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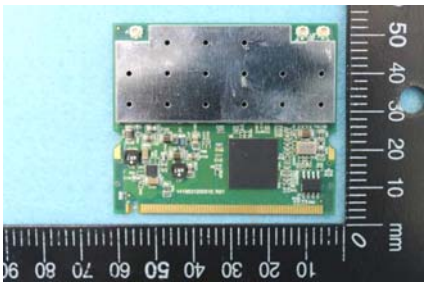
UPDATED FCC RADIO TEST REPORT

Applicant's company	**Motorola Solutions, Inc.**
Applicant Address	One Motorola Plaza Holtsville, NY 11742 USA
FCC ID	**UZ7AP7131**
Manufacturer's company	**Joy Technology (ShenZhen) Corporation**
Manufacturer Address	HengKeng Ind., Shangpai, Shangwu,Aiqun Rd., Shiyan Town,Shenzhen 518108 China

Product Name	11 a/b/g/n Access Point Module
Brand Name	Motorola
Model Name	AP-7131-MB82
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.247
Test Freq. Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Received Date	Oct. 17, 2012
Final Test Date	Jan. 24, 2013
Submission Type	Class II Change



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**, **47 CFR FCC Part 15 Subpart C**, **KDB 558074 D01 v02** and **KDB 662911 D01 v01r02**.

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
FR821502-05AA	Rev. 01	Initial issue of report	Jan. 24, 2013
FR821502-05AA	Rev. 02	The test result of radiated emission is not fit client's request (under limit 3dB), it only under limit 1dB. Therefore, it verified radiated emission test and conducted output power test.	Jan. 29, 2013

Certificate No.: CB10112195

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**11 a/b/g/n Access Point Module**
Brand Name	:	**Motorola**
Model Name	:	**AP-7131-MB82**
Applicant	:	**Motorola Solutions, 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 Oct. 17, 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.

Sam Chen

Sam Chen
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	15.247(b)(3)	Maximum Conducted Output Power	Complies	0.87 dB
4.2	15.247(e)	Power Spectral Density	Complies	1.61 dB
4.3	15.247(a)(2)	6dB Spectrum Bandwidth	Complies	-
4.4	15.247(d)	Radiated Emissions	Complies	3.07 dB
4.5	15.247(d)	Band Edge Emissions	Complies	1.01 dB
4.6	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
Maximum Conducted 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 (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	For 2.4GHz Band: 11 for 20MHz bandwidth ; 7 for 40MHz bandwidth For 5GHz Band: 5 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	For 2.4GHz Band: **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8:** MCS0 (20MHz): 17.76 MHz ; MCS0 (40MHz): 36.48 MHz **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9:** MCS0 (20MHz): 17.76 MHz ; MCS0 (40MHz): 36.48 MHz **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10:** MCS0 (20MHz): 17.92 MHz ; MCS0 (40MHz): 36.48 MHz For 5GHz Band: **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11:** MCS0 (20MHz): 31.12 MHz ; MCS0 (40MHz): 69.12 MHz
Maximum Conducted Output Power	For 2.4GHz Band: **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8:** MCS0 (20MHz): 20.01 dBm ; MCS0 (40MHz): 15.71 dBm **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9:** MCS0 (20MHz): 16.89 dBm ; MCS0 (40MHz): 14.25 dBm **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10:** MCS0 (20MHz): 22.45 dBm ; MCS0 (40MHz): 17.55 dBm For 5GHz Band: **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11:** MCS0 (20MHz): 27.19 dBm ; MCS0 (40MHz): 27.19 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

802.11a/b/g

Items	Description
Product Type	WLAN (3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	From Host System
Modulation	DSSS for IEEE 802.11b ; OFDM for IEEE 802.11a/g
Data Modulation	DSSS (BPSK / QPSK / CCK) ; OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	DSSS (1/ 2/ 5.5/11) ; OFDM (6/9/12/18/24/36/48/54)
Frequency Range	2400 ~ 2483.5MHz / 5725 ~ 5850MHz
Channel Number	11b/g: 11 ; 11a: 5
Channel Band Width (99%)	**Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8:** 11b: 15.36 MHz ; 11g: 16.48 MHz **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9:** 11b: 15.28 MHz ; 11g: 16.48 MHz **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10:** 11b: 15.28 MHz ; 11g: 16.64 MHz **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11:** 11a: 27.04 MHz
Maximum Conducted Output Power	**Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8:** 11b: 24.93 dBm ; 11g: 20.10 dBm **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9:** 11b: 20.80 dBm ; 11g: 17.44 dBm **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10:** 11b: 24.72 dBm ; 11g: 23.04 dBm **Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11:** 11a: 25.76 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

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

IEEE 802.11n spec

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

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

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4GHz	5GHz
8	MOTOROLA	ML-2499-FHPA9-01R	Dipole Antenna	N-Male	10.5	-
9	MOTOROLA	ML-2499-BPNA3-01R	Panel Antenna	N-Type Female	15.5	-
10	MOTOROLA	ML-2452-PTA3M3-036	Patch Antenna	RP-SMA-Male	4.92	8.97
11	MOTOROLA	ML-5299-FHPA6-01R	Omni Antenna	N male	-	8.25

Ant.	Loss of External Cable (dB)		True Gain (dBi)		Remark
	2.4GHz	5GHz	2.4GHz	5GHz	
8	0.3	-	10.2	-	TX, RX
9	0.3	-	15.2	-	TX, RX
10	0.92	1.97	4	7	TX, RX
11	-	0.68	-	7.57	TX, RX

Note : Because Ant. 10 and original project's Ant. 6 (Model: ML-5299-WPNA1-01R) are the same type antennas, only the higher gain antenna original project's Ant. 6 (Model: ML-5299-WPNA1-01R) was tested and recorded in the Sporton project number: FR821502-02AC and FR821502-02AD.

The EUT has three Chains.

<For 2.4GHz Band:>

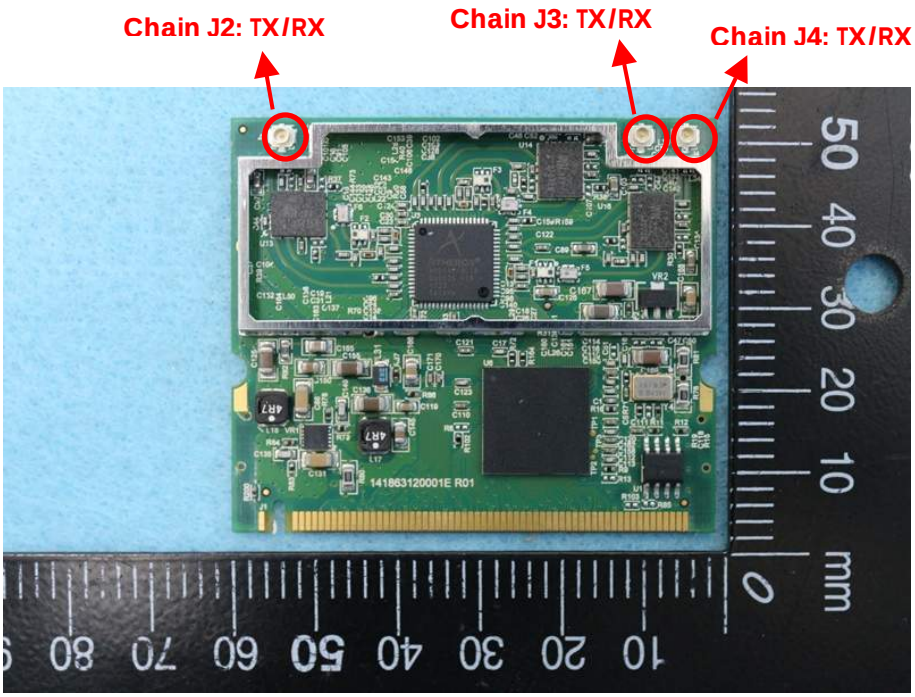
Chain J2, Chain J3 and Chain J4 could be used as transmitting/receiving simultaneously.

Ant. 8, Ant. 9 and Ant. 10 could be used as transmitting/receiving antenna.

<For 5GHz Band:>

Chain J2, Chain J3 and Chain J4 could be used as transmitting/receiving simultaneously.

Ant. 10 and Ant. 11 could be used as transmitting/receiving antenna.



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	Chain
Maximum Conducted Output Power	MCS0/20MHz	6.5 Mbps	1/6/11	J2/J3/J4/J2+J3+J4
	MCS0/40MHz	13.5 Mbps	3/6/9	J2/J3/J4/J2+J3+J4
	11b/CCK	1 Mbps	1/6/11	J2/J3/J4/J2+J3+J4
	11g/BPSK	6 Mbps	1/6/11	J2/J3/J4/J2+J3+J4
Power Spectral Density	MCS0/20MHz	6.5 Mbps	1/6/11	J2/J3/J4
	MCS0/40MHz	13.5 Mbps	3/6/9	J2/J3/J4
	11b/CCK	1 Mbps	1/6/11	J2/J3/J4
	11g/BPSK	6 Mbps	1/6/11	J2/J3/J4
6dB Spectrum Bandwidth	MCS0/20MHz	6.5 Mbps	1/6/11	J2+J3+J4
	MCS0/40MHz	13.5 Mbps	3/6/9	J2+J3+J4
	11b/CCK	1 Mbps	1/6/11	J2+J3+J4
	11g/BPSK	6 Mbps	1/6/11	J2+J3+J4
Radiated Emissions Below 1GHz	CTX	Auto	-	-
Radiated Emissions Above 1GHz	MCS0/20MHz	6.5 Mbps	1/6/11	J2+J3+J4
	MCS0/40MHz	13.5 Mbps	3/6/9	J2+J3+J4
	11b/CCK	1 Mbps	1/6/11	J2+J3+J4
	11g/BPSK	6 Mbps	1/6/11	J2+J3+J4
Band Edge Emissions	MCS0/20MHz	6.5 Mbps	1/11	J2+J3+J4
	MCS0/40MHz	13.5 Mbps	3/6/9	J2+J3+J4
	11b/CCK	1 Mbps	1/6/11	J2+J3+J4
	11g/BPSK	6 Mbps	1/6/11	J2+J3+J4

For 5GHz Band

Test Items	Mode	Data Rate	Channel	Chain
Maximum Conducted Output Power	MCS0/20MHz	6.5 Mbps	149/157/165	J2/J3/J4/J2+J3+J4
	MCS0/40MHz	13.5 Mbps	151/159	J2/J3/J4/J2+J3+J4
	11a/BPSK	6 Mbps	149/157/165	J2/J3/J4/J2+J3+J4
Power Spectral Density	MCS0/20MHz	6.5 Mbps	149/157/165	J2/J3/J4
	MCS0/40MHz	13.5 Mbps	151/159	J2/J3/J4
	11a/BPSK	6 Mbps	149/157/165	J2/J3/J4
6dB Spectrum Bandwidth	MCS0/20MHz	6.5 Mbps	149/157/165	J2+J3+J4
	MCS0/40MHz	13.5 Mbps	151/159	J2+J3+J4
	11a/BPSK	6 Mbps	149/157/165	J2+J3+J4
Radiated Emissions Below 1GHz	CTX	Auto	-	-
Radiated Emissions Above 1GHz	MCS0/20MHz	6.5 Mbps	149/157/165	J2+J3+J4
	MCS0/40MHz	13.5 Mbps	151/159	J2+J3+J4
	11a/BPSK	6 Mbps	149/157/165	J2+J3+J4

The following test modes were performed for all tests:

For Radiated Emission Below 1GHz test:

Mode 1. EUT + Ant. 9 (2.4G Ant.)

Mode 2. EUT + Ant. 11 (5G Ant.)

For Radiated Emission Above 1GHz test:

Mode 1. EUT + Ant. 8

Mode 2. EUT + Ant. 9

Mode 3. EUT + Ant. 10

Mode 4. EUT + Ant. 11

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
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 Class II Change

This product is an extension of original one reported under Sporton project number: FR821502-02AC and FR821502-02AD.

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Increase four antennas.	1. Maximum Conducted Output Power 2. Power Spectral Density 3. 6dB Spectrum Bandwidth 4. Radiated Emissions 5. Band Edge Emissions

3.8. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook	DELL	D505	E2K24GBRL
Notebook	DELL	D420	E2KWM3945ABG
Modem	ACEEX	DM1414	IFAXDM1414
Wireless AP	BELKIN	WG7016G22-LF-AK	DoC

3.9. 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

Power Parameters of IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	11.5	15.5	11.5

Power Parameters of IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	8.5	11.5	9

Power Parameters of IEEE 802.11b/g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	17	20	15.5
IEEE 802.11g	13	15.5	12.5

Power Parameters of IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	10	12.5	10

Power Parameters of IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	7	10	6

Power Parameters of IEEE 802.11b/g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	16	14	16
IEEE 802.11g	10	13	10.5

Power Parameters of IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
MCS0 20MHz	13.5	18	12.5

Power Parameters of IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2422 MHz	2437 MHz	2452 MHz
MCS0 40MHz	10.5	13.5	10.5

Power Parameters of IEEE 802.11b/g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	2412 MHz	2437 MHz	2462 MHz
IEEE 802.11b	18	20	16
IEEE 802.11g	14.5	18.5	13

For 5GHz Band

Power Parameters of IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	5745 MHz	5785 MHz	5825 MHz
MCS0 20MHz	20	20.5	21

Power Parameters of IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Test Software Version	ART Revision 0.5 BUILD #26 ART_11n	
Frequency	5755 MHz	5795 MHz
MCS0 40MHz	21	21.5

Power Parameters of IEEE 802.11a / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

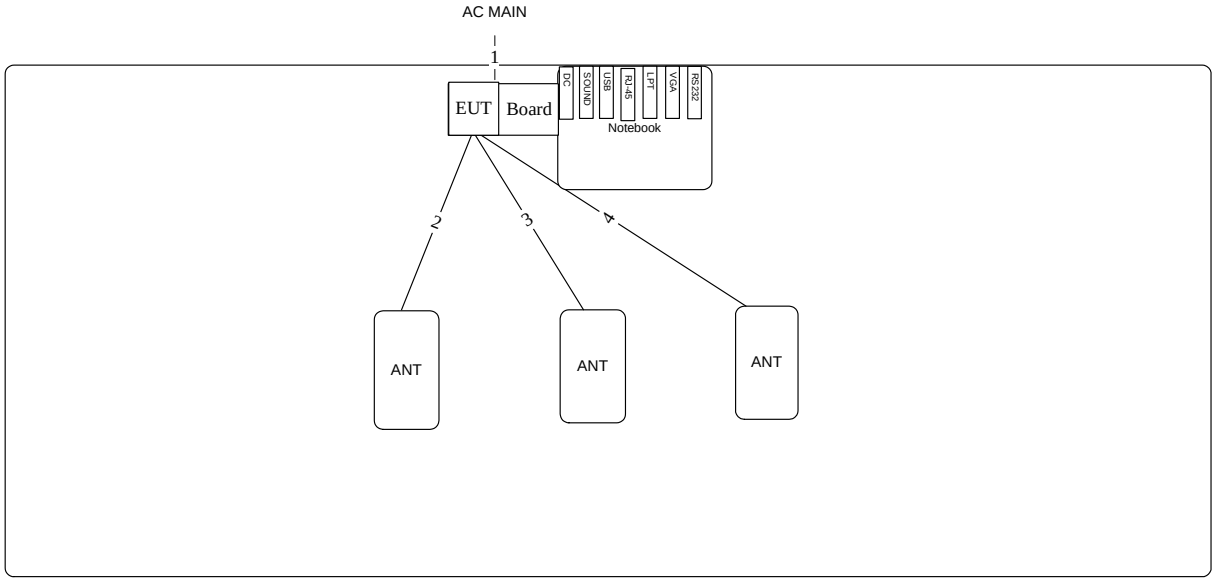
Test Software Version	ART Revision 0.5 BUILD #26 ART_11n		
Frequency	5745 MHz	5785 MHz	5825 MHz
IEEE 802.11a	18.5	19.5	20.5

During the test, "ART Revision 0.5 BUILD #26 ART_11n" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

3.10. Test Configurations

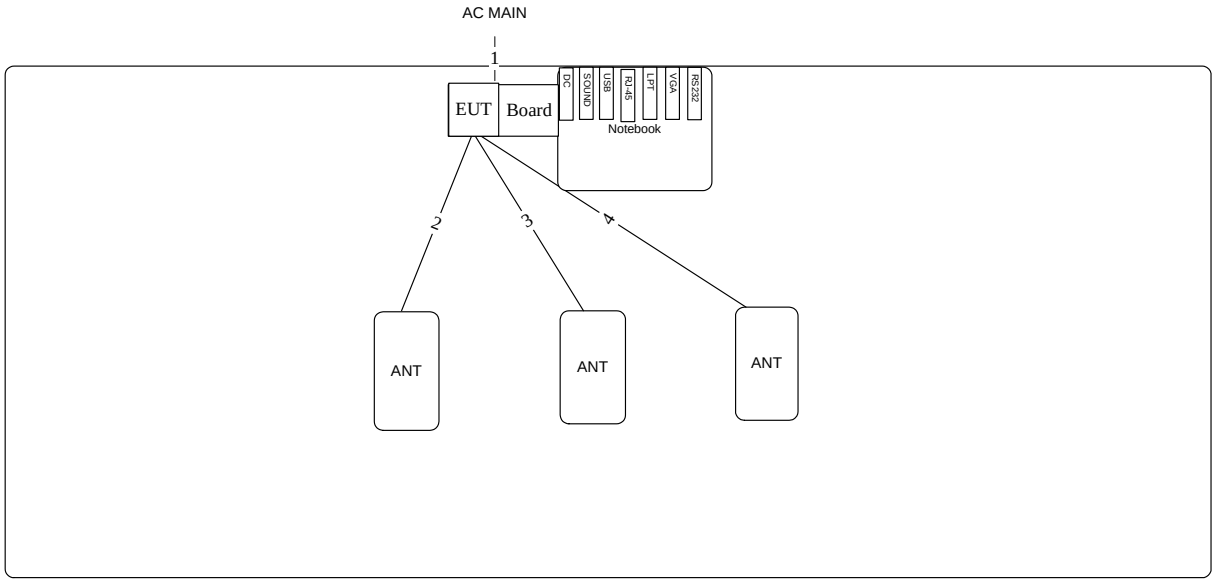
3.10.1. Radiation Emissions Test Configuration

Test Configuration: For Ant. 8



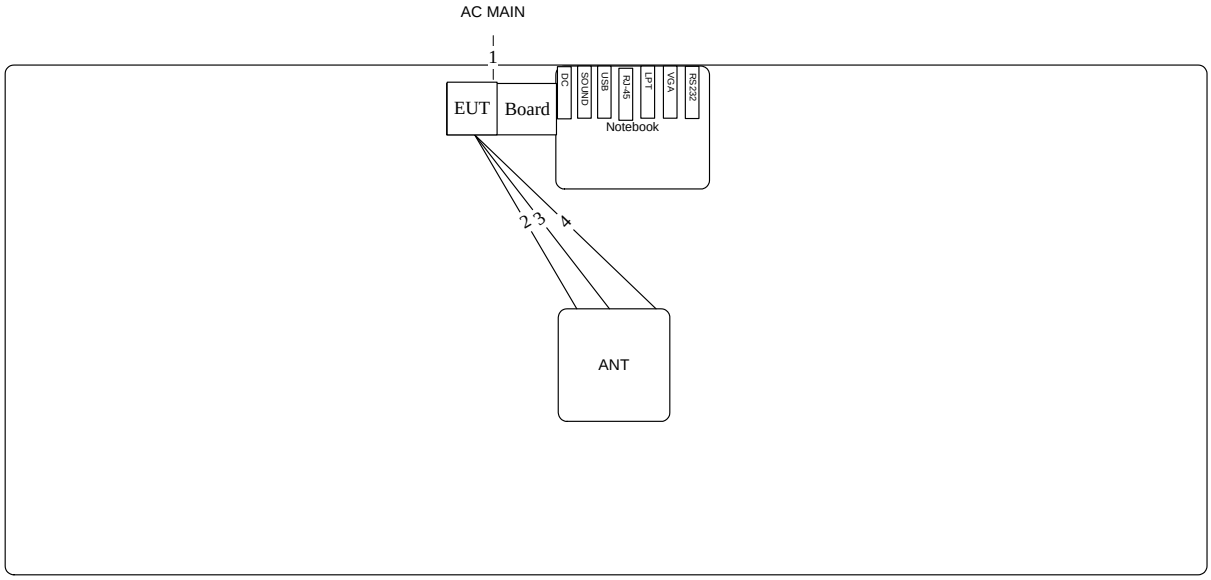
Item	Connection	Shield	Length
1	Power Cable	No	1.8m
2	Ant. Cable	Yes	0.65m
3	Ant. Cable	Yes	0.65m
4	Ant. Cable	Yes	0.65m

Test Configuration: For Ant. 9



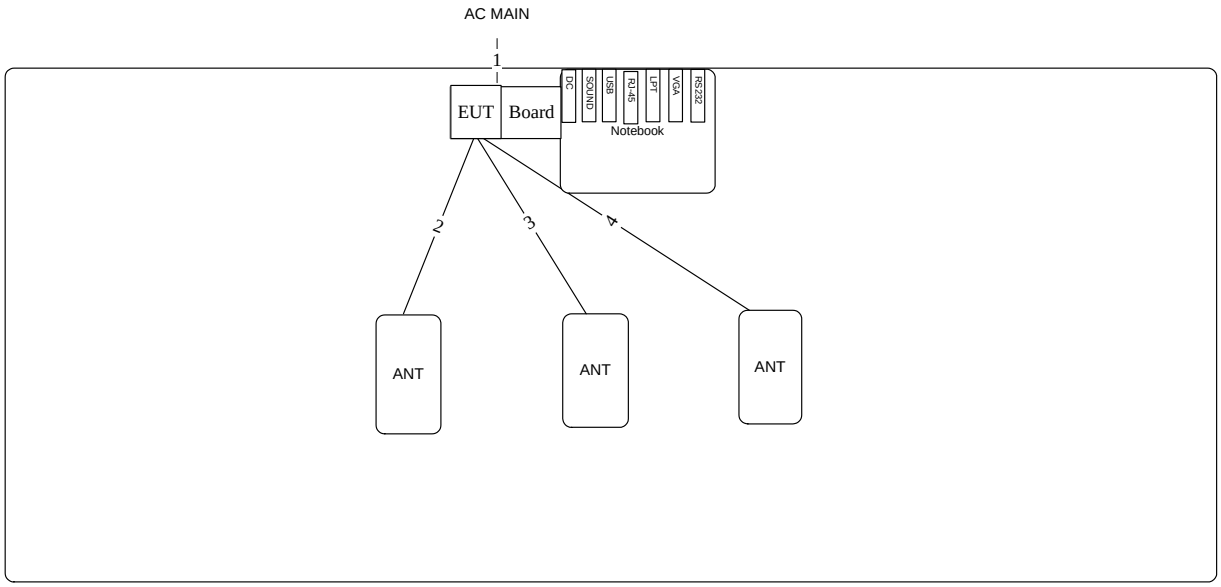
Item	Connection	Shield	Length
1	Power Cable	No	1.8m
2	Ant. Cable	Yes	0.9m
3	Ant. Cable	Yes	0.9m
4	Ant. Cable	Yes	0.9m

Test Configuration: For Ant. 10



Item	Connection	Shield	Length
1	Power Cable	No	1.8m
2	Ant. Cable	Yes	1.1m
3	Ant. Cable	Yes	1.1m
4	Ant. Cable	Yes	1.1m

Test Configuration: For Ant. 11



Item	Connection	Shield	Length
1	Power Cable	No	1.8m
2	Ant. Cable	Yes	0.65m
3	Ant. Cable	Yes	0.65m
4	Ant. Cable	Yes	0.65m

4. TEST RESULT

4.1. Maximum Conducted Output Power Measurement

4.1.1. 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.

4.1.2. Measuring Instruments and Setting

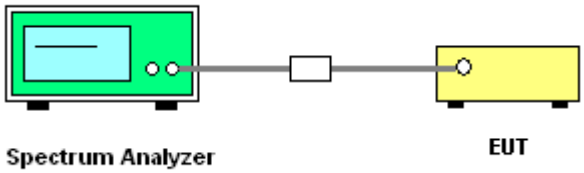
Please refer to section 5 of equipments list in this report. The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the analyzer span to encompass the entire EBW.
RB	1MHz
VB	3MHz
Detector	RMS
Trace	Average 100
Sweep Time	Auto

4.1.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with KDB558074 v01r02 Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS)Operating Under §15.247 section 8.2.2.2 Option2.
   Multiple antenna systems was performed in accordance with KDB 662911 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.1.4. Test Setup Layout



4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.1.7. Test Result of Maximum Conducted Output Power

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11n

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	10.65	11.30	11.61	15.98	25.80	**Complies**
6	2437 MHz	14.97	15.33	15.39	20.01	25.80	**Complies**
11	2462 MHz	10.66	11.13	11.17	15.76	25.80	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit =30-(10.2-6)=25.8 dBm

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
3	2422 MHz	8.21	8.25	8.33	13.03	25.80	**Complies**
6	2437 MHz	10.52	11.15	11.12	15.71	25.80	**Complies**
9	2452 MHz	8.01	8.59	8.82	13.26	25.80	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit =30-(10.2-6)=25.8 dBm

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	9.02	9.52	10.10	14.34	20.80	**Complies**
6	2437 MHz	11.87	12.35	12.13	16.89	20.80	**Complies**
11	2462 MHz	8.90	9.32	9.63	14.06	20.80	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 30-(15.2-6)=20.8 dBm

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
3	2422 MHz	6.68	6.68	6.78	11.48	20.80	**Complies**
6	2437 MHz	9.07	9.71	9.64	14.25	20.80	**Complies**
9	2452 MHz	5.81	5.53	6.04	10.57	20.80	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 30-(15.2-6)=20.8 dBm

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	12.74	13.20	13.22	17.83	30.00	**Complies**
6	2437 MHz	17.76	17.77	17.49	22.45	30.00	**Complies**
11	2462 MHz	11.77	11.94	12.14	16.72	30.00	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
3	2422 MHz	9.92	10.13	10.07	14.81	30.00	**Complies**
6	2437 MHz	12.49	12.96	12.86	17.55	30.00	**Complies**
9	2452 MHz	9.80	10.08	10.02	14.74	30.00	**Complies**

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
149	5745 MHz	20.24	19.97	19.92	24.82	28.43	**Complies**
157	5785 MHz	22.52	21.06	21.16	24.77	28.43	**Complies**
165	5825 MHz	22.11	22.78	22.33	27.19	28.43	**Complies**

Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 30-(7.57-6)=28.43 dBm

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
151	5755 MHz	21.57	22.91	22.65	27.19	28.43	**Complies**
159	5795 MHz	21.61	22.95	22.56	27.18	28.43	**Complies**

Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 30-(7.57-6)=28.43 dBm

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11a/b/g

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	16.66	16.94	16.87	21.60	25.80	**Complies**
6	2437 MHz	20.41	20.04	20.03	24.93	25.80	**Complies**
11	2462 MHz	15.19	15.61	15.36	20.16	25.80	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit =30-(10.2-6)=25.8 dBm

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	12.28	12.67	13.11	17.47	25.80	**Complies**
6	2437 MHz	15.08	15.48	15.42	20.10	25.80	**Complies**
11	2462 MHz	11.82	12.31	12.57	17.02	25.80	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit =30-(10.2-6)=25.8 dBm

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	15.66	16.02	15.90	20.63	20.80	**Complies**
6	2437 MHz	15.49	16.02	15.80	19.49	20.80	**Complies**
11	2462 MHz	15.76	16.29	16.01	20.80	20.80	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 30-(15.2-6)=20.8 dBm

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	9.07	9.54	10.05	14.34	20.80	**Complies**
6	2437 MHz	12.35	12.83	12.80	17.44	20.80	**Complies**
11	2462 MHz	9.54	10.04	10.22	14.71	20.80	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 30-(15.2-6)=20.8 dBm

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	17.67	17.78	17.58	22.45	30.00	**Complies**
6	2437 MHz	20.15	19.94	19.76	24.72	30.00	**Complies**
11	2462 MHz	15.37	16.05	15.74	20.50	30.00	**Complies**

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

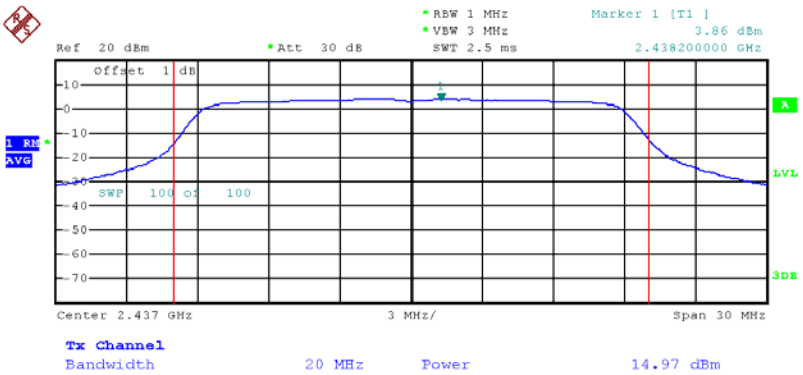
Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
1	2412 MHz	13.78	14.15	14.19	18.82	30.00	**Complies**
6	2437 MHz	18.17	18.43	18.20	23.04	30.00	**Complies**
11	2462 MHz	12.35	12.70	12.97	17.45	30.00	**Complies**

Configuration IEEE 802.11a / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain J2	Chain J3	Chain J4			
149	5745 MHz	17.69	17.99	18.16	22.72	28.43	**Complies**
157	5785 MHz	18.66	18.45	19.28	23.58	28.43	**Complies**
165	5825 MHz	21.32	20.74	20.90	25.76	28.43	**Complies**

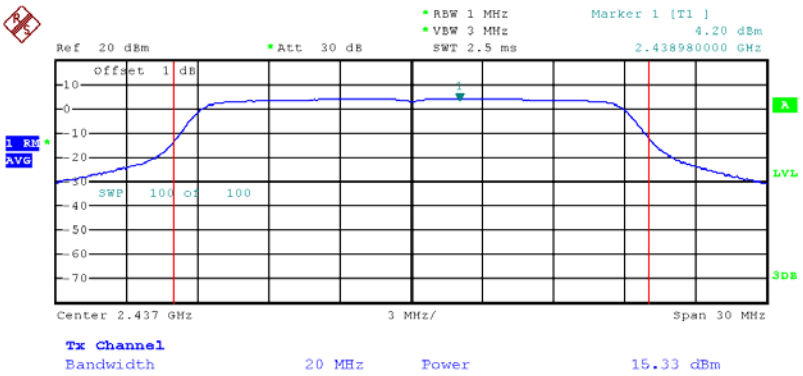
Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 30-(7.57-6)=28.43 dBm

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J2 (3TX) with Ant. 8



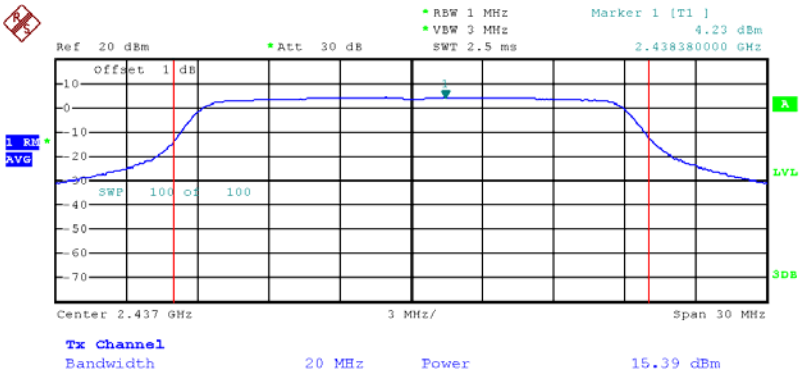
Date: 12.NOV.2012 14:07:18

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J3 (3TX) with Ant. 8



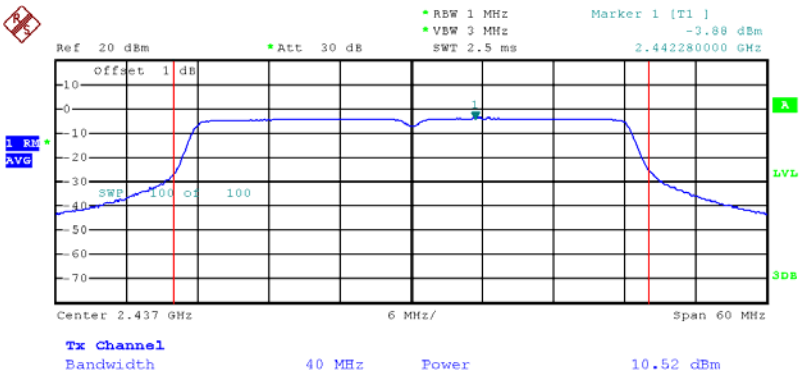
Date: 12.NOV.2012 14:10:08

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J4 (3TX) with Ant. 8



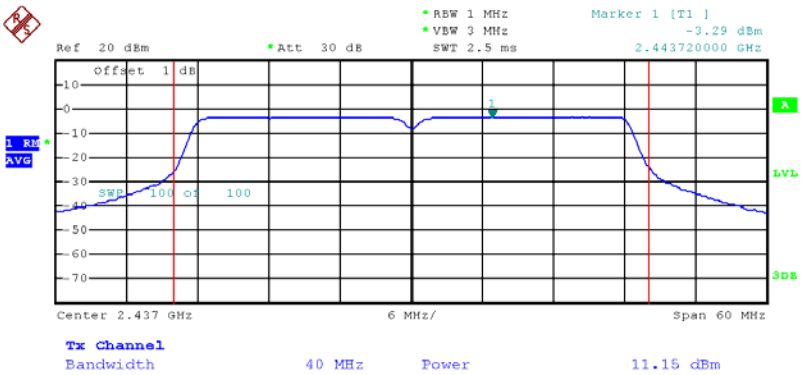
Date: 12.NOV.2012 14:34:59

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J2 with Ant. 8



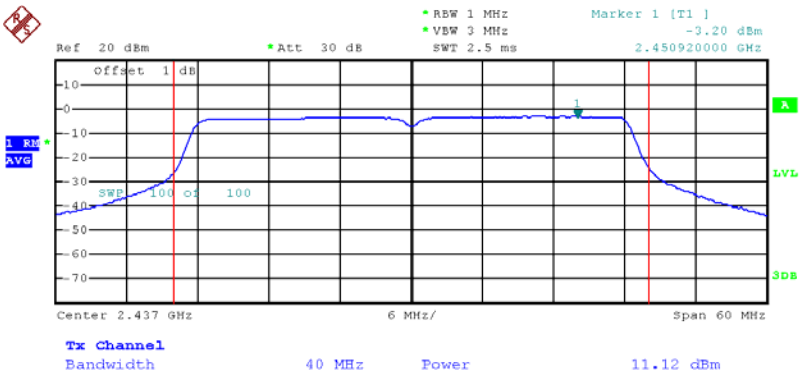
Date: 12.NOV.2012 14:58:39

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J3 with Ant. 8



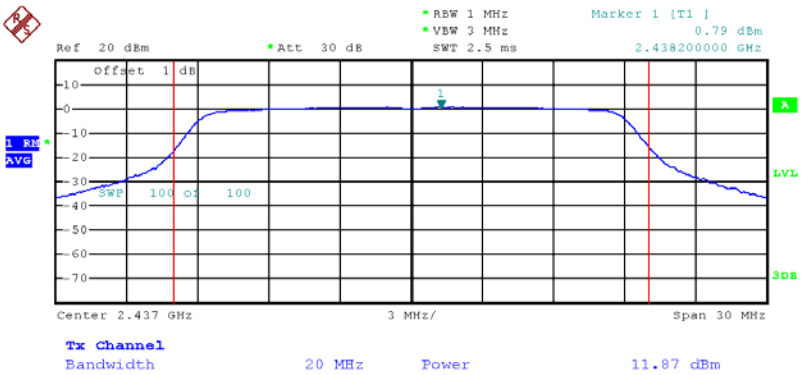
Date: 12.NOV.2012 14:52:03

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J4 (3TX) with Ant. 8



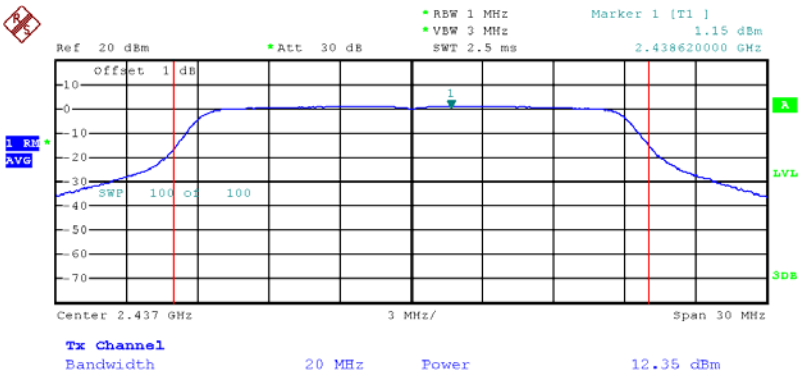
Date: 12.NOV.2012 14:43:04

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J2 with Ant. 9



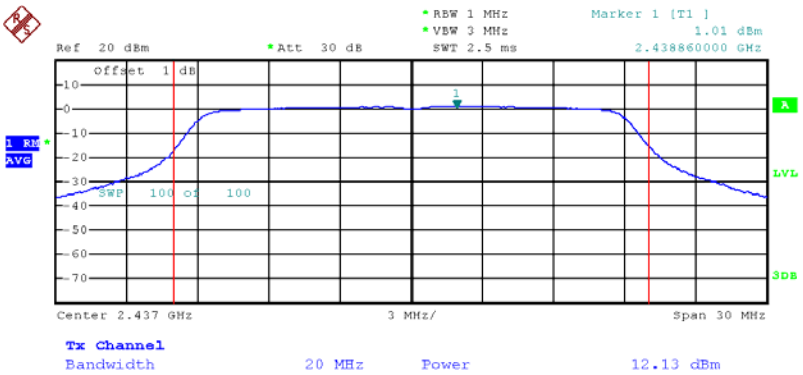
Date: 12.NOV.2012 14:06:49

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J3 with Ant. 9



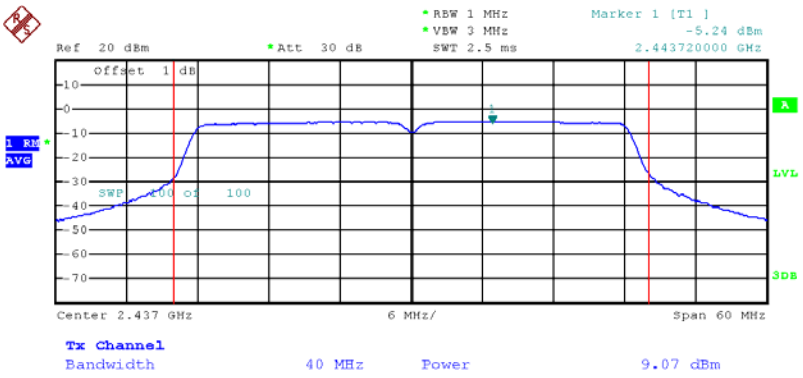
Date: 12.NOV.2012 14:10:28

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J4 (3TX) with Ant. 9



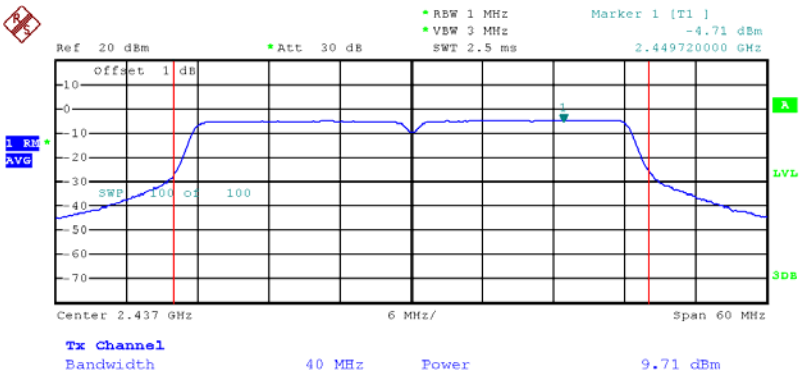
Date: 12.NOV.2012 14:35:30

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J2 with Ant. 9



Date: 12.NOV.2012 14:57:51

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J3 with Ant. 9



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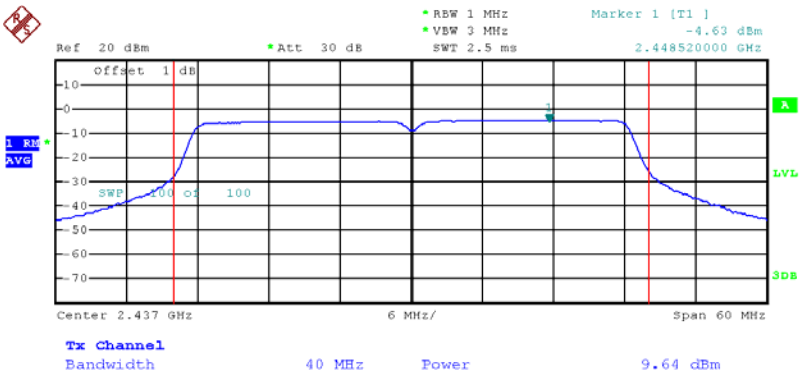
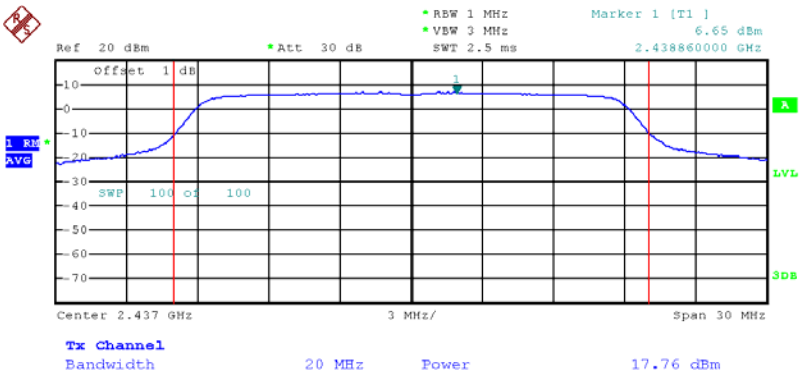
Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J4 (3TX) with Ant. 9



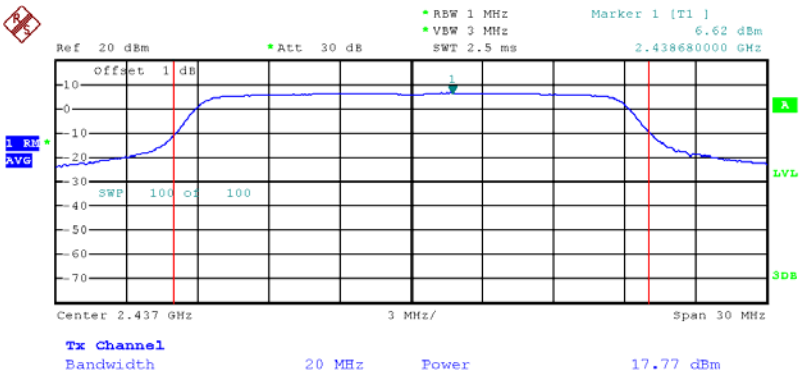
Date: 12.NOV.2012 14:42:21

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J2 (3TX) with Ant. 10



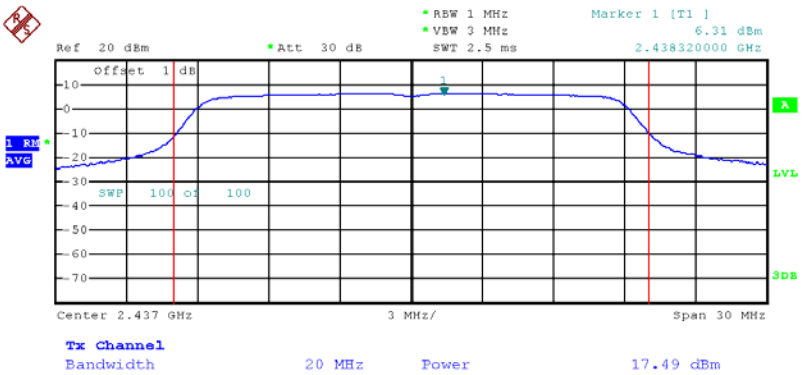
Date: 14.NOV.2012 15:12:03

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J3 (3TX) with Ant. 10



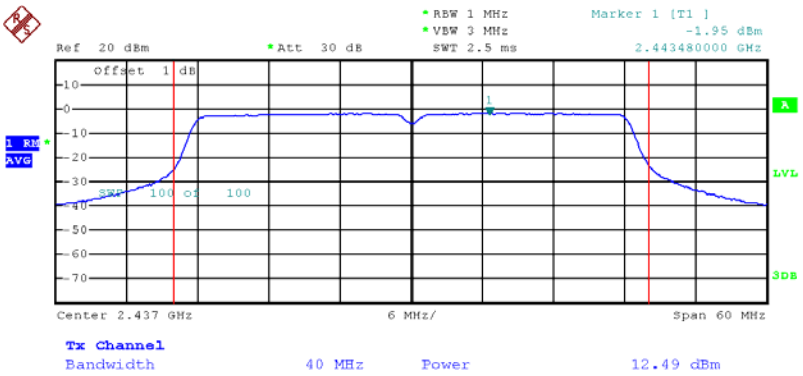
Date: 14.NOV.2012 15:09:57

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437 MHz / Chain J4 (3TX) with Ant. 10



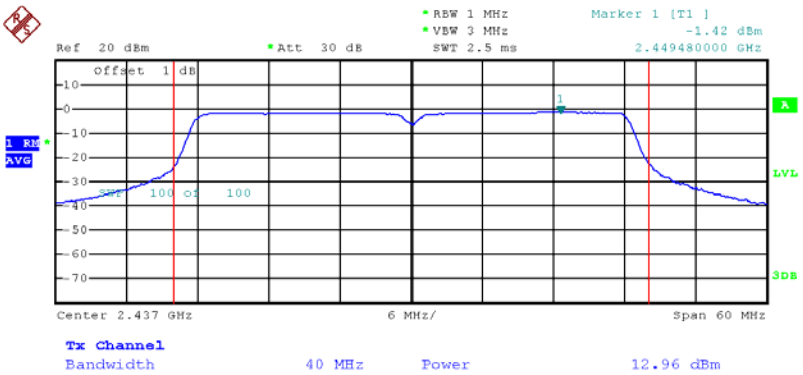
Date: 14.NOV.2012 15:08:36

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J2 with Ant. 10



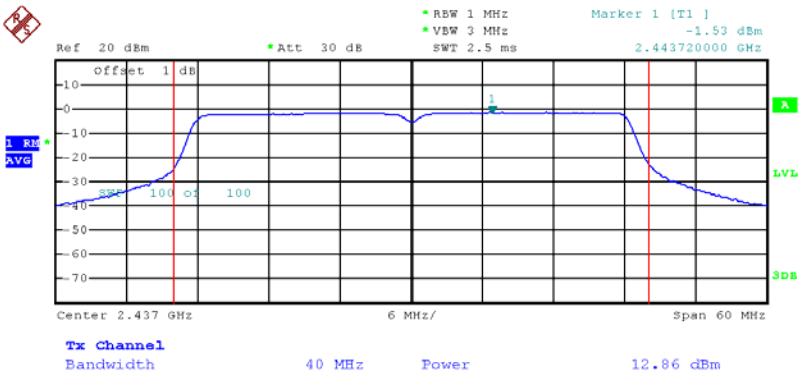
Date: 14.NOV.2012 15:35:44

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J3 with Ant. 10



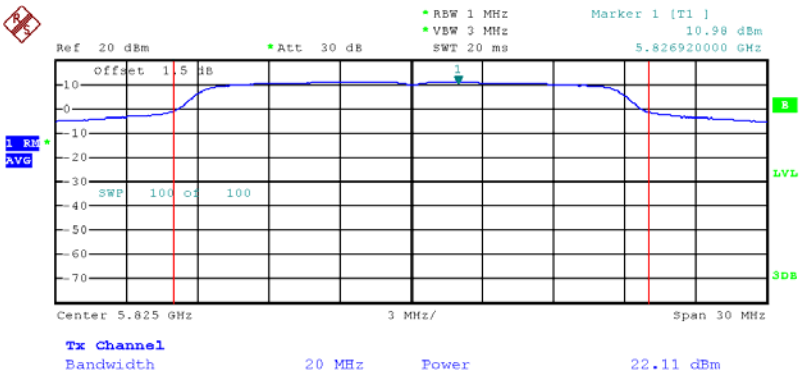
Date: 14.NOV.2012 15:36:33

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437 MHz / Chain J4 (3TX) with Ant. 10



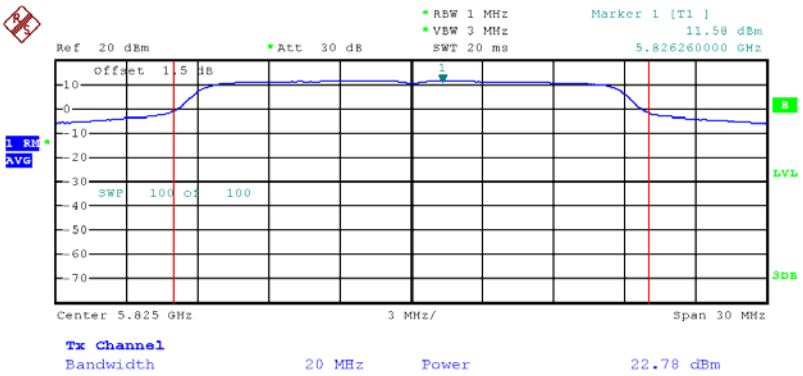
Date: 14.NOV.2012 15:38:38

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 5825 MHz / Chain J2 (3TX) with Ant. 11



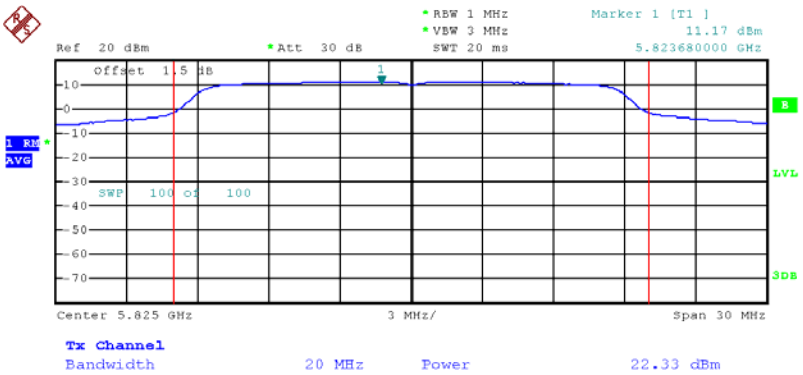
Date: 13.NOV.2012 10:52:22

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 5825 MHz / Chain J3 (3TX) with Ant. 11



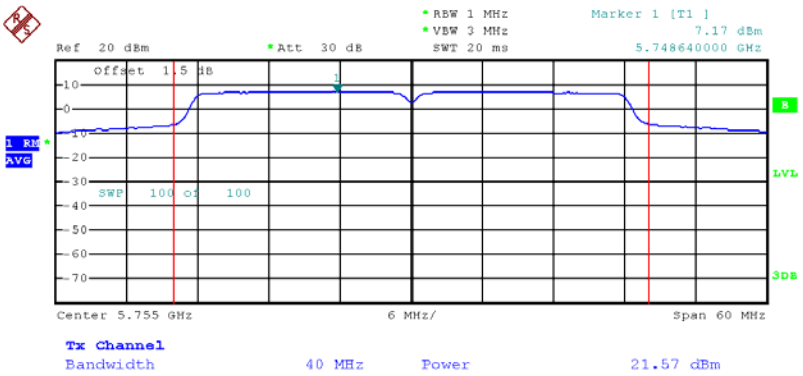
Date: 13.NOV.2012 10:50:58

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 20MHz / 5825 MHz / Chain J4 (3TX) with Ant. 11



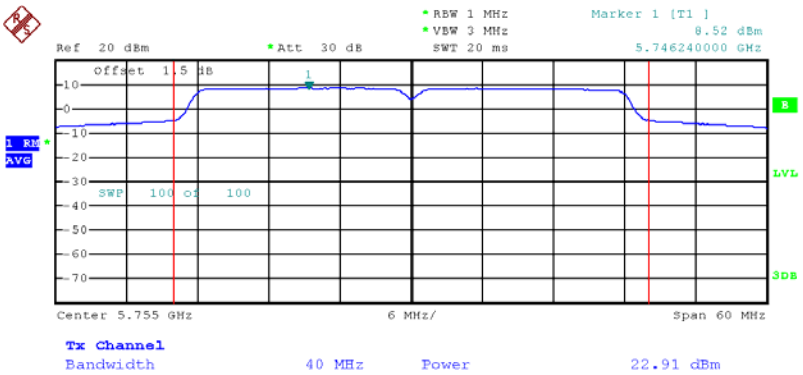
Date: 13.NOV.2012 10:46:33

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 5755 MHz / Chain J2 (3TX) with Ant. 11



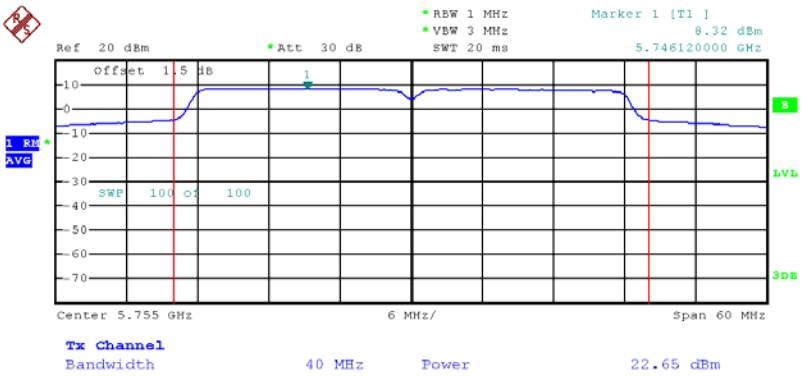
Date: 13.NOV.2012 10:55:37

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 5755 MHz / Chain J3 (3TX) with Ant. 11



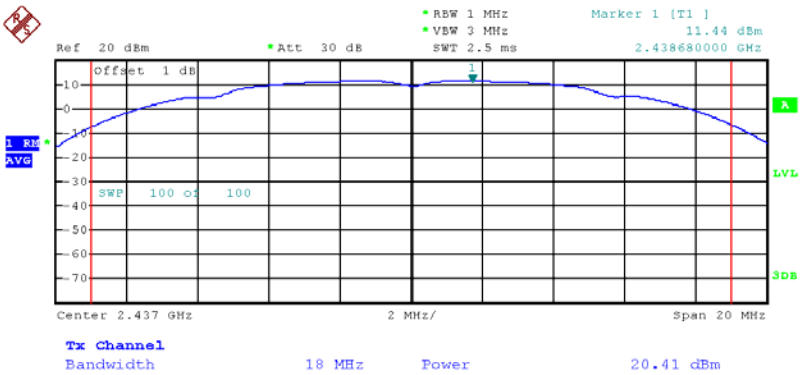
Date: 13.NOV.2012 11:02:06

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 40MHz / 5755 MHz / Chain J4 (3TX) with Ant. 11



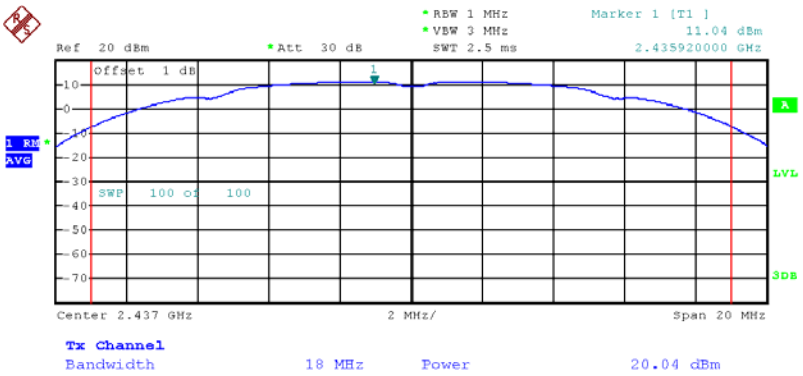
Date: 13.NOV.2012 11:00:54

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J2 (3TX) with Ant. 8



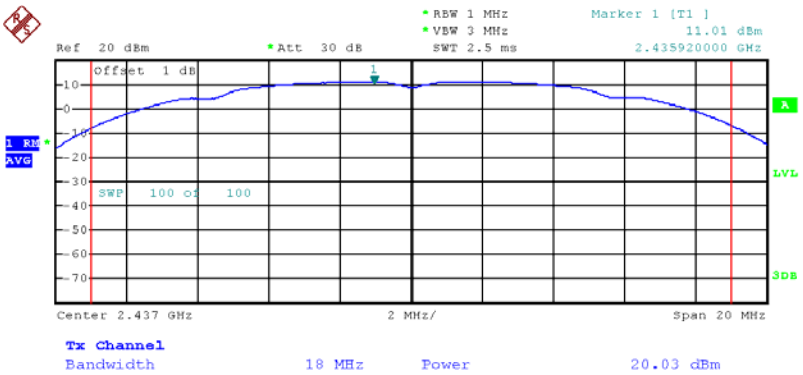
Date: 12.NOV.2012 13:39:08

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J3 (3TX) with Ant. 8



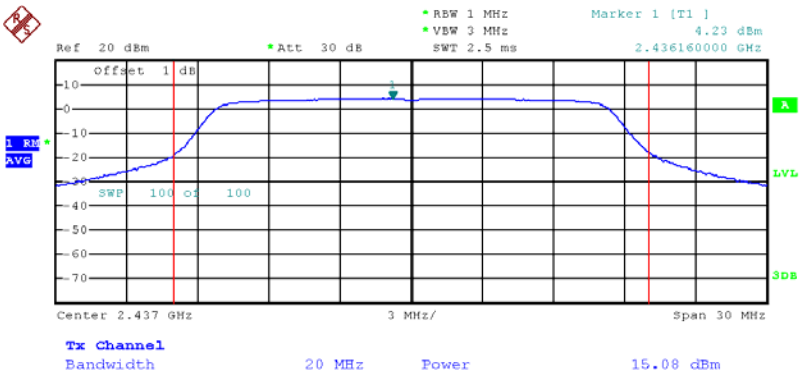
Date: 12.NOV.2012 14:17:24

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J4 (3TX) with Ant. 8



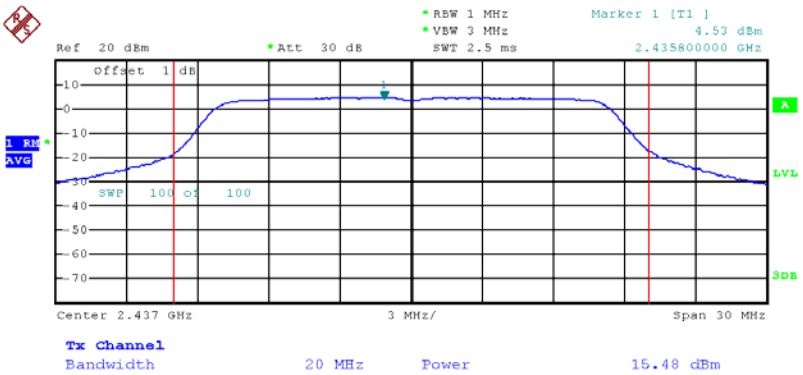
Date: 12.NOV.2012 14:19:02

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J2 (3TX) with Ant. 8



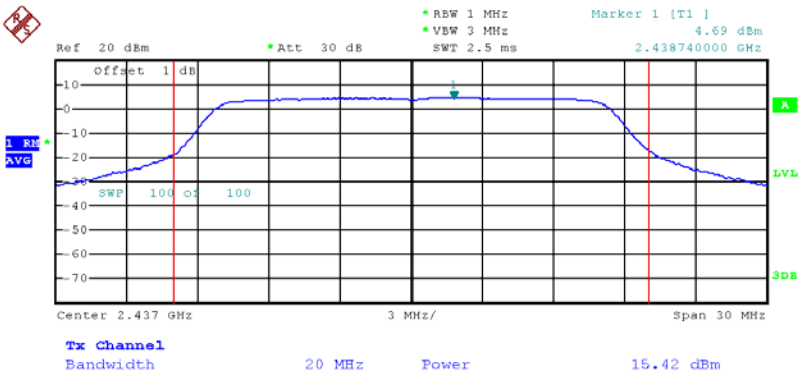
Date: 12.NOV.2012 14:03:36

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J3 (3TX) with Ant. 8



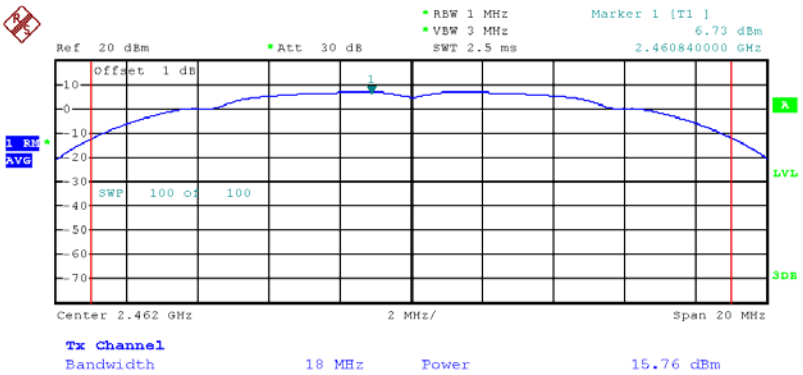
Date: 12.NOV.2012 14:13:53

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J4 (3TX) with Ant. 8



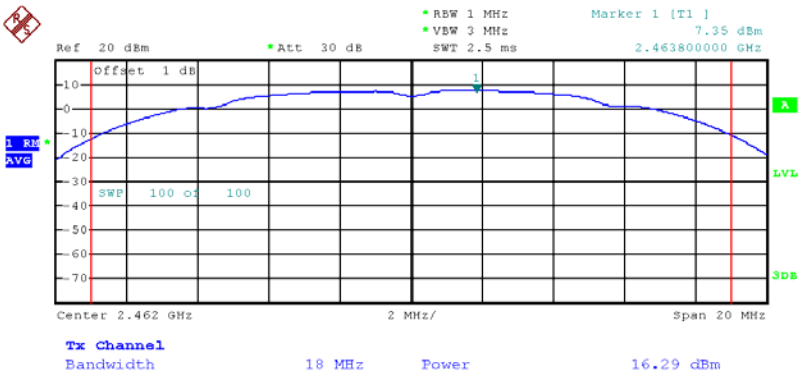
Date: 12.NOV.2012 14:21:50

Conducted Output Power Plot on Configuration IEEE 802.11b / 2462 MHz / Chain J2 (3TX) with Ant. 9



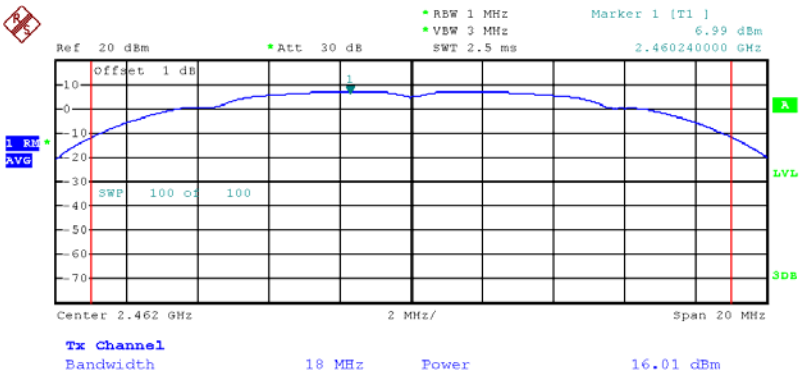
Date: 12.NOV.2012 13:47:52

Conducted Output Power Plot on Configuration IEEE 802.11b / 2462 MHz / Chain J3 (3TX) with Ant. 9



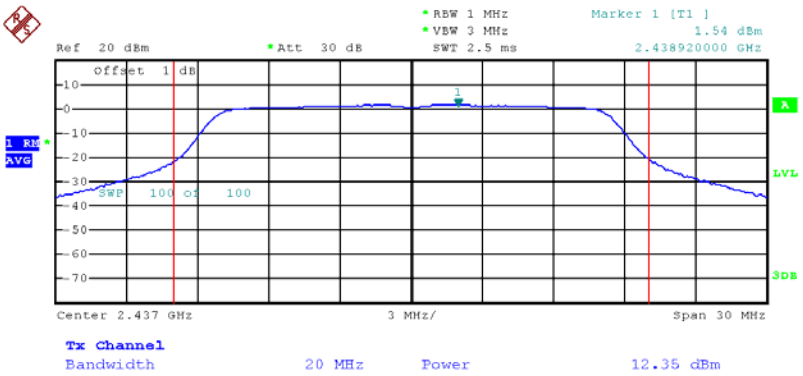
Date: 12.NOV.2012 13:46:51

Conducted Output Power Plot on Configuration IEEE 802.11b / 2462 MHz / Chain J4 (3TX) with Ant. 9



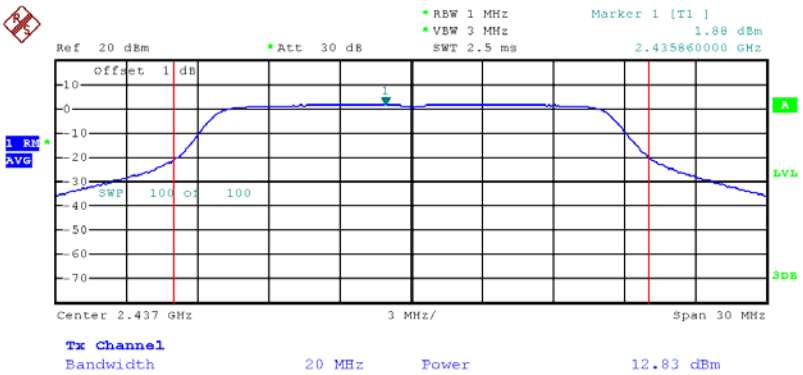
Date: 12.NOV.2012 13:55:28

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J2 (3TX) with Ant. 9



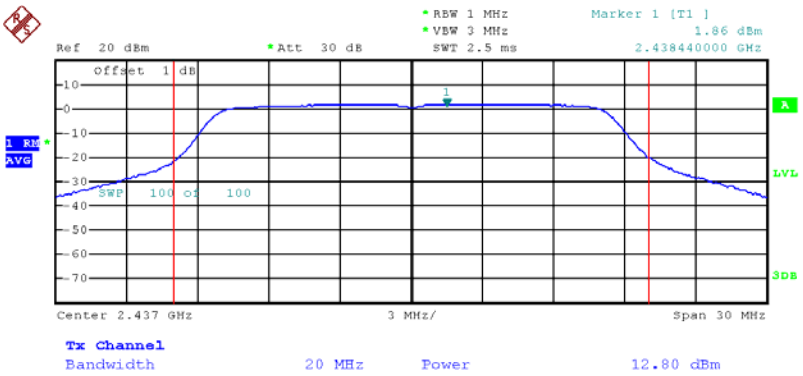
Date: 12.NOV.2012 14:01:35

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J3 (3TX) with Ant. 9



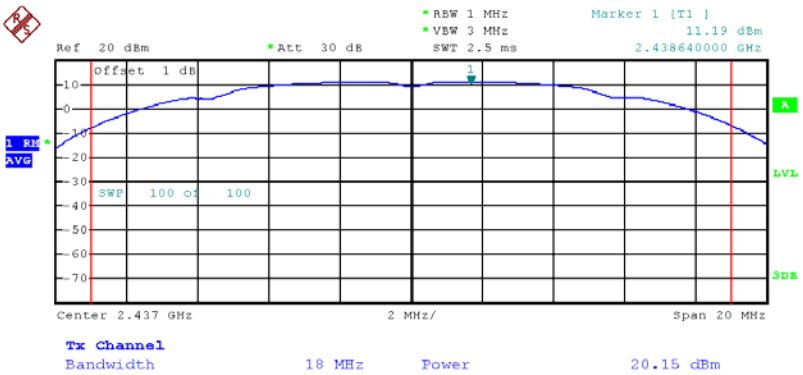
Date: 12.NOV.2012 14:14:12

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J4 (3TX) with Ant. 9



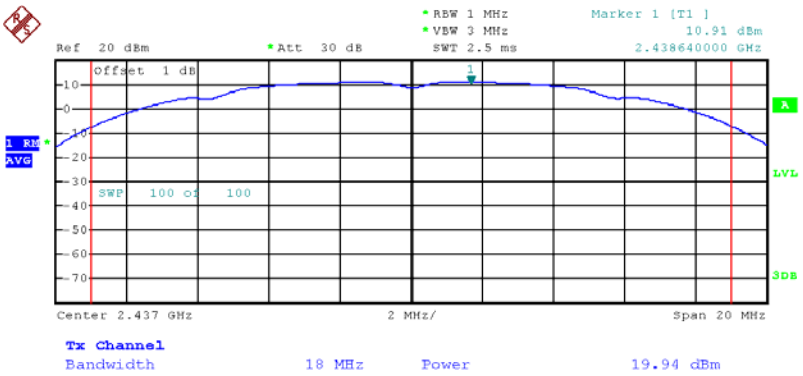
Date: 12.NOV.2012 14:22:31

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J2 (3TX) with Ant. 10



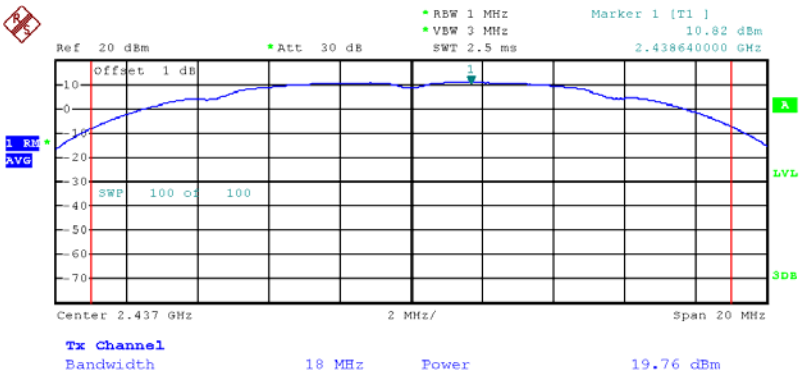
Date: 14.NOV.2012 13:06:37

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J3 (3TX) with Ant. 10



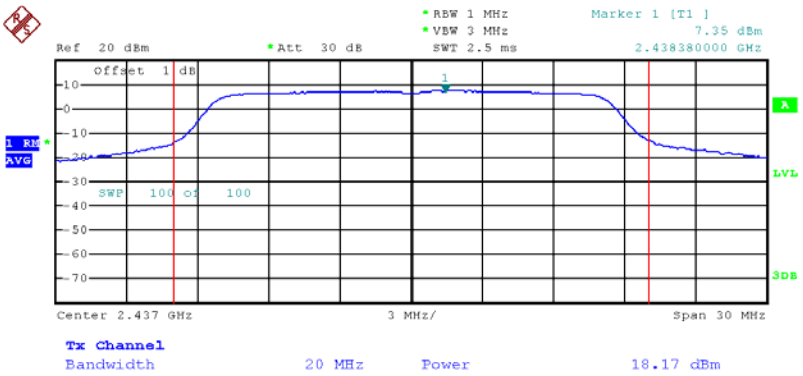
Date: 14.NOV.2012 13:04:18

Conducted Output Power Plot on Configuration IEEE 802.11b / 2437 MHz / Chain J4 (3TX) with Ant. 10



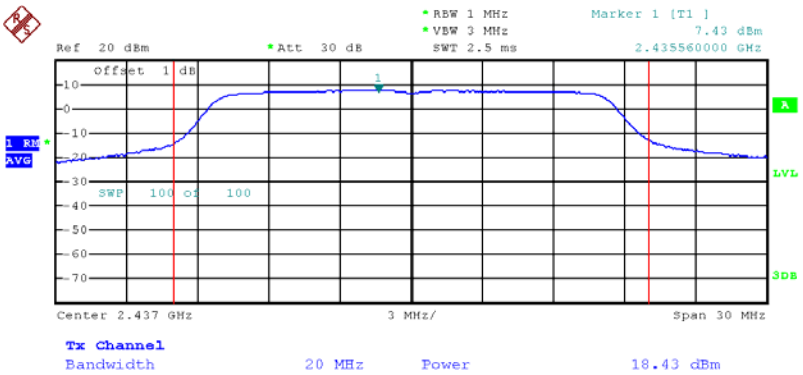
Date: 14.NOV.2012 13:03:30

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J2 (3TX) with Ant. 10



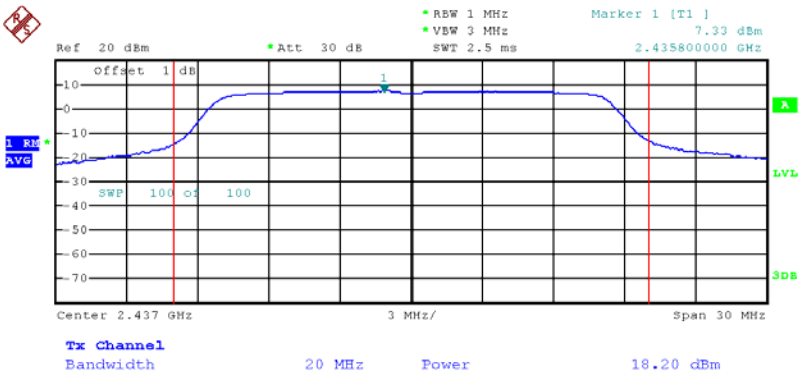
Date: 14.NOV.2012 14:51:17

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J3 (3TX) with Ant. 10



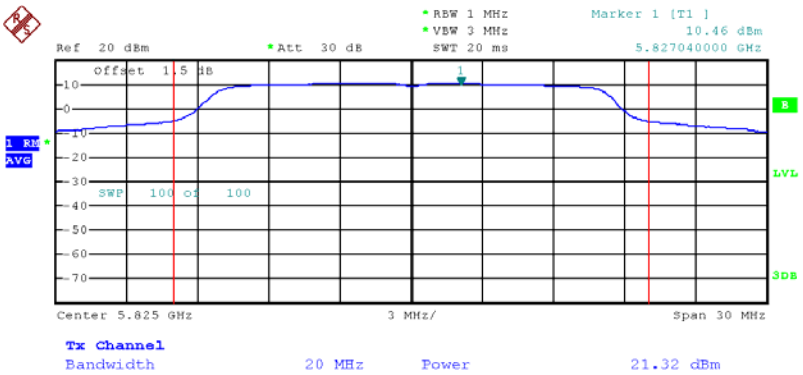
Date: 14.NOV.2012 14:53:28

Conducted Output Power Plot on Configuration IEEE 802.11g / 2437 MHz / Chain J4 (3TX) with Ant. 10



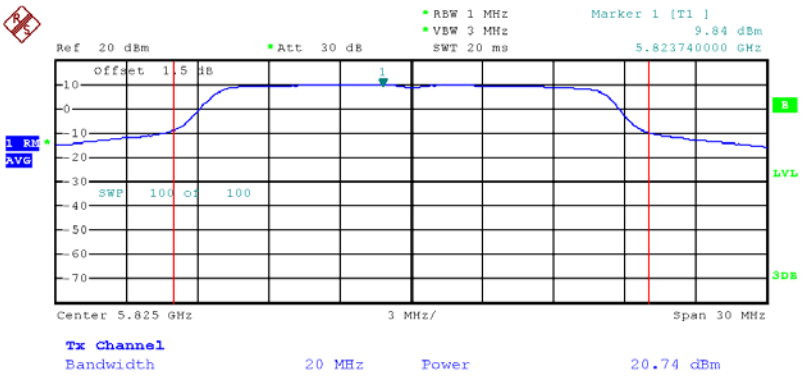
Date: 14.NOV.2012 14:54:27

Conducted Output Power Plot on Configuration IEEE 802.11a / 5825 MHz / Chain J2 (3TX) with Ant. 11



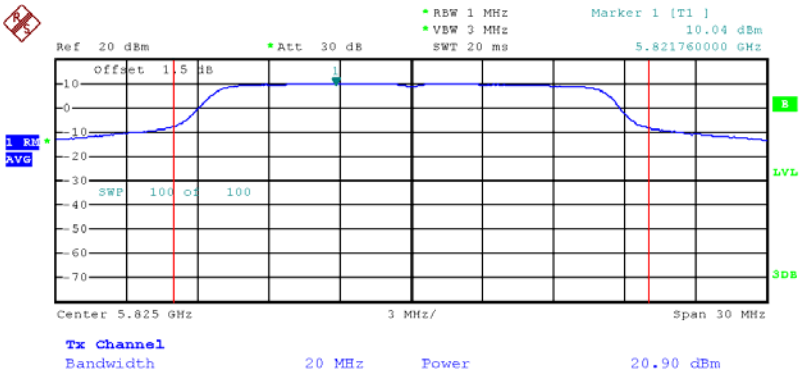
Date: 13.NOV.2012 10:36:00

Conducted Output Power Plot on Configuration IEEE 802.11a / 5825 MHz / Chain J3 (3TX) with Ant. 11



Date: 13.NOV.2012 10:40:32

Conducted Output Power Plot on Configuration IEEE 802.11a / 5825 MHz / Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 10:44:52

4.2. Power Spectral Density Measurement

4.2.1. 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.

4.2.2. Measuring Instruments and Setting

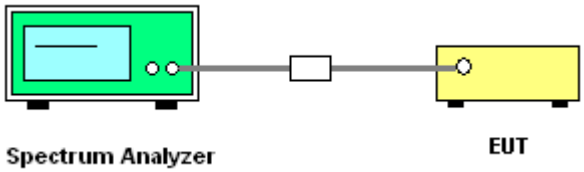
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Set the span to 1.5 times the DTS channel bandwidth.
RB	100 kHz
VB	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto couple

4.2.3. Test Procedures

1. Test procedures refer KDB558074 v01 r02 section 9.1 option 1
2. Spectrum analyzer must be capable of utilizing a number of measurement points in each sweep that is greater than or equal to twice the span/RBW in order to ensure bin-to-bin spacing of ≤ RBW/2 so that narrowband signals are not lost between frequency bins.
3. 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.
4. 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).
5. Use the peak marker function to determine the maximum level in any 100 kHz band segment within the fundamental EBW.
6. 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).
7. The resulting PSD level must be ≤ 8 dBm.
8. When measuring power spectral density with multiple antenna systems, add every result of the values by mathematic formula.

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 Power Spectral Density

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11n
Test Date	Nov. 12, 2012		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	-0.40	1.21	1.12	-15.23	-15.63	-14.02	-14.11	-0.97	**Complies**
2437 MHz	4.72	5.02	4.61	-15.23	-10.51	-10.21	-10.62	-0.97	**Complies**
2462 MHz	-0.04	0.28	1.03	-15.23	-15.27	-14.95	-14.20	-0.97	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit = 8-(10.2-6)-10log(3)=-0.97 dBm/3kHz

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2422 MHz	-5.17	-4.66	-4.91	-15.23	-20.40	-19.89	-20.14	-0.97	**Complies**
2437 MHz	-2.78	-1.74	-2.01	-15.23	-18.01	-16.97	-17.24	-0.97	**Complies**
2452 MHz	-5.12	-3.27	-4.45	-15.23	-20.35	-18.50	-19.68	-0.97	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit = 8-(10.2-6)-10log(3)=-0.97 dBm/3kHz

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	-2.46	-0.90	-0.50	-15.23	-17.69	-16.13	-15.73	-5.97	**Complies**
2437 MHz	0.87	2.21	1.05	-15.23	-14.36	-13.02	-14.18	-5.97	**Complies**
2462 MHz	-1.50	0.12	-1.15	-15.23	-16.73	-15.11	-16.38	-5.97	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 8-(15.2-6)-10log(3)=-5.97 dBm/3kHz

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2422 MHz	-6.69	-6.75	-6.14	-15.23	-21.92	-21.98	-21.37	-5.97	**Complies**
2437 MHz	-4.39	-3.32	-3.76	-15.23	-19.62	-18.55	-18.99	-5.97	**Complies**
2452 MHz	-8.00	-7.56	-6.87	-15.23	-23.23	-22.79	-22.10	-5.97	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 8-(15.2-6)-10log(3)=-5.97 dBm/3kHz

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	2.07	3.45	2.69	-15.23	-13.16	-11.78	-12.54	3.23	**Complies**
2437 MHz	7.38	8.27	7.26	-15.23	-7.85	-6.96	-7.97	3.23	**Complies**
2462 MHz	0.98	2.01	1.82	-15.23	-14.25	-13.22	-13.41	3.23	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2422 MHz	-3.44	-2.82	-2.76	-15.23	-18.67	-18.05	-17.99	3.23	**Complies**
2437 MHz	-1.54	-0.28	-0.56	-15.23	-16.77	-15.51	-15.79	3.23	**Complies**
2452 MHz	-3.67	-2.43	-3.48	-15.23	-18.90	-17.66	-18.71	3.23	**Complies**

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
5745 MHz	10.96	9.85	10.13	-15.23	-4.27	-5.38	-5.10	1.66	**Complies**
5785 MHz	13.30	11.79	11.67	-15.23	-1.93	-3.44	-3.56	1.66	**Complies**
5825 MHz	13.18	13.59	13.03	-15.23	-2.05	-1.64	-2.20	1.66	**Complies**

Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 8-(7.57-6)-10log(3)=1.66 dBm/3kHz

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
5755 MHz	9.68	10.06	11.16	-15.23	-5.55	-5.17	-4.07	1.66	**Complies**
5795 MHz	9.84	11.58	10.43	-15.23	-5.39	-3.65	-4.80	1.66	**Complies**

Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 8-(7.57-6)-10log(3)=1.66 dBm/3kHz

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11a/b/g
Test Date	Nov. 12, 2012		

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	7.00	7.98	7.56	-15.23	-8.23	-7.25	-7.67	-0.97	**Complies**
2437 MHz	10.86	11.70	10.96	-15.23	-4.37	-3.53	-4.27	-0.97	**Complies**
2462 MHz	5.58	7.77	6.93	-15.23	-9.65	-7.46	-8.30	-0.97	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit = 8-(10.2-6)-10log(3)=-0.97 dBm/3kHz

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	1.32	2.14	2.34	-15.23	-13.91	-13.09	-12.89	-0.97	**Complies**
2437 MHz	5.06	5.16	5.02	-15.23	-10.17	-10.07	-10.21	-0.97	**Complies**
2462 MHz	1.12	2.19	1.51	-15.23	-14.11	-13.04	-13.72	-0.97	**Complies**

Note: Ant. Gain is 10.2dBi >6dBi, so the Limit = 8-(10.2-6)-10log(3)=-0.97 dBm/3kHz

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	6.05	6.24	6.18	-15.23	-9.18	-8.99	-9.05	-5.97	**Complies**
2437 MHz	5.96	7.04	6.43	-15.23	-9.27	-8.19	-8.80	-5.97	**Complies**
2462 MHz	6.07	7.65	7.19	-15.23	-9.16	-7.58	-8.04	-5.97	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 8-(15.2-6)-10log(3)=-5.97 dBm/3kHz

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	-1.44	-0.81	-0.54	-15.23	-16.67	-16.04	-15.77	-5.97	**Complies**
2437 MHz	0.96	2.00	3.21	-15.23	-14.27	-13.23	-12.02	-5.97	**Complies**
2462 MHz	-1.61	0.35	0.34	-15.23	-16.84	-14.88	-14.89	-5.97	**Complies**

Note: Ant. Gain is 15.2dBi >6dBi, so the Limit = 8-(15.2-6)-10log(3)=-5.97 dBm/3kHz

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	8.64	8.93	8.64	-15.23	-6.59	-6.30	-6.59	3.23	**Complies**
2437 MHz	10.79	11.76	11.29	-15.23	-4.44	-3.47	-3.94	3.23	**Complies**
2462 MHz	6.21	8.04	7.09	-15.23	-9.02	-7.19	-8.14	3.23	**Complies**

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
2412 MHz	2.65	3.46	3.05	-15.23	-12.58	-11.77	-12.18	3.23	**Complies**
2437 MHz	7.15	8.42	8.35	-15.23	-8.08	-6.81	-6.88	3.23	**Complies**
2462 MHz	2.23	2.70	2.45	-15.23	-13.00	-12.53	-12.78	3.23	**Complies**

Configuration IEEE 802.11a / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

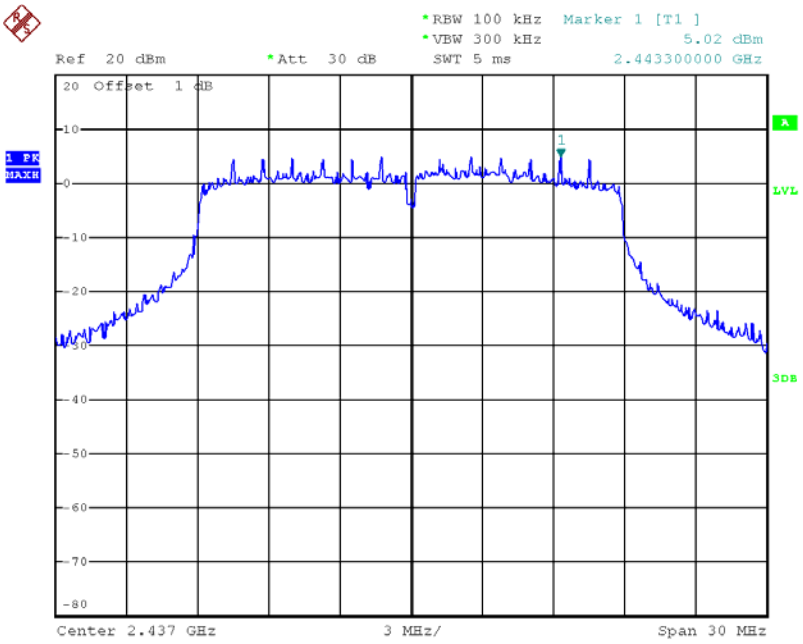
Frequency	Power Density (dBm/100kHz)			BWCF factor (100KHz to 3KHz)	Power Density (dBm/3kHz)			Single Port Limit (dBm/3kHz)	Result
	Chain J2	Chain J3	Chain J4		Chain J2	Chain J3	Chain J4		
5745 MHz	10.46	10.48	10.10	-15.23	-4.77	-4.75	-5.13	1.66	**Complies**
5785 MHz	13.54	11.36	11.38	-15.23	-1.69	-3.87	-3.85	1.66	**Complies**
5825 MHz	12.32	11.40	11.37	-15.23	-2.91	-3.83	-3.86	1.66	**Complies**

Note: Ant. Gain is 7.57dBi >6dBi, so the Limit = 8-(7.57-6)-10log(3)=1.66 dBm/3kHz

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

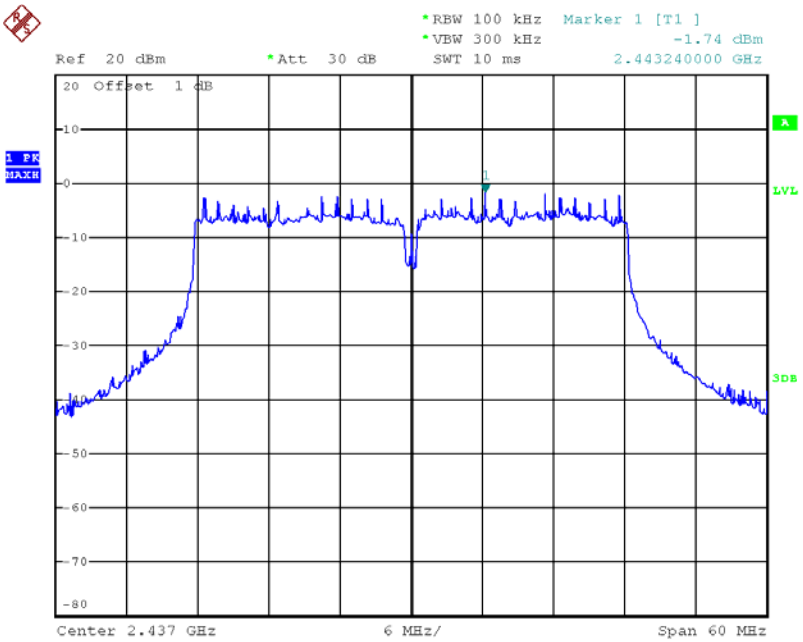
For plots, only the channel with maximum results was shown.

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437MHz / Chain J3 (3TX) with Ant. 8



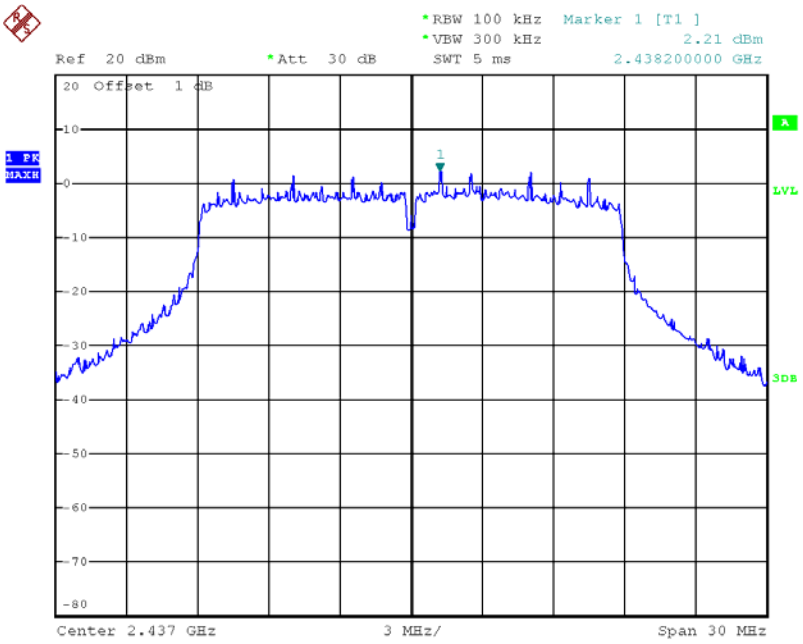
Date: 12.NOV.2012 17:08:31

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437MHz / Chain J3 (3TX) with Ant. 8



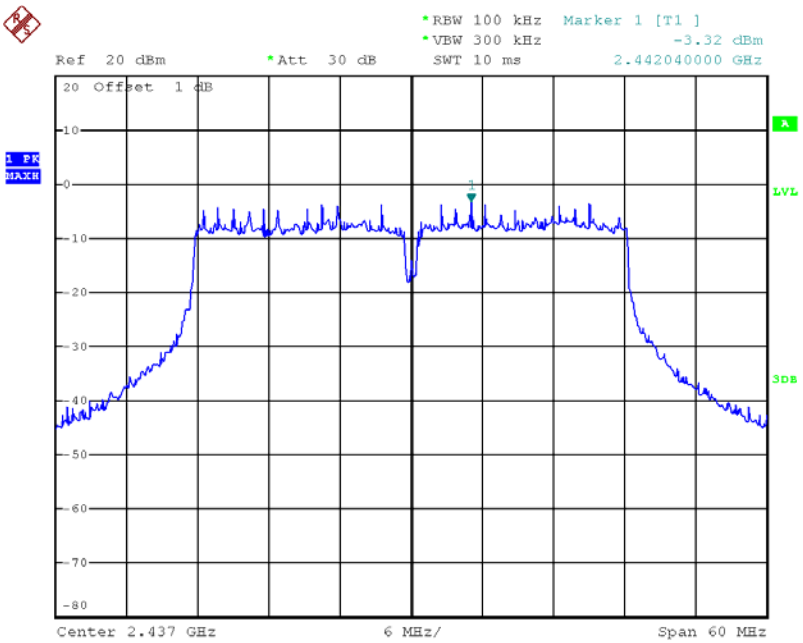
Date: 12.NOV.2012 16:34:53

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437MHz / Chain J3 (3TX) with Ant. 9



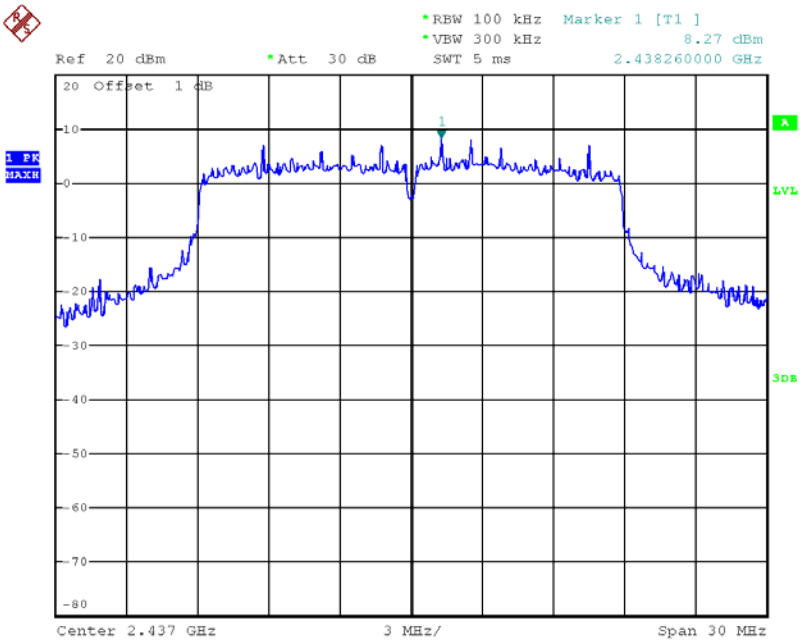
Date: 12.NOV.2012 17:07:44

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437MHz / Chain J3 (3TX) with Ant. 9



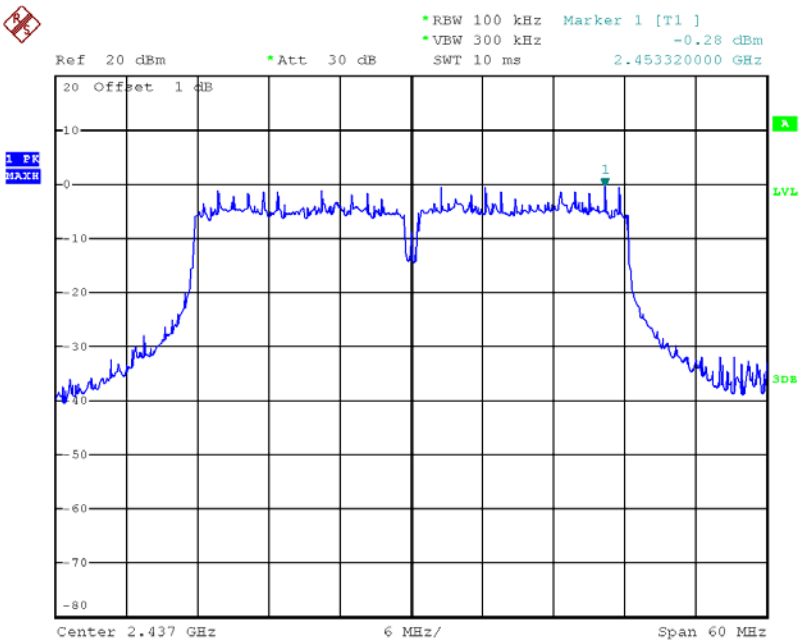
Date: 12.NOV.2012 16:34:34

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437MHz / Chain J3 (3TX) with Ant. 10



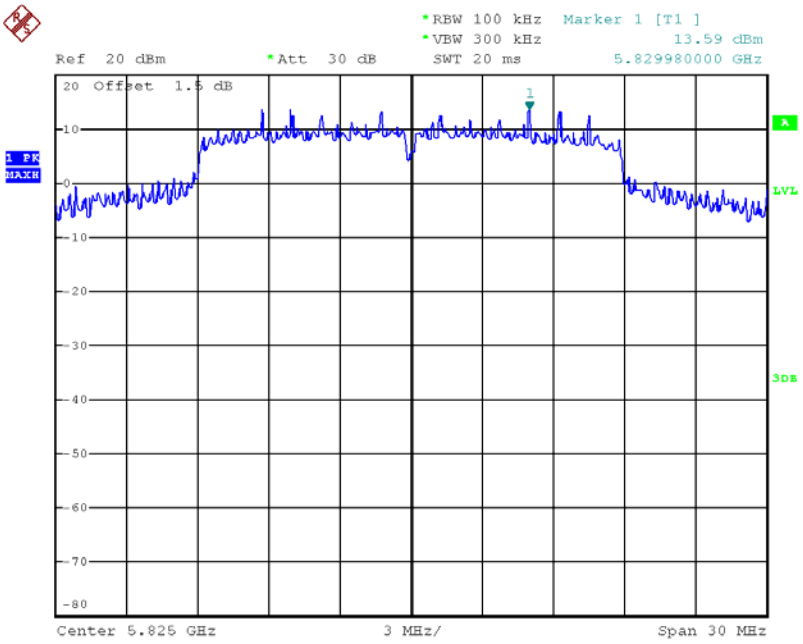
Date: 14.NOV.2012 15:10:24

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437MHz / Chain J3 (3TX) with Ant. 10



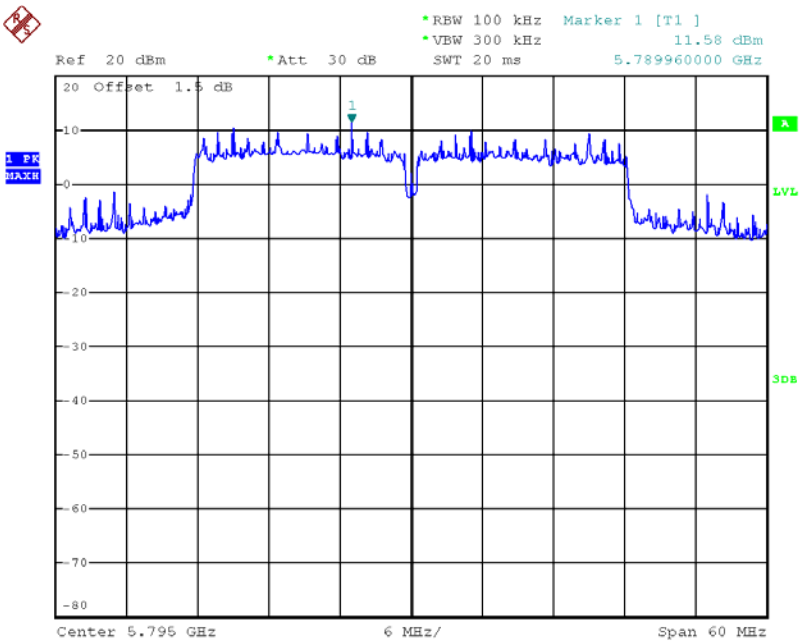
Date: 14.NOV.2012 15:37:15

Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / 5825MHz / Chain J3 (3TX) with Ant. 11



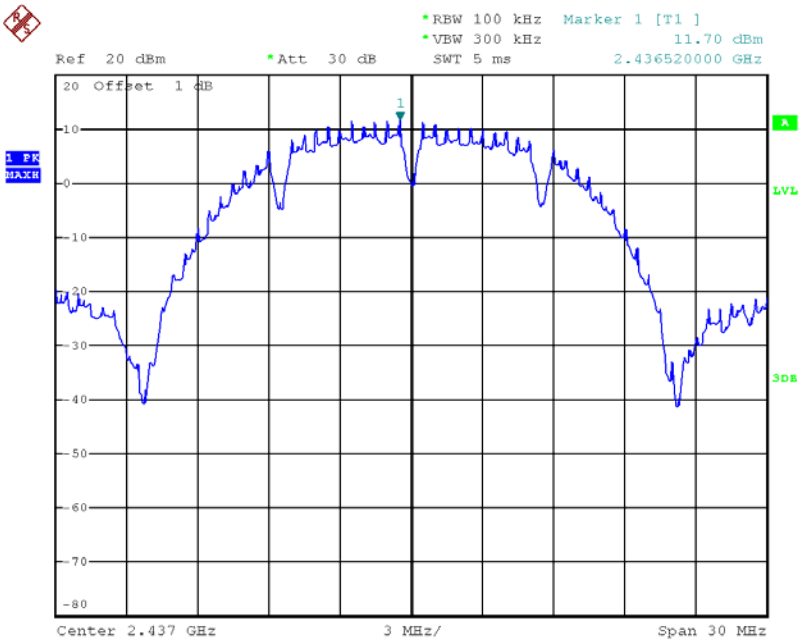
Date: 13.NOV.2012 10:51:22

Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / 5795MHz / Chain J3 (3TX) with Ant. 11



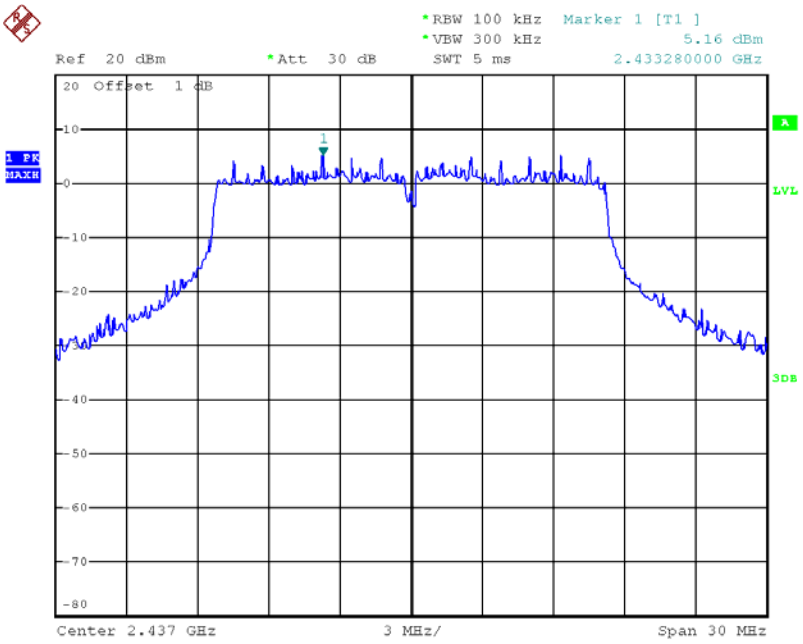
Date: 13.NOV.2012 10:59:17

Power Density Plot on Configuration IEEE 802.11b / 2437MHz / Chain J3 (3TX) with Ant. 8



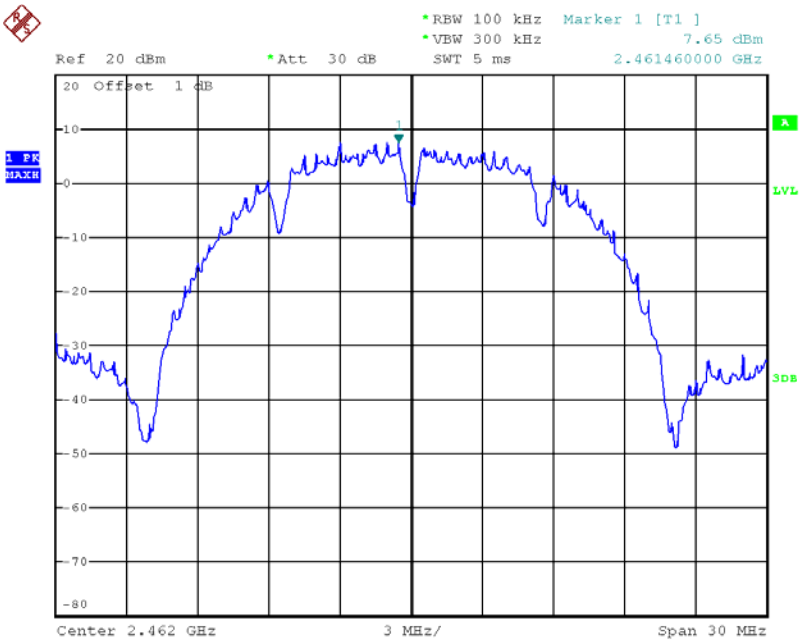
Date: 12.NOV.2012 17:00:10

Power Density Plot on Configuration IEEE 802.11g / 2437MHz / Chain J3 (3TX) with Ant. 8



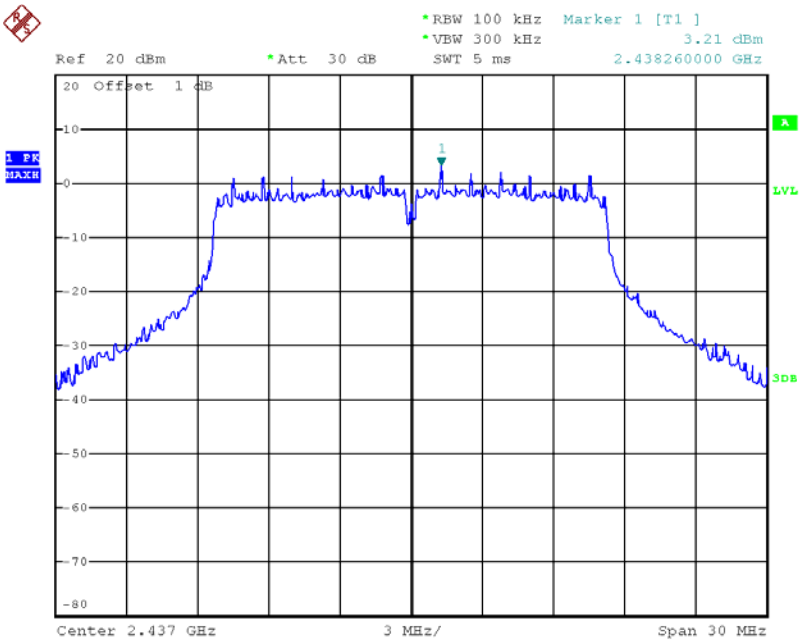
Date: 12.NOV.2012 17:03:48

Power Density Plot on Configuration IEEE 802.11b / 2462MHz / Chain J3 (3TX) with Ant. 9



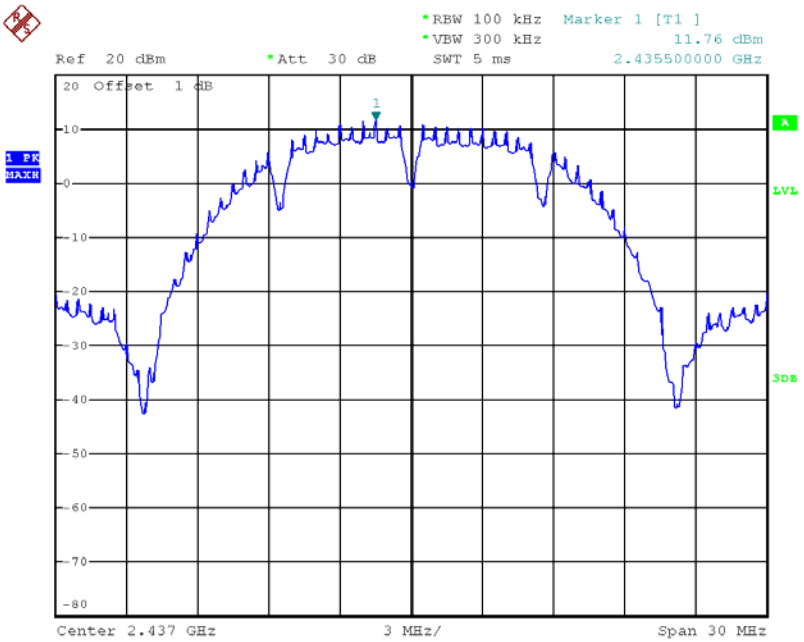
Date: 12.NOV.2012 17:00:58

Power Density Plot on Configuration IEEE 802.11g / 2437MHz / Chain J4 (3TX) with Ant. 9



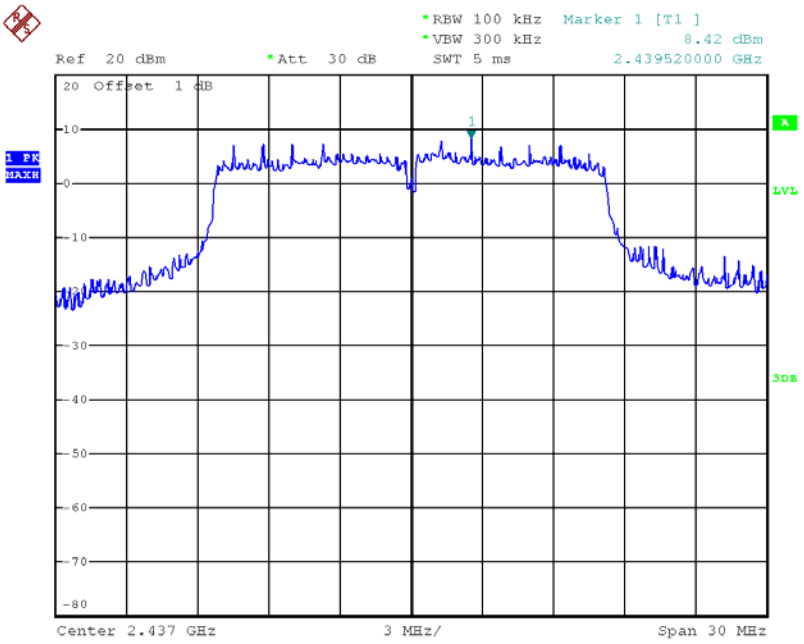
Date: 12.NOV.2012 16:47:20

Power Density Plot on Configuration IEEE 802.11b / 2437MHz / Chain J3 (3TX) with Ant. 10



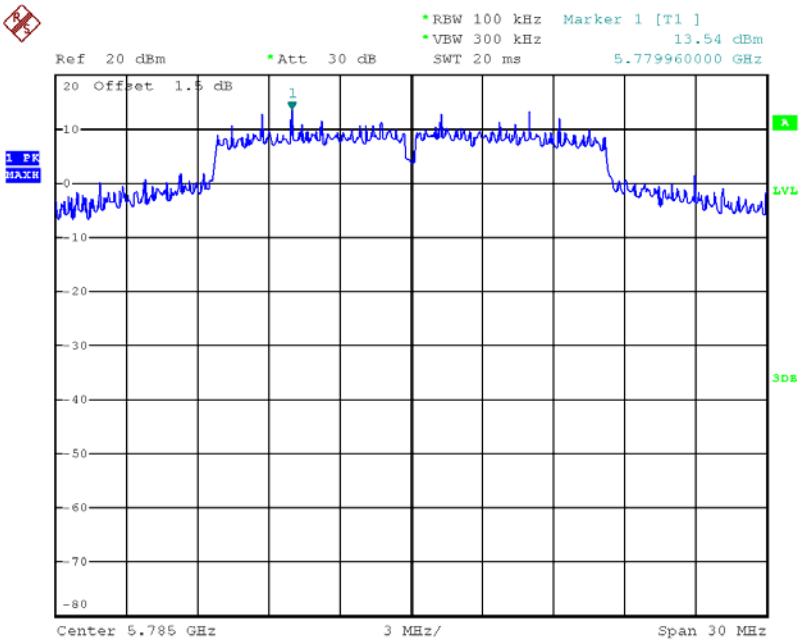
Date: 14.NOV.2012 13:04:57

Power Density Plot on Configuration IEEE 802.11g / 2437MHz / Chain J3 (3TX) with Ant. 10



Date: 14.NOV.2012 14:52:54

Power Density Plot on Configuration IEEE 802.11a / 5785MHz / Chain J2 (3TX) with Ant. 11



Date: 13.NOV.2012 10:34:55

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

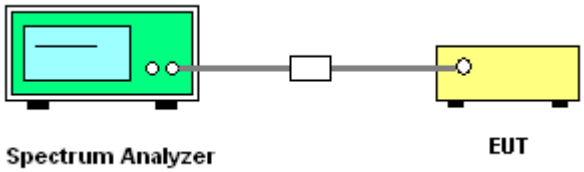
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	1-5 % or DTS BW, not exceed 100KHz
VB	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. 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 system 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.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11n
Test Date	Nov. 12, 2012		

For 2.4GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.32	17.76	500	**Complies**
6	2437 MHz	17.60	17.76	500	**Complies**
11	2462 MHz	17.68	17.76	500	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.48	36.48	500	**Complies**
6	2437 MHz	36.16	36.48	500	**Complies**
9	2452 MHz	36.32	36.48	500	**Complies**

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.76	500	**Complies**
6	2437 MHz	17.68	17.76	500	**Complies**
11	2462 MHz	17.60	17.76	500	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	32.64	36.48	500	**Complies**
6	2437 MHz	36.48	36.48	500	**Complies**
9	2452 MHz	35.20	36.48	500	**Complies**

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	17.60	17.76	500	**Complies**
6	2437 MHz	17.68	17.92	500	**Complies**
11	2462 MHz	17.20	17.76	500	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
3	2422 MHz	36.00	36.48	500	**Complies**
6	2437 MHz	35.76	36.36	500	**Complies**
9	2452 MHz	36.36	36.36	500	**Complies**

For 5GHz Band

Configuration IEEE 802.11n MCS0 20MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.00	19.52	500	**Complies**
157	5785 MHz	17.60	28.00	500	**Complies**
165	5825 MHz	17.12	31.12	500	**Complies**

Configuration IEEE 802.11n MCS0 40MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.48	69.12	500	**Complies**
159	5795 MHz	36.32	64.64	500	**Complies**

Temperature	25℃	Humidity	56%
Test Engineer	Denis Su	Configurations	IEEE 802.11a/b/g
Test Date	Nov. 12, 2012		

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	9.76	15.28	500	**Complies**
6	2437 MHz	10.08	15.36	500	**Complies**
11	2462 MHz	10.08	15.04	500	**Complies**

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.32	16.48	500	**Complies**
6	2437 MHz	16.32	16.40	500	**Complies**
11	2462 MHz	16.32	16.40	500	**Complies**

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	9.04	15.04	500	**Complies**
6	2437 MHz	9.84	15.28	500	**Complies**
11	2462 MHz	9.04	15.28	500	**Complies**

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	16.40	16.48	500	**Complies**
6	2437 MHz	16.32	16.48	500	**Complies**
11	2462 MHz	16.32	16.48	500	**Complies**

Configuration IEEE 802.11b / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	9.12	15.28	500	**Complies**
6	2437 MHz	9.52	15.20	500	**Complies**
11	2462 MHz	9.04	15.12	500	**Complies**

Configuration IEEE 802.11g / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
1	2412 MHz	15.68	16.40	500	**Complies**
6	2437 MHz	16.32	16.64	500	**Complies**
11	2462 MHz	16.32	16.40	500	**Complies**

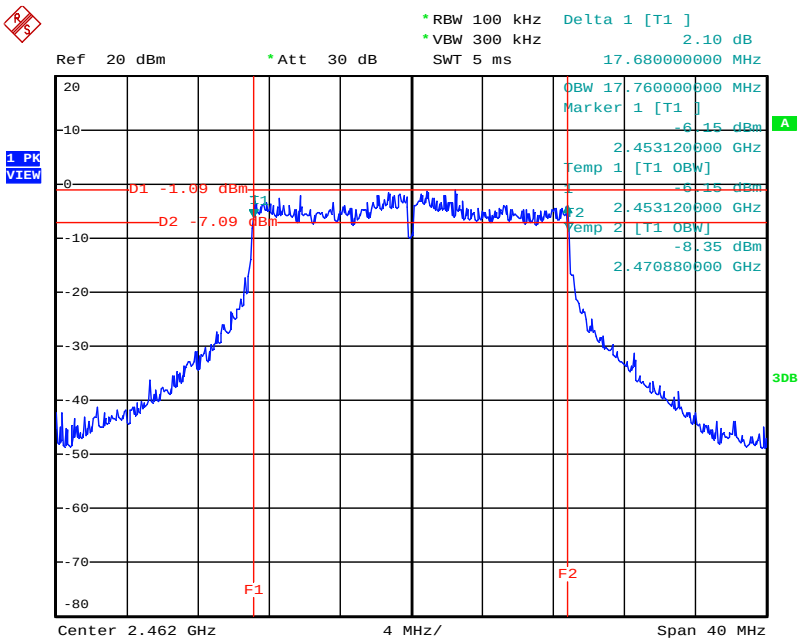
Configuration IEEE 802.11a / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.32	18.64	500	**Complies**
157	5785 MHz	15.36	27.04	500	**Complies**
165	5825 MHz	16.00	22.72	500	**Complies**

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

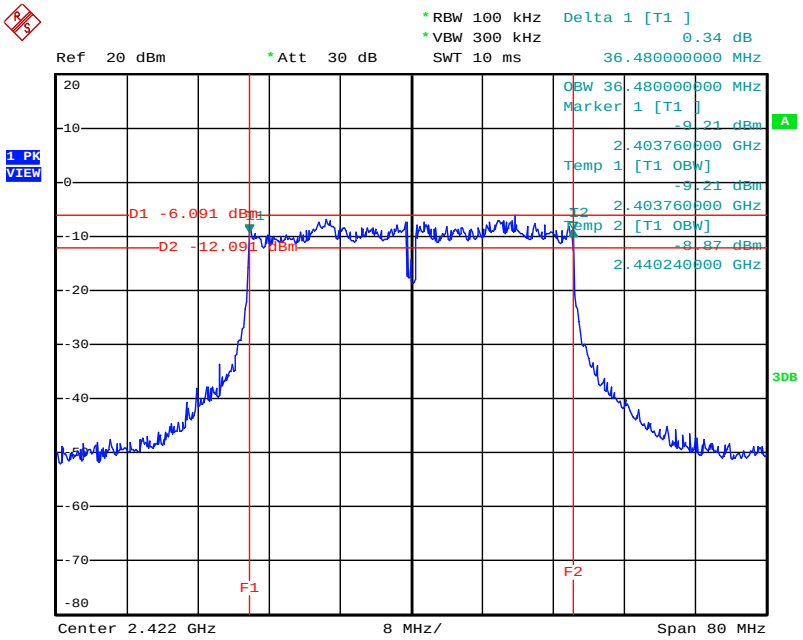
For plots, only the channel with maximum results was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 2462MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



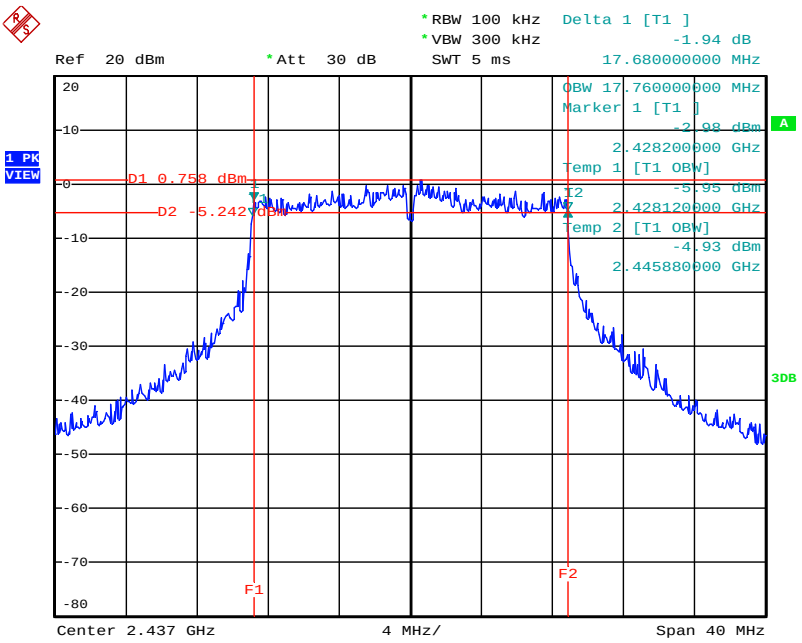
Date: 12.NOV.2012 15:58:16

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 2422MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



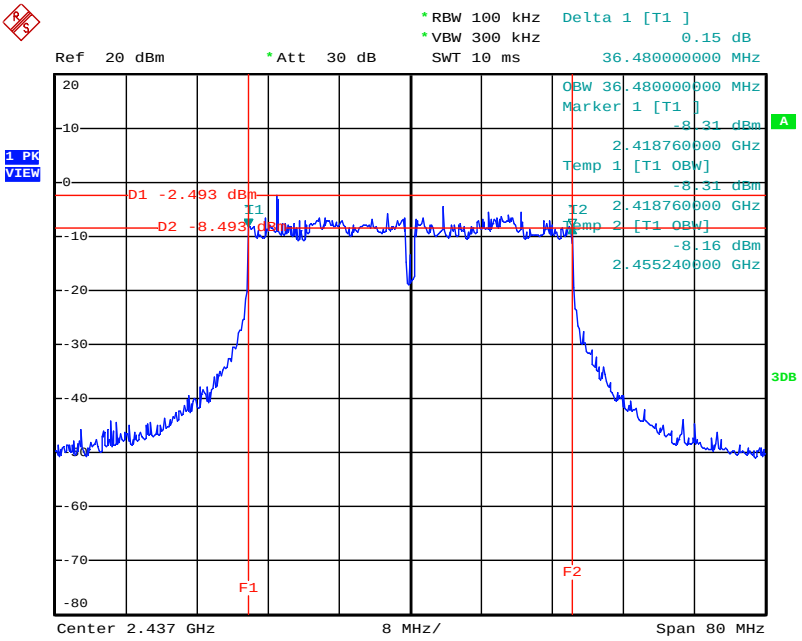
Date: 12.NOV.2012 16:02:18

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



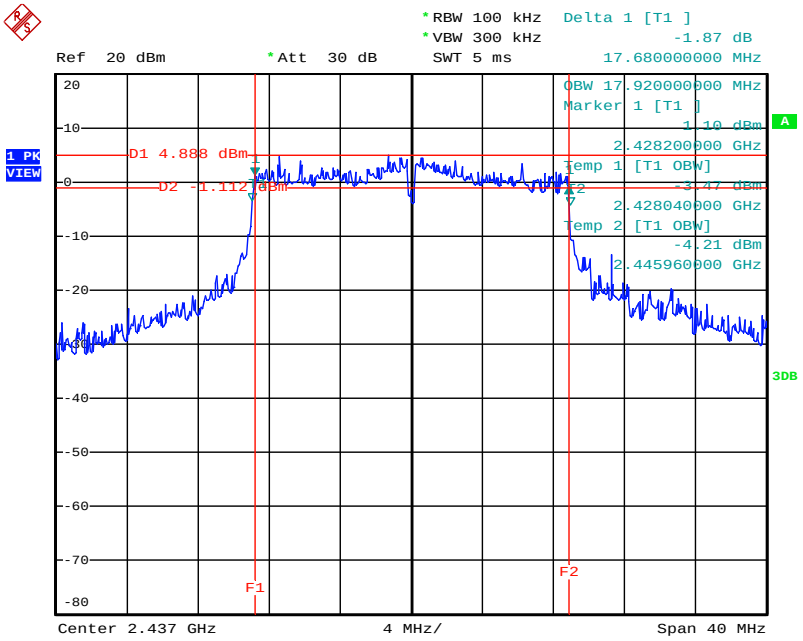
Date: 12.NOV.2012 15:58:58

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



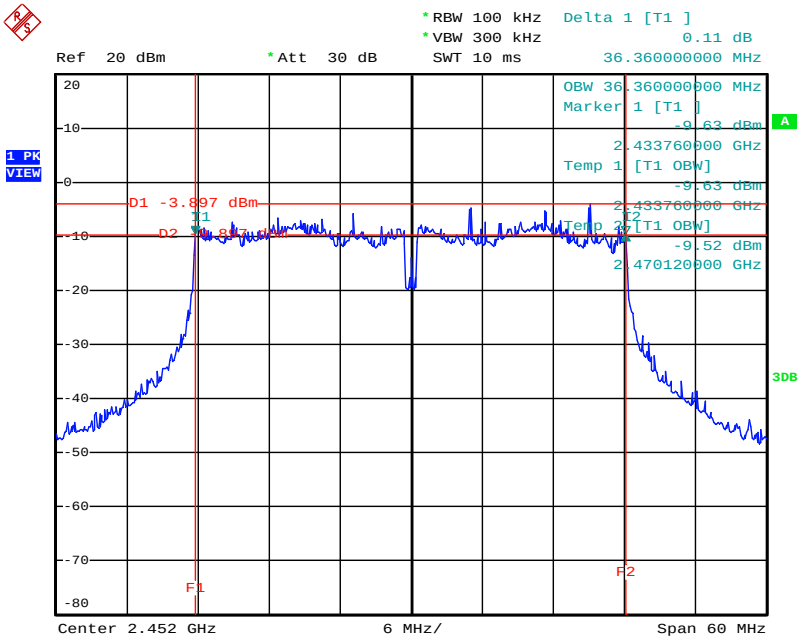
Date: 12.NOV.2012 16:03:08

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



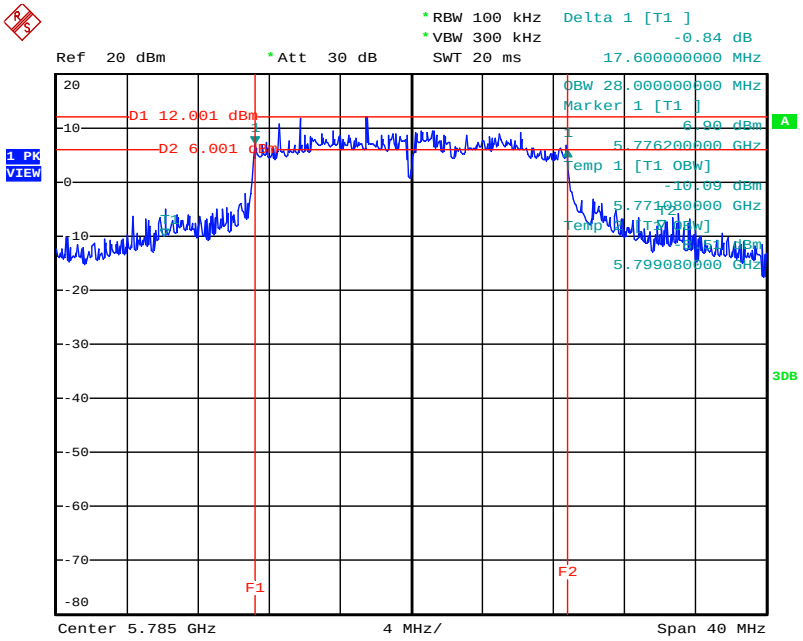
Date: 14.NOV.2012 16:43:05

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 2452MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



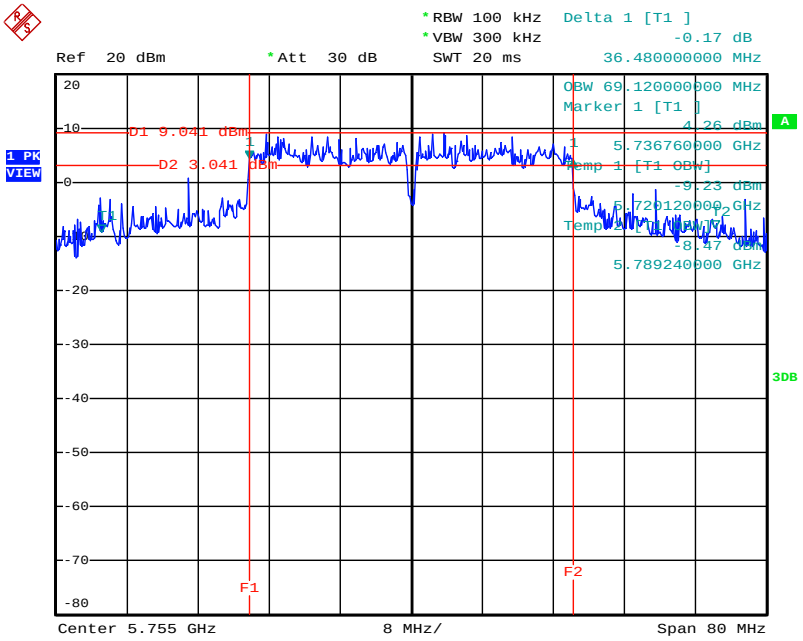
Date: 14.NOV.2012 16:46:02

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / 5785MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



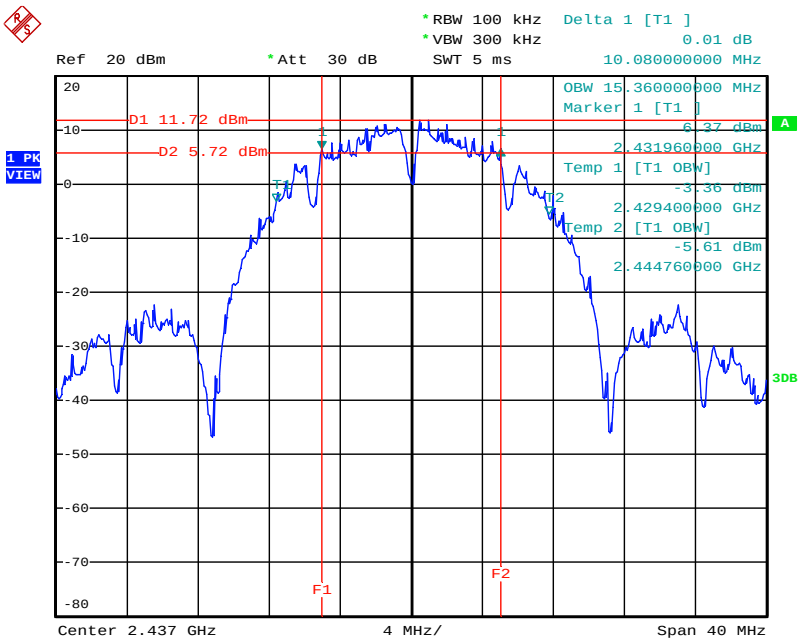
Date: 13.NOV.2012 11:19:16

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / 5755MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



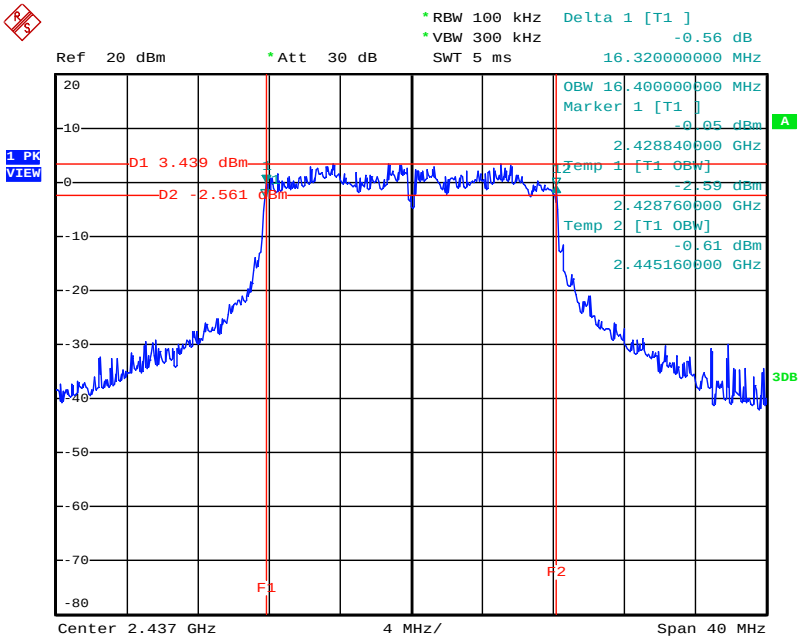
Date: 13.NOV.2012 11:09:58

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



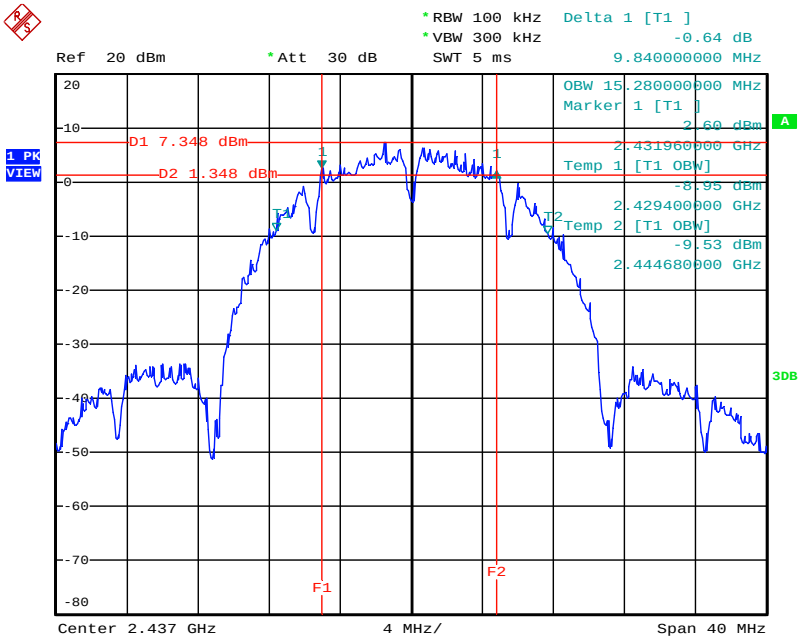
Date: 12.NOV.2012 15:54:52

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



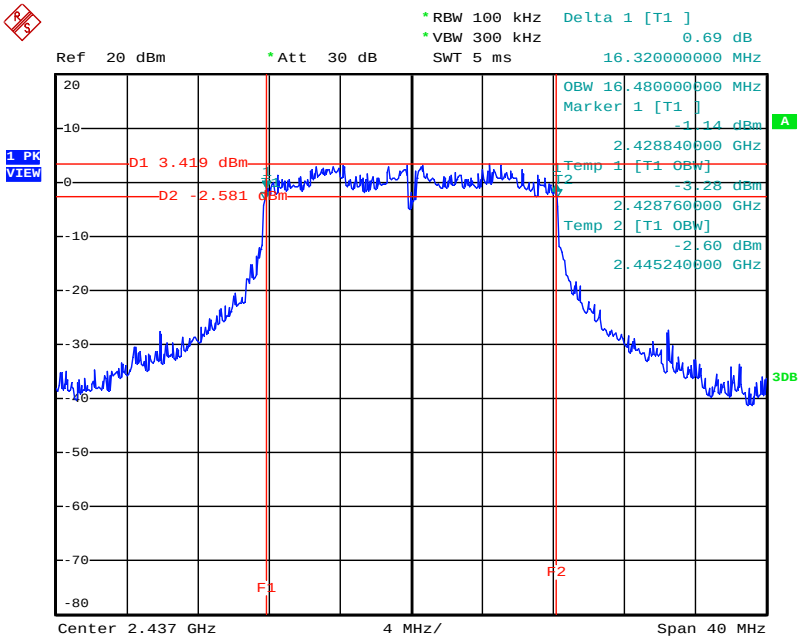
Date: 12.NOV.2012 15:51:47

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



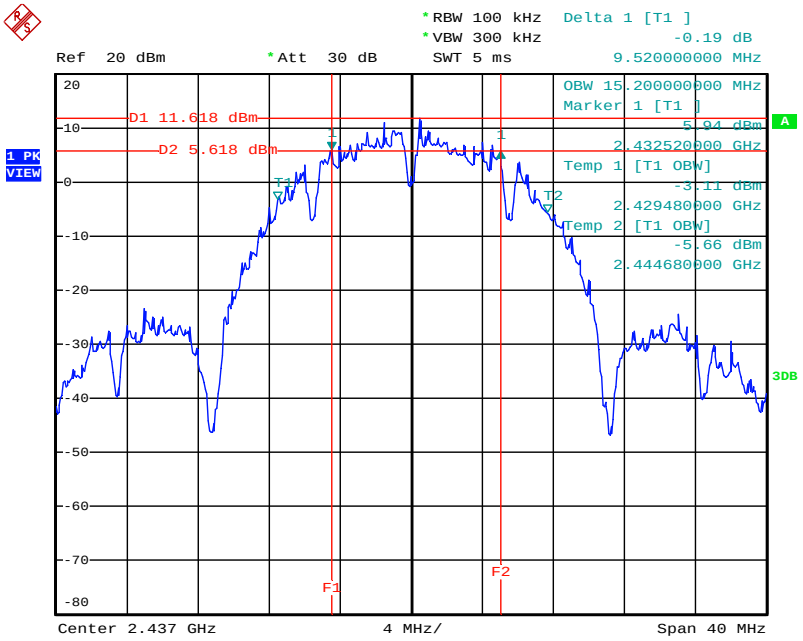
Date: 12.NOV.2012 15:54:32

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2412MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



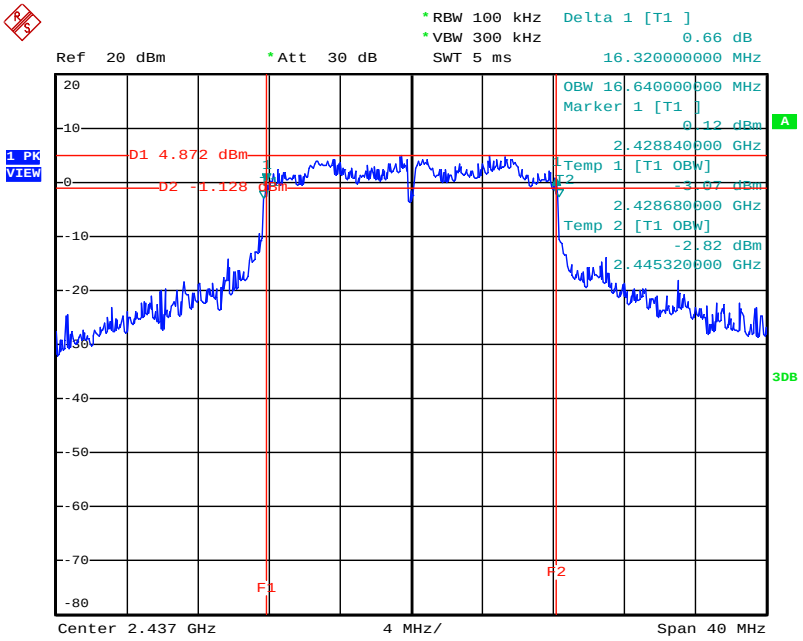
Date: 12.NOV.2012 15:49:12

6 dB Bandwidth Plot on Configuration IEEE 802.11b / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



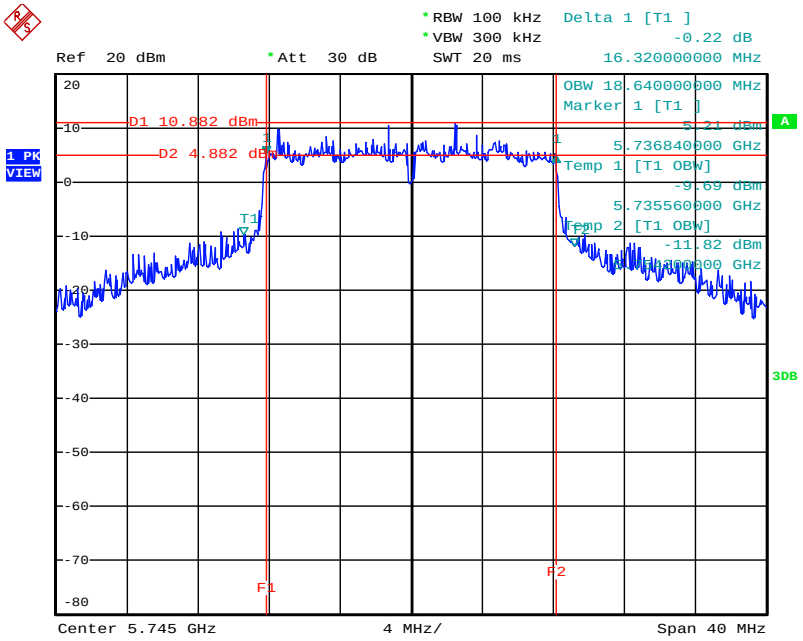
Date: 14.NOV.2012 16:38:07

6 dB Bandwidth Plot on Configuration IEEE 802.11g / 2437MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:40:26

6 dB Bandwidth Plot on Configuration IEEE 802.11a / 5745MHz / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 11:18:27

4.4. Radiated Emissions Measurement

4.4.1. Limit

30dBc 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

4.4.2. 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.

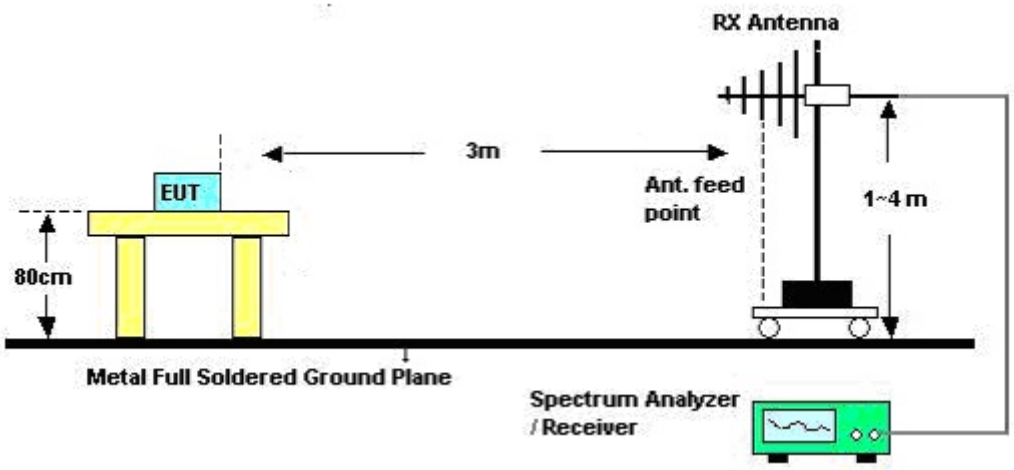
Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 3MHz for peak

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

4.4.3. 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.

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

Temperature	24.5℃	Humidity	60%
Test Engineer	David Tseng	Configurations	CTX
Test Date	Dec. 14, 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.

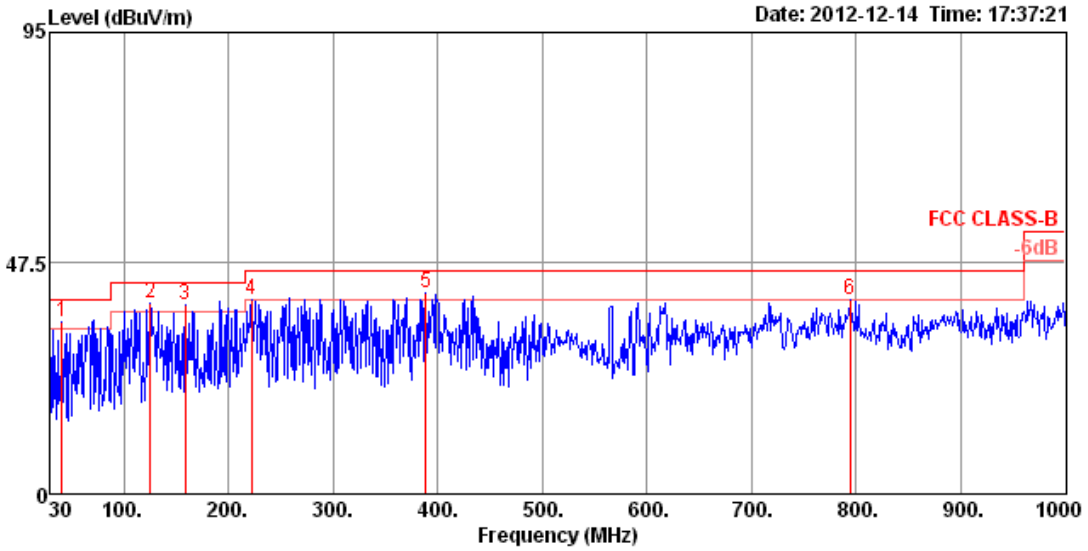
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

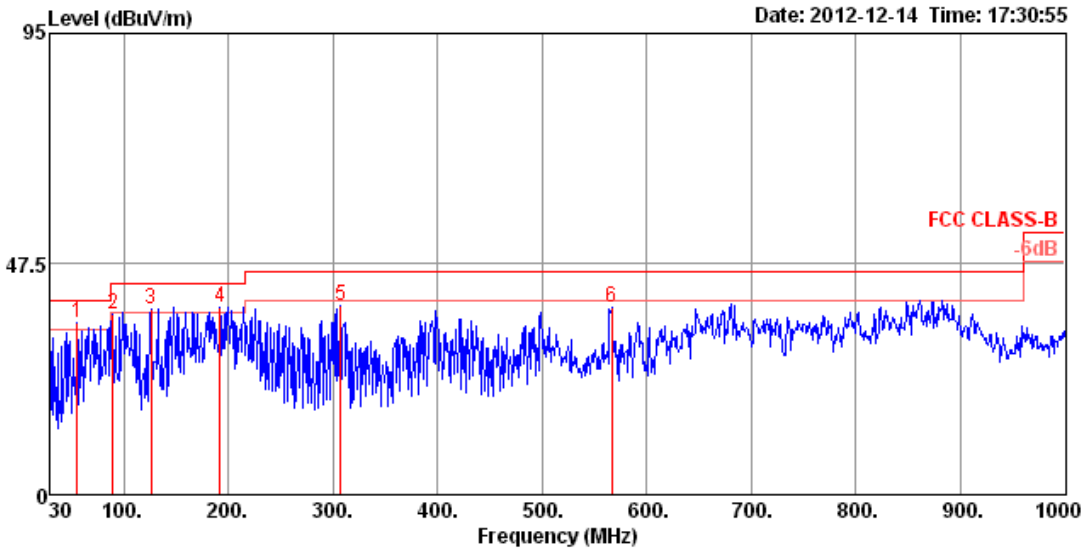
Temperature	24.5℃	Humidity	60%
Test Engineer	David Tseng	Configurations	CTX
Test Mode	Mode 1. EUT + Ant. 9 (2.4G Ant.)		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 !	40.67	35.57	40.00	-4.43	49.31	0.75	13.31	27.80	300	357	HORIZONTAL	Peak
2 pp	125.06	39.26	43.50	-4.24	52.50	1.33	12.90	27.47	200	102	HORIZONTAL	Peak
3 !	159.01	38.86	43.50	-4.64	53.98	1.52	10.66	27.30	300	357	HORIZONTAL	Peak
4	222.06	39.88	46.00	-6.12	54.38	1.81	10.75	27.06	150	322	HORIZONTAL	Peak
5 !	388.90	41.39	46.00	-4.61	50.21	2.47	16.23	27.52	100	334	HORIZONTAL	Peak
6	794.36	39.91	46.00	-6.09	43.14	3.66	20.73	27.62	125	44	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 pp	55.22	35.43	40.00	-4.57	54.58	0.87	7.76	27.78	100	18	VERTICAL	Peak
2	89.17	37.26	43.50	-6.24	54.64	1.12	9.15	27.65	100	14	VERTICAL	Peak
3 !	126.03	38.37	43.50	-5.13	51.63	1.33	12.88	27.47	125	246	VERTICAL	Peak
4 !	191.99	38.62	43.50	-4.88	54.17	1.67	9.92	27.14	200	74	VERTICAL	Peak
5	307.42	38.91	46.00	-7.09	49.68	2.14	14.04	26.95	200	360	VERTICAL	Peak
6	566.41	38.49	46.00	-7.51	44.64	2.99	18.96	28.10	200	174	VERTICAL	Peak

Note:

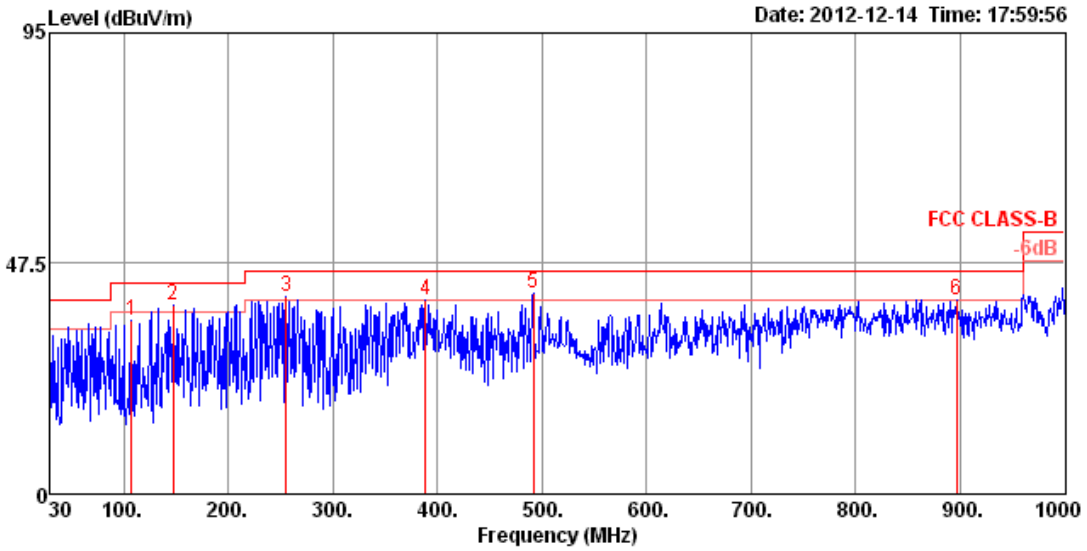
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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

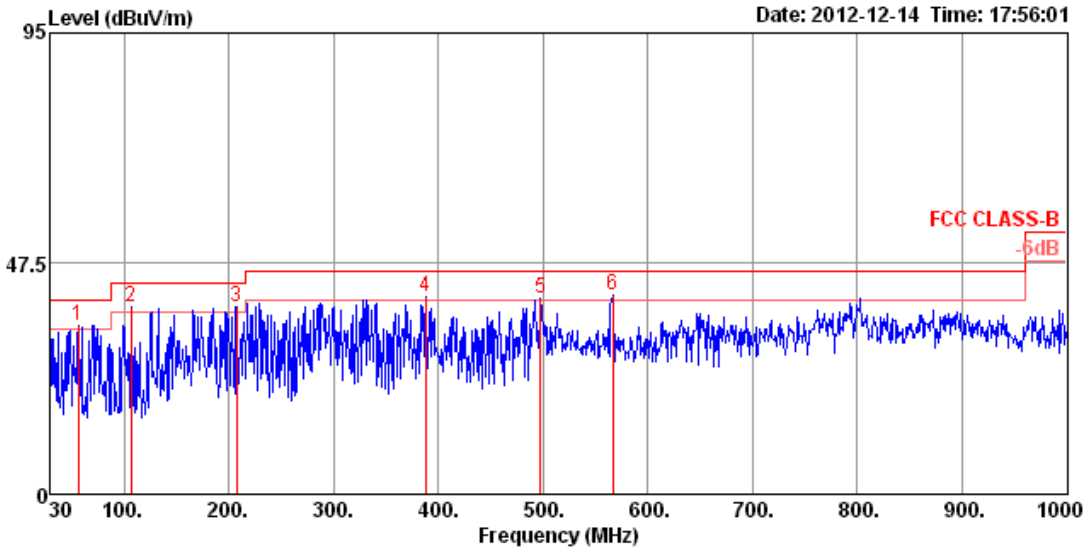
Temperature	24.5℃	Humidity	60%
Test Engineer	David Tseng	Configurations	CTX
Test Mode	Mode 2. EUT + Ant. 11 (5G Ant.)		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	107.60	35.78	43.50	-7.72	49.79	1.23	12.32	27.56	100	262	HORIZONTAL	Peak
2 pp	147.37	39.08	43.50	-4.42	53.56	1.45	11.43	27.36	100	329	HORIZONTAL	Peak
3 !	255.04	40.50	46.00	-5.50	52.31	1.92	13.26	26.99	100	28	HORIZONTAL	Peak
4	388.90	39.97	46.00	-6.03	48.79	2.47	16.23	27.52	100	126	HORIZONTAL	Peak
5 !	491.72	41.44	46.00	-4.56	49.07	2.77	17.66	28.06	100	287	HORIZONTAL	Peak
6 !	896.21	40.07	46.00	-5.93	42.03	3.97	21.48	27.41	100	266	HORIZONTAL	Peak

Vertical



		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	!	56.19	34.87	40.00	-5.13	54.19	0.87	7.59	27.78	100	308	VERTICAL	Peak
2	!	106.63	38.44	43.50	-5.06	52.57	1.23	12.21	27.57	100	353	VERTICAL	Peak
3	pp	207.51	38.59	43.50	-4.91	53.37	1.75	10.55	27.08	100	78	VERTICAL	Peak
4	!	387.93	40.49	46.00	-5.51	49.33	2.47	16.21	27.52	100	34	VERTICAL	Peak
5	!	497.54	40.21	46.00	-5.79	47.73	2.81	17.76	28.09	100	26	VERTICAL	Peak
6	!	566.41	41.03	46.00	-4.97	47.18	2.99	18.96	28.10	100	350	VERTICAL	Peak

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.

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4830.44	30.05	54.00	-23.95	27.97	4.21	34.69	32.56	Average	240	100	HORIZONTAL
2 p	4832.88	42.41	74.00	-31.59	40.33	4.21	34.69	32.56	Peak	240	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4826.84	43.14	74.00	-30.86	41.06	4.21	34.69	32.56	Peak	139	100	VERTICAL
2 a	4827.00	30.16	54.00	-23.84	28.08	4.21	34.69	32.56	Average	139	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4874.92	30.53	54.00	-23.47	28.32	4.22	34.67	32.66	Average	307	100	HORIZONTAL
2	4882.24	43.05	74.00	-30.95	40.84	4.22	34.67	32.66	Peak	307	100	HORIZONTAL
3 a	7317.64	35.42	54.00	-18.58	28.02	5.35	34.94	36.99	Average	55	100	HORIZONTAL
4 p	7318.20	48.51	74.00	-25.49	41.11	5.35	34.94	36.99	Peak	55	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4875.12	44.29	74.00	-29.71	42.08	4.22	34.67	32.66	Peak	229	100	VERTICAL
2	4875.88	31.18	54.00	-22.82	28.97	4.22	34.67	32.66	Average	229	100	VERTICAL
3 p	7319.48	47.14	74.00	-26.86	39.74	5.35	34.94	36.99	Peak	171	100	VERTICAL
4 a	7320.04	35.62	54.00	-18.38	28.22	5.35	34.94	36.99	Average	171	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4920.16	43.28	74.00	-30.72	40.94	4.23	34.65	32.76	Peak	211	100	HORIZONTAL
2	4926.44	30.80	54.00	-23.20	28.46	4.23	34.65	32.76	Average	211	100	HORIZONTAL
3 a	7393.20	35.72	54.00	-18.28	28.24	5.36	34.96	37.08	Average	73	100	HORIZONTAL
4 p	7395.92	48.50	74.00	-25.50	41.02	5.36	34.96	37.08	Peak	73	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4914.64	43.42	74.00	-30.58	41.12	4.22	34.65	32.73	Peak	195	100	VERTICAL
2	4921.40	30.82	54.00	-23.18	28.48	4.23	34.65	32.76	Average	195	100	VERTICAL
3 a	7382.12	35.52	54.00	-18.48	28.06	5.36	34.96	37.06	Average	86	100	VERTICAL
4 p	7382.60	48.20	74.00	-25.80	40.74	5.36	34.96	37.06	Peak	86	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4845.60	42.21	74.00	-31.79	40.09	4.21	34.68	32.59	Peak	215	100	HORIZONTAL
2 a	4847.00	30.26	54.00	-23.74	28.14	4.21	34.68	32.59	Average	215	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4845.50	30.43	54.00	-23.57	28.31	4.21	34.68	32.59	Average	100	100	VERTICAL
2 p	4846.10	41.56	74.00	-32.44	39.44	4.21	34.68	32.59	Peak	100	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4855.20	30.10	54.00	-23.90	27.95	4.21	34.68	32.62	Average	209	100	HORIZONTAL
2	4855.50	42.13	74.00	-31.87	39.98	4.21	34.68	32.62	Peak	209	100	HORIZONTAL
3 p	7324.70	47.11	74.00	-26.89	39.71	5.35	34.94	36.99	Peak	43	100	HORIZONTAL
4 a	7324.70	35.75	54.00	-18.25	28.35	5.35	34.94	36.99	Average	43	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4860.30	41.77	74.00	-32.23	39.62	4.21	34.68	32.62	Peak	209	100	VERTICAL
2	4860.50	30.42	54.00	-23.58	28.27	4.21	34.68	32.62	Average	209	100	VERTICAL
3 a	7323.50	35.81	54.00	-18.19	28.41	5.35	34.94	36.99	Average	131	100	VERTICAL
4 p	7324.40	48.38	74.00	-25.62	40.98	5.35	34.94	36.99	Peak	131	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4902.10	42.65	74.00	-31.35	40.36	4.22	34.66	32.73	Peak	282	100	HORIZONTAL
2		4904.80	30.59	54.00	-23.41	28.30	4.22	34.66	32.73	Average	282	100	HORIZONTAL
3	p	7376.40	47.07	74.00	-26.93	39.61	5.36	34.96	37.06	Peak	347	100	HORIZONTAL
4	a	7377.80	35.75	54.00	-18.25	28.29	5.36	34.96	37.06	Average	347	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4915.10	31.06	54.00	-22.94	28.76	4.22	34.65	32.73	Average	177	100	VERTICAL
2		4916.80	42.70	74.00	-31.30	40.40	4.22	34.65	32.73	Peak	177	100	VERTICAL
3	p	7369.90	49.38	74.00	-24.62	41.92	5.36	34.96	37.06	Peak	216	100	VERTICAL
4	a	7372.70	35.48	54.00	-18.52	28.02	5.36	34.96	37.06	Average	216	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4827.00	30.97	54.00	-23.03	28.89	4.21	34.69	32.56	Average	315	100	HORIZONTAL
2 p	4833.10	43.87	74.00	-30.13	41.79	4.21	34.69	32.56	Peak	315	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4822.70	43.49	74.00	-30.51	41.41	4.21	34.69	32.56	Peak	199	100	VERTICAL
2 a	4830.00	30.25	54.00	-23.75	28.17	4.21	34.69	32.56	Average	199	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4877.30	47.26	74.00	-26.74	45.05	4.22	34.67	32.66	Peak	40	100	HORIZONTAL
2	4878.00	33.58	54.00	-20.42	31.37	4.22	34.67	32.66	Average	40	100	HORIZONTAL
3 a	7317.30	35.50	54.00	-18.50	28.10	5.35	34.94	36.99	Average	313	100	HORIZONTAL
4 p	7325.70	48.03	74.00	-25.97	40.63	5.35	34.94	36.99	Peak	313	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4878.30	44.38	74.00	-29.62	42.17	4.22	34.67	32.66	Peak	318	100	VERTICAL
2	4878.90	31.50	54.00	-22.50	29.29	4.22	34.67	32.66	Average	318	100	VERTICAL
3 a	7316.00	35.58	54.00	-18.42	28.18	5.35	34.94	36.99	Average	194	100	VERTICAL
4 p	7327.10	48.29	74.00	-25.71	40.89	5.35	34.94	36.99	Peak	194	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4933.30	30.91	54.00	-23.09	28.57	4.23	34.65	32.76	Average	90	100	HORIZONTAL
2		4937.30	43.07	74.00	-30.93	40.69	4.23	34.65	32.80	Peak	90	100	HORIZONTAL
3	p	7392.80	48.83	74.00	-25.17	41.35	5.36	34.96	37.08	Peak	200	100	HORIZONTAL
4	a	7402.70	36.35	54.00	-17.65	28.85	5.36	34.96	37.10	Average	200	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4944.50	31.34	54.00	-22.66	28.95	4.23	34.64	32.80	Average	216	100	VERTICAL
2		4945.20	42.55	74.00	-31.45	40.16	4.23	34.64	32.80	Peak	216	100	VERTICAL
3	p	7393.00	48.64	74.00	-25.36	41.16	5.36	34.96	37.08	Peak	296	100	VERTICAL
4	a	7393.60	36.23	54.00	-17.77	28.75	5.36	34.96	37.08	Average	296	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4840.40	42.56	74.00	-31.44	40.44	4.21	34.68	32.59	Peak	164	100	HORIZONTAL
2 a	4848.90	30.34	54.00	-23.66	28.22	4.21	34.68	32.59	Average	164	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4846.10	42.17	74.00	-31.83	40.05	4.21	34.68	32.59	Peak	123	100	VERTICAL
2 a	4848.20	30.46	54.00	-23.54	28.34	4.21	34.68	32.59	Average	123	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4862.70	30.13	54.00	-23.87	27.98	4.21	34.68	32.62	Average	156	100	HORIZONTAL
2	4863.10	41.93	74.00	-32.07	39.78	4.21	34.68	32.62	Peak	156	100	HORIZONTAL
3 a	7320.40	35.67	54.00	-18.33	28.27	5.35	34.94	36.99	Average	251	100	HORIZONTAL
4 p	7321.10	48.12	74.00	-25.88	40.72	5.35	34.94	36.99	Peak	251	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4868.50	30.53	54.00	-23.47	28.32	4.22	34.67	32.66	Average	163	100	VERTICAL
2	4869.70	41.93	74.00	-32.07	39.72	4.22	34.67	32.66	Peak	163	100	VERTICAL
3 a	7321.00	35.53	54.00	-18.47	28.13	5.35	34.94	36.99	Average	102	100	VERTICAL
4 p	7322.40	46.38	74.00	-27.62	38.98	5.35	34.94	36.99	Peak	102	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4901.70	30.12	54.00	-23.88	27.83	4.22	34.66	32.73	Average	271	100	HORIZONTAL
2		4902.40	41.50	74.00	-32.50	39.21	4.22	34.66	32.73	Peak	271	100	HORIZONTAL
3	p	7338.50	48.24	74.00	-25.76	40.83	5.35	34.95	37.01	Peak	174	100	HORIZONTAL
4	a	7347.20	35.55	54.00	-18.45	28.14	5.35	34.95	37.01	Average	174	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4915.20	44.66	74.00	-29.34	42.36	4.22	34.65	32.73	Peak	24	100	VERTICAL
2		4921.80	31.23	54.00	-22.77	28.89	4.23	34.65	32.76	Average	24	100	VERTICAL
3	p	7370.40	47.59	74.00	-26.41	40.13	5.36	34.96	37.06	Peak	76	100	VERTICAL
4	a	7371.60	35.47	54.00	-18.53	28.01	5.36	34.96	37.06	Average	76	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4802.05	31.97	54.00	-22.03	27.58	6.26	33.33	35.20	Average	100	275	HORIZONTAL
2	4803.01	44.05	74.00	-29.95	39.63	6.26	33.36	35.20	Peak	100	275	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	4816.63	32.09	54.00	-21.91	27.66	6.27	33.36	35.20	Average	100	135	VERTICAL
2	4817.59	43.97	74.00	-30.03	39.54	6.27	33.36	35.20	Peak	100	135	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4879.53	46.41	74.00	-27.59	41.82	6.31	33.48	35.20	Peak	100	342	HORIZONTAL
2	4880.41	33.88	54.00	-20.12	29.29	6.31	33.48	35.20	Average	100	342	HORIZONTAL
3	7312.12	37.13	54.00	-16.87	28.54	7.51	36.51	35.43	Average	100	44	HORIZONTAL
4	7312.68	47.98	74.00	-26.02	39.36	7.54	36.51	35.43	Peak	100	44	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	4877.13	47.20	74.00	-26.80	42.61	6.31	33.48	35.20	Peak	100	238	VERTICAL
2	4878.33	34.62	54.00	-19.38	30.03	6.31	33.48	35.20	Average	100	238	VERTICAL
3	7309.96	47.23	74.00	-26.77	38.64	7.51	36.51	35.43	Peak	100	137	VERTICAL
4	7310.44	37.27	54.00	-16.73	28.68	7.51	36.51	35.43	Average	100	137	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4933.30	43.14	74.00	-30.86	38.41	6.35	33.58	35.20	Peak	100	65	HORIZONTAL
2	4933.94	32.20	54.00	-21.80	27.47	6.35	33.58	35.20	Average	100	65	HORIZONTAL
3	7387.44	48.50	74.00	-25.50	39.74	7.61	36.61	35.46	Peak	100	262	HORIZONTAL
4	7388.08	36.86	54.00	-17.14	28.07	7.64	36.61	35.46	Average	100	262	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	4918.07	32.27	54.00	-21.73	27.58	6.35	33.54	35.20	Average	100	56	VERTICAL
2	4919.59	43.53	74.00	-30.47	38.84	6.35	33.54	35.20	Peak	100	56	VERTICAL
3	7381.11	36.89	54.00	-17.11	28.12	7.61	36.61	35.45	Average	100	182	VERTICAL
4	7382.23	49.81	74.00	-24.19	41.04	7.61	36.61	35.45	Peak	100	182	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4854.34	31.64	54.00	-22.36	27.10	6.29	33.45	35.20	Average	100	307	HORIZONTAL
2	4854.42	43.58	74.00	-30.42	39.04	6.29	33.45	35.20	Peak	100	307	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	4841.12	31.17	54.00	-22.83	26.66	6.29	33.42	35.20	Average	100	177	VERTICAL
2	4841.20	42.79	74.00	-31.21	38.28	6.29	33.42	35.20	Peak	100	177	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4882.73	44.29	74.00	-29.71	39.70	6.31	33.48	35.20	Peak	100	182	HORIZONTAL
2	4884.18	31.84	54.00	-22.16	27.25	6.31	33.48	35.20	Average	100	182	HORIZONTAL
3	7332.23	36.97	54.00	-17.03	28.34	7.54	36.53	35.44	Average	100	268	HORIZONTAL
4	7334.56	49.81	74.00	-24.19	41.18	7.54	36.53	35.44	Peak	100	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	4876.08	32.21	54.00	-21.79	27.62	6.31	33.48	35.20	Average	100	22	VERTICAL
2	4876.89	45.39	74.00	-28.61	40.80	6.31	33.48	35.20	Peak	100	22	VERTICAL
3	7324.38	37.01	54.00	-16.99	28.39	7.54	36.51	35.43	Average	100	151	VERTICAL
4	7325.02	48.46	74.00	-25.54	39.82	7.54	36.53	35.43	Peak	100	151	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4917.78	32.35	54.00	-21.65	27.66	6.35	33.54	35.20	Average	100	55	HORIZONTAL
2	4919.14	45.64	74.00	-28.36	40.95	6.35	33.54	35.20	Peak	100	55	HORIZONTAL
3	7334.93	36.85	54.00	-17.15	28.22	7.54	36.53	35.44	Average	100	232	HORIZONTAL
4	7335.49	48.63	74.00	-25.37	40.00	7.54	36.53	35.44	Peak	100	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	4911.69	44.70	74.00	-29.30	40.03	6.33	33.54	35.20	Peak	100	182	VERTICAL
2	4912.01	32.18	54.00	-21.82	27.51	6.33	33.54	35.20	Average	100	182	VERTICAL
3	7342.46	48.17	74.00	-25.83	39.48	7.57	36.56	35.44	Peak	100	313	VERTICAL
4	7342.94	37.10	54.00	-16.90	28.41	7.57	36.56	35.44	Average	100	313	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 20MHz CH 149 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11492.64	58.33	74.00	-15.67	49.72	5.11	38.78	35.28	Peak	144	146	HORIZONTAL
2	11495.20	46.71	54.00	-7.29	38.09	5.12	38.78	35.28	Average	144	146	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	11486.32	50.05	54.00	-3.95	41.44	5.11	38.78	35.28	Average	100	333	VERTICAL
2	11495.68	64.10	74.00	-9.90	55.48	5.12	38.78	35.28	Peak	100	333	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 20MHz CH 157 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11575.60	42.66	54.00	-11.34	33.99	5.14	38.83	35.30	Average	141	87	HORIZONTAL
2	11576.88	54.71	74.00	-19.29	46.04	5.14	38.83	35.30	Peak	141	87	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	11569.60	60.93	74.00	-13.07	52.27	5.13	38.83	35.30	Peak	100	308	VERTICAL
2	11573.20	49.35	54.00	-4.65	40.68	5.14	38.83	35.30	Average	100	308	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 20MHz CH 165 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11651.02	43.75	54.00	-10.25	35.03	5.16	38.86	35.30	Average	158	170	HORIZONTAL
2	11653.30	56.41	74.00	-17.59	47.69	5.16	38.86	35.30	Peak	158	170	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	11656.24	47.54	54.00	-6.46	38.82	5.16	38.86	35.30	Average	100	25	VERTICAL
2	11656.66	61.44	74.00	-12.56	52.72	5.16	38.86	35.30	Peak	100	25	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11n MCS0 40MHz CH 151 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11508.72	40.48	54.00	-13.52	31.85	5.12	38.79	35.28	Average	100	291	HORIZONTAL
2	11508.88	53.56	74.00	-20.44	44.93	5.12	38.79	35.28	Peak	100	291	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	11517.50	48.12	54.00	-5.88	39.49	5.12	38.80	35.29	Average	100	79	VERTICAL
2	11517.50	61.28	74.00	-12.72	52.65	5.12	38.80	35.29	Peak	100	79	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz CH 159 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Nov. 09, 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	11580.22	53.45	74.00	-20.55	39.41	9.65	39.47	35.08	Peak	100	85	HORIZONTAL
2	11589.36	41.48	54.00	-12.52	27.46	9.63	39.47	35.08	Average	127	85	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	11575.74	60.81	74.00	-13.19	46.77	9.65	39.47	35.08	Peak	147	161	VERTICAL
2	11576.38	50.44	54.00	-3.56	36.40	9.65	39.47	35.08	Average	147	161	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4823.89	35.48	54.00	-18.52	33.40	4.21	34.69	32.56	Average	227	100	HORIZONTAL
2 p	4824.00	44.64	74.00	-29.36	42.56	4.21	34.69	32.56	Peak	227	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4823.94	48.44	74.00	-25.56	46.36	4.21	34.69	32.56	Peak	228	100	VERTICAL
2 a	4824.01	43.82	54.00	-10.18	41.74	4.21	34.69	32.56	Average	228	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4873.94	45.63	54.00	-8.37	43.42	4.22	34.67	32.66	Average	227	100	HORIZONTAL
2 p	4874.02	49.73	74.00	-24.27	47.52	4.22	34.67	32.66	Peak	227	100	HORIZONTAL
3	7312.10	49.60	74.00	-24.40	42.23	5.34	34.94	36.97	Peak	219	100	HORIZONTAL
4	7313.40	36.78	54.00	-17.22	29.41	5.34	34.94	36.97	Average	219	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4873.98	50.57	54.00	-3.43	48.36	4.22	34.67	32.66	Average	230	100	VERTICAL
2 p	4874.02	52.77	74.00	-21.23	50.56	4.22	34.67	32.66	Peak	230	100	VERTICAL
3	7311.67	40.49	54.00	-13.51	33.12	5.34	34.94	36.97	Average	56	100	VERTICAL
4	7313.32	50.64	74.00	-23.36	43.27	5.34	34.94	36.97	Peak	56	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4923.94	45.02	74.00	-28.98	42.68	4.23	34.65	32.76	Peak	227	100	HORIZONTAL
2	4923.99	34.80	54.00	-19.20	32.46	4.23	34.65	32.76	Average	227	100	HORIZONTAL
3 a	7387.87	35.67	54.00	-18.33	28.19	5.36	34.96	37.08	Average	101	100	HORIZONTAL
4 p	7388.12	48.49	74.00	-25.51	41.01	5.36	34.96	37.08	Peak	101	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4923.67	45.05	74.00	-28.95	42.71	4.23	34.65	32.76	Peak	48	100	VERTICAL
2	4924.03	35.06	54.00	-18.94	32.72	4.23	34.65	32.76	Average	48	100	VERTICAL
3 p	7384.33	48.72	74.00	-25.28	41.24	5.36	34.96	37.08	Peak	224	100	VERTICAL
4 a	7386.72	35.91	54.00	-18.09	28.43	5.36	34.96	37.08	Average	224	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4828.16	29.81	54.00	-24.19	27.73	4.21	34.69	32.56	Average	253	100	HORIZONTAL
2 p	4830.64	42.43	74.00	-31.57	40.35	4.21	34.69	32.56	Peak	253	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4826.88	42.18	74.00	-31.82	40.10	4.21	34.69	32.56	Peak	166	100	VERTICAL
2 a	4827.32	30.12	54.00	-23.88	28.04	4.21	34.69	32.56	Average	166	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4865.52	42.55	74.00	-31.45	40.39	4.21	34.67	32.62	Peak	73	100	HORIZONTAL
2		4874.20	30.07	54.00	-23.93	27.86	4.22	34.67	32.66	Average	73	100	HORIZONTAL
3	p	7306.20	48.20	74.00	-25.80	40.82	5.34	34.93	36.97	Peak	264	100	HORIZONTAL
4	a	7314.68	35.27	54.00	-18.73	27.90	5.34	34.94	36.97	Average	264	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4874.48	45.98	74.00	-28.02	43.77	4.22	34.67	32.66	Peak	229	100	VERTICAL
2		4875.56	32.38	54.00	-21.62	30.17	4.22	34.67	32.66	Average	229	100	VERTICAL
3	p	7316.80	47.82	74.00	-26.18	40.42	5.35	34.94	36.99	Peak	329	100	VERTICAL
4	a	7317.64	35.23	54.00	-18.77	27.83	5.35	34.94	36.99	Average	329	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4920.40	30.68	54.00	-23.32	28.34	4.23	34.65	32.76	Average	223	100	HORIZONTAL
2	4933.12	43.81	74.00	-30.19	41.47	4.23	34.65	32.76	Peak	223	100	HORIZONTAL
3 a	7392.60	35.37	54.00	-18.63	27.89	5.36	34.96	37.08	Average	110	100	HORIZONTAL
4 p	7395.48	48.72	74.00	-25.28	41.24	5.36	34.96	37.08	Peak	110	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4921.44	30.91	54.00	-23.09	28.57	4.23	34.65	32.76	Average	351	100	VERTICAL
2	4924.72	44.11	74.00	-29.89	41.77	4.23	34.65	32.76	Peak	351	100	VERTICAL
3 p	7388.48	48.86	74.00	-25.14	41.38	5.36	34.96	37.08	Peak	212	100	VERTICAL
4 a	7394.96	35.85	54.00	-18.15	28.37	5.36	34.96	37.08	Average	212	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4823.97	49.40	54.00	-4.60	47.32	4.21	34.69	32.56	Average	40	100	HORIZONTAL
2 p	4824.04	52.17	74.00	-21.83	50.09	4.21	34.69	32.56	Peak	40	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4823.96	48.57	74.00	-25.43	46.49	4.21	34.69	32.56	Peak	314	102	VERTICAL
2 a	4823.99	44.02	54.00	-9.98	41.94	4.21	34.69	32.56	Average	314	102	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Andre Tak	Configurations	IEEE 802.11b CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Jan. 23, 2013		

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	50.27	54.00	-3.73	48.81	3.33	33.16	35.03	Average	108	14	HORIZONTAL
2	4873.94	52.53	74.00	-21.47	51.07	3.33	33.16	35.03	Peak	108	14	HORIZONTAL
3	7311.00	32.20	54.00	-21.80	27.58	4.06	35.96	35.40	Average	100	322	HORIZONTAL
4	7311.00	43.79	74.00	-30.21	39.17	4.06	35.96	35.40	Peak	100	322	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	4873.93	47.89	54.00	-6.11	46.43	3.33	33.16	35.03	Average	100	290	VERTICAL
2	4873.95	51.52	74.00	-22.48	50.06	3.33	33.16	35.03	Peak	100	290	VERTICAL
3	7312.64	45.89	54.00	-8.11	41.27	4.06	35.96	35.40	Average	100	340	VERTICAL
4	7313.01	35.25	54.00	-18.75	30.63	4.06	35.96	35.40	Average	100	340	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	4924.00	46.93	54.00	-7.07	44.59	4.23	34.65	32.76	Average	49	111	HORIZONTAL
2	p	4924.07	50.76	74.00	-23.24	48.42	4.23	34.65	32.76	Peak	49	111	HORIZONTAL
3		7385.92	48.32	74.00	-25.68	40.84	5.36	34.96	37.08	Peak	120	100	HORIZONTAL
4		7388.32	35.88	54.00	-18.12	28.40	5.36	34.96	37.08	Average	120	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	4923.92	46.25	54.00	-7.75	43.91	4.23	34.65	32.76	Average	50	101	VERTICAL
2	p	4924.02	50.27	74.00	-23.73	47.93	4.23	34.65	32.76	Peak	50	101	VERTICAL
3		7385.45	48.62	74.00	-25.38	41.14	5.36	34.96	37.08	Peak	343	100	VERTICAL
4		7387.72	36.13	54.00	-17.87	28.65	5.36	34.96	37.08	Average	343	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	4823.92	42.72	74.00	-31.28	40.64	4.21	34.69	32.56	Peak	342	100	HORIZONTAL
2 a	4828.44	30.49	54.00	-23.51	28.41	4.21	34.69	32.56	Average	342	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	4818.68	30.17	54.00	-23.83	28.09	4.21	34.69	32.56	Average	240	100	VERTICAL
2 p	4832.20	42.67	74.00	-31.33	40.59	4.21	34.69	32.56	Peak	240	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4875.60	34.80	54.00	-19.20	32.59	4.22	34.67	32.66	Average	40	106	HORIZONTAL
2	p	4876.08	48.57	74.00	-25.43	46.36	4.22	34.67	32.66	Peak	40	106	HORIZONTAL
3		7314.32	48.44	74.00	-25.56	41.07	5.34	34.94	36.97	Peak	286	100	HORIZONTAL
4	a	7315.76	35.52	54.00	-18.48	28.12	5.35	34.94	36.99	Average	286	100	HORIZONTAL

Vertical

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		4878.48	45.10	74.00	-28.90	42.89	4.22	34.67	32.66	Peak	44	100	VERTICAL
2		4879.44	32.51	54.00	-21.49	30.30	4.22	34.67	32.66	Average	44	100	VERTICAL
3	p	7313.80	48.68	74.00	-25.32	41.31	5.34	34.94	36.97	Peak	124	100	VERTICAL
4	a	7319.48	35.56	54.00	-18.44	28.16	5.35	34.94	36.99	Average	124	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 09, 2012		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4925.16	44.33	74.00	-29.67	41.99	4.23	34.65	32.76	Peak	126	100	HORIZONTAL
2	4931.20	31.13	54.00	-22.87	28.79	4.23	34.65	32.76	Average	126	100	HORIZONTAL
3 p	7392.52	48.97	74.00	-25.03	41.49	5.36	34.96	37.08	Peak	253	100	HORIZONTAL
4 a	7394.52	35.82	54.00	-18.18	28.34	5.36	34.96	37.08	Average	253	100	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	4923.84	31.36	54.00	-22.64	29.02	4.23	34.65	32.76	Average	34	100	VERTICAL
2	4929.48	44.72	74.00	-29.28	42.38	4.23	34.65	32.76	Peak	34	100	VERTICAL
3 a	7392.76	35.75	54.00	-18.25	28.27	5.36	34.96	37.08	Average	170	100	VERTICAL
4 p	7393.48	47.81	74.00	-26.19	40.33	5.36	34.96	37.08	Peak	170	100	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	48.08	54.00	-5.92	43.62	6.27	33.39	35.20	Average	159	57	HORIZONTAL
2	4823.96	51.86	74.00	-22.14	47.40	6.27	33.39	35.20	Peak	159	57	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	4824.06	44.59	54.00	-9.41	40.13	6.27	33.39	35.20	Average	100	330	VERTICAL
2	4824.25	50.00	74.00	-24.00	45.54	6.27	33.39	35.20	Peak	100	330	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4874.00	50.77	54.00	-3.23	46.18	6.31	33.48	35.20	Average	131	342	HORIZONTAL
2	4874.09	53.94	74.00	-20.06	49.35	6.31	33.48	35.20	Peak	131	342	HORIZONTAL
3	7309.89	52.56	74.00	-21.44	43.97	7.51	36.51	35.43	Peak	140	74	HORIZONTAL
4	7310.23	42.83	54.00	-11.17	34.24	7.51	36.51	35.43	Average	140	74	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	52.06	74.00	-21.94	47.47	6.31	33.48	35.20	Peak	100	235	VERTICAL
2	4874.00	48.20	54.00	-5.80	43.61	6.31	33.48	35.20	Average	100	235	VERTICAL
3	7311.79	44.77	54.00	-9.23	36.18	7.51	36.51	35.43	Average	105	235	VERTICAL
4	7312.08	53.24	74.00	-20.76	44.65	7.51	36.51	35.43	Peak	105	235	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4923.79	50.36	74.00	-23.64	45.63	6.35	33.58	35.20	Peak	140	53	HORIZONTAL
2	4924.00	45.42	54.00	-8.58	40.69	6.35	33.58	35.20	Average	140	53	HORIZONTAL
3	7383.61	37.07	54.00	-16.93	28.31	7.61	36.61	35.46	Average	100	333	HORIZONTAL
4	7384.91	49.81	74.00	-24.19	41.05	7.61	36.61	35.46	Peak	100	333	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	4924.03	42.12	54.00	-11.88	37.39	6.35	33.58	35.20	Average	100	22	VERTICAL
2	4924.13	48.69	74.00	-25.31	43.96	6.35	33.58	35.20	Peak	100	22	VERTICAL
3	7384.25	49.87	74.00	-24.13	41.11	7.61	36.61	35.46	Peak	100	197	VERTICAL
4	7385.35	36.88	54.00	-17.12	28.12	7.61	36.61	35.46	Average	100	197	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4822.59	31.58	54.00	-22.42	27.12	6.27	33.39	35.20	Average	100	300	HORIZONTAL
2	4823.33	43.97	74.00	-30.03	39.51	6.27	33.39	35.20	Peak	100	300	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	4815.73	32.38	54.00	-21.62	27.95	6.27	33.36	35.20	Average	100	120	VERTICAL
2	4815.96	42.14	74.00	-31.86	37.71	6.27	33.36	35.20	Peak	100	120	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 6 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4876.89	47.82	74.00	-26.18	43.23	6.31	33.48	35.20	Peak	100	344	HORIZONTAL
2	4877.59	34.39	54.00	-19.61	29.80	6.31	33.48	35.20	Average	100	344	HORIZONTAL
3	7306.90	37.39	54.00	-16.61	28.83	7.51	36.48	35.43	Average	100	179	HORIZONTAL
4	7307.54	47.43	74.00	-26.57	38.84	7.51	36.51	35.43	Peak	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	4874.39	47.83	74.00	-26.17	43.24	6.31	33.48	35.20	Peak	100	238	VERTICAL
2	4875.99	35.46	54.00	-18.54	30.67	6.31	33.48	35.20	Average	100	238	VERTICAL
3	7309.62	49.21	74.00	-24.79	40.62	7.51	36.51	35.43	Peak	100	208	VERTICAL
4	7309.97	37.93	54.00	-16.07	29.34	7.51	36.51	35.43	Average	100	208	VERTICAL

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 09, 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	4918.39	31.99	54.00	-22.01	27.30	6.35	33.54	35.20	Average	100	113	HORIZONTAL
2	4919.16	44.70	74.00	-29.30	40.01	6.35	33.54	35.20	Peak	100	113	HORIZONTAL
3	7389.75	36.88	54.00	-17.12	28.09	7.64	36.61	35.46	Average	100	249	HORIZONTAL
4	7390.46	48.87	74.00	-25.13	40.08	7.64	36.61	35.46	Peak	100	249	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	4918.62	32.23	54.00	-21.77	27.54	6.35	33.54	35.20	Average	100	237	VERTICAL
2	4919.03	44.53	74.00	-29.47	39.84	6.35	33.54	35.20	Peak	100	237	VERTICAL
3	7387.60	37.01	54.00	-16.99	28.22	7.64	36.61	35.46	Average	100	340	VERTICAL
4	7387.73	48.31	74.00	-25.69	39.52	7.64	36.61	35.46	Peak	100	340	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 149 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11491.64	62.99	74.00	-11.01	54.38	5.11	38.78	35.28	Peak	153	273	HORIZONTAL
2	11491.76	49.82	54.00	-4.18	41.21	5.11	38.78	35.28	Average	153	273	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	11488.30	64.39	74.00	-9.61	55.78	5.11	38.78	35.28	Peak	100	106	VERTICAL
2	11488.70	50.93	54.00	-3.07	42.32	5.11	38.78	35.28	Average	100	106	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 157 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11569.46	42.49	54.00	-11.51	33.83	5.13	38.83	35.30	Average	100	193	HORIZONTAL
2	11570.18	56.15	74.00	-17.85	47.48	5.14	38.83	35.30	Peak	100	193	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	11567.36	48.39	54.00	-5.61	39.74	5.13	38.82	35.30	Average	100	55	VERTICAL
2	11570.42	61.77	74.00	-12.23	53.10	5.14	38.83	35.30	Peak	100	55	VERTICAL

Temperature	25.6℃	Humidity	56%
Test Engineer	Satoshi Yang	Configurations	IEEE 802.11a CH 165 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11
Test Date	Jan. 24, 2013		

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	11648.26	57.27	74.00	-16.73	48.55	5.16	38.86	35.30	Peak	160	240	HORIZONTAL
2	11648.80	46.22	54.00	-7.78	37.50	5.16	38.86	35.30	Average	160	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	11650.18	48.17	54.00	-5.83	39.45	5.16	38.86	35.30	Average	100	27	VERTICAL
2	11651.08	62.39	74.00	-11.61	53.67	5.16	38.86	35.30	Peak	100	27	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.

4.5. Band Edge Emissions Measurement

4.5.1. Limit

30dBc 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

4.5.2. 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 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

4.5.3. 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.

4.5.4. Test Setup Layout

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

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 Band Edge and Fundamental Emissions

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.80	69.19	74.00	-4.81	38.41	2.91	0.00	27.87	Peak	360	105	VERTICAL
2	!	2390.00	52.44	54.00	-1.56	21.66	2.91	0.00	27.87	Average	360	105	VERTICAL
3	a	2409.80	104.67			73.91	2.92	0.00	27.84	Average	360	105	VERTICAL
4	p	2413.80	115.16			84.40	2.92	0.00	27.84	Peak	360	105	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2387.60	62.94	74.00	-11.06	32.16	2.91	0.00	27.87	Peak	317	100	VERTICAL
2	!	2387.60	51.53	54.00	-2.47	20.75	2.91	0.00	27.87	Average	317	100	VERTICAL
3	a	2437.40	108.37			77.65	2.94	0.00	27.78	Average	317	100	VERTICAL
4	p	2439.80	119.09			88.37	2.94	0.00	27.78	Peak	317	100	VERTICAL
5	!	2483.90	52.88	54.00	-1.12	22.19	2.96	0.00	27.73	Average	317	100	VERTICAL
6		2484.70	66.01	74.00	-7.99	35.32	2.96	0.00	27.73	Peak	317	100	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2458.80	114.59			83.88	2.95	0.00	27.76	Peak	11	105	VERTICAL
2	a	2464.20	103.85			73.14	2.95	0.00	27.76	Average	11	105	VERTICAL
3	!	2483.50	52.98	54.00	-1.02	22.29	2.96	0.00	27.73	Average	11	105	VERTICAL
4		2484.10	67.16	74.00	-6.84	36.47	2.96	0.00	27.73	Peak	11	105	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 08, 2012		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.40	69.32	74.00	-4.68	38.54	2.91	0.00	27.87	Peak	356	100	VERTICAL
2	!	2389.60	52.49	54.00	-1.51	21.71	2.91	0.00	27.87	Average	356	100	VERTICAL
3	p	2430.80	109.44			78.70	2.93	0.00	27.81	Peak	356	100	VERTICAL
4	a	2432.00	97.07			66.33	2.93	0.00	27.81	Average	356	100	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2390.00	62.23	74.00	-11.77	31.45	2.91	0.00	27.87	Peak	12	105	VERTICAL
2	!	2390.00	50.16	54.00	-3.84	19.38	2.91	0.00	27.87	Average	12	105	VERTICAL
3	a	2453.00	99.42			68.70	2.94	0.00	27.78	Average	12	105	VERTICAL
4	p	2453.40	112.54			81.82	2.94	0.00	27.78	Peak	12	105	VERTICAL
5	!	2483.50	52.46	54.00	-1.54	21.77	2.96	0.00	27.73	Average	12	105	VERTICAL
6	!	2490.30	69.47	74.00	-4.53	38.80	2.97	0.00	27.70	Peak	12	105	VERTICAL

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

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2439.20	109.20			78.48	2.94	0.00	27.78	Peak	317	100	VERTICAL
2	a	2439.60	96.70			65.98	2.94	0.00	27.78	Average	317	100	VERTICAL
3	!	2483.50	52.69	54.00	-1.31	22.00	2.96	0.00	27.73	Average	317	100	VERTICAL
4		2484.70	67.68	74.00	-6.32	36.99	2.96	0.00	27.73	Peak	317	100	VERTICAL

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	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2389.60	67.99	74.00	-6.01	37.21	2.91	0.00	27.87	Peak	6	153	VERTICAL
2	!	2390.00	52.92	54.00	-1.08	22.14	2.91	0.00	27.87	Average	6	153	VERTICAL
3	p	2410.00	118.28			87.52	2.92	0.00	27.84	Peak	6	153	VERTICAL
4	a	2411.40	106.28			75.52	2.92	0.00	27.84	Average	6	153	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2386.80	63.04	74.00	-10.96	32.26	2.91	0.00	27.87	Peak	6	129	VERTICAL
2	!	2390.00	50.22	54.00	-3.78	19.44	2.91	0.00	27.87	Average	6	129	VERTICAL
3	p	2433.80	121.33			90.59	2.93	0.00	27.81	Peak	6	129	VERTICAL
4	a	2435.80	109.41			78.67	2.93	0.00	27.81	Average	6	129	VERTICAL
5	!	2483.50	52.67	54.00	-1.33	21.98	2.96	0.00	27.73	Average	6	129	VERTICAL
6		2485.50	64.35	74.00	-9.65	33.66	2.96	0.00	27.73	Peak	6	129	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2459.80	106.91			76.20	2.95	0.00	27.76	Average	6	131	VERTICAL
2	p	2460.00	118.19			87.48	2.95	0.00	27.76	Peak	6	131	VERTICAL
3	!	2483.50	52.79	54.00	-1.21	22.10	2.96	0.00	27.73	Average	6	131	VERTICAL
4	!	2484.10	72.01	74.00	-1.99	41.32	2.96	0.00	27.73	Peak	6	131	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 08, 2012		

Channel 3

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2388.00	70.65	74.00	-3.35	39.87	2.91	0.00	27.87	Peak	6	129	VERTICAL
2	!	2390.00	52.82	54.00	-1.18	22.04	2.91	0.00	27.87	Average	6	129	VERTICAL
3	a	2438.00	99.96			69.24	2.94	0.00	27.78	Average	6	129	VERTICAL
4	p	2438.40	112.93			82.21	2.94	0.00	27.78	Peak	6	129	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2389.20	63.41	74.00	-10.59	32.63	2.91	0.00	27.87	Peak	5	127	VERTICAL
2	!	2390.00	50.72	54.00	-3.28	19.94	2.91	0.00	27.87	Average	5	127	VERTICAL
3	a	2441.80	101.40			70.68	2.94	0.00	27.78	Average	5	127	VERTICAL
4	p	2443.40	114.42			83.70	2.94	0.00	27.78	Peak	5	127	VERTICAL
5	!	2483.90	52.76	54.00	-1.24	22.07	2.96	0.00	27.73	Average	5	127	VERTICAL
6		2485.50	67.48	74.00	-6.52	36.79	2.96	0.00	27.73	Peak	5	127	VERTICAL

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

Channel 9

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2448.40	111.72			81.00	2.94	0.00	27.78	Peak	6	130	VERTICAL
2	a	2448.40	98.56			67.84	2.94	0.00	27.78	Average	6	130	VERTICAL
3	!	2483.50	70.55	74.00	-3.45	39.86	2.96	0.00	27.73	Peak	6	130	VERTICAL
4	!	2483.50	52.99	54.00	-1.01	22.30	2.96	0.00	27.73	Average	6	130	VERTICAL

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	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 20MHz Ch 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 08, 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	2389.68	69.51	74.00	-4.49	37.12	4.34	28.05	0.00	Peak	136	312	HORIZONTAL
2	2390.00	52.99	54.00	-1.01	20.60	4.34	28.05	0.00	Average	136	312	HORIZONTAL
3	2412.64	104.27			71.82	4.36	28.09	0.00	Average	136	312	HORIZONTAL
4	2413.28	114.97			82.52	4.36	28.09	0.00	Peak	136	312	HORIZONTAL

Item 1, 2 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	2437.32	119.63			87.09	4.36	28.18	0.00	Peak	134	313	HORIZONTAL
2	2437.96	108.43			75.87	4.38	28.18	0.00	Average	134	313	HORIZONTAL
3	2483.50	52.22	54.00	-1.78	19.56	4.40	28.26	0.00	Average	134	313	HORIZONTAL
4	2485.74	68.99	74.00	-5.01	36.29	4.40	28.30	0.00	Peak	134	313	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	2463.92	101.61			68.99	4.40	28.22	0.00	Average	130	332	HORIZONTAL
2	2466.01	112.84			80.22	4.40	28.22	0.00	Peak	130	332	HORIZONTAL
3	2483.50	52.52	54.00	-1.48	19.86	4.40	28.26	0.00	Average	130	332	HORIZONTAL
4	2484.78	67.09	74.00	-6.91	34.43	4.40	28.26	0.00	Peak	130	332	HORIZONTAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11n MCS0 40MHz Ch 3, 6, 9 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 08, 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	2386.47	70.46	74.00	-3.54	38.09	4.32	28.05	0.00	Peak	142	66	HORIZONTAL
2	2390.00	52.75	54.00	-1.25	20.36	4.34	28.05	0.00	Average	142	66	HORIZONTAL
3	2416.55	96.71			64.26	4.36	28.09	0.00	Average	142	66	HORIZONTAL
4	2425.85	110.80			78.31	4.36	28.13	0.00	Peak	142	66	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	2387.44	69.78	74.00	-4.22	37.41	4.32	28.05	0.00	Peak	132	310	HORIZONTAL
2	2390.00	52.72	54.00	-1.28	20.33	4.34	28.05	0.00	Average	132	310	HORIZONTAL
3	2426.10	99.46			66.97	4.36	28.13	0.00	Average	132	310	HORIZONTAL
4	2446.94	111.89			79.33	4.38	28.18	0.00	Peak	132	310	HORIZONTAL
5	2483.50	52.16	54.00	-1.84	19.50	4.40	28.26	0.00	Average	132	310	HORIZONTAL
6	2491.19	69.52	74.00	-4.48	36.80	4.42	28.30	0.00	Peak	132	310	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	2443.99	109.50			76.94	4.38	28.18	0.00	Peak	129	314	HORIZONTAL
2	2445.59	96.82			64.26	4.38	28.18	0.00	Average	129	314	HORIZONTAL
3	2483.50	52.94	54.00	-1.06	20.28	4.40	28.26	0.00	Average	129	314	HORIZONTAL
4	2484.46	68.72	74.00	-5.28	36.06	4.40	28.26	0.00	Peak	129	314	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	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2386.40	52.73	54.00	-1.27	21.95	2.91	0.00	27.87	Average	336	102	VERTICAL
2		2387.00	60.35	74.00	-13.65	29.57	2.91	0.00	27.87	Peak	336	102	VERTICAL
3	p	2411.20	119.39			88.63	2.92	0.00	27.84	Peak	336	102	VERTICAL
4	a	2411.20	115.39	-----	-----	84.63	2.92	0.00	27.84	Average	336	102	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2385.60	61.27	74.00	-12.73	30.49	2.91	0.00	27.87	Peak	43	100	VERTICAL
2	!	2388.40	50.81	54.00	-3.19	20.03	2.91	0.00	27.87	Average	43	100	VERTICAL
3	a	2437.80	119.21			88.49	2.94	0.00	27.78	Average	43	100	VERTICAL
4	p	2438.20	123.49			92.77	2.94	0.00	27.78	Peak	43	100	VERTICAL
5	!	2485.10	52.21	54.00	-1.79	21.52	2.96	0.00	27.73	Average	43	100	VERTICAL
6		2485.50	62.80	74.00	-11.20	32.11	2.96	0.00	27.73	Peak	43	100	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2463.80	114.13			83.42	2.95	0.00	27.76	Average	304	107	VERTICAL
2	p	2464.60	118.06			87.35	2.95	0.00	27.76	Peak	304	107	VERTICAL
3	!	2487.70	52.93	54.00	-1.07	22.26	2.97	0.00	27.70	Average	304	107	VERTICAL
4		2487.90	61.53	74.00	-12.47	30.86	2.97	0.00	27.70	Peak	304	107	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.60	69.04	74.00	-4.96	38.26	2.91	0.00	27.87	Peak	360	100	VERTICAL
2	!	2389.80	52.99	54.00	-1.01	22.21	2.91	0.00	27.87	Average	360	100	VERTICAL
3	p	2407.40	116.80			86.04	2.92	0.00	27.84	Peak	360	100	VERTICAL
4	a	2410.40	106.44			75.68	2.92	0.00	27.84	Average	360	100	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2384.40	62.59	74.00	-11.41	31.80	2.90	0.00	27.89	Peak	355	100	VERTICAL
2	!	2386.40	51.16	54.00	-2.84	20.38	2.91	0.00	27.87	Average	355	100	VERTICAL
3	a	2433.80	107.82			77.08	2.93	0.00	27.81	Average	355	100	VERTICAL
4	p	2436.60	119.62			88.90	2.94	0.00	27.78	Peak	355	100	VERTICAL
5	!	2483.50	52.51	54.00	-1.49	21.82	2.96	0.00	27.73	Average	355	100	VERTICAL
6		2485.90	66.09	74.00	-7.91	35.40	2.96	0.00	27.73	Peak	355	100	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2460.60	115.30			84.59	2.95	0.00	27.76	Peak	11	100	VERTICAL
2	a	2463.20	105.16			74.45	2.95	0.00	27.76	Average	11	100	VERTICAL
3	!	2483.50	70.95	74.00	-3.05	40.26	2.96	0.00	27.73	Peak	11	100	VERTICAL
4	!	2483.50	52.82	54.00	-1.18	22.13	2.96	0.00	27.73	Average	11	100	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.00	52.52	54.00	-1.48	21.74	2.91	0.00	27.87	Average	1	133	VERTICAL
2		2390.00	62.57	74.00	-11.43	31.79	2.91	0.00	27.87	Peak	1	133	VERTICAL
3	p	2411.00	124.19			93.43	2.92	0.00	27.84	Peak	1	133	VERTICAL
4	a	2411.20	119.93			89.17	2.92	0.00	27.84	Average	1	133	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2390.00	58.16	74.00	-15.84	27.38	2.91	0.00	27.87	Peak	7	155	VERTICAL
2		2390.00	47.71	54.00	-6.29	16.93	2.91	0.00	27.87	Average	7	155	VERTICAL
3	p	2437.80	123.20			92.48	2.94	0.00	27.78	Peak	7	155	VERTICAL
4	a	2438.60	119.05			88.33	2.94	0.00	27.78	Average	7	155	VERTICAL
5		2483.90	62.02	74.00	-11.98	31.33	2.96	0.00	27.73	Peak	7	155	VERTICAL
6	!	2483.90	49.99	54.00	-4.01	19.30	2.96	0.00	27.73	Average	7	155	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	p	2463.00	123.06			92.35	2.95	0.00	27.76	Peak	6	129	VERTICAL
2	a	2463.80	118.76			88.05	2.95	0.00	27.76	Average	6	129	VERTICAL
3	!	2486.70	52.45	54.00	-1.55	21.76	2.96	0.00	27.73	Average	6	129	VERTICAL
4		2487.70	63.38	74.00	-10.62	32.71	2.97	0.00	27.70	Peak	6	129	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9
Test Date	Nov. 08, 2012		

Channel 1

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	!	2389.60	70.68	74.00	-3.32	39.90	2.91	0.00	27.87	Peak	357	131	VERTICAL
2	!	2390.00	52.98	54.00	-1.02	22.20	2.91	0.00	27.87	Average	357	131	VERTICAL
3	a	2410.00	108.68			77.92	2.92	0.00	27.84	Average	357	131	VERTICAL
4	p	2410.80	119.46			88.70	2.92	0.00	27.84	Peak	357	131	VERTICAL

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

Channel 6

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1		2388.80	62.66	74.00	-11.34	31.88	2.91	0.00	27.87	Peak	8	156	VERTICAL
2	!	2389.20	51.05	54.00	-2.95	20.27	2.91	0.00	27.87	Average	8	156	VERTICAL
3	a	2435.40	110.65			79.91	2.93	0.00	27.81	Average	8	156	VERTICAL
4	p	2436.20	121.68			90.94	2.93	0.00	27.81	Peak	8	156	VERTICAL
5	!	2483.50	52.75	54.00	-1.25	22.06	2.96	0.00	27.73	Average	8	156	VERTICAL
6		2485.50	66.28	74.00	-7.72	35.59	2.96	0.00	27.73	Peak	8	156	VERTICAL

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

Channel 11

		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	a	2460.00	107.06			76.35	2.95	0.00	27.76	Average	5	153	VERTICAL
2	p	2460.80	118.60			87.89	2.95	0.00	27.76	Peak	5	153	VERTICAL
3		2483.50	65.04	74.00	-8.96	34.35	2.96	0.00	27.73	Peak	5	153	VERTICAL
4	!	2483.50	52.49	54.00	-1.51	21.80	2.96	0.00	27.73	Average	5	153	VERTICAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11b CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 08, 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	2385.99	61.77	74.00	-12.23	29.40	4.32	28.05	0.00	Peak	138	316	HORIZONTAL
2	2387.28	52.72	54.00	-1.28	20.35	4.32	28.05	0.00	Average	138	316	HORIZONTAL
3	2410.24	114.37			81.94	4.34	28.09	0.00	Average	138	316	HORIZONTAL
4	2411.04	118.27			85.84	4.34	28.09	0.00	Peak	138	316	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	2387.76	62.06	74.00	-11.94	29.67	4.34	28.05	0.00	Peak	135	82	HORIZONTAL
2	2389.36	49.56	54.00	-4.44	17.17	4.34	28.05	0.00	Average	135	82	HORIZONTAL
3	2436.36	116.62			84.08	4.36	28.18	0.00	Average	135	82	HORIZONTAL
4	2436.36	120.68			88.14	4.36	28.18	0.00	Peak	135	82	HORIZONTAL
5	2484.14	52.06	54.00	-1.94	19.40	4.40	28.26	0.00	Average	135	82	HORIZONTAL
6	2485.42	62.52	74.00	-11.48	29.82	4.40	28.30	0.00	Peak	135	82	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	2459.60	102.38			69.78	4.38	28.22	0.00	Average	126	328	HORIZONTAL
2	2464.08	113.67			81.05	4.40	28.22	0.00	Peak	126	328	HORIZONTAL
3	2483.50	52.24	54.00	-1.76	19.58	4.40	28.26	0.00	Average	126	328	HORIZONTAL
4	2483.50	67.60	74.00	-6.40	34.94	4.40	28.26	0.00	Peak	126	328	HORIZONTAL

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

Temperature	20℃	Humidity	63%
Test Engineer	Jim Huang	Configurations	IEEE 802.11g CH 1, 6, 11 / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10
Test Date	Nov. 08, 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	2389.52	68.73	74.00	-5.27	36.34	4.34	28.05	0.00	Peak	129	315	HORIZONTAL
2	2389.84	52.92	54.00	-1.08	20.53	4.34	28.05	0.00	Average	129	315	HORIZONTAL
3	2417.61	116.09			83.60	4.36	28.13	0.00	Peak	129	315	HORIZONTAL
4	2417.77	105.14			72.65	4.36	28.13	0.00	Average	129	315	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	51.13	54.00	-2.87	18.74	4.34	28.05	0.00	Average	128	313	HORIZONTAL
2	2390.00	65.56	74.00	-8.44	33.17	4.34	28.05	0.00	Peak	128	313	HORIZONTAL
3	2437.32	109.62			77.08	4.36	28.18	0.00	Average	128	313	HORIZONTAL
4	2441.81	120.15			87.59	4.38	28.18	0.00	Peak	128	313	HORIZONTAL
5	2483.50	52.80	54.00	-1.20	20.14	4.40	28.26	0.00	Average	128	313	HORIZONTAL
6	2486.06	71.28	74.00	-2.72	38.58	4.40	28.30	0.00	Peak	128	313	HORIZONTAL

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

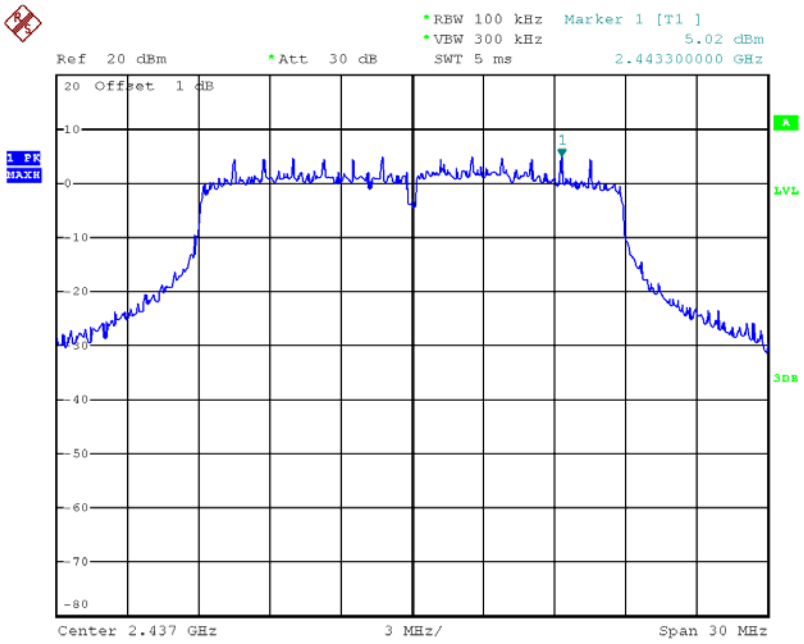
Channel 11

	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	2459.60	102.38			69.78	4.38	28.22	0.00	Average	126	328	HORIZONTAL
2	2464.08	113.67			81.05	4.40	28.22	0.00	Peak	126	328	HORIZONTAL
3	2483.50	52.24	54.00	-1.76	19.58	4.40	28.26	0.00	Average	126	328	HORIZONTAL
4	2483.50	67.60	74.00	-6.40	34.94	4.40	28.26	0.00	Peak	126	328	HORIZONTAL

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

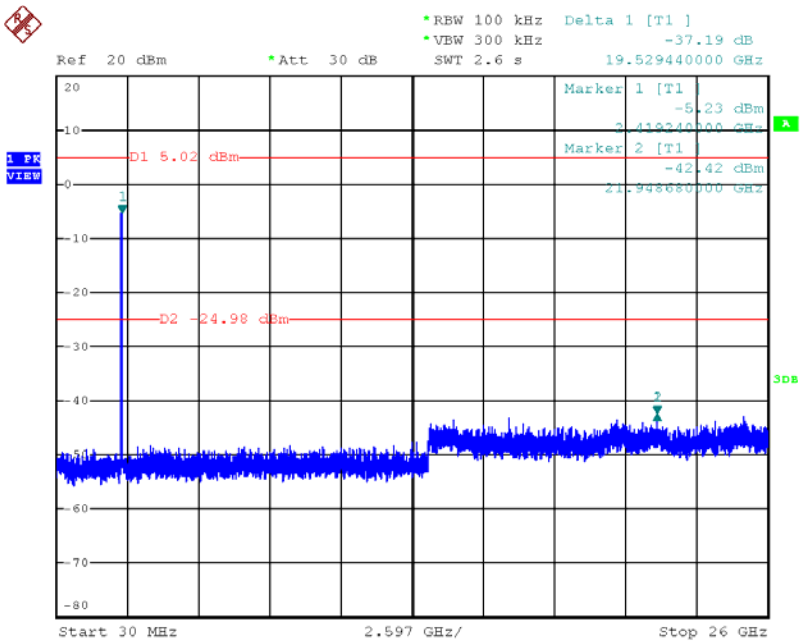
For Emission not in Restricted Band

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



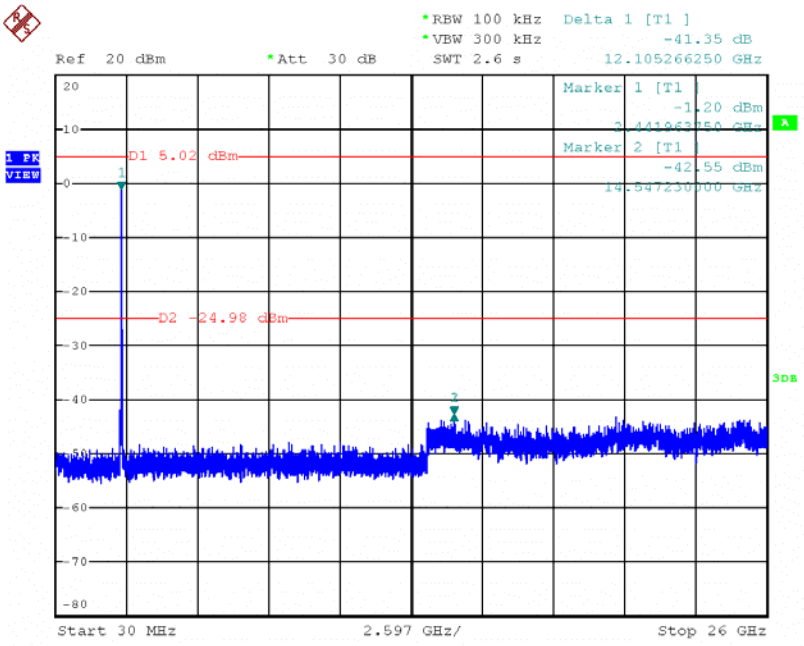
Date: 12.NOV.2012 17:08:31

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



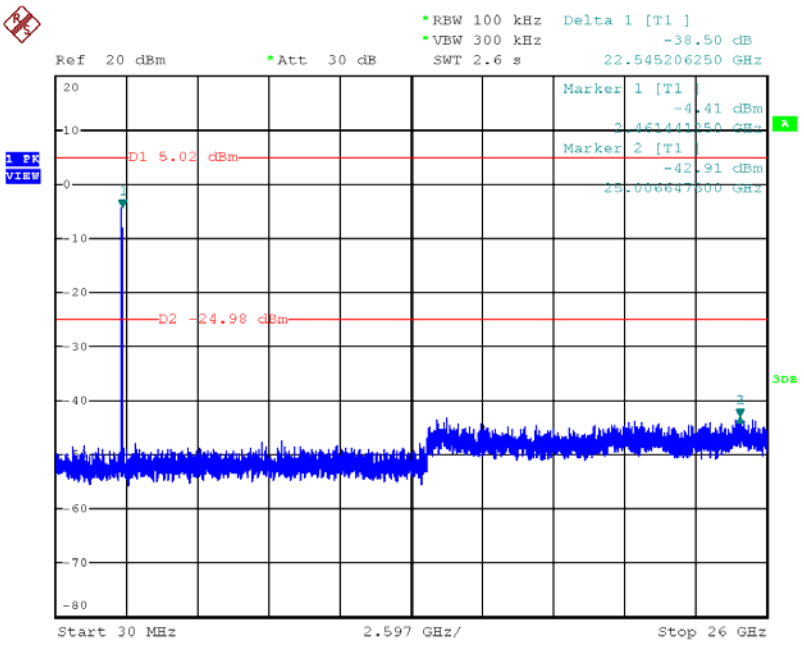
Date: 12.NOV.2012 20:09:49

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



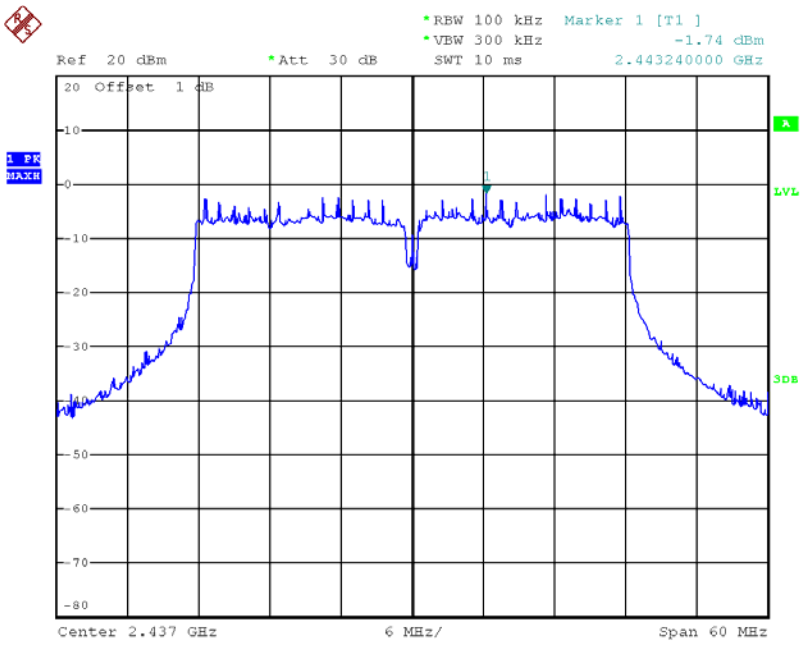
Date: 12.NOV.2012 20:10:16

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



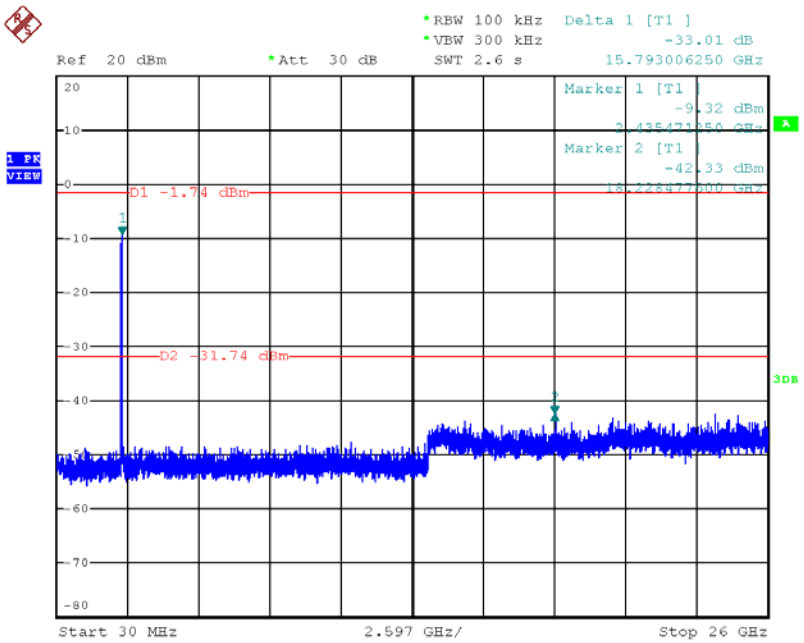
Date: 12.NOV.2012 20:10:44

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



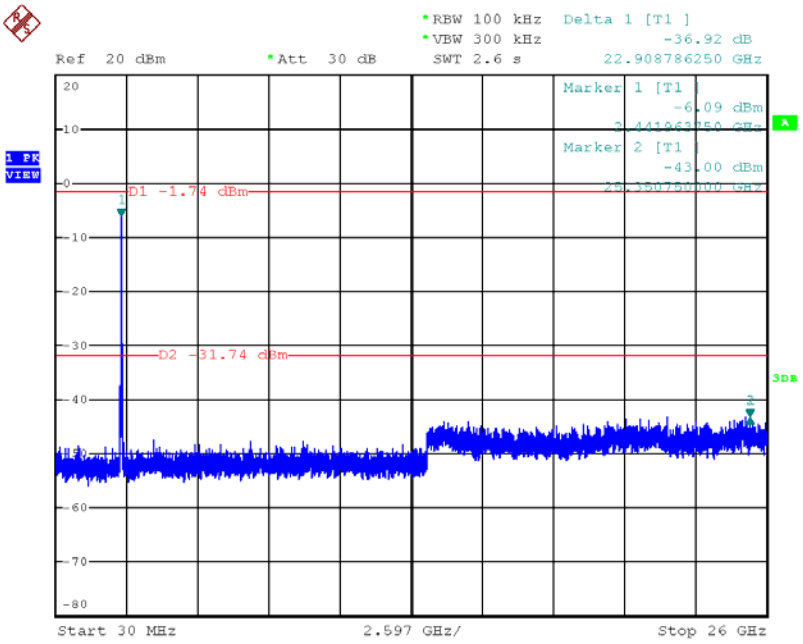
Date: 12.NOV.2012 16:34:53

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



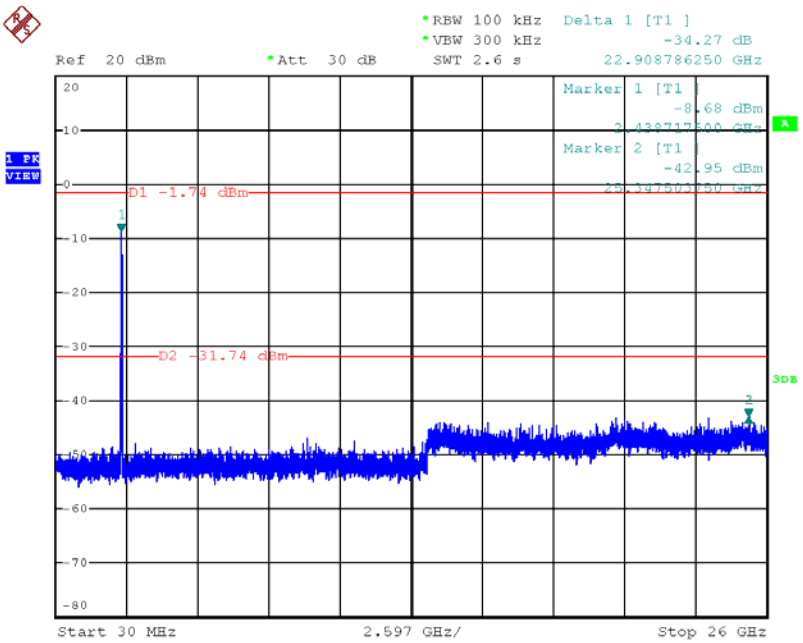
Date: 12.NOV.2012 20:07:36

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



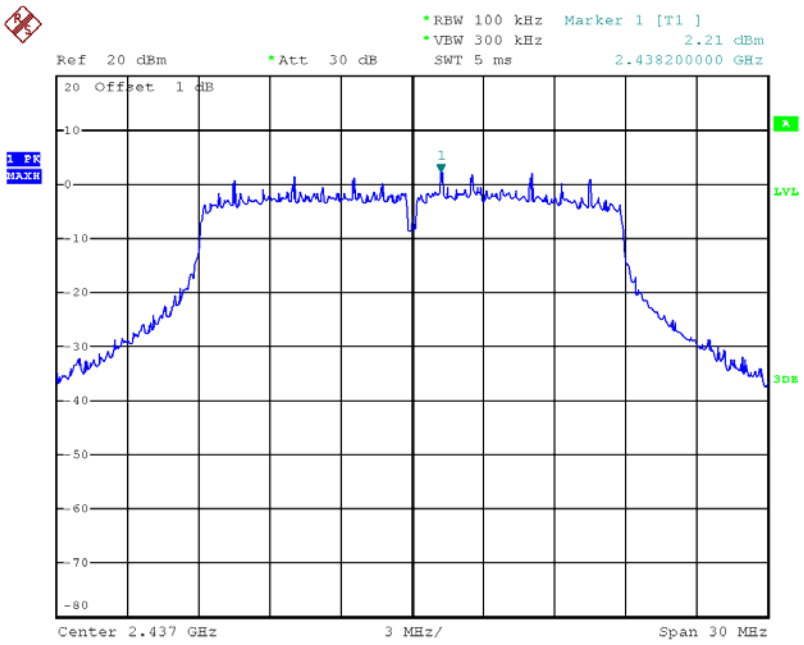
Date: 12.NOV.2012 20:08:03

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



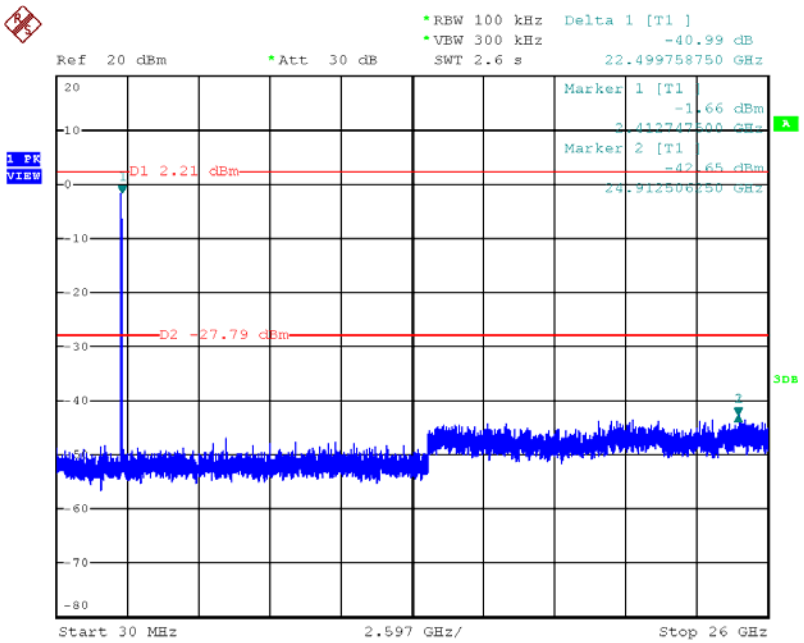
Date: 12.NOV.2012 20:08:35

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



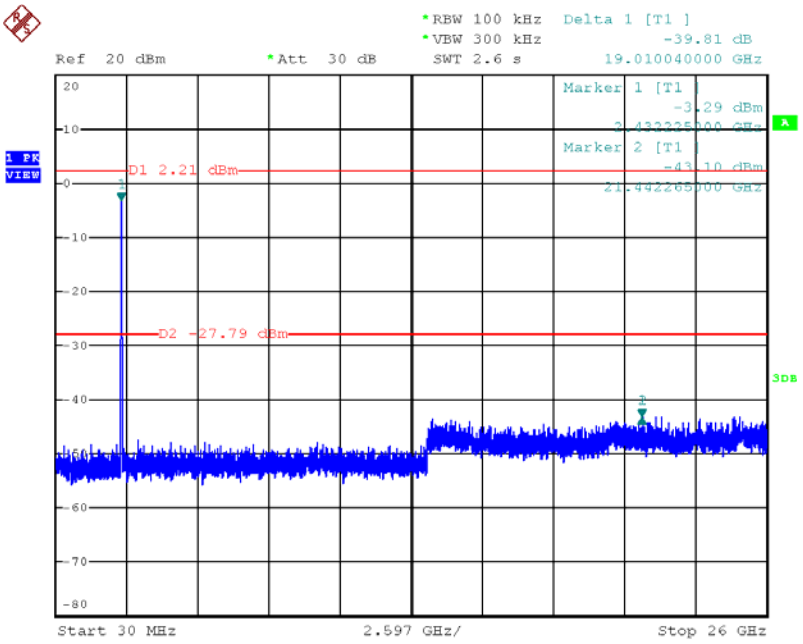
Date: 12.NOV.2012 17:07:44

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



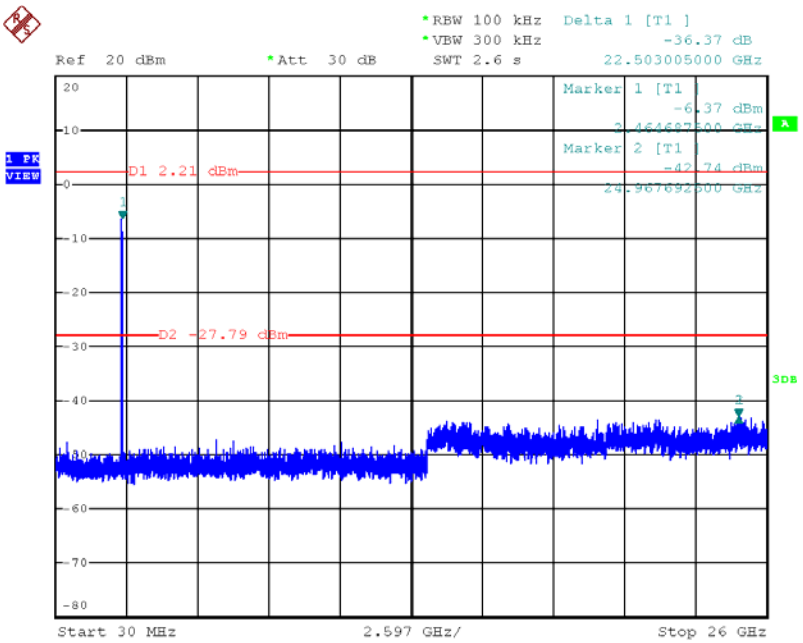
Date: 12.NOV.2012 19:28:30

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



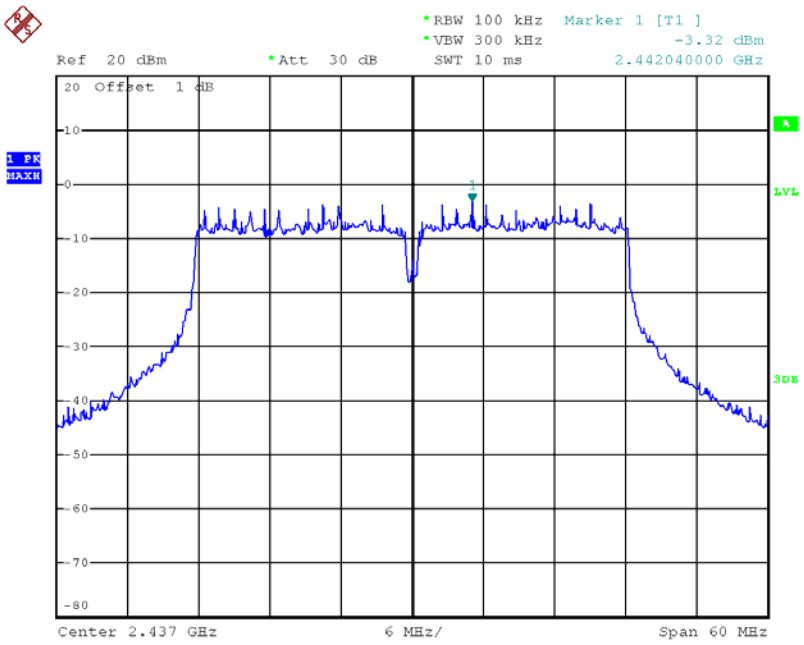
Date: 12.NOV.2012 19:29:00

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



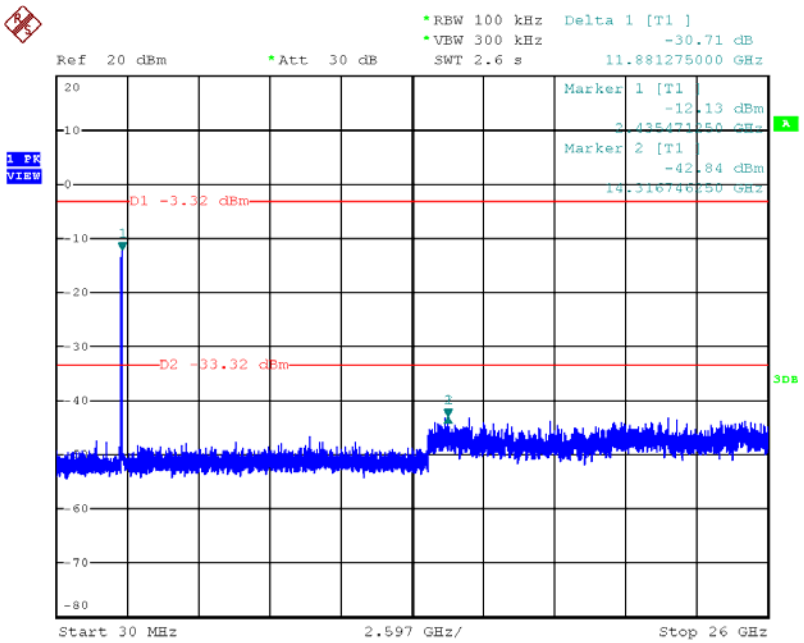
Date: 12.NOV.2012 19:29:28

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



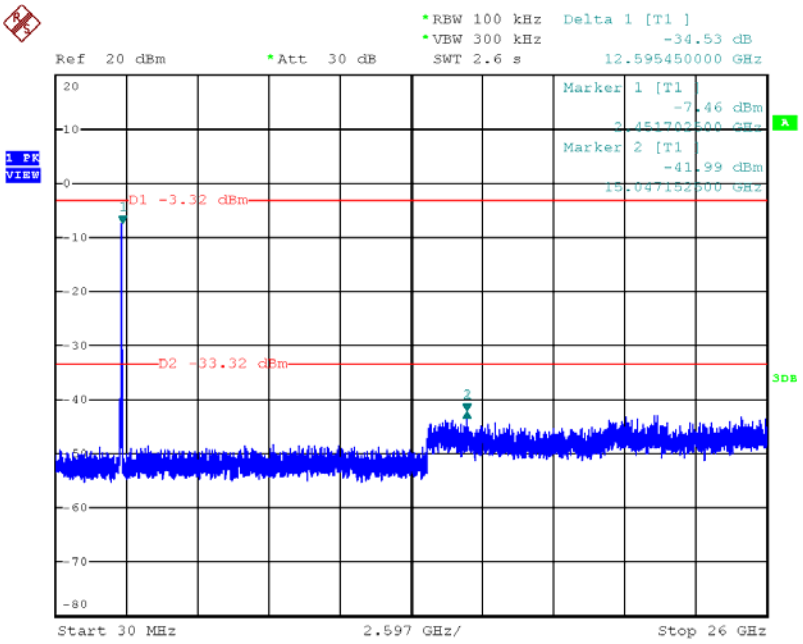
Date: 12.NOV.2012 16:34:34

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



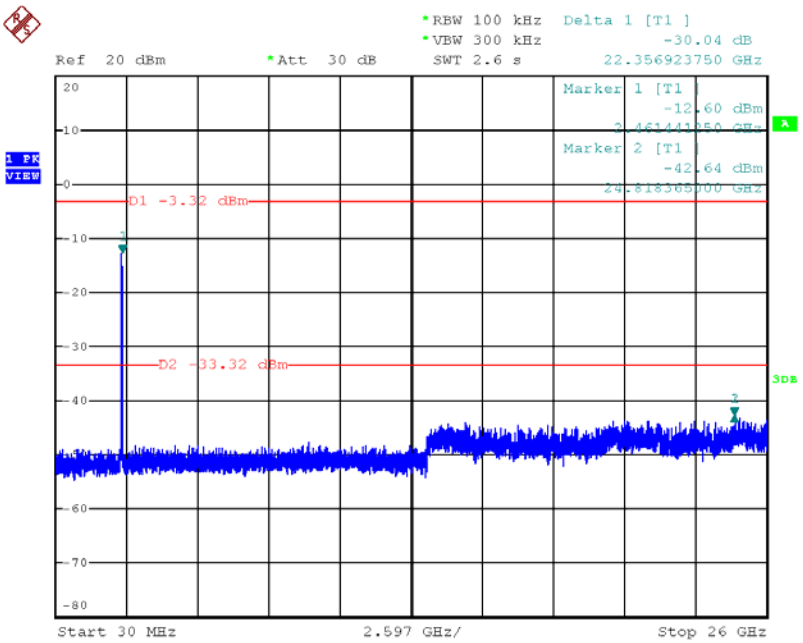
Date: 12.NOV.2012 19:33:27

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



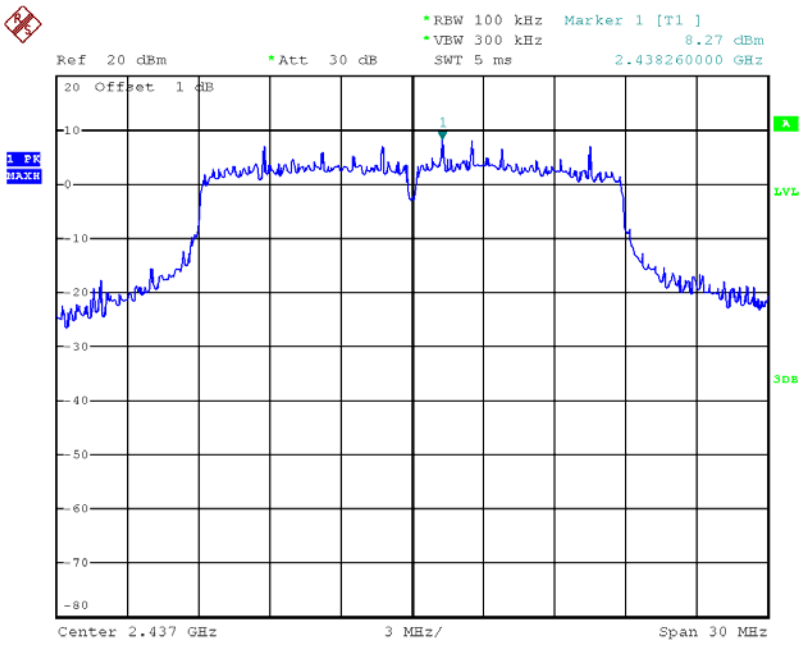
Date: 12.NOV.2012 19:32:51

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



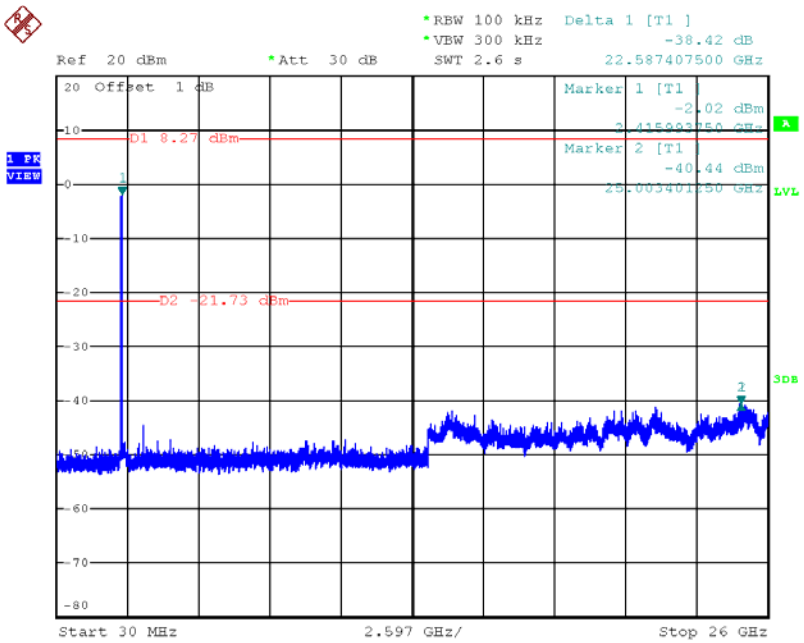
Date: 12.NOV.2012 19:32:20

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



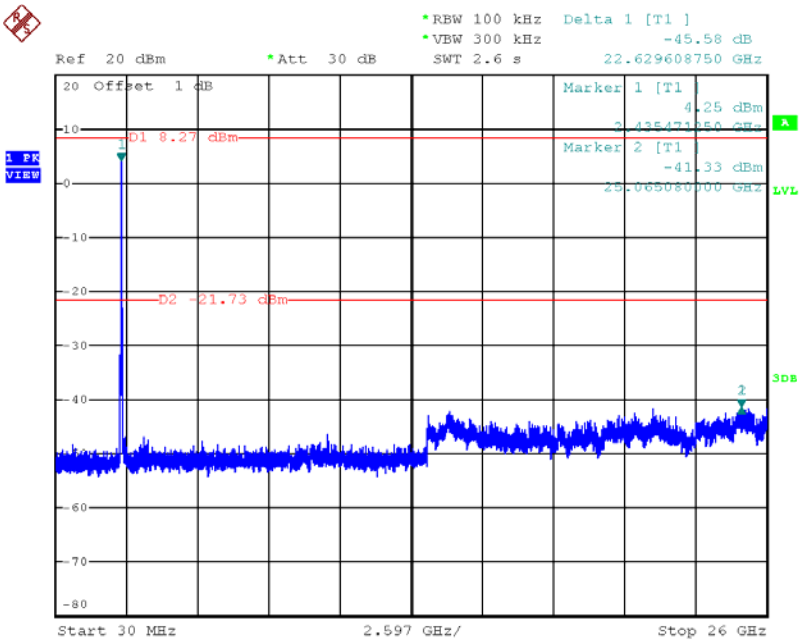
Date: 14.NOV.2012 15:10:24

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 1 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



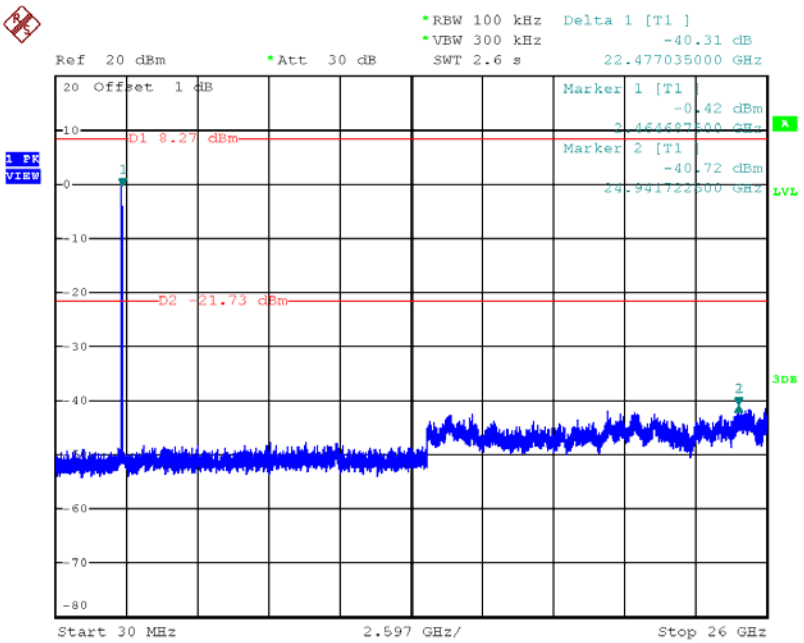
Date: 14.NOV.2012 16:10:56

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



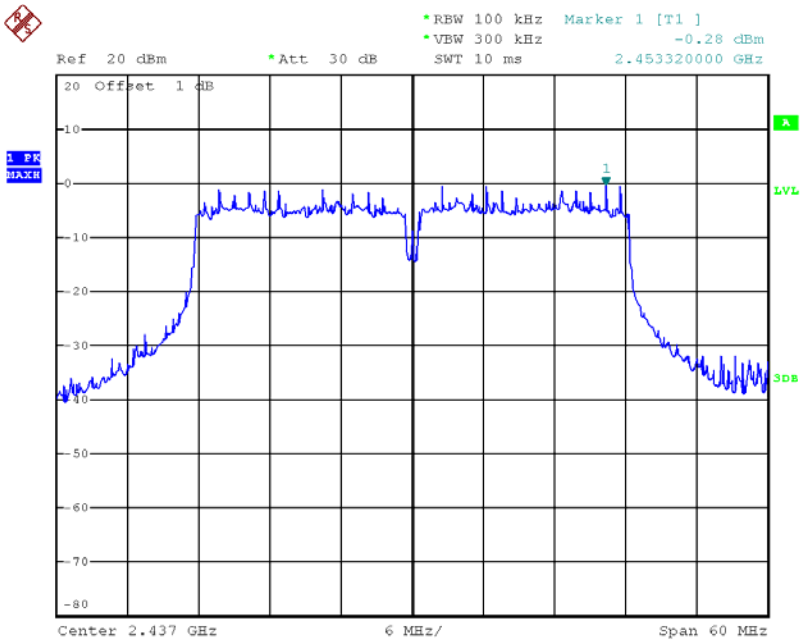
Date: 14.NOV.2012 16:11:52

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 11 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



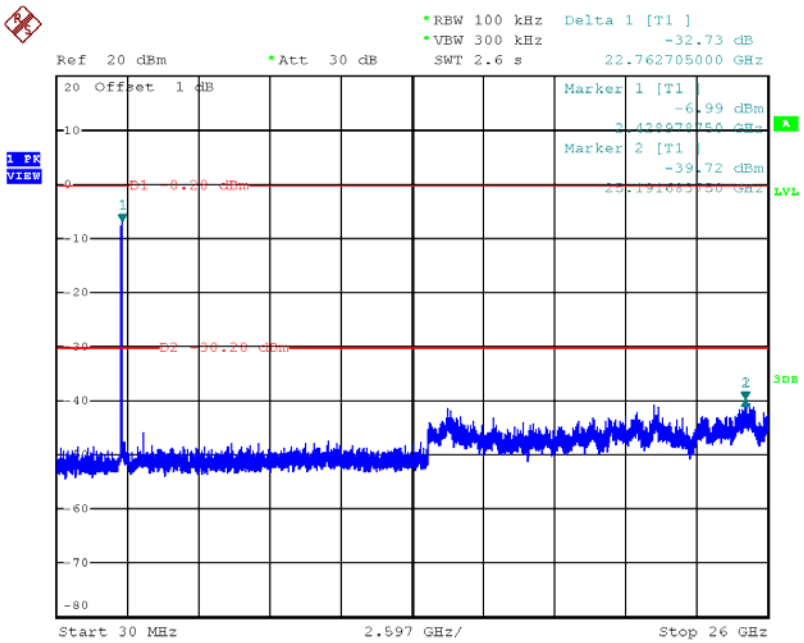
Date: 14.NOV.2012 16:12:46

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



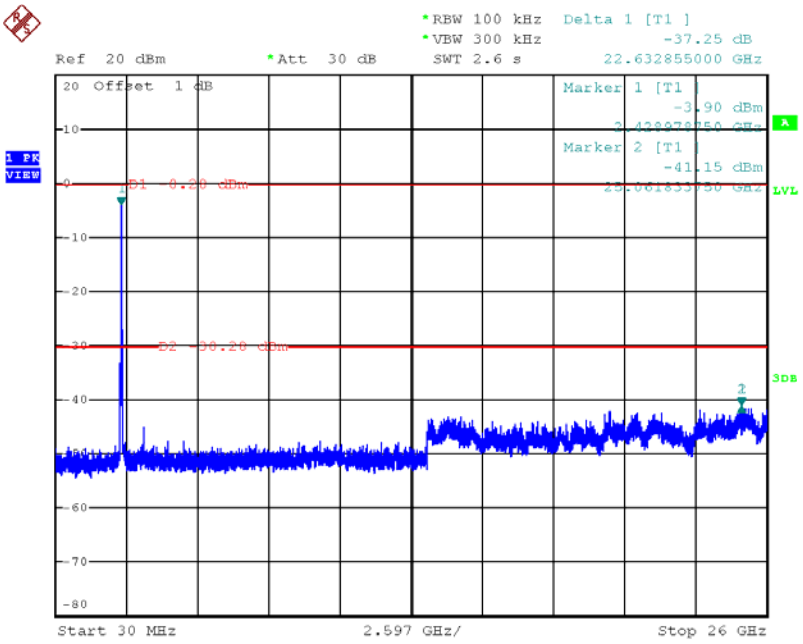
Date: 14.NOV.2012 15:37:15

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 3 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



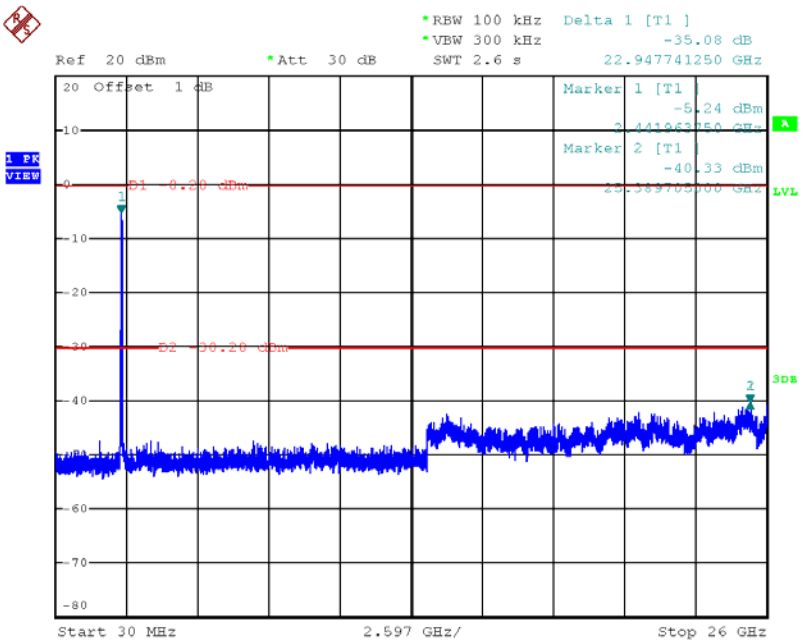
Date: 14.NOV.2012 16:08:46

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 6 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



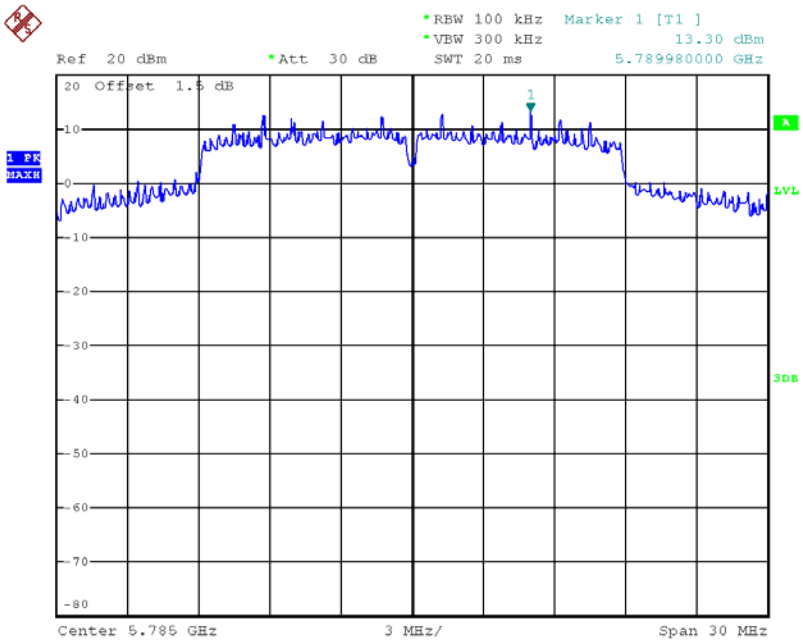
Date: 14.NOV.2012 16:07:44

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 9 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



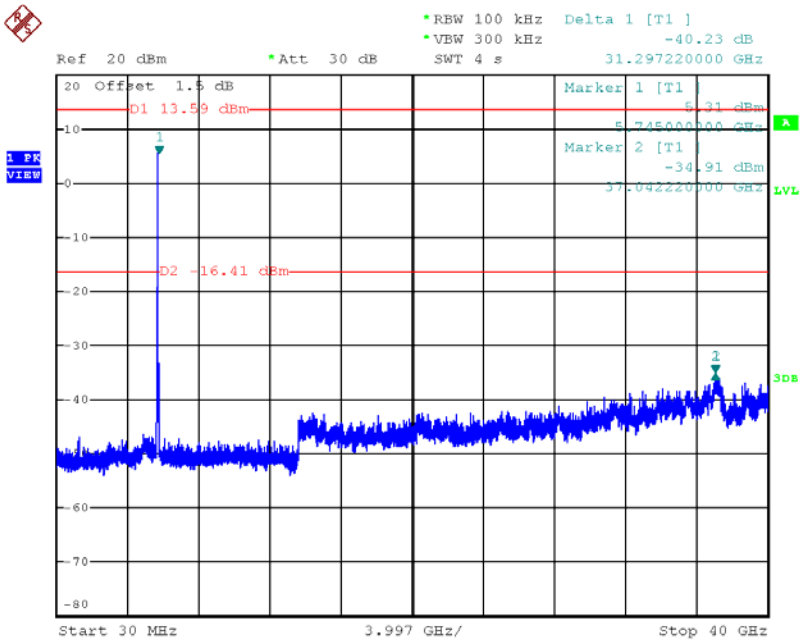
Date: 14.NOV.2012 16:06:37

Plot on Configuration IEEE 802.11n MCS0 20MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



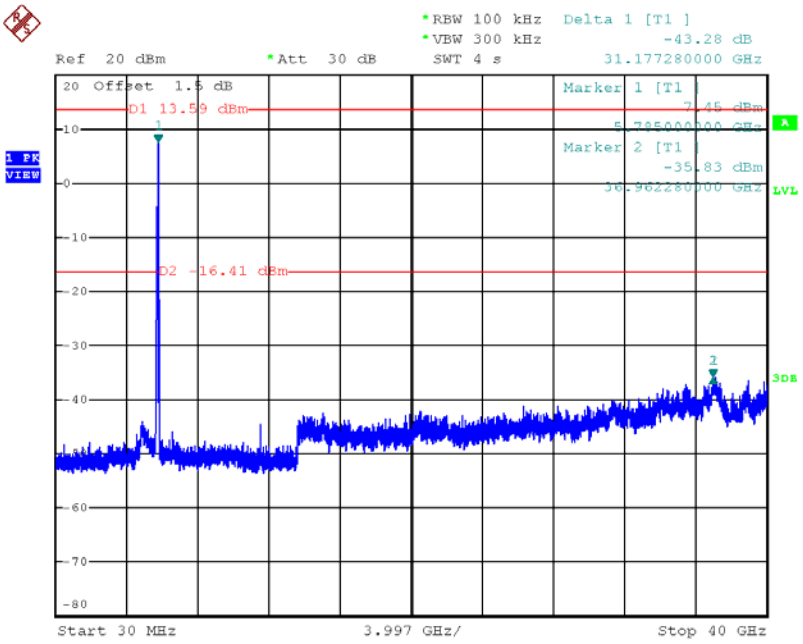
Date: 13.NOV.2012 10:53:10

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 149 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



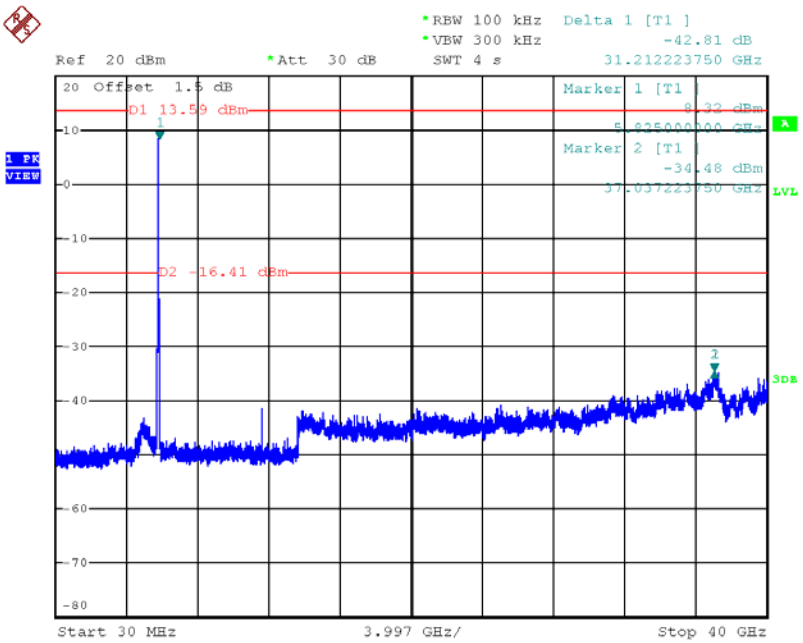
Date: 13.NOV.2012 13:28:28

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 157 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



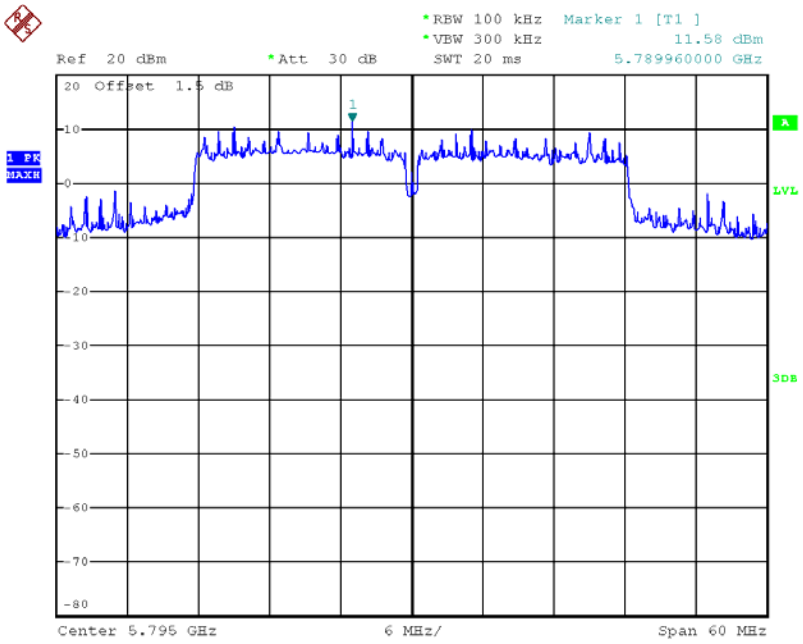
Date: 13.NOV.2012 13:27:55

Plot on Configuration IEEE 802.11n MCS0 20MHz / CH 165 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



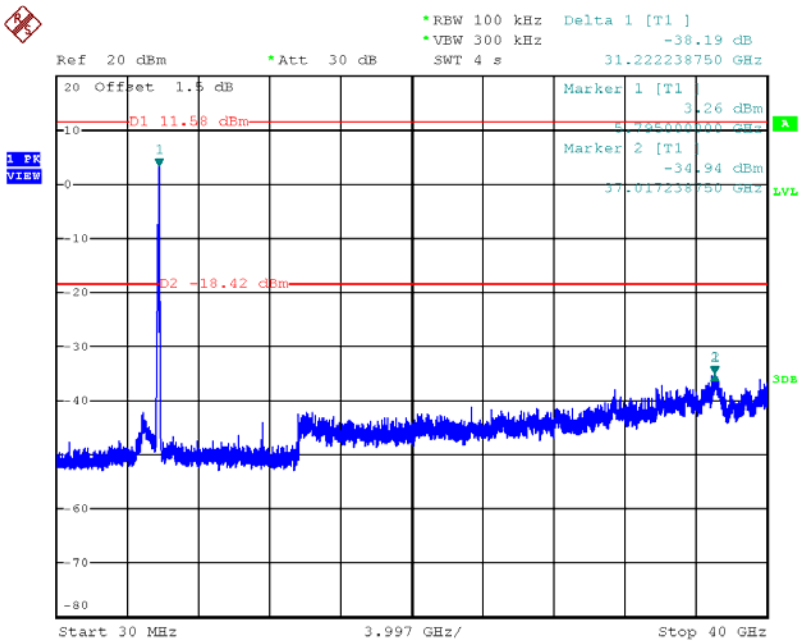
Date: 13.NOV.2012 13:27:22

Plot on Configuration IEEE 802.11n MCS0 40MHz / Reference Level / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



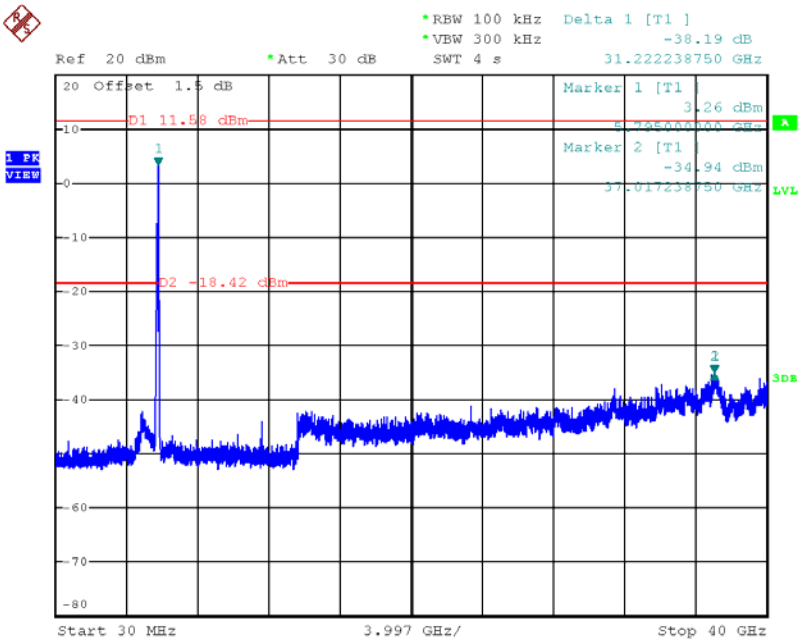
Date: 13.NOV.2012 10:59:17

Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 151 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 13:30:54

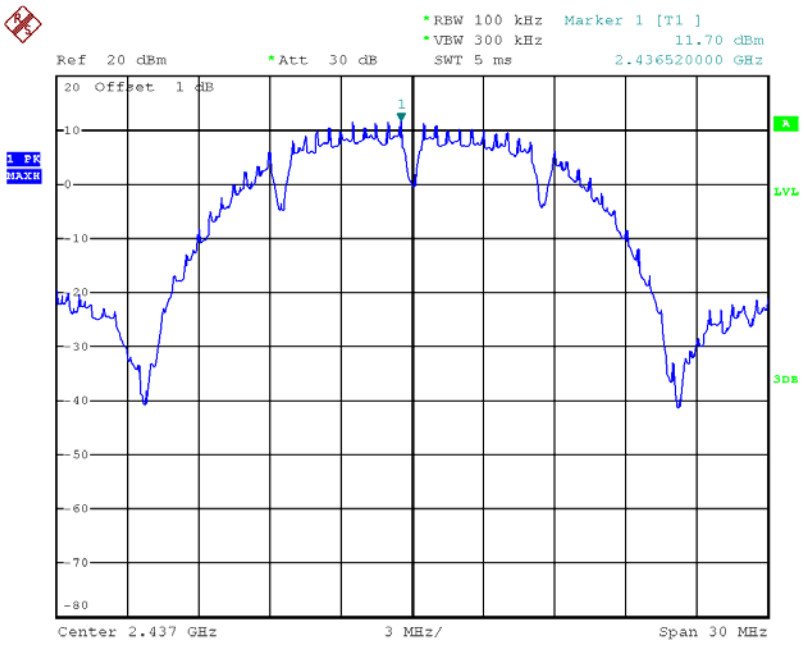
Plot on Configuration IEEE 802.11n MCS0 40MHz / CH 159 (down 30dBc) / Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 13:30:54

Plot on Configuration IEEE 802.11b / Reference Level /

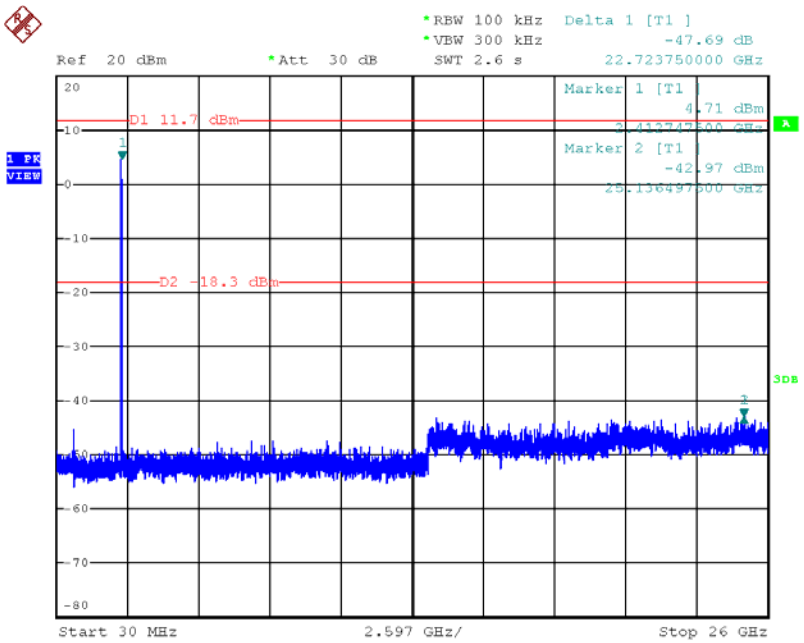
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 17:00:10

Plot on Configuration IEEE 802.11b / CH 1 (down 30dBc) /

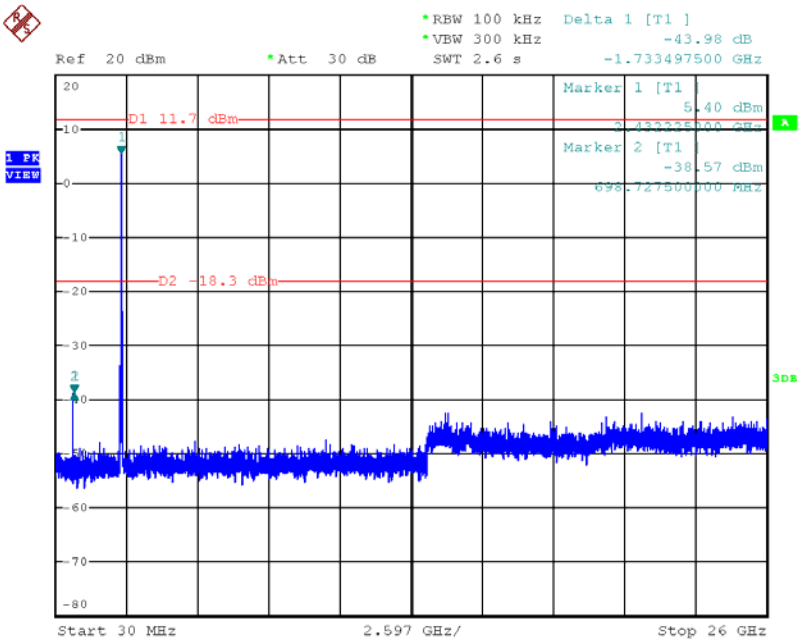
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:14:49

Plot on Configuration IEEE 802.11b / CH 6 (down 30dBc) /

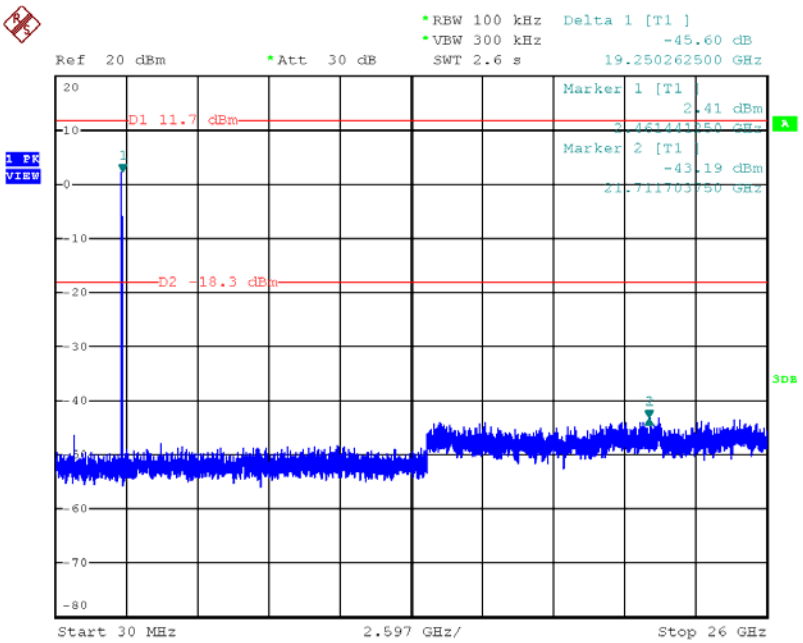
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:15:30

Plot on Configuration IEEE 802.11b / CH 11 (down 30dBc) /

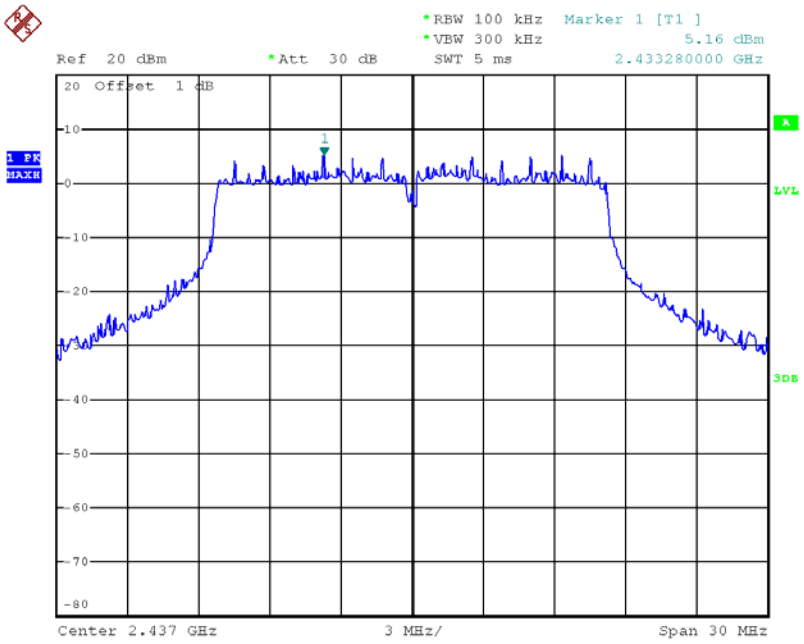
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:15:57

Plot on Configuration IEEE 802.11g / Reference Level /

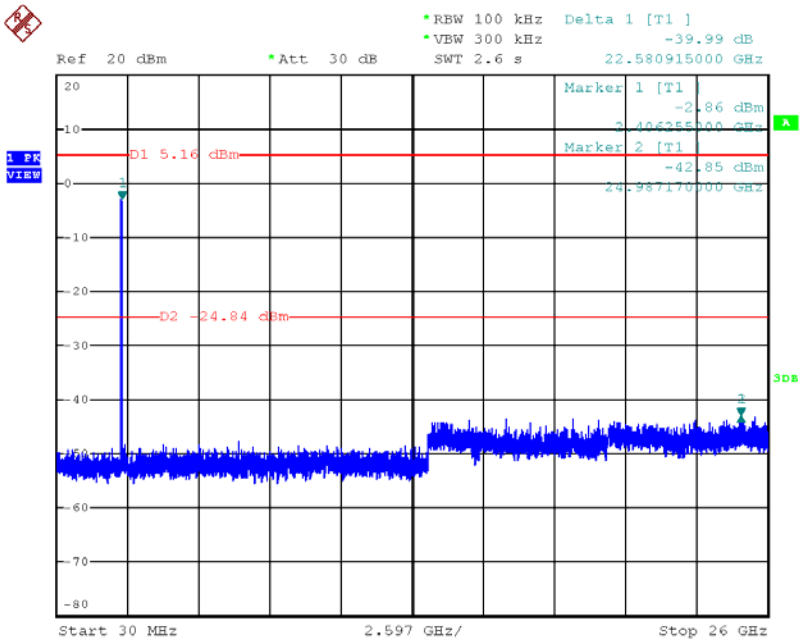
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 17:03:48

Plot on Configuration IEEE 802.11g / CH 1 (down 30dBc) /

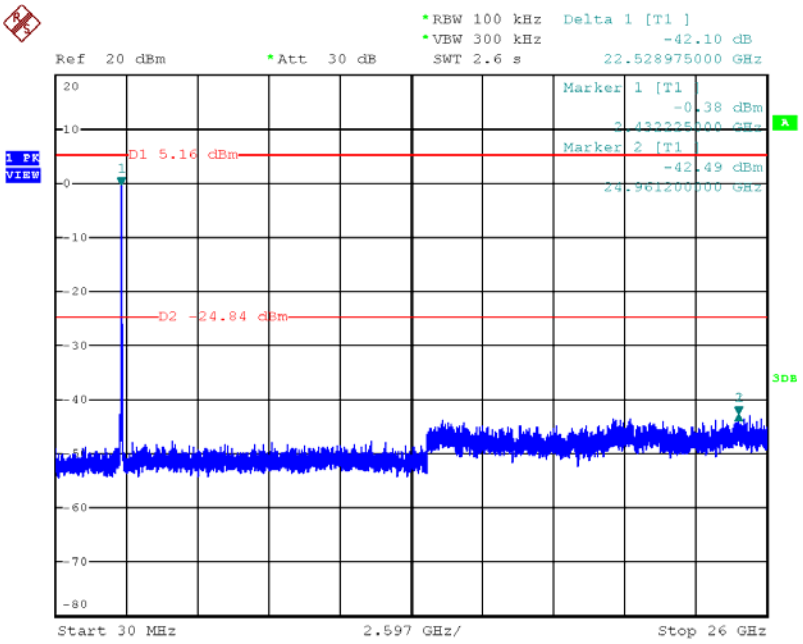
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:13:45

Plot on Configuration IEEE 802.11g / CH 6 (down 30dBc) /

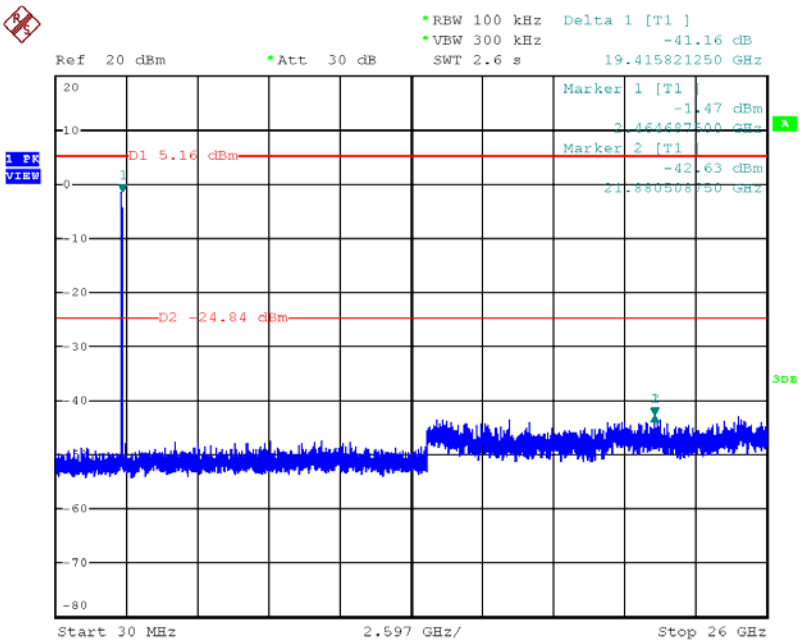
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:13:04

Plot on Configuration IEEE 802.11g / CH 11 (down 30dBc) /

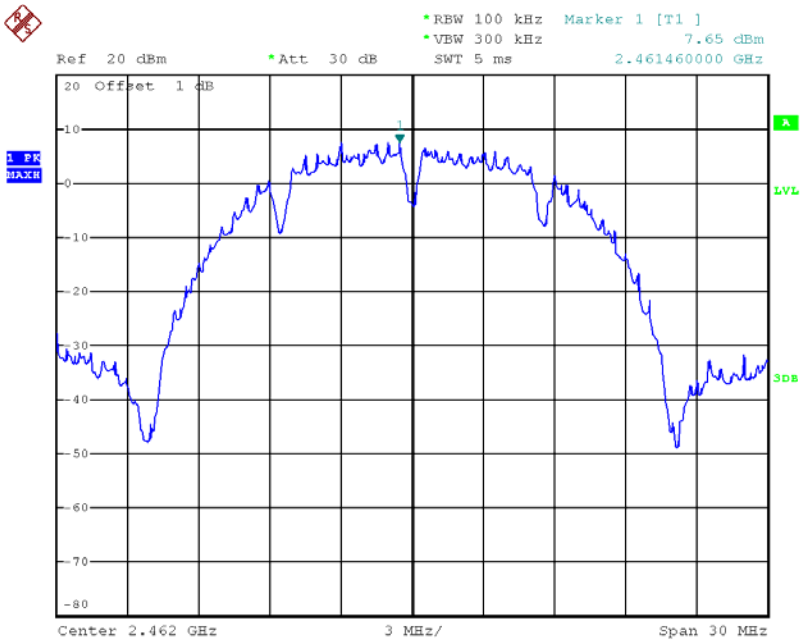
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 8



Date: 12.NOV.2012 20:12:32

Plot on Configuration IEEE 802.11b / Reference Level /

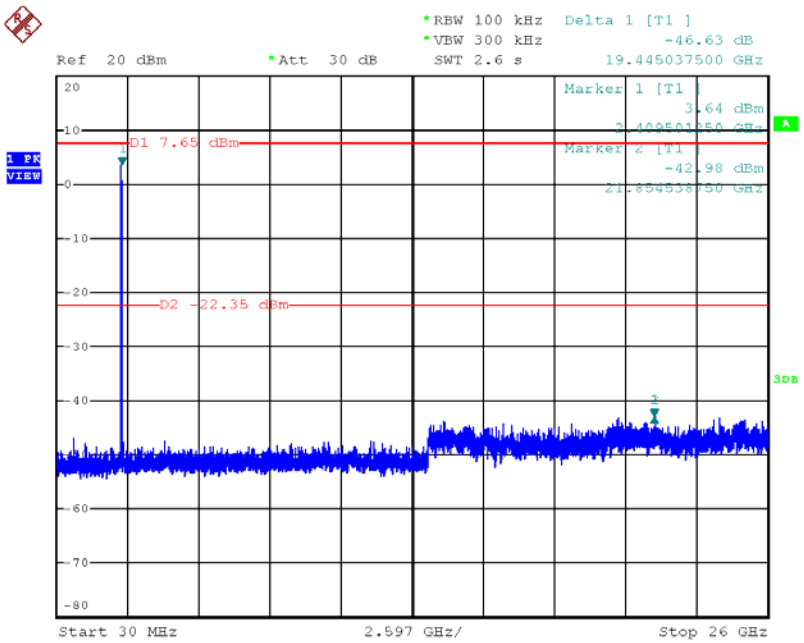
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 17:00:58

Plot on Configuration IEEE 802.11b / CH 1 (down 30dBc) /

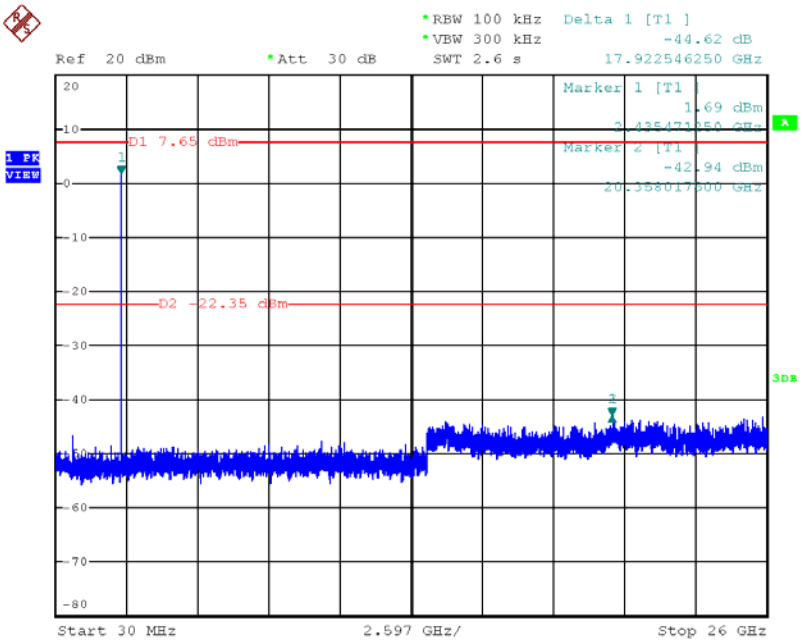
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:22:32

Plot on Configuration IEEE 802.11b / CH 6 (down 30dBc) /

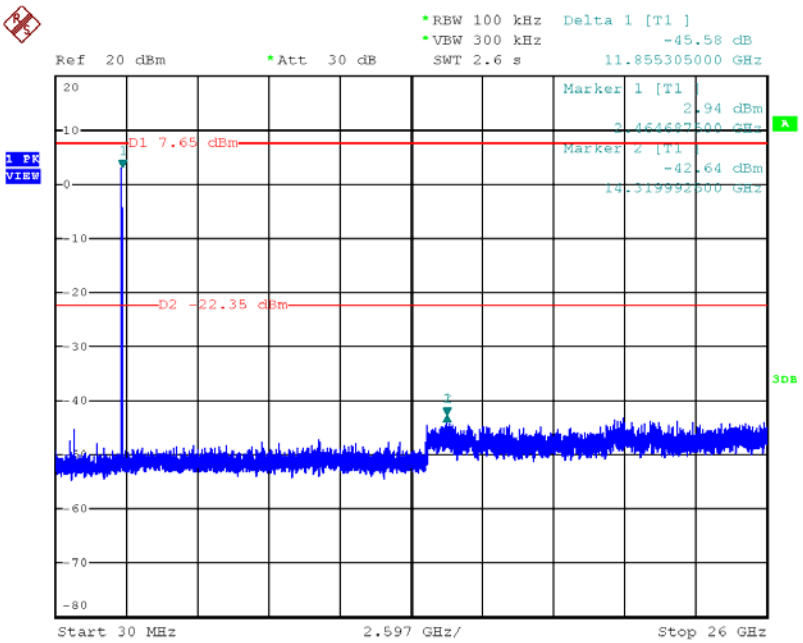
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:23:28

Plot on Configuration IEEE 802.11b / CH 11 (down 30dBc) /

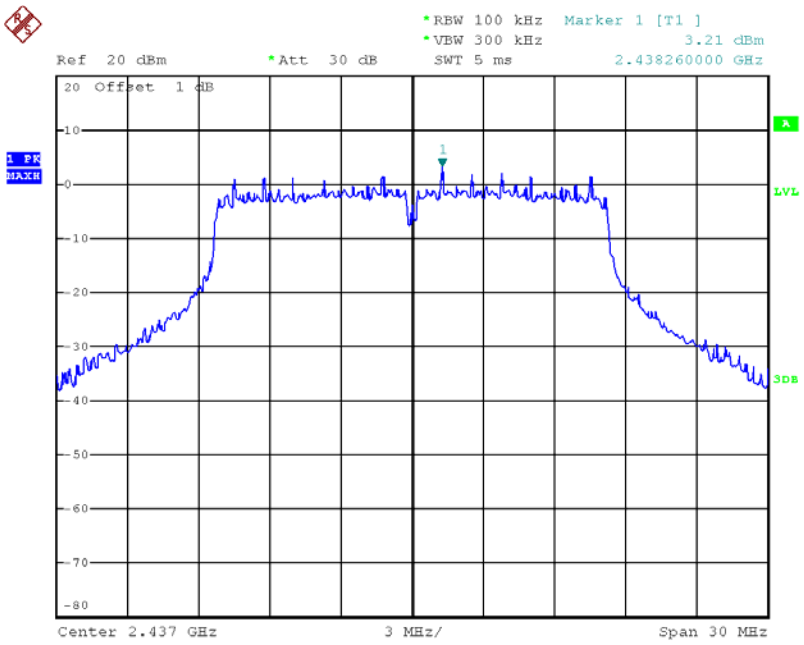
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:23:57

Plot on Configuration IEEE 802.11g / Reference Level /

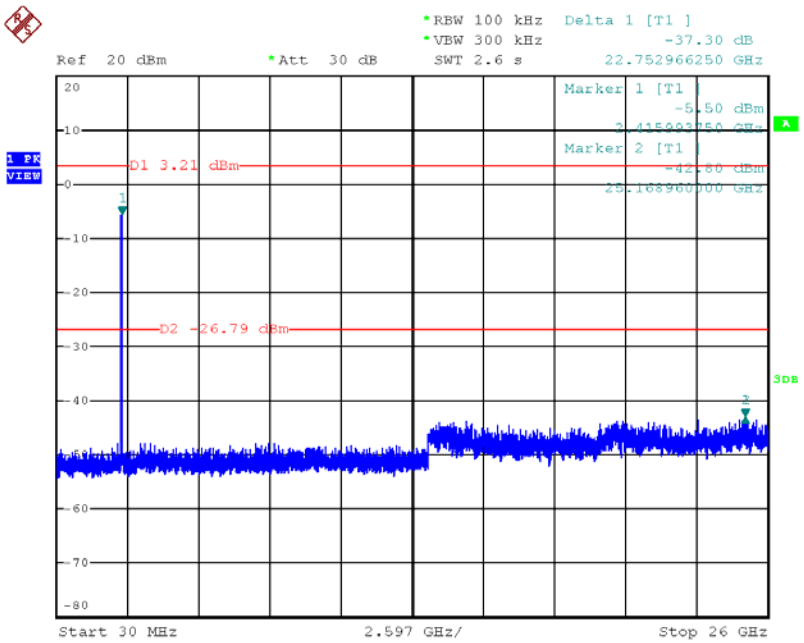
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 16:47:20

Plot on Configuration IEEE 802.11g / CH 1 (down 30dBc) /

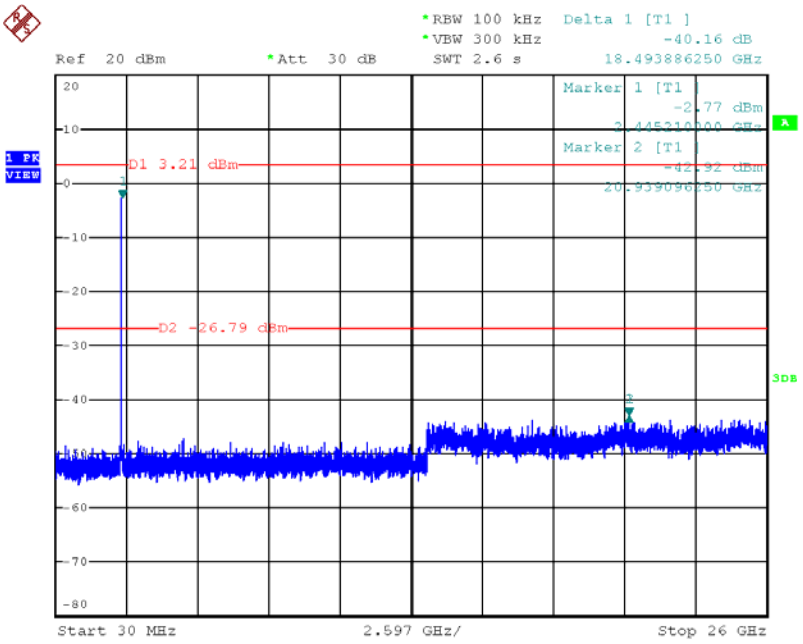
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:27:04

Plot on Configuration IEEE 802.11g / CH 6 (down 30dBc) /

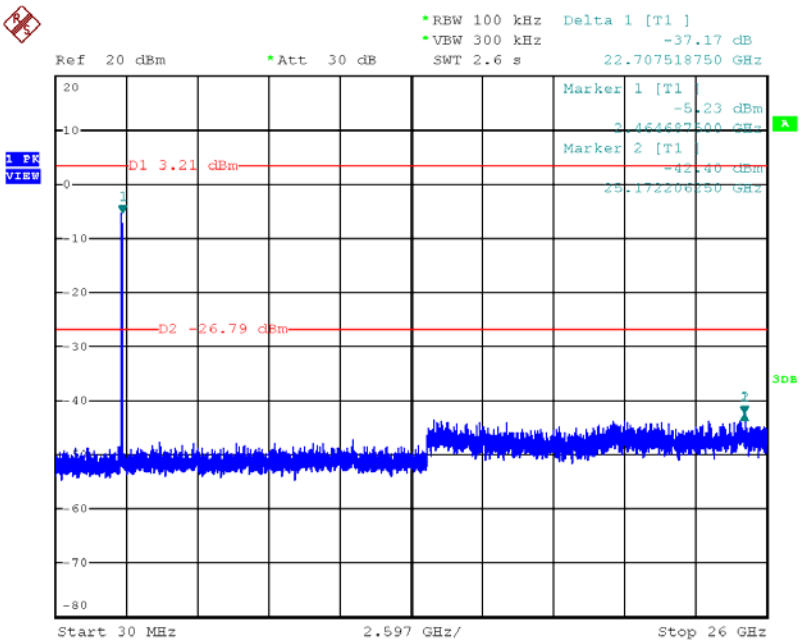
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:26:32

Plot on Configuration IEEE 802.11g / CH 11 (down 30dBc) /

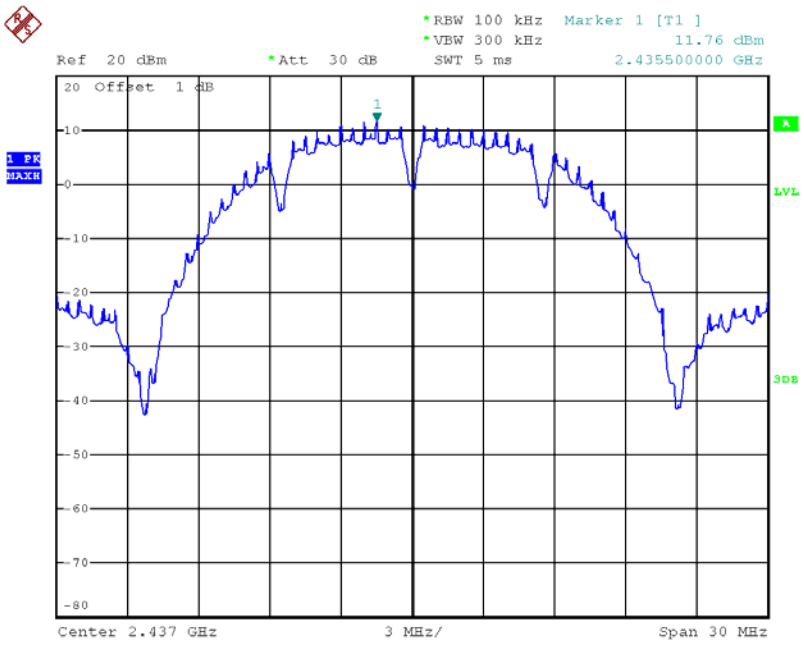
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 9



Date: 12.NOV.2012 19:26:00

Plot on Configuration IEEE 802.11b / Reference Level /

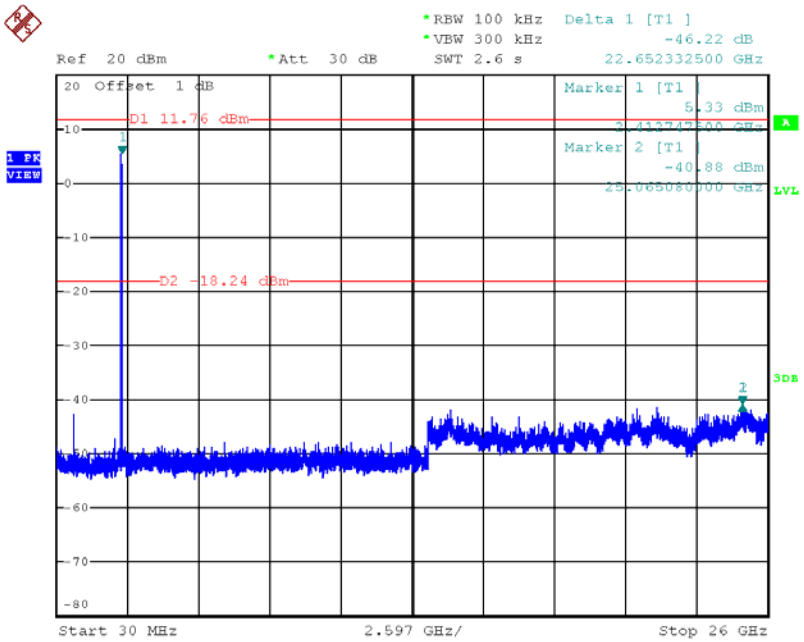
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 13:04:57

Plot on Configuration IEEE 802.11b / CH 1 (down 30dBc) /

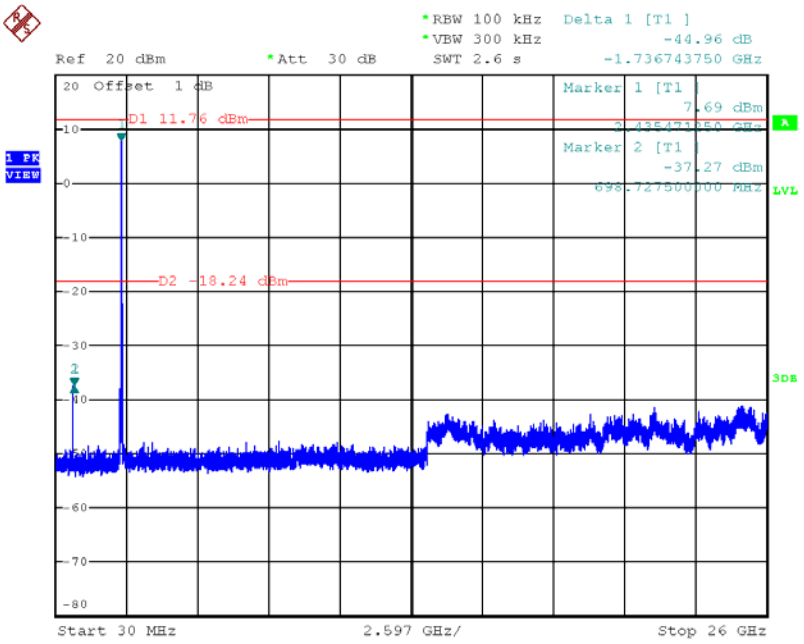
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:18:52

Plot on Configuration IEEE 802.11b / CH 6 (down 30dBc) /

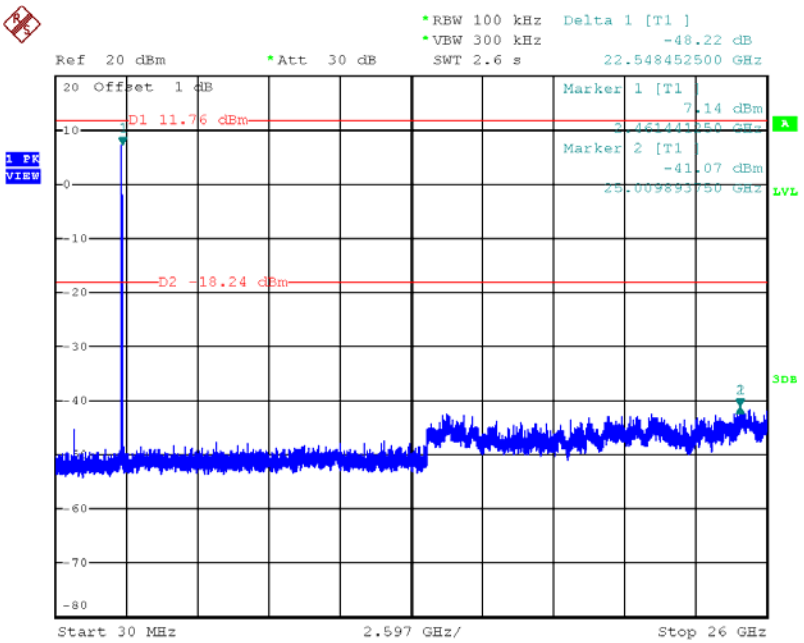
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:19:54

Plot on Configuration IEEE 802.11b / CH 11 (down 30dBc) /

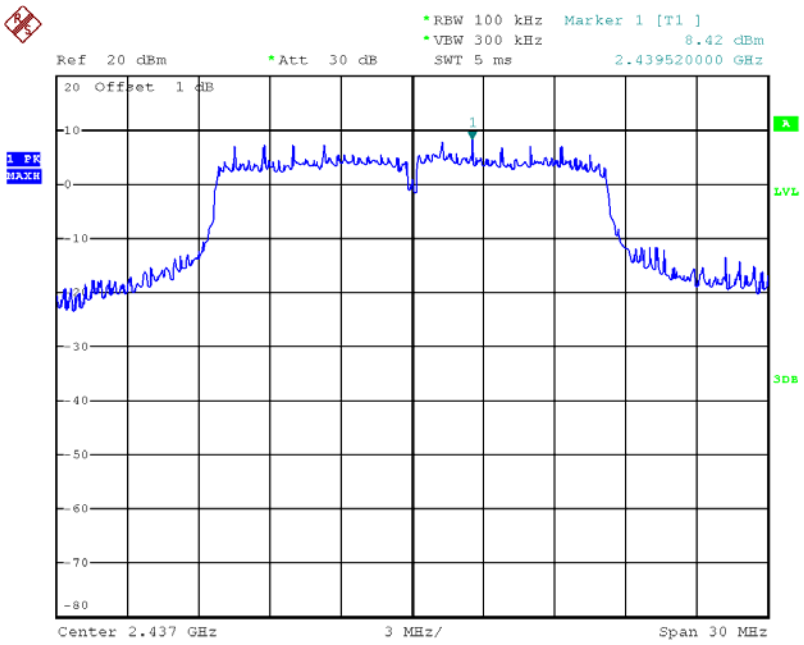
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:21:16

Plot on Configuration IEEE 802.11g / Reference Level /

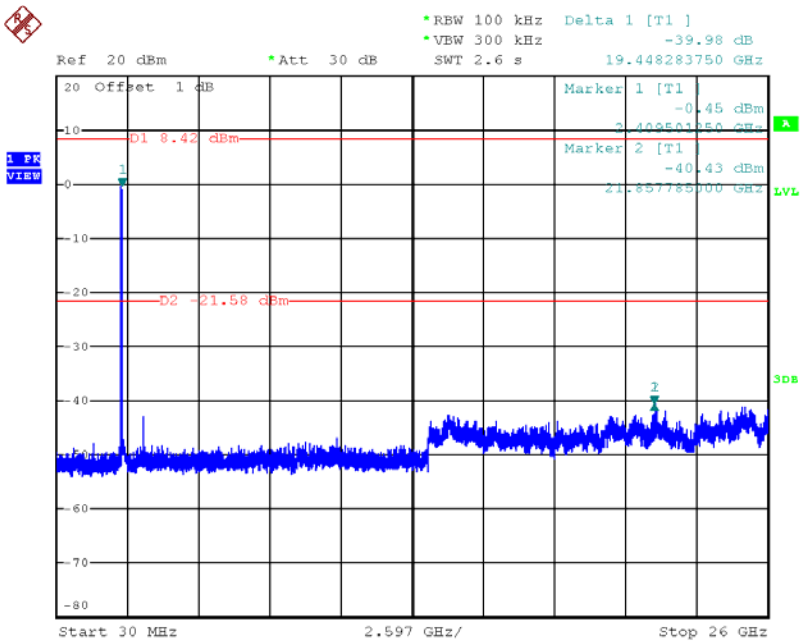
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 14:52:54

Plot on Configuration IEEE 802.11g / CH 1 (down 30dBc) /

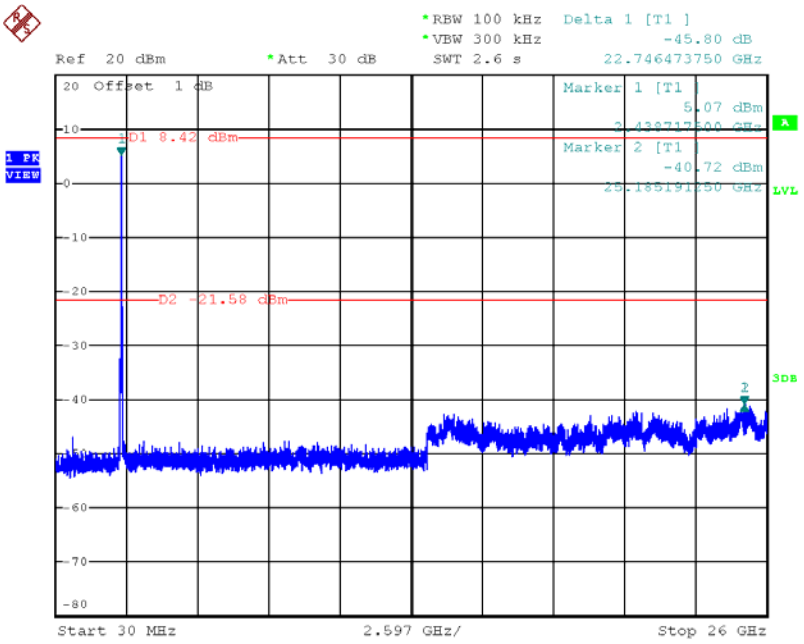
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:16:50

Plot on Configuration IEEE 802.11g / CH 6 (down 30dBc) /

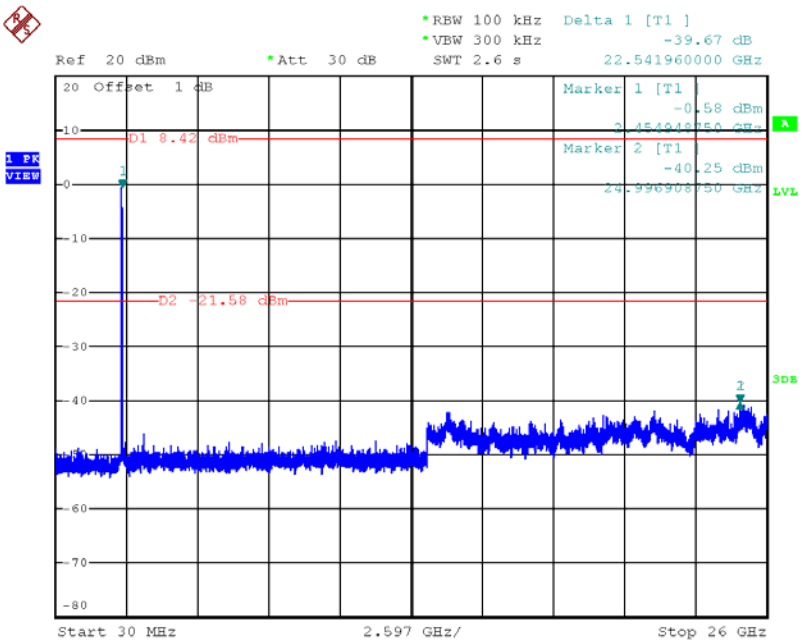
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:15:29

Plot on Configuration IEEE 802.11g / CH 11 (down 30dBc) /

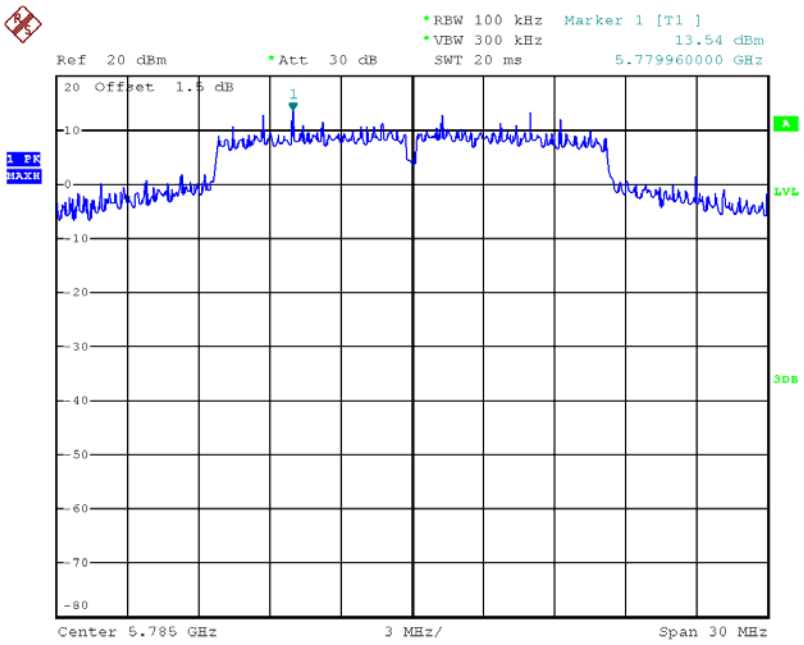
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 10



Date: 14.NOV.2012 16:14:33

Plot on Configuration IEEE 802.11a / Reference Level /

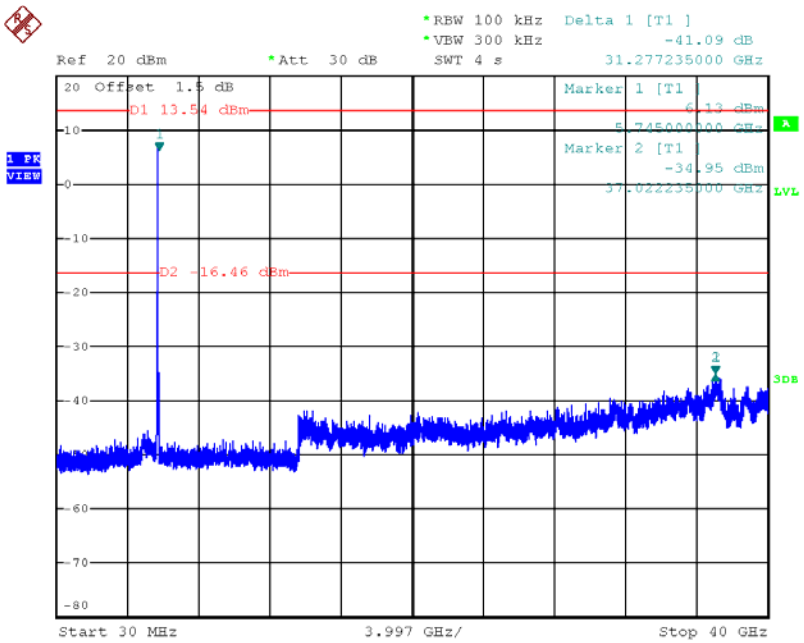
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 10:34:55

Plot on Configuration IEEE 802.11a / CH 149 (down 30dBc) /

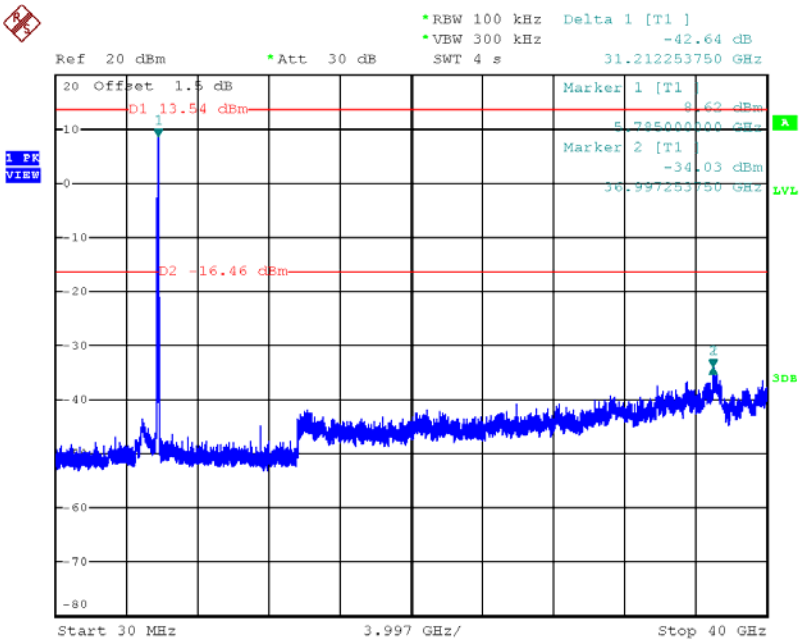
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 13:24:12

Plot on Configuration IEEE 802.11a / CH 157 (down 30dBc) /

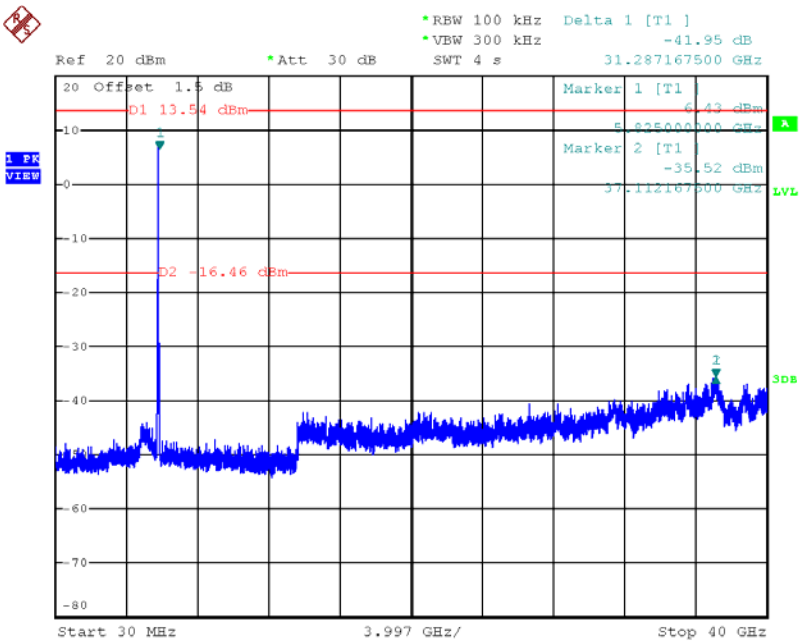
Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 13:25:24

Plot on Configuration IEEE 802.11a / CH 165 (down 30dBc) /

Chain J2 + Chain J3 + Chain J4 (3TX) with Ant. 11



Date: 13.NOV.2012 13:25:59

4.6. Antenna Requirements

4.6.1. 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.

4.6.2. 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	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 22, 2011	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 17, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 29, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 31, 2012	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 03, 2011	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9KHz~40GHz	Nov. 16, 2012	Radiation (03CH01-CB
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2011	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2012	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-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	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-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	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-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	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. 18, 2012	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9KHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 05, 2012	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.C.R	Conducted (TH01-CB)
RF Power Splitter	Anaren	44100	1839	2GHz ~ 18GHz	N.C.R	Conducted (TH01-CB)
RF Power Splitter	Anaren	42100	17930	2GHz ~ 18GHz	N.C.R	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Signal generator	R&S	SMU200A	102782	10MHz-40GHz	Sep. 26, 2012	Conducted (TH01-CB)
Horn Antenna	COM-POWER	AH-118	071187	1GHz – 18GHz	May 09, 2012	Conducted (TH01-CB)
Horn Antenna	COM-POWER	AH-118	071042	1GHz – 18GHz	Nov. 01, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-12	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-13	-	1 GHz – 26.5 GHz	Nov. 17, 2011	Conducted (TH01-CB)

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

N.C.R. means Non-Calibration required.

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

6. 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