FCC RF Test Report

APPLICANT	:	NetComm Wireless Limited
EQUIPMENT	:	HSPA+ WiFi Router with Voice
BRAND NAME	:	NetComm Wireless
MODEL NAME	:	3G22WV
MARKETING NAME	:	HSPA+ WiFi Router with Voice
FCC ID	:	XIA-3G22WV
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on May 30, 2012 and completely tested on Aug. 07, 2012. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR253048	Rev. 01	Initial issue of report	Sep. 18, 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	-
3.2.6	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	
			Conducted Spurious Emission		Pass	
3.2.6	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	
			Radiated Spurious Emission		Pass	Under limit 0.63 dB at 4926.000 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 15.00 dB at 0.470 MHz
3.6	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

NetComm Wireless Limited
Level 2, 18-20 Orion Road Lane Cove, NSW Australia

1.2 Manufacturer

NetComm Wireless Limited
Level 2, 18-20 Orion Road Lane Cove, NSW Australia

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	HSPA+ WiFi Router with Voice
Brand Name	NetComm Wireless
Model Name	3G22WV
Marketing Name	HSPA+ WiFi Router with Voice
FCC ID	XIA-3G22WV
Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11bgn
HW Version	V1.10
SW Version	1.1.11.0
EUT Stage	Identical Prototype

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

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz
Maximum Output Power to Antenna	**<Ant. 1>** 802.11b : 15.36 dBm (0.0344 W) 802.11g : 20.53 dBm (0.1130 W) 802.11n HT-20 : 20.28 dBm (0.1067 W) 802.11n HT-40 : 20.45 dBm (0.1109 W) **<Ant. 1+2>** 802.11b : 15.23 dBm (0.0333 W) 802.11g : 15.56 dBm (0.0360 W) 802.11n HT-20 : 20.56 dBm (0.1138 W) 802.11n HT-40 : 21.64 dBm (0.1459 W)

<table>
<tr><th colspan="2">Product Specification subjective to this standard</th></tr>
<tr><td>99% Occupied Bandwidth</td><td><Ant. 1>
802.11b : 15.10MHz
802.11g : 17.05MHz
802.11n HT-20 : 17.85MHz
802.11n HT-40 : 35.90MHz
<Ant. 1+2(1)>
802.11b : 15.05MHz
802.11g : 17.00MHz
802.11n HT-20 : 17.85MHz
802.11n HT-40 : 35.80MHz
<Ant. 1+2(2)>
802.11b : 15.10MHz
802.11g : 17.05MHz
802.11n HT-20 : 17.80MHz
802.11n HT-40 : 35.90MHz</td></tr>
<tr><td>Antenna Type</td><td>PCB Antenna with gain 2.00 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (BPSK / QPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)</td></tr>
<tr><td>Antenna Function for Transmitter</td><td><table><tr><td></td><td>Ant. 1.</td><td>Ant. 2.</td></tr><tr><td>802.11b SISO</td><td>V</td><td>V</td></tr><tr><td>802.11b MIMO</td><td>V</td><td>V</td></tr><tr><td>802.11g SISO</td><td>V</td><td>V</td></tr><tr><td>802.11g MIMO</td><td>V</td><td>V</td></tr><tr><td>802.11n SISO</td><td>V</td><td>V</td></tr><tr><td>802.11n MIMO</td><td>V</td><td>V</td></tr></table></td></tr>
</table>

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	Sporton Site No.			FCC/IC Registration No.
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-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
- 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.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Phone	SAMPL	HT-B907WL	N/A	N/A	N/A
5.	USB3.0 HD	WD	WDBPCK5000ABK-PESN	FCC DoC	Shielded, 0.5 m	N/A

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and antenna configurations as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

SISO <Ant. 1>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	15.36	15.31	15.35	15.32

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.53	20.31	20.34	20.23	20.52	20.35	20.51	20.43

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.21	20.17	20.13	19.92	19.82	20.02	20.13	20.12
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.73	19.91	19.89	19.81	20.07	20.12	20.18	20.28

5GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.24	20.32	20.12	20.36	20.35	20.36	20.28	20.21
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	20.29	19.93	20.11	20.33	20.43	20.34	20.32	20.45

SISO <Ant. 2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	**4.60**	4.42	4.52	4.48

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	**15.23**	14.57	14.95	14.82	15.21	14.99	15.21	14.96

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	16.25	16.11	16.17	15.81	15.73	15.80	16.24	16.51
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	15.61	15.52	15.84	16.04	16.11	16.45	16.51	**16.53**

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	15.23	16.02	15.07	15.43	15.47	15.97	15.71	15.53
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	14.94	15.01	15.16	15.53	16.31	16.22	16.13	**16.35**

MIMO <Ant. 1+2(1)>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	14.43	13.73	13.83	13.93

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	14.92	13.55	13.74	13.88	14.74	14.08	14.86	14.72

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.56	19.34	19.33	19.11	19.20	19.44	19.56	19.61
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.30	19.10	19.14	19.22	19.76	19.36	19.76	19.72

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	19.98	19.70	19.34	19.82	19.79	20.22	19.93	19.80
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.56	19.14	19.66	19.95	20.62	20.31	20.14	21.01

MIMO <Ant. 1+2(2)>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	7.46	7.34	7.16	7.32

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	6.90	6.68	6.21	6.27	6.71	6.65	7.11	7.17

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	12.66	12.43	12.32	12.11	12.24	12.53	12.61	12.51
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	12.98	12.37	12.24	12.62	12.56	13.35	12.77	13.01

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	12.23	12.85	11.78	12.49	12.61	13.38	13.07	13.13
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	11.82	12.01	12.24	12.56	14.41	13.02	13.05	12.95

MIMO <Ant. 1+2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	**15.23**	14.63	14.68	14.79

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	**15.56**	14.36	14.45	14.57	15.37	14.80	15.53	15.42

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.37	20.15	20.12	19.90	20.00	20.25	20.36	20.38
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	20.21	19.94	19.95	20.08	20.52	20.33	20.55	**20.56**

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.65	20.52	20.04	20.56	20.55	21.04	20.74	20.65
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	20.24	19.91	20.38	20.68	21.55	21.05	20.92	**21.64**

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO. Ant. 2.

2.3 Test Mode

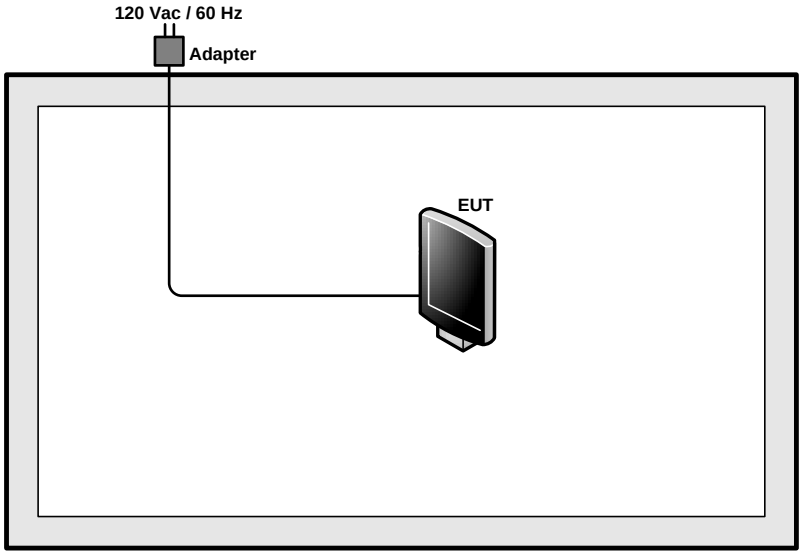
Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	**Mode**	**Data Rate**	**Test Channel**
Conducted TCs	**6dB and 99% BW Power Spectral Density**	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT-20	**6.5 Mbps**	**1/6/11**
		802.11n HT-40	**13.5 Mbps**	**3/6/9**
	Output Power	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT-20	**6.5 Mbps**	**1/6/11**
		802.11n HT-40	**13.5 Mbps**	**3/6/9**
	Conducted Band EDGE	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT-20	**6.5 Mbps**	**1/11**
		802.11n HT-40	**13.5 Mbps**	**3/9**
	Conducted Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT-20	**6.5 Mbps**	**1/6/11**
		802.11n HT-40	**13.5 Mbps**	**3/6/9**
Radiated TCs	**Radiated Band EDGE**	**802.11b**	**1 Mbps**	**1/11**
		802.11g	**6 Mbps**	**1/11**
		802.11n HT-20	**6.5 Mbps**	**1/11**
		802.11n HT-40	**13.5 Mbps**	**3/9**
	Radiated Spurious Emission	**802.11b**	**1 Mbps**	**1/6/11**
		802.11g	**6 Mbps**	**1/6/11**
		802.11n HT-20	**6.5 Mbps**	**1/6/11**
		802.11n HT-40	**13.5 Mbps**	**3/6/9**

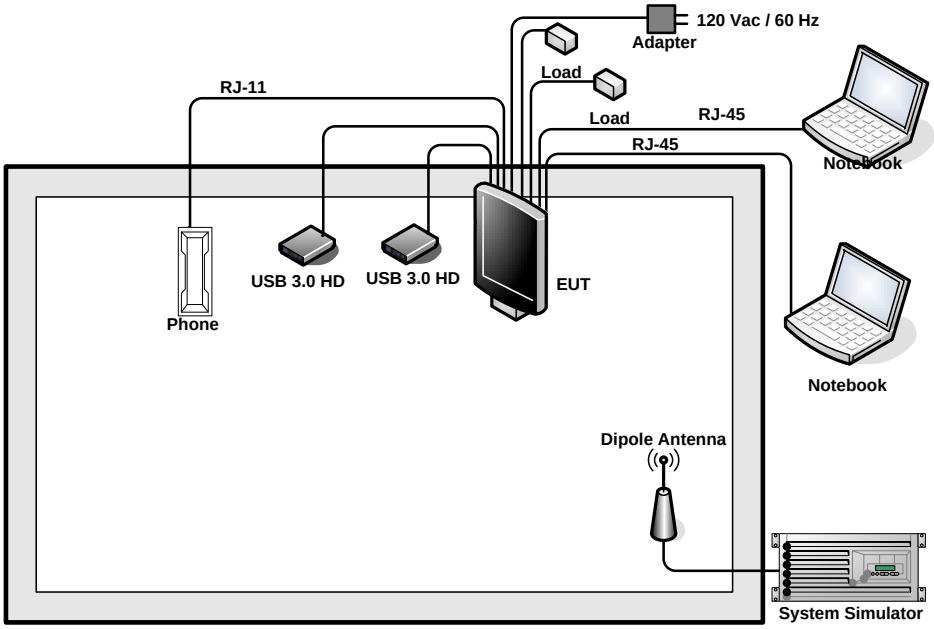
Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN Link + RJ-45 + RJ-11 + Adapter + USB 3.0 HD

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

Programmed RF utility, “ated” installed in EUT to provide functions like channel selection and power level for transmitting and receiving signals continuously.

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.

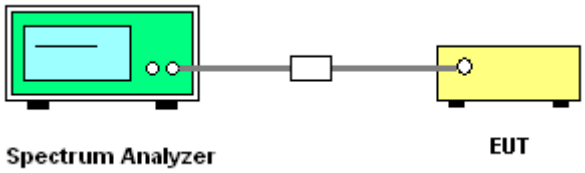
3.1.2 Measuring Instruments

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. Set to the maximum power setting and enable the EUT transmit continuously.
4. 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.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	12.08	12.08	12.08	0.5	Pass
06	2437	12.08	12.08	12.04	0.5	Pass
11	2462	12.12	12.12	12.12	0.5	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	16.20	16.24	16.20	0.5	Pass
06	2437	16.12	16.24	16.24	0.5	Pass
11	2462	16.20	16.20	16.24	0.5	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	17.28	17.28	17.12	0.5	Pass
06	2437	17.16	17.20	16.98	0.5	Pass
11	2462	17.24	17.16	17.04	0.5	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-40 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
03	2422	35.44	35.44	35.44	0.5	Pass
06	2437	35.52	35.52	35.12	0.5	Pass
09	2452	35.44	35.60	35.44	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	15.05	15.05	15.05	Pass
06	2437	15.10	15.05	15.05	Pass
11	2462	15.10	15.05	15.10	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	17.05	16.85	17.05	Pass
06	2437	17.00	17.00	17.00	Pass
11	2462	17.00	16.95	16.95	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	17.85	17.80	17.75	Pass
06	2437	17.85	17.85	17.80	Pass
11	2462	17.85	17.85	17.80	Pass

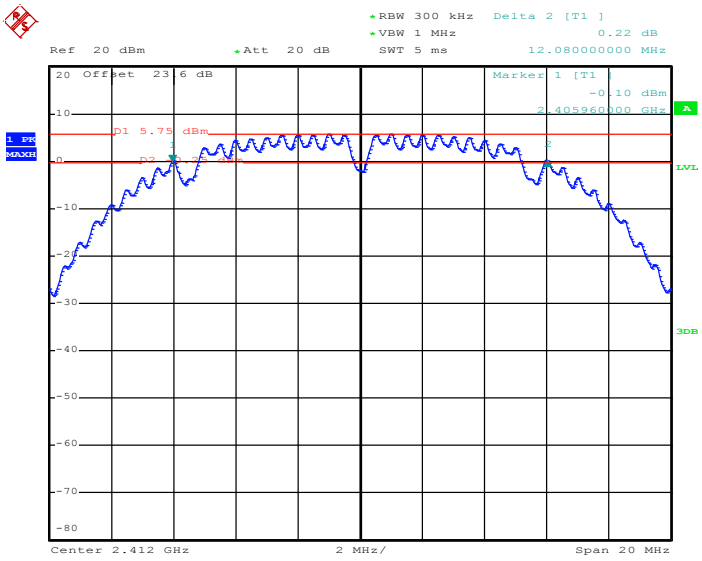
Test Mode :	802.11n HT-40	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-40 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
03	2422	35.80	35.80	35.80	Pass
06	2437	35.80	35.80	35.90	Pass
09	2452	35.90	35.70	35.90	Pass

3.1.7 Test Result of 6dB Bandwidth Plots

802.11b – SISO Ant. 1

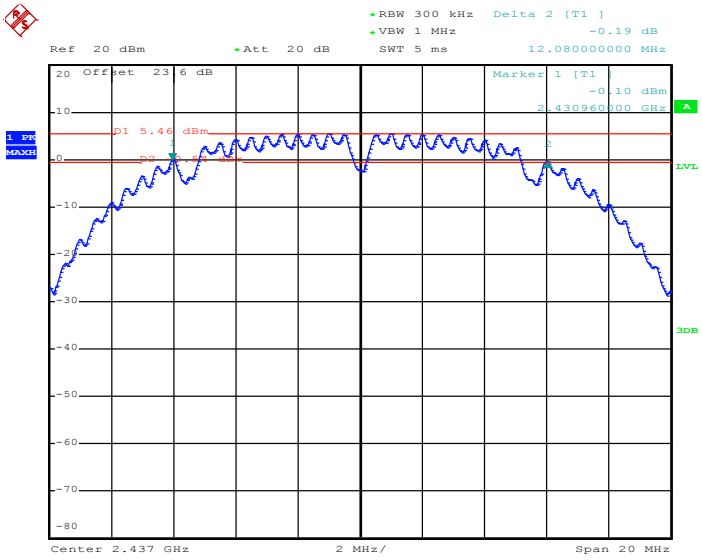
6 dB Bandwidth Plot on Channel 01



Date: 24.JUL.2012 00:56:26

802.11b – SISO Ant. 1

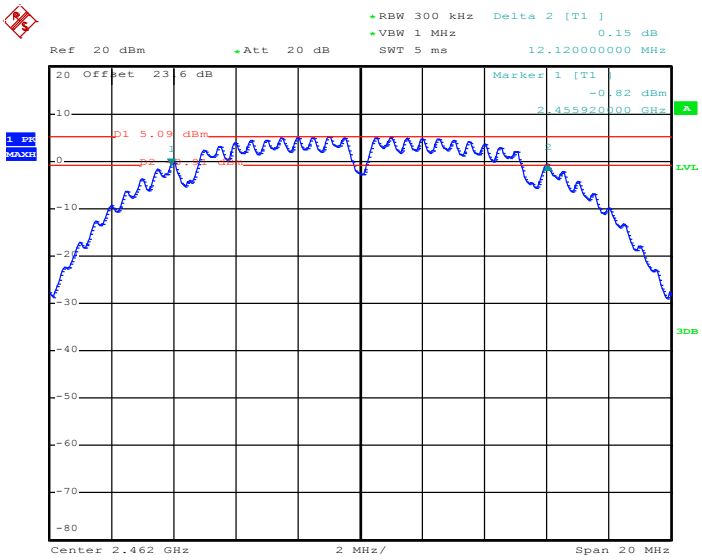
6 dB Bandwidth Plot on Channel 06



Date: 24.JUL.2012 01:00:24

802.11b – SISO Ant. 1

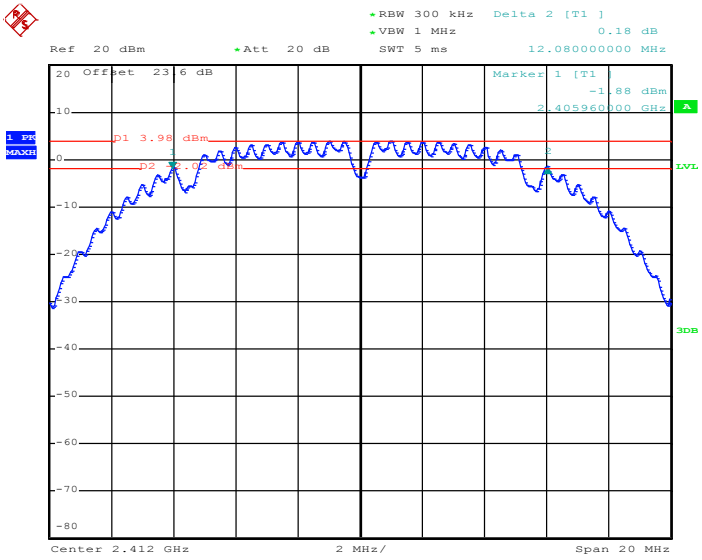
6 dB Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:04:46

802.11b – MIMO Ant. 1+2(1)

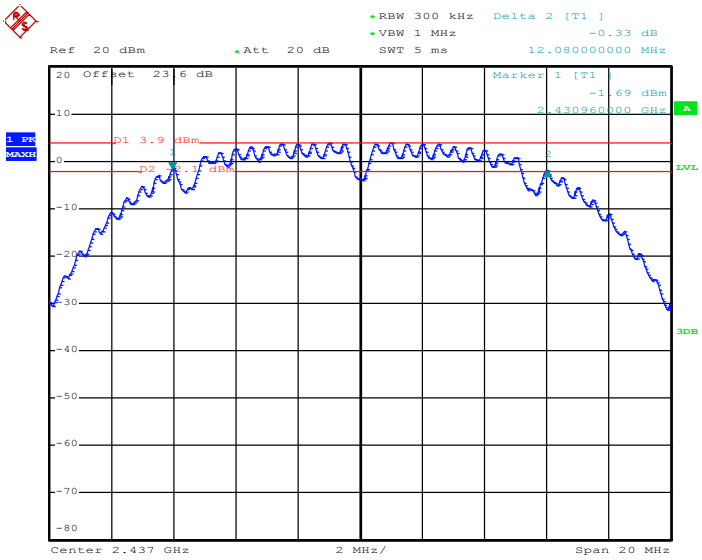
6 dB Bandwidth Plot on Channel 01



Date: 24.JUL.2012 01:12:17

802.11b – MIMO Ant. 1+2(1)

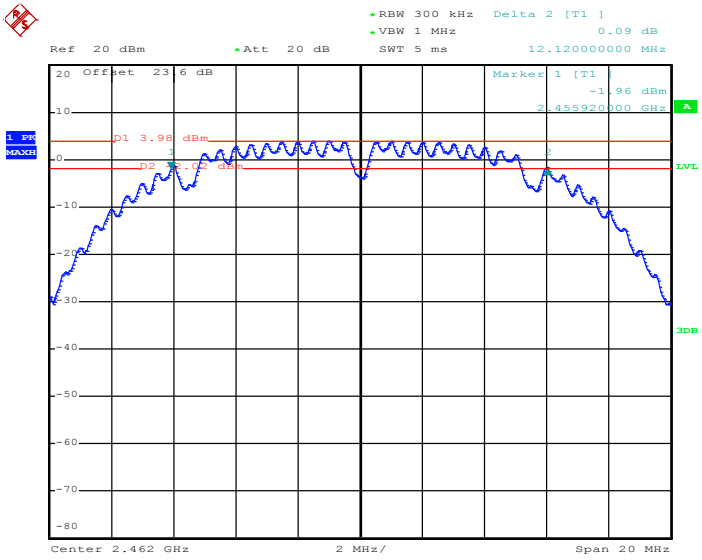
6 dB Bandwidth Plot on Channel 06



Date: 24.JUL.2012 01:16:32

802.11b – MIMO Ant. 1+2(1)

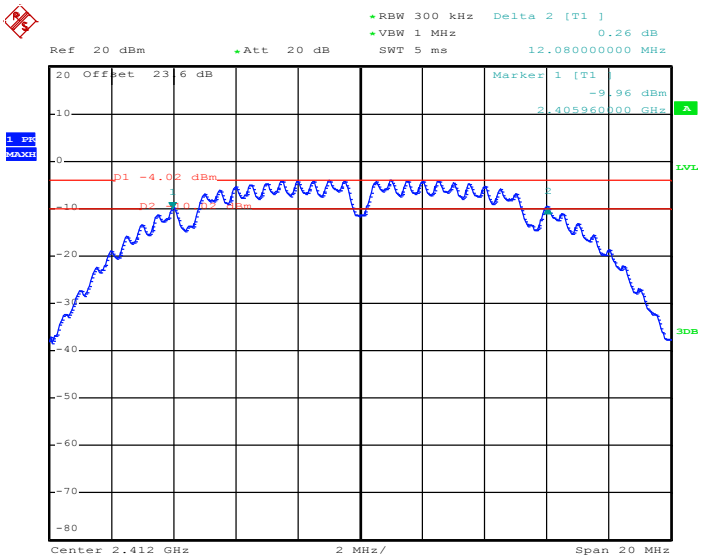
6 dB Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:19:41

802.11b – MIMO Ant. 1+2(2)

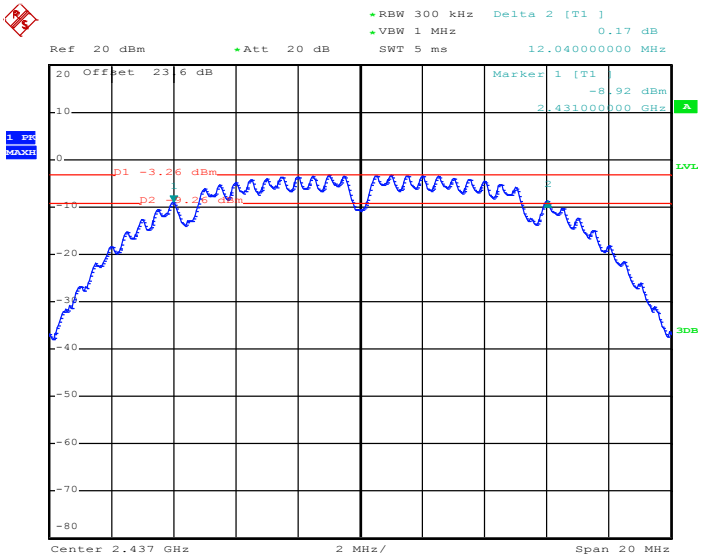
6 dB Bandwidth Plot on Channel 01



Date: 24.JUL.2012 01:31:12

802.11b – MIMO Ant. 1+2(2)

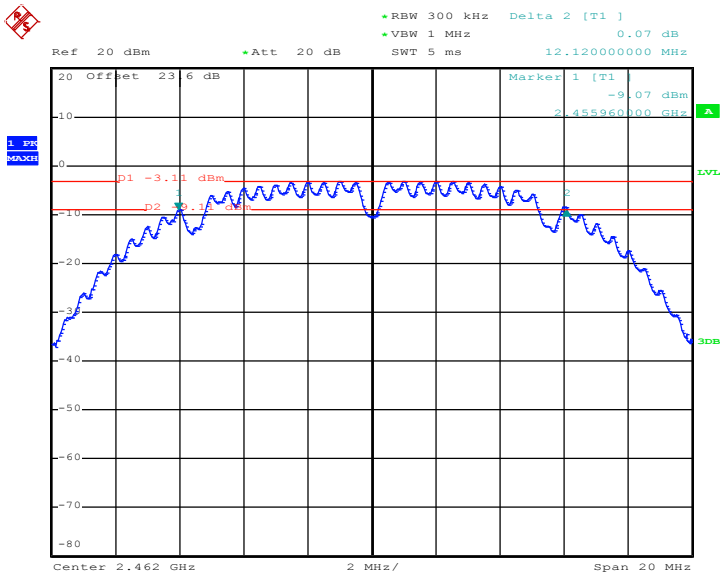
6 dB Bandwidth Plot on Channel 06



Date: 24.JUL.2012 01:27:49

802.11b – MIMO Ant. 1+2(2)

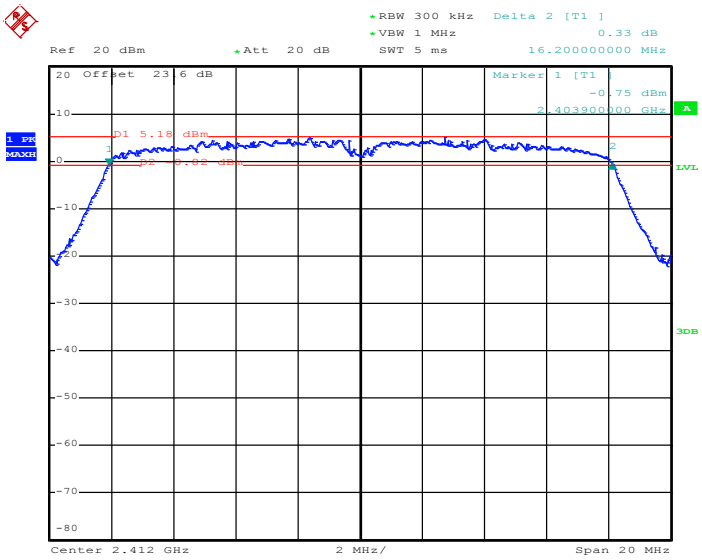
6 dB Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:23:55

802.11g – Ant. 1

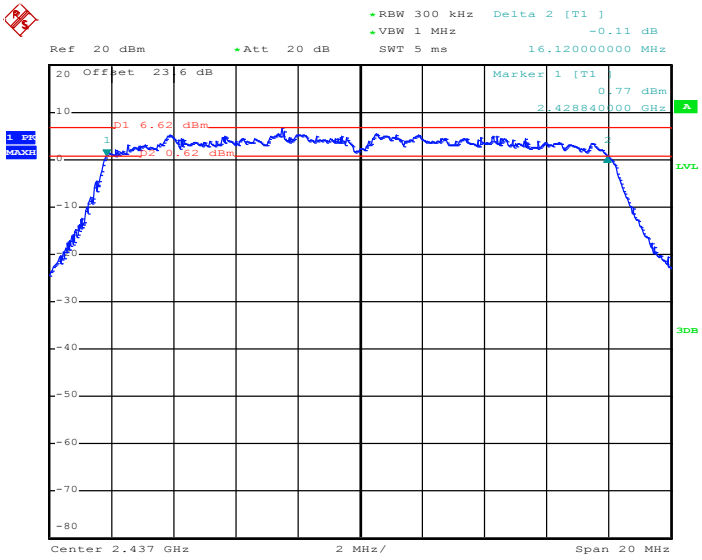
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 20:31:13

802.11g – Ant. 1

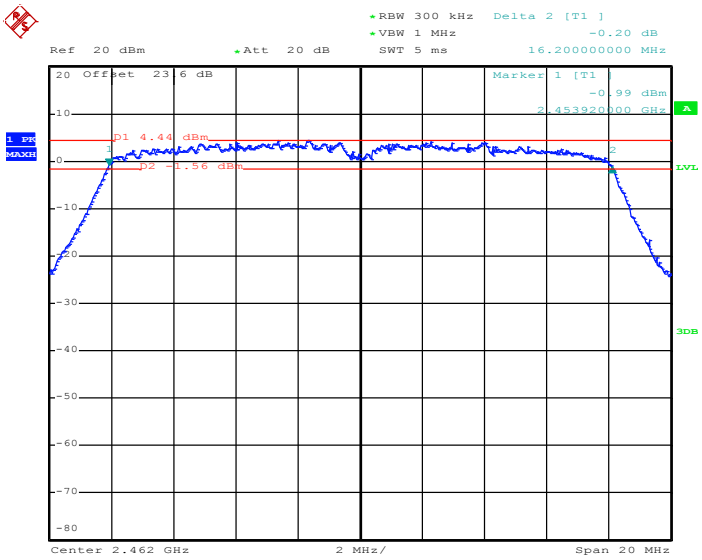
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 20:36:22

802.11g – Ant. 1

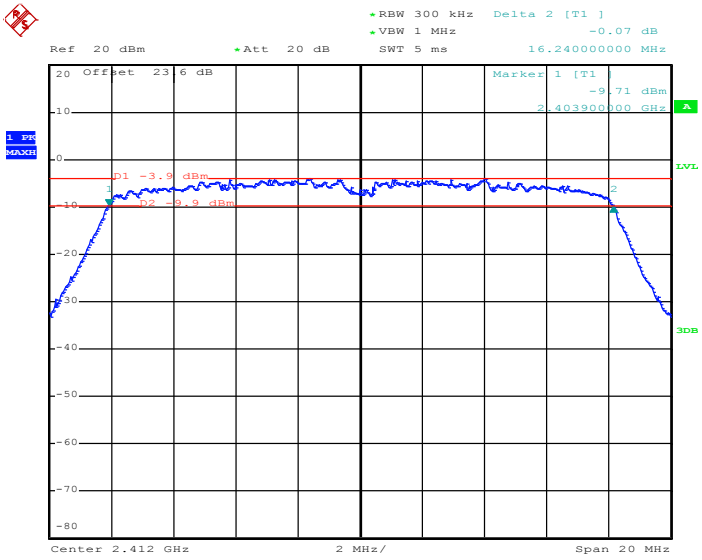
6 dB Bandwidth Plot Channel 11



Date: 1.AUG.2012 20:39:27

802.11g – MIMO Ant. 1+2(1)

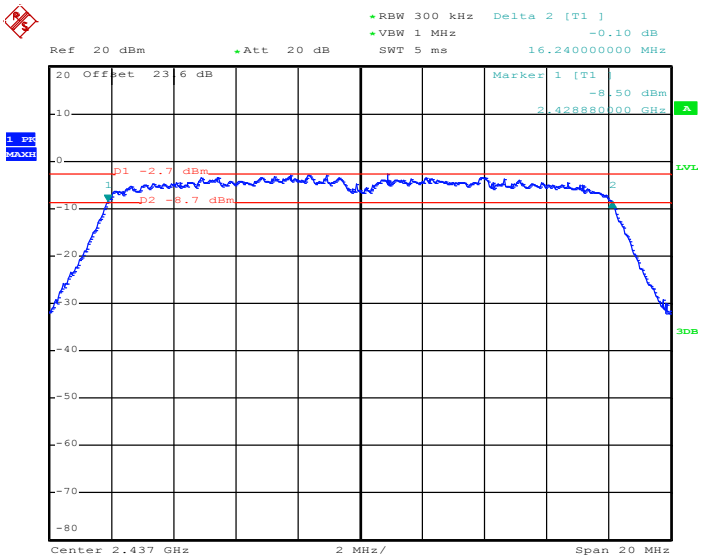
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:21:07

802.11g – MIMO Ant. 1+2(1)

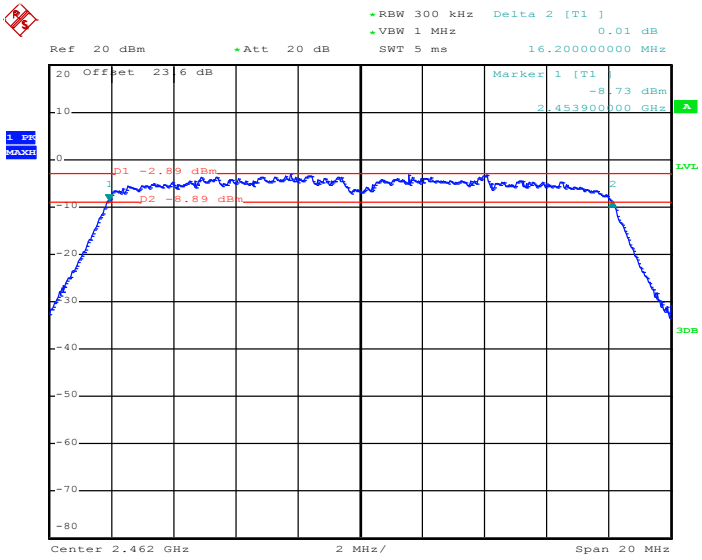
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:25:55

802.11g – MIMO Ant. 1+2(1)

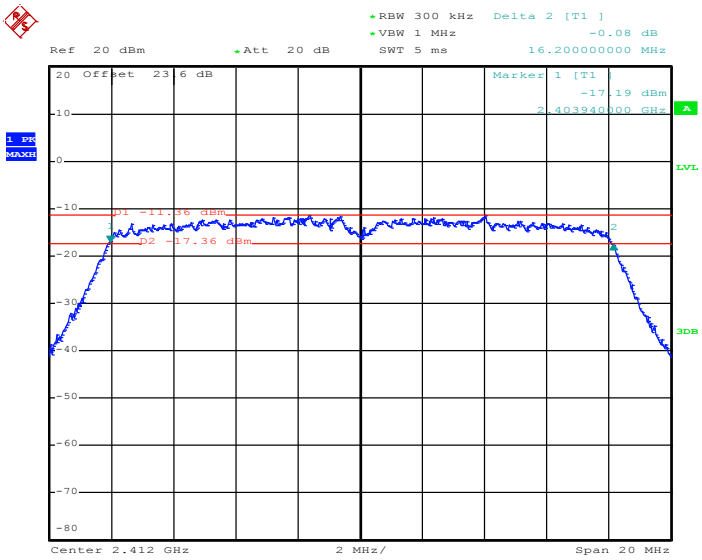
6 dB Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:28:46

802.11g – MIMO Ant. 1+2(2)

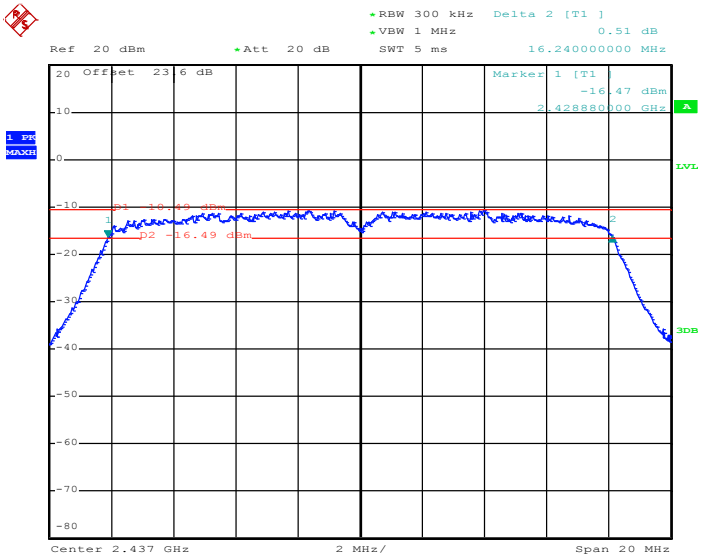
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:17:04

802.11g – MIMO Ant. 1+2(2)

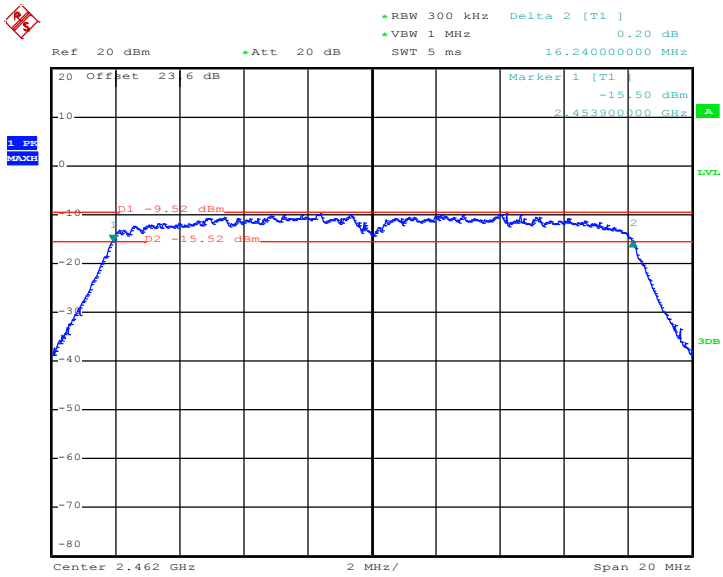
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:14:24

802.11g – MIMO Ant. 1+2(2)

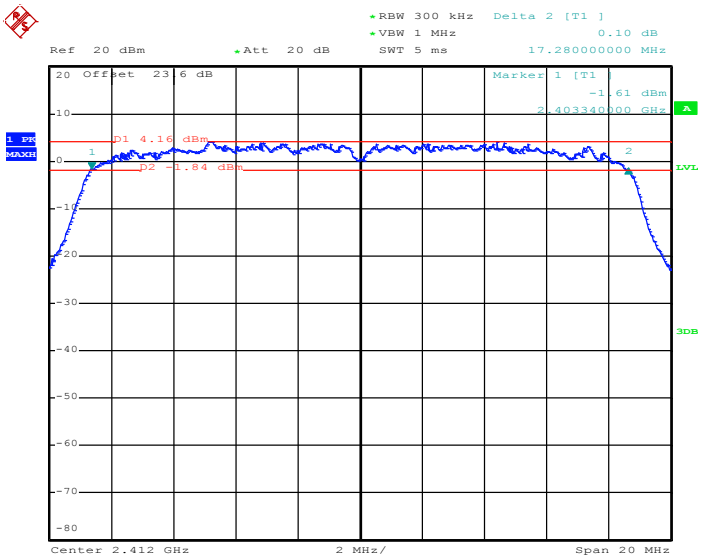
6 dB Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:06:17

802.11n HT-20 – SISO Ant. 1

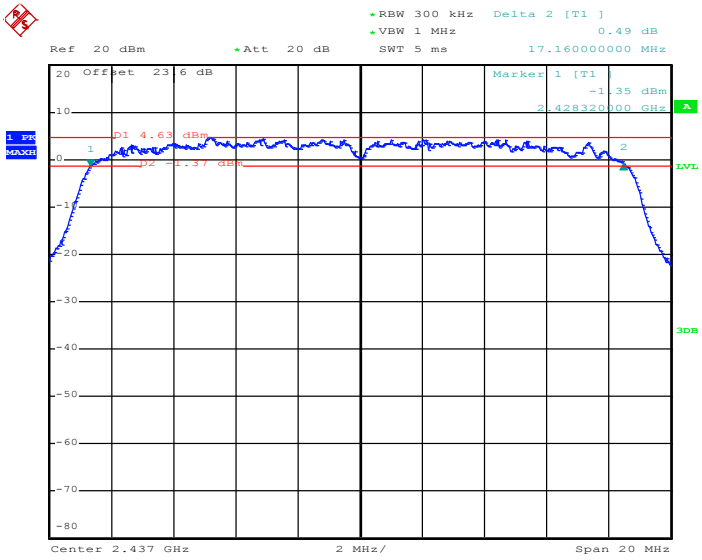
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:55:12

802.11n HT-20 – SISO Ant. 1

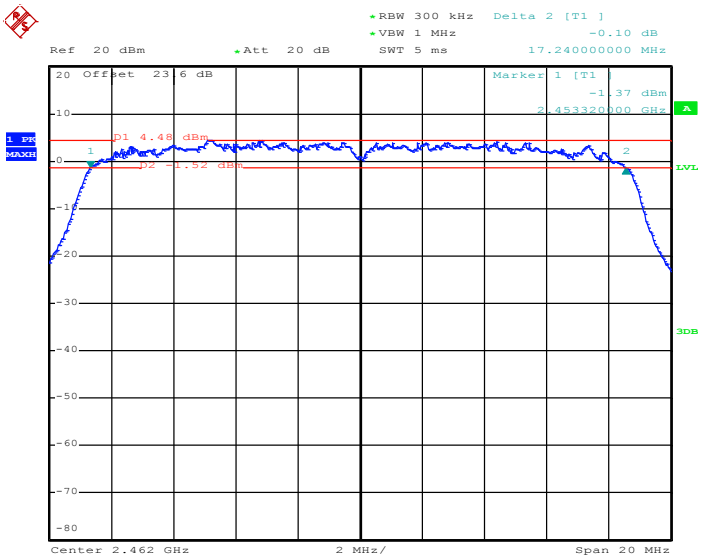
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:59:13

802.11n HT-20 – SISO Ant. 1

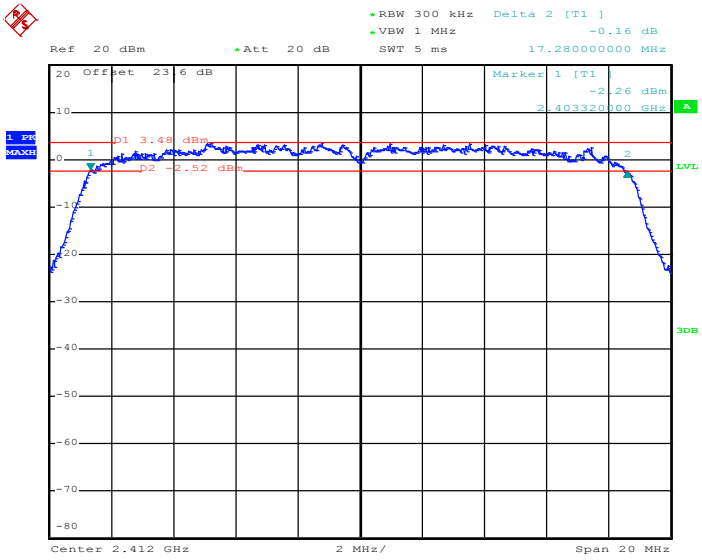
6 dB Bandwidth Plot on Channel 11



Date: 1.AUG.2012 22:02:45

802.11n HT-20 – MIMO Ant. 1+2(1)

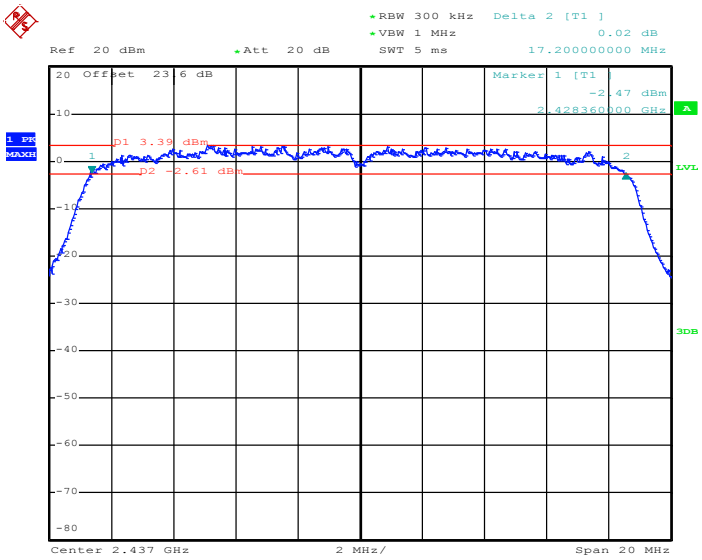
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:40:06

802.11n HT-20 – MIMO Ant. 1+2(1)

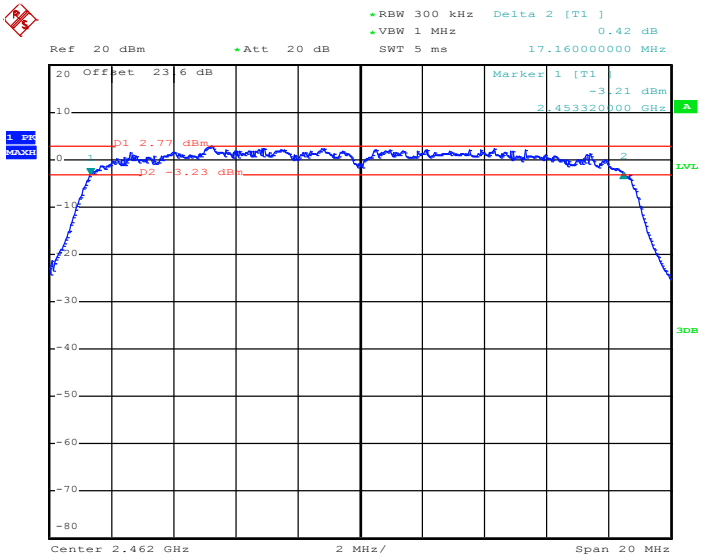
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:37:12

802.11n HT-20 – MIMO Ant. 1+2(1)

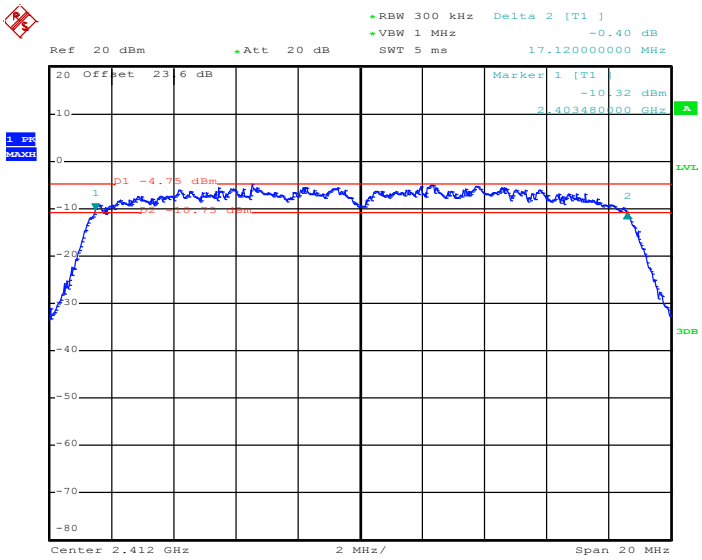
6 dB Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:33:57

802.11n HT-20 – MIMO Ant. 1+2(2)

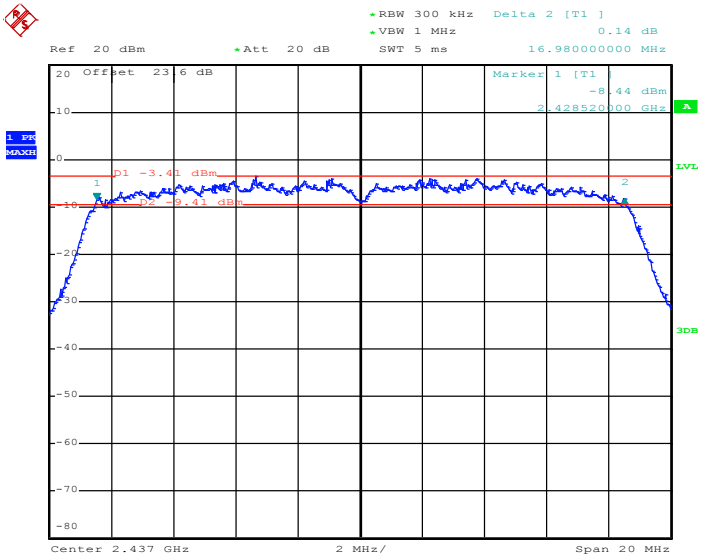
6 dB Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:43:32

802.11n HT-20 – MIMO Ant. 1+2(2)

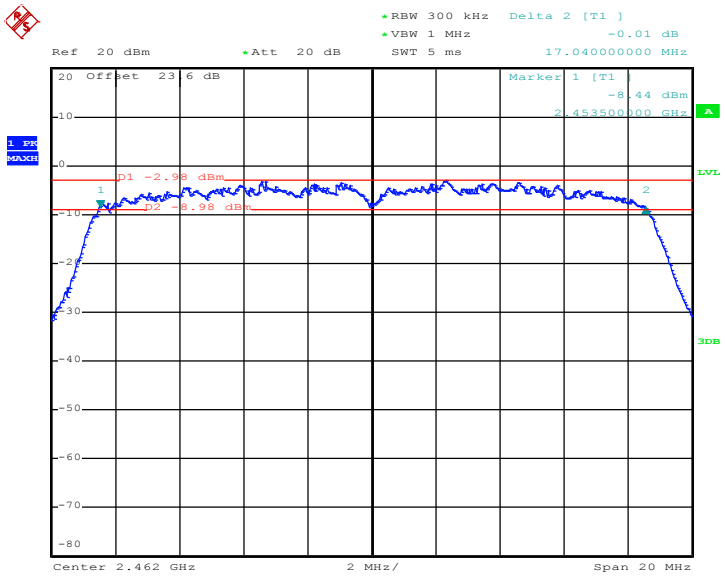
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:47:37

802.11n HT-20 – MIMO Ant. 1+2(2)

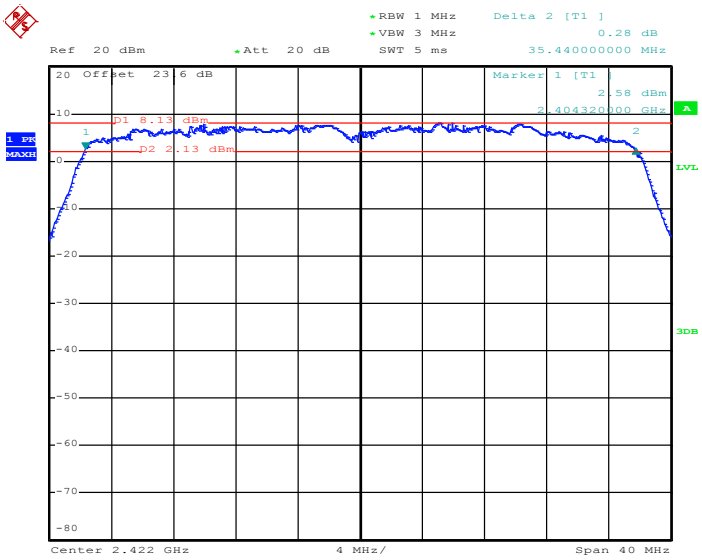
6 dB Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:51:09

802.11n HT-40 – SISO Ant. 1

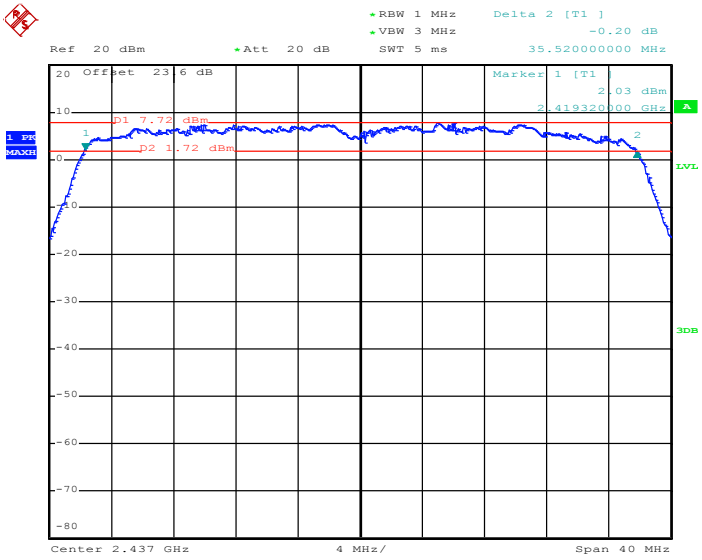
6 dB Bandwidth Plot on Channel 03



Date: 1.AUG.2012 22:20:22

802.11n HT-40 – SISO Ant. 1

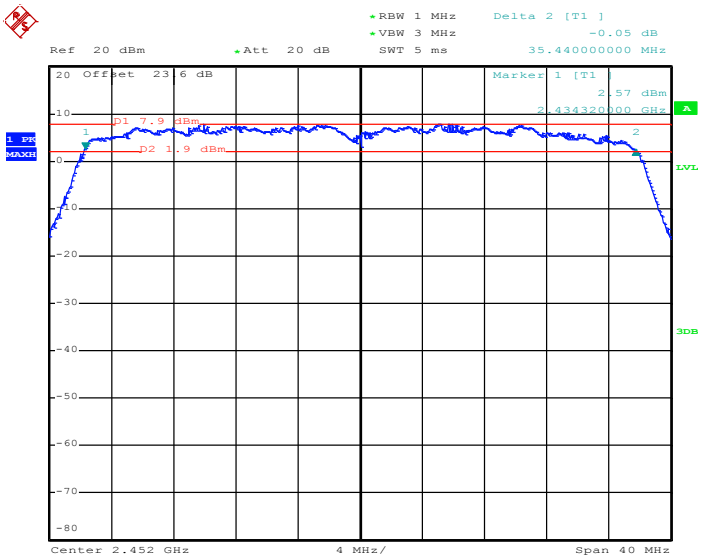
6 dB Bandwidth Plot on Channel 06



Date: 1.AUG.2012 22:18:04

802.11n HT-40 – SISO Ant. 1

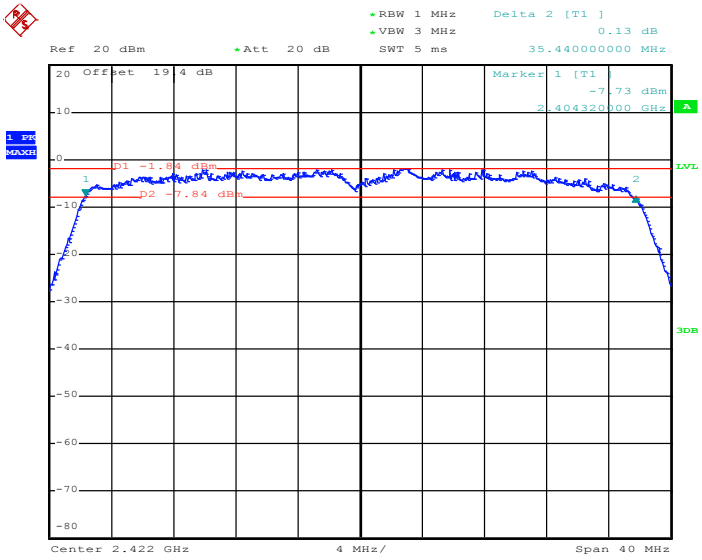
6 dB Bandwidth Plot on Channel 09



Date: 1.AUG.2012 22:08:33

802.11n HT-40 – MIMO Ant. 1+2(1)

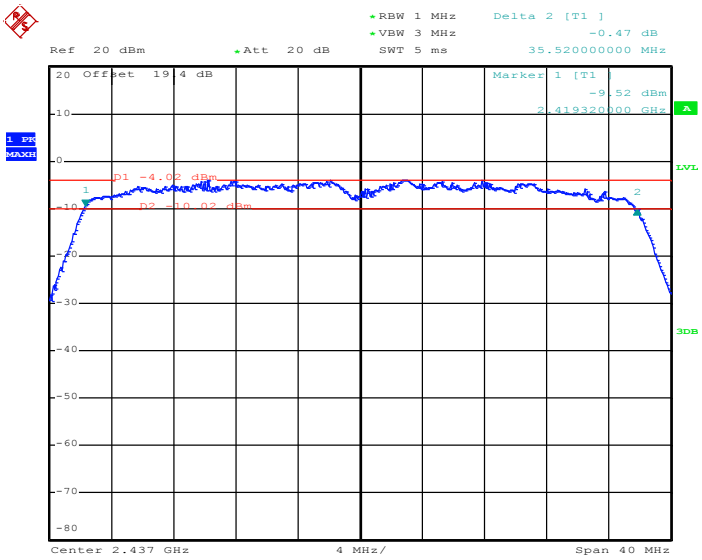
6 dB Bandwidth Plot on Channel 03



Date: 7.AUG.2012 06:20:47

802.11n HT-40 – MIMO Ant. 1+2(1)

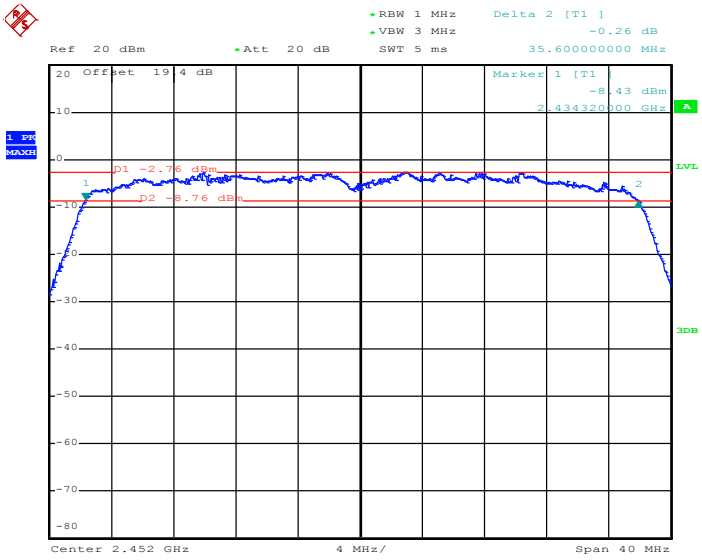
6 dB Bandwidth Plot on Channel 06



Date: 7.AUG.2012 06:14:19

802.11n HT-40 – MIMO Ant. 1+2(1)

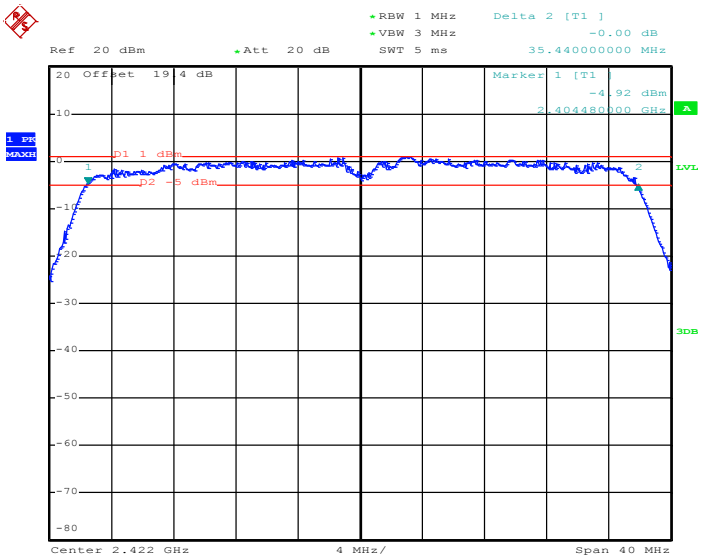
6 dB Bandwidth Plot on Channel 09



Date: 7.AUG.2012 06:26:01

802.11n HT-40 – MIMO Ant. 1+2(2)

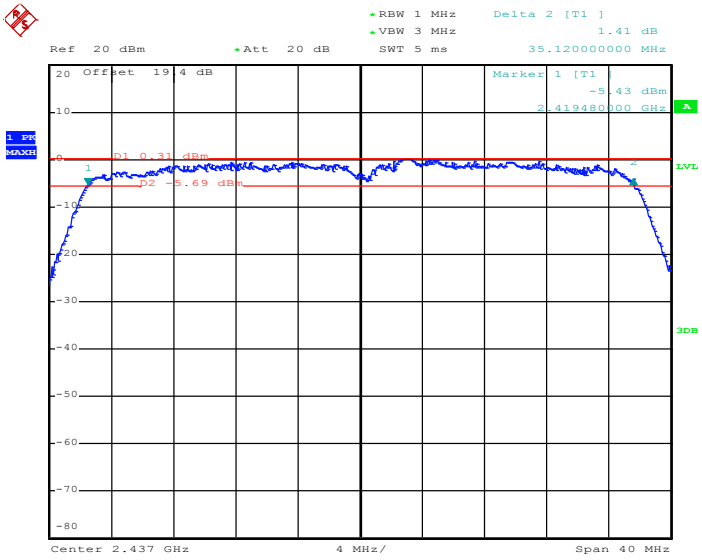
6 dB Bandwidth Plot on Channel 03



Date: 7.AUG.2012 05:54:16

802.11n HT-40 – MIMO Ant. 1+2(2)

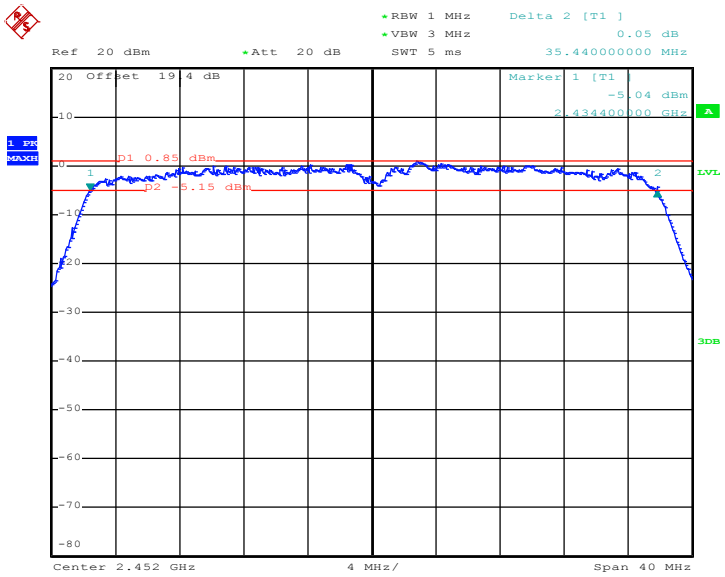
6 dB Bandwidth Plot on Channel 06



Date: 7.AUG.2012 06:03:31

802.11n HT-40 – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 09

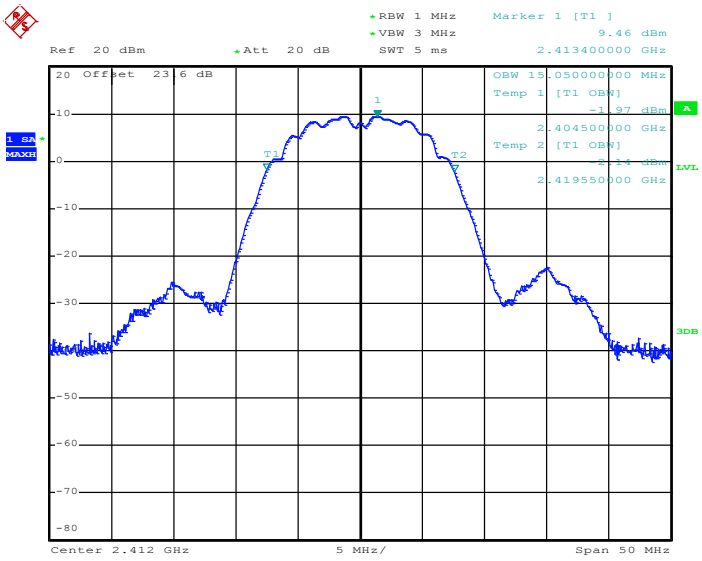


Date: 7.AUG.2012 06:08:02

3.1.8 Test Result of 99% Bandwidth Plots

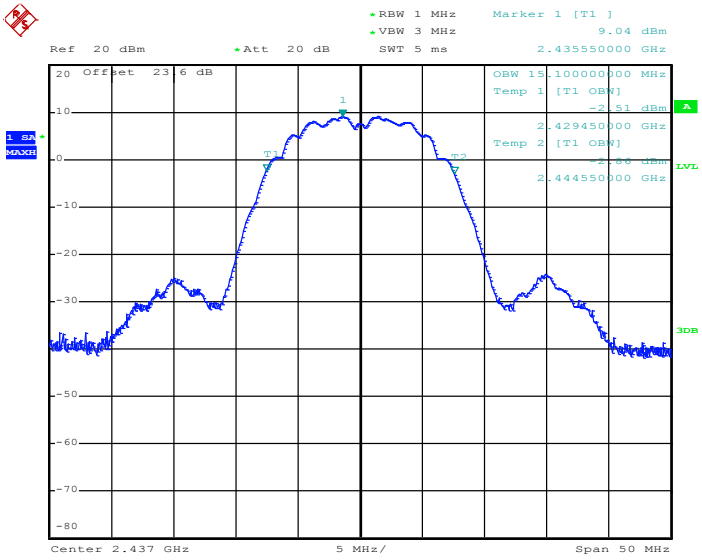
802.11b – SISO Ant. 1

99% Occupied Bandwidth Plot on Channel 01



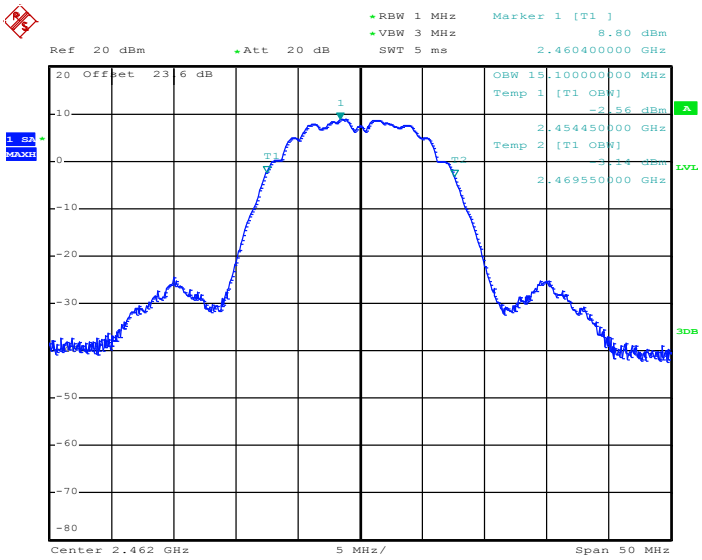
802.11b – SISO Ant. 1

99% Occupied Bandwidth Plot on Channel 06



802.11b – SISO Ant. 1

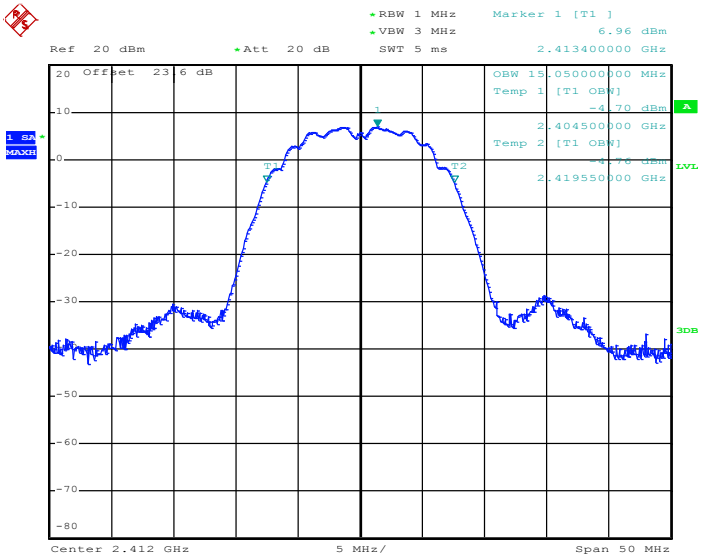
99% Occupied Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:06:21

802.11b – MIMO Ant. 1+2(1)

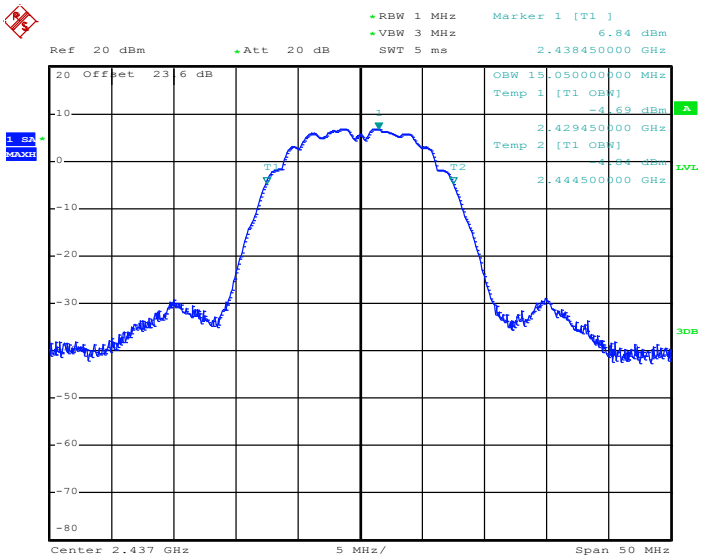
99% Occupied Bandwidth Plot on Channel 01



Date: 24.JUL.2012 01:14:34

802.11b – MIMO Ant. 1+2(1)

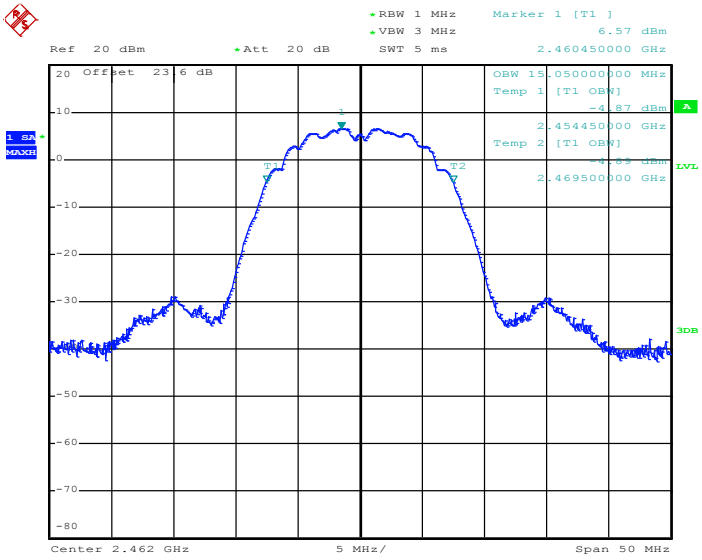
99% Occupied Bandwidth Plot on Channel 06



Date: 24.JUL.2012 01:18:02

802.11b – MIMO Ant. 1+2(1)

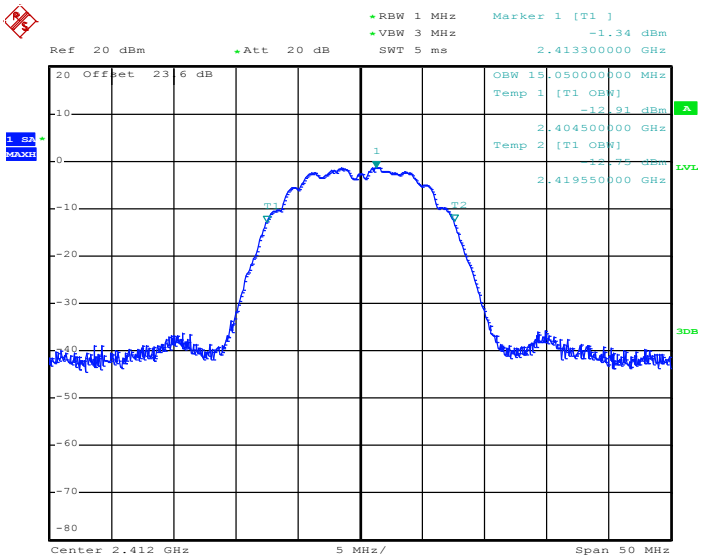
99% Occupied Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:21:10

802.11b – MIMO Ant. 1+2(2)

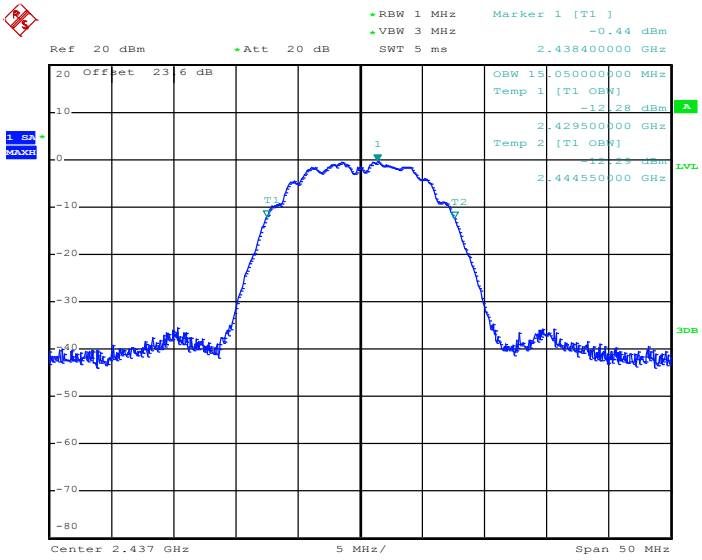
99% Occupied Bandwidth Plot on Channel 01



Date: 24.JUL.2012 01:32:40

802.11b – MIMO Ant. 1+2(2)

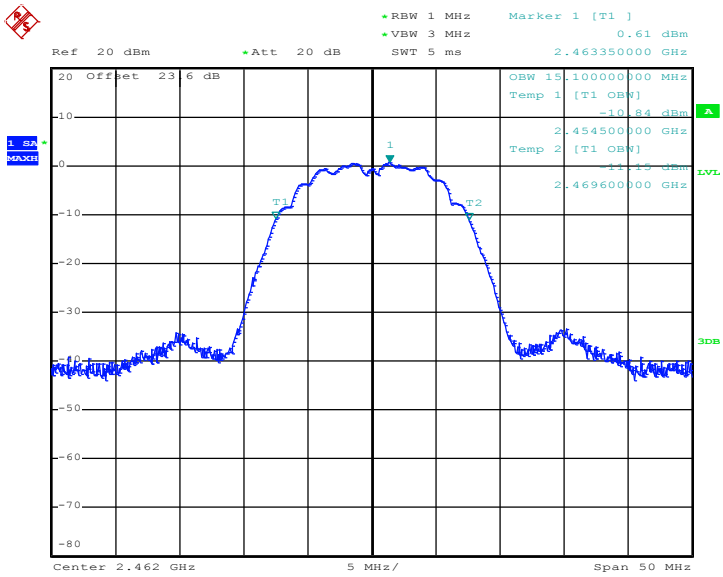
99% Occupied Bandwidth Plot on Channel 06



Date: 24.JUL.2012 01:29:18

802.11b – MIMO Ant. 1+2(2)

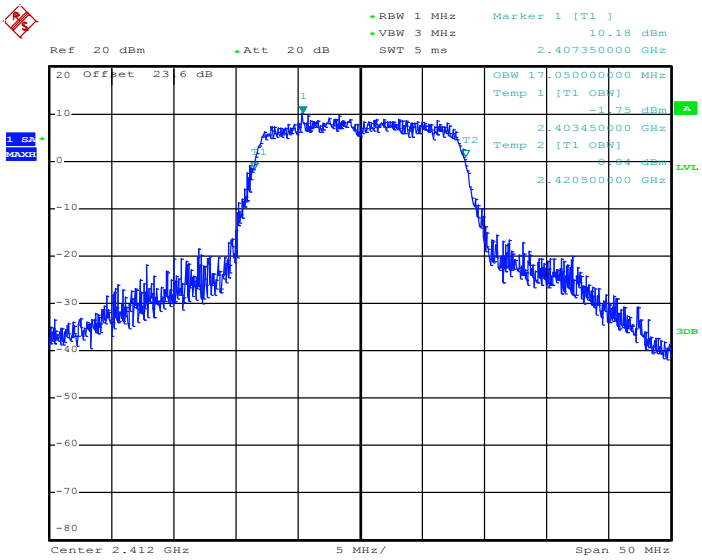
99% Occupied Bandwidth Plot on Channel 11



Date: 24.JUL.2012 01:26:12

802.11g – SISO Ant. 1

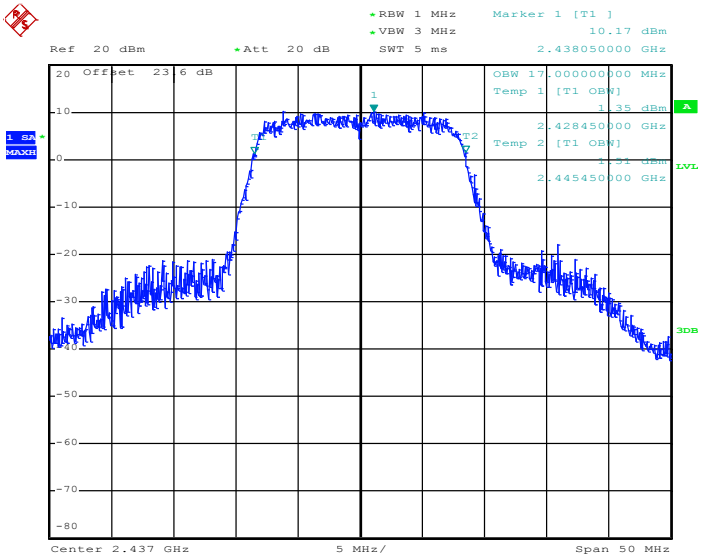
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 20:34:04

802.11g – SISO Ant. 1

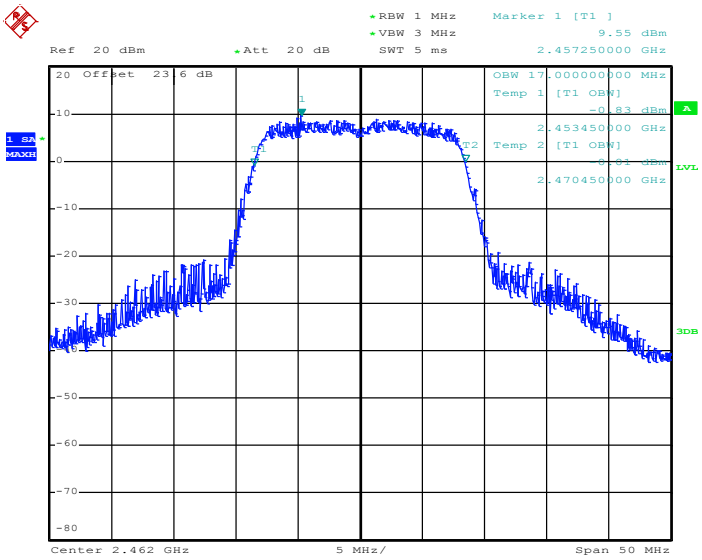
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 20:37:52

802.11g – SISO Ant. 1

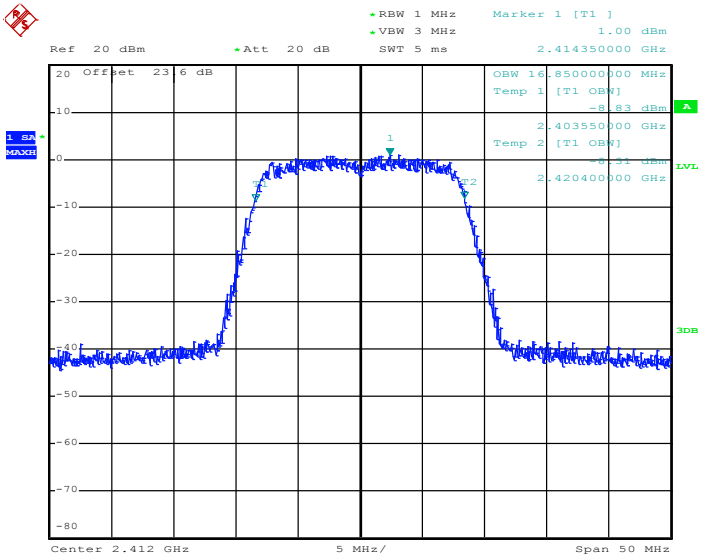
99% Occupied Bandwidth Plot Channel 11



Date: 1.AUG.2012 20:41:48

802.11g – MIMO Ant. 1+2(1)

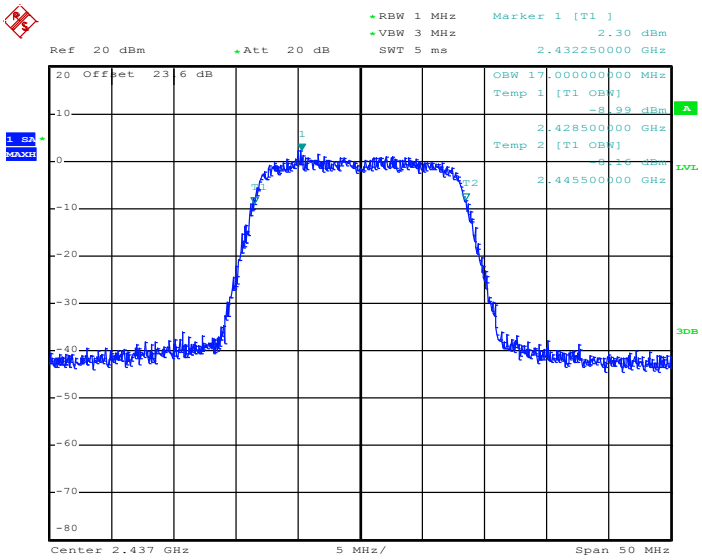
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:22:56

802.11g – MIMO Ant. 1+2(1)

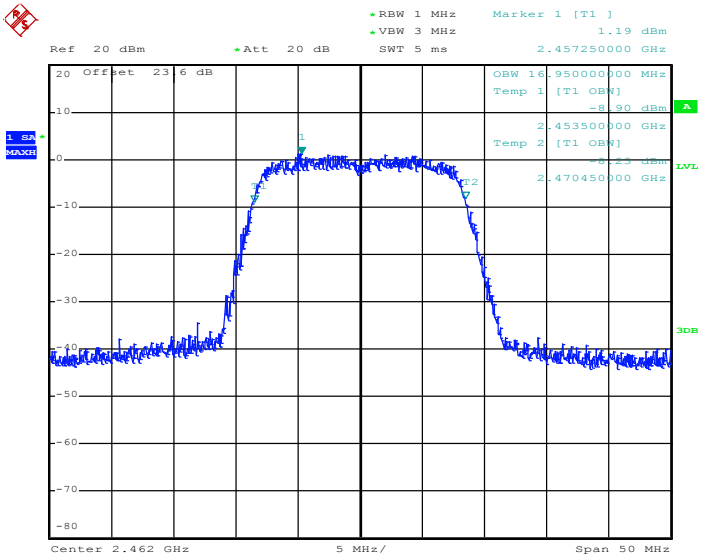
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:27:22

802.11g – MIMO Ant. 1+2(1)

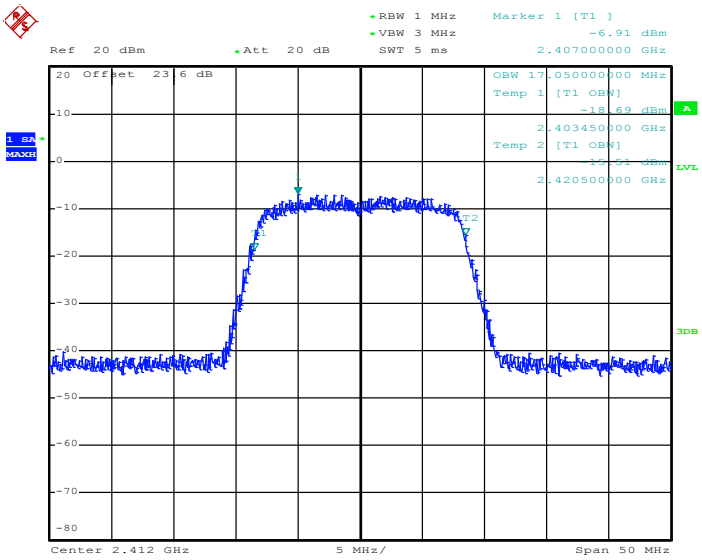
99% Occupied Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:30:40

802.11g – MIMO Ant. 1+2(2)

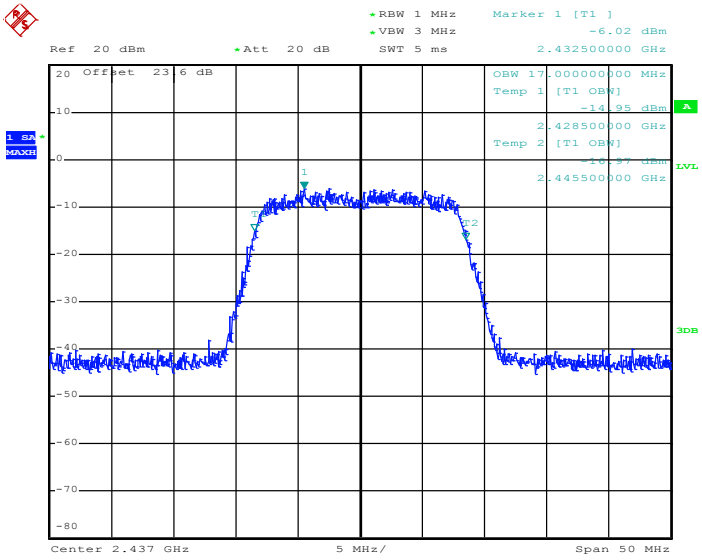
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:19:18

802.11g – MIMO Ant. 1+2(2)

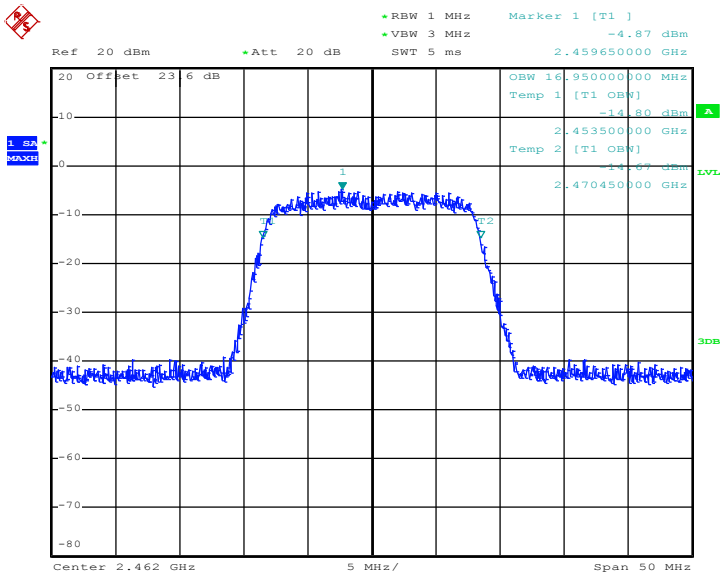
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:15:56

802.11g – MIMO Ant. 1+2(2)

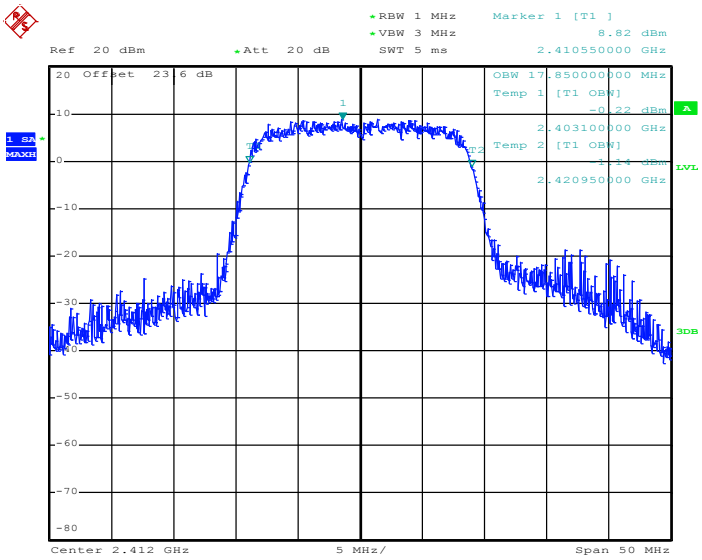
99% Occupied Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:08:49

802.11n HT-20 – SISO Ant. 1

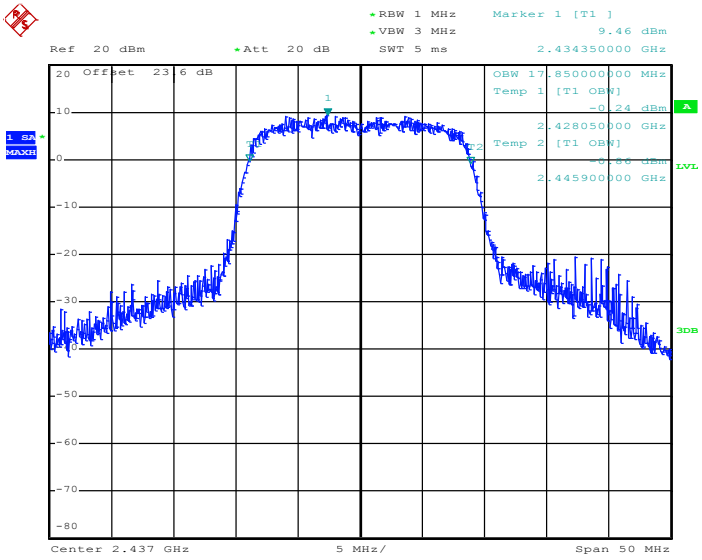
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:57:34

802.11n HT-20 – SISO Ant. 1

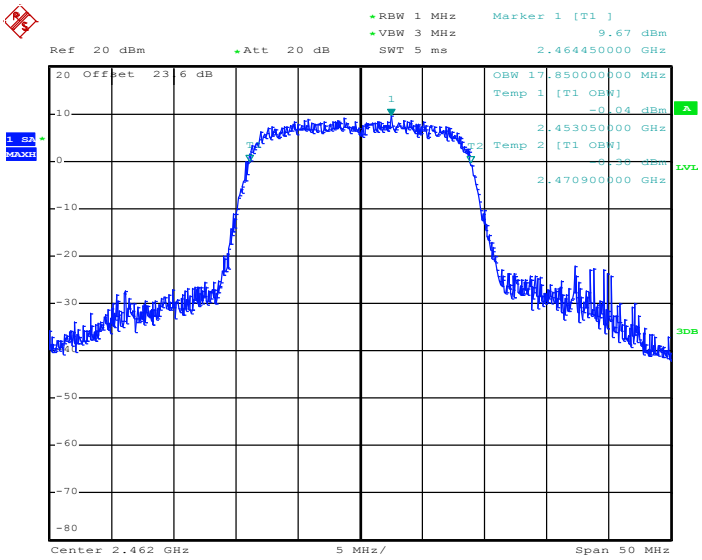
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 22:00:47

802.11n HT-20 – SISO Ant. 1

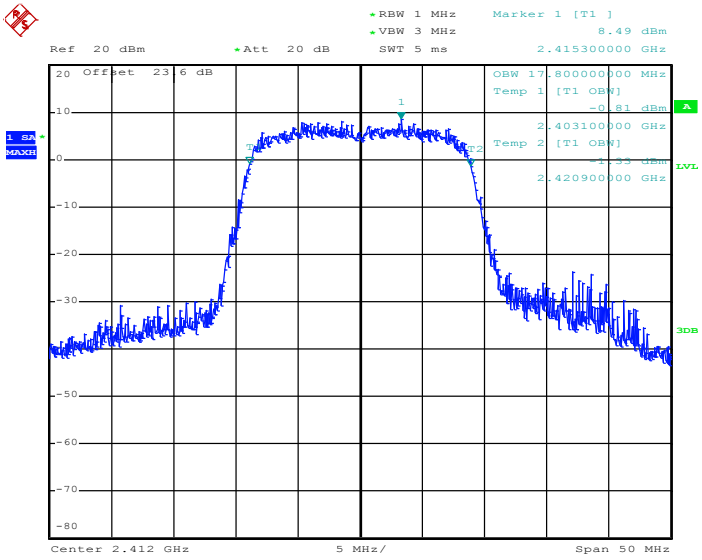
99% Occupied Bandwidth Plot on Channel 11



Date: 1.AUG.2012 22:04:31

802.11n HT-20 – MIMO Ant. 1+2(1)

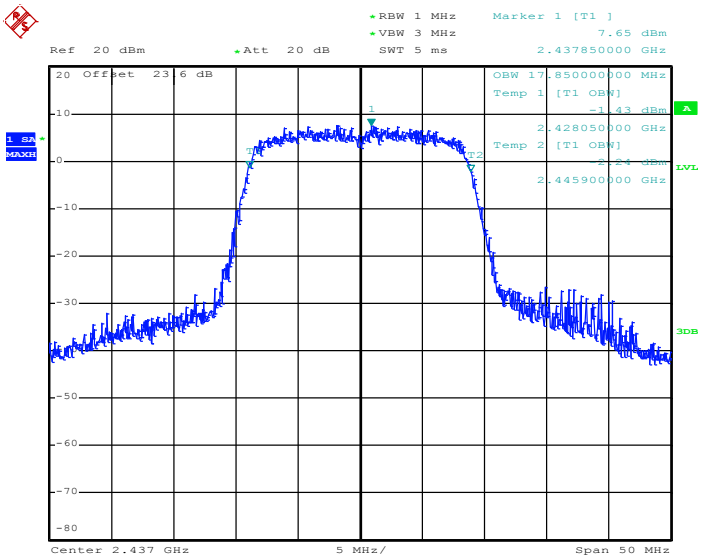
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:41:48

802.11n HT-20 – MIMO Ant. 1+2(1)

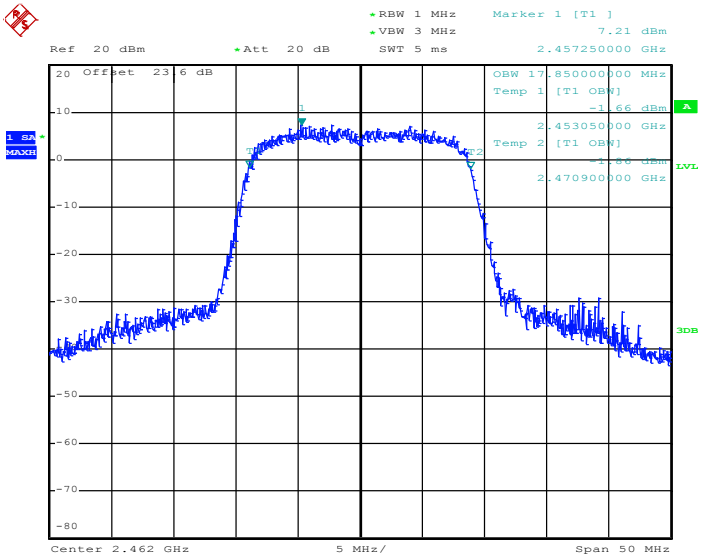
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:38:40

802.11n HT-20 – MIMO Ant. 1+2(1)

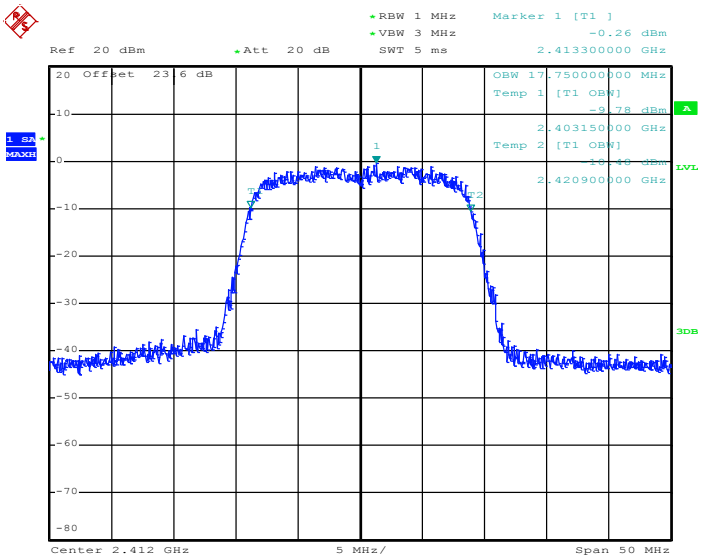
99% Occupied Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:35:45

802.11n HT-20 – MIMO Ant. 1+2(2)

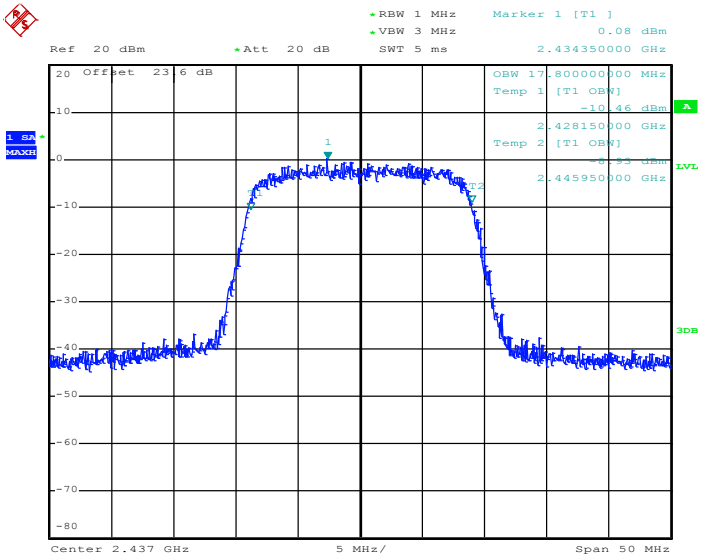
99% Occupied Bandwidth Plot on Channel 01



Date: 1.AUG.2012 21:45:19

802.11n HT-20 – MIMO Ant. 1+2(2)

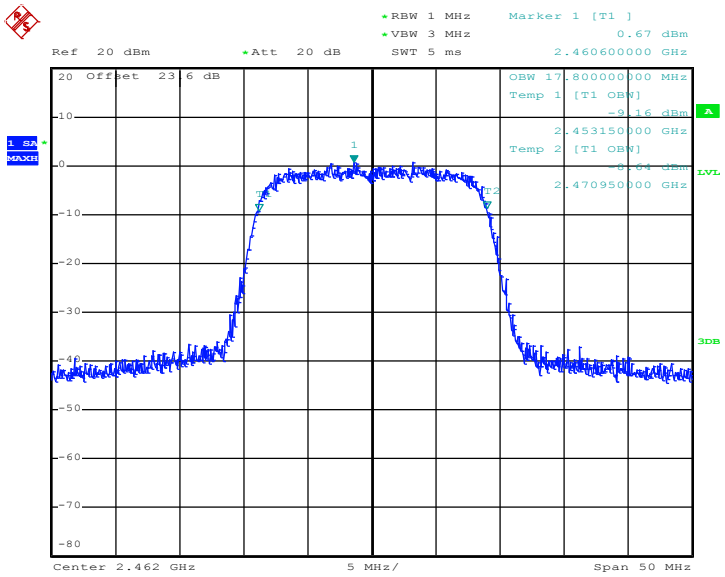
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 21:49:07

802.11n HT-20 – MIMO Ant. 1+2(2)

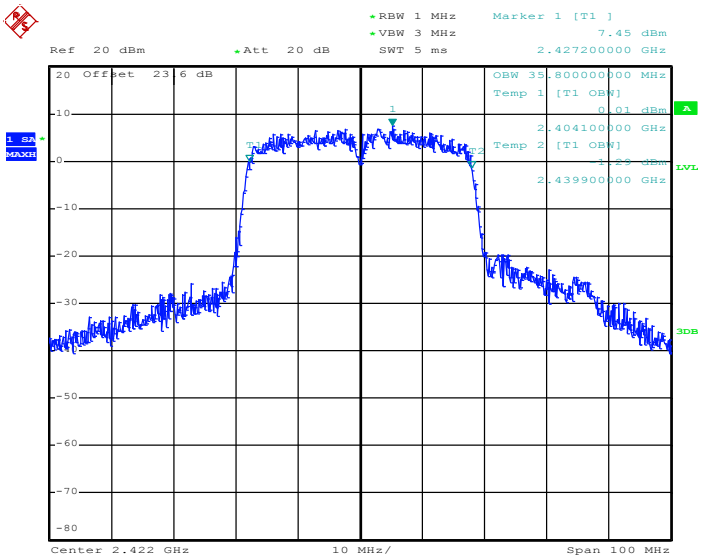
99% Occupied Bandwidth Plot on Channel 11



Date: 1.AUG.2012 21:52:54

802.11n HT-40 – SISO Ant. 1

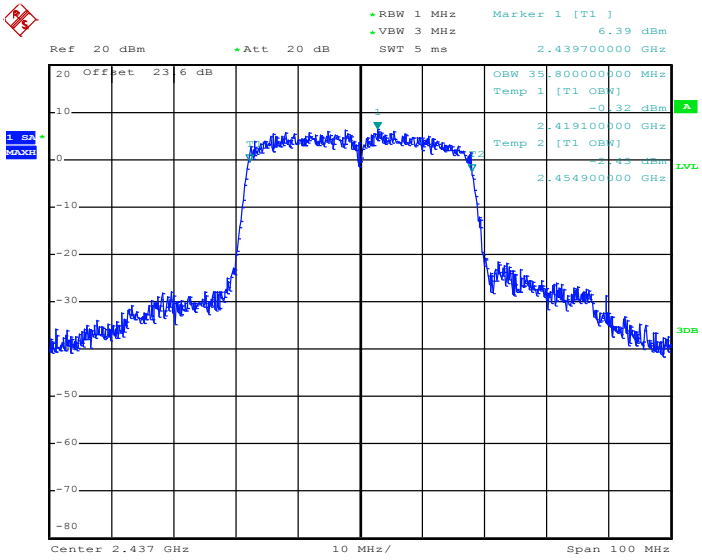
99% Occupied Bandwidth Plot on Channel 03



Date: 1.AUG.2012 22:22:00

802.11n HT-40 – SISO Ant. 1

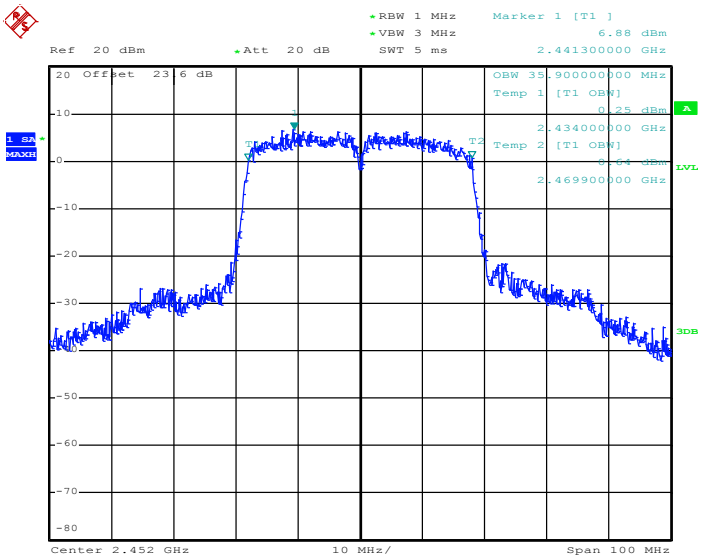
99% Occupied Bandwidth Plot on Channel 06



Date: 1.AUG.2012 22:16:14

802.11n HT-40 – SISO Ant. 1

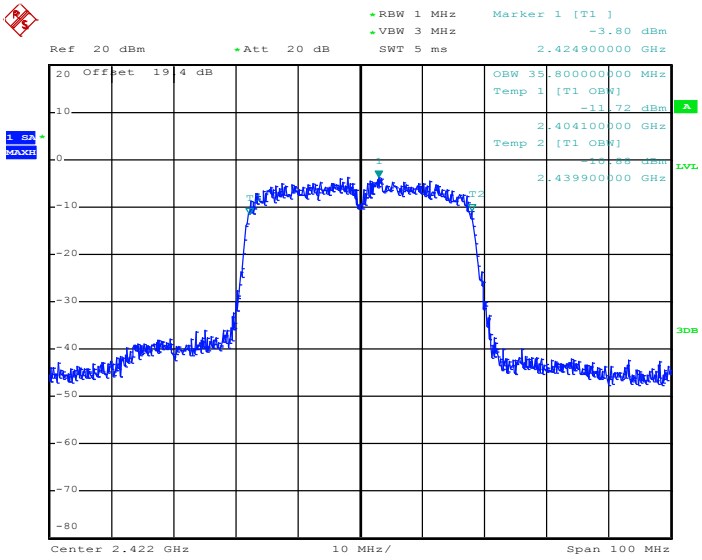
99% Occupied Bandwidth Plot on Channel 09



Date: 1.AUG.2012 22:12:54

802.11n HT-40 –MIMO Ant. 1+2(1)

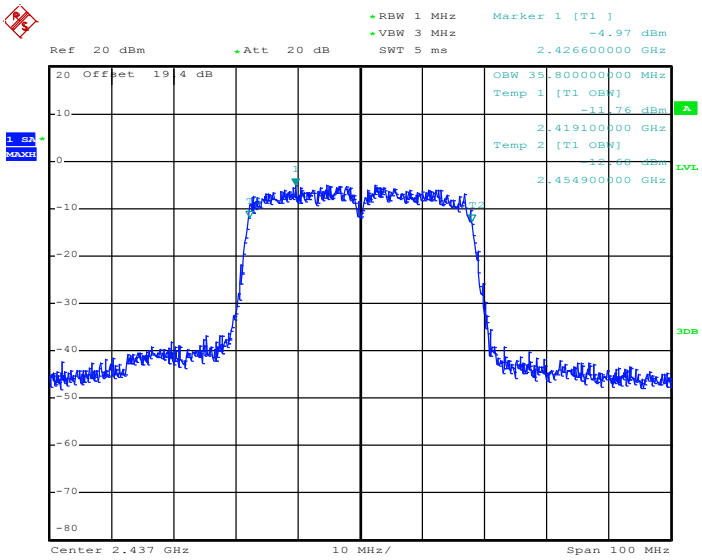
99% Occupied Bandwidth Plot on Channel 03



Date: 7.AUG.2012 06:24:20

802.11n HT-40 –MIMO Ant. 1+2(1)

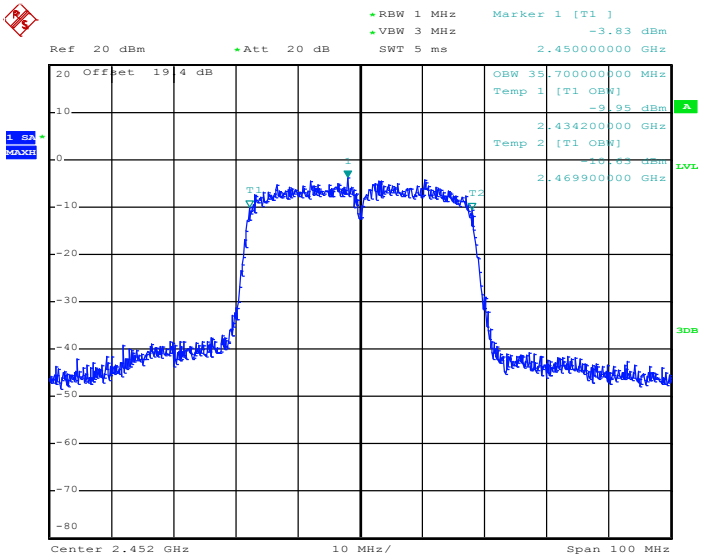
99% Occupied Bandwidth Plot on Channel 06



Date: 7.AUG.2012 06:16:39

802.11n HT-40 –MIMO Ant. 1+2(1)

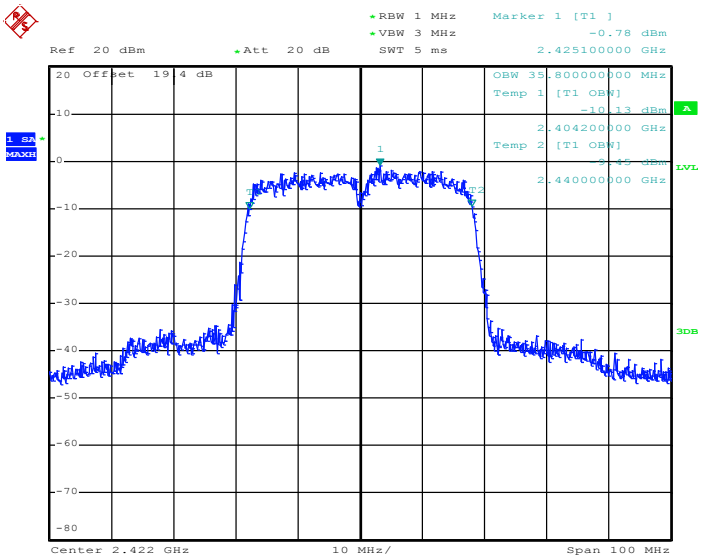
99% Occupied Bandwidth Plot on Channel 09



Date: 7.AUG.2012 06:29:51

802.11n HT-40 –MIMO Ant. 1+2(2)

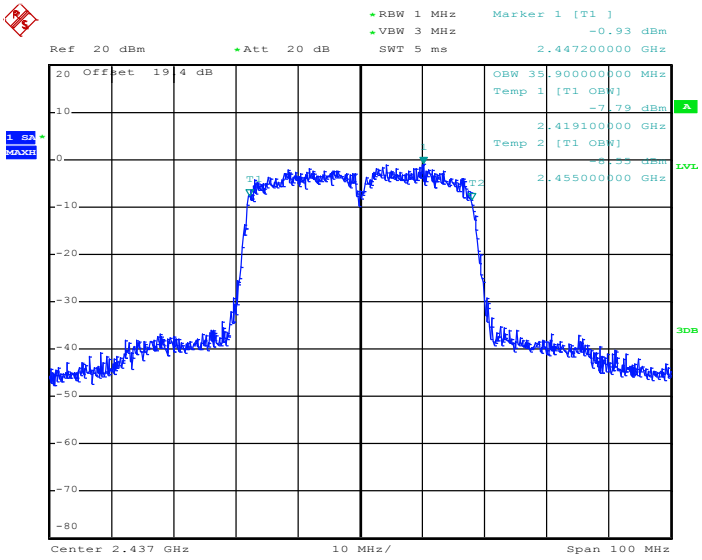
99% Occupied Bandwidth Plot on Channel 03



Date: 7.AUG.2012 05:58:45

802.11n HT-40 –MIMO Ant. 1+2(2)

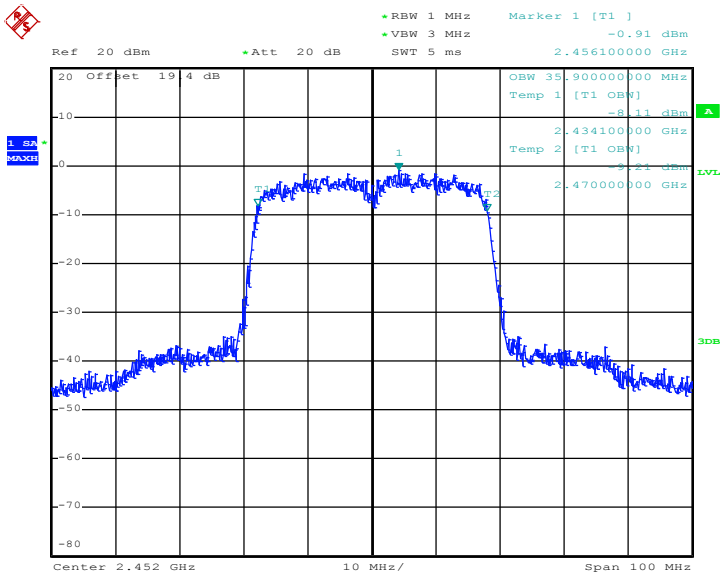
99% Occupied Bandwidth Plot on Channel 06



Date: 7.AUG.2012 06:12:23

802.11n HT-40 –MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 09



Date: 7.AUG.2012 06:11:43

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, 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.

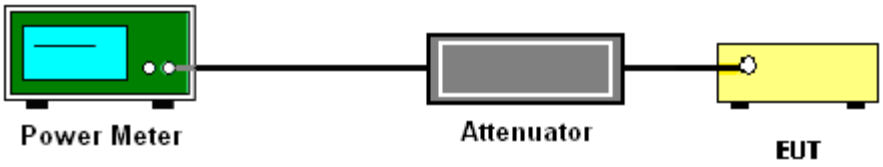
3.2.2 Measuring Instruments

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. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. 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 :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Frequency (MHz)	802.11b Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	15.36	14.43	7.46	15.23	30	Pass
06	2437	15.24	14.35	7.76	15.21	30	Pass
11	2462	15.17	14.02	8.92	15.19	30	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Frequency (MHz)	802.11g Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	20.53	14.92	6.90	15.56	30	Pass
06	2437	20.47	14.39	7.49	15.20	30	Pass
11	2462	20.36	14.32	8.49	15.33	30	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	20.28	19.72	13.01	20.56	30	Pass
06	2437	20.18	19.56	13.44	20.51	30	Pass
11	2462	20.05	19.47	13.81	20.51	30	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Frequency (MHz)	802.11n HT-40 Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
03	2422	20.45	21.01	12.95	21.64	30	Pass
06	2437	20.25	20.87	13.14	21.55	30	Pass
09	2452	20.24	20.61	13.41	21.37	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	**Temperature :**	24~26℃
Test Engineer :	Bill Kuo and Book Lin	**Relative Humidity :**	55~58%
Duty Cycle:	100.00% for SISO Ant. 1 100.00% for MIMO <Ant. 1+2(1)> 100.00% for MIMO <Ant. 1+2(2)>	**Duty Factor:**	0.00dB for SISO Ant. 1 0.00dB for MIMO <Ant. 1+2(1)> 0.00dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	13.29	12.34	4.24	12.97
06	2437	13.21	12.01	4.66	12.74
11	2462	13.15	12.33	5.92	13.22

Note :

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.

Test Mode :	802.11g	**Temperature :**	24~26℃
Test Engineer :	Bill Kuo and Book Lin	**Relative Humidity :**	55~58%
Duty Cycle:	98.36% for SISO Ant. 1 98.56% for MIMO <Ant 1+2(1)> 98.37% for MIMO <Ant 1+2(2)>	**Duty Factor:**	0.07dB for SISO Ant. 1 0.06dB for MIMO <Ant 1+2(1)> 0.07dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	12.08	4.67	-3.48	5.29
06	2437	12.45	4.33	-3.14	5.05
11	2462	11.89	4.07	-1.89	5.05

Note :

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%
Duty Cycle:	82.95% for SISO Ant. 1 83.03% for MIMO <Ant 1+2(1)> 82.95% for MIMO <Ant 1+2(2)>	Duty Factor:	0.81dB for SISO Ant. 1 0.81dB for MIMO <Ant 1+2(1)> 0.81dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	12.25	11.12	2.98	11.74
06	2437	12.23	10.96	3.66	11.70
11	2462	12.07	10.64	4.23	11.53

Note :

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.

Test Mode :	802.11n HT-40	**Temperature :**	24~26℃
Test Engineer :	Bill Kuo and Book Lin	**Relative Humidity :**	55~58%
Duty Cycle:	77.42% for SISO Ant. 1 76.92% for MIMO <Ant 1+2(1)> 77.35% for MIMO <Ant 1+2(2)>	**Duty Factor:**	1.11dB for SISO Ant. 1 1.14dB for MIMO <Ant 1+2(1)> 1.12dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11n HT-40 Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
03	2422	12.72	12.72	4.26	13.30
06	2437	12.42	12.63	4.22	13.21
09	2452	12.73	12.08	4.94	12.85

Note :

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.

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. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. 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. Record the measurement data derived from spectrum analyzer.
7. 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).
8. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r01.

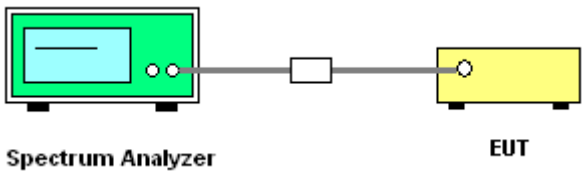
   If measurements performed using method (2) plus 10 log (N) exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

   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 :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Freq. (MHz)	802.11b Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	3.96	-11.24	2.08	-10.12	-6.92	-19.12	8	Pass
06	2437	3.81	-11.39	1.51	-10.69	-5.97	-18.17	8	Pass
11	2462	3.24	-11.96	1.24	-10.96	-4.90	-17.10	8	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Freq. (MHz)	802.11g Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	1.74	-13.46	-6.99	-19.19	-14.75	-26.95	8	Pass
06	2437	1.88	-13.32	-6.54	-18.74	-13.96	-26.16	8	Pass
11	2462	1.06	-14.14	-6.54	-18.74	-12.75	-24.95	8	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Freq. (MHz)	802.11n HT-20 Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	1.49	-13.71	0.34	-11.85	-8.06	-20.25	8	Pass
06	2437	1.69	-13.51	0.11	-12.08	-7.68	-19.87	8	Pass
11	2462	1.52	-13.68	-0.32	-12.51	-6.71	-18.90	8	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26℃
Test Engineer :	Bill Kuo and Book Lin	Relative Humidity :	55~58%

Ch.	Freq. (MHz)	802.11n HT-40 Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
03	2422	-0.73	-15.93	-11.14	-23.33	-7.78	-19.97	8	Pass
06	2437	-1.09	-16.29	-12.11	-24.30	-8.42	-20.61	8	Pass
09	2452	-0.78	-15.98	-11.22	-23.41	-8.01	-20.20	8	Pass

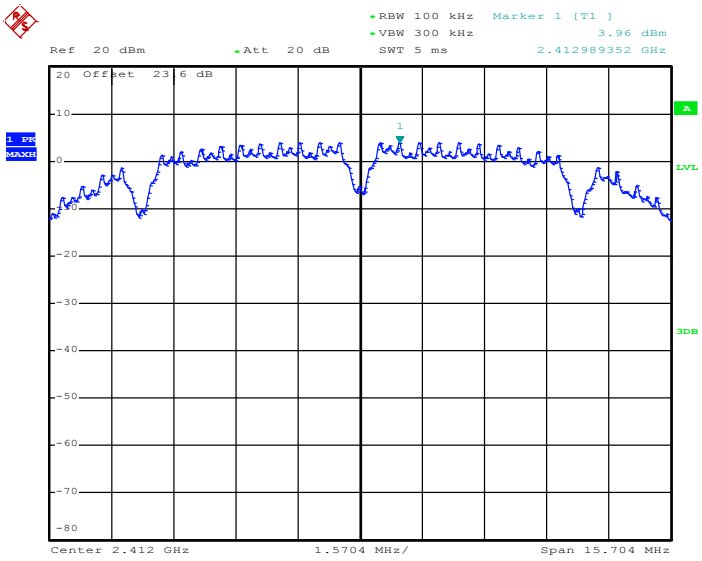
Note:

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)*
4. *MIMO Power Density/ 3KHz (dBm)= Measured power density/ 100KHz (dBm) + BWCF (dB) + 10LOG(N=2),where N=2 transmitters.*

3.3.6 Test Result of Power Spectral Density Plots

802.11b –SISO Ant. 1

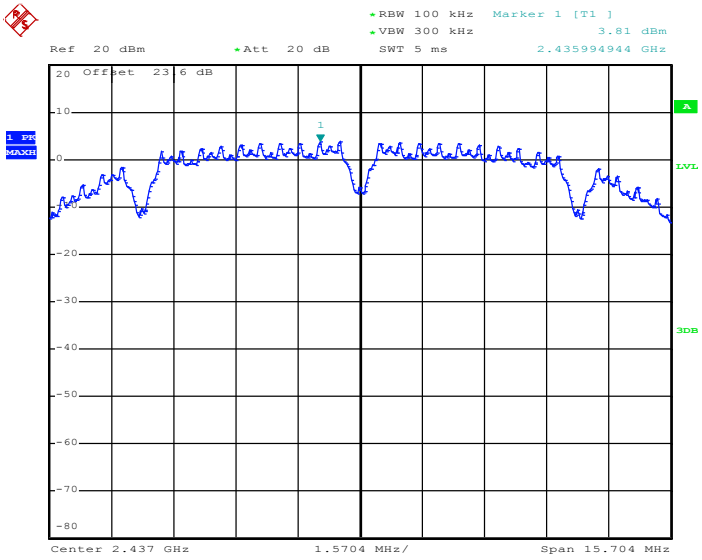
PSD Plot on Channel 01



Date: 24.JUL.2012 00:56:55

802.11b –SISO Ant. 1

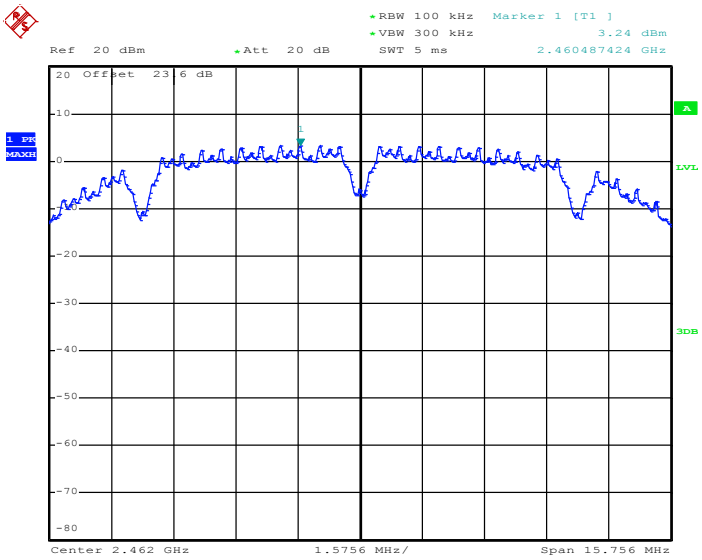
PSD Plot on Channel 06



Date: 24.JUL.2012 01:01:26

802.11b –SISO Ant. 1

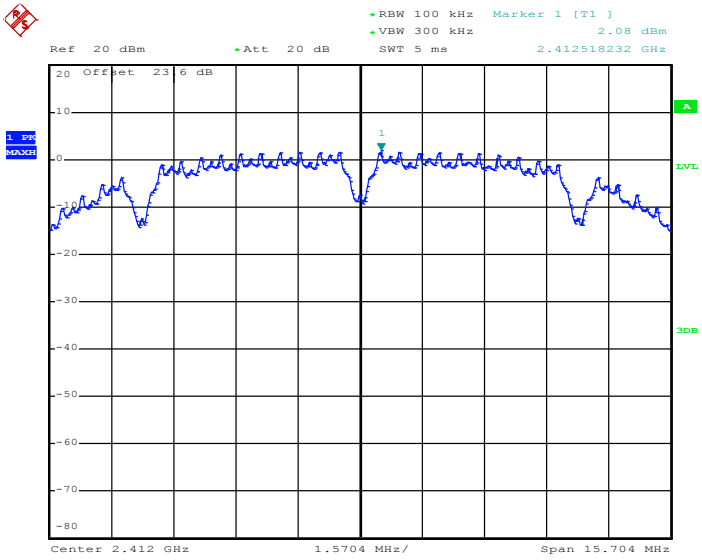
PSD Plot on Channel 11



Date: 24.JUL.2012 01:05:07

802.11b –MIMO Ant. 1+2(1)

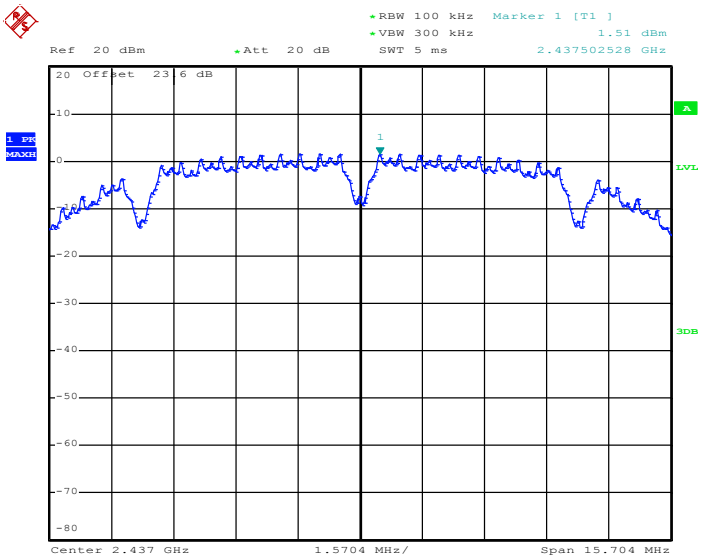
PSD Plot on Channel 01



Date: 24.JUL.2012 01:13:02

802.11b –MIMO Ant. 1+2(1)

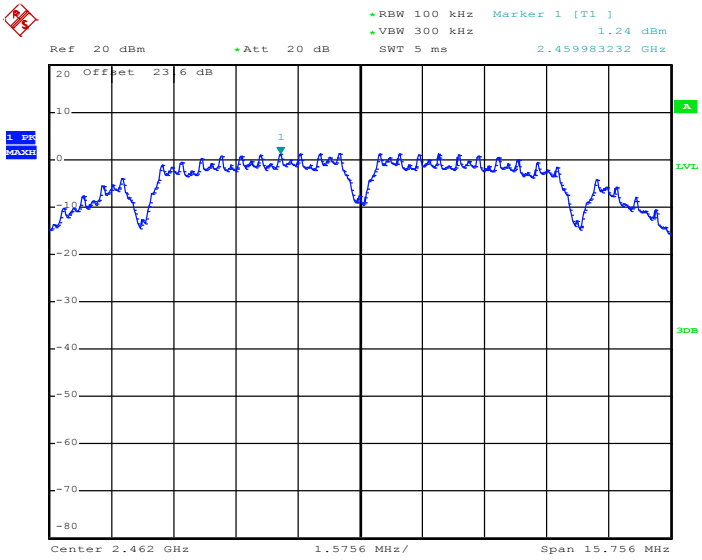
PSD Plot on Channel 06



Date: 24.JUL.2012 01:16:53

802.11b –MIMO Ant. 1+2(1)

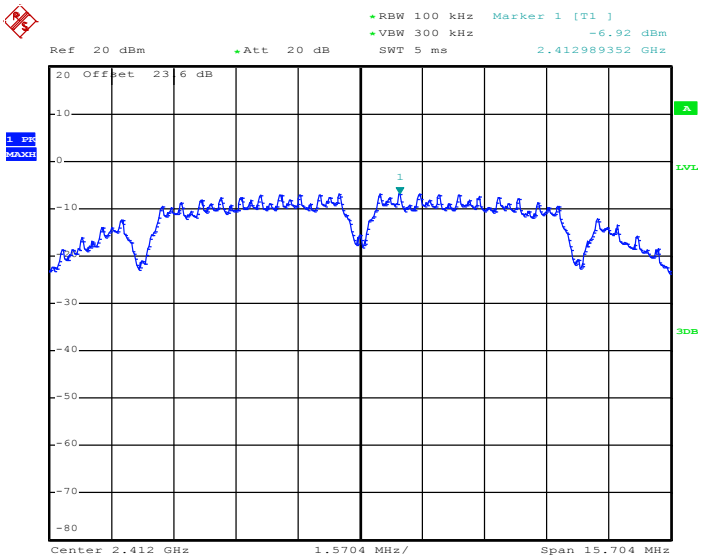
PSD Plot on Channel 11



Date: 24.JUL.2012 01:20:02

802.11b –MIMO Ant. 1+2(2)

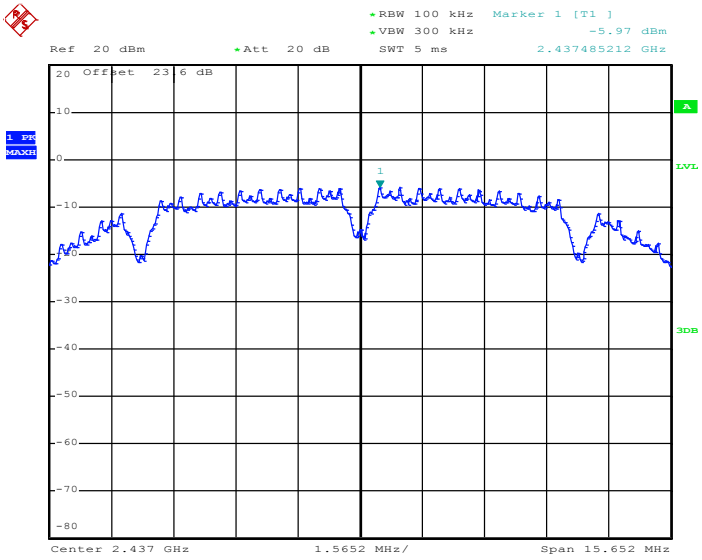
PSD Plot on Channel 01



Date: 24.JUL.2012 01:31:31

802.11b –MIMO Ant. 1+2(2)

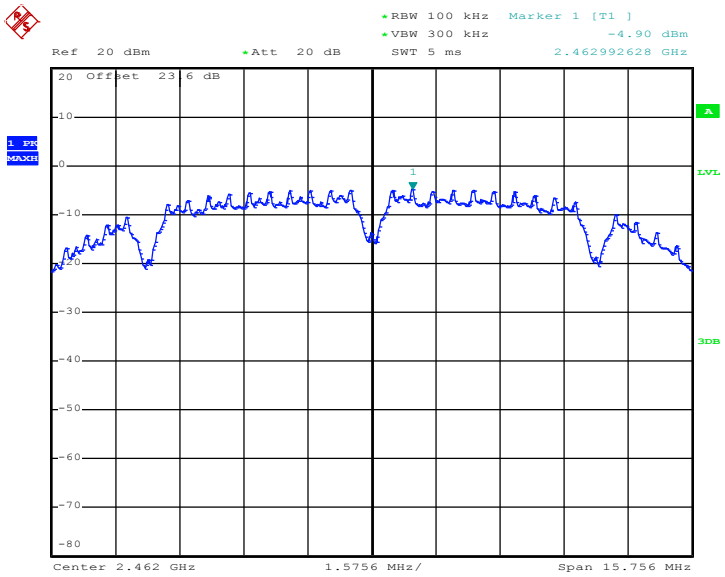
PSD Plot on Channel 06



Date: 24.JUL.2012 01:28:25

802.11b –MIMO Ant. 1+2(2)

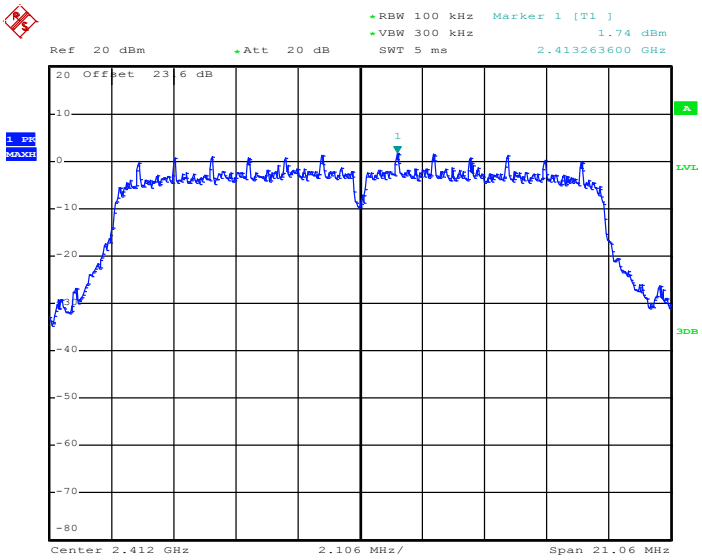
PSD Plot on Channel 11



Date: 24.JUL.2012 01:24:33

802.11g –SISO Ant. 1

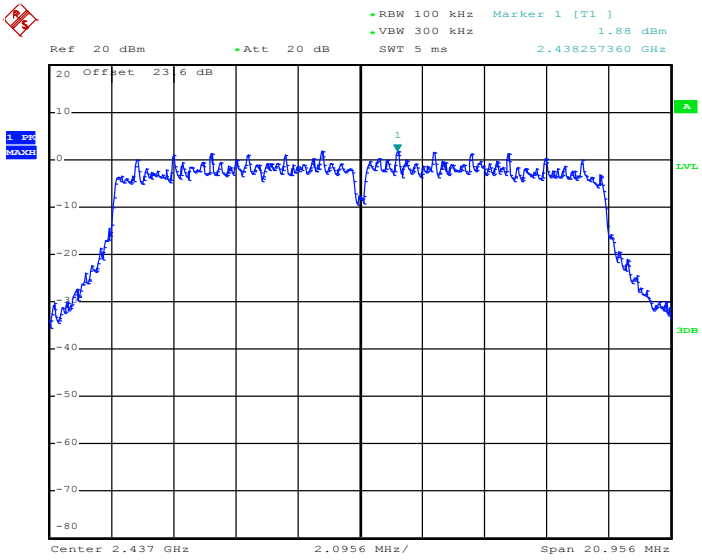
PSD Plot on Channel 01



Date: 1.AUG.2012 20:31:50

802.11g –SISO Ant. 1

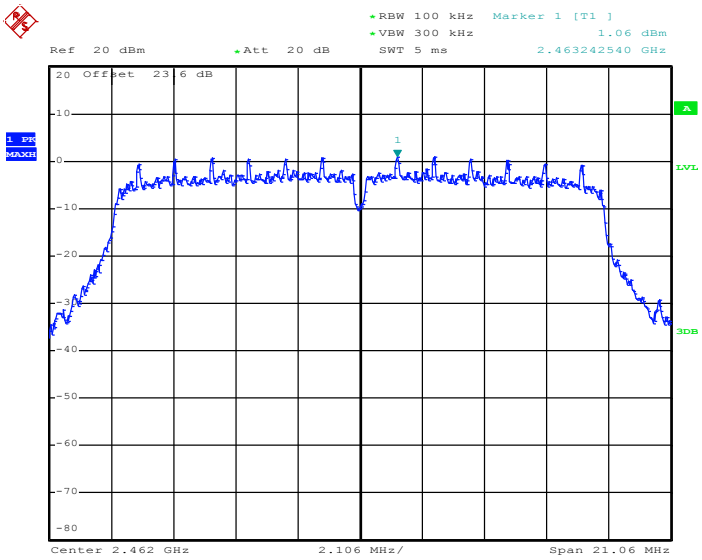
PSD Plot on Channel 06



Date: 1.AUG.2012 20:36:54

802.11g –SISO Ant. 1

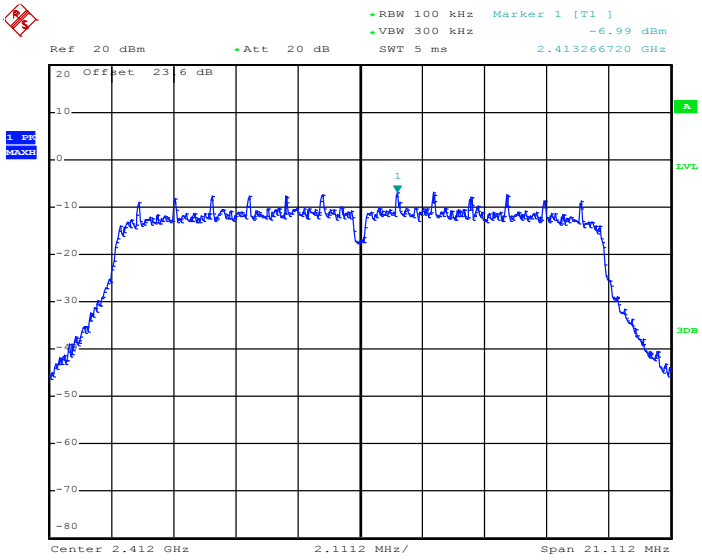
PSD Plot Channel 11



Date: 1.AUG.2012 20:39:57

802.11g –MIMO Ant. 1+2(1)

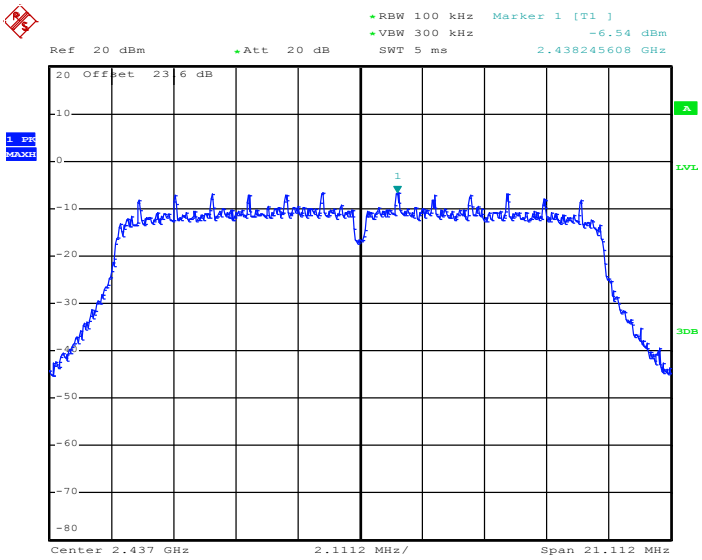
PSD Plot on Channel 01



Date: 1.AUG.2012 21:21:41

802.11g –MIMO Ant. 1+2(1)

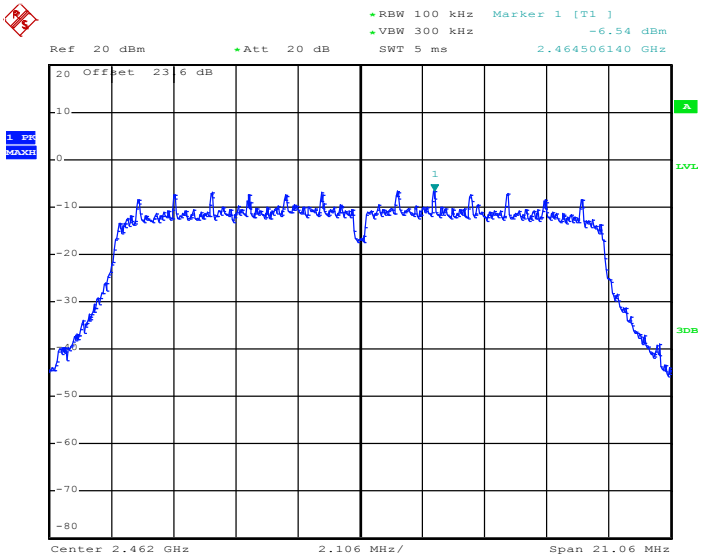
PSD Plot on Channel 06



Date: 1.AUG.2012 21:26:22

802.11g –MIMO Ant. 1+2(1)

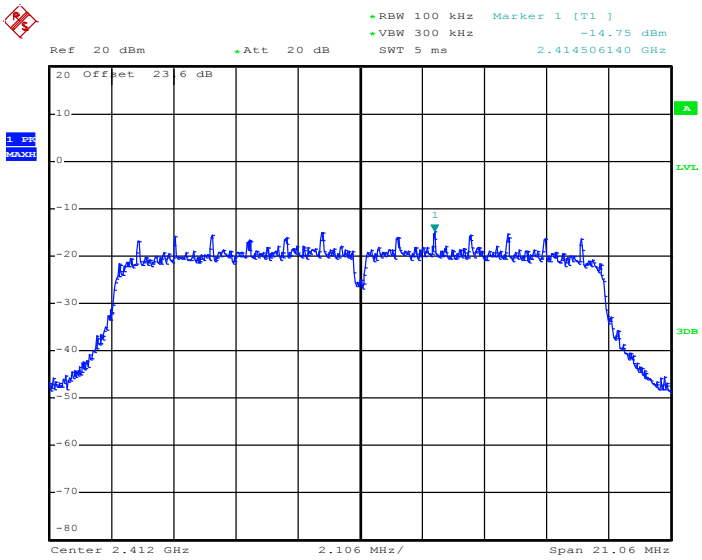
PSD Plot on Channel 11



Date: 1.AUG.2012 21:29:17

802.11g –MIMO Ant. 1+2(2)

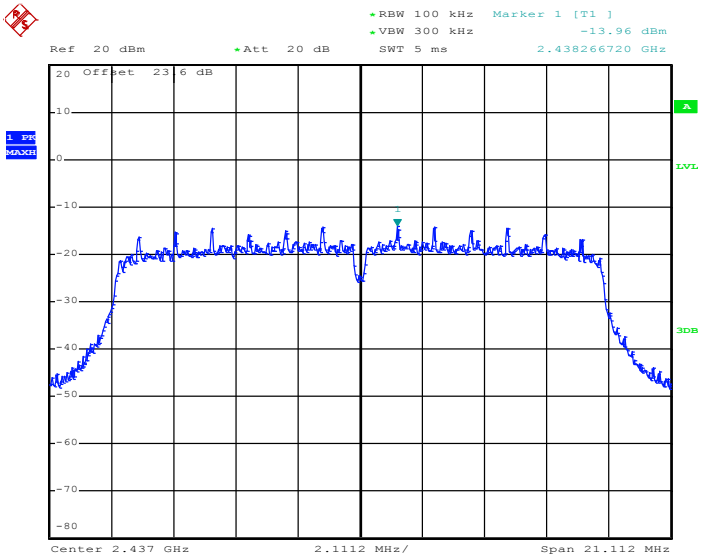
PSD Plot on Channel 01



Date: 1.AUG.2012 21:17:44

802.11g –MIMO Ant. 1+2(2)

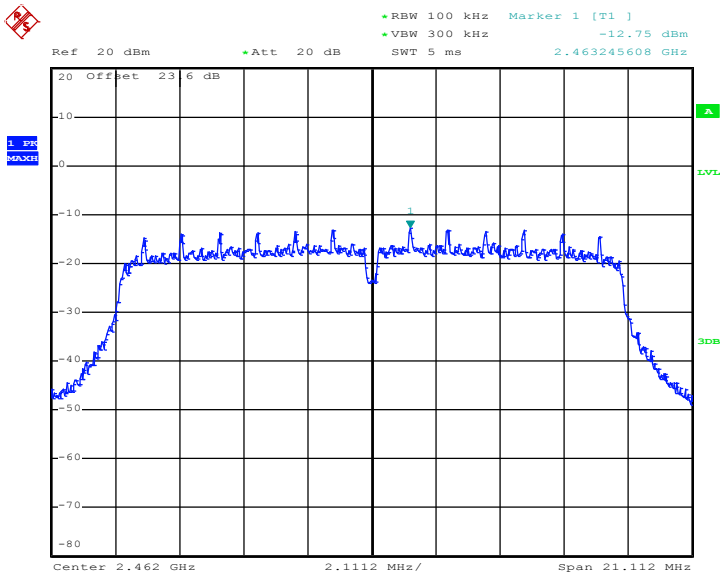
PSD Plot on Channel 06



Date: 1.AUG.2012 21:14:56

802.11g –MIMO Ant. 1+2(2)

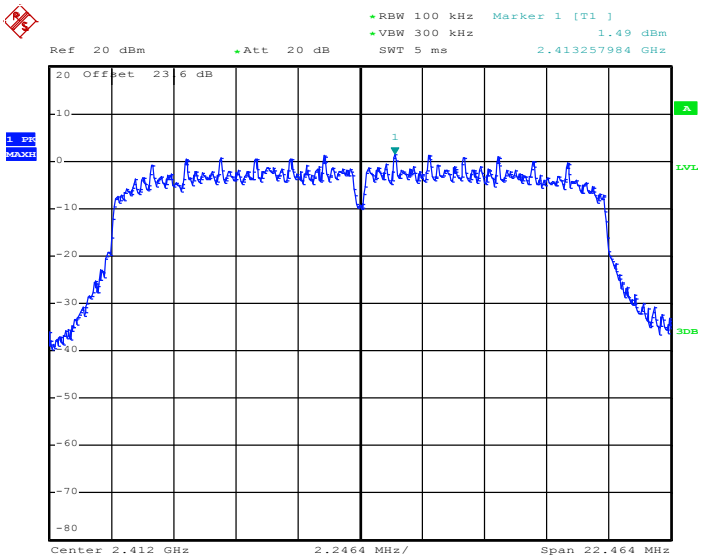
PSD Plot on Channel 11



Date: 1.AUG.2012 21:06:46

802.11n HT-20 – SISO Ant. 1

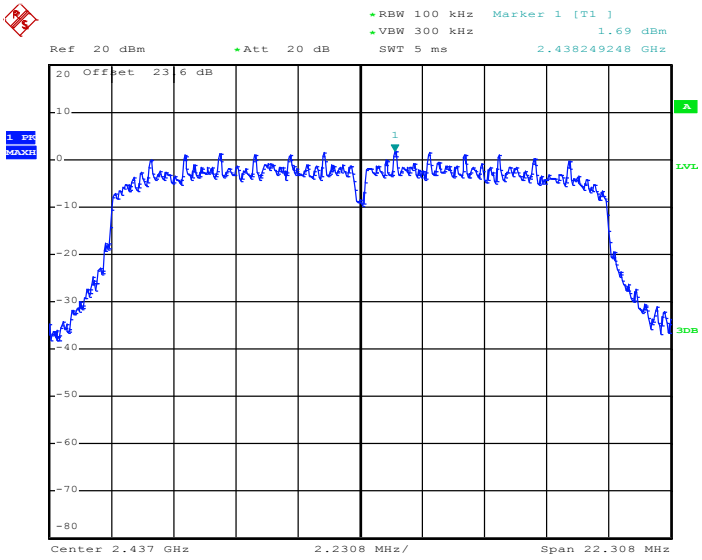
PSD Plot on Channel 01



Date: 1.AUG.2012 21:55:46

802.11n HT-20 – SISO Ant. 1

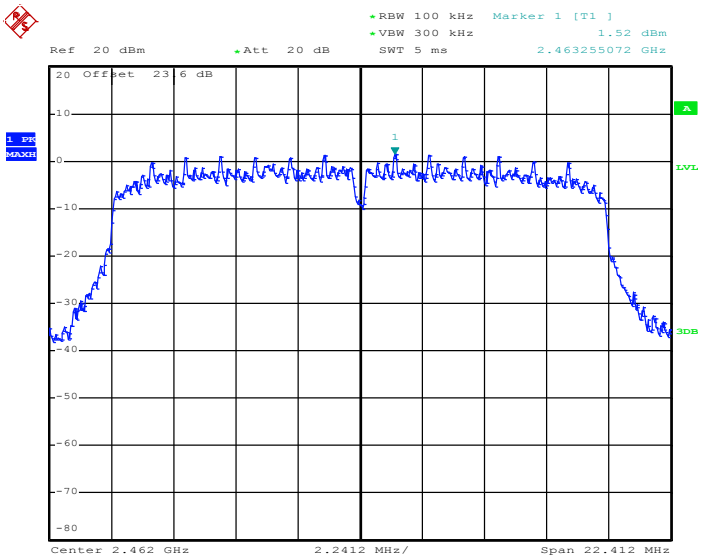
PSD Plot on Channel 06



Date: 1.AUG.2012 21:59:35

802.11n HT-20 – SISO Ant. 1

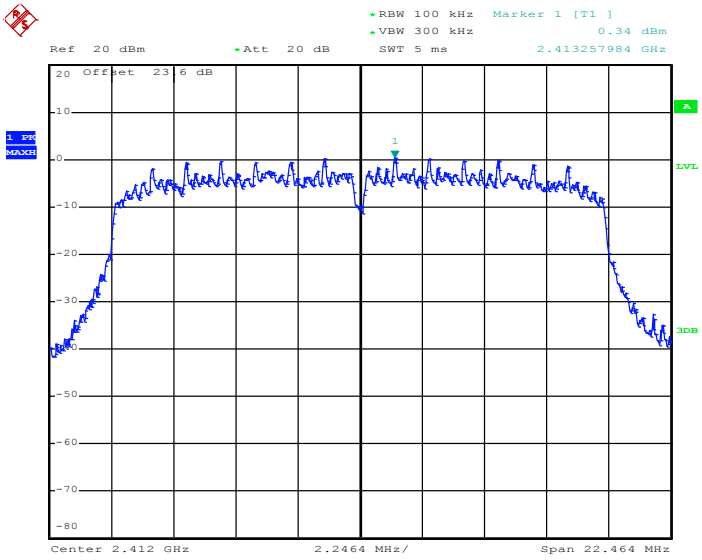
PSD Plot on Channel 11



Date: 1.AUG.2012 22:03:20

802.11n HT-20 –MIMO Ant. 1+2(1)

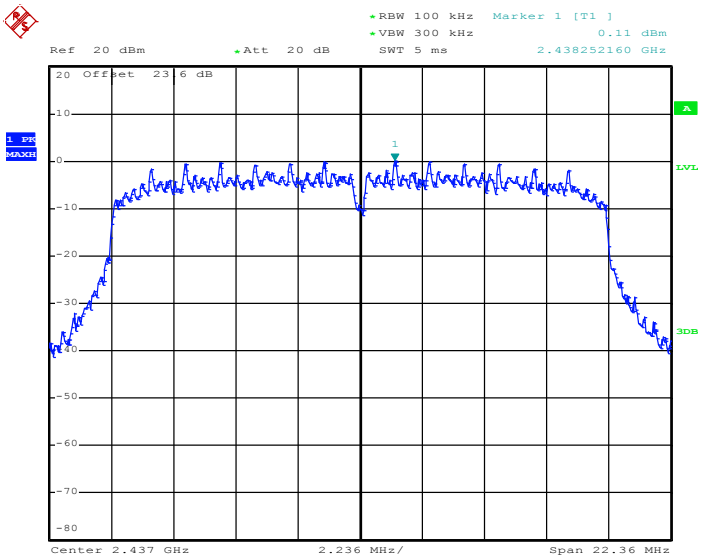
PSD Plot on Channel 01



Date: 1.AUG.2012 21:40:39

802.11n HT-20 –MIMO Ant. 1+2(1)

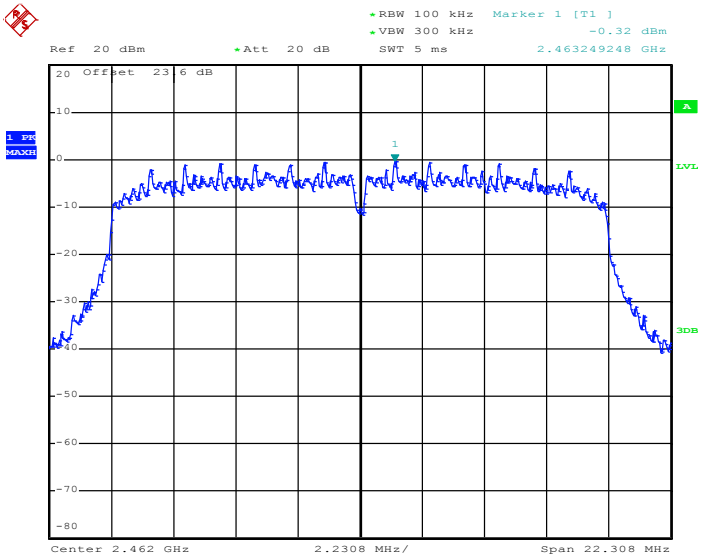
PSD Plot on Channel 06



Date: 1.AUG.2012 21:37:41

802.11n HT-20 –MIMO Ant. 1+2(1)

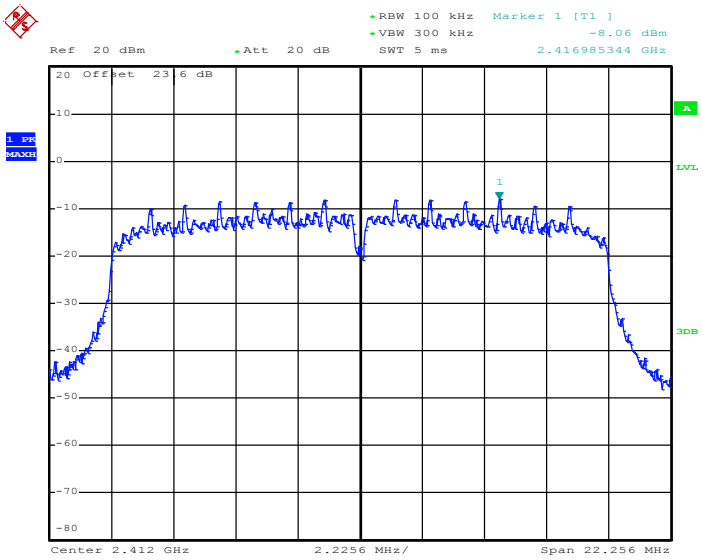
PSD Plot on Channel 11



Date: 1.AUG.2012 21:34:33

802.11n HT-20 –MIMO Ant. 1+2(2)

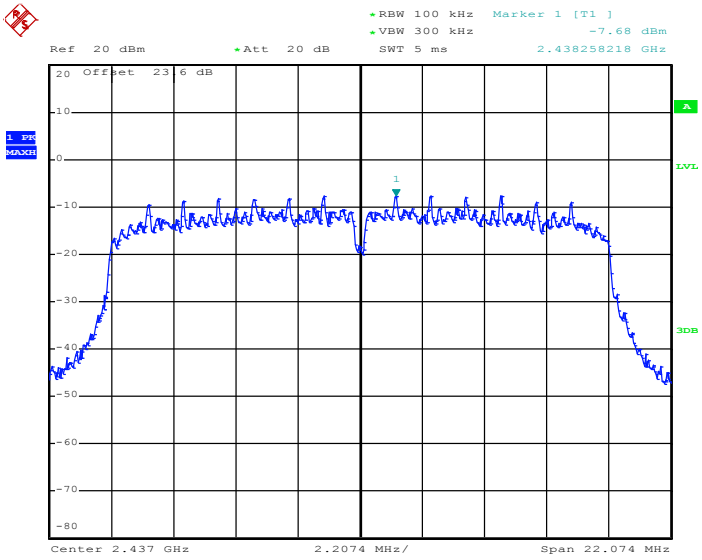
PSD Plot on Channel 01



Date: 1.AUG.2012 21:44:01

802.11n HT-20 –MIMO Ant. 1+2(2)

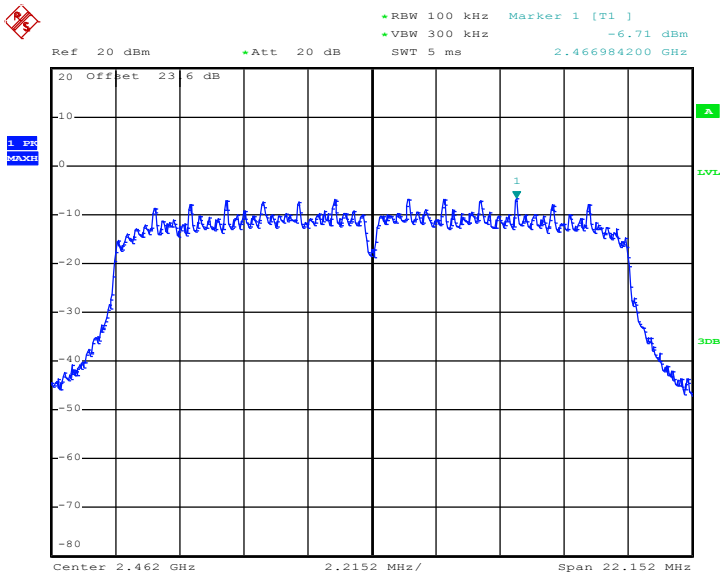
PSD Plot on Channel 06



Date: 1.AUG.2012 21:48:13

802.11n HT-20 –MIMO Ant. 1+2(2)

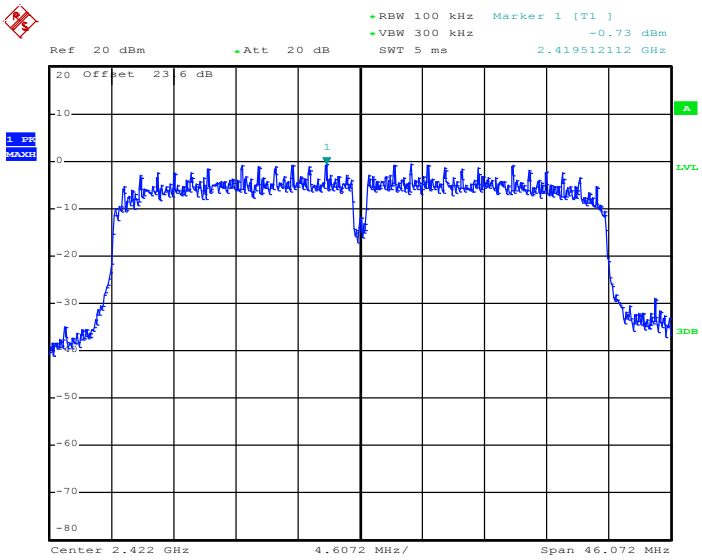
PSD Plot on Channel 11



Date: 1.AUG.2012 21:51:40

802.11n HT-40 – SISO Ant. 1

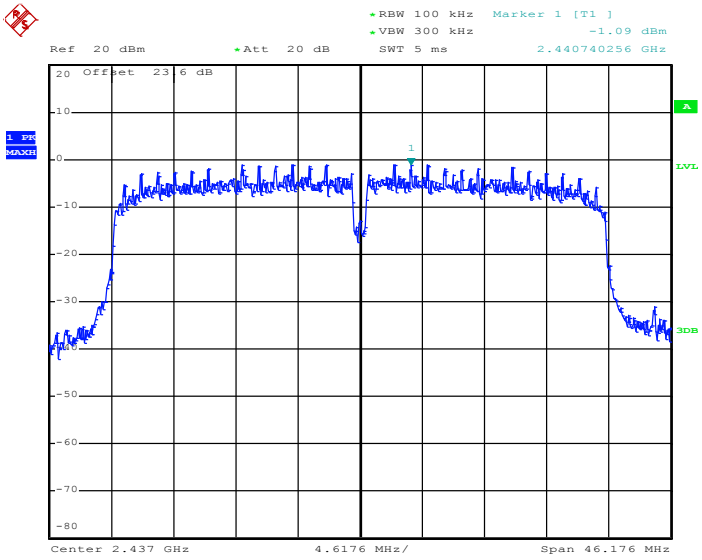
PSD Plot on Channel 03



Date: 1.AUG.2012 22:20:52

802.11n HT-40 – SISO Ant. 1

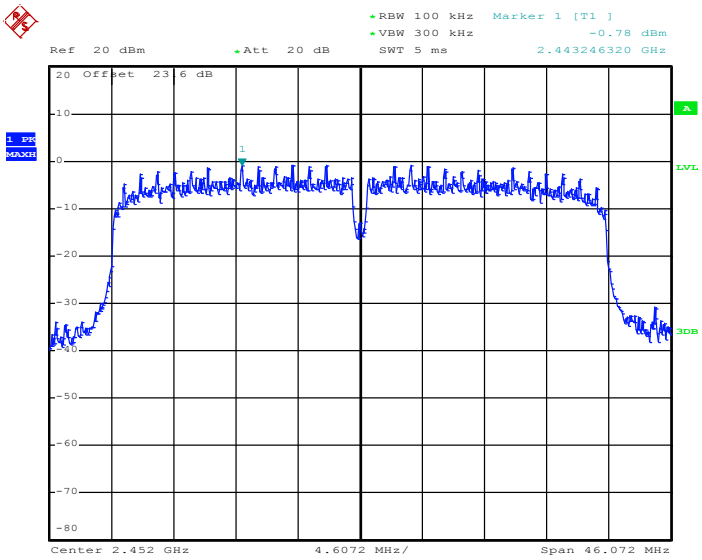
PSD Plot on Channel 06



Date: 1.AUG.2012 22:18:35

802.11n HT-40 – SISO Ant. 1

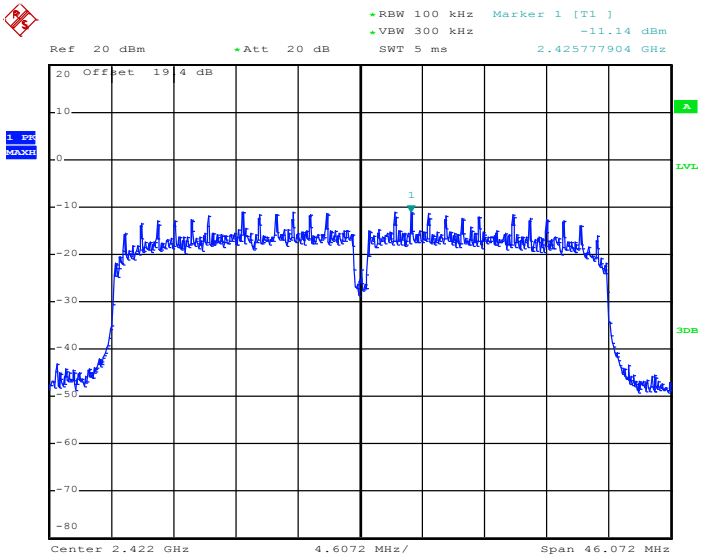
PSD Plot on Channel 09



Date: 1.AUG.2012 22:09:05

802.11n HT-40 –MIMO Ant. 1+2(1)

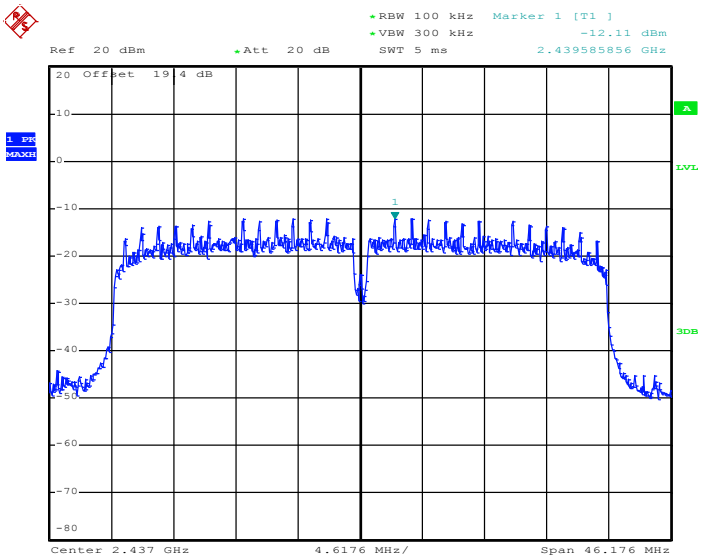
PSD Plot on Channel 03



Date: 7.AUG.2012 06:21:17

802.11n HT-40 –MIMO Ant. 1+2(1)

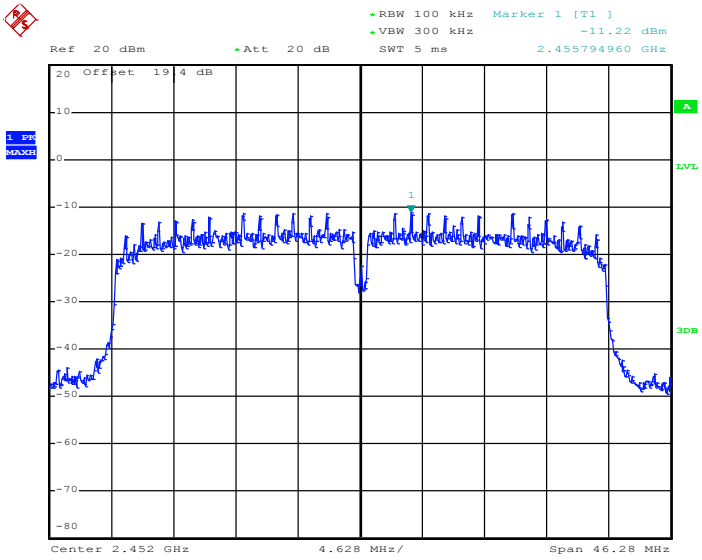
PSD Plot on Channel 06



Date: 7.AUG.2012 06:14:48

802.11n HT-40 –MIMO Ant. 1+2(1)

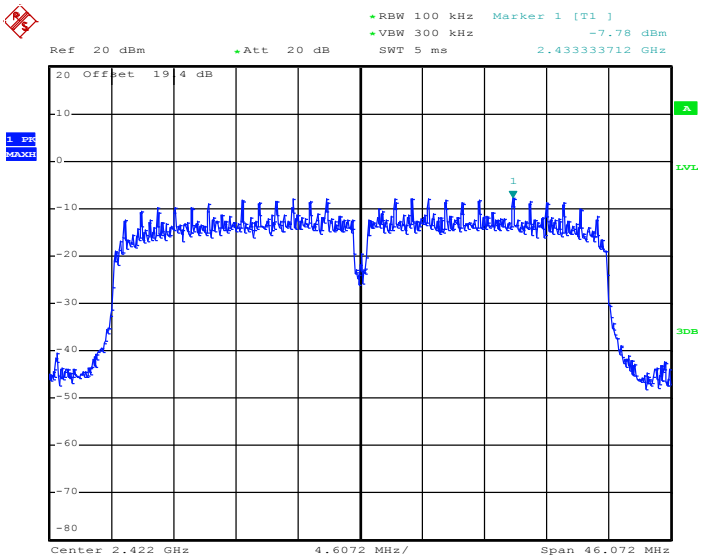
PSD Plot on Channel 09



Date: 7.AUG.2012 06:26:32

802.11n HT-40 –MIMO Ant. 1+2(2)

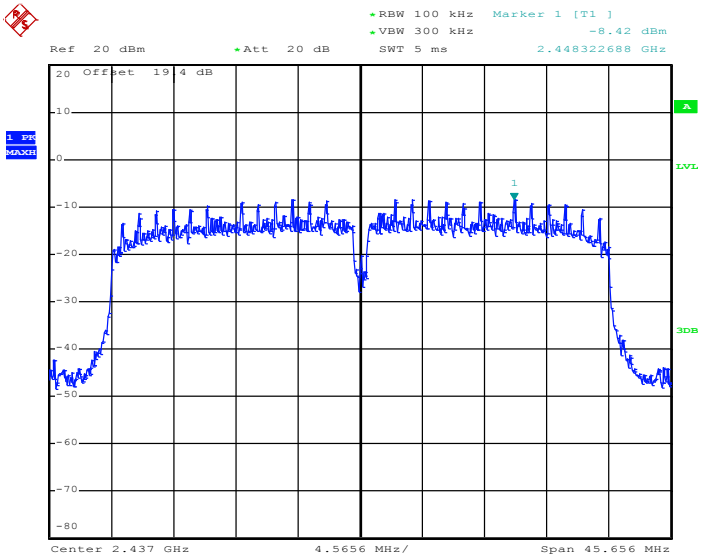
PSD Plot on Channel 03



Date: 7.AUG.2012 05:54:47

802.11n HT-40 –MIMO Ant. 1+2(2)

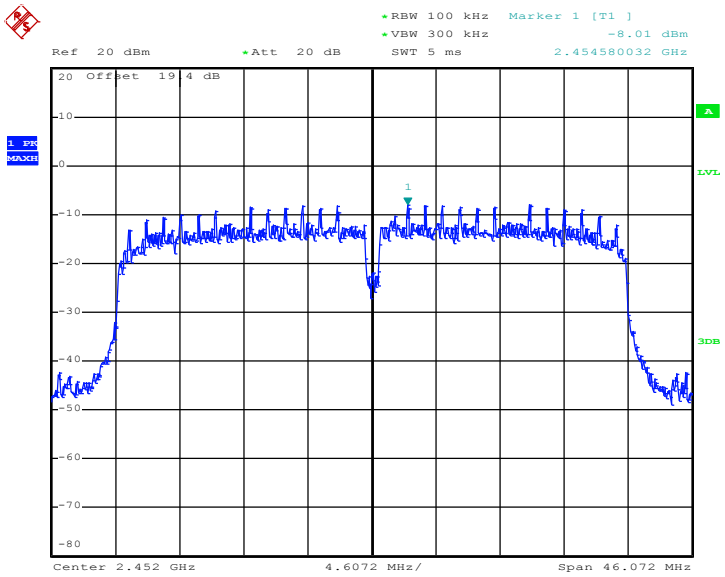
PSD Plot on Channel 06



Date: 7.AUG.2012 06:04:00

802.11n HT-40 –MIMO Ant. 1+2(2)

PSD Plot on Channel 09



Date: 7.AUG.2012 06:08:33

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

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

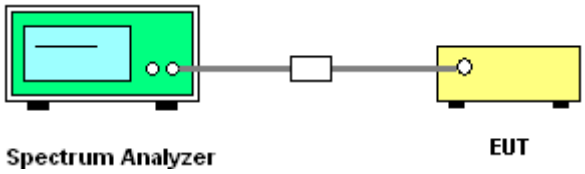
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance, ANSI C63.4-2003, and ANSI C63.10-2009.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. 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.
4. Measure and record the results in the test report.

3.4.4 Test Setup

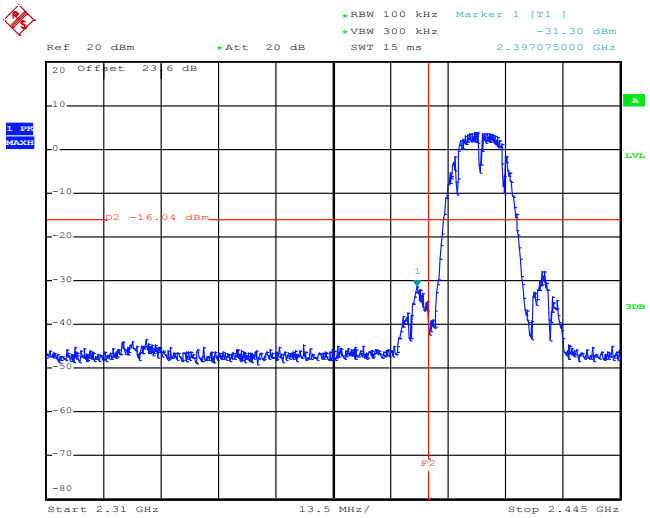


3.4.5 Test Result of Conducted Spurious at Band Edges

Test Mode :	802.11b (SISO Ant. 1)	**Temperature :**	24~26℃
Test Band :	Low and High	**Relative Humidity :**	55~58%
Test Channel :	01 and 11	**Test Engineer :**	Bill Kuo and Book Lin

802.11b

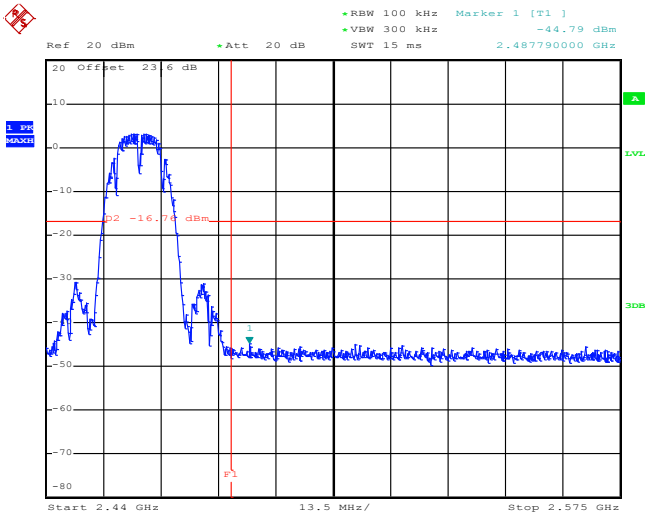
Low Band Edge Plot on Channel 01



Date: 24.JUL.2012 00:57:10

802.11b

High Band Edge Plot on Channel 11

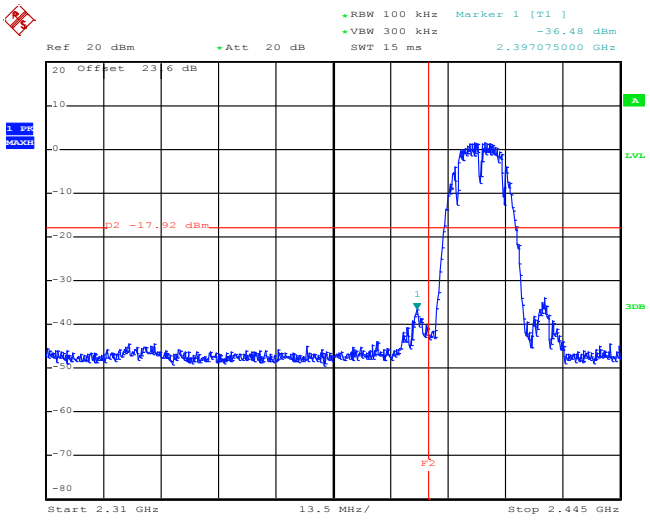


Date: 24.JUL.2012 01:05:31

Test Mode :	802.11b MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11g

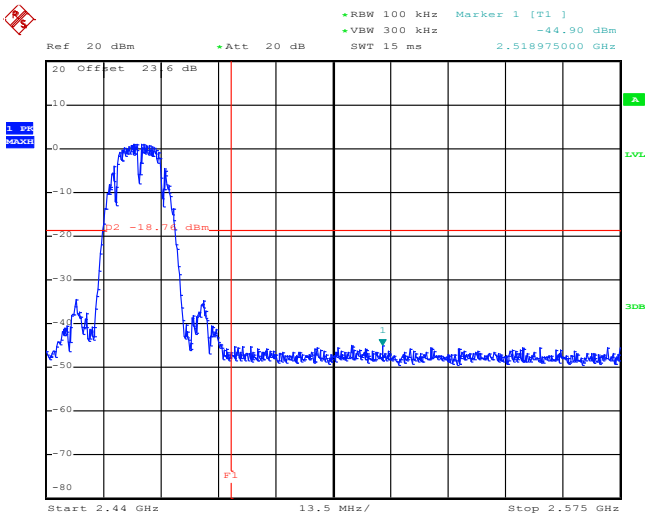
Low Band Edge Plot on Channel 01



Date: 24.JUL.2012 01:13:17

802.11g

High Band Edge Plot on Channel 11

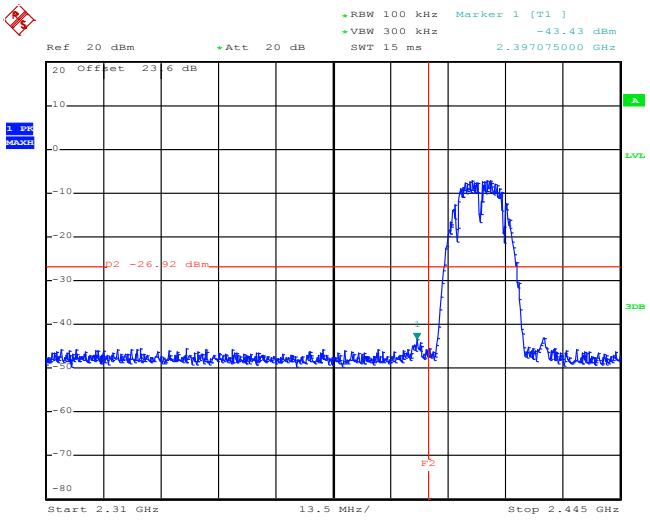


Date: 24.JUL.2012 01:20:18

Test Mode :	802.11b MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11b

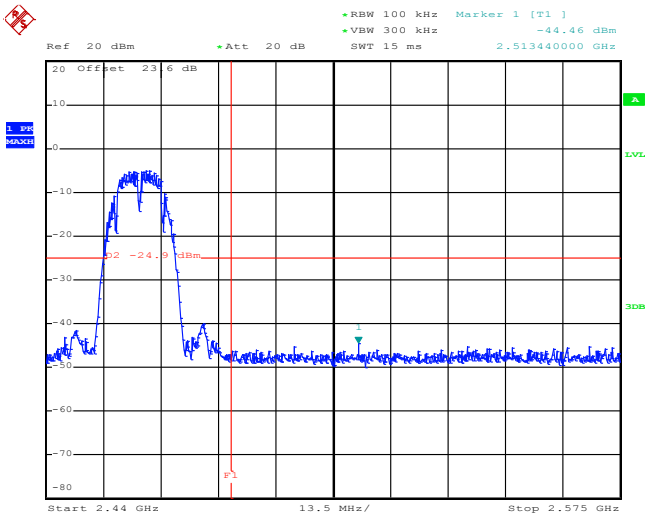
Low Band Edge Plot on Channel 01



Date: 24.JUL.2012 01:31:46

802.11b

High Band Edge Plot on Channel 11

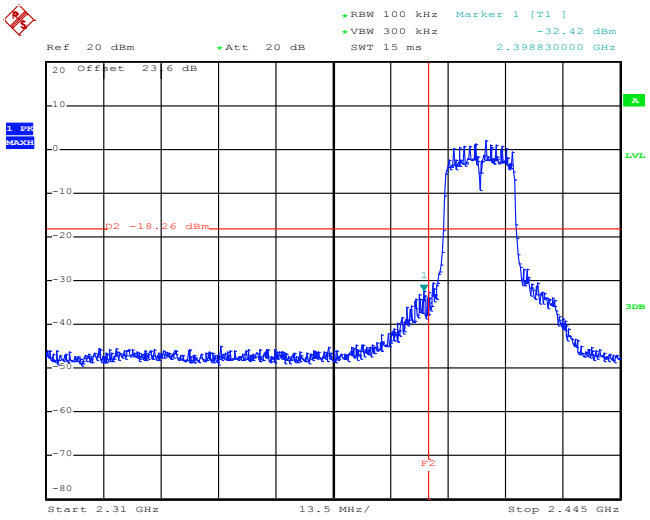


Date: 24.JUL.2012 01:24:50

Test Mode :	802.11g (SISO Ant. 1)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11g

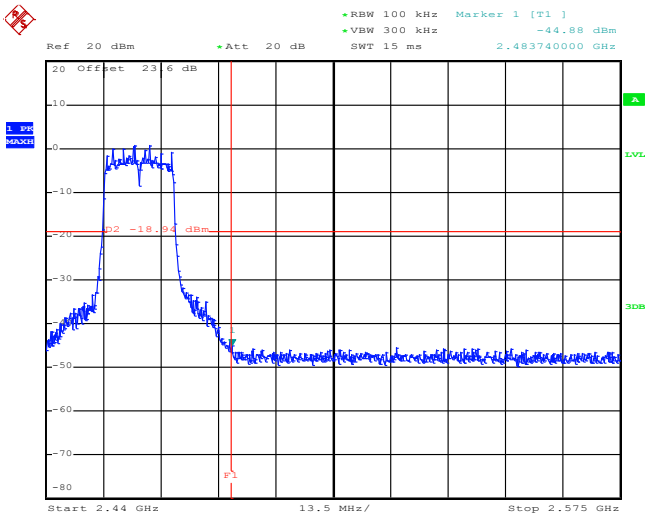
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 20:32:16

802.11g

High Band Edge Plot on Channel 11

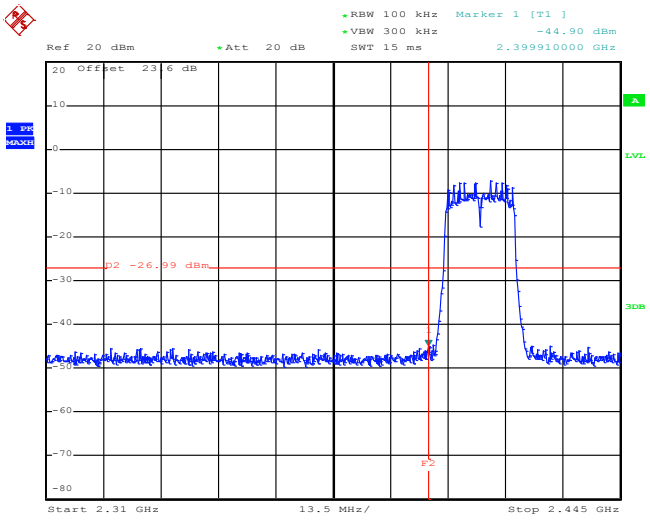


Date: 1.AUG.2012 20:40:15

Test Mode :	802.11g MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11g

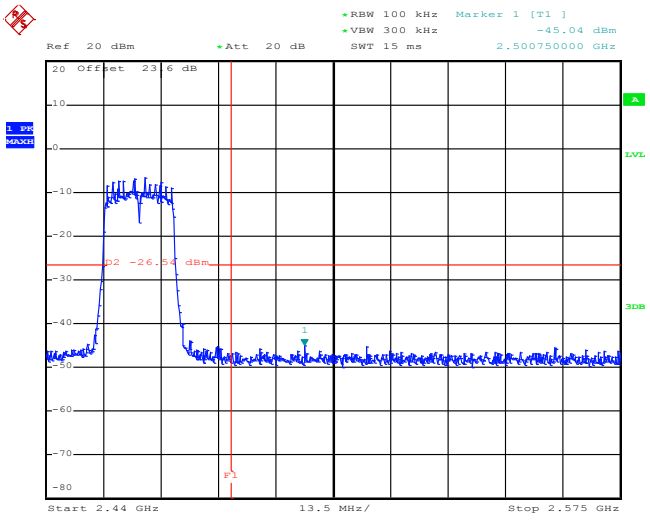
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 21:21:58

802.11g

High Band Edge Plot on Channel 11

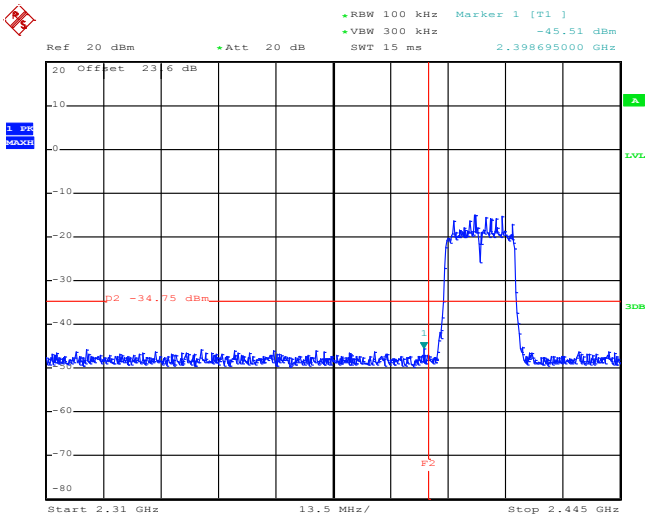


Date: 1.AUG.2012 21:29:37

Test Mode :	802.11g MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11g

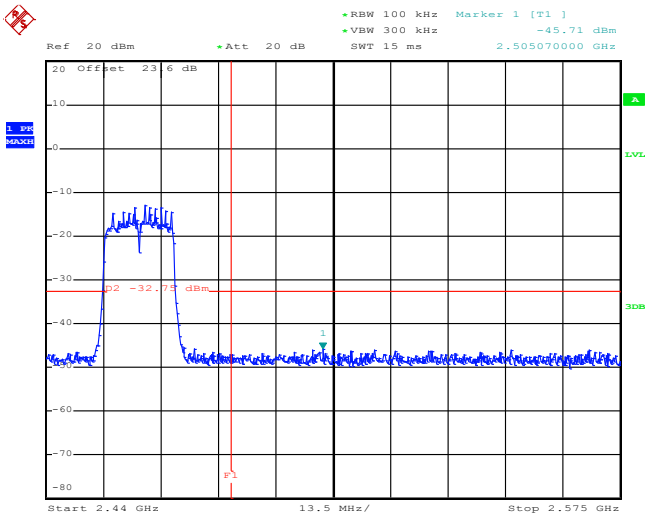
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 21:18:00

802.11g

High Band Edge Plot on Channel 11

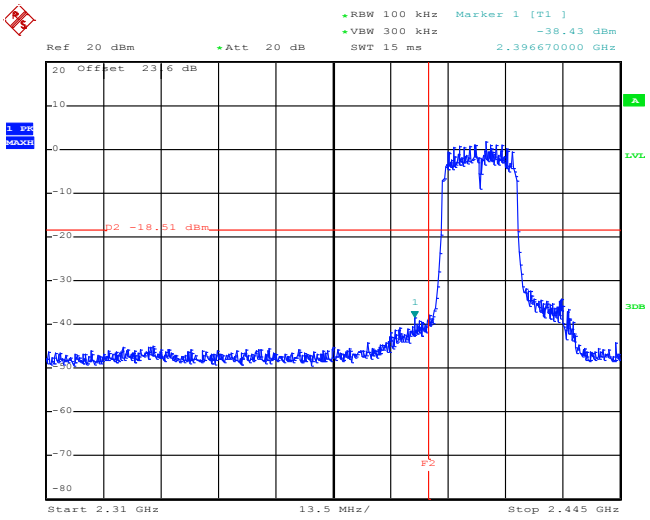


Date: 1.AUG.2012 21:07:04

Test Mode :	802.11n HT-20 SISO Ant. 1	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-20

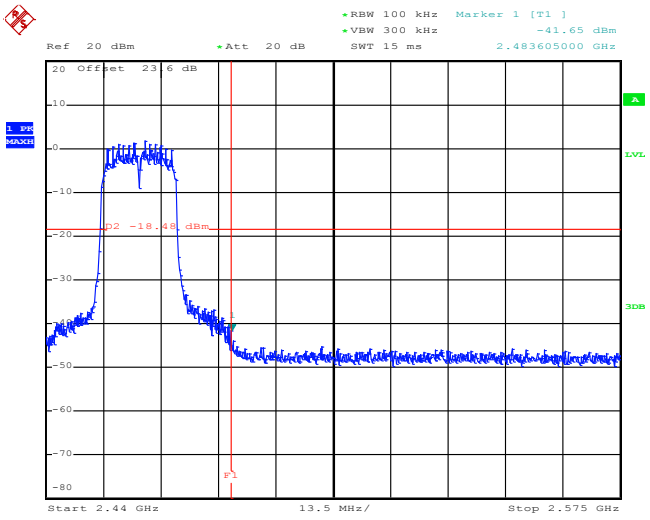
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 21:56:38

802.11n HT-20

High Band Edge Plot on Channel 11

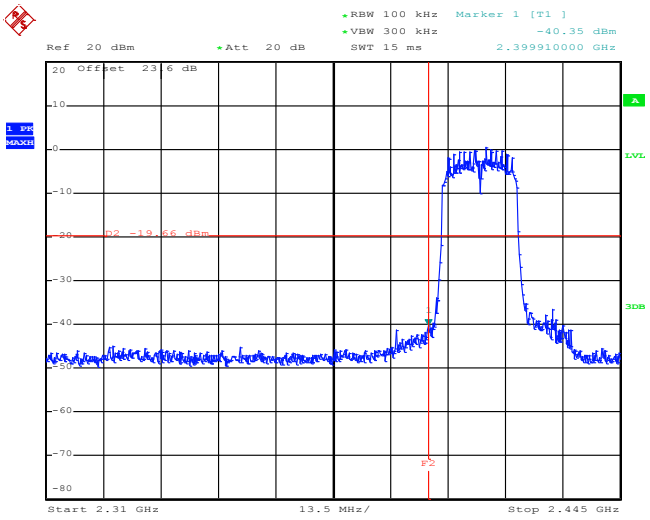


Date: 1.AUG.2012 22:03:37

Test Mode :	802.11n HT-20 MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-20

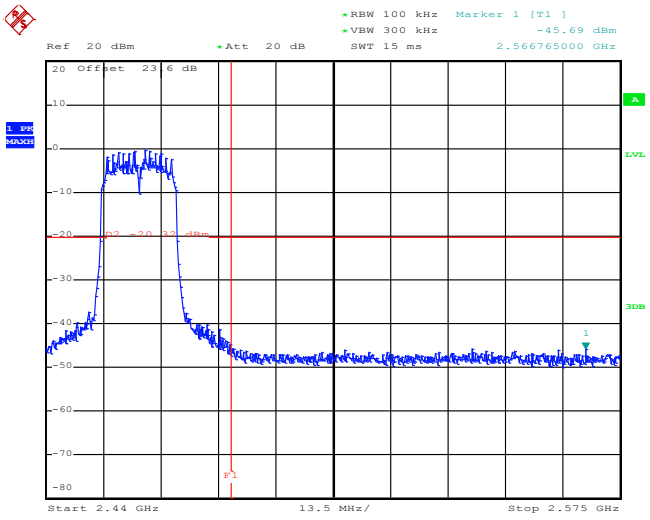
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 21:40:55

802.11n HT-20

High Band Edge Plot on Channel 11

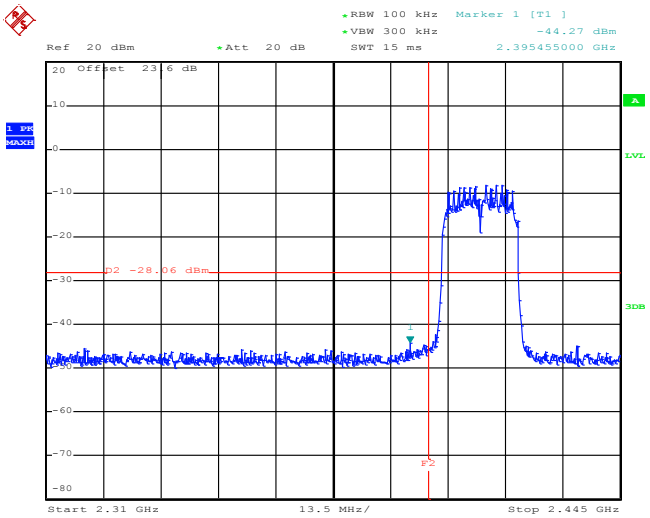


Date: 1.AUG.2012 21:34:50

Test Mode :	802.11n HT-20 MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-20

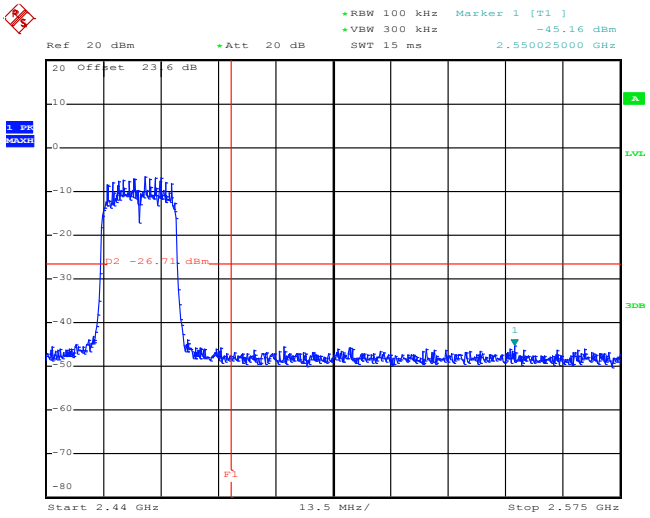
Low Band Edge Plot on Channel 01



Date: 1.AUG.2012 21:44:18

802.11n HT-20

High Band Edge Plot on Channel 11

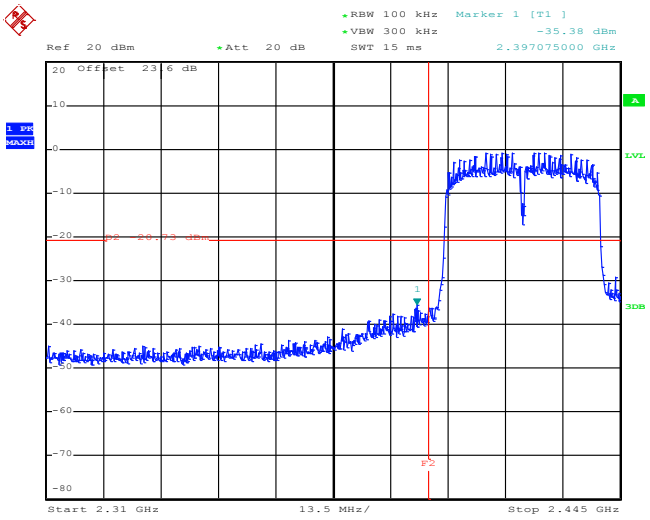


Date: 1.AUG.2012 21:51:56

Test Mode :	802.11n HT-40 SISO Ant. 1	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40

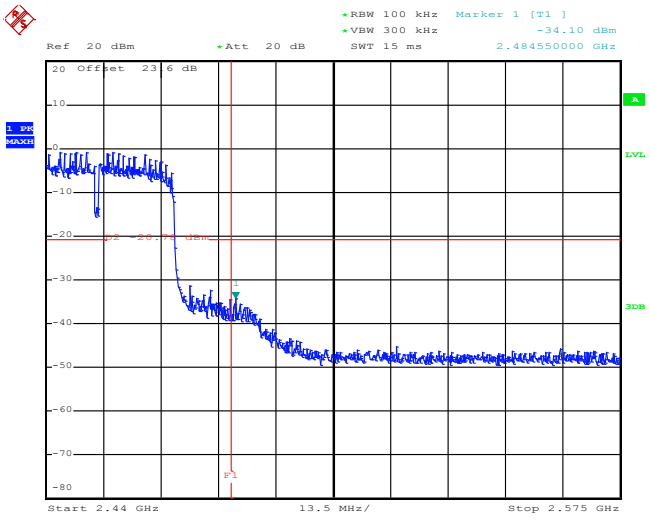
Low Band Edge Plot on Channel 03



Date: 1.AUG.2012 22:21:07

802.11n HT-40

High Band Edge Plot on Channel 09

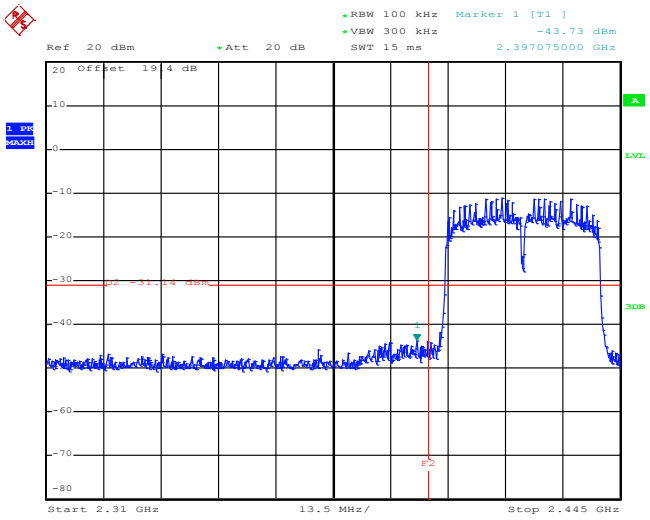


Date: 1.AUG.2012 22:09:49

Test Mode :	802.11n HT-40 MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40

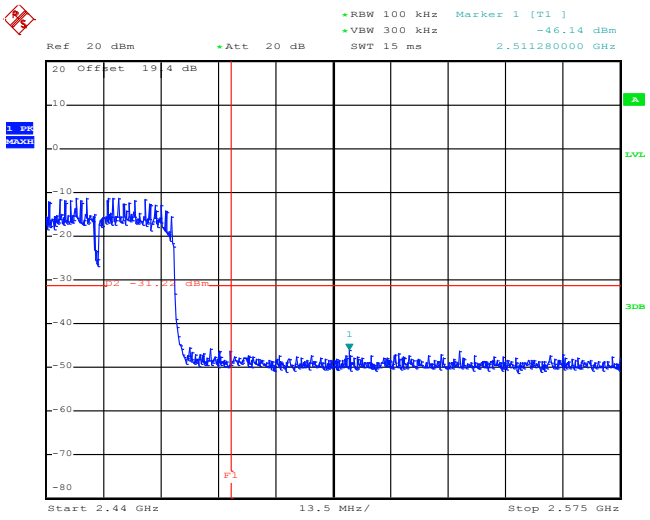
Low Band Edge Plot on Channel 03



Date: 7.AUG.2012 06:22:13

802.11n HT-40

High Band Edge Plot on Channel 09

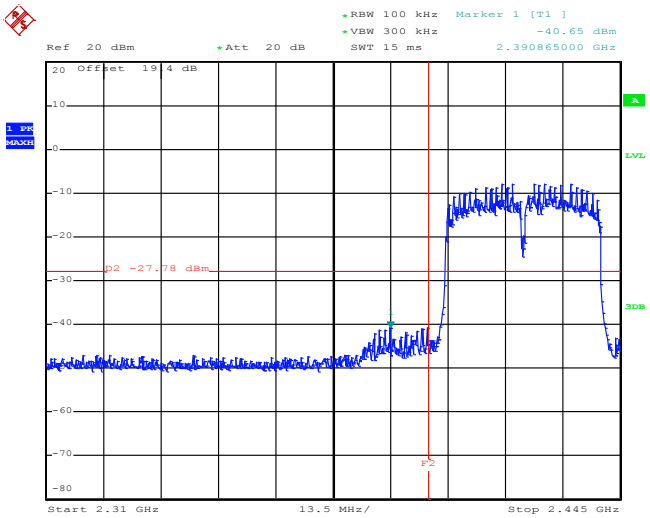


Date: 7.AUG.2012 06:26:46

Test Mode :	802.11n HT-40 MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	55~58%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40

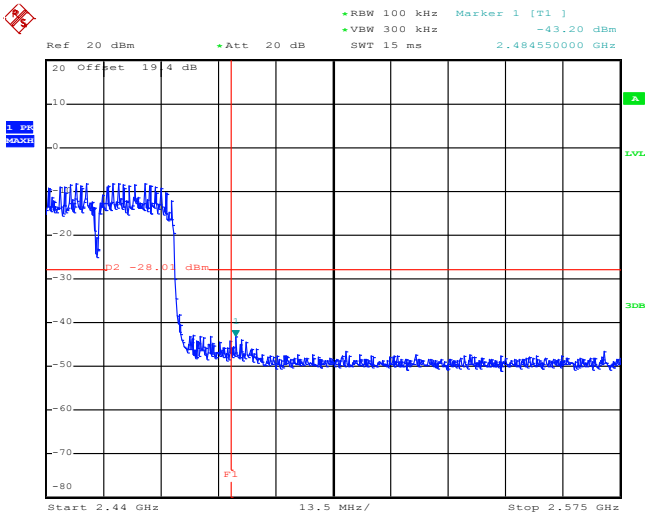
Low Band Edge Plot on Channel 03



Date: 7.AUG.2012 05:55:06

802.11n HT-40

High Band Edge Plot on Channel 09



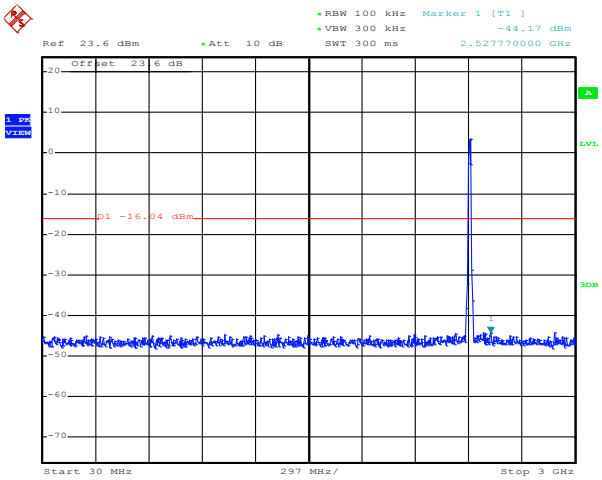
Date: 7.AUG.2012 06:08:50

3.4.5 Test Result of Conducted Spurious Emission

Test Mode :	802.11b SISO Ant. 1	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11b 30 MHz~3 GHz

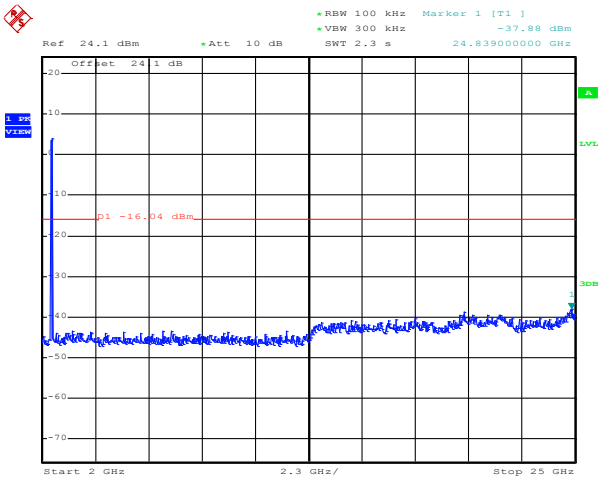
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 00:57:42

802.11b 2 GHz~25 GHz

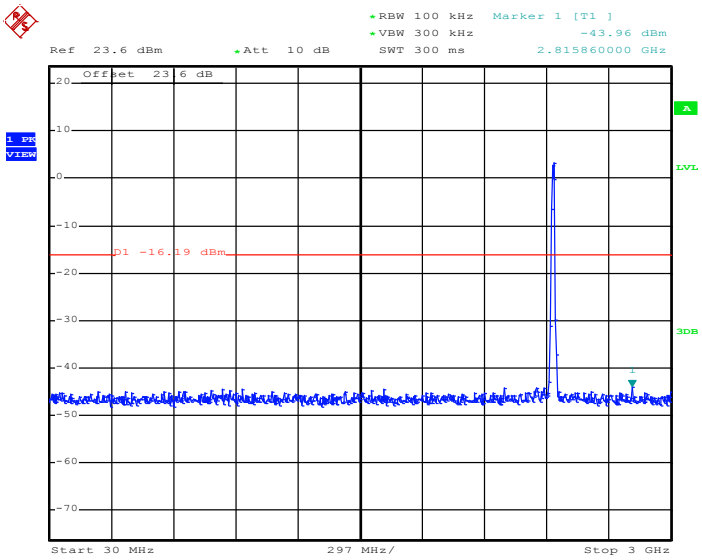
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 00:58:00

802.11b 30 MHz~3 GHz

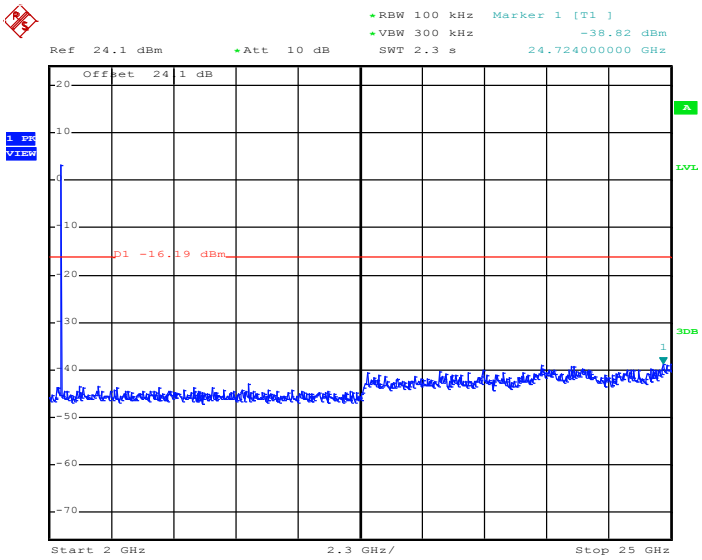
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:01:56

802.11b 2 GHz~25 GHz

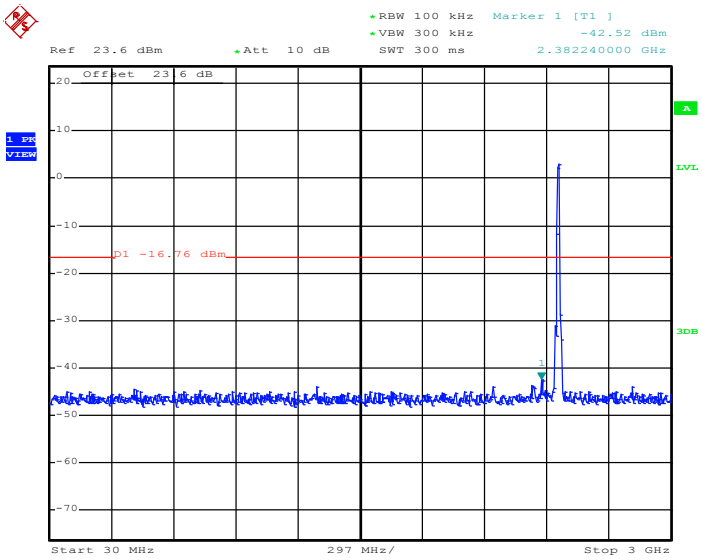
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:02:14

802.11b 30 MHz~3 GHz

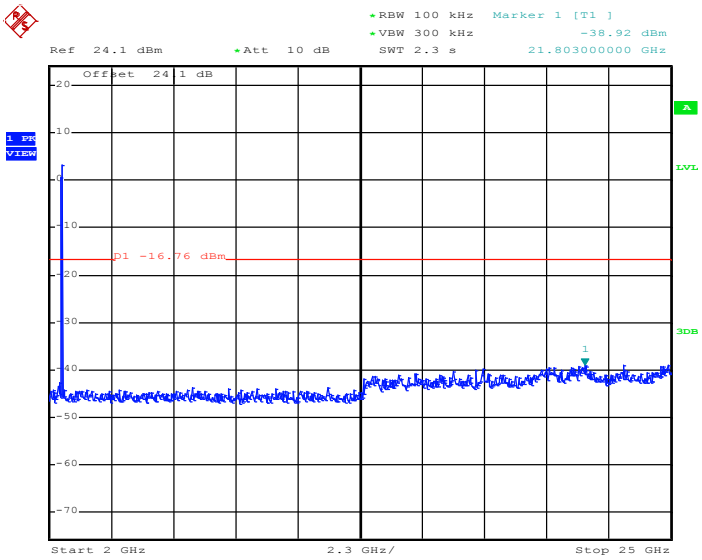
Conducted Spurious Emission Plot on Channel 11



Date: 24.JUL.2012 01:05:51

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

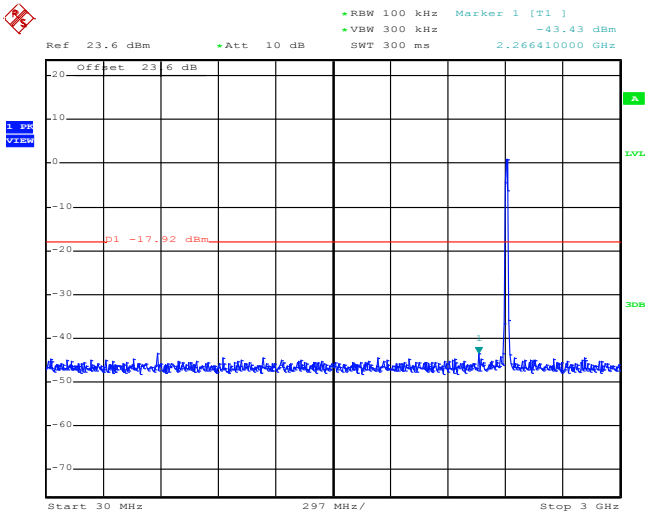


Date: 24.JUL.2012 01:06:09

Test Mode :	802.11b MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11b 30 MHz~3 GHz

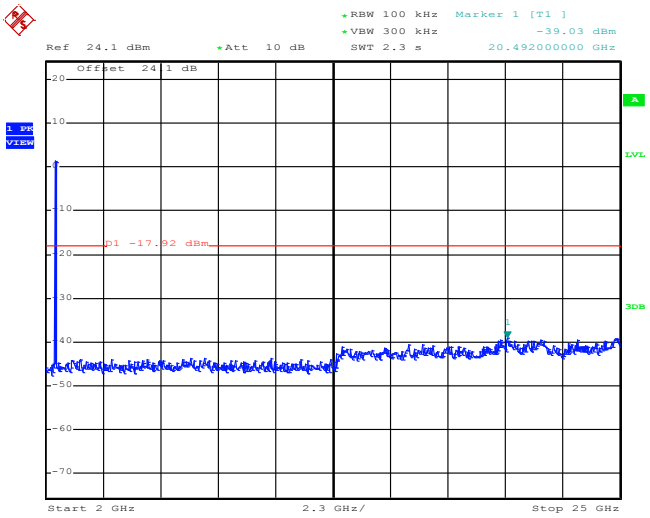
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 01:13:47

802.11b 2 GHz~25 GHz

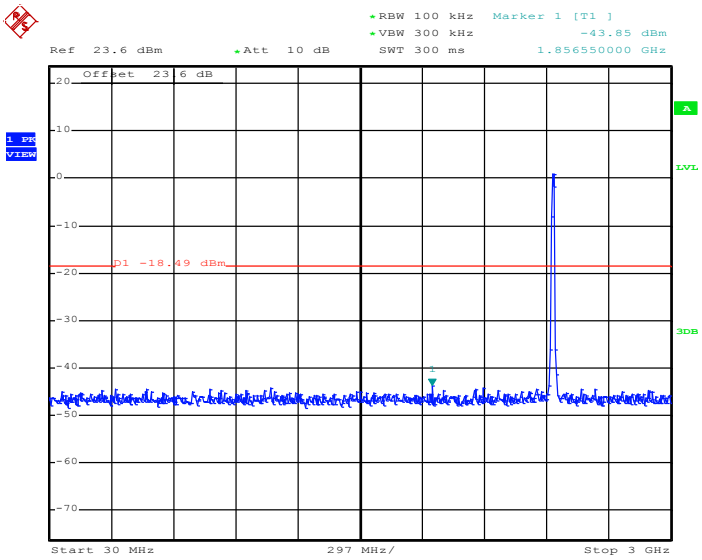
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 01:14:05

802.11b 30 MHz~3 GHz

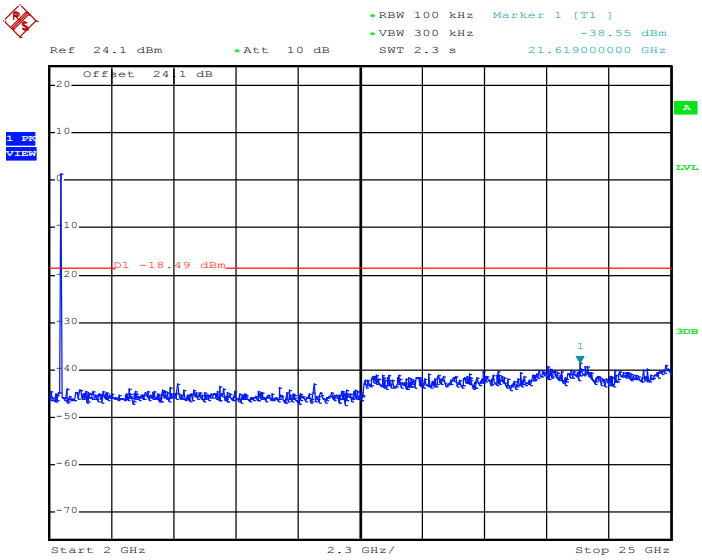
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:17:26

802.11b 2 GHz~25 GHz

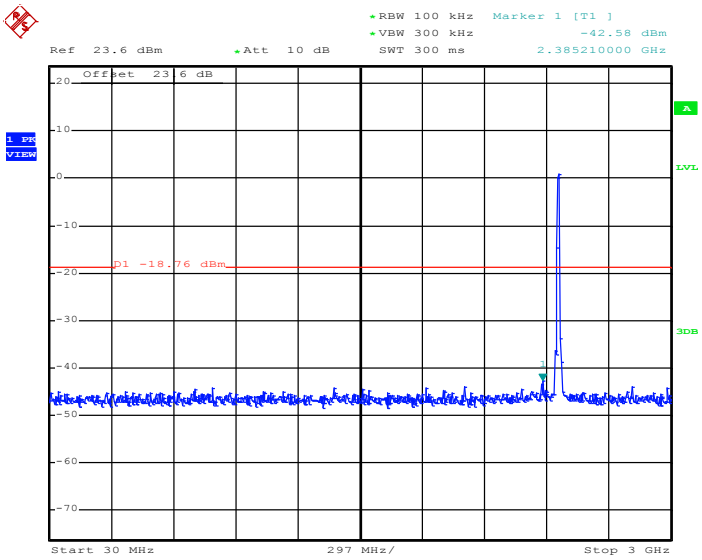
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:17:44

802.11b 30 MHz~3 GHz

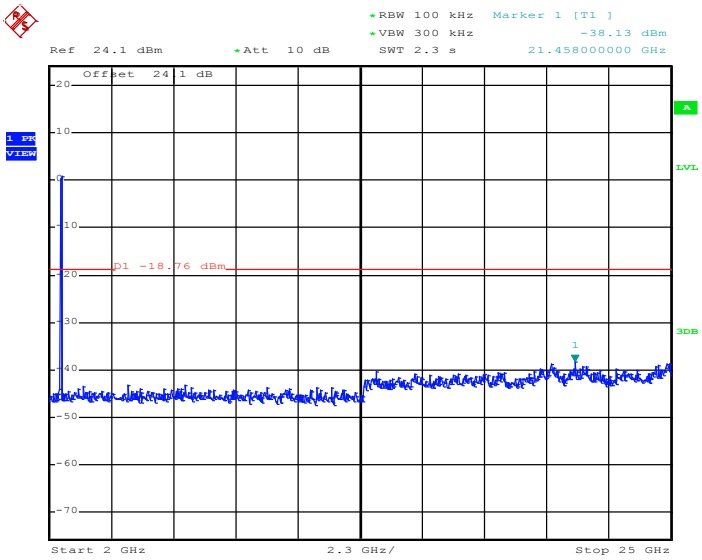
Conducted Spurious Emission Plot on Channel 11



Date: 24.JUL.2012 01:20:40

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

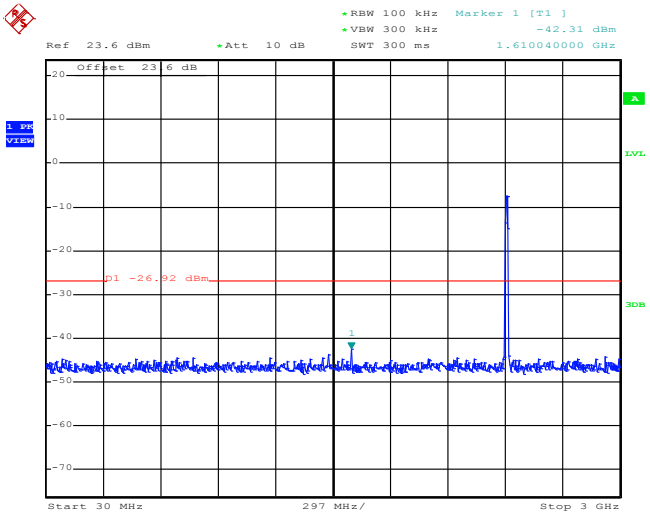


Date: 24.JUL.2012 01:20:58

Test Mode :	802.11b MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11b 30 MHz~3 GHz

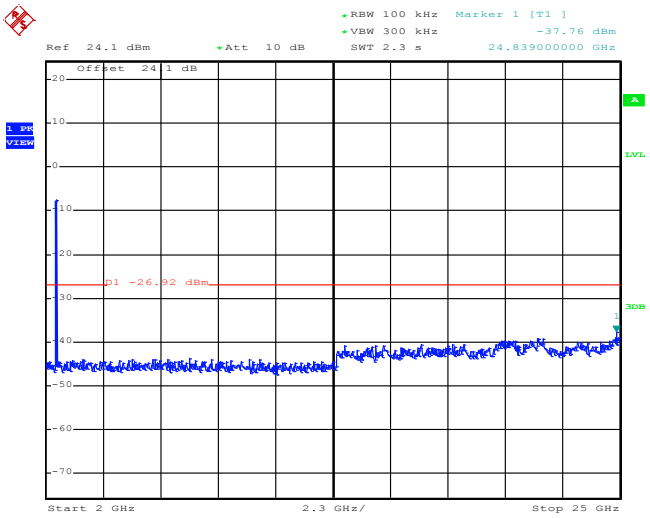
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 01:32:10

802.11b 2 GHz~25 GHz

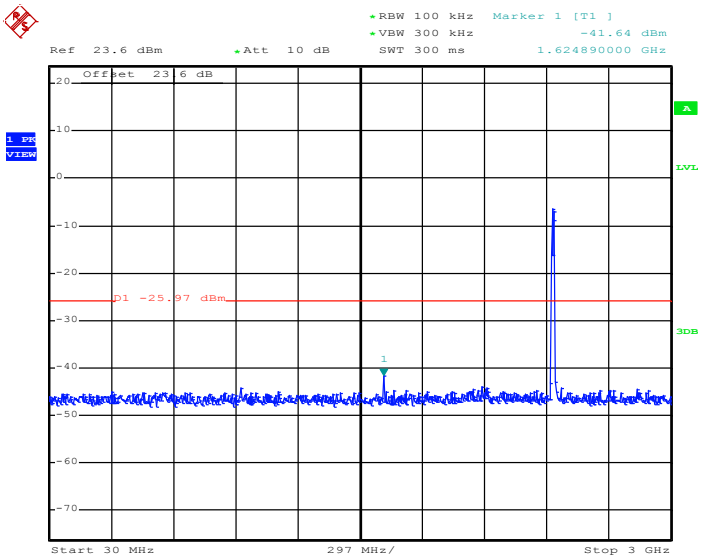
Conducted Spurious Emission Plot on Channel 01



Date: 24.JUL.2012 01:32:28

802.11b 30 MHz~3 GHz

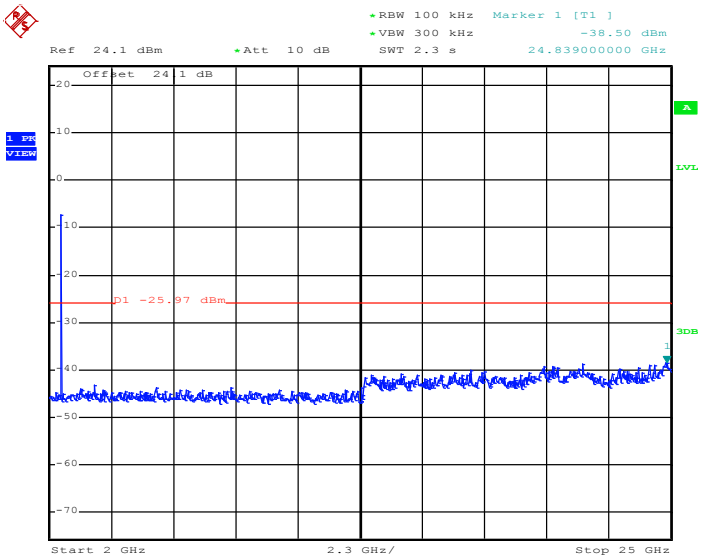
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:28:46

802.11b 2 GHz~25 GHz

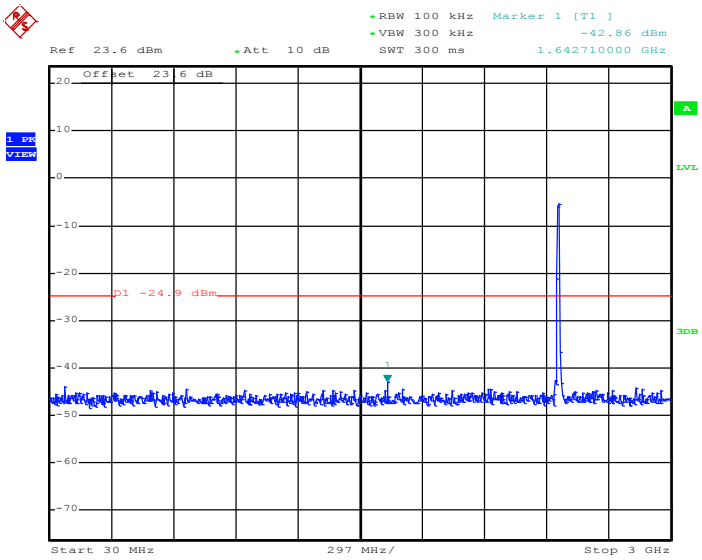
Conducted Spurious Emission Plot on Channel 06



Date: 24.JUL.2012 01:29:04

802.11b 30 MHz~3 GHz

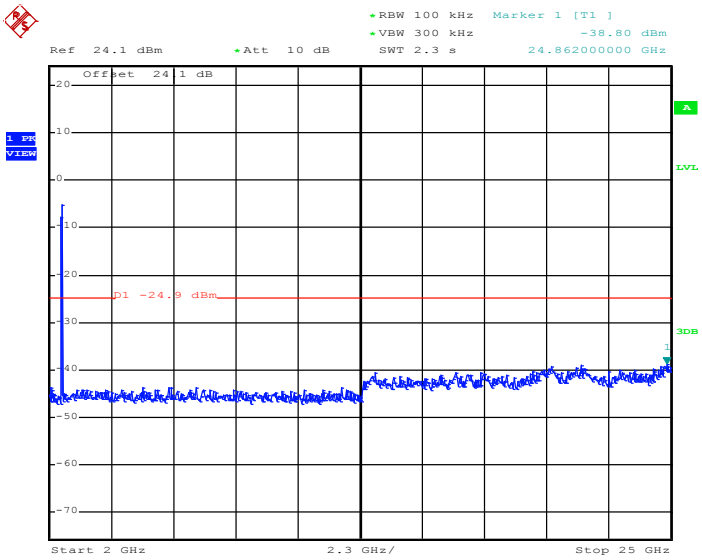
Conducted Spurious Emission Plot on Channel 11



Date: 24.JUL.2012 01:25:14

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

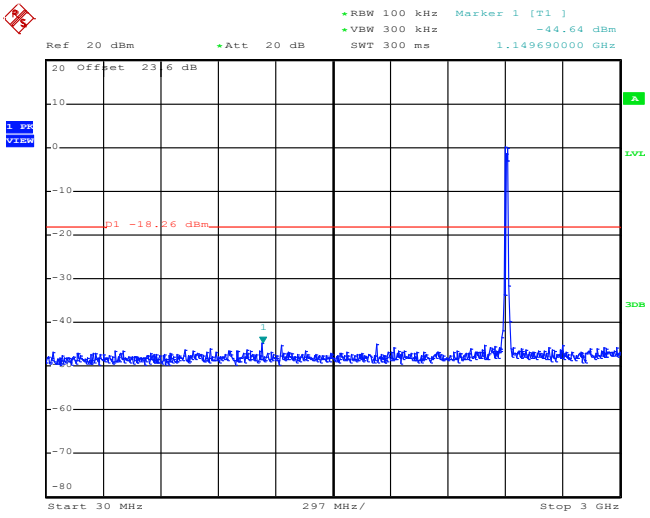


Date: 24.JUL.2012 01:25:32

Test Mode :	802.11g SISO Ant. 1	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11g 30 MHz~3 GHz

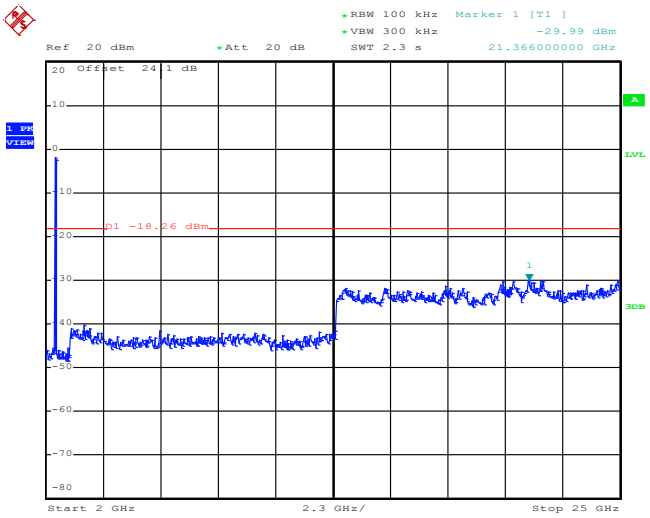
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 20:33:33

802.11g 2 GHz~25 GHz

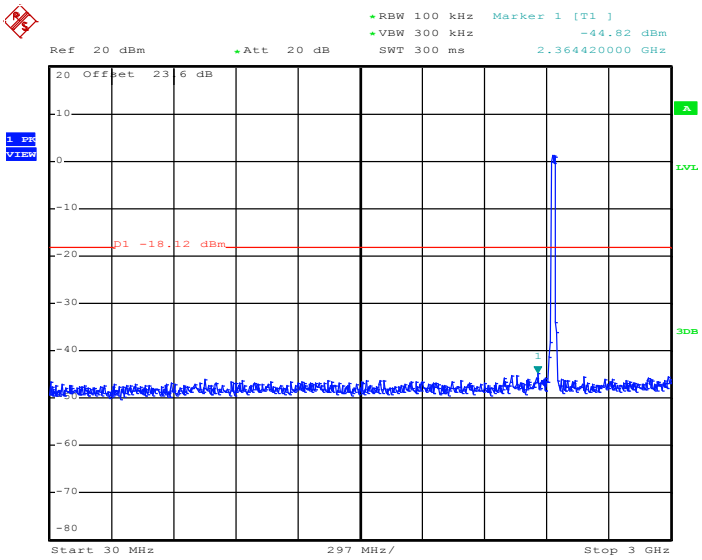
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 20:33:52

802.11g 30 MHz~3 GHz

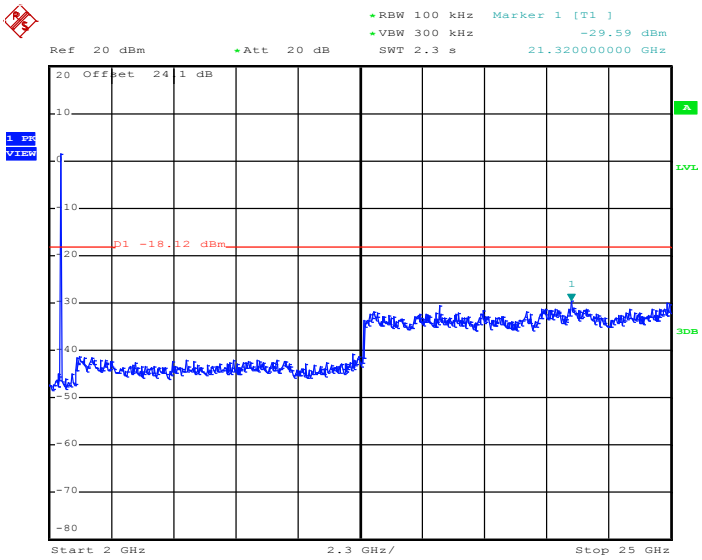
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 20:37:22

802.11g 2 GHz~25 GHz

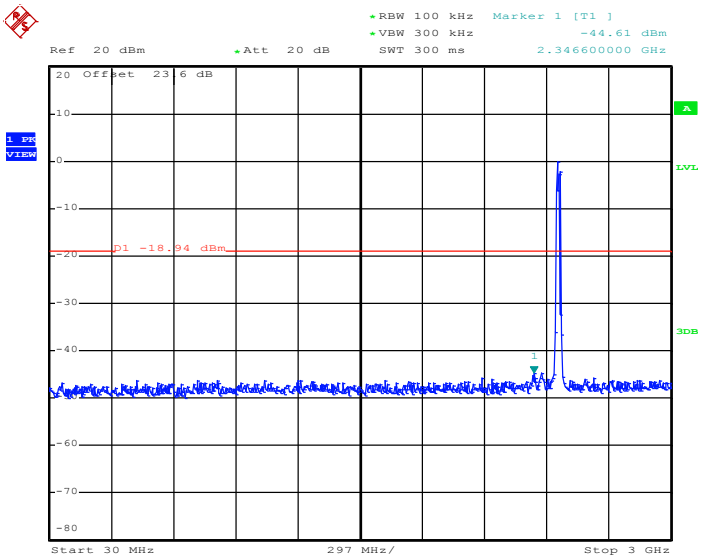
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 20:37:40

802.11g 30 MHz~3 GHz

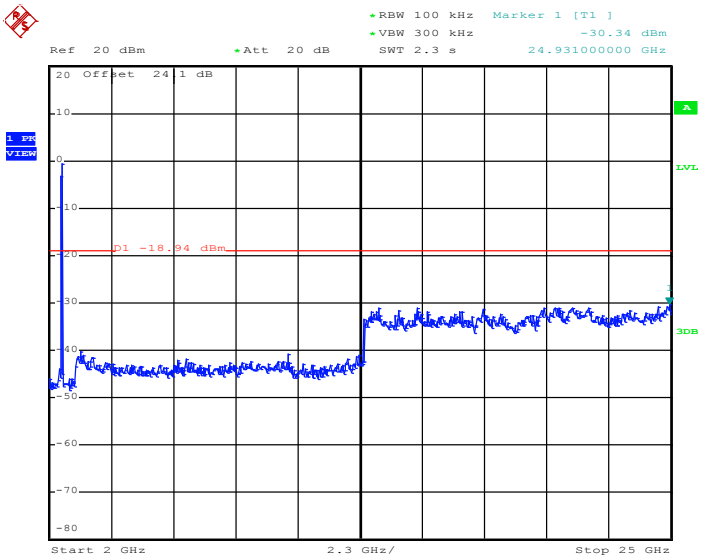
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 20:41:17

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

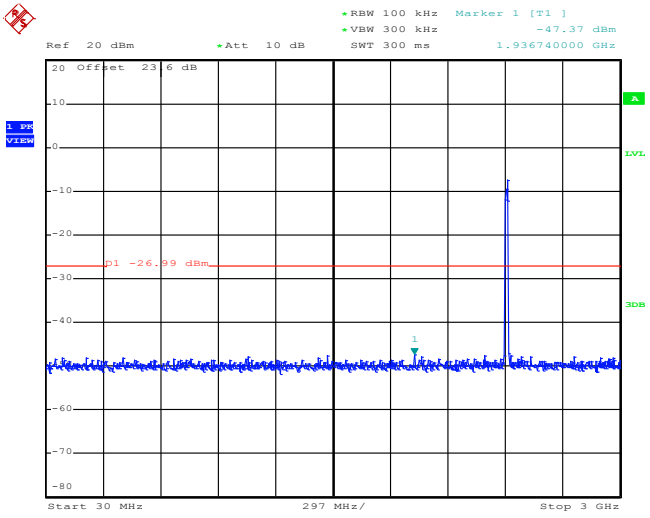


Date: 1.AUG.2012 20:41:35

Test Mode :	802.11g MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11g 30 MHz~3 GHz

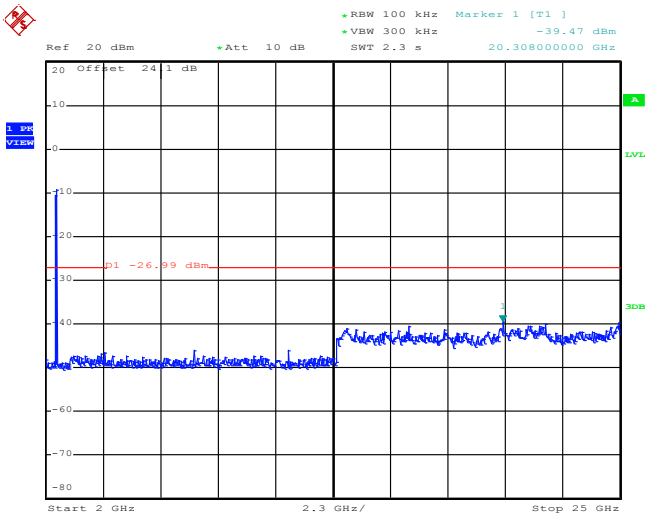
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:22:24

802.11g 2 GHz~25 GHz

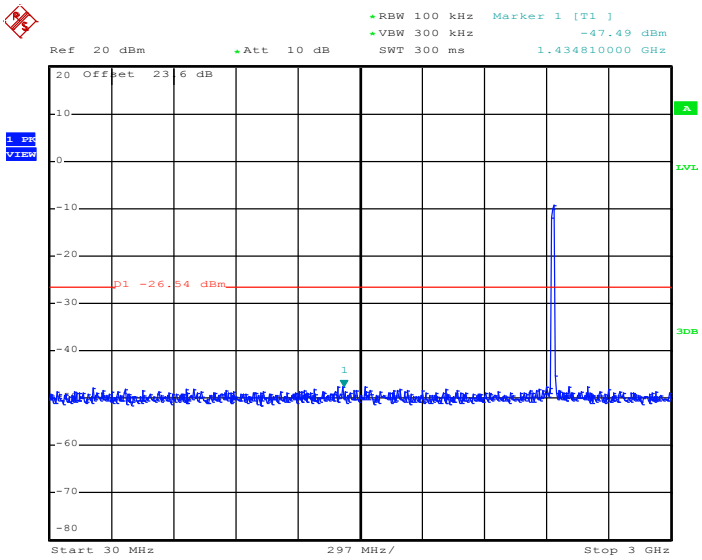
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:22:42

802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 06



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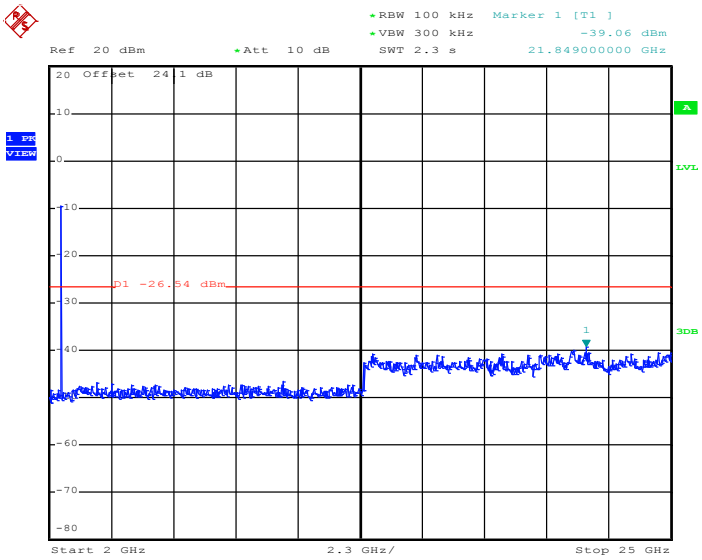
802.11g 2 GHz~25 GHz

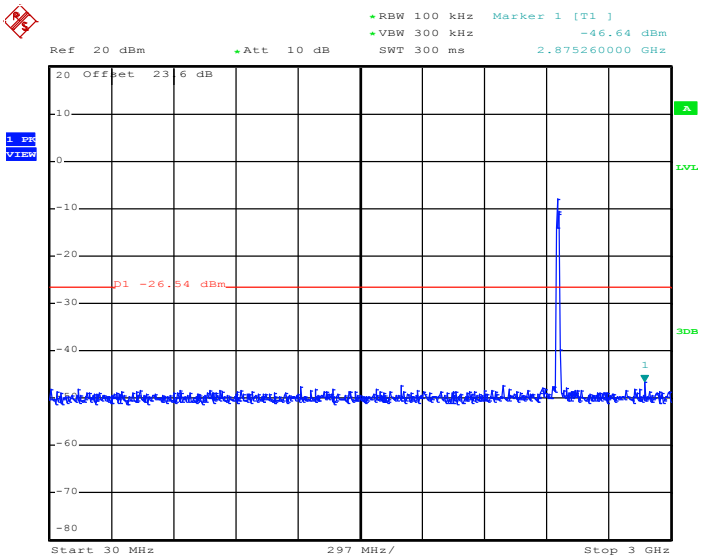
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:27:03

802.11g 30 MHz~3 GHz

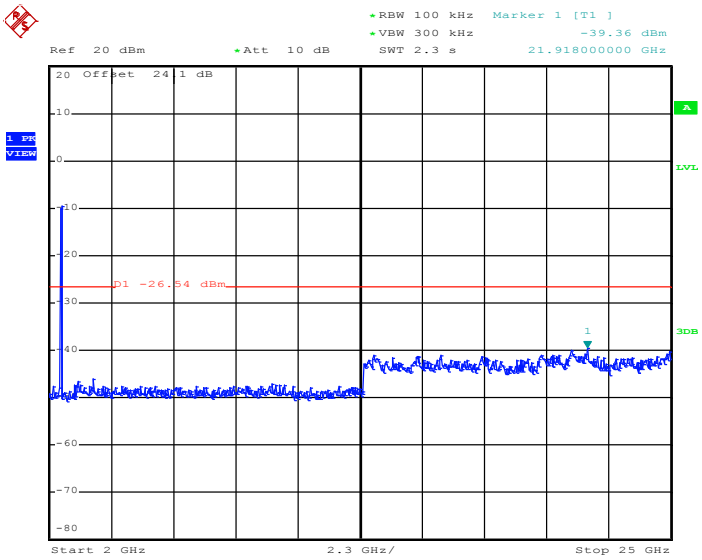
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 21:30:02

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

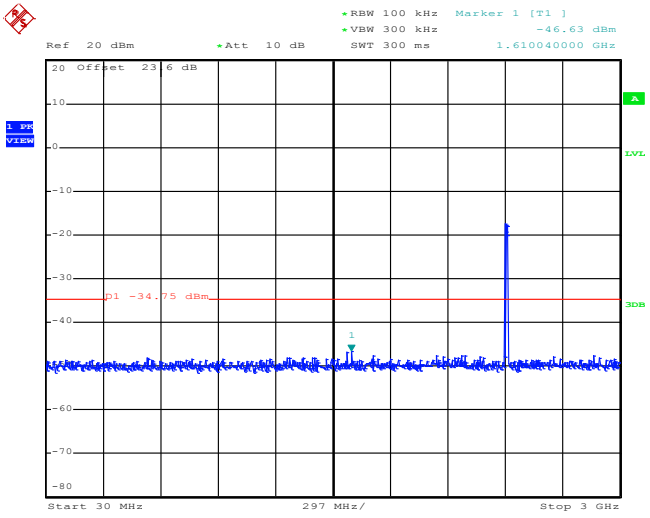


Date: 1.AUG.2012 21:30:20

Test Mode :	802.11g MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11g 30 MHz~3 GHz

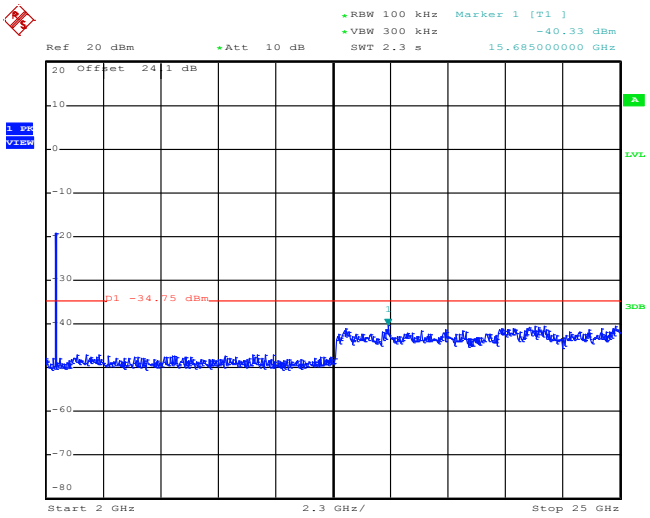
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:18:41

802.11g 2 GHz~25 GHz

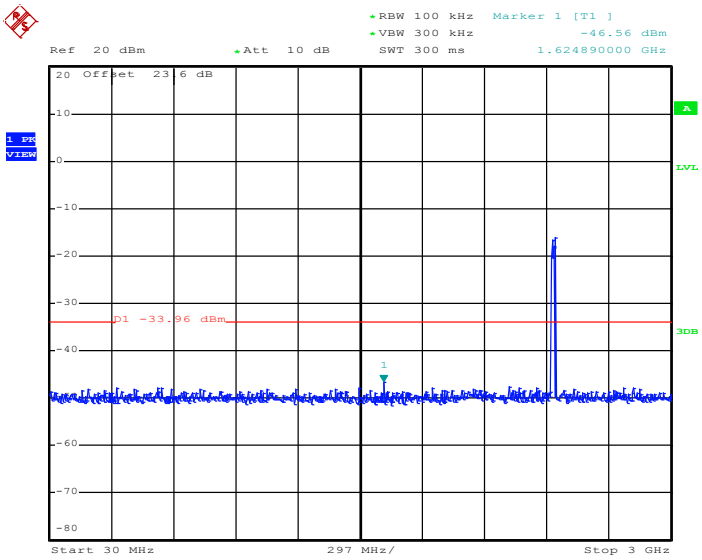
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:18:59

802.11g 30 MHz~3 GHz

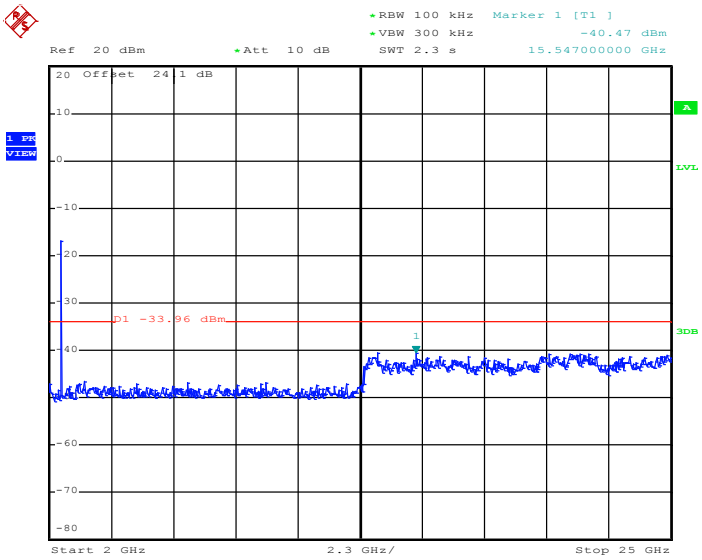
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:15:21

802.11g 2 GHz~25 GHz

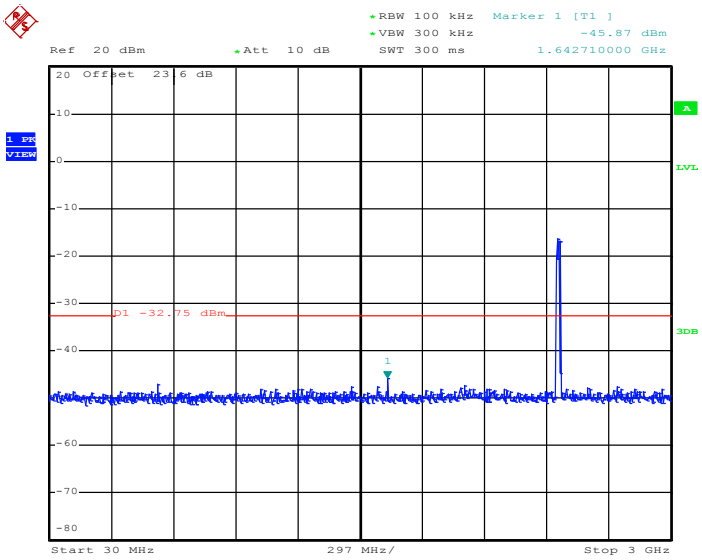
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:15:40

802.11g 30 MHz~3 GHz

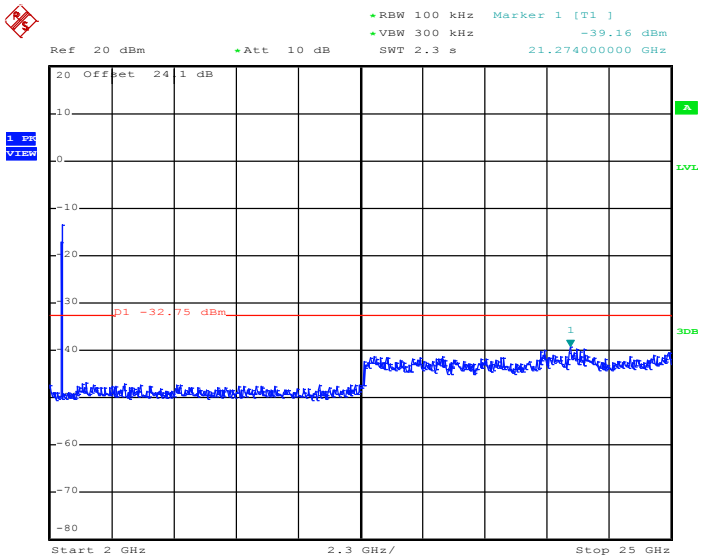
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 21:08:18

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

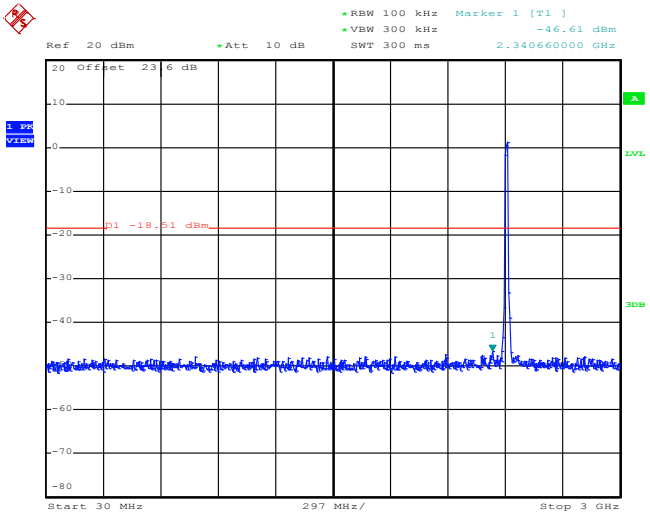


Date: 1.AUG.2012 21:08:37

Test Mode :	802.11n HT-20 SISO Ant. 1	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

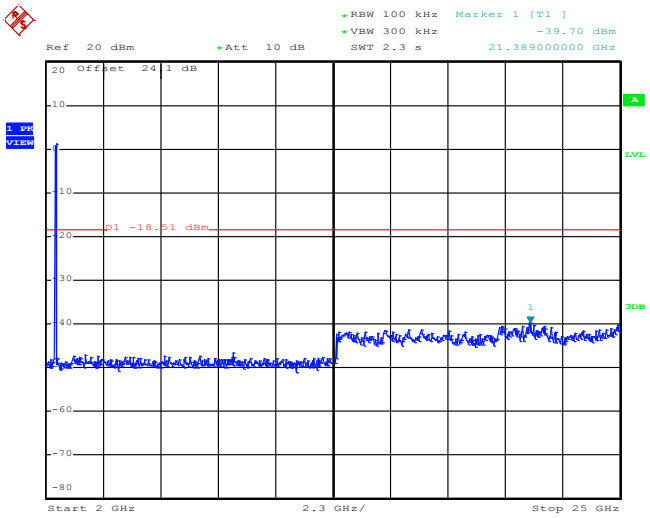
802.11n HT-20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01



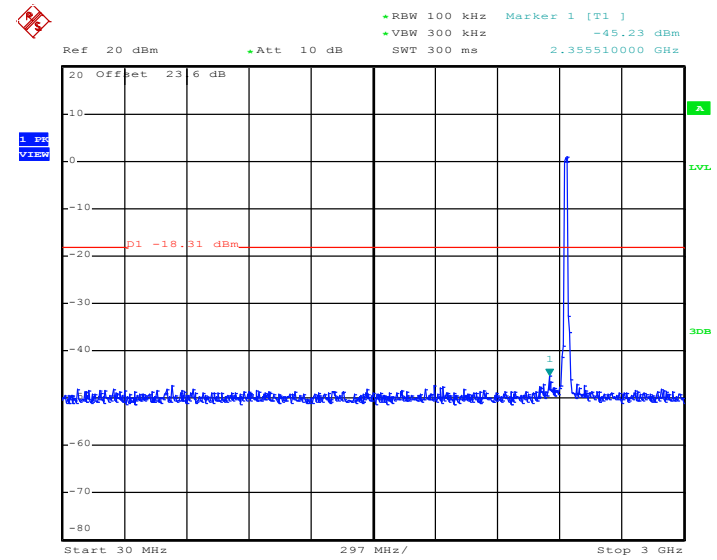
802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01



802.11n HT-20 30 MHz~3 GHz

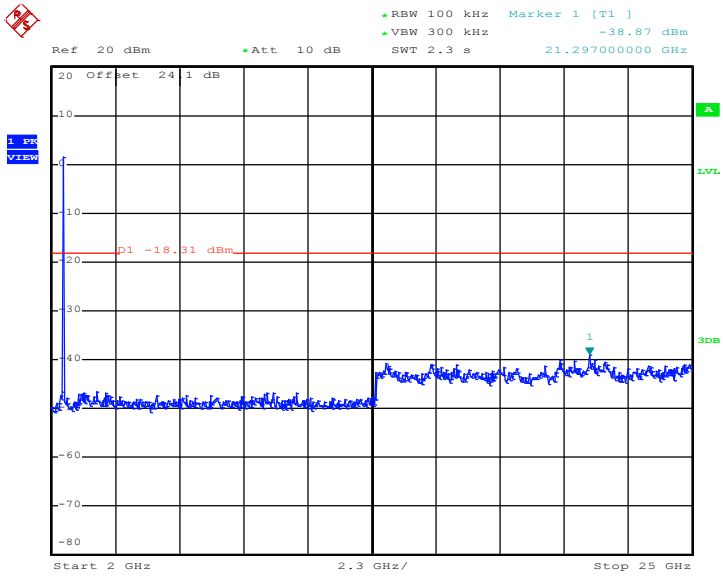
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 22:00:05

802.11n HT-20 2 GHz~25 GHz

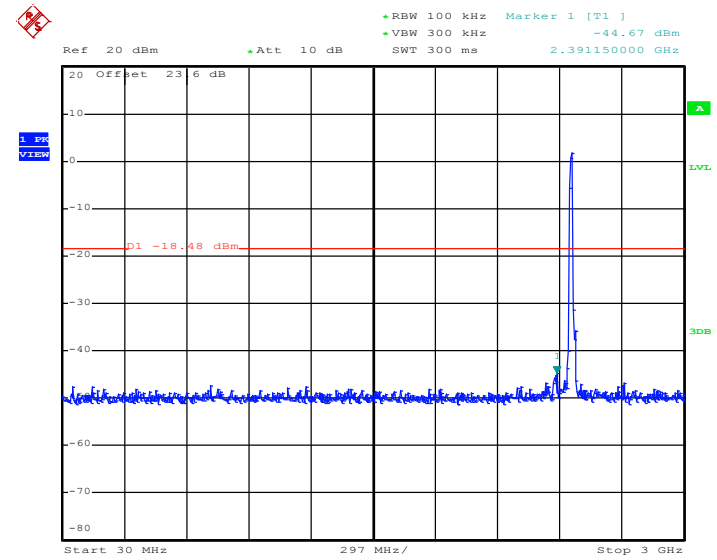
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 22:00:24

802.11n HT-20 30 MHz~3 GHz

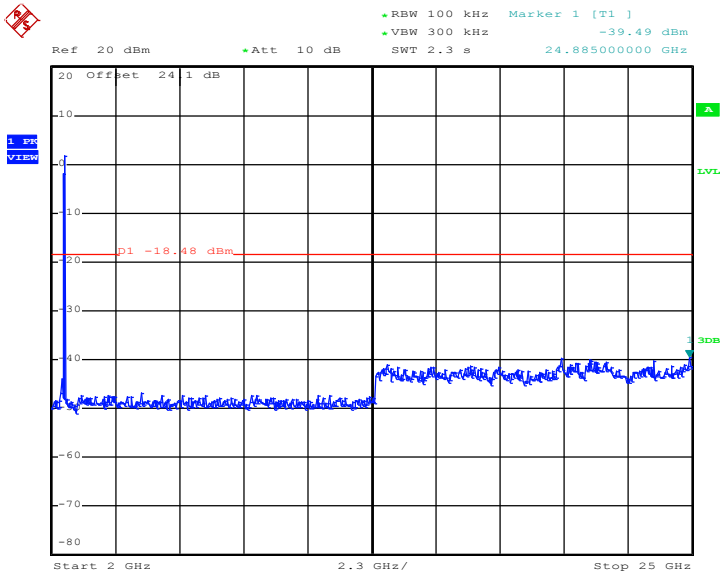
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 22:03:59

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

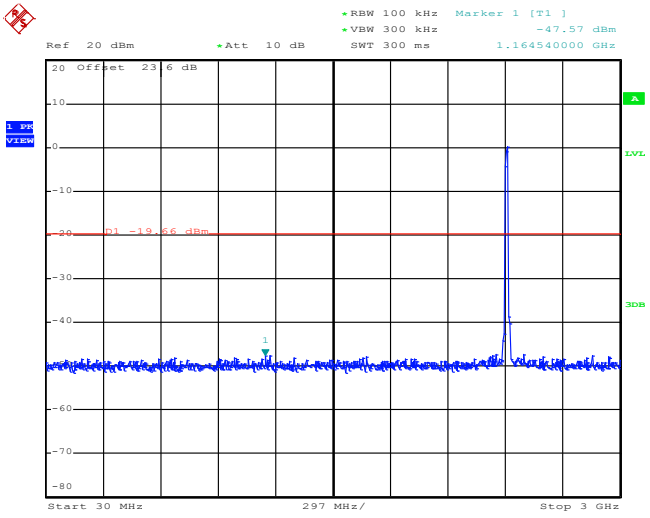


Date: 1.AUG.2012 22:04:17

Test Mode :	802.11n HT-20 MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-20 30 MHz~3 GHz

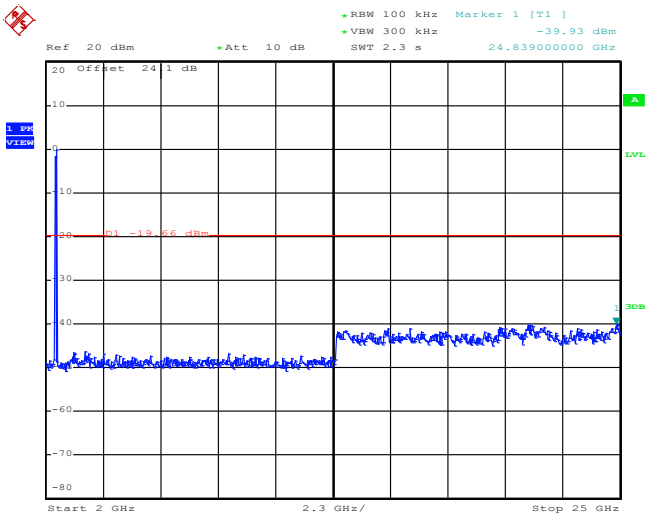
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:41:16

802.11n HT-20 2 GHz~25 GHz

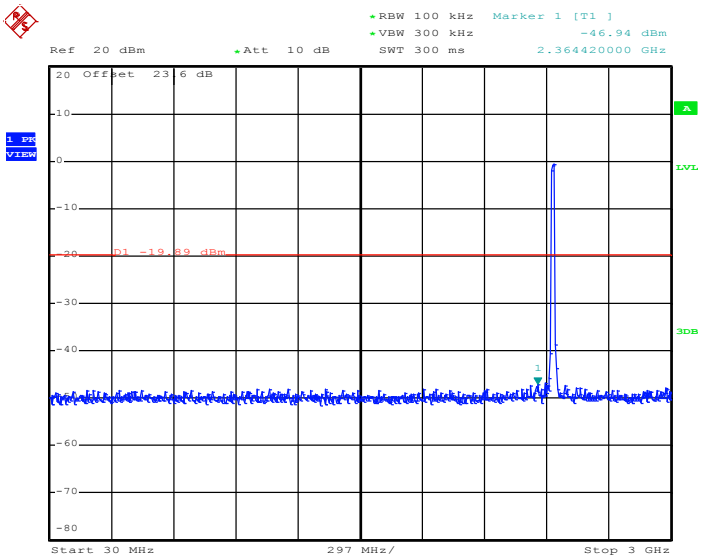
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:41:34

802.11n HT-20 30 MHz~3 GHz

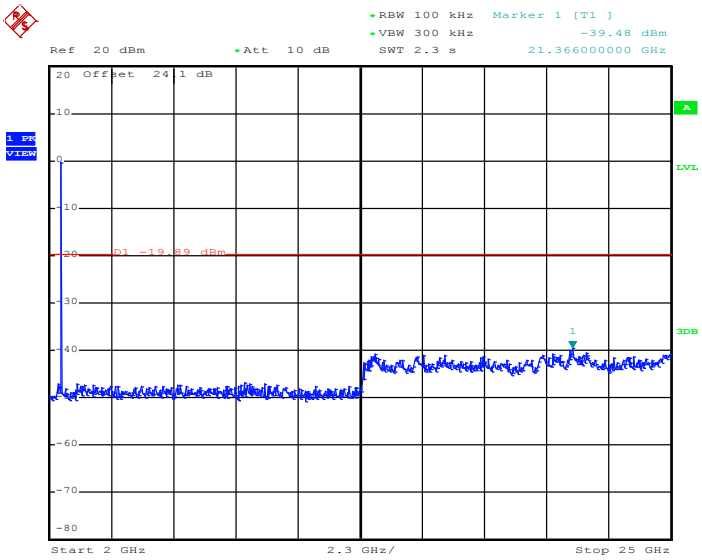
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:38:06

802.11n HT-20 2 GHz~25 GHz

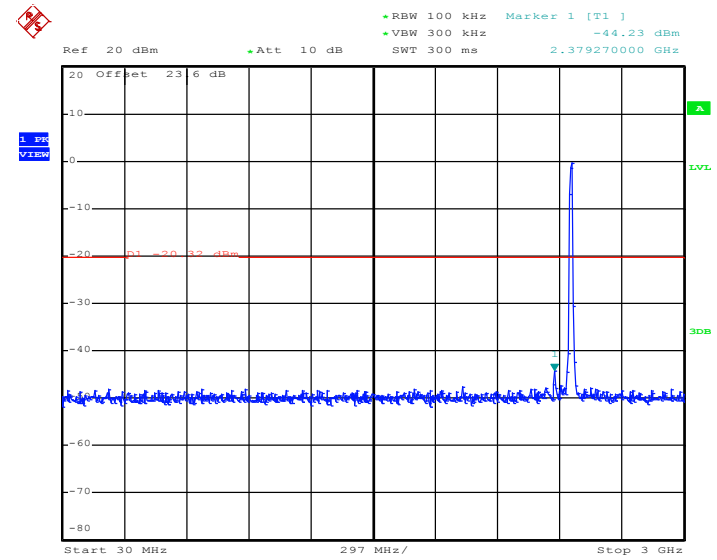
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:38:26

802.11n HT-20 30 MHz~3 GHz

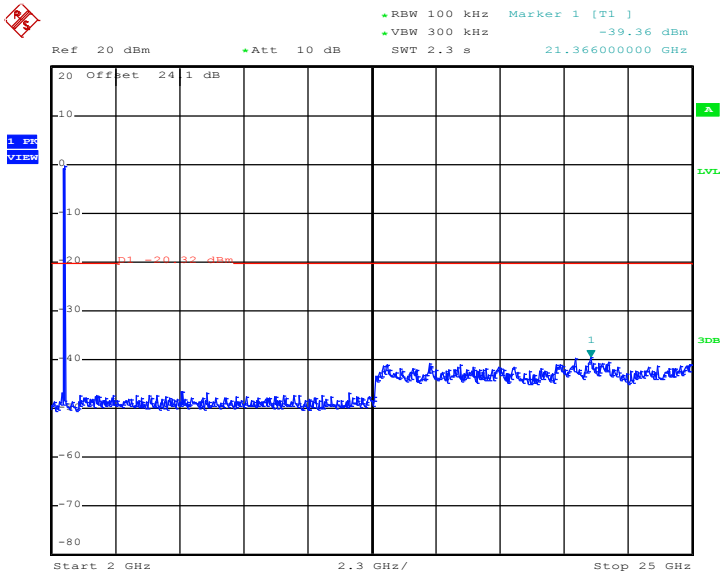
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 21:35:13

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

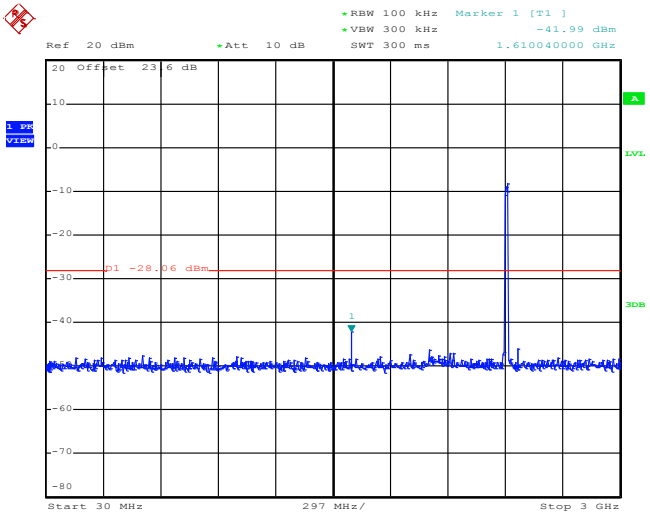


Date: 1.AUG.2012 21:35:31

Test Mode :	802.11n HT-20 MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-20 30 MHz~3 GHz

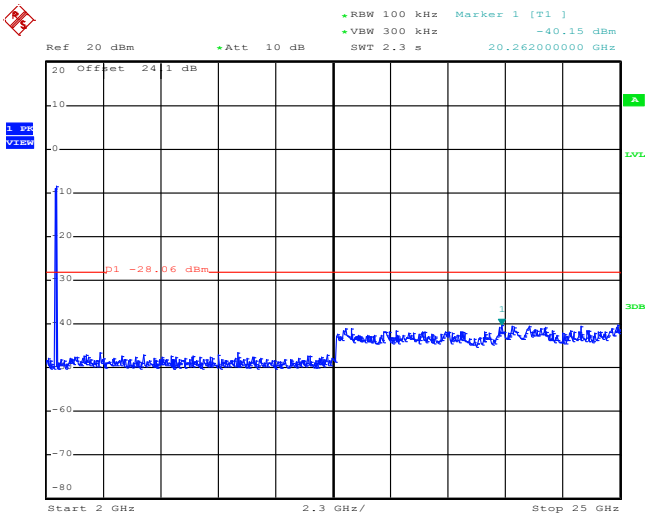
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:44:49

802.11n HT-20 2 GHz~25 GHz

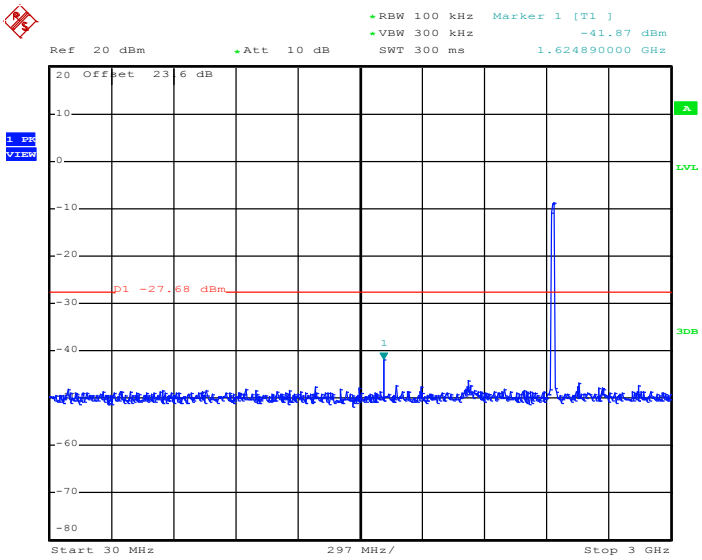
Conducted Spurious Emission Plot on Channel 01



Date: 1.AUG.2012 21:45:06

802.11n HT-20 30 MHz~3 GHz

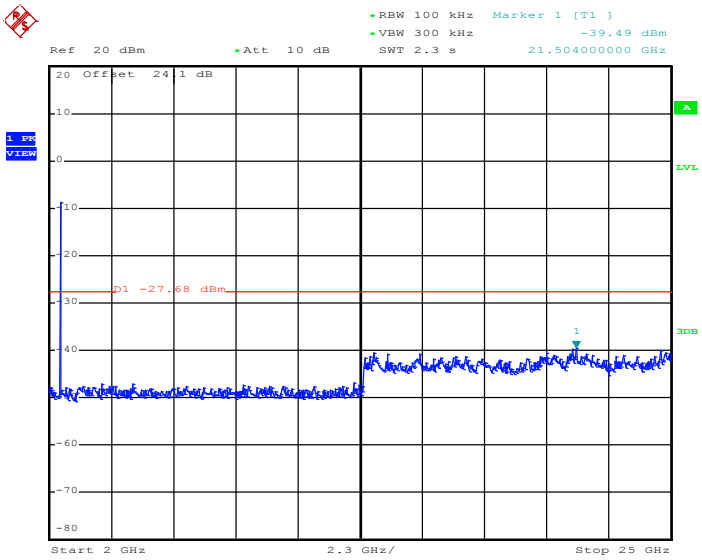
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:48:36

802.11n HT-20 2 GHz~25 GHz

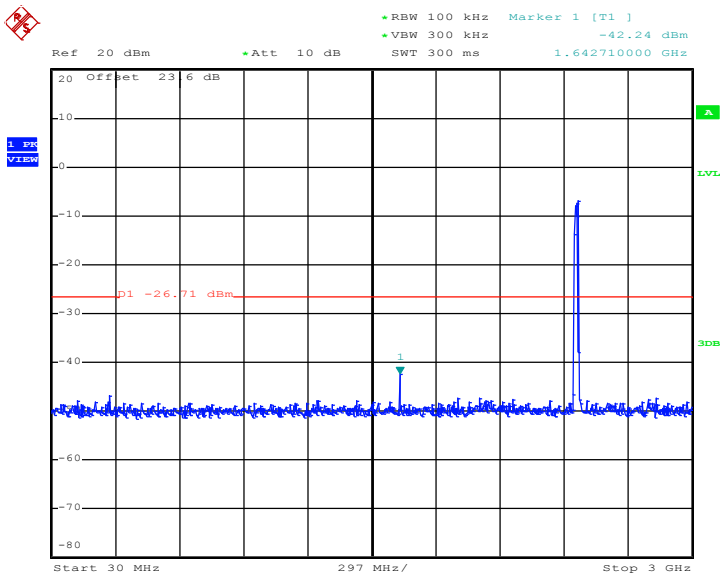
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 21:48:53

802.11n HT-20 30 MHz~3 GHz

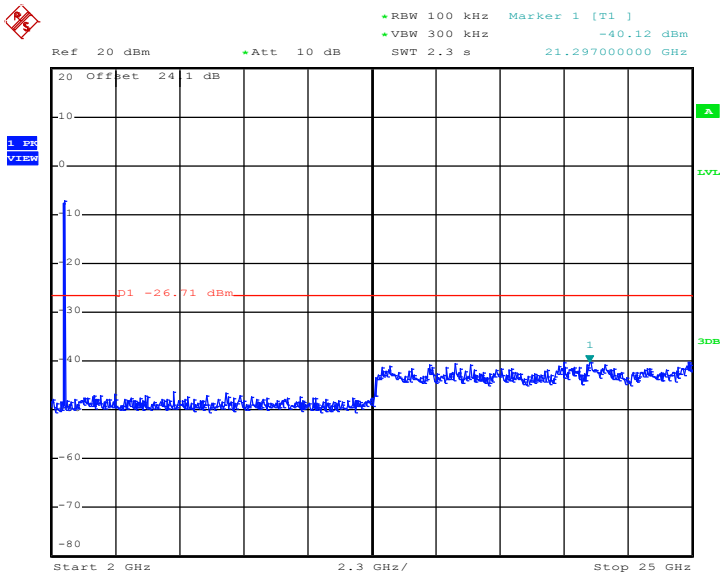
Conducted Spurious Emission Plot on Channel 11



Date: 1.AUG.2012 21:52:18

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

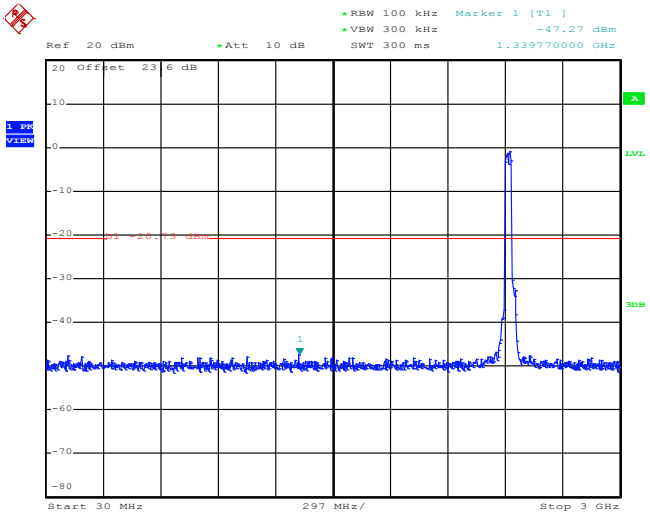


Date: 1.AUG.2012 21:52:36

Test Mode :	802.11n HT-40 SISO Ant. 1	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40 30 MHz~3 GHz

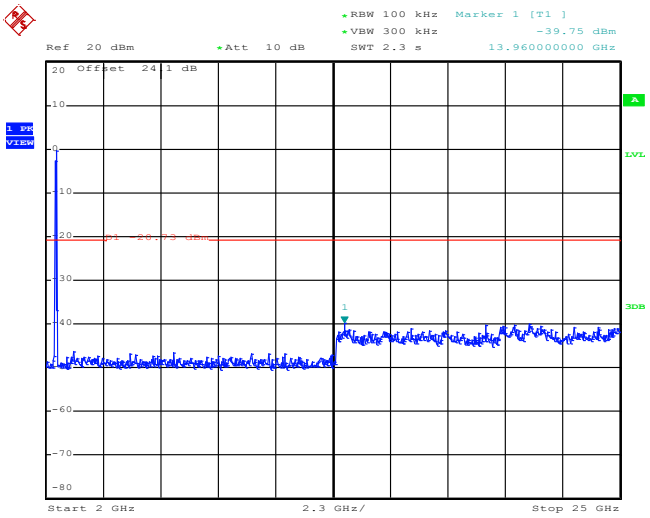
Conducted Spurious Emission Plot on Channel 03



Date: 1.AUG.2012 22:21:29

802.11n HT-40 2 GHz~25 GHz

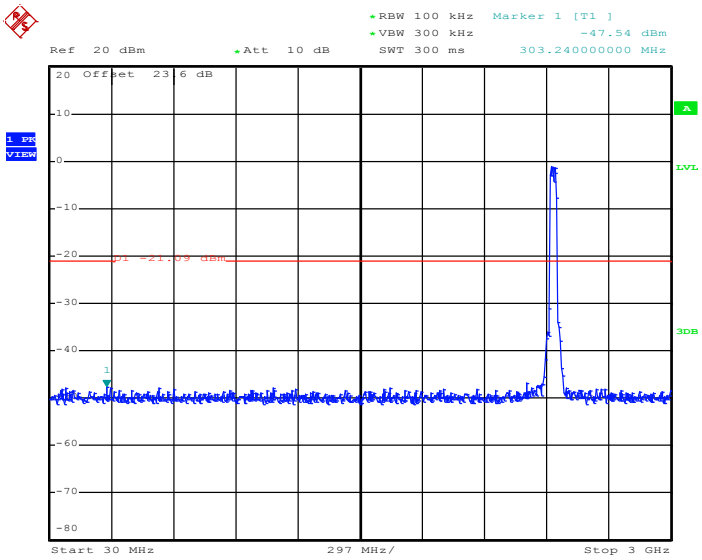
Conducted Spurious Emission Plot on Channel 03



Date: 1.AUG.2012 22:21:47

802.11n HT-40 30 MHz~3 GHz

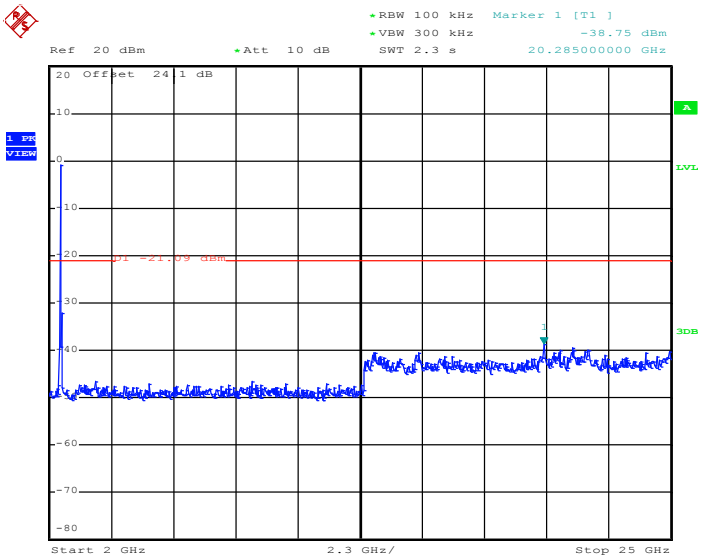
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 22:18:56

802.11n HT-40 2 GHz~25 GHz

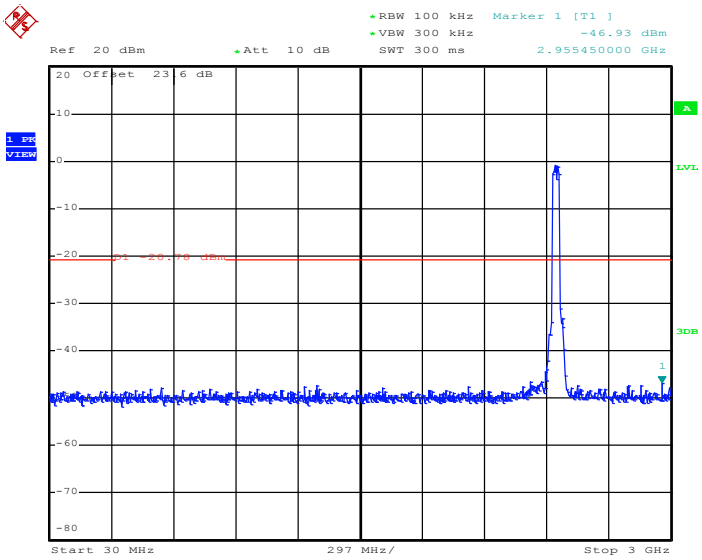
Conducted Spurious Emission Plot on Channel 06



Date: 1.AUG.2012 22:19:14

802.11n HT-40 30 MHz~3 GHz

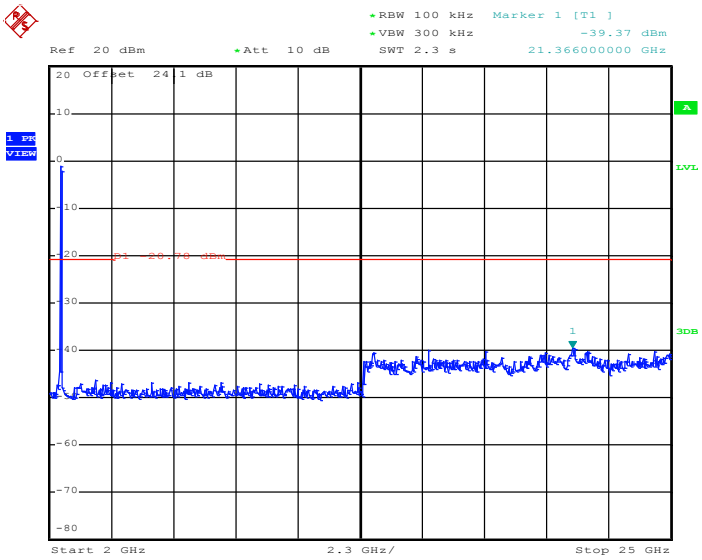
Conducted Spurious Emission Plot on Channel 09



Date: 1.AUG.2012 22:12:22

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09

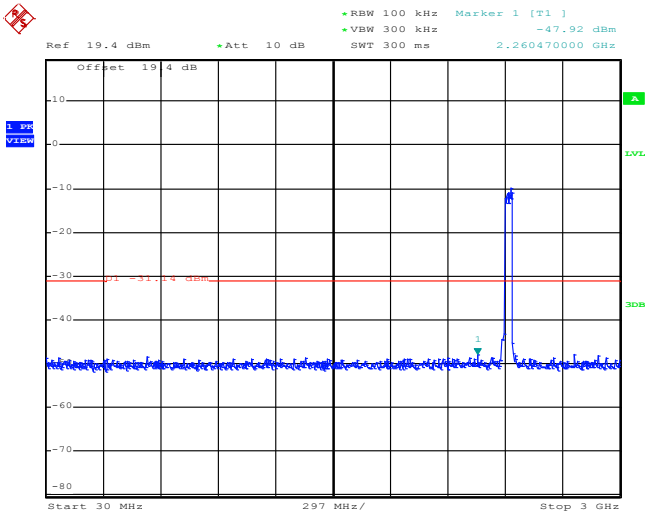


Date: 1.AUG.2012 22:12:40

Test Mode :	802.11n HT-40 MIMO Ant. 1+2(1)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40 30 MHz~3 GHz

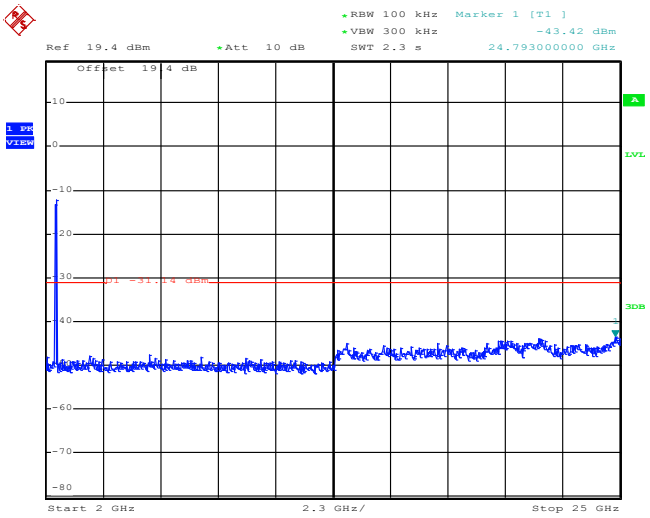
Conducted Spurious Emission Plot on Channel 03



Date: 7.AUG.2012 06:23:59

802.11n HT-40 2 GHz~25 GHz

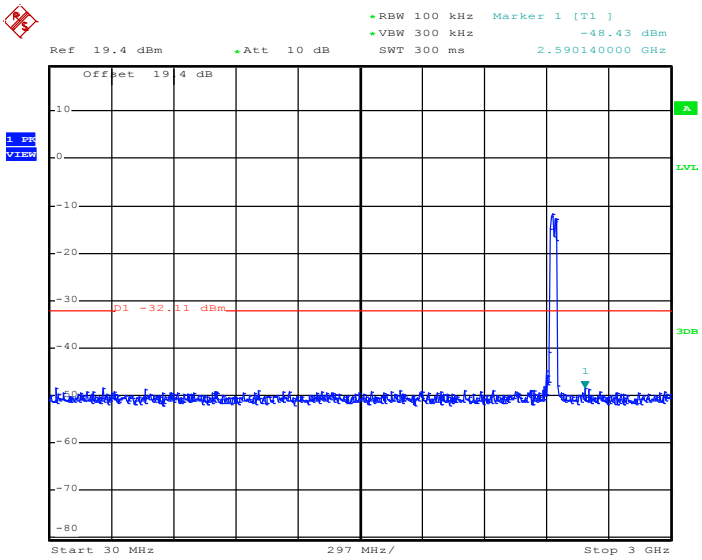
Conducted Spurious Emission Plot on Channel 03



Date: 7.AUG.2012 06:22:52

802.11n HT-40 30 MHz~3 GHz

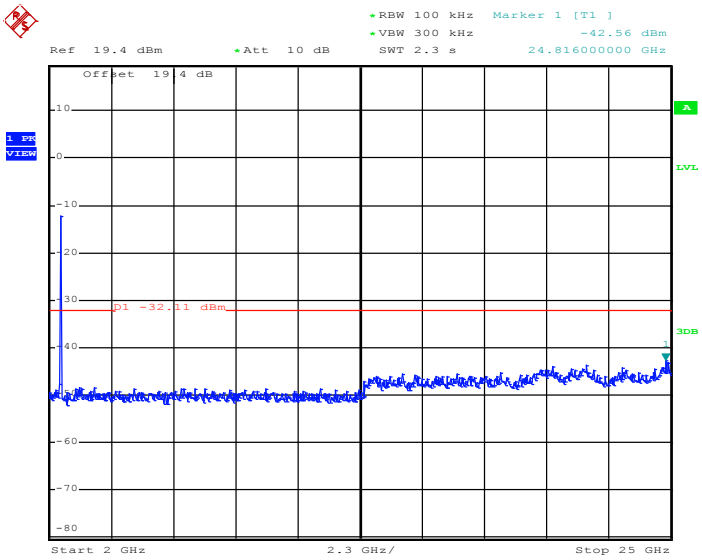
Conducted Spurious Emission Plot on Channel 06



Date: 7.AUG.2012 06:16:17

802.11n HT-40 2 GHz~25 GHz

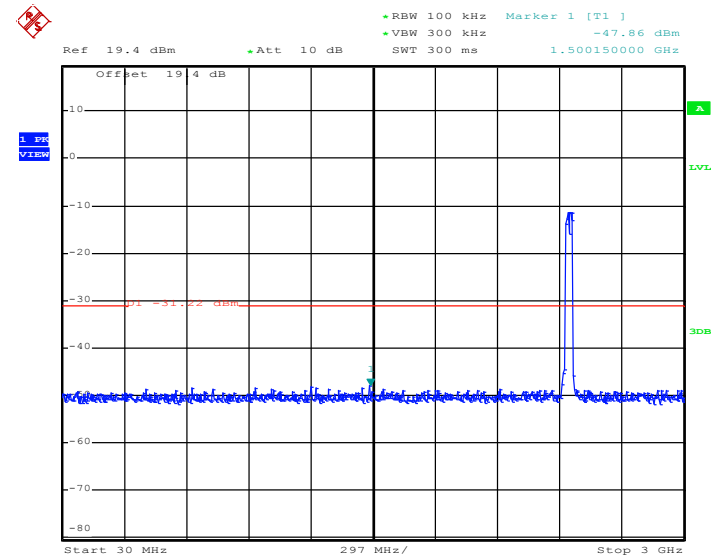
Conducted Spurious Emission Plot on Channel 06



Date: 7.AUG.2012 06:15:25

802.11n HT-40 30 MHz~3 GHz

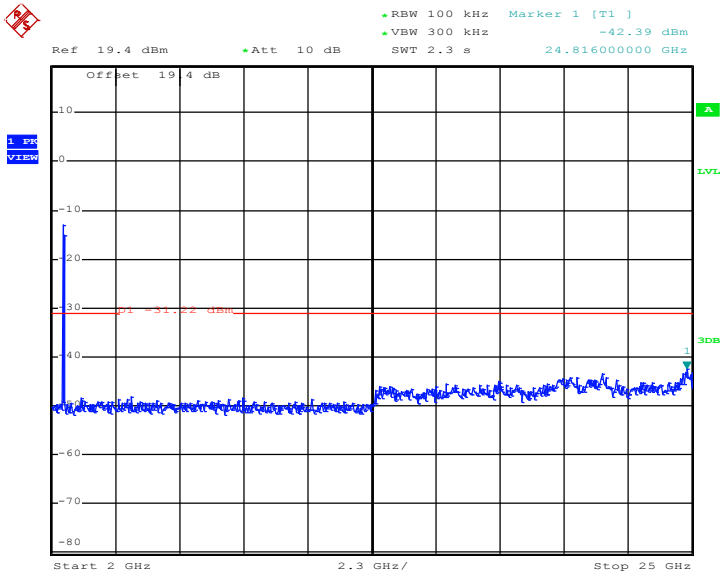
Conducted Spurious Emission Plot on Channel 09



Date: 7.AUG.2012 06:29:28

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09

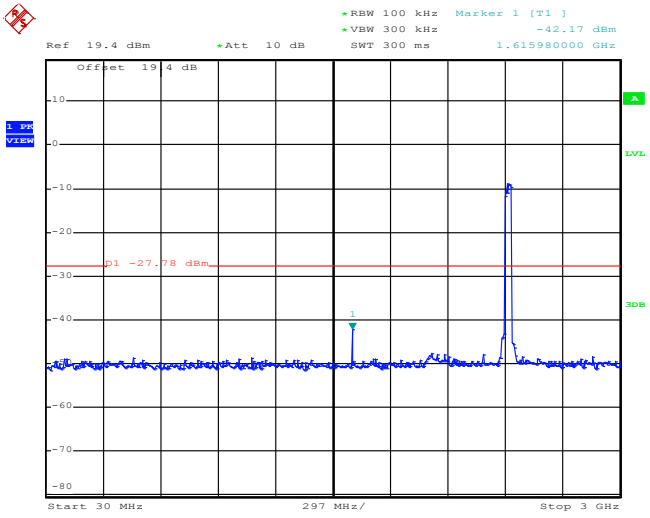


Date: 7.AUG.2012 06:27:43

Test Mode :	802.11n HT-40 MIMO Ant. 1+2(2)	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	55~58%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo and Book Lin

802.11n HT-40 30 MHz~3 GHz

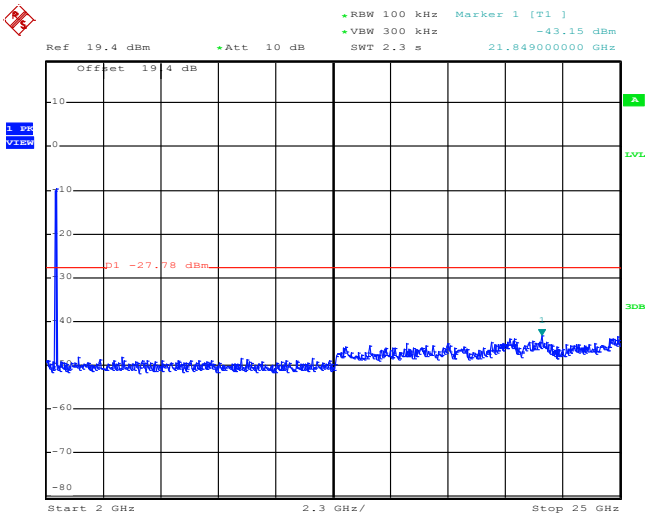
Conducted Spurious Emission Plot on Channel 03



Date: 7.AUG.2012 06:01:42

802.11n HT-40 2 GHz~25 GHz

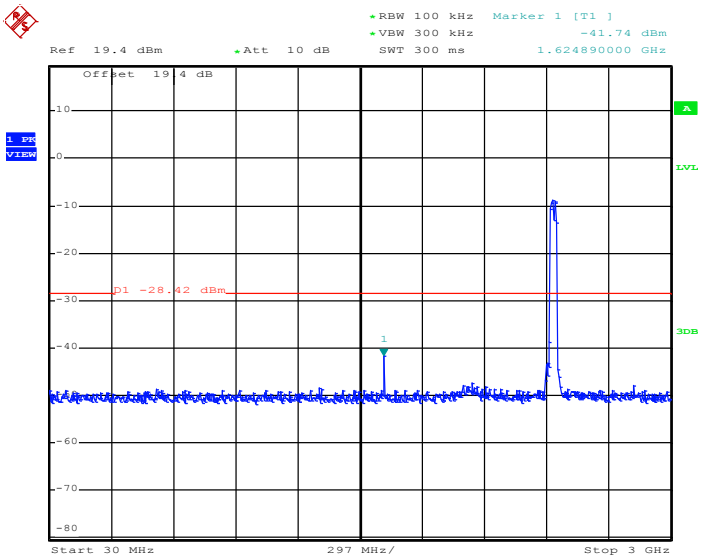
Conducted Spurious Emission Plot on Channel 03



Date: 7.AUG.2012 05:58:06

802.11n HT-40 30 MHz~3 GHz

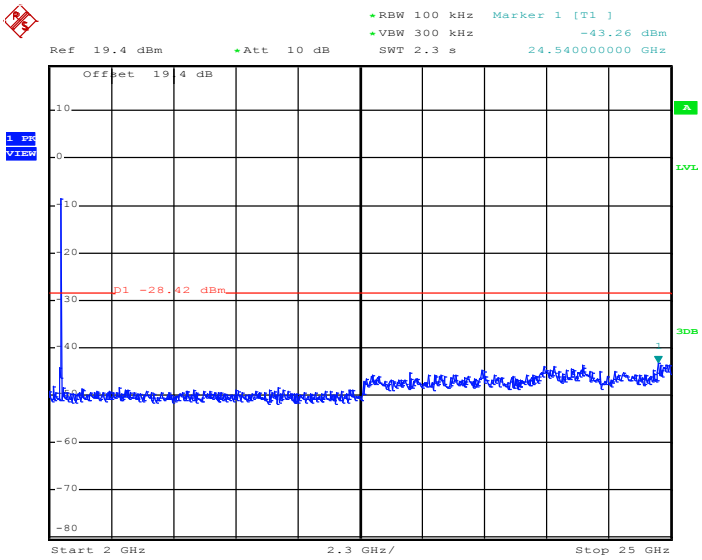
Conducted Spurious Emission Plot on Channel 06



Date: 7.AUG.2012 06:06:03

802.11n HT-40 2 GHz~25 GHz

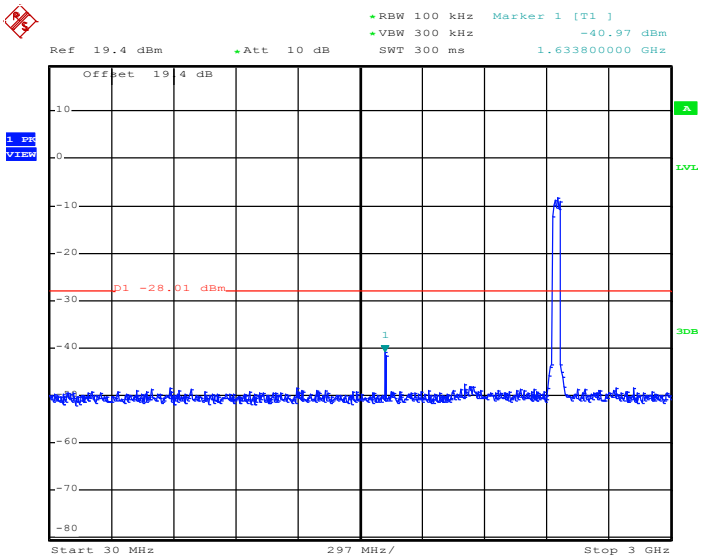
Conducted Spurious Emission Plot on Channel 06



Date: 7.AUG.2012 06:04:39

802.11n HT-40 30 MHz~3 GHz

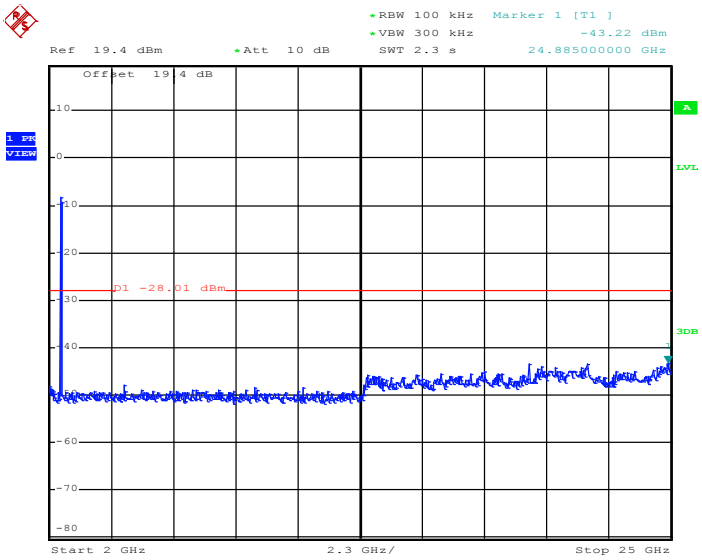
Conducted Spurious Emission Plot on Channel 09



Date: 7.AUG.2012 06:11:20

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



Date: 7.AUG.2012 06:09:40

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedure

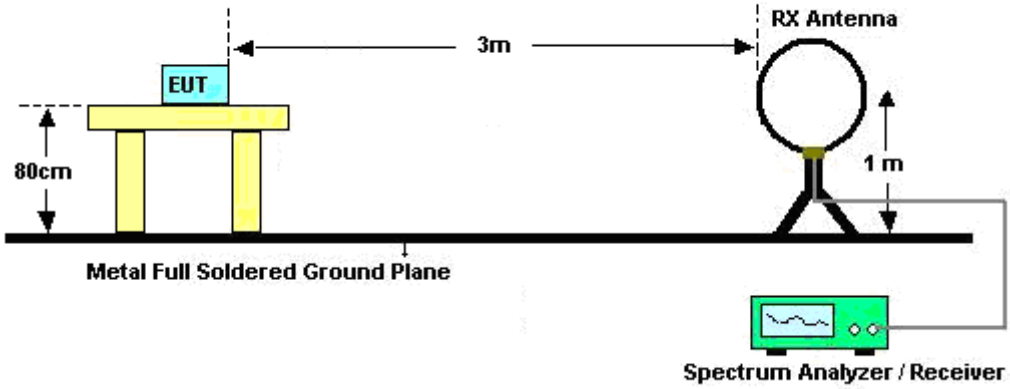
1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Antenna	Band	Duty Cycle(%)	T(us)	1/T(KHz)	VBW Setting
1	802.11b	100.00	-	-	10Hz
1+2	802.11b for Ant. 1	100.00	-	-	10Hz
1+2	802.11b for Ant. 2	100.00	-	-	10Hz
1	802.11g	98.36	-	-	10Hz
1+2	802.11g for Ant .1	98.56	-	-	10Hz
1+2	802.11g for Ant. 2	98.37	-	-	10Hz
1	802.11n (BW 20MHz)	82.95	108.00	9.26	10KHz
1+2	802.11n (BW 20MHz) for Ant. 1	83.03	108.60	9.21	10KHz
1+2	802.11n (BW 20MHz) for Ant. 2	82.95	108.00	9.26	10KHz
1	802.11n (BW 40MHz)	77.42	72.00	13.89	30KHz
1+2	802.11n (BW 40MHz) for Ant. 1	76.92	72.00	13.89	30KHz
1+2	802.11n (BW 40MHz) for Ant. 2	77.35	72.40	13.81	30KHz

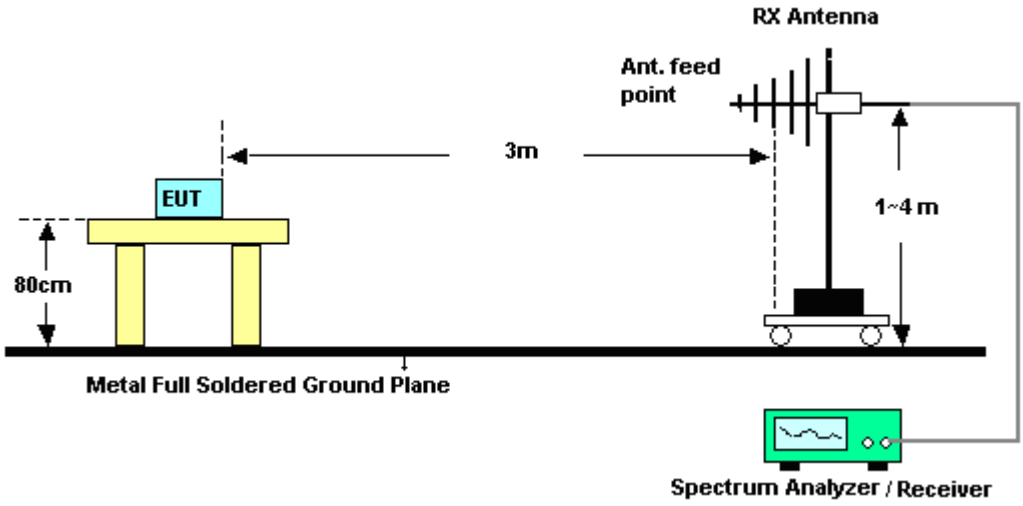
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

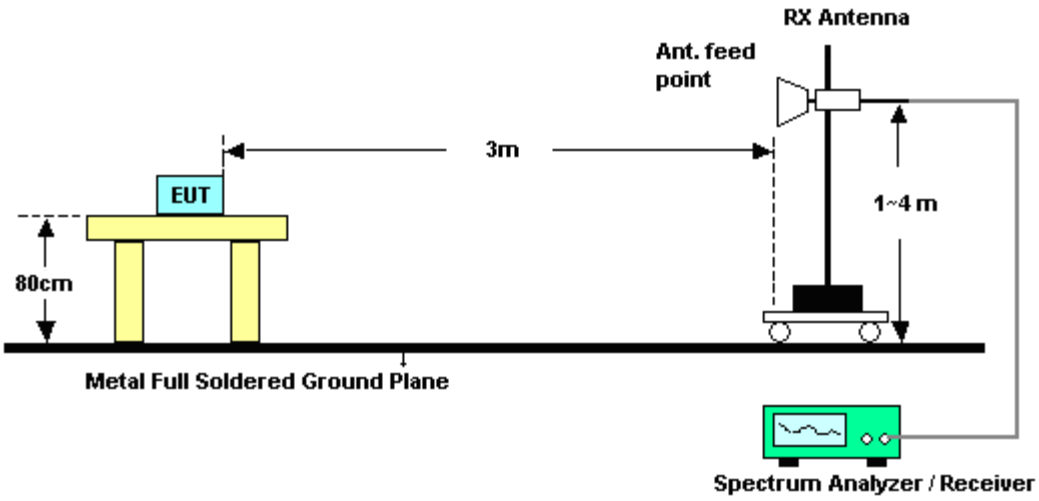
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b Ant. 1	**Temperature :**	25~26°C
Test Band :	Low	**Relative Humidity :**	44~45%
Test Channel :	01	**Test Engineer :**	Gavin Wu

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**
2335.2	56.38	-17.62	74	52.39	31.98	5.95	33.94	146	162	Peak
2334.75	47.42	-6.58	54	43.43	31.98	5.95	33.94	146	162	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**
2357.25	53.85	-20.15	74	49.8	32.01	5.99	33.95	182	146	Peak
2329.35	44.49	-9.51	54	40.54	31.96	5.92	33.93	182	146	Average

Test Mode :	802.11b Ant. 1	**Temperature :**	25~26°C
Test Band :	High	**Relative Humidity :**	44~45%
Test Channel :	11	**Test Engineer :**	Gavin Wu

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**
2491.28	55.07	-18.93	74	50.69	32.2	6.18	34	108	298	Peak
2491.38	42.05	-11.95	54	37.67	32.2	6.18	34	108	298	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**
2493.38	48.6	-25.4	74	44.22	32.2	6.18	34	199	275	Peak
2487.68	34.96	-19.04	54	30.58	32.2	6.18	34	199	275	Average

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.05	53.59	-20.41	74	49.46	32.06	6.03	33.96	115	348	Peak
2386.5	44.29	-9.71	54	40.16	32.06	6.03	33.96	115	348	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
2388.03	48.38	-25.62	74	44.25	32.06	6.03	33.96	181	98	Peak
2386.5	37.66	-16.34	54	33.53	32.06	6.03	33.96	181	98	Average

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2487.36	53.07	-20.93	74	48.71	32.18	6.18	34	110	332	Peak
2487.68	42.58	-11.42	54	38.2	32.2	6.18	34	110	332	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
2484.62	49.03	-24.97	74	44.67	32.18	6.18	34	176	98	Peak
2487.54	37.43	-16.57	54	33.05	32.2	6.18	34	176	98	Average

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2336.64	58.61	-15.39	74	54.62	31.98	5.95	33.94	116	27	Peak
2338.17	46.03	-7.97	54	42.04	31.98	5.95	33.94	116	27	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
2390	58.79	-15.21	74	54.66	32.06	6.03	33.96	173	129	Peak
2390	41.51	-12.49	54	37.38	32.06	6.03	33.96	173	129	Average

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2483.56	53.03	-20.97	74	48.67	32.18	6.18	34	113	2	Peak
2483.54	39.99	-14.01	54	35.63	32.18	6.18	34	113	2	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
2484.84	51.12	-22.88	74	46.76	32.18	6.18	34	175	135	Peak
2483.5	36.58	-17.42	54	32.22	32.18	6.18	34	175	135	Average

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2390	59.96	-14.04	74	55.83	32.06	6.03	33.96	116	333	Peak
2390	41.35	-12.65	54	37.22	32.06	6.03	33.96	116	333	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
2389.74	51.02	-22.98	74	46.89	32.06	6.03	33.96	150	64	Peak
2335.74	35.75	-18.25	54	31.76	31.98	5.95	33.94	150	64	Average

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2483.58	55.58	-18.42	74	51.22	32.18	6.18	34	110	352	Peak
2483.5	39.41	-14.59	54	35.05	32.18	6.18	34	110	352	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
2483.54	50.25	-23.75	74	45.89	32.18	6.18	34	172	68	Peak
2483.5	35.08	-18.92	54	30.72	32.18	6.18	34	172	68	Average

Test Mode :	802.11n HT-20 Ant. 1	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2336.1	61.58	-12.42	74	57.59	31.98	5.95	33.94	115	326	Peak
2335.47	46.43	-7.57	54	42.44	31.98	5.95	33.94	115	326	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
2330.61	56.41	-17.59	74	52.46	31.96	5.92	33.93	183	129	Peak
2329.53	42.26	-11.74	54	38.31	31.96	5.92	33.93	183	129	Average

Test Mode :	802.11n HT-20 Ant. 1	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	54.78	-19.22	74	50.42	32.18	6.18	34	142	66	Peak
2483.58	39.91	-14.09	54	35.55	32.18	6.18	34	142	66	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
2483.62	51.54	-22.46	74	47.18	32.18	6.18	34	174	132	Peak
2483.5	36.91	-17.09	54	32.55	32.18	6.18	34	174	132	Average

Test Mode :	802.11n HT-20 Ant. 2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.74	57.04	-16.96	74	52.91	32.06	6.03	33.96	114	353	Peak
2390	40.61	-13.39	54	36.48	32.06	6.03	33.96	114	353	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
2338.08	48.08	-25.92	74	44.09	31.98	5.95	33.94	103	50	Peak
2325.39	34.82	-19.18	54	30.87	31.96	5.92	33.93	103	50	Average

Test Mode :	802.11n HT-20 Ant. 2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2484.16	55.6	-18.4	74	51.24	32.18	6.18	34	109	316	Peak
2483.52	38.55	-15.45	54	34.19	32.18	6.18	34	109	316	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
2484.18	51.41	-22.59	74	47.05	32.18	6.18	34	175	96	Peak
2483.5	36.05	-17.95	54	31.69	32.18	6.18	34	175	96	Average

Test Mode :	802.11n HT-20 MIMO Ant. 1+2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2338.89	58.05	-15.95	74	54.06	31.98	5.95	33.94	180	56	Peak
2339.52	43.44	-10.56	54	39.45	31.98	5.95	33.94	180	56	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
2390.00	51.8	-22.2	74	47.67	32.06	6.03	33.96	175	109	Peak
2390.00	38.44	-15.56	54	34.31	32.06	6.03	33.96	175	109	Average

Test Mode :	802.11n HT-20 MIMO Ant. 1+2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2494.1	55.03	-18.97	74	50.65	32.2	6.18	34	108	312	Peak
2493.12	39.53	-14.47	54	35.15	32.2	6.18	34	108	312	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
2493.42	49.64	-24.36	74	45.26	32.2	6.18	34	170	101	Peak
2483.5	35.56	-18.44	54	31.2	32.18	6.18	34	170	101	Average

Test Mode :	802.11n HT-40 Ant. 1	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	03	Test Engineer :	Gavin Wu

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
2384.79	65.31	-8.69	74	61.21	32.03	6.03	33.96	115	68	Peak
2388.3	48.26	-5.74	54	44.13	32.06	6.03	33.96	115	68	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
2388.39	58.4	-15.6	74	54.27	32.06	6.03	33.96	115	229	Peak
2389.56	43.59	-10.41	54	39.46	32.06	6.03	33.96	115	229	Average

Test Mode :	802.11n HT-40 Ant. 1	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	09	Test Engineer :	Gavin Wu

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
2483.94	59.84	-14.16	74	55.48	32.18	6.18	34	142	66	Peak
2483.54	43.78	-10.22	54	39.42	32.18	6.18	34	142	66	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
2484.34	54.78	-19.22	74	50.42	32.18	6.18	34	172	131	Peak
2483.56	40.02	-13.98	54	35.66	32.18	6.18	34	172	131	Average

Test Mode :	802.11n HT-40 Ant. 2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	03	Test Engineer :	Gavin Wu

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
2388.93	62.92	-11.08	74	58.79	32.06	6.03	33.96	116	0	Peak
2389.56	47.51	-6.49	54	43.38	32.06	6.03	33.96	116	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
2389.92	54.62	-19.38	74	50.49	32.06	6.03	33.96	176	99	Peak
2389.65	40.4	-13.6	54	36.27	32.06	6.03	33.96	176	99	Average

Test Mode :	802.11n HT-40 Ant. 2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	09	Test Engineer :	Gavin Wu

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
2489.12	61.75	-12.25	74	57.37	32.2	6.18	34	108	331	Peak
2483.5	45.54	-8.46	54	41.18	32.18	6.18	34	108	331	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
2483.98	57.14	-16.86	74	52.78	32.18	6.18	34	173	99	Peak
2483.5	41.58	-12.42	54	37.22	32.18	6.18	34	173	99	Average

Test Mode :	802.11n HT-40 MIMO Ant. 1+2	Temperature :	25~26°C
Test Band :	Low	Relative Humidity :	44~45%
Test Channel :	03	Test Engineer :	Gavin Wu

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
2385.06	62.19	-11.81	74	58.09	32.03	6.03	33.96	116	62	Peak
2388.39	44.86	-9.14	54	40.73	32.06	6.03	33.96	116	62	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
2389.92	55.81	-18.19	74	51.68	32.06	6.03	33.96	177	124	Peak
2389.83	40.53	-13.47	54	36.4	32.06	6.03	33.96	177	124	Average

Test Mode :	802.11n HT-40 MIMO Ant. 1+2	Temperature :	25~26°C
Test Band :	High	Relative Humidity :	44~45%
Test Channel :	09	Test Engineer :	Gavin Wu

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
2484.52	57.2	-16.8	74	52.84	32.18	6.18	34	146	168	Peak
2485.08	41.8	-12.2	54	37.44	32.18	6.18	34	146	168	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
2486.64	54.29	-19.71	74	49.93	32.18	6.18	34	170	125	Peak
2484.8	39.27	-14.73	54	34.91	32.18	6.18	34	170	125	Average

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

Test Mode :	802.11b Ant. 1	**Temperature :**	25~26°C
Test Channel :	01	**Relative Humidity :**	44~45%
Test Engineer :	Gavin Wu	**Polarization :**	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 103.56 dBuV/m - 20dB = 83.56 dBuV/m. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
1130	48.59	-25.41	74	51.11	27.77	3.89	34.18	146	162	Peak
2412	98.84	-	-	94.66	32.08	6.07	33.97	146	162	Average
2412	103.56	-	-	99.38	32.08	6.07	33.97	146	162	Peak
3216	57.7	-25.86	83.56	74.58	32.74	7.19	56.81	146	79	Peak
4824	48.33	-25.67	74	62.58	34.1	9.12	57.47	100	0	Peak

Test Mode :	802.11b Ant. 1	**Temperature :**	25~26°C
Test Channel :	01	**Relative Humidity :**	44~45%
Test Engineer :	Gavin Wu	**Polarization :**	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2412	95.29	-	-	91.11	32.08	6.07	33.97	182	146	Average
2412	100.21	-	-	96.03	32.08	6.07	33.97	182	146	Peak
3216	55.52	-24.69	80.21	72.4	32.74	7.19	56.81	100	121	Peak
4824	50.62	-23.38	74	64.87	34.1	9.12	57.47	100	0	Peak

Test Mode :	802.11b Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
140.16	17.3	-26.2	43.5	36.18	11.38	1.2	31.46	-	-	Peak
199.83	18.33	-25.17	43.5	39.22	9.1	1.32	31.31	-	-	Peak
250.05	31.2	-14.8	46	48.23	12.6	1.53	31.16	-	-	Peak
400.1	30.64	-15.36	46	44	16.02	2.14	31.52	-	-	Peak
500.2	31.81	-14.19	46	42.15	18.1	2.45	30.89	104	168	Peak
533.1	30.23	-15.77	46	40.18	18.66	2.52	31.13	-	-	Peak
2437	99.16	-	-	94.9	32.13	6.11	33.98	114	157	Average
2437	104.03	-	-	99.77	32.13	6.11	33.98	114	157	Peak
3249	59.92	-24.11	84.03	76.73	32.75	7.29	56.85	102	80	Peak
4875	52.56	-1.44	54	66.81	34.1	9.13	57.48	107	57	Average
4875	53.16	-20.84	74	67.41	34.1	9.13	57.48	107	57	Peak

Test Mode :	802.11b Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
42.42	19.7	-20.3	40	39.12	11.7	0.64	31.76	-	-	Peak
128.01	19.2	-24.3	43.5	38	11.64	1.14	31.58	-	-	Peak
250.05	26.99	-19.01	46	44.02	12.6	1.53	31.16	-	-	Peak
500.2	31.91	-14.09	46	42.25	18.1	2.45	30.89	105	221	Peak
533.1	27.31	-18.69	46	37.26	18.66	2.52	31.13	-	-	Peak
897.8	29.81	-16.19	46	34.21	23.08	3.34	30.82	-	-	Peak
2437	95.32	-	-	91.06	32.13	6.11	33.98	171	125	Average
2437	100.09	-	-	95.83	32.13	6.11	33.98	171	125	Peak
3249	54.41	-25.68	80.09	71.22	32.75	7.29	56.85	165	109	3249
4875	49.63	-4.37	54	63.88	34.1	9.13	57.48	126	245	Average
4875	51.85	-22.15	74	66.1	34.1	9.13	57.48	126	254	Peak

Test Mode :	802.11b Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

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
2462	99.75	-	-	95.45	32.15	6.14	33.99	108	298	Average
2462	104.86	-	-	100.56	32.15	6.14	33.99	108	298	Peak
3282	57.11	-27.75	84.86	73.89	32.76	7.34	56.88	125	97	Peak
4926	52.88	-1.12	54	67.11	34.1	9.15	57.48	105	57	Average
4926	54.9	-19.1	74	69.13	34.1	9.15	57.48	105	57	Peak

Test Mode :	802.11b Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

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
2462	90.67	-	-	86.37	32.15	6.14	33.99	199	275	Average
2462	95.48	-	-	91.18	32.15	6.14	33.99	199	275	Peak
3282	51.16	-24.32	75.48	67.94	32.76	7.34	56.88	100	182	Peak
4926	51.05	-2.95	54	65.28	34.1	9.15	57.48	143	300	Average
4926	52.32	-21.68	74	66.55	34.1	9.15	57.48	143	300	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2412	98.16	-	-	93.98	32.08	6.07	33.97	115	348	Average
2412	103.28	-	-	99.1	32.08	6.07	33.97	115	348	Peak
3216	45.38	-37.9	83.28	62.26	32.74	7.19	56.81	100	0	Peak
4824	49.22	-24.78	74	63.47	34.1	9.12	57.47	100	0	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

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
2412	91.68	-	-	87.5	32.08	6.07	33.97	181	98	Average
2412	96.81	-	-	92.63	32.08	6.07	33.97	181	98	Peak
3216	47.73	-29.08	76.81	64.61	32.74	7.19	56.81	100	0	Peak
4824	52.9	-1.1	54	67.15	34.1	9.12	57.47	100	337	Average
4824	53.42	-20.58	74	67.67	34.1	9.12	57.47	100	337	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2038 MHz and 3249 MHz are not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2038	51.81	-30.05	81.86	48.6	31.55	5.47	33.81	100	0	Peak
2437	97.22	-	-	92.96	32.13	6.11	33.98	111	357	Average
2437	101.86	-	-	97.63	32.1	6.11	33.98	111	357	Peak
3249	42.92	-38.94	81.86	59.73	32.75	7.29	56.85	100	0	Peak
4875	48.94	-25.06	74	63.19	34.1	9.13	57.48	100	0	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
2437	87.53	-	-	83.27	32.13	6.11	33.98	182	84	Average
2437	92.59	-	-	88.33	32.13	6.11	33.98	182	84	Peak
3249	46.15	-26.44	72.59	62.96	32.75	7.29	56.85	100	0	Peak
4875	52.77	-1.23	54	67.02	34.1	9.13	57.48	100	332	Average
4875	53.84	-20.16	74	68.09	34.1	9.13	57.48	100	332	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2098 MHz, 2544 MHz, and 3282 MHz are not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2098	50.29	-32.24	82.53	46.91	31.64	5.58	33.84	100	0	Peak
2462	97.6	-	-	93.3	32.15	6.14	33.99	110	332	Average
2462	102.53	-	-	98.23	32.15	6.14	33.99	110	332	Peak
2544	54.44	-28.09	82.53	49.95	32.25	6.23	33.99	100	0	Peak
3282	44.26	-38.27	82.53	61.04	32.76	7.34	56.88	100	0	Peak
4926	49.95	-24.05	74	64.18	34.1	9.15	57.48	100	0	Peak

Test Mode :	802.11b Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 2062 MHz and 3282 MHz are not within a restricted band.		

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
2062	49.27	-27.28	76.55	46.02	31.57	5.5	33.82	100	0	Peak
2462	91.66	-	-	87.36	32.15	6.14	33.99	176	98	Average
2462	96.55	-	-	92.25	32.15	6.14	33.99	176	98	Peak
3282	45.45	-31.1	76.55	62.23	32.76	7.34	56.88	100	0	Peak
4926	52.59	-1.41	54	66.82	34.1	9.15	57.48	100	350	Average
4926	53.72	-20.28	74	67.95	34.1	9.15	57.48	100	350	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7236 MHz are not within a restricted band.		

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
2412	94.16	-	-	89.98	32.08	6.07	33.97	116	27	Average
2412	105.33	-	-	101.15	32.08	6.07	33.97	116	27	Peak
3216	55.57	-29.76	85.33	72.45	32.74	7.19	56.81	127	97	Peak
4824	42.35	-11.65	54	56.6	34.1	9.12	57.47	136	59	Average
4824	57.06	-16.94	74	71.31	34.1	9.12	57.47	136	59	Peak
7236	45.48	-39.85	85.33	57.73	35.7	10.03	57.98	100	0	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7236 MHz are not within a restricted band.		

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
2412	89.4	-	-	85.22	32.08	6.07	33.97	173	129	Average
2412	100.1	-	-	95.92	32.08	6.07	33.97	173	129	Peak
3216	53.25	-26.85	80.1	70.13	32.74	7.19	56.81	100	257	Peak
4824	43.25	-10.75	54	57.5	34.1	9.12	57.47	100	64	Average
4824	57.38	-16.62	74	71.63	34.1	9.12	57.47	100	64	Peak
7236	48.02	-32.08	80.1	60.27	35.7	10.03	57.98	100	0	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
47.82	28.92	-11.08	40	50.6	9.3	0.67	31.65	-	-	Peak
133.41	29.09	-14.41	43.5	47.94	11.52	1.17	31.54	-	-	Peak
250.05	38.66	-7.34	46	55.69	12.6	1.53	31.16	103	175	Peak
400.1	32.62	-13.38	46	45.98	16.02	2.14	31.52	-	-	Peak
500.2	34.53	-11.47	46	44.87	18.1	2.45	30.89	-	-	Peak
666.8	35.79	-10.21	46	42.99	20.33	2.87	30.4	-	-	Peak
2437	93.8	-	-	89.54	32.13	6.11	33.98	116	165	Average
2437	105.37	-	-	101.11	32.13	6.11	33.98	116	165	Peak
3249	55.63	-29.74	85.37	72.44	32.75	7.29	56.85	127	84	Peak
4875	42.73	-11.27	54	56.98	34.1	9.13	57.48	130	52	Average
4875	57.62	-16.38	74	71.87	34.1	9.13	57.48	130	52	Peak
7305	46.39	-27.61	74	58.65	35.7	10.06	58.02	100	0	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
47.82	29.49	-10.51	40	51.17	9.3	0.67	31.65	110	198	Peak
106.68	26.34	-17.16	43.5	46.6	10.43	1.03	31.72	-	-	Peak
250.05	32.95	-13.05	46	49.98	12.6	1.53	31.16	-	-	Peak
500.2	35.28	-10.72	46	45.62	18.1	2.45	30.89	-	-	Peak
533.1	29.63	-16.37	46	39.58	18.66	2.52	31.13	-	-	Peak
897.8	30.33	-15.67	46	34.73	23.08	3.34	30.82	-	-	Peak
2437	89.18	-	-	84.92	32.13	6.11	33.98	170	125	Average
2437	100.48	-	-	96.22	32.13	6.11	33.98	170	125	Peak
3249	52.14	-28.34	80.48	68.95	32.75	7.29	56.85	100	129	Peak
4875	42.48	-11.52	54	56.73	34.1	9.13	57.48	100	69	Average
4875	56.65	-17.35	74	70.9	34.1	9.13	57.48	100	69	Peak
7314	49.13	-24.87	74	61.39	35.7	10.06	58.02	100	0	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	91.13	-	-	86.83	32.15	6.14	33.99	113	2	Average
2462	102.62	-	-	98.32	32.15	6.14	33.99	113	2	Peak
3282	55.1	-27.52	82.62	71.88	32.76	7.34	56.88	149	82	Peak
4926	42.63	-11.37	54	56.86	34.1	9.15	57.48	147	68	Average
4926	57.05	-16.95	74	71.28	34.1	9.15	57.48	147	68	Peak
7383	46.76	-27.24	74	59.03	35.7	10.1	58.07	100	0	Peak

Test Mode :	802.11g Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	88.26	-	-	83.96	32.15	6.14	33.99	175	135	Average
2462	100.36	-	-	96.06	32.15	6.14	33.99	175	135	Peak
3282	49.1	-31.26	80.36	65.88	32.76	7.34	56.88	158	69	Peak
4923	40.88	-13.12	54	55.12	34.1	9.14	57.48	137	71	Average
4923	55.11	-18.89	74	69.35	34.1	9.14	57.48	137	71	Peak
7383	47.9	-26.1	74	60.17	35.7	10.1	58.07	100	0	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2196 MHz and 3216 MHz are not within a restricted band.		

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
2196	53.05	-28.03	81.08	49.43	31.77	5.73	33.88	100	0	Peak
2412	89.68	-	-	85.5	32.08	6.07	33.97	116	333	Average
2412	101.08	-	-	96.9	32.08	6.07	33.97	116	333	Peak
3216	45.65	-35.43	81.08	62.53	32.74	7.19	56.81	100	0	Peak
4827	47.31	-6.69	54	61.56	34.1	9.12	57.47	100	88	Average
4827	59.32	-14.68	74	73.57	34.1	9.12	57.47	100	88	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

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
2412	83.15	-	-	78.97	32.08	6.07	33.97	150	64	Average
2412	94.72	-	-	90.54	32.08	6.07	33.97	150	64	Peak
3216	46.37	-28.35	74.72	63.25	32.74	7.19	56.81	100	0	Peak
4824	52.84	-1.16	54	67.09	34.1	9.12	57.47	100	336	Average
4824	65.28	-8.72	74	79.53	34.1	9.12	57.47	100	336	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2044 MHz and 3249 MHz are not within a restricted band.		

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
2044	55.69	-24.84	80.53	52.46	31.55	5.5	33.82	100	0	Peak
2437	88.23	-	-	84.05	32.08	6.07	33.97	110	350	Average
2437	100.53	-	-	96.3	32.1	6.11	33.98	110	350	Peak
3249	45.15	-35.38	80.53	61.96	32.75	7.29	56.85	100	0	Peak
4869	44.71	-9.29	54	58.96	34.1	9.13	57.48	100	97	Average
4869	58.06	-15.94	74	72.31	34.1	9.13	57.48	100	97	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2040 MHz and 3249 MHz are not within a restricted band.		

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
2040	50.91	-24.93	75.84	47.7	31.55	5.47	33.81	100	0	Peak
2437	83.63	-	-	79.37	32.13	6.11	33.98	177	80	Average
2437	95.84	-	-	91.61	32.1	6.11	33.98	177	80	Peak
3249	46.13	-29.71	75.84	62.94	32.75	7.29	56.85	100	0	Peak
4875	51.31	-2.69	54	65.56	34.1	9.13	57.48	100	334	Average
4875	63.55	-10.45	74	77.8	34.1	9.13	57.48	100	344	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 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
40.8	36.49	-3.51	40	54.74	12.9	0.63	31.78	103	187	Peak
233.58	37.24	-8.76	46	55.49	11.46	1.5	31.21	-	-	Peak
250.05	38.67	-7.33	46	55.7	12.6	1.53	31.16	-	-	Peak
400.1	35.79	-10.21	46	49.15	16.02	2.14	31.52	-	-	Peak
500.2	31.18	-14.82	46	41.52	18.1	2.45	30.89	-	-	Peak
666.8	30.2	-15.8	46	37.4	20.33	2.87	30.4	-	-	Peak
2462	89.35	-	-	85.05	32.15	6.14	33.99	110	352	Average
2462	101.08	-	-	96.78	32.15	6.14	33.99	110	352	Peak
4926	48.07	-5.93	54	62.3	34.1	9.15	57.48	87	100	Average
4926	59.89	-14.11	74	74.12	34.1	9.15	57.48	87	100	Peak

Test Mode :	802.11g Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
48.36	28.96	-11.04	40	51.03	8.9	0.68	31.65	-	-	Peak
125.04	26.46	-17.04	43.5	45.24	11.7	1.12	31.6	-	-	Peak
250.05	33.17	-12.83	46	50.2	12.6	1.53	31.16	-	-	Peak
500.2	35.3	-10.7	46	45.64	18.1	2.45	30.89	101	153	Peak
533.1	31.23	-14.77	46	41.18	18.66	2.52	31.13	-	-	Peak
880.3	29.82	-16.18	46	34.31	22.91	3.31	30.71	-	-	Peak
2462	83.59	-	-	79.29	32.15	6.14	33.99	172	68	Average
2462	95.16	-	-	90.86	32.15	6.14	33.99	172	68	Peak
3282	44.95	-30.21	75.16	61.73	32.76	7.34	56.88	100	0	Peak
4926	53.37	-0.63	54	67.6	34.1	9.15	57.48	100	339	Average
4926	64.51	-9.49	74	78.74	34.1	9.15	57.48	100	339	Peak
7383	43.96	-30.04	74	56.23	35.7	10.1	58.07	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7230 MHz are not within a restricted band.		

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
2412	86.18	-	-	82	32.08	6.07	33.97	115	326	Average
2412	105.69	-	-	101.51	32.08	6.07	33.97	115	326	Peak
3216	55.33	-30.36	85.69	72.21	32.74	7.19	56.81	128	39	Peak
4827	40.59	-13.41	54	54.84	34.1	9.12	57.47	105	62	Average
4827	56.9	-17.1	74	71.15	34.1	9.12	57.47	105	62	Peak
7230	45.8	-39.89	85.69	58.04	35.7	10.03	57.97	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7239 MHz are not within a restricted band.		

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
2412	81.76	-	-	77.58	32.08	6.07	33.97	183	129	Average
2412	100.61	-	-	96.43	32.08	6.07	33.97	183	129	Peak
3216	53.23	-27.38	80.61	70.11	32.74	7.19	56.81	100	247	Peak
4818	40.13	-13.87	54	54.38	34.1	9.12	57.47	100	139	Average
4818	54.75	-19.25	74	69	34.1	9.12	57.47	100	139	Peak
7239	48.18	-32.43	80.61	60.43	35.7	10.03	57.98	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
47.55	29.31	-10.69	40	50.99	9.3	0.67	31.65	-	-	Peak
133.41	27.44	-16.06	43.5	46.29	11.52	1.17	31.54	-	-	Peak
250.05	38.86	-7.14	46	55.89	12.6	1.53	31.16	109	228	Peak
500.2	34.22	-11.78	46	44.56	18.1	2.45	30.89	-	-	Peak
533.1	34.15	-11.85	46	44.1	18.66	2.52	31.13	-	-	Peak
666.8	34.56	-11.44	46	41.76	20.33	2.87	30.4	-	-	Peak
2437	85.75	-	-	81.49	32.13	6.11	33.98	114	36	Average
2437	104.87	-	-	100.61	32.13	6.11	33.98	114	36	Peak
3249	55.62	-29.25	84.87	72.43	32.75	7.29	56.85	122	74	Peak
4875	40.73	-13.27	54	54.98	34.1	9.13	57.48	109	78	Average
4875	55.7	-18.3	74	69.95	34.1	9.13	57.48	109	78	Peak
7311	46.2	-27.8	74	58.46	35.7	10.06	58.02	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
40.26	33.41	-6.59	40	51.67	12.9	0.63	31.79	108	124	Peak
63.48	32.55	-7.45	40	57.35	6.18	0.79	31.77	-	-	Peak
250.05	33.03	-12.97	46	50.06	12.6	1.53	31.16	-	-	Peak
400.1	30.27	-15.73	46	43.63	16.02	2.14	31.52	-	-	Peak
500.2	33.47	-12.53	46	43.81	18.1	2.45	30.89	-	-	Peak
533.1	29.28	-16.72	46	39.23	18.66	2.52	31.13	-	-	Peak
2437	80.47	-	-	76.21	32.13	6.11	33.98	172	130	Average
2437	99.14	-	-	94.88	32.13	6.11	33.98	172	130	Peak
3249	52.73	-26.41	79.14	69.54	32.75	7.29	56.85	100	88	Peak
4872	40.57	-13.43	54	54.82	34.1	9.13	57.48	100	67	Average
4872	55.23	-18.77	74	69.48	34.1	9.13	57.48	100	67	Peak
7308	49.28	-24.72	74	61.54	35.7	10.06	58.02	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	85.38	-	-	81.08	32.15	6.14	33.99	142	66	Average
2462	105.03	-	-	100.73	32.15	6.14	33.99	142	66	Peak
3282	55.05	-29.98	85.03	71.83	32.76	7.34	56.88	139	52	Peak
4920	41.73	-12.27	54	55.97	34.1	9.14	57.48	124	77	Average
4920	56.43	-17.57	74	70.67	34.1	9.14	57.48	124	77	Peak
7389	46.62	-27.38	74	58.9	35.7	10.1	58.08	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	80.75	-	-	76.45	32.15	6.14	33.99	174	132	Average
2462	99.41	-	-	95.11	32.15	6.14	33.99	174	132	Peak
3282	49.63	-29.78	79.41	66.41	32.76	7.34	56.88	100	47	Peak
4926	41.08	-12.92	54	55.31	34.1	9.15	57.48	100	122	Average
4926	56.04	-17.96	74	70.27	34.1	9.15	57.48	100	122	Peak
7380	50.07	-23.93	74	62.34	35.7	10.1	58.07	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 2056 MHz and 3216 MHz are not within a restricted band.		

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
2056	50.48	-32.13	82.61	47.23	31.57	5.5	33.82	100	0	Peak
2412	82.82	-	-	78.64	32.08	6.07	33.97	114	353	Average
2412	102.61	-	-	98.43	32.08	6.07	33.97	114	353	Peak
3216	45.29	-37.32	82.61	62.17	32.74	7.19	56.81	100	0	Peak
4824	47.43	-6.57	54	61.68	34.1	9.12	57.47	100	88	Average
4824	63.92	-10.08	74	78.17	34.1	9.12	57.47	100	88	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7236 MHz are not within a restricted band.		

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
2412	75.25	-	-	71.07	32.08	6.07	33.97	103	50	Average
2412	93.12	-	-	88.94	32.08	6.07	33.97	103	50	Peak
3216	47.08	-26.04	73.12	63.96	32.74	7.19	56.81	100	0	Peak
4827	52.41	-1.59	54	66.66	34.1	9.12	57.47	100	335	Average
4827	68.57	-5.43	74	82.82	34.1	9.12	57.47	100	335	Peak
7236	45.34	-27.78	73.12	57.59	35.7	10.03	57.98	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
2437	81.77	-	-	77.51	32.13	6.11	33.98	113	0	Average
2437	101.14	-	-	96.88	32.13	6.11	33.98	113	0	Peak
3249	45.42	-35.72	81.14	62.23	32.75	7.29	56.85	100	0	Peak
4875	46.03	-7.97	54	60.28	34.1	9.13	57.48	100	86	Average
4875	60.59	-13.41	74	74.84	34.1	9.13	57.48	100	86	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
2437	77.54	-	-	73.28	32.13	6.11	33.98	180	82	Average
2437	94.97	-	-	90.71	32.13	6.11	33.98	180	82	Peak
3249	46.41	-28.56	74.97	63.22	32.75	7.29	56.85	100	0	Peak
4872	51.84	-2.16	54	66.09	34.1	9.13	57.48	100	330	Average
4872	68.42	-5.58	74	82.67	34.1	9.13	57.48	100	330	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

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
2462	82.13	-	-	77.83	32.15	6.14	33.99	109	316	Average
2462	101.21	-	-	96.91	32.15	6.14	33.99	109	316	Peak
3282	44.13	-37.08	81.21	60.91	32.76	7.34	56.88	100	0	Peak
4926	46.49	-7.51	54	60.72	34.1	9.15	57.48	100	98	Average
4926	62.47	-11.53	74	76.7	34.1	9.15	57.48	100	98	Peak

Test Mode :	802.11n-HT20 Ant. 2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2462	77.64	-	-	73.34	32.15	6.14	33.99	175	96	Average
2462	95.9	-	-	91.6	32.15	6.14	33.99	175	96	Peak
3282	45.78	-30.12	75.9	62.56	32.76	7.34	56.88	100	0	Peak
4920	50.97	-3.03	54	65.21	34.1	9.14	57.48	100	330	Average
4920	67.9	-6.1	74	82.14	34.1	9.14	57.48	100	330	Peak
7386	48.24	-25.76	74	60.52	35.7	10.1	58.08	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz is not within a restricted band.		

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
2412	83	-	-	78.82	32.08	6.07	33.97	180	56	Average
2412	103.18	-	-	99	32.08	6.07	33.97	180	56	Peak
3216	53.94	-29.24	83.18	70.82	32.74	7.19	56.81	100	0	Peak
4824	39.57	-14.43	54	53.82	34.1	9.12	57.47	100	92	Average
4824	57.21	-16.79	74	71.46	34.1	9.12	57.47	100	92	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	01	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 3216 MHz and 7233 MHz are not within a restricted band.		

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
2412	78.19	-	-	74.01	32.08	6.07	33.97	175	109	Average
2412	96.96	-	-	92.78	32.08	6.07	33.97	175	109	Peak
3216	53.11	-23.85	76.96	69.99	32.74	7.19	56.81	100	0	Peak
4830	44.95	-9.05	54	59.2	34.1	9.12	57.47	100	344	Average
4830	62.03	-11.97	74	76.28	34.1	9.12	57.47	100	344	Peak
7233	44.14	-32.82	76.96	56.39	35.7	10.03	57.98	100	0	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
40.26	35.14	-4.86	40	53.4	12.9	0.63	31.79	103	226	Peak
133.41	29.5	-14	43.5	48.35	11.52	1.17	31.54	-	-	Peak
250.05	37.88	-8.12	46	54.91	12.6	1.53	31.16	-	-	Peak
400.1	34.16	-11.84	46	47.52	16.02	2.14	31.52	-	-	Peak
500.2	35.58	-10.42	46	45.92	18.1	2.45	30.89	-	-	Peak
533.1	34.53	-11.47	46	44.48	18.66	2.52	31.13	-	-	Peak
2437	82.56	-	-	78.3	32.13	6.11	33.98	113	36	Average
2437	102.33	-	-	98.07	32.13	6.11	33.98	113	36	Peak
3249	54.59	-27.74	82.33	71.4	32.75	7.29	56.85	100	0	Peak
4872	37.6	-16.4	54	51.85	34.1	9.13	57.48	100	88	Average
4872	53.47	-20.53	74	67.72	34.1	9.13	57.48	100	88	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
43.5	29.09	-10.91	40	49.1	11.1	0.64	31.75	-	-	Peak
125.04	26.19	-17.31	43.5	44.97	11.7	1.12	31.6	-	-	Peak
250.05	33.36	-12.64	46	50.39	12.6	1.53	31.16	-	-	Peak
400.1	28.96	-17.04	46	42.32	16.02	2.14	31.52	-	-	Peak
500.2	36.33	-9.67	46	46.67	18.1	2.45	30.89	104	168	Peak
666.8	27.76	-18.24	46	34.96	20.33	2.87	30.4	-	-	Peak
2437	76.81	-	-	72.55	32.13	6.11	33.98	180	135	Average
2437	95.18	-	-	90.95	32.1	6.11	33.98	180	135	Peak
3249	52.53	-22.65	75.18	69.34	32.75	7.29	56.85	100	0	Peak
4881	44.27	-9.73	54	58.51	34.1	9.14	57.48	100	340	Average
4881	60.18	-13.82	74	74.42	34.1	9.14	57.48	100	340	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

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
2462	82.84	-	-	78.54	32.15	6.14	33.99	108	312	Average
2462	103.01	-	-	98.71	32.15	6.14	33.99	108	312	Peak
3282	52.14	-30.87	83.01	68.92	32.76	7.34	56.88	100	0	Peak
4932	37.48	-16.52	54	51.71	34.1	9.15	57.48	100	97	Average
4932	53.04	-20.96	74	67.27	34.1	9.15	57.48	100	97	Peak

Test Mode :	802.11n-HT20 Ant. 1+2	Temperature :	25~26°C
Test Channel :	11	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 3282 MHz is not within a restricted band.		

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
2462	76.4	-	-	72.1	32.15	6.14	33.99	170	101	Average
2462	94.93	-	-	90.63	32.15	6.14	33.99	170	101	Peak
3282	49.04	-25.89	74.93	65.82	32.76	7.34	56.88	100	0	Peak
4929	42.49	-11.51	54	56.72	34.1	9.15	57.48	100	330	Average
4929	57.57	-16.43	74	71.8	34.1	9.15	57.48	100	330	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 3228 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2422	81.39	-	-	77.19	32.1	6.07	33.97	115	68	Average
2422	104.27	-	-	100.07	32.1	6.07	33.97	115	68	Peak
3228	54.13	-30.14	84.27	70.98	32.74	7.24	56.83	128	38	Peak
4842	38.58	-15.42	54	52.83	34.1	9.12	57.47	109	52	Average
4842	53.54	-20.46	74	67.79	34.1	9.12	57.47	109	52	Peak
7263	47.66	-26.34	74	59.91	35.7	10.04	57.99	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 3228 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2422	74.75	-	-	70.55	32.1	6.07	33.97	115	229	Average
2422	95.54	-	-	91.34	32.1	6.07	33.97	115	229	Peak
3228	51.96	-23.58	75.54	68.81	32.74	7.24	56.83	100	99	Peak
4842	39.1	-14.9	54	53.35	34.1	9.12	57.47	100	67	Average
4842	53.96	-20.04	74	68.21	34.1	9.12	57.47	100	67	Peak
7263	47.85	-26.15	74	60.1	35.7	10.04	57.99	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
48.36	29.32	-10.68	40	51.39	8.9	0.68	31.65	-	-	Peak
240.06	29.06	-16.94	46	46.8	11.93	1.53	31.2	-	-	Peak
250.05	38.61	-7.39	46	55.64	12.6	1.53	31.16	103	152	Peak
400.1	34.13	-11.87	46	47.49	16.02	2.14	31.52	-	-	Peak
500.2	31.44	-14.56	46	41.78	18.1	2.45	30.89	-	-	Peak
666.8	30.28	-15.72	46	37.48	20.33	2.87	30.4	-	-	Peak
2437	80.04	-	-	75.78	32.13	6.11	33.98	113	36	Average
2437	102.71	-	-	98.45	32.13	6.11	33.98	113	36	Peak
3249	55.8	-26.91	82.71	72.61	32.75	7.29	56.85	112	69	Peak
4875	38.42	-15.58	54	52.67	34.1	9.13	57.48	103	82	Average
4875	53.11	-20.89	74	67.36	34.1	9.13	57.48	103	82	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
42.96	29.85	-10.15	40	49.26	11.7	0.64	31.75	103	225	Peak
125.04	27.07	-16.43	43.5	45.85	11.7	1.12	31.6	-	-	Peak
250.05	33.52	-12.48	46	50.55	12.6	1.53	31.16	-	-	Peak
400.1	28.16	-17.84	46	41.52	16.02	2.14	31.52	-	-	Peak
500.2	35.25	-10.75	46	45.59	18.1	2.45	30.89	-	-	Peak
800.5	28.48	-17.52	46	33.4	22.1	3.14	30.16	-	-	Peak
2437	75.71	-	-	71.45	32.13	6.11	33.98	143	129	Average
2437	96.73	-	-	92.47	32.13	6.11	33.98	143	129	Peak
3249	52.15	-24.58	76.73	68.96	32.75	7.29	56.85	100	163	Peak
4872	37.64	-16.36	54	51.89	34.1	9.13	57.48	100	75	Average
4872	52.39	-21.61	74	66.64	34.1	9.13	57.48	100	75	Peak
7305	46.93	-27.07	74	59.19	35.7	10.06	58.02	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 3270 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2452	80.61	-	-	76.35	32.13	6.11	33.98	142	66	Average
2452	103.38	-	-	99.12	32.13	6.11	33.98	142	66	Peak
3270	54.88	-28.5	83.38	71.66	32.76	7.34	56.88	122	87	Peak
4902	41.03	-12.97	54	55.27	34.1	9.14	57.48	108	97	Average
4902	55.72	-18.28	74	69.96	34.1	9.14	57.48	108	97	Peak
7344	45.66	-28.34	74	57.94	35.7	10.07	58.05	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 1	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 3270 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2452	76.69	-	-	72.43	32.13	6.11	33.98	172	131	Average
2452	97.59	-	-	93.33	32.13	6.11	33.98	172	131	Peak
3270	49.64	-27.95	77.59	66.42	32.76	7.34	56.88	100	57	Peak
4902	39.09	-14.91	54	53.33	34.1	9.14	57.48	100	138	Average
4902	53.79	-20.21	74	68.03	34.1	9.14	57.48	100	138	Peak
7353	46.88	-27.12	74	59.16	35.7	10.08	58.06	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 3228 MHz is not within a restricted band.		

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
2422	77.51	-	-	73.31	32.1	6.07	33.97	116	0	Average
2422	99.69	-	-	95.49	32.1	6.07	33.97	116	0	Peak
3228	44.62	-35.07	79.69	61.47	32.74	7.24	56.83	100	0	Peak
4842	45.93	-8.07	54	60.18	34.1	9.12	57.47	100	89	Average
4842	61.14	-12.86	74	75.39	34.1	9.12	57.47	100	89	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 3228 MHz is not within a restricted band. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
2422	73.11	-	-	68.91	32.1	6.07	33.97	176	99	Average
2422	93.82	-	-	89.62	32.1	6.07	33.97	176	99	Peak
3228	45.91	-27.91	73.82	62.76	32.74	7.24	56.83	100	0	Peak
4836	50.81	-3.19	54	65.06	34.1	9.12	57.47	100	335	Average
4836	67.2	-6.8	74	81.45	34.1	9.12	57.47	100	335	Peak
7263	44.25	-29.75	74	56.5	35.7	10.04	57.99	100	0	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
2437	77.51	-	-	73.25	32.13	6.11	33.98	117	360	Average
2437	98.9	-	-	94.67	32.1	6.11	33.98	117	360	Peak
3249	44.75	-34.15	78.9	61.56	32.75	7.29	56.85	100	0	Peak
4872	45.39	-8.61	54	59.64	34.1	9.13	57.48	100	89	Average
4872	60.52	-13.48	74	74.77	34.1	9.13	57.48	100	89	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
2437	73.07	-	-	68.81	32.13	6.11	33.98	145	81	Average
2437	93.16	-	-	88.9	32.13	6.11	33.98	145	81	Peak
3249	45.29	-27.87	73.16	62.1	32.75	7.29	56.85	100	0	Peak
4872	49.63	-4.37	54	63.88	34.1	9.13	57.48	100	342	Average
4872	66.88	-7.12	74	81.13	34.1	9.13	57.48	100	342	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 3270 MHz is not within a restricted band.		

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
2452	77.45	-	-	73.19	32.13	6.11	33.98	108	331	Average
2452	98.82	-	-	94.52	32.15	6.14	33.99	108	331	Peak
3270	43.32	-35.5	78.82	60.1	32.76	7.34	56.88	100	0	Peak
4902	44.39	-9.61	54	58.63	34.1	9.14	57.48	100	88	Average
4902	59.84	-14.16	74	74.08	34.1	9.14	57.48	100	88	Peak

Test Mode :	802.11n-HT40 Ant. 2	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 3270 MHz is not within a restricted band.		

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
2452	72.9	-	-	68.64	32.13	6.11	33.98	173	99	Average
2452	93.5	-	-	89.24	32.13	6.11	33.98	173	99	Peak
3270	44.39	-29.11	73.5	61.17	32.76	7.34	56.88	100	0	Peak
4902	49.59	-4.41	54	63.83	34.1	9.14	57.48	100	332	Average
4902	65.98	-8.02	74	80.22	34.1	9.14	57.48	100	332	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 2014 MHz and 3228 MHz are not within a restricted band.		

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
2014	53.32	-27.56	80.88	50.17	31.52	5.43	33.8	116	62	Peak
2422	79.57	-	-	75.37	32.1	6.07	33.97	116	62	Average
2422	100.88	-	-	96.7	32.08	6.07	33.97	116	62	Peak
3228	52.63	-28.25	80.88	69.48	32.74	7.24	56.83	100	0	Peak
4839	37.11	-16.89	54	51.36	34.1	9.12	57.47	100	77	Average
4839	53.12	-20.88	74	67.37	34.1	9.12	57.47	100	77	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	03	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2422 MHz is fundamental signal which can be ignored. 2. 3228 MHz is not within a restricted band.		

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
2422	73.9	-	-	69.7	32.1	6.07	33.97	177	124	Average
2422	95.28	-	-	91.08	32.1	6.07	33.97	177	124	Peak
3228	52.21	-23.07	75.28	69.06	32.74	7.24	56.83	100	0	Peak
4836	42.41	-11.59	54	56.66	34.1	9.12	57.47	100	330	Average
4836	58.26	-15.74	74	72.51	34.1	9.12	57.47	100	330	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 2046 MHz and 3249 MHz are not within a restricted band.		

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
48.36	29.14	-10.86	40	51.21	8.9	0.68	31.65	-	-	Peak
230.88	28.21	-17.79	46	46.68	11.25	1.49	31.21	-	-	Peak
250.05	37.21	-8.79	46	54.24	12.6	1.53	31.16	108	224	Peak
400.1	34.24	-11.76	46	47.6	16.02	2.14	31.52	-	-	Peak
666.8	32.23	-13.77	46	39.43	20.33	2.87	30.4	-	-	Peak
799.8	32.72	-13.28	46	37.64	22.1	3.14	30.16	-	-	Peak
2046	54.11	-26.77	80.88	50.86	31.57	5.5	33.82	100	0	Peak
2437	81.18	-	-	76.92	32.13	6.11	33.98	116	39	Average
2437	100.88	-	-	96.62	32.13	6.11	33.98	116	39	Peak
3249	53.82	-27.06	80.88	70.63	32.75	7.29	56.85	100	0	Peak
4872	39.38	-14.62	54	53.63	34.1	9.13	57.48	100	200	Average
4872	53.92	-20.08	74	68.17	34.1	9.13	57.48	100	200	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	06	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 3249 MHz is not within a restricted band.		

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
42.69	29.2	-10.8	40	48.61	11.7	0.64	31.75	102	154	Peak
133.41	26.54	-16.96	43.5	45.39	11.52	1.17	31.54	-	-	Peak
250.05	33.61	-12.39	46	50.64	12.6	1.53	31.16	-	-	Peak
400.1	28.42	-17.58	46	41.78	16.02	2.14	31.52	-	-	Peak
500.2	35.06	-10.94	46	45.4	18.1	2.45	30.89	-	-	Peak
666.8	27.6	-18.4	46	34.8	20.33	2.87	30.4	-	-	Peak
2437	73.23	-	-	68.97	32.13	6.11	33.98	179	126	Average
2437	92.78	-	-	88.55	32.1	6.11	33.98	179	126	Peak
3249	52.19	-20.59	72.78	69	32.75	7.29	56.85	100	0	Peak
4872	42.32	-11.68	54	56.57	34.1	9.13	57.48	100	343	Average
4872	59.11	-14.89	74	73.36	34.1	9.13	57.48	100	343	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 2062 MHz and 3270 MHz are not within a restricted band.		

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
2062	51.34	-26.93	78.27	48.09	31.57	5.5	33.82	100	0	Peak
2452	77.47	-	-	73.21	32.13	6.11	33.98	146	168	Average
2452	98.27	-	-	93.97	32.15	6.14	33.99	146	168	Peak
3270	51.77	-26.5	78.27	68.55	32.76	7.34	56.88	100	0	Peak
4899	37.39	-16.61	54	51.63	34.1	9.14	57.48	100	193	Average
4899	52.64	-21.36	74	66.88	34.1	9.14	57.48	100	193	Peak

Test Mode :	802.11n-HT40 Ant. 1+2	Temperature :	25~26°C
Test Channel :	09	Relative Humidity :	44~45%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2452 MHz is fundamental signal which can be ignored. 2. 3270 MHz is not within a restricted band.		

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
2452	75.3	-	-	71.04	32.13	6.11	33.98	170	125	Average
2452	97	-	-	92.74	32.13	6.11	33.98	170	125	Peak
3270	50.61	-26.39	77	67.39	32.76	7.34	56.88	100	0	Peak
4899	42.95	-11.05	54	57.19	34.1	9.14	57.48	100	342	Average
4899	59.04	-14.96	74	73.28	34.1	9.14	57.48	100	342	Peak

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.

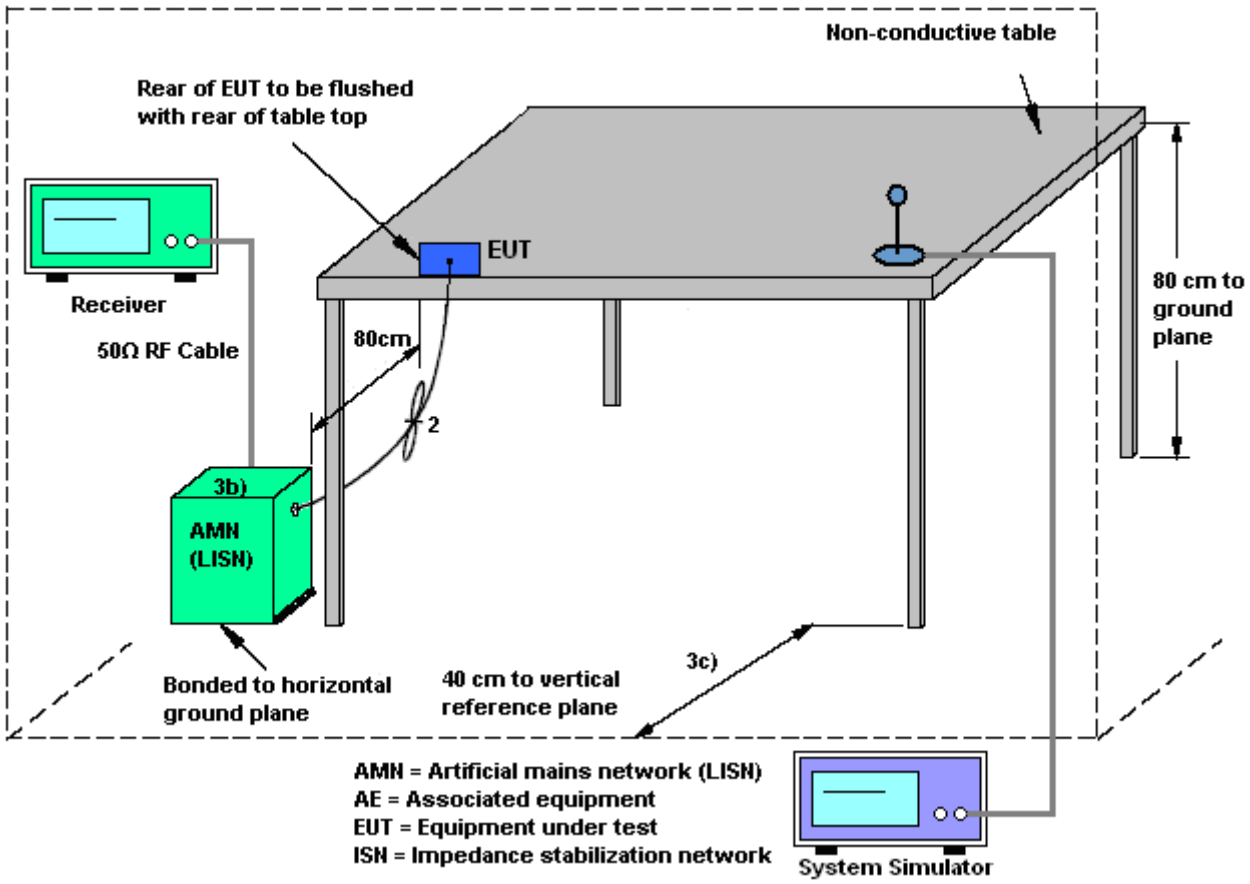
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

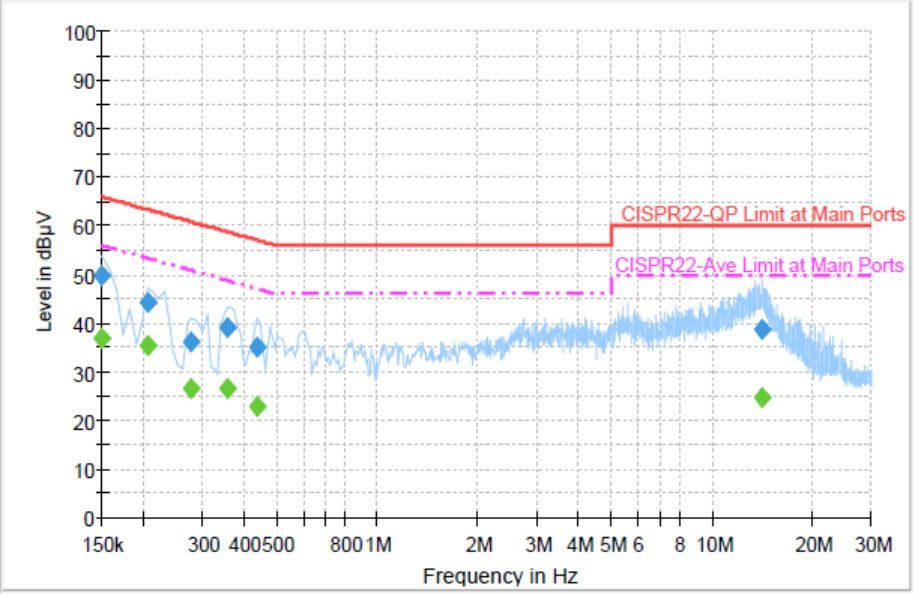
1. The testing follows the guidelines in ANSI C63.10-2009 and fulfills ANSI C63.4-2003 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power 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 :	20~21℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN Link + RJ-45 + RJ-11 + Adapter + USB 3.0 HD		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



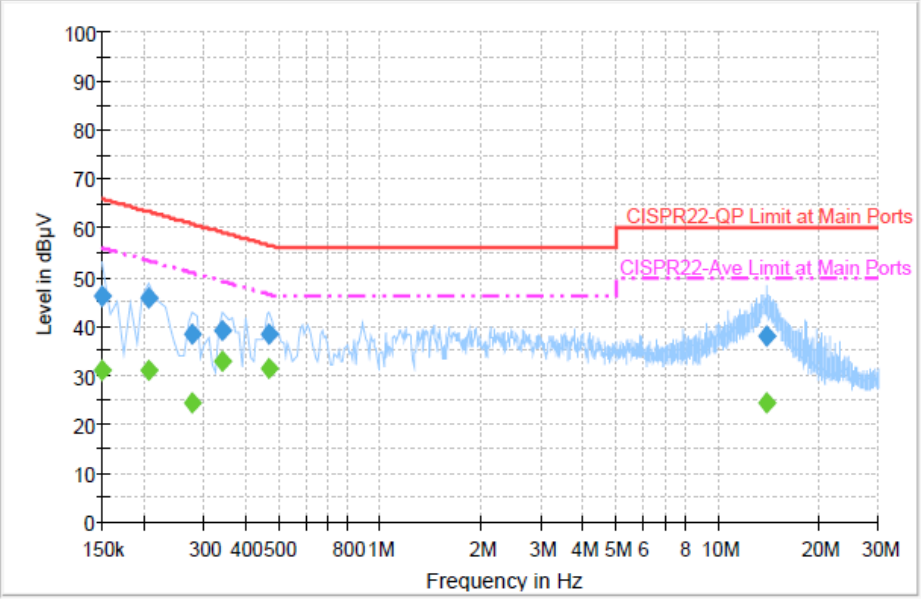
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	49.8	Off	L1	19.4	16.2	66.0
0.206000	44.2	Off	L1	19.3	19.2	63.4
0.278000	36.1	Off	L1	19.4	24.8	60.9
0.358000	39.1	Off	L1	19.3	19.7	58.8
0.438000	35.2	Off	L1	19.4	21.9	57.1
14.126000	38.6	Off	L1	19.8	21.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.9	Off	L1	19.4	19.1	56.0
0.206000	35.4	Off	L1	19.3	18.0	53.4
0.278000	26.4	Off	L1	19.4	24.5	50.9
0.358000	26.4	Off	L1	19.3	22.4	48.8
0.438000	22.8	Off	L1	19.4	24.3	47.1
14.126000	24.7	Off	L1	19.8	25.3	50.0

Test Mode :	Mode 1	Temperature :	20~21℃
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN Link + RJ-45 + RJ-11 + Adapter + USB 3.0 HD		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.2	Off	N	19.4	19.8	66.0
0.206000	45.8	Off	N	19.3	17.6	63.4
0.278000	38.3	Off	N	19.4	22.6	60.9
0.342000	39.1	Off	N	19.4	20.1	59.2
0.470000	38.5	Off	N	19.4	18.0	56.5
13.934000	38.1	Off	N	19.8	21.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	31.1	Off	N	19.4	24.9	56.0
0.206000	31.0	Off	N	19.3	22.4	53.4
0.278000	24.3	Off	N	19.4	26.6	50.9
0.342000	32.7	Off	N	19.4	16.5	49.2
0.470000	31.5	Off	N	19.4	15.0	46.5
13.934000	24.3	Off	N	19.8	25.7	50.0

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. The EUT supports completely correlated MIMO mode. The composite antenna gain for 2.4GHz is 5.01 dBi as following table.

	2.4GHz
ANT. 1 GAIN (dBi)	2
ANT. 2 GAIN (dBi)	2
COMPOSITE GAIN (dBi)	5.01

FCC KDB 662911 D01 Multiple Transmitter Output v01r01

Unequal antenna gains, with equal transmit powers.

For antenna gains given by G_1, G_2, …, G_N dBi.

If transmit signals are *correlated*, then

Directional gain = 10 log[($10^{G1/20}$+ $10^{G2/20}$+ … + $10^{GN/20}$)/N] dBi

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Jul. 19, 2012 ~ Aug. 07, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Jul. 19, 2012 ~ Aug. 07, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Jul. 19, 2012 ~ Aug. 07, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Bluetooth Base Station	R&S	CBT32	100519	N/A	Jun. 05, 2012	Jul. 19, 2012 ~ Aug. 07, 2012	Jun. 06, 2013	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Jul. 31, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Jul. 31, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Jul. 31, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jul. 31, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Jul. 31, 2012	Jul. 27, 2013	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Jul. 31, 2012 ~ Aug. 04, 2012	Jul. 31, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	Jul. 31, 2012 ~ Aug. 04, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Signal Analyzer	Rohde & Schwarz	FSQ	200578/026	20Hz~26.5GHz	Feb. 06, 2012	Jul. 31, 2012 ~ Aug. 04, 2012	Feb. 05, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Jul. 31, 2012 ~ Aug. 04, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 21, 2011	Jul. 31, 2012 ~ Aug. 04, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Jul. 31, 2012 ~ Aug. 04, 2012	Jul. 02, 2014	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

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

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

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

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 EP253048 as below.