Product : 802.11bgn Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	62.98	94.618	Peak
Horizontal	2412	31.639	51.47	83.108	Average
Vertical	2412	30.95	66.09	97.039	Peak
Vertical	2412	30.95	54.65	85.599	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data (Chain A)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2389.6	94.618	49.77	44.848	74.000	Peak
Horizontal	2390	83.108	53.81	29.298	54.000	Average
Vertical	2389.6	97.039	49.77	47.269	74.000	Peak
Vertical	2390	85.599	53.81	31.789	54.000	Average

Band Edge Test Data (Chain B)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.7	94.618	50.78	43.838	74.000	Peak
Horizontal	2390	83.108	53.83	29.278	54.000	Average
Vertical	2388.7	97.039	50.78	46.259	74.000	Peak
Vertical	2390	85.599	53.83	31.769	54.000	Average

Note:

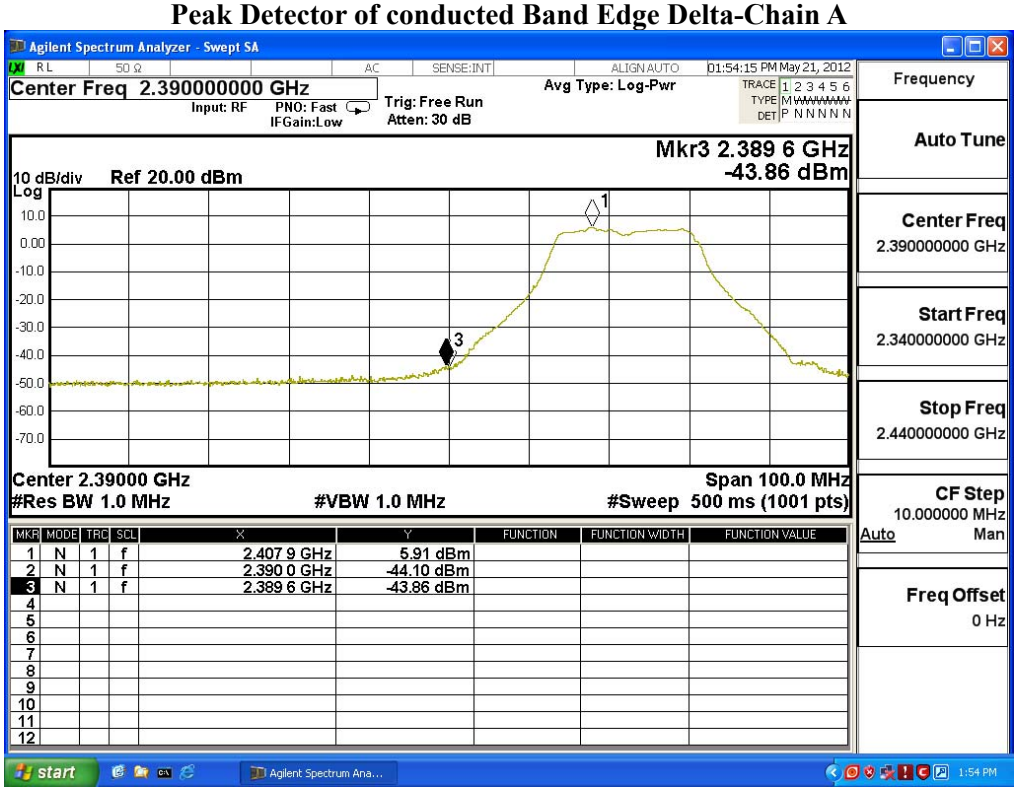
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

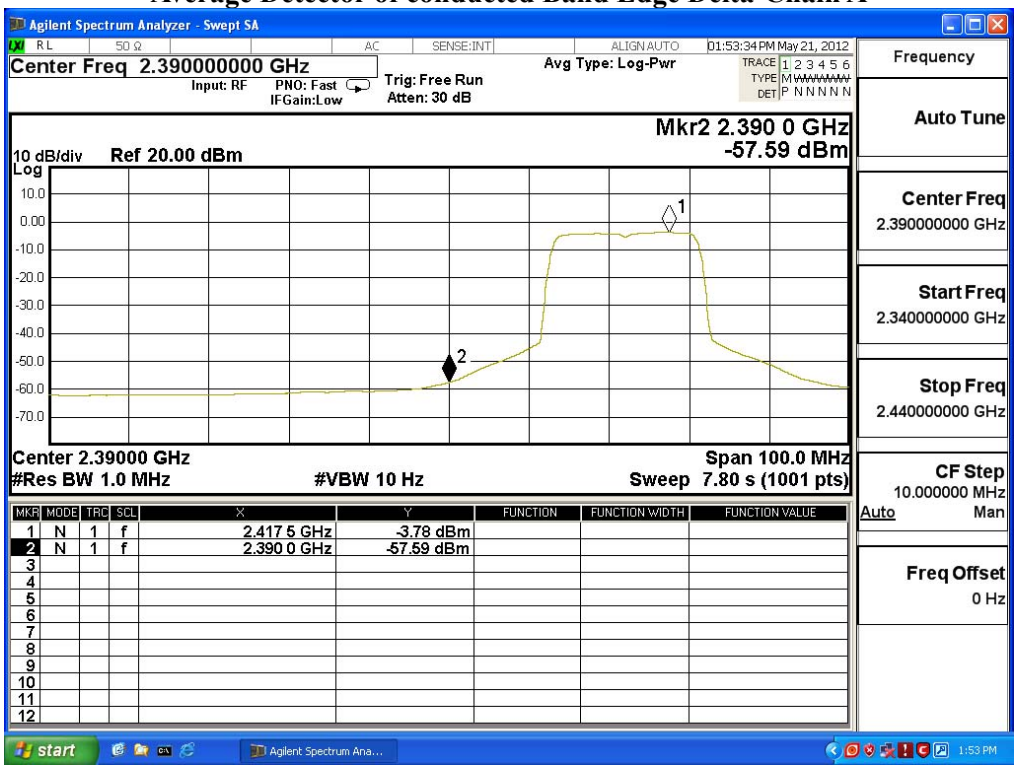
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

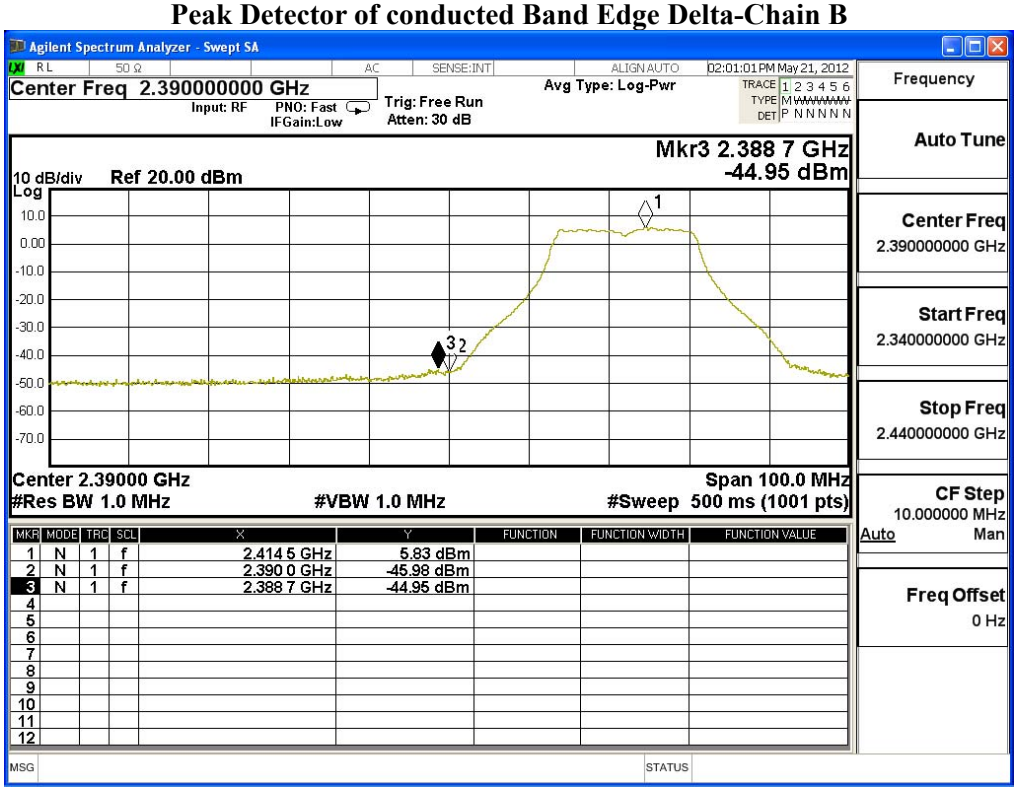
Peak Detector of conducted Band Edge Delta-Chain A



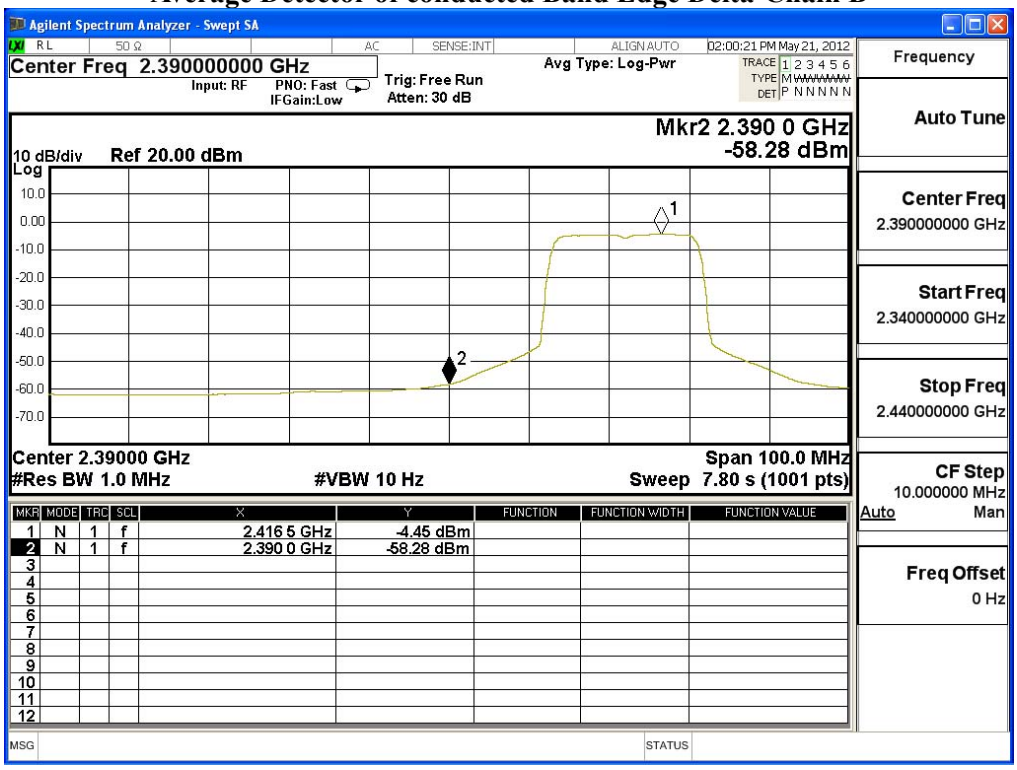
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



Product : 802.11bgn Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	63.54	95.559	Peak
Horizontal	2462	32.019	52.67	84.689	Average
Vertical	2462	31.29	66.86	98.15	Peak
Vertical	2462	31.29	56.02	87.31	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data (Chain A)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.8	95.559	44.24	51.319	74.000	Peak
Horizontal	2483.5	84.689	50.74	33.949	54.000	Average
Vertical	2483.8	98.15	44.24	53.91	74.000	Peak
Vertical	2483.5	87.31	50.74	36.57	54.000	Average

Band Edge Test Data (Chain B)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.6	95.559	48.29	47.269	74.000	Peak
Horizontal	2483.5	84.689	52.61	32.079	54.000	Average
Vertical	2483.6	98.15	48.29	49.86	74.000	Peak
Vertical	2483.5	87.31	52.61	34.7	54.000	Average

Note:

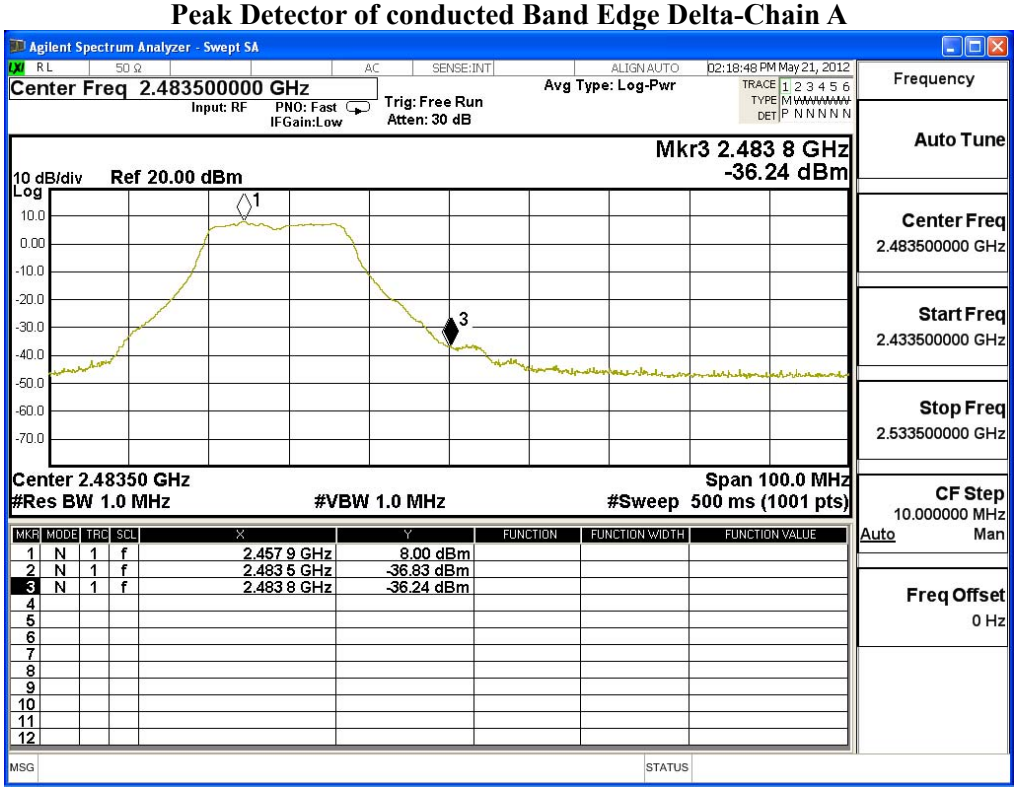
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

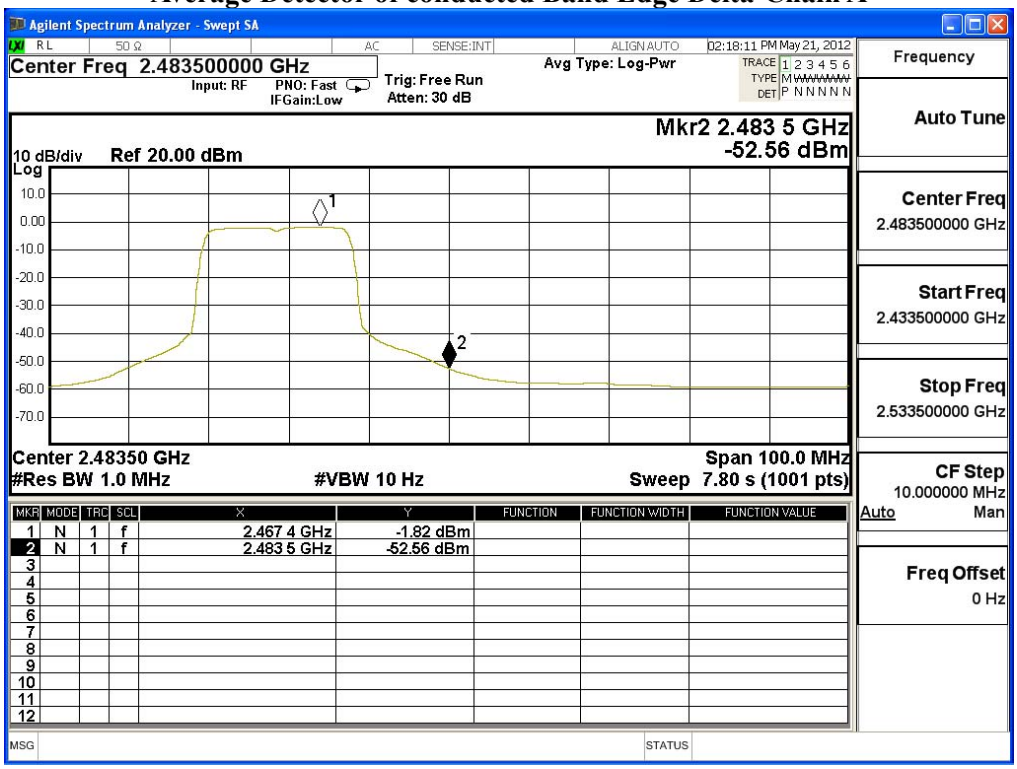
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

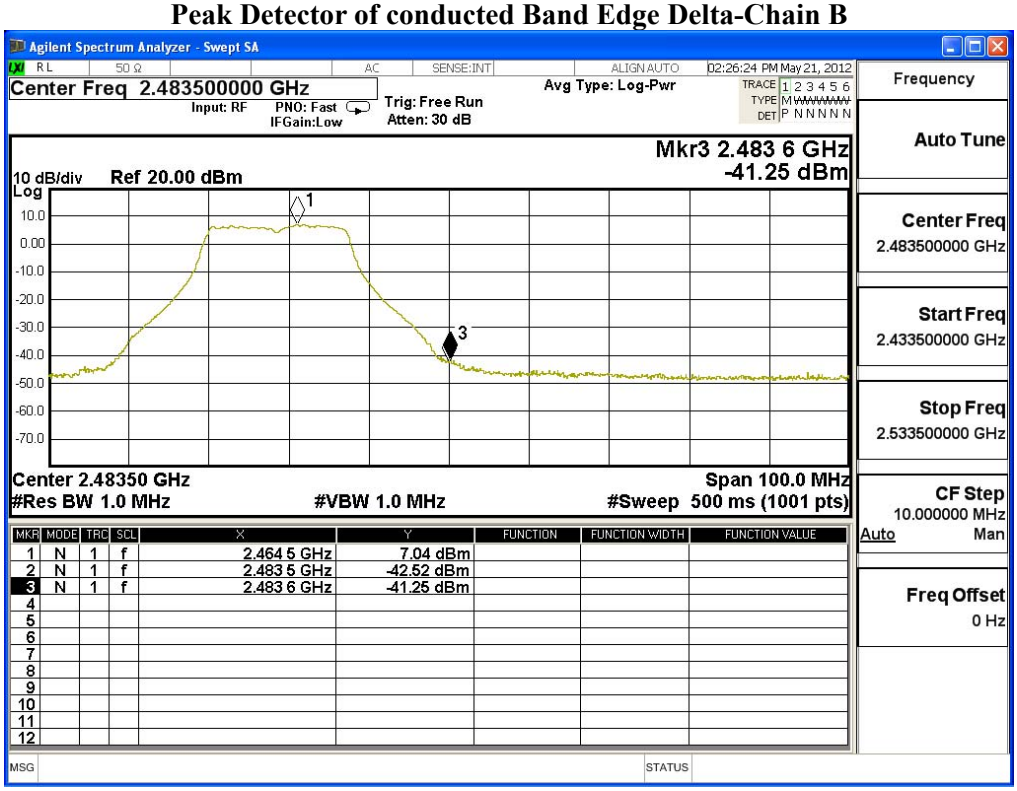
Peak Detector of conducted Band Edge Delta-Chain A



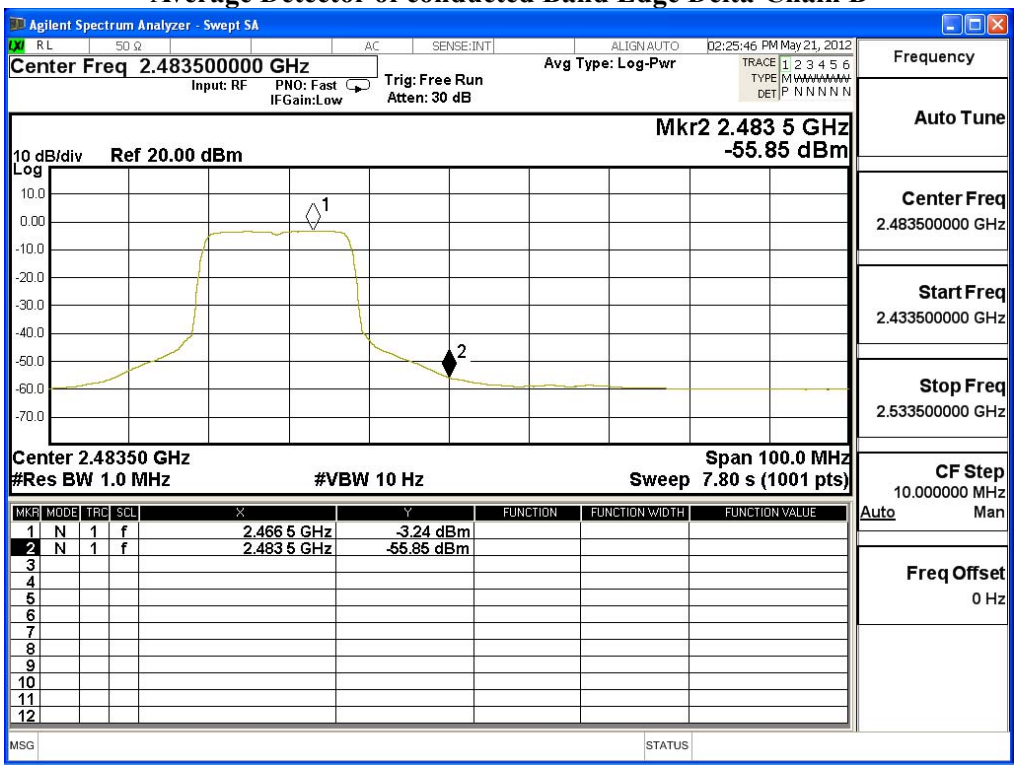
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



Product : 802.11bgn Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2422	31.715	59.68	91.395	Peak
Horizontal	2422	31.715	48.5	80.215	Average
Vertical	2422	31.017	62.58	93.597	Peak
Vertical	2422	31.017	51.65	82.667	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data (Chain A)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.2	91.395	46.86	44.535	74.000	Peak
Horizontal	2388.5	80.215	50.17	30.045	54.000	Average
Vertical	2388.2	93.597	46.86	46.737	74.000	Peak
Vertical	2388.5	82.667	50.17	32.497	54.000	Average

Band Edge Test Data (Chain B)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.6	91.395	47.53	43.865	74.000	Peak
Horizontal	2388.4	80.215	49.95	30.265	54.000	Average
Vertical	2388.6	93.597	47.53	46.067	74.000	Peak
Vertical	2388.4	82.667	49.95	32.717	54.000	Average

Note:

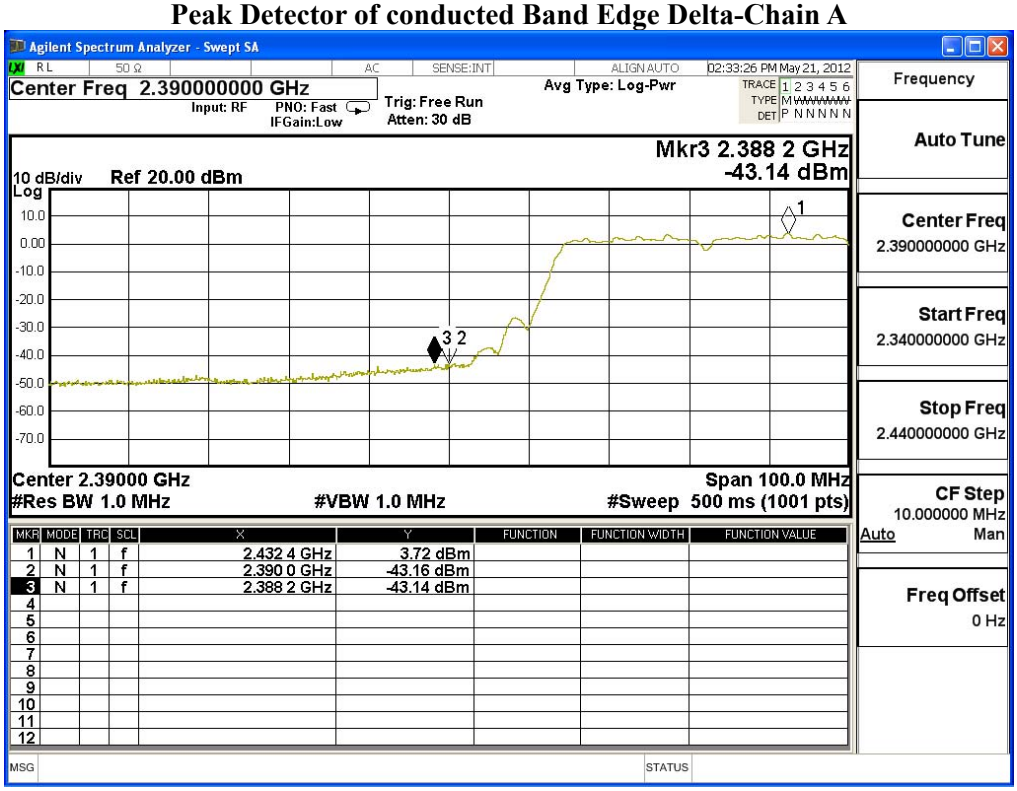
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

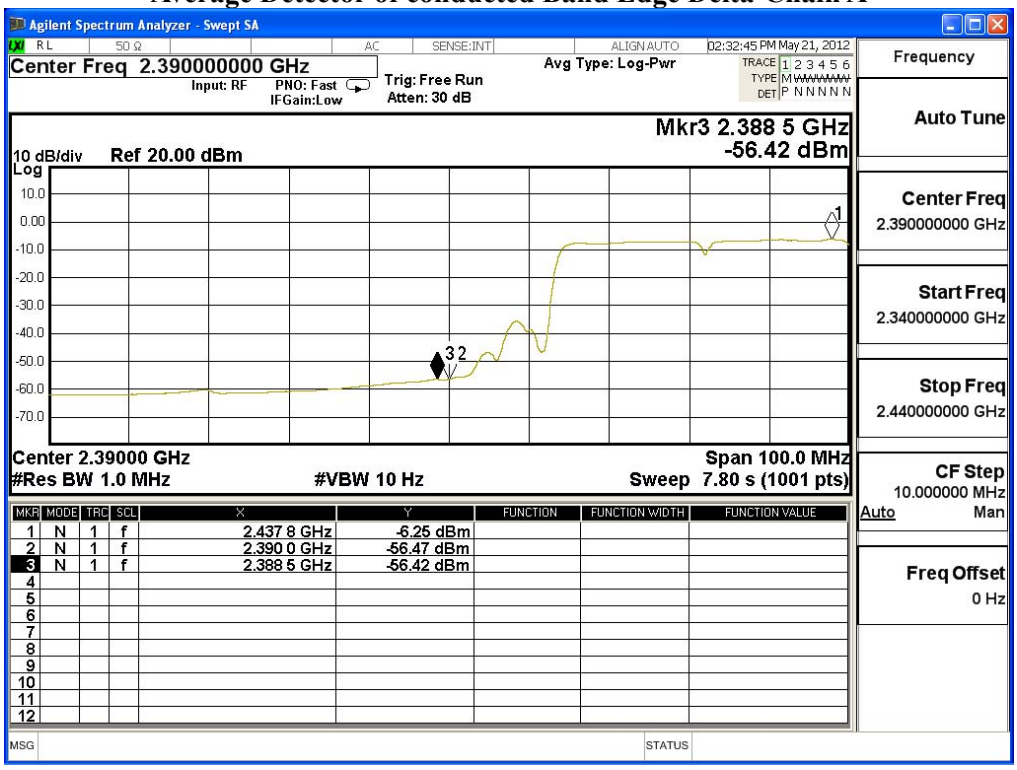
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

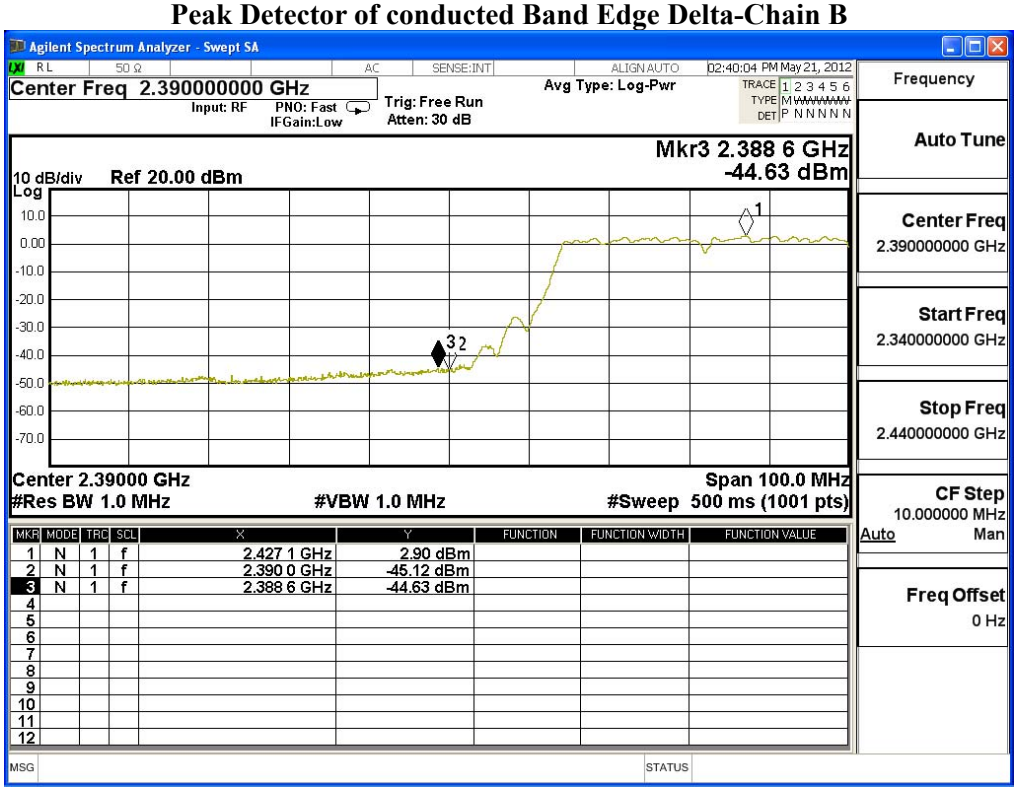
Peak Detector of conducted Band Edge Delta-Chain A



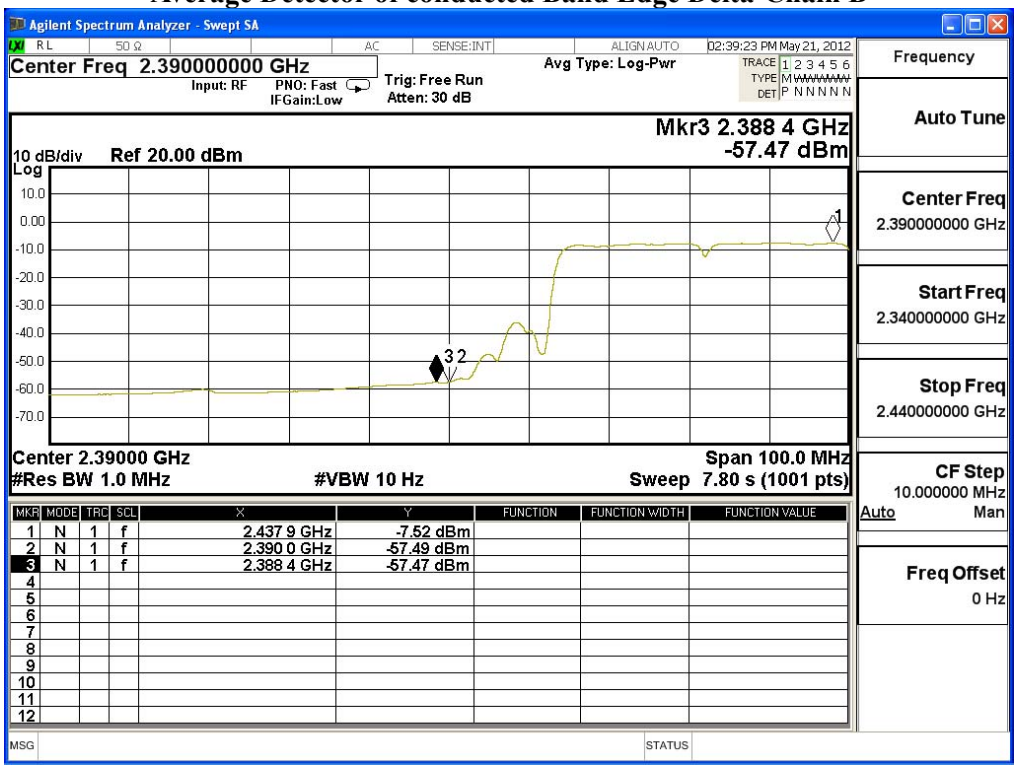
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



Product : 802.11bgn Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 4: Transmit - 802.11n-40BW_27Mbps(2.4G Band)

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2452	31.222	61.18	92.402	Peak
Horizontal	2452	31.222	49.31	80.532	Average
Vertical	2452	31.222	64.19	95.412	Peak
Vertical	2452	31.222	52.77	83.992	Average

Note: 1:Spectrum Analyzer setting:

Peak detector: RBW=1MHz, VBW=1MHz

Average detector: RBW=1MHz, VBW=10Hz

Band Edge Test Data (Chain A)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2484.8	92.402	41.01	51.392	74.000	Peak
Horizontal	2483.5	80.532	46.41	34.122	54.000	Average
Vertical	2484.8	95.412	41.01	54.402	74.000	Peak
Vertical	2483.5	83.992	46.41	37.582	54.000	Average

Band Edge Test Data (Chain B)

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.5	92.402	44.68	47.722	74.000	Peak
Horizontal	2483.5	80.532	47.35	33.182	54.000	Average
Vertical	2483.5	95.412	44.68	50.732	74.000	Peak
Vertical	2483.5	83.992	47.35	36.642	54.000	Average

Note:

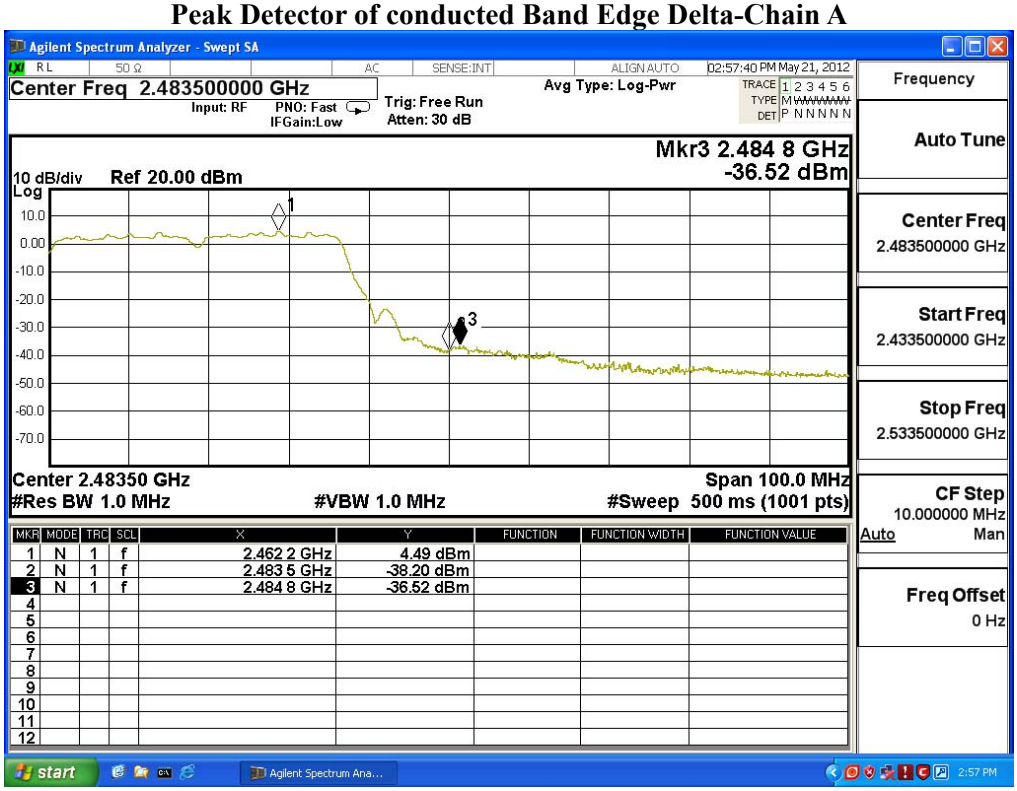
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

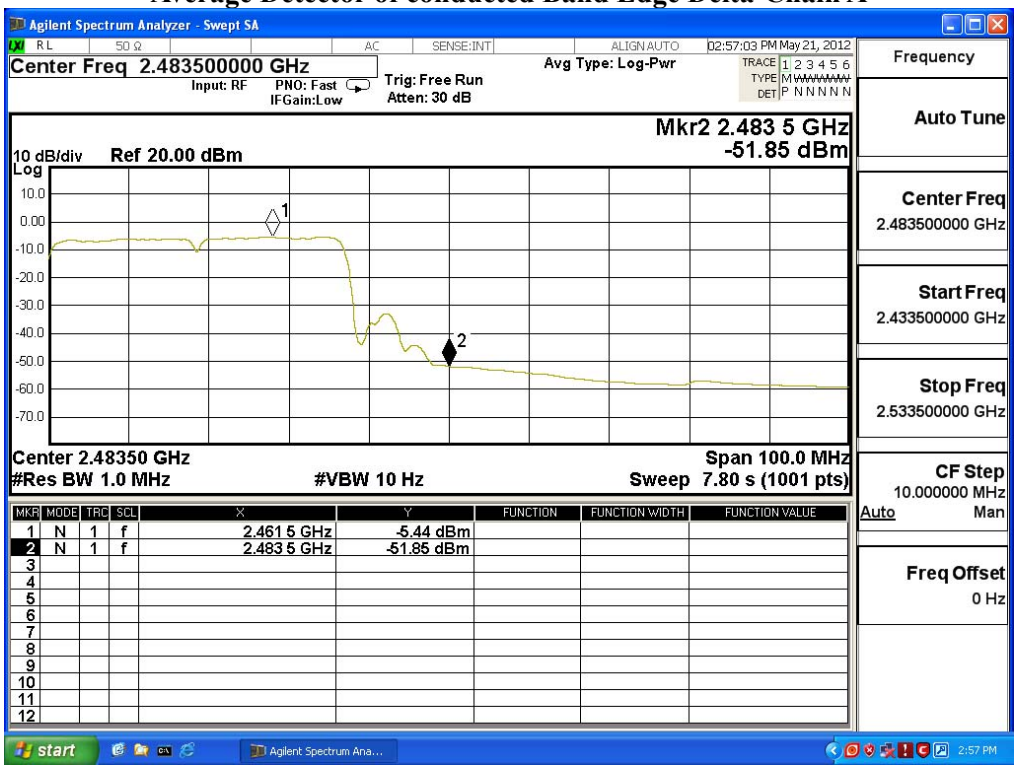
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

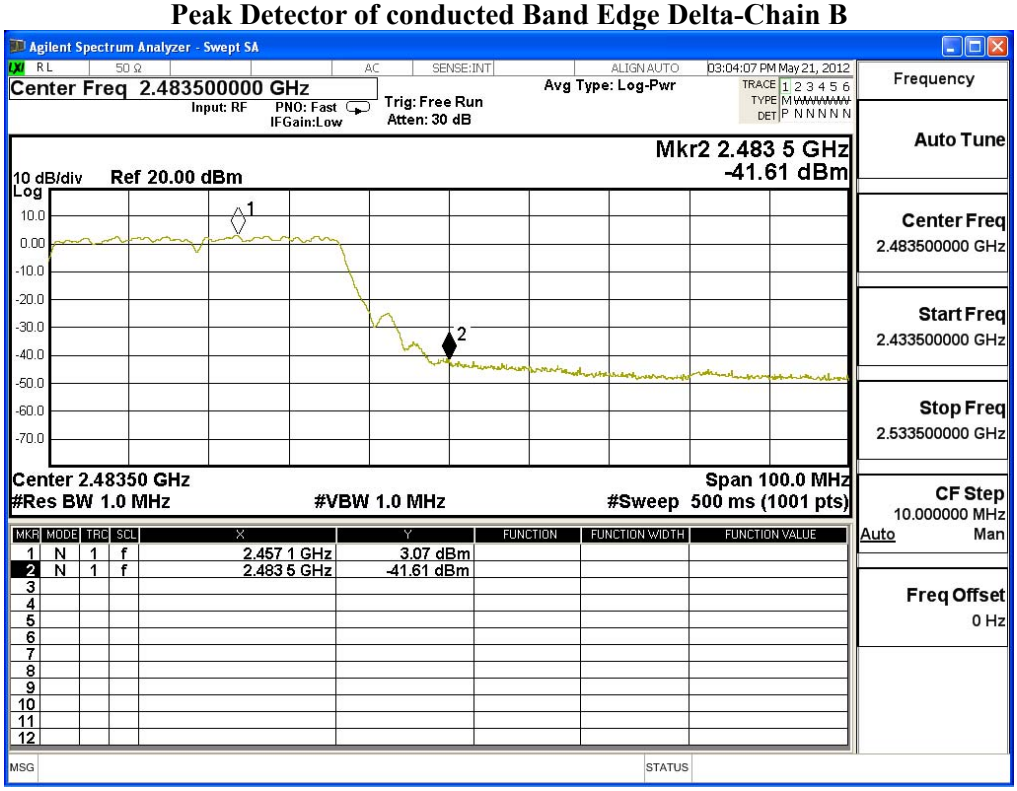
Peak Detector of conducted Band Edge Delta-Chain A



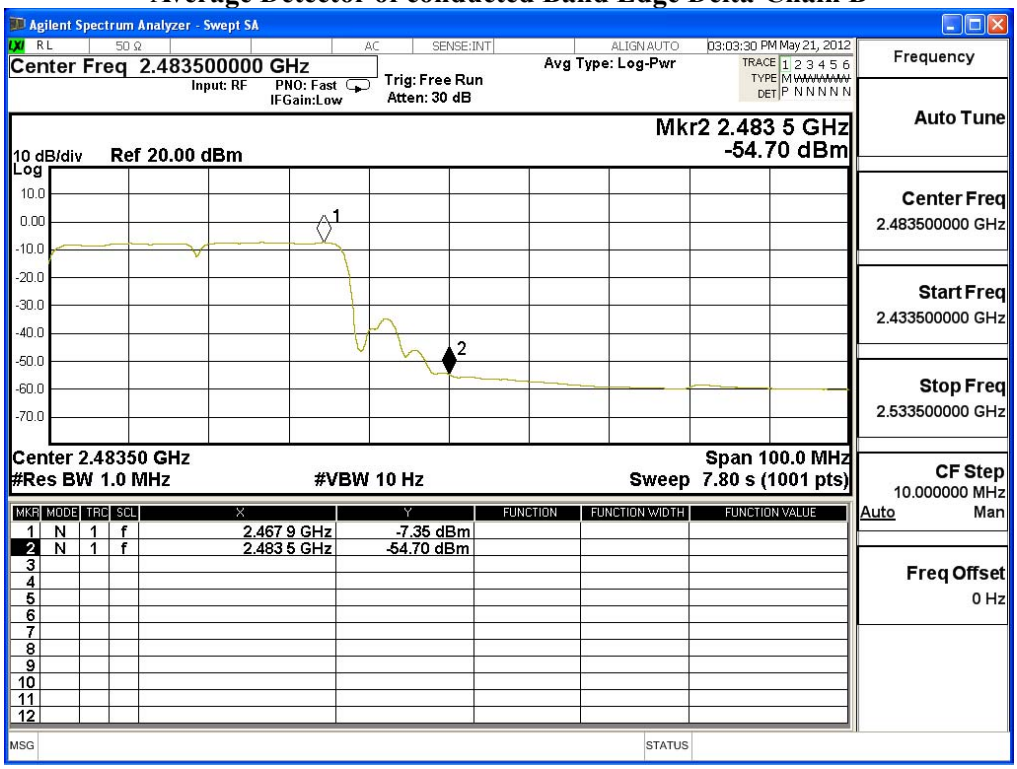
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



7. Occupied Bandwidth

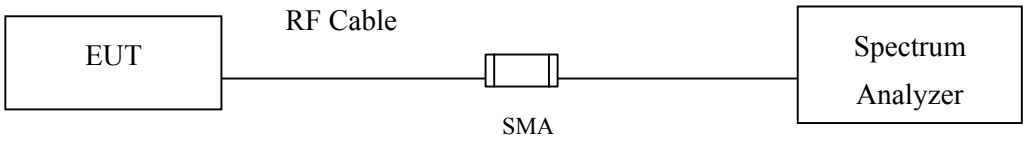
7.1. Test Equipment

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Jun, 2011
	Spectrum Analyzer	Agilent	E4407B / US39440758	Jun, 2011
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2012

Note:

1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

7.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003; tested according to DTS test procedure of Jan. 2012 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the emission bandwidth, VBW≥3*RBW

7.5. Uncertainty

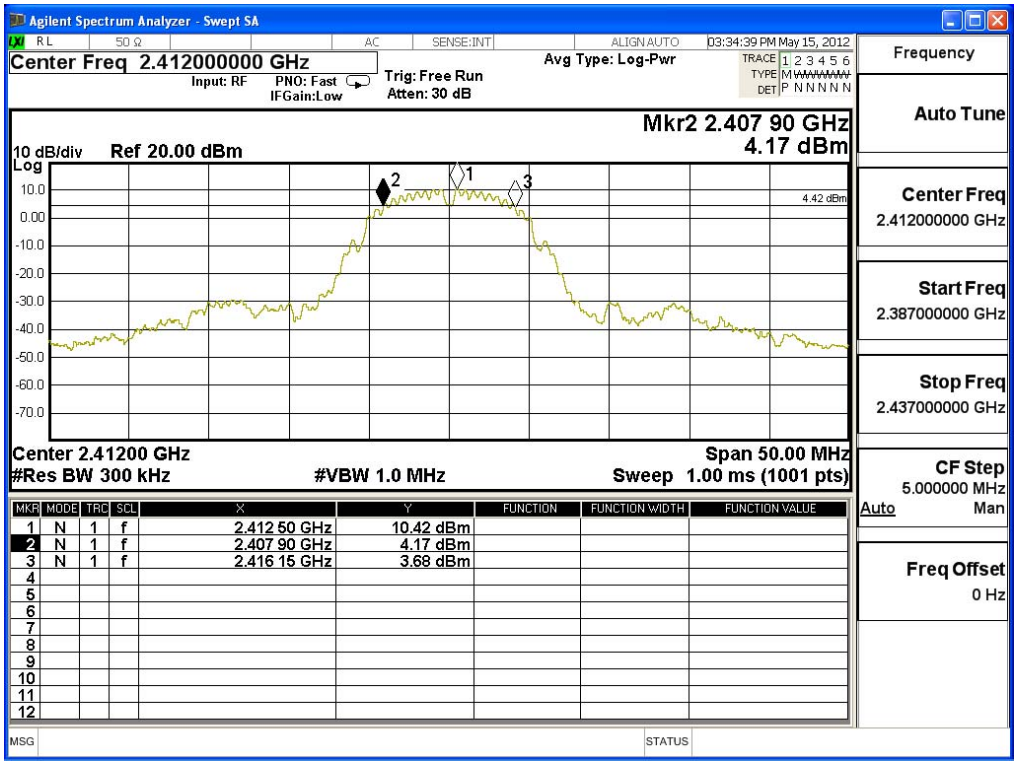
± 150Hz

7.6. Test Result of Occupied Bandwidth

Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	8250	>500	Pass

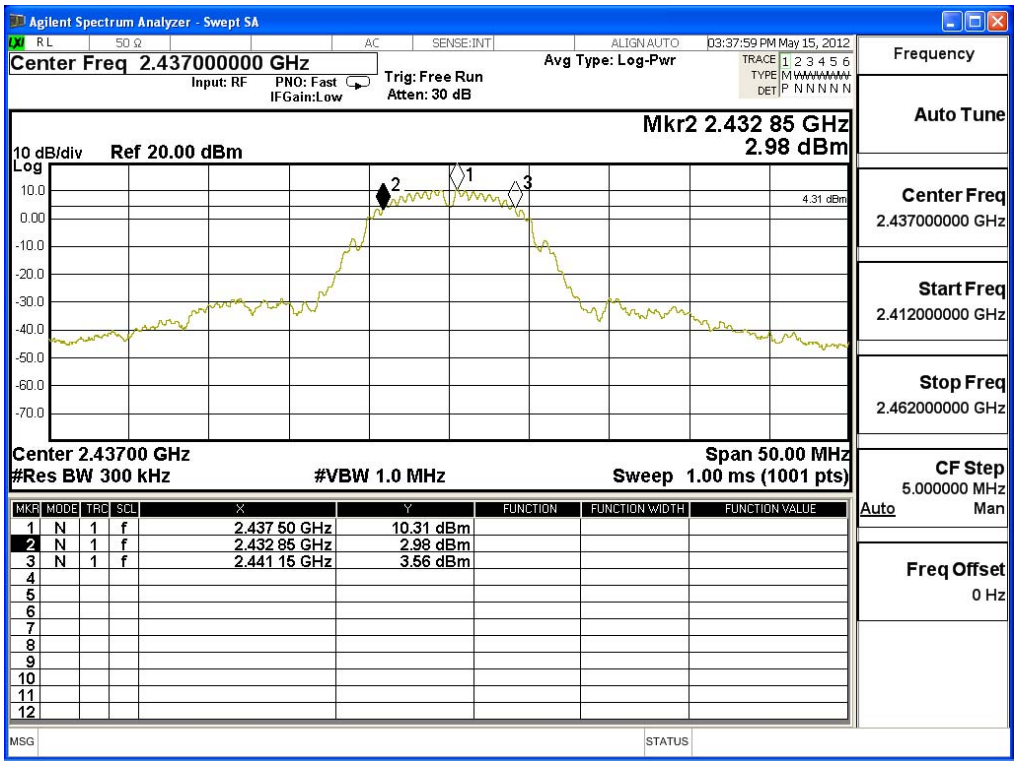
Figure Channel 1:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	8300	>500	Pass

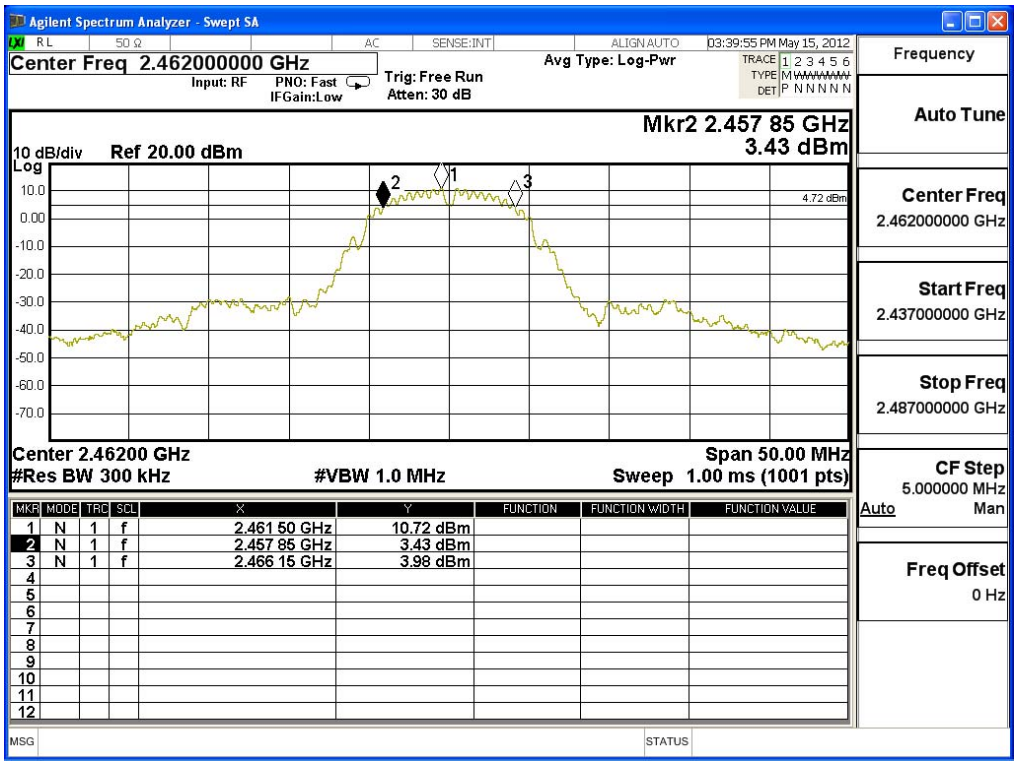
Figure Channel 6:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	8300	>500	Pass

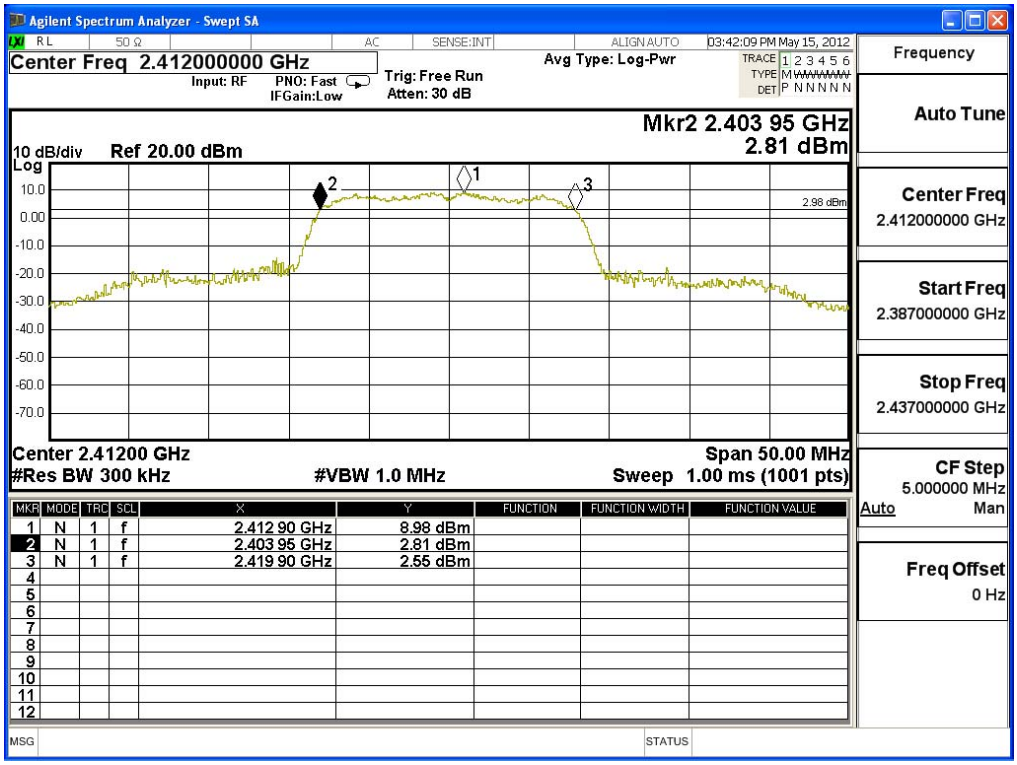
Figure Channel 11:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	15950	>500	Pass

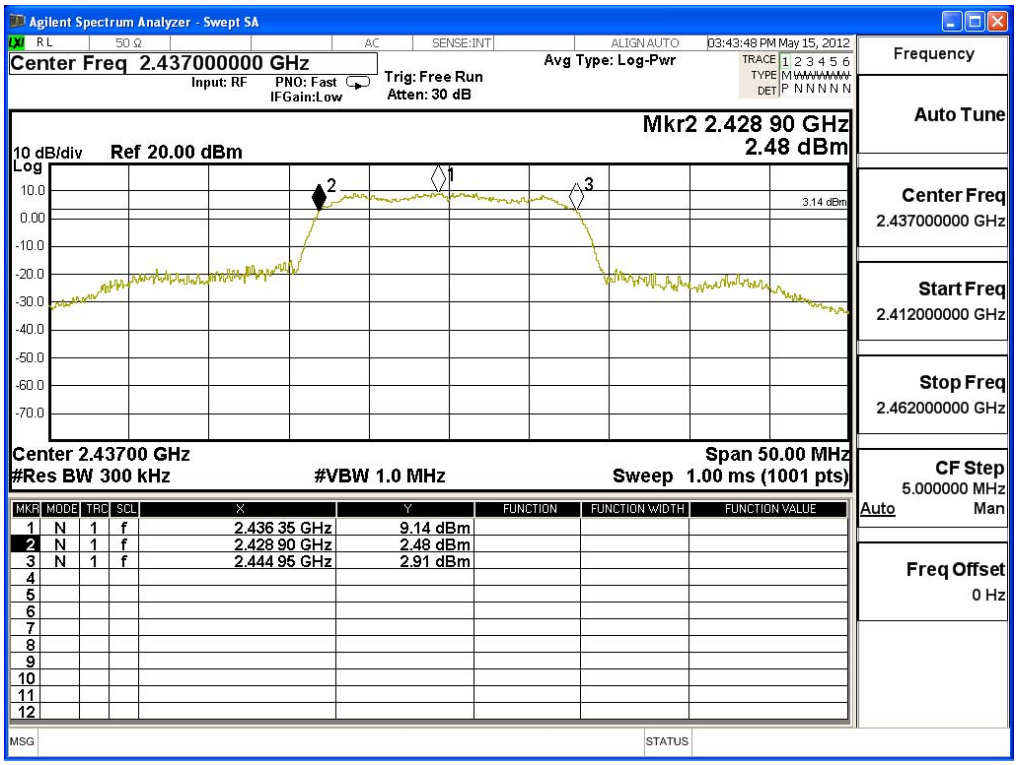
Figure Channel 1:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	16050	>500	Pass

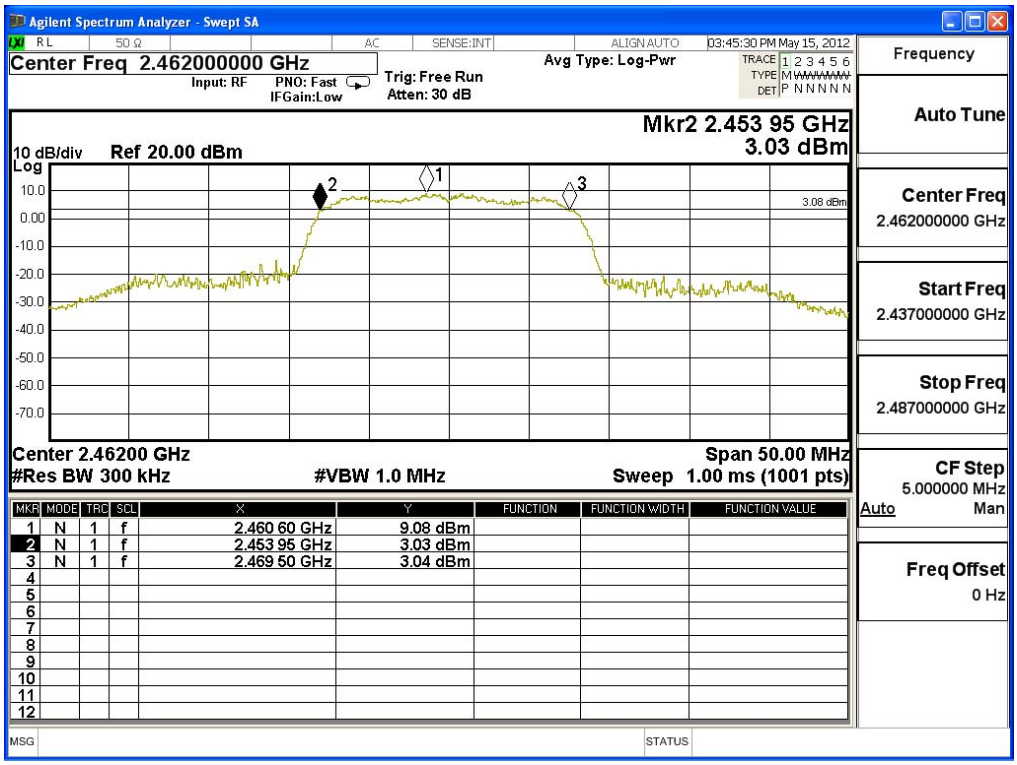
Figure Channel 6:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	15550	>500	Pass

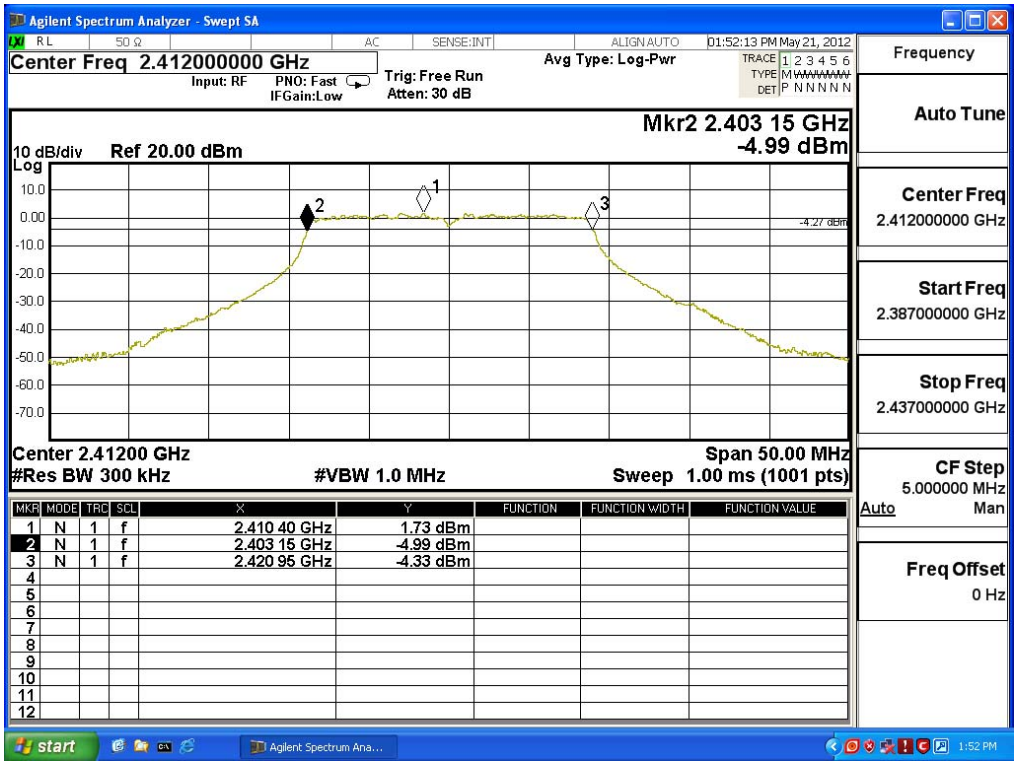
Figure Channel 11:



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2412MHz)

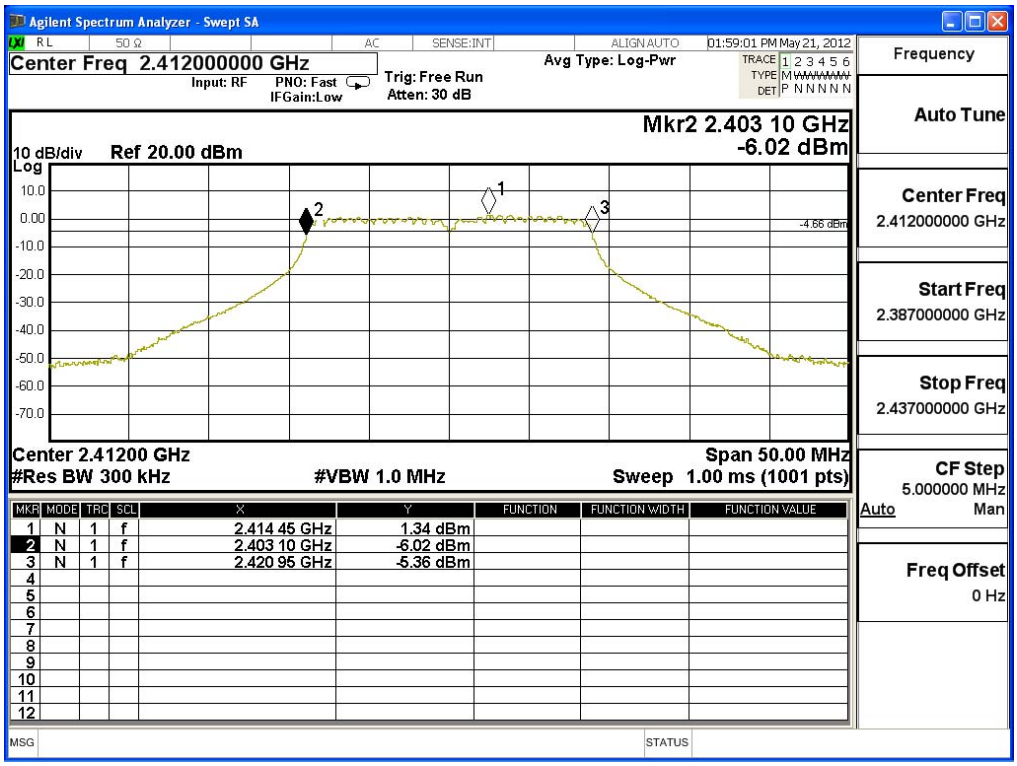
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17800	>500	Pass

Figure Channel 1: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17850	>500	Pass

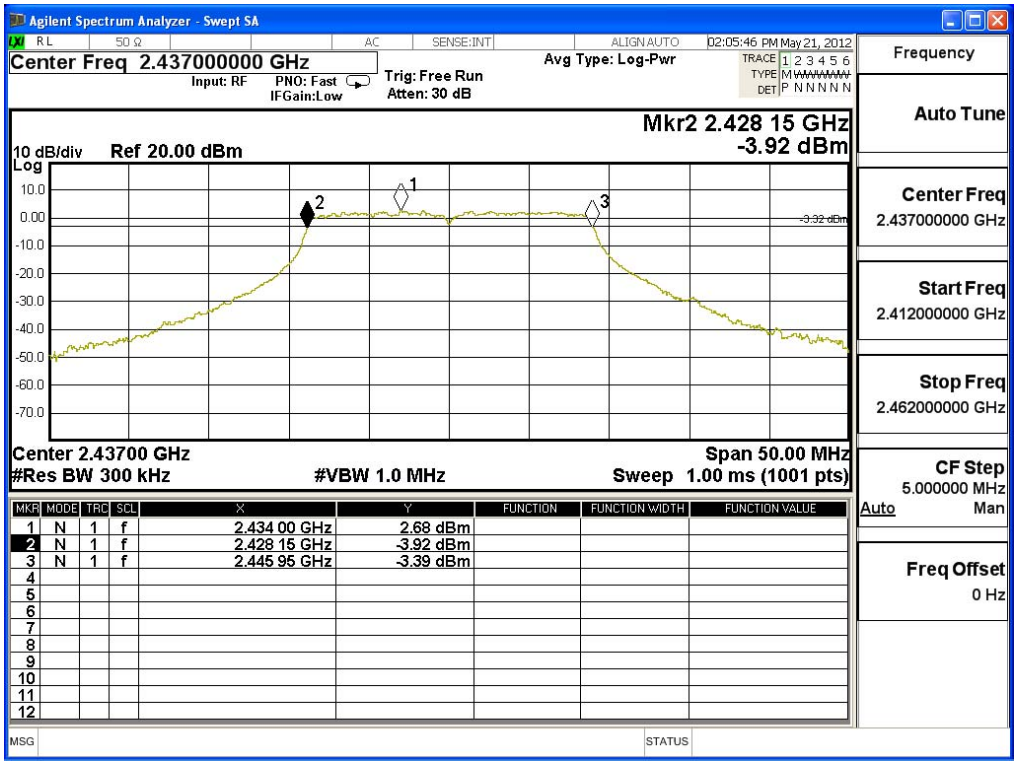
Figure Channel 1: (Chain B)



Product : 802.11bgn Module
Test Item : Occupied Bandwidth Data
Test Site : No.3 OATS
Test Mode : Mode 3: Transmit - 802.11n-20BW_13Mbps(2.4G Band) (2437MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17800	>500	Pass

Figure Channel 6: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17800	>500	Pass

Figure Channel 6: (Chain B)