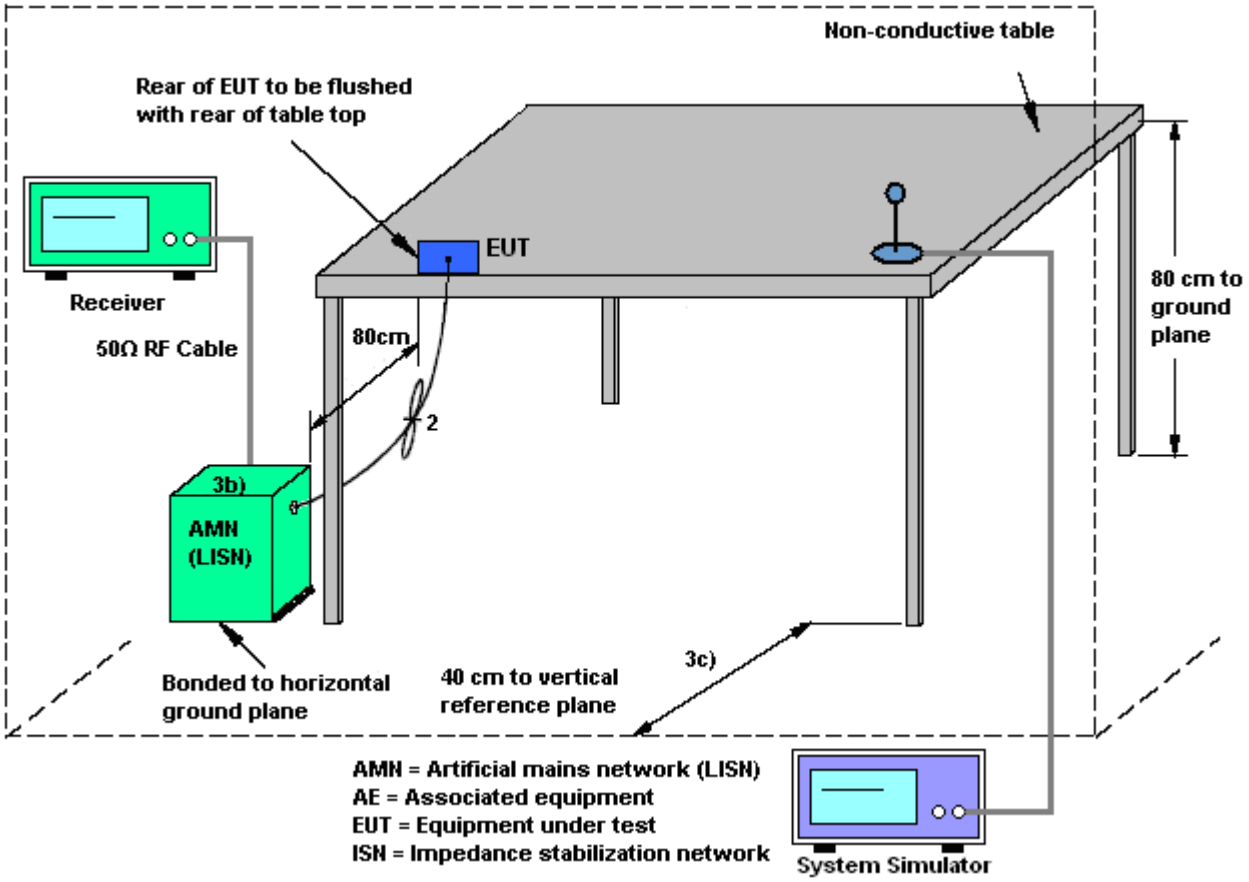
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

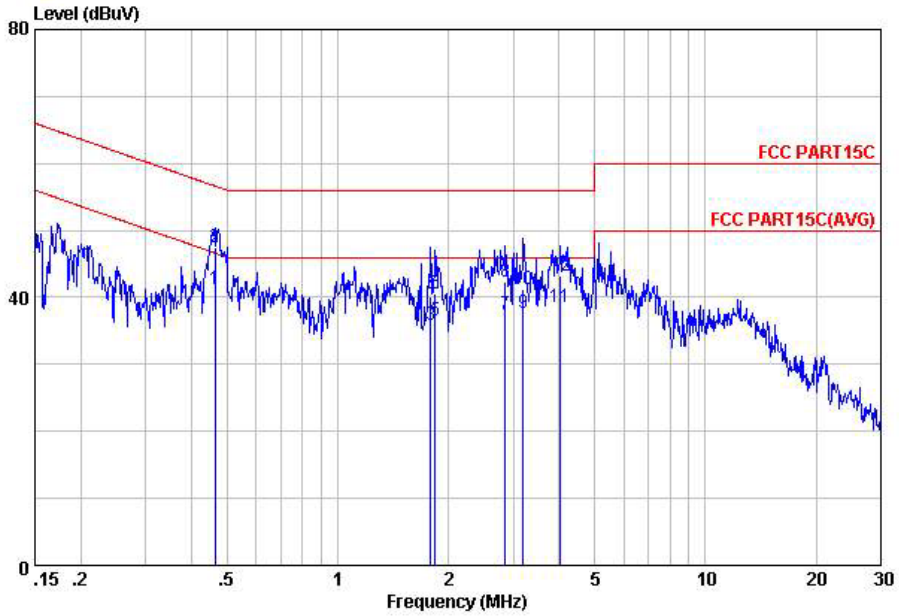
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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

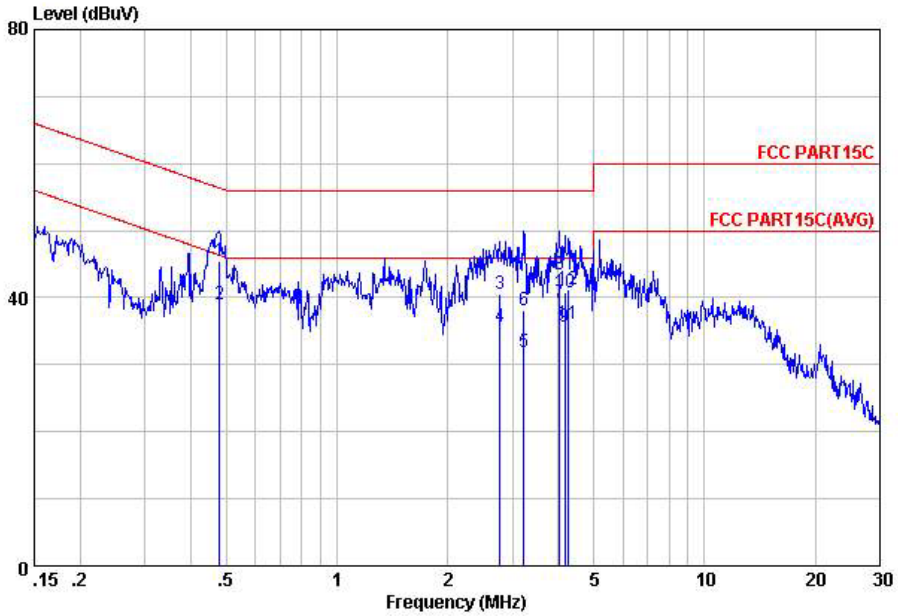
Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Adapter + LAN Link + WLAN Link + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 LINE
Project : (FR) 251501
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.46	41.32	-5.31	46.63	31.20	-0.08	10.20	Average
2	0.46	47.52	-9.11	56.63	37.40	-0.08	10.20	QP
3	1.79	35.91	-10.09	46.00	25.70	-0.11	10.32	Average
4	1.79	40.21	-15.79	56.00	30.00	-0.11	10.32	QP
5	1.84	36.51	-9.49	46.00	26.30	-0.11	10.32	Average
6	1.84	40.51	-15.49	56.00	30.30	-0.11	10.32	QP
7	2.85	37.35	-8.65	46.00	27.11	-0.12	10.36	Average
8	2.85	42.35	-13.65	56.00	32.11	-0.12	10.36	QP
9	3.19	37.75	-8.25	46.00	27.50	-0.12	10.37	Average
10	3.19	41.25	-14.75	56.00	31.00	-0.12	10.37	QP
11	4.03	38.46	-7.54	46.00	28.20	-0.13	10.39	Average
12	4.03	43.26	-12.74	56.00	33.00	-0.13	10.39	QP

Test Mode :	Mode 1	Temperature :	19~20℃
Test Engineer :	Tom Wang	Relative Humidity :	39~40%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Adapter + LAN Link + WLAN Link + TC		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : C001-KS
Condition: FCC PART15C LISN-100807 NEUTRAL
Project : (FR) 251501
mode : Mode 1

	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.48	45.43	-10.93	56.36	35.30	-0.08	10.21	QP
2	0.48	39.03	-7.33	46.36	28.90	-0.08	10.21	Average
3	2.78	40.65	-15.35	56.00	30.41	-0.12	10.36	QP
4	2.78	35.75	-10.25	46.00	25.51	-0.12	10.36	Average
5	3.22	31.95	-14.05	46.00	21.70	-0.12	10.37	Average
6	3.22	38.05	-17.95	56.00	27.80	-0.12	10.37	QP
7	4.03	39.26	-6.74	46.00	29.00	-0.13	10.39	Average
8	4.03	43.36	-12.64	56.00	33.10	-0.13	10.39	QP
9	4.16	35.66	-10.34	46.00	25.40	-0.13	10.39	Average
10	4.16	40.86	-15.14	56.00	30.60	-0.13	10.39	QP
11	4.27	36.06	-9.94	46.00	25.80	-0.13	10.39	Average
12	4.27	41.16	-14.84	56.00	30.90	-0.13	10.39	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. 19, 2012	Dec. 29, 2012	Conducted (TH01-KS)
Power Meter	Agilent	E4416A	MY45101555	N/A	Aug. 23, 2011	Jun. 19, 2012	Aug. 22, 2012	Conducted (TH01-KS)
Power Sensor	Agilent	E9327A	MY44421198	N/A	Aug. 23, 2011	Jun. 19, 2012	Aug. 22, 2012	Conducted (TH01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	Jun. 19, 2012	Nov. 15, 2012	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Jun. 19, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz	Jun. 01, 2012	May 30, 2012	May 31, 2013	Conduction (CO01-KS)
LISN	MessTec	AN3016	60103	9kHz~30MHz	Dec. 30, 2011	May 30, 2012	Dec. 29, 2012	Conduction (CO01-KS)
LISN	MessTec	AN3016	60105	9kHz~30MHz	Dec. 30, 2011	May 30, 2012	Dec. 29, 2012	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	N/A	Nov. 16, 2011	May 30, 2012	Nov. 15, 2012	Conduction (CO01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	May 30, 2012	Dec. 29, 2012	Conduction (CO01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 09, 2011	Jun. 15, 2012	Nov. 08, 2012	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Jun. 15, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Jun. 15, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/00	9 kHz~30 MHz	Jul. 28, 2011	Jun. 15, 2012	Jul. 27, 2012	Radiation (03CH01-KS)
Double Ridge Horn Antenna	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Jun. 15, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	Wireless	FPA-6592G	060004	30MHz~2GHz	Dec. 30, 2011	Jun. 15, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Jun. 15, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Active Horn Antenna	com-power	AHA-118	701023	1GHz~18GHz	Nov. 07, 2011	Jun. 15, 2012	Nov. 06, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz~40GHz	Oct. 11, 2011	Jun. 15, 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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.72

Appendix A. Photographs of EUT

Please refer to Sporton report number EP251501 as below.