

## 15.247(b)(3) RF Power Output

### Test Conditions / Setup

The power measurements were made using the automatic power capability of the spectrum analyzer using the measurement procedure detailed in KDB "558074 D01 DTS Meas Guidance v01" Section 5.2.1.2 Measurement Procedure PK2.

The offset of the analyzer was set to correct for the cable and attenuator used during measurement. The units are in dBm. The limit is 1 Watt or 30dBm.

Engineer Name: C. Nicklas

Test Equipment					
Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
02668	Spectrum Analyzer	E4446A	Agilent	2/23/2011	2/23/2013
P05843	Cable	32022-2-29094K-48TC	AstroLab	7/30/2010	7/30/2012
P05935	Attenuator	84A-10	Weinschel	10/19/2011	10/19/2013
P05913	Cable	32022-2-209094K-48TC	AstroLab	8/30/2011	8/30/2013

Cable P05913 was used for the following Chain 0 tests.

10MHz Channel Width, LO and MID Channels, 802.11a and 802.11n modulations.

20MHz Channel Width, MID Channel, 802.11a and 802.11n modulations.

Cable P5843 was used for all other measurements.

### Plot Name Key

C0 – Chain 0

C2 – Chain 2

LO – LO Channel

MID – MID Channel

HI – HI Channel

a – 802.11a

n – 802.11n

10M – System 10MHz Channel Width

20 M– System 20MHz Channel Width

**Test Data**

<b>Power Measurements: 10MHz, 802.11a, 15.247</b>			
Rate	Channel	Chain 0	Chain 2
24 Mbps	LO	24.83	26.02
	MID	24.20	26.00
	HI	23.67	22.16

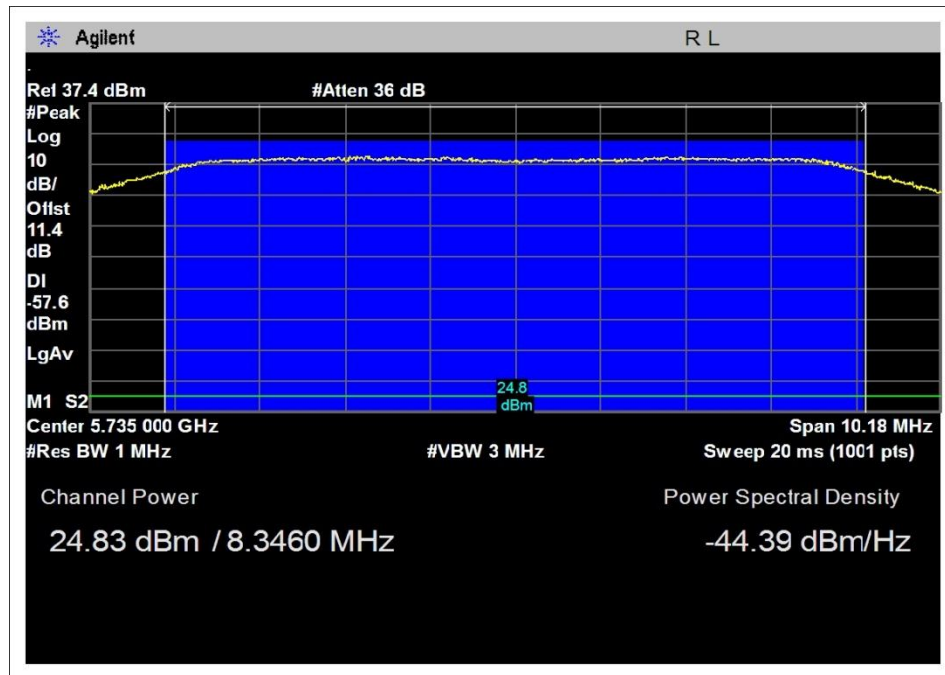
  

<b>Power Measurements: 10MHz, 802.11n, 15.247</b>			
Rate	Channel	Chain 0	Chain 2
13 MCS HT20 2S	LO	24.70	26.15
	MID	24.20	26.16
	HI	23.80	22.25

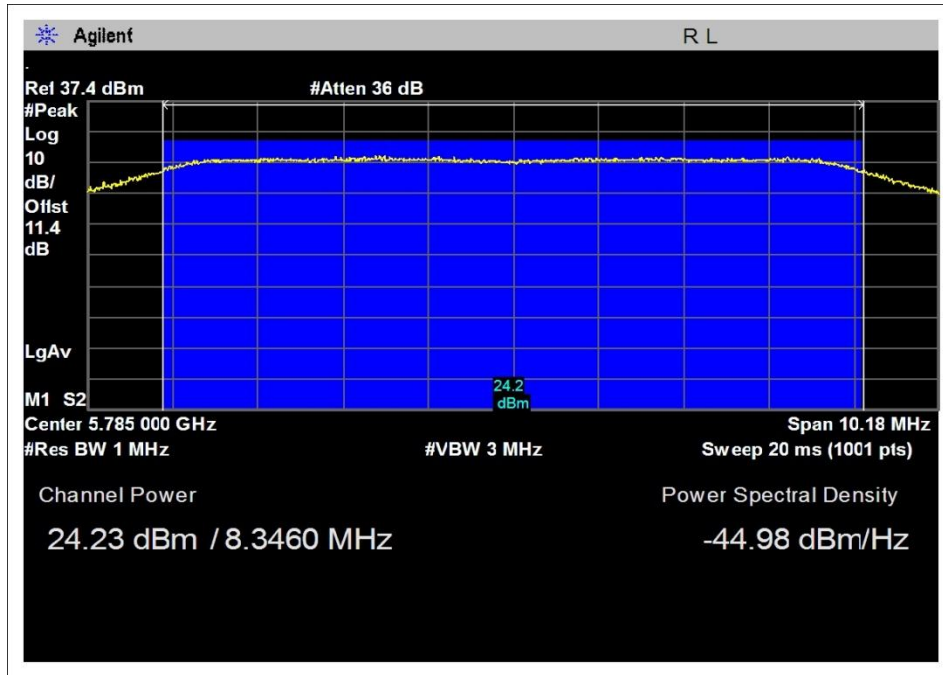
<b>Power Measurements: 20MHz, 802.11a, 15.247</b>			
Rate	Channel	Chain 0	Chain 2
36 Mbps	LO	23.22	22.85
	MID	24.31	25.56
	HI	23.41	22.11

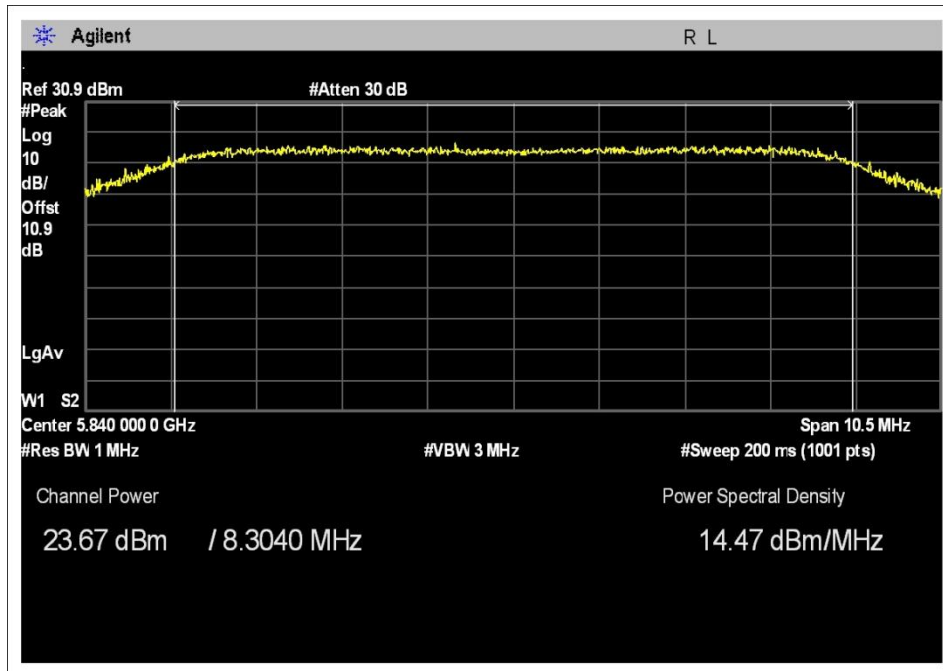
<b>Power Measurements: 20MHz, 802.11n, 15.247</b>			
Rate	Channel	Chain 0	Chain 2
26 MCS HT20 2S	LO	24.45	22.94
	MID	24.41	25.94
	HI	23.61	22.11



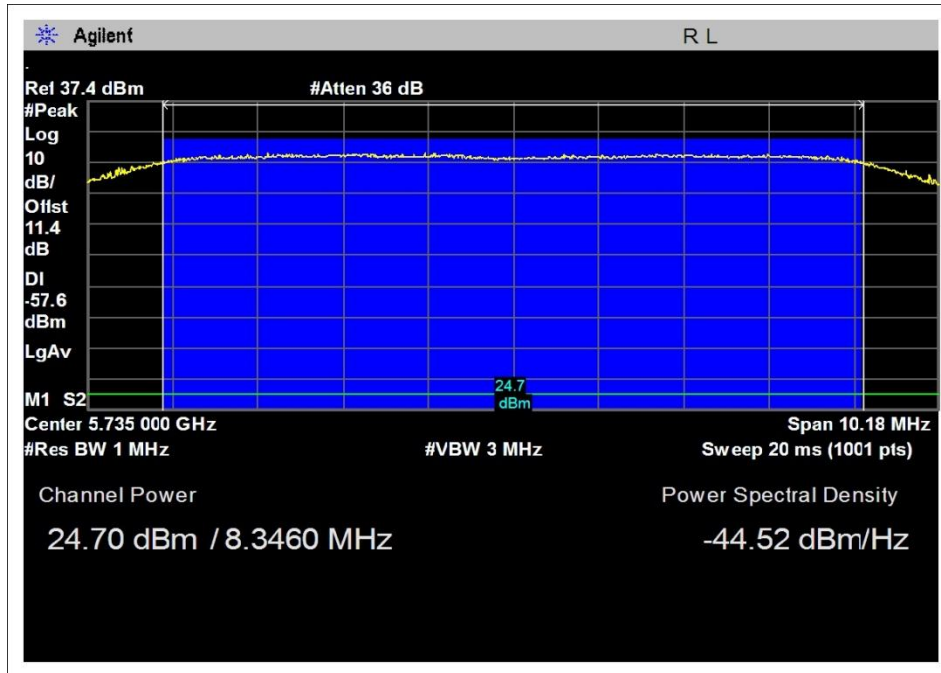
C0 10MHz, LOW CHANNEL, 802.11a



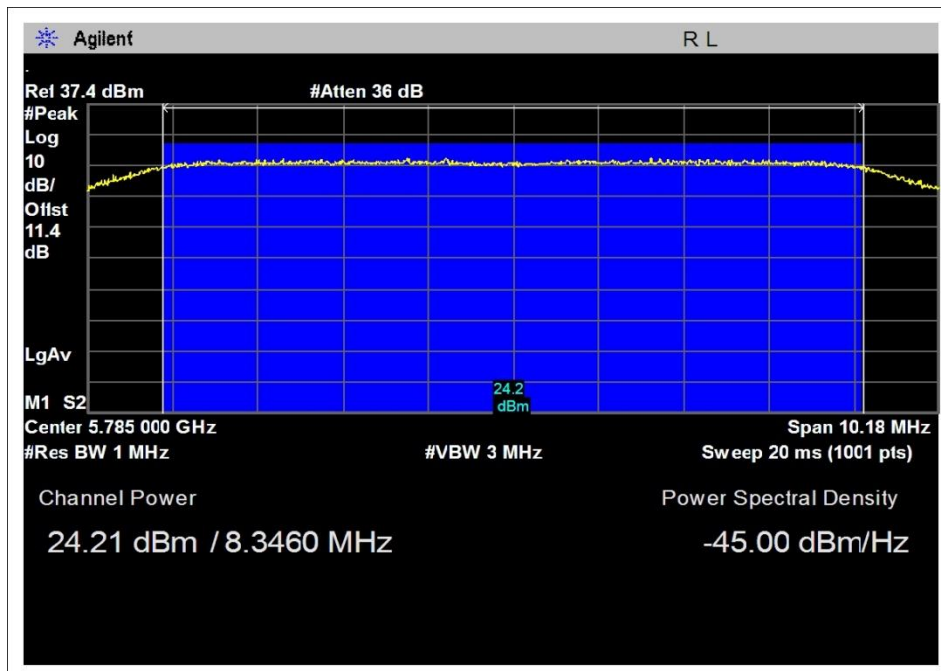
C0 10MHz, MID CHANNEL, 802.11a



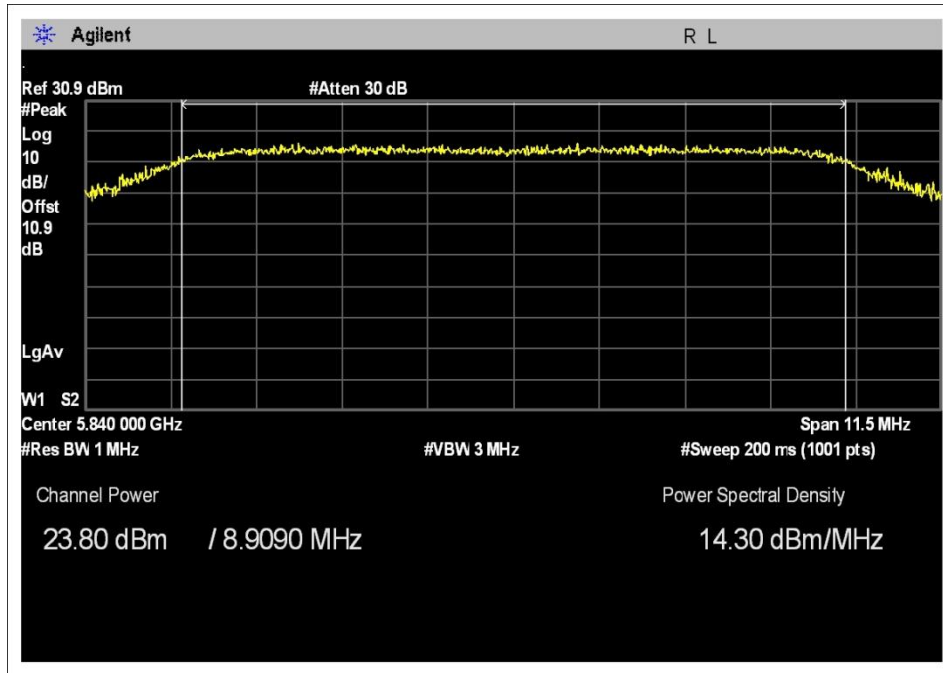
C0 10MHz, HIGH CHANNEL, 802.11a



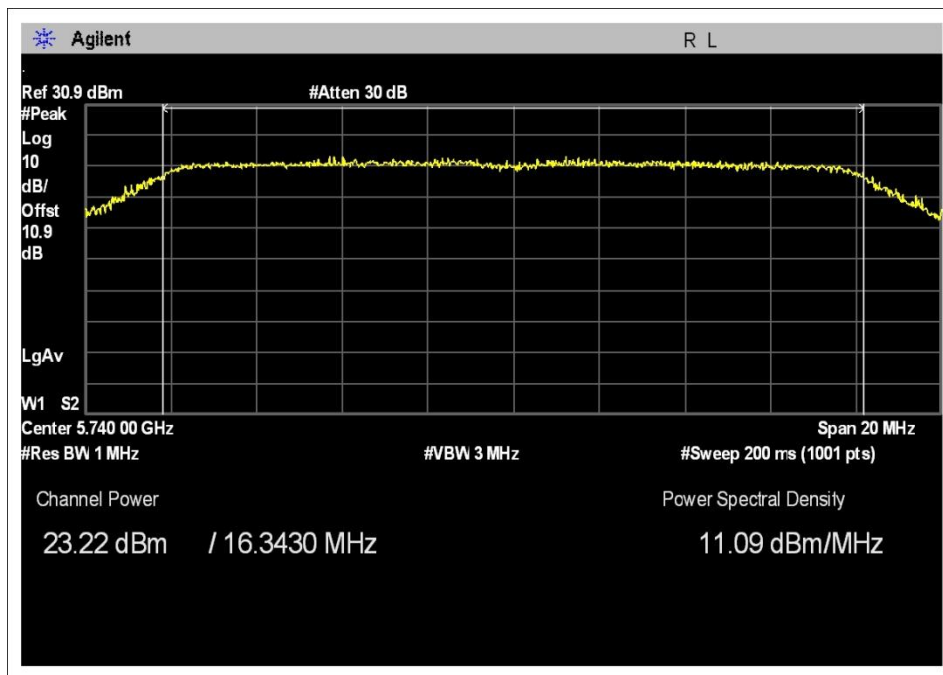
C0 10MHz, LOW CHANNEL, 802.11n



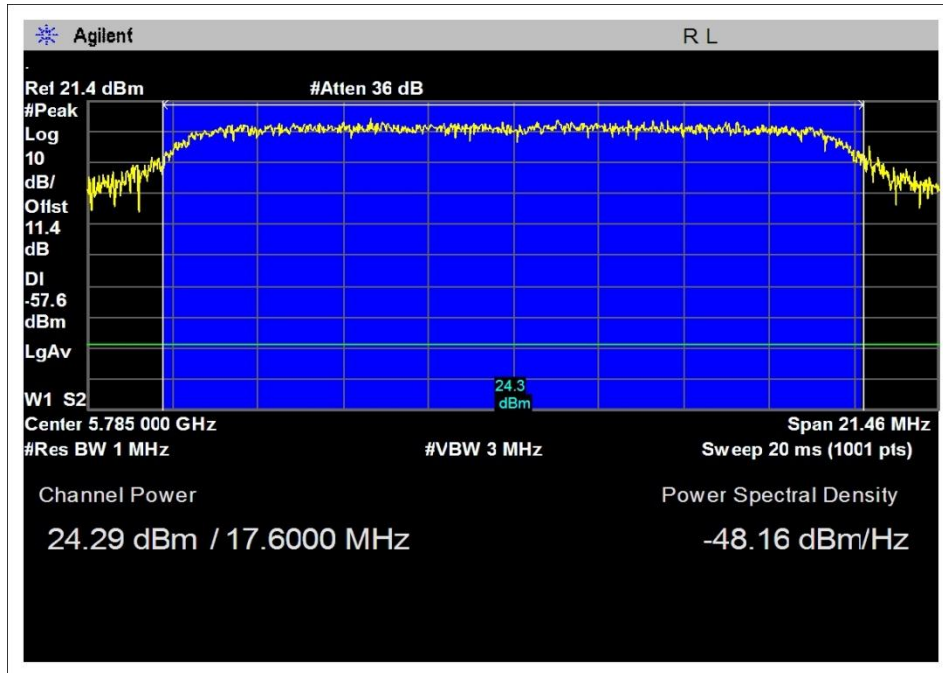
C0 10MHz, MID CHANNEL, 802.11n



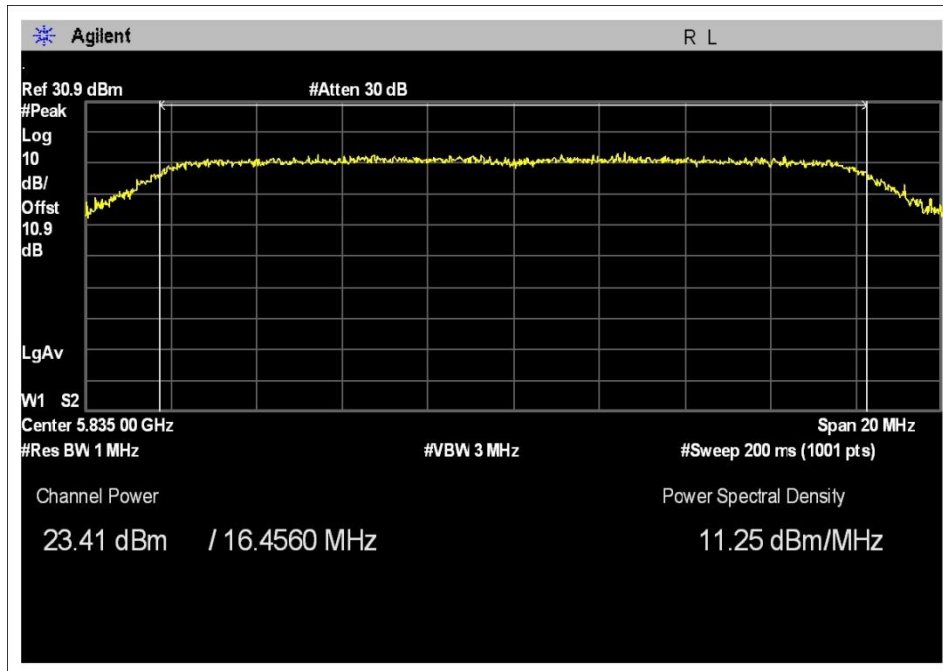
C0 10MHz, HIGH CHANNEL, 802.11n



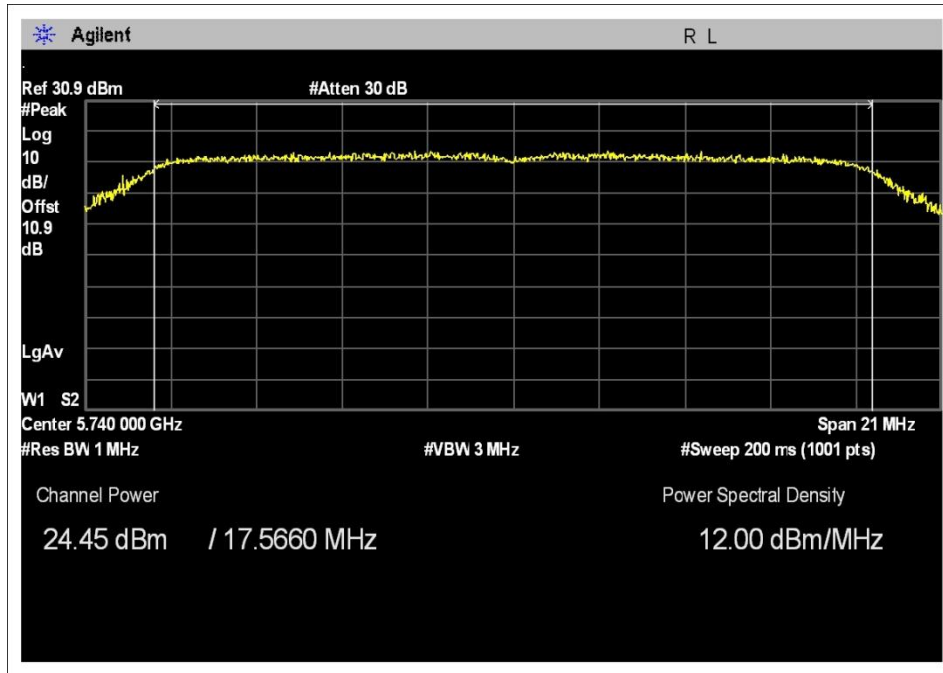
C0 20MHz, LOW CHANNEL, 802.11a



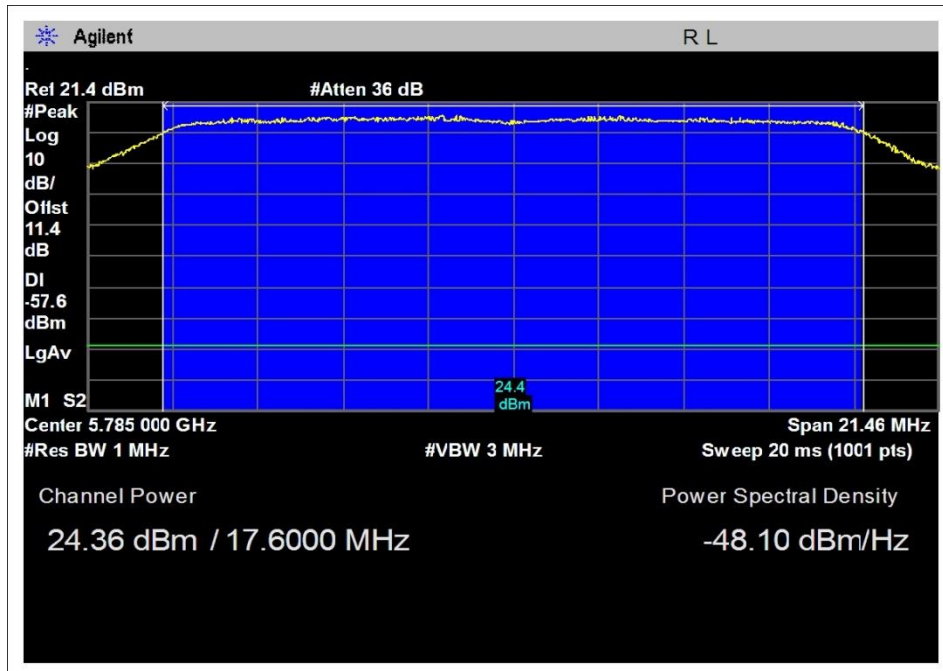
C0 20MHz, MID CHANNEL, 802.11a



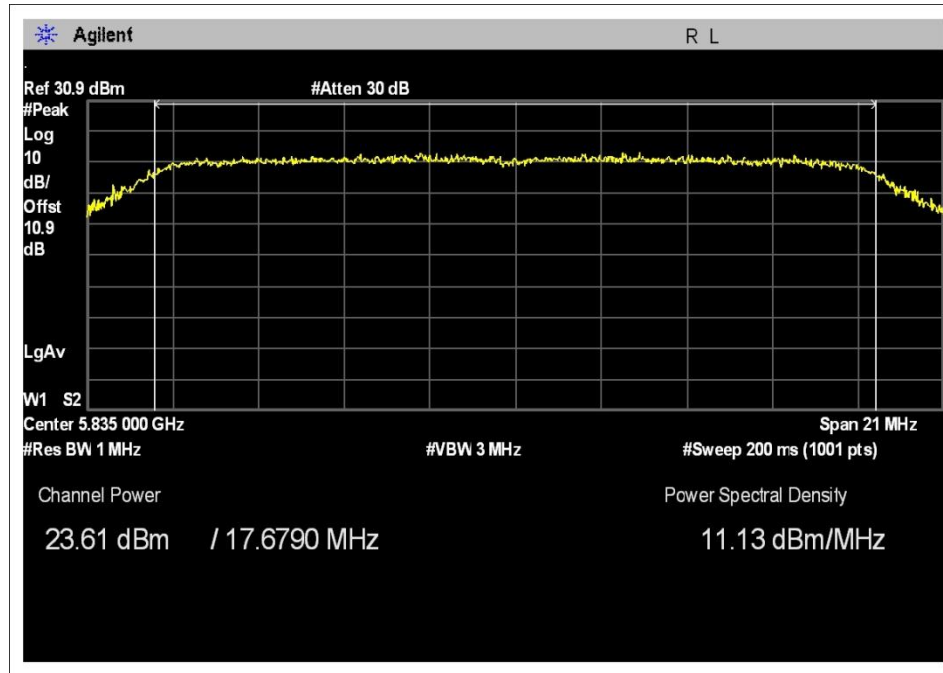
C0 20MHz, HIGH CHANNEL, 802.11a



CO 20MHz, LOW CHANNEL, 802.11n

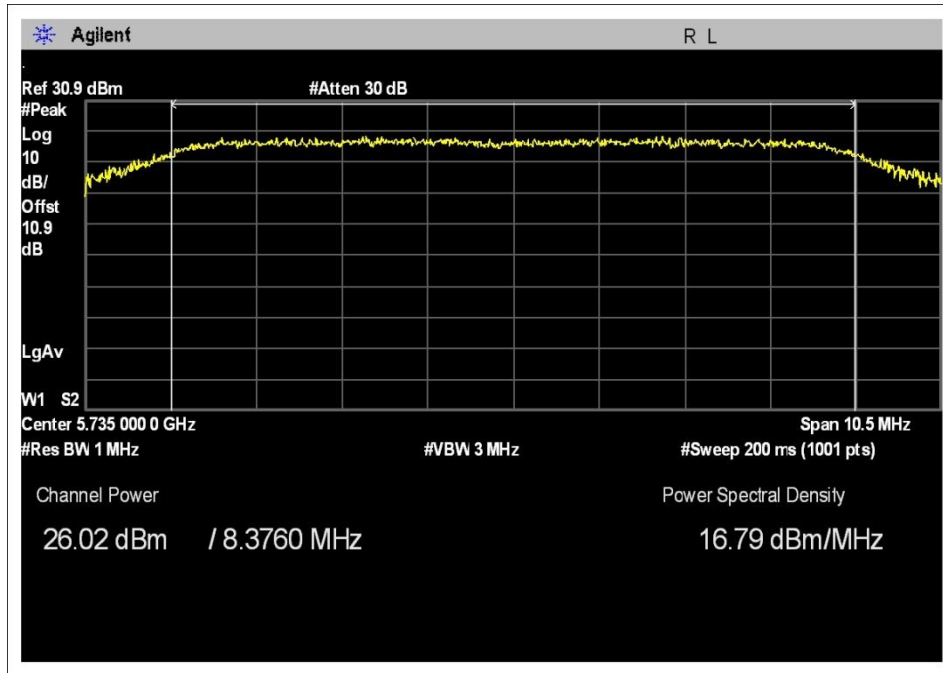


CO 20MHz, MID CHANNEL, 802.11n

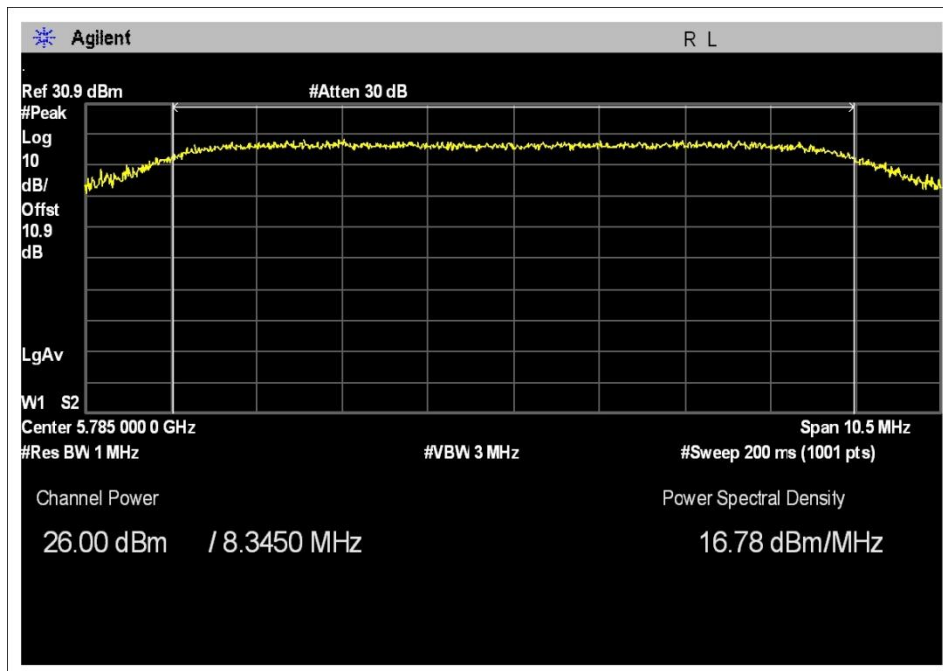


CO 20MHz, HIGH CHANNEL, 802.11n

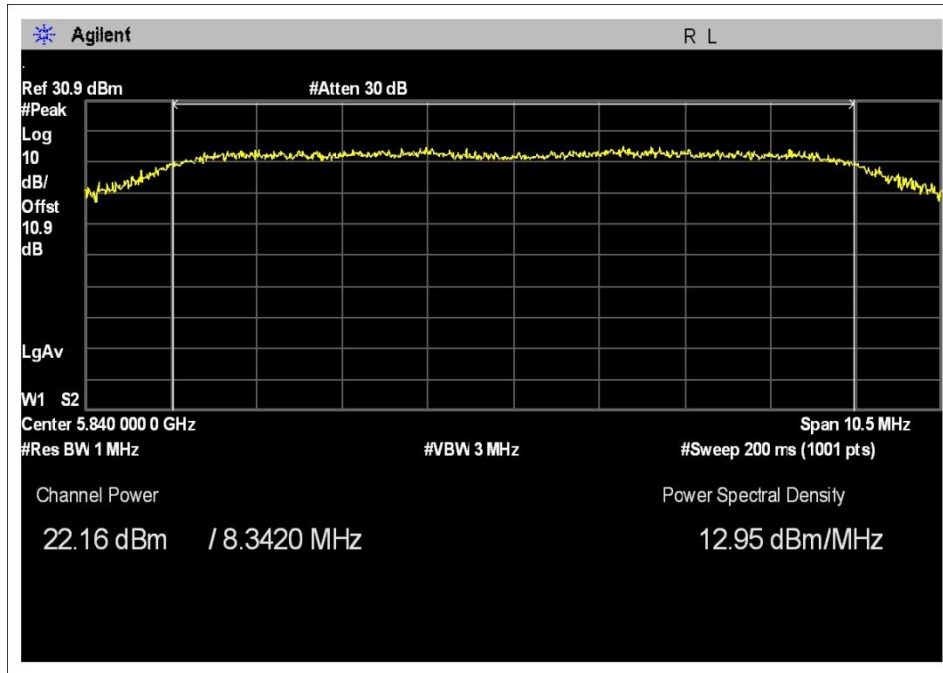




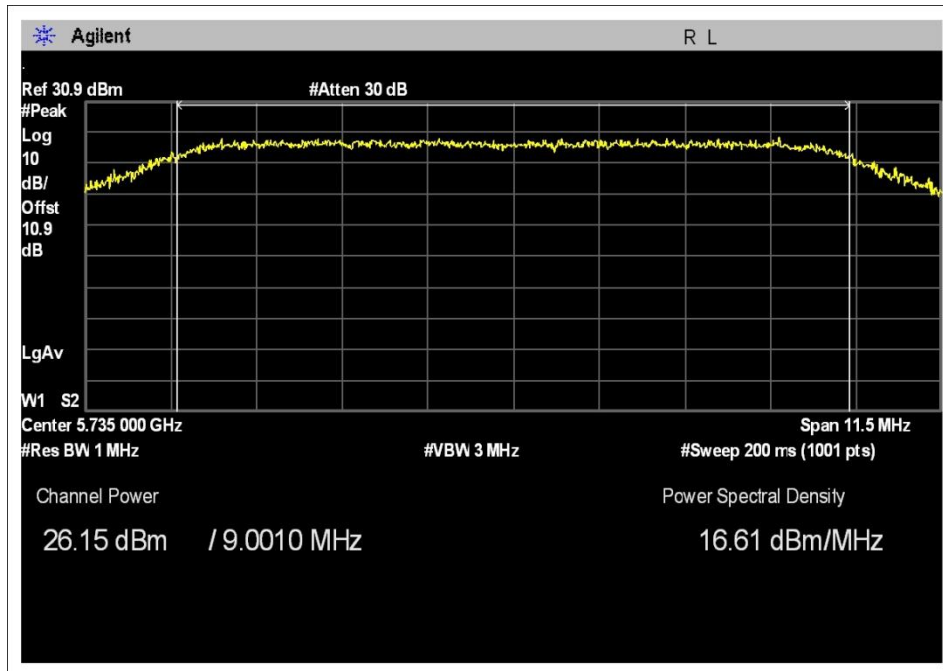
C2 10MHz, LOW CHANNEL, 802.11a



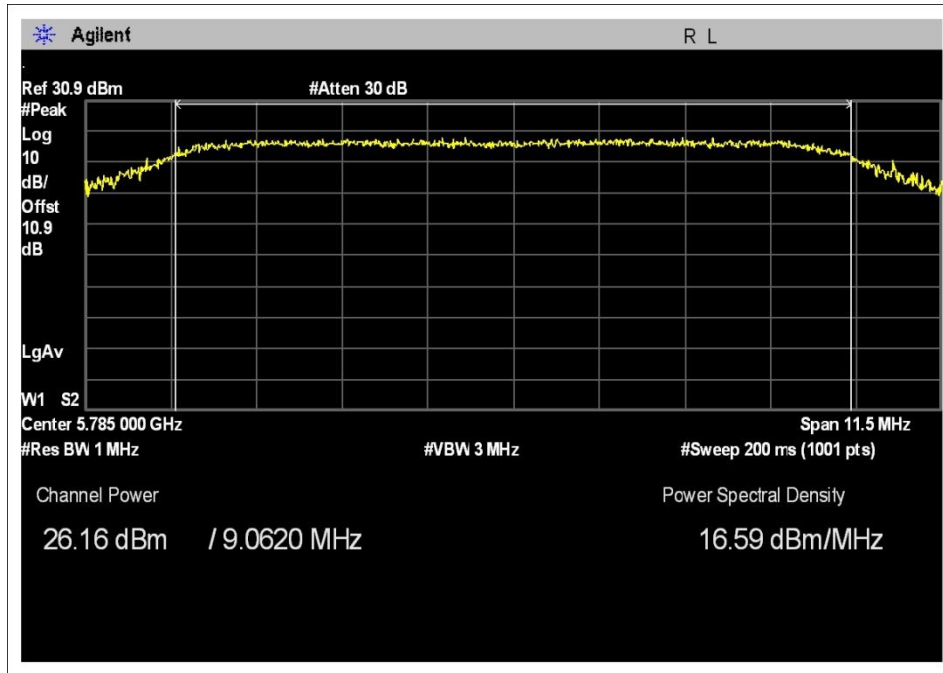
C2 10MHz, MID CHANNEL, 802.11a



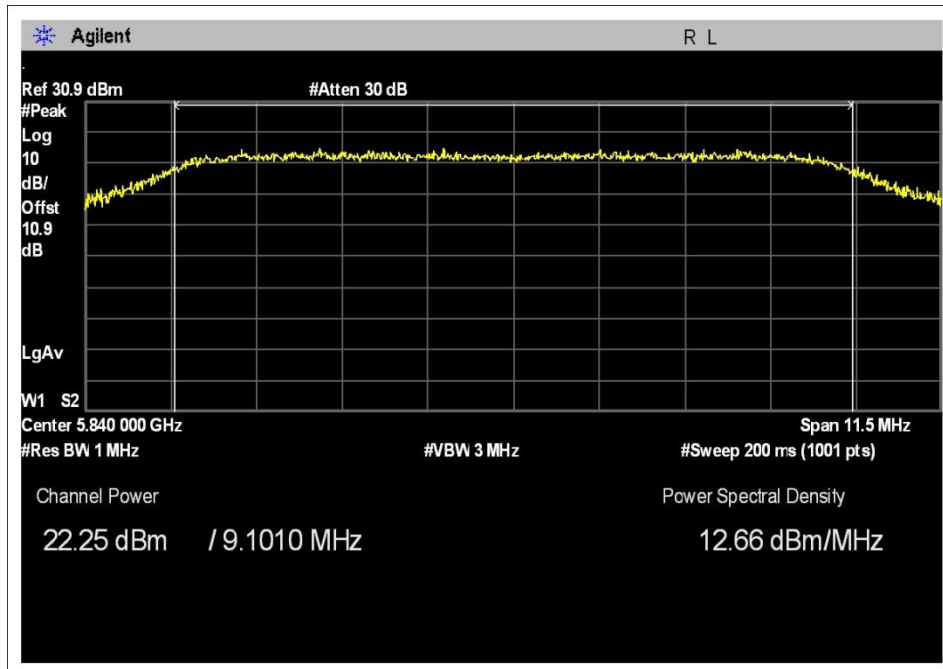
C2 10MHz, HIGH CHANNEL, 802.11a



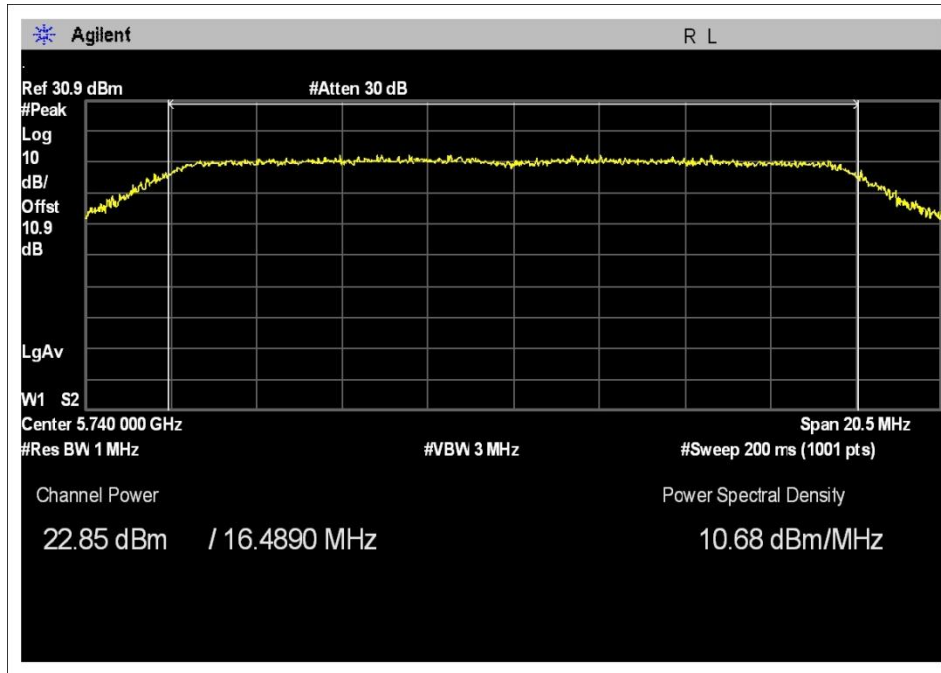
C2 10MHz, LOW CHANNEL, 802.11n



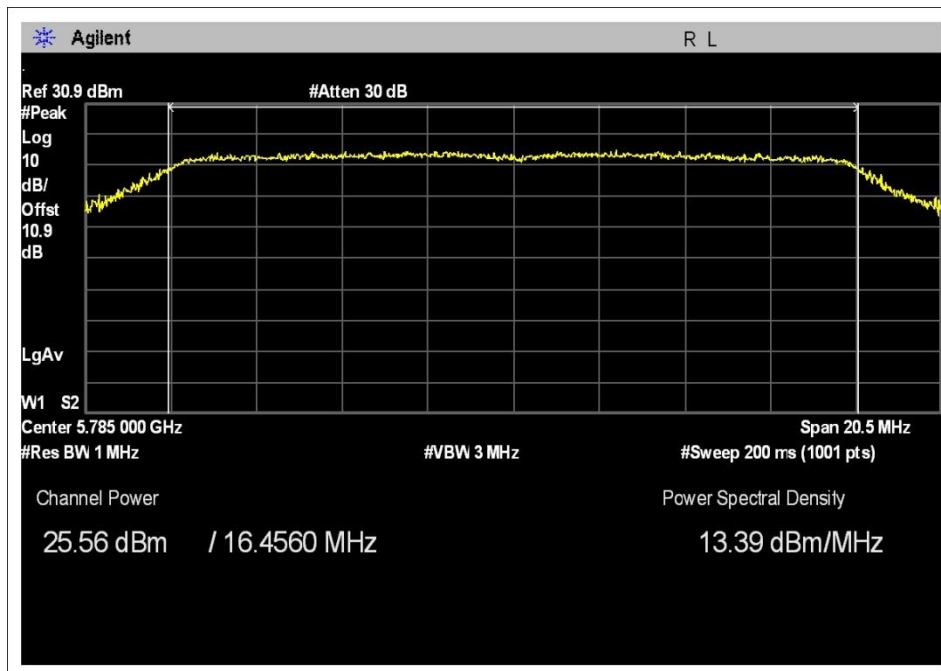
C2 10MHz, MID CHANNEL, 802.11n



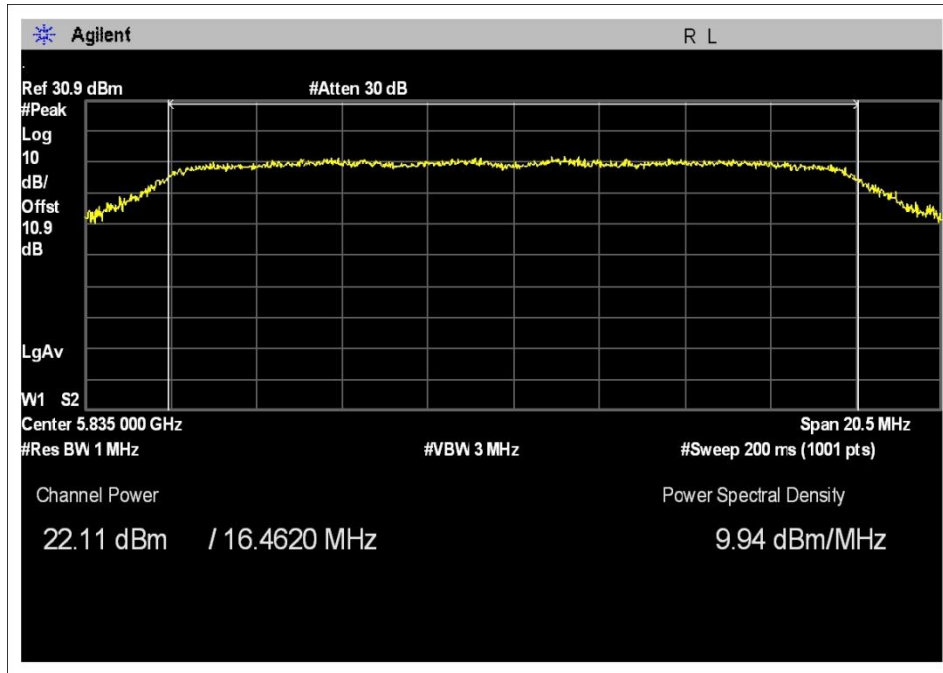
C2 10MHz, HIGH CHANNEL, 802.11n



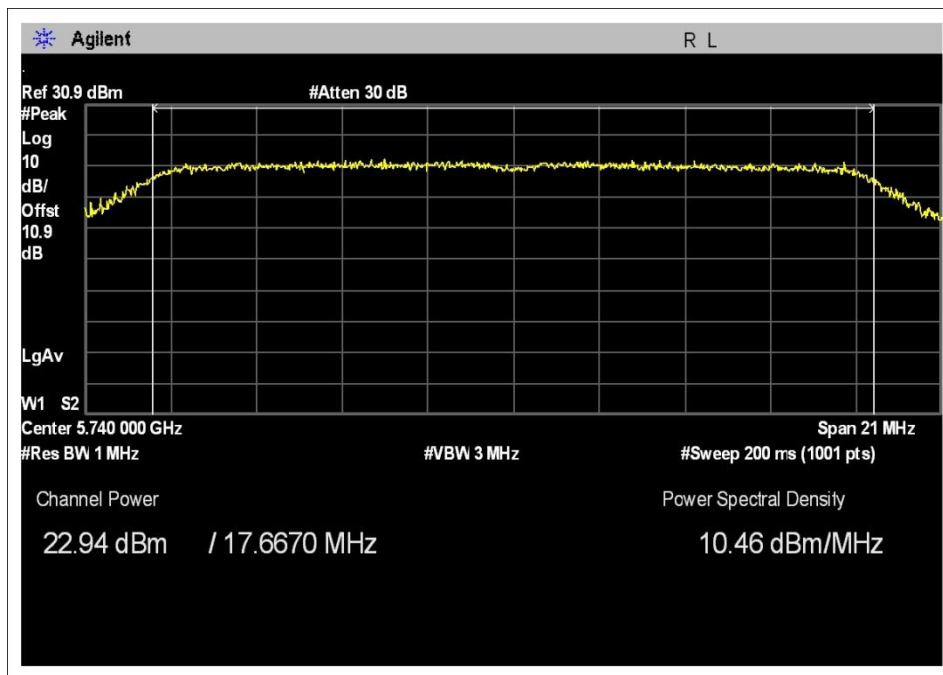
C2 20MHz, LOW CHANNEL, 802.11a



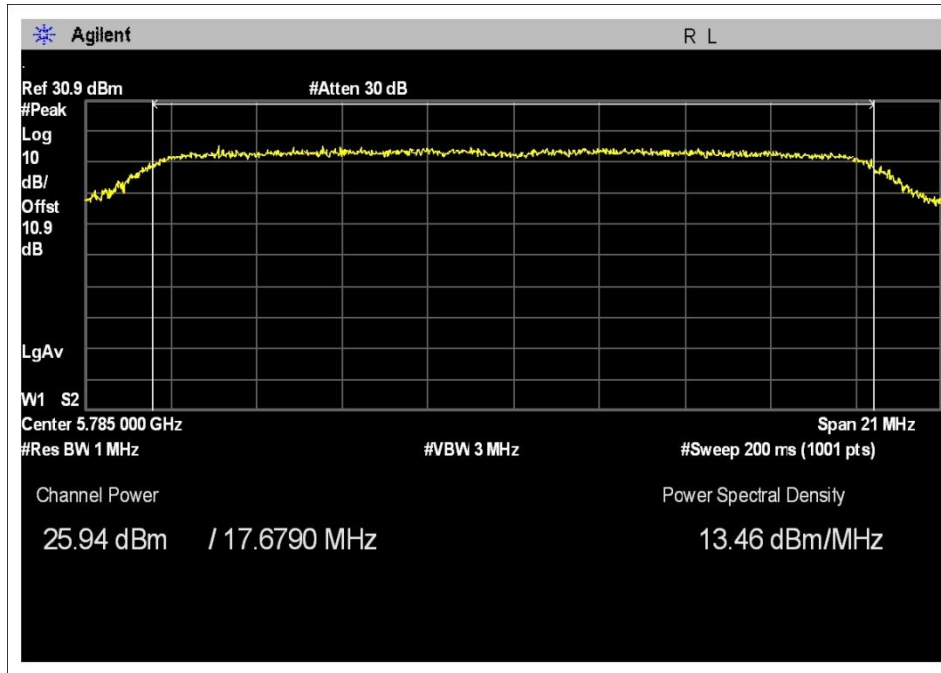
C2 20MHz, MID CHANNEL, 802.11a



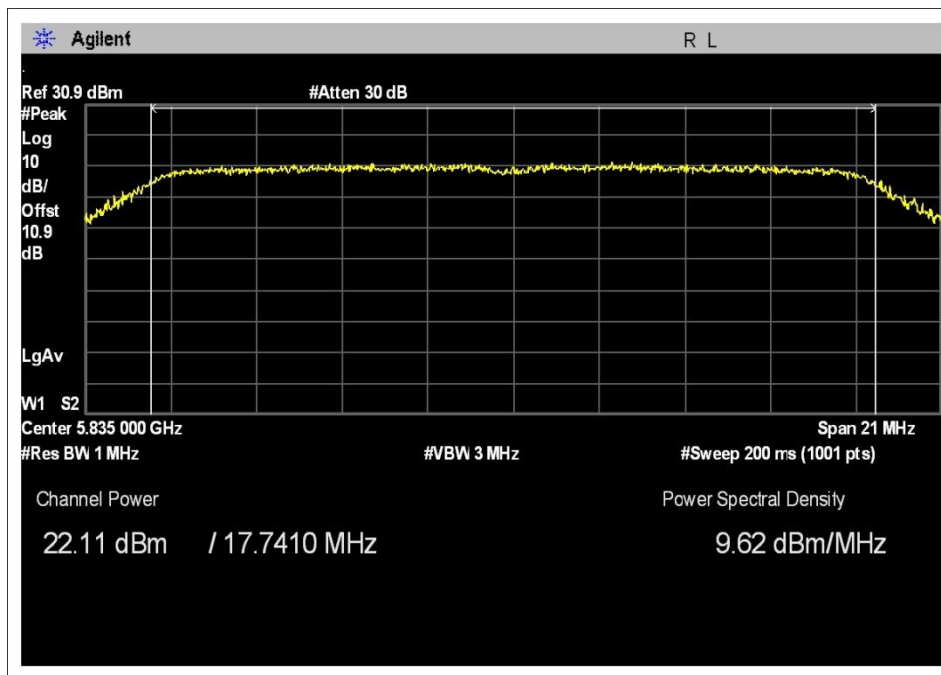
C2 20MHz, HIGH CHANNEL, 802.11a



C2 20MHz, LOW CHANNEL, 802.11n

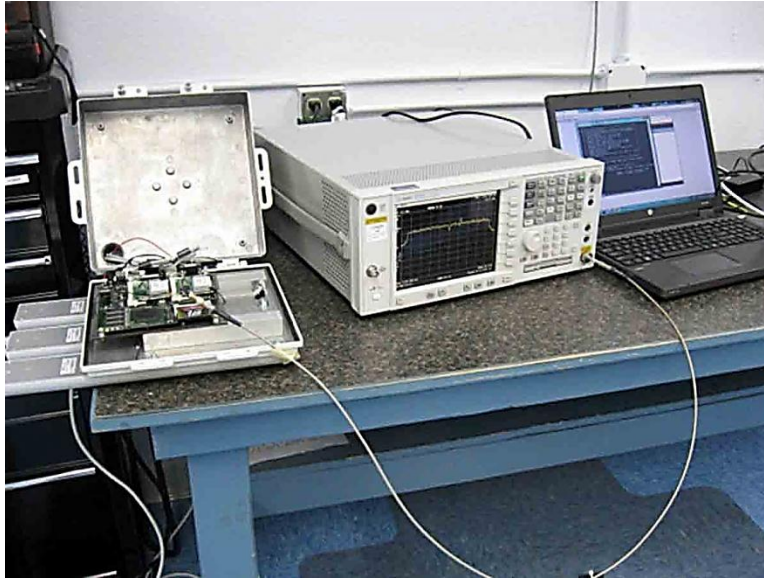


C2 20MHz, MID CHANNEL, 802.11n



C2 20MHz, HIGH CHANNEL, 802.11n

**Test Setup Photos**



## Bandedge

### Test Conditions / Setup

Test Location: CKC Laboratories, Inc. • 1120 Fulton Place • Fremont, CA 94539 • (510) 249 - 1170

Customer: **Digital Path**  
 Specification: **Bandedge plot**  
 Work Order #: **92682** Date: 6/2/2012  
 Test Type: **Radiated Scan** Time: 09:51:29  
 Equipment: **5GHz Panel (18dBi) + Omni (11dBi),** Sequence#: 211  
**5GHz Sector (20 dBi),**  
**5GHz Tri-Sector (17dBi),**  
**5GHz Panel (23 dBi),**  
**5GHz Parabolic (33 dBi)**

Manufacturer: Digital Path Tested By: E. Wong  
 Model: G5RL10G, G5RL10E, G5RL10T  
 S/N: EMI 2, EMI 3, EMI 1

***Test Equipment:***

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013
T3	AN03302	Cable	32026-29094K-29094K-72TC	3/21/2012	3/21/2014
T4	ANP01210	Cable	FSJ1P-50A-4A	3/15/2011	3/15/2013
T5	ANP05913	Cable	32022-29094K-65TC	8/30/2011	8/30/2013

**Note: The above test equipment table applies to Model: G5RL10E.**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02668	Spectrum Analyzer	E4446A	2/23/2011	2/23/2013
	ANP05935	Attenuator	84A-10	10/19/2011	10/19/2013
	ANP05913	Cable	32022-29094K-65TC	8/30/2011	8/30/2013

**Note: The above test equipment table applies to Model: G5RL10T.**

***Equipment Under Test (\* = EUT):***

Function	Manufacturer	Model #	S/N
5GHz Panel (18dBi) + Omni (11dBi)	Digital Path	G5RL10G	EMI 2
5GHz Sector (20 dBi)	Digital Path	G5RL10E	EMI 3
5GHz Tri-Sector (17dBi)	Digital Path	G5RL10T	EMI 1
5GHz Panel (23 dBi)	Digital Path	G5RL10E	EMI 3
5GHz Parabolic (33 dBi)	Digital Path	G5RL10E	EMI 3

***Support Devices:***

Function	Manufacturer	Model #	S/N
Laptop Computer	HP	ProBook 6565b	5CB13637ZF
Laptop Power Supply	HP	608428-002	F12941126327228



***Test Conditions / Notes:***

The EUT installed on a pole as intended. DC power port is connected to a DC power supply via a CAT5 cable. The Ethernet port is connected to a remote laptop via unshielded twisted pair.

The Remote laptop is running test software to exercise the intended functionalities. Receiver circuit and GPS receiver are active.

**G5RL10T**

5GHz Omni (11 dBi)

5GHz Panel (18 dBi)

5GHz Sector (20 dBi)

5GHz Tri-Sector (17dBi)

Point to Multi-Point

Freq = 5725-5850MHz

Freq: 5735MHz, 5785MHz, 5840MHz.

BW = 10 MHz

802.11a: 24Mbps, TX power setting= 20.5, 20.5

802.11n: 13MCS HT20 2S, TX power setting= 20.5, 20.5

Freq: 5740MHz, 5785MHz, 5835MHz.

BW= 20MHz

802.11a: 36 Mbps, TX power setting= 20.5, 20.5

802.11n: 26MCS HT20 2S, TX power setting= 20.5, 20.5

**G5RL10E**

5GHz Panel (23 dBi)

5GHz Parabolic (33 dBi)

Point to Point

5725-5850MHz

Freq: 5735MHz, 5785MHz, 5840MHz.

BW = 10 MHz

802.11a: 24Mbps, TX power setting= 22,22,

802.11n: 13MCS HT20 2S, TX power setting = 22, 22

Freq: 5740MHz, 5785MHz, 5835MHz.

BW= 20MHz

802.11a: 36 Mbps, TX power setting = 22, 22

802.11n: 26MCS HT20 2S, TX power setting=22, 22

Temperature: 21.9°C, Relative Humidity: 38-43%, Atmospheric Pressure: 101.5kPa

Frequency range of measurement = Fundamental

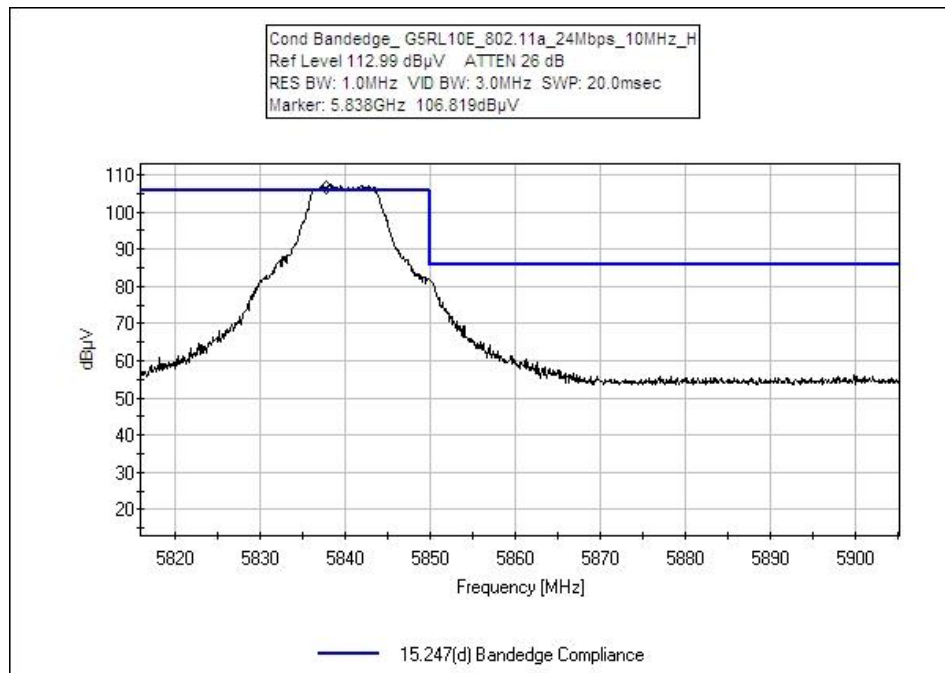
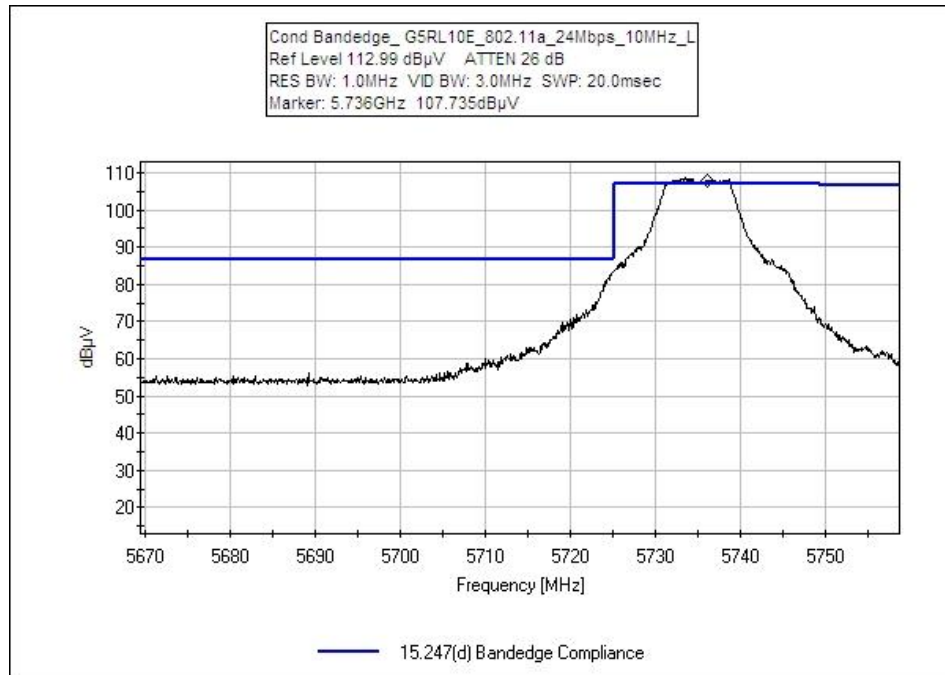
Measurement was performed for G5RL10G: 5GHz Panel (18dBi) + Omni (11dBi), G5RL10T:5GHz Tri-Sector (17dBi), G5RL10E: 5GHz Sector (20 dBi) and for G5RL10E: 5GHz Panel (23 dBi), G5RL10E: 5GHz Parabolic (33 dBi). At maximum TX Power setting.

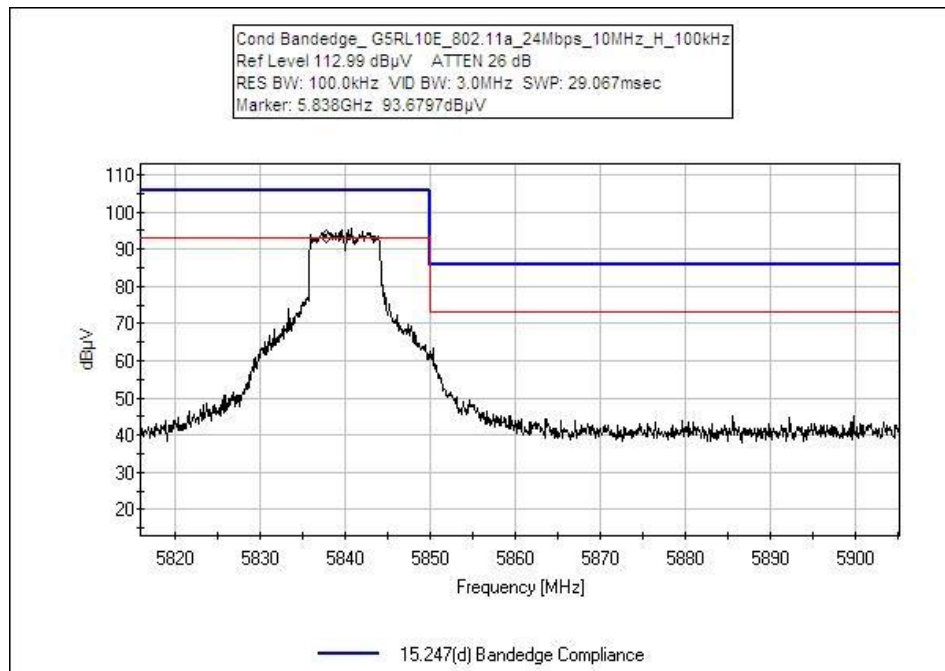
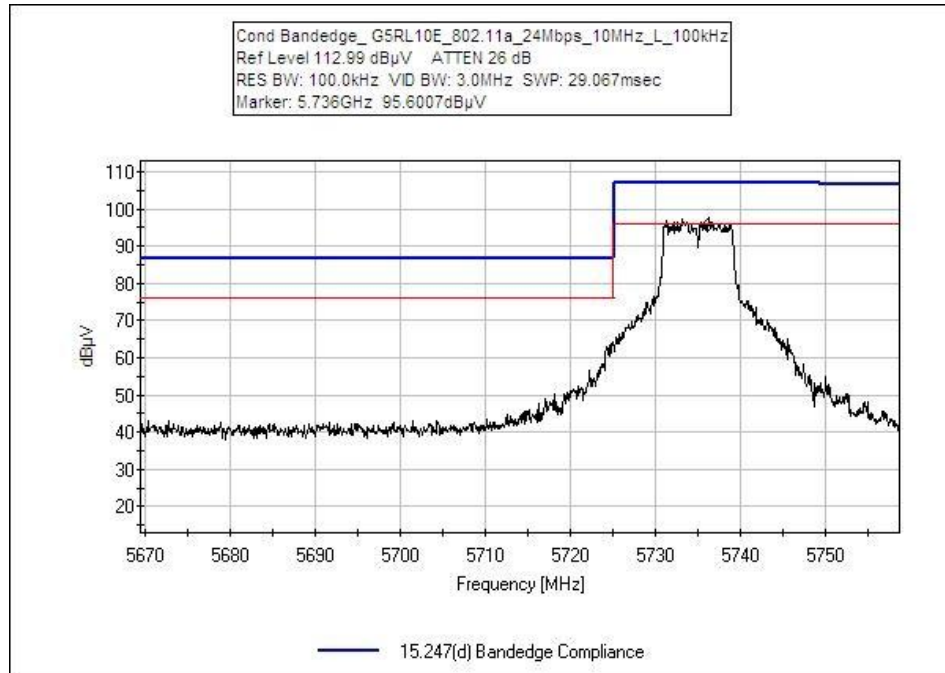
Bandedge limit are based on 20dBc from the peak emission, Bandedge is not adjacent to Restricted band.

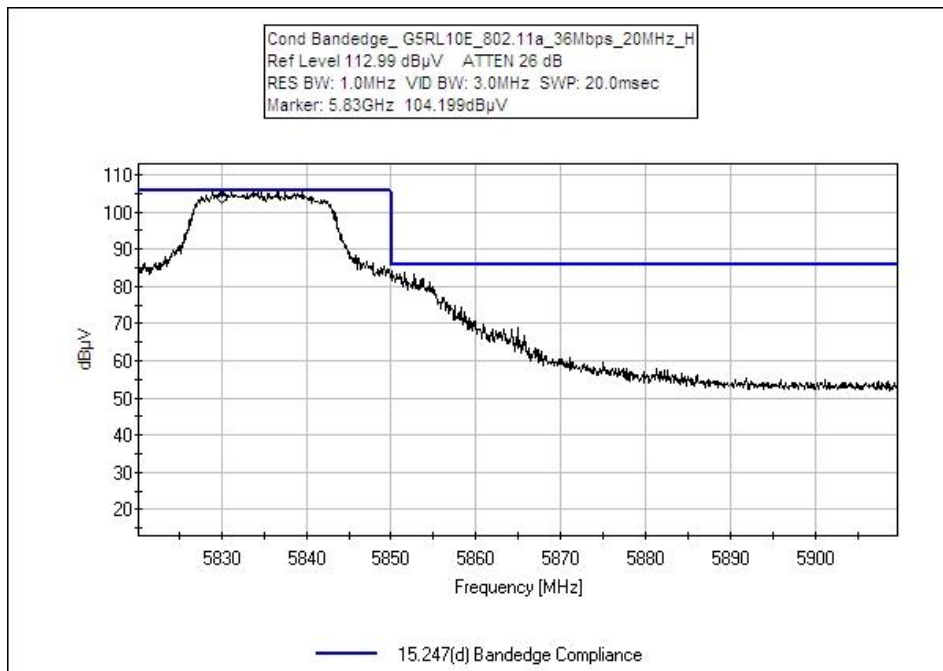
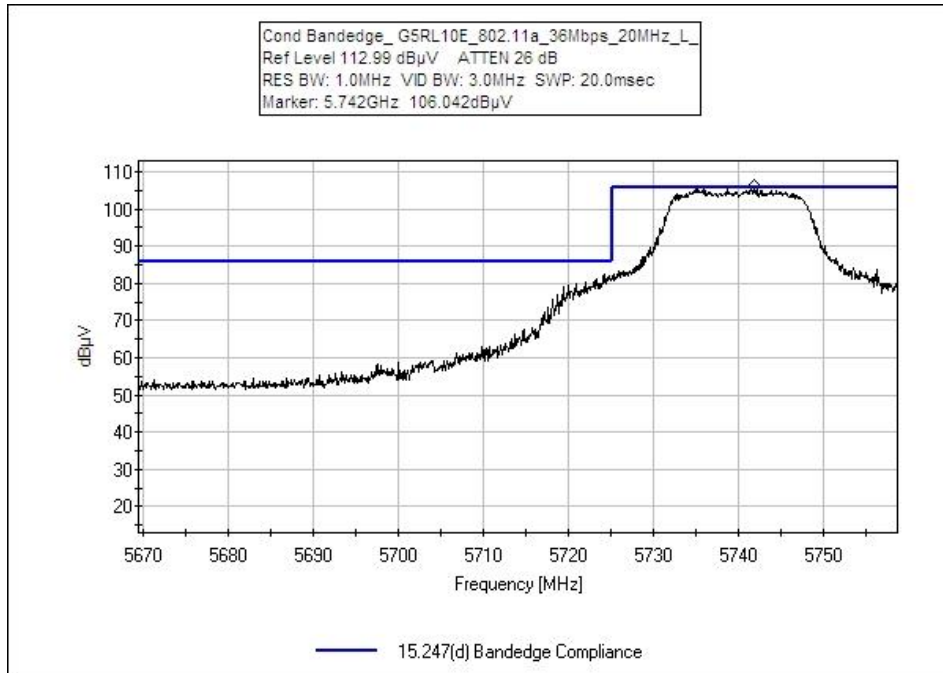
Emission profile was recorded with RBW of 1 MHz and 100kHz.

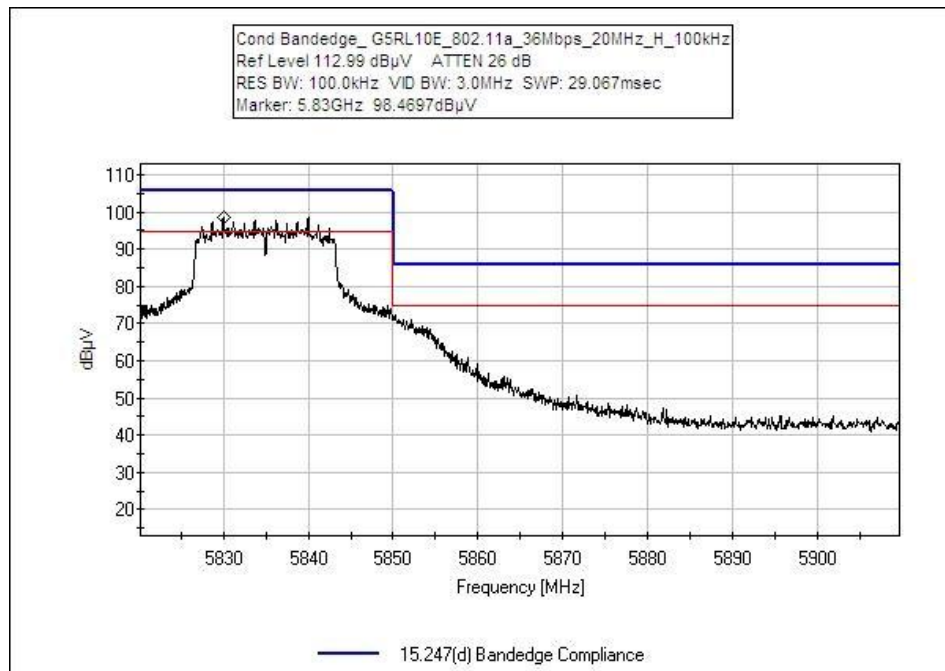
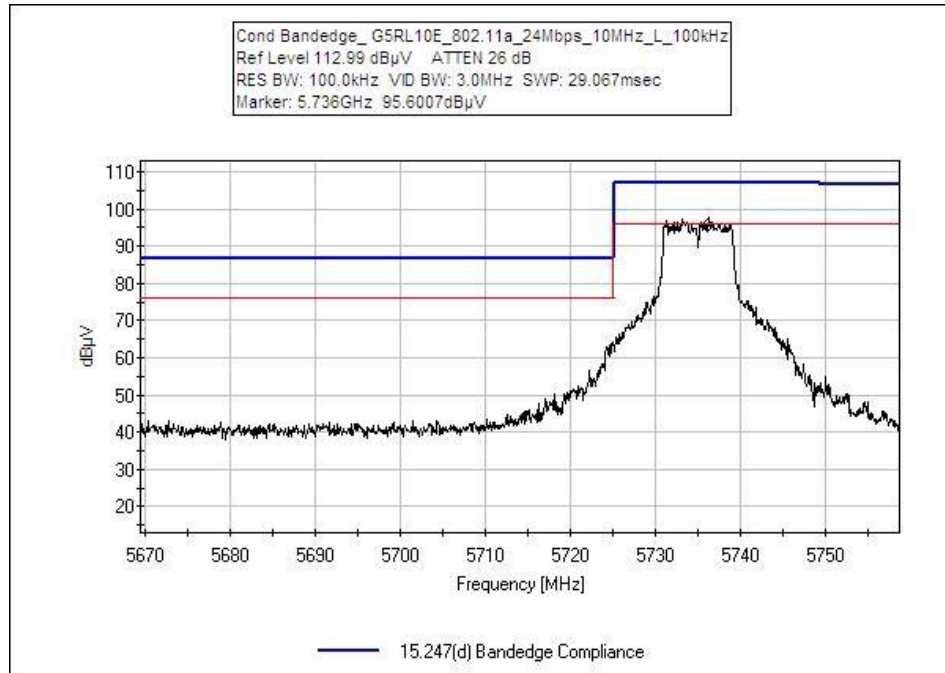
**Test Data**

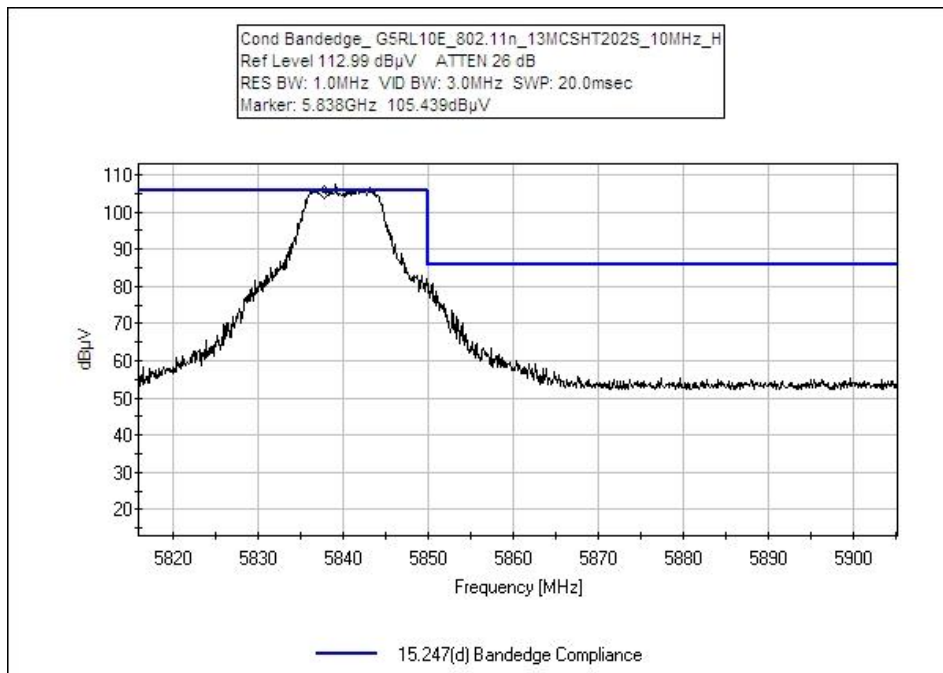
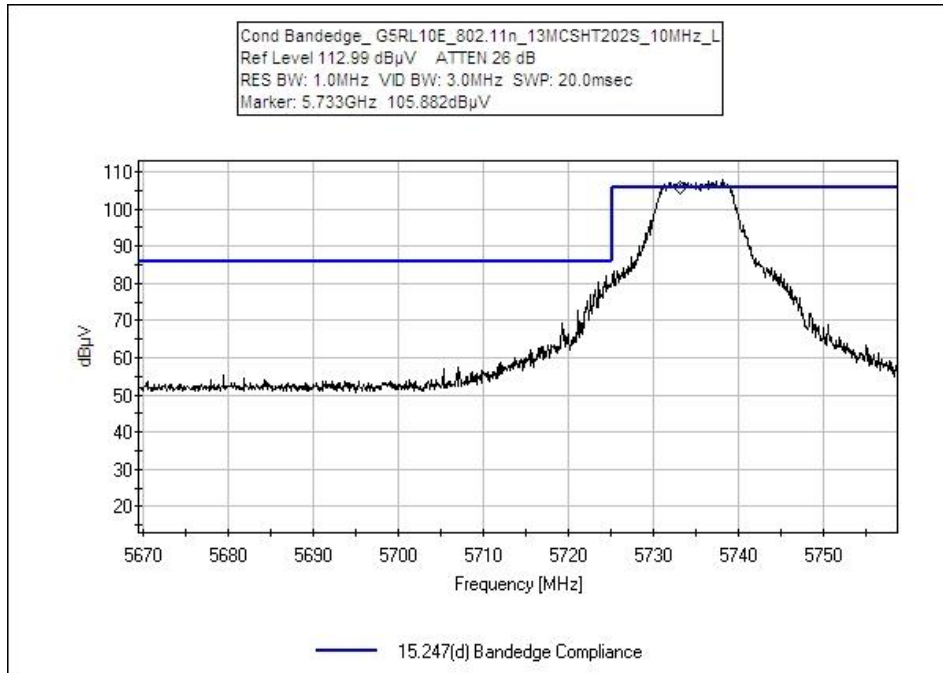
**G5RL10E**

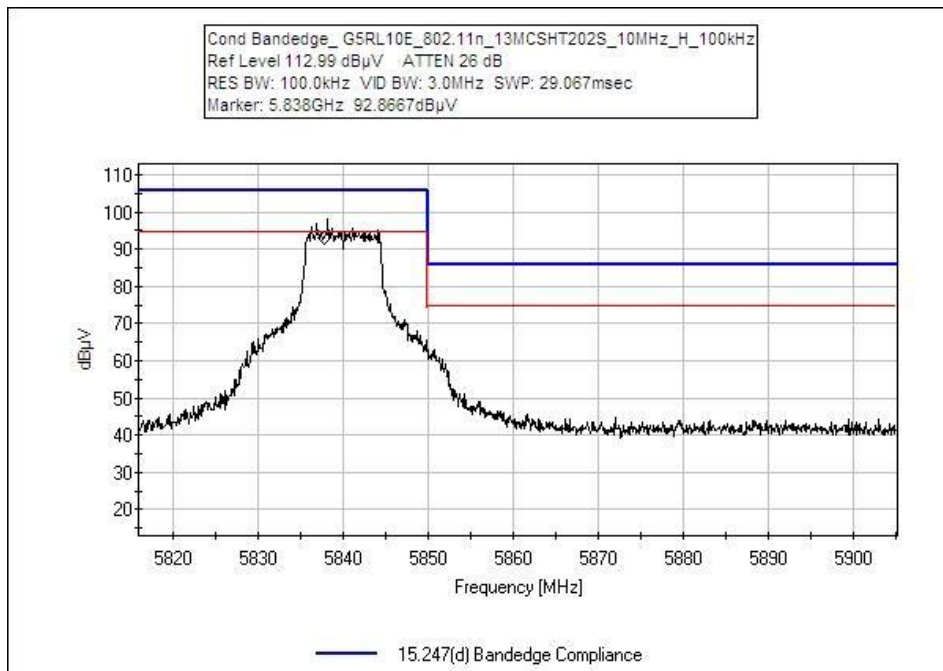
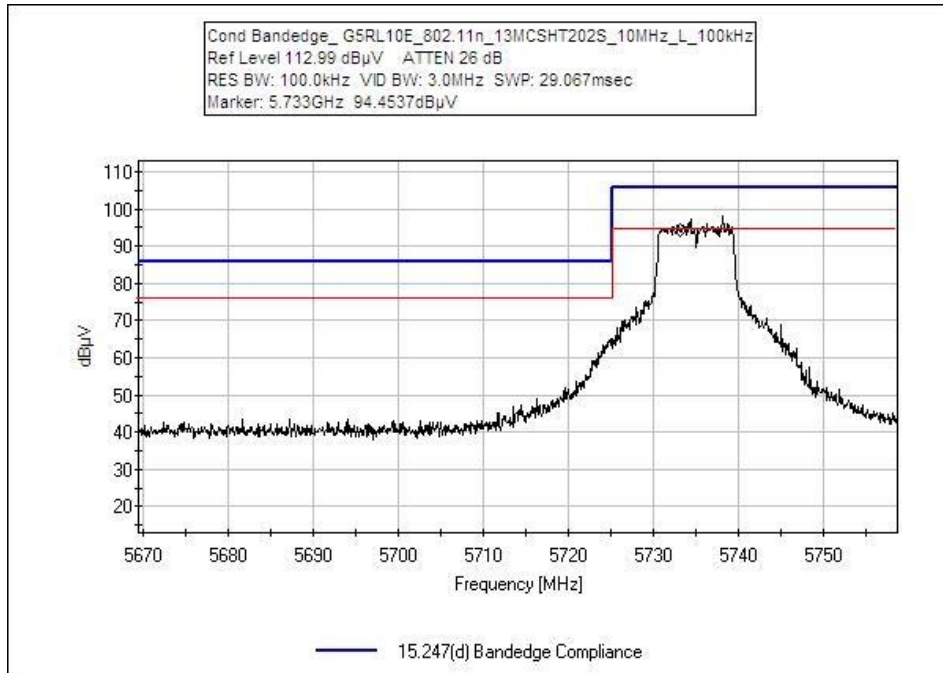




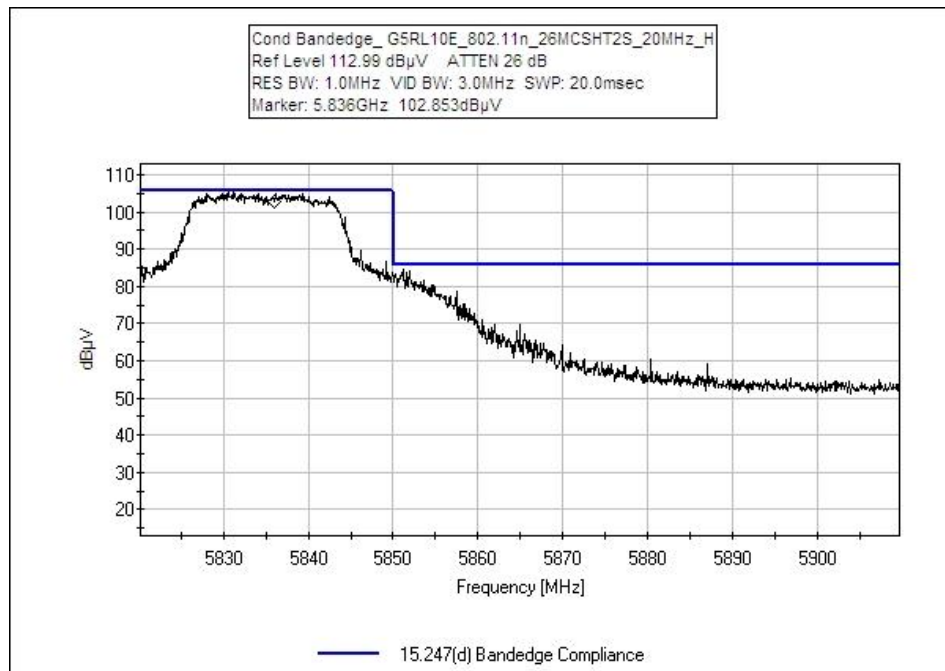
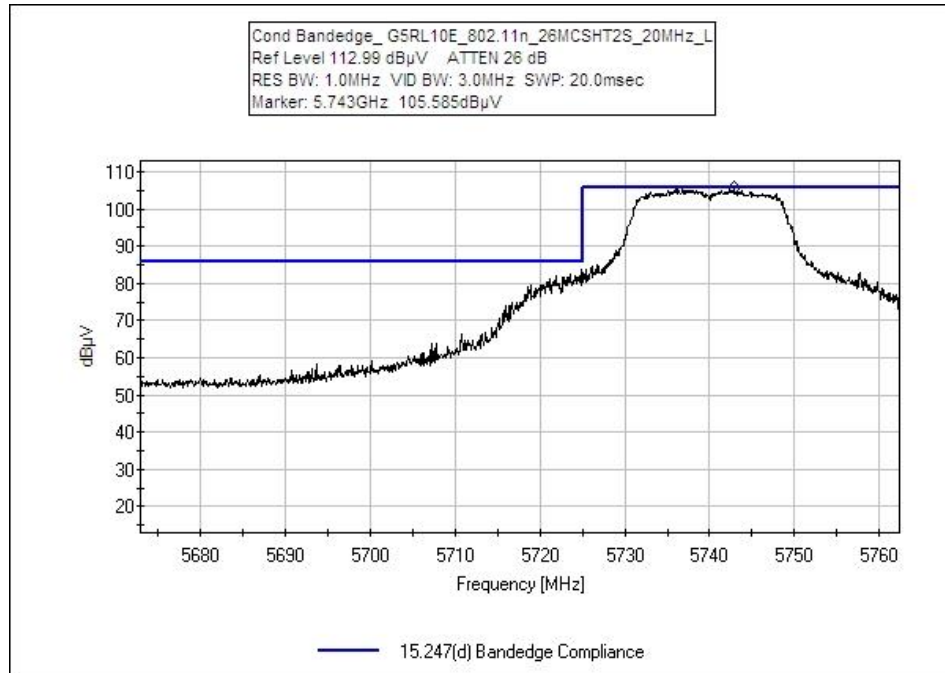




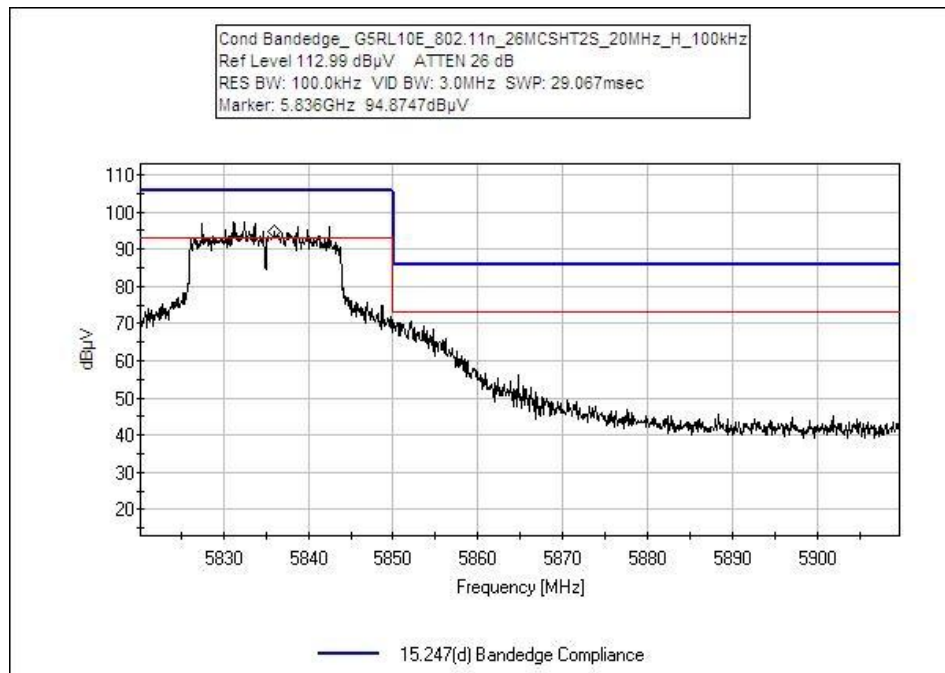
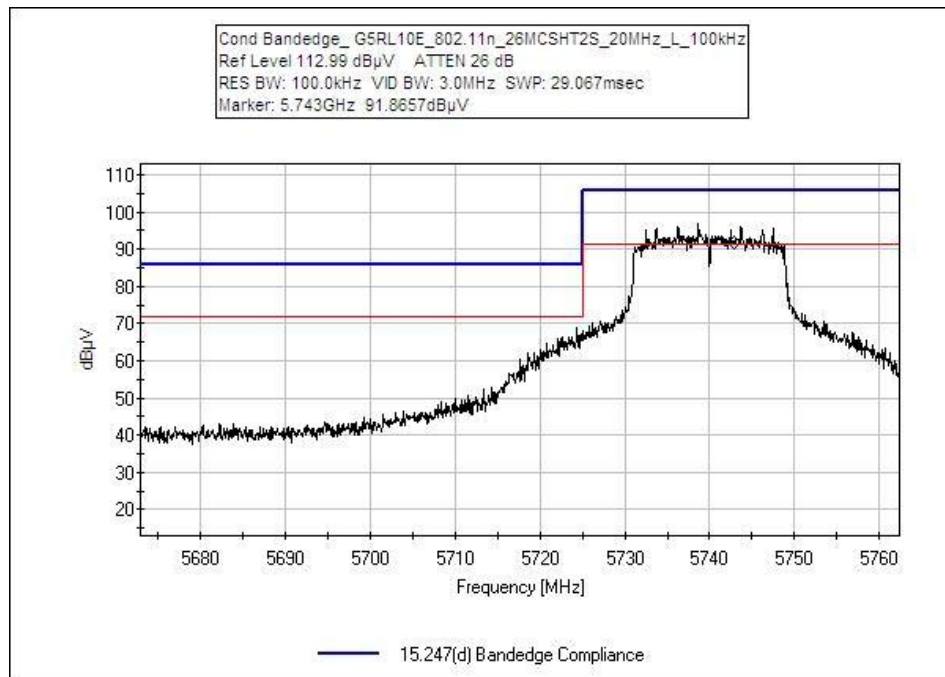




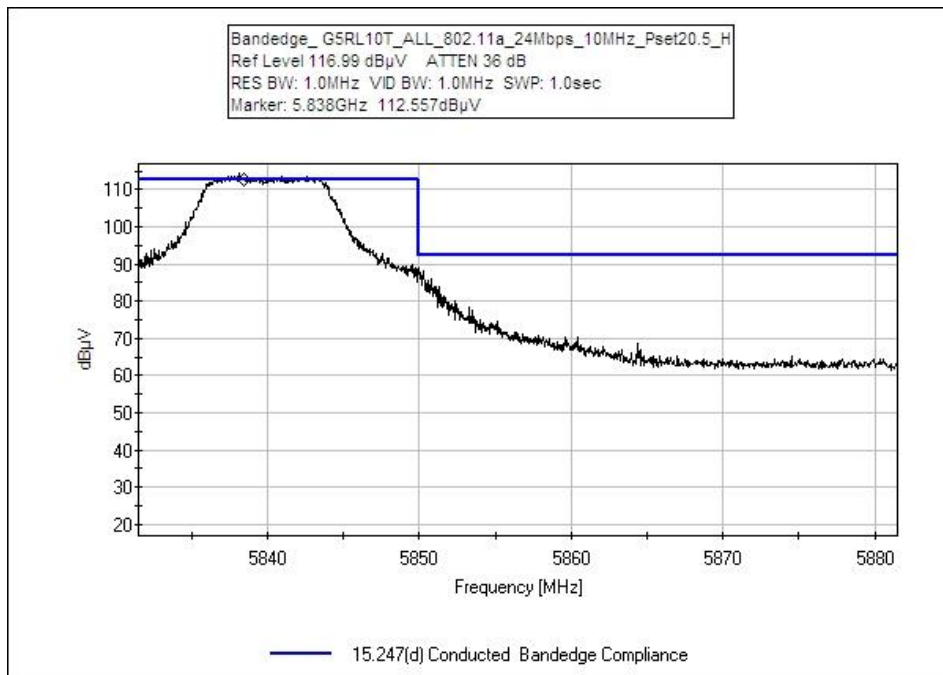
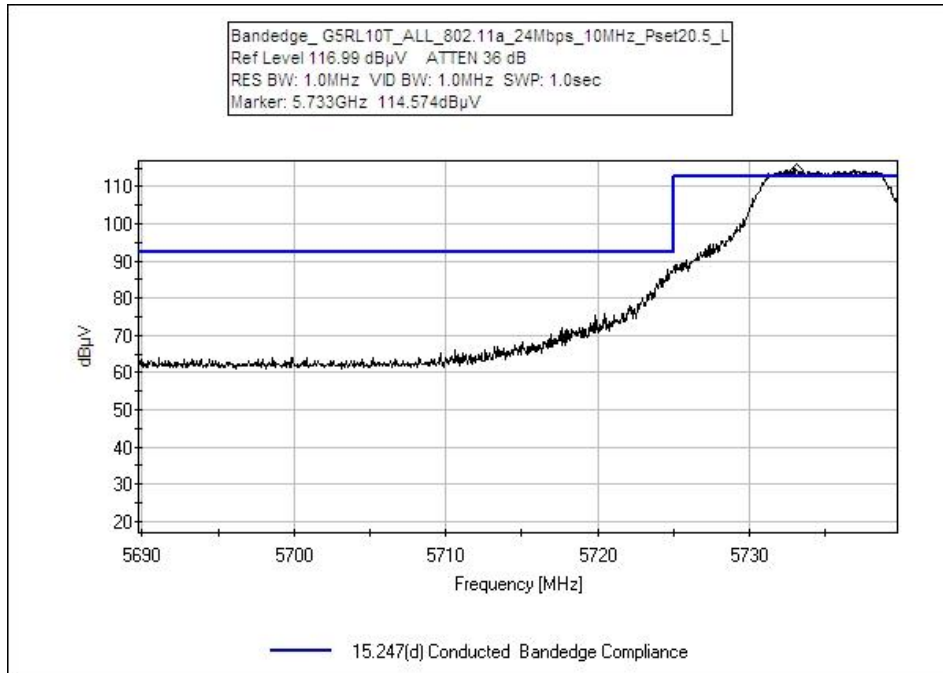


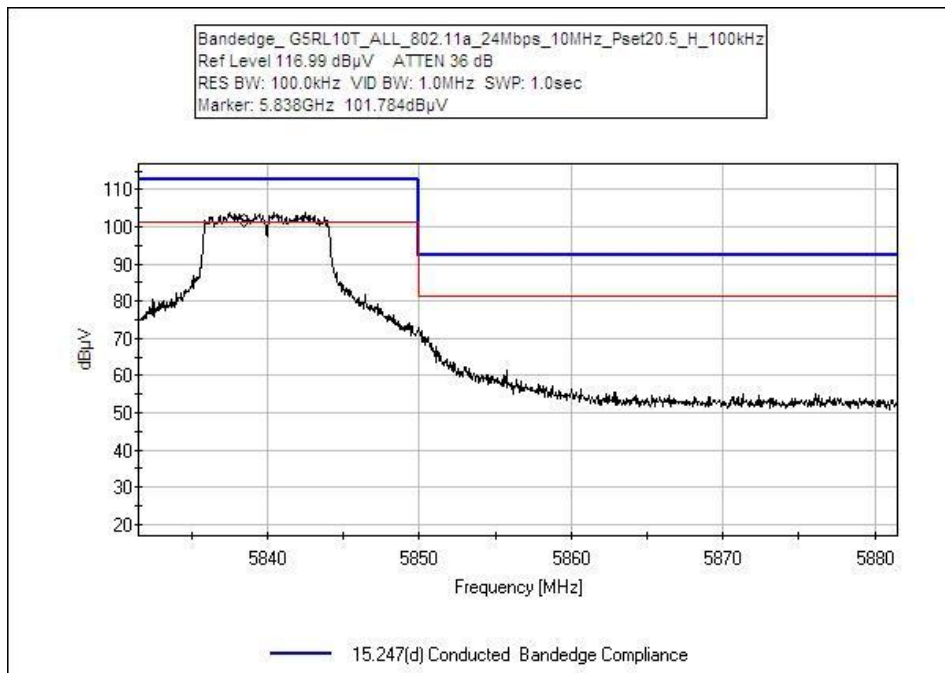
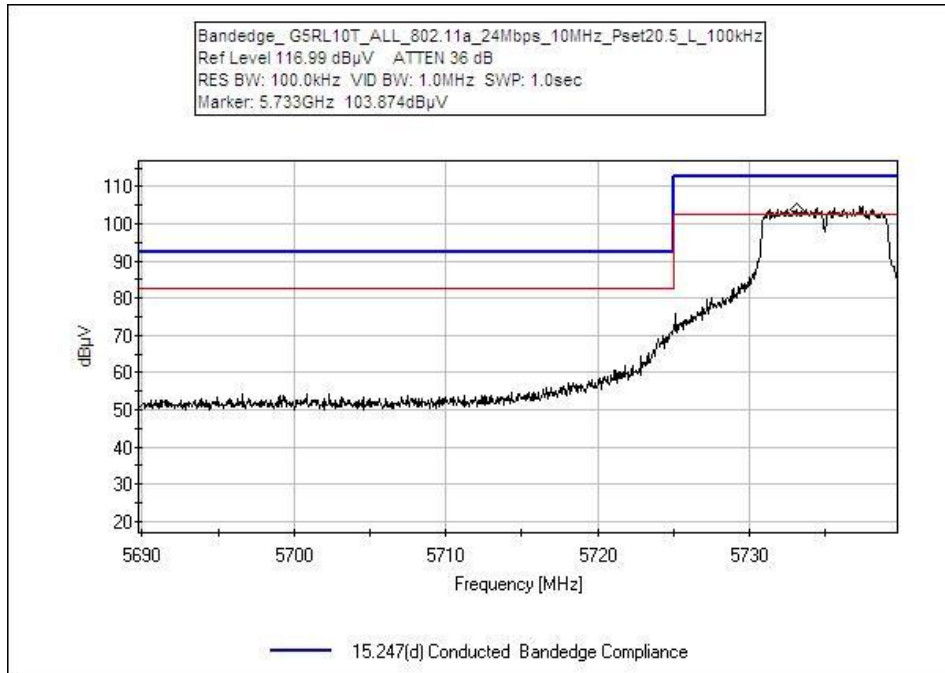


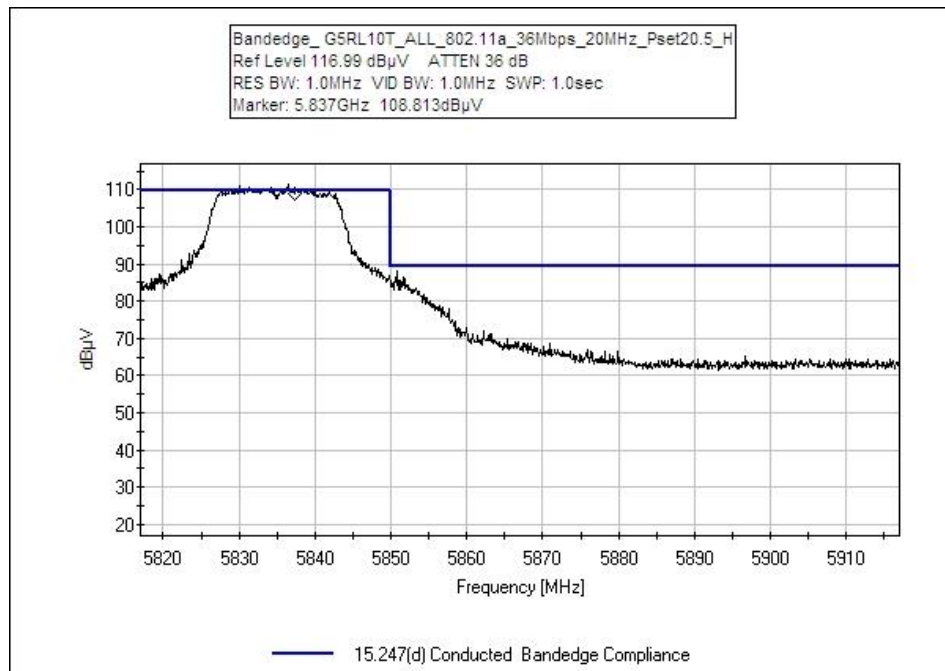
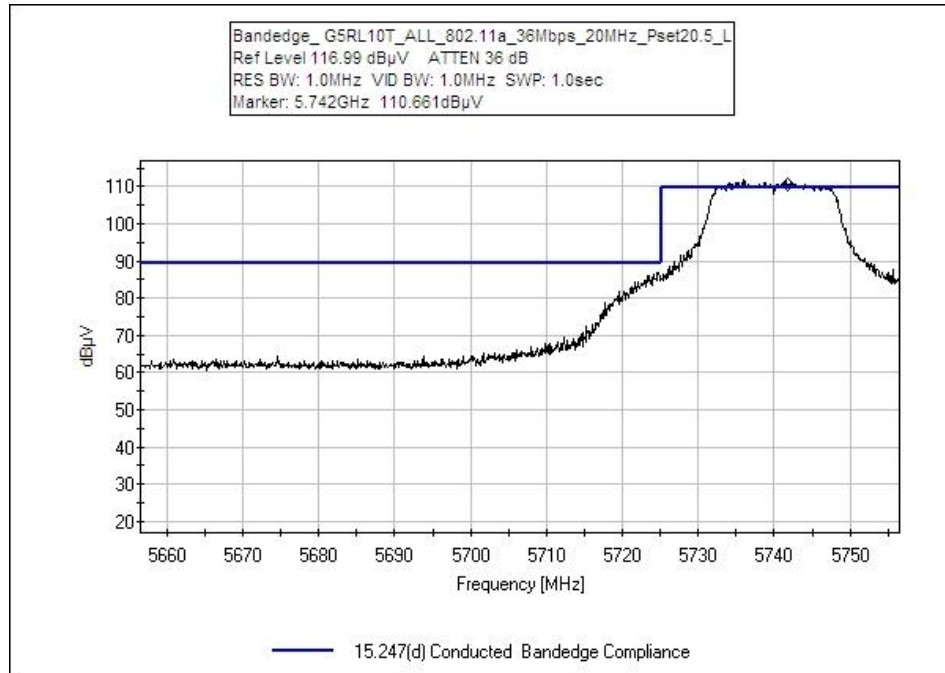


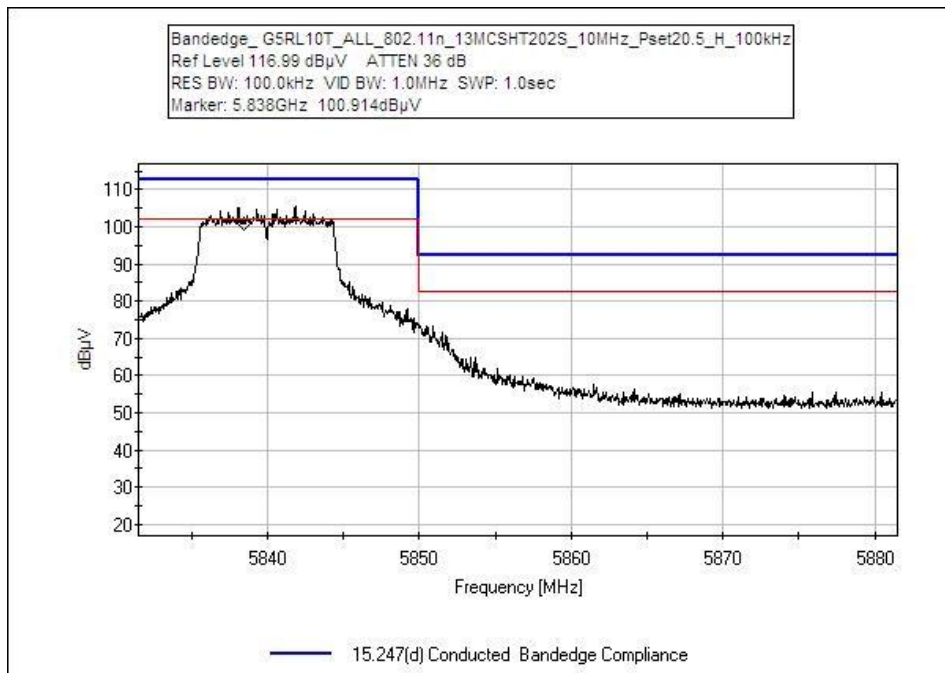
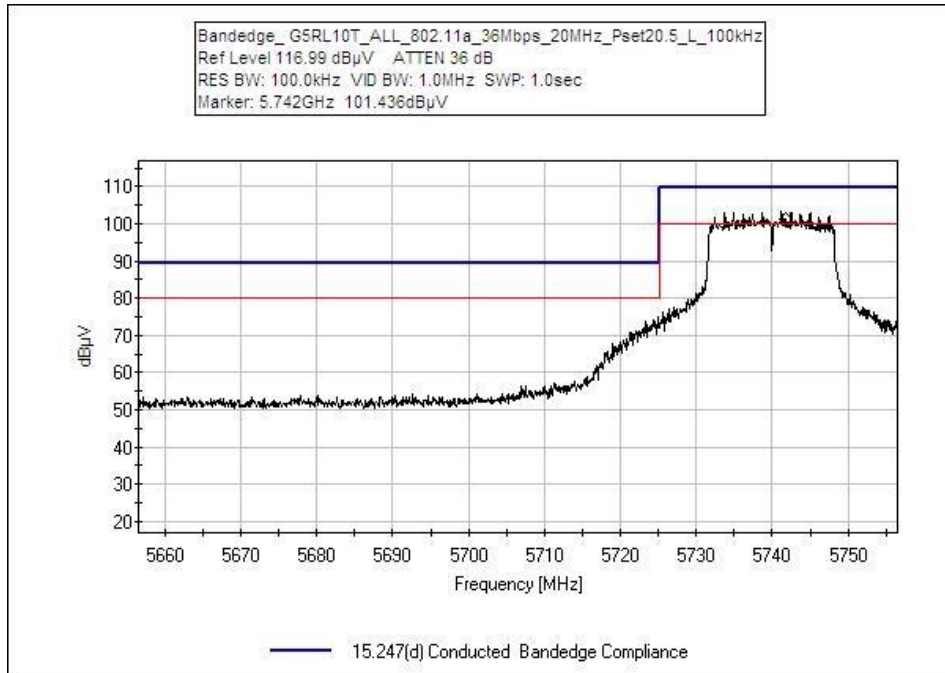


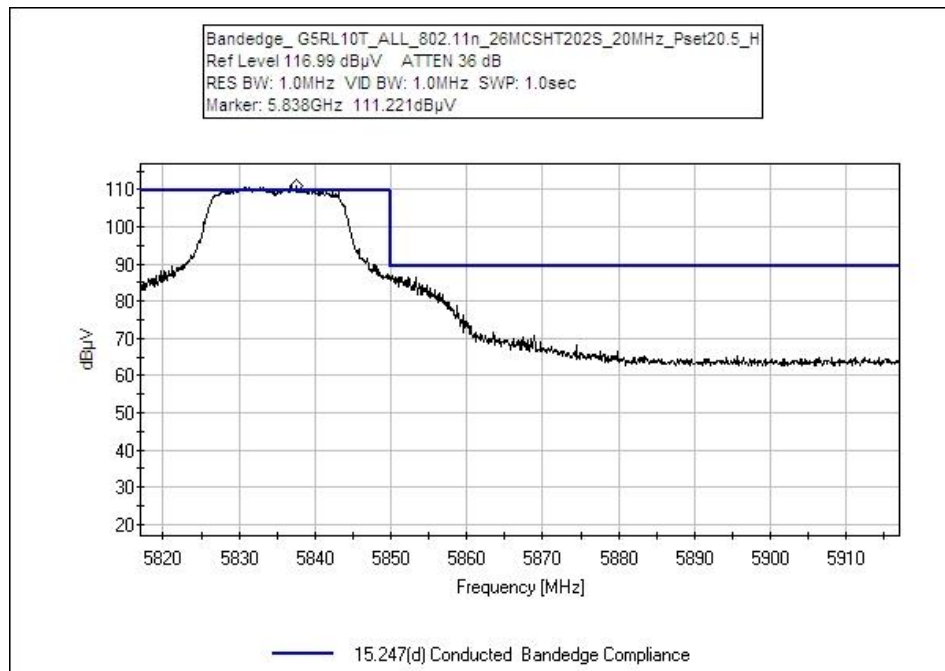
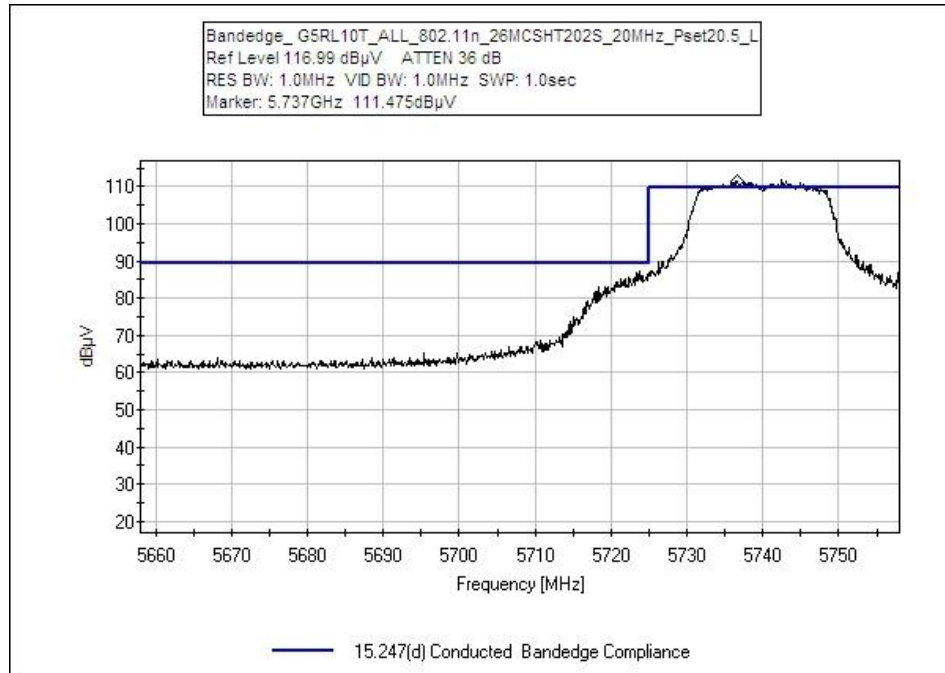
**G5RL10T-ALL**

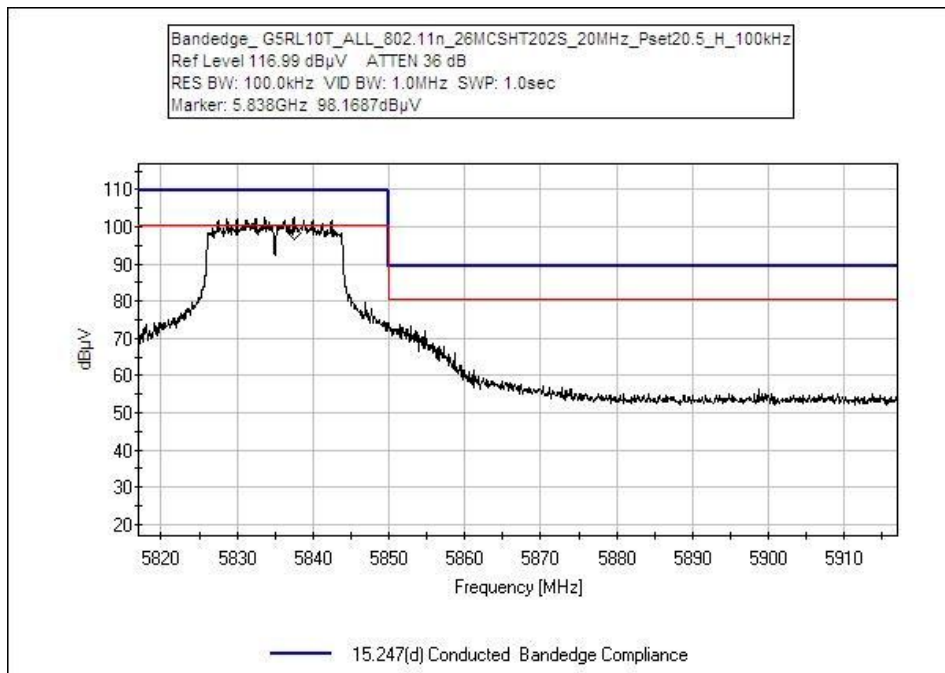
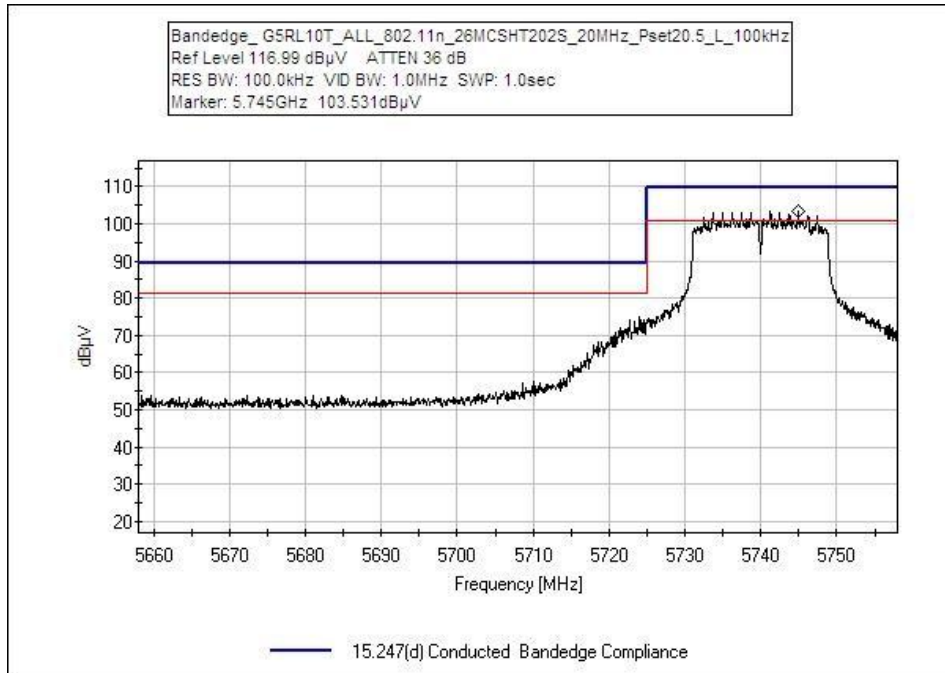














**Test Setup Photos**

