FCC RF Test Report

APPLICANT	:	NetComm Limited
EQUIPMENT	:	4G WiFi Router with Voice
BRAND NAME	:	NetComm
MODEL NAME	:	3G27WV-R
MARKETING NAME	:	Rogers Rocket Hub
FCC ID	:	XIA-3G27WV
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Dec. 05, 2011 and completely tested on Dec. 29, 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
FR1D0512	Rev. 01	Initial issue of report	Jan. 04, 2012
FR1D0512	Rev. 02	Update report of remove WLAN ID and add Directional gain	Jan. 09, 2012

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(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 3.40 dB at 21.662 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 3.00 dB at 59.970 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 with Voice
Brand Name	NetComm
Model Name	3G27WV-R
Marketing Name	Rogers Rocket Hub
FCC ID	XIA-3G27WV
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 : 17.98 dBm (0.0628 W) 802.11g : 21.78 dBm (0.1507 W) 802.11n (BW 20MHz) : 21.44 dBm (0.1394 W) 802.11n (BW 40MHz) : 23.08 dBm (0.2033 W)
Antenna Type	PCB Antenna with Directional gain 4.35 dBi
HW Version	V1.32
SW Version	1.2.0.0
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	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Notebook	HP	Presario V3000	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Phone	HTT	HTT-198	N/A	N/A	N/A
6.	Phone	HTT	HTT-806	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	16.50	17.55	17.34	17.33	17.47	**17.98**

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	21.10	21.12	21.19	21.61	21.74	**21.78**

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	21.19	20.63	20.94	21.33	20.83	20.87

Band	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)								
Chain	Chain A+B(A)			Chain A+B(B)			Chain A+B		
Channel	1	6	11	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462	2412	2437	2462
Peak Power	19.41	18.70	19.17	17.17	16.95	16.56	**21.44**	20.92	21.07

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	22.20	22.24	21.19	22.36	22.52	21.39

Band	2.4GHz 802.11n (BW 40MHz) RF Power (dBm)								
Chain	Chain A + B (A)			Chain A + B (B)			Chain A + B		
Channel	3	6	9	3	6	9	3	6	9
Frequency (MHz)	2422	2437	2452	2422	2437	2452	2422	2437	2452
Peak Power	20.00	21.30	20.56	18.50	18.35	17.87	22.32	**23.08**	22.43

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

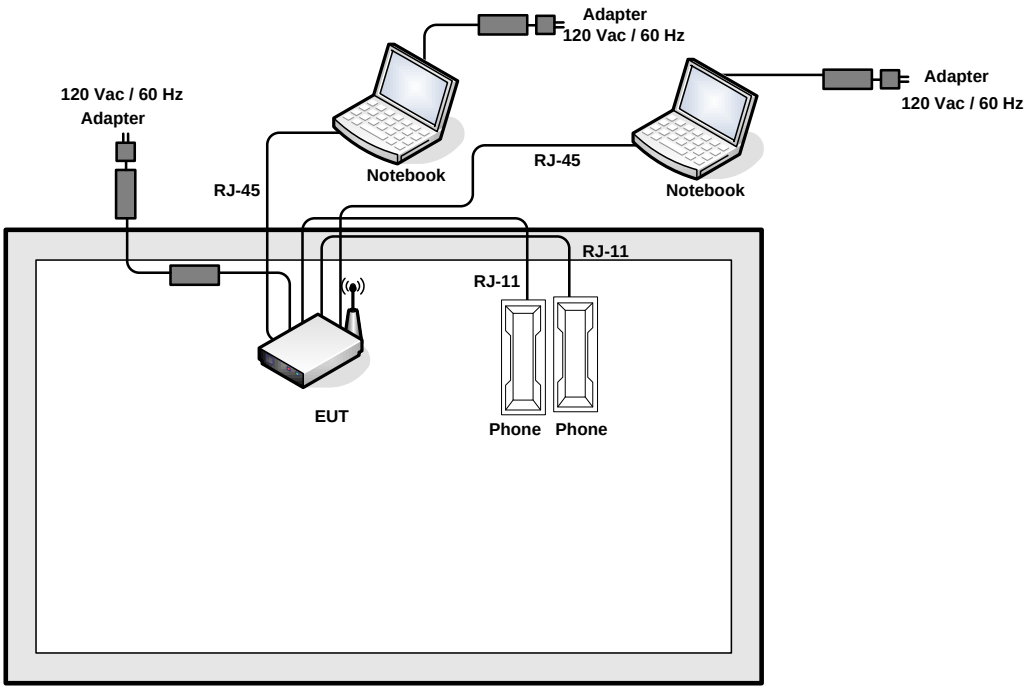
The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

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 B) Mode 2: 802.11b_CH06_2437 MHz (Chain B) Mode 3: 802.11b_CH11_2462 MHz (Chain B) Mode 4: 802.11g_CH01_2412 MHz (Chain B) Mode 5: 802.11g_CH06_2437 MHz (Chain B) Mode 6: 802.11g_CH11_2462 MHz (Chain B) 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_CH01_2412 MHz (BW 20M, Chain B) Mode 12: 802.11n_CH01_2412 MHz (BW 20M, Chain A) Mode 13: 802.11n_CH03_2422 MHz (BW 40M, Chain A+B) Mode 14: 802.11n_CH06_2437 MHz (BW 40M, Chain A+B) Mode 15: 802.11n_CH09_2452 MHz (BW 40M, Chain A+B)
AC Conducted Emission	Mode 1 ： GSM850 Idle + WLAN Link + WAN Link + LAN Link + Adapter 1 + RJ-11 Link Mode 2 ：GSM850 Idle + WLAN Link + WAN Link + LAN Link + Adapter 2 + RJ-11 Link

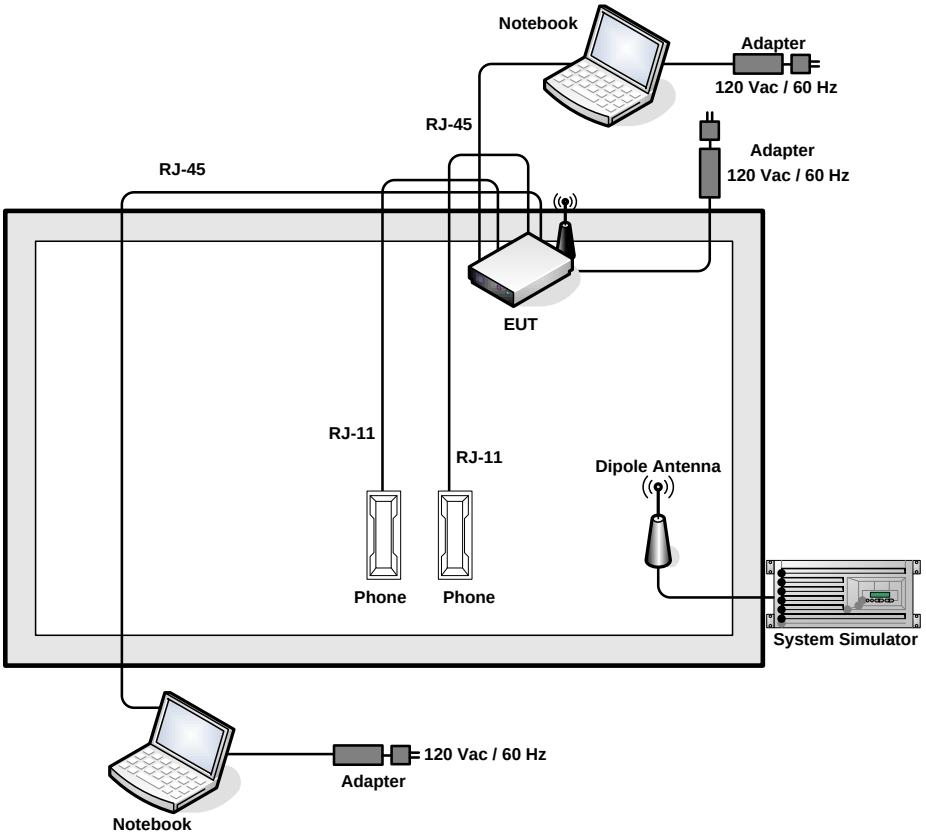
Test Cases
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility “QA_RT3052-V1.0.2.0” is installed in 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.

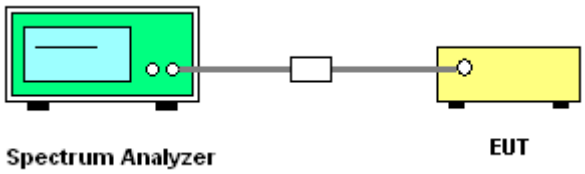
3.1.2 Measuring Instruments

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	10.08	0.5	Pass
06	2437	10.12	0.5	Pass
11	2462	10.12	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	15.80	0.5	Pass
06	2437	15.84	0.5	Pass
11	2462	16.08	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	15.80	15.80	0.5	Pass
06	2437	15.80	15.92	0.5	Pass
11	2462	15.80	16.04	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	35.12	0.5	Pass
06	2437	35.12	35.44	0.5	Pass
09	2452	35.44	35.08	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	14.75	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	17.25	Pass
11	2462	17.20	Pass

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

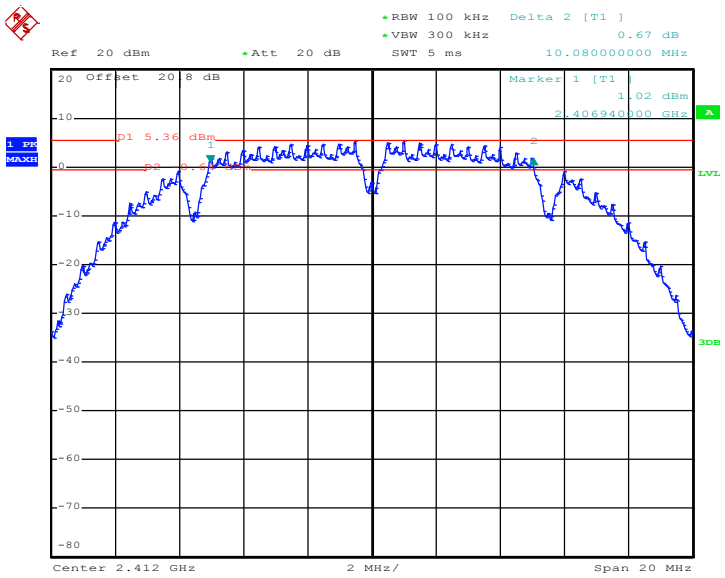
Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain A	Chain B	
01	2412	17.90	17.95	Pass
06	2437	17.95	17.95	Pass
11	2462	17.90	17.95	Pass

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

Channel	Frequency (MHz)	802.11n (BW 40MHz) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain A	Chain B	
03	2422	36.30	36.30	Pass
06	2437	36.10	36.30	Pass
09	2452	36.10	36.30	Pass

3.1.7 Test Result of 6dB Bandwidth Plots

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



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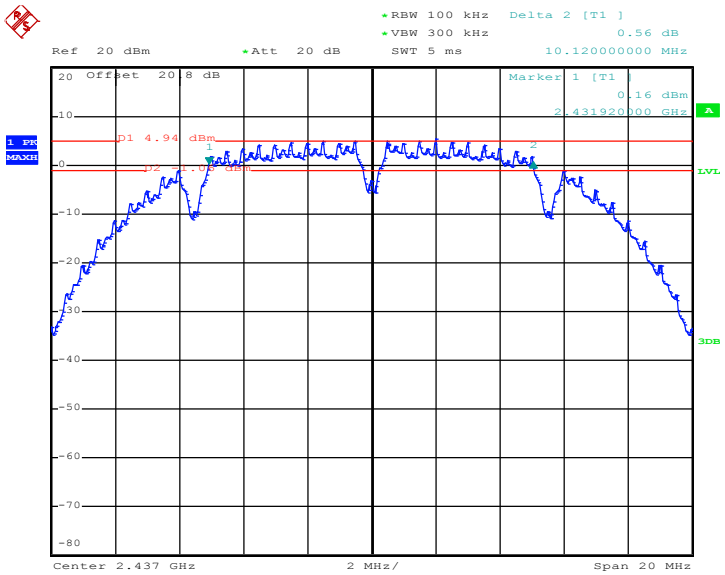
6 dB Bandwidth Plot on 802.11b Channel 06 – Chain A



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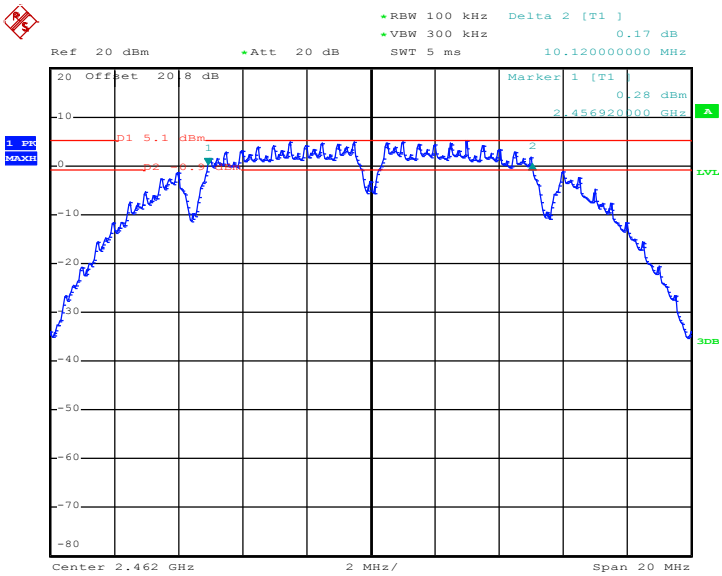
6 dB Bandwidth Plot on 802.11b Channel 11 – Chain A



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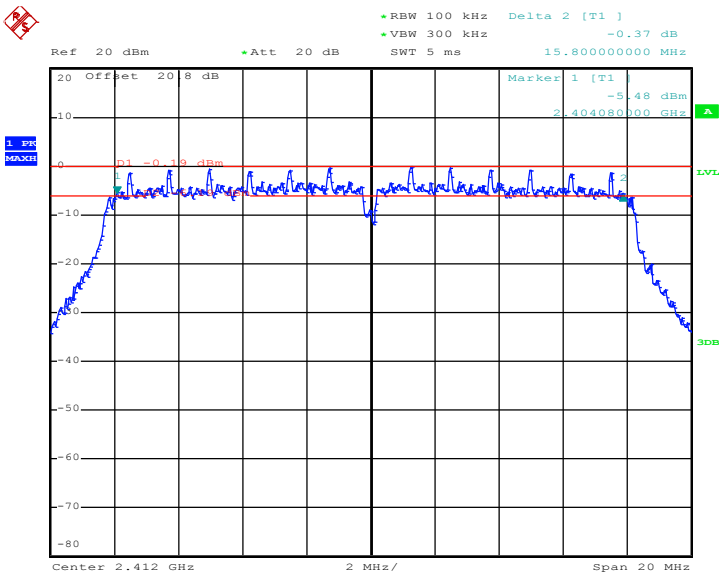
6 dB Bandwidth Plot on 802.11g Channel 01 – Chain A



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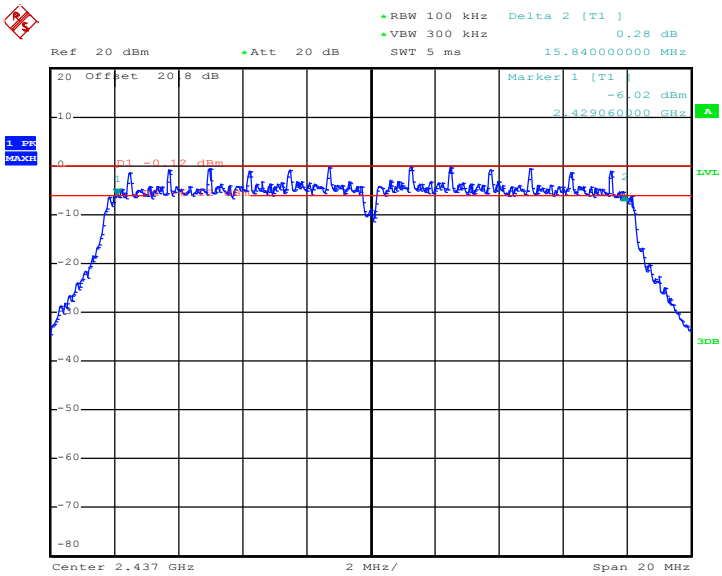
6 dB Bandwidth Plot on 802.11g Channel 06 – Chain A



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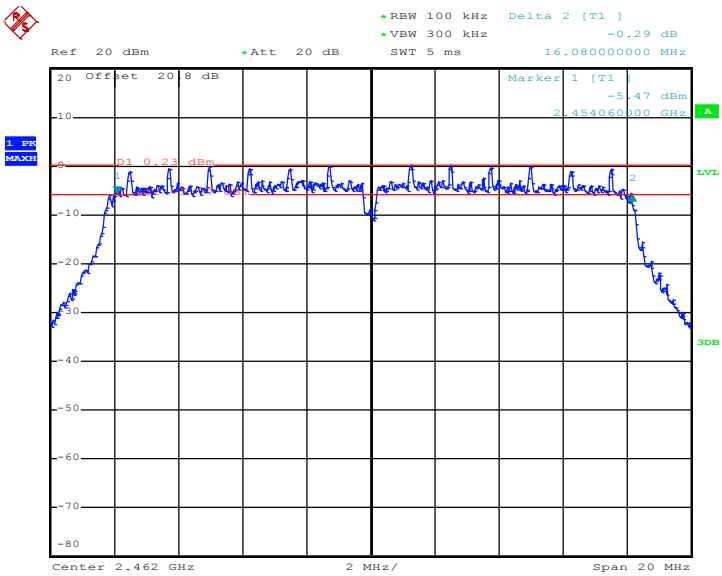
6 dB Bandwidth Plot on 802.11g Channel 11 – Chain A



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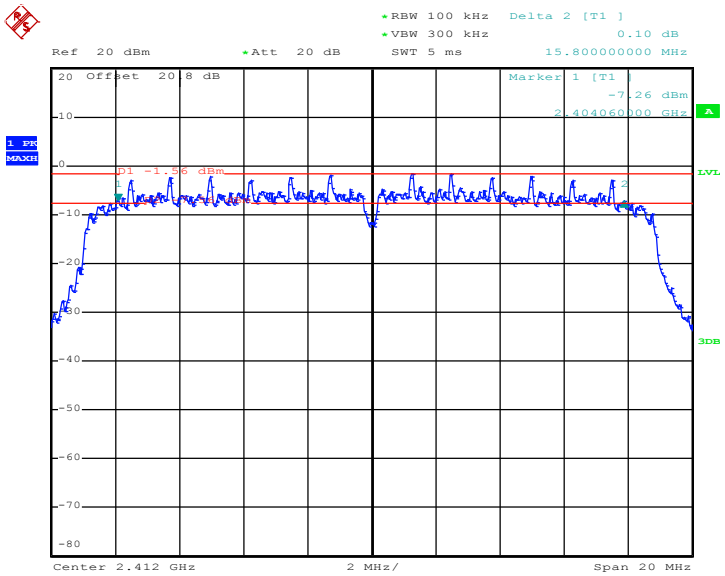
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 01 – Chain A



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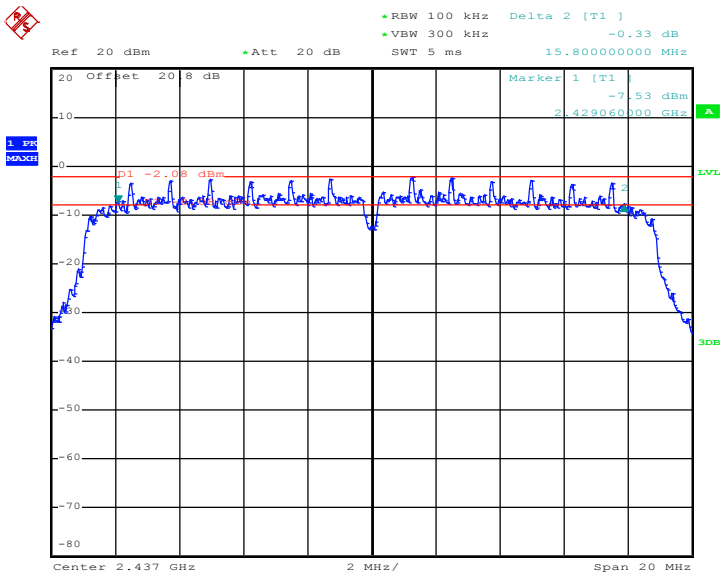
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain A



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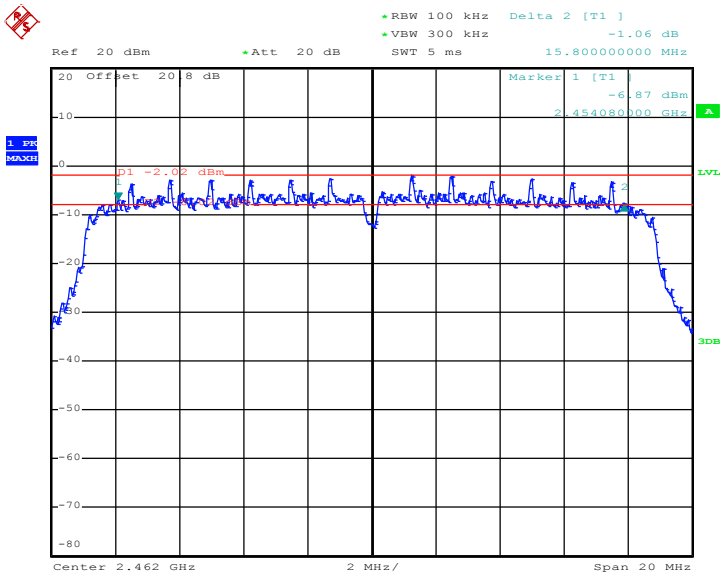
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 11 – Chain A



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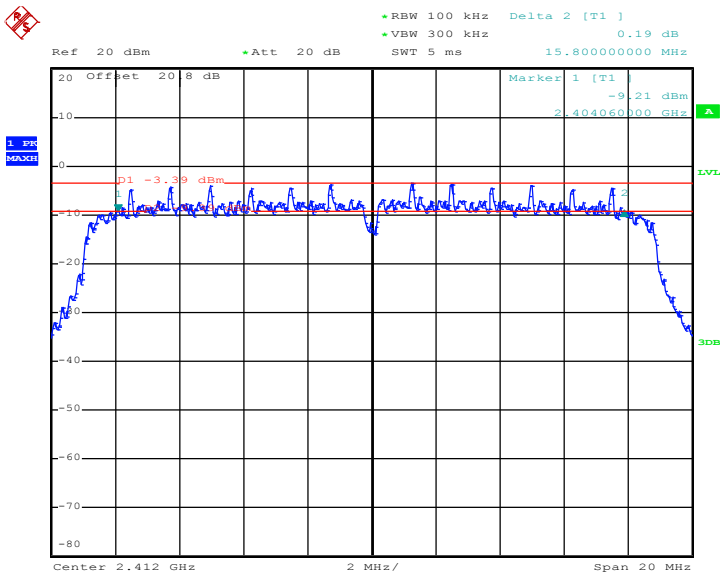
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 01 – Chain B



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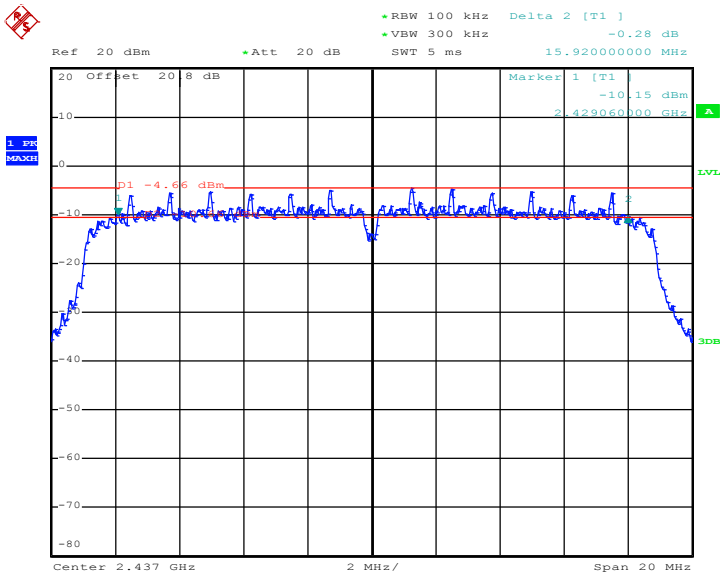
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain B



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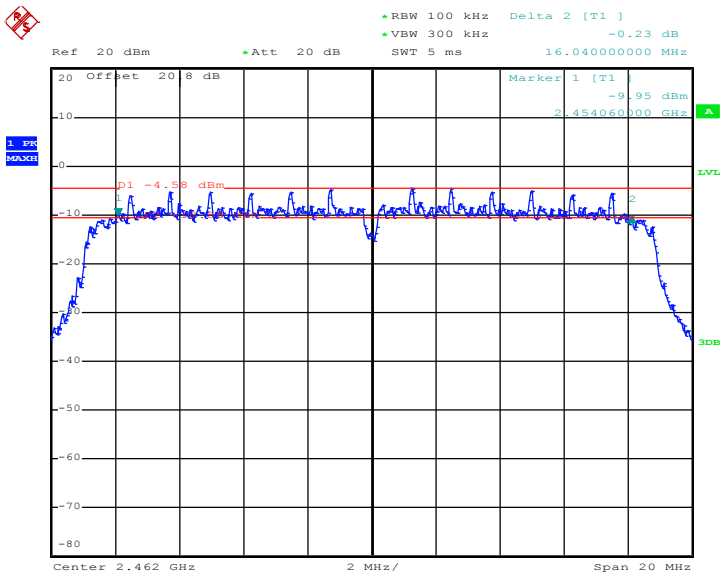
6 dB Bandwidth Plot on 802.11n (BW 20MHz) Channel 11–Chain B



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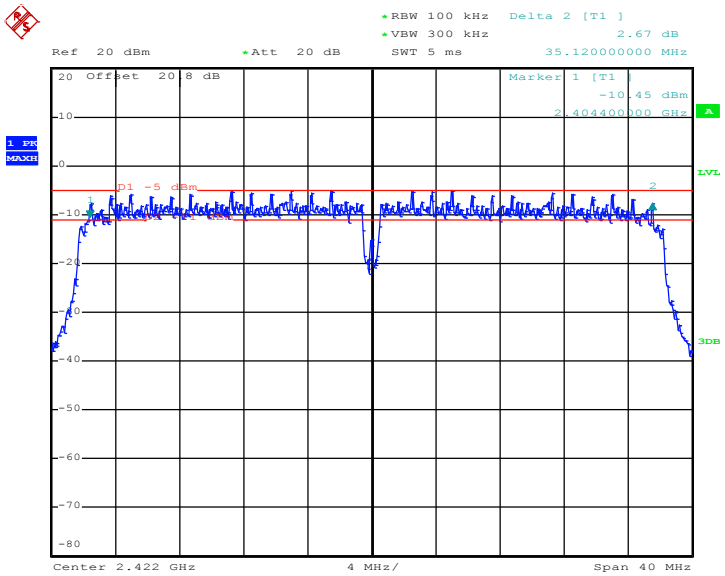
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain A



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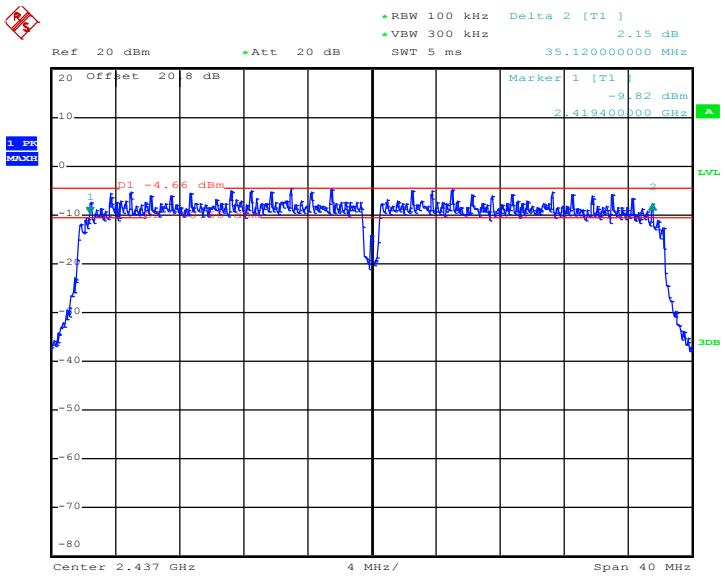
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 06 – Chain A



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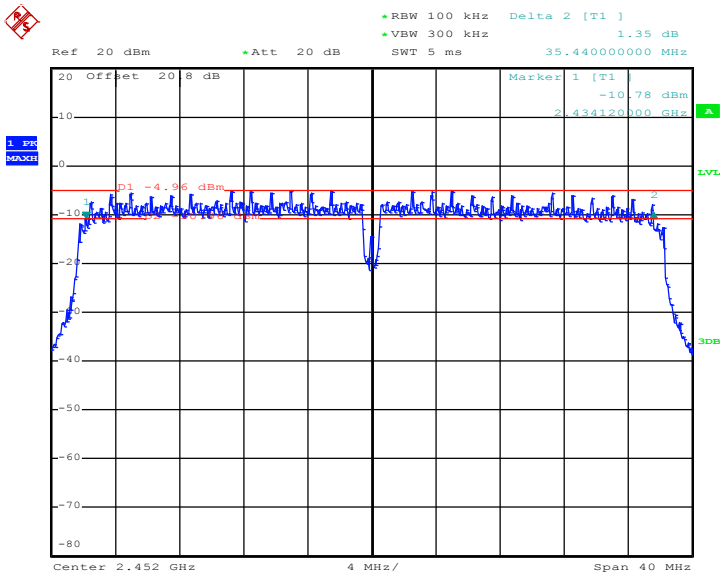
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain A



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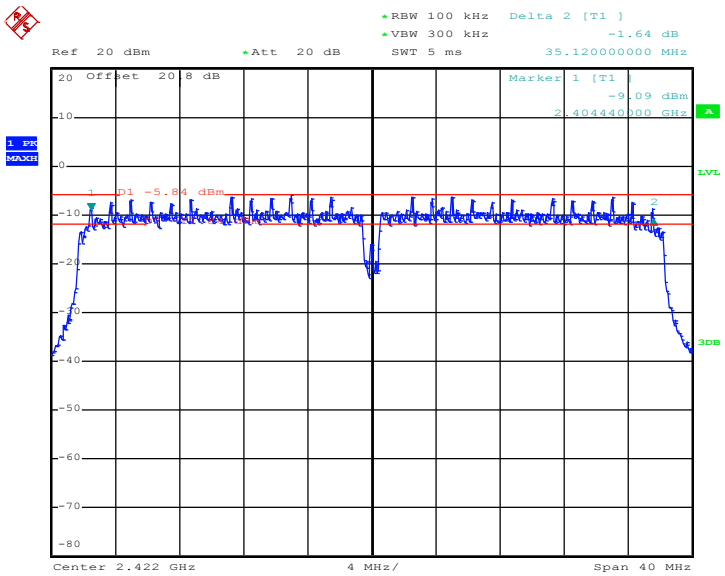
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain B



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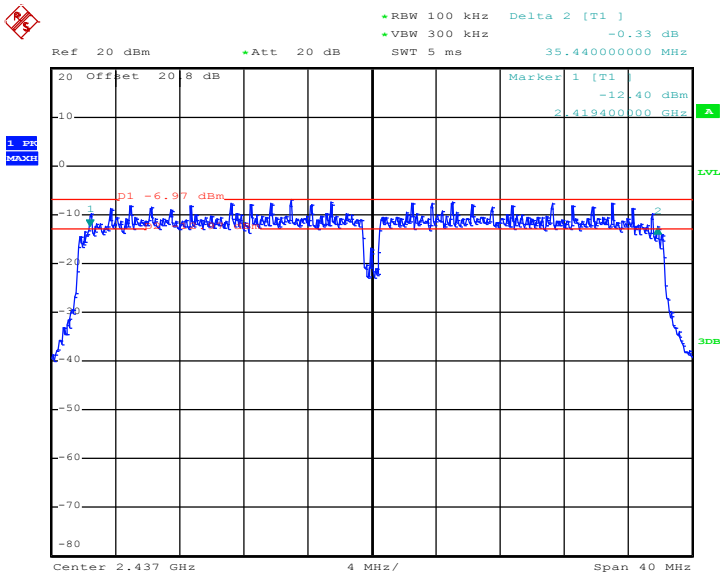
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 06 – Chain B



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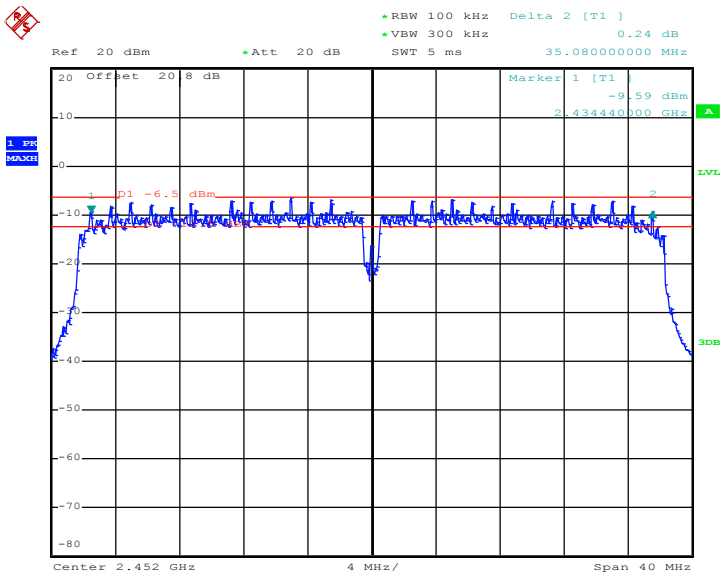
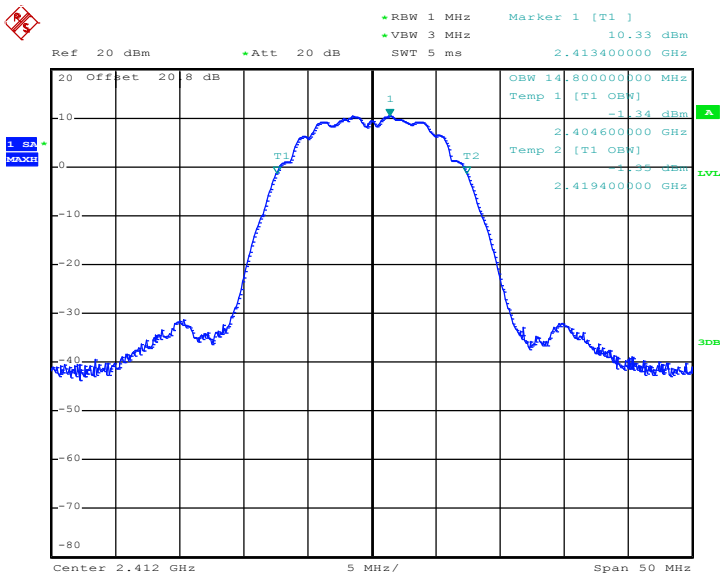
6 dB Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain B



Date: 15.DEC.2011 19:46:50

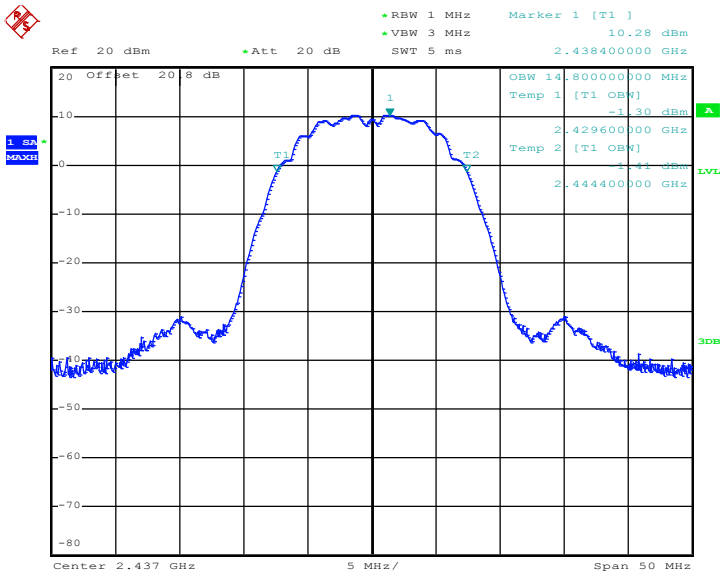
3.1.8 Test Result of 99% Bandwidth Plots

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



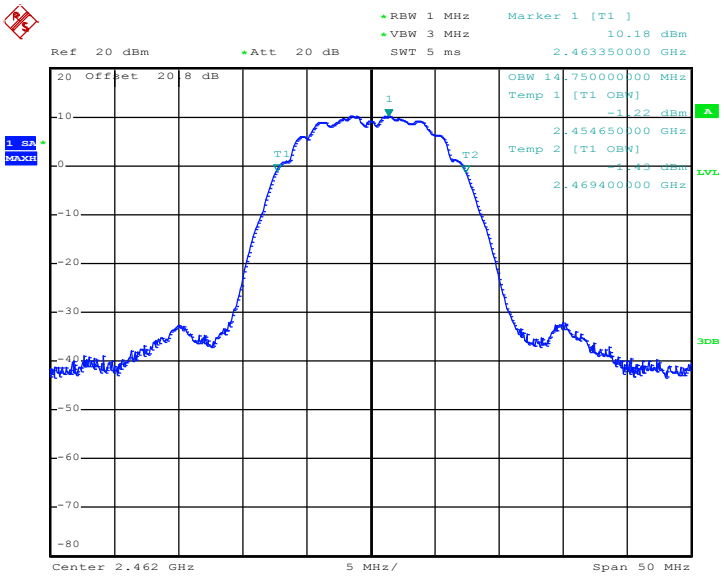
Date: 15.DEC.2011 13:48:20

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



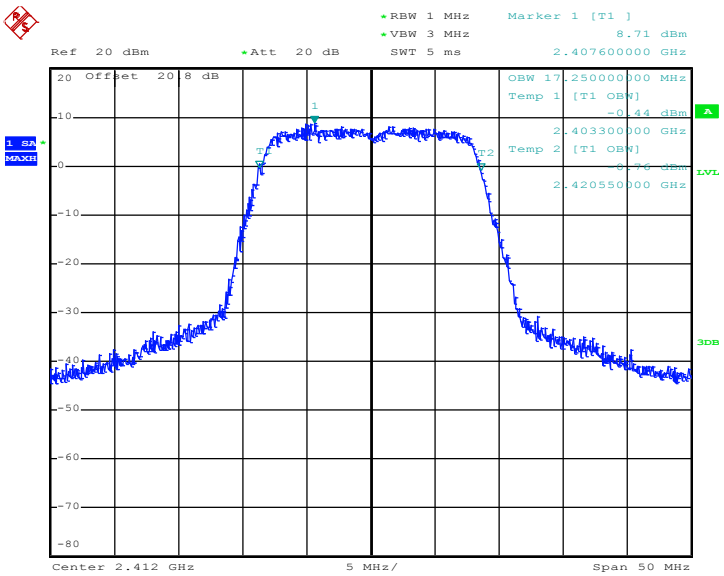
Date: 15.DEC.2011 14:03:39

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



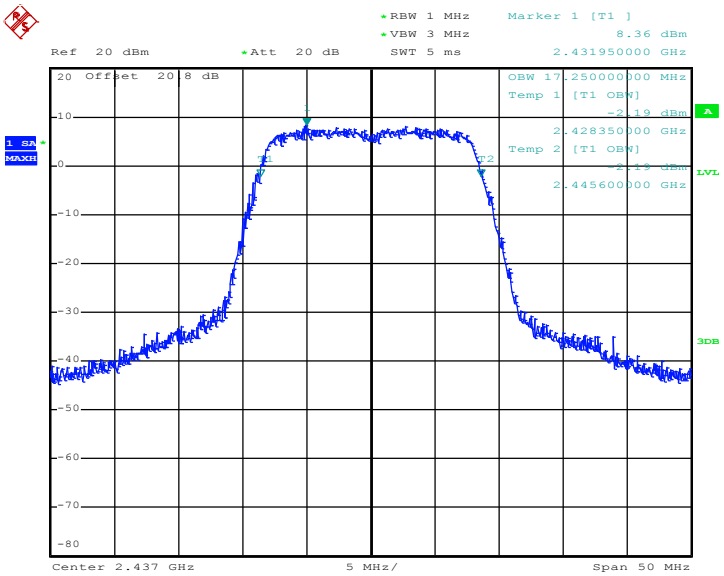
Date: 15.DEC.2011 14:24:54

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



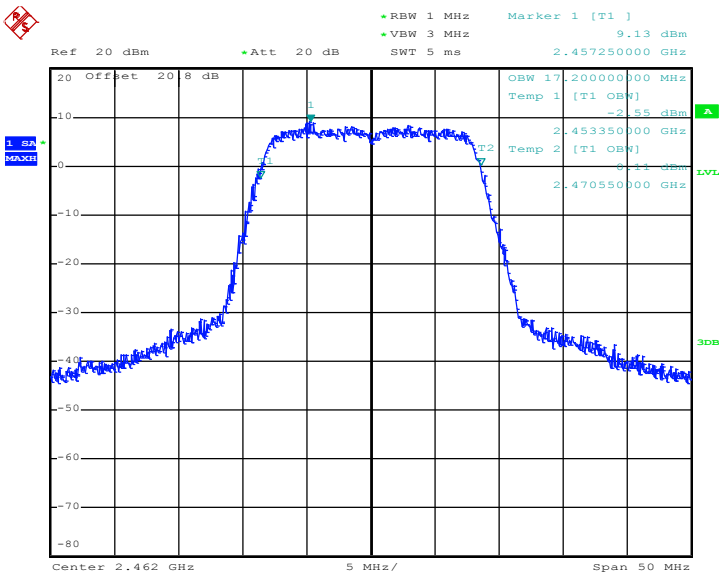
Date: 15.DEC.2011 15:13:41

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



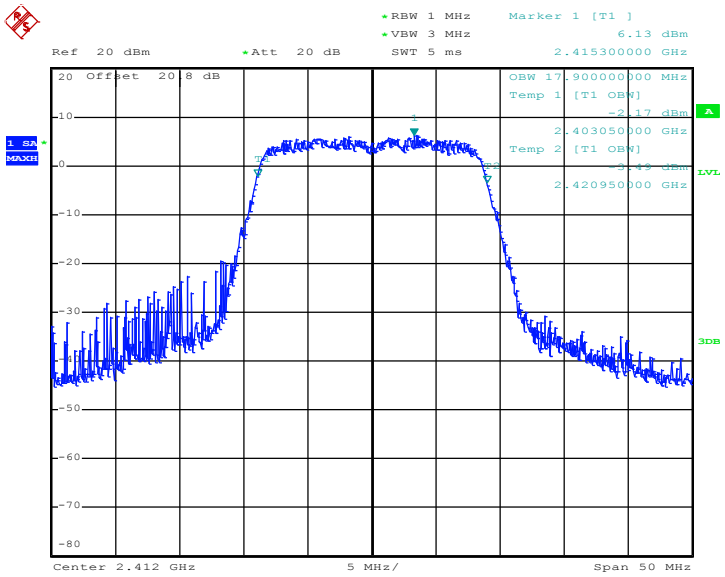
Date: 15.DEC.2011 15:00:08

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



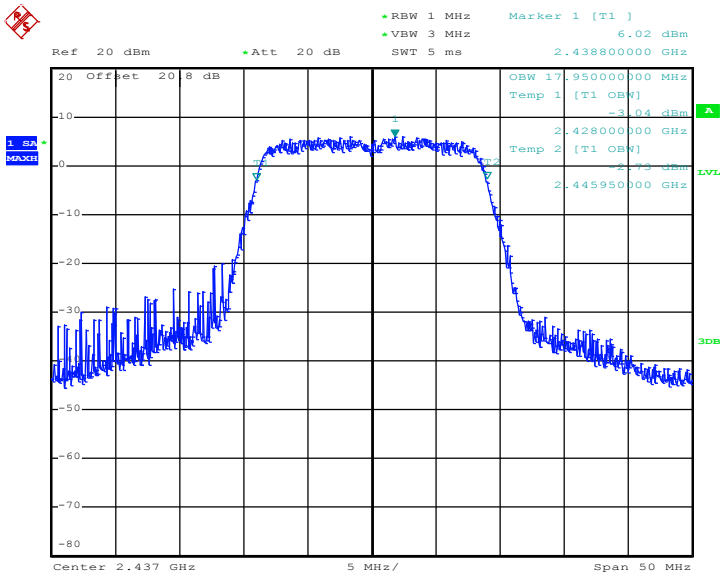
Date: 15.DEC.2011 14:44:52

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 01 – Chain A



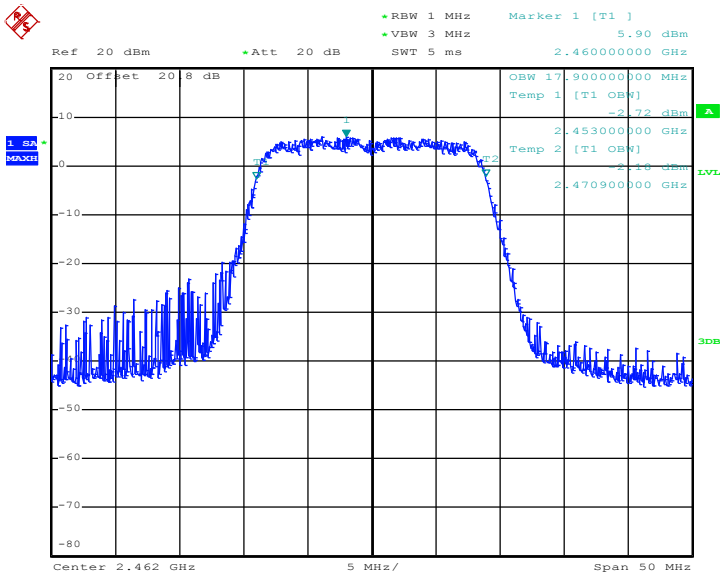
Date: 15.DEC.2011 15:52:09

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain A



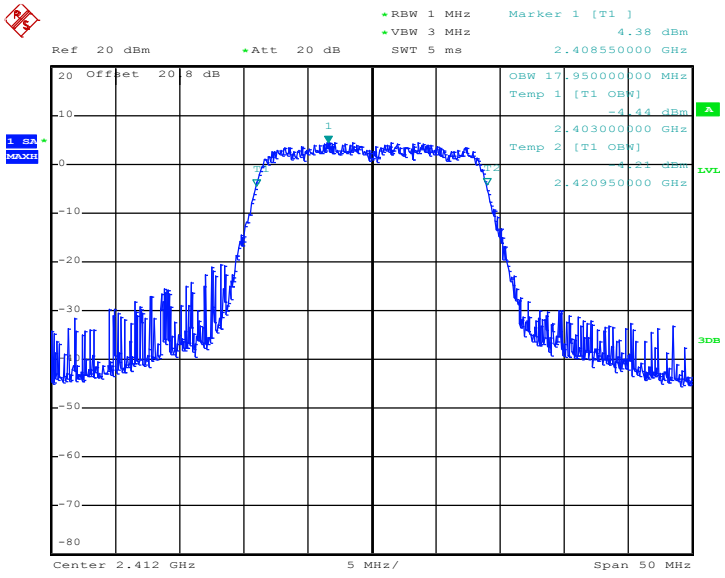
Date: 15.DEC.2011 16:05:14

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 11 – Chain A



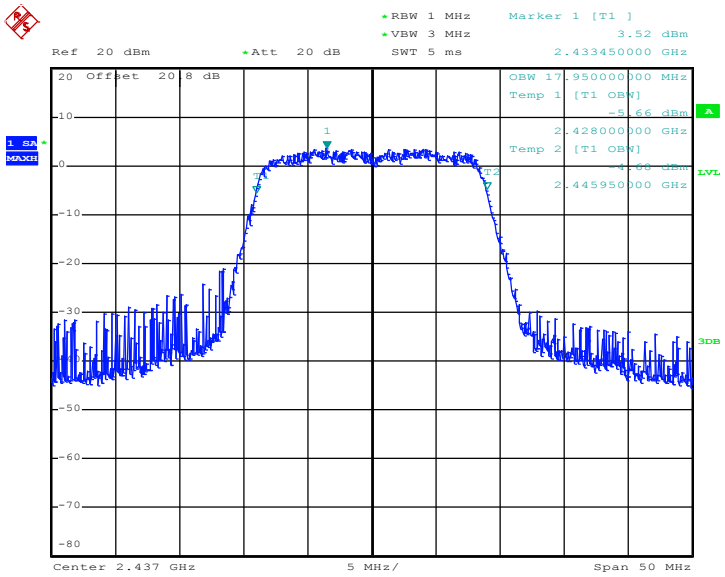
Date: 15.DEC.2011 16:21:46

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 01– Chain B



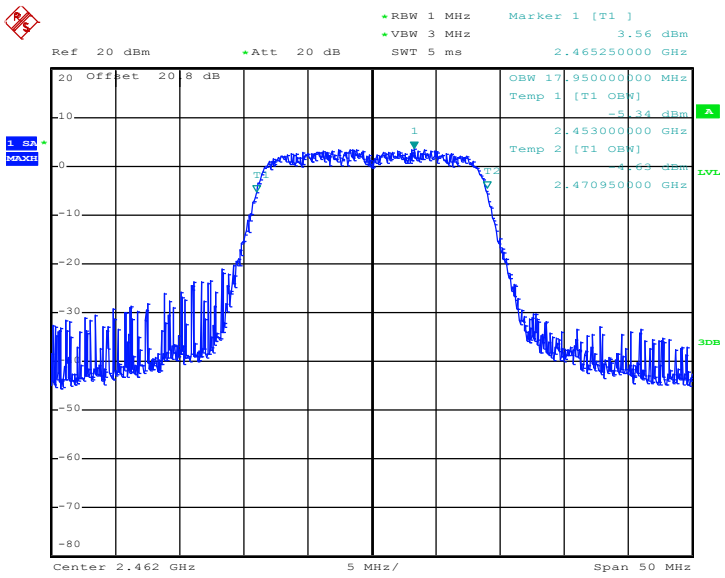
Date: 15.DEC.2011 15:35:52

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 06 – Chain B



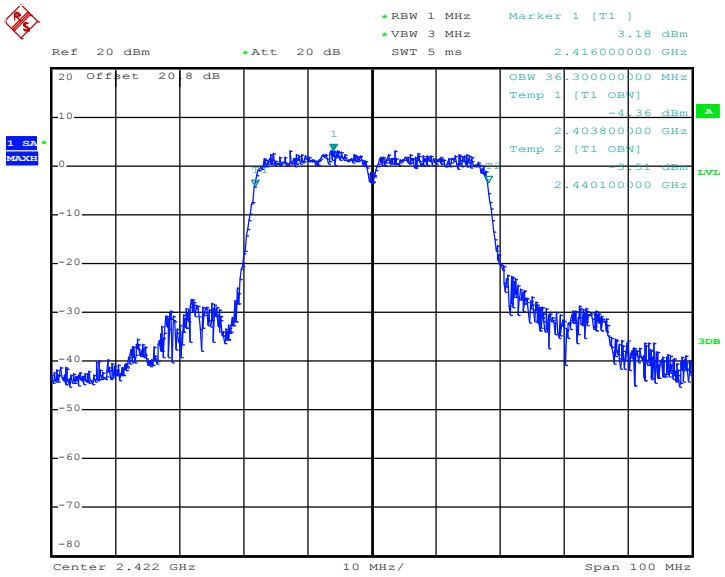
Date: 15.DEC.2011 18:01:21

99% Occupied Bandwidth Plot on 802.11n (BW 20MHz) Channel 11 – Chain B



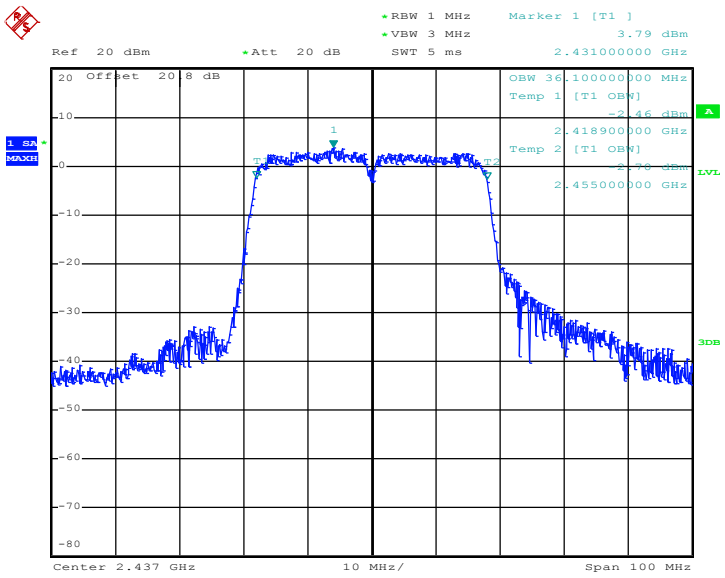
Date: 15.DEC.2011 17:48:30

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain A



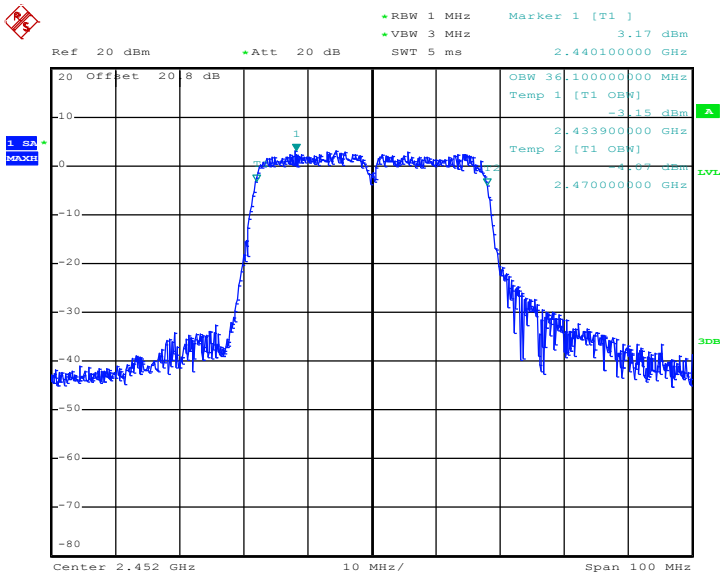
Date: 15.DEC.2011 19:14:52

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 06 – Chain A



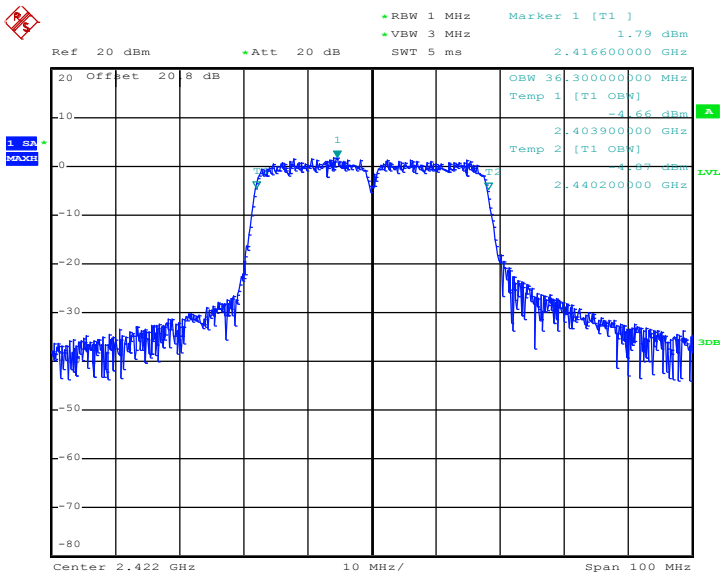
Date: 15.DEC.2011 18:55:41

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain A



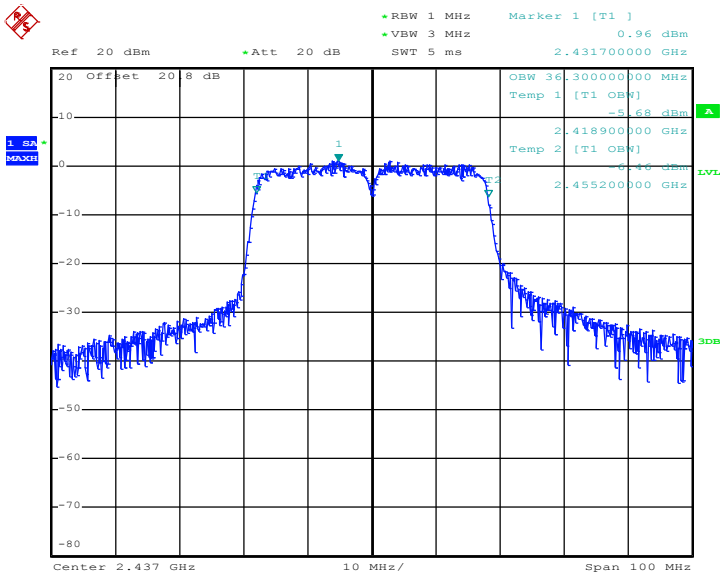
Date: 15.DEC.2011 20:02:34

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 03 – Chain B



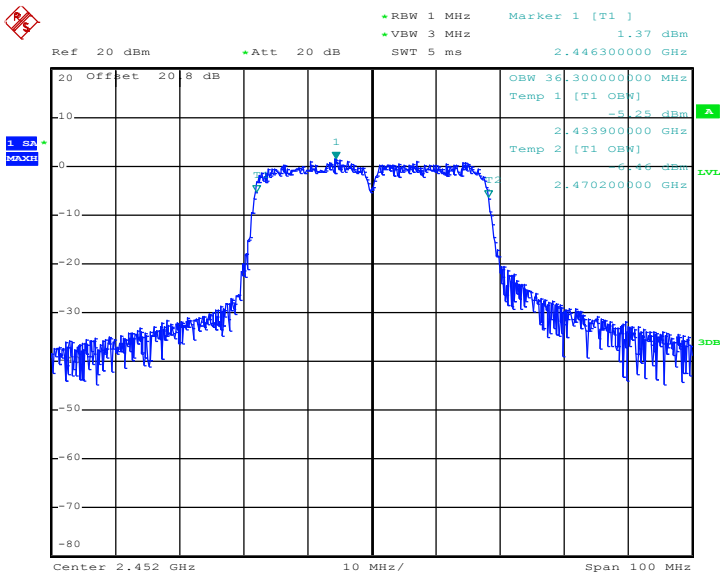
Date: 15.DEC.2011 19:33:15

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 06 – Chain B



Date: 15.DEC.2011 18:29:18

99% Occupied Bandwidth Plot on 802.11n (BW 40MHz) Channel 09 – Chain B



Date: 15.DEC.2011 19:48:02

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.

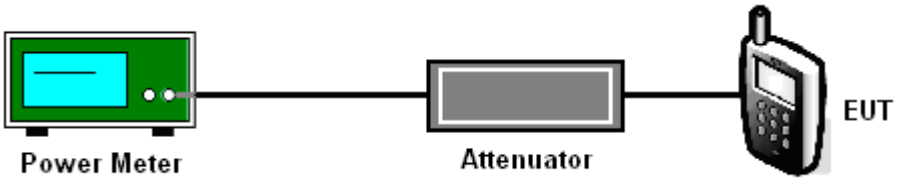
3.2.2 Measuring Instruments

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	17.33	30	Pass
06	2437	17.47	30	Pass
11	2462	17.98	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	21.61	30	Pass
06	2437	21.74	30	Pass
11	2462	21.78	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	19.41	17.17	21.44	30	Pass
06	2437	18.70	16.95	20.92	30	Pass
11	2462	19.17	16.56	21.07	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	20.00	18.50	22.32	30	Pass
06	2437	21.30	18.35	23.08	30	Pass
09	2452	20.56	17.87	22.43	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

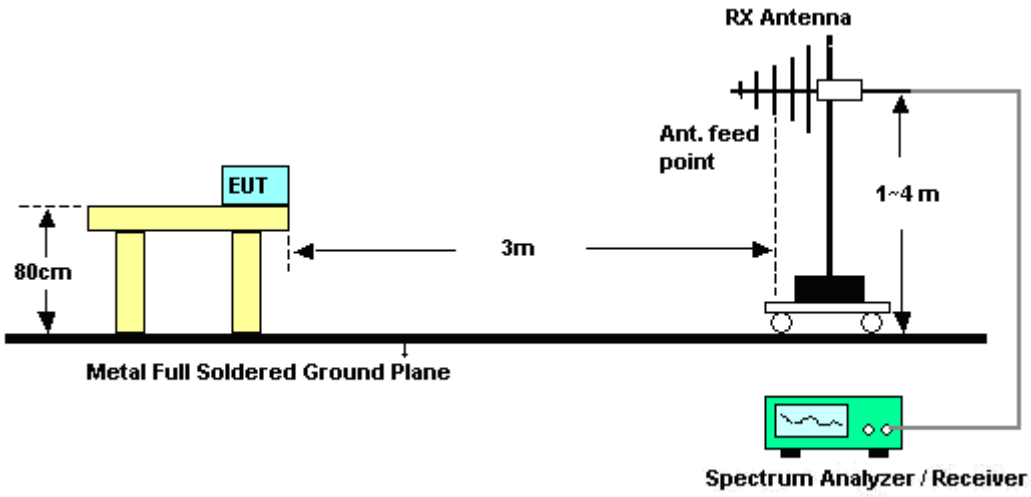
See list of measuring instruments of this test report.

3.3.3 Test Procedures

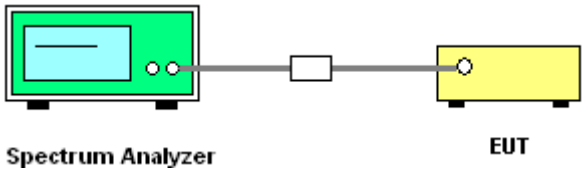
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band 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 :	20~22°C
Test Band :	802.11b	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	Elvis Chen

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
2374.98	54.67	-19.33	74	52.18	32	4.57	34.08	170	41	Peak
2374.98	43.79	-10.21	54	41.3	32	4.57	34.08	170	41	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
2375.17	51.7	-22.3	74	49.21	32	4.57	34.08	147	182	Peak
2375.17	39.99	-14.01	54	37.5	32	4.57	34.08	147	182	Average

Test Mode :	Mode 3	Temperature :	20~22°C
Test Band :	802.11b	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	Elvis Chen

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
2484.8	52.61	-21.39	74	49.96	32.09	4.64	34.08	164	36	Peak
2484.8	41.09	-12.91	54	38.44	32.09	4.64	34.08	164	36	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
2484.04	50.12	-23.88	74	47.47	32.09	4.64	34.08	152	178	Peak
2484.04	46.41	-7.59	54	43.76	32.09	4.64	34.08	152	178	Average

Test Mode :	Mode 4	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	Elvis Chen

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
2389.04	57.42	-16.58	74	54.9	32.02	4.58	34.08	164	51	Peak
2389.04	46.57	-7.43	54	44.05	32.02	4.58	34.08	164	51	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	54.67	-19.33	74	52.19	31.99	4.57	34.08	146	184	Peak
2359.59	44.68	-9.32	54	42.2	31.99	4.57	34.08	146	184	Average

Test Mode :	Mode 6	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	Elvis Chen

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	68.52	-5.48	74	65.87	32.09	4.64	34.08	152	48	Peak
2483.5	42.9	-11.1	54	40.25	32.09	4.64	34.08	152	48	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	62.82	-11.18	74	60.17	32.09	4.64	34.08	133	179	Peak
2483.66	39.01	-14.99	54	36.36	32.09	4.64	34.08	133	179	Average

Test Mode :	Mode 7	Temperature :	20~22°C
Test Band :	802.11g	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	Elvis Chen

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	62.14	-11.86	74	59.49	32.09	4.64	34.08	100	337	Peak
2483.5	38.67	-15.33	54	36.02	32.09	4.64	34.08	100	337	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	64.57	-9.43	74	61.92	32.09	4.64	34.08	129	185	Peak
2483.66	41.18	-12.82	54	38.53	32.09	4.64	34.08	129	185	Average

Test Mode :	Mode 8	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	Elvis Chen

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	70.61	-3.39	74	68.09	32.02	4.58	34.08	166	50	Peak
2389.99	45	-9	54	42.48	32.02	4.58	34.08	166	50	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	70.68	-3.32	74	68.16	32.02	4.58	34.08	146	178	Peak
2389.61	45	-9	54	42.48	32.02	4.58	34.08	146	178	Average

Test Mode :	Mode 10	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	Elvis Chen

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
2483.66	62.15	-11.85	74	59.5	32.09	4.64	34.08	166	52	Peak
2483.66	40.49	-13.51	54	37.84	32.09	4.64	34.08	166	52	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
2483.5	64.2	-9.8	74	61.55	32.09	4.64	34.08	143	180	Peak
2483.5	44.94	-9.06	54	42.29	32.09	4.64	34.08	143	180	Average

Test Mode :	Mode 11	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	Elvis Chen

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
2389.8	68.76	-5.24	74	66.24	32.02	4.58	34.08	100	40	Peak
2389.8	44.5	-9.5	54	41.98	32.02	4.58	34.08	100	40	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	64.46	-9.54	74	61.94	32.02	4.58	34.08	101	185	Peak
2389.8	41.16	-12.84	54	38.64	32.02	4.58	34.08	101	185	Average

Test Mode :	Mode 12	Temperature :	20~22°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	Elvis Chen

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	70.99	-3.01	74	68.47	32.02	4.58	34.08	100	343	Peak
2389.99	46.81	-7.19	54	44.29	32.02	4.58	34.08	100	343	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	69.76	-4.24	74	67.24	32.02	4.58	34.08	102	201	Peak
2389.8	46.82	-7.18	54	44.3	32.02	4.58	34.08	102	201	Average

Test Mode :	Mode 13	Temperature :	20~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~42%
Test Channel :	03	Test Engineer :	Elvis Chen

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	68.16	-5.84	74	65.64	32.02	4.58	34.08	163	51	Peak
2389.99	48.38	-5.62	54	45.86	32.02	4.58	34.08	163	51	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
2389.99	68	-6	74	65.48	32.02	4.58	34.08	149	180	Peak
2389.99	46.76	-7.24	54	44.24	32.02	4.58	34.08	149	180	Average

Test Mode :	Mode 15	Temperature :	20~22°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	40~42%
Test Channel :	09	Test Engineer :	Elvis Chen

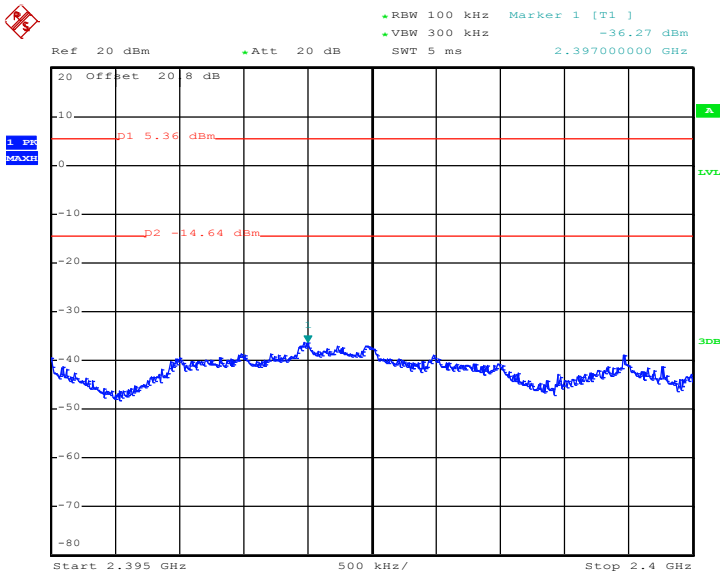
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	68.42	-5.58	74	65.77	32.09	4.64	34.08	158	51	Peak
2483.5	47.46	-6.54	54	44.81	32.09	4.64	34.08	158	51	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	66.84	-7.16	74	64.19	32.09	4.64	34.08	148	180	Peak
2484.8	45.32	-8.68	54	42.67	32.09	4.64	34.08	148	180	Average

3.3.6 Test Result of Conducted Band Edges

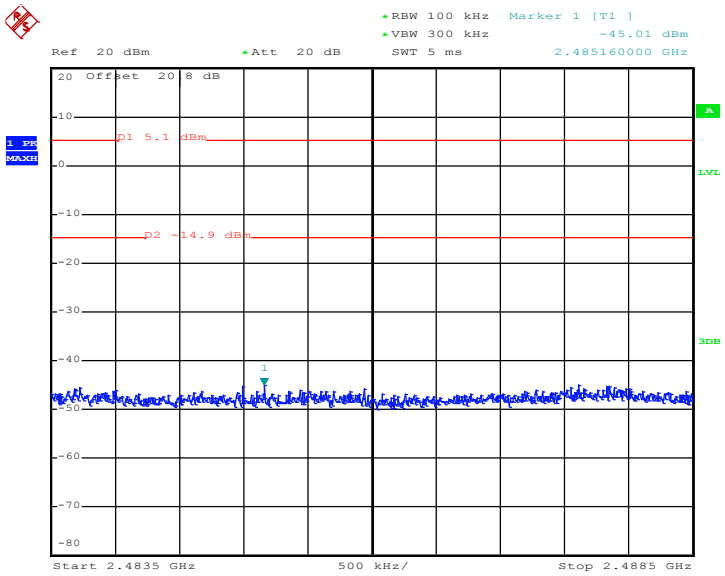
Test Mode :	Mode 1 and 3	**Temperature :**	24~26℃
Test Band :	802.11b	**Relative Humidity :**	50~53%
Test Channel :	01 and 11	**Test Engineer :**	Pinkston Tu

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



Date: 15.DEC.2011 13:47:54

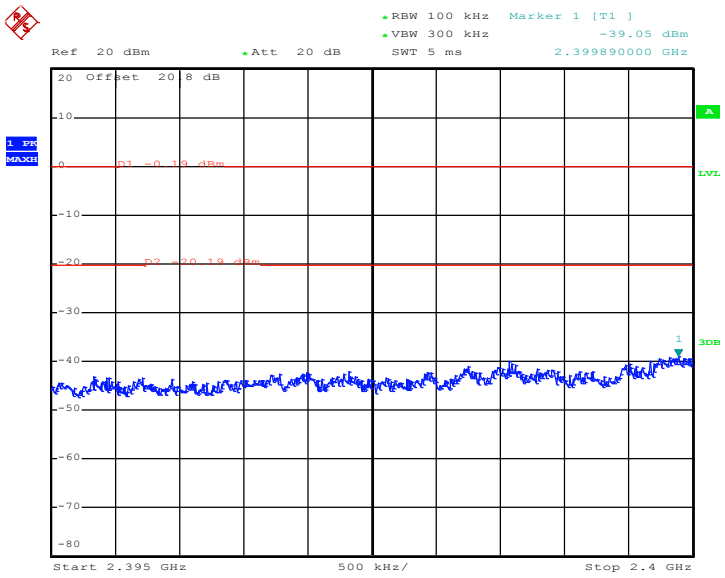
High Band Edge Plot on 802.11b Channel 11 - Chain A



Date: 15.DEC.2011 14:24:29

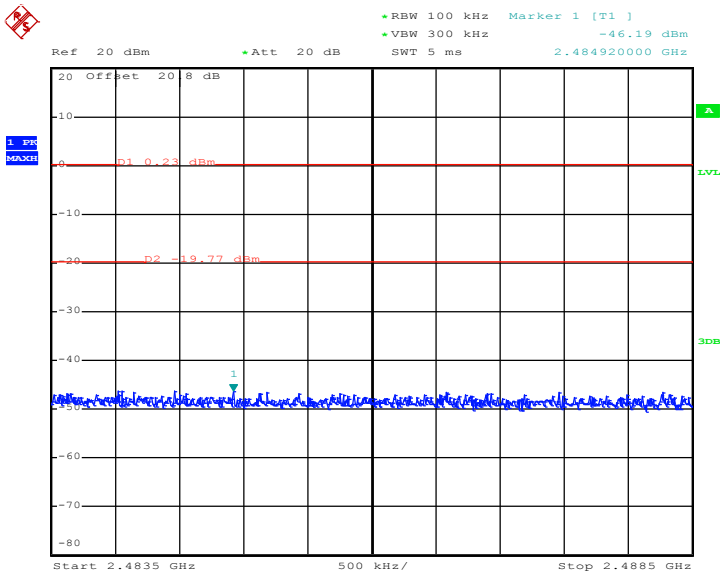
Test Mode :	Mode 4 and 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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



Date: 15.DEC.2011 15:13:15

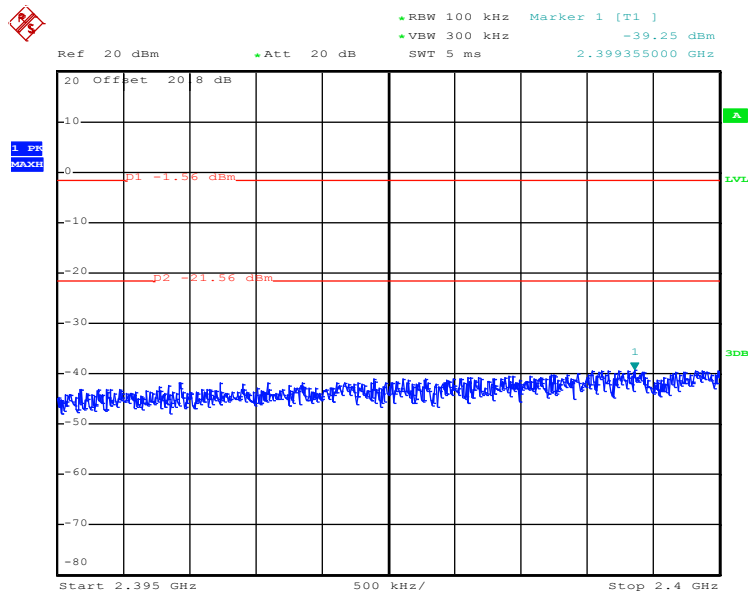
High Band Edge Plot on 802.11g Channel 11 - Chain A



Date: 15.DEC.2011 14:44:26

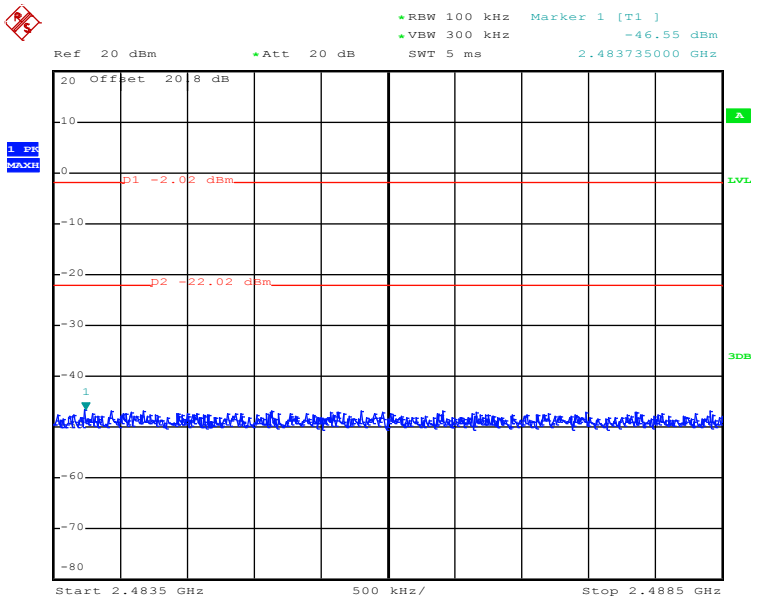
Test Mode :	Mode 7 and 9	Temperature :	24~26℃
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

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



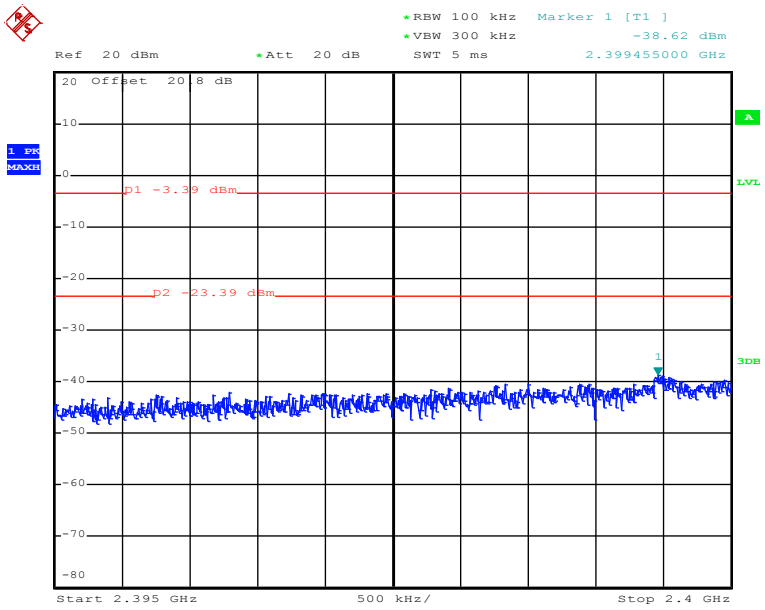
Date: 15.DEC.2011 16:17:50

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



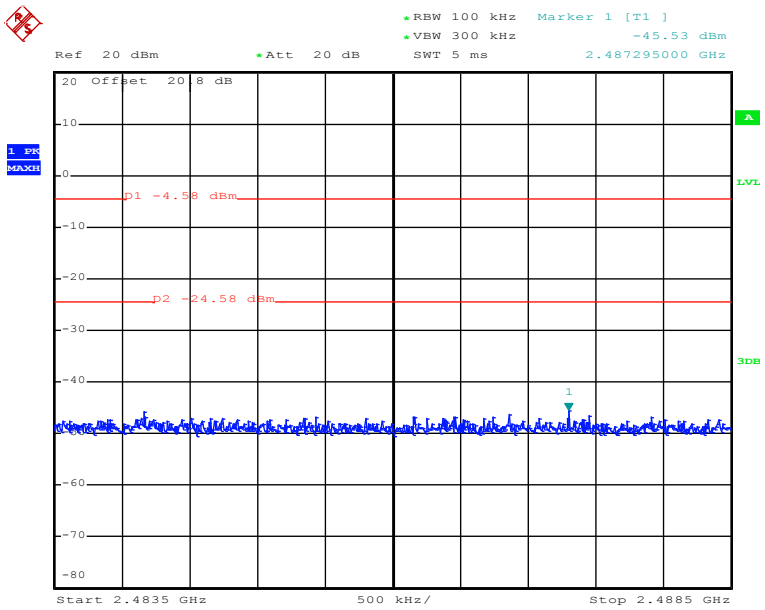
Date: 15.DEC.2011 16:21:20

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



Date: 15.DEC.2011 15:35:26

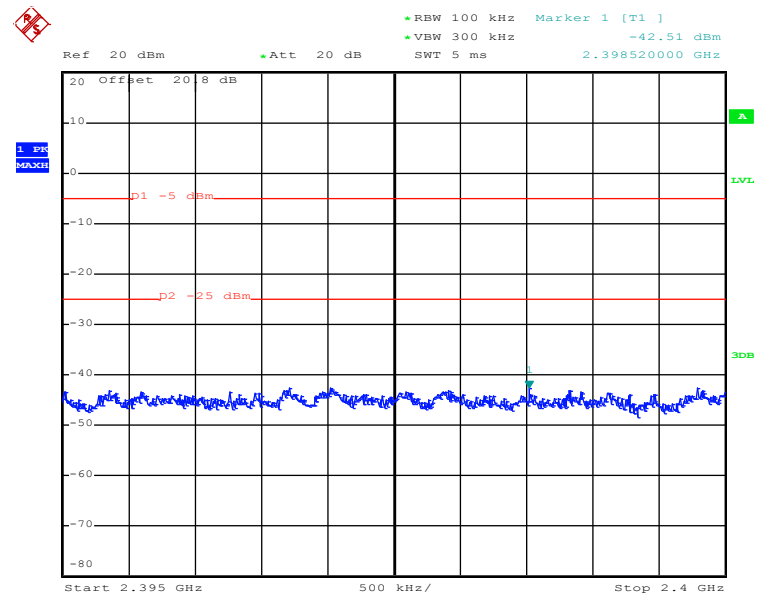
High Band Edge Plot on 802.11n (BW 20MHz) Channel 11 - Chain B



Date: 15.DEC.2011 17:48:05

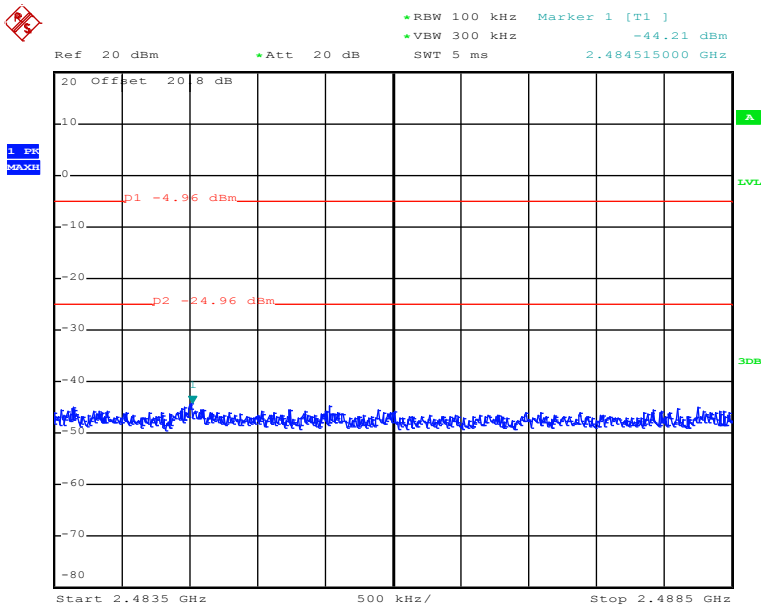
Test Mode :	Mode 10 and 12	Temperature :	24~26℃
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Pinkston Tu

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



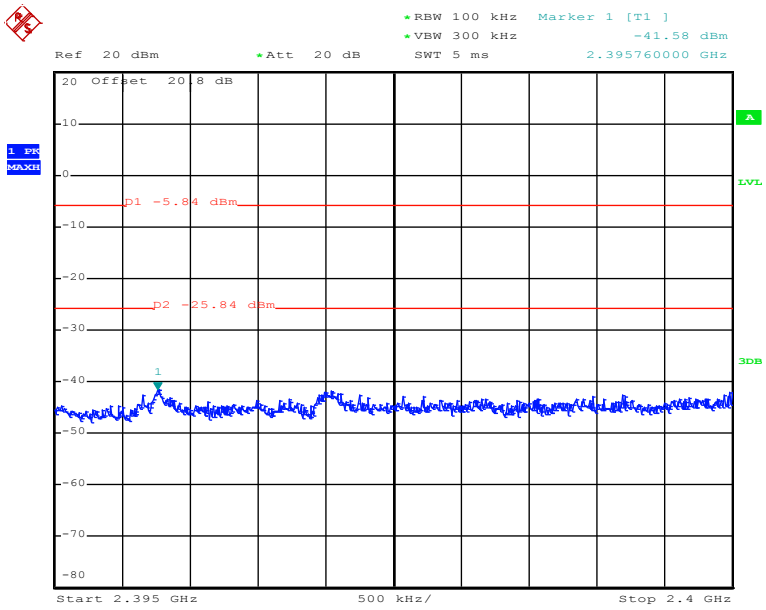
Date: 15.DEC.2011 19:14:27

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



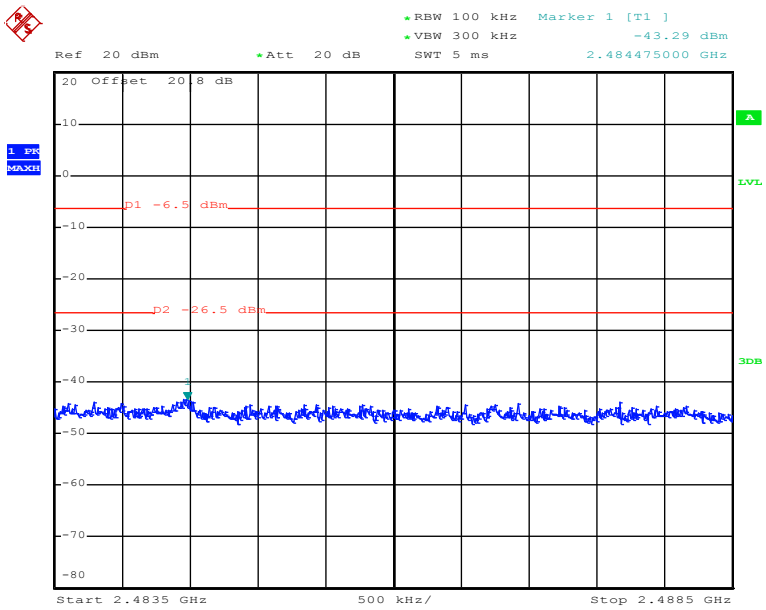
Date: 15.DEC.2011 20:01:47

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



Date: 15.DEC.2011 19:32:50

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



Date: 15.DEC.2011 19:47:15

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.

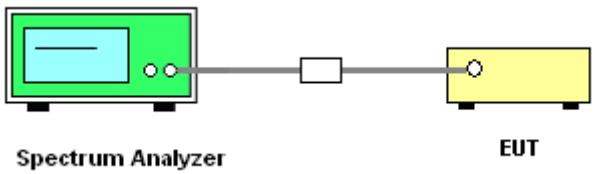
3.4.2 Measuring Instruments

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

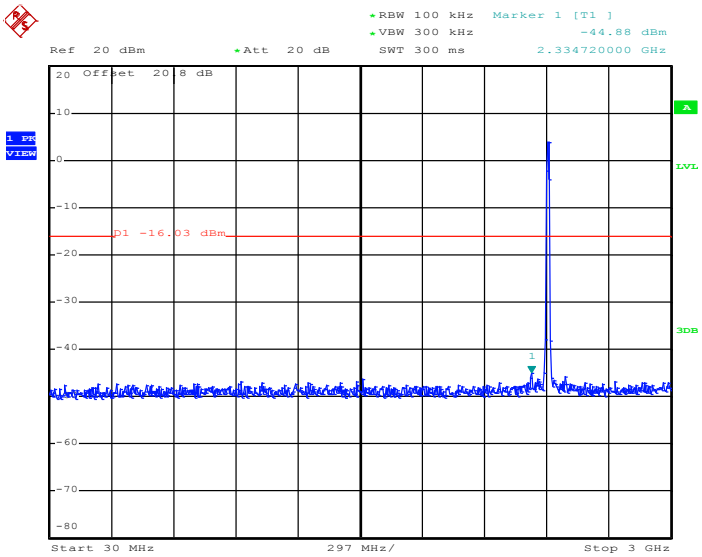


3.4.5 Test Result

Test Mode :	Mode 1, 2, 3	Temperature :	24~26℃
Test Band :	802.11b	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot on 802.11b Channel 01

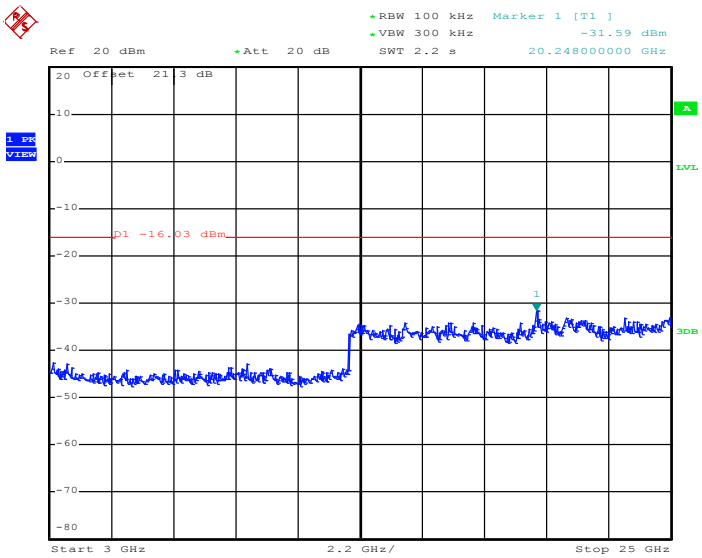
between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 13:58:40

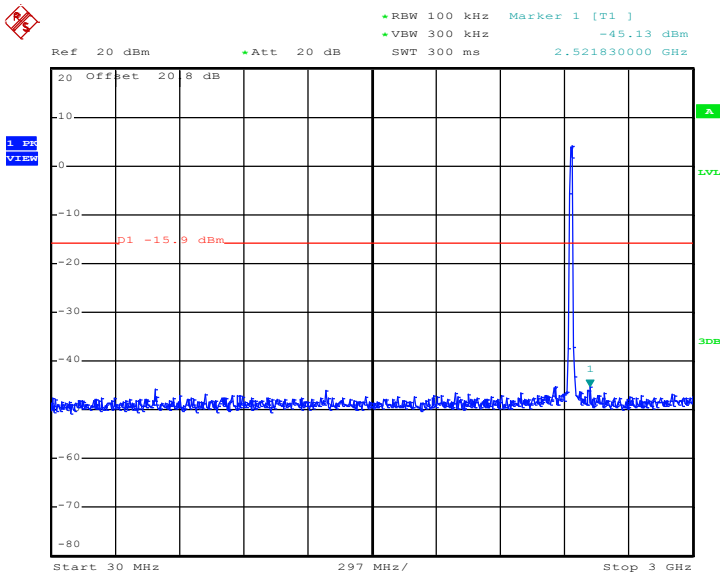
Conducted Spurious Emission Plot on 802.11b Channel 01

between 3 GHz~25 GHz - Chain A



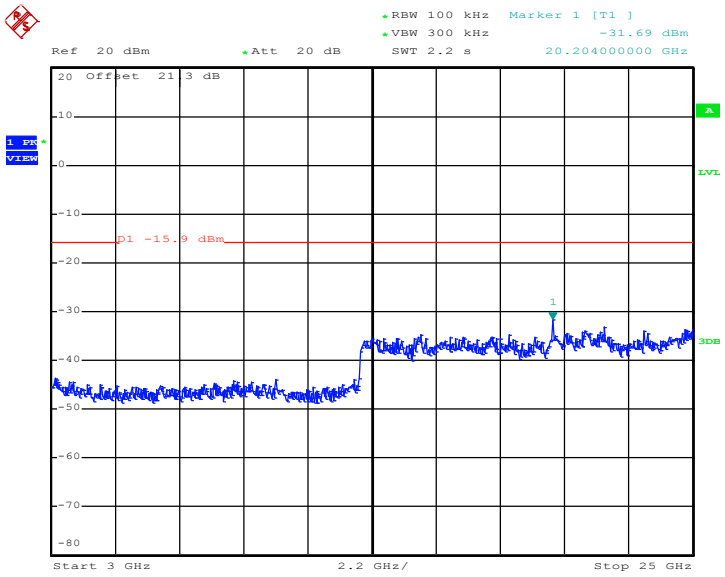
Date: 15.DEC.2011 13:58:57

Conducted Spurious Emission Plot on 802.11b Channel 06 between 30 MHz~3 GHz - Chain A



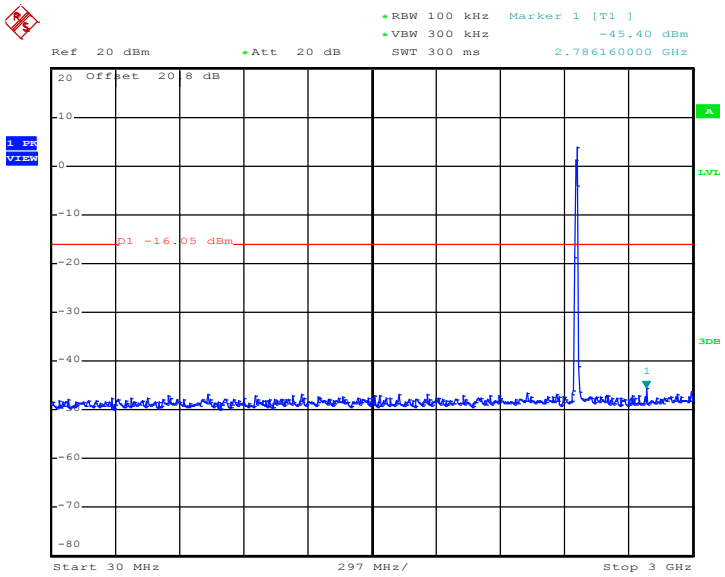
Date: 15.DEC.2011 14:18:16

Conducted Spurious Emission Plot on 802.11b Channel 06 between 3 GHz~25 GHz - Chain A



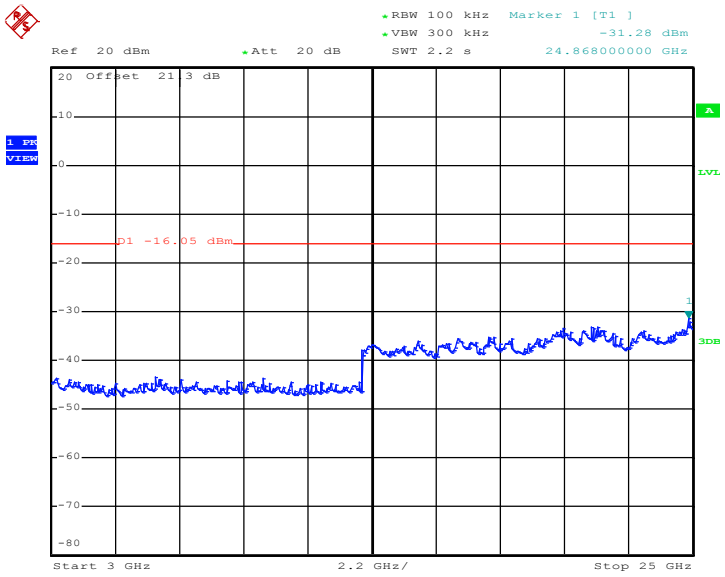
Date: 15.DEC.2011 14:19:24

Conducted Spurious Emission Plot on 802.11b Channel 11 between 30 MHz~3 GHz - Chain A



Date: 29.DEC.2011 11:38:32

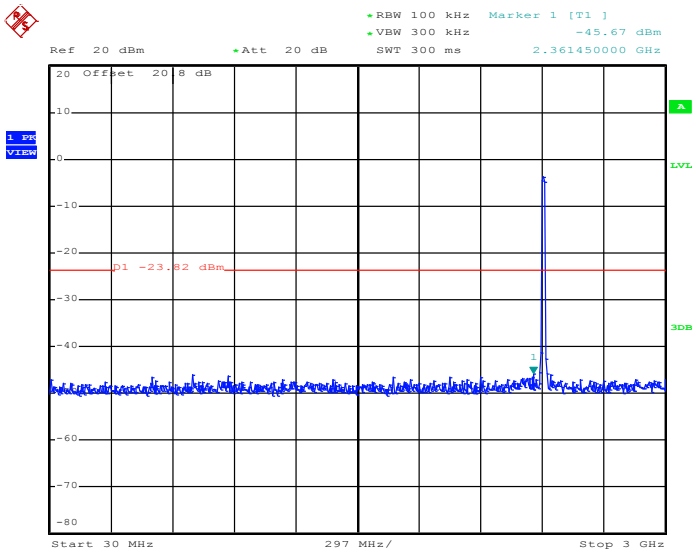
Conducted Spurious Emission Plot on 802.11b Channel 11 between 3 GHz~25 GHz - Chain A



Date: 29.DEC.2011 11:39:32

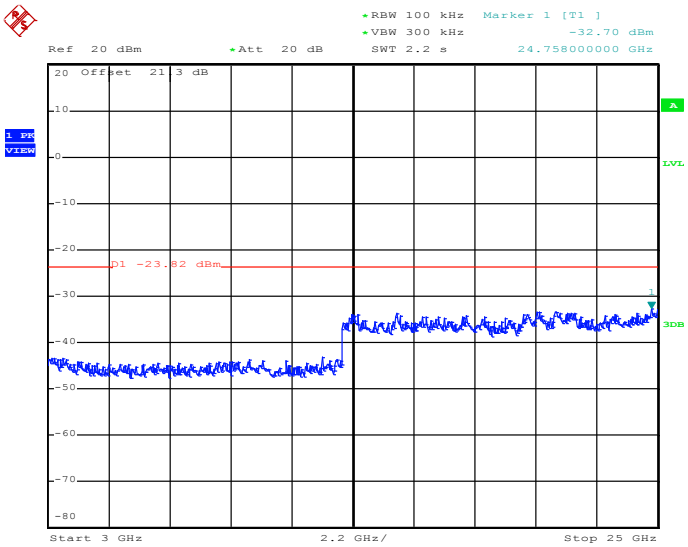
Test Mode :	Mode 4, 5, 6	Temperature :	24~26℃
Test Band :	802.11g	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot on 802.11g Channel 01 between 30 MHz~3 GHz - Chain A



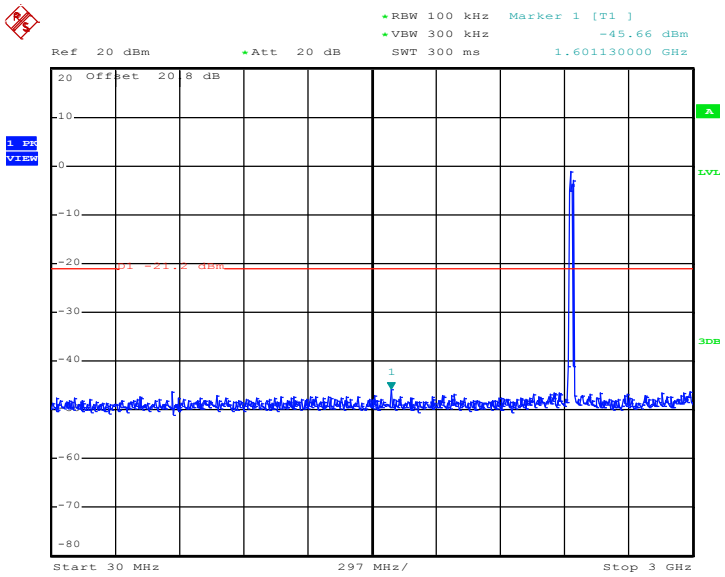
Date: 15.DEC.2011 15:25:16

Conducted Spurious Emission Plot on 802.11g Channel 01 between 3 GHz~25 GHz - Chain A



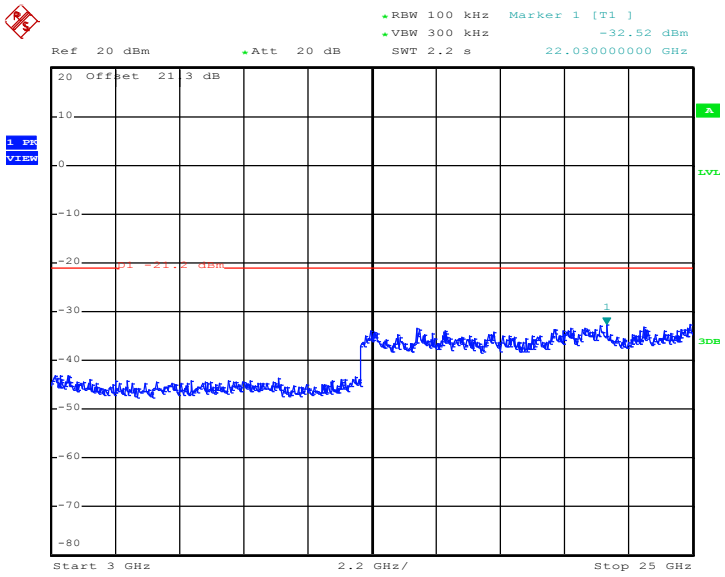
Date: 15.DEC.2011 15:25:33

Conducted Spurious Emission Plot on 802.11g Channel 06 between 30 MHz~3 GHz - Chain A



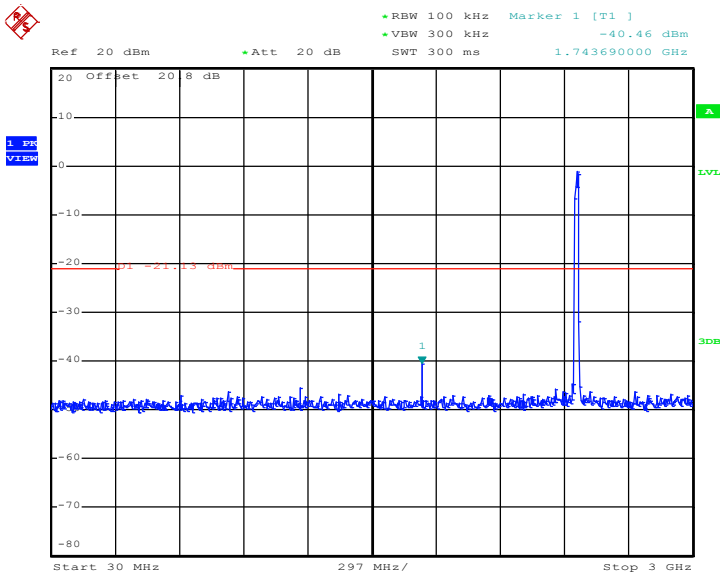
Date: 15.DEC.2011 15:09:03

Conducted Spurious Emission Plot on 802.11g Channel 06 between 3 GHz~25 GHz - Chain A



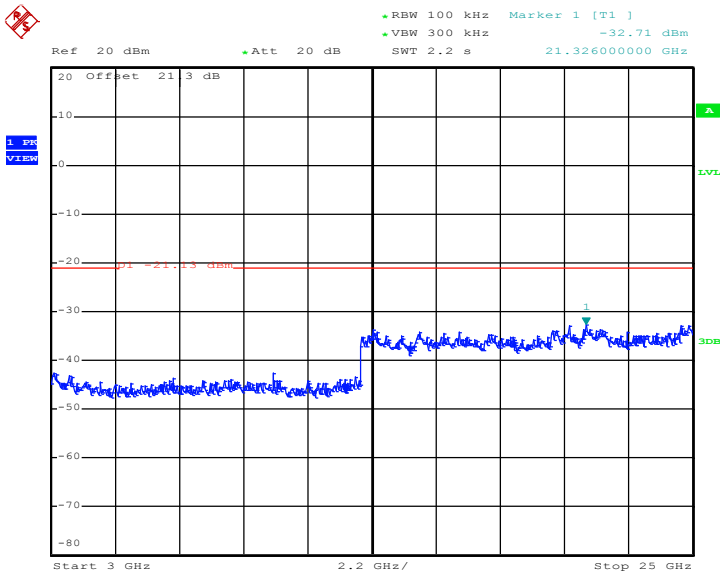
Date: 15.DEC.2011 15:09:20

Conducted Spurious Emission Plot on 802.11g Channel 11 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 14:56:49

Conducted Spurious Emission Plot on 802.11g Channel 11 between 3 GHz~25 GHz - Chain A

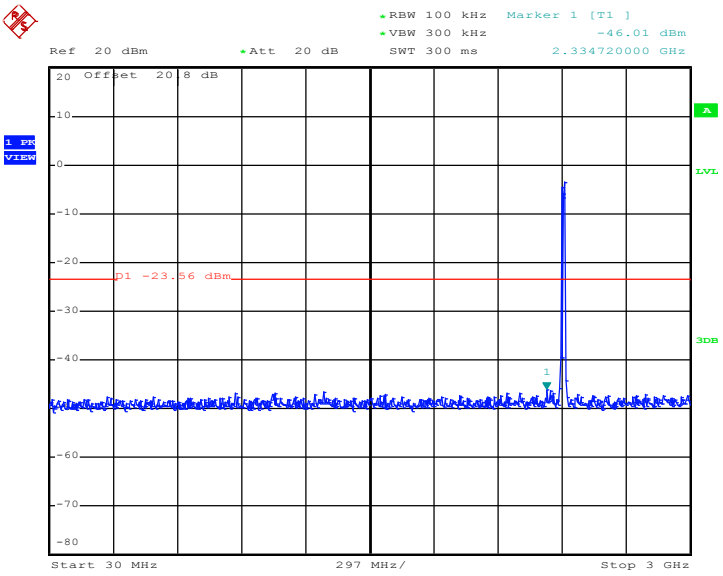


Date: 15.DEC.2011 14:57:06

Test Mode :	Mode 7, 8, 9	**Temperature :**	24~26℃
Test Band :	802.11n (BW 20MHz)	**Relative Humidity :**	50~53%
Test Channel :	01, 06, 11	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

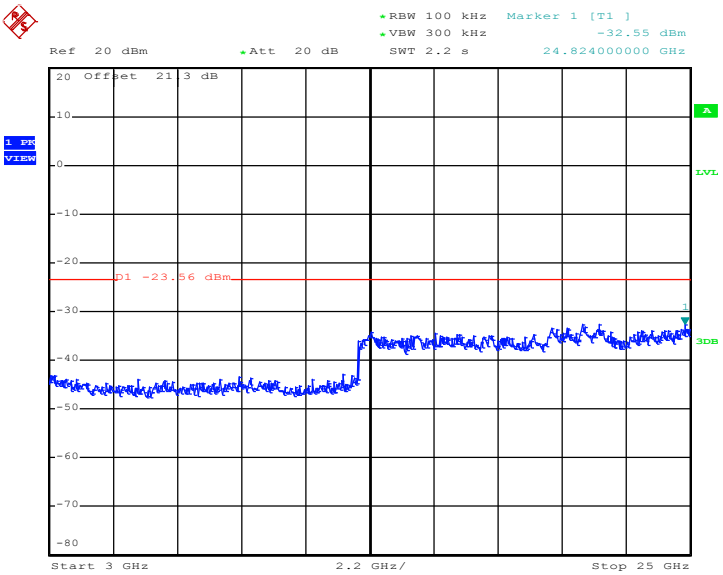
Channel 01 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 16:01:25

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

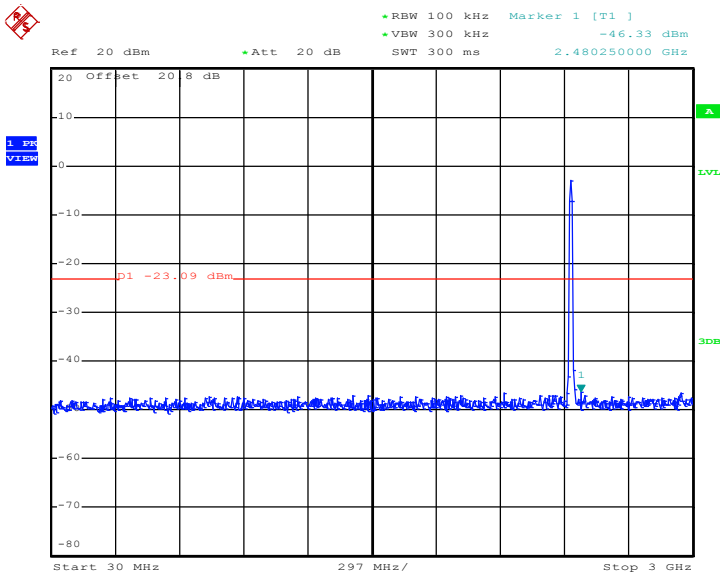
Channel 01 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 16:01:42

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

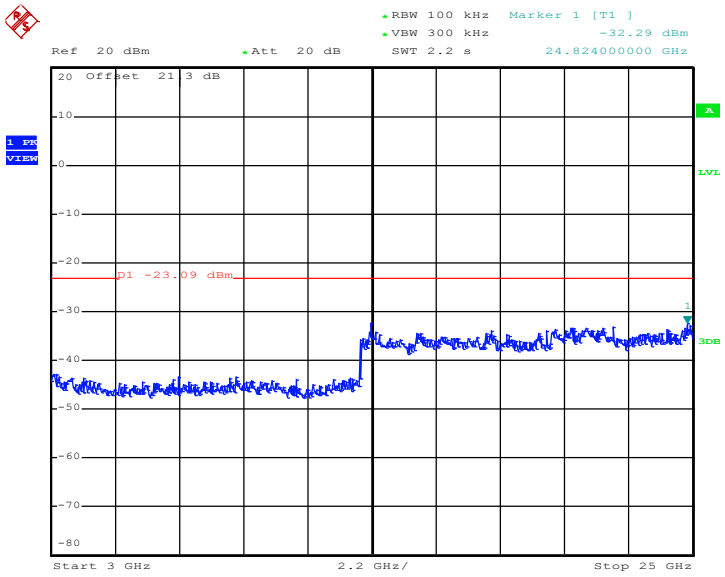
Channel 06 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 16:14:07

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

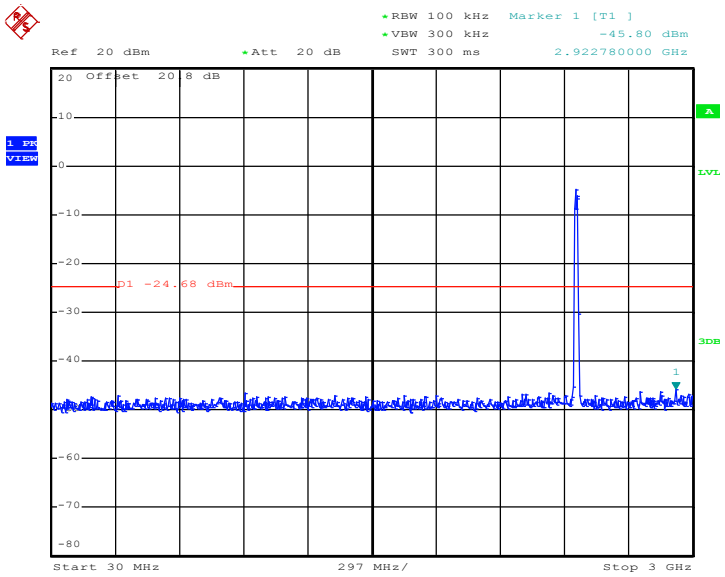
Channel 06 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 16:14:24

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

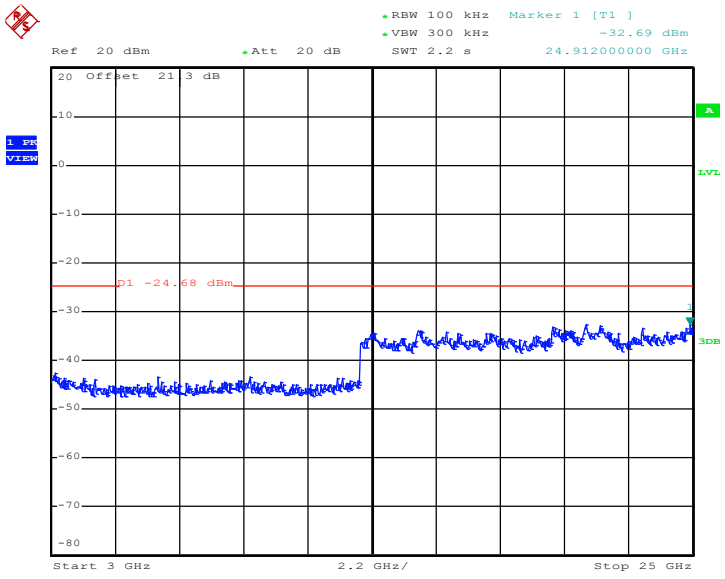
Channel 11 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 17:36:46

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

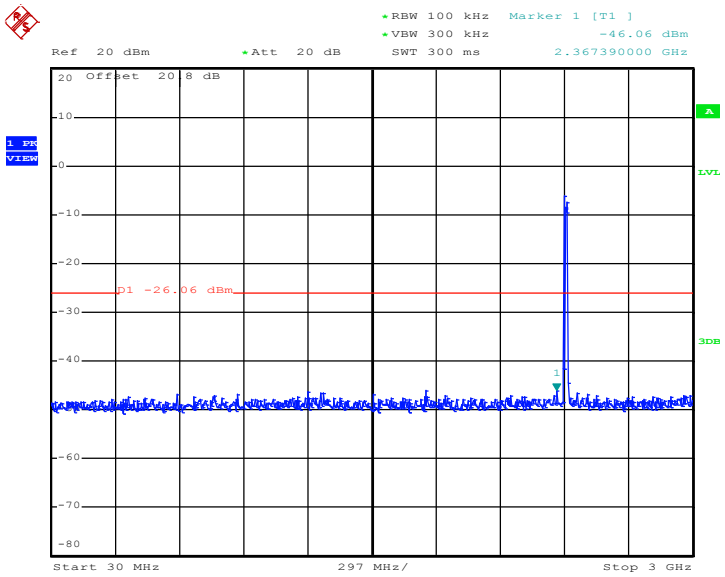
Channel 11 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 17:37:03

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

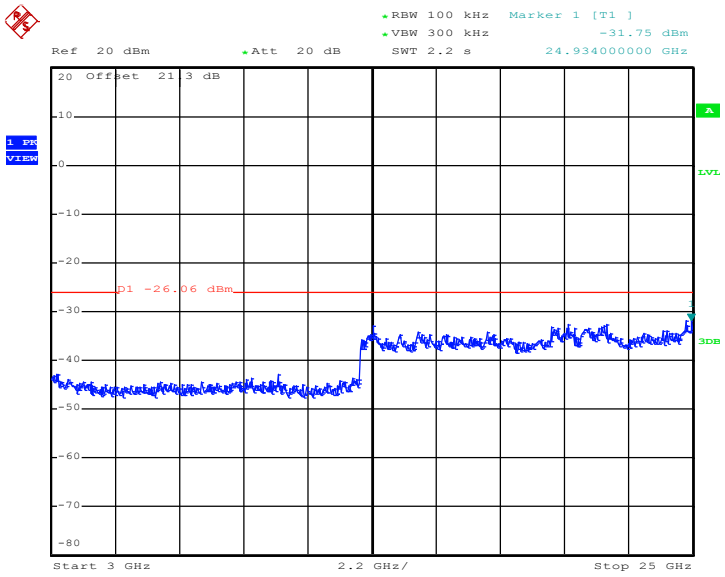
Channel 01 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 15:45:15

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

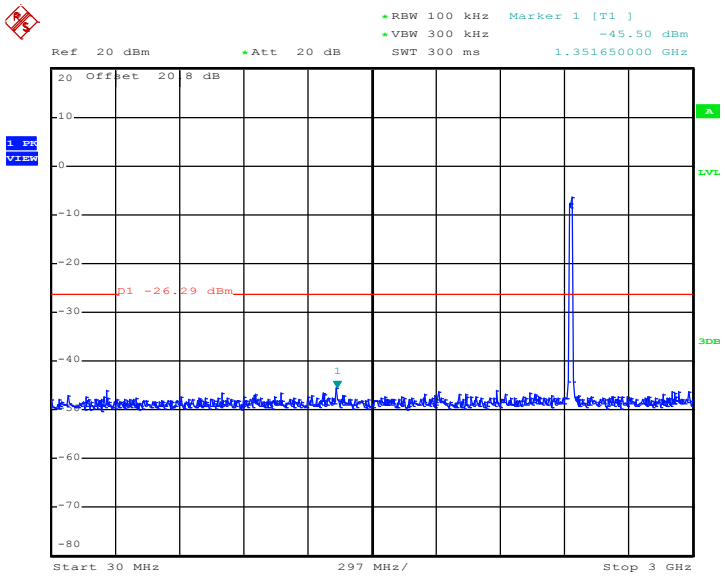
Channel 01 between 3 GHz~25 GHz - Chain B



Date: 15.DEC.2011 15:45:32

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

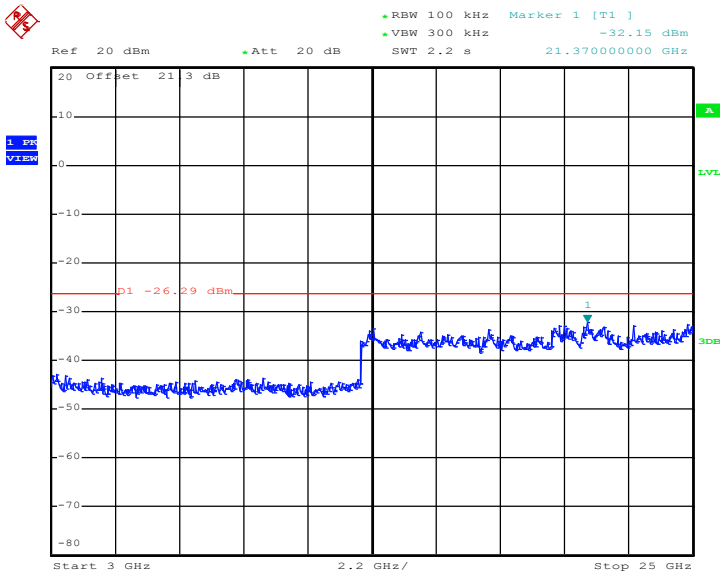
Channel 06 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 18:16:54

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

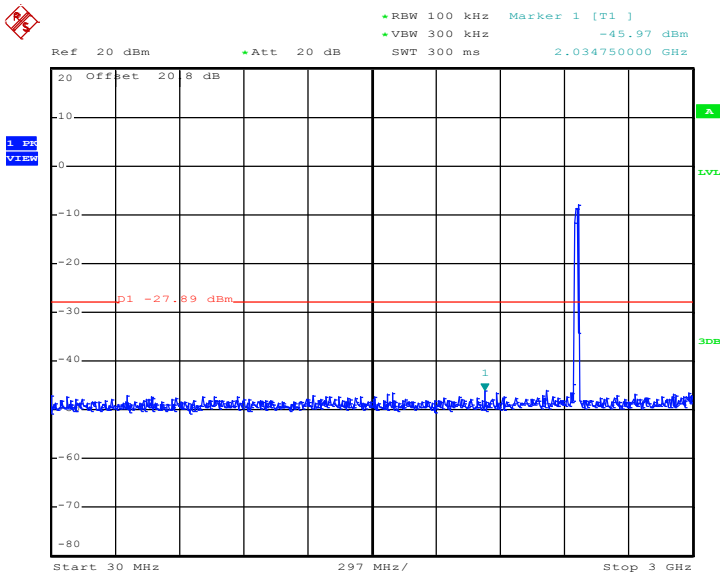
Channel 06 between 3 GHz~25 GHz - Chain B



Date: 15.DEC.2011 18:17:11

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

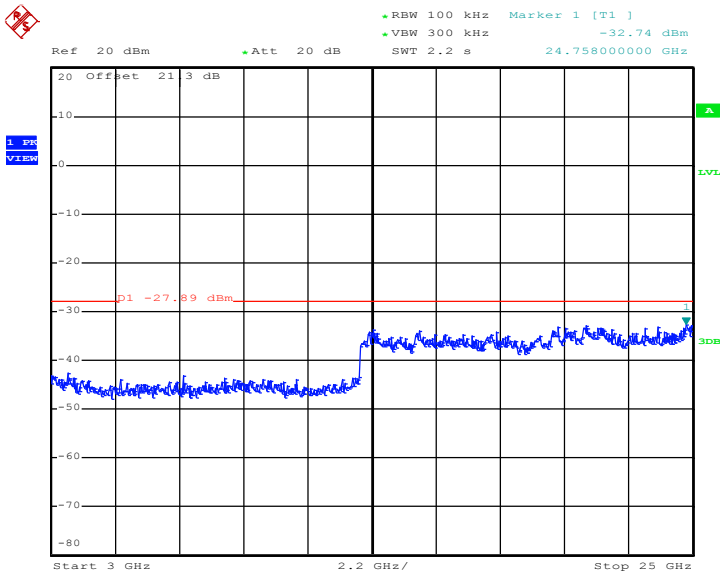
Channel 11 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 17:57:34

Conducted Spurious Emission Plot on 802.11n (BW 20MHz)

Channel 11 between 3 GHz~25 GHz - Chain B

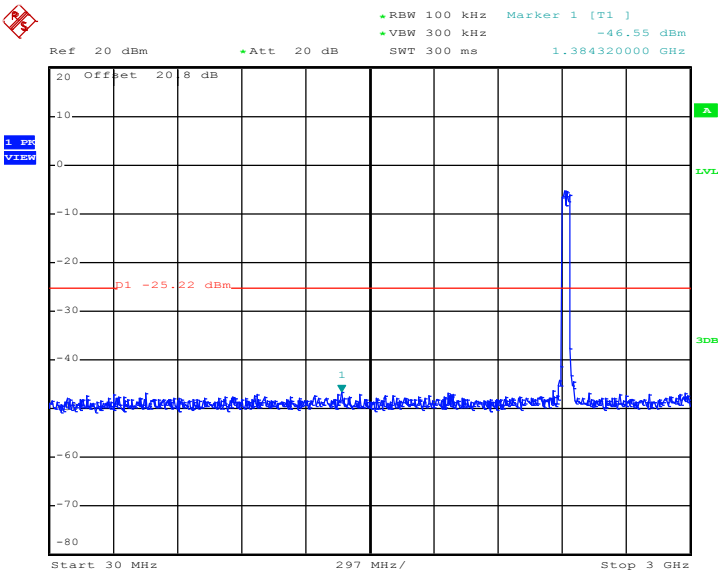


Date: 15.DEC.2011 17:57:51

Test Mode :	Mode 10, 11, 12	**Temperature :**	24~26℃
Test Band :	802.11n (BW 40MHz)	**Relative Humidity :**	50~53%
Test Channel :	03, 06, 09	**Test Engineer :**	Pinkston Tu

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

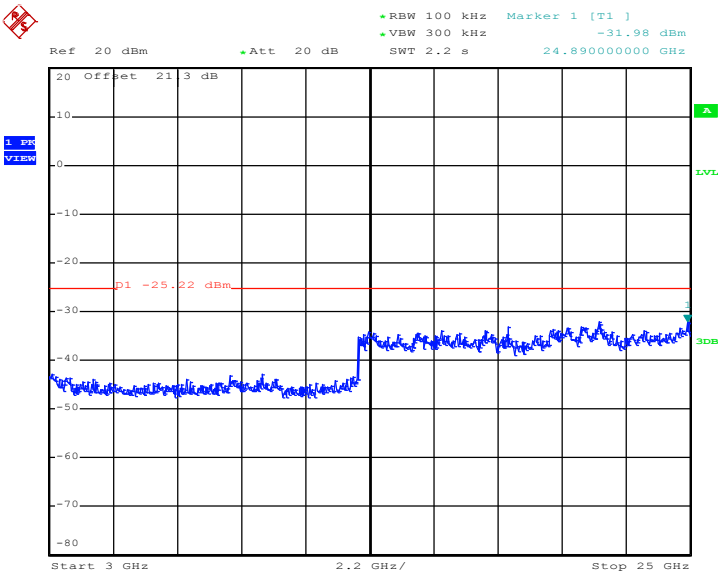
Channel 03 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 19:24:06

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

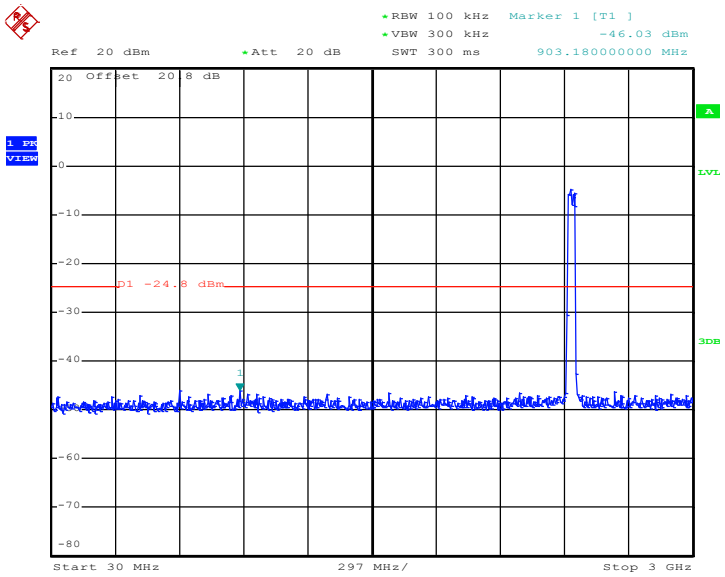
Channel 03 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 19:24:23

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

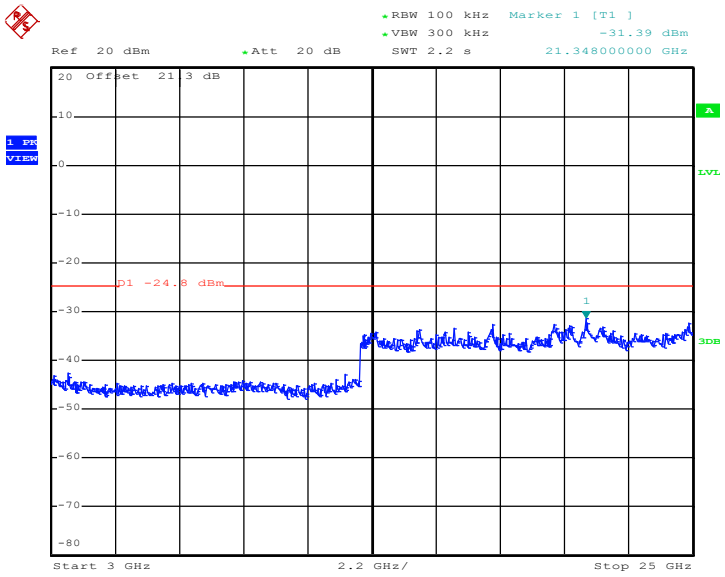
Channel 06 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 19:05:03

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

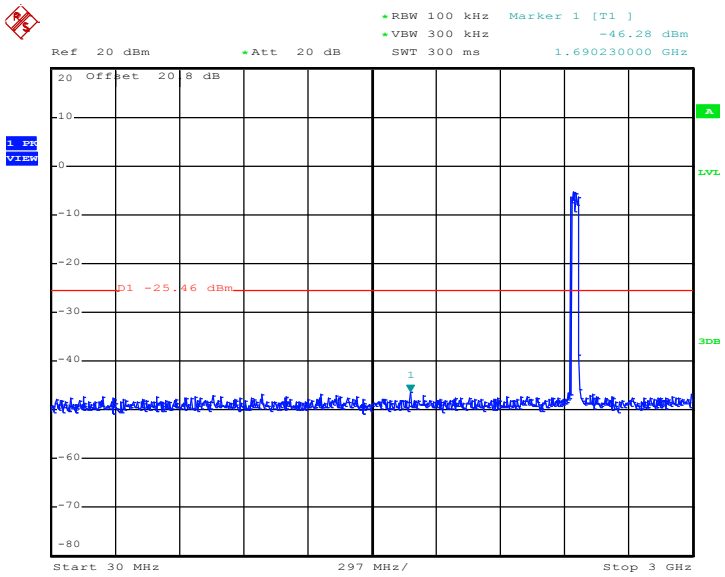
Channel 06 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 19:05:20

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

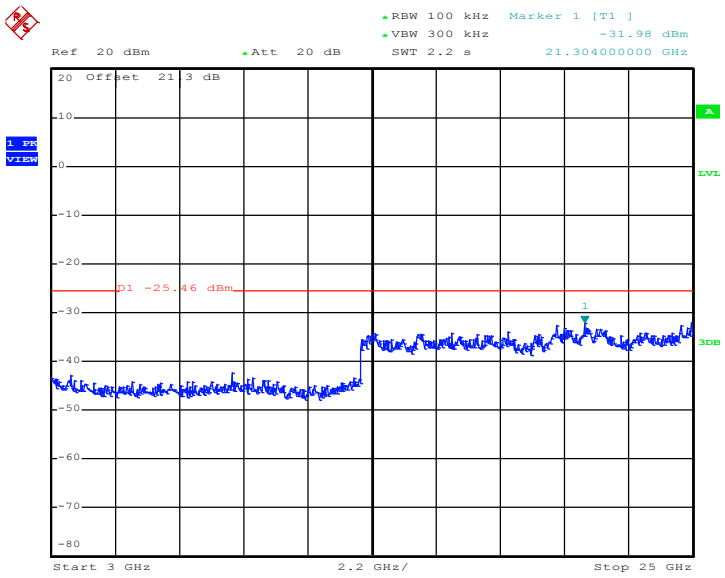
Channel 09 between 30 MHz~3 GHz - Chain A



Date: 15.DEC.2011 20:12:18

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

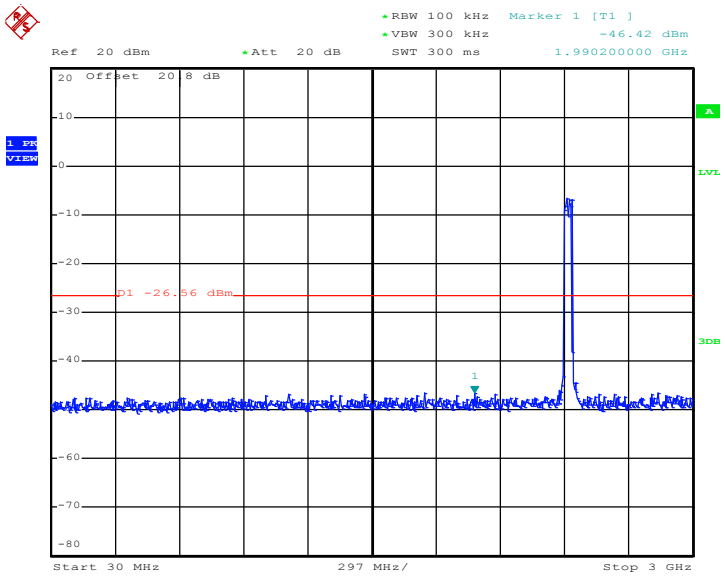
Channel 09 between 3 GHz~25 GHz - Chain A



Date: 15.DEC.2011 20:12:35

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

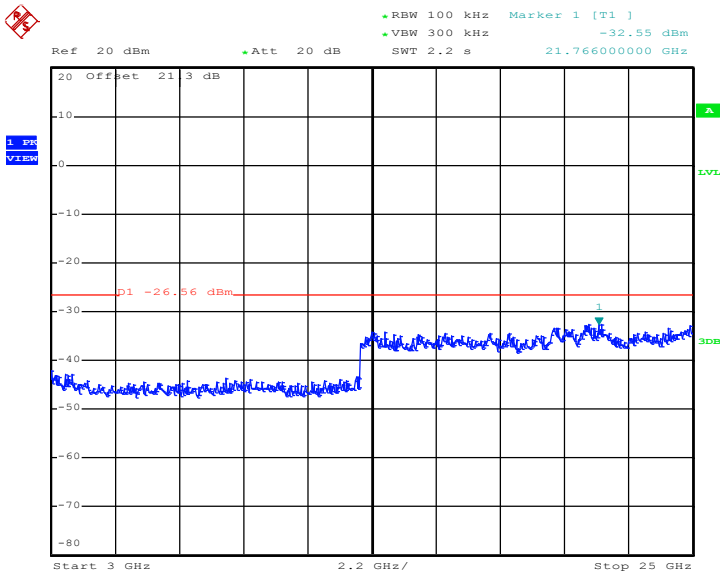
Channel 03 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 19:42:19

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

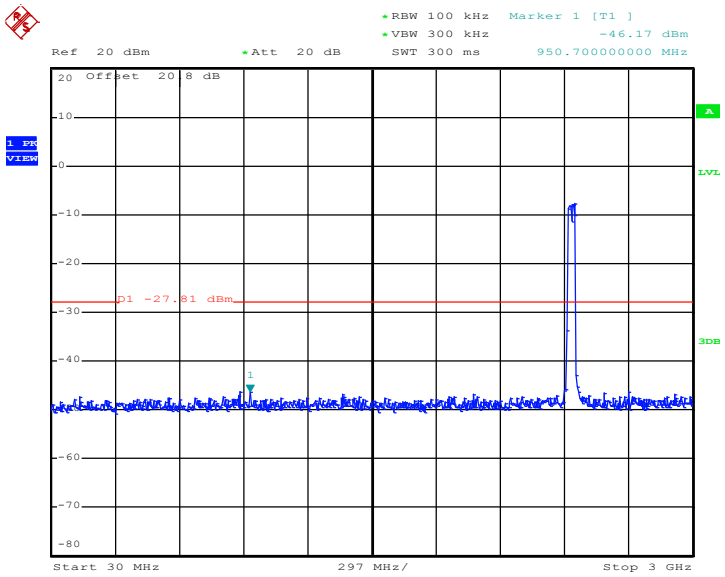
Channel 03 between 3 GHz~25 GHz - Chain B



Date: 15.DEC.2011 19:42:36

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

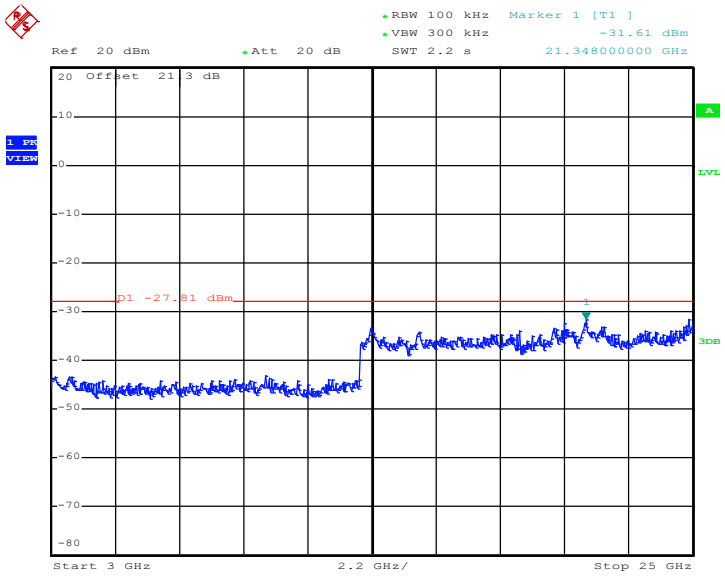
Channel 06 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 18:48:24

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

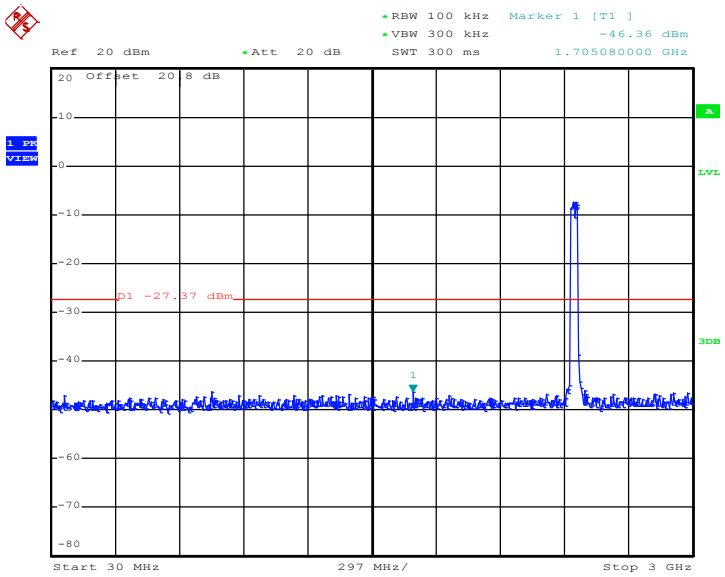
Channel 06 between 3 GHz~25 GHz - Chain B



Date: 15.DEC.2011 18:48:41

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

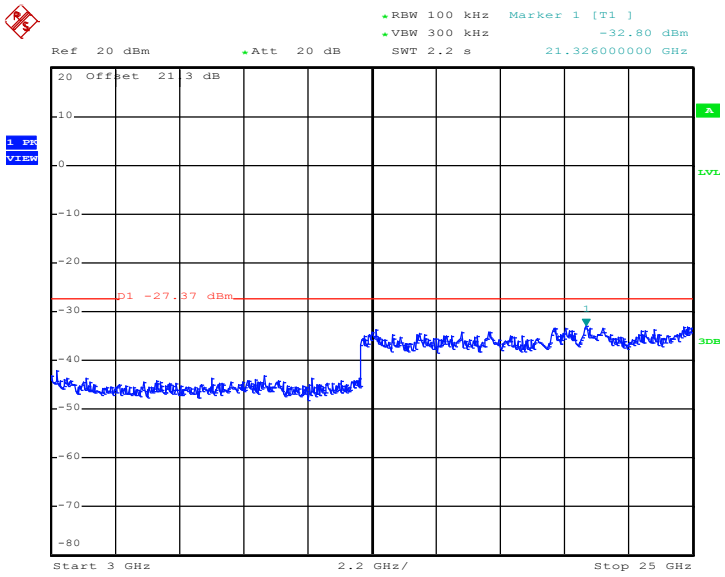
Channel 09 between 30 MHz~3 GHz - Chain B



Date: 15.DEC.2011 19:57:09

Conducted Spurious Emission Plot on 802.11n (BW 40MHz)

Channel 09 between 3 GHz~25 GHz - Chain B



Date: 15.DEC.2011 19:57:26

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.

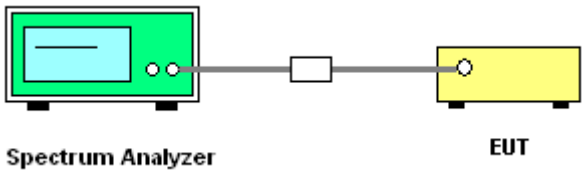
3.5.2 Measuring Instruments

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	1.97	8	Pass
06	2437	3.74	8	Pass
11	2462	3.66	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	-14.41	8	Pass
06	2437	-14.57	8	Pass
11	2462	-14.60	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	-17.11	-19.07	-14.97	8	Pass
06	2437	-17.20	-19.61	-15.23	8	Pass
11	2462	-17.25	-19.76	-15.32	8	Pass

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

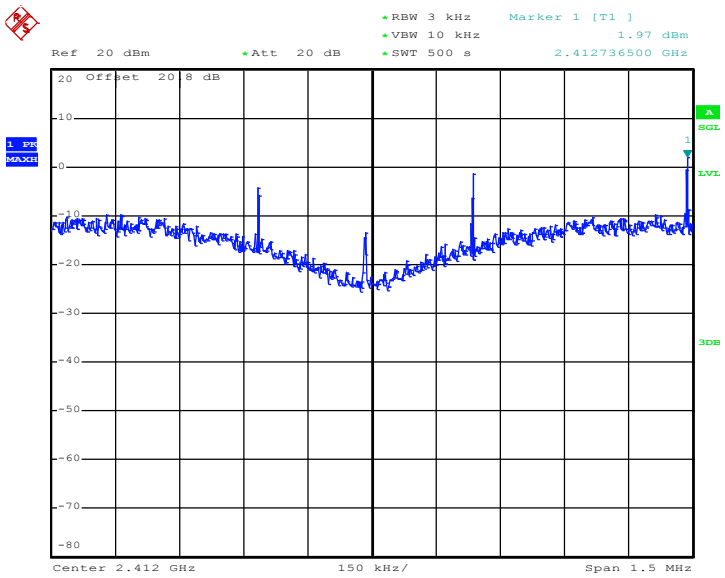
Test Mode :	Mode 10, 11, 12	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n (BW 40MHz) Measured PSD (dBm)			Max. Limits (dBm)	Pass/Fail
		Chain A	Chain B	Chain A+B		
03	2422	-20.98	-21.59	-18.26	8	Pass
06	2437	-19.34	-21.85	-17.41	8	Pass
09	2452	-19.92	-21.64	-17.69	8	Pass

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

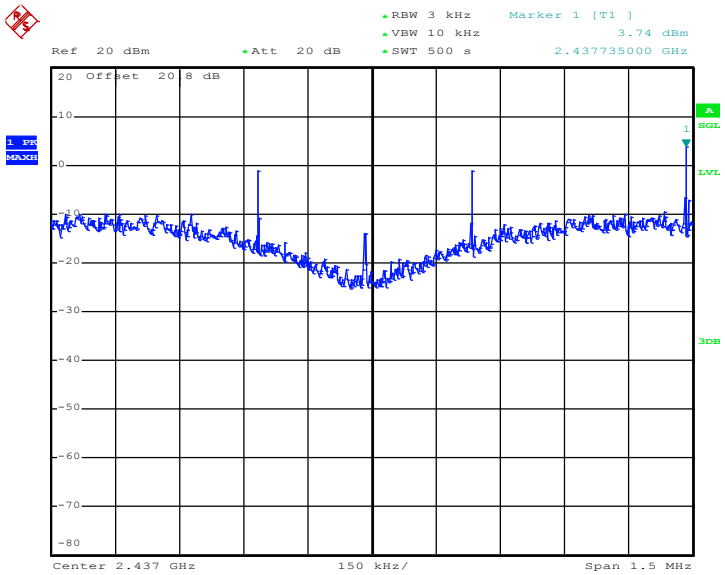
3.5.6 Test Result of Power Spectral Density Plots

PSD Plot on 802.11b Channel 01 – Chain A



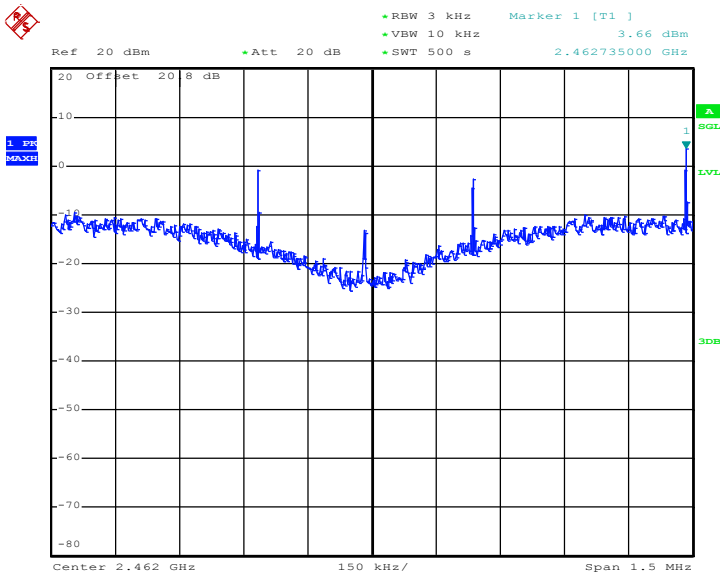
Date: 15.DEC.2011 13:58:19

PSD Plot on 802.11b Channel 06 – Chain A



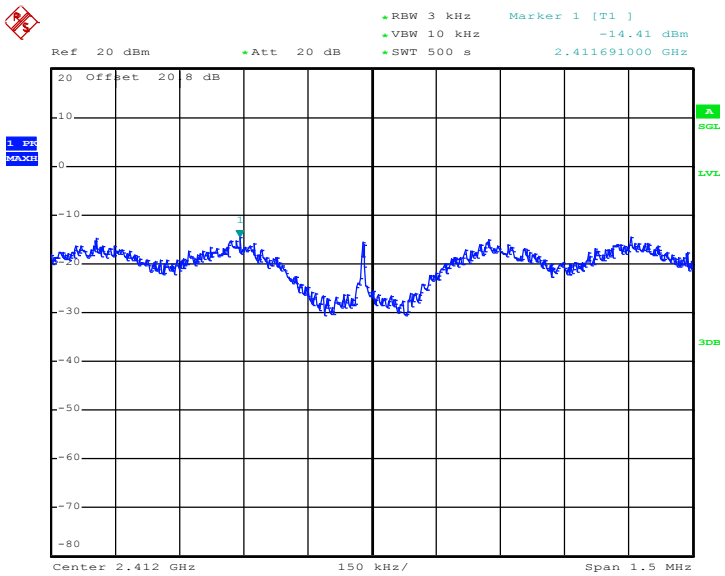
Date: 15.DEC.2011 14:13:44

PSD Plot on 802.11b Channel 11 – Chain A



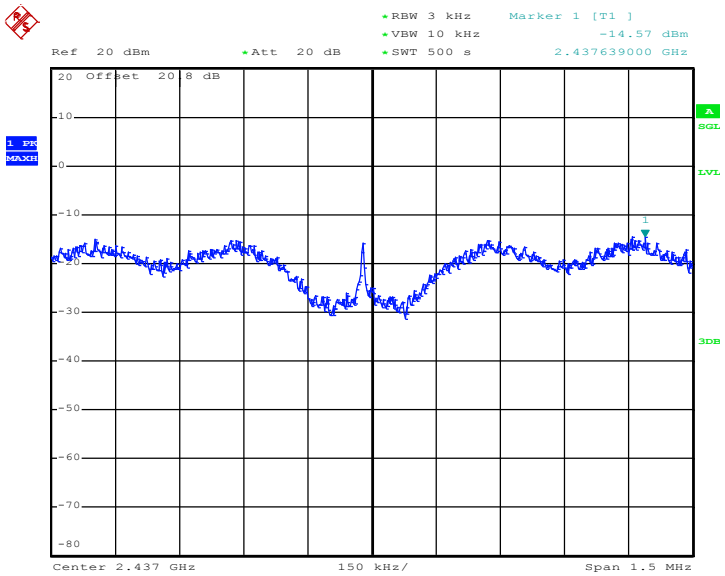
Date: 15.DEC.2011 14:34:31

PSD Plot on 802.11g Channel 01 – Chain A



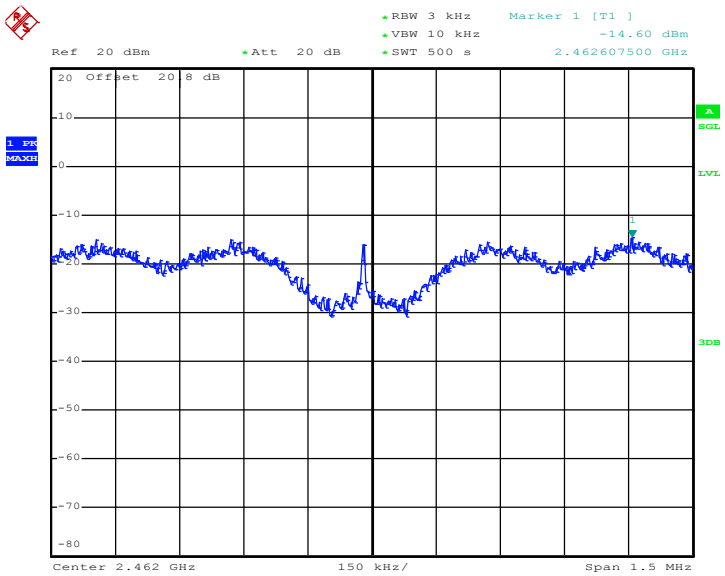
Date: 15.DEC.2011 15:23:07

PSD Plot on 802.11g Channel 06 – Chain A



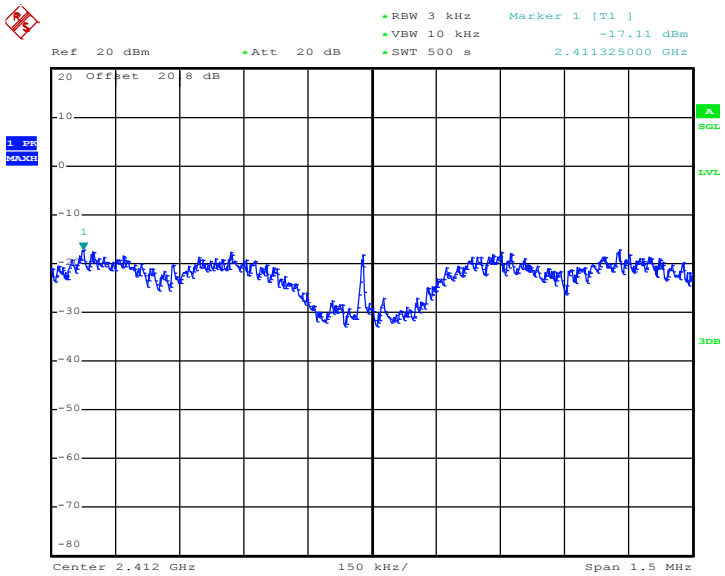
Date: 15.DEC.2011 15:08:43

PSD Plot on 802.11g Channel 11 – Chain A



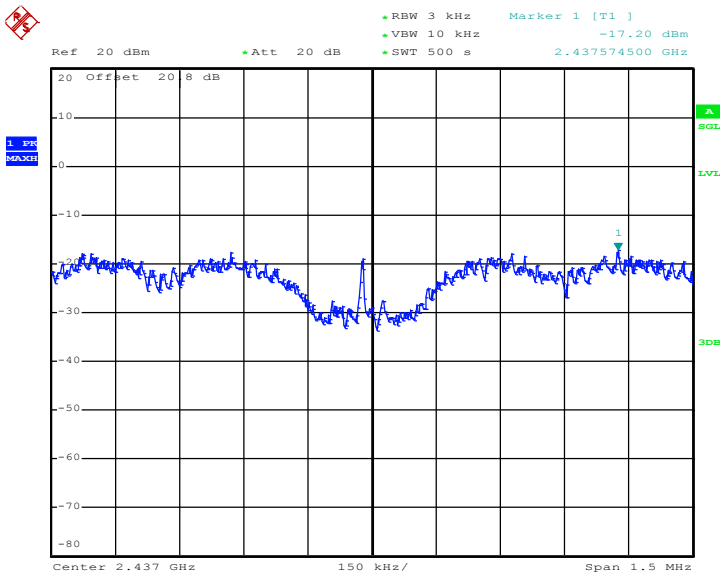
Date: 15.DEC.2011 14:54:27

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



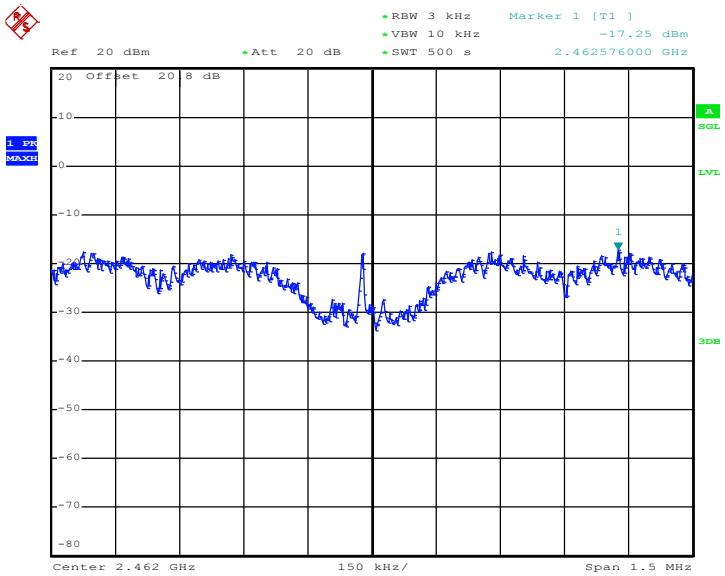
Date: 15.DEC.2011 16:01:04

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



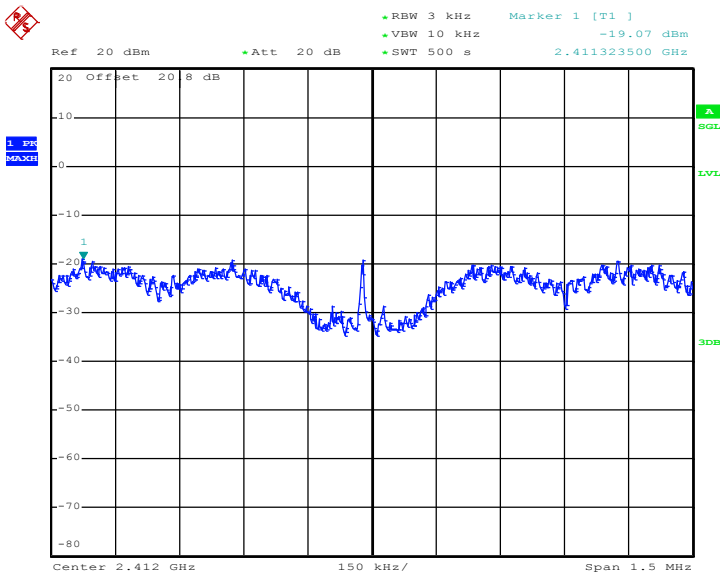
Date: 15.DEC.2011 16:13:47

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



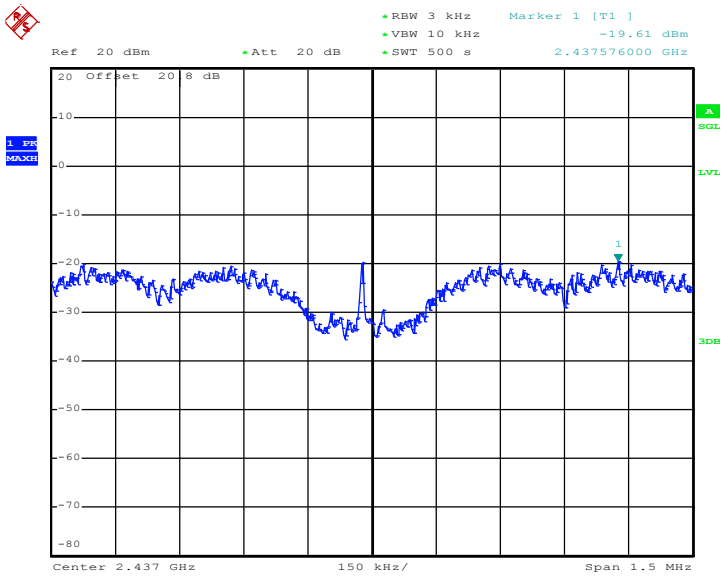
Date: 15.DEC.2011 17:36:25

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



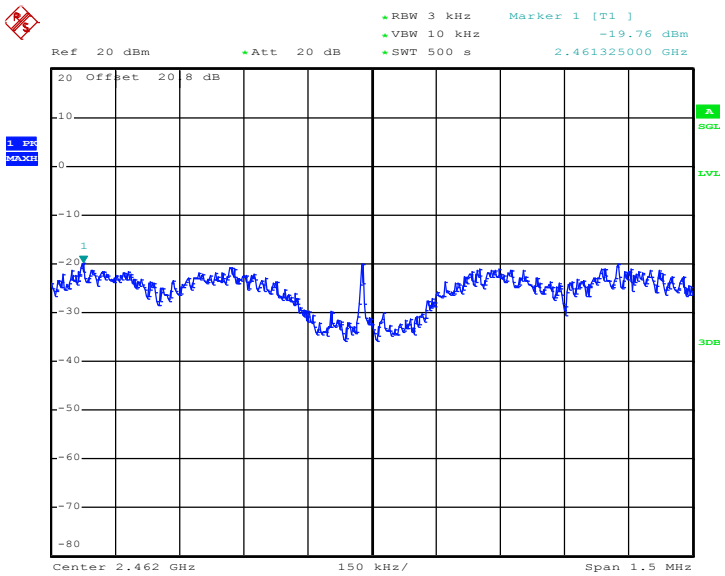
Date: 15.DEC.2011 15:44:54

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



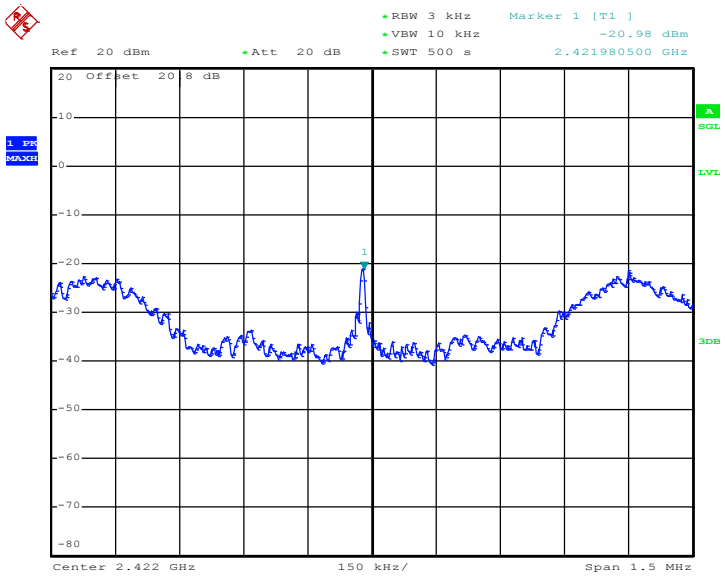
Date: 15.DEC.2011 18:13:08

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



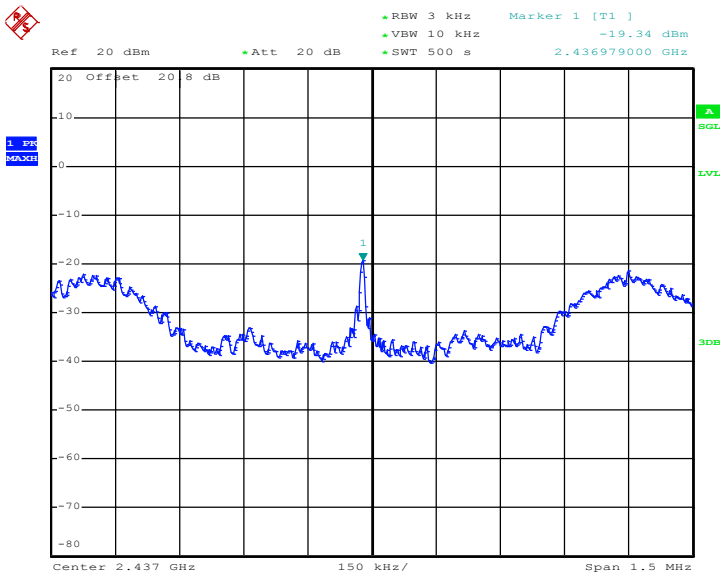
Date: 15.DEC.2011 17:57:13

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



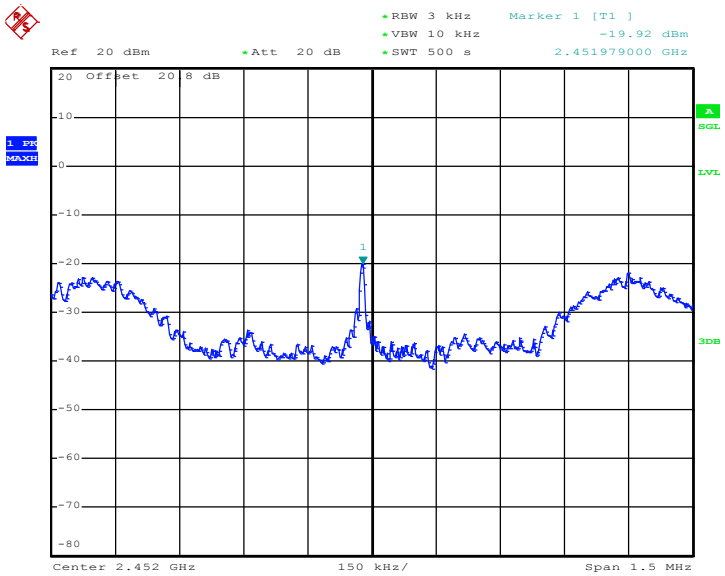
Date: 15.DEC.2011 19:23:45

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



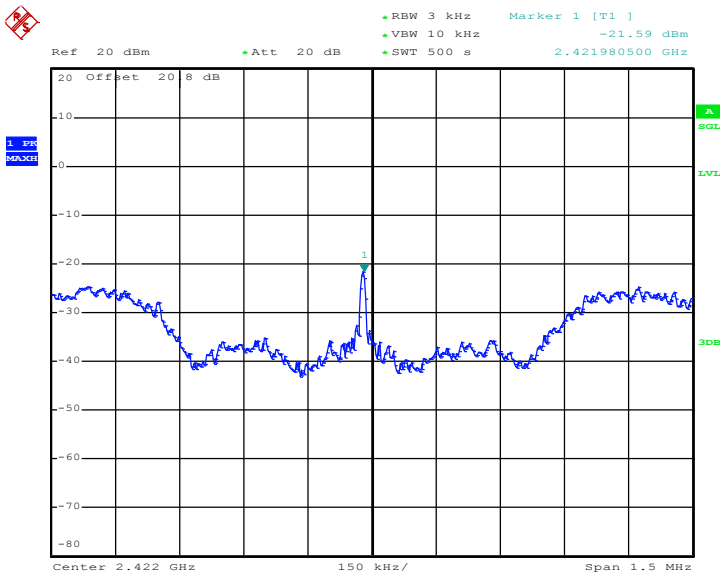
Date: 15.DEC.2011 19:04:42

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



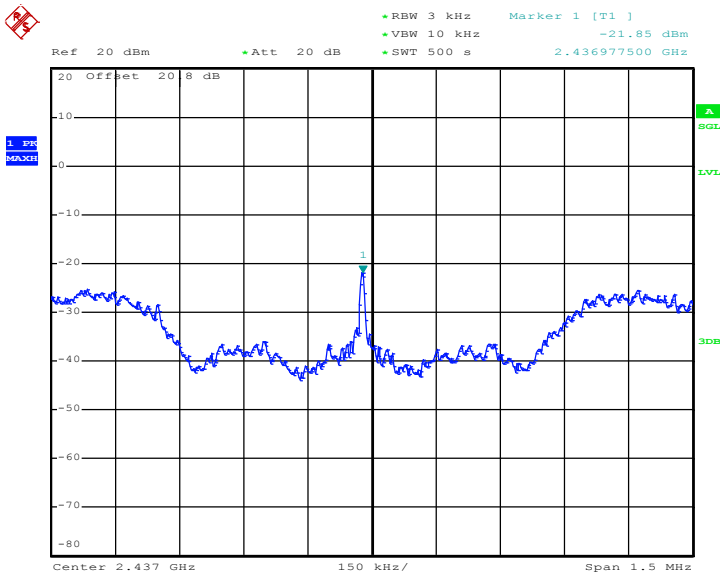
Date: 15.DEC.2011 20:11:57

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



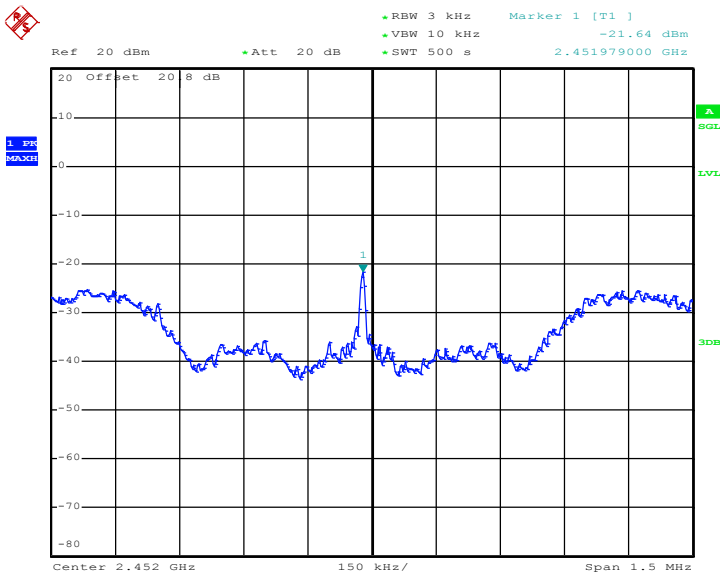
Date: 15.DEC.2011 19:41:58

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



Date: 15.DEC.2011 18:48:02

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



Date: 15.DEC.2011 19:56:48

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.

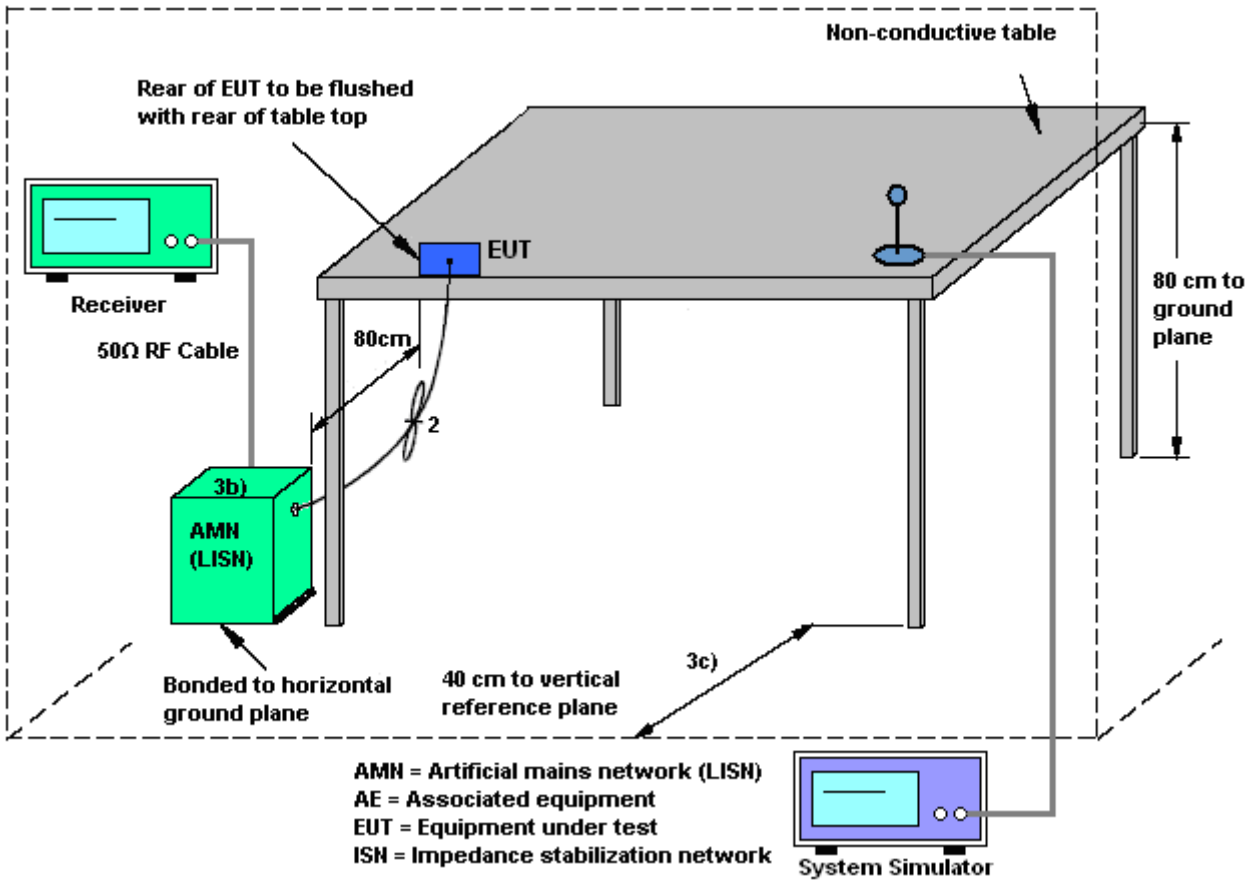
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

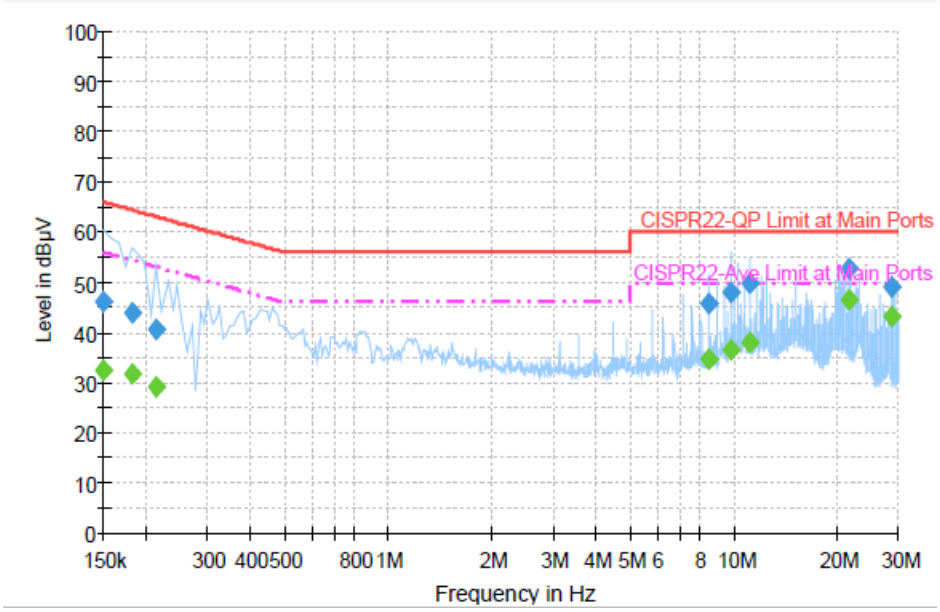
4. The testing follows the guidelines in ANSI C63.4-2003.
5. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
6. Connect EUT to the power mains through a line impedance stabilization network (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 2	Temperature :	21~23℃
Test Engineer :	Aslen Chiu	Relative Humidity :	43~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN Link + WAN Link + LAN Link + Adapter 2 + RJ-11 Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



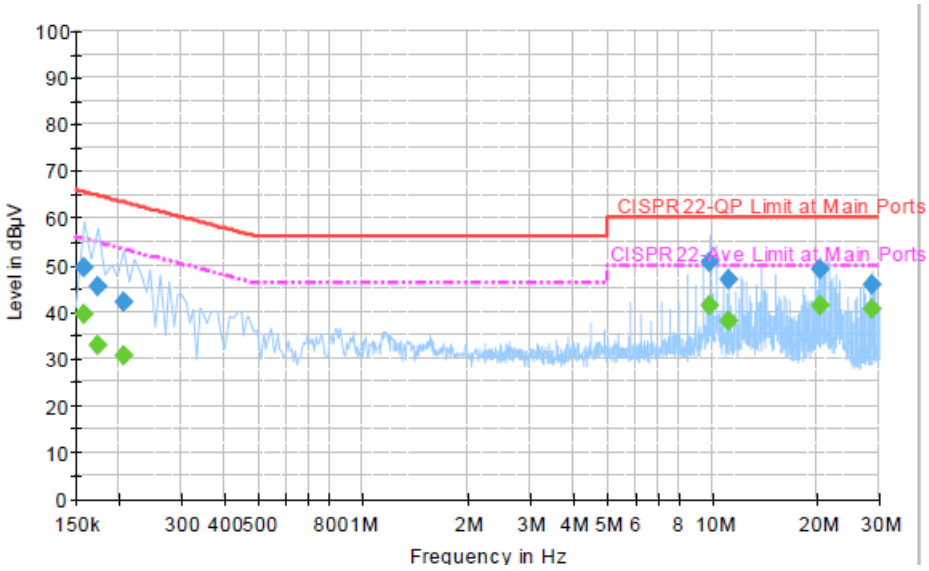
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.0	Off	L1	19.4	20.0	66.0
0.182000	43.8	Off	L1	19.4	20.6	64.4
0.214000	40.5	Off	L1	19.3	22.5	63.0
8.486000	45.6	Off	L1	19.6	14.4	60.0
9.830000	48.1	Off	L1	19.6	11.9	60.0
11.166000	49.8	Off	L1	19.6	10.2	60.0
21.662000	52.6	Off	L1	19.8	7.4	60.0
28.686000	49.1	Off	L1	19.8	10.9	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	32.5	Off	L1	19.4	23.5	56.0
0.182000	31.9	Off	L1	19.4	22.5	54.4
0.214000	29.3	Off	L1	19.3	23.7	53.0
8.486000	34.6	Off	L1	19.6	15.4	50.0
9.830000	36.6	Off	L1	19.6	13.4	50.0
11.166000	37.9	Off	L1	19.6	12.1	50.0
21.662000	46.6	Off	L1	19.8	3.4	50.0
28.686000	43.1	Off	L1	19.8	6.9	50.0

Test Mode :	Mode 2	**Temperature :**	21~23℃
Test Engineer :	Aslen Chiu	**Relative Humidity :**	43~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + WLAN Link + WAN Link + LAN Link + Adapter 2 + RJ-11 Link		
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	49.5	Off	N	19.4	16.1	65.6
0.174000	45.5	Off	N	19.3	19.3	64.8
0.206000	41.9	Off	N	19.3	21.5	63.4
9.814000	50.7	Off	N	19.7	9.3	60.0
11.158000	47.0	Off	N	19.7	13.0	60.0
20.382000	48.9	Off	N	19.9	11.1	60.0
28.686000	45.7	Off	N	19.9	14.3	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	39.6	Off	N	19.4	16.0	55.6
0.174000	32.8	Off	N	19.3	22.0	54.8
0.206000	30.7	Off	N	19.3	22.7	53.4
9.814000	41.2	Off	N	19.7	8.8	50.0
11.158000	38.0	Off	N	19.7	12.0	50.0
20.382000	41.5	Off	N	19.9	8.5	50.0
28.686000	40.6	Off	N	19.9	9.4	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

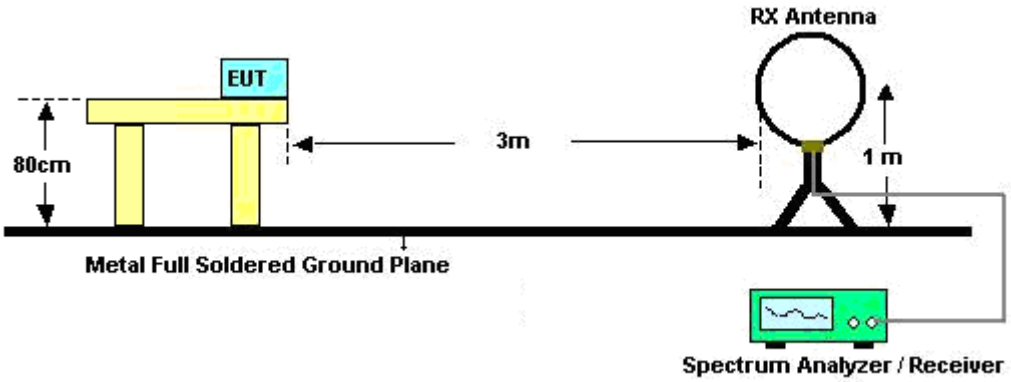
See list of measuring instruments of this test report.

3.7.3 Test Procedures

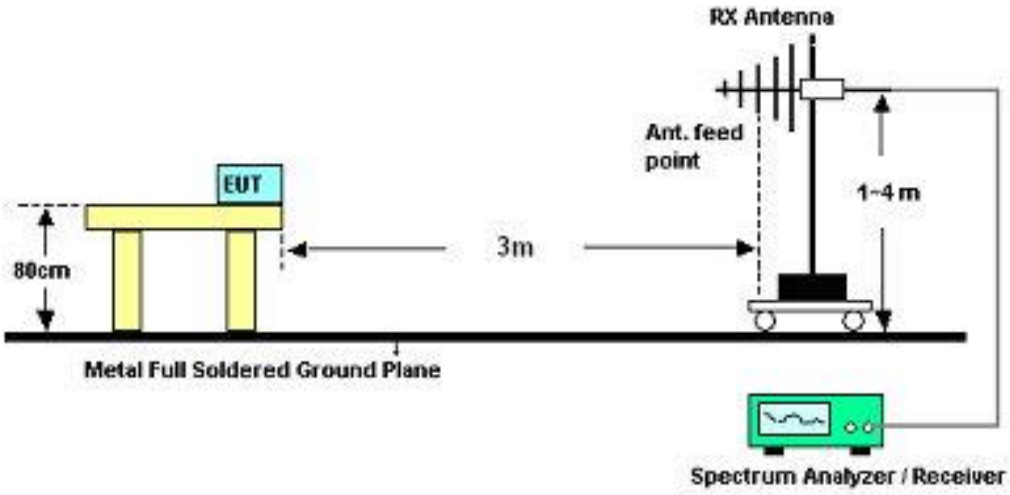
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; 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

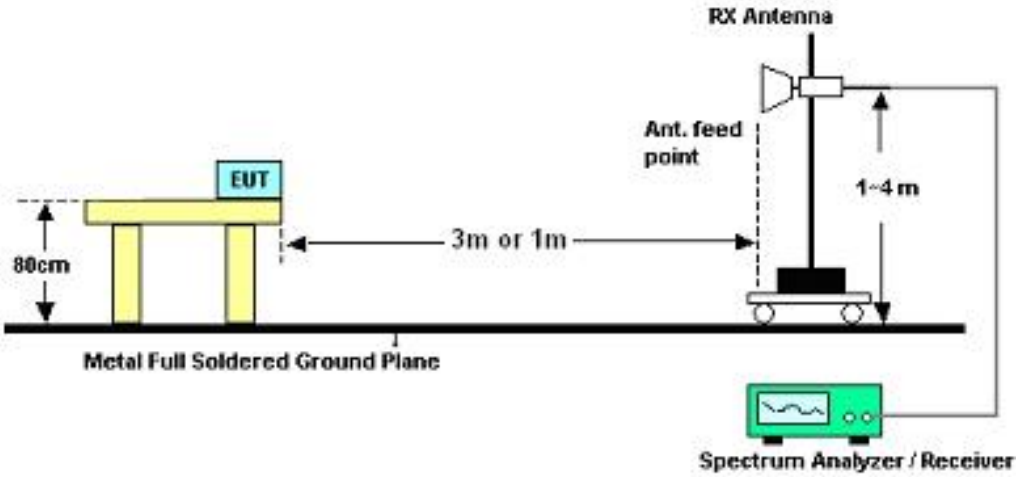
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

Test Engineer :	Elvis Chen	Temperature :	20~22°C
		Relative Humidity :	40~42%

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 :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
128.01	27.82	-15.68	43.5	46.56	11.56	1.22	31.52	-	-	Peak
250.05	31.62	-14.38	46	48.89	12.6	1.66	31.53	-	-	Peak
256.26	32.92	-13.08	46	49.37	13.38	1.67	31.5	-	-	Peak
384	42.62	-3.38	46	56.54	15.32	1.98	31.22	100	34	Peak
640.2	35.28	-10.72	46	42.91	20.6	2.56	30.79	-	-	Peak
896.4	35.33	-10.67	46	39.59	23.22	3	30.48	-	-	Peak
2374.98	43.79	-10.21	54	41.3	32	4.57	34.08	170	41	Average
2374.98	54.67	-19.33	74	52.18	32	4.57	34.08	170	41	Peak
2412	103.55	-	-	101.01	32.03	4.59	34.08	170	41	Average
2412	107.62	-	-	105.08	32.03	4.59	34.08	170	41	Peak
2496	42.37	-11.63	54	39.71	32.1	4.64	34.08	170	41	Average
2496	51.13	-22.87	74	48.47	32.1	4.64	34.08	170	41	Peak
4824	49.76	-24.24	74	67.88	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
31.62	35.81	-4.19	40	48.19	18.44	0.72	31.54	-	-	Peak
60.51	36.17	-3.83	40	60.86	6	0.87	31.56	100	41	Peak
250.05	38.85	-7.15	46	56.12	12.6	1.66	31.53	-	-	Peak
384	36.1	-9.9	46	50.02	15.32	1.98	31.22	-	-	Peak
512.1	34.69	-11.31	46	45.27	18.22	2.25	31.05	-	-	Peak
640.2	36.99	-9.01	46	44.62	20.6	2.56	30.79	-	-	Peak
2375.17	39.99	-14.01	54	37.5	32	4.57	34.08	147	182	Average
2375.17	51.7	-22.3	74	49.21	32	4.57	34.08	147	182	Peak
2412	101.08	-	-	98.54	32.03	4.59	34.08	147	182	Average
2412	104.68	-	-	102.14	32.03	4.59	34.08	147	182	Peak
2492	38.27	-15.73	54	35.61	32.1	4.64	34.08	147	182	Average
2492	48.74	-25.26	74	46.08	32.1	4.64	34.08	147	182	Peak
4824	45.21	-28.79	74	63.33	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
128.01	27.17	-16.33	43.5	45.91	11.56	1.22	31.52	-	-	Peak
250.05	34.49	-11.51	46	51.76	12.6	1.66	31.53	-	-	Peak
255.99	35.74	-10.26	46	52.19	13.38	1.67	31.5	-	-	Peak
384	40.45	-5.55	46	54.37	15.32	1.98	31.22	100	71	Peak
512.1	36.34	-9.66	46	46.92	18.22	2.25	31.05	-	-	Peak
896.4	35.86	-10.14	46	40.12	23.22	3	30.48	-	-	Peak
2360	46.01	-7.99	54	43.53	31.99	4.57	34.08	166	40	Average
2360	54.46	-19.54	74	51.98	31.99	4.57	34.08	166	40	Peak
2437	104.17	-	-	101.58	32.06	4.61	34.08	166	40	Average
2437	108.27	-	-	105.68	32.06	4.61	34.08	166	40	Peak
2494	39.16	-14.84	54	36.5	32.1	4.64	34.08	166	40	Average
2494	49.94	-24.06	74	47.28	32.1	4.64	34.08	166	40	Peak
4874	45.34	-28.66	74	63.35	33.82	6.53	58.36	100	0	Peak
7311	45.72	-28.28	74	59.4	35.6	8.42	57.7	100	0	Peak

Test Mode :	Mode 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
30.81	35.57	-4.43	40	47.29	19.12	0.71	31.55	100	82	Peak
54.3	35.28	-4.72	40	59.2	6.78	0.83	31.53	-	-	Peak
62.13	34.89	-5.11	40	59.6	5.96	0.87	31.54	-	-	Peak
384	36.68	-9.32	46	50.6	15.32	1.98	31.22	-	-	Peak
640.2	39.31	-6.69	46	46.94	20.6	2.56	30.79	-	-	Peak
768.3	35.72	-10.28	46	41.26	22.22	2.78	30.54	-	-	Peak
2360	45.88	-8.12	54	43.4	31.99	4.57	34.08	151	180	Average
2360	54.35	-19.65	74	51.87	31.99	4.57	34.08	151	180	Peak
2437	102.32	-	-	99.73	32.06	4.61	34.08	151	180	Average
2437	106.08	-	-	103.49	32.06	4.61	34.08	151	180	Peak
2490	36.6	-17.4	54	33.94	32.1	4.64	34.08	151	180	Average
2490	48.24	-25.76	74	45.58	32.1	4.64	34.08	151	180	Peak
4874	43.91	-30.09	74	61.92	33.82	6.53	58.36	100	0	Peak
7311	45.38	-28.62	74	59.06	35.6	8.42	57.7	100	0	Peak

Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 9848 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 107.03 dBuV/m - 20dB = 87.03 dBuV/m.		

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
132.6	27.45	-16.05	43.5	46.33	11.4	1.24	31.52	-	-	Peak
250.05	33.75	-12.25	46	51.02	12.6	1.66	31.53	-	-	Peak
255.99	31.79	-14.21	46	48.24	13.38	1.67	31.5	-	-	Peak
384	42.42	-3.58	46	56.34	15.32	1.98	31.22	100	94	Peak
768.3	39.62	-6.38	46	45.16	22.22	2.78	30.54	-	-	Peak
896.4	35.54	-10.46	46	39.8	23.22	3	30.48	-	-	Peak
2386	40.84	-13.16	54	38.45	31.95	4.53	34.09	164	36	Average
2386	55.1	-18.9	74	52.58	32.02	4.58	34.08	164	36	Peak
2462	102.85	-	-	100.24	32.07	4.62	34.08	164	36	Average
2462	107.03	-	-	104.42	32.07	4.62	34.08	164	36	Peak
2484.8	41.09	-12.91	54	38.44	32.09	4.64	34.08	164	36	Average
2484.8	52.61	-21.39	74	49.96	32.09	4.64	34.08	164	36	Peak
4924	45.89	-28.11	74	63.78	33.81	6.56	58.26	100	0	Peak
7386	44.92	-29.08	74	58.53	35.6	8.55	57.76	100	0	Peak
9848	47.27	-39.76	87.03	57.22	36.88	9.51	56.34	100	0	Peak

Test Mode :	Mode 3	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
31.89	36.35	-3.65	40	48.73	18.44	0.72	31.54	100	4	Peak
51.6	36.12	-3.88	40	59.25	7.62	0.81	31.56	-	-	Peak
64.83	35.6	-4.4	40	60.33	5.9	0.88	31.51	-	-	Peak
384	35.55	-10.45	46	49.47	15.32	1.98	31.22	-	-	Peak
512.1	36.94	-9.06	46	47.52	18.22	2.25	31.05	-	-	Peak
640.2	40.18	-5.82	46	47.81	20.6	2.56	30.79	-	-	Peak
2386	38.51	-15.49	54	35.99	32.02	4.58	34.08	152	178	Average
2386	54.8	-19.2	74	52.28	32.02	4.58	34.08	152	178	Peak
2462	100.6	-	-	97.99	32.07	4.62	34.08	152	178	Average
2462	104.65	-	-	102.04	32.07	4.62	34.08	152	178	Peak
2484.04	46.41	-7.59	54	43.76	32.09	4.64	34.08	152	178	Average
2484.04	50.12	-23.88	74	47.47	32.09	4.64	34.08	152	178	Peak
4924	45.15	-28.85	74	63.04	33.81	6.56	58.26	100	0	Peak
7386	45.01	-28.99	74	58.62	35.6	8.55	57.76	100	0	Peak

Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2389.04	46.57	-7.43	54	44.05	32.02	4.58	34.08	164	51	Average
2389.04	57.42	-16.58	74	54.9	32.02	4.58	34.08	164	51	Peak
2412	96.71	-	-	94.17	32.03	4.59	34.08	164	51	Average
2412	107.92	-	-	105.38	32.03	4.59	34.08	164	51	Peak
2488	37.96	-16.04	54	35.3	32.1	4.64	34.08	164	51	Average
2488	49.76	-24.24	74	47.1	32.1	4.64	34.08	164	51	Peak
4824	43.71	-30.29	74	61.83	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 4	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2359.59	44.68	-9.32	54	42.2	31.99	4.57	34.08	146	184	Average
2359.59	54.67	-19.33	74	52.19	31.99	4.57	34.08	146	184	Peak
2412	94.02	-	-	91.48	32.03	4.59	34.08	146	184	Average
2412	105.8	-	-	103.26	32.03	4.59	34.08	146	184	Peak
2488	35.77	-18.23	54	33.11	32.1	4.64	34.08	146	184	Average
2488	47.12	-26.88	74	44.46	32.1	4.64	34.08	146	184	Peak

Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2384	46.14	-7.86	54	43.64	32	4.58	34.08	160	49	Average
2384	56.48	-17.52	74	53.98	32	4.58	34.08	160	49	Peak
2437	96.63	-	-	94.04	32.06	4.61	34.08	160	49	Average
2437	108.03	-	-	105.44	32.06	4.61	34.08	160	49	Peak
2490	40.41	-13.59	54	37.75	32.1	4.64	34.08	160	49	Average
2490	51.21	-22.79	74	48.55	32.1	4.64	34.08	160	49	Peak

Test Mode :	Mode 5	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2384	42.54	-11.46	54	40.04	32	4.58	34.08	143	182	Average
2384	53.68	-20.32	74	51.18	32	4.58	34.08	143	182	Peak
2437	94.65	-	-	92.06	32.06	4.61	34.08	143	182	Average
2437	105.81	-	-	103.22	32.06	4.61	34.08	143	182	Peak
2490	38.15	-15.85	54	35.49	32.1	4.64	34.08	143	182	Average
2490	49.31	-24.69	74	46.65	32.1	4.64	34.08	143	182	Peak

Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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	41.82	-12.18	54	39.3	32.02	4.58	34.08	152	48	Average
2390	55.01	-18.99	74	52.49	32.02	4.58	34.08	152	48	Peak
2462	95.75	-	-	93.14	32.07	4.62	34.08	152	48	Average
2462	108.1	-	-	105.49	32.07	4.62	34.08	152	48	Peak
2483.5	42.9	-11.1	54	40.25	32.09	4.64	34.08	152	48	Average
2483.5	68.52	-5.48	74	65.87	32.09	4.64	34.08	152	48	Peak
4924	45.62	-28.38	74	63.51	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 6	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2378	41.52	-12.48	54	39.03	32	4.57	34.08	133	179	Average
2378	52.81	-21.19	74	50.32	32	4.57	34.08	133	179	Peak
2462	92.82	-	-	90.21	32.07	4.62	34.08	133	179	Average
2462	103.17	-	-	100.56	32.07	4.62	34.08	133	179	Peak
2483.66	39.01	-14.99	54	36.36	32.09	4.64	34.08	133	179	Average
2483.66	62.82	-11.18	74	60.17	32.09	4.64	34.08	133	179	Peak
4924	42.73	-31.27	74	60.62	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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	45.41	-8.59	54	42.89	32.02	4.58	34.08	100	337	Average
2390	56.13	-17.87	74	53.61	32.02	4.58	34.08	100	337	Peak
2462	94.24	-	-	91.63	32.07	4.62	34.08	100	337	Average
2462	105.37	-	-	102.76	32.07	4.62	34.08	100	337	Peak
2483.5	38.67	-15.33	54	36.02	32.09	4.64	34.08	100	337	Average
2483.5	62.14	-11.86	74	59.49	32.09	4.64	34.08	100	337	Peak
4924	43.19	-30.81	74	61.08	33.81	6.56	58.26	100	0	Peak

Test Mode :	Mode 7	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2376	44.8	-9.2	54	42.31	32	4.57	34.08	129	185	Average
2376	56.96	-17.04	74	54.47	32	4.57	34.08	129	185	Peak
2462	95.57	-	-	92.96	32.07	4.62	34.08	129	185	Average
2462	106.47	-	-	103.86	32.07	4.62	34.08	129	185	Peak
2483.66	41.18	-12.82	54	38.53	32.09	4.64	34.08	129	185	Average
2483.66	64.57	-9.43	74	61.92	32.09	4.64	34.08	129	185	Peak

Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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	-9	54	42.48	32.02	4.58	34.08	166	50	Average
2389.99	70.61	-3.39	74	68.09	32.02	4.58	34.08	166	50	Peak
2412	94.98	-	-	92.44	32.03	4.59	34.08	166	50	Average
2412	108.15	-	-	105.61	32.03	4.59	34.08	166	50	Peak
2484	38.27	-15.73	54	35.62	32.09	4.64	34.08	166	50	Average
2484	52.69	-21.31	74	50.04	32.09	4.64	34.08	166	50	Peak

Test Mode :	Mode 8	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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	45	-9	54	42.48	32.02	4.58	34.08	146	178	Average
2389.61	70.68	-3.32	74	68.16	32.02	4.58	34.08	146	178	Peak
2412	94.61	-	-	92.07	32.03	4.59	34.08	146	178	Average
2412	108.04	-	-	105.5	32.03	4.59	34.08	146	178	Peak
2484	39.09	-14.91	54	36.44	32.09	4.64	34.08	146	178	Average
2484	52.67	-21.33	74	50.02	32.09	4.64	34.08	146	178	Peak

Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2390	44.38	-9.62	54	41.86	32.02	4.58	34.08	162	49	Average
2390	62.42	-11.58	74	59.9	32.02	4.58	34.08	162	49	Peak
2437	95.39	-	-	92.8	32.06	4.61	34.08	162	49	Average
2437	107.89	-	-	105.3	32.06	4.61	34.08	162	49	Peak
2484	42.06	-11.94	54	39.41	32.09	4.64	34.08	162	49	Average
2484	56.93	-17.07	74	54.28	32.09	4.64	34.08	162	49	Peak

Test Mode :	Mode 9	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2390	44.6	-9.4	54	42.08	32.02	4.58	34.08	145	182	Average
2390	61.7	-12.3	74	59.18	32.02	4.58	34.08	145	182	Peak
2437	95.04	-	-	92.45	32.06	4.61	34.08	145	182	Average
2437	107.51	-	-	104.92	32.06	4.61	34.08	145	182	Peak
2486	40.76	-13.24	54	38.11	32.09	4.64	34.08	145	182	Average
2486	56.3	-17.7	74	53.65	32.09	4.64	34.08	145	182	Peak

Test Mode :	Mode 10	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2386	45.83	-8.17	54	43.31	32.02	4.58	34.08	166	52	Average
2386	56.45	-17.55	74	53.93	32.02	4.58	34.08	166	52	Peak
2462	94.61	-	-	92	32.07	4.62	34.08	166	52	Average
2462	107.84	-	-	105.23	32.07	4.62	34.08	166	52	Peak
2483.66	40.49	-13.51	54	37.84	32.09	4.64	34.08	166	52	Average
2483.66	62.15	-11.85	74	59.5	32.09	4.64	34.08	166	52	Peak

Test Mode :	Mode 10	Temperature :	20~22°C
Test Channel :	11	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2380	41.18	-12.82	54	38.68	32	4.58	34.08	143	180	Average
2380	55.23	-18.77	74	52.73	32	4.58	34.08	143	180	Peak
2462	93.38	-	-	90.77	32.07	4.62	34.08	143	180	Average
2462	107.12	-	-	104.51	32.07	4.62	34.08	143	180	Peak
2483.5	44.94	-9.06	54	42.29	32.09	4.64	34.08	143	180	Average
2483.5	64.2	-9.8	74	61.55	32.09	4.64	34.08	143	180	Peak

Test Mode :	Mode 11	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2389.8	44.5	-9.5	54	41.98	32.02	4.58	34.08	100	40	Average
2389.8	68.76	-5.24	74	66.24	32.02	4.58	34.08	100	40	Peak
2412	95.04	-	-	92.5	32.03	4.59	34.08	100	40	Average
2412	105.96	-	-	103.42	32.03	4.59	34.08	100	40	Peak
2492	38.71	-15.29	54	36.05	32.1	4.64	34.08	100	40	Average
2492	51.57	-22.43	74	48.91	32.1	4.64	34.08	100	40	Peak
4824	42.43	-31.57	74	60.55	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 11	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2389.8	41.16	-12.84	54	38.64	32.02	4.58	34.08	101	185	Average
2389.8	64.46	-9.54	74	61.94	32.02	4.58	34.08	101	185	Peak
2412	93.16	-	-	90.62	32.03	4.59	34.08	101	185	Average
2412	103.81	-	-	101.27	32.03	4.59	34.08	101	185	Peak
2496	37.49	-16.51	54	34.83	32.1	4.64	34.08	101	185	Average
2496	49.7	-24.3	74	47.04	32.1	4.64	34.08	101	185	Peak

Test Mode :	Mode 12	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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	46.81	-7.19	54	44.29	32.02	4.58	34.08	100	343	Average
2389.99	70.99	-3.01	74	68.47	32.02	4.58	34.08	100	343	Peak
2412	95.91	-	-	93.37	32.03	4.59	34.08	100	343	Average
2412	106.48	-	-	103.94	32.03	4.59	34.08	100	343	Peak
2484	37.66	-16.34	54	35.01	32.09	4.64	34.08	100	343	Average
2484	54.19	-19.81	74	51.54	32.09	4.64	34.08	100	343	Peak
4824	48.23	-25.77	74	66.35	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 12	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
2389.8	46.82	-7.18	54	44.3	32.02	4.58	34.08	102	201	Average
2389.8	69.76	-4.24	74	67.24	32.02	4.58	34.08	102	201	Peak
2412	96.35	-	-	93.81	32.03	4.59	34.08	102	201	Average
2412	107.29	-	-	104.75	32.03	4.59	34.08	102	201	Peak
2484	40.75	-13.25	54	38.1	32.09	4.64	34.08	102	201	Average
2484	57.11	-16.89	74	54.46	32.09	4.64	34.08	102	201	Peak
4824	44.05	-29.95	74	62.17	33.83	6.51	58.46	100	0	Peak

Test Mode :	Mode 13	Temperature :	20~22°C
Test Channel :	03	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
250.05	34.27	-11.73	46	51.54	12.6	1.66	31.53	-	-	Peak
255.99	38.7	-7.3	46	55.15	13.38	1.67	31.5	-	-	Peak
260.04	32.98	-13.02	46	48.88	13.9	1.68	31.48	-	-	Peak
384	39.06	-6.94	46	52.98	15.32	1.98	31.22	100	98	Peak
512.1	35.39	-10.61	46	45.97	18.22	2.25	31.05	-	-	Peak
896.4	36.89	-9.11	46	41.15	23.22	3	30.48	-	-	Peak
2389.99	48.38	-5.62	54	45.86	32.02	4.58	34.08	163	51	Average
2389.99	68.16	-5.84	74	65.64	32.02	4.58	34.08	163	51	Peak
2422	91.35	-	-	88.8	32.04	4.59	34.08	163	51	Average
2422	104.98	-	-	102.43	32.04	4.59	34.08	163	51	Peak
2486	37.98	-16.02	54	35.33	32.09	4.64	34.08	163	51	Average
2486	50.92	-23.08	74	48.27	32.09	4.64	34.08	163	51	Peak

Test Mode :	Mode 13	Temperature :	20~22°C
Test Channel :	03	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
45.93	35.98	-4.02	40	56.78	9.98	0.78	31.56	-	-	Peak
50.79	36.32	-3.68	40	59.18	7.9	0.81	31.57	-	-	Peak
59.7	36.54	-3.46	40	61.23	6	0.87	31.56	100	62	Peak
384	37.51	-8.49	46	51.43	15.32	1.98	31.22	-	-	Peak
512.1	34.84	-11.16	46	45.42	18.22	2.25	31.05	-	-	Peak
640.2	37.96	-8.04	46	45.59	20.6	2.56	30.79	-	-	Peak
2389.99	46.76	-7.24	54	44.24	32.02	4.58	34.08	149	180	Average
2389.99	68	-6	74	65.48	32.02	4.58	34.08	149	180	Peak
2422	90.58	-	-	88.03	32.04	4.59	34.08	149	180	Average
2422	104.96	-	-	102.41	32.04	4.59	34.08	149	180	Peak
2496	38.78	-15.22	54	36.12	32.1	4.64	34.08	149	180	Average
2496	52.01	-21.99	74	49.35	32.1	4.64	34.08	149	180	Peak

Test Mode :	Mode 14	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
128.01	28.04	-15.46	43.5	46.78	11.56	1.22	31.52	-	-	Peak
250.05	33.59	-12.41	46	50.86	12.6	1.66	31.53	-	-	Peak
255.99	39.53	-6.47	46	55.98	13.38	1.67	31.5	-	-	Peak
384	39.79	-6.21	46	53.71	15.32	1.98	31.22	100	16	Peak
640.2	33.64	-12.36	46	41.27	20.6	2.56	30.79	-	-	Peak
896.4	35.42	-10.58	46	39.68	23.22	3	30.48	-	-	Peak
2390	43.2	-10.8	54	40.68	32.02	4.58	34.08	159	50	Average
2390	58.82	-15.18	74	56.3	32.02	4.58	34.08	159	50	Peak
2437	91.6	-	-	89.01	32.06	4.61	34.08	159	50	Average
2437	105.52	-	-	102.93	32.06	4.61	34.08	159	50	Peak
2484	40.42	-13.58	54	37.77	32.09	4.64	34.08	159	50	Average
2484	57.94	-16.06	74	55.29	32.09	4.64	34.08	159	50	Peak

Test Mode :	Mode 14	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
30.54	35.36	-4.64	40	47.08	19.12	0.71	31.55	-	-	Peak
60.78	36.89	-3.11	40	61.59	5.98	0.87	31.55	100	72	Peak
81.84	36.07	-3.93	40	58.85	7.78	0.99	31.55	-	-	Peak
384	34.7	-11.3	46	48.62	15.32	1.98	31.22	-	-	Peak
512.1	33.1	-12.9	46	43.68	18.22	2.25	31.05	-	-	Peak
640.2	39.54	-6.46	46	47.17	20.6	2.56	30.79	-	-	Peak
2388	45.18	-8.82	54	42.66	32.02	4.58	34.08	147	180	Average
2388	54.8	-19.2	74	52.28	32.02	4.58	34.08	147	180	Peak
2437	90.47	-	-	87.88	32.06	4.61	34.08	147	180	Average
2437	105.38	-	-	102.79	32.06	4.61	34.08	147	180	Peak
2484	39.59	-14.41	54	36.94	32.09	4.64	34.08	147	180	Average
2484	55.37	-18.63	74	52.72	32.09	4.64	34.08	147	180	Peak

Test Mode :	Mode 15	Temperature :	20~22°C
Test Channel :	09	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
30.27	23.97	-16.03	40	35.03	19.8	0.7	31.56	-	-	Peak
250.05	34.53	-11.47	46	51.8	12.6	1.66	31.53	-	-	Peak
256.26	35.42	-10.58	46	51.87	13.38	1.67	31.5	-	-	Peak
384	42.01	-3.99	46	55.93	15.32	1.98	31.22	100	161	Peak
640.2	33.95	-12.05	46	41.58	20.6	2.56	30.79	-	-	Peak
896.4	37.92	-8.08	46	42.18	23.22	3	30.48	-	-	Peak
2382	42.52	-11.48	54	40.02	32	4.58	34.08	158	51	Average
2382	55.36	-18.64	74	52.86	32	4.58	34.08	158	51	Peak
2452	91.61	-	-	89.02	32.06	4.61	34.08	158	51	Average
2452	105.67	-	-	103.08	32.06	4.61	34.08	158	51	Peak
2483.5	47.46	-6.54	54	44.81	32.09	4.64	34.08	158	51	Average
2483.5	68.42	-5.58	74	65.77	32.09	4.64	34.08	158	51	Peak
4904	43.96	-30.04	74	61.88	33.82	6.55	58.29	100	0	Peak

Test Mode :	Mode 15	Temperature :	20~22°C
Test Channel :	09	Relative Humidity :	40~42%
Test Engineer :	Elvis Chen	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
54.84	35.9	-4.1	40	60.09	6.5	0.83	31.52	-	-	Peak
59.97	37	-3	40	61.69	6	0.87	31.56	100	43	Peak
68.61	36.19	-3.81	40	60.57	6.22	0.9	31.5	-	-	Peak
512.1	36.52	-9.48	46	47.1	18.22	2.25	31.05	-	-	Peak
640.2	40.43	-5.57	46	48.06	20.6	2.56	30.79	-	-	Peak
768.3	35.58	-10.42	46	41.12	22.22	2.78	30.54	-	-	Peak
2378	45.14	-8.86	54	42.65	32	4.57	34.08	148	180	Average
2378	54.09	-19.91	74	51.6	32	4.57	34.08	148	180	Peak
2452	90.13	-	-	87.54	32.06	4.61	34.08	148	180	Average
2452	105.13	-	-	102.54	32.06	4.61	34.08	148	180	Peak
2484.8	45.32	-8.68	54	42.67	32.09	4.64	34.08	148	180	Average
2484.8	66.84	-7.16	74	64.19	32.09	4.64	34.08	148	180	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	Dec. 15, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Dec. 15, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Dec. 15, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Dec. 15, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Dec. 15, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D35P	TBN-930701	N/A	Jul. 27, 2011	Dec. 15, 2011	Jul. 26, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Dec. 19, 2011 ~ Dec. 29, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz~30MHz	Dec. 09, 2011	Dec. 19, 2011 ~ Dec. 29, 2011	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz~30MHz	Dec. 06, 2011	Dec. 19, 2011 ~ Dec. 29, 2011	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Dec. 19, 2011 ~ Dec. 29, 2011	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	114256	N/A	Feb. 15, 2011	Dec. 19, 2011 ~ Dec. 29, 2011	Feb. 14, 2012	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP30	101352	9KHz~30GHz	Nov. 03, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Nov. 02, 2012	Radiation (03CH05-HY)
COM-POWER	Double Ridge Horn	AH-118	701030	1GHz~18GHz	N/A	Dec. 15, 2011 ~ Dec. 26, 2011	N/A	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz~1GHz	Oct. 22, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 - 360 degree	N/A	Dec. 15, 2011 ~ Dec. 26, 2011	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m~4 m	N/A	Dec. 15, 2011 ~ Dec. 26, 2011	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz~18GHz	Aug. 04, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Aug. 03, 2012	Radiation (03CH05-HY)
COM-POWER	COM-POWER	PA-103	161075	1KHz~1GHz	Mar. 29, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Mar. 28, 2012	Radiation (03CH05-HY)
Pre Amplifier	EMCI	EMC051845	SN980048	1GHz~18GHz	Jul. 19, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Jul. 18, 2012	Radiation (03CH05-HY)
Preamplifier	MITEQ	AMF-7D-00101800-30-10P	159087	1GHz~18GHz	Feb. 21, 2011	Dec. 15, 2011 ~ Dec. 26, 2011	Feb. 20, 2012	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz~26.5GHz	Apr. 14, 2011	Dec. 15, 2011 ~ Dec. 26, 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 EP1D0512 as below.