



SPORTON International Inc.

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FCC / IC RADIO TEST REPORT

Applicant's company	Intel Corporation
Applicant Address	100 Center Point Circle Suite 200 Columbia, SC 29210
FCC ID	PD962205ANSU
IC	1000M-62205ANSU
Manufacturer's company	Intel Corporation
Manufacturer Address	2111 NE 25th Avenue, Hillsboro, OR 97124 USA

Product Name	Intel Centrino Advanced-N 6205
Brand Name	Intel
Model Name	62205ANSFF
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247 RSS 210 Issue 8 Industry Canada RSS-Gen Issue 3
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Dec. 01, 2011
Final Test Date	Dec. 26, 2011
Submission Type	Original Equipment

Statement

Test result included is only for the IEEE 802.11n, IEEE 802.11b/g part and IEEE 802.11a (5725 ~ 5850MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in ANSI C63.10-2009 and 47 CFR FCC Part 15 Subpart C, RSS 210 Issue 8 and Industry Canada RSS-Gen Issue 3.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.





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Table of Contents

1. CERTIFICATE OF COMPLIANCE	1
2. SUMMARY OF THE TEST RESULT	2
3. GENERAL INFORMATION	4
3.1. Product Details.....	4
3.2. Accessories.....	6
3.3. Table for Filed Antenna.....	7
3.4. Table for Carrier Frequencies	8
3.5. Table for Test Modes	9
3.6. Table for Testing Locations.....	10
3.7. Table for the EUT consisted of the following component	10
3.8. Table for Supporting Units	10
3.9. EUT OPERATION.....	11
3.10. Test Configurations	12
4. TEST RESULT	14
4.1. AC Power Line Conducted Emissions Measurement.....	14
4.2. Band Edge Emissions Measurement	18
4.3. Output Power Measurement	63
4.4. Power Spectral Density Measurement	75
4.5. 6dB Spectrum Bandwidth Measurement	91
4.6. Radiated Emissions Measurement for Transmitter and Receiver Spurious	107
4.7. Out of Band Spurious Emissions.....	130
4.8. Antenna Requirements	171
5. LIST OF MEASURING EQUIPMENTS	172
6. TEST LOCATION.....	174
7. TAF CERTIFICATE OF ACCREDITATION	175
APPENDIX A. TEST PHOTOS.....	A1 ~ A6
APPENDIX B. MAXIMUM PERMISSIBLE EXPOSURE	B1 ~ B3

History of This Test Report

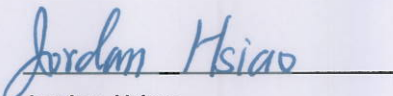
REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR&CR1D1211AB	Rev. 01	Initial issue of report	Jan. 18, 2012



1. CERTIFICATE OF COMPLIANCE

Product Name : Intel Centrino Advanced-N 6205
Brand Name : Intel
Model Name : 62205ANSFF
Applicant : Intel Corporation
Test Rule Part(s) : 47 CFR FCC Part 15 Subpart C § 15.247
RSS 210 Issue 8
Industry Canada RSS-Gen Issue 3

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Dec. 01, 2011 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.


Jordan Hsiao
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C / RSS 210 Issue 8 / Industry Canada RSS-Gen Issue 3					
Part	FCC Rule Part	RSS Rule Part	Description of Test	Measure Value/ Comments	Result
4.1	15.207	RSS GEN Table 2	AC Power Line Conducted Emissions	49.79dB μ V @ 0.19758MHz	Complies
4.2	15.247(d)	RSS 210 A8.5	Band Edge Emissions	50.34dB μ V/m @ 2390MHz	Complies
4.3	15.247(b)(3)	RSS 210 A8.4 (4)	Output Power	802.11b: 15.68dBm 802.11g: 22.88dBm 1TX: MCS0 (20MHz): 16.61 dBm MCS0 (40MHz): 16.65 dBm 2TX: MCS0 (20MHz): 16.49 dBm MCS0 (40MHz): 16.68 dBm 802.11a: 15.85 dBm 1TX: MCS0 (20MHz): 15.77 dBm MCS0 (40MHz): 21.45 dBm 2TX: MCS0 (20MHz): 16.36 dBm MCS0 (40MHz): 16.56 dBm	Complies
4.4	15.247(e)	RSS 210 A8.2 (2)	Power Spectral Density	-7.41 dBm / 3kHz	Complies
4.5	15.247(a)(2)	RSS 210 A8.2 (1)	6dB Spectrum Bandwidth	802.11b: 12 MHz 802.11g: 15.04 MHz 1TX: MCS0 (20MHz): 15.12 MHz MCS0 (40MHz): 35.12 MHz 2TX: MCS0 (20MHz): 15.08 MHz MCS0 (40MHz): 35.08 MHz 802.11a: 16.36 MHz 1TX: MCS0 (20MHz): 16.84 MHz MCS0 (40MHz): 35.20 MHz 2TX: MCS0 (20MHz): 15.40 MHz MCS0 (40MHz): 35.12 MHz	Complies

Applied Standard: 47 CFR FCC Part 15 Subpart C / RSS 210 Issue 8 / Industry Canada RSS-Gen Issue 3					
4.5	-	RSP 100 RSS GEN 4.4.1	99% Bandwidth	802.11b: 14.92 MHz 802.11g: 16.36 MHz 1TX: MCS0 (20MHz): 17.56 MHz MCS0 (40MHz): 36 MHz 2TX: MCS0 (20MHz): 17.44 MHz MCS0 (40MHz): 35.76 MHz 802.11a: 16.48 MHz 1TX: MCS0 (20MHz): 17.64 MHz MCS0 (40MHz): 35.92 MHz 2TX: MCS0 (20MHz): 17.56 MHz MCS0 (40MHz): 35.84 MHz	Complies
4.6	15.247(d)	RSS 210 A8.5 Table 2, 3	Radiated Emissions Measurement for Transmitter and Receiver Spurious	39.30dB μ V/m @ 900.09MHz	Complies
4.7	15.109	RSS GEN 7.2.3 Table 1	Out of Band Spurious Emissions	-	Complies
4.8	15.203	-	Antenna Requirements	-	Complies

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	± 2.3 dB	Confidence levels of 95%
Maximum Peak Output Power	± 0.8 dB	Confidence levels of 95%
Power Spectral Density	± 0.5 dB	Confidence levels of 95%
6dB Spectrum Bandwidth	$\pm 8.5 \times 10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	± 0.8 dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	± 1.9 dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	± 1.9 dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	± 1.9 dB	Confidence levels of 95%
Temperature	$\pm 0.7^{\circ}\text{C}$	Confidence levels of 95%
Humidity	$\pm 3.2\%$	Confidence levels of 95%
DC / AC Power Source	$\pm 1.4\%$	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (1TX, 1RX/ 2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: 1TX: MCS0 (20MHz): 17.56 MHz ; MCS0 (40MHz): 36.00 MHz 2TX: MCS0 (20MHz): 17.44 MHz ; MCS0 (40MHz): 35.76 MHz For 5GHz Band: 1TX: MCS0 (20MHz): 17.64 MHz ; MCS0 (40MHz): 35.92 MHz 2TX: MCS0 (20MHz): 17.56 MHz ; MCS0 (40MHz): 35.84 MHz
Peak Output Power	For 2.4GHz Band: 1TX: MCS0 (20MHz): 16.61 dBm ; MCS0 (40MHz): 16.65 dBm 2TX: MCS0 (20MHz): 16.49 dBm ; MCS0 (40MHz): 16.68 dBm For 5GHz Band: 1TX: MCS0 (20MHz): 15.77 dBm ; MCS0 (40MHz): 21.45 dBm 2TX: MCS0 (20MHz): 16.36 dBm ; MCS0 (40MHz): 16.56 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	11b: WLAN (1TX, 1RX) 11g: WLAN (1TX, 1RX) 11a: WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	11b: 14.96 MHz ; 11g: 16.36 MHz ; 11a: 16.52 MHz
Peak Output Power	11b: 15.68 dBm ; 11g: 22.88 dBm ; 11a: 15.85 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

Antenna	Single (TX)		Two (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz
IEEE 802.11a	V	X	X	X
IEEE 802.11b	V	X	X	X
IEEE 802.11g	V	X	X	X
IEEE 802.11n	V	V	V	V

IEEE 802.11n spec

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)			
					2.4GHz	5GHz		
						5.15~5.35 GHz	5.47~5.725 GHz	5.725~5.850 GHz
A	Shanghai Universe Communication Electron Co., Ltd.	N/A	PIFA Antenna	UFL	3.2	3.7	4.8	5
B	Shanghai Universe Communication Electron Co., Ltd.	N/A	PIFA Antenna	UFL	3.2	3.7	4.8	5

Note: There are two sets of antenna provided to this EUT and all of them can be used as transmitting and receiving antenna

For IEEE 802.11n mode (2TX/2RX)

Antenna A and Antenna B could transmit/receive simultaneously.

For IEEE 802.11n mode (1TX/1RX)

The EUT supports the antenna with TX/RX diversity function.

For IEEE 802.11abg mode (1TX/1RX):

The EUT supports the antenna with TX/RX diversity function.

3.4. Table for Carrier Frequencies

For 2.4GHz Band:

For IEEE 802.11b/g, use Channel 1~Channel 11.

There are two bandwidth systems for IEEE 802.11n.

For both 20MHz bandwidth systems, use Channel 1~Channel 11.

For both 40MHz bandwidth systems, use Channel 3~Channel 9.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
2400~2483.5MHz	1	2412 MHz	7	2442 MHz
	2	2417 MHz	8	2447 MHz
	3	2422 MHz	9	2452 MHz
	4	2427 MHz	10	2457 MHz
	5	2432 MHz	11	2462 MHz
	6	2437 MHz	-	-

For 5GHz Band:

For IEEE 802.11a, use Channel 149, 153, 157, 161, 165.

There are two bandwidth systems for IEEE 802.11n.

For 20MHz bandwidth systems, use Channel 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 151, 159.

Frequency Band	Channel No.	Frequency
5725~5850 MHz Band 4	149	5745 MHz
	151	5755 MHz
	153	5765 MHz
	157	5785 MHz
	159	5795 MHz
	161	5805 MHz
	165	5825 MHz

3.5. Table for Test Modes

In normal operating modes the card uses power settings stored on EEPROM to set the output power. For a given nominal output power the actual transmit power is reduced as the data rate increases, therefore testing was performed at the lowest data rate in each mode as this data rate to determine compliance with the requirements at the highest power setting.

The following power measurements were made using an average power meter and with the device configured in a continuous transmit mode on Chain A at the various data rates in each mode to verify this:

Mode	Setting	Date Rate	Power
802.11b	23	1	15.58
		2	15.56
		5.5	15.60
		11	15.53
802.11g (802.11a)	26	6	14.52
		9	14.45
		12	14.41
		18	14.44
		24	14.25
		36	14.19
		48	14.22
		54	14.18
802.11n 20MHz	25	6.5	13.47
		13	13.33
		19.5	13.42
		26	13.36
		39	13.31
		52	13.26
		58.5	13.24
		65	13.24
802.11n 40MHz	21	13.5	9.48
		27	9.47
		40.5	9.38
		54	9.19
		81	9.11
		108	9.05
		121.5	9.06
		135	8.94

3.6. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC); Fully Anechoic Chamber (FAC).

Please refer section 6 for Test Site Address.

3.7. Table for the EUT consisted of the following component

Manufacturer	Model Name	Description	MAC address	FCC ID / IC UPN
Intel Corporation	62205ANSFF	PCIe Half Mini Card 802.11a/b/g/n wireless network	00:15:00:85:80:1C	PD962205ANSU 1000M-62205ANSU

3.8. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
PC	DELL	T3400	N/A
LCD Monitor	HP	FW660AA	DoC
Mouse	iCooky	AMS0706W	DoC
Keyboard	iCooky	SK068	DoC

3.9. EUT OPERATION

The EUT was installed into a test fixture that exposed all sides of the card. The test fixture interfaced to a laptop computer and dc power supply. The laptop computer was used to configure the EUT to continuously transmit at a specified output power or continuously receive on the channel specified in the test data. For transmit mode measurements the system was configured to operate in each of the available operating modes – 802.11b, 802.11g, 802.11a, 802.11n (20 MHz channel bandwidth) and 802.11n (40MHz channel bandwidth).

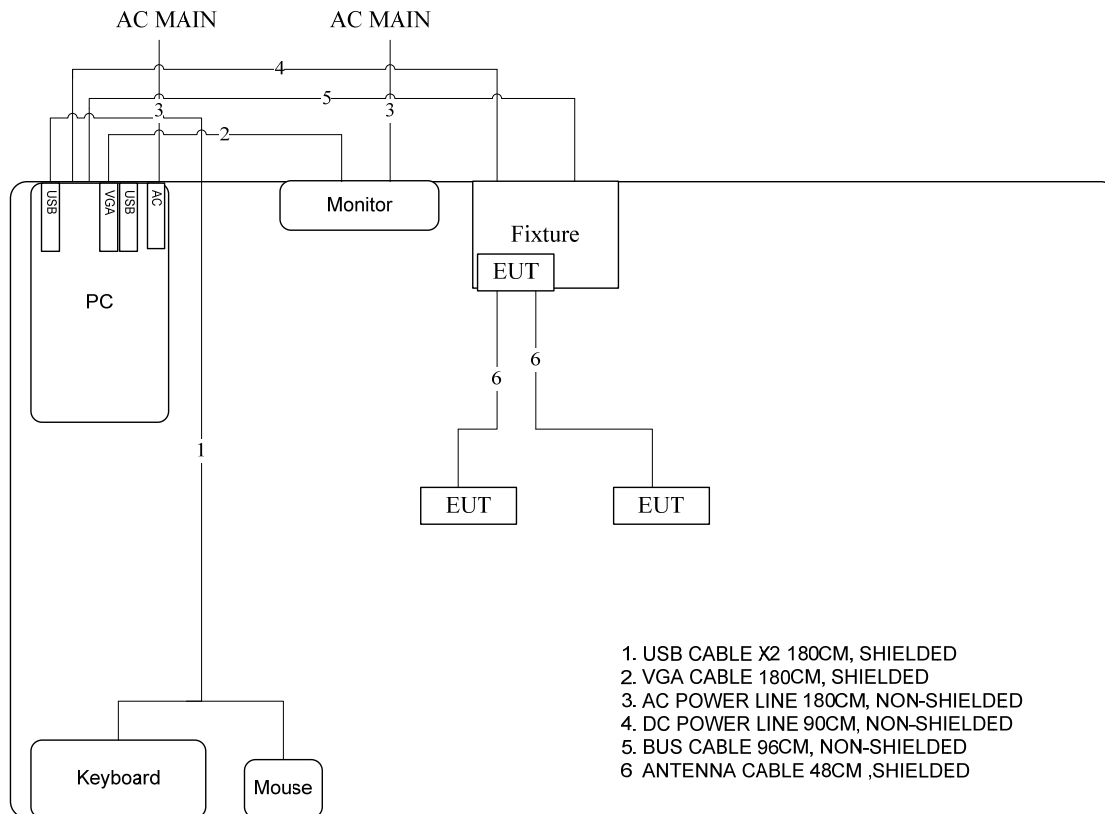
Legacy modes (SISO-only) were evaluated on each chain individually. The 802.11n modes were evaluated operating on each chain separately (SISO) and on both chains simultaneously (MIMO). Spurious measurements, other than band-edge measurements, were only performed on 802.11n modes with both chains transmitting simultaneously. For those tests the output power per chain was set to the higher single-chain power level to cover both SISO and MIMO operation.

The data rates used for all tests were the lowest data rates for each mode – 1Mb/s for 802.11b, 6Mb/s for 802.11a and 802.11g, 6.5MB/s for 802.11n (20MHz), and 13 Mb/s for 802.11n (40MHz). The device operates at its maximum output power at the lowest data rate (this was confirmed through separate measurements – refer to test data for actual measurements).

The PC was using the Intel test utility DRTU Version 1.5.2-0308 and the device driver was version 14.0.4.115.

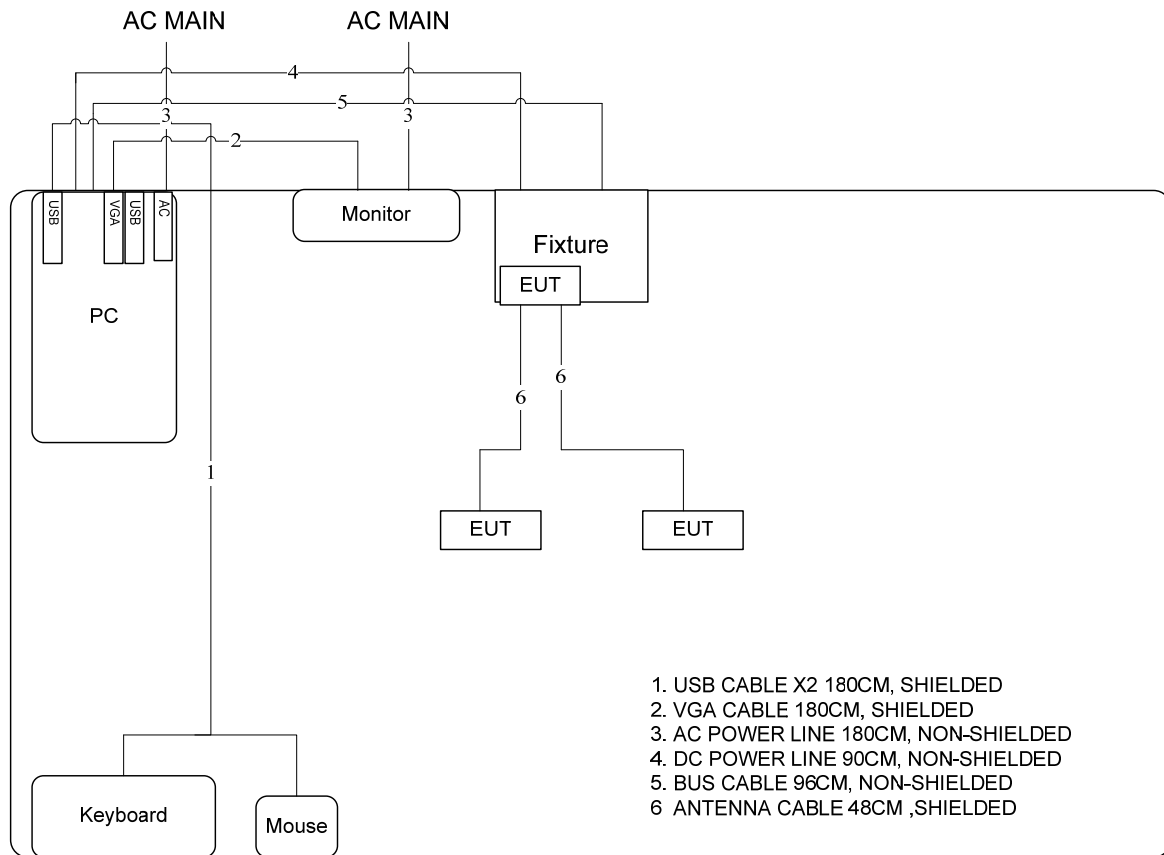
3.10. Test Configurations

3.10.1. Radiation Emissions Test Configuration





3.10.2.AC Power Line Conduction Emissions Test Configuration



4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Summary of Test Results

MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Test #	Test Performed	Limit	Result	Under Limit (dB)
1	CE, AC Power, 120V/60Hz	FCC 15.207/RSS GEN	Pass	3.92dB

4.1.2. Limit

For this product which is designed to be connected to the 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 below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

4.1.3. Measuring Instruments and Setting

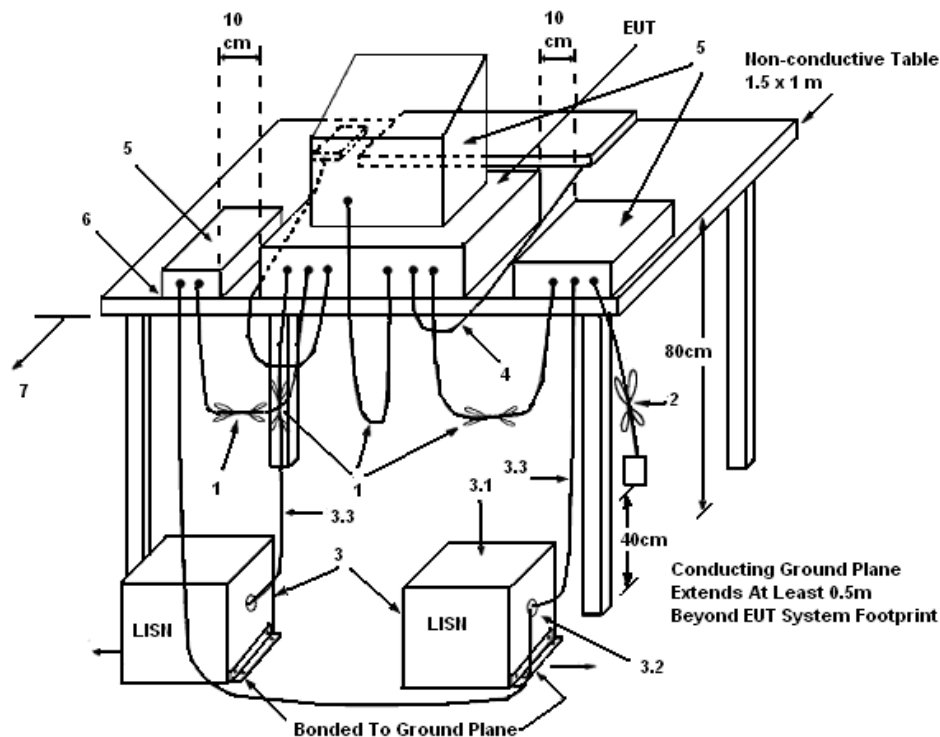
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

4.1.4. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.5. Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
 - (3.1) All other equipment powered from additional LISN(s).
 - (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.6. Test Deviation

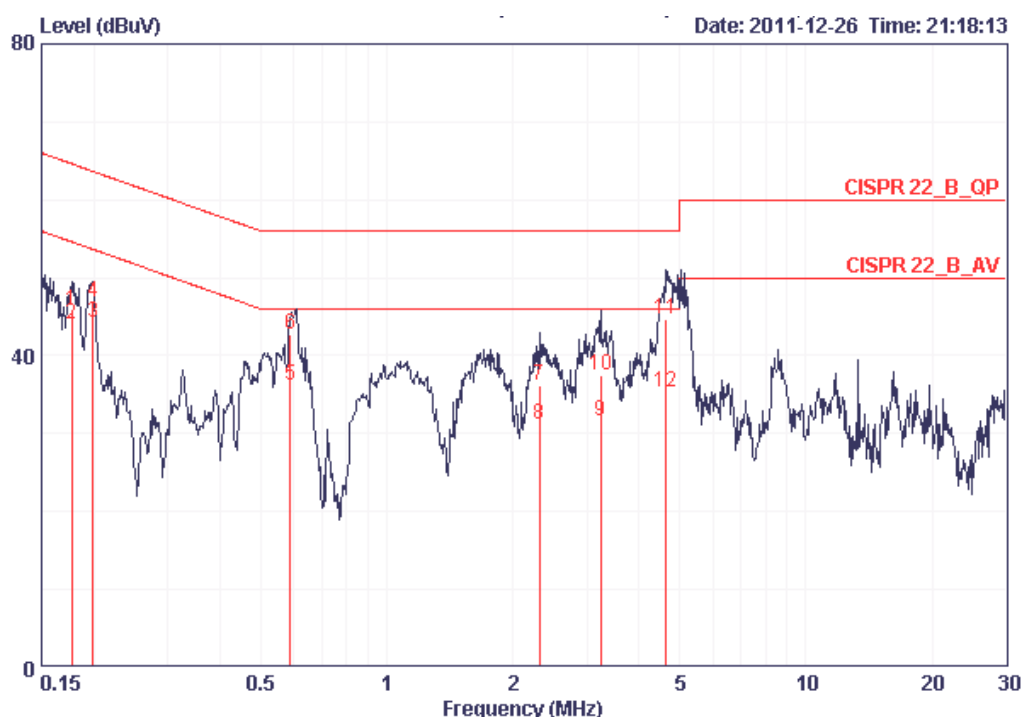
There is no deviation with the original standard.

4.1.7. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

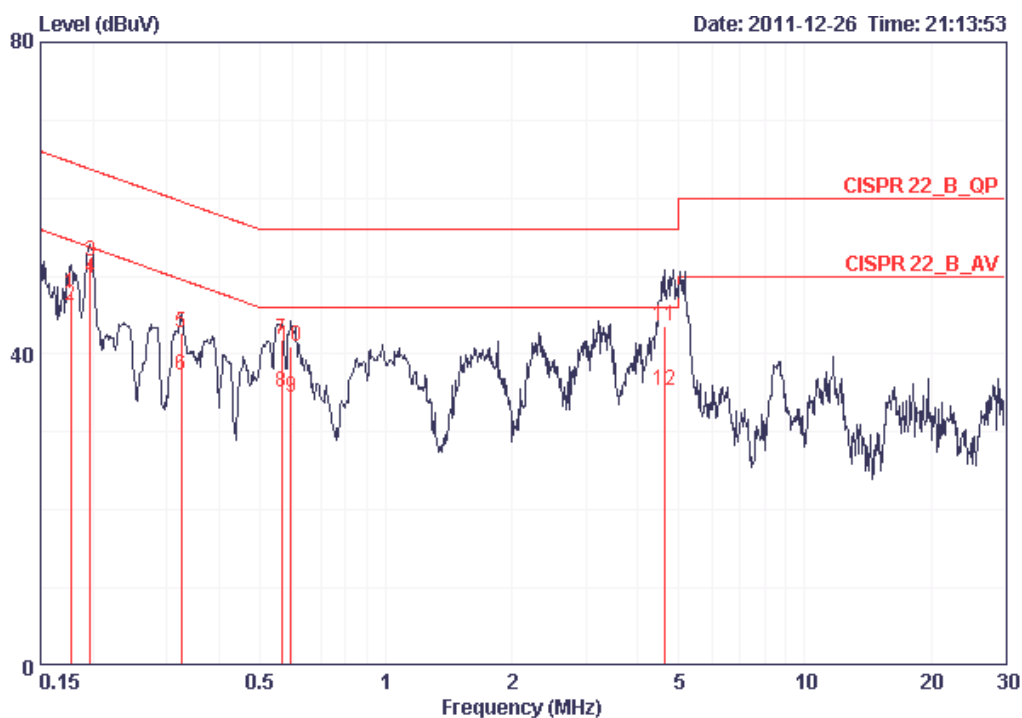
4.1.8. Test Results of AC Power Line Conducted Emissions Measurement

Temperature	22°C	Humidity	61%
Test Engineer	Simon Yang	Phase	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17678	45.75	-18.89	64.64	45.49	0.06	0.20	QP
2	0.17678	44.12	-10.52	54.64	43.86	0.06	0.20	AVERAGE
3	0.19863	44.27	-9.40	53.67	44.02	0.05	0.20	AVERAGE
4	0.19863	46.78	-16.89	63.67	46.53	0.05	0.20	QP
5	0.58925	36.21	-9.79	46.00	35.98	0.03	0.20	AVERAGE
6	0.58925	42.70	-13.30	56.00	42.47	0.03	0.20	QP
7	2.309	36.20	-19.80	56.00	35.94	0.06	0.20	QP
8	2.309	31.20	-14.80	46.00	30.94	0.06	0.20	AVERAGE
9	3.241	31.59	-14.41	46.00	31.25	0.08	0.25	AVERAGE
10	3.241	37.59	-18.41	56.00	37.25	0.08	0.25	QP
11	4.622	44.75	-11.25	56.00	44.31	0.14	0.30	QP
12	4.622	35.21	-10.79	46.00	34.77	0.14	0.30	AVERAGE

Temperature	22°C	Humidity	61%
Test Engineer	Simon Yang	Phase	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17678	47.80	-16.84	64.64	47.51	0.09	0.20	QP
2	0.17678	46.32	-8.32	54.64	46.03	0.09	0.20	AVERAGE
3	0.19758	51.78	-11.93	63.71	51.50	0.08	0.20	QP
4 B	0.19758	49.79	-3.92	53.71	49.51	0.08	0.20	AVERAGE
5	0.32512	42.68	-16.89	59.57	42.41	0.07	0.20	QP
6	0.32512	37.23	-12.34	49.57	36.96	0.07	0.20	AVERAGE
7	0.56409	41.82	-14.18	56.00	41.55	0.07	0.20	QP
8	0.56409	35.18	-10.82	46.00	34.91	0.07	0.20	AVERAGE
9	0.59478	34.38	-11.62	46.00	34.11	0.07	0.20	AVERAGE
10	0.59478	41.00	-15.00	56.00	40.73	0.07	0.20	QP
11	4.622	43.56	-12.44	56.00	43.08	0.18	0.30	QP
12	4.622	35.42	-10.58	46.00	34.94	0.18	0.30	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss

4.2. Band Edge Emissions Measurement

4.2.1. Summary of Test Results

MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Test #	Mode	Channel	Target Power (dBm)	Measured Power (dBm)	Test Performed	Limit	Result	Margin (dB)
1	802.11b Chain A	#1 2412 MHz	15.5	15.68	Restricted Band Edge at 2390 MHz	15.209	PASS	-9.00
10	802.11b Chain A	#11 2462 MHz	15.5	15.7	Restricted Band Edge at 2483.5 MHz		PASS	-8.54
1	802.11b Chain B	#1 2412 MHz	15.5	15.39	Restricted Band Edge at 2390 MHz		PASS	-9.34
10	802.11b Chain B	#11 2462 MHz	15.5	15.3	Restricted Band Edge at 2483.5 MHz		PASS	-9.35
1	802.11g Chain A	#1 2412 MHz	14	14.2	Restricted Band Edge at 2390 MHz		PASS	-4.48
2	802.11g Chain A	#2 2417 MHz	16	15.97	Restricted Band Edge at 2390 MHz		PASS	-6.93
9	802.11g Chain A	#10 2457 MHz	16.5	16.7	Restricted Band Edge at 2483.5 MHz		PASS	-4.52
10	802.11g Chain A	#11 2462 MHz	14	14.14	Restricted Band Edge at 2483.5 MHz		PASS	-3.67
1	802.11g Chain B	#1 2412 MHz	14	14.19	Restricted Band Edge at 2390 MHz		PASS	-4.68
2	802.11g Chain B	#2 2417 MHz	16	16.1	Restricted Band Edge at 2390 MHz		PASS	-6.73
9	802.11g Chain B	#10 2457 MHz	16.5	16.7	Restricted Band Edge at 2483.5 MHz		PASS	-4.28
10	802.11g Chain B	#11 2462 MHz	14	14.18	Restricted Band Edge at 2483.5 MHz		PASS	-3.99
1	802.11n 20MHz Chain A	#1 2412 MHz	13	13.15	Restricted Band Edge at 2390 MHz	15.209	PASS	-3.75
2	802.11n 20MHz Chain A	#2 2417 MHz	16	16.11	Restricted Band Edge at 2390 MHz		PASS	-6.04
9	802.11n 20MHz Chain A	#10 2457 MHz	16	15.8	Restricted Band Edge at 2483.5 MHz		PASS	-6.31
10	802.11n 20MHz Chain A	#11 2462 MHz	12.5	12.62	Restricted Band Edge at 2483.5 MHz		PASS	-4.79
1	802.11n 20MHz Chain B	#1 2412 MHz	13	12.95	Restricted Band Edge at 2390 MHz		PASS	-4.96
2	802.11n 20MHz Chain B	#2 2417 MHz	16	0	Restricted Band Edge at 2390 MHz		PASS	-6.55
9	802.11n 20MHz Chain B	#10 2457 MHz	16	0	Restricted Band Edge at 2483.5 MHz		PASS	-6.99
10	802.11n 20MHz Chain B	#11 2462 MHz	12.5	0	Restricted Band Edge at 2483.5 MHz		PASS	-5.65
1	802.11n 20MHz Chain A+B	#1 2412 MHz	A: 11 B: 11	A: 11 B: 11.2	Restricted Band Edge at 2390 MHz		PASS	-8.97
2	802.11n 20MHz Chain A+B	#2 2417 MHz	A: 13 B: 13	A: 13 B: 13.2	Restricted Band Edge at 2390 MHz		PASS	-8.38
9	802.11n 20MHz Chain A+B	#10 2457 MHz	A: 13 B: 13	A: 13 B: 13.2	Restricted Band Edge at 2483.5 MHz		PASS	-15.03
10	802.11n 20MHz Chain A+B	#11 2462 MHz	A: 11 B: 11	A: 11.2 B: 11.1	Restricted Band Edge at 2483.5 MHz		PASS	-8.02

Test #	Mode	Channel	Target Power (dBm)	Measured Power (dBm)	Test Performed	Limit	Result	Margin (dB)
1	802.11n 40MHz Chain A	#3 2422 MHz	9	9.12	Restricted Band Edge at 2390 MHz	15.209	PASS	-5.35
2	802.11n 40MHz Chain A	#4 2427 MHz	10.5	10.46	Restricted Band Edge at 2390 MHz		PASS	-4.52
3	802.11n 40MHz Chain A	#5 2432 MHz	12.5	12.7	Restricted Band Edge at 2390 MHz		PASS	-5.05
4	802.11n 40MHz Chain A	#7 2442 MHz	12.5	12.61	Restricted Band Edge at 2390 MHz		PASS	-4.62
5	802.11n 40MHz Chain A	#8 2447 MHz	10.5	10.64	Restricted Band Edge at 2390 MHz		PASS	-4.73
6	802.11n 40MHz Chain A	#9 2452 MHz	9.5	9.66	Restricted Band Edge at 2390 MHz		PASS	-3.70
1	802.11n 40MHz Chain B	#3 2422 MHz	9	9.2	Restricted Band Edge at 2390 MHz		PASS	-4.60
2	802.11n 40MHz Chain B	#4 2427 MHz	10.5	10.61	Restricted Band Edge at 2390 MHz		PASS	-3.66
3	802.11n 40MHz Chain B	#5 2432 MHz	12.5	12.7	Restricted Band Edge at 2483.5 MHz		PASS	-4.55
4	802.11n 40MHz Chain B	#7 2442 MHz	12.5	12.7	Restricted Band Edge at 2483.5 MHz		PASS	-4.22
5	802.11n 40MHz Chain B	#8 2447 MHz	11	11.02	Restricted Band Edge at 2483.5 MHz		PASS	-4.65
6	802.11n 40MHz Chain B	#9 2452 MHz	9.5	9.61	Restricted Band Edge at 2483.5 MHz		PASS	-4.73
1	802.11n 40MHz Chain A+B	#3 2422 MHz	A: 8 B: 8	A: 8.2 B: 8.18	Restricted Band Edge at 2390 MHz		PASS	-3.72
2	802.11n 40MHz Chain A+B	#4 2427 MHz	A: 9.5 B: 9.5	A: 9.54 B: 9.51	Restricted Band Edge at 2390 MHz		PASS	-12.79
3	802.11n 40MHz Chain A+B	#5 2432 MHz	A: 11.5 B: 11.5	A: 11.7 B: 11.7	Restricted Band Edge at 2483.5 MHz		PASS	-6.61
4	802.11n 40MHz Chain A+B	#7 2442 MHz	A: 11.5 B: 11.5	A: 12.5 B: 11.7	Restricted Band Edge at 2483.5 MHz		PASS	-6.23
5	802.11n 40MHz Chain A+B	#8 2447 MHz	A: 9.5 B: 9.5	A: 9.7 B: 9.51	Restricted Band Edge at 2483.5 MHz		PASS	-6.73
6	802.11n 40MHz Chain A+B	#9 2452 MHz	A: 8.5 B: 8.5	A: 9.7 B: 8.67	Restricted Band Edge at 2483.5 MHz		PASS	-4.40

4.2.2. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

4.2.3. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

4.2.4. Test Deviation

There is no deviation with the original standard.

4.2.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.6. Marker Delta Measurements

Three sets of marker deltas are measured using the following settings: RB=VB=100kHz;

RB=1MHz,VB=1MHz; RB=1MHz, VB=10Hz.

Marker deltas are made conducted (analyzer connected to EUT rf port via 10dB pad) for single chain operation and radiated (at a distance of ~ 50cm) for MIMO modes.

The fundamental field strength is always measured at a 3m test distance.

4.2.7. Test Result of Band Edge and Fundamental Emissions

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11b, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	15.5	15.68	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2411.199	102.09	V	-	-	Peak	323	100	RB:1MHz;VB:3MHz;Detector:PK
2410.237	98.31	V	-	-	Avg	323	100	RB:1MHz;VB:10Hz;Detector:PK
2412.961	105.73	H	-	-	Peak	37	100	RB:1MHz;VB:3MHz;Detector:PK
2411.199	101.63	H	-	-	Avg	37	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.09	105.73	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	98.31	101.63	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	51.28	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	54.45	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.35	dBuV/m	
Delta Marker - 1MHz/3MHz	50.24	dB	
Delta Marker - 1MHz/10Hz	56.63	dB	
Calculated Band-Edge Measurement(Peak)	55.49	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.67	54.45	-	74	-19.55	Peak	-	-	Delta Marker - 100kHz/100KHz
2389.35	45.00	-	54	-9.00	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11b, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	15.5	15.7	23.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2461.039	102.96	V	-	-	Peak	197	100	RB:1MHz;VB:3MHz;Detector:PK
2461.199	98.73	V	-	-	Avg	197	100	RB:1MHz;VB:10Hz;Detector:PK
2462.961	106.49	H	-	-	Peak	6	100	RB:1MHz;VB:3MHz;Detector:PK
2461.199	102.47	H	-	-	Avg	6	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.96	106.49	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	98.73	102.47	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	51.42	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	55.07	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.05	dBuV/m	
Delta Marker - 1MHz/3MHz	47.77	dB	
Delta Marker - 1MHz/10Hz	57.01	dB	
Calculated Band-Edge Measurement(Peak)	58.72	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.46	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.14	55.07	-	74	-18.93	2484.14	-	-	Delta Marker - 100kHz/100KHz
2483.5	45.46	-	54	-8.54	2483.5	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11b, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	15.5	15.39	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2411.039	99.86	V	-	-	Peak	140	137	RB:1MHz;VB:3MHz;Detector:PK
2410.237	95.60	V	-	-	Avg	140	137	RB:1MHz;VB:10Hz;Detector:PK
2411.039	105.63	H	-	-	Peak	327	101	RB:1MHz;VB:3MHz;Detector:PK
2411.199	101.34	H	-	-	Avg	327	101	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	99.86	105.60	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	95.60	101.34	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	49.35	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	56.253	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.9921	dBuV/m	
Delta Marker - 1MHz/3MHz	51.42	dB	
Delta Marker - 1MHz/10Hz	56.68	dB	
Calculated Band-Edge Measurement(Peak)	54.183	dBuV/m	
Calculated Band-Edge Measurement(Avg)	44.6621	dBuV/m	

Frequency	Level	Test Polar	15.209	Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters
2389.84	54.18	-	74	-19.82	2389.84	-	Delta Marker - 100kHz/100KHz
2389.36	44.66	-	54	-9.34	2389.36	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11b, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	15.5	15.3	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2462.96	98.36	V	-	-	Peak	138	100	RB:1MHz;VB:3MHz;Detector:PK
2463.76	94.02	V	-	-	Avg	138	100	RB:1MHz;VB:10Hz;Detector:PK
2462.96	105.52	H	-	-	Peak	322	100	RB:1MHz;VB:3MHz;Detector:PK
2461.19	101.14	H	-	-	Avg	322	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	98.36	105.52	Peak Measurement (RB/VB= 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	94.02	101.14	Average Measurement (RB/VB= 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	50.02	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	55.5084	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.1201	dBuV/m	
Delta Marker - 1MHz/3MHz	51.19	dB	
Delta Marker - 1MHz/10Hz	56.49	dB	
Calculated Band-Edge Measurement(Peak)	54.3384	dBuV/m	
Calculated Band-Edge Measurement(Avg)	44.6501	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.82	54.34	-	74	-19.66	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	44.65	-	54	-9.35	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11g, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	14	14.2	26

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2407.99	104.07	V	-	-	Peak	324	101	RB:1MHz;VB:3MHz;Detector:PK
2408.79	94.14	V	-	-	Avg	324	101	RB:1MHz;VB:10Hz;Detector:PK
2408.15	107.01	H	-	-	Peak	39	100	RB:1MHz;VB:3MHz;Detector:PK
2410.71	97.04	H	-	-	Avg	39	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	104.07	107.01	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	94.14	97.04	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	46.66	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.35	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.38	dBuV/m	
Delta Marker - 1MHz/3MHz	40.72	dB	
Delta Marker - 1MHz/10Hz	47.52	dB	
Calculated Band-Edge Measurement(Peak)	66.29	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.52	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.83	60.35	-	74	-13.65	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.52	-	54	-4.48	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-2 2417MHz - 802.11g, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16	15.97	28.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2412.51	104.01	V	-	-	Peak	323	101	RB:1MHz;VB:3MHz;Detector:PK
2412.35	94.57	V	-	-	Avg	323	101	RB:1MHz;VB:10Hz;Detector:PK
2414.91	108.76	H	-	-	Peak	37	100	RB:1MHz;VB:3MHz;Detector:PK
2413.63	98.68	H	-	-	Avg	37	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	104.01	108.76	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	94.57	98.68	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	47.88	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.88	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.8	dBuV/m	
Delta Marker - 1MHz/3MHz	46.4	dB	
Delta Marker - 1MHz/10Hz	51.61	dB	
Calculated Band-Edge Measurement(Peak)	62.36	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.07	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.51	60.88	-	74	-13.12	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	47.07	-	54	-6.93	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #9 EUT on Channel-10 2457MHz - 802.11g, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16.5	16.7	29.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2460.04	105.56	V	-	-	Peak	197	100	RB:1MHz;VB:3MHz;Detector:PK
2460.84	96.2	V	-	-	Avg	197	100	RB:1MHz;VB:10Hz;Detector:PK
2460.20	110.15	H	-	-	Peak	5	100	RB:1MHz;VB:3MHz;Detector:PK
2460.52	99.78	H	-	-	Avg	5	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	105.56	110.15	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	96.2	99.78	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	48.42	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.73	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.36	dBuV/m	
Delta Marker - 1MHz/3MHz	43.44	dB	
Delta Marker - 1MHz/10Hz	50.3	dB	
Calculated Band-Edge Measurement(Peak)	66.71	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.48	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.3	61.73	-	74	-12.27	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.48	-	54	-4.52	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11g, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	14	14.14	26.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2461.19	103.42	V	-	-	Peak	197	100	RB:1MHz;VB:3MHz;Detector:PK
2460.71	93.51	V	-	-	Avg	197	100	RB:1MHz;VB:10Hz;Detector:PK
2464.72	107.31	H	-	-	Peak	5	100	RB:1MHz;VB:3MHz;Detector:PK
2460.71	97.31	H	-	-	Avg	5	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	103.42	107.31	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	93.51	97.31	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	45.61	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.7	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.7	dBuV/m	
Delta Marker - 1MHz/3MHz	40.53	dB	
Delta Marker - 1MHz/10Hz	46.98	dB	
Calculated Band-Edge Measurement(Peak)	66.78	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.33	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.83	61.70	-	74	-12.30	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	50.33	-	54	-3.67	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test: Dec. 14, 2011

Test Engineer: Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11g, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	14	14.19	26.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2408.15	101.83	V	-	-	Peak	8	100	RB:1MHz;VB:3MHz;Detector:PK
2407.83	91.92	V	-	-	Avg	8	100	RB:1MHz;VB:10Hz;Detector:PK
2408.31	106.33	H	-	-	Peak	327	100	RB:1MHz;VB:3MHz;Detector:PK
2410.71	96.56	H	-	-	Avg	327	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	101.83	106.33	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	91.92	96.56	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	45.32	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.0186	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.2411	dBuV/m	
Delta Marker - 1MHz/3MHz	40	dB	
Delta Marker - 1MHz/10Hz	47.24	dB	
Calculated Band-Edge Measurement(Peak)	66.33	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.32	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2390	61.02	-	74	-12.98	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.32	-	54	-4.68	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-2 2417MHz - 802.11g, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16	16.1	29

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2413.95	102.43	V	-	-	Peak	139	100	RB:1MHz;VB:3MHz;Detector:PK
2412.35	92.52	V	-	-	Avg	139	100	RB:1MHz;VB:10Hz;Detector:PK
2421.16	108.44	H	-	-	Peak	326	103	RB:1MHz;VB:3MHz;Detector:PK
2421.00	98.64	H	-	-	Avg	326	103	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.43	108.44	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	92.52	98.64	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	48.64	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.8079	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.00	dBuV/m	
Delta Marker - 1MHz/3MHz	45.82	dB	
Delta Marker - 1MHz/10Hz	51.37	dB	
Calculated Band-Edge Measurement(Peak)	62.62	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.27	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.68	59.81	-	74	-14.19	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	47.27	-	54	-6.73	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #9 EUT on Channel-10 2457MHz - 802.11g, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16.5	16.7	29.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2452.83	103.68	V	-	-	Peak	96	107	RB:1MHz;VB:3MHz;Detector:PK
2452.35	94.19	V	-	-	Avg	96	107	RB:1MHz;VB:10Hz;Detector:PK
2460.84	109.05	H	-	-	Peak	323	100	RB:1MHz;VB:3MHz;Detector:PK
2460.36	99.00	H	-	-	Avg	323	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	103.68	109.05	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	94.19	99.00	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	47.46	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.59	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.54	dBuV/m	
Delta Marker - 1MHz/3MHz	41.91	dB	
Delta Marker - 1MHz/10Hz	49.28	dB	
Calculated Band-Edge Measurement(Peak)	67.14	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.72	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.94	61.60	-	74	-12.40	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.72	-	54	-4.28	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11g, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	14	14.18	26.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2465.04	99.79	V	-	-	Peak	139	100	RB:1MHz;VB:3MHz;Detector:PK
2465.68	89.81	V	-	-	Avg	139	100	RB:1MHz;VB:10Hz;Detector:PK
2465.04	106.75	H	-	-	Peak	322	100	RB:1MHz;VB:3MHz;Detector:PK
2463.28	96.79	H	-	-	Avg	322	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	99.79	106.75	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	89.81	96.79	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	45.93	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.82	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.86	dBuV/m	
Delta Marker - 1MHz/3MHz	39.61	dB	
Delta Marker - 1MHz/10Hz	46.79	dB	
Calculated Band-Edge Measurement(Peak)	67.14	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.00	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.66	60.82	-	74	-13.18	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	50.01	-	54	-3.99	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11n 20MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	13	13.15	25

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2408.31	102.84	V	-	-	Peak	325	100	RB:1MHz;VB:3MHz;Detector:PK
2408.95	92.80	V	-	-	Avg	325	100	RB:1MHz;VB:10Hz;Detector:PK
2408.31	105.92	H	-	-	Peak	38	100	RB:1MHz;VB:3MHz;Detector:PK
2409.11	95.70	H	-	-	Avg	38	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.84	105.92	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	92.80	95.70	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	44.9	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.02	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.8	dBuV/m	
Delta Marker - 1MHz/3MHz	36.93	dB	
Delta Marker - 1MHz/10Hz	45.45	dB	
Calculated Band-Edge Measurement(Peak)	68.99	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.25	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2390	61.02	-	74	-12.98	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	50.25	-	54	-3.75	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-2 2417MHz - 802.11n 20MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16	16.11	29

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2413.31	108.59	V	-	-	Peak	37	100	RB:1MHz;VB:3MHz;Detector:PK
2413.79	98.44	V	-	-	Avg	37	100	RB:1MHz;VB:10Hz;Detector:PK
2421.16	104.91	H	-	-	Peak	209	100	RB:1MHz;VB:3MHz;Detector:PK
2420.04	94.58	H	-	-	Avg	209	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	108.59	104.91	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	98.44	94.58	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	49.6	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	58.99	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.84	dBuV/m	
Delta Marker - 1MHz/3MHz	47.86	dB	
Delta Marker - 1MHz/10Hz	50.48	dB	
Calculated Band-Edge Measurement(Peak)	60.73	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.96	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.19	58.99	-	74	-15.01	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	47.96	-	54	-6.04	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #9 EUT on Channel-10 2457MHz - 802.11n 20MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16	15.8	29

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2461.00	104.91	V	-	-	Peak	197	100	RB:1MHz;VB:3MHz;Detector:PK
2460.04	94.97	V	-	-	Avg	197	100	RB:1MHz;VB:10Hz;Detector:PK
2460.36	108.78	H	-	-	Peak	7	100	RB:1MHz;VB:3MHz;Detector:PK
2460.04	98.53	H	-	-	Avg	7	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	104.91	108.78	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	94.97	98.53	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	50	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	58.78	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.53	dBuV/m	
Delta Marker - 1MHz/3MHz	42.19	dB	
Delta Marker - 1MHz/10Hz	50.84	dB	
Calculated Band-Edge Measurement(Peak)	66.59	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.69	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.82	58.78	-	74	-15.22	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	47.70	-	54	-6.31	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11n 20MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	12.5	12.62	25

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2463.76	101.51	V	-	-	Peak	200	100	RB:1MHz;VB:3MHz;Detector:PK
2465.20	91.09	V	-	-	Avg	200	100	RB:1MHz;VB:10Hz;Detector:PK
2463.76	105.14	H	-	-	Peak	8	100	RB:1MHz;VB:3MHz;Detector:PK
2460.55	95.06	H	-	-	Avg	8	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	101.51	105.14	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	91.09	95.06	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	44.2	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.94	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.86	dBuV/m	
Delta Marker - 1MHz/3MHz	39.77	dB	
Delta Marker - 1MHz/10Hz	45.86	dB	
Calculated Band-Edge Measurement(Peak)	65.37	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.20	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.98	60.94	-	74	-13.06	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.20	-	54	-4.80	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11n 20MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	13	12.95	25

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2407.19	100.68	V	-	-	Peak	9	100	RB:1MHz;VB:3MHz;Detector:PK
2408.79	90.36	V	-	-	Avg	9	100	RB:1MHz;VB:10Hz;Detector:PK
2409.11	105.19	H	-	-	Peak	327	100	RB:1MHz;VB:3MHz;Detector:PK
2409.27	94.82	H	-	-	Avg	327	100	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	100.68	105.19	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	90.36	94.82	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	45.45	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.74	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.37	dBuV/m	
Delta Marker - 1MHz/3MHz	36.34	dB	
Delta Marker - 1MHz/10Hz	45.79	dB	
Calculated Band-Edge Measurement(Peak)	68.85	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.03	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2390	59.75	-	74	-14.25	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.03	-	54	-4.97	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-2 2417MHz - 802.11n 20MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16	16.06	29

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2413.15	101.48	V	-	-	Peak	7	100	RB:1MHz;VB:3MHz;Detector:PK
2412.83	91.40	V	-	-	Avg	7	100	RB:1MHz;VB:10Hz;Detector:PK
2420.20	108.01	H	-	-	Peak	324	105	RB:1MHz;VB:3MHz;Detector:PK
2420.04	98.23	H	-	-	Avg	324	105	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	101.48	108.01	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	91.40	98.23	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	48.86	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.15	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.37	dBuV/m	
Delta Marker - 1MHz/3MHz	42.05	dB	
Delta Marker - 1MHz/10Hz	50.79	dB	
Calculated Band-Edge Measurement(Peak)	65.96	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.44	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.68	59.16	-	74	-14.84	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	47.44	-	54	-6.56	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #9 EUT on Channel-10 2457MHz - 802.11n 20MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16	15.99	29

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2453.95	103.38	V	-	-	Peak	95	112	RB:1MHz;VB:3MHz;Detector:PK
2453.79	93.23	V	-	-	Avg	95	112	RB:1MHz;VB:10Hz;Detector:PK
2461.48	107.58	H	-	-	Peak	324	100	RB:1MHz;VB:3MHz;Detector:PK
2460.04	97.58	H	-	-	Avg	324	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	103.38	107.58	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	93.23	97.58	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	47.53	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.05	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.05	dBuV/m	
Delta Marker - 1MHz/3MHz	41.24	dB	
Delta Marker - 1MHz/10Hz	50.58	dB	
Calculated Band-Edge Measurement(Peak)	66.34	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.00	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.98	60.05	-	74	-13.95	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	47.01	-	54	-6.99	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz- 802.11n 20MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	12.5	12.42	24.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2465.36	98.10	V	-	-	Peak	138	100	RB:1MHz;VB:3MHz;Detector:PK
2465.04	88.00	V	-	-	Avg	138	100	RB:1MHz;VB:10Hz;Detector:PK
2465.20	104.83	H	-	-	Peak	324	100	RB:1MHz;VB:3MHz;Detector:PK
2465.04	94.45	H	-	-	Avg	324	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	98.10	104.83	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	88.00	94.45	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	45.06	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.77	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.39	dBuV/m	
Delta Marker - 1MHz/3MHz	39.45	dB	
Delta Marker - 1MHz/10Hz	46.1	dB	
Calculated Band-Edge Measurement(Peak)	65.38	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.35	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.98	59.77	-	74	-14.23	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	48.35	-	54	-5.65	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-3 2422MHz - 802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	9	9.12	21

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2409.82	93.30	V	-	-	Peak	209	141	RB:1MHz;VB:3MHz;Detector:PK
2409.82	83.64	V	-	-	Avg	209	141	RB:1MHz;VB:10Hz;Detector:PK
2418.15	97.80	H	-	-	Peak	32	102	RB:1MHz;VB:3MHz;Detector:PK
2410.14	87.15	H	-	-	Avg	32	102	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	93.30	97.80	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.64	87.15	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	37.53	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.27	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.62	dBuV/m	
Delta Marker - 1MHz/3MHz	34.98	dB	
Delta Marker - 1MHz/10Hz	38.5	dB	
Calculated Band-Edge Measurement(Peak)	62.82	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.65	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2388.71	60.27	-	74	-13.73	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	48.65	-	54	-5.35	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-4 2427MHz - 802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	10.5	10.46	22.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2419.30	94.61	V	-	-	Peak	207	100	RB:1MHz;VB:3MHz;Detector:PK
2414.50	83.93	V	-	-	Avg	207	100	RB:1MHz;VB:10Hz;Detector:PK
2423.15	99.47	H	-	-	Peak	31	105	RB:1MHz;VB:3MHz;Detector:PK
2422.51	88.61	H	-	-	Avg	31	105	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	94.61	99.47	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.93	88.61	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	37.61	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.86	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.00	dBuV/m	
Delta Marker - 1MHz/3MHz	36.38	dB	
Delta Marker - 1MHz/10Hz	39.14	dB	
Calculated Band-Edge Measurement(Peak)	63.09	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.47	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.35	61.86	-	74	-12.14	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.48	-	54	-4.52	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #3 EUT on Channel-5 2432MHz -802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	12.5	12.7	24.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2419.82	95.60	V	-	-	Peak	209	100	RB:1MHz;VB:3MHz;Detector:PK
2419.82	85.75	V	-	-	Avg	209	100	RB:1MHz;VB:10Hz;Detector:PK
2424.30	101.79	H	-	-	Peak	33	105	RB:1MHz;VB:3MHz;Detector:PK
2419.50	90.99	H	-	-	Avg	33	105	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	95.60	101.79	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.75	90.99	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	40.41	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.38	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.58	dBuV/m	
Delta Marker - 1MHz/3MHz	40.19	dB	
Delta Marker - 1MHz/10Hz	42.05	dB	
Calculated Band-Edge Measurement(Peak)	61.60	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.94	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2390	61.39	-	74	-12.61	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	48.95	-	54	-5.05	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #4 EUT on Channel-7 2442MHz -802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	12.5	12.61	24.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2445.52	95.65	V	-	-	Peak	144	102	RB:1MHz;VB:3MHz;Detector:PK
2444.88	85.83	V	-	-	Avg	144	102	RB:1MHz;VB:10Hz;Detector:PK
2449.37	100.52	H	-	-	Peak	37	104	RB:1MHz;VB:3MHz;Detector:PK
2450.97	90.31	H	-	-	Avg	37	104	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	95.65	100.52	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.83	90.31	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	39.36	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.16	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.95	dBuV/m	
Delta Marker - 1MHz/3MHz	38.37	dB	
Delta Marker - 1MHz/10Hz	40.94	dB	
Calculated Band-Edge Measurement(Peak)	62.15	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.37	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.5	61.17	-	74	-12.83	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.38	-	54	-4.62	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #5 EUT on Channel-8 2447MHz - 802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	10.5	10.64	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2444.75	92.77	V	-	-	Peak	211	100	RB:1MHz;VB:3MHz;Detector:PK
2445.07	82.74	V	-	-	Avg	211	100	RB:1MHz;VB:10Hz;Detector:PK
2459.50	98.94	H	-	-	Peak	36	102	RB:1MHz;VB:3MHz;Detector:PK
2459.50	88.94	H	-	-	Avg	36	102	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	92.77	98.94	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	82.74	88.94	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	39.28	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.66	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.66	dBuV/m	
Delta Marker - 1MHz/3MHz	37.45	dB	
Delta Marker - 1MHz/10Hz	39.67	dB	
Calculated Band-Edge Measurement(Peak)	61.49	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.27	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.78	59.67	-	74	-14.33	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.27	-	54	-4.73	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #6 EUT on Channel-9 2452MHz - 802.11n 40MHz, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	9.5	9.66	22

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2444.94	92.50	V	-	-	Peak	210	100	RB:1MHz;VB:3MHz;Detector:PK
2444.94	81.69	V	-	-	Avg	210	100	RB:1MHz;VB:10Hz;Detector:PK
2463.53	98.72	H	-	-	Peak	38	103	RB:1MHz;VB:3MHz;Detector:PK
2463.85	88.44	H	-	-	Avg	38	103	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	92.50	98.72	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	81.69	88.44	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	35.85	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	62.87	dBuV/m	
Calculated Band-Edge Measurement(Avg)	52.59	dBuV/m	
Delta Marker - 1MHz/3MHz	34.87	dB	
Delta Marker - 1MHz/10Hz	38.15	dB	
Calculated Band-Edge Measurement(Peak)	63.85	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.29	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.5	62.87	-	74	-11.13	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	50.30	-	54	-3.70	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-3 2422MHz - 802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	9	9.2	21

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2409.17	93.18	V	-	-	Peak	8	100	RB:1MHz;VB:3MHz;Detector:PK
2409.50	82.98	V	-	-	Avg	8	100	RB:1MHz;VB:10Hz;Detector:PK
2424.56	98.37	H	-	-	Peak	325	103	RB:1MHz;VB:3MHz;Detector:PK
2420.07	87.94	H	-	-	Avg	325	103	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	93.18	98.37	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	82.98	87.94	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	36.97	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.40	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.97	dBuV/m	
Delta Marker - 1MHz/3MHz	35.27	dB	
Delta Marker - 1MHz/10Hz	38.55	dB	
Calculated Band-Edge Measurement(Peak)	63.10	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.39	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.67	61.40	-	74	-12.60	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.40	-	54	-4.60	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #2 EUT on Channel-4 2427MHz - 802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	10.5	10.61	22.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2425.71	93.52	V	-	-	Peak	31	100	RB:1MHz;VB:3MHz;Detector:PK
2425.07	83.33	V	-	-	Avg	31	100	RB:1MHz;VB:10Hz;Detector:PK
2423.15	99.78	H	-	-	Peak	326	105	RB:1MHz;VB:3MHz;Detector:PK
2424.43	89.55	H	-	-	Avg	326	105	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	93.52	99.78	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.33	89.55	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	37.96	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.82	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.59	dBuV/m	
Delta Marker - 1MHz/3MHz	36.52	dB	
Delta Marker - 1MHz/10Hz	39.22	dB	
Calculated Band-Edge Measurement(Peak)	63.26	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.33	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.67	61.83	-	74	-12.17	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	50.34	-	54	-3.66	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #3 EUT on Channel-5 2432MHz -802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	12.5	12.7	24.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2424.62	95.58	V	-	-	Peak	8	100	RB:1MHz;VB:3MHz;Detector:PK
2423.66	85.21	V	-	-	Avg	8	100	RB:1MHz;VB:10Hz;Detector:PK
2424.62	102.46	H	-	-	Peak	324	104	RB:1MHz;VB:3MHz;Detector:PK
2420.14	91.32	H	-	-	Avg	324	104	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	95.58	102.46	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.21	91.32	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	41.68	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.78	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.64	dBuV/m	
Delta Marker - 1MHz/3MHz	39.46	dB	
Delta Marker - 1MHz/10Hz	41.88	dB	
Calculated Band-Edge Measurement(Peak)	63.00	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.44	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.04	60.78	-	74	-13.22	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	49.45	-	54	-4.55	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #4 EUT on Channel-7 2442MHz -802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	12.5	12.7	24.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2435.91	98.13	V	-	-	Peak	72	115	RB:1MHz;VB:3MHz;Detector:PK
2433.34	87.43	V	-	-	Avg	72	115	RB:1MHz;VB:10Hz;Detector:PK
2429.82	100.85	H	-	-	Peak	323	100	RB:1MHz;VB:3MHz;Detector:PK
2429.82	90.59	H	-	-	Avg	323	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	98.13	100.85	Peak Measurement (RB/VB = 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	87.43	90.59	Average Measurement (RB/VB = 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	40.21	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.64	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.38	dBuV/m	
Delta Marker - 1MHz/3MHz	38.81	dB	
Delta Marker - 1MHz/10Hz	40.81	dB	
Calculated Band-Edge Measurement(Peak)	62.04	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.78	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.14	60.65	-	74	-13.35	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.78	-	54	-4.22	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #5 EUT on Channel-8 2447MHz - 802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	11	11.02	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2450.20	95.37	V	-	-	Peak	94	111	RB:1MHz;VB:3MHz;Detector:PK
2449.24	85.44	V	-	-	Avg	94	111	RB:1MHz;VB:10Hz;Detector:PK
2459.17	98.82	H	-	-	Peak	321	100	RB:1MHz;VB:3MHz;Detector:PK
2459.82	88.80	H	-	-	Avg	321	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	95.37	98.82	Peak Measurement (RB/VB = 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.44	88.80	Average Measurement (RB/VB = 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	36.77	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	62.05	dBuV/m	
Calculated Band-Edge Measurement(Avg)	52.03	dBuV/m	
Delta Marker - 1MHz/3MHz	36.82	dB	
Delta Marker - 1MHz/10Hz	39.45	dB	
Calculated Band-Edge Measurement(Peak)	62.00	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.35	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2485.42	62.00	-	74	-12.00	Peak	-	-	Delta Marker - 1MHz/3MHz
2483.5	49.35	-	54	-4.65	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #6 EUT on Channel-9 2452MHz - 802.11n 40MHz, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	9.5	9.61	21.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2444.62	94.56	V	-	-	Peak	97	110	RB:1MHz;VB:3MHz;Detector:PK
2449.43	83.90	V	-	-	Avg	97	110	RB:1MHz;VB:10Hz;Detector:PK
2463.53	97.96	H	-	-	Peak	323	100	RB:1MHz;VB:3MHz;Detector:PK
2464.50	87.88	H	-	-	Avg	323	100	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	94.56	97.96	Peak Measurement (RB/VB = 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.90	87.88	Average Measurement (RB/VB = 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	36.56	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.40	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.32	dBuV/m	
Delta Marker - 1MHz/3MHz	36.62	dB	
Delta Marker - 1MHz/10Hz	38.62	dB	
Calculated Band-Edge Measurement(Peak)	61.34	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.26	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2485.1	61.34	-	74	-12.66	Peak	-	-	Delta Marker - 1MHz/3MHz
2483.5	49.27	-	54	-4.73	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11n 20MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	11	11	14.01	10.98	11.2	14.10	25	25.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2408.79	100.41	V	-	-	Peak	7	100	RB:1MHz;VB:3MHz;Detector:PK
2408.47	89.133	V	-	-	Avg	7	100	RB:1MHz;VB:10Hz;Detector:PK
2409.11	106.18	H	-	-	Peak	325	111	RB:1MHz;VB:3MHz;Detector:PK
2408.31	93.69	H	-	-	Avg	325	111	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	100.41	106.18	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	89.13	93.69	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	48.66	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	57.52	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.03	dBuV/m	
Delta Marker - 1MHz/3MHz	45.42	dB	
Delta Marker - 1MHz/10Hz	45.98	dB	
Calculated Band-Edge Measurement(Peak)	60.76	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.71	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.2	57.53	-	74	-16.47	Peak	-	-	Delta Marker - 100kHz/100KHz
2389.2	45.03	-	54	-8.97	Avg	-	-	Delta Marker - 100kHz/100KHz

Test #2 EUT on Channel-2 2417MHz - 802.11n 20MHz, ChainA+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	13	13	16.01	12.95	13.2	16.09	27.5	28

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2412.51	102.29	V	-	-	Peak	6	100	RB: 1MHz;VB:3MHz;Detector:PK
2412.35	90.25	V	-	-	Avg	6	100	RB: 1MHz;VB:10Hz;Detector:PK
2420.20	107.70	H	-	-	Peak	326	106	RB: 1MHz;VB:3MHz;Detector:PK
2421.16	96.13	H	-	-	Avg	326	106	RB: 1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.29	107.70	Peak Measurement (RB/VB= 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	90.25	96.13	Average Measurement (RB/VB= 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	50.47	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	57.23	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.66	dBuV/m	
Delta Marker - 1MHz/3MHz	53.07	dB	
Delta Marker - 1MHz/10Hz	50.52	dB	
Calculated Band-Edge Measurement(Peak)	54.63	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.61	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.84	54.64	-	74	-19.36	Peak	-	-	Delta Marker - 1MHz/3MHz
2390	45.62	-	54	-8.38	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #9 EUT on Channel-10 2457MHz - 802.11n 20MHz, ChainA+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	13	13	16.01	12.99	13.2	16.11	28	28

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2455.71	102.53	V	-	-	Peak	144	101	RB:1MHz;VB:3MHz;Detector:PK
2453.31	89.87	V	-	-	Avg	144	101	RB:1MHz;VB:10Hz;Detector:PK
2461.64	108.07	H	-	-	Peak	322	103	RB:1MHz;VB:3MHz;Detector:PK
2461.16	95.46	H	-	-	Avg	322	103	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	102.53	108.07	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	89.87	95.46	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100kHz	50.2	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	57.87	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.26	dBuV/m	
Delta Marker - 1MHz/3MHz	52.24	dB	
Delta Marker - 1MHz/10Hz	56.5	dB	
Calculated Band-Edge Measurement(Peak)	55.83	dBuV/m	
Calculated Band-Edge Measurement(Avg)	38.96	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.82	55.83	-	74	-18.17	Peak	-	-	Delta Marker - 1MHz/3MHz
2483.5	38.97	-	54	-15.03	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #10 EUT on Channel-11 2462MHz - 802.11n 20MHz, ChainA+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	11	11	14.01	11.17	11.08	14.14	26	25.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2459.11	101.33	V	-	-	Peak	120	108	RB:1MHz;VB:3MHz;Detector:PK
2463.44	89.07	V	-	-	Avg	120	108	RB:1MHz;VB:10Hz;Detector:PK
2460.87	105.89	H	-	-	Peak	322	102	RB:1MHz;VB:3MHz;Detector:PK
2466.00	93.50	H	-	-	Avg	322	102	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	101.33	105.89	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	89.07	93.50	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	47.53	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	58.36	dBuV/m	
Calculated Band-Edge Measurement(Avg)	45.97	dBuV/m	
Delta Marker - 1MHz/3MHz	45.78	dB	
Delta Marker - 1MHz/10Hz	45.55	dB	
Calculated Band-Edge Measurement(Peak)	60.11	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.95	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.3	58.37	-	74	-15.63	Peak	-	-	Delta Marker - 100kHz/100KHz
2484.3	45.98	-	54	-8.02	Avg	-	-	Delta Marker - 1MHz/10Hz

Date of Test:	Dec. 14, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-3 2422MHz - 802.11n 40MHz, Chain A+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	8	8	11.01	8.2	8.18	11.20	22.5	22.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2409.17	94.00	V	-	-	Peak	6	100	RB:1MHz;VB:3MHz;Detector:PK
2409.50	82.42	V	-	-	Avg	6	100	RB:1MHz;VB:10Hz;Detector:PK
2427.44	99.76	H	-	-	Peak	326	107	RB:1MHz;VB:3MHz;Detector:PK
2424.24	87.38	H	-	-	Avg	326	107	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	94.00	99.76	Peak Measurement (RB/VB= 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	82.42	87.38	Average Measurement (RB/VB= 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	37.11	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	62.65	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.27	dBuV/m	
Delta Marker - 1MHz/3MHz	34.78	dB	
Delta Marker - 1MHz/10Hz	37.10	dB	
Calculated Band-Edge Measurement(Peak)	64.98	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.28	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2389.36	62.65	-	74	-11.35	Peak	-	-	Delta Marker - 100kHz/100KHz
2389.36	50.28	-	54	-3.72	Avg	-	-	Delta Marker - 100kHz/100KHz

Test #2 EUT on Channel-4 2427MHz - 802.11n 40MHz, Chain A+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	9.5	9.5	12.51	9.54	9.51	12.54	23.5	23.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247	Detector	Azimuth	Height	Comments	
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2423.47	96.27	V	-	-	Peak	348	100	RB:1MHz;VB:3MHz;Detector:PK
2424.11	83.26	V	-	-	Avg	348	100	RB:1MHz;VB:10Hz;Detector:PK
2423.79	101.9	H	-	-	Peak	326	108	RB:1MHz;VB:3MHz;Detector:PK
2424.11	88.24	H	-	-	Avg	326	108	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	96.27	101.90	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.26	88.24	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100kHz	40.69	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.21	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.55	dBuV/m	
Delta Marker - 1MHz/3MHz	35.36	dB	
Delta Marker - 1MHz/10Hz	59.56	dB	
Calculated Band-Edge Measurement(Peak)	66.54	dBuV/m	
Calculated Band-Edge Measurement(Avg)	28.68	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2390	61.21	-	74	-12.79	Peak	-	-	Delta Marker - 100kHz/100KHz
2390	28.69	-	54	-25.31	Avg	-	-	Delta Marker - 1MHz/10Hz

Test #3 EUT on Channel-5 2432MHz - 802.11n 40MHz, Chain A+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	11.5	11.5	14.51	11.7	11.7	14.71	26	26

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2425.26	97.75	V	-	-	Peak	347	100	RB:1MHz;VB:3MHz;Detector:PK
2423.02	85.23	V	-	-	Avg	347	100	RB:1MHz;VB:10Hz;Detector:PK
2424.62	104.4	H	-	-	Peak	326	107	RB:1MHz;VB:3MHz;Detector:PK
2423.34	90.62	H	-	-	Avg	326	107	RB:1MHz;VB:10Hz;Detector:PK

2390 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	97.75	104.40	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.23	90.62	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	43.24	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	61.16	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.38	dBuV/m	
Delta Marker - 1MHz/3MHz	42.55	dB	
Delta Marker - 1MHz/10Hz	40.59	dB	
Calculated Band-Edge Measurement(Peak)	61.85	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.03	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2388.08	61.17	-	74	-12.83	Peak	-	-	Delta Marker - 100kHz/100KHz
2388.08	47.39	-	54	-6.61	Avg	-	-	Delta Marker - 100kHz/100KHz

Test #4 EUT on Channel-7 2442MHz - 802.11n 40MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	11.5	11.5	14.51	12.46	11.7	15.11	27	26

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2447.76	98.75	V	-	-	Peak	144	100	RB: 1MHz;VB: 3MHz;Detector: PK
2444.88	85.60	V	-	-	Avg	144	100	RB: 1MHz;VB: 10Hz;Detector: PK
2438.47	103.92	H	-	-	Peak	349	107	RB: 1MHz;VB: 3MHz;Detector: PK
2445.20	90.81	H	-	-	Avg	349	107	RB: 1MHz;VB: 10Hz;Detector: PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	98.75	103.92	Peak Measurement (RB/VB= 1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	85.60	90.81	Average Measurement (RB/VB= 1MHz/10Hz)
Delta Marker - 100kHz/100KHz	43.05	dB	<-this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	60.87	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.76	dBuV/m	
Delta Marker - 1MHz/3MHz	40.84	dB	
Delta Marker - 1MHz/10Hz	39.68	dB	
Calculated Band-Edge Measurement(Peak)	63.08	dBuV/m	
Calculated Band-Edge Measurement(Avg)	51.13	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2483.5	60.87	-	74	-13.13	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	47.77	-	54	-6.23	Avg	-	-	Delta Marker - 100kHz/100KHz

Test #5 EUT on Channel-8 2447MHz - 802.11n 40MHz, ChainA+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	9.5	9.5	12.51	9.7	9.51	12.62	24	23.5

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2445.07	95.70	V	-	-	Peak	142	102	RB:1MHz;VB:3MHz;Detector:PK
2445.07	83.48	V	-	-	Avg	142	102	RB:1MHz;VB:10Hz;Detector:PK
2439.30	99.90	H	-	-	Peak	330	105	RB:1MHz;VB:3MHz;Detector:PK
2434.50	87.66	H	-	-	Avg	330	105	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	95.70	99.90	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.48	87.66	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	40.4	dB	< -this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	59.50	dBuV/m	
Calculated Band-Edge Measurement(Avg)	47.26	dBuV/m	
Delta Marker - 1MHz/3MHz	38.17	dB	
Delta Marker - 1MHz/10Hz	39.39	dB	
Calculated Band-Edge Measurement(Peak)	61.73	dBuV/m	
Calculated Band-Edge Measurement(Avg)	48.27	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.46	59.50	-	74	-14.50	Peak	-	-	Delta Marker - 100kHz/100KHz
2484.46	47.27	-	54	-6.73	Avg	-	-	Delta Marker - 100kHz/100KHz

Test #6 EUT on Channel-9 2452MHz - 802.11n 40MHz, ChainA+B

Chain	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
	8.5	8.5	11.51	9.7	8.67	12.23	24	23

Fundamental Signal Field Strength

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2447.19	96.85	V	-	-	Peak	143	104	RB:1MHz;VB:3MHz;Detector:PK
2445.26	83.43	V	-	-	Avg	143	104	RB:1MHz;VB:10Hz;Detector:PK
2461.61	99.78	H	-	-	Peak	323	105	RB:1MHz;VB:3MHz;Detector:PK
2464.17	87.21	H	-	-	Avg	323	105	RB:1MHz;VB:10Hz;Detector:PK

2483.5 MHz Band Edge Signal Radiated Field Strength - Marker Delta

	V	H	
Fundamental emission level at 3m-(Peak)	96.85	99.78	Peak Measurement (RB/VB=1MHz/3MHz)
Fundamental emission level at 3m-(Avg)	83.43	87.21	Average Measurement (RB/VB=1MHz/10Hz)
Delta Marker - 100kHz/100KHz	36.22	dB	< -this can only be used if band edge signal is highest within 2MHz of band edge
Calculated Band-Edge Measurement(Peak)	63.56	dBuV/m	
Calculated Band-Edge Measurement(Avg)	50.99	dBuV/m	
Delta Marker - 1MHz/3MHz	34.58	dB	
Delta Marker - 1MHz/10Hz	37.62	dB	
Calculated Band-Edge Measurement(Peak)	65.20	dBuV/m	
Calculated Band-Edge Measurement(Avg)	49.59	dBuV/m	

Frequency	Level	Test Polar	15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
2484.78	63.56	-	74	-10.44	Peak	-	-	Delta Marker - 100kHz/100KHz
2483.5	49.60	-	54	-4.40	Avg	-	-	Delta Marker - 1MHz/10Hz

4.3. Output Power Measurement

4.3.1. Summary of Test Result

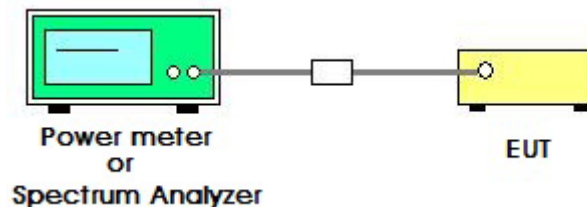
MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Pwr setting	Ref. Avg Pwr (dBm)	Test Performed	Limit	Pass / Fail	Result (dBm)
-	15.69	802.11b Output Power	15.247(b)	Pass	15.42
-	16.68	802.11g Output Power	15.247(b)	Pass	22.49
-	16.63	802.11n 20MHz Output Power (1TX)	15.247(b)	Pass	16.61
-	16.08	802.11n 20MHz Output Power (2TX)	15.247(b)	Pass	16.49
-	16.69	802.11n 40MHz Output Power (1TX)	15.247(b)	Pass	16.65
-	16.35	802.11n 40MHz Output Power (2TX)	15.247(b)	Pass	16.68
-	16.14	802.11a Output Power	15.247(b)	Pass	15.68
-	16.20	802.11an 20MHz Output Power (1TX)	15.247(b)	Pass	15.77
-	16.64	802.11an 20MHz Output Power (2TX)	15.247(b)	Pass	16.36
-	16.20	802.11an 40MHz Output Power (1TX)	15.247(b)	Pass	21.45
-	16.56	802.11an 40MHz Output Power (2TX)	15.247(b)	Pass	22.97

4.3.2. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. The limited has to be reduced by the amount in dB that the gain of the antenna exceed 6dBi. 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. Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

4.3.3. Test Setup Layout



4.3.4. Test Deviation

There is no deviation with the original standard.

4.3.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.6. Test Result of Peak Output Power

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11n
Test Date	Dec. 20, 2011~Dec. 26, 2011		

802.11n HT20 1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note4)	mW	Average Power dBm (Note3)	mW	Antenna Gain (dBi)	EIRP dBm	W	Result
802.11n HT20 Mode, Chain A									
25	2412	12.97	19.82	13.15	20.65	3.2	16.17	0.04	Pass
29.5	2437	16.6	45.71	16.63	46.03	3.2	19.8	0.09	Pass
25	2462	12.56	18.03	12.62	18.28	3.2	15.76	0.03	Pass
802.11n HT20 Mode, Chain B									
25	2412	12.88	19.41	12.94	19.68	3.2	16.08	0.04	Pass
29	2437	16.61	45.81	16.58	45.50	3.2	19.81	0.09	Pass
24.5	2462	12.35	17.18	12.42	17.46	3.2	15.55	0.03	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11n HT40 1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note4)	mW	Average Power dBm (Note3)	mW	Antenna Gain (dBi)	EIRP dBm W		Result
802.11n HT40 Mode, Chain A									
21	2422	9.01	7.96	9.12	8.17	3.2	12.21	0.01	Pass
29.5	2437	16.65	46.24	16.69	46.67	3.2	19.85	0.09	Pass
22	2452	9.25	8.41	9.66	9.25	3.2	12.45	0.01	Pass
802.11n HT40 Mode, Chain B									
21	2422	8.89	7.74	9.2	8.32	3.2	12.09	0.01	Pass
29	2437	16.56	45.29	16.68	46.56	3.2	19.76	0.09	Pass
21.5	2452	9.27	8.45	9.61	9.14	3.2	12.47	0.01	pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11n HT20 2TX															
Output Power															
Transmitted signal on chain is coherent? No															
Power Setting (Note1)		Frequency (MHz)	Output Power (dBm) (Note4)		Total Power	Average Power (dBm) (Note2)		Total Power	Limit		Antenna Gain(dBi) (Note3)		EIRP		Result
Chain A	Chain B		Chain A	Chain B	dBm	Chain A	Chain B	dBm	dBm	W	Chain A	Chain B	dBm	W	
25	25.5	2412	11.05	11.18	14.13	10.98	11.2	14.10	30	1	3.2		17.33	0.05	Pass
29	28	2437	13.53	13.42	16.49	13.18	12.95	16.08	30	1	3.2		19.69	0.09	Pass
26	25.5	2462	11.14	10.78	13.97	11.17	11.08	14.14	30	1	3.2		17.17	0.05	Pass
Note 1		Power setting - test utility setting, for reference only													
Note 2		Average output power per chain measured with an average power meter, for reference only													
Note 3		As there is no coherency between chains the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain.													
Note 4		Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 100 MHz for n40 (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit is -30dBc.													

802.11n HT40 2TX															
Output Power															
Transmitted signal on chain is coherent ? No															
Power Setting (Note1)		Frequency (MHz)	Output Power (dBm) (Note4)		Total Power	Average Power (dBm) (Note2)		Total Power	Limit		Antenna Gain (dBi) (Note3)		EIRP		Result
Chain A	Chain B		Chain A	Chain B	dBm	Chain A	Chain B	dBm	dBm	W	Chain A	Chain B	dBm	W	
22.5	22.5	2422	7.88	7.96	10.93	8.2	8.18	11.20	30	1	3.2		14.13	0.02	Pass
29	28	2437	13.69	13.65	16.68	13.25	13.42	16.35	30	1	3.2		19.88	0.09	Pass
24	23	2452	9.54	8.38	12.01	9.7	8.67	12.23	30	1	3.2		15.21	0.03	Pass
Note 1		Power setting - test utility setting, for reference only													
Note 2		Average output power per chain measured with an average power meter, for reference only													
Note 3		As there is no coherency between chains the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain.													
Note 4		Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 100 MHz for n40 (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit is -30dBc.													

802.11an HT20 1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note4)		Average Power dBm (Note3)		Antenna Gain (dBi)	EIRP dBm W		Result
802.11an HT20 Mode, Chain A									
25	5745	15.33	34.12	15.57	36.06	5	20.33	0.10	Pass
25.5	5785	15.31	33.96	15.5	35.48	5	20.31	0.10	Pass
26	5825	15.4	34.67	15.64	36.64	5	20.4	0.10	Pass
802.11an HT20 Mode, Chain B									
26.5	5745	15.77	37.76	16.2	41.69	5	20.77	0.11	Pass
27.5	5785	15.56	35.97	16.01	39.90	5	20.56	0.11	Pass
28	5825	15.6	36.31	16.09	40.64	5	20.6	0.11	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11an HT40 1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note2)	Output Power mW	Average Power dBm (Note3)	Average Power mW	Antenna Gain(dBi)	EIRP dBm	EIRP W	Result
802.11an HT40 Mode, Chain A									
26	5755	20.68	116.95	15.44	34.99	5	20.44	0.11	Pass
26.5	5795	20.82	120.78	15.47	35.24	5	20.47	0.11	Pass
802.11an HT40 Mode, Chain B									
28	5755	21.45	139.64	16.2	41.69	5	21.2	0.13	Pass
29	5795	20.82	120.78	16.06	40.36	5	21.06	0.12	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11an HT20 2TX															
Output Power															
Transmitted signal on chain is coherent? No															
Power Setting (Note1)		Frequency (MHz)	Output Power (dBm) (Note4)		Total Power	Average Power (dBm) (Note2)		Total Power	Limit		Antenna Gain (dBi) (Note3)		EIRP		Result
Chain A	Chain B		Chain A	Chain B	dBm	Chain A	Chain B	dBm	dBm	W	Chain A	Chain B	dBm	W	
26.5	27	5745	13.41	13.23	16.33	13.64	13.39	16.53	30	1	5		21.33	0.13	Pass
27.5	28.5	5785	13.37	13.14	16.27	13.66	13.6	16.64	30	1	5		21.27	0.13	Pass
28	29	5825	13.56	13.13	16.36	13.56	13.55	16.57	30	1	5		21.36	0.13	Pass
Note 1		Power setting - test utility setting, for reference only													
Note 2		Average output power per chain measured with an average power meter, for reference only													
Note 3		As there is no coherency between chains the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain.													
Note 4		Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 100 MHz for n40 (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit is -30dBc.													

802.11an HT40 2TX															
Output Power															
Transmitted signal on chain is coherent ? No															
Power Setting (Note1)		Frequency (MHz)	Output Power (dBm) (Note5)		Total Power	Average Power (dBm) (Note2)		Total Power	Limit		Antenna Gain (dBi) (Note3)		EIRP		Result
Chain A	Chain B		Chain A	Chain B	dBm	Chain A	Chain B	dBm	dBm	W	Chain A	Chain B	dBm	W	
28	28.5	5755	20.01	19.9	22.97	13.6	13.38	16.50	30	1	5		21.50	0.14	Pass
28.5	30	5795	19.95	19.5	22.74	13.48	13.62	16.56	30	1	5		21.56	0.14	Pass
Note 1		Power setting - test utility setting, for reference only													
Note 2		Average output power per chain measured with an average power meter, for reference only													
Note 3		As there is no coherency between chains the total EIRP is the sum of the individual EIRPs and effective antenna gain equals the eirp divide by the sum of the power on each chain.													
Note 4		Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 100 MHz for n40 (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit is -30dBc.													
Note 5		Power measured using a peak power meter.													

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11 a/b/g
Test Date	Dec. 20, 2011~Dec. 26, 2011		

802.11b-1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note4)	mW	Average Power dBm (Note3)	mW	Antenna Gain (dBi)	EIRP dBm	W	Result
802.11b Mode, Chain A									
23	2412	15.42	34.83	15.68	36.98	3.2	18.62	0.07	Pass
23.5	2437	15.5	35.48	15.69	37.07	3.2	18.7	0.07	Pass
23.5	2462	15.68	36.98	15.7	37.15	3.2	18.88	0.07	Pass
802.11b Mode, Chain B									
23	2412	15.23	33.34	15.39	34.59	3.2	18.43	0.06	Pass
23	2437	15.47	35.24	15.44	34.99	3.2	18.67	0.07	Pass
23	2462	15.19	33.04	15.3	33.88	3.2	18.39	0.06	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11g-1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power (Note2)		Average Power (Note3)		Antenna Gain (dBi)	EIRP		Result
		dBm	mW	dBm	mW		dBm	W	
802.11g Mode, Chain A									
26	2412	21	125.89	14.2	26.30	3.2	17.4	0.05	Pass
29.5	2437	22.88	194.09	16.68	46.56	3.2	19.88	0.09	Pass
26.5	2462	21.32	135.52	14.14	25.94	3.2	17.34	0.05	Pass
802.11g Mode, Chain B									
26.5	2412	21.3	134.90	14.19	26.24	3.2	17.39	0.05	Pass
29	2437	22.49	177.42	16.51	44.77	3.2	19.71	0.09	Pass
26.5	2462	21.23	132.74	14.18	26.18	3.2	17.38	0.05	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW= 1MHz, VB= 3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

802.11a-1TX									
Output Power									
Power Setting (Note1)	Frequency (MHz)	Output Power dBm (Note4)		Average Power dBm (Note3)		Antenna Gain (dBi)	EIRP dBm W		Result
802.11a Mode, Chain A									
24.5	5745	15.5	35.48	15.33	34.12	5	20.5	0.11	Pass
25	5785	15.55	35.89	15.38	34.51	5	20.55	0.11	Pass
25.5	5825	15.36	34.36	15.46	35.16	5	20.36	0.10	Pass
802.11a Mode, Chain B									
26.5	5745	15.85	38.46	16.14	41.11	5	20.85	0.12	Pass
27.5	5785	15.68	36.98	16	39.81	5	20.68	0.11	Pass
28	5825	15.53	35.73	16.08	40.55	5	20.53	0.11	Pass
Note 1	Power setting - the software power setting used during testing, included for reference only.								
Note 2	Power measured using a peak power meter.								
Note 3	Power measured using average power meter and is included for reference only.								
Note 4	Output power measured using a spectrum analyzer (see plots below) with RBW=1MHz, VB=3 MHz, sample detector, power averaging on (transmitted signal was continuous) and power integration over 40 MHz (option #2, method 1 in KDB 558074, equivalent to method 1 of DA-02-2138A1 for U-NII devices). Spurious limit becomes -30dBc.								

4.4. Power Spectral Density Measurement

4.4.1. Summary of Test Result

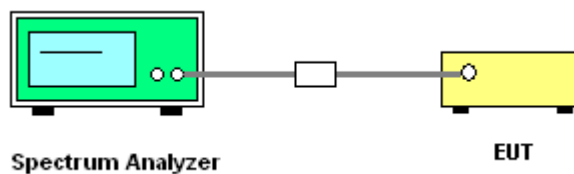
MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Pwr setting	Ref. Avg Pwr (dBm)	Test Performed	Limit	Pass / Fail	Result (dBm/3kHz)
-	15.68	802.11b Power spectral Density	15.247(d)	Pass	-8.88
-	16.51	802.11g Power spectral Density	15.247(d)	Pass	-8.49
-	16.63	802.11n 20MHz Power spectral Density (1TX)	15.247(d)	Pass	-7.89
-	19.43	802.11n 40MHz Power spectral Density (1TX)	15.247(d)	Pass	-10.57
-	16.08	802.11n 20MHz Power spectral Density (2TX)	15.247(d)	Pass	-7.41
-	16.35	802.11n 40MHz Power spectral Density (2TX)	15.247(d)	Pass	-10.09
-	16.00	802.11a Power spectral Density	15.247(d)	Pass	-10.30
-	16.20	802.11an 20MHz Power spectral (1TX)	15.247(d)	Pass	-9.03
-	16.06	802.11an 40MHz Power spectral (1TX)	15.247(d)	Pass	-11.19
-	16.64	802.11an 20MHz Power spectral (2TX)	15.247(d)	Pass	-8.37
-	16.56	802.11an 40MHz Power spectral (2TX)	15.247(d)	Pass	-10.24

4.4.2. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

4.4.3. Test Setup Layout



4.4.4. Test Deviation

There is no deviation with the original standard.

4.4.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.6. Test Result of Power Spectral Density

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11n
Test Date	Dec. 20, 2011~Dec, 26, 2011		

802.11n-HT20-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11n HT20 Mode, Chain A				
25	2412	-12.55	8	Pass
29.5	2437	-7.89	8	Pass
25	2462	-12.34	8	Pass
802.11n HT20 Mode, Chain B				
25	2412	-12.48	8	Pass
29	2437	-8.59	8	Pass
24.5	2462	-12.18	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

802.11n-HT40-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11n HT40 Mode, Chain A				
21	2422	-19.75	8	Pass
29.5	2437	-10.57	8	Pass
22	2452	-17.9	8	Pass
802.11n HT40 Mode, Chain B				
21	2422	-19.28	8	Pass
29	2437	-12.46	8	Pass
21.5	2452	-18.35	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

802.11n-HT20-2TX							
Power spectral Density							
Power Setting (Note1)		Frequency (MHz)	PSD dBm/3KHz (Note1)		Total PSD	Limit	Result
Chain A	Chain B		Chain A	Chain B	(dBm/3KHz)	dBm/3KHz	
25	25.5	2412	-12.8	-11.46	-9.07	8	Pass
29	28	2437	-9.92	-10.98	-7.41	8	Pass
26	25.5	2462	-12.14	-13.75	-9.86	8	Pass
Note 1							
Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.							

802.11n-HT40-2TX							
Power spectral Density							
Power Setting (Note1)		Frequency (MHz)	PSD dBm/3KHz (Note1)		Total PSD	Limit	Result
Chain A	Chain B		Chain A	Chain B	(dBm/3KHz)	dBm/3KHz	
22.5	22.5	2422	-17.89	-18.82	-15.32	8	Pass
29	28	2437	-12.93	-13.28	-10.09	8	Pass
24	23	2452	-18.1	-20.72	-16.21	8	Pass
Note 1							
Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.							

802.11an-HT20-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11an HT20 Mode, Chain A				
25	5745	-12.78	8	Pass
25.5	5785	-11.31	8	Pass
26	5825	-11.17	8	Pass
802.11an HT20 Mode, Chain B				
26.5	5745	-9.03	8	Pass
27.5	5785	-9.15	8	Pass
28	5825	-10.08	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

802.11an-HT40-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11an HT40 Mode, Chain A				
26	5755	-13.75	8	Pass
26.5	5795	-14.12	8	Pass
802.11an HT40 Mode, Chain B				
28	5755	-11.85	8	Pass
29	5795	-11.19	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

802.11an-HT20-2TX							
Power spectral Density							
Power Setting (Note1)		Frequency (MHz)	PSD dBm/3KHz (Note1)		Total PSD	Limit	Result
Chain A	Chain B		Chain A	Chain B	(dBm/3KHz)	dBm/3KHz	
26.5	27	5745	-11.89	-10.93	-8.37	8	Pass
27.5	28.5	5785	-12.4	-12.16	-9.27	8	Pass
28	29	5825	-12.9	-12.5	-9.69	8	Pass
Note 1							
Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.							

802.11an-HT40-2TX							
Power spectral Density							
Power Setting (Note1)		Frequency (MHz)	PSD dBm/3KHz (Note1)		Total PSD	Limit	Result
Chain A	Chain B		Chain A	Chain B	(dBm/3KHz)	dBm/3KHz	
28.5	28.5	5755	-13.37	-13.18	-10.26	8	Pass
28.5	30	5795	-13.12	-13.39	-10.24	8	Pass
Note 1							
Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.							

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11a/b/g
Test Date	Dec. 21, 2011~Dec. 26, 2011		

802.11b-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11b Mode, Chain A				
23	2412	-9.33	8	Pass
23.5	2437	-10.18	8	Pass
23.5	2462	-8.88	8	Pass
802.11b Mode, Chain B				
23	2412	-9.76	8	Pass
23	2437	-10.73	8	Pass
23	2462	-11.08	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

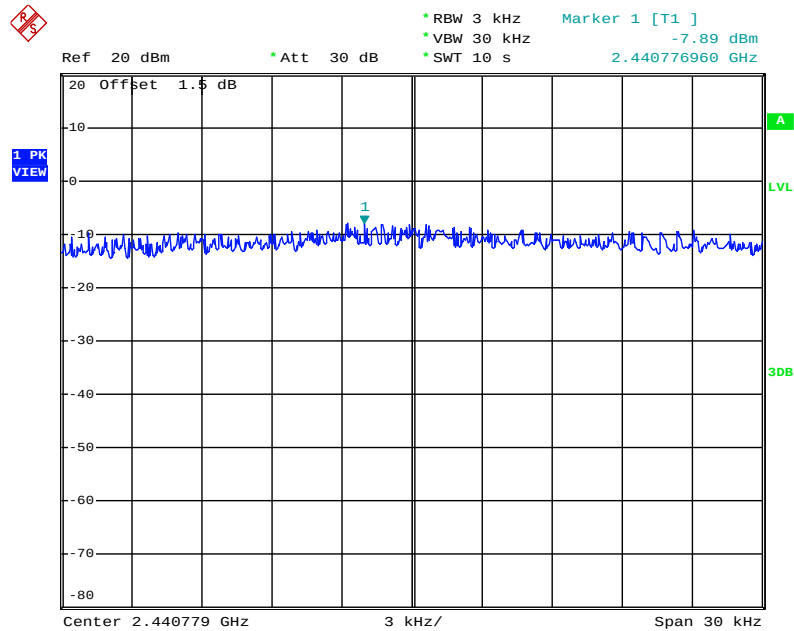
802.11g-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11g Mode, Chain A				
26	2412	-10.29	8	Pass
29.5	2437	-9.44	8	Pass
26.5	2462	-13.55	8	Pass
802.11g Mode, Chain B				
26.5	2412	-8.76	8	Pass
29	2437	-8.49	8	Pass
26.5	2462	-11.02	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

802.11a-1TX				
Power spectral Density				
Power Setting	Frequency (MHz)	PSD	Limit	Result
		dBm/3KHz (Note1)	dBm/3KHz	
802.11a Mode, Chain A				
24.5	5745	-12.59	8	Pass
25	5785	-11.95	8	Pass
25.5	5825	-10.76	8	Pass
802.11a Mode, Chain B				
26.5	5745	-10.3	8	Pass
27.5	5785	-10.68	8	Pass
28	5825	-11.19	8	Pass
Note 1	Power spectral density measured using RB=3 kHz, VB=30kHz, analyzer with peak detector and with a sweep time set to ensure a dwell time of at least 10 second per 3kHz. The measurement is made at the frequency of PPSD determined from preliminary scans using RB=3kHz using multiple sweeps at a faster rate over the 6dB bandwidth of the signal.			

Note: All the test values were listed in the report.

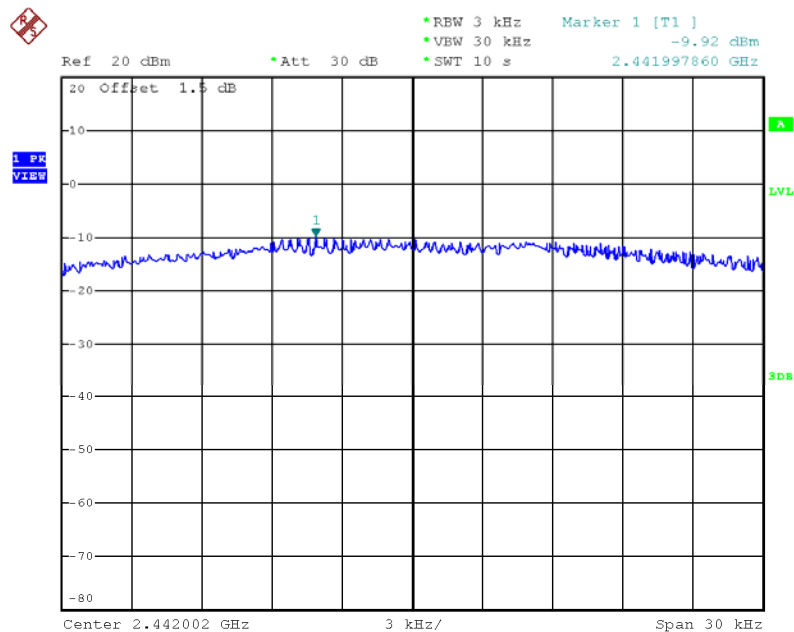
For plots, only the channel with maximum results was shown.

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain A / 2437 MHz



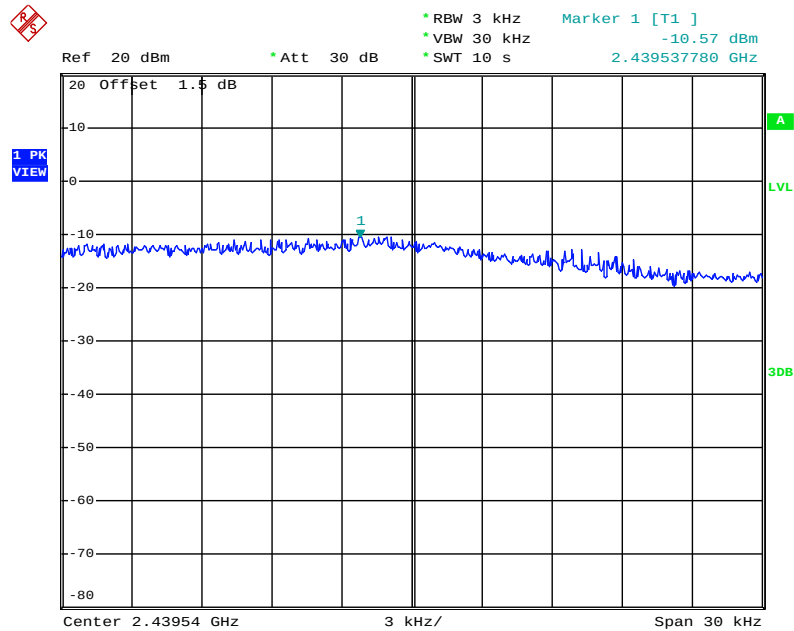
Date: 17.DEC.2011 12:22:57

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain A+B / 2437 MHz



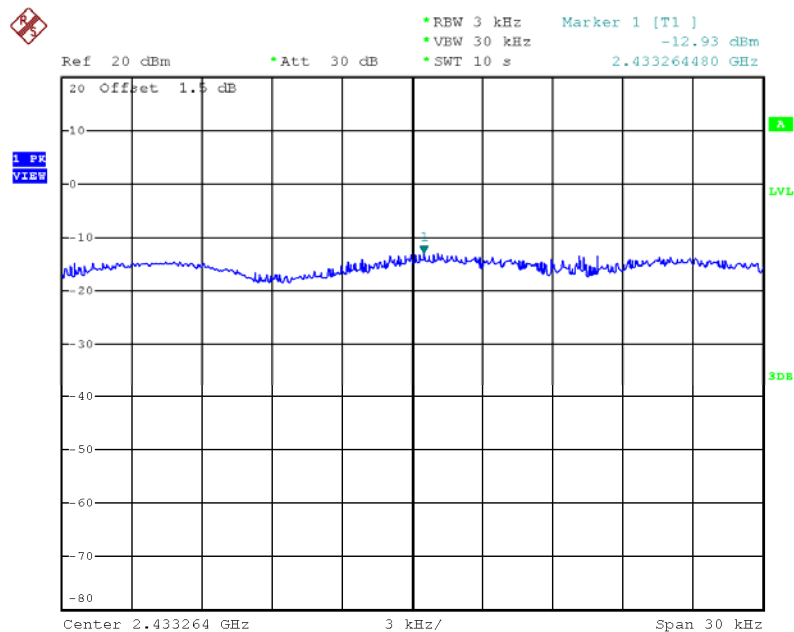
Date: 22.DEC.2011 18:38:57

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain A / 2437 MHz



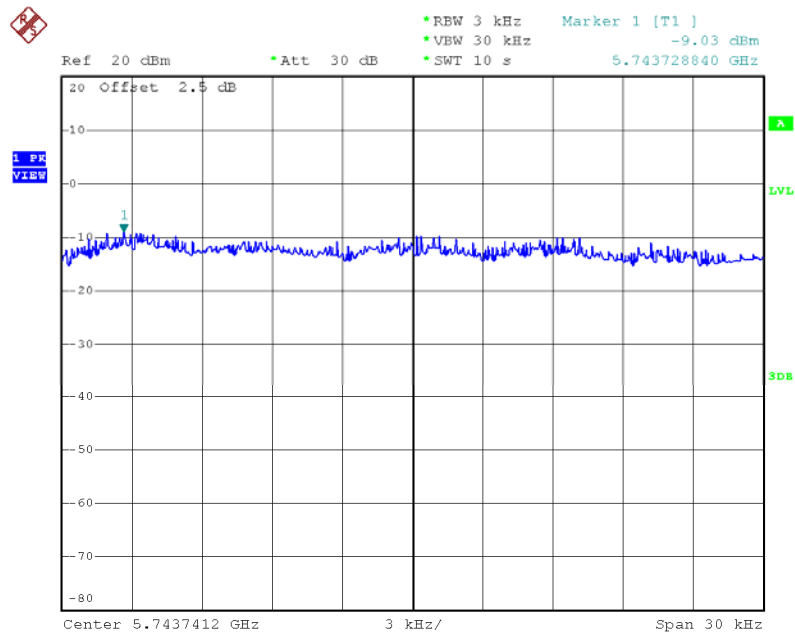
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Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain A+B / 2437 MHz



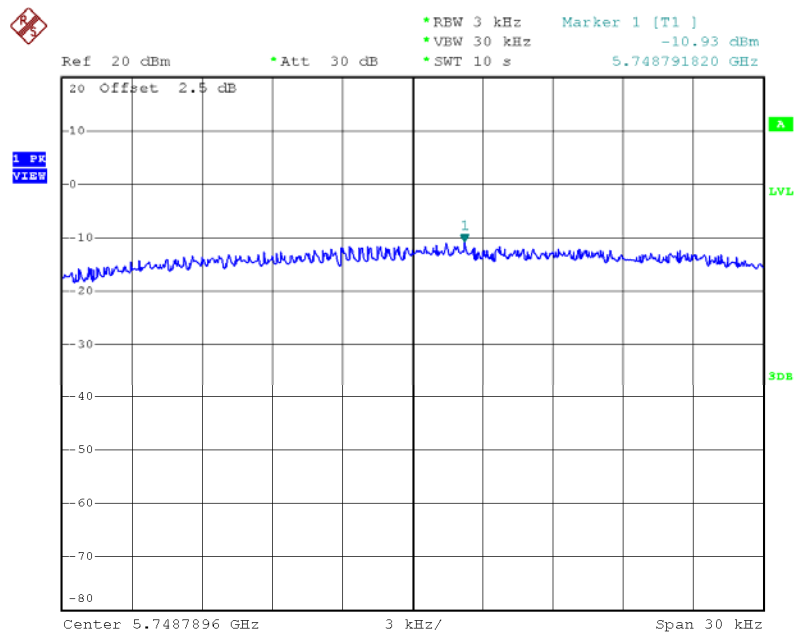
Date: 22.DEC.2011 18:34:29

Power Density Plot on Configuration IEEE 802.11an MCS0 20MHz / Chain B / 5745MHz



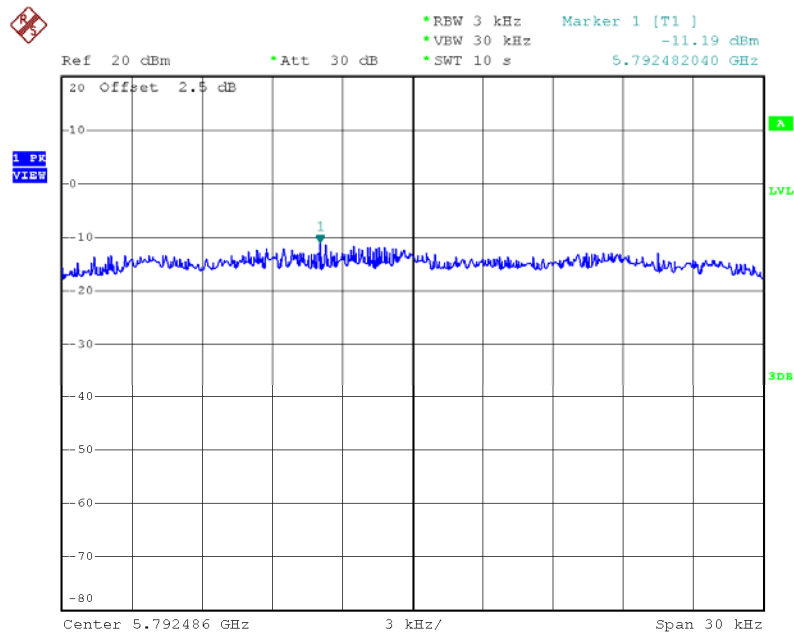
Date: 23.DEC.2011 16:12:41

Power Density Plot on Configuration IEEE 802.11an MCS0 20MHz / Chain A+B / 5745 MHz



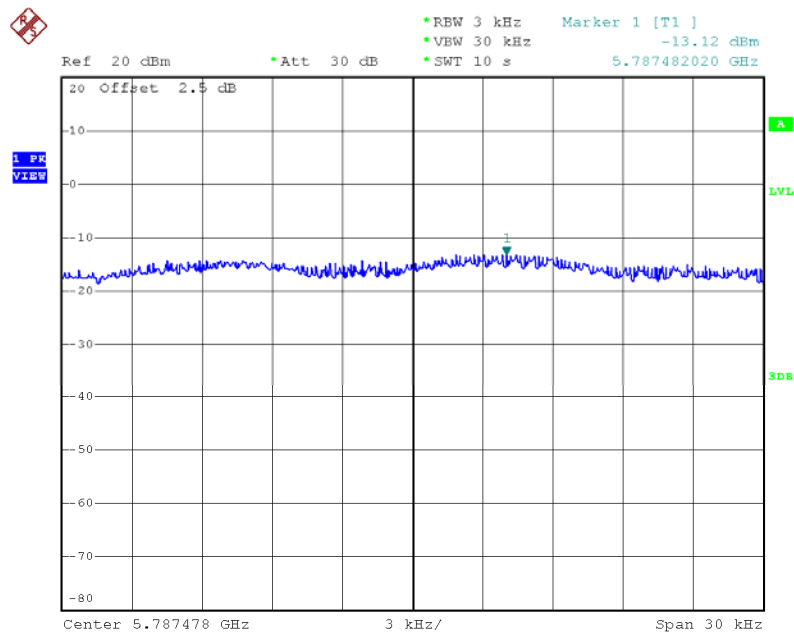
Date: 23.DEC.2011 16:25:32

Power Density Plot on Configuration IEEE 802.11an MCS0 40MHz / Chain A / 5795 MHz



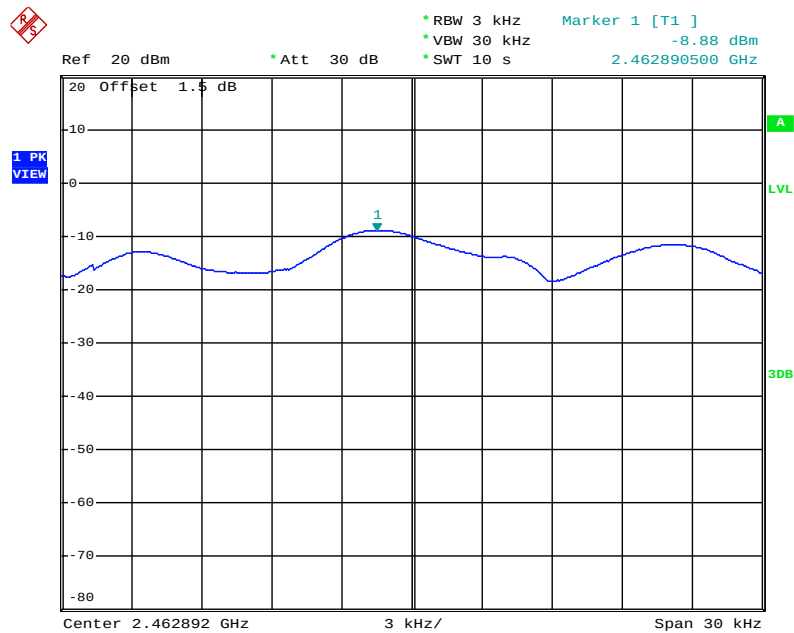
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Power Density Plot on Configuration IEEE 802.11an MCS0 40MHz / Chain A+B / 5795 MHz



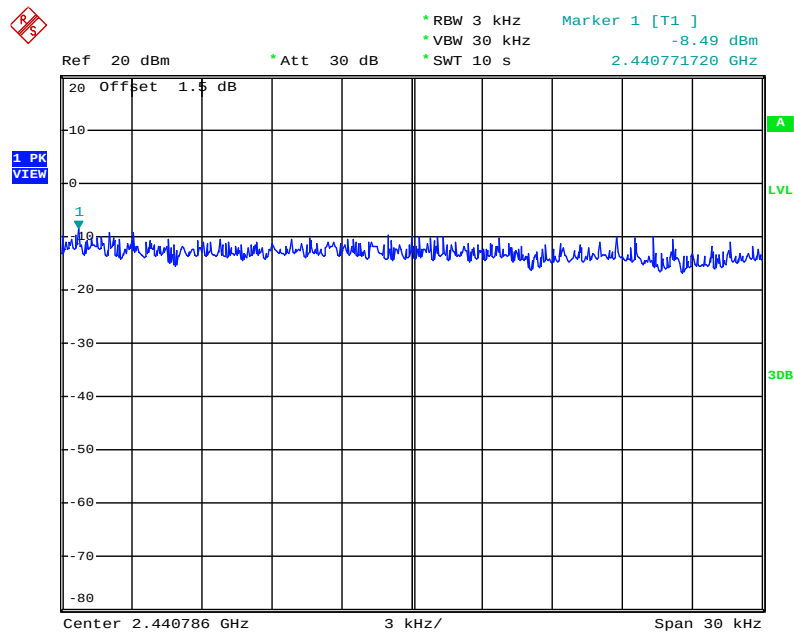
Date: 23.DEC.2011 16:33:08

Power Density Plot on Configuration IEEE 802.11b / Chain A / 2462 MHz



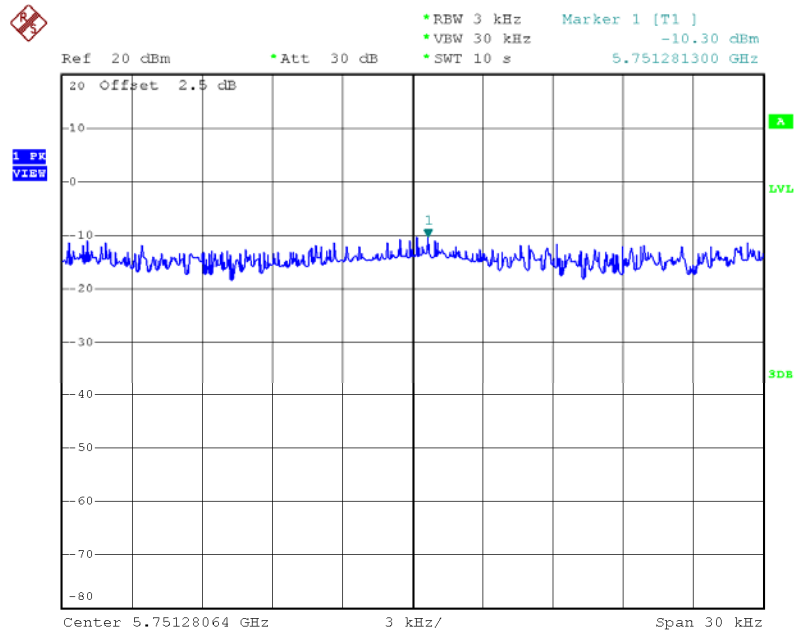
Date: 17.DEC.2011 13:47:52

Power Density Plot on Configuration IEEE 802.11g / Chain B / 2437 MHz



Date: 17.DEC.2011 12:59:01

Power Density Plot on Configuration IEEE 802.11a / Chain B / 5745 MHz



Date: 23.DEC.2011 16:19:07

4.5. 6dB Spectrum Bandwidth Measurement

4.5.1. Summary of Test Result

MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Pwr setting	Ref. Avg Pwr (dBm)	Test Performed	Limit	Pass / Fail	Result (MHz)
-	15.44	802.11b Minimum 6dB Bandwidth	15.247(a)	Pass	12.00
-	15.44	802.11b 99% Bandwidth	RSS GEN	-	14.92
-	14.14	802.11g Minimum 6dB Bandwidth	15.247(a)	Pass	15.04
-	16.51	802.11g 99% Bandwidth	RSS GEN	-	16.36
-	12.56	802.11n 20MHz Minimum 6dB (1TX)	15.247(a)	Pass	15.12
-	16.61	802.11n 20MHz 99% Bandwidth (1TX)	RSS GEN	-	17.56
-	9.25	802.11n 40MHz Minimum 6dB (1TX)	15.247(a)	Pass	35.12
-	16.65	802.11n 40MHz 99% Bandwidth (1TX)	RSS GEN	-	36
-	16.08	802.11n 20MHz Minimum 6dB (2TX)	15.247(a)	Pass	15.08
-	14.10	802.11n 20MHz 99% Bandwidth (2TX)	RSS GEN	-	17.44
-	16.35	802.11n 40MHz Minimum 6dB (2TX)	15.247(a)	Pass	35.08
-	16.35	802.11n 40MHz 99% Bandwidth (2TX)	RSS GEN	-	35.76
-	15.38	802.11a Minimum 6dB Bandwidth	15.247(a)	Pass	16.36
-	16.08	802.11a 99% Bandwidth	RSS GEN	-	16.52
-	16.68	802.11an 20MHz Minimum 6dB(1TX)	15.247(a)	Pass	17.32
-	16.59	802.11an 20MHz 99% Bandwidth(1TX)	RSS GEN	-	17.64
-	15.47	802.11an 40MHz Minimum 6dB(1TX)	15.247(a)	Pass	35.20
-	15.47	802.11an 40MHz 99% Bandwidth(1TX)	RSS GEN	-	35.92
-	16.64	802.11an 20MHz Minimum 6dB(2TX)	15.247(a)	Pass	15.40
-	16.64	802.11an 20MHz 99% Bandwidth(2TX)	RSS GEN	-	17.56
-	22.74	802.11an 40MHz Minimum 6dB(2TX)	15.247(a)	Pass	35.12
-	22.74	802.11an 40MHz 99% Bandwidth(2TX)	RSS GEN	-	35.84

4.5.2. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

4.5.3. Test Deviation

There is no deviation with the original standard.

4.5.4. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.5. Test Result of 6dB Spectrum Bandwidth

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11n
Test Date	Dec. 21, 2011~Dec. 26, 2011		

802.11n-HT20-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11n HT20 Mode, Chain A				
25	2412	100	15.08	17.52
29.5	2437	100	13.88	17.52
25	2462	100	15.12	17.56
802.11n HT20 Mode, Chain B				
-	2412	100	-	-
29	2437	100	15.08	17.56
-	2462	100	-	-
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

802.11n-HT40-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11n HT40 Mode, Chain A				
21	2422	100	30.72	35.92
29.5	2437	100	32.56	36
22	2452	100	35.12	35.92
802.11n HT40 Mode, Chain B				
21	2422	100	-	-
29	2437	100	35.04	35.92
21.5	2452	100	-	-
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

802.11n-HT20-2TX					
Signal Bandwidth					
Power Setting (Note1)		Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
Chain A	Chain B			6dB	99%
25	25.5	2412	100	15.04	17.44
29	28	2437	100	15.08	17.4
26	25.5	2462	100	13.72	17.44
Note 1		99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB			

802.11n-HT40-2TX					
Signal Bandwidth					
Power Setting (Note1)		Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
Chain A	Chain B			6dB	99%
22.5	22.5	2422	100	33.76	35.76
29	28	2437	100	35.08	35.76
24	23	2452	100	28.88	35.76
Note 1		99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB			

802.11an-HT20-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11an HT20 Mode, Chain A				
25	5745	100	-	-
25.5	5785	100	17.32	17.64
26	5825	100	-	-
802.11an HT20 Mode, Chain B				
26.5	5745	100	16.8	17.64
27.5	5785	100	16.84	17.64
28	5825	100	16.84	17.64
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

802.11an-HT40-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11an HT40 Mode, Chain A				
26	5755	100	-	-
26.5	5795	100	35.2	35.92
802.11an HT40 Mode, Chain B				
28	5755	100	35.04	35.92
29	5795	100	35.12	35.92
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

802.11an-HT20-2TX					
Signal Bandwidth					
Power Setting (Note1)		Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
Chain A	Chain B			6dB	99%
26.5	27	5745	100	15.4	17.52
27.5	28.5	5785	100	15.4	17.56
28	29	5825	100	15.4	17.52
Note 1		99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB			

802.11an-HT40-2TX					
Signal Bandwidth					
Power Setting (Note1)		Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
Chain A	Chain B			6dB	99%
28.5	28.5	5755	100	35.12	35.76
28.5	30	5795	100	35.12	35.84
Note 1		99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB			

Temperature	23°C	Humidity	61%
Test Engineer	Denis Su	Configurations	IEEE 802.11a/b/g
Test Date	Dec. 21, 2011~Dec. 26, 2011		

802.11b-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11b Mode, Chain A				
23	2412	100	10.08	14.96
23.5	2437	100	10.08	14.92
23.5	2462	100	10.16	14.88
802.11b Mode, Chain B				
-	2412	100	-	-
23	2437	100	12	14.92
-	2462	100	-	-
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

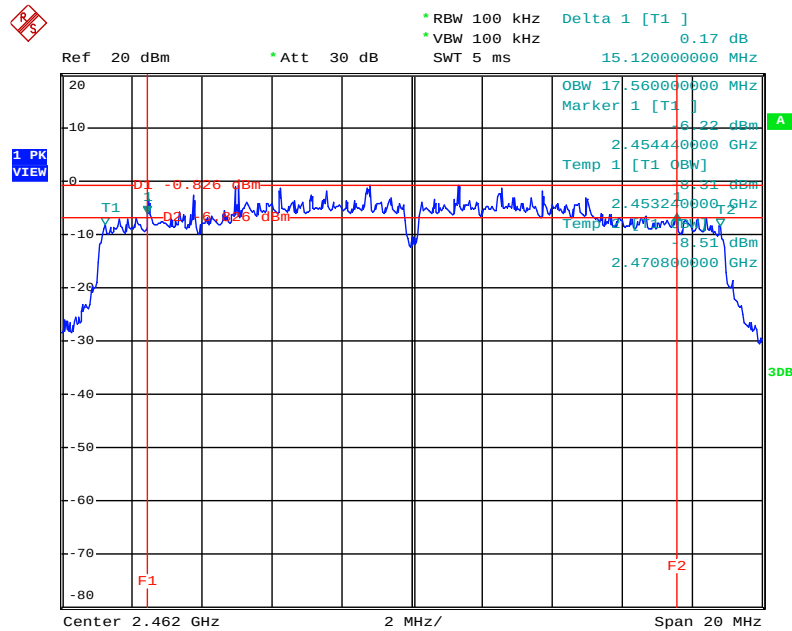
802.11g-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11g Mode, Chain A				
26	2412	100	14.16	16.32
29.5	2437	100	14.36	16.32
26.5	2462	100	15.04	16.32
802.11g Mode, Chain B				
-	2412	100	-	-
29	2437	100	14.4	16.36
-	2462	100	-	-
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

802.11a-1TX				
Signal Bandwidth				
Power Setting	Frequency (MHz)	Resolution Bandwidth (KHz)	Bandwidth (MHz)	
			6dB	99%
802.11a Mode, Chain A				
24.5	5745	100	-	-
25	5785	100	16.36	16.48
25.5	5825	100	-	-
802.11a Mode, Chain B				
26.5	5745	100	16.28	16.44
27.5	5785	100	16.32	16.52
28	5825	100	16.04	16.52
Note 1	99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB (taken from power measurement plots)			
Note 2	6dB bandwidth measured on the center channel for each chain and then on the top and bottom channels for the chain with the narrowest 6dB bandwidth.			

Note: All the test values were listed in the report.

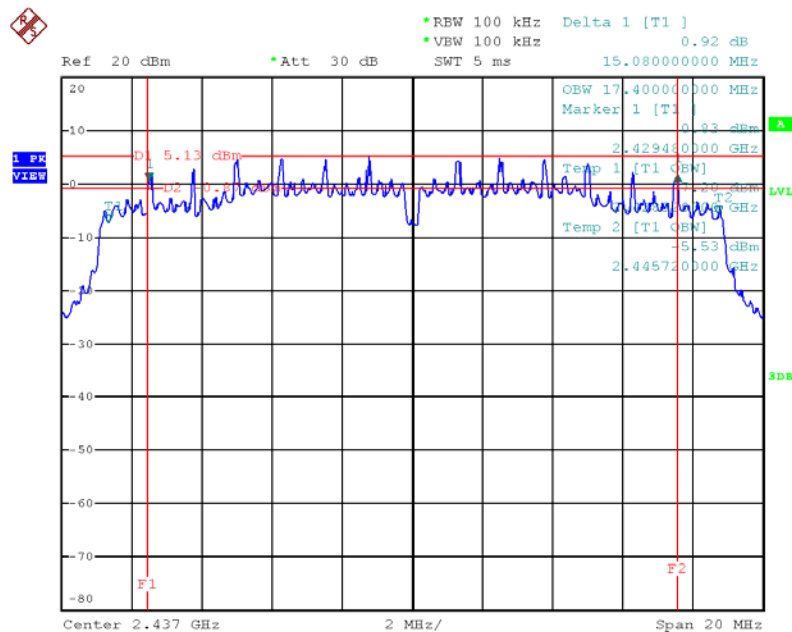
For plots, only the channel with maximum results was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain A / 2462 MHz



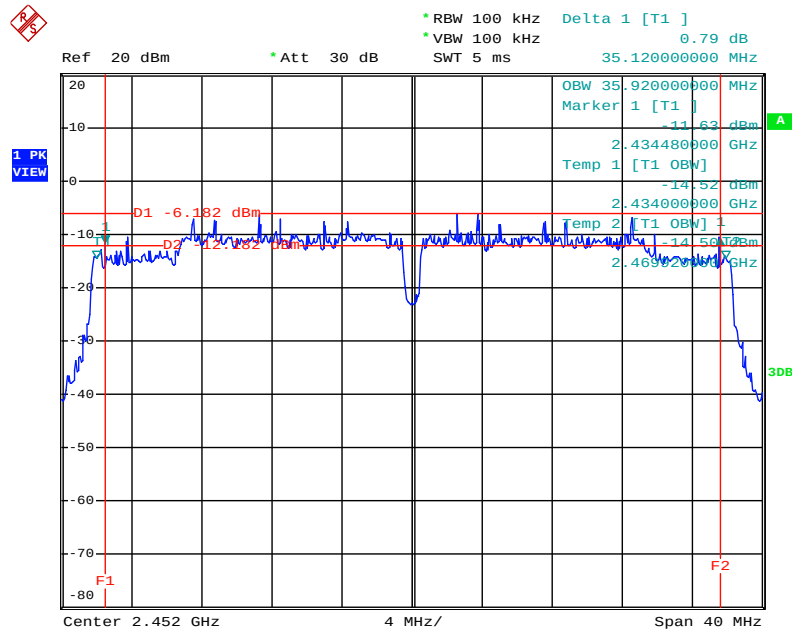
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain A + Chain B / 2437 MHz



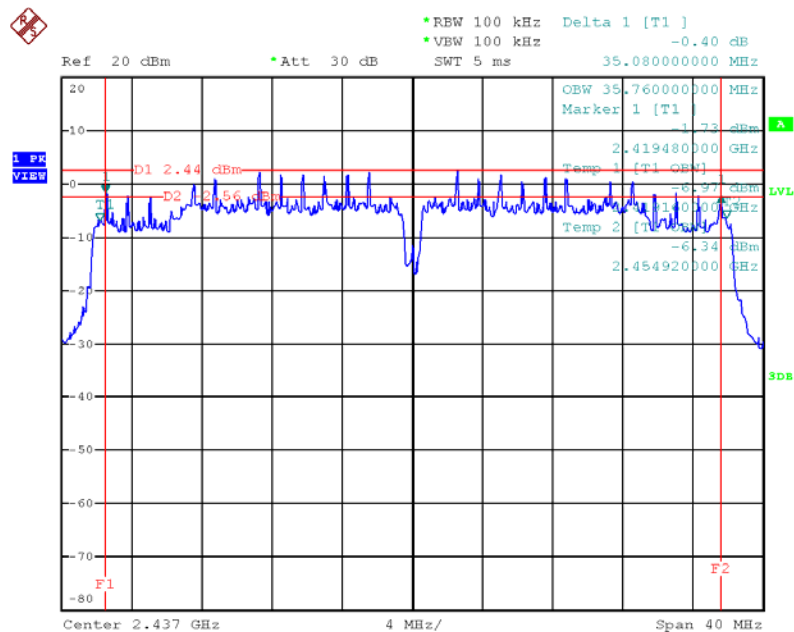
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6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain A / 2452 MHz



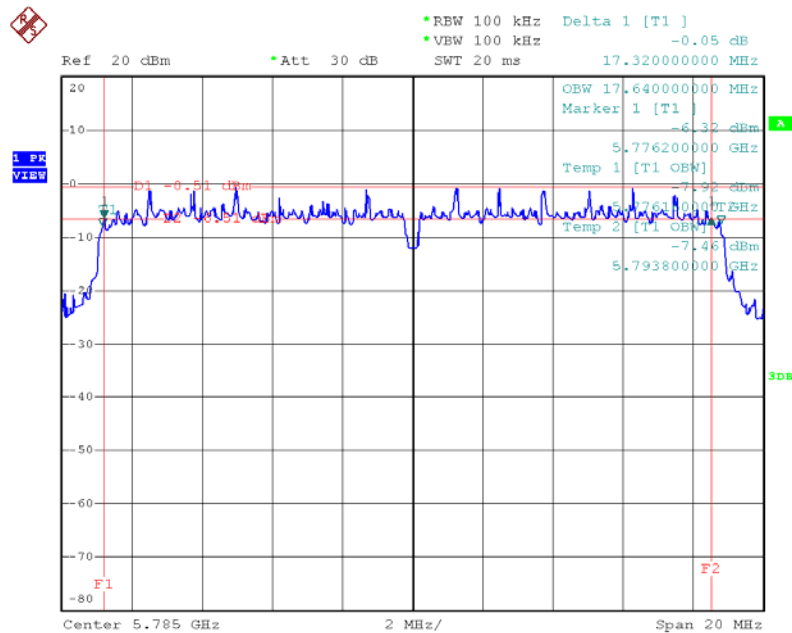
Date: 17.DEC.2011 15:13:07

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain A + Chain B / 2437 MHz



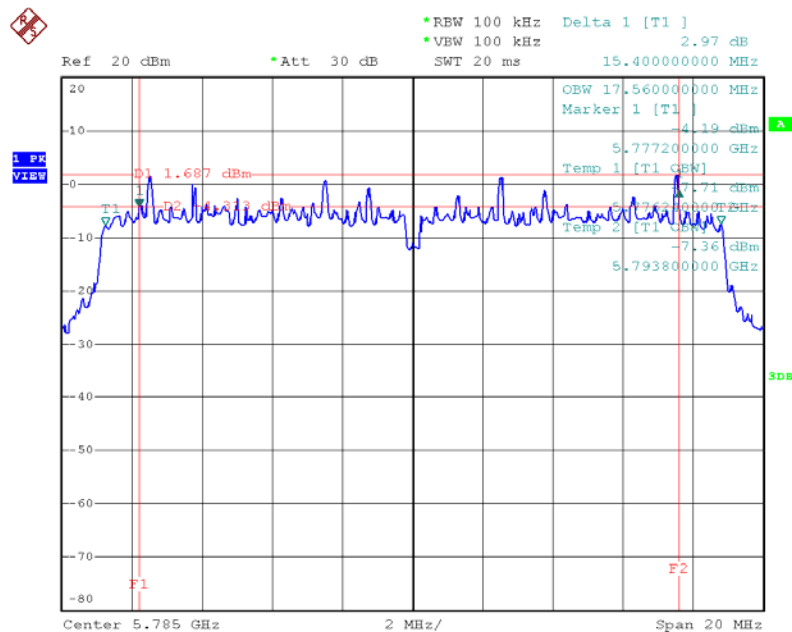
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6 dB Bandwidth Plot on Configuration IEEE 802.11an MCS0 20MHz / Chain A / 5785 MHz



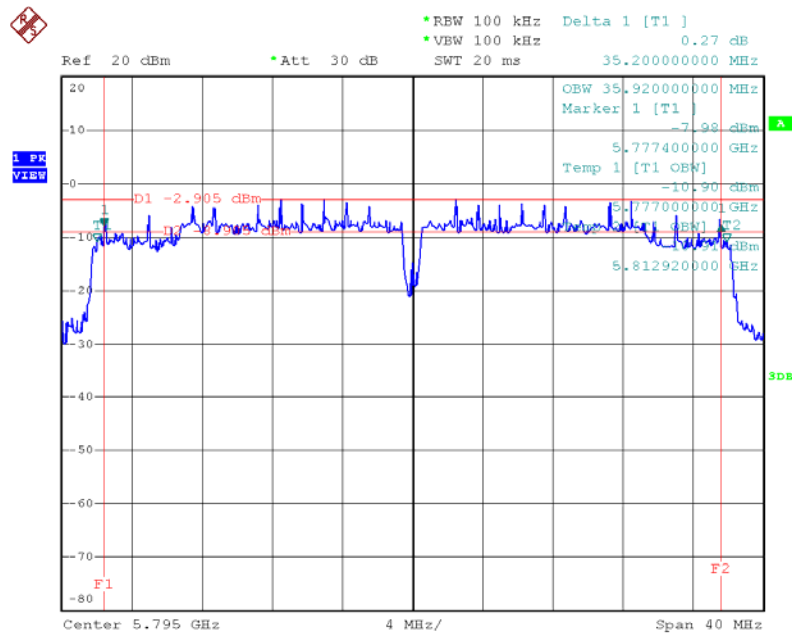
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6 dB Bandwidth Plot on Configuration IEEE 802.11an MCS0 20MHz / Chain A + Chain B / 5785 MHz



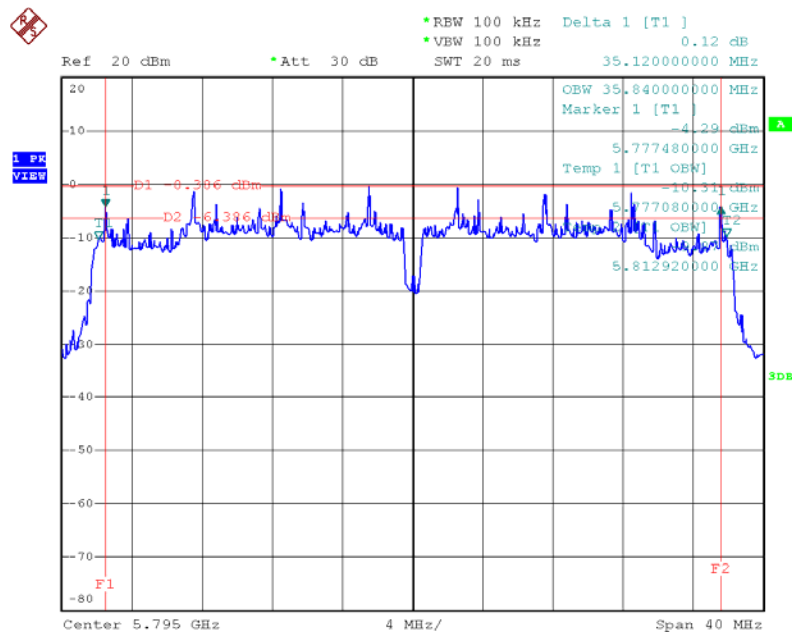
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6 dB Bandwidth Plot on Configuration IEEE 802.11an MCS0 40MHz / Chain A / 5795 MHz



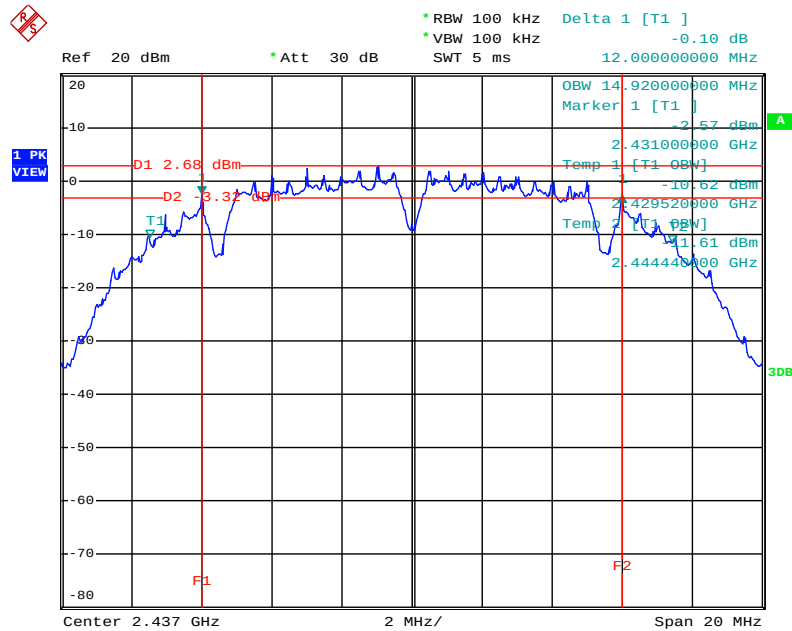
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6 dB Bandwidth Plot on Configuration IEEE 802.11an MCS0 40MHz / Chain A+ Chain B / 5795MHz



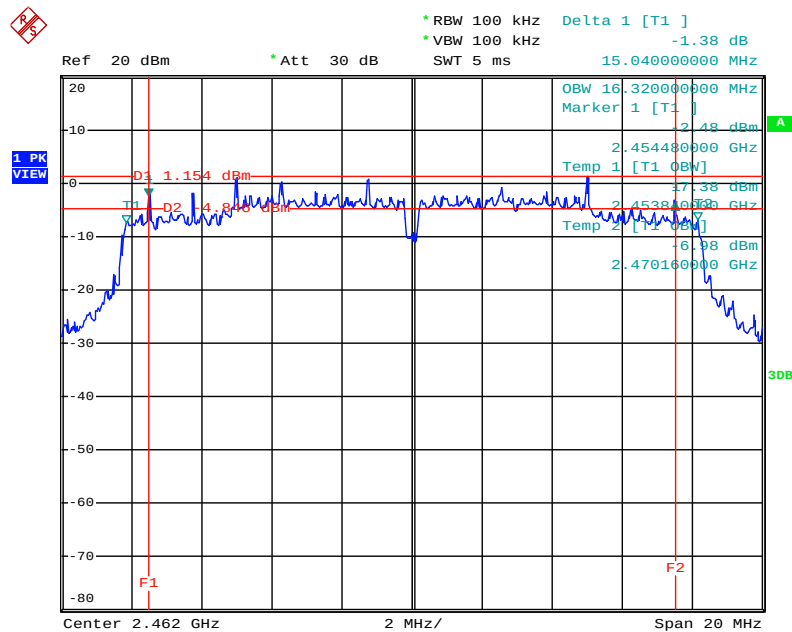
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6 dB Bandwidth Plot on Configuration IEEE 802.11b / Chain B / 2437 MHz



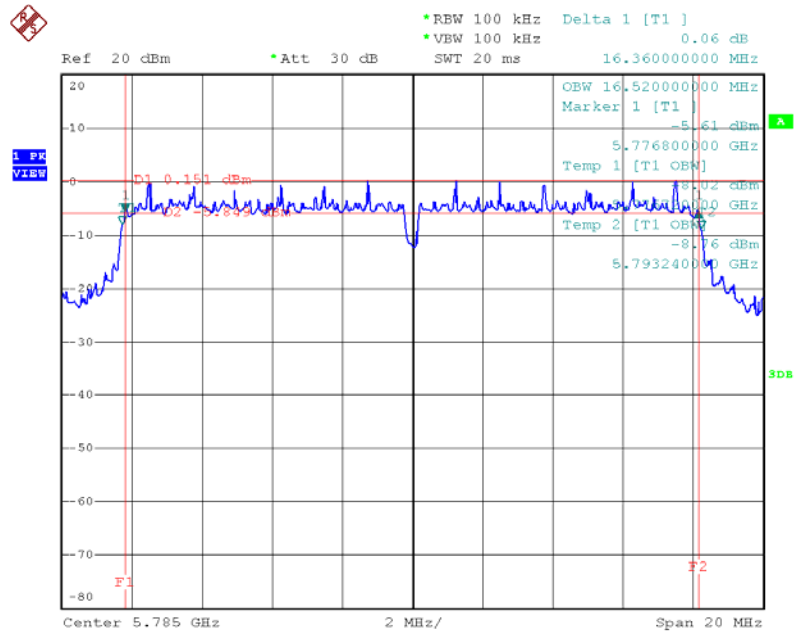
Date: 17.DEC.2011 12:56:48

6 dB Bandwidth Plot on Configuration IEEE 802.11g / Chain A / 2462 MHz



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

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Chain A / 5785 MHz



Date: 23.DEC.2011 19:18:28

4.6. Radiated Emissions Measurement for Transmitter and Receiver Spurious

4.6.1. Summary of Test Result

MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Test #	Mode	Channel	Target Power (dBm)	Measured Power (dBm)	Test Performed	Limit	Result
1	802.11b Chain A	#1 2412 MHz	15.5	15.65	Radiated Emissions, 1 - 26 GHz	FCC 15.209, 15.247	40.51dBμV/m, -13.49dB
		#6 2437 MHz	15.5	15.69			38.69dBμV/m, -15.31dB
		#11 2462 MHz	15.5	15.45			39.23dBμV/m, -14.77dB
2	802.11b Chain B	#1 2412 MHz	15.5	15.65	Radiated Emissions, 1 - 26 GHz	FCC 15.209, 15.247	39.89dBμV/m, -14.11dB
		#6 2437 MHz	15.5	15.44			36.77dBμV/m, -17.23dB
		#11 2462 MHz	15.5	15.45			40.67dBμV/m, -13.33dB
Center channel in 802.11g and n modes (OFDM) to determine the worst case. For n modes we are testing with both chains operating simultaneously at the maximum single chain power to cover both single- and dual-chain operation.							
3	802.11g Chain A/B	#6 2437 MHz	16.5	16.68	Radiated Emissions, 1 - 26 GHz	FCC 15.209, 15.247	31.34dBμV/m, -22.66dB
		#6 2437 MHz	16.5	16.51			31.27dBμV/m, -22.73dB
Switched to sample MAC Address: 00:15:00:85:80:1C due to broken RF connector on original sample.							
4	n20 / n40 Chain A/B	#6 2437MHz	A:16.5 B: 16.5	16.44 16.4	Radiated Emissions, 1 - 26 GHz	FCC 15.209, 15.247	31.25dBμV/m, -22.75dB
		#6 2437MHz	A:16.5 B: 16.5	16.56 16.52			31.30dBμV/m, -22.70dB
Top and bottom channels in worst case OFDM mode:							
5	Receive Chain A, Chain B and Chain A+B	#6 2437 MHz	-	-	Radiated Emissions, 1 - 26 GHz	FCC 15.209, 15.247	43.07dBμV/m, -10.93dB
		#6 2437 MHz	-	-			43.71dBμV/m, -10.29dB
		#6 2437 MHz	-	-			43.33dBμV/m, -10.67dB
First set of measurements - center channel in each band to determine which mode has the highest emissions. SISO modes evaluated at the same per chain power as the highest single chain power to cover both MIMO & SISO operation							

Test #	Mode	Channel	Target Power (dBm)	Measured Power (dBm)	Test Performed	Limit	Result
1	an40 Chain A+B	#159 5795 MHz	A: 16.5 B: 16.5	A: 16.51 B: 16.67	Radiated Emissions, 1 - 40 GHz	FCC 15.209, 15.247	33.96dB μ V/m, -20.04dB
2	an20 Chain A+B	#157 5785 MHz	A: 16.5 B: 16.5	A: 16.44 B: 16.55			35.06dB μ V/m, -18.94dB
3	802.11a Chain A	#157 5785 MHz	16.5	16.54			33.96dB μ V/m, -20.04dB
	802.11a Chain B	#157 5785 MHz	16.5	16.49			33.53dB μ V/m, -20.47dB

Final measurements - top and bottom channels in each band in the worst case mode for each band.

4	an20 Chain A+B	149 5745 MHz	A: 16.5 B: 16.5	A: 16.69 B: 16.7	Radiated Emissions, 1 - 40 GHz	FCC 15.209, 15.247	39.40dB μ V/m, -14.60dB
		165 5825 MHz	A: 16.5 B: 16.5	A: 16.55 B: 16.67			38.87dB μ V/m, -15.13dB
5	Receive Chain A, Chain B and Chain A+B	157 5795 MHz	-	-	Radiated Emissions, 1 - 18 GHz	RSS 210	43.44dB μ V/m, -10.56dB
		157 5795 MHz	-	-			43.40dB μ V/m, -10.60dB
		157 5795 MHz	-	-			43.88dB μ V/m, -10.12dB

Note - the target and measured power are average powers (measured with average power sensor) and are used for reference purposes only. Power is set using "GAIN CONTROL" mode in the DRTU tool.

MAC Address: 00:15:00:85:80:1C DRTU Tool Version: 1.5.2-0308 Driver version: 14.0.4.115

Test#	Test Performed	Limit	Result	Under Limit (dB)
1	Radiated Emissions 30 - 1000 MHz	FCC 15.209 / RSS 210	Pass	6.70dB

4.6.2. Limit

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (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

4.6.3. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1 000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for peak

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1 000MHz / RB 120kHz for QP

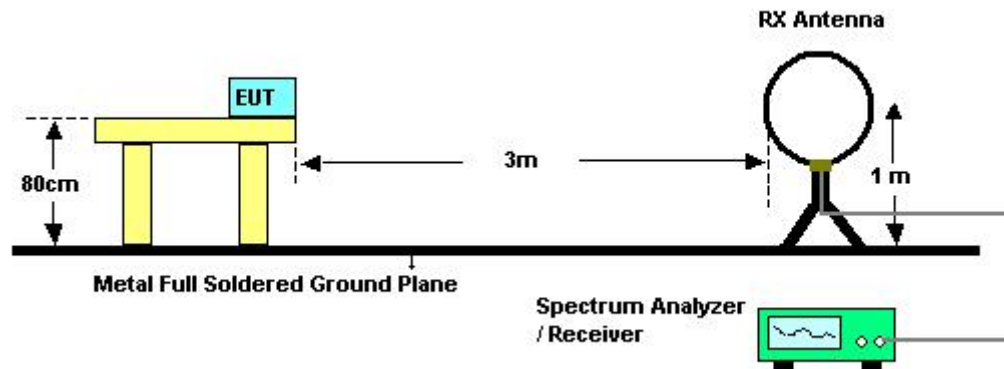
4.6.4. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.

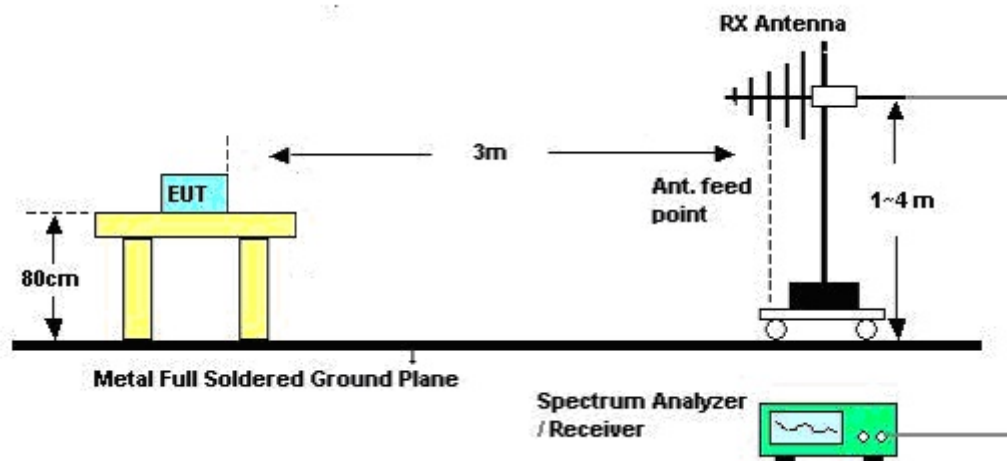
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.5. Test Setup Layout

For radiated emissions below 1GHz



For radiated emissions above 1GHz



4.6.6. Test Deviation

There is no deviation with the original standard.

4.6.7. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.8. Results of Radiated Emissions (9kHz~30MHz)

Temperature	22°C	Humidity	63%
Test Engineer	Denis Su	Configurations	CTX
Test Date	Dec. 16, 2011		

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

Note:

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

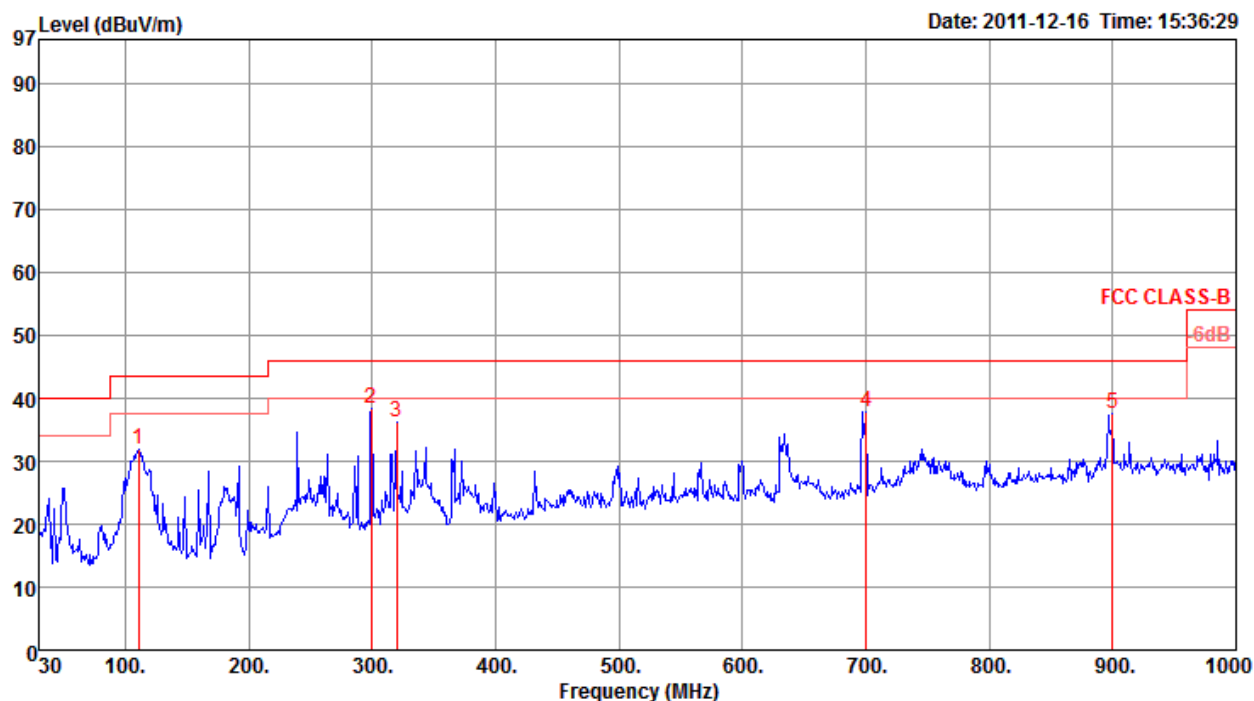
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

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

4.6.9. Results of Radiated Emissions (30MHz~1GHz)

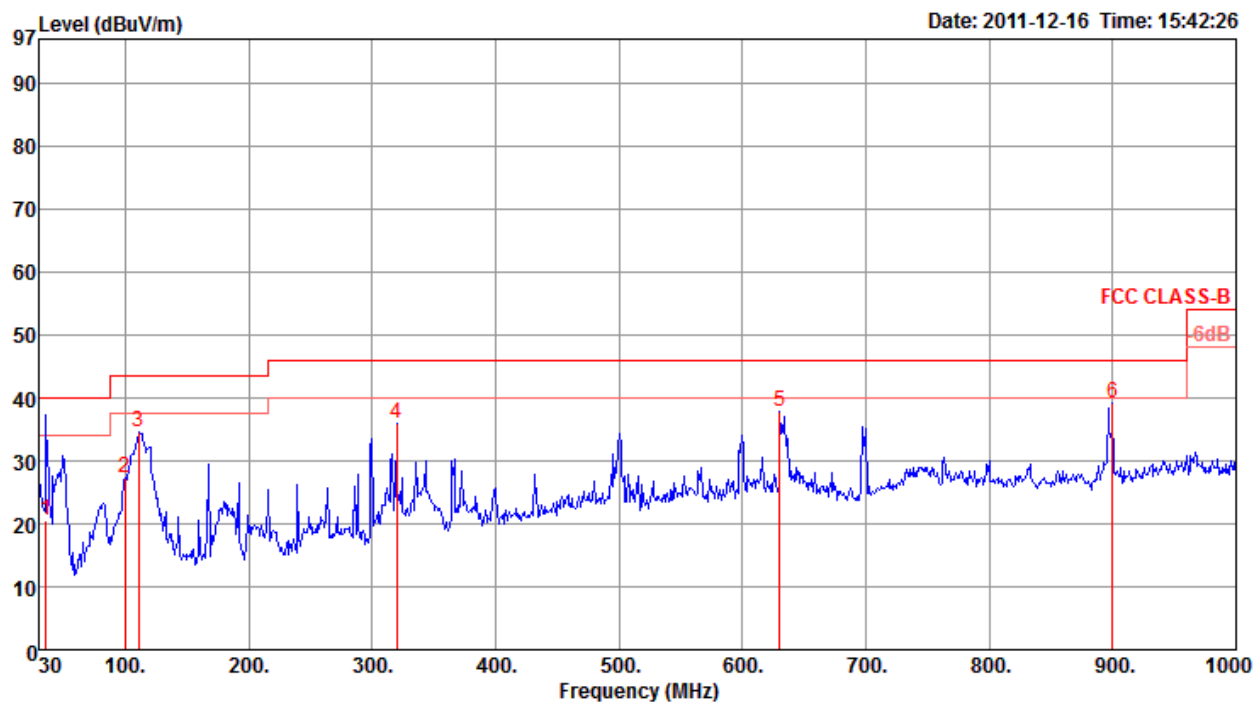
Temperature	22°C	Humidity	63%
Test Engineer	Denis Su	Configurations	CTX

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	deg	cm		
1	110.51	31.76	43.50	-11.74	45.34	1.57	27.55	12.40	0	400	Peak	HORIZONTAL
2	299.66	38.41	46.00	-7.59	49.22	2.51	26.90	13.58	0	400	Peak	HORIZONTAL
3	320.03	36.24	46.00	-9.76	46.29	2.63	27.03	14.35	0	400	Peak	HORIZONTAL
4	700.27	37.80	46.00	-8.20	41.67	4.16	27.99	19.96	0	400	Peak	HORIZONTAL
5	900.09	37.66	46.00	-8.34	39.43	4.60	27.40	21.03	0	400	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	deg	cm		
1 q	35.85	20.51	40.00	-19.49	32.50	0.93	27.80	14.88	126	100	QP	VERTICAL
2	99.84	27.31	43.50	-16.19	42.53	1.50	27.60	10.88	0	100	Peak	VERTICAL
3	110.51	34.49	43.50	-9.01	48.07	1.57	27.55	12.40	0	100	Peak	VERTICAL
4	320.03	36.02	46.00	-9.98	46.07	2.63	27.03	14.35	0	100	Peak	VERTICAL
5	630.43	37.74	46.00	-8.26	42.30	3.83	28.07	19.68	0	100	Peak	VERTICAL
6 p	900.09	39.30	46.00	-6.70	41.07	4.60	27.40	21.03	0	100	Peak	VERTICAL

Note:

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

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4.6.10. Results for Radiated Emissions (1GHz~10th Harmonic)

Radiated Spurious Emissions - 802.11b, Chain A (Worse Case)

Date of Test:	Dec. 15, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11b, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	15.5	15.65	23.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4824.001	46.87	V	74	-27.13	Peak	169	113	RB/VB:1MHz/3MHz
4823.958	40.51	V	54	-13.49	Avg	169	113	RB/VB:1MHz/10Hz
4824.032	45.29	H	74	-28.71	Peak	76	100	RB/VB:1MHz/3MHz
4823.944	36.86	H	54	-17.14	Avg	76	100	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-6 2437MHz- 802.11b, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	15.5	15.69	23.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4874.082	45.74	V	74	-28.26	Peak	166	100	RB/VB:1MHz/3MHz
4873.958	38.69	V	54	-15.31	Avg	166	100	RB/VB:1MHz/10Hz
4873.721	44.07	H	74	-29.93	Peak	53	100	RB/VB:1MHz/3MHz
4873.971	35.19	H	54	-18.81	Avg	53	100	RB/VB:1MHz/10Hz
7310.215	45.06	V	74	-28.94	Peak	153	100	RB/VB:1MHz/3MHz
7311.096	32.34	V	54	-21.66	Avg	153	100	RB/VB:1MHz/10Hz
7311.914	45.46	H	74	-28.54	Peak	266	100	RB/VB:1MHz/3MHz
7310.744	32.31	H	54	-21.69	Avg	266	100	RB/VB:1MHz/10Hz

Test #3 EUT on Channel-11 2462MHz- 802.11b, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	15.5	15.45	23.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4924.075	45.92	V	74	-28.08	Peak	162	109	RB/VB:1MHz/3MHz
4924	39.20	V	54	-14.80	Avg	162	109	RB/VB:1MHz/10Hz
4923.873	46.06	H	74	-27.94	Peak	121	100	RB/VB:1MHz/3MHz
4923.985	39.23	H	54	-14.77	Avg	121	100	RB/VB:1MHz/10Hz
7386.5	45.24	V	74	-28.76	Peak	265	100	RB/VB:1MHz/3MHz
7385.997	32.51	V	54	-21.49	Avg	265	100	RB/VB:1MHz/10Hz
7385.876	44.97	H	74	-29.03	Peak	82	100	RB/VB:1MHz/3MHz
7386.42	32.57	H	54	-21.43	Avg	82	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11b, Chain B (Worse Case)

Date of Test:	Dec. 15, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-1 2412MHz - 802.11b, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	15.5	15.65	23

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4824.104	52.93	V	74	-21.07	Peak	160	100	RB/VB:1MHz/3MHz
4824	38.44	V	54	-15.56	Avg	160	100	RB/VB:1MHz/10Hz
4823.779	52.90	H	74	-21.10	Peak	339	100	RB/VB:1MHz/3MHz
4823.851	39.89	H	54	-14.11	Avg	339	100	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-6 2437MHz- 802.11b, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	15.5	15.44	23

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4873.83	45.48	V	74	-28.52	Peak	157	100	RB/VB:1MHz/3MHz
4873.971	36.77	V	54	-17.23	Avg	157	100	RB/VB:1MHz/10Hz
4873.965	44.68	H	74	-29.32	Peak	112	140	RB/VB:1MHz/3MHz
4874.001	35.25	H	54	-18.75	Avg	112	140	RB/VB:1MHz/10Hz
7312.539	45.04	V	74	-28.96	Peak	267	100	RB/VB:1MHz/3MHz
7312.122	32.24	V	54	-21.76	Avg	267	100	RB/VB:1MHz/10Hz
7308.652	45.79	H	74	-28.21	Peak	154	100	RB/VB:1MHz/3MHz
7312.707	32.31	H	54	-21.69	Avg	154	100	RB/VB:1MHz/10Hz

Test #3 EUT on Channel-11 2462MHz- 802.11b, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	15.5	15.45	23

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4923.955	46.36	V	74	-27.64	Peak	203	105	RB/VB:1MHz/3MHz
4923.944	40.67	V	54	-13.33	Avg	203	105	RB/VB:1MHz/10Hz
4923.91	46.25	H	74	-27.75	Peak	111	176	RB/VB:1MHz/3MHz
4923.971	38.94	H	54	-15.06	Avg	111	176	RB/VB:1MHz/10Hz
7387.362	45.52	V	74	-28.48	Peak	104	100	RB/VB:1MHz/3MHz
7385.624	32.50	V	54	-21.50	Avg	104	100	RB/VB:1MHz/10Hz
7384.974	44.87	H	74	-29.13	Peak	206	100	RB/VB:1MHz/3MHz
7386.296	32.49	H	54	-21.51	Avg	206	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11g, Chain A

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #2 EUT on Channel-6 2437MHz- 802.11g, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16.5	16.68	29.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4874.36	41.20	V	74	-32.80	Peak	135	100	RB/VB:1MHz/3MHz
4873.972	28.48	V	54	-25.52	Avg	135	100	RB/VB:1MHz/10Hz
4873.576	41.07	H	74	-32.93	Peak	227	100	RB/VB:1MHz/3MHz
4874.1	27.60	H	54	-26.40	Avg	227	100	RB/VB:1MHz/10Hz
7310.51	45.44	V	74	-28.56	Peak	200	100	RB/VB:1MHz/3MHz
7311.386	31.34	V	54	-22.66	Avg	200	100	RB/VB:1MHz/10Hz
7311.398	45.27	H	74	-28.73	Peak	321	100	RB/VB:1MHz/3MHz
7311.358	31.31	H	54	-22.69	Avg	321	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11g, Chain B

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #2 EUT on Channel-6 2437MHz- 802.11g, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16.5	16.51	29

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4873.56	44.27	V	74	-29.73	Peak	273	100	RB/VB:1MHz/3MHz
4874.042	30.34	V	54	-23.66	Avg	273	100	RB/VB:1MHz/10Hz
4873.542	41.81	H	74	-32.19	Peak	94	100	RB/VB:1MHz/3MHz
4874.03	27.58	H	54	-26.42	Avg	94	100	RB/VB:1MHz/10Hz
7310.906	45.18	V	74	-28.82	Peak	139	100	RB/VB:1MHz/3MHz
7311.272	31.25	V	54	-22.75	Avg	139	100	RB/VB:1MHz/10Hz
7311.358	45.62	H	74	-28.38	Peak	46	100	RB/VB:1MHz/3MHz
7311.314	31.27	H	54	-22.73	Avg	46	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11n 20MHz, Chain A+B

Date of Test:	2011/12/14
Test Engineer:	Robert Chang

Test #2 EUT on Channel-6 2437MHz-802.11n 20MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	16.5	16.5	19.51	16.44	16.4	19.43	32.5	31.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4874.044	46.64	V	74	-27.36	Peak	263	100	RB/VB:1MHz/3MHz
4874.486	30.31	V	54	-23.69	Avg	263	100	RB/VB:1MHz/10Hz
4874.022	45.00	H	74	-29.00	Peak	116	100	RB/VB:1MHz/3MHz
4874.472	29.63	H	54	-24.37	Avg	116	100	RB/VB:1MHz/10Hz
7311.086	45.04	V	74	-28.96	Peak	244	100	RB/VB:1MHz/3MHz
7311.414	31.24	V	54	-22.76	Avg	244	100	RB/VB:1MHz/10Hz
7311.01	44.90	H	74	-29.10	Peak	166	100	RB/VB:1MHz/3MHz
7311.3	31.25	H	54	-22.75	Avg	166	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11n 40MHz, Chain A+B

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #2 EUT on Channel-6 2437MHz-802.11n 40MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
	A	B	Total	A	B	Total		
Chain	16.5	16.5	19.51	16.56	16.52	19.55	32.5	31.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
4873.924	44.50	V	74	-29.50	Peak	273	100	RB/VB:1MHz/3MHz
4874.916	28.13	V	54	-25.87	Avg	273	100	RB/VB:1MHz/10Hz
7311.52	45.89	V	74	-28.11	Peak	316	100	RB/VB:1MHz/3MHz
7311.48	31.29	V	54	-22.71	Avg	316	100	RB/VB:1MHz/10Hz
4874.936	41.59	H	74	-32.41	Peak	110	100	RB/VB:1MHz/3MHz
4874.984	27.10	H	54	-26.90	Avg	110	100	RB/VB:1MHz/10Hz
7311.804	45.47	H	74	-28.53	Peak	213	100	RB/VB:1MHz/3MHz
7311.476	31.30	H	54	-22.70	Avg	213	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11a, Chain A

Date of Test:	2011/12/14
Test Engineer:	Robert

Test #2 EUT on Channel-157 5785MHz- 802.11a, Chain A

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain A	16.5	16.54	26

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11570.12	47.05	V	74	-26.95	Peak	108	100	RB/VB:1MHz/3MHz
11569.96	33.96	V	54	-20.04	Avg	108	100	RB/VB:1MHz/10Hz
11570.09	47.54	H	74	-26.46	Peak	291	100	RB/VB:1MHz/3MHz
11570	33.55	H	54	-20.45	Avg	291	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11a, Chain B

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #2 EUT on Channel-157 5785MHz- 802.11a, Chain B

Antenna Port	Target (dBm)	Power Settings Measured (dBm)	Software Setting
Chain B	16.5	16.49	27

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11569.96	47.11	V	74	-26.89	Peak	295	100	RB/VB:1MHz/3MHz
11569.93	33.53	V	54	-20.47	Avg	295	100	RB/VB:1MHz/10Hz
11569.51	47.65	H	74	-26.35	Peak	106	100	RB/VB:1MHz/3MHz
11569.84	33.45	H	54	-20.55	Avg	106	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11an 20MHz, Chain A+B (Worse Case)

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #1 EUT on Channel-149 5745MHz - 802.11an 20MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	16.5	16.5	19.51	16.69	16.7	19.71	32	33

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11490.02	54.62	V	74	-19.38	Peak	263	157	RB/VB:1MHz/3MHz
11489.5	39.40	V	54	-14.60	Avg	263	157	RB/VB:1MHz/10Hz
11490.29	48.05	H	74	-25.95	Peak	230	100	RB/VB:1MHz/3MHz
11489.53	34.12	H	54	-19.88	Avg	230	100	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-157 5785MHz-802.11an 20MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	16.5	16.5	19.51	16.44	16.55	19.51	32.5	33.5

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11570.04	51.24	V	74	-22.76	Peak	160	100	RB/VB:1MHz/3MHz
11569.52	35.06	V	54	-18.94	Avg	160	100	RB/VB:1MHz/10Hz
11570.06	47.20	H	74	-26.80	Peak	222	100	RB/VB:1MHz/3MHz
11569.79	33.49	H	54	-20.51	Avg	222	100	RB/VB:1MHz/10Hz

Test #3 EUT on Channel-165 5825MHz- 802.11an 20MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	16.5	16.5	19.51	16.55	16.67	19.62	33	34

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11650.14	56.30	V	74	-17.70	Peak	147	156	RB/VB:1MHz/3MHz
11650.5	38.87	V	54	-15.13	Avg	147	156	RB/VB:1MHz/10Hz
11649.92	49.04	H	74	-24.96	Peak	205	100	RB/VB:1MHz/3MHz
11650.3	34.89	H	54	-19.11	Avg	205	100	RB/VB:1MHz/10Hz

Radiated Spurious Emissions - 802.11an 40MHz, Chain A+B

Date of Test:	Dec. 14, 2011
Test Engineer:	Robert Chang

Test #2 EUT on Channel-159 5795MHz-802.11an 40MHz, Chain A+B

	Target (dBm)			Power Settings Measured (dBm)			Software Setting	
Chain	A	B	Total	A	B	Total		
	16.5	16.5	19.51	16.51	16.67	19.60	33.5	35

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
11589.78	48.33	V	74	-25.67	Peak	99	100	RB/VB:1MHz/3MHz
11569.96	33.96	V	54	-20.04	Avg	99	100	RB/VB:1MHz/10Hz
11570.09	47.54	H	74	-26.46	Peak	282	100	RB/VB:1MHz/3MHz
11590.39	33.58	H	54	-20.42	Avg	282	100	RB/VB:1MHz/10Hz

Radiated Receiver Spurious Emissions - 802.11a

Date of Test:	Dec. 16, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-6 2437MHz - Chain A

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1166.751	48.31	V	74	-25.69	Peak	267	100	RB/VB:1MHz/3MHz
1166.832	43.07	V	54	-10.93	Avg	267	100	RB/VB:1MHz/10Hz
1166.835	39.44	H	74	-34.56	Peak	208	102	RB/VB:1MHz/3MHz
1166.835	30.96	H	54	-23.04	Avg	208	102	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-6 2437MHz- Chain B

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1167.258	50.57	V	74	-23.43	Peak	271	100	RB/VB:1MHz/3MHz
1166.832	43.71	V	54	-10.29	Avg	271	100	RB/VB:1MHz/10Hz
1166.925	40.29	H	74	-33.71	Peak	177	109	RB/VB:1MHz/3MHz
1166.823	32.81	H	54	-21.19	Avg	177	109	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-6 2437MHz - Chain A+B

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1166.963	52.76	V	74	-21.24	Peak	264	100	RB/VB:1MHz/3MHz
1166.835	43.33	V	54	-10.67	Avg	264	100	RB/VB:1MHz/10Hz
1166.699	43.53	H	74	-30.47	Peak	146	122	RB/VB:1MHz/3MHz
1166.832	34.76	H	54	-19.24	Avg	146	122	RB/VB:1MHz/10Hz

Radiated Receiver Spurious Emissions - 802.11a

Date of Test:	Dec. 16, 2011
Test Engineer:	Denis Su

Test #1 EUT on Channel-159 5795MHz - Chain A

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1166.606	50.50	V	74	-23.50	Peak	262	100	RB/VB:1MHz/3MHz
1166.832	43.44	V	54	-10.56	Avg	262	100	RB/VB:1MHz/10Hz
1167.003	42.65	H	74	-31.35	Peak	290	108	RB/VB:1MHz/3MHz
1166.829	32.29	H	54	-21.71	Avg	290	108	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-159 5795MHz - Chain B

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1167	49.63	V	74	-24.37	Peak	274	101	RB/VB:1MHz/3MHz
1166.835	43.40	V	54	-10.60	Avg	274	101	RB/VB:1MHz/10Hz
1166.412	40.46	H	74	-33.54	Peak	337	100	RB/VB:1MHz/3MHz
1166.829	30.90	H	54	-23.10	Avg	337	100	RB/VB:1MHz/10Hz

Test #2 EUT on Channel-159 5795MHz - Chain A+B

Frequency	Level	Test Polar	15.209/15.247		Detector	Azimuth	Height	Comments
MHz	dBuV/m	V/H	Limit	Margin	PK/AV	degrees	meters	
1166.696	51.01	V	74	-22.99	Peak	267	100	RB/VB:1MHz/3MHz
1166.829	43.88	V	54	-10.12	Avg	267	100	RB/VB:1MHz/10Hz
1166.651	44.78	H	74	-29.22	Peak	149	125	RB/VB:1MHz/3MHz
1166.832	33.85	H	54	-20.15	Avg	149	125	RB/VB:1MHz/10Hz

4.7. Out of Band Spurious Emissions

Mode	Chain	Frequency (MHz)	Limit	Pass / Fail
802.11n 20MHz	A	2412	-30dBc	Pass
		2437	-30dBc	Pass
		2462	-30dBc	Pass
	B	2412	-30dBc	Pass
		2437	-30dBc	Pass
		2462	-30dBc	Pass
802.11n 40MHz	A	2422	-30dBc	Pass
		2437	-30dBc	Pass
		2452	-30dBc	Pass
	B	2422	-30dBc	Pass
		2437	-30dBc	Pass
		2452	-30dBc	Pass

Note: Used -30dBc as limit for spurious. As powers were measured using a peak power meter the limit actually required is -20dBc. The peak power was measured to remain consistent with the legacy mode power measurements where the device did not meet the -30dBc

Mode	Chain	Frequency (MHz)	Limit	Pass / Fail
802.11an 20MHz	A	5745	-30dBc	Pass
		5785	-30dBc	Pass
		5825	-30dBc	Pass
	B	5745	-30dBc	Pass
		5785	-30dBc	Pass
		5825	-30dBc	Pass
802.11an 40MHz	A	5755	-20dBc	Pass
		5795	-20dBc	Pass
	B	5755	-20dBc	Pass
		5795	-20dBc	Pass

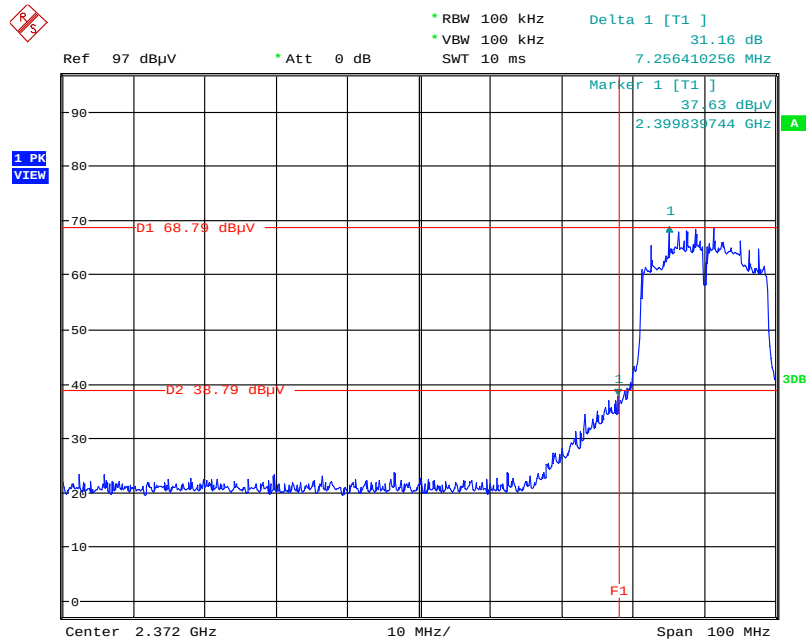
Note : -20dBc limit used for n40MHz mode because this mode does not meet the -30dBc requirement at the 5725MHz band edge when operating on the lowest channel. Power measurements made for n40MHz mode were made using a peak power meter.

Mode	Chain	Frequency (MHz)	Limit	Pass / Fail
802.11b	A	2412	-30dBc	Pass
		2437	-30dBc	Pass
		2462	-30dBc	Pass
	B	2412	-30dBc	Pass
		2437	-30dBc	Pass
		2462	-30dBc	Pass
802.11g	A	2412	-20dBc	Pass
		2437	-20dBc	Pass
		2462	-20dBc	Pass
	B	2412	-20dBc	Pass
		2437	-20dBc	Pass
		2462	-20dBc	Pass

Mode	Chain	Frequency (MHz)	Limit	Pass / Fail
802.11a	A	5745	-30dBc	Pass
		5785	-30dBc	Pass
		5825	-30dBc	Pass
	B	5745	-30dBc	Pass
		5785	-30dBc	Pass
		5825	-30dBc	Pass

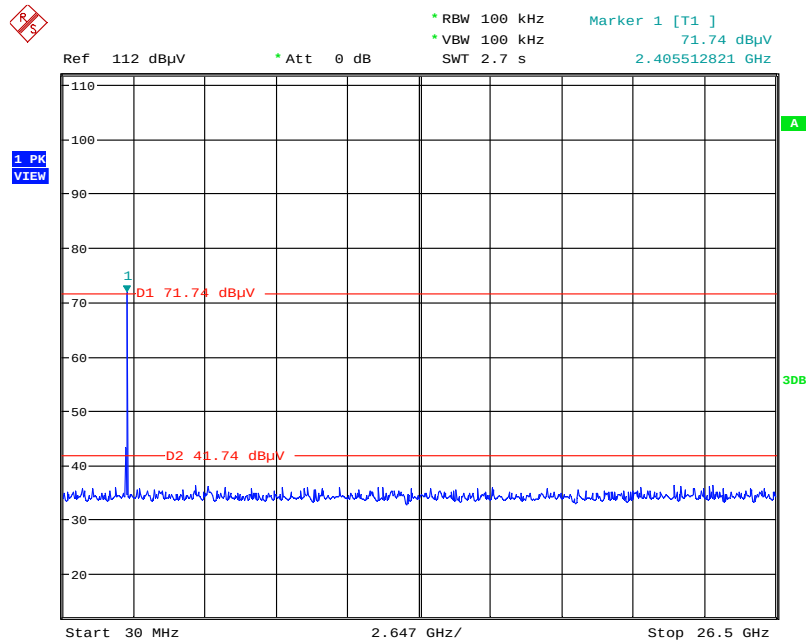
4.7.1. Test result of Out of Band Spurious Emissions

Plots for low channel, 802.11n 20MHz mode Chains A, power setting(s) = 24.5, 2412 MHz



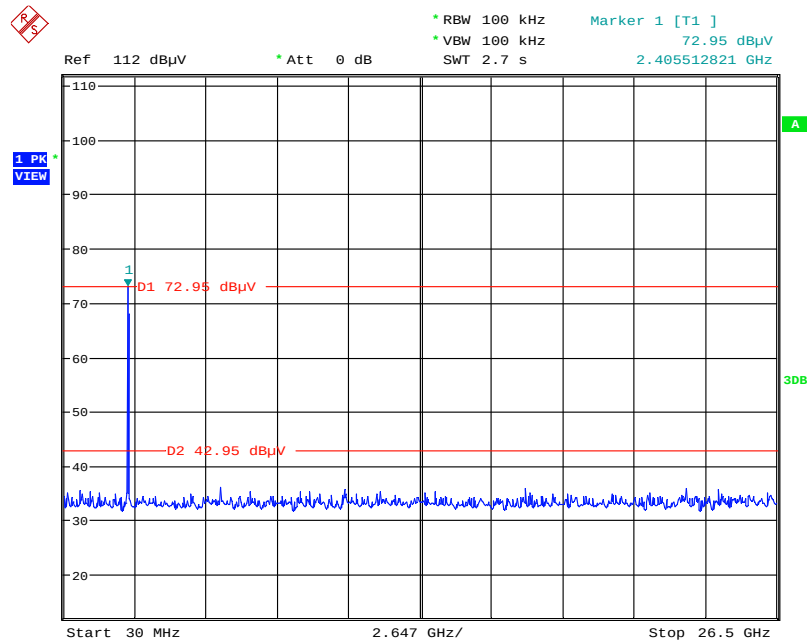
Date: 13.DEC.2011 15:52:42

Plots for low channel, 802.11n 20MHz mode Chains A, power setting(s) = 24.5, 2412 MHz



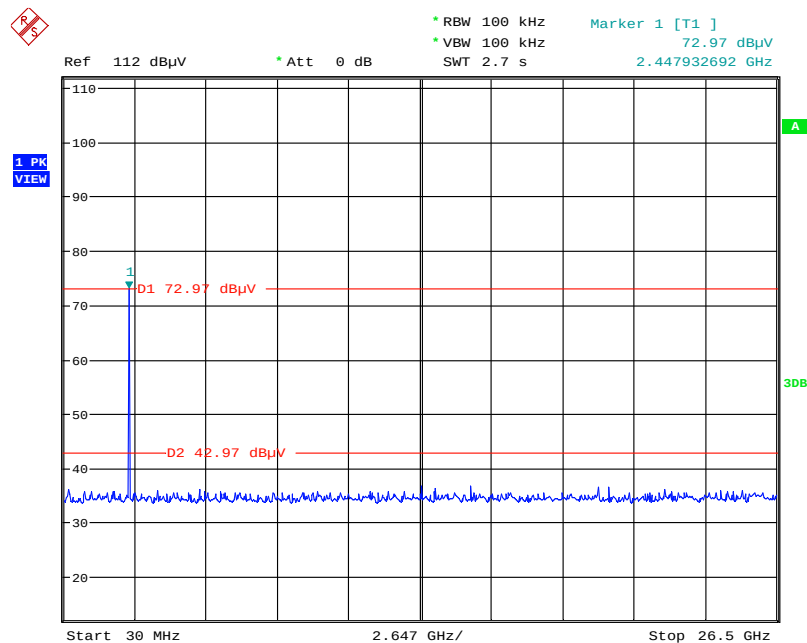
Date: 14.DEC.2011 14:11:38

Plots for center channel, 802.11n 20MHz mode Chains A, power setting(s) = 29.5, 2437 MHz



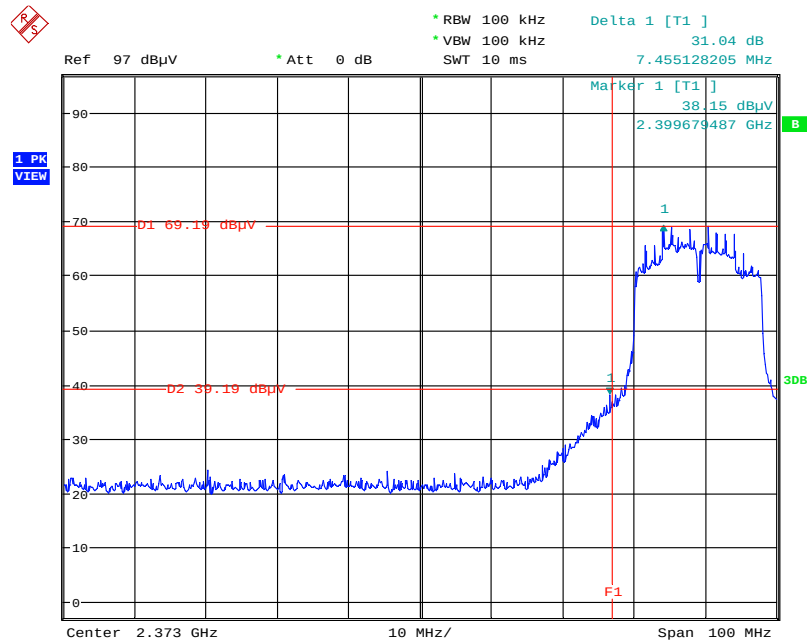
Date: 14.DEC.2011 14:12:28

Plots for high channel, 802.11n 20MHz mode Chains A, power setting(s) = 25, 2462 MHz



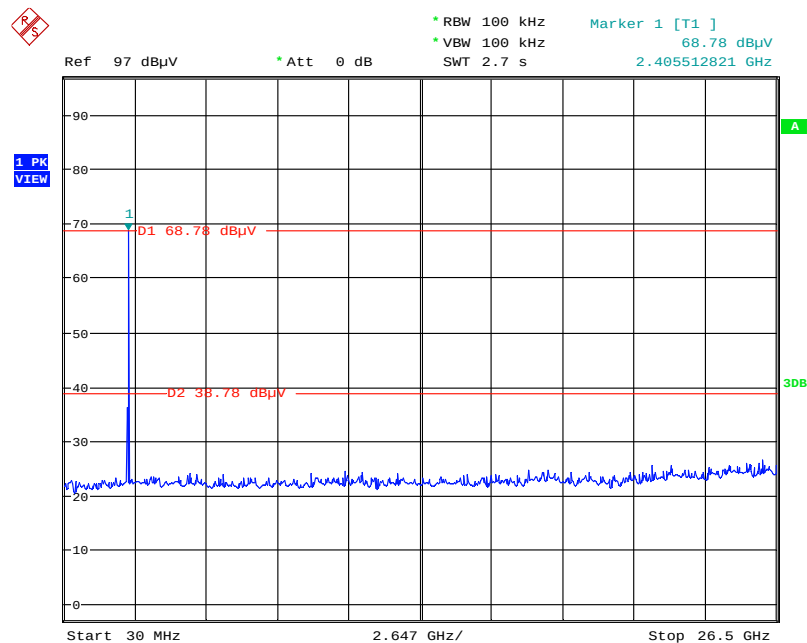
Date: 14.DEC.2011 14:15:04

Plots for low channel, 802.11n 20MHz mode Chains B, power setting(s) = 25, 2412 MHz



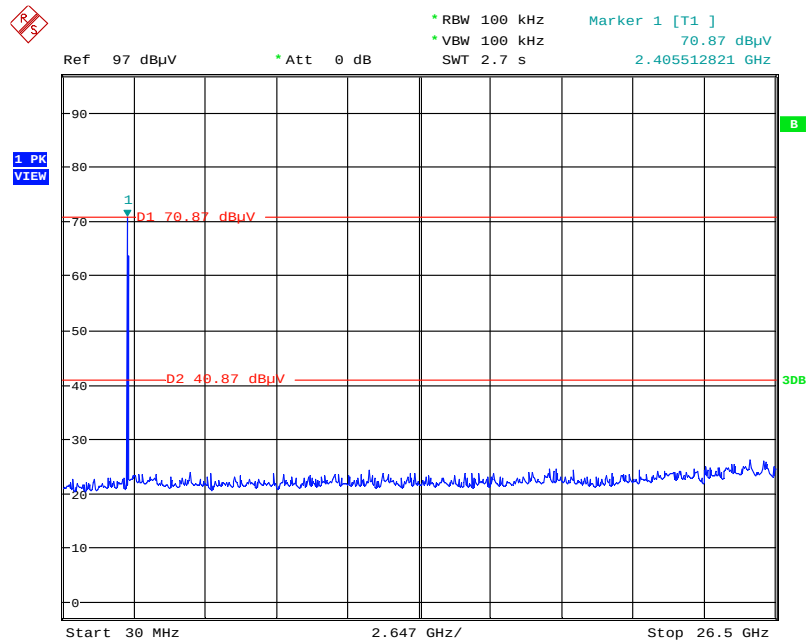
Date: 13.DEC.2011 14:17:51

Plots for low channel, 802.11n 20MHz mode Chains B, power setting(s) = 25, 2412 MHz



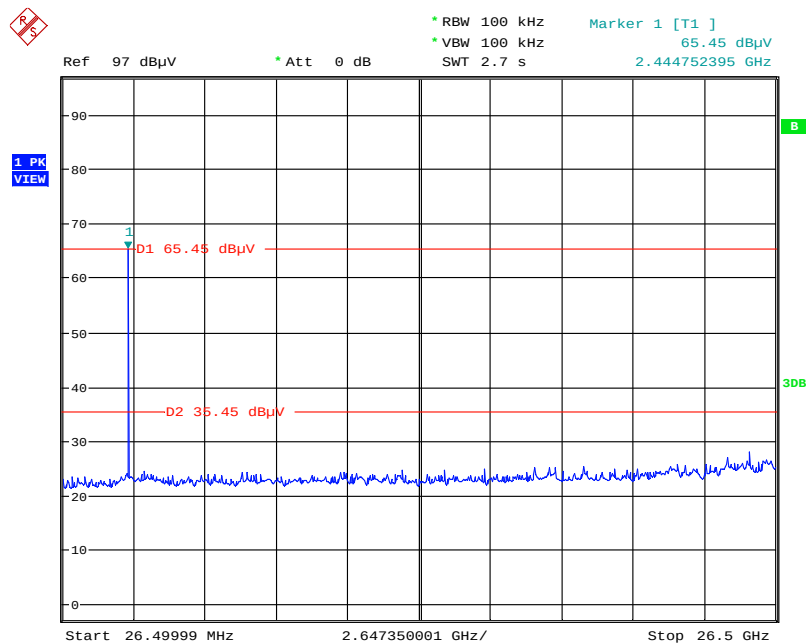
Date: 13.DEC.2011 15:16:06

Plots for center channel, 802.11n 20MHz mode Chains B, power setting(s) = 29, 2437 MHz



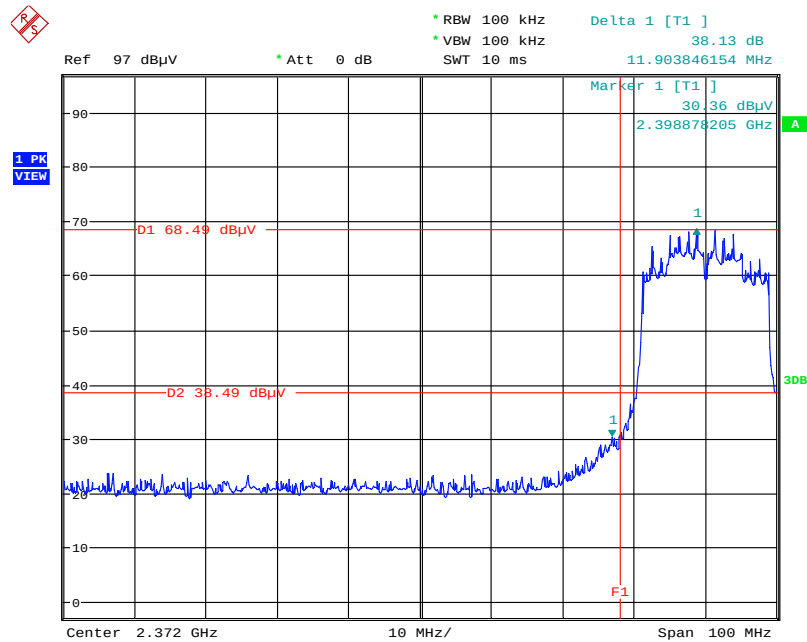
Date: 14.DEC.2011 14:41:39

Plots for high channel, 802.11n 20MHz mode Chains B, power setting(s) = 24.5, 2462 MHz



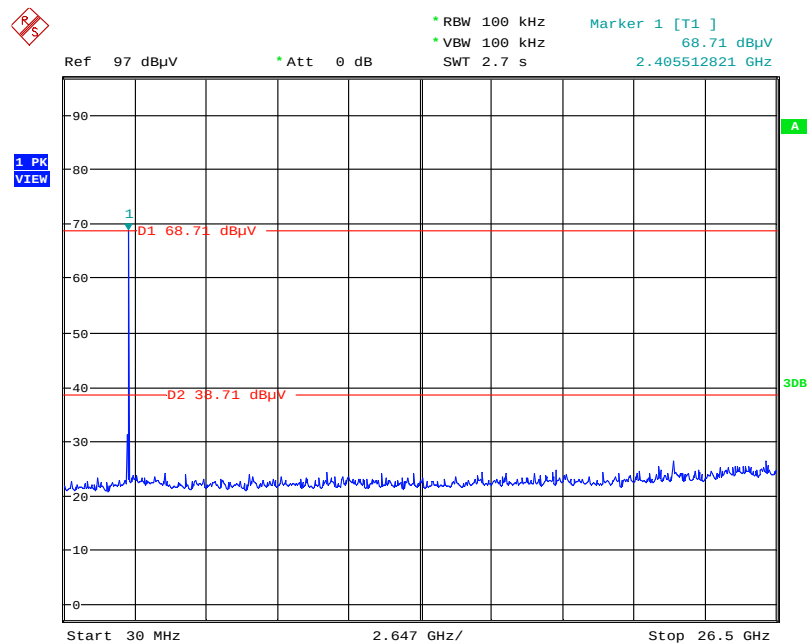
Date: 13.DEC.2011 15:13:46

Plots for low channel, 802.11n 20MHz mode Chains A and B, power setting(s) = 25/ 25.5, 2412 MHz



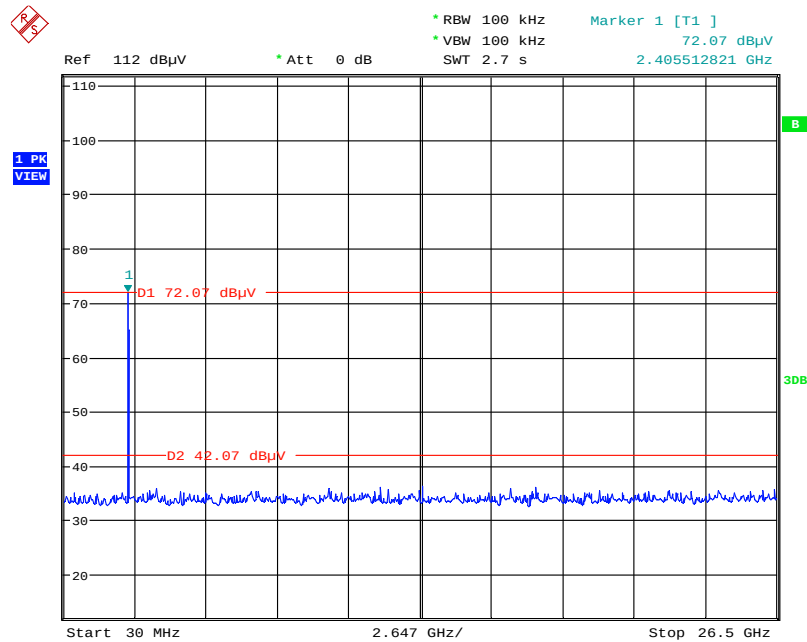
Date: 13.DEC.2011 16:43:23

Plots for low channel, 802.11n 20MHz mode Chains A and B, power setting(s) = 25/ 25.5, 2412 MHz



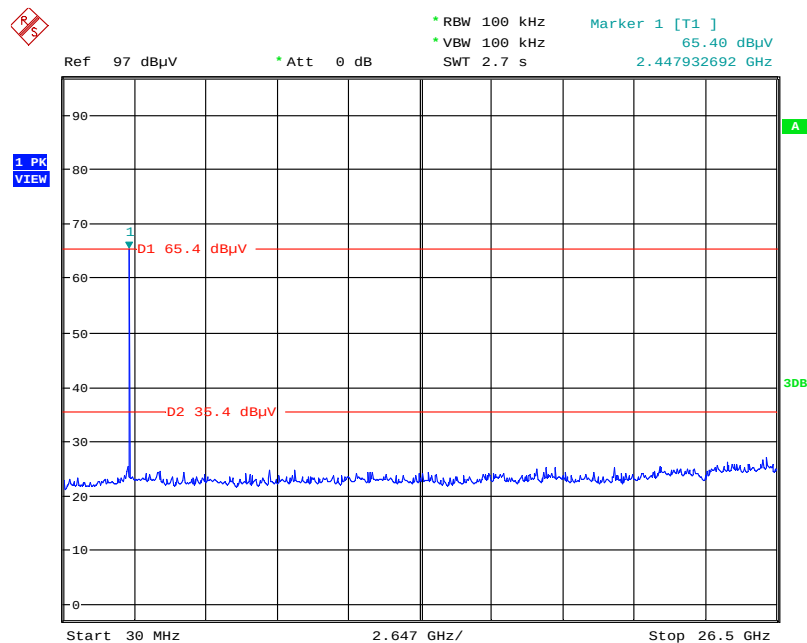
Date: 13.DEC.2011 16:44:34

Plots for center channel, 802.11n 20MHz mode Chains A and B, power setting(s) = 29/28, 2437 MHz



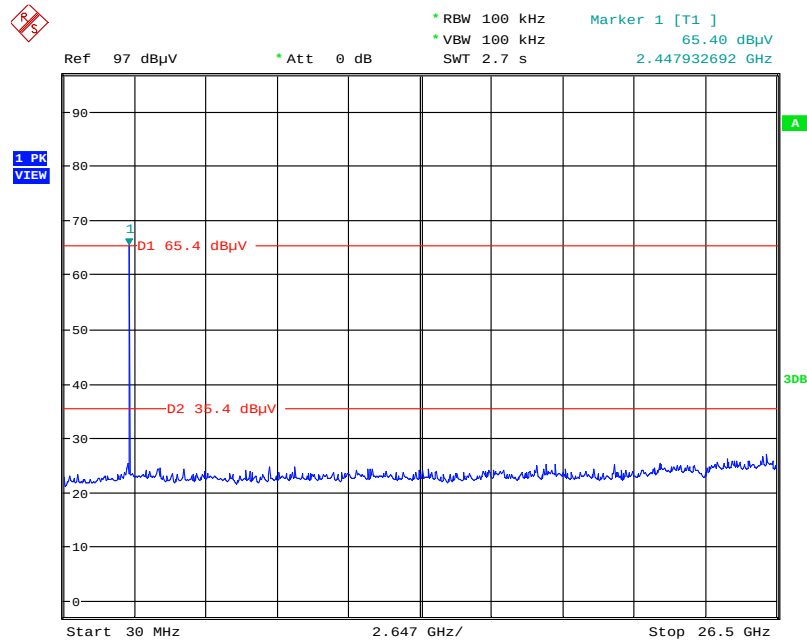
Date: 14.DEC.2011 15:03:43

Plots for high channel, 802.11n 20MHz mode Chains A and B, power setting(s) = 26/25.5, 2462 MHz



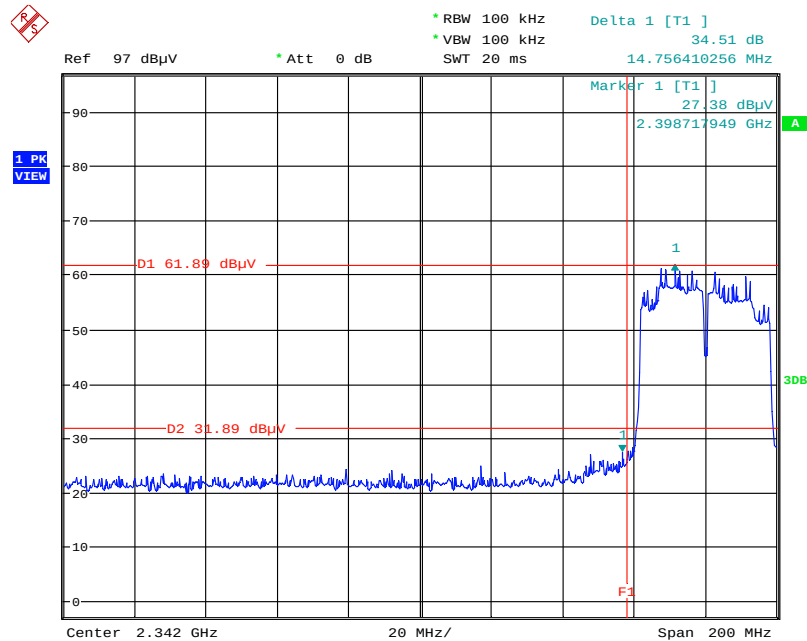
Date: 13.DEC.2011 16:51:21

Plots for high channel, 802.11n 20MHz mode Chains A and B, power setting(s) = 26/25.5, 2462 MHz



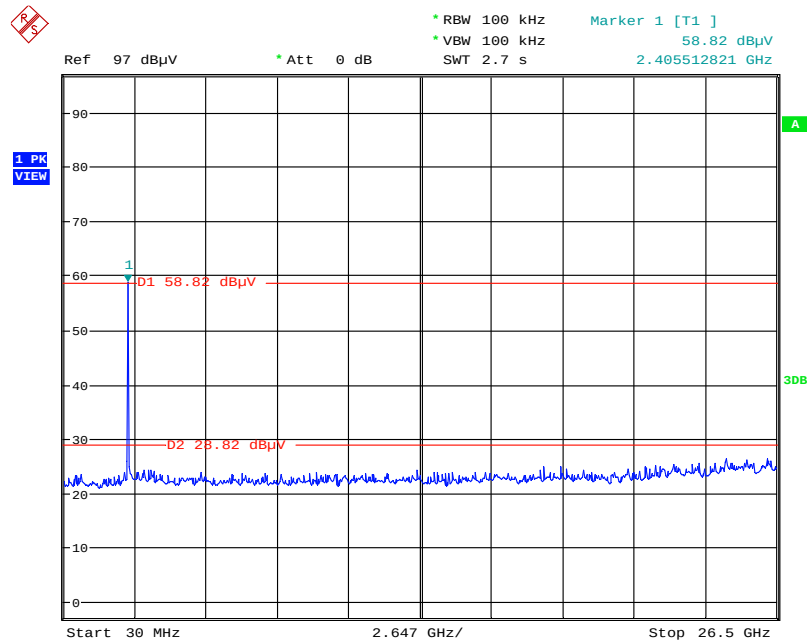
Date: 13.DEC.2011 16:51:21

Plots for low channel, 802.11n 40MHz mode Chains A, power setting(s) = 21, 2422 MHz



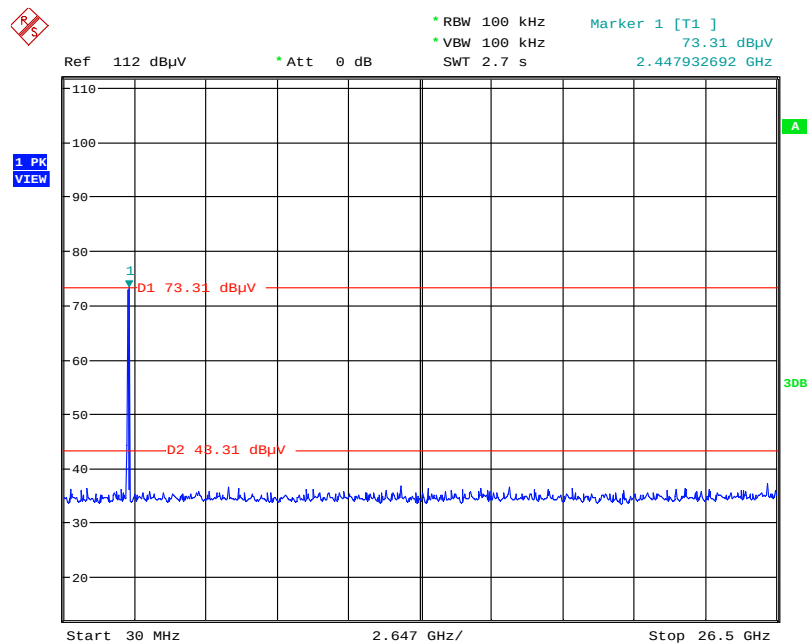
Date: 13.DEC.2011 16:01:34

Plots for low channel, 802.11n 40MHz mode Chains A, power setting(s) = 21, 2422 MHz



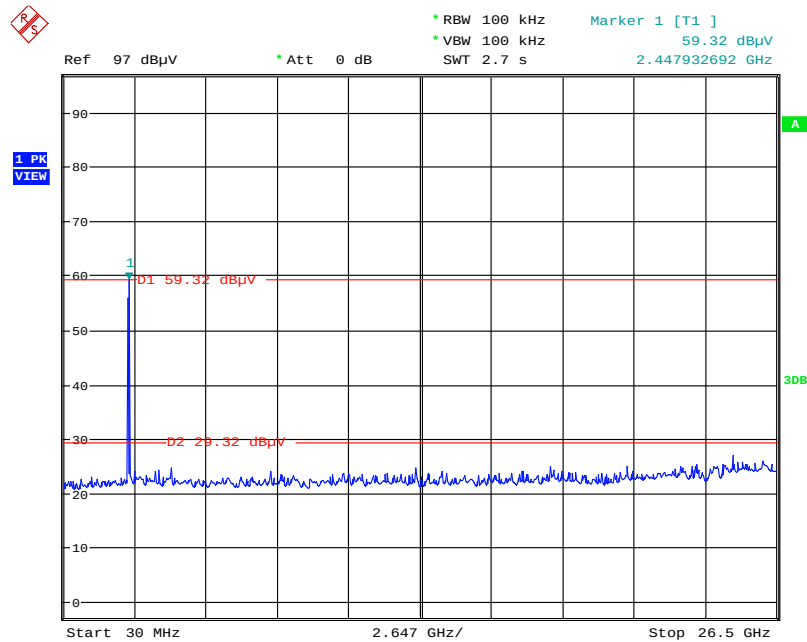
Date: 13.DEC.2011 16:02:55

Plots for center channel, 802.11n 40MHz mode Chains A, power setting(s) = 29.5, 2437 MHz



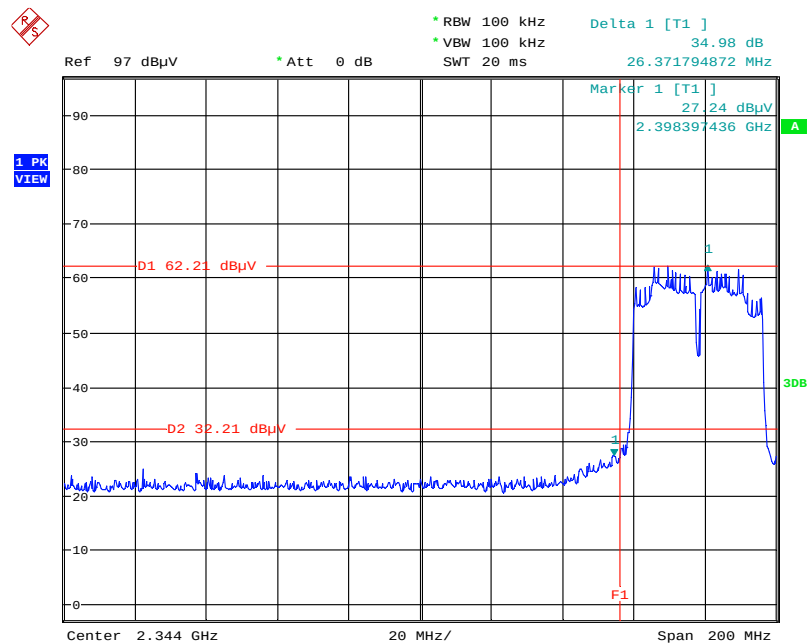
Date: 14.DEC.2011 14:19:49

Plots for high channel, 802.11n 40MHz mode Chains A, power setting(s) = 22, 2452 MHz



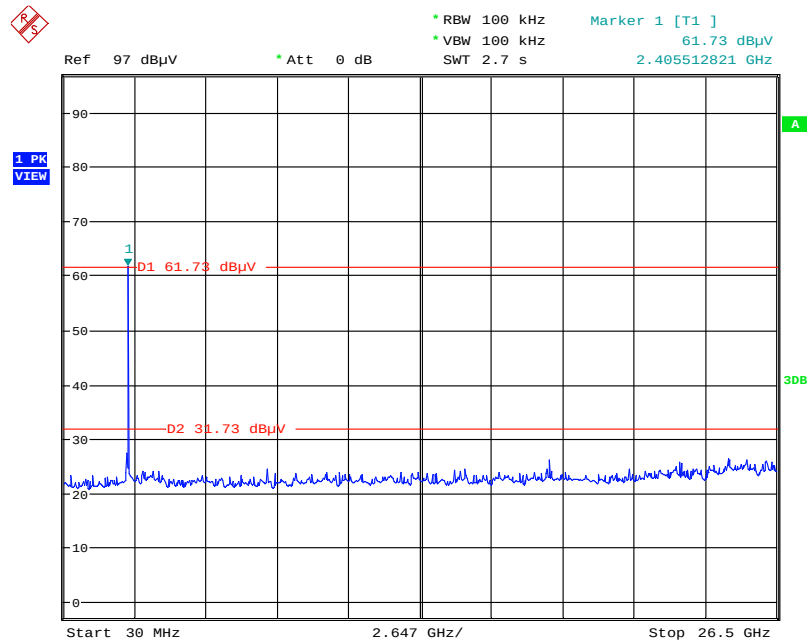
Date: 13.DEC.2011 16:06:31

Plots for low channel, 802.11n 40MHz mode Chains B, power setting(s) = 21, 2422 MHz



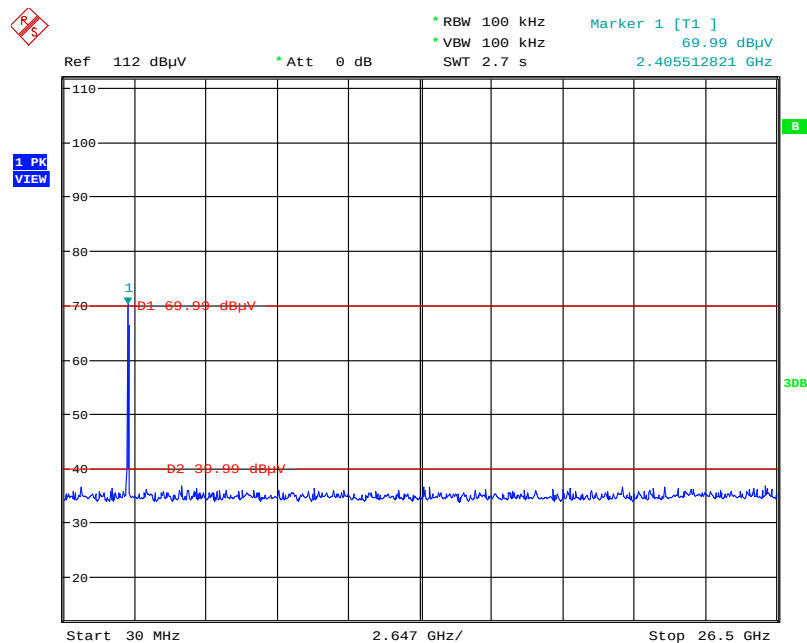
Date: 13.DEC.2011 15:31:19

Plots for low channel, 802.11n 40MHz mode Chains B, power setting(s) = 21, 2422 MHz



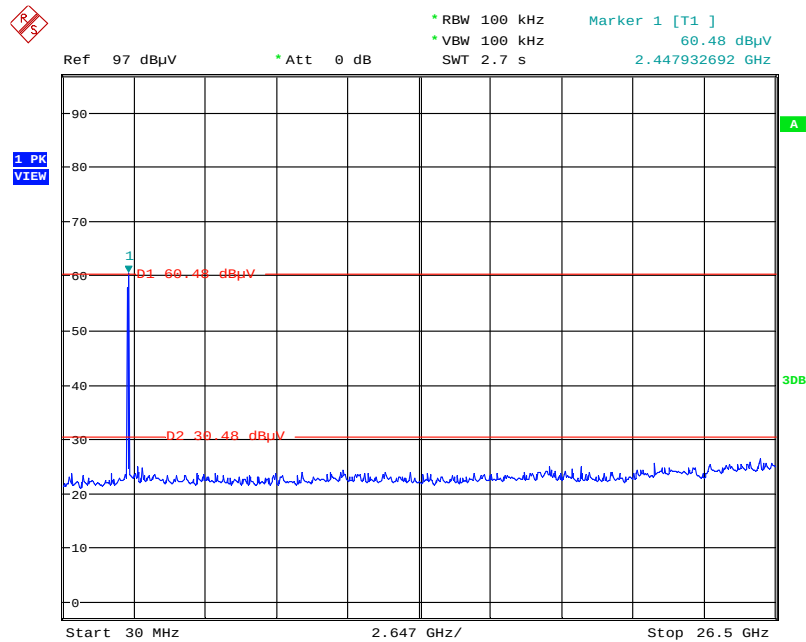
Date: 13.DEC.2011 15:36:57

Plots for center channel, 802.11n 40MHz mode Chains B, power setting(s) = 29, 2437 MHz



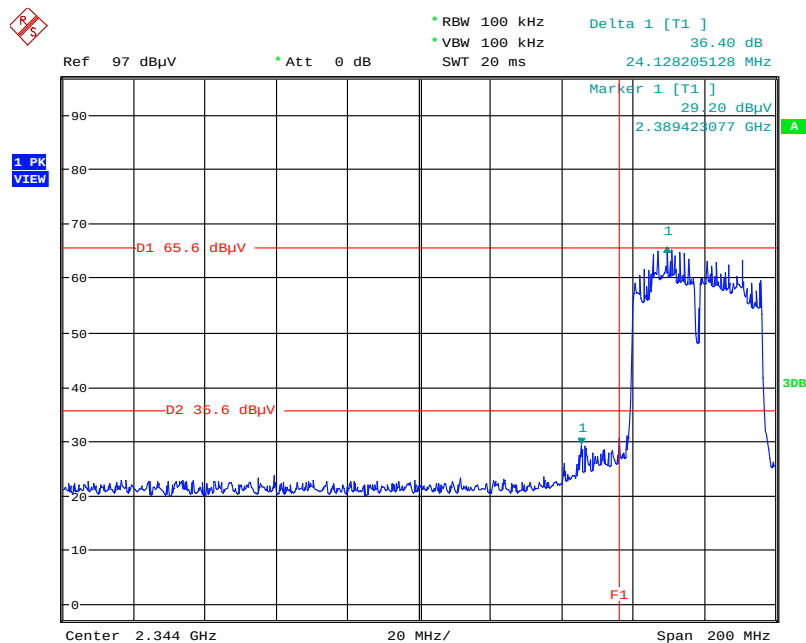
Date: 14.DEC.2011 14:51:14

Plots for high channel, 802.11n 40MHz mode Chains B, power setting(s) = 21.5, 2452 MHz



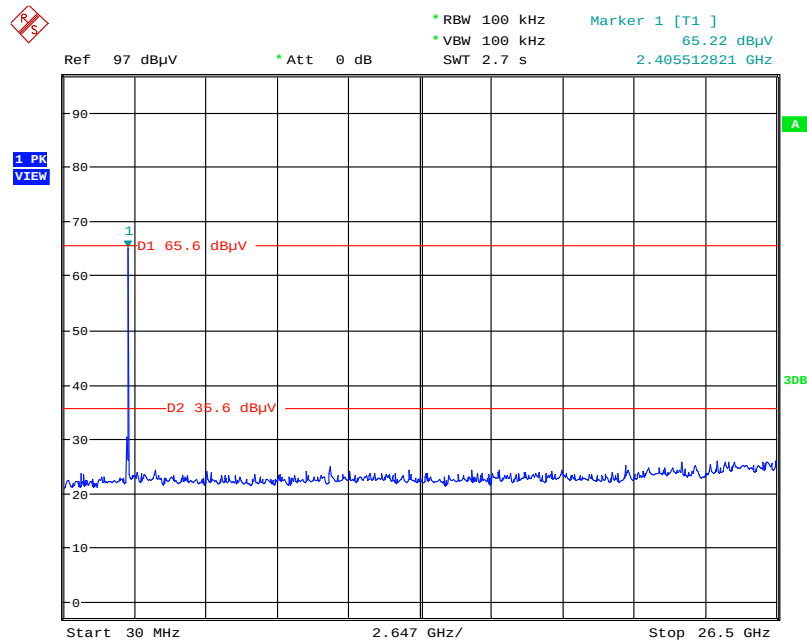
Date: 13.DEC.2011 15:35:16

Plots for low channel, 802.11n 40MHz mode Chains A and B, power setting(s) = 22.5/22.5, 2422 MHz



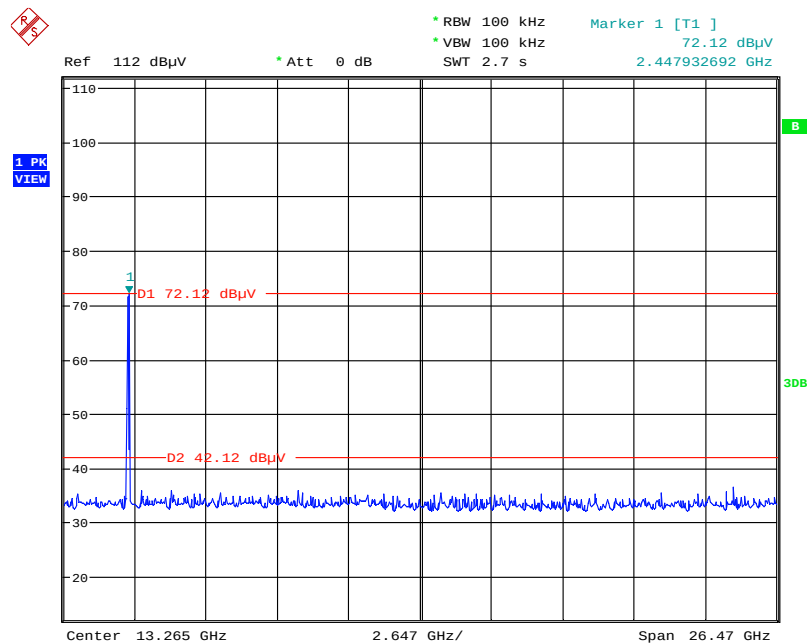
Date: 13.DEC.2011 16:54:38

Plots for low channel, 802.11n 40MHz mode Chains A and B, power setting(s) = 22.5/22.5, 2422 MHz



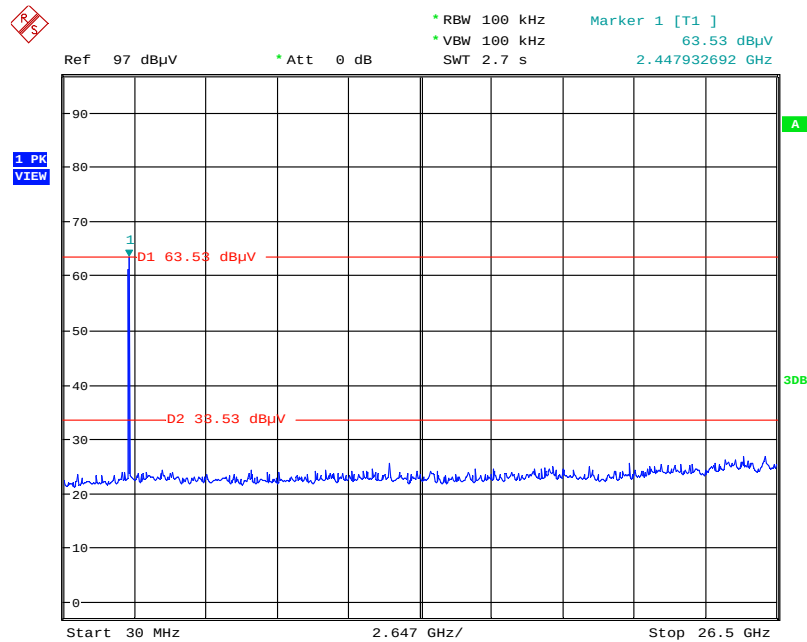
Date: 13.DEC.2011 16:55:49

Plots for center channel, 802.11n 40MHz mode Chains A and B, power setting(s) = 29/28, 2437 MHz



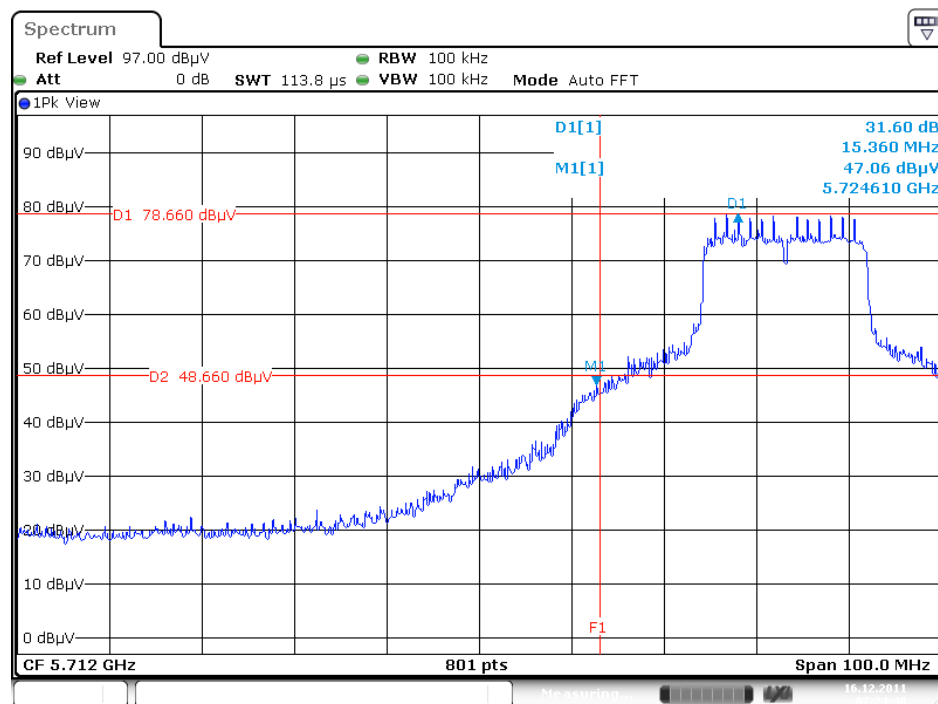
Date: 14.DEC.2011 15:06:42

Plots for higher channel, 802.11n 40MHz mode Chains A and B, power setting(s) = 24/23, 2452 MHz



Date: 13.DEC.2011 17:00:31

Plots for low channel, 802.11an 20MHz mode Chains A, power setting(s) = 25, 5745 MHz



Date: 16.DEC.2011 07:24:41



Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 79.20 dBμV 5.7440 GHz

D1 79.200 dBμV

D2 49.200 dBμV

Start 30.0 MHz 801 pts Stop 40.0 GHz

Measuring...

16.12.2011

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 75.76 dBμV
 5.7930 GHz

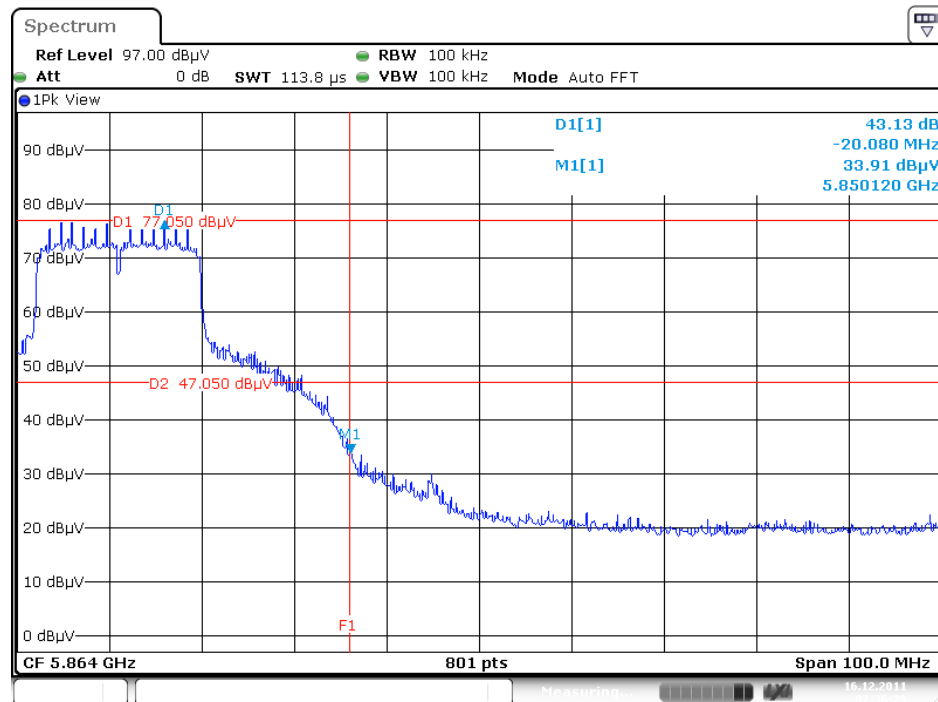
D1 75.760 dBμV
 D2 45.760 dBμV

90 dBμV
 80 dBμV
 70 dBμV
 60 dBμV
 50 dBμV
 40 dBμV
 30 dBμV
 20 dBμV
 10 dBμV
 0 dBμV

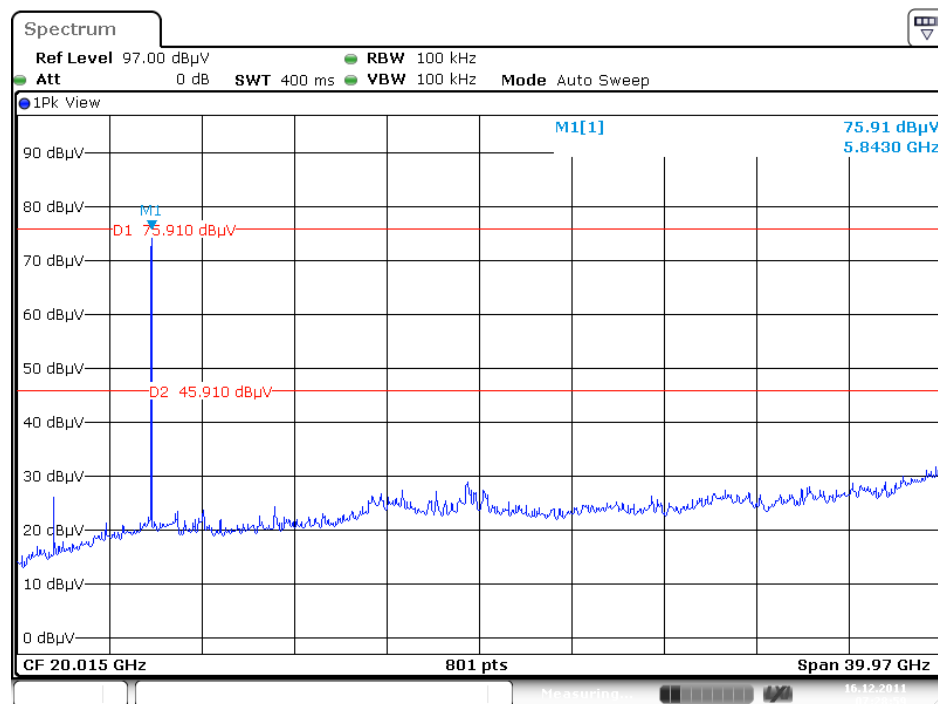
Start 30.0 MHz 801 pts Stop 40.0 GHz

Page No. : 145 of 175
Issued Date : Jan. 18, 2012

Plots for high channel, 802.11an 20MHz mode Chains A, power setting(s) = 26, 5825 MHz



Plots for high channel, 802.11an 20MHz mode Chains A, power setting(s) = 26, 5825 MHz





Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 113.8 μs VBW 100 kHz Mode Auto FFT

1Pk View

90 dBμV
 80 dBμV D1 81.120 dBμV
 70 dBμV
 60 dBμV
 50 dBμV D2 51.120 dBμV
 40 dBμV
 30 dBμV
 20 dBμV
 10 dBμV
 0 dBμV

D1[1] 32.86 dB
 M1[1] 14.330 MHz
 48.27 dBμV
 5.724380 GHz

F1

CF 5.707 GHz 801 pts Span 100.0 MHz

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 76.64 dBμV 5.7440 GHz

D1 76.640 dBμV

D2 46.640 dBμV

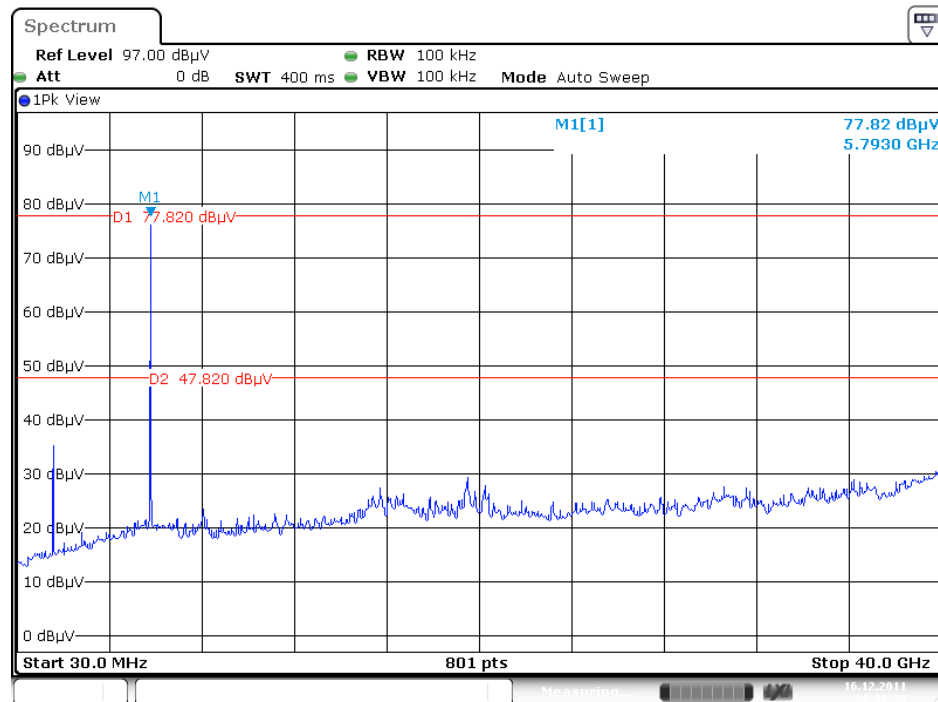
Start 30.0 MHz 801 pts Stop 40.0 GHz

Measuring...

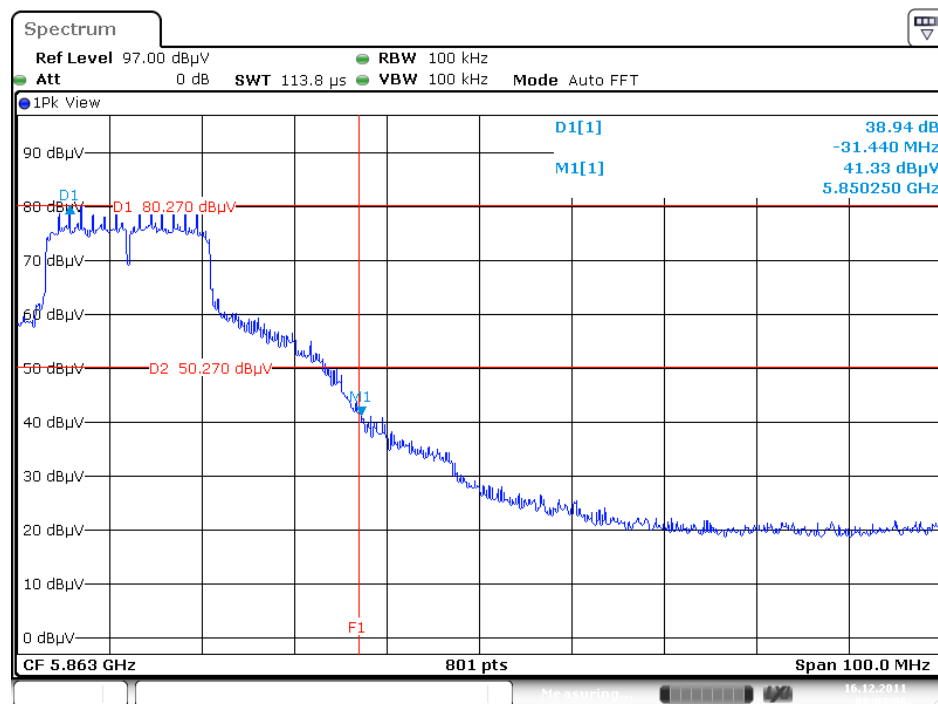
16.12.2011

Issued Date : Jan. 18, 2012

Plots for center channel, 802.11an 20MHz mode Chains B, power setting(s) = 27.5, 5785 MHz



Plots for high channel, 802.11an 20MHz mode Chains B, power setting(s) = 28, 5825 MHz





Spectrum

Ref Level 97.00 dBμV RBW 100 kHz

Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 75.83 dBμV 5.8430 GHz

D1 75.830 dBμV

D2 45.830 dBμV

Start 30.0 MHz 801 pts Stop 40.0 GHz

Measuring...

10.12.2011

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 113.8 μs VBW 100 kHz Mode Auto FFT

1Pk View

90 dBμV
 80 dBμV
 70 dBμV
 60 dBμV
 50 dBμV
 40 dBμV
 30 dBμV
 20 dBμV
 10 dBμV
 0 dBμV

D1[1]
 M1[1]

D1 74.720 dBμV
 D2 44.720 dBμV

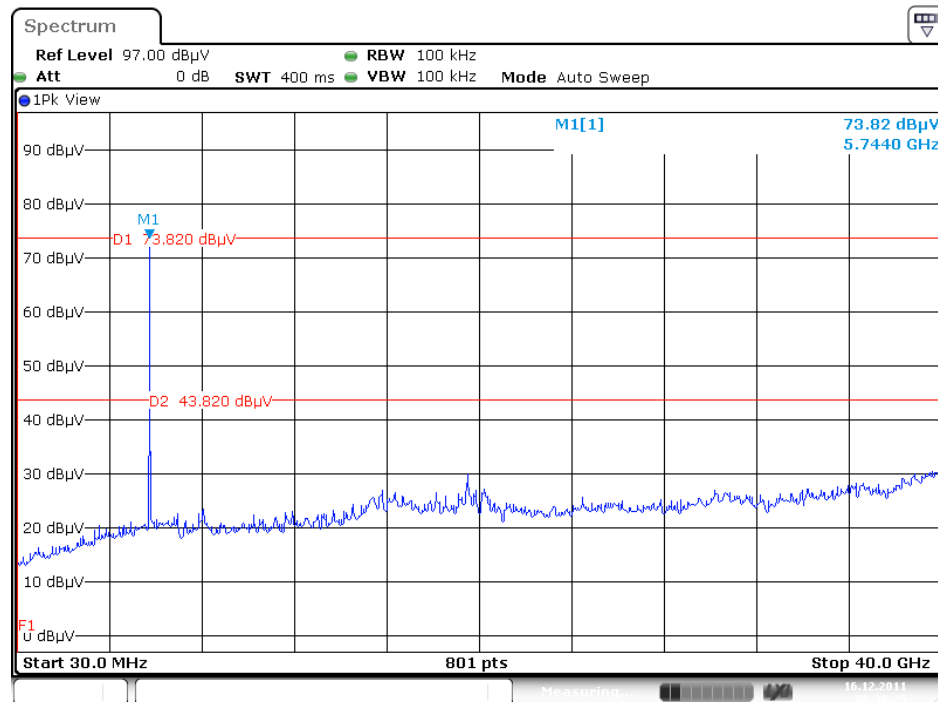
F1

34.08 dB
 14.080 MHz
 40.64 dBμV
 5.724750 GHz

CF 5.706 GHz 801 pts Span 100.0 MHz

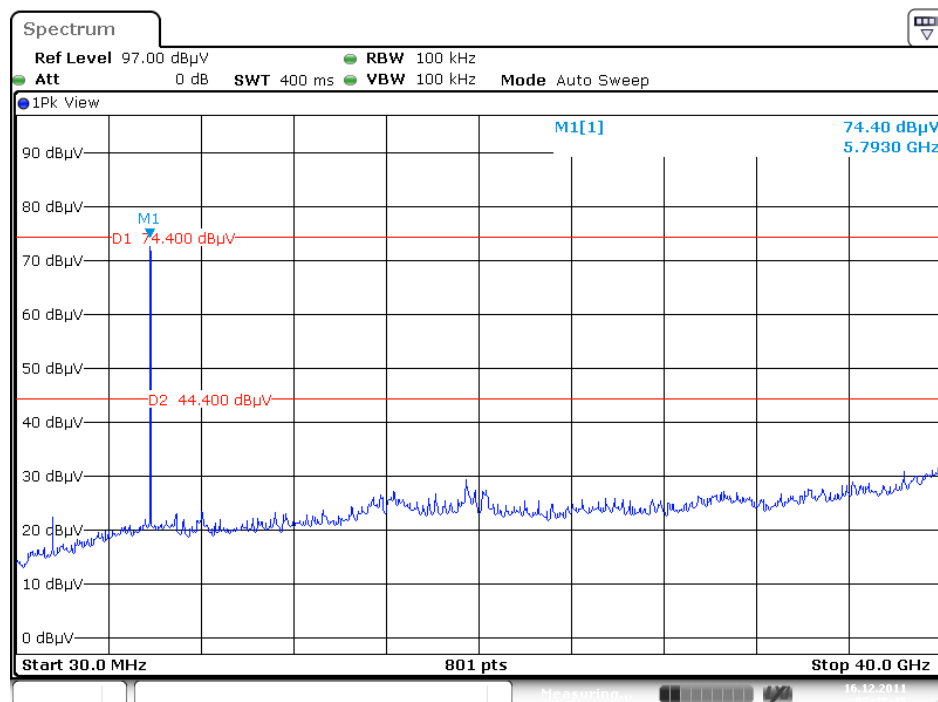
Issued Date : Jan. 18, 2012

Plots for low channel, 802.11an 20MHz mode Chains A and B, power setting(s) = 26.5/27, 5745 MHz



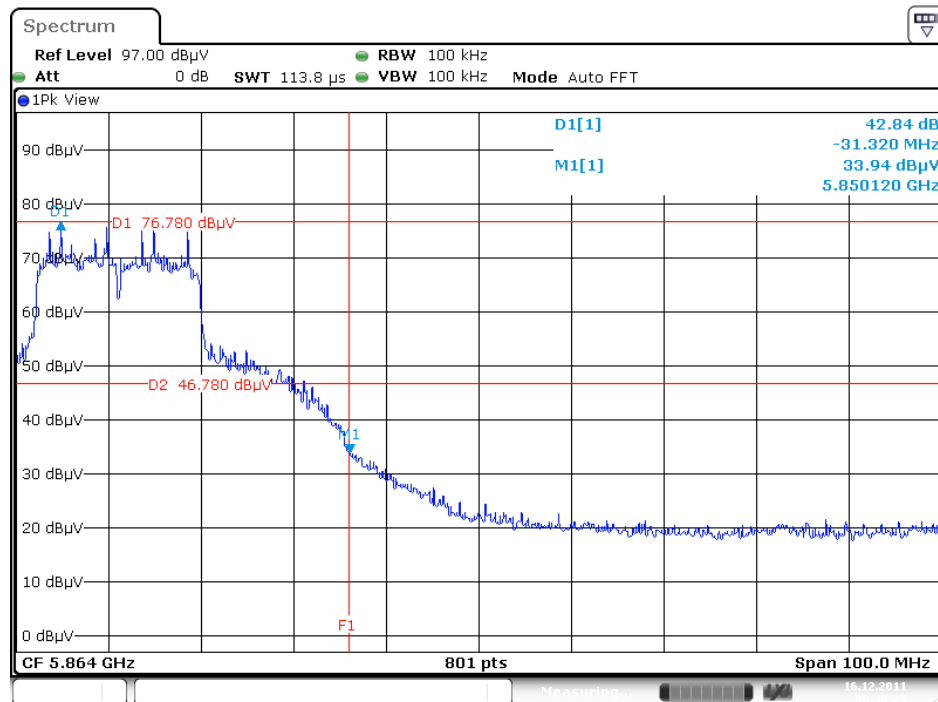
Date: 16.DEC.2011 08:38:26

Plots for center channel, 802.11an 20MHz mode Chains A and B, power setting(s) = 27.5/28, 5745 MHz



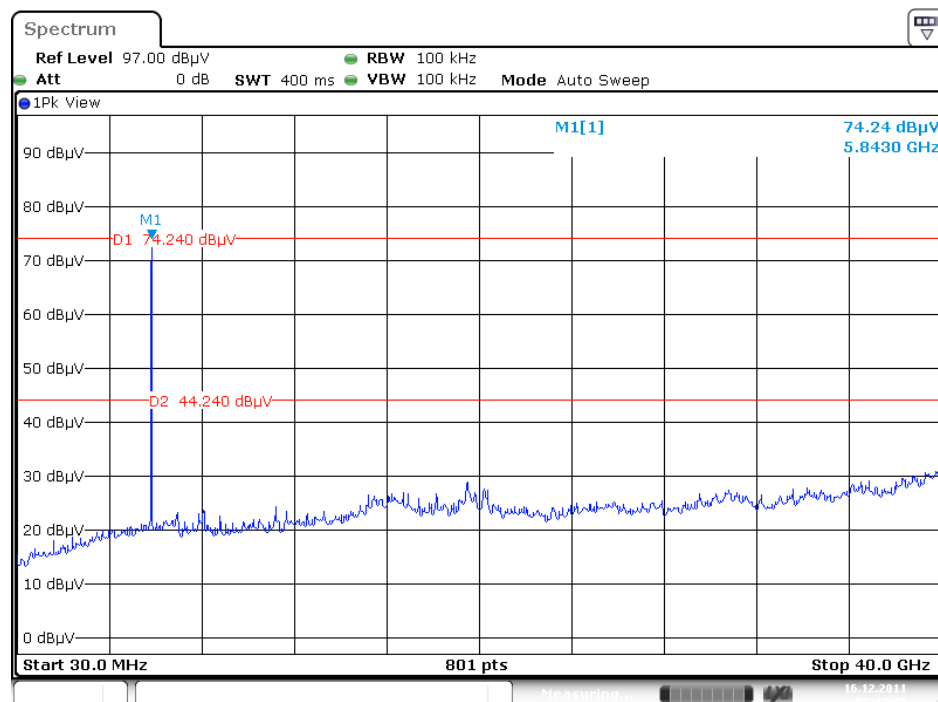
Date: 16.DEC.2011 08:48:45

Plots for high channel, 802.11an 20MHz mode Chains A and B, power setting(s) = 28/29, 5825 MHz



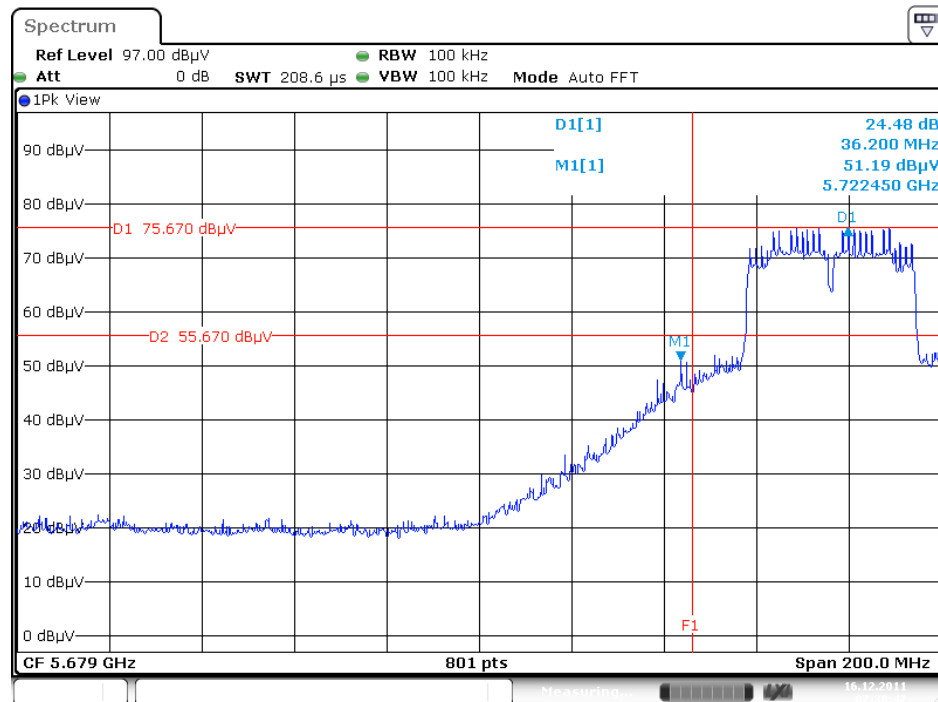
Date: 16.DEC.2011 08:46:25

Plots for high channel, 802.11an 20MHz mode Chains A and B, power setting(s) = 28/29, 5825 MHz

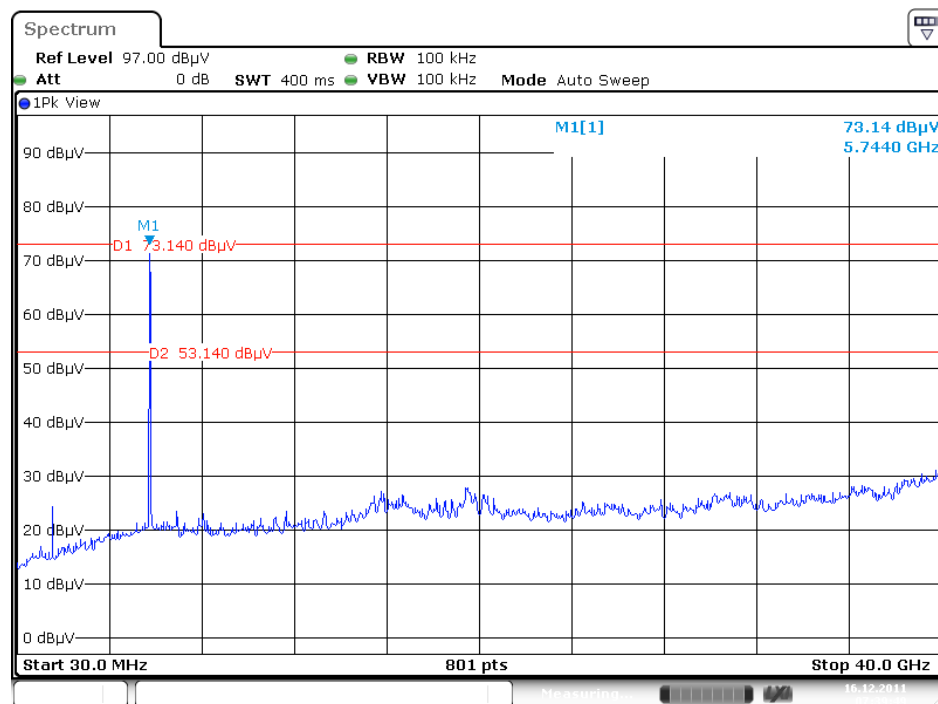


Date: 16.DEC.2011 08:44:43

Plots for low channel, 802.11an 40MHz mode Chains A, power setting(s) = 25, 5755 MHz



Plots for low channel, 802.11an 40MHz mode Chains A, power setting(s) = 26, 5755 MHz





Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
Att 0 dB SWT 208.6 μs VBW 100 kHz Mode Auto FFT

1Pk View

D1[1] 48.97 dB
-63.650 MHz
M1[1] 26.71 dBμV
5.851250 GHz

D1 75.690 dBμV
D2 55.690 dBμV
F1

CF 5.869 GHz 801 pts Span 200.0 MHz

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 73.94 dBμV 5.7930 GHz

D1 73.940 dBμV

D2 53.940 dBμV

Start 30.0 MHz 801 pts Stop 40.0 GHz

Measuring...

15.12.2011

Page No. : 153 of 175
Issued Date : Jan. 18, 2012



Spectrum

Ref Level 97.00 dBμV RBW 100 kHz Att 0 dB SWT 208.6 μs VBW 100 kHz Mode Auto FFT

1Pk View

23.28 dB
24.910 MHz
53.39 dBμV
5.722500 GHz

D1[1]
M1[1]

D1 76.670 dBμV
D2 56.670 dBμV
M1
F1

CF 5.679 GHz 801 pts Span 200.0 MHz

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 74.80 dBμV 5.7440 GHz

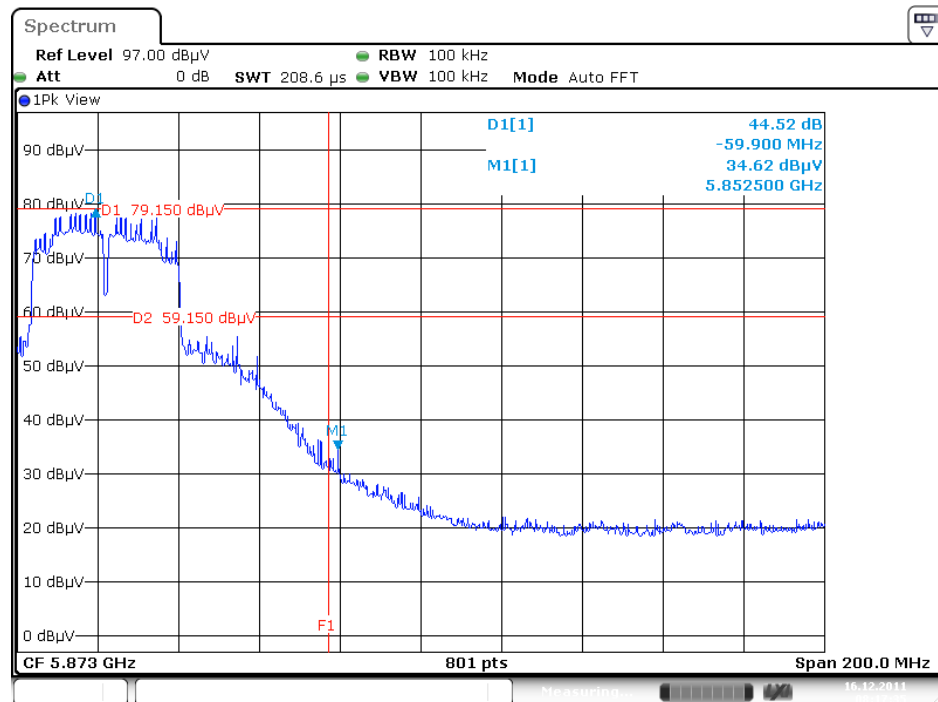
D1 74.800 dBμV

D2 54.800 dBμV

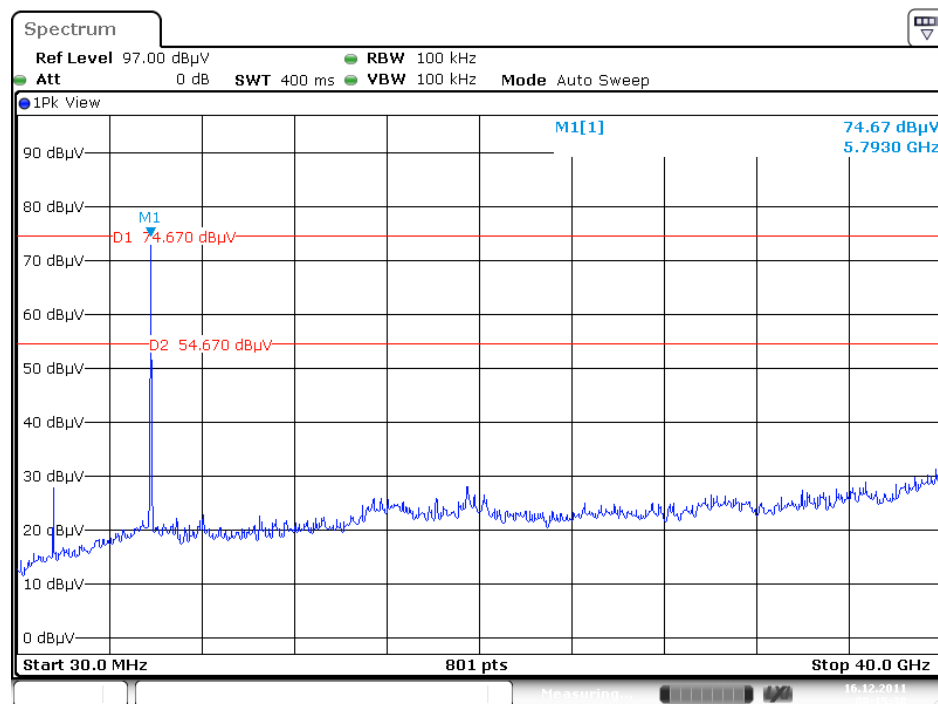
Start 30.0 MHz 801 pts Stop 40.0 GHz

Issued Date : Jan. 18, 2012

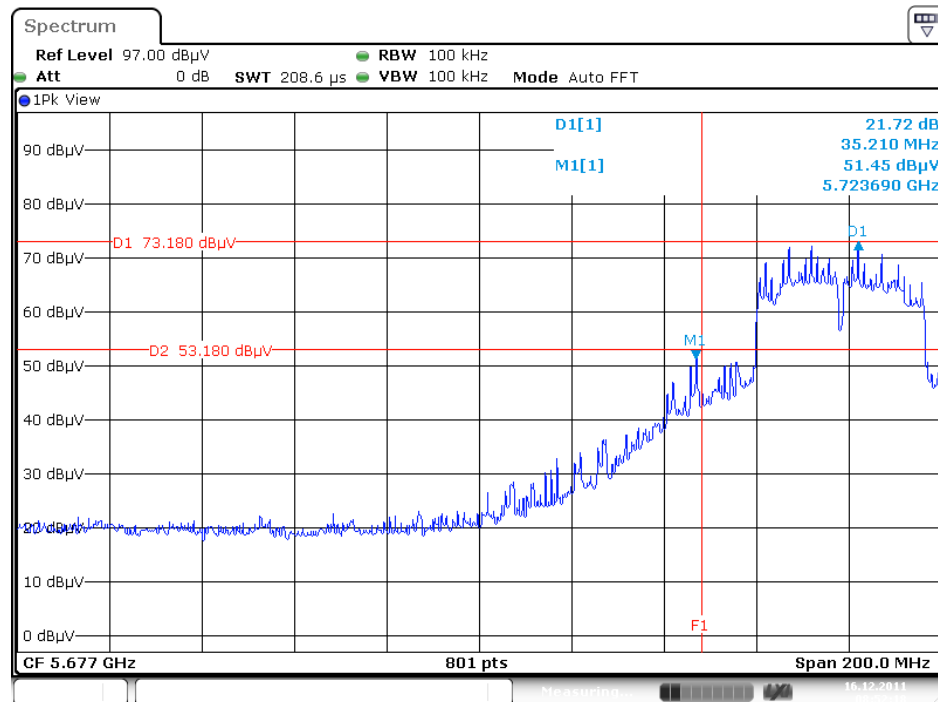
Plots for high channel, 802.11an 40MHz mode Chains B, power setting(s) = 29, 5795 MHz



Plots for high channel, 802.11an 40MHz mode Chains B, power setting(s) = 29, 5795 MHz

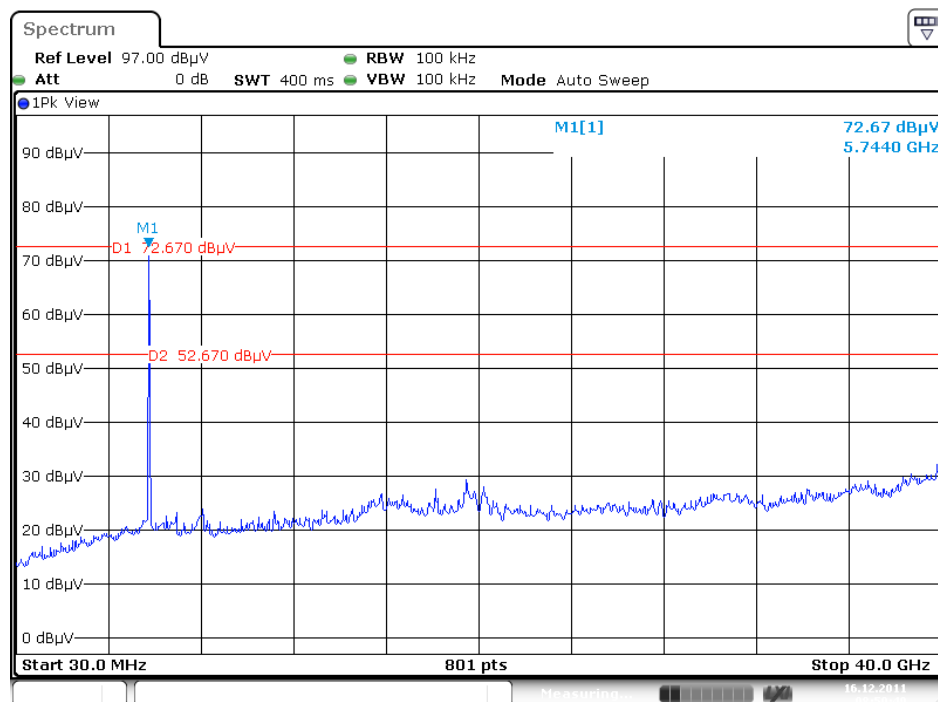


Plots for low channel, 802.11an 40MHz mode Chains A and B, power setting(s) = 28/28.5, 5755 MHz



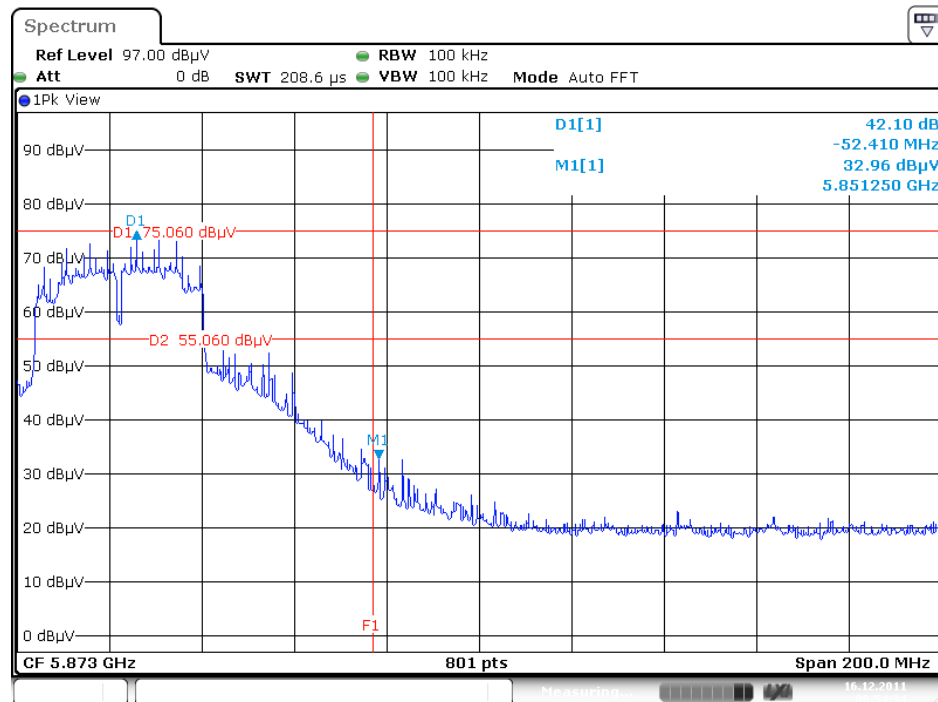
Date: 16.DEC.2011 08:52:19

Plots for low channel, 802.11an 40MHz mode Chains A and B, power setting(s) = 28/28.5, 5755 MHz



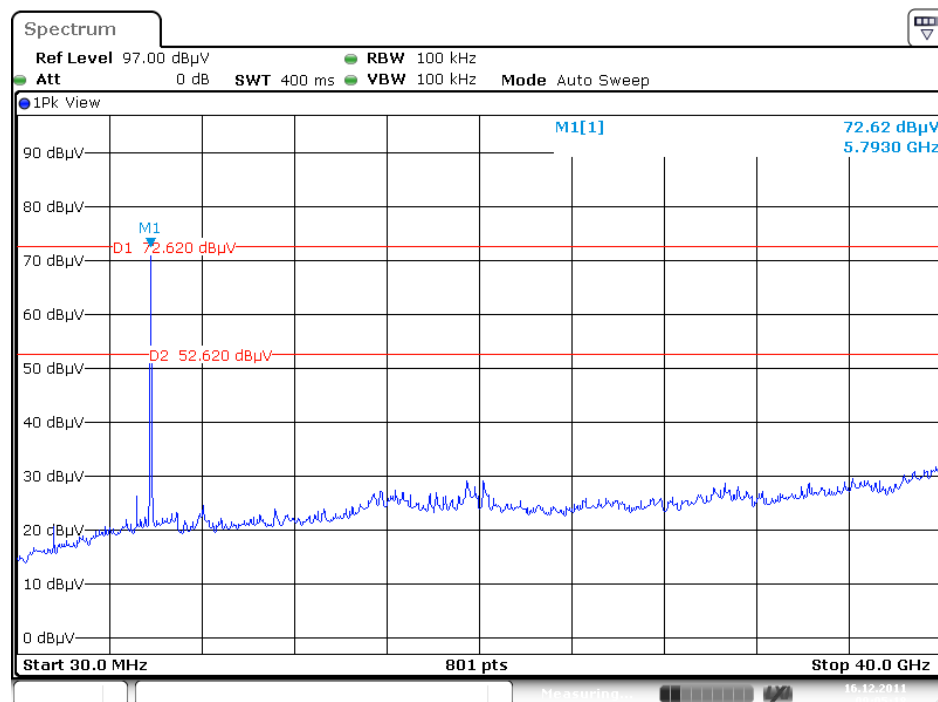
Date: 16.DEC.2011 08:50:49

Plots for high channel, 802.11an 40MHz mode Chains A and B, power setting(s) = 28.5/30, 5795 MHz



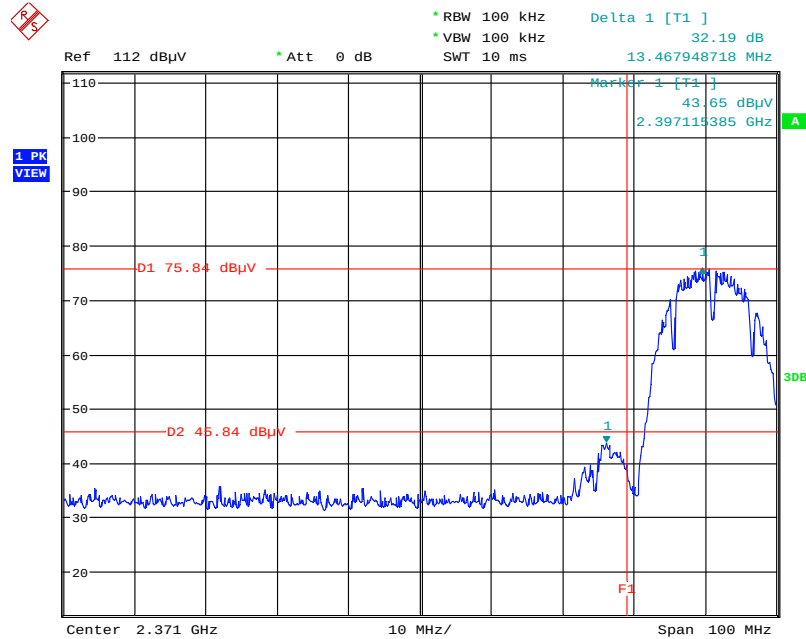
Date: 16.DEC.2011 08:54:35

Plots for high channel, 802.11an 40MHz mode Chains A and B, power setting(s) = 28.5/30, 5795 MHz



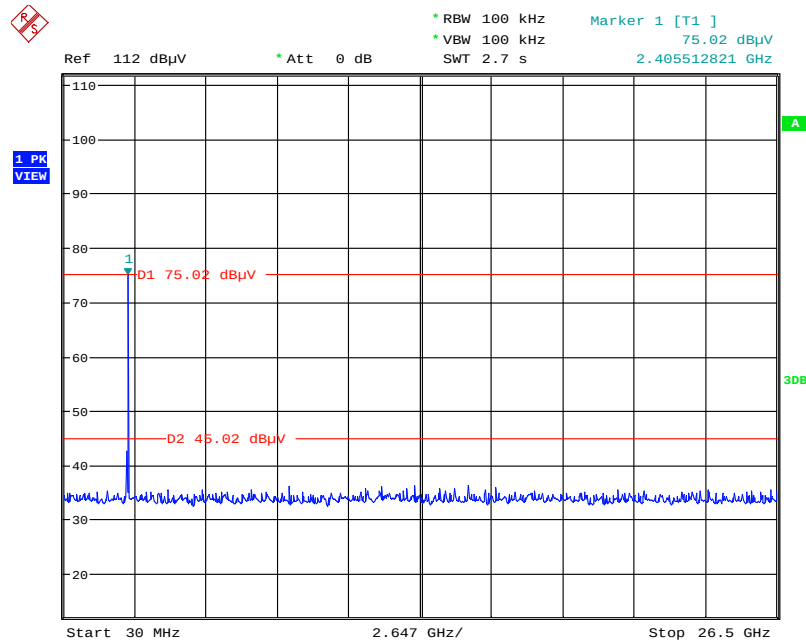
Date: 16.DEC.2011 09:05:18

Plots for low channel, 802.11b mode Chains A, power setting(s) = 23, 2412 MHz



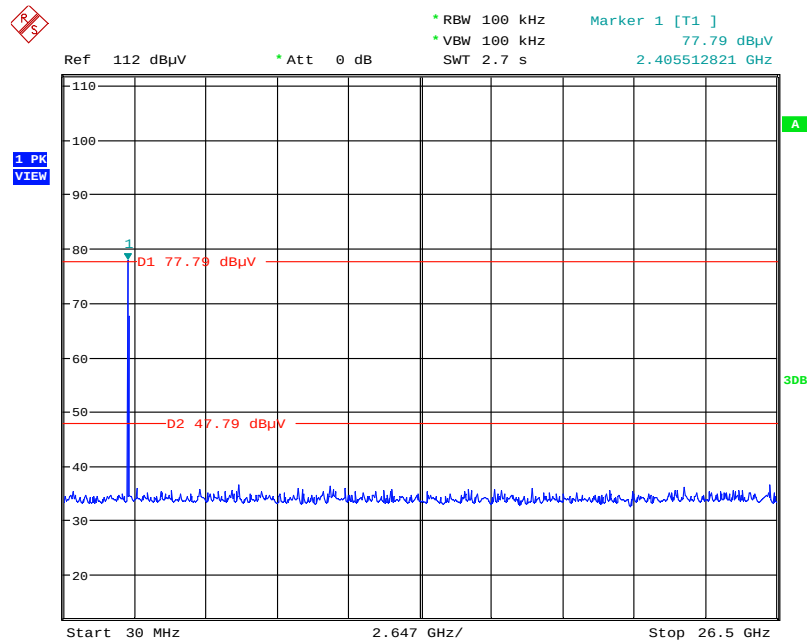
Date: 14.DEC.2011 13:54:26

Plots for low channel, 802.11b mode Chains A, power setting(s) = 23, 2412 MHz



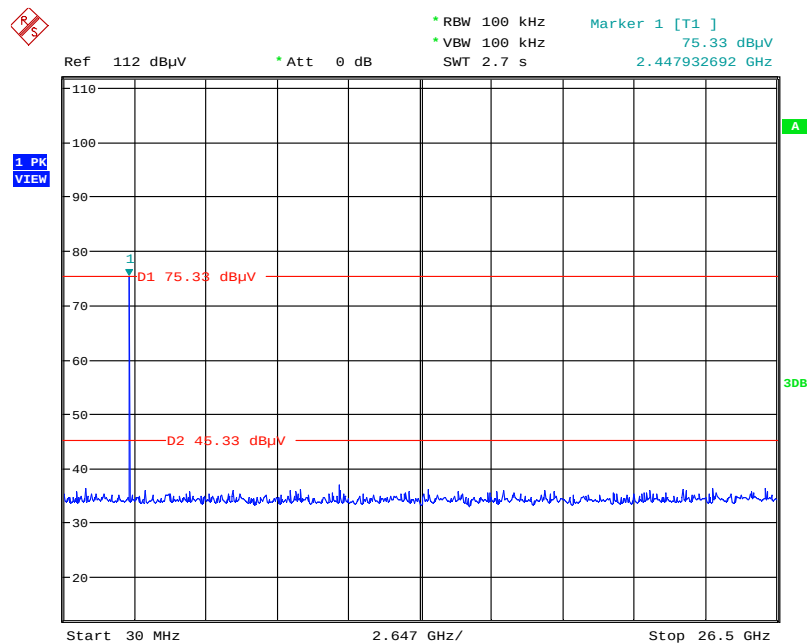
Date: 14.DEC.2011 13:55:05

Plots for center channel, 802.11b mode Chains A, power setting(s) = 23.5, 2437 MHz



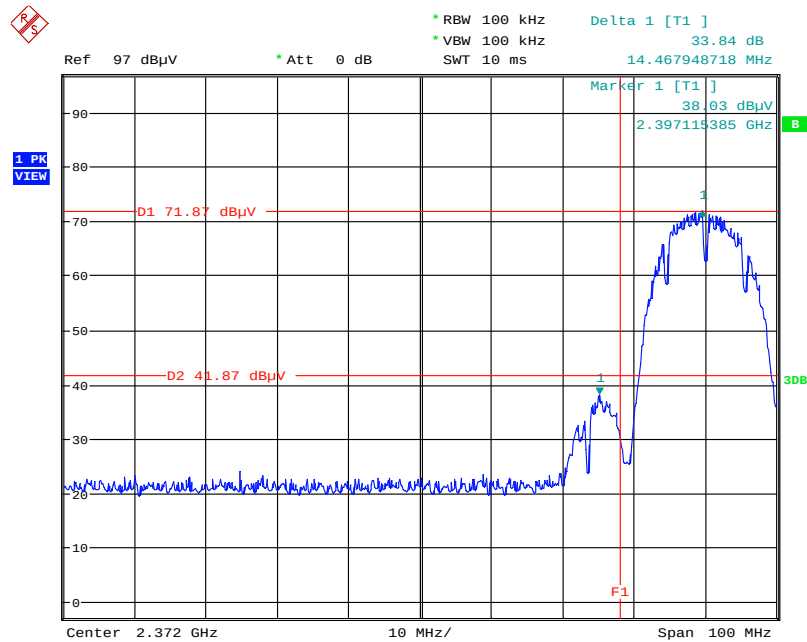
Date: 14.DEC.2011 13:56:13

Plots for high channel, 802.11b mode Chains A, power setting(s) = 23.5, 2462 MHz



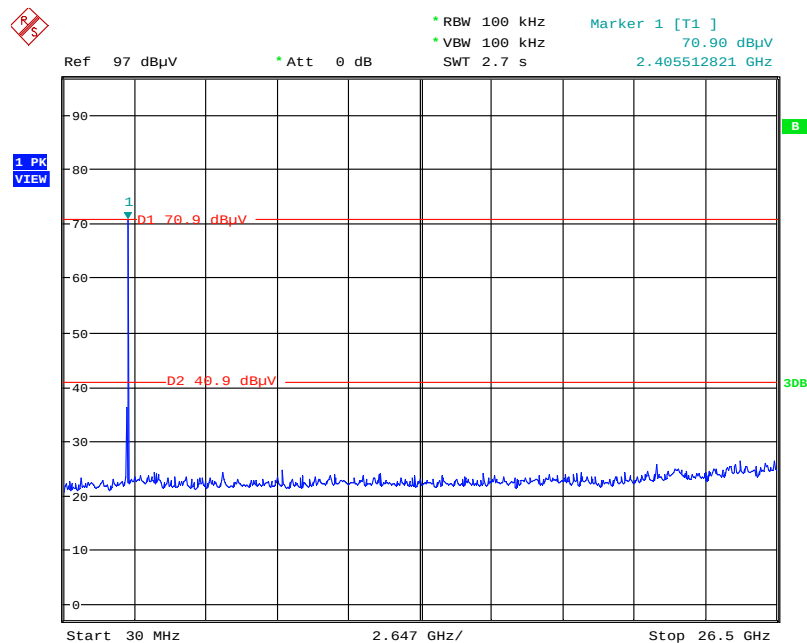
Date: 14.DEC.2011 13:57:19

Plots for low channel, 802.11b mode Chains B, power setting(s) = 23, 2412 MHz



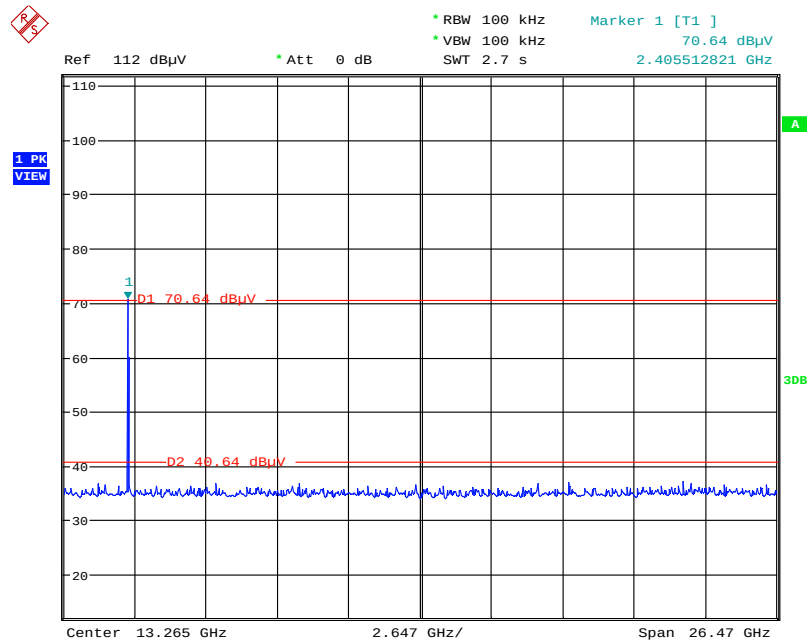
Date: 13.DEC.2011 14:07:47

Plots for low channel, 802.11b mode Chains B, power setting(s) = 23, 2412 MHz



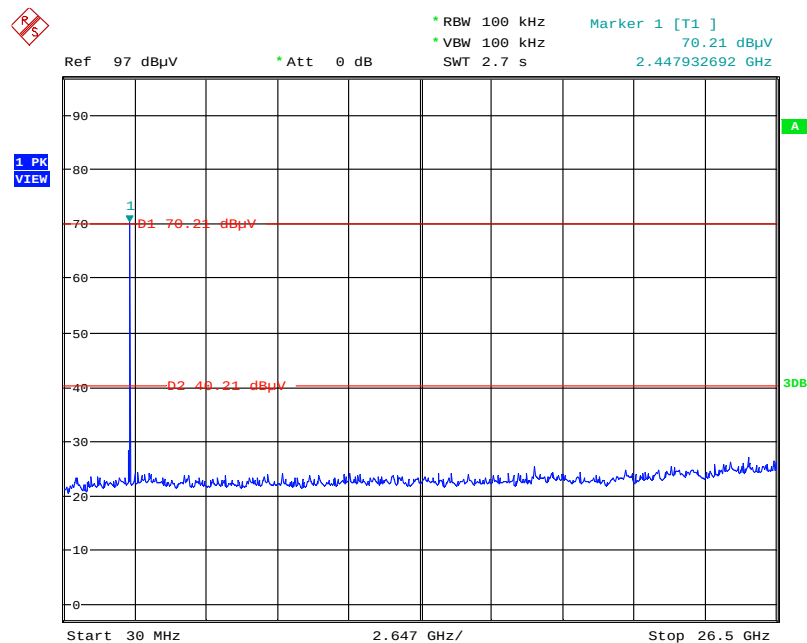
Date: 13.DEC.2011 14:55:20

Plots for center channel, 802.11b mode Chains B, power setting(s) = 23, 2437 MHz



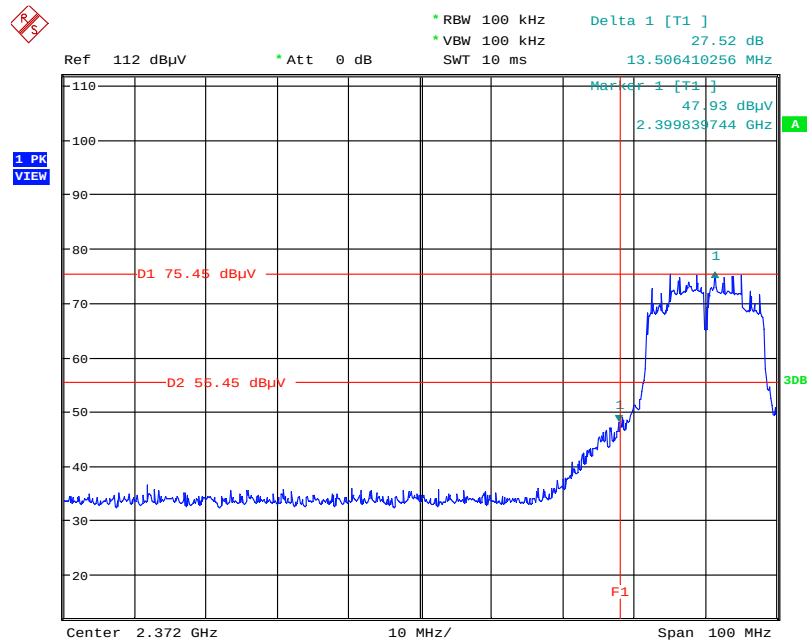
Date: 14.DEC.2011 14:26:27

Plots for high channel, 802.11b mode Chains B, power setting(s) = 23, 2462 MHz



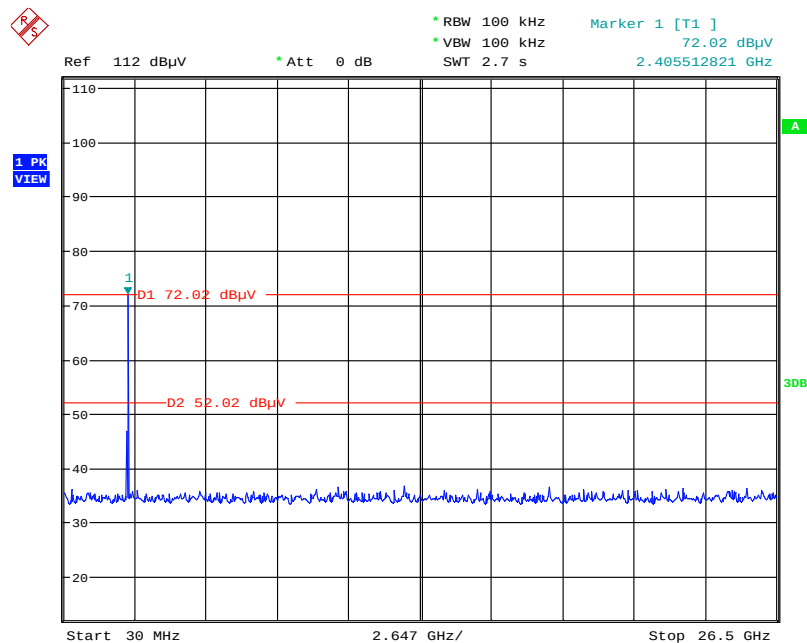
Date: 13.DEC.2011 14:51:28

Plots for low channel, 802.11g mode Chains A, power setting(s) = 26, 2412 MHz



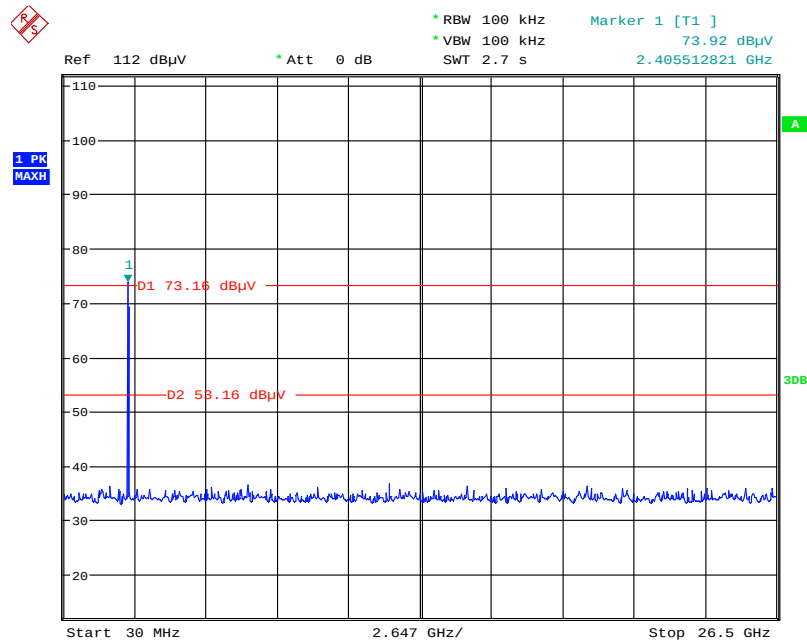
Date: 14.DEC.2011 14:01:14

Plots for low channel, 802.11a mode Chains A, power setting(s) = 26, 2412 MHz



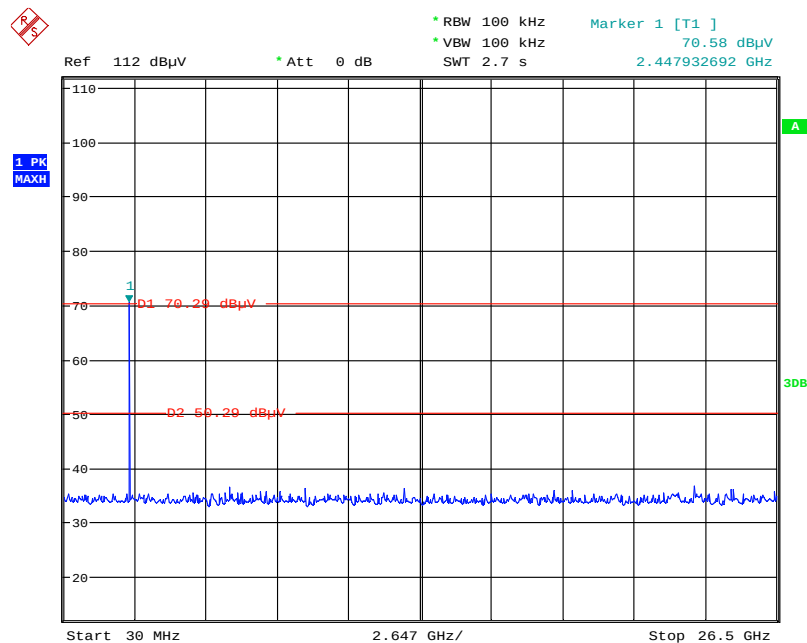
Date: 14.DEC.2011 14:02:18

Plots for center channel, 802.11g mode Chains A, power setting(s) = 29.5, 2437 MHz



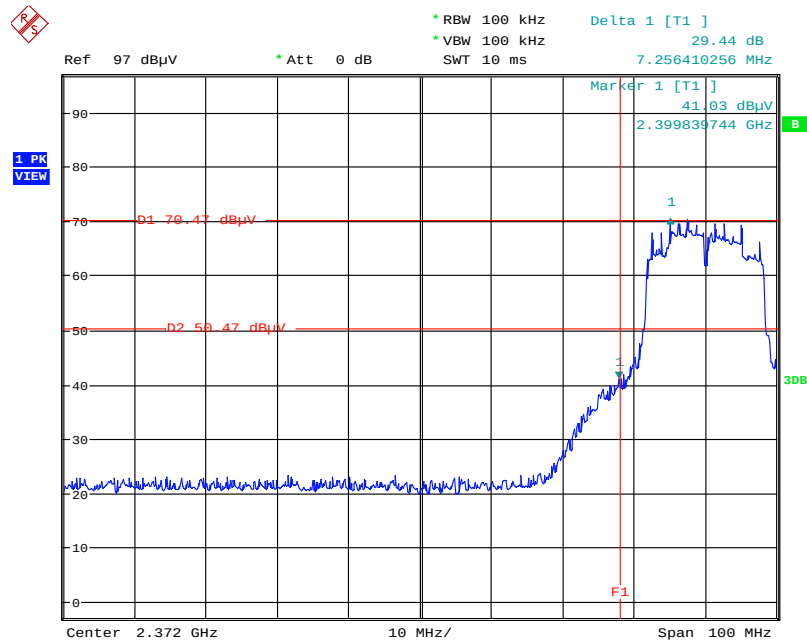
Date: 14.DEC.2011 14:03:16

Plots for high channel, 802.11g mode Chains A, power setting(s) = 26.5, 2462 MHz



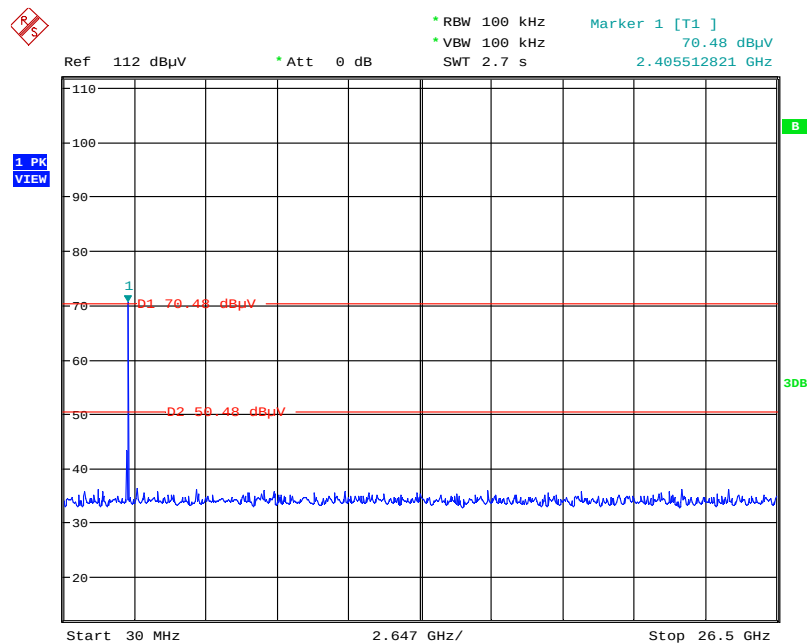
Date: 14.DEC.2011 14:04:27

Plots for low channel, 802.11g mode Chains B, power setting(s) = 26.5, 2412 MHz



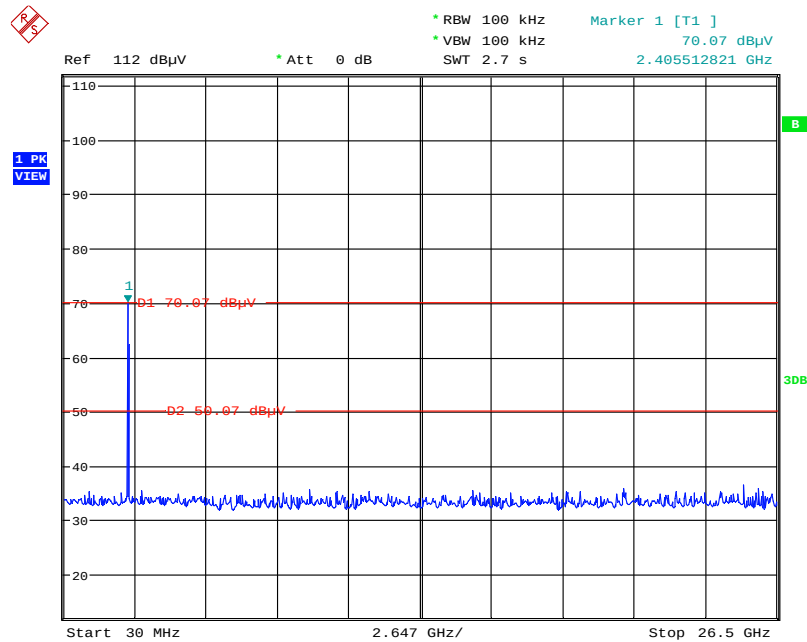
Date: 13.DEC.2011 14:04:46

Plots for low channel, 802.11a mode Chains B, power setting(s) = 26.5, 2412 MHz



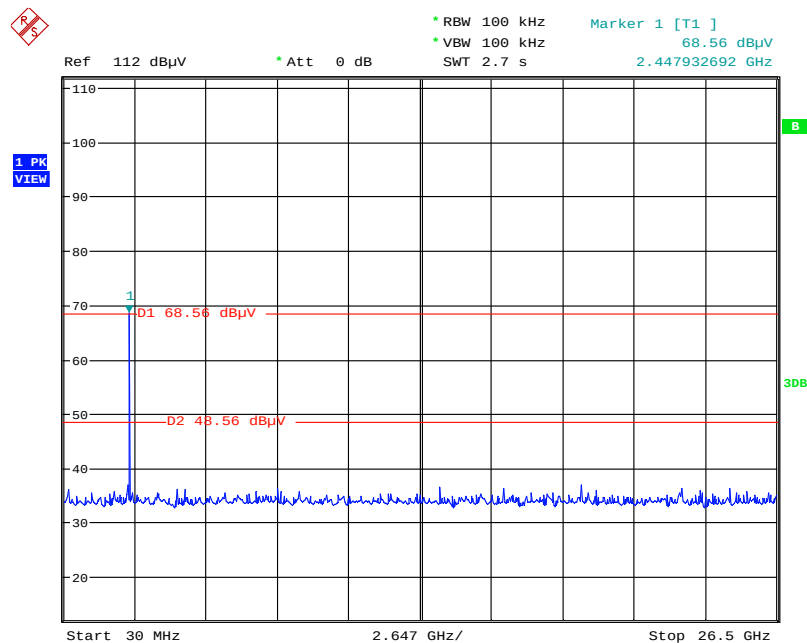
Date: 14.DEC.2011 14:56:54

Plots for center channel, 802.11g mode Chains B, power setting(s) = 29, 2437 MHz



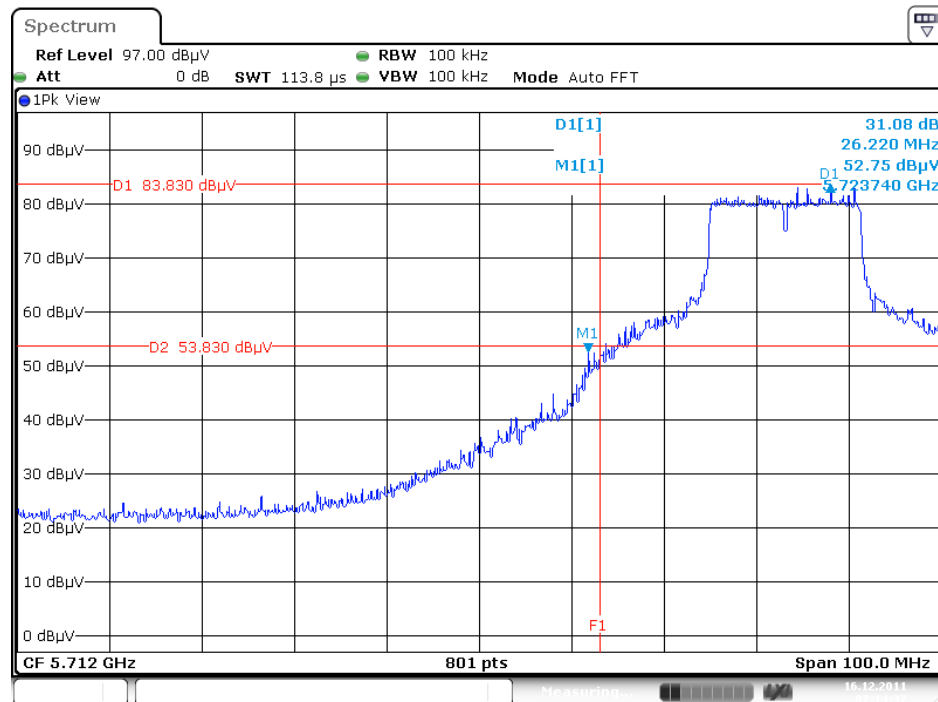
Date: 14.DEC.2011 15:02:41

Plots for high channel, 802.11g mode Chains B, power setting(s) = 26.5, 2462 MHz

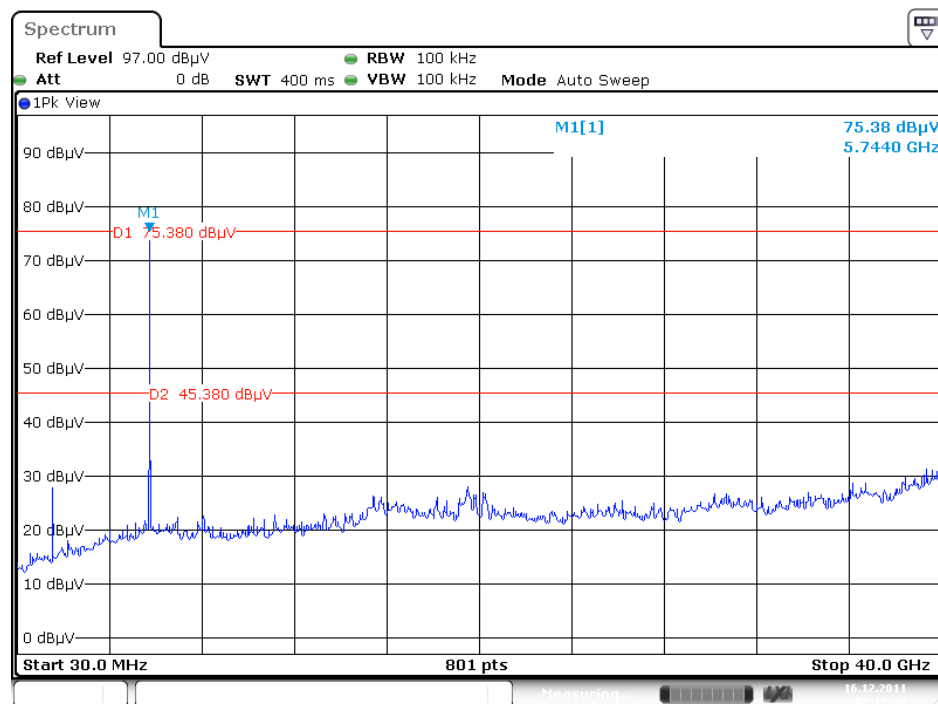


Date: 14.DEC.2011 15:02:06

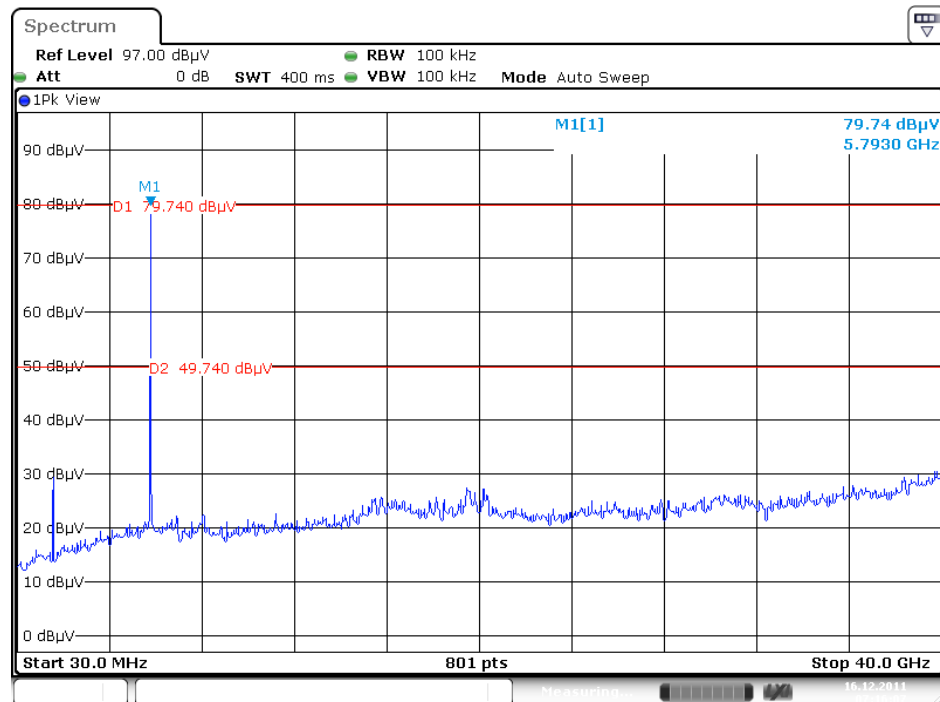
Plots for lower channel, 802.11a mode Chains A, power setting(s) = 24.5, 5745MHz



Plots for lower channel, 802.11a mode Chains A, power setting(s) = 24.5, 5745MHz

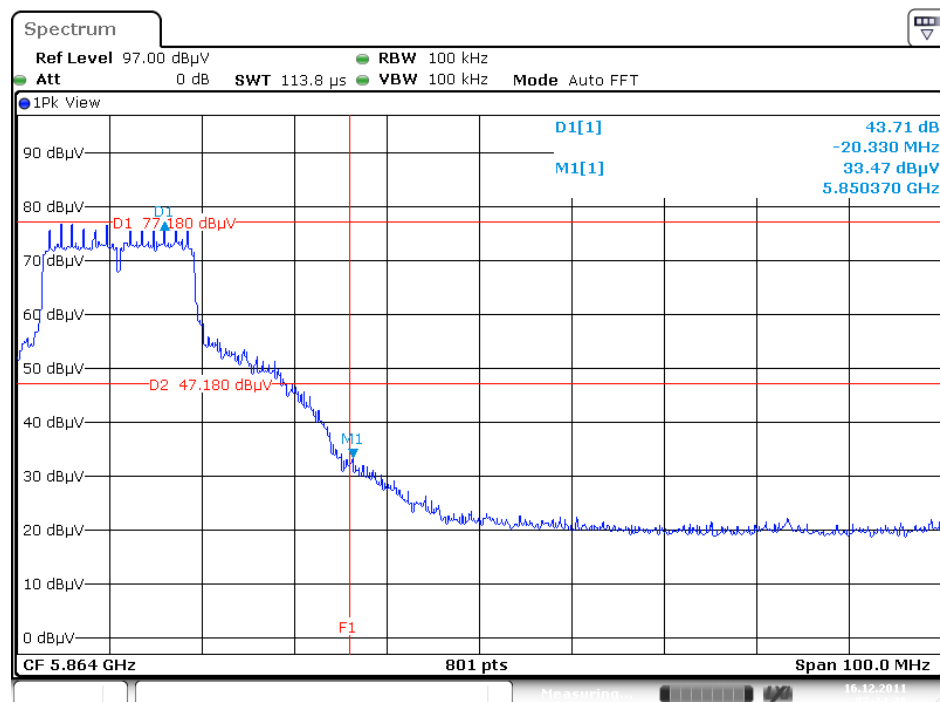


Plots for center channel, 802.11a mode Chains A, power setting(s) = 25, 5785MHz



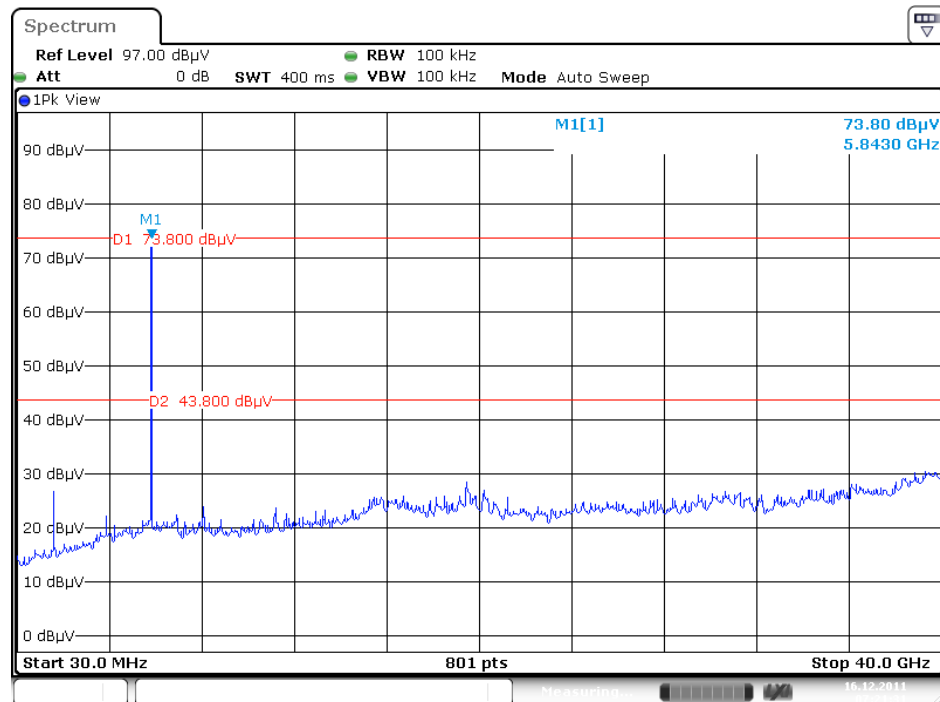
Date: 16.DEC.2011 07:16:07

Plots for high channel, 802.11a mode Chains A, power setting(s) = 25.5, 5825MHz



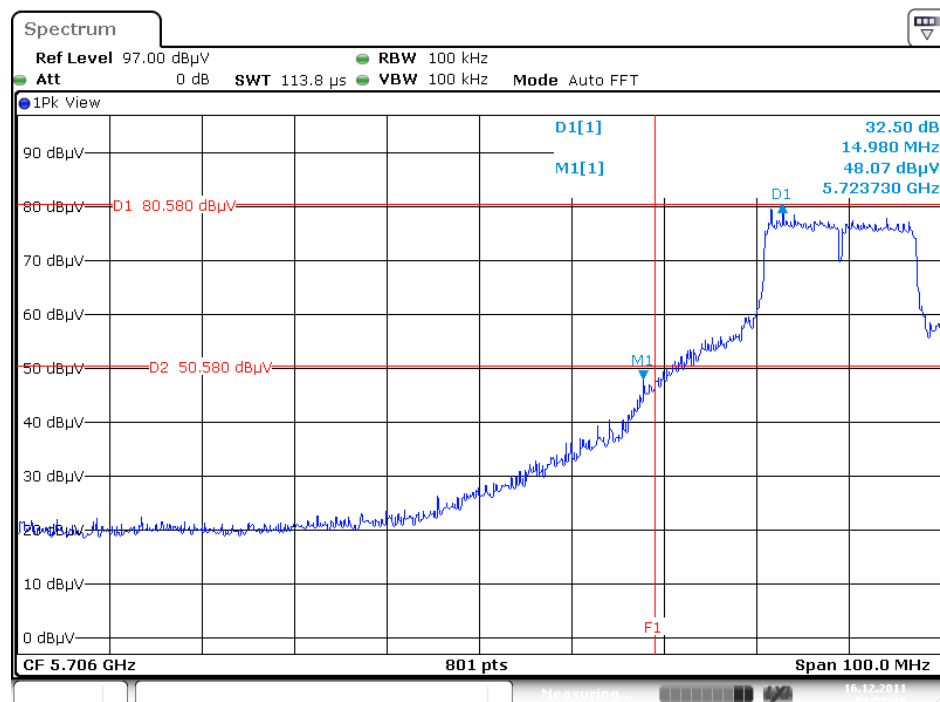
Date: 16.DEC.2011 07:34:37

Plots for high channel, 802.11a mode Chains A, power setting(s) = 25.5, 5825MHz



Date: 16.DEC.2011 07:21:31

Plots for lower channel, 802.11a mode Chains B, power setting(s) = 24.5, 5745MHz



Date: 16.DEC.2011 07:55:17



Spectrum

Ref Level 97.00 dBμV RBW 100 kHz

Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1 76.85 dBμV 5.7440 GHz

D1 76.85 dBμV

D2 46.85 dBμV

Start 30.0 MHz 801 pts Stop 40.0 GHz

Measuring...

10.12.2011

Spectrum

Ref Level 97.00 dBμV RBW 100 kHz
 Att 0 dB SWT 400 ms VBW 100 kHz Mode Auto Sweep

1Pk View

M1[1] 78.55 dBμV 5.7930 GHz

M1 78.550 dBμV

D1 78.550 dBμV

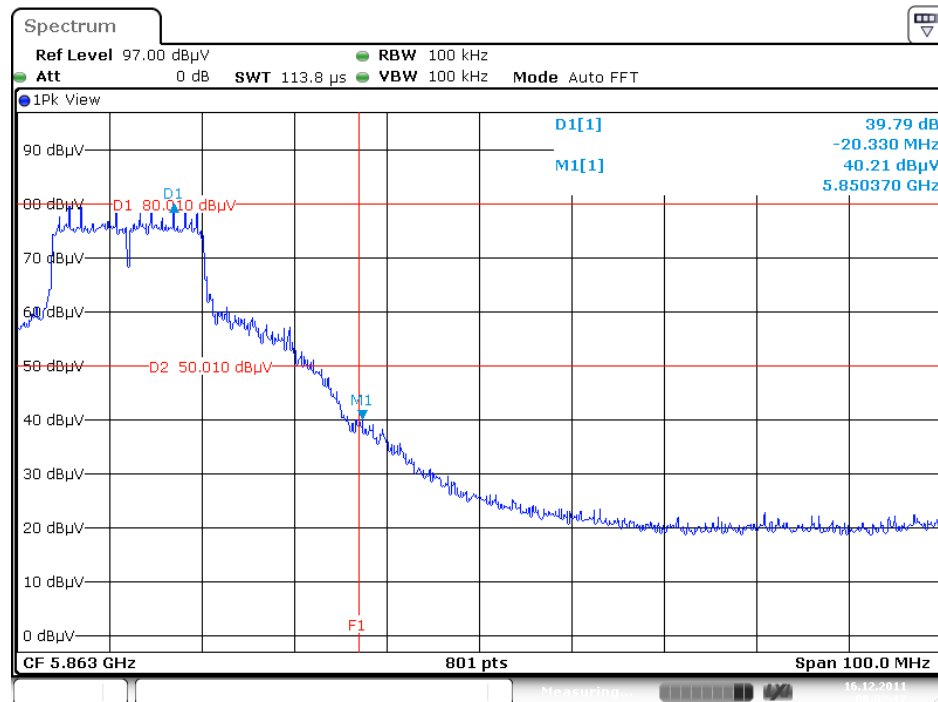
D2 48.550 dBμV

Start 30.0 MHz 801 pts Stop 40.0 GHz

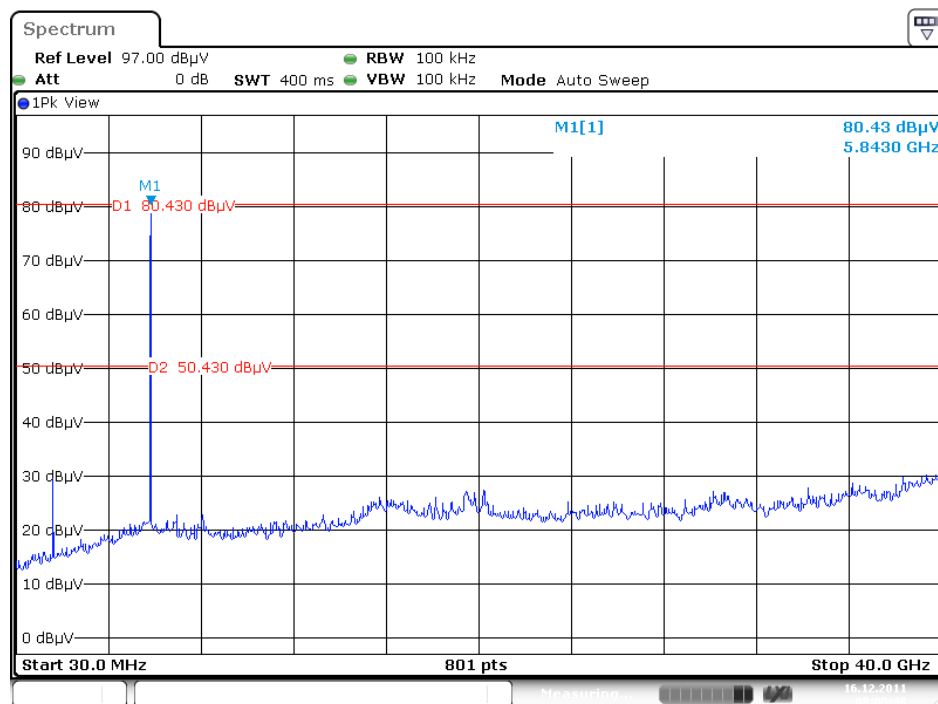
Measuring 16.12.2011

Page No. : 169 of 175
Issued Date : Jan. 18, 2012

Plots for high channel, 802.11a mode Chains B, power setting(s) = 25.5, 5825MHz



Plots for high channel, 802.11a mode Chains B, power setting(s) = 25.5, 5825MHz



4.8. Antenna Requirements

4.8.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.8.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100377	9kHz ~ 2.75GHz	Sep. 14, 2011	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Oct. 28, 2011	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127-478	9K ~ 30MHz	Nov. 16, 2011	Conduction (CO01-CB)
PULSE LIMITER	R&S	ESH3-Z2	100430	9K~30MHz	Jan. 04, 2011	Conduction (CO01-CB)
COND Cable	-	Cable	-	0.15MHz~30MHz	Dec. 04, 2011	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Oct. 29, 2011	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 22, 2011	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 22, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 17, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2011	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 29, 2011	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 03, 2011	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 22, 2011	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Sep. 09, 2010*	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N/A	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N/A	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV30	101026	9KHz~30GHz	Jul. 27, 2011	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	May 20, 2011	Conducted (TH01-CB)
Thermo-Hygro Meter	N/A	HC 520	#1	15~70 degree	Nov. 02, 2011	Conducted (TH01-CB)
RF Power Divider	HP	11636A	00306	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Power Splitter	Anaren	44100	1839	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)
RF Power Splitter	Anaren	42100	17930	2GHz ~ 18GHz	N/A	Conducted (TH01-CB)
EPM-P Series Power Meter	Agilent	E4416A	GB41291199	50MHz ~ 18GHz	Sep. 09, 2011	Conducted (TH01-CB)
Peak an Avg Power Sensor	Agilent	E9327A	US40442088	50MHz ~ 18GHz	Sep. 09, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-12	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-13	-	1 GHz ~ 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Nov. 01, 2011	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Nov. 01, 2011	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

Note: “*” Calibration Interval of instruments listed above is two years.

6. TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

7. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-110702

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Road, Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2010 to January 09, 2013
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : July 02, 2011

P1, total 22 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix