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FCC RADIO TEST REPORT

Applicant's company	**Motorola Solutions, Inc.**
Applicant Address	One Motorola Plaza Holtsville, NY 11742 USA
FCC ID	**UZ7KHAP800**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C.

Product Name	802.11 a/b/g/n Module
Brand Name	MOTOROLA
Model Name	KHAP-800
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250MHz
Received Date	Apr. 02, 2012
Final Test Date	Jun. 05, 2012
Submission Type	Original Equipment
Operating Mode	Master

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a (5150 ~ 5250MHz) of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009** and **47 CFR FCC Part 15 Subpart E**.

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
FR240223AB	Rev. 01	Initial issue of report	Jun. 21, 2012

Certificate No.: CB10106012

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**802.11 a/b/g/n Module**
Brand Name	:	**MOTOROLA**
Model Name	:	**KHAP-800**
Applicant	:	**Motorola Solutions, Inc.**
Test Rule Part(s)	:	**47 CFR FCC Part 15 Subpart E § 15.407**

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Apr. 02, 2012 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Jordan Hsiao

Jordan Hsiao

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	9.02 dB
4.2	15.407(a)	26dB Spectrum Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.01 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.04 dB
4.5	15.407(a)	Peak Excursion	Complies	6.15 dB
4.6	15.407(b)	Radiated Emissions	Complies	0.17 dB
4.7	15.407(b)	Band Edge Emissions	Complies	1.01 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.5dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
Peak Excursion	±0.5dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	$\pm 8.5\times10^{-8}$	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 (1/2/3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	powered by PC and DC power supply
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	5150 ~ 5250MHz
Channel Number	4 for 20MHz bandwidth ; 2 for 40MHz bandwidth
Channel Band Width (99%)	Mode 1 : (Ant. 6 Dipole antenna / 8dBi) 1TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz 2TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 36.80 MHz MCS8(20MHz) : 18.24 MHz ; MCS8(40MHz) : 36.48 MHz 3TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.56 MHz ; MCS8(40MHz) : 36.80 MHz MCS16(20MHz) : 18.24 MHz ; MCS16(40MHz) : 36.80 MHz Mode 2 : (Ant. 7 Patch antenna / 2.3dBi) 1TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz 2TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.24 MHz ; MCS8(40MHz) : 36.48 MHz 3TX : MCS0(20MHz) : 19.20 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.40 MHz ; MCS8(40MHz) : 37.12 MHz Mode 3 : (Ant. 8 Panel antenna / 10.5dBi) 1TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.44 MHz 2TX : MCS0(20MHz) : 18.72 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.24 MHz ; MCS8(40MHz) : 36.80 MHz 3TX : MCS0(20MHz) : 19.04 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.40 MHz ; MCS8(40MHz) : 37.12 MHz MCS16(20MHz) : 18.24 MHz ; MCS16(40MHz) : 36.80 MHz Mode 4 : (Ant. 9 Yagi antenna / 8dBi) 1TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz 2TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.24 MHz ; MCS8(40MHz) : 36.80 MHz 3TX : MCS0(20MHz) : 18.40 MHz ; MCS0(40MHz) : 37.12 MHz

	MCS8(20MHz) : 18.40 MHz ; MCS8(40MHz) : 37.12 MHz MCS16(20MHz) : 18.24 MHz ; MCS16(40MHz) : 36.80 MHz Mode 5 : (Ant. 5 Facade antenna / 2.5dBi) 1TX : MCS0(20MHz) : 18.56 MHz ; MCS0(40MHz) : 36.80 MHz 2TX : MCS0(20MHz) : 18.40 MHz ; MCS0(40MHz) : 37.12 MHz MCS8(20MHz) : 18.24 MHz ; MCS8(40MHz) : 36.80 MHz 3TX : MCS0(20MHz) : 19.04 MHz ; MCS0(40MHz) : 36.16 MHz MCS8(20MHz) : 18.40 MHz ; MCS8(40MHz) : 36.80 MHz
Conducted Output Power	Mode 1 : (Ant. 6 Dipole antenna / 8dBi) 1TX : MCS0(20MHz) : 14.73 dBm ; MCS0(40MHz) : 14.88 dBm 2TX : MCS0(20MHz) : 11.84 dBm ; MCS0(40MHz) : 11.87 dBm MCS8(20MHz) : 13.54 dBm ; MCS8(40MHz) : 14.79 dBm 3TX : MCS0(20MHz) : 10.18 dBm ; MCS0(40MHz) : 10.07 dBm MCS8(20MHz) : 11.81 dBm ; MCS8(40MHz) : 11.87 dBm MCS16(20MHz) : 14.66 dBm ; MCS16(40MHz) : 14.87 dBm Mode 2 : (Ant. 7 Patch antenna / 2.3dBi) 1TX : MCS0(20MHz) : 16.88 dBm ; MCS0(40MHz) : 16.88 dBm 2TX : MCS0(20MHz) : 16.82 dBm ; MCS0(40MHz) : 16.71 dBm MCS8(20MHz) : 16.90 dBm ; MCS8(40MHz) : 16.96 dBm 3TX : MCS0(20MHz) : 15.89 dBm ; MCS0(40MHz) : 15.64 dBm MCS8(20MHz) : 16.72 dBm ; MCS8(40MHz) : 16.58 dBm Mode 3 : (Ant. 8 Panel antenna / 10.5dBi) 1TX : MCS0(20MHz) : 10.68 dBm ; MCS0(40MHz) : 12.46 dBm 2TX : MCS0(20MHz) : 8.60 dBm ; MCS0(40MHz) : 9.19 dBm MCS8(20MHz) : 11.47 dBm ; MCS8(40MHz) : 12.14 dBm 3TX : MCS0(20MHz) : 5.37 dBm ; MCS0(40MHz) : 5.55 dBm MCS8(20MHz) : 5.43 dBm ; MCS8(40MHz) : 5.81 dBm MCS16(20MHz) : 7.15 dBm ; MCS16(40MHz) : 6.33 dBm Mode 4 : (Ant. 9 Yagi antenna / 8dBi) 1TX : MCS0(20MHz) : 14.73 dBm ; MCS0(40MHz) : 14.88 dBm 2TX : MCS0(20MHz) : 11.84 dBm ; MCS0(40MHz) : 11.87 dBm MCS8(20MHz) : 13.54 dBm ; MCS8(40MHz) : 14.79 dBm 3TX : MCS0(20MHz) : 10.18 dBm ; MCS0(40MHz) : 10.07 dBm MCS8(20MHz) : 11.81 dBm ; MCS8(40MHz) : 11.87 dBm MCS16(20MHz) : 14.66 dBm ; MCS16(40MHz) : 12.98 dBm Mode 5 : (Ant. 5 Facade antenna / 2.5dBi) 1TX : MCS0(20MHz) : 16.97 dBm ; MCS0(40MHz) : 16.73 dBm 2TX : MCS0(20MHz) : 16.70 dBm ; MCS0(40MHz) : 16.96 dBm

	MCS8(20MHz) : 16.99 dBm ; MCS8(40MHz) : 16.83 dBm 3TX : MCS0(20MHz) : 15.64 dBm ; MCS0(40MHz) : 15.61 dBm MCS8(20MHz) : 16.78 dBm ; MCS8(40MHz) : 16.97 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (1/2/3TX, 3RX)
Radio Type	Intentional Transceiver
Power Type	powered by PC and DC power supply
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5150 ~ 5250MHz
Channel Number	4
Conducted Output Power	Mode 1 : (Ant. 6 Dipole antenna / 8dBi) 1TX : 11a : 14.98 dBm 2TX : 11a : 11.92 dBm 3TX : 11a : 10.20 dBm Mode 2 : (Ant. 7 Patch antenna / 2.3dBi) 1TX : 11a : 16.89 dBm 2TX : 11a : 16.90 dBm 3TX : 11a : 15.90 dBm Mode 3 : (Ant. 8 Panel antenna / 10.5dBi) 1TX : 11a : 12.36 dBm 2TX : 11a : 9.44 dBm 3TX : 11a : 6.36 dBm Mode 4 : (Ant. 9 Yagi antenna / 8dBi) 1TX : 11a : 14.98 dBm 2TX : 11a : 11.92 dBm 3TX : 11a : 10.20 dBm Mode 5 : (Ant. 5 Facade antenna / 2.5dBi) 1TX : 11a : 16.92 dBm 2TX : 11a : 16.97 dBm 3TX : 11a : 15.62 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna & Band width

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

IEEE 802.11n spec

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300
16	3	BPSK	1/2	1	208	432	104	216	19.5	40.5	21.7	45
17	3	QPSK	1/2	2	416	864	208	432	39	81	43.3	90
18	3	QPSK	3/4	2	416	864	208	432	58.5	121.5	65	135
19	3	16-QAM	1/2	4	832	1728	416	864	78	162	86.7	180
20	3	16-QAM	3/4	4	832	1728	416	864	117	243	130	270
21	3	64-QAM	2/3	6	1248	2592	624	1296	156	324	173.3	360
22	3	64-QAM	3/4	6	1248	2592	624	1296	175.5	364.5	195	405
23	3	64-QAM	5/6	6	1248	2592	624	1296	195	405	216.7	450

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.	Model Name	Antenna Type	Chip/Radio	Antenna Gain		Cable loss		True Gain (dBi)	
				2.4GHz	5GHz	2.4GHz	5GHz	2.4GHz	5GHz
1	ML-2499-FHPA9-01R	Dipole	Radio1/2-CH1/2/3	10.5	-	1.5	-	9	-
2	ML-2499-SD3-01R	Patch	Radio1/2-CH1/2/3	4	-	1	-	3	-
3	ML-2499-BPNA3-01R	Panel	Radio1/2-CH1/2/3	15	-	1	-	14	-
4	ML-2499-BYGA2-01R	Yagi	Radio1/2-CH1/2/3	14.5	-	1	-	13.5	-
5	KAP-FACADE-ANT	Facade	Radio1/2-CH1/2/3	3.5	4	1	1.5	2.5	2.5
6	ML-5299-FHPA10-01R	Dipole	Radio1/2-CH1/2/3	-	10.5	-	2.5	-	8
7	ML-5299-PTA1-01R	Patch	Radio1/2-CH1/2/3	-	3.8	-	1.5	-	2.3
8	ML-2452-PNA7-01R	Panel	Radio1/2-CH1/2/3	8	12	-	1.5	8	10.5
9	ML-5299-BYGA15-012	Yagi	Radio1/2-CH1/2/3	-	10.5	-	2.5	-	8
10	ML-2499-5PNL-72-N	Panel	Radio1/2-CH1/2/3	6.5	-	-	-	6.5	-
11	ML-2499-APA2-01	Dipole	Radio1/2-CH1/2/3	3.2	-	-	-	3.2	-
12	ML-2499-HPA3-01R	Dipole	Radio1/2-CH1/2/3	4	-	-	-	4	-
13	ML-5299-APA1-01R	Dipole	Radio1/2-CH1/2/3	-	4	-	-	-	4
14	ML-5299-HPA1-01R	Dipole	Radio1/2-CH1/2/3	-	6	-	-	-	6
15	ML-2452-APA2-01	Dipole	Radio1/2-CH1/2/3	3	5	-	-	3	5
16	ML-2452-PNA5-01R	Panel	Radio1/2-CH1/2/3	5.5	6	-	*4.5	5.5	1.5
17	ML-2452-HPA5-036	Dipole	Radio1/2-CH1/2/3	3	5	-	-	3	5
18	ML-2452-APA2GA1-01	Dipole	Radio1/2-CH1/2/3	2.7	2	-	-	2.7	2

Note:

1. There are 18 antennas in the antenna table list. Besides, only antenna 5 to 9 were selected to perform the test and written in this report due to the highest gain.

Table of TX/RX Function in each antenna:

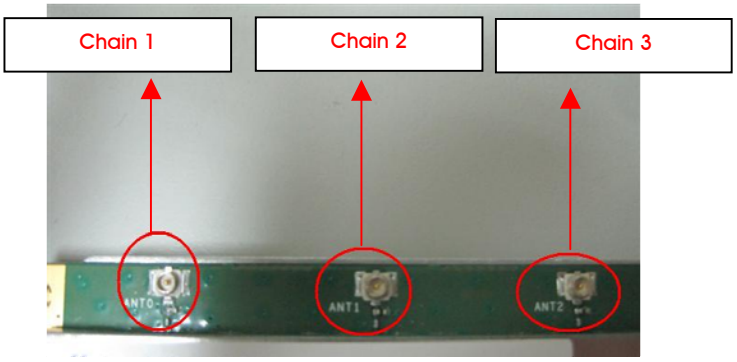
Item			Moudle					
			Chain 1		Chain 2		Chain 3	
			TX	RX	TX	RX	TX	RX
Ant.5	2.4GHz	11b	V	V	V	V	V	V
		11g	V	V	V	V	V	V
		11n	V	V	V	V	V	V
	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.6	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.7	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.8	2.4GHz	11b	V	V	V	V	V	V
		11g	V	V	V	V	V	V
		11n	V	V	V	V	V	V
	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V
Ant.9	5GHz	11a	V	V	V	V	V	V
		11n	V	V	V	V	V	V

Note : Marked "-" on behalf of no function.

Module	Required 1TX Port
2.4G / 5G	Chain 1

Module	Required 2TX Port
2.4G / 5G	Chain 1 and Chain 2

Module	Required 3TX Port
2.4G / 5G	Chain 1 and Chain 2 and Chain 3



3.4. Table for Carrier Frequencies

For IEEE 802.11a, use Channel 36, 40, 44, 48.

There are two bandwidth systems for IEEE 802.11n.

For both 20MHz bandwidth systems, use Channel 36, 40, 44, 48.

For both 40MHz bandwidth systems, use Channel 38, 46.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 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.

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		Auto	-	-
Max. Conducted Output Power Power Spectral Density	MCS0/20MHz	Band 1	6.5Mbps	36/40/48	1 1+2 1+2+3
	MCS0/40MHz	Band 1	13.5Mbps	38/46	1 1+2 1+2+3
	MCS8/20MHz	Band 1	13Mbps	36/40/48	1 1+2 1+2+3
	MCS8/40MHz	Band 1	27Mbps	38/46	1 1+2 1+2+3
	MCS16/20MHz	Band 1	130Mbps	36/40/48	1 1+2 1+2+3
	MCS16/40MHz	Band 1	270Mbps	38/46	1 1+2 1+2+3
	11a/BPSK	Band 1	6Mbps	36/40/48	1 1+2 1+2+3
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement Peak Excursion	MCS0/20MHz	Band 1	6.5Mbps	36/40/48	1+2+3
	MCS0/40MHz	Band 1	13.5Mbps	38/46	1+2+3
	MCS8/20MHz	Band 1	13Mbps	36/40/48	1+2+3
	MCS8/40MHz	Band 1	27Mbps	38/46	1+2+3
	MCS16/20MHz	Band 1	130Mbps	36/40/48	1+2+3
	MCS16/40MHz	Band 1	270Mbps	38/46	1+2+3
	11a/BPSK	Band 1	6Mbps	36/40/48	1+2+3

Radiated Emission Below 1GHz	Normal Link		Auto	-	-
Radiated Emission Above 1GHz	MCS0/20MHz	Band 1	6.5Mbps	36/40/48	1+2+3
	MCS0/40MHz	Band 1	13.5Mbps	38/46	1+2+3
	MCS8/20MHz	Band 1	13Mbps	36/40/48	1+2+3
	MCS8/40MHz	Band 1	27Mbps	38/46	1+2+3
	MCS16/20MHz	Band 1	130Mbps	36/40/48	1+2+3
	MCS16/40MHz	Band 1	270Mbps	38/46	1+2+3
	11a/BPSK	Band 1	6Mbps	36/40/48	1+2+3
Band Edge Emission	MCS0/20MHz	Band 1	6.5Mbps	36/40/48	1+2+3
	MCS0/40MHz	Band 1	13.5Mbps	38/46	1+2+3
	MCS8/20MHz	Band 1	13Mbps	36/40/48	1+2+3
	MCS8/40MHz	Band 1	27Mbps	38/46	1+2+3
	MCS16/20MHz	Band 1	130Mbps	36/40/48	1+2+3
	MCS16/40MHz	Band 1	270Mbps	38/46	1+2+3
	11a/BPSK	Band 1	6Mbps	36/40/48	1+2+3
Frequency Stability	Un-modulation		-	40	N/A

The following test modes were performed for all tests:

<Conducted Emissions test>

Mode 1. Module + Antenna 3

Mode 2. Module + Antenna 8

<Radiated Emissions 30MHz~1GHz test>

Mode 1. Module + Antenna 3

Mode 2. Module + Antenna 8

The following test modes were performed for Radiated Emission above 1GHz tests:

Antenna/Radio Mode		11a 1TX	11a 2TX	11a 3TX	H20/40 1TX (MCS0)	H20/40 2TX (MCS0)	H20/40 3TX (MCS0)	H20/40 2TX (MCS8)	H20/40 3TX (MCS8)	HT20/40 3TX (MCS16
Mode 1	Dipole-5G, Antenna 6	v	v	v	v	v	v	v	v	v
Mode 2	Patch-5G, Antenna 7	v	v	v	v	v	v	v	v	v
Mode 3	Panel-5G Antenna 8	v	v	v	v	v	v	v	v	v
Mode 4	Yagi -5G, Antenna 9	v	v	v	v	v	v	v	v	v
Mode 5.	Facade-5G, Antenna 5	v	v	v	v	v	v	v	v	v

Note 1:

11a/g 1TX/2TX/3TX just test output power and band edge .The other test items are covered by 802.11n HT20 1TX/2TX/3TX which are same modulation, bandwidth and frequency.

Note 2: For HT20/40 2TX, MCS8 ~ 15 (2-stream), MCS0(1-stream); For HT20/40 3TX, MCS16~23(3-stream)

Note 3: Because of the highest antenna gain in mode 1, mode 3 and mode 4, it was performed MCS16 3TX testing and recorded in the report.

<For MPE and Co-location Test>:

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

Expected Array Gain Adjustment to Antenna Directivity for 2TX / 3TX Configurations and Supported Operational Modes

In the FCC regulatory domain,conducted testing of systems with multiple transmitters (2Tx transmitter configurations) was performed in accordance with KDB 662911 requires adjustment of antenna directivity by an array gain factor. The array gain factor is dependent on correlation of the multiple tx signals, and is therefore a function of operational mode.

The following table establishes the expected array gain for the 2Tx and 3TX transmitter configuration case for each supported operational mode.

Operational Mode > Tx Config ^	11b (DSSS-CCK)	11a/g (Legacy OFDM)	HT20 1 Stream (MCS0-7)	HT40 1 Stream (MCS0-7)	HT20 2 Stream (MCS8-15)	HT40 2 Stream (MCS8-15)	HT20 3 Stream (MCS16-23)	HT40 3 Stream (MCS16-23)
2TX	3.01dB	3.01dB	3.01dB	3.01dB	NA	NA	NA	NA
3TX	4.77dB	4.77dB	4.77dB	4.77dB	3.01dB	3.01dB	NA	NA

Note:This project duty cycle >98%.

3.6. Table for Testing Locations

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

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

Please refer section 6 for Test Site Address.

3.7. Table for Supporting Units

Support Unit	Brand	Model	FCC ID
Notebook*2	DELL	M1330	E2KWM3945ABG
Mouse	Logitech	M-U0026	DoC
Wireless AP	Planex	GW-AP54SGX	N/A
Earphone	SHYARO CHI	MIC-04	N/A
FDISK*2	SILICON	SP002GBUF2M01V1K	DoC
Notebook*2	DELL	D420	E2KWM3945ABG
Notebook	DELL	PP25L	E2K4965AGNM

3.8. Table for Parameters of Test Software Setting

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

Test Mode : Mode 1 (Ant. 6 Dipole antenna / 8dBi)

Power Parameters of 802.11n / Chain 1

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	16.50	16.50	16.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	16.50	16.50	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	11.00	10.50	11.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	10.50	11.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	8.50	8.50	9.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	8.50	9.00	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	14.50	14.50	14.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS8	16.50	17.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	10.00	10.50	11.00
Frequency	5190 MHz		5230 MHz
40MHz MCS8	10.00		10.50

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS16	11.50	12.50	13.50
Frequency	5190 MHz		5230 MHz
40MHz MCS16	13.50		14.00

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	17.00	16.50	16.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	10.50	10.50	11.00

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	8.00	8.50	9.50

During the test, “ART2-GUI 2.3” under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

Test Mode : Mode 2 (Ant. 7 Patch antenna / 2.3dBi)

Power Parameters of 802.11n / Chain 1

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	19.00	19.00	19.50
Frequency	5190 MHz		5230 MHz
40MHz MCS0	15.00		19.50

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	16.50	16.50	17.00
Frequency	5190 MHz		5230 MHz
40MHz MCS0	13.50		17.00

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	15.00	15.00	16.00
Frequency	5190 MHz		5230 MHz
40MHz MCS0	13.00		15.50

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	17.00	17.00	17.50
Frequency	5190 MHz		5230 MHz
40MHz MCS8	14.50		17.50

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	16.00	16.00	16.50
Frequency	5190 MHz		5230 MHz
40MHz MCS8	13.50		16.00

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	18.50	18.50	18.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	16.00	16.00	16.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	15.00	15.00	15.50

During the test, "ART2-GUI 2.3" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

Test Mode : Mode 3 (Ant. 8 Panel antenna / 10.5dBi)

Power Parameters of 802.11n / Chain 1

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	12.50	12.00	12.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	12.00	14.50	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	7.00	7.00	7.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	7.50	7.50	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	4.00	4.00	4.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	4.00	4.00	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	10.00	9.50	10.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS8	10.00	11.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	4.00	4.00	4.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS8	4.00	4.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS16	4.00	5.00	6.50
Frequency	5190 MHz		5230 MHz
40MHz MCS16	4.00		5.00

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	14.00	13.50	13.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	8.50	8.00	8.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	4.00	4.00	4.00

During the test, "ART2-GUI 2.3" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

Test Mode : Mode 4 (Ant. 9 Yagi antenna / 8dBi)

Power Parameters of 802.11n / Chain 1

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	16.50	16.50	16.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	16.50	16.50	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	11.00	10.50	11.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	10.50	11.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	8.50	8.50	9.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS0	8.50	9.00	

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	14.50	14.50	14.50
Frequency	5190 MHz	5230 MHz	
40MHz MCS8	16.50	17.00	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	10.00	10.50	11.00
Frequency	5190 MHz	5230 MHz	
40MHz MCS8	10.00	10.50	

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS16	11.50	12.50	13.50
Frequency	5190 MHz		5230 MHz
40MHz MCS16	9.00		12.00

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	17.00	16.50	16.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	10.50	10.50	11.00

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	8.00	8.50	9.50

During the test, “ART2-GUI 2.3” under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

Test Mode : Mode 5 (Ant. 5 Facade antenna / 2.5dBi)

Power Parameters of 802.11n / Chain 1

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	19.00	19.00	19.50
Frequency	5190 MHz		5230 MHz
40MHz MCS0	16.00		19.50

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	16.50	16.50	17.00
Frequency	5190 MHz		5230 MHz
40MHz MCS0	15.50		17.00

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS0	14.50	14.50	15.50
Frequency	5190 MHz		5230 MHz
40MHz MCS0	14.00		15.00

Power Parameters of 802.11n / Chain 1 + Chain 2

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	17.00	17.00	17.50
Frequency	5190 MHz		5230 MHz
40MHz MCS8	16.50		17.50

Power Parameters of 802.11n / Chain 1 + Chain 2 + Chain 3

Test Software Version:	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
20MHz MCS8	16.00	16.00	16.50
Frequency	5190 MHz		5230 MHz
40MHz MCS8	16.00		16.00

Power Parameters of IEEE 802.11a / Chain 1

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	18.50	18.50	18.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	16.00	16.00	16.50

Power Parameters of IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Test Software Version	ART2-GUI 2.3		
Frequency	5180 MHz	5200 MHz	5240 MHz
IEEE 802.11a	14.50	14.50	15.50

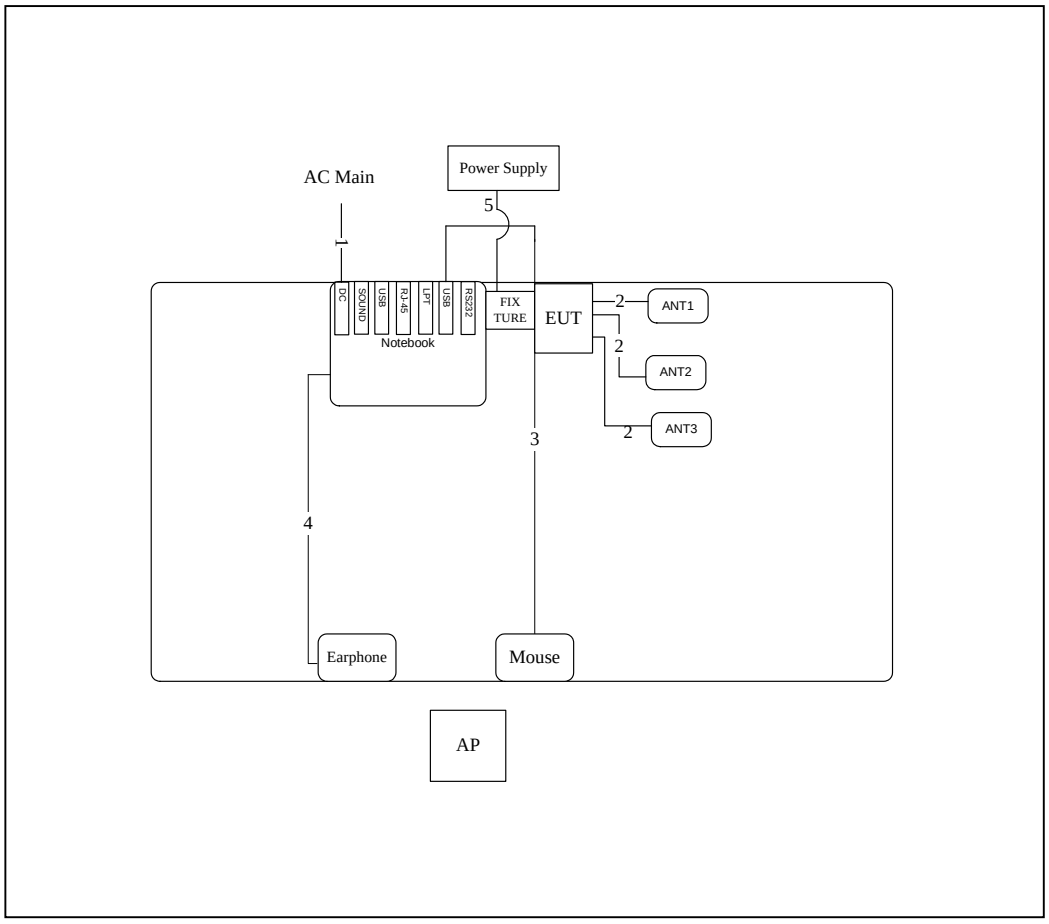
During the test, "ART2-GUI 2.3" under WIN XP was executed the test program to control the EUT continuously transmit RF signal.

3.9. Test Configurations

3.9.1. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz

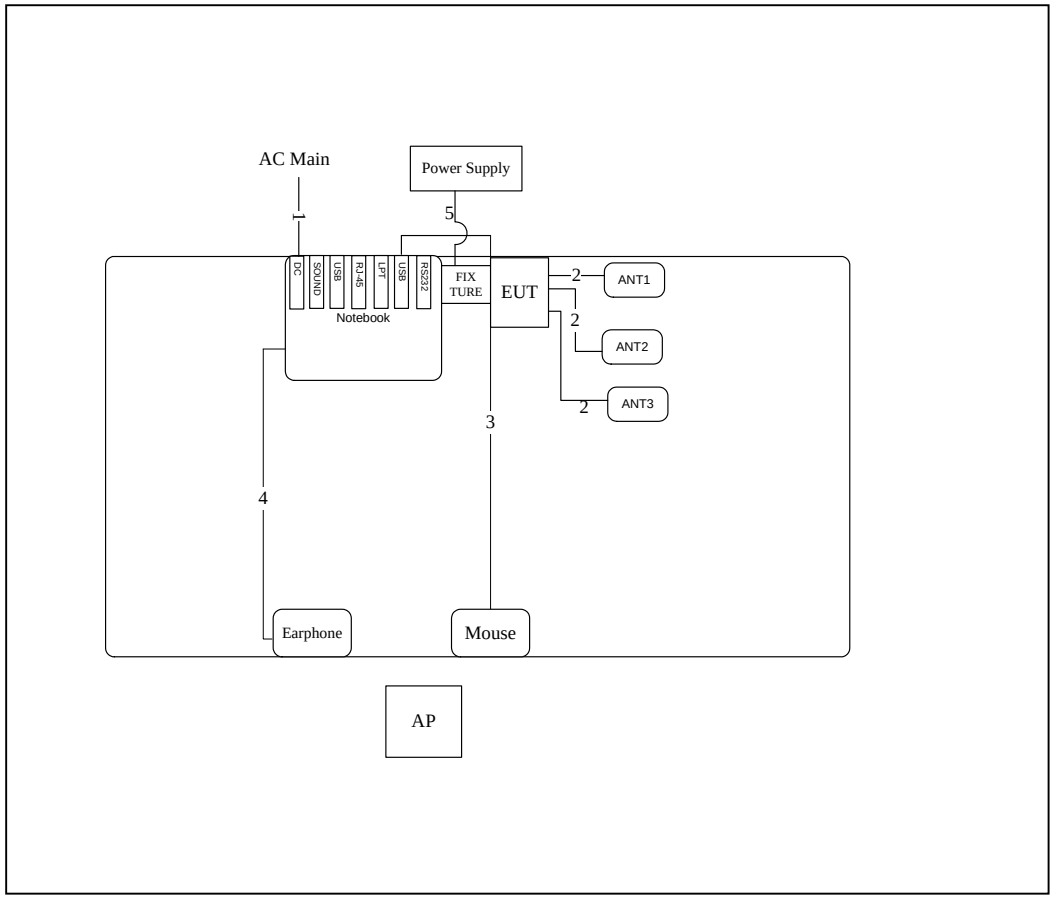
Test Mode : Mode 1 (Module + Ant. 3 Panel antenna / 14dBi)



Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	ANT cable*3	Yes	0.28M
3	USB cable	Yes	1.8M
4	Earphone cable	No	0.72M
5	Power cable	No	1M

Test Configuration: 30MHz~1GHz

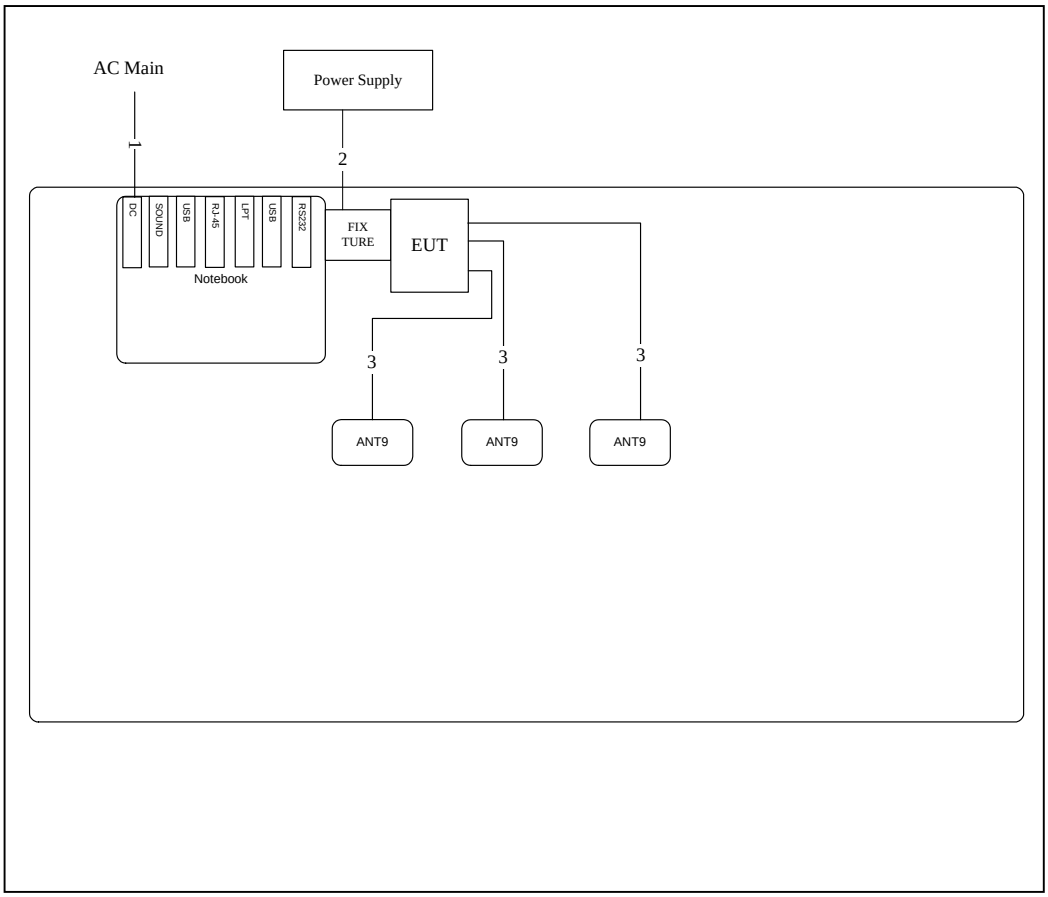
Test Mode : Mode 2 (Module + Ant. 8 Panel antenna / 10.5dBi)



Item	Connection	Shield	Length
1	Power Cable	No	1.8M
2	ANT Cable*3	Yes	1.1M
3	USB Cable	Yes	1.8M
4	Earphone Cable	No	0.72M
5	Power Cable	No	1M

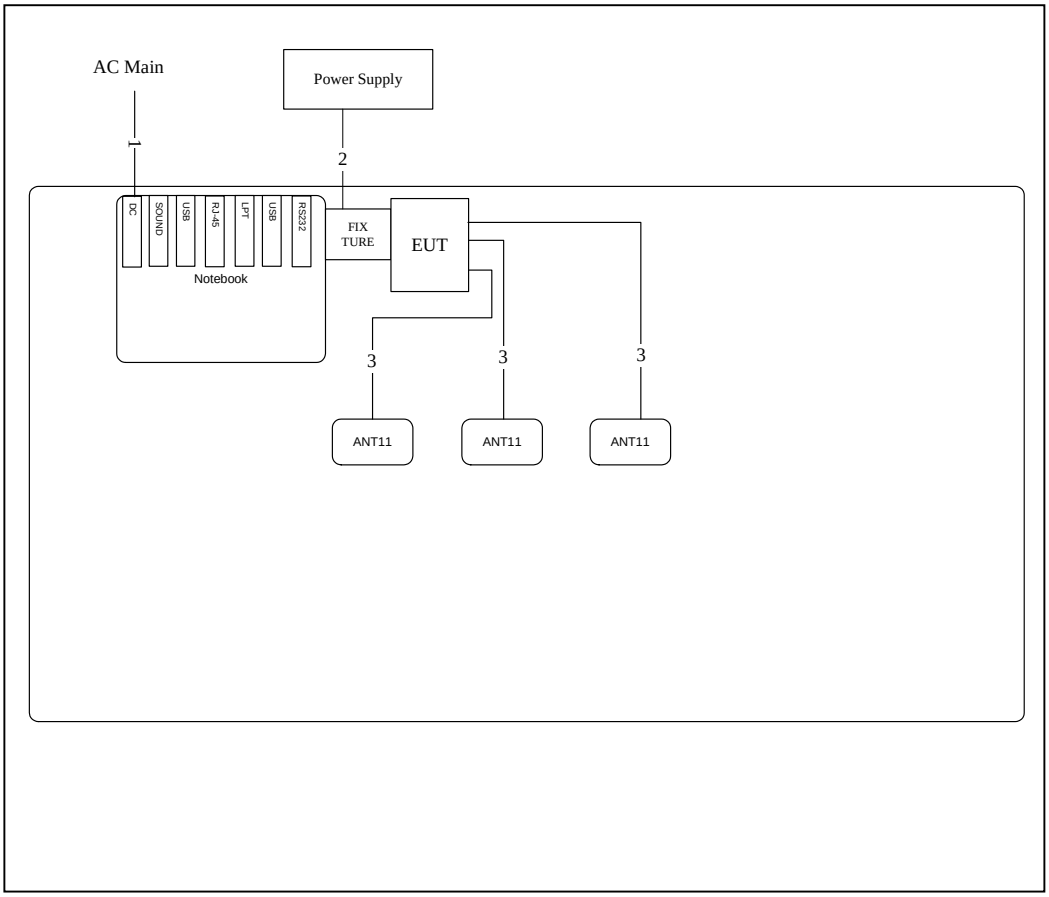
Test Configuration: above 1GHz

Test Mode : Mode 1(Ant. 6 Dipole antenna / 8dBi)



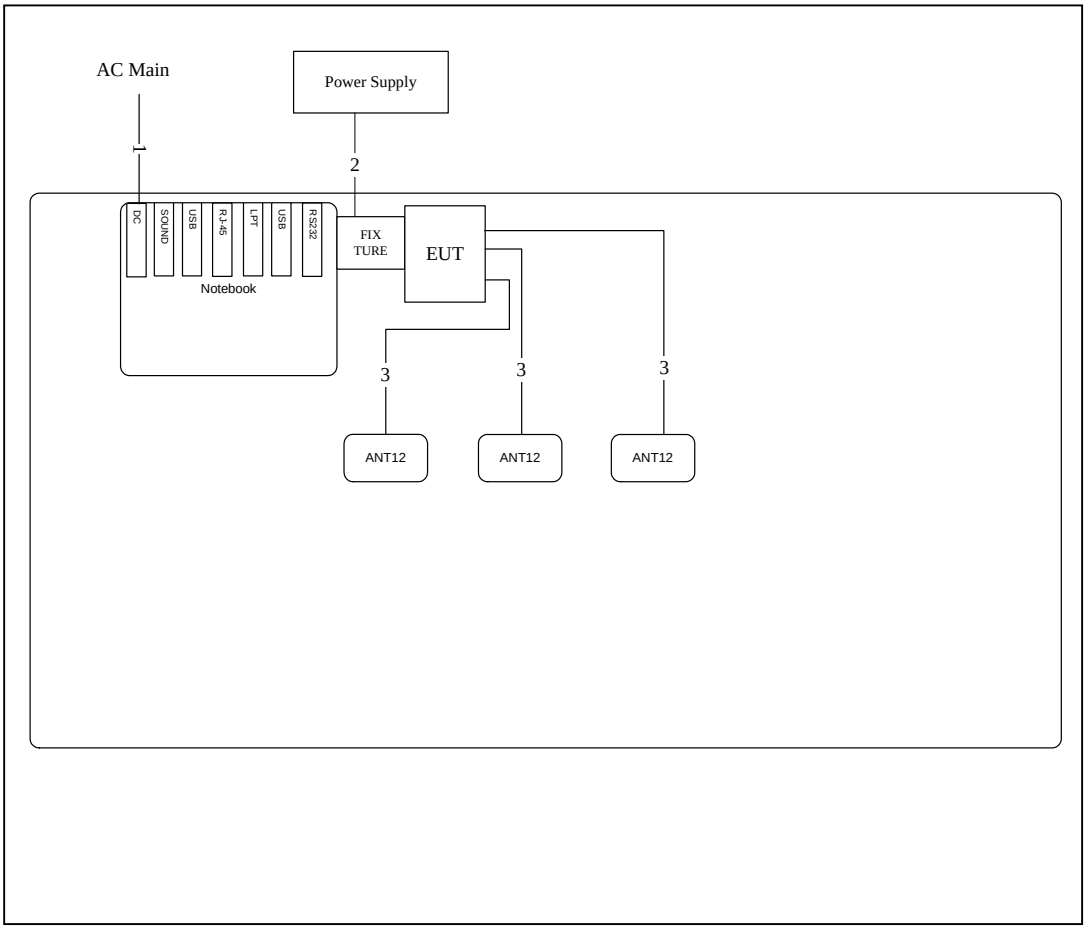
Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	Power cable	No	1M
3	ANT cable*3	Yes	1.2M

Test Mode : Mode 2 (Ant. 7 Patch antenna / 2.3dBi)



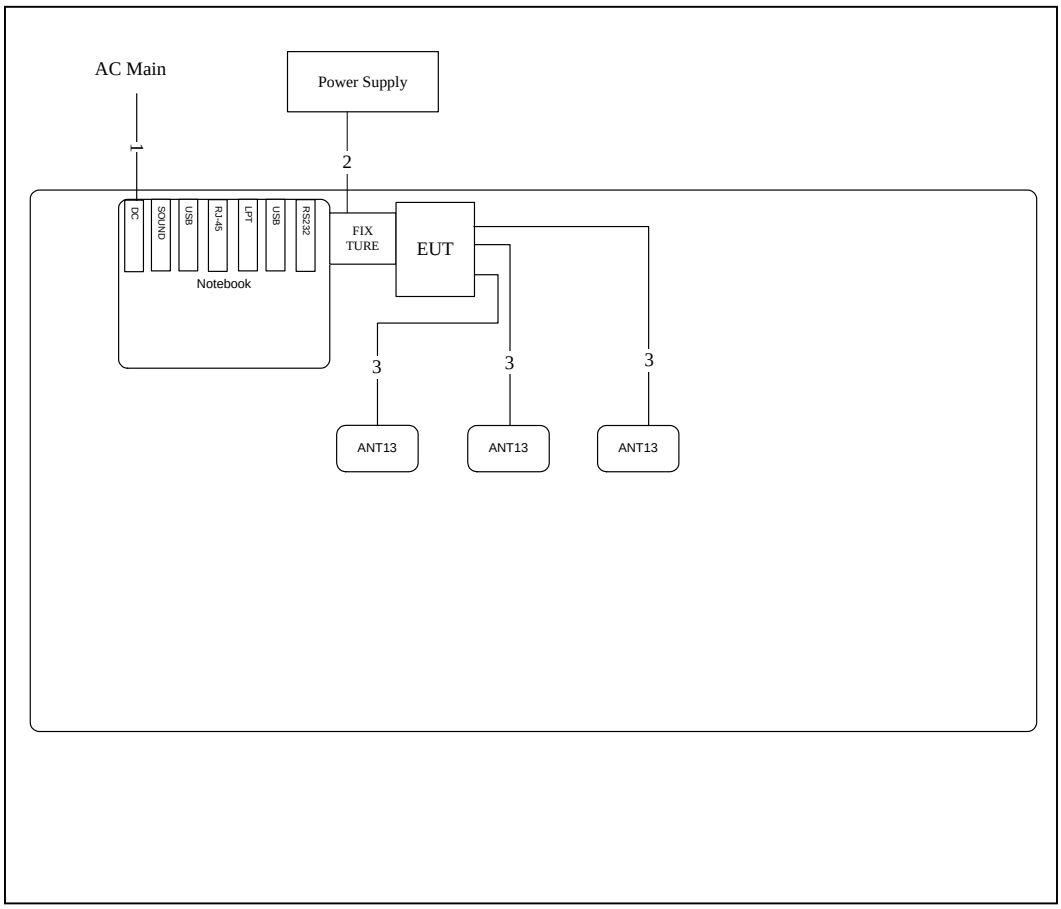
Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	Power cable	No	1M
3	Ant cable*3	Yes	1.1M

Test Mode: Mode 3 (Ant. 8 Panel antenna / 10.5dBi)



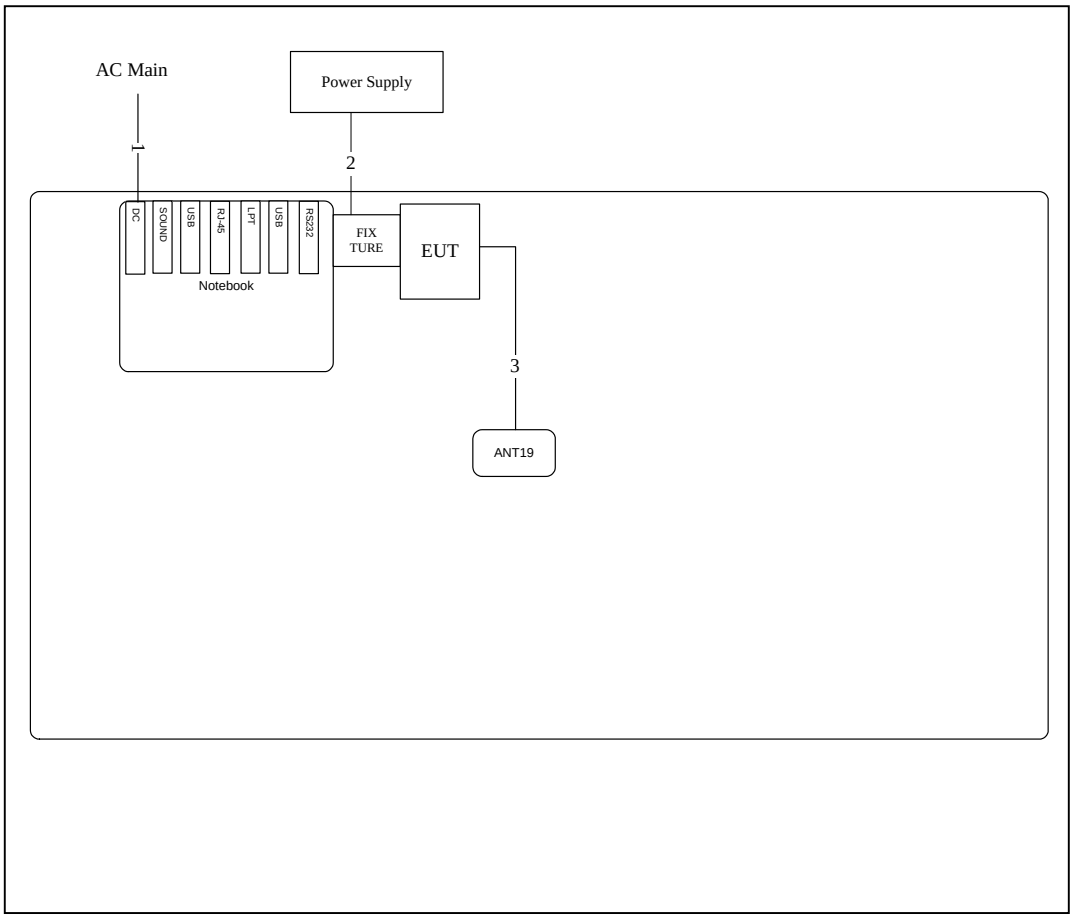
Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	Power cable	No	1M
3	ANT cable*3	Yes	1.1M

Test Mode : Mode 4 (Ant. 9 Yagi antenna / 8dBi)



Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	Power cable	No	1M
3	Ant cable*3	Yes	1.06M

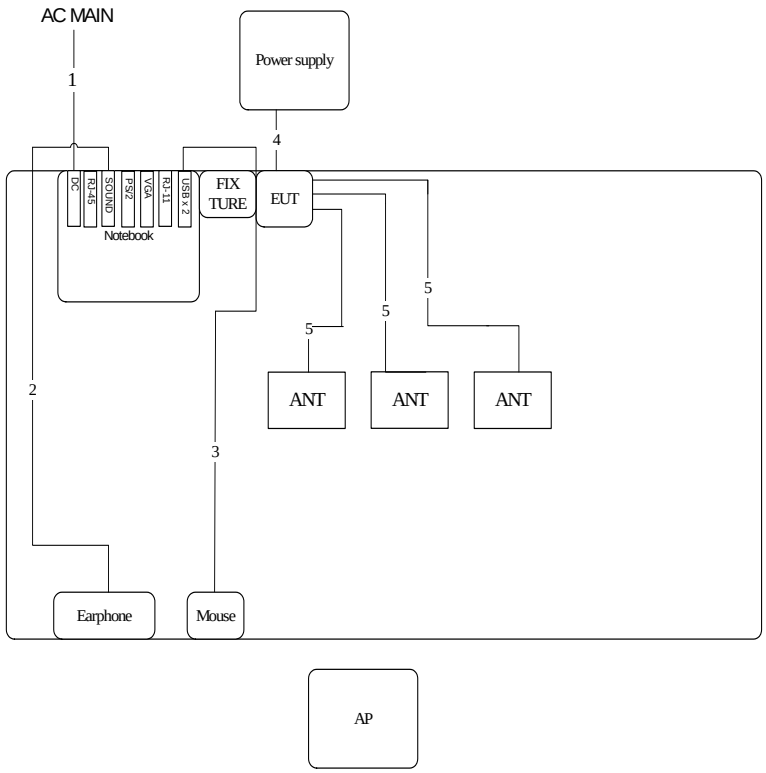
Test Mode : Mode 5 (Ant. 5 Facade antenna / 2.5dBi)



Item	Connection	Shield	Length
1	Power cable	No	1.8M
2	Power cable	No	1M
3	ANT cable *3	Yes	0.25M

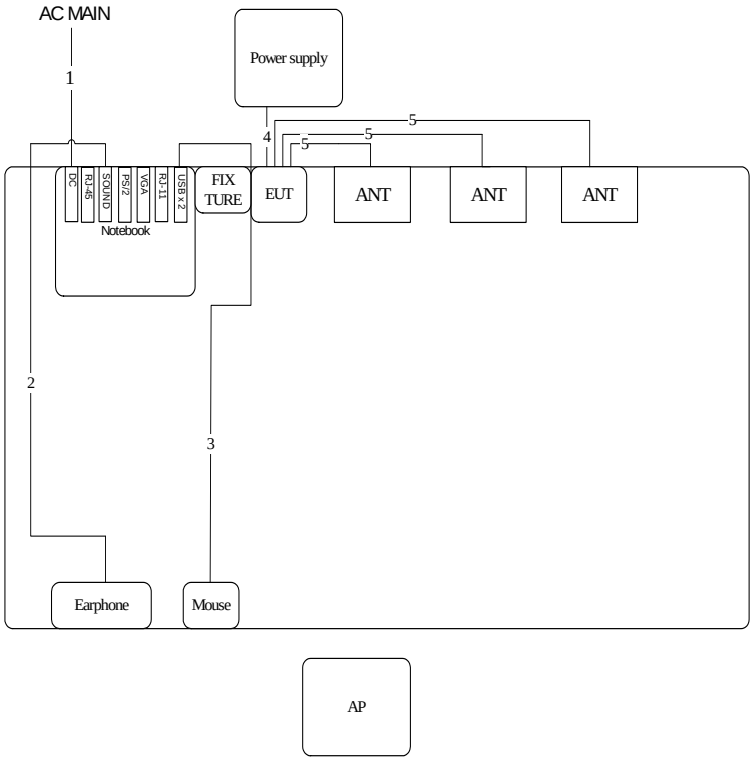
3.9.2. AC Power Line Conduction Emissions Test Configuration

Test Mode : Mode 1 (Module + Ant. 3 Panel antenna / 14dBi)



Item	Connection	Shield	Length
1	Power Cable	No	1.8M
2	Earphone cable	No	0.72M
3	USB cable	Yes	1.8M
4	Power Cable	No	1M
5	ANT cable*3	Yes	0.28M

Test Mode : Mode 2 (Module + Ant. 8 Panel antenna / 10.5dBi)



Item	Connection	Shield	Length
1	Power Cable	No	1.8M
2	Earphone cable	No	0.72M
3	USB cable	Yes	1.8M
4	Power Cable	No	1M
5	ANT cable*3	Yes	1.1M

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

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

4.1.2. Measuring Instruments and Setting

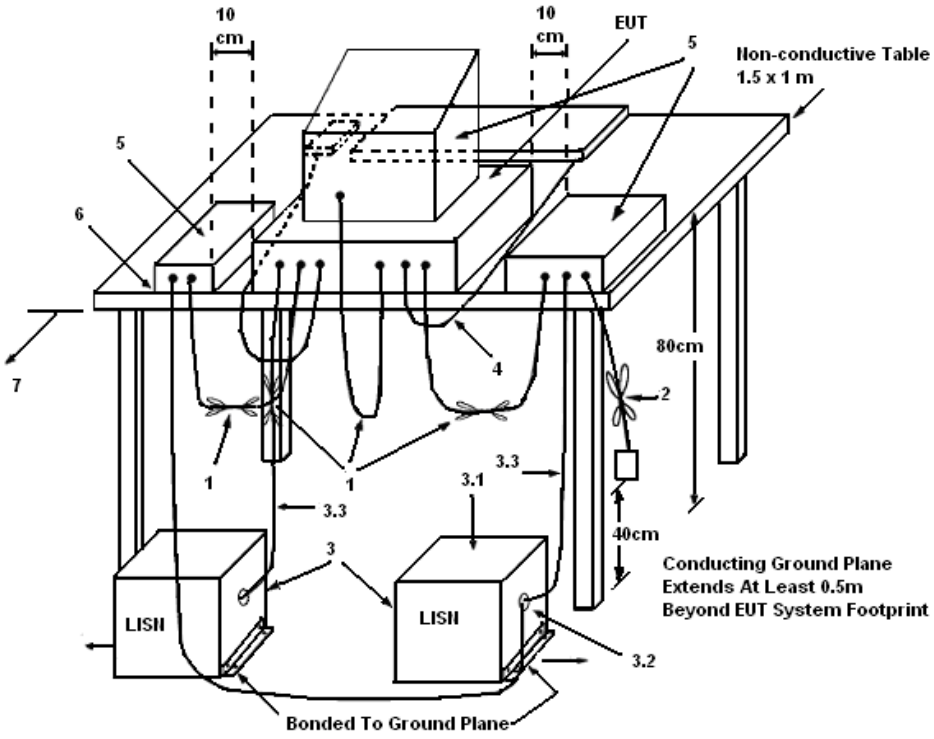
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

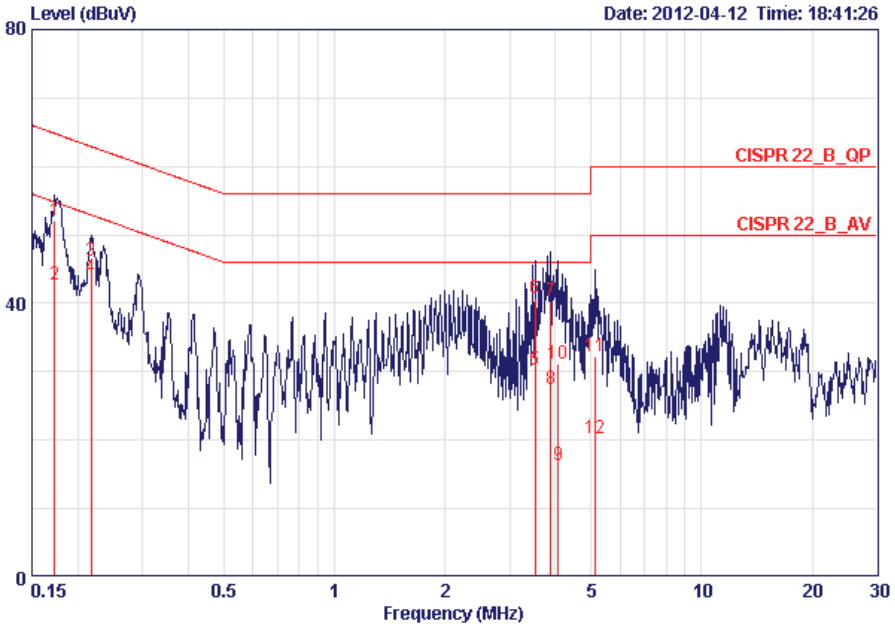
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

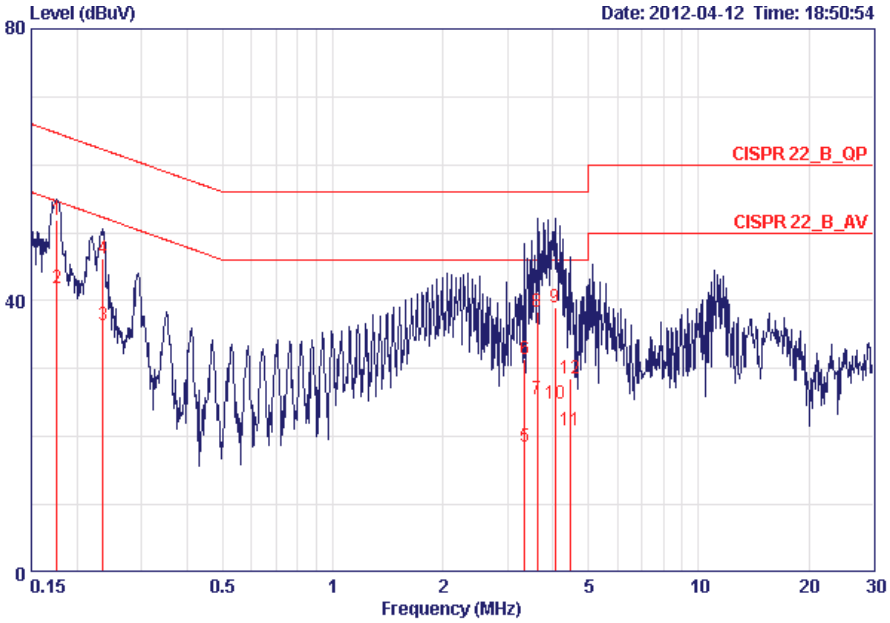
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	65%
Test Engineer	Sin Chang	Phase	Line
Configuration	Normal Link / Mode 1 (Module + Ant. 3 Panel antenna / 14dBi)		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.17307	51.99	-12.82	64.81	51.70	0.09	0.20	QP
2 @	0.17307	42.83	-11.98	54.81	42.54	0.09	0.20	AVERAGE
3	0.21735	46.19	-16.73	62.92	45.91	0.08	0.20	QP
4 @	0.21735	43.90	-9.02	52.92	43.62	0.08	0.20	AVERAGE
5	3.519	30.34	-15.66	46.00	29.91	0.13	0.30	AVERAGE
6	3.519	40.74	-15.26	56.00	40.31	0.13	0.30	QP
7	3.881	40.25	-15.75	56.00	39.81	0.14	0.30	QP
8	3.881	27.39	-18.61	46.00	26.95	0.14	0.30	AVERAGE
9	4.070	16.40	-29.60	46.00	15.95	0.15	0.30	AVERAGE
10	4.070	31.19	-24.81	56.00	30.74	0.15	0.30	QP
11	5.112	32.16	-27.84	60.00	31.65	0.21	0.30	QP
12	5.112	20.18	-29.82	50.00	19.67	0.21	0.30	AVERAGE

Temperature	25°C	Humidity	65%
Test Engineer	Sin Chang	Phase	Neutral
Configuration	Normal Link / Mode 1 (Module + Ant. 3 Panel antenna / 14dBi)		

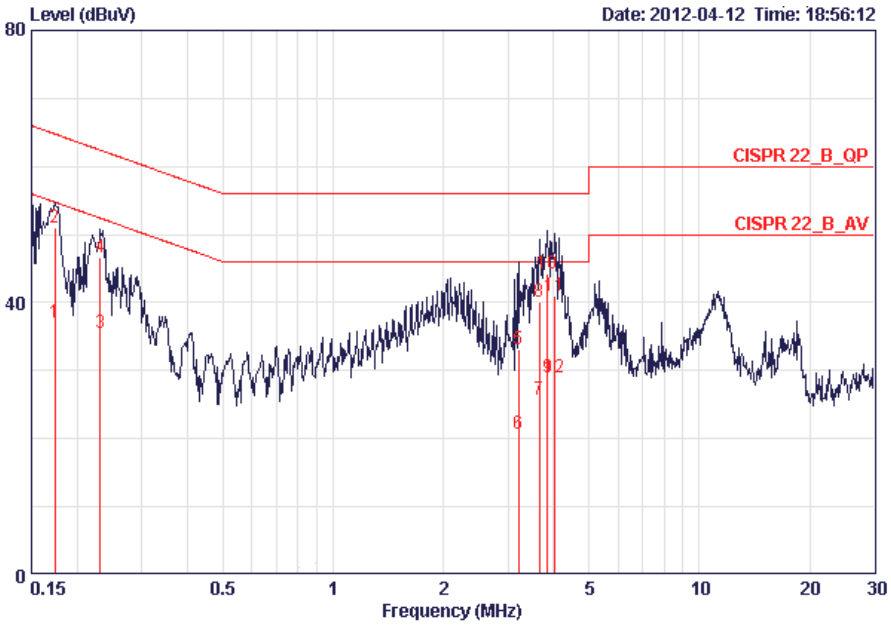


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1 @	0.17584	51.98	-12.70	64.68	51.72	0.06	0.20	QP
2 @	0.17584	41.91	-12.77	54.68	41.65	0.06	0.20	AVERAGE
3	0.23533	36.39	-15.87	52.26	36.14	0.05	0.20	AVERAGE
4	0.23533	46.29	-15.97	62.26	46.04	0.05	0.20	QP
5	3.346	18.45	-27.55	46.00	18.09	0.09	0.27	AVERAGE
6	3.346	31.47	-24.53	56.00	31.11	0.09	0.27	QP
7	3.623	25.57	-20.43	46.00	25.18	0.09	0.30	AVERAGE
8	3.623	38.32	-17.68	56.00	37.93	0.09	0.30	QP
9	4.049	39.07	-16.93	56.00	38.67	0.10	0.30	QP
10	4.049	24.87	-21.13	46.00	24.47	0.10	0.30	AVERAGE
11	4.454	20.90	-25.10	46.00	20.47	0.13	0.30	AVERAGE
12	4.454	28.52	-27.48	56.00	28.09	0.13	0.30	QP

Note:

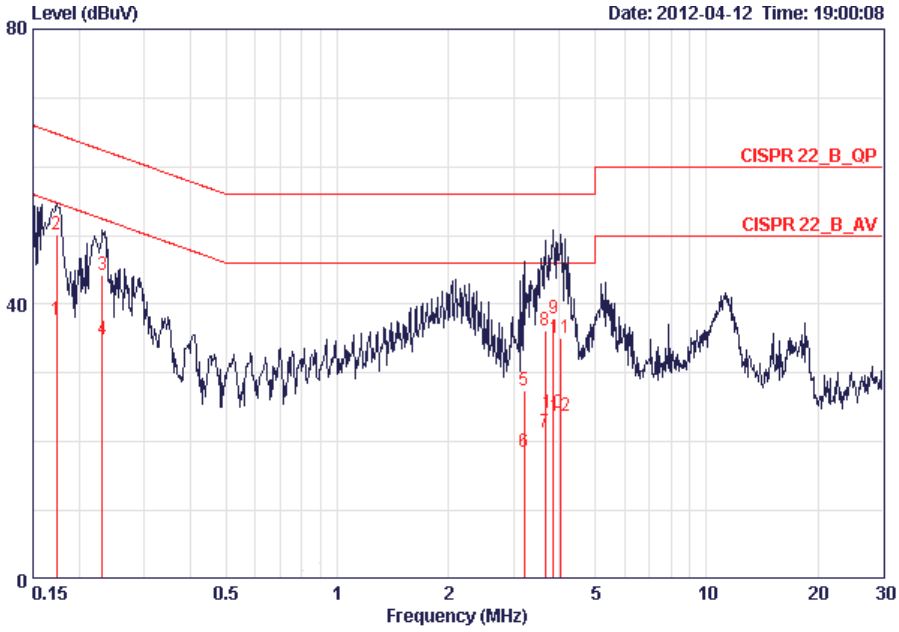
Level = Read Level + LISN Factor + Cable Loss

Temperature	25°C	Humidity	65%
Test Engineer	Sin Chang	Phase	Line
Configuration	Normal Link / Mode 2 (Module + Ant. 8 Panel antenna / 10.5dBi)		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17399	37.10	-17.67	54.77	36.84	0.06	0.20	AVERAGE
2 @	0.17399	51.06	-13.71	64.77	50.80	0.06	0.20	QP
3	0.23162	35.58	-16.82	52.39	35.33	0.05	0.20	AVERAGE
4	0.23162	46.71	-15.69	62.39	46.46	0.05	0.20	QP
5	3.207	33.05	-22.95	56.00	32.73	0.08	0.24	QP
6	3.207	20.80	-25.20	46.00	20.48	0.08	0.24	AVERAGE
7	3.661	25.71	-20.29	46.00	25.32	0.09	0.30	AVERAGE
8	3.661	40.08	-15.92	56.00	39.69	0.09	0.30	QP
9	3.840	28.97	-17.03	46.00	28.57	0.10	0.30	AVERAGE
10 @	3.840	44.35	-11.65	56.00	43.95	0.10	0.30	QP
11	4.027	40.91	-15.09	56.00	40.51	0.10	0.30	QP
12	4.027	28.90	-17.10	46.00	28.50	0.10	0.30	AVERAGE

Temperature	25°C	Humidity	65%
Test Engineer	Sin Chang	Phase	Neutral
Configuration	Normal Link / Mode 2 (Module + Ant. 8 Panel antenna / 10.5dBi)		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17399	37.75	-17.02	54.77	37.46	0.09	0.20	AVERAGE
2 @	0.17399	50.14	-14.63	64.77	49.85	0.09	0.20	QP
3	0.23162	44.28	-18.11	62.39	44.00	0.08	0.20	QP
4	0.23162	34.97	-17.42	52.39	34.69	0.08	0.20	AVERAGE
5	3.207	27.49	-28.51	56.00	27.13	0.12	0.24	QP
6	3.207	18.53	-27.47	46.00	18.17	0.12	0.24	AVERAGE
7	3.661	21.35	-24.65	46.00	20.92	0.13	0.30	AVERAGE
8	3.661	36.26	-19.74	56.00	35.83	0.13	0.30	QP
9	3.840	37.84	-18.16	56.00	37.40	0.14	0.30	QP
10	3.840	24.23	-21.77	46.00	23.79	0.14	0.30	AVERAGE
11	4.027	35.09	-20.91	56.00	34.65	0.14	0.30	QP
12	4.027	23.72	-22.28	46.00	23.28	0.14	0.30	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits. But resolution bandwidth within band edge measurement is 1% of the 99% occupied bandwidth.

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 Parameters	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RB	300 kHz
VB	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 300 kHz and the video bandwidth of 1000 kHz were used.
3. Measured the spectrum width with power higher than 26dB below carrier.

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 99% Occupied Bandwidth

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.92	18.56
40	5200 MHz	25.28	18.56
48	5240 MHz	26.08	18.40

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	49.92	37.12
46	5230 MHz	48.96	36.80

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.72	18.24
40	5200 MHz	22.88	18.24
48	5240 MHz	23.36	18.56

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.80	37.44
46	5230 MHz	43.84	36.80

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.32	18.24
40	5200 MHz	24.32	18.24
48	5240 MHz	24.96	18.24

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	48.32	36.48
46	5230 MHz	44.80	36.48

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.24	18.56
40	5200 MHz	22.24	17.76
48	5240 MHz	22.24	17.76

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.80	37.12
46	5230 MHz	44.80	37.12

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.52	18.56
40	5200 MHz	23.84	18.40
48	5240 MHz	23.84	18.40

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.12	36.16
46	5230 MHz	47.04	36.80

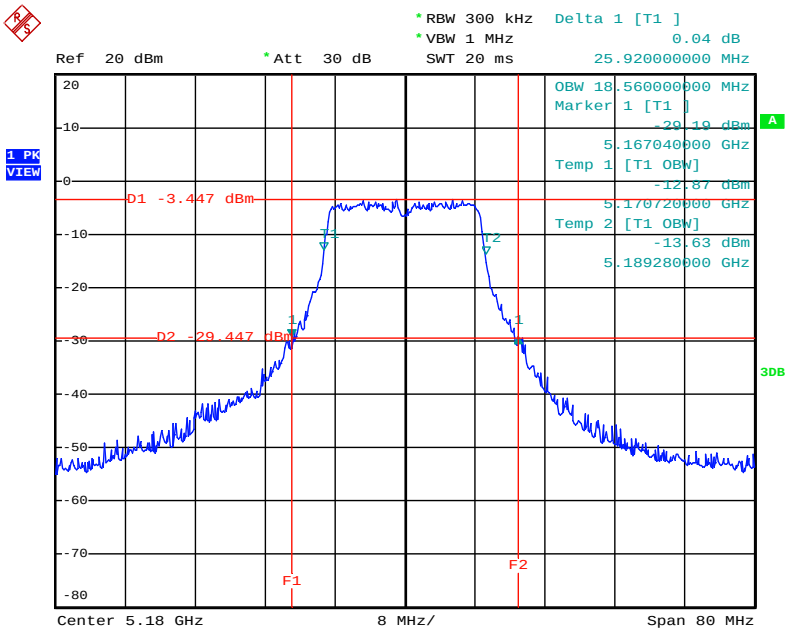
Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.64	18.24
40	5200 MHz	23.52	18.24
48	5240 MHz	24.48	18.24

Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

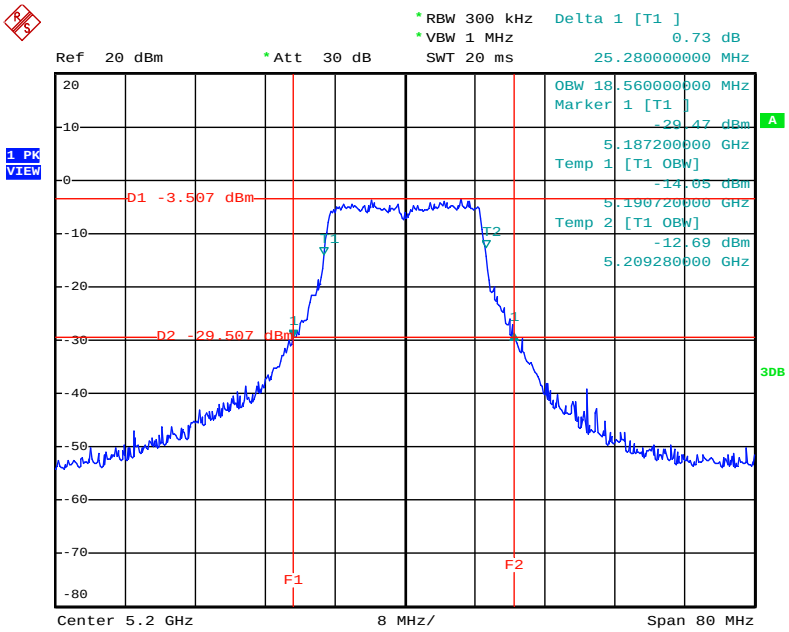
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.72	36.80
46	5230 MHz	45.76	36.48

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



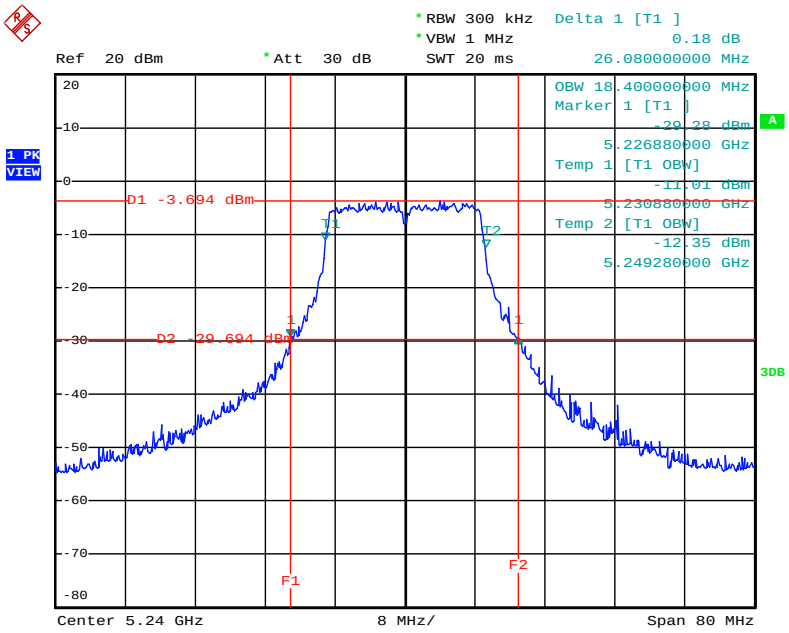
Date: 11.MAY.2012 09:15:44

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5200 MHz (1TX)



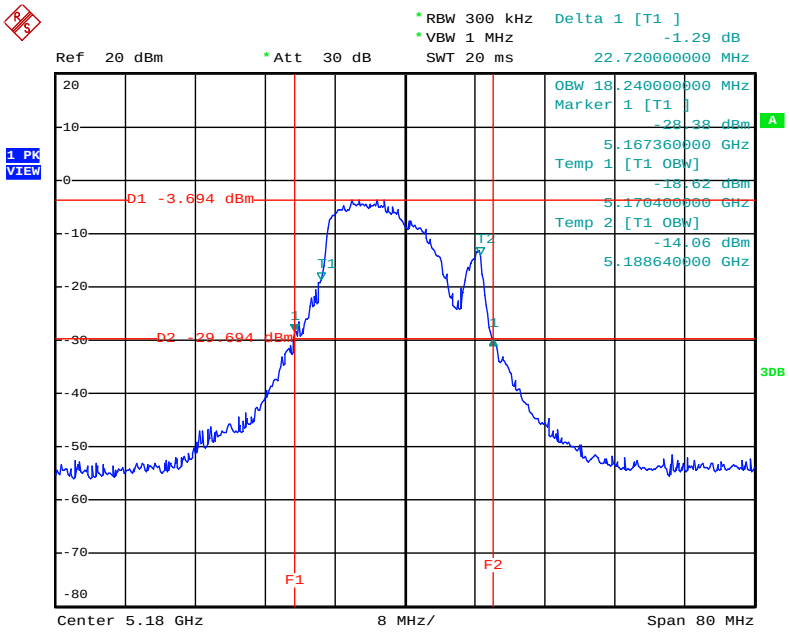
Date: 11.MAY.2012 09:17:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



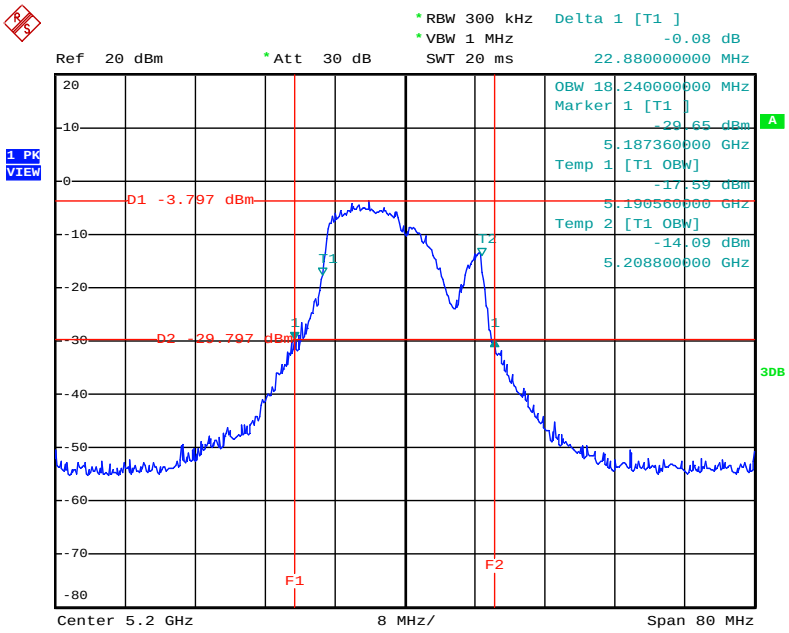
Date: 11.MAY.2012 09:18:45

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



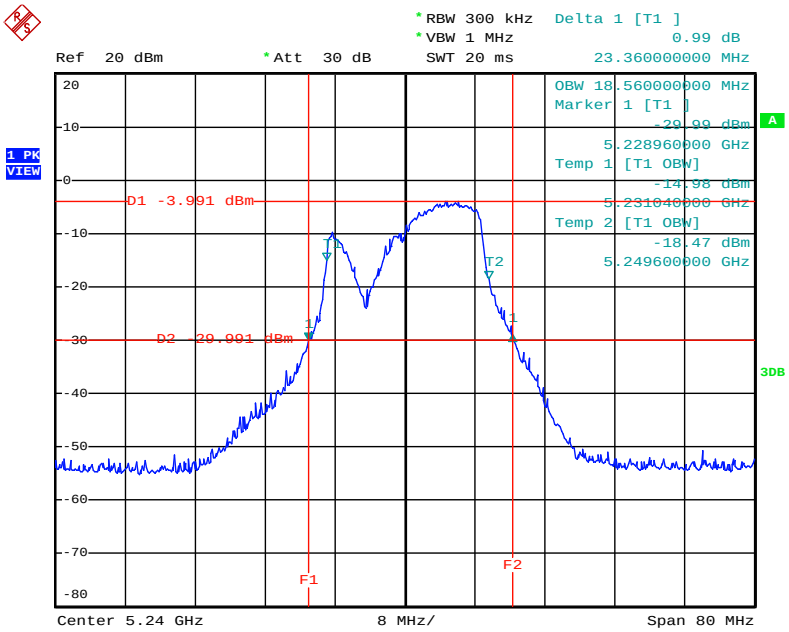
Date: 11.MAY.2012 09:25:54

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



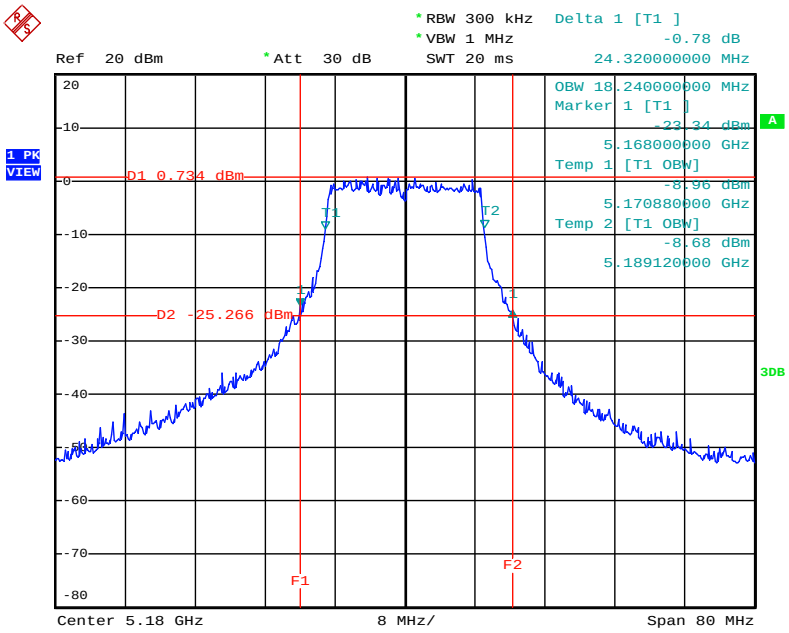
Date: 11.MAY.2012 09:25:34

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



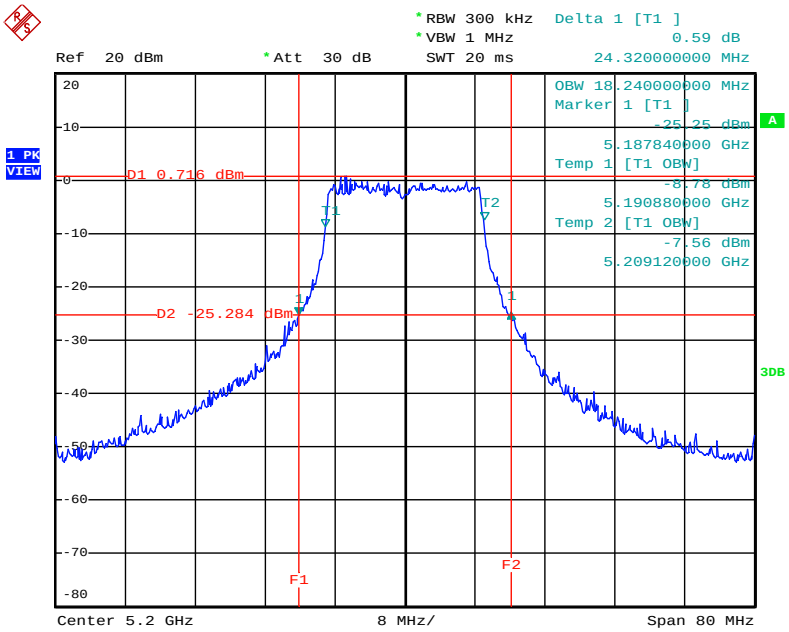
Date: 11.MAY.2012 09:25:10

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



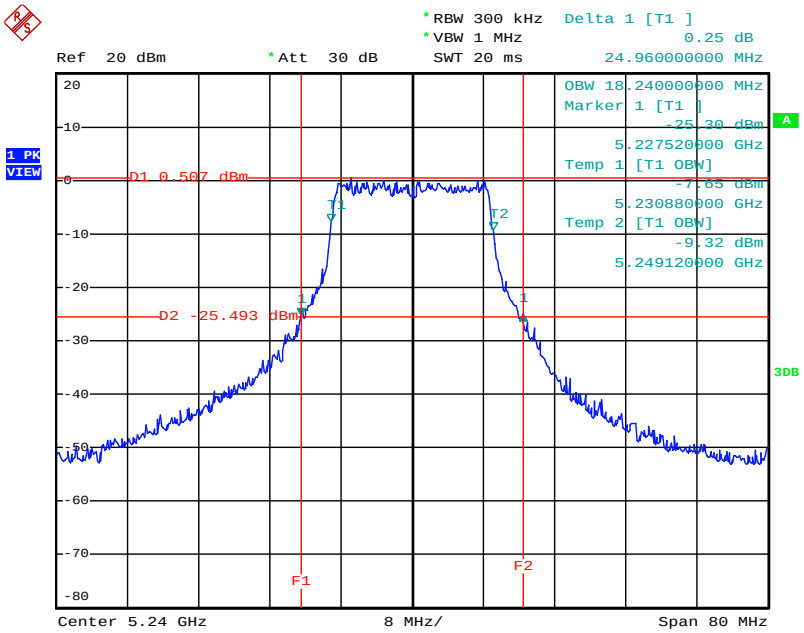
Date: 11.MAY.2012 09:24:03

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



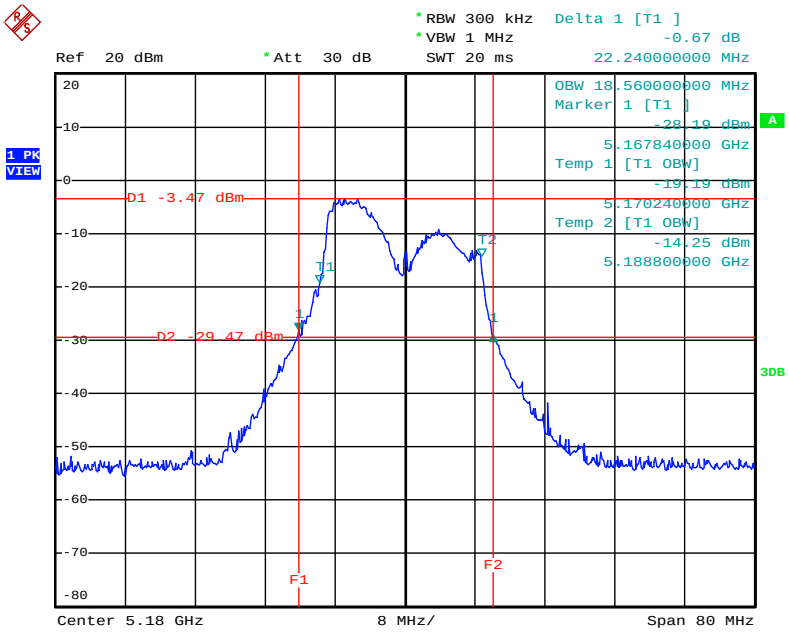
Date: 11.MAY.2012 09:24:22

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



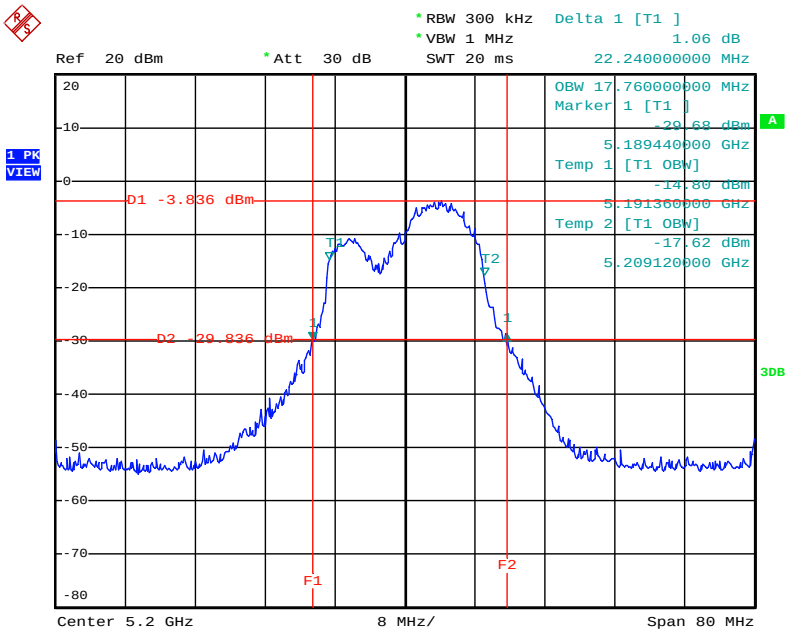
Date: 11.MAY.2012 09:24:41

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



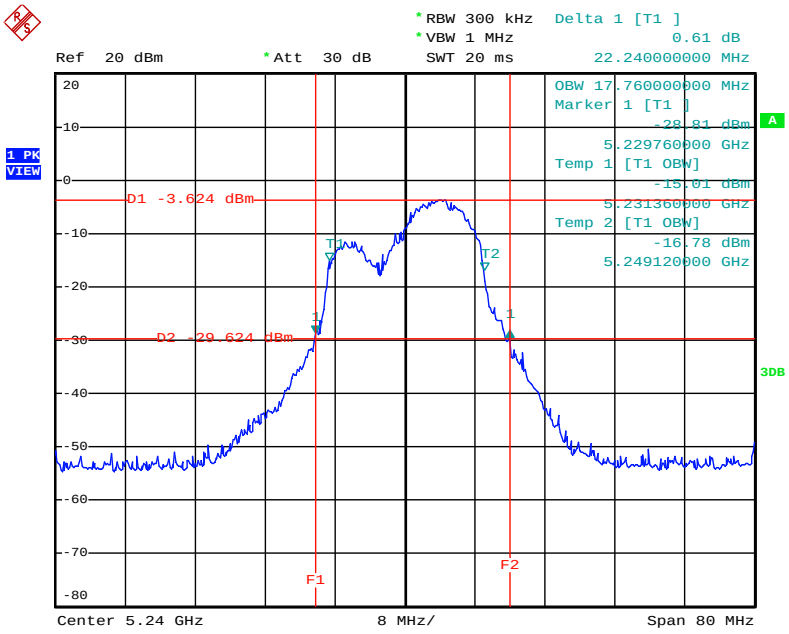
Date: 11.MAY.2012 09:26:29

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



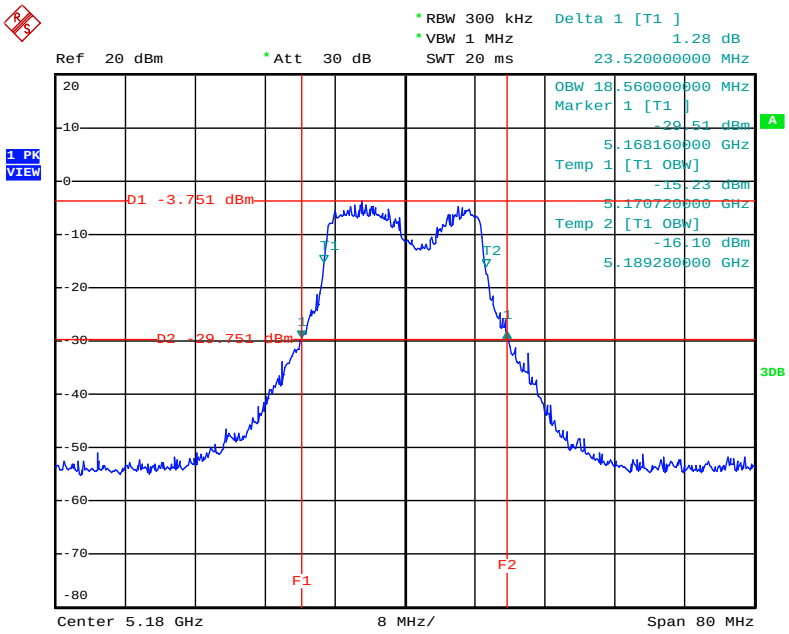
Date: 11.MAY.2012 09:26:47

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



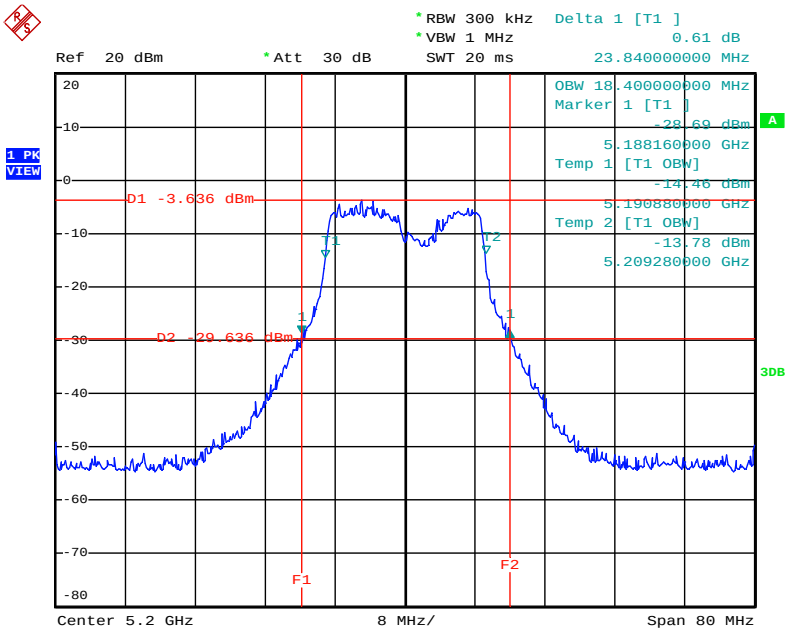
Date: 11.MAY.2012 09:27:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



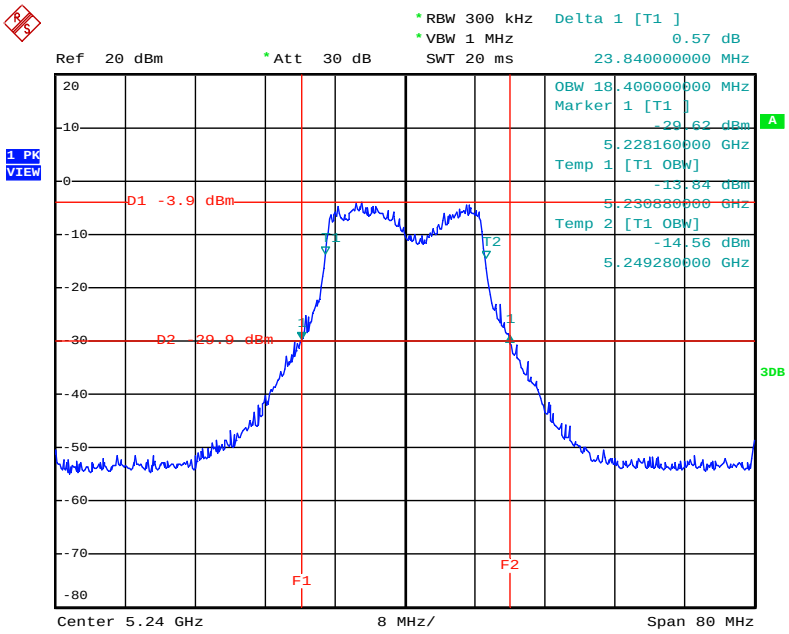
Date: 11.MAY.2012 09:28:57

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



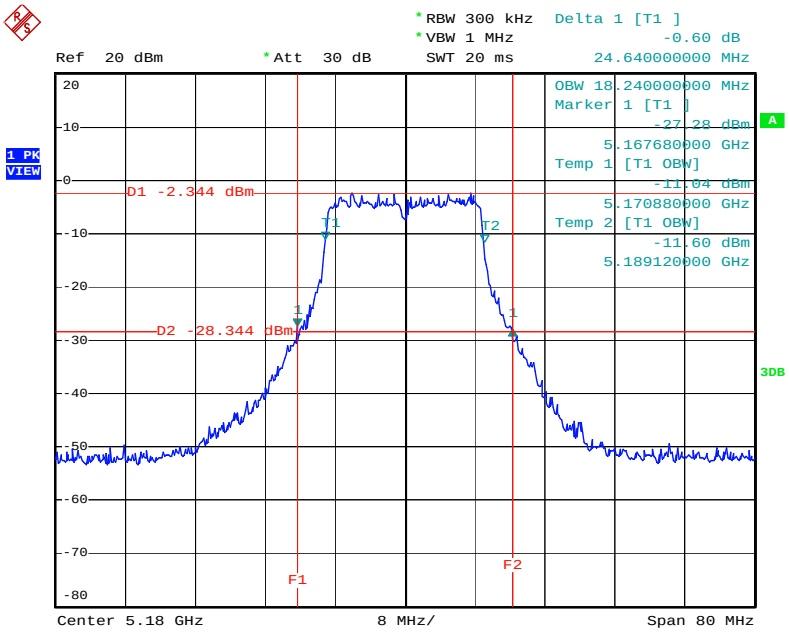
Date: 11.MAY.2012 09:28:39

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



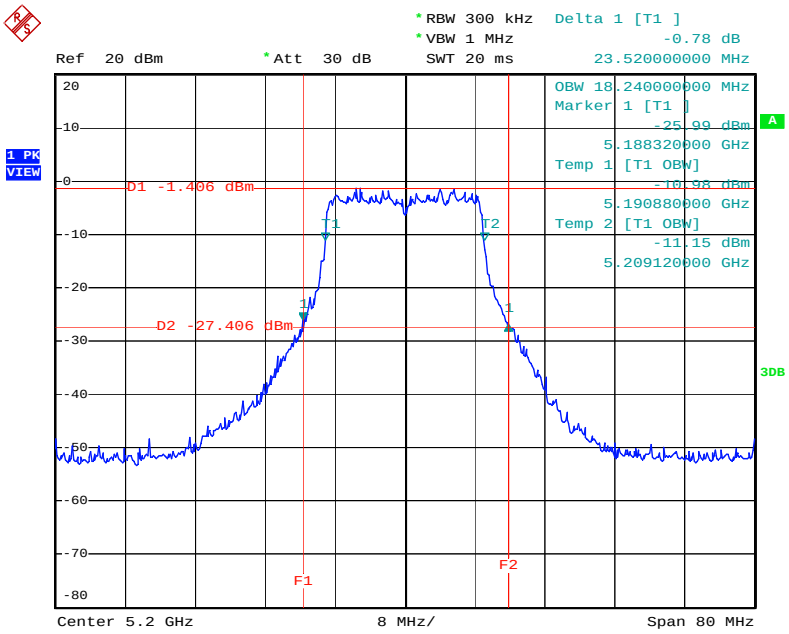
Date: 11.MAY.2012 09:28:19

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



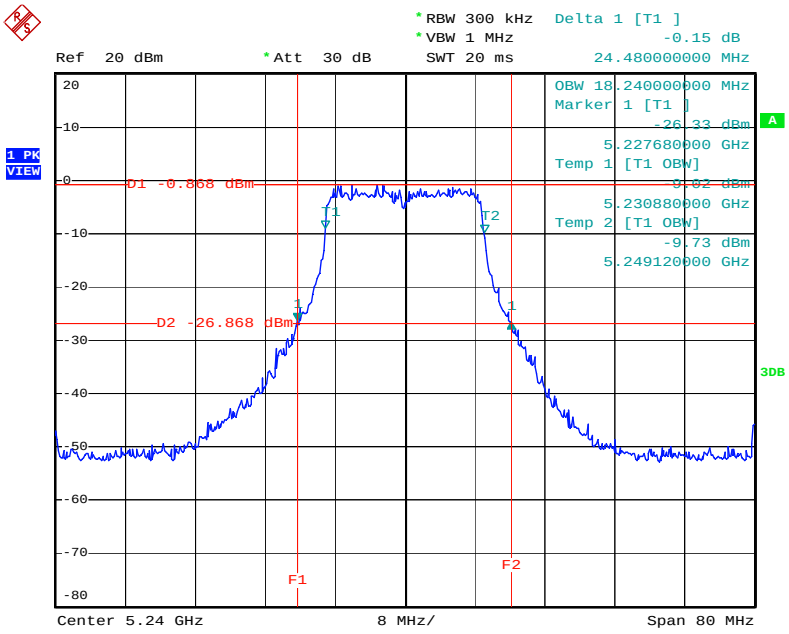
Date: 23.MAY.2012 09:55:27

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



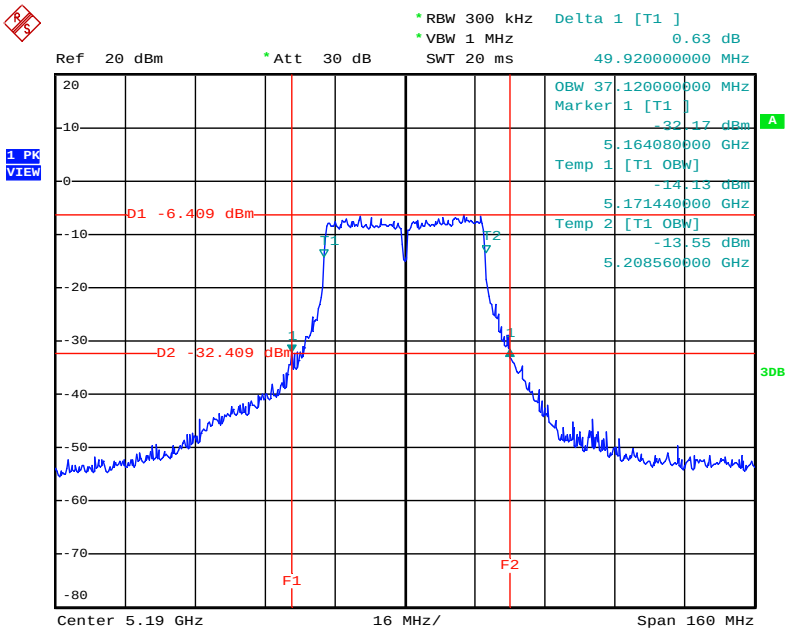
Date: 23.MAY.2012 09:55:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



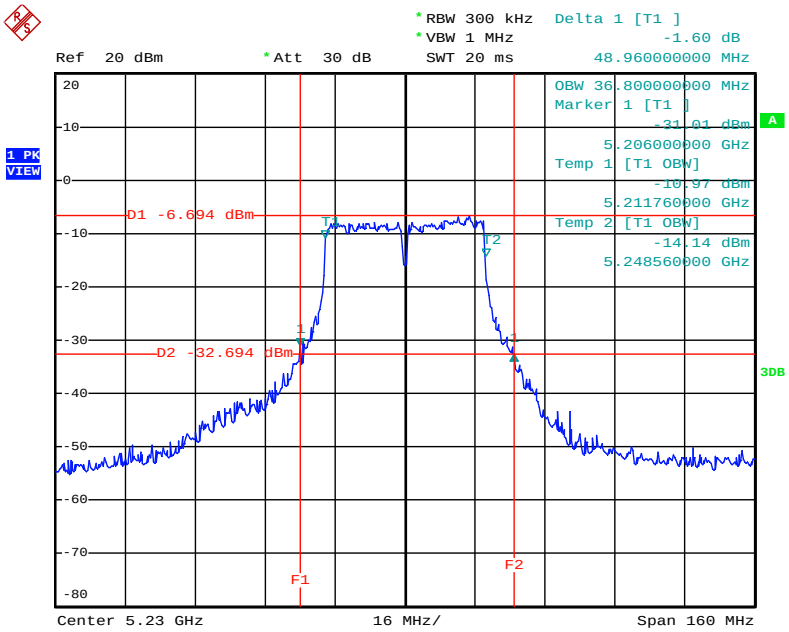
Date: 23.MAY.2012 09:56:10

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



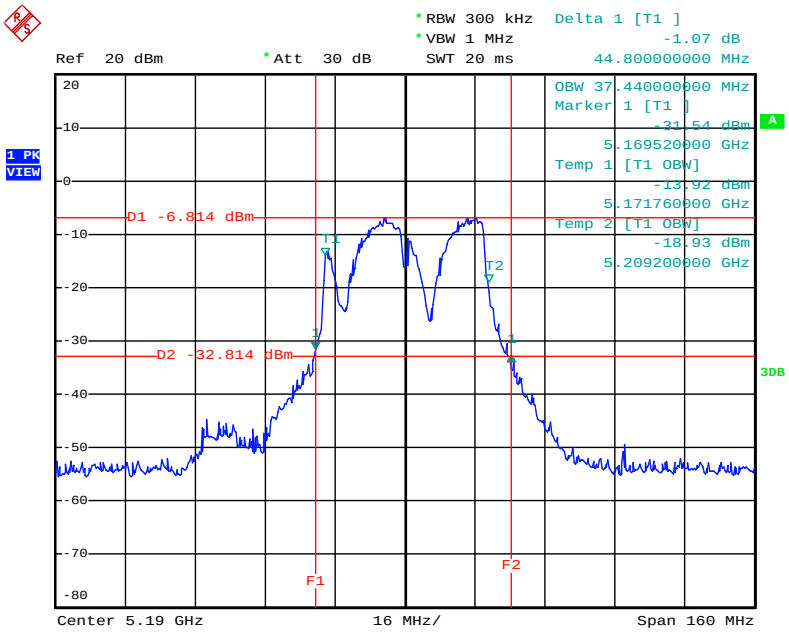
Date: 11.MAY.2012 09:19:53

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



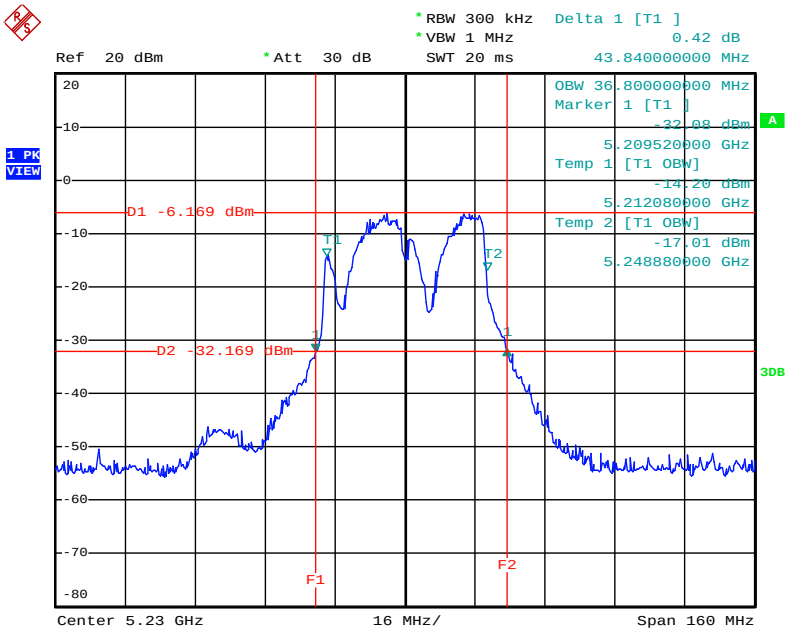
Date: 11.MAY.2012 09:20:22

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



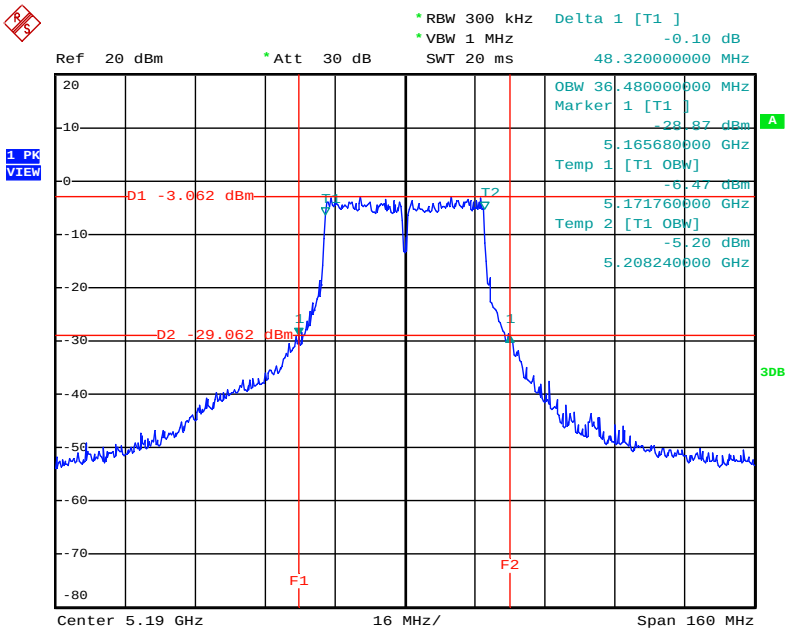
Date: 11.MAY.2012 09:22:30

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



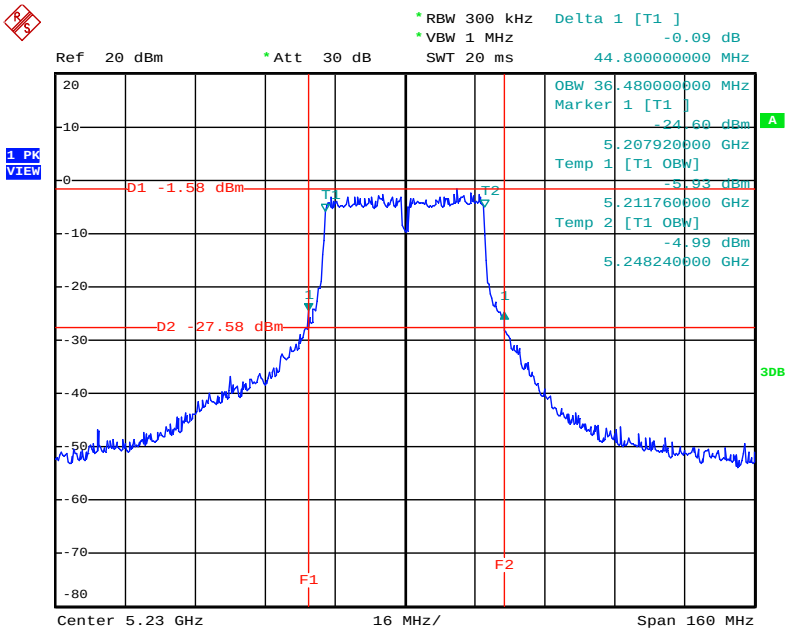
Date: 11.MAY.2012 09:22:03

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



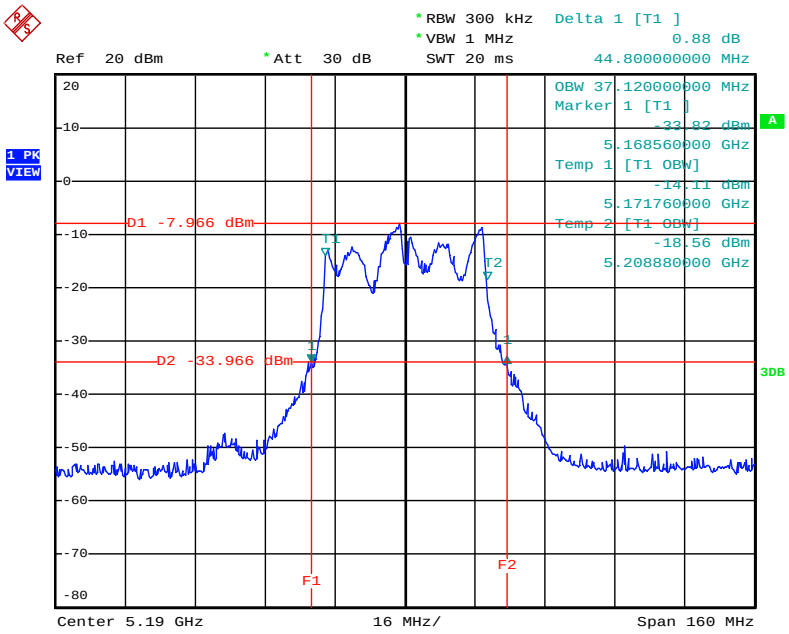
Date: 11.MAY.2012 09:23:10

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



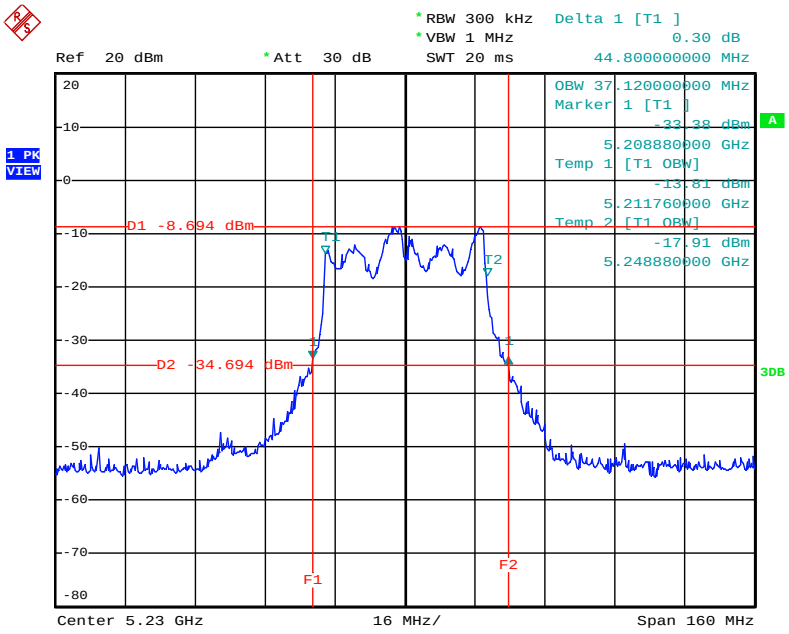
Date: 11.MAY.2012 09:23:33

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



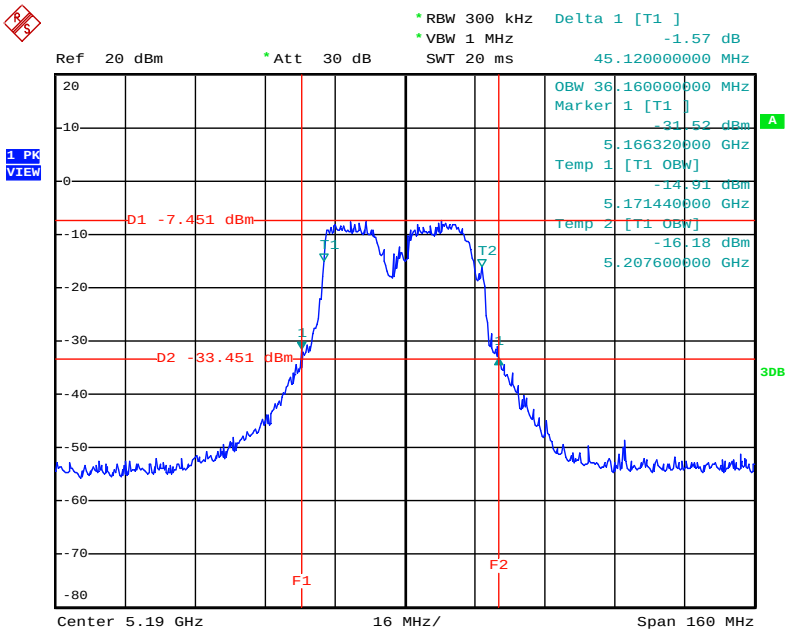
Date: 11.MAY.2012 09:30:35

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



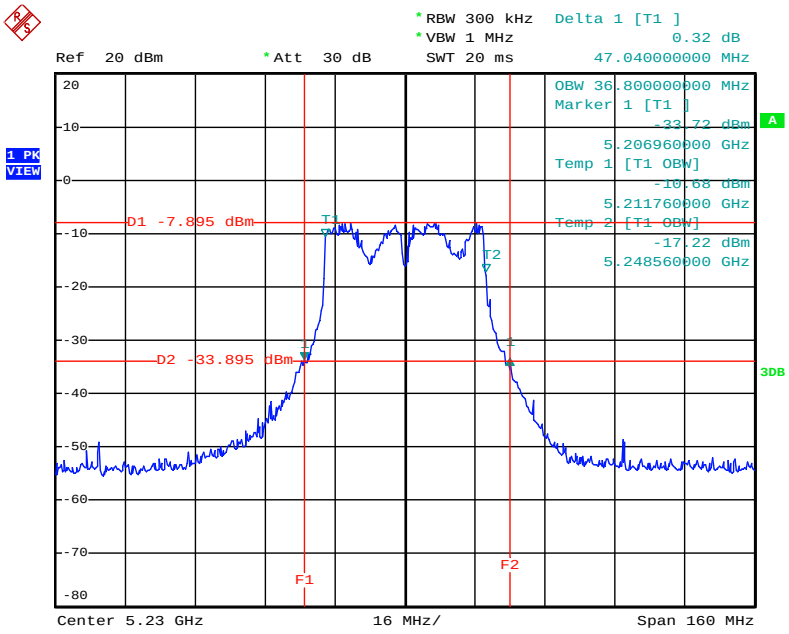
Date: 11.MAY.2012 09:30:17

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



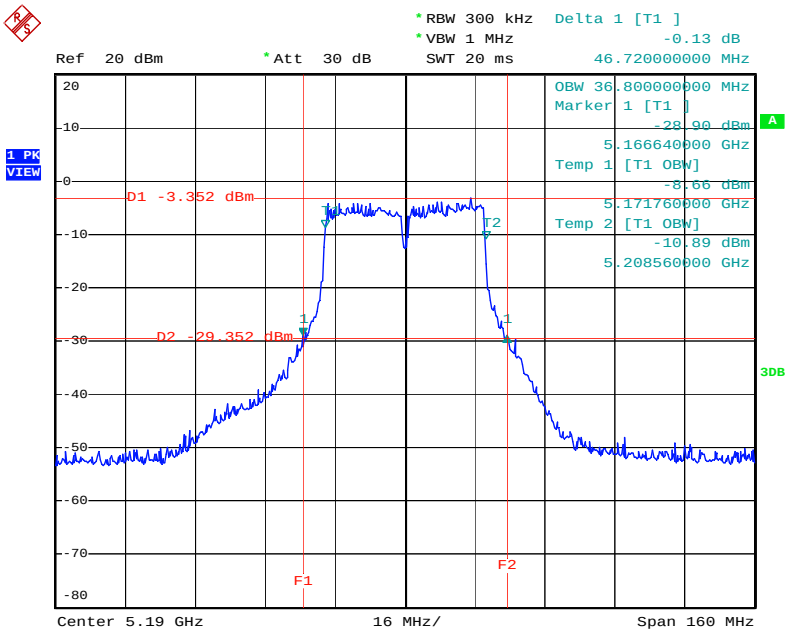
Date: 11.MAY.2012 09:29:28

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



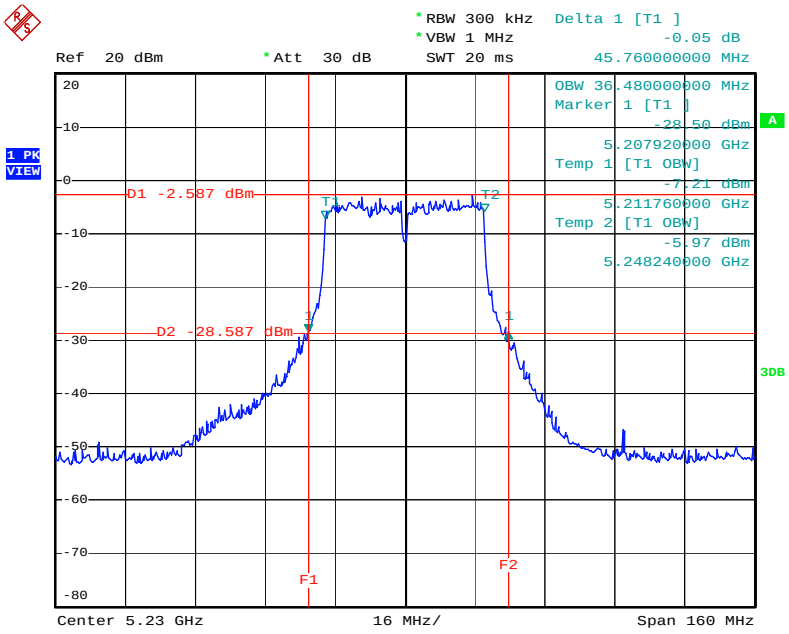
Date: 11.MAY.2012 09:29:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 23.MAY.2012 09:57:00

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 23.MAY.2012 09:57:26

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 2 (Ant. 7 Patch antenna / 2.3dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	26.72	18.40
40	5200 MHz	25.60	18.56
48	5240 MHz	26.08	18.40

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	48.96	37.12
46	5230 MHz	48.96	36.80

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.16	18.56
40	5200 MHz	23.04	18.24
48	5240 MHz	22.72	18.24

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.48	37.12
46	5230 MHz	43.20	36.80

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.00	18.24
40	5200 MHz	24.16	18.24
48	5240 MHz	24.96	18.24

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.72	36.48
46	5230 MHz	45.76	36.48

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.16	19.20
40	5200 MHz	24.00	19.04
48	5240 MHz	21.76	17.60

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.76	37.12
46	5230 MHz	44.48	37.12

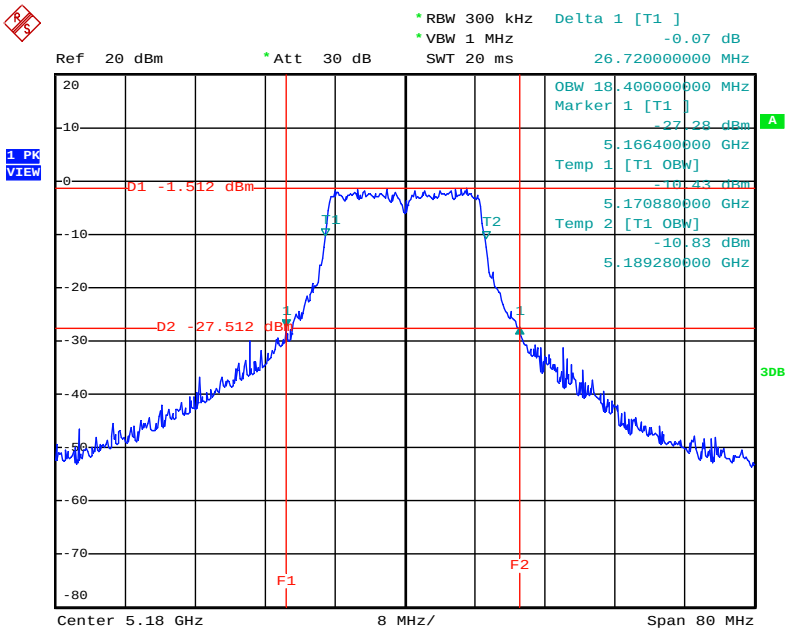
Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.48	18.40
40	5200 MHz	22.88	18.08
48	5240 MHz	23.84	18.40

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

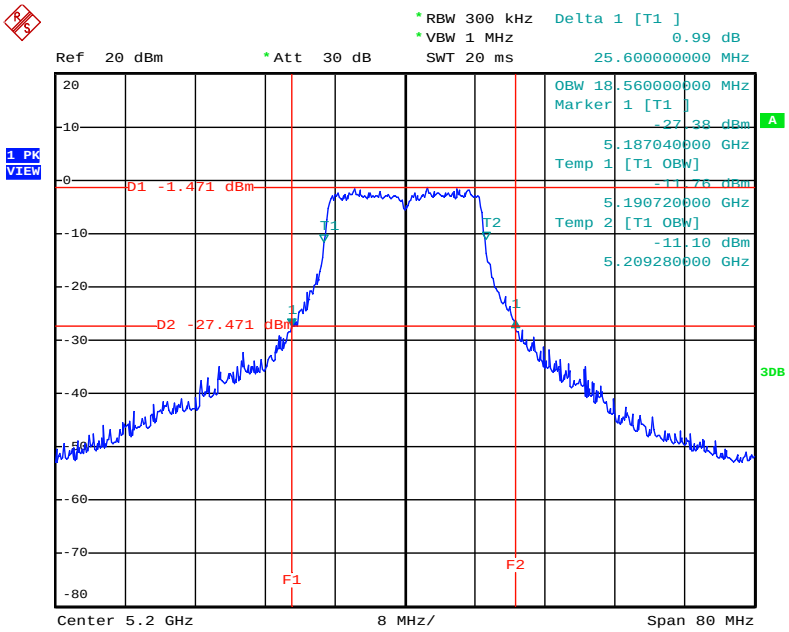
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.08	37.12
46	5230 MHz	45.12	36.80

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



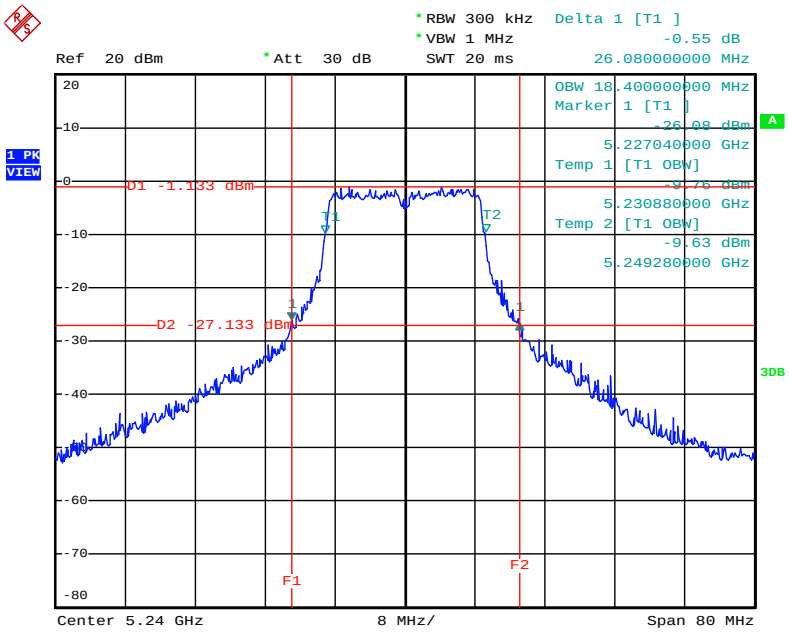
Date: 11.MAY.2012 09:51:43

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5200 MHz (1TX)



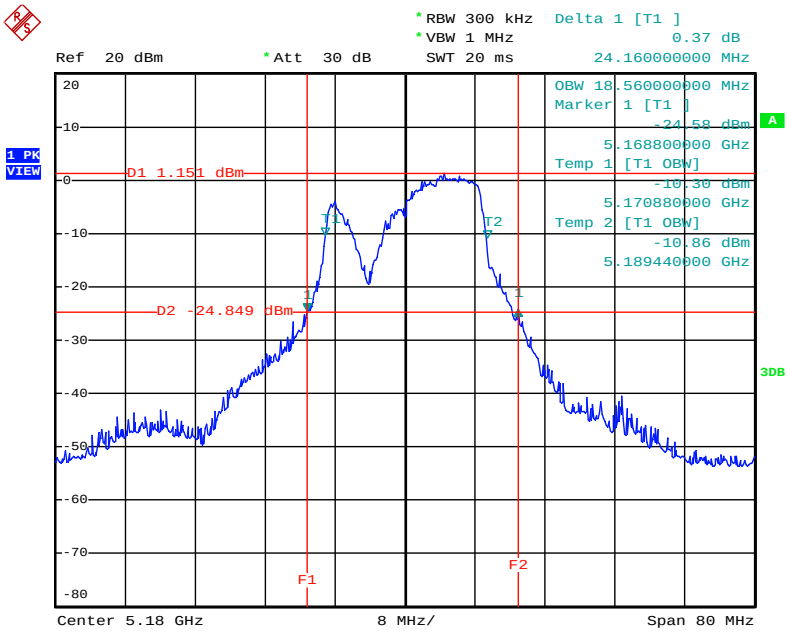
Date: 11.MAY.2012 09:51:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



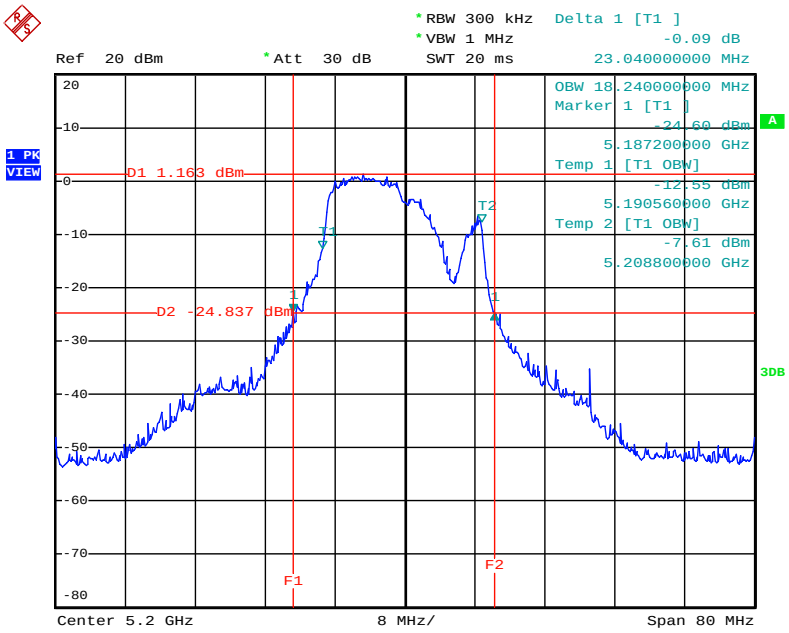
Date: 11.MAY.2012 09:50:56

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



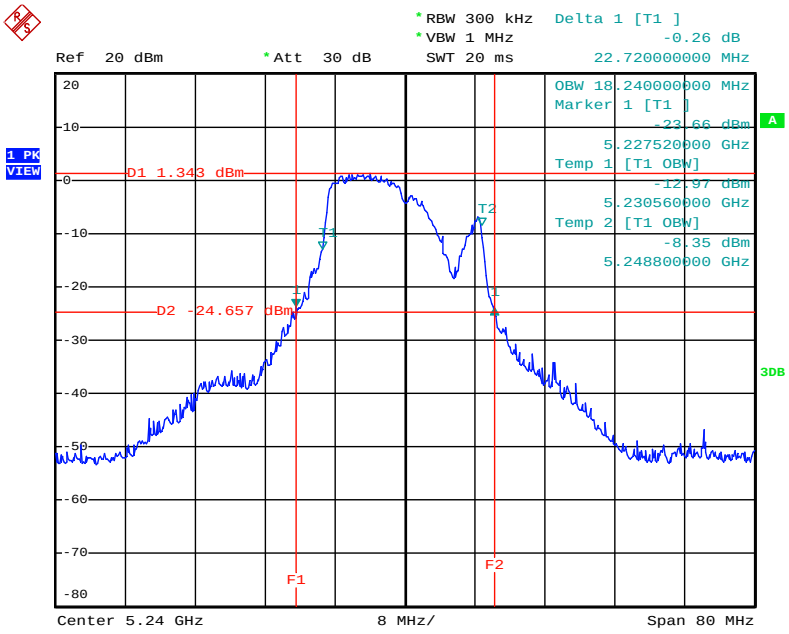
Date: 11.MAY.2012 09:57:15

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



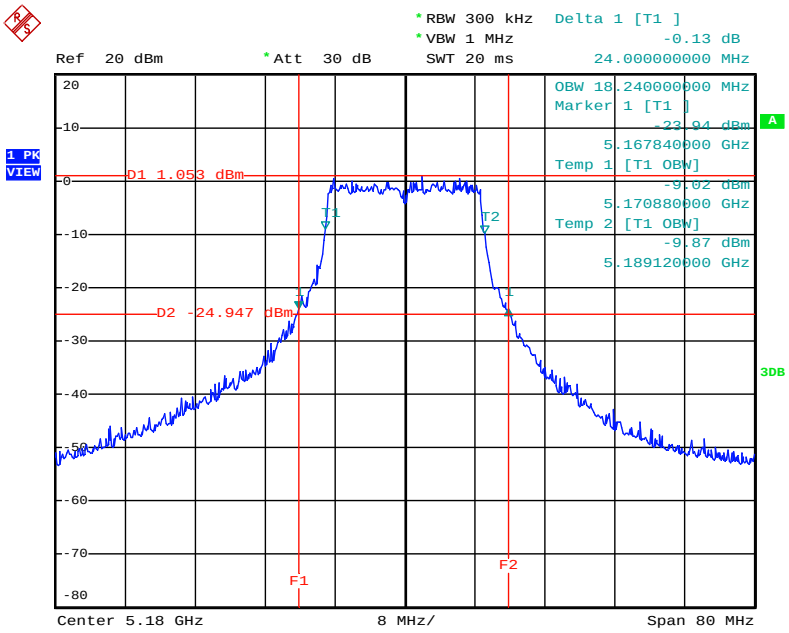
Date: 11.MAY.2012 09:56:59

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



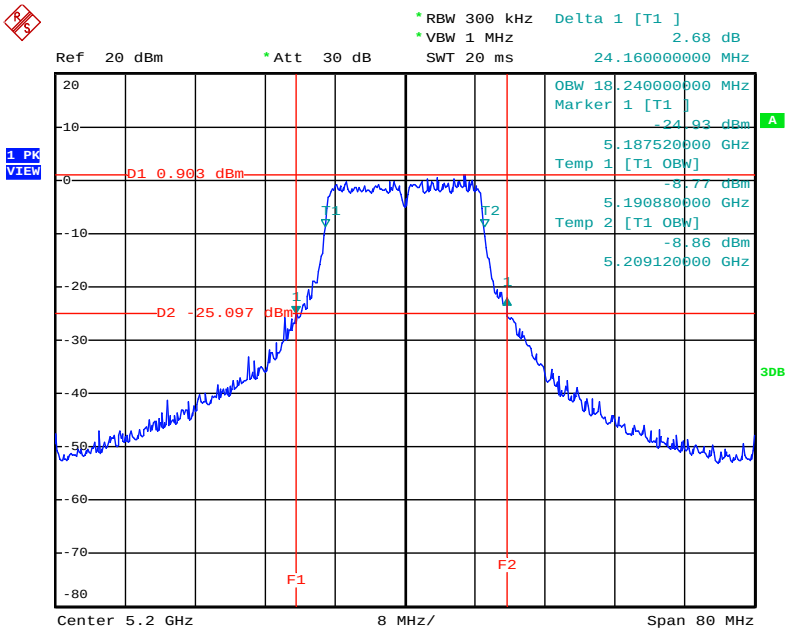
Date: 11.MAY.2012 09:56:41

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



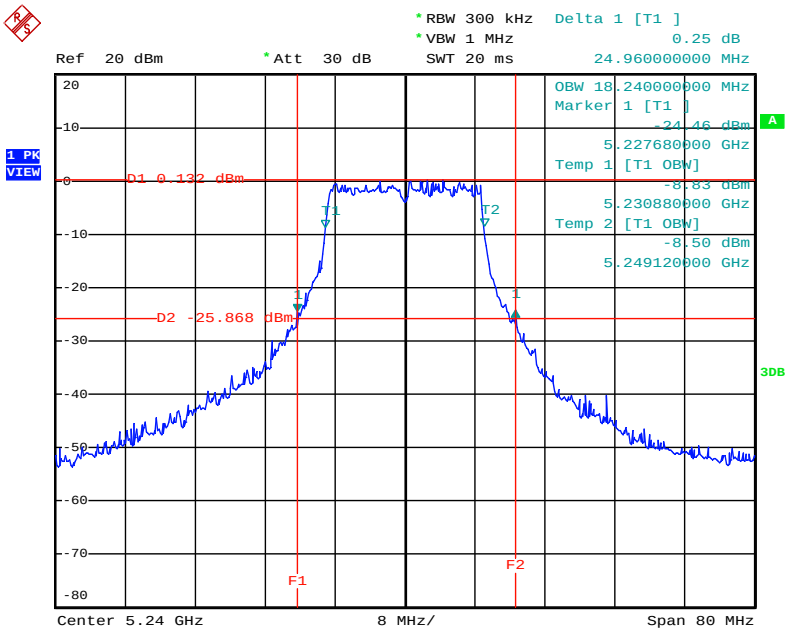
Date: 11.MAY.2012 09:55:46

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



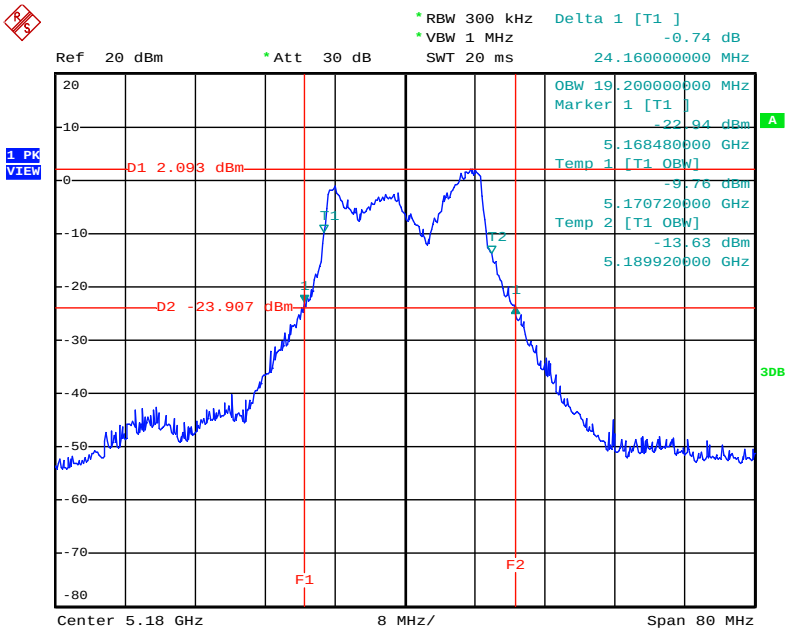
Date: 11.MAY.2012 09:56:02

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



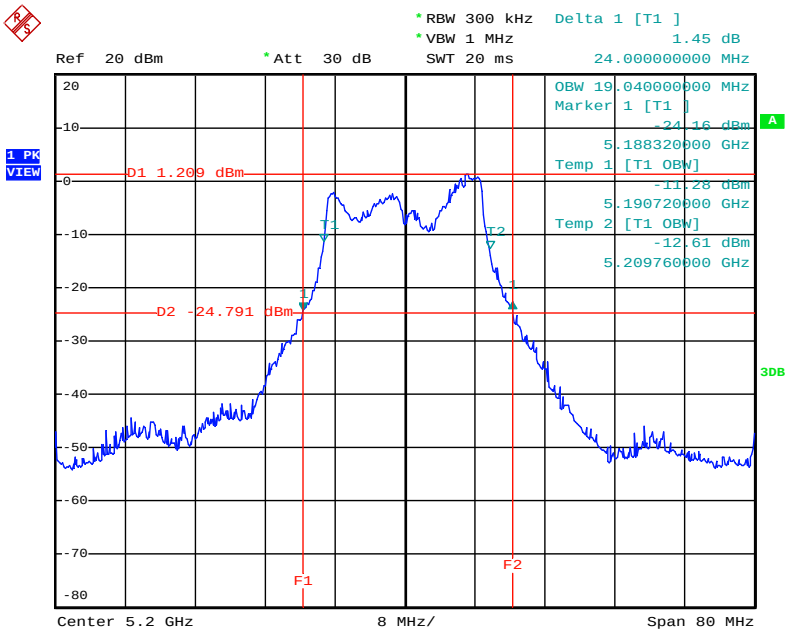
Date: 11.MAY.2012 09:56:21

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



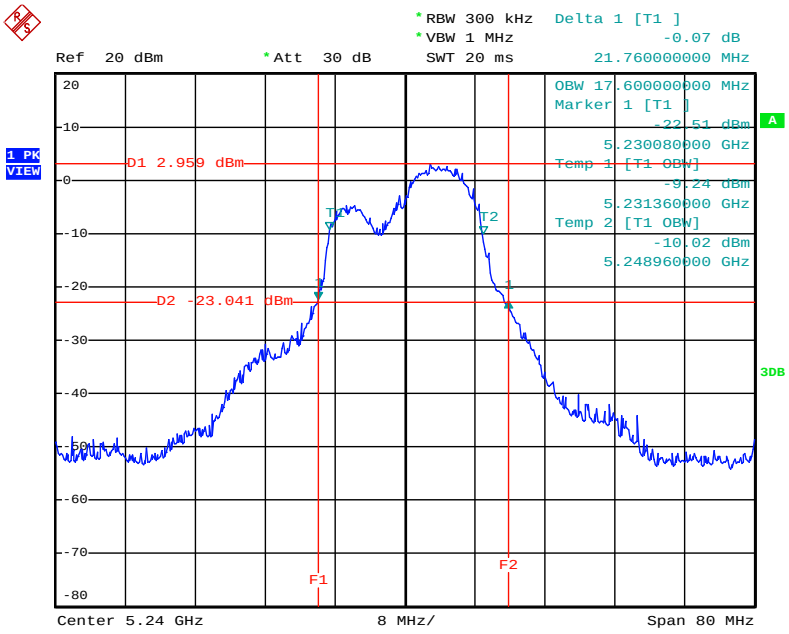
Date: 11.MAY.2012 09:57:45

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



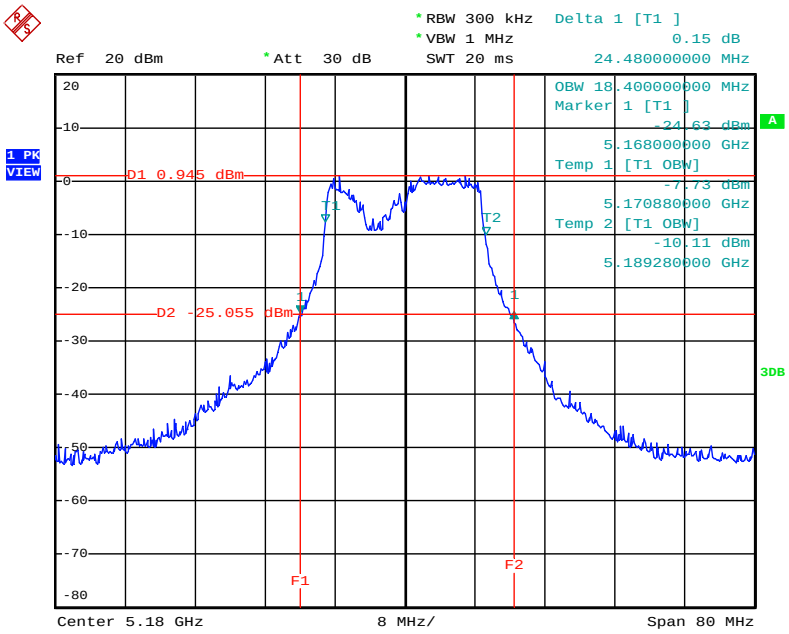
Date: 11.MAY.2012 09:58:03

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



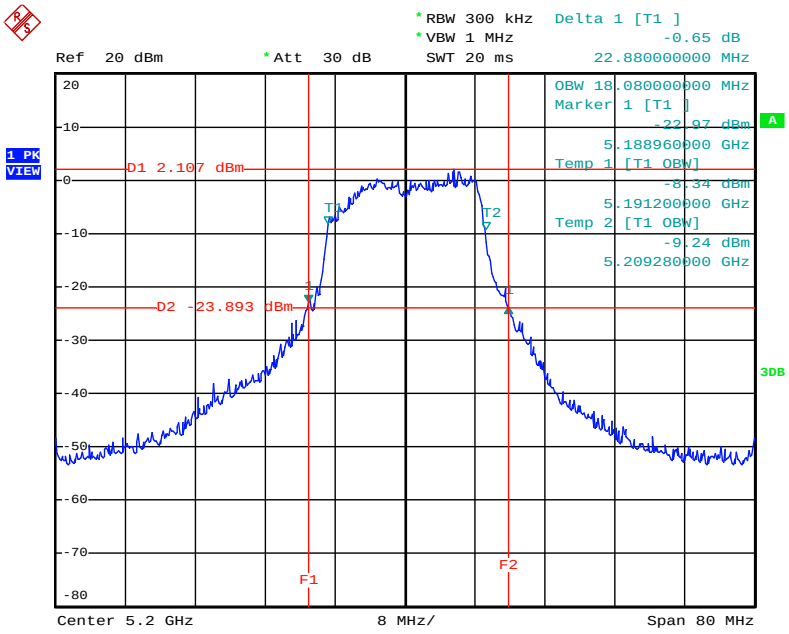
Date: 11.MAY.2012 09:58:26

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



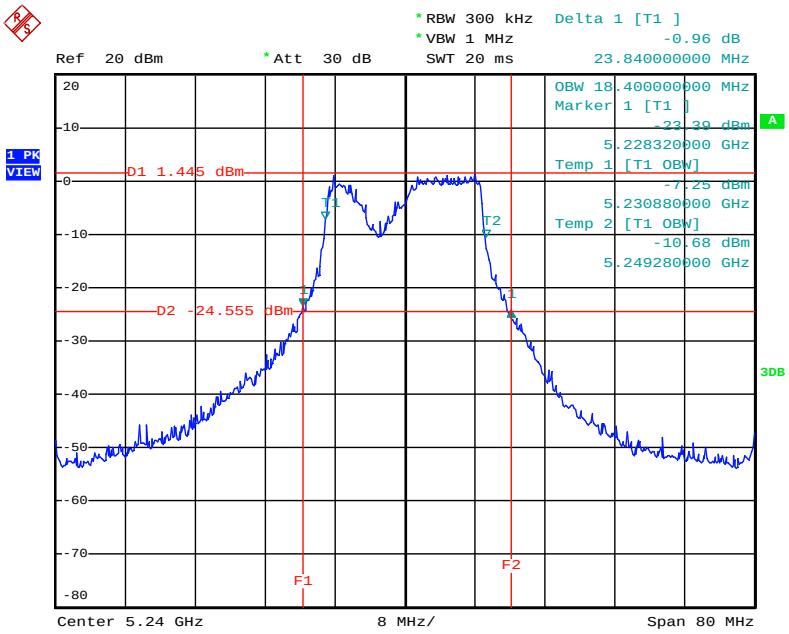
Date: 11.MAY.2012 09:59:25

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



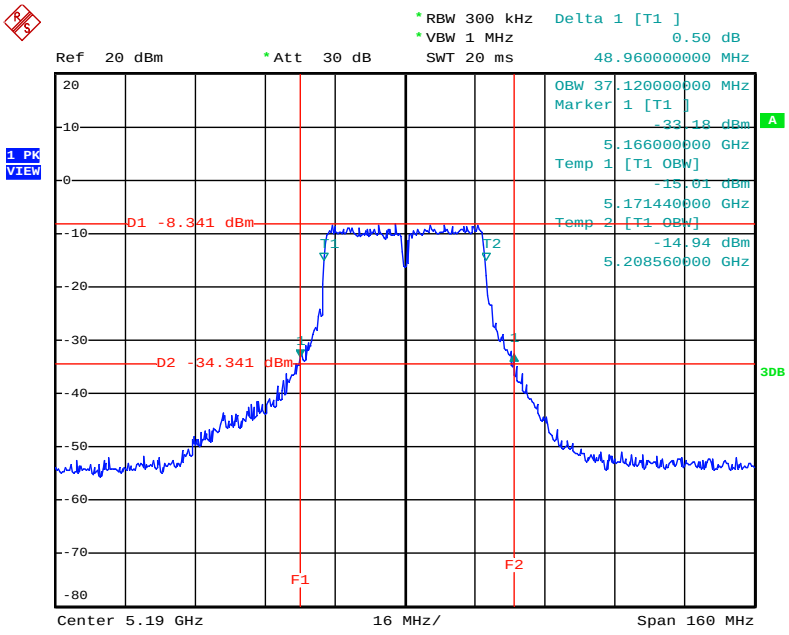
Date: 11.MAY.2012 09:59:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



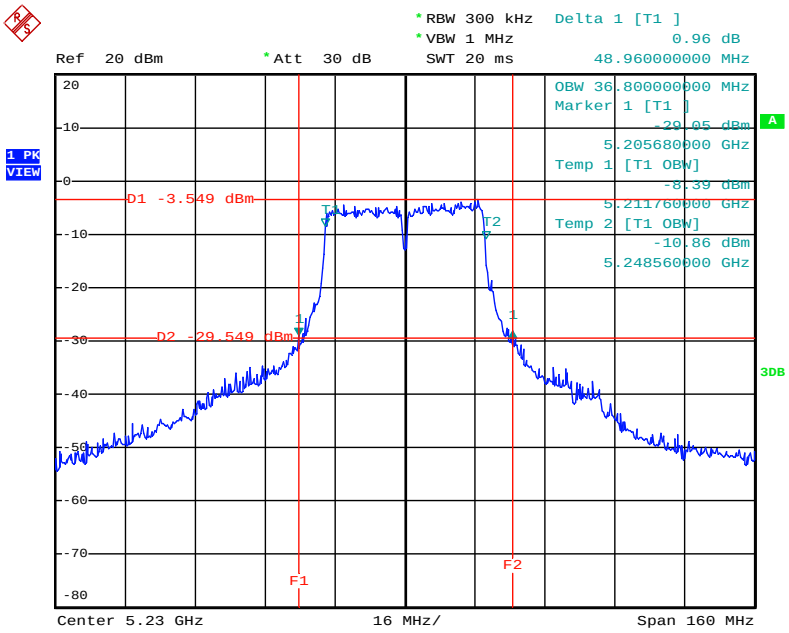
Date: 11.MAY.2012 09:58:54

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



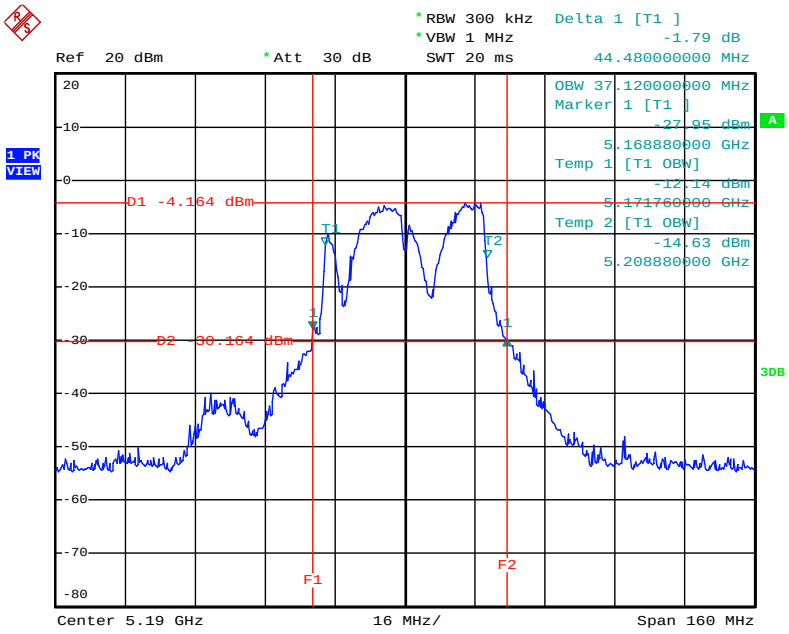
Date: 11.MAY.2012 09:52:22

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



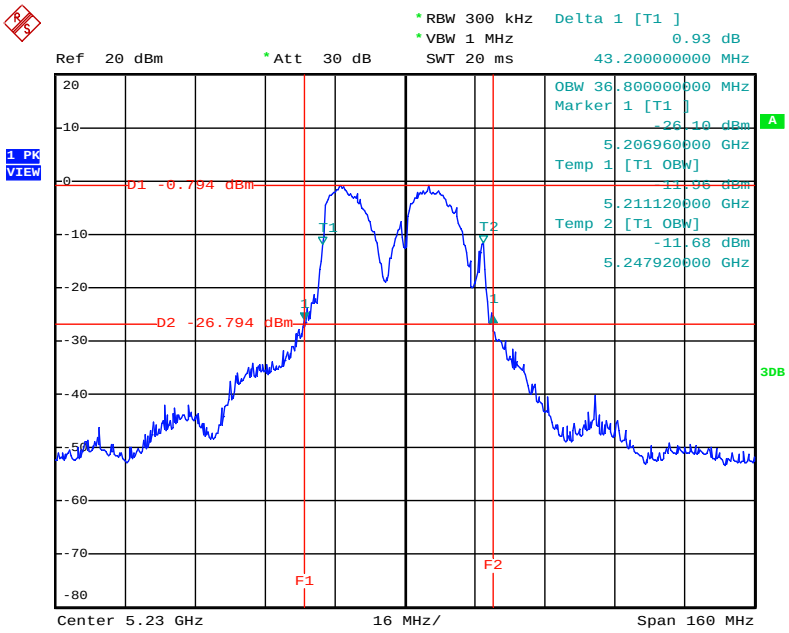
Date: 11.MAY.2012 09:52:43

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



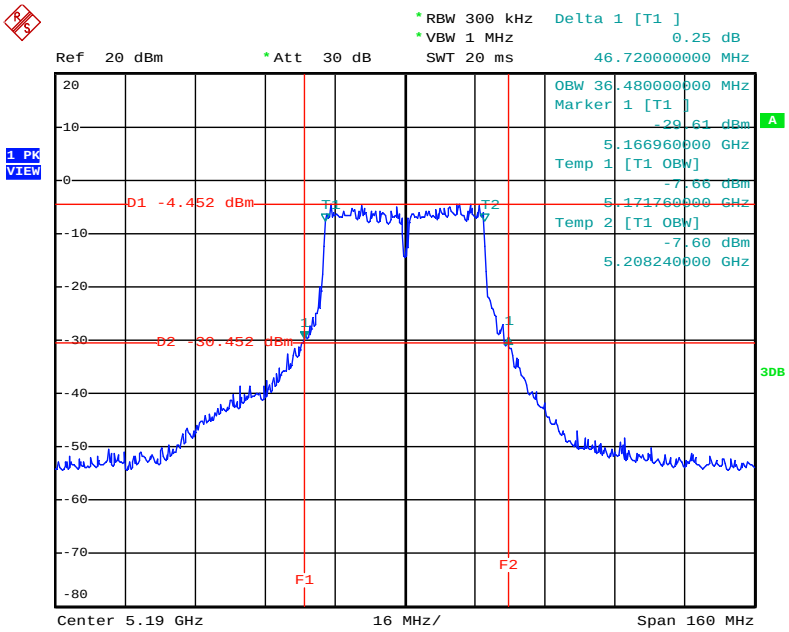
Date: 11.MAY.2012 09:54:35

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



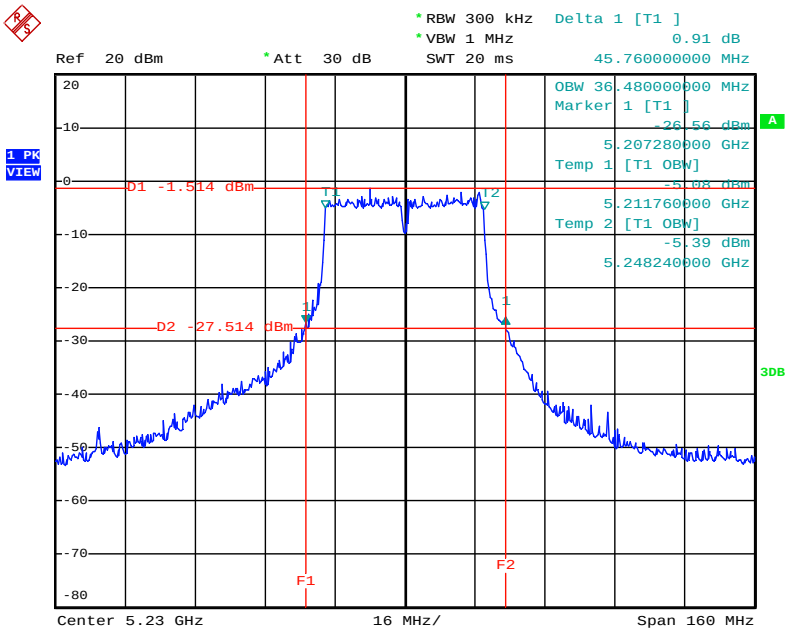
Date: 11.MAY.2012 09:54:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



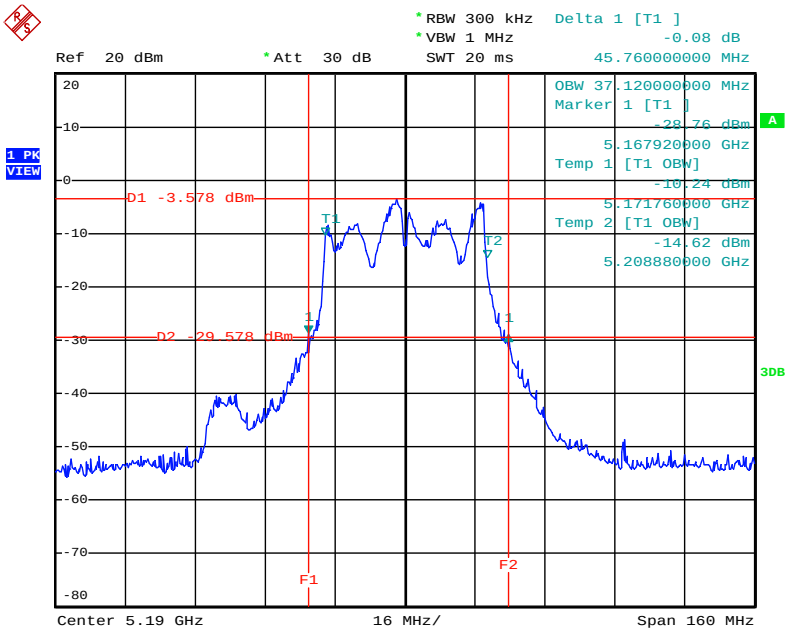
Date: 11.MAY.2012 09:54:57

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



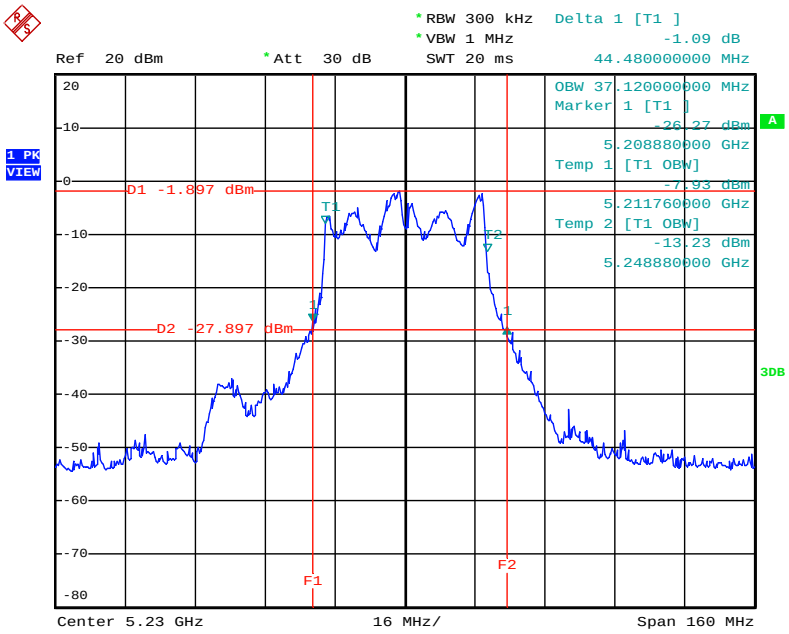
Date: 11.MAY.2012 09:55:18

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



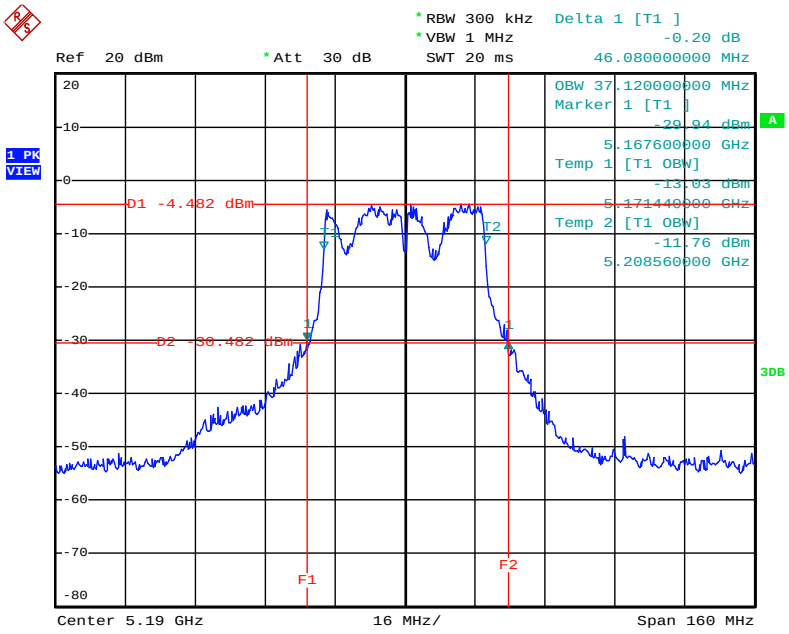
Date: 11.MAY.2012 10:01:11

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



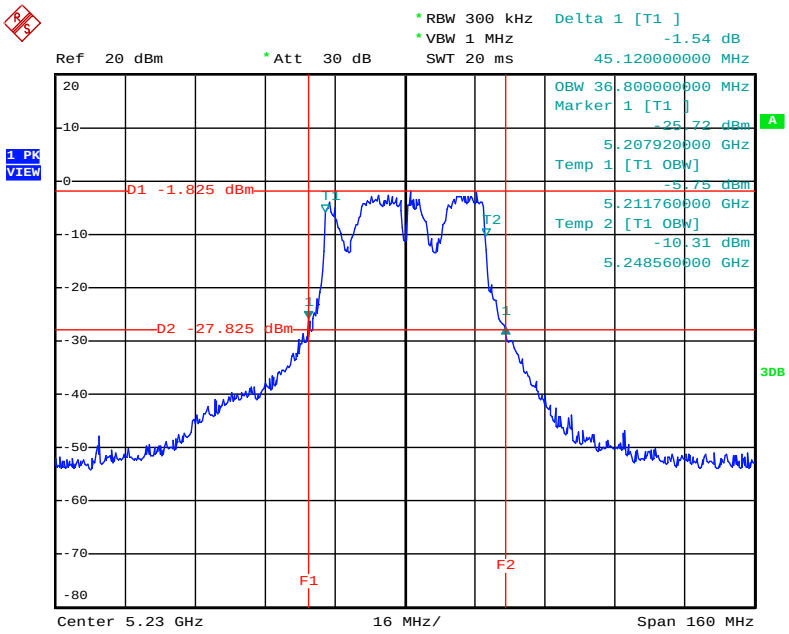
Date: 11.MAY.2012 10:00:52

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 11.MAY.2012 10:00:08

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 11.MAY.2012 10:00:29

Temperature	25°C	Humidity	56%
Test Engineer	Densin Su	Configurations	IEEE 802.11n
Test Mode	Mode 3 (Ant. 8 Panel antenna / 10.5dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.96	18.40
40	5200 MHz	24.96	18.40
48	5240 MHz	26.24	18.56

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	48.00	36.80
46	5230 MHz	62.40	37.44

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.52	18.72
40	5200 MHz	23.36	18.72
48	5240 MHz	22.40	18.24

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	42.56	36.16
46	5230 MHz	45.12	37.12

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.48	18.08
40	5200 MHz	24.96	18.24
48	5240 MHz	24.00	18.24

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.12	36.80
46	5230 MHz	45.44	36.80

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.32	19.04
40	5200 MHz	22.24	18.24
48	5240 MHz	23.04	18.24

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	43.84	36.48
46	5230 MHz	45.12	37.12

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.16	18.40
40	5200 MHz	24.00	18.40
48	5240 MHz	24.80	18.40

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.76	37.12
46	5230 MHz	44.80	36.80

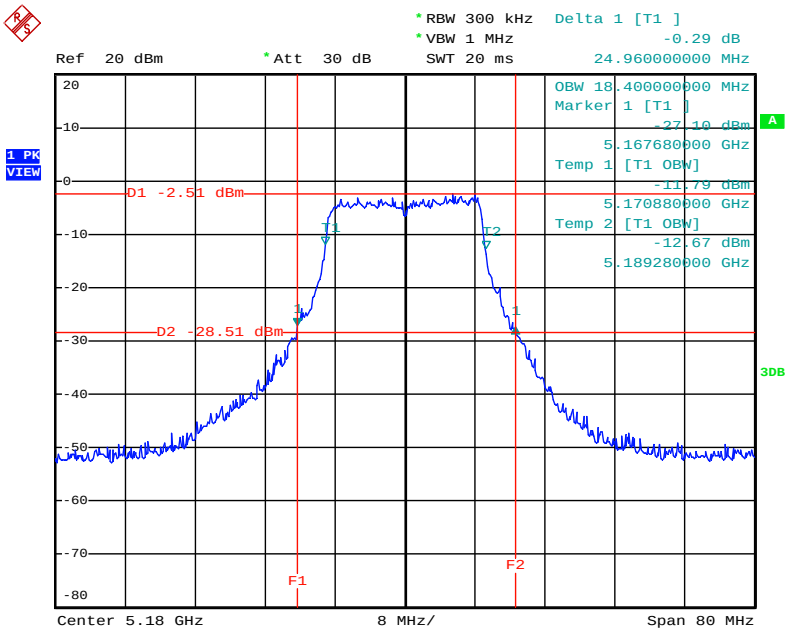
Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.80	18.24
40	5200 MHz	23.52	18.08
48	5240 MHz	24.00	18.24

Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

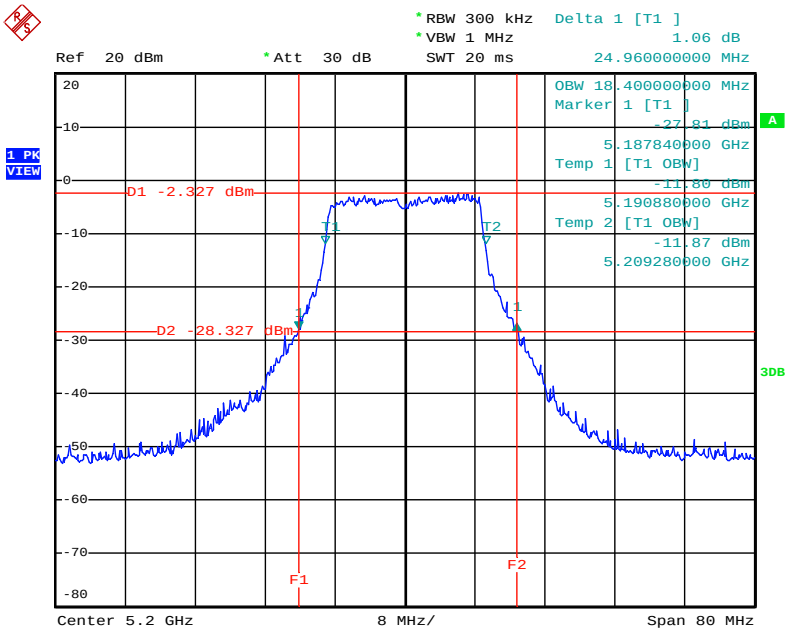
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.40	36.48
46	5230 MHz	45.44	36.80

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



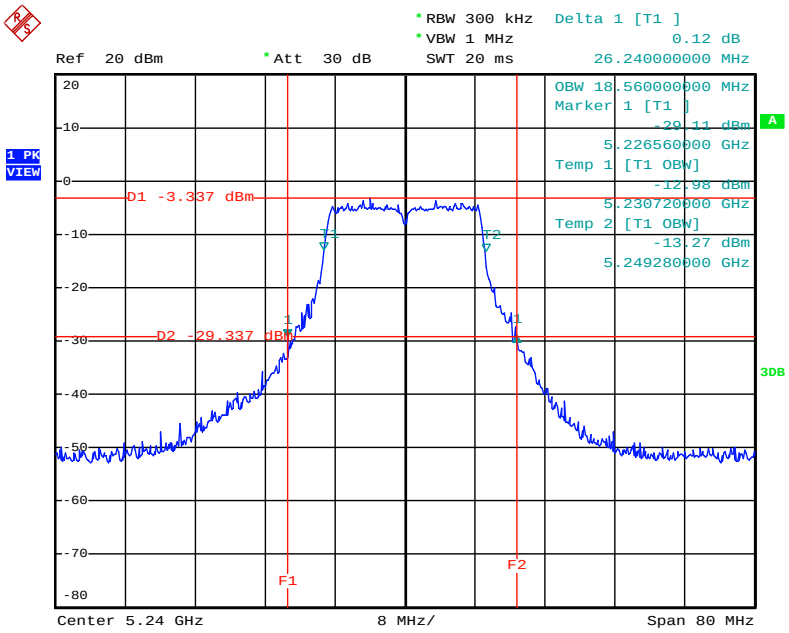
Date: 5.JUN.2012 13:16:17

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5200 MHz (1TX)



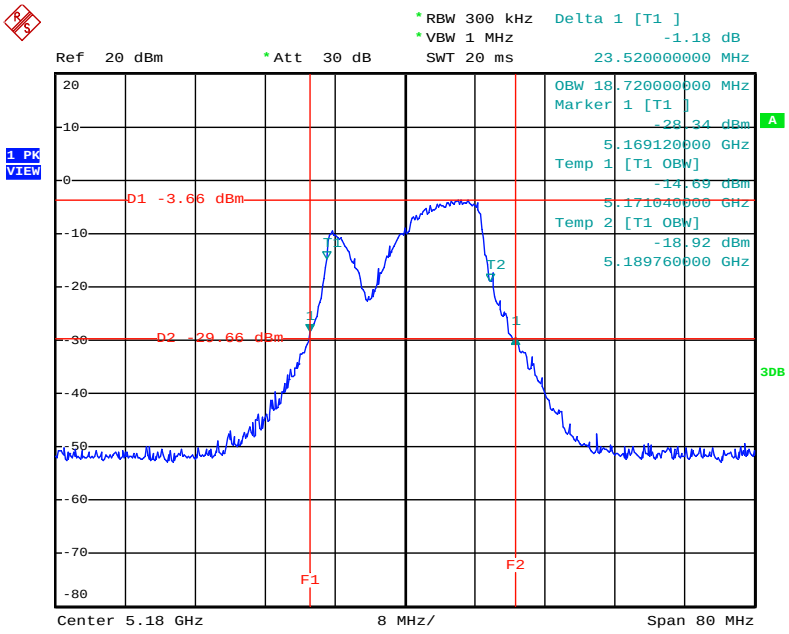
Date: 5.JUN.2012 13:16:35

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



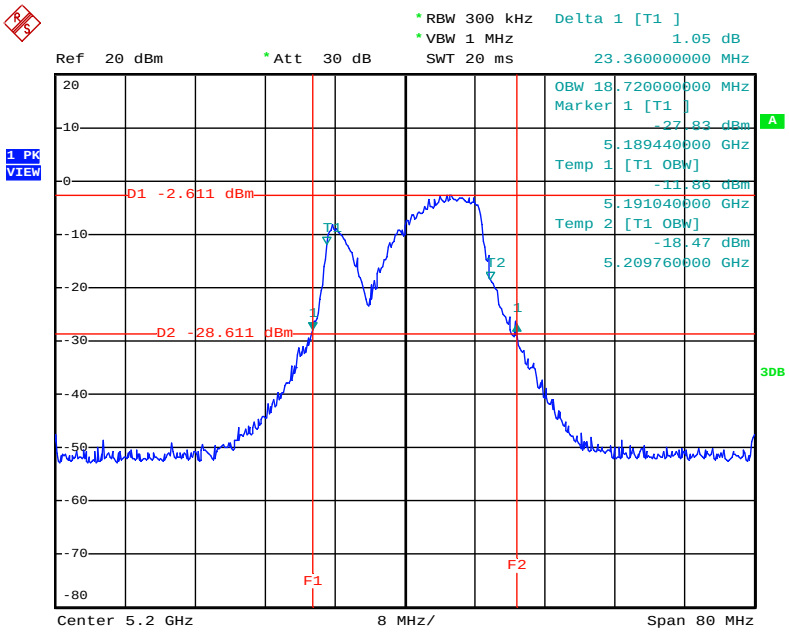
Date: 5.JUN.2012 13:18:01

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



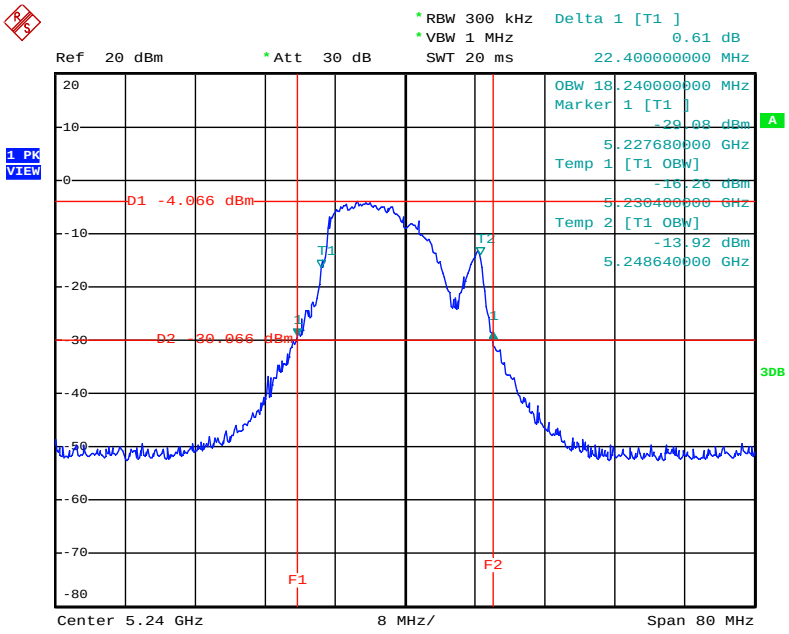
Date: 5.JUN.2012 13:23:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



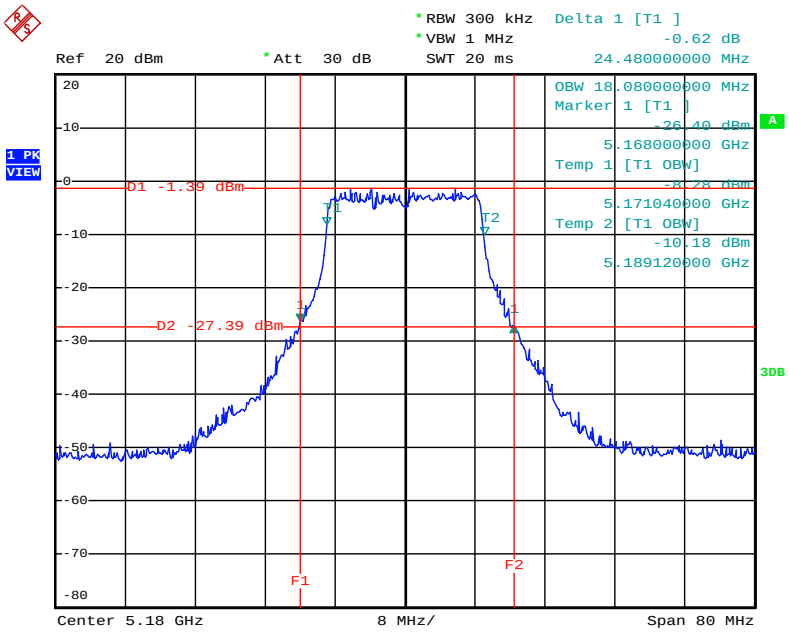
Date: 5.JUN.2012 13:23:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



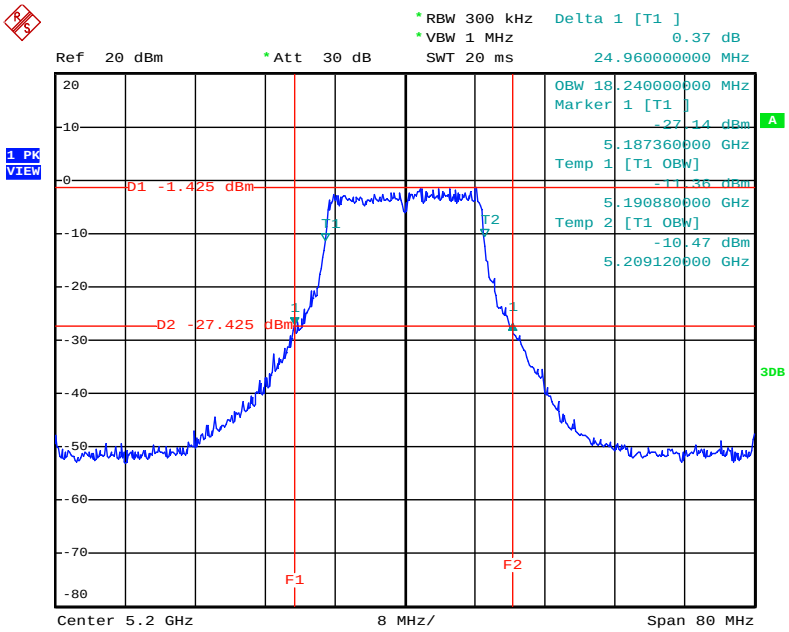
Date: 5.JUN.2012 13:22:49

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



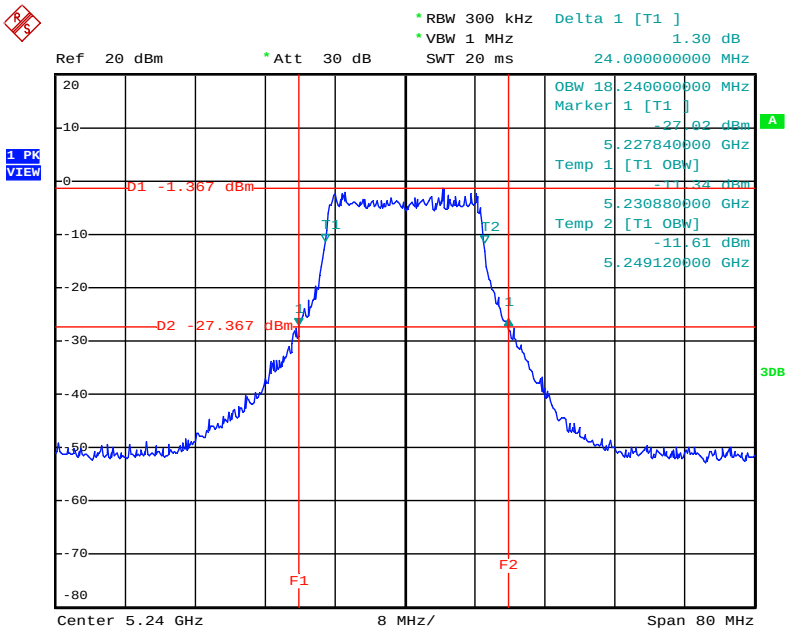
Date: 5.JUN.2012 13:21:39

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



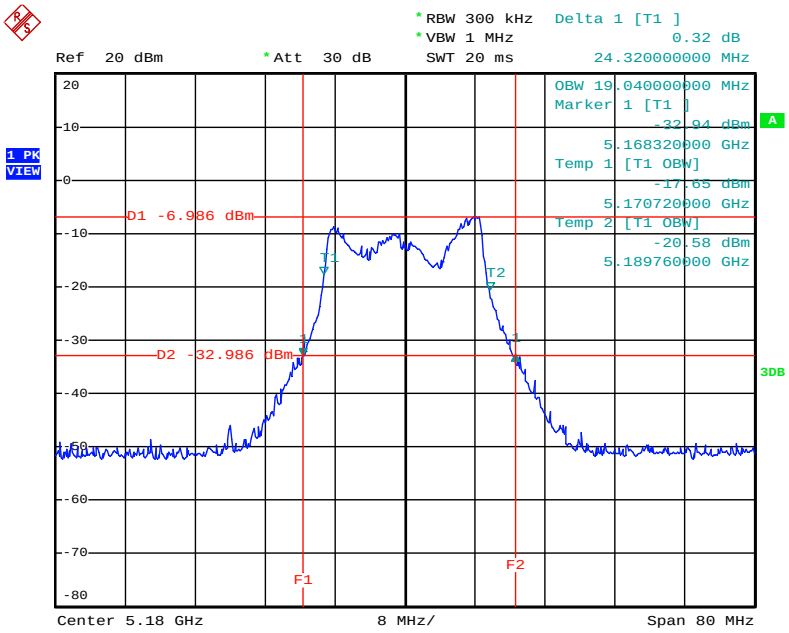
Date: 5.JUN.2012 13:21:54

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



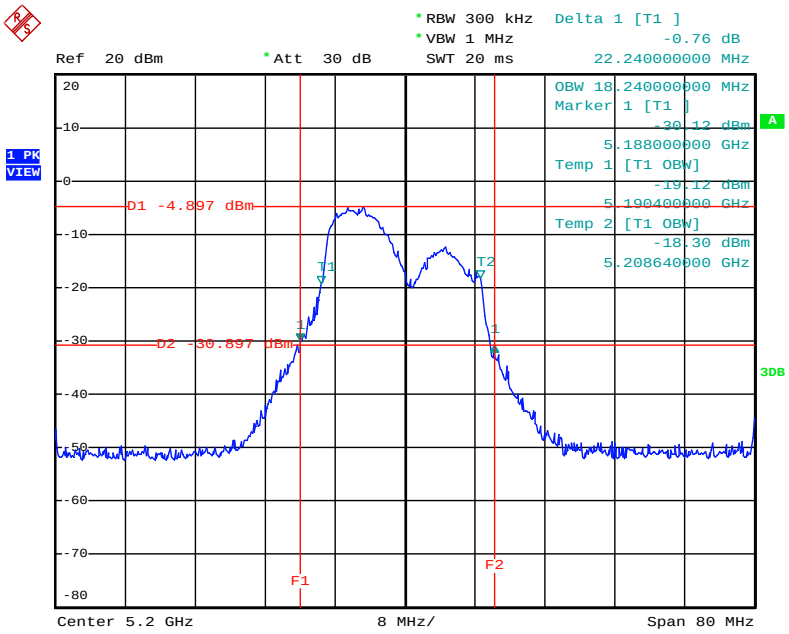
Date: 5.JUN.2012 13:22:10

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



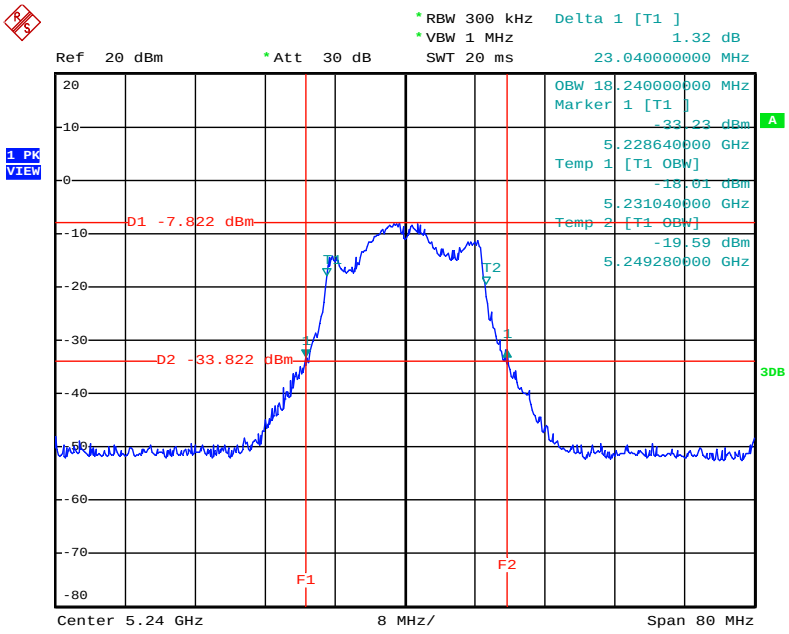
Date: 5.JUN.2012 13:23:58

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



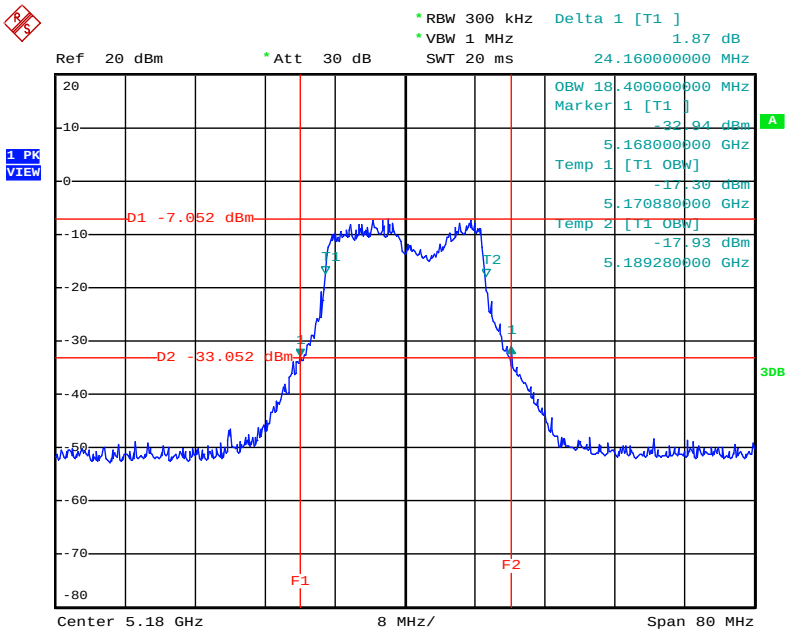
Date: 5.JUN.2012 13:24:13

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



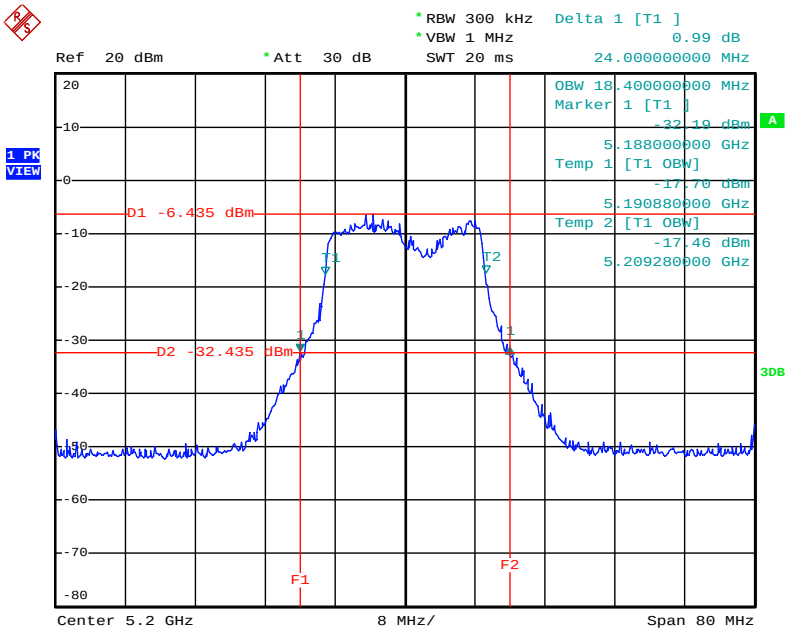
Date: 5.JUN.2012 13:24:27

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



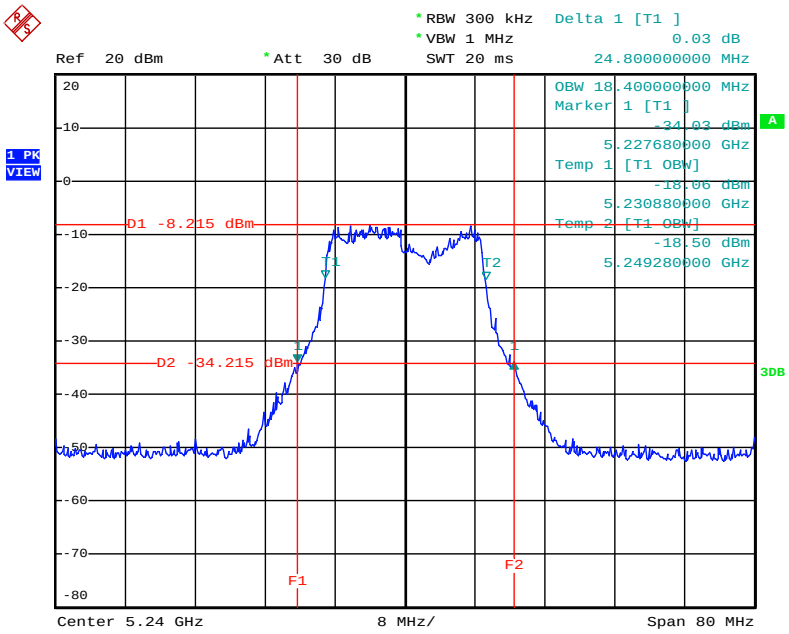
Date: 5.JUN.2012 13:25:20

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



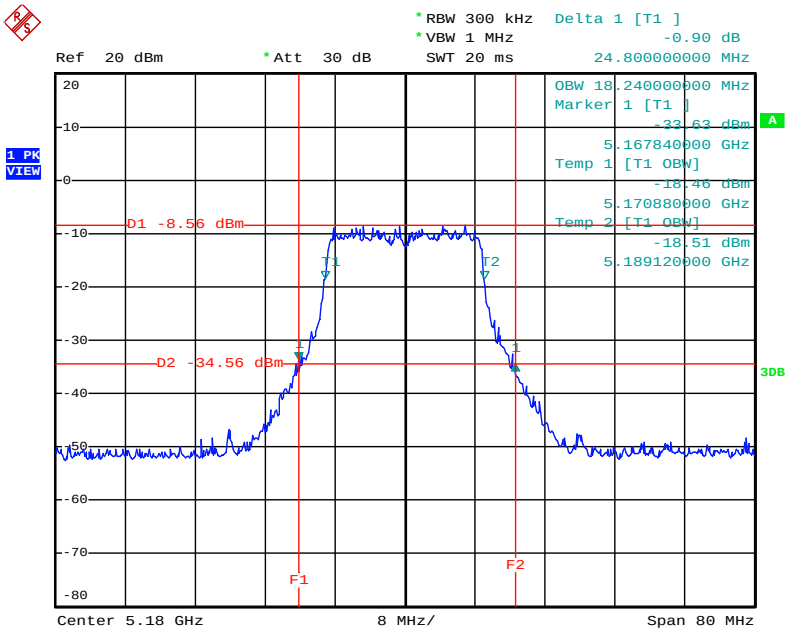
Date: 5.JUN.2012 13:25:05

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



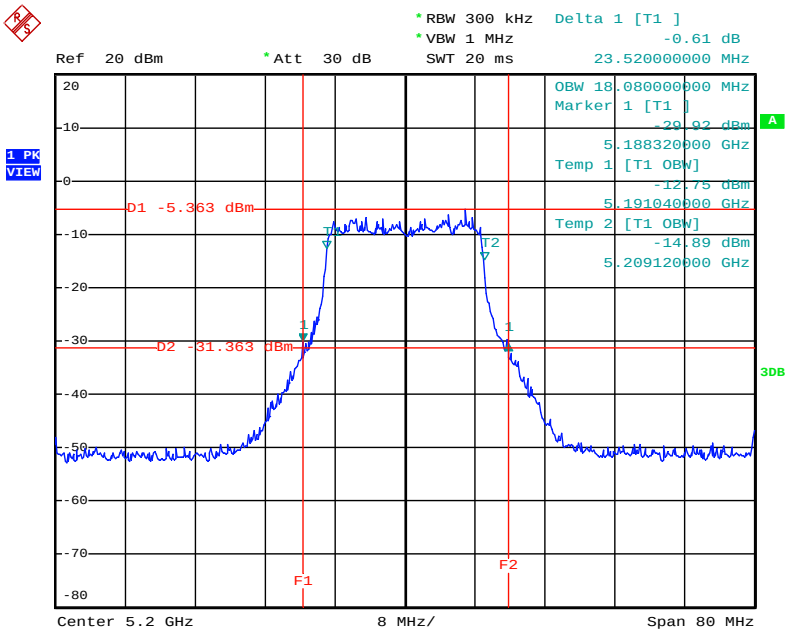
Date: 5.JUN.2012 13:24:52

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



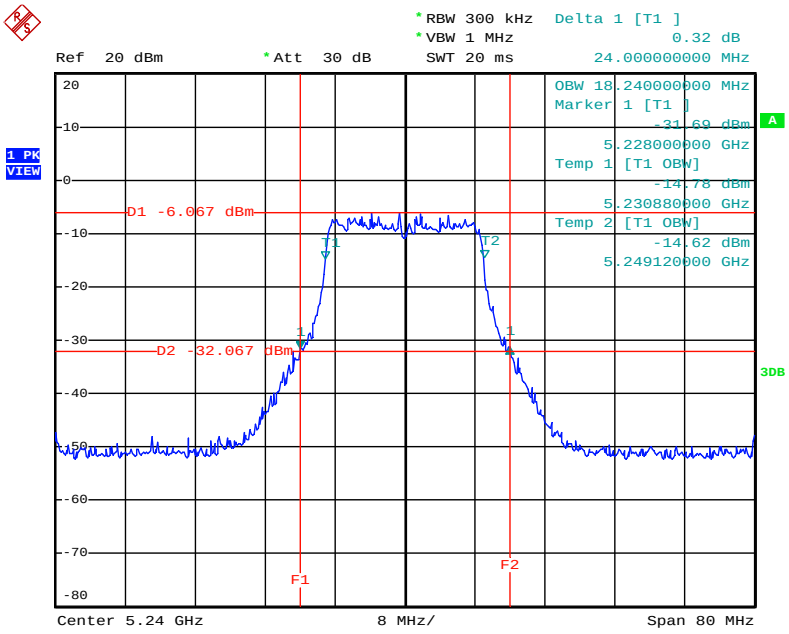
Date: 5.JUN.2012 13:27:34

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



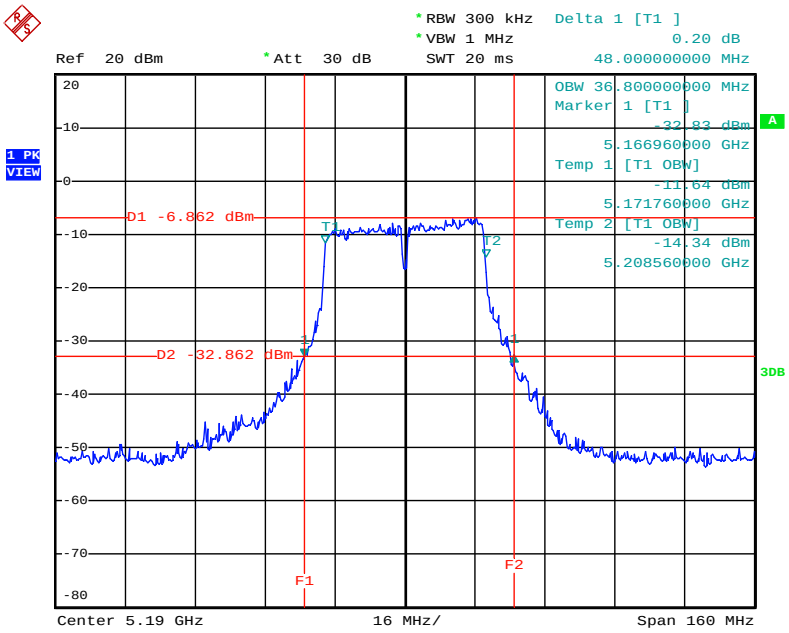
Date: 5.JUN.2012 13:27:48

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



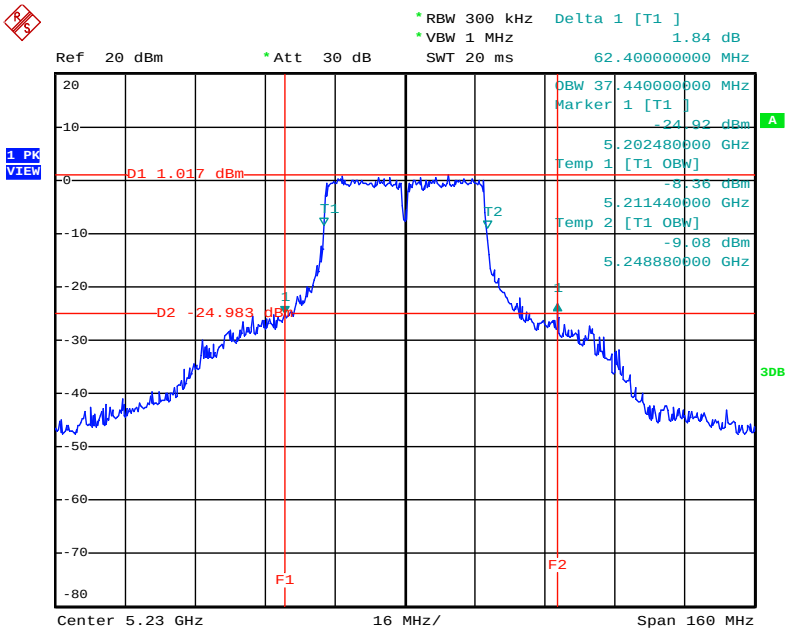
Date: 5.JUN.2012 13:28:02

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



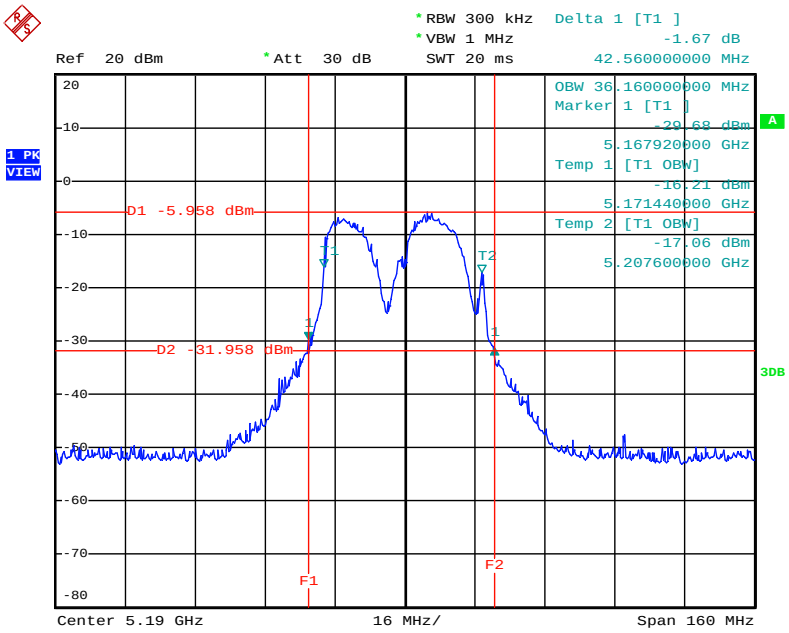
Date: 5.JUN.2012 13:18:47

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



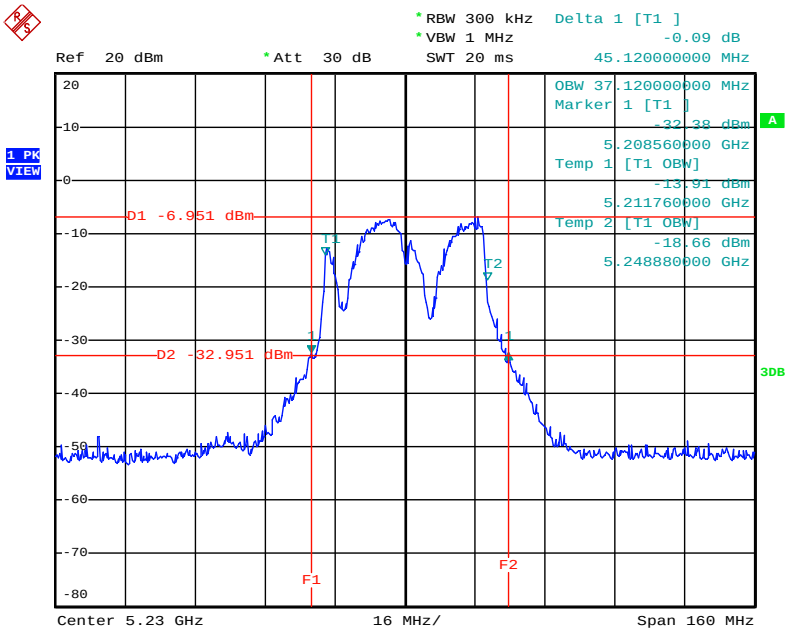
Date: 5.JUN.2012 13:19:17

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



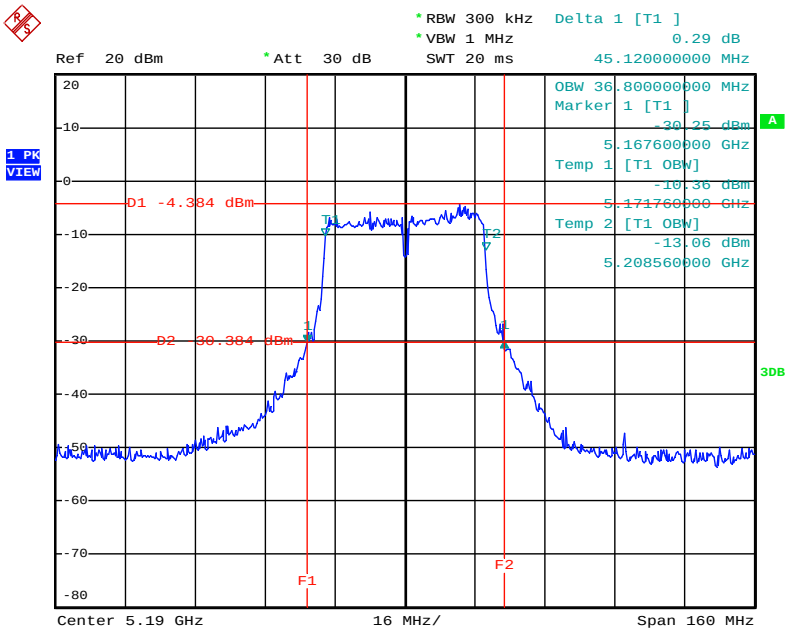
Date: 5.JUN.2012 13:20:25

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



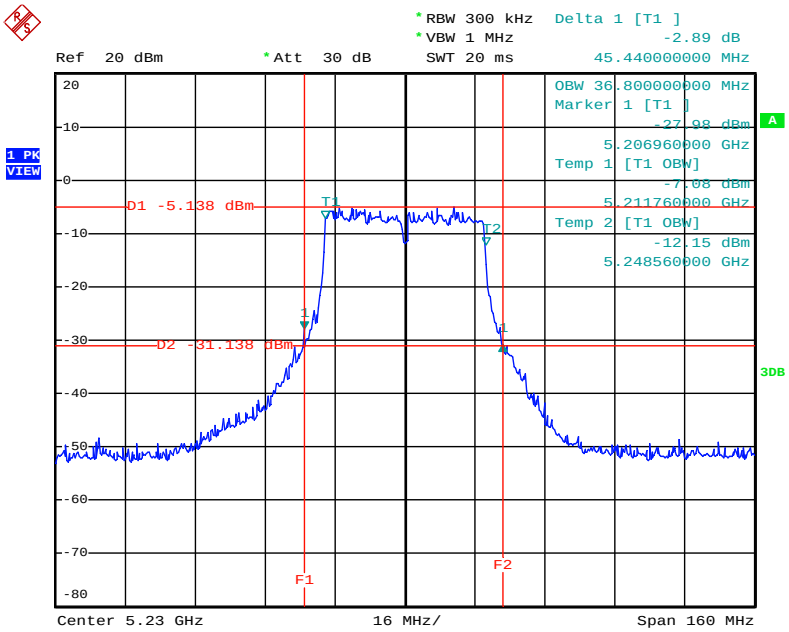
Date: 5.JUN.2012 13:19:53

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



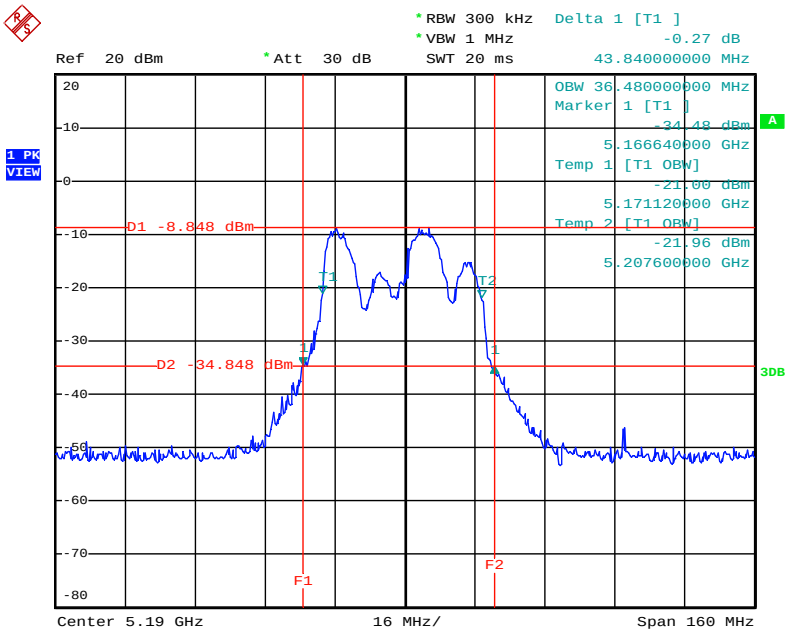
Date: 5.JUN.2012 13:20:54

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



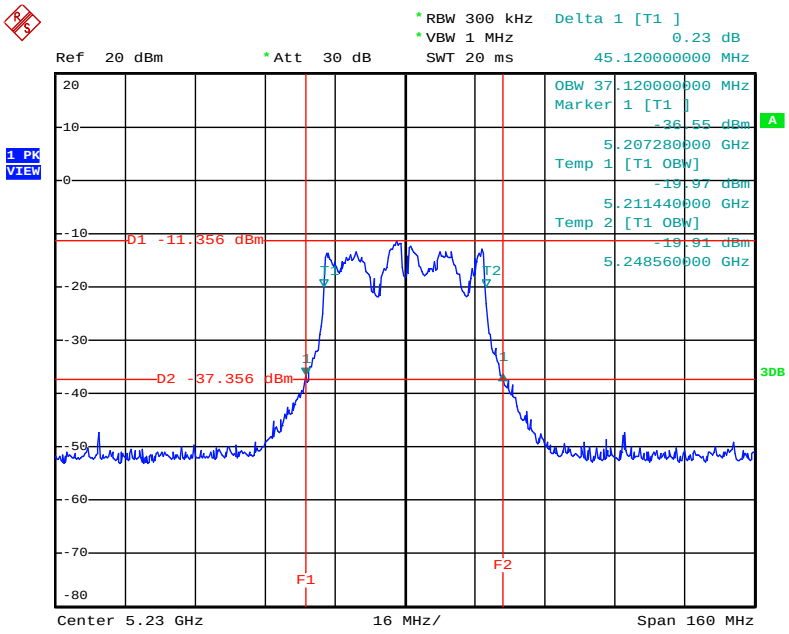
Date: 5.JUN.2012 13:21:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



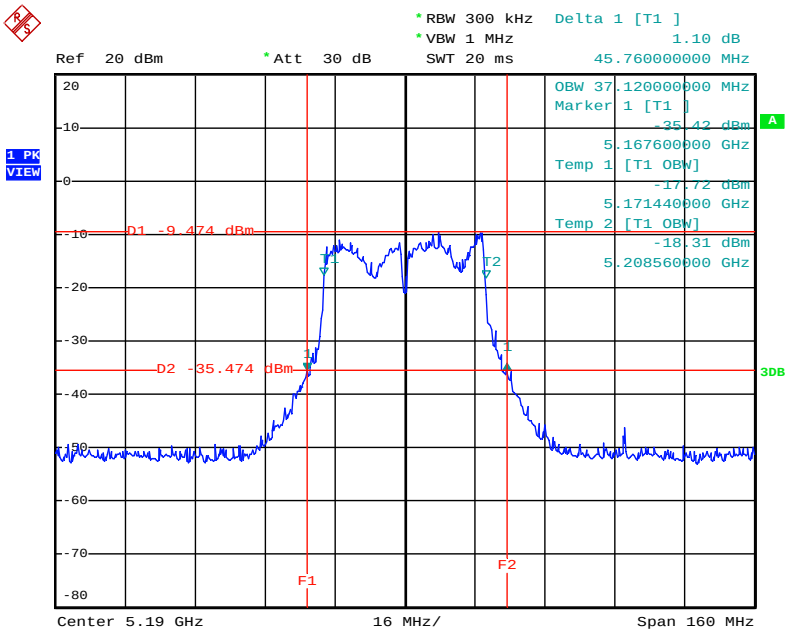
Date: 5.JUN.2012 13:29:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



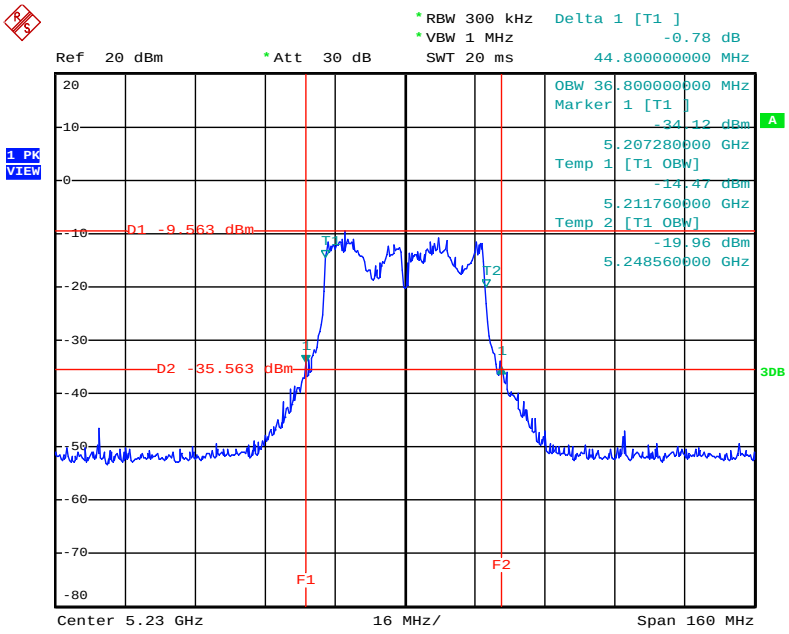
Date: 5.JUN.2012 13:30:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



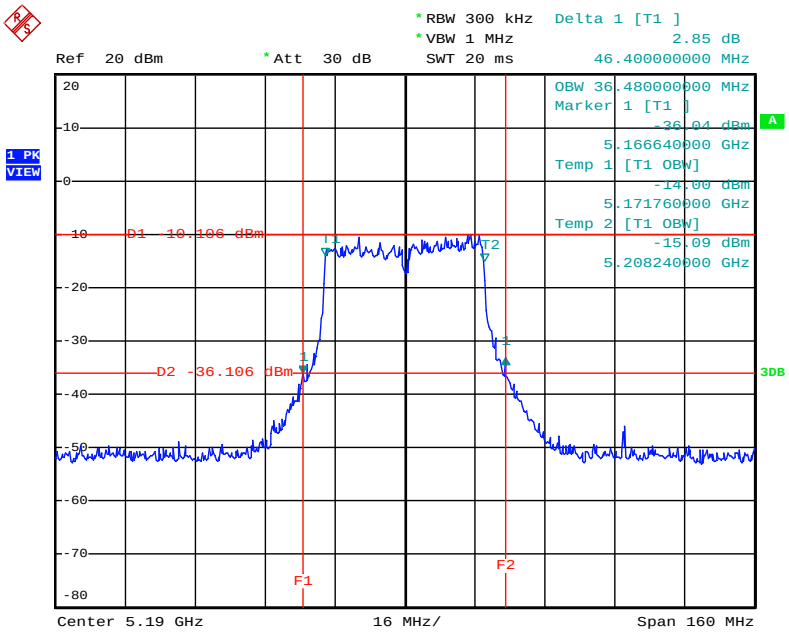
Date: 5.JUN.2012 13:29:29

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



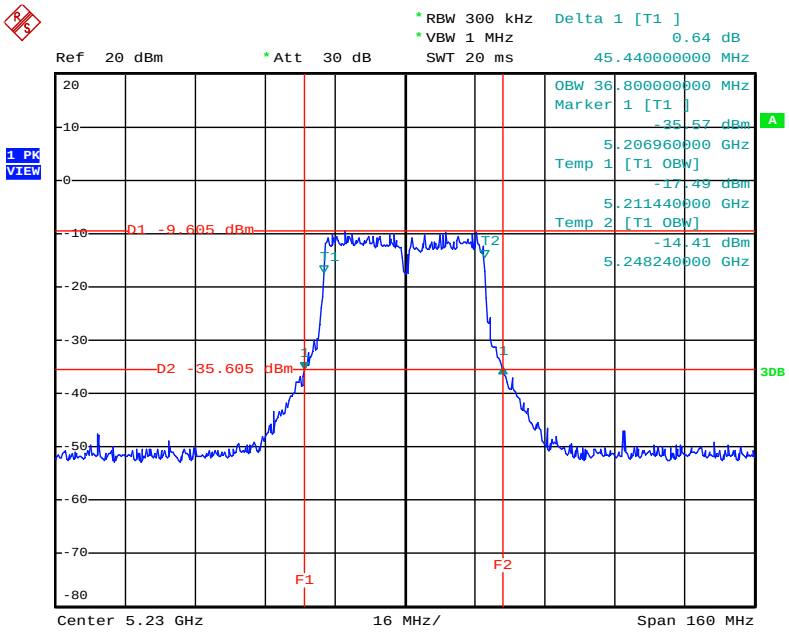
Date: 5.JUN.2012 13:29:16

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 5.JUN.2012 13:28:33

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 5.JUN.2012 13:28:55

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 4 (Ant. 9 Yagi antenna / 8dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.44	18.56
40	5200 MHz	26.24	18.56
48	5240 MHz	25.60	18.56

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	49.28	37.12
46	5230 MHz	48.96	36.80

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.68	18.56
40	5200 MHz	23.20	18.24
48	5240 MHz	23.68	18.56

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.12	37.12
46	5230 MHz	43.20	36.48

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.48	18.24
40	5200 MHz	24.80	18.24
48	5240 MHz	25.60	18.24

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	45.12	36.80
46	5230 MHz	45.44	36.48

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.24	17.76
40	5200 MHz	22.40	18.40
48	5240 MHz	22.08	18.40

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.48	37.12
46	5230 MHz	44.48	36.16

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.36	17.92
40	5200 MHz	24.48	18.40
48	5240 MHz	23.04	17.92

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.08	37.12
46	5230 MHz	45.44	36.80

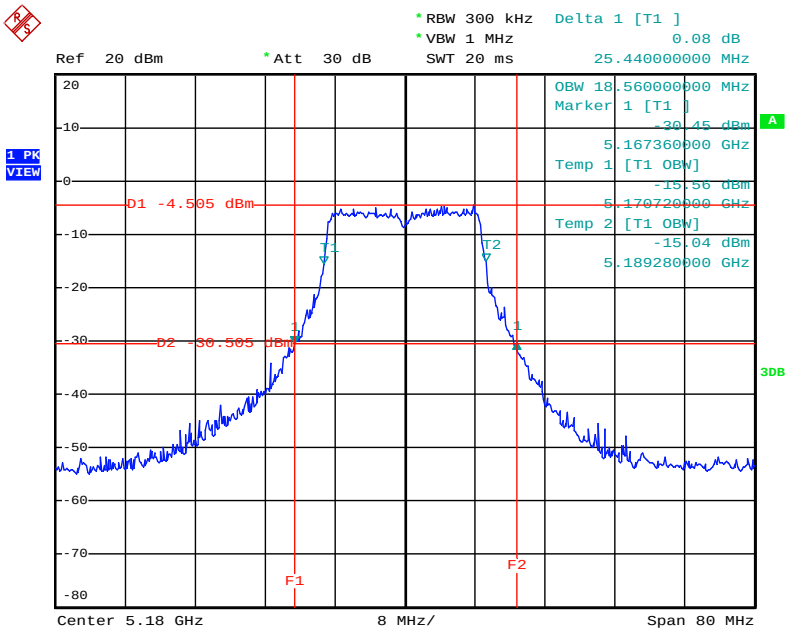
Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	24.64	18.24
40	5200 MHz	23.52	18.24
48	5240 MHz	24.48	18.24

Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

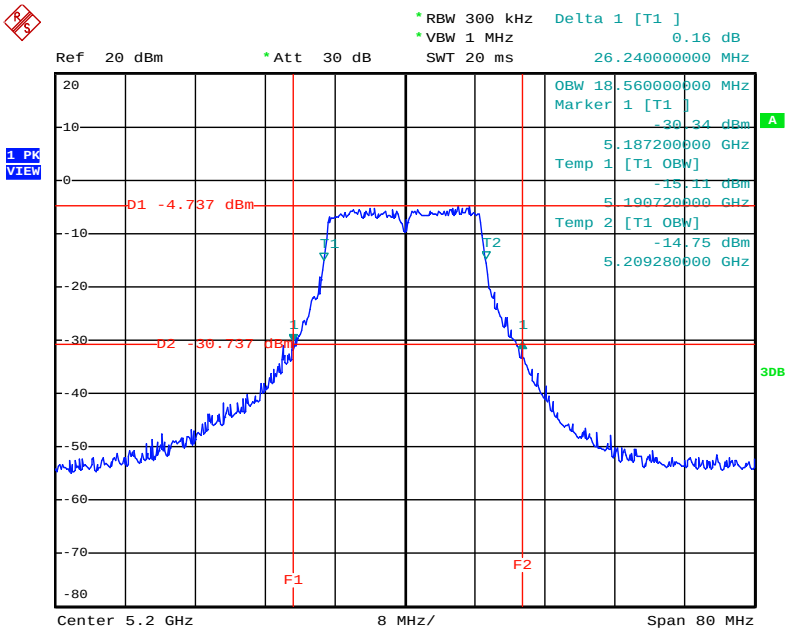
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.16	36.80
46	5230 MHz	46.08	36.48

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



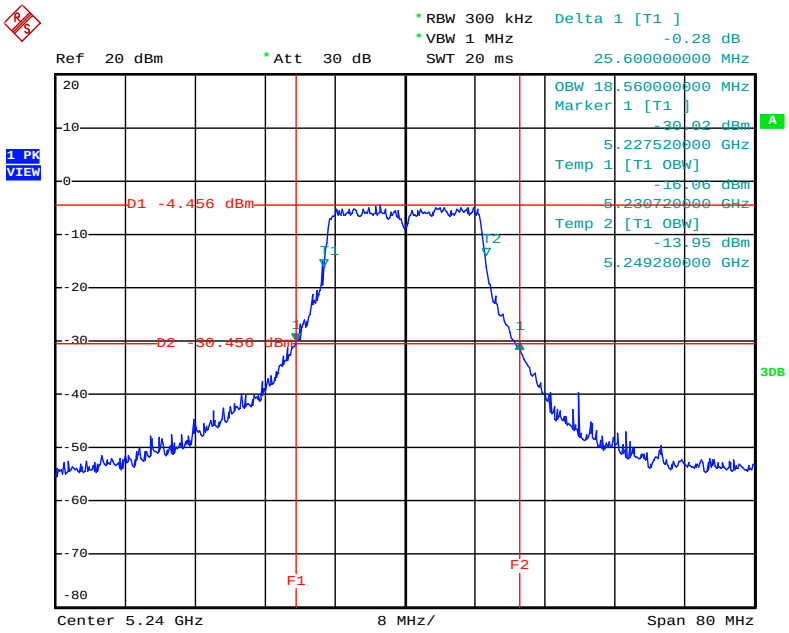
Date: 11.MAY.2012 10:15:31

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5200 MHz (1TX)



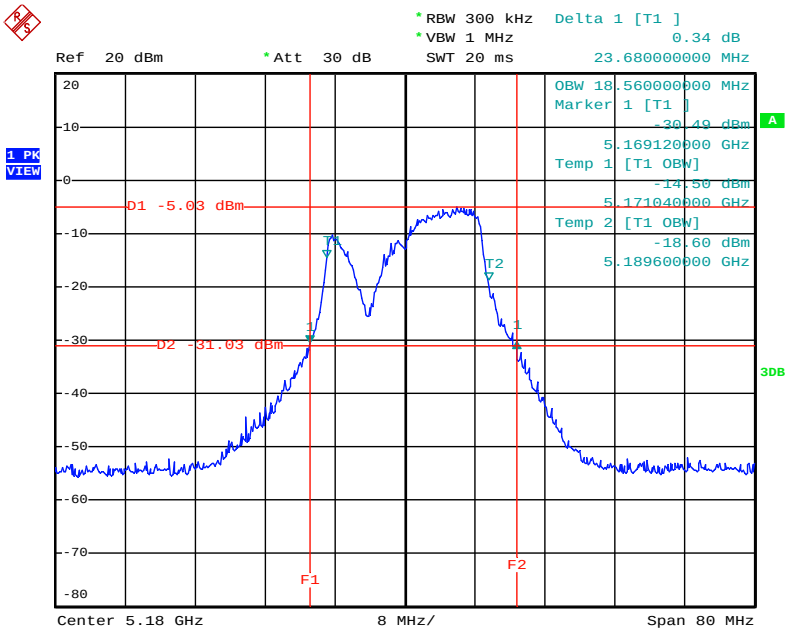
Date: 11.MAY.2012 10:15:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



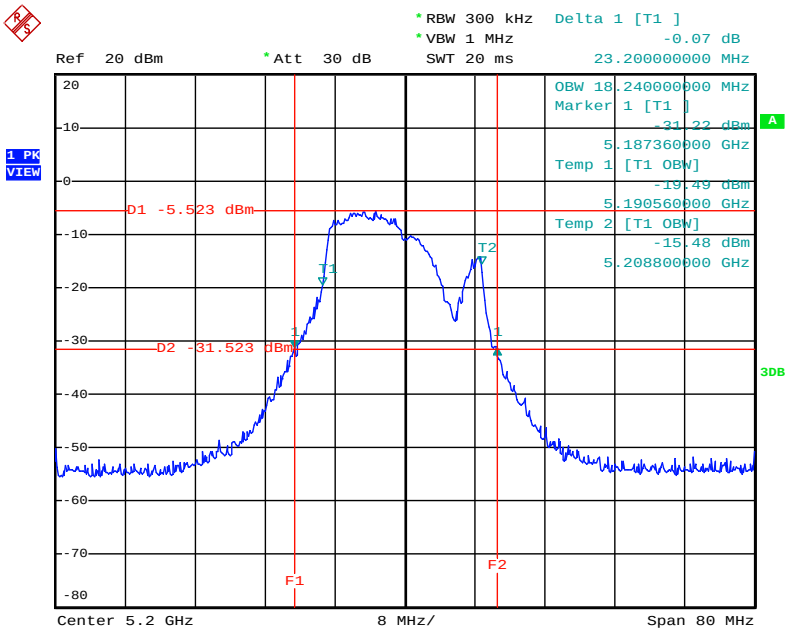
Date: 11.MAY.2012 10:16:08

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



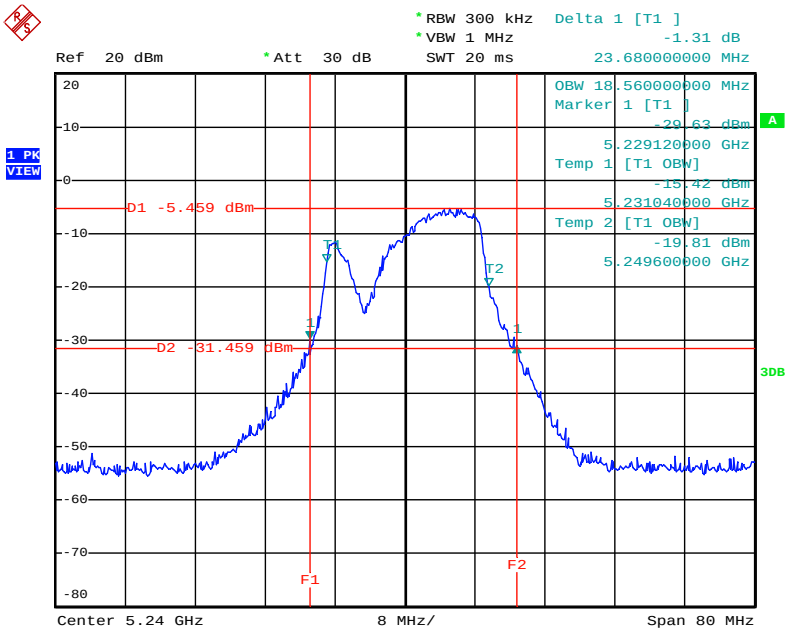
Date: 11.MAY.2012 10:08:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



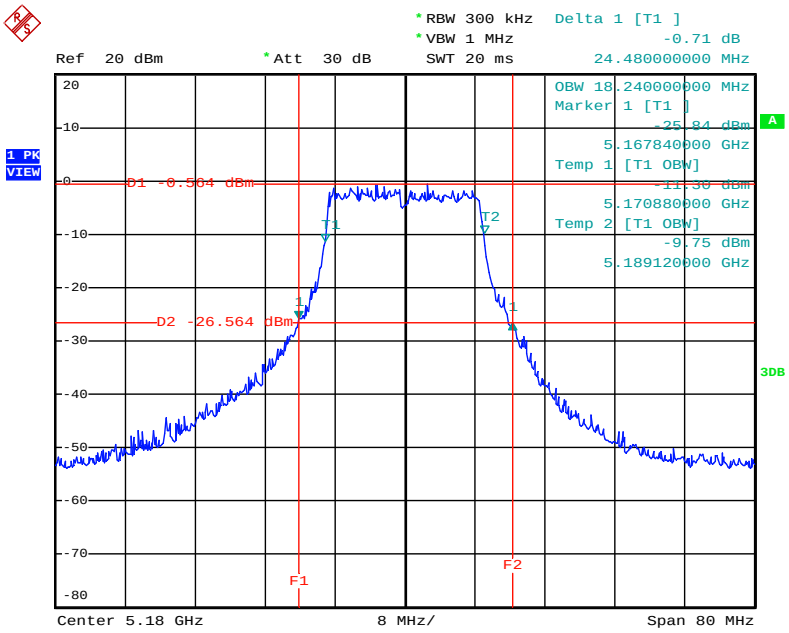
Date: 11.MAY.2012 10:08:31

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



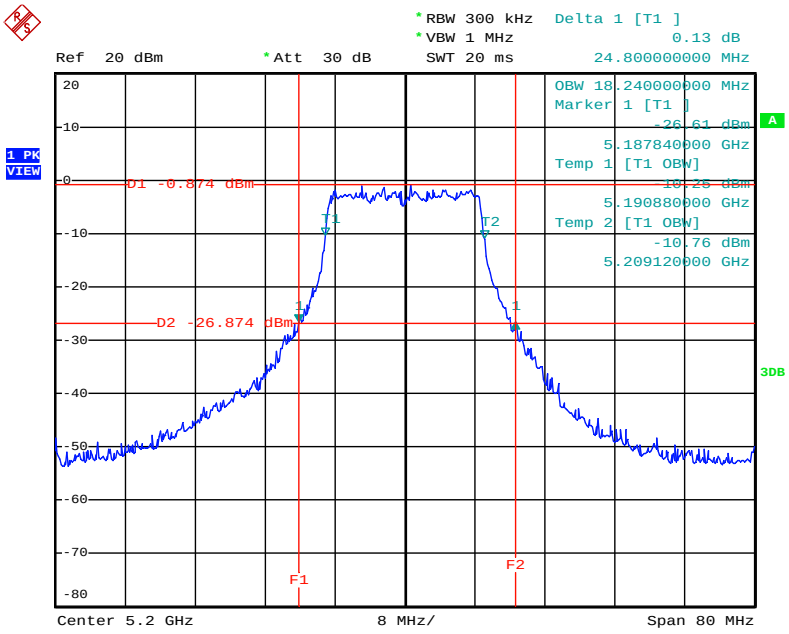
Date: 11.MAY.2012 10:08:47

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



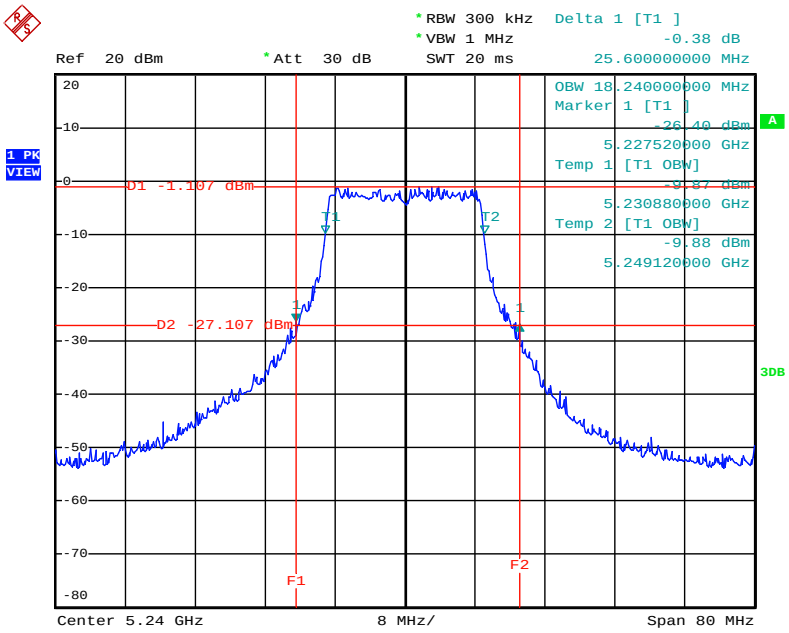
Date: 11.MAY.2012 10:10:01

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



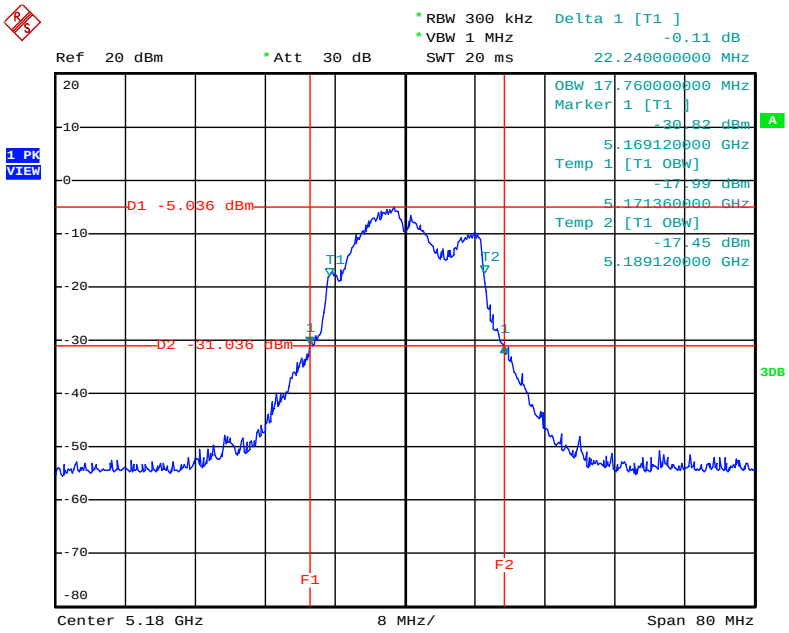
Date: 11.MAY.2012 10:09:42

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



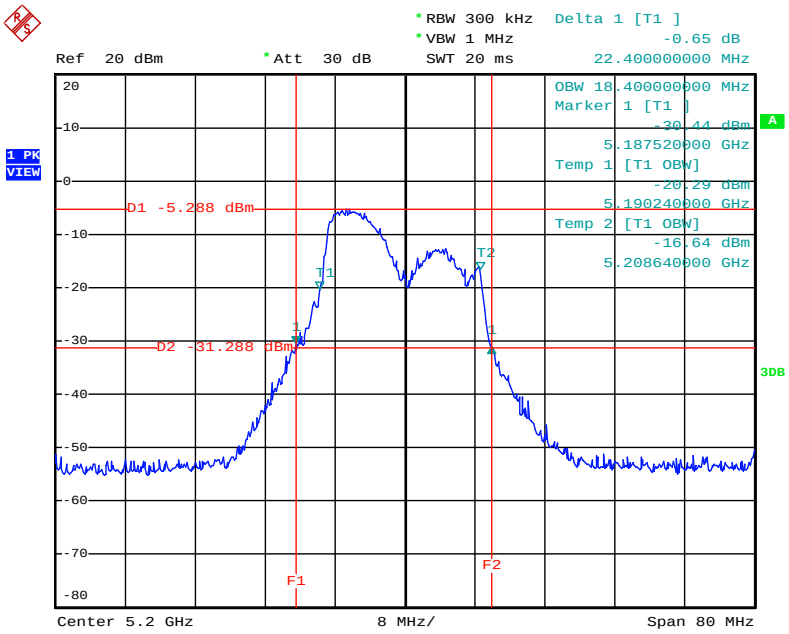
Date: 11.MAY.2012 10:09:24

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



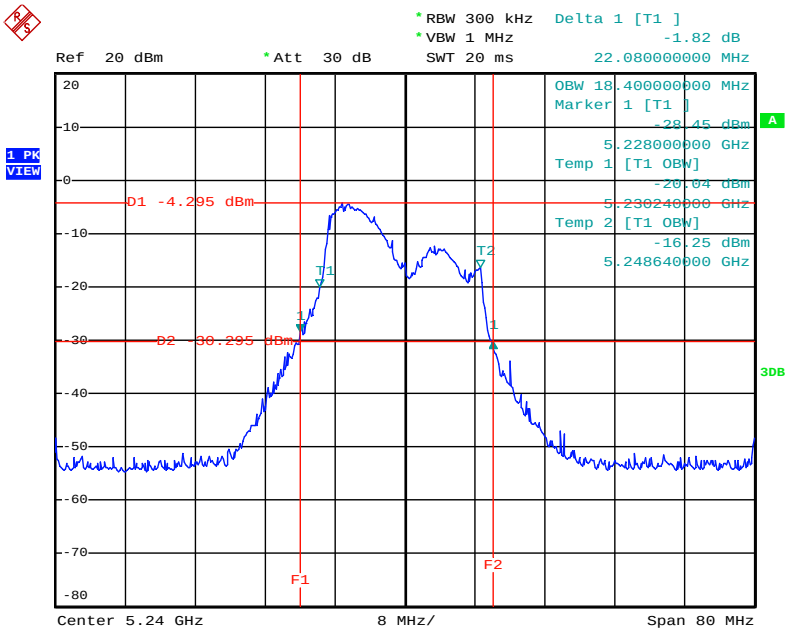
Date: 11.MAY.2012 10:07:37

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



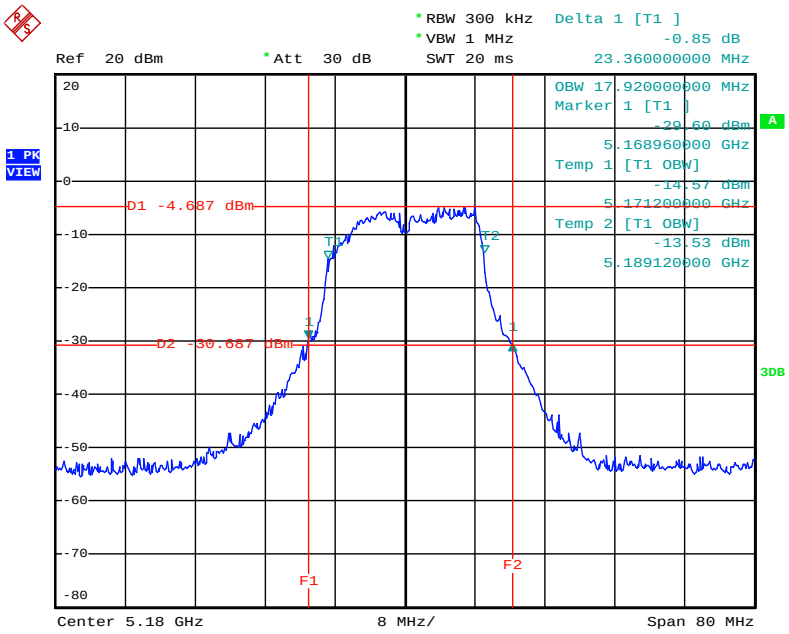
Date: 11.MAY.2012 10:07:22

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



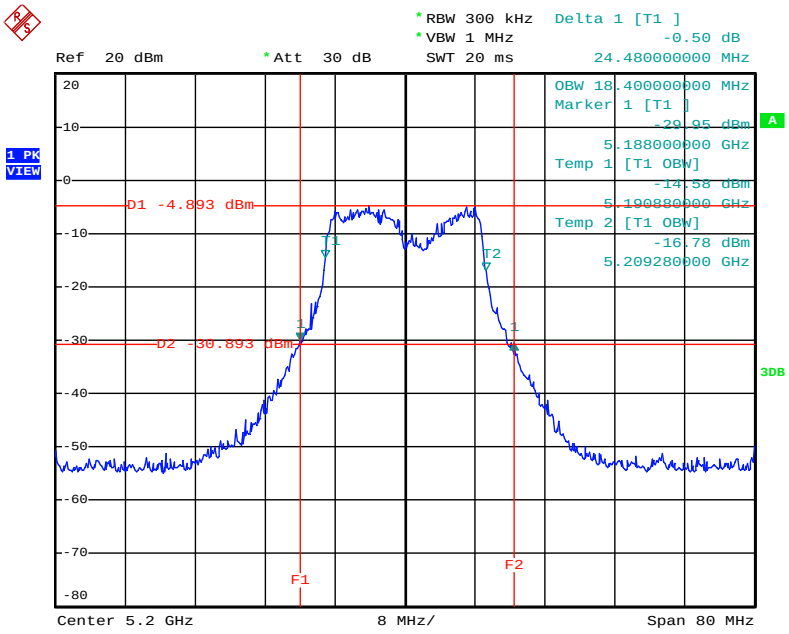
Date: 11.MAY.2012 10:07:05

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



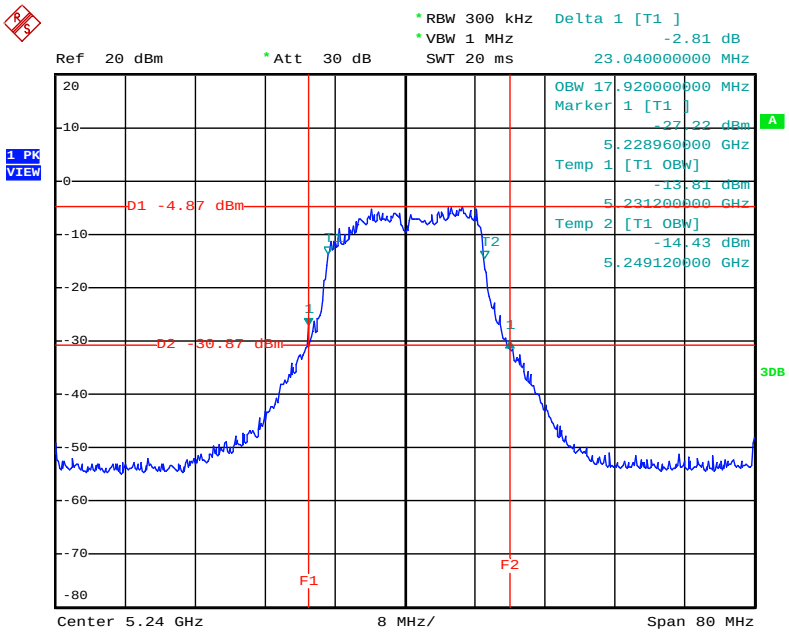
Date: 11.MAY.2012 10:06:06

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



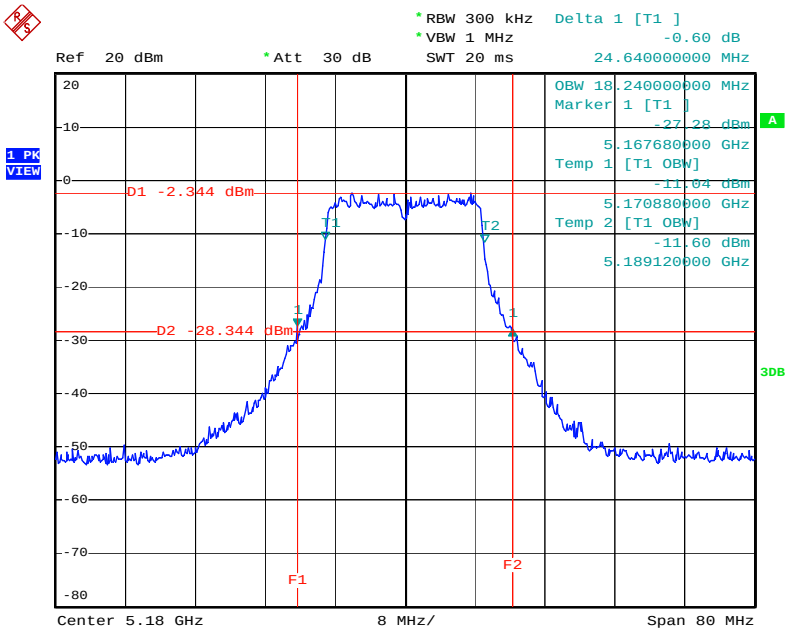
Date: 11.MAY.2012 10:06:26

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



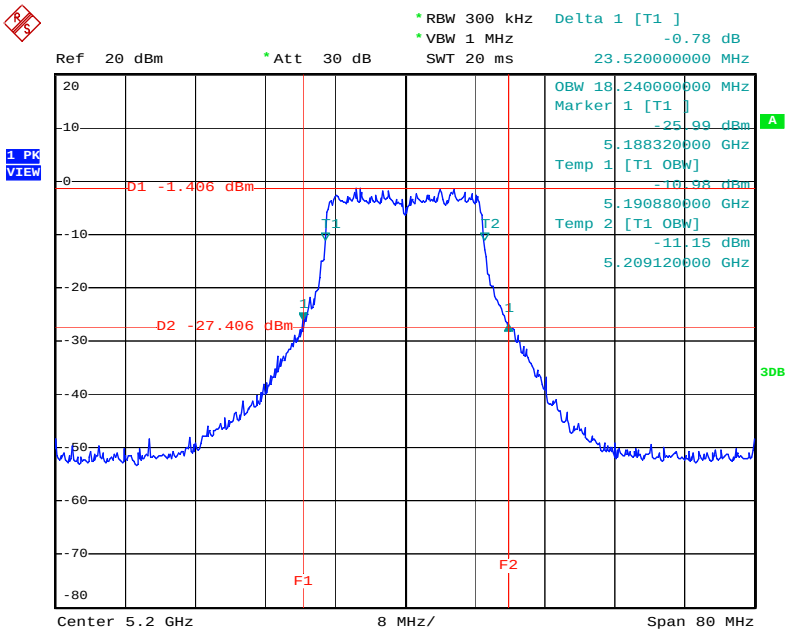
Date: 11.MAY.2012 10:06:42

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



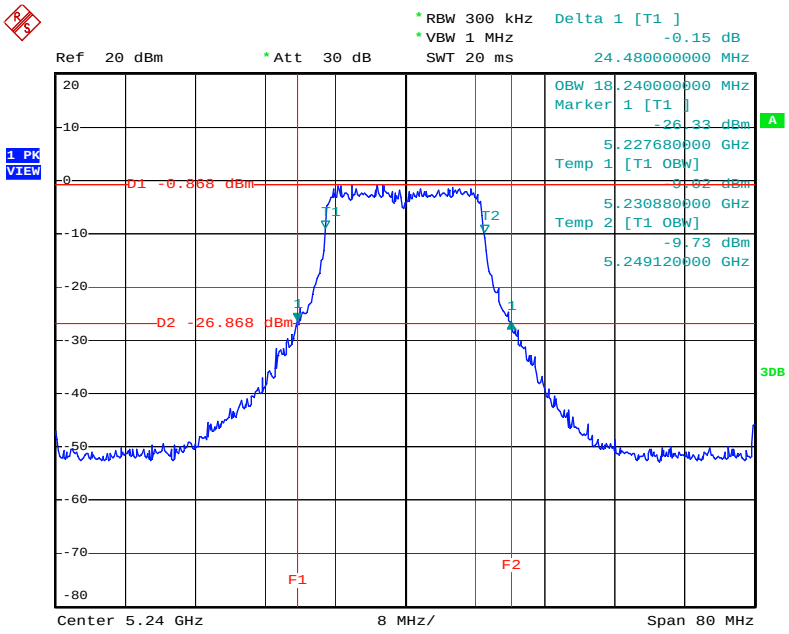
Date: 23.MAY.2012 09:55:27

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



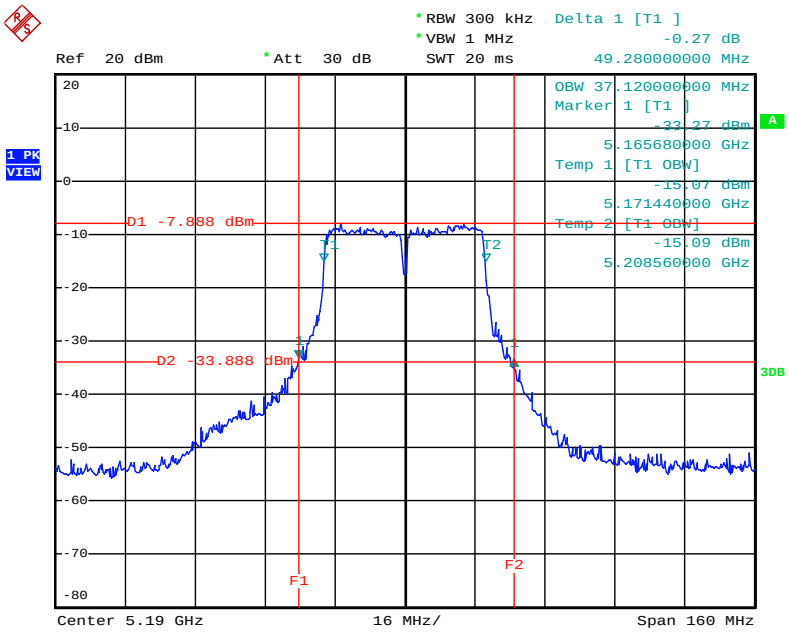
Date: 23.MAY.2012 09:55:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



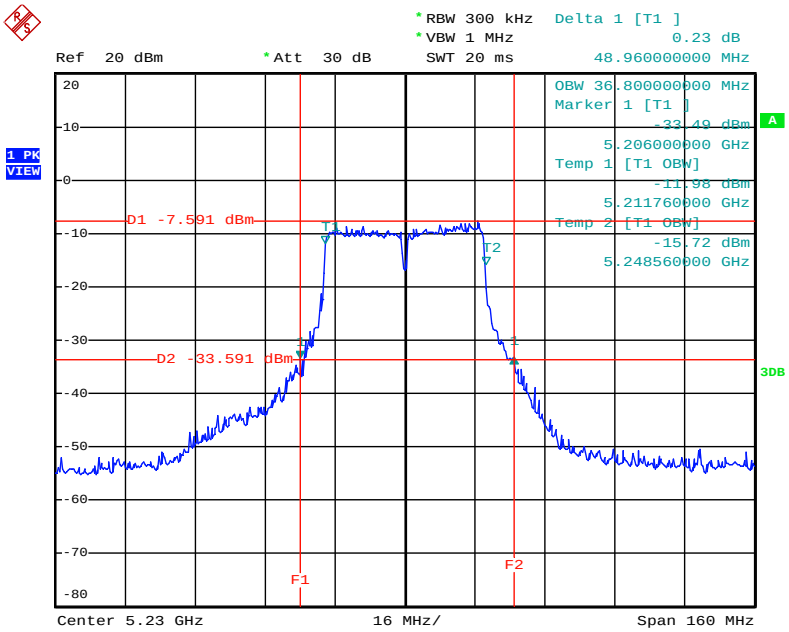
Date: 23.MAY.2012 09:56:10

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



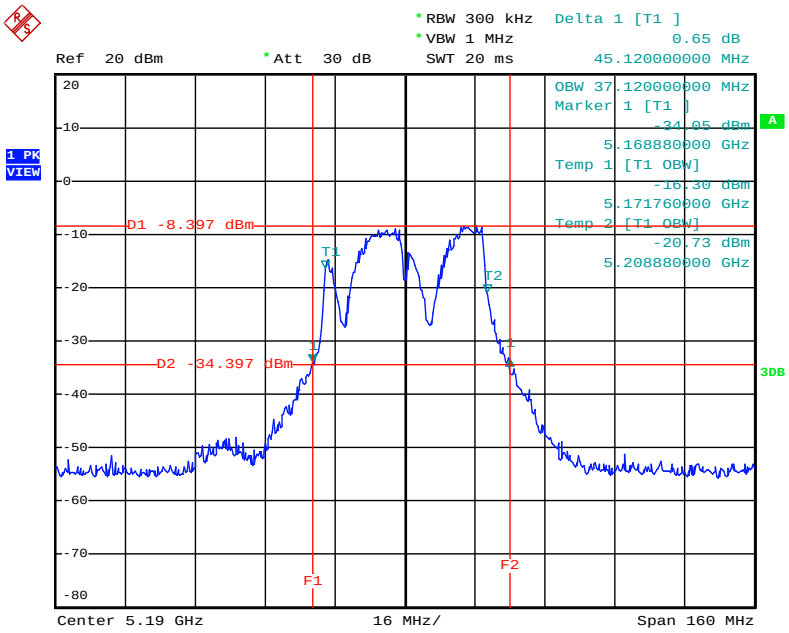
Date: 11.MAY.2012 10:14:31

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



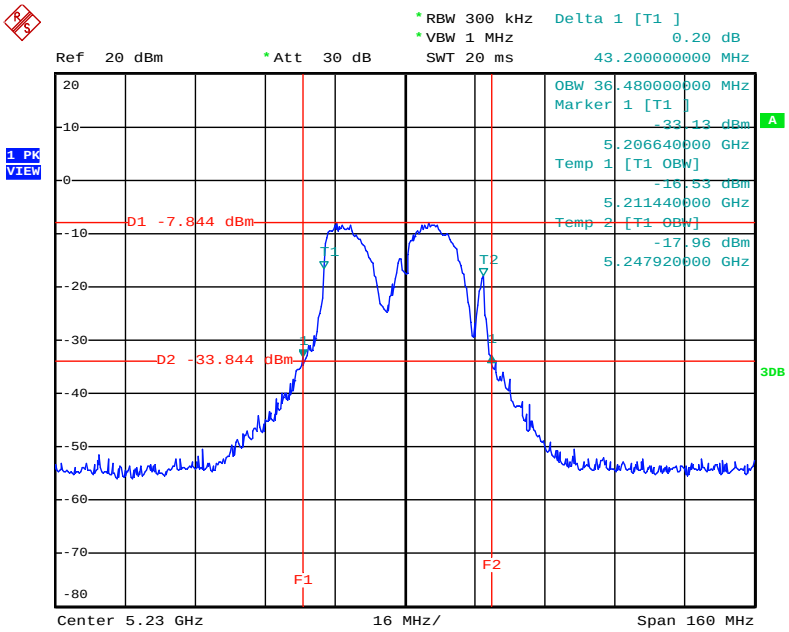
Date: 11.MAY.2012 10:14:52

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



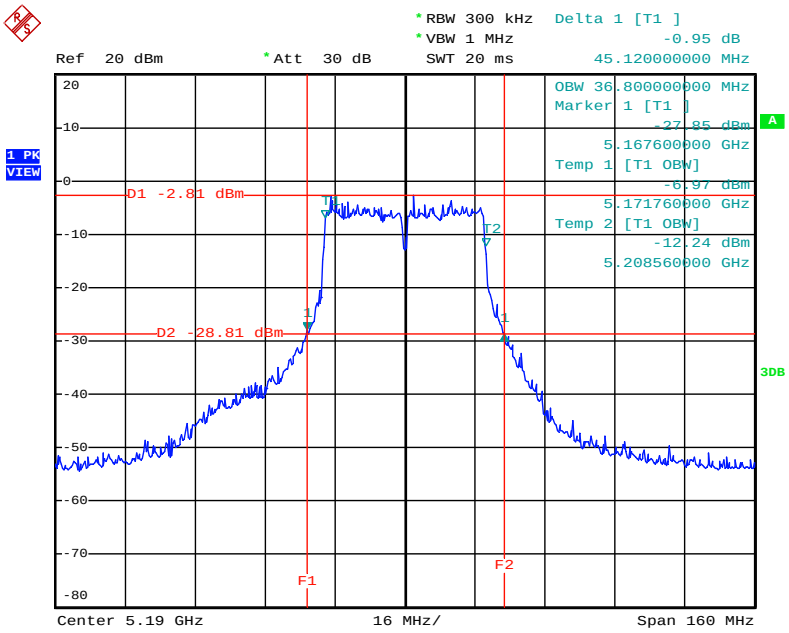
Date: 11.MAY.2012 10:11:32

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



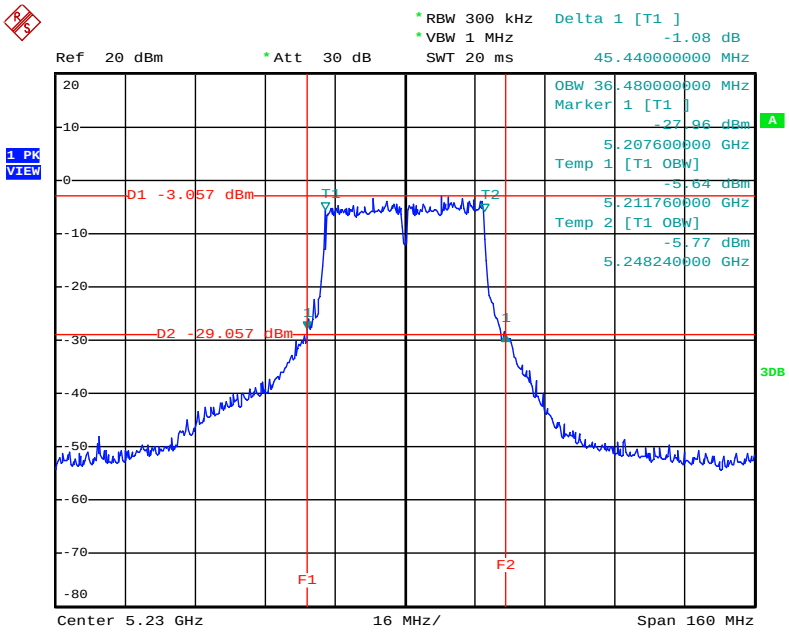
Date: 11.MAY.2012 10:11:03

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



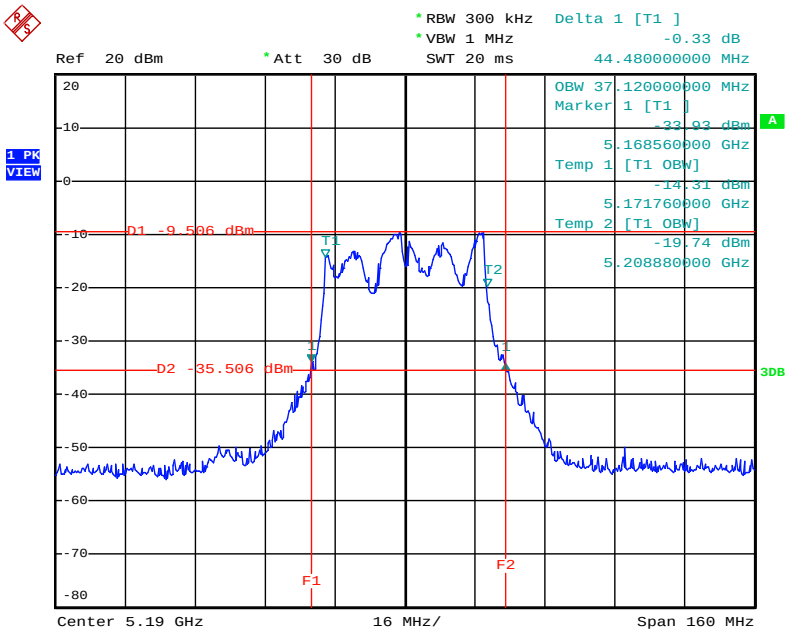
Date: 11.MAY.2012 10:10:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



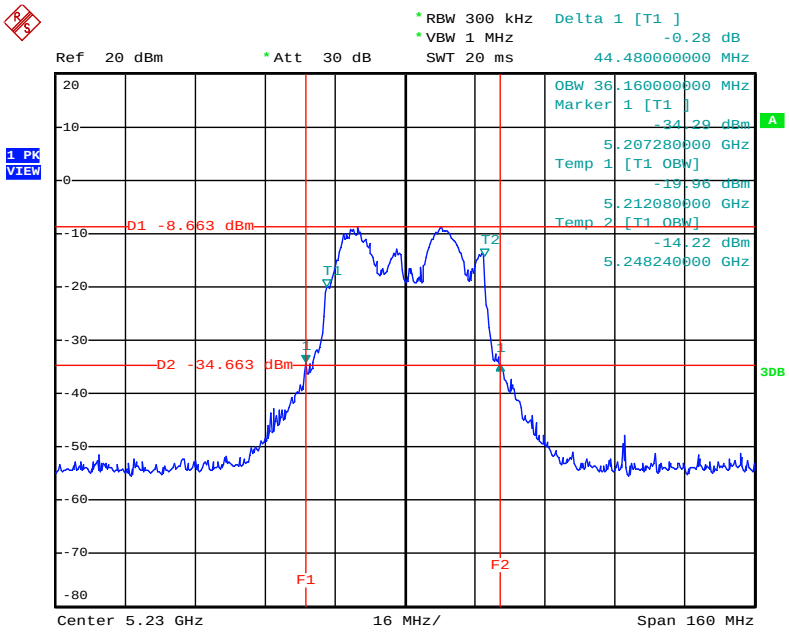
Date: 11.MAY.2012 10:10:39

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



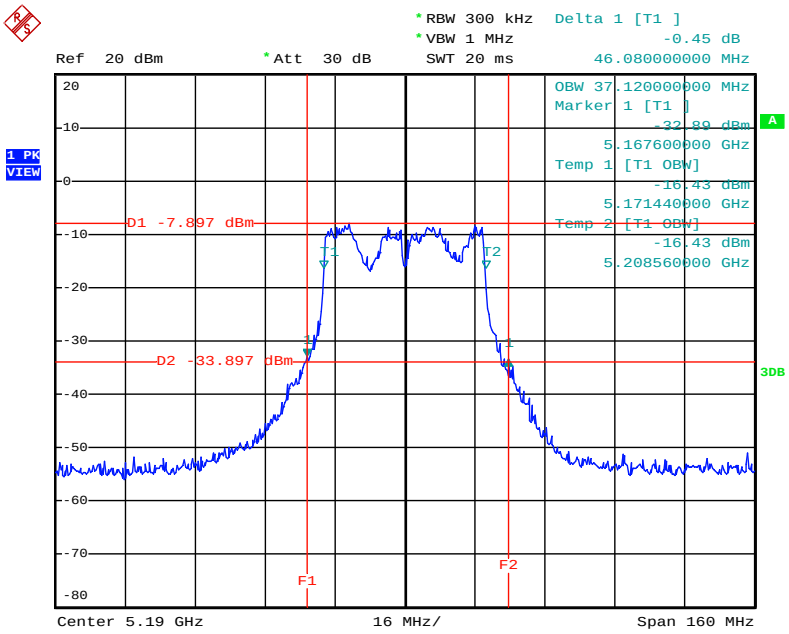
Date: 11.MAY.2012 10:04:37

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



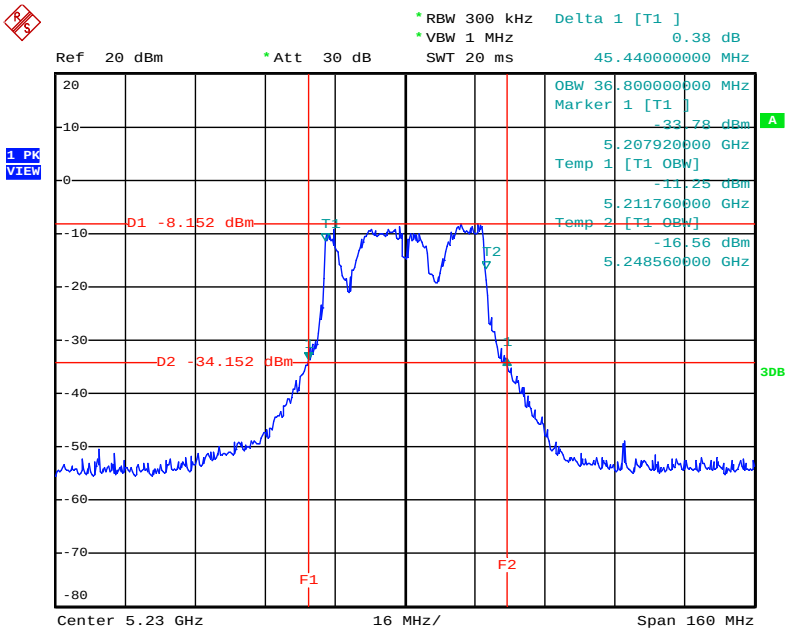
Date: 11.MAY.2012 10:05:00

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



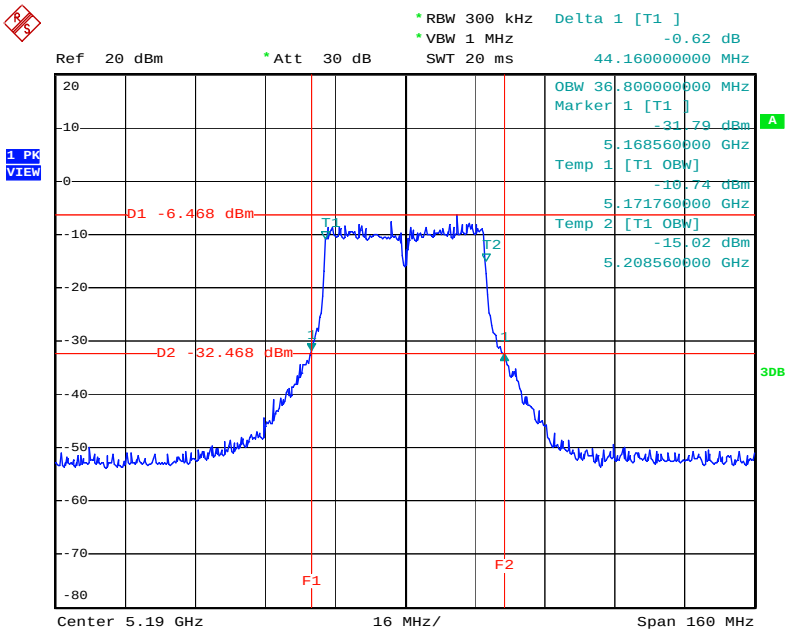
Date: 11.MAY.2012 10:05:41

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



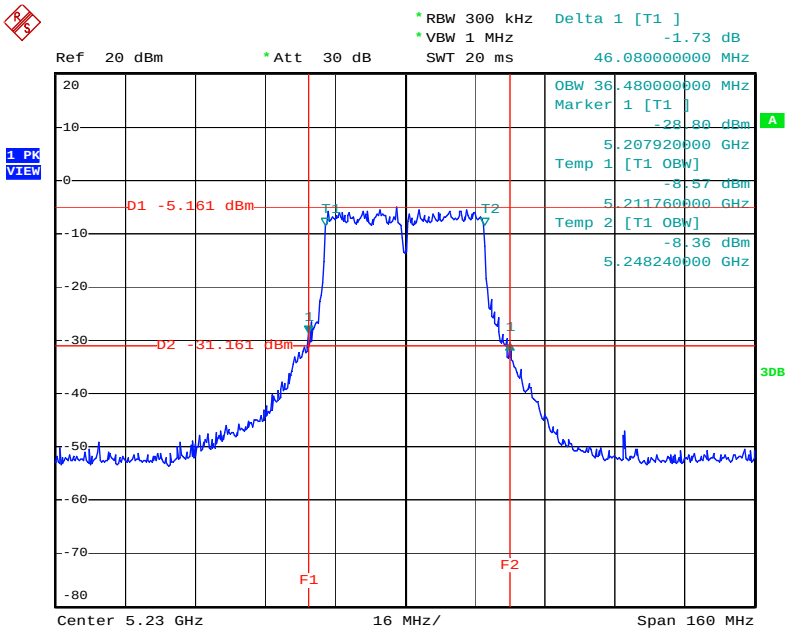
Date: 11.MAY.2012 10:05:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 23.MAY.2012 10:01:29

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 23.MAY.2012 10:00:54

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 5 (Ant. 5 Facade antenna / 2.5dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.92	18.56
40	5200 MHz	26.40	18.56
48	5240 MHz	25.76	18.56

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	48.32	36.80
46	5230 MHz	50.56	36.80

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.04	18.24
40	5200 MHz	22.56	18.40
48	5240 MHz	23.20	18.40

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	44.48	37.12
46	5230 MHz	43.84	36.80

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	25.12	18.08
40	5200 MHz	24.32	18.24
48	5240 MHz	24.96	18.24

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	47.36	36.80
46	5230 MHz	46.72	36.48

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.08	17.76
40	5200 MHz	23.04	17.92
48	5240 MHz	25.12	19.04

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	42.24	35.52
46	5230 MHz	42.88	36.16

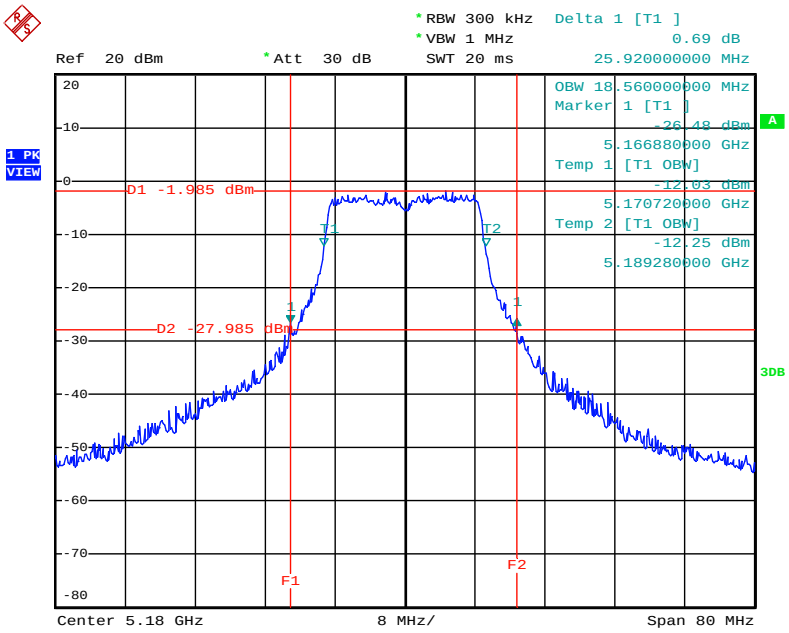
Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	23.04	17.92
40	5200 MHz	24.32	18.40
48	5240 MHz	23.04	17.76

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

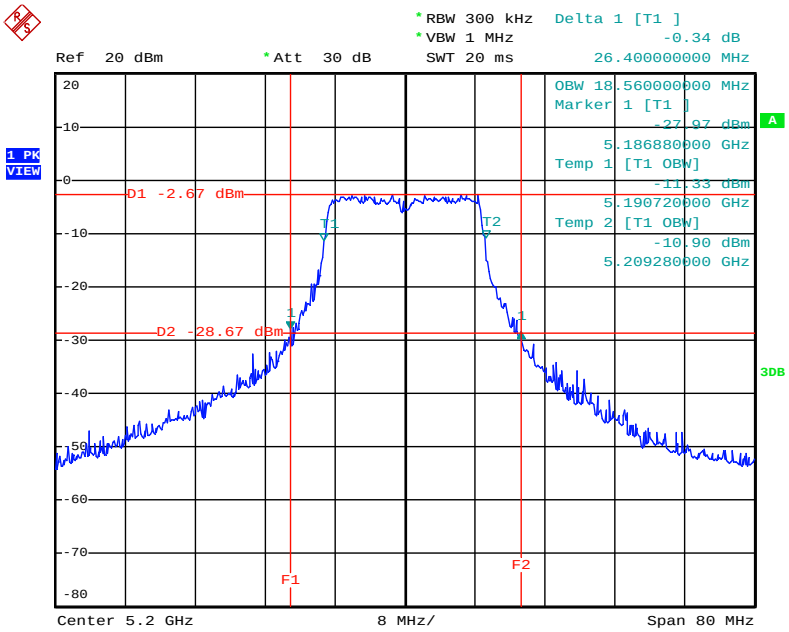
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	46.40	36.80
46	5230 MHz	46.08	35.84

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



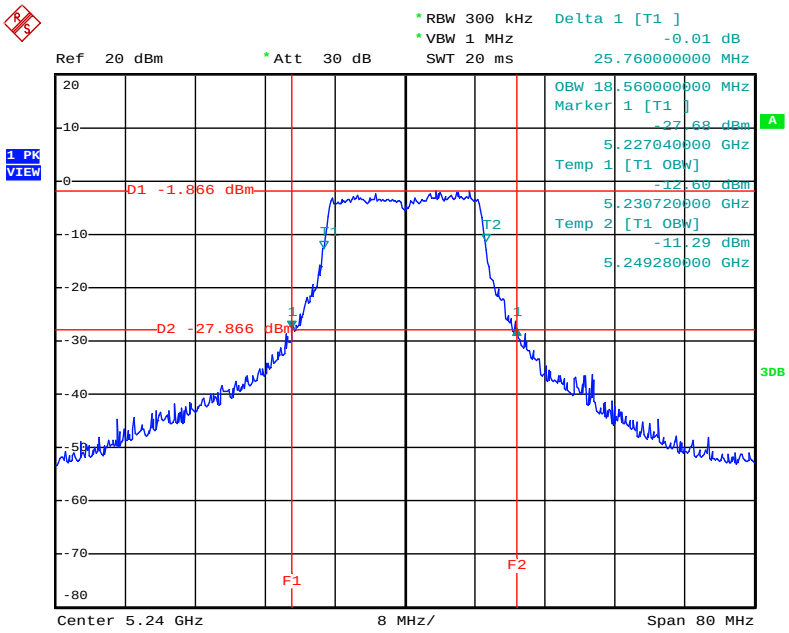
Date: 11.MAY.2012 09:45:34

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5200 MHz (1TX)



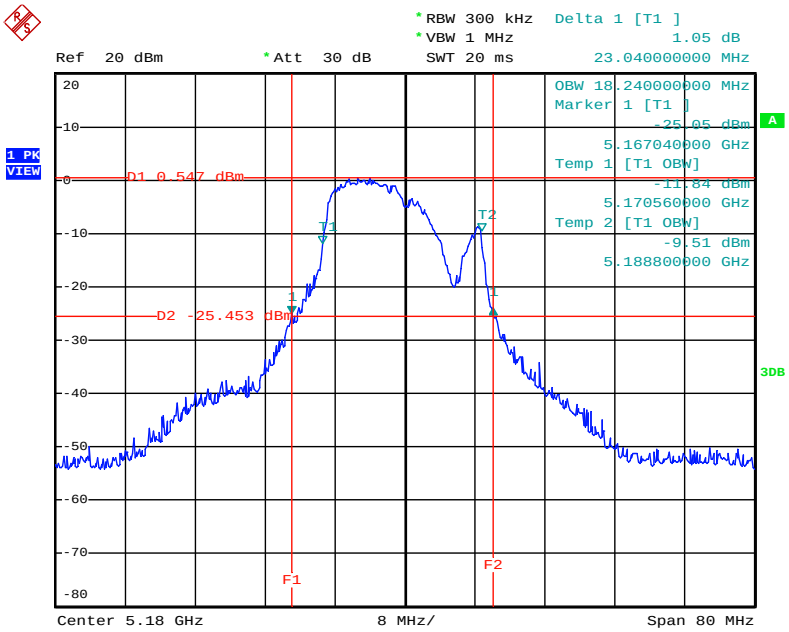
Date: 11.MAY.2012 09:45:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



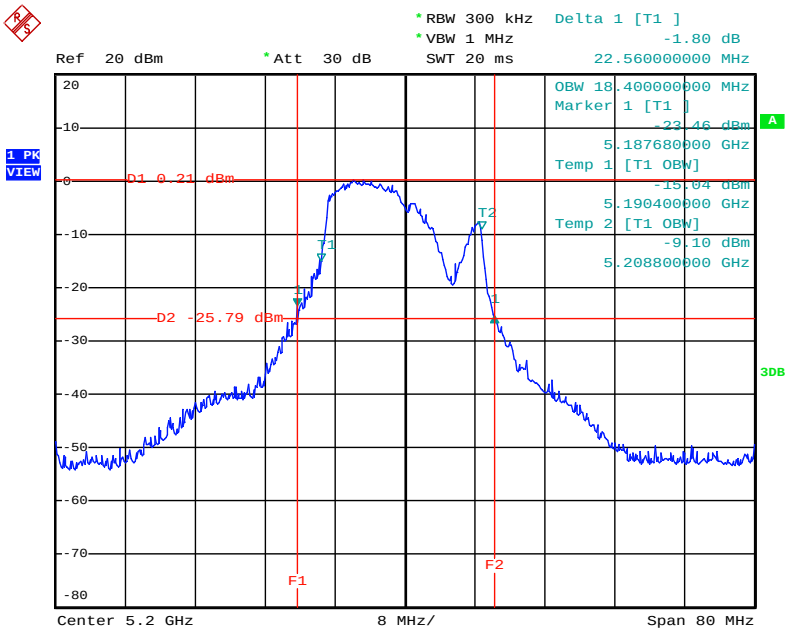
Date: 11.MAY.2012 09:46:05

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



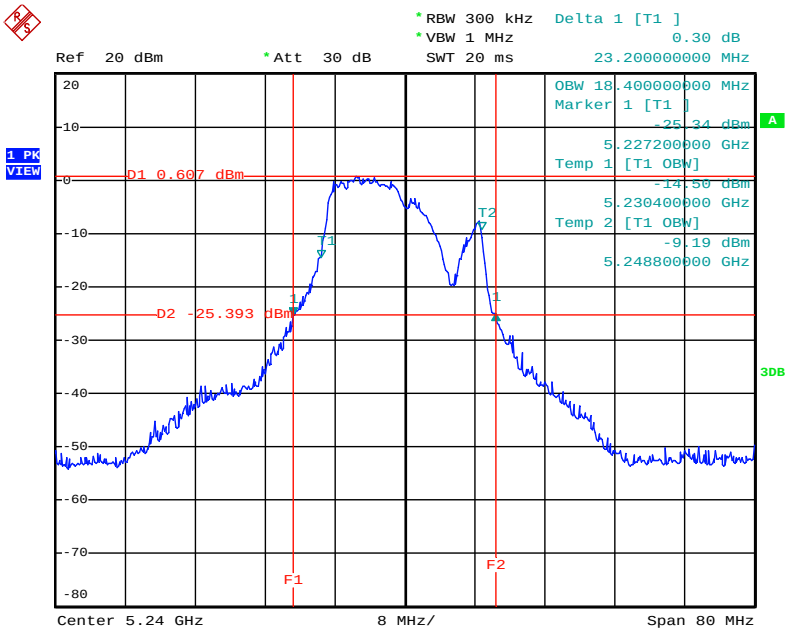
Date: 11.MAY.2012 09:40:38

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



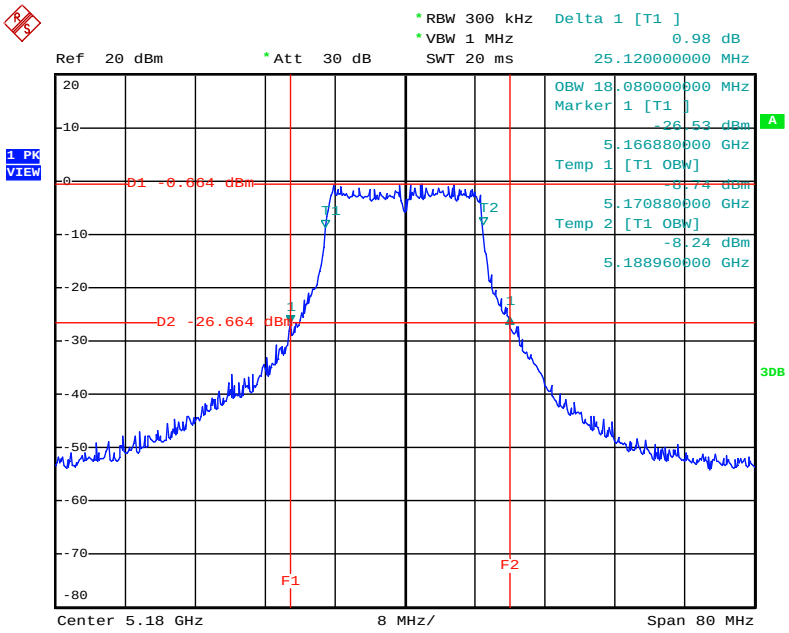
Date: 11.MAY.2012 09:41:01

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



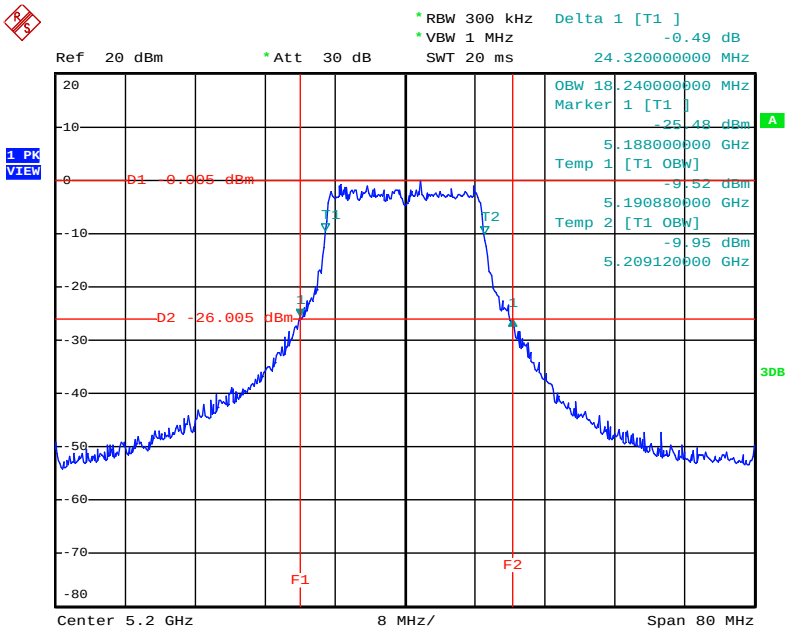
Date: 11.MAY.2012 09:41:25

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 / 5180 MHz (2TX)



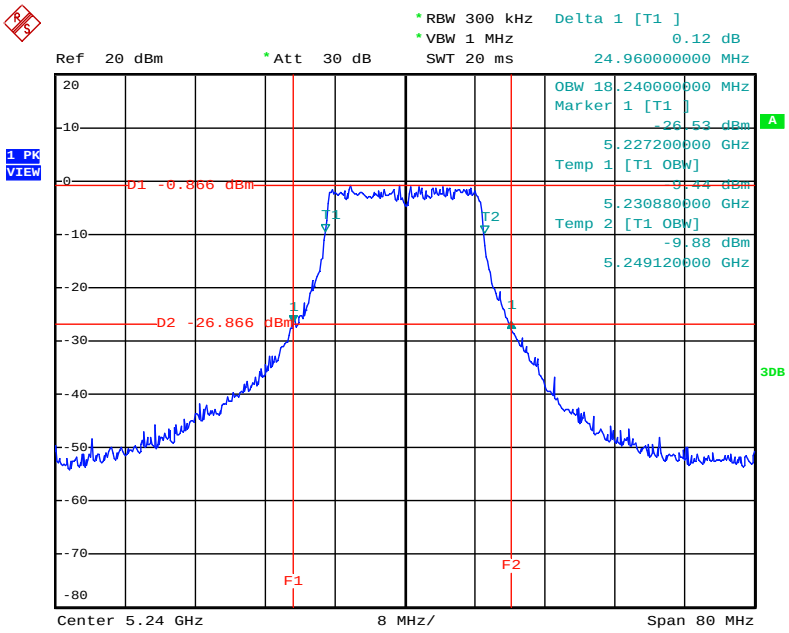
Date: 11.MAY.2012 09:42:23

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2/ 5200 MHz (2TX)



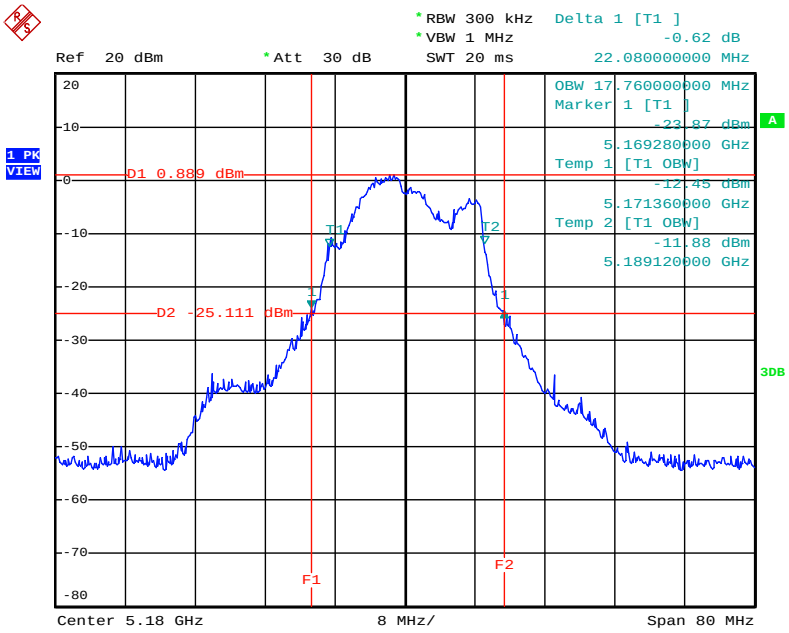
Date: 11.MAY.2012 09:42:05

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



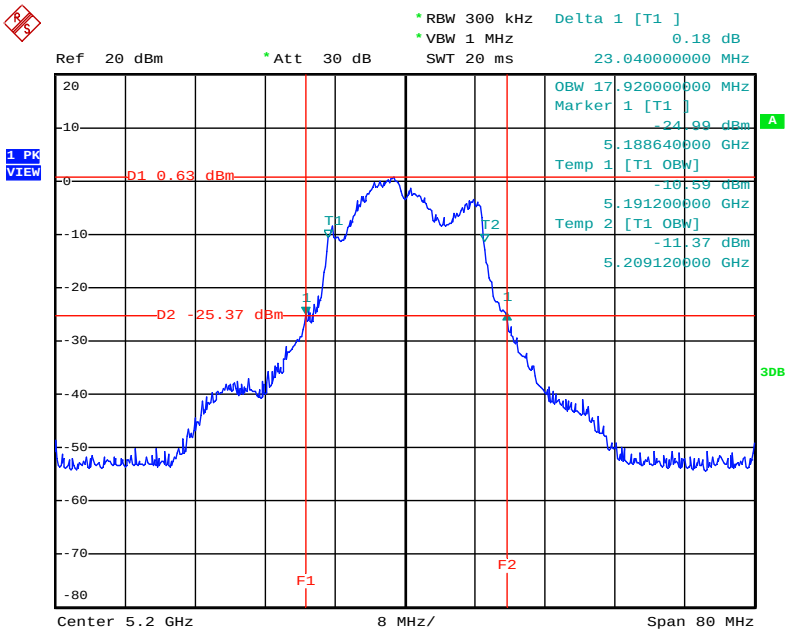
Date: 11.MAY.2012 09:41:48

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



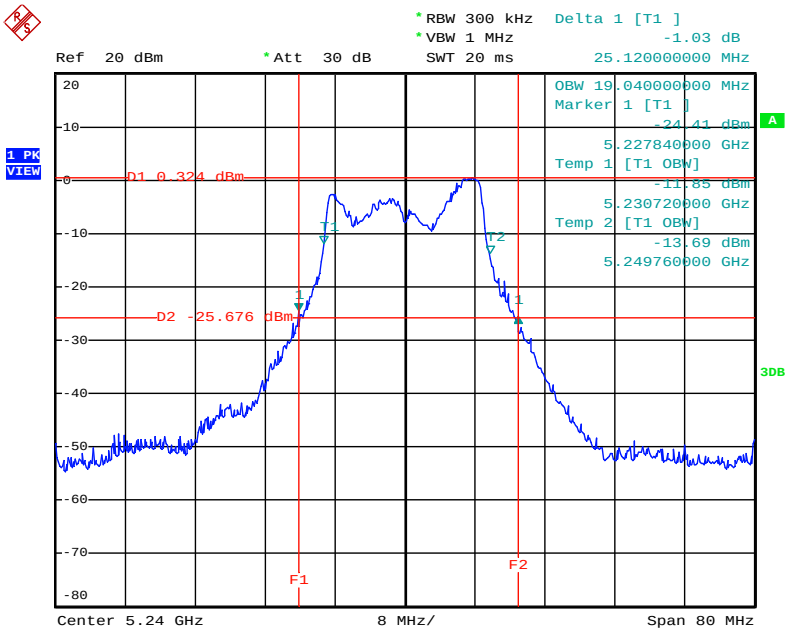
Date: 11.MAY.2012 09:40:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



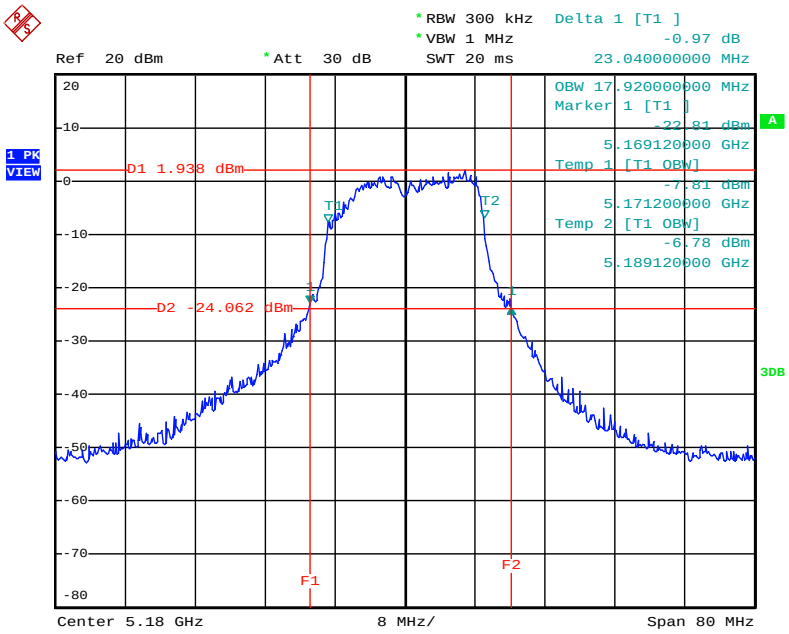
Date: 11.MAY.2012 09:39:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



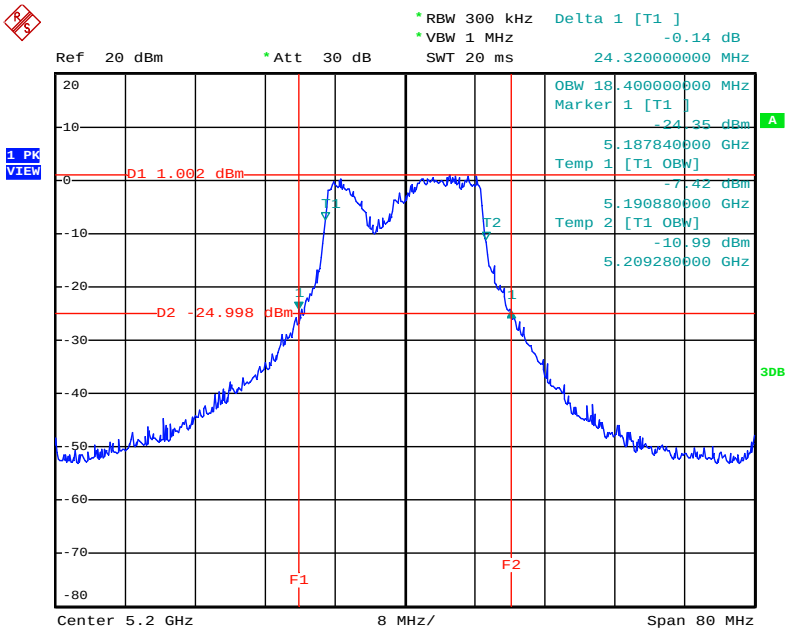
Date: 11.MAY.2012 09:39:31

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5180 MHz (3TX)



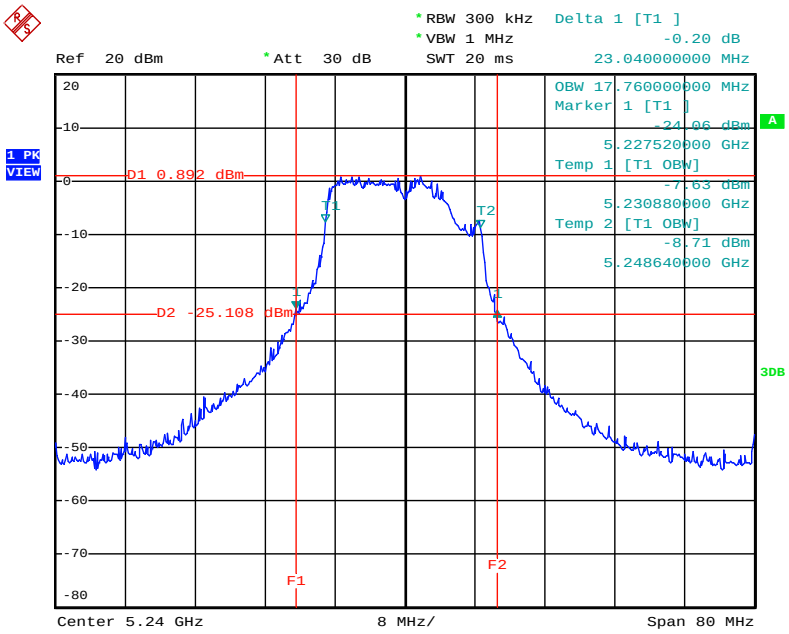
Date: 11.MAY.2012 09:38:24

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5200 MHz (3TX)



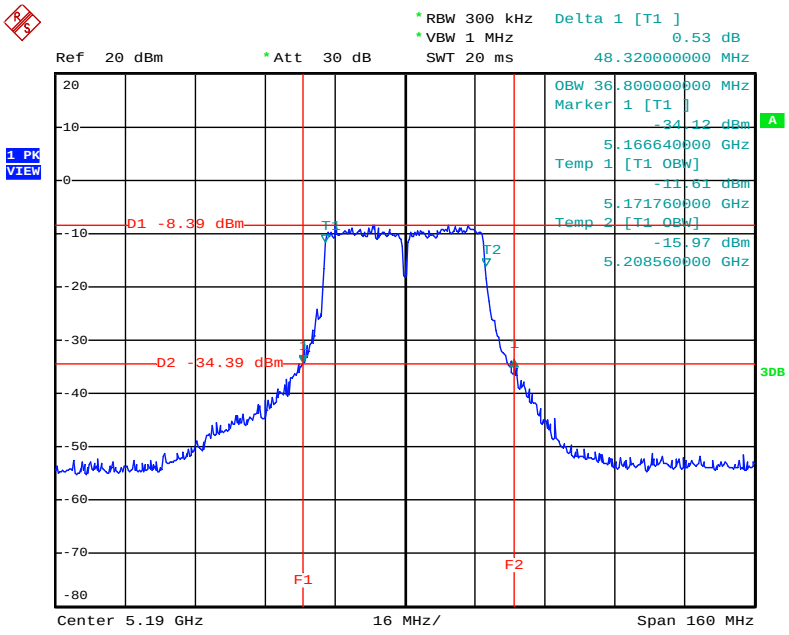
Date: 11.MAY.2012 09:38:42

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1+ Chain 2 + Chain 3 / 5240 MHz (3TX)



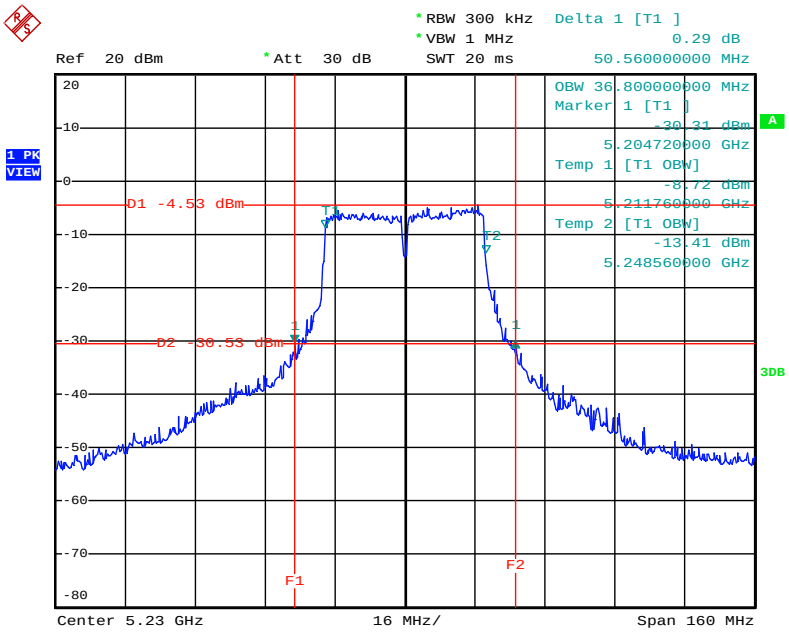
Date: 11.MAY.2012 09:39:07

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



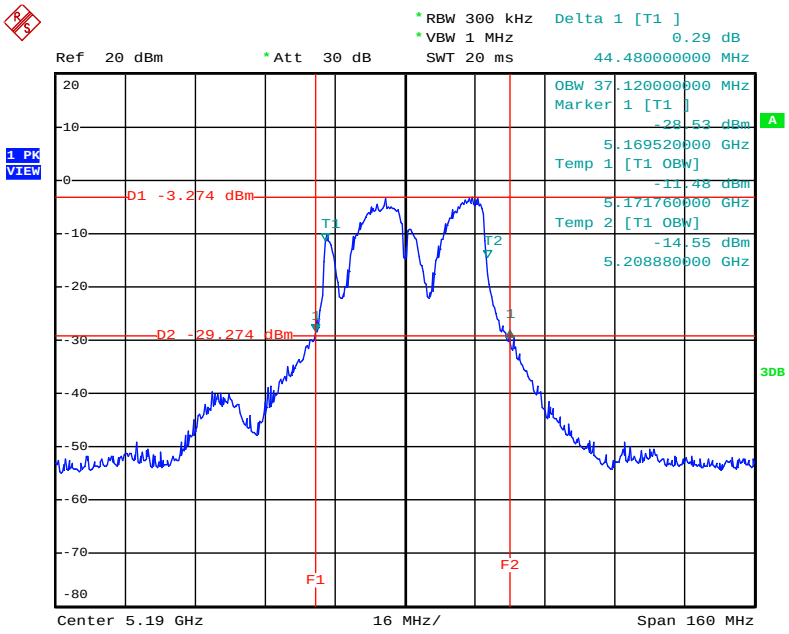
Date: 11.MAY.2012 09:44:49

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



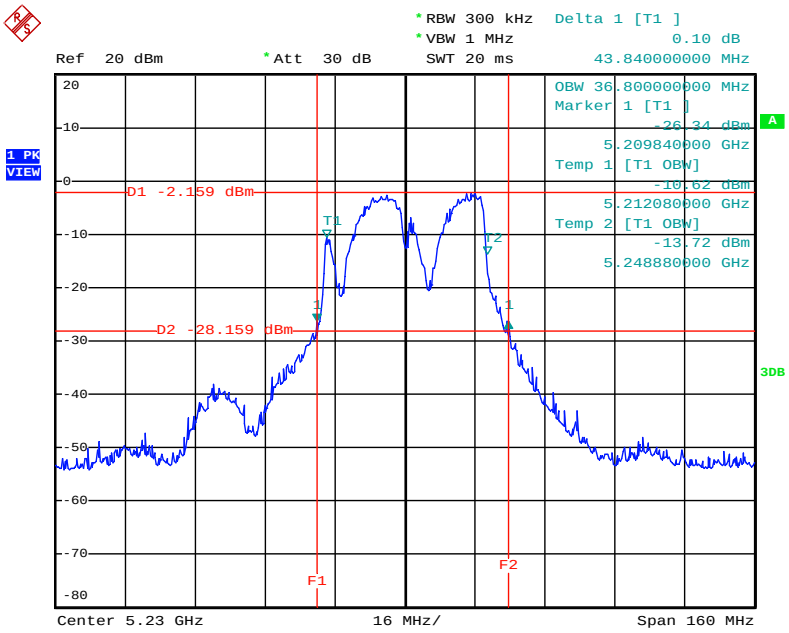
Date: 11.MAY.2012 09:45:09

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



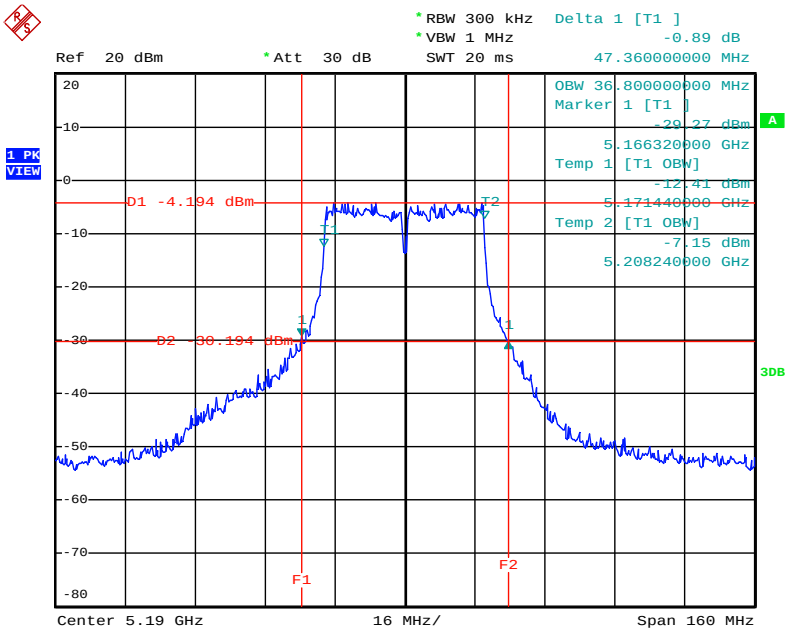
Date: 11.MAY.2012 09:43:58

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



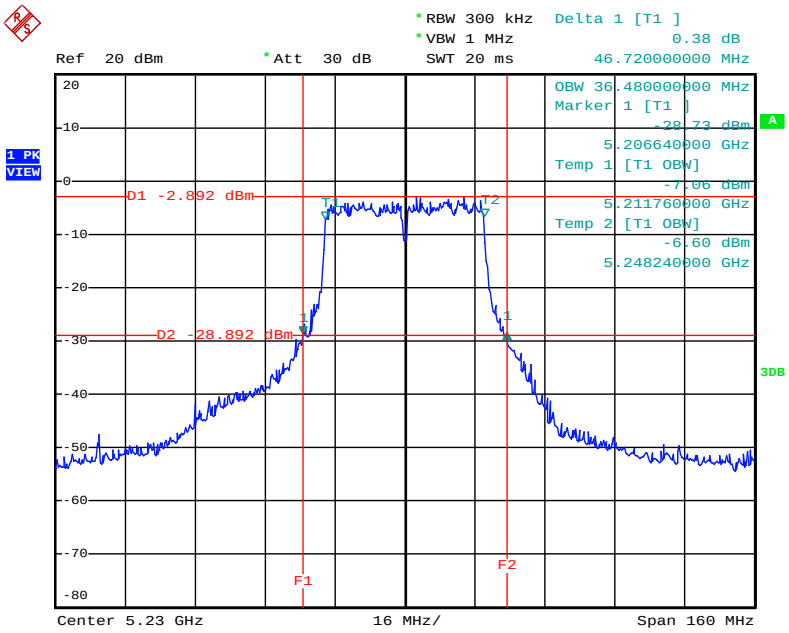
Date: 11.MAY.2012 09:43:37

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 / 5190 MHz (2TX)



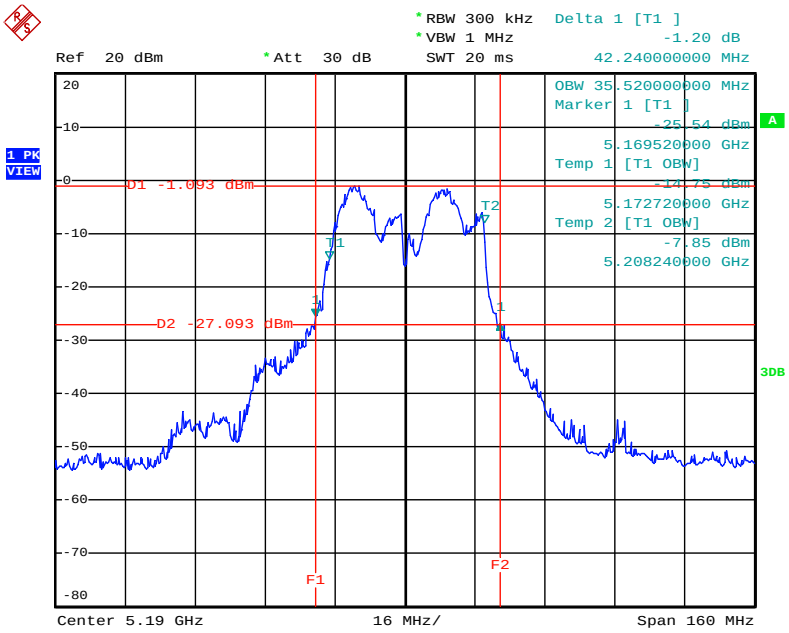
Date: 11.MAY.2012 09:42:51

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2/ 5230 MHz (2TX)



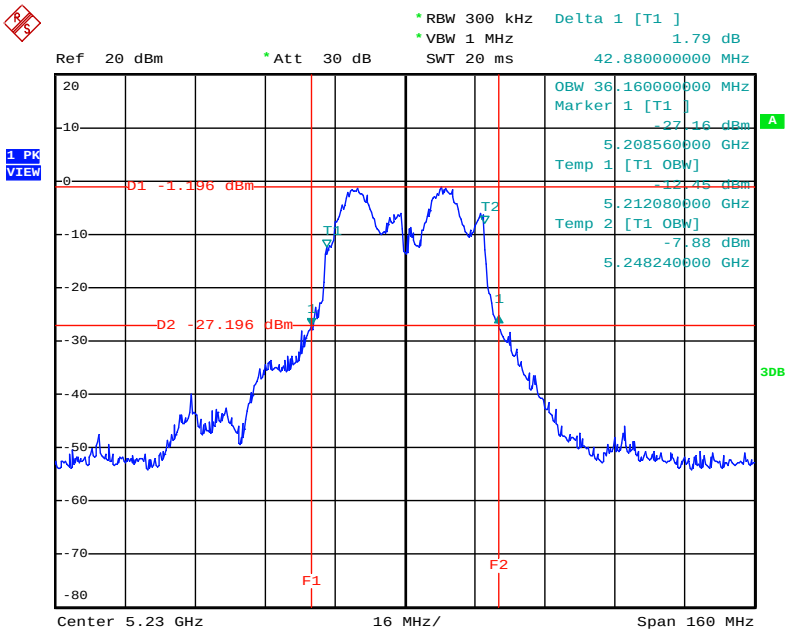
Date: 11.MAY.2012 09:43:13

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



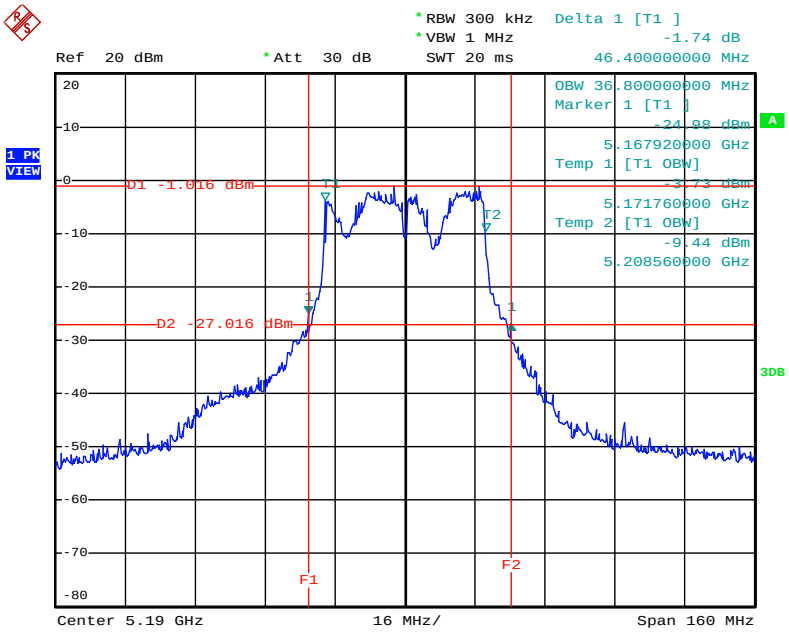
Date: 11.MAY.2012 09:36:14

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



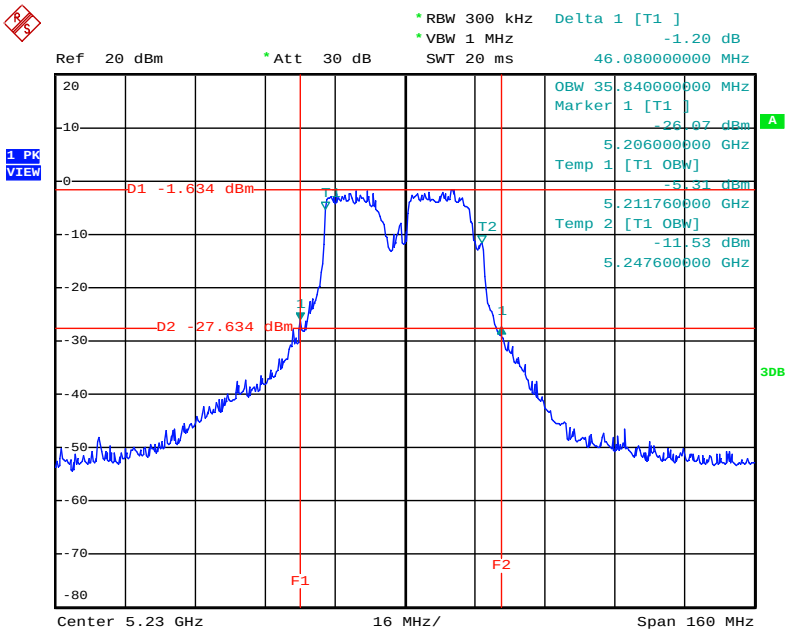
Date: 11.MAY.2012 09:36:58

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 11.MAY.2012 09:37:50

26 dB Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 11.MAY.2012 09:37:29

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, where B is the 26 dB emissions bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3.2. Measuring Instruments and Setting

The following table is the setting of the peak power meter.

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

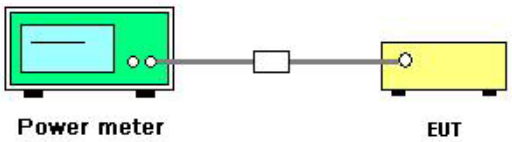
4.3.3. Test Procedures

1.The transmitter output (antenna port) was connected to the power meter.

2. Test was performed in accordance with KDB 789033 Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (C) Maximum conducted output power =>(4) Method PM (Measurement using an RF average power meter) 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.

4.3.4. 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 Maximum Conducted Output Power

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi)

1TX

Configuration 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	14.56	15.00	Complies
40	5200 MHz	14.62	15.00	Complies
48	5240 MHz	14.73	15.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	14.88	15.00	Complies
46	5230 MHz	14.60	15.00	Complies

2TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	8.18	9.40	11.84	11.99	Complies
40	5200 MHz	8.12	9.32	11.77	11.99	Complies
48	5240 MHz	8.05	9.23	11.69	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	8.35	9.32	11.87	11.99	Complies
46	5230 MHz	8.41	9.16	11.81	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	9.95	10.83	13.42	15.00	Complies
40	5200 MHz	10.13	10.90	13.54	15.00	Complies
48	5240 MHz	9.97	10.70	13.36	15.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	11.20	12.14	14.71	15.00	Complies
46	5230 MHz	11.33	12.19	14.79	15.00	Complies

3TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	4.11	5.01	6.58	10.13	10.23	Complies
40	5200 MHz	4.91	5.34	5.92	10.18	10.23	Complies
48	5240 MHz	4.76	5.71	5.29	10.04	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	4.58	4.68	6.28	10.02	10.23	Complies
46	5230 MHz	4.69	5.27	5.85	10.07	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Configuration 802.11n MCS8 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	5.54	6.46	8.02	11.57	11.99	Complies
40	5200 MHz	6.38	7.02	7.62	11.81	11.99	Complies
48	5240 MHz	6.25	7.12	7.15	11.63	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	6.12	6.70	8.20	11.87	11.99	Complies
46	5230 MHz	6.04	6.76	7.54	11.59	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration 802.11n MCS16 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	7.98	10.00	10.71	14.48	15.00	Complies
40	5200 MHz	8.48	10.12	10.75	14.66	15.00	Complies
48	5240 MHz	9.07	10.09	10.26	14.61	15.00	Complies

Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	8.71	9.90	11.31	14.87	15.00	Complies
46	5230 MHz	9.08	9.88	10.73	14.72	15.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11a
Test Date	May 11, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi)

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	14.98	15.00	Complies
40	5200 MHz	14.58	15.00	Complies
48	5240 MHz	14.65	15.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	8.75	9.06	11.92	11.99	Complies
40	5200 MHz	8.17	9.36	11.82	11.99	Complies
48	5240 MHz	8.38	9.27	11.86	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	4.19	5.19	6.35	10.10	10.23	Complies
40	5200 MHz	4.71	5.71	5.75	10.19	10.23	Complies
48	5240 MHz	5.05	5.84	5.36	10.20	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 2 (Ant. 7 Patch antenna / 2.3dBi)

1TX

Configuration 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.65	17.00	Complies
40	5200 MHz	16.88	17.00	Complies
48	5240 MHz	16.48	17.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	12.72	17.00	Complies
46	5230 MHz	16.88	17.00	Complies

2TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.16	14.37	16.82	17.00	Complies
40	5200 MHz	13.12	14.26	16.74	17.00	Complies
48	5240 MHz	12.86	14.24	16.61	17.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	9.78	10.70	13.27	17.00	Complies
46	5230 MHz	13.05	14.26	16.71	17.00	Complies

Configuration 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.17	14.30	16.78	17.00	Complies
40	5200 MHz	13.30	14.41	16.90	17.00	Complies
48	5240 MHz	13.00	14.38	16.75	17.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	11.20	12.14	14.18	17.00	Complies
46	5230 MHz	11.33	12.19	16.96	17.00	Complies

3TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	8.65	10.61	12.54	15.66	15.93	Complies
40	5200 MHz	9.41	11.26	12.24	15.89	15.93	Complies
48	5240 MHz	10.32	11.32	11.55	15.87	15.93	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.07dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.07dBi -6)=15.93dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	7.82	8.29	10.27	13.70	15.93	Complies
46	5230 MHz	9.83	10.62	11.89	15.64	15.93	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.07dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.07dBi -6)=15.93dBm.

Configuration 802.11n MCS8 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	10.62	11.62	13.20	16.72	17.00	Complies
40	5200 MHz	10.85	11.86	12.67	16.63	17.00	Complies
48	5240 MHz	11.31	11.90	12.13	16.56	17.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	8.31	8.93	10.82	14.26	17.00	Complies
46	5230 MHz	11.21	11.52	12.57	16.58	17.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11a
Test Date	May 11, 2012	Test Mode	Mode 2 (Ant. 7 Patch antenna / 2.3dBi)

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.76	17.00	Complies
40	5200 MHz	16.89	17.00	Complies
48	5240 MHz	16.70	17.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.16	14.30	16.78	17.00	Complies
40	5200 MHz	13.21	14.27	16.78	17.00	Complies
48	5240 MHz	13.45	14.29	16.90	17.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	9.67	10.66	12.55	15.90	15.93	Complies
40	5200 MHz	10.00	10.59	11.60	15.55	15.93	Complies
48	5240 MHz	10.05	10.82	11.10	15.45	15.93	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.07dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.07dBi -6)=15.93dBm.

Temperature	25°C	Humidity	56%
Test Engineer	Densin Su	Configurations	IEEE 802.11n
Test Date	Jun. 05, 2012	Test Mode	Mode 3 (Ant. 8 Panel antenna / 10.5dBi)

1TX

Configuration 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	10.68	12.50	Complies
40	5200 MHz	10.15	12.50	Complies
48	5240 MHz	10.24	12.50	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	10.97	12.50	Complies
46	5230 MHz	12.46	12.50	Complies

2TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	4.63	6.09	8.43	9.49	Complies
40	5200 MHz	4.28	6.21	8.36	9.49	Complies
48	5240 MHz	4.31	6.58	8.60	9.49	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (13.51dBi -6)=9.49dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	5.54	6.74	9.19	9.49	Complies
46	5230 MHz	5.16	6.62	8.96	9.49	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (13.51dBi -6)=9.49dBm.

Configuration 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	7.62	9.16	11.47	12.50	Complies
40	5200 MHz	7.18	8.80	11.08	12.50	Complies
48	5240 MHz	7.40	9.13	11.36	12.50	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	7.71	9.20	11.53	12.50	Complies
46	5230 MHz	8.65	9.57	12.14	12.50	Complies

3TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	-0.75	0.99	1.28	5.37	7.73	Complies
40	5200 MHz	-0.39	0.84	0.70	5.19	7.73	Complies
48	5240 MHz	-1.35	0.47	-0.59	4.35	7.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =15.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (15.27dBi -6)=7.73dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	-0.18	0.98	1.38	5.55	7.73	Complies
46	5230 MHz	-1.06	0.54	0.63	4.87	7.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =15.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (15.27dBi -6)=7.73dBm.

Configuration 802.11n MCS8 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	-0.63	1.08	1.29	5.43	9.49	Complies
40	5200 MHz	-0.28	1.03	0.96	5.38	9.49	Complies
48	5240 MHz	-1.15	0.70	-0.33	4.58	9.49	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (13.51dBi -6)=9.49dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	-0.01	1.19	1.75	5.81	9.49	Complies
46	5230 MHz	-0.78	0.76	0.96	5.15	9.49	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (13.51dBi -6)=9.49dBm.

Configuration 802.11n MCS16 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	-0.81	0.99	1.13	5.29	12.50	Complies
40	5200 MHz	0.55	2.28	1.72	6.35	12.50	Complies
48	5240 MHz	1.62	3.35	1.97	7.15	12.50	Complies

Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	-0.09	1.20	1.48	5.69	12.50	Complies
46	5230 MHz	0.74	2.17	1.65	6.33	12.50	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Densin Su	Configurations	IEEE 802.11a
Test Date	Jun. 05, 2012	Test Mode	Mode 3 (Ant. 8 Panel antenna / 10.5dBi)

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	12.36	12.50	Complies
40	5200 MHz	12.29	12.50	Complies
48	5240 MHz	12.05	12.50	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	5.46	7.23	9.44	9.49	Complies
40	5200 MHz	5.43	6.73	9.14	9.49	Complies
48	5240 MHz	5.14	6.46	8.86	9.49	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (13.51dBi -6)=9.49dBm.

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	0.24	2.17	2.09	6.36	7.73	Complies
40	5200 MHz	0.21	1.76	1.72	6.06	7.73	Complies
48	5240 MHz	-0.70	1.14	-0.02	4.98	7.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =15.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (15.27dBi -6)=7.73dBm.

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 4 (Ant. 9 Yagi antenna / 8dBi)

1TX

Configuration 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	14.56	15.00	Complies
40	5200 MHz	14.62	15.00	Complies
48	5240 MHz	14.73	15.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	14.88	15.00	Complies
46	5230 MHz	14.60	15.00	Complies

2TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	8.18	9.40	11.84	11.99	Complies
40	5200 MHz	8.12	9.32	11.77	11.99	Complies
48	5240 MHz	8.05	9.23	11.69	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	8.35	9.32	11.87	11.99	Complies
46	5230 MHz	8.41	9.16	11.81	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	9.95	10.83	13.42	15.00	Complies
40	5200 MHz	10.13	10.90	13.54	15.00	Complies
48	5240 MHz	9.97	10.70	13.36	15.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	11.20	12.14	14.71	15.00	Complies
46	5230 MHz	11.33	12.19	14.79	15.00	Complies

3TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	4.11	5.01	6.58	10.13	10.23	Complies
40	5200 MHz	4.91	5.34	5.92	10.18	10.23	Complies
48	5240 MHz	4.76	5.71	5.29	10.04	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	4.58	4.68	6.28	10.02	10.23	Complies
46	5230 MHz	4.69	5.27	5.85	10.07	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Configuration 802.11n MCS8 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	5.54	6.46	8.02	11.57	11.99	Complies
40	5200 MHz	6.38	7.02	7.62	11.81	11.99	Complies
48	5240 MHz	6.25	7.12	7.15	11.63	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	6.12	6.70	8.20	11.87	11.99	Complies
46	5230 MHz	6.04	6.76	7.54	11.59	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration 802.11n MCS16 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	7.98	10.00	10.71	14.48	15.00	Complies
40	5200 MHz	8.48	10.12	10.75	14.66	15.00	Complies
48	5240 MHz	9.07	10.09	10.26	14.61	15.00	Complies

Configuration IEEE 802.11n MCS16 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	4.76	6.14	7.10	10.88	15.00	Complies
46	5230 MHz	7.19	8.38	8.88	12.98	15.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11a
Test Date	May 11, 2012	Test Mode	Mode 4 (Ant. 9 Yagi antenna / 8dBi)

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	14.98	15.00	Complies
40	5200 MHz	14.58	15.00	Complies
48	5240 MHz	14.65	15.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	8.75	9.06	11.92	11.99	Complies
40	5200 MHz	8.17	9.36	11.82	11.99	Complies
48	5240 MHz	8.38	9.27	11.86	11.99	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (11.01dBi -6)=11.99dBm.

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	4.19	5.19	6.35	10.10	10.23	Complies
40	5200 MHz	4.71	5.71	5.75	10.19	10.23	Complies
48	5240 MHz	5.05	5.84	5.36	10.20	10.23	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (12.77dBi -6)=10.23dBm.

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 5 (Ant. 5 Facade antenna / 2.5dBi)

1TX

Configuration 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.61	17.00	Complies
40	5200 MHz	16.71	17.00	Complies
48	5240 MHz	16.97	17.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	14.47	17.00	Complies
46	5230 MHz	16.73	17.00	Complies

2TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.11	14.03	16.60	17.00	Complies
40	5200 MHz	13.08	14.23	16.70	17.00	Complies
48	5240 MHz	13.12	14.07	16.63	17.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	12.22	13.17	15.73	17.00	Complies
46	5230 MHz	13.43	14.41	16.96	17.00	Complies

Configuration 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.26	14.13	16.73	17.00	Complies
40	5200 MHz	13.37	14.51	16.99	17.00	Complies
48	5240 MHz	13.44	14.41	16.96	17.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
38	5190 MHz	13.15	13.95	16.58	17.00	Complies
46	5230 MHz	13.27	14.30	16.83	17.00	Complies

3TX

Configuration 802.11n MCS0 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	9.59	10.19	12.15	15.56	15.73	Complies
40	5200 MHz	10.00	10.37	11.58	15.47	15.73	Complies
48	5240 MHz	10.31	10.92	11.33	15.64	15.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.27dBi -6)=15.73dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	9.73	10.03	11.81	15.40	15.73	Complies
46	5230 MHz	10.11	10.52	11.71	15.61	15.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.27dBi -6)=15.73dBm.

Configuration 802.11n MCS8 20MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	10.52	11.83	13.25	16.78	17.00	Complies
40	5200 MHz	10.83	11.68	12.71	16.58	17.00	Complies
48	5240 MHz	11.28	11.84	12.18	16.55	17.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1+ Chain 2+ Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
38	5190 MHz	11.07	11.89	13.34	16.97	17.00	Complies
46	5230 MHz	11.35	11.48	12.62	16.63	17.00	Complies

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11a
Test Date	May 11, 2012	Test Mode	Mode 5 (Ant. 5 Facade antenna / 2.5dBi)

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	16.86	17.00	Complies
40	5200 MHz	16.92	17.00	Complies
48	5240 MHz	16.72	17.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)		Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2			
36	5180 MHz	13.13	14.43	16.84	17.00	Complies
40	5200 MHz	13.22	14.59	16.97	17.00	Complies
48	5240 MHz	13.56	14.23	16.92	17.00	Complies

Configuration IEEE 802.11a / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)			Total Conducted Power (dBm)	Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3			
36	5180 MHz	9.67	10.39	12.11	15.62	15.73	Complies
40	5200 MHz	9.71	10.48	11.52	15.40	15.73	Complies
48	5240 MHz	10.34	10.82	11.20	15.57	15.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.27dBi > 6dBi, so the conducted power limit =(17 or 4 + 10log B) - (7.27dBi -6)=15.73dBm.

4.4. Power Spectral Density Measurement

4.4.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	4

4.4.2. Measuring Instruments and Setting

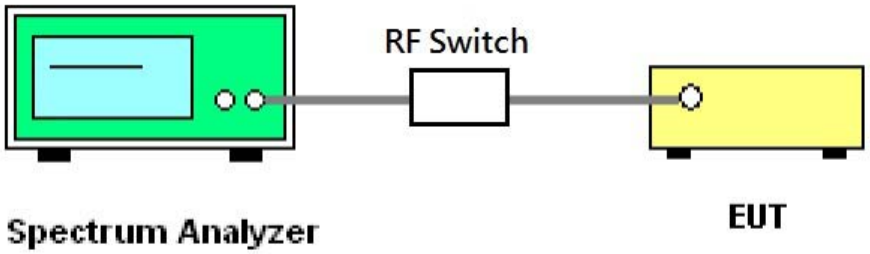
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB 789033 Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (C) Maximum conducted output power => (d) Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).
3. Multiple antenna systems was performed in accordance with KDB 662911 in-Band Power Spectral Density (PSD) Measurements (1) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. the summed spectrum value for each of the other frequency bins is computed in the same way.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi)

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.81	2.00	Complies
40	5200 MHz	1.06	2.00	Complies
48	5240 MHz	1.17	2.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.35	2.00	Complies
46	5230 MHz	-1.68	2.00	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-1.83	-1.01	Complies
40	5200 MHz	-2.13	-1.01	Complies
48	5240 MHz	-2.08	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.37	-1.01	Complies
46	5230 MHz	-4.07	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	1.59	2.00	Complies
40	5200 MHz	1.61	2.00	Complies
48	5240 MHz	1.50	2.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.55	2.00	Complies
46	5230 MHz	1.02	2.00	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-3.02	-2.77	Complies
40	5200 MHz	-3.12	-2.77	Complies
48	5240 MHz	-2.89	-2.77	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the Band 1 power density limit =4 - (12.77dBi -6)=-2.77dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-6.05	-2.77	Complies
46	5230 MHz	-6.30	-2.77	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the Band 1 power density limit =4 - (12.77dBi -6)=-2.77dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-1.90	-1.01	Complies
40	5200 MHz	-1.48	-1.01	Complies
48	5240 MHz	-1.49	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.35	-1.01	Complies
46	5230 MHz	-4.70	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.23	2.00	Complies
40	5200 MHz	0.65	2.00	Complies
48	5240 MHz	1.06	2.00	Complies

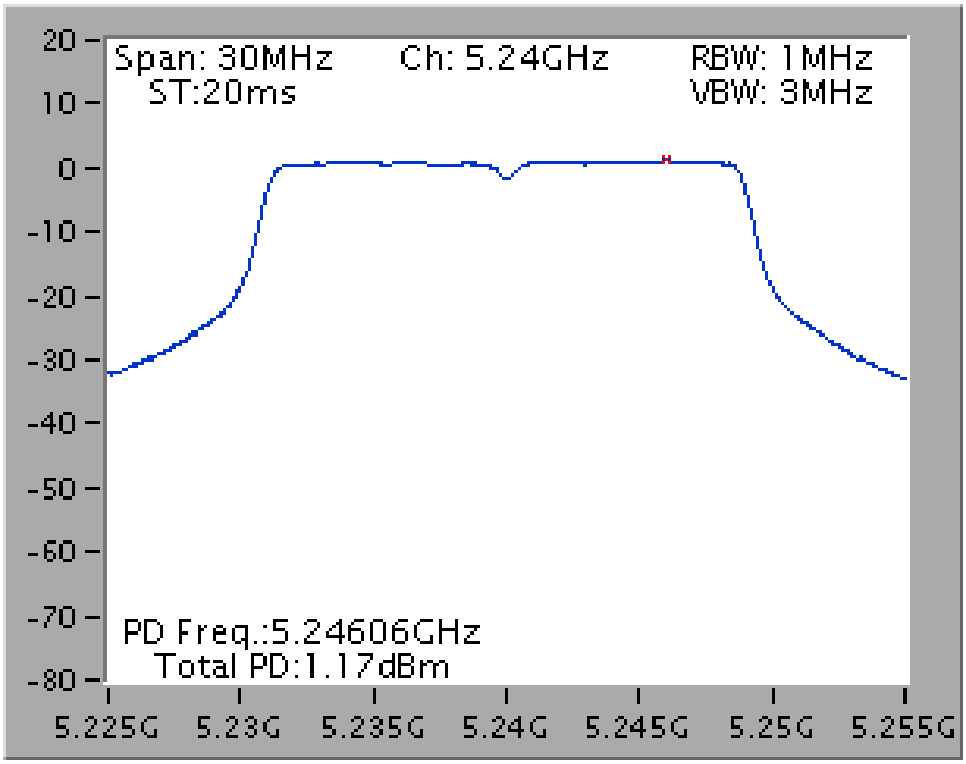
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-0.89	2.00	Complies
46	5230 MHz	-0.89	2.00	Complies

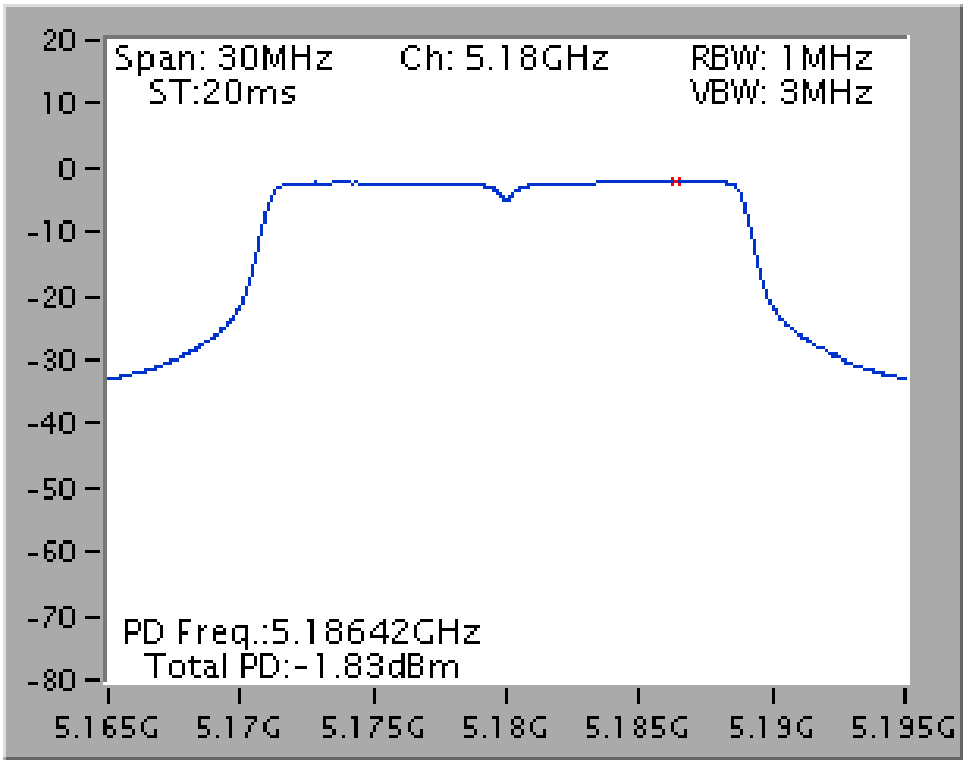
Note: All the test values were listed in the report.

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

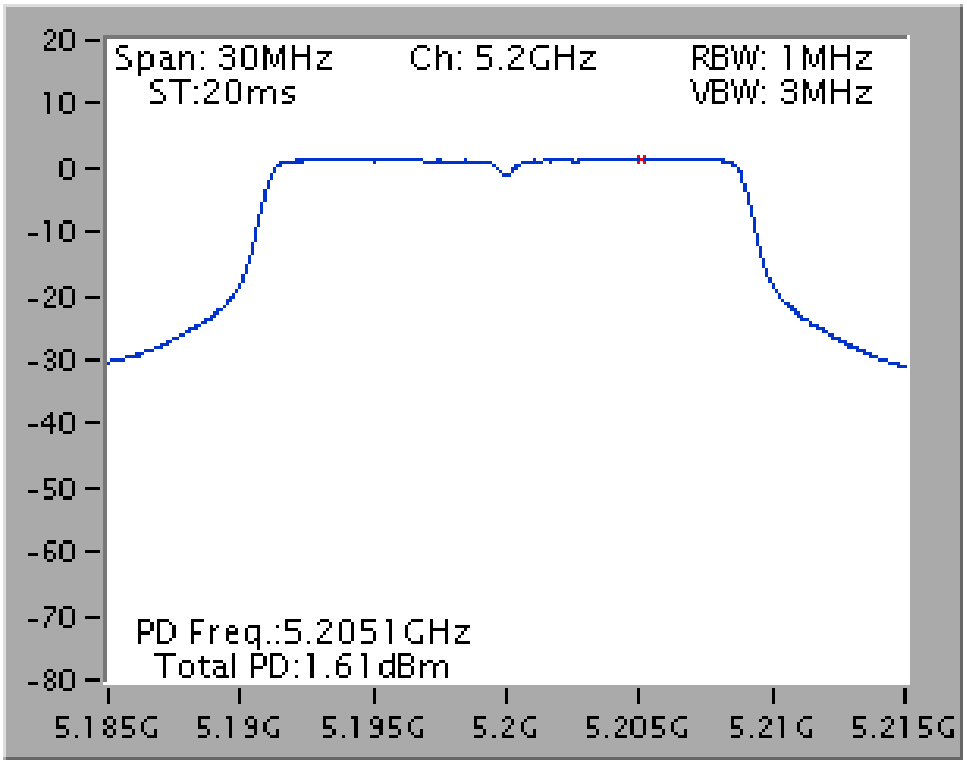
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



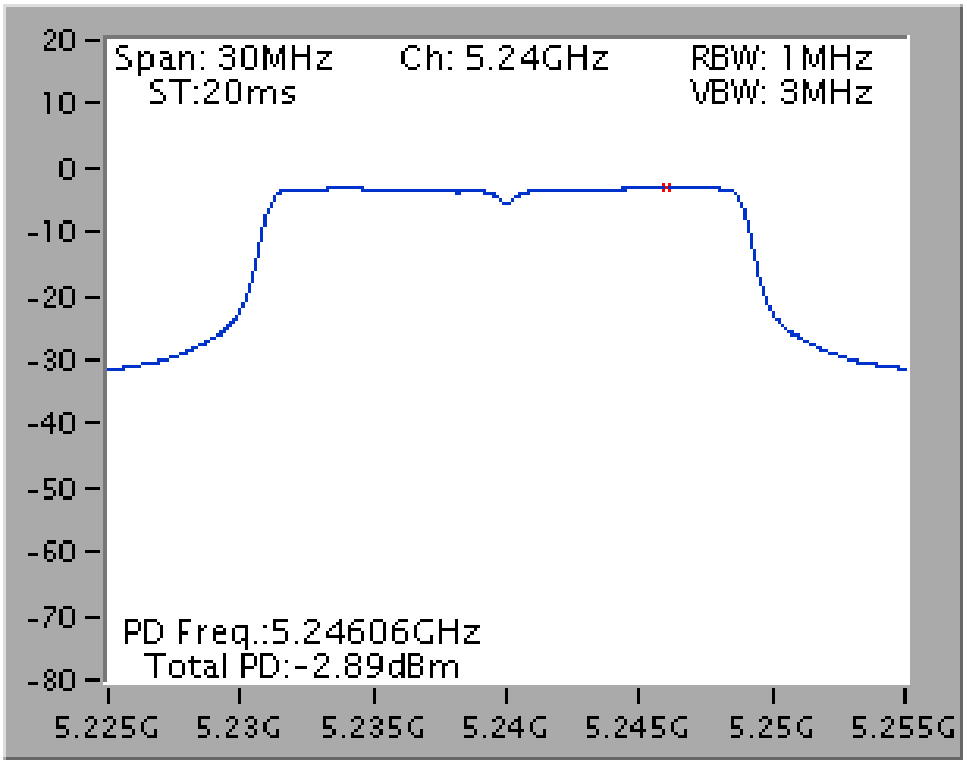
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



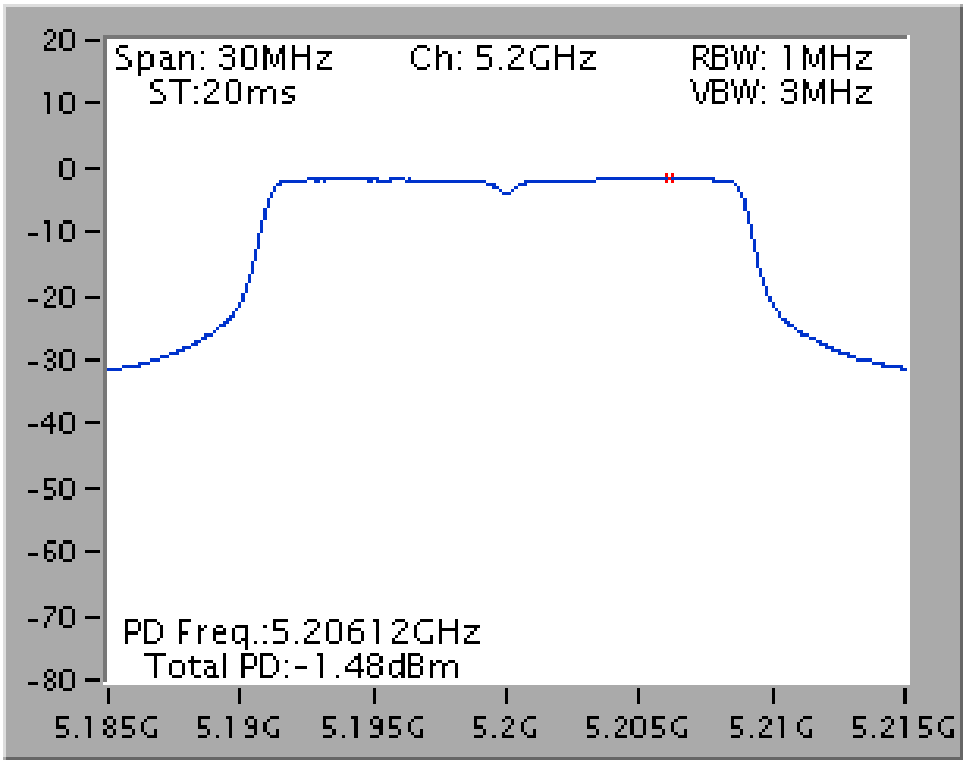
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



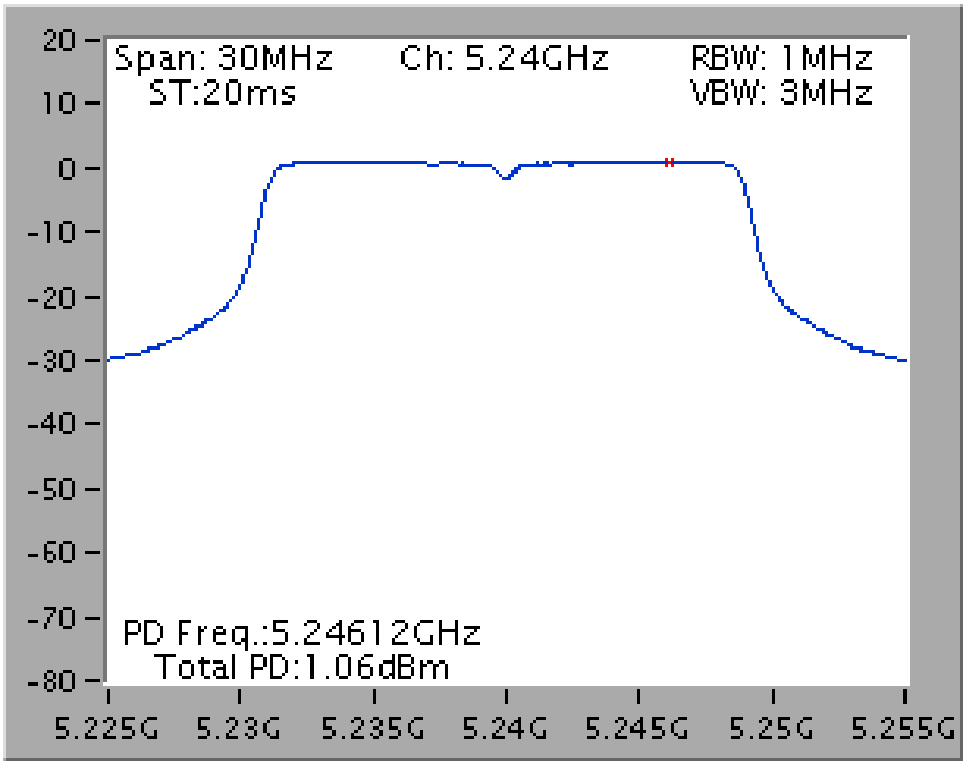
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



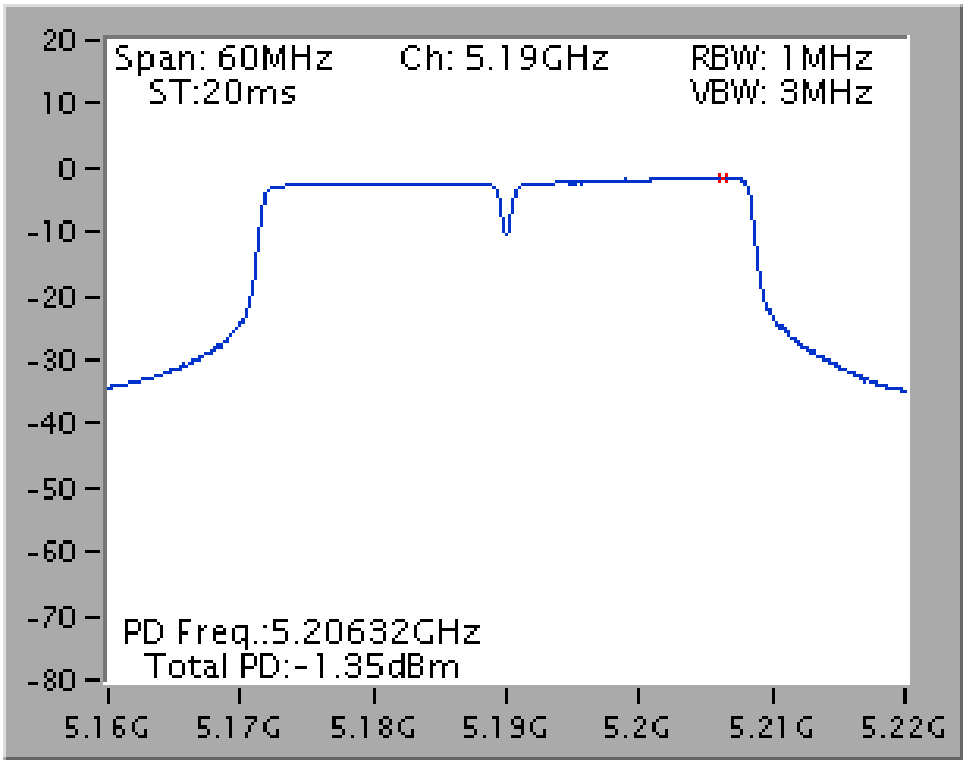
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



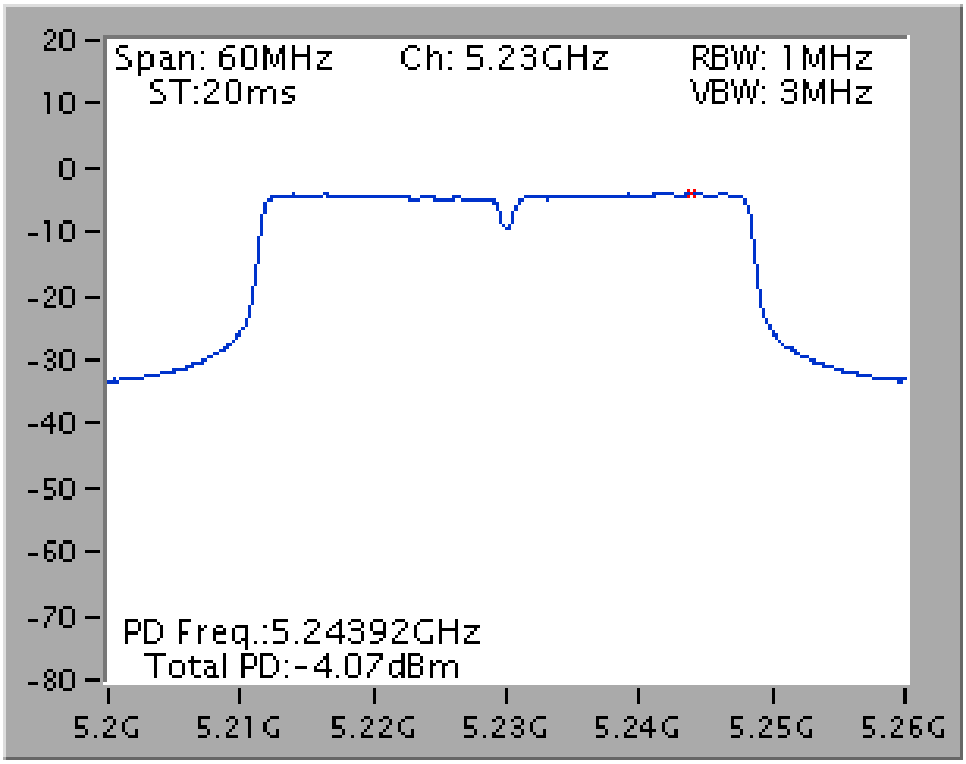
Power Density Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



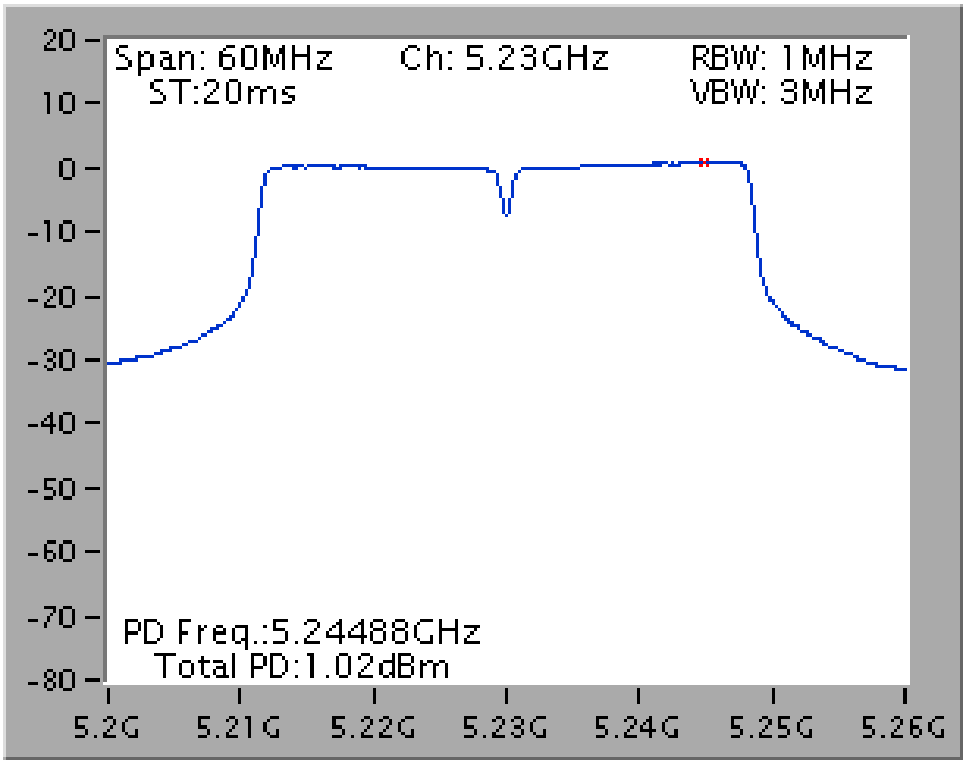
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



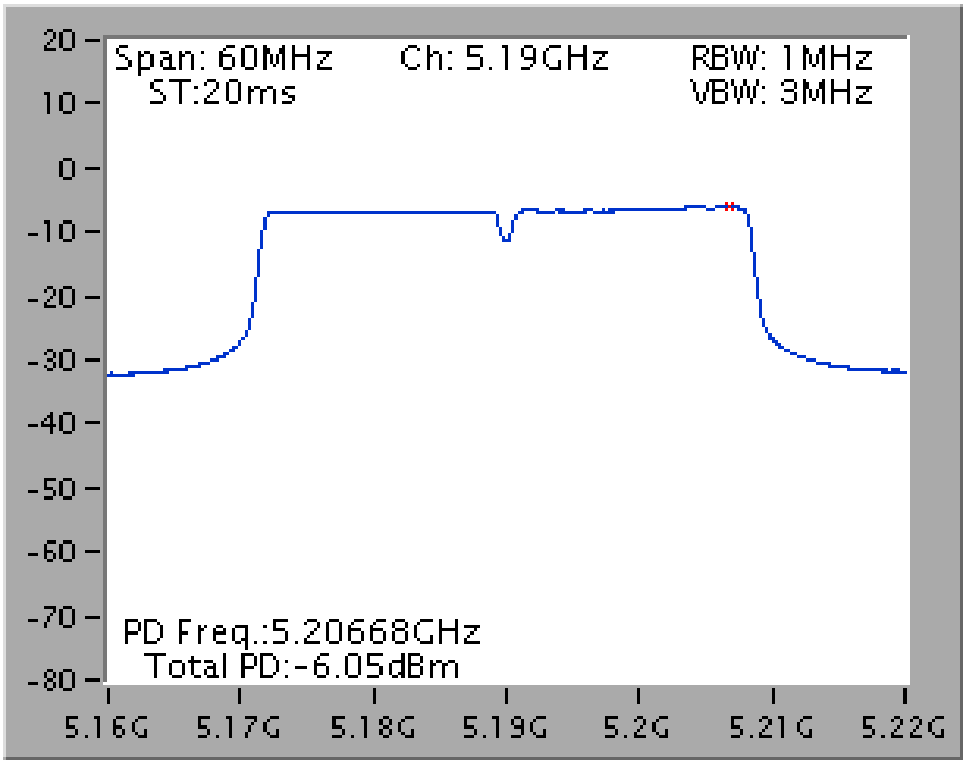
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



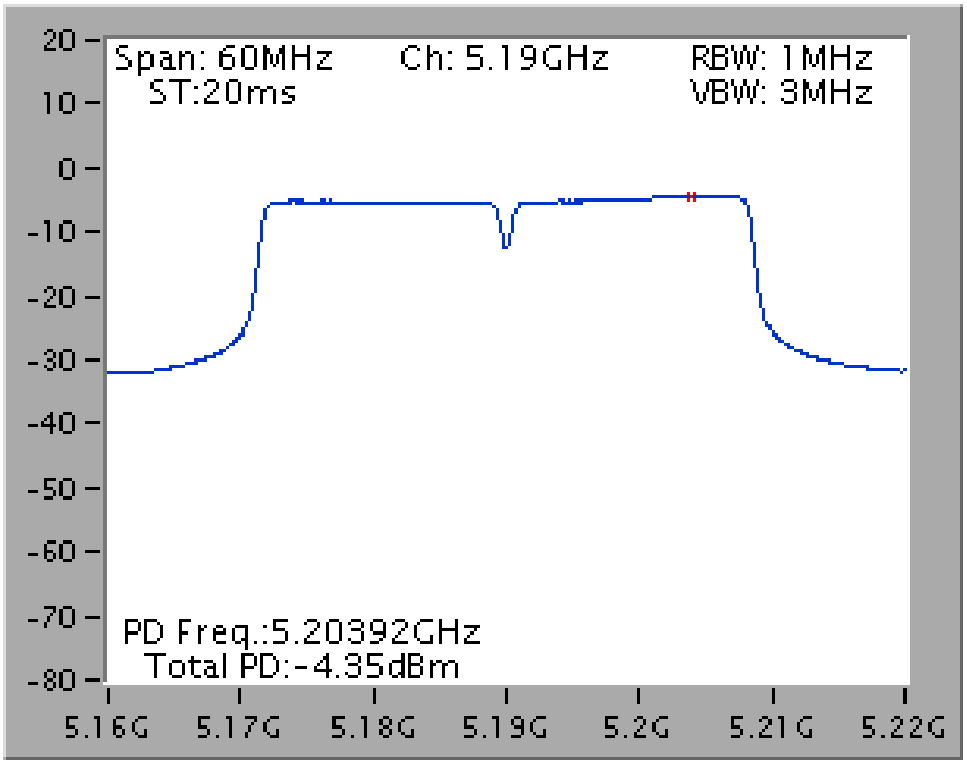
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



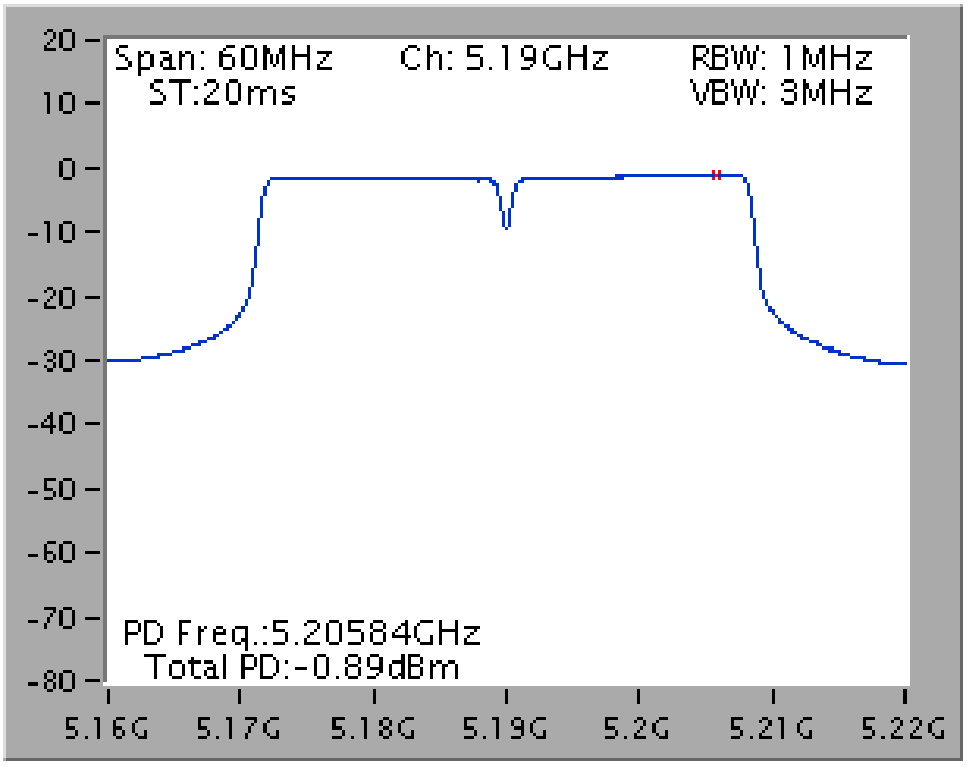
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 2 (Ant. 7 Patch antenna / 2.3dBi)

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.27	4.00	Complies
40	5200 MHz	2.94	4.00	Complies
48	5240 MHz	3.17	4.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-3.33	4.00	Complies
46	5230 MHz	1.05	4.00	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.87	4.00	Complies
40	5200 MHz	3.50	4.00	Complies
48	5240 MHz	3.28	4.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.07	4.00	Complies
46	5230 MHz	1.08	4.00	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	3.61	4.00	Complies
40	5200 MHz	3.77	4.00	Complies
48	5240 MHz	3.85	4.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.15	4.00	Complies
46	5230 MHz	1.25	4.00	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.55	2.93	Complies
40	5200 MHz	2.77	2.93	Complies
48	5240 MHz	2.89	2.93	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.07dBi > 6dBi, so the Band 1 power density limit =4 - (7.07dBi -6)=2.93dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.22	2.93	Complies
46	5230 MHz	-0.38	2.93	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.07dBi > 6dBi, so the Band 1 power density limit =4 - (7.07dBi -6)=2.93dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	3.09	4.00	Complies
40	5200 MHz	3.00	4.00	Complies
48	5240 MHz	3.18	4.00	Complies

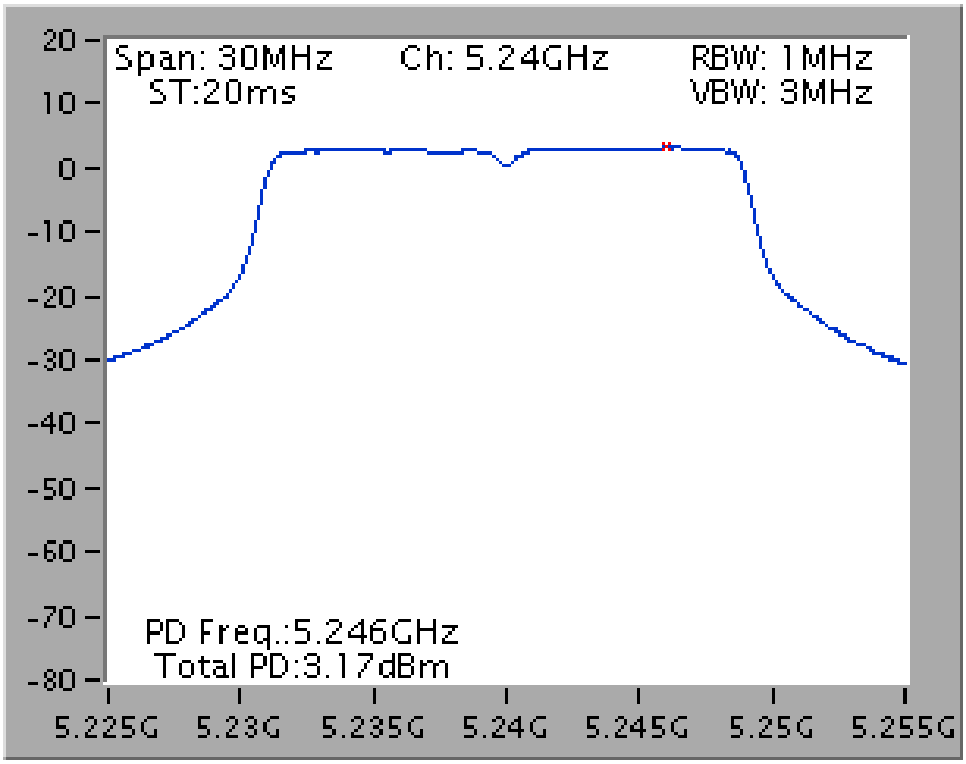
Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.75	4.00	Complies
46	5230 MHz	0.00	4.00	Complies

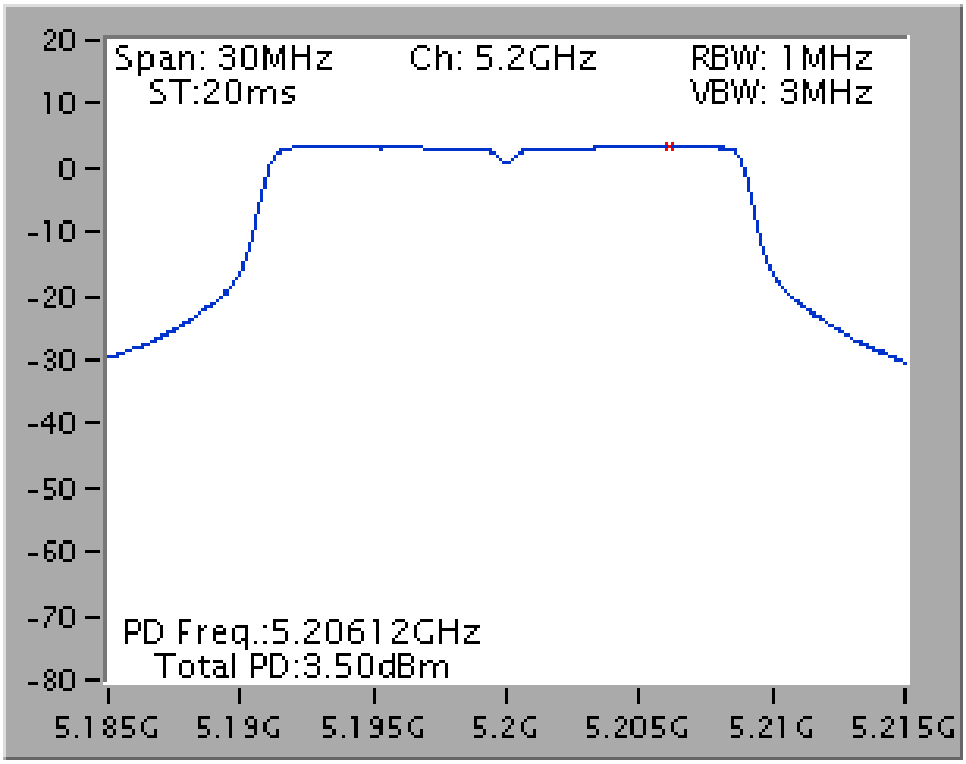
Note: All the test values were listed in the report.

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

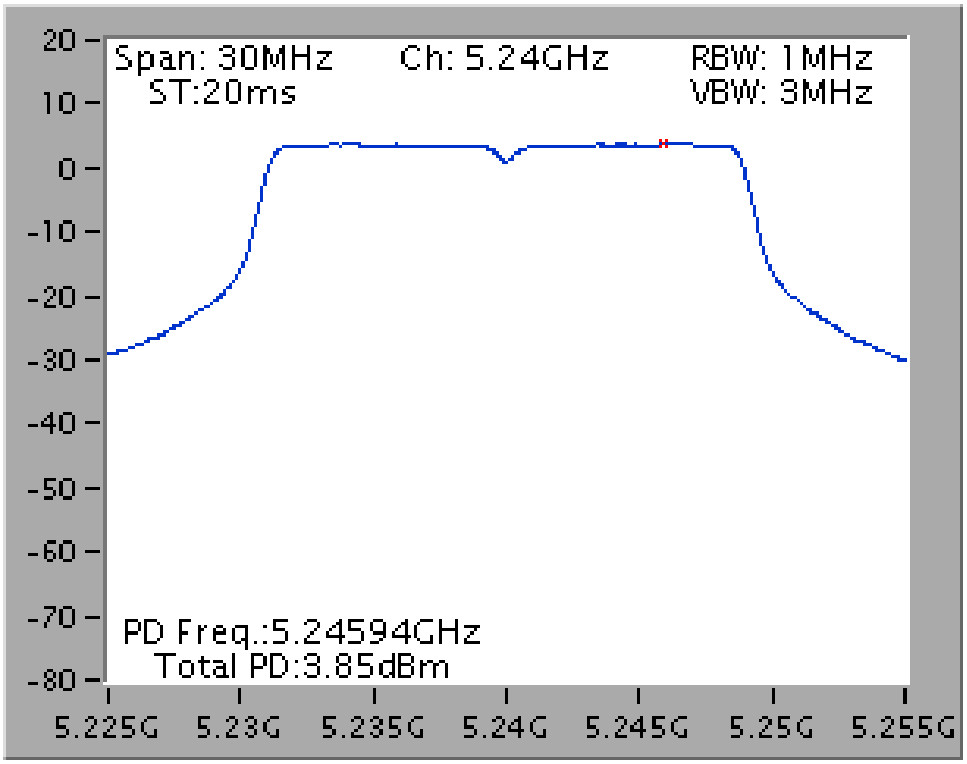
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



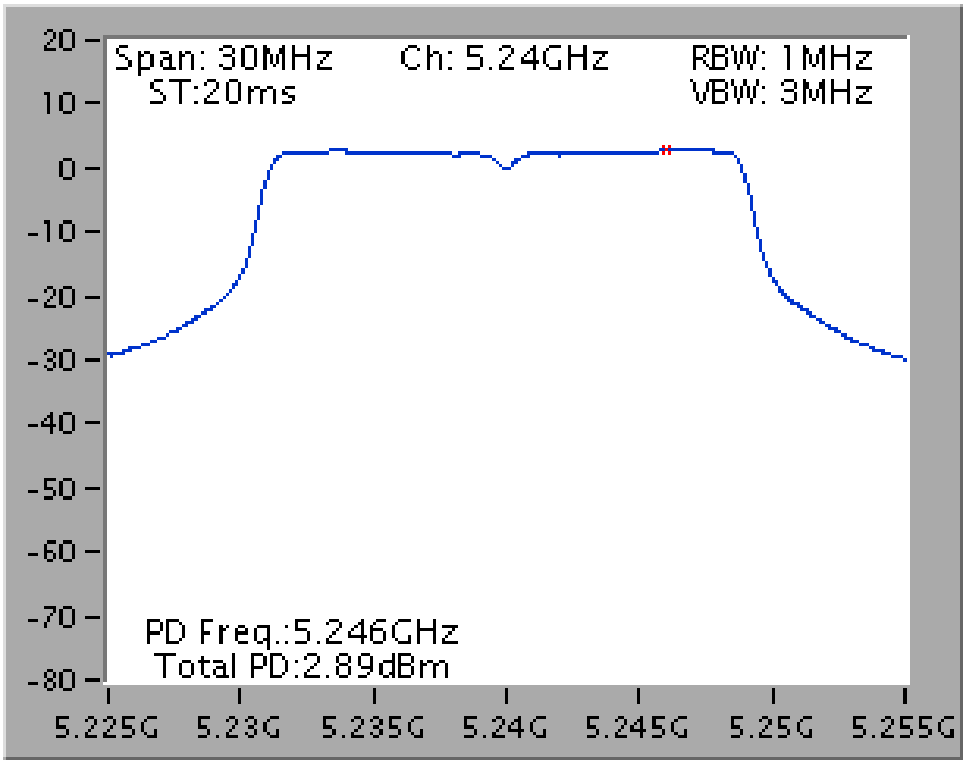
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



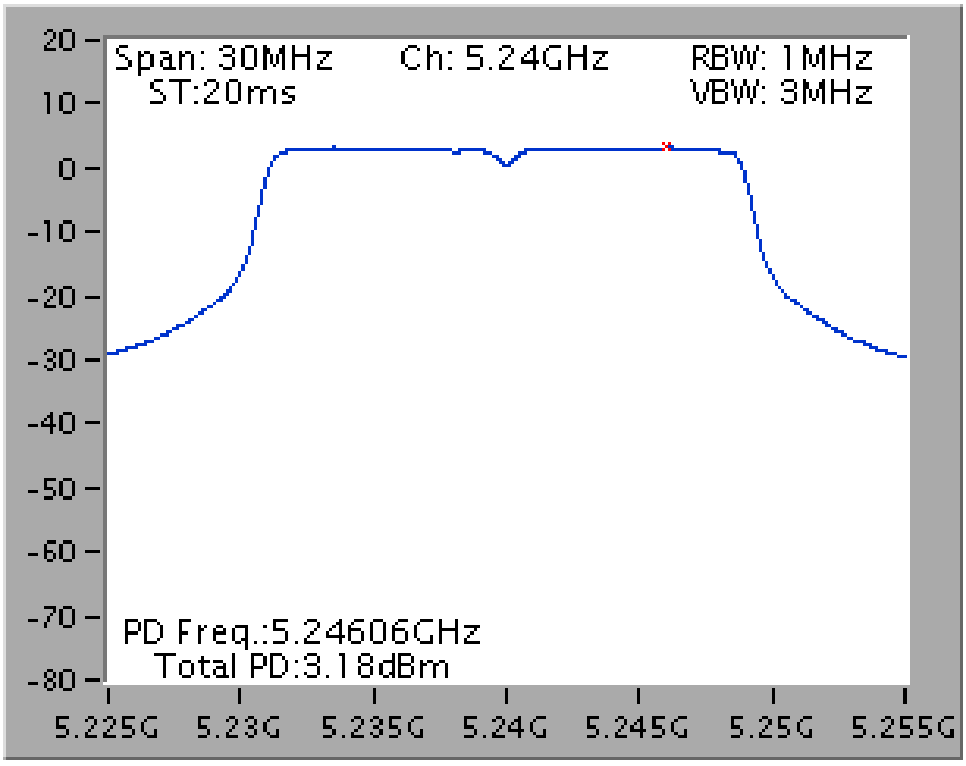
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



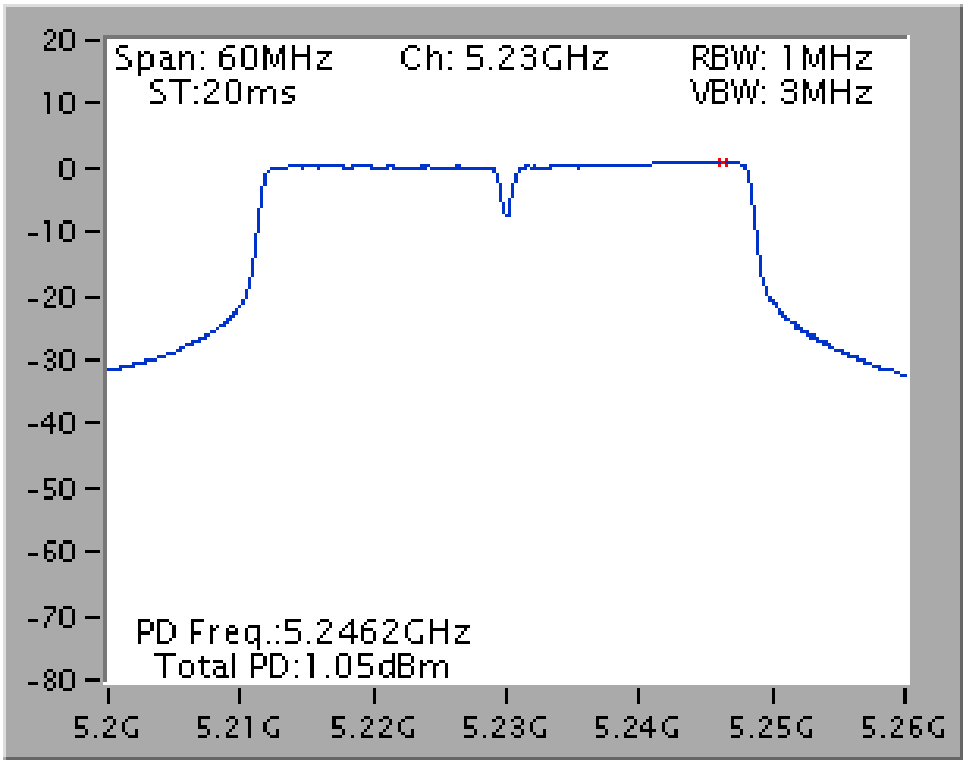
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



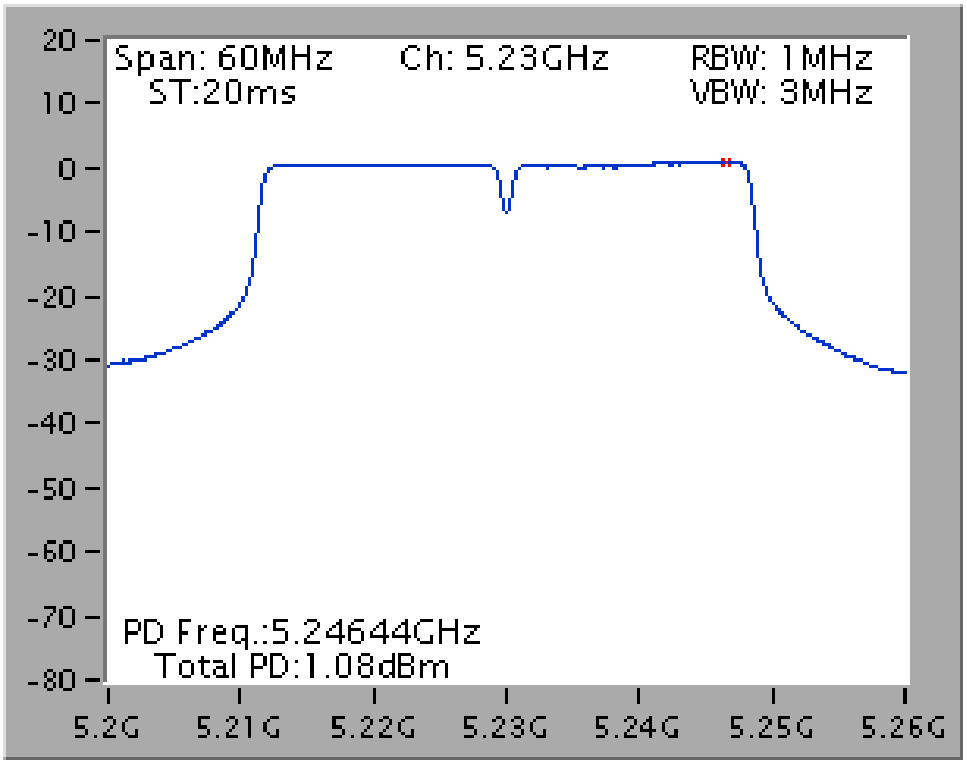
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



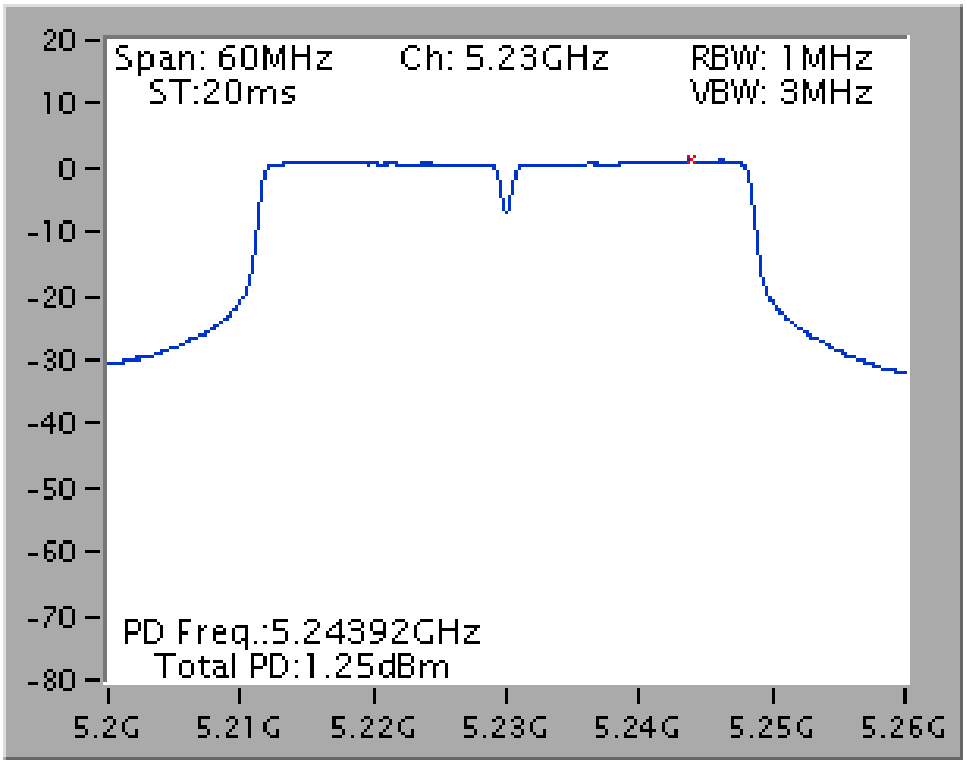
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



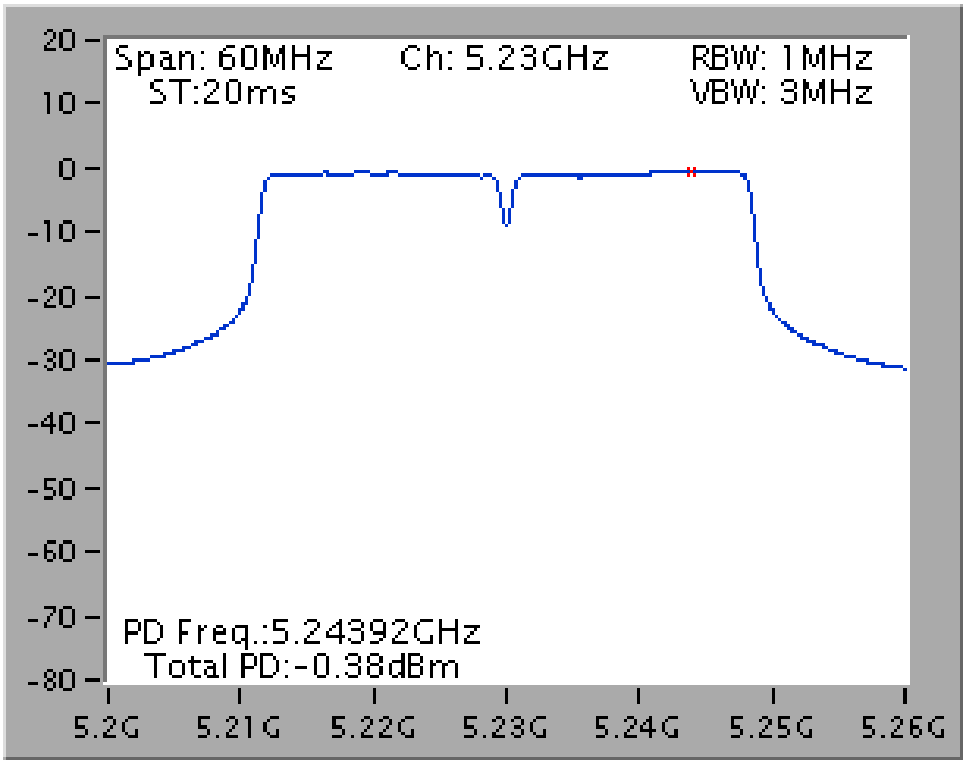
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



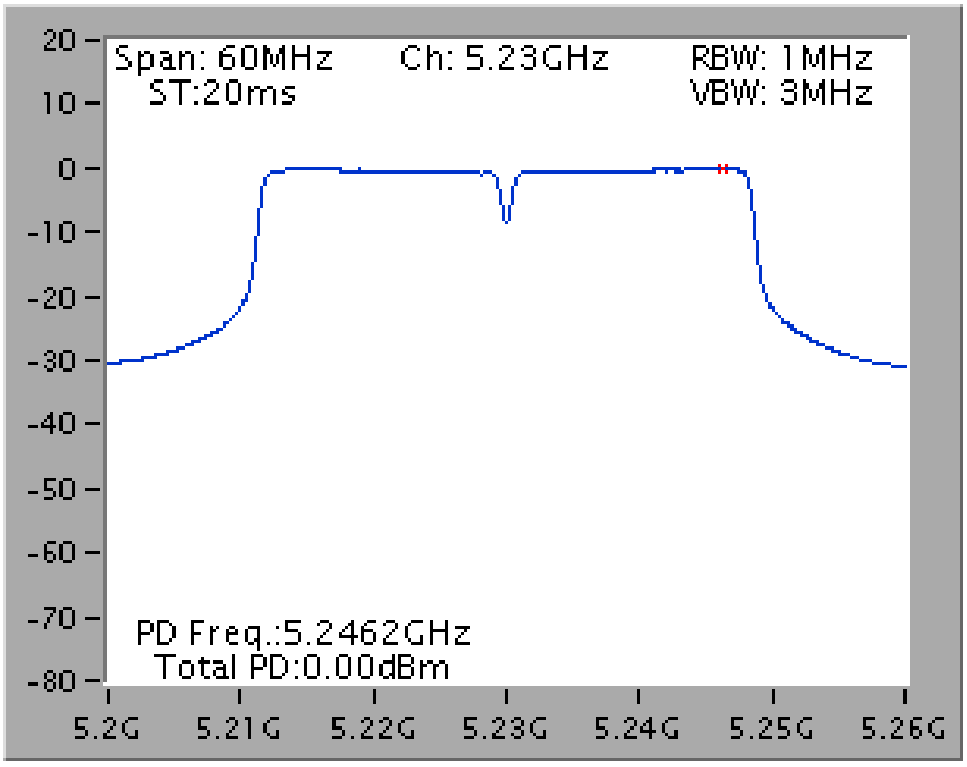
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Temperature	25°C	Humidity	56%
Test Engineer	Densin Su	Configurations	IEEE 802.11n
Test Date	Jun. 05, 2012	Test Mode	Mode 3 (Ant. 8 Panel antenna / 10.5dBi)

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-0.77	-0.50	Complies
40	5200 MHz	-0.98	-0.50	Complies
48	5240 MHz	-0.59	-0.50	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-0.77	-0.50	Complies
46	5230 MHz	-1.01	-0.50	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-3.96	-3.51	Complies
40	5200 MHz	-3.84	-3.51	Complies
48	5240 MHz	-3.59	-3.51	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the Band 1 power density limit =4 - (13.51dBi -6)=-3.51dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.97	-3.51	Complies
46	5230 MHz	-5.28	-3.51	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the Band 1 power density limit =4 - (13.51dBi -6)=-3.51dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-0.67	-0.50	Complies
40	5200 MHz	-0.85	-0.50	Complies
48	5240 MHz	-0.85	-0.50	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.81	-0.50	Complies
46	5230 MHz	-2.31	-0.50	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-5.44	-5.27	Complies
40	5200 MHz	-5.83	-5.27	Complies
48	5240 MHz	-6.91	-5.27	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =15.27dBi > 6dBi, so the Band 1 power density limit =4 - (15.27dBi -6)=-5.27dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-9.04	-5.27	Complies
46	5230 MHz	-9.72	-5.27	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =15.27dBi > 6dBi, so the Band 1 power density limit =4 - (15.27dBi -6)=-5.27dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-6.42	-3.51	Complies
40	5200 MHz	-6.39	-3.51	Complies
48	5240 MHz	-7.04	-3.51	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the Band 1 power density limit =4 - (13.51dBi -6)=-3.51dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-8.91	-3.51	Complies
46	5230 MHz	-9.76	-3.51	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =13.51dBi > 6dBi, so the Band 1 power density limit =4 - (13.51dBi -6)=-3.51dBm.

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-6.36	-0.50	Complies
40	5200 MHz	-5.25	-0.50	Complies
48	5240 MHz	-4.38	-0.50	Complies

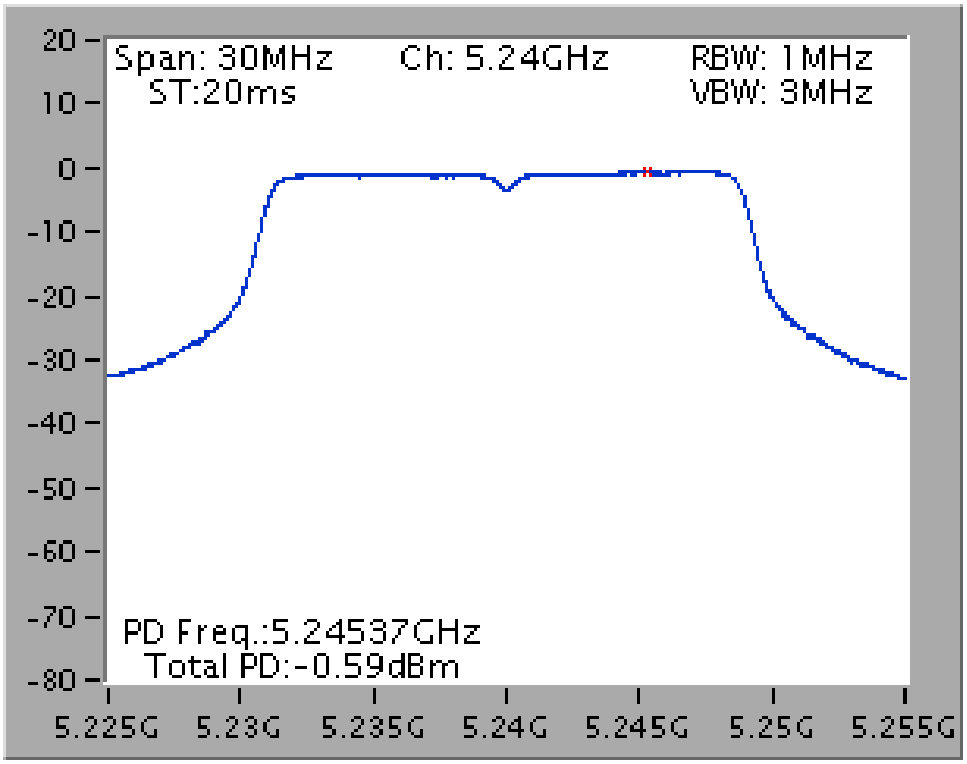
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-8.83	-0.50	Complies
46	5230 MHz	-8.31	-0.50	Complies

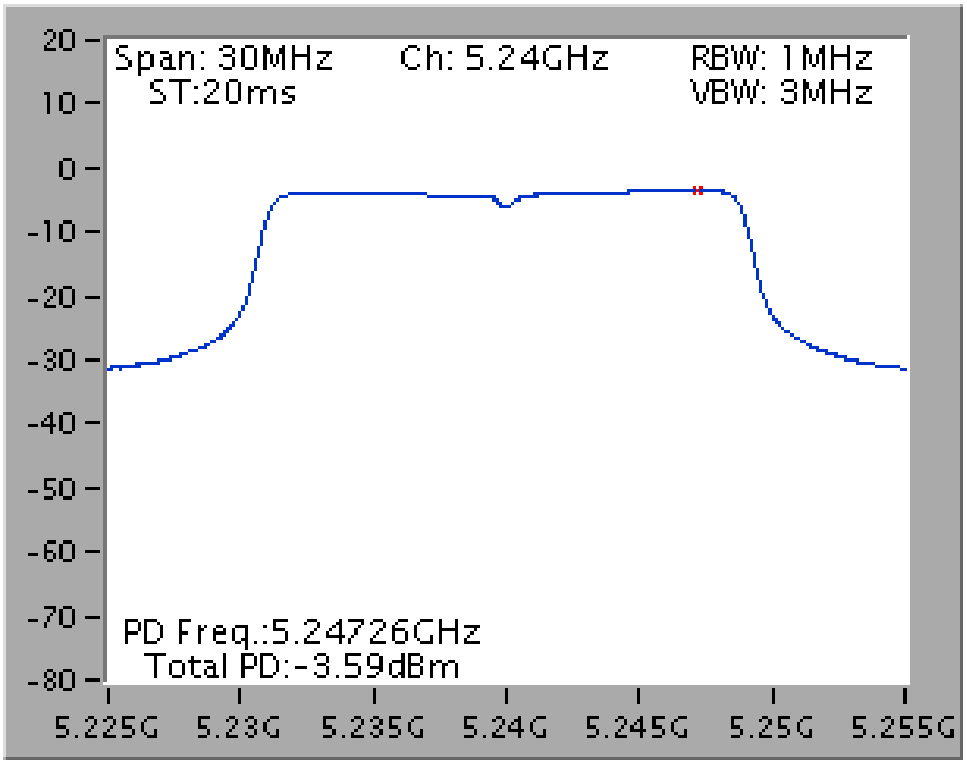
Note: All the test values were listed in the report.

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

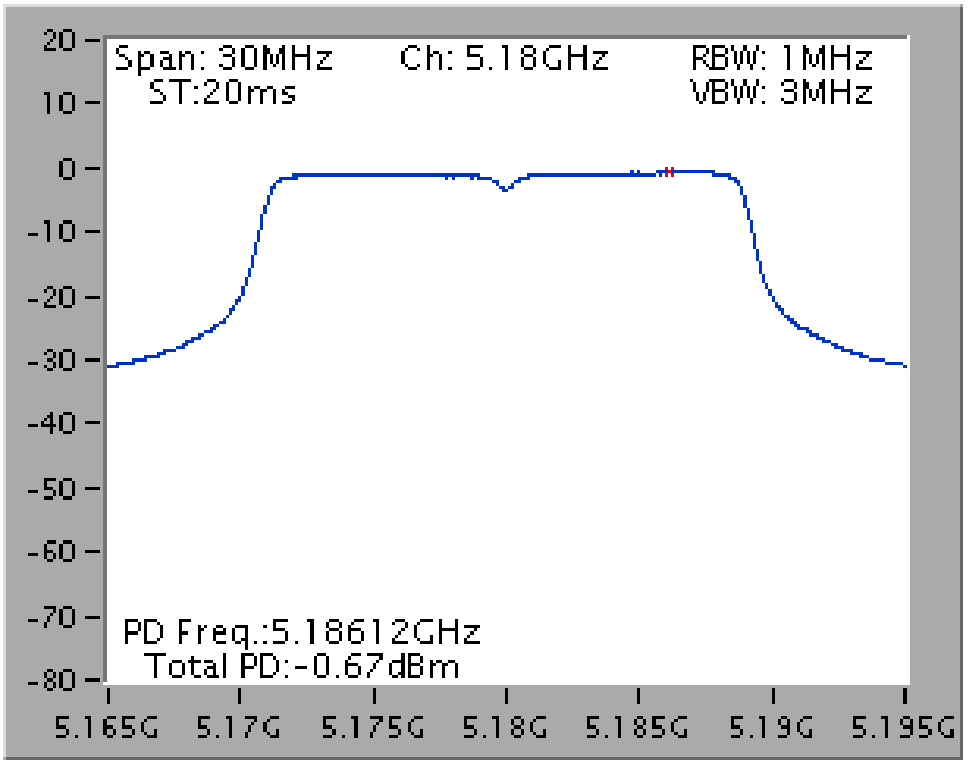
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



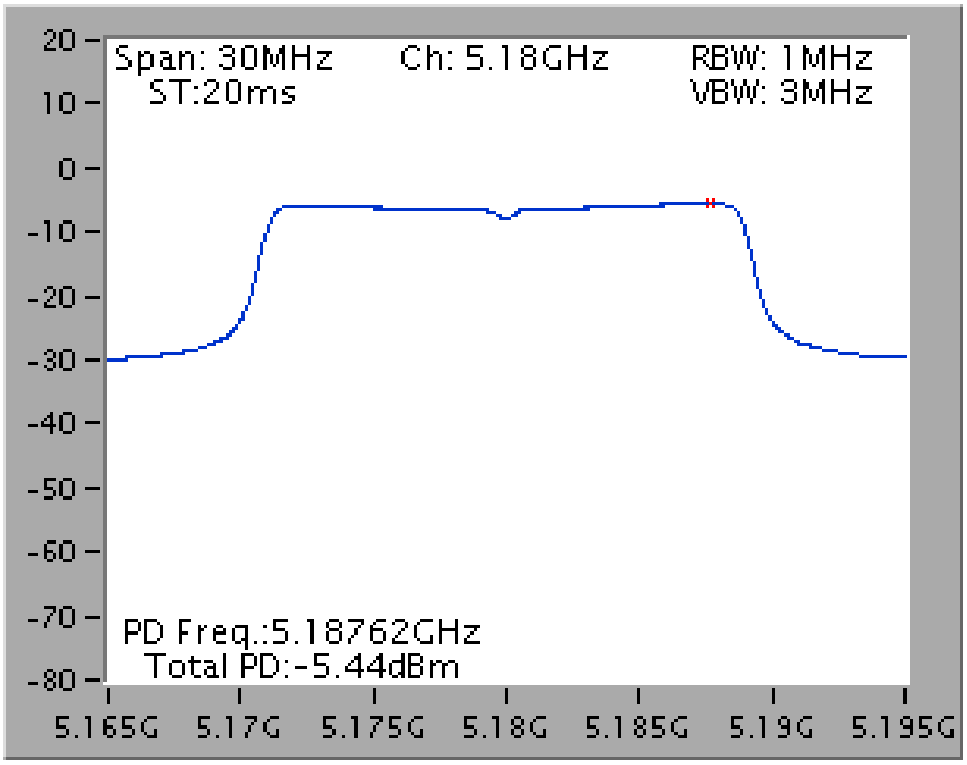
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



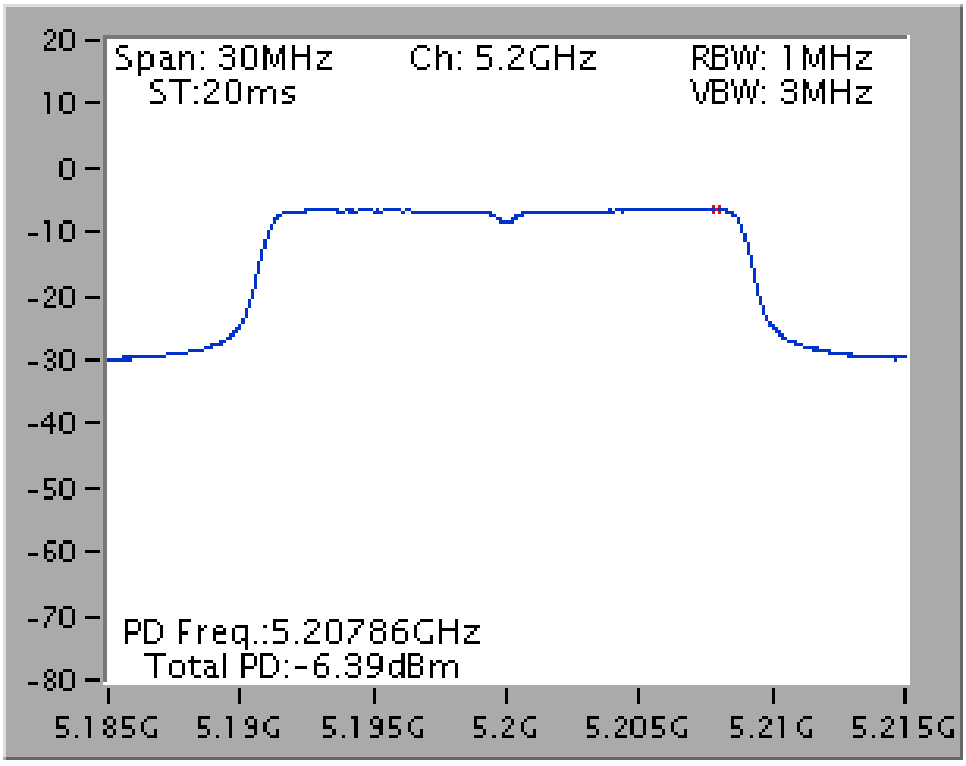
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



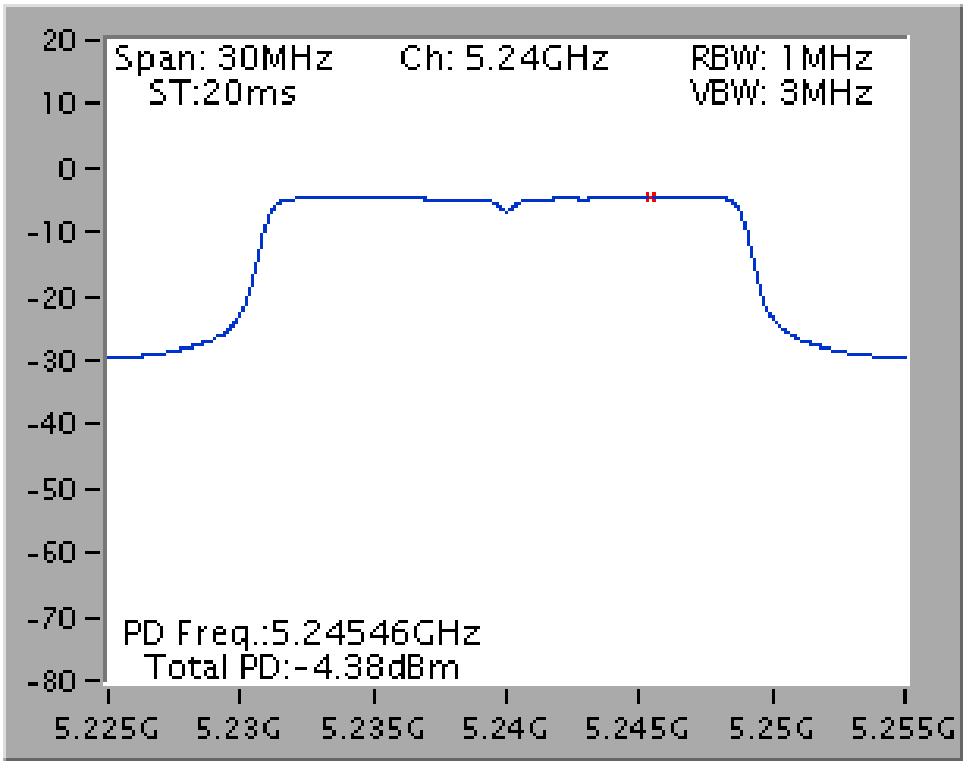
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5180 MHz (3TX)



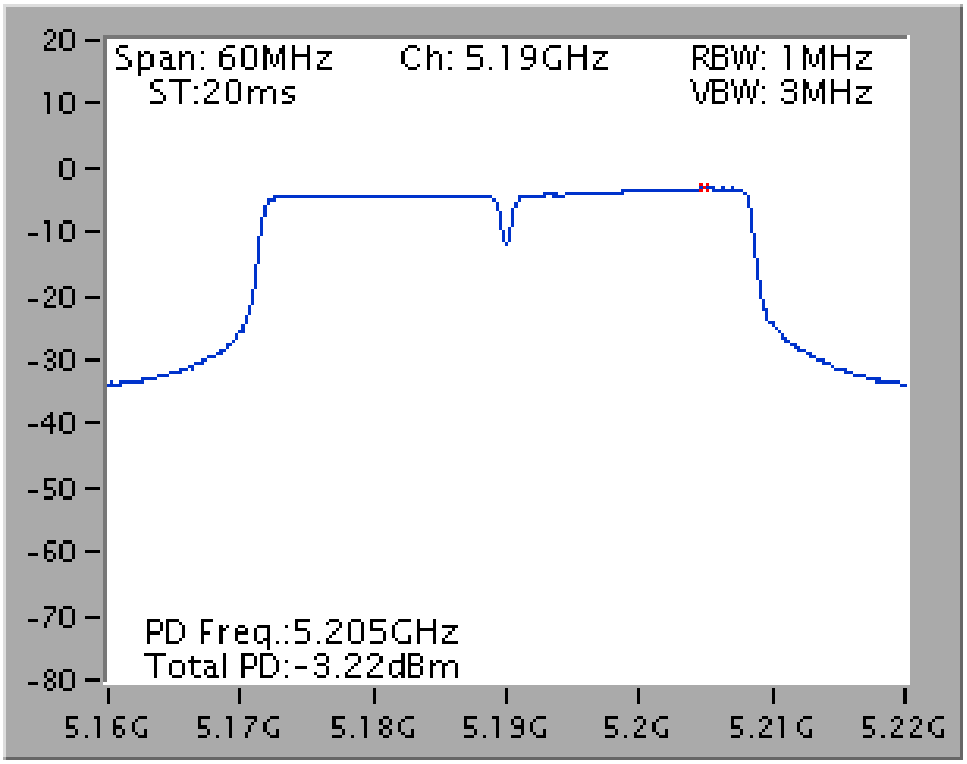
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



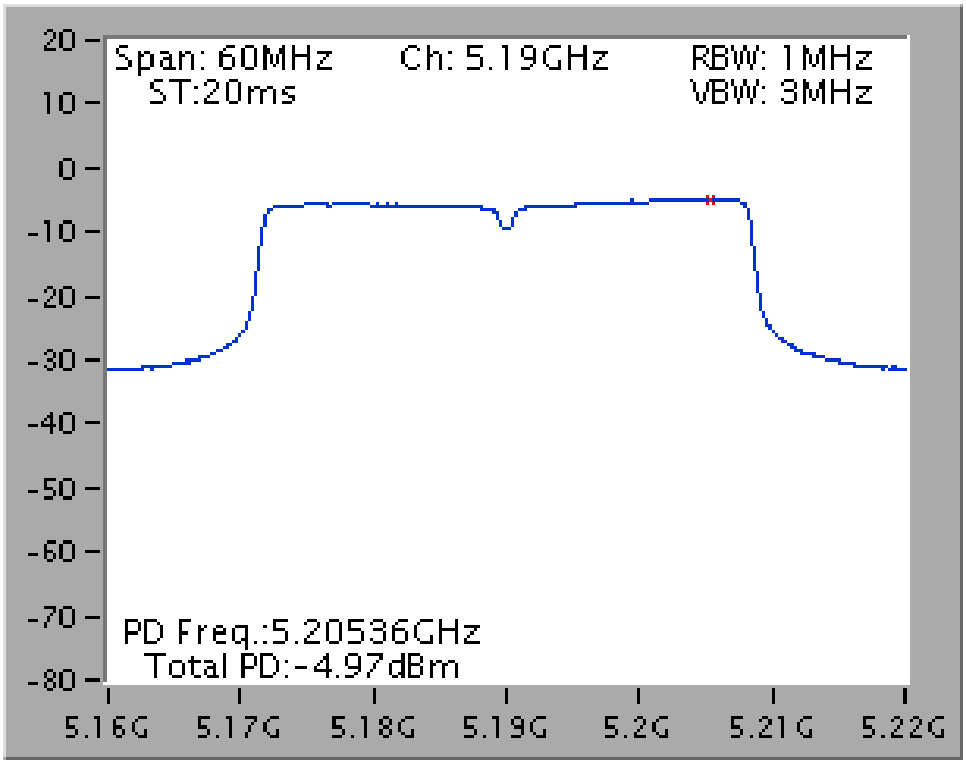
Power Density Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



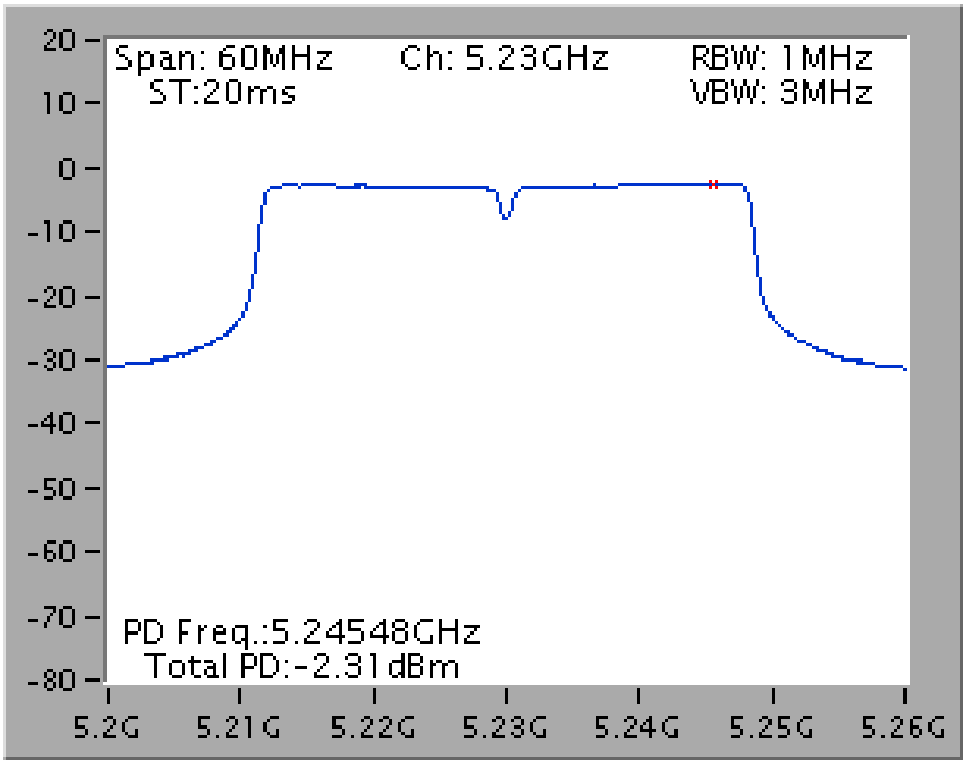
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



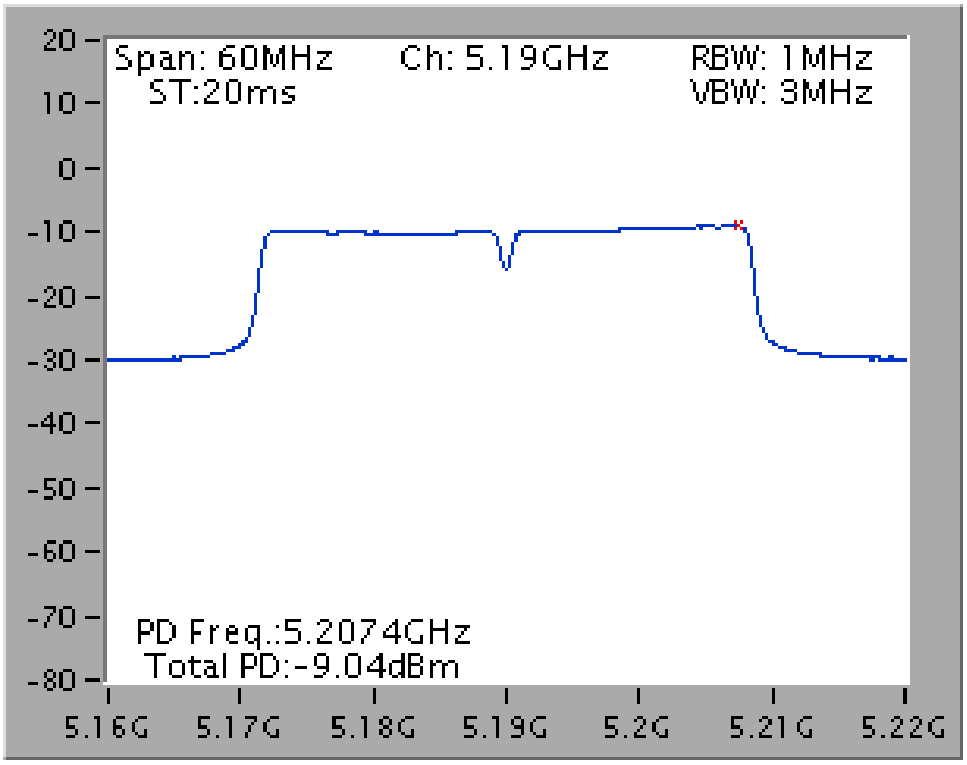
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5190 MHz (2TX)



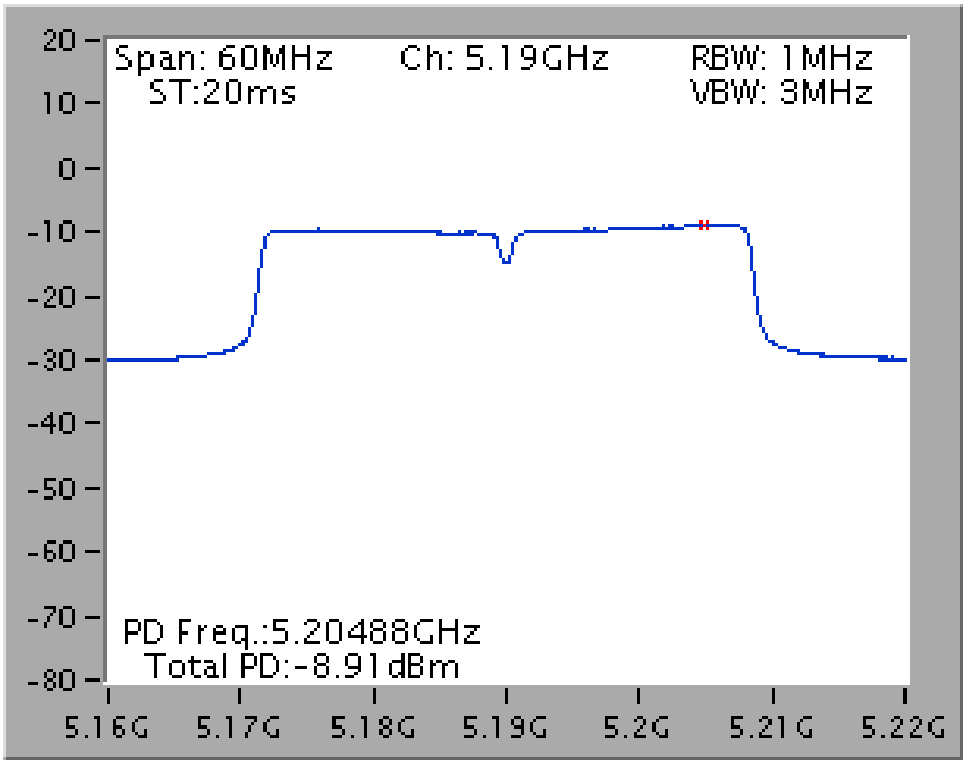
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



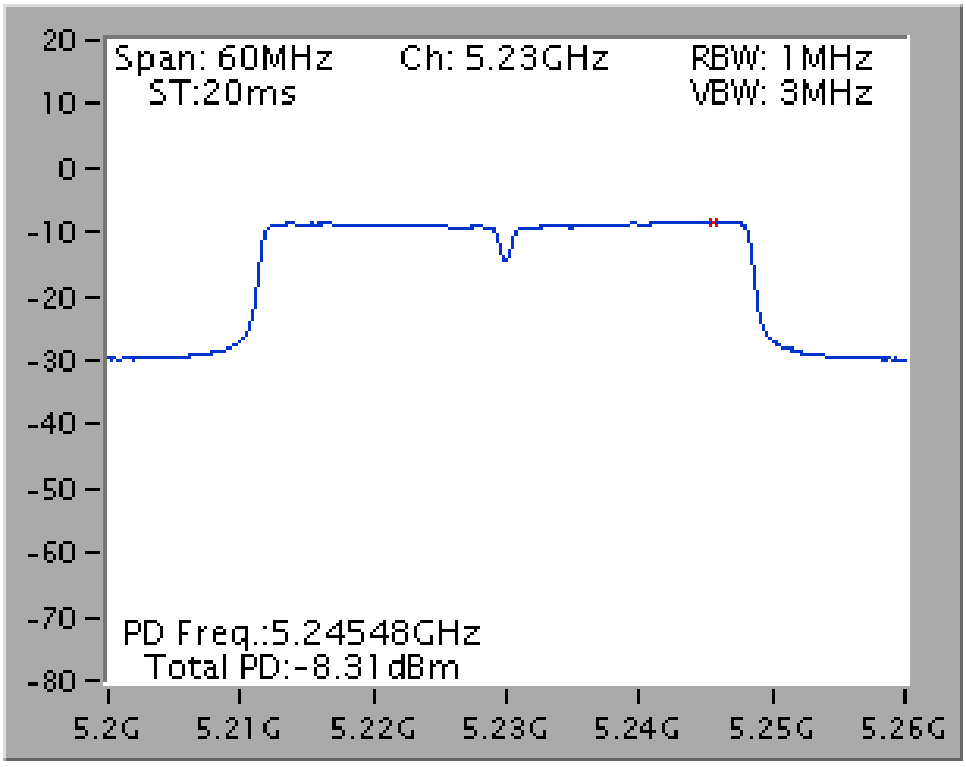
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 4 (Ant. 9 Yagi antenna / 8dBi)

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.25	2.00	Complies
40	5200 MHz	0.66	2.00	Complies
48	5240 MHz	0.85	2.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.16	2.00	Complies
46	5230 MHz	-2.39	2.00	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-2.89	-1.01	Complies
40	5200 MHz	-2.88	-1.01	Complies
48	5240 MHz	-2.71	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-5.19	-1.01	Complies
46	5230 MHz	-5.08	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	1.59	2.00	Complies
40	5200 MHz	1.61	2.00	Complies
48	5240 MHz	1.50	2.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.55	2.00	Complies
46	5230 MHz	1.02	2.00	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-3.57	-2.77	Complies
40	5200 MHz	-3.94	-2.77	Complies
48	5240 MHz	-3.41	-2.77	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the Band 1 power density limit =4 - (12.77dBi -6)=-2.77dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-5.83	-2.77	Complies
46	5230 MHz	-6.21	-2.77	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =12.77dBi > 6dBi, so the Band 1 power density limit =4 - (12.77dBi -6)=-2.77dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-2.15	-1.01	Complies
40	5200 MHz	-1.65	-1.01	Complies
48	5240 MHz	-1.97	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.41	-1.01	Complies
46	5230 MHz	-4.66	-1.01	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =11.01dBi > 6dBi, so the Band 1 power density limit =4 - (11.01dBi -6)=-1.01dBm.

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.23	2.00	Complies
40	5200 MHz	0.65	2.00	Complies
48	5240 MHz	1.06	2.00	Complies

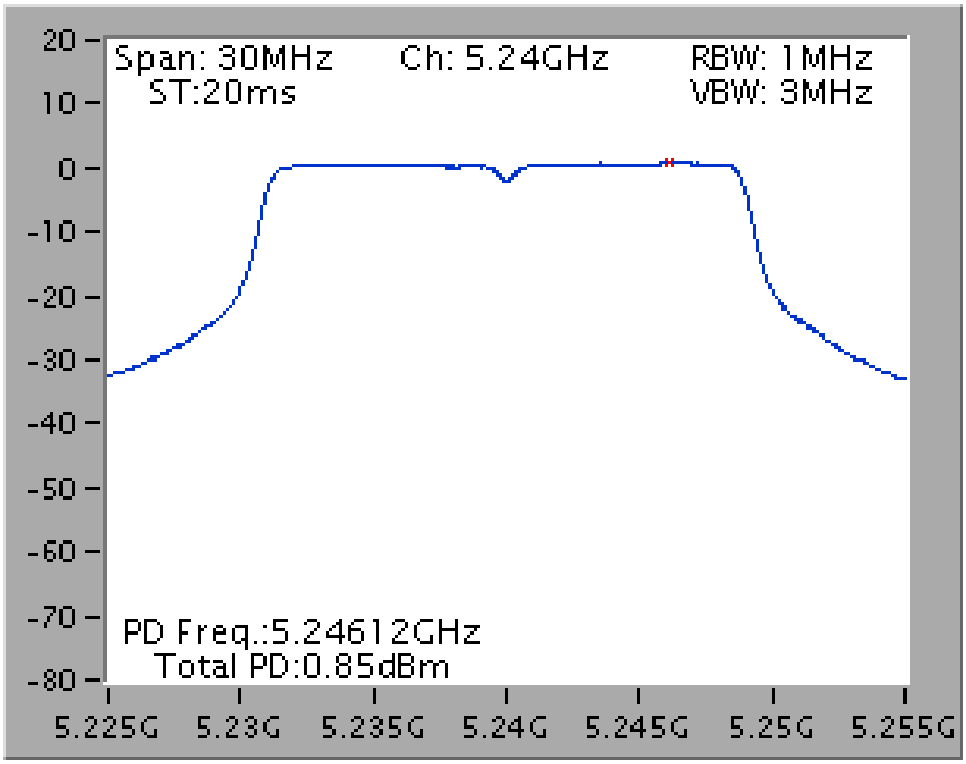
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-4.84	2.00	Complies
46	5230 MHz	-2.63	2.00	Complies

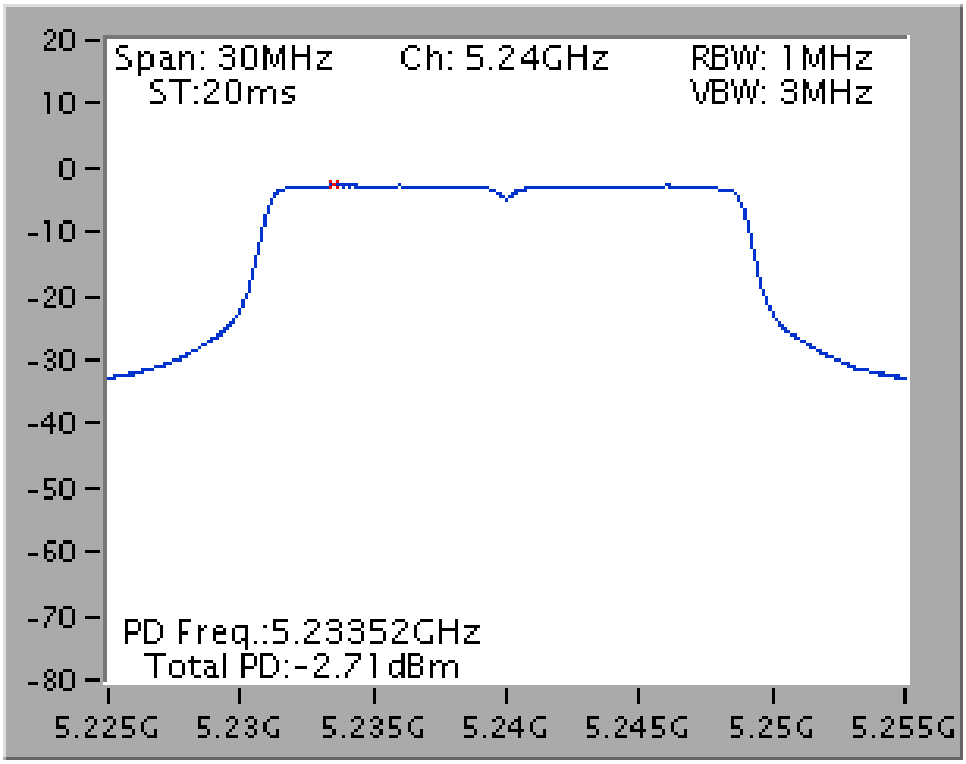
Note: All the test values were listed in the report.

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

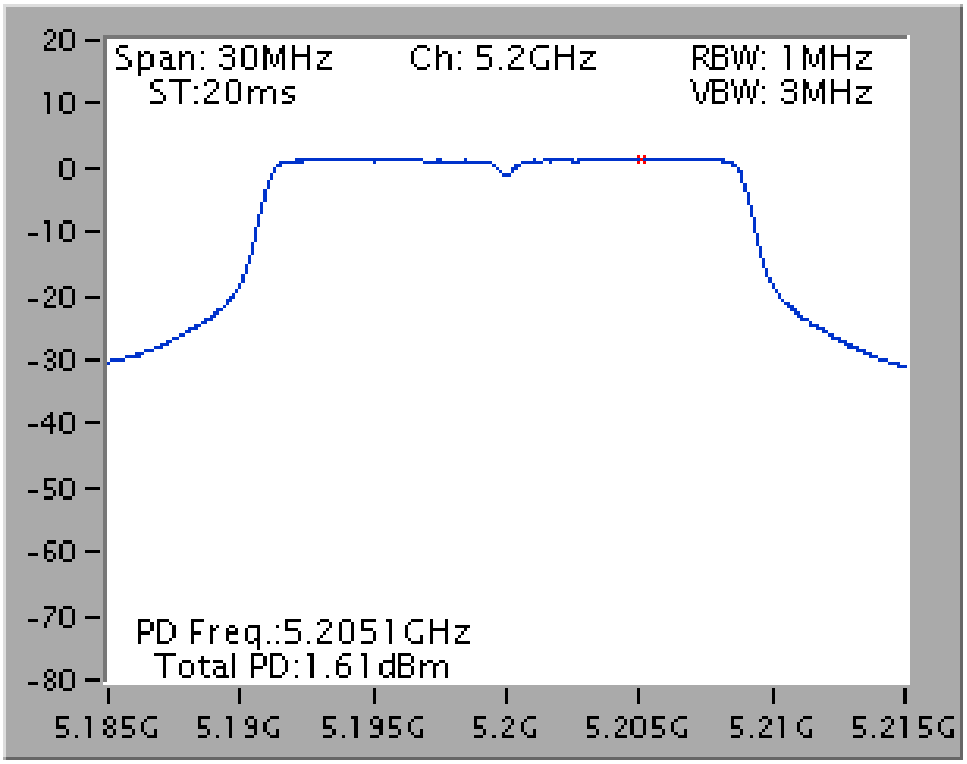
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



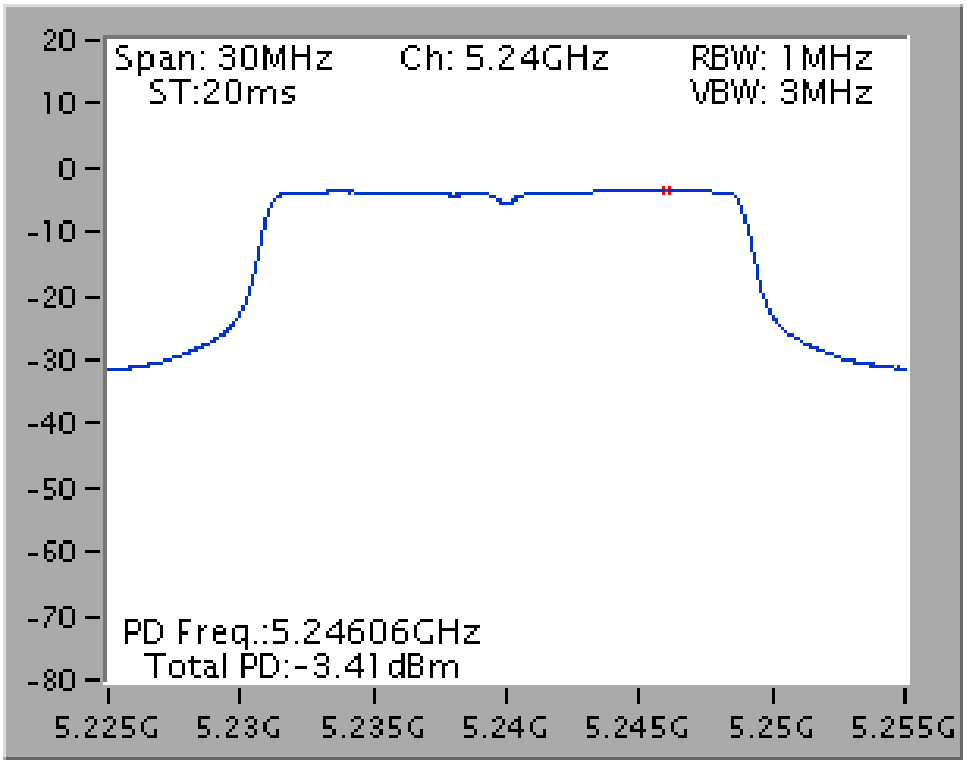
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



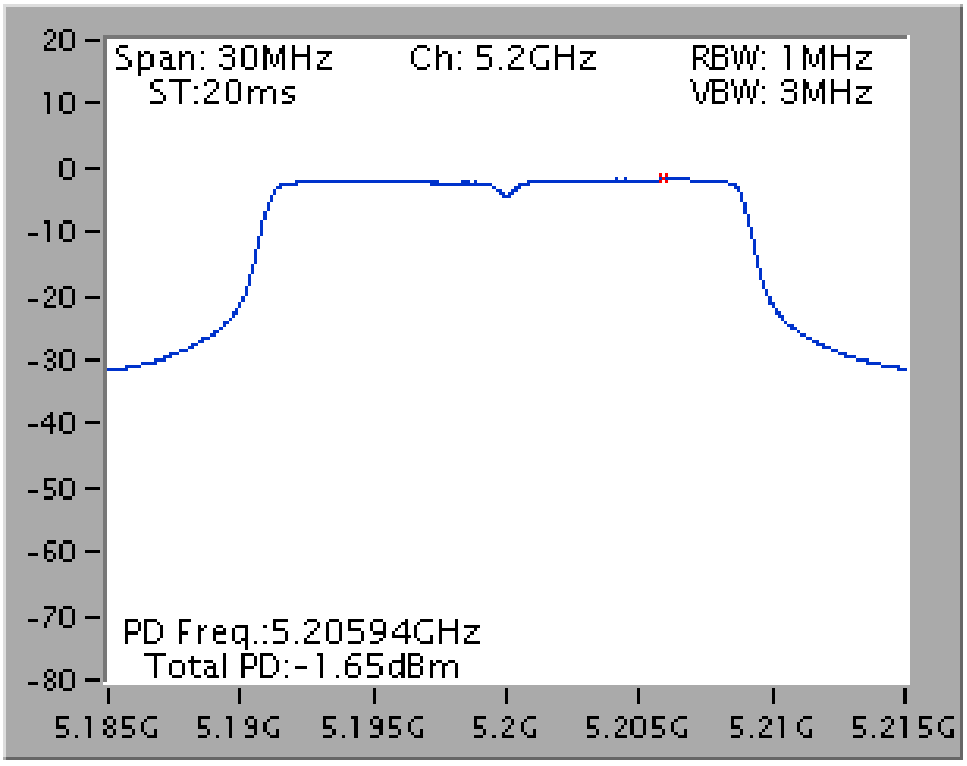
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



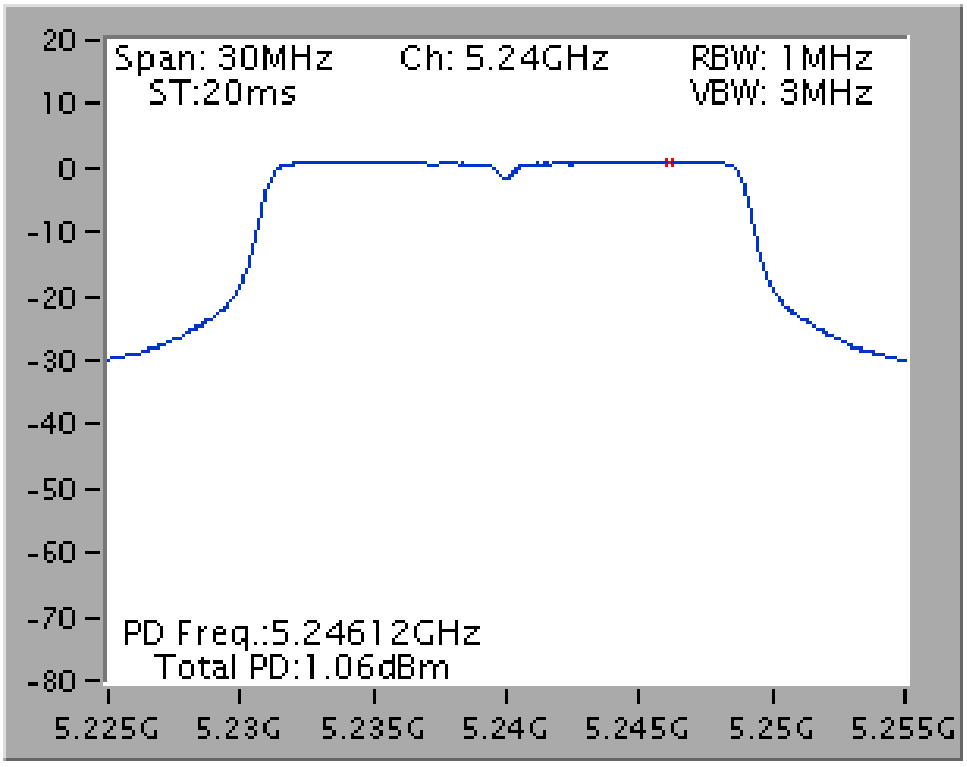
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



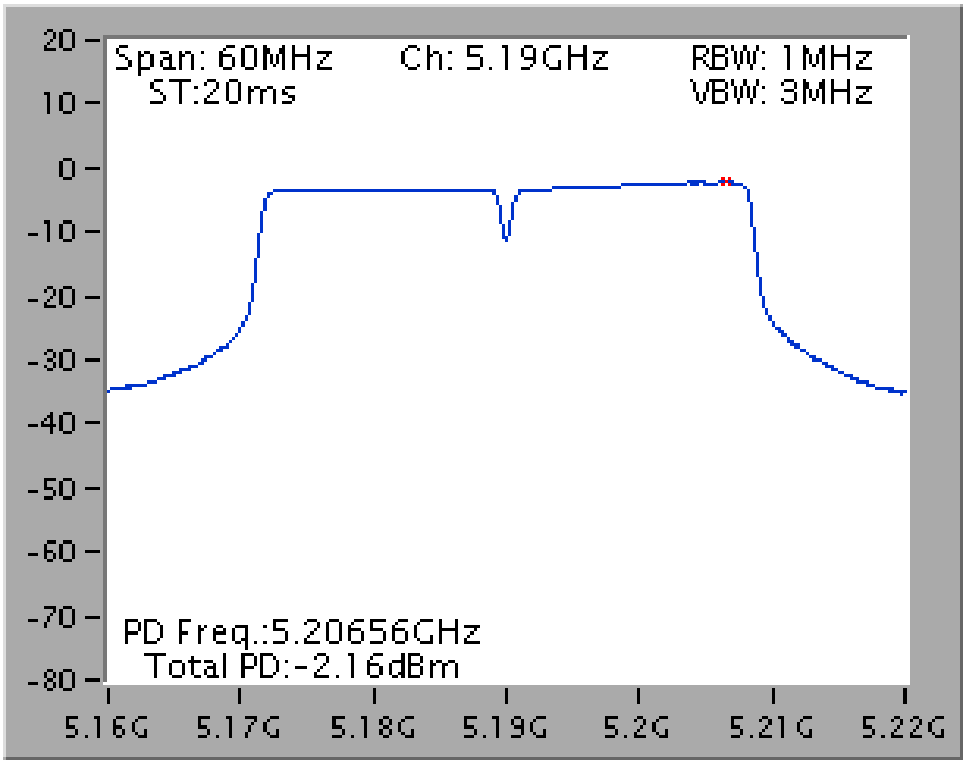
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



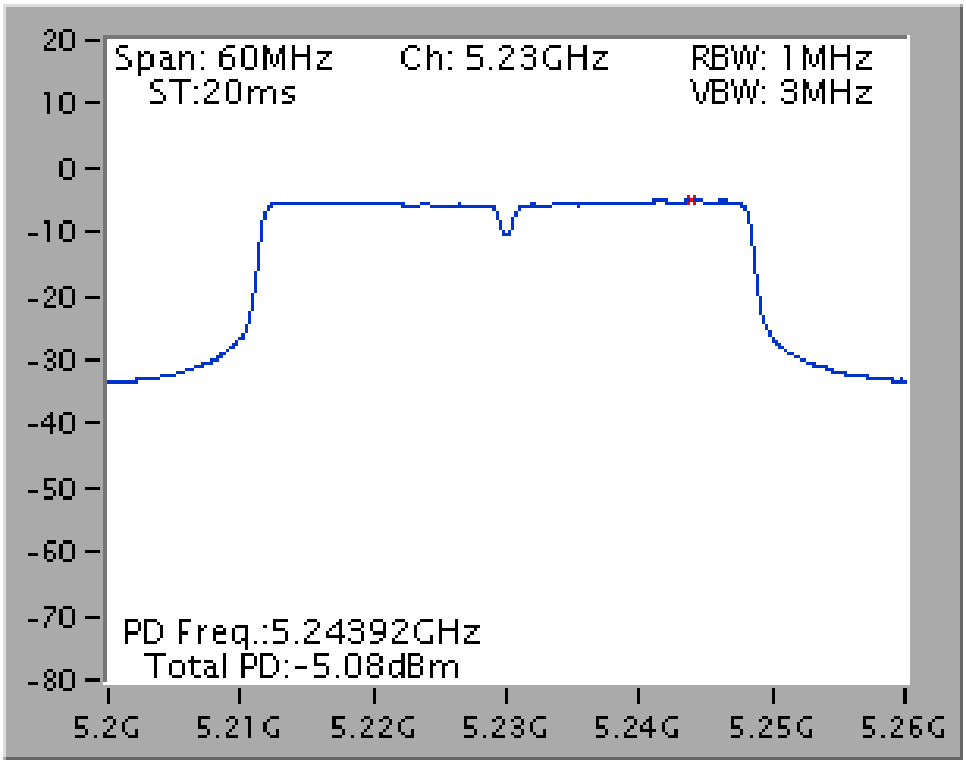
Power Density Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



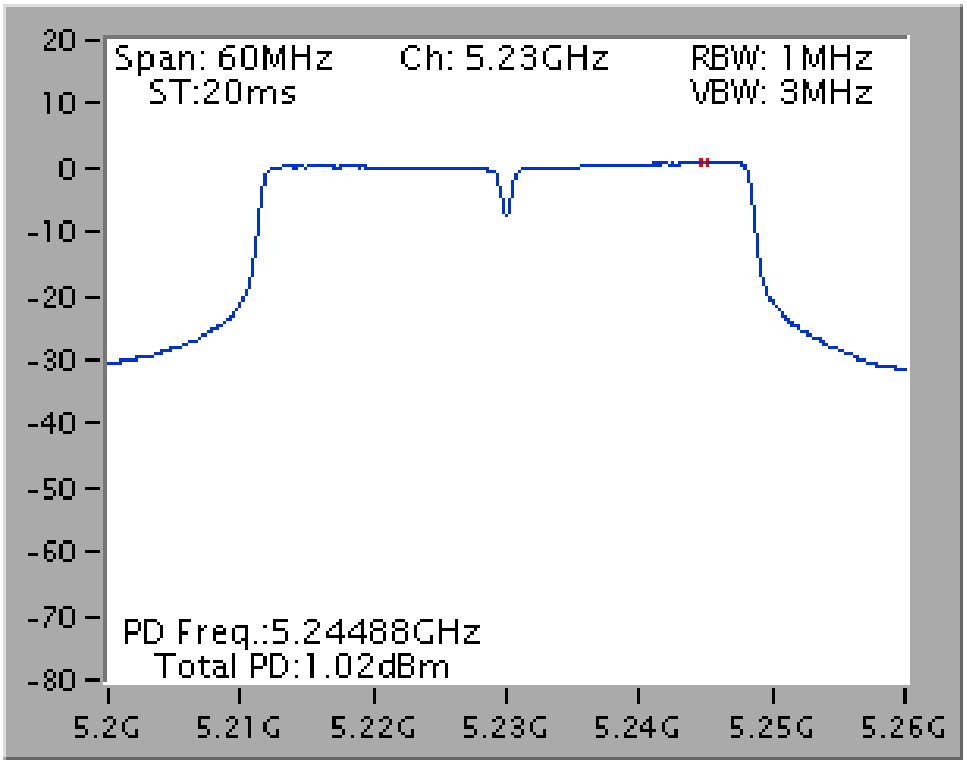
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



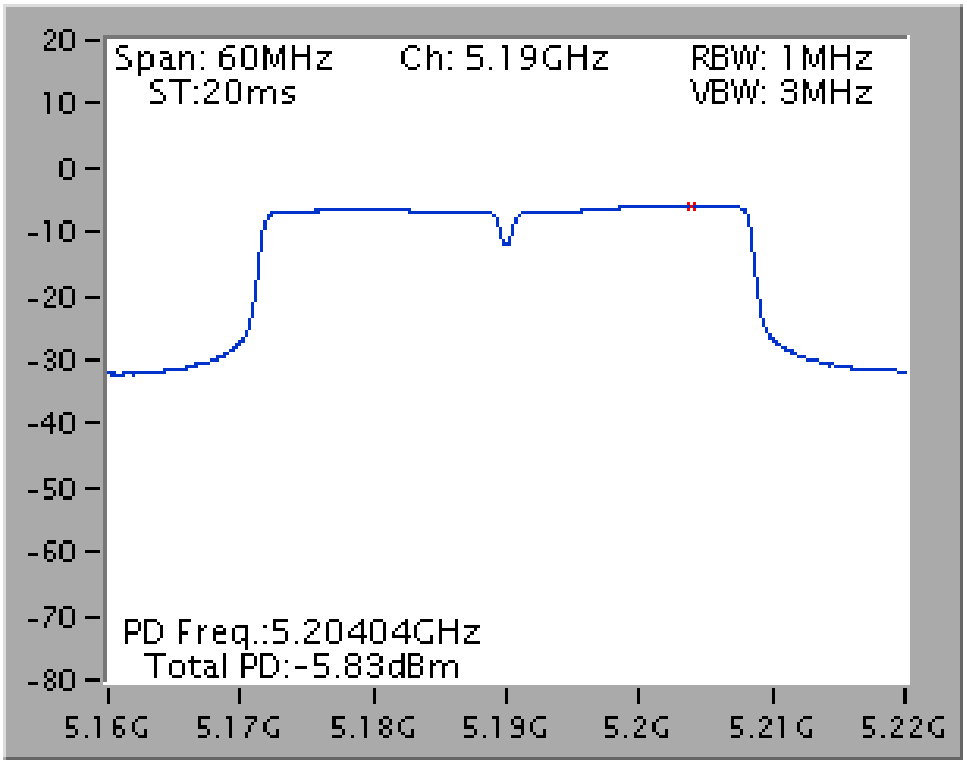
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



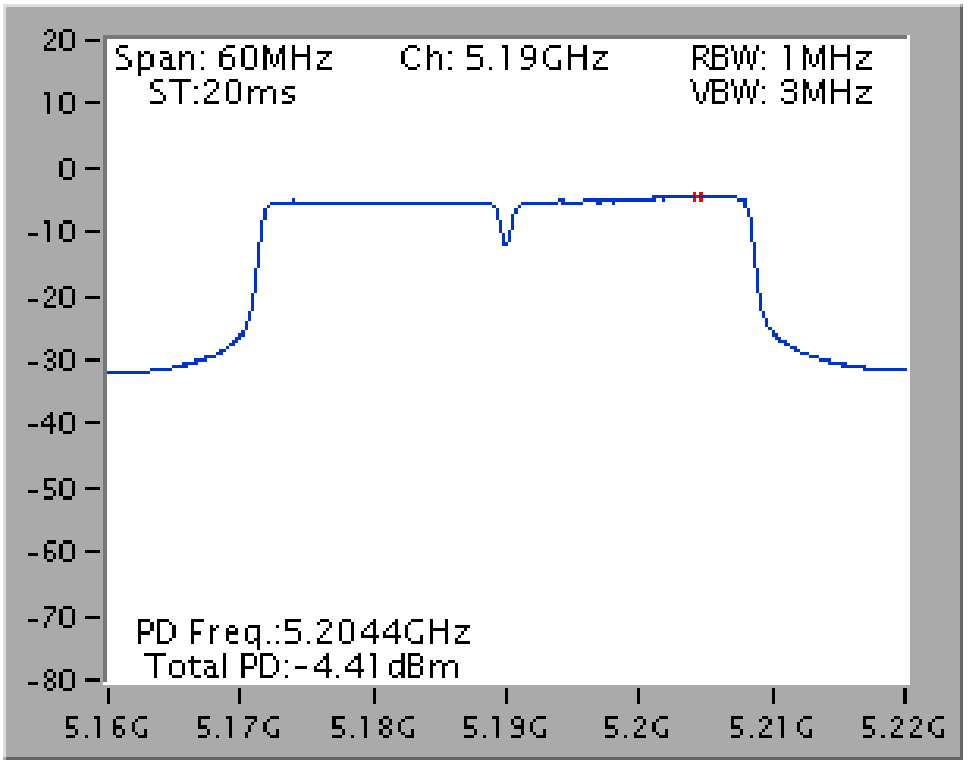
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



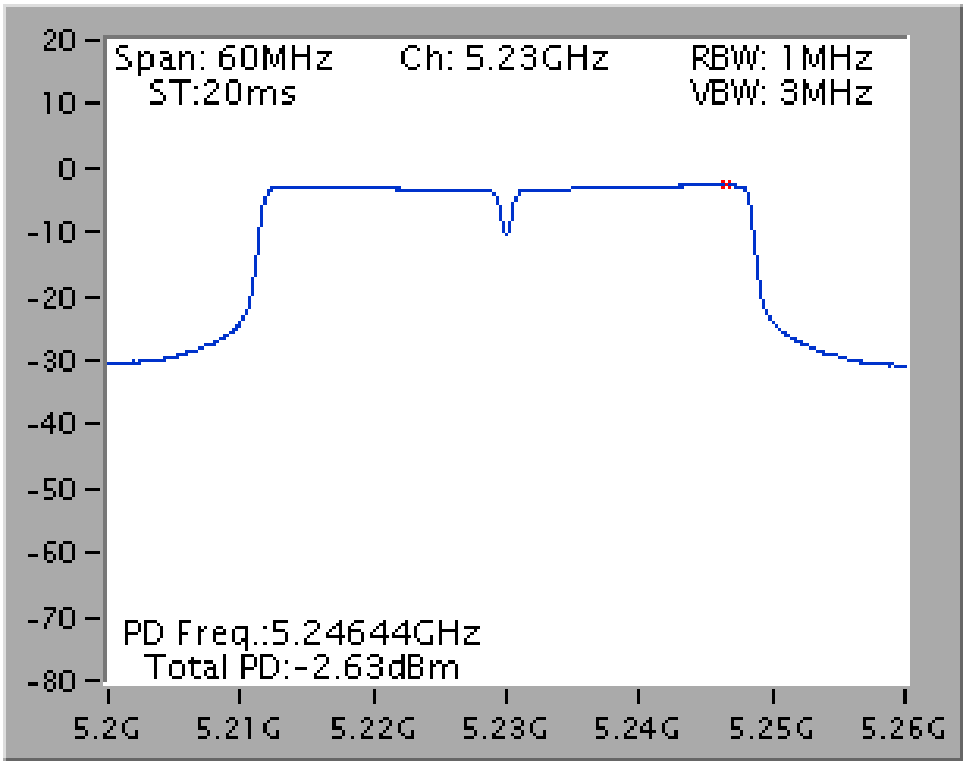
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Date	May 11, 2012	Test Mode	Mode 5 (Ant. 5 Facade antenna / 2.5dBi)

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.98	4.00	Complies
40	5200 MHz	3.34	4.00	Complies
48	5240 MHz	3.56	4.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.69	4.00	Complies
46	5230 MHz	0.71	4.00	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	1.85	4.00	Complies
40	5200 MHz	2.13	4.00	Complies
48	5240 MHz	2.58	4.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-0.69	4.00	Complies
46	5230 MHz	-1.10	4.00	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	3.02	4.00	Complies
40	5200 MHz	3.10	4.00	Complies
48	5240 MHz	3.11	4.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.03	4.00	Complies
46	5230 MHz	0.64	4.00	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	1.44	2.73	Complies
40	5200 MHz	1.62	2.73	Complies
48	5240 MHz	1.89	2.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.27dBi > 6dBi, so the Band 1 power density limit =4 - (7.27dBi -6)=2.73dBm.

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-1.17	2.73	Complies
46	5230 MHz	-1.00	2.73	Complies

Note: $\text{Directional gain} = G_{ANT} + 10\log(N)\ \text{dBi}$ =7.27dBi > 6dBi, so the Band 1 power density limit =4 - (7.27dBi -6)=2.73dBm.

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	2.96	4.00	Complies
40	5200 MHz	2.80	4.00	Complies
48	5240 MHz	2.90	4.00	Complies

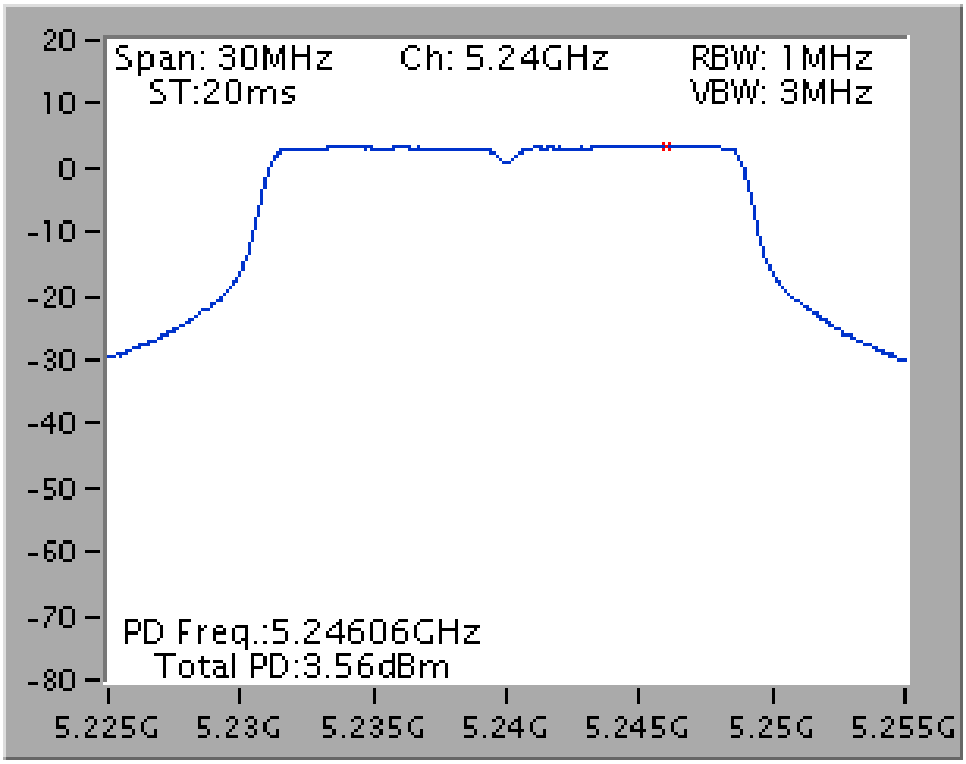
Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	0.42	4.00	Complies
46	5230 MHz	-0.03	4.00	Complies

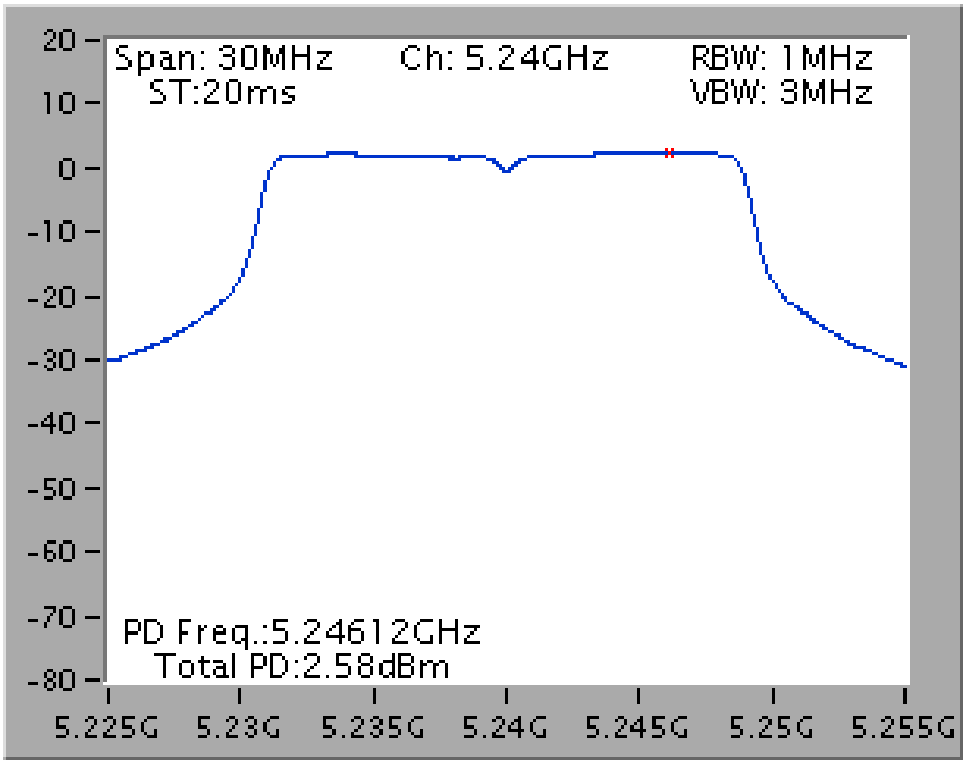
Note: All the test values were listed in the report.

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

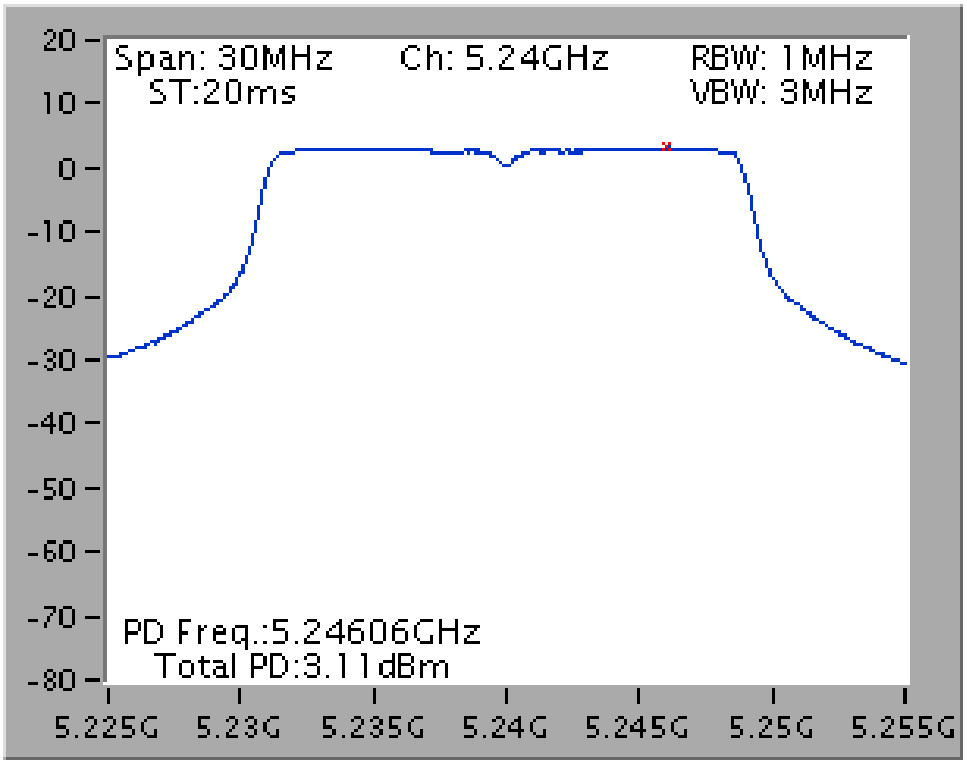
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



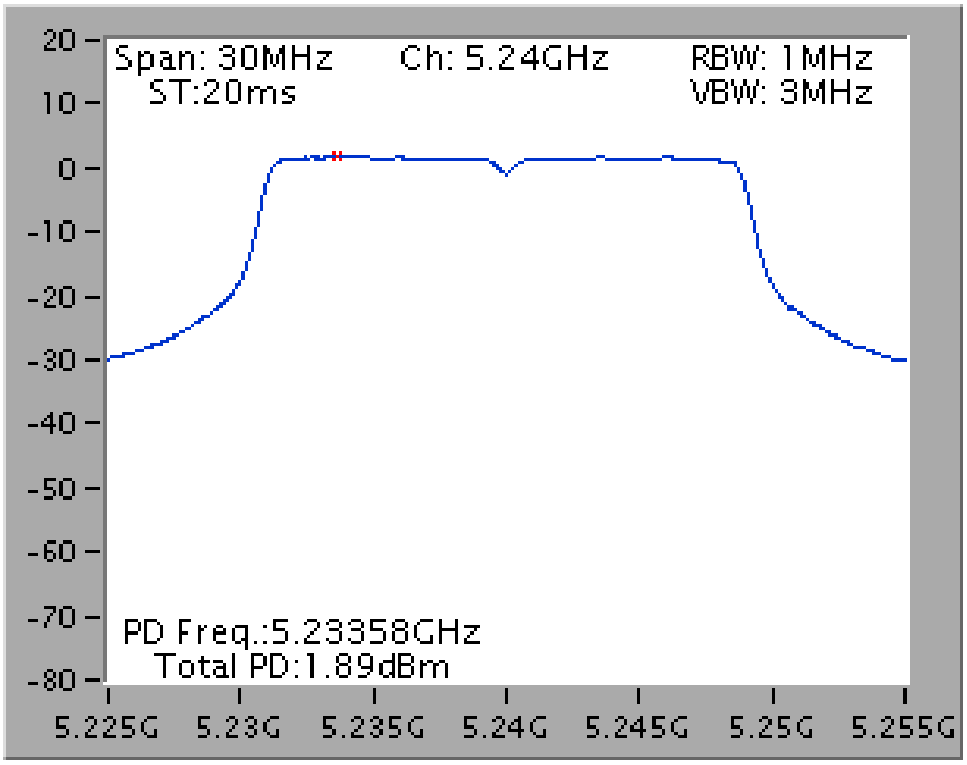
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



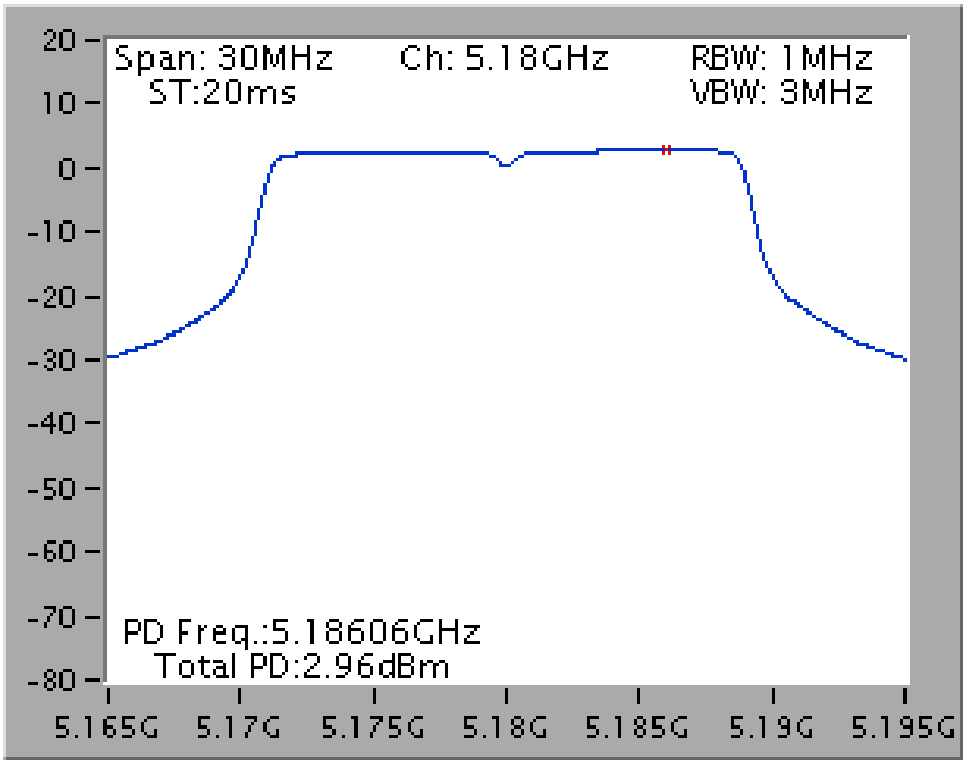
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



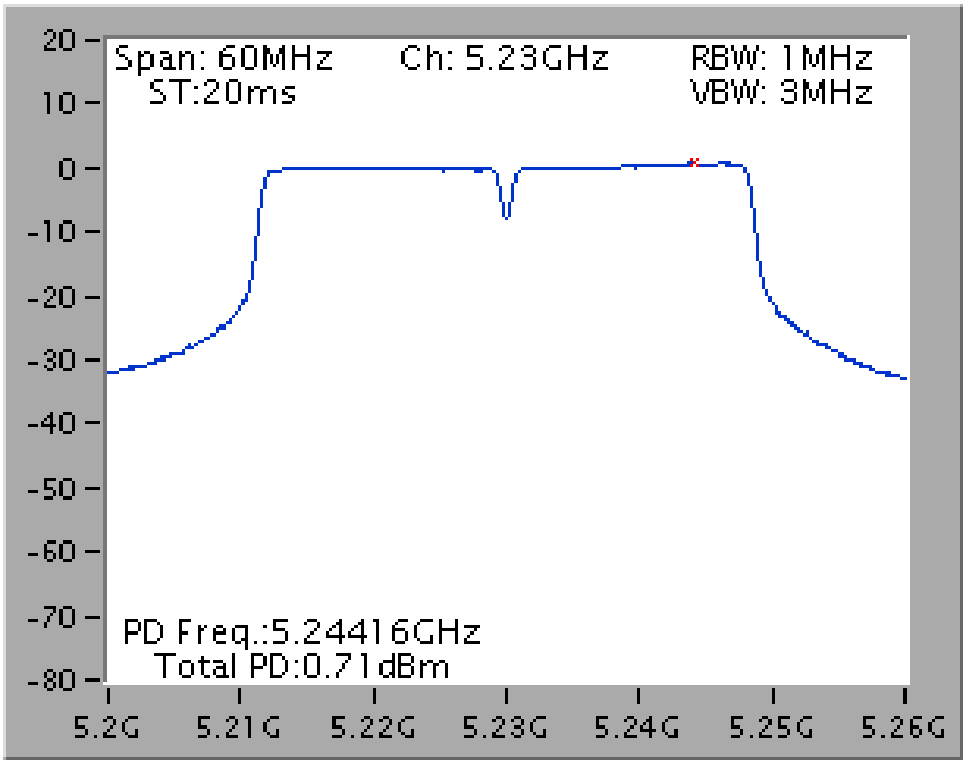
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



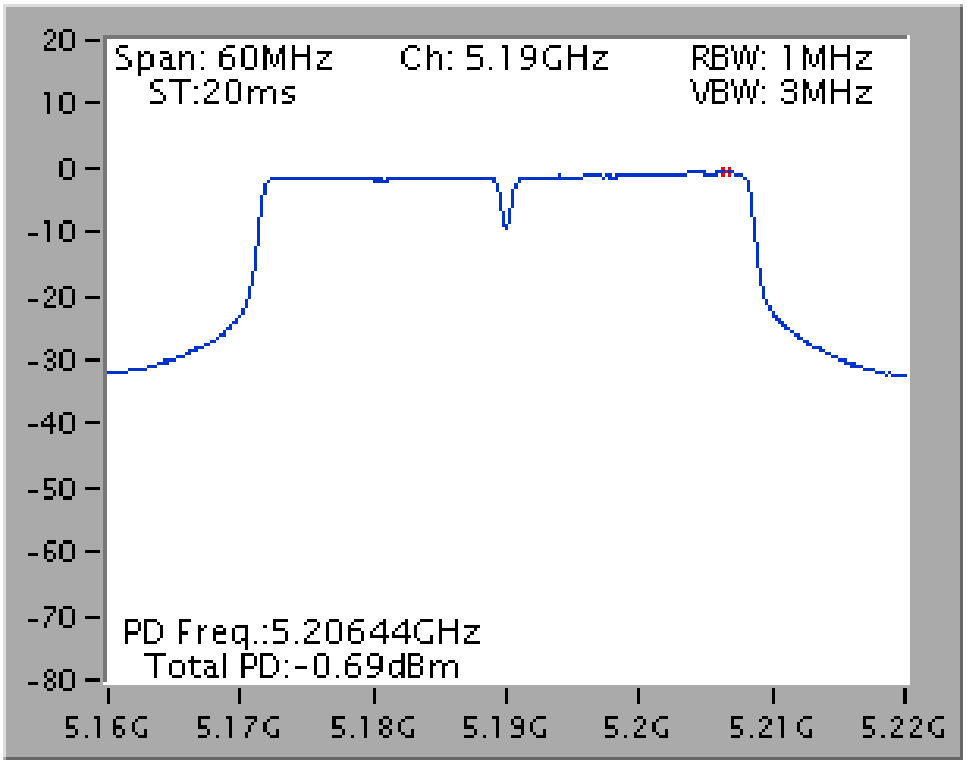
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5180 MHz (3TX)



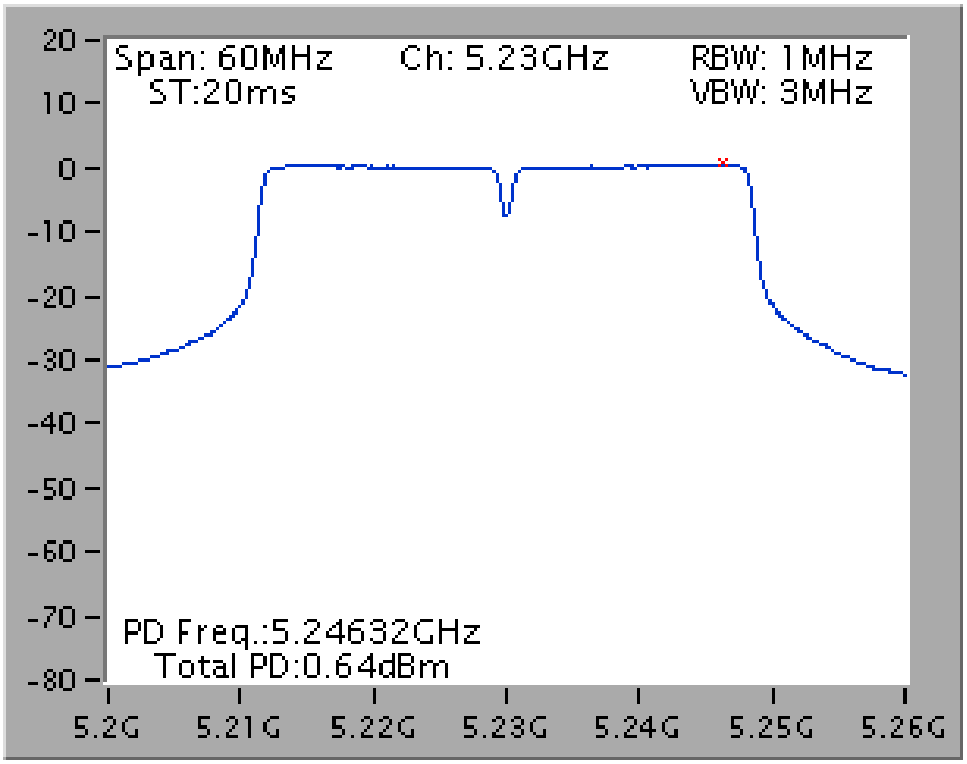
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



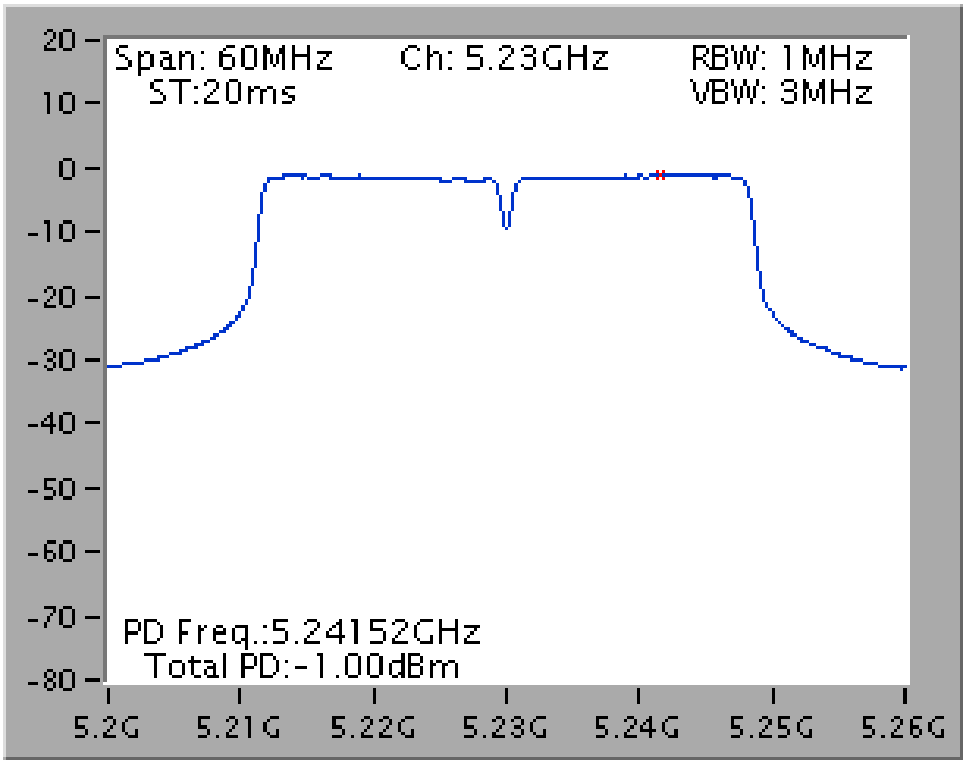
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5190 MHz (2TX)



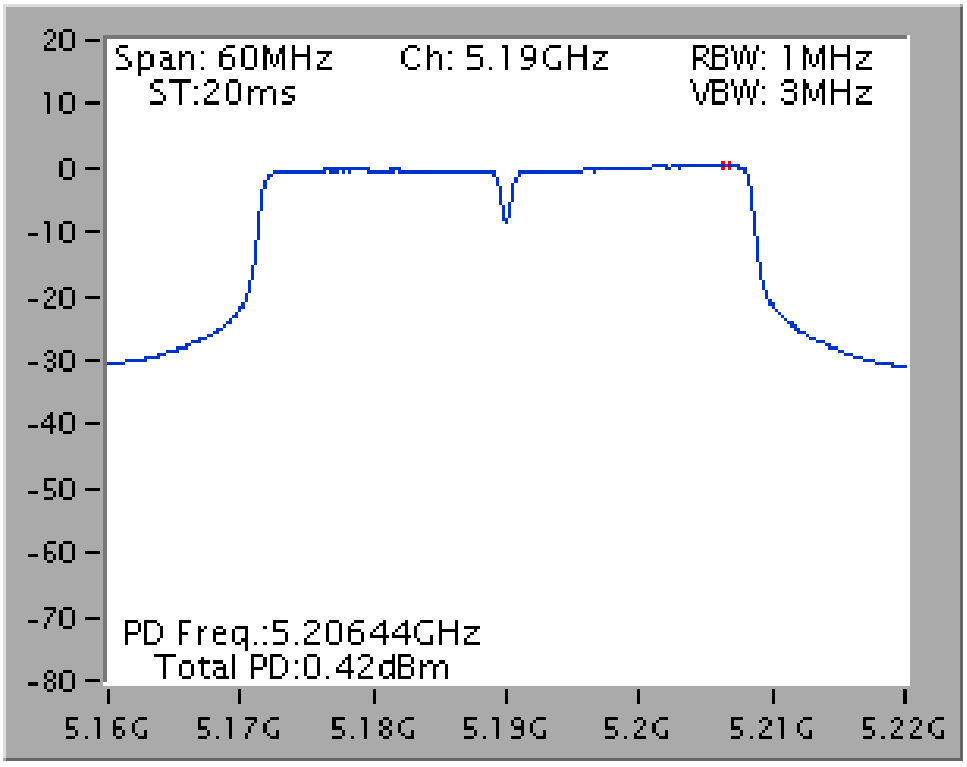
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



4.5. Peak Excursion Measurement

4.5.1. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.

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	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz (Peak Trace) / 1000 kHz (Average Trace)
VB	3000 kHz (Peak Trace) / 300 kHz (Average Trace)
Detector	Peak (Peak Trace) / Sample (Average Trace)
Trace	Max Hold
Sweep Time	60s

4.5.3. Test Procedures

1. The test procedure is the same as section 4.6.3.
2. Peak trace, Set RBW =1MHz, VBW = 3MHz, Span >26dB bandwidth, Max. hold.
3. Average trace, Set RBW =1MHz, VBW = 300KHz, Span >26dB bandwidth, trace average 100.
4. Delta mark peak trace maximum frequency and average trace same frequency.
5. Compute the ratio of the maximum of the peak-max-hold spectrum to the maximum of the average.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.6.4.

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 Peak Excursion

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.68	13	Complies
40	5200 MHz	5.47	13	Complies
48	5240 MHz	5.29	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.01	13	Complies
46	5230 MHz	5.32	13	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.24	13	Complies
40	5200 MHz	4.27	13	Complies
48	5240 MHz	4.96	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.82	13	Complies
46	5230 MHz	5.88	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.51	13	Complies
40	5200 MHz	4.98	13	Complies
48	5240 MHz	6.41	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	4.37	13	Complies
46	5230 MHz	4.93	13	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.95	13	Complies
40	5200 MHz	4.66	13	Complies
48	5240 MHz	5.73	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.15	13	Complies
46	5230 MHz	5.38	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.35	13	Complies
40	5200 MHz	6.57	13	Complies
48	5240 MHz	5.57	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.89	13	Complies
46	5230 MHz	5.19	13	Complies

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.28	13	Complies
40	5200 MHz	6.13	13	Complies
48	5240 MHz	5.19	13	Complies

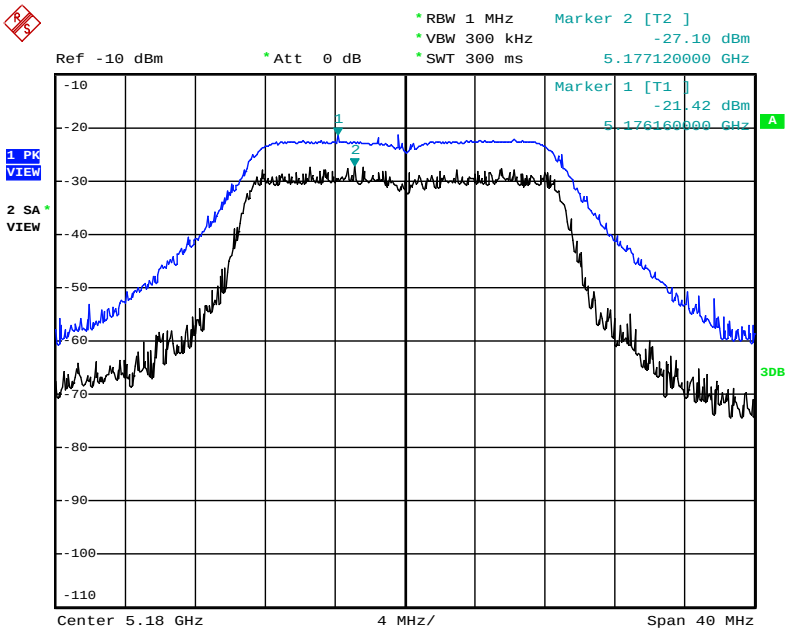
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	4.84	13	Complies
46	5230 MHz	6.78	13	Complies

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

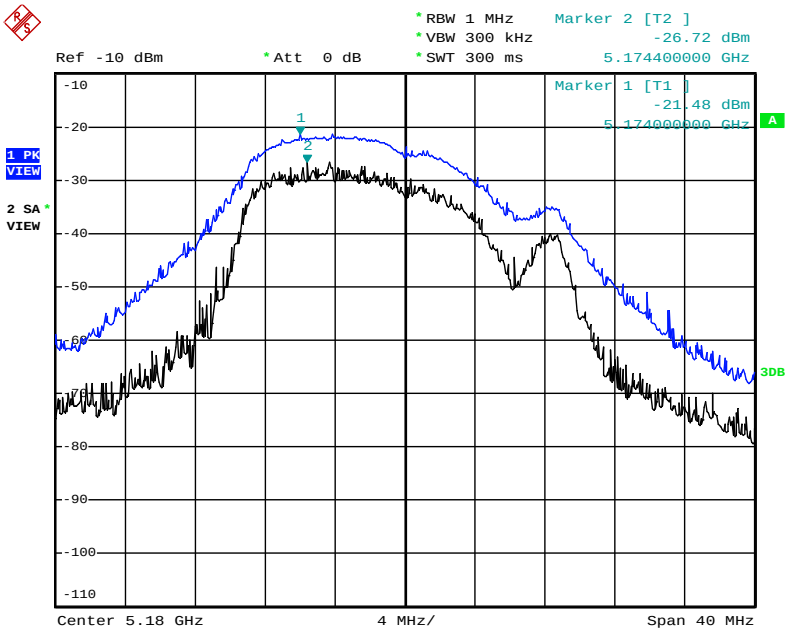
For plots, only the channel with maximum results was shown.

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



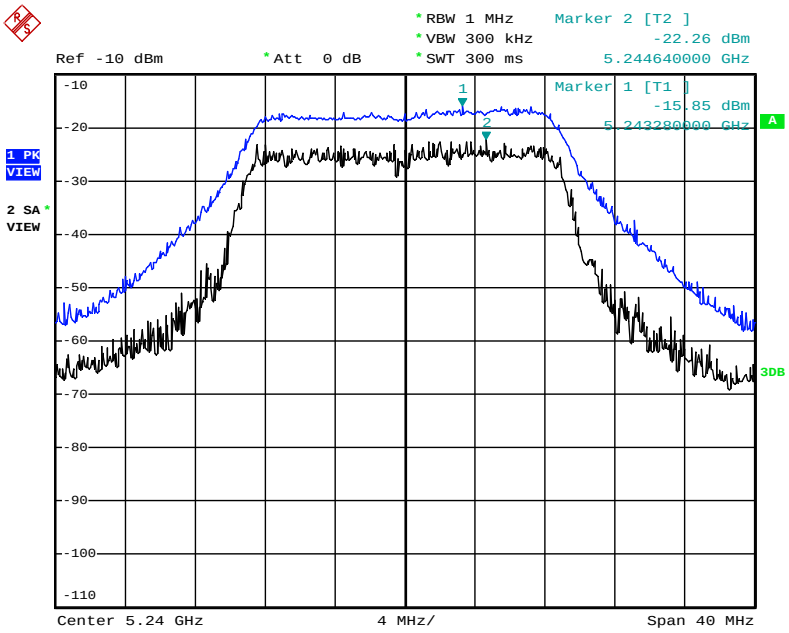
Date: 15.MAY.2012 05:18:54

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



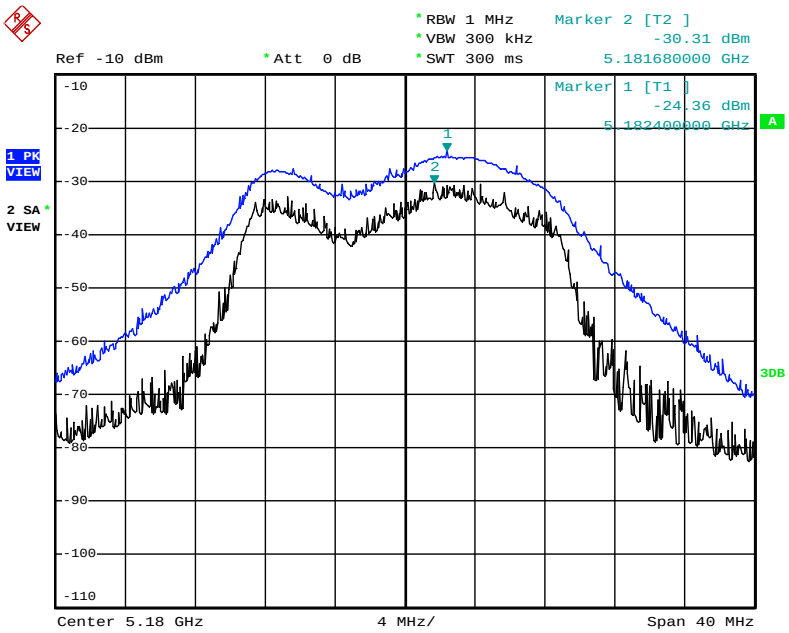
Date: 15.MAY.2012 05:23:18

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



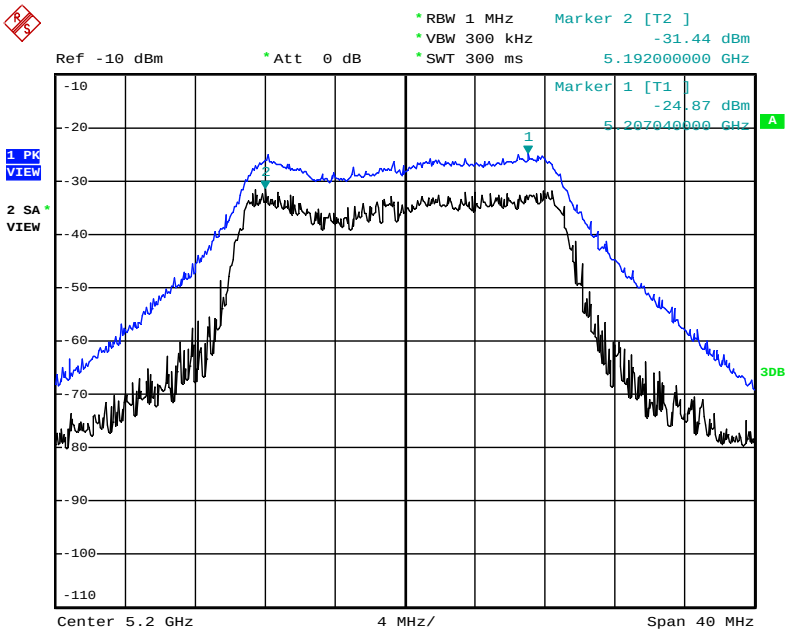
Date: 15.MAY.2012 05:28:37

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5180 MHz (3TX)



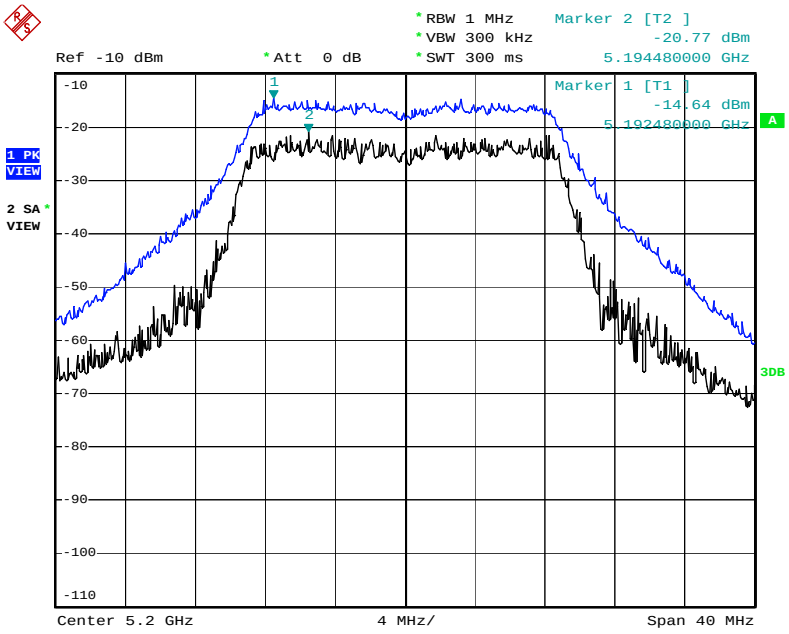
Date: 15.MAY.2012 05:34:27

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



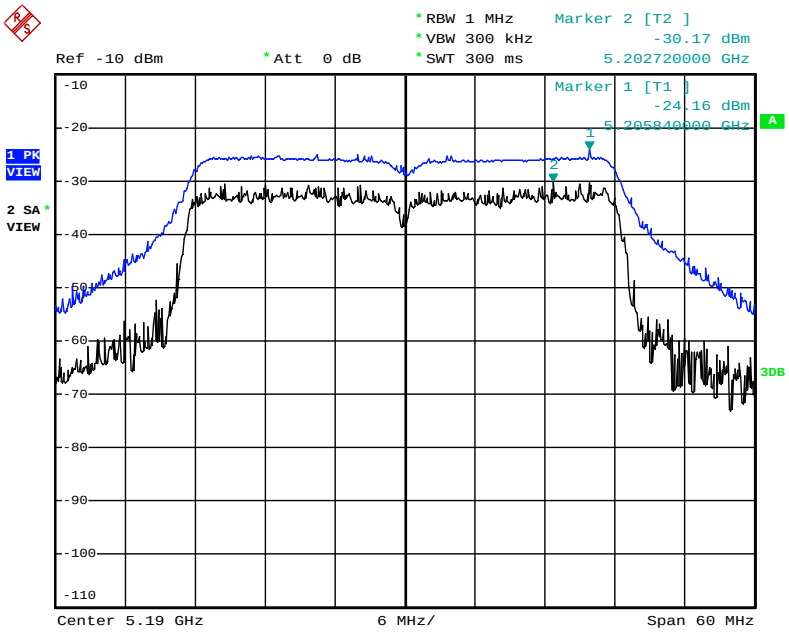
Date: 15.MAY.2012 05:36:44

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



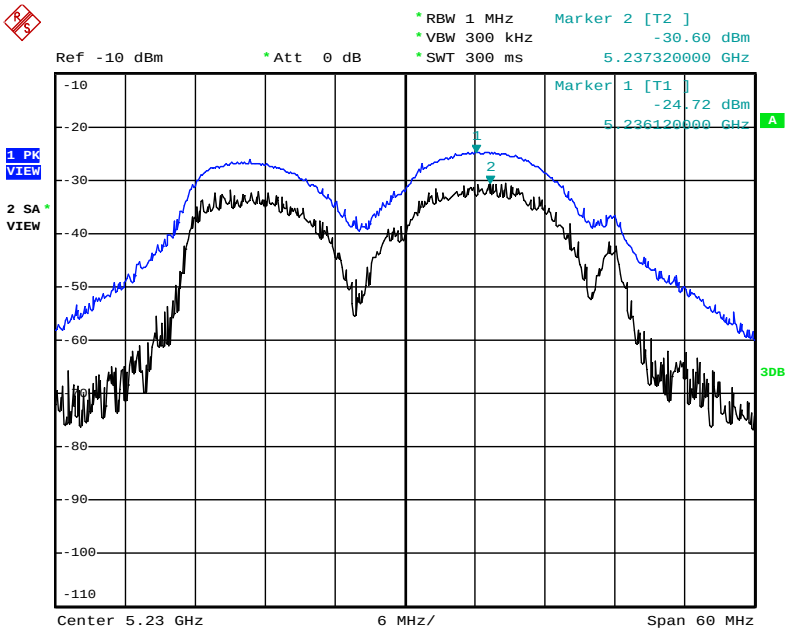
Date: 23.MAY.2012 10:47:07

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



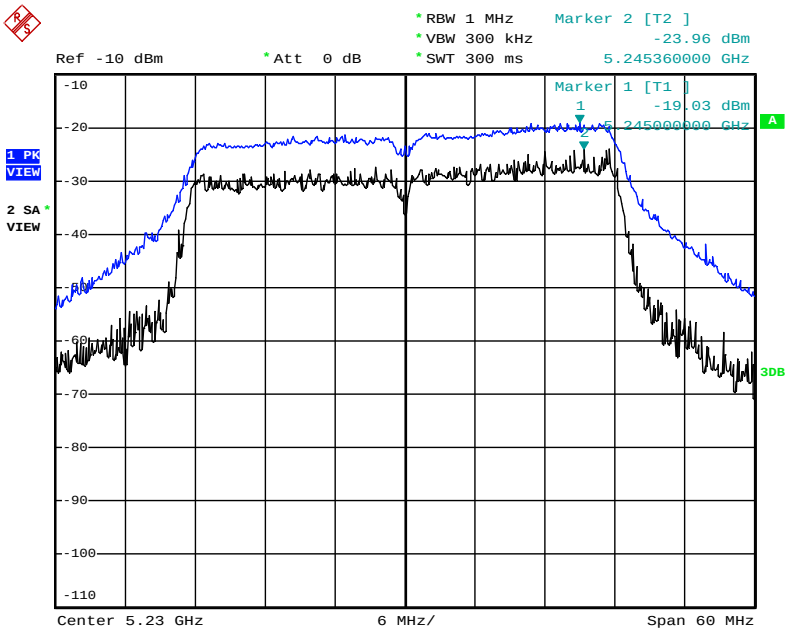
Date: 15.MAY.2012 05:21:16

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



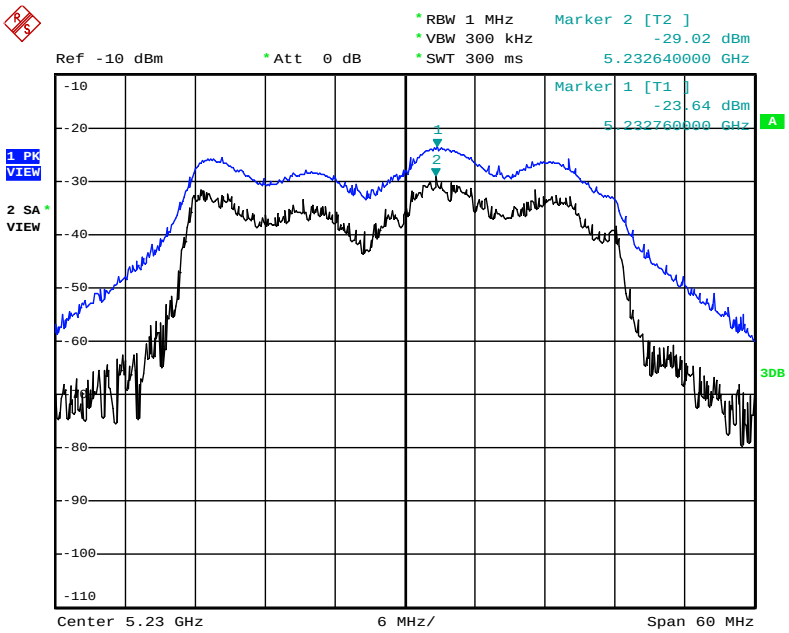
Date: 15.MAY.2012 05:32:53

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



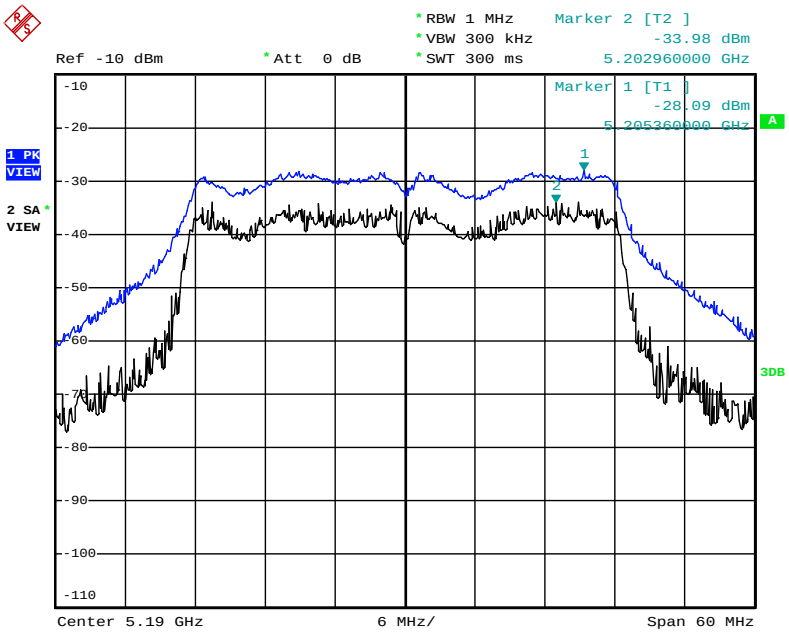
Date: 15.MAY.2012 05:31:55

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



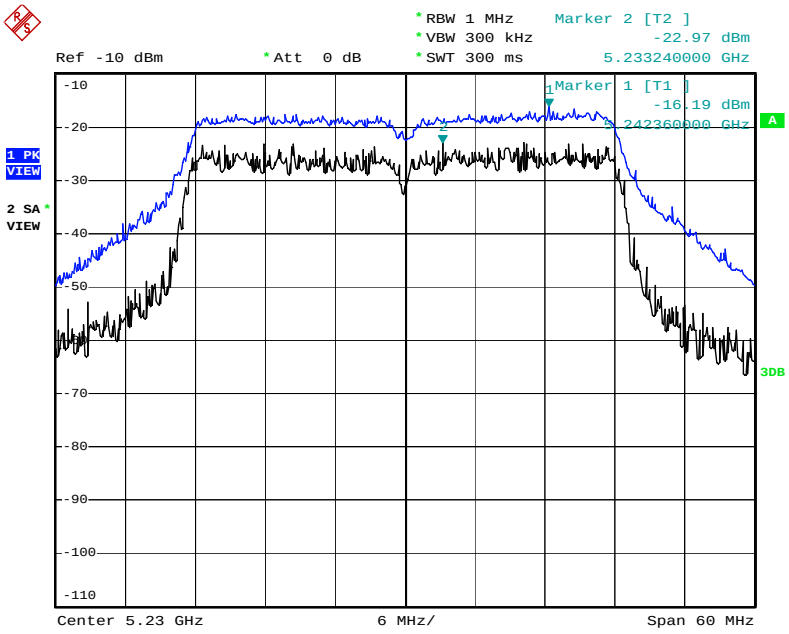
Date: 15.MAY.2012 05:40:08

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 15.MAY.2012 05:38:00

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 23.MAY.2012 10:50:35

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 2 (Ant. 7 Patch antenna / 2.3dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.41	13	Complies
40	5200 MHz	5.10	13	Complies
48	5240 MHz	5.52	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.48	13	Complies
46	5230 MHz	5.92	13	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.37	13	Complies
40	5200 MHz	4.90	13	Complies
48	5240 MHz	5.36	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.95	13	Complies
46	5230 MHz	5.22	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.87	13	Complies
40	5200 MHz	6.13	13	Complies
48	5240 MHz	6.13	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.08	13	Complies
46	5230 MHz	6.67	13	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.83	13	Complies
40	5200 MHz	5.29	13	Complies
48	5240 MHz	5.89	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.70	13	Complies
46	5230 MHz	5.60	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.97	13	Complies
40	5200 MHz	5.64	13	Complies
48	5240 MHz	5.47	13	Complies

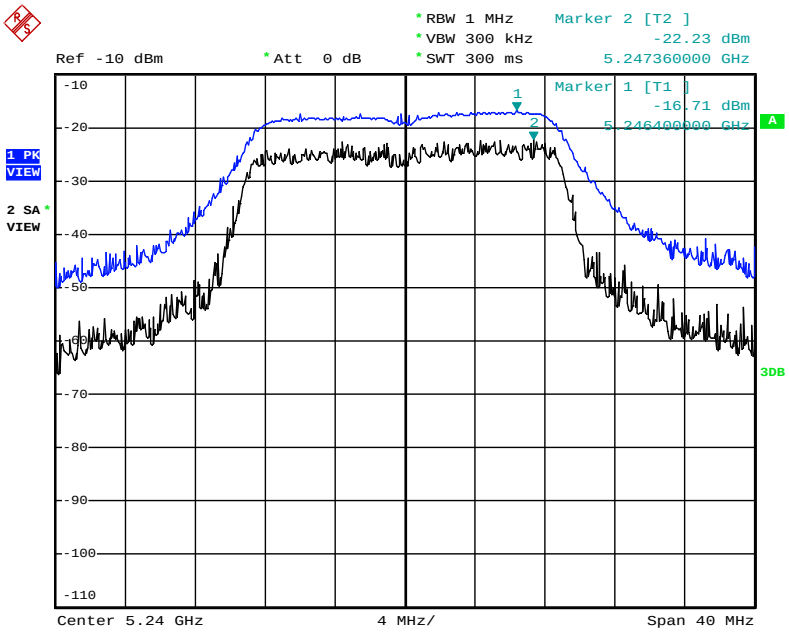
Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.58	13	Complies
46	5230 MHz	6.67	13	Complies

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

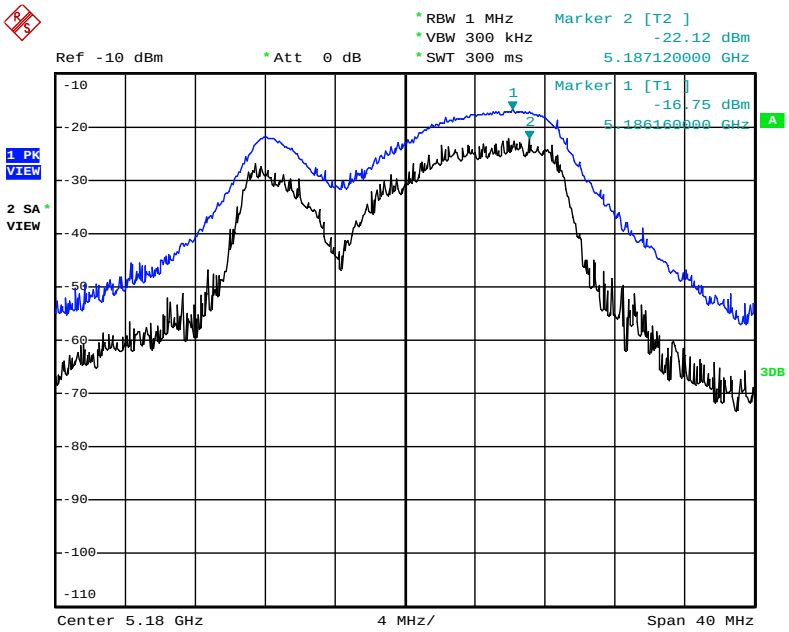
For plots, only the channel with maximum results was shown.

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



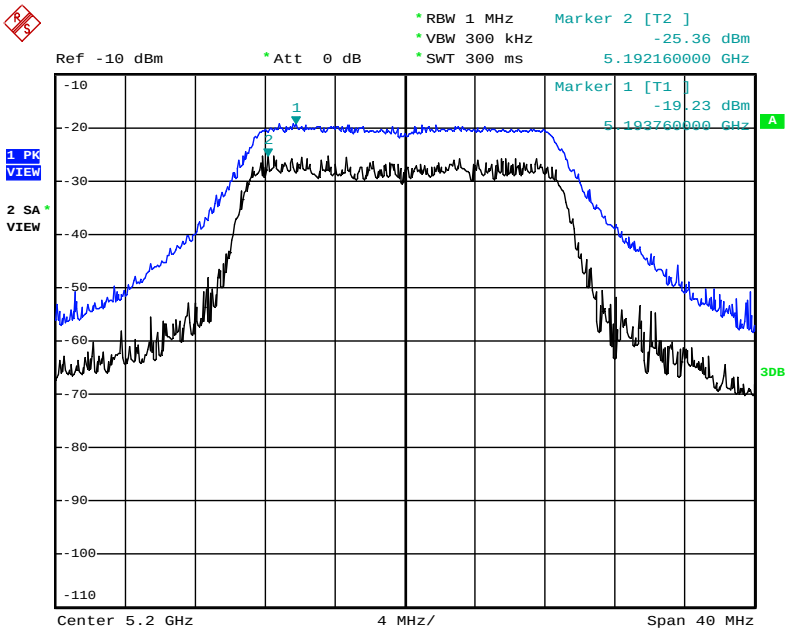
Date: 15.MAY.2012 03:58:55

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



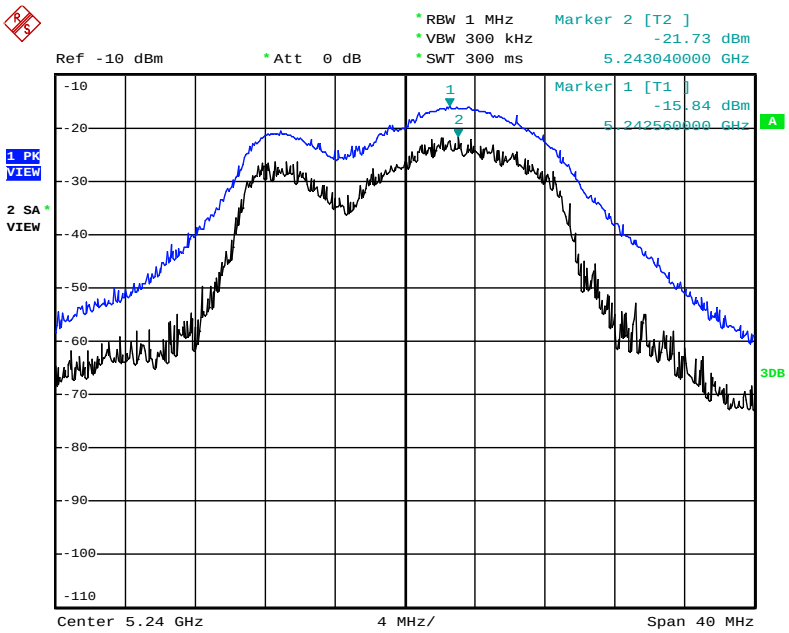
Date: 15.MAY.2012 04:00:49

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



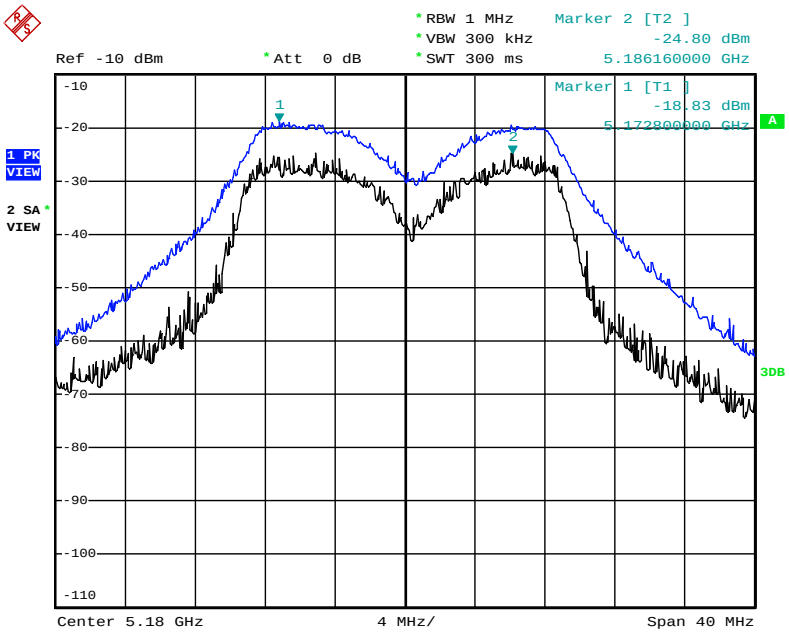
Date: 15.MAY.2012 04:02:42

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



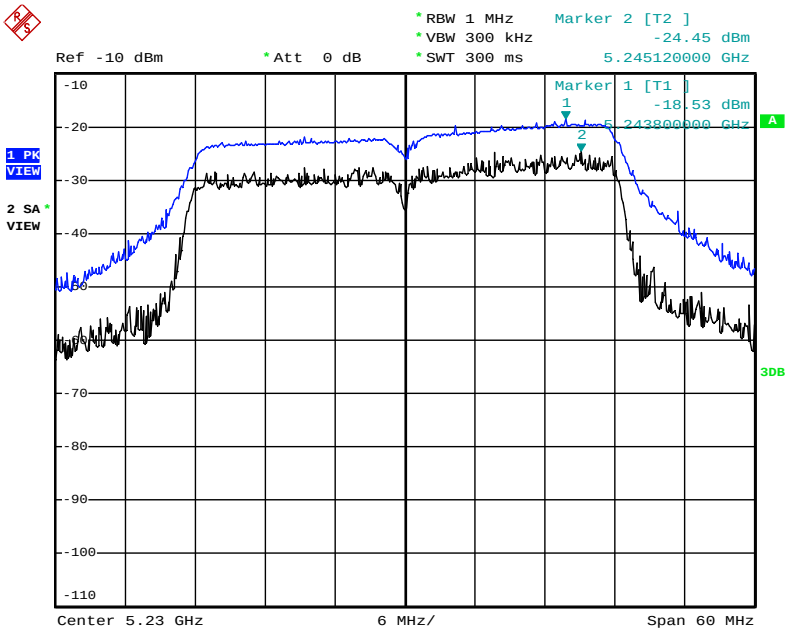
Date: 15.MAY.2012 04:09:59

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5180 MHz (3TX)



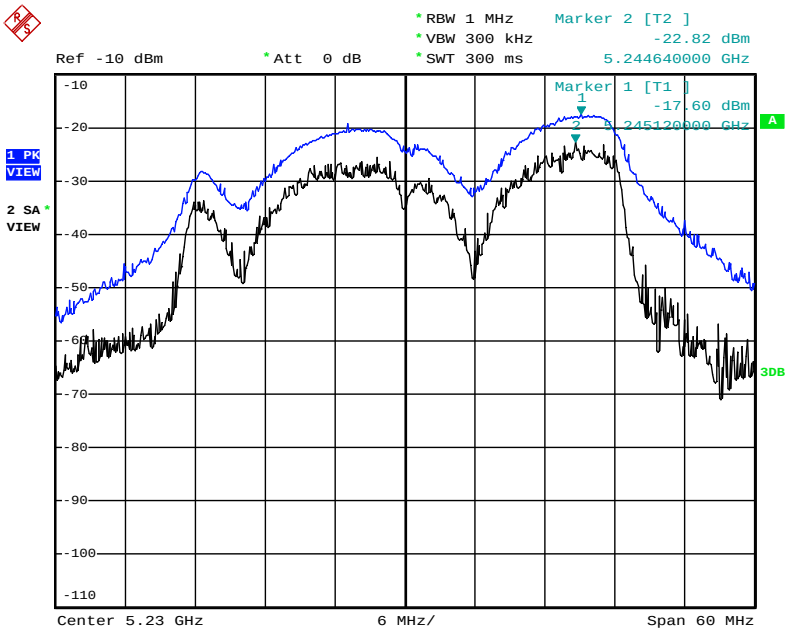
Date: 15.MAY.2012 04:08:42

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



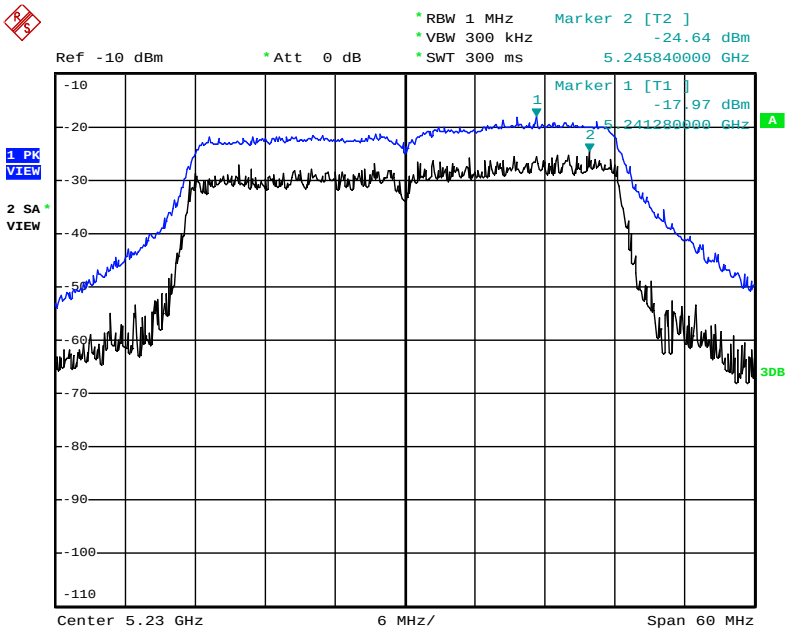
Date: 15.MAY.2012 03:59:59

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



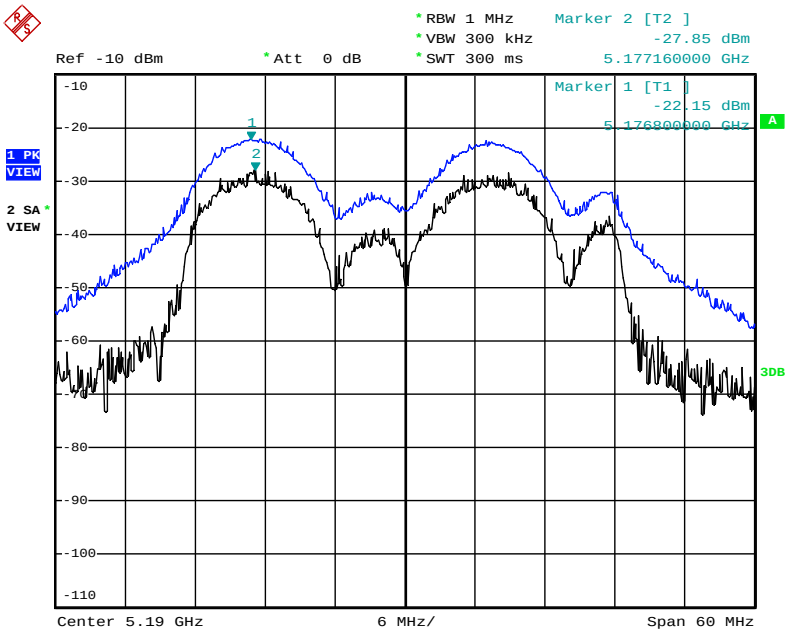
Date: 15.MAY.2012 04:04:56

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



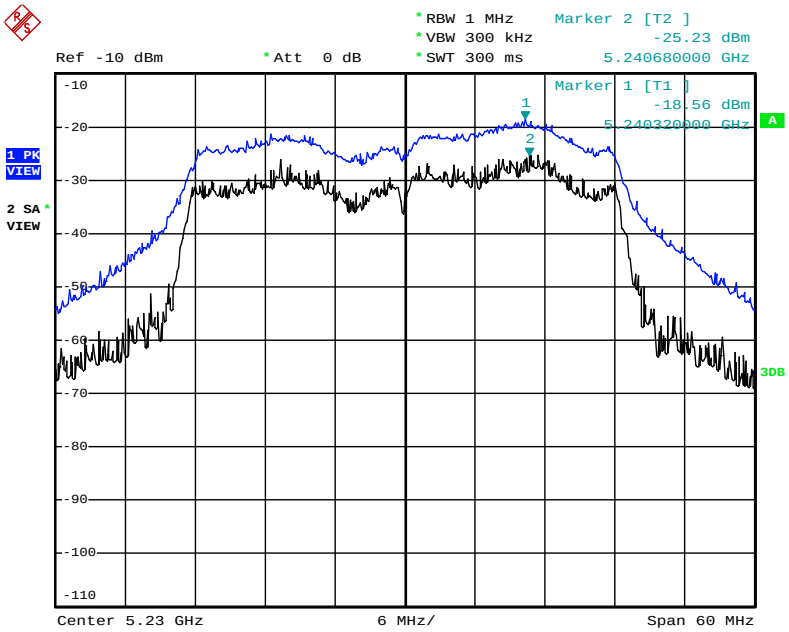
Date: 15.MAY.2012 04:04:25

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 15.MAY.2012 04:06:33

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 15.MAY.2012 04:07:40

Temperature	25°C	Humidity	56%
Test Engineer	Densin Su	Configurations	IEEE 802.11n
Test Mode	Mode 3 (Ant. 8 Panel antenna / 10.5dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.86	13	Complies
40	5200 MHz	6.19	13	Complies
48	5240 MHz	5.92	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	4.89	13	Complies
46	5230 MHz	5.21	13	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.79	13	Complies
40	5200 MHz	4.04	13	Complies
48	5240 MHz	4.87	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.75	13	Complies
46	5230 MHz	6.85	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.63	13	Complies
40	5200 MHz	6.28	13	Complies
48	5240 MHz	6.57	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.84	13	Complies
46	5230 MHz	5.59	13	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	6.26	13	Complies
40	5200 MHz	5.88	13	Complies
48	5240 MHz	6.15	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.32	13	Complies
46	5230 MHz	5.54	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	6.49	13	Complies
40	5200 MHz	6.27	13	Complies
48	5240 MHz	7.41	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.16	13	Complies
46	5230 MHz	5.14	13	Complies

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.93	13	Complies
40	5200 MHz	6.46	13	Complies
48	5240 MHz	4.65	13	Complies

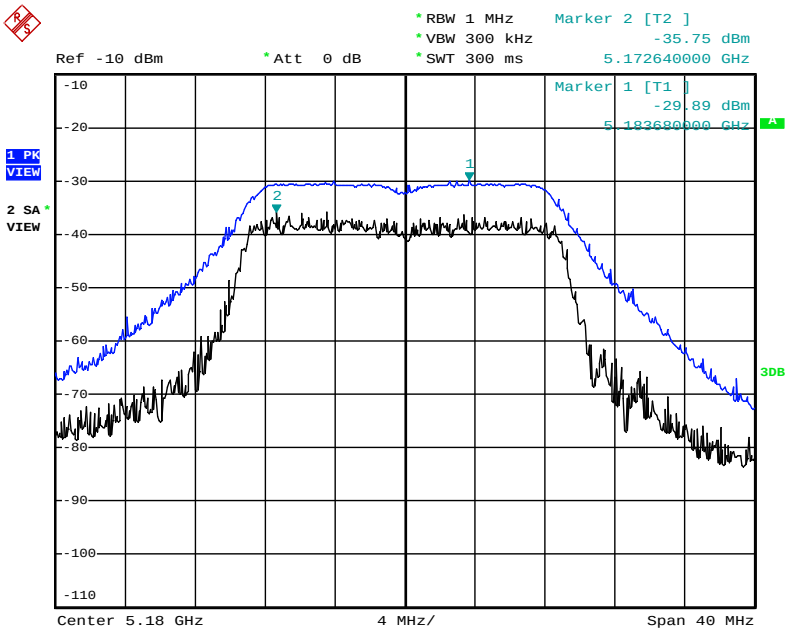
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.12	13	Complies
46	5230 MHz	6.05	13	Complies

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

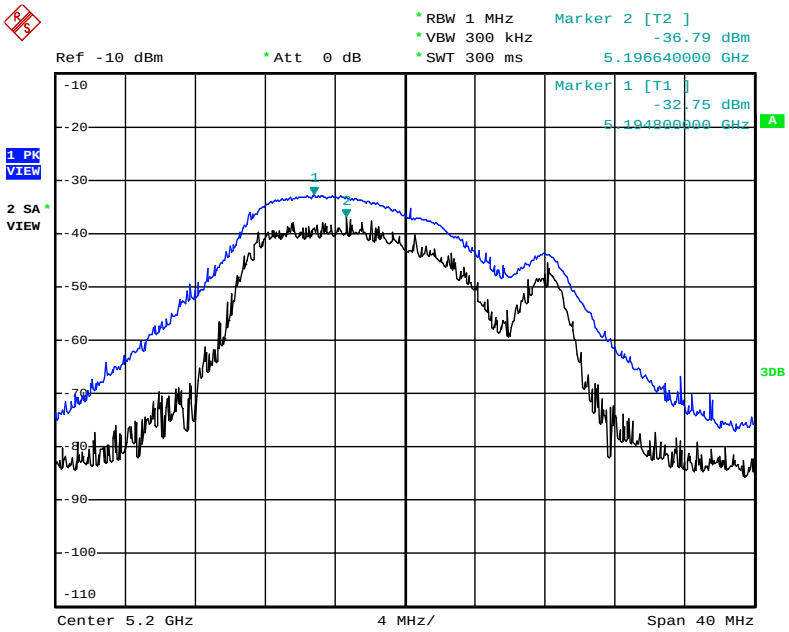
For plots, only the channel with maximum results was shown.

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5180 MHz (1TX)



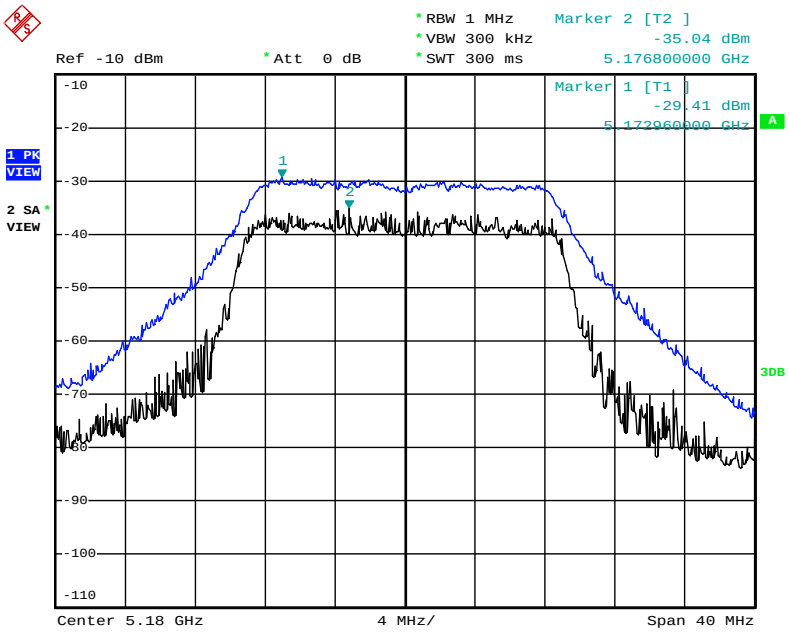
Date: 5.JUN.2012 14:56:10

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



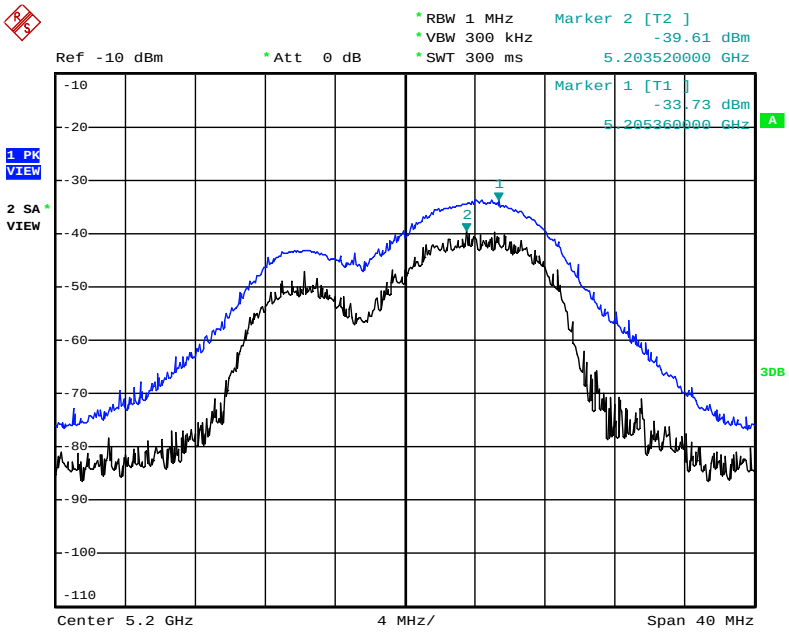
Date: 5.JUN.2012 14:50:45

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



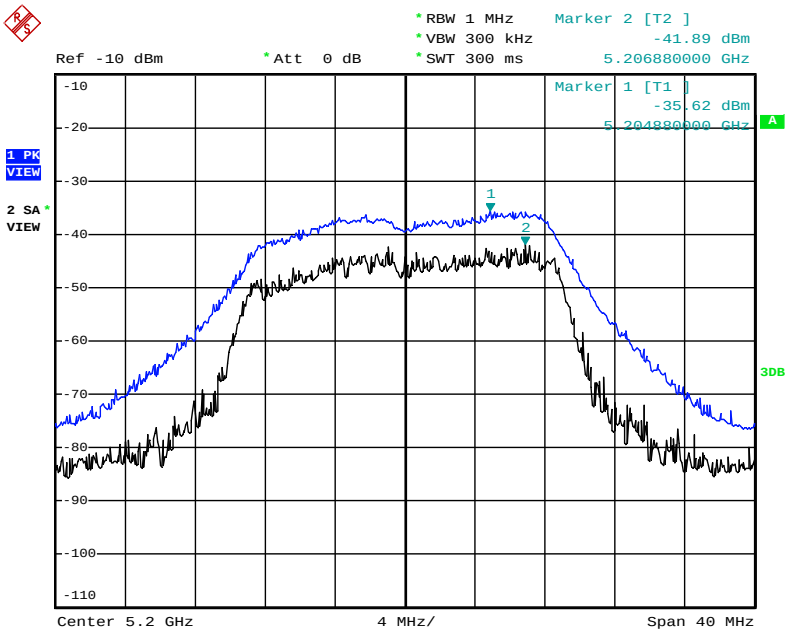
Date: 5.JUN.2012 14:51:35

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



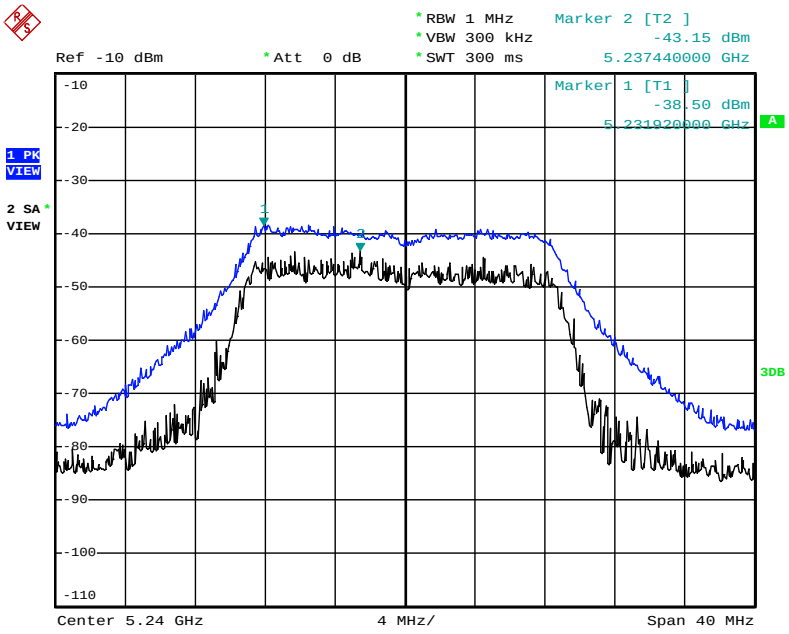
Date: 5.JUN.2012 14:49:04

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



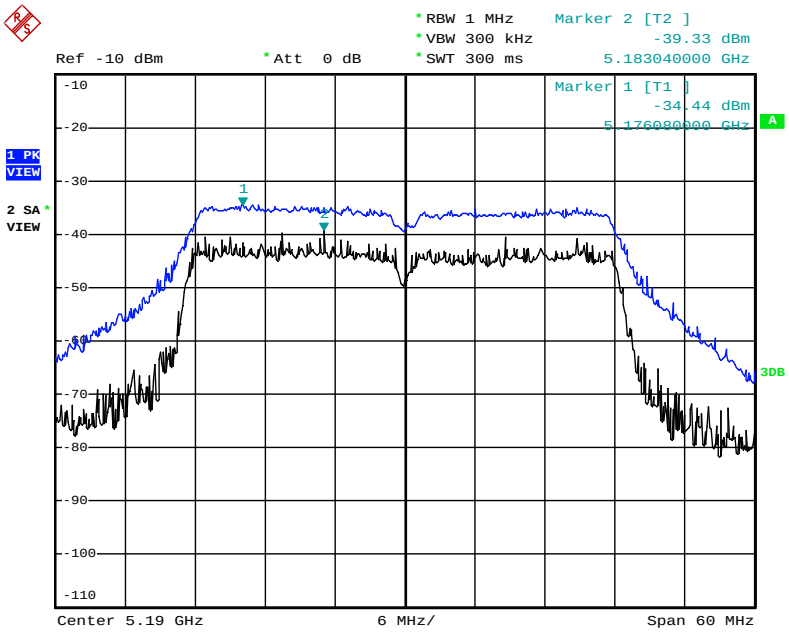
Date: 5.JUN.2012 14:47:43

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)

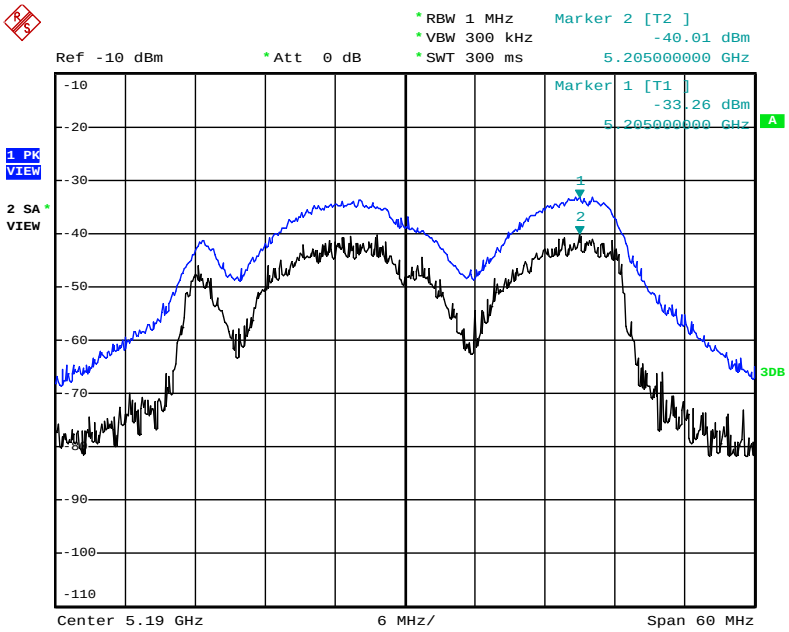


Date: 5.JUN.2012 14:46:50

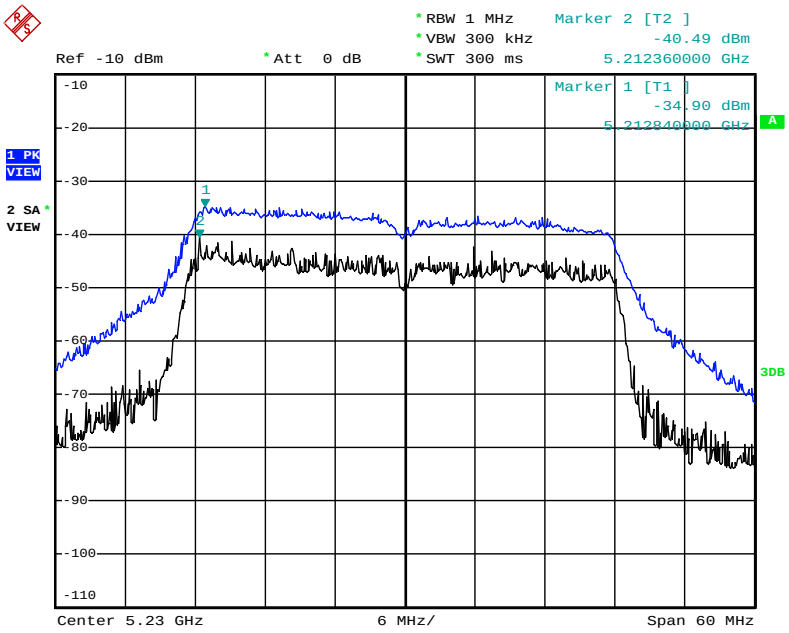
Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5190 MHz (1TX)



Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5190 MHz (2TX)

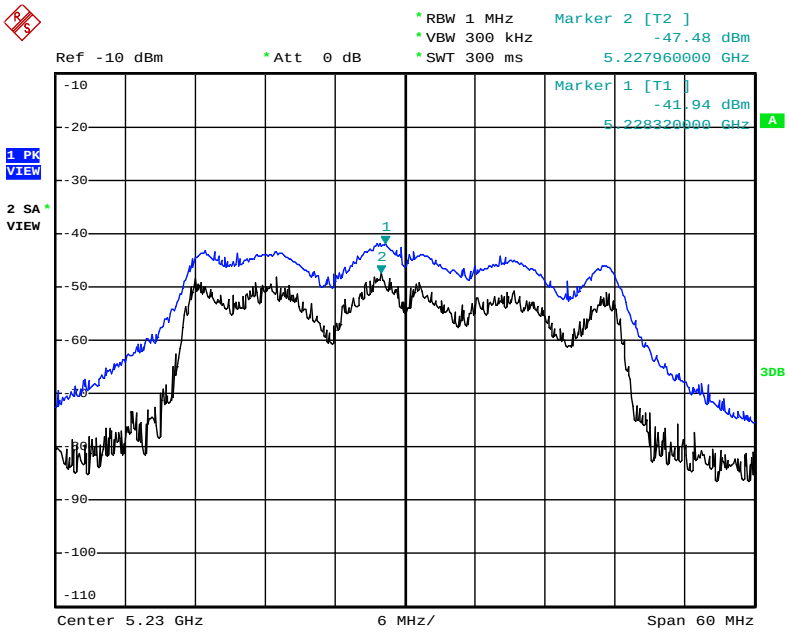


Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



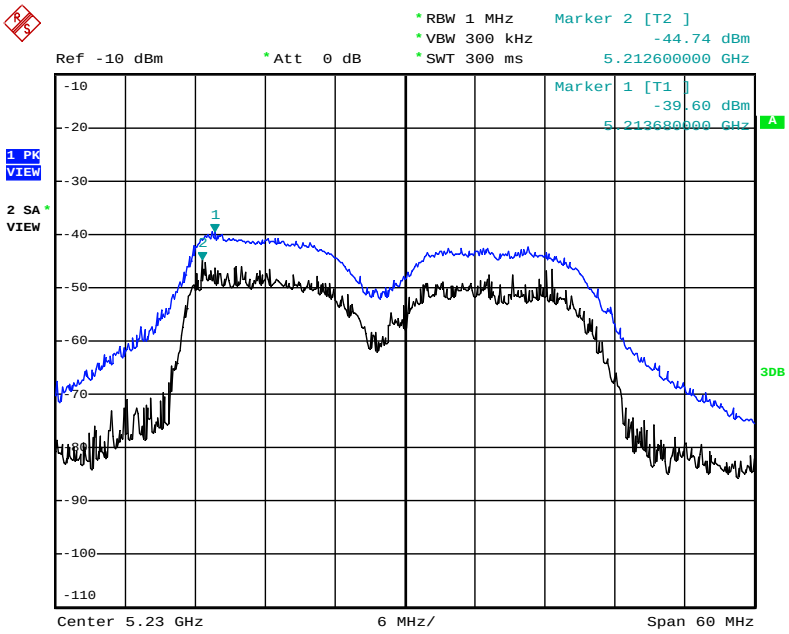
Date: 5.JUN.2012 14:53:26

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



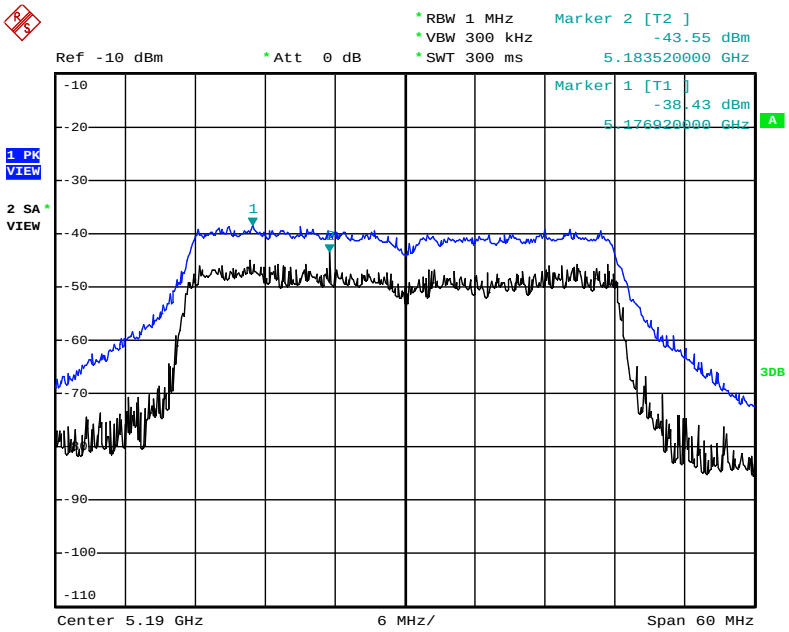
Date: 5.JUN.2012 14:43:12

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 5.JUN.2012 14:43:53

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



Date: 5.JUN.2012 14:44:50

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 4 (Ant. 9 Yagi antenna / 8dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.65	13	Complies
40	5200 MHz	6.20	13	Complies
48	5240 MHz	6.62	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.69	13	Complies
46	5230 MHz	6.07	13	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.28	13	Complies
40	5200 MHz	6.08	13	Complies
48	5240 MHz	5.41	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.07	13	Complies
46	5230 MHz	6.11	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	4.93	13	Complies
40	5200 MHz	5.28	13	Complies
48	5240 MHz	6.17	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.48	13	Complies
46	5230 MHz	5.80	13	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	4.75	13	Complies
40	5200 MHz	5.20	13	Complies
48	5240 MHz	5.39	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.80	13	Complies
46	5230 MHz	5.16	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	4.75	13	Complies
40	5200 MHz	5.53	13	Complies
48	5240 MHz	6.17	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.53	13	Complies
46	5230 MHz	6.06	13	Complies

Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.28	13	Complies
40	5200 MHz	6.13	13	Complies
48	5240 MHz	5.19	13	Complies

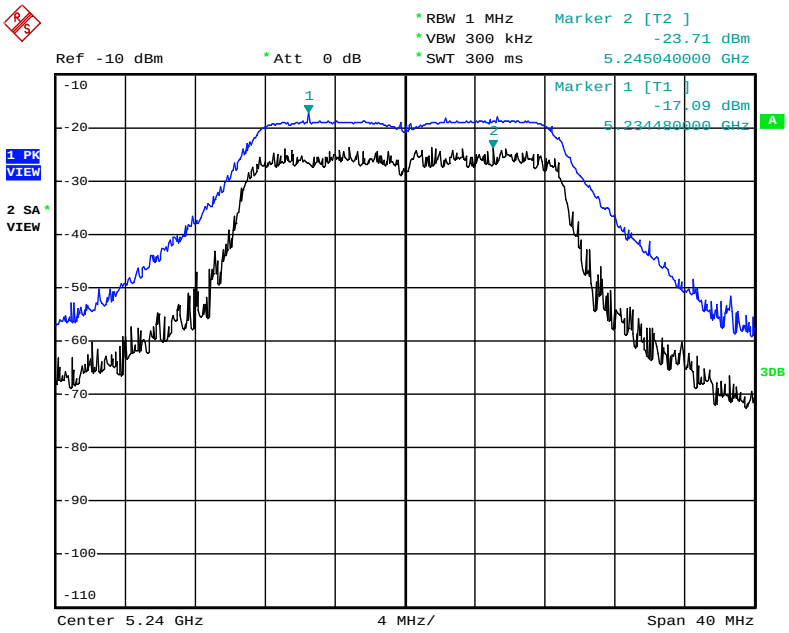
Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.33	13	Complies
46	5230 MHz	6.21	13	Complies

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

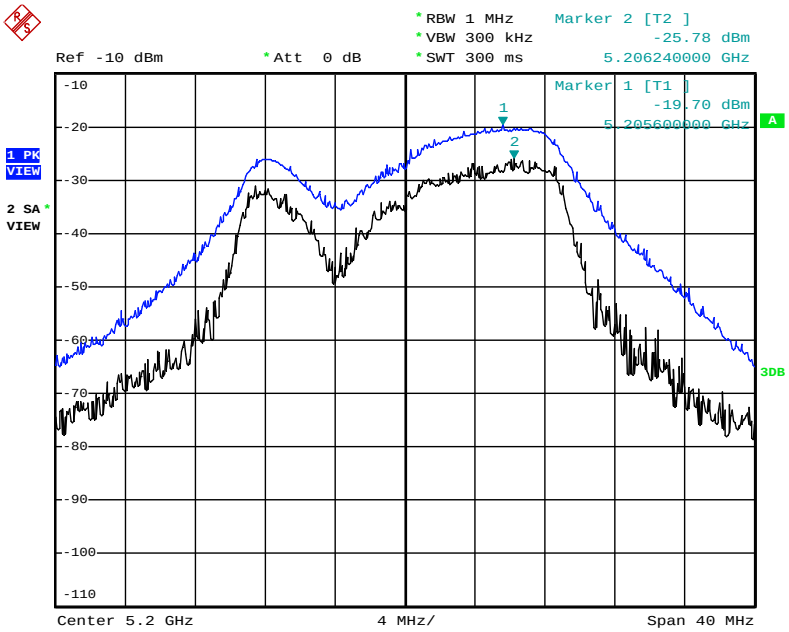
For plots, only the channel with maximum results was shown.

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



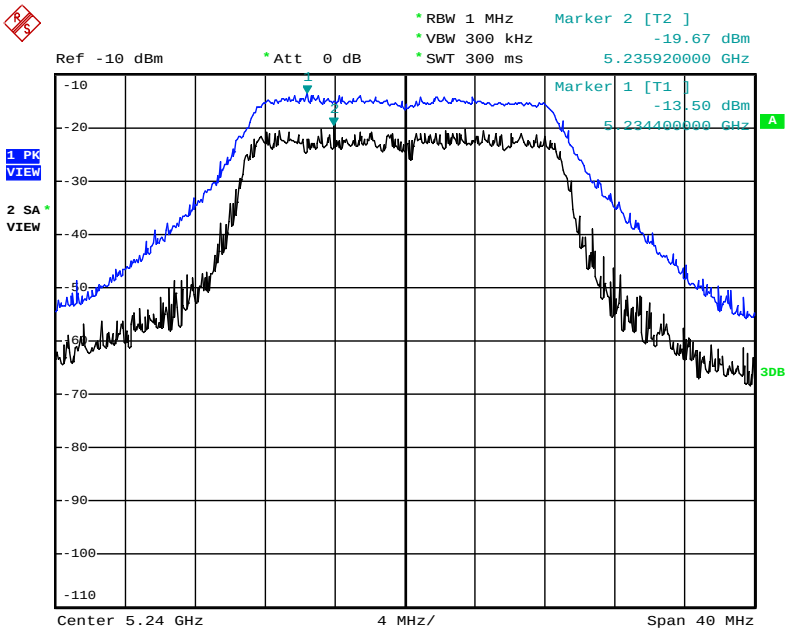
Date: 15.MAY.2012 06:09:32

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5200 MHz (2TX)



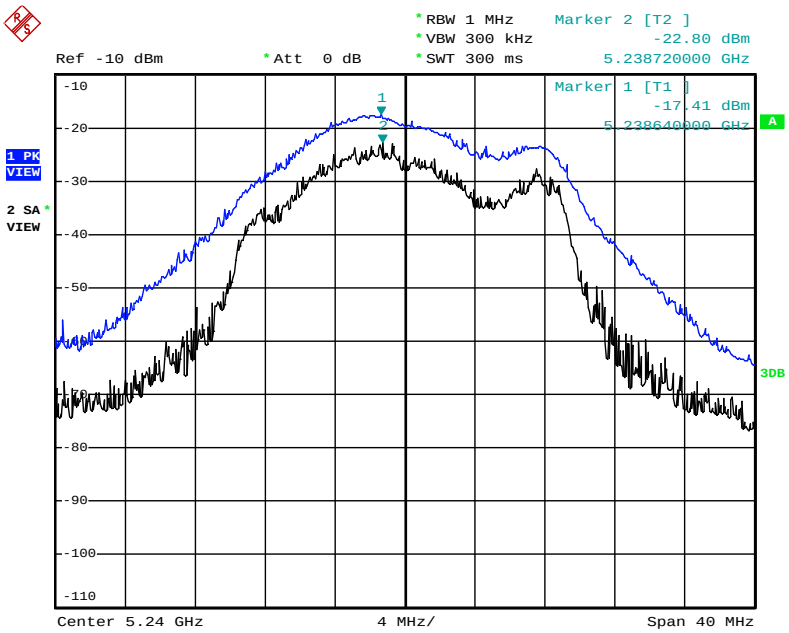
Date: 15.MAY.2012 06:03:37

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



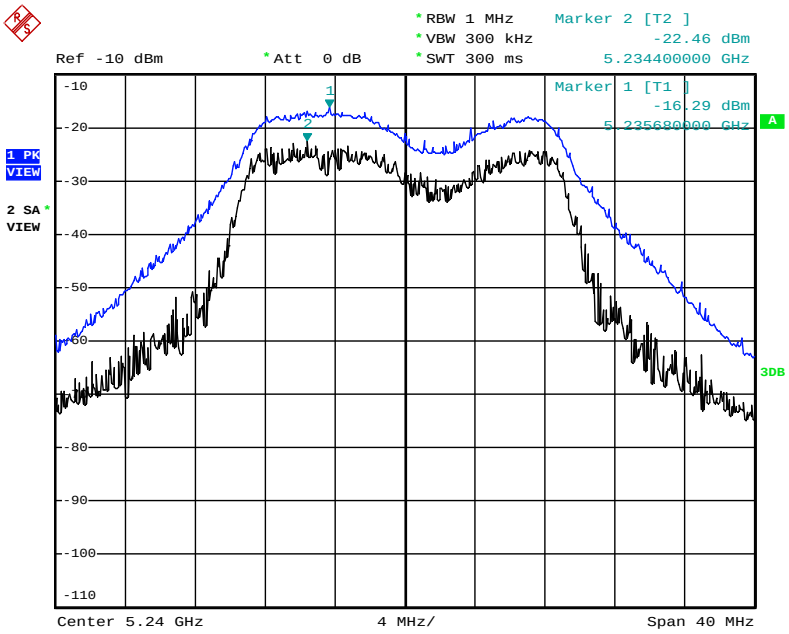
Date: 15.MAY.2012 06:04:31

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



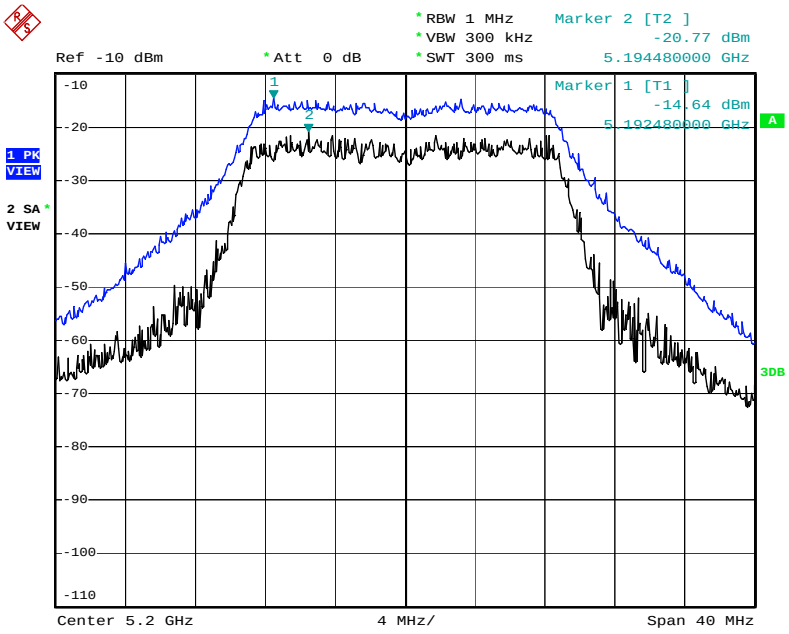
Date: 15.MAY.2012 06:01:46

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5240 MHz (3TX)



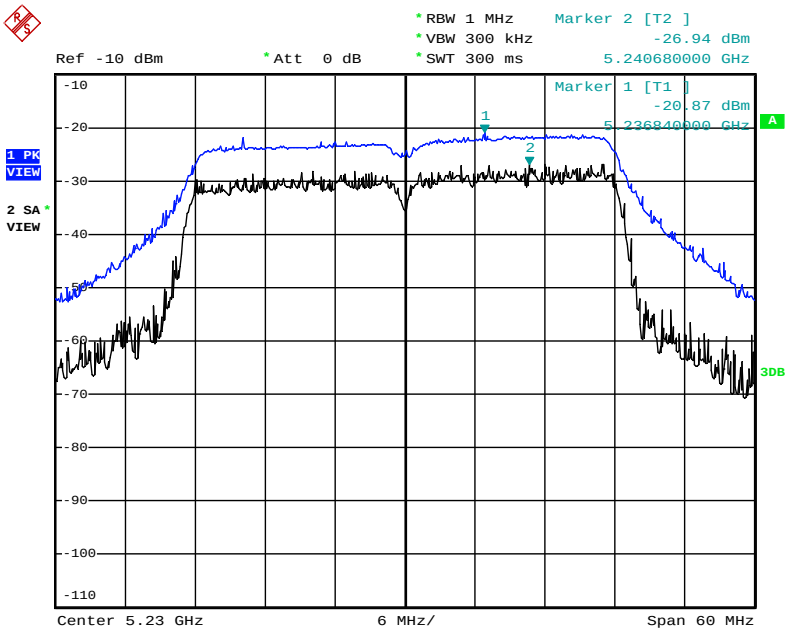
Date: 15.MAY.2012 06:01:16

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



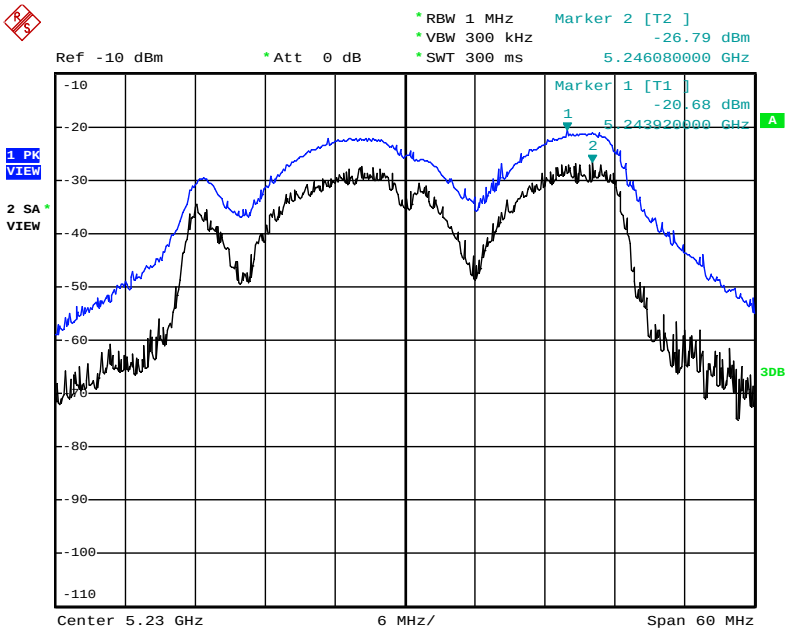
Date: 23.MAY.2012 10:47:07

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



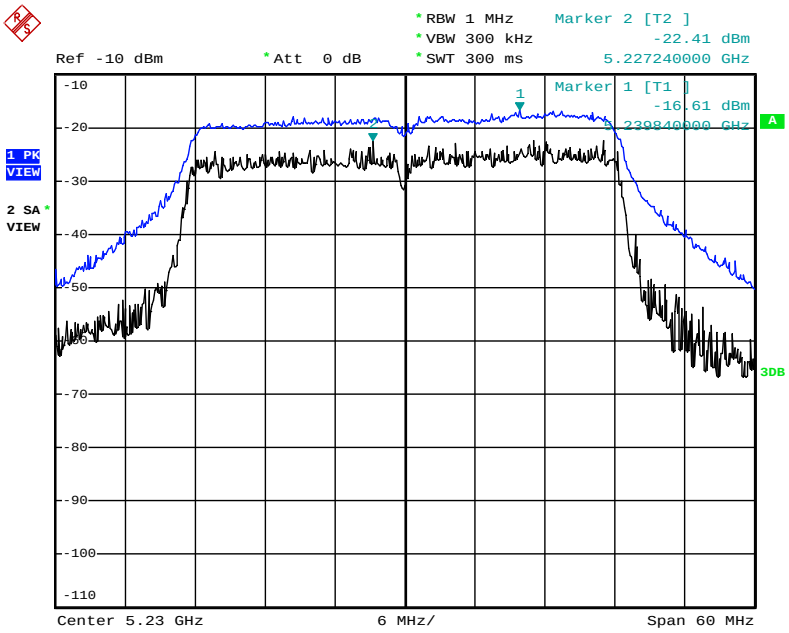
Date: 15.MAY.2012 06:08:20

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



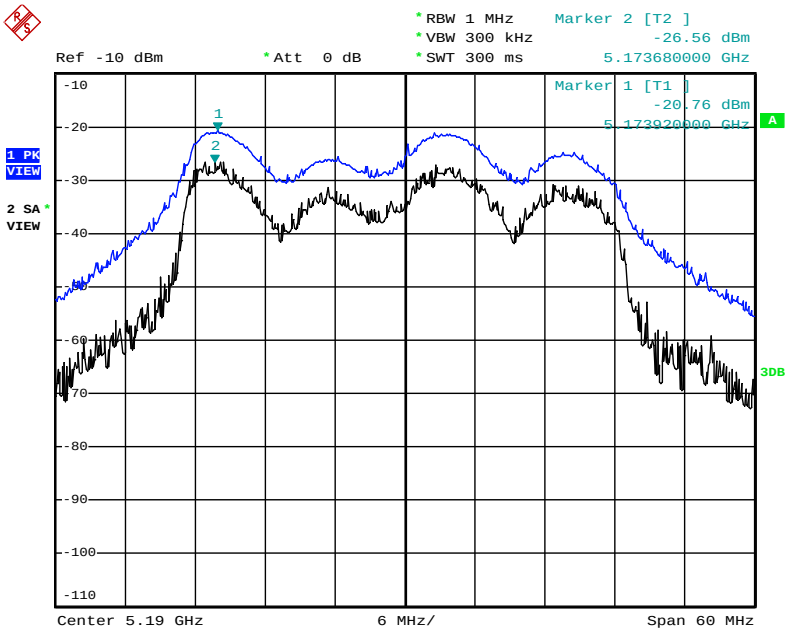
Date: 15.MAY.2012 06:06:47

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



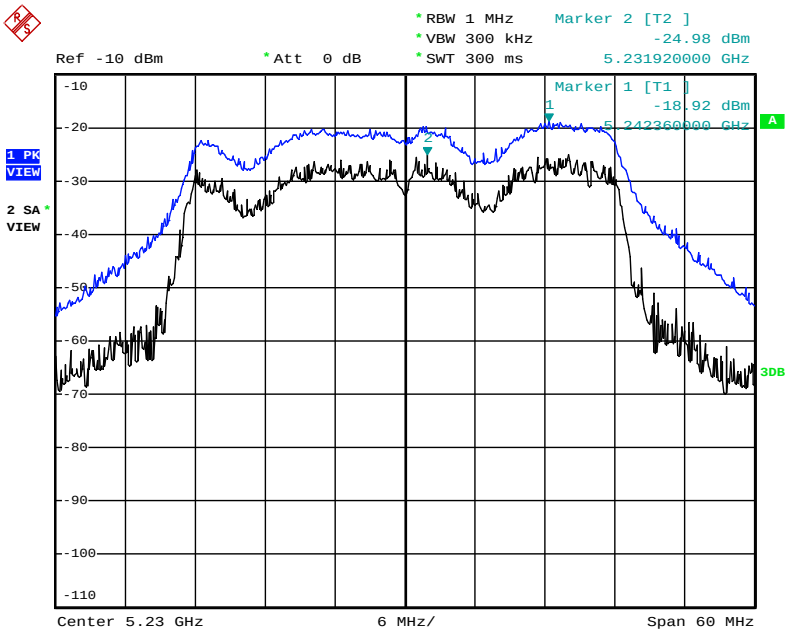
Date: 15.MAY.2012 06:06:16

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5190 MHz (3TX)



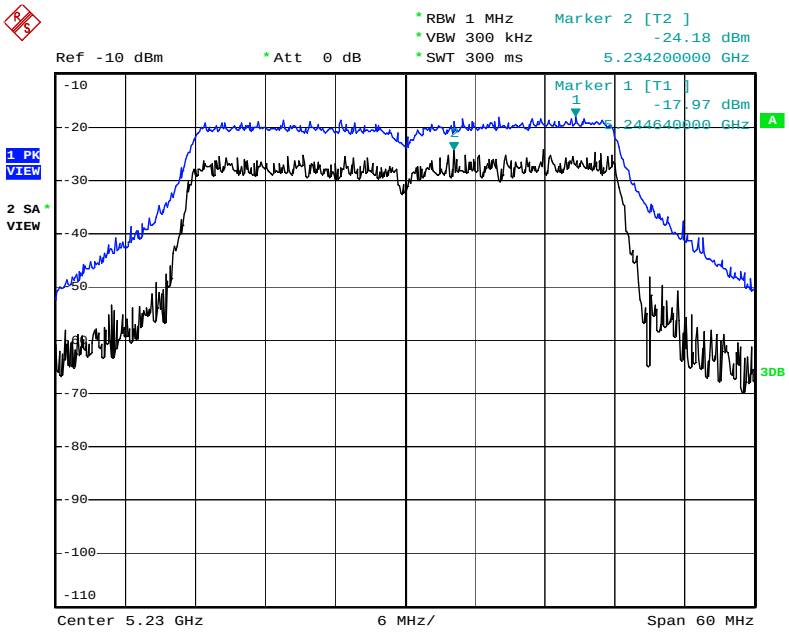
Date: 15.MAY.2012 05:58:23

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 15.MAY.2012 05:59:25

Peak Excursion Plot on Configuration IEEE 802.11n MCS16 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 23.MAY.2012 10:48:31

Temperature	25°C	Humidity	56%
Test Engineer	Allen Liu	Configurations	IEEE 802.11n
Test Mode	Mode 5 (Ant. 5 Facade antenna / 2.5dBi)		

1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.71	13	Complies
40	5200 MHz	5.07	13	Complies
48	5240 MHz	6.12	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.50	13	Complies
46	5230 MHz	5.73	13	Complies

2TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	6.06	13	Complies
40	5200 MHz	5.13	13	Complies
48	5240 MHz	5.42	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	5.27	13	Complies
46	5230 MHz	5.87	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.29	13	Complies
40	5200 MHz	4.78	13	Complies
48	5240 MHz	5.71	13	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	6.45	13	Complies
46	5230 MHz	5.21	13	Complies

3TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.55	13	Complies
40	5200 MHz	5.44	13	Complies
48	5240 MHz	5.48	13	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	4.88	13	Complies
46	5230 MHz	4.98	13	Complies

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
36	5180 MHz	5.49	13	Complies
40	5200 MHz	6.04	13	Complies
48	5240 MHz	5.98	13	Complies

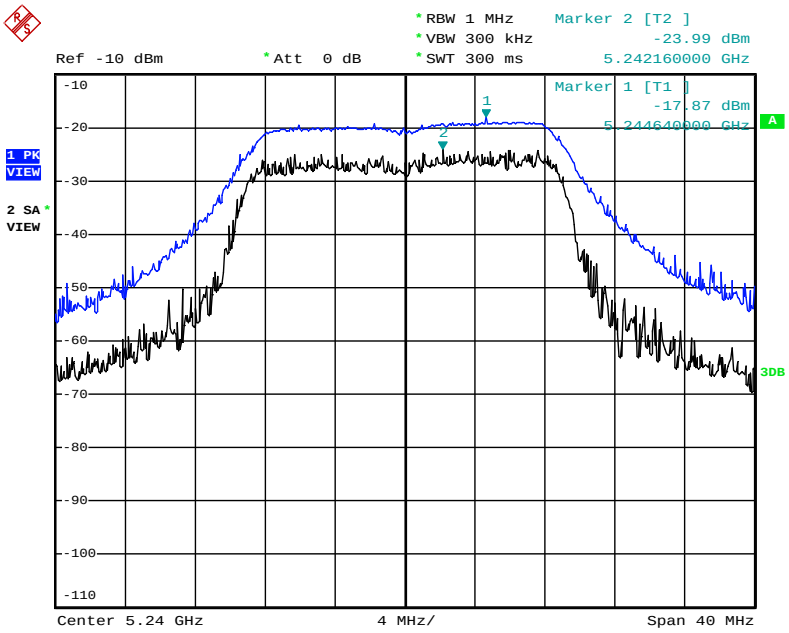
Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
38	5190 MHz	4.05	13	Complies
46	5230 MHz	6.85	13	Complies

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

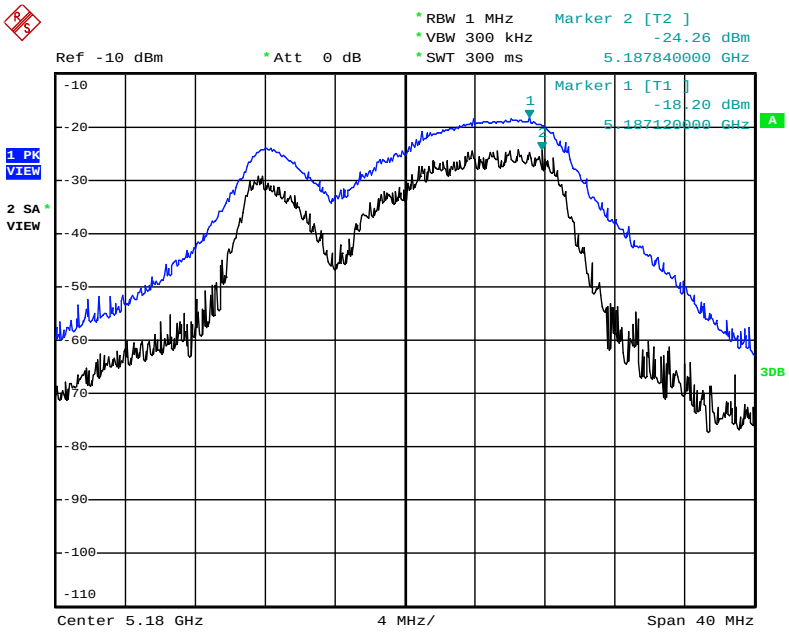
For plots, only the channel with maximum results was shown.

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 / 5240 MHz (1TX)



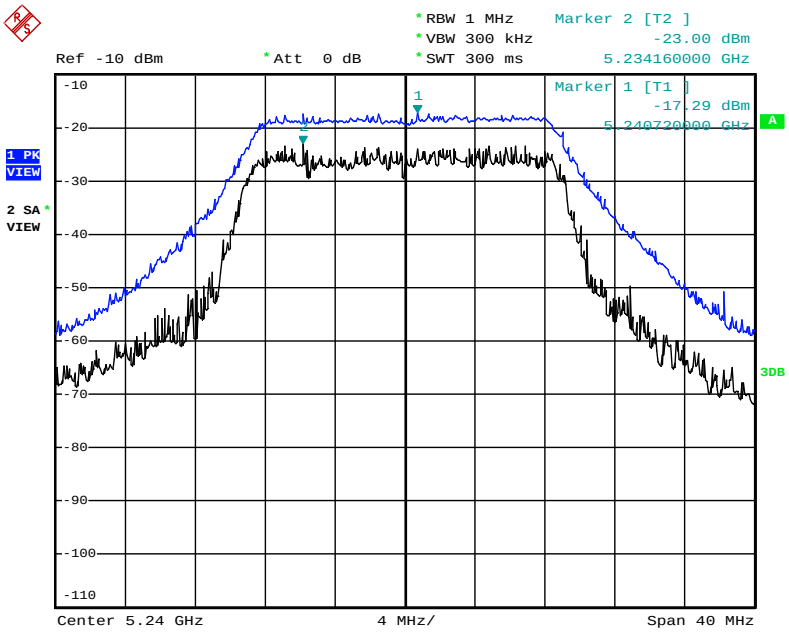
Date: 15.MAY.2012 04:25:34

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 / 5180 MHz (2TX)



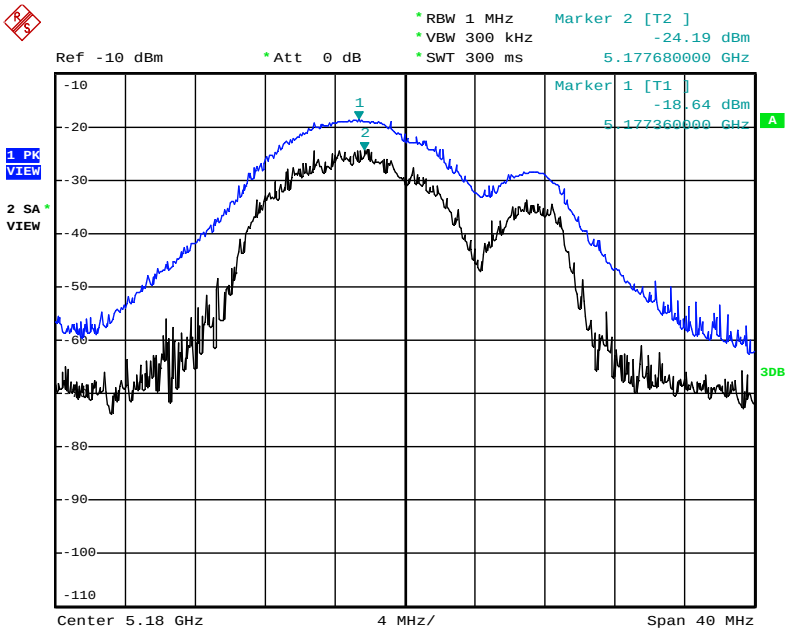
Date: 15.MAY.2012 04:24:12

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5240 MHz (2TX)



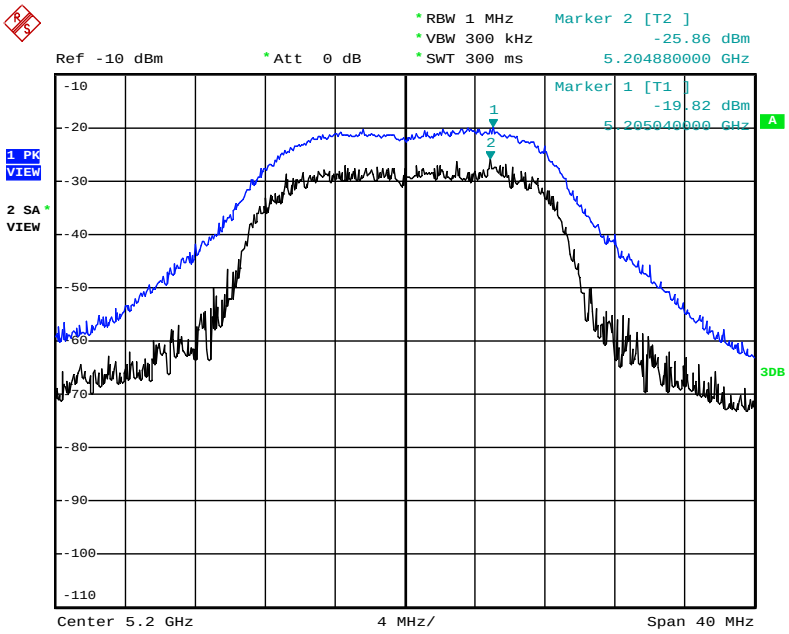
Date: 15.MAY.2012 04:22:45

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 1 + Chain 2 + Chain 3 / 5180 MHz (3TX)



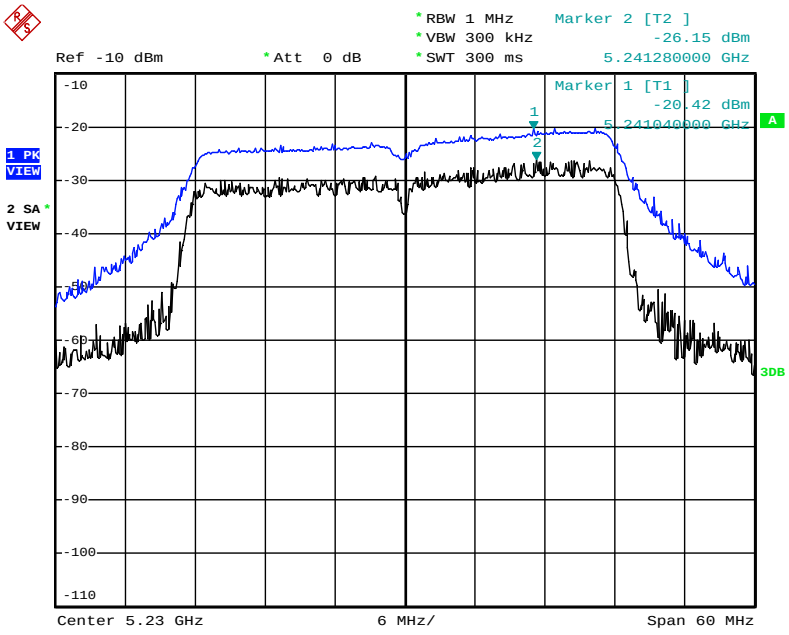
Date: 15.MAY.2012 04:15:24

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 + Chain 3 / 5200 MHz (3TX)



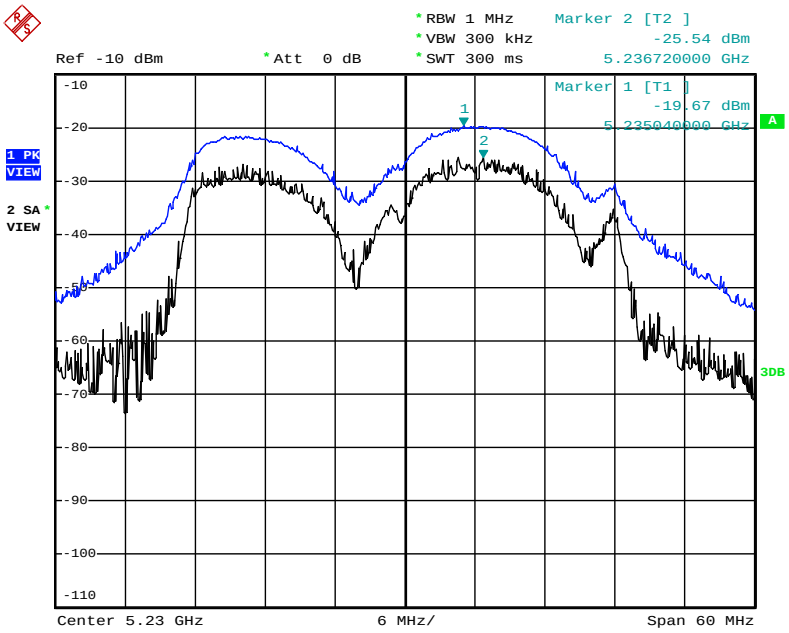
Date: 15.MAY.2012 04:17:18

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 / 5230 MHz (1TX)



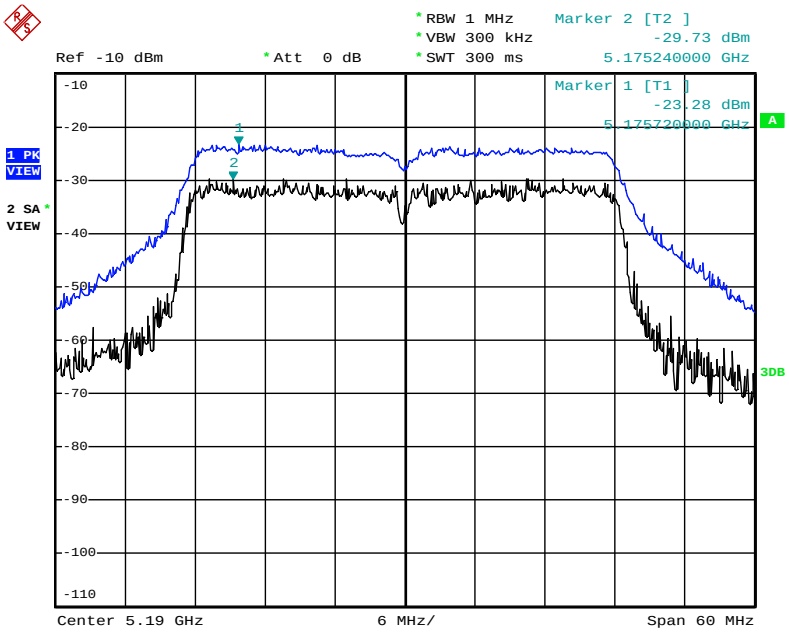
Date: 15.MAY.2012 04:26:32

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 / 5230 MHz (2TX)



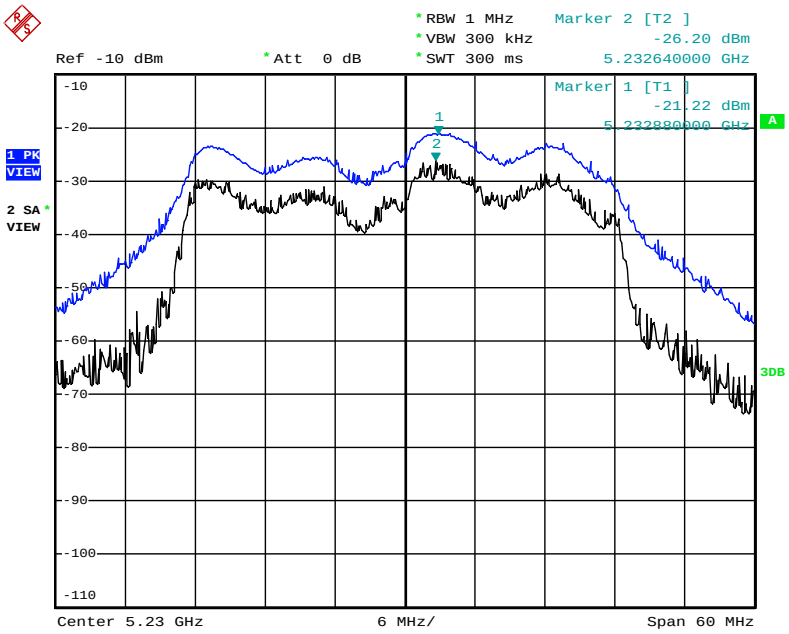
Date: 15.MAY.2012 04:20:35

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5190 MHz (2TX)



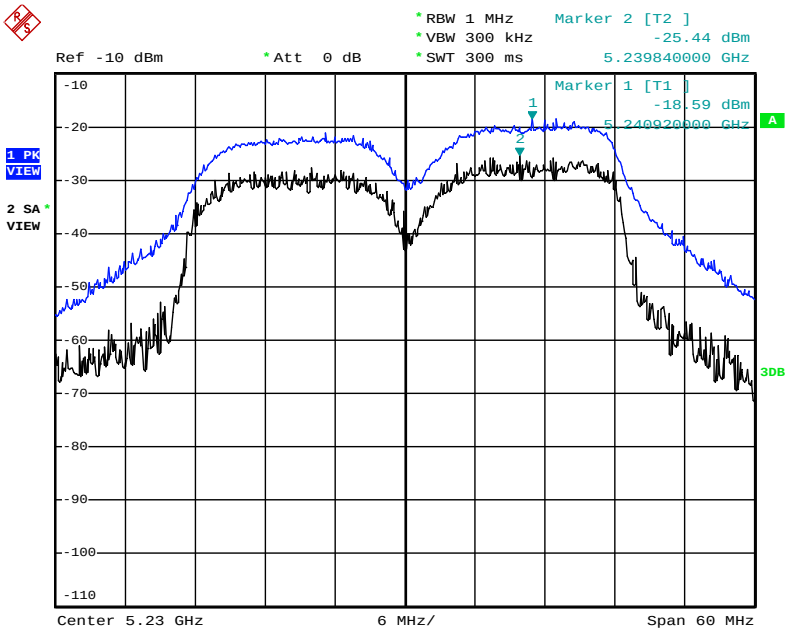
Date: 15.MAY.2012 04:21:27

Peak Excursion Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 15.MAY.2012 04:19:07

Peak Excursion Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 + Chain 3 / 5230 MHz (3TX)



Date: 15.MAY.2012 04:18:40

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.6.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 3MHz for peak

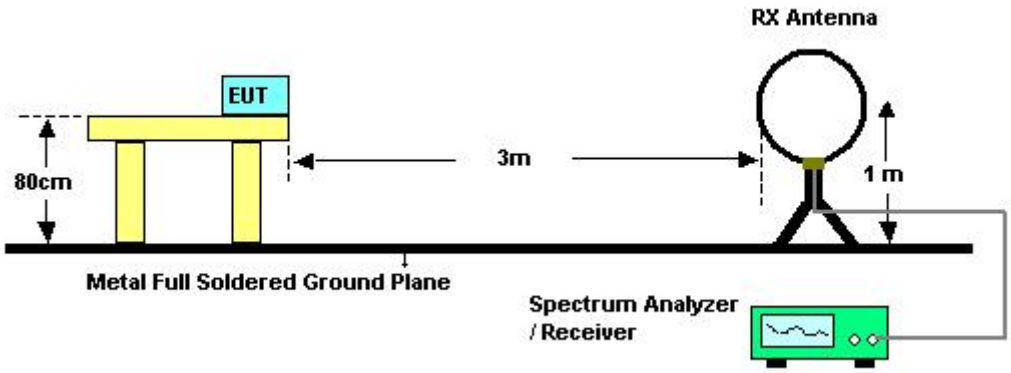
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.6.3. Test Procedures

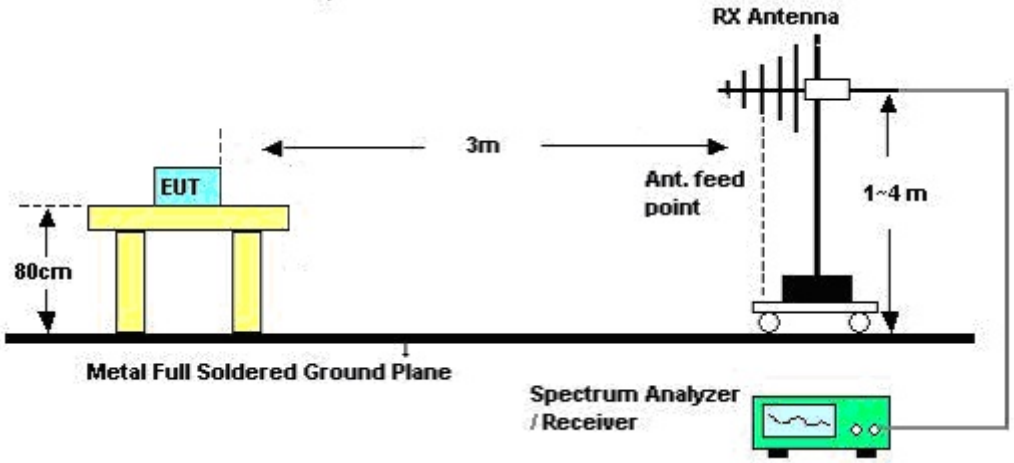
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.4. Test Setup Layout

For radiated emissions below 1GHz



For radiated emissions above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	25°C	Humidity	65%
Test Engineer	Serway Lee	Configurations	Normal Link
Test Date	Apr. 26, 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 20dB below the permissible value has no need to be reported.

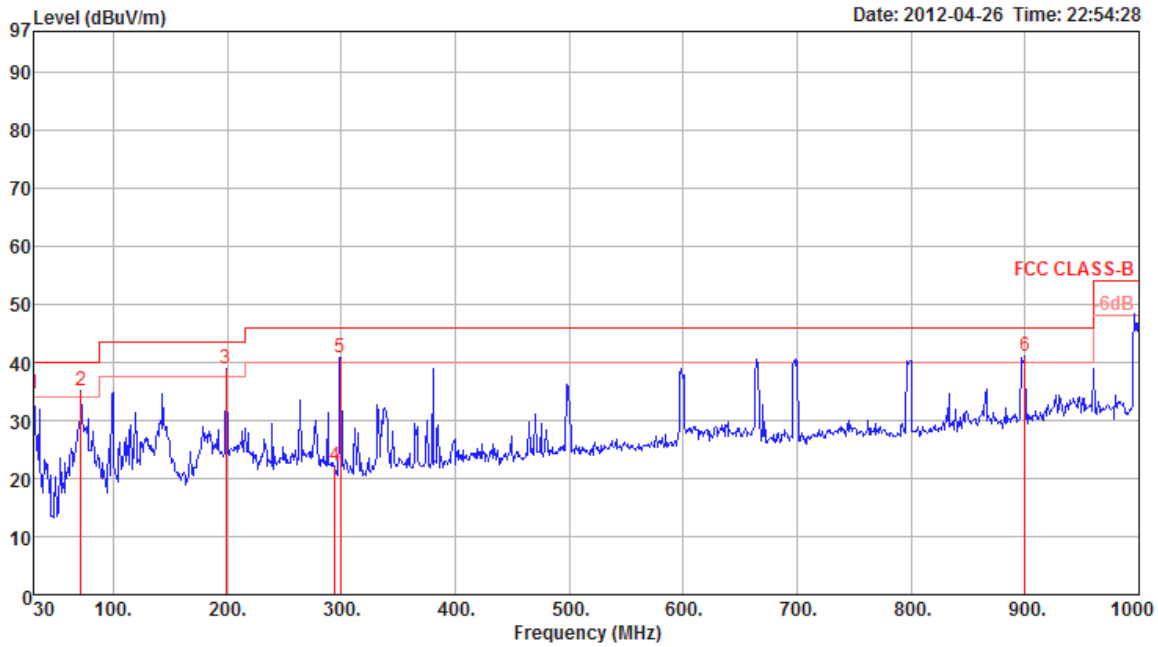
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

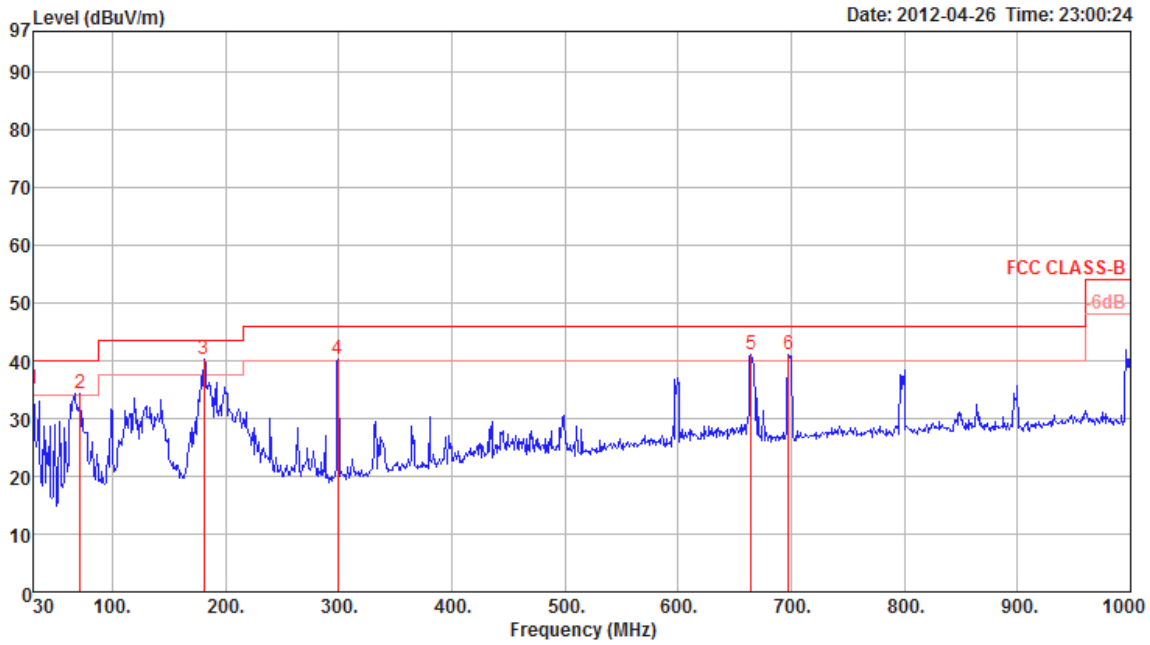
Temperature	25°C	Humidity	65%
Test Engineer	Serway Lee	Configurations	Normal Link / Mode 1 (Module + Ant. 3 Panel antenna / 14dBi)

Horizontal



		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	T/Pos	A/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	deg	cm		
1	!	30.00	34.49	40.00	-5.51	44.21	0.83	27.80	17.25	0	400	Peak	HORIZONTAL
2	!	71.71	35.04	40.00	-4.96	55.34	1.28	27.71	6.13	0	400	Peak	HORIZONTAL
3	p	198.78	38.96	43.50	-4.54	54.33	2.09	27.11	9.65	0	400	Peak	HORIZONTAL
4		294.81	22.24	46.00	-23.76	33.18	2.52	26.91	13.45	0	400	Peak	HORIZONTAL
5	!	299.66	40.79	46.00	-5.21	51.60	2.51	26.90	13.58	0	400	Peak	HORIZONTAL
6	!	900.09	40.97	46.00	-5.03	42.74	4.60	27.40	21.03	0	400	Peak	HORIZONTAL

Vertical



		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	T/Pos	A/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	deg	cm		
1	!	30.00	35.04	40.00	-4.96	44.76	0.83	27.80	17.25	0	100	Peak	VERTICAL
2	!	71.71	34.38	40.00	-5.62	54.68	1.28	27.71	6.13	0	100	Peak	VERTICAL
3	p	181.32	40.19	43.50	-3.31	56.35	2.01	27.19	9.02	0	100	Peak	VERTICAL
4	!	299.66	40.30	46.00	-5.70	51.11	2.51	26.90	13.58	0	100	Peak	VERTICAL
5	!	664.38	41.08	46.00	-4.92	45.78	3.98	28.04	19.36	0	100	Peak	VERTICAL
6	!	697.36	41.17	46.00	-4.83	45.10	4.15	28.00	19.92	0	100	Peak	VERTICAL

Note:

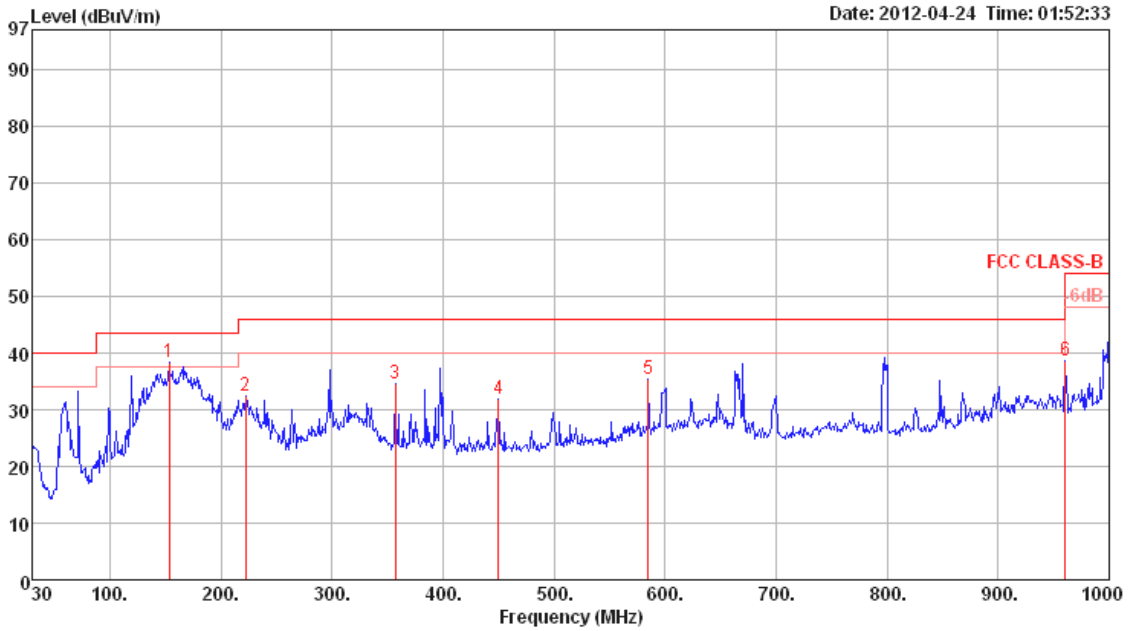
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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

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

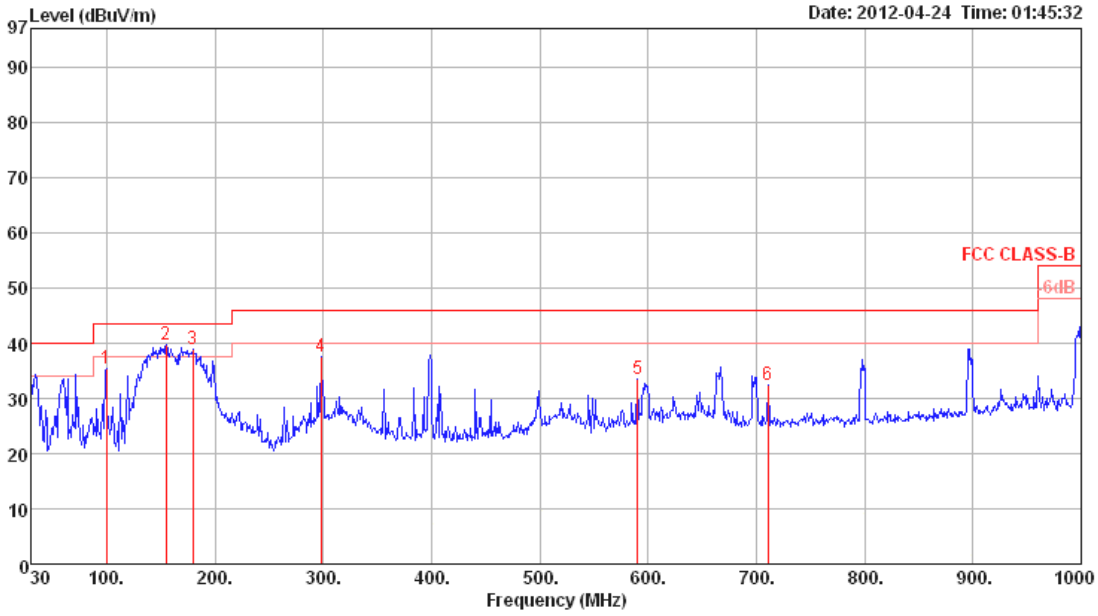
Temperature	25℃	Humidity	65%
Test Engineer	Serway Lee	Configurations	Normal Link / Mode 2 (Module + Ant. 8 Panel antenna / 10.5dBi)

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	153.19	38.34	43.50	-5.16	52.30	1.47	11.90	27.33	Peak	100	0	HORIZONTAL
2	222.06	32.45	46.00	-13.55	47.01	1.79	10.70	27.05	Peak	100	0	HORIZONTAL
3	356.89	34.45	46.00	-11.55	44.62	2.21	14.91	27.29	Peak	100	0	HORIZONTAL
4	450.01	31.93	46.00	-14.07	40.34	2.60	16.84	27.85	Peak	100	0	HORIZONTAL
5	584.84	35.37	46.00	-10.63	42.01	2.87	18.59	28.10	Peak	100	0	HORIZONTAL
6	960.23	38.52	54.00	-15.48	41.07	3.62	20.99	27.16	Peak	100	0	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	99.84	35.32	43.50	-8.18	50.73	1.20	10.99	27.60	Peak	400	0	VERTICAL
2	155.13	39.59	43.50	-3.91	53.49	1.48	11.94	27.32	Peak	400	0	VERTICAL
3	179.38	38.85	43.50	-4.65	51.31	1.60	13.14	27.20	Peak	400	0	VERTICAL
4	297.72	37.63	46.00	-8.37	49.11	2.09	13.34	26.91	Peak	400	0	VERTICAL
5	590.66	33.43	46.00	-12.57	39.99	2.88	18.66	28.10	Peak	400	0	VERTICAL
6	710.94	32.29	46.00	-13.71	37.74	3.34	19.16	27.95	Peak	400	0	VERTICAL

Note:

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

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

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

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 36 / Chain 1
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (1TX)

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	10360.38	49.92	68.30	-18.38	42.20	4.97	38.37	35.62	Peak	100	342	HORIZONTAL
2	15543.44	41.75	54.00	-12.25	33.28	6.13	37.65	35.31	Average	100	154	HORIZONTAL
3	15544.96	55.74	74.00	-18.26	47.27	6.13	37.65	35.31	Peak	100	154	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	10359.73	48.96	68.30	-19.34	41.24	4.97	38.37	35.62	Peak	100	167	VERTICAL
2	15538.43	41.69	54.00	-12.31	33.18	6.13	37.69	35.31	Average	101	145	VERTICAL
3	15541.11	55.95	74.00	-18.05	47.44	6.13	37.69	35.31	Peak	101	145	VERTICAL

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 40 / Chain 1
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (1TX)

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	10399.08	50.03	68.30	-18.27	42.25	4.98	38.38	35.58	Peak	100	174	HORIZONTAL
2	15598.44	65.98	74.00	-8.02	57.59	6.13	37.60	35.34	Peak	129	154	HORIZONTAL
3	15601.28	50.52	54.00	-3.48	42.13	6.13	37.60	35.34	Average	129	154	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	10400.52	49.51	68.30	-18.79	41.73	4.98	38.38	35.58	Peak	100	199	VERTICAL
2	15601.08	60.60	74.00	-13.40	52.21	6.13	37.60	35.34	Peak	100	54	VERTICAL
3	15602.98	45.25	54.00	-8.75	36.86	6.13	37.60	35.34	Average	100	54	VERTICAL

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 48 / Chain 1
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (1TX)

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	10480.04	50.38	68.30	-17.92	42.51	5.00	38.39	35.52	Peak	100	230	HORIZONTAL
2	15713.24	71.41	74.00	-2.59	63.17	6.14	37.48	35.38	Peak	149	165	HORIZONTAL
3	15716.12	53.59	54.00	-0.41	45.36	6.14	37.48	35.39	Average	149	165	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	10481.13	50.24	68.30	-18.06	42.36	5.00	38.40	35.52	Peak	100	141	VERTICAL
2	15714.20	49.19	54.00	-4.81	40.95	6.14	37.48	35.38	Average	100	74	VERTICAL
3	15715.12	66.59	74.00	-7.41	58.35	6.14	37.48	35.38	Peak	100	74	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 36 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	10367.92	49.31	68.30	-18.99	41.59	4.97	38.37	35.62	Peak	100	302	HORIZONTAL
2	15534.72	63.51	74.00	-10.49	55.00	6.13	37.67	35.29	Peak	121	190	HORIZONTAL
3	15534.80	47.31	54.00	-6.69	38.80	6.13	37.67	35.29	Average	121	190	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	10351.36	49.42	68.30	-18.88	41.70	4.97	38.37	35.62	Average	100	114	VERTICAL
2	15544.08	43.53	54.00	-10.47	35.02	6.13	37.69	35.31	Average	100	142	VERTICAL
3	15549.28	58.91	74.00	-15.09	50.40	6.13	37.69	35.31	Peak	100	142	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 40 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	10399.84	49.34	68.30	-18.96	41.56	4.98	38.38	35.58	Peak	100	85	HORIZONTAL
2	15595.44	61.16	74.00	-12.84	52.77	6.13	37.60	35.34	Peak	149	155	HORIZONTAL
3	15595.84	46.15	54.00	-7.85	37.76	6.13	37.60	35.34	Average	149	155	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	10397.34	49.19	68.30	-19.11	41.41	4.98	38.38	35.58	Peak	100	190	VERTICAL
2	15603.76	41.96	54.00	-12.04	33.57	6.13	37.60	35.34	Average	122	137	VERTICAL
3	15603.92	55.82	74.00	-18.18	47.43	6.13	37.60	35.34	Peak	122	137	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 48 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	10485.00	49.80	68.30	-18.50	41.93	5.00	38.39	35.52	Peak	100	83	HORIZONTAL
2	15714.16	70.33	74.00	-3.67	62.09	6.14	37.48	35.38	Peak	118	181	HORIZONTAL
3	15718.88	53.23	54.00	-0.77	45.00	6.14	37.48	35.39	Average	118	181	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	10477.50	49.08	68.30	-19.22	41.20	5.00	38.40	35.52	Peak	100	104	VERTICAL
2	15725.52	49.52	54.00	-4.48	41.31	6.14	37.46	35.39	Average	100	75	VERTICAL
3	15726.40	66.51	74.00	-7.49	58.30	6.14	37.46	35.39	Peak	100	75	VERTICAL

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS8 20MHz Ch 36 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	15540.30	50.13	54.00	-3.87	41.66	6.13	37.65	35.31	Average	121	183	HORIZONTAL
2	15548.70	66.14	74.00	-7.86	57.67	6.13	37.65	35.31	Peak	121	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15540.20	48.47	54.00	-5.53	39.96	6.13	37.69	35.31	Average	132	114	VERTICAL
2	15540.30	64.19	74.00	-9.81	55.68	6.13	37.69	35.31	Peak	132	114	VERTICAL

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS8 20MHz Ch 40 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	15582.40	58.11	74.00	-15.89	49.70	6.13	37.61	35.33	Peak	125	183	HORIZONTAL
2	15593.30	44.30	54.00	-9.70	35.91	6.13	37.60	35.34	Average	125	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15601.20	42.23	54.00	-11.77	33.84	6.13	37.60	35.34	Average	146	140	VERTICAL
2	15604.40	55.96	74.00	-18.04	47.57	6.13	37.60	35.34	Peak	146	140	VERTICAL

Temperature	25°C	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS8 20MHz Ch 48 / Chain 1 + Chain 2
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (2TX)

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	15716.40	51.39	54.00	-2.61	43.16	6.14	37.48	35.39	Average	119	183	HORIZONTAL
2	15717.30	66.67	74.00	-7.33	58.44	6.14	37.48	35.39	Peak	119	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15714.90	62.49	74.00	-11.51	54.25	6.14	37.48	35.38	Peak	100	83	VERTICAL
2	15716.50	48.76	54.00	-5.24	40.53	6.14	37.48	35.39	Average	100	83	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 36 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (3TX)

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	15516.60	52.19	74.00	-21.81	43.67	6.13	37.68	35.29	Peak	100	203	HORIZONTAL
2	15540.20	39.21	54.00	-14.79	30.74	6.13	37.65	35.31	Average	100	203	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	15537.40	39.34	54.00	-14.66	30.77	6.13	37.73	35.29	Average	100	142	VERTICAL
2	15545.40	52.45	74.00	-21.55	43.94	6.13	37.69	35.31	Peak	100	142	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 40 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (3TX)

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	15593.40	53.55	74.00	-20.45	45.16	6.13	37.60	35.34	Peak	100	188	HORIZONTAL
2	15595.80	40.40	54.00	-13.60	32.01	6.13	37.60	35.34	Average	100	188	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	15595.60	54.18	74.00	-19.82	45.79	6.13	37.60	35.34	Peak	100	109	VERTICAL
2	15596.00	40.97	54.00	-13.03	32.58	6.13	37.60	35.34	Average	100	109	VERTICAL

Temperature	25℃	Humidity	65%
Test Engineer	Wen Chao	Configurations	IEEE 802.11n MCS0 20MHz Ch 48 / Chain 1 + Chain 2 + Chain 3
Test Date	Apr. 27, 2012	Test Mode	Mode 1 (Ant. 6 Dipole antenna / 8dBi) (3TX)

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	15715.00	46.54	54.00	-7.46	38.30	6.14	37.48	35.38	Average	116	208	HORIZONTAL
2	15715.60	62.76	74.00	-11.24	54.52	6.14	37.48	35.38	Peak	116	208	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	15714.20	63.61	74.00	-10.39	55.37	6.14	37.48	35.38	Peak	100	75	VERTICAL
2	15716.80	48.05	54.00	-5.95	39.82	6.14	37.48	35.39	Average	100	75	VERTICAL