

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	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:

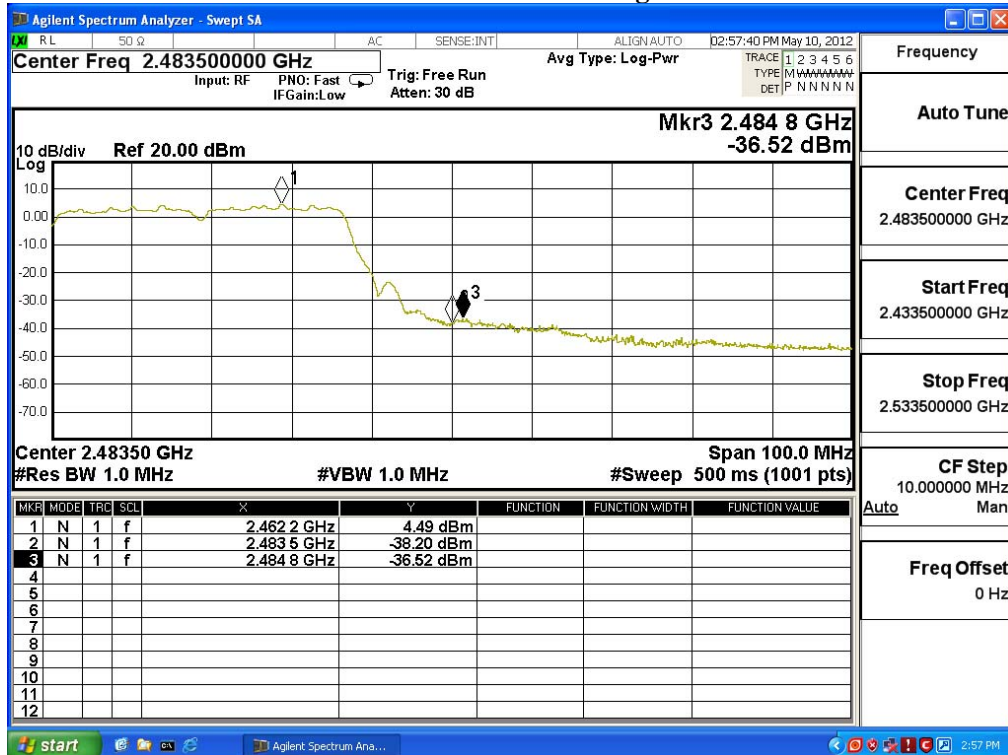
The Band Edge Field Strength was calculated using the Fundamental and Conducted Band Edge measurements per the Marker-Delta Method with the following formula:

Band Edge field Strength = F - Δ

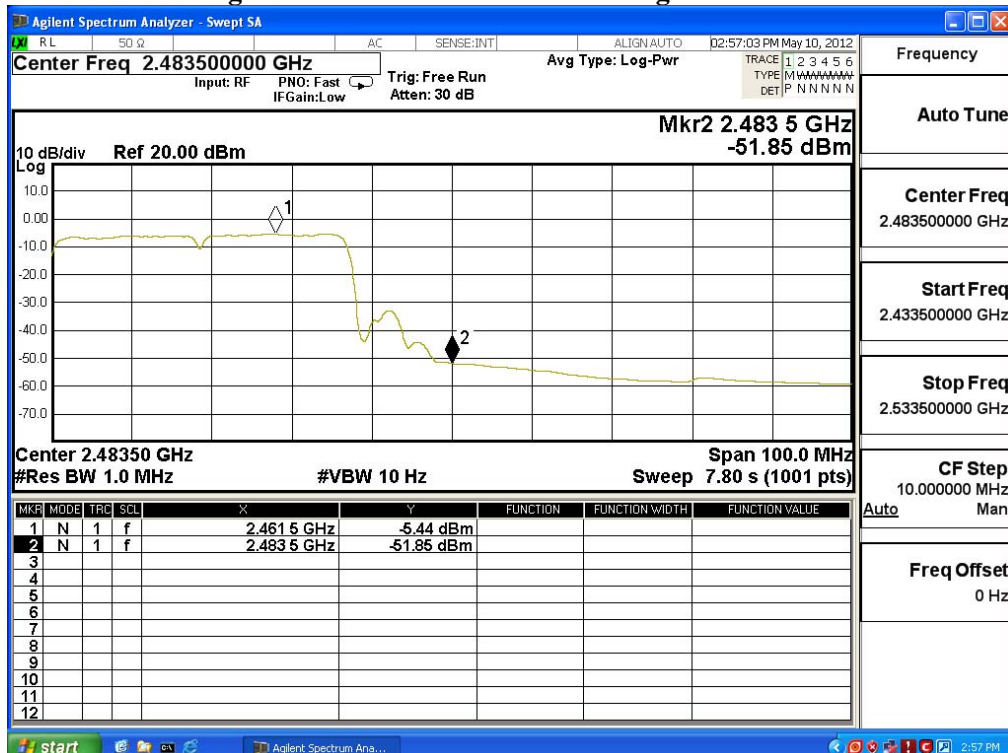
F = Fundamental field Strength (Peak or Average)

Δ = Conducted Band Edge Delta (Peak or Average)

Peak Detector of conducted Band Edge Delta-Chain A



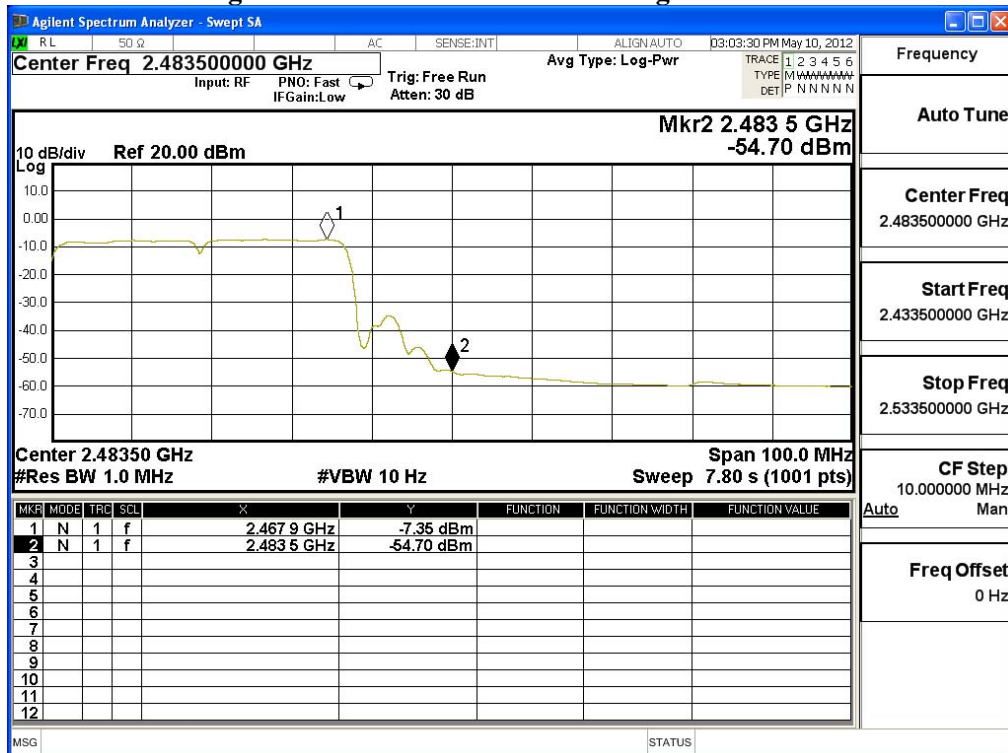
Average Detector of conducted Band Edge Delta-Chain A



Peak Detector of conducted Band Edge Delta-Chain B

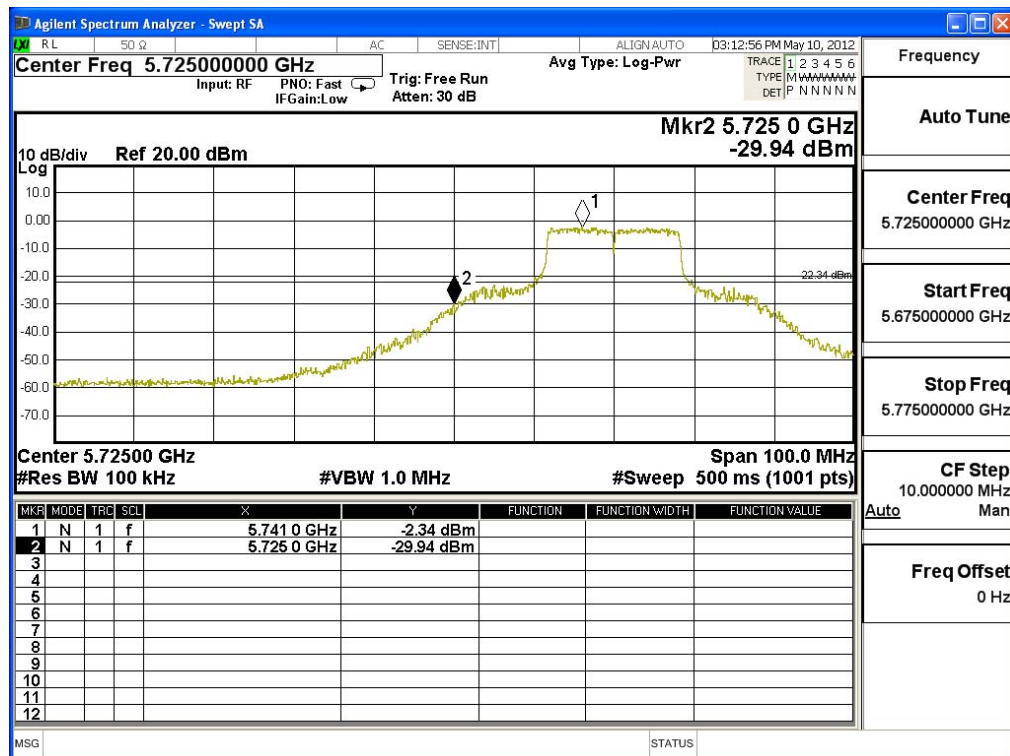


Average Detector of conducted Band Edge Delta-Chain B



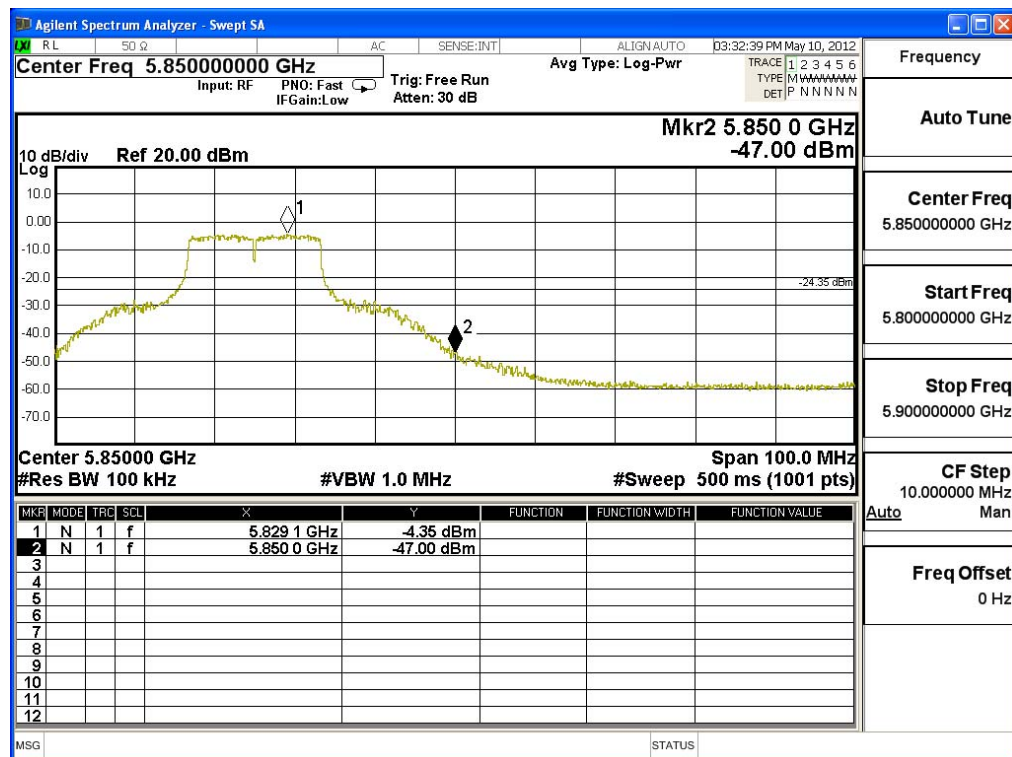
Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps

Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5745	35.35	>20	PASS



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

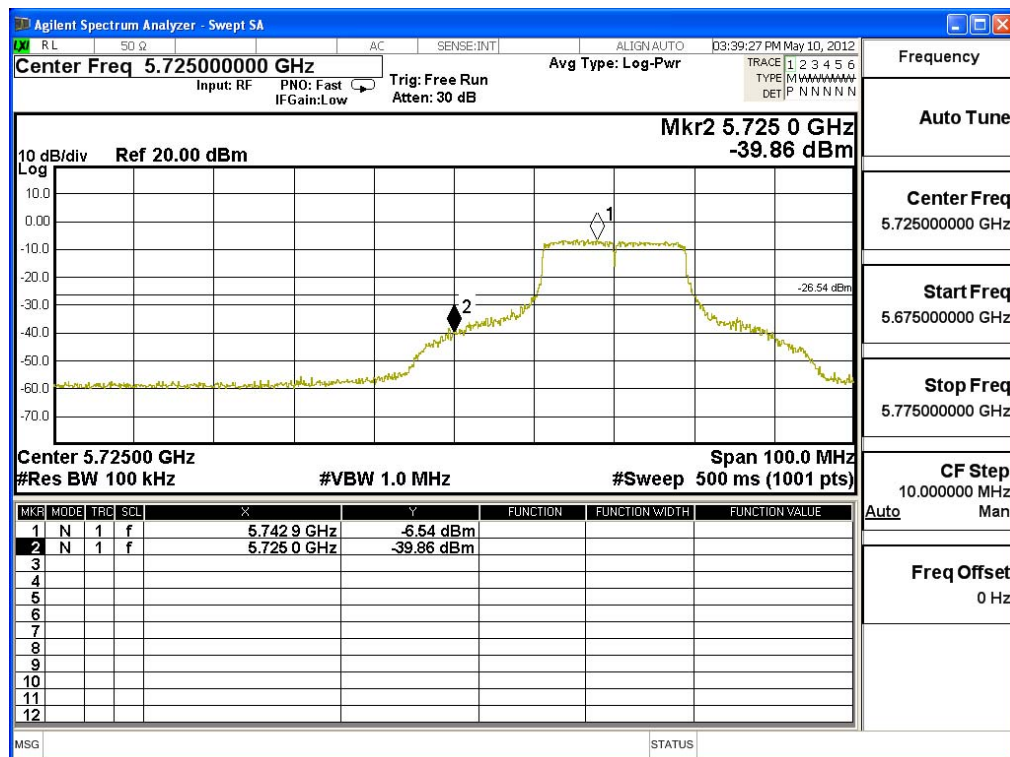
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5825	41.40	>20	PASS



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

Chain A

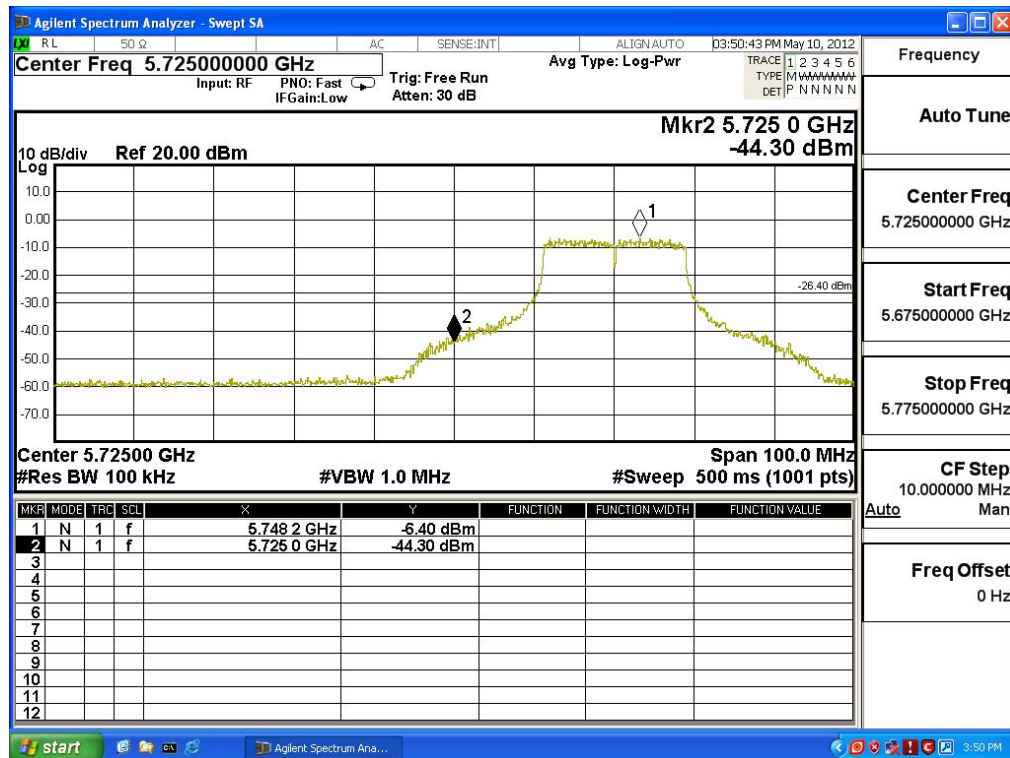
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5745	35.60	>20	PASS



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

Chain B

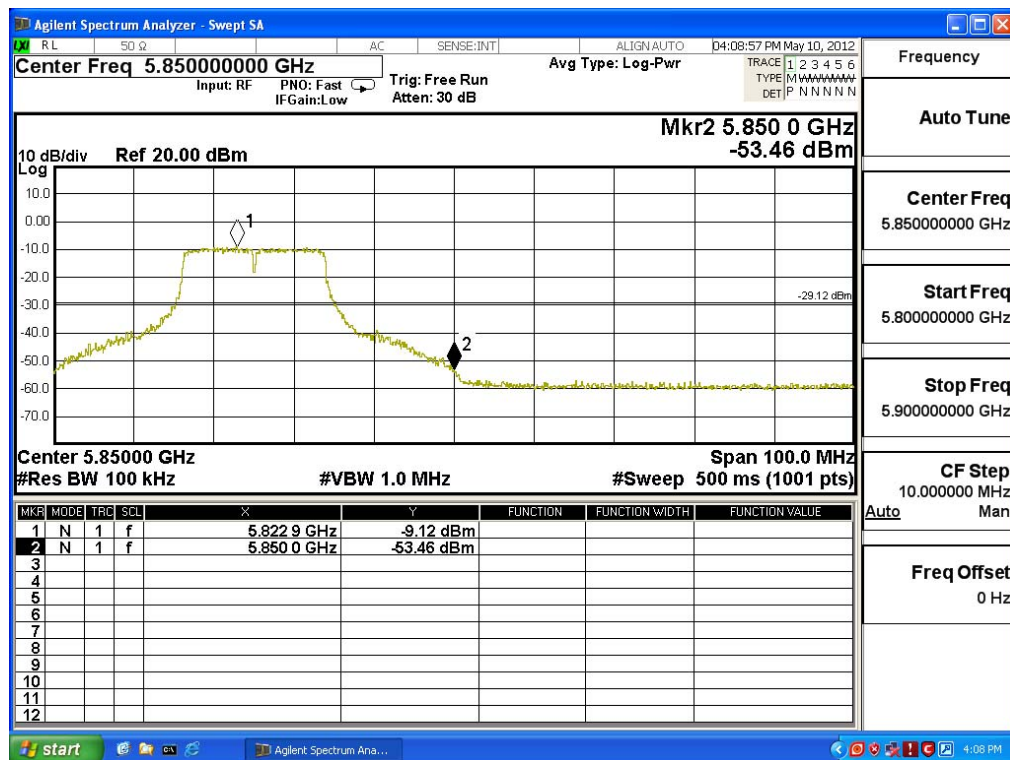
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5745	41.50	>20	PASS



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

Chain A

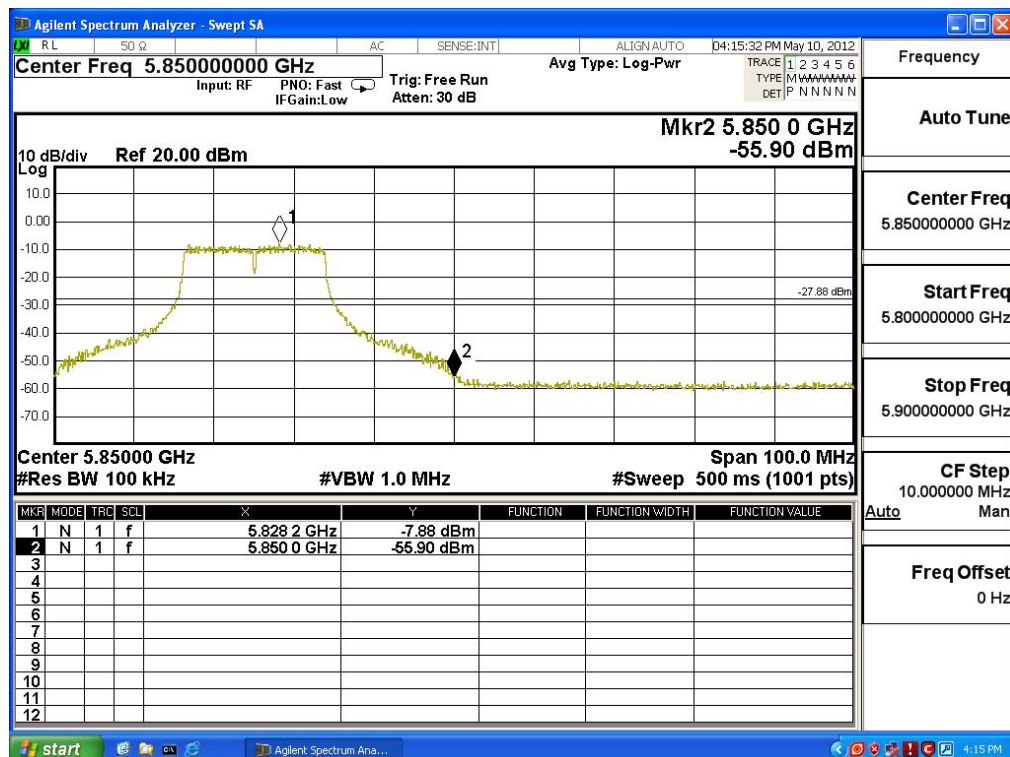
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5825	48.04	>20	PASS



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test Mode : Mode 6: Transmit - 802.11n-20BW_14.4Mbps(5G Band)

Chain B

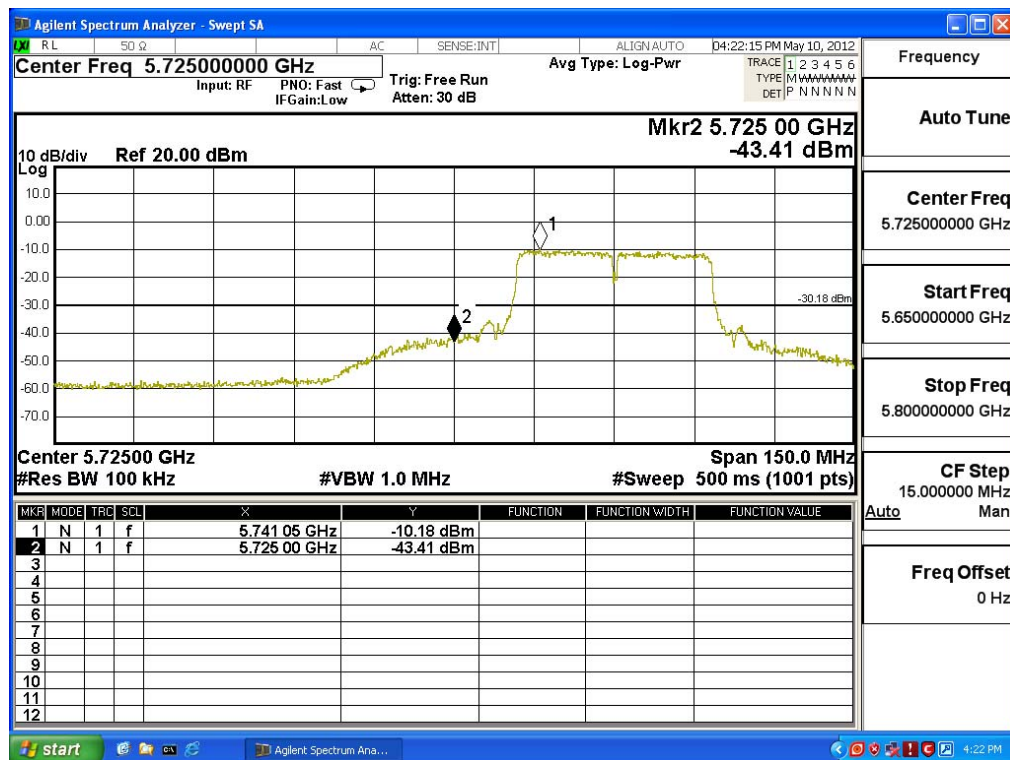
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5825	47.17	>20	PASS



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

Chain A

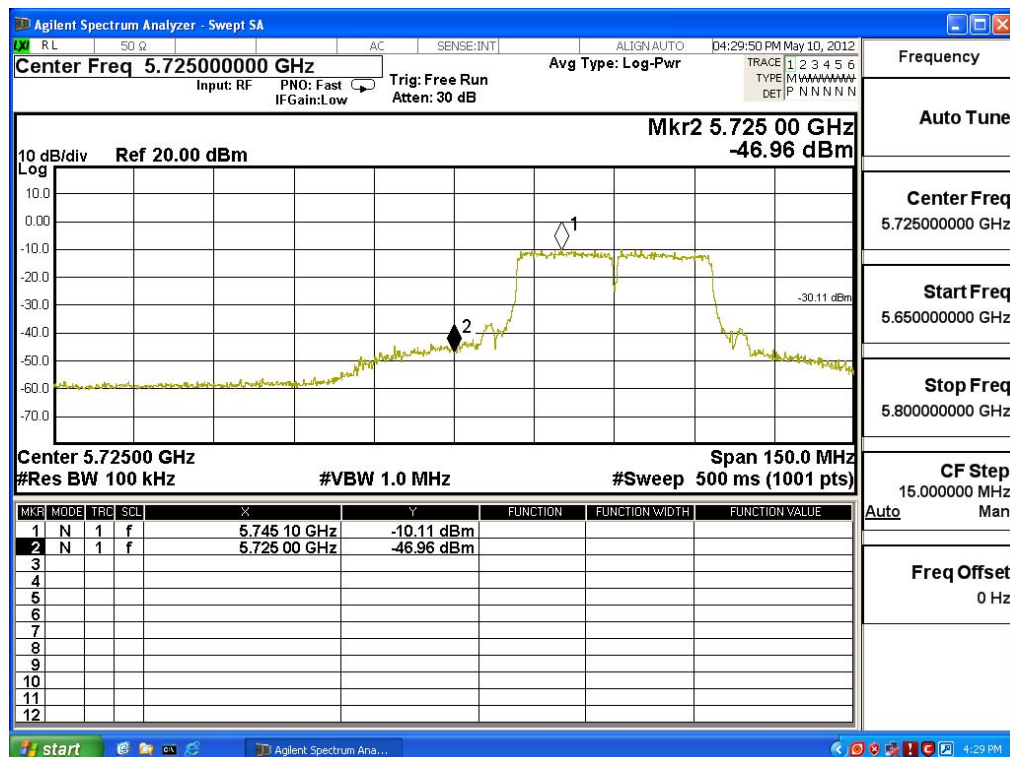
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5755	34.38	>20	PASS



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

Chain B

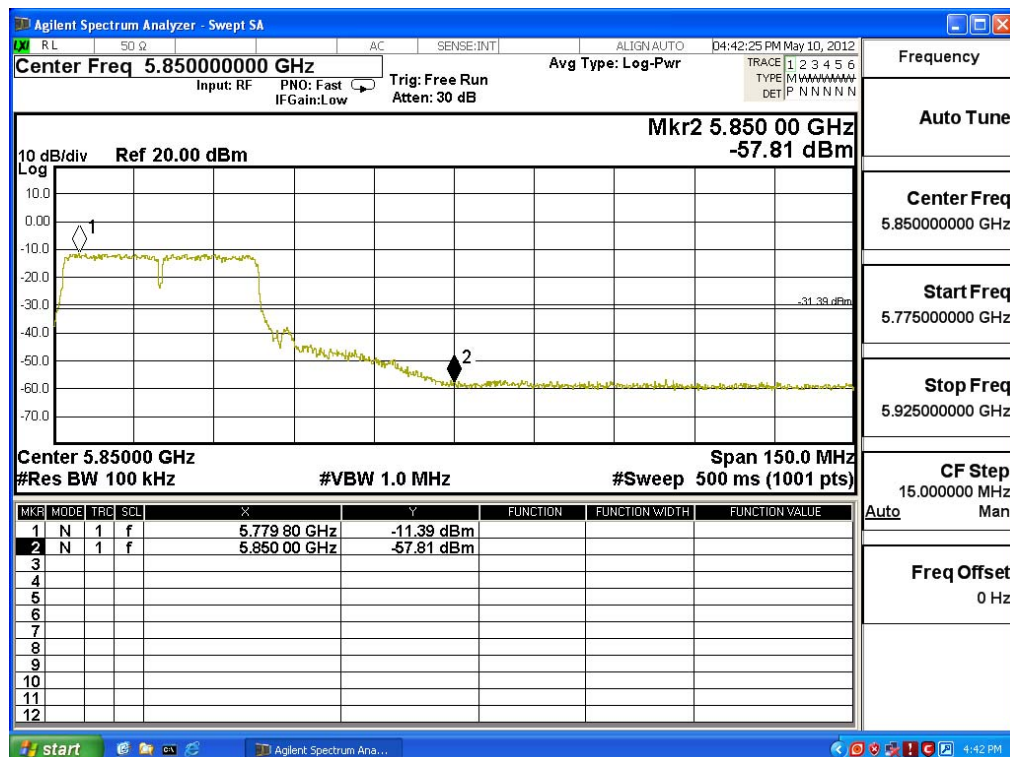
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5755	33.41	>20	PASS



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

Chain A

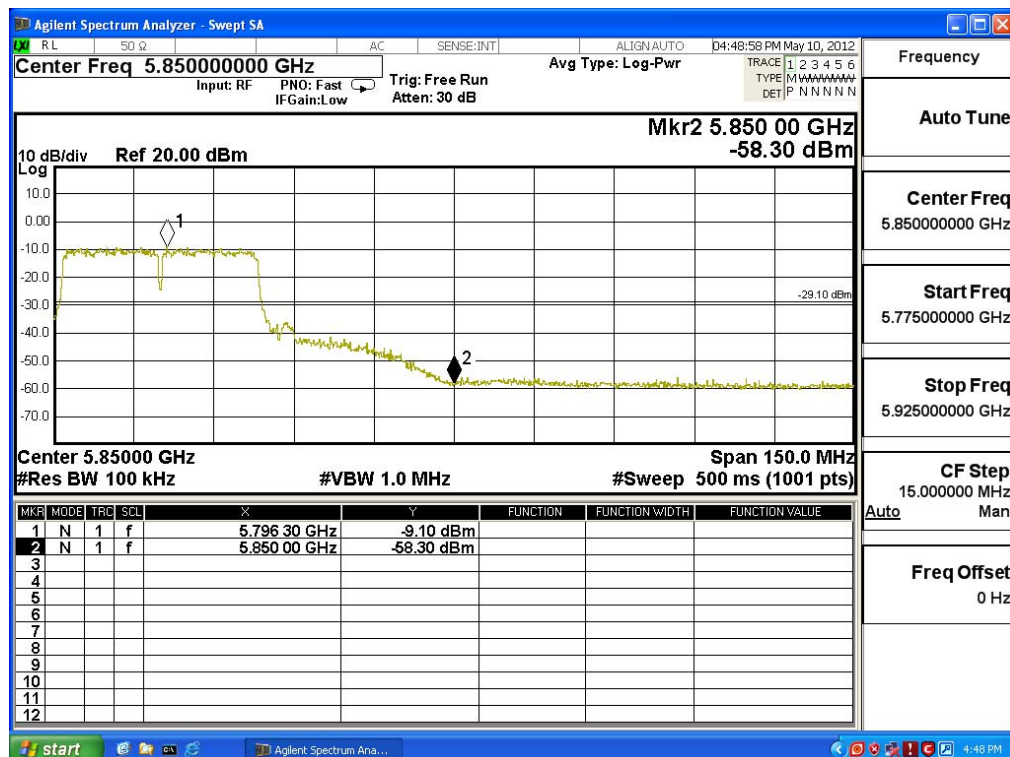
Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5795	50.67	>20	PASS



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

Chain B

Test Frequency (MHz)	Measurement Level Δ (dB)	Limit Δ (dB)	Result
5795	49.51	>20	PASS



7. Occupied Bandwidth

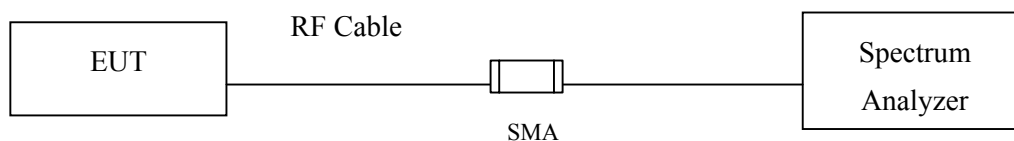
7.1. Test Equipment

	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.

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 $\geq$ 3*RBW

7.5. Uncertainty

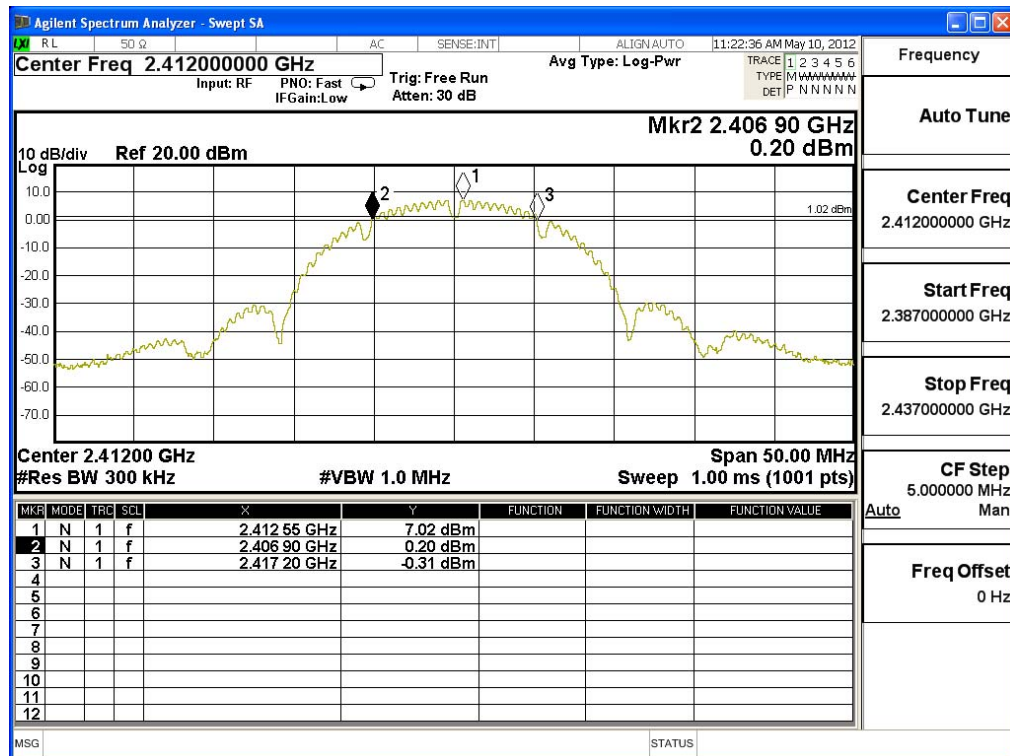
$\pm 150\text{Hz}$

7.6. Test Result of Occupied Bandwidth

Product : 802.11 a/b/g/n RTL8192DU 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	10300	>500	Pass

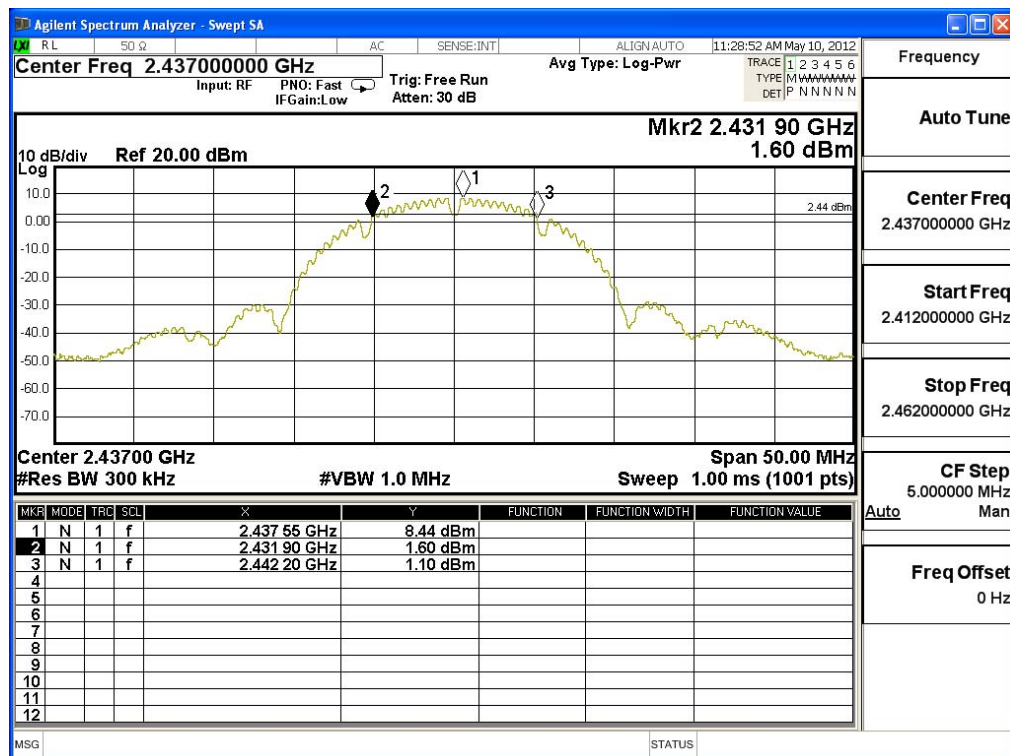
Figure Channel 1:



Product : 802.11 a/b/g/n RTL8192DU 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	10300	>500	Pass

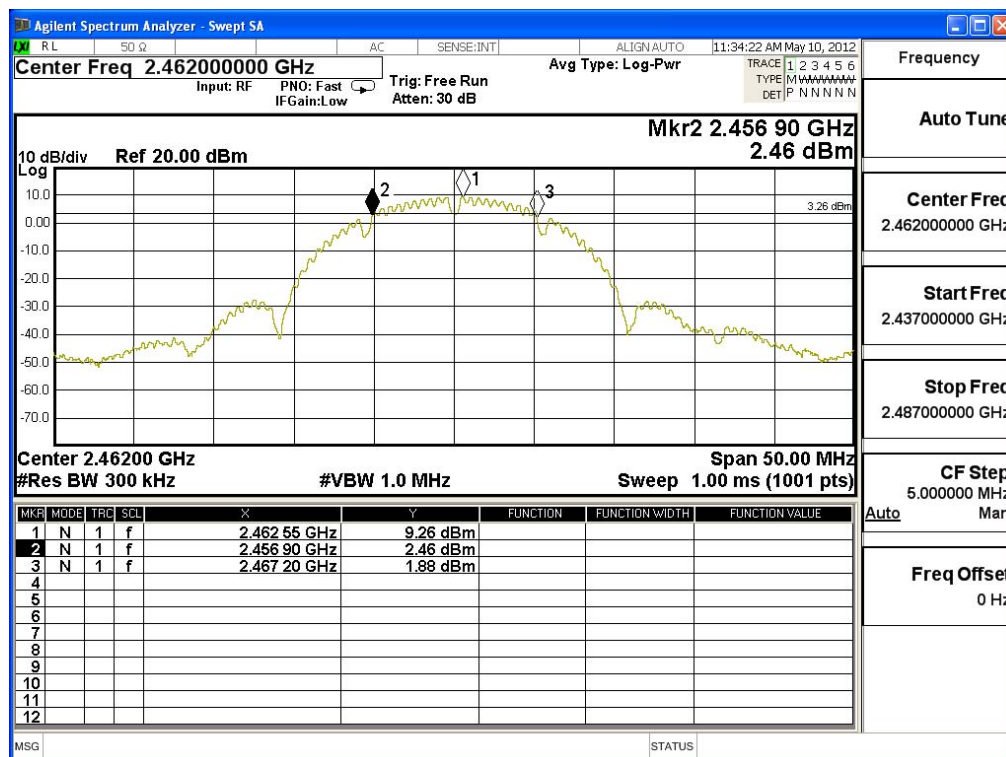
Figure Channel 6:



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - 802.11b 1Mbps (2462MHz)

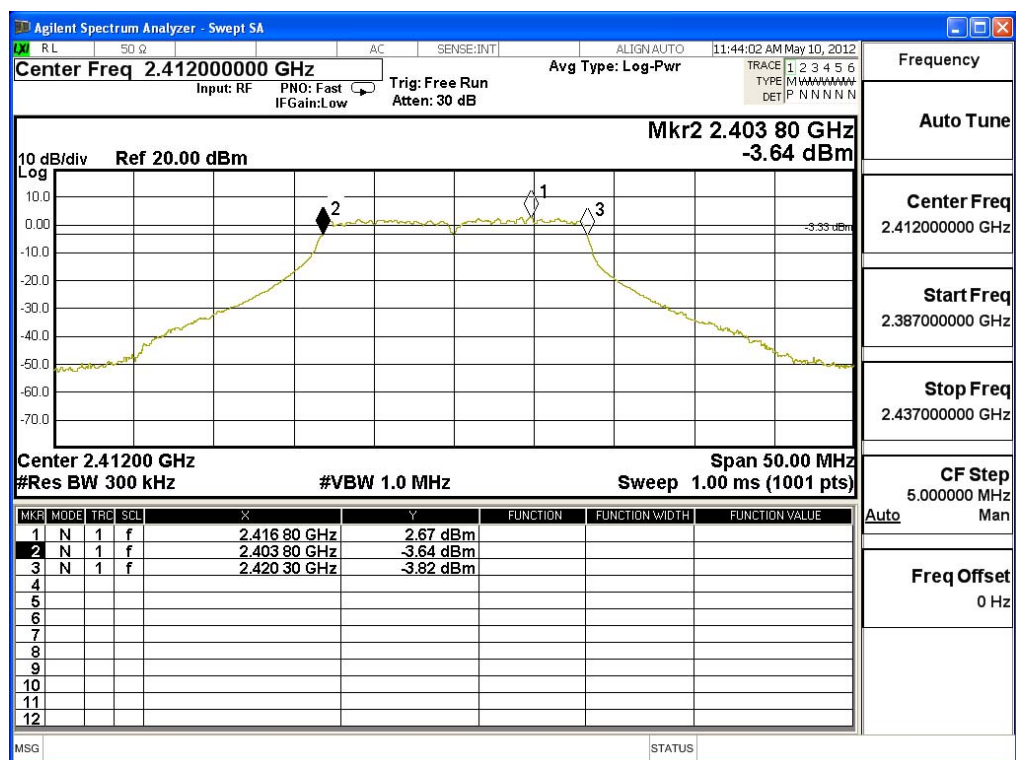
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	10300	>500	Pass

Figure Channel 11:



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	16500	>500	Pass

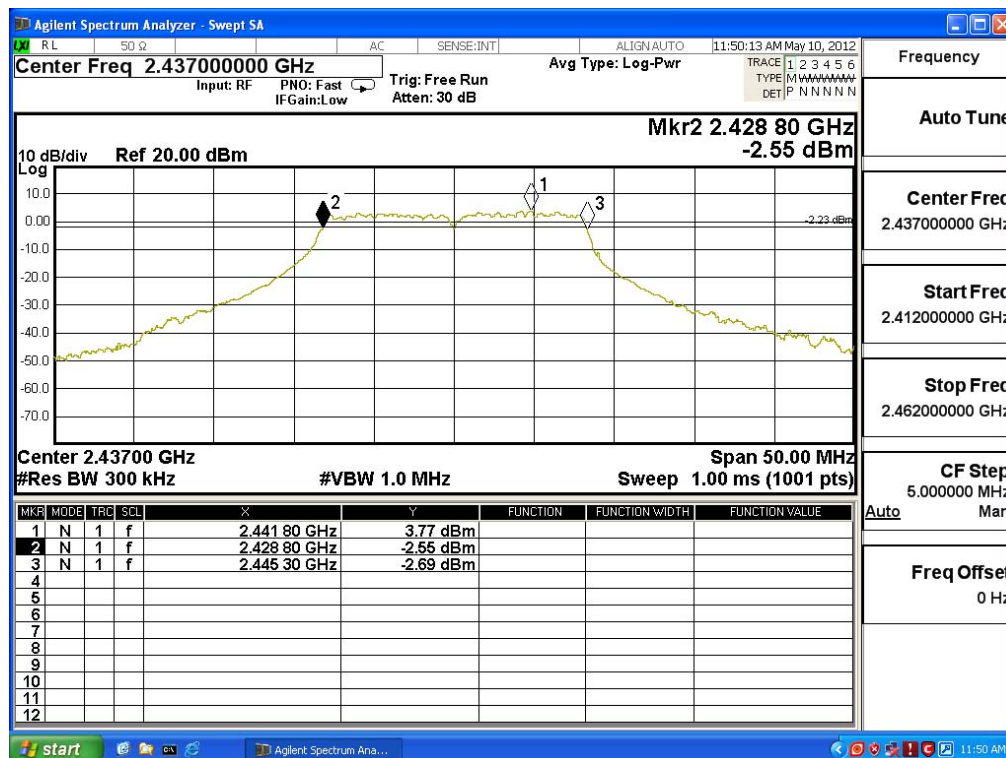
Figure Channel 1:



Product : 802.11 a/b/g/n RTL8192DU 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	16500	>500	Pass

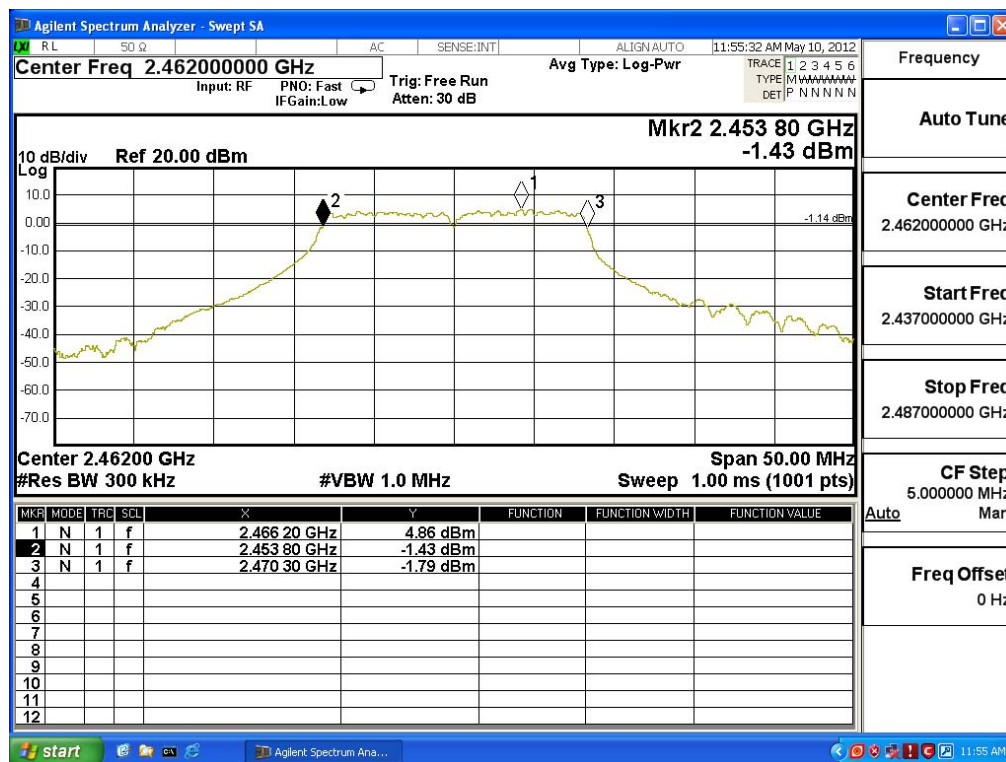
Figure Channel 6:



Product : 802.11 a/b/g/n RTL8192DU 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	16500	>500	Pass

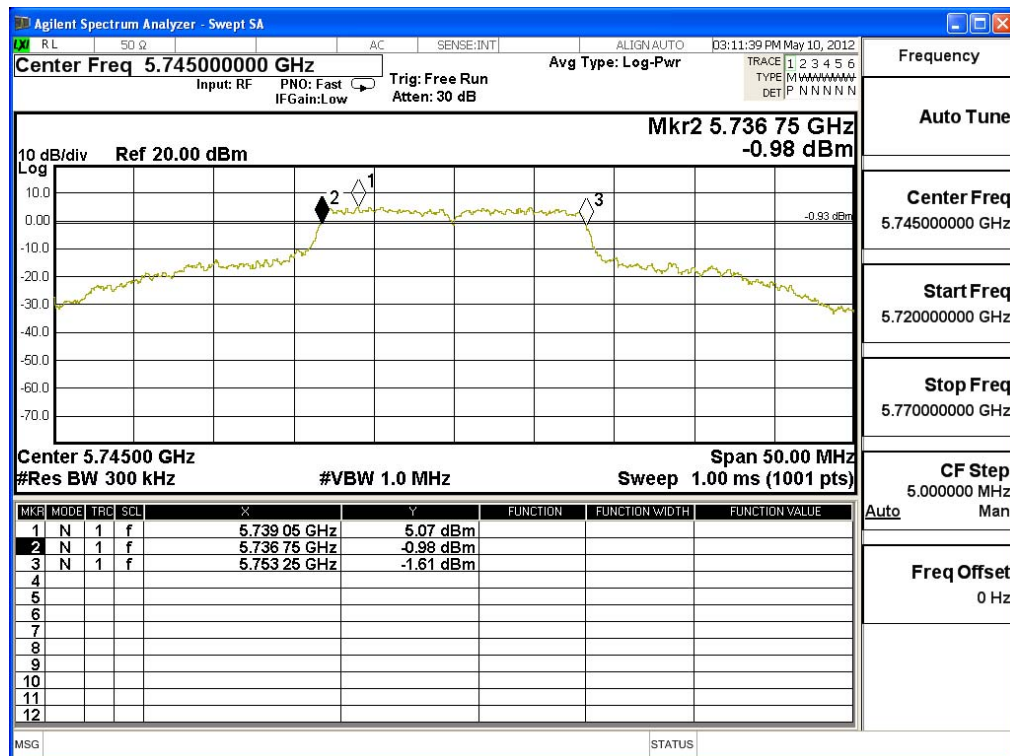
Figure Channel 11:



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5745MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745.00	15000	>500	Pass

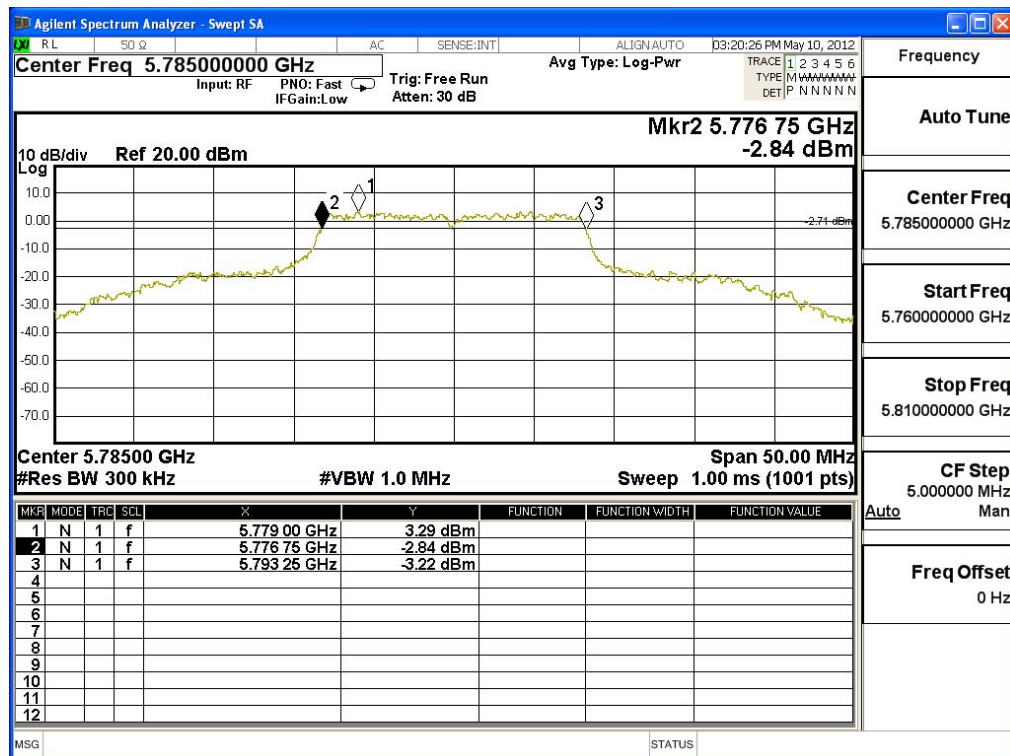
Figure Channel 149:



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5785MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
157	5785.00	16500	>500	Pass

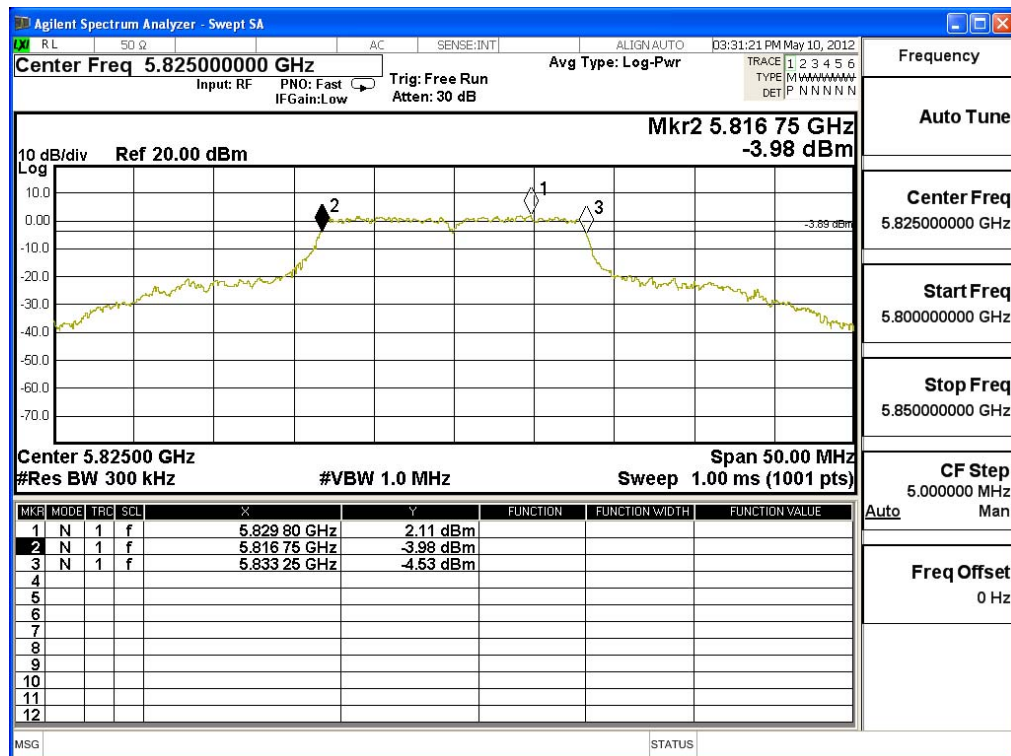
Figure Channel 157:



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmit - 802.11a 6Mbps (5825MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
165	5825.00	16500	>500	Pass

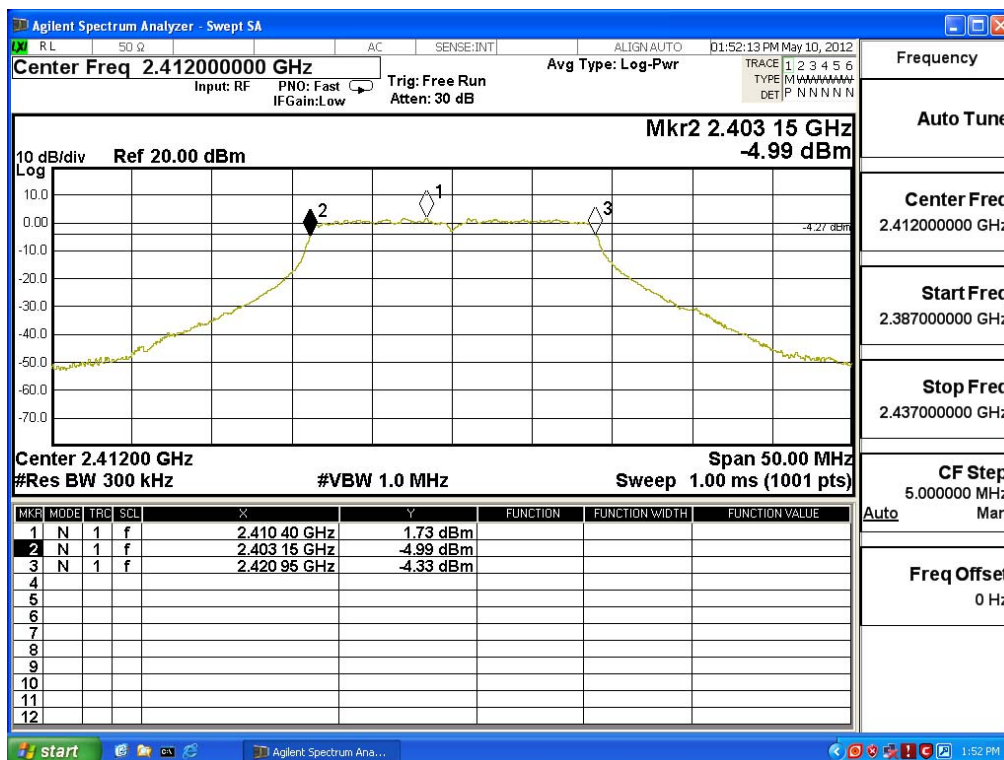
Figure Channel 165:



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2412MHz)

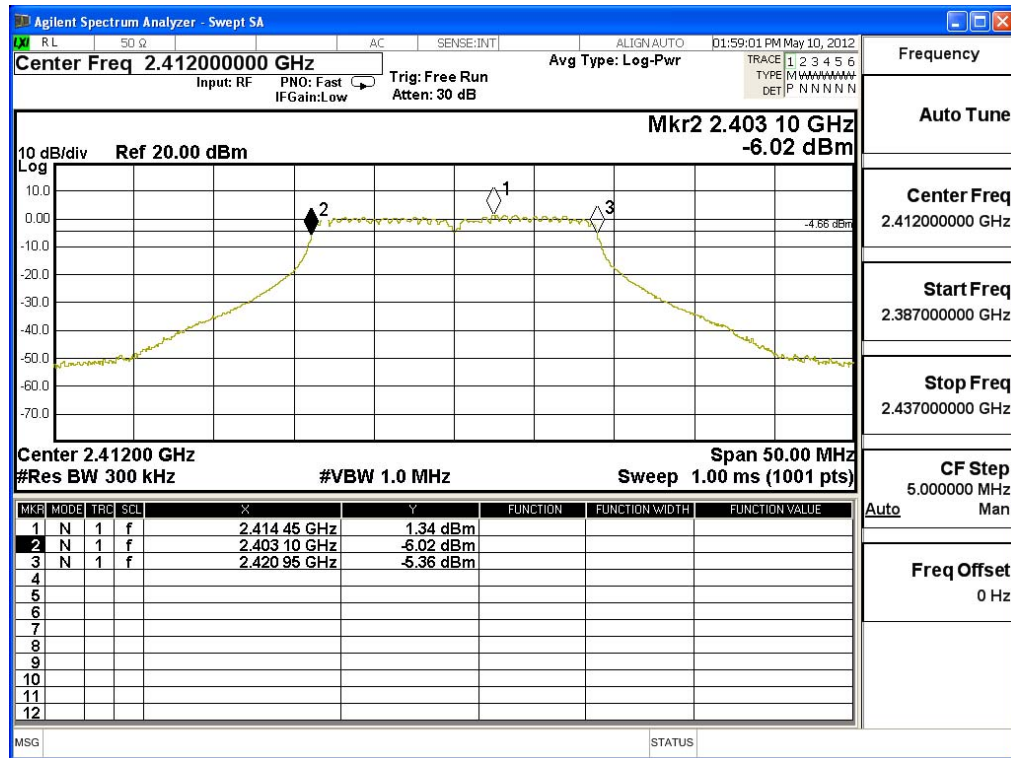
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
1	2412.00	17800	>500	Pass

Figure Channel 1: (Chain A)



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

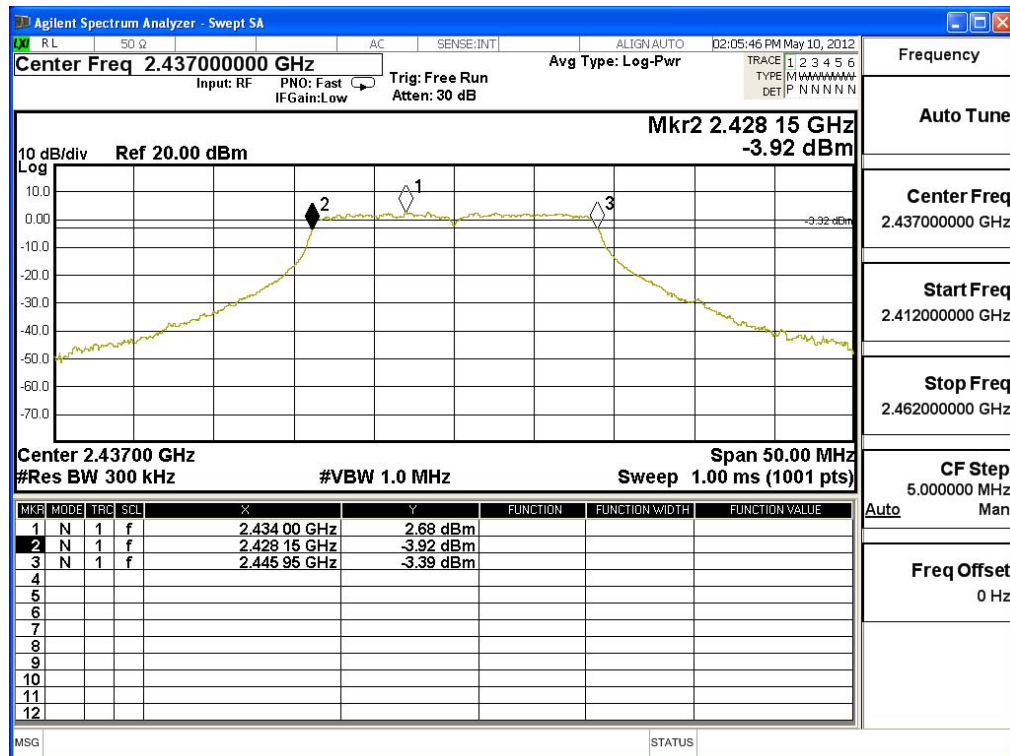
Figure Channel 1: (Chain B)



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2437MHz)

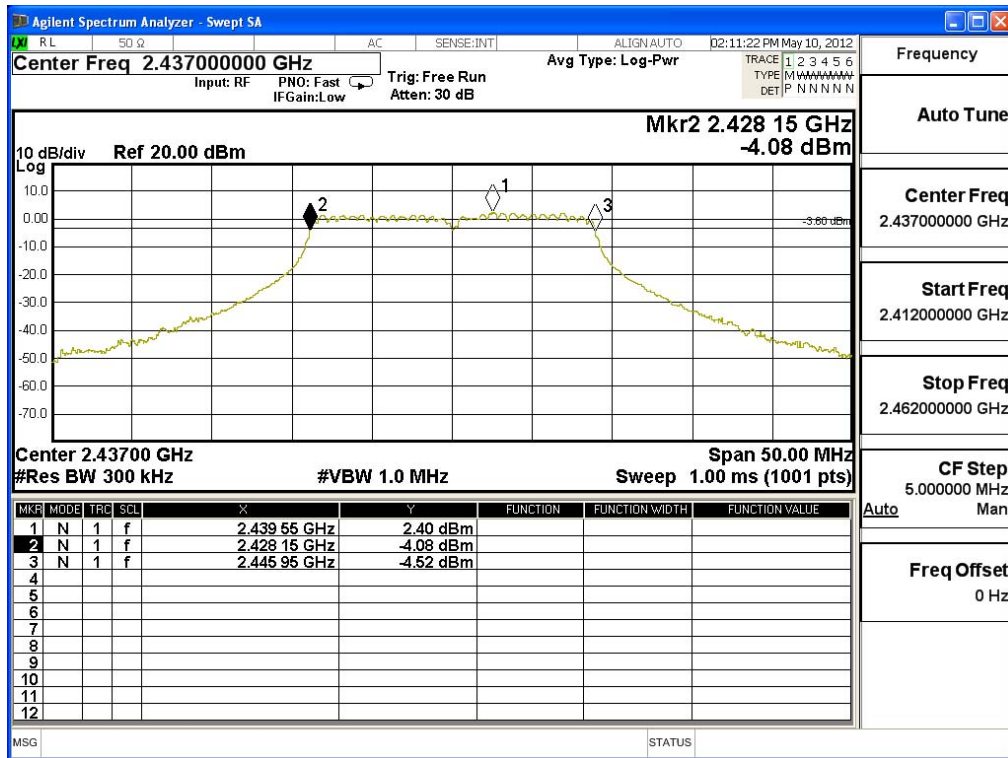
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
6	2437.00	17800	>500	Pass

Figure Channel 6: (Chain A)



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

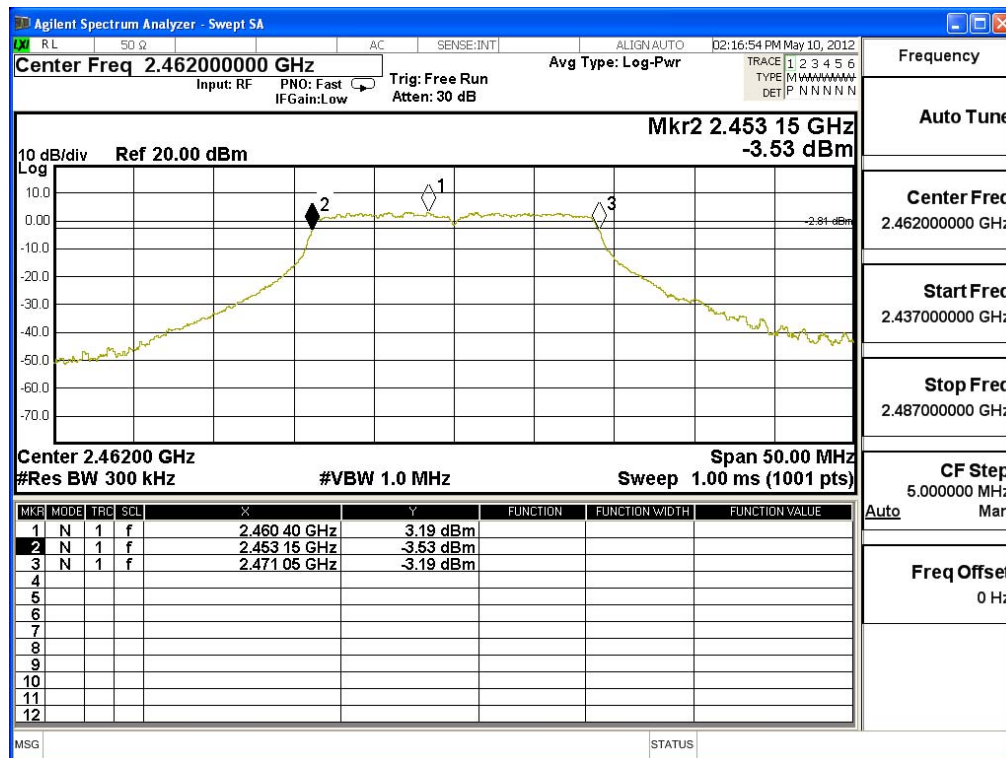
Figure Channel 6: (Chain B)



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 4: Transmit - 802.11n-20BW_14.4Mbps(2.4G Band) (2462MHz)

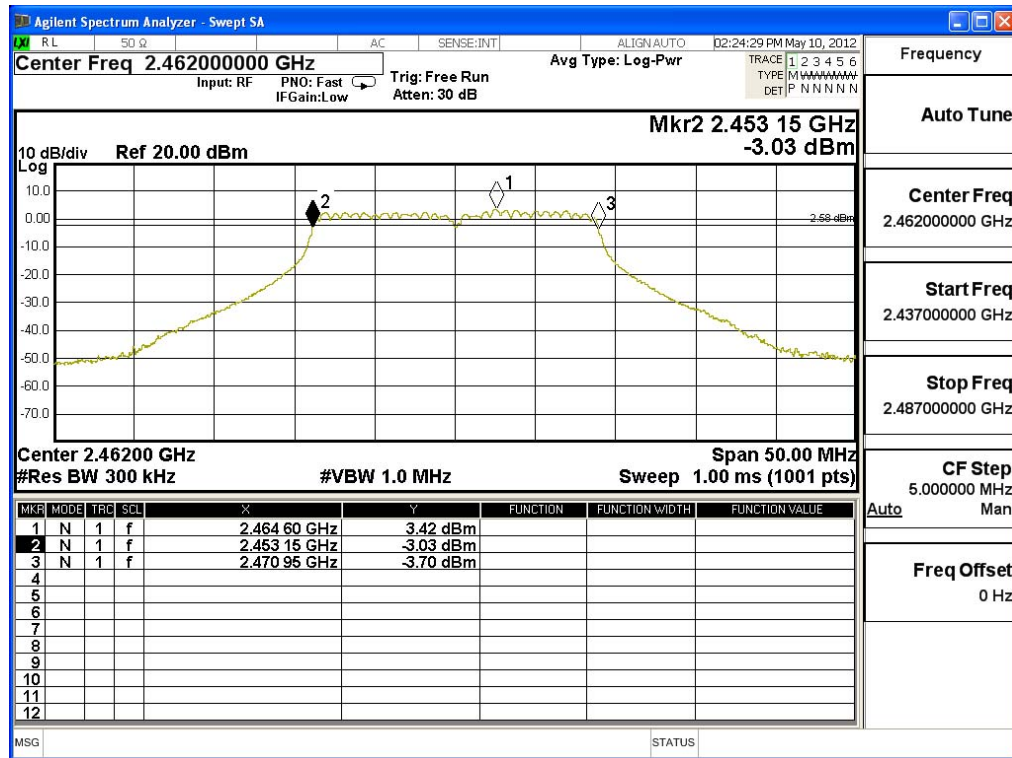
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17900	>500	Pass

Figure Channel 11: (Chain A)



Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11	2462.00	17800	>500	Pass

Figure Channel 11: (Chain B)



Product : 802.11 a/b/g/n RTL8192DU Module
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 5: Transmit - 802.11n-40BW_30Mbps(2.4G Band) (2422MHz)

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
3	2422.00	36500	>500	Pass

Figure Channel 3: (Chain A)

