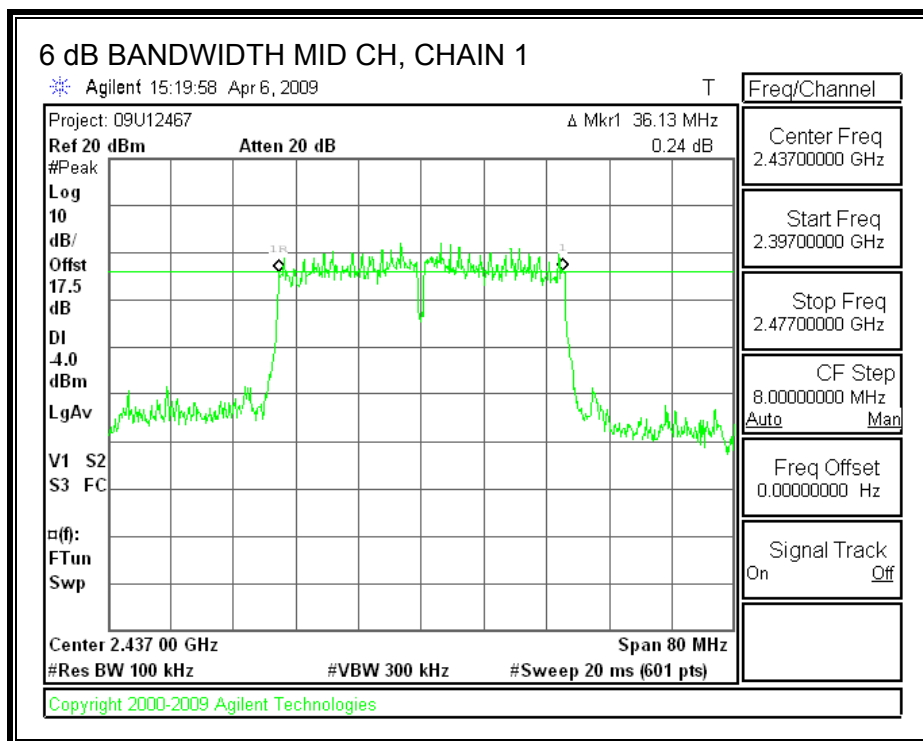
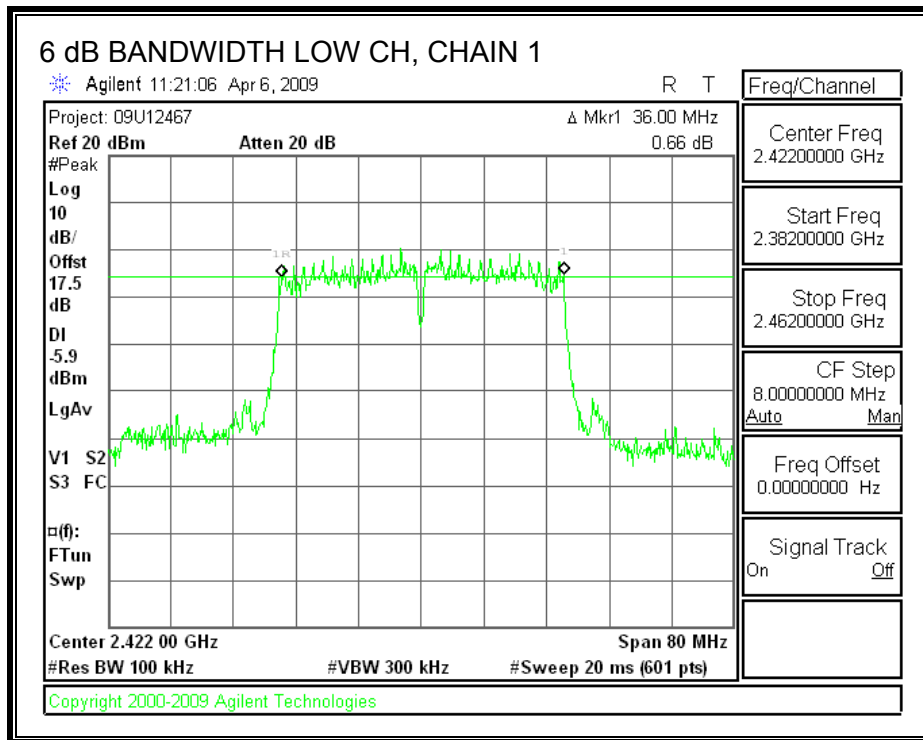
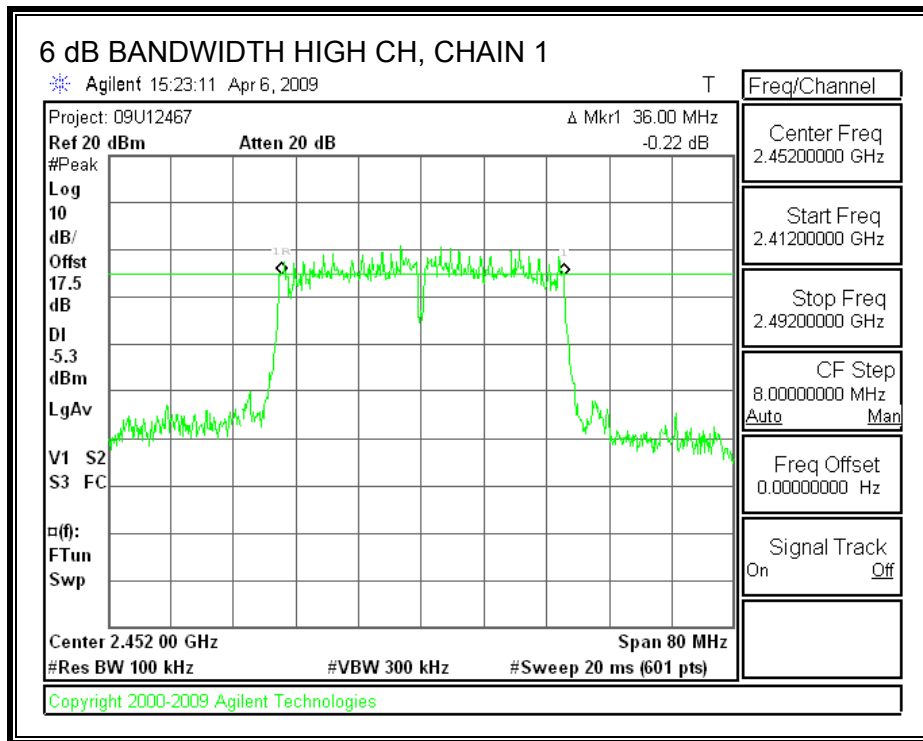
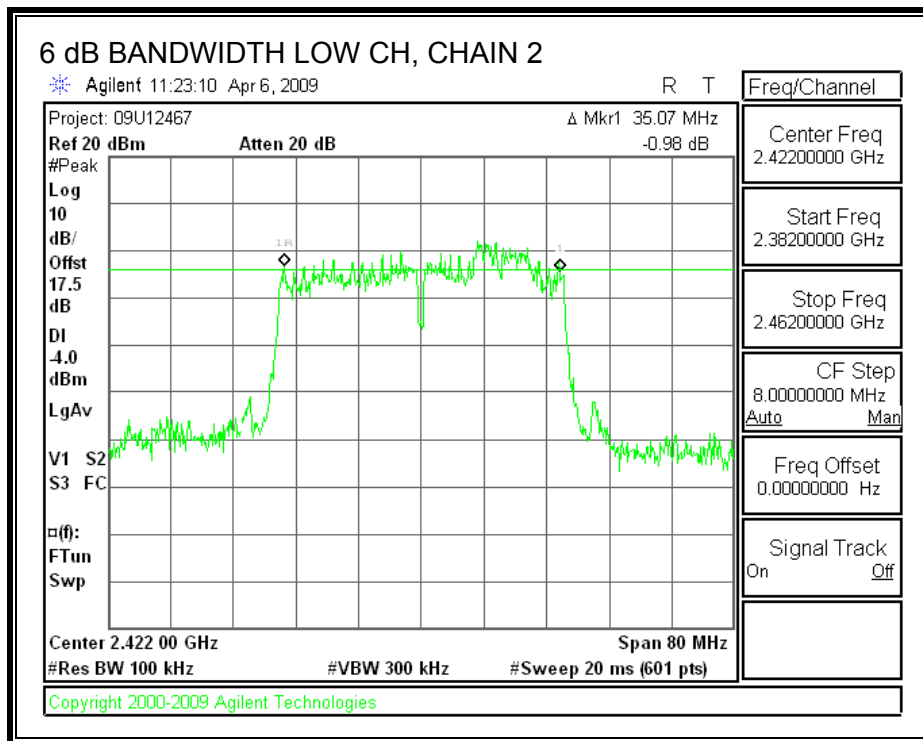


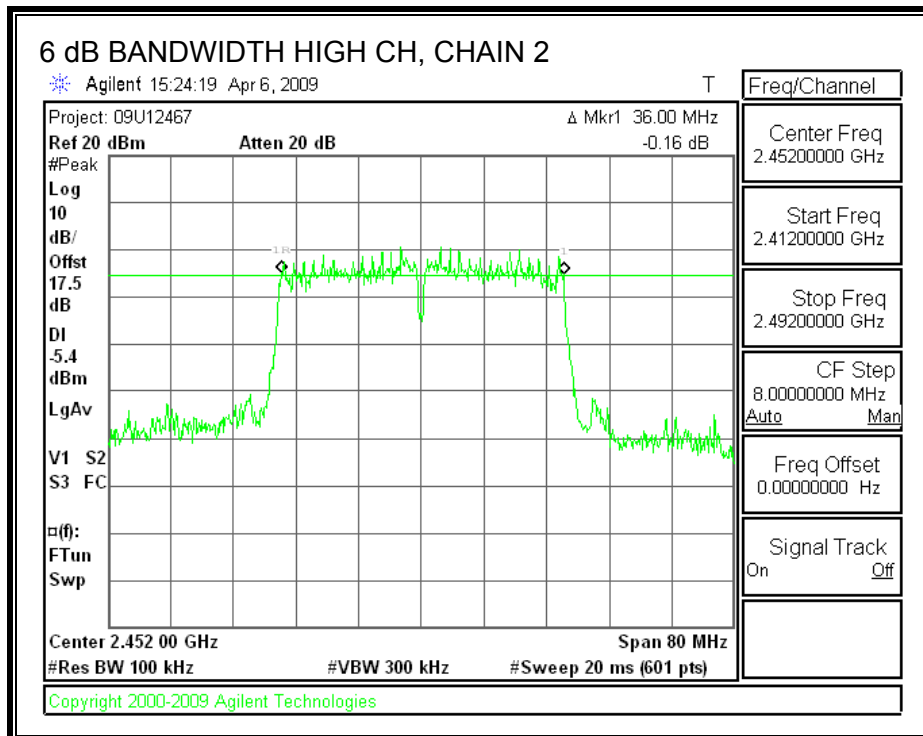
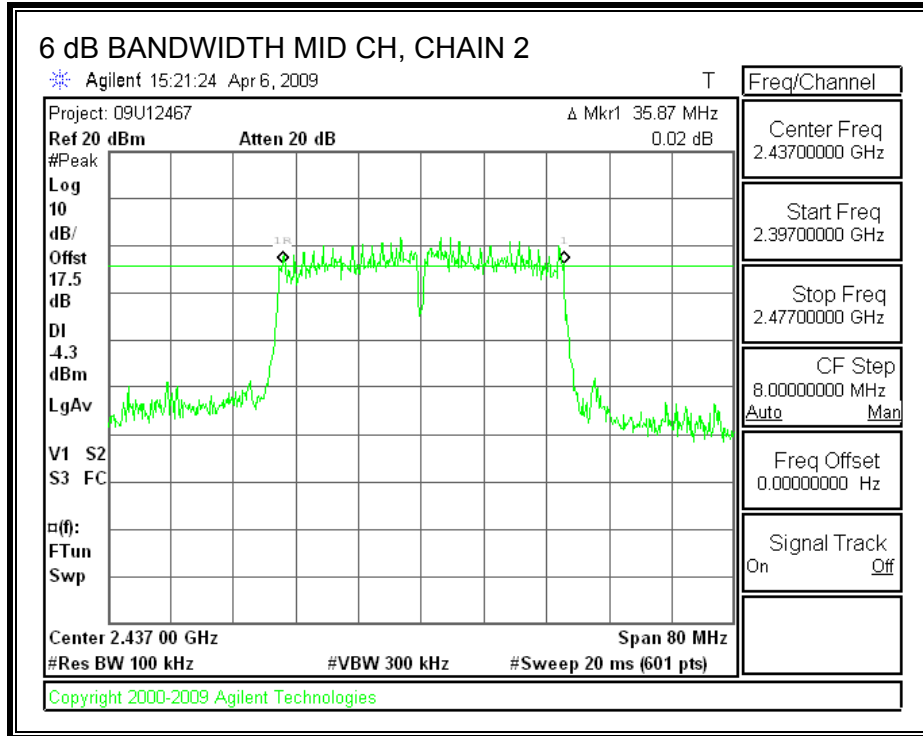
6 dB BANDWIDTH, CHAIN 1





6 dB BANDWIDTH, CHAIN 2





7.5.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

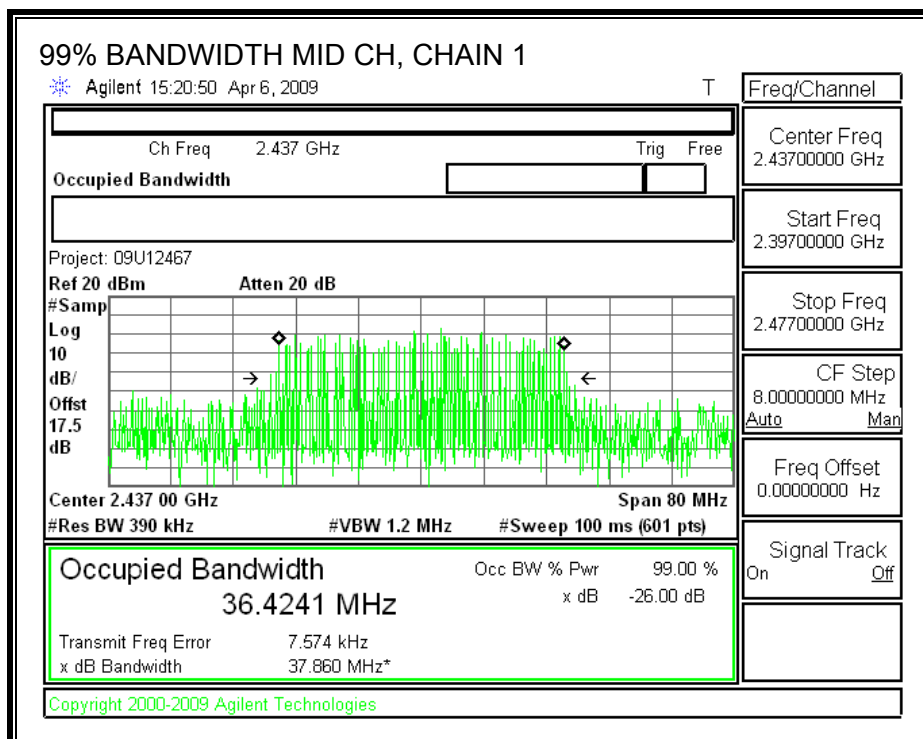
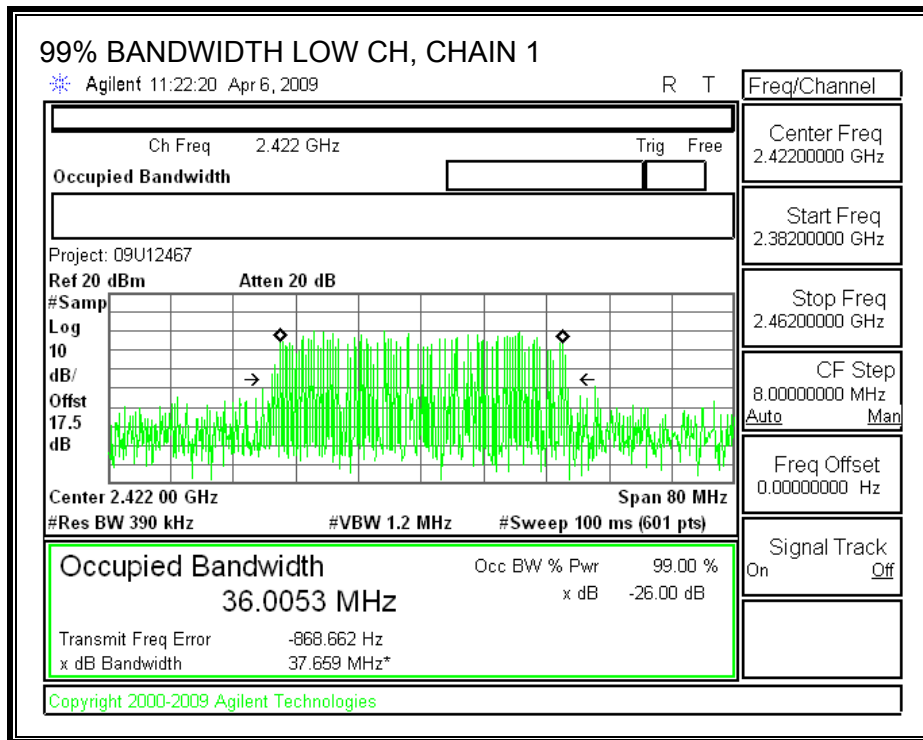
TEST PROCEDURE

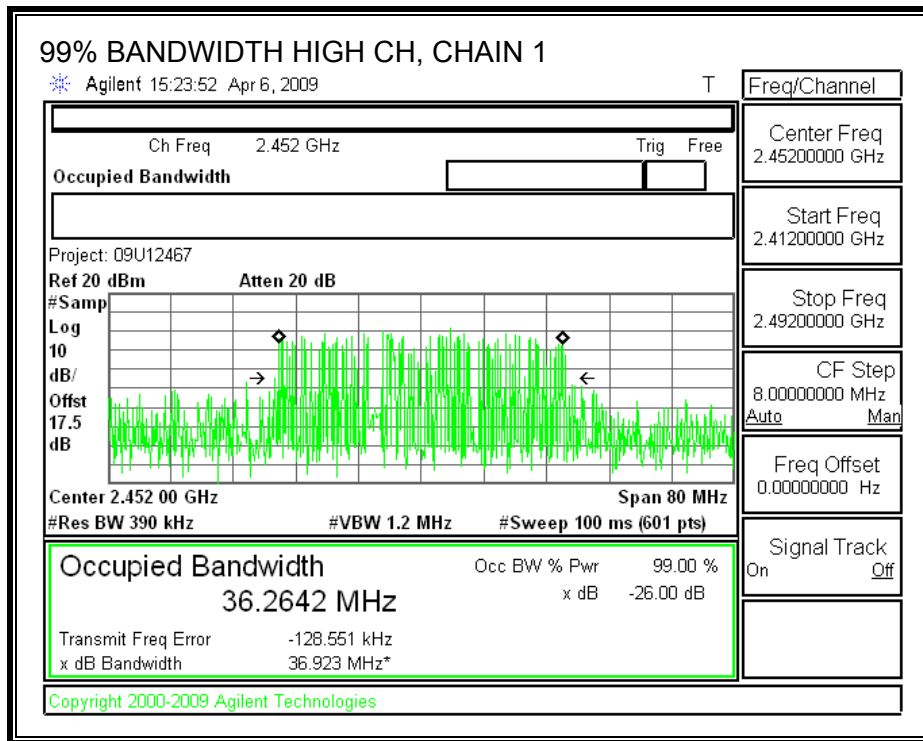
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

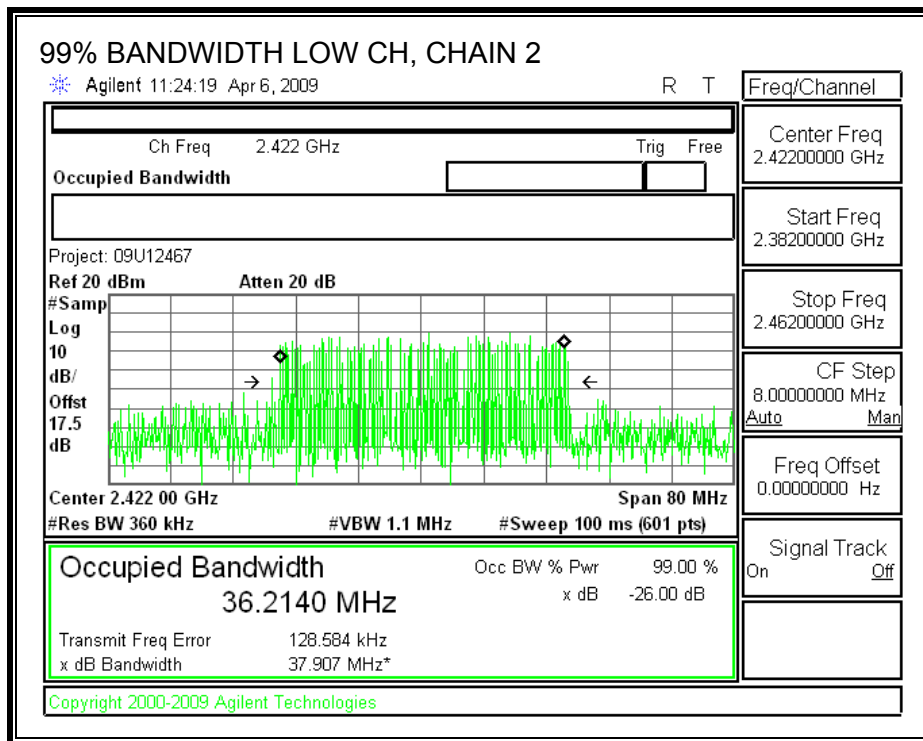
Channel	Frequency (MHz)	Chain 1 99% Bandwidth (MHz)	Chain 2 99% Bandwidth (MHz)
Low	2422	36.0053	36.2140
Middle	2437	36.4241	36.5357
High	2457	36.2642	36.3977

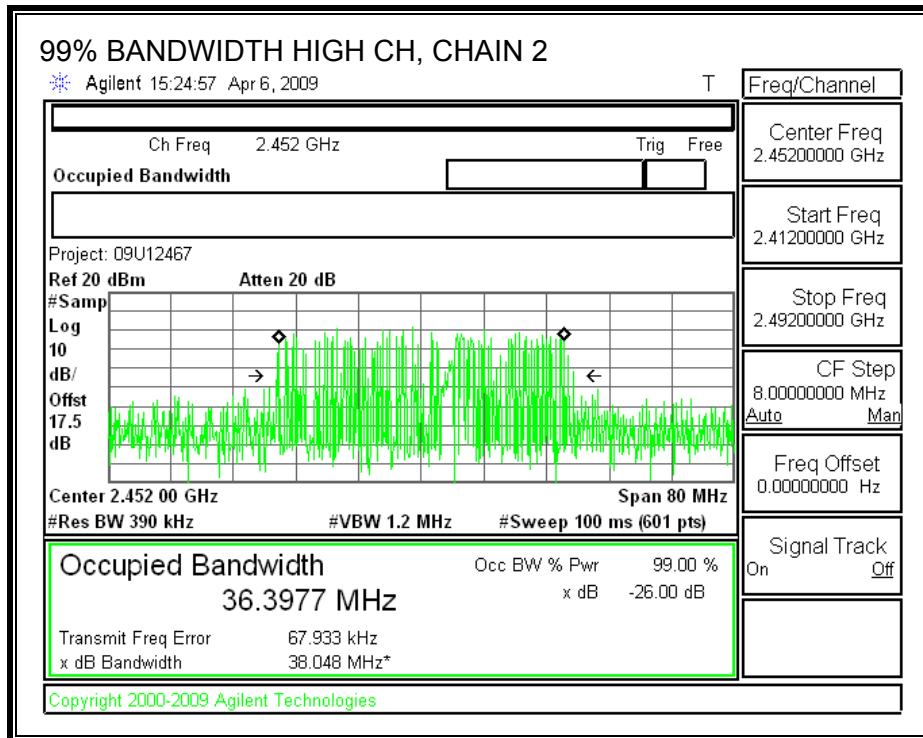
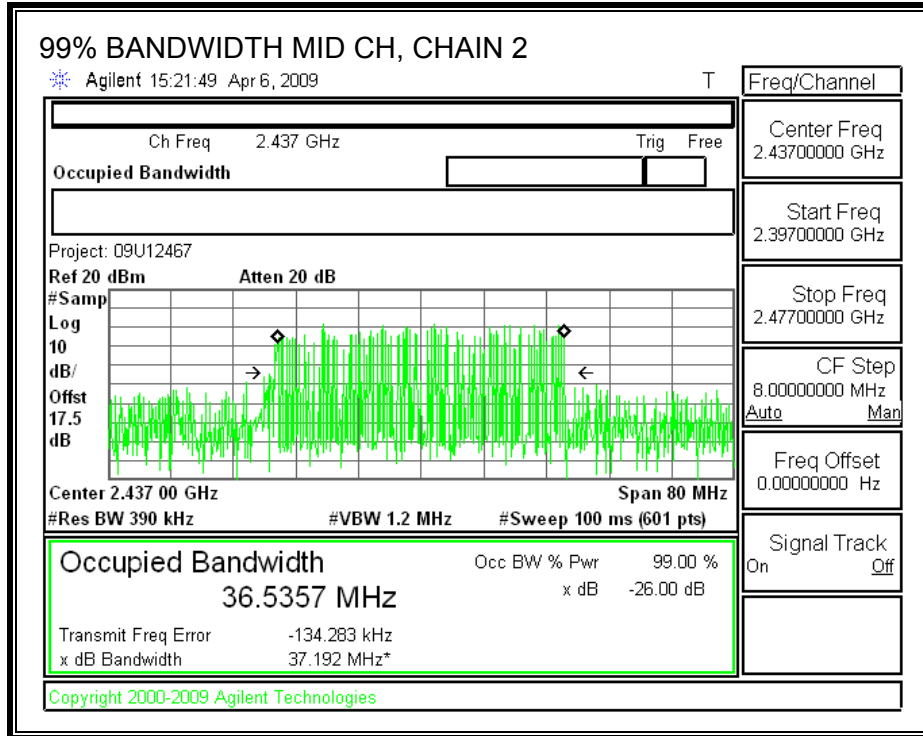
99% BANDWIDTH, CHAIN 1





99% BANDWIDTH, CHAIN 2





7.5.3. OUTPUT POWER

LIMITS

FCC §15.247 (b), IC RSS-210 A8.4, LP0002 § 3.10.1 (2) (2.3); (3) (3.1.1)
The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 11.3 dB (including 10 dB pad and 1.3 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	Limit (dBm)	Chain 1 Power (dBm)	Chain 2 Power (dBm)	Total Power (dBm)	Margin (dB)
Low	2422	30.00	21.14	21.58	24.38	-5.62
Low	2427	30.00	21.61	21.56	24.60	-5.40
Mid	2437	30.00	22.82	22.61	25.73	-4.27
High	2452	30.00	22.50	22.35	25.43	-4.57
High	2452	30.00	21.93	22.19	25.07	-4.93

7.5.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e), IC RSS-210 A8.2 (b), 3.10.1 (6) (6.2.2)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

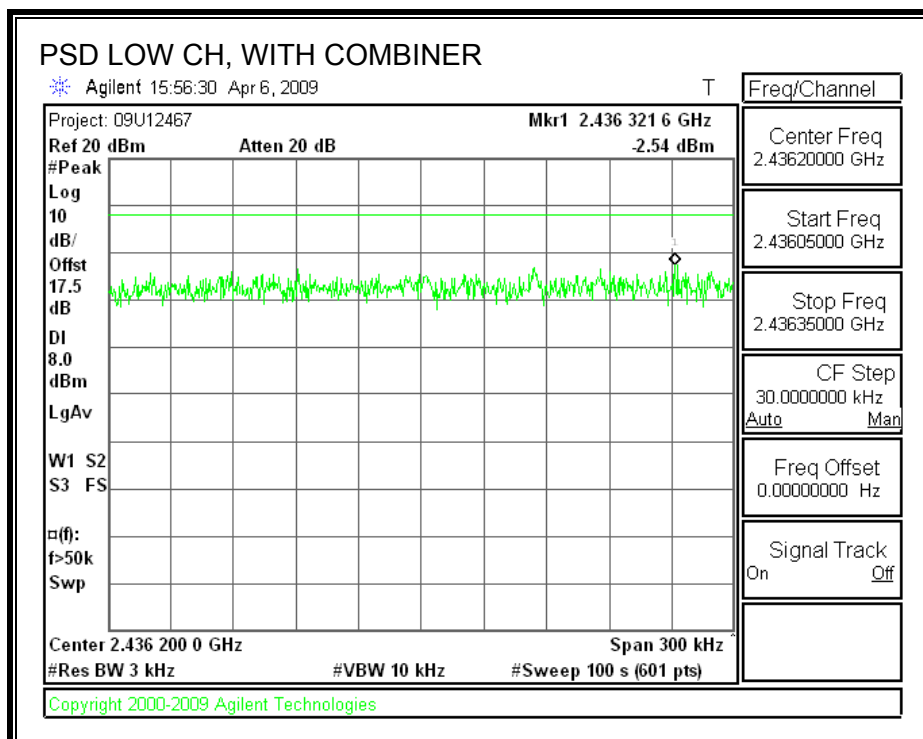
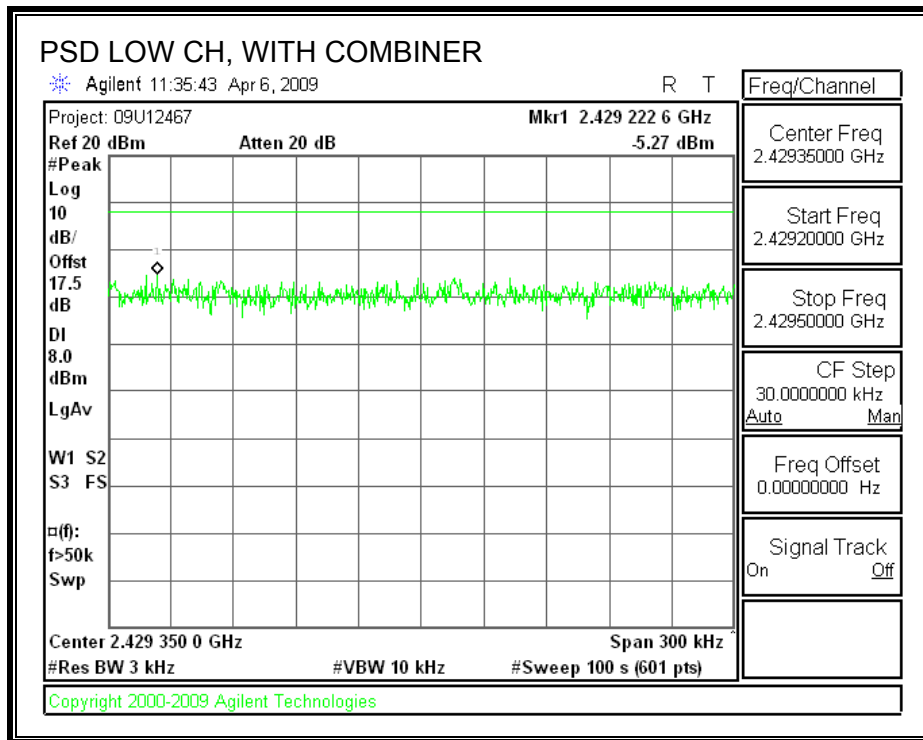
TEST PROCEDURE

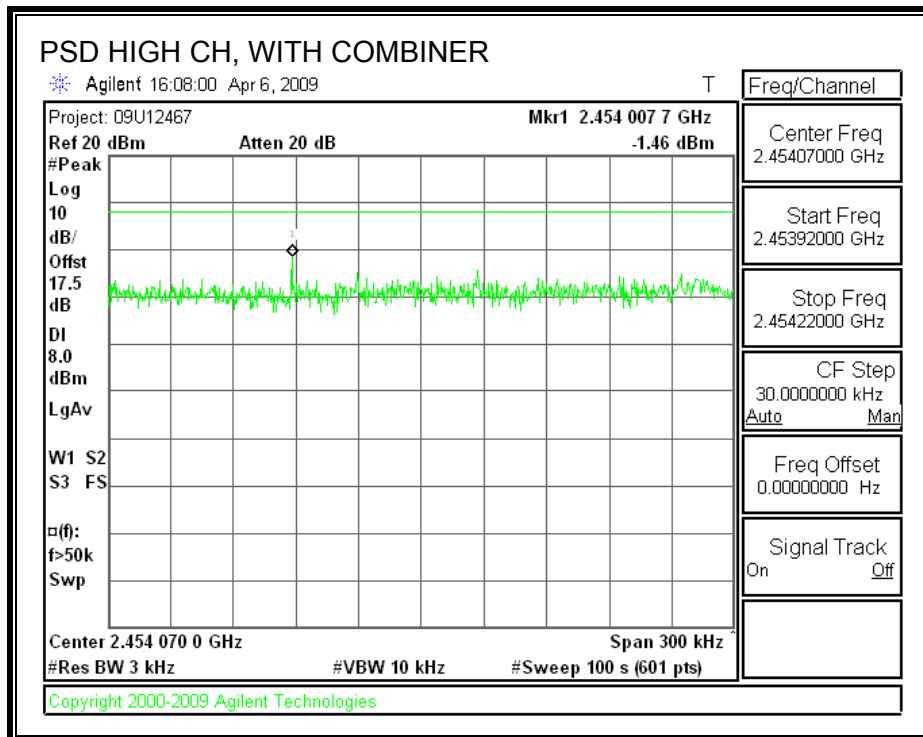
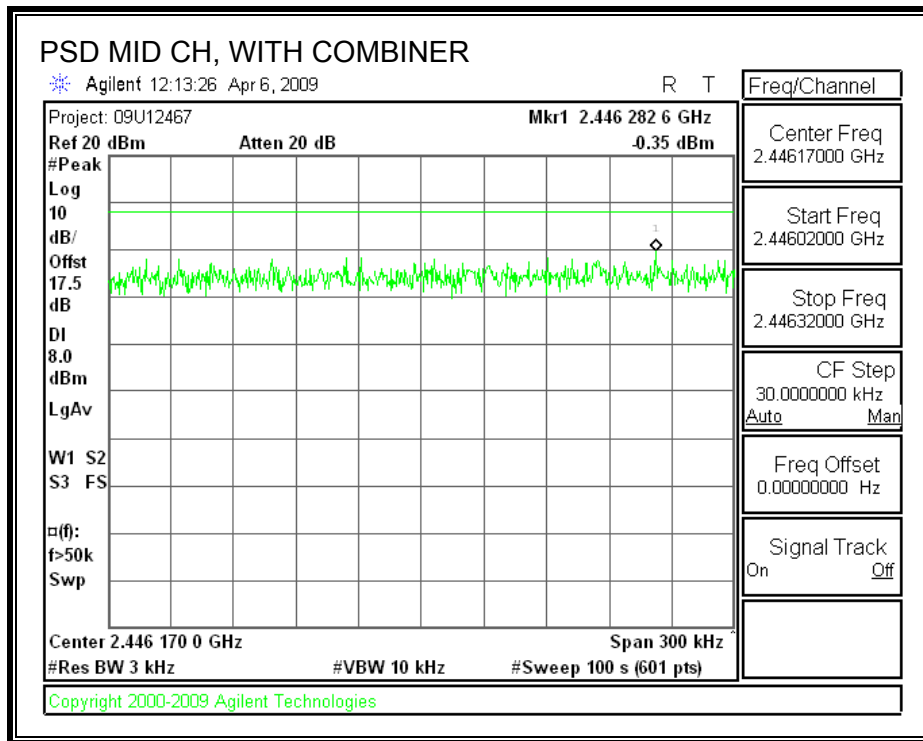
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

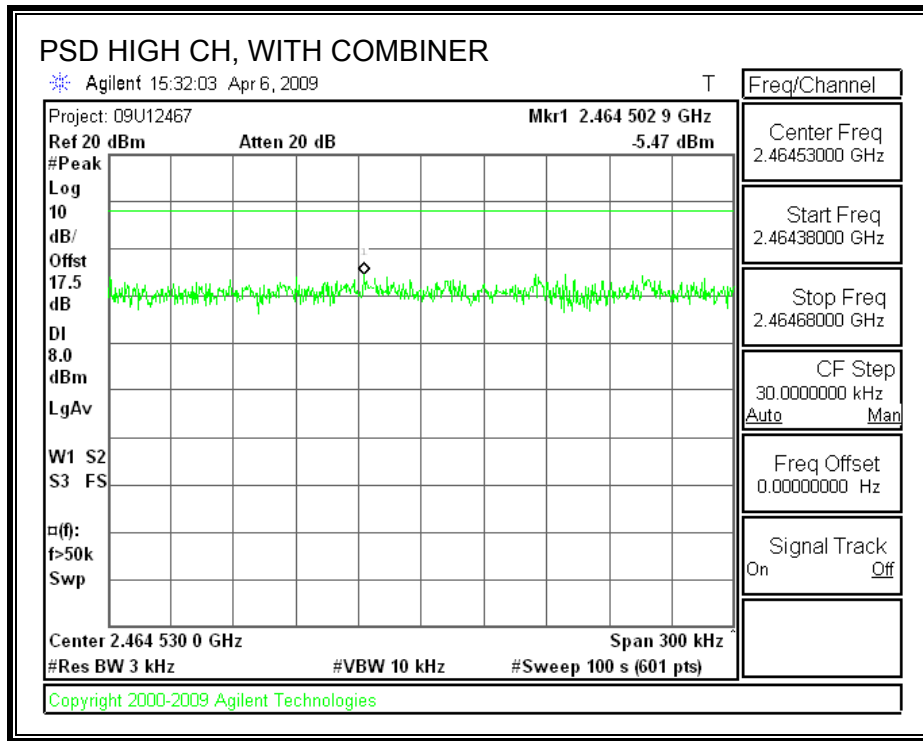
RESULTS

Channel	Frequency (MHz)	PSD with Combiner (dBm)	Limit (dBm)	Margin (dB)
Low	2422	-5.27	8	-13.27
Low	2427	-2.54	8	-10.54
Middle	2437	-0.35	8	-8.35
High	2447	-1.46	8	-9.46
High	2452	-5.47	8	-13.47

POWER SPECTRAL DENSITY, WITH COMBINER







7.5.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d), IC RSS-210 A8.5, LP0002 § 3.10.1 (5)

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

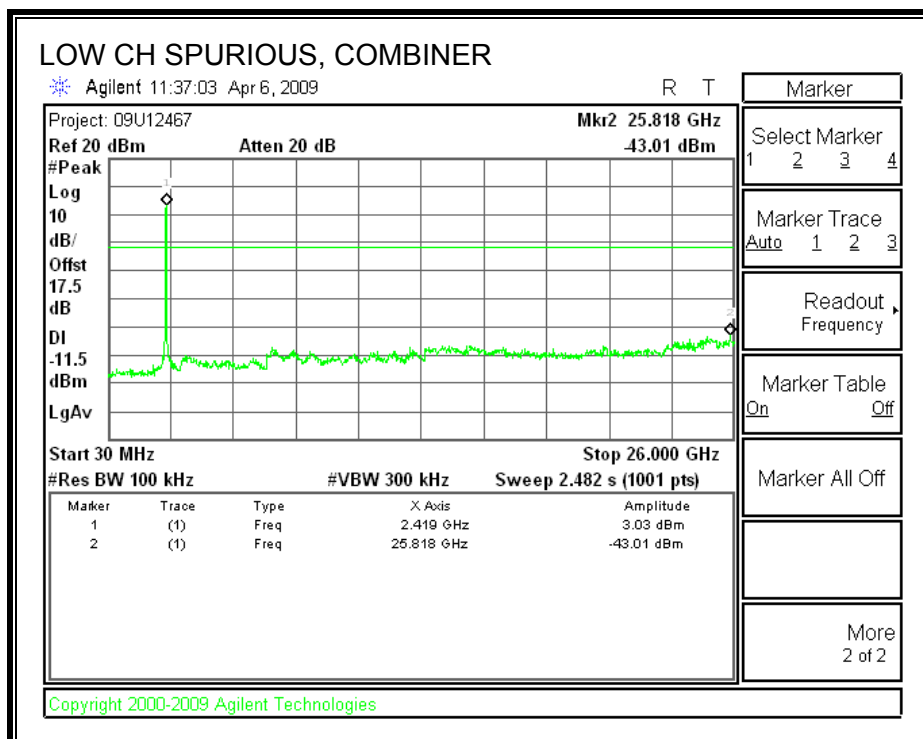
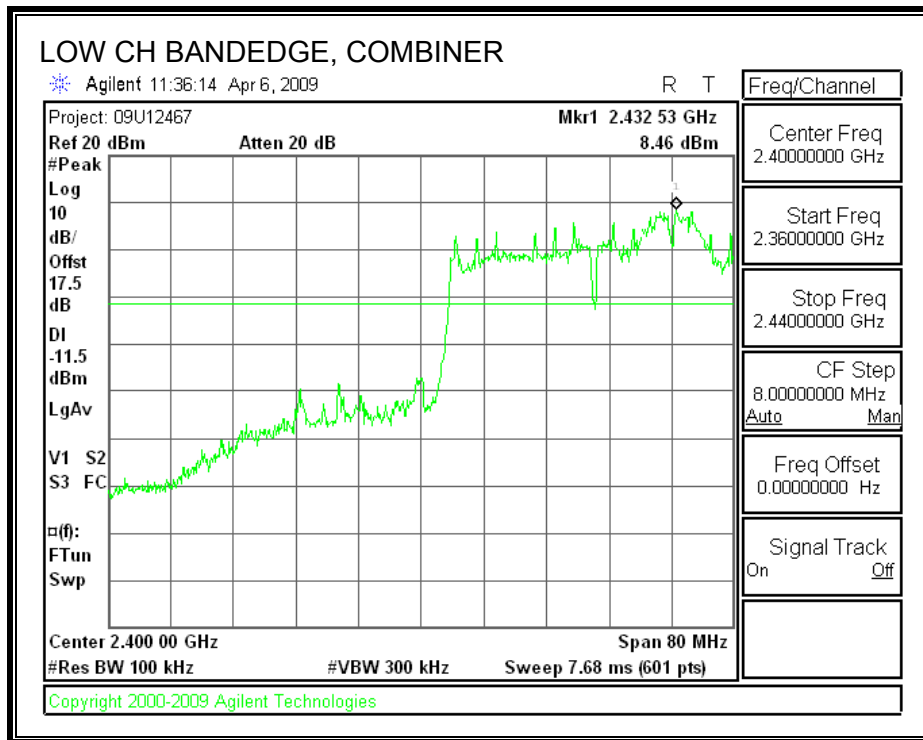
TEST PROCEDURE

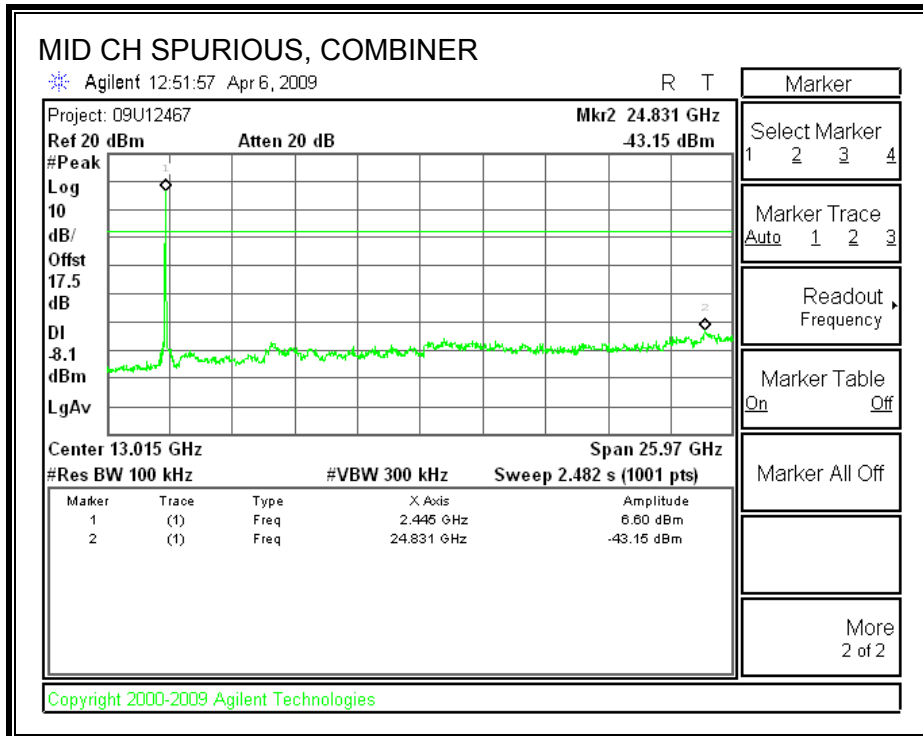
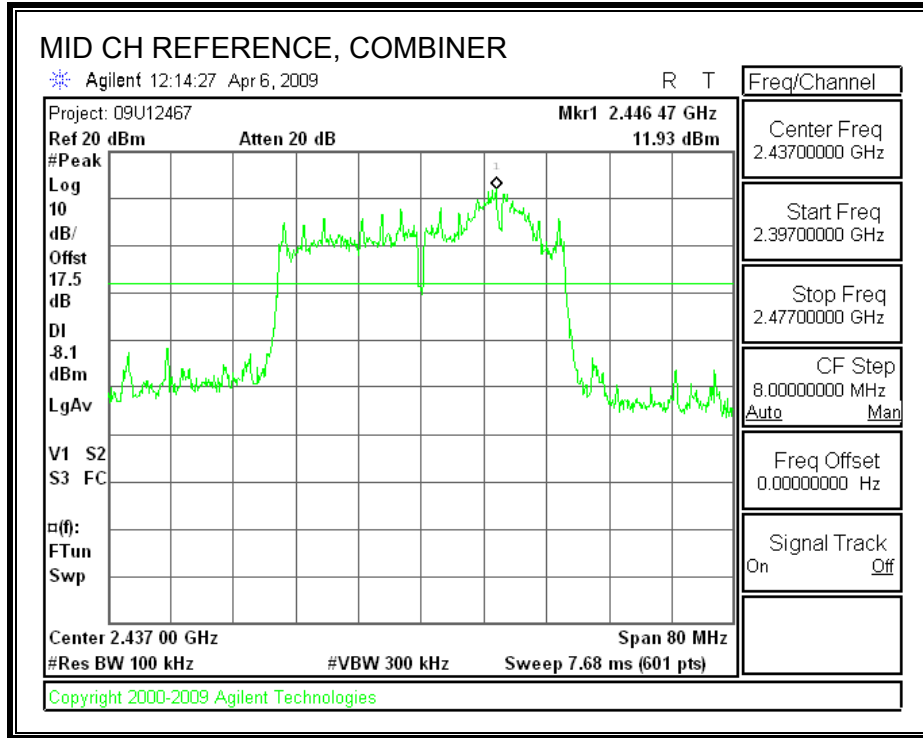
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

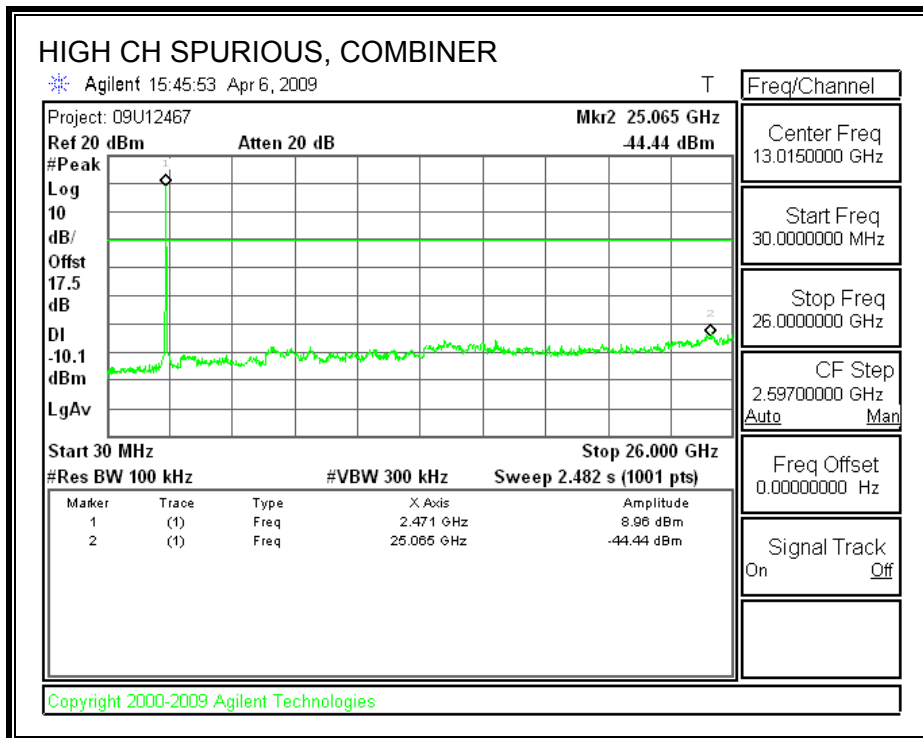
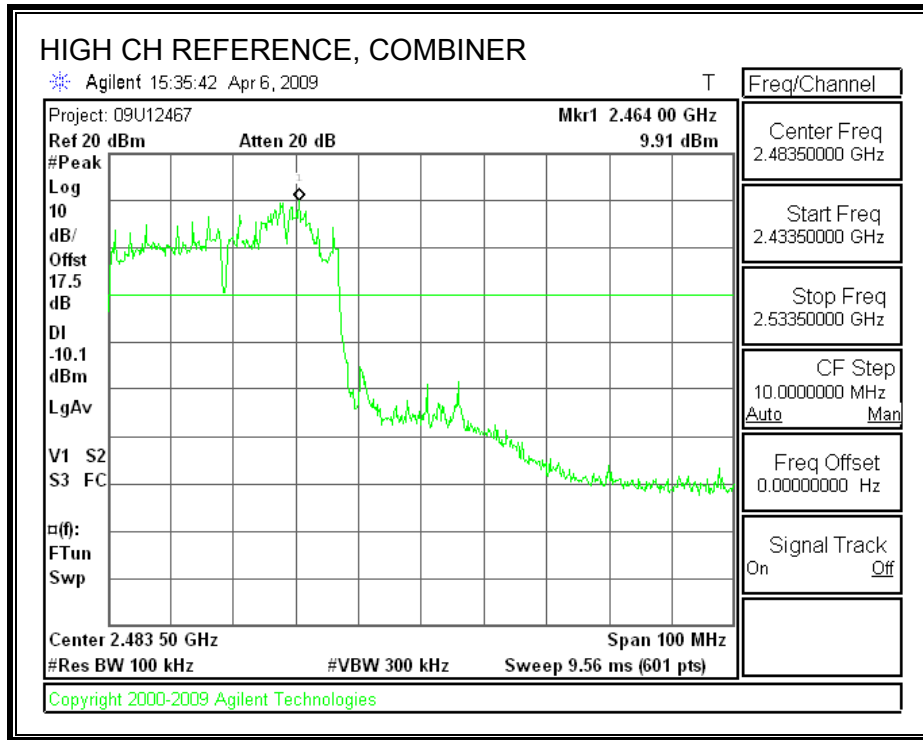
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

COMBINER SPURIOUS EMISSIONS







8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

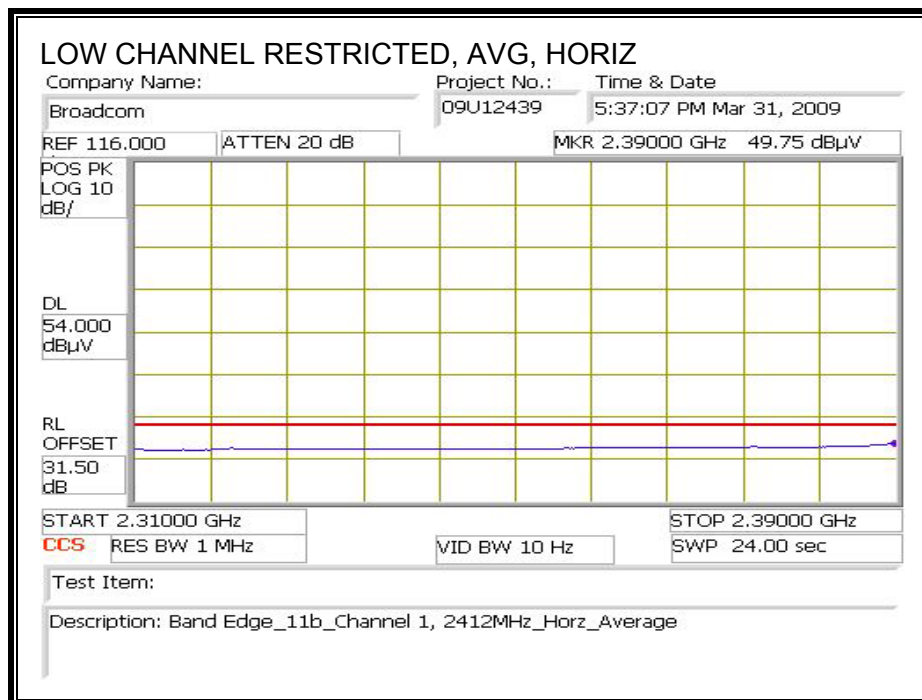
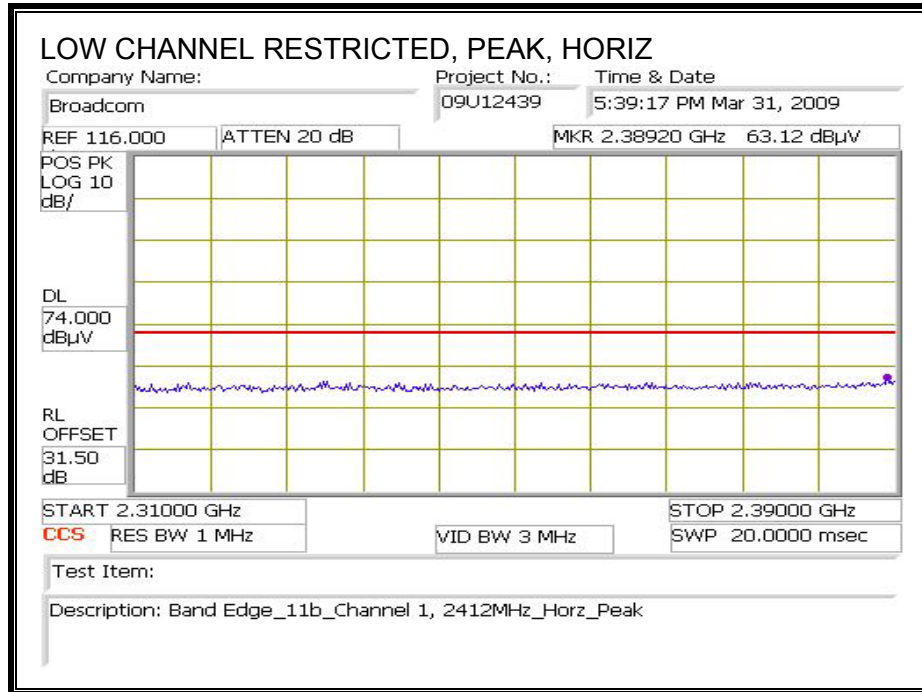
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

8.2. TRANSMITTER ABOVE 1 GHz

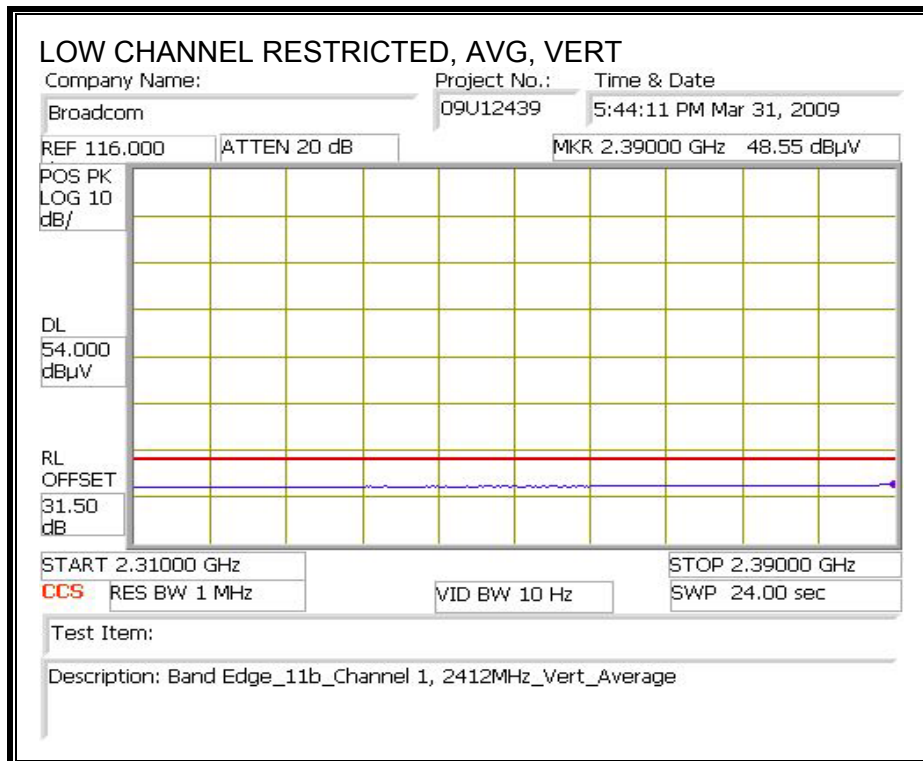
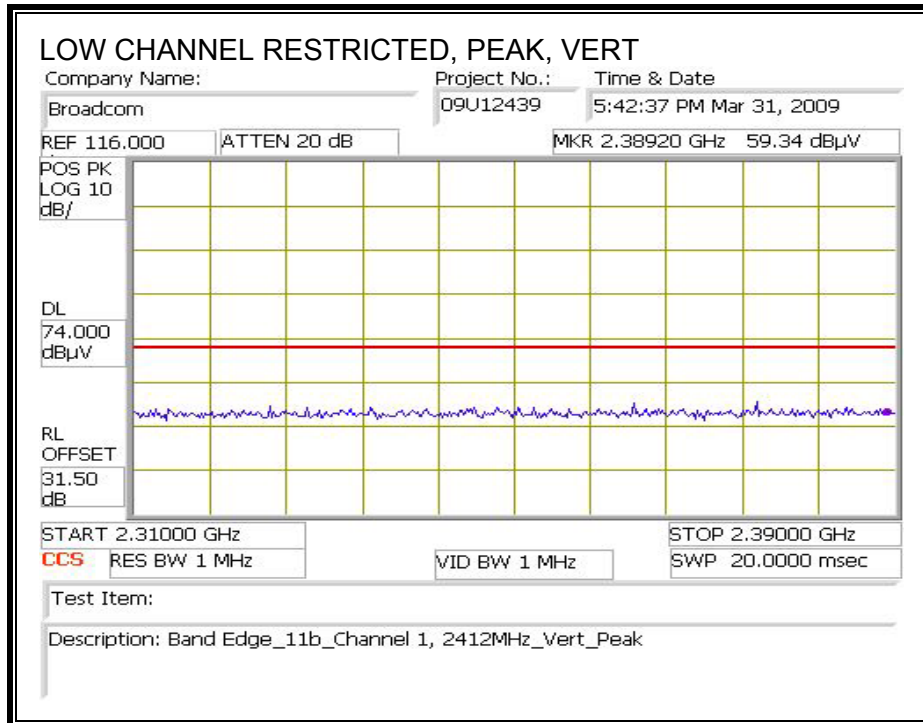
8.2.1. 802.11b MODE

CHANNEL 1, 2412MHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

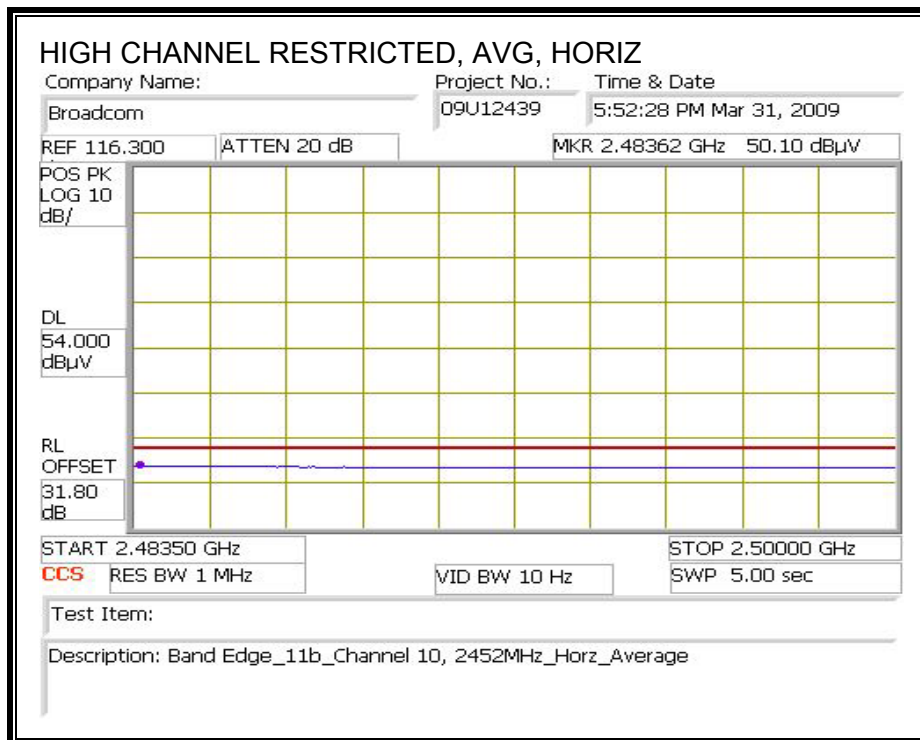
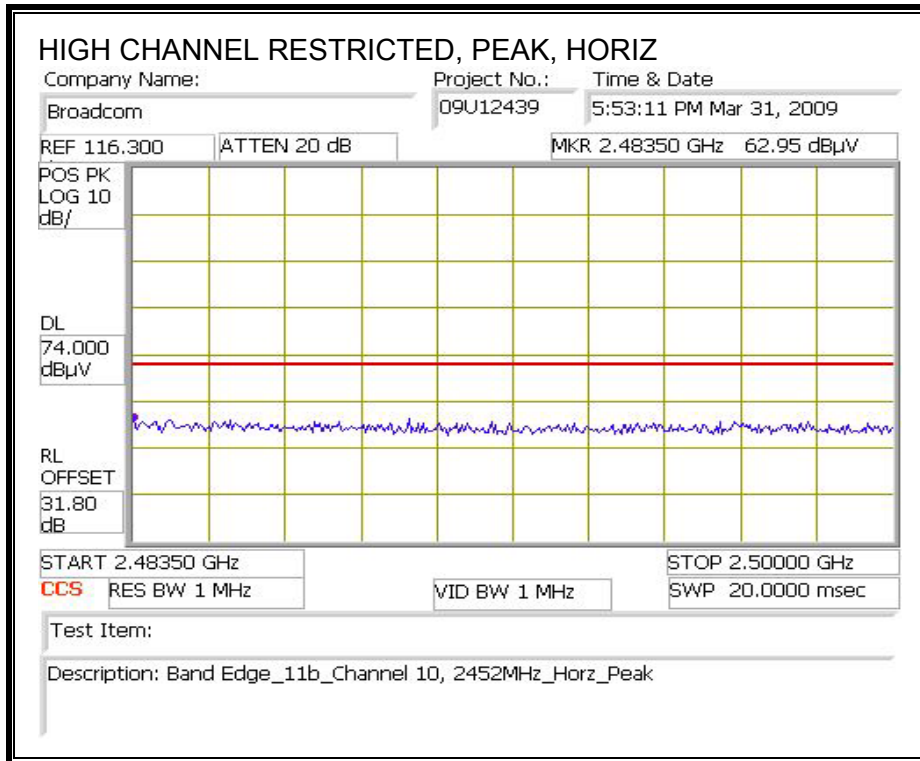


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

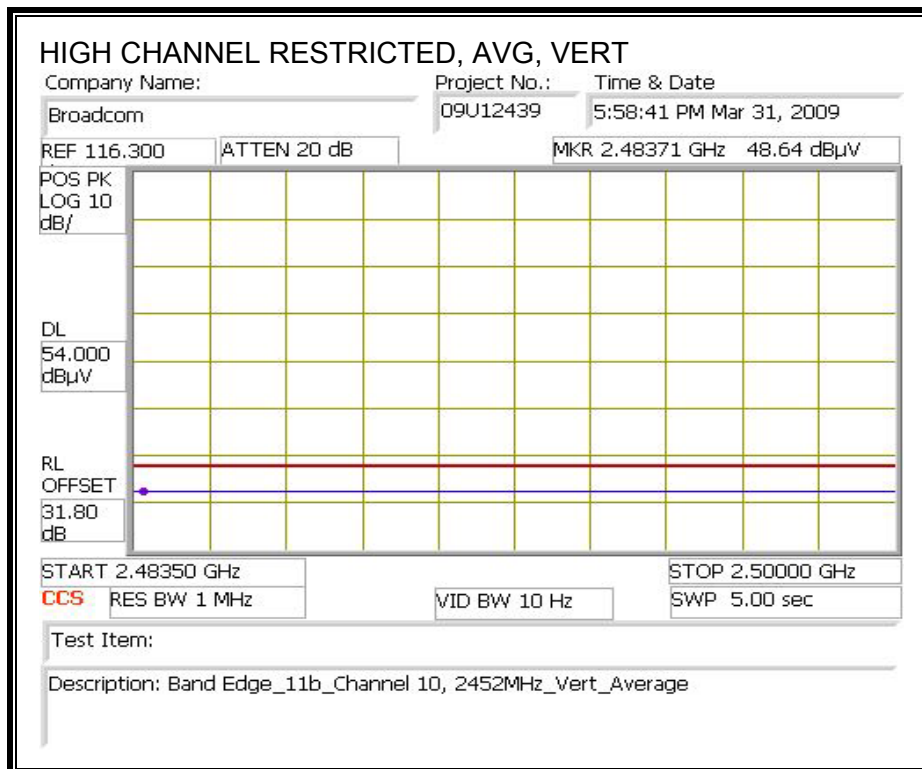
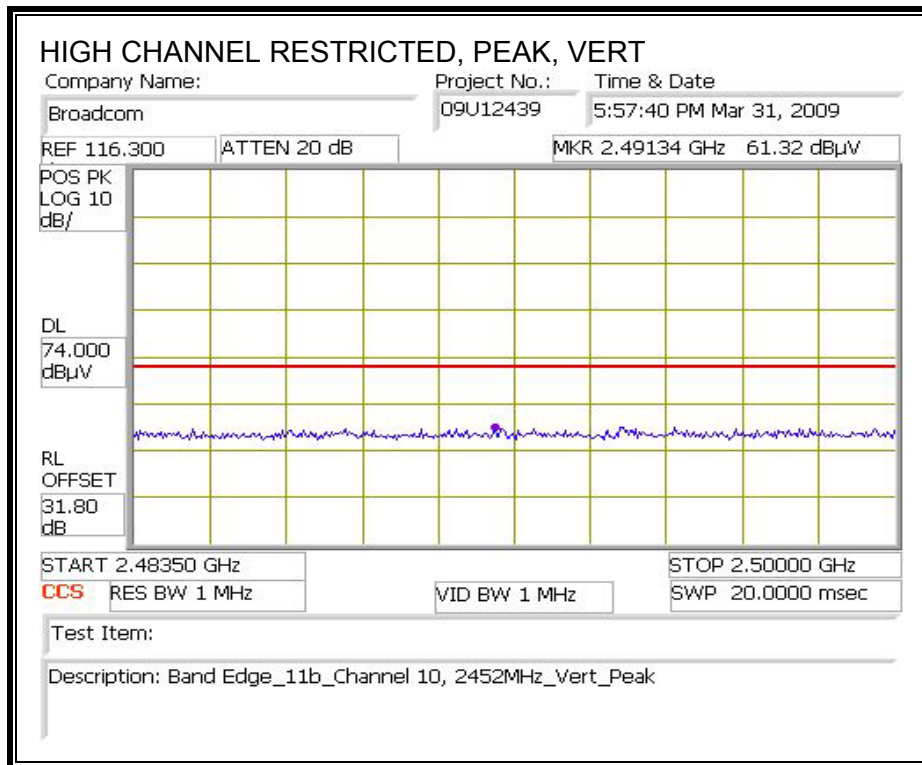


CHANNEL 10, 2457MHz

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

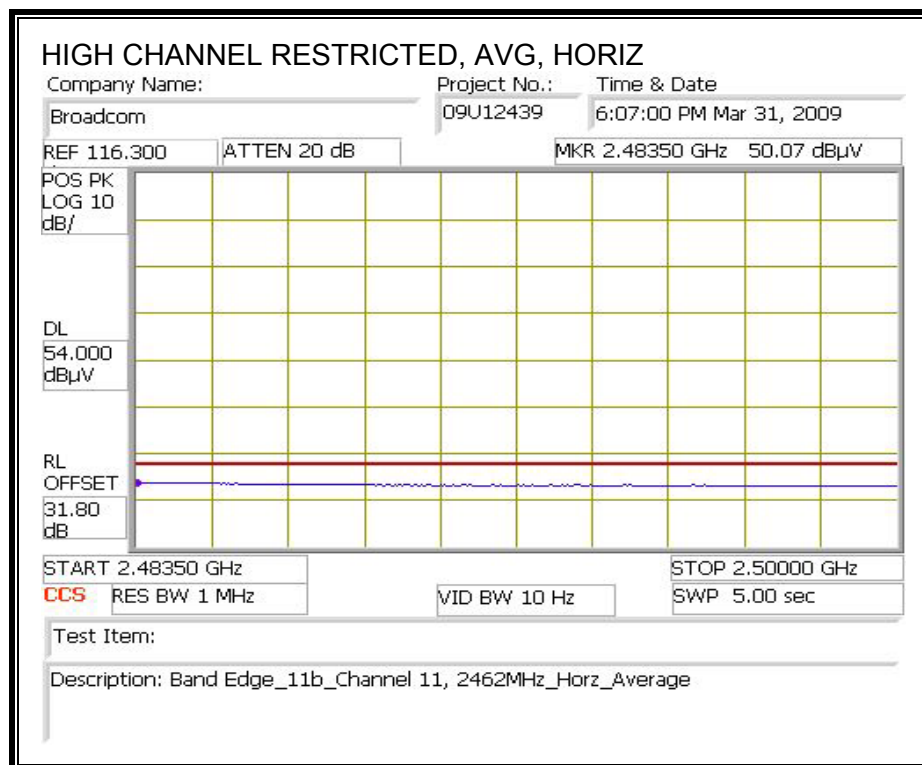
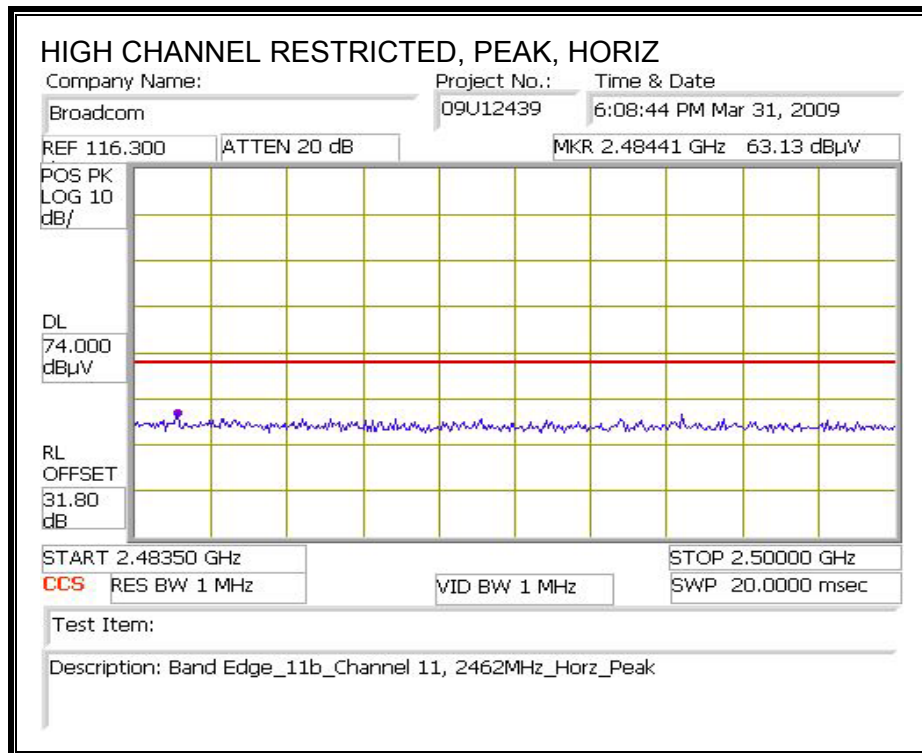


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

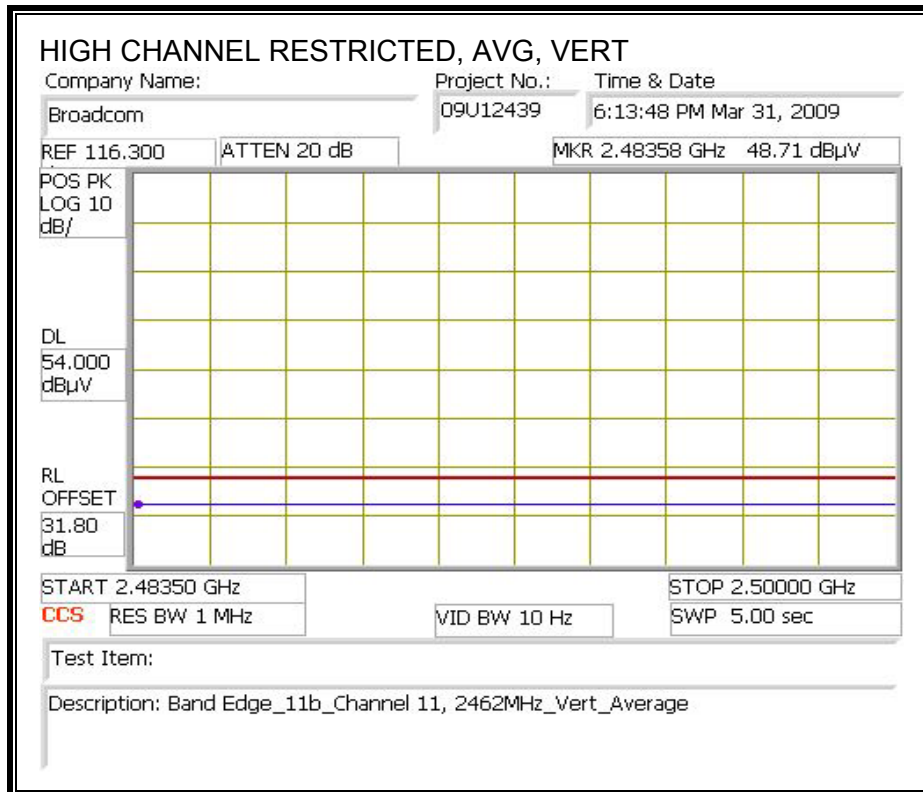
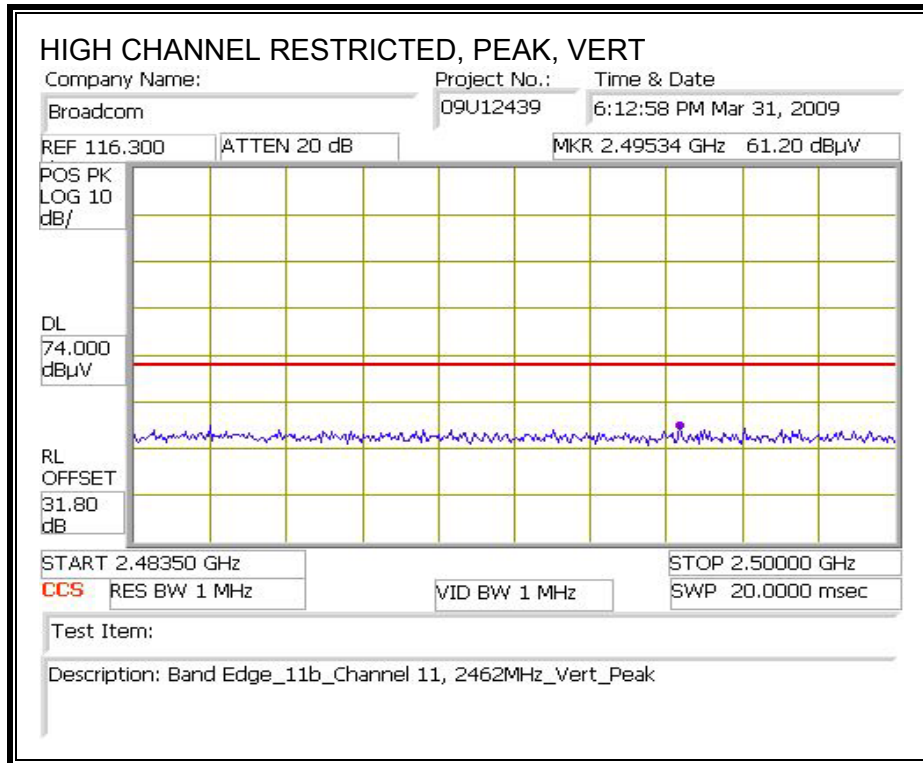


CHANNEL 11, 2462MHz

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 3m Chamber

Company: Broadcom
 Project #: 09U12467
 Date: 03/31/09
 Test Engineer: Vien Tran
 Configuration: Access Point / Laptop
 Mode: Tx 11b Mode

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T60; S/N: 2238 @3m	T34 HP 8449B			FCC 15.205

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz ; VBW=10Hz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	

f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
Low Channel, 2412MHz															
4.824	3.0	52.0	49.5	32.7	5.8	-34.8	0.0	0.0	55.6	53.1	74	54	-18.4	-0.9	H
4.824	3.0	50.1	46.9	32.7	5.8	-34.8	0.0	0.0	53.7	50.5	74	54	-20.3	-3.5	V
Mid channel, 2437MHz															
4.874	3.0	52.2	49.5	32.7	5.8	-34.8	0.0	0.0	55.9	53.3	74	54	-18.1	-0.7	H
7.311	3.0	49.7	44.7	35.5	7.3	-34.1	0.0	0.0	58.3	53.3	74	54	-15.7	-0.7	H
4.874	3.0	49.8	47.4	32.7	5.8	-34.8	0.0	0.0	53.5	51.1	74	54	-20.5	-2.9	V
7.311	3.0	47.8	40.5	35.5	7.3	-34.1	0.0	0.0	56.4	49.1	74	54	-17.6	-4.9	V
High channel, 2462MHz															
4.924	3.0	48.9	45.6	32.7	5.9	-34.8	0.0	0.0	52.7	49.4	74	54	-21.3	-4.6	H
7.386	3.0	49.5	45.0	35.6	7.3	-34.1	0.0	0.0	58.3	53.8	74	54	-15.7	-0.2	H
4.924	3.0	48.0	43.8	32.7	5.9	-34.8	0.0	0.0	51.8	47.6	74	54	-22.2	-6.4	V
7.386	3.0	45.8	38.8	35.6	7.3	-34.1	0.0	0.0	54.6	47.6	74	54	-19.4	-6.4	V

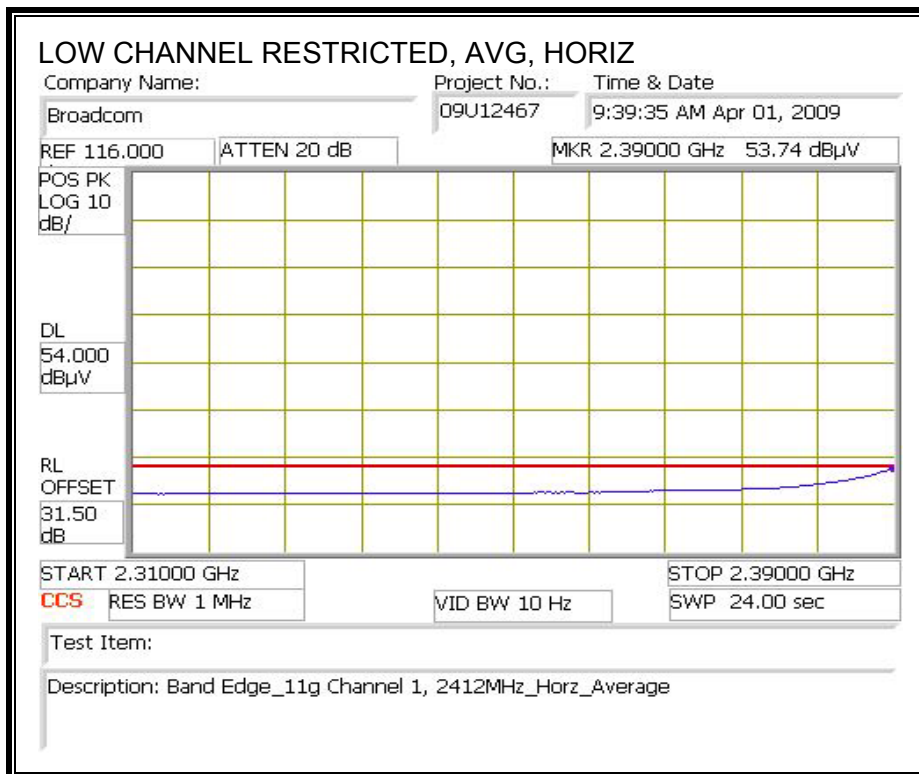
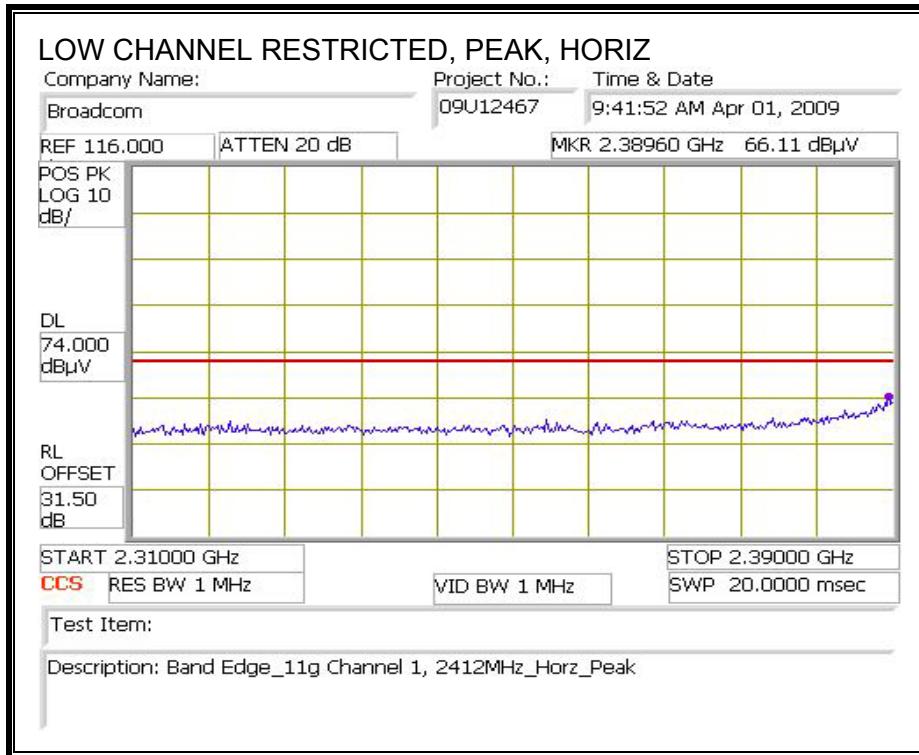
Rev. 03.09.09

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

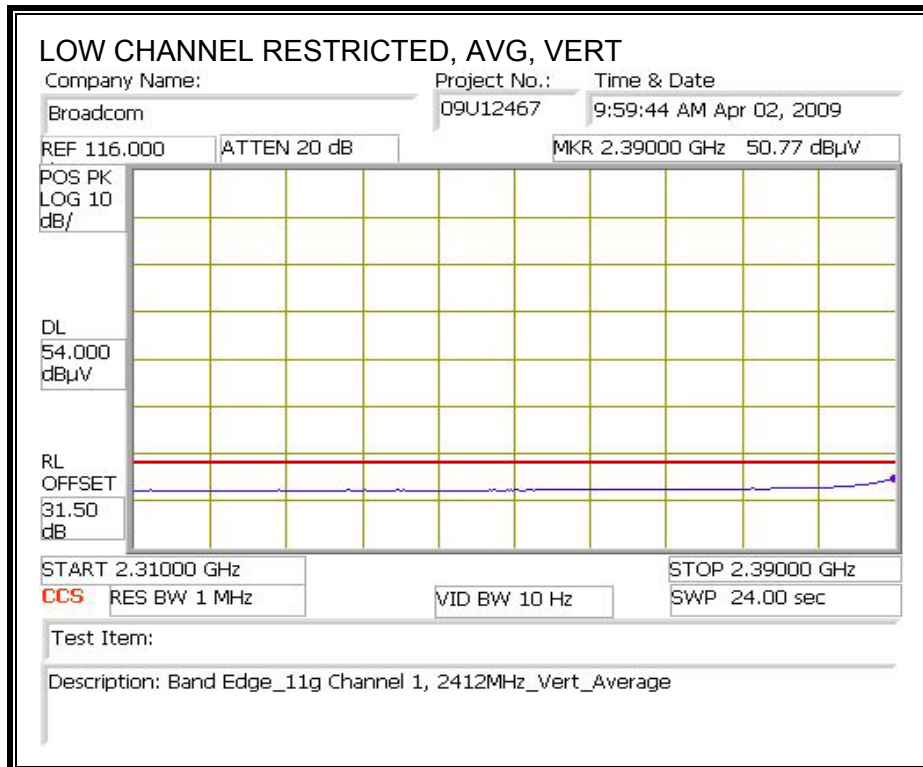
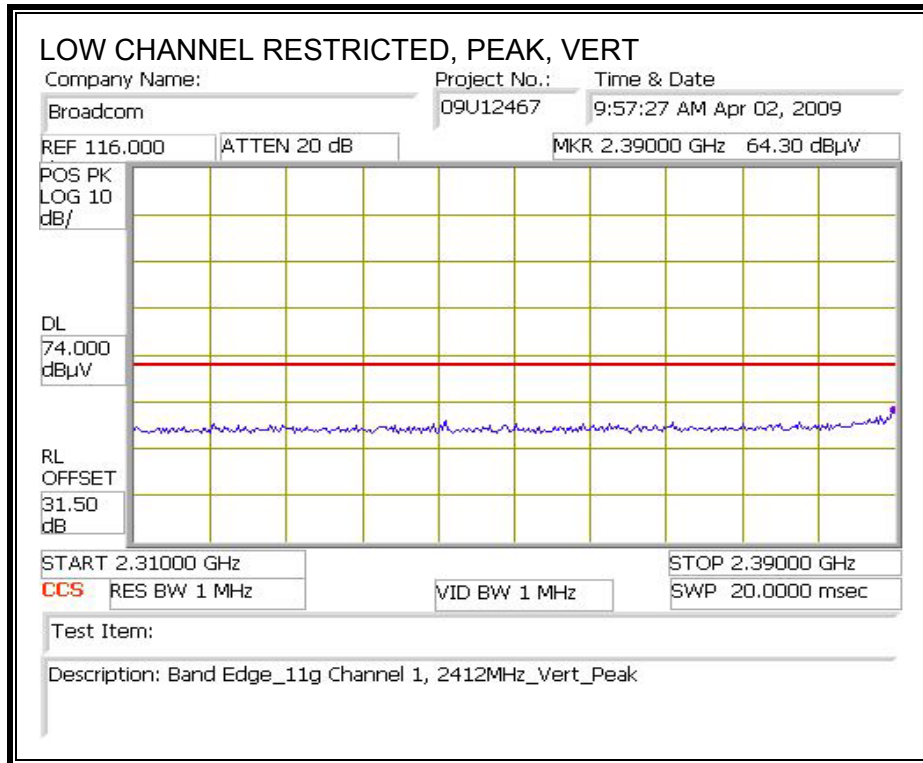
8.2.2. 802.11g MODE

CHANNEL 1, 2412MHz

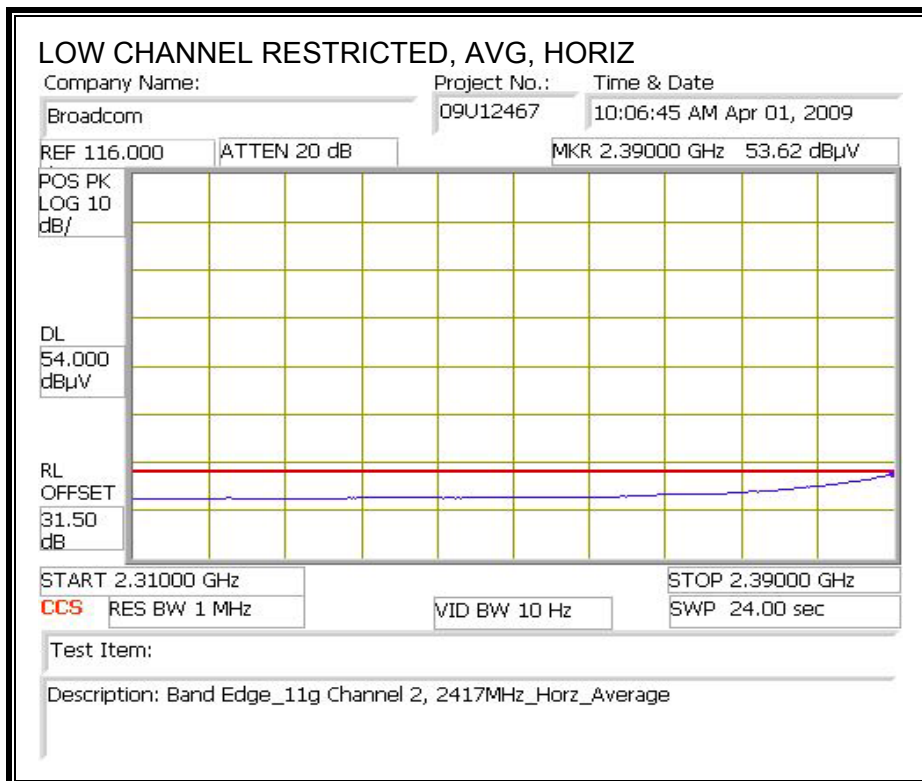
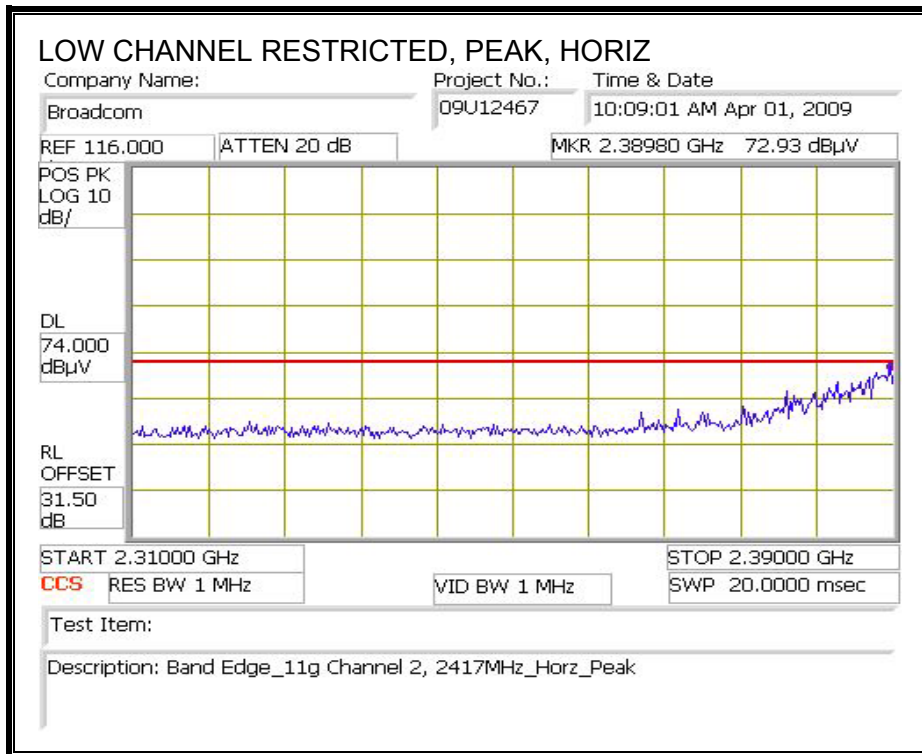
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



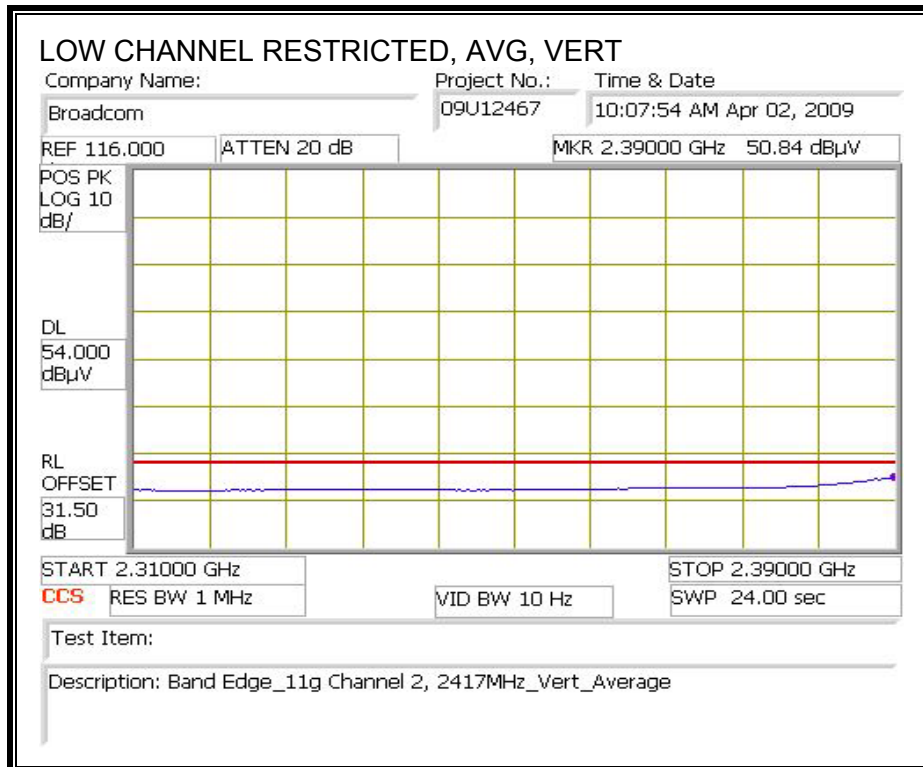
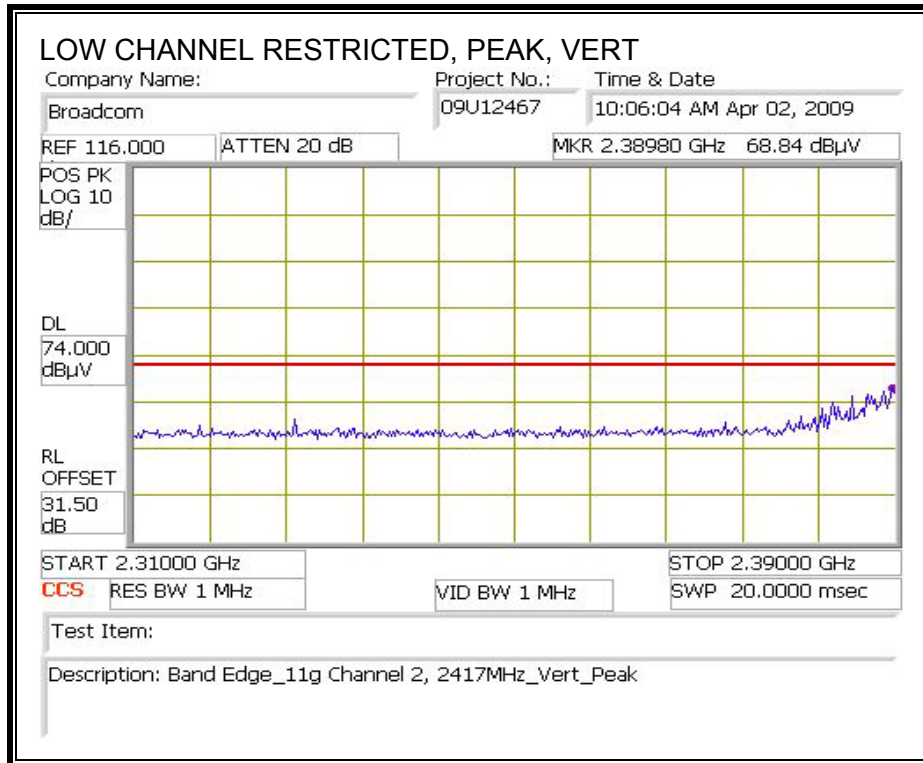
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



CHANNEL 2, 2417MHz
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

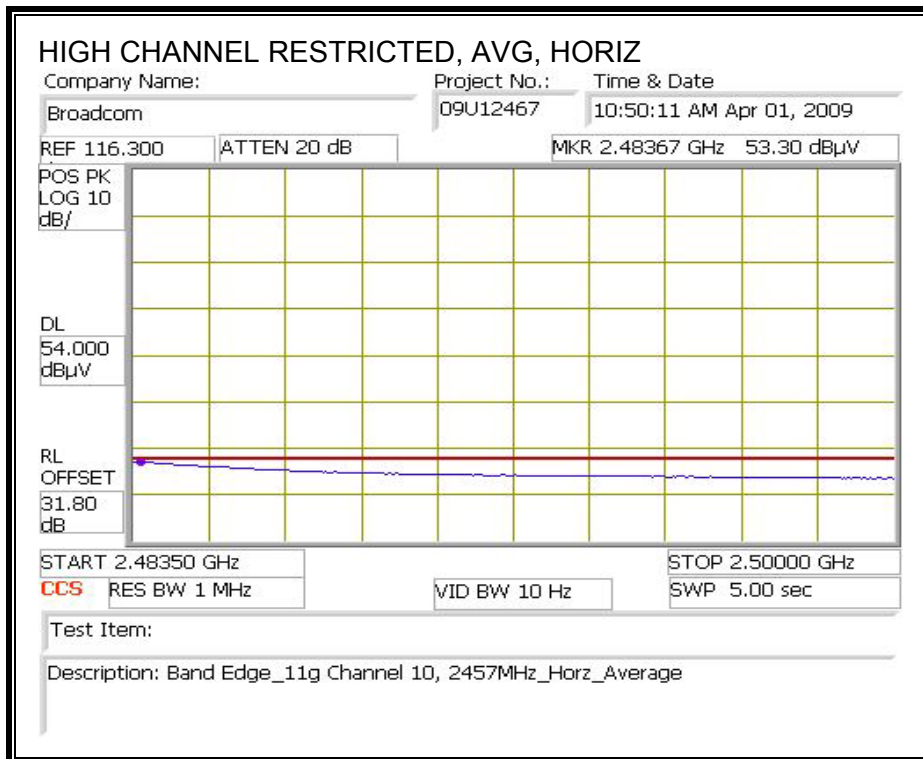
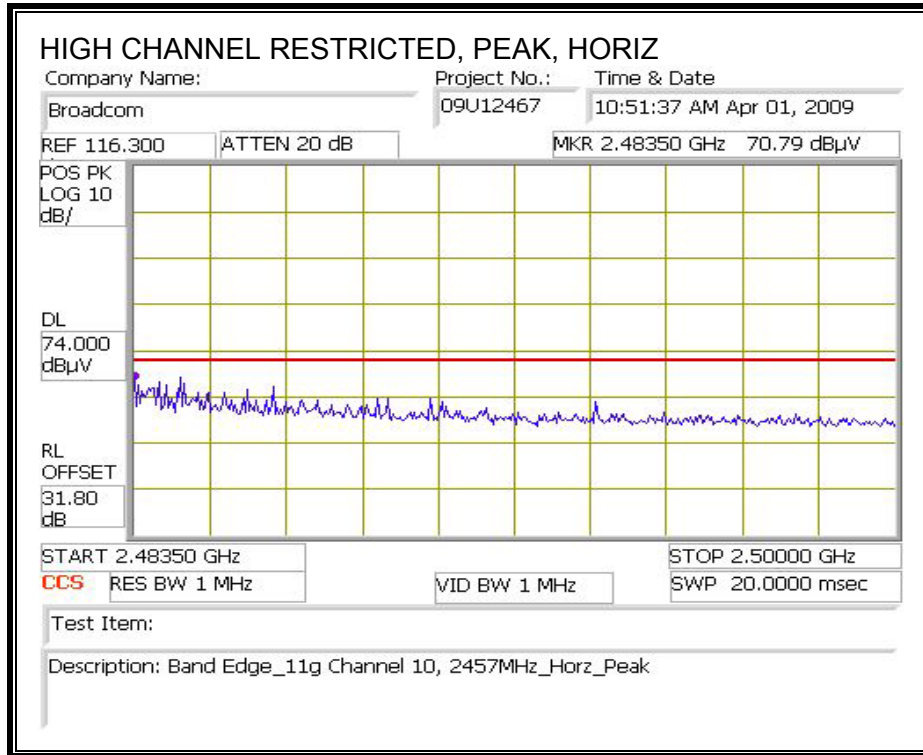


RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)

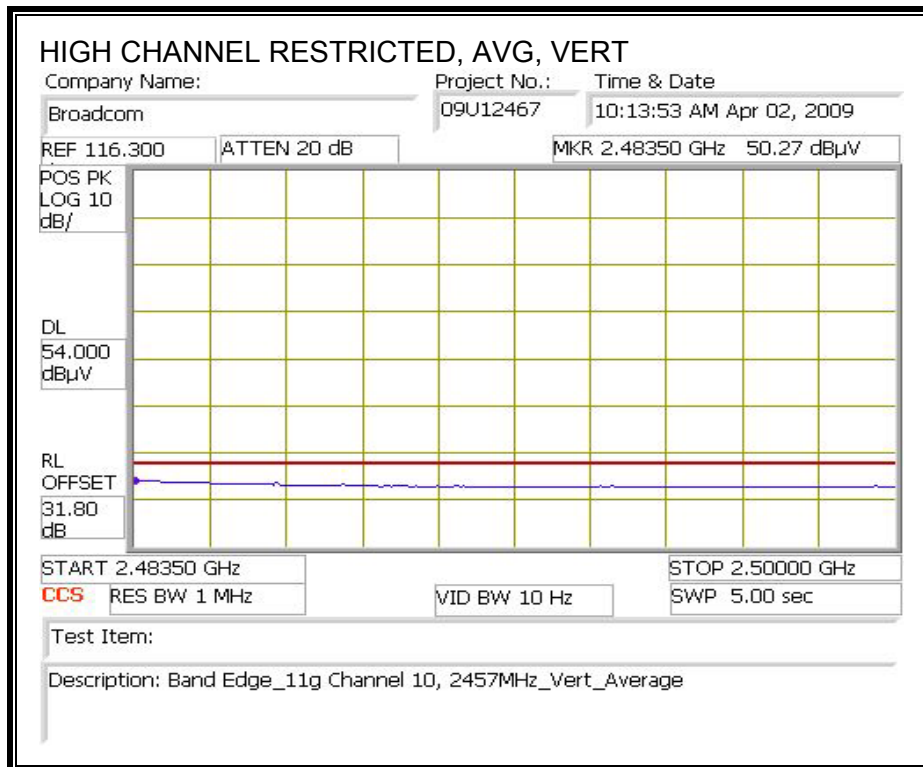
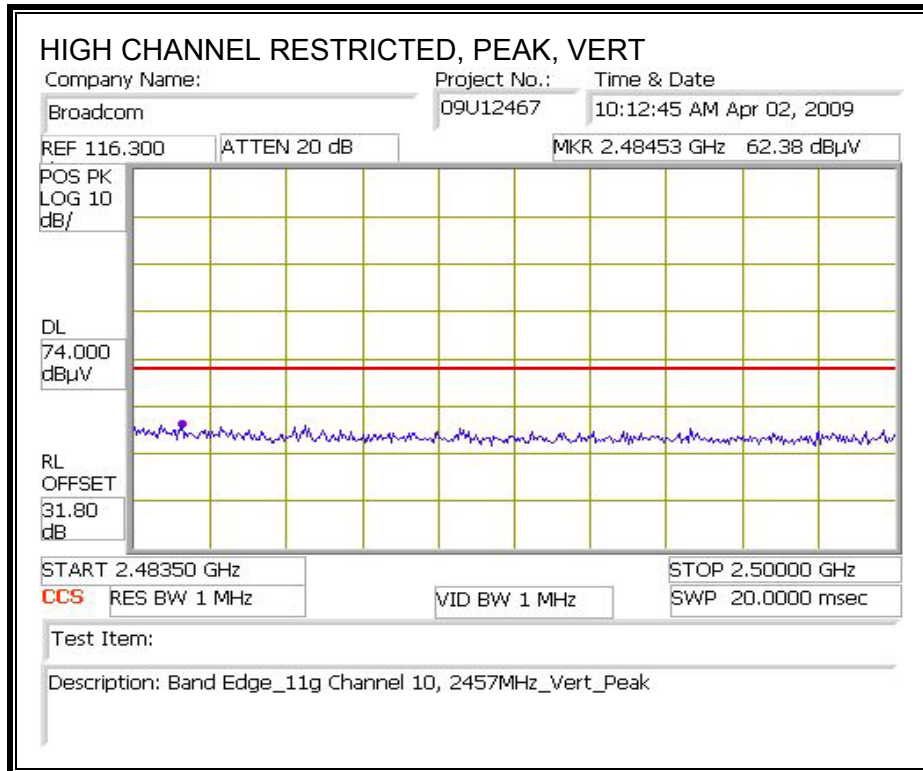


CHANNEL 10, 2457 MHz

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)

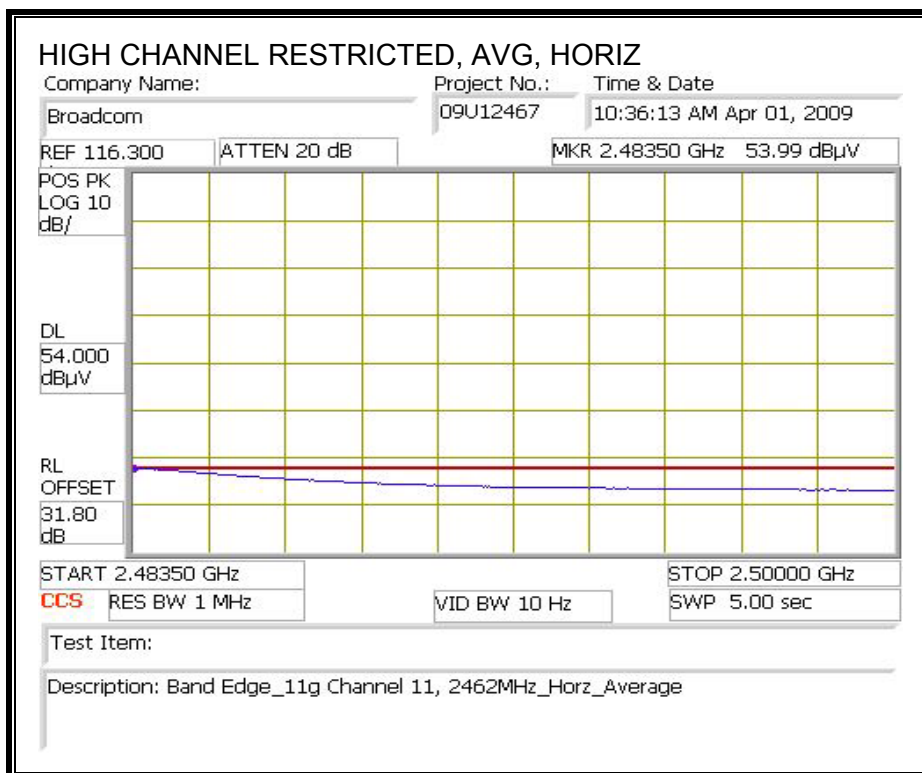
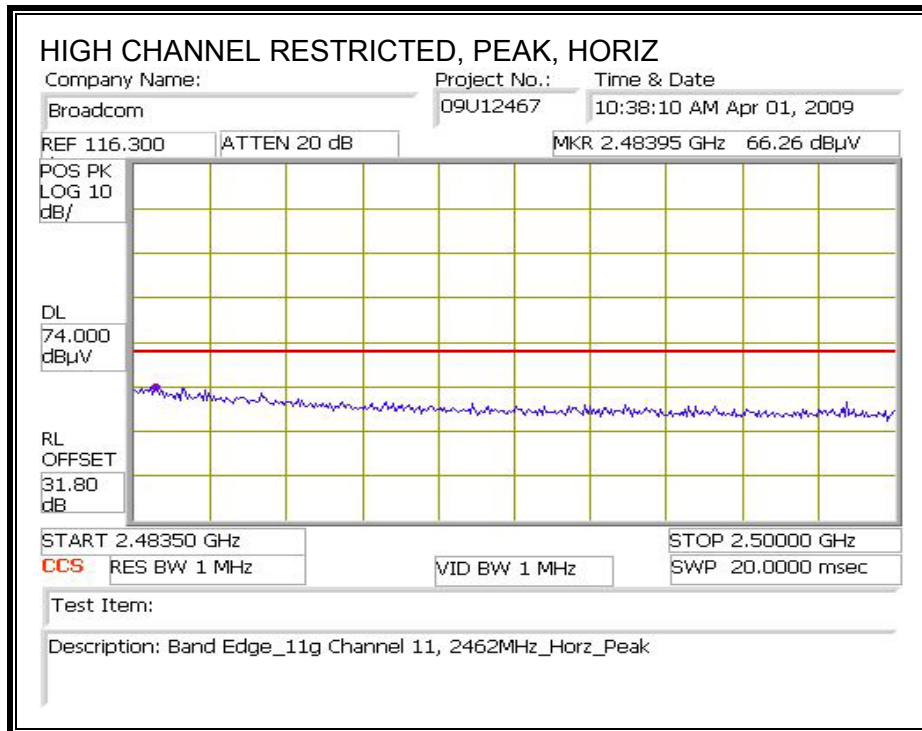


RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

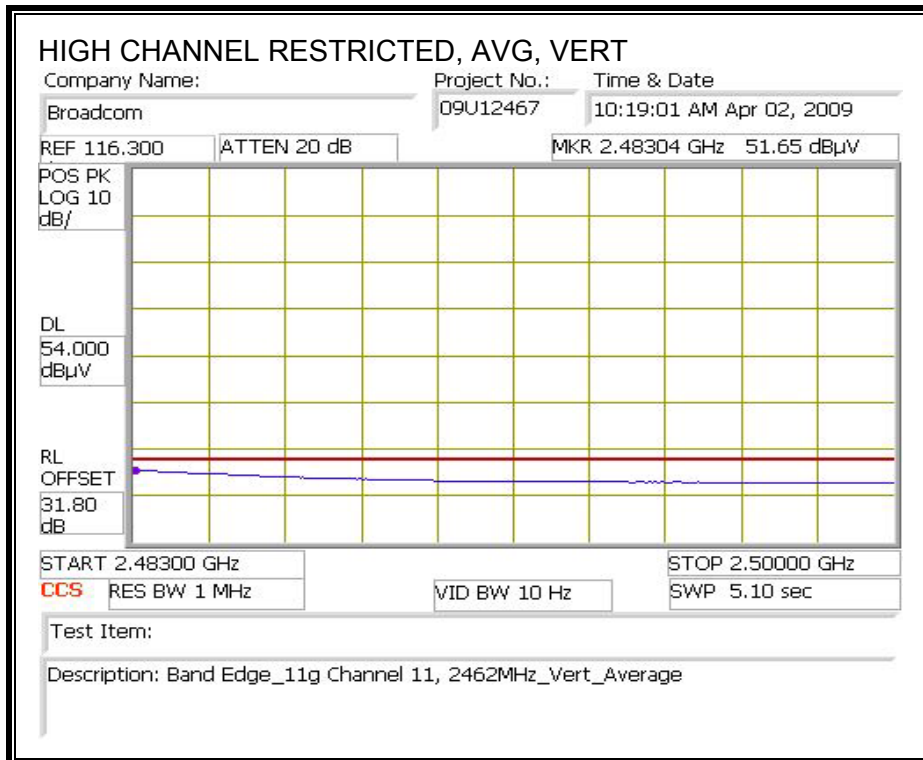
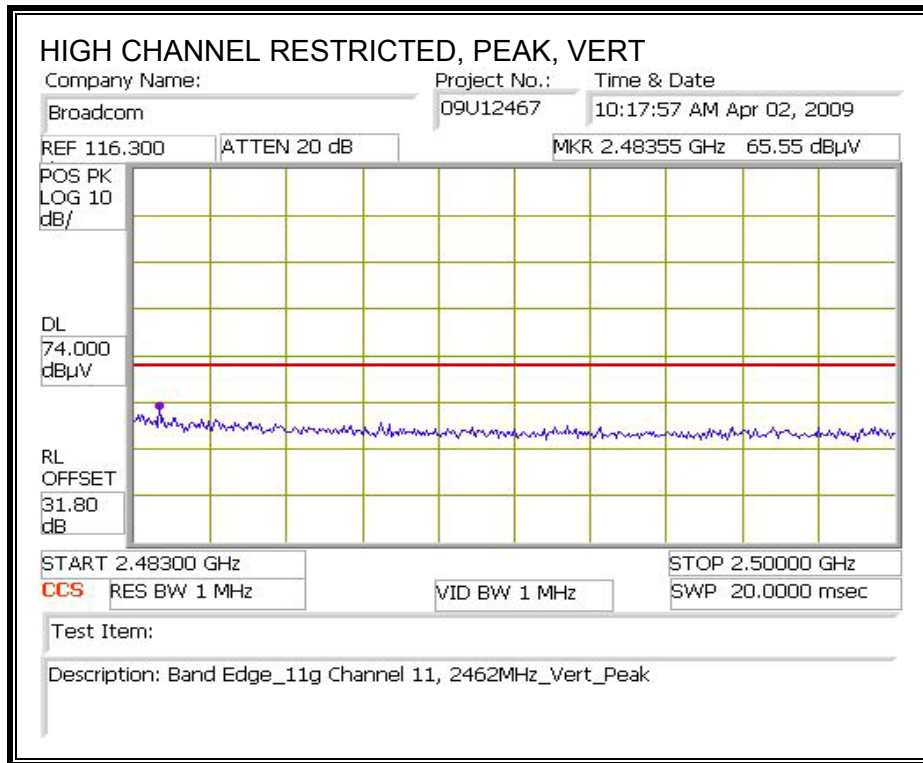


CHANNEL 11, 2462 MHz

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement																			
Compliance Certification Services, Fremont 3m Chamber																			
Company:		Broadcom																	
Project #:		09U12467																	
Date:		04/02/09																	
Test Engineer:		Vien Tran																	
Configuration:		Access Point / Laptop																	
Mode:		Tx 11g Mode																	
Test Equipment:																			
Horn 1-18GHz				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz				Limit			
T60; S/N: 2238 @3m				T34 HP 8449B												FCC 15.205			
Hi Frequency Cables																			
3' cable 22807700				12' cable 22807600				20' cable 22807500				HPF				Reject Filter			
3' cable 22807700				12' cable 22807600				20' cable 22807500								R_001			
Peak Measurements RBW=VBW=1MHz Average Measurements RBW=1MHz; VBW=10Hz																			
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)				
Low Channel, 2412MHz																			
4.824	3.0	53.5	42.6	32.7	5.8	-34.8	0.0	0.0	57.1	46.3	74	54	-16.9	-7.7	H				
4.824	3.0	51.8	40.9	32.7	5.8	-34.8	0.0	0.0	55.4	44.5	74	54	-18.6	-9.5	V				
Mid channel, 2437MHz																			
4.874	3.0	52.5	41.5	32.7	5.8	-34.8	0.0	0.0	56.2	45.2	74	54	-17.8	-8.8	H				
7.311	3.0	49.2	35.9	35.5	7.3	-34.1	0.0	0.0	57.8	44.5	74	54	-16.2	-9.5	H				
4.874	3.0	52.4	40.5	32.7	5.8	-34.8	0.0	0.0	56.1	44.2	74	54	-17.9	-9.8	V				
7.311	3.0	46.6	33.7	35.5	7.3	-34.1	0.0	0.0	55.2	42.3	74	54	-18.8	-11.7	V				
High channel, 2462MHz																			
4.924	3.0	52.9	41.8	32.7	5.9	-34.8	0.0	0.0	56.7	45.6	74	54	-17.3	-8.4	H				
7.386	3.0	51.0	38.9	35.6	7.3	-34.1	0.0	0.0	59.8	47.7	74	54	-14.2	-6.3	H				
4.924	3.0	51.3	40.0	32.7	5.9	-34.8	0.0	0.0	55.1	43.8	74	54	-18.9	-10.2	V				
7.386	3.0	45.1	33.1	35.6	7.3	-34.1	0.0	0.0	53.9	41.9	74	54	-20.1	-12.1	V				
Rev. 03.09.09																			
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit						
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit						
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit						
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit						
CL	Cable Loss					HPF	High Pass Filter												

8.2.3. 802.11n HT20 MIMO MODE

CHANNEL 1, 2412MHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

