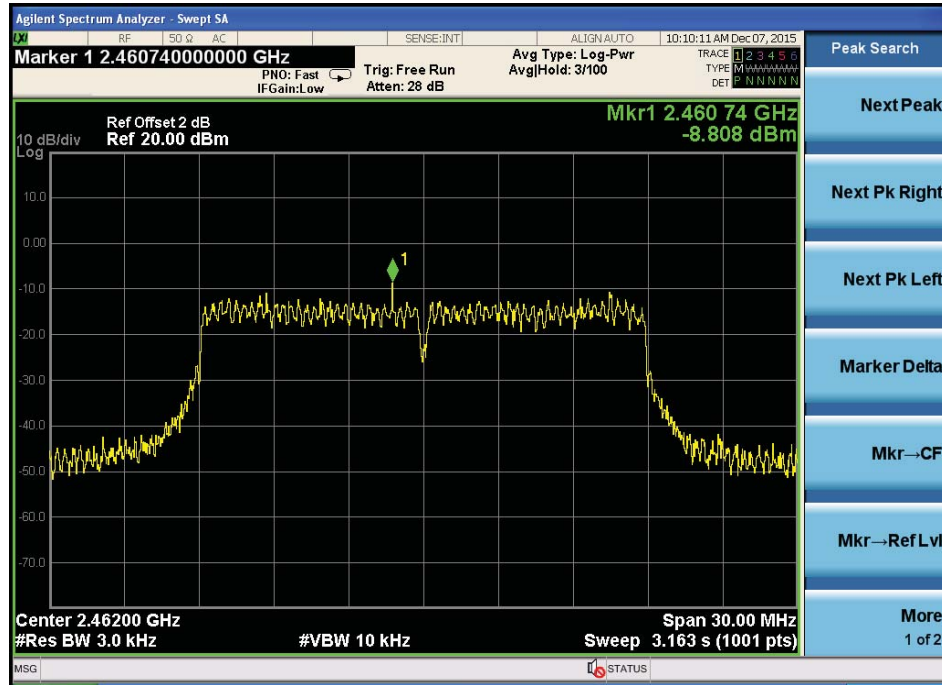
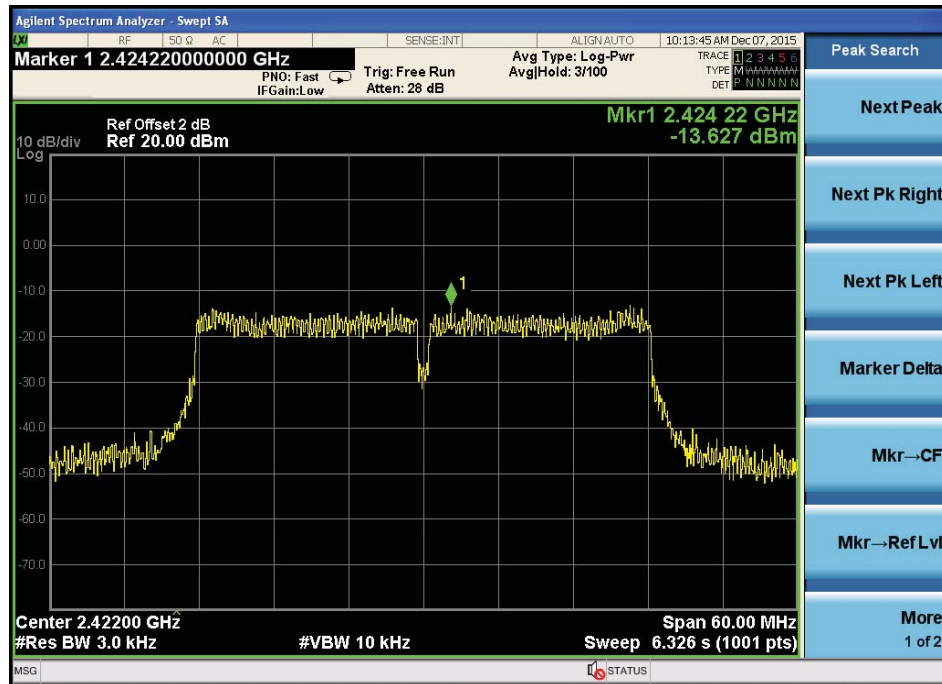


CH Hig:

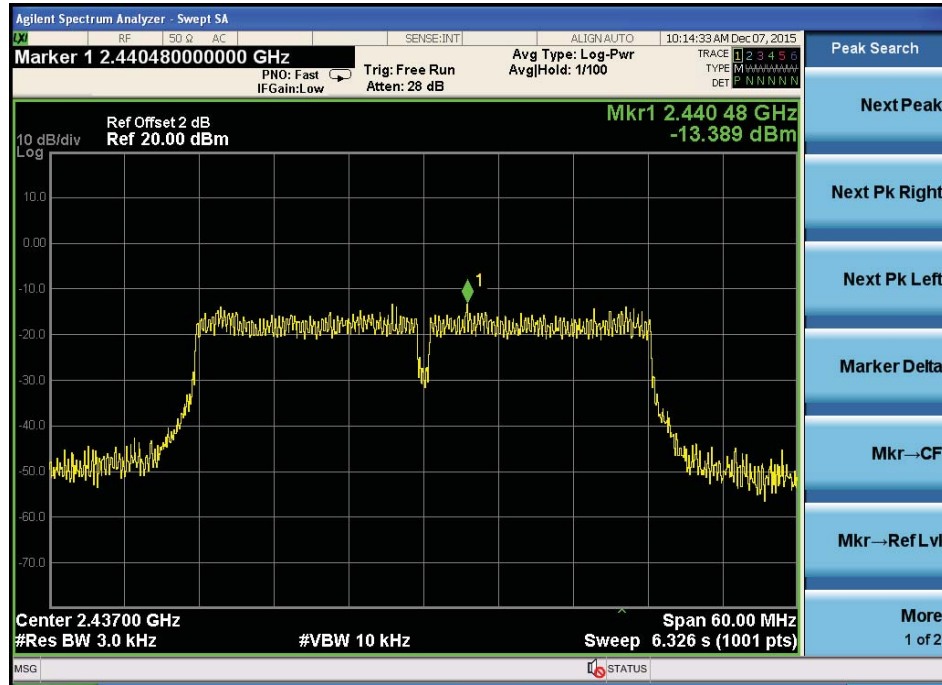


IEEE 802.11n HT40 :

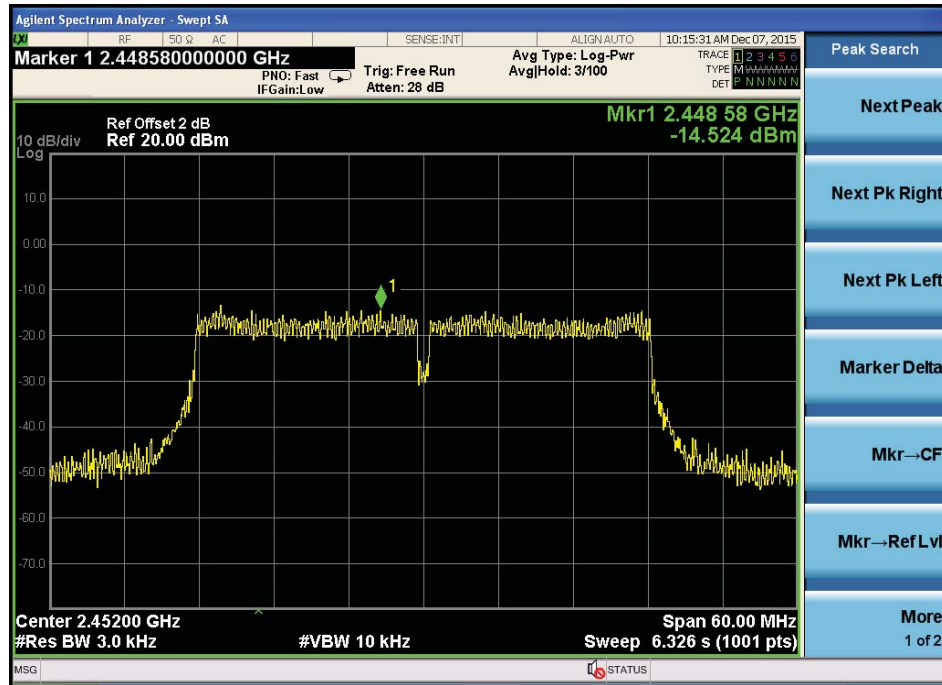
CH Low :



CH Mid:



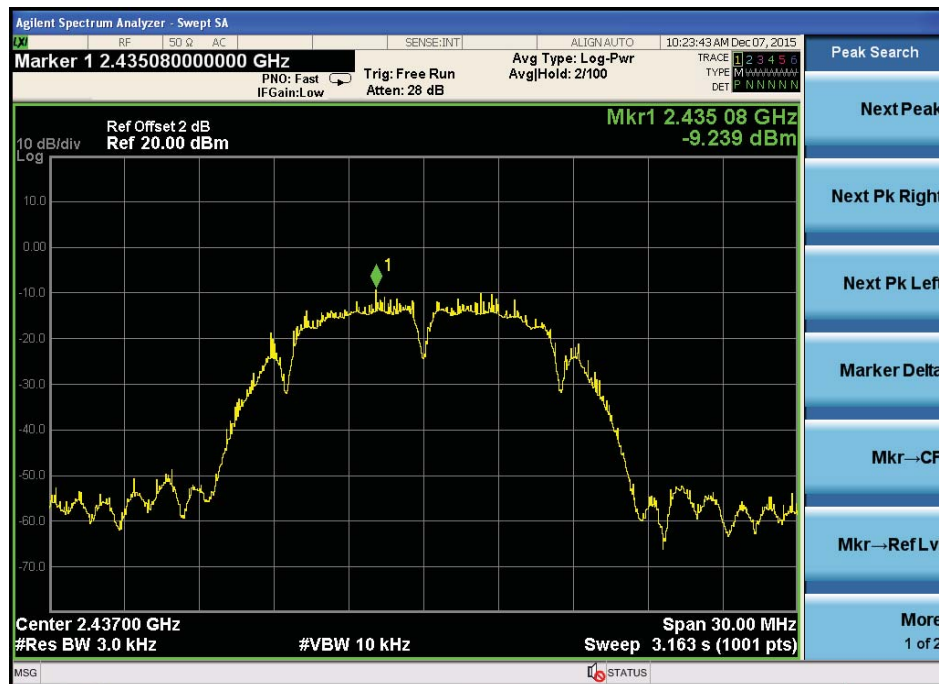
CH Hig:



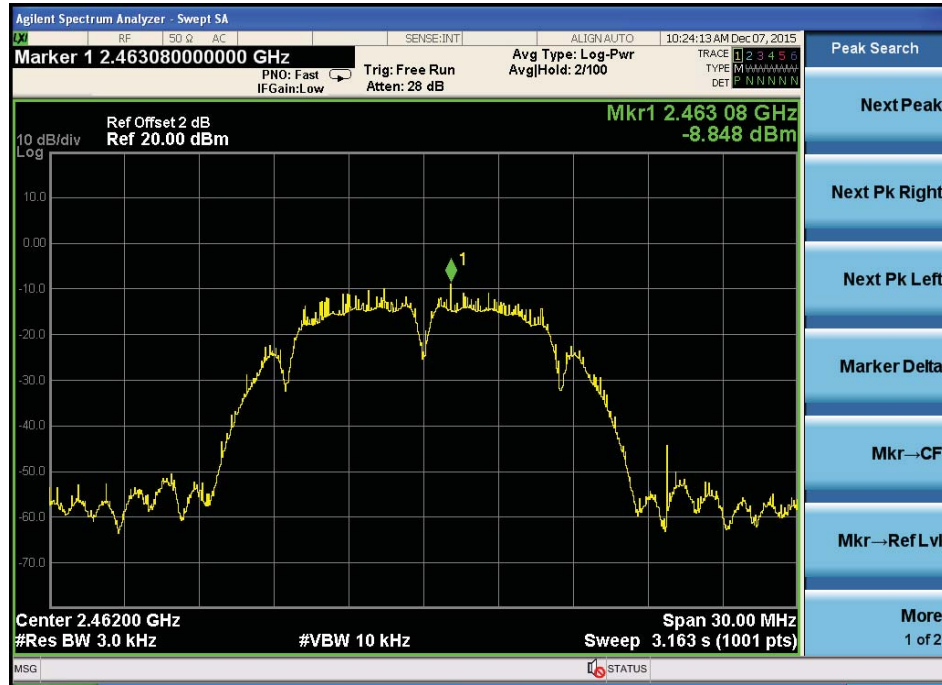
port 1 antenna
IEEE 802.11b :
CH Low :



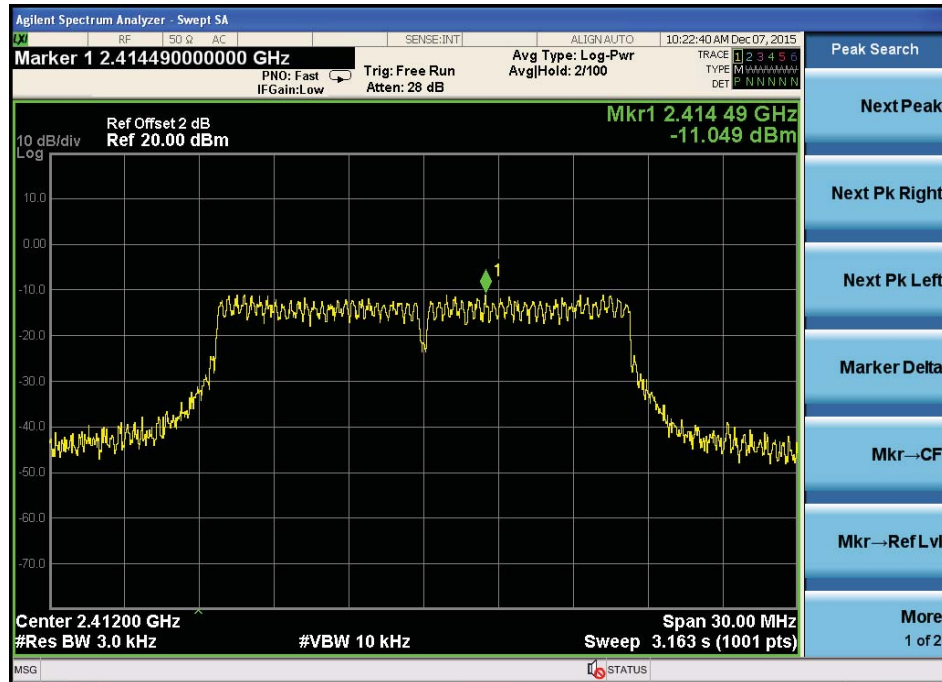
CH Mid:



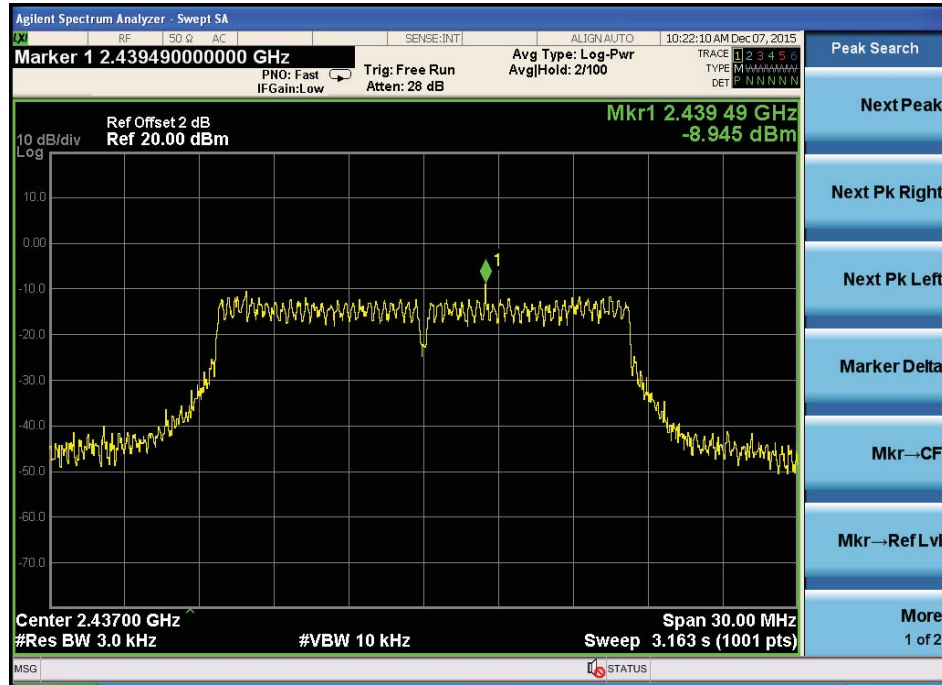
CH Hig:



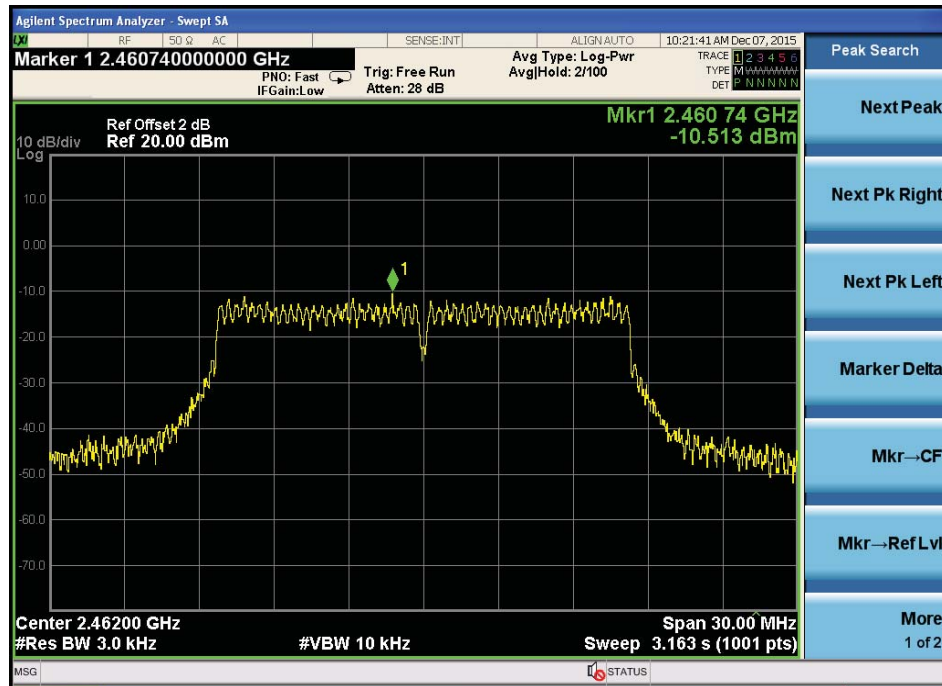
IEEE 802.11g :
CH Low :



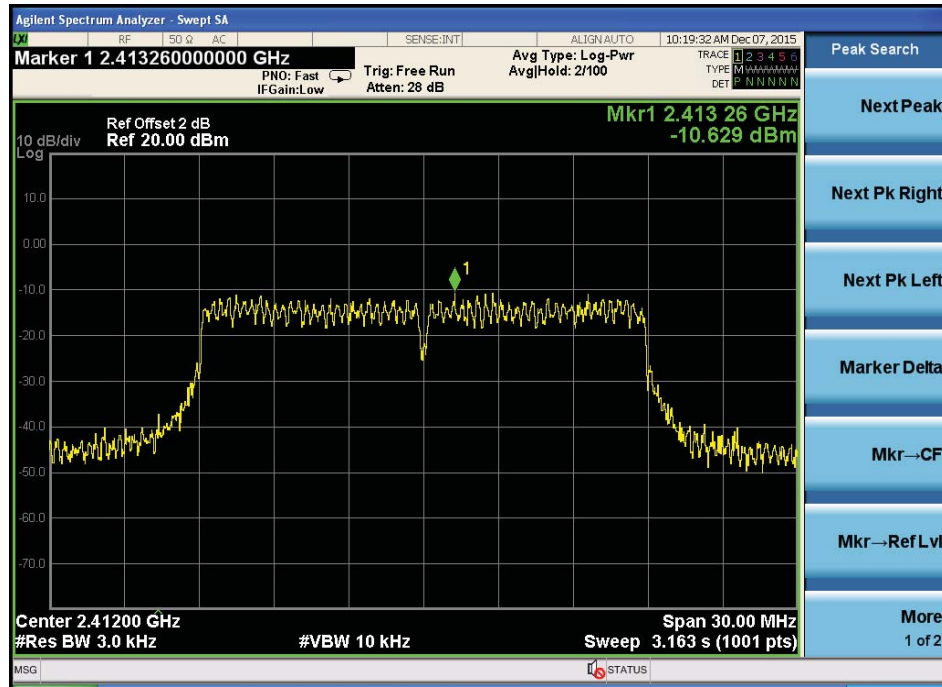
CH Mid:



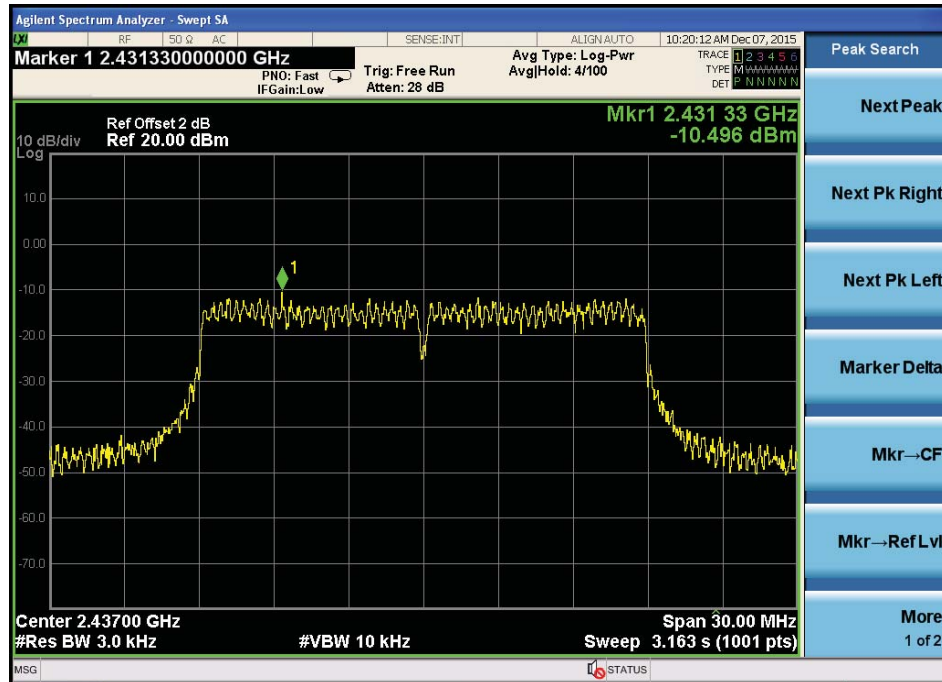
CH Hig:



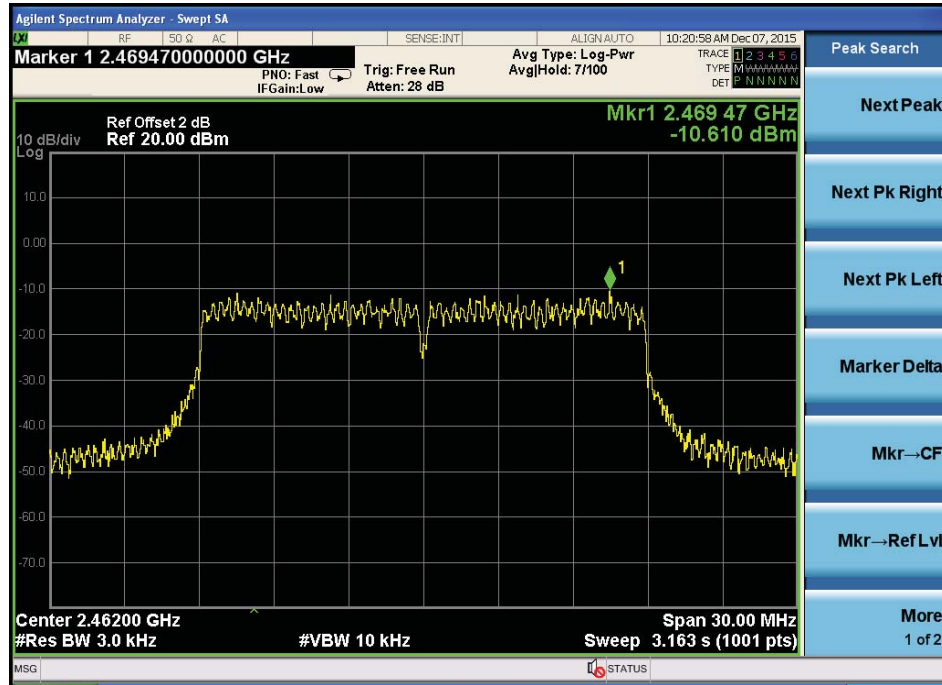
IEEE 802.11n HT20 :
CH Low :



CH Mid:

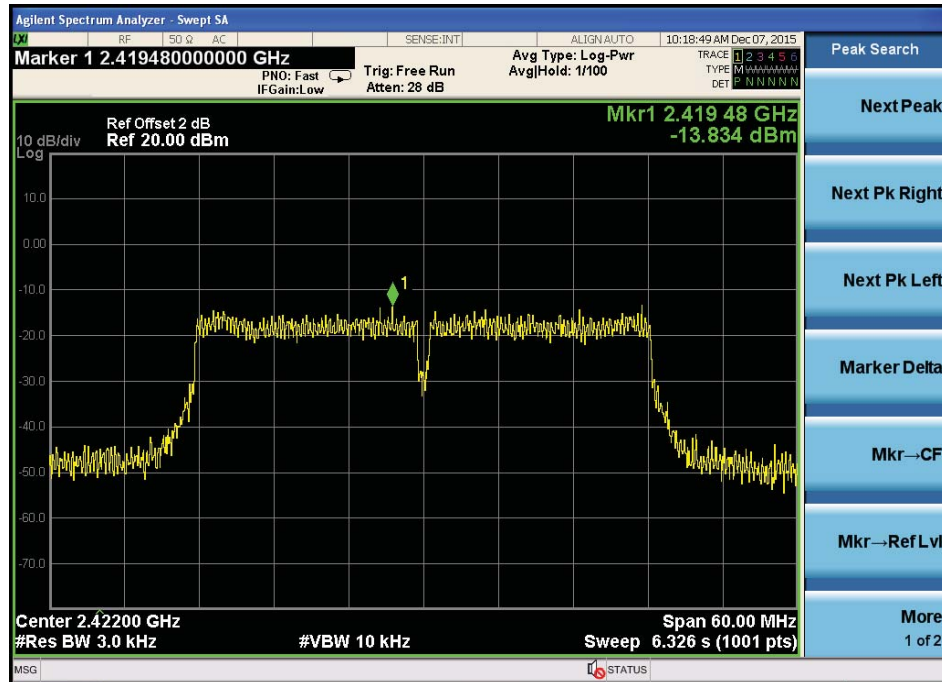


CH Hig:

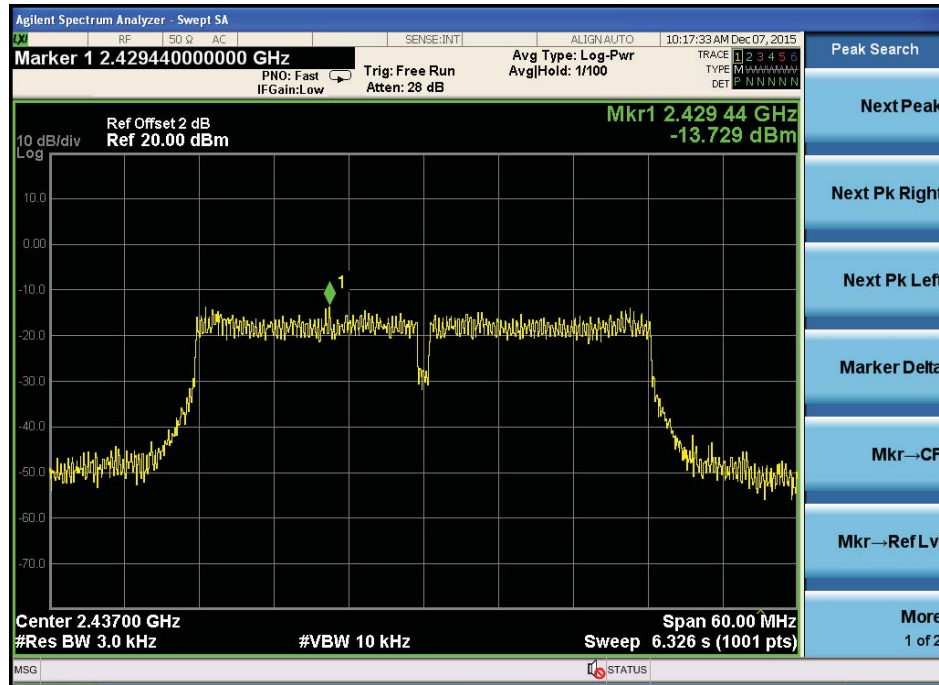


IEEE 802.11n HT40 :

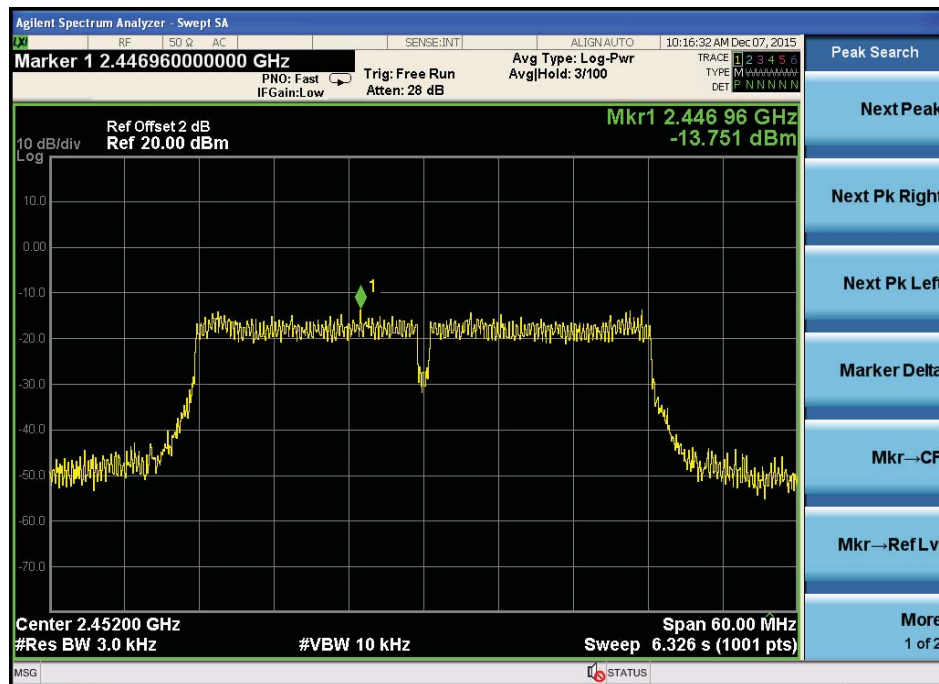
CH Low :



CH Mid:



CH Hig:



9 Bandwidth

9.1 Test limit

Please refer section RSS-247 & 15.247

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500 kHz.

9.2 Method of measurement

Details see the KDB558074 D01 Meas Guidance

- a) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.
- b) The test receiver set $RBW = 100\text{KHz}$, $VBW \geq 300\text{KHz}$, Sweep time set auto, PEAK Detector, detail see the test plot.

9.3 Test Setup



9.4 Test Results

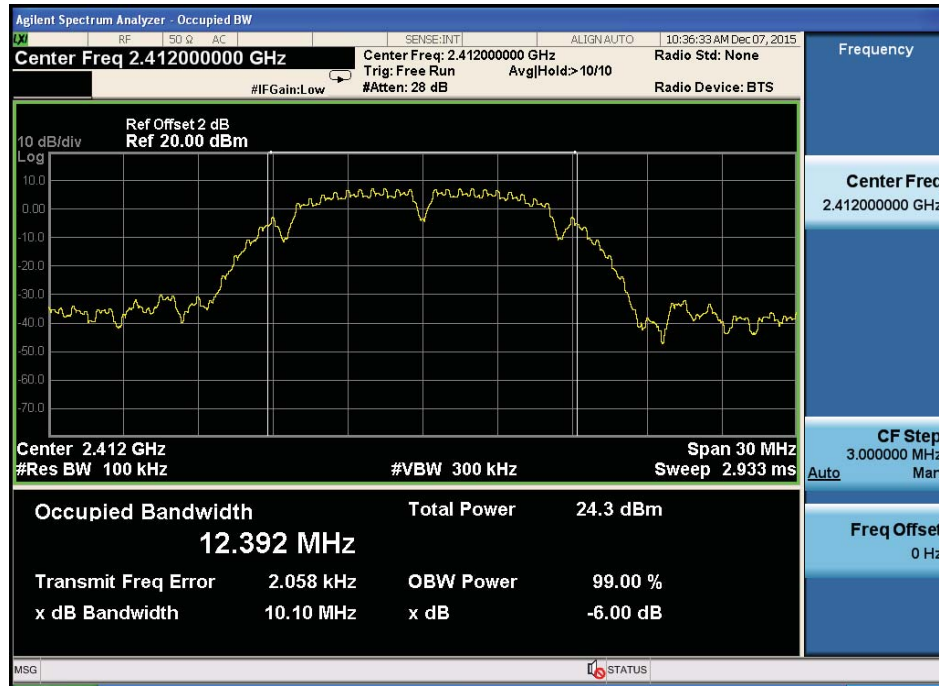
PASS.

Antenna 0 and Antenna 1 port all have been tested ,
only worst case is reported

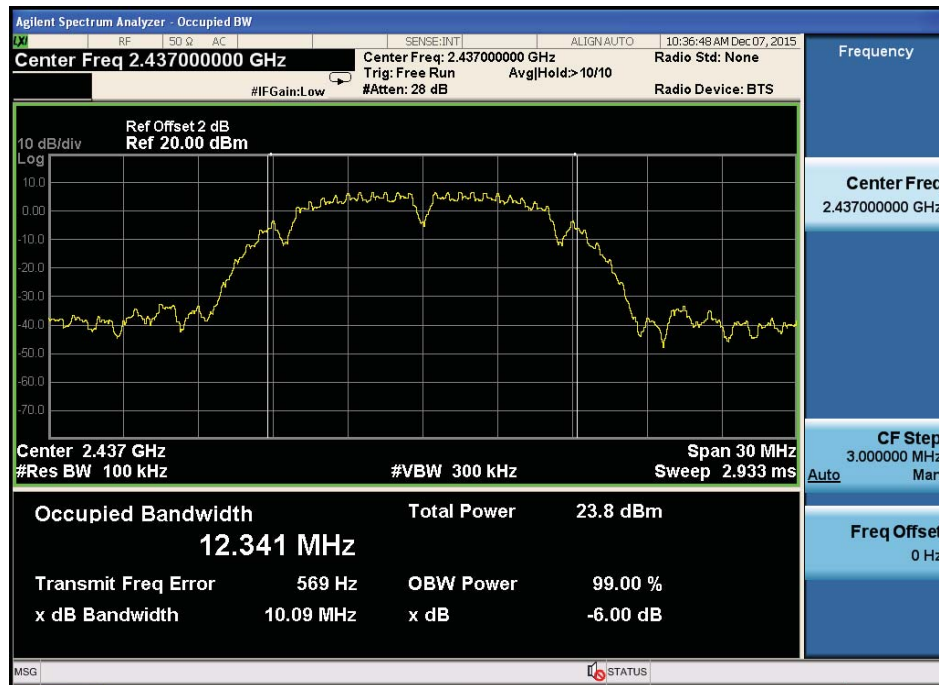
Detailed information please see the following page.

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b:					
Low	2412	10.10	/	0.5	PASS
Mid	2437	10.09	/	0.5	PASS
High	2462	10.09	/	0.5	PASS
IEEE 802.11g					
Low	2412	16.37	/	0.5	PASS
Mid	2437	16.37	/	0.5	PASS
High	2462	16.39	/	0.5	PASS
IEEE 802.11n/HT20:					
Low	2412	17.10	/	0.5	PASS
Mid	2437	17.32	/	0.5	PASS
High	2462	17.32	/	0.5	PASS
IEEE 802.11n/HT40:					
Low	2422	36.44	/	0.5	PASS
Mid	2437	36.43	/	0.5	PASS
High	2452	36.34	/	0.5	PASS

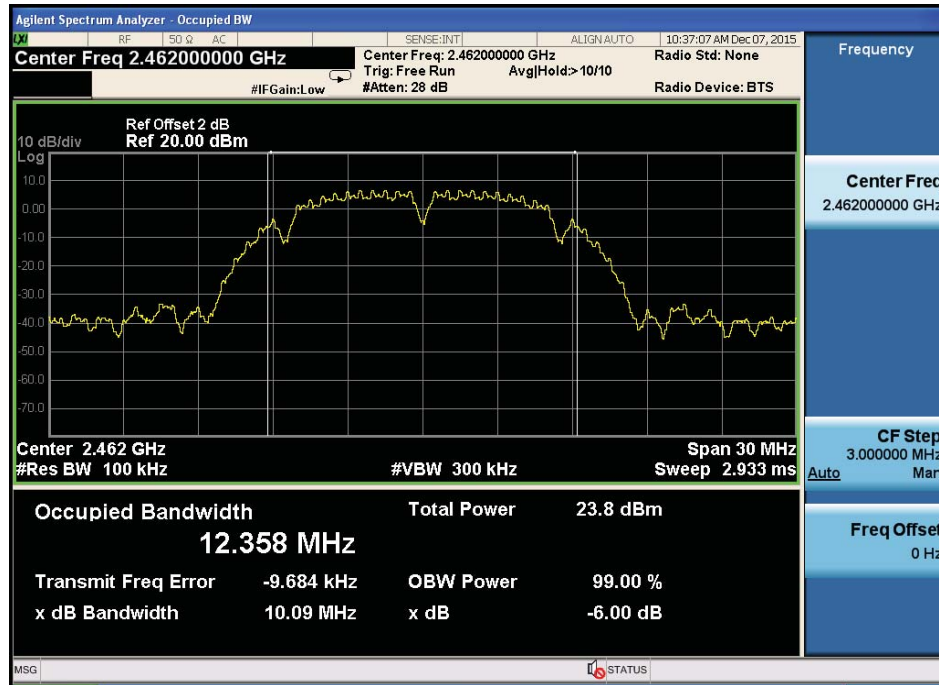
IEEE 802.11b:
CH Low :



CH Mid :

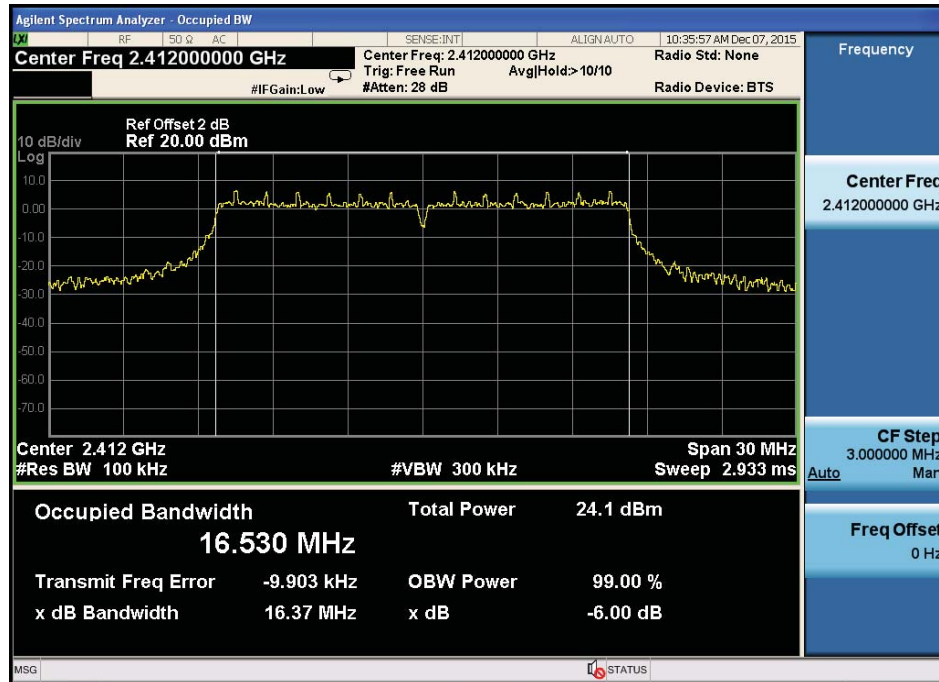


CH High :

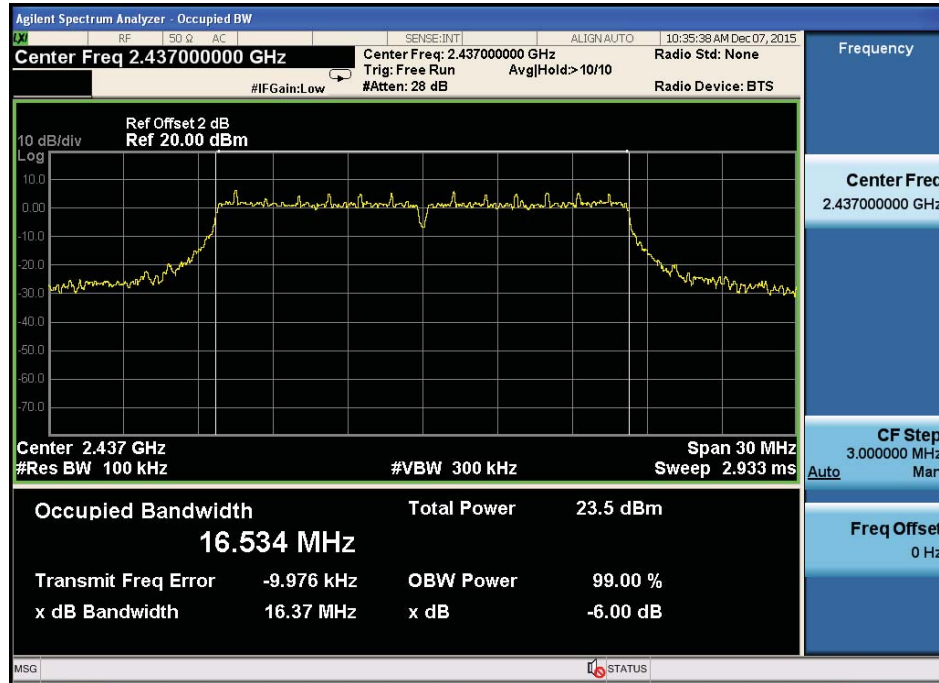


IEEE 802.11g:

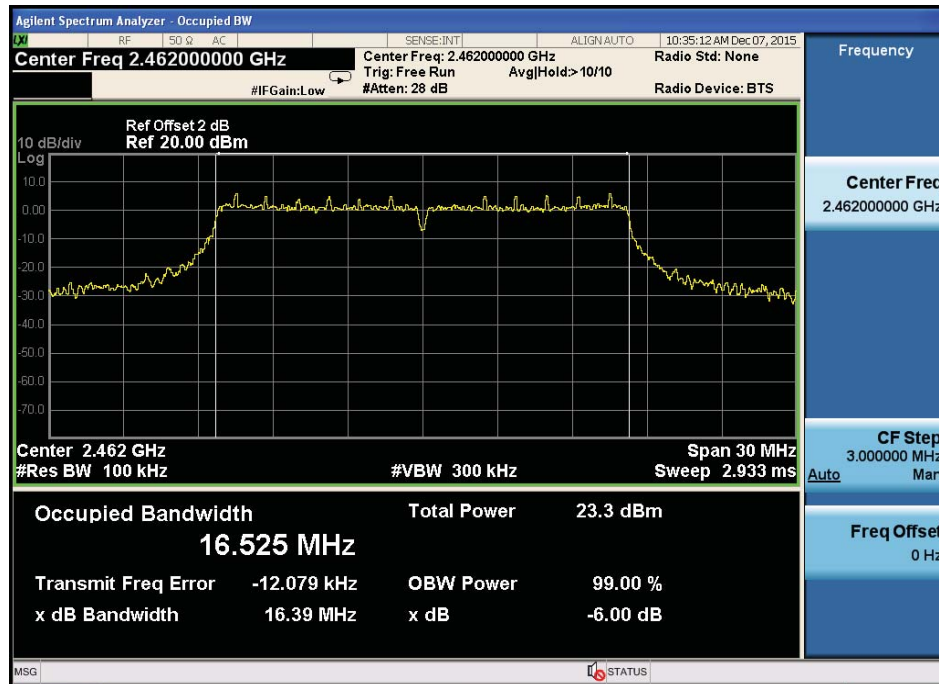
CH Low :



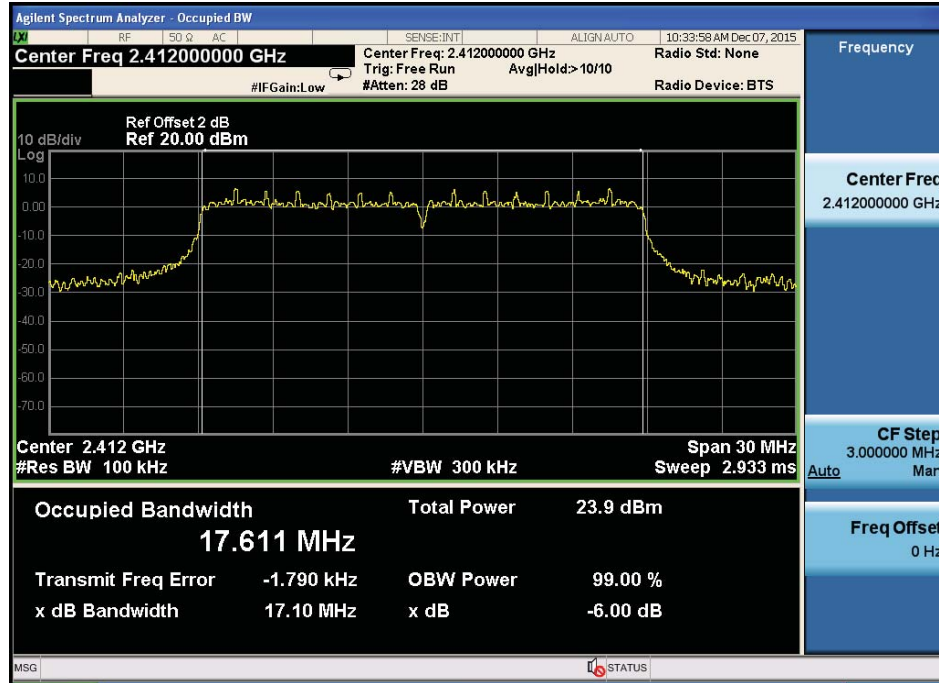
CH Mid:



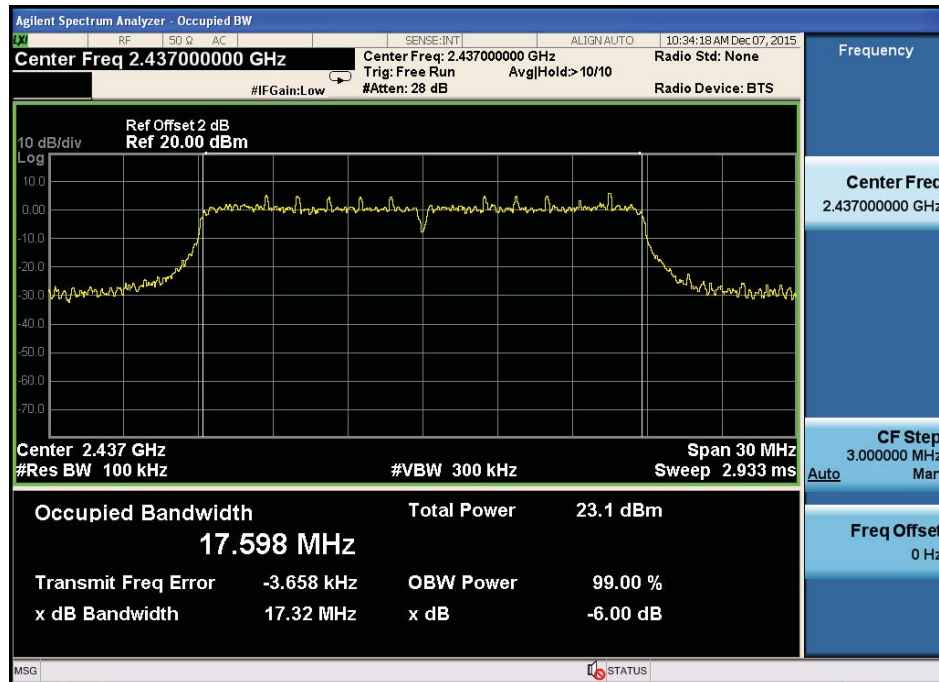
CH Hig:



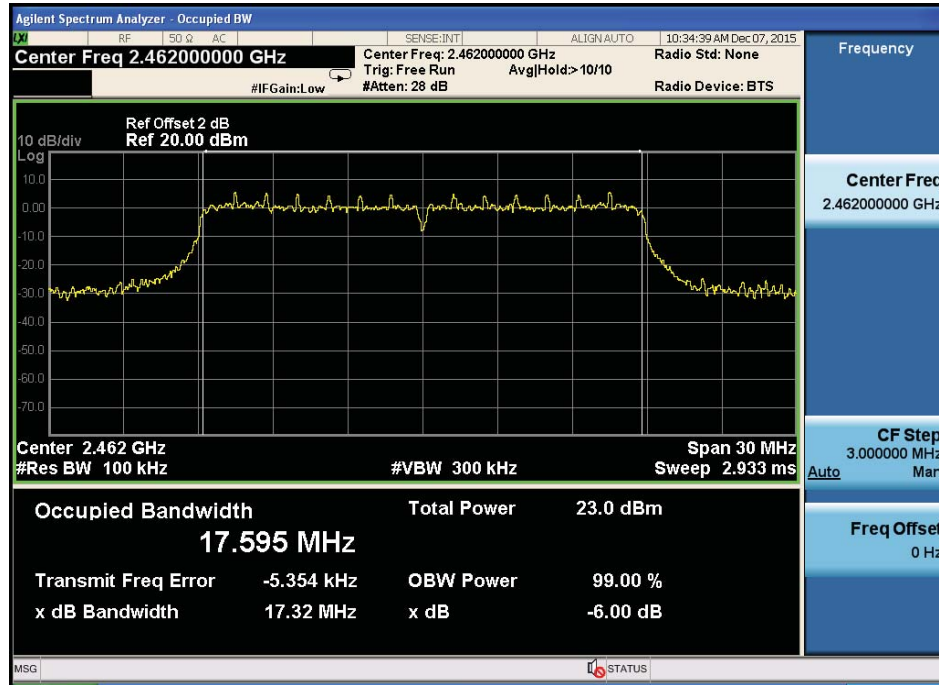
IEEE 802.11n HT20:
CH Low :



CH Mid :

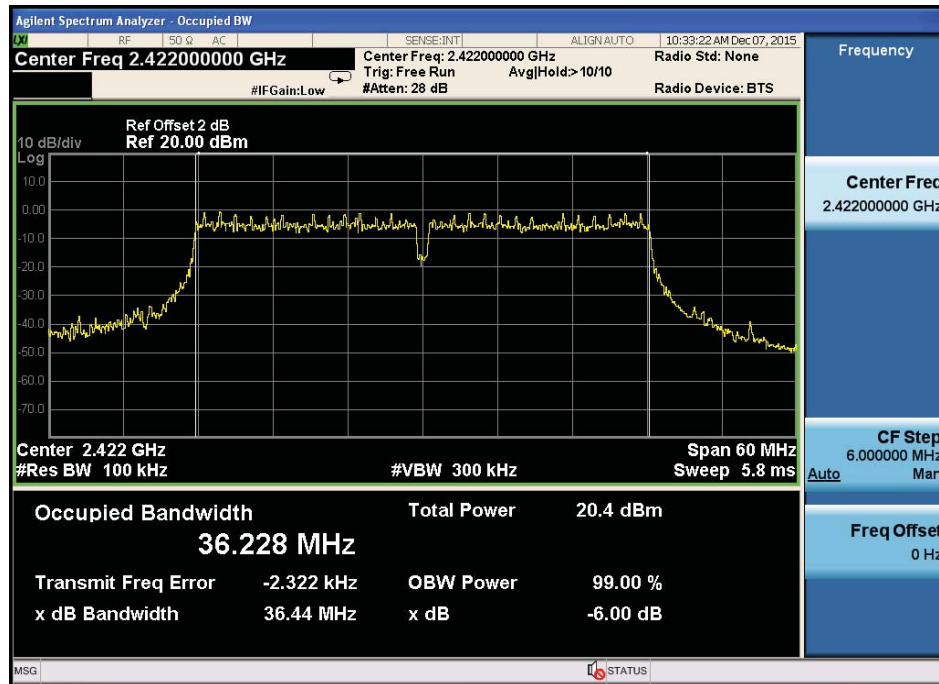


CH High :

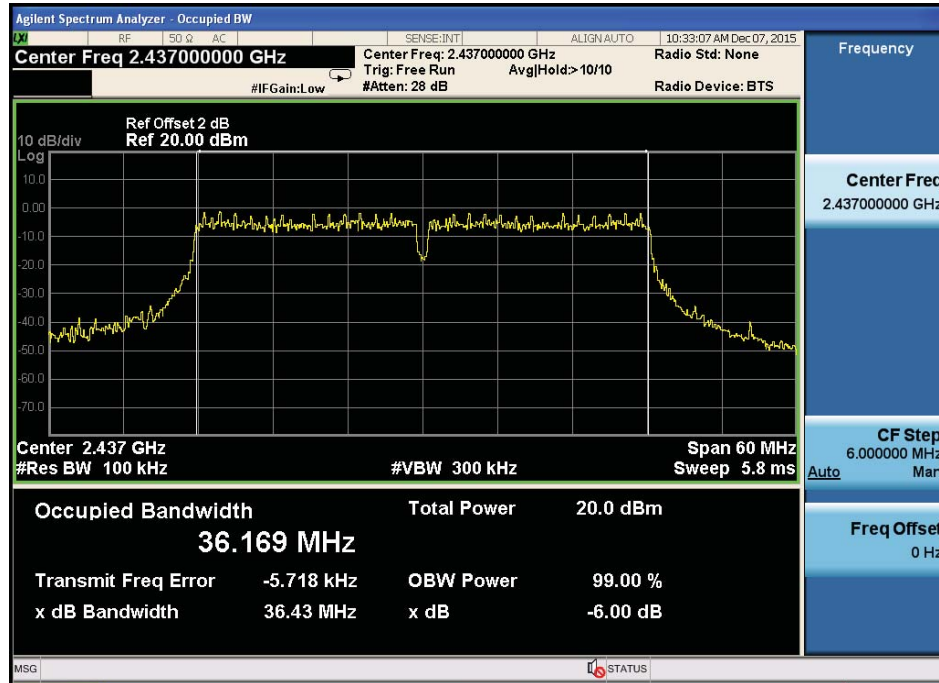


IEEE 802.11n/HT40:

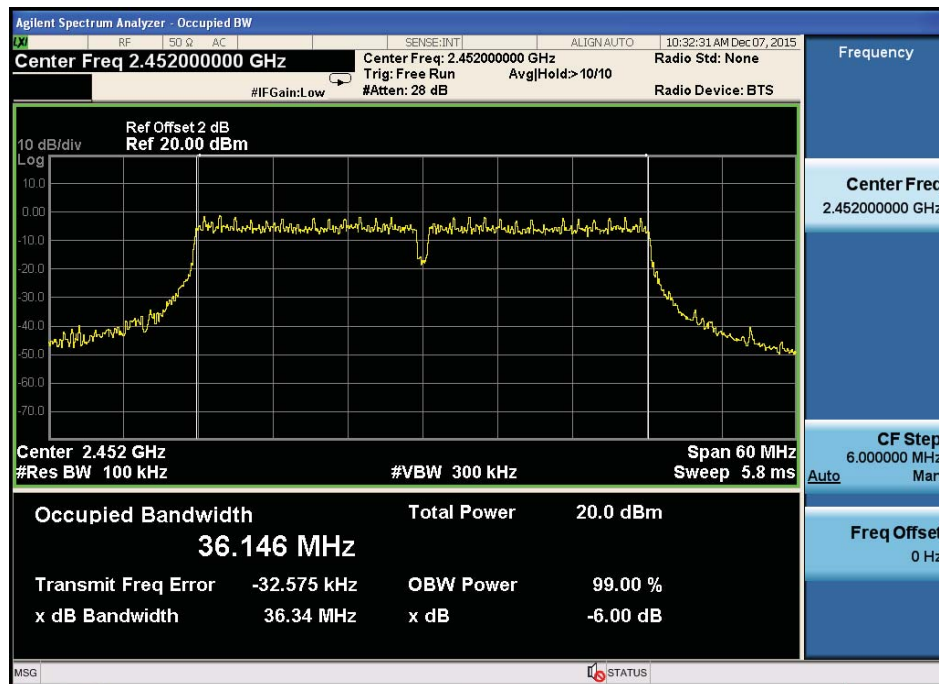
CH Low :



CH Mid:



CH High :



10 Band Edge Check

10.1 Test limit

Please refer section RSS-GEN&15.247.

10.2 Test Procedure

12.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

12.2.2 Check the spurious emissions out of band.

12.2.3 RBW 1MHz ,VBW 3MHz ,peak detector for peak value , RBW 1MHz ,VBW 3MHz ,RMS detector for AV value.

10.3 Test Setup

Same as 5.2.2.

10.4 Test Result

PASS.

Detailed information please see the following page.

Radiated Method:
802.11b ant0

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.42	27.62	3.92	34.97	39.99	74	34.01	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	42.91	27.62	3.92	34.97	39.48	74	34.52	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	42.85	27.89	4	34.97	39.77	74	34.23	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	43.32	27.89	4	34.97	40.24	74	33.76	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

802.11g ant0

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	41.7	27.62	3.92	34.97	38.27	74	35.73	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	42.6	27.62	3.92	34.97	39.17	74	34.83	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Wifi-Router			M/N: VOPWRT					
Power: DC 5V from USB port								
Test date: 2015-12-07			Test site: 3m Chamber			Tested by: Eric Huang		
Test mode: Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBUV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
2483.5	42.38	27.89	4	34.97	39.3	74	34.7	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	42.42	27.89	4	34.97	39.34	74	34.66	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

802.11b ant1

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	42.65	27.62	3.92	34.97	39.22	74	34.78	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	42.97	27.62	3.92	34.97	39.54	74	34.46	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	42.06	27.89	4	34.97	38.98	74	35.02	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	42.5	27.89	4	34.97	39.42	74	34.58	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

802.11g ant1

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	43.58	27.62	3.92	34.97	40.15	74	33.85	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	43.07	27.62	3.92	34.97	39.64	74	34.36	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	42.91	27.89	4	34.97	39.83	74	34.17	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	43.1	27.89	4	34.97	40.02	74	33.98	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

802.11n20

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: MIMO Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390	42.65	27.62	3.92	34.97	39.22	74	34.78	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	42.97	27.62	3.92	34.97	39.54	74	34.46	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: MIMO Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	42.06	27.89	4	34.97	38.98	74	35.02	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	42.5	27.89	4	34.97	39.42	74	34.58	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

802.11n40

Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: MIMO Tx Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBUV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
2390	42.65	27.62	3.92	34.97	39.22	74	34.78	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2390	42.61	27.62	3.92	34.97	39.18	74	34.82	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

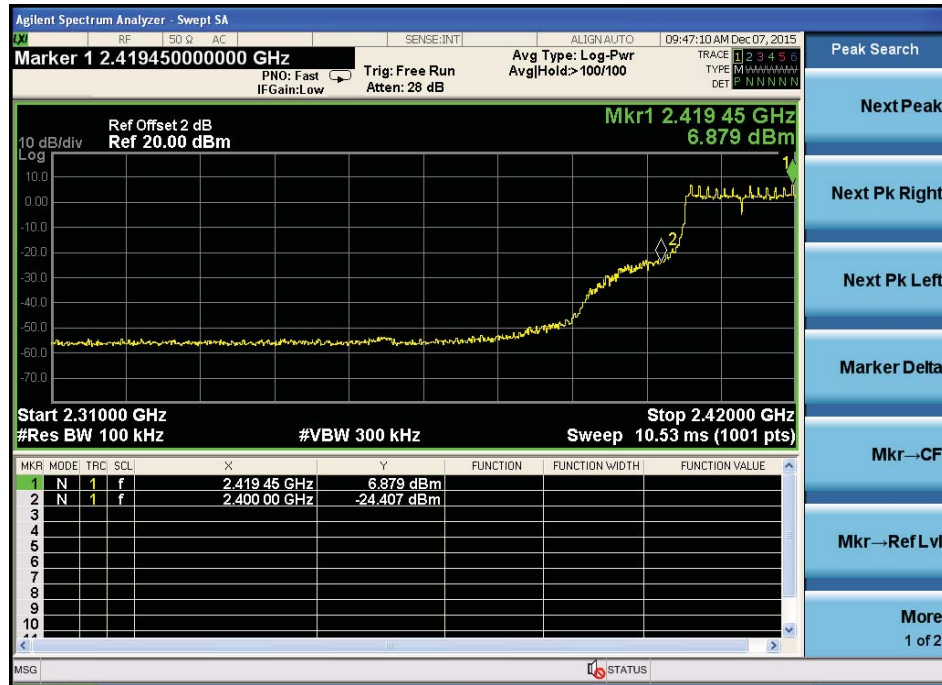
Band Edge Test result								
EUT: Wifi-Router				M/N: VOPWRT				
Power: DC 5V from USB port								
Test date: 2015-12-07 Test site: 3m Chamber Tested by: Eric Huang								
Test mode: MIMO Tx High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2483.5	41.9	27.89	4	34.97	38.82	74	35.18	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
2483.5	43.15	27.89	4	34.97	40.07	74	33.93	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Spectrum Set for AV measure: RBW=1MHz, VBW=3MHz, Sweep time=Auto, Detector: RMS								
3, Result = Read level + Antenna factor + cable loss-Amp factor								
4, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Conducted Method:
802.11b



Antenna 0 and Antenna 1port all have been tested , only worse case is reported

802.11g



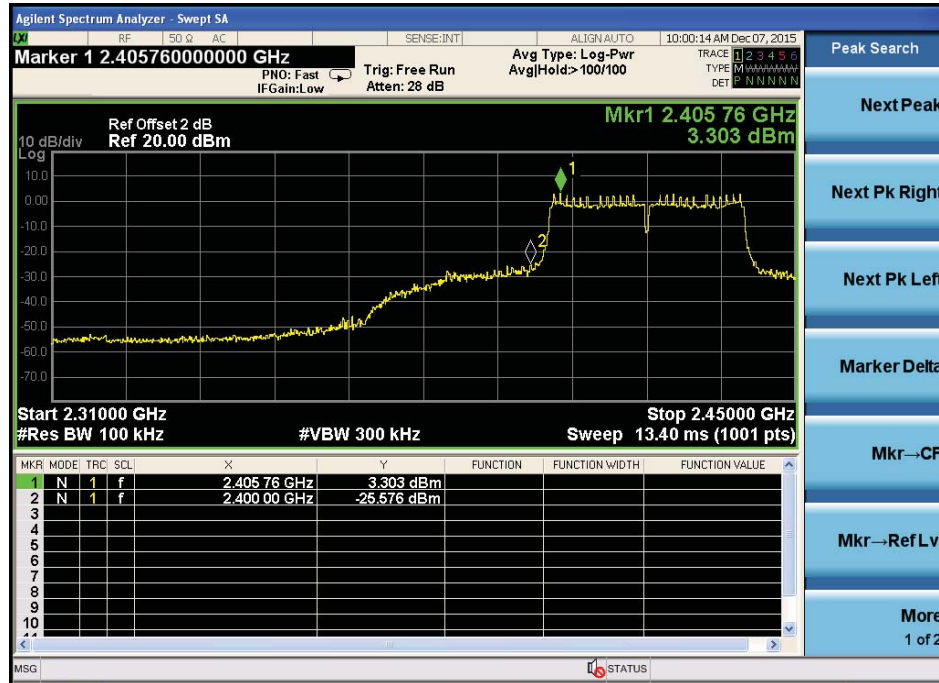
Antenna 0 and Antenna 1port all have been tested , only worse case is reported

802.11n HT20



Antenna 0 and Antenna 1port all have been tested , only worse case is reported

802.11n HT40



Antenna 0 and Antenna 1port all have been tested , only worse case is reported

11 Photographs of Test Setup

Photographs-Radiated Emission Test Setup in Chamber Below 1G



Above 1G



Photographs-Conducted Emission Test Setup



12 Antenna Requirement

12.1 Standard Requirement

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

12.2 Antenna Connected Construction

The antenna connector is unique antenna and no consideration of replacement. Please see EUT photo for details.

12.3 Result

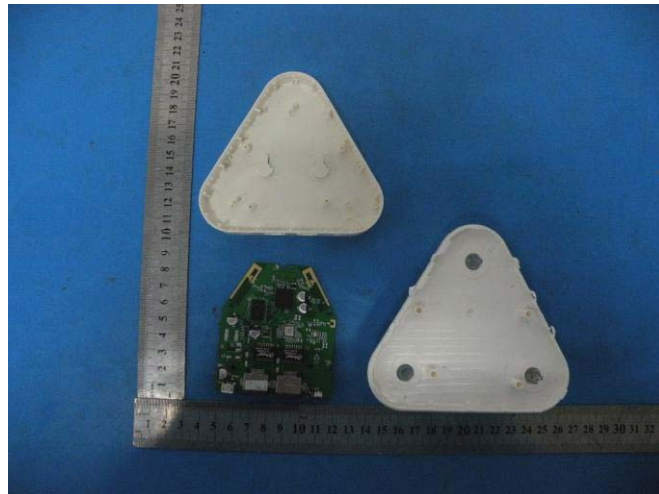
The EUT antenna is integrated Antenna. It comply with the standard requirement.

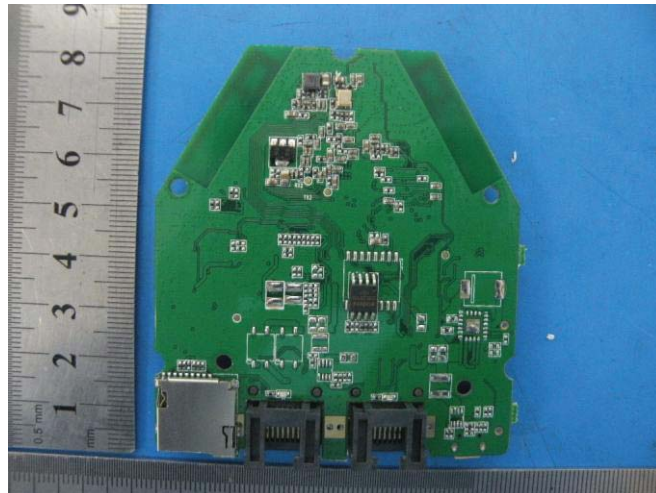
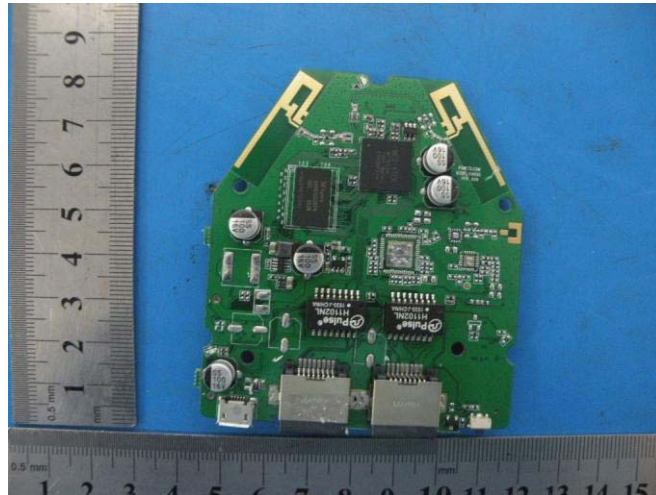
13 Photographs of EUT











-----END OF THE REPORT-----