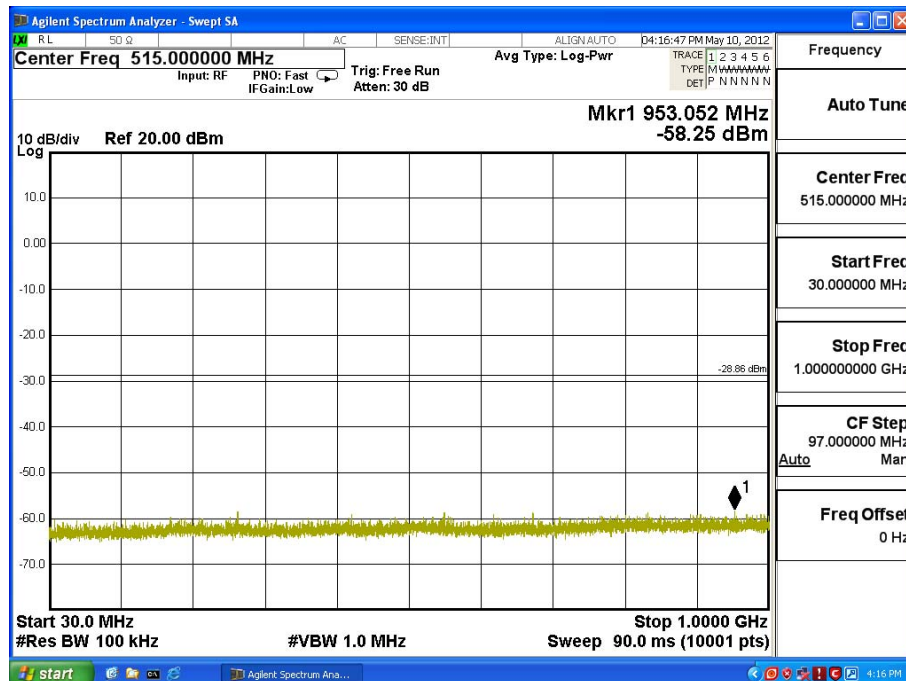
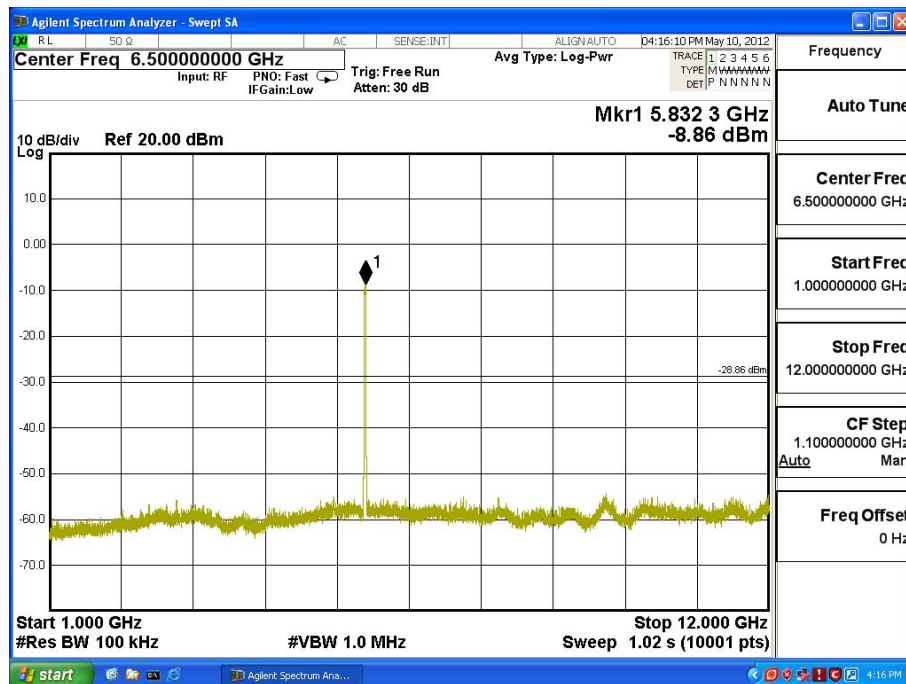
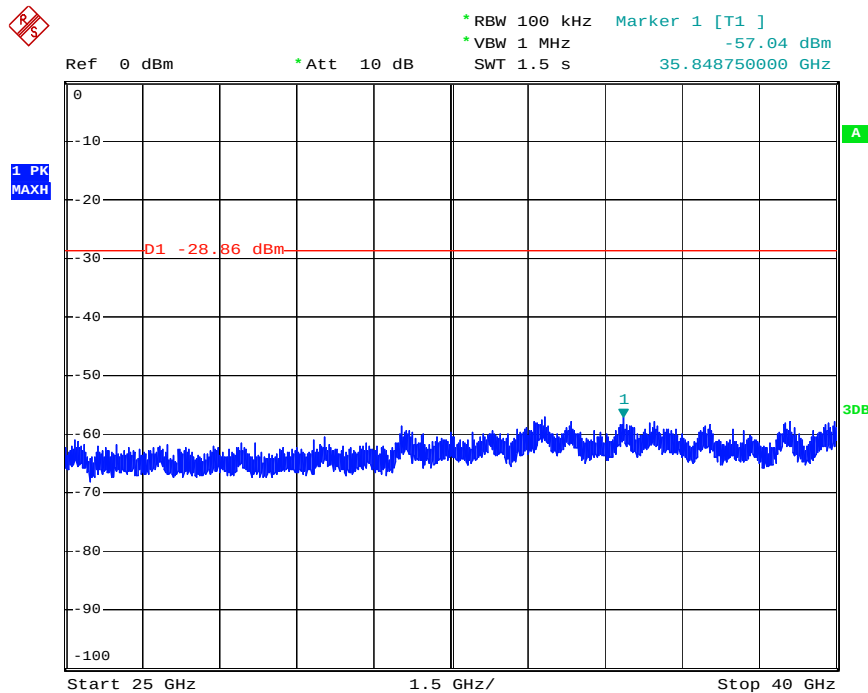
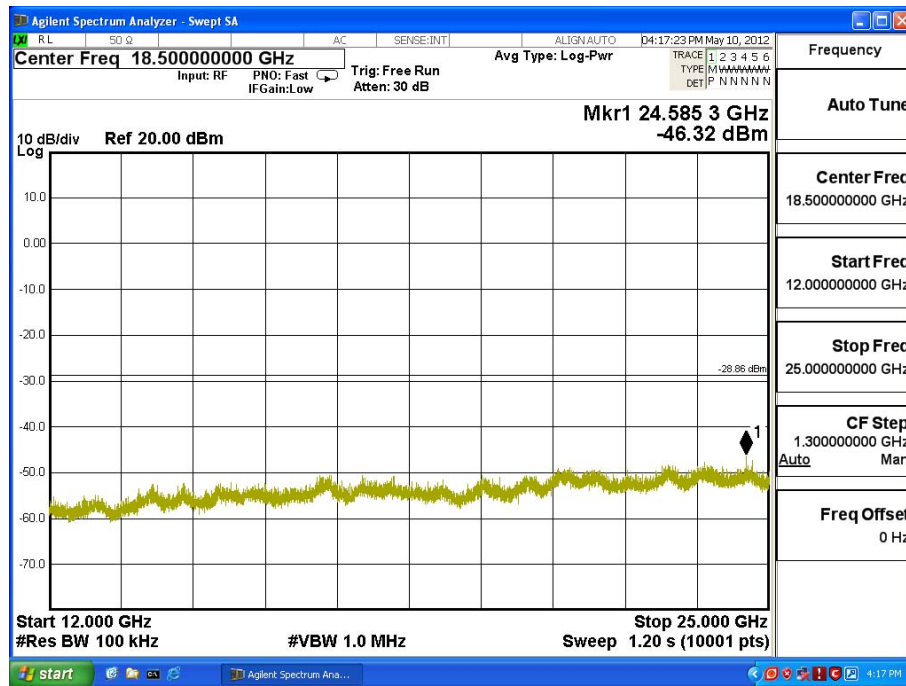


Channel 165 (5825MHz) 30MHz -40GHz-Chain B

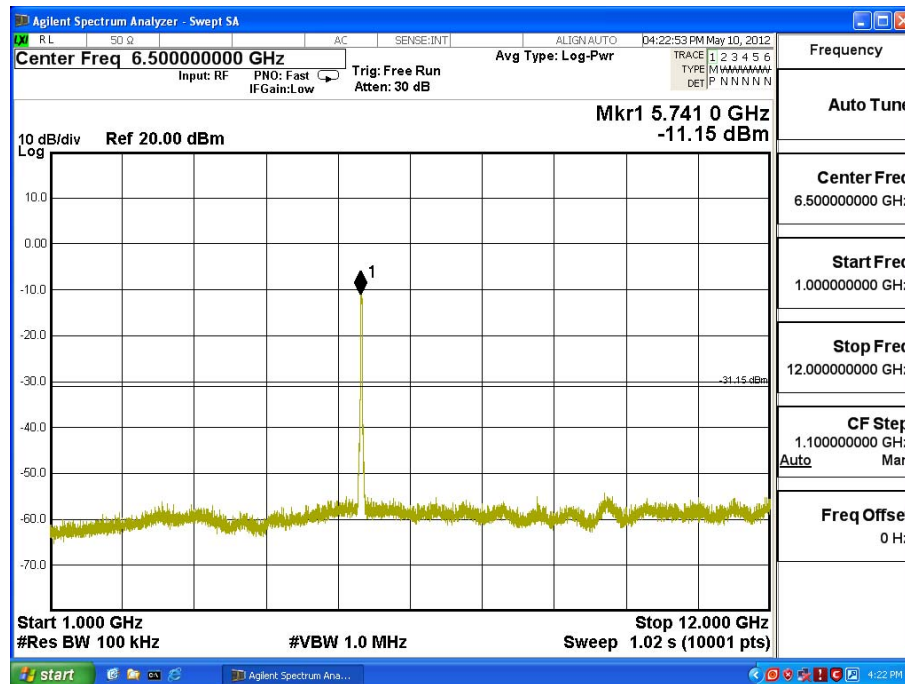


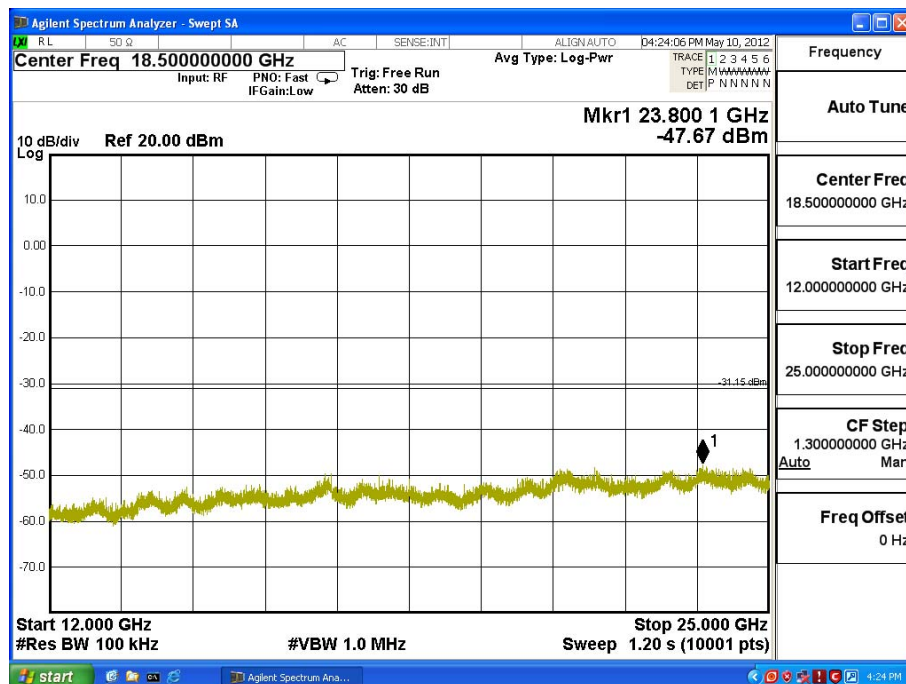
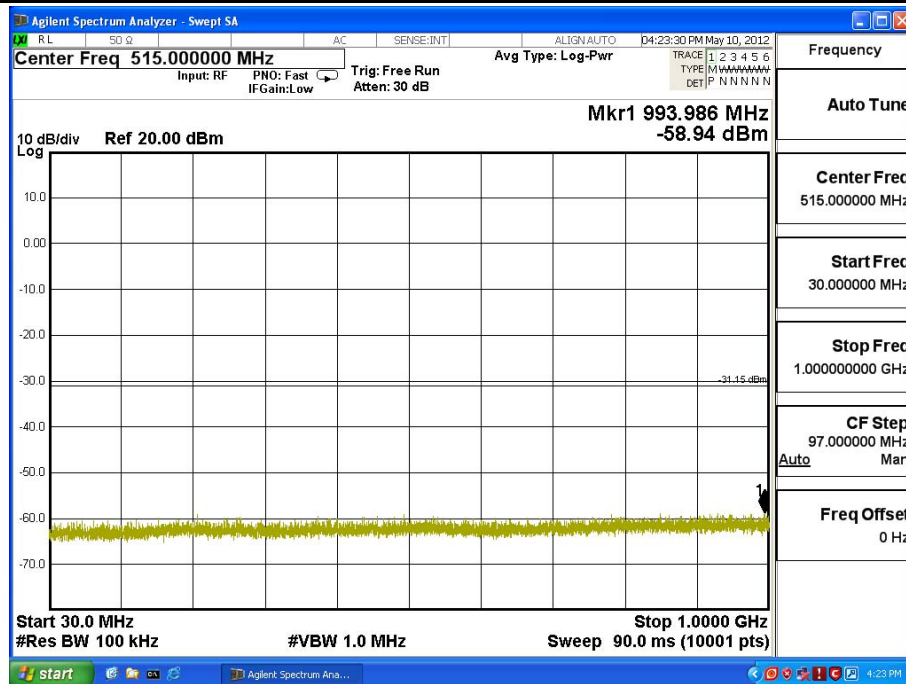


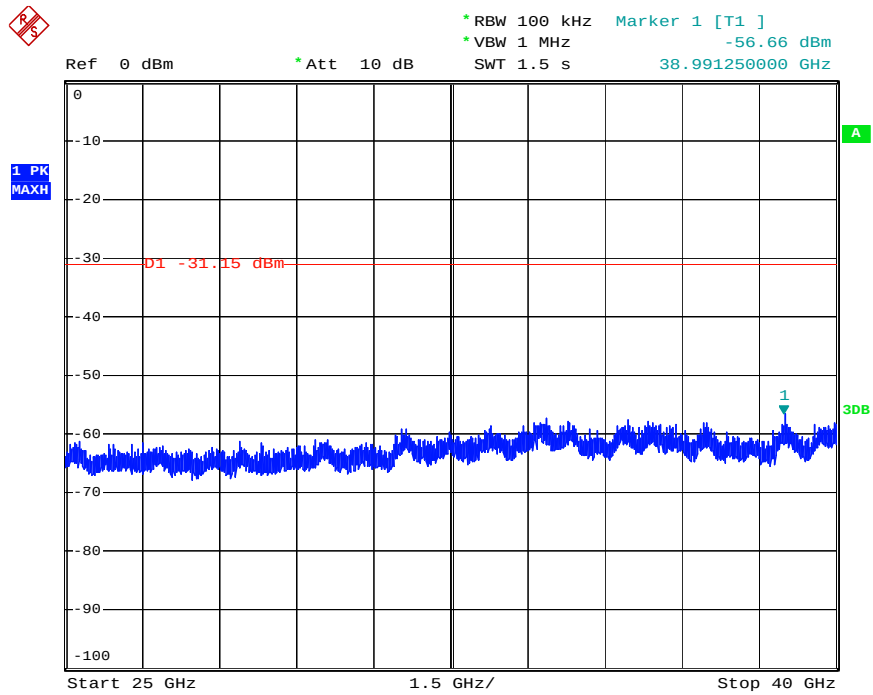
Date: 14.MAY.2012 19:53:11

Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : RF Antenna Conducted Spurious
 Test Site : No.3 OATS
 Test Mode : Mode 7: Transmit - 802.11n-40BW_30Mbps(5G Band)

Channel 151 (5755MHz) 30MHz -40GHz-Chain A

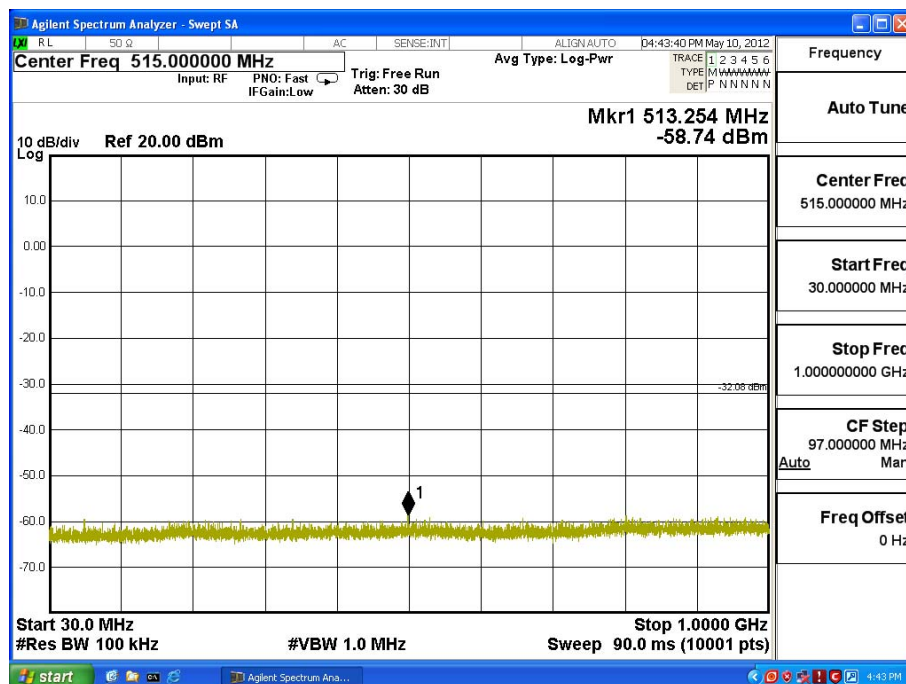
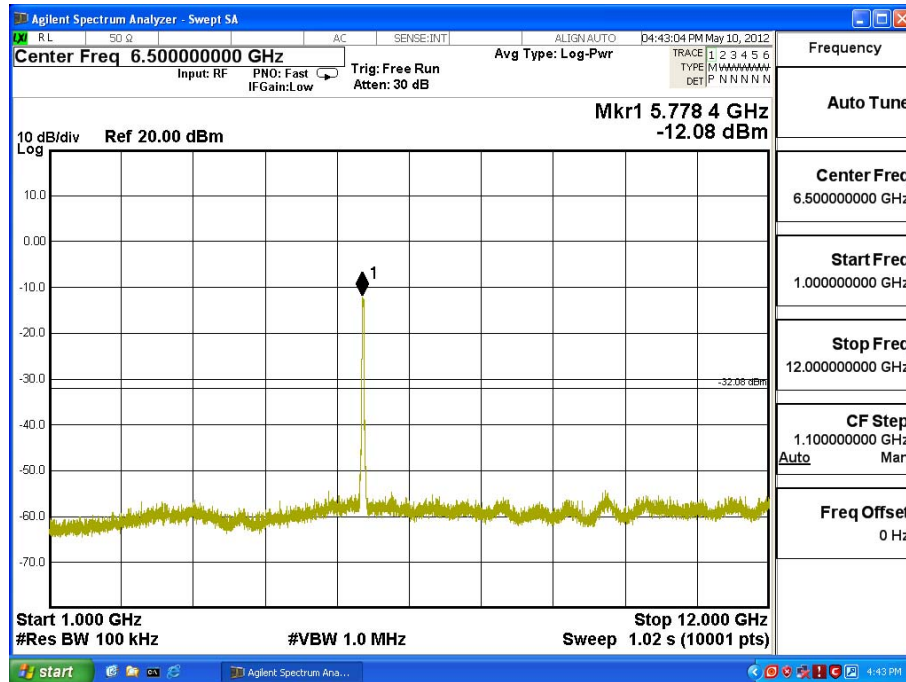


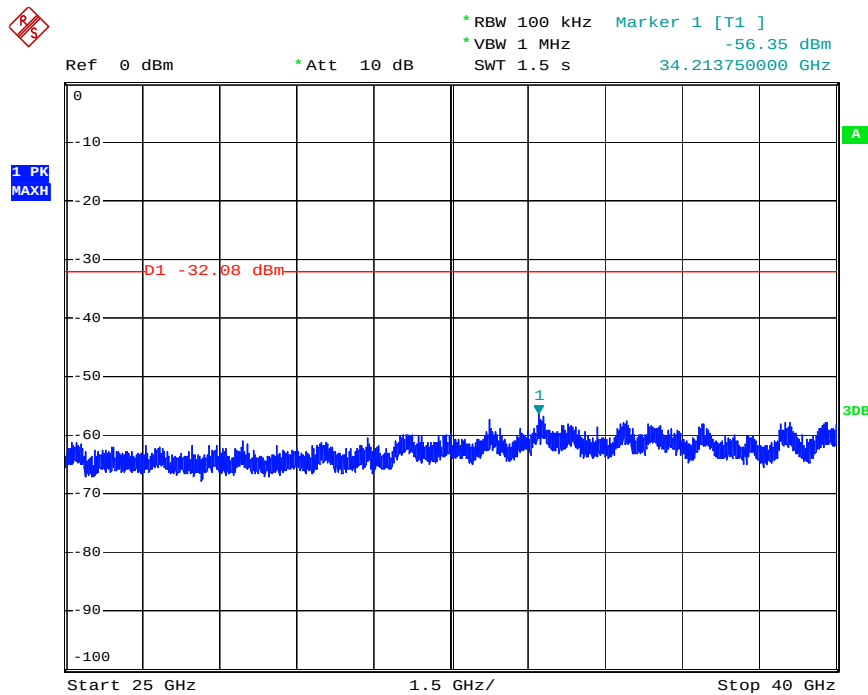
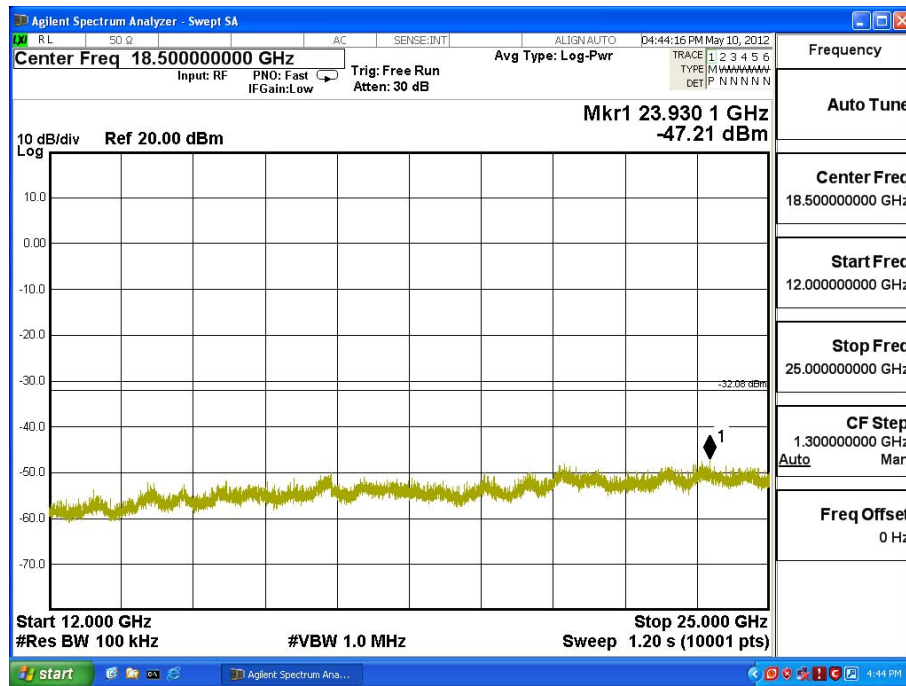




Date: 14.MAY.2012 19:56:03

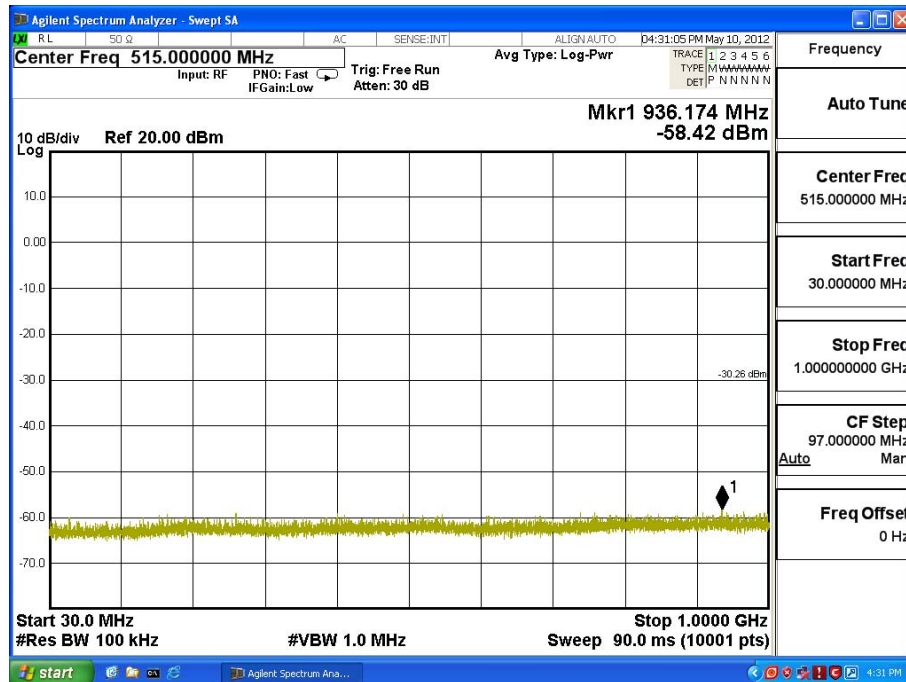
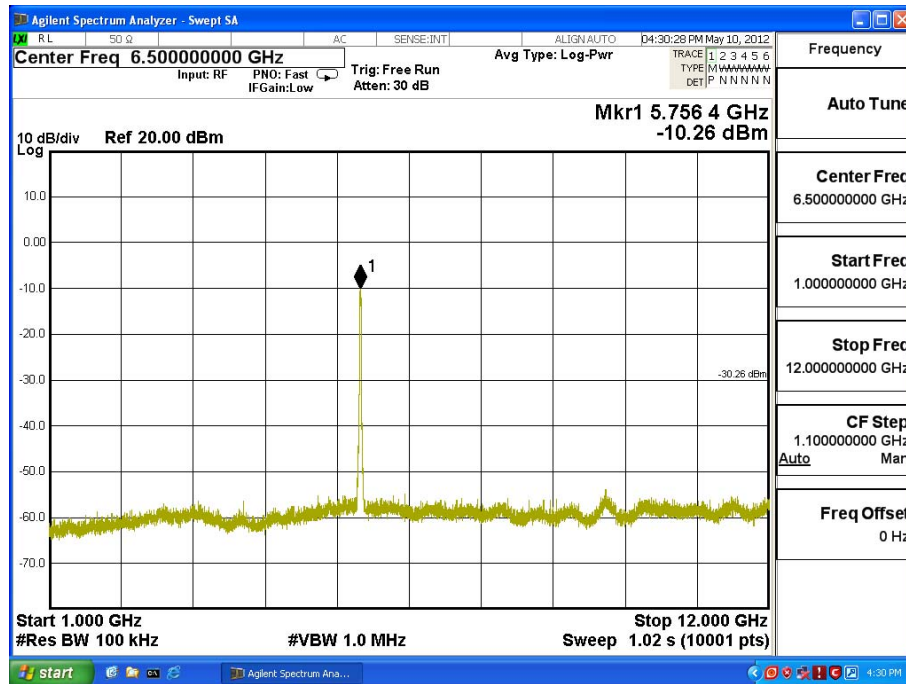
Channel 159 (5795MHz) 30MHz -40GHz-Chain A

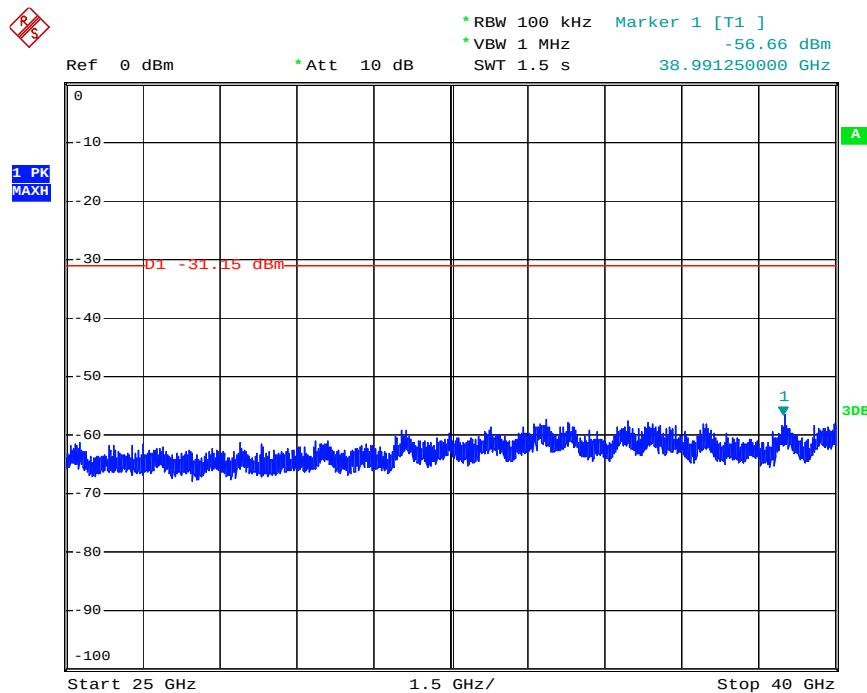
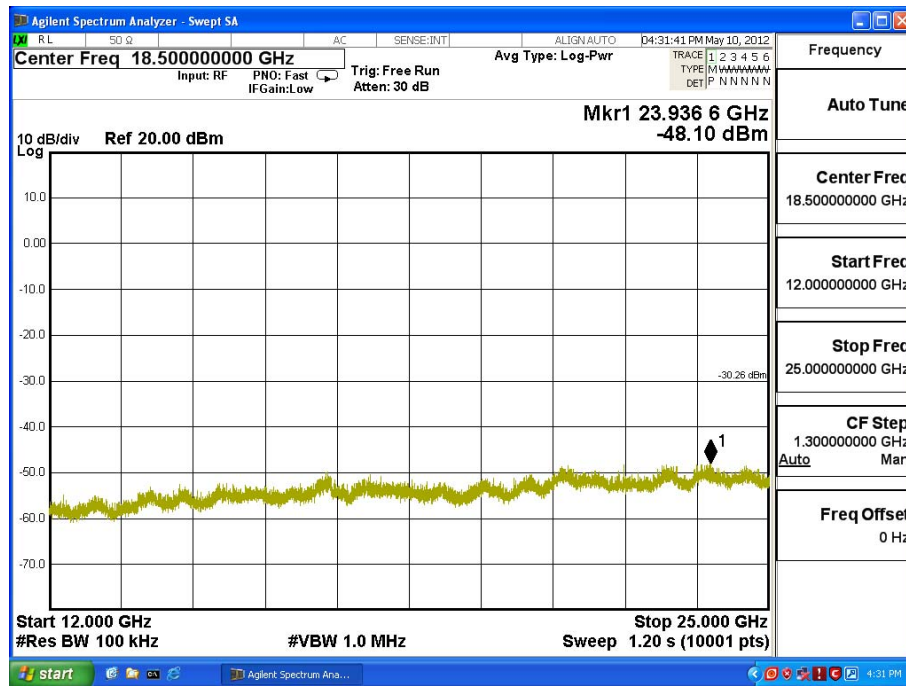




Date: 14.MAY.2012 19:58:11

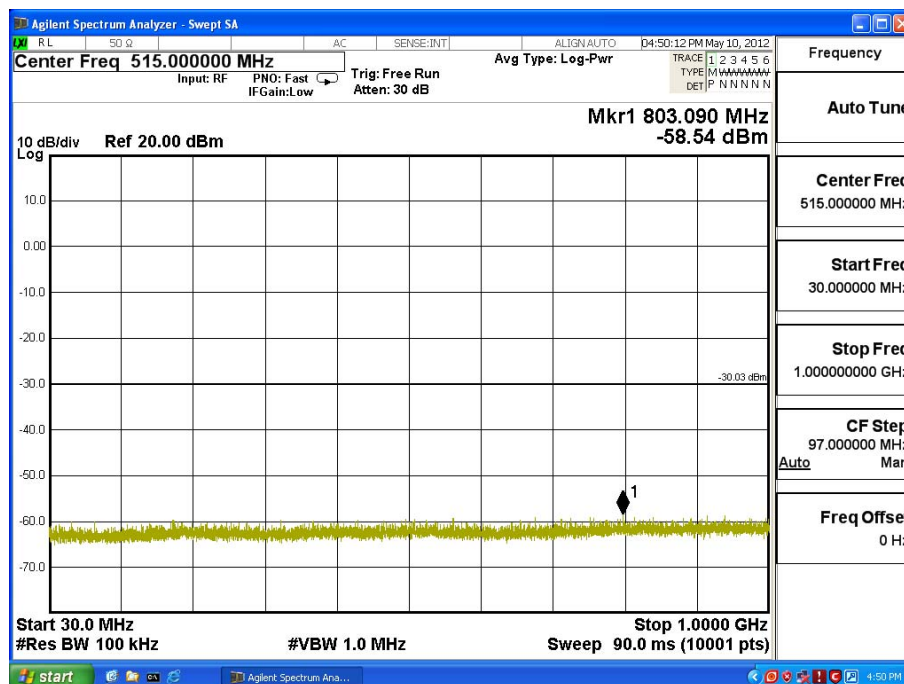
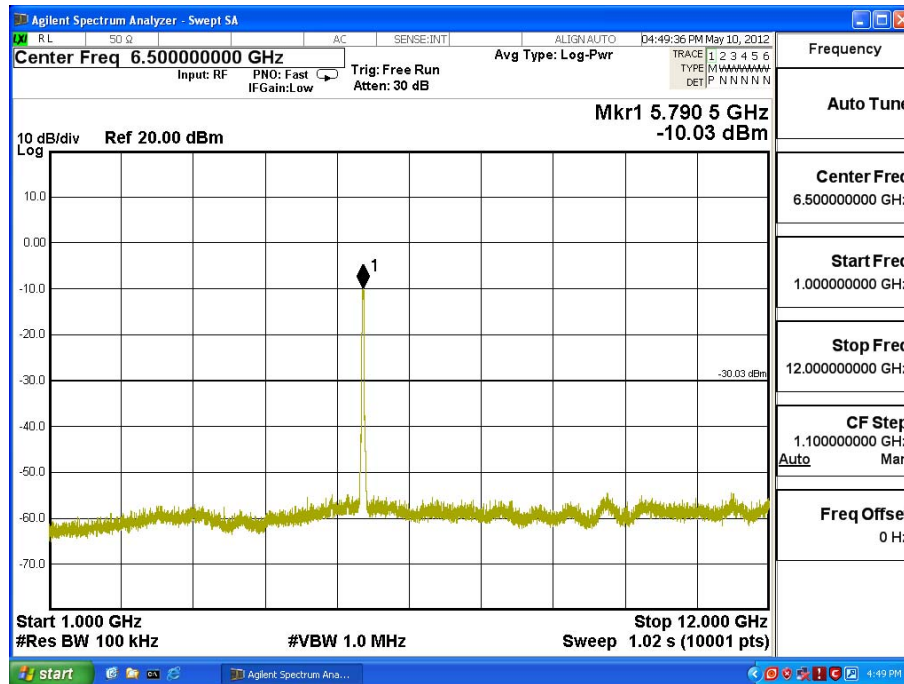
Channel 151 (5755MHz) 30MHz -40GHz-Chain B

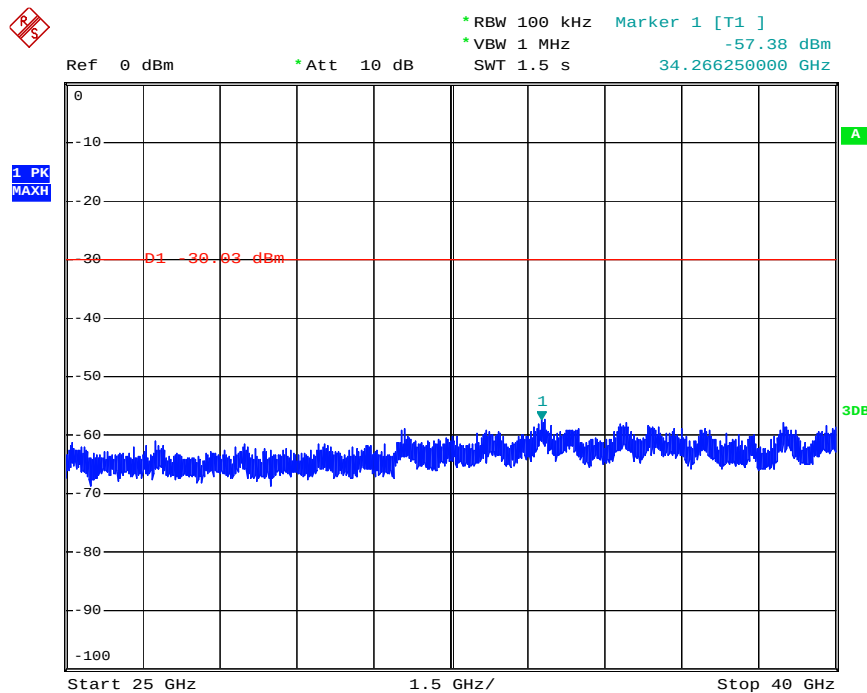
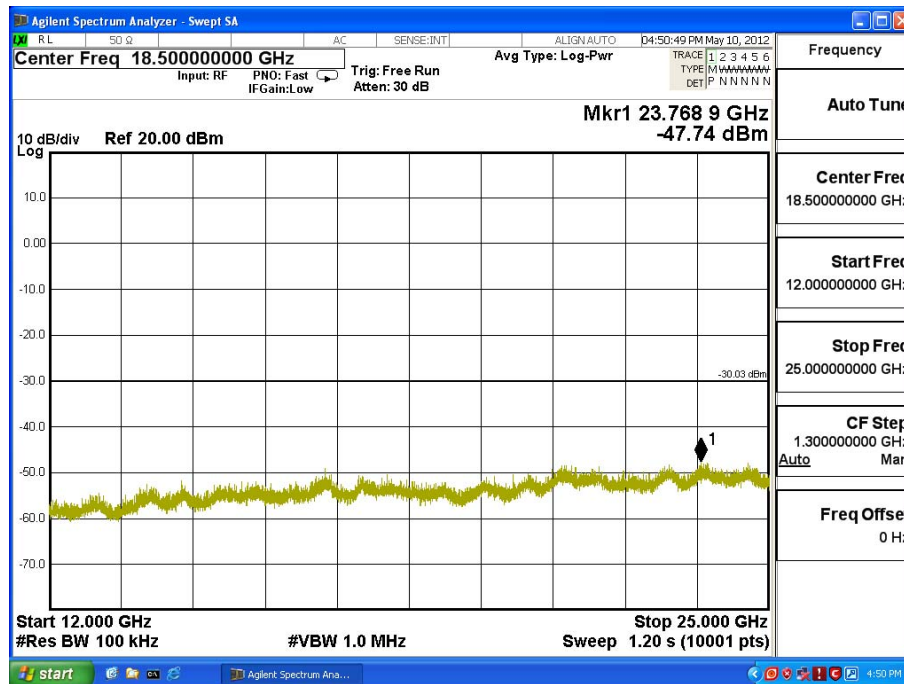




Date: 14.MAY.2012 19:56:03

Channel 159 (5795MHz) 30MHz -40GHz-Chain B





Date: 14.MAY.2012 19:58:47

6. Band Edge

6.1. Test Equipment

RF Conducted Measurement

The following test equipments are used during the band edge tests:

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

RF Radiated Measurement:

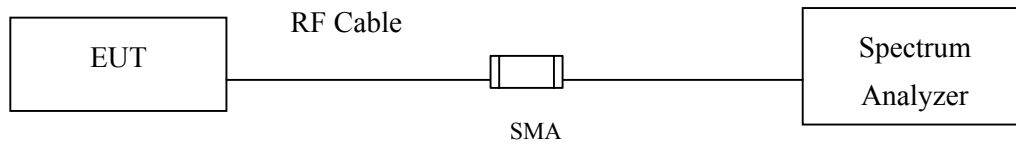
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 3		Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2011
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2011
		Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2011
		Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2012
	X	Pre-Amplifier	QTK	AP-180C / CHM_0906076	Sep., 2011
		Pre-Amplifier	MITEQ	AMF-4D-180400-45-6P/ 925975	Mar, 2012
	X	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2012
		Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2011
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2012
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

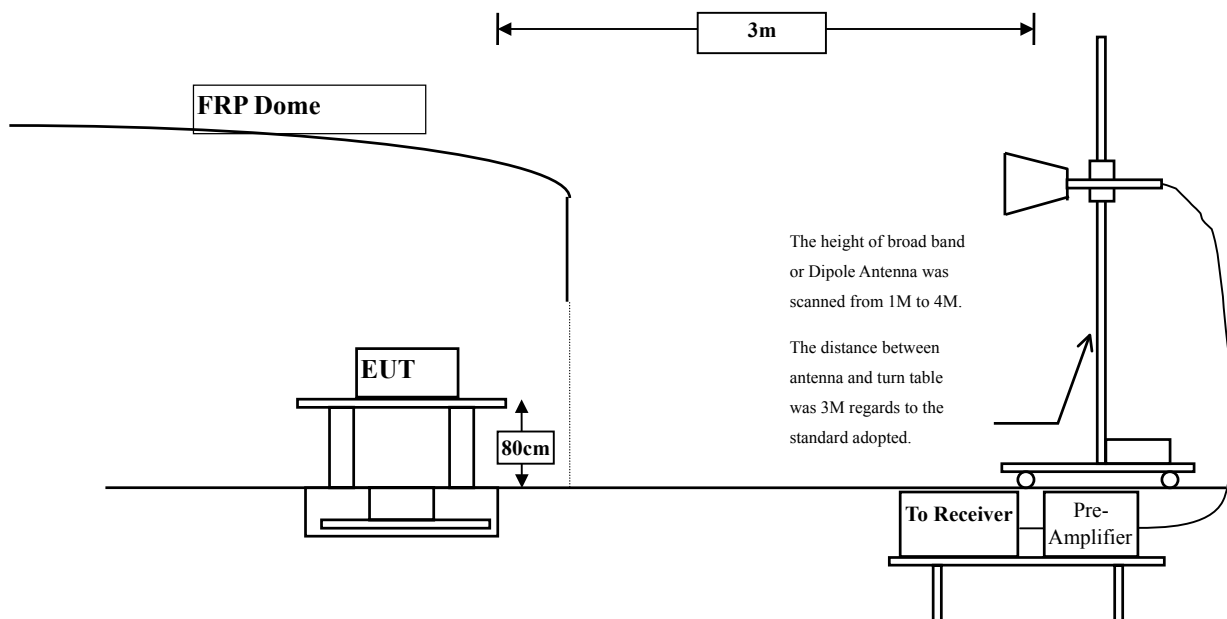
- Note:
1. All instruments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

6.2. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

6.4. Test Procedure

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

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.

6.5. Uncertainty

± 3.9 dB above 1GHz

± 3.8 dB below 1GHz

6.6. Test Result of Band Edge

Product : 802.11 a/b/g/n RTL8192DU Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit - 802.11b 1Mbps

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	63.35	94.988	Peak
Horizontal	2412	31.639	59.38	91.018	Average
Vertical	2412	31.639	65.94	97.578	Peak
Vertical	2412	31.639	61.93	93.568	Average

Note: 1:Spectrum Analyzer setting:

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

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

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2388.9	94.988	53.49	41.498	74.000	Peak
Horizontal	2383.6	91.018	62.17	28.848	54.000	Average
Vertical	2388.9	97.578	53.49	44.088	74.000	Peak
Vertical	2383.6	93.568	62.17	31.398	54.000	Average

Note:

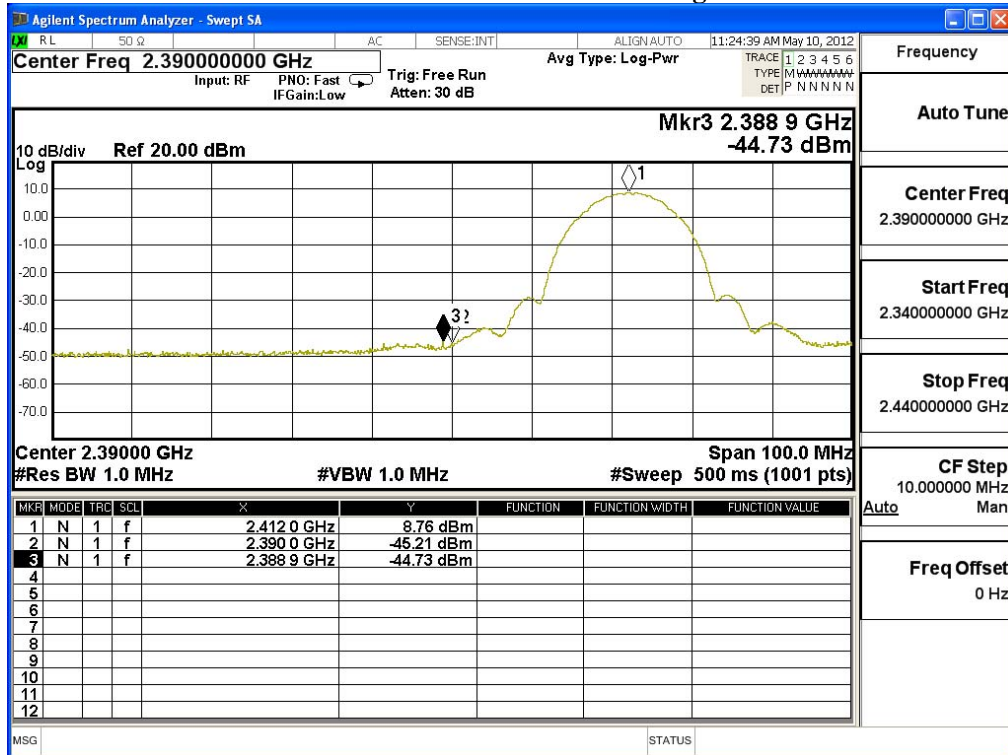
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

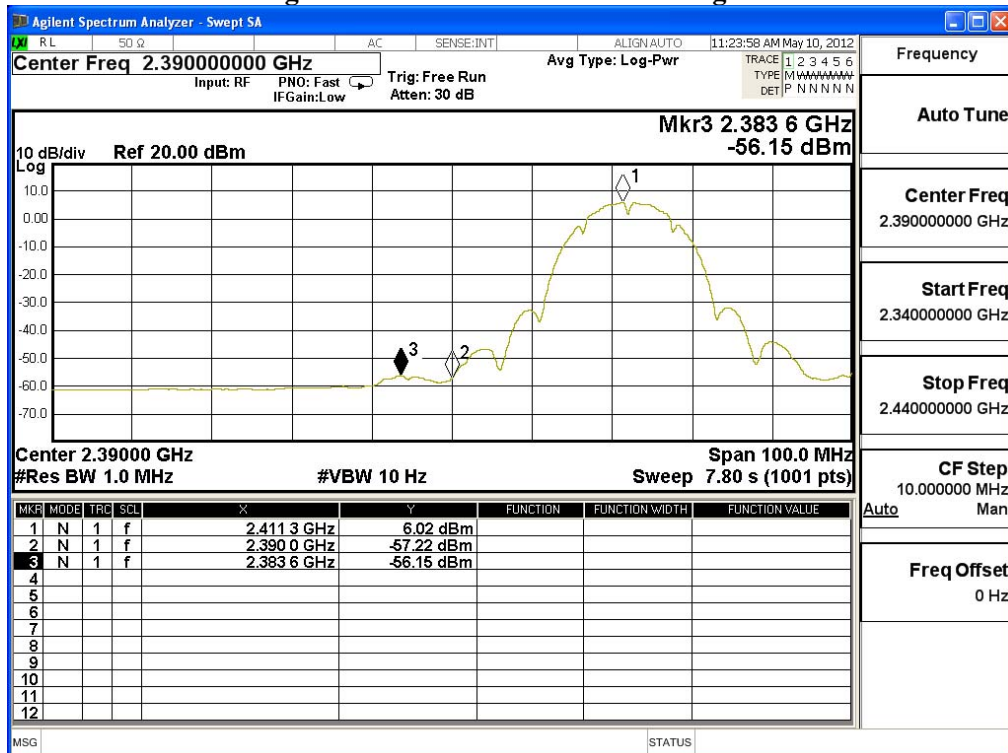
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 802.11b 1Mbps

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	65.79	97.809	Peak
Horizontal	2462	32.019	61.83	93.849	Average
Vertical	2462	32.019	68.51	100.529	Peak
Vertical	2462	32.019	64.58	96.599	Average

Note: 1:Spectrum Analyzer setting:

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

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

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.5	97.809	51.22	46.589	74.000	Peak
Horizontal	2483.5	93.849	56.87	36.979	54.000	Average
Vertical	2483.5	100.529	51.22	49.309	74.000	Peak
Vertical	2483.5	96.599	56.87	39.729	54.000	Average

Note:

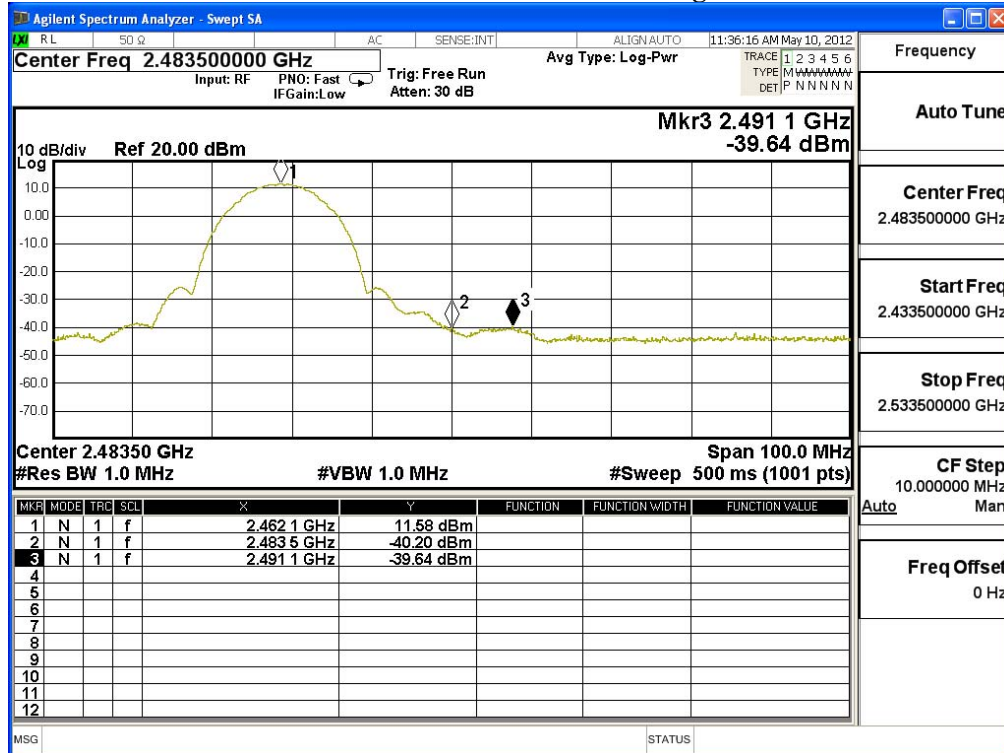
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

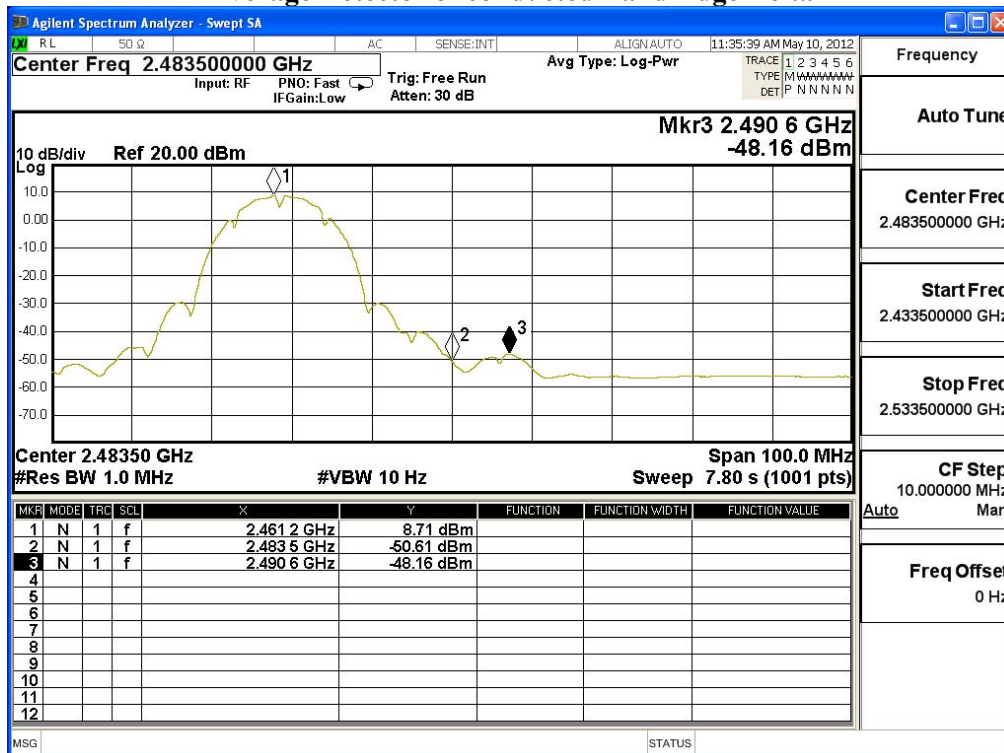
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11 a/b/g/n RTL8192DU Module
Test Item : Band Edge
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit - 802.11g 6Mbps

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2412	31.639	60.47	92.108	Peak
Horizontal	2412	31.639	50.94	82.578	Average
Vertical	2412	30.95	62.84	93.789	Peak
Vertical	2412	30.95	53.66	84.609	Average

Note: 1:Spectrum Analyzer setting:

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

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

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2390	92.108	50.28	41.828	74.000	Peak
Horizontal	2390	82.578	55.26	27.318	54.000	Average
Vertical	2390	93.789	50.28	43.509	74.000	Peak
Vertical	2390	84.609	55.26	29.349	54.000	Average

Note:

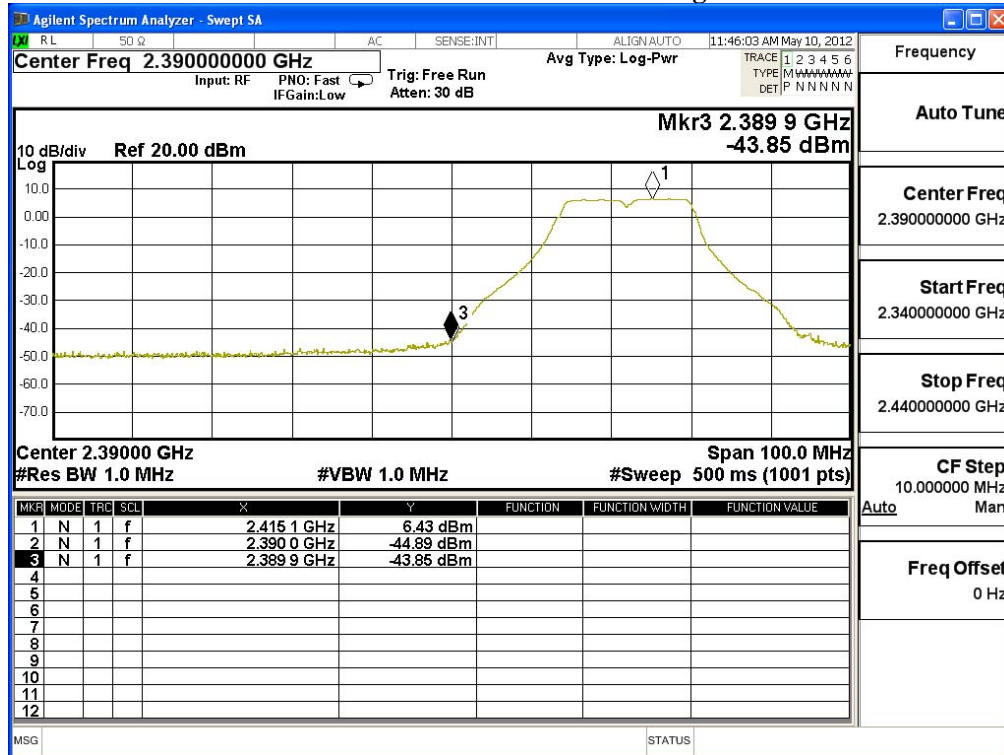
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

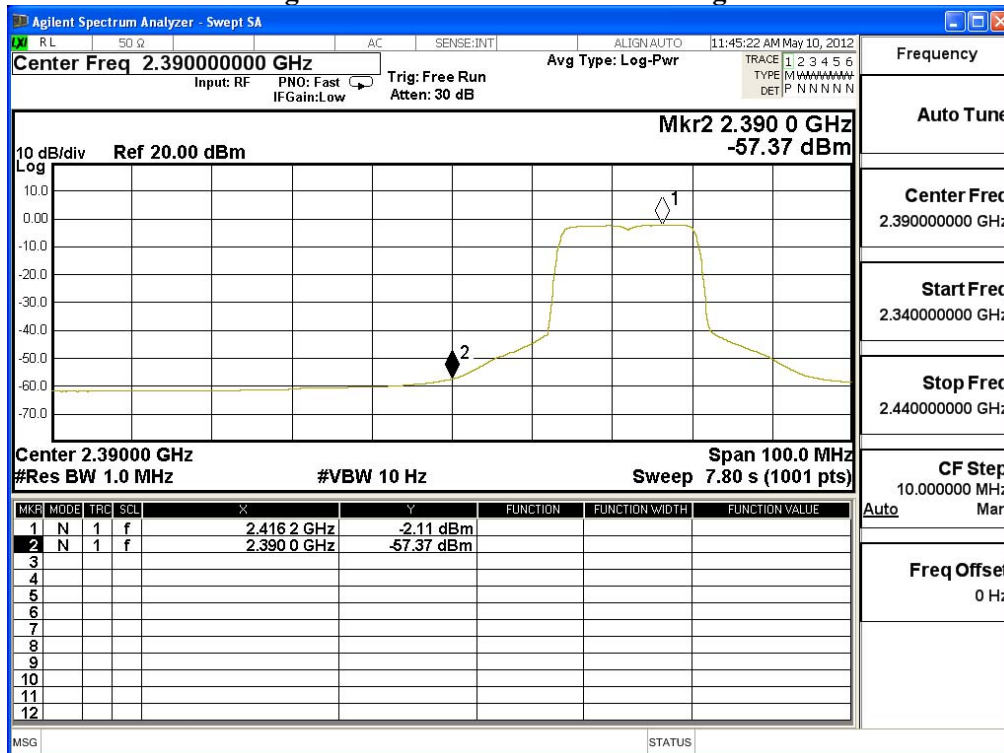
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmit - 802.11g 6Mbps

Fundamental Filed Strength

Antenna Pole	Frequency [MHz]	Correction Factor [dB/m]	Reading Level [dBuV]	Emission Level [dBuV/m]	Detector
Horizontal	2462	32.019	62.91	94.929	Peak
Horizontal	2462	32.019	53.45	85.469	Average
Vertical	2462	31.29	65.21	96.5	Peak
Vertical	2462	31.29	55.84	87.13	Average

Note: 1:Spectrum Analyzer setting:

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

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

Band Edge Test Data

Antenna Pole	Test Frequency (MHz)	Fundamental (dBuV/m)	Δ (dB)	Band Edge Field Strength (dBuV/m)	Limit (dBuV/m)	Detector
Horizontal	2483.6	94.929	37.45	57.479	74.000	Peak
Horizontal	2483.5	85.469	50.26	35.209	54.000	Average
Vertical	2483.6	96.5	37.45	59.05	74.000	Peak
Vertical	2483.5	87.13	50.26	36.87	54.000	Average

Note:

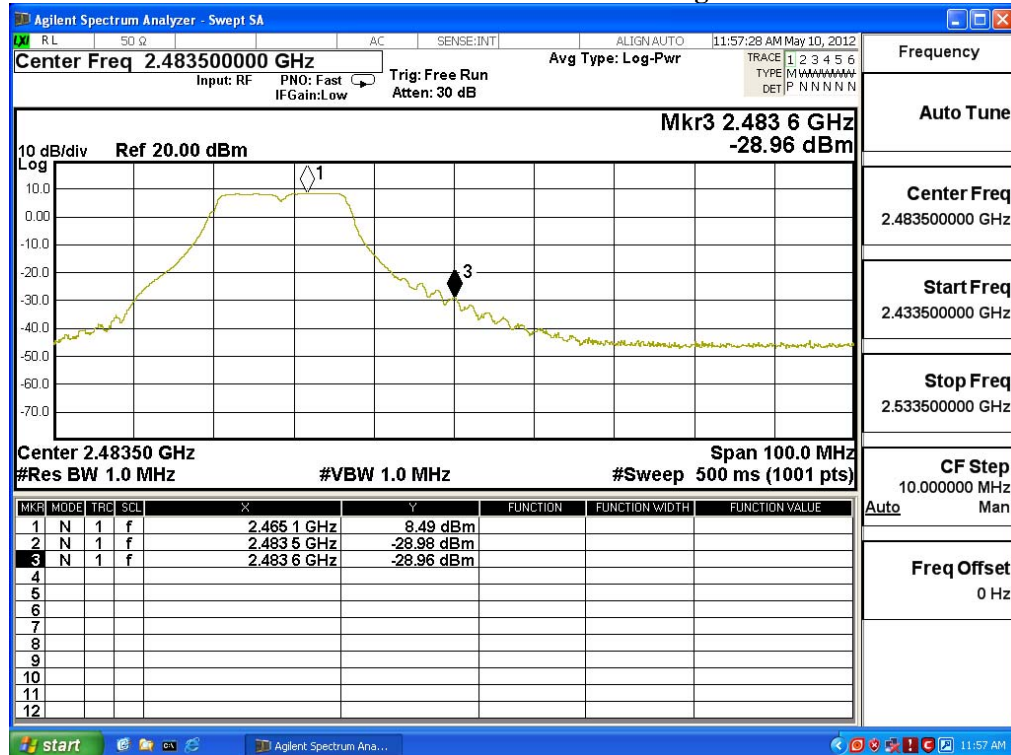
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

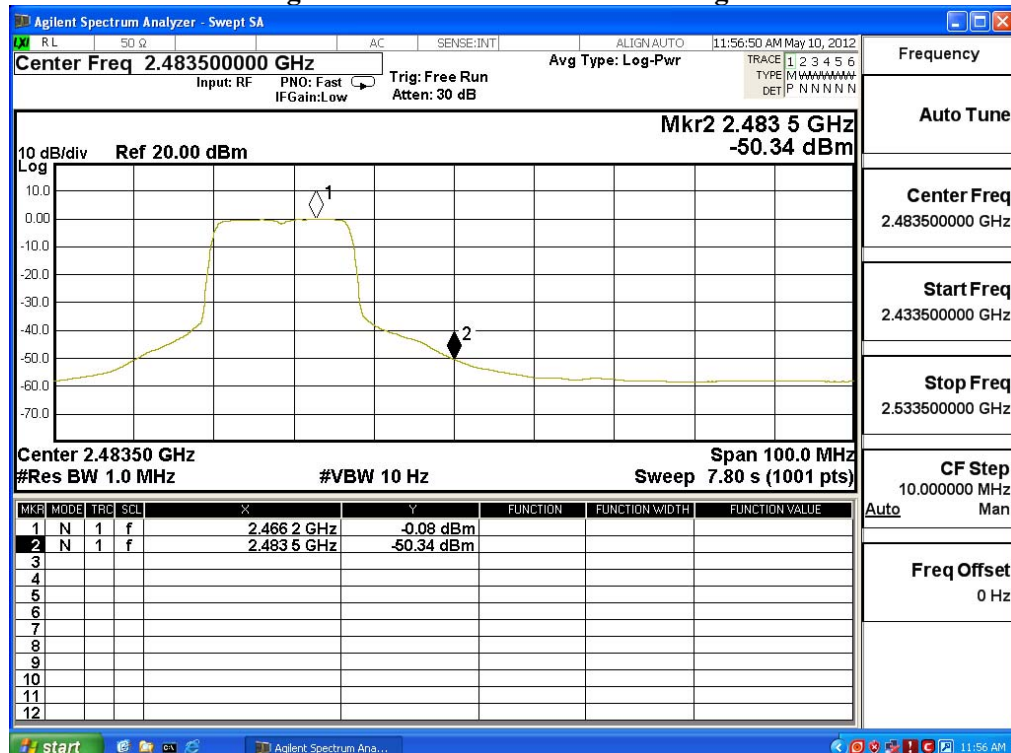
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta



Average Detector of conducted Band Edge Delta



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(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:

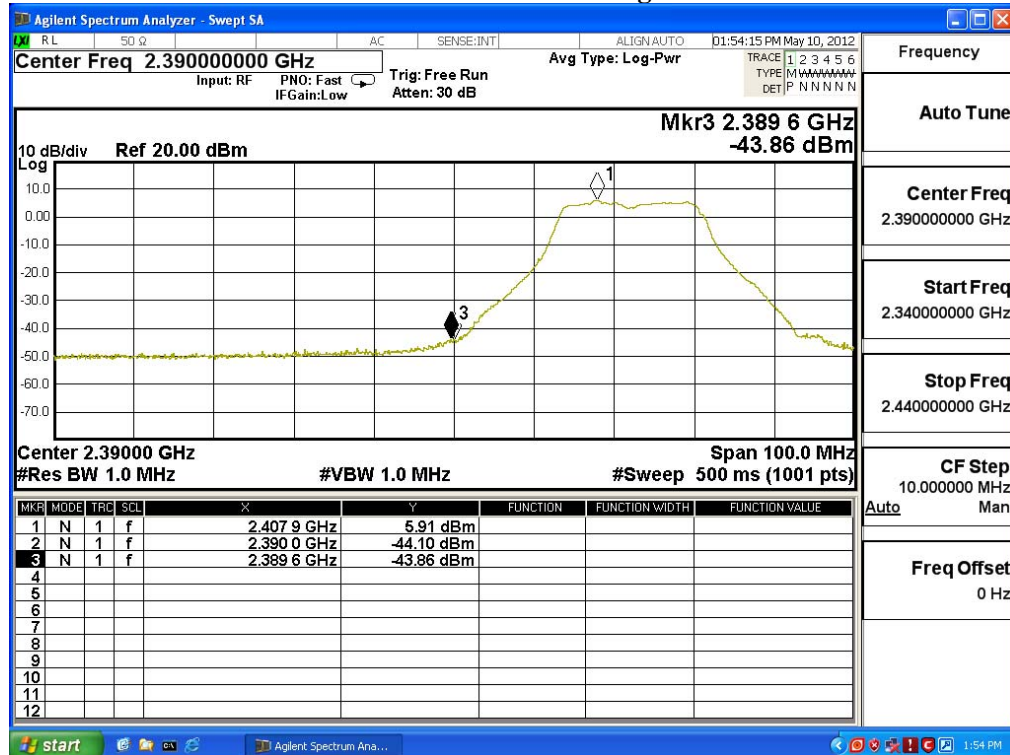
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

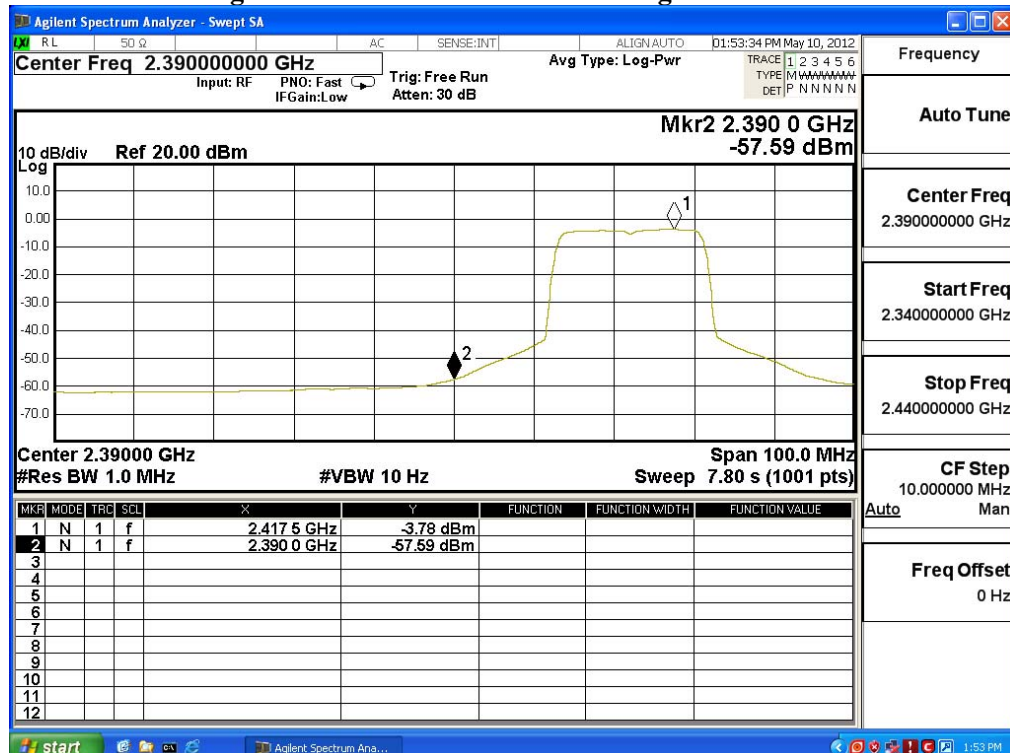
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

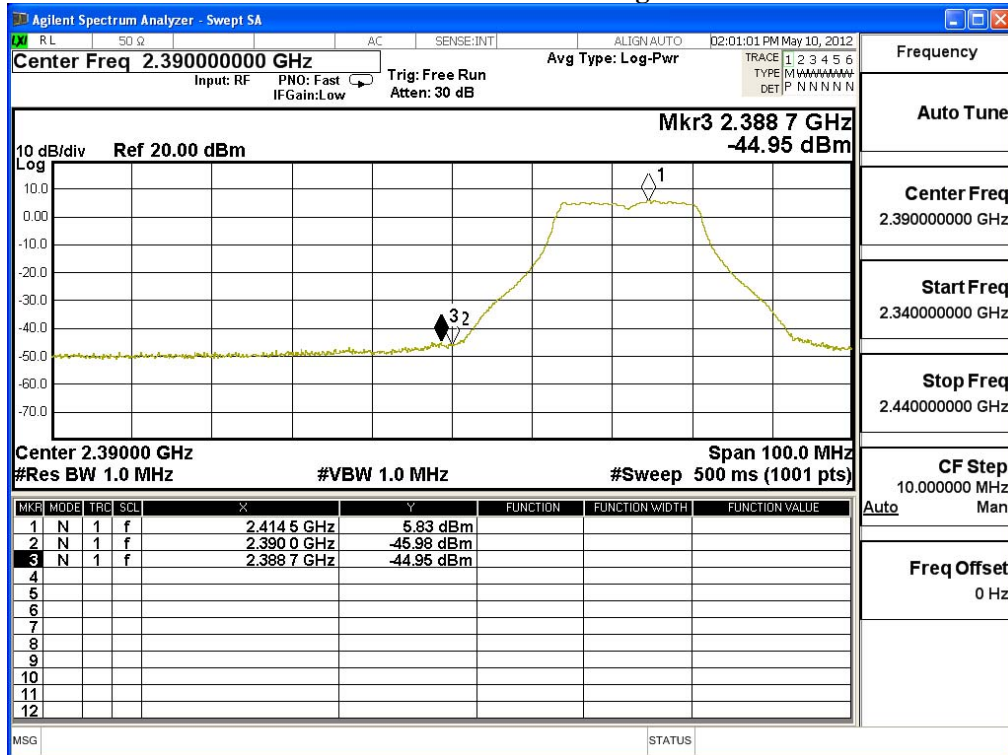
Peak Detector of conducted Band Edge Delta-Chain A



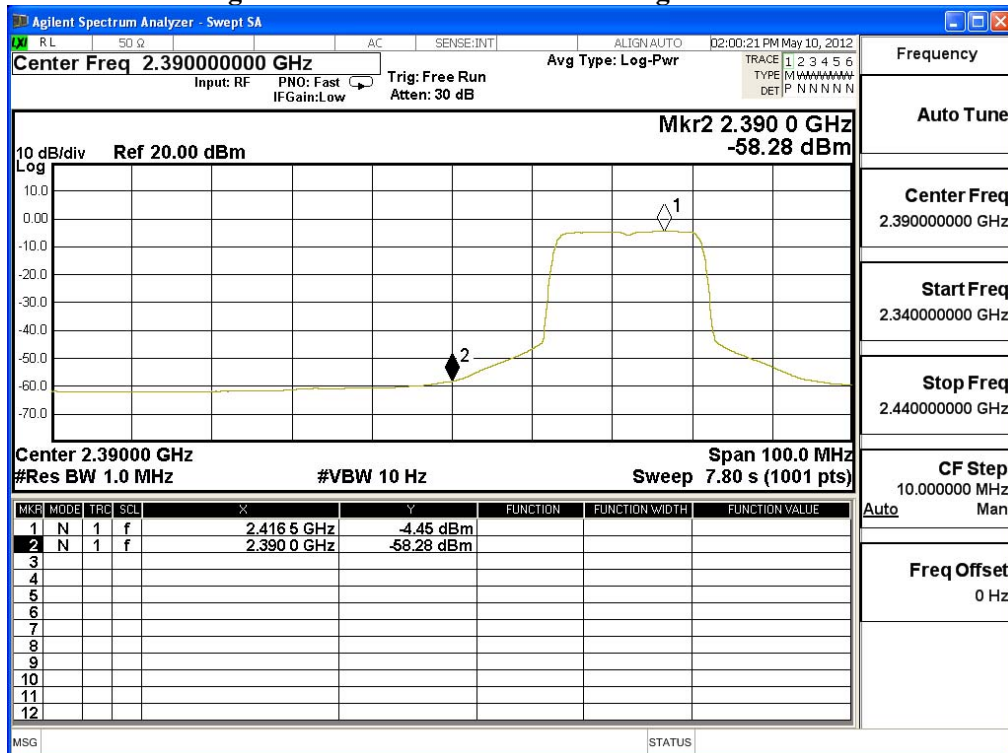
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(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:

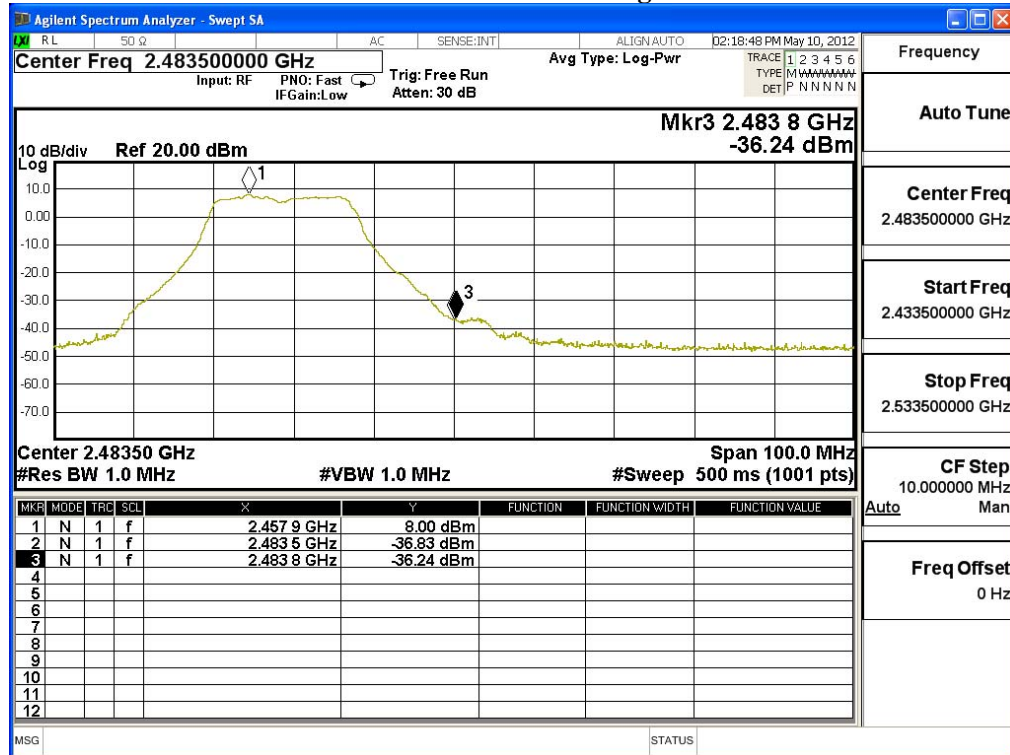
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

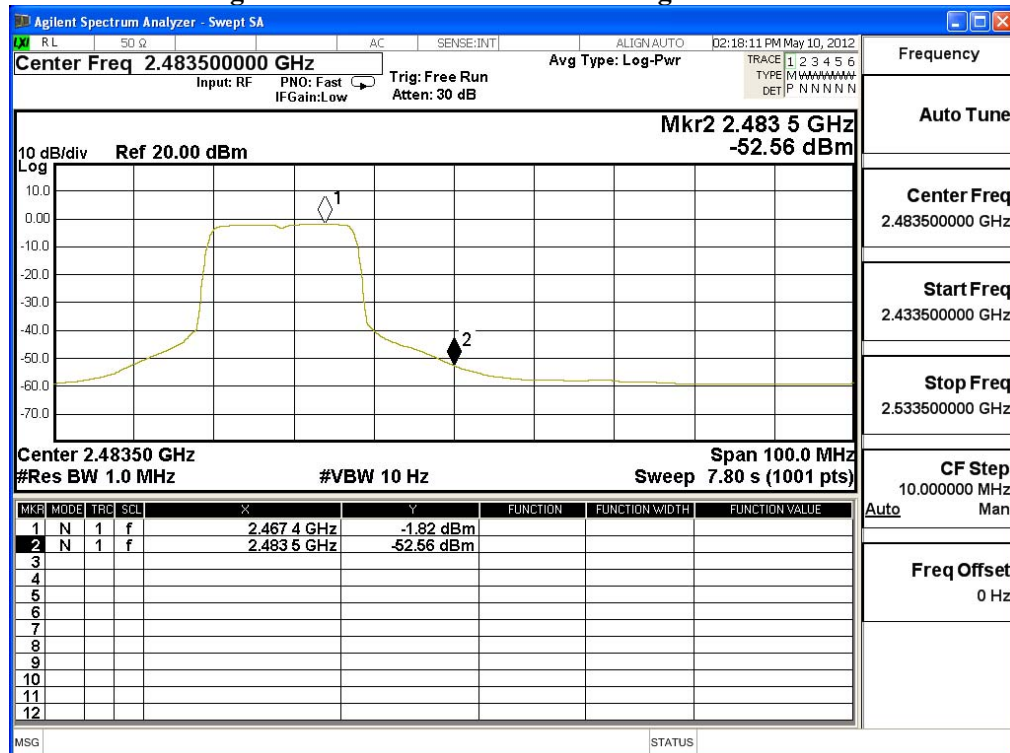
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

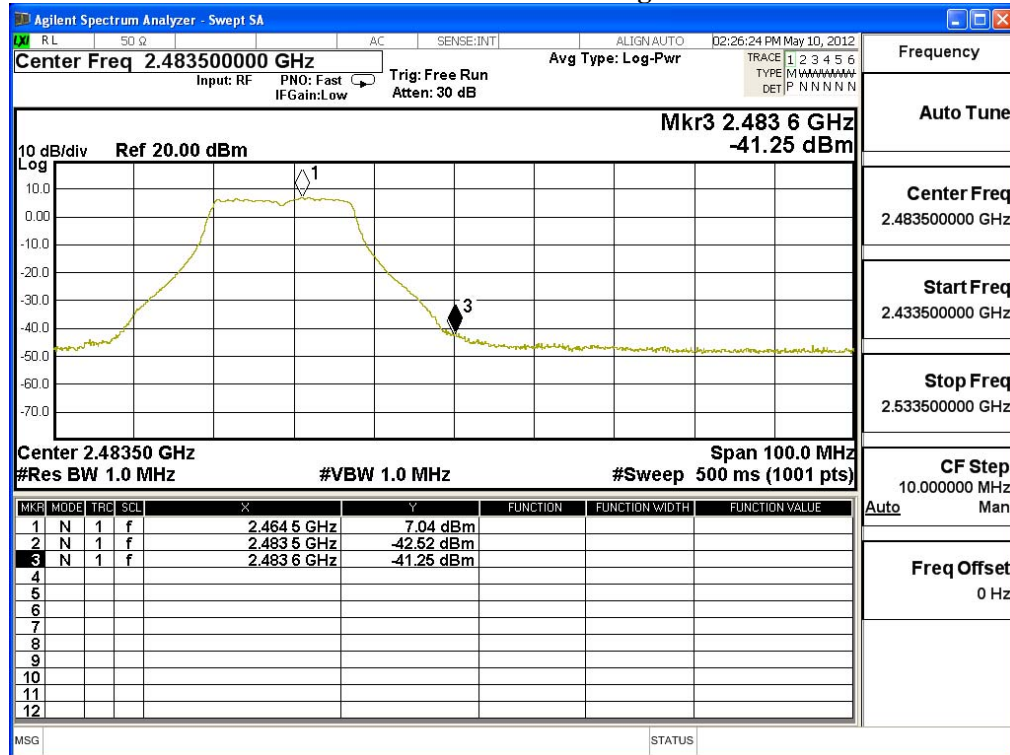
Peak Detector of conducted Band Edge Delta-Chain A



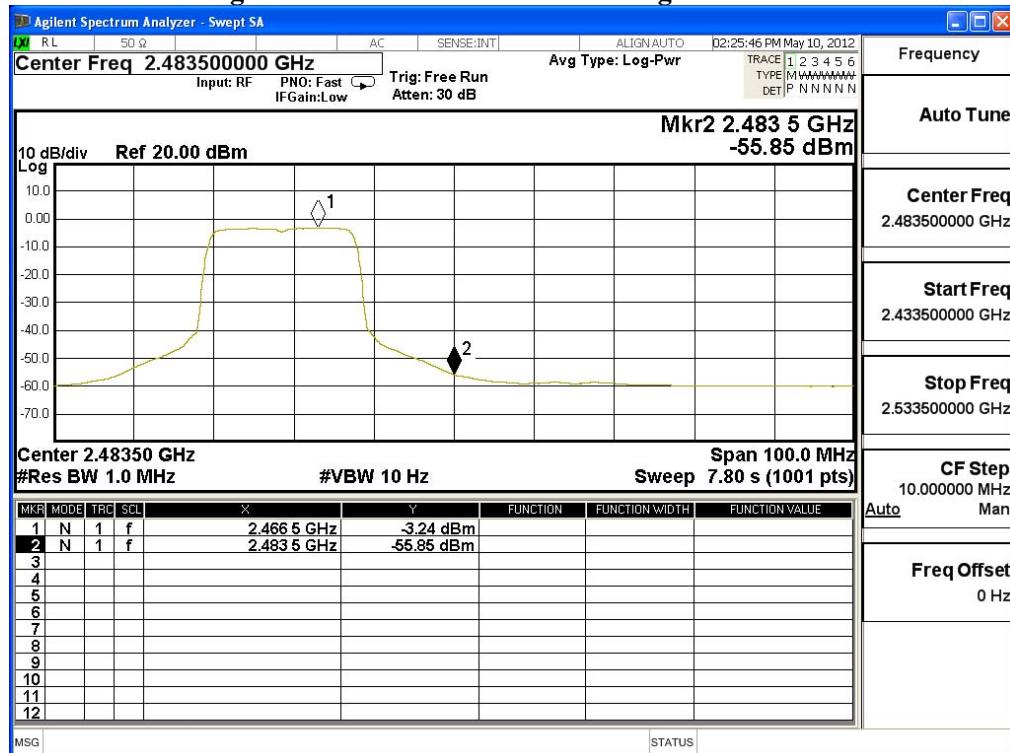
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B



Average Detector of conducted Band Edge Delta-Chain B



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmit - 802.11n-40BW_30Mbps(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:

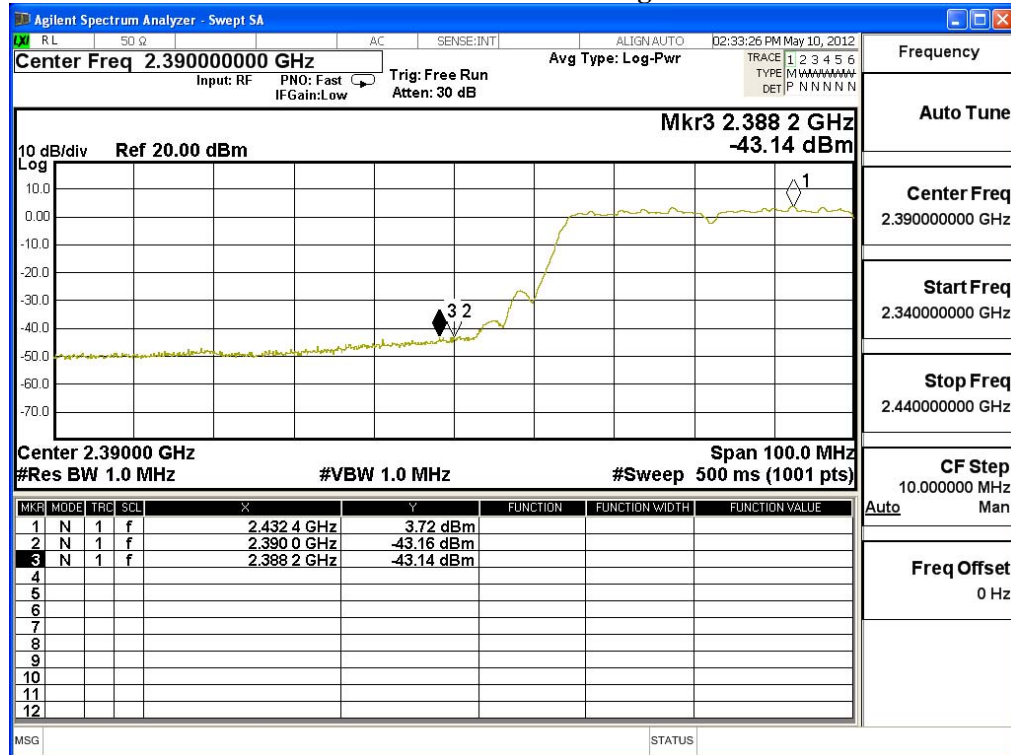
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

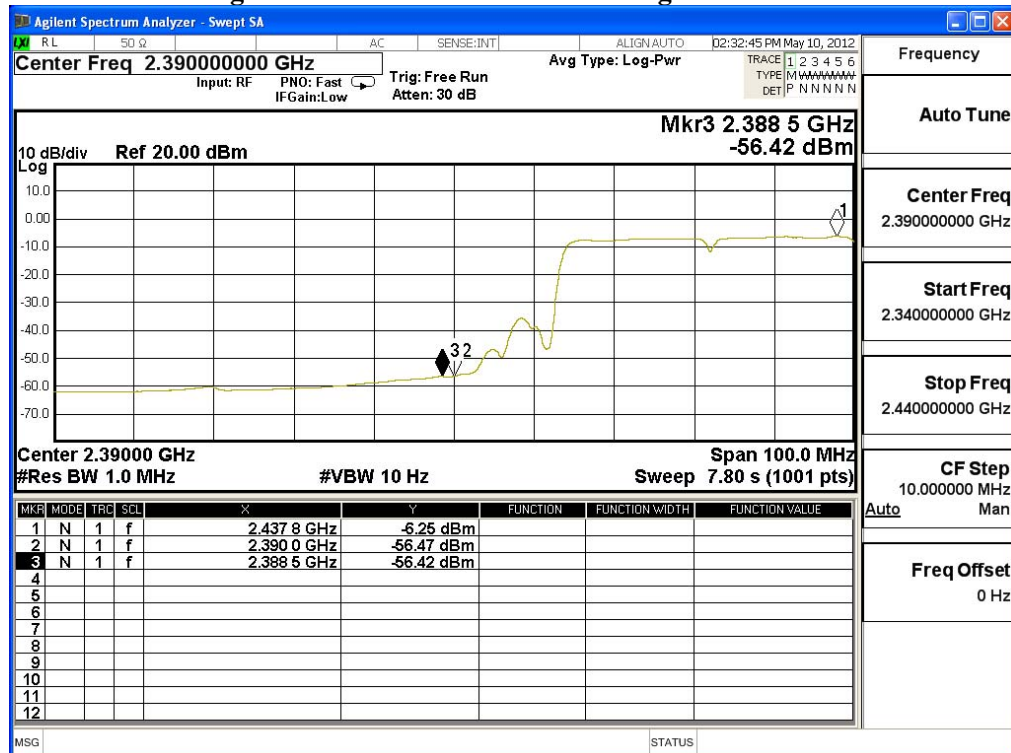
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

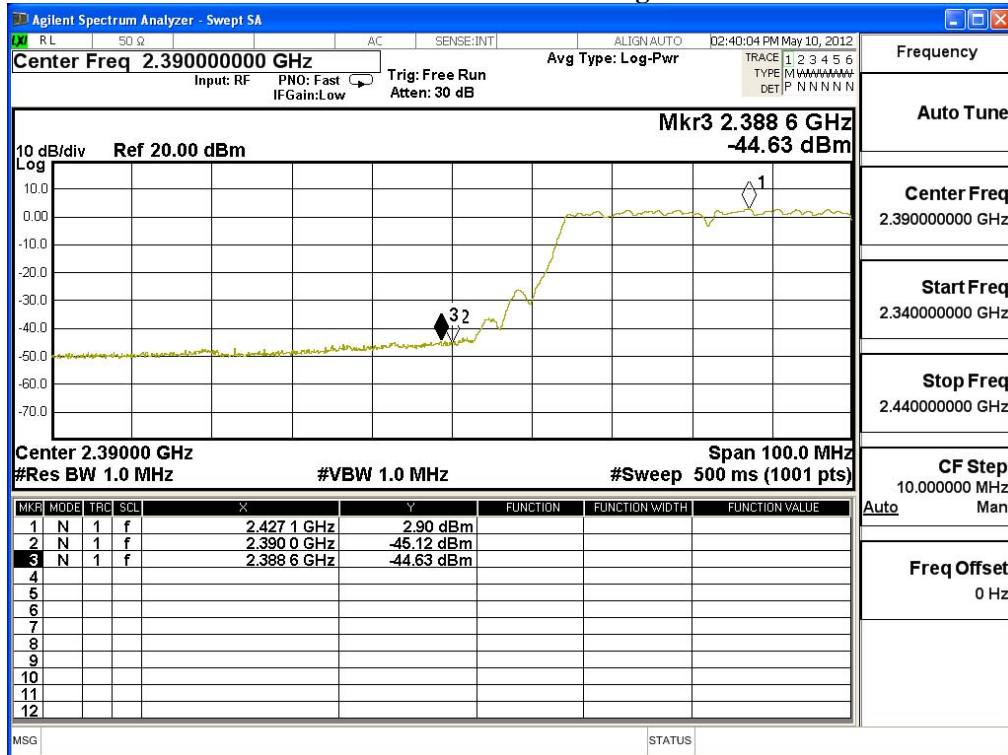
Peak Detector of conducted Band Edge Delta-Chain A



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

