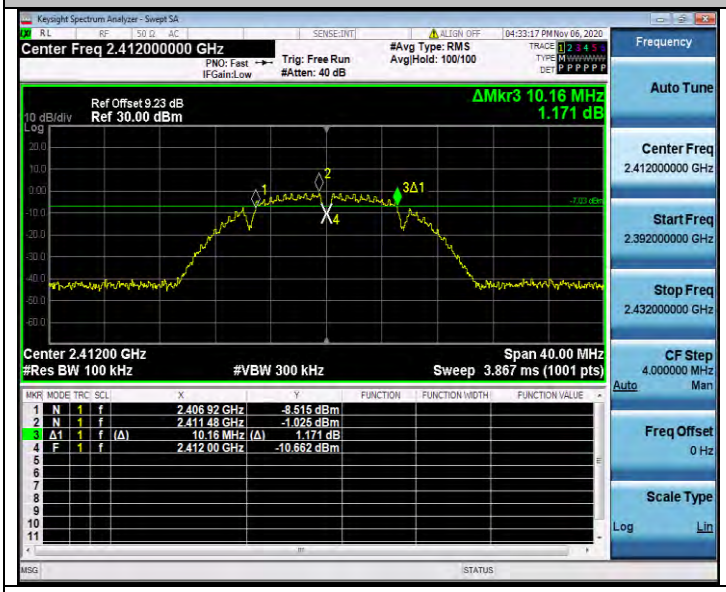
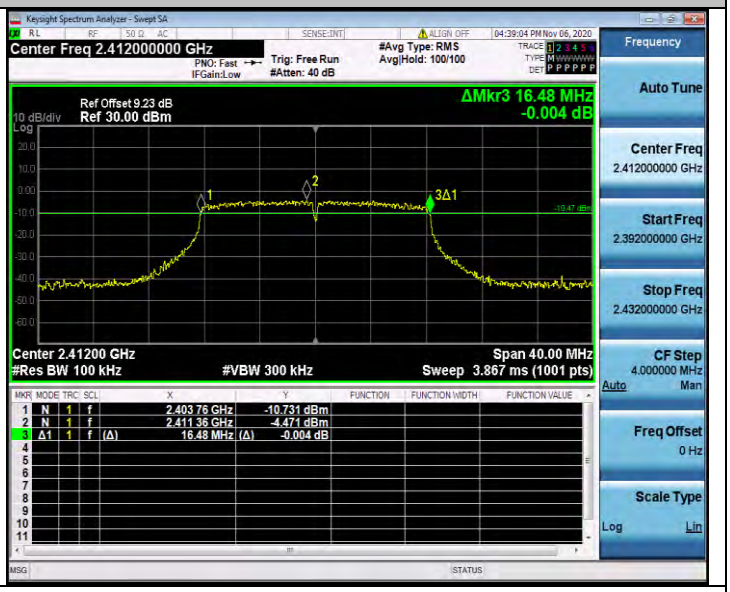
MT7668BU:
Antenna 0:

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11b	01	8.600	≥500	Pass
	06	8.600		
	11	9.080		
802.11g	01	15.120	≥500	Pass
	06	15.080		
	11	15.200		
802.11nHT20	01	15.120	≥500	Pass
	06	15.040		
	11	13.960		
802.11nHT40	03	35.200	≥500	Pass
	06	35.200		
	09	35.200		

Antenna 1:

Type	Channel	6dB Bandwidth (MHz)	Limit (KHz)	Result
802.11b	01	8.680	≥500	Pass
	06	9.120		
	11	8.160		
802.11g	01	14.720	≥500	Pass
	06	15.520		
	11	13.880		
802.11nHT20	01	13.800	≥500	Pass
	06	15.880		
	11	15.160		
802.11nHT40	03	35.280	≥500	Pass
	06	35.200		
	09	35.200		

RTL8822CU: Antenna 0:

802.11b	802.11g
	
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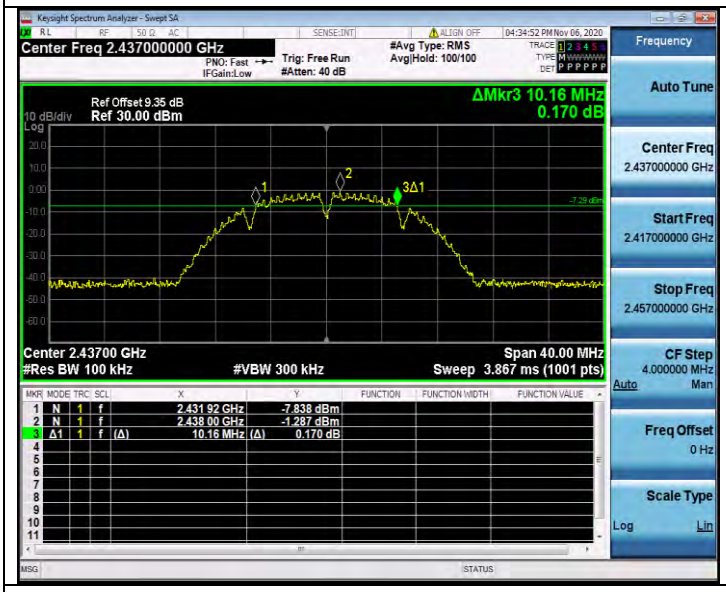
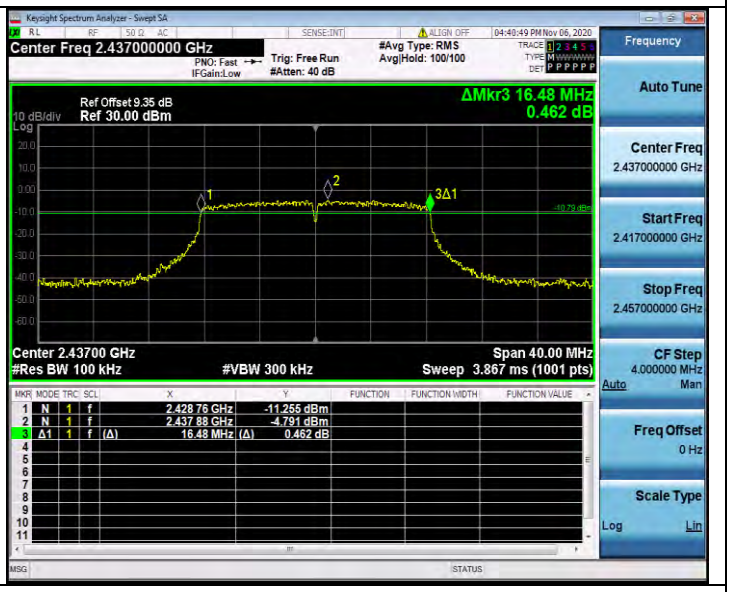
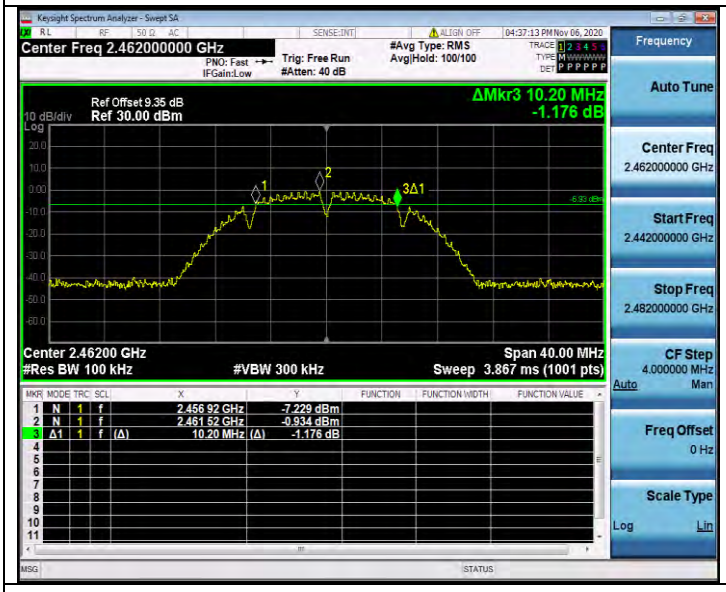
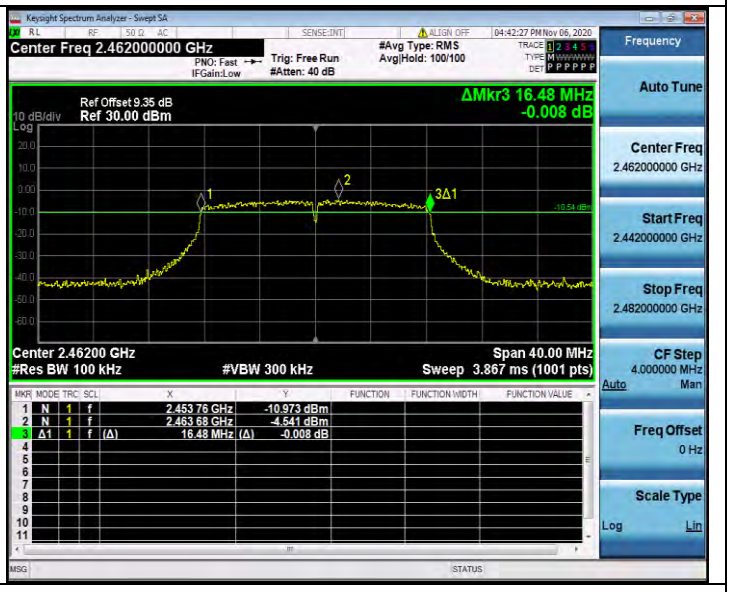
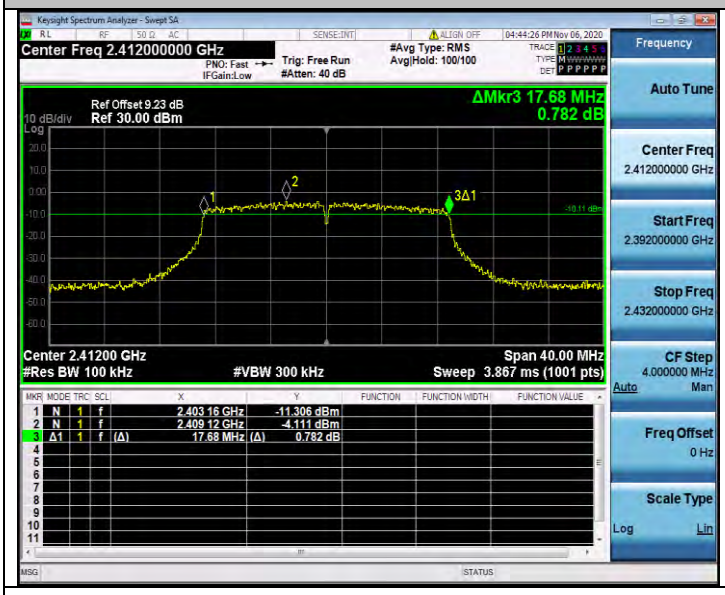
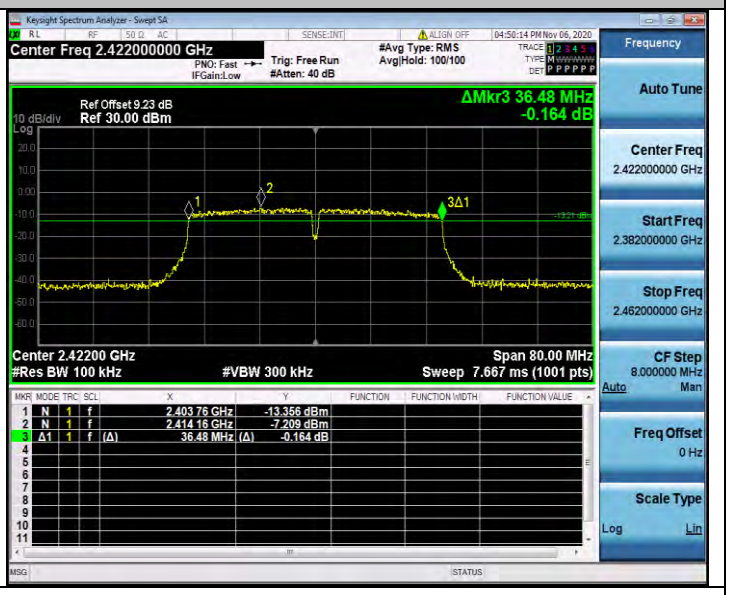
	
CH06	CH06
	
CH11	CH11

802.11n HT20	802.11n HT40
	
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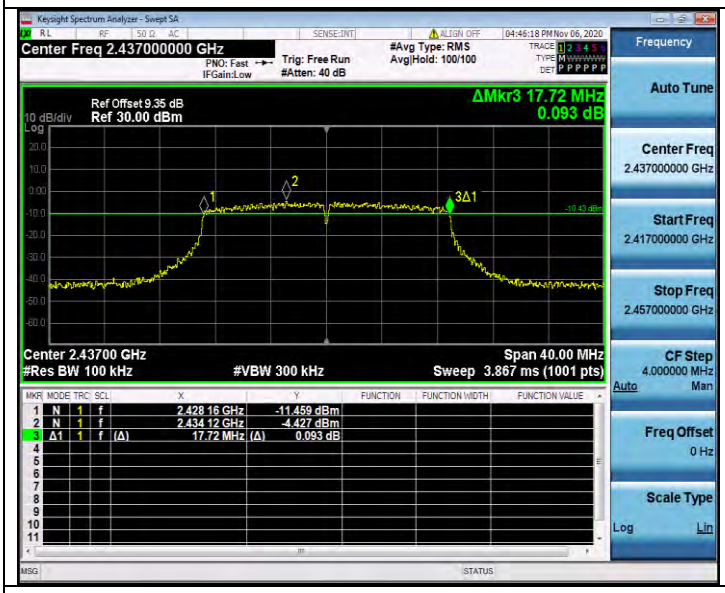	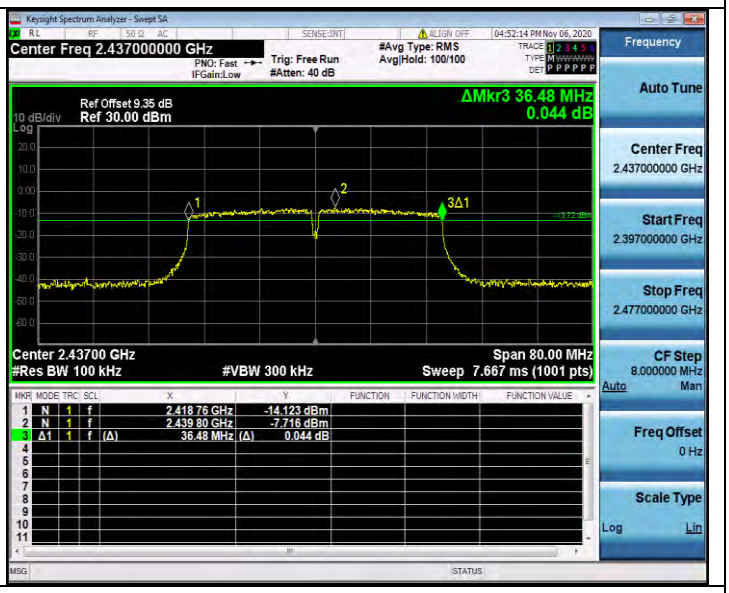
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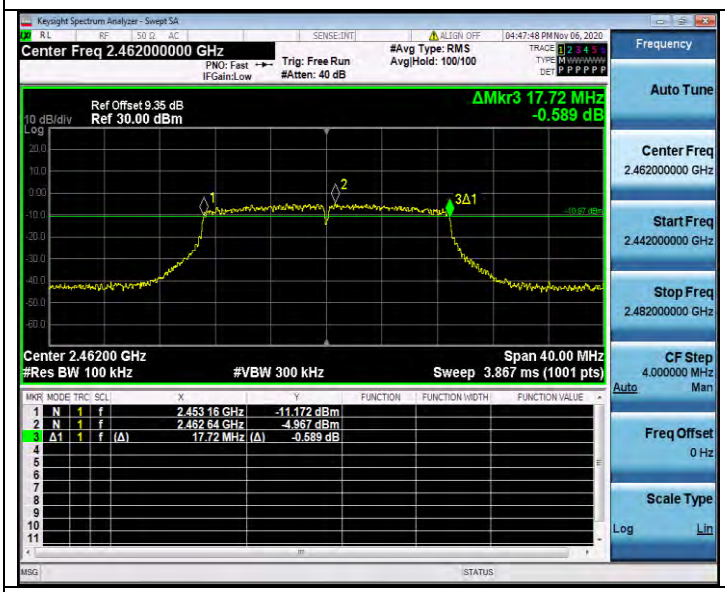
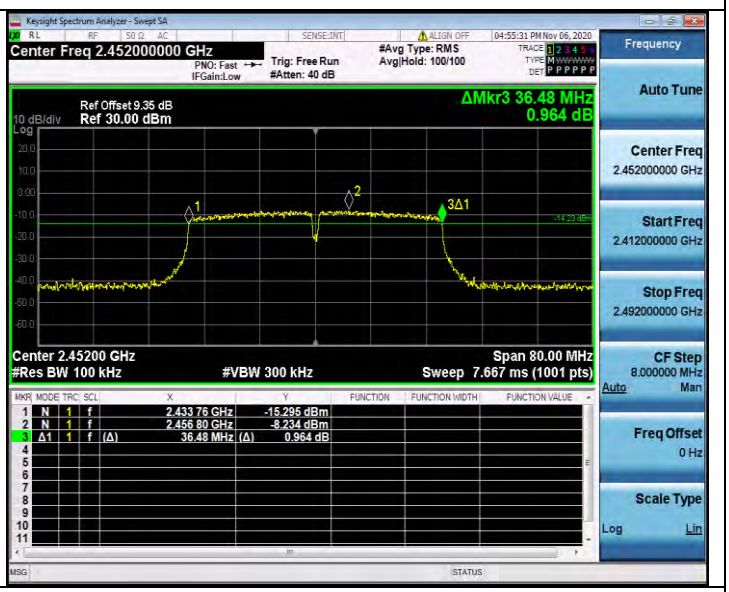
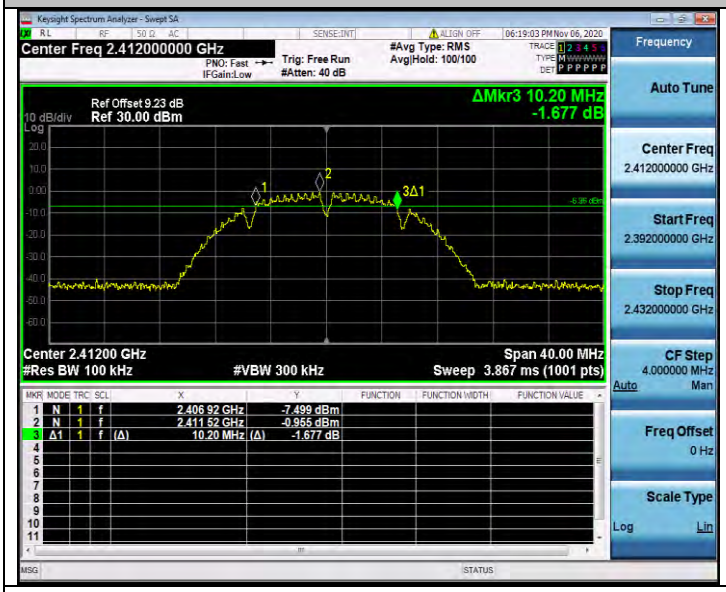
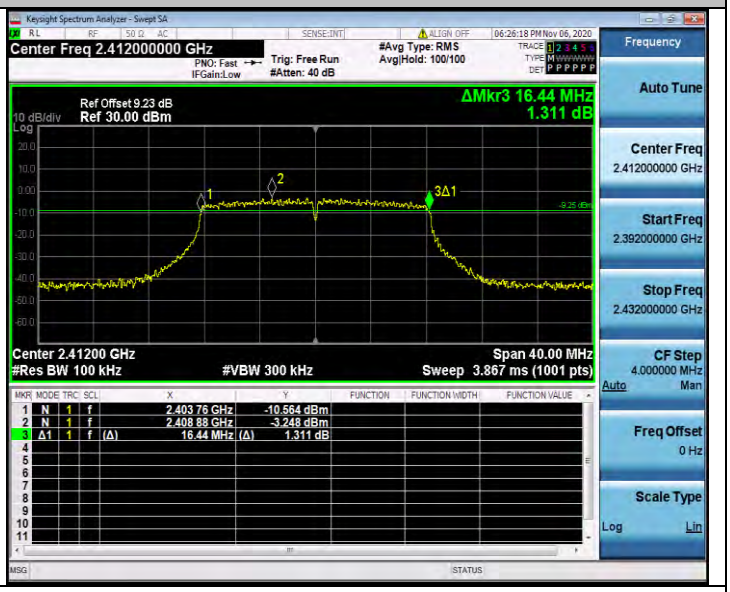
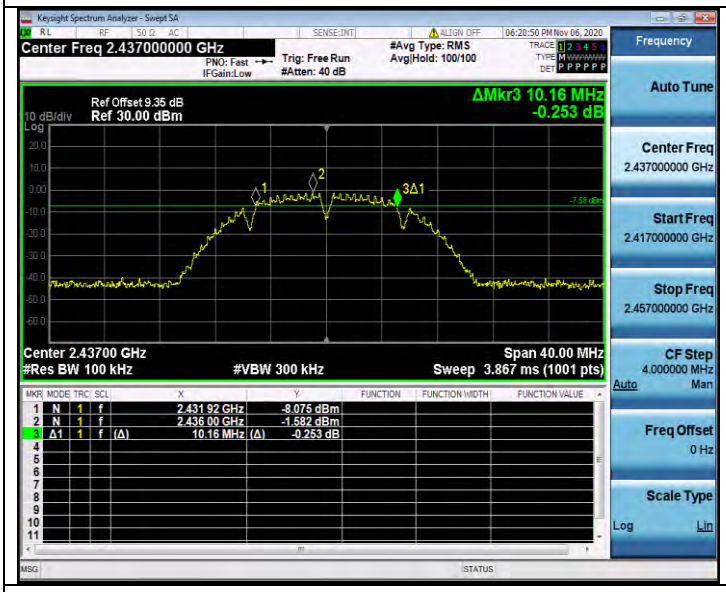
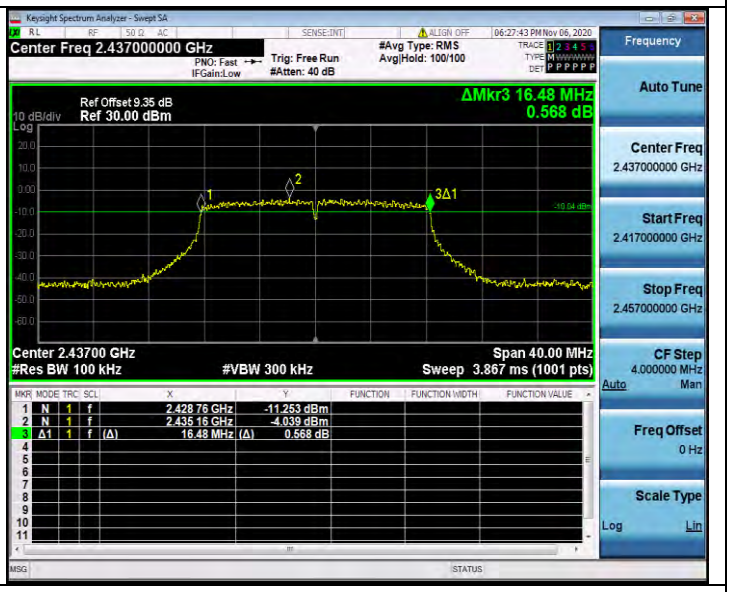
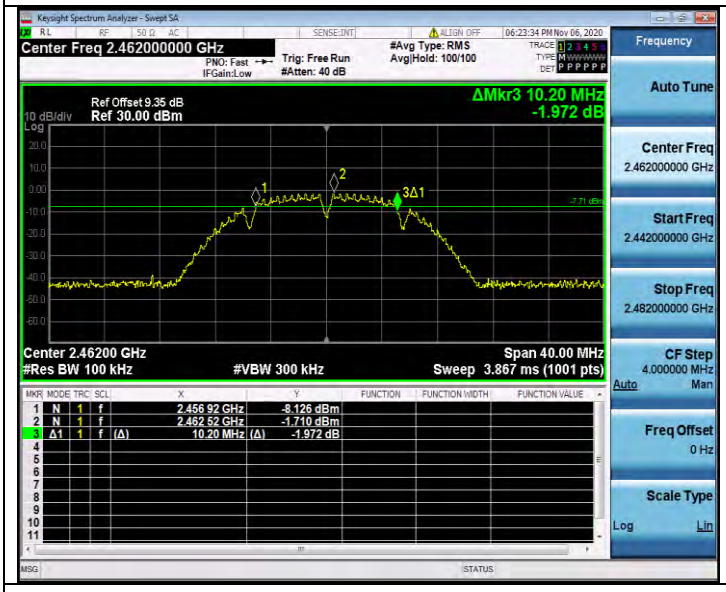
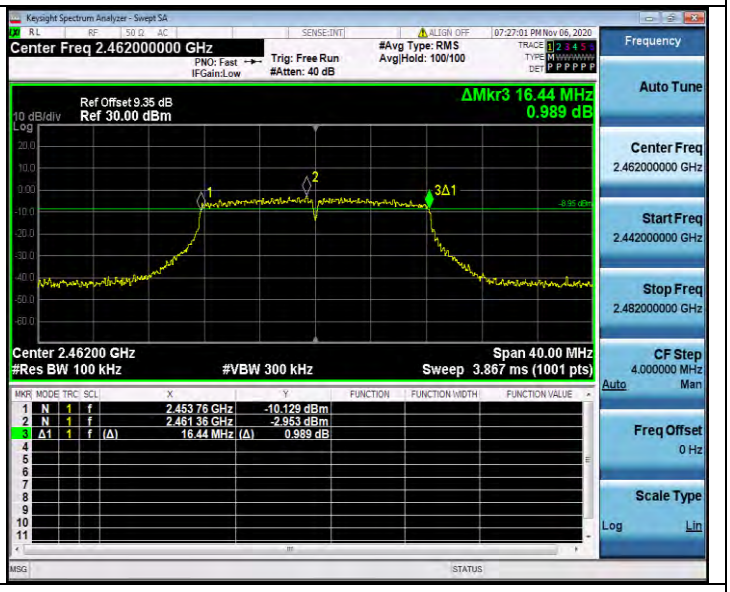
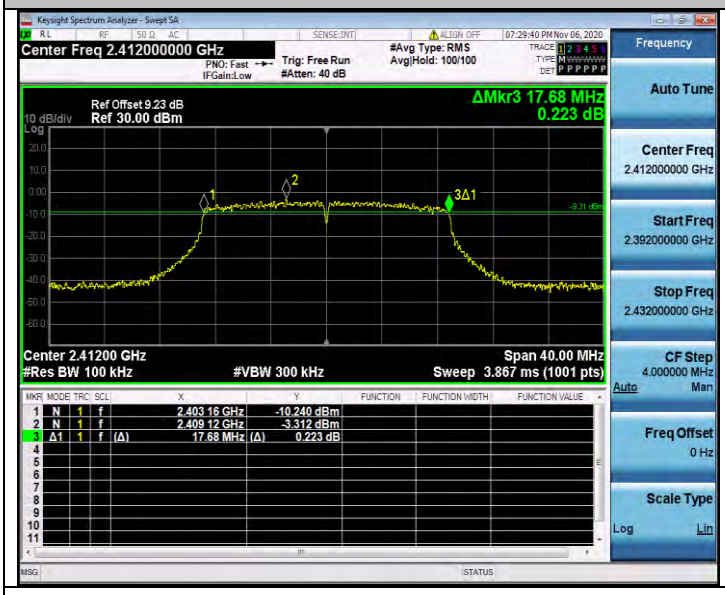
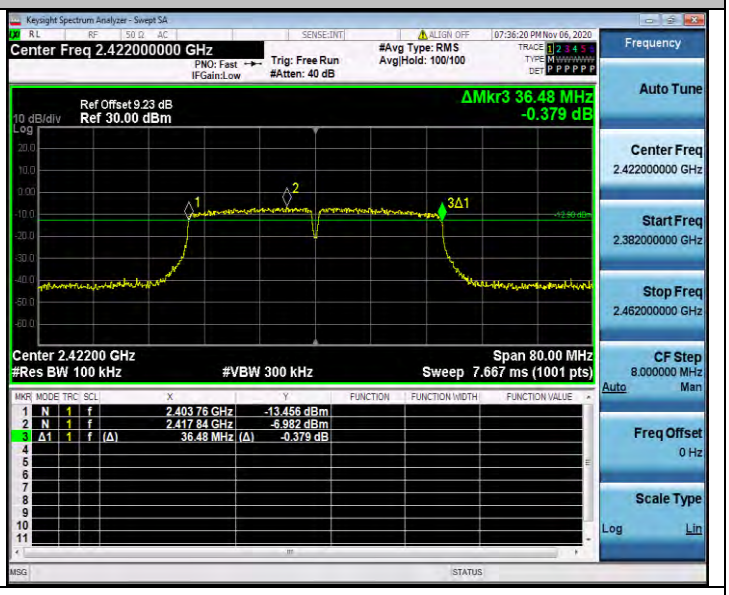
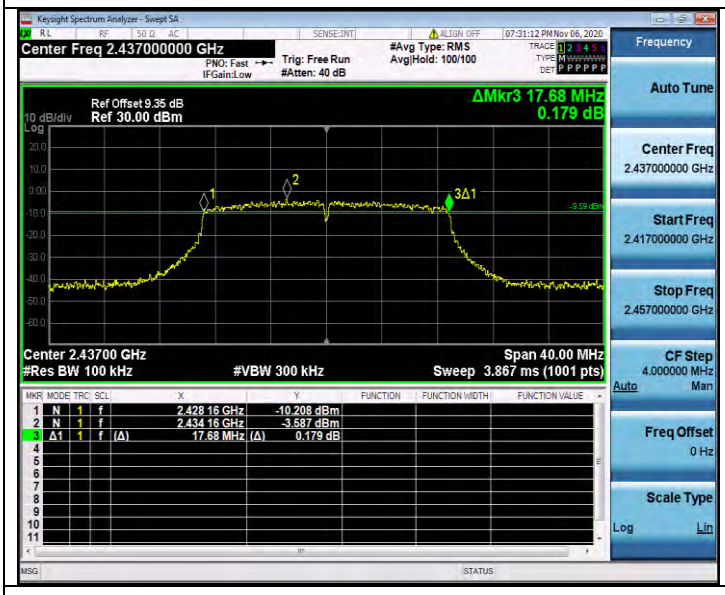
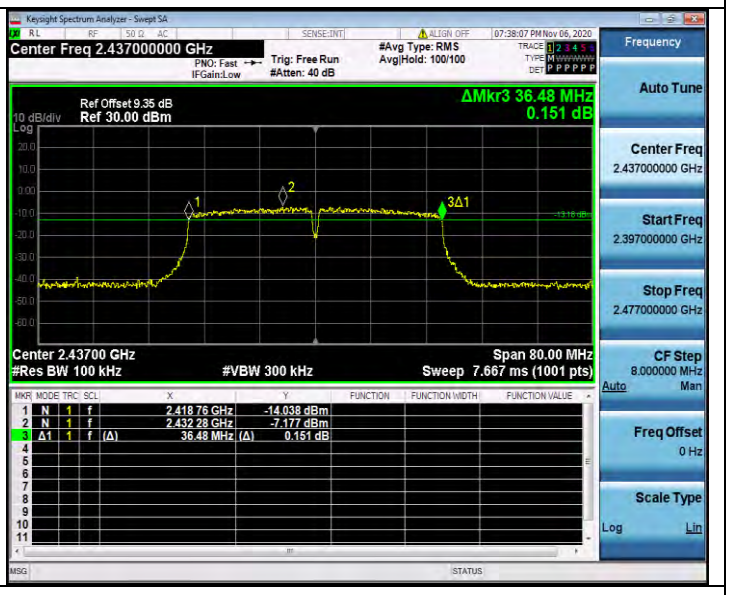
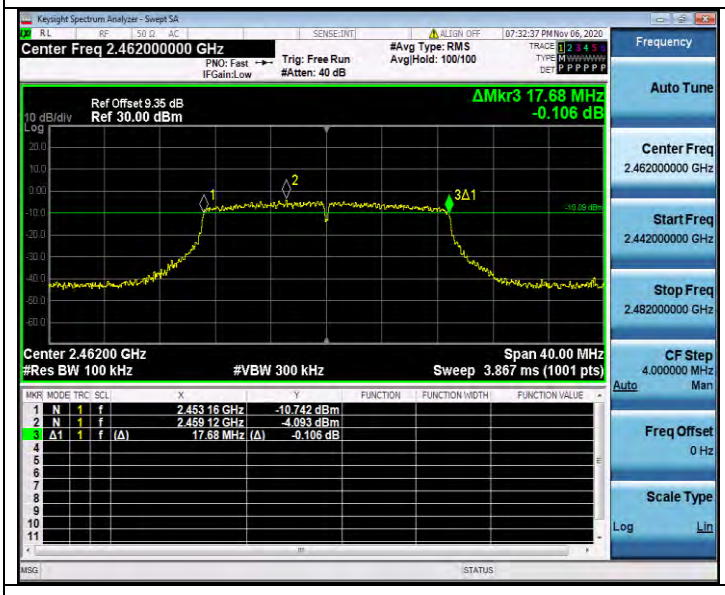
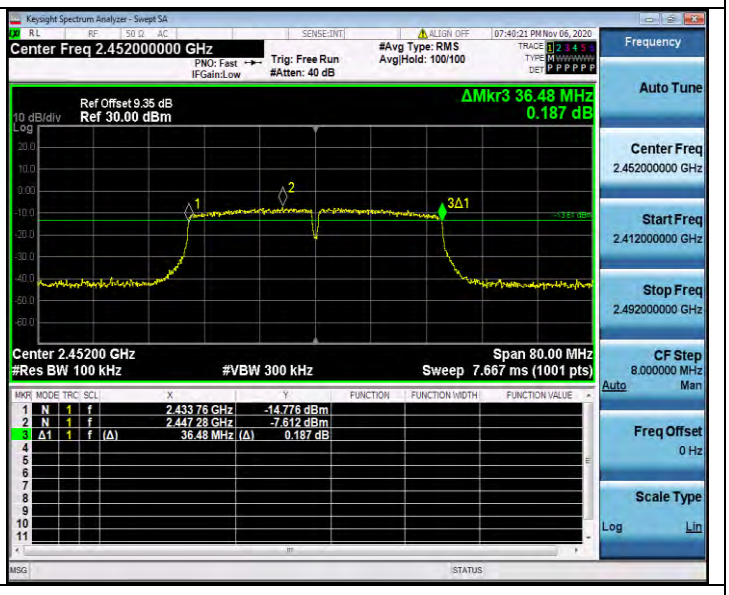
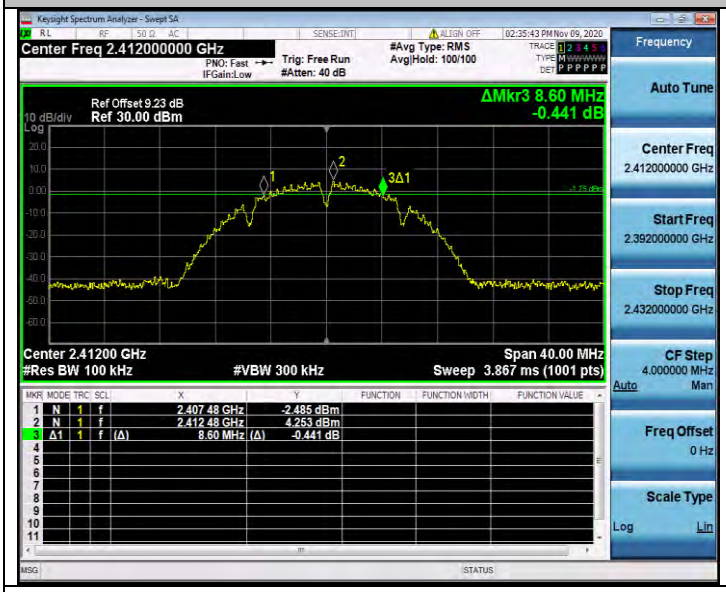
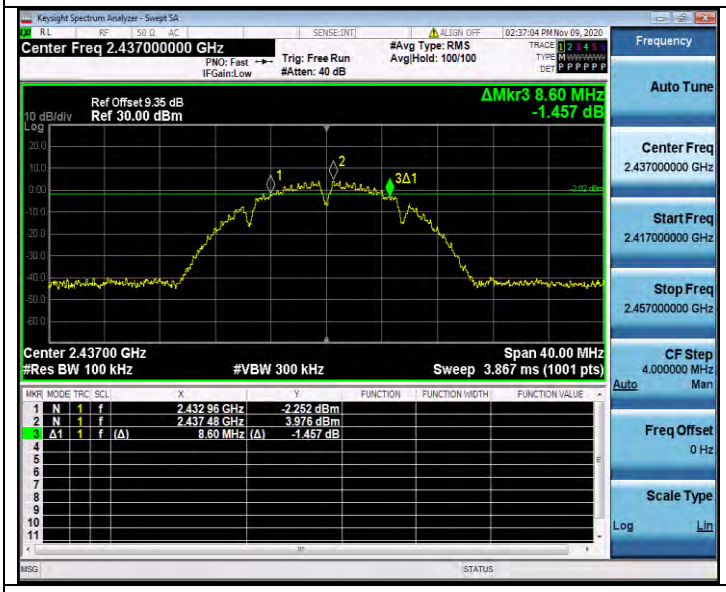
	
CH11	CH09

Antenna 1:

802.11b	802.11g
	
CH01	CH01
	
CH06	CH06
	
CH11	CH11

802.11n HT20	802.11n HT40
	
CH01	CH03
	
CH06	CH06
	
CH11	CH09

MT7668BU: Antenna 0:

802.11b	802.11g
	
CH01	CH01
	
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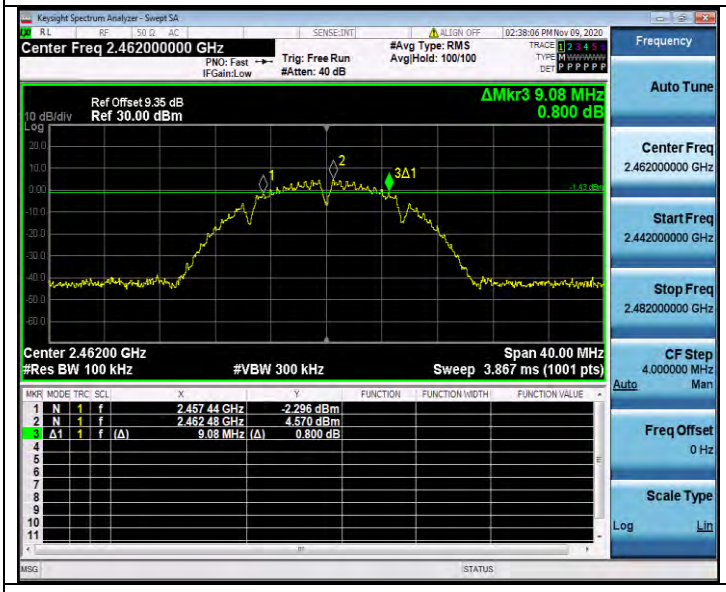
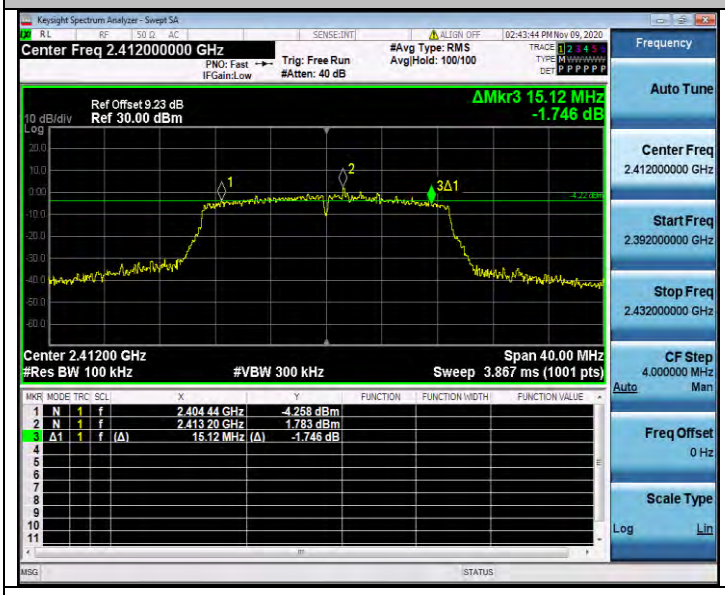
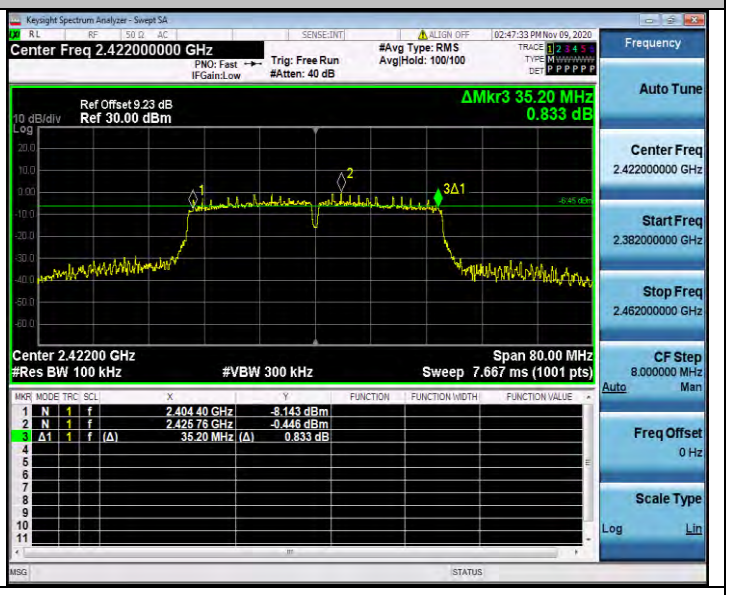
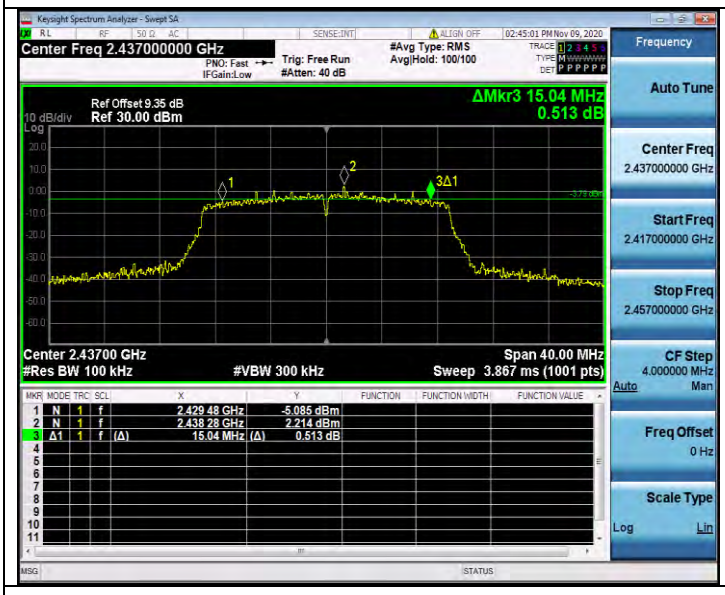
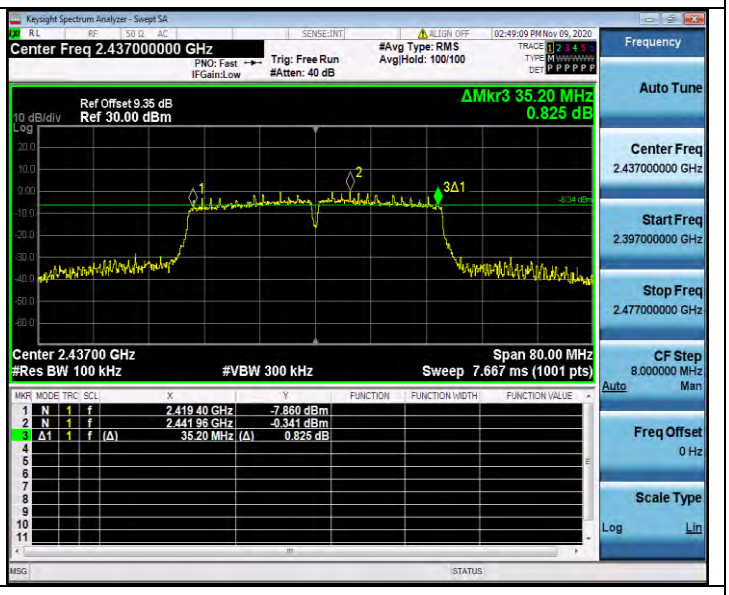
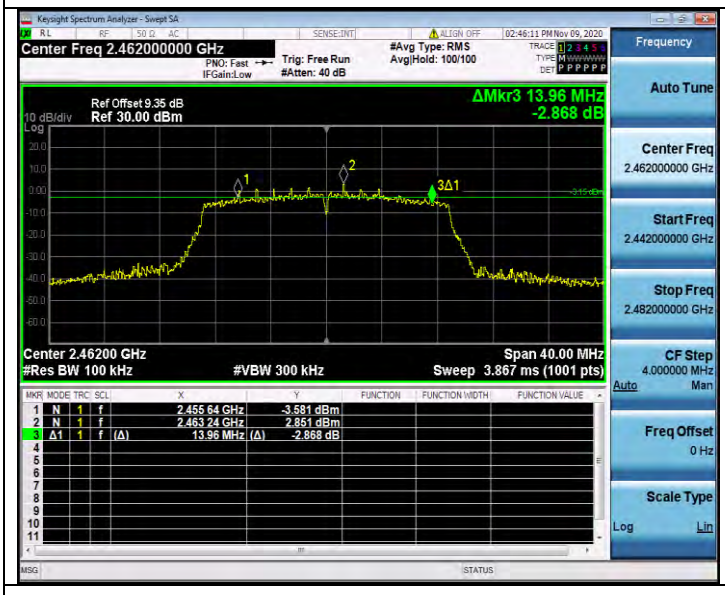
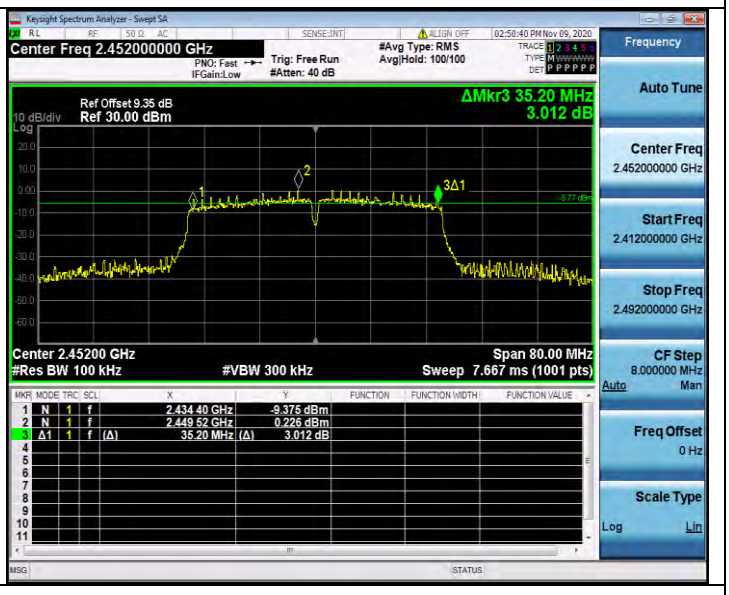
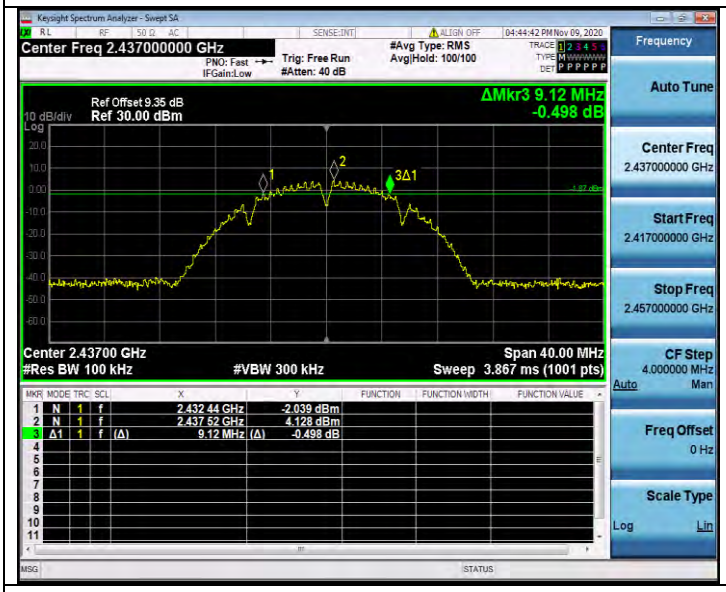
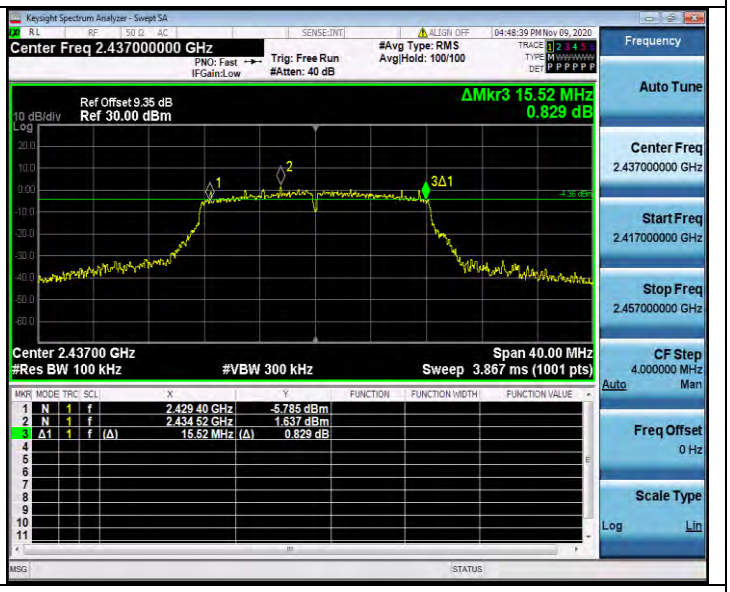
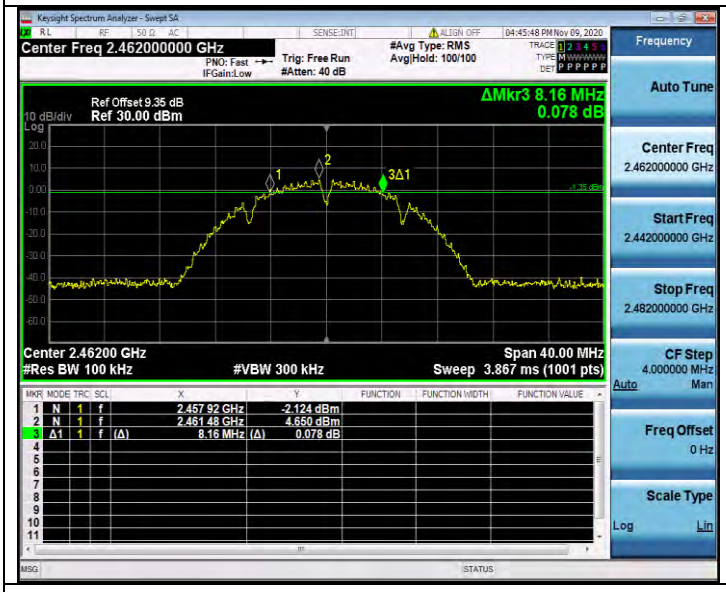
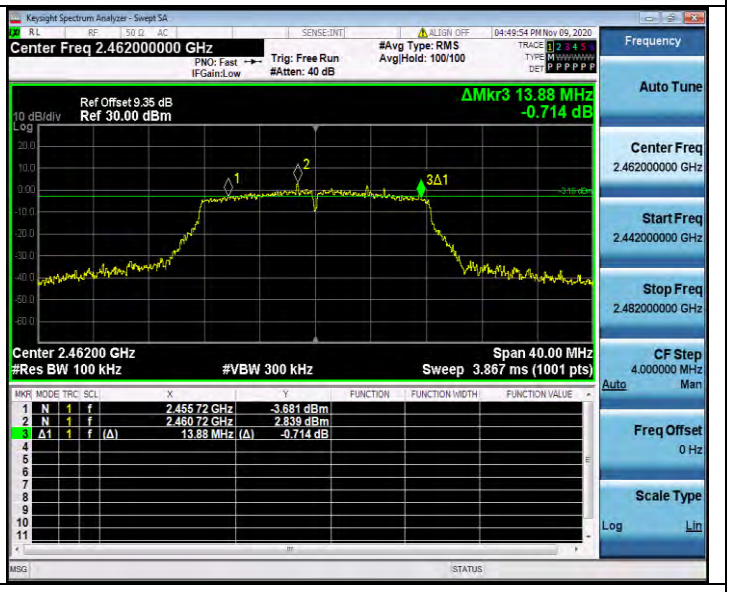
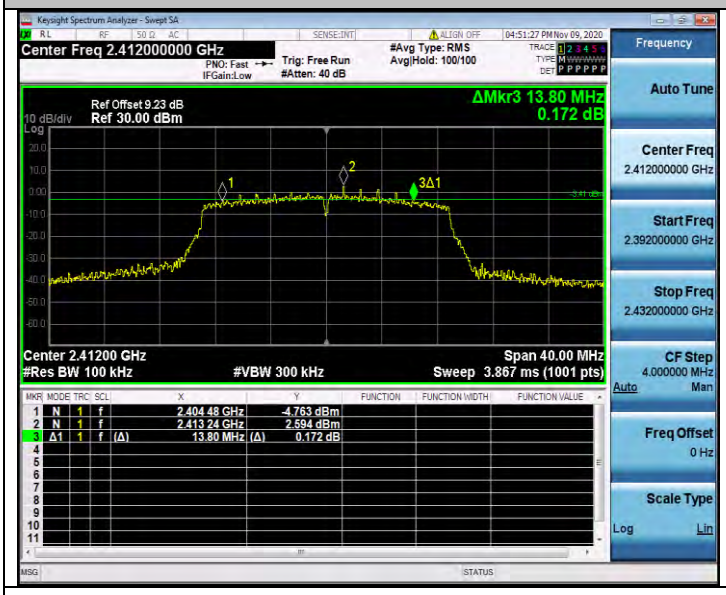
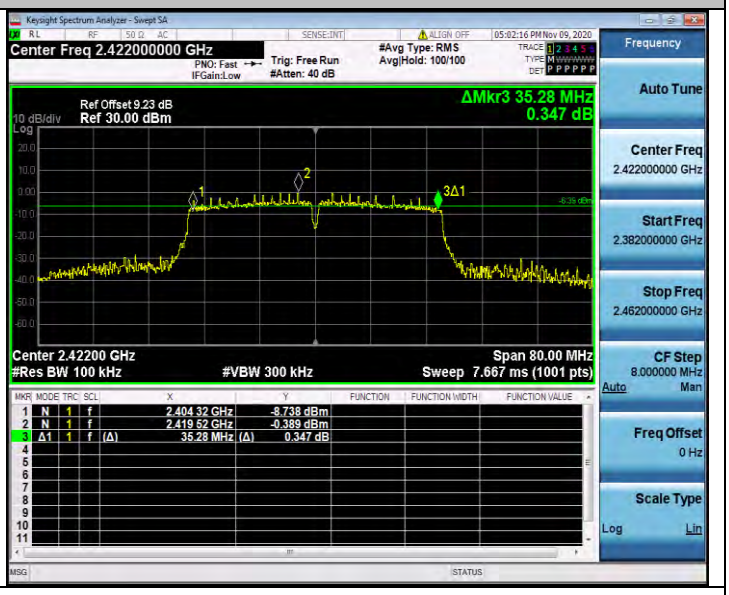
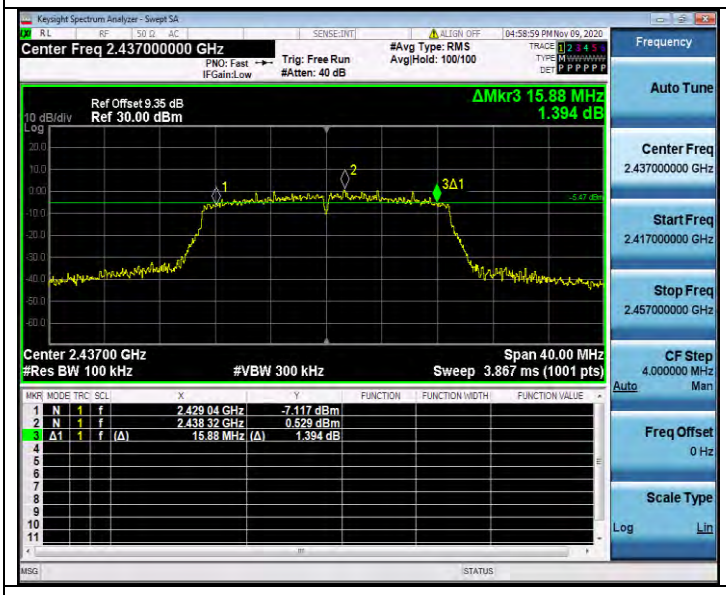
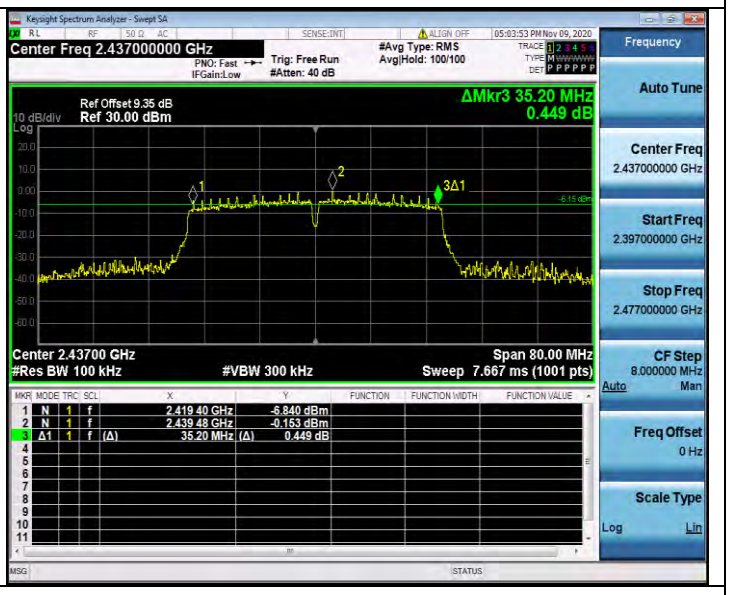
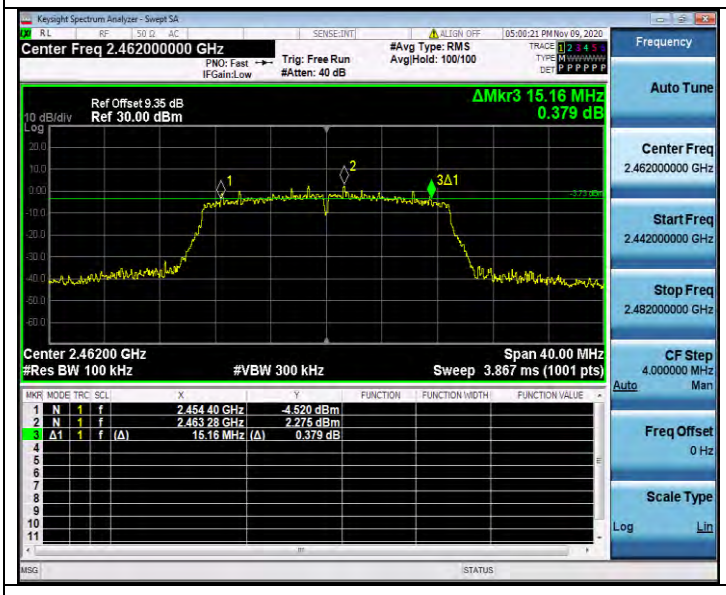
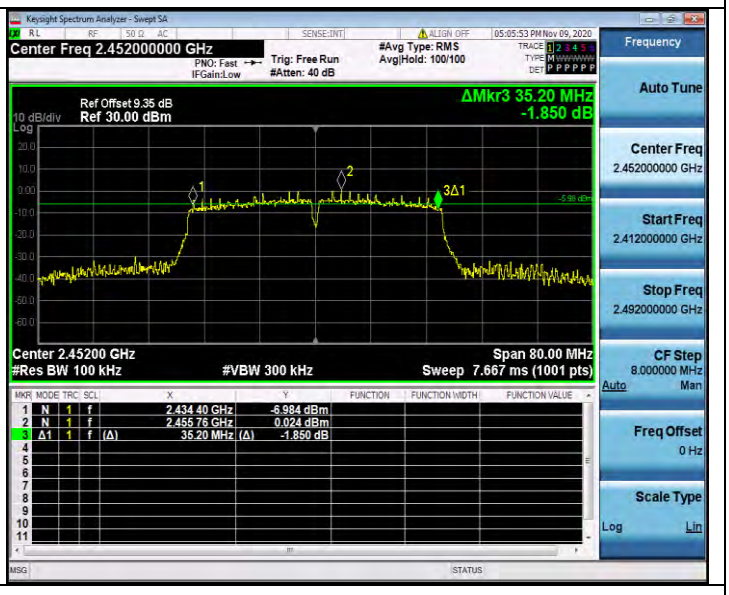
	
CH11	CH11

802.11n HT20	802.11n HT40
	
CH01	CH03
	
CH06	CH06
	
CH11	CH09

Antenna 1:

802.11b	802.11g
	
CH01	CH01
	
CH06	CH06
	
CH11	CH11

802.11n HT20	802.11n HT40
	
CH01	CH03
	
CH06	CH06
	
CH11	CH09

4.6. Band Edge Compliance of RF Emission

TEST REQUIREMENT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

According to KDB 558074 D01 for Antenna-port conducted measurement. Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=10Hz for average detector.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.
6. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
7. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
8. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
9. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
10. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
    $E = EIRP – 20\log D + 104.8$

where:
E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.

11. Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.
12. Compare the resultant electric field strength level to the applicable regulatory limit.
13. Perform radiated spurious emission test dures until all measured frequencies were complete.

LIMIT

Below -20dB of the highest emission level in operating band.
Radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a).

TEST RESULTS

NOTE: All the modes have been tested and recorded worst mode in the report.(MT7668BU Antenna 0)

4.6.1 For Radiated Bandedge Measurement

Temperature	23.8℃	Humidity	53.7%
Test Engineer	Moon Tan	Configurations	IEEE 802.11b/g/n

802.11b

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	45.82	PK	74	-28.18	1	155	51.13	27.49	3.32	36.12	-5.31
2390.00	34.48	AV	54	-19.52	1	155	39.79	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2412**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	50.47	PK	74	-23.53	1	354	55.78	27.49	3.32	36.12	-5.31
2390.00	31.23	AV	54	-22.77	1	354	36.54	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2462**			**Polarity:**			**HORIZONTAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	47.29	PK	74	-26.71	1	128	53.01	27.45	3.38	36.55	-5.72
2483.50	34.60	AV	54	-19.40	1	128	40.32	27.45	3.38	36.55	-5.72
Frequency(MHz):			**2462**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	47.36	PK	74	-26.64	1	241	53.08	27.45	3.38	36.55	-5.72
2483.50	38.07	AV	54	-15.93	1	241	43.79	27.45	3.38	36.55	-5.72

802.11g

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	45.82	PK	74	-28.18	1	134	51.13	27.49	3.32	36.12	-5.31
2390.00	33.70	AV	54	-20.30	1	134	39.01	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2412**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	49.50	PK	74	-24.50	1	292	54.81	27.49	3.32	36.12	-5.31
2390.00	30.55	AV	54	-23.45	1	292	35.86	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2462**			**Polarity:**			**HORIZONTAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	46.09	PK	74	-27.91	1	301	51.81	27.45	3.38	36.55	-5.72
2483.50	34.36	AV	54	-19.64	1	301	40.08	27.45	3.38	36.55	-5.72
Frequency(MHz):			**2462**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	46.44	PK	74	-27.56	1	121	52.16	27.45	3.38	36.55	-5.72
2483.50	37.15	AV	54	-16.85	1	121	42.87	27.45	3.38	36.55	-5.72

802.11n HT20

Frequency(MHz):			2412			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	46.26	PK	74	-27.74	1	302	51.57	27.49	3.32	36.12	-5.31
2390.00	35.40	AV	54	-18.60	1	302	40.71	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2412**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	49.32	PK	74	-24.68	1	69	54.63	27.49	3.32	36.12	-5.31
2390.00	31.48	AV	54	-22.52	1	69	36.79	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2462**			**Polarity:**			**HORIZONTAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	46.87	PK	74	-27.13	1	99	52.59	27.45	3.38	36.55	-5.72
2483.50	34.15	AV	54	-19.85	1	99	39.87	27.45	3.38	36.55	-5.72
Frequency(MHz):			**2462**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	46.00	PK	74	-28.00	1	5	51.72	27.45	3.38	36.55	-5.72
2483.50	38.31	AV	54	-15.69	1	5	44.03	27.45	3.38	36.55	-5.72

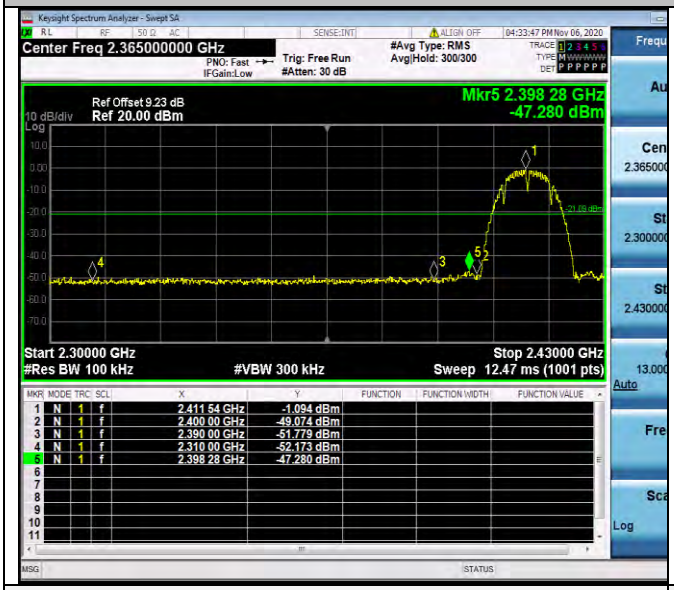
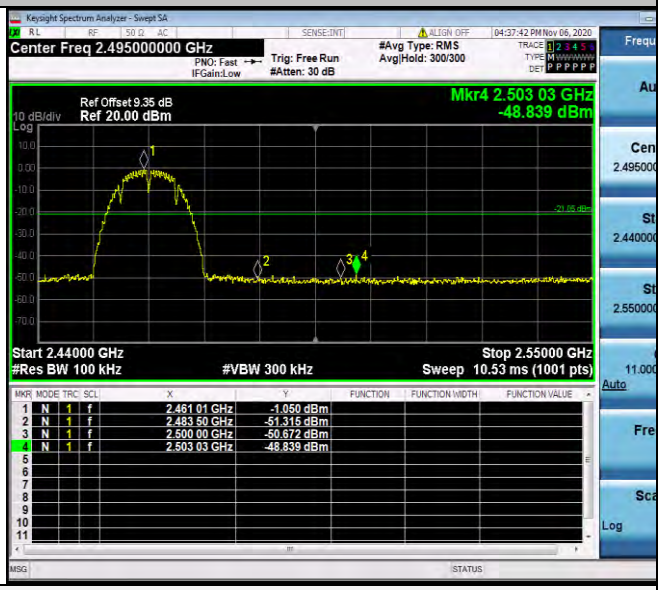
802.11n HT40

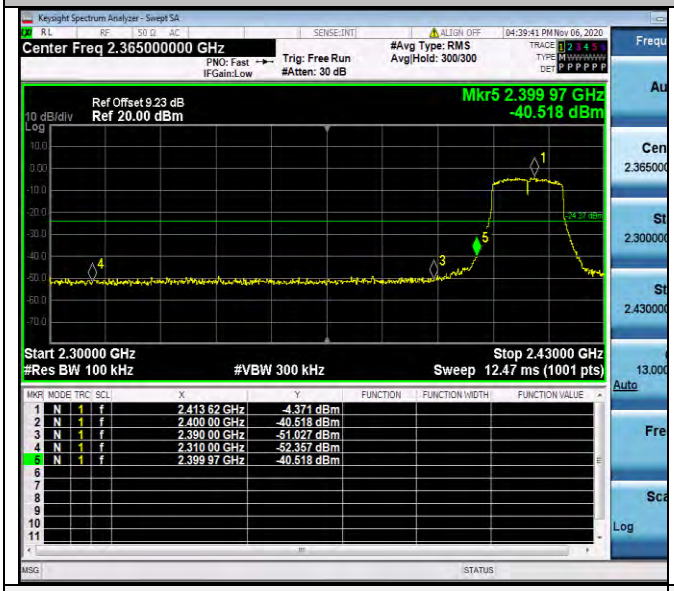
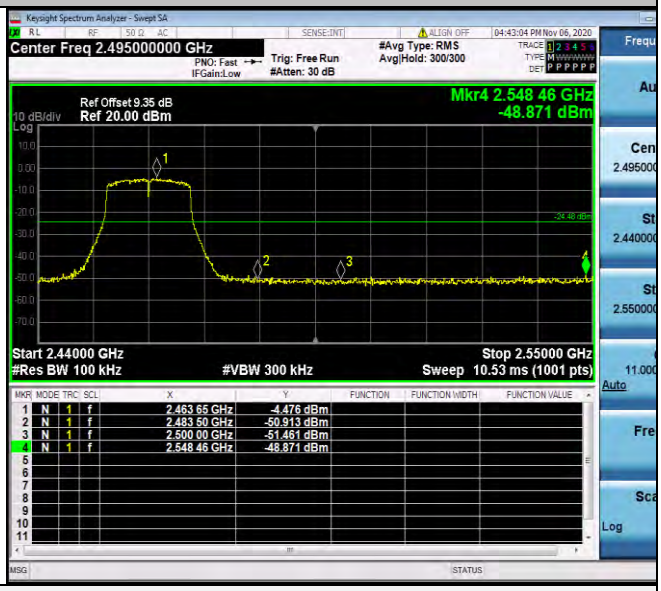
Frequency(MHz):			2422			Polarity:			HORIZONTAL		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	46.04	PK	74	-27.96	1	129	51.35	27.49	3.32	36.12	-5.31
2390.00	34.94	AV	54	-19.06	1	129	40.25	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2422**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2390.00	49.82	PK	74	-24.18	1	293	55.13	27.49	3.32	36.12	-5.31
2390.00	31.26	AV	54	-22.74	1	293	36.57	27.49	3.32	36.12	-5.31
Frequency(MHz):			**2452**			**Polarity:**			**HORIZONTAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	45.76	PK	74	-28.24	1	80	51.48	27.45	3.38	36.55	-5.72
2483.50	33.90	AV	54	-20.10	1	80	39.62	27.45	3.38	36.55	-5.72
Frequency(MHz):			**2452**			**Polarity:**			**VERTICAL**		
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier	Correction Factor (dB/m)
2483.50	46.93	PK	74	-27.07	1	147	52.65	27.45	3.38	36.55	-5.72
2483.50	36.62	AV	54	-17.38	1	147	42.34	27.45	3.38	36.55	-5.72

4.6.2 For Conducted Bandedge Measurement

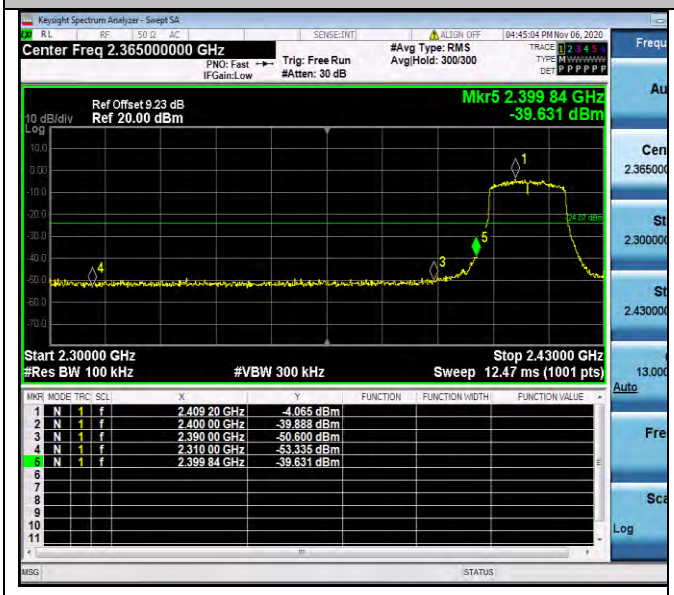
Temperature	24.2℃	Humidity	54.9%
Test Engineer	Moon Tan	Configurations	IEEE 802.11b/g/n

RTL8822CU:
Antenna 0:

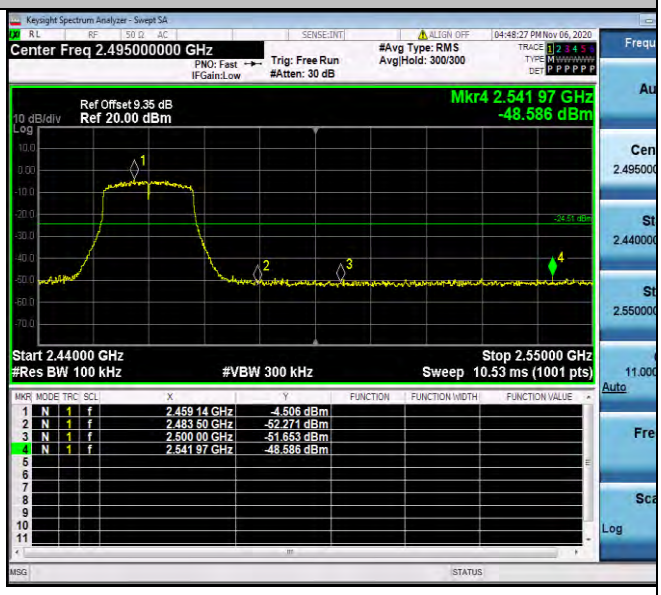
802.11b	
	
2412 MHz	2462 MHz

802.11g	
	
2412 MHz	2462 MHz

802.11n HT20

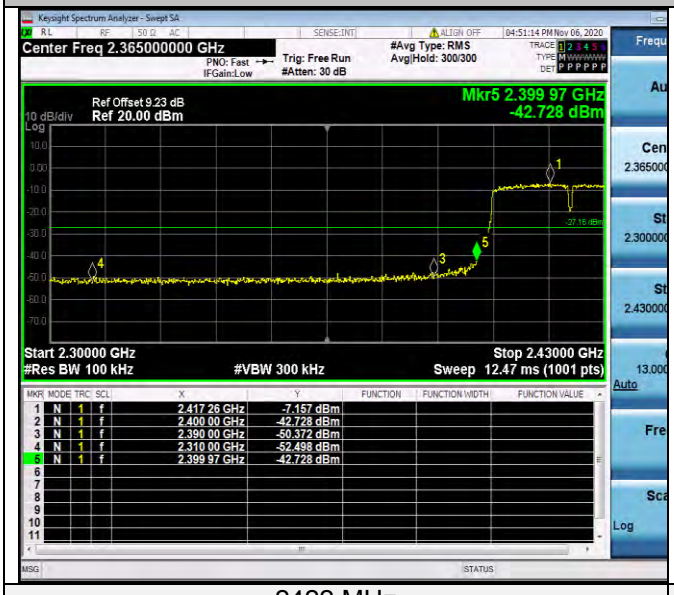


2412 MHz

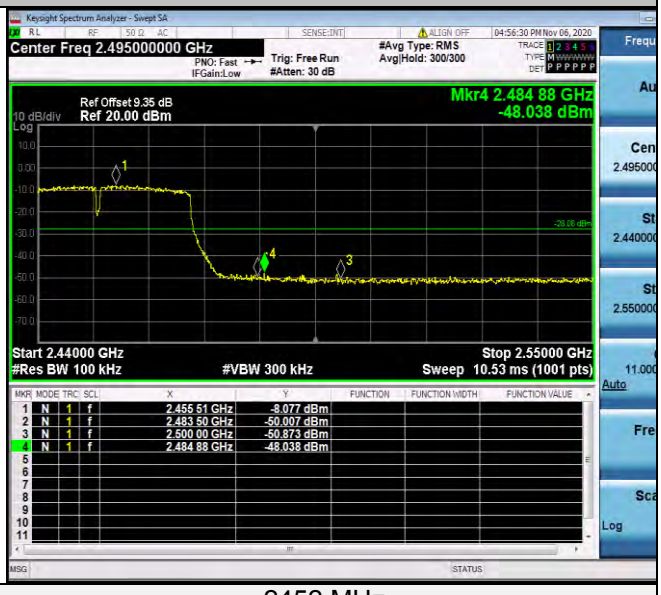


2462 MHz

802.11n HT40



2422 MHz



2452 MHz

Antenna 1:

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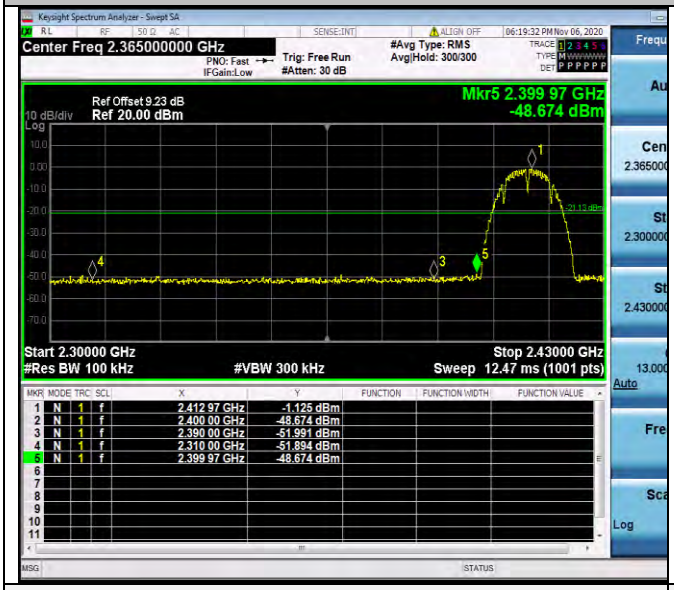
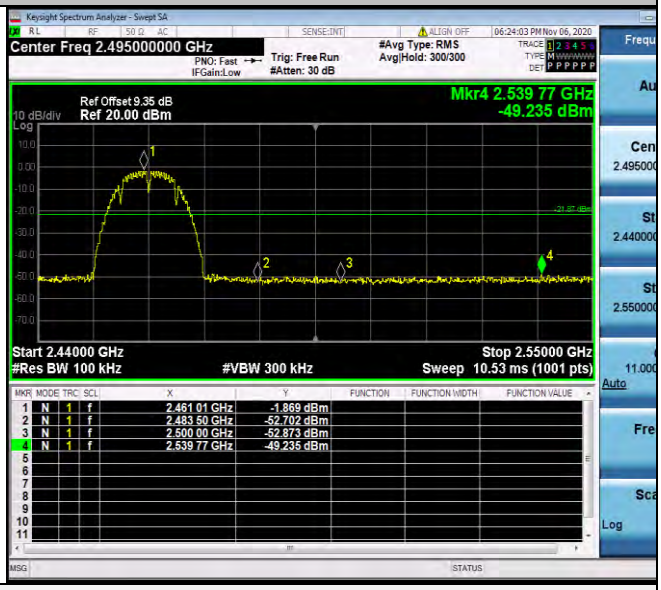
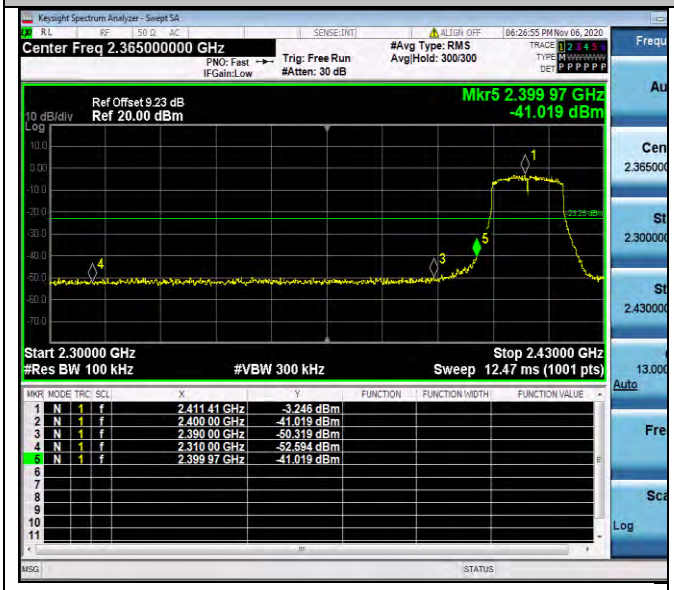
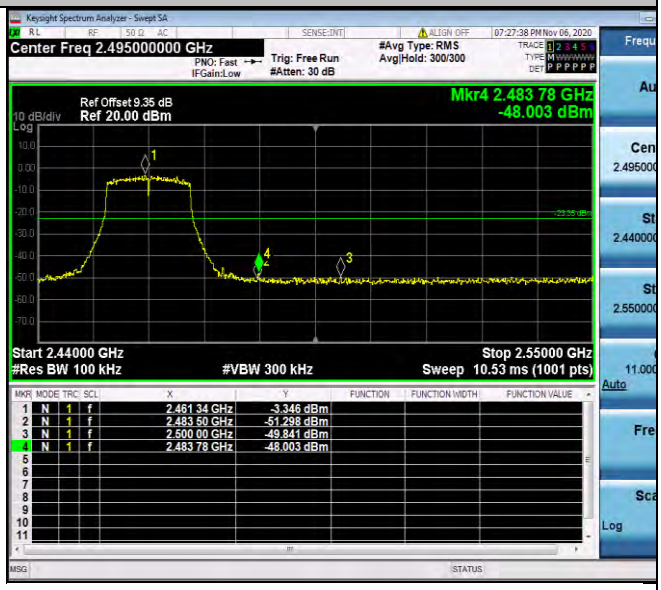
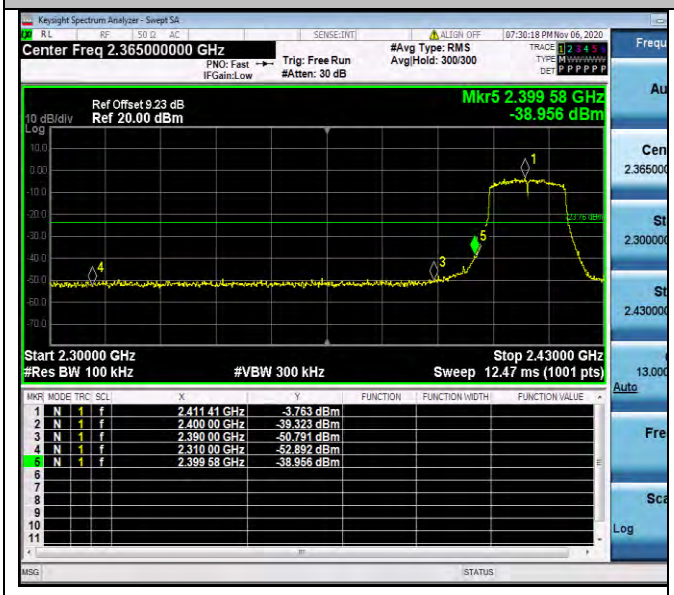
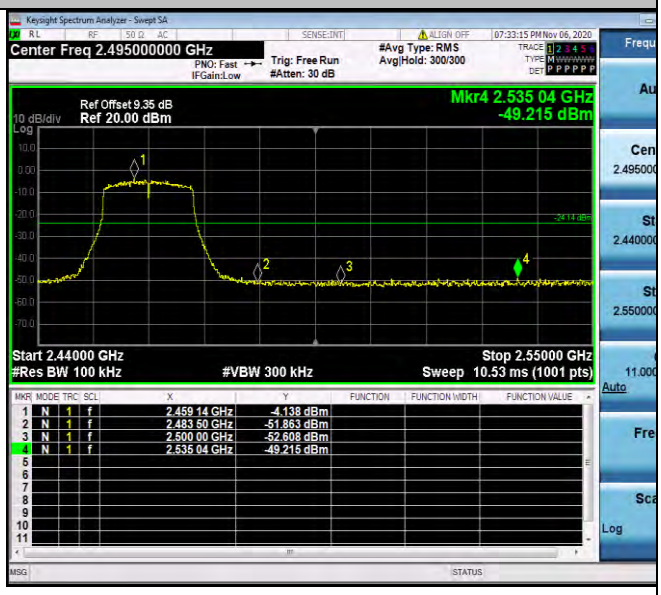
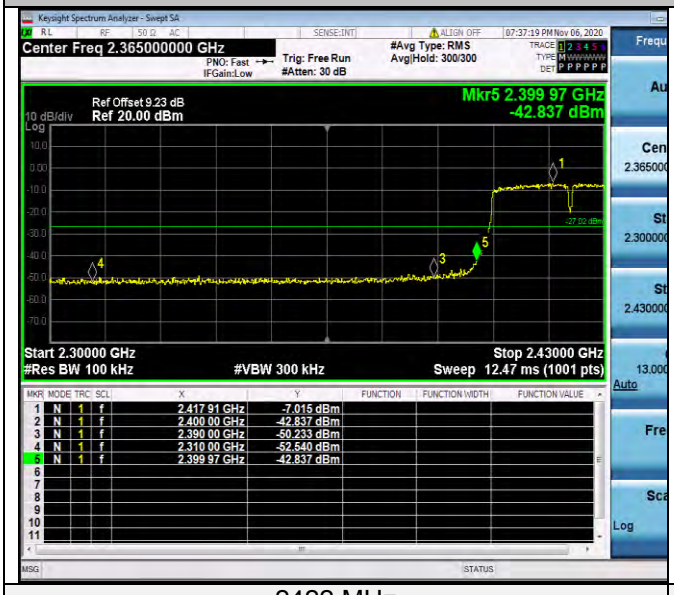
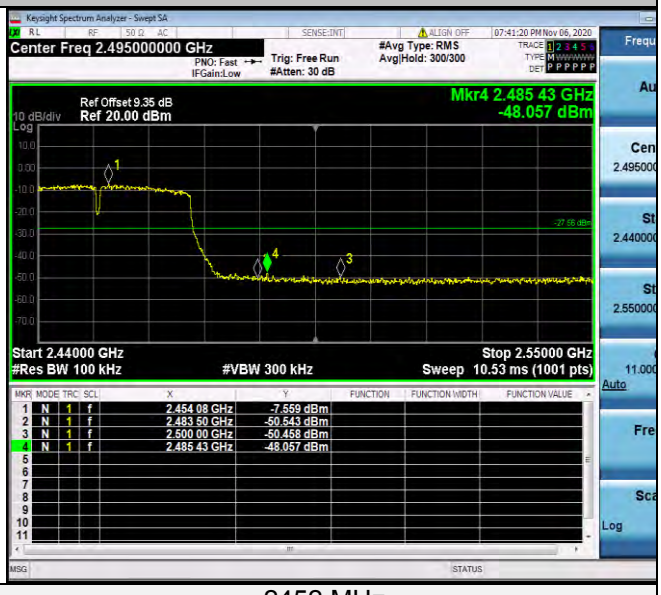
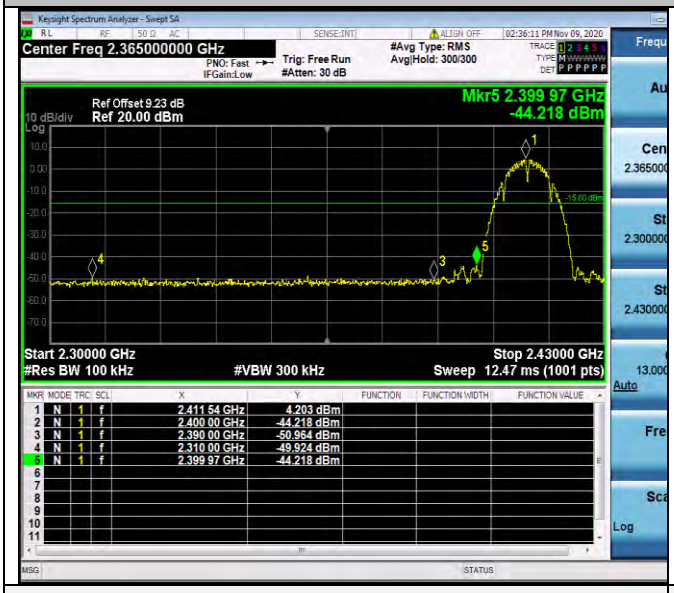
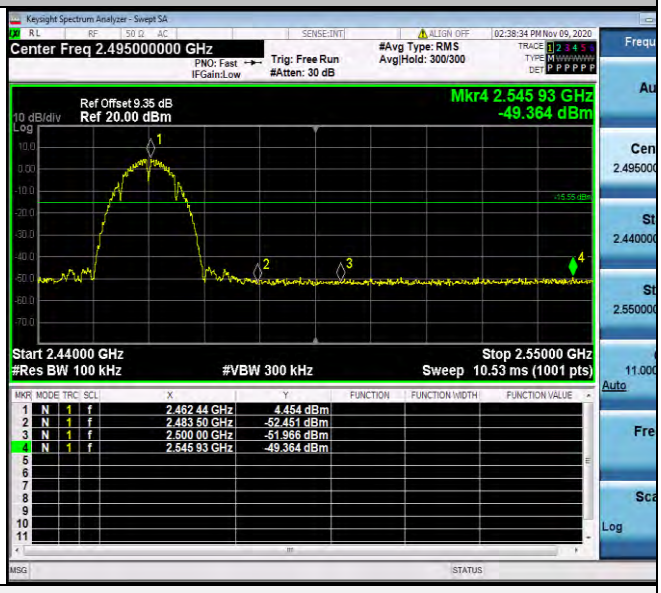
	
2412 MHz	2462 MHz

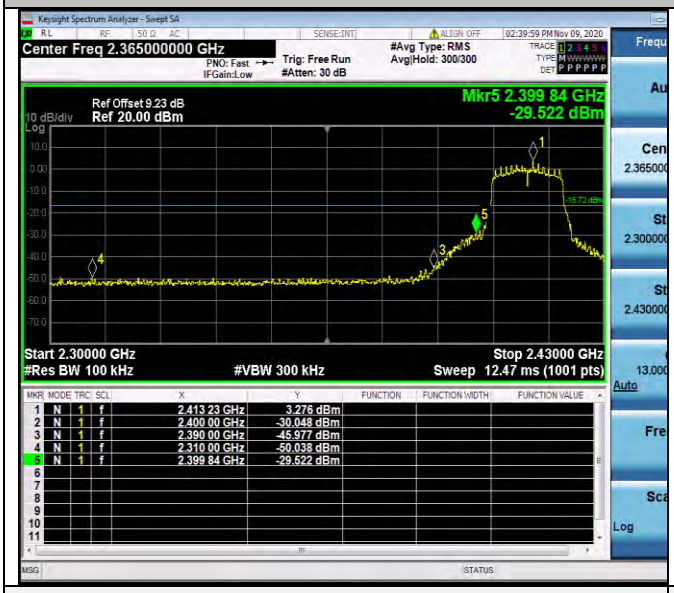
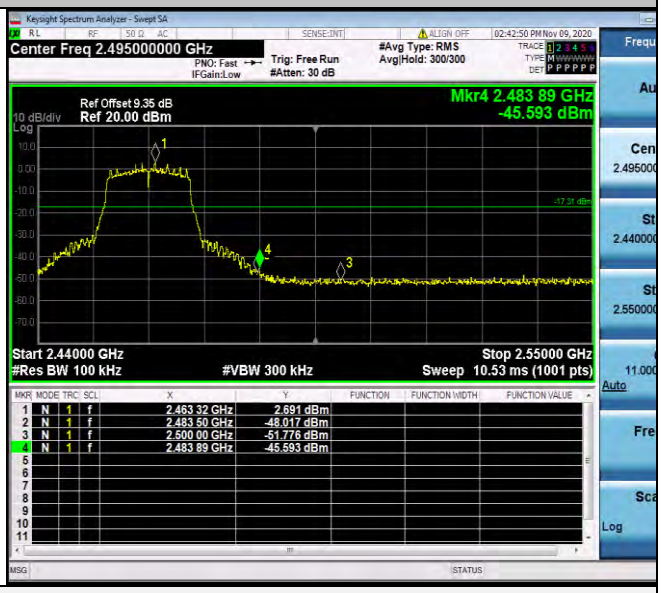
802.11g	
	
2412 MHz	2462 MHz

802.11n HT20	
	
2412 MHz	2462 MHz

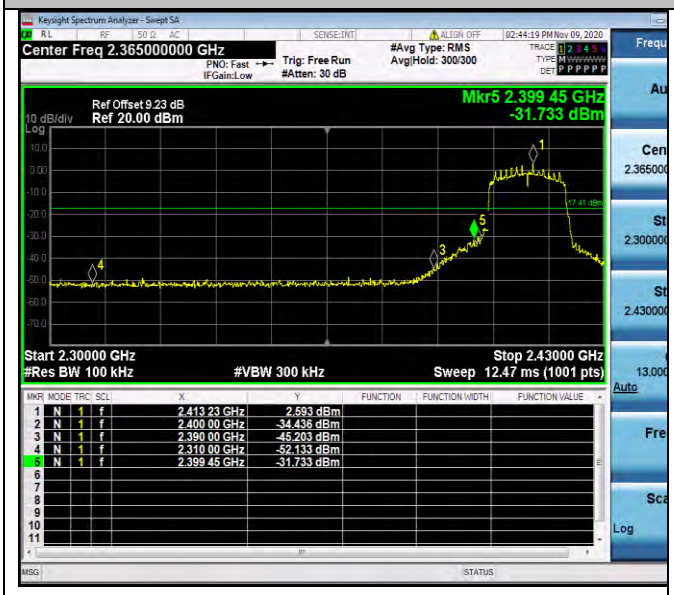
802.11n HT40	
	
2422 MHz	2452 MHz

MT7668BU:
Antenna 0:

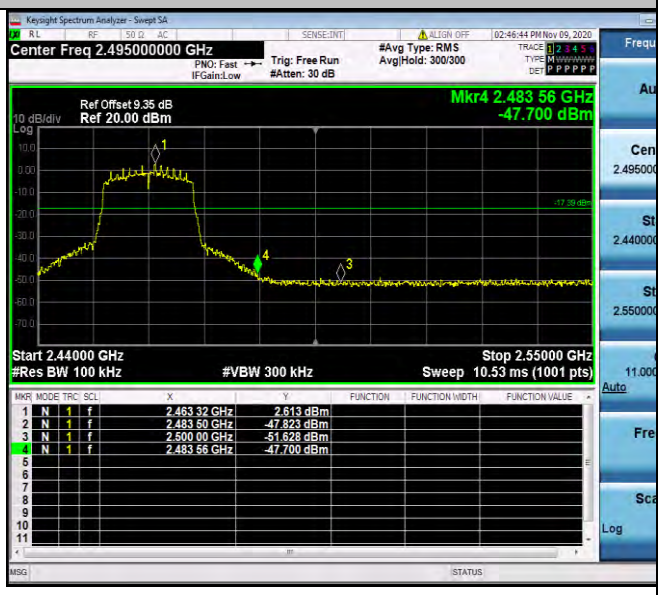
802.11b	
	
2412 MHz	2462 MHz

802.11g	
	
2412 MHz	2462 MHz

802.11n HT20



2412 MHz



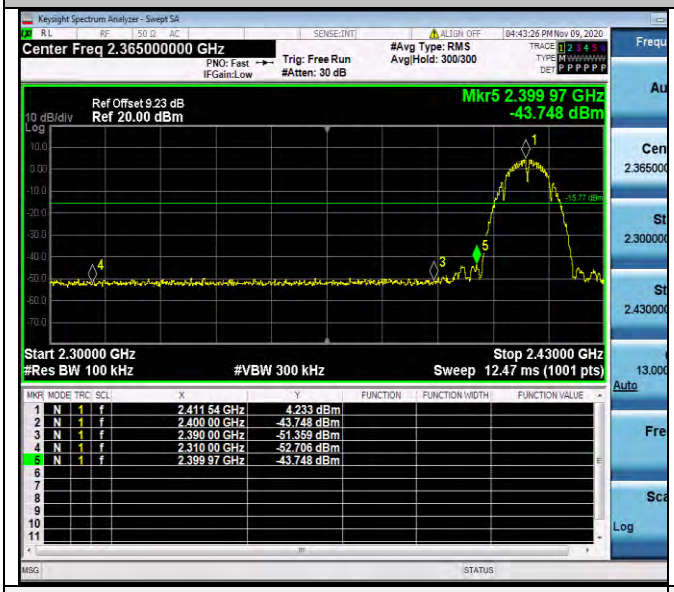
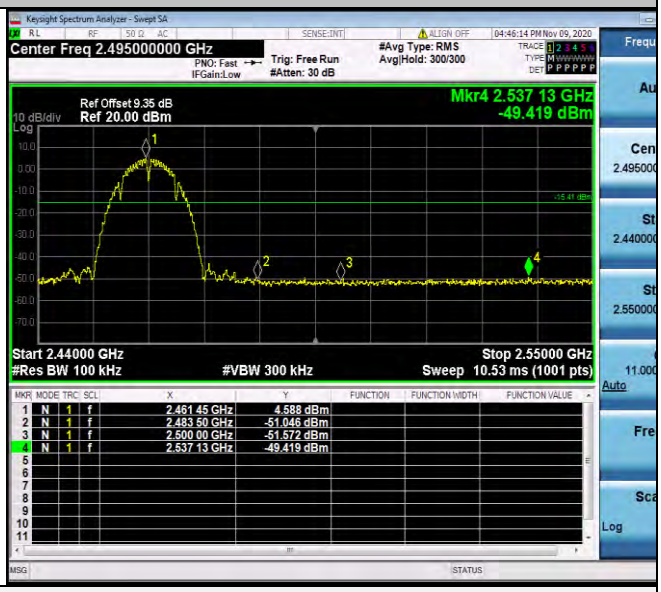
2462 MHz

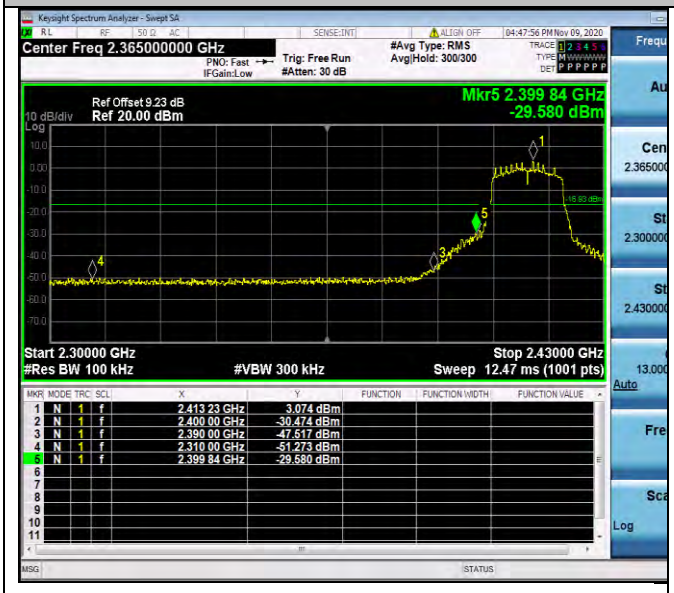
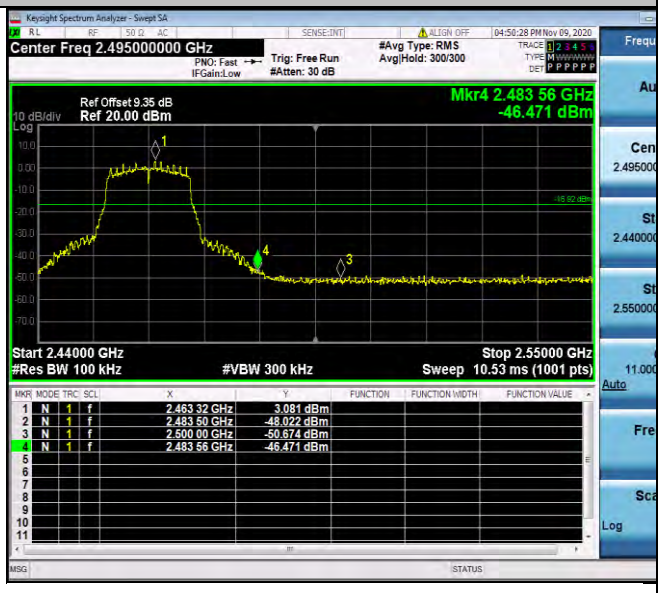
802.11n HT40

2422 MHz

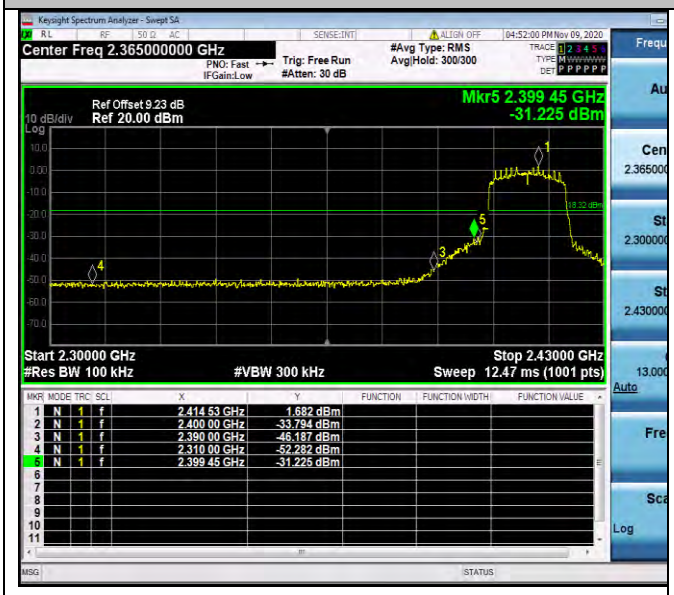
2452 MHz

Antenna 1:

802.11b	
	
2412 MHz	2462 MHz

802.11g	
	
2412 MHz	2462 MHz

802.11n HT20



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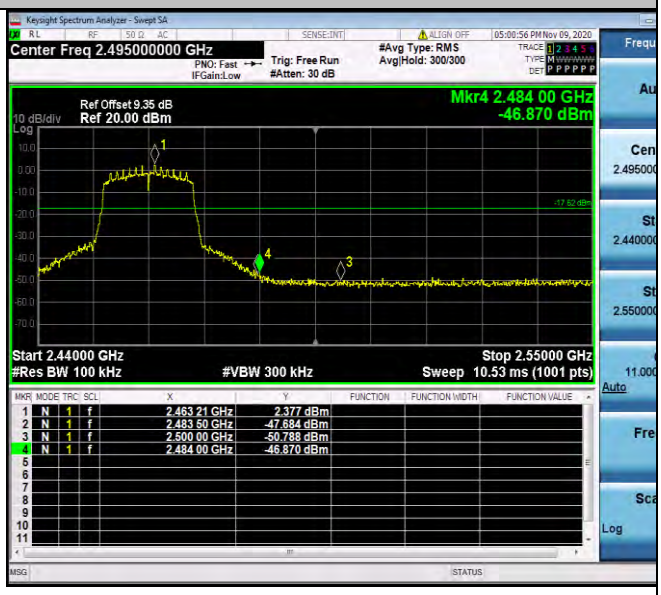
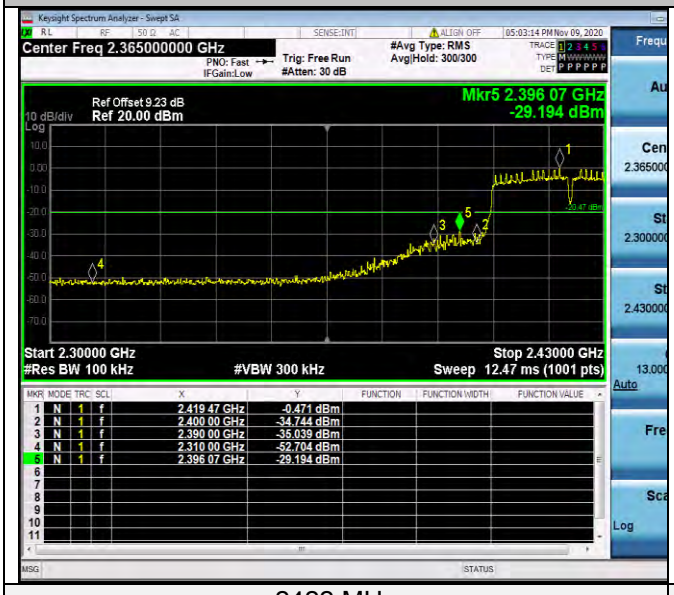
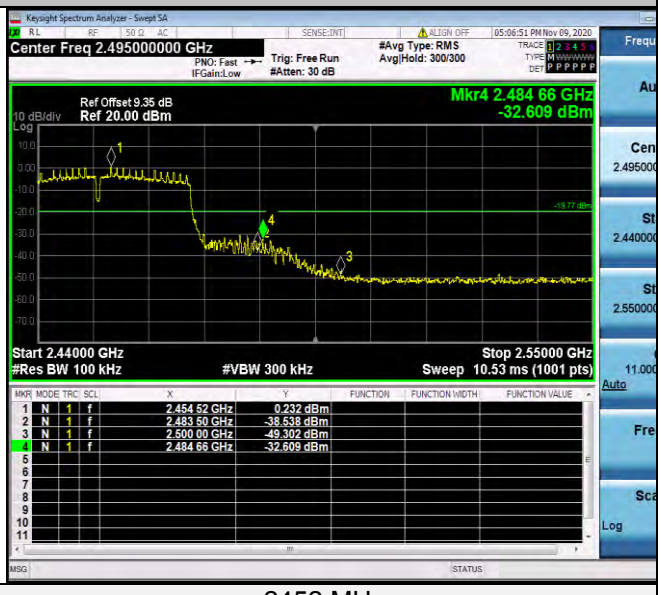


2462 MHz

802.11n HT40



2422 MHz



2452 MHz

4.7. Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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 FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

The antenna is External Aantenna, through the buckle stretched out, The directional gains of antenna used for transmitting is 2dBi.

Reference to the Test Report: **GTS20201022021-1-8 .**

5. TEST SETUP PHOTOS OF THE EUT

Reference to the test report No. **GTS20201022021-1-8 .**

6. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

Reference to the test report No. **GTS20201022021-1-8 .**

.....End of Report.....