

FCC/IC RF Test Report

APPLICANT : Atheros Communications, Inc.
EQUIPMENT : 802.11a/b/g/n with Beam Foaming (Module)
BRAND NAME : Atheros
MODEL NAME : AR5BHB112
FCC ID : PPD-AR5BHB112
IC : 4104A-AR5BHB112
STANDARD : FCC Part 15 Subpart C §15.247
IC RSS-210 Issue 7
CLASSIFICATION : Digital Transmission System (DTS)

The WiFi module was tested on extended card inserted to a host laptop PC.

The product was received on Oct. 08, 2010 and completely tested on Nov. 09, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shows the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Anderson Chiu / Deputy Manager



SPORTON INTERNATIONAL INC.

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FCC ID : PPD-AR5BHB112

IC : 4104A-AR5BHB112

Page Number : 1 of 552

Report Issued Date : Nov. 17, 2010

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR000823A	Rev. 01	Initial issue of report	Nov. 17, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth Measurement	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth Measurement	-	N/A	-
3.2	15.247(e)	A8.2(b)	Power Spectral Density Measurement	$\leq 8\text{dBm}$	Pass	-
3.3	-	-	Average Power Measurement	-	N/A	-
3.4	15.247(b)	A8.4	Peak Power Measurement	$\leq 30\text{dBm}$	Pass	-
3.5	15.247(d)	A8.5	Conducted Spurious Emission Measurement	$< 20\text{ dBc}$	Pass	-
3.6	15.247(d)	A8.5	Band Edges Measurement	$\leq 20\text{dBc}$	Pass	-
3.7	15.247(d)	A8.5	Radiated Emission Measurement	15.209(a) & 15.247(d)	Pass	Under limit 0.5 dB at 2488.22 MHz
3.8	15.207	Gen 7.2.2	AC Conducted Emission Measurement	15.207(a)	Pass	Under limit 15.9 dB at 0.198 MHz

1 General Description

1.1 Applicant

Atheros Communications, Inc.

1700 Technology Drive, San Jose, CA 95110, United States

1.2 Manufacturer

Atheros Communications, Inc.

1700 Technology Drive, San Jose, CA 95110, United States

1.3 Testing Site Facilities

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH05-HY	TW1022/4086B-1

1.4 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ RSS-210 Issue 7
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.



1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	0769	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	Lenovo	N200	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Equipment Under Test

2.1 General Information of EUT

Product Feature & Specification	
Equipment	802.11a/b/g/n with Beam Foaming (Module)
Brand Name	Atheros
Model Name	AR5BHB112
FCC ID	PPD-AR5BHB112
IC	4104A-AR5BHB112
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Beam-Forming	This device supports beam-forming technology
Type of Antenna Connector	IPEX
HW Version	HB112-251
Test SW Version	ART 1.8
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Engineering Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

2.2 Maximum Output Power

2.2.1 Average Conducted Power

The device has the maximum average conducted power as below:

<Normal Mode: 3x3>

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11b	17.38	17.65	18.06	22.48
2412 ~ 2462	802.11g	14.24	14.47	14.60	19.21

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11a	16.13	15.83	14.58	20.33

<Normal Mode: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11a	16.13	15.83	18.99

<Beam-Forming On: 3x3>

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11n HT-20	14.36	14.62	14.82	19.38
2422 ~ 2452	802.11n HT-40	10.54	10.83	11.77	15.85

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11n HT-20	16.47	16.23	14.87	20.68
5755 ~ 5795	802.11n HT-40	15.43	15.48	15.55	20.26

<Beam-Forming On: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11n HT-20	16.47	16.23	19.36
5755 ~ 5795	802.11n HT-40	15.43	15.48	18.47

<Beam-Forming Off: 3x3>

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11n HT-20	14.36	14.62	14.82	19.38
2422 ~ 2452	802.11n HT-40	10.54	10.83	11.77	15.85

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11n HT-20	16.47	16.23	14.87	20.68
5755 ~ 5795	802.11n HT-40	15.43	15.48	15.55	20.26

<Beam-Forming Off: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11n HT-20	16.47	16.23	19.36
5755 ~ 5795	802.11n HT-40	15.43	15.48	18.47

2.2.2 Peak Power

The device has the maximum peak power as below:

<Normal Mode: 3x3>

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11b	19.90	19.94	20.18	24.78
2412 ~ 2462	802.11g	22.65	22.73	23.11	27.61

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11a	21.10	20.81	19.24	25.23

< Normal Mode: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11a	21.10	20.81	23.97

**<Beam-Forming On: 3x3>**

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11n HT-20	22.70	22.63	23.11	27.59
2422 ~ 2452	802.11n HT-40	19.92	20.23	21.08	25.21

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11n HT-20	21.45	20.80	18.92	25.29
5755 ~ 5795	802.11n HT-40	21.88	21.55	19.88	25.96

<Beam-Forming On: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11n HT-20	21.45	20.80	24.15
5755 ~ 5795	802.11n HT-40	21.88	21.55	24.73

**<Beam-Forming Off: 3x3>**

Frequency Range (MHz)	Mode	2.4G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
2412 ~ 2462	802.11n HT-20	22.70	22.63	23.11	27.59
2422 ~ 2452	802.11n HT-40	19.92	20.23	21.08	25.21

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)			
		Chain 0	Chain 1	Chain 2	Total Power
5745 ~ 5825	802.11n HT-20	21.45	20.80	18.92	25.29
5755 ~ 5795	802.11n HT-40	21.88	21.55	19.88	25.96

<Beam-Forming Off: 2x3>

Frequency Range (MHz)	Mode	5.8G band RF Power (dBm)		
		Chain 0	Chain 1	Total Power
5745 ~ 5825	802.11n HT-20	21.45	20.80	24.15
5755 ~ 5795	802.11n HT-40	21.88	21.55	24.73

2.3 Antenna Information

<Beam-Forming On>

The device is 3x3 configuration and 3 PIFA antennas are utilized for radiation emission testing. The antenna composite gain on different frequency range is shown in the following table:

Brand / Model Name	Type	Frequency Range (MHz)	Antenna Gain (dBi)	Composite Gain (dBi)
Wistron Neweb Corporation / EBJ Aux. + EBJ Aux.	PIFA	2400 ~ 2500	3.60	8.37
Wistron Neweb Corporation / EBJ Main + EBJ Main	PIFA	5725 ~ 5850	4.76	9.53

The device is 2x3 configuration and 3 PIFA antennas are utilized for radiation emission testing. The antenna composite gain on different frequency range is shown in the following table:

Brand / Model Name	Type	Frequency Range (MHz)	Antenna Gain (dBi)	Composite Gain (dBi)
Wistron Neweb Corporation / EBJ Main + EBJ Main	PIFA	5725 ~ 5850	4.76	7.77

<Beam-Forming Off>

The device is 3x3 configuration and 3 PIFA antennas are utilized for radiation emission testing. The antenna gain on different frequency range is shown in the following table:

Brand / Model Name	Type	Frequency Range (MHz)	Antenna Gain (dBi)
Wistron Neweb Corporation / EBJ Aux. + EBJ Aux.	PIFA	2400 ~ 2500	3.60
Wistron Neweb Corporation / EBJ Main + EBJ Main	PIFA	5725 ~ 5850	4.76

The device is 2x3 configuration and 3 PIFA antennas are utilized for radiation emission testing. The antenna gain on different frequency range is shown in the following table:

Brand / Model Name	Type	Frequency Range (MHz)	Antenna Gain (dBi)
Wistron Neweb Corporation / EBJ Main + EBJ Main	PIFA	5725 ~ 5850	4.76



2.4 Worst-case Configuration and Test Mode

The 3x3 and 2x3 configurations were used for conducted and radiated testing in this report. The WiFi module was tested as a modular. The module was tested outside of the laptop via an extender.

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

WORST-CASE CONFIGURATION AND MODE

The worst-case data rates are determined to be as follows for each mode, based on the investigations by measuring the average power, peak power and PPSD across all the data rates, bandwidths, modulations and spatial stream modes.

Thus all tests were made with following data rates:

802.11b mode, 20 MHz Channel Bandwidth, 5.5 Mb/s, CCK Modulation:

802.11g mode, 20 MHz Channel Bandwidth, 9 Mb/s, OFDM Modulation:

802.11a mode, 20 MHz Channel Bandwidth, 9 Mb/s, OFDM Modulation;

802.11n HT20 mode, 20 MHz Channel Bandwidth, MCS0, 6.5 Mb/s, OFDM Modulation;

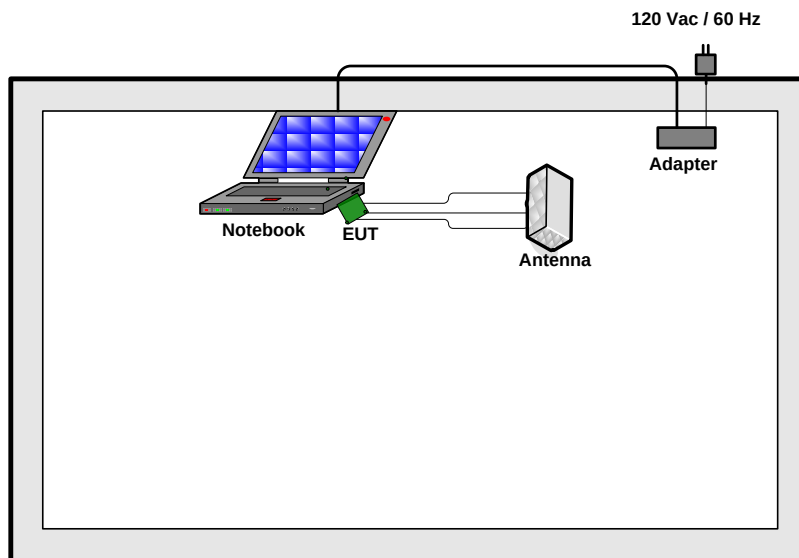
802.11n HT40 mode, 40 MHz Channel Bandwidth, MCS0, 13.5 Mb/s, OFDM Modulation;

In addition, the radiated emission power is higher when Beam Forming is on, thus, all the radiated emission tests were performed with Beam Forming on; plus, the composite antenna gains were taken into the consideration for calculating transmit power limits; therefore, all the data listed in this report will adhere to both Beam Forming and non Beam Forming cases.

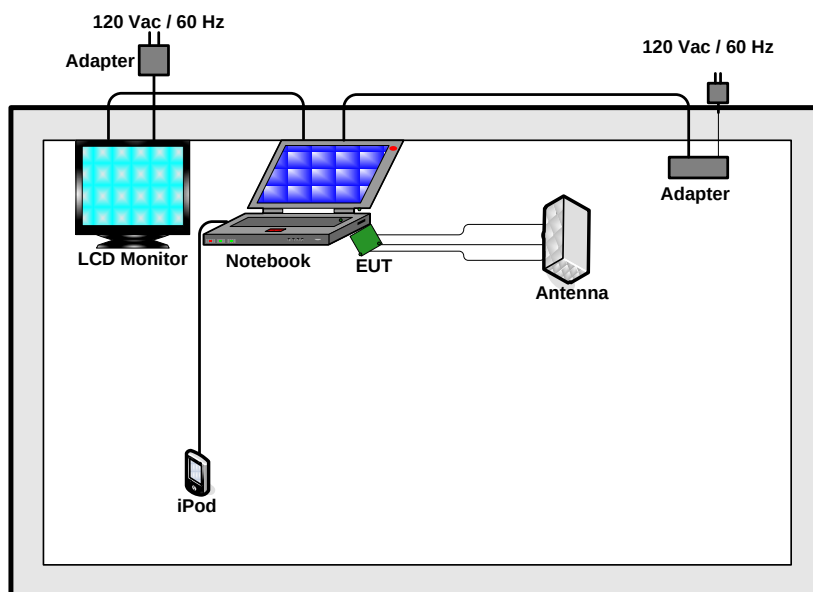
This device has been evaluated as module of mobile device, as well as portable device. Therefore, for radiated spurious emission, the EUT antenna has been tested in X, Y and Z axis to simulate mobile and portable position. The worst case position is Y-axis, only data from Z-axis was recorded in this report.

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 Test Software

The programmed RF utility "Art" is installed in notebook to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. 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.

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

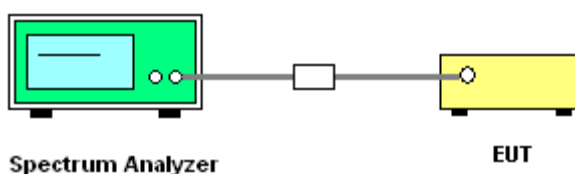
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

<Normal Mode: 3x3>

Test Mode :	802.11b L/M/H channel	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
01	2412	10.36	10.00	9.92	0.5	Pass
06	2437	10.36	10.04	10.00	0.5	Pass
11	2462	9.56	9.56	9.96	0.5	Pass

Test Mode :	802.11g L/M/H channel	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
01	2412	16.36	16.34	16.36	0.5	Pass
06	2437	16.28	16.30	16.28	0.5	Pass
11	2462	16.32	16.30	16.32	0.5	Pass

Test Mode :	802.11a L/M/H channels	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.30	16.25	16.20	0.5	Pass
157	5785	16.20	16.20	16.20	0.5	Pass
165	5825	16.20	16.20	16.20	0.5	Pass



<Normal Mode: 2x3>

Test Mode :	802.11a L/M/H channels	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1		
149	5745	16.30	16.25	0.5	Pass
157	5785	16.20	16.20	0.5	Pass
165	5825	16.20	16.20	0.5	Pass

**<Beam-Forming On: 3x3>**

Test Mode :	802.11n (HT-20) L/M/H channel at 2.4G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
01	2412	17.56	17.56	17.58	0.5	Pass
06	2437	17.52	17.54	17.54	0.5	Pass
11	2462	17.54	17.54	17.56	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channel at 2.4G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
03	2422	36.4	36.36	36.36	0.5	Pass
06	2437	36.32	36.36	36.36	0.5	Pass
09	2452	36.32	36.36	36.32	0.5	Pass



Test Mode :	802.11n (HT-20) L/M/H channels at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.30	17.20	17.20	0.5	Pass
157	5785	17.30	17.30	17.30	0.5	Pass
165	5825	17.60	17.55	17.60	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channels at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.09	36.09	36.09	0.5	Pass
159	5795	36.00	36.00	35.82	0.5	Pass

**<Beam-Forming On: 2x3>**

Test Mode :	802.11n (HT-20) L/M/H channels at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 2Tx) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1		
149	5745	17.30	17.20	0.5	Pass
157	5785	17.30	17.30	0.5	Pass
165	5825	17.60	17.55	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channels at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 2Tx) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1		
151	5755	36.09	36.09	0.5	Pass
159	5795	36.00	36.00	0.5	Pass

**<Beam-Forming Off: 3x3>**

Test Mode :	802.11n (HT-20) L/M/H channel at 2.4G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
01	2412	17.56	17.56	17.58	0.5	Pass
06	2437	17.52	17.54	17.54	0.5	Pass
11	2462	17.54	17.54	17.56	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channel at 2.4G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
03	2422	36.40	36.36	36.36	0.5	Pass
06	2437	36.32	36.36	36.36	0.5	Pass
09	2452	36.32	36.36	36.32	0.5	Pass



Test Mode :	802.11n (HT-20) L/M/H channels at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
149	5745	17.30	17.20	17.20	0.5	Pass
157	5785	17.30	17.30	17.30	0.5	Pass
165	5825	17.60	17.55	17.60	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channels at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1	Chain 2		
151	5755	36.09	36.09	36.09	0.5	Pass
159	5795	36.00	36.00	35.82	0.5	Pass

**<Beam-Forming Off: 2x3>**

Test Mode :	802.11n (HT-20) L/M/H channels at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 2Tx) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1		
149	5745	17.30	17.20	0.5	Pass
157	5785	17.30	17.30	0.5	Pass
165	5825	17.60	17.55	0.5	Pass

Test Mode :	802.11n (HT-40) L/M/H channels at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 2Tx) 6dB Bandwidth (MHz)		6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		Chain 0	Chain 1		
151	5755	36.09	36.09	0.5	Pass
159	5795	36.00	36.00	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

<Normal Mode: 3x3>

Test Mode :	802.11b L/M/H channel	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
01	2412	13.80	13.72	13.72	N/A
06	2437	14.30	13.76	13.72	N/A
11	2462	14.20	13.72	13.72	N/A

Test Mode :	802.11g L/M/H channel	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
01	2412	17.48	17.16	17.04	N/A
06	2437	17.56	17.24	17.08	N/A
11	2462	17.44	17.20	17.00	N/A

Test Mode :	802.11a L/M/H channel	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
149	5745	24.30	25.05	21.50	N/A
157	5785	22.45	25.50	26.55	N/A
165	5825	21.80	25.55	26.55	N/A



<Normal Mode: 2x3>

Test Mode :	802.11a L/M/H channel	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain 0	Chain 1	
149	5745	24.30	25.05	N/A
157	5785	22.45	25.50	N/A
165	5825	21.80	25.55	N/A

<Beam-Forming On: 3x3>

Test Mode :	802.11n (HT-20) L/M/H channel at 2.4G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
01	2412	18.52	18.24	18.20	N/A
06	2437	18.40	18.32	18.24	N/A
11	2462	18.40	18.24	18.12	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 2.4G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
03	2422	37.50	37.20	37.00	N/A
06	2437	37.40	37.00	36.90	N/A
09	2452	37.30	37.10	36.90	N/A



Test Mode :	802.11n (HT-20) L/M/H channel at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
149	5745	24.58	20.35	23.35	N/A
157	5785	22.65	25.05	28.05	N/A
165	5825	22.50	25.00	27.85	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
151	5755	54.72	43.00	47.50	N/A
159	5795	47.79	39.60	44.00	N/A

**<Beam-Forming On: 2x3>**

Test Mode :	802.11n (HT-20) L/M/H channel at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 2Tx) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain 0	Chain 1	
149	5745	24.58	20.35	N/A
157	5785	22.65	25.05	N/A
165	5825	22.50	25.00	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 2Tx) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain 0	Chain 1	
151	5755	54.72	43.00	N/A
159	5795	47.79	39.60	N/A

**<Beam-Forming Off: 3x3>**

Test Mode :	802.11n (HT-20) L/M/H channel at 2.4G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
01	2412	18.52	18.24	18.20	N/A
06	2437	18.40	18.32	18.24	N/A
11	2462	18.40	18.24	18.12	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 2.4G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
03	2422	37.50	37.20	37.00	N/A
06	2437	37.40	37.00	36.90	N/A
09	2452	37.30	37.10	36.90	N/A



Test Mode :	802.11n (HT-20) L/M/H channel at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
149	5745	24.58	20.35	23.35	N/A
157	5785	22.65	25.05	28.05	N/A
165	5825	22.50	25.00	27.85	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 5.8G band	Temperature :	25~27°C
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-40, 3Tx) 99% Occupied Bandwidth (MHz)			Pass/Fail
		Chain 0	Chain 1	Chain 2	
151	5755	54.72	43.00	47.50	N/A
159	5795	47.79	39.60	44.00	N/A

**<Beam-Forming Off: 2x3>**

Test Mode :	802.11n (HT-20) L/M/H channel at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

Channel	Frequency (MHz)	802.11n (HT-20, 2Tx) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain 0	Chain 1	
149	5745	24.58	20.35	N/A
157	5785	22.65	25.05	N/A
165	5825	22.50	25.00	N/A

Test Mode :	802.11n (HT-40) L/M/H channel at 5.8G band	Temperature :	25~27℃
Test Engineer :	Lewis He	Relative Humidity :	64~66%

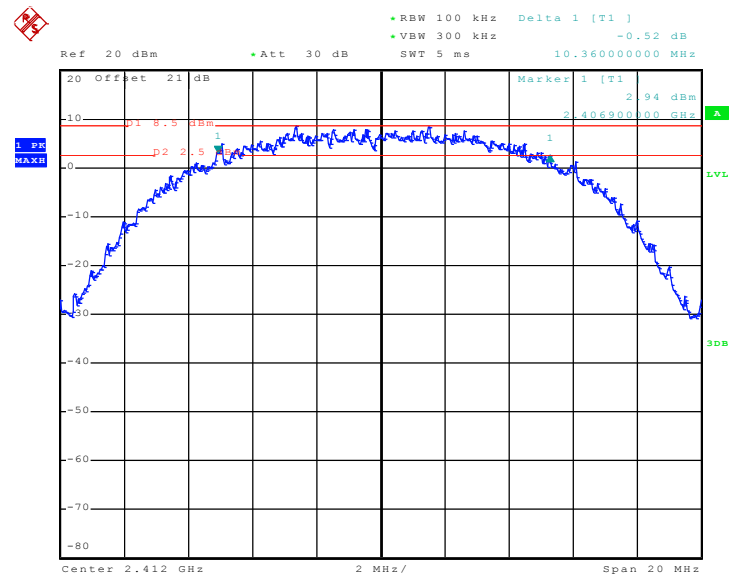
Channel	Frequency (MHz)	802.11n (HT-40, 2Tx) 99% Occupied Bandwidth (MHz)		Pass/Fail
		Chain 0	Chain 1	
151	5755	54.72	43.00	N/A
159	5795	47.79	39.60	N/A



3.1.7 Test Result of 6dB Bandwidth Plots

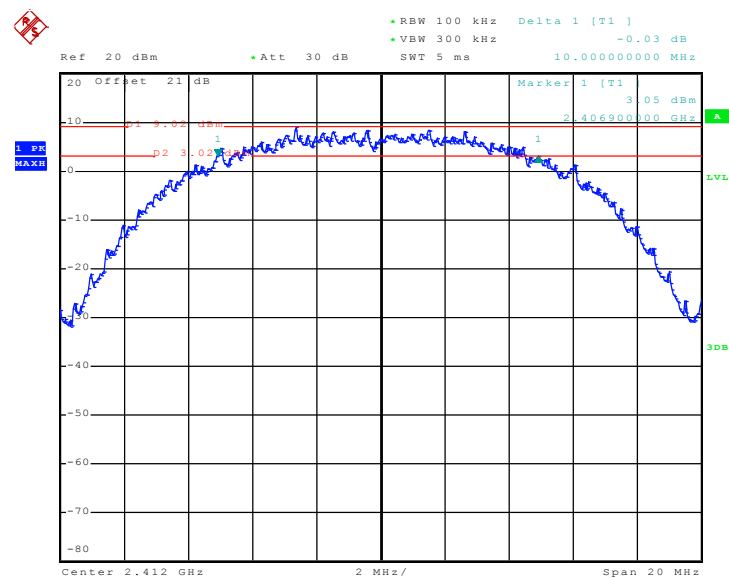
<Normal Mode: 3x3>

6 dB Bandwidth Plot on 802.11b Channel 01 - Chain 0



Date: 26.OCT.2010 01:35:01

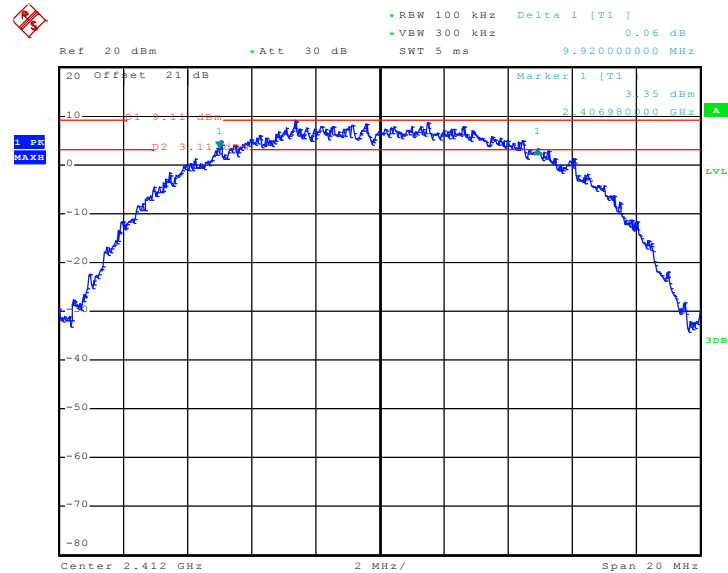
6 dB Bandwidth Plot on 802.11b Channel 01 - Chain 1



Date: 26.OCT.2010 06:50:02

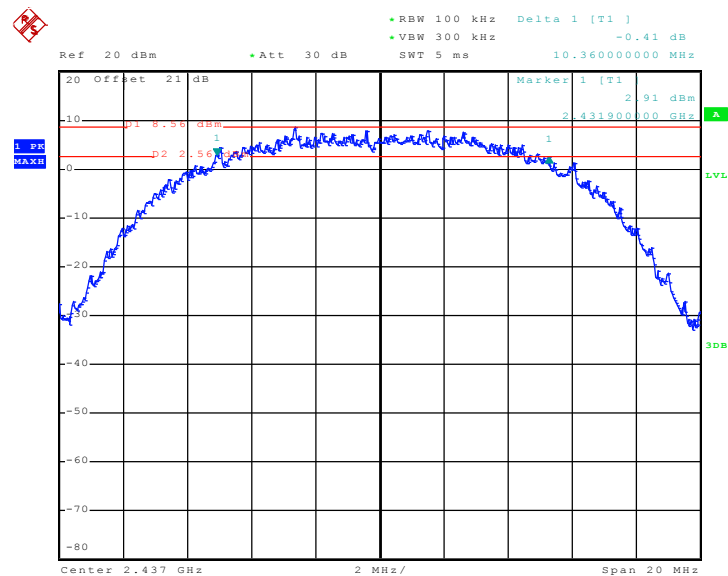


6 dB Bandwidth Plot on 802.11b Channel 01 - Chain 2



Date: 26.OCT.2010 07:50:30

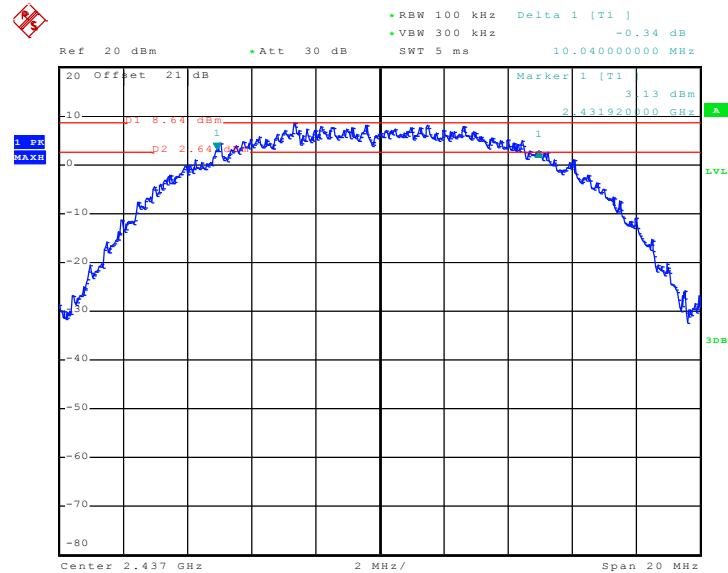
6 dB Bandwidth Plot on 802.11b Channel 06 - Chain 0



Date: 26.OCT.2010 01:37:22

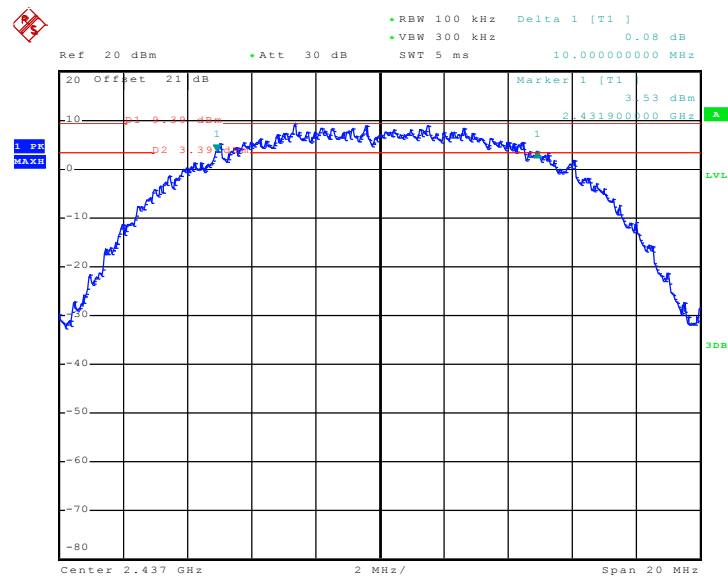


6 dB Bandwidth Plot on 802.11b Channel 06 - Chain 1



Date: 26.OCT.2010 06:53:52

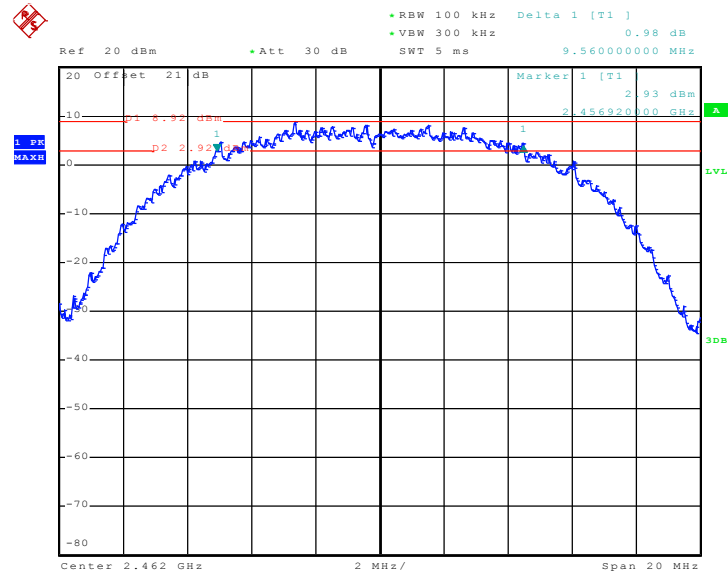
6 dB Bandwidth Plot on 802.11b Channel 06 - Chain 2



Date: 26.OCT.2010 07:52:17

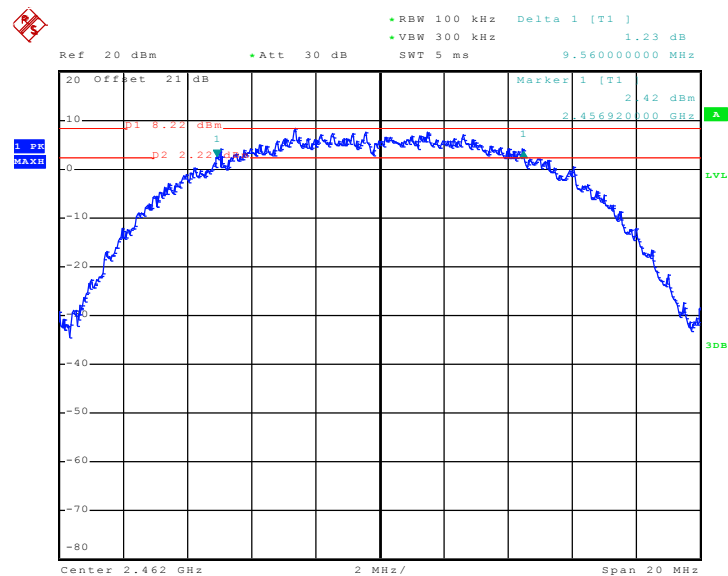


6 dB Bandwidth Plot on 802.11b Channel 11 - Chain 0



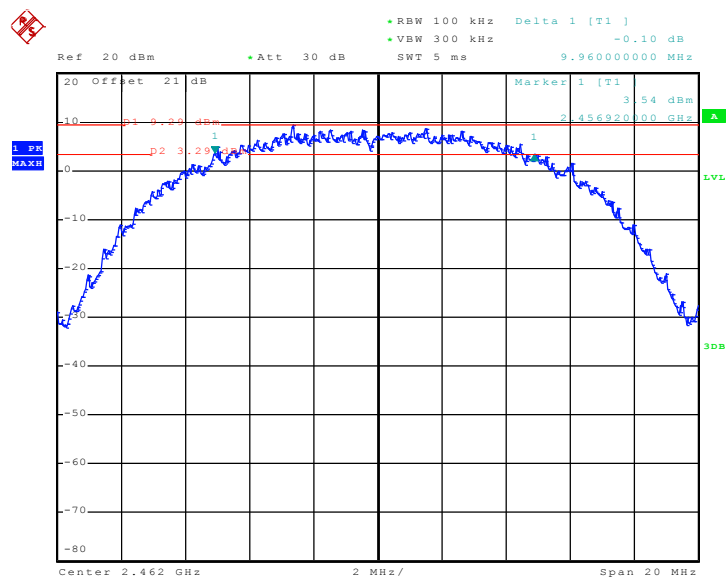
Date: 26.OCT.2010 01:40:29

6 dB Bandwidth Plot on 802.11b Channel 11 - Chain 1



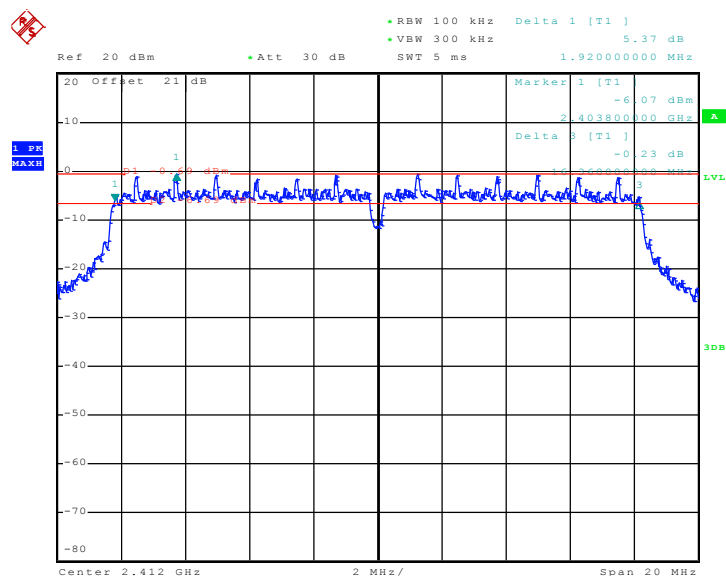
Date: 26.OCT.2010 06:57:23

6 dB Bandwidth Plot on 802.11b Channel 11 - Chain 2



Date: 26.OCT.2010 07:53:56

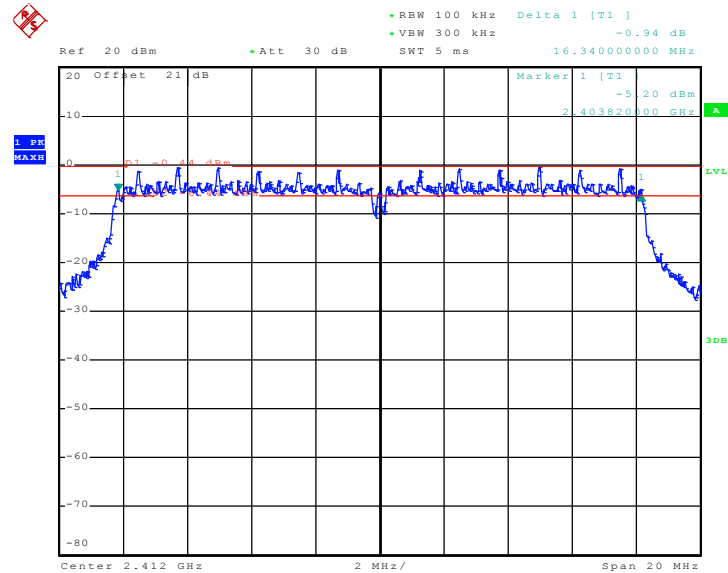
6 dB Bandwidth Plot on 802.11g Channel 01 - Chain 0



Date: 26.OCT.2010 02:44:15

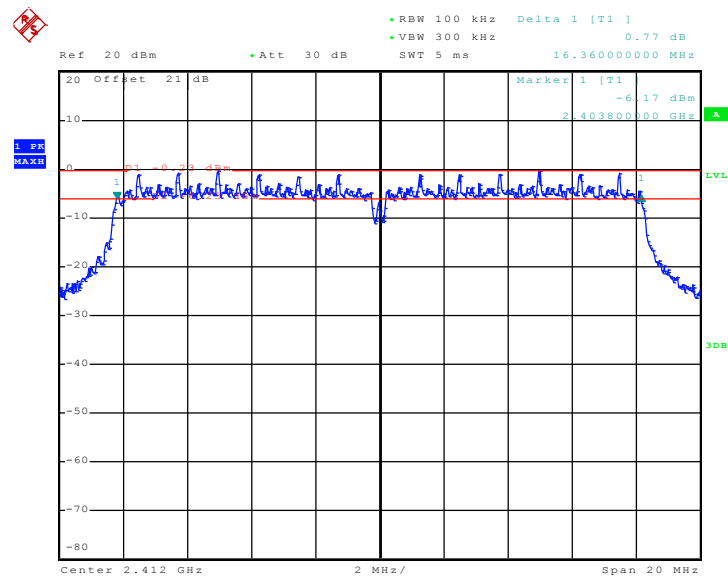


6 dB Bandwidth Plot on 802.11g Channel 01 - Chain 1



Date: 26.OCT.2010 06:59:27

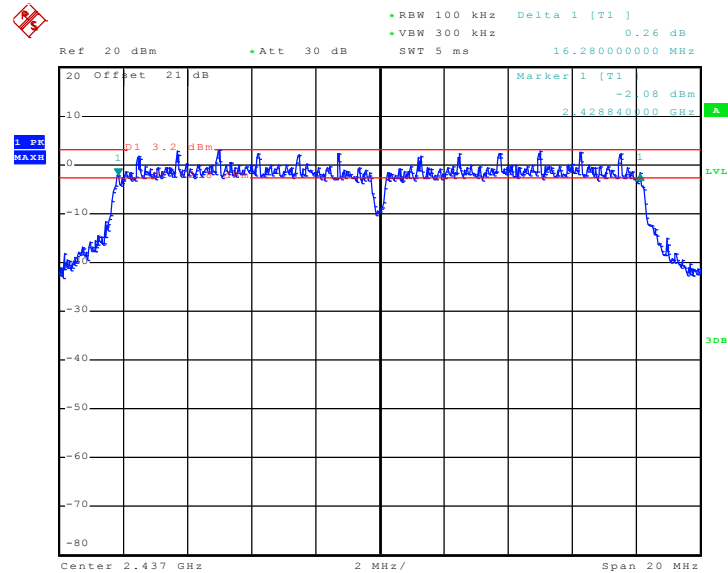
6 dB Bandwidth Plot on 802.11g Channel 01 - Chain 2



Date: 26.OCT.2010 07:44:49

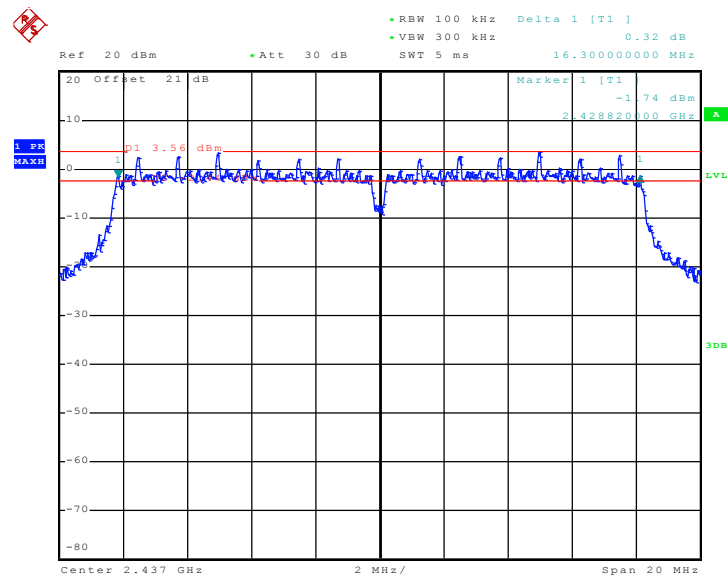


6 dB Bandwidth Plot on 802.11g Channel 06 - Chain 0



Date: 26.OCT.2010 02:45:54

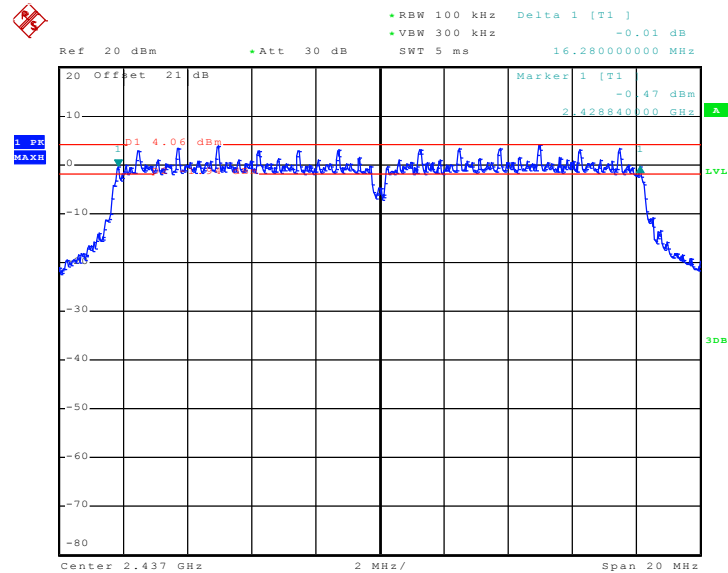
6 dB Bandwidth Plot on 802.11g Channel 06 - Chain 1



Date: 26.OCT.2010 07:02:00

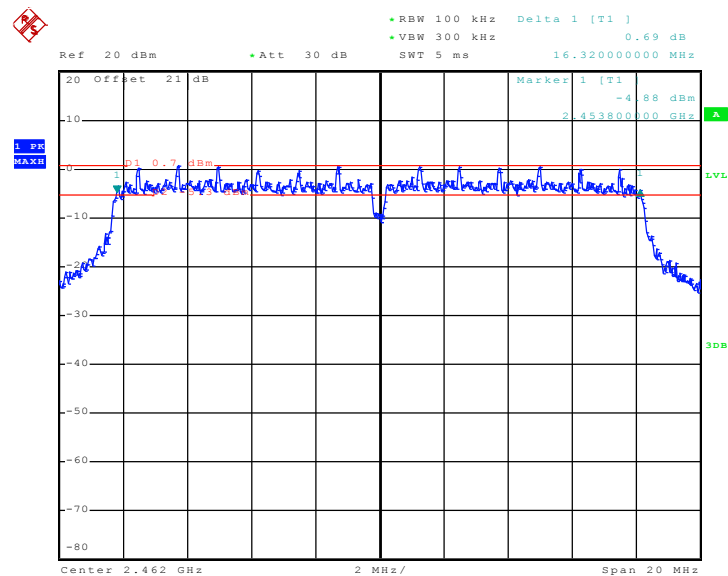


6 dB Bandwidth Plot on 802.11g Channel 06 - Chain 2



Date: 26.OCT.2010 07:46:52

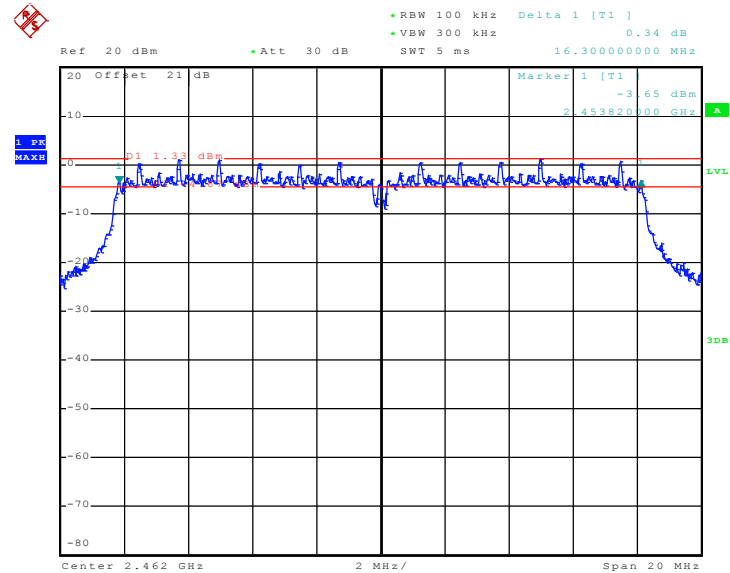
6 dB Bandwidth Plot on 802.11g Channel 11 - Chain 0



Date: 26.OCT.2010 02:47:16

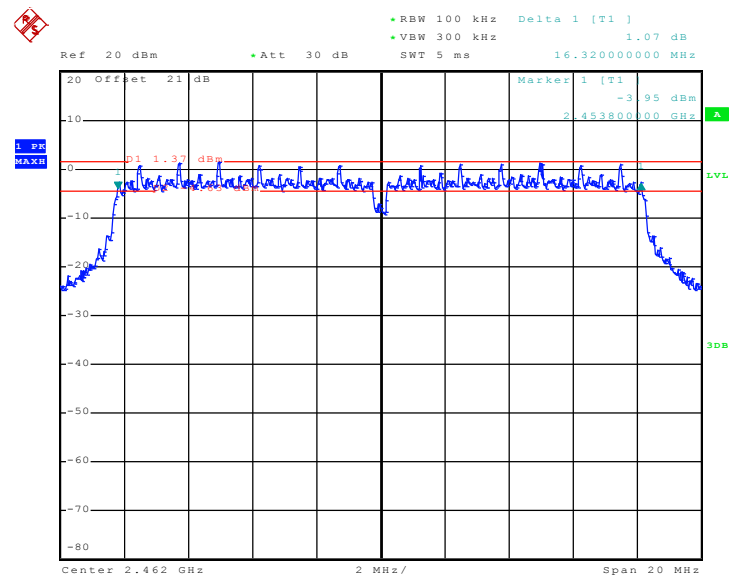


6 dB Bandwidth Plot on 802.11g Channel 11 - Chain 1



Date: 26.OCT.2010 07:04:15

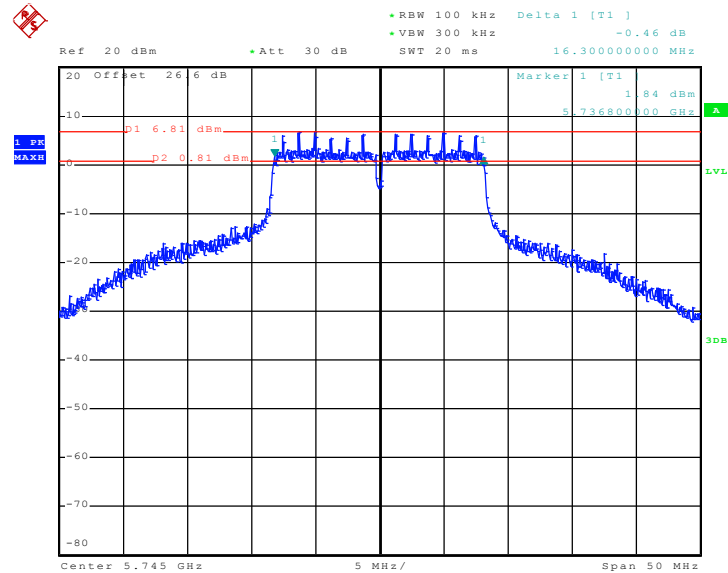
6 dB Bandwidth Plot on 802.11g Channel 11 - Chain 2



Date: 26.OCT.2010 07:48:29

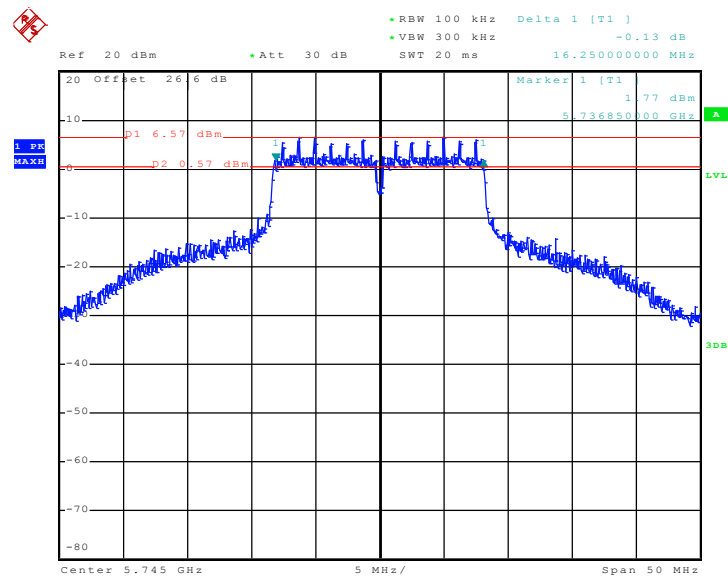


6 dB Bandwidth Plot on 802.11a Channel 149 - Chain 0



Date: 26.OCT.2010 02:16:52

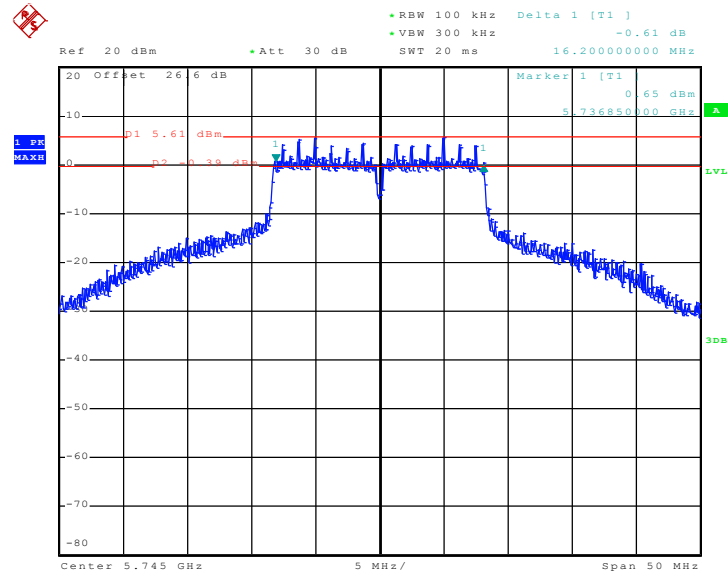
6 dB Bandwidth Plot on 802.11a Channel 149 - Chain 1



Date: 26.OCT.2010 08:33:50

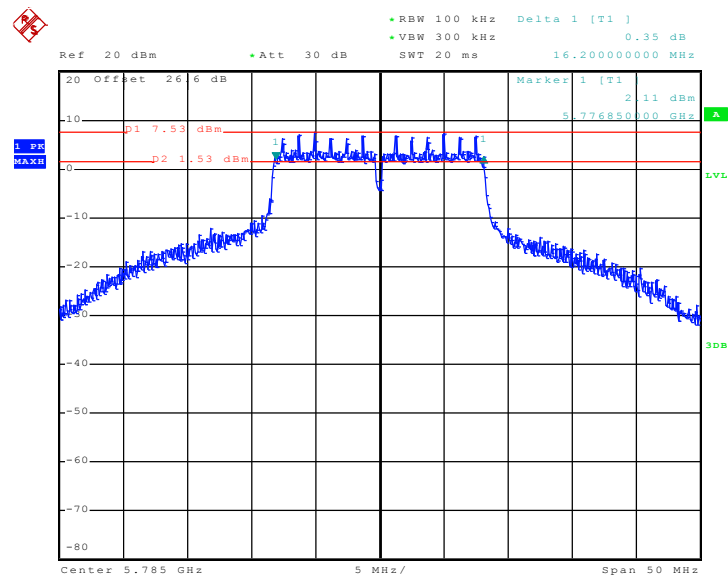


6 dB Bandwidth Plot on 802.11a Channel 149 - Chain 2



Date: 26.OCT.2010 08:00:22

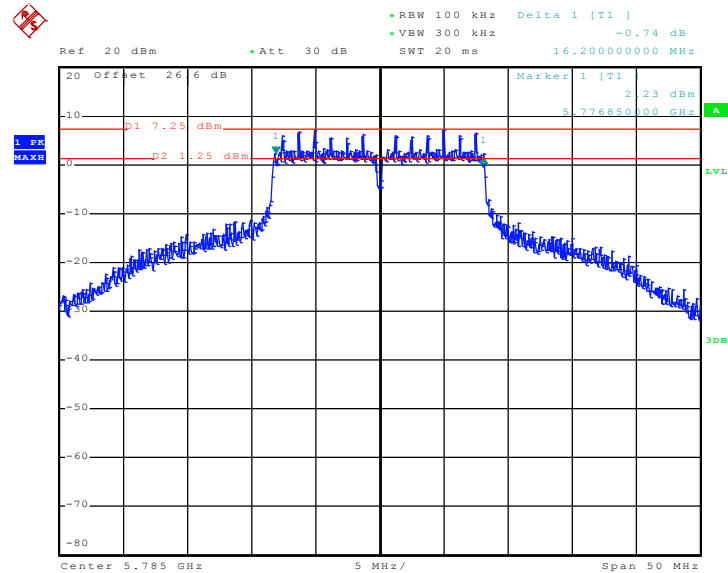
6 dB Bandwidth Plot on 802.11a Channel 157 - Chain 0



Date: 26.OCT.2010 02:19:59

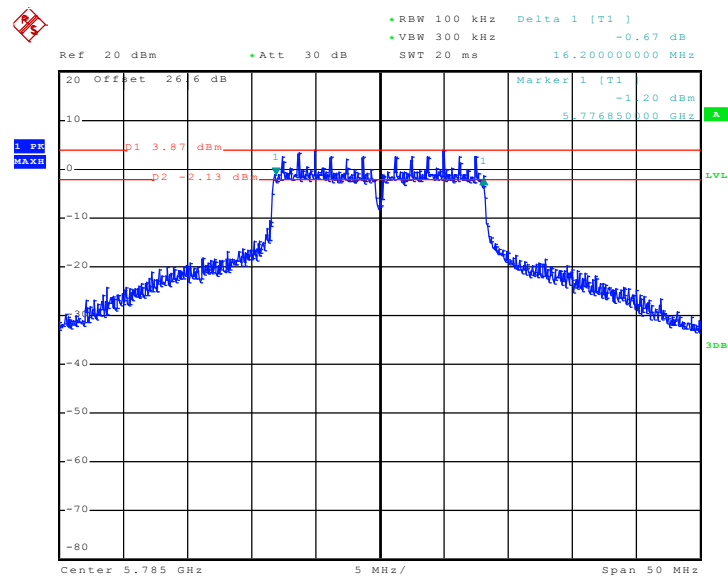


6 dB Bandwidth Plot on 802.11a Channel 157 - Chain 1



Date: 26.OCT.2010 08:35:05

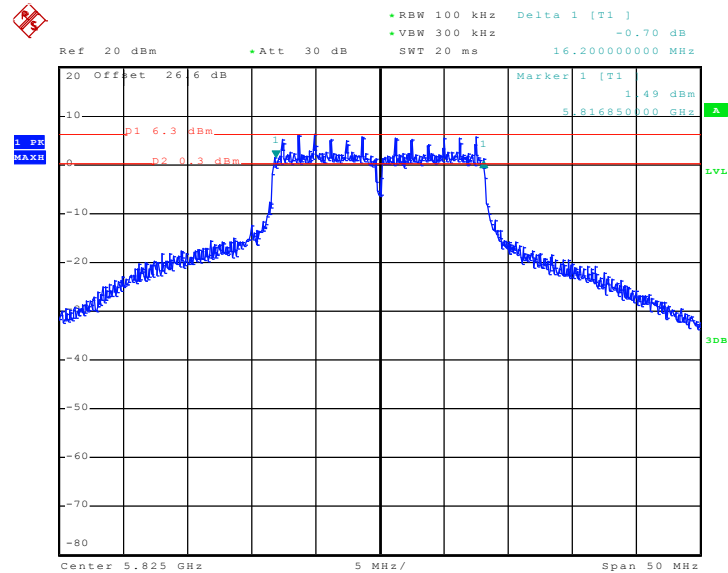
6 dB Bandwidth Plot on 802.11a Channel 157 - Chain 2



Date: 26.OCT.2010 08:02:02

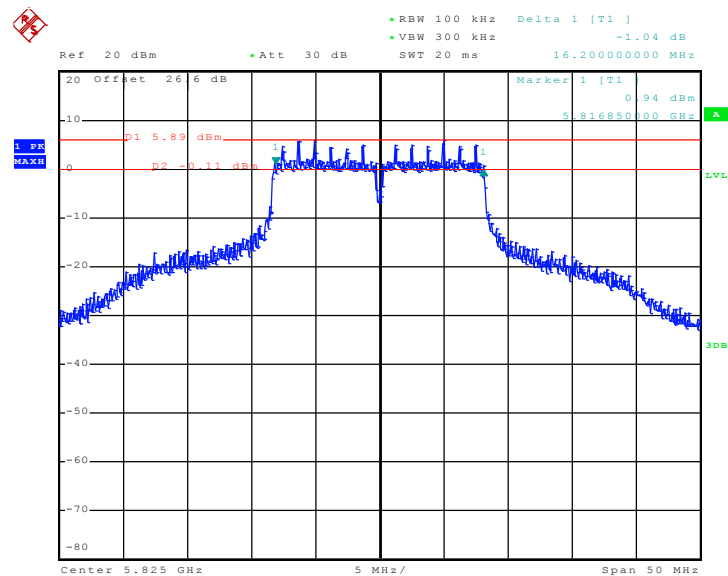


6 dB Bandwidth Plot on 802.11a Channel 165 - Chain 0



Date: 26.OCT.2010 02:21:42

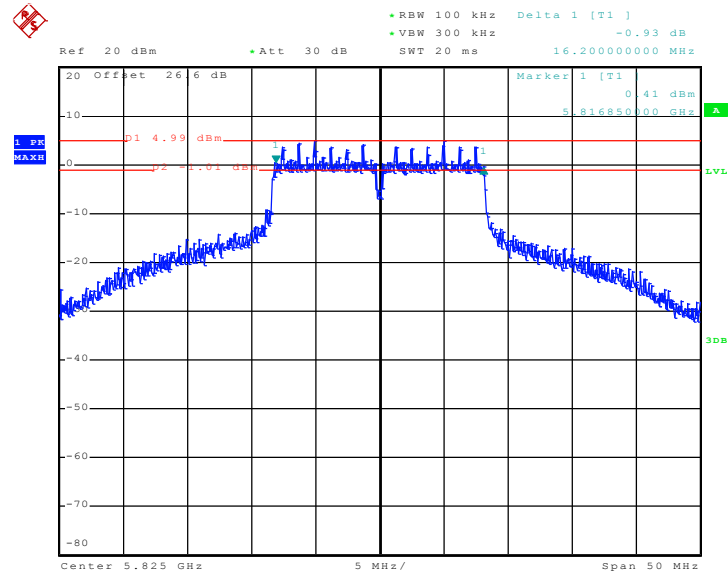
6 dB Bandwidth Plot on 802.11a Channel 165 - Chain 1



Date: 26.OCT.2010 08:36:41



6 dB Bandwidth Plot on 802.11a Channel 165 - Chain 2

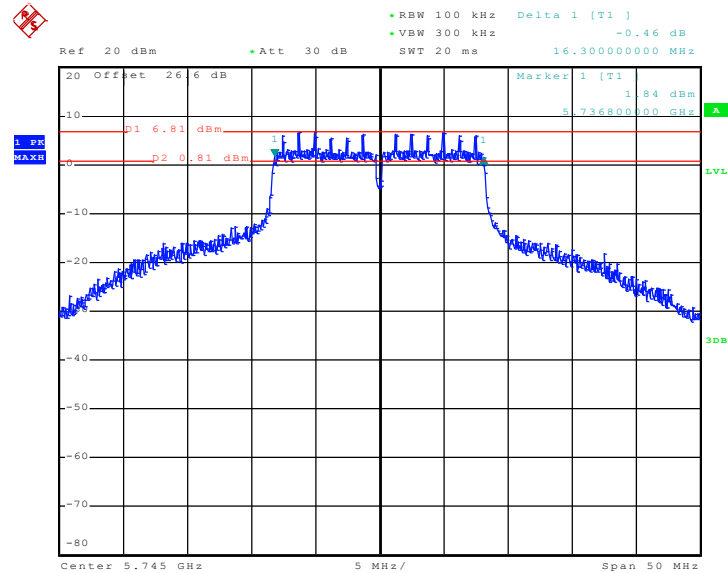


Date: 26.OCT.2010 08:04:03



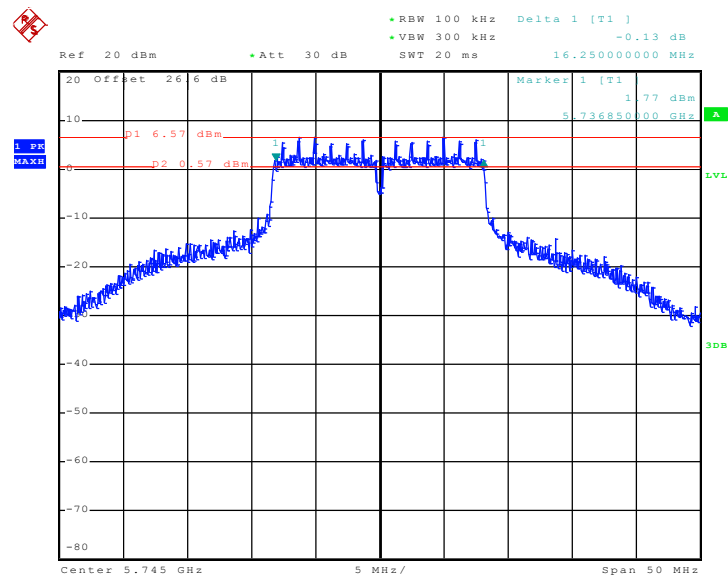
<Normal Mode: 2x3>

6 dB Bandwidth Plot on 802.11a Channel 149 - Chain 0



Date: 26.OCT.2010 02:16:52

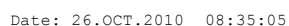
6 dB Bandwidth Plot on 802.11a Channel 149 - Chain 1



Date: 26.OCT.2010 08:33:50

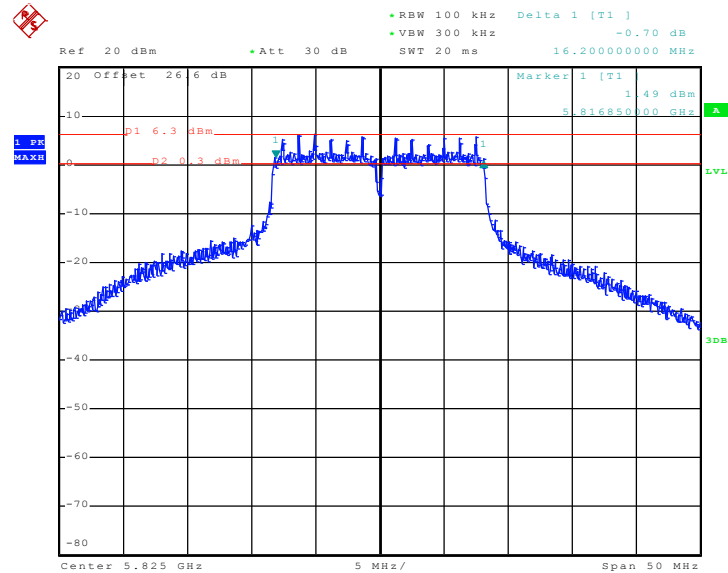


6 dB Bandwidth Plot on 802.11a Channel 157 - Chain 1



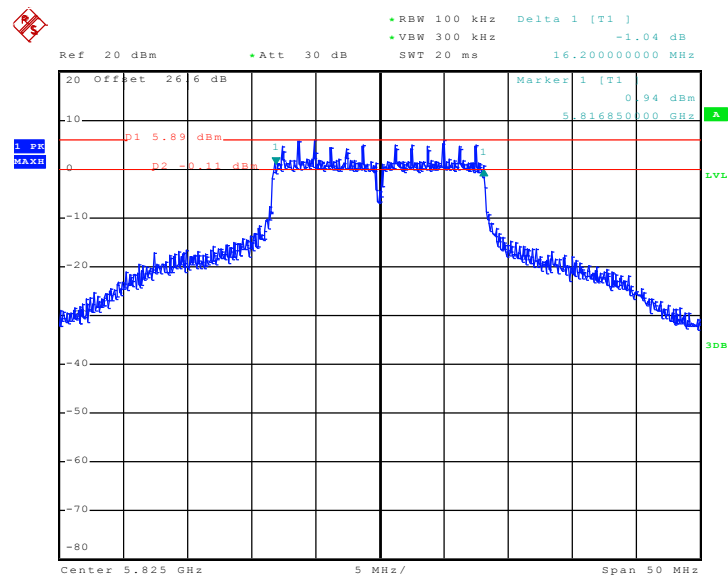


6 dB Bandwidth Plot on 802.11a Channel 165 - Chain 0



Date: 26.OCT.2010 02:21:42

6 dB Bandwidth Plot on 802.11a Channel 165 - Chain 1

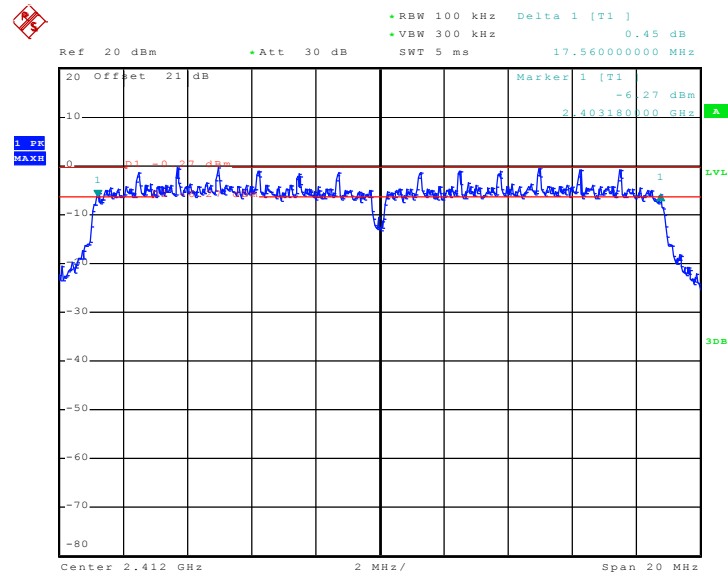


Date: 26.OCT.2010 08:36:41



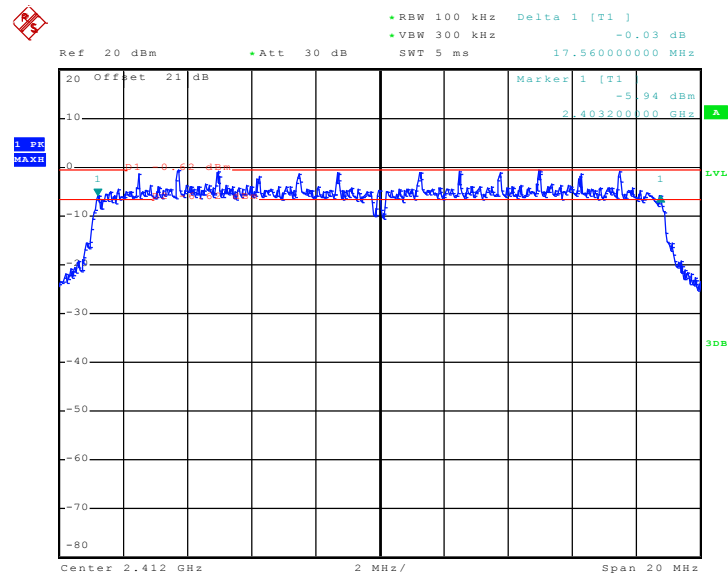
<Beam-Forming On: 3x3>

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 0



Date: 26.OCT.2010 02:49:19

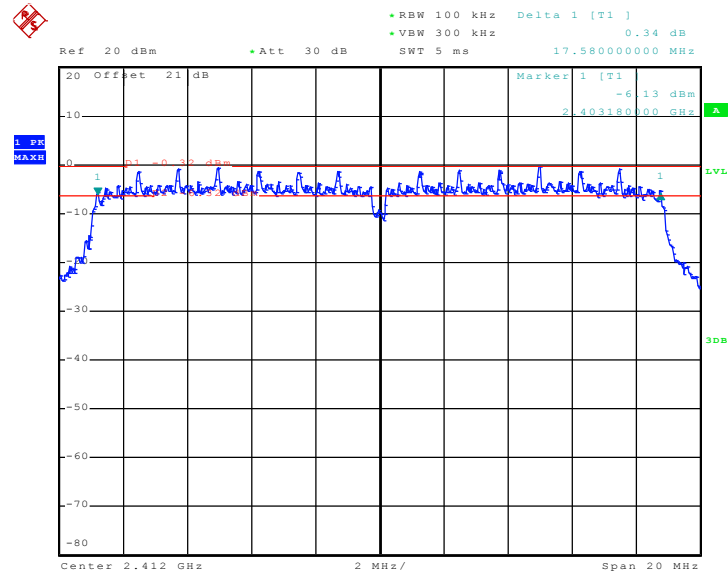
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 1



Date: 26.OCT.2010 07:06:46

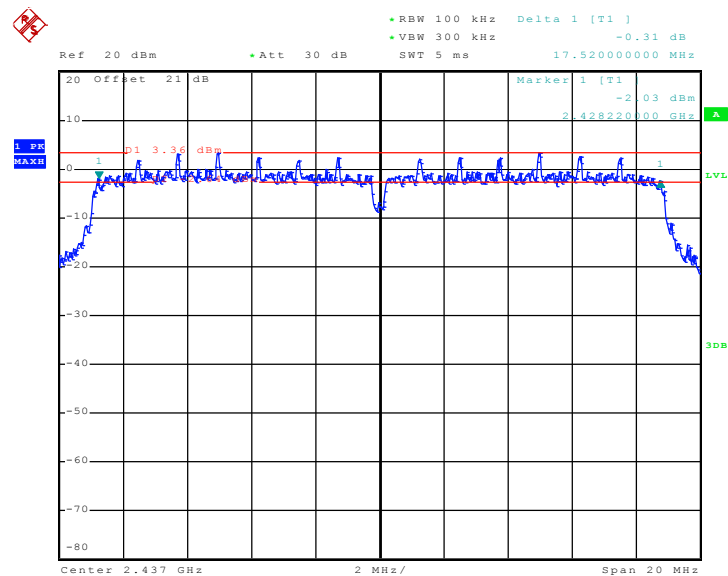


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 2

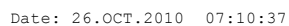


Date: 26.OCT.2010 07:32:40

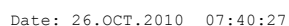
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 0



Date: 26.OCT.2010 02:50:54

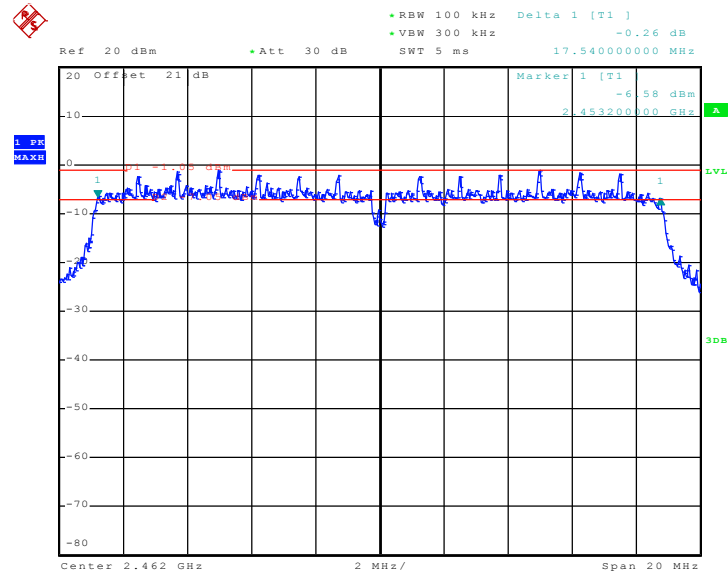


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 2



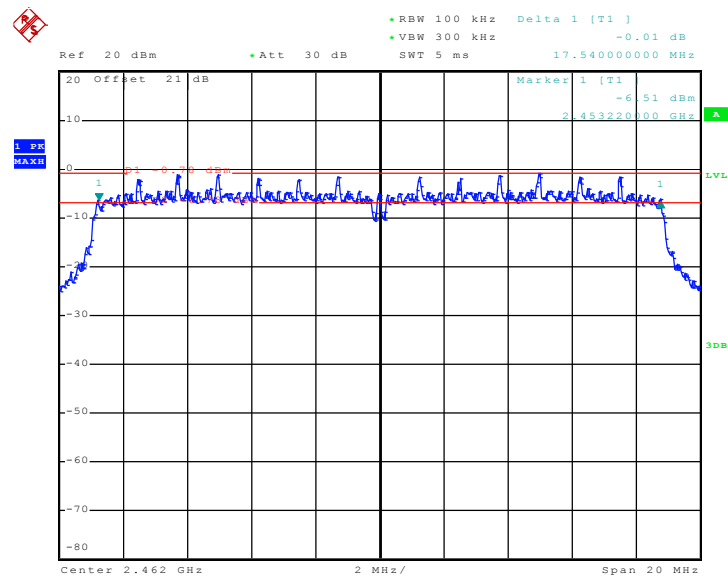


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 0



Date: 26.OCT.2010 02:52:38

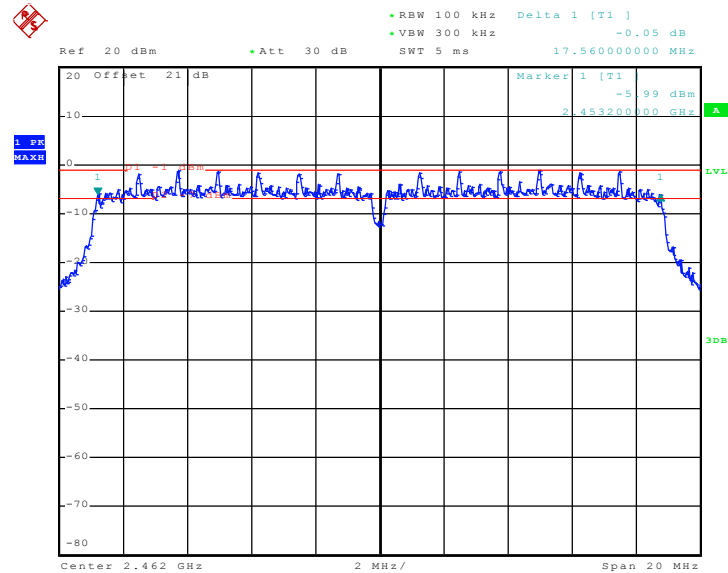
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 1



Date: 26.OCT.2010 07:12:37

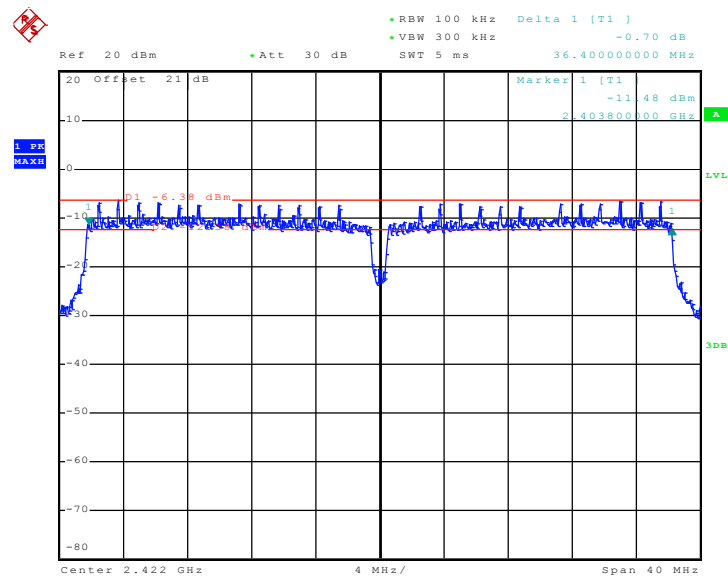


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 2



Date: 26.OCT.2010 07:42:25

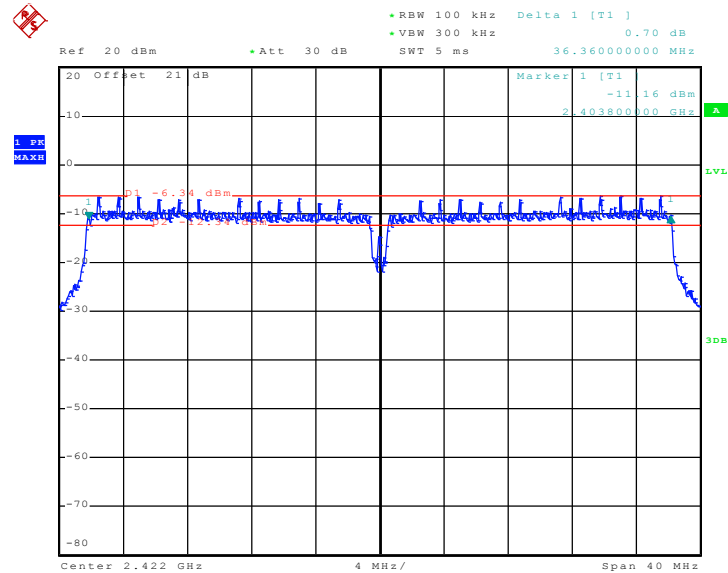
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 0



Date: 26.OCT.2010 02:55:05

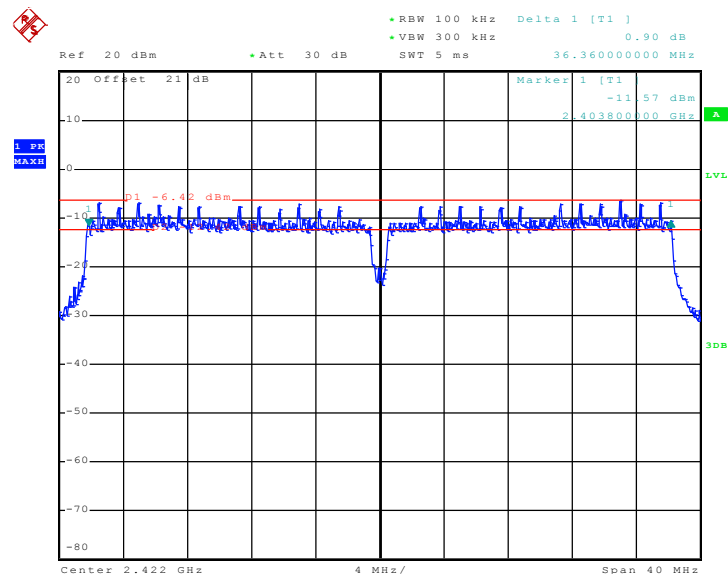


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 1



Date: 26.OCT.2010 07:18:54

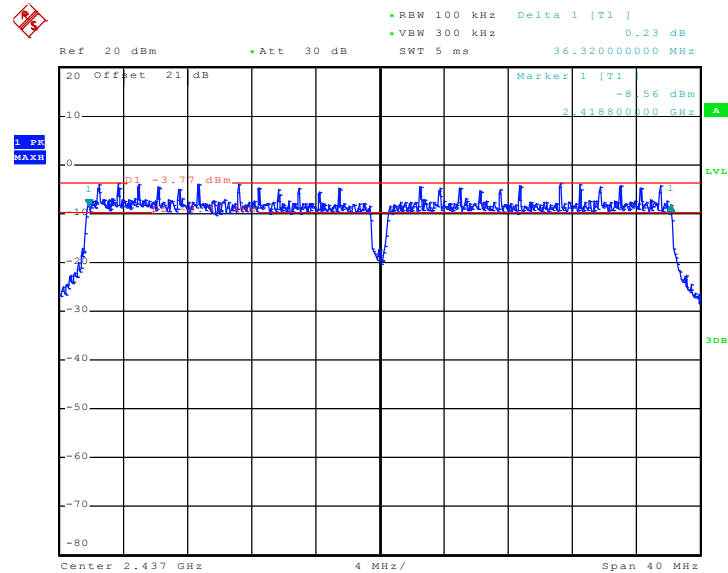
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 2



Date: 26.OCT.2010 07:29:08

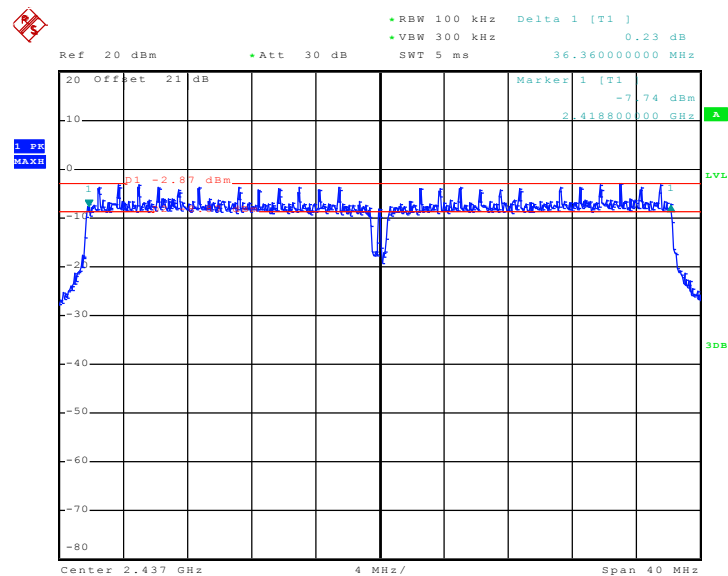


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 0



Date: 26.OCT.2010 02:59:23

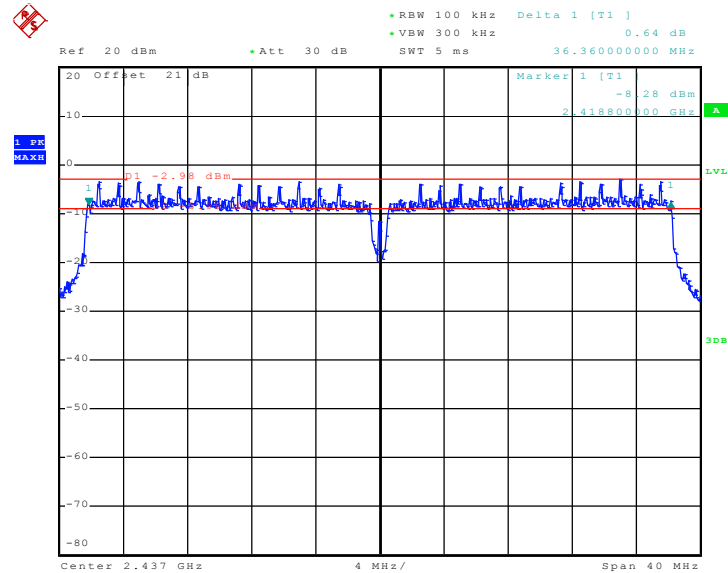
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 1



Date: 26.OCT.2010 07:20:51

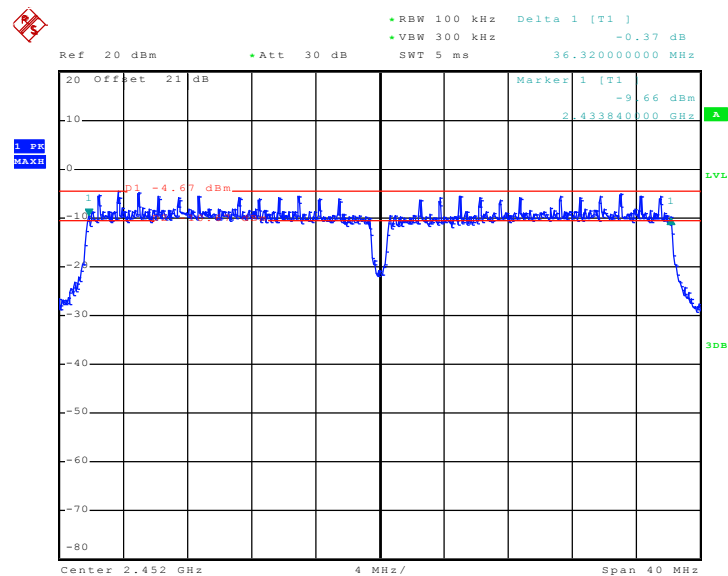


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 2



Date: 26.OCT.2010 07:27:29

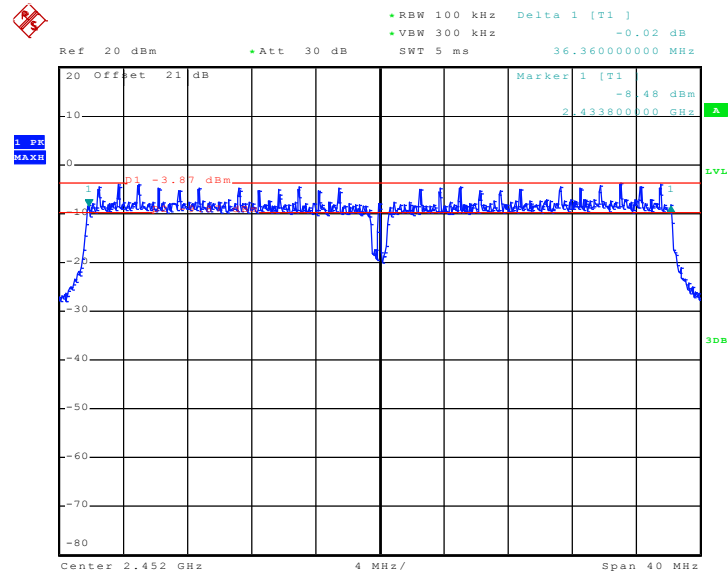
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 0



Date: 26.OCT.2010 03:00:56

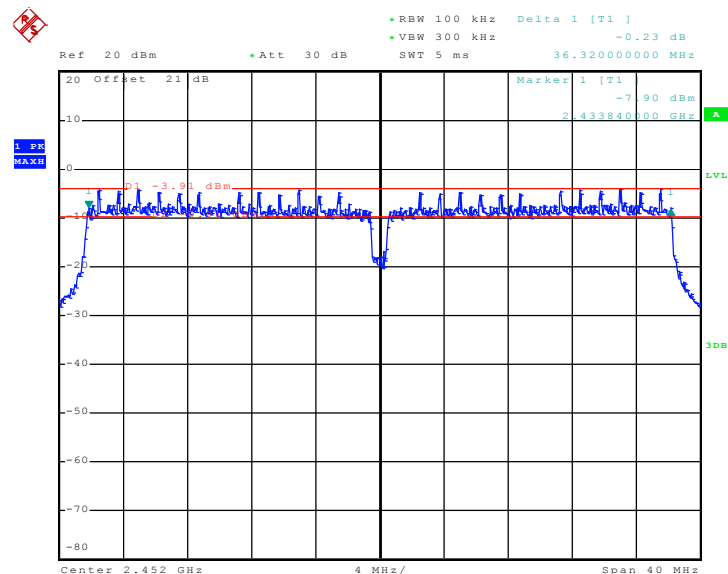


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 1



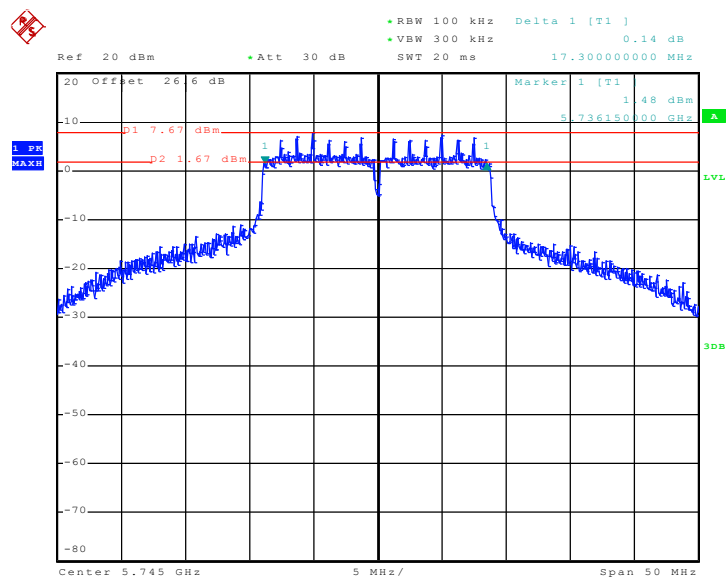
Date: 26.OCT.2010 07:22:30

6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 2



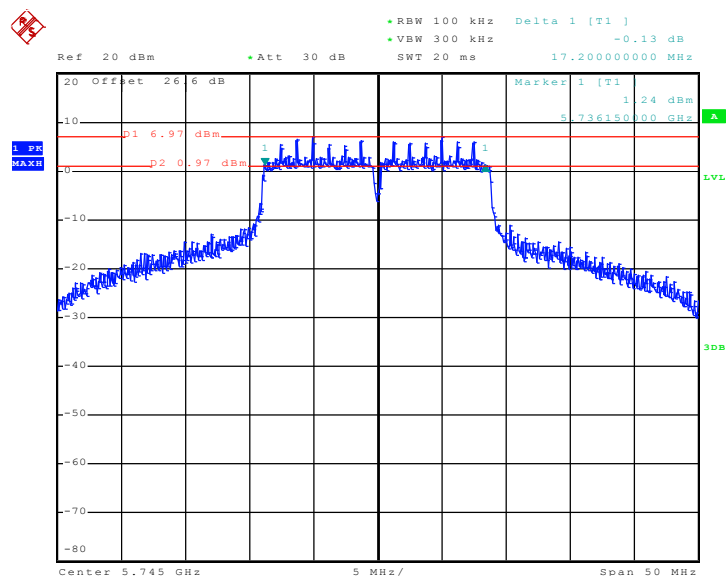
Date: 26.OCT.2010 07:25:42

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 26.OCT.2010 02:23:52

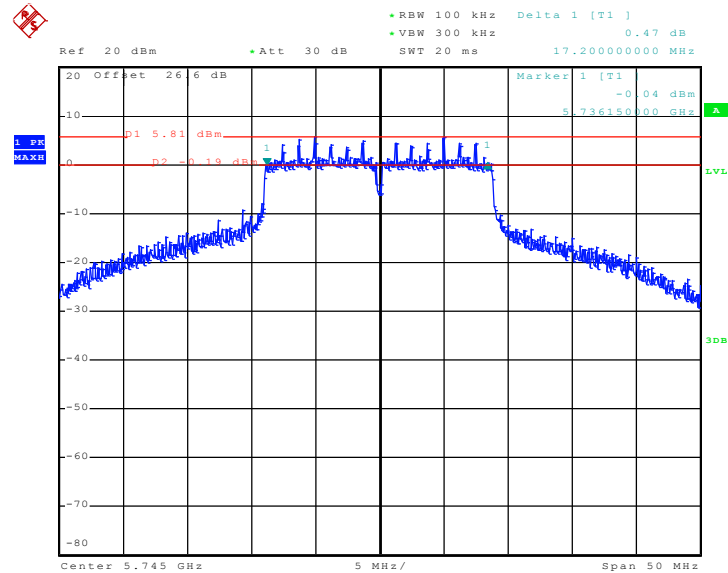
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



Date: 26.OCT.2010 08:41:51

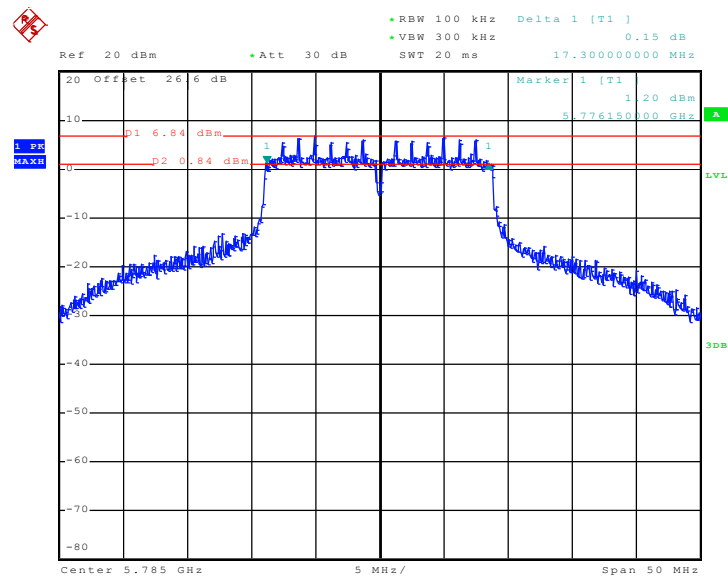


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 2



Date: 26.OCT.2010 08:20:46

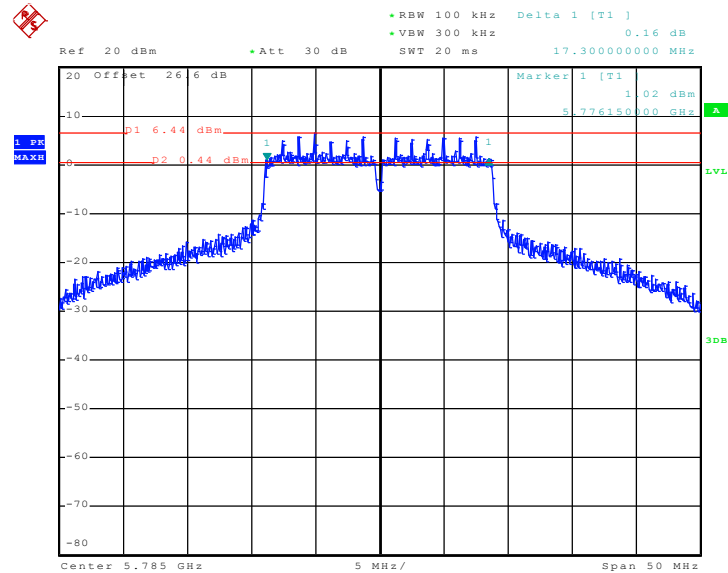
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 0



Date: 26.OCT.2010 02:26:52

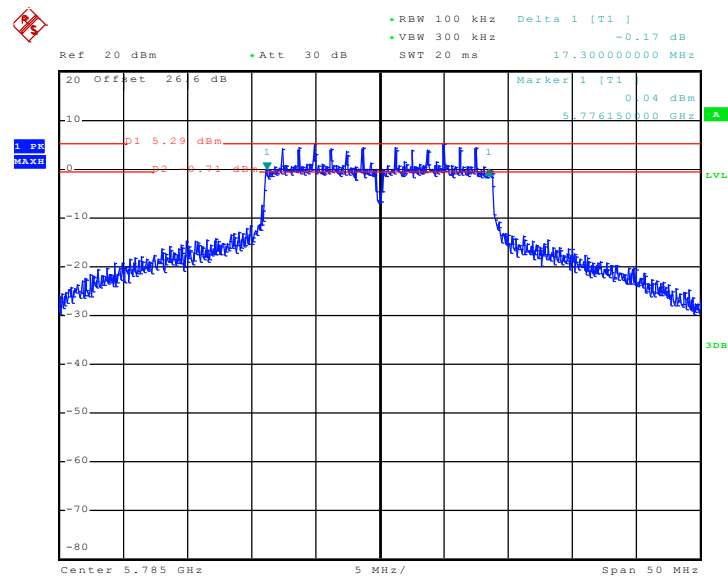


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 1



Date: 26.OCT.2010 08:39:57

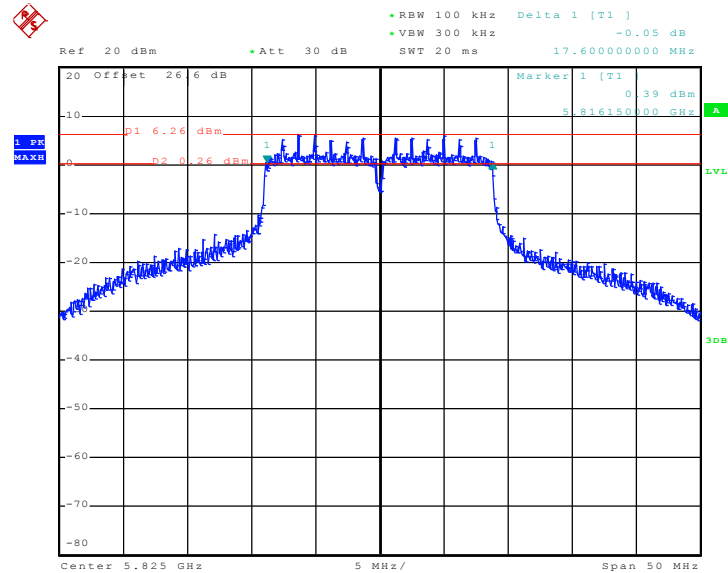
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 2



Date: 26.OCT.2010 08:18:46

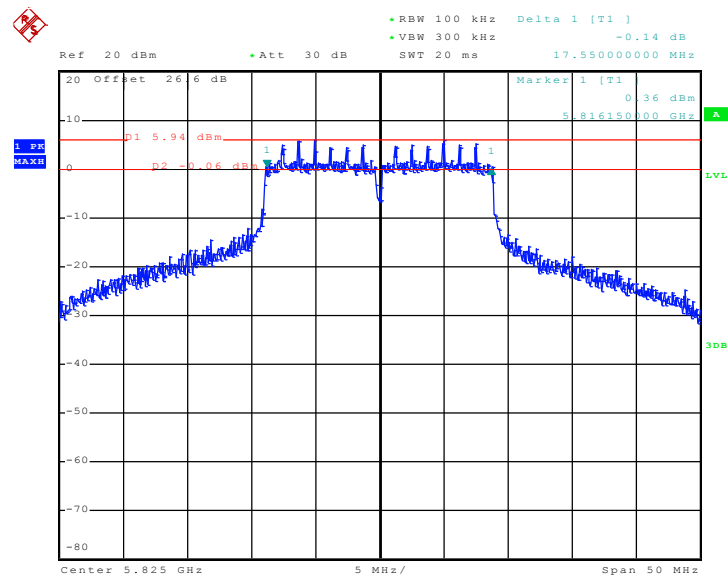


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 26.OCT.2010 02:28:52

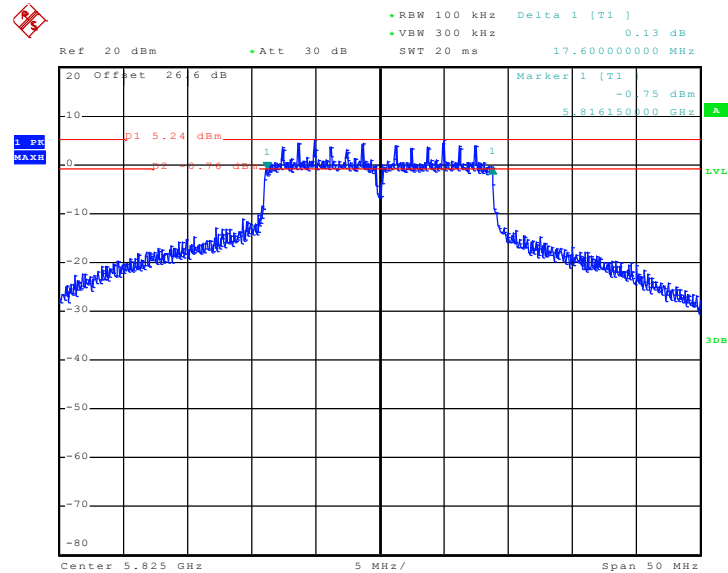
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 26.OCT.2010 08:38:22

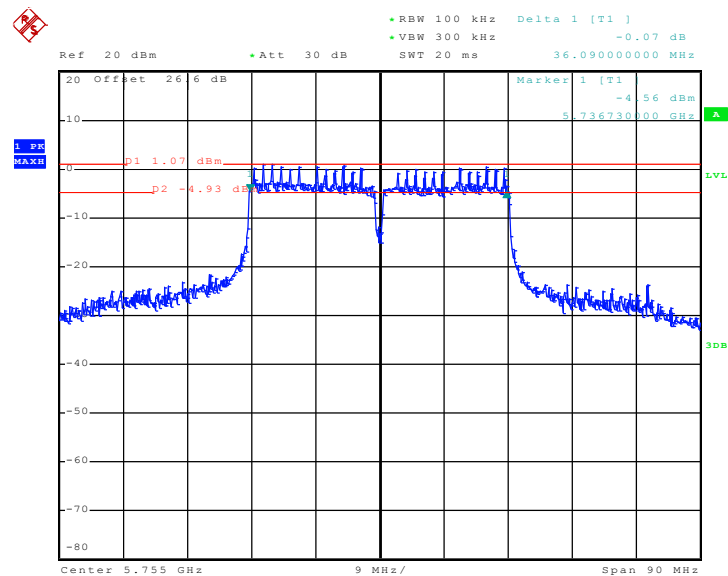


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 2



Date: 26.OCT.2010 08:06:41

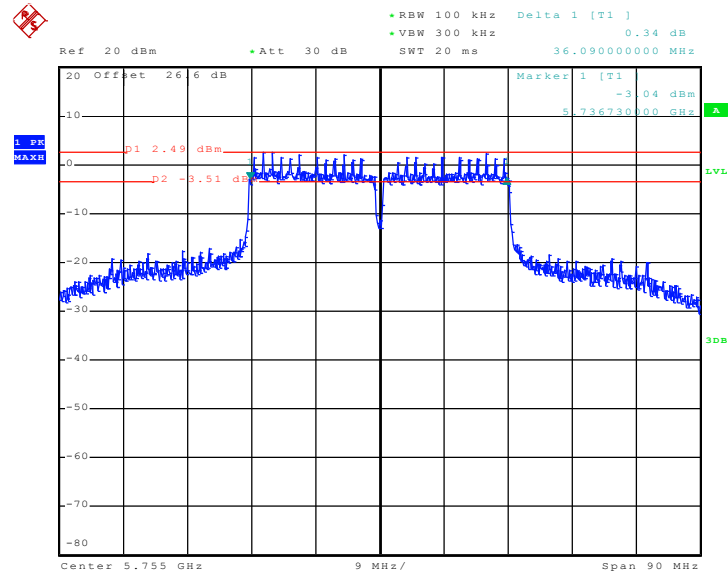
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



Date: 26.OCT.2010 02:32:23

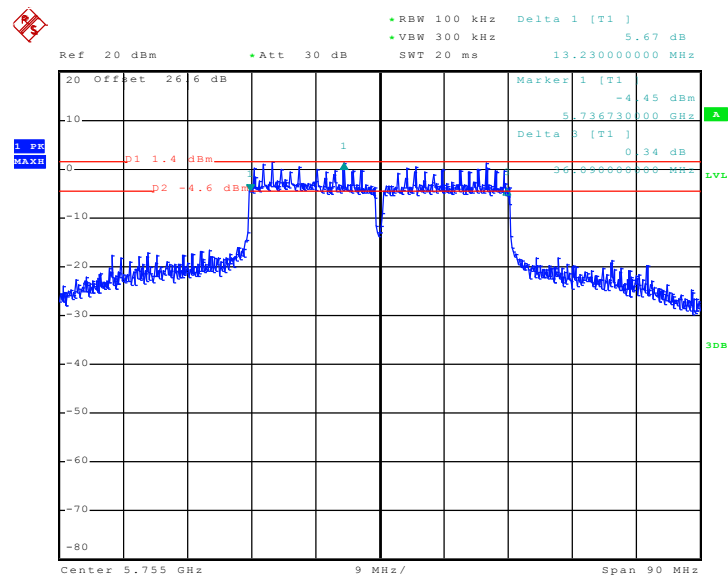


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 26.OCT.2010 08:31:43

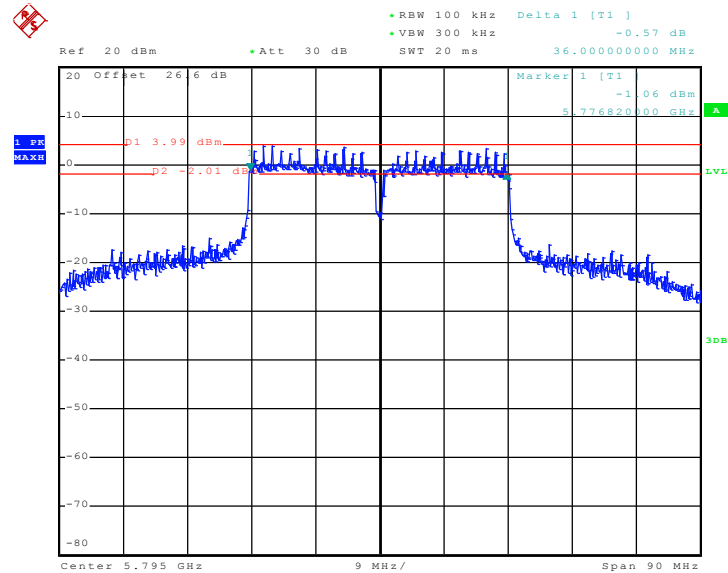
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 2



Date: 26.OCT.2010 08:25:23

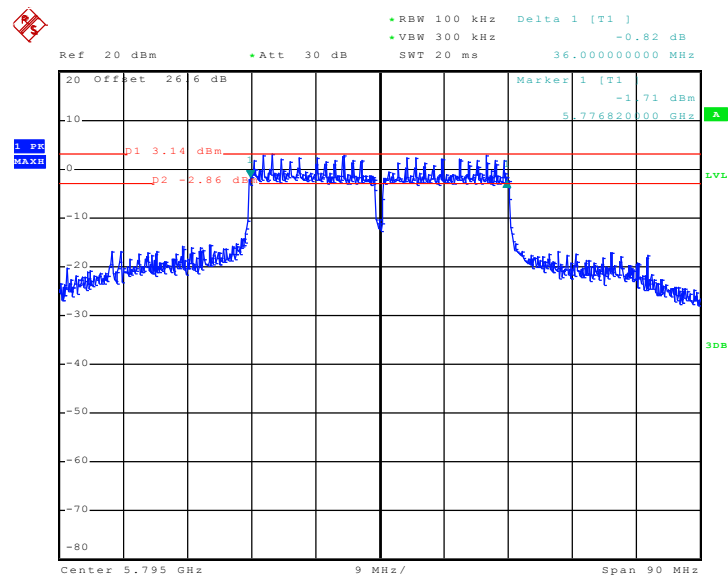


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



Date: 26.OCT.2010 02:34:45

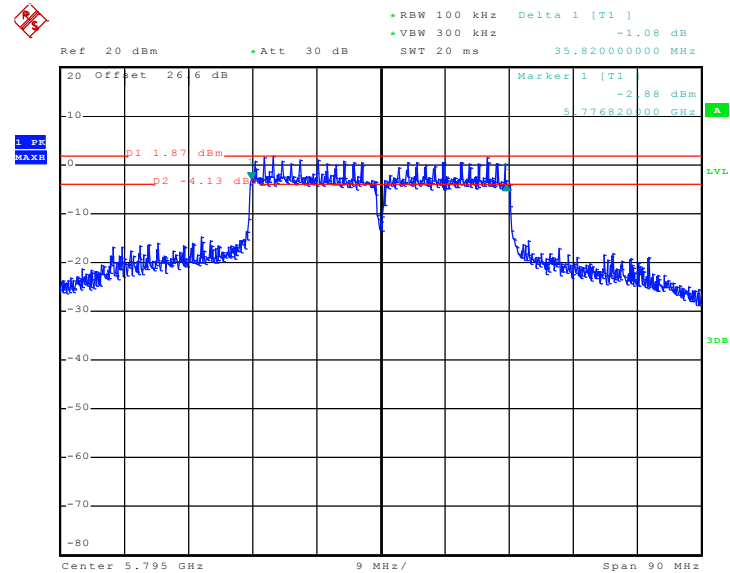
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1



Date: 26.OCT.2010 08:30:14



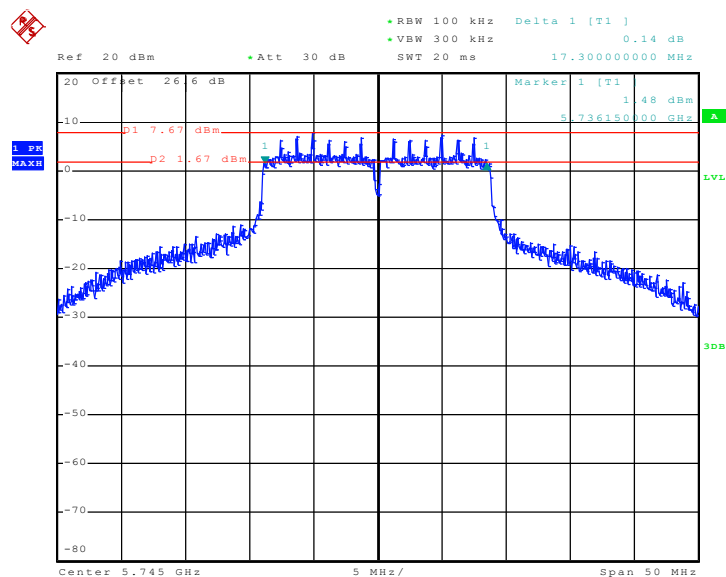
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 2



Date: 26.OCT.2010 08:27:36

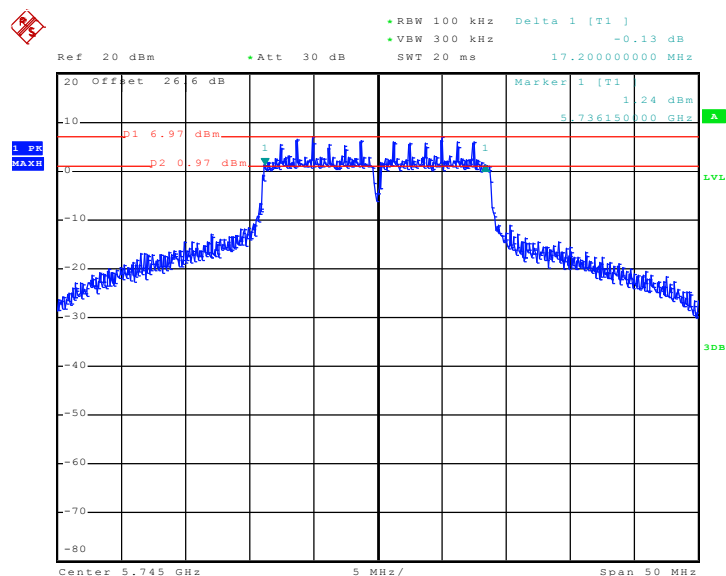
<Beam-Forming On: 2x3>

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 26.OCT.2010 02:23:52

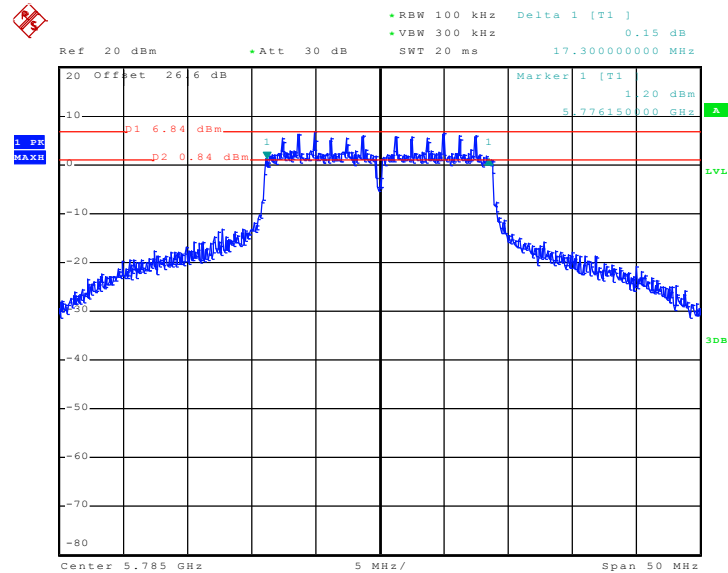
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



Date: 26.OCT.2010 08:41:51

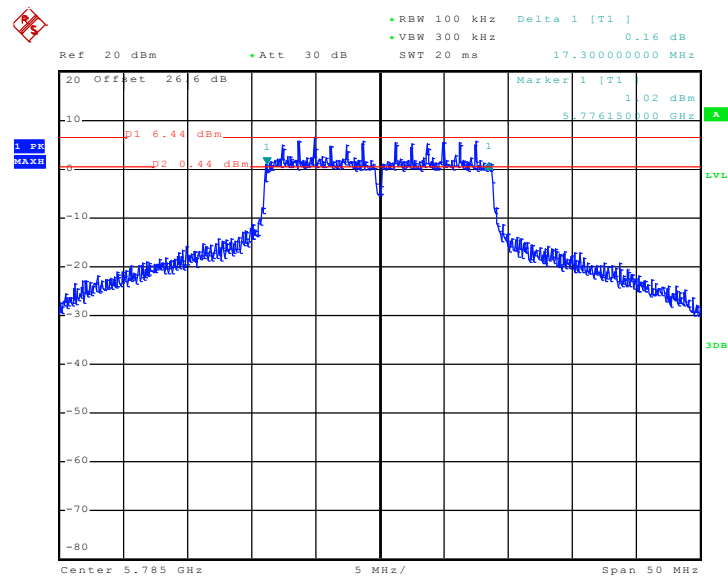


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 – Chain 0



Date: 26.OCT.2010 02:26:52

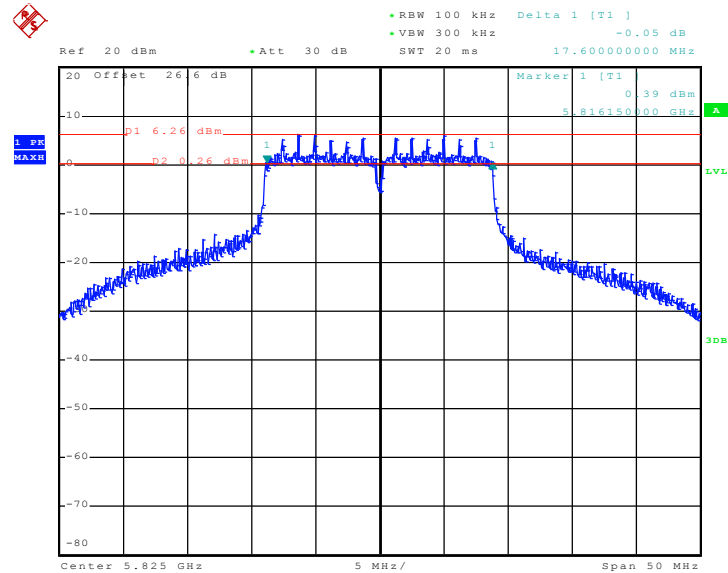
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 1



Date: 26.OCT.2010 08:39:57

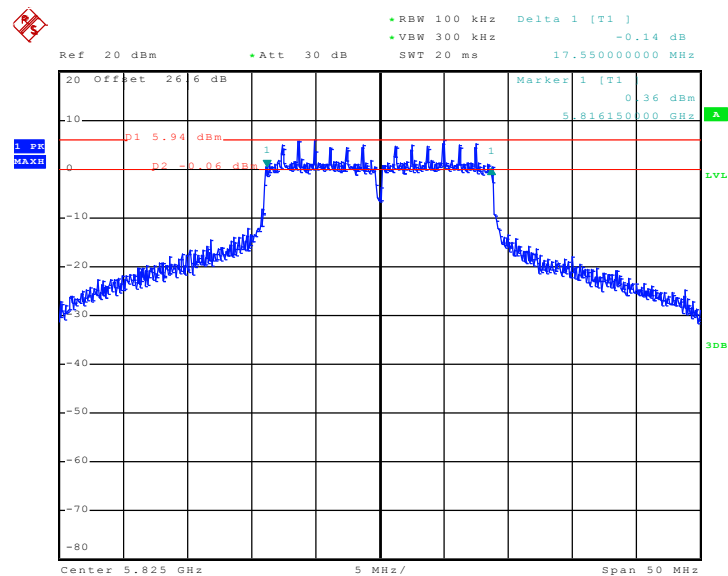


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 26.OCT.2010 02:28:52

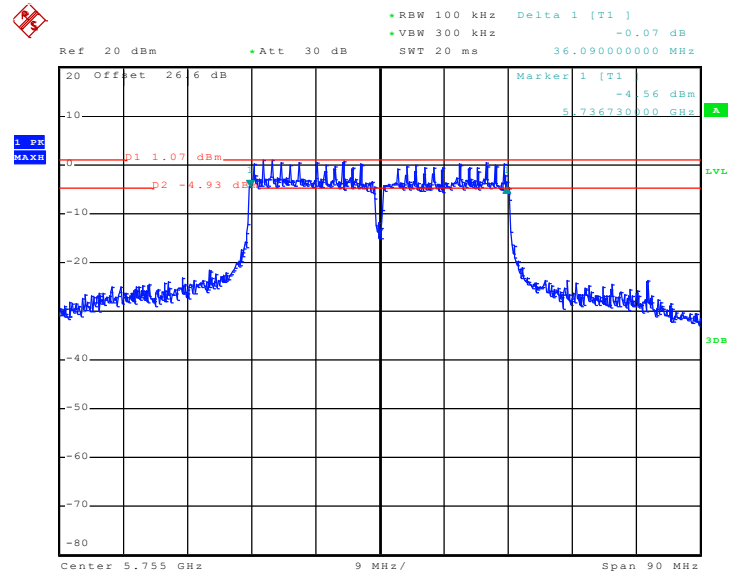
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 26.OCT.2010 08:38:22

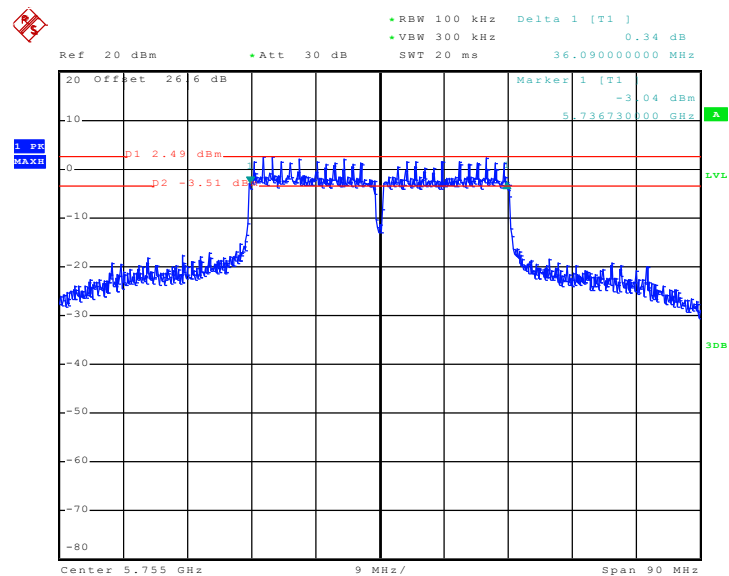


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



Date: 26.OCT.2010 02:32:23

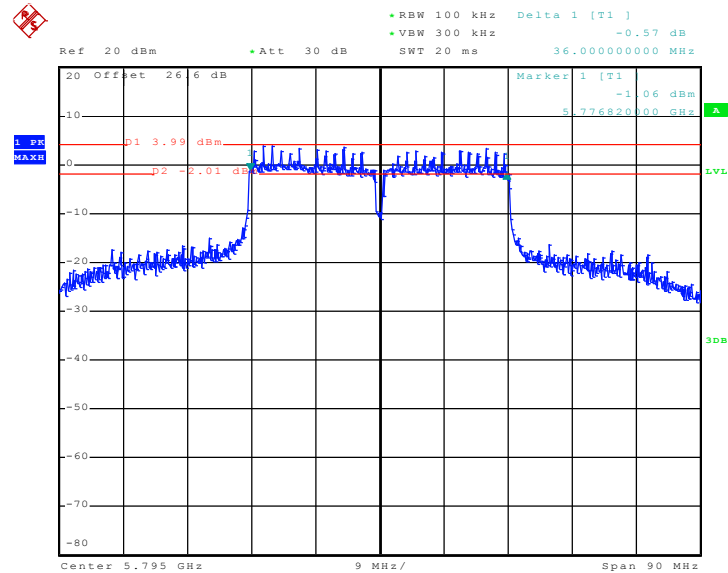
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 26.OCT.2010 08:31:43

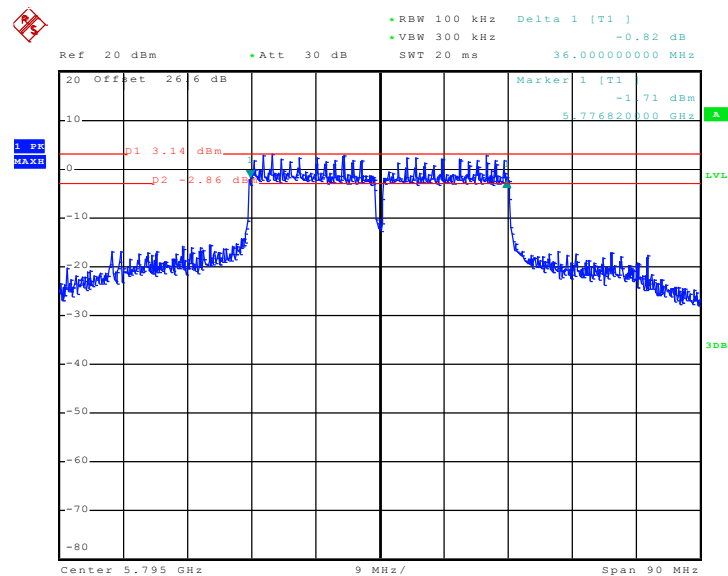


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



Date: 26.OCT.2010 02:34:45

6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1

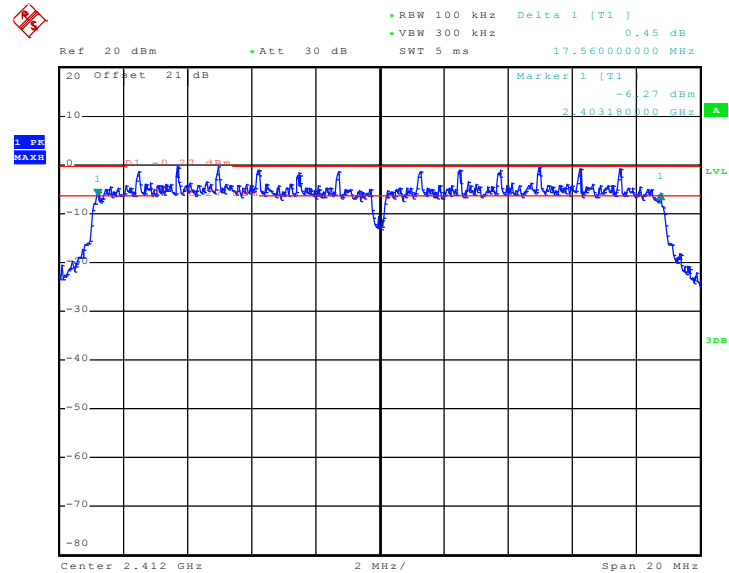


Date: 26.OCT.2010 08:30:14



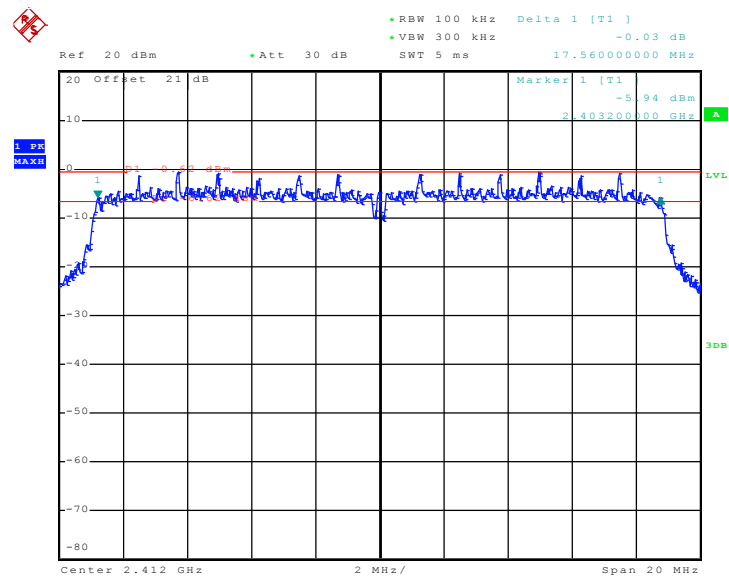
<Beam-Forming Off: 3x3>

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 0



Date: 26.OCT.2010 02:49:19

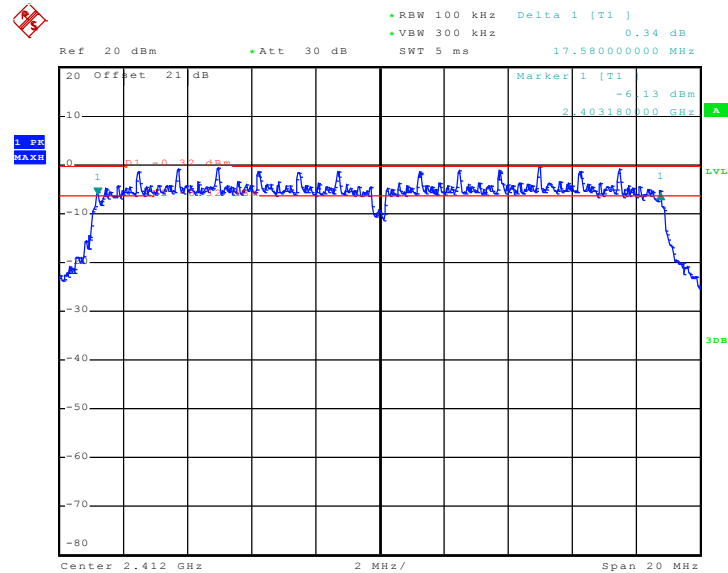
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 1



Date: 26.OCT.2010 07:06:46

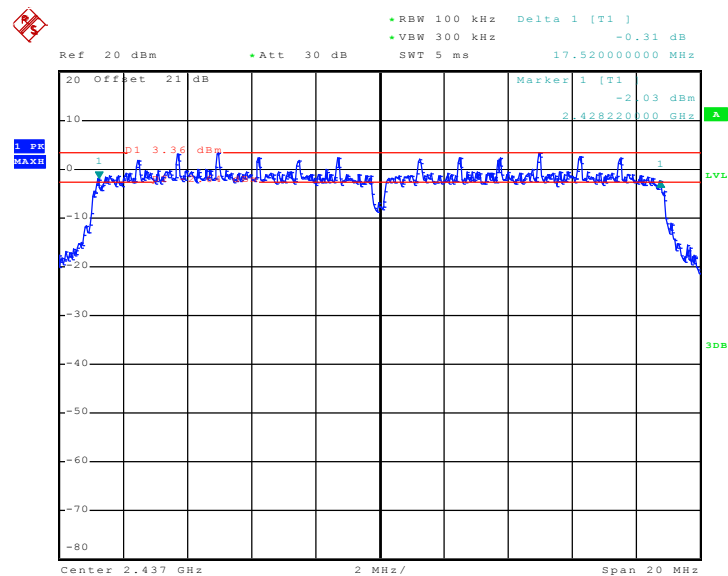


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 2



Date: 26.OCT.2010 07:32:40

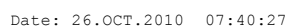
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 0



Date: 26.OCT.2010 02:50:54

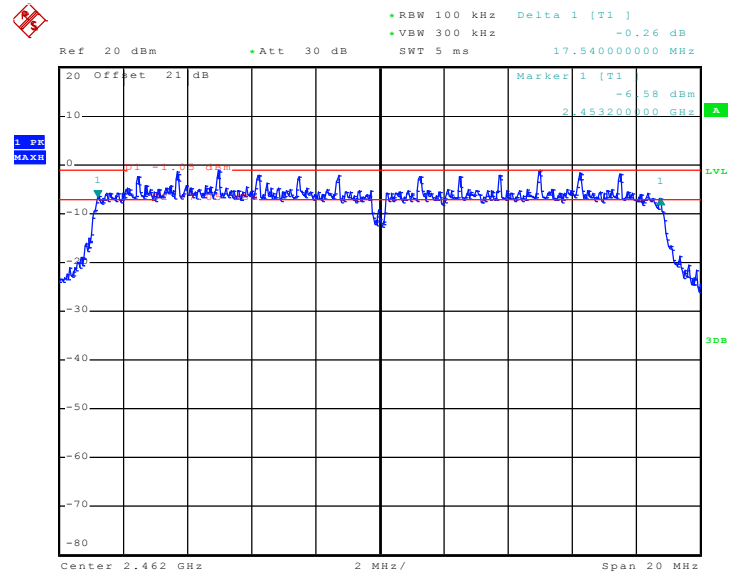


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 2



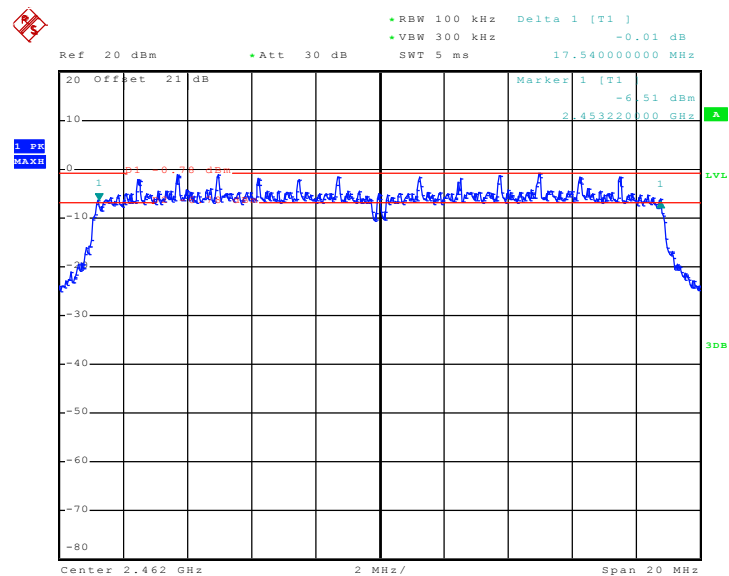


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 0



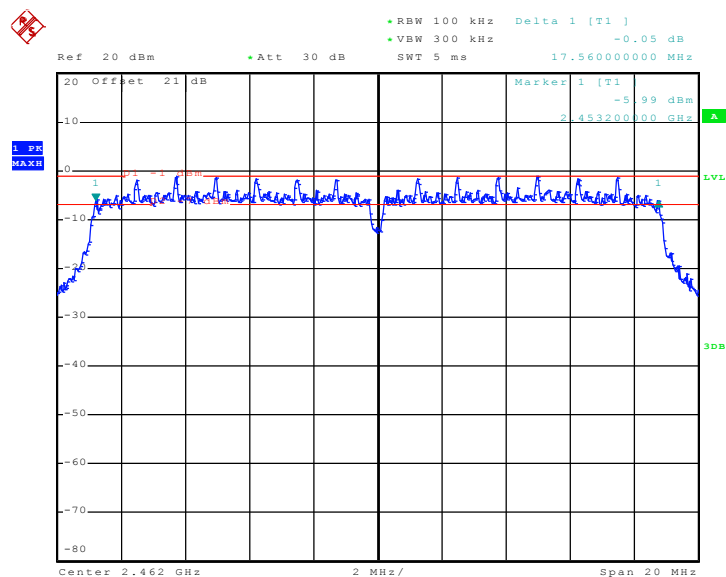
Date: 26.OCT.2010 02:52:38

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 1



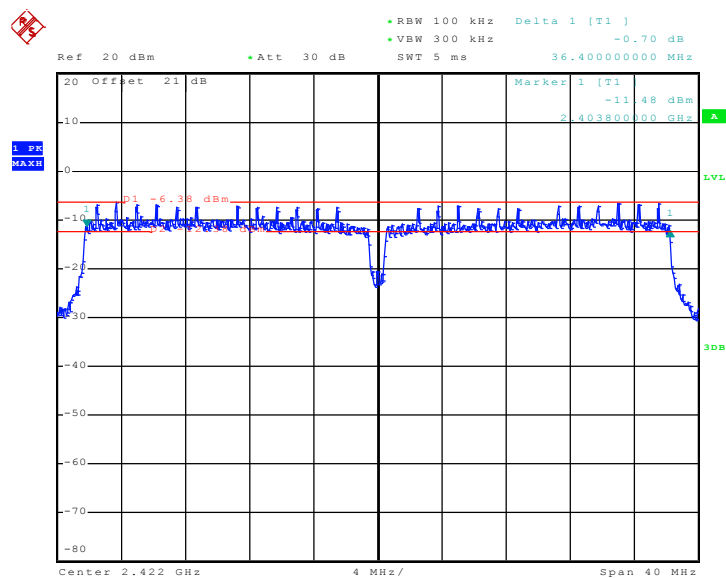
Date: 26.OCT.2010 07:12:37

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 2



Date: 26.OCT.2010 07:42:25

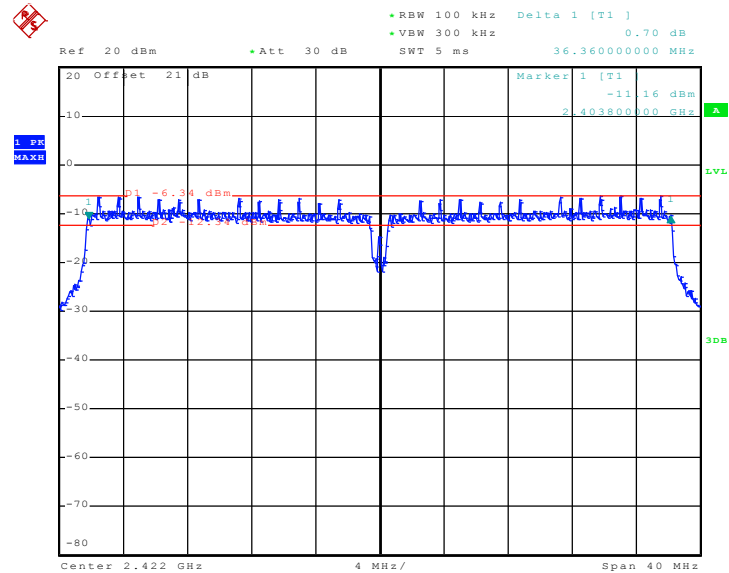
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 0



Date: 26.OCT.2010 02:55:05

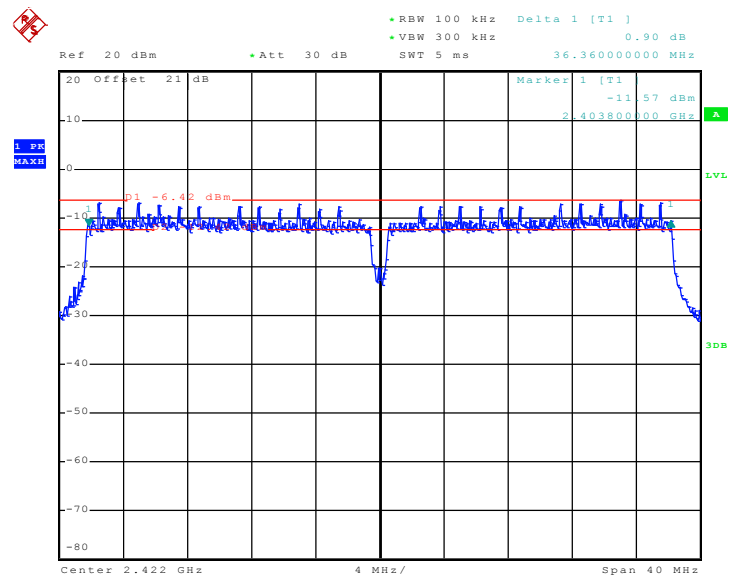


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 1



Date: 26.OCT.2010 07:18:54

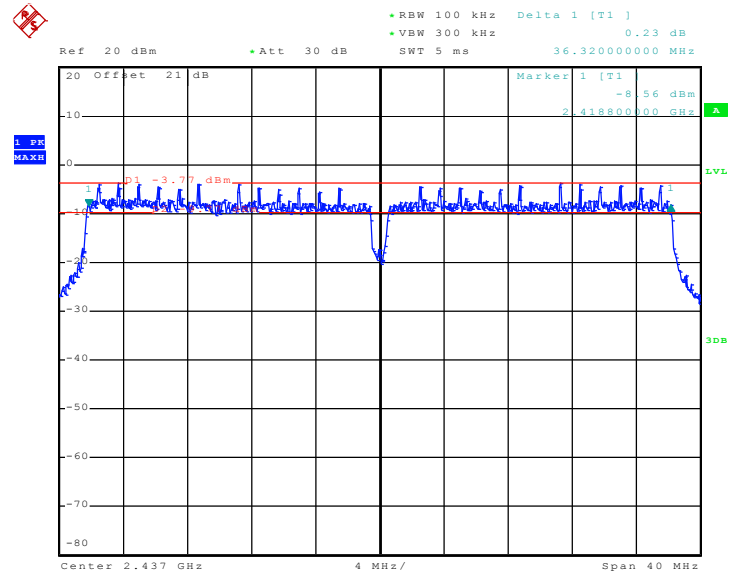
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 2



Date: 26.OCT.2010 07:29:08

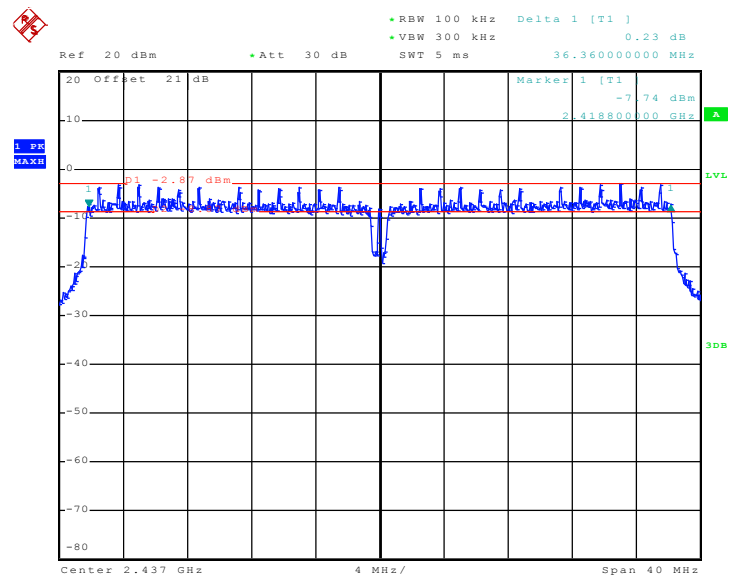


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 0



Date: 26.OCT.2010 02:59:23

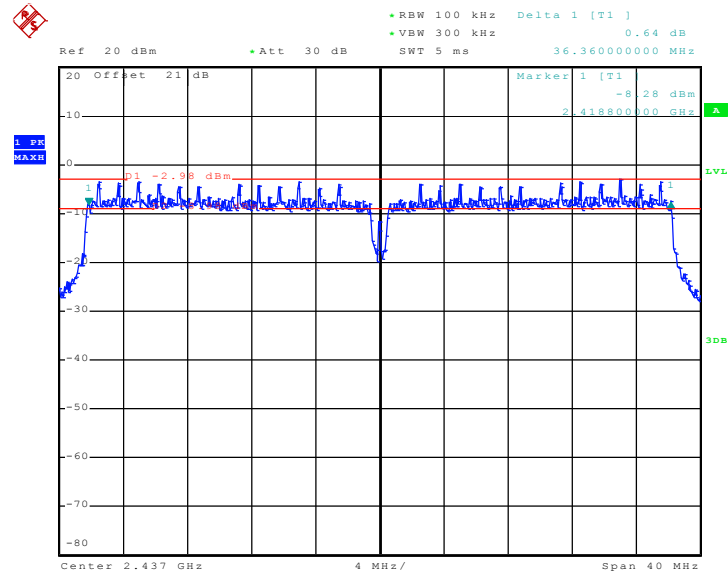
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 1



Date: 26.OCT.2010 07:20:51

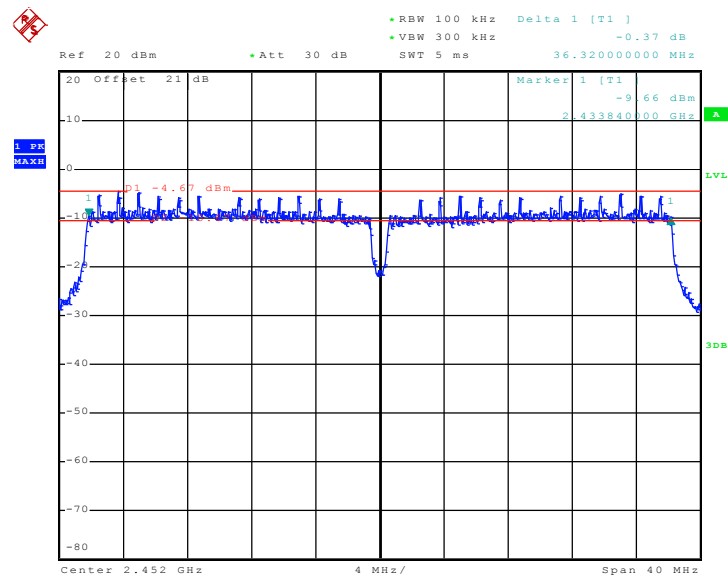


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 2



Date: 26.OCT.2010 07:27:29

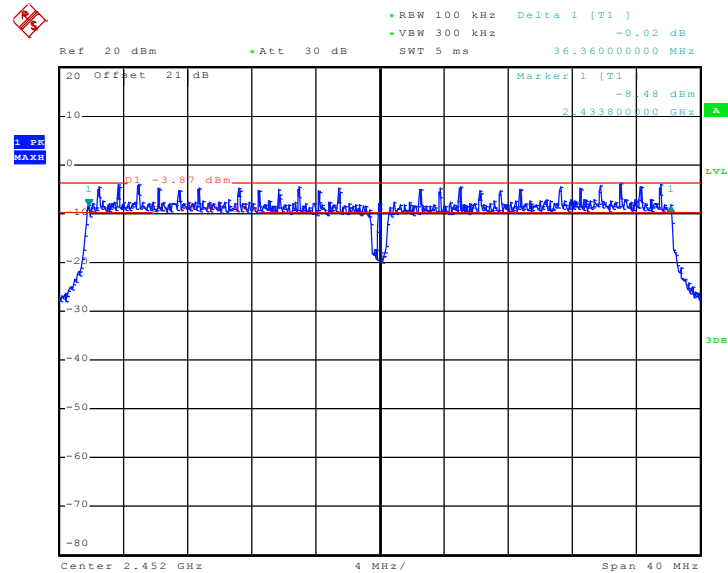
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 0



Date: 26.OCT.2010 03:00:56

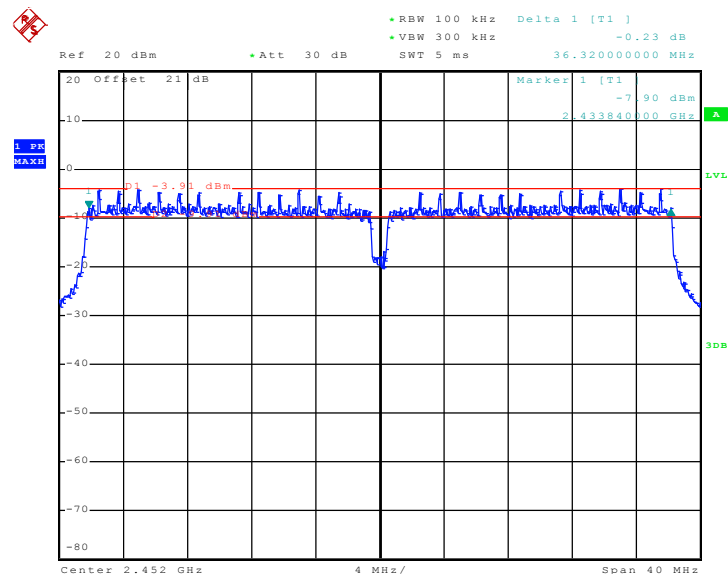


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 1



Date: 26.OCT.2010 07:22:30

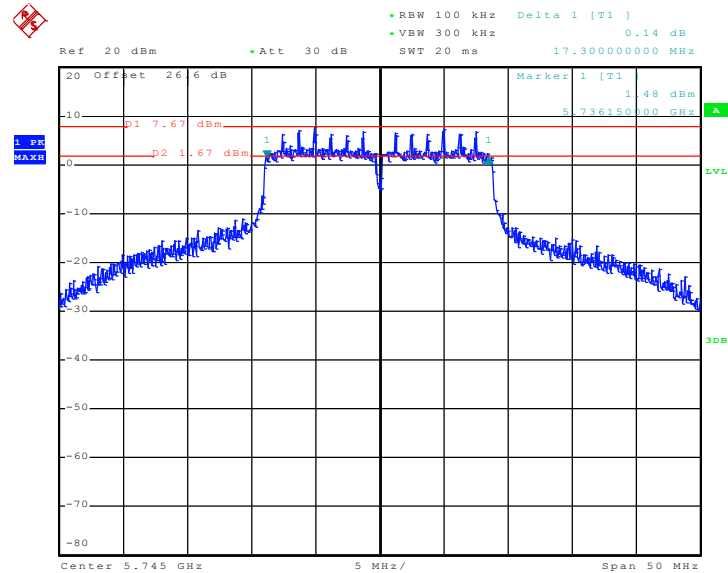
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 2



Date: 26.OCT.2010 07:25:42

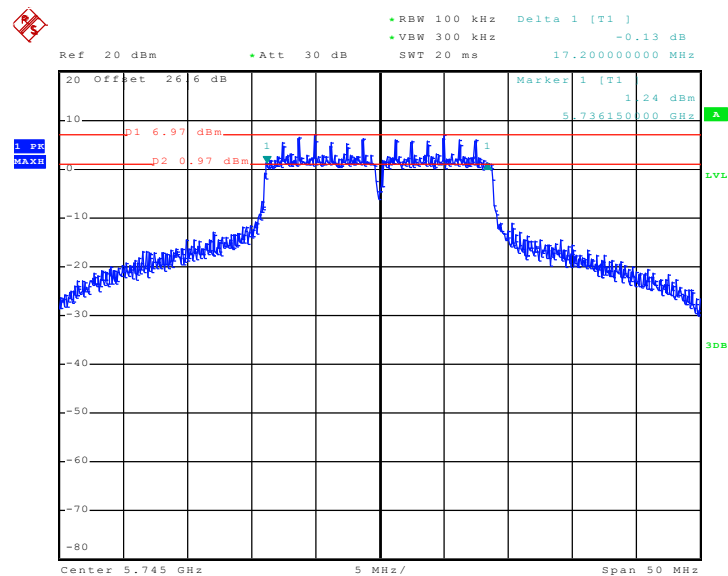


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 26.OCT.2010 02:23:52

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



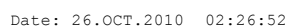
Date: 26.OCT.2010 08:41:51



6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 2



6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 – Chain 0





1 PR MARK

Ref 20 dBm Att 30 dB RBW 100 kHz Delta 1 [T1] 0.16 dB VBW 300 kHz SWT 20 ms 17.300000000 MHz

20 Offset 26.6 dB

Marker 1 [T1] 1.02 dBm 5.776150000 GHz

P1 -6.44 dBm

P2 -9.44 dBm

LVL

3DB

Center 5.785 GHz 5 MHz/ Span 50 MHz

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The screenshot shows a VectorStar spectrum analyzer interface. The main display is a frequency spectrum plot with a blue trace. The x-axis represents frequency, ranging from 5.75 GHz to 5.80 GHz, with a center frequency of 5.785 GHz and a span of 50 MHz. The y-axis represents power in dBm, ranging from -80 to 20. A sharp peak is visible at 5.785 GHz, reaching a power level of approximately 0 dBm. The signal has a bandwidth of 100 kHz and a video bandwidth (VBW) of 300 kHz. The resolution bandwidth (RBW) is 100 kHz. The sweep time (SWT) is 20 ms. The display also shows a reference level (Ref) of 20 dBm and an attenuation (Att) of 30 dB. The signal is identified as Delta 1 [T1]. The peak is marked with a green triangle and labeled '1'. The power level at the peak is 0.04 dBm. The signal is also labeled 'P1 5.29 dBm' and 'P2 3.34 dBm'. The display includes a 'MARKER' table with the following data:

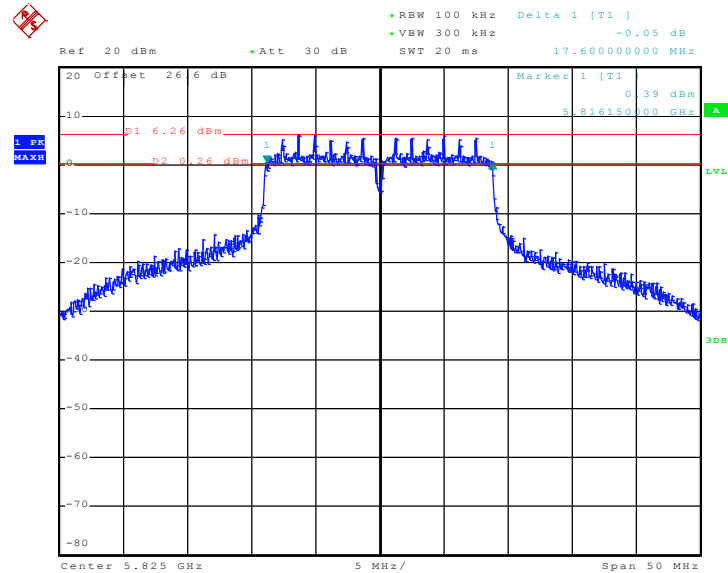
Marker	1 [T1]
0	0.04 dBm
5	7.76150000 GHz

The display also shows a 'LVL' (Level) indicator on the right side, which is currently set to 0 dBm. The signal is identified as 'Delta 1 [T1]'.

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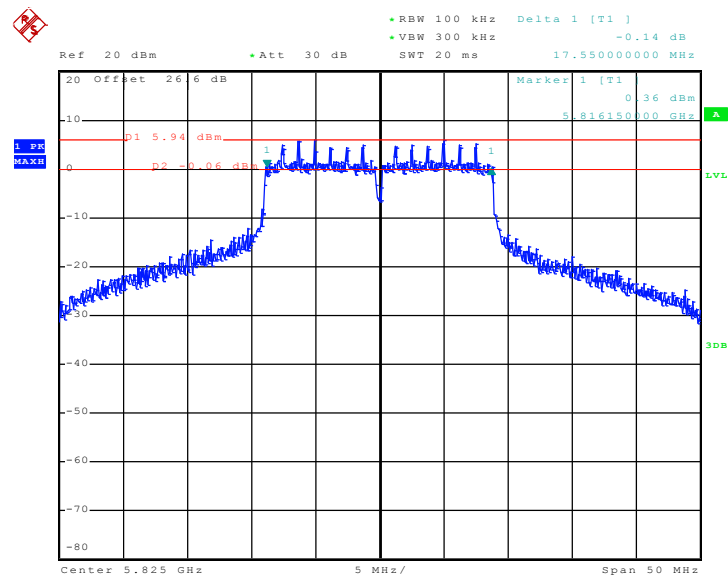


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 26.OCT.2010 02:28:52

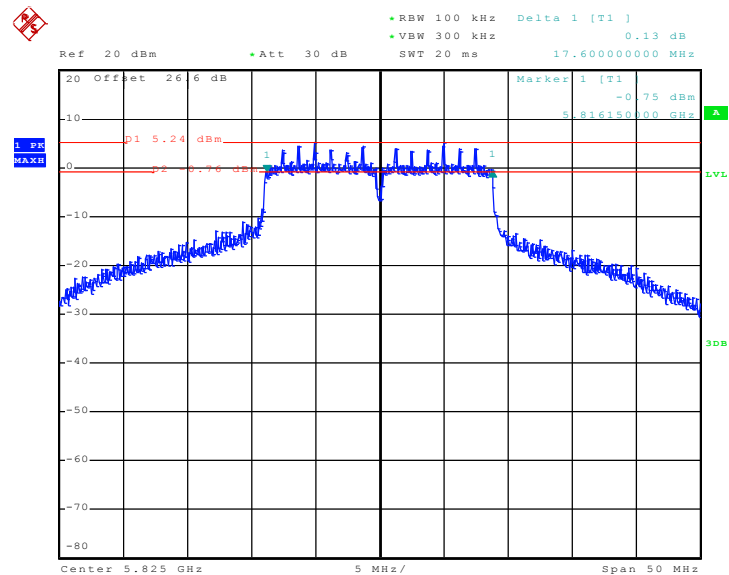
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 26.OCT.2010 08:38:22

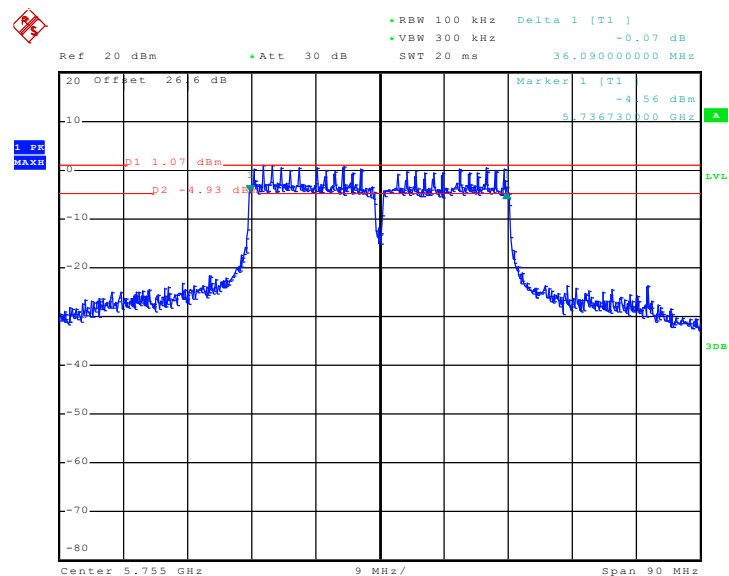


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 2



Date: 26.OCT.2010 08:06:41

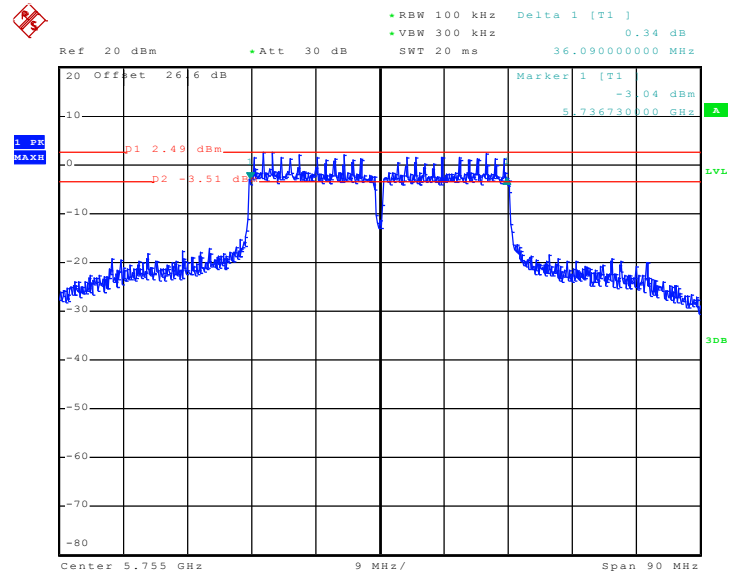
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



Date: 26.OCT.2010 02:32:23

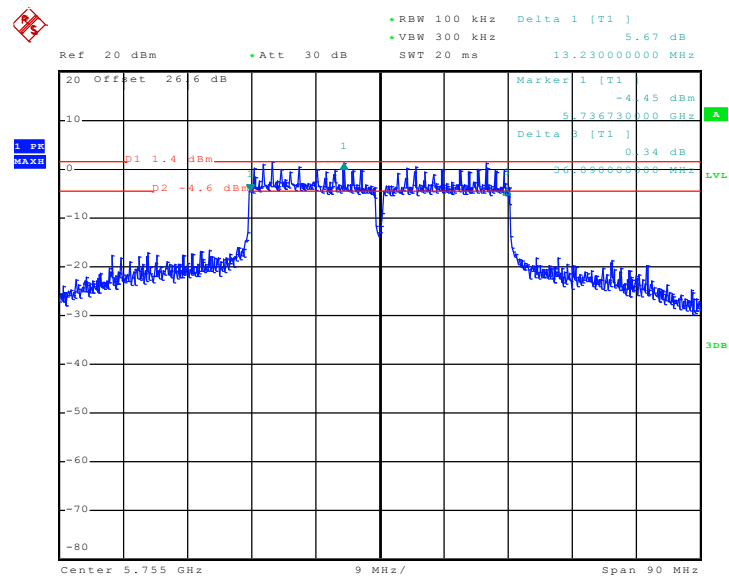


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 26.OCT.2010 08:31:43

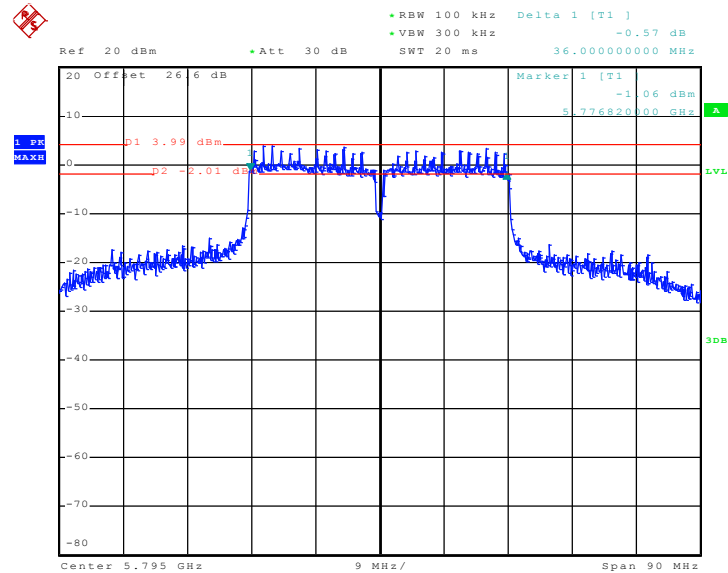
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 2



Date: 26.OCT.2010 08:25:23

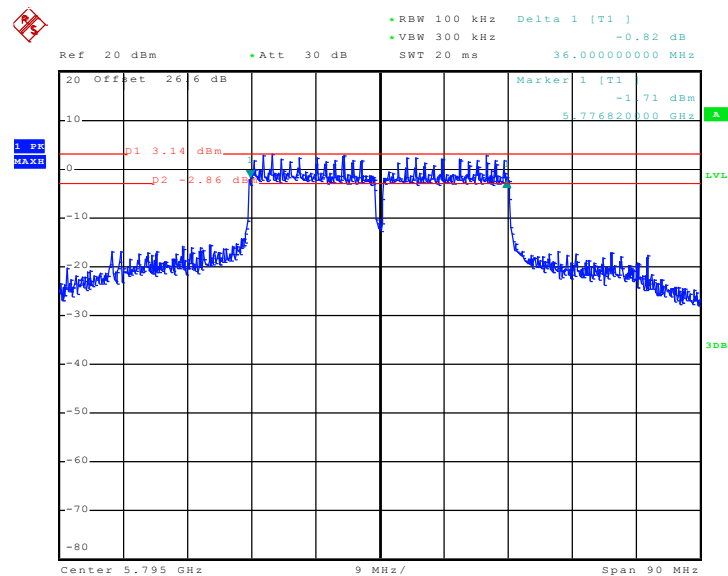


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



Date: 26.OCT.2010 02:34:45

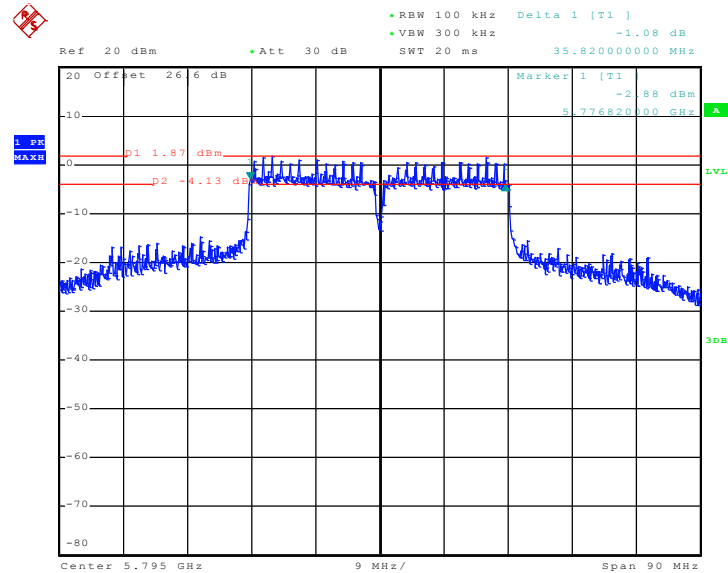
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1



Date: 26.OCT.2010 08:30:14



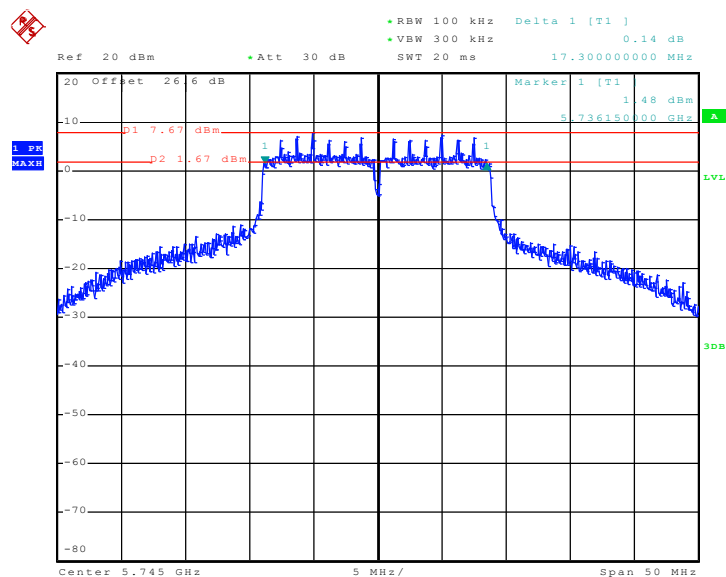
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 2



Date: 26.OCT.2010 08:27:36

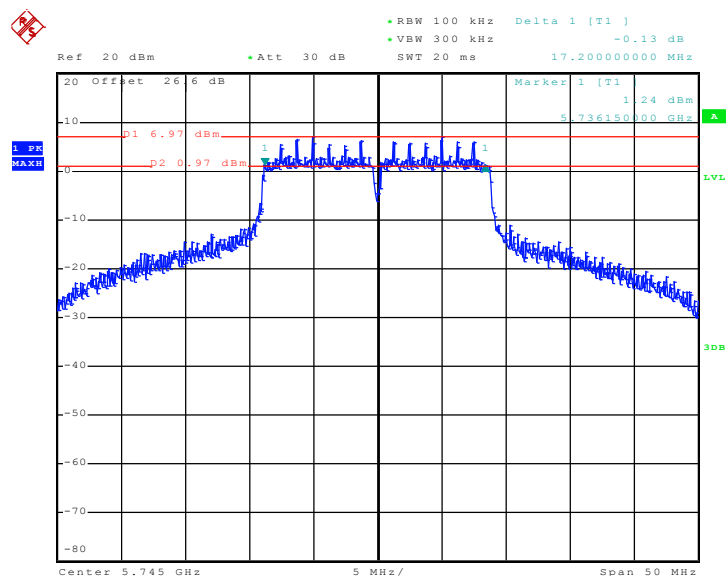
<Beam-Forming Off: 2x3>

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 26.OCT.2010 02:23:52

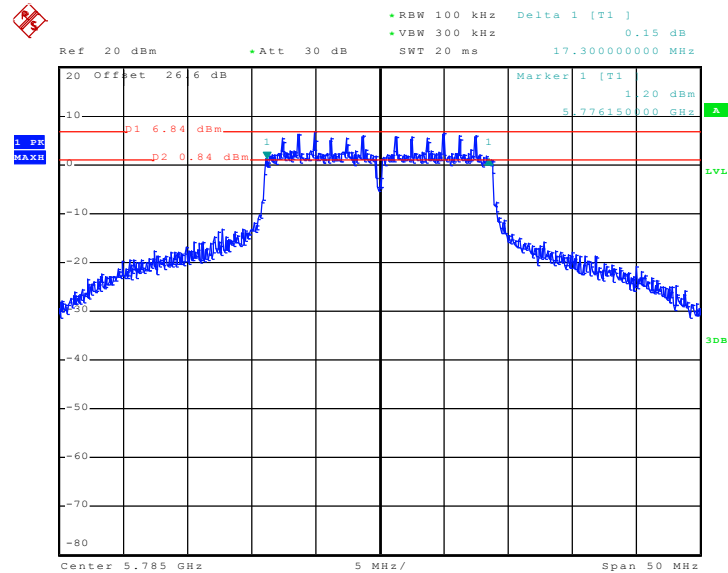
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



Date: 26.OCT.2010 08:41:51

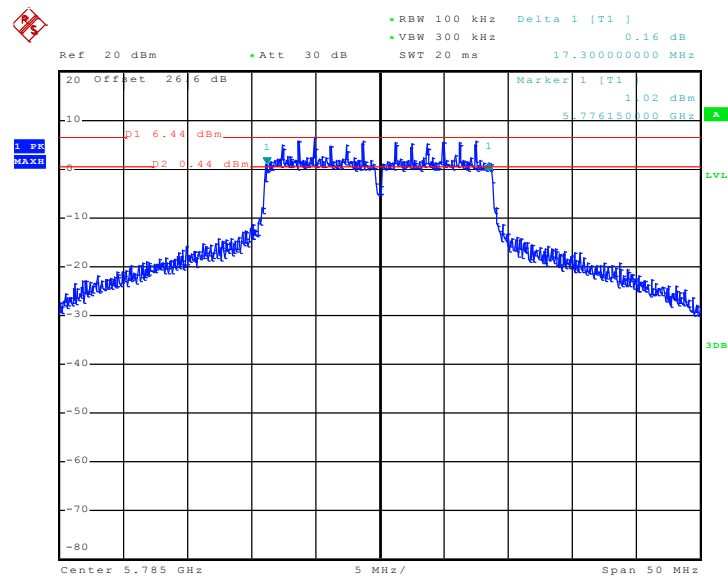


6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 – Chain 0



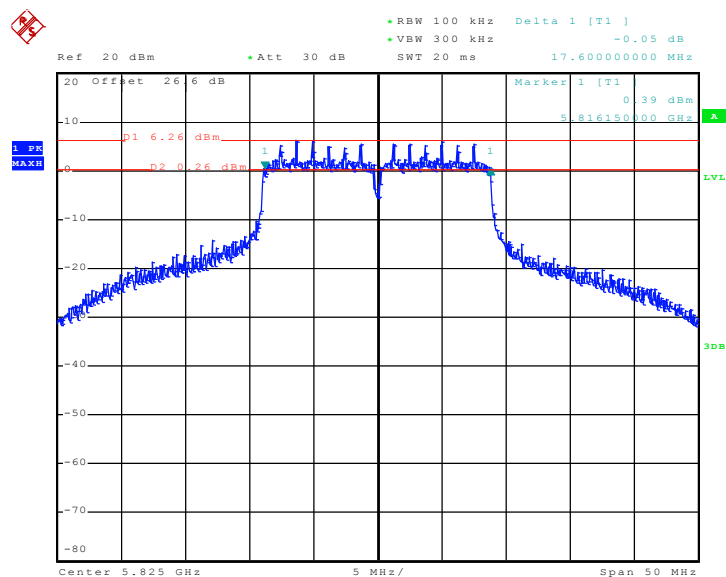
Date: 26.OCT.2010 02:26:52

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 1



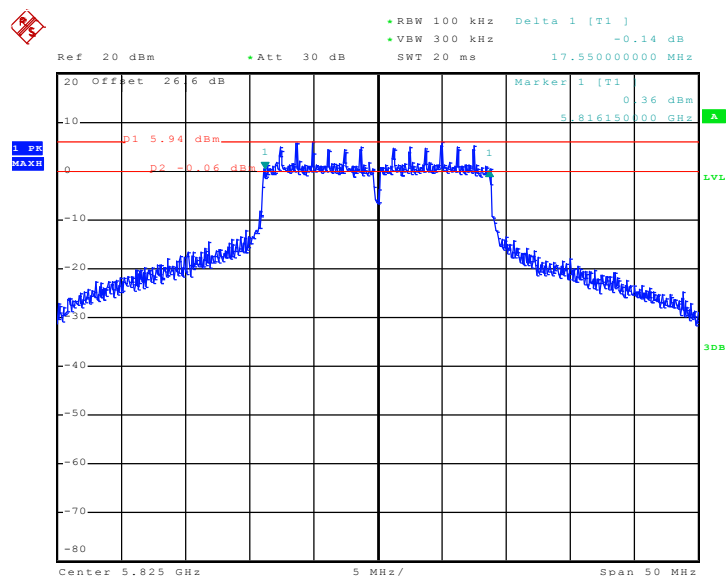
Date: 26.OCT.2010 08:39:57

6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 26.OCT.2010 02:28:52

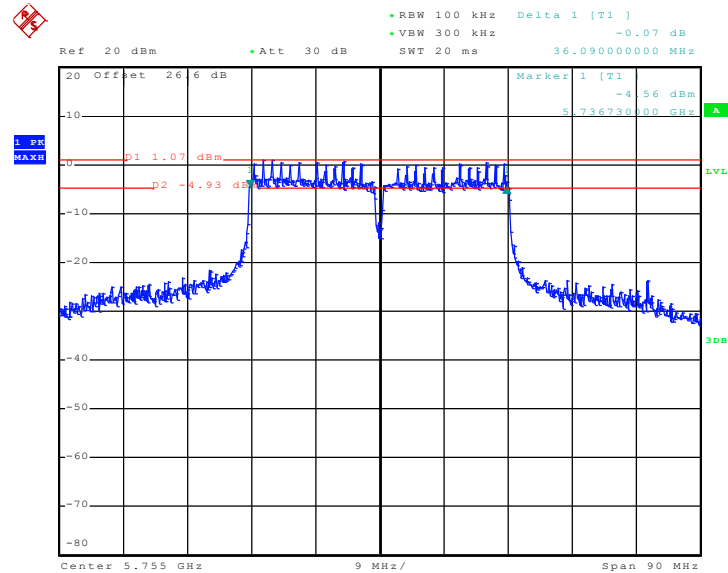
6 dB Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 26.OCT.2010 08:38:22

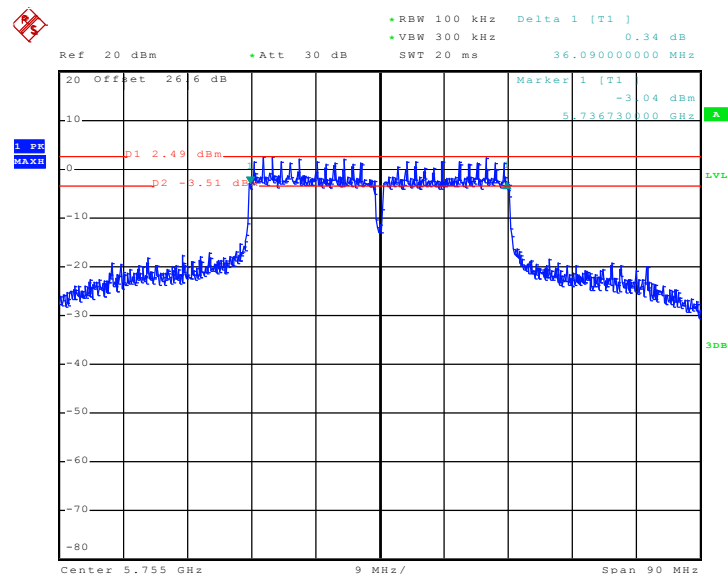


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



Date: 26.OCT.2010 02:32:23

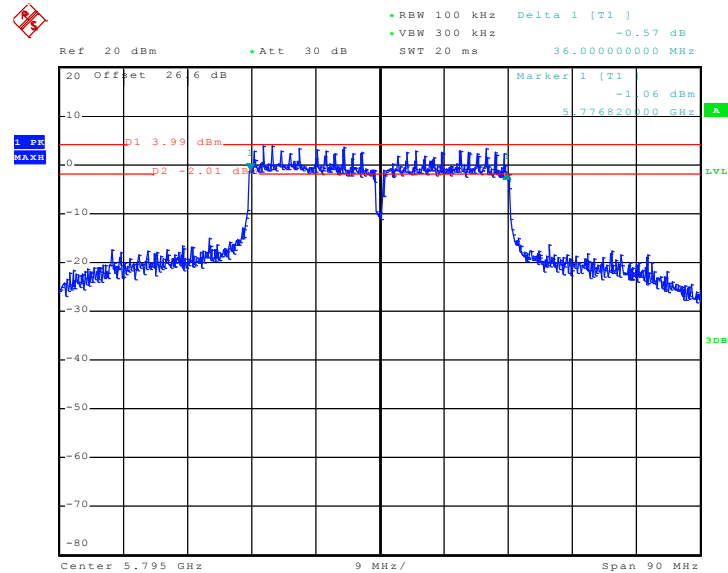
6 dB Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 26.OCT.2010 08:31:43

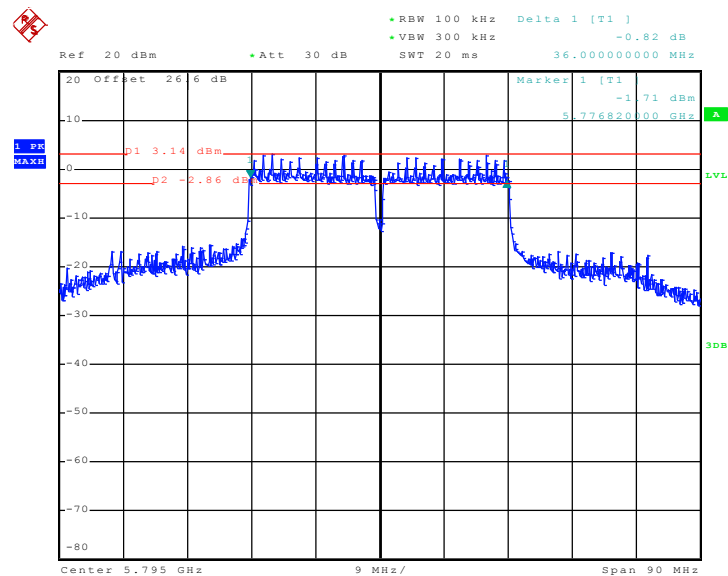


6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



Date: 26.OCT.2010 02:34:45

6 dB Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1



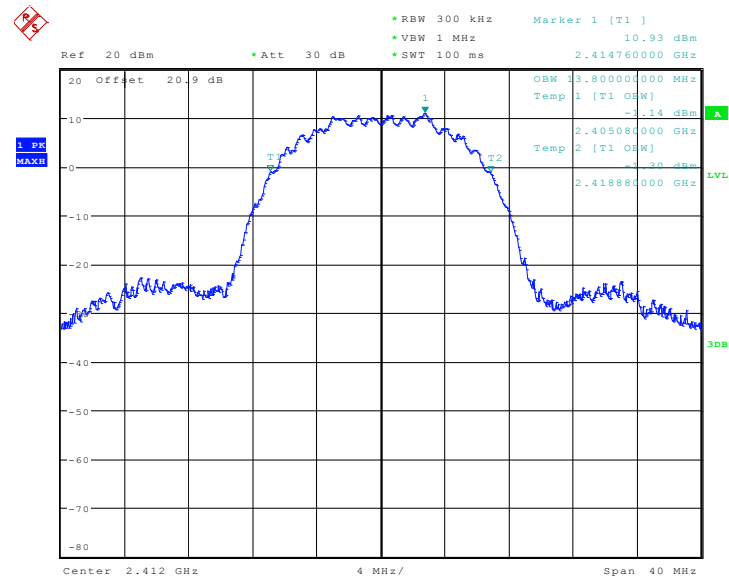
Date: 26.OCT.2010 08:30:14



3.1.8 Test Result of 99% Bandwidth Plots

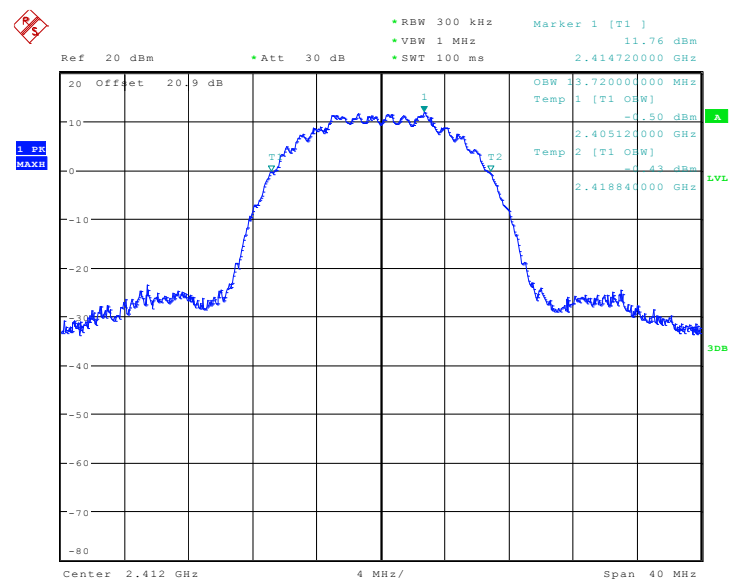
<Normal Mode: 3x3>

99% Bandwidth Plot on 802.11b Channel 01 - Chain 0



Date: 5.NOV.2010 19:18:58

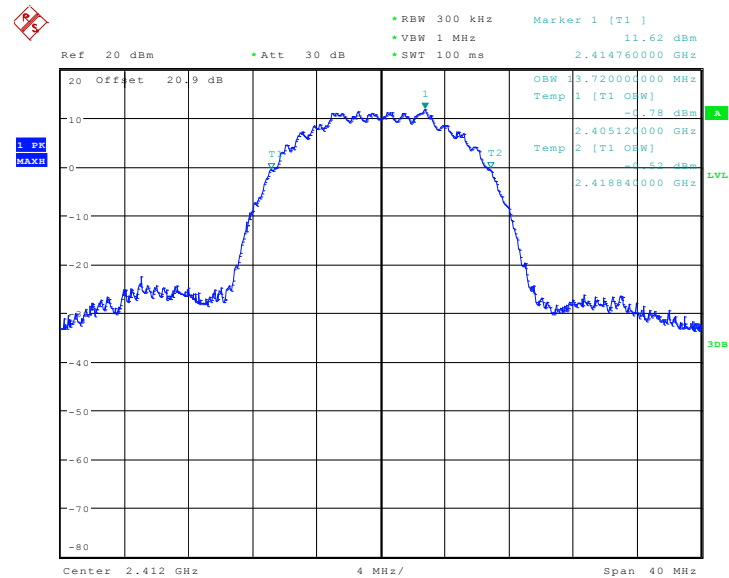
99% Bandwidth Plot on 802.11b Channel 01 - Chain 1



Date: 5.NOV.2010 19:09:20

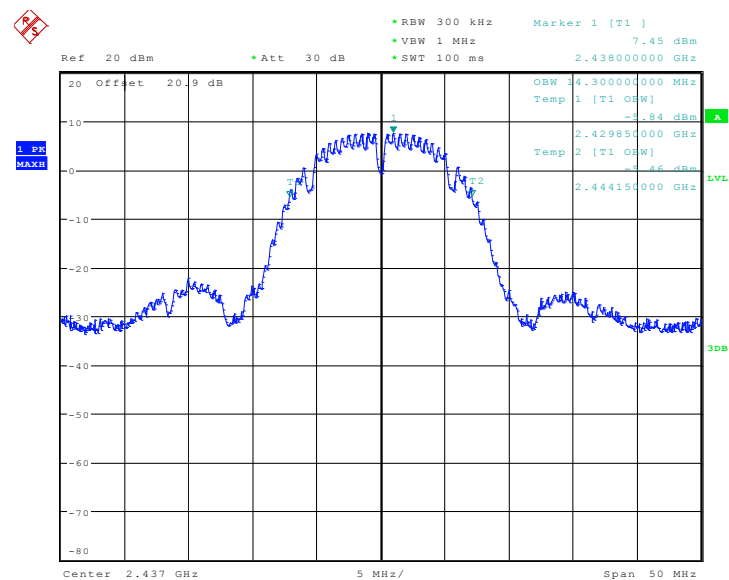


99% Bandwidth Plot on 802.11b Channel 01 - Chain 2



Date: 5.NOV.2010 19:11:47

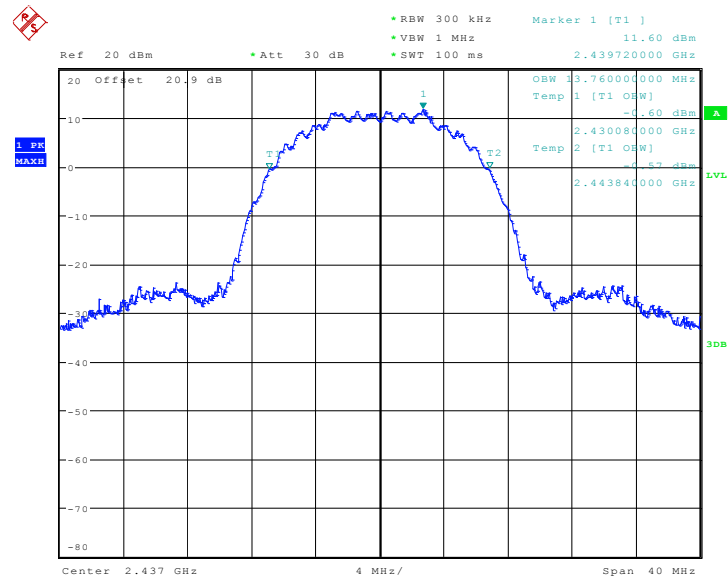
99% Bandwidth Plot on 802.11b Channel 06 - Chain 0



Date: 5.NOV.2010 18:54:53

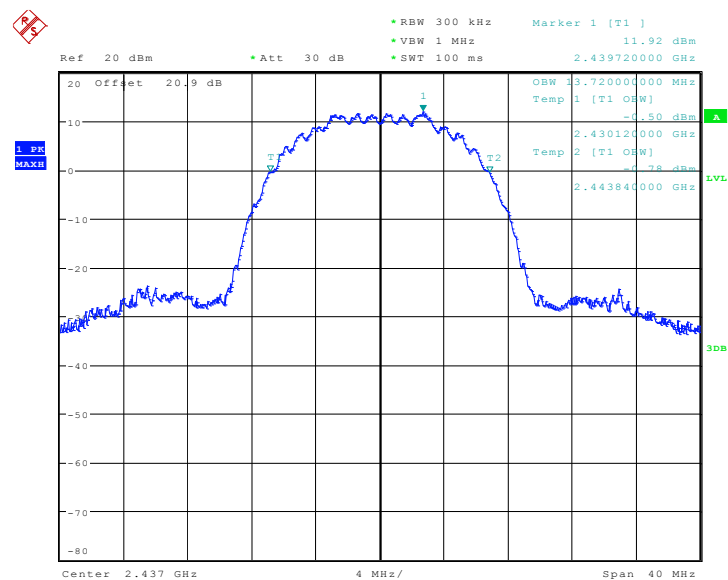


99% Bandwidth Plot on 802.11b Channel 06 - Chain 1



Date: 5.NOV.2010 19:09:41

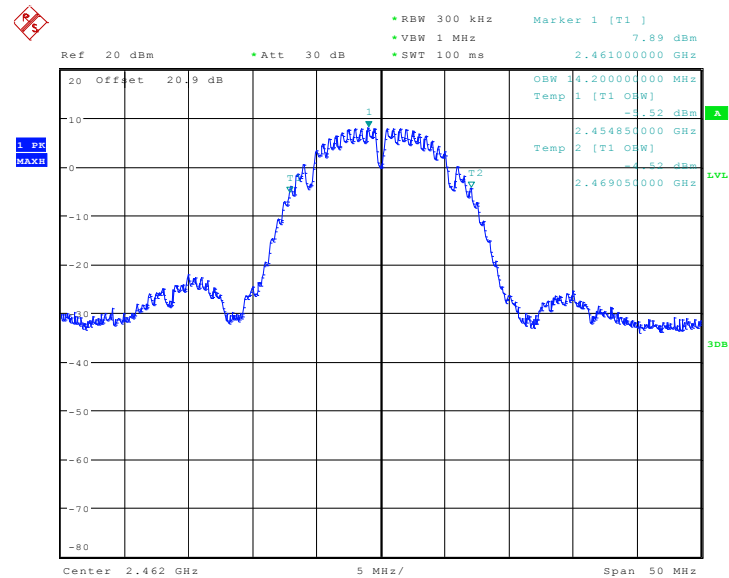
99% Bandwidth Plot on 802.11b Channel 06 - Chain 2



Date: 5.NOV.2010 19:11:26

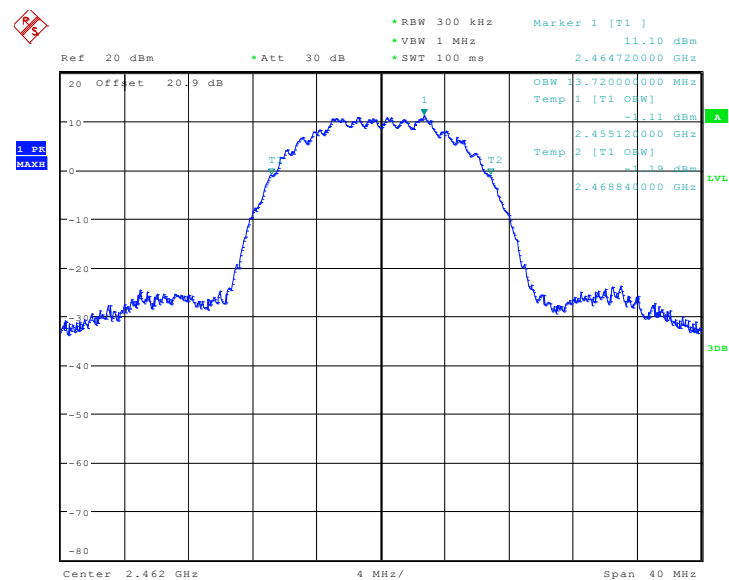


99% Bandwidth Plot on 802.11b Channel 11 - Chain 0



Date: 5.NOV.2010 18:55:34

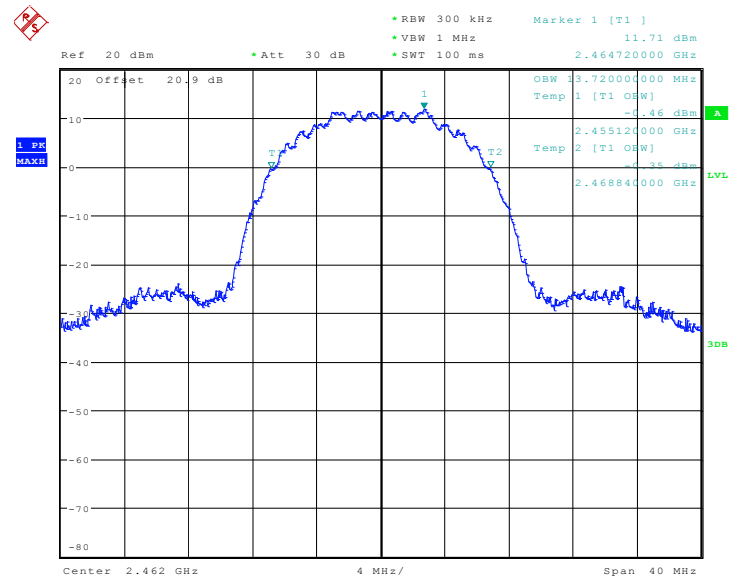
99% Bandwidth Plot on 802.11b Channel 11 - Chain 1



Date: 5.NOV.2010 19:10:01

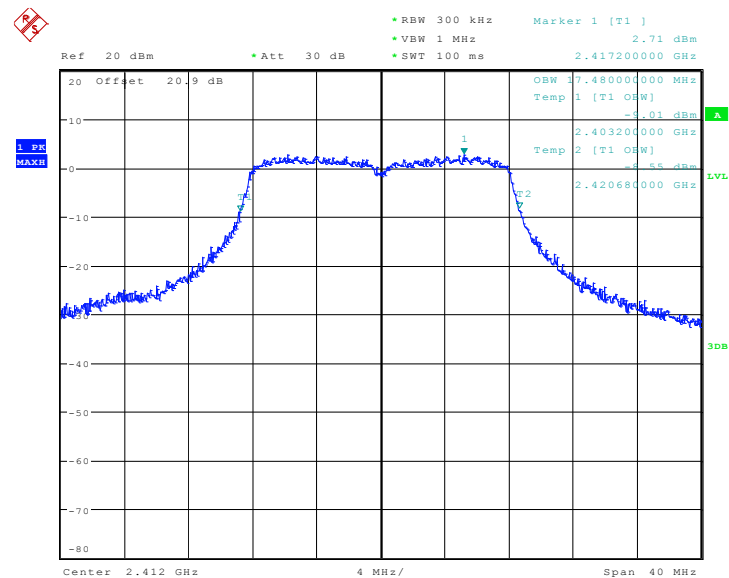


99% Bandwidth Plot on 802.11b Channel 11 - Chain 2



Date: 5.NOV.2010 19:11:06

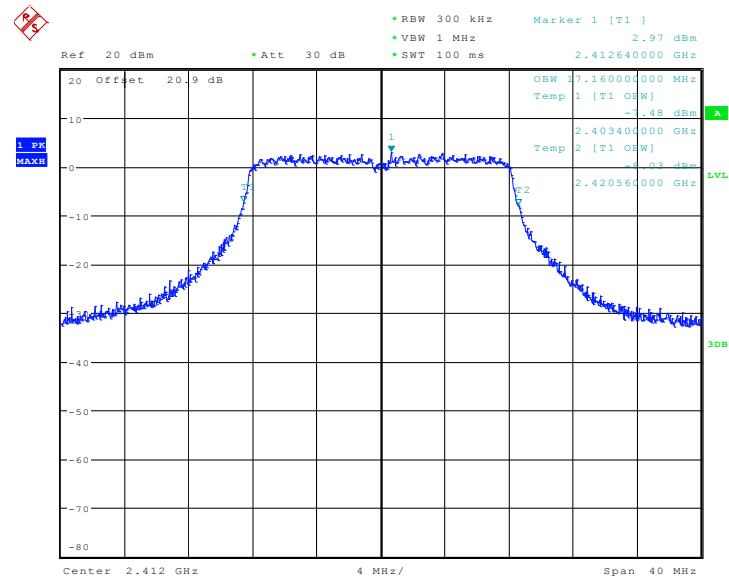
99% Bandwidth Plot on 802.11g Channel 01 - Chain 0



Date: 5.NOV.2010 19:19:38

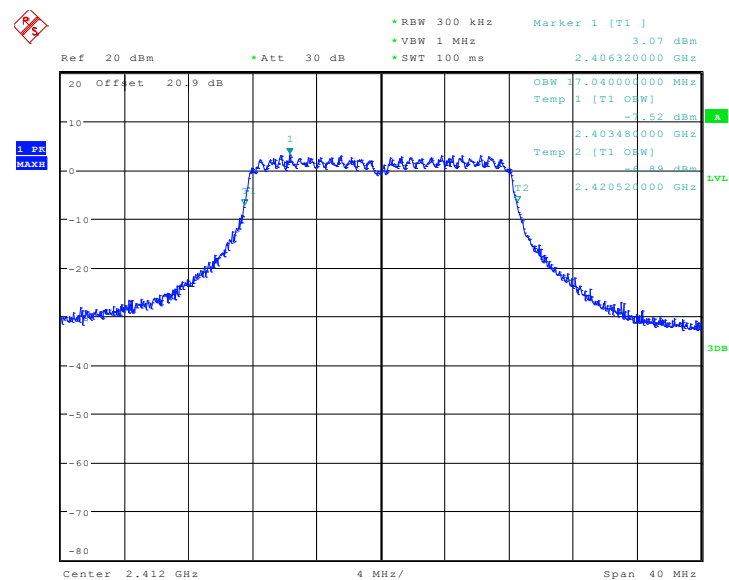


99% Bandwidth Plot on 802.11g Channel 01 - Chain 1



Date: 5.NOV.2010 19:08:51

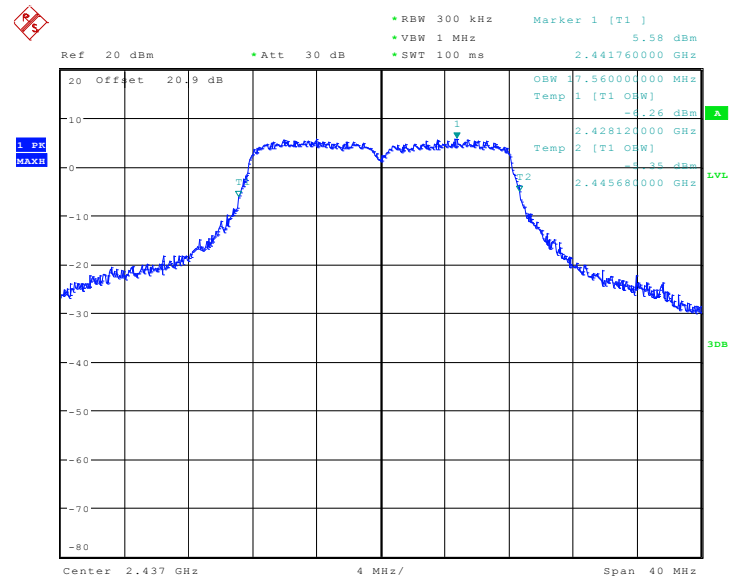
99% Bandwidth Plot on 802.11g Channel 01 - Chain 2



Date: 5.NOV.2010 19:12:21

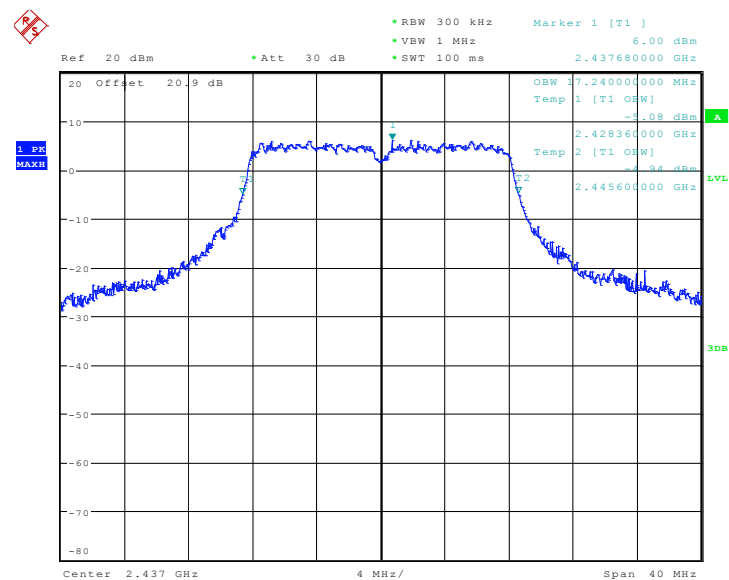


99% Bandwidth Plot on 802.11g Channel 06 - Chain 0



Date: 5.NOV.2010 18:59:33

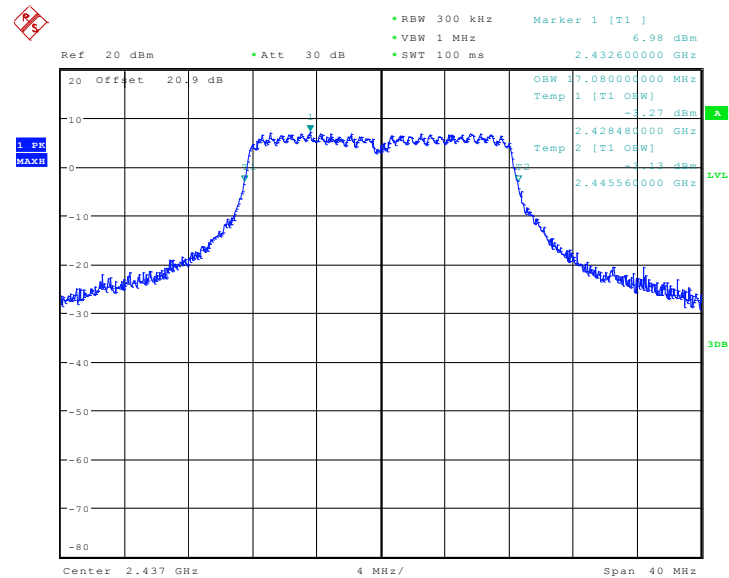
99% Bandwidth Plot on 802.11g Channel 06 - Chain 1



Date: 5.NOV.2010 19:08:17

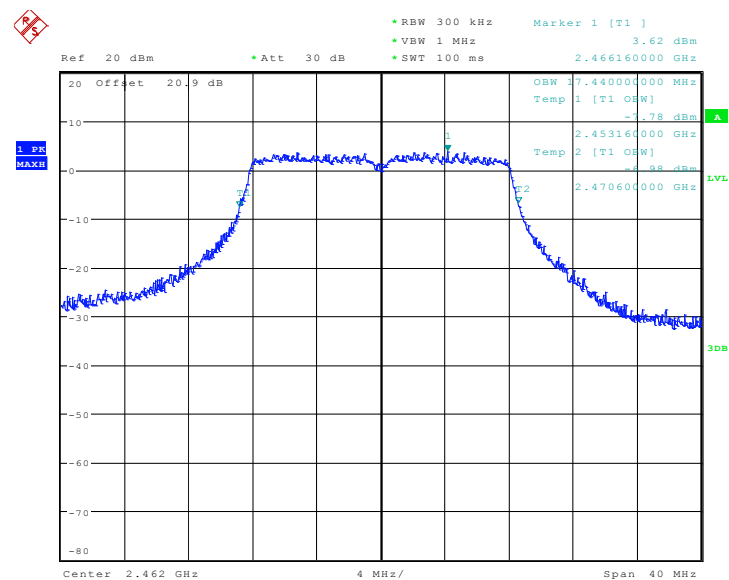


99% Bandwidth Plot on 802.11g Channel 06 - Chain 2



Date: 5.NOV.2010 19:13:45

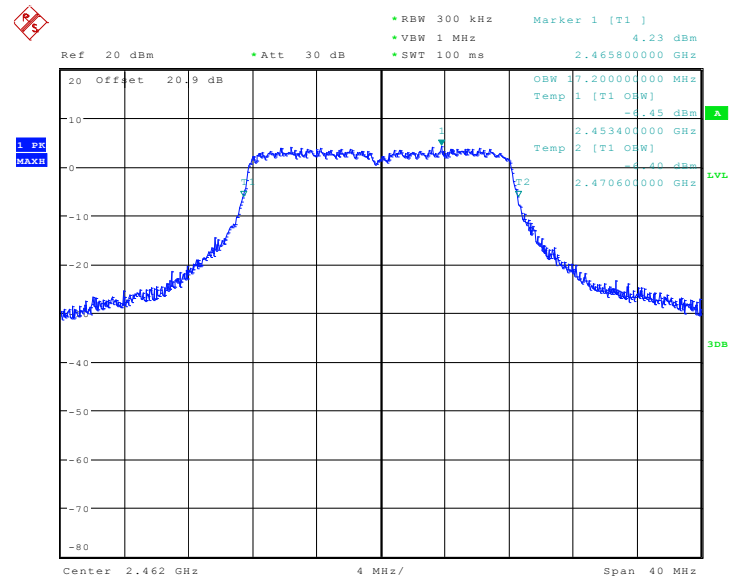
99% Bandwidth Plot on 802.11g Channel 11 - Chain 0



Date: 5.NOV.2010 19:01:11

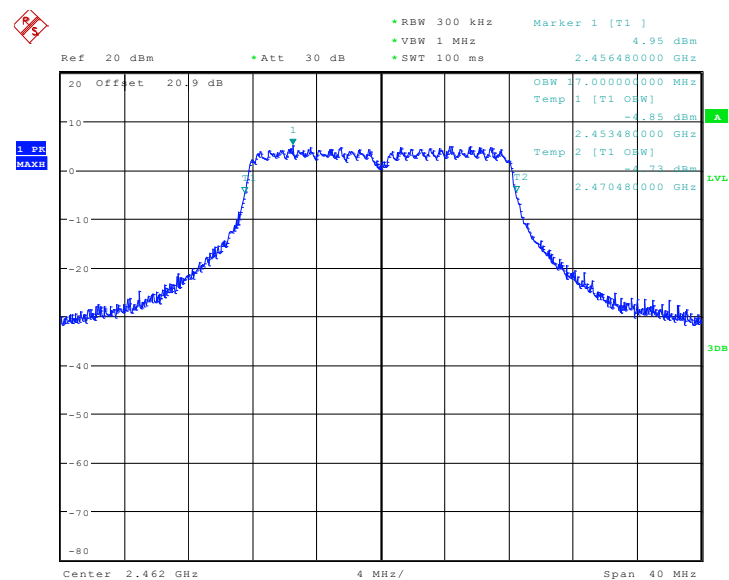


99% Bandwidth Plot on 802.11g Channel 11 - Chain 1



Date: 5.NOV.2010 19:07:53

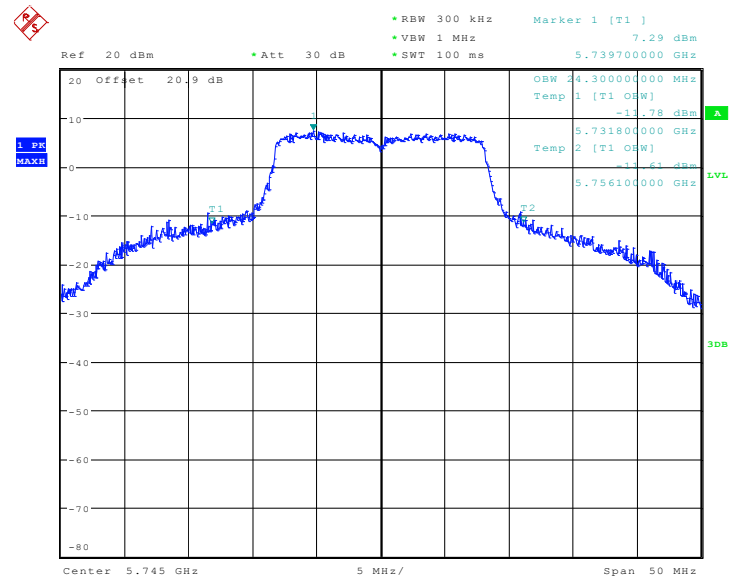
99% Bandwidth Plot on 802.11g Channel 11 - Chain 2



Date: 5.NOV.2010 19:14:39

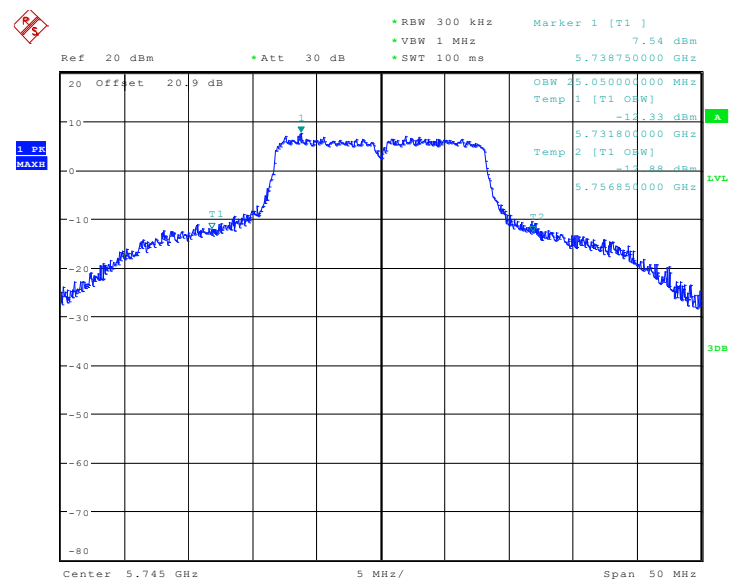


99% Bandwidth Plot on 802.11a Channel 149 - Chain 0



Date: 5.NOV.2010 18:53:32

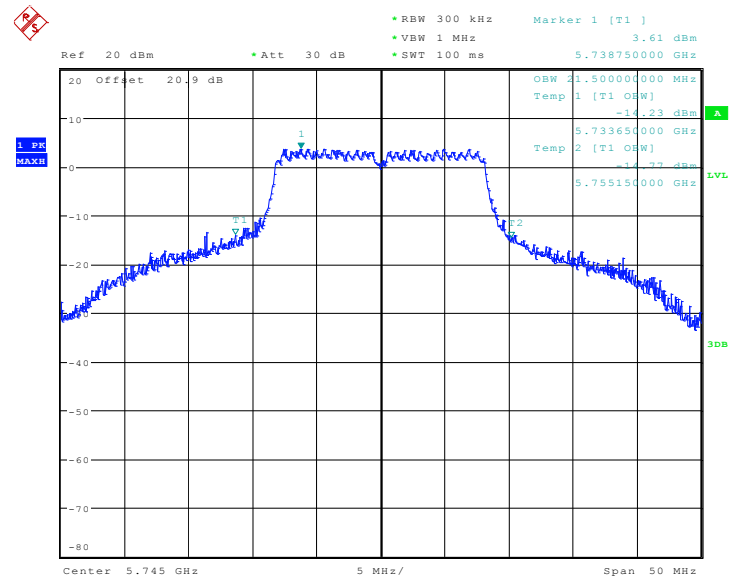
99% Bandwidth Plot on 802.11a Channel 149 - Chain 1



Date: 5.NOV.2010 19:58:35

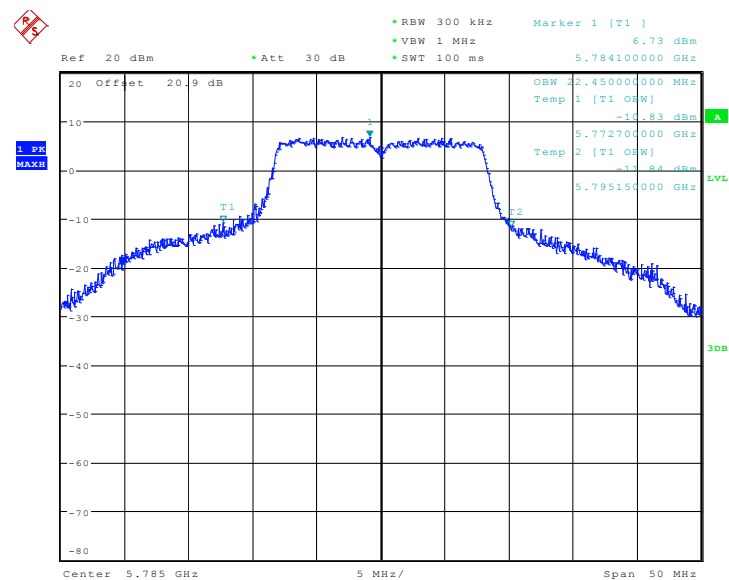


99% Bandwidth Plot on 802.11a Channel 149 - Chain 2



Date: 5.NOV.2010 20:00:46

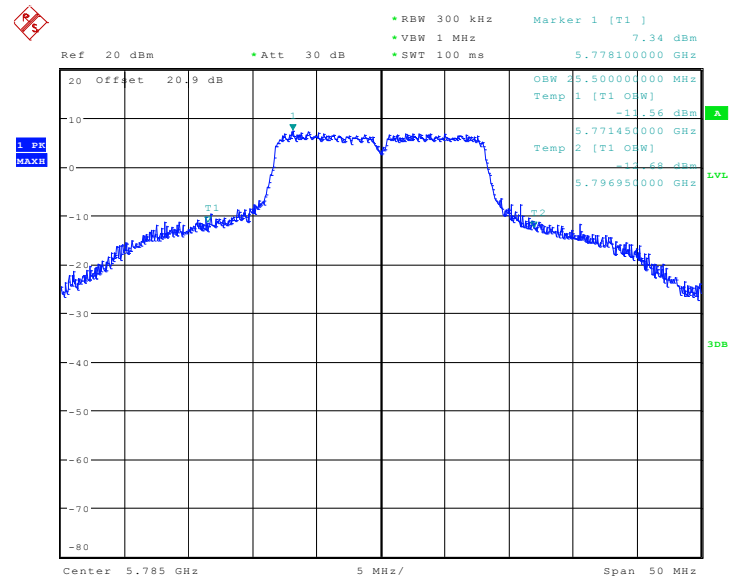
99% Bandwidth Plot on 802.11a Channel 157 - Chain 0



Date: 5.NOV.2010 19:27:20

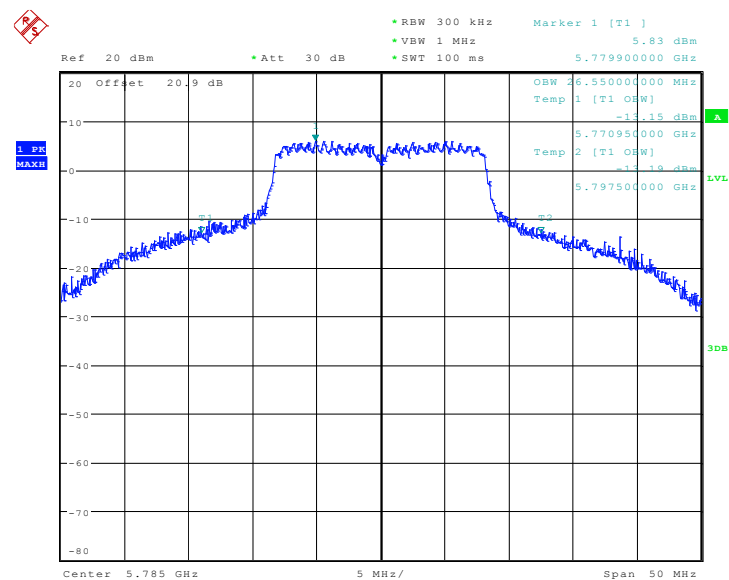


99% Bandwidth Plot on 802.11a Channel 157 - Chain 1



Date: 5.NOV.2010 19:56:18

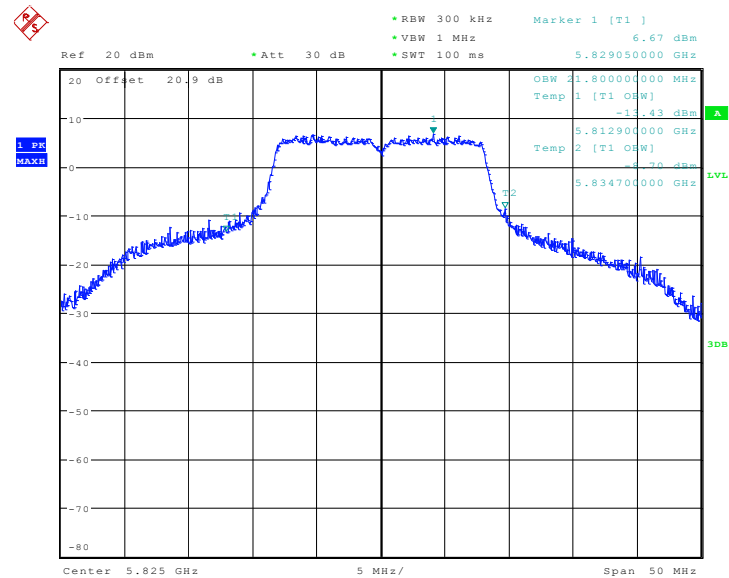
99% Bandwidth Plot on 802.11a Channel 157 - Chain 2



Date: 5.NOV.2010 20:02:23

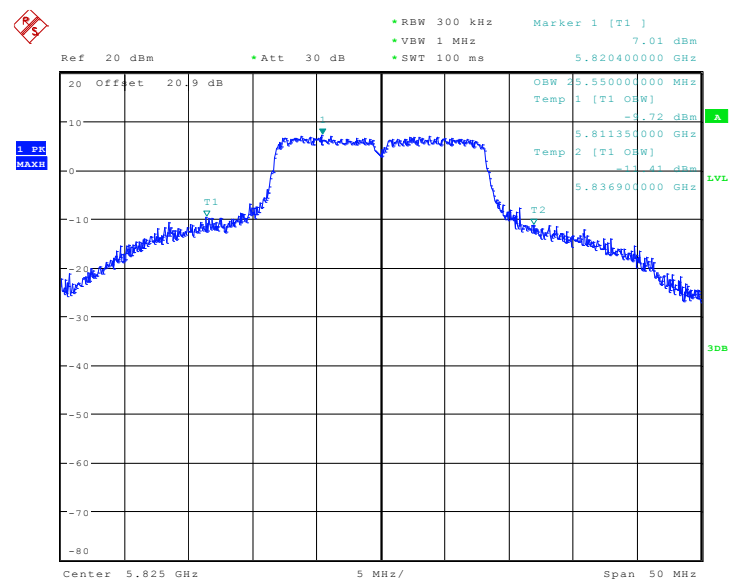


99% Bandwidth Plot on 802.11a Channel 165 - Chain 0



Date: 5.NOV.2010 19:29:47

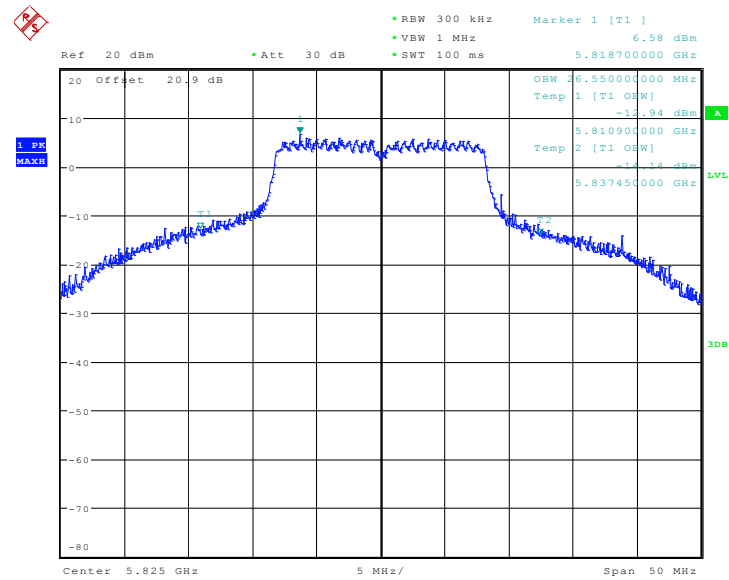
99% Bandwidth Plot on 802.11a Channel 165 - Chain 1



Date: 5.NOV.2010 19:54:35



99% Bandwidth Plot on 802.11a Channel 165 - Chain 2

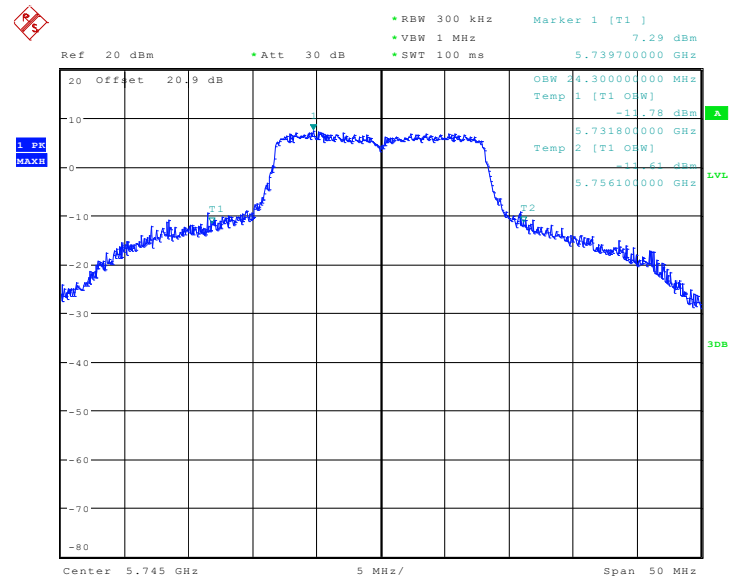


Date: 5.NOV.2010 20:04:25



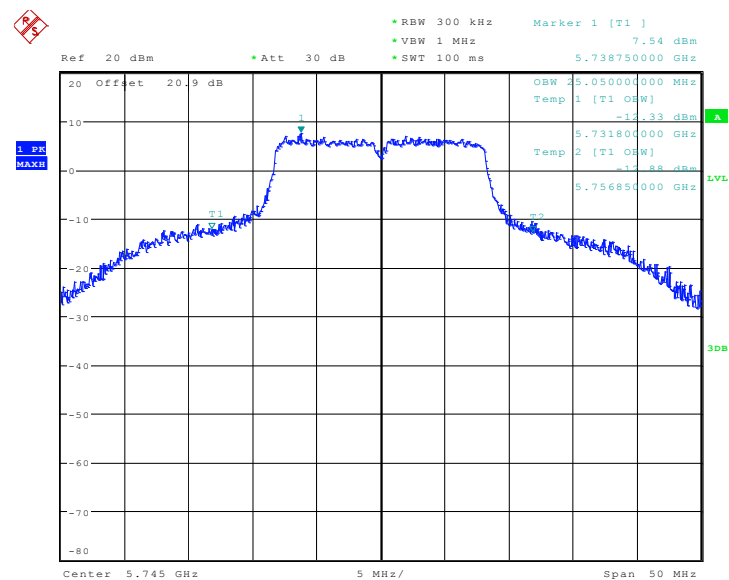
<Normal Mode: 2x3>

99% Bandwidth Plot on 802.11a Channel 149 - Chain 0



Date: 5.NOV.2010 18:53:32

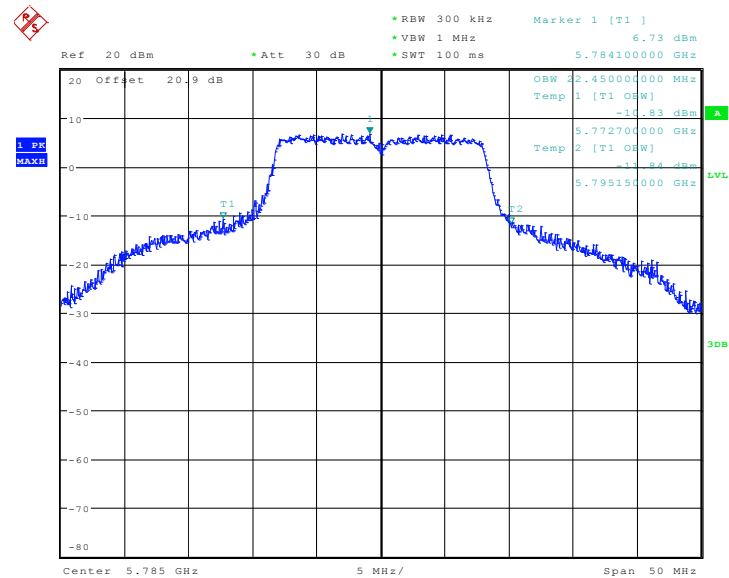
99% Bandwidth Plot on 802.11a Channel 149 - Chain 1



Date: 5.NOV.2010 19:58:35

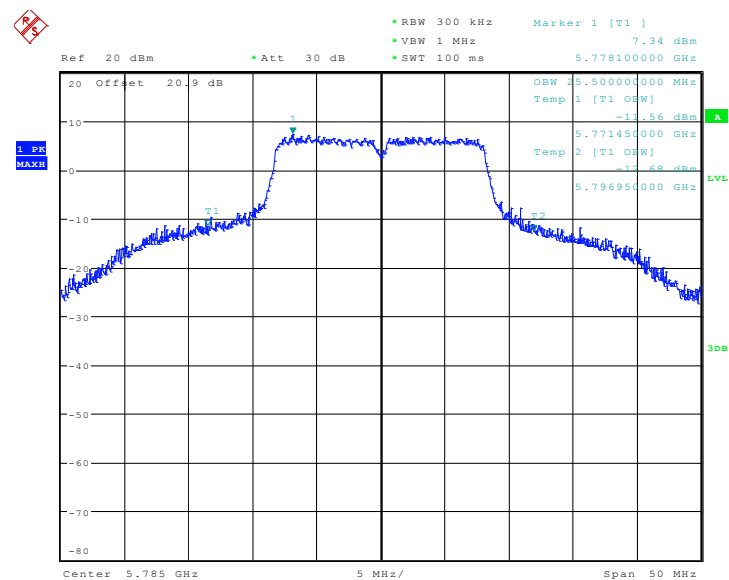


99% Bandwidth Plot on 802.11a Channel 157 - Chain 0



Date: 5.NOV.2010 19:27:20

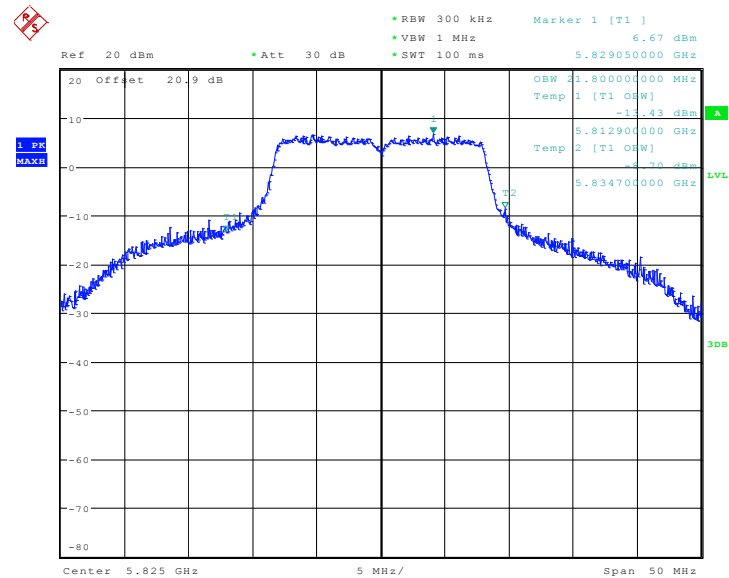
99% Bandwidth Plot on 802.11a Channel 157 - Chain 1



Date: 5.NOV.2010 19:56:18

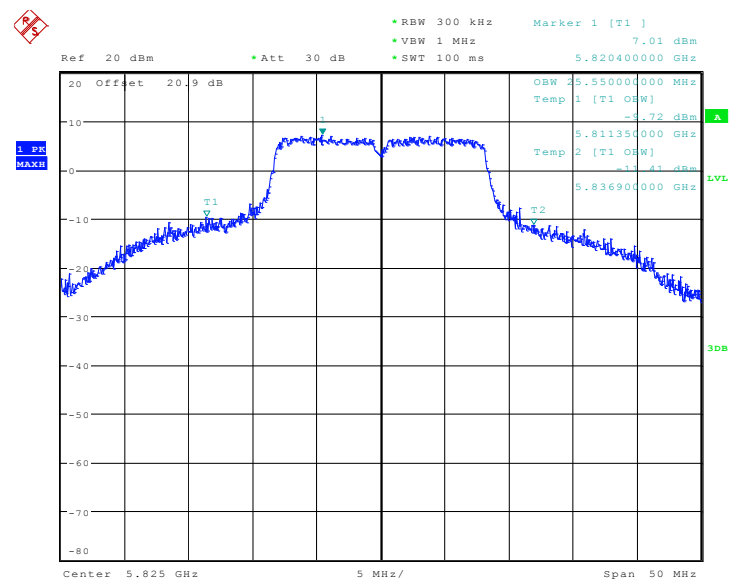


99% Bandwidth Plot on 802.11a Channel 165 - Chain 0



Date: 5.NOV.2010 19:29:47

99% Bandwidth Plot on 802.11a Channel 165 - Chain 1

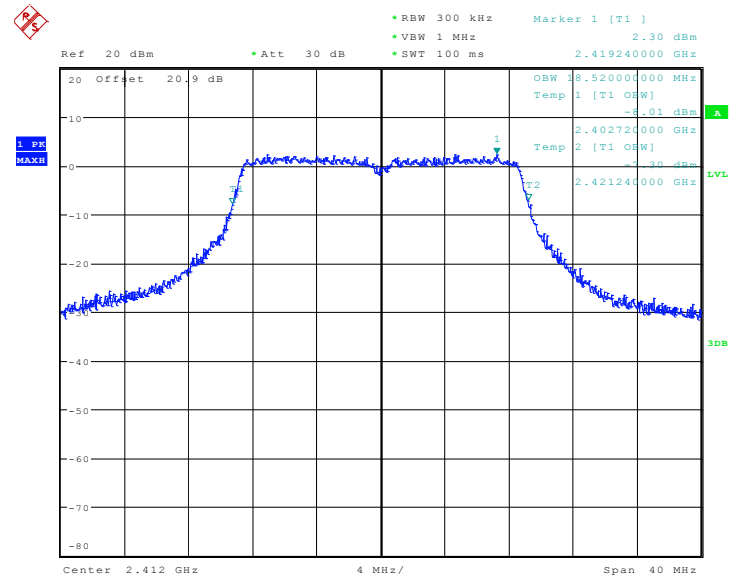


Date: 5.NOV.2010 19:54:35



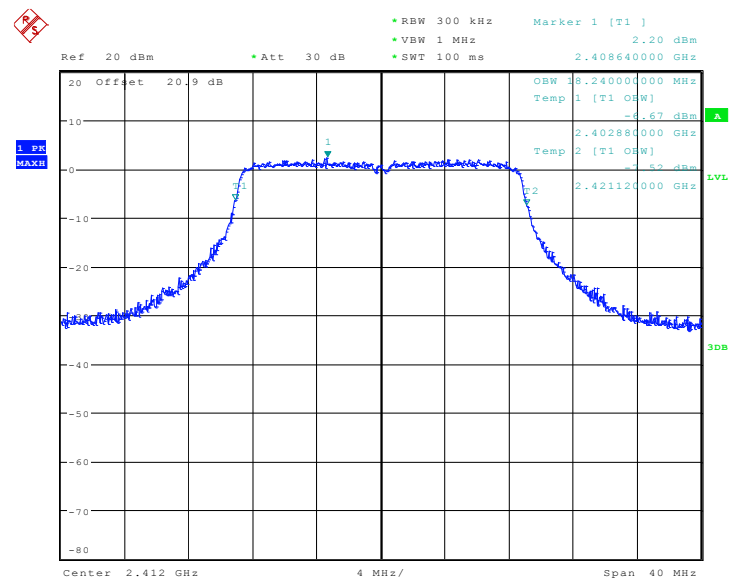
<Beam-Forming On: 3x3>

99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 0



Date: 5.NOV.2010 19:02:29

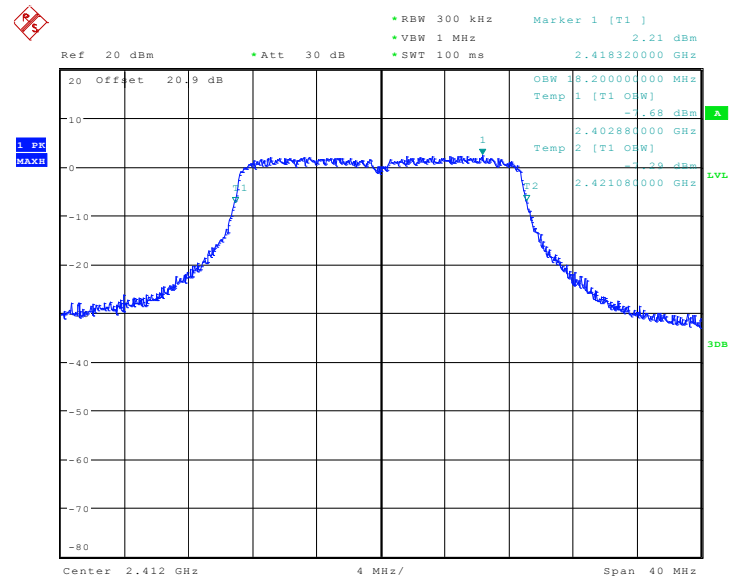
99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 1



Date: 5.NOV.2010 19:06:23

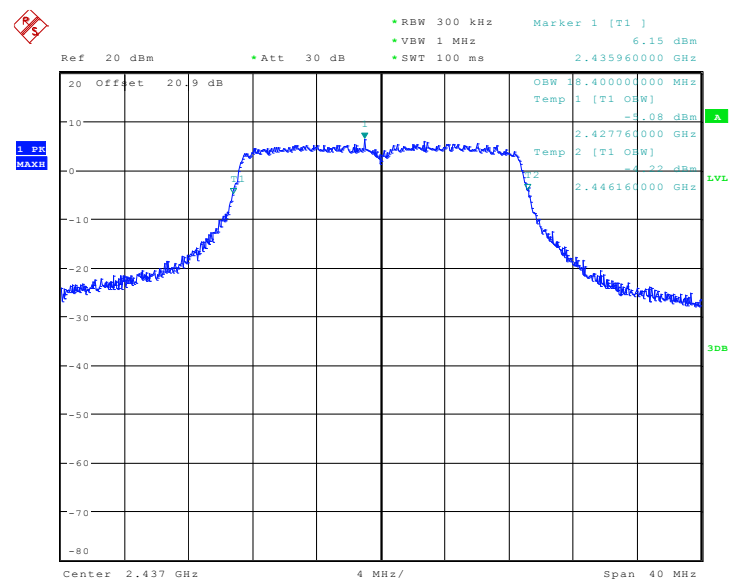


99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 2



Date: 5.NOV.2010 19:12:51

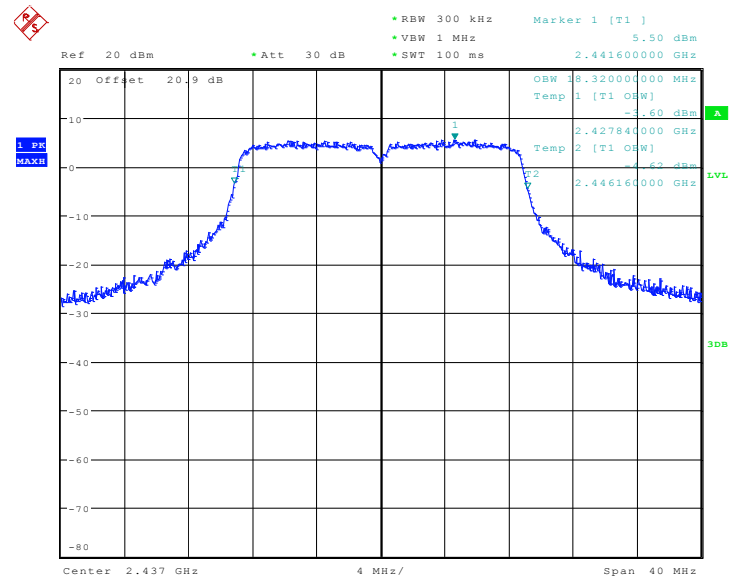
99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 0



Date: 5.NOV.2010 19:02:03

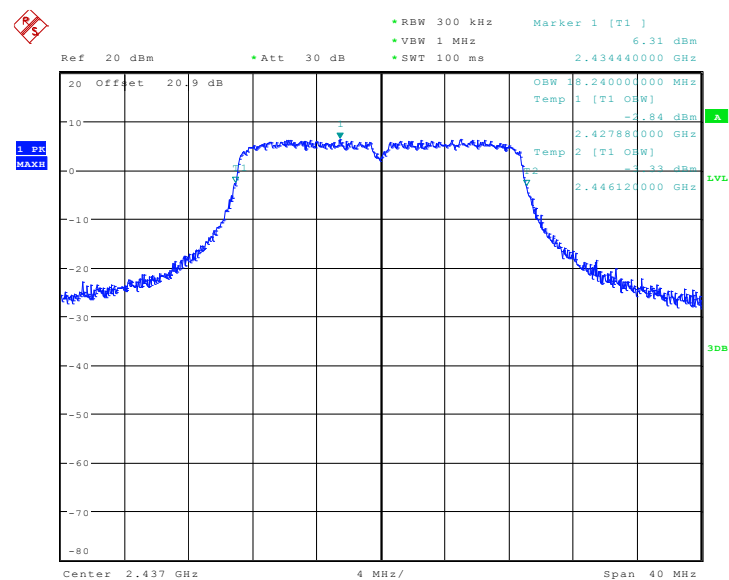


99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 1



Date: 5.NOV.2010 19:06:52

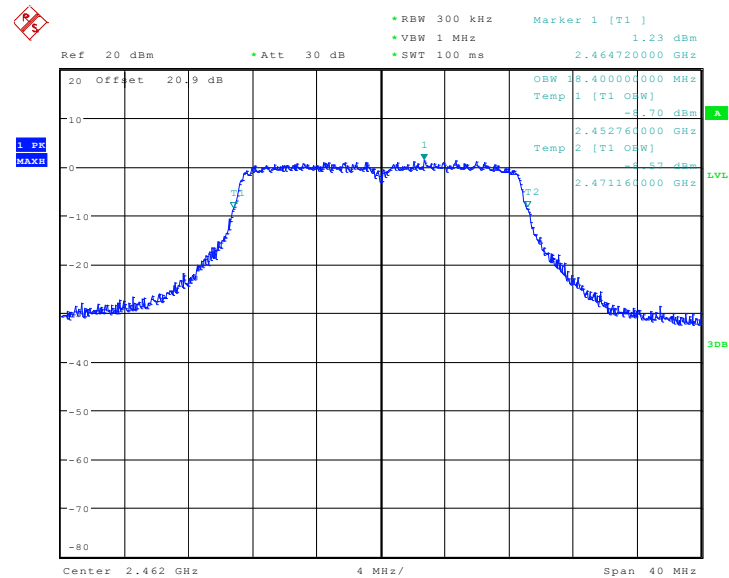
99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 2



Date: 5.NOV.2010 19:13:19

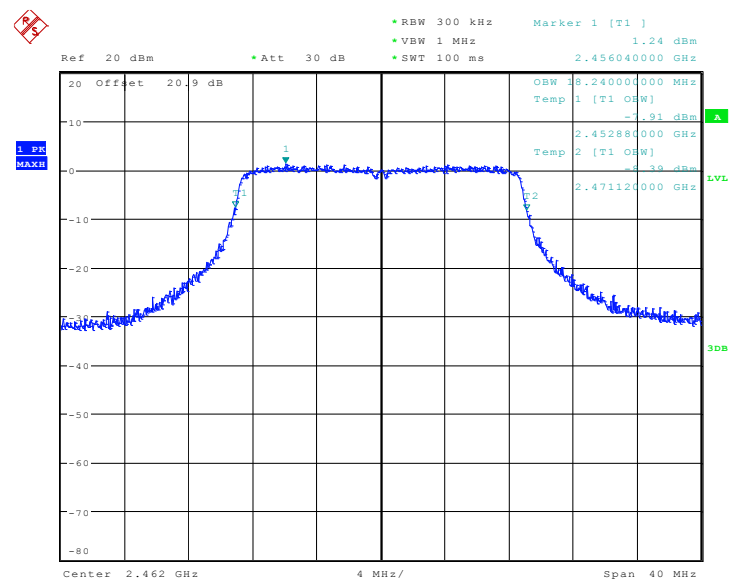


99% Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 0



Date: 5.NOV.2010 19:00:48

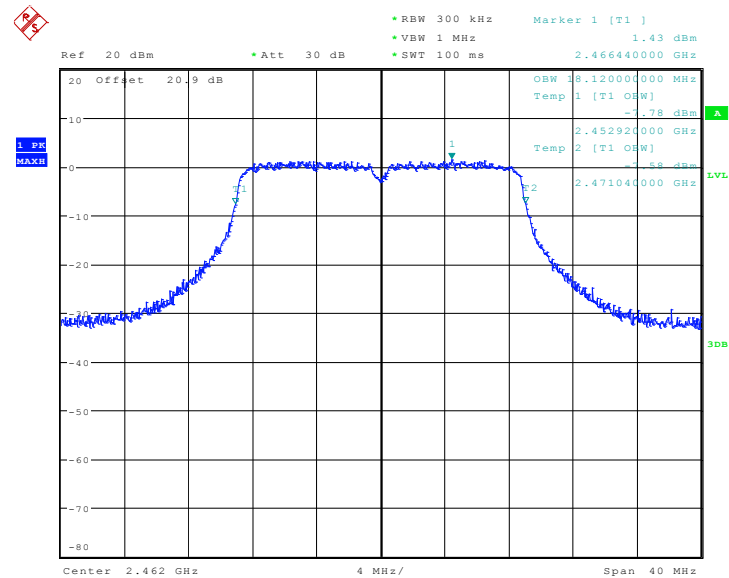
99% Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 1



Date: 5.NOV.2010 19:07:25

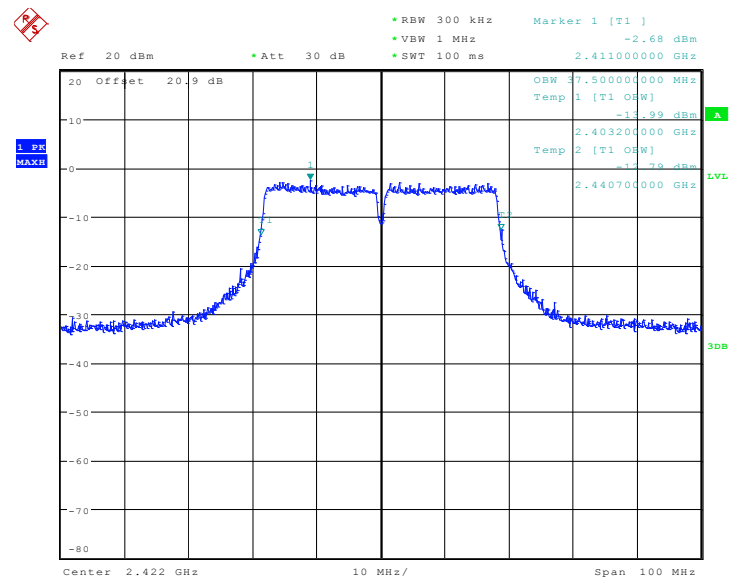


99% Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 2



Date: 5.NOV.2010 19:15:14

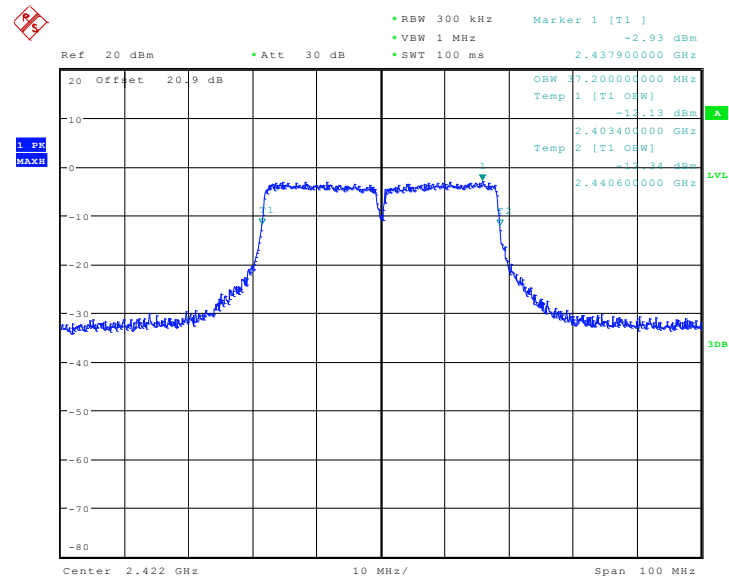
99% Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 0



Date: 5.NOV.2010 19:03:03

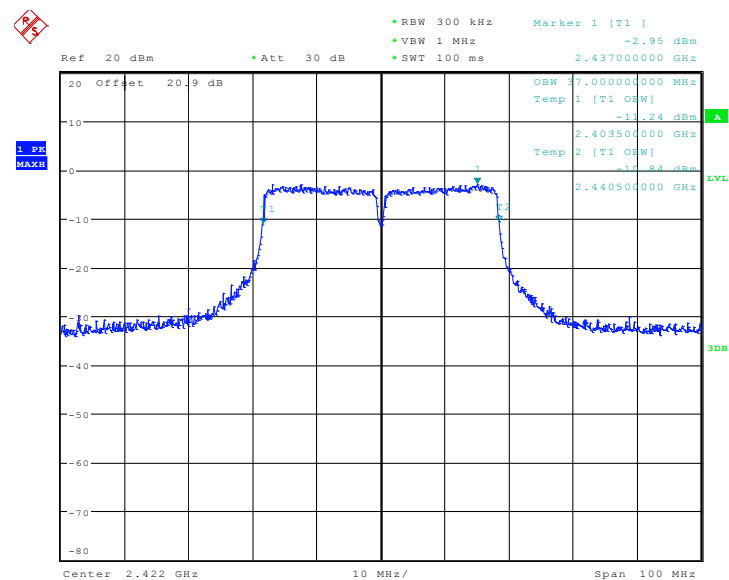


99% Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 1



Date: 5.NOV.2010 19:05:50

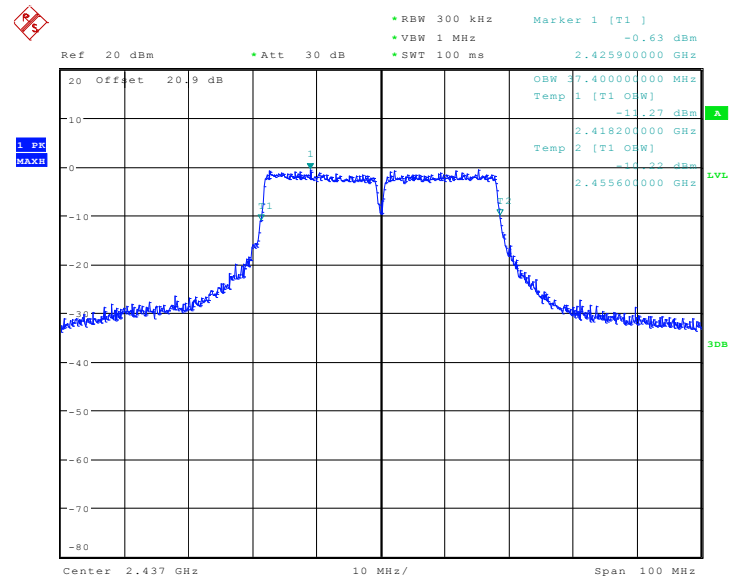
99% Bandwidth Plot on 802.11n (HT-40) Channel 03 - Chain 2



Date: 5.NOV.2010 19:16:51

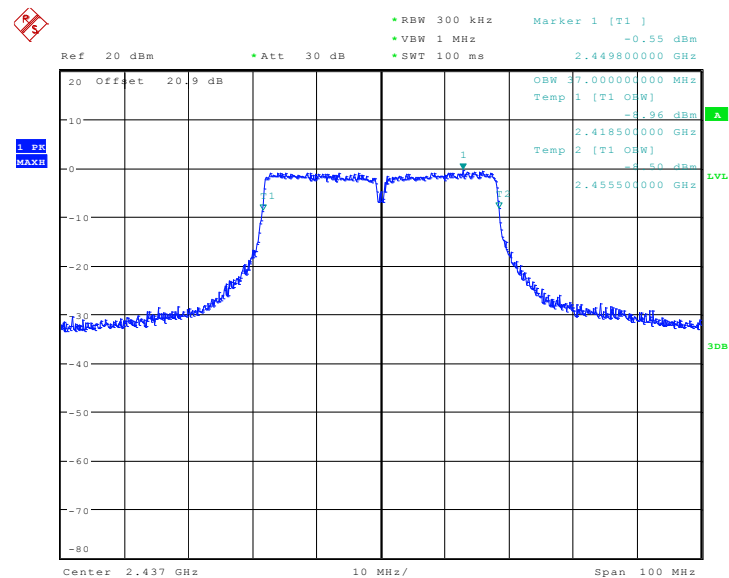


99% Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 0



Date: 5.NOV.2010 19:03:36

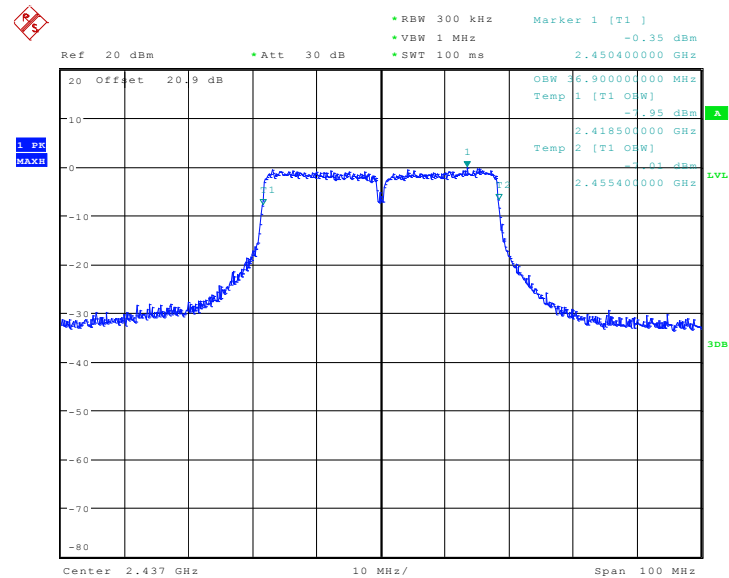
99% Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 1



Date: 5.NOV.2010 19:05:23

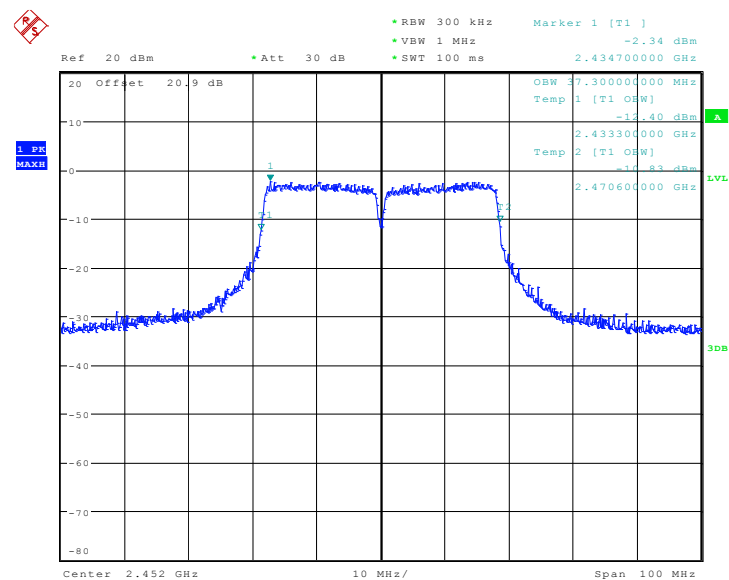


99% Bandwidth Plot on 802.11n (HT-40) Channel 06 - Chain 2



Date: 5.NOV.2010 19:16:27

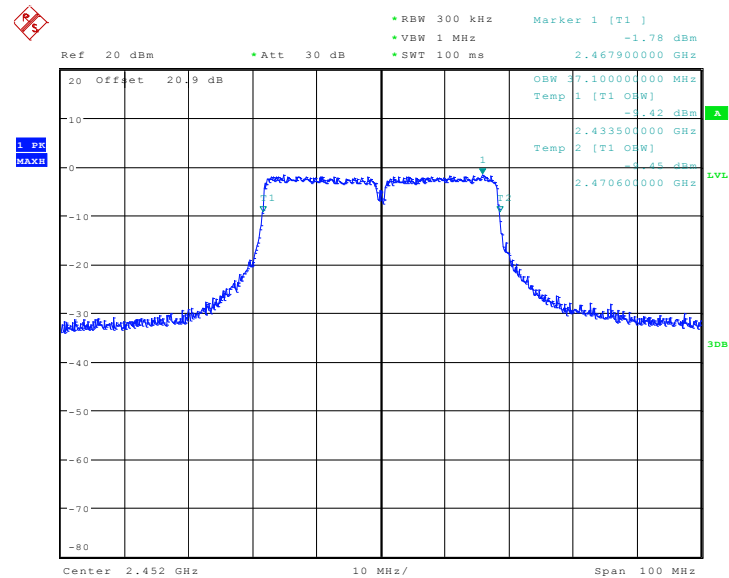
99% Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 0



Date: 5.NOV.2010 19:04:18

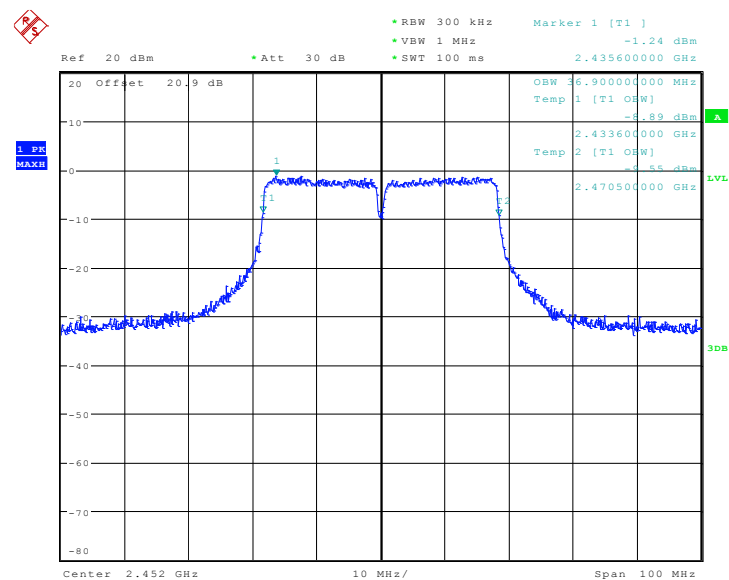


99% Bandwidth Plot on 802.11n (HT-40) Channel 09 – Chain 1



Date: 5.NOV.2010 19:05:00

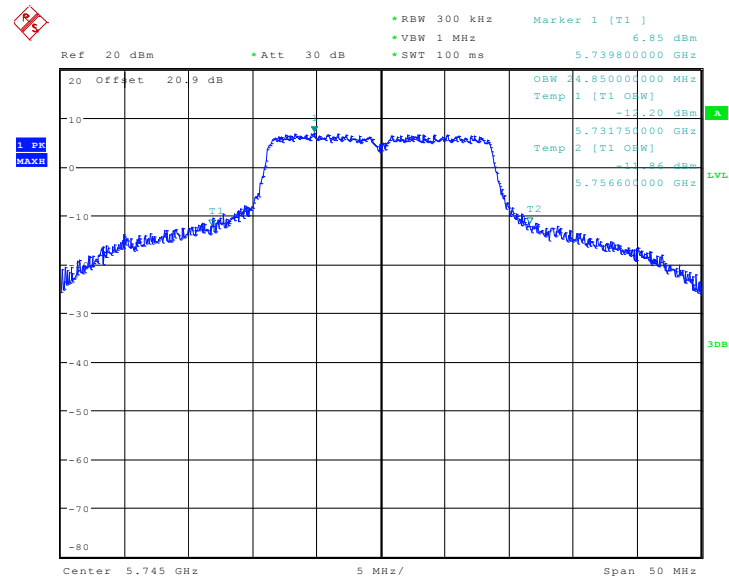
99% Bandwidth Plot on 802.11n (HT-40) Channel 09 - Chain 2



Date: 5.NOV.2010 19:15:47

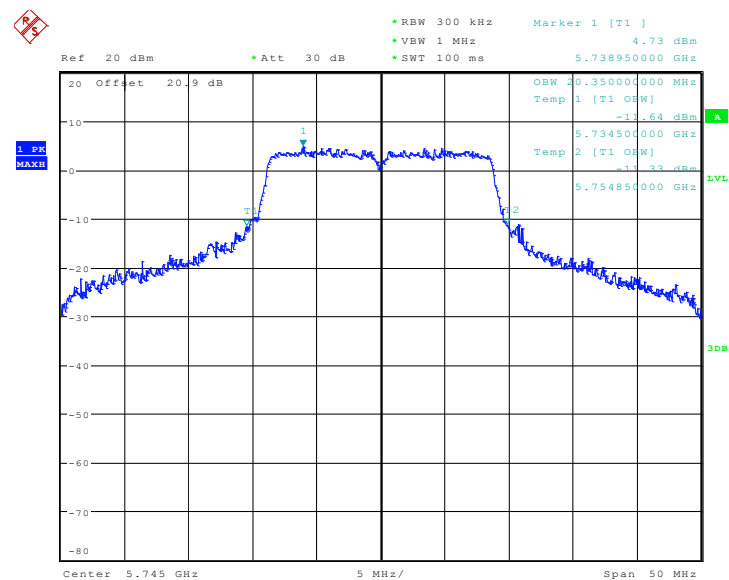


99% Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 5.NOV.2010 19:36:37

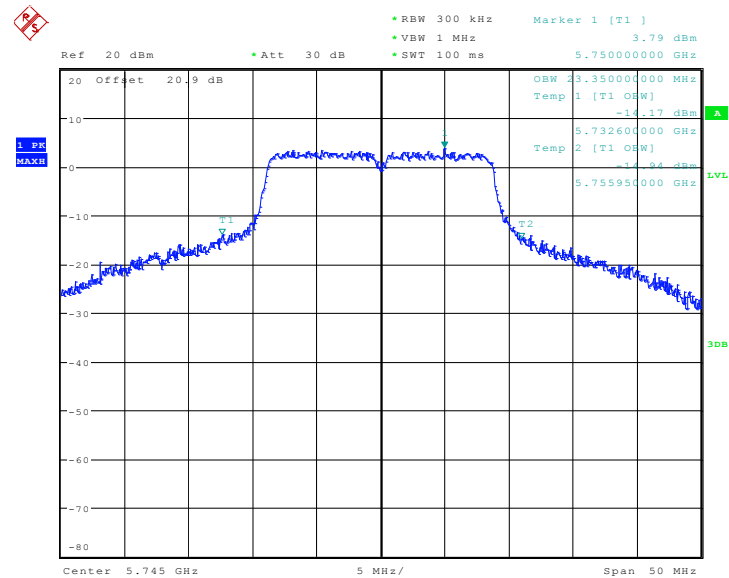
99% Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



Date: 5.NOV.2010 19:48:37

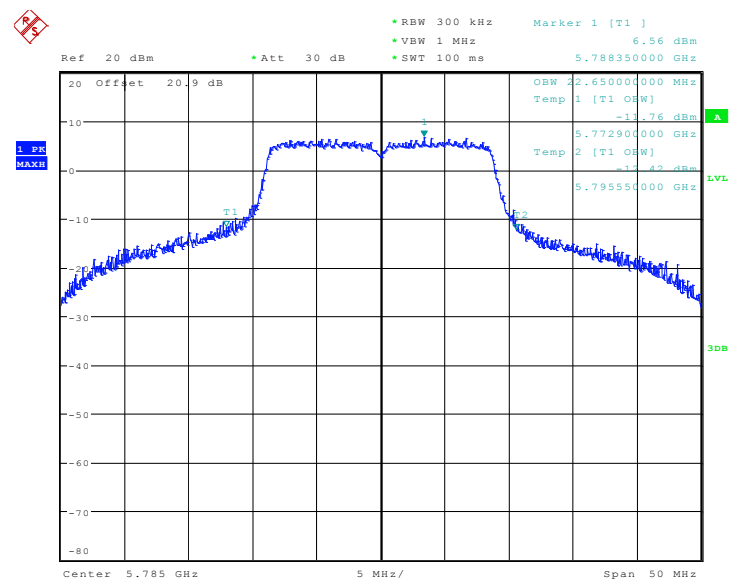


99% Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 2



Date: 5.NOV.2010 20:11:51

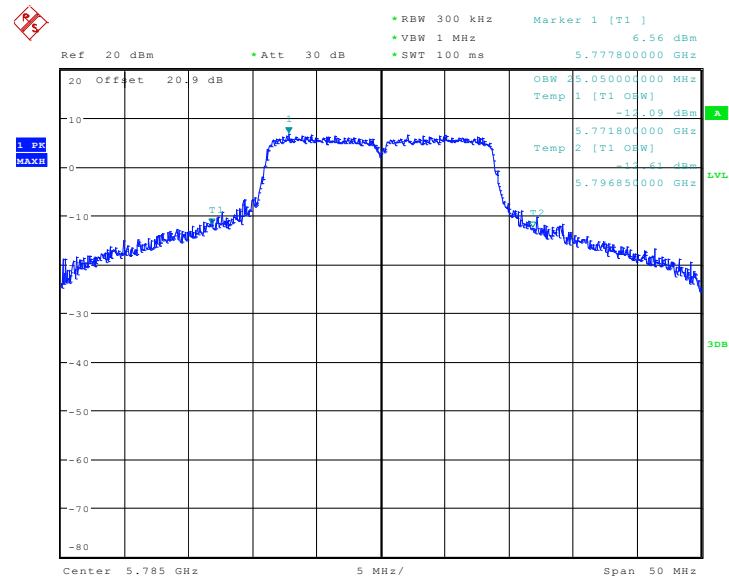
99% Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 0



Date: 5.NOV.2010 19:34:09

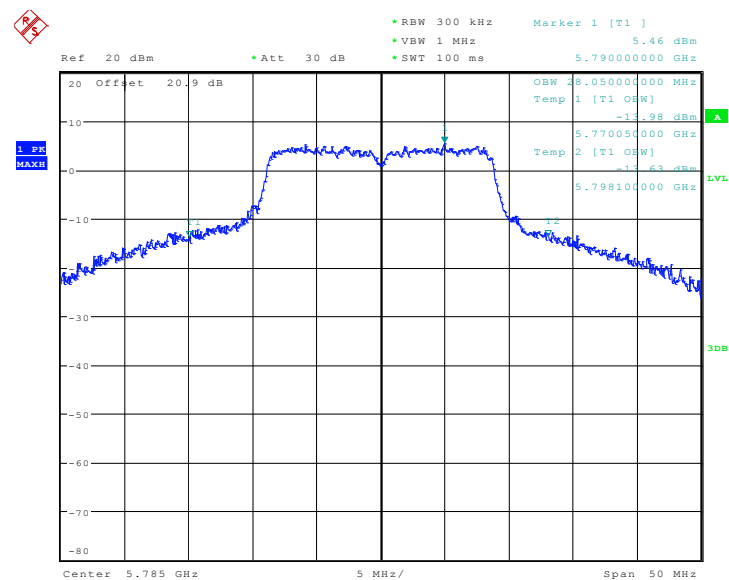


99% Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 1



Date: 5.NOV.2010 19:50:15

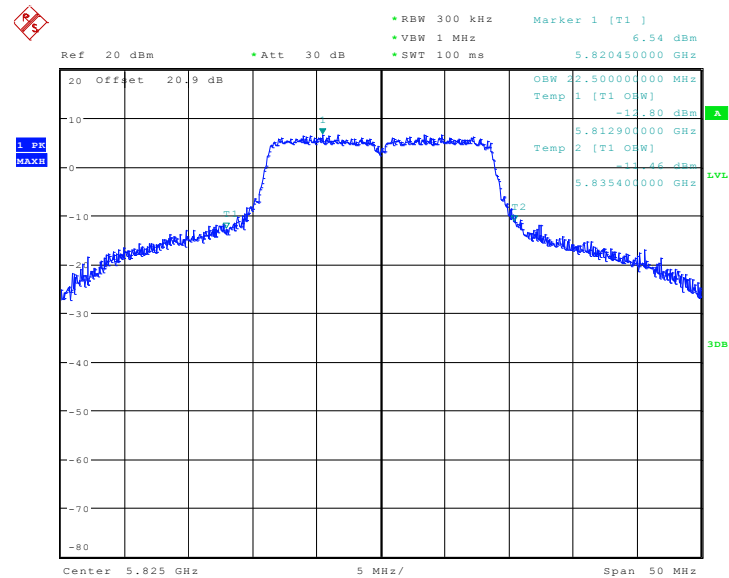
99% Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 2



Date: 5.NOV.2010 20:08:50

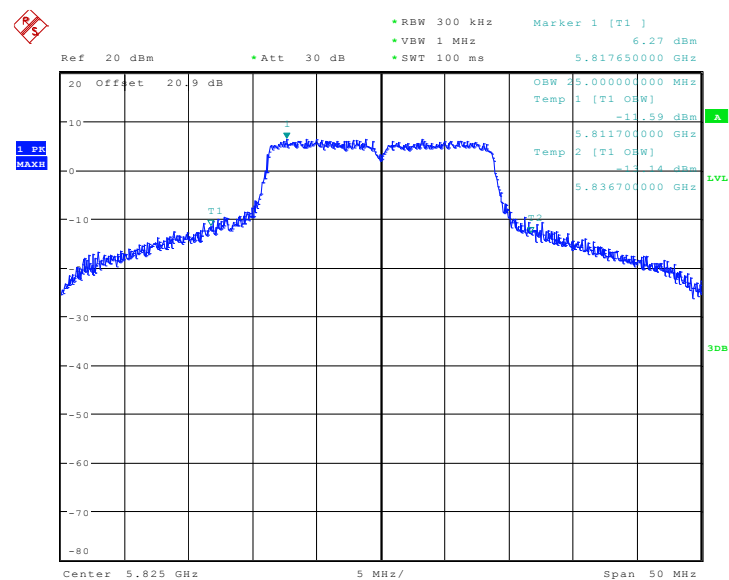


99% Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 5.NOV.2010 19:32:00

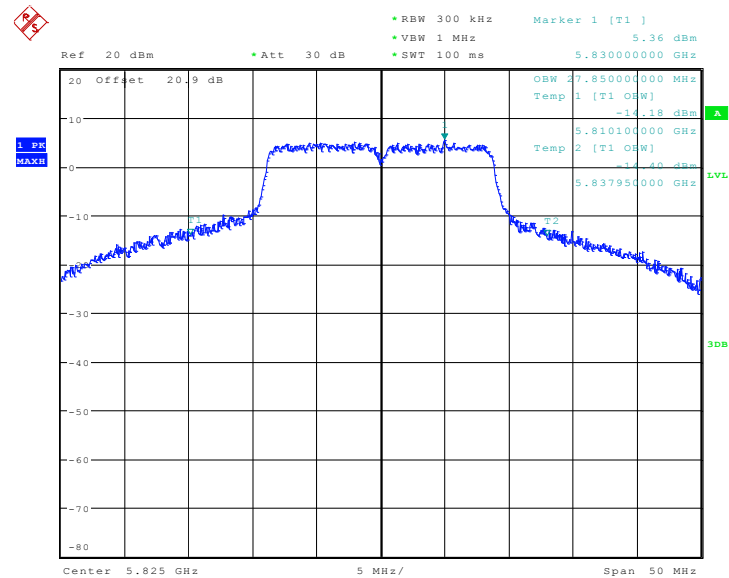
99% Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 5.NOV.2010 19:52:25

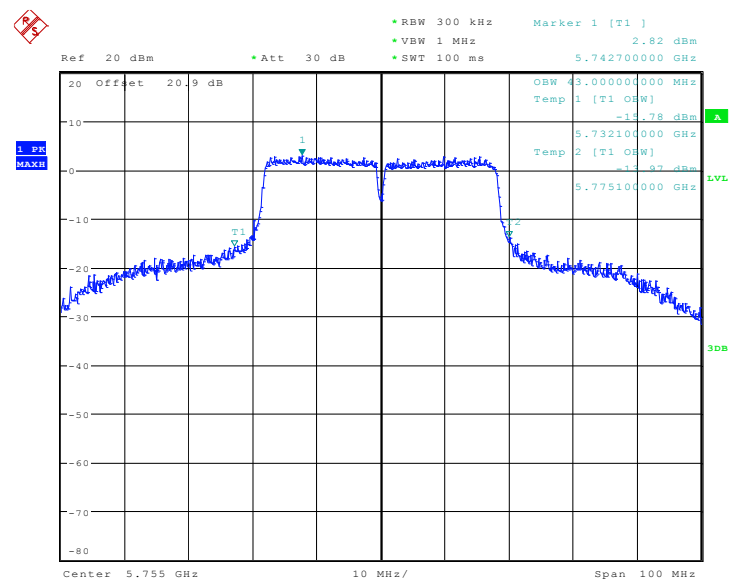


99% Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 2



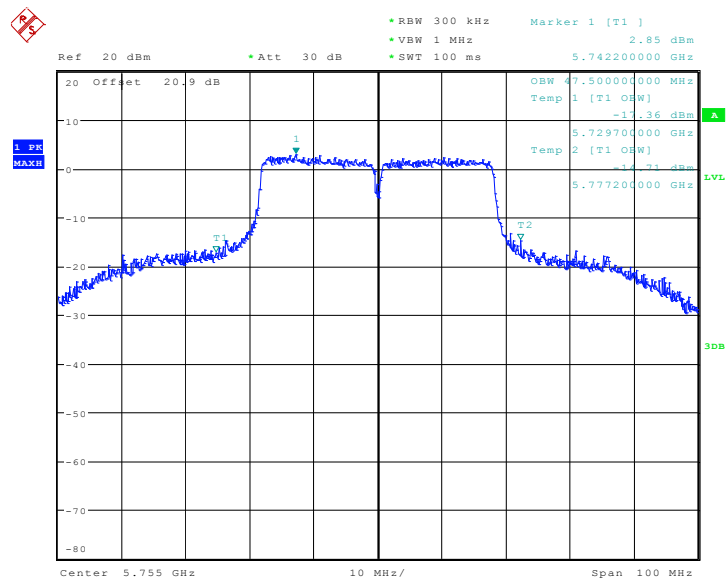
Date: 5.NOV.2010 20:07:16

99% Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



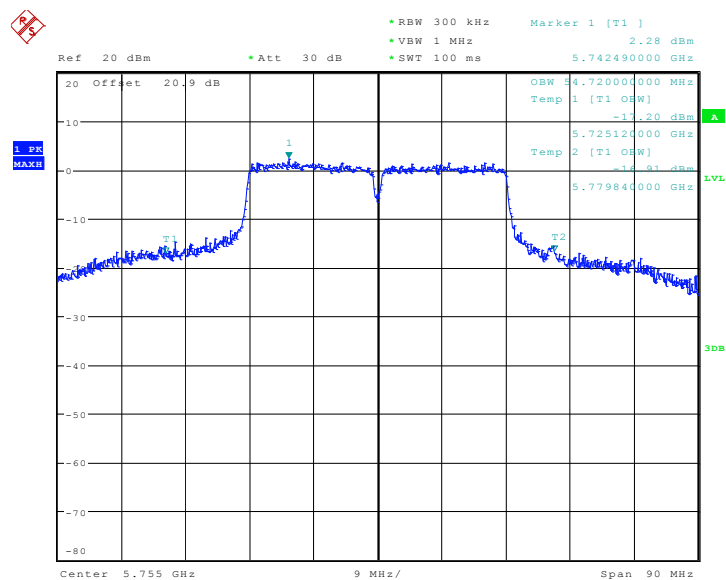
Date: 5.NOV.2010 19:39:00

99% Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 5.NOV.2010 19:46:21

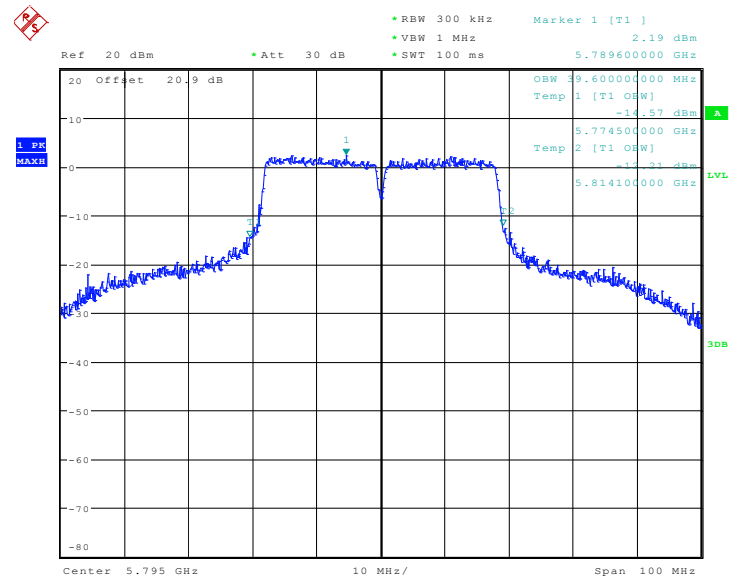
99% Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 2



Date: 5.NOV.2010 20:13:35

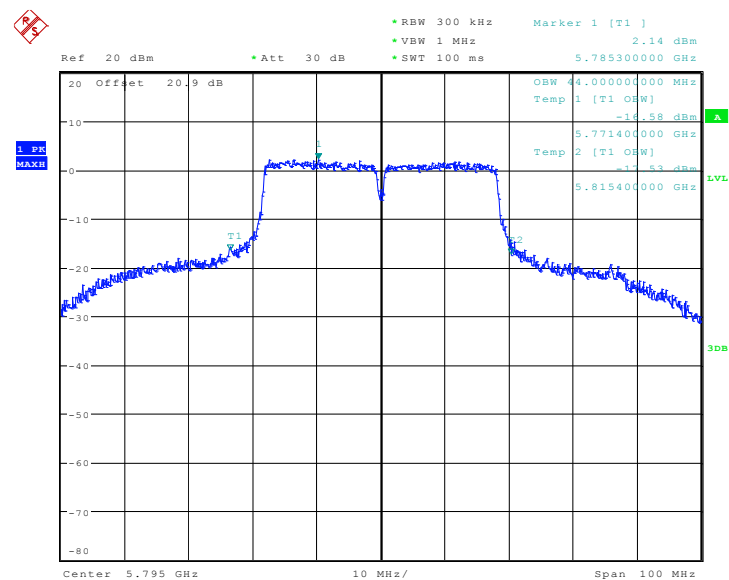


99% Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



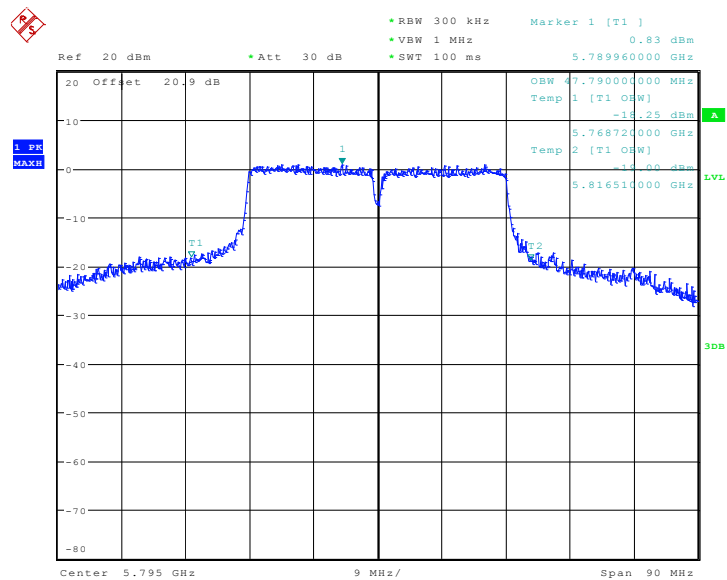
Date: 5.NOV.2010 19:41:39

99% Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1



Date: 5.NOV.2010 19:44:15

99% Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 2

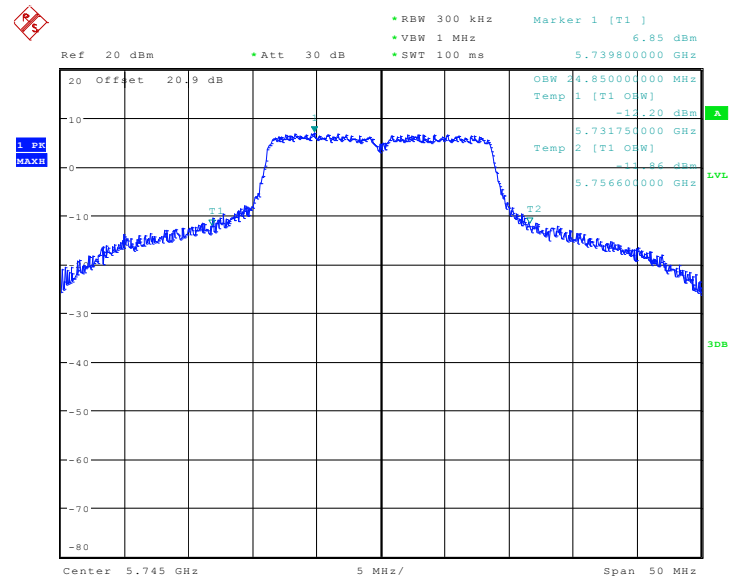


Date: 5.NOV.2010 20:15:21



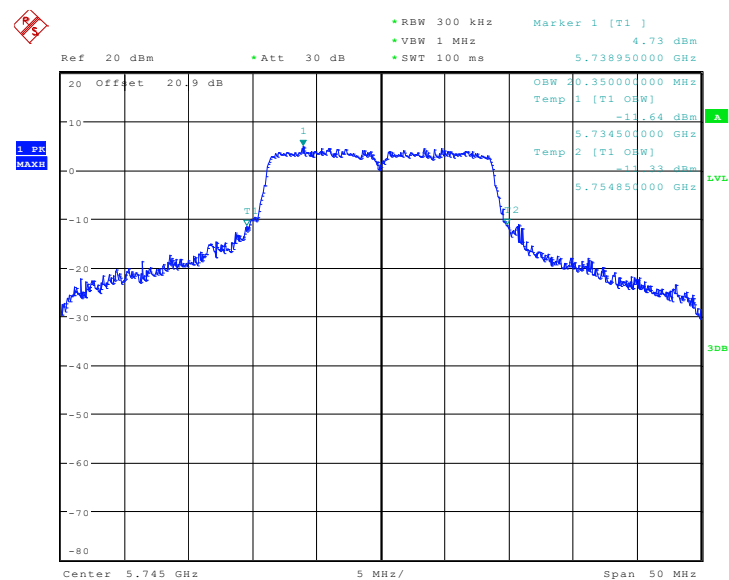
<Beam-Forming On: 2x3>

99% Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 0



Date: 5.NOV.2010 19:36:37

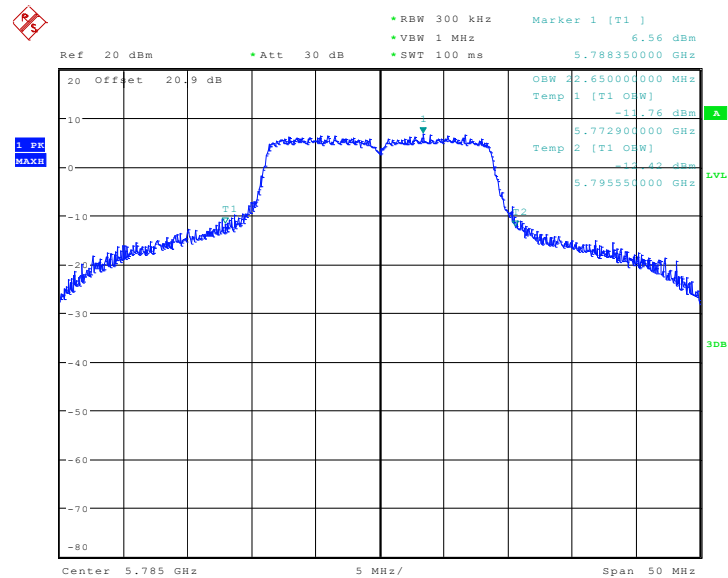
99% Bandwidth Plot on 802.11n (HT-20) Channel 149 - Chain 1



Date: 5.NOV.2010 19:48:37

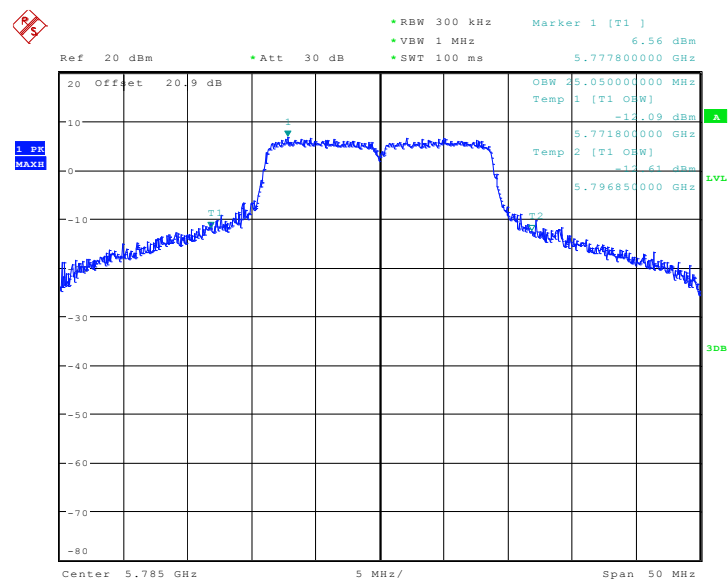


99% Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 0



Date: 5.NOV.2010 19:34:09

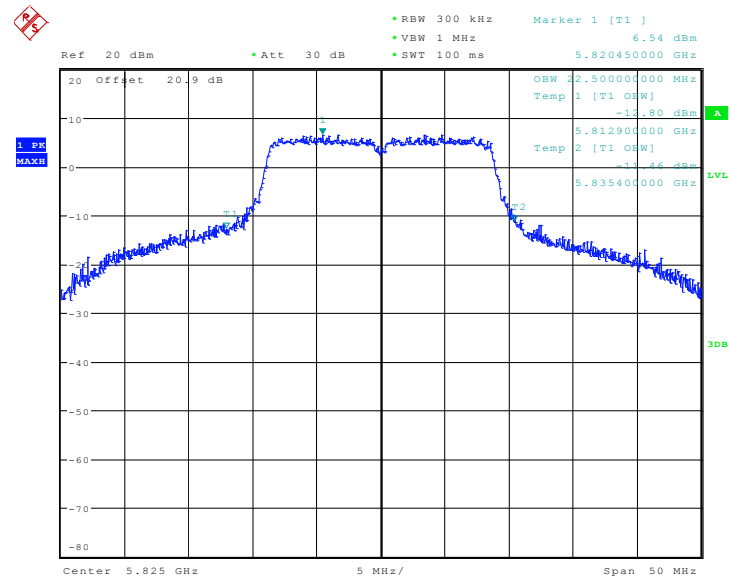
99% Bandwidth Plot on 802.11n (HT-20) Channel 157 - Chain 1



Date: 5.NOV.2010 19:50:15

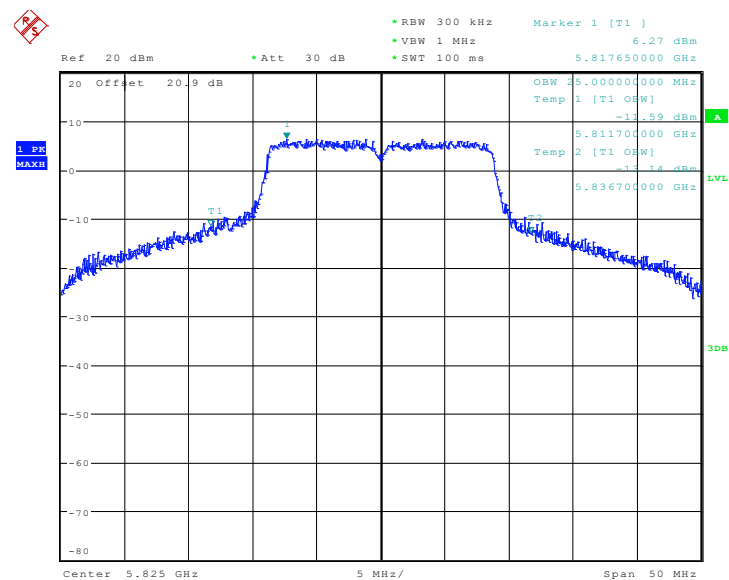


99% Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 0



Date: 5.NOV.2010 19:32:00

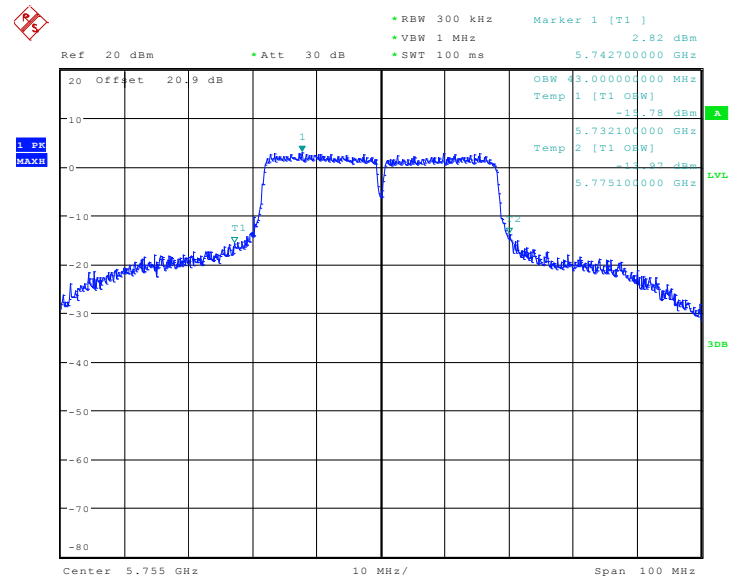
99% Bandwidth Plot on 802.11n (HT-20) Channel 165 - Chain 1



Date: 5.NOV.2010 19:52:25

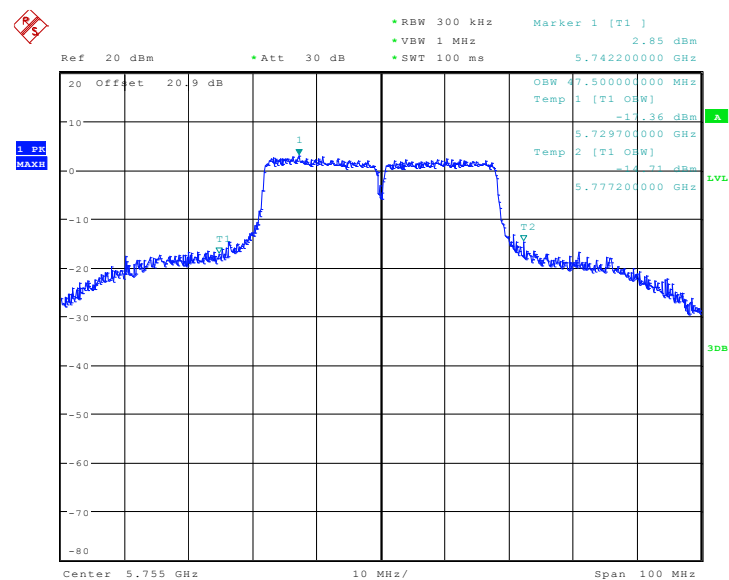


99% Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 0



Date: 5.NOV.2010 19:39:00

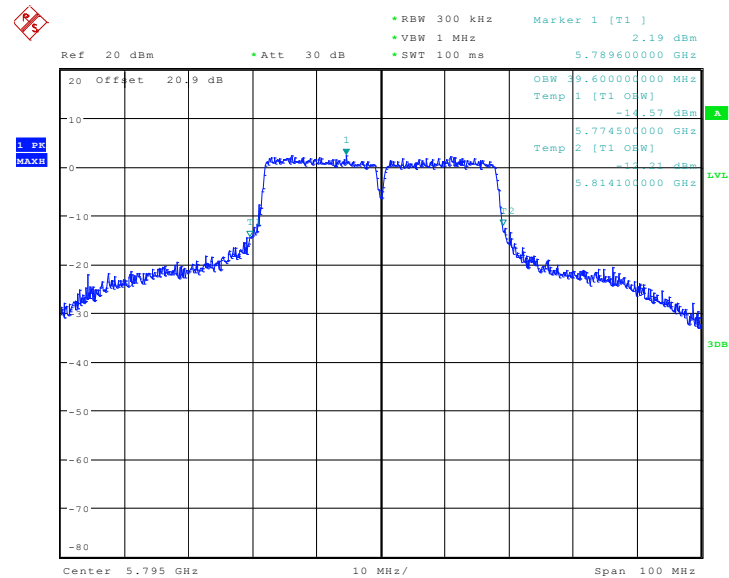
99% Bandwidth Plot on 802.11n (HT-40) Channel 151 - Chain 1



Date: 5.NOV.2010 19:46:21

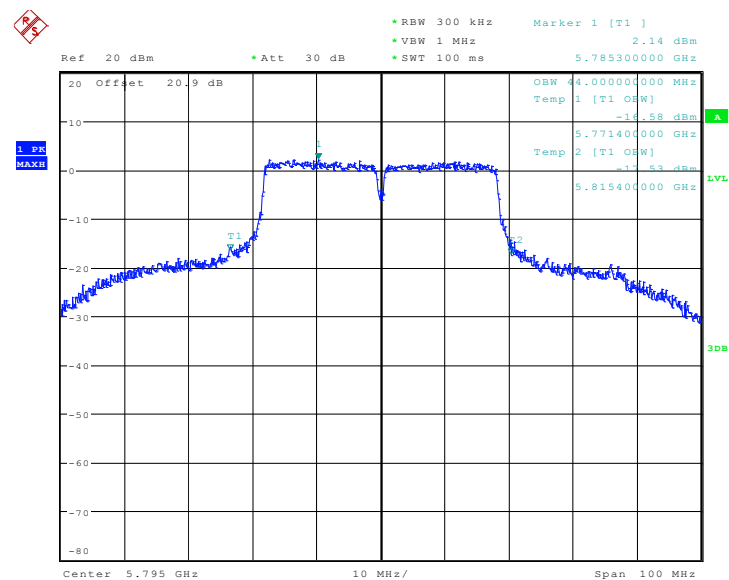


99% Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 0



Date: 5.NOV.2010 19:41:39

99% Bandwidth Plot on 802.11n (HT-40) Channel 159 - Chain 1

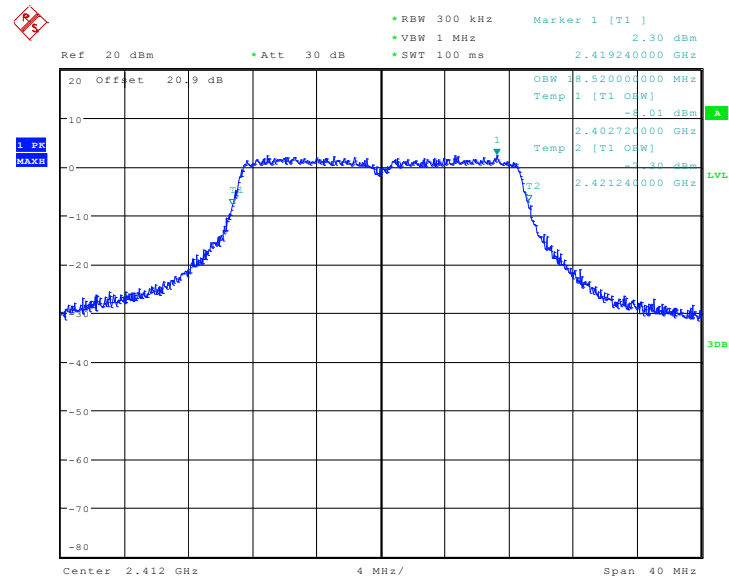


Date: 5.NOV.2010 19:44:15



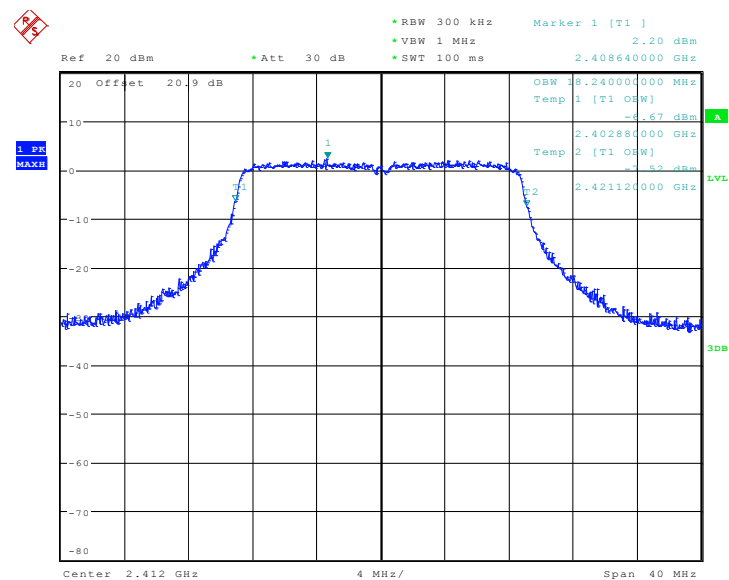
<Beam-Forming Off: 3x3>

99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 0



Date: 5.NOV.2010 19:02:29

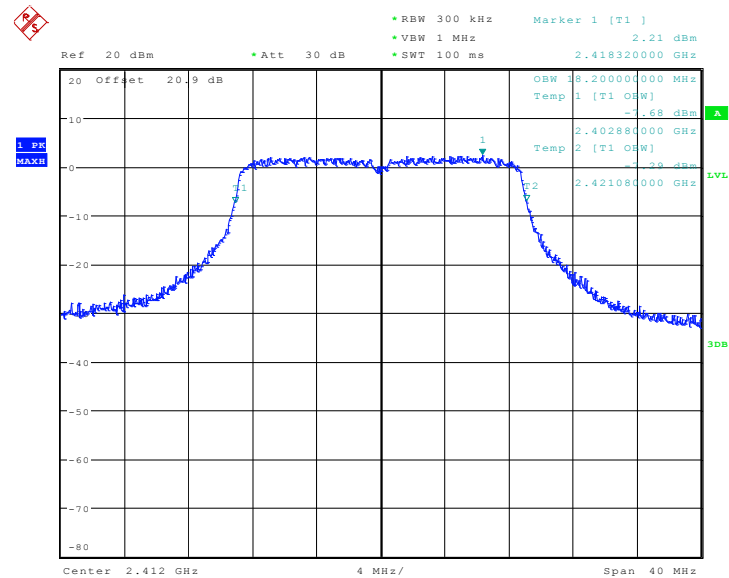
99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 1



Date: 5.NOV.2010 19:06:23

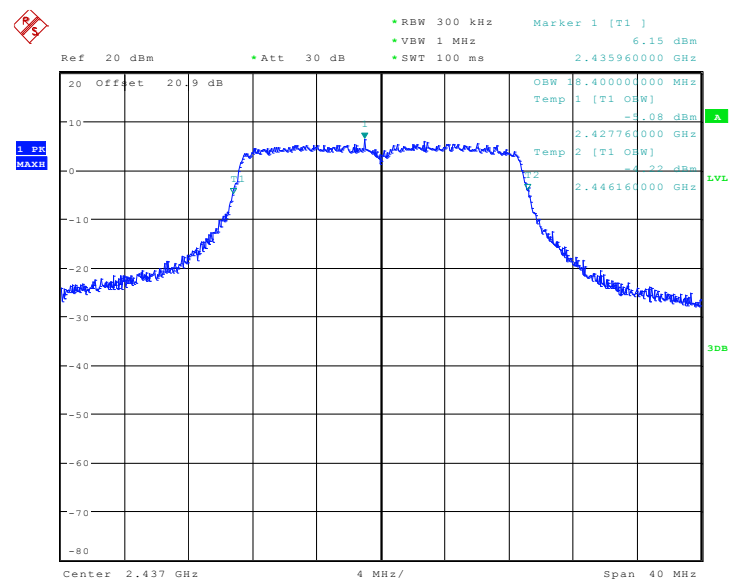


99% Bandwidth Plot on 802.11n (HT-20) Channel 01 - Chain 2



Date: 5.NOV.2010 19:12:51

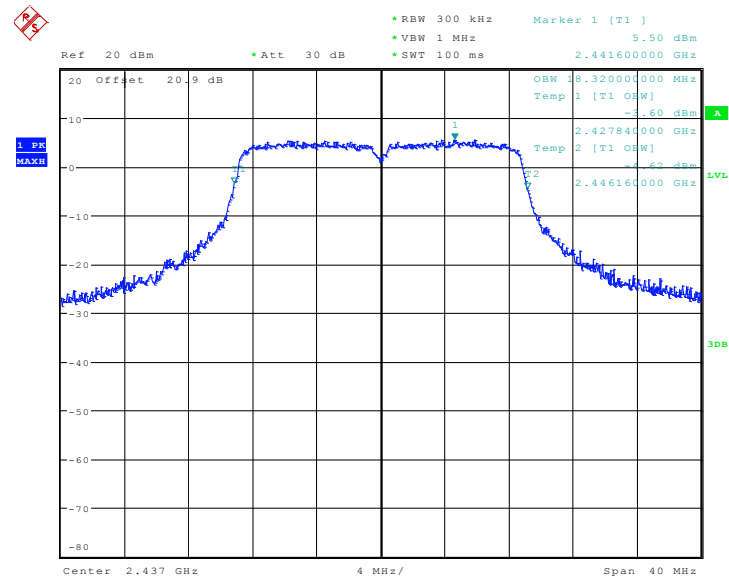
99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 0



Date: 5.NOV.2010 19:02:03

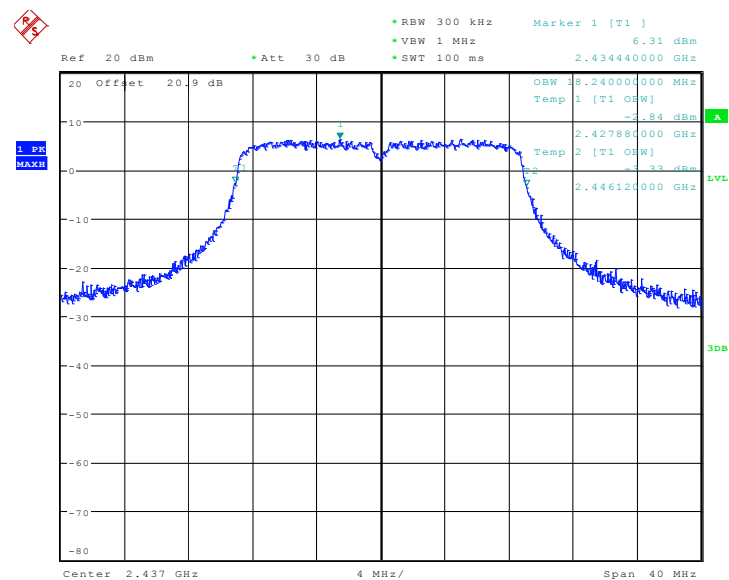


99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 1



Date: 5.NOV.2010 19:06:52

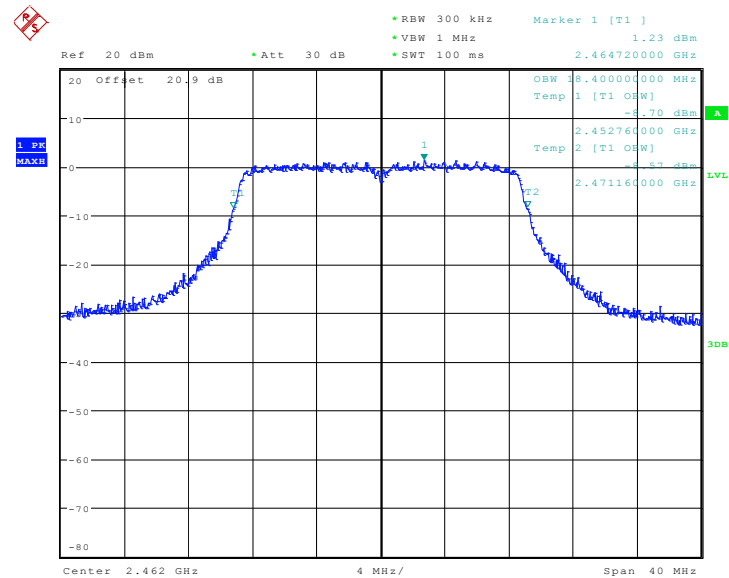
99% Bandwidth Plot on 802.11n (HT-20) Channel 06 - Chain 2



Date: 5.NOV.2010 19:13:19

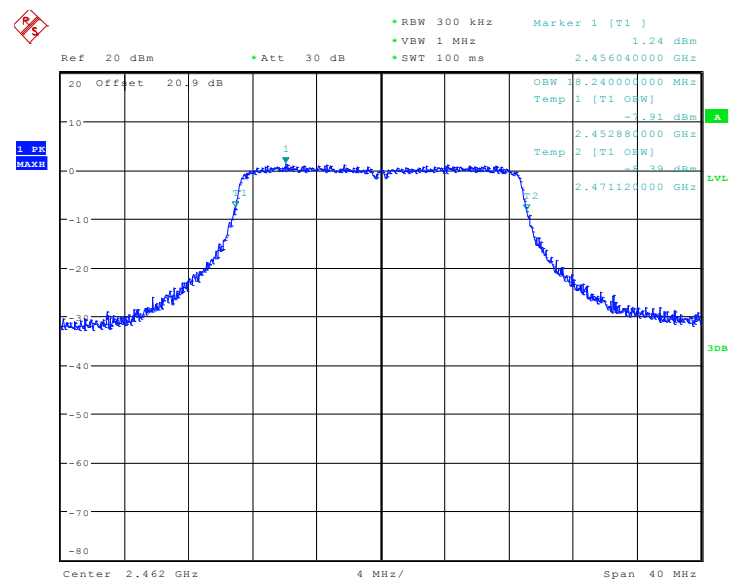


99% Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 0



Date: 5.NOV.2010 19:00:48

99% Bandwidth Plot on 802.11n (HT-20) Channel 11 - Chain 1



Date: 5.NOV.2010 19:07:25