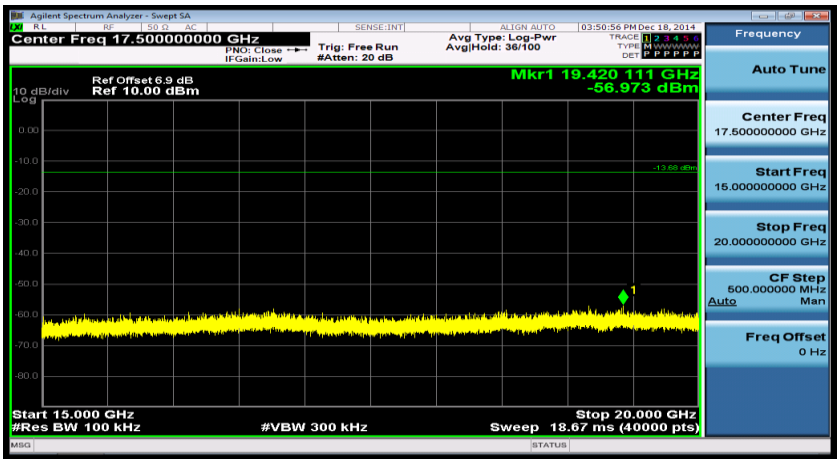
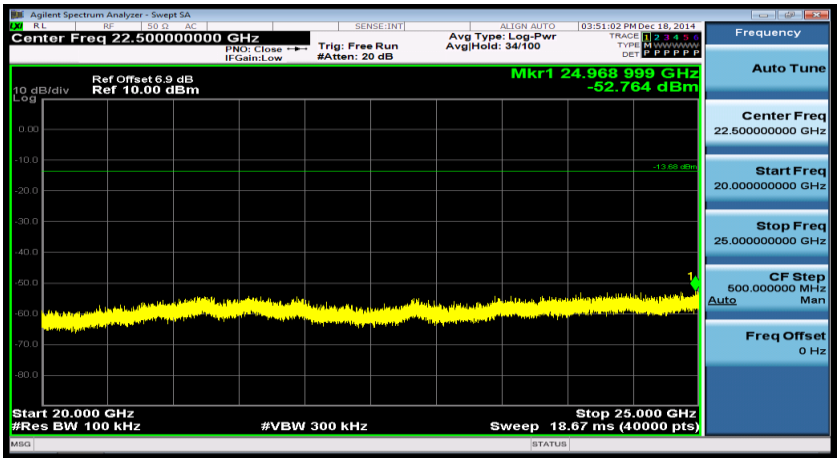
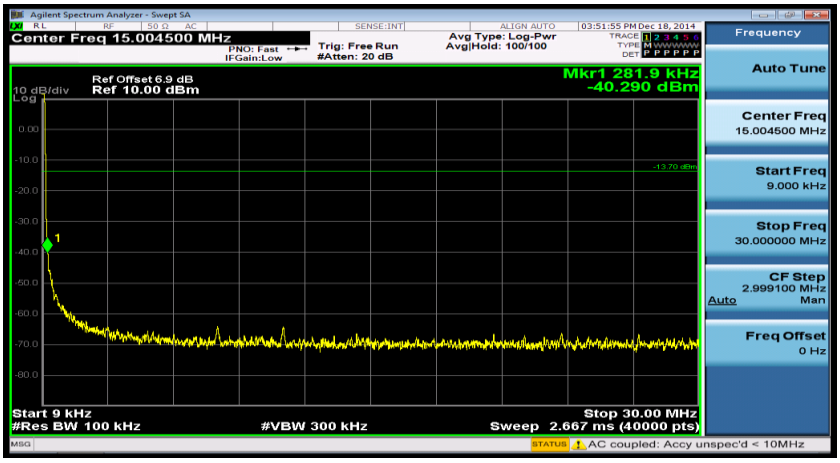
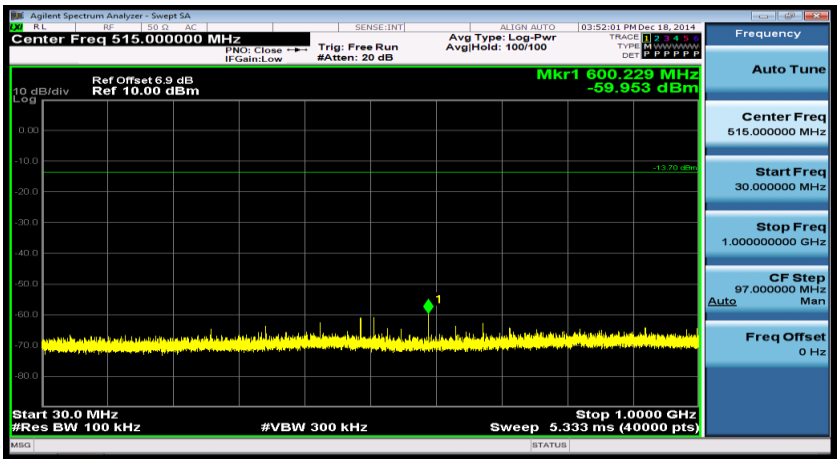
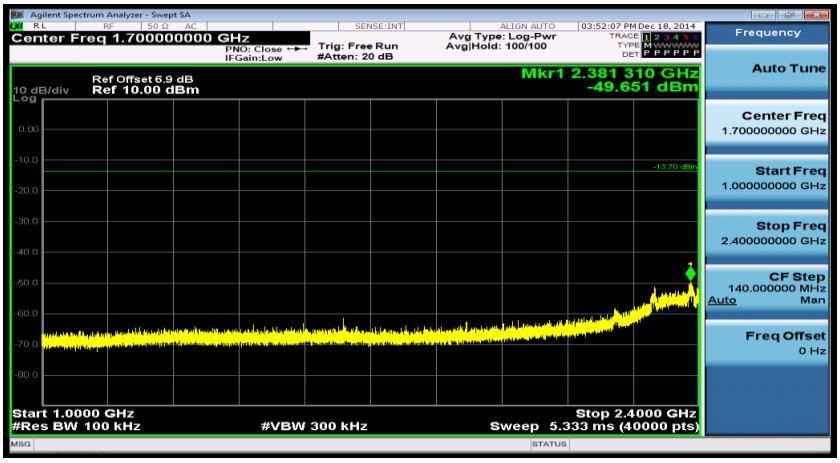
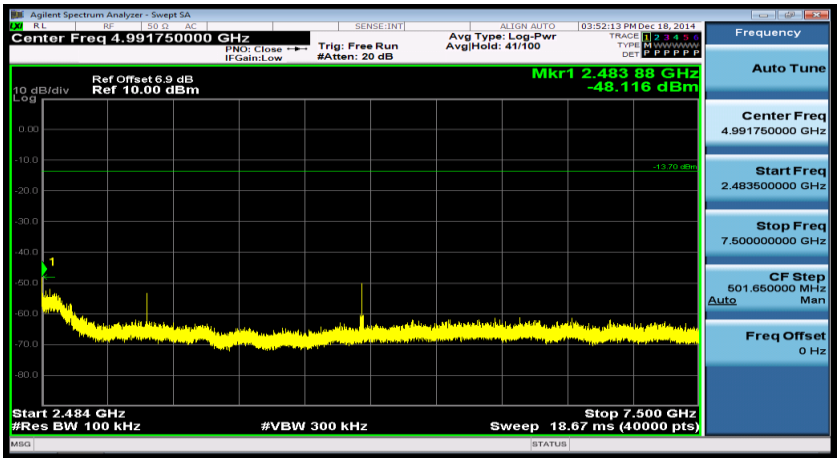
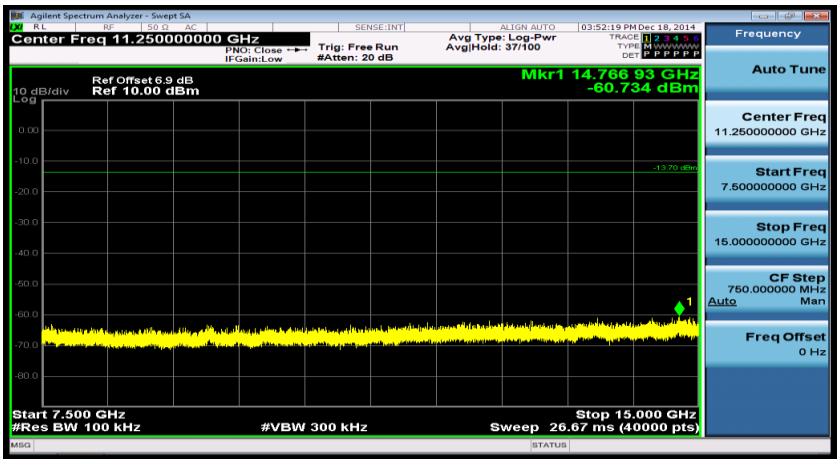
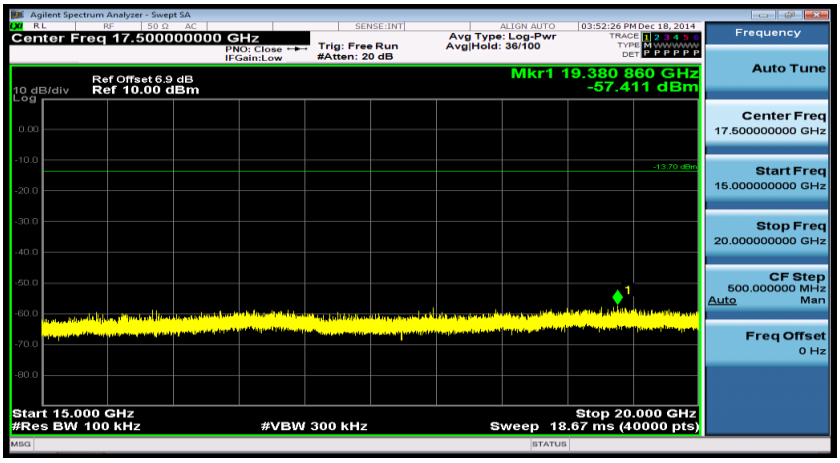
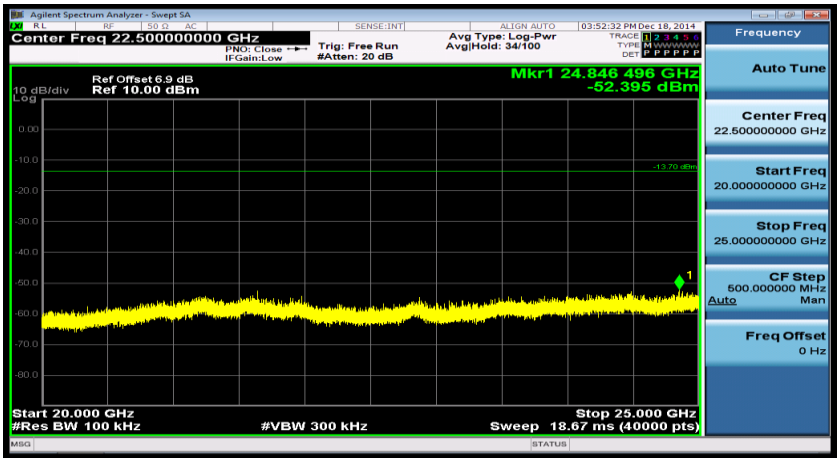
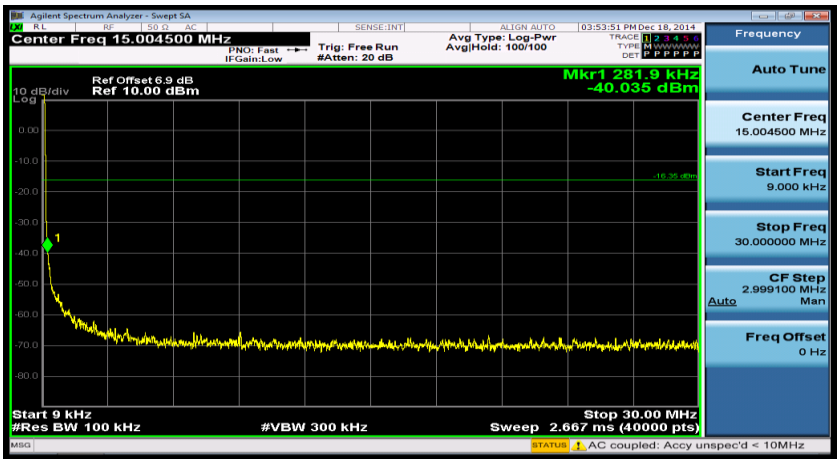
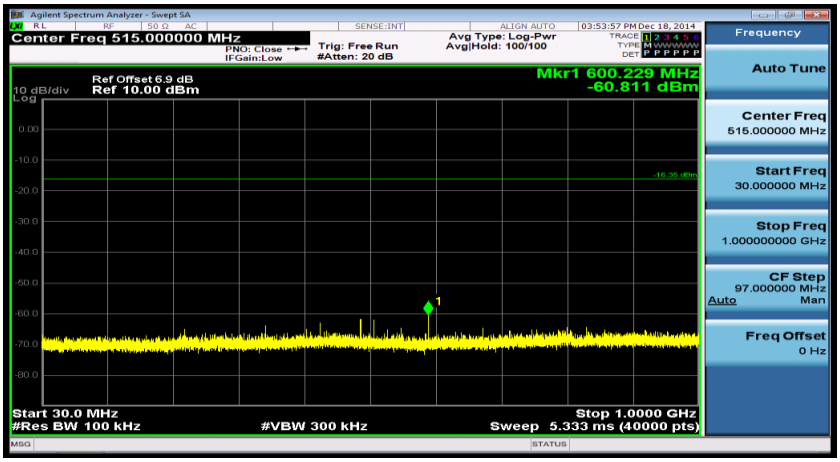
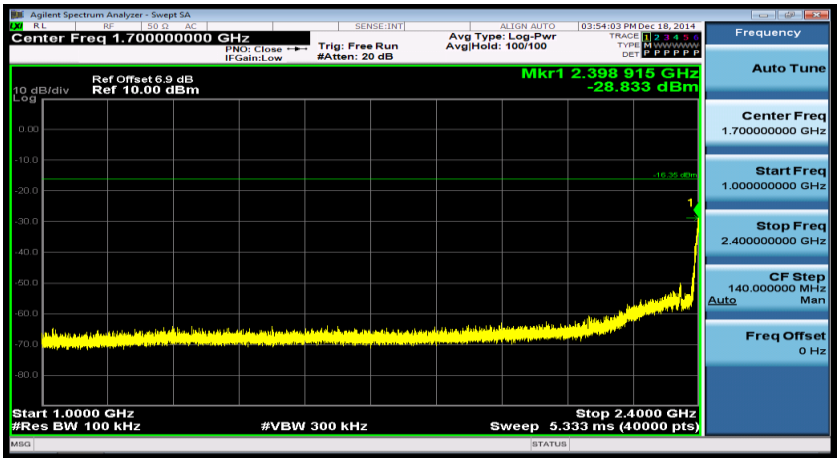
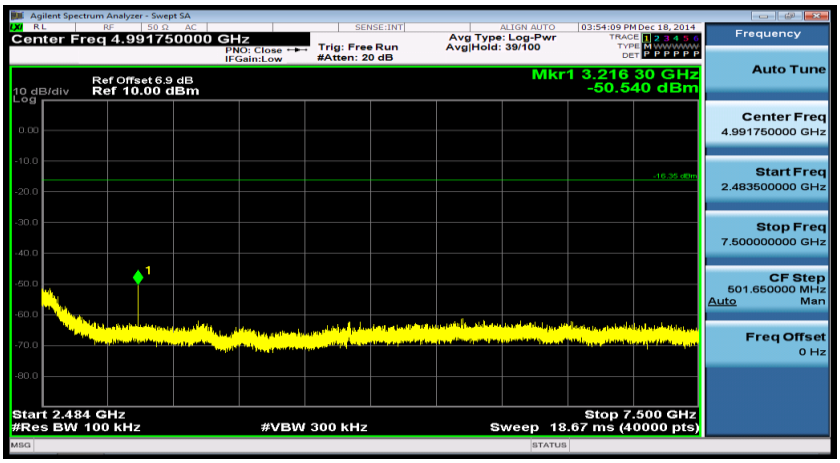
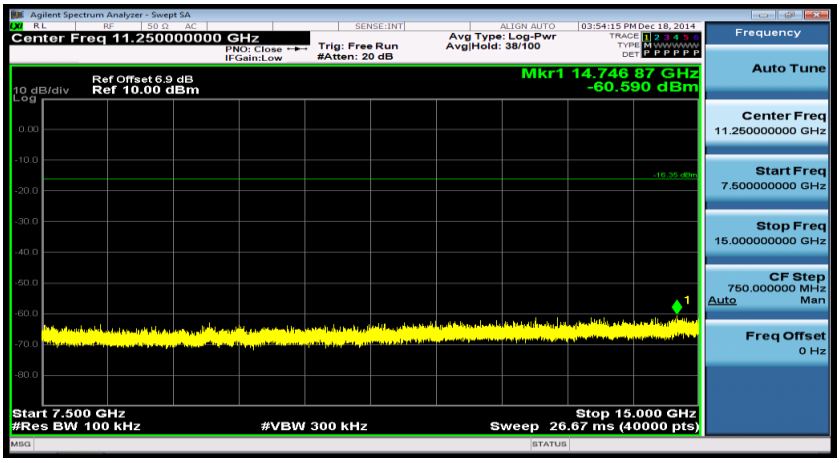
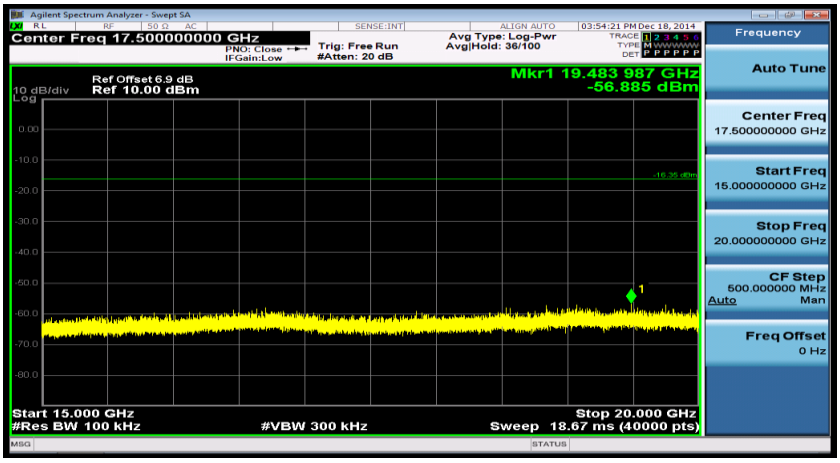
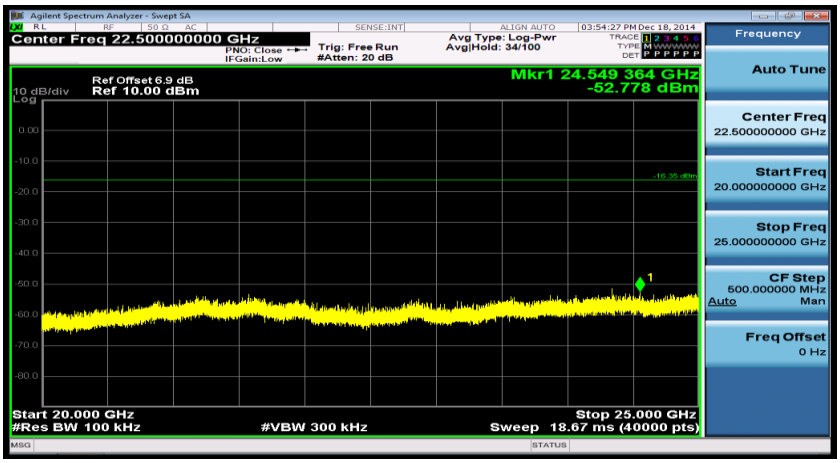
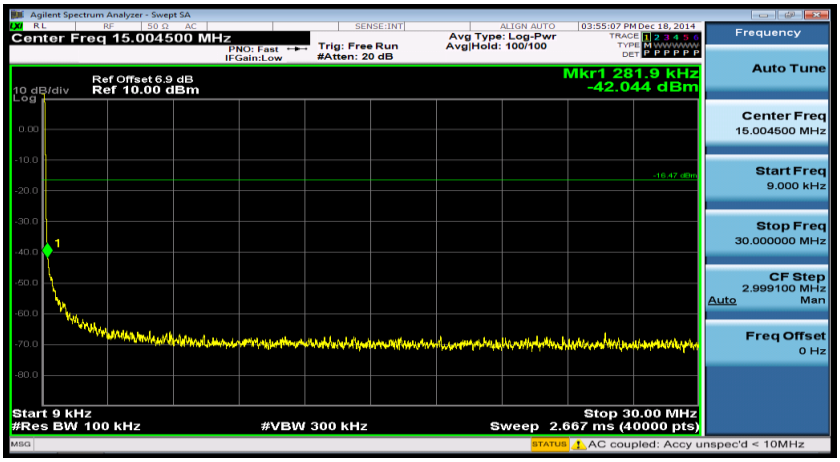
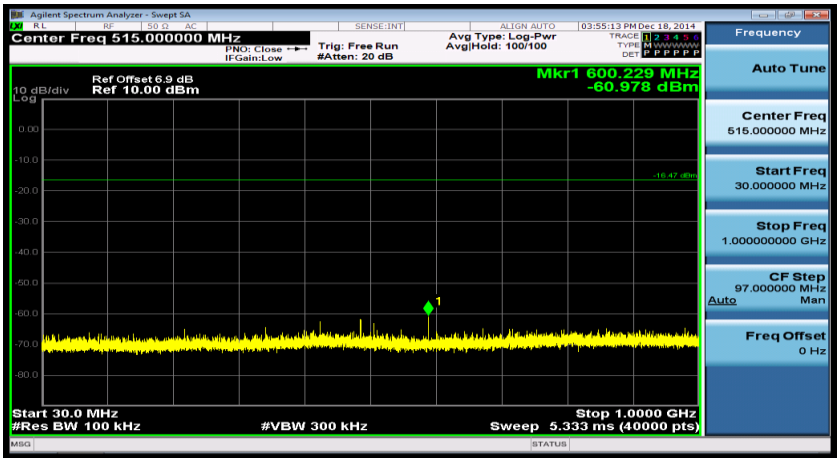
15GHz-20GHz	
20GHz-25GHz	
Mode 2: IEEE 802.11b Link Mode-2462	
9KHz-30MHz	

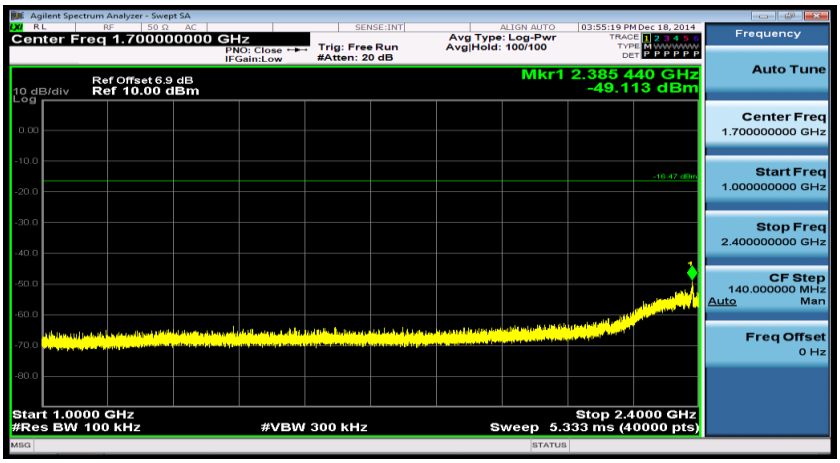
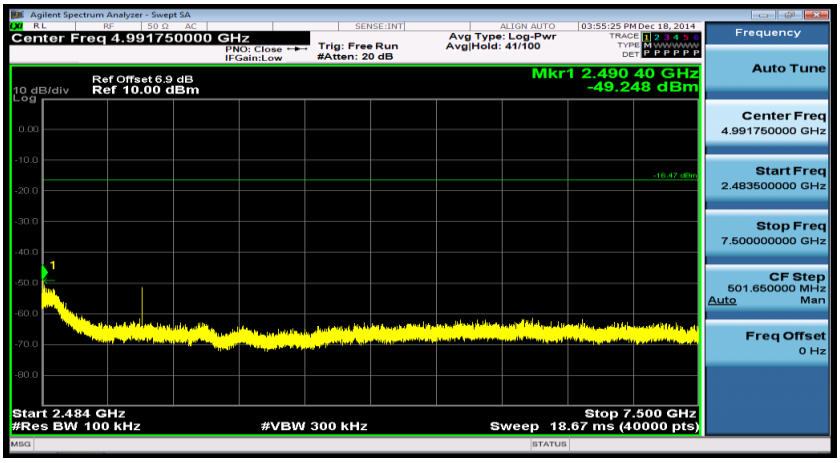
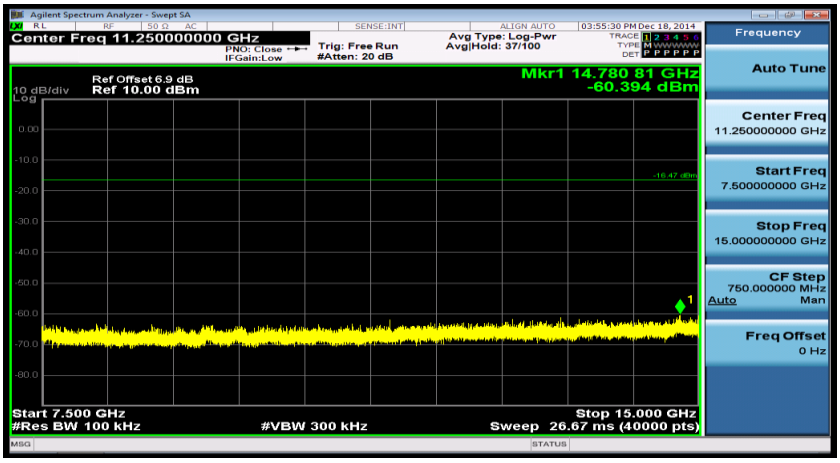
30MHz-1GHz	
1GHz-2.4GHz	
2.4835GHz-7.5GHz	

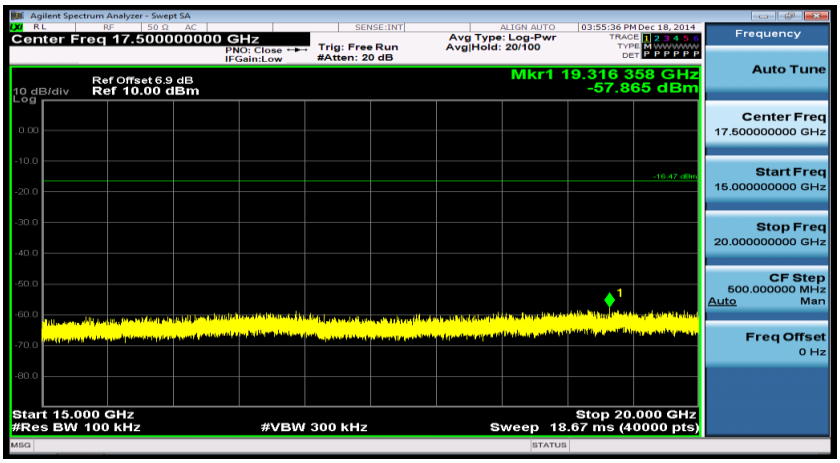
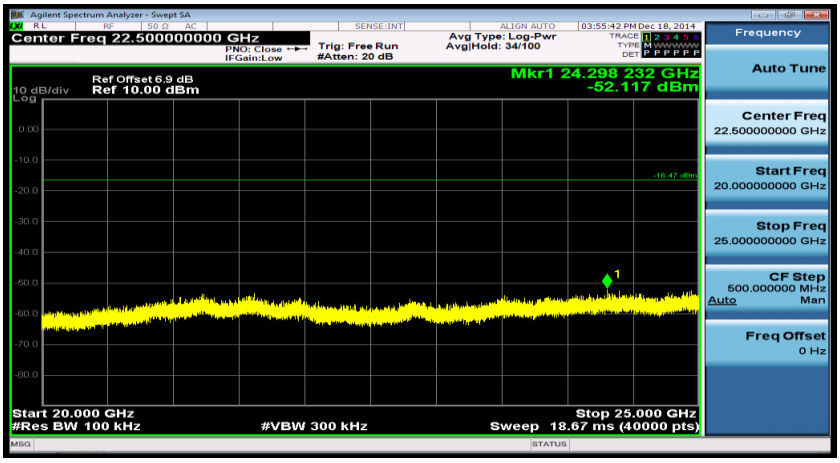
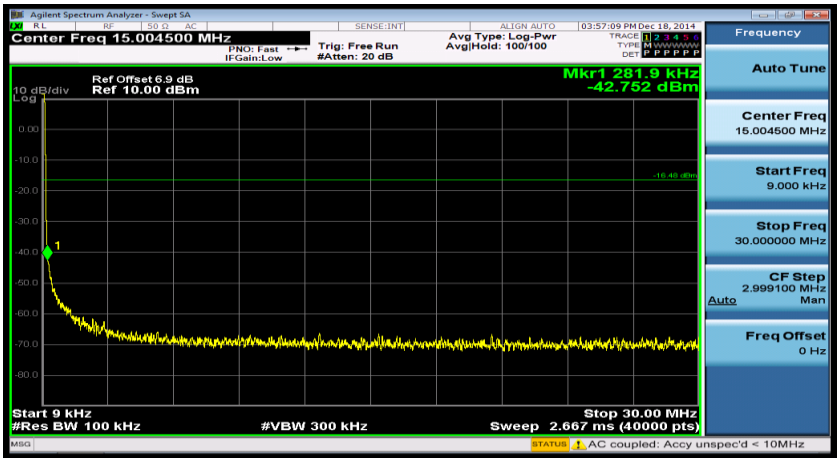
7.5GHz-15GHz	
15GHz-20GHz	
20GHz-25GHz	

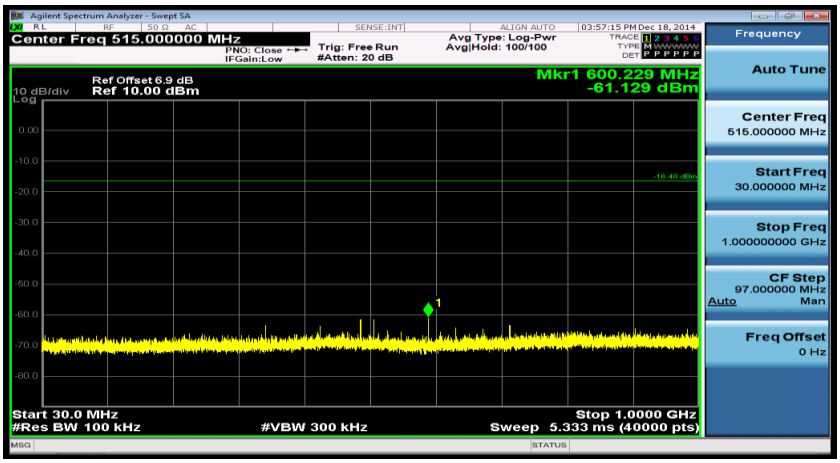
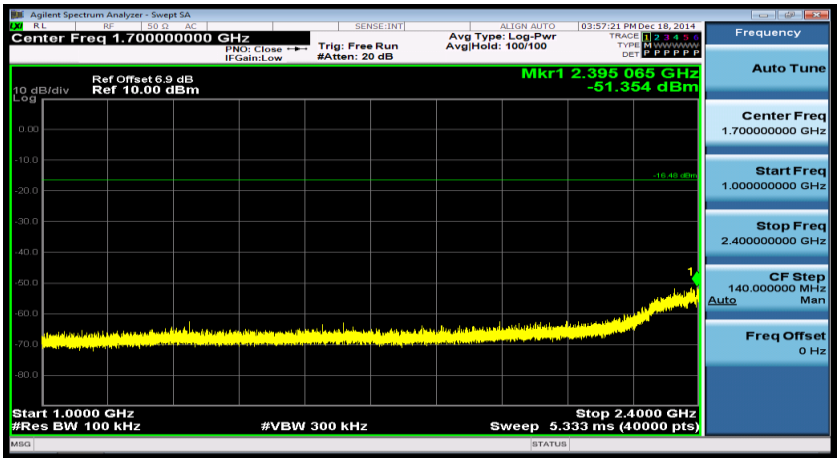
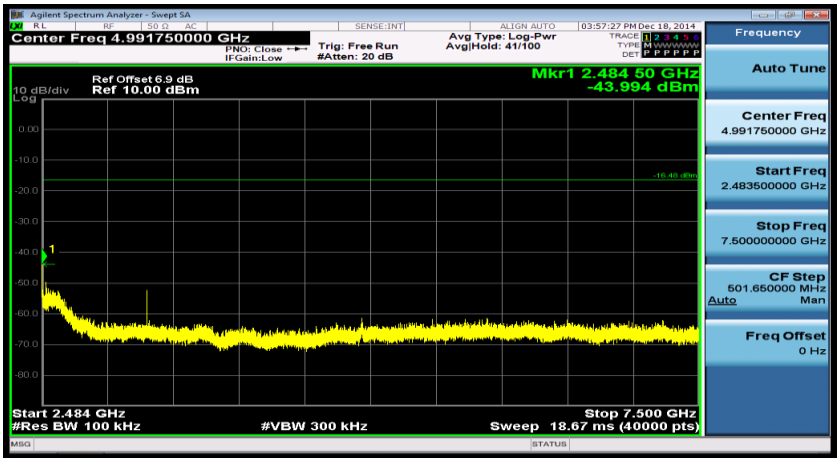
Mode 3: IEEE 802.11g Link Mode-2412	
9KHz-30MHz	
30MHz-1GHz	
1GHz-2.4GHz	

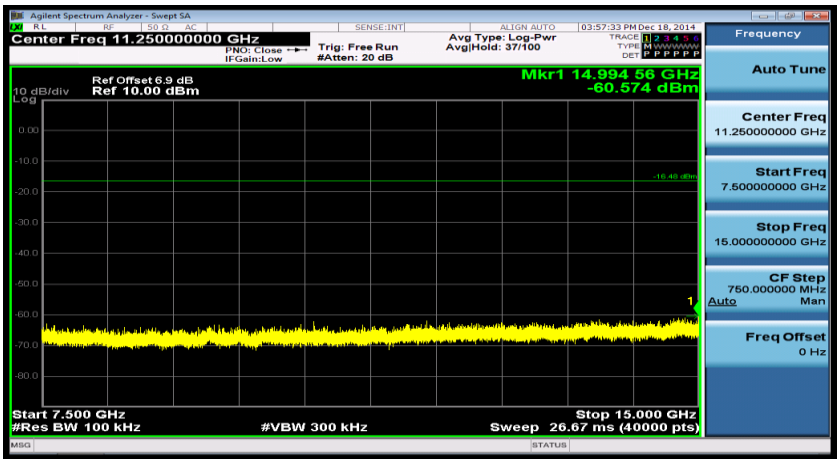
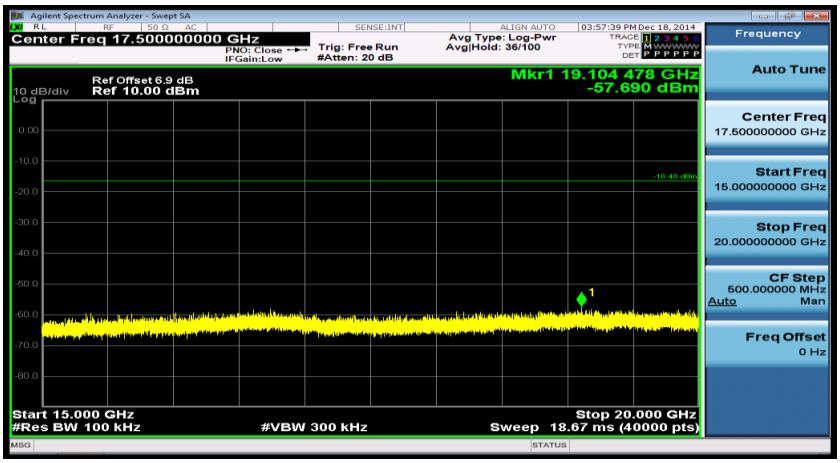
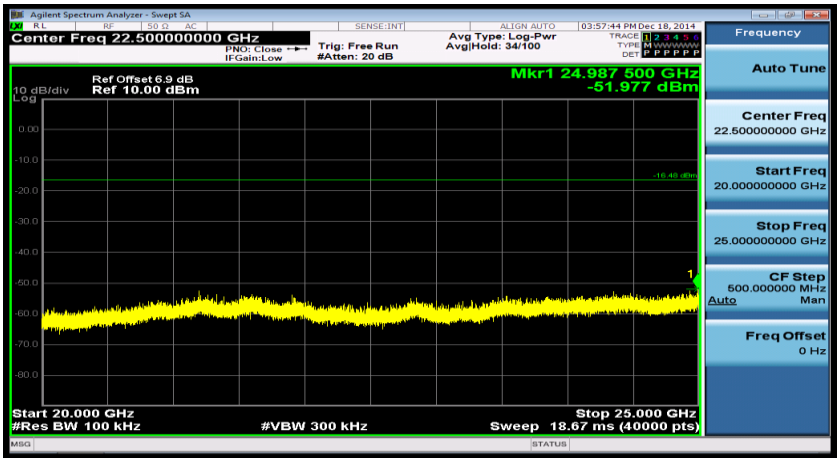
2.4835GHz-7.5GHz	
7.5GHz-15GHz	
15GHz-20GHz	

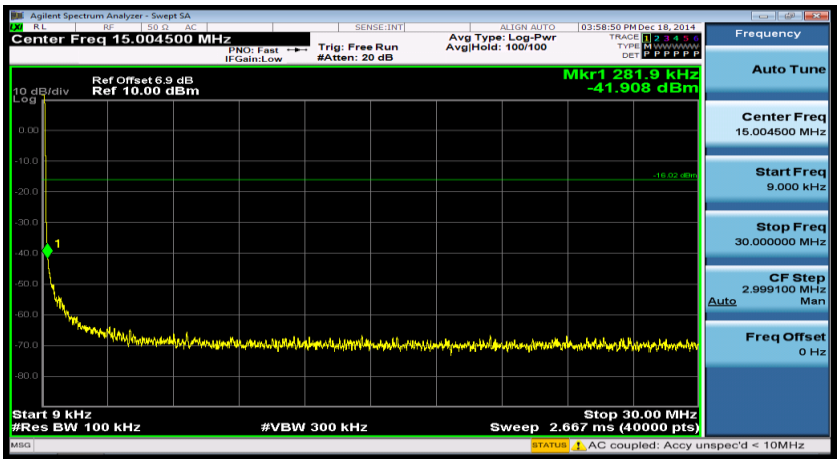
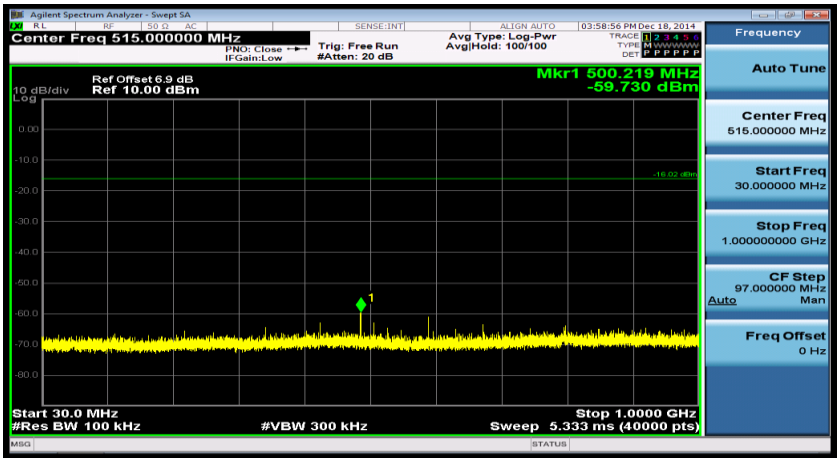
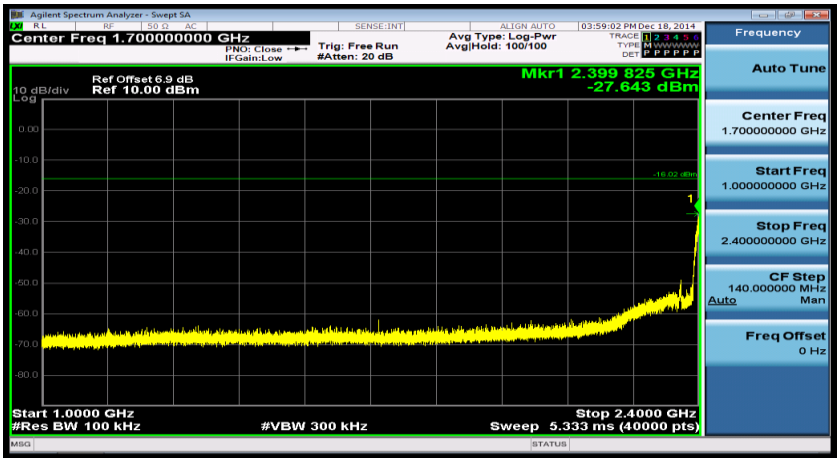
20GHz-25GHz	
Mode 3: IEEE 802.11g Link Mode-2437	
9kHz-30MHz	
30MHz-1GHz	

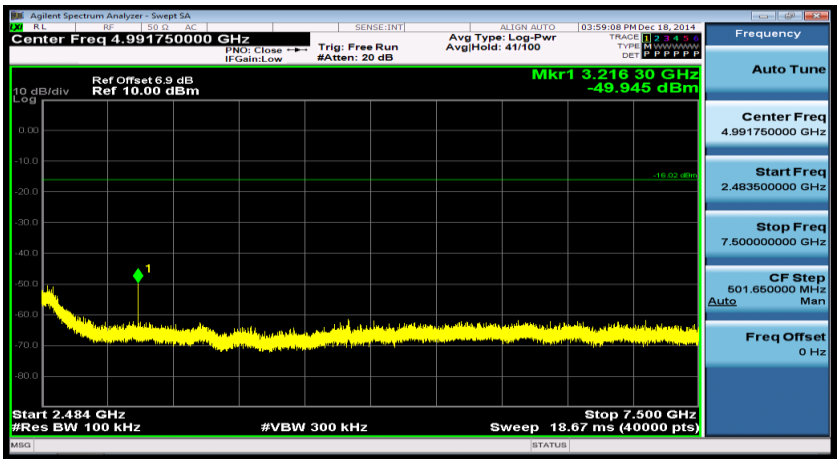
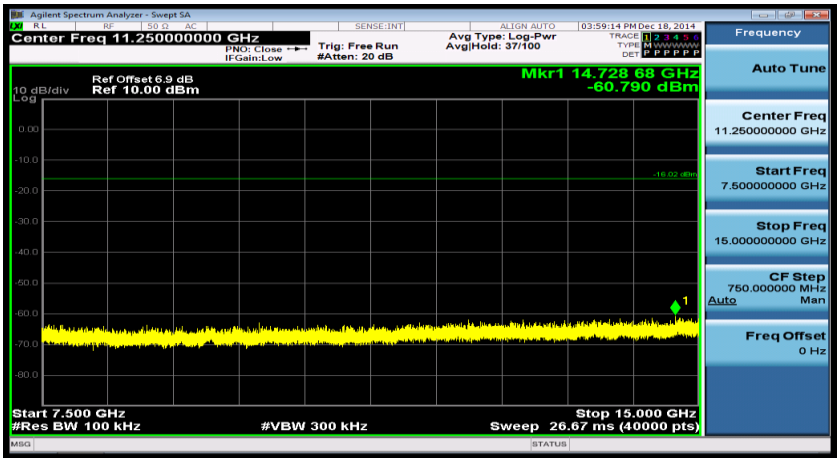
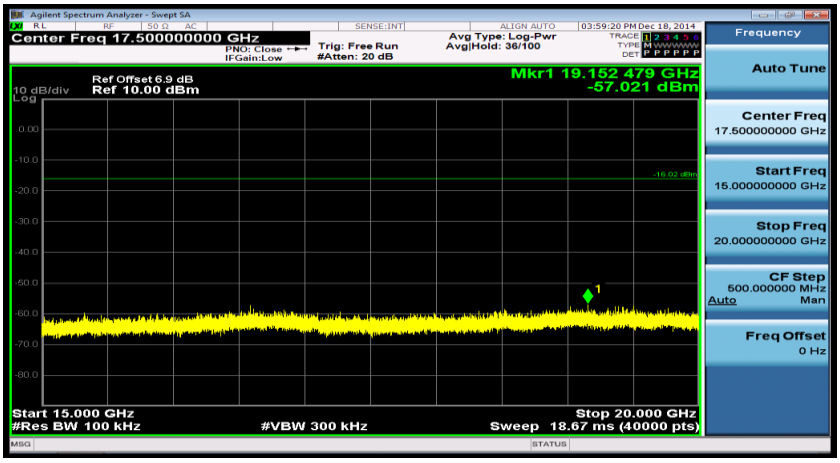
1GHz-2.4GHz	
2.4835GHz-7.5GHz	
7.5GHz-15GHz	

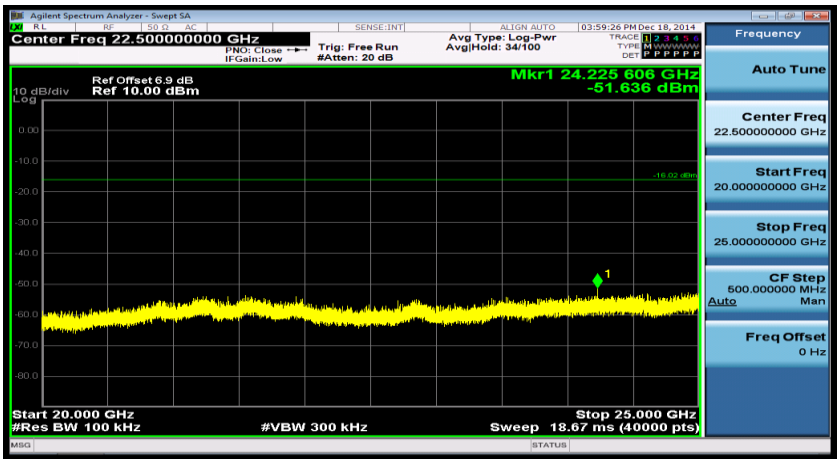
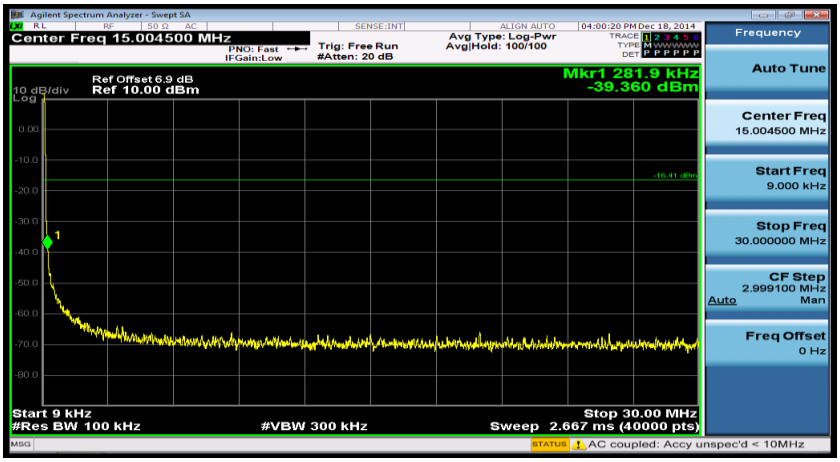
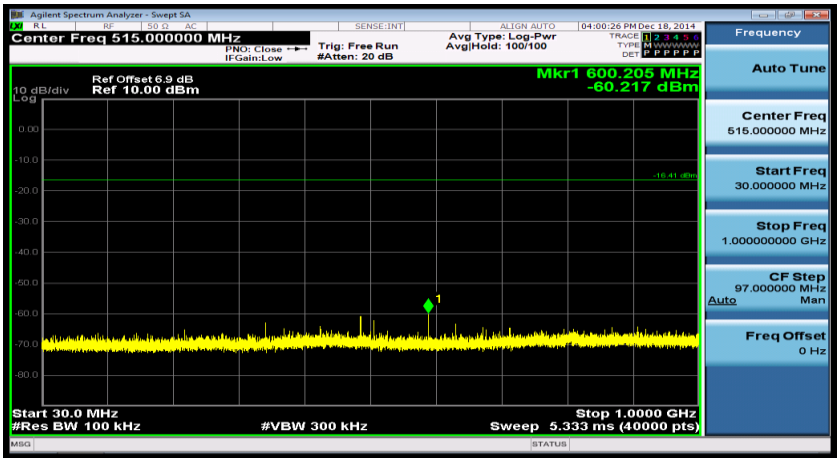
15GHz-20GHz	
20GHz-25GHz	
Mode 3: IEEE 802.11g Link Mode-2462	
9kHz-30MHz	

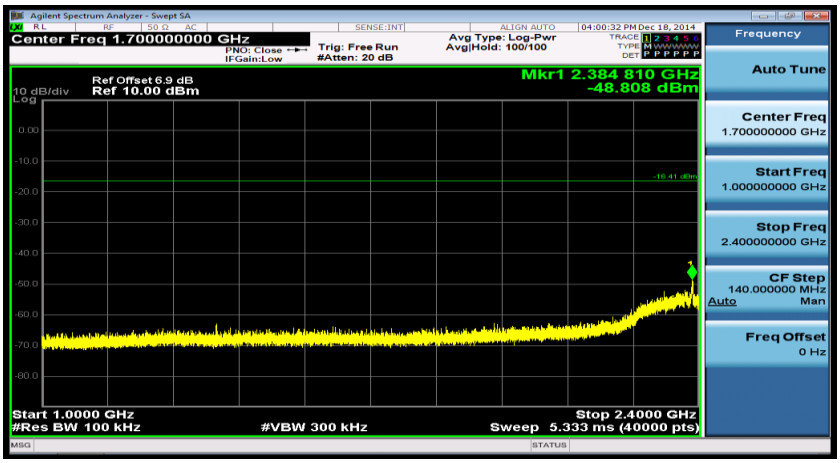
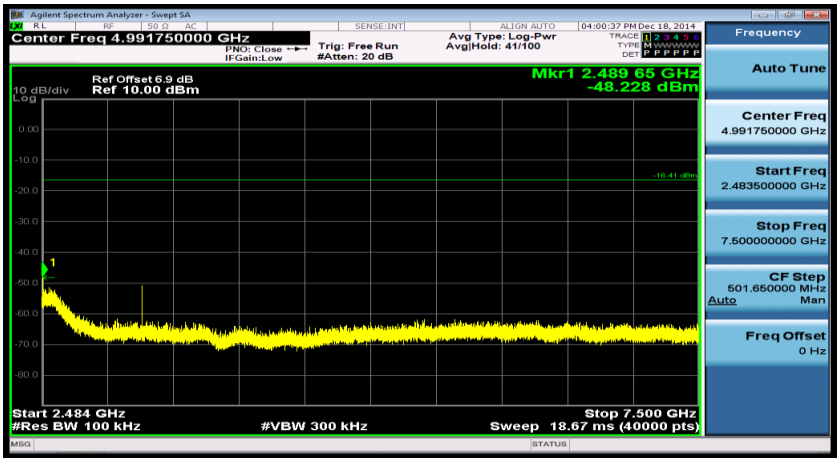
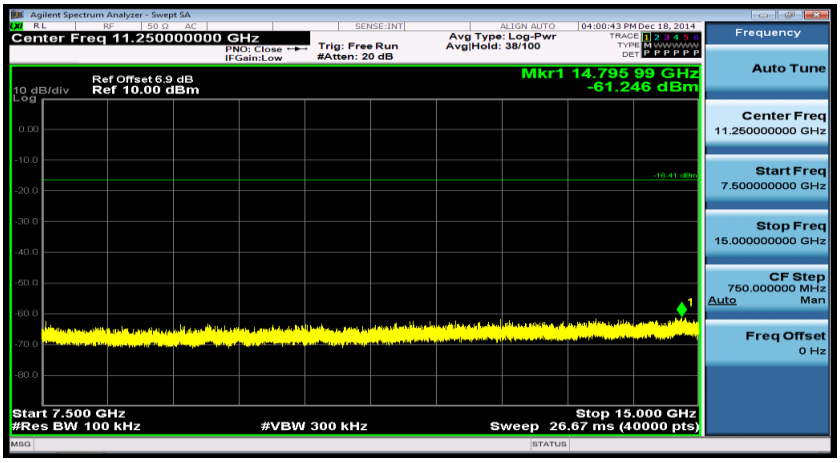
30MHz-1GHz	
1GHz-2.4GHz	
2.4835GHz-7.5GHz	

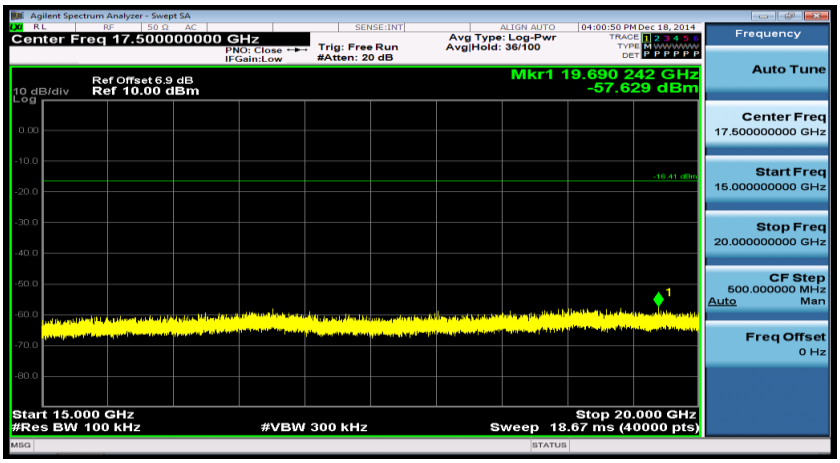
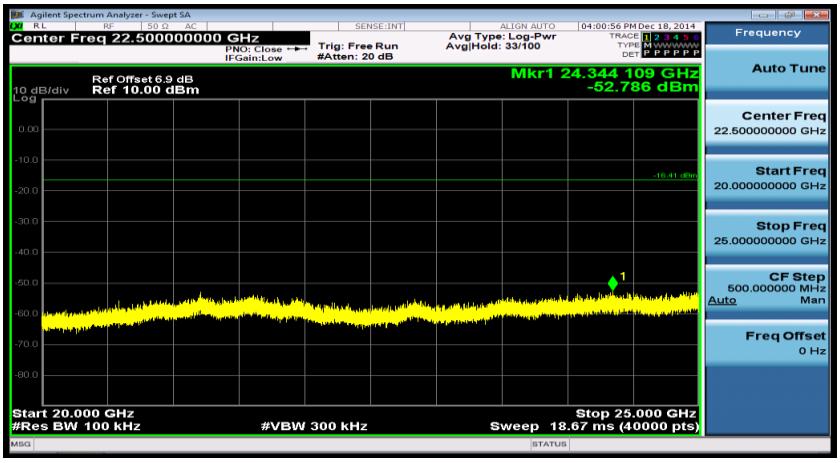
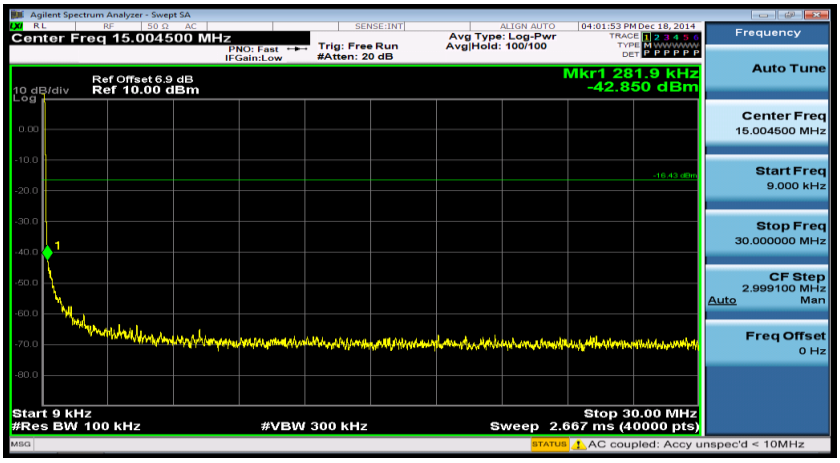
Mode 3: IEEE 802.11g Link Mode-2462	
7.5GHz-15GHz	
15GHz-20GHz	
20GHz-25GHz	

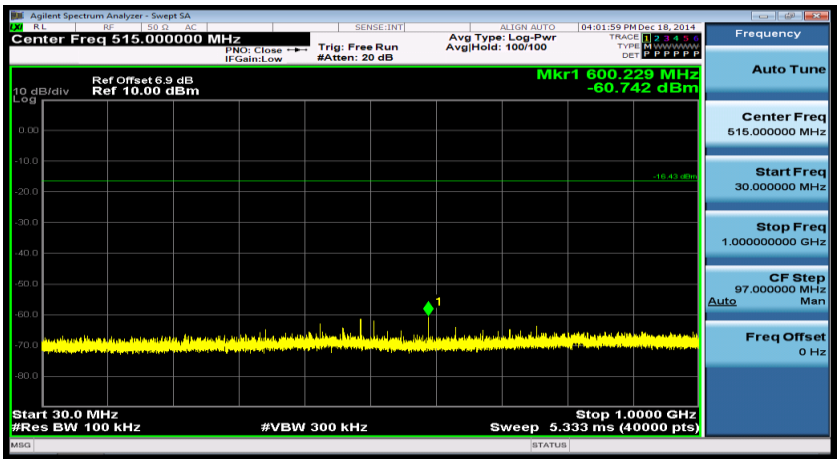
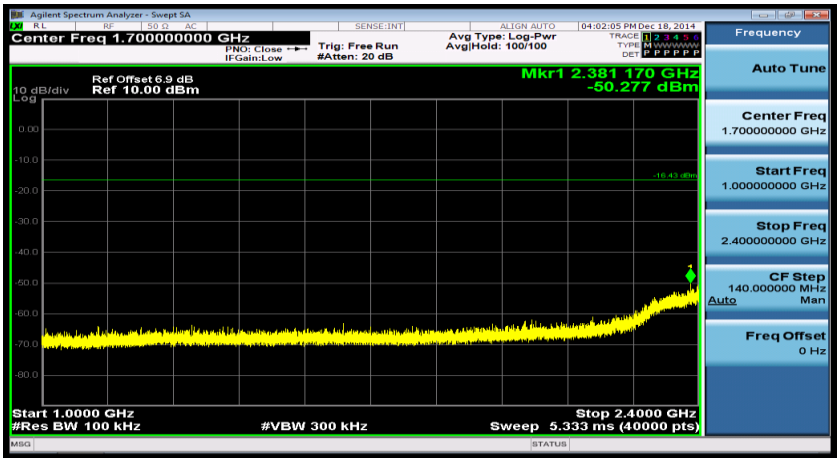
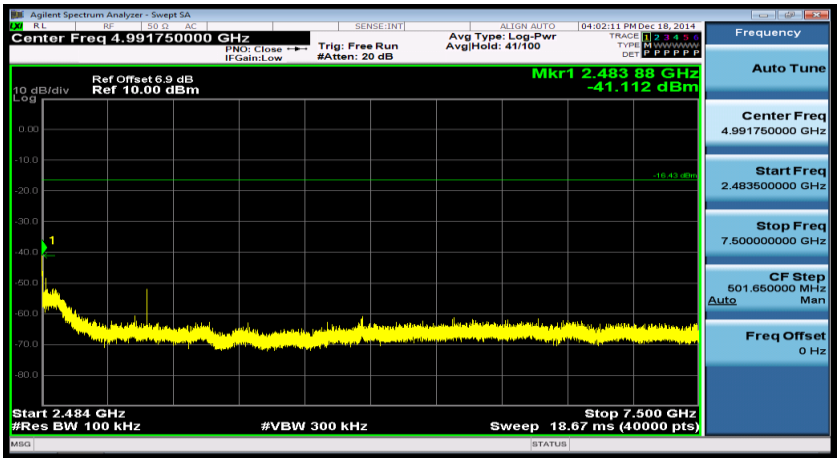
Mode 4: IEEE 802.11n 2.4G 20MHz Link Mode-2412	
9KHz-30MHz	
30MHz-1GHz	
1GHz-2.4GHz	

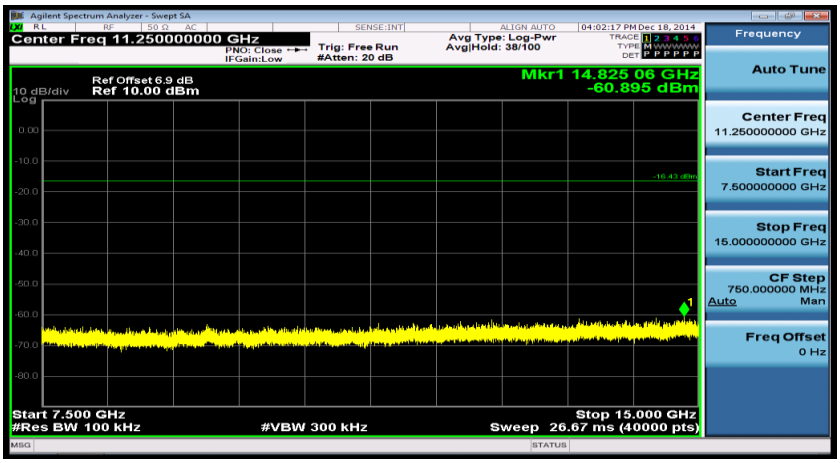
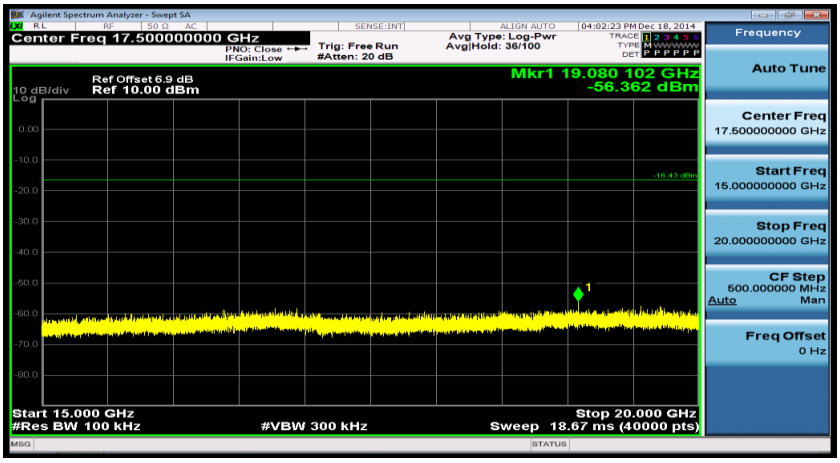
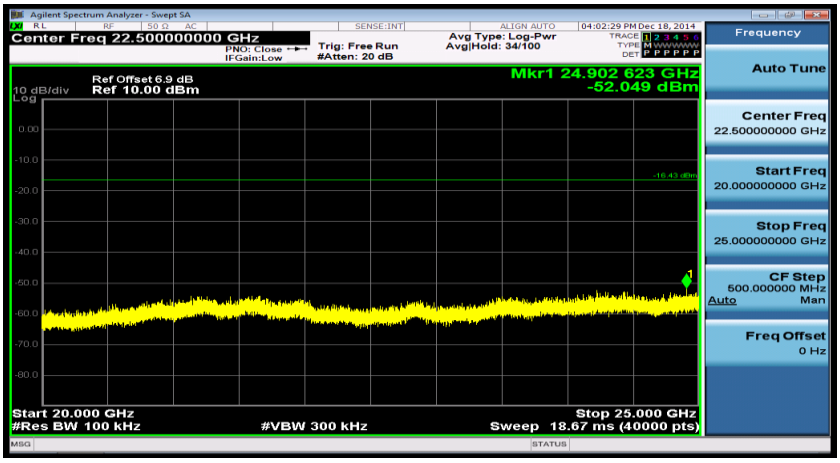
2.4835GHz-7.5GHz	
7.5GHz-15GHz	
15GHz-20GHz	

20GHz-25GHz	
Mode 4: IEEE 802.11n 2.4G 20MHz Link Mode-2437	
9kHz-30MHz	
30MHz-1GHz	

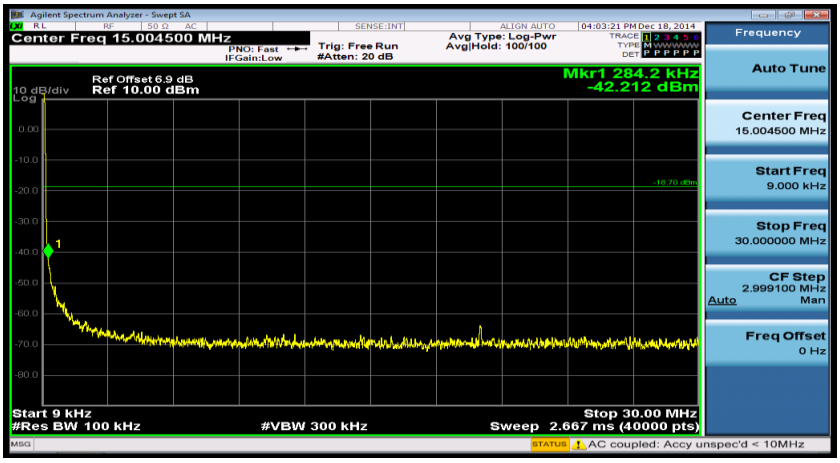
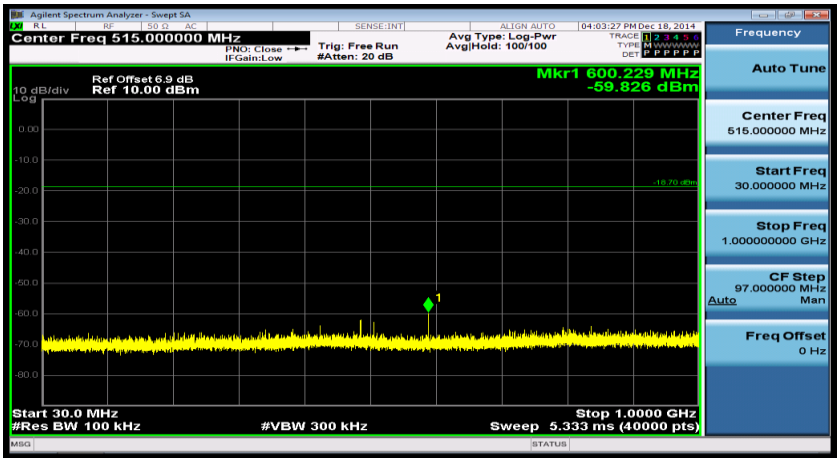
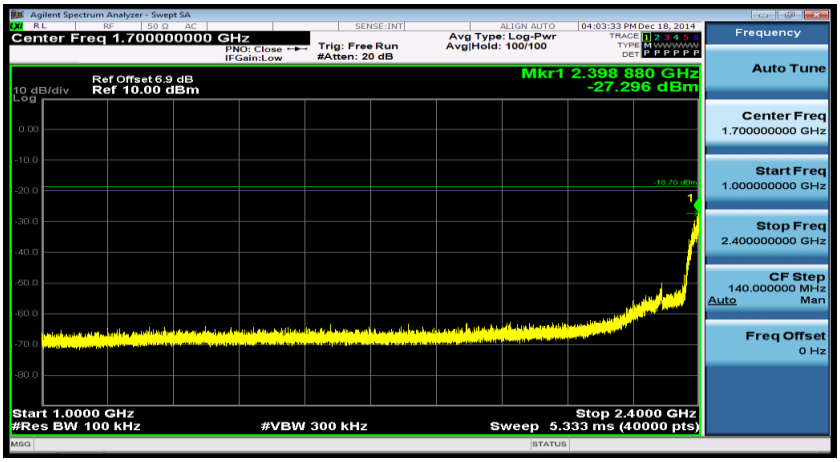
1GHz-2.4GHz	
2.4835GHz-7.5GHz	
7.5GHz-15GHz	

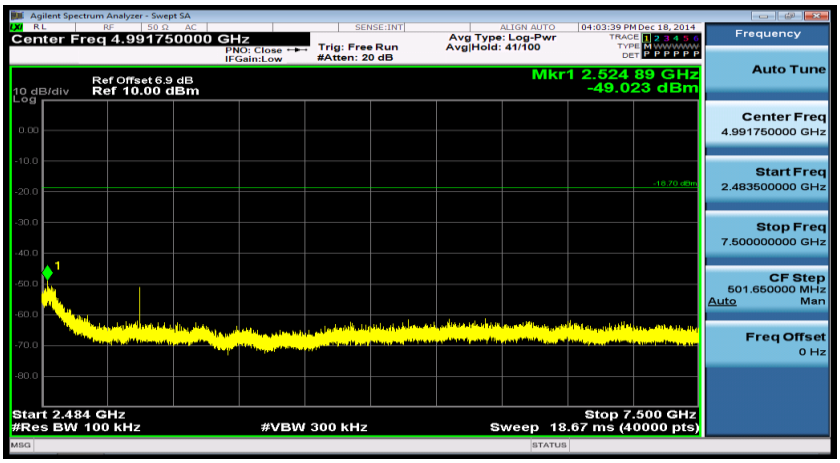
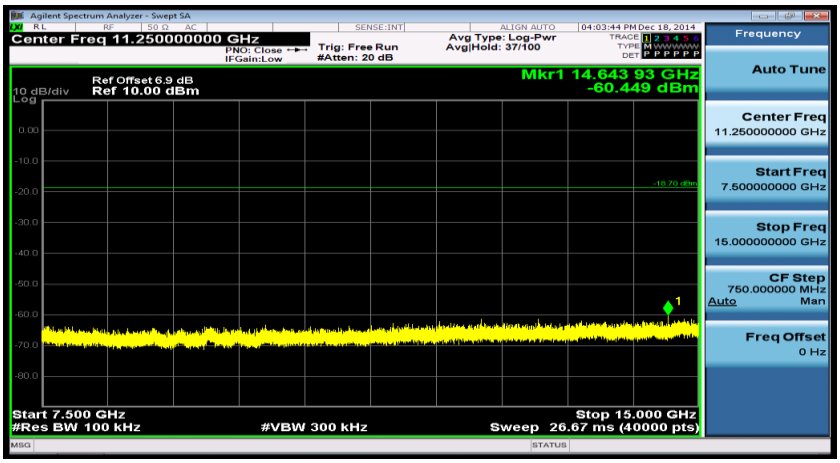
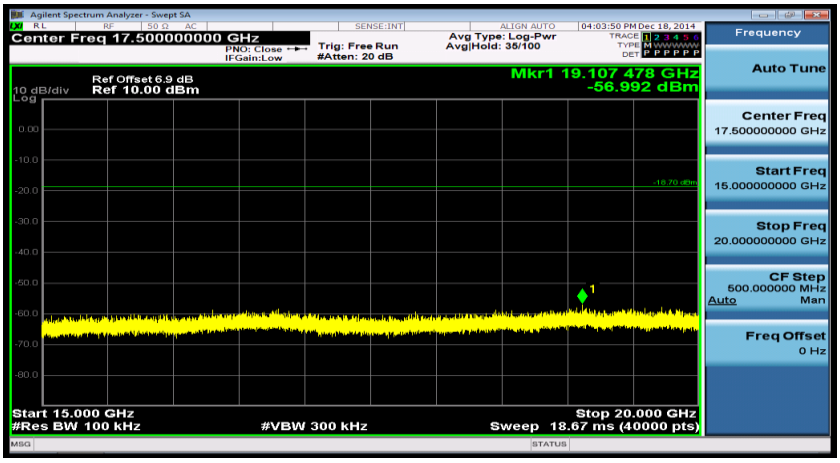
15GHz-20GHz	
20GHz-25GHz	
Mode 4: IEEE 802.11n 2.4G 20MHz Link Mode-2462	
9KHz-30MHz	

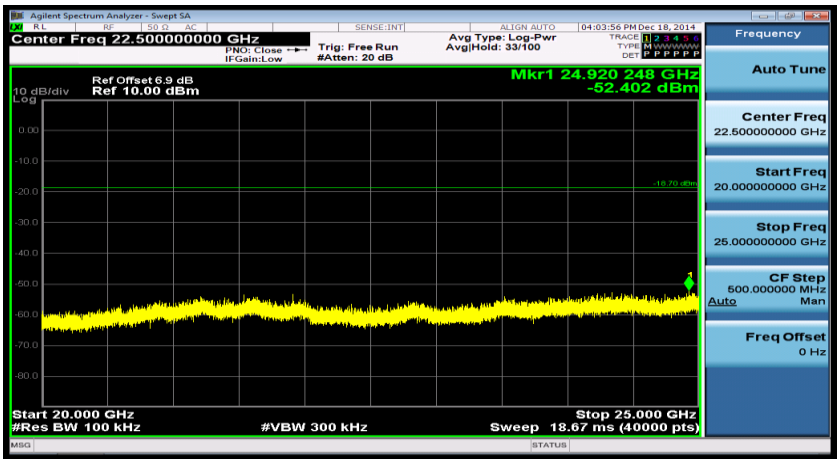
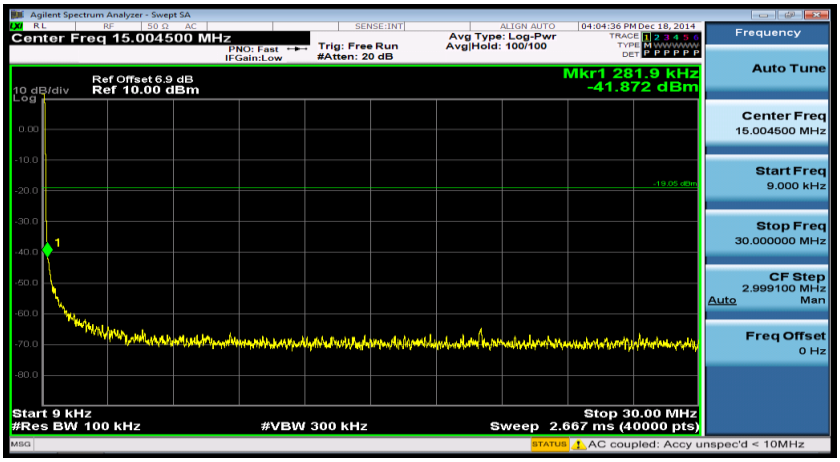
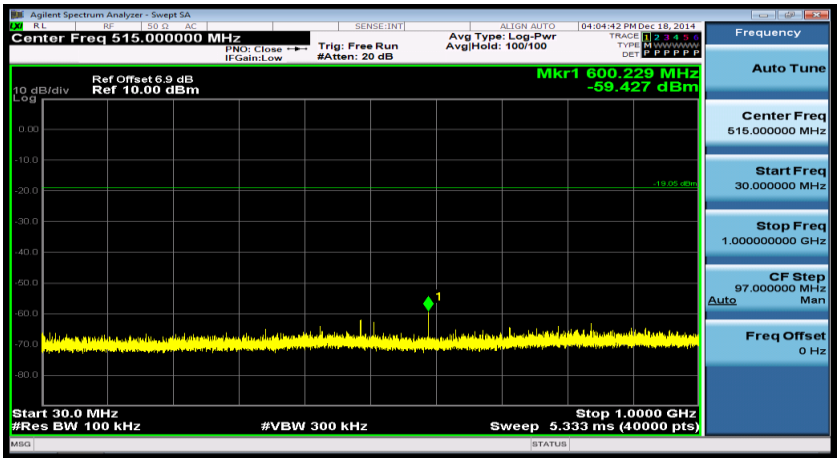
30MHz-1GHz	
1GHz-2.4GHz	
2.4835GHz-7.5GHz	

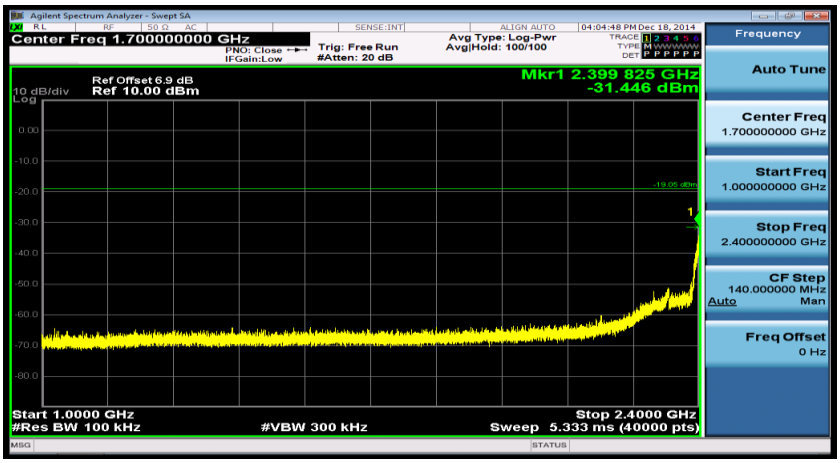
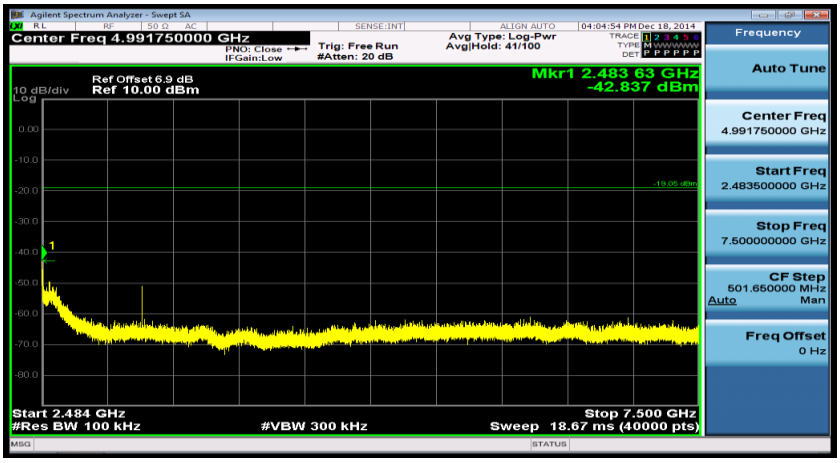
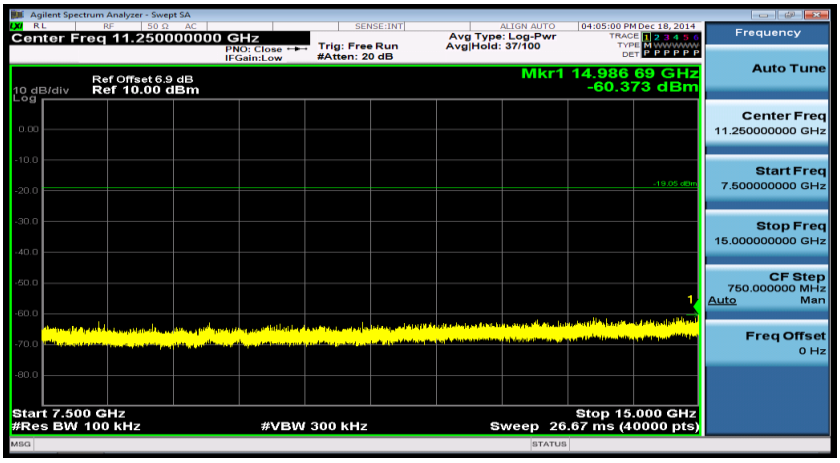
7.5GHz-15GHz	
15GHz-20GHz	
20GHz-25GHz	

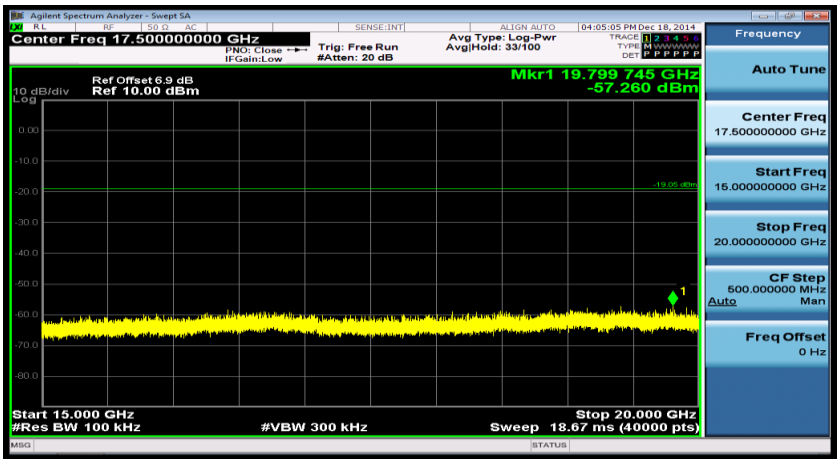
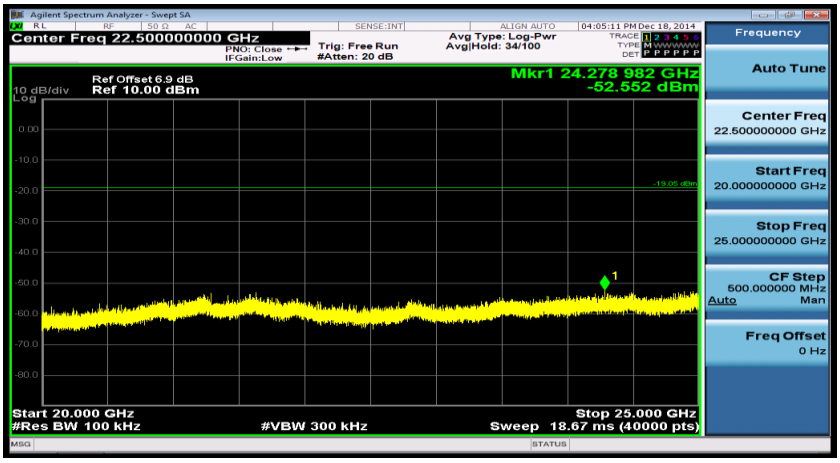
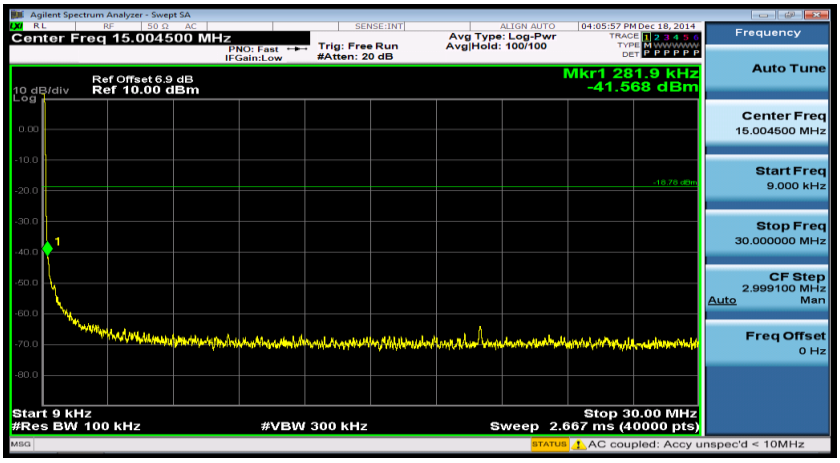
Mode 5: IEEE 802.11n 2.4G 40MHz Link Mode-2422

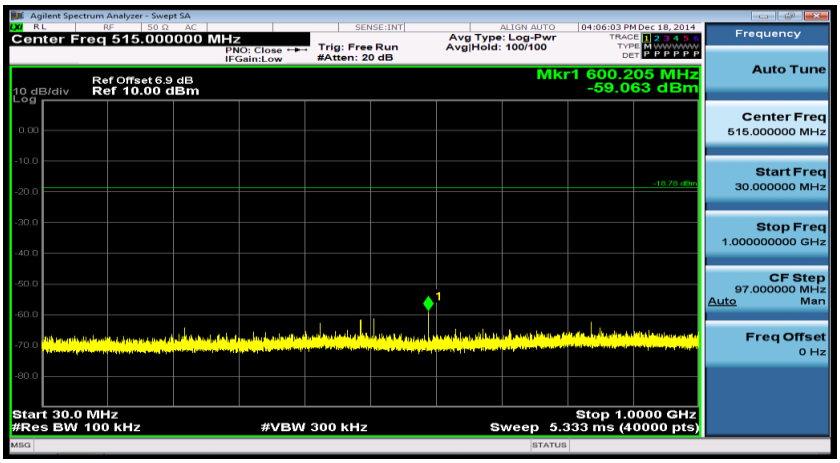
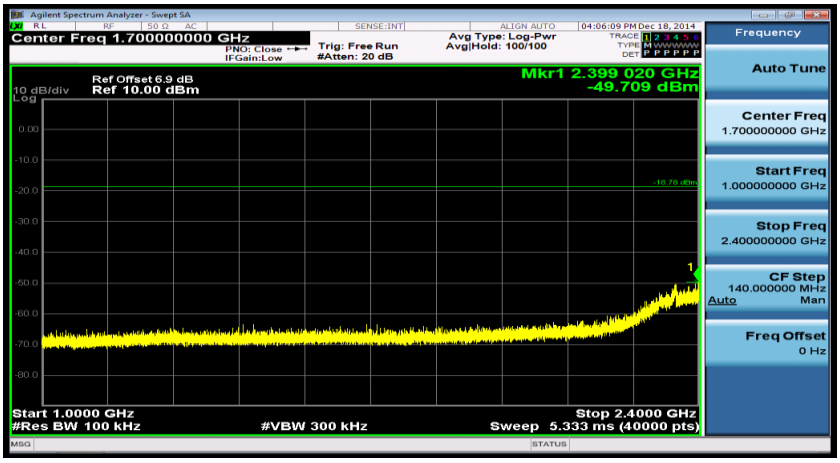
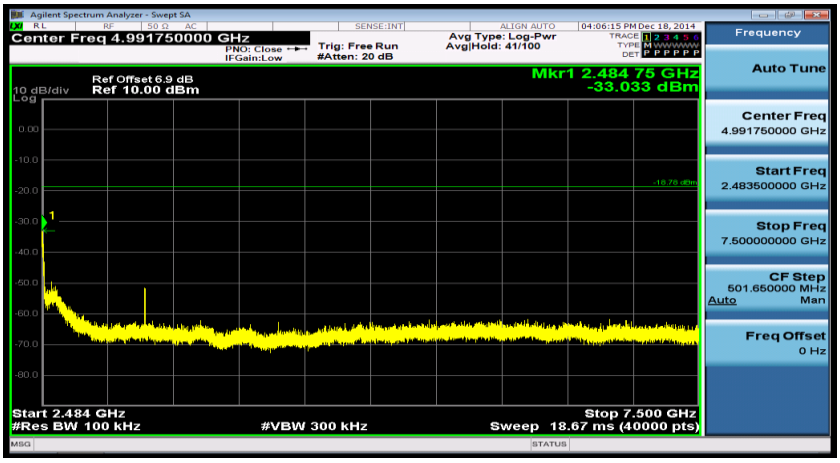
9KHz-30MHz	
30MHz-1GHz	
1GHz-2.4GHz	

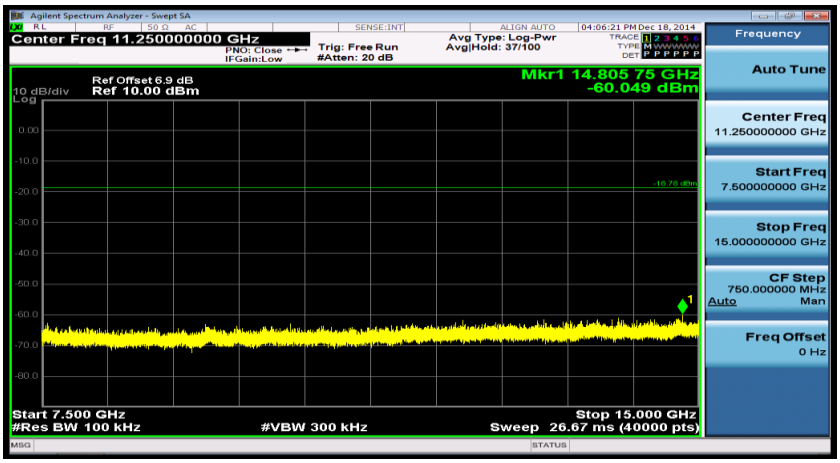
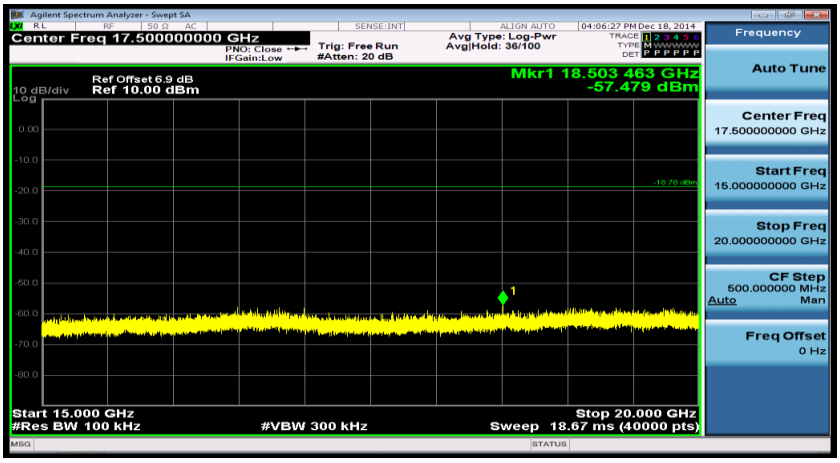
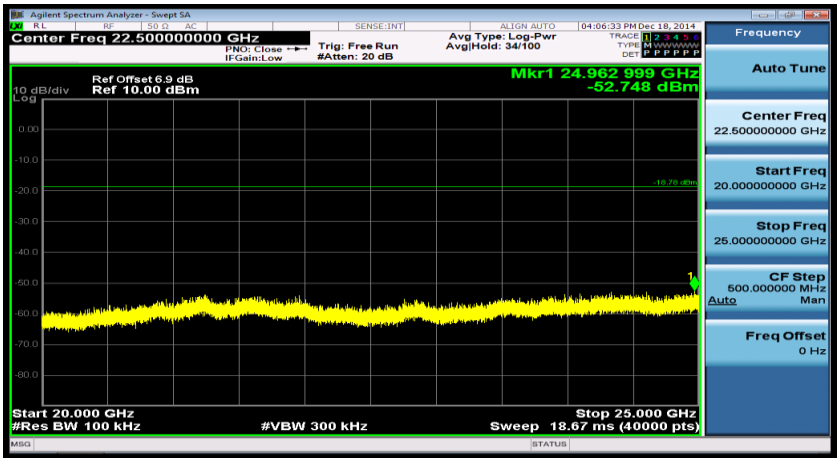
2.4835GHz-7.5GHz	
Mode 5: IEEE 802.11n 2.4G 40MHz Link Mode-2422	
7.5GHz-15GHz	
15GHz-20GHz	

20GHz-25GHz	
Mode 5: IEEE 802.11n 2.4G 40MHz Link Mode-2437	
9KHz-30MHz	
30MHz-1GHz	

1GHz-2.4GHz	
2.4835GHz-7.5GHz	
7.5GHz-15GHz	

15GHz-20GHz	
20GHz-25GHz	
Mode 5: IEEE 802.11n 2.4G 40MHz Link Mode-2452	
9KHz-30MHz	

30MHz-1GHz	
1GHz-2.4GHz	
2.4835GHz-7.5GHz	

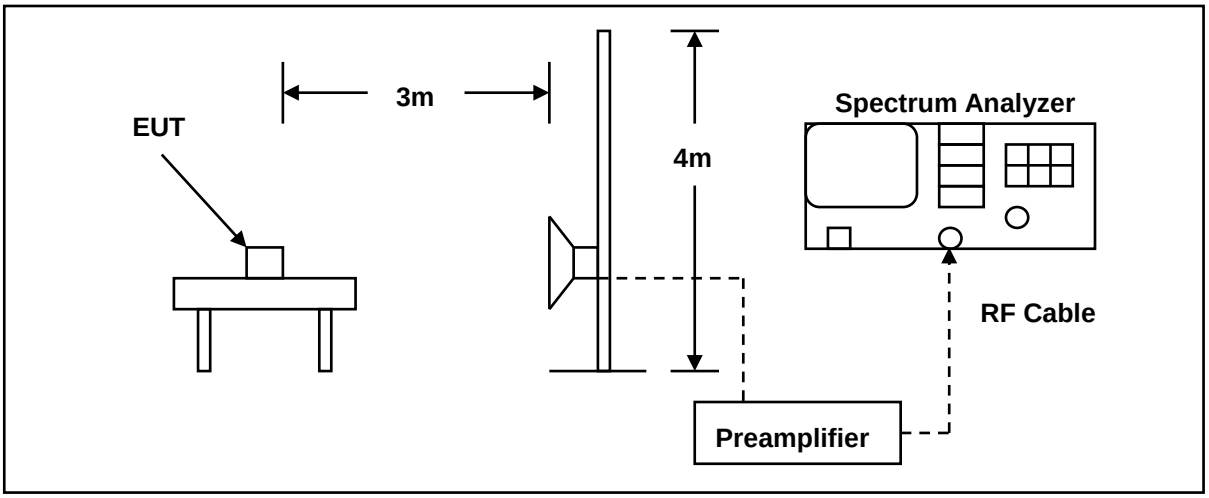
7.5GHz-15GHz	
15GHz-20GHz	
20GHz-25GHz	

10 Band Edges Measurement

10.1.Limit

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

10.2.Test Setup



10.3.Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/10/2014	(1)
Spectrum Analyzer	Agilent	N9020A	MY53420615	05/13/2014	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/21/2014	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/21/2014	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/16/2014	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/11/2014	(1)
RF cable	WOKEN	--	S02-140409-026	07/14/2014	(1)
RF cable	WOKEN	--	S02-140409-027	07/14/2014	(1)
RF cable	WOKEN	--	S02-140409-028	07/14/2014	(1)
RF cable	WOKEN	--	S02-140409-052	07/14/2014	(1)
Test Site	ATL	TE01	888001	08/28/2014	(1)

10.4. Test Procedure

The EUT was setup to ANSI C63.4, 2009; tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

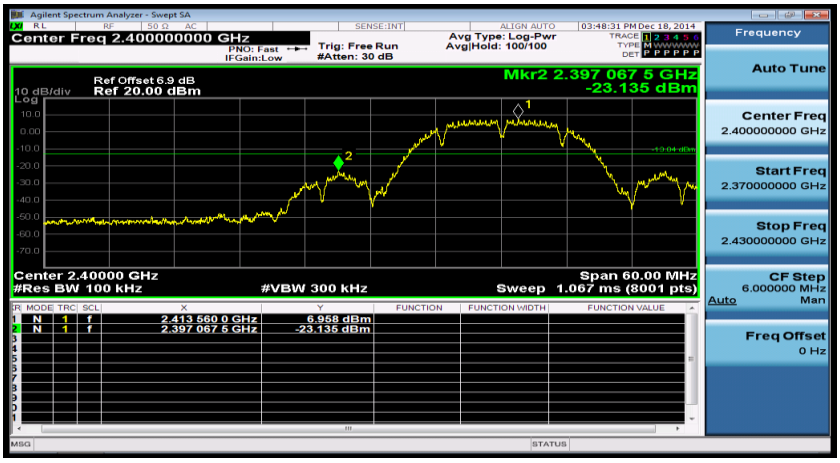
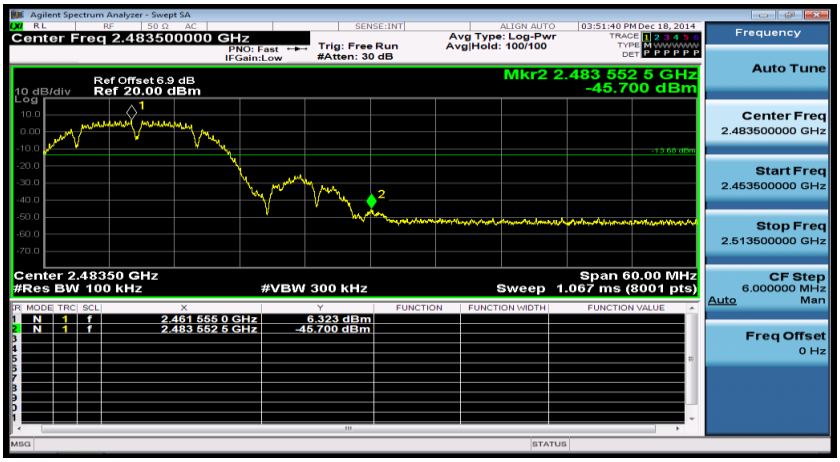
The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

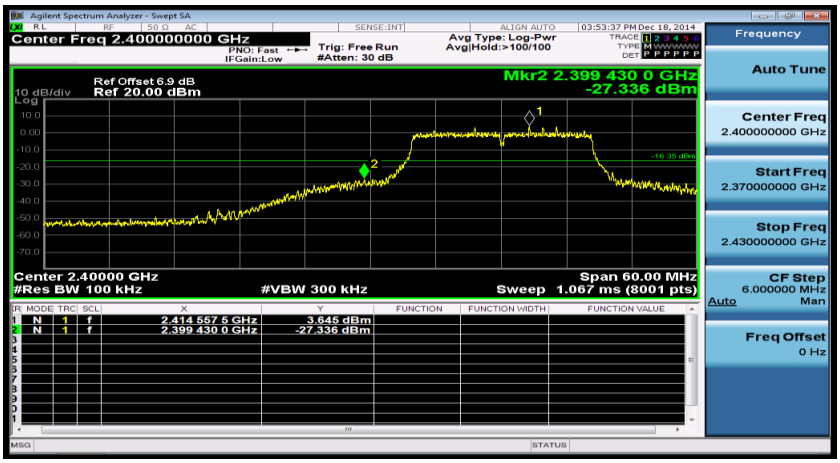
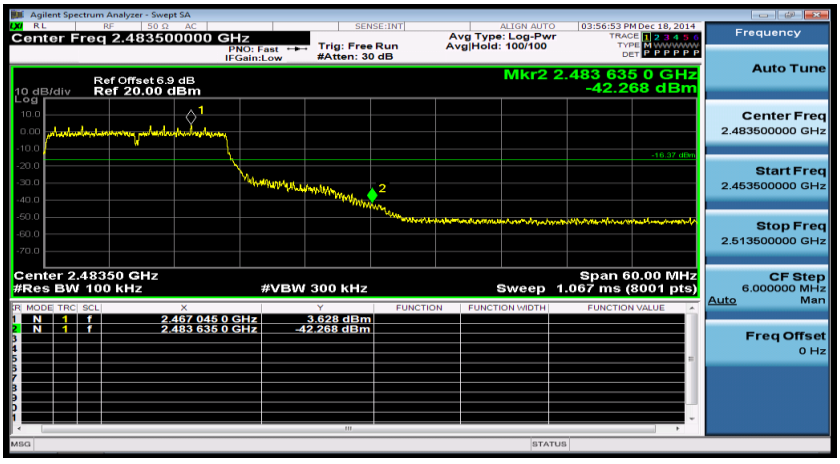
The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

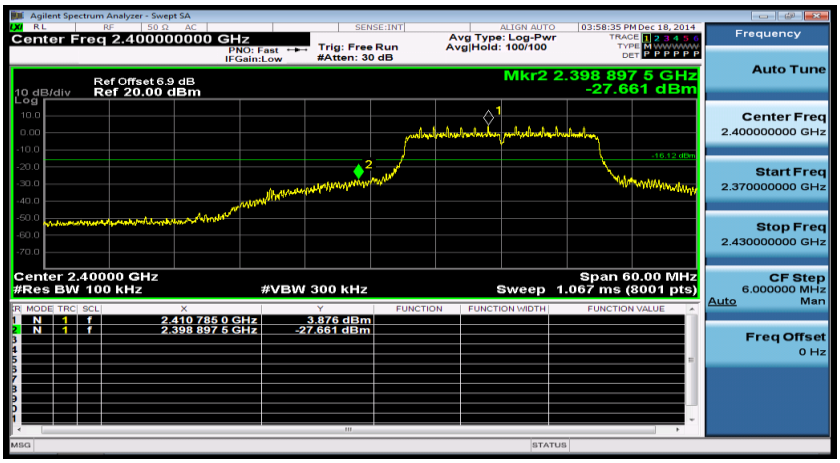
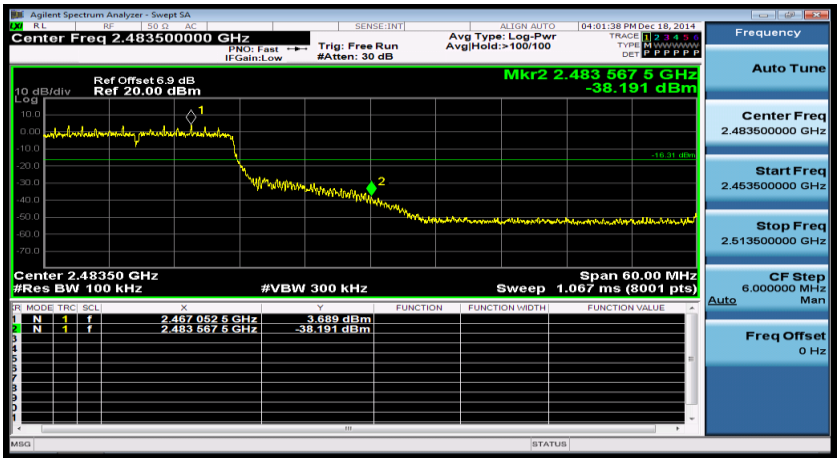
For measurements the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

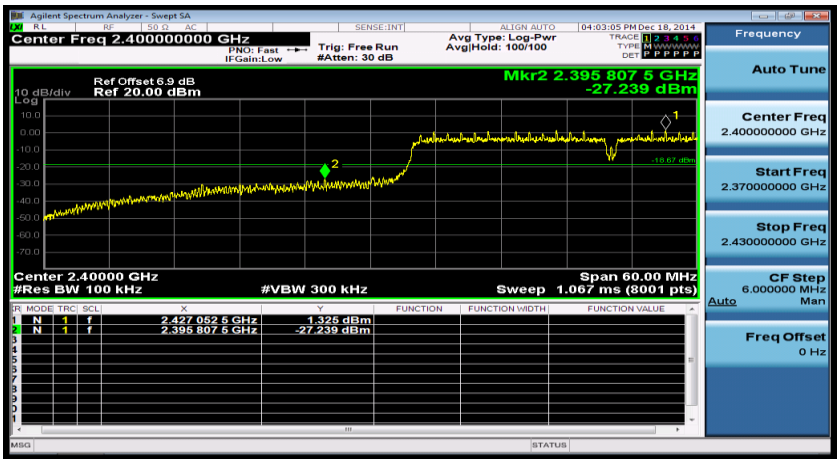
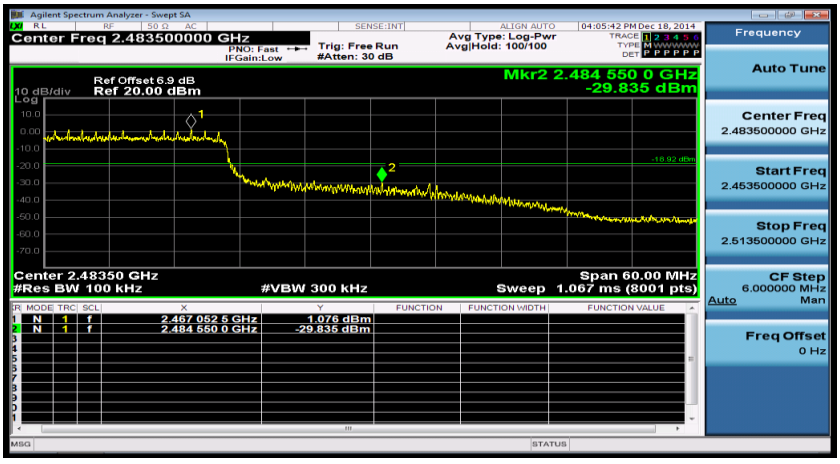
10.5.Test Result

Conducted Band Edge

Mode 2: IEEE 802.11b Link Mode	
2412	
2462	

Mode 3: IEEE 802.11g Link Mode	
2412	
2462	

Mode 4: IEEE 802.11n 2.4GHz 20MHz Link Mode	
2412	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz Link Mode	
2422	
2452	

Radiated Band Edge spurious emissions

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	2	Date:	2014-12-17
Frequency:	2412MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2389.2	48.5	1.8	50.3	74.0	23.7	peak	H
2389.2	41.1	1.8	42.9	54.0	11.1	Average	H
2390.0	53.8	1.8	55.6	74.0	18.4	peak	V
2390.0	44.7	1.8	46.5	54.0	7.5	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	2	Date:	2014-12-17
Frequency:	2462MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.5	49.5	1.9	51.4	74.0	22.6	peak	H
2483.5	41.6	1.9	43.5	54.0	10.5	Average	H
2483.5	50.9	1.9	52.8	74.0	21.2	peak	V
2483.5	43.7	1.9	45.6	54.0	8.4	Average	V

7777

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	2014-12-17
Frequency:	2412MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2389.6	48.6	1.8	50.4	74.0	23.6	peak	H
2389.6	40.5	1.8	42.3	54.0	11.7	Average	H
2389.5	55.4	1.8	57.2	74.0	16.8	peak	V
2389.5	45.6	1.8	47.4	54.0	6.6	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	3	Date:	2014-12-17
Frequency:	2462MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2484	48.5	1.9	50.4	74.0	23.6	peak	H
2484	41.9	1.9	43.8	54.0	10.2	Average	H
2483.5	49.7	1.9	51.6	74.0	22.4	peak	V
2483.5	40.8	1.9	42.7	54.0	11.3	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	2014-12-17
Frequency:	2412MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2390	49.6	1.8	51.4	74.0	22.6	peak	H
2390	42	1.8	43.8	54.0	10.2	Average	H
2390	51.8	1.8	53.6	74.0	20.4	peak	V
2390	42.9	1.8	44.7	54.0	9.3	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	4	Date:	2014-12-17
Frequency:	2462MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.7	47.6	1.9	49.5	74.0	24.5	peak	H
2483.7	40.7	1.9	42.6	54.0	11.4	Average	H
2483.5	51.6	1.9	53.5	74.0	20.5	peak	V
2483.5	44.2	1.9	46.1	54.0	7.9	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	2014-12-17
Frequency:	2422MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2388.9	48.5	1.8	50.3	74.0	23.7	peak	H
2388.9	39.7	1.8	41.5	54.0	12.5	Average	H
2390	50.9	1.8	52.7	74.0	21.3	peak	V
2390	41.3	1.8	43.1	54.0	10.9	Average	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	PMG-005	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	5	Date:	2014-12-17
Frequency:	2452MHz	Test By:	Fly

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.5	50.7	1.9	52.6	74.0	21.4	peak	H
2483.5	42.2	1.9	44.1	54.0	9.9	Average	H
2485	48.7	1.9	50.6	74.0	23.4	peak	V
2485	42.6	1.9	44.5	54.0	9.5	Average	V

11 Antenna Measurement

11.1. Limit

For intentional device, according to 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
And According to 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Antenna Connector Construction

The antenna used in this product is internal antenna. And the maximum Gain of this antenna is only 0.0 dBi.