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FCC RADIO TEST REPORT

Applicant's company	**NETGEAR, Inc.**
Applicant Address	350 East Plumeria Drive, San Jose, California 95134-1911
FCC ID	**PY312300208**
Manufacturer's company	**Ambit Microsystems (Shanghai) Ltd.**
Manufacturer Address	No. 1925, Nanle Road, Songjiang Export Processing Zone, Shanghai, China

Product Name	Universal Dual Band Wi-Fi Extender
Brand Name	NETGEAR
Model Name	WN3500RP
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Jul. 30, 2012
Final Test Date	Aug. 16, 2012
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** and KDB 558074 – 20120118 & KDB662911 D01-20110404.

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

Testing Laboratory
1190

Table of Contents

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR282215AA	Rev. 01	Initial issue of report	Sep. 05, 2012

Certificate No.: CB10108100

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**Universal Dual Band Wi-Fi Extender**
Brand Name	:	**NETGEAR**
Model Name	:	**WN3500RP**
Applicant	:	**NETGEAR, Inc.**
Test Rule Part(s)	:	**47 CFR FCC Part 15 Subpart C § 15.247**

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jul. 30, 2012 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

Jordan Hsiao

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	0.86 dB
4.2	15.247(b)(3)	Peak Output Power	Complies	0.34 dB
4.3	-	Average Output Power	-	-
4.4	15.247(e)	Power Spectral Density	Complies	9.05 dB
4.5	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.6	15.247(d)	Radiated Emissions	Complies	0.16 dB
4.7	15.247(d)	Band Edge Emissions	Complies	0.04 dB
4.8	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Output Power	±0.8dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
6dB Spectrum Bandwidth	$\pm 8.5\times10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7℃	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Internal DC Power
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%)	**eth1:** For 2.4GHz Band: MCS0 (20MHz): 19.04 MHz ; MCS0 (40MHz): 36.36 MHz **eth2:** For 2.4GHz Band: MCS0 (20MHz): 17.36 MHz ; MCS0 (40MHz): 37.08 MHz For 5GHz Band: MCS0 (20MHz): 27.44 MHz ; MCS0 (40MHz): 44.16 MHz
Peak Output Power	**eth1:** For 2.4GHz Band: MCS0 (20MHz): 29.64 dBm ; MCS0 (40MHz): 28.61 dBm **eth2:** For 2.4GHz Band: MCS0 (20MHz): 27.34 dBm ; MCS0 (40MHz): 26.27 dBm For 5GHz Band: MCS0 (20MHz): 27.48 dBm ; MCS0 (40MHz): 27.46 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	IEEE 802.11b: WLAN (1TX, 1RX) IEEE 802.11a/g: WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From Internal DC Power
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%)	**eth1:**11b: 10.64 MHz ; 11g: 18.00 MHz **eth2:**11b: 10.48 MHz ; 11g: 16.24 MHz ; 11a: 25.76 MHz
Peak Output Power	**eth1:**11b: 24.68 dBm ; 11g: 29.66 dBm **eth2:**11b: 15.32 dBm ; 11g: 27.53 dBm ; 11a: 27.43 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
802.11a	X	X	V	X
802.11b	V	X	X	X
802.11g	X	X	V	X
802.11n	X	X	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

Internal DC Power	Brand	Model	P/N	Rating
Power 1	LEI	SU18-9120150-I3	114-002-001	INPUT: 100-240V~50/60Hz 0.6A OUTPUT: 12V 1.5A
Power 2	AM	T99B109.00	114-0023-001	Input: 100-240V~50-60Hz, 0.5A OUTPUT:12V 1.65A
Others				
Cradle*1				
FCC Plug*1				
FCC Power Cable*1, Non-shielded, 1.4 m				

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
1	Foxconn	-	PCB Antenna	I-PEX	1.52 dBi	-
2	Foxconn	-	PCB Antenna	I-PEX	-0.92 dBi	-
3	Foxconn	-	PCB Antenna	I-PEX	1.45 dBi	2.93 dBi
4	Foxconn	-	PCB Antenna	I-PEX	0.86 dBi	2.94 dBi

Note: The EUT has two RF Chips.

One is 2.4GHz Band Only. (eth1)

The other is 2.4GHz+5GHz Band. (eth2)

The EUT has four antennas.

<For Chip 1 (eth 1)>

For 2.4GHz Band:

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

Only Ant. 1 can be used as transmitting/receiving antenna.

For IEEE 802.11b/g mode (2TX/2RX):

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

<For Chip 2 (eth 2)>

For 2.4GHz Band:

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

Only Ant. 3 can be used as transmitting/receiving antenna.

For IEEE 802.11g mode (2TX/2RX):

Ant. 3 and Ant. 4 could transmit/receive simultaneously.

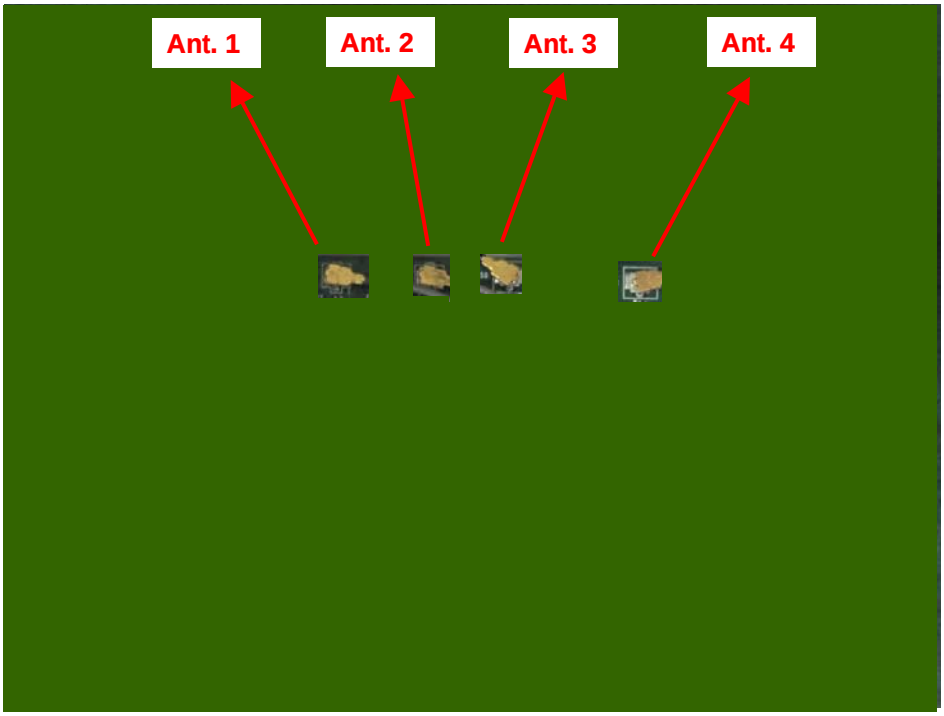
For 5GHz Band:

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

Ant. 3 and Ant. 4 could transmit/receive simultaneously.

For IEEE 802.11a mode (2TX/2RX):

Ant. 3 and Ant. 4 could transmit/receive simultaneously.



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

3.5. Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

For 2.4GHz Band

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	Auto	-	-
Peak Output Power Average Output Power Power Spectral Density	eth1:MCS0/20MHz	6.5 Mbps	1/6/11	1/2/1+2
	eth1:MCS0/40MHz	13.5 Mbps	3/6/9	1/2/1+2
	eth1:11b/CCK	1 Mbps	1/6/11	1
	eth1:11g/BPSK	6 Mbps	1/6/11	1/2/1+2
	eth2:MCS0/20MHz	6.5 Mbps	1/6/11	3/4/3+4
	eth2:MCS0/40MHz	13.5 Mbps	3/6/9	3/4/3+4
	eth2:11b/CCK	1 Mbps	1/6/11	3
	eth2:11g/BPSK	6 Mbps	1/6/11	3/4/3+4
6dB Spectrum Bandwidth	eth1:MCS0/20MHz	6.5 Mbps	1/6/11	1+2
	eth1:MCS0/40MHz	13.5 Mbps	3/6/9	1+2
	eth1:11b/CCK	1 Mbps	1/6/11	1
	eth1:11g/BPSK	6 Mbps	1/6/11	1+2
	eth2:MCS0/20MHz	6.5 Mbps	1/6/11	3+4
	eth2:MCS0/40MHz	13.5 Mbps	3/6/9	3+4
	eth2:11b/CCK	1 Mbps	1/6/11	3
	eth2:11g/BPSK	6 Mbps	1/6/11	3+4
Radiated Emissions Below 1GHz	Normal Link	Auto	-	-
Radiated Emissions Above 1GHz	eth1:MCS0/20MHz	6.5 Mbps	1/6/11	1+2
	eth1:MCS0/40MHz	13.5 Mbps	3/6/9	1+2

	eth1:11b/CCK	1 Mbps	1/6/11	1
	eth1:11g/BPSK	6 Mbps	1/6/11	1+2
	eth2:MCS0/20MHz	6.5 Mbps	1/6/11	3+4
	eth2:MCS0/40MHz	13.5 Mbps	3/6/9	3+4
	eth2:11b/CCK	1 Mbps	1/6/11	3
	eth2:11g/BPSK	6 Mbps	1/6/11	3+4
Band Edge Emissions	eth1:MCS0/20MHz	6.5 Mbps	1/11	1+2
	eth1:MCS0/40MHz	13.5 Mbps	3/9	1+2
	eth1:11b/CCK	1 Mbps	1/11	1
	eth1:11g/BPSK	6 Mbps	1/11	1+2
	eth2:MCS0/20MHz	6.5 Mbps	1/11	3+4
	eth2:MCS0/40MHz	13.5 Mbps	3/9	3+4
	eth2:11b/CCK	1 Mbps	1/11	3
	eth2:11g/BPSK	6 Mbps	1/11	3+4

For 5GHz Band/eth2:

Test Items	Mode	Data Rate	Channel	Antenna
AC Power Line Conducted Emissions	Normal Link	Auto	-	-
Peak Output Power Average Output Power Power Spectral Density	MCS0/20MHz	6.5 Mbps	149/157/165	3/4/3+4
	MCS0/40MHz	13.5 Mbps	151/159	3/4/3+4
	11a/BPSK	6 Mbps	149/157/165	3/4/3+4
6dB Spectrum Bandwidth	MCS0/20MHz	6.5 Mbps	149/157/165	3+4
	MCS0/40MHz	13.5 Mbps	151/159	3+4
	11a/BPSK	6 Mbps	149/157/165	3+4
Radiated Emissions Below 1GHz	Normal Link	Auto	-	-
Radiated Emissions Above 1GHz	MCS0/20MHz	6.5 Mbps	149/157/165	3+4
	MCS0/40MHz	13.5 Mbps	151/159	3+4
	11a/BPSK	6 Mbps	149/157/165	3+4
Band Edge Emissions	MCS0/20MHz	6.5 Mbps	149/157/165	3+4
	MCS0/40MHz	13.5 Mbps	151/159	3+4
	11a/BPSK	6 Mbps	149/157/165	3+4

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. Power 1+ Power Cable

Mode 2. Power 2+ Power Cable

Due to Mode 1 generated the worst test result, so it was recorded in this report.

For Radiated Emission Below 1GHz test:

Mode 1. Power 1+ Power Cable

Mode 2. Power 2+ Power Cable

Due to Mode 1 generated the worst test result, so it was recorded in this report.

<For MPE and Co-location Test>:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Maximum Permissible Exposure (Please refer to Appendix B) and Co-location (please refer to Appendix C) tests are added for simultaneously transmit between 2.4GHz WLAN function and 5GHz WLAN function.

3.6. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File 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).

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Earphone	SHYARO CHI	MIC-04	N/A
Wireless AP	BELKIN	GW-AP54SGX	N/A
Notebook	DELL	D505	E2KWM3945ABG
Notebook	DELL	D505	E2KWM3945ABG
Notebook	DELL	D505	E2KWM3945ABG
Printer	HP	M1132	DoC
Notebook	DELL	M1330	E2K24GBRL

3.8. Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

For 2.4GHz Band

eth1:

Power Parameters of IEEE 802.11n/Ant. 1+2 (2TX)

Test Software Version:	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
20MHz MCS0	67	90	73
Frequency	2422 MHz	2437MHz	2452 MHz
40MHz MCS0	58	73	69

Power Parameters of IEEE 802.11b/Ant. 1 (1TX)

Test Software Version	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	86	87	82

Power Parameters of IEEE 802.11g/Ant. 1+2 (2TX)

Test Software Version	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11g	73	90	73

eth2:

Power Parameters of IEEE 802.11n/Ant. 3+4 (2TX)

Test Software Version:	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
20MHz MCS0	45	58	55
Frequency	2422 MHz	2437MHz	2452 MHz
40MHz MCS0	34	45	43

Power Parameters of IEEE 802.11b/Ant. 3 (1TX)

Test Software Version	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	40	36	33

Power Parameters of IEEE 802.11g/Ant. 3+4 (2TX)

Test Software Version	Manual Tool Version: 1.0.0.10		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11g	44	58	54

For 5GHz Band

eth2:

Power Parameters of IEEE 802.11n MCS0 20MHz/Ant. 3+4 (2TX)

Test Software Version:	Manual Tool Version: 1.0.0.10		
Frequency	5745 MHz	5785 MHz	5825 MHz
20MHz MCS0	77	81	80
Frequency	5755 MHz		5795 MHz
40MHz MCS0	79		81

Power Parameters of IEEE 802.11a/Ant. 3+4 (2TX)

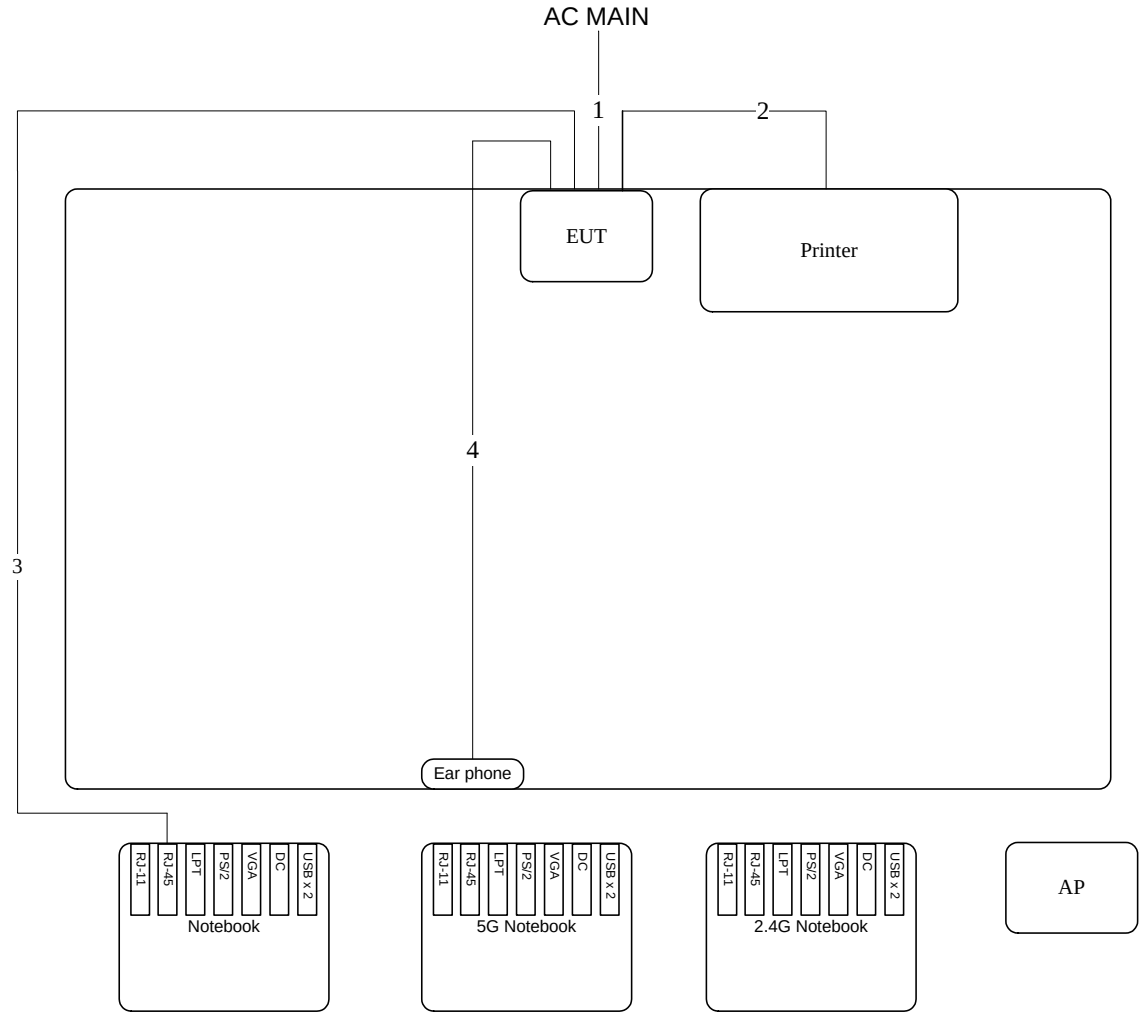
Test Software Version	Manual Tool Version: 1.0.0.10		
Frequency	**5745 MHz**	**5785 MHz**	**5825 MHz**
IEEE 802.11a	76	76	80

During the test, "Manual Tool Version: 1.0.0.10" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

3.9. Test Configurations

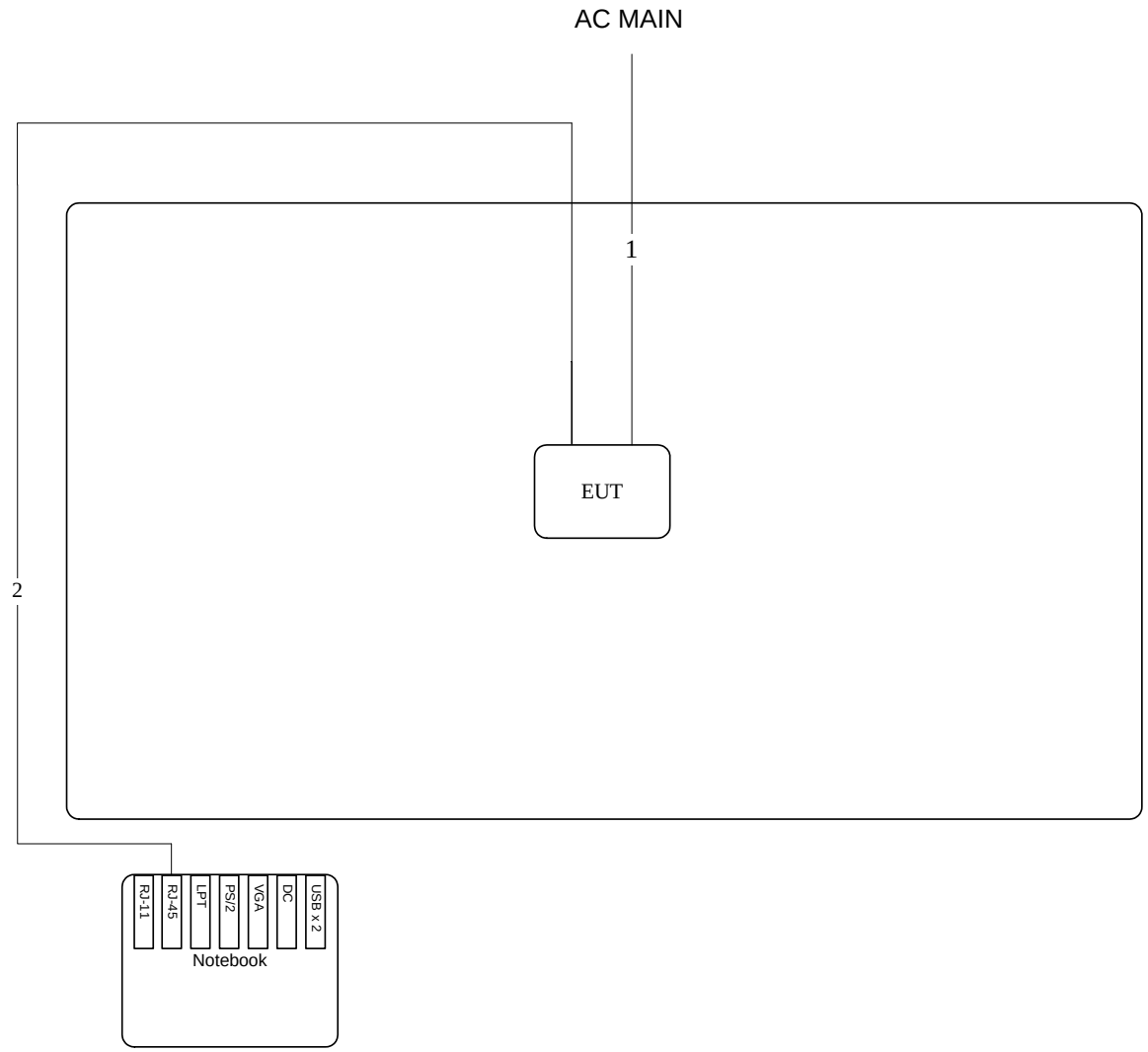
3.9.1. Radiation Emissions Below 1GHz Test/ AC Power Line Conduction Emissions Configuration

Test Mode : Mode 1.



Item	Connection	Shield	Length
1	Power cable	No	1.4M
2	USB cable	No	1.8M
3	RJ-45 cable	No	10M
4	Earphone cable	No	1.1M

3.9.2. Radiation Emissions Above 1GHz Test Configuration



Item	Connection	Shield	Length
1	Power cable	No	1.4M
2	RJ-45 cable	No	10M

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. 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

4.1.2. Measuring Instruments and Setting

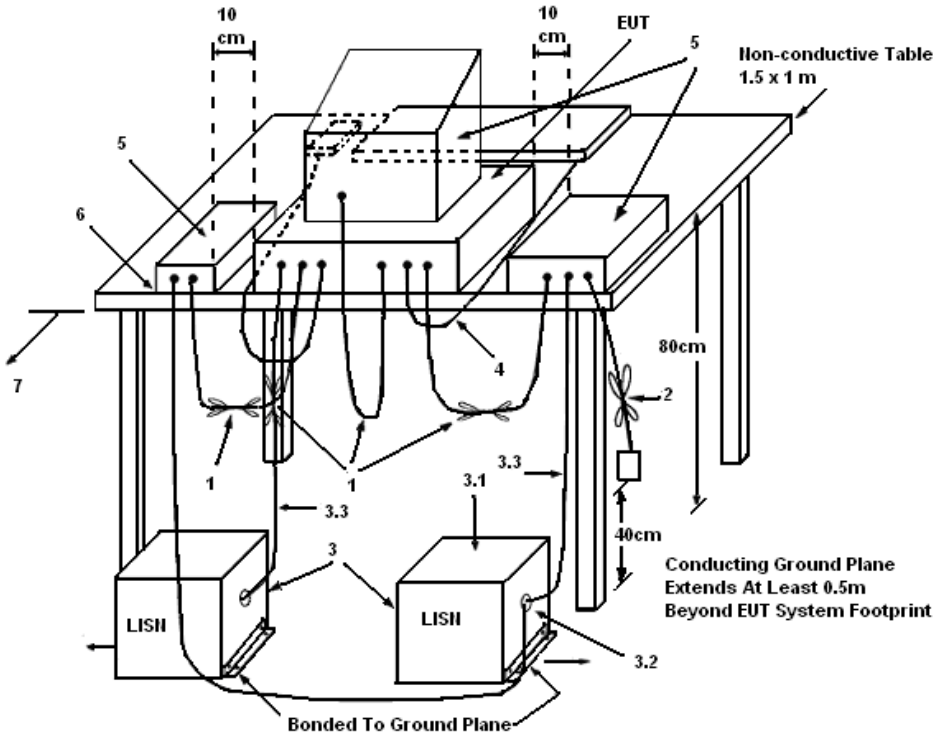
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. 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.

4.1.4. 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.

4.1.5. Test Deviation

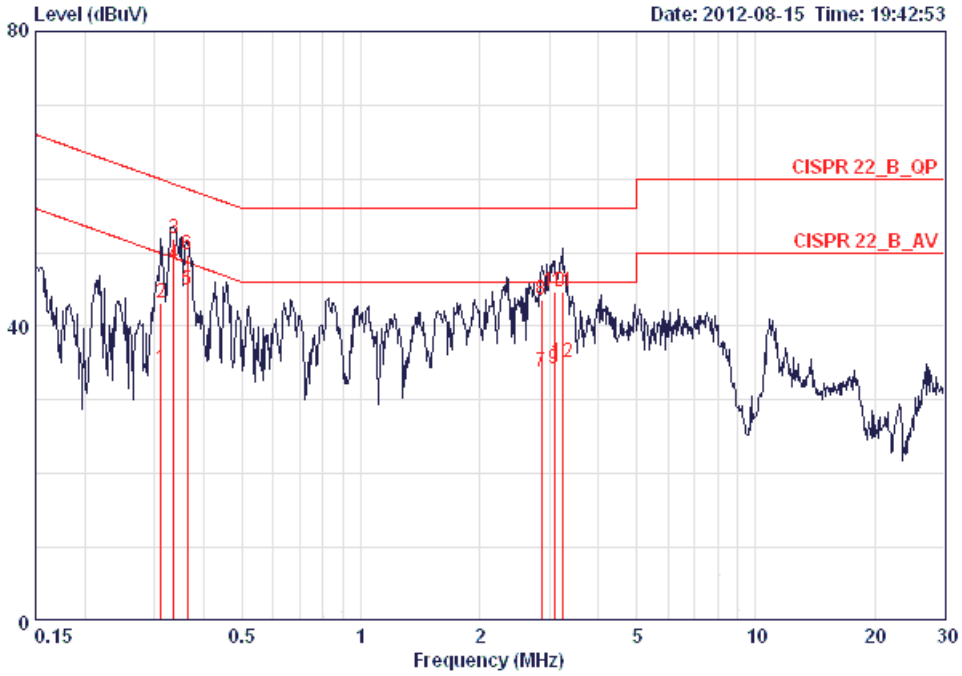
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

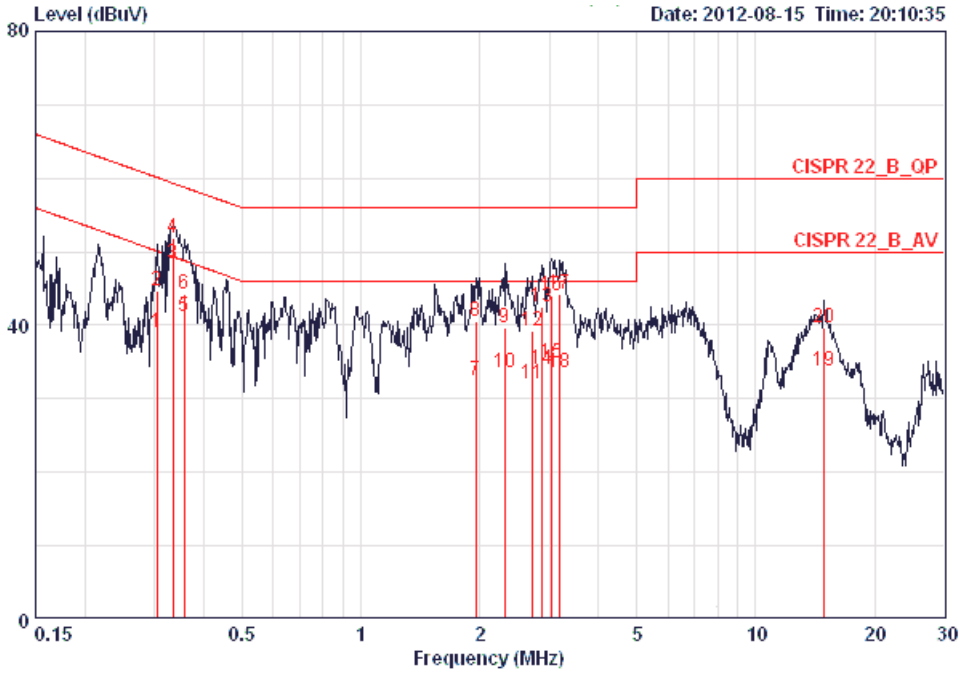
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25℃	Humidity	56%
Test Engineer	Kane Liu	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1.



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.31163	34.31	-15.62	49.93	33.96	0.15	0.20	LINE	AVERAGE
2	0.31163	43.16	-16.77	59.93	42.81	0.15	0.20	LINE	QP
3	0.33562	51.95	-7.36	59.31	51.60	0.15	0.20	LINE	QP
4 @	0.33562	48.36	-0.95	49.31	48.01	0.15	0.20	LINE	AVERAGE
5	0.36338	44.87	-3.78	48.65	44.52	0.15	0.20	LINE	AVERAGE
6	0.36338	49.78	-8.87	58.65	49.43	0.15	0.20	LINE	QP
7	2.869	33.75	-12.25	46.00	33.35	0.20	0.20	LINE	AVERAGE
8	2.869	43.54	-12.46	56.00	43.14	0.20	0.20	LINE	QP
9	3.090	34.18	-11.82	46.00	33.75	0.21	0.22	LINE	AVERAGE
10	3.090	44.59	-11.41	56.00	44.16	0.21	0.22	LINE	QP
11	3.241	44.61	-11.39	56.00	44.15	0.21	0.25	LINE	QP
12	3.241	35.04	-10.96	46.00	34.58	0.21	0.25	LINE	AVERAGE

Temperature	25℃	Humidity	56%
Test Engineer	Kane Liu	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1.



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.30509	38.93	-11.17	50.10	38.65	0.08	0.20	NEUTRAL	AVERAGE
2	0.30509	44.77	-15.33	60.10	44.49	0.08	0.20	NEUTRAL	QP
3 @	0.33385	48.49	-0.86	49.35	48.21	0.08	0.20	NEUTRAL	AVERAGE
4	0.33385	51.90	-7.45	59.35	51.62	0.08	0.20	NEUTRAL	QP
5	0.35765	41.10	-7.68	48.78	40.82	0.08	0.20	NEUTRAL	AVERAGE
6	0.35765	44.21	-14.57	58.78	43.93	0.08	0.20	NEUTRAL	QP
7	1.959	32.44	-13.56	46.00	32.14	0.11	0.19	NEUTRAL	AVERAGE
8	1.959	40.44	-15.56	56.00	40.14	0.11	0.19	NEUTRAL	QP
9	2.309	39.62	-16.38	56.00	39.31	0.11	0.20	NEUTRAL	QP
10	2.309	33.54	-12.46	46.00	33.23	0.11	0.20	NEUTRAL	AVERAGE
11	2.707	31.99	-14.01	46.00	31.67	0.12	0.20	NEUTRAL	AVERAGE
12	2.707	39.20	-16.80	56.00	38.88	0.12	0.20	NEUTRAL	QP
13	2.884	42.47	-13.53	56.00	42.15	0.12	0.20	NEUTRAL	QP
14	2.884	34.06	-11.94	46.00	33.74	0.12	0.20	NEUTRAL	AVERAGE
15	3.041	34.86	-11.14	46.00	34.53	0.12	0.21	NEUTRAL	AVERAGE
16	3.041	43.95	-12.05	56.00	43.62	0.12	0.21	NEUTRAL	QP
17	3.190	44.17	-11.83	56.00	43.81	0.12	0.24	NEUTRAL	QP
18	3.190	33.49	-12.51	46.00	33.13	0.12	0.24	NEUTRAL	AVERAGE
19	14.828	33.85	-16.15	50.00	33.14	0.31	0.40	NEUTRAL	AVERAGE
20	14.828	39.66	-20.34	60.00	38.95	0.31	0.40	NEUTRAL	QP

4.2. Peak Output Power Measurement

4.2.1. 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.

4.2.2. Measuring Instruments and Setting

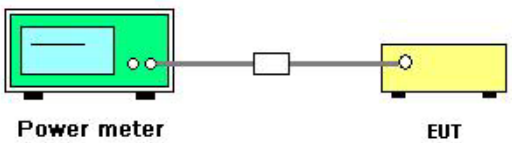
Please refer to section 5 of equipments list in this report. The following table is the setting of the peak power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Peak

4.2.3. Test Procedures

Spectrum Parameter	Setting
RF Output Power Method	☒ ANSI C63.10 clause 6.10.2.1 (a) power meter method
RF Output Power Method	☐ ANSI C63.10 clause 6.10.2.1 (b) channel integration method
RF Output Power Method	☐ ANSI C63.10 clause 6.10.3.1 Method 1 - spectral trace averaging
RF Output Power Method	☐ ANSI C63.10 clause 6.10.3.2 Method 2 - zero-span mode with trace averaging

4.2.4. Test Setup Layout



4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Peak Output Power

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11n
Test Date	Aug. 15, 2012		

For 2.4GHz Band

eth1:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2			
1	2412 MHz	24.80	24.90	27.86	30.00	**Complies**
6	2437 MHz	26.54	26.71	29.64	30.00	**Complies**
11	2462 MHz	25.60	25.86	28.74	30.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2			
3	2422 MHz	24.00	24.23	27.13	30.00	**Complies**
6	2437 MHz	25.36	25.83	28.61	30.00	**Complies**
9	2452 MHz	25.04	25.43	28.25	30.00	**Complies**

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
1	2412 MHz	21.66	24.40	26.25	30.00	**Complies**
6	2437 MHz	23.40	25.10	27.34	30.00	**Complies**
11	2462 MHz	22.70	24.88	26.94	30.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
3	2422 MHz	18.97	21.21	23.24	30.00	**Complies**
6	2437 MHz	22.46	23.93	26.27	30.00	**Complies**
9	2452 MHz	22.10	23.55	25.90	30.00	**Complies**

For 5GHz Band

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
149	5745 MHz	24.23	24.69	27.48	30.00	**Complies**
157	5785 MHz	24.24	24.65	27.46	30.00	**Complies**
165	5825 MHz	24.19	24.57	27.39	30.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
151	5755 MHz	24.18	24.70	27.46	30.00	**Complies**
159	5795 MHz	24.15	24.46	27.32	30.00	**Complies**

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a/b/g
Test Date	Aug. 15, 2012		

eth1:

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1		
1	2412 MHz	24.50	30.00	**Complies**
6	2437 MHz	24.68	30.00	**Complies**
11	2462 MHz	23.76	30.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 1	Ant. 2			
1	2412 MHz	25.66	25.87	28.78	30.00	**Complies**
6	2437 MHz	26.57	26.73	29.66	30.00	**Complies**
11	2462 MHz	25.62	25.83	28.74	30.00	**Complies**

eth2:

Configuration IEEE 802.11b

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3		
1	2412 MHz	15.32	30.00	**Complies**
6	2437 MHz	13.95	30.00	**Complies**
11	2462 MHz	13.15	30.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
1	2412 MHz	21.86	24.44	26.35	30.00	**Complies**
6	2437 MHz	23.52	25.33	27.53	30.00	**Complies**
11	2462 MHz	23.45	24.75	27.16	30.00	**Complies**

eth2:

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 3	Ant. 4			
149	**5745 MHz**	24.16	24.65	27.42	30.00	**Complies**
157	**5785 MHz**	24.18	24.53	27.37	30.00	**Complies**
165	**5825 MHz**	24.24	24.59	27.43	30.00	**Complies**

4.3. Average Output Power Measurement

4.3.1. Measuring Instruments and Setting

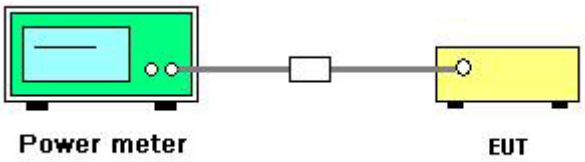
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	Average

4.3.2. Test Procedures

Spectrum Parameter	Setting
RF Output Power Method	☒ ANSI C63.10 clause 6.10.2.1 (a) power meter method
RF Output Power Method	☐ ANSI C63.10 clause 6.10.2.1 (b) channel integration method
RF Output Power Method	☐ ANSI C63.10 clause 6.10.3.1 Method 1 - spectral trace averaging
RF Output Power Method	☐ ANSI C63.10 clause 6.10.3.2 Method 2 - zero-span mode with trace averaging

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.

Note: Average output power is only for Maximum Permissible Exposure use.

4.3.6. Test Result of Average Output Power

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11n
Test Date	Aug. 15, 2012		

For 2.4GHz Band

eth1:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 1	Ant. 2	Total
1	2412 MHz	16.00	16.40	19.21
6	2437 MHz	21.20	22.21	24.74
11	2462 MHz	17.55	18.03	20.81

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 1	Ant. 2	Total
3	2422 MHz	14.51	15.26	17.91
6	2437 MHz	17.34	18.63	21.04
9	2452 MHz	16.62	17.55	20.12

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
1	2412 MHz	12.86	14.34	16.67
6	2437 MHz	16.51	18.10	20.39
11	2462 MHz	15.26	16.93	19.19

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
3	2422 MHz	9.40	11.00	13.28
6	2437 MHz	13.15	14.40	16.83
9	2452 MHz	12.56	13.63	16.14

For 5GHz Band

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
149	5745 MHz	20.05	20.42	23.25
157	5785 MHz	20.96	21.34	24.16
165	5825 MHz	20.70	21.27	24.00

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
151	5755 MHz	20.21	21.16	23.72
159	5795 MHz	20.80	21.53	24.19

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a/b/g
Test Date	Aug. 15, 2012		

eth1:

Configuration IEEE 802.11b

Channel	Frequency	Average Conducted Power (dBm)
		Ant. 1
1	2412 MHz	21.20
6	2437 MHz	21.39
11	2462 MHz	20.23

Configuration IEEE 802.11g

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 1	Ant. 2	Total
1	2412 MHz	17.44	18.06	20.77
6	2437 MHz	21.02	21.87	24.48
11	2462 MHz	17.21	17.54	20.39

eth2:

Configuration IEEE 802.11b

Channel	Frequency	Average Conducted Power (dBm)
		Ant. 3
1	2412 MHz	11.58
6	2437 MHz	10.14
11	2462 MHz	9.38

Configuration IEEE 802.11g

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
1	2412 MHz	12.61	14.05	16.40
6	2437 MHz	16.35	20.36	21.81
11	2462 MHz	15.33	16.55	18.99

Configuration IEEE 802.11a

Channel	Frequency	Average Conducted Power (dBm)		
		Ant. 3	Ant. 4	Total
149	5745 MHz	19.57	20.04	22.82
157	5785 MHz	19.75	19.96	22.87
165	5825 MHz	20.70	20.95	23.84

4.4. Power Spectral Density Measurement

4.4.1. 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.

4.4.2. Measuring Instruments and Setting

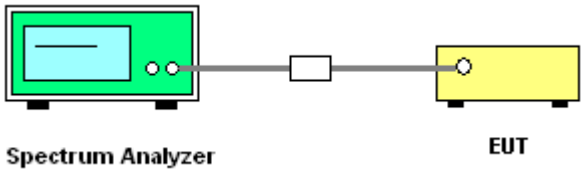
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the analyzer span to 5-30% greater than the EBW.
RB	100 kHz
VB	300 kHz
Detector	RMS
Trace	Single Sweep
Sweep Time	≥ 10 x (number of measurement points in sweep) x (transmission symbol period).

4.4.3. Test Procedures

1. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
2. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
3. Use the peak marker function to determine the maximum level in any 100 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent level in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where: BWCF = 10log (3 kHz/100 kHz = -15.2 dB).
5. The resulting PSD level must be ≤ 8 dBm.
6. When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11n

For 2.4GHz Band

eth1:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2		Ant. 1	Ant. 2		
1	2412 MHz	4.50	4.64	-15.23	-10.73	-10.59	4.99	**Complies**
6	2437 MHz	10.18	11.48	-15.23	-5.05	-3.75	4.99	**Complies**
11	2462 MHz	5.96	6.10	-15.23	-9.27	-9.13	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2		Ant. 1	Ant. 2		
3	2422 MHz	0.14	1.51	-15.23	-15.09	-13.72	4.99	**Complies**
6	2437 MHz	3.90	5.91	-15.23	-11.33	-9.32	4.99	**Complies**
9	2452 MHz	3.22	4.59	-15.23	-12.01	-10.64	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
1	2412 MHz	2.39	3.91	-15.23	-12.84	-11.32	4.99	**Complies**
6	2437 MHz	6.61	10.35	-15.23	-8.62	-4.88	4.99	**Complies**
11	2462 MHz	5.05	6.34	-15.23	-10.18	-8.89	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
3	2422 MHz	-3.75	-2.06	-15.23	-18.98	-17.29	4.99	**Complies**
6	2437 MHz	0.15	1.62	-15.23	-15.08	-13.61	4.99	**Complies**
9	2452 MHz	-0.67	0.64	-15.23	-15.90	-14.59	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

For 5GHz Band

eth2:

Configuration IEEE 802.11n MCS0 20MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
149	5745 MHz	8.91	9.09	-15.23	-6.32	-6.14	4.99	**Complies**
157	5785 MHz	9.88	9.93	-15.23	-5.35	-5.30	4.99	**Complies**
165	5825 MHz	9.93	9.78	-15.23	-5.30	-5.45	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11n MCS0 40MHz

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
151	5755 MHz	7.22	8.05	-15.23	-8.01	-7.18	4.99	**Complies**
159	5795 MHz	7.57	8.39	-15.23	-7.66	-6.84	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a/b/g

eth1:

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Single Port. Limit (dBm/3kHz)	Result
		Ant. 1		Ant. 1		
1	2412 MHz	12.75	-15.23	-2.48	8.00	**Complies**
6	2437 MHz	13.02	-15.23	-2.21	8.00	**Complies**
11	2462 MHz	11.94	-15.23	-3.29	8.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 1	Ant. 2		Ant. 1	Ant. 2		
1	2412 MHz	5.72	6.43	-15.23	-9.51	-8.80	4.99	**Complies**
6	2437 MHz	9.88	11.17	-15.23	-5.35	-4.06	4.99	**Complies**
11	2462 MHz	5.59	5.95	-15.23	-9.64	-9.28	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

eth2:

Configuration IEEE 802.11b

Channel	Frequency	Power Density (dBm/100kHz)	BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)	Single Port. Limit (dBm/3kHz)	Result
		Ant. 3		Ant. 3		
1	2412 MHz	3.00	-15.23	-12.23	8.00	**Complies**
6	2437 MHz	1.75	-15.23	-13.48	8.00	**Complies**
11	2462 MHz	0.82	-15.23	-14.41	8.00	**Complies**

Configuration IEEE 802.11g

Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
1	2412 MHz	2.32	3.42	-15.23	-12.91	-11.81	4.99	**Complies**
6	2437 MHz	6.31	7.53	-15.23	-8.92	-7.70	4.99	**Complies**
11	2462 MHz	5.00	6.05	-15.23	-10.23	-9.18	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

Configuration IEEE 802.11a

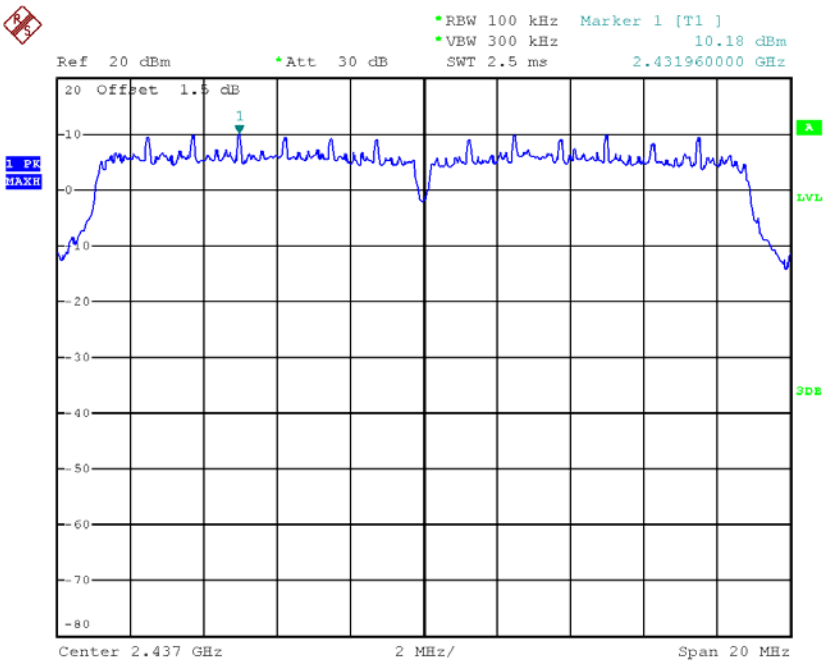
Channel	Frequency	Power Density (dBm/100kHz)		BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)		Single Port. Limit (dBm/3kHz)	Result
		Ant. 3	Ant. 4		Ant. 3	Ant. 4		
149	**5745 MHz**	8.79	8.72	-15.23	-6.44	-6.51	4.99	**Complies**
157	**5785 MHz**	8.76	8.61	-15.23	-6.47	-6.62	4.99	**Complies**
165	**5825 MHz**	10.41	9.57	-15.23	-4.82	-5.66	4.99	**Complies**

Note: PSD Limit =(8dBm/MHz –(10log(2))=4.99dBm/MHz

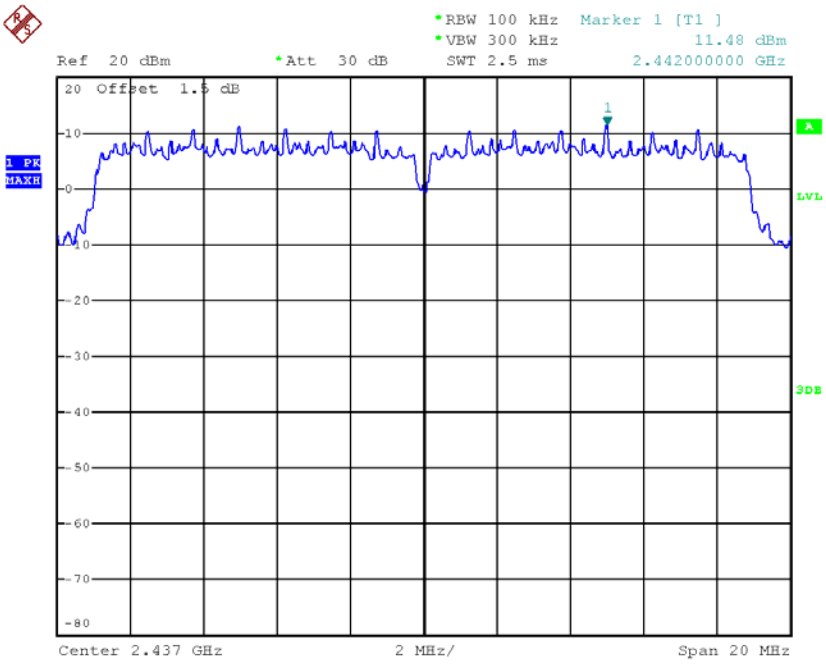
Note: All the test values were listed in the report.

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

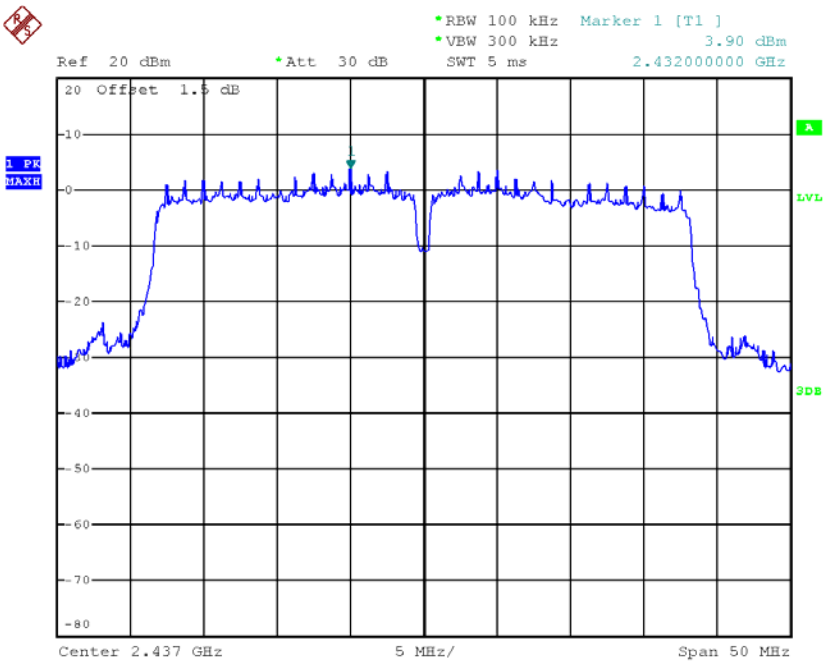
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth1: Ant. 1 (2TX)



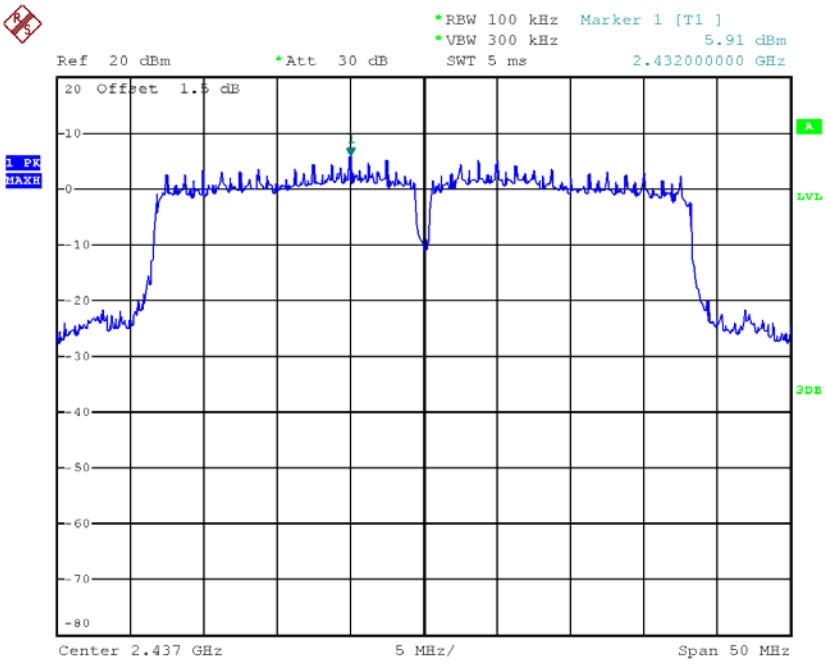
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth1: Ant. 2 (2TX)



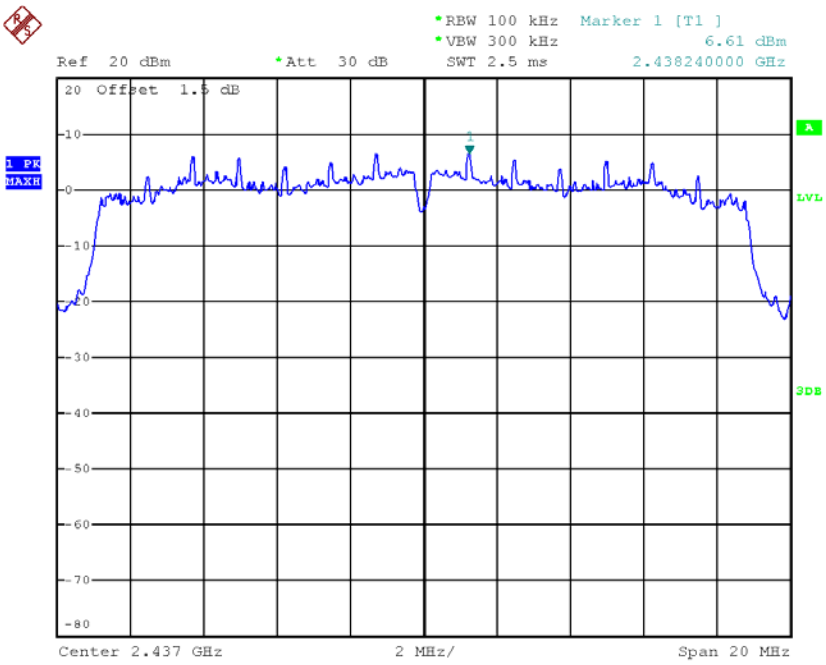
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth1: Ant. 1 (2TX)



Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth1: Ant. 2 (2TX)

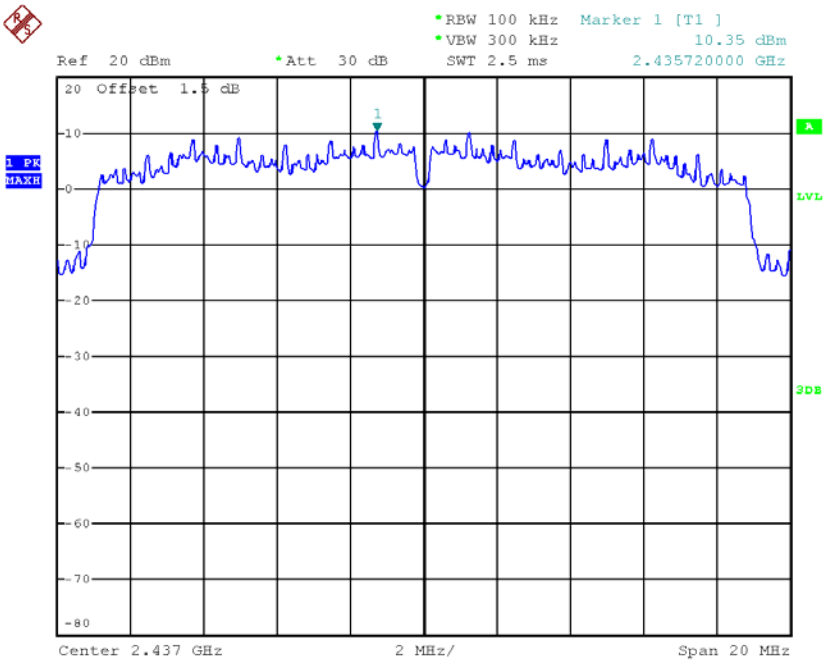


Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth2: Ant. 3 (2TX)



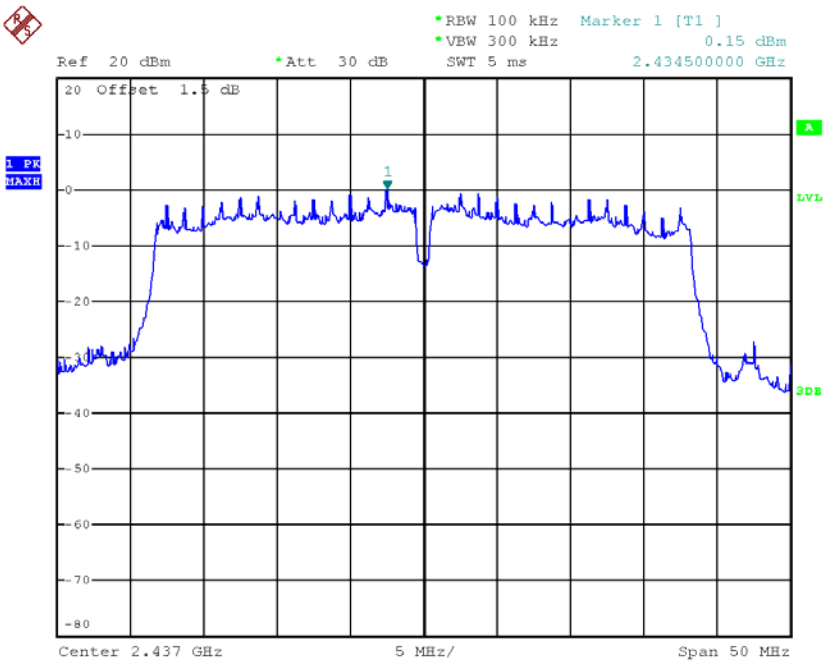
Date: 15.AUG.2012 21:31:32

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth2: Ant. 4 (2TX)



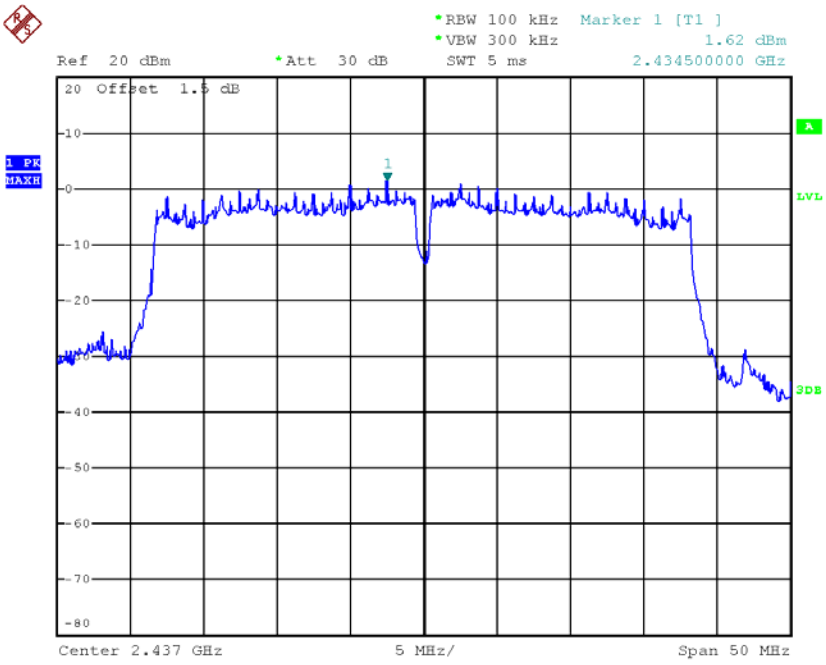
Date: 15.AUG.2012 21:33:12

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth2: Ant. 3 (2TX)



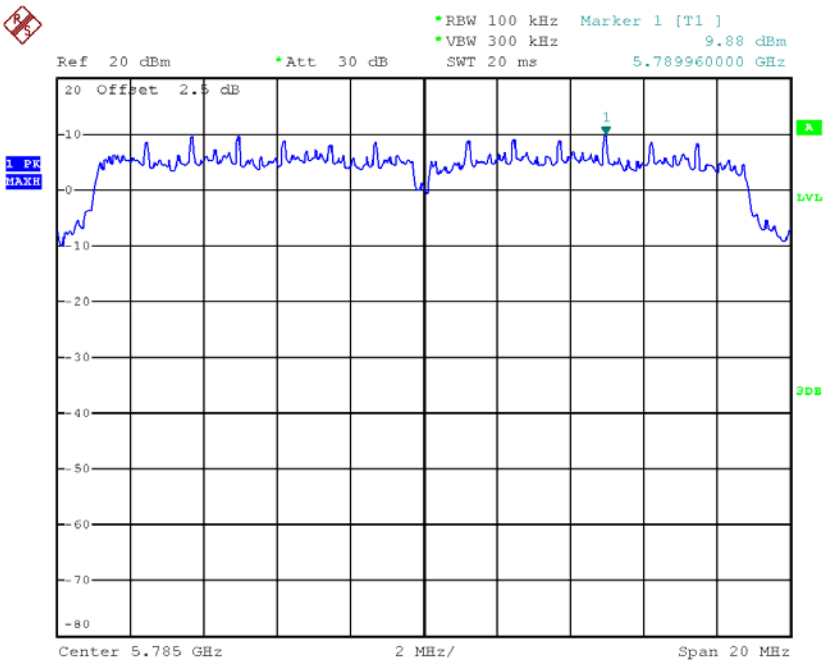
Date: 15.AUG.2012 21:44:46

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth2: Ant. 4 (2TX)



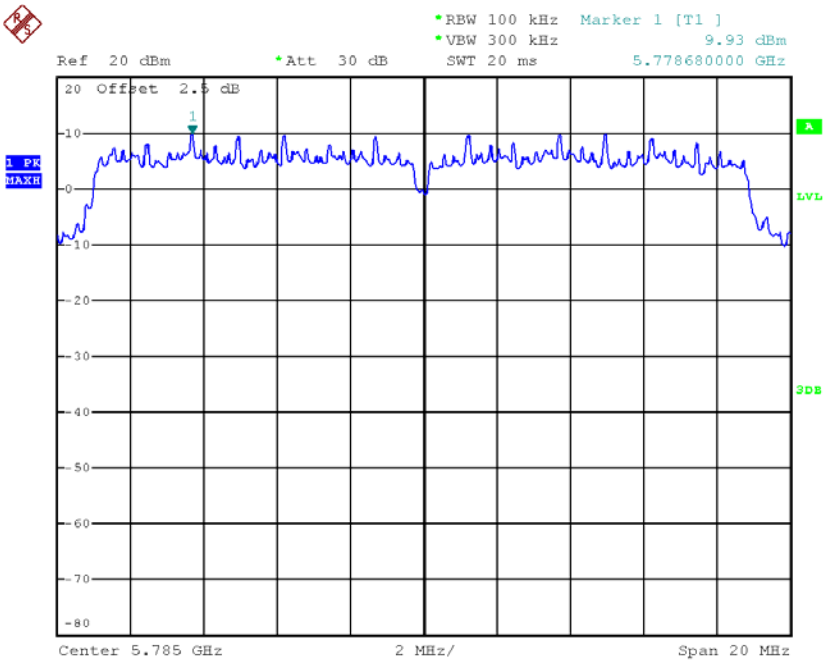
Date: 15.AUG.2012 21:43:05

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 5785 MHz / eth2: Ant. 3 (2TX)



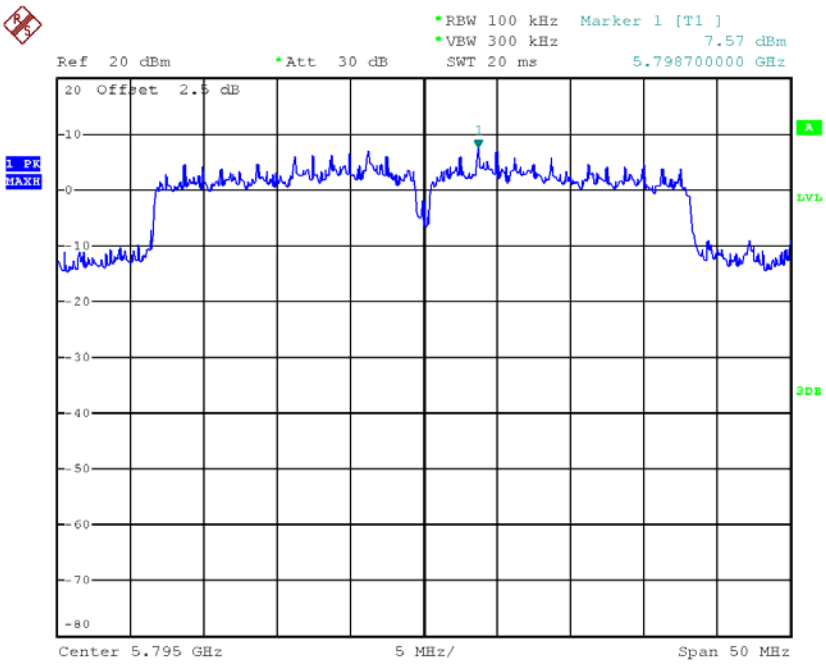
Date: 15.AUG.2012 23:12:45

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 5785 MHz / eth2: Ant. 4 (2TX)



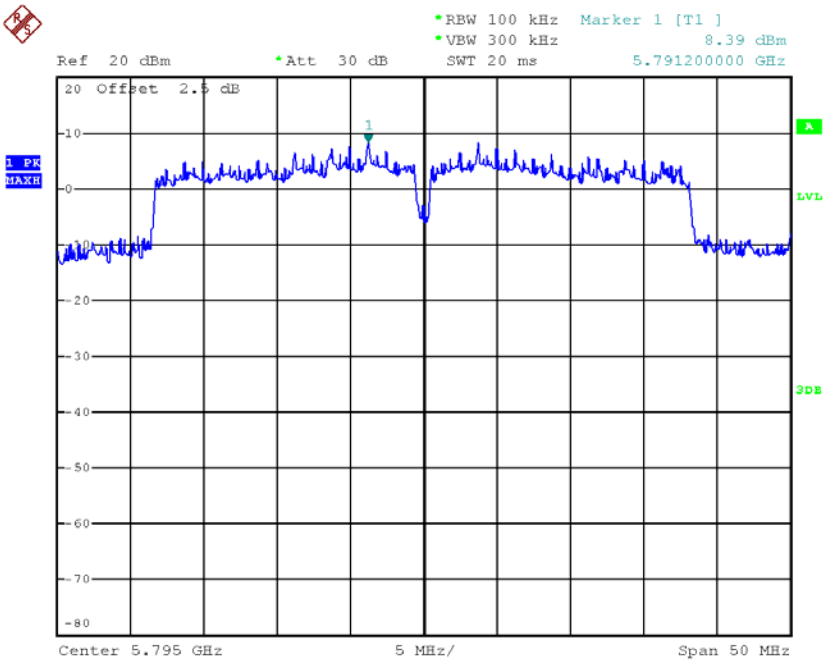
Date: 15.AUG.2012 23:13:54

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 5795 MHz / eth2: Ant. 3 (2TX)



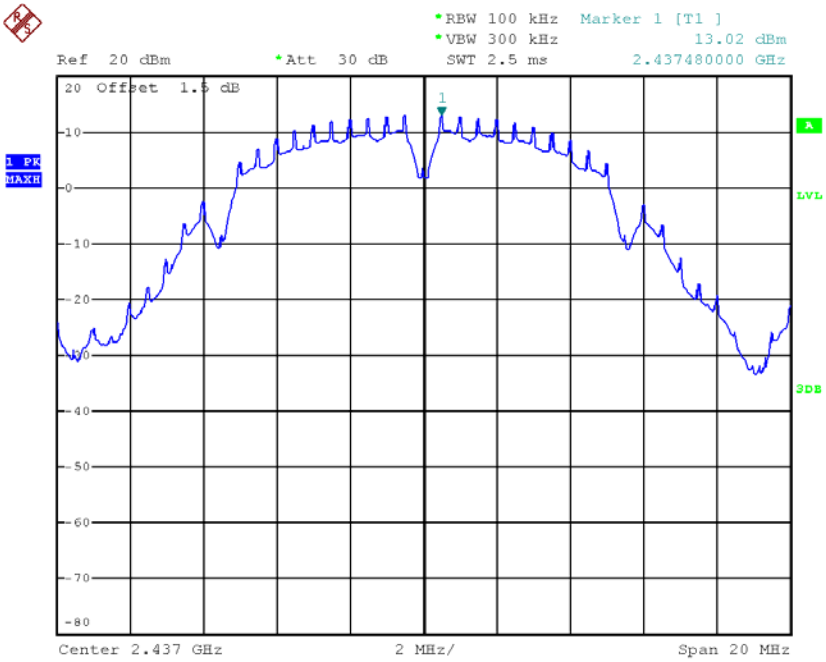
Date: 15.AUG.2012 23:23:33

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 5795 MHz / eth2: Ant. 4 (2TX)



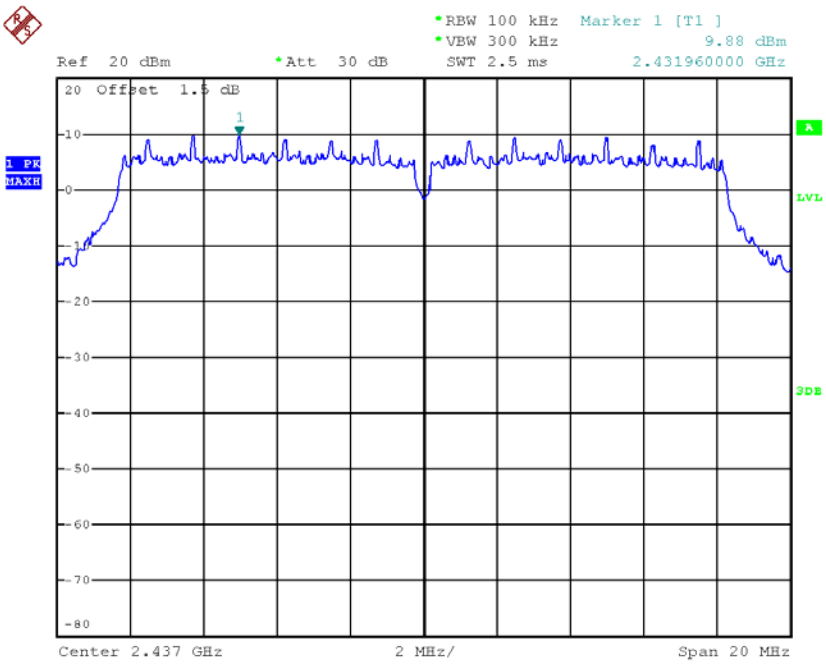
Date: 15.AUG.2012 23:21:39

Power Density Plot on Configuration IEEE 802.11b / 2437 MHz / eth1: Ant. 1 (1TX)



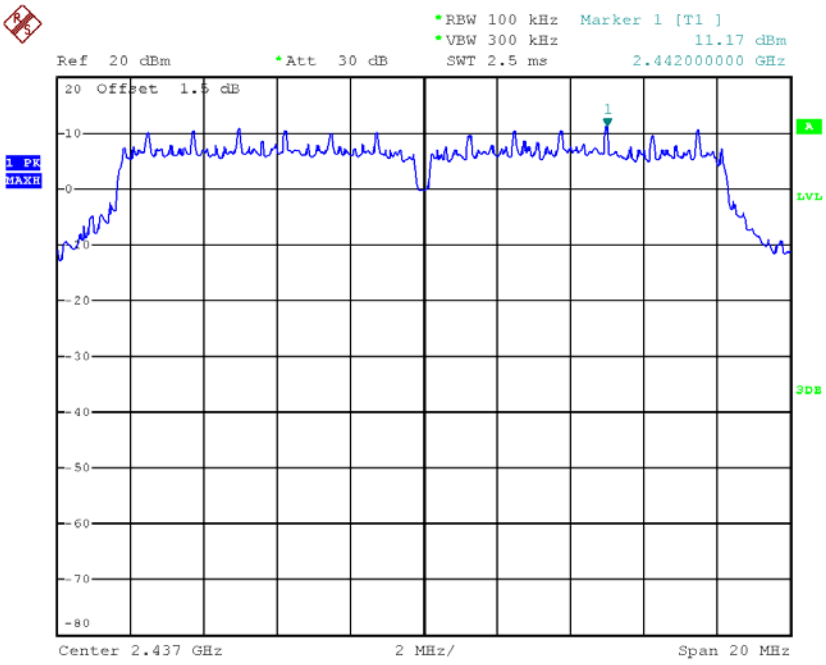
Date: 15.AUG.2012 22:12:23

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / eth1: Ant. 1 (2TX)



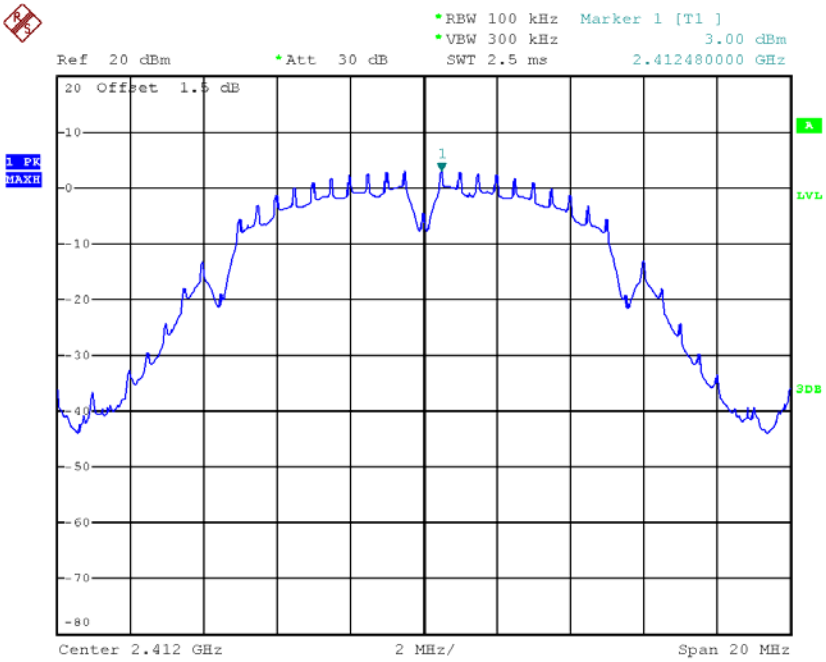
Date: 15.AUG.2012 22:25:07

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / eth1: Ant. 2 (2TX)

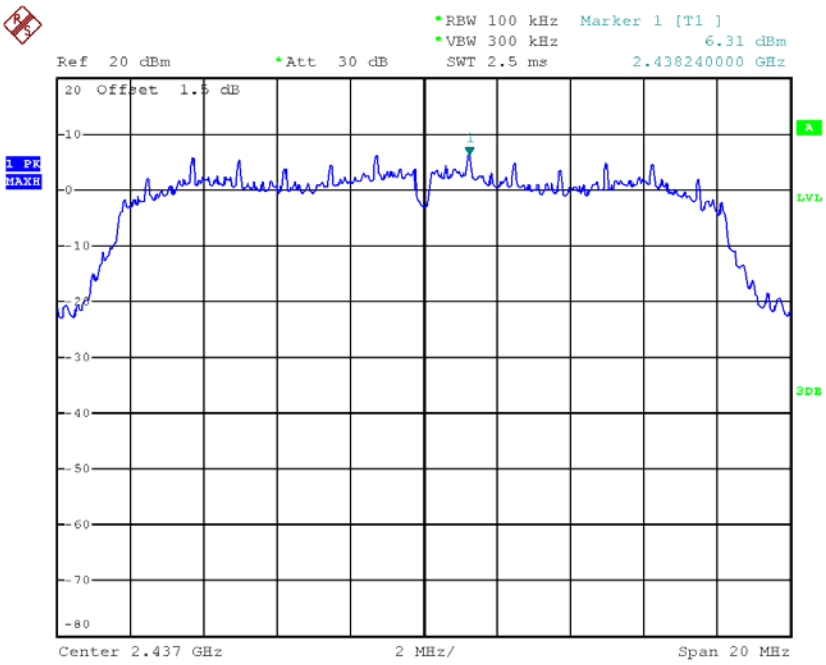


Date: 15.AUG.2012 22:24:10

Power Density Plot on Configuration IEEE 802.11b / 2412 MHz / eth2: Ant. 3 (1TX)

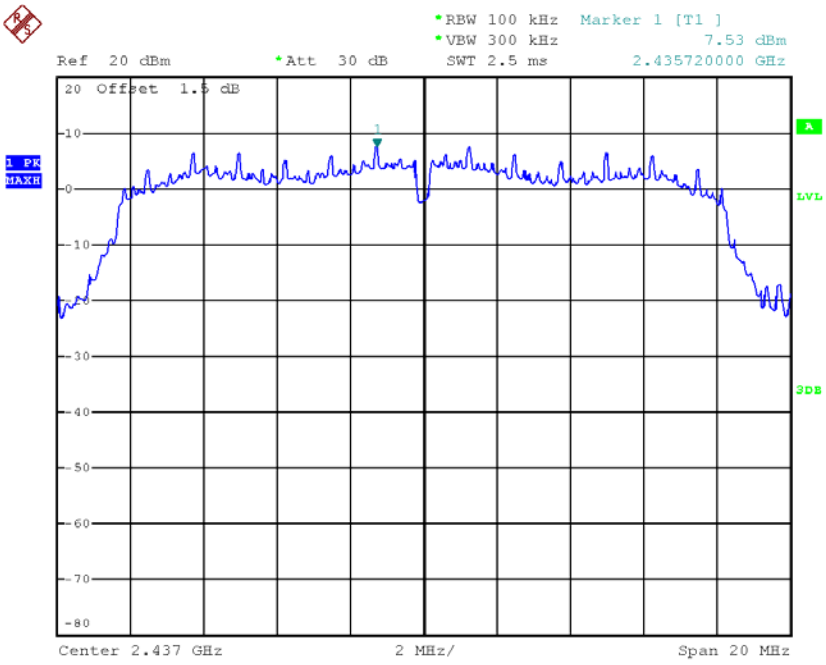


Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / eth2: Ant. 3 (2TX)



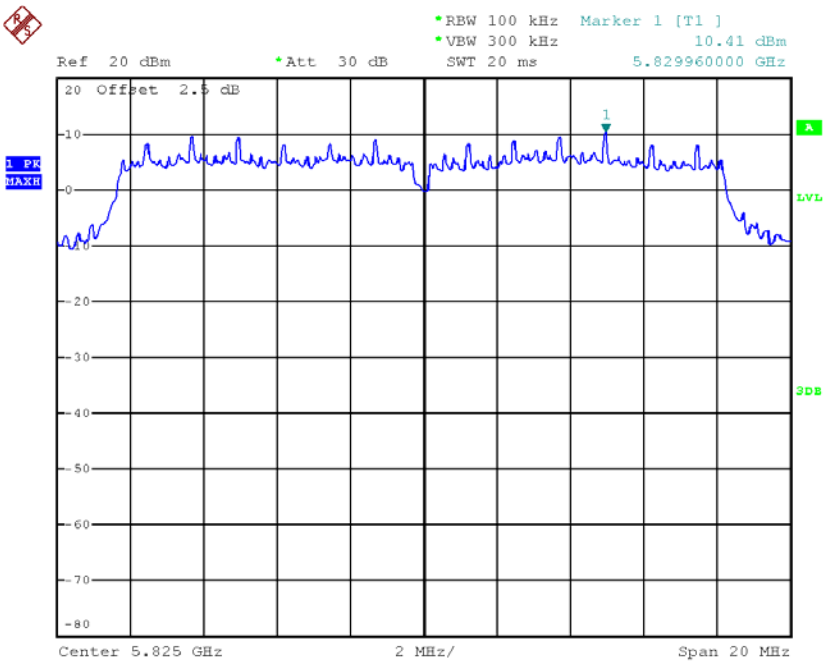
Date: 15.AUG.2012 21:17:02

Power Density Plot on Configuration IEEE 802.11g / 2437 MHz / eth2: Ant. 4 (2TX)

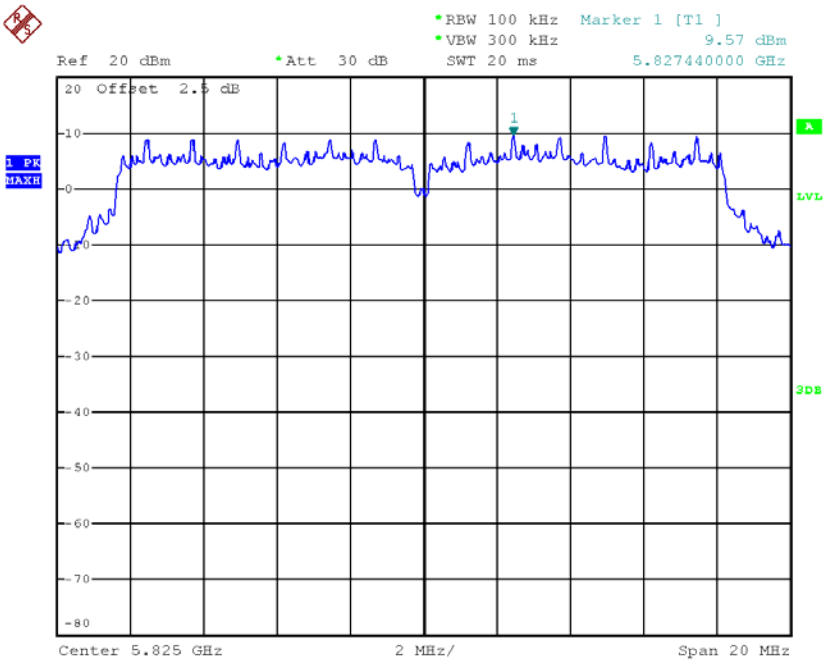


Date: 15.AUG.2012 21:11:31

Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / eth2: Ant. 3 (2TX)



Power Density Plot on Configuration IEEE 802.11a / 5825 MHz / eth2: Ant. 4 (2TX)



4.5. 6dB Spectrum Bandwidth Measurement

4.5.1. Limit

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

4.5.2. Measuring Instruments and Setting

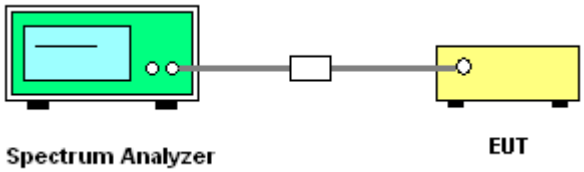
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	1-5 % of the emission bandwidth (EBW)
VB	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB 558074 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS)Operating Under §15.247 section 5.1.1 EBW Measurement Procedure
3. Multiple antenna systems was performed in accordance with KDB 662911 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of 6dB Spectrum Bandwidth

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11n

For 2.4GHz Band

eth1:

Configuration IEEE 802.11n MCS0 20MHz / Ant. 1 + Ant. 2 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.76	18.00	500.00	**Complies**
6	2437 MHz	17.76	19.04	500.00	**Complies**
11	2462 MHz	17.76	18.16	500.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Ant. 1 + Ant. 2 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	34.44	35.88	500.00	**Complies**
6	2437 MHz	35.88	36.36	500.00	**Complies**
9	2452 MHz	34.44	35.88	500.00	**Complies**

eth2:

Configuration IEEE 802.11n MCS0 20MHz / Ant. 3 + Ant. 4 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.92	16.96	500.00	**Complies**
6	2437 MHz	15.92	17.36	500.00	**Complies**
11	2462 MHz	15.84	17.04	500.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Ant. 3 + Ant. 4 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.60	37.08	500.00	**Complies**
6	2437 MHz	36.60	37.08	500.00	**Complies**
9	2452 MHz	36.60	36.96	500.00	**Complies**

For 5GHz Band

eth2:

Configuration IEEE 802.11n MCS0 20MHz / Ant. 3 + Ant. 4 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.80	24.32	500.00	**Complies**
157	5785 MHz	16.72	27.44	500.00	**Complies**
165	5825 MHz	16.80	26.32	500.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Ant. 3 + Ant. 4 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.00	40.32	500.00	**Complies**
159	5795 MHz	36.12	44.16	500.00	**Complies**

Temperature	25℃	Humidity	56%
Test Engineer	Robert Chang	Configurations	IEEE 802.11a/b/g

eth1:

Configuration IEEE 802.11b / Ant. 1 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.16	10.64	500.00	**Complies**
6	2437 MHz	8.24	10.64	500.00	**Complies**
11	2462 MHz	8.16	10.40	500.00	**Complies**

Configuration IEEE 802.11g / Ant. 1+2 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.72	17.28	500.00	**Complies**
6	2437 MHz	16.72	18.00	500.00	**Complies**
11	2462 MHz	16.72	17.28	500.00	**Complies**

eth2:

Configuration IEEE 802.11b / Ant. 3 (1TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	8.24	10.48	500.00	**Complies**
6	2437 MHz	8.24	10.40	500.00	**Complies**
11	2462 MHz	8.16	10.40	500.00	**Complies**

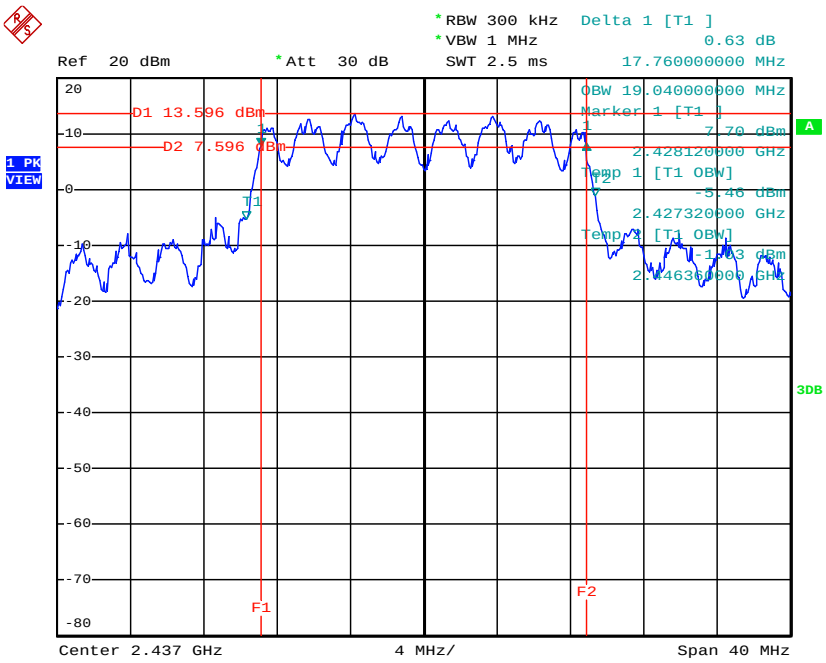
Configuration IEEE 802.11g / Ant. 3 + Ant. 4 (2TX)

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	12.72	15.84	500.00	**Complies**
6	2437 MHz	12.64	16.24	500.00	**Complies**
11	2462 MHz	12.72	16.16	500.00	**Complies**

Configuration IEEE 802.11a / Ant. 3 + Ant. 4 (2TX)

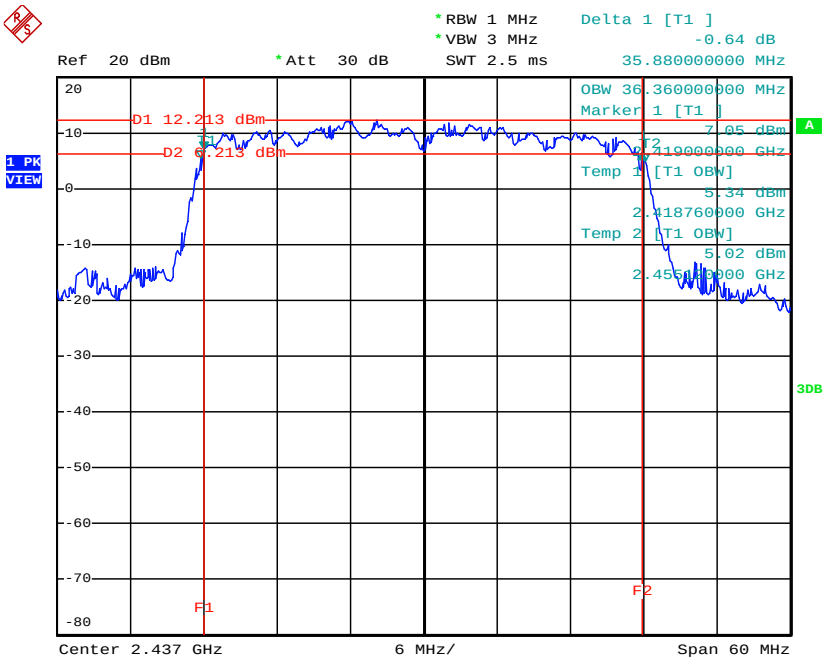
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	**5745 MHz**	15.76	20.72	500.00	**Complies**
157	**5785 MHz**	15.76	20.48	500.00	**Complies**
165	**5825 MHz**	15.76	25.76	500.00	**Complies**

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth1: Ant. 1+2 (2TX)



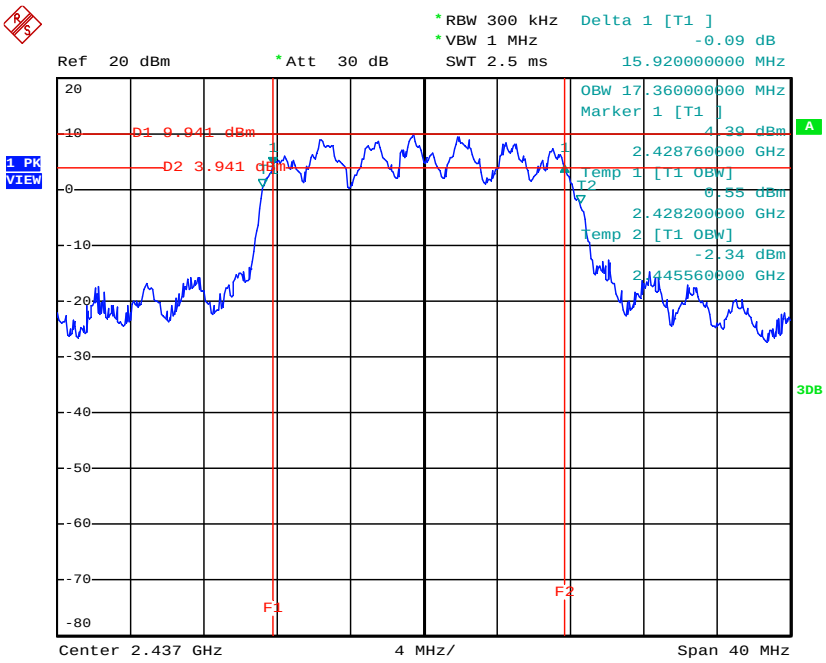
Date: 16.AUG.2012 01:05:57

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth1: Ant. 1+2 (2TX)



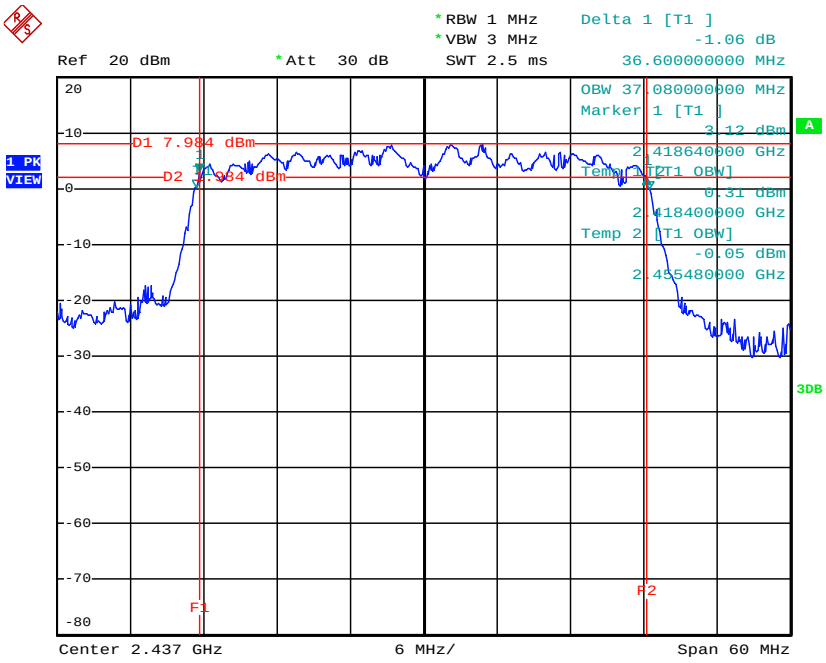
Date: 16.AUG.2012 01:08:20

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / eth2: Ant. 3+4 (2TX)



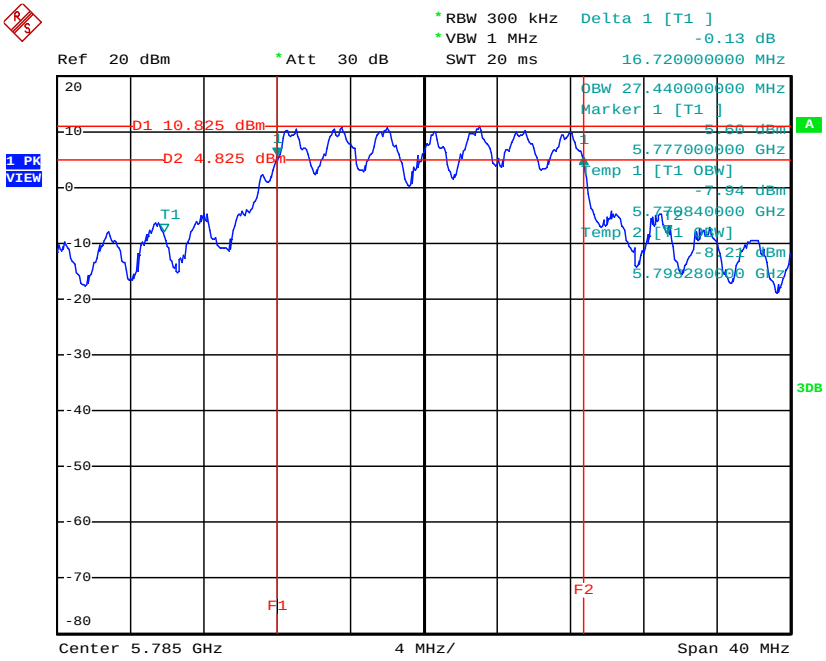
Date: 16.AUG.2012 00:40:03

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / eth2: Ant. 3+4 (2TX)



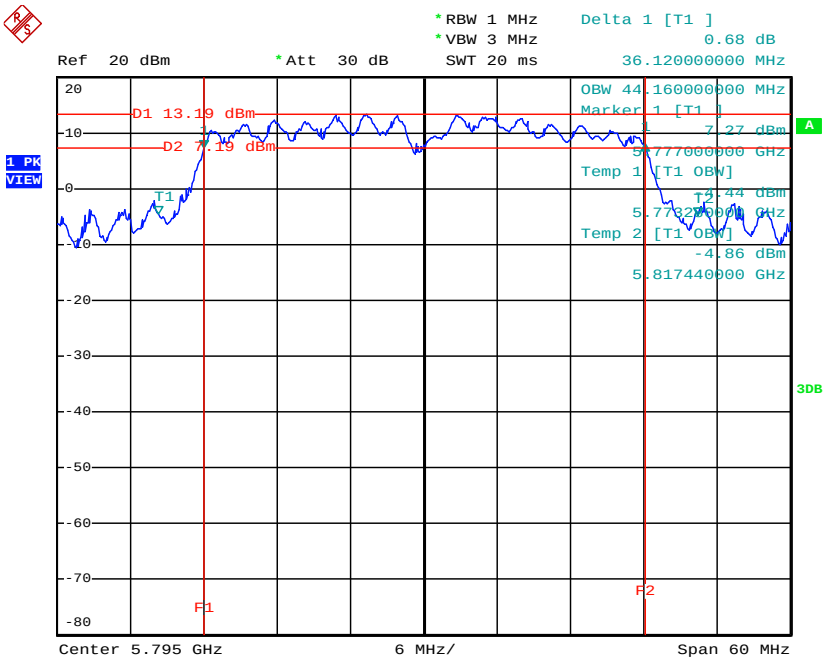
Date: 16.AUG.2012 00:46:01

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 5785MHz / eth2: Ant. 3+4 (2TX)



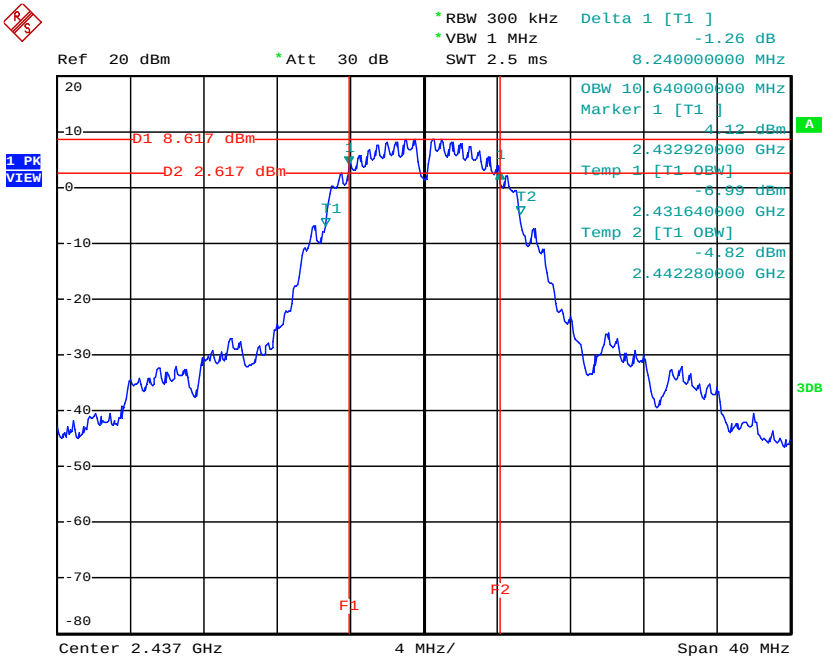
Date: 16.AUG.2012 00:54:20

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 5795MHz / eth2: Ant. 3+4 (2TX)



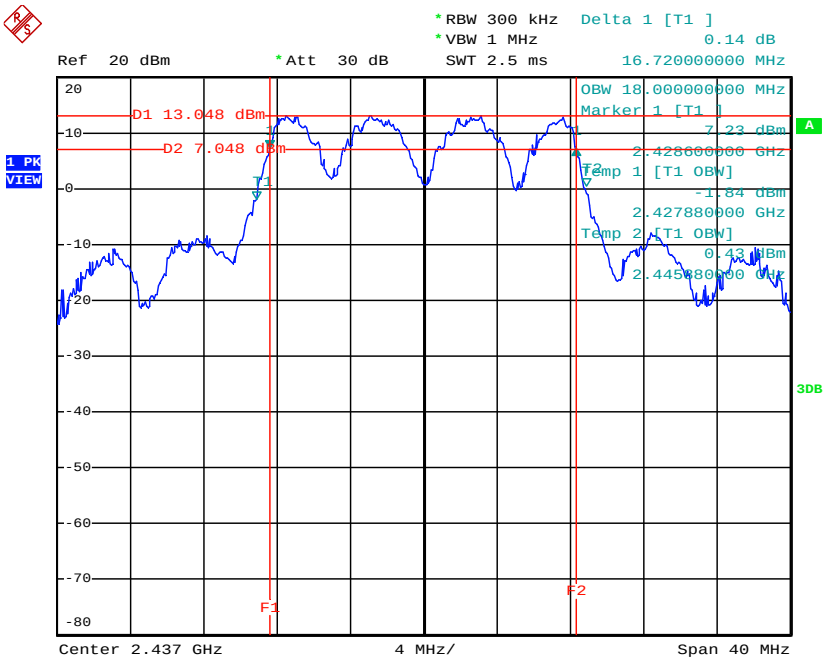
Date: 16.AUG.2012 00:52:01

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437 MHz / eth1: Ant. 1 (1TX)



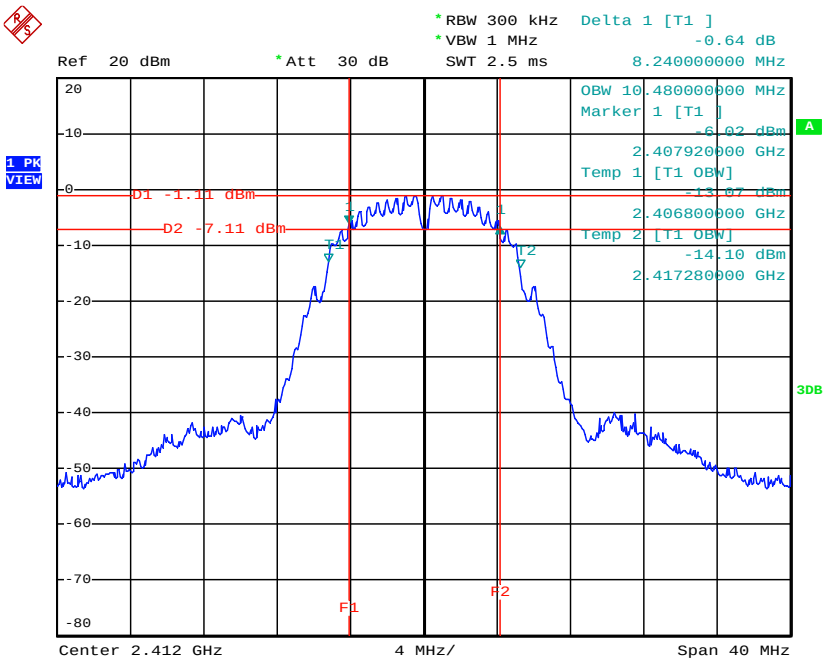
Date: 16.AUG.2012 01:00:40

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / eth1: Ant. 1+2 (2TX)



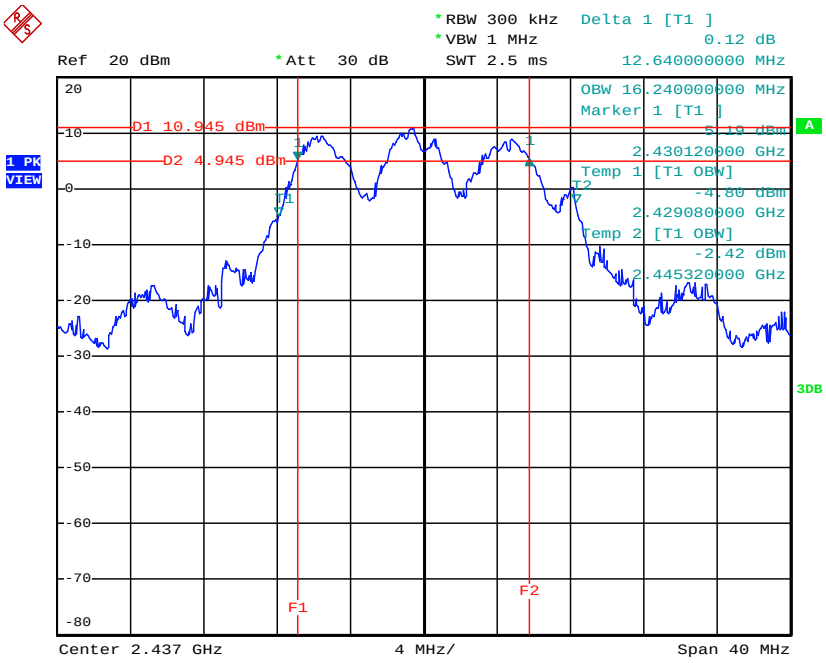
Date: 16.AUG.2012 01:03:35

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2412 MHz / eth2: Ant. 3 (1TX)



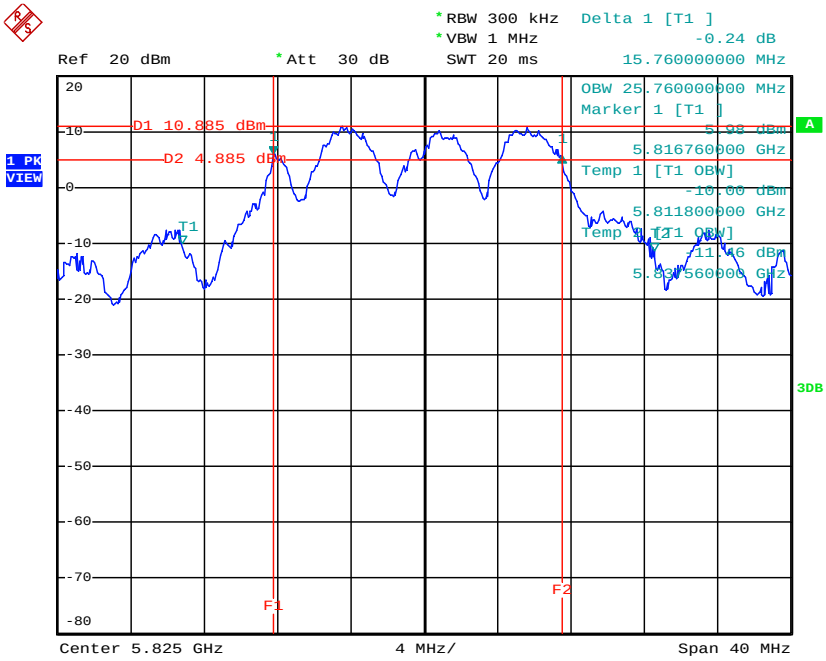
Date: 16.AUG.2012 00:30:24

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437 MHz / eth2: Ant. 3+4 (2TX)



Date: 16.AUG.2012 00:36:46

6 dB Bandwidth Plot on Configuration IEEE 802.11a / 5825MHz / eth2: Ant. 3+4 (2TX)



Date: 16.AUG.2012 14:10:47

4.6. Radiated Emissions Measurement

4.6.1. 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

4.6.2. 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	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 3MHz for peak

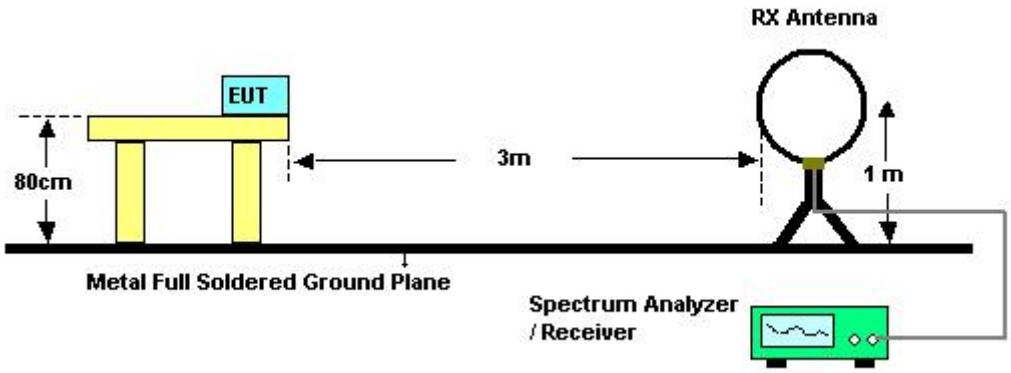
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.6.3. Test Procedures

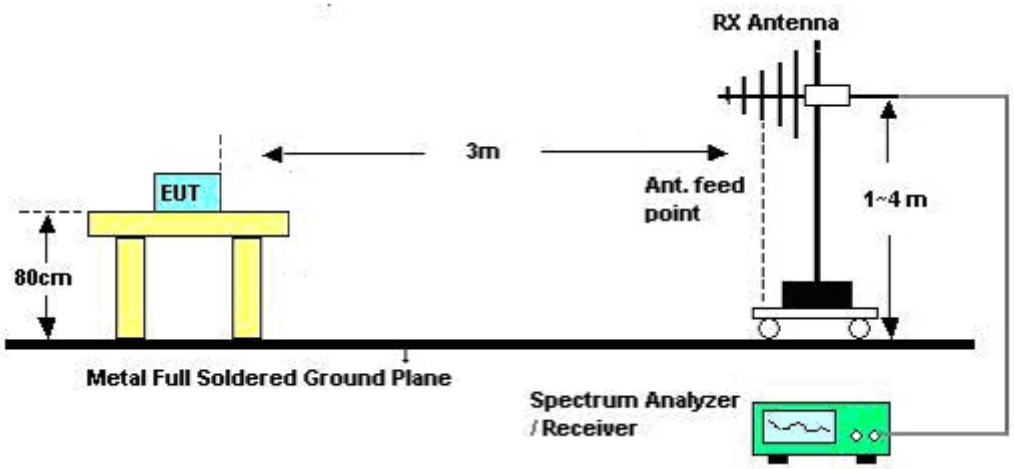
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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 3MHz 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.

4.6.4. Test Setup Layout

For radiated emissions below 1GHz



For radiated emissions above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	25℃	Humidity	57%
Test Engineer	Magic Lai	Configurations	Normal Link
Test Date	Aug. 16, 2012		

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.

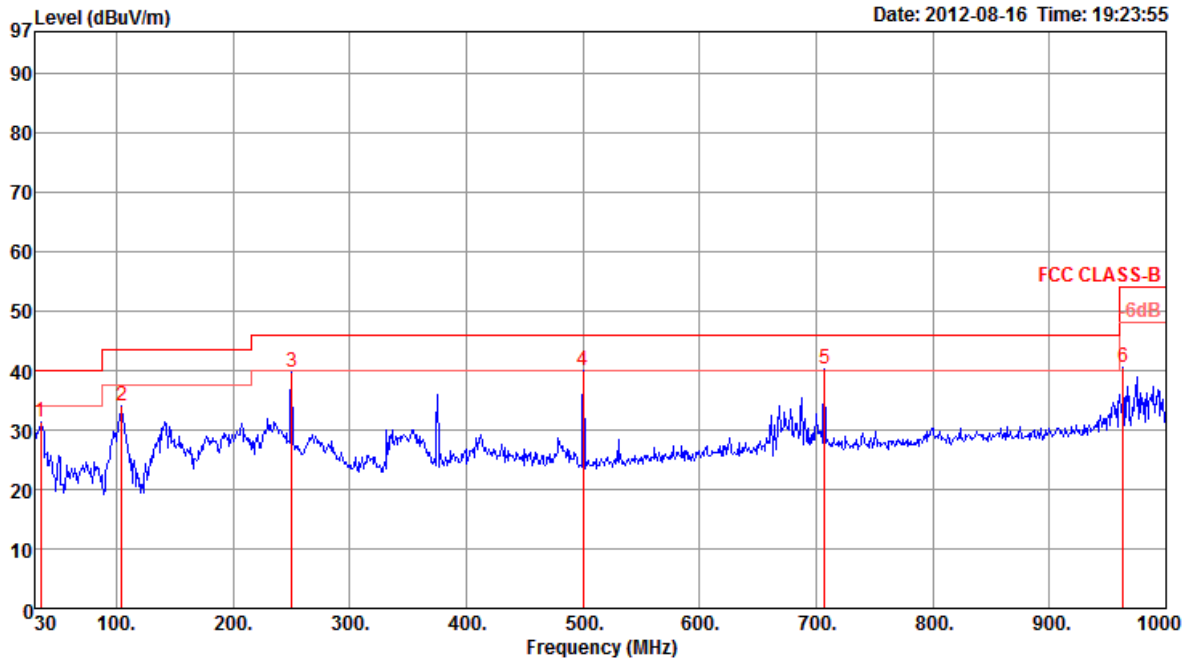
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

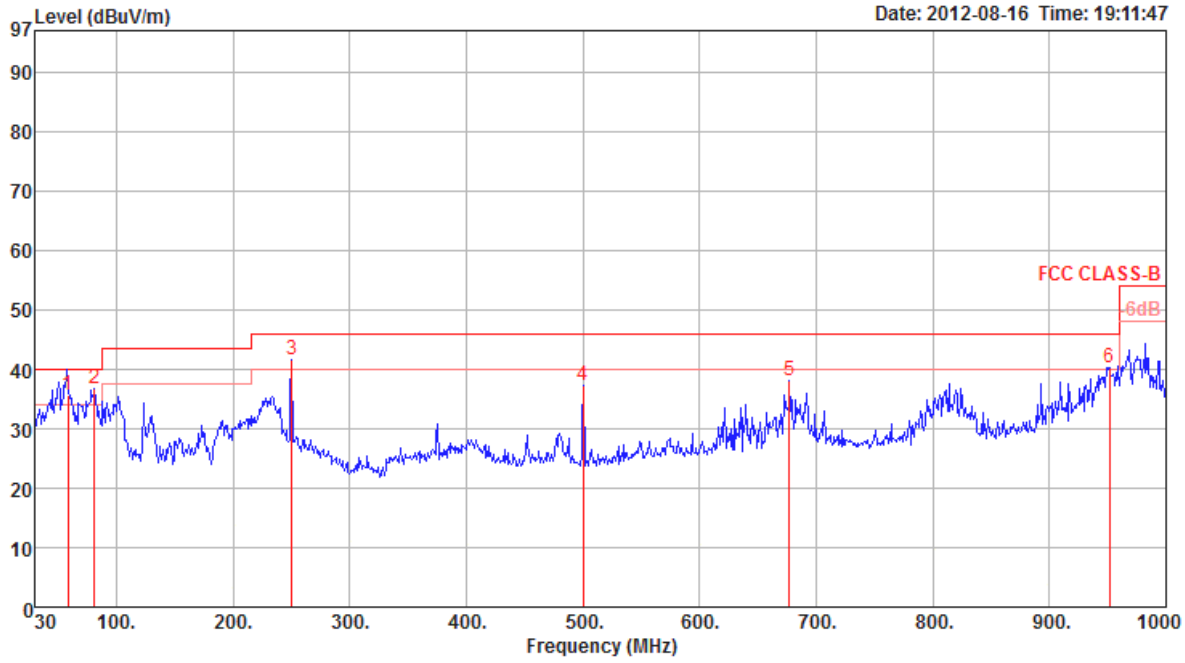
Temperature	25℃	Humidity	57%
Test Engineer	Magic Lai	Configurations	Normal Link
Test Mode	Mode 1.		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		
1	34.85	31.38	40.00	-8.62	41.56	0.92	28.00	16.90	Peak	HORIZONTAL
2	104.69	33.98	43.50	-9.52	48.22	1.53	27.77	12.00	Peak	HORIZONTAL
3	250.19	39.71	46.00	-6.29	51.38	2.38	26.95	12.90	Peak	HORIZONTAL
4	500.45	39.98	46.00	-6.02	46.73	3.38	27.93	17.80	Peak	HORIZONTAL
5 p	707.06	40.17	46.00	-5.83	43.06	4.17	27.09	20.03	Peak	HORIZONTAL
6	963.14	40.51	54.00	-13.49	40.11	4.85	26.43	21.98	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		
1 q	58.42	35.57	40.00	-4.43	55.11	1.15	27.95	7.26	QP	VERTICAL
2 p	81.41	36.81	40.00	-3.19	55.68	1.35	27.90	7.68	Peak	VERTICAL
3 !	250.19	41.66	46.00	-4.34	53.33	2.38	26.95	12.90	Peak	VERTICAL
4	500.45	37.15	46.00	-8.85	43.90	3.38	27.93	17.80	Peak	VERTICAL
5	676.99	38.01	46.00	-7.99	41.45	4.04	27.30	19.82	Peak	VERTICAL
6 !	951.50	40.38	46.00	-5.62	40.11	4.86	26.50	21.91	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.

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

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4822.89	49.50	74.00	-24.50	48.16	3.31	33.06	35.03	Peak	143	152	HORIZONTAL
2	4822.97	35.53	54.00	-18.47	34.19	3.31	33.06	35.03	Average	143	152	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.00	36.74	54.00	-17.26	35.40	3.31	33.06	35.03	Average	100	317	VERTICAL
2	4824.38	46.98	74.00	-27.02	45.64	3.31	33.06	35.03	Peak	100	317	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.08	42.57	54.00	-11.43	41.11	3.33	33.16	35.03	Average	141	142	HORIZONTAL
2	4873.10	55.90	74.00	-18.10	54.44	3.33	33.16	35.03	Peak	141	142	HORIZONTAL
3	7306.32	59.37	74.00	-14.63	54.79	4.06	35.92	35.40	Peak	100	0	HORIZONTAL
4	7308.66	42.41	54.00	-11.59	37.79	4.06	35.96	35.40	Average	100	0	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.87	56.16	74.00	-17.84	54.70	3.33	33.16	35.03	Peak	100	360	VERTICAL
2	4875.24	43.22	54.00	-10.78	41.76	3.33	33.16	35.03	Average	100	360	VERTICAL
3	7306.10	62.55	74.00	-11.45	57.97	4.06	35.92	35.40	Peak	101	326	VERTICAL
4	7308.50	44.51	54.00	-9.49	39.89	4.06	35.96	35.40	Average	101	326	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 20MHz Ch11 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.59	38.10	54.00	-15.90	36.50	3.35	33.26	35.01	Average	133	263	HORIZONTAL
2	4924.78	52.15	74.00	-21.85	50.55	3.35	33.26	35.01	Peak	133	263	HORIZONTAL
3	7385.94	33.51	54.00	-20.49	28.76	4.06	36.09	35.40	Average	100	183	HORIZONTAL
4	7389.88	46.32	74.00	-27.68	41.57	4.06	36.09	35.40	Peak	100	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.83	53.42	74.00	-20.58	51.82	3.35	33.26	35.01	Peak	100	205	VERTICAL
2	4925.31	38.91	54.00	-15.09	37.31	3.35	33.26	35.01	Average	100	205	VERTICAL
3	7383.79	34.45	54.00	-19.55	29.70	4.06	36.09	35.40	Average	100	343	VERTICAL
4	7386.35	52.69	74.00	-21.31	47.94	4.06	36.09	35.40	Peak	100	343	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4822.74	41.85	74.00	-32.15	40.51	3.31	33.06	35.03	Peak	100	179	HORIZONTAL
2	4825.24	28.69	54.00	-25.31	27.35	3.31	33.06	35.03	Average	100	179	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4824.69	42.93	74.00	-31.07	41.59	3.31	33.06	35.03	Peak	100	360	VERTICAL
2	4824.99	30.57	54.00	-23.43	29.23	3.31	33.06	35.03	Average	100	360	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.21	34.95	54.00	-19.05	33.49	3.33	33.16	35.03	Average	154	143	HORIZONTAL
2	4873.37	48.98	74.00	-25.02	47.52	3.33	33.16	35.03	Peak	154	143	HORIZONTAL
3	7303.69	32.91	54.00	-21.09	28.33	4.06	35.92	35.40	Average	100	114	HORIZONTAL
4	7313.53	45.93	74.00	-28.07	41.31	4.06	35.96	35.40	Peak	100	114	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4874.01	37.31	54.00	-16.69	35.85	3.33	33.16	35.03	Average	128	317	VERTICAL
2	4874.13	45.86	74.00	-28.14	44.40	3.33	33.16	35.03	Peak	128	317	VERTICAL
3	7303.53	33.84	54.00	-20.16	29.26	4.06	35.92	35.40	Average	100	287	VERTICAL
4	7319.97	45.19	74.00	-28.81	40.57	4.06	35.96	35.40	Peak	100	286	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4904.00	46.17	74.00	-27.83	44.66	3.34	33.19	35.02	Peak	130	266	HORIZONTAL
2	4904.01	36.92	54.00	-17.08	35.41	3.34	33.19	35.02	Average	130	266	HORIZONTAL
3	7355.97	32.83	54.00	-21.17	28.15	4.06	36.02	35.40	Average	100	227	HORIZONTAL
4	7356.39	46.74	74.00	-27.26	42.06	4.06	36.02	35.40	Peak	100	227	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.94	38.14	54.00	-15.86	36.63	3.34	33.19	35.02	Average	125	320	VERTICAL
2	4903.95	46.31	74.00	-27.69	44.80	3.34	33.19	35.02	Peak	125	320	VERTICAL
3	7346.22	33.67	54.00	-20.33	28.99	4.06	36.02	35.40	Average	100	324	VERTICAL
4	7353.63	47.07	74.00	-26.93	42.39	4.06	36.02	35.40	Peak	100	324	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4822.72	56.98	74.00	-17.02	55.64	3.31	33.06	35.03	Peak	117	240	HORIZONTAL
2	4823.92	41.89	54.00	-12.11	40.55	3.31	33.06	35.03	Average	117	240	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.60	56.42	74.00	-17.58	55.08	3.31	33.06	35.03	Peak	100	307	VERTICAL
2	4823.76	43.36	54.00	-10.64	42.02	3.31	33.06	35.03	Average	100	307	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.12	46.82	54.00	-7.18	45.36	3.33	33.16	35.03	Average	127	252	HORIZONTAL
2	4873.60	61.77	74.00	-12.23	60.31	3.33	33.16	35.03	Peak	127	252	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.96	64.87	74.00	-9.13	63.41	3.33	33.16	35.03	Peak	100	311	VERTICAL
2	4875.76	48.78	54.00	-5.22	47.32	3.33	33.16	35.03	Average	100	311	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz Ch11 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.33	43.74	54.00	-10.26	42.14	3.35	33.26	35.01	Average	100	145	HORIZONTAL
2	4923.84	57.68	74.00	-16.32	56.08	3.35	33.26	35.01	Peak	100	145	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.91	62.87	74.00	-11.13	61.27	3.35	33.26	35.01	Peak	100	301	VERTICAL
2	4923.04	47.51	54.00	-6.49	45.91	3.35	33.26	35.01	Average	100	301	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4842.11	46.28	74.00	-27.72	44.90	3.32	33.09	35.03	Peak	100	184	HORIZONTAL
2	4844.03	35.53	54.00	-18.47	34.15	3.32	33.09	35.03	Average	100	184	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4826.37	49.11	74.00	-24.89	47.77	3.31	33.06	35.03	Peak	100	313	VERTICAL
2	4831.95	35.36	54.00	-18.64	34.02	3.31	33.06	35.03	Average	100	313	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.26	53.42	74.00	-20.58	51.96	3.33	33.16	35.03	Peak	100	264	HORIZONTAL
2	4873.52	40.18	54.00	-13.82	38.72	3.33	33.16	35.03	Average	100	264	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.87	40.71	54.00	-13.29	39.25	3.33	33.16	35.03	Average	99	293	VERTICAL
2	4875.15	55.84	74.00	-18.16	54.38	3.33	33.16	35.03	Peak	99	293	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.49	53.01	74.00	-20.99	51.50	3.34	33.19	35.02	Peak	128	263	HORIZONTAL
2	4903.87	38.39	54.00	-15.61	36.88	3.34	33.19	35.02	Average	128	263	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4903.75	38.50	54.00	-15.50	36.99	3.34	33.19	35.02	Average	104	267	VERTICAL
2	4904.93	52.38	74.00	-21.62	50.83	3.34	33.23	35.02	Peak	104	267	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz CH 149 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11485.10	69.20	74.00	-4.80	60.59	5.11	38.78	35.28	Peak	132	242	HORIZONTAL
2	11490.13	53.56	54.00	-0.44	44.95	5.11	38.78	35.28	Average	132	242	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11490.29	58.22	74.00	-15.78	49.61	5.11	38.78	35.28	Peak	100	290	VERTICAL
2	11490.35	47.06	54.00	-6.94	38.45	5.11	38.78	35.28	Average	100	290	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz CH 157 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11568.33	53.64	54.00	-0.36	44.98	5.13	38.83	35.30	Average	123	268	HORIZONTAL
2	11570.99	68.69	74.00	-5.31	60.02	5.14	38.83	35.30	Peak	123	268	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11567.66	62.08	74.00	-11.92	53.42	5.13	38.83	35.30	Peak	100	354	VERTICAL
2	11570.03	49.26	54.00	-4.74	40.59	5.14	38.83	35.30	Average	100	354	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz CH 165 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11644.97	69.00	74.00	-5.00	60.28	5.16	38.86	35.30	Peak	129	234	HORIZONTAL
2	11650.03	53.47	54.00	-0.53	44.75	5.16	38.86	35.30	Average	129	234	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11645.51	48.75	54.00	-5.25	40.03	5.16	38.86	35.30	Average	100	2	VERTICAL
2	11647.76	61.90	74.00	-12.10	53.18	5.16	38.86	35.30	Peak	100	2	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz CH 151 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11510.06	53.35	54.00	-0.65	44.72	5.12	38.79	35.28	Average	128	232	HORIZONTAL
2	11510.32	67.35	74.00	-6.65	58.72	5.12	38.79	35.28	Peak	128	232	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11505.64	46.58	54.00	-7.42	37.95	5.12	38.79	35.28	Average	100	277	VERTICAL
2	11508.27	59.05	74.00	-14.95	50.42	5.12	38.79	35.28	Peak	100	277	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz CH 159 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11590.03	53.36	54.00	-0.64	44.69	5.14	38.83	35.30	Average	133	231	HORIZONTAL
2	11590.16	67.16	74.00	-6.84	58.49	5.14	38.83	35.30	Peak	133	231	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11590.64	60.12	74.00	-13.88	51.45	5.14	38.83	35.30	Peak	100	0	VERTICAL
2	11590.74	47.96	54.00	-6.04	39.29	5.14	38.83	35.30	Average	100	0	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11b CH 1 / eth1: Ant. 1 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.91	51.10	74.00	-22.90	49.76	3.31	33.06	35.03	Peak	153	47	HORIZONTAL
2	4823.93	48.25	54.00	-5.75	46.91	3.31	33.06	35.03	Average	153	47	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.88	47.97	74.00	-26.03	46.63	3.31	33.06	35.03	Peak	115	360	VERTICAL
2	4823.96	44.42	54.00	-9.58	43.08	3.31	33.06	35.03	Average	115	360	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11b CH 6 / eth1: Ant. 1 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.94	52.11	54.00	-1.89	50.65	3.33	33.16	35.03	Average	150	143	HORIZONTAL
2	4873.97	54.41	74.00	-19.59	52.95	3.33	33.16	35.03	Peak	150	143	HORIZONTAL
3	7310.14	50.65	74.00	-23.35	46.03	4.06	35.96	35.40	Peak	100	321	HORIZONTAL
4	7310.15	44.83	54.00	-9.17	40.21	4.06	35.96	35.40	Average	100	321	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.90	54.90	74.00	-19.10	53.44	3.33	33.16	35.03	Peak	100	3	VERTICAL
2	4873.98	53.28	54.00	-0.72	51.82	3.33	33.16	35.03	Average	100	3	VERTICAL
3	7310.20	46.80	54.00	-7.20	42.18	4.06	35.96	35.40	Average	117	62	VERTICAL
4	7312.49	52.99	74.00	-21.01	48.37	4.06	35.96	35.40	Peak	117	62	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11b CH 11 / eth1: Ant. 1 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.92	52.65	54.00	-1.35	51.05	3.35	33.26	35.01	Average	154	139	HORIZONTAL
2	4923.98	54.79	74.00	-19.21	53.19	3.35	33.26	35.01	Peak	154	139	HORIZONTAL
3	7385.18	39.02	54.00	-14.98	34.27	4.06	36.09	35.40	Average	100	211	HORIZONTAL
4	7386.88	47.95	74.00	-26.05	43.20	4.06	36.09	35.40	Peak	100	211	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.86	55.78	74.00	-18.22	54.18	3.35	33.26	35.01	Peak	100	207	VERTICAL
2	4923.93	53.58	54.00	-0.42	51.98	3.35	33.26	35.01	Average	100	207	VERTICAL
3	7385.68	48.53	74.00	-25.47	43.78	4.06	36.09	35.40	Peak	100	314	VERTICAL
4	7386.59	40.14	54.00	-13.86	35.39	4.06	36.09	35.40	Average	100	314	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11g CH 1 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4821.93	36.70	54.00	-17.30	35.36	3.31	33.06	35.03	Average	139	149	HORIZONTAL
2	4822.06	48.94	74.00	-25.06	47.60	3.31	33.06	35.03	Peak	139	149	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4820.49	50.23	74.00	-23.77	48.89	3.31	33.06	35.03	Peak	100	360	VERTICAL
2	4820.96	37.60	54.00	-16.40	36.26	3.31	33.06	35.03	Average	100	360	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11g CH 6 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.49	56.62	74.00	-17.38	55.16	3.33	33.16	35.03	Peak	144	147	HORIZONTAL
2	4872.62	43.95	54.00	-10.05	42.49	3.33	33.16	35.03	Average	144	147	HORIZONTAL
3	7306.48	41.69	54.00	-12.31	37.11	4.06	35.92	35.40	Average	100	0	HORIZONTAL
4	7307.28	58.28	74.00	-15.72	53.70	4.06	35.92	35.40	Peak	100	0	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4871.98	43.37	54.00	-10.63	41.91	3.33	33.16	35.03	Average	100	6	VERTICAL
2	4872.41	56.43	74.00	-17.57	54.97	3.33	33.16	35.03	Peak	100	6	VERTICAL
3	7310.68	42.92	54.00	-11.08	38.30	4.06	35.96	35.40	Average	104	340	VERTICAL
4	7314.08	60.48	74.00	-13.52	55.86	4.06	35.96	35.40	Peak	104	340	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11g CH 11 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4921.98	37.23	54.00	-16.77	35.63	3.35	33.26	35.01	Average	154	136	HORIZONTAL
2	4925.20	49.78	74.00	-24.22	48.18	3.35	33.26	35.01	Peak	154	136	HORIZONTAL
3	7382.70	33.59	54.00	-20.41	28.84	4.06	36.09	35.40	Average	100	219	HORIZONTAL
4	7387.19	46.14	74.00	-27.86	41.39	4.06	36.09	35.40	Peak	100	219	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.03	38.97	54.00	-15.03	37.37	3.35	33.26	35.01	Average	100	11	VERTICAL
2	4922.32	51.60	74.00	-22.40	50.00	3.35	33.26	35.01	Peak	100	11	VERTICAL
3	7387.03	46.25	74.00	-27.75	41.50	4.06	36.09	35.40	Peak	100	52	VERTICAL
4	7387.83	34.03	54.00	-19.97	29.28	4.06	36.09	35.40	Average	100	52	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 1 / eth2: Ant. 3 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.93	44.47	54.00	-9.53	43.13	3.31	33.06	35.03	Average	100	59	HORIZONTAL
2	4824.01	48.93	74.00	-25.07	47.59	3.31	33.06	35.03	Peak	100	59	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.93	52.60	54.00	-1.40	51.26	3.31	33.06	35.03	Average	100	45	VERTICAL
2	4824.06	56.34	74.00	-17.66	55.00	3.31	33.06	35.03	Peak	100	45	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 6 / eth2: Ant. 3 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.91	41.14	54.00	-12.86	39.68	3.33	33.16	35.03	Average	100	82	HORIZONTAL
2	4873.97	48.51	74.00	-25.49	47.05	3.33	33.16	35.03	Peak	100	82	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4873.96	53.53	54.00	-0.47	52.07	3.33	33.16	35.03	Average	100	48	VERTICAL
2	4874.06	60.06	74.00	-13.94	58.60	3.33	33.16	35.03	Peak	100	48	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 11 / eth2: Ant. 3 (1TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.89	40.21	54.00	-13.79	38.61	3.35	33.26	35.01	Average	117	351	HORIZONTAL
2	4923.92	49.88	74.00	-24.12	48.28	3.35	33.26	35.01	Peak	117	351	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4923.96	52.50	54.00	-1.50	50.90	3.35	33.26	35.01	Average	100	46	VERTICAL
2	4923.99	61.85	74.00	-12.15	60.25	3.35	33.26	35.01	Peak	100	46	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 1 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.94	41.29	54.00	-12.71	39.95	3.31	33.06	35.03	Average	100	246	HORIZONTAL
2	4824.13	53.70	74.00	-20.30	52.36	3.31	33.06	35.03	Peak	100	246	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4823.68	44.33	54.00	-9.67	42.99	3.31	33.06	35.03	Average	118	313	VERTICAL
2	4824.19	56.84	74.00	-17.16	55.50	3.31	33.06	35.03	Peak	118	313	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 6 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.17	61.17	74.00	-12.83	59.71	3.33	33.16	35.03	Peak	100	259	HORIZONTAL
2	4872.27	47.36	54.00	-6.64	45.90	3.33	33.16	35.03	Average	100	259	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4872.49	47.79	54.00	-6.21	46.33	3.33	33.16	35.03	Average	100	299	VERTICAL
2	4873.65	61.89	74.00	-12.11	60.43	3.33	33.16	35.03	Peak	100	299	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 11 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4922.16	46.16	54.00	-7.84	44.56	3.35	33.26	35.01	Average	127	250	HORIZONTAL
2	4922.16	58.80	74.00	-15.20	57.20	3.35	33.26	35.01	Peak	127	250	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	4921.92	62.08	74.00	-11.92	60.48	3.35	33.26	35.01	Peak	100	320	VERTICAL
2	4922.48	48.37	54.00	-5.63	46.77	3.35	33.26	35.01	Average	100	320	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 149 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11491.41	67.77	74.00	-6.23	59.16	5.11	38.78	35.28	Peak	132	272	HORIZONTAL
2	11491.47	53.08	54.00	-0.92	44.47	5.11	38.78	35.28	Average	132	272	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11481.70	62.89	74.00	-11.11	54.29	5.11	38.77	35.28	Peak	158	296	VERTICAL
2	11491.67	48.01	54.00	-5.99	39.40	5.11	38.78	35.28	Average	158	296	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 157 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11571.31	67.65	74.00	-6.35	58.98	5.14	38.83	35.30	Peak	141	269	HORIZONTAL
2	11571.44	53.84	54.00	-0.16	45.17	5.14	38.83	35.30	Average	141	269	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11565.83	61.26	74.00	-12.74	52.61	5.13	38.82	35.30	Peak	100	1	VERTICAL
2	11570.51	48.64	54.00	-5.36	39.97	5.14	38.83	35.30	Average	100	1	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 165 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 08, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11650.06	53.77	54.00	-0.23	45.05	5.16	38.86	35.30	Average	126	238	HORIZONTAL
2	11650.45	67.45	74.00	-6.55	58.73	5.16	38.86	35.30	Peak	126	238	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11646.09	61.62	74.00	-12.38	52.90	5.16	38.86	35.30	Peak	100	1	VERTICAL
2	11651.54	48.67	54.00	-5.33	39.95	5.16	38.86	35.30	Average	100	1	VERTICAL

4.7. Band Edge Emissions Measurement

4.7.1. 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

4.7.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100 KHz / 300 KHz for Peak

4.7.3. Test Procedures

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around bandedges.

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / eth1: Ant. 1 + Ant. 2 (2TX)
Test Date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	53.69	54.00	-0.31	23.30	2.22	28.17	0.00	Average	100	152	HORIZONTAL
2	2390.00	68.96	74.00	-5.04	38.57	2.22	28.17	0.00	Peak	100	152	HORIZONTAL
3	2409.92				67.88	2.22	28.21	0.00	Average	100	152	HORIZONTAL
4	2410.24				78.75	2.22	28.21	0.00	Peak	100	152	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.36	67.26	74.00	-6.74	36.88	2.21	28.17	0.00	Peak	100	151	HORIZONTAL
2	2390.00	49.62	54.00	-4.38	19.23	2.22	28.17	0.00	Average	100	151	HORIZONTAL
3	2432.51				85.31	2.23	28.25	0.00	Peak	100	151	HORIZONTAL
4	2439.89				73.02	2.23	28.29	0.00	Average	100	151	HORIZONTAL
5	2484.78	48.69	54.00	-5.31	18.05	2.26	28.38	0.00	Average	100	151	HORIZONTAL
6	2487.35	66.16	74.00	-7.84	35.48	2.26	28.42	0.00	Peak	100	151	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2457.67				80.17	2.24	28.33	0.00	Peak	123	157	HORIZONTAL
2	2459.92				68.83	2.24	28.33	0.00	Average	123	157	HORIZONTAL
3	2484.94	52.95	54.00	-1.05	22.31	2.26	28.38	0.00	Average	123	157	HORIZONTAL
4	2485.42	73.96	74.00	-0.04	43.28	2.26	28.42	0.00	Peak	123	157	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / eth1: Ant. 1 + Ant. 2 (2TX)
Test date	Aug. 01, 2012		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.68	66.87	74.00	-7.13	36.49	2.21	28.17	0.00	Peak	100	153	HORIZONTAL
2	2390.00	53.61	54.00	-0.39	23.22	2.22	28.17	0.00	Average	100	153	HORIZONTAL
3	2427.45				62.77	2.23	28.25	0.00	Average	100	153	HORIZONTAL
4	2427.45				74.40	2.23	28.25	0.00	Peak	100	153	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	53.55	54.00	-0.45	23.16	2.22	28.17	0.00	Average	100	153	HORIZONTAL
2	2390.00	68.10	74.00	-5.90	37.71	2.22	28.17	0.00	Peak	100	153	HORIZONTAL
3	2432.51				66.69	2.23	28.25	0.00	Average	100	153	HORIZONTAL
4	2442.77				79.48	2.24	28.29	0.00	Peak	100	153	HORIZONTAL
5	2485.10	51.51	54.00	-2.49	20.83	2.26	28.42	0.00	Average	100	153	HORIZONTAL
6	2485.10	66.84	74.00	-7.16	36.16	2.26	28.42	0.00	Peak	100	153	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2447.19				77.68	2.24	28.29	0.00	Peak	100	154	HORIZONTAL
2	2447.51				65.89	2.24	28.29	0.00	Average	100	154	HORIZONTAL
3	2485.10	53.17	54.00	-0.83	22.49	2.26	28.42	0.00	Average	100	154	HORIZONTAL
4	2485.10	71.02	74.00	-2.98	40.34	2.26	28.42	0.00	Peak	100	154	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / eth2: Ant. 3 + Ant. 4 (2TX)
Test Date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.20	68.52	74.00	-5.48	38.14	2.21	28.17	0.00	Peak	100	41	VERTICAL
2	2390.00	53.09	54.00	-0.91	22.70	2.22	28.17	0.00	Average	100	41	VERTICAL
3	2410.56				77.70	2.22	28.21	0.00	Peak	100	41	VERTICAL
4	2412.48				66.09	2.22	28.21	0.00	Average	100	41	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	45.88	54.00	-8.12	15.49	2.22	28.17	0.00	Average	100	42	VERTICAL
2	2390.00	64.56	74.00	-9.44	34.17	2.22	28.17	0.00	Peak	100	42	VERTICAL
3	2437.64				70.80	2.23	28.29	0.00	Average	100	42	VERTICAL
4	2437.96				81.60	2.23	28.29	0.00	Peak	100	42	VERTICAL
5	2487.03	46.86	54.00	-7.14	16.19	2.26	28.41	0.00	Average	100	42	VERTICAL
6	2487.99	65.99	74.00	-8.01	35.32	2.26	28.41	0.00	Peak	100	42	VERTICAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2462.48				64.61	2.24	28.33	0.00	Average	100	103	HORIZONTAL
2	2462.64				74.76	2.24	28.33	0.00	Peak	100	103	HORIZONTAL
3	2483.50	52.13	54.00	-1.87	21.49	2.26	28.38	0.00	Average	100	103	HORIZONTAL
4	2484.30	68.99	74.00	-5.01	38.35	2.26	28.38	0.00	Peak	100	103	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / eth2: Ant. 3 + Ant. 4 (2TX)
Test date	Aug. 01, 2012		

Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.68	66.87	74.00	-7.13	36.49	2.21	28.17	0.00	Peak	100	153	HORIZONTAL
2	2390.00	53.61	54.00	-0.39	23.22	2.22	28.17	0.00	Average	100	153	HORIZONTAL
3	2427.45				62.77	2.23	28.25	0.00	Average	100	153	HORIZONTAL
4	2427.45				74.40	2.23	28.25	0.00	Peak	100	153	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	53.55	54.00	-0.45	23.16	2.22	28.17	0.00	Average	100	153	HORIZONTAL
2	2390.00	68.10	74.00	-5.90	37.71	2.22	28.17	0.00	Peak	100	153	HORIZONTAL
3	2432.51				66.69	2.23	28.25	0.00	Average	100	153	HORIZONTAL
4	2442.77				79.48	2.24	28.29	0.00	Peak	100	153	HORIZONTAL
5	2485.10	51.51	54.00	-2.49	20.83	2.26	28.42	0.00	Average	100	153	HORIZONTAL
6	2485.10	66.84	74.00	-7.16	36.16	2.26	28.42	0.00	Peak	100	153	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2447.19				77.68	2.24	28.29	0.00	Peak	100	154	HORIZONTAL
2	2447.51				65.89	2.24	28.29	0.00	Average	100	154	HORIZONTAL
3	2485.10	53.17	54.00	-0.83	22.49	2.26	28.42	0.00	Average	100	154	HORIZONTAL
4	2485.10	71.02	74.00	-2.98	40.34	2.26	28.42	0.00	Peak	100	154	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

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

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

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11b CH 1, 6, 11 / eth1: Ant. 1 (1TX)
Test date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.84	65.59	74.00	-8.41	35.20	2.22	28.17	0.00	Peak	194	67	HORIZONTAL
2	2390.00	53.56	54.00	-0.44	23.17	2.22	28.17	0.00	Average	194	67	HORIZONTAL
3	2411.04				84.01	2.22	28.21	0.00	Peak	194	67	HORIZONTAL
4	2411.20				79.18	2.22	28.21	0.00	Average	194	67	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2388.08	58.50	74.00	-15.50	28.12	2.21	28.17	0.00	Peak	100	57	HORIZONTAL
2	2390.00	46.07	54.00	-7.93	15.68	2.22	28.17	0.00	Average	100	57	HORIZONTAL
3	2436.04				78.33	2.23	28.29	0.00	Peak	100	57	HORIZONTAL
4	2436.36				74.37	2.23	28.29	0.00	Average	100	57	HORIZONTAL
5	2488.31	45.66	54.00	-8.34	14.98	2.26	28.42	0.00	Average	100	57	HORIZONTAL
6	2492.15	58.88	74.00	-15.12	28.19	2.27	28.42	0.00	Peak	100	57	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2462.96				80.51	2.24	28.33	0.00	Peak	149	358	HORIZONTAL
2	2463.60				76.23	2.24	28.33	0.00	Average	149	358	HORIZONTAL
3	2486.71	49.38	54.00	-4.62	18.70	2.26	28.42	0.00	Average	149	358	HORIZONTAL
4	2487.03	62.26	74.00	-11.74	31.58	2.26	28.42	0.00	Peak	149	358	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Will Tung	Configurations	IEEE 802.11g CH 1, 6, 11 / eth1: Ant. 1 + Ant. 2 (2TX)
Test date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2388.72	53.51	54.00	-0.49	23.13	2.21	28.17	0.00	Average	100	151	HORIZONTAL
2	2388.88	70.84	74.00	-3.16	40.46	2.21	28.17	0.00	Peak	100	151	HORIZONTAL
3	2407.67				80.41	2.22	28.21	0.00	Peak	100	151	HORIZONTAL
4	2407.83				69.53	2.22	28.21	0.00	Average	100	151	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	48.21	54.00	-5.79	17.82	2.22	28.17	0.00	Average	100	156	HORIZONTAL
2	2390.00	63.44	74.00	-10.56	33.05	2.22	28.17	0.00	Peak	100	156	HORIZONTAL
3	2433.15				73.50	2.23	28.25	0.00	Average	100	156	HORIZONTAL
4	2433.47				84.29	2.23	28.25	0.00	Peak	100	156	HORIZONTAL
5	2483.50	49.33	54.00	-4.67	18.69	2.26	28.38	0.00	Average	100	156	HORIZONTAL
6	2483.82	65.63	74.00	-8.37	34.99	2.26	28.38	0.00	Peak	100	156	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2457.67				79.69	2.24	28.33	0.00	Peak	122	156	HORIZONTAL
2	2457.83				68.94	2.24	28.33	0.00	Average	122	156	HORIZONTAL
3	2483.50	53.10	54.00	-0.90	22.46	2.26	28.38	0.00	Average	122	156	HORIZONTAL
4	2483.50	71.49	74.00	-2.51	40.85	2.26	28.38	0.00	Peak	122	156	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11b CH 1, 6, 11 / eth2: Ant. 3 + Ant. 4 (2TX)
Test date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2389.20	56.61	74.00	-17.39	26.23	2.21	28.17	0.00	Peak	100	40	HORIZONTAL
2	2390.00	45.27	54.00	-8.73	14.88	2.22	28.17	0.00	Average	100	40	HORIZONTAL
3	2411.04				67.39	2.22	28.21	0.00	Peak	100	40	HORIZONTAL
4	2411.20				63.56	2.22	28.21	0.00	Average	100	40	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	45.10	54.00	-8.90	14.71	2.22	28.17	0.00	Average	100	321	VERTICAL
2	2390.00	55.26	74.00	-18.74	24.87	2.22	28.17	0.00	Peak	100	321	VERTICAL
3	2436.04				63.50	2.23	28.29	0.00	Peak	100	321	VERTICAL
4	2436.20				59.45	2.23	28.29	0.00	Average	100	321	VERTICAL
5	2483.50	45.49	54.00	-8.51	14.86	2.26	28.37	0.00	Average	100	321	VERTICAL
6	2484.78	56.32	74.00	-17.68	25.69	2.26	28.37	0.00	Peak	100	321	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2462.96				63.90	2.24	28.33	0.00	Peak	100	102	HORIZONTAL
2	2463.76				60.05	2.24	28.33	0.00	Average	100	102	HORIZONTAL
3	2483.50	45.52	54.00	-8.48	14.88	2.26	28.38	0.00	Average	100	102	HORIZONTAL
4	2496.32	58.00	74.00	-16.00	27.31	2.27	28.42	0.00	Peak	100	102	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11g CH 1, 6, 11 / eth2: Ant. 3 + Ant. 4 (2TX)
Test date	Aug. 01, 2012		

Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2390.00	53.63	54.00	-0.37	23.24	2.22	28.17	0.00	Average	99	85	VERTICAL
2	2390.00	72.60	74.00	-1.40	42.21	2.22	28.17	0.00	Peak	99	85	VERTICAL
3	2412.80				65.85	2.22	28.21	0.00	Average	99	85	VERTICAL
4	2412.96				75.61	2.22	28.21	0.00	Peak	99	85	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2387.12	63.54	74.00	-10.46	33.16	2.21	28.17	0.00	Peak	156	255	HORIZONTAL
2	2390.00	47.20	54.00	-6.80	16.81	2.22	28.17	0.00	Average	156	255	HORIZONTAL
3	2435.72				80.87	2.23	28.29	0.00	Peak	156	255	HORIZONTAL
4	2436.04				70.48	2.23	28.29	0.00	Average	156	255	HORIZONTAL
5	2483.50	42.24	54.00	-11.76	11.60	2.26	28.38	0.00	Average	156	255	HORIZONTAL
6	2485.74	58.15	74.00	-15.85	27.47	2.26	28.42	0.00	Peak	156	255	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

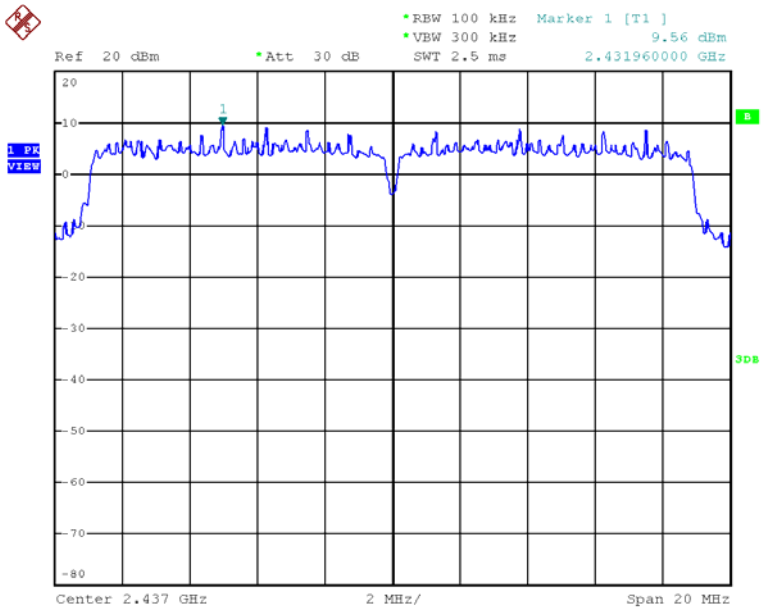
Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	2462.64				67.93	2.24	28.33	0.00	Average	100	44	VERTICAL
2	2462.80				77.82	2.24	28.33	0.00	Peak	100	44	VERTICAL
3	2483.50	53.04	54.00	-0.96	22.41	2.26	28.37	0.00	Average	100	44	VERTICAL
4	2485.10	73.45	74.00	-0.55	42.78	2.26	28.41	0.00	Peak	100	44	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

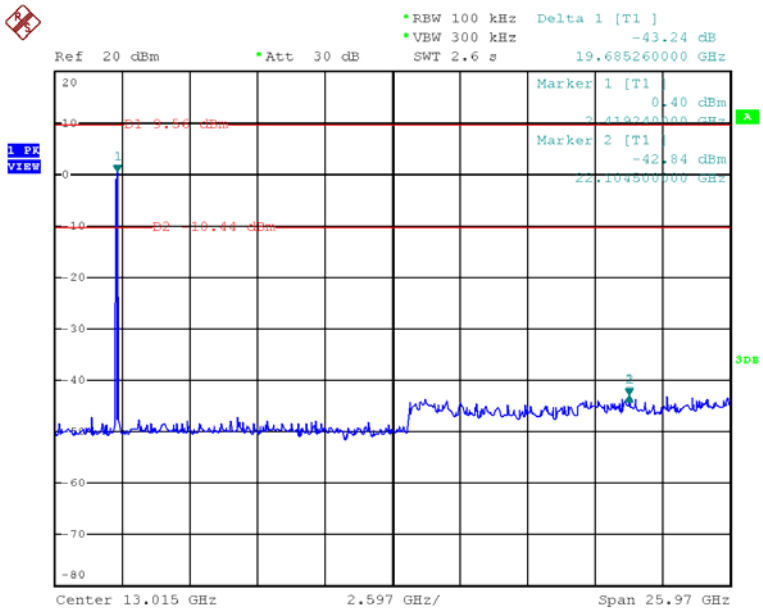
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (Reference Level) / eth1: Ant. 1 + Ant. 2 (2TX)



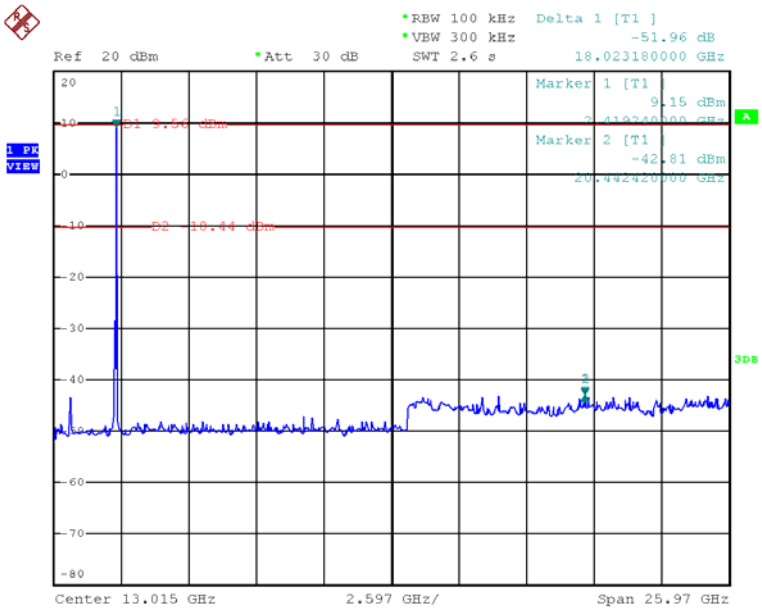
Date: 16.AUG.2012 20:58:21

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



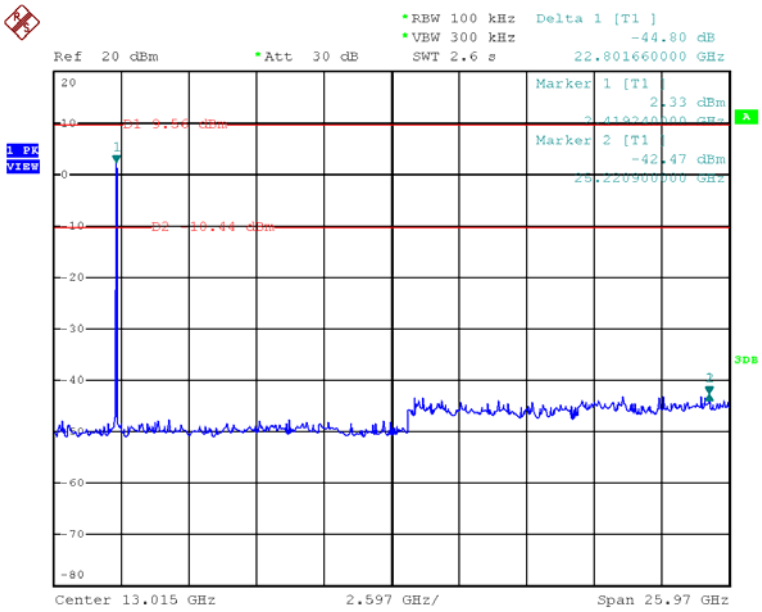
Date: 16.AUG.2012 21:00:48

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



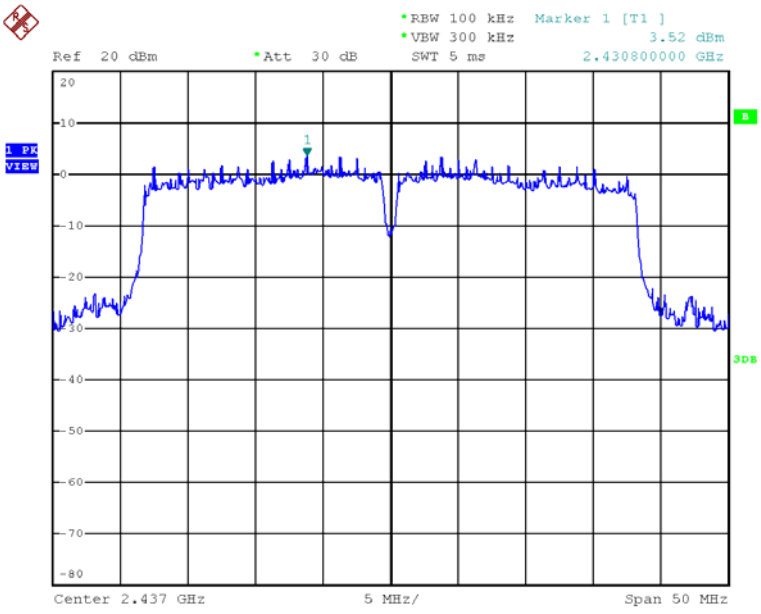
Date: 16.AUG.2012 20:59:27

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



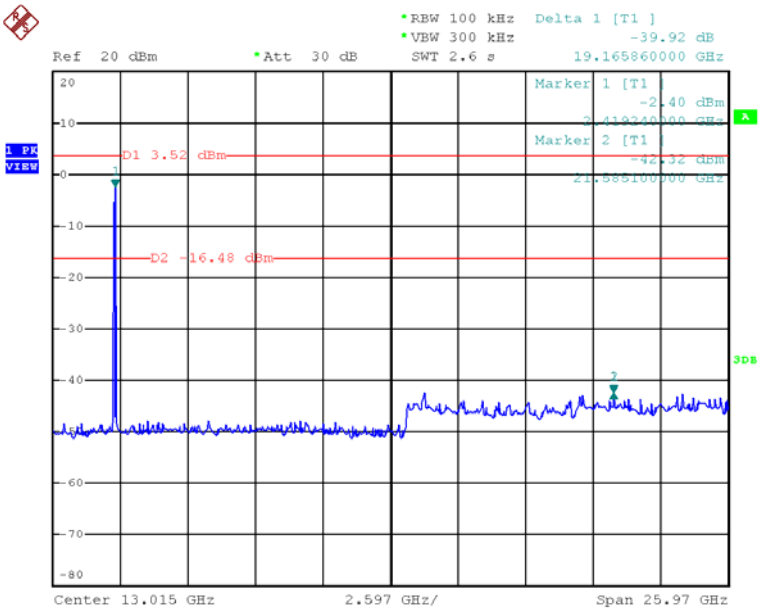
Date: 16.AUG.2012 21:01:44

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (Reference Level) / eth1: Ant. 1 + Ant. 2 (2TX)



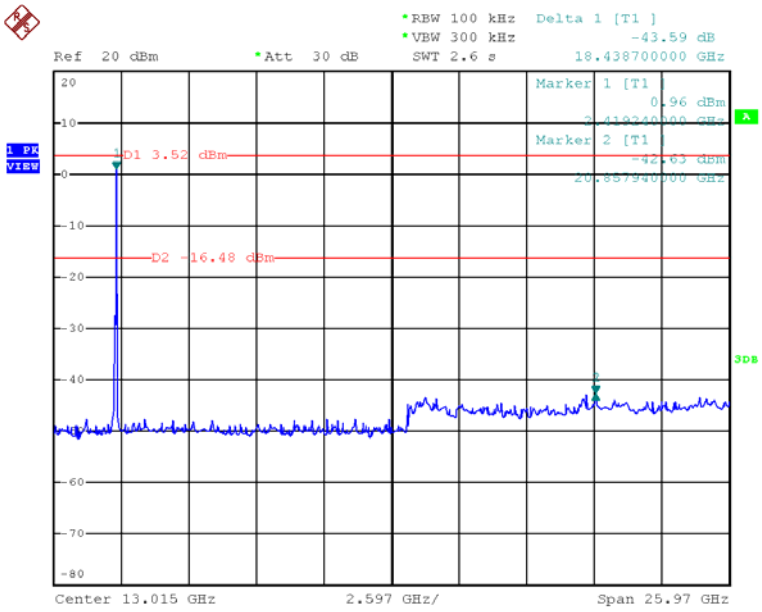
Date: 16.AUG.2012 21:03:57

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



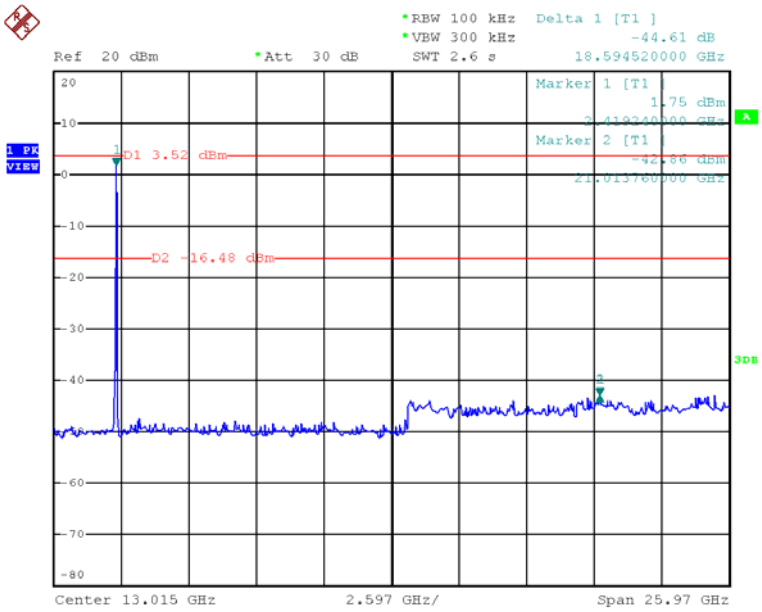
Date: 16.AUG.2012 21:05:26

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



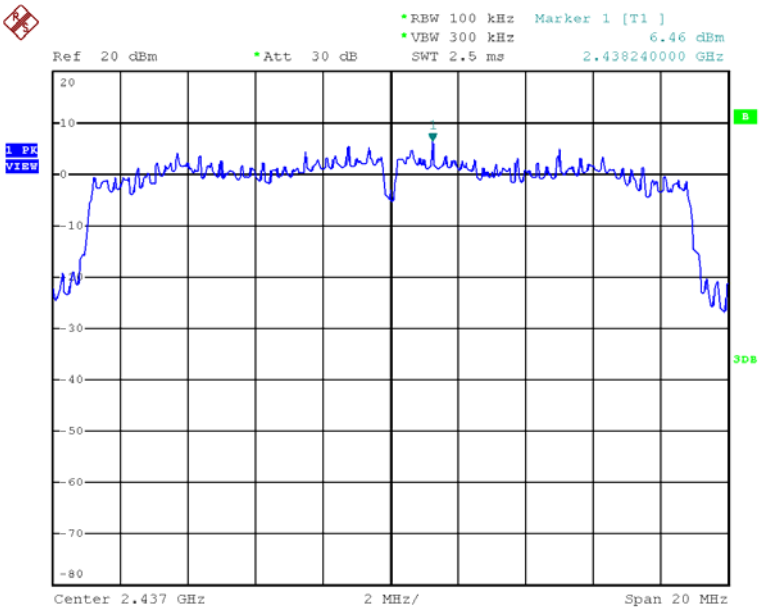
Date: 16.AUG.2012 21:03:37

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)

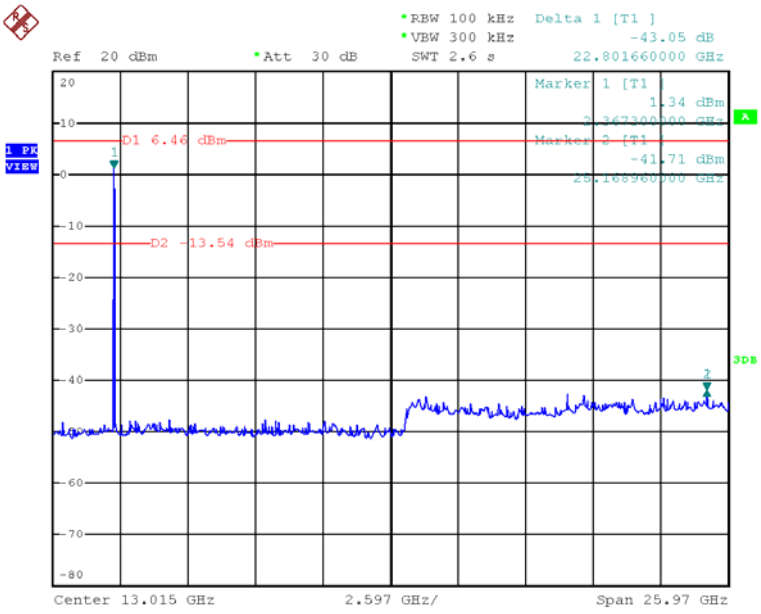


Date: 16.AUG.2012 21:06:20

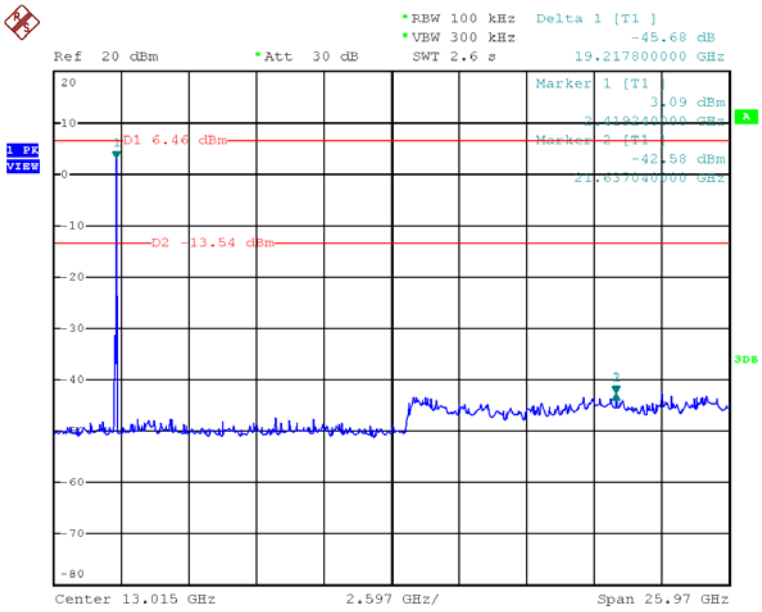
Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)

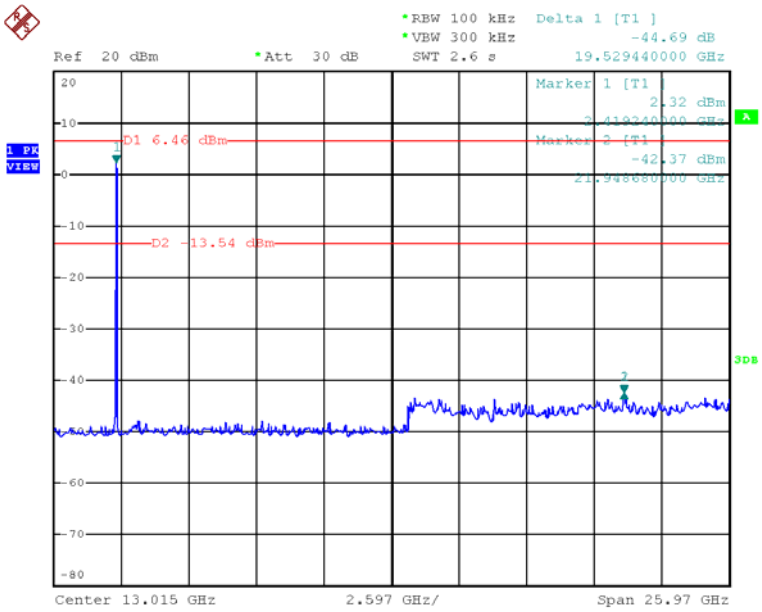


Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



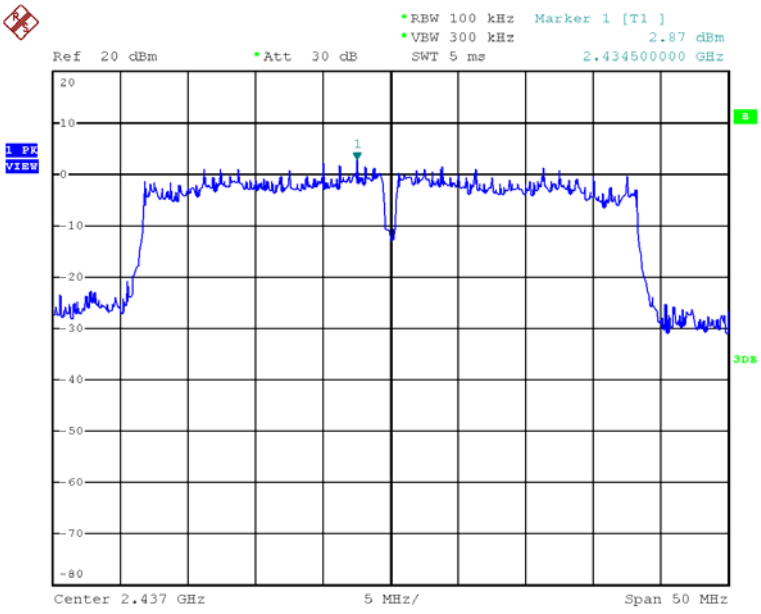
Date: 16.AUG.2012 21:28:26

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



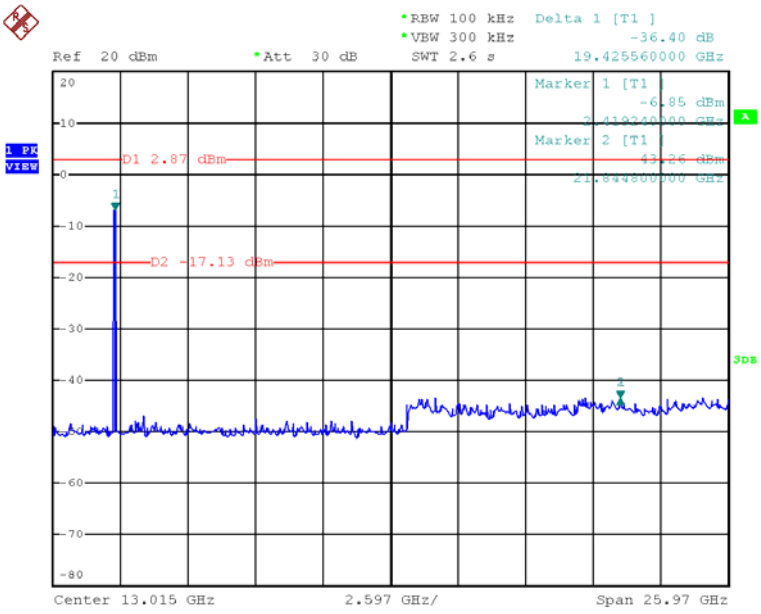
Date: 16.AUG.2012 21:29:38

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



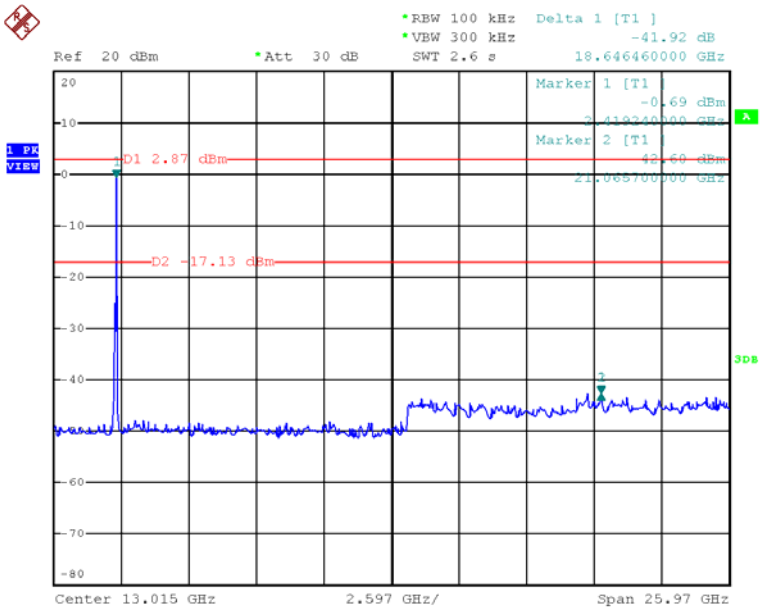
Date: 16.AUG.2012 21:31:42

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



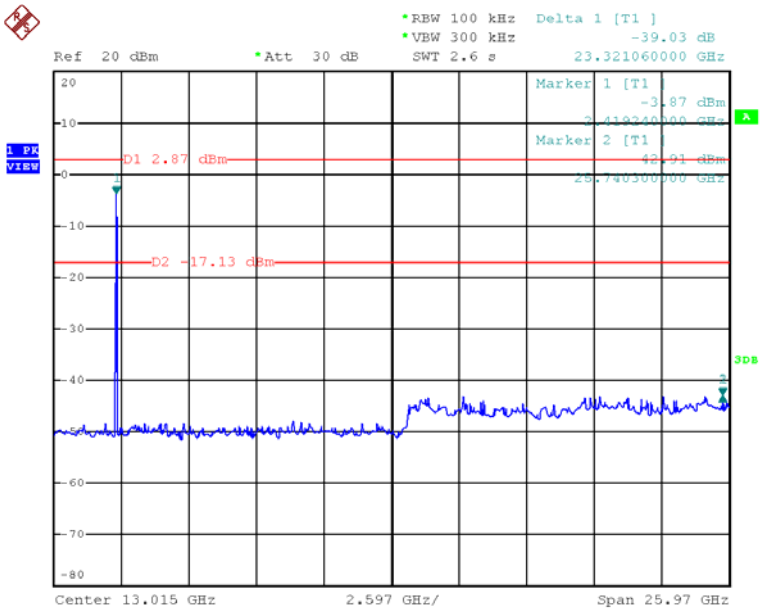
Date: 16.AUG.2012 21:32:28

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



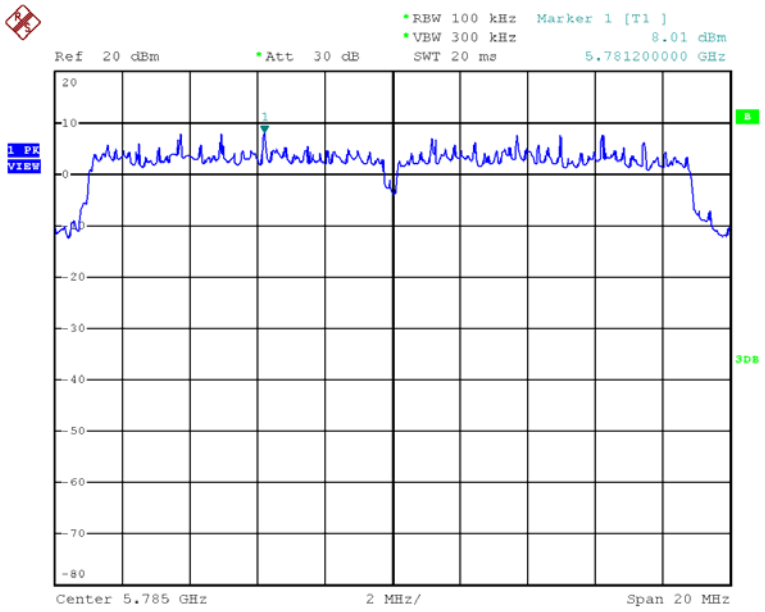
Date: 16.AUG.2012 21:31:31

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



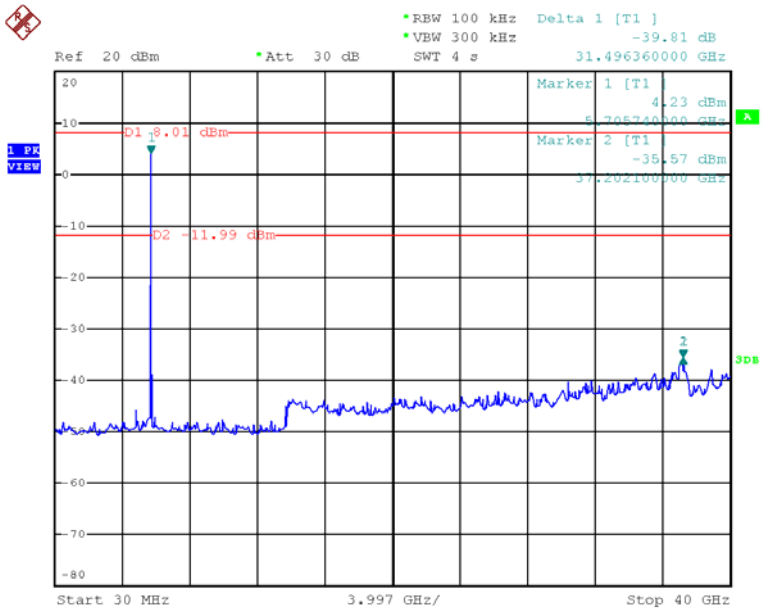
Date: 16.AUG.2012 21:33:02

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 157 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



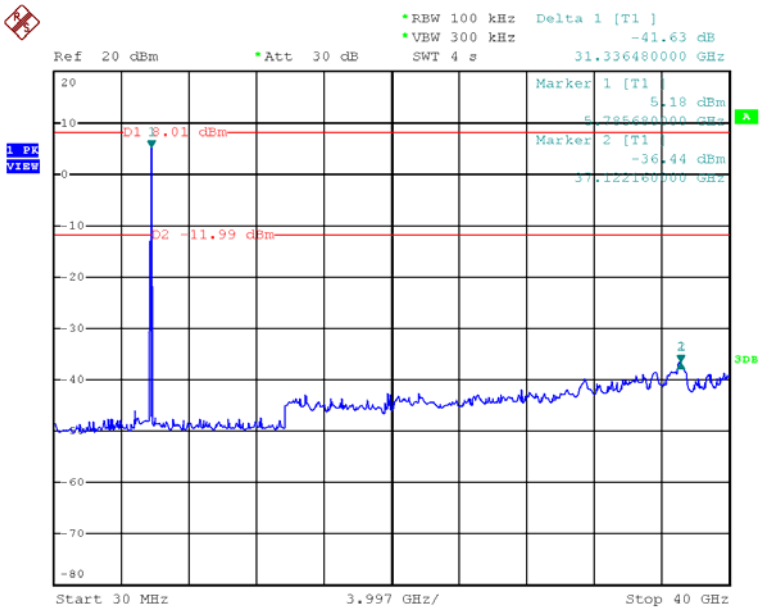
Date: 16.AUG.2012 21:42:37

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



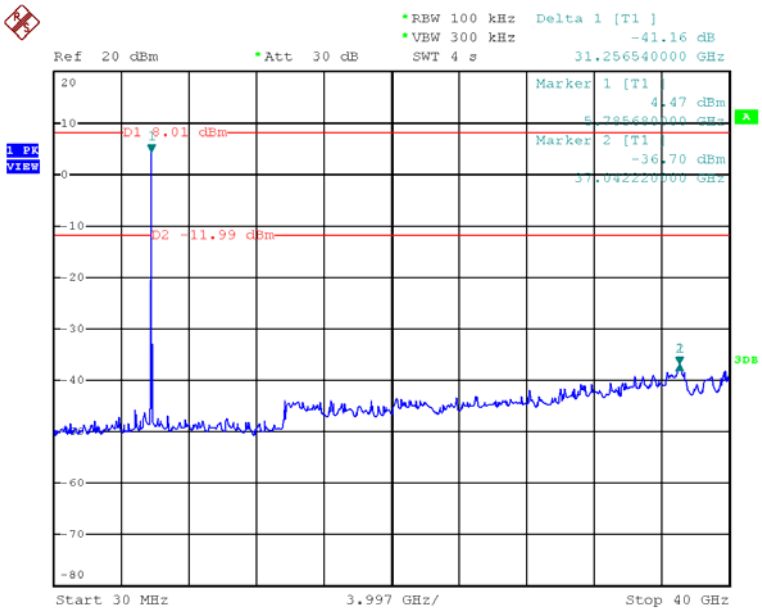
Date: 16.AUG.2012 21:44:40

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 157 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



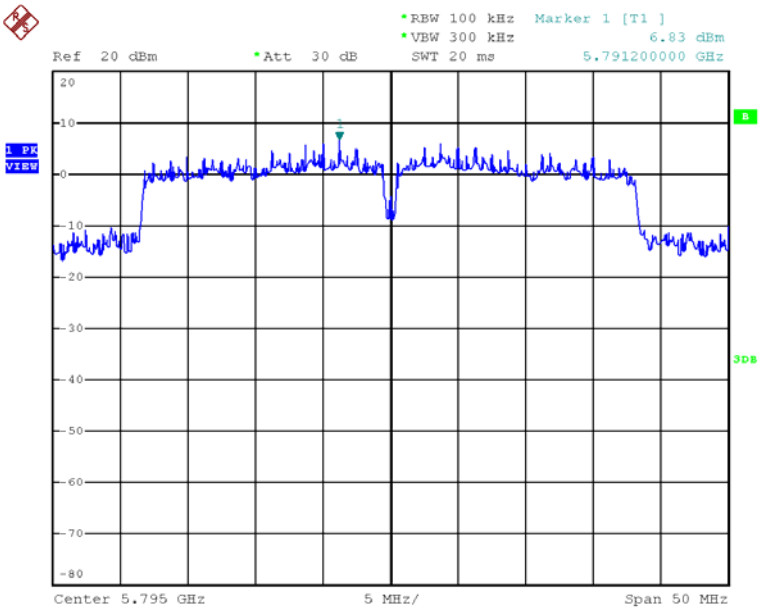
Date: 16.AUG.2012 21:43:27

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



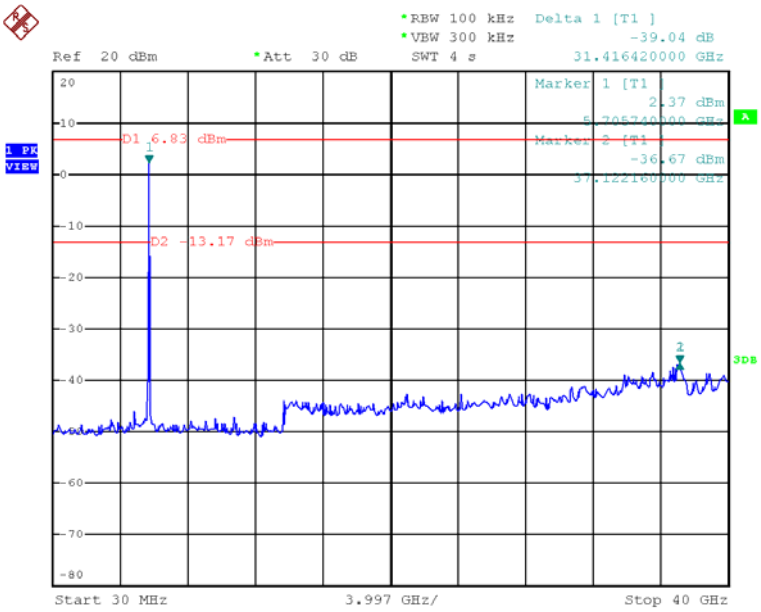
Date: 16.AUG.2012 21:45:25

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



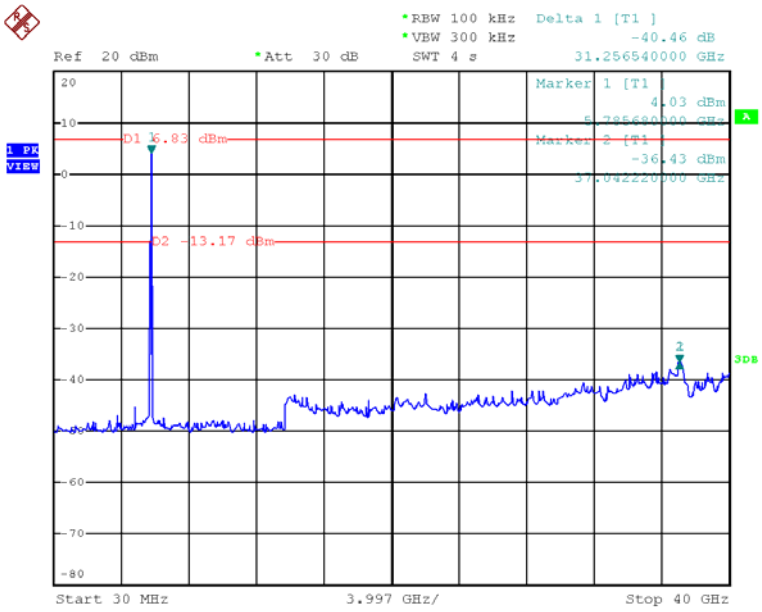
Date: 16.AUG.2012 21:46:46

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



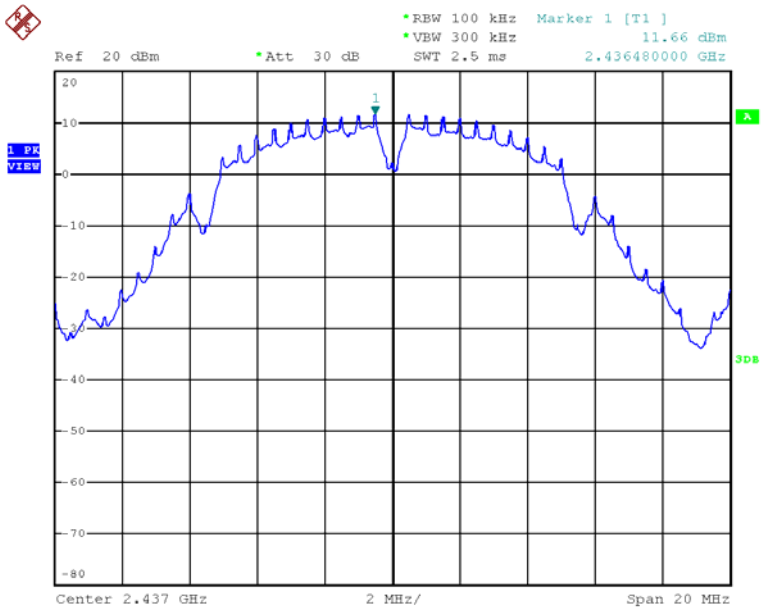
Date: 16.AUG.2012 21:48:33

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



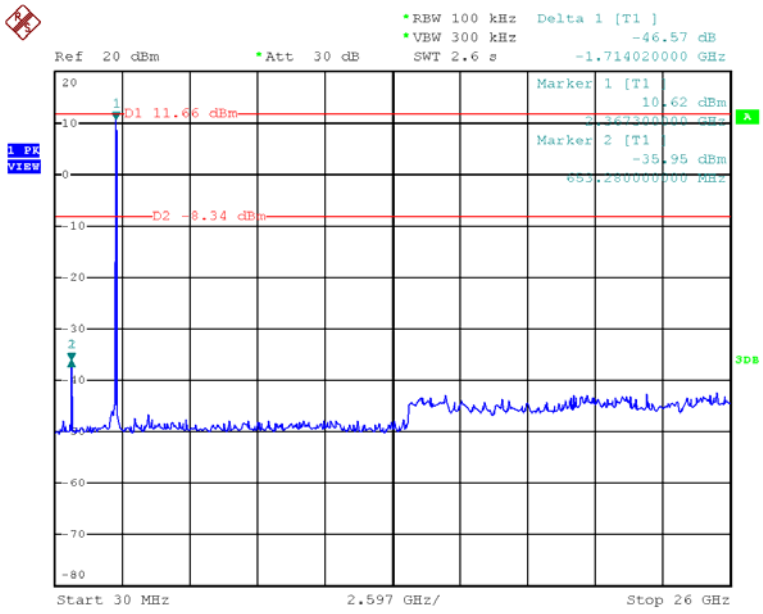
Date: 16.AUG.2012 21:47:55

Plot on Configuration IEEE 802.11b / CH 6 (Reference Level) / eth1: Ant. 1 (1TX)



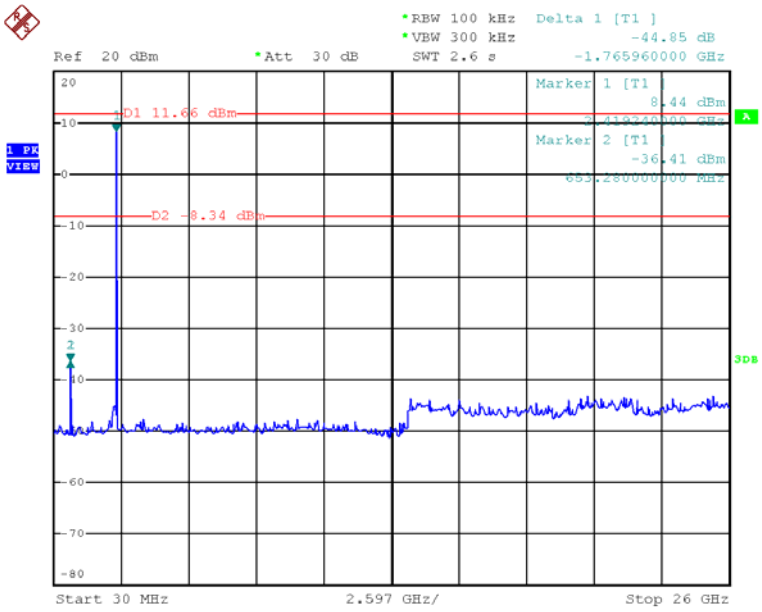
Date: 16.AUG.2012 20:10:12

Plot on Configuration IEEE 802.11b / CH 1 (down 20dBc) / eth1: Ant. 1 (1TX)



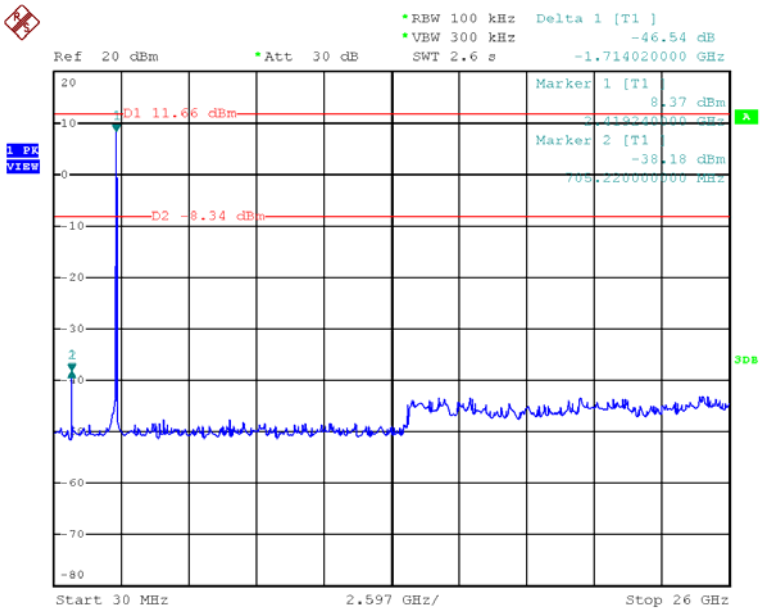
Date: 16.AUG.2012 20:29:11

Plot on Configuration IEEE 802.11b / CH 6 (down 20dBc) / eth1: Ant. 1 (1TX)



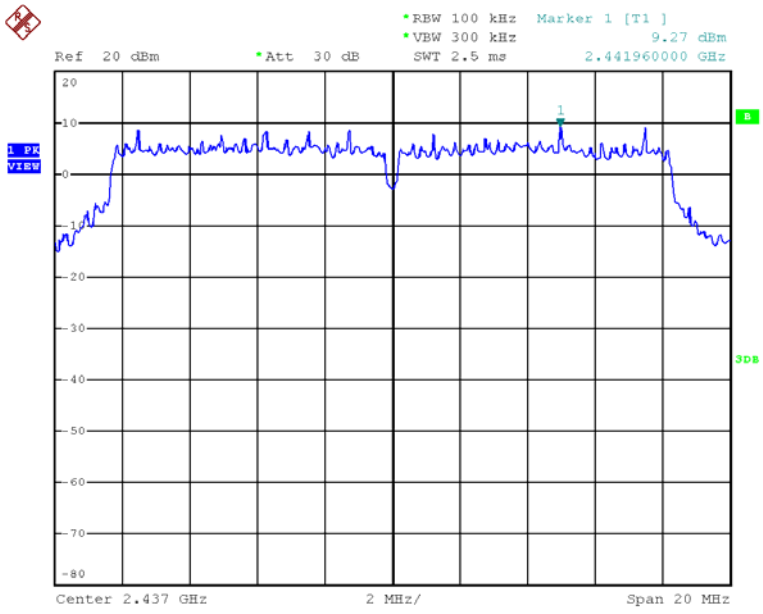
Date: 16.AUG.2012 20:14:42

Plot on Configuration IEEE 802.11b / CH 11 (down 20dBc) / eth1: Ant. 1 (1TX)

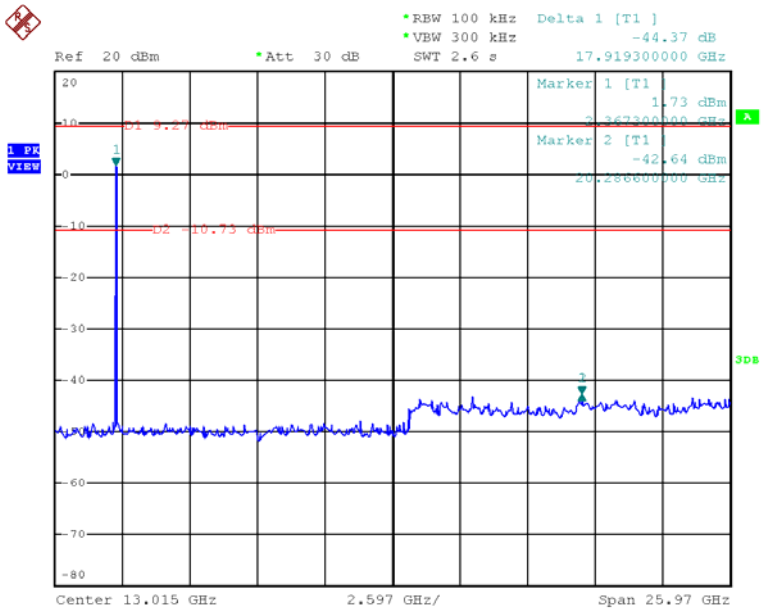


Date: 16.AUG.2012 20:30:12

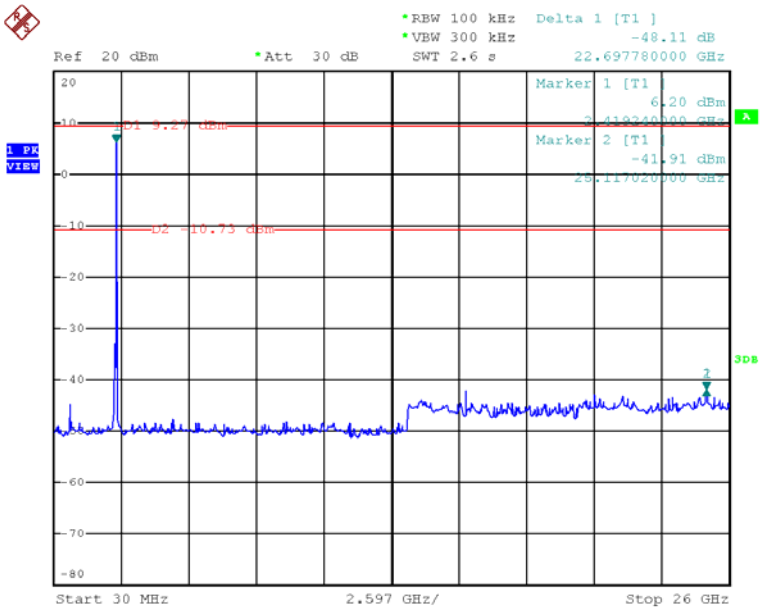
Plot on Configuration IEEE 802.11g / CH 6 (Reference Level) / eth1: Ant. 1 + Ant. 2 (2TX)



Plot on Configuration IEEE 802.11g / CH 1 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)

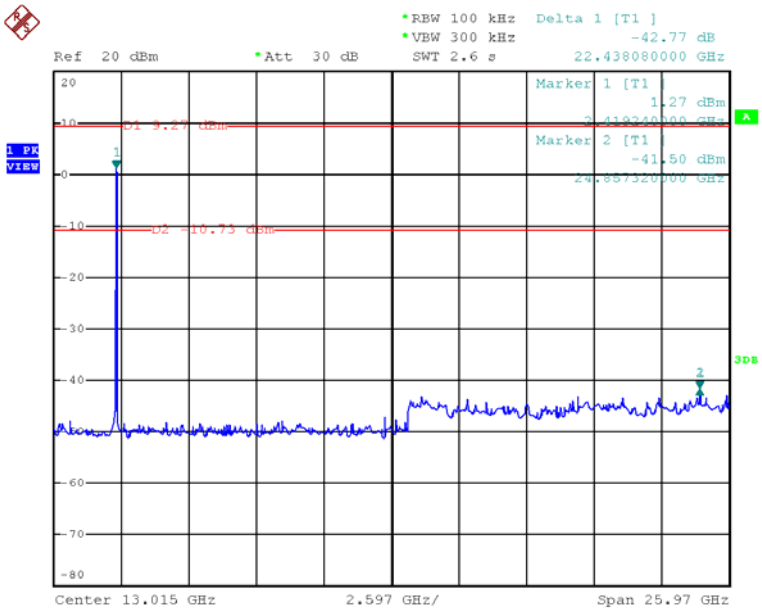


Plot on Configuration IEEE 802.11g / CH 6 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



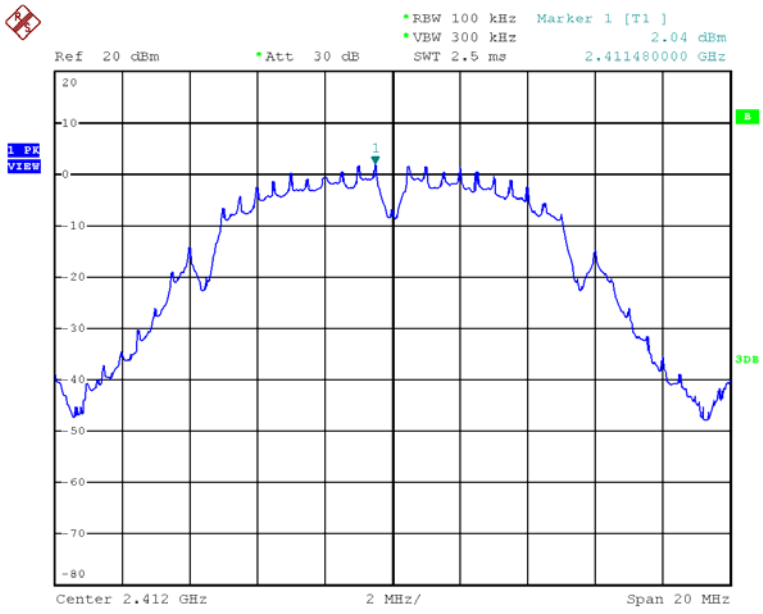
Date: 16.AUG.2012 20:36:57

Plot on Configuration IEEE 802.11g / CH 11 (down 20dBc) / eth1: Ant. 1 + Ant. 2 (2TX)



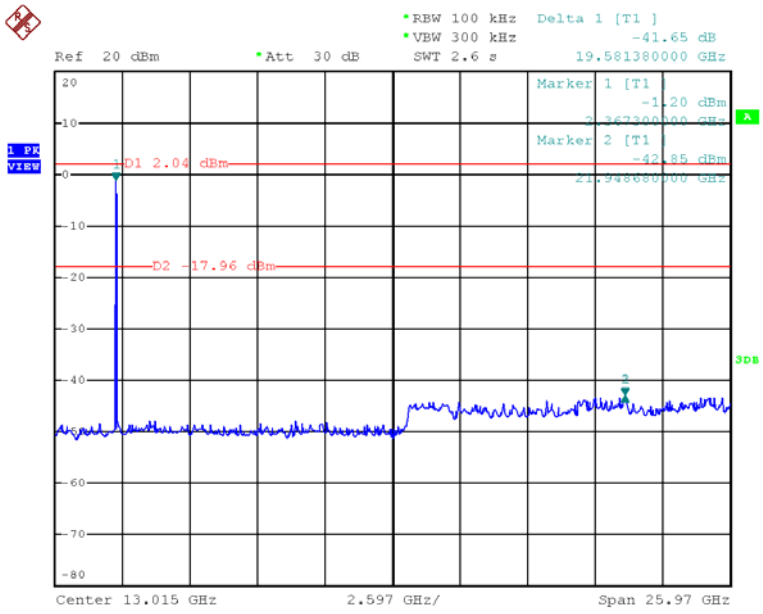
Date: 16.AUG.2012 20:57:31

Plot on Configuration IEEE 802.11b / CH 1 (Reference Level) / eth2: Ant. 3 (1TX)



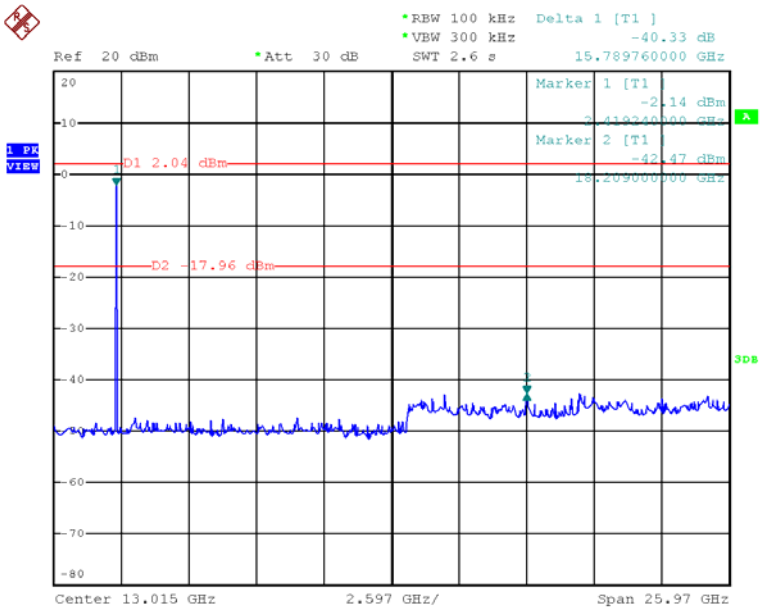
Date: 16.AUG.2012 21:19:11

Plot on Configuration IEEE 802.11b / CH 1 (down 20dBc) / eth2: Ant. 3 (1TX)



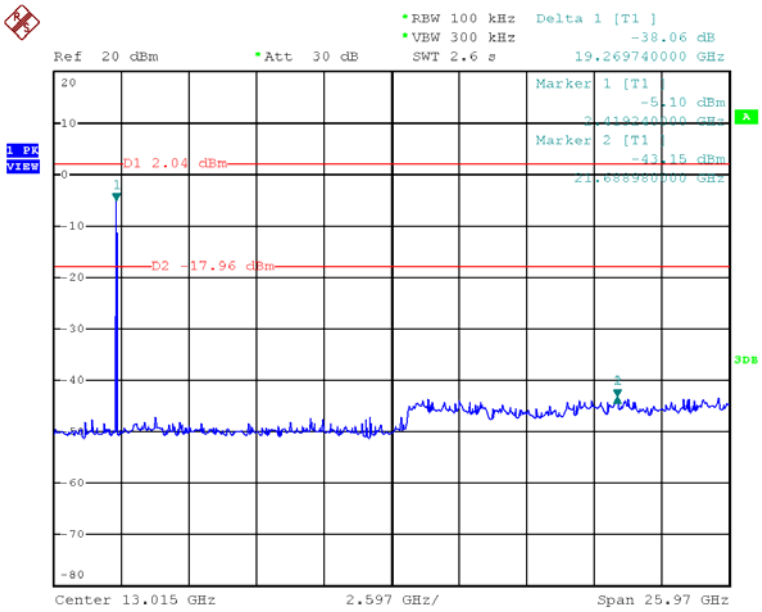
Date: 16.AUG.2012 21:22:17

Plot on Configuration IEEE 802.11b / CH 6 (down 20dBc) / eth2: Ant. 3 (1TX)



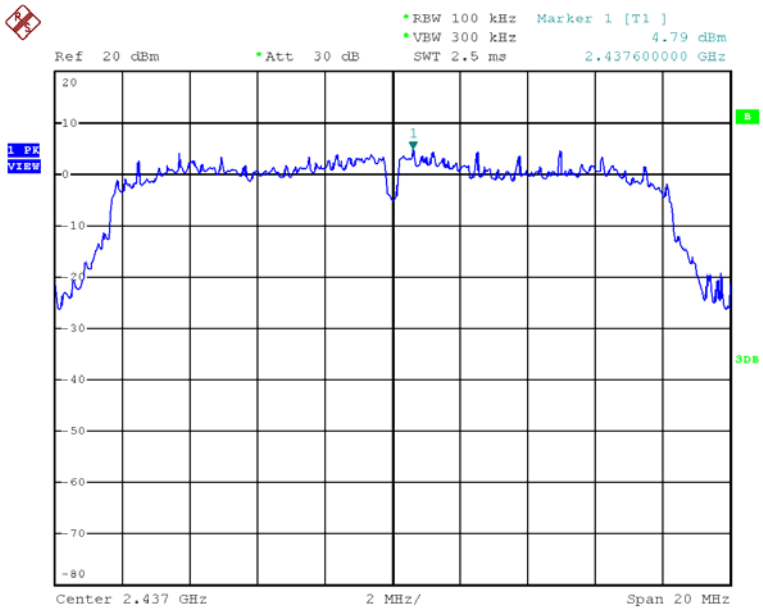
Date: 16.AUG.2012 21:20:48

Plot on Configuration IEEE 802.11b / CH 11 (down 20dBc) / eth2: Ant. 3 (1TX)



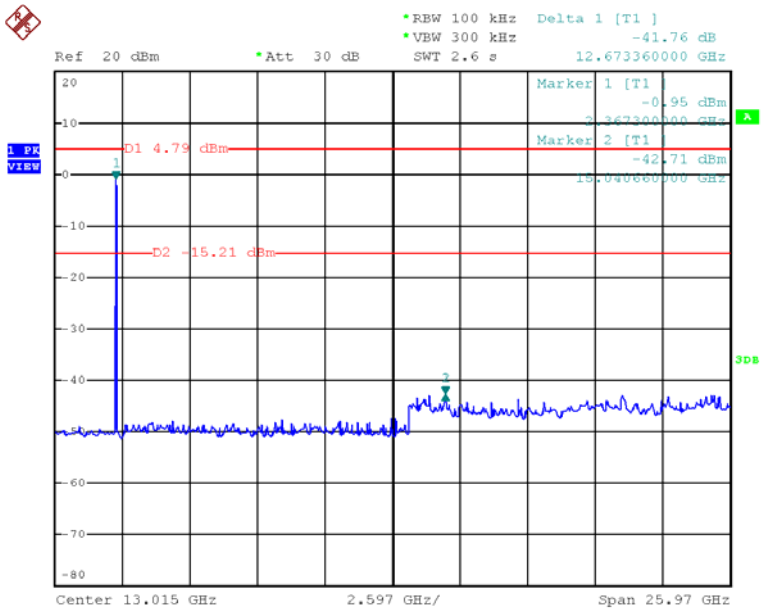
Date: 16.AUG.2012 21:23:07

Plot on Configuration IEEE 802.11g / CH 6 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



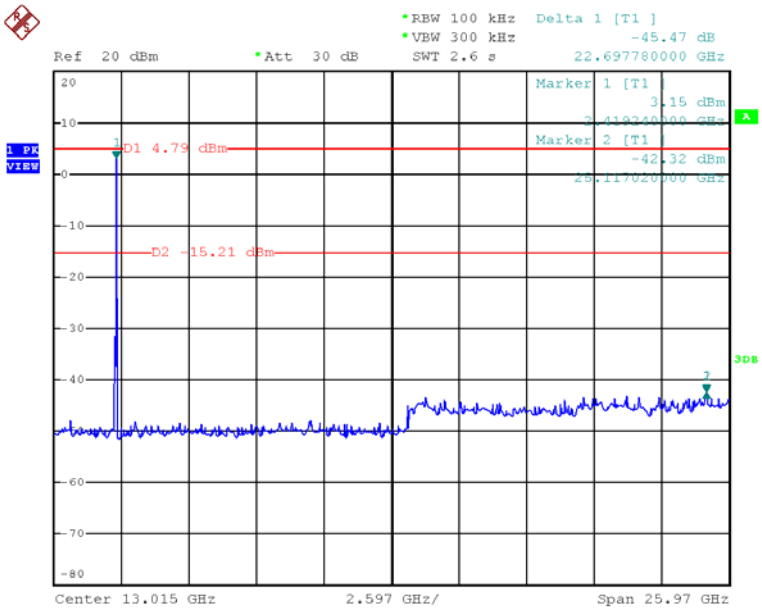
Date: 16.AUG.2012 21:25:05

Plot on Configuration IEEE 802.11g / CH 1 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



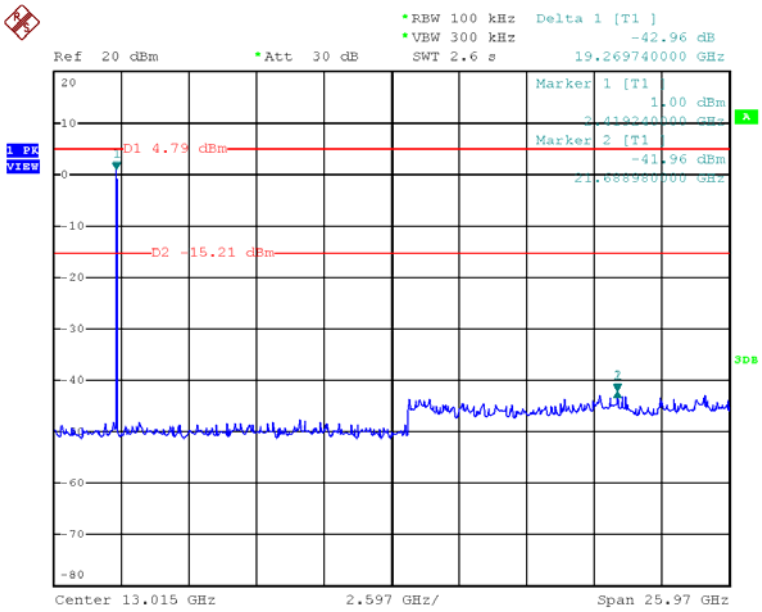
Date: 16.AUG.2012 21:26:00

Plot on Configuration IEEE 802.11g / CH 6 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



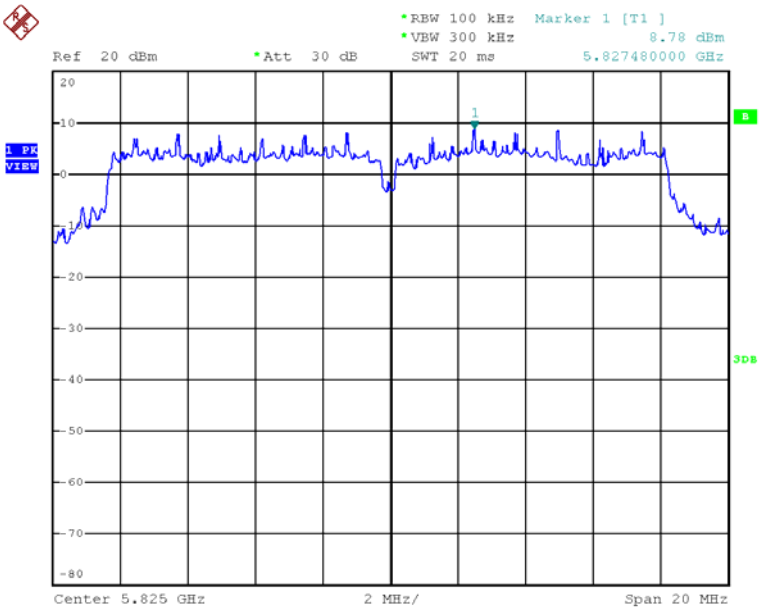
Date: 16.AUG.2012 21:24:47

Plot on Configuration IEEE 802.11g / CH 11 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)

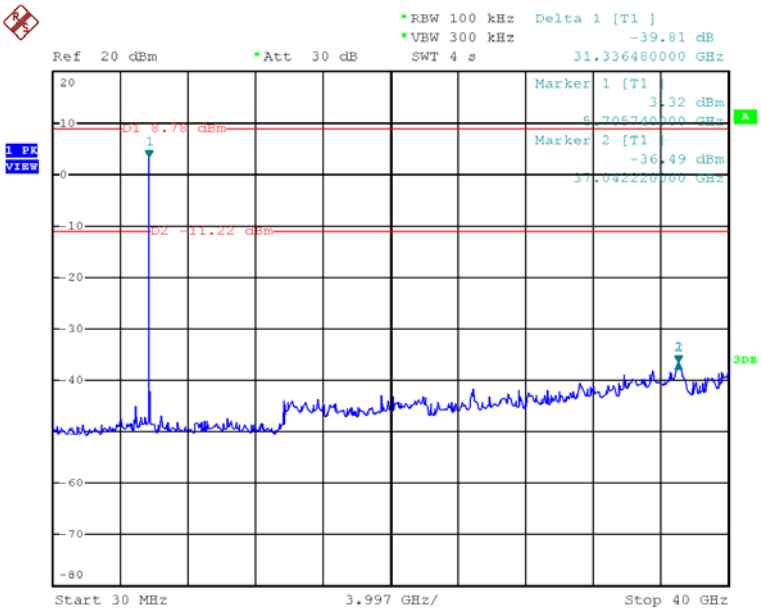


Date: 16.AUG.2012 21:26:31

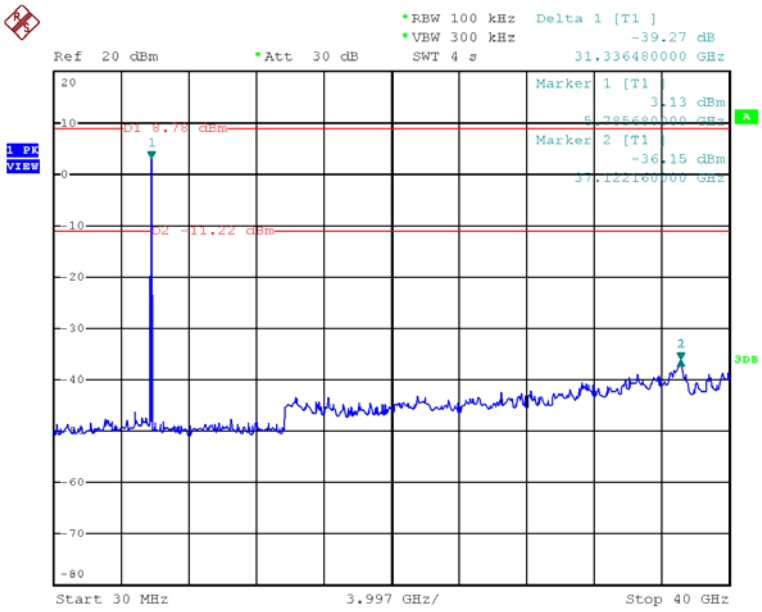
Plot on Configuration IEEE 802.11a / CH 165 (Reference Level) / eth2: Ant. 3 + Ant. 4 (2TX)



Plot on Configuration IEEE 802.11a / CH 149 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)

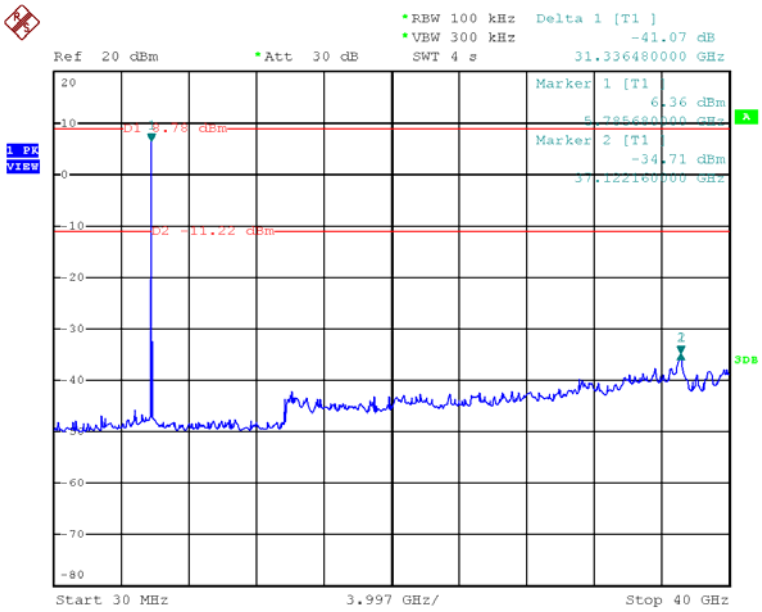


Plot on Configuration IEEE 802.11a / CH 157 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



Date: 16.AUG.2012 21:40:12

Plot on Configuration IEEE 802.11a / CH 165 (down 20dBc) / eth2: Ant. 3 + Ant. 4 (2TX)



Date: 16.AUG.2012 21:39:22

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
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 11, 2012	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 25, 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. 29, 2011	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Sep. 09, 2011	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)
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	Nov. 14, 2011	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127-478	9K ~ 30MHz	Jun. 22, 2012	Conduction (CO01-CB)
PULSE LIMITER	R&S	ESH3-Z2	100430	9K~30MHz	Feb. 03, 2012	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	Dec. 04, 2011	Conduction (CO01-CB)
Signal analyzer	R&S	FSV40	100979	9KHz~40GHz	Sep. 26, 2011	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 05, 2012	Conducted (TH01-CB)
Thermo-Hygro Meter	N/A	HC 520	#1	15~70 degree	Nov. 02, 2011	Conducted (TH01-CB)
Signal Generator	R&S	SMR40	100302	10MHz-40GHz	Nov. 22, 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)
Signal generator	R&S	SMU200A	102782	10MHz-40GHz	Jun. 07, 2012	Conducted (TH01-CB)
Horn Antenna	COM-POWER	AH-118	071187	1GHz – 18GHz	May 09, 2012	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 2nd 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 Arrangment with Foreign Authorities

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

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