FCC RF Test Report

APPLICANT	:	NetComm Limited
EQUIPMENT	:	4G WiFi Router
BRAND NAME	:	NetComm
MODEL NAME	:	3G38WV-TS
MARKETING NAME	:	21Mbps Smart Hub
FCC ID	:	XIA-3G38WV N7NMC8705 (Contain WWAN Module)
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Oct. 19, 2011 and completely tested on Nov. 18, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 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.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1O1951	Rev. 01	Initial issue of report	Nov. 25, 2011

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	-
0	15.247(d)	A8.5	Frequency Band Edges	≤ 20dBc	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	< 20 dBc	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 5.70 dB at 12.198 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.66 dB at 2484.230 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

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

1.2 Manufacturer

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

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	4G WiFi Router
Brand Name	NetComm
Model Name	3G38WV-TS
Marketing Name	21Mbps Smart Hub
FCC ID	XIA-3G38WV N7NMC8705 (Contain WWAN Module)
Integrated Module	Brand Name : Ralink Model Name : RT3052F
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Channel Spacing	5 MHz
Maximum Output Power to Antenna	802.11b : 18.53 dBm (0.0713 W) 802.11g : 22.81 dBm (0.1910 W) 802.11n (BW 20MHz) : 22.48 dBm (0.1770 W) 802.11n (BW 40MHz) : 24.20 dBm (0.2630 W)
Antenna Type	PCB Antenna with gain 4.35 dBi
HW Version	V1.32
SW Version	1.1.81.0
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
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.

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.
	CO05-HY	03CH05HY	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 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Telephone	HTT	HTT-198	N/A	N/A	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

Band	2.4GHz 802.11b RF Power (dBm)					
Chain	Chain A			Chain B		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	18.30	18.53	18.11	18.14	18.48	18.31

Band	2.4GHz 802.11g RF Power (dBm)					
Chain	Chain A			Chain B		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	22.75	22.70	22.81	22.25	22.49	22.74

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)					
Chain	Chain A			Chain B		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	22.30	21.90	21.89	22.17	21.80	21.70

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)					
Chain	Chain A+B(A)			Chain A+B(B)		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
Peak Power	20.24	19.84	21.06	18.53	17.79	16.81

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)		
Chain	Chain A+B		
Channel	1	6	11
Frequency (MHz)	2412	2437	2462
Peak Power	22.48	21.95	22.45

Band	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)					
Chain	Chain A			Chain B		
Channel	3	6	9	3	6	9
Frequency (MHz)	2422	2437	2452	2422	2437	2452
Peak Power	23.26	23.35	22.48	22.81	22.96	22.88

Band	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)					
Chain	Chain A+B(A)			Chain A+B(B)		
Channel	3	6	9	3	6	9
Frequency (MHz)	2422	2437	2452	2422	2437	2452
Peak Power	21.34	22.51	22.22	19.27	19.28	19.26

Band	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)		
Chain	Chain A+B		
Channel	3	6	9
Frequency (MHz)	2422	2437	2452
Peak Power	23.44	24.20	24.00

Remark:

1. All the test data for each data rate were verified, but only the worst case was reported.
2. The data rates of WLAN 802.11b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n (BW 20MHz), and 78Mbps for 802.11n (BW 40MHz) for all the test cases due to the highest RF output power.
3. The EUT is programmed to transmit signals continuously for all testing.

2.2 Test Mode

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

Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

WORST-CASE CONFIGURATION AND MODE:

The worst-case data rates are determined to be as follows for each mode, based on the investigations by measuring the average power, peak power and PPSD across all the data rates, bandwidths, modulations and spatial stream modes.

Thus all tests were made with following data rates:

802.11b mode, 20 MHz Channel Bandwidth, 1 Mb/s, CCK Modulation

802.11g mode, 20 MHz Channel Bandwidth, 6 Mb/s, OFDM Modulation

802.11n HT20 mode, 20 MHz Channel Bandwidth, 6.5 Mb/s, OFDM Modulation

802.11n HT40 mode, 40 MHz Channel Bandwidth, 78 Mb/s, OFDM Modulation

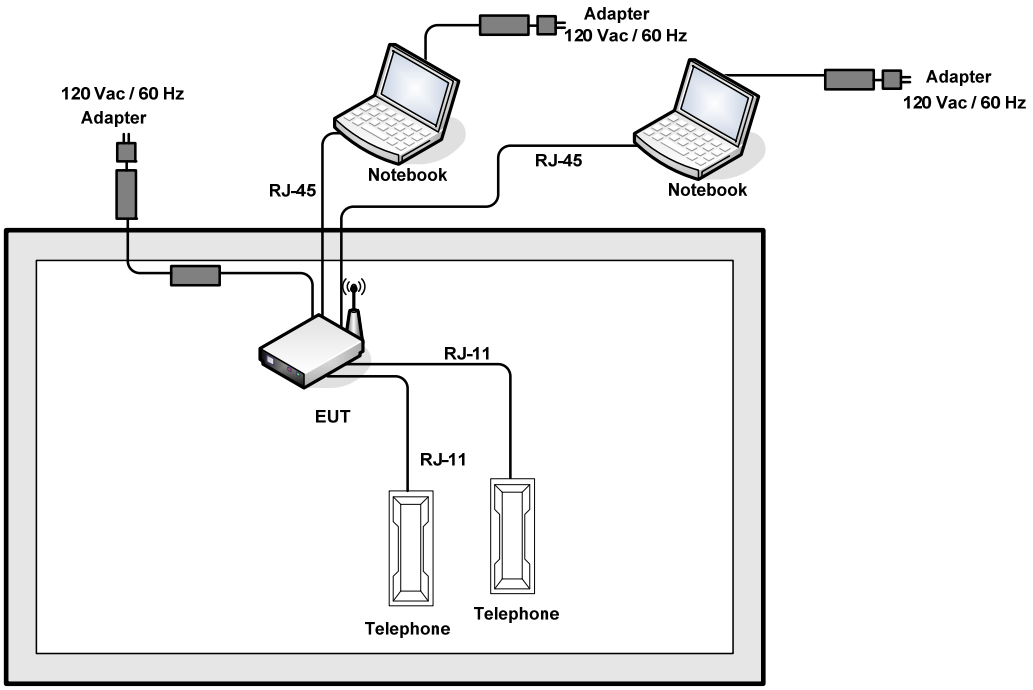
Note:In Comparison between Simultaneous Transmission(WWAN+WLAN) and Individual Transmission(WLAN),the radiated emission as generated(WLAN) is worsen than simultaneous transmission emitted by two radio modules. Hence, the data as measured in individual module is pre-sented in the test report.

Test Cases	
Test Item	**802.11b (Modulation : DSSS)** **802.11g/n (Modulation : OFDM)**
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M) Mode 10: 802.11n_CH03_2422 MHz (BW 40M) Mode 11: 802.11n_CH06_2437 MHz (BW 40M) Mode 12: 802.11n_CH09_2452 MHz (BW 40M)
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz (Chain A) Mode 2: 802.11b_CH06_2437 MHz (Chain A) Mode 3: 802.11b_CH11_2462 MHz (Chain A) Mode 4: 802.11b_CH06_2437 MHz (Chain B) Mode 5: 802.11g_CH01_2412 MHz (Chain A) Mode 6: 802.11g_CH06_2437 MHz (Chain A) Mode 7: 802.11g_CH11_2462 MHz (Chain A) Mode 8: 802.11n_CH01_2412 MHz (BW 20M, Chain A+B) Mode 9: 802.11n_CH06_2437 MHz (BW 20M, Chain A+B) Mode 10: 802.11n_CH11_2462 MHz (BW 20M, Chain A+B) Mode 11: 802.11n_CH03_2422 MHz (BW 40M, Chain A+B) Mode 12: 802.11n_CH06_2437 MHz (BW 40M, Chain A+B) Mode 13: 802.11n_CH09_2452 MHz (BW 40M, Chain A+B) Mode 14: 802.11n_CH09_2452 MHz (BW 40M, Chain A) Mode 15: 802.11n_CH09_2452 MHz (BW 40M, Chain B)

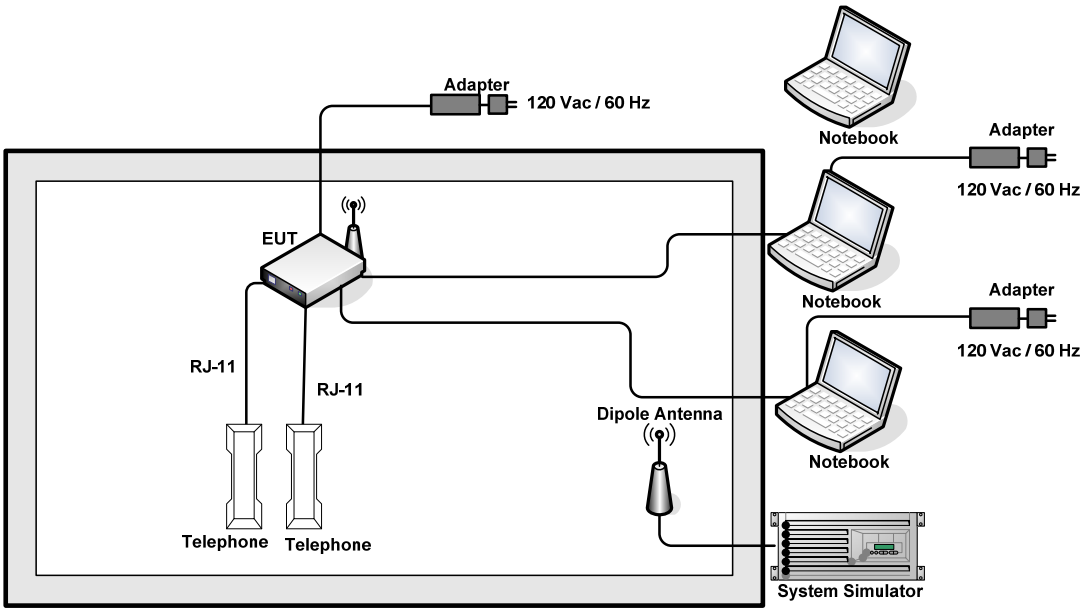
Test Cases	
AC Conducted Emission	Mode 1 :GSM850 Idle + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter Mode 2 : GSM1900 Idle + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter Mode 3 : WCDMA Band II + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter Mode 4 : WCDMA Band V + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter
Remark: The worst case of conducted emission is mode 4; only the test data of it was reported.	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

Use ADB to execute “QA Tool” installed in the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

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.

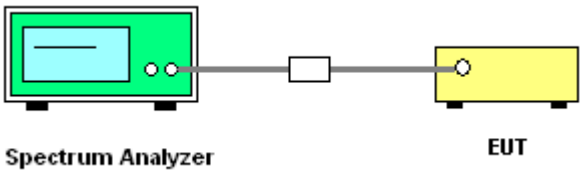
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A		
01	2412	10.12	0.5	Pass
06	2437	11.04	0.5	Pass
11	2462	11.08	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A		
01	2412	15.84	0.5	Pass
06	2437	16.04	0.5	Pass
11	2462	16.04	0.5	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B		
01	2412	16.52	15.78	0.5	Pass
06	2437	16.16	16.28	0.5	Pass
11	2462	16.28	16.28	0.5	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 40MHz) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain A	Chain B		
03	2422	35.12	35.16	0.5	Pass
06	2437	35.20	35.44	0.5	Pass
09	2452	35.20	35.20	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
		Chain A	
01	2412	14.80	Pass
06	2437	14.80	Pass
11	2462	14.80	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
		Chain A	
01	2412	17.25	Pass
06	2437	17.20	Pass
11	2462	17.30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

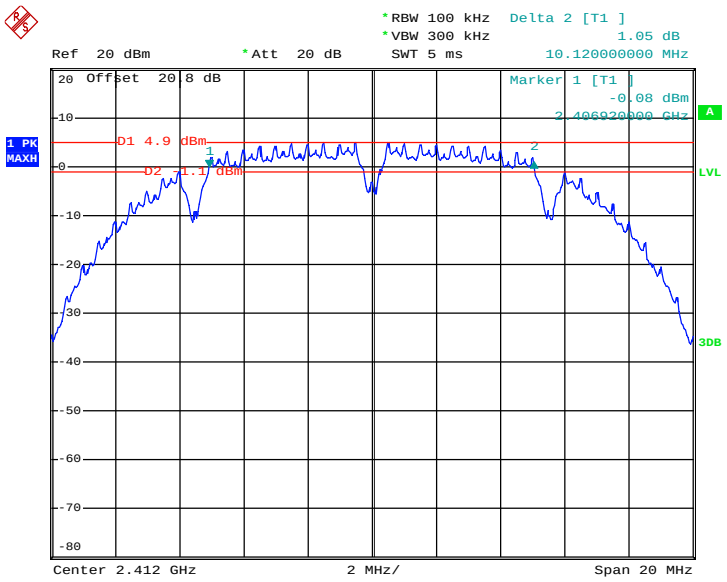
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain A	Chain B	
01	2412	17.95	17.95	Pass
06	2437	17.95	18.00	Pass
11	2462	17.95	18.00	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain A	Chain B	
03	2422	36.30	36.40	Pass
06	2437	36.20	36.40	Pass
09	2452	36.20	36.30	Pass

3.1.7 Test Result of 6dB Bandwidth Plots

Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01 – Chain A



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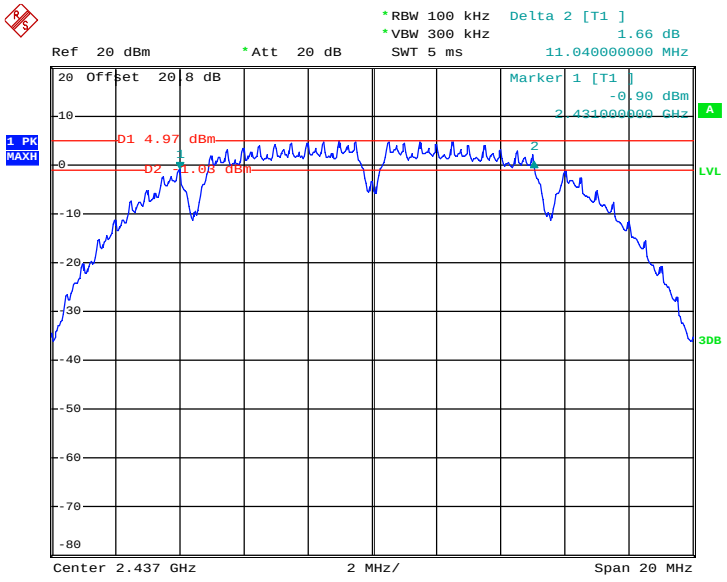
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06 – Chain A



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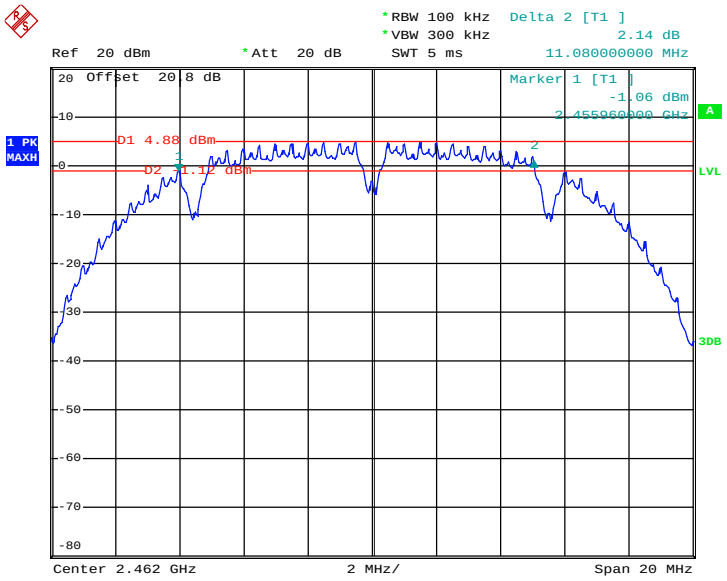
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11 – Chain A



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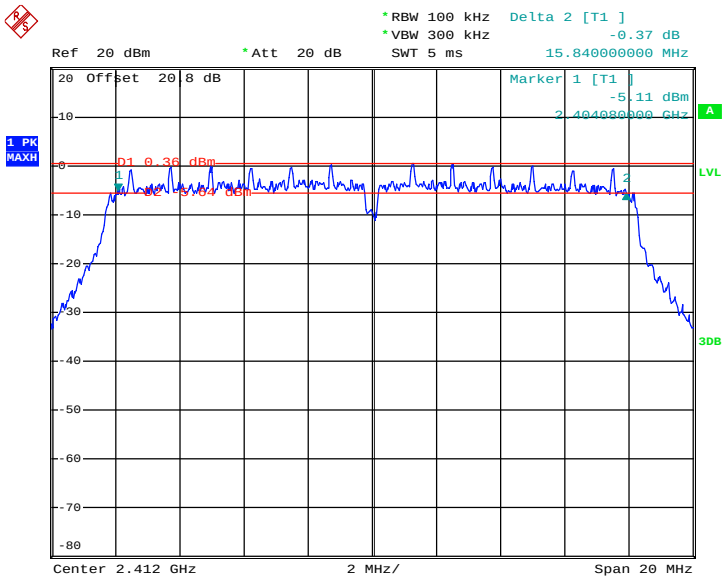
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01 – Chain A



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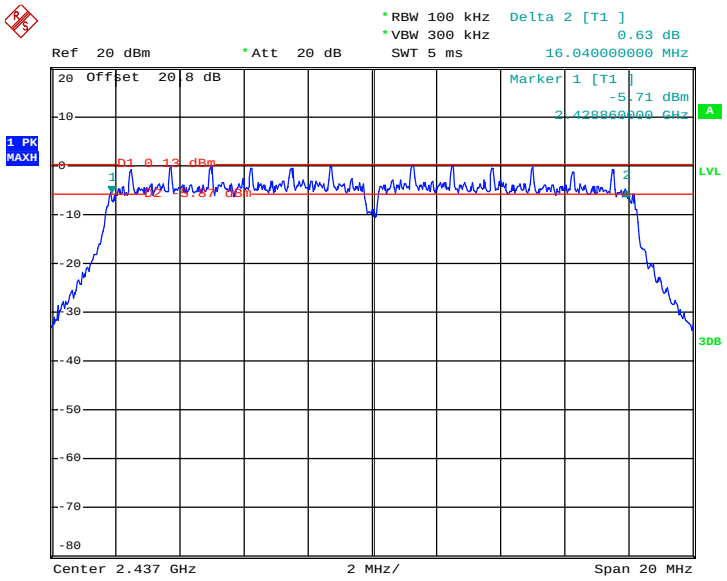
Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06 – Chain A



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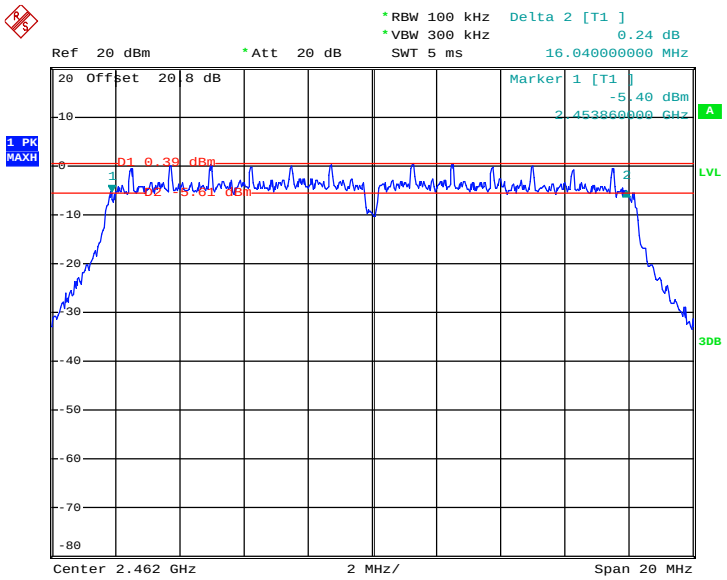
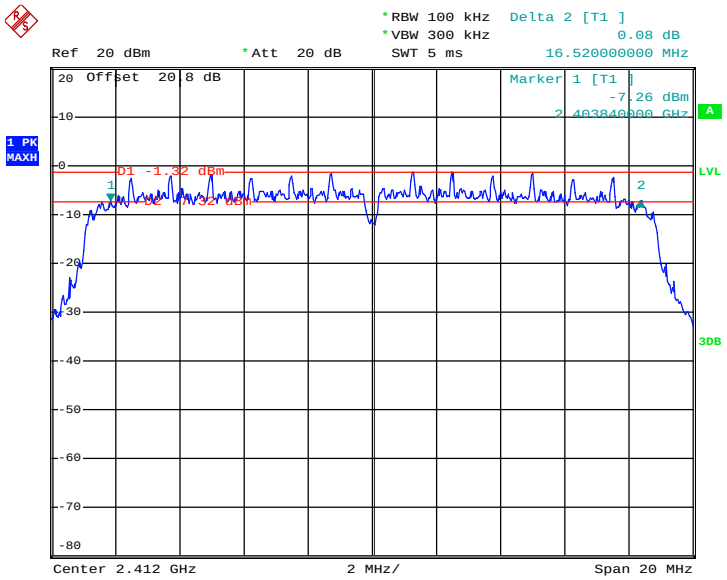
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11 – Chain A



Date: 11.NOV.2011 22:28:43

Mode 7 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 01 – Chain A



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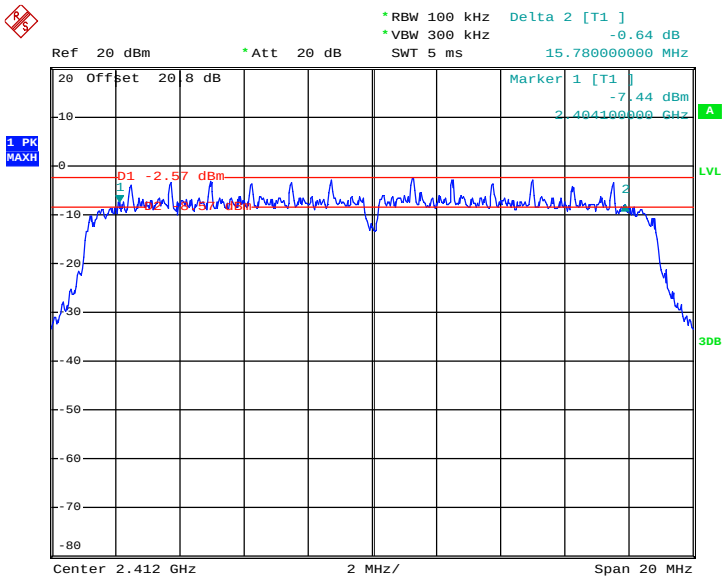
Mode 7 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 01 – Chain B



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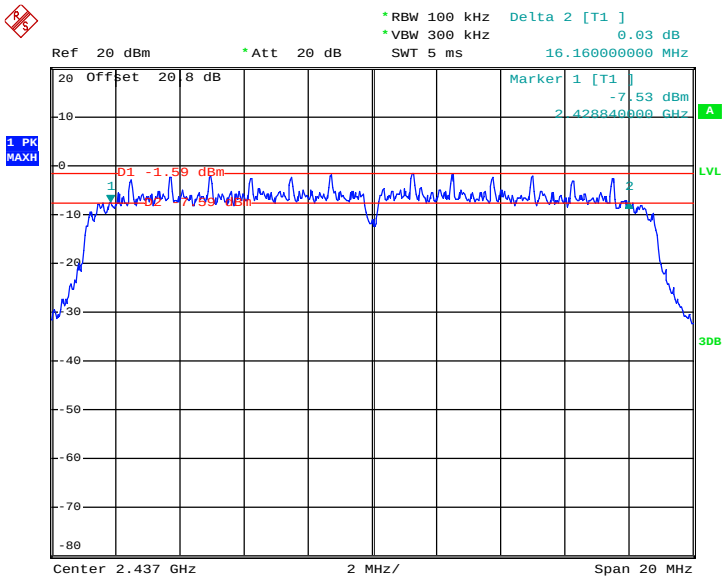
Mode 8 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain A



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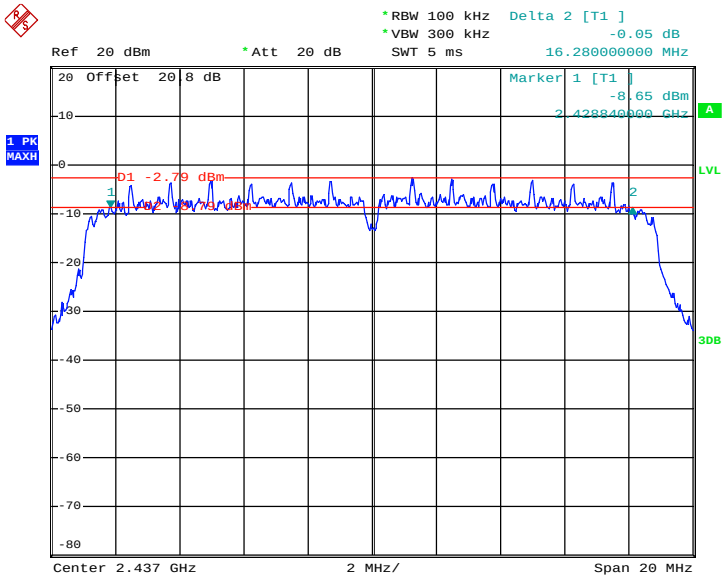
Mode 8 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain B



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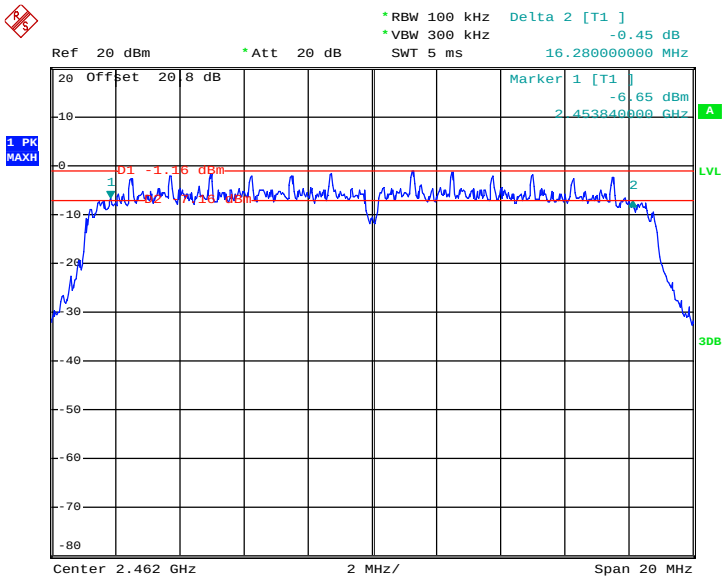
Mode 9 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 11 – Chain A



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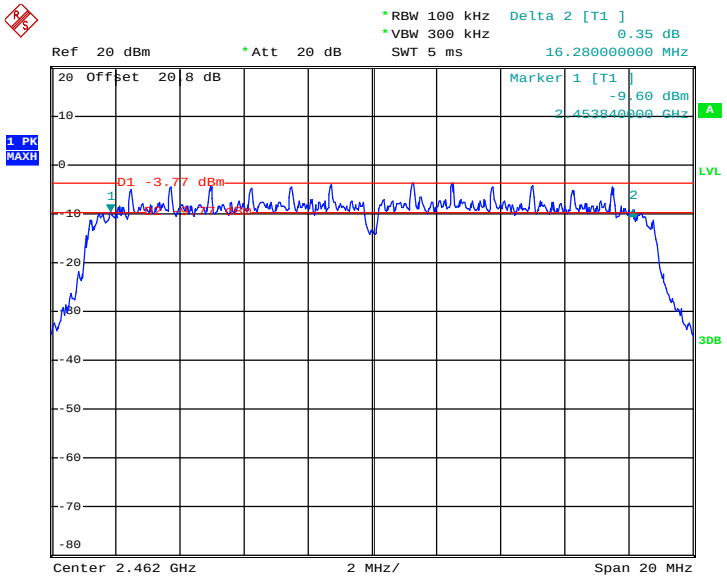
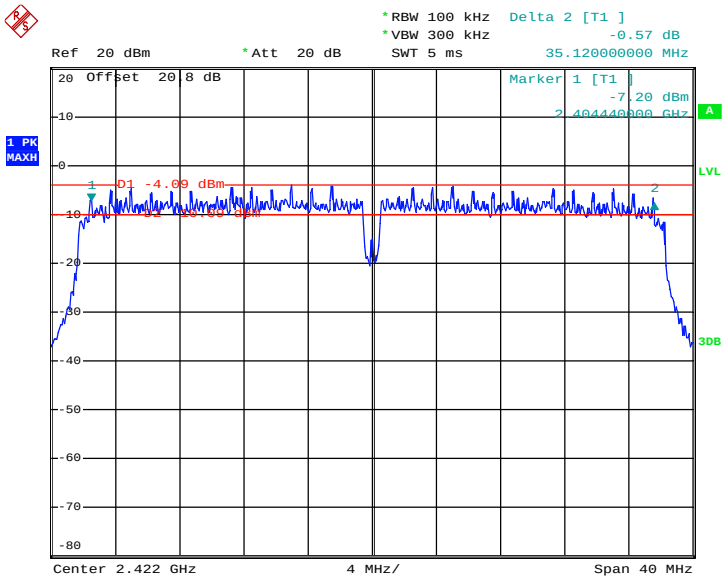
Mode 9 : 6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 11 – Chain B



Date: 14.NOV.2011 14:20:00

Mode 10 : 6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain A



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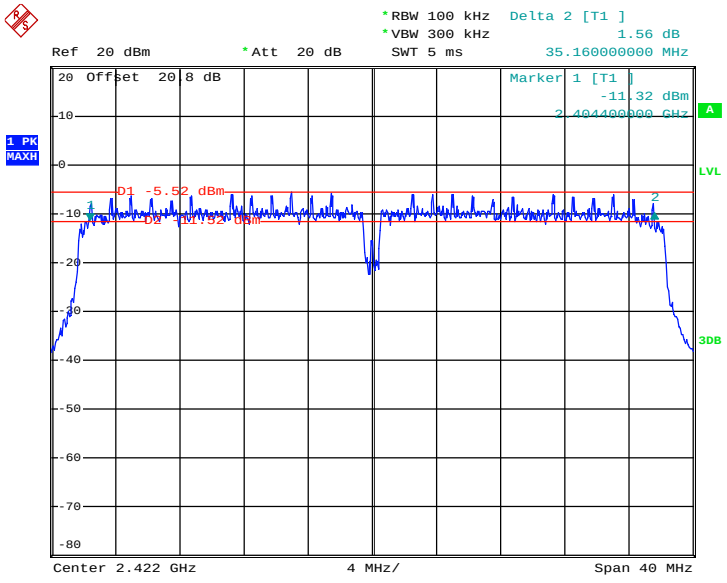
Mode 10 : 6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain B



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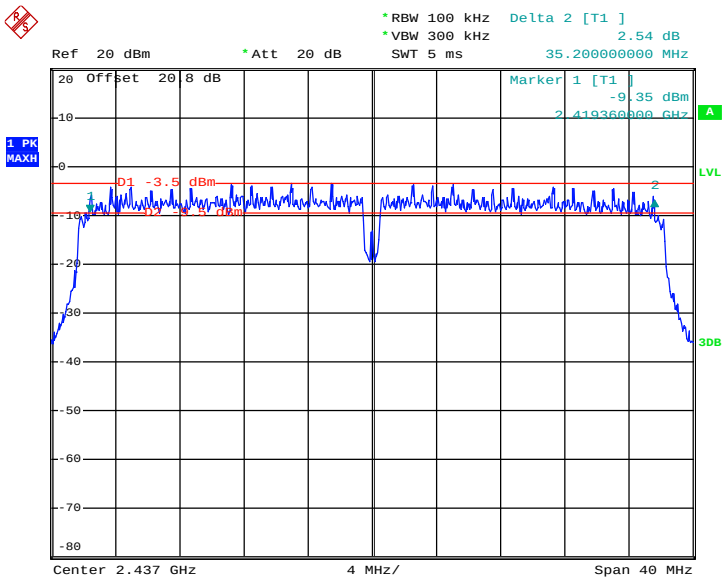
Mode 11 : 6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 06 – Chain A



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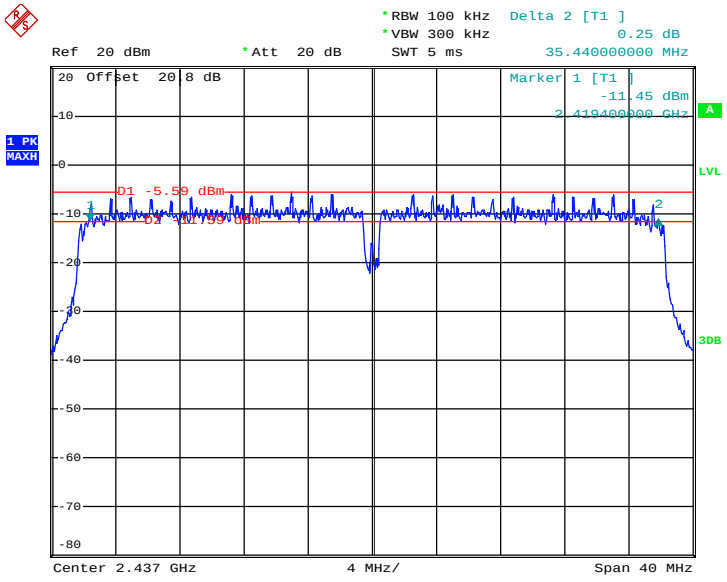
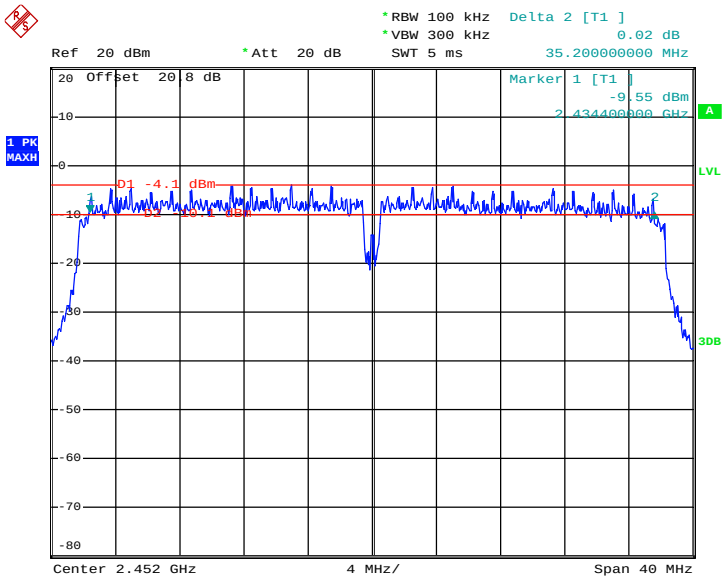
Mode 11: 6 dB Bandwidth Plot on 802.11n BW 40MHz) Channel 06 – Chain B



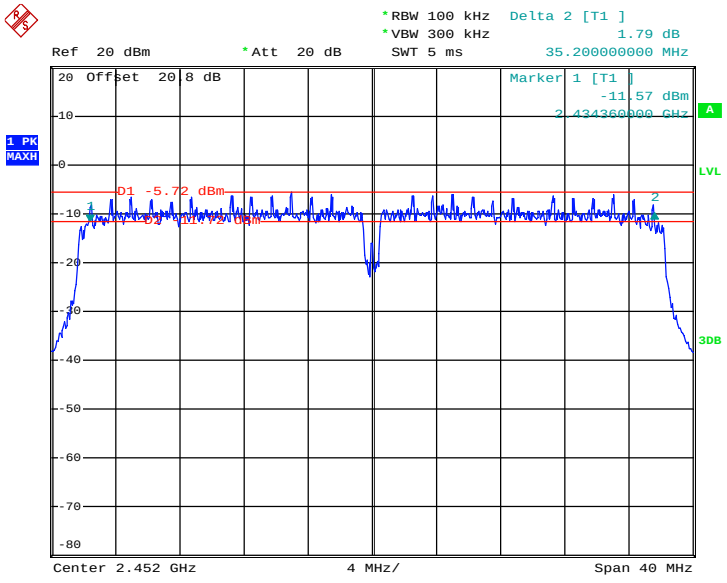
Date: 14.NOV.2011 14:49:41

Mode 12 : 6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain A



Date: 12.NOV.2011 01:07:04

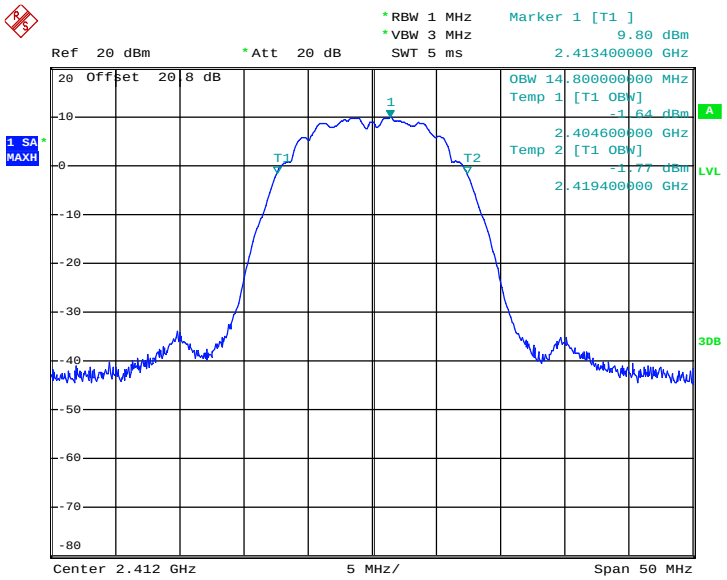
Mode 12 : 6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain B



Date: 14.NOV.2011 15:01:54

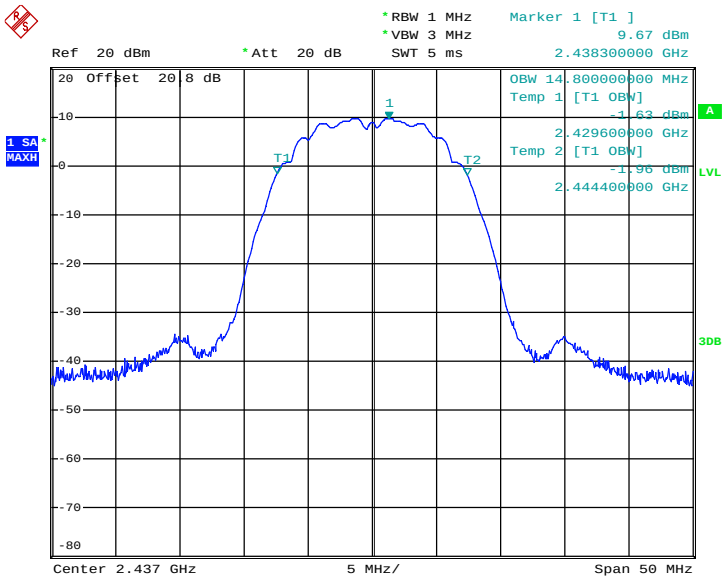
3.1.8 Test Result of 99% Bandwidth Plots

Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01 – Chain A



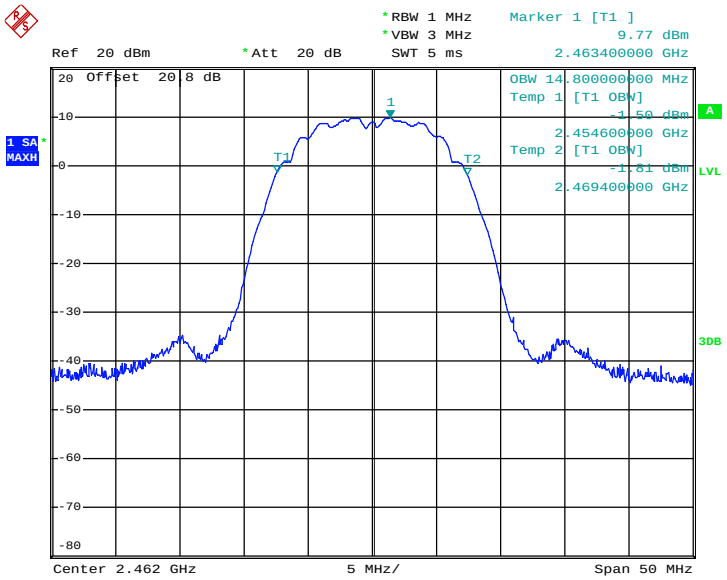
Date: 11.NOV.2011 21:18:10

Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06 – Chain A



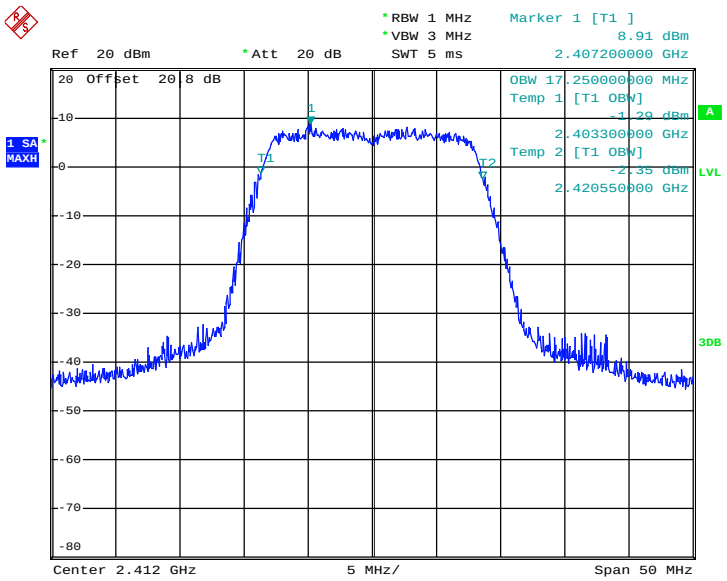
Date: 11.NOV.2011 21:32:22

Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11 – Chain A



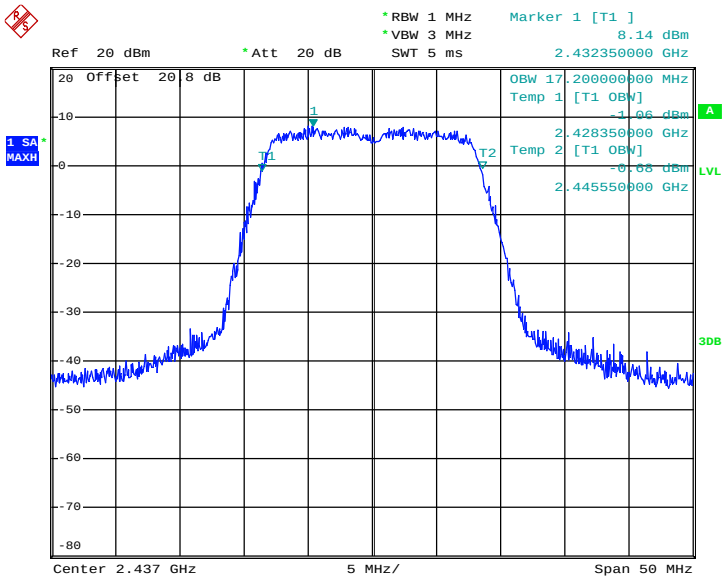
Date: 11.NOV.2011 21:48:30

Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01 – Chain A



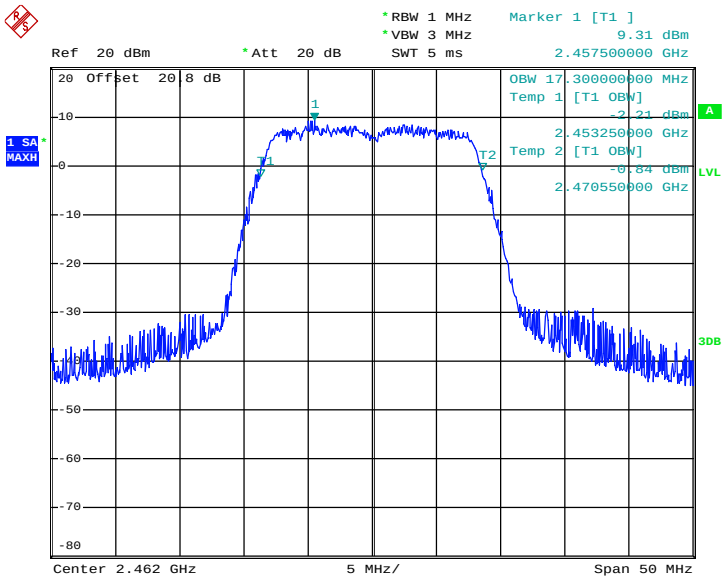
Date: 11.NOV.2011 22:03:21

Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06 – Chain A



Date: 11.NOV.2011 22:16:36

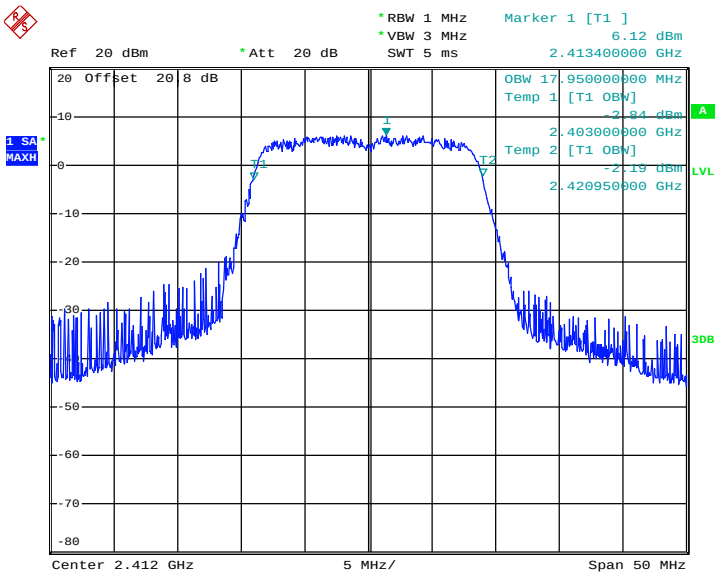
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11 – Chain A



Date: 11.NOV.2011 22:29:54

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

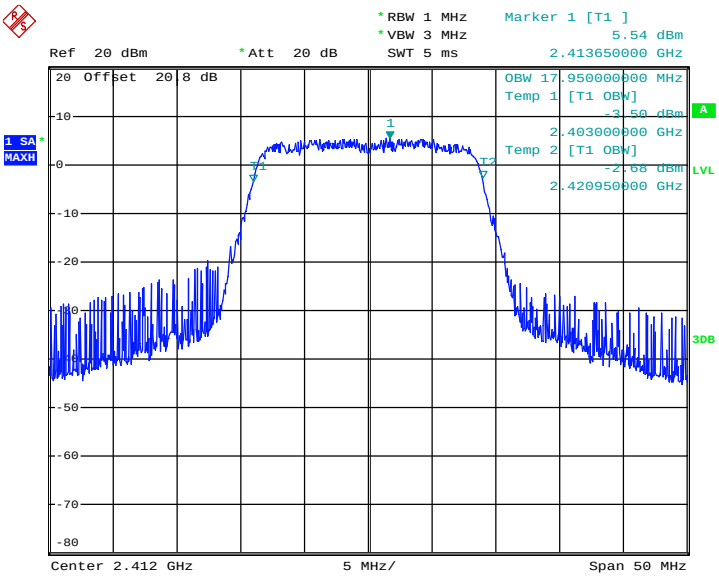
Channel 01 – Chain A



Date: 11.NOV.2011 23:37:27

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

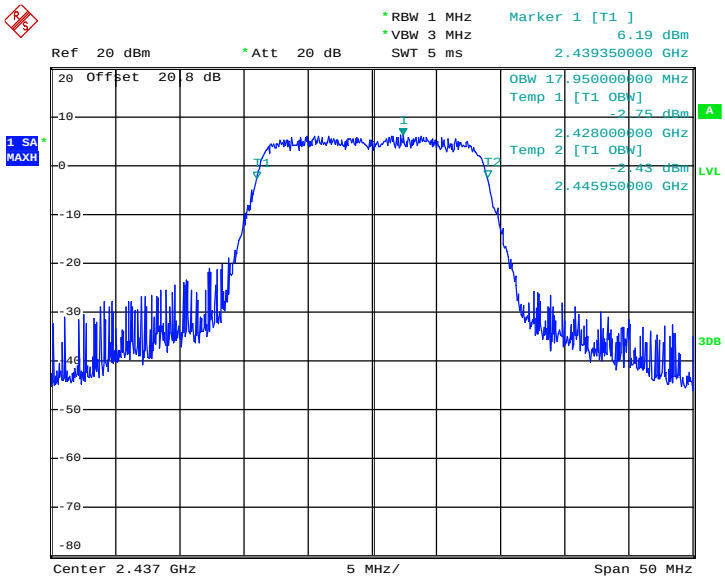
Channel 01 – Chain B



Date: 14.NOV.2011 13:40:01

Mode 8 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

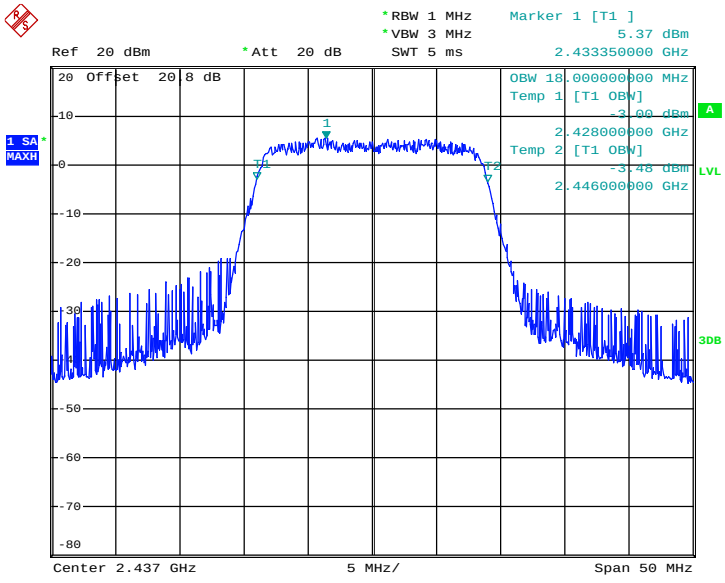
Channel 06 – Chain A



Date: 11.NOV.2011 23:11:49

Mode 8 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

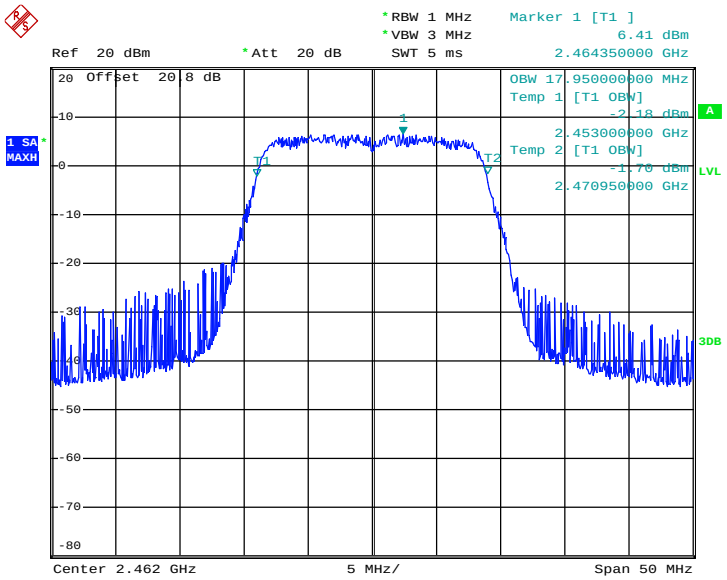
Channel 06 – Chain B



Date: 14.NOV.2011 13:53:48

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

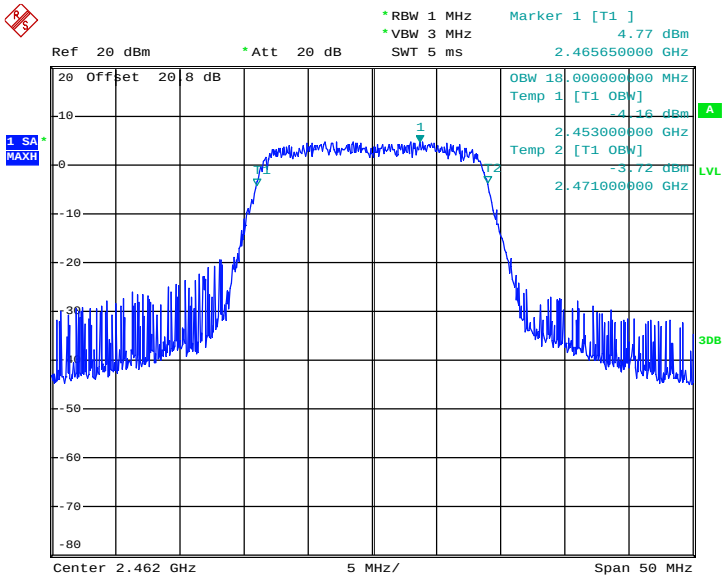
Channel 11 – Chain A



Date: 11.NOV.2011 23:25:22

Mode 9 : 99% Occupied Bandwidth Plot on 802.11n (BW 20MHz)

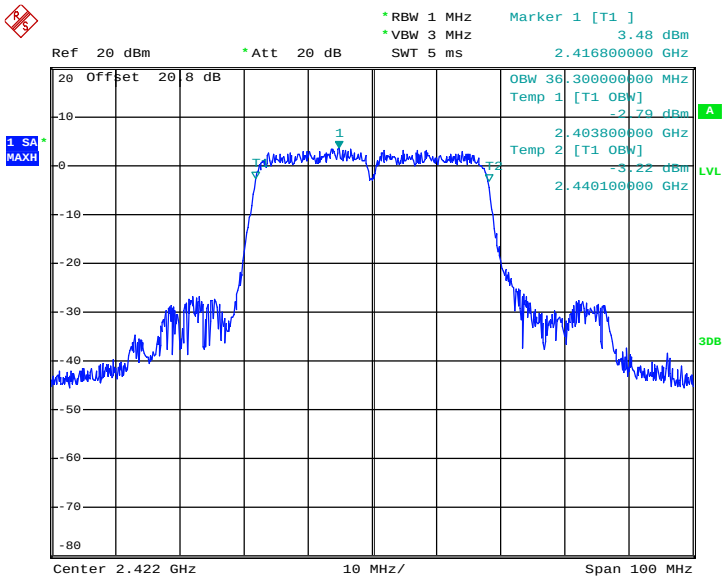
Channel 11 – Chain B



Date: 14.NOV.2011 14:07:18

Mode 10 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

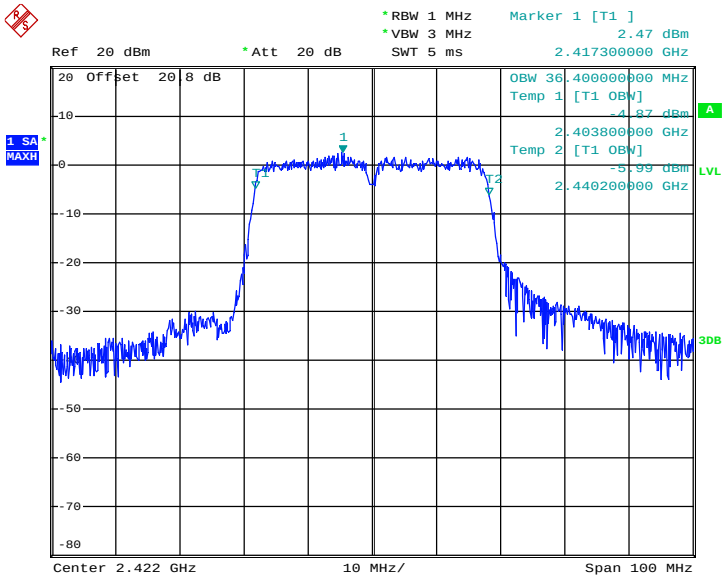
Channel 03 – Chain A



Date: 12.NOV.2011 00:43:16

Mode 10 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

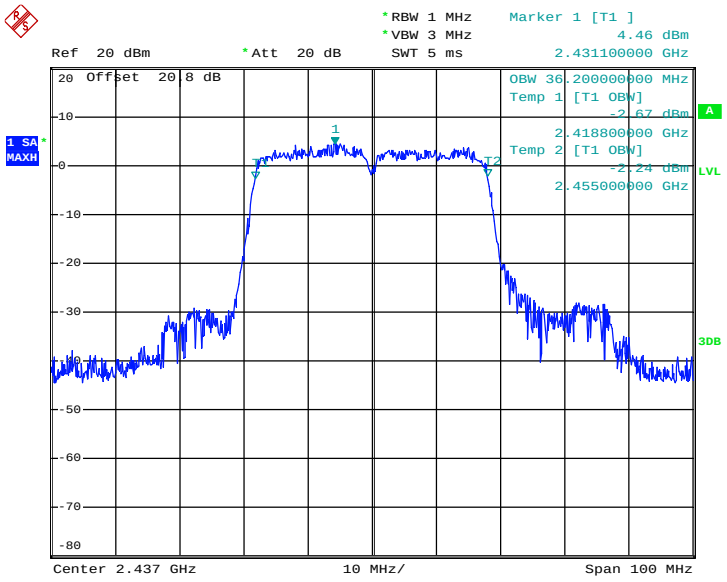
Channel 03– Chain B



Date: 14.NOV.2011 14:35:21

Mode 11 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

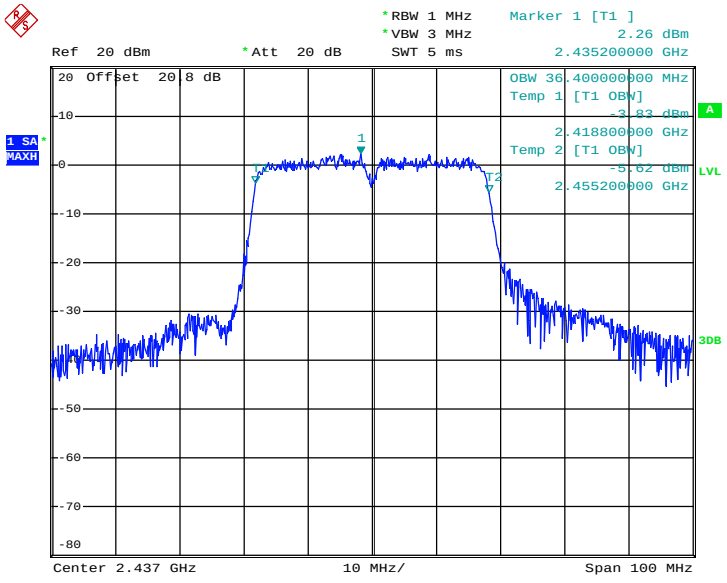
Channel 06 – Chain A



Date: 12.NOV.2011 00:55:38

Mode 11 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

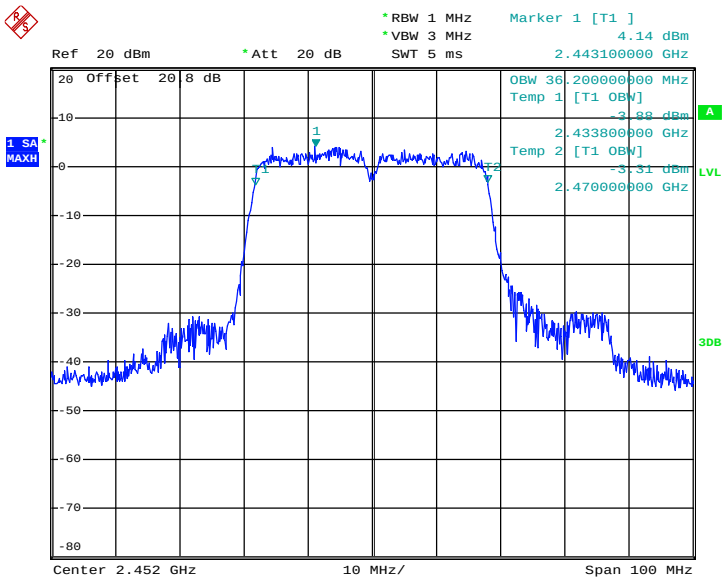
Channel 06 – Chain B



Date: 14.NOV.2011 14:50:11

Mode 12 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

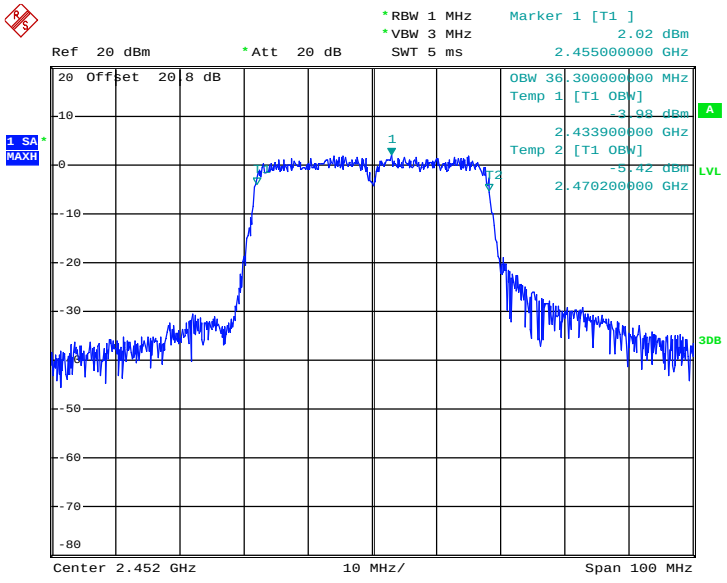
Channel 09 – Chain A



Date: 12.NOV.2011 01:08:16

Mode 12 : 99% Occupied Bandwidth Plot on 802.11n (BW 40MHz)

Channel 09 – Chain B



Date: 14.NOV.2011 15:03:06

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.

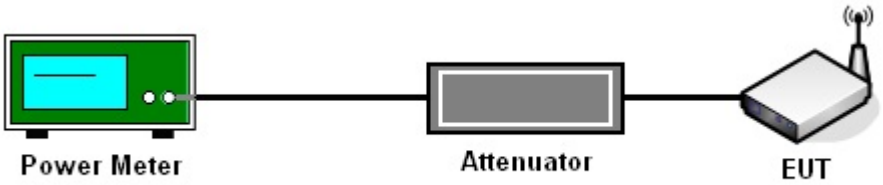
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A		
01	2412	18.30	30	Pass
06	2437	18.53	30	Pass
11	2462	18.11	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A		
01	2412	22.75	30	Pass
06	2437	22.70	30	Pass
11	2462	22.81	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B		
01	2412	20.24	18.53	22.48	30	Pass
06	2437	19.84	17.79	21.95	30	Pass
11	2462	21.06	16.81	22.45	30	Pass

Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured Output Power (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B		
03	2422	20.51	18.24	22.53	30	Pass
06	2437	21.29	18.33	23.07	30	Pass
09	2452	20.63	17.64	22.40	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. 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.

3.3.2 Measuring Instruments

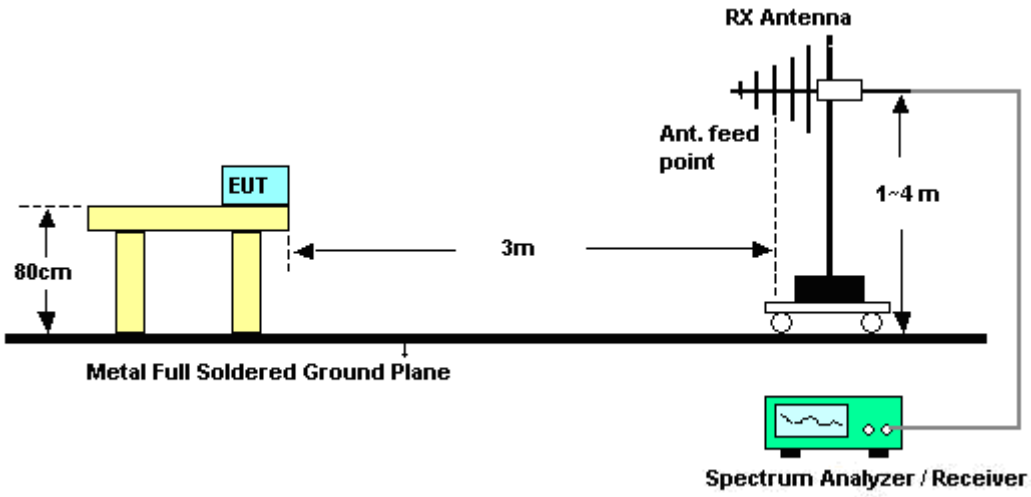
See list of measuring instruments of this test report.

3.3.3 Test Procedures

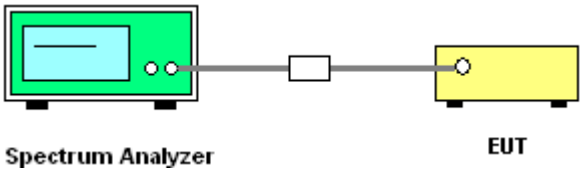
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2373.08	51.94	-22.06	74	48.1	32	4.57	32.73	111	317	Peak
2373.08	42.27	-11.73	54	38.43	32	4.57	32.73	111	317	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2333.18	49.9	-24.1	74	46.12	31.96	4.55	32.73	108	9	Peak
2333.18	38.91	-15.09	54	35.13	31.96	4.55	32.73	108	9	Average

Test Mode :	Mode 3	Temperature :	22~26°C
Test Band :	802.11b	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2494.3	52.23	-21.77	74	48.24	32.1	4.64	32.75	130	320	Peak
2494.3	39.36	-14.64	54	35.37	32.1	4.64	32.75	130	320	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.13	50.43	-23.57	74	46.45	32.09	4.64	32.75	126	14	Peak
2486.13	34.73	-19.27	54	30.75	32.09	4.64	32.75	126	14	Average

Test Mode :	Mode 5	Temperature :	22~26°C
Test Band :	802.11g	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2359.59	55.01	-18.99	74	51.18	31.99	4.57	32.73	111	334	Peak
2359.59	43.76	-10.24	54	39.93	31.99	4.57	32.73	111	334	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2359.59	50.11	-23.89	74	46.28	31.99	4.57	32.73	107	197	Peak
2359.59	37.44	-16.56	54	33.61	31.99	4.57	32.73	107	197	Average

Test Mode :	Mode 7	Temperature :	22~26°C
Test Band :	802.11g	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	61.77	-12.23	74	57.79	32.09	4.64	32.75	130	336	Peak
2483.5	38.21	-15.79	54	34.23	32.09	4.64	32.75	130	336	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	57.41	-16.59	74	53.43	32.09	4.64	32.75	137	220	Peak
2483.66	35.64	-18.36	54	31.66	32.09	4.64	32.75	137	220	Average

Test Mode :	Mode 8	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~55%
Test Channel :	01	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	70.72	-3.28	74	66.85	32.02	4.58	32.73	136	331	Peak
2389.99	45.53	-8.47	54	41.66	32.02	4.58	32.73	136	331	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	69.42	-4.58	74	65.55	32.02	4.58	32.73	107	198	Peak
2389.61	41.36	-12.64	54	37.49	32.02	4.58	32.73	107	198	Average

Test Mode :	Mode 10	Temperature :	22~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~55%
Test Channel :	11	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	64.9	-9.1	74	60.92	32.09	4.64	32.75	129	336	Peak
2484.42	38.52	-15.48	54	34.54	32.09	4.64	32.75	129	336	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.8	65.3	-8.7	74	61.32	32.09	4.64	32.75	137	195	Peak
2484.8	38.28	-15.72	54	34.3	32.09	4.64	32.75	137	195	Average

Test Mode :	Mode 11	Temperature :	22~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	51~55%
Test Channel :	03	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	67.57	-6.43	74	63.7	32.02	4.58	32.73	109	330	Peak
2389.99	43.69	-10.31	54	39.82	32.02	4.58	32.73	109	330	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.8	65.65	-8.35	74	61.78	32.02	4.58	32.73	111	177	Peak
2389.8	42.1	-11.9	54	38.23	32.02	4.58	32.73	111	177	Average

Test Mode :	Mode 13	Temperature :	22~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	51~55%
Test Channel :	09	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.23	73.34	-0.66	74	69.36	32.09	4.64	32.75	108	319	Peak
2484.23	43.52	-10.48	54	39.54	32.09	4.64	32.75	108	319	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.8	70.42	-3.58	74	66.44	32.09	4.64	32.75	138	205	Peak
2484.8	41.22	-12.78	54	37.24	32.09	4.64	32.75	138	205	Average

Test Mode :	Mode 14	Temperature :	22~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	51~55%
Test Channel :	09	Test Engineer :	Wii Chang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	71.72	-2.28	74	67.74	32.09	4.64	32.75	108	320	Peak
2484.61	41.92	-12.08	54	37.94	32.09	4.64	32.75	108	320	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.23	64.58	-9.42	74	60.6	32.09	4.64	32.75	100	329	Peak
2484.23	37.45	-16.55	54	33.47	32.09	4.64	32.75	100	329	Average

Test Mode :	Mode 15	Temperature :	22~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	51~55%
Test Channel :	09	Test Engineer :	Wii Chang

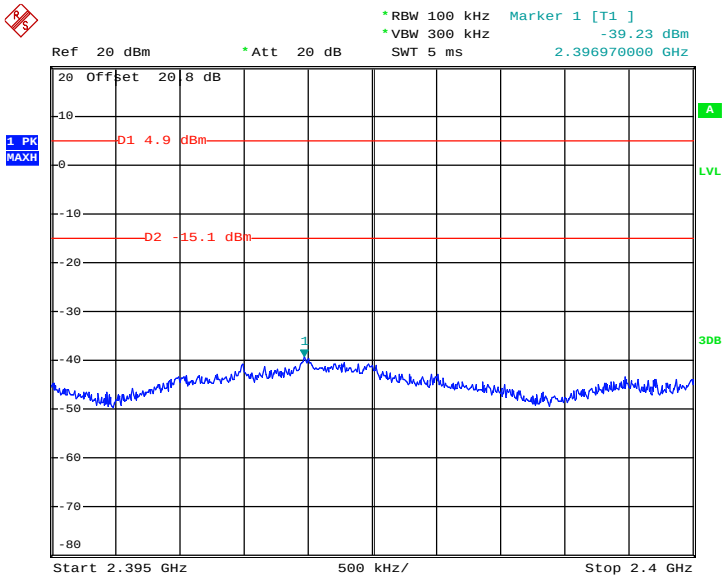
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.23	71.93	-2.07	74	67.95	32.09	4.64	32.75	104	332	Peak
2484.23	43.37	-10.63	54	39.39	32.09	4.64	32.75	104	332	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.03	67.88	-6.12	74	63.89	32.1	4.64	32.75	130	178	Peak
2488.03	40.49	-13.51	54	36.5	32.1	4.64	32.75	130	178	Average

3.3.6 Test Result of Conducted Band Edges

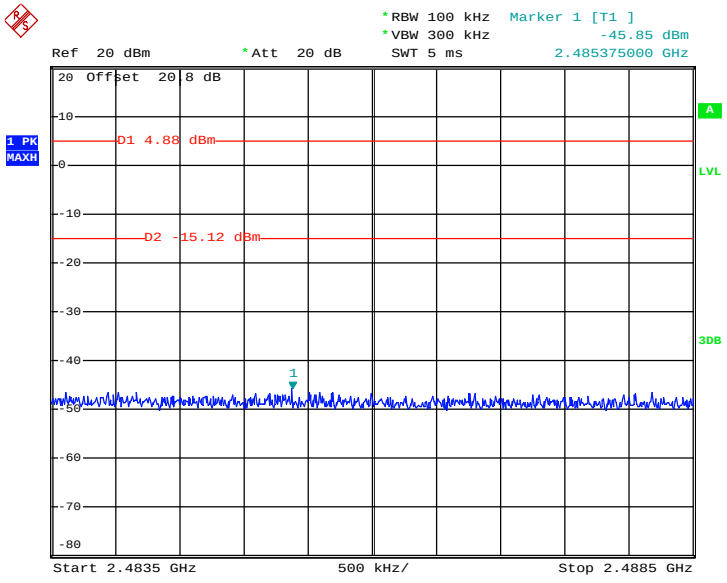
Test Mode :	Mode 1 and 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11b Channel 01 - Chain A



Date: 11.NOV.2011 21:17:45

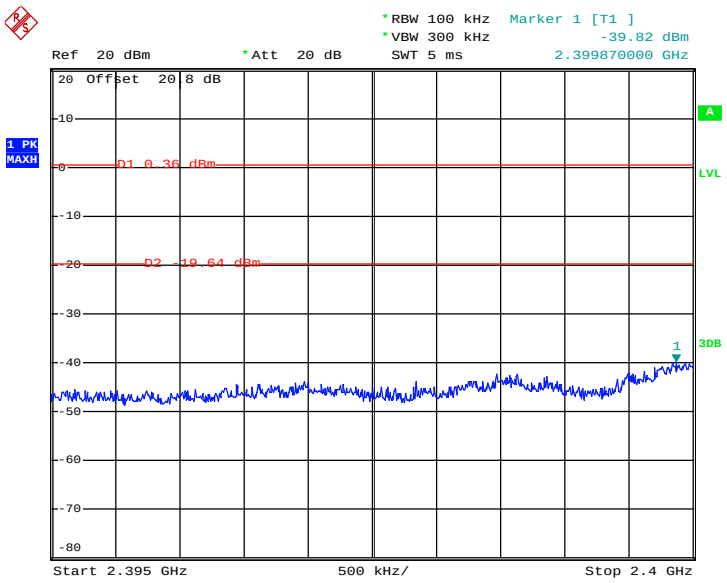
High Band Edge Plot on 802.11b Channel 11 - Chain A



Date: 11.NOV.2011 21:48:05

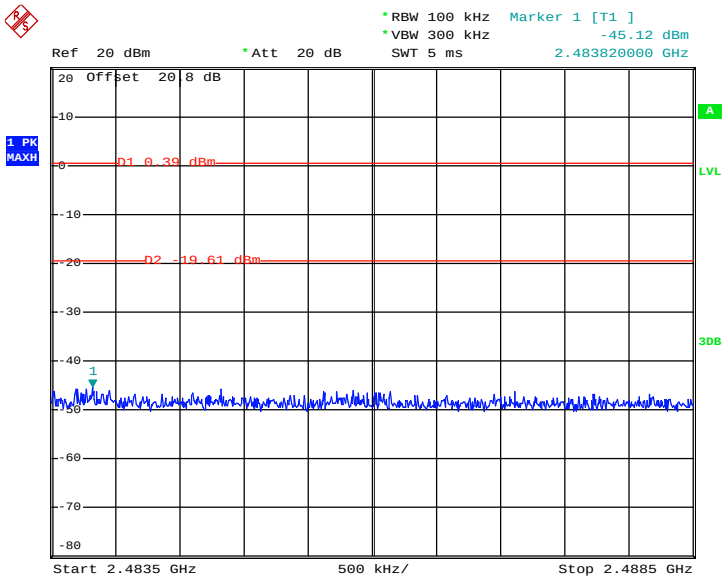
Test Mode :	Mode 4 and 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01 - Chain A



Date: 11.NOV.2011 22:47:20

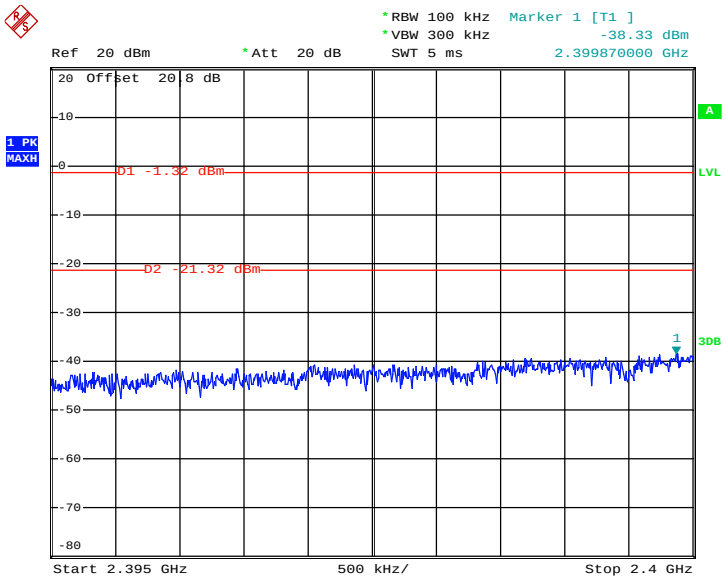
High Band Edge Plot on 802.11g Channel 11 - Chain A



Date: 11.NOV.2011 22:29:29

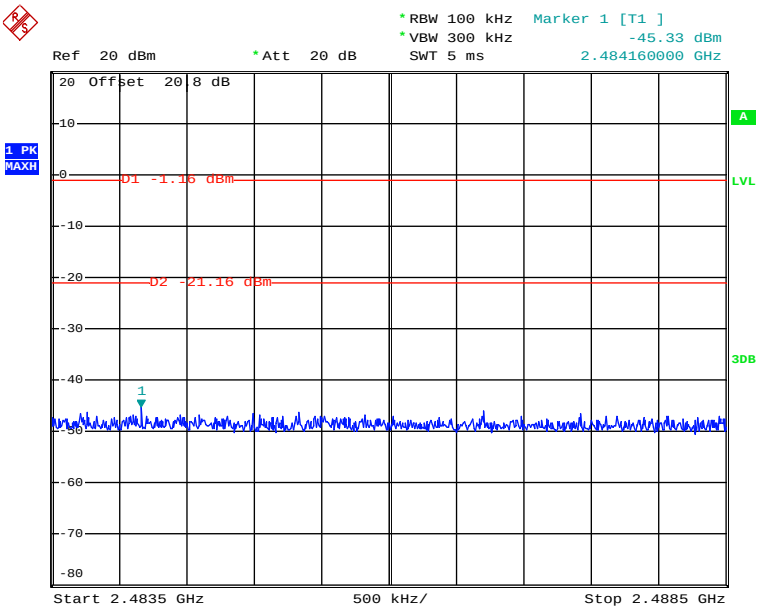
Test Mode :	Mode 7 and 9	**Temperature :**	24~26℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	50~53%
Test Channel :	01 and 11	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01 - Chain A



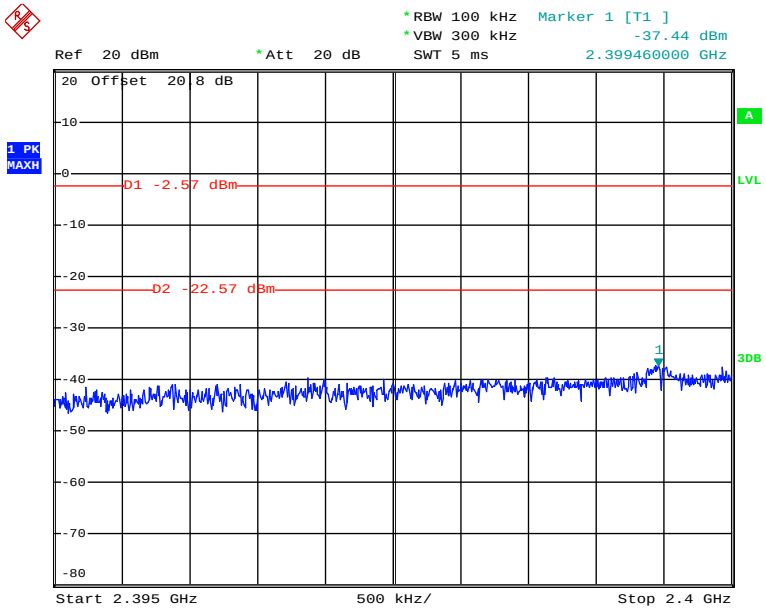
Date: 11.NOV.2011 22:58:16

High Band Edge Plot on 802.11n (BW 20MHz) Channel 11 - Chain A



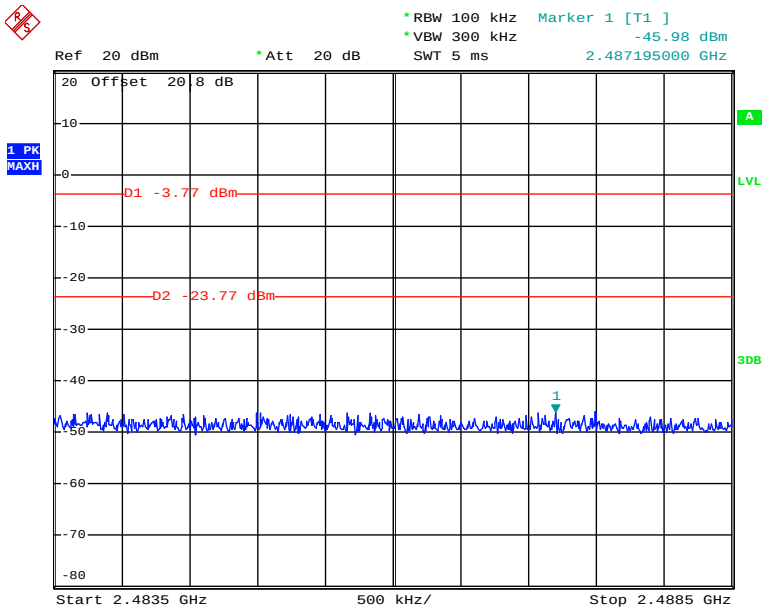
Date: 11.NOV.2011 23:24:56

Low Band Edge Plot on 802.11n (BW 20MHz) Channel 01 - Chain B



Date: 14.NOV.2011 13:39:35

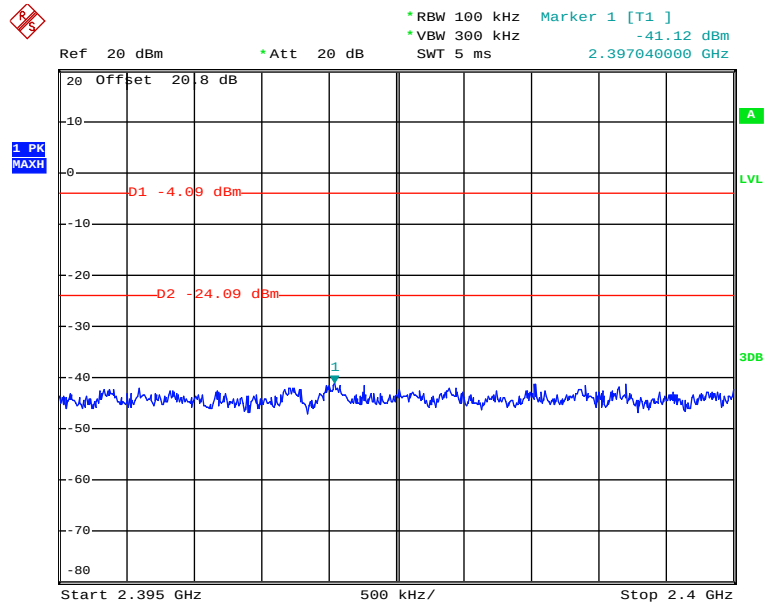
High Band Edge Plot on 802.11n (BW 20MHz) Channel 11 - Chain B



Date: 14.NOV.2011 14:20:47

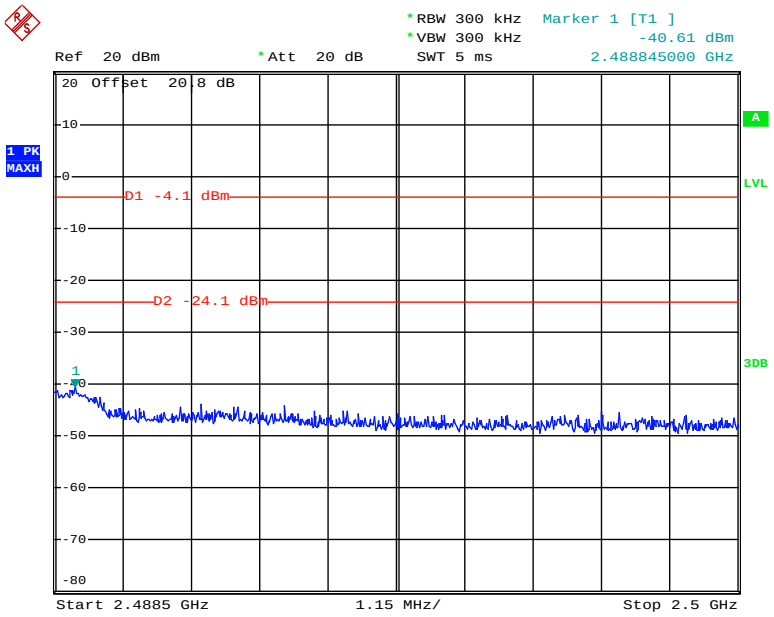
Test Mode :	Mode 10 and 12	**Temperature :**	24~26℃
Test Band :	802.11n (BW 40MHz)	**Relative Humidity :**	50~53%
Test Channel :	03 and 09	**Test Engineer :**	Pinkston Tu

Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03 – Chain A



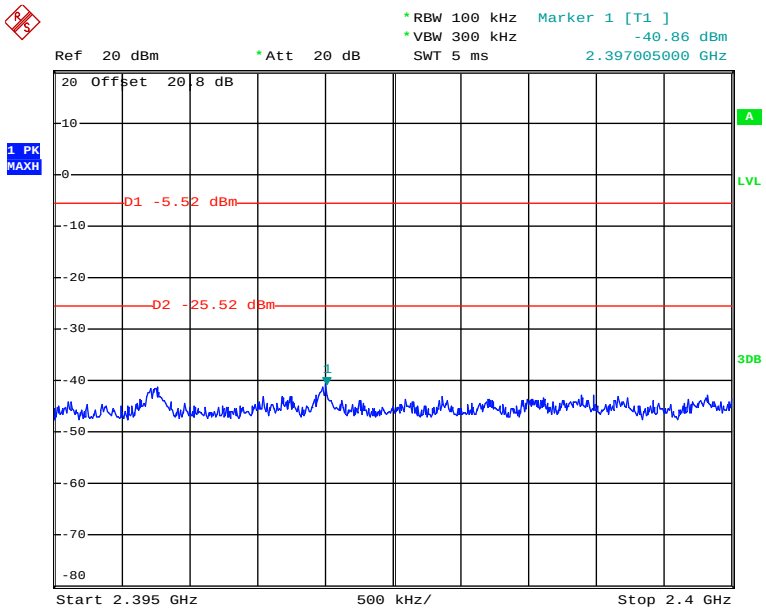
Date: 12.NOV.2011 00:42:51

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09 - Chain A



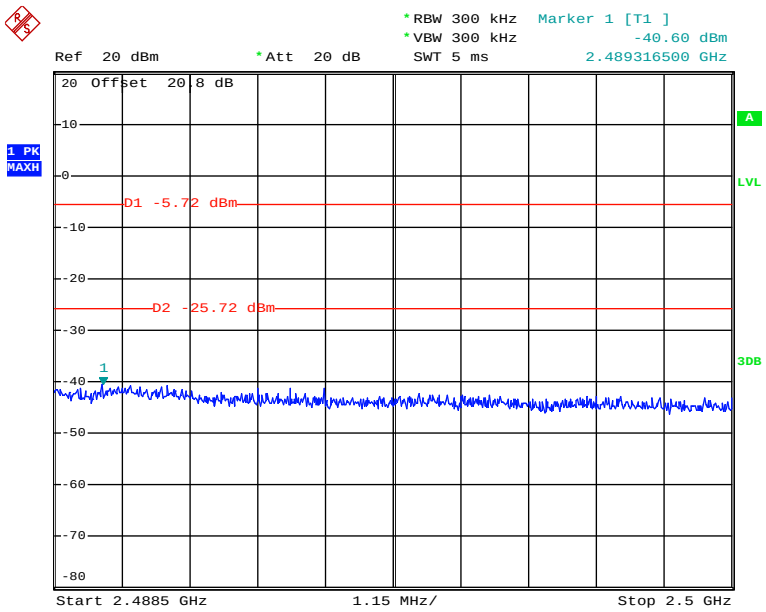
Date: 12.NOV.2011 01:07:50

Low Band Edge Plot on 802.11n (BW 40MHz) Channel 03 – Chain B



Date: 14.NOV.2011 14:34:56

High Band Edge Plot on 802.11n (BW 40MHz) Channel 09 - Chain B



Date: 14.NOV.2011 15:02:41

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

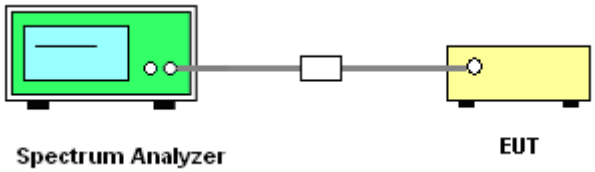
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

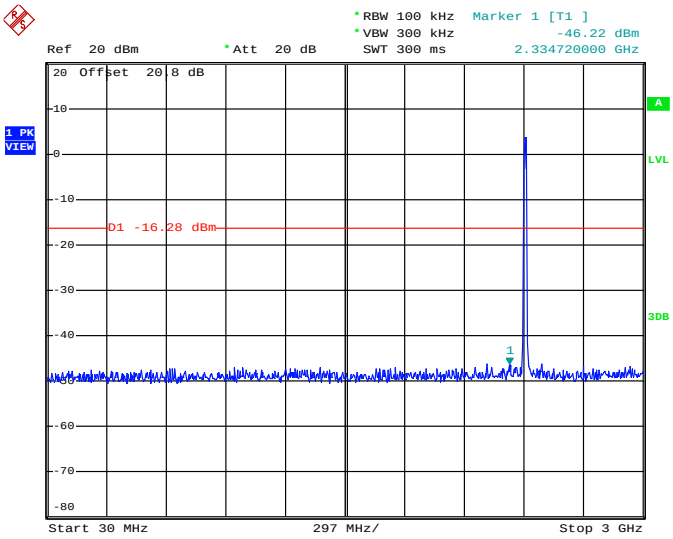
3.4.4 Test Setup



3.4.5 Test Result

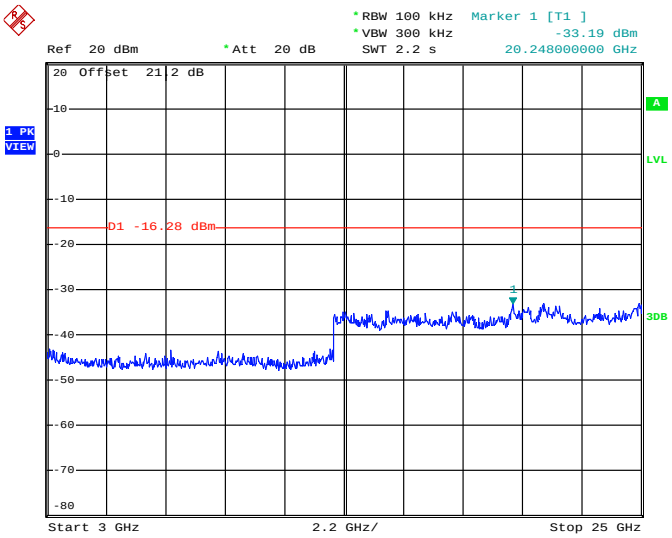
Test Mode :	Mode 1	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Mode 1:Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 21:27:08

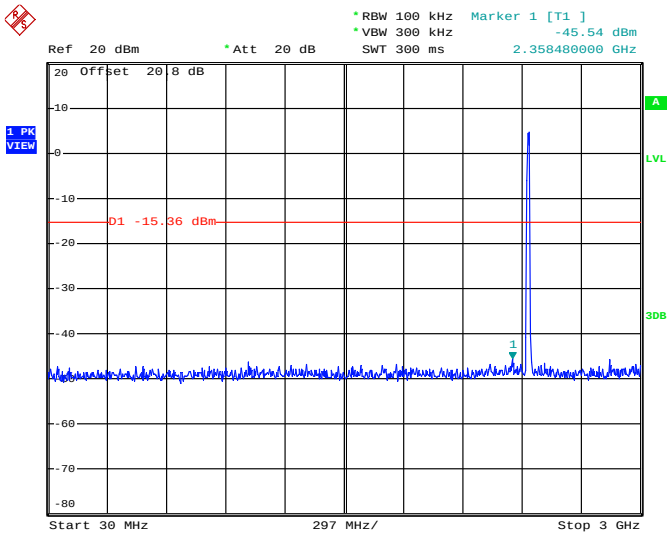
Mode 1: Conducted Spurious Emission Plot on 802.11b between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 21:27:25

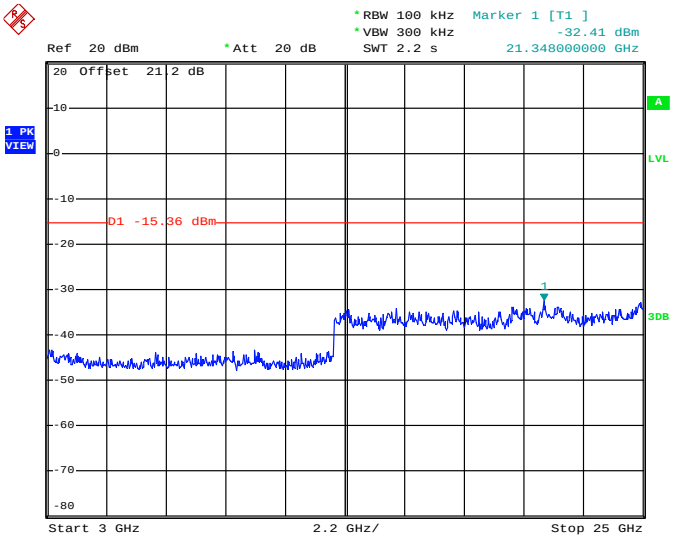
Test Mode :	Mode 2	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Mode 2:Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 21:44:12

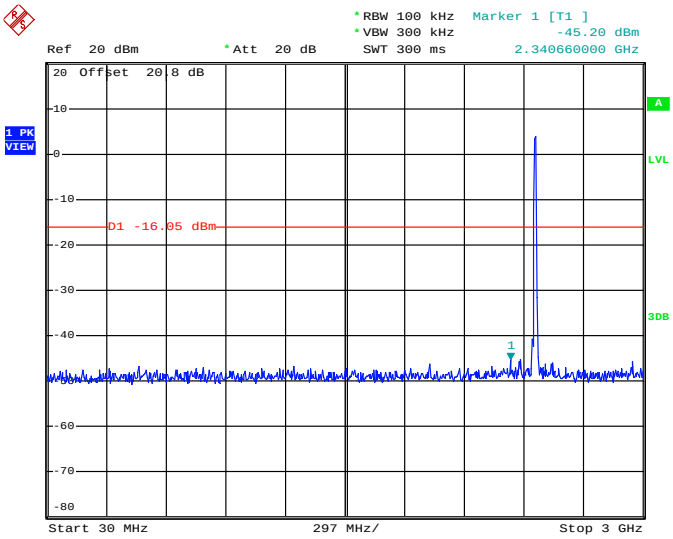
Mode 2: Conducted Spurious Emission Plot on 802.11b between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 21:44:29

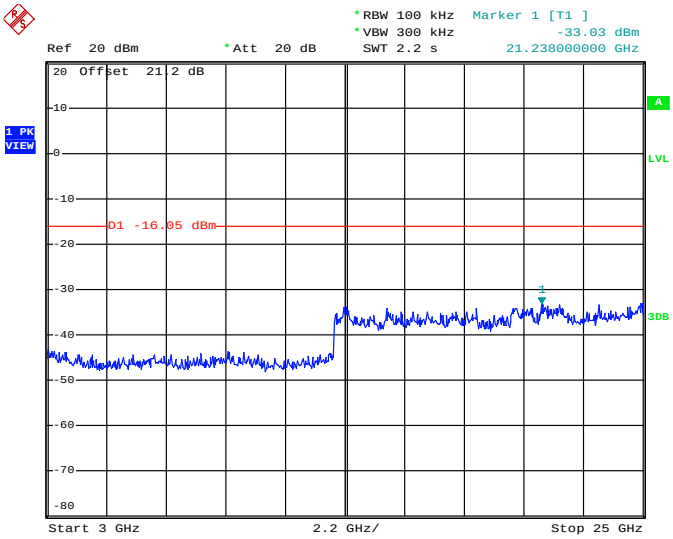
Test Mode :	Mode 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Mode 3:Conducted Spurious Emission Plot on 802.11b between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 21:57:38

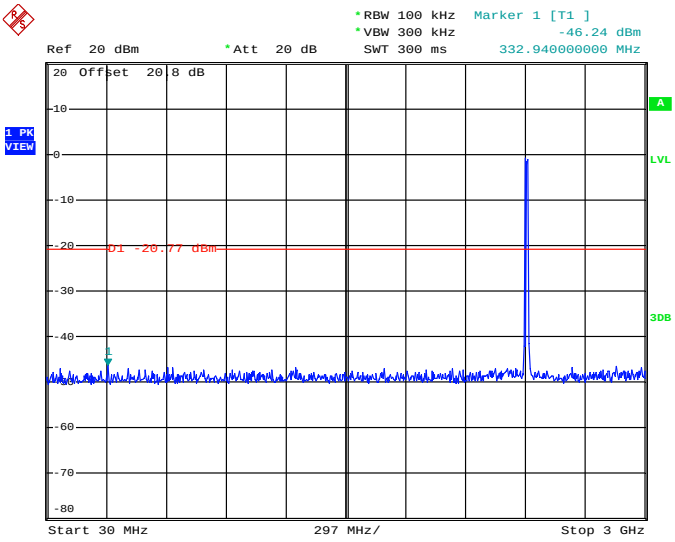
Mode 3: Conducted Spurious Emission Plot on 802.11b between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 21:57:55

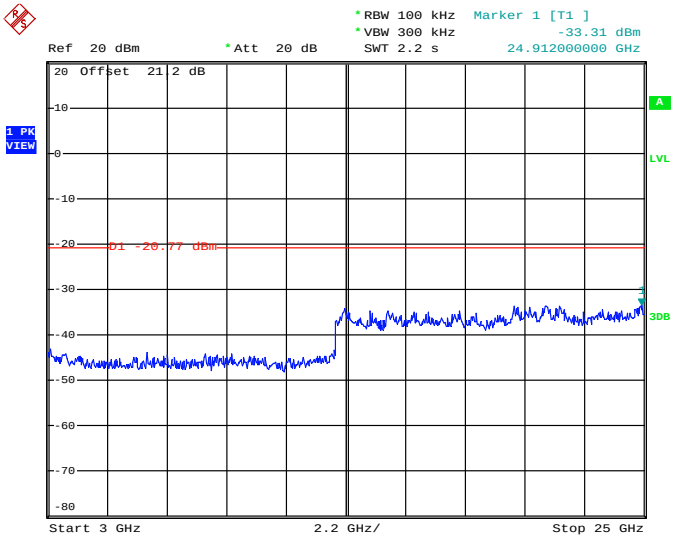
Test Mode :	Mode 4	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Mode 4:Conducted Spurious Emission Plot on 802.11g between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 22:12:16

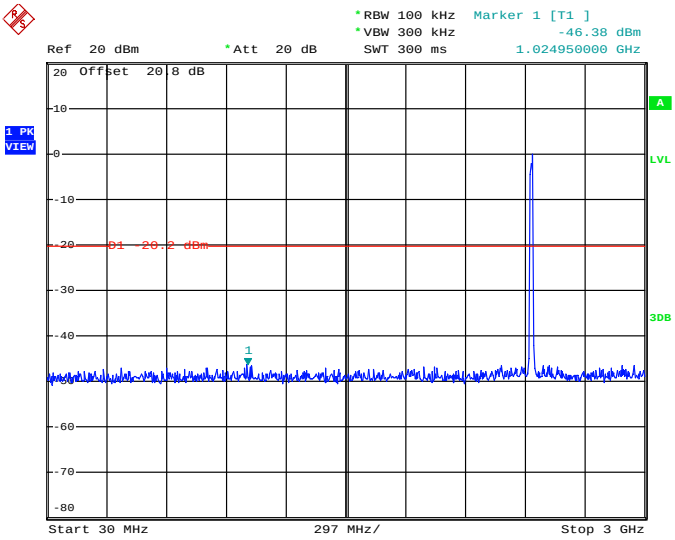
Mode 4: Conducted Spurious Emission Plot on 802.11g between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 22:12:33

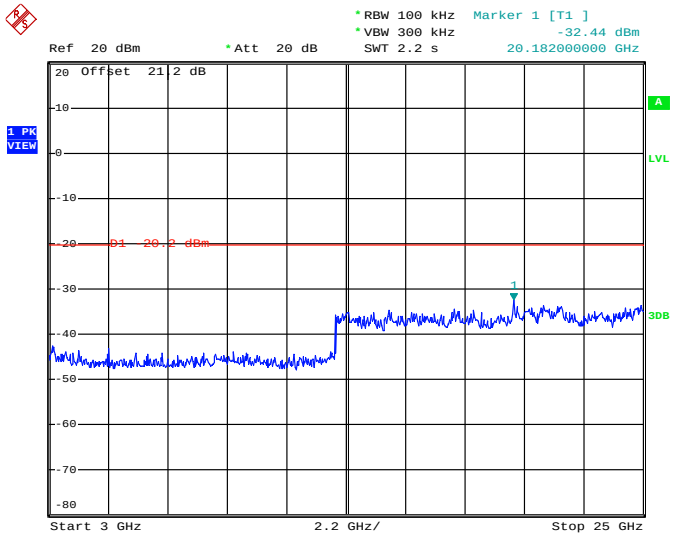
Test Mode :	Mode 5	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Mode 5:Conducted Spurious Emission Plot on 802.11g between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 22:25:31

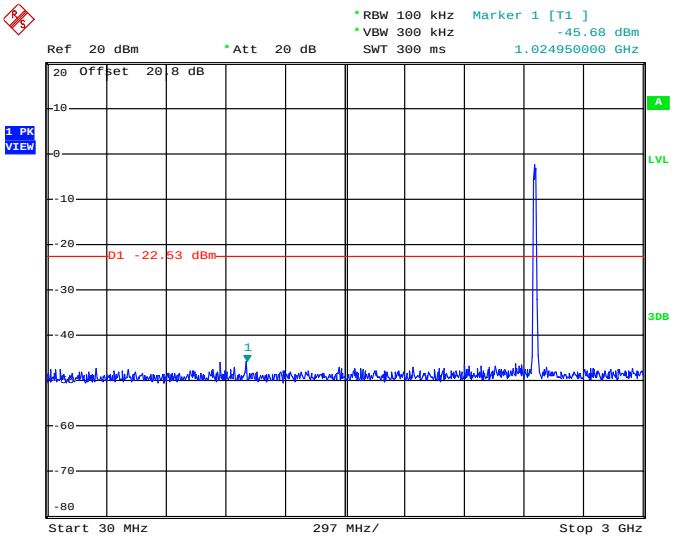
Mode 5: Conducted Spurious Emission Plot on 802.11g between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 22:25:48

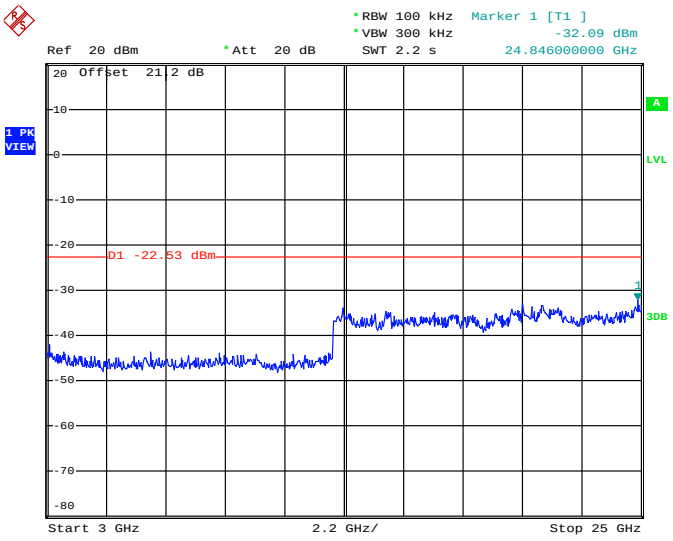
Test Mode :	Mode 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Mode 6:Conducted Spurious Emission Plot on 802.11g between 30 MHz~3 GHz - Chain A



Date: 11.NOV.2011 22:38:49

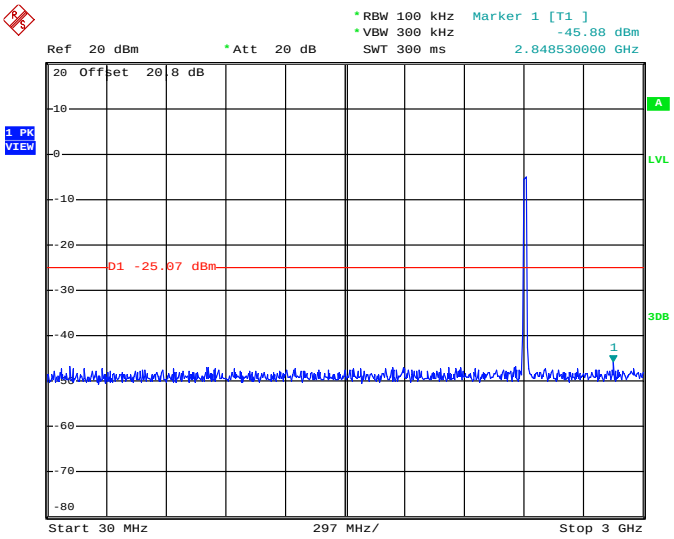
Mode 6: Conducted Spurious Emission Plot on 802.11g between 3 GHz~25 GHz - Chain A



Date: 11.NOV.2011 22:39:06

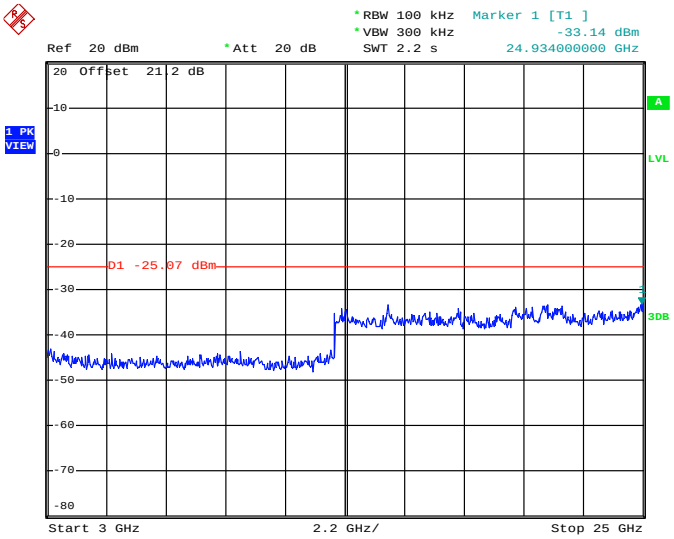
Test Mode :	Mode 7	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Mode 7:Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain A



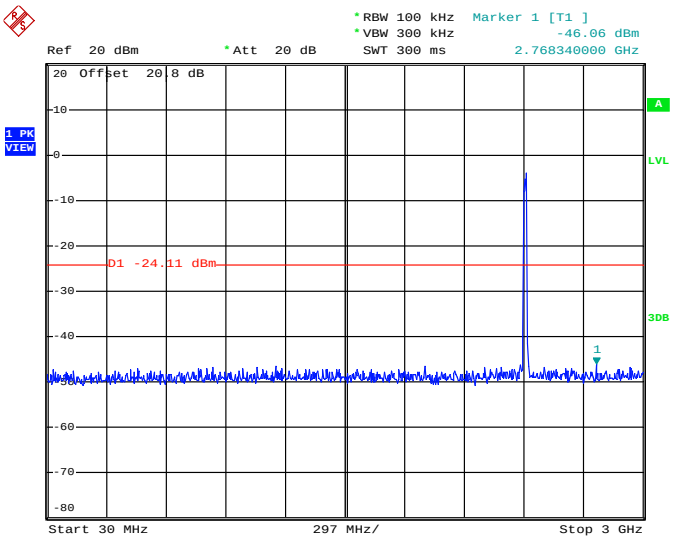
Date: 11.NOV.2011 23:08:07

Mode 7: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain A



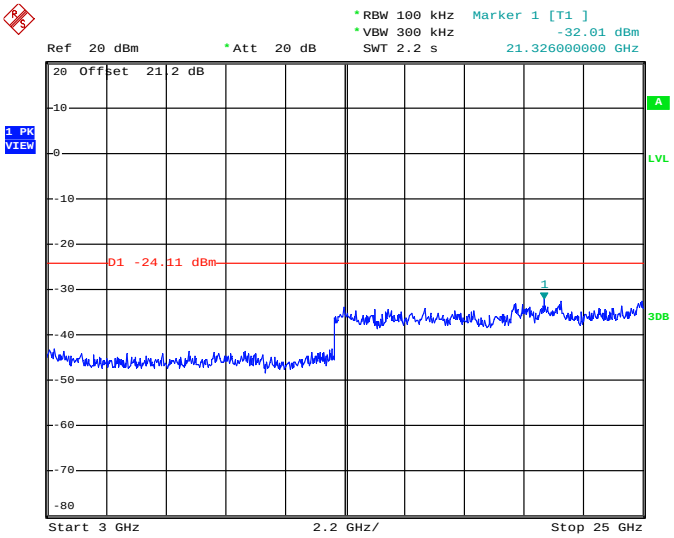
Date: 11.NOV.2011 23:08:24

Mode 7:Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 13:49:52

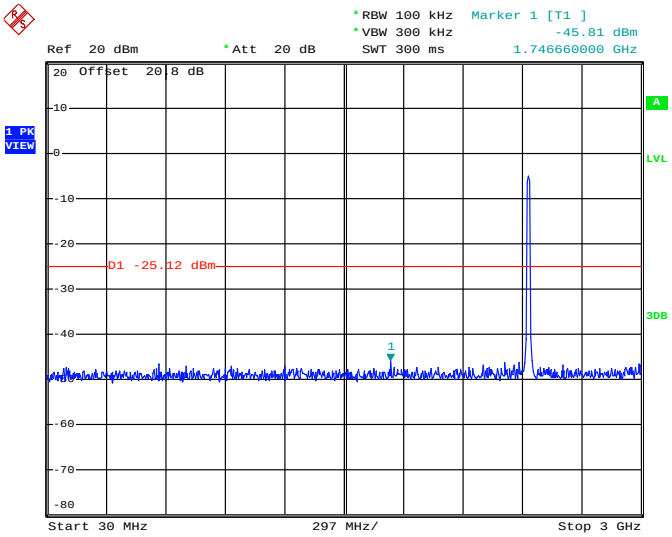
Mode 7: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 13:50:09

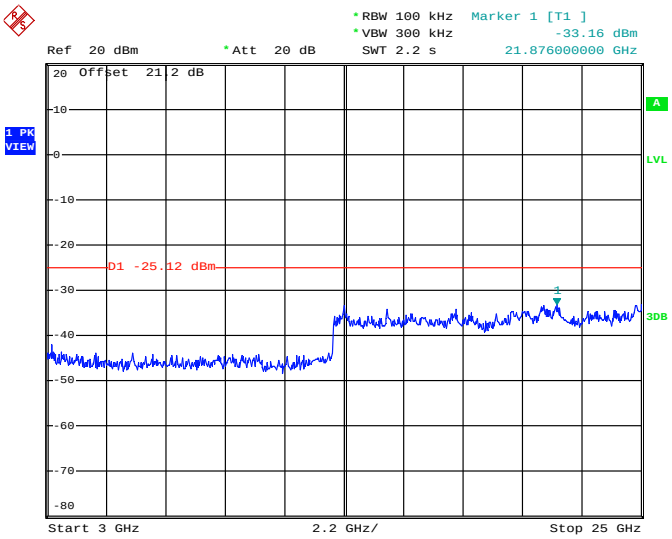
Test Mode :	Mode 8	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Mode 8:Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain A



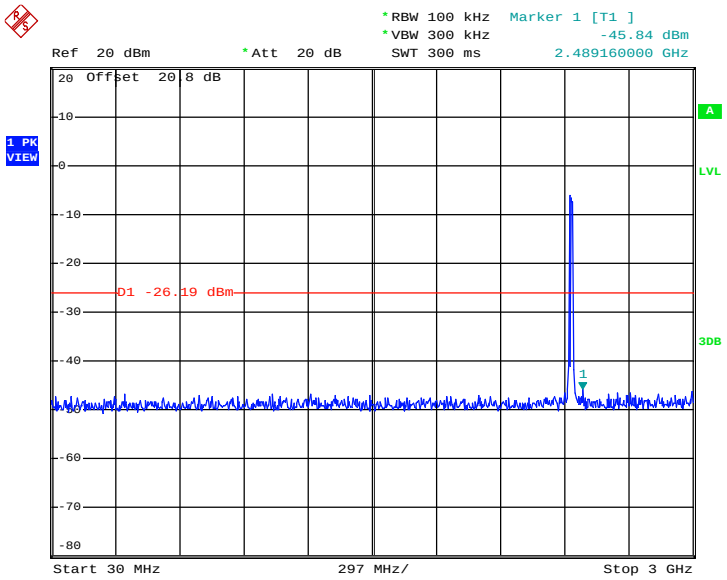
Date: 11.NOV.2011 23:20:42

Mode 8: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain A



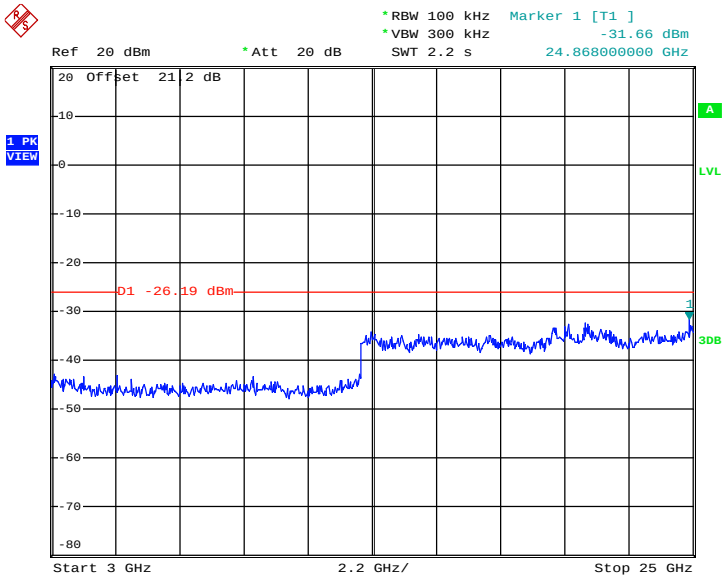
Date: 11.NOV.2011 23:20:59

Mode 8:Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 14:03:30

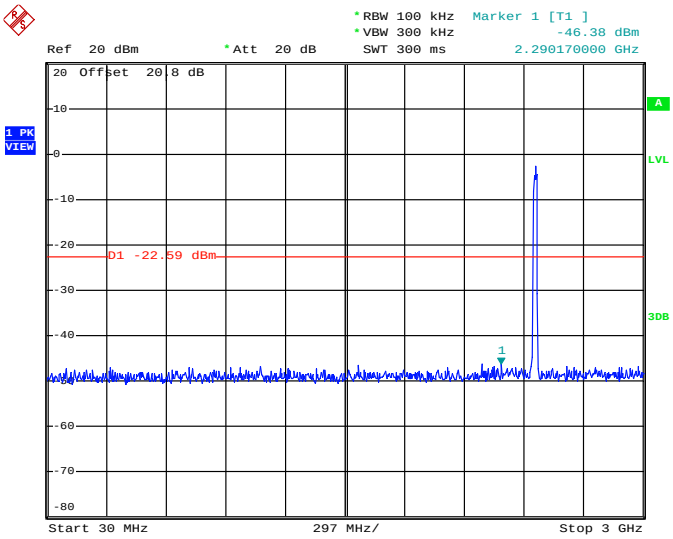
Mode 8: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 14:03:47

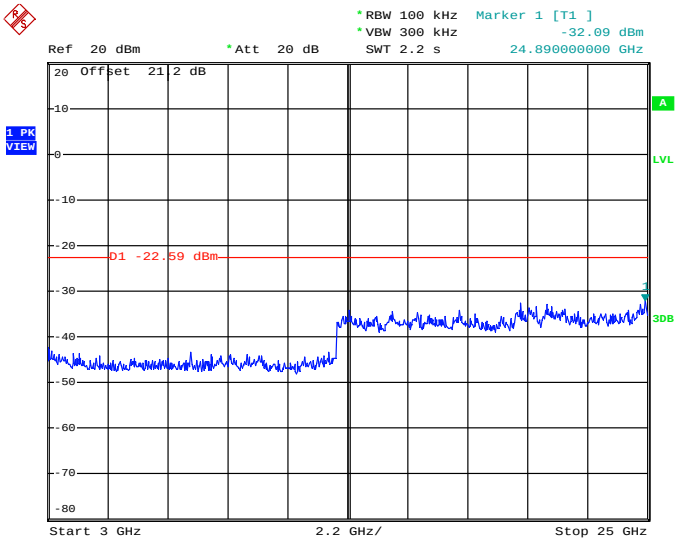
Test Mode :	Mode 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Mode 9:Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain A



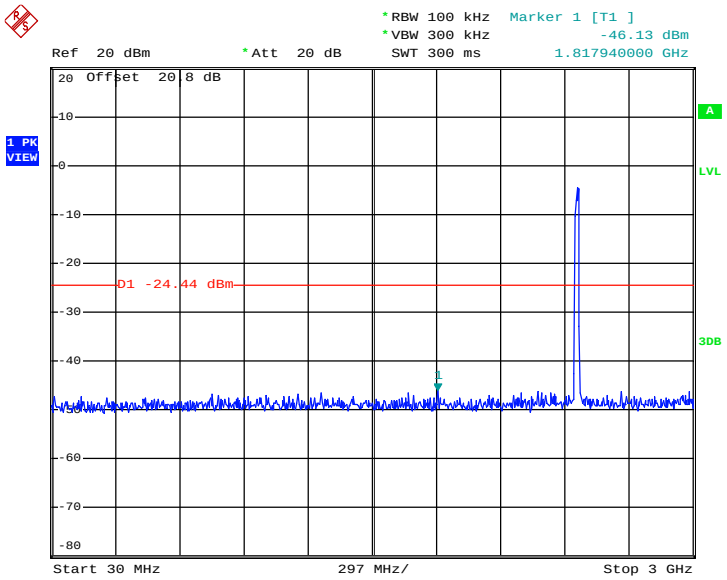
Date: 11.NOV.2011 23:34:17

Mode 9: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain A



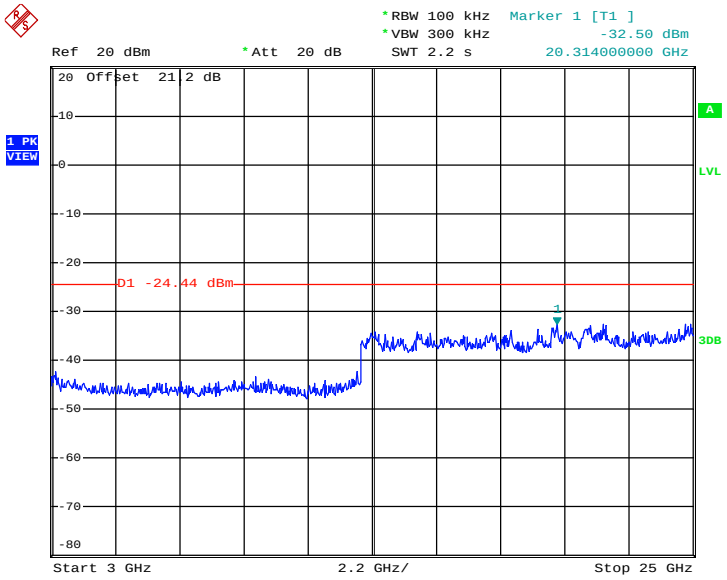
Date: 11.NOV.2011 23:34:34

Mode 9: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 14:16:31

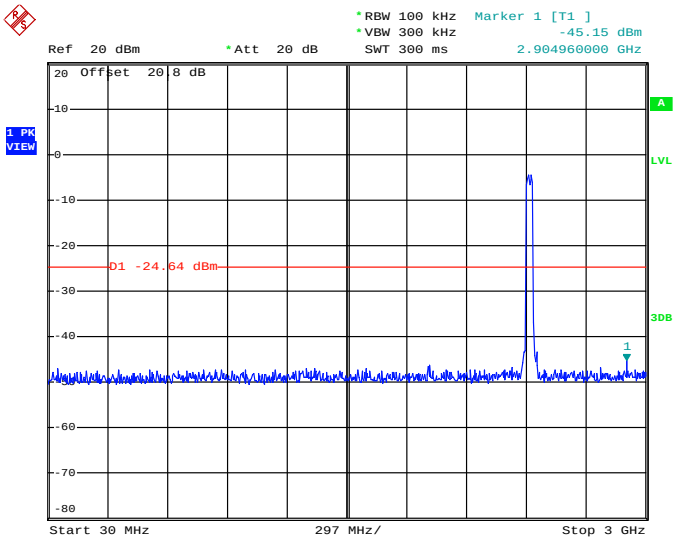
Mode 9: Conducted Spurious Emission Plot on 802.11n (BW 20MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 14:16:48

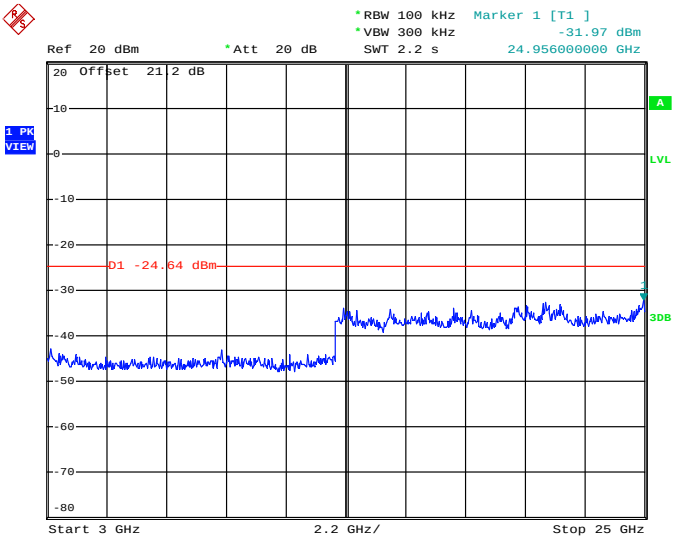
Test Mode :	Mode 10	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Mode 10:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain A



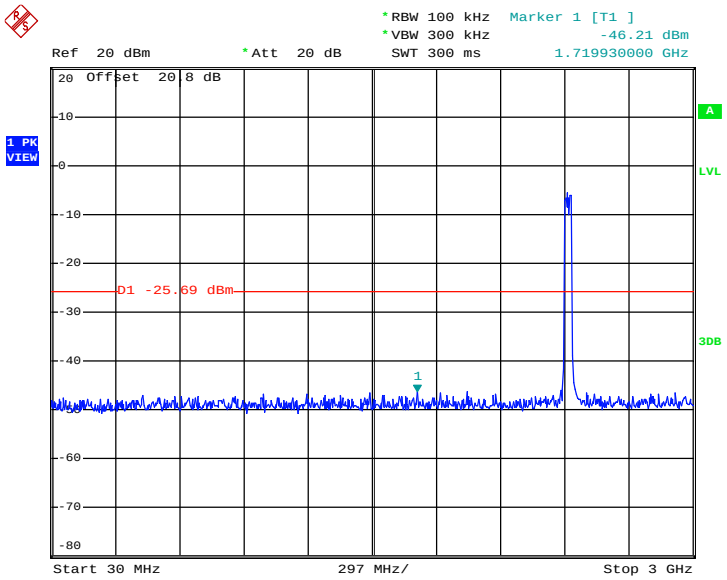
Date: 12.NOV.2011 00:52:17

Mode 10: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain A



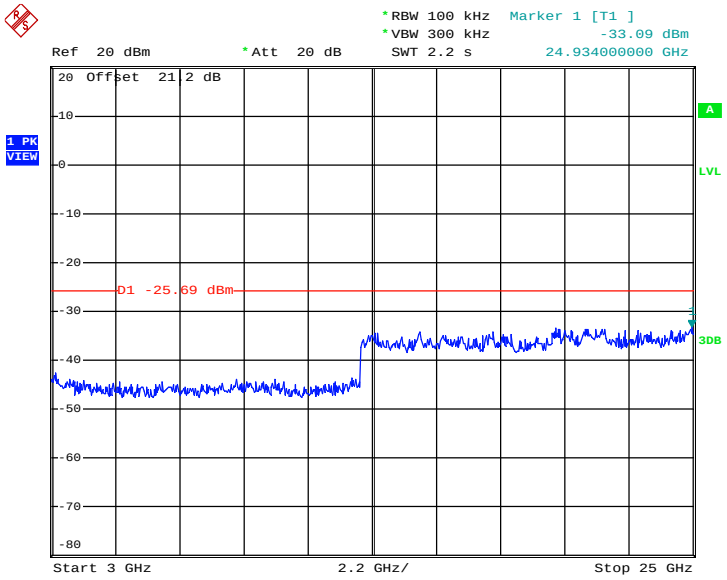
Date: 12.NOV.2011 00:52:34

Mode 10:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 14:44:24

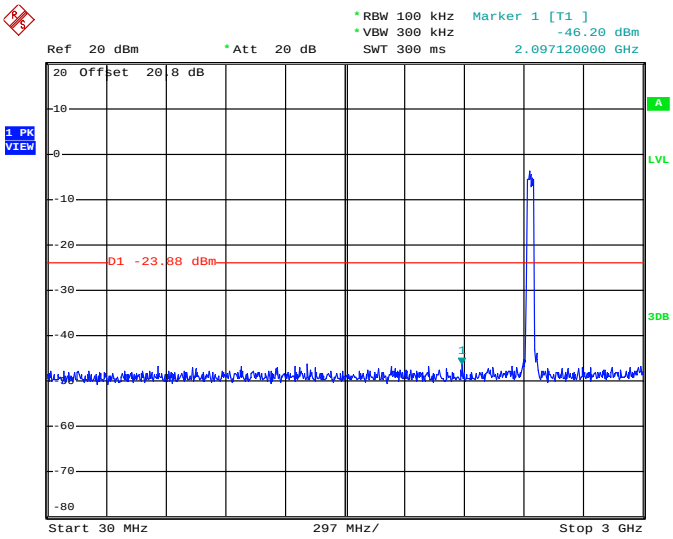
Mode 10: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 14:44:41

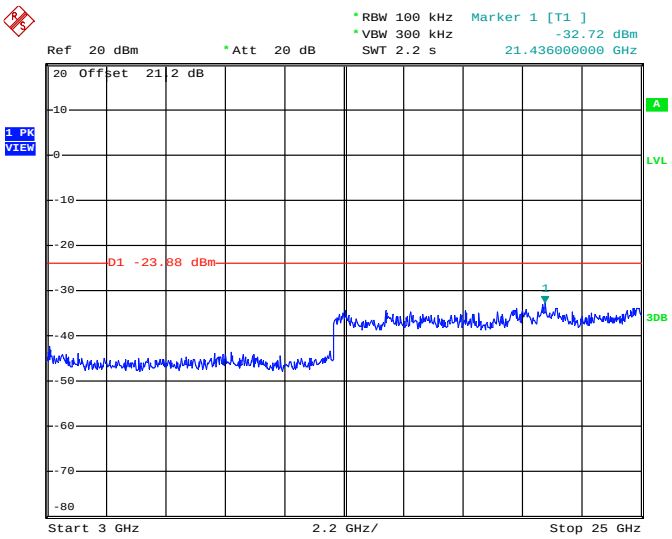
Test Mode :	Mode 11	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Mode 11:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain A



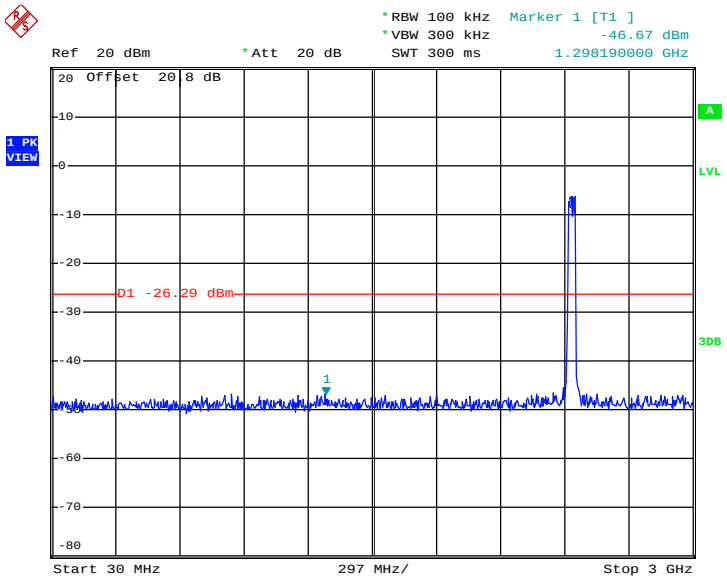
Date: 12.NOV.2011 01:04:35

Mode 11: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain A



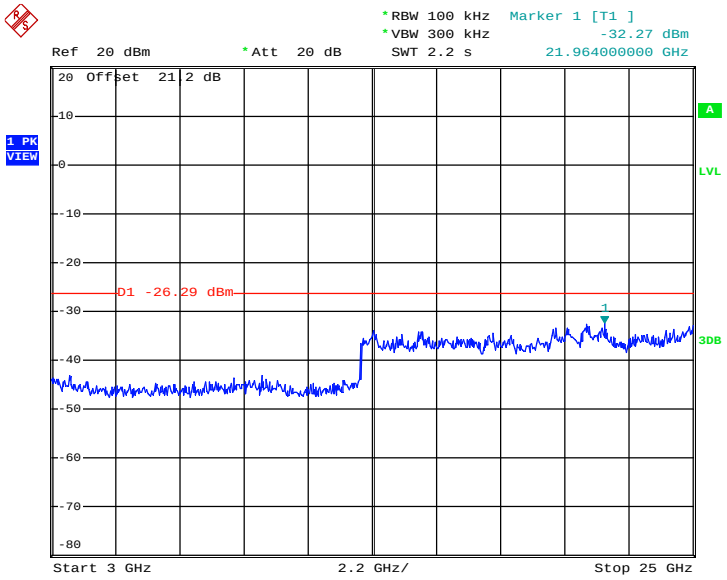
Date: 12.NOV.2011 01:04:52

Mode 11:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 14:59:04

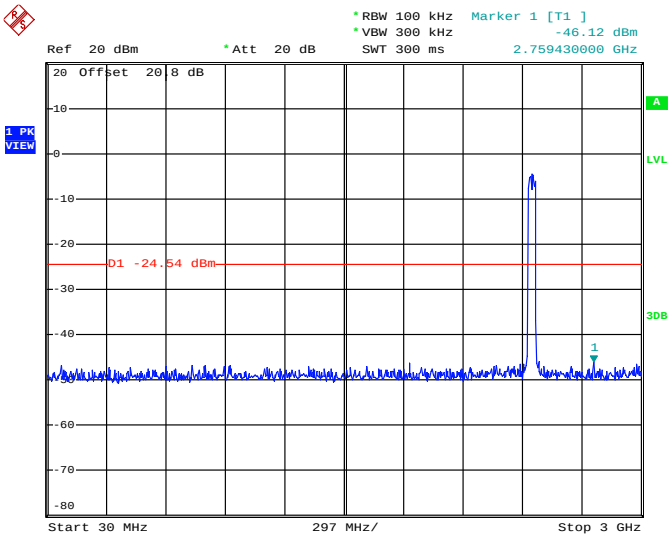
Mode 11: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 14:59:21

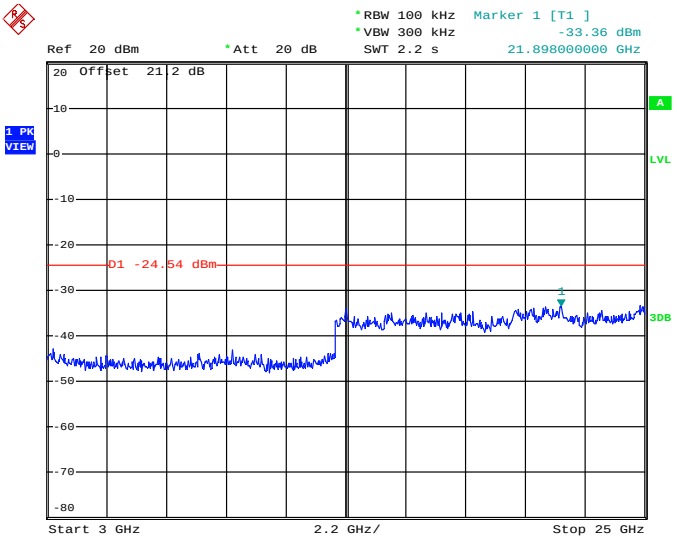
Test Mode :	Mode 12	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Mode 12:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain A



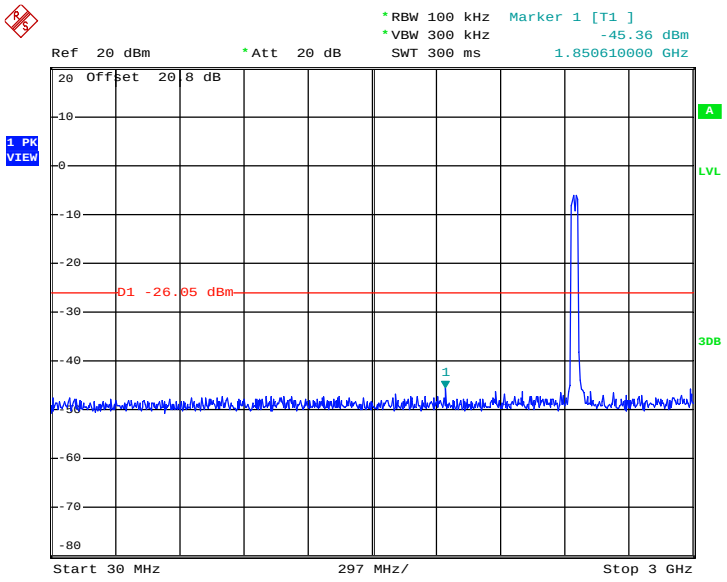
Date: 12.NOV.2011 01:18:15

Mode 12: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain A



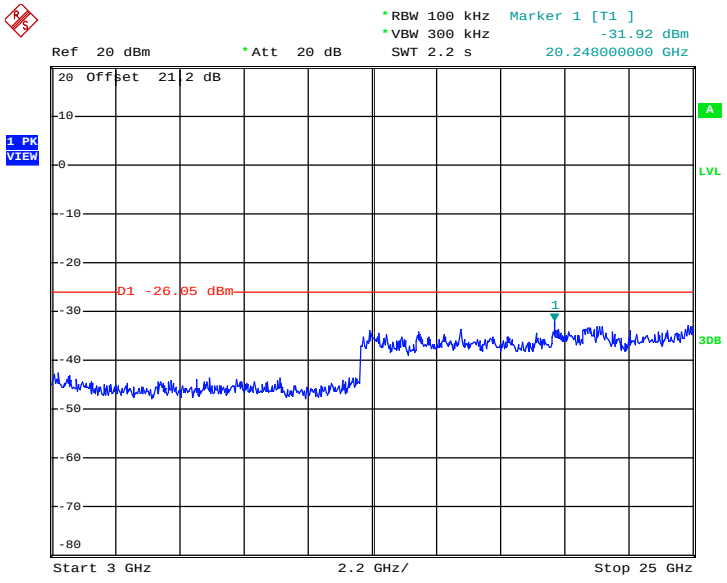
Date: 12.NOV.2011 01:18:32

Mode 12:Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 30 MHz~3 GHz - Chain B



Date: 14.NOV.2011 15:12:04

Mode 12: Conducted Spurious Emission Plot on 802.11n (BW 40MHz) between 3 GHz~25 GHz - Chain B



Date: 14.NOV.2011 15:12:21

3.5 Power Spectral Density Measurement

3.5.1 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.

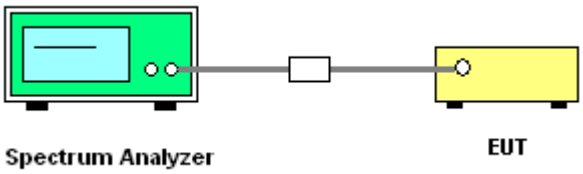
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A		
01	2412	3.19	8	Pass
06	2437	3.83	8	Pass
11	2462	3.59	8	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
		Chain A		
01	2412	-14.22	8	Pass
06	2437	-13.82	8	Pass
11	2462	-13.72	8	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B		
01	2412	-16.58	-18.05	-14.24	8	Pass
06	2437	-16.49	-18.19	-14.25	8	Pass
11	2462	-16.53	-18.59	-14.43	8	Pass

Note: Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10)).

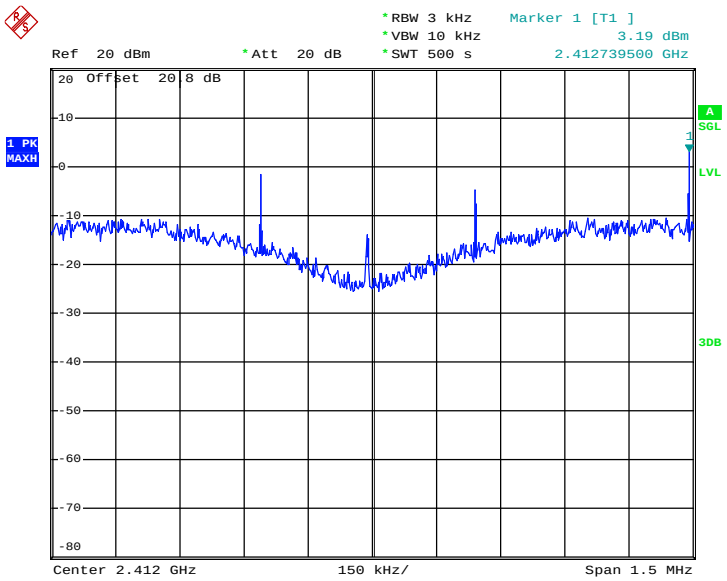
Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B		
03	2422	-20.95	-21.13	-18.03	8	Pass
06	2437	-18.95	-21.46	-17.02	8	Pass
09	2452	-19.73	-21.43	-17.49	8	Pass

Note: Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10)).

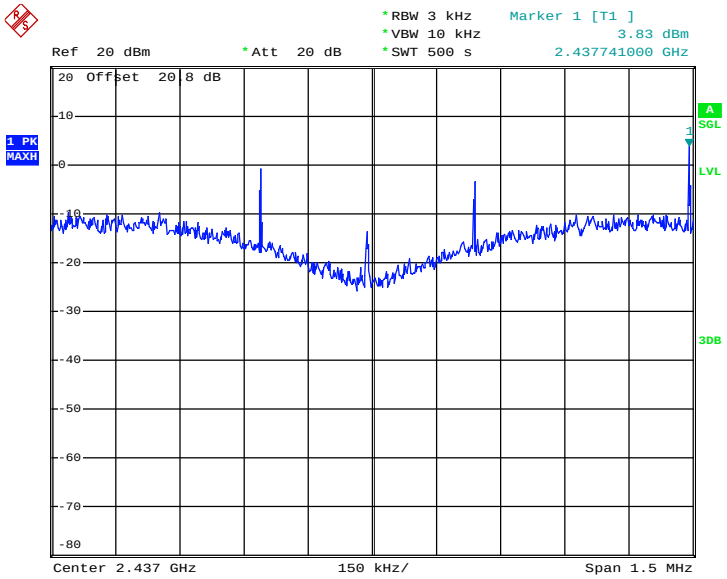
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01 – Chain A



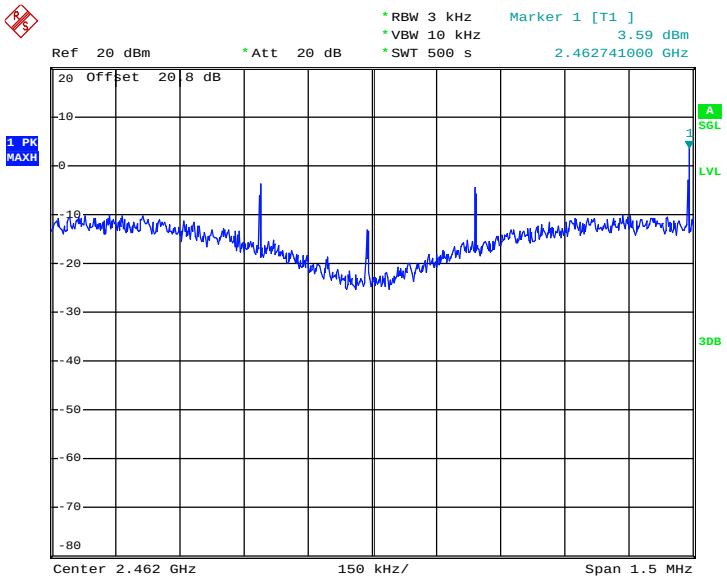
Date: 12.NOV.2011 01:51:48

Mode 2 : PSD Plot on 802.11b Channel 06 – Chain A



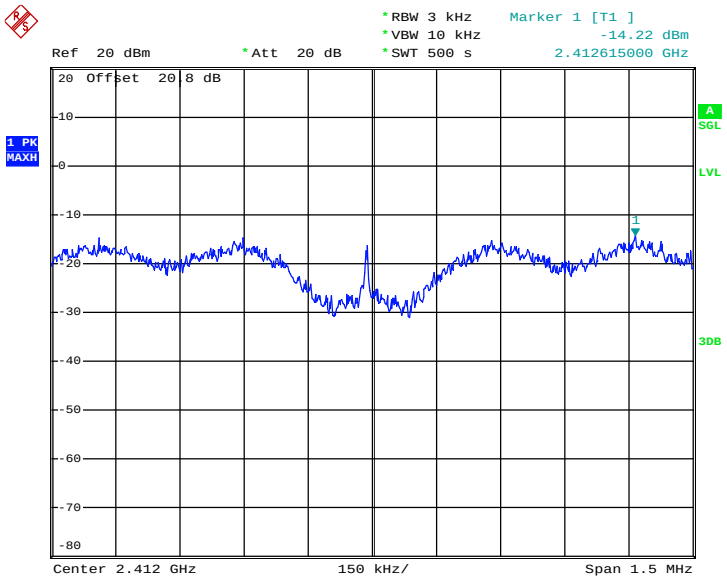
Date: 11.NOV.2011 21:41:20

Mode 3 : PSD Plot on 802.11b Channel 11 – Chain A



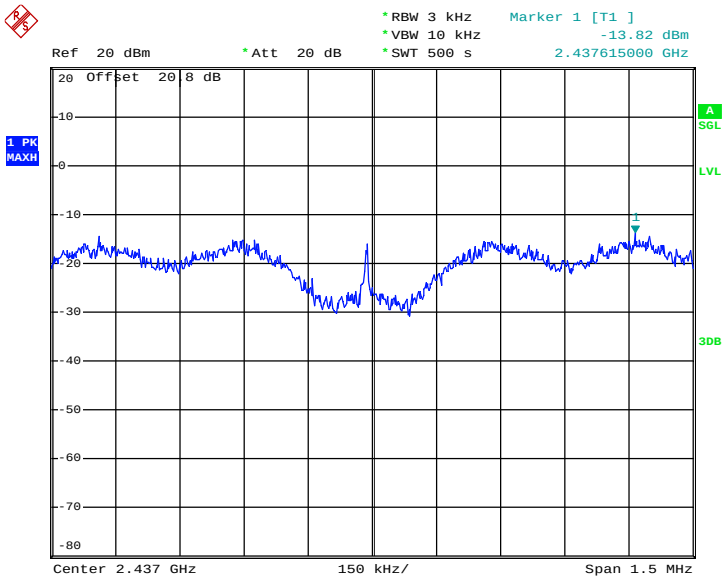
Date: 11.NOV.2011 21:57:18

Mode 4 : PSD Plot on 802.11g Channel 01 – Chain A



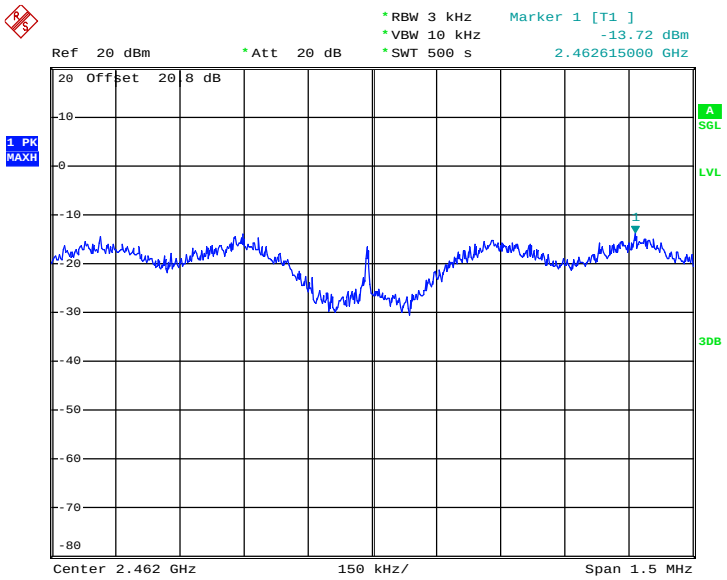
Date: 11.NOV.2011 22:11:55

Mode 5 : PSD Plot on 802.11g Channel 06 – Chain A



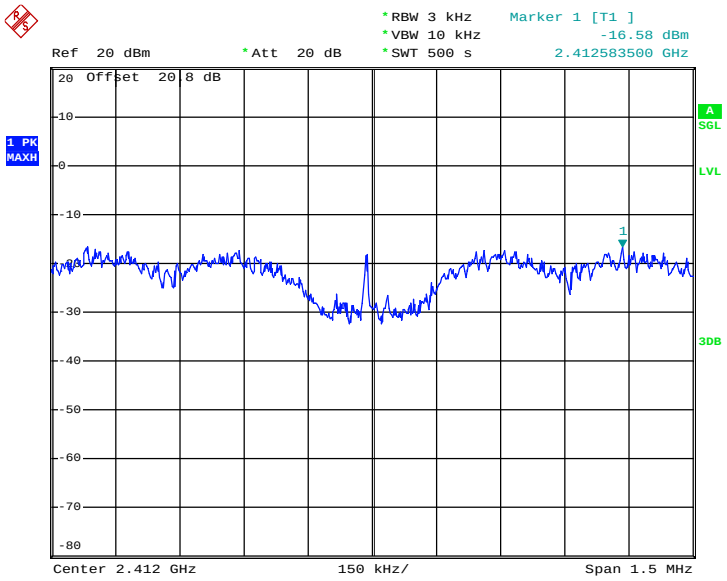
Date: 11.NOV.2011 22:25:10

Mode 6 : PSD Plot on 802.11g Channel 11 – Chain A



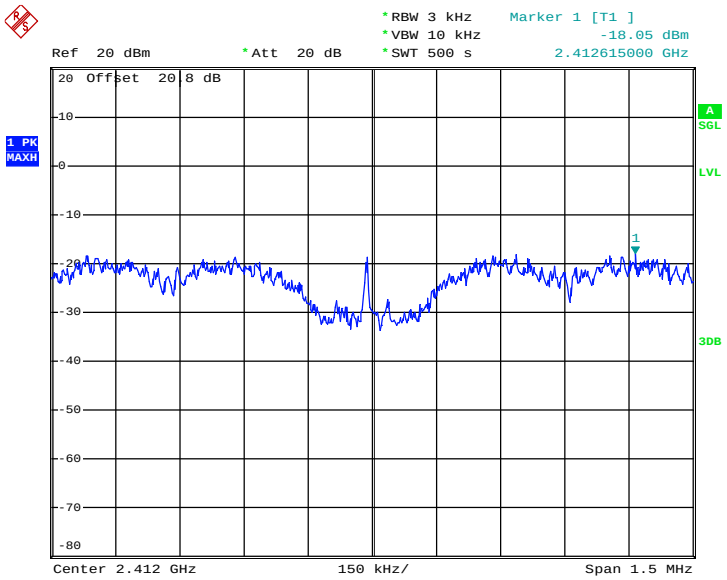
Date: 11.NOV.2011 22:38:28

Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01 – Chain A



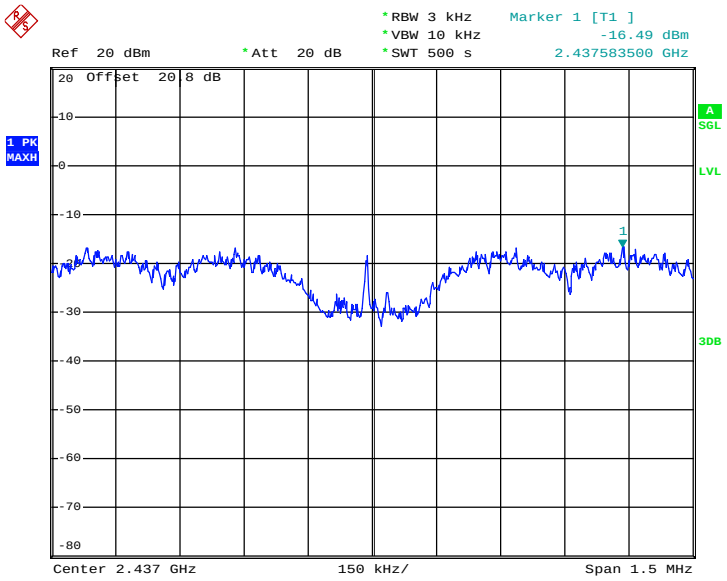
Date: 11.NOV.2011 23:07:47

Mode 7 : PSD Plot on 802.11n (BW 20MHz) Channel 01 – Chain B



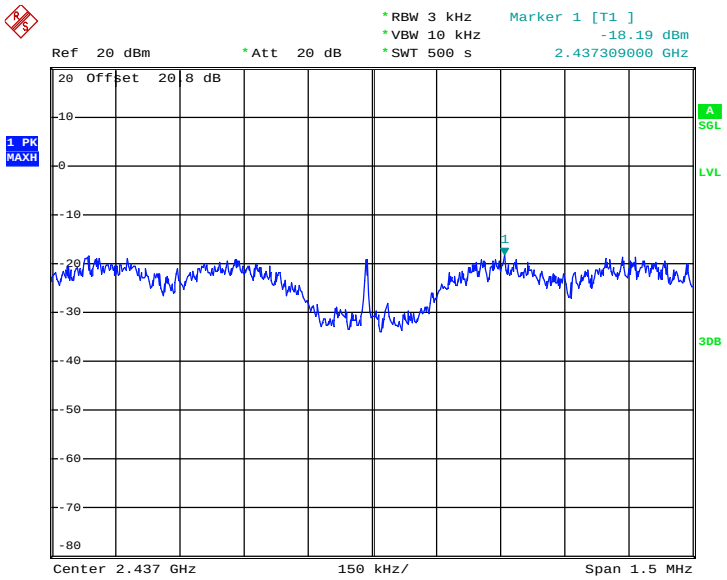
Date: 14.NOV.2011 13:48:36

Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06 – Chain A



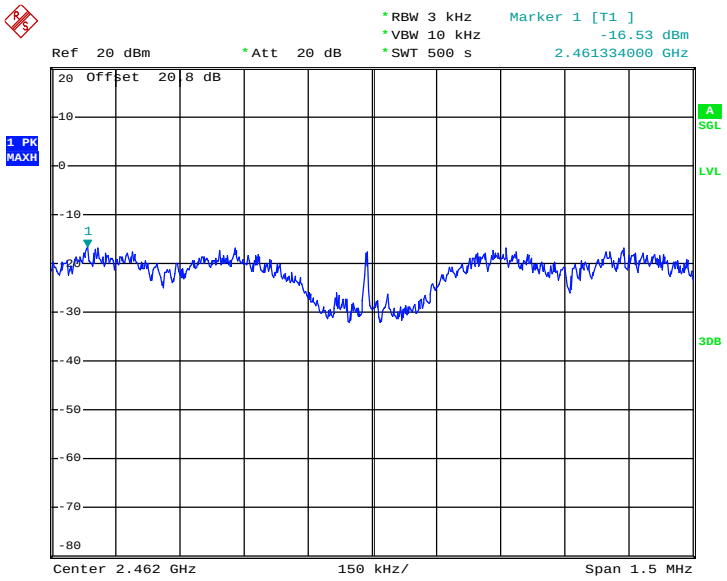
Date: 11.NOV.2011 23:20:21

Mode 8 : PSD Plot on 802.11n (BW 20MHz) Channel 06 – Chain B



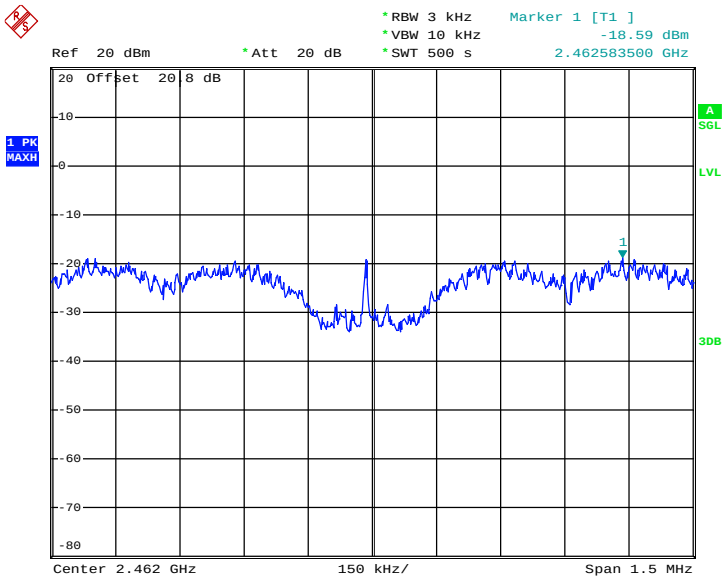
Date: 14.NOV.2011 14:03:10

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11 – Chain A



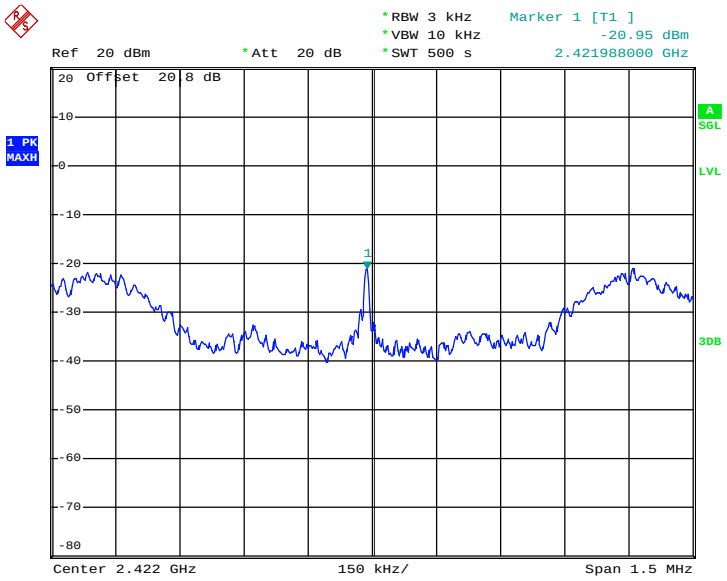
Date: 11.NOV.2011 23:33:56

Mode 9 : PSD Plot on 802.11n (BW 20MHz) Channel 11 – Chain B



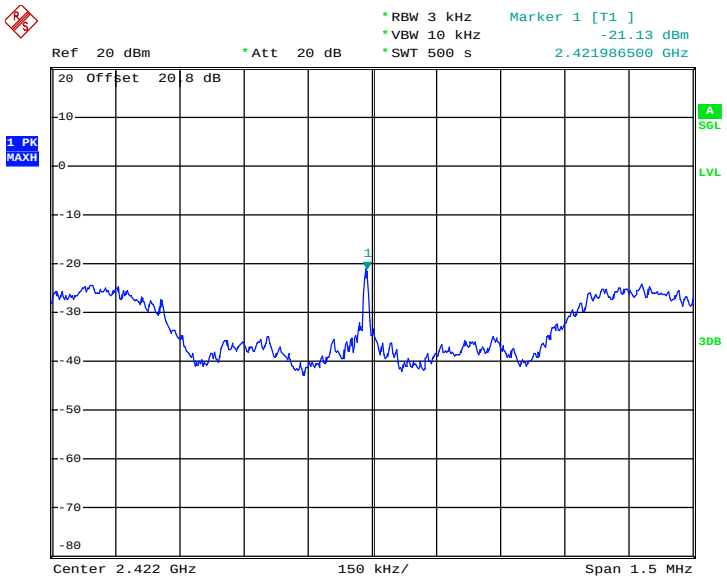
Date: 14.NOV.2011 14:16:10

Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03 – Chain A



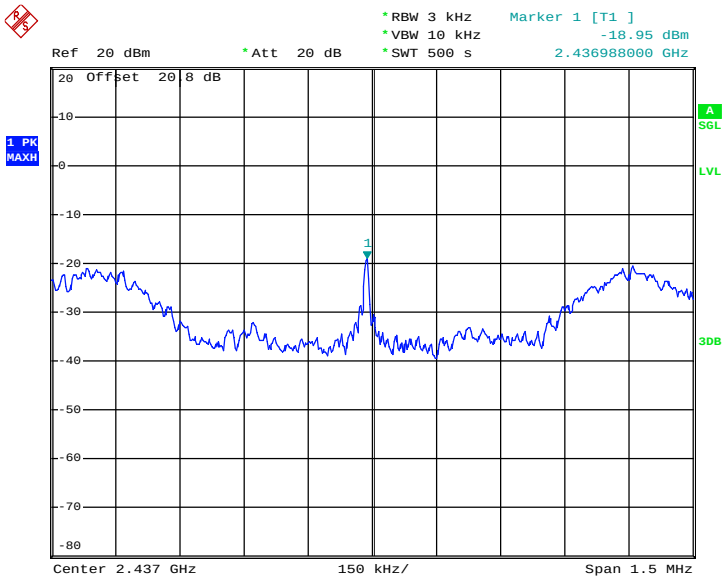
Date: 12.NOV.2011 00:51:56

Mode 10 : PSD Plot on 802.11n (BW 40MHz) Channel 03 – Chain B



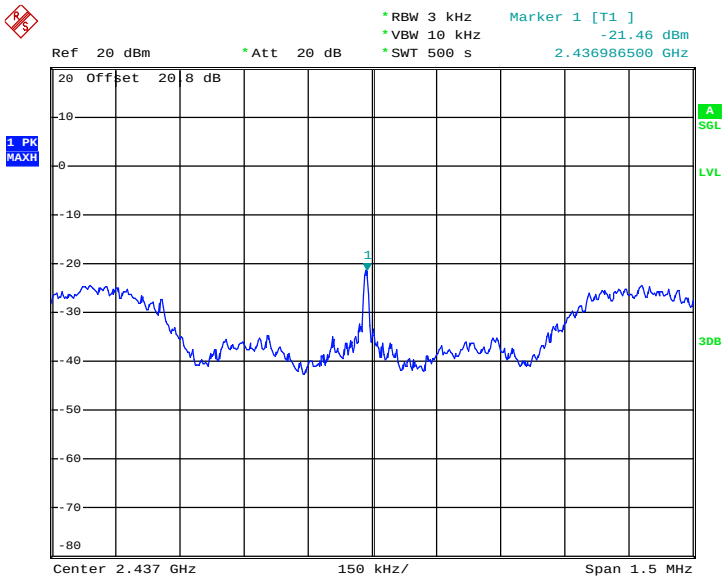
Date: 14.NOV.2011 14:44:03

Mode 11 : PSD Plot on 802.11n (BW 40MHz) Channel 06 – Chain A



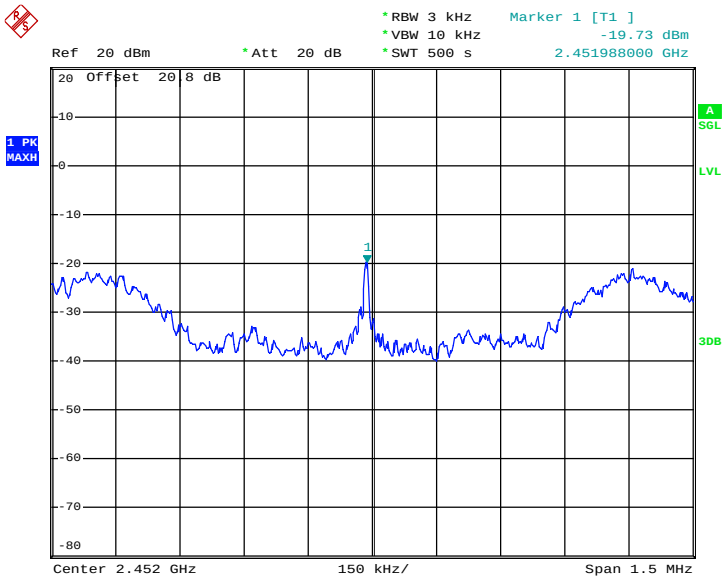
Date: 12.NOV.2011 01:04:15

Mode 11 : PSD Plot on 802.11n (BW 40MHz) Channel 06 – Chain B



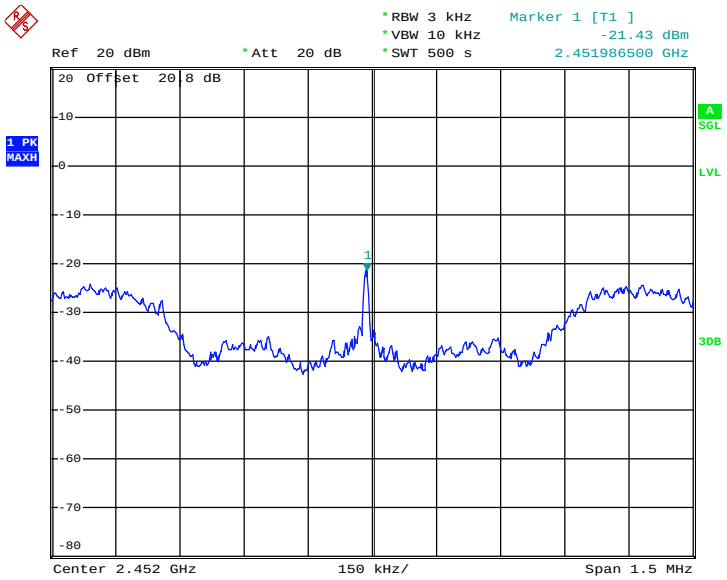
Date: 14.NOV.2011 14:58:43

Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09 – Chain A



Date: 12.NOV.2011 01:17:53

Mode 12 : PSD Plot on 802.11n (BW 40MHz) Channel 09 – Chain B



Date: 14.NOV.2011 15:11:43

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.

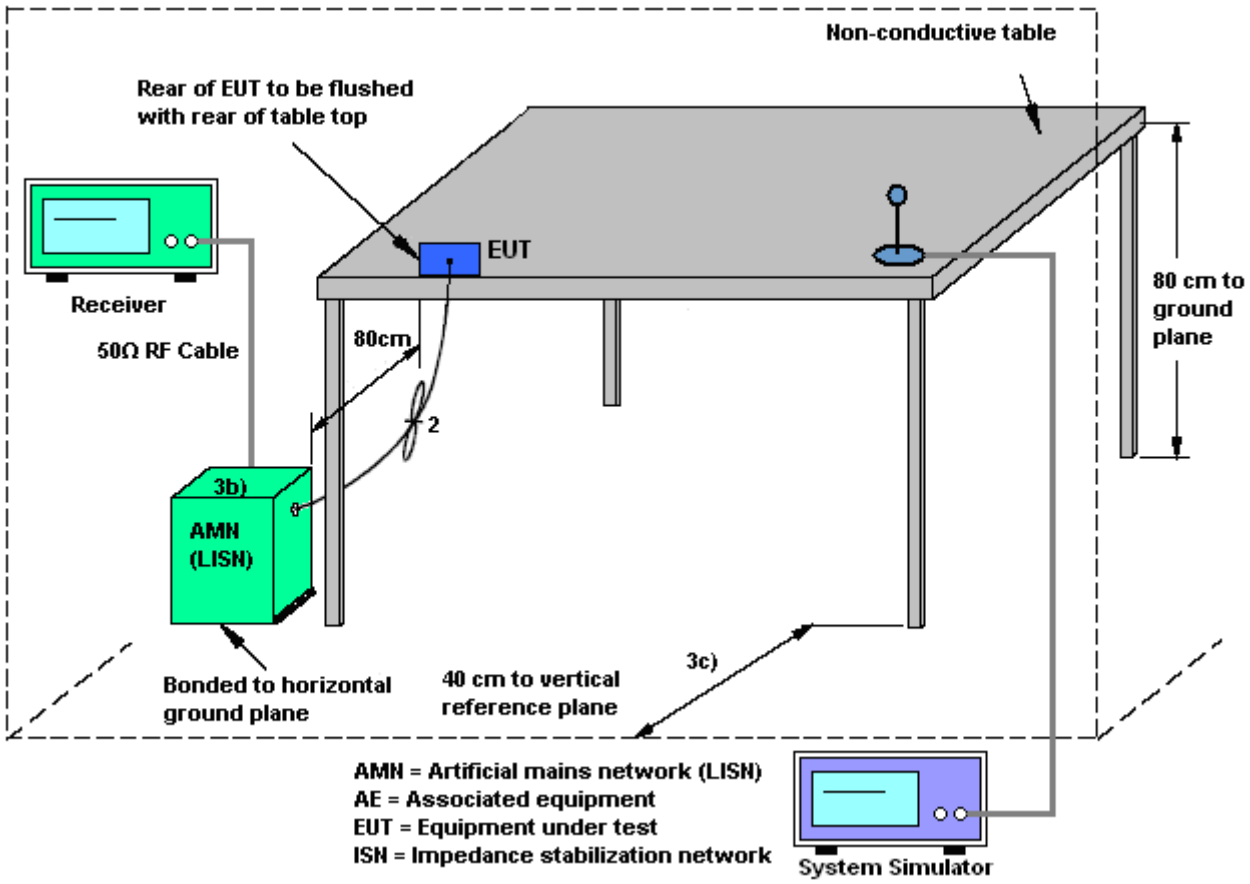
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

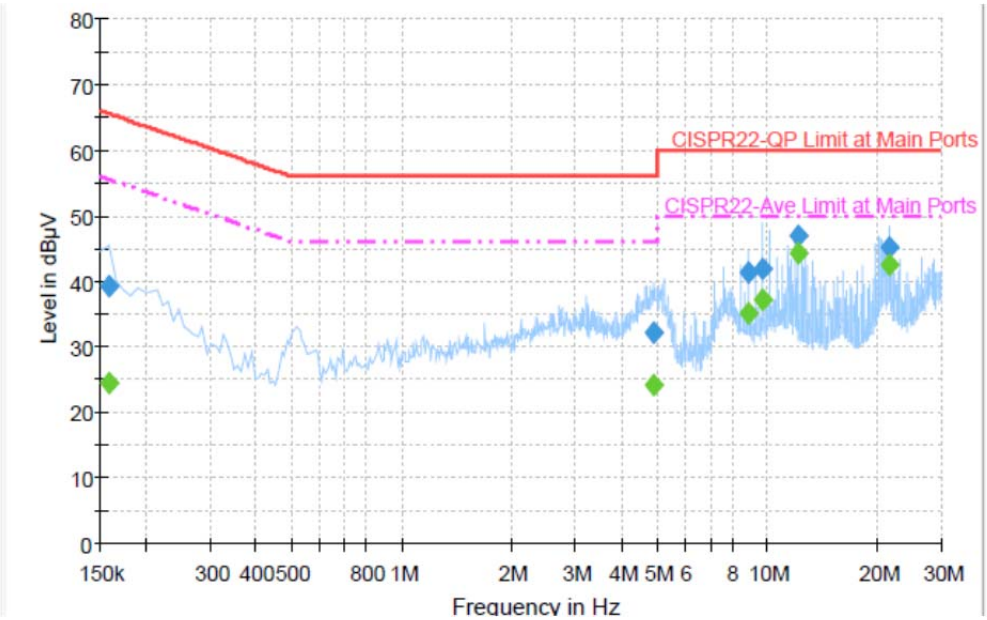
4. The testing follows the guidelines in ANSI C63.4-2003.
5. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
6. Connect EUT to the power mains through a line impedance stabilization network (LISN).
7. All the support units are connecting to the other LISN.
8. The LISN provides 50 ohm coupling impedance for the measuring instrument.
9. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
10. Both sides of AC line were checked for maximum conducted interference.
11. The frequency range from 150 kHz to 30 MHz was searched.
12. 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 4	Temperature :	22~24℃
Test Engineer :	Aslen Chiu	Relative Humidity :	48~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



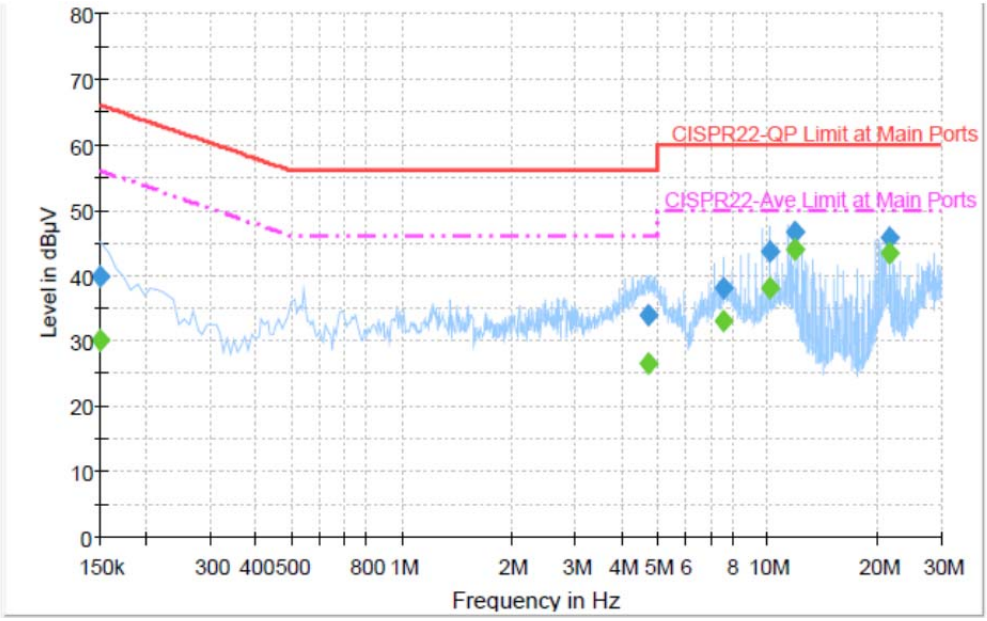
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	39.2	Off	L1	19.4	26.4	65.6
4.894000	32.2	Off	L1	19.5	23.8	56.0
8.910000	41.3	Off	L1	19.6	18.7	60.0
9.758000	42.0	Off	L1	19.6	18.0	60.0
12.198000	46.9	Off	L1	19.6	13.1	60.0
21.662000	45.2	Off	L1	19.7	14.8	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	24.4	Off	L1	19.4	31.2	55.6
4.894000	24.3	Off	L1	19.5	21.7	46.0
8.910000	35.2	Off	L1	19.6	14.8	50.0
9.758000	37.2	Off	L1	19.6	12.8	50.0
12.198000	44.3	Off	L1	19.6	5.7	50.0
21.662000	42.4	Off	L1	19.7	7.6	50.0

Test Mode :	Mode 4	Temperature :	22~24℃
Test Engineer :	Aslen Chiu	Relative Humidity :	48~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V + WLAN Link + RJ-45 Link + RJ-11 Link + WAN Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	40.0	Off	N	19.4	26.0	66.0
4.734000	34.0	Off	N	19.5	22.0	56.0
7.638000	38.1	Off	N	19.6	21.9	60.0
10.182000	43.8	Off	N	19.6	16.2	60.0
11.894000	46.6	Off	N	19.6	13.4	60.0
21.662000	45.8	Off	N	19.8	14.2	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	30.0	Off	N	19.4	26.0	56.0
4.734000	26.5	Off	N	19.5	19.5	46.0
7.638000	33.1	Off	N	19.6	16.9	50.0
10.182000	38.2	Off	N	19.6	11.8	50.0
11.894000	43.9	Off	N	19.6	6.1	50.0
21.662000	43.3	Off	N	19.8	6.7	50.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

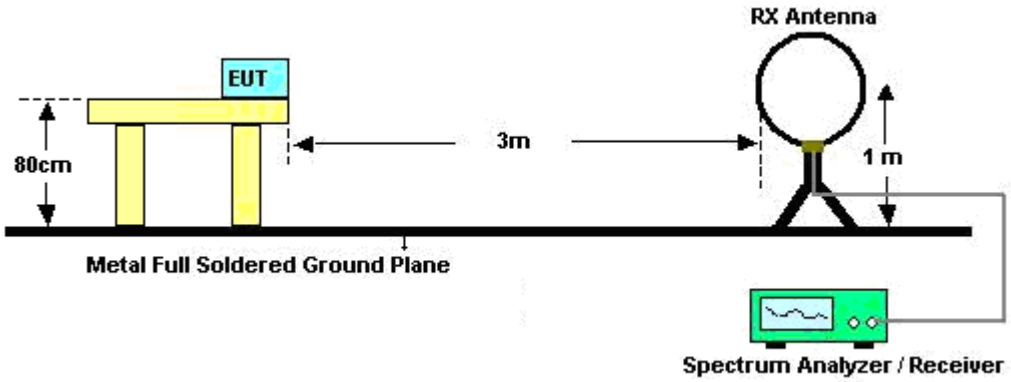
See list of measuring instruments of this test report.

3.7.3 Test Procedures

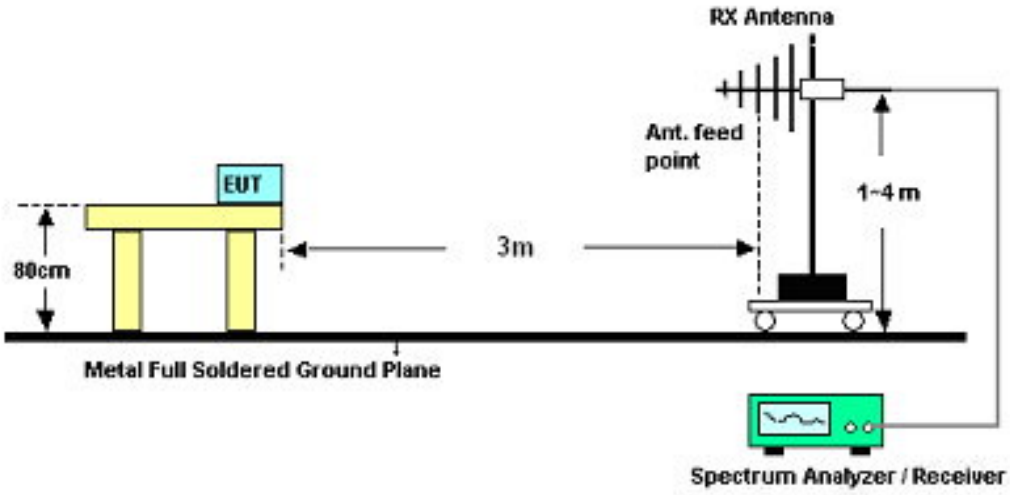
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

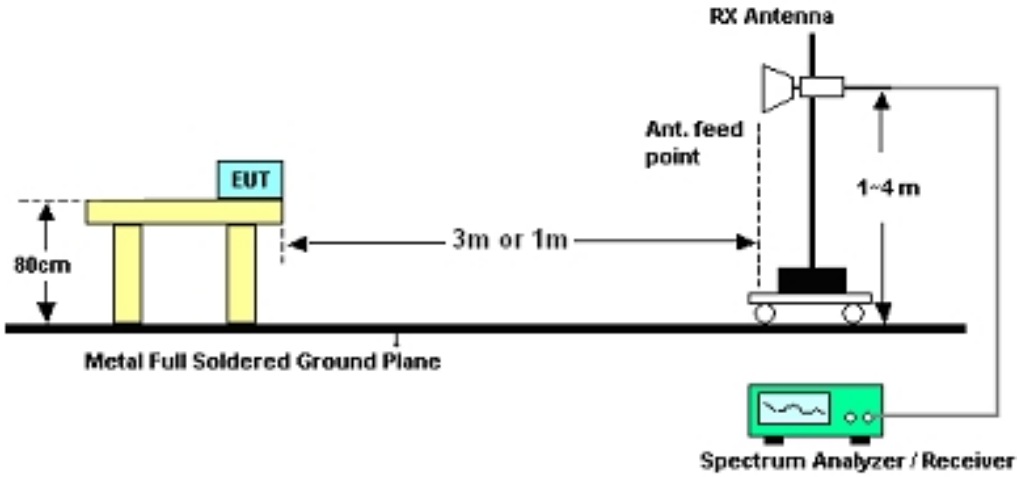
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Wii Chang	Temperature :	22~26°C
		Relative Humidity :	51~55%

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

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

Test Mode :	Mode 1	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
63.75	26.48	-13.52	40	51.61	5.51	0.88	31.52	-	-	Peak
128.01	28	-15.5	43.5	47.39	10.91	1.22	31.52	-	-	Peak
255.99	33.98	-12.02	46	52.08	11.73	1.67	31.5	-	-	Peak
384	36.96	-9.04	46	51.84	14.36	1.98	31.22	100	22	Peak
512.1	36.42	-9.58	46	47.95	17.27	2.25	31.05	-	-	Peak
640.2	35.93	-10.07	46	45.27	18.89	2.56	30.79	-	-	Peak
2373.08	42.27	-11.73	54	38.43	32	4.57	32.73	111	317	Average
2373.08	51.94	-22.06	74	48.1	32	4.57	32.73	111	317	Peak
2412	100.92	-	-	97.04	32.03	4.59	32.74	111	317	Average
2412	105.04	-	-	101.16	32.03	4.59	32.74	111	317	Peak
2492	40.17	-13.83	54	36.18	32.1	4.64	32.75	111	317	Average
2492	49.67	-24.33	74	45.68	32.1	4.64	32.75	111	317	Peak
4824	49.35	-24.65	74	67.47	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 1	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
63.48	36.44	-3.56	40	61.57	5.51	0.88	31.52	100	32	Peak
128.01	34.77	-8.73	43.5	54.16	10.91	1.22	31.52	-	-	Peak
255.99	30.32	-15.68	46	48.42	11.73	1.67	31.5	-	-	Peak
384	33.78	-12.22	46	48.66	14.36	1.98	31.22	-	-	Peak
512.1	37.11	-8.89	46	48.64	17.27	2.25	31.05	-	-	Peak
640.2	38.75	-7.25	46	48.09	18.89	2.56	30.79	-	-	Peak
2333.18	38.91	-15.09	54	35.13	31.96	4.55	32.73	108	9	Average
2333.18	49.9	-24.1	74	46.12	31.96	4.55	32.73	108	9	Peak
2412	95.34	-	-	91.46	32.03	4.59	32.74	108	9	Average
2412	100.53	-	-	96.65	32.03	4.59	32.74	108	9	Peak
2488	35.43	-18.57	54	31.44	32.1	4.64	32.75	108	9	Average
2488	46.02	-27.98	74	42.03	32.1	4.64	32.75	108	9	Peak
4824	45.46	-28.54	74	63.58	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
62.94	24.41	-15.59	40	49.6	5.46	0.88	31.53	-	-	Peak
128.01	27.71	-15.79	43.5	47.1	10.91	1.22	31.52	-	-	Peak
255.99	33.65	-12.35	46	51.75	11.73	1.67	31.5	-	-	Peak
384	36.1	-9.9	46	50.98	14.36	1.98	31.22	100	87	Peak
512.1	35.85	-10.15	46	47.38	17.27	2.25	31.05	-	-	Peak
640.2	35.63	-10.37	46	44.97	18.89	2.56	30.79	-	-	Peak
2358	44.04	-9.96	54	40.21	31.99	4.57	32.73	108	317	Average
2358	52.57	-21.43	74	48.74	31.99	4.57	32.73	108	317	Peak
2437	100.94	-	-	97.01	32.06	4.61	32.74	108	317	Average
2437	105.32	-	-	101.39	32.06	4.61	32.74	108	317	Peak
2484	36.64	-17.36	54	32.66	32.09	4.64	32.75	108	317	Average
2484	49.54	-24.46	74	45.56	32.09	4.64	32.75	108	317	Peak
4874	44.2	-29.8	74	62.21	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
64.02	31.31	-8.69	40	56.44	5.51	0.88	31.52	-	-	Peak
128.01	27.16	-16.34	43.5	46.55	10.91	1.22	31.52	-	-	Peak
192	29.05	-14.45	43.5	50.77	8.31	1.44	31.47	-	-	Peak
384	34.77	-11.23	46	49.65	14.36	1.98	31.22	-	-	Peak
512.1	33.18	-12.82	46	44.71	17.27	2.25	31.05	-	-	Peak
640.2	38.47	-7.53	46	47.81	18.89	2.56	30.79	100	15	Peak
2356	40.18	-13.82	54	36.37	31.99	4.55	32.73	130	16	Average
2356	49.29	-24.71	74	45.48	31.99	4.55	32.73	130	16	Peak
2437	96.05	-	-	92.12	32.06	4.61	32.74	130	16	Average
2437	101.99	-	-	98.06	32.06	4.61	32.74	130	16	Peak
2494	33.58	-20.42	54	29.59	32.1	4.64	32.75	130	16	Average
2494	45.51	-28.49	74	41.52	32.1	4.64	32.75	130	16	Peak
4874	42.62	-31.38	74	60.63	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
66.18	24.81	-15.19	40	49.83	5.6	0.89	31.51	-	-	Peak
128.01	28.15	-15.35	43.5	47.54	10.91	1.22	31.52	-	-	Peak
255.99	30.45	-15.55	46	48.55	11.73	1.67	31.5	-	-	Peak
384	27.47	-18.53	46	42.35	14.36	1.98	31.22	-	-	Peak
512.1	35.65	-10.35	46	47.18	17.27	2.25	31.05	102	15	Peak
640.2	33.2	-12.8	46	42.54	18.89	2.56	30.79	-	-	Peak
2382	41.26	-12.74	54	37.41	32	4.58	32.73	130	320	Average
2382	50.75	-23.25	74	46.9	32	4.58	32.73	130	320	Peak
2462	100.94	-	-	97	32.07	4.62	32.75	130	320	Average
2462	105.02	-	-	101.08	32.07	4.62	32.75	130	320	Peak
2494.3	39.36	-14.64	54	35.37	32.1	4.64	32.75	130	320	Average
2494.3	52.23	-21.77	74	48.24	32.1	4.64	32.75	130	320	Peak
4924	46.14	-27.86	74	64.03	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
63.75	36.02	-3.98	40	61.15	5.51	0.88	31.52	100	44	Peak
128.01	30.88	-12.62	43.5	50.27	10.91	1.22	31.52	-	-	Peak
255.99	31.33	-14.67	46	49.43	11.73	1.67	31.5	-	-	Peak
384	34.51	-11.49	46	49.39	14.36	1.98	31.22	-	-	Peak
512.1	36.98	-9.02	46	48.51	17.27	2.25	31.05	-	-	Peak
640.2	38.21	-7.79	46	47.55	18.89	2.56	30.79	-	-	Peak
2382	39.7	-14.3	54	35.85	32	4.58	32.73	126	14	Average
2382	48.37	-25.63	74	44.52	32	4.58	32.73	126	14	Peak
2462	96.81	-	-	92.87	32.07	4.62	32.75	126	14	Average
2462	100.91	-	-	96.97	32.07	4.62	32.75	126	14	Peak
2486.13	34.73	-19.27	54	30.75	32.09	4.64	32.75	126	14	Average
2486.13	50.43	-23.57	74	46.45	32.09	4.64	32.75	126	14	Peak
4924	44.95	-29.05	74	62.84	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 4	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2360	44.95	-9.05	54	41.12	31.99	4.57	32.73	102	337	Average
2360	53.61	-20.39	74	49.78	31.99	4.57	32.73	102	337	Peak
2437	101.86	-	-	97.93	32.06	4.61	32.74	102	337	Average
2437	105.85	-	-	101.92	32.06	4.61	32.74	102	337	Peak
2494	38.28	-15.72	54	34.29	32.1	4.64	32.75	102	337	Average
2494	49.88	-24.12	74	45.89	32.1	4.64	32.75	102	337	Peak
4874	47.64	-26.36	74	65.65	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 4	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2360	47.12	-6.88	54	43.29	31.99	4.57	32.73	136	173	Average
2360	54.93	-19.07	74	51.1	31.99	4.57	32.73	136	173	Peak
2437	95.54	-	-	91.61	32.06	4.61	32.74	136	173	Average
2437	100.32	-	-	96.39	32.06	4.61	32.74	136	173	Peak
2484	38.19	-15.81	54	34.21	32.09	4.64	32.75	136	173	Average
2484	49.25	-24.75	74	45.27	32.09	4.64	32.75	136	173	Peak
4874	45.01	-28.99	74	63.02	33.82	6.53	58.36	100	0	Peak

Test Mode :	Mode 5	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
74.28	24.51	-15.49	40	48.93	6.17	0.96	31.55	-	-	Peak
128.01	27.31	-16.19	43.5	46.7	10.91	1.22	31.52	-	-	Peak
255.99	34.2	-11.8	46	52.3	11.73	1.67	31.5	-	-	Peak
384	36.9	-9.1	46	51.78	14.36	1.98	31.22	-	-	Peak
512.1	34.35	-11.65	46	45.88	17.27	2.25	31.05	-	-	Peak
640.2	38.09	-7.91	46	47.43	18.89	2.56	30.79	100	153	Peak
2359.59	43.76	-10.24	54	39.93	31.99	4.57	32.73	111	334	Average
2359.59	55.01	-18.99	74	51.18	31.99	4.57	32.73	111	334	Peak
2412	93.29	-	-	89.41	32.03	4.59	32.74	111	334	Average
2412	104.22	-	-	100.34	32.03	4.59	32.74	111	334	Peak
2488	37.63	-16.37	54	33.64	32.1	4.64	32.75	111	334	Average
2488	48.95	-25.05	74	44.96	32.1	4.64	32.75	111	334	Peak

Test Mode :	Mode 5	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
63.48	36.08	-3.92	40	61.21	5.51	0.88	31.52	100	65	Peak
128.01	34.17	-9.33	43.5	53.56	10.91	1.22	31.52	-	-	Peak
255.99	31.06	-14.94	46	49.16	11.73	1.67	31.5	-	-	Peak
384	35.57	-10.43	46	50.45	14.36	1.98	31.22	-	-	Peak
512.1	34.24	-11.76	46	45.77	17.27	2.25	31.05	-	-	Peak
640.2	39.47	-6.53	46	48.81	18.89	2.56	30.79	-	-	Peak
2359.59	37.44	-16.56	54	33.61	31.99	4.57	32.73	107	197	Average
2359.59	50.11	-23.89	74	46.28	31.99	4.57	32.73	107	197	Peak
2412	90.32	-	-	86.44	32.03	4.59	32.74	107	197	Average
2412	100.77	-	-	96.89	32.03	4.59	32.74	107	197	Peak
2500	34.75	-19.25	54	30.76	32.1	4.64	32.75	107	197	Average
2500	47.06	-26.94	74	43.07	32.1	4.64	32.75	107	197	Peak

Test Mode :	Mode 6	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
62.4	25.61	-14.39	40	50.87	5.41	0.87	31.54	-	-	Peak
116.13	27.22	-16.28	43.5	46.96	10.6	1.18	31.52	-	-	Peak
255.99	30.96	-15.04	46	49.06	11.73	1.67	31.5	-	-	Peak
384	35.25	-10.75	46	50.13	14.36	1.98	31.22	-	-	Peak
512.1	37.32	-8.68	46	48.85	17.27	2.25	31.05	105	44	Peak
640.2	35.72	-10.28	46	45.06	18.89	2.56	30.79	-	-	Peak
2384	41.65	-12.35	54	37.8	32	4.58	32.73	132	335	Average
2384	51.81	-22.19	74	47.96	32	4.58	32.73	132	335	Peak
2437	92.36	-	-	88.43	32.06	4.61	32.74	132	335	Average
2437	103.81	-	-	99.88	32.06	4.61	32.74	132	335	Peak
2490	39.59	-14.41	54	35.6	32.1	4.64	32.75	132	335	Average
2490	49.97	-24.03	74	45.98	32.1	4.64	32.75	132	335	Peak

Test Mode :	Mode 6	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.59	36.54	-3.46	40	51.84	15.48	0.74	31.52	100	112	Peak
128.01	33.3	-10.2	43.5	52.69	10.91	1.22	31.52	-	-	Peak
255.99	34.01	-11.99	46	52.11	11.73	1.67	31.5	-	-	Peak
384	34.17	-11.83	46	49.05	14.36	1.98	31.22	-	-	Peak
512.1	37.63	-8.37	46	49.16	17.27	2.25	31.05	-	-	Peak
640.2	38.84	-7.16	46	48.18	18.89	2.56	30.79	-	-	Peak
2384	40.72	-13.28	54	36.87	32	4.58	32.73	109	208	Average
2384	51.25	-22.75	74	47.4	32	4.58	32.73	109	208	Peak
2437	90.02	-	-	86.09	32.06	4.61	32.74	109	208	Average
2437	101.57	-	-	97.64	32.06	4.61	32.74	109	208	Peak
2490	36.73	-17.27	54	32.74	32.1	4.64	32.75	109	208	Average
2490	47.74	-26.26	74	43.75	32.1	4.64	32.75	109	208	Peak

Test Mode :	Mode 7	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
63.48	24.99	-15.01	40	50.12	5.51	0.88	31.52	-	-	Peak
128.01	26.98	-16.52	43.5	46.37	10.91	1.22	31.52	-	-	Peak
255.99	33.86	-12.14	46	51.96	11.73	1.67	31.5	-	-	Peak
384	37.47	-8.53	46	52.35	14.36	1.98	31.22	-	-	Peak
512.1	37.35	-8.65	46	48.88	17.27	2.25	31.05	-	-	Peak
640.2	37.81	-8.19	46	47.15	18.89	2.56	30.79	100	87	Peak
2380	38.97	-15.03	54	35.12	32	4.58	32.73	130	336	Average
2380	50.56	-23.44	74	46.71	32	4.58	32.73	130	336	Peak
2462	92.39	-	-	88.45	32.07	4.62	32.75	130	336	Average
2462	103.12	-	-	99.18	32.07	4.62	32.75	130	336	Peak
2483.5	38.21	-15.79	54	34.23	32.09	4.64	32.75	130	336	Average
2483.5	61.77	-12.23	74	57.79	32.09	4.64	32.75	130	336	Peak
4924	44.46	-29.54	74	62.35	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 7	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.13	36.22	-3.78	40	51.52	15.48	0.74	31.52	100	63	Peak
128.01	33.83	-9.67	43.5	53.22	10.91	1.22	31.52	-	-	Peak
255.99	28.96	-17.04	46	47.06	11.73	1.67	31.5	-	-	Peak
384	33.71	-12.29	46	48.59	14.36	1.98	31.22	-	-	Peak
512.1	30.69	-15.31	46	42.22	17.27	2.25	31.05	-	-	Peak
640.2	36.21	-9.79	46	45.55	18.89	2.56	30.79	-	-	Peak
2386	38.14	-15.86	54	34.27	32.02	4.58	32.73	137	220	Average
2386	48.14	-25.86	74	44.27	32.02	4.58	32.73	137	220	Peak
2462	89.72	-	-	85.78	32.07	4.62	32.75	137	220	Average
2462	100.04	-	-	96.1	32.07	4.62	32.75	137	220	Peak
2483.66	35.64	-18.36	54	31.66	32.09	4.64	32.75	137	220	Average
2483.66	57.41	-16.59	74	53.43	32.09	4.64	32.75	137	220	Peak
4924	42.51	-31.49	74	60.4	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 8	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	45.53	-8.47	54	41.66	32.02	4.58	32.73	136	331	Average
2389.99	70.72	-3.28	74	66.85	32.02	4.58	32.73	136	331	Peak
2412	92.32	-	-	88.44	32.03	4.59	32.74	136	331	Average
2412	105.55	-	-	101.67	32.03	4.59	32.74	136	331	Peak
2496	38.63	-15.37	54	34.64	32.1	4.64	32.75	136	331	Average
2496	52.13	-21.87	74	48.14	32.1	4.64	32.75	136	331	Peak

Test Mode :	Mode 8	Temperature :	22~26°C
Test Channel :	01	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	41.36	-12.64	54	37.49	32.02	4.58	32.73	107	198	Average
2389.61	69.42	-4.58	74	65.55	32.02	4.58	32.73	107	198	Peak
2412	90.87	-	-	86.99	32.03	4.59	32.74	107	198	Average
2412	103.06	-	-	99.18	32.03	4.59	32.74	107	198	Peak
2484	36.81	-17.19	54	32.83	32.09	4.64	32.75	107	198	Average
2484	51.89	-22.11	74	47.91	32.09	4.64	32.75	107	198	Peak

Test Mode :	Mode 9	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	41.97	-12.03	54	38.1	32.02	4.58	32.73	131	336	Average
2388	60.26	-13.74	74	56.39	32.02	4.58	32.73	131	336	Peak
2437	92.01	-	-	88.08	32.06	4.61	32.74	131	336	Average
2437	105.13	-	-	101.2	32.06	4.61	32.74	131	336	Peak
2484	41.25	-12.75	54	37.27	32.09	4.64	32.75	131	336	Average
2484	56.72	-17.28	74	52.74	32.09	4.64	32.75	131	336	Peak

Test Mode :	Mode 9	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	41.32	-12.68	54	37.45	32.02	4.58	32.73	138	206	Average
2388	59.64	-14.36	74	55.77	32.02	4.58	32.73	138	206	Peak
2437	89.7	-	-	85.77	32.06	4.61	32.74	138	206	Average
2437	102.95	-	-	99.02	32.06	4.61	32.74	138	206	Peak
2490	40.24	-13.76	54	36.25	32.1	4.64	32.75	138	206	Average
2490	55.86	-18.14	74	51.87	32.1	4.64	32.75	138	206	Peak

Test Mode :	Mode 10	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	38.48	-15.52	54	34.61	32.02	4.58	32.73	129	336	Average
2390	52.38	-21.62	74	48.51	32.02	4.58	32.73	129	336	Peak
2462	91.81	-	-	87.87	32.07	4.62	32.75	129	336	Average
2462	105.48	-	-	101.54	32.07	4.62	32.75	129	336	Peak
2484.42	38.52	-15.48	54	34.54	32.09	4.64	32.75	129	336	Average
2484.42	64.9	-9.1	74	60.92	32.09	4.64	32.75	129	336	Peak

Test Mode :	Mode 10	Temperature :	22~26°C
Test Channel :	11	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	38.08	-15.92	54	34.21	32.02	4.58	32.73	137	195	Average
2388	52.58	-21.42	74	48.71	32.02	4.58	32.73	137	195	Peak
2462	90.46	-	-	86.52	32.07	4.62	32.75	137	195	Average
2462	102.99	-	-	99.05	32.07	4.62	32.75	137	195	Peak
2484.8	38.28	-15.72	54	34.3	32.09	4.64	32.75	137	195	Average
2484.8	65.3	-8.7	74	61.32	32.09	4.64	32.75	137	195	Peak

Test Mode :	Mode 11	Temperature :	22~26°C
Test Channel :	03	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2422 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
62.67	26.33	-13.67	40	51.52	5.46	0.88	31.53	-	-	Peak
128.01	25.34	-18.16	43.5	44.73	10.91	1.22	31.52	-	-	Peak
255.99	33.01	-12.99	46	51.11	11.73	1.67	31.5	-	-	Peak
384	37.72	-8.28	46	52.6	14.36	1.98	31.22	-	-	Peak
512.1	38.12	-7.88	46	49.65	17.27	2.25	31.05	-	-	Peak
640.2	38.32	-7.68	46	47.66	18.89	2.56	30.79	100	33	Peak
2389.99	43.69	-10.31	54	39.82	32.02	4.58	32.73	109	330	Average
2389.99	67.57	-6.43	74	63.7	32.02	4.58	32.73	109	330	Peak
2422	81.12	-	-	77.23	32.04	4.59	32.74	109	330	Average
2422	102.49	-	-	98.6	32.04	4.59	32.74	109	330	Peak
2484	36.18	-17.82	54	32.2	32.09	4.64	32.75	109	330	Average
2484	55.34	-18.66	74	51.36	32.09	4.64	32.75	109	330	Peak

Test Mode :	Mode 11	Temperature :	22~26°C
Test Channel :	03	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2422 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.59	36.34	-3.66	40	51.64	15.48	0.74	31.52	100	51	Peak
128.01	33.88	-9.62	43.5	53.27	10.91	1.22	31.52	-	-	Peak
192	31.58	-11.92	43.5	53.3	8.31	1.44	31.47	-	-	Peak
384	35.29	-10.71	46	50.17	14.36	1.98	31.22	-	-	Peak
512.1	36.43	-9.57	46	47.96	17.27	2.25	31.05	-	-	Peak
640.2	39.36	-6.64	46	48.7	18.89	2.56	30.79	-	-	Peak
2389.8	42.1	-11.9	54	38.23	32.02	4.58	32.73	111	177	Average
2389.8	65.65	-8.35	74	61.78	32.02	4.58	32.73	111	177	Peak
2422	79.71	-	-	75.82	32.04	4.59	32.74	111	177	Average
2422	100.25	-	-	96.36	32.04	4.59	32.74	111	177	Peak
2484	34.79	-19.21	54	30.81	32.09	4.64	32.75	111	177	Average
2484	55.54	-18.46	74	51.56	32.09	4.64	32.75	111	177	Peak

Test Mode :	Mode 12	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
62.13	24.56	-15.44	40	49.82	5.41	0.87	31.54	-	-	Peak
128.01	26.65	-16.85	43.5	46.04	10.91	1.22	31.52	-	-	Peak
255.99	33.3	-12.7	46	51.4	11.73	1.67	31.5	-	-	Peak
384	37.93	-8.07	46	52.81	14.36	1.98	31.22	-	-	Peak
512.1	36.93	-9.07	46	48.46	17.27	2.25	31.05	-	-	Peak
640.2	39.86	-6.14	46	49.2	18.89	2.56	30.79	100	94	Peak
2390	42.13	-11.87	54	38.26	32.02	4.58	32.73	107	330	Average
2390	59.28	-14.72	74	55.41	32.02	4.58	32.73	107	330	Peak
2437	81.08	-	-	77.15	32.06	4.61	32.74	107	330	Average
2437	102.95	-	-	99.02	32.06	4.61	32.74	107	330	Peak
2484	37.89	-16.11	54	33.91	32.09	4.64	32.75	107	330	Average
2484	61.06	-12.94	74	57.08	32.09	4.64	32.75	107	330	Peak

Test Mode :	Mode 12	Temperature :	22~26°C
Test Channel :	06	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
35.4	36.43	-3.57	40	52.17	15.04	0.74	31.52	100	64	Peak
128.01	34.55	-8.95	43.5	53.94	10.91	1.22	31.52	-	-	Peak
192	32.41	-11.09	43.5	54.13	8.31	1.44	31.47	-	-	Peak
384	35.55	-10.45	46	50.43	14.36	1.98	31.22	-	-	Peak
512.1	36.88	-9.12	46	48.41	17.27	2.25	31.05	-	-	Peak
640.2	38.54	-7.46	46	47.88	18.89	2.56	30.79	-	-	Peak
2386	41.04	-12.96	54	37.17	32.02	4.58	32.73	110	177	Average
2386	57.52	-16.48	74	53.65	32.02	4.58	32.73	110	177	Peak
2437	79.86	-	-	75.93	32.06	4.61	32.74	110	177	Average
2437	100.62	-	-	96.69	32.06	4.61	32.74	110	177	Peak
2484	36.1	-17.9	54	32.12	32.09	4.64	32.75	110	177	Average
2484	58.72	-15.28	74	54.74	32.09	4.64	32.75	110	177	Peak

Test Mode :	Mode 13	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
41.88	30.18	-9.82	40	48.85	12.1	0.76	31.53	-	-	Peak
192	29.11	-14.39	43.5	50.83	8.31	1.44	31.47	-	-	Peak
256.26	31.83	-14.17	46	49.93	11.73	1.67	31.5	-	-	Peak
384	36	-10	46	50.88	14.36	1.98	31.22	-	-	Peak
512.1	36.95	-9.05	46	48.48	17.27	2.25	31.05	-	-	Peak
640.2	37.98	-8.02	46	47.32	18.89	2.56	30.79	100	295	Peak
2390	43.18	-10.82	54	39.31	32.02	4.58	32.73	108	319	Average
2390	56.07	-17.93	74	52.2	32.02	4.58	32.73	108	319	Peak
2452	80.85	-	-	76.92	32.06	4.61	32.74	108	319	Average
2452	102.49	-	-	98.56	32.06	4.61	32.74	108	319	Peak
2484.23	43.52	-10.48	54	39.54	32.09	4.64	32.75	108	319	Average
2484.23	73.34	-0.66	74	69.36	32.09	4.64	32.75	108	319	Peak

Test Mode :	Mode 13	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
34.86	36.68	-3.32	40	51.98	15.48	0.74	31.52	100	87	Peak
128.01	33.68	-9.82	43.5	53.07	10.91	1.22	31.52	-	-	Peak
192	29.7	-13.8	43.5	51.42	8.31	1.44	31.47	-	-	Peak
384	35.17	-10.83	46	50.05	14.36	1.98	31.22	-	-	Peak
640.2	38.55	-7.45	46	47.89	18.89	2.56	30.79	-	-	Peak
768.3	33.09	-12.91	46	40.43	20.42	2.78	30.54	-	-	Peak
2388	39.16	-14.84	54	35.29	32.02	4.58	32.73	138	205	Average
2388	52.85	-21.15	74	48.98	32.02	4.58	32.73	138	205	Peak
2452	79.29	-	-	75.36	32.06	4.61	32.74	138	205	Average
2452	100.54	-	-	96.61	32.06	4.61	32.74	138	205	Peak
2484.8	41.22	-12.78	54	37.24	32.09	4.64	32.75	138	205	Average
2484.8	70.42	-3.58	74	66.44	32.09	4.64	32.75	138	205	Peak

Test Mode :	Mode 14	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386	40.38	-13.62	54	36.51	32.02	4.58	32.73	108	320	Average
2386	54.21	-19.79	74	50.34	32.02	4.58	32.73	108	320	Peak
2452	79.27	-	-	75.34	32.06	4.61	32.74	108	320	Average
2452	99.55	-	-	95.62	32.06	4.61	32.74	108	320	Peak
2484.61	41.92	-12.08	54	37.94	32.09	4.64	32.75	108	320	Average
2484.61	71.72	-2.28	74	67.74	32.09	4.64	32.75	108	320	Peak

Test Mode :	Mode 14	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2344	35.63	-18.37	54	31.83	31.98	4.55	32.73	100	329	Average
2344	47.27	-26.73	74	43.47	31.98	4.55	32.73	100	329	Peak
2452	76.78	-	-	72.85	32.06	4.61	32.74	100	329	Average
2452	95.12	-	-	91.19	32.06	4.61	32.74	100	329	Peak
2484.23	37.45	-16.55	54	33.47	32.09	4.64	32.75	100	329	Average
2484.23	64.58	-9.42	74	60.6	32.09	4.64	32.75	100	329	Peak

Test Mode :	Mode 15	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Horizontal
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	39.33	-14.67	54	35.46	32.02	4.58	32.73	104	332	Average
2388	55.75	-18.25	74	51.88	32.02	4.58	32.73	104	332	Peak
2452	80.94	-	-	77.01	32.06	4.61	32.74	104	332	Average
2452	100.19	-	-	96.26	32.06	4.61	32.74	104	332	Peak
2484.23	43.37	-10.63	54	39.39	32.09	4.64	32.75	104	332	Average
2484.23	71.93	-2.07	74	67.95	32.09	4.64	32.75	104	332	Peak

Test Mode :	Mode 15	Temperature :	22~26°C
Test Channel :	09	Relative Humidity :	51~55%
Test Engineer :	Wii Chang	Polarization :	Vertical
Remark :	2452 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2376	38.3	-15.7	54	34.46	32	4.57	32.73	130	178	Average
2376	52.8	-21.2	74	48.96	32	4.57	32.73	130	178	Peak
2452	78.82	-	-	74.89	32.06	4.61	32.74	130	178	Average
2452	97.79	-	-	93.86	32.06	4.61	32.74	130	178	Peak
2488.03	40.49	-13.51	54	36.5	32.1	4.64	32.75	130	178	Average
2488.03	67.88	-6.12	74	63.89	32.1	4.64	32.75	130	178	Peak

3.8 Antenna Requirements

3.8.1 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.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PCB Antenna without connector and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Nov. 11, 2011 ~ Nov. 14, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Nov. 11, 2011 ~ Nov. 14, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Nov. 11, 2011 ~ Nov. 14, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Nov. 11, 2011 ~ Nov. 14, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Nov. 11, 2011 ~ Nov. 14, 2011	Feb. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Nov. 17, 2011 ~ Nov. 18, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Nov. 17, 2011 ~ Nov. 18, 2011	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 17, 2011 ~ Nov. 18, 2011	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Nov. 17, 2011 ~ Nov. 18, 2011	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	116457	N/A	Jun. 24, 2011	Nov. 17, 2011 ~ Nov. 18, 2011	Jun. 23, 2012	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz-30GHz	Nov. 03, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Nov. 02, 2012	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1GHz~18GHz	N/A	Nov. 14, 2011 ~ Nov. 16, 2011	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 1GHz	Oct. 22, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	Nov. 14, 2011 ~ Nov. 16, 2011	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m - 4 m	N/A	Nov. 14, 2011 ~ Nov. 16, 2011	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	1KHz - 1GHz	Mar. 29, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz~18GHz	Jul. 19, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Jul. 18, 2012	Radiation (03CH05-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1GHz~18GHz	Feb. 21, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Feb. 20, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Nov. 14, 2011 ~ Nov. 16, 2011	Apr. 13, 2012	Radiation (03CH05-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty Uc(y)	**1.13**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**		

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty Uc(y)	**1.27**		
Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**		

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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR Γ1 = 0.197 Antenna VSWR Γ2 = 0.194 Uncertainty = 20Log(1-Γ1*Γ2)	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty Uc(y)	**2.36**				
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 EP1O1951 as below.