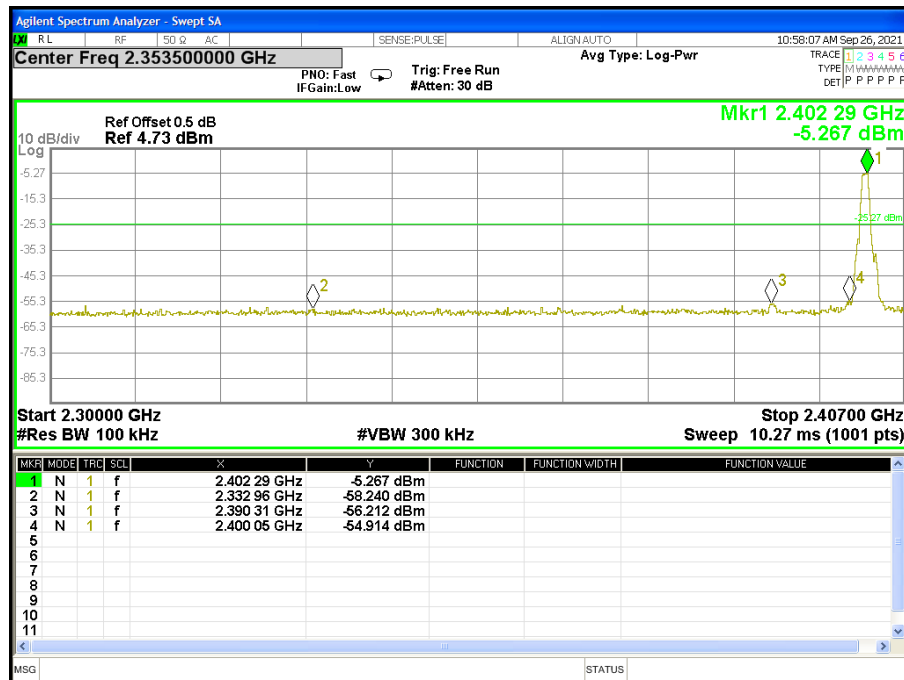


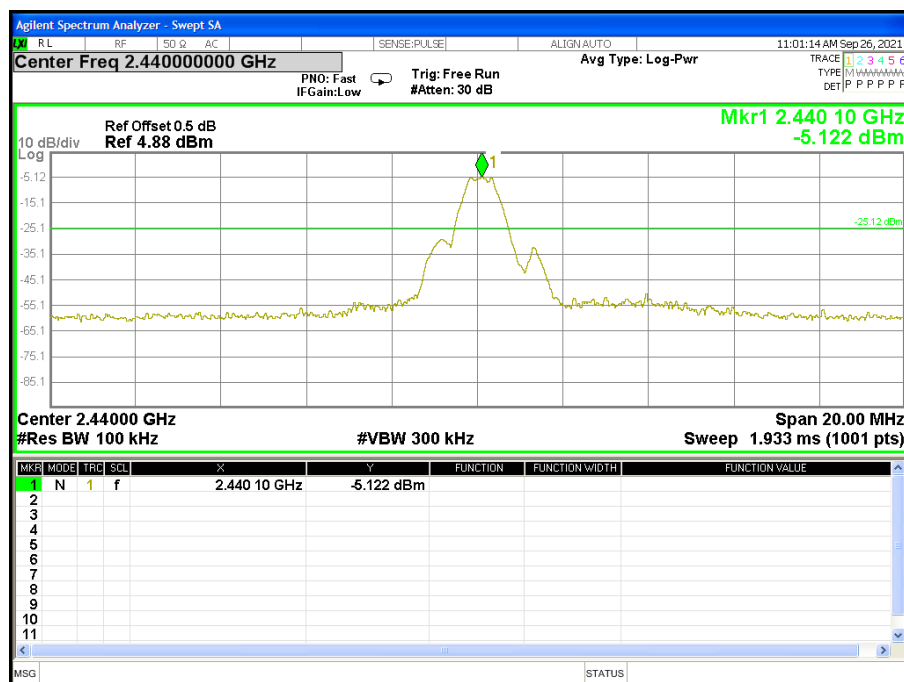


For Band edge(it's also the reference level for conducted spurious emission)

00 CH

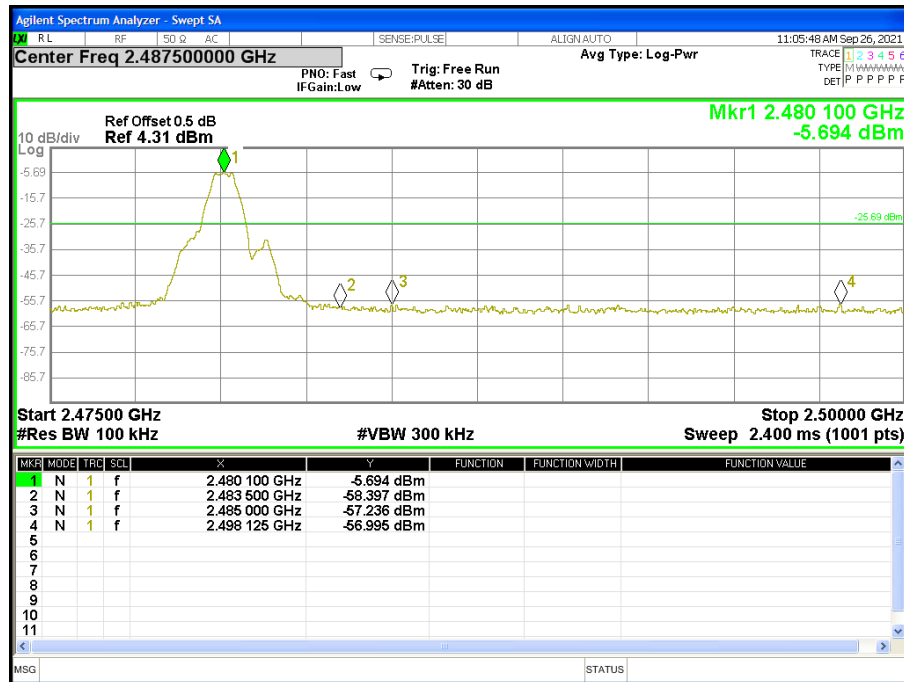


19 CH





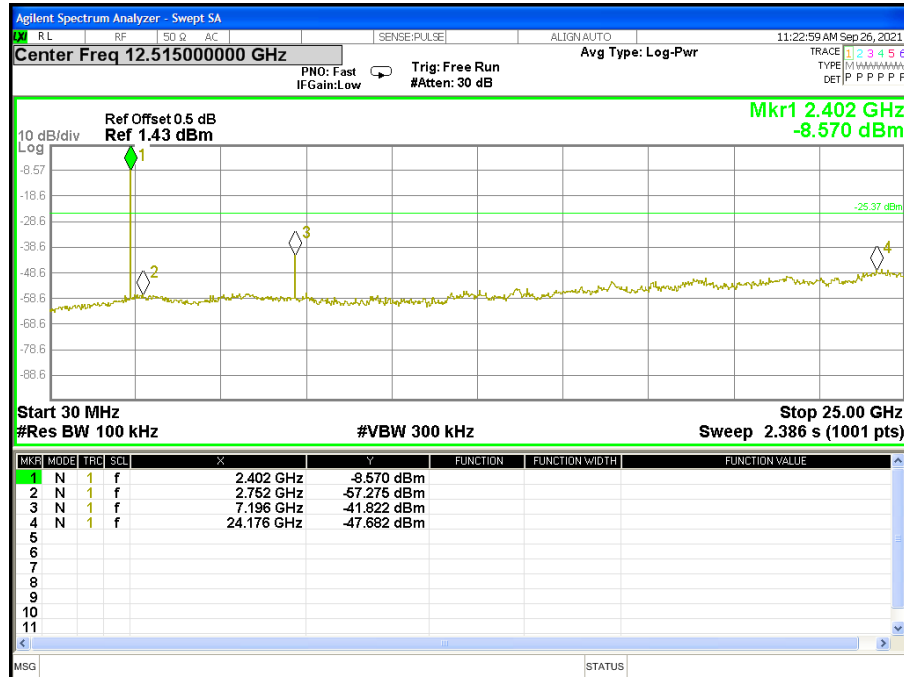
39 CH



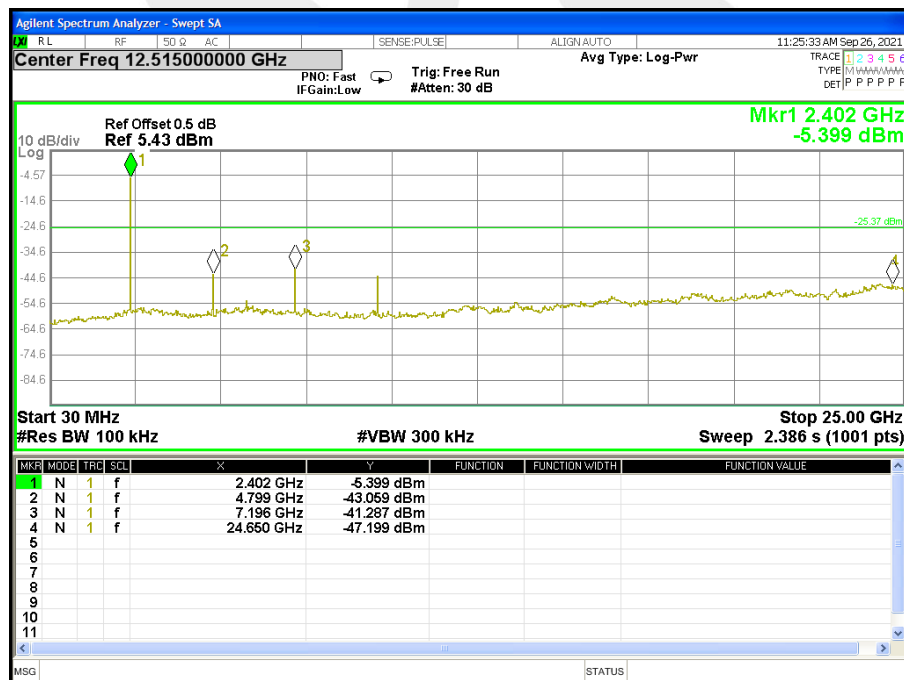


2M PHY

00 CH

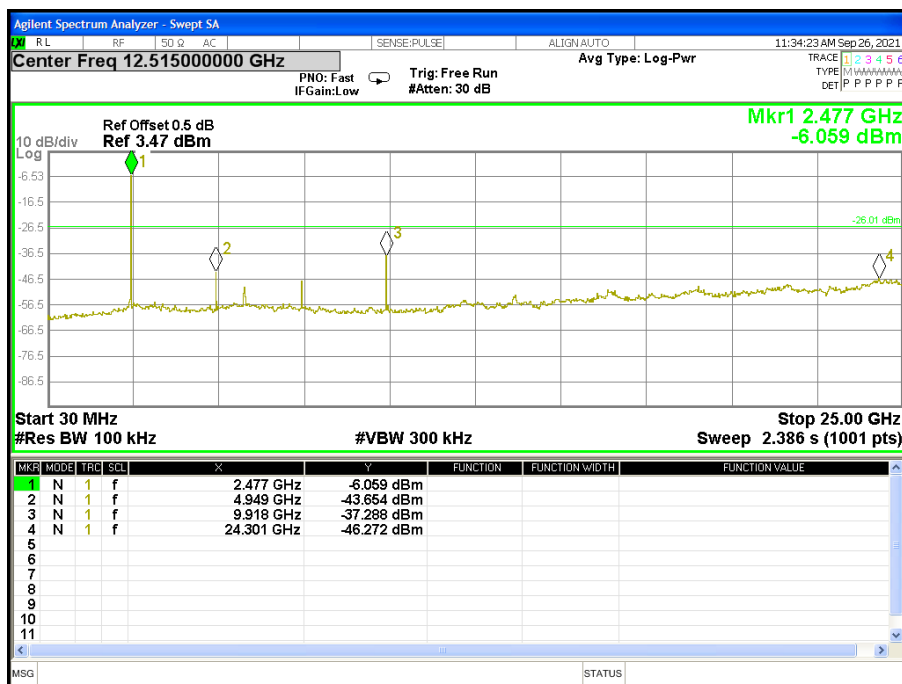


19 CH





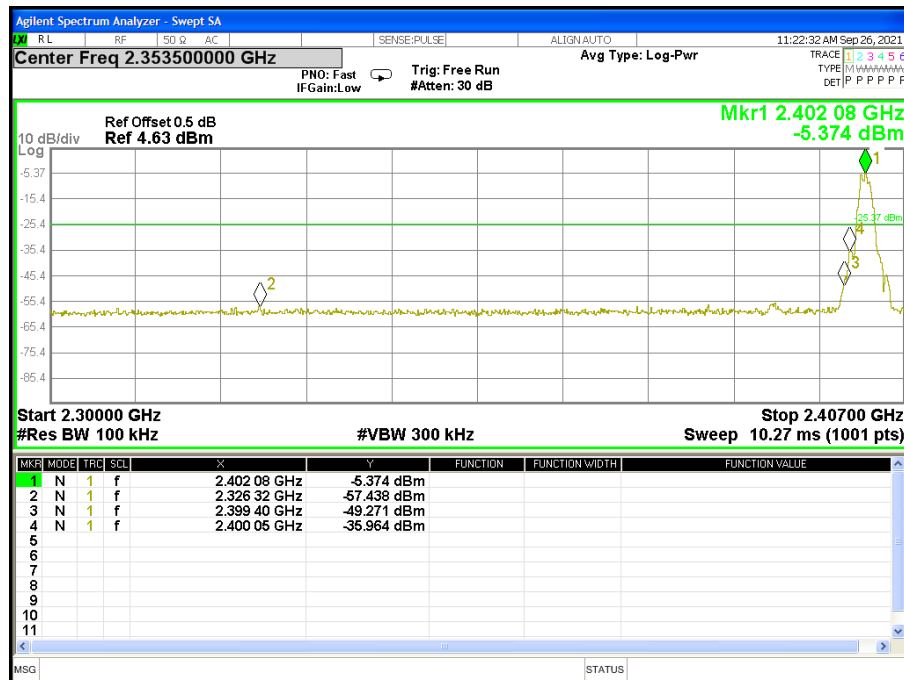
39 CH



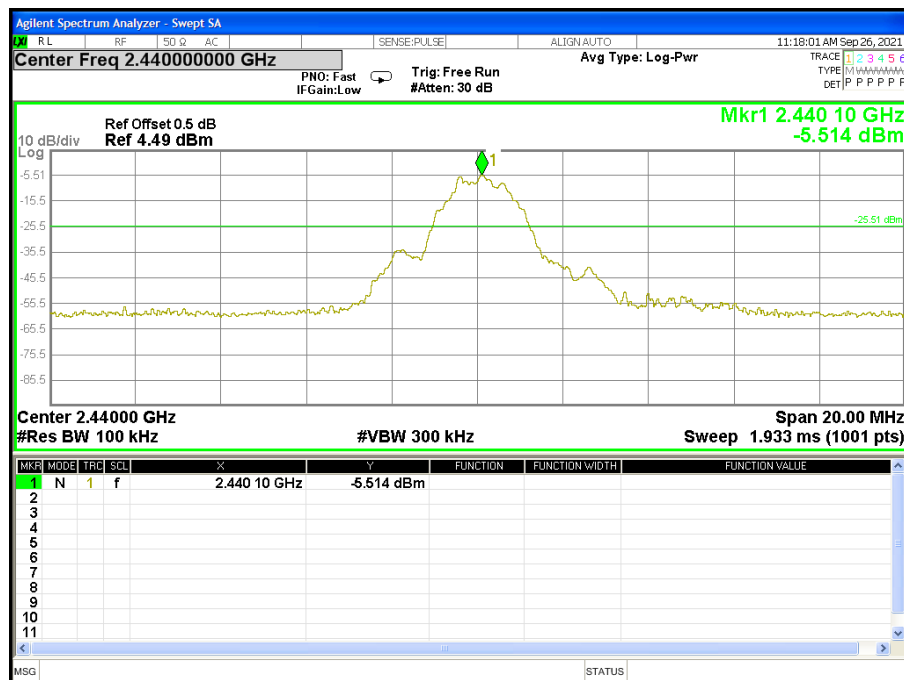


For Band edge(it's also the reference level for conducted spurious emission)

00 CH

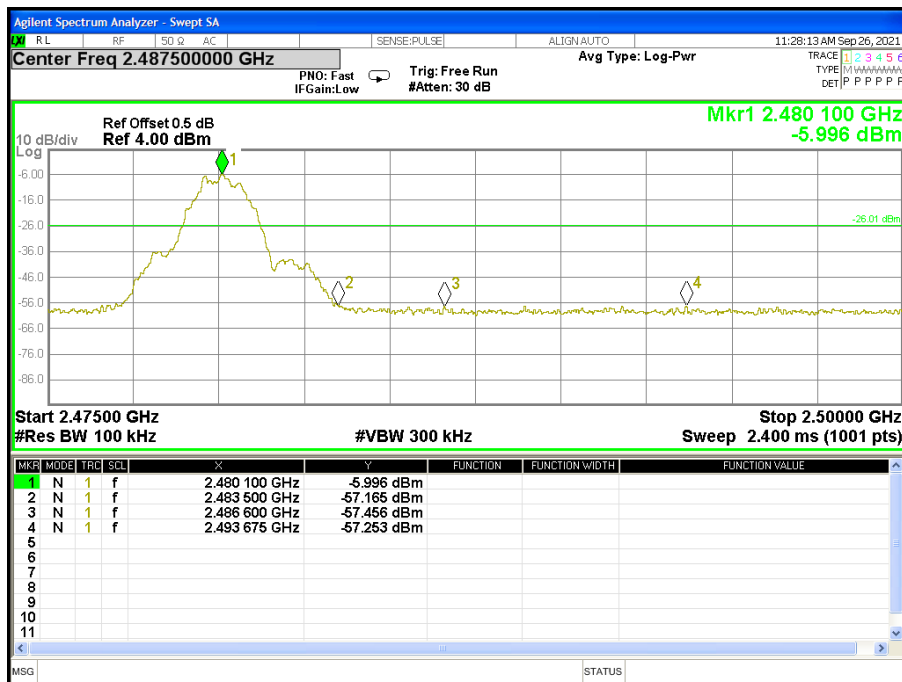


19 CH





39 CH





6. POWER SPECTRAL DENSITY TEST

6.1 LIMIT

FCC Part 15.247, Subpart C RSS-247 Issue 2				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(e) RSS-247 Issue 2	Power Spectral Density	≤ 8 dBm (RBW ≥ 3 KHz)	2400-2483.5	PASS

6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: $100 \text{ kHz} \geq \text{RBW} \geq 3 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 TEST SETUP



6.4 EUT OPERATION CONDITIONS

Please refer to section 3.4 of this report.



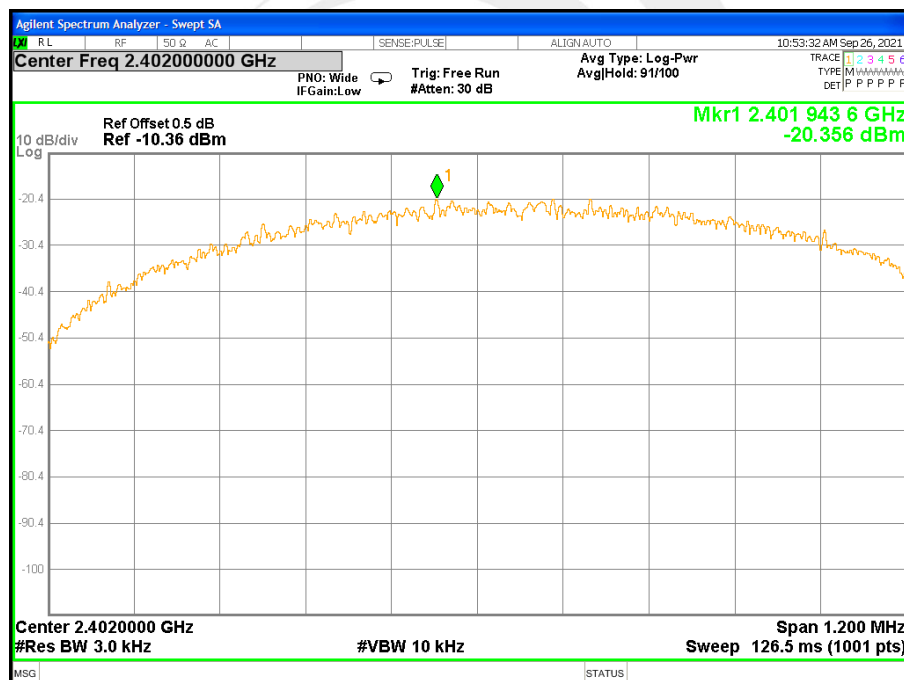
6.5 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX Mode /CH00, CH19, CH39

1M PHY

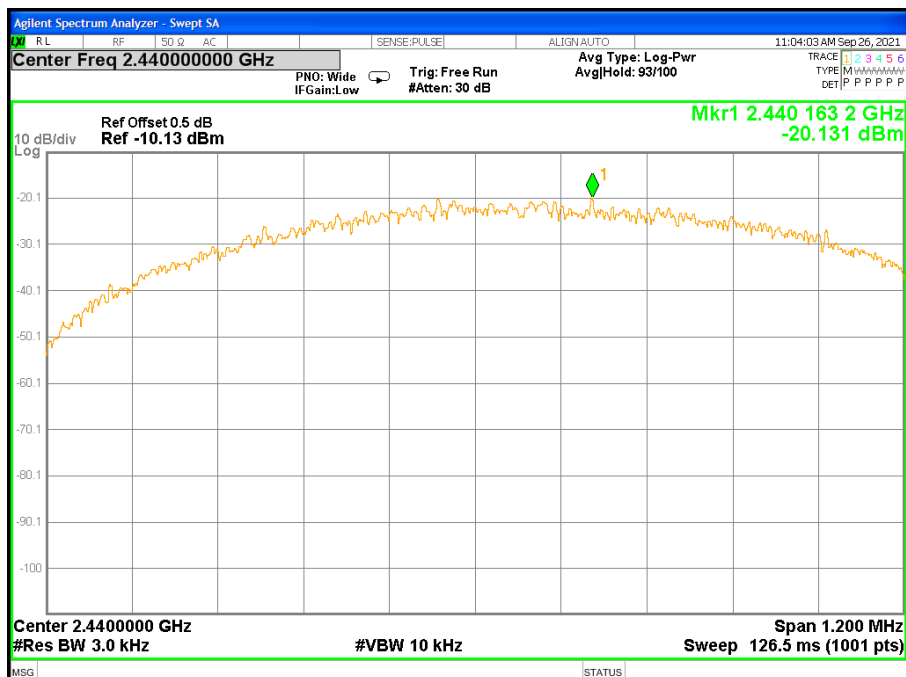
Frequency	Power Density	Limit (dBm/3KHz)	Result
	(dBm/3kHz)		
2402 MHz	-20.356	≤8	PASS
2440 MHz	-20.131	≤8	PASS
2480 MHz	-20.544	≤8	PASS

TX CH00

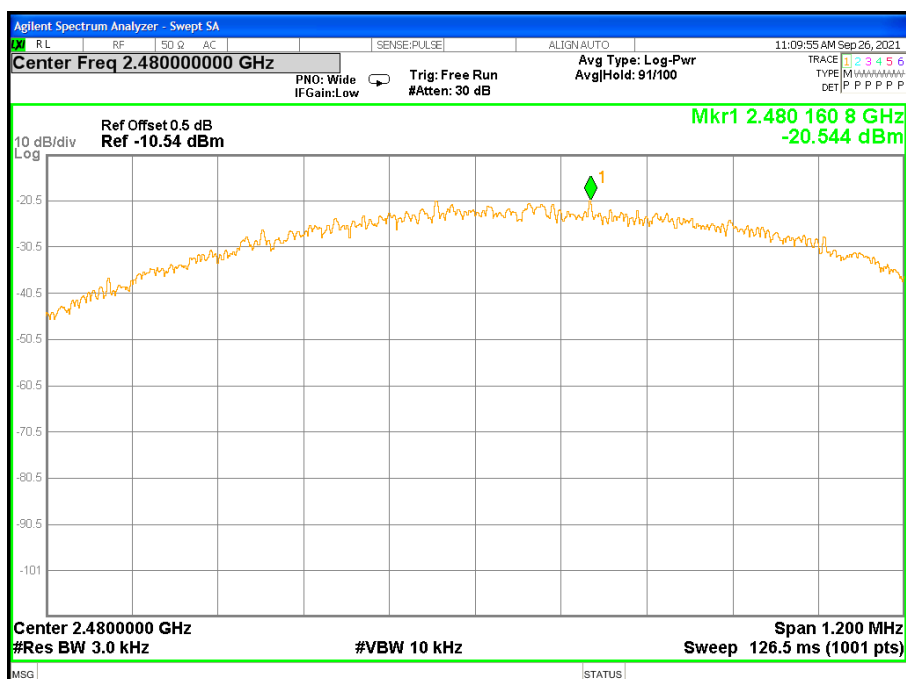




TX CH19



TX CH39

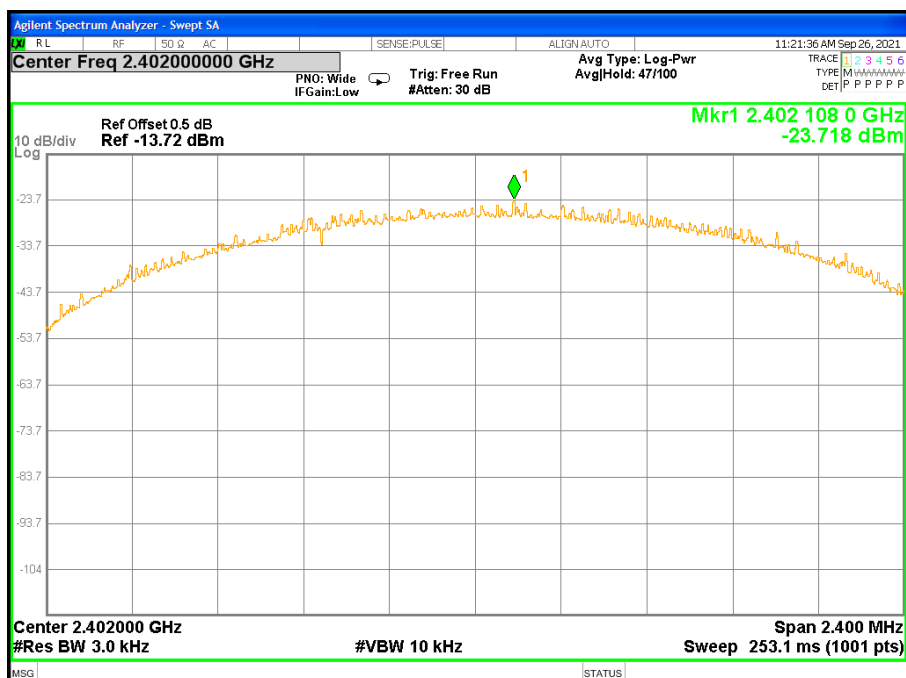




2M PHY

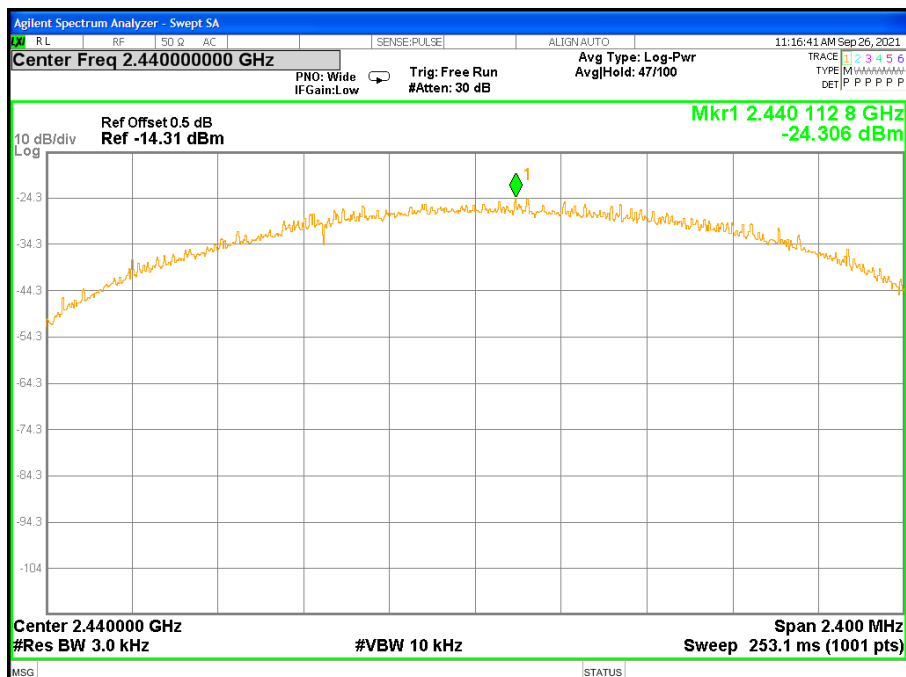
Frequency	Power Density	Limit (dBm/3KHz)	Result
	(dBm/3kHz)		
2402 MHz	-23.718	≤8	PASS
2440 MHz	-24.306	≤8	PASS
2480 MHz	-24.636	≤8	PASS

TX CH00

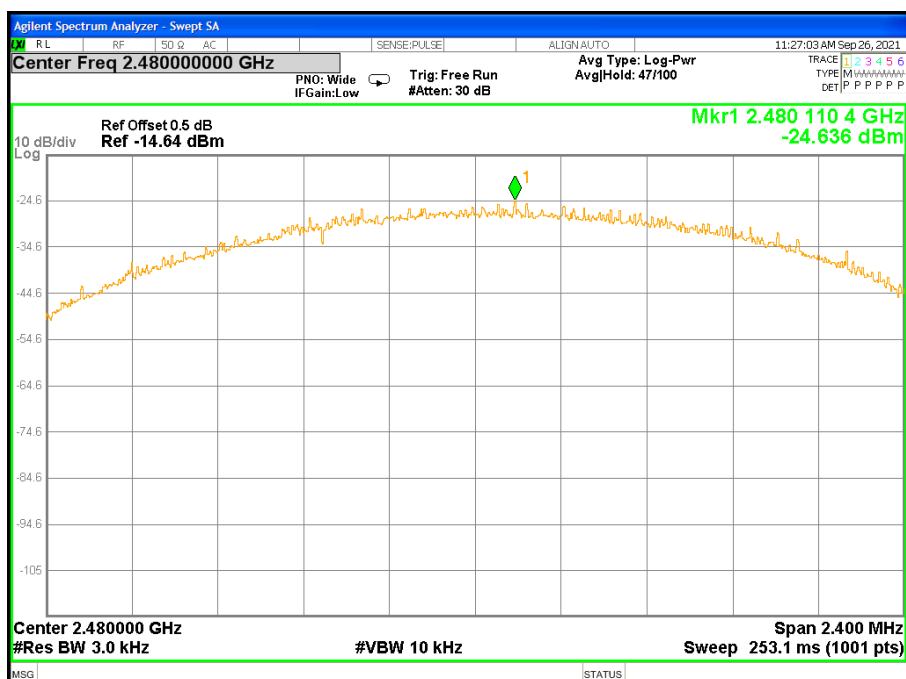




TX CH19



TX CH39





7. BANDWIDTH TEST

7.1 LIMIT

FCC Part 15.247, Subpart C RSS-Gen Clause 6.7				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2) RSS-247 5.2 (a)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS
RSS-Gen Clause 6.7	99% Bandwidth	For reporting purposes only	2400-2483.5	PASS

7.2 TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth : 100KHz For 99% Bandwidth : 1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : $\geq 3 \times \text{RBW}$ For 99% Bandwidth : approximately $3 \times \text{RBW}$
Trace	Max hold
Sweep	Auto

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99% relative to the maximum level measured in the fundamental emission.

7.3 TEST SETUP



7.4 EUT OPERATION CONDITIONS

Please refer to section 3.4 of this report.



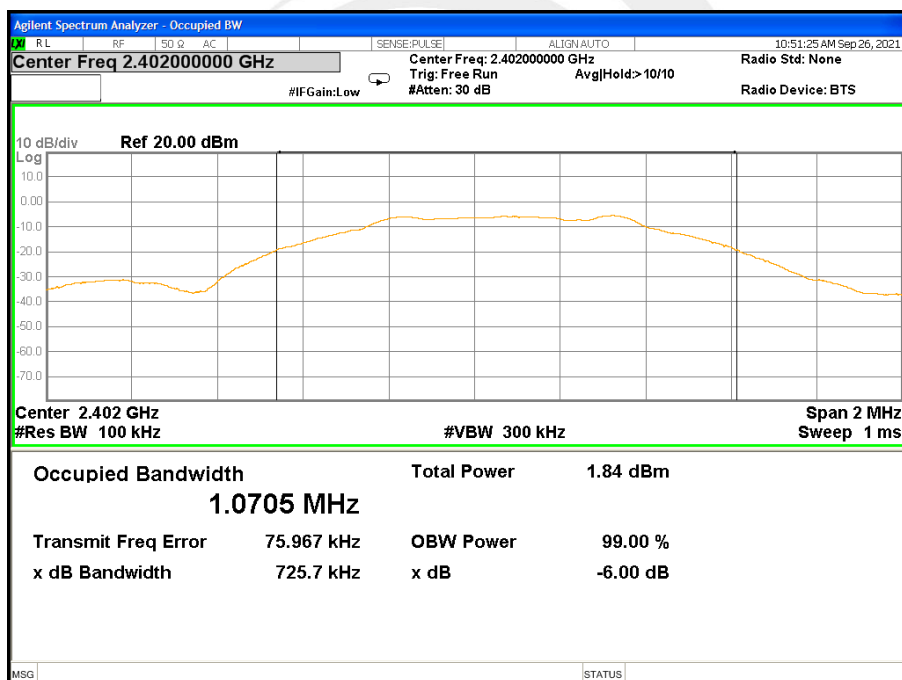
7.5 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX Mode /CH00, CH19, CH39

1M PHY

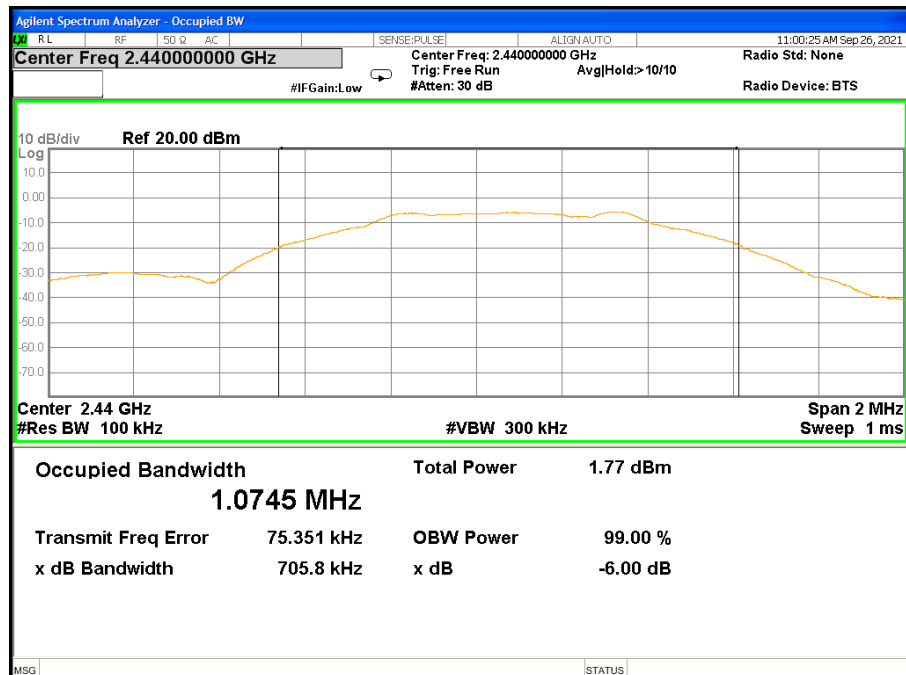
Frequency	6dB Bandwidth (KHz)	99% Bandwidth (KHz)	6dB Bandwidth Limit (KHz)	Result
2402 MHz	725.700	1070.000	≥500KHz	PASS
2440 MHz	705.800	1075.700	≥500KHz	PASS
2480 MHz	708.600	1101.900	≥500KHz	PASS

6dB Bandwidth TX CH 00

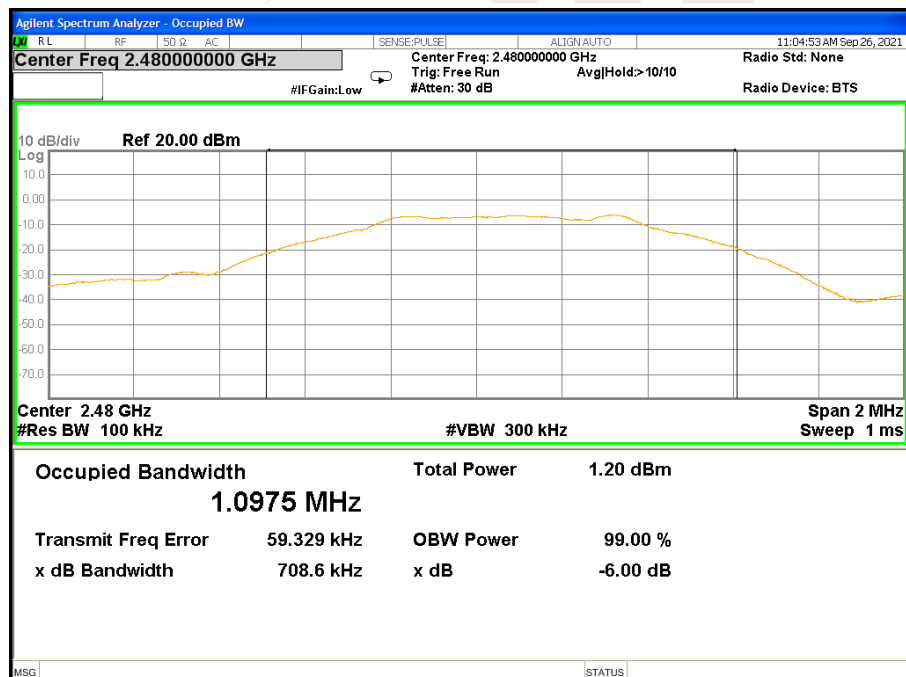




6dB Bandwidth TX CH 19

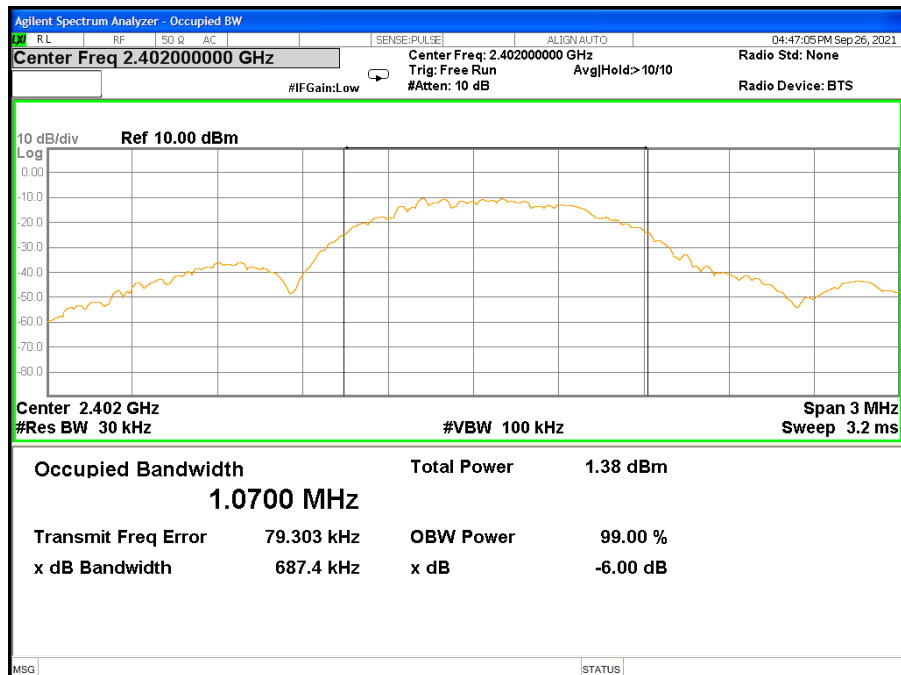


6dB Bandwidth TX CH 39

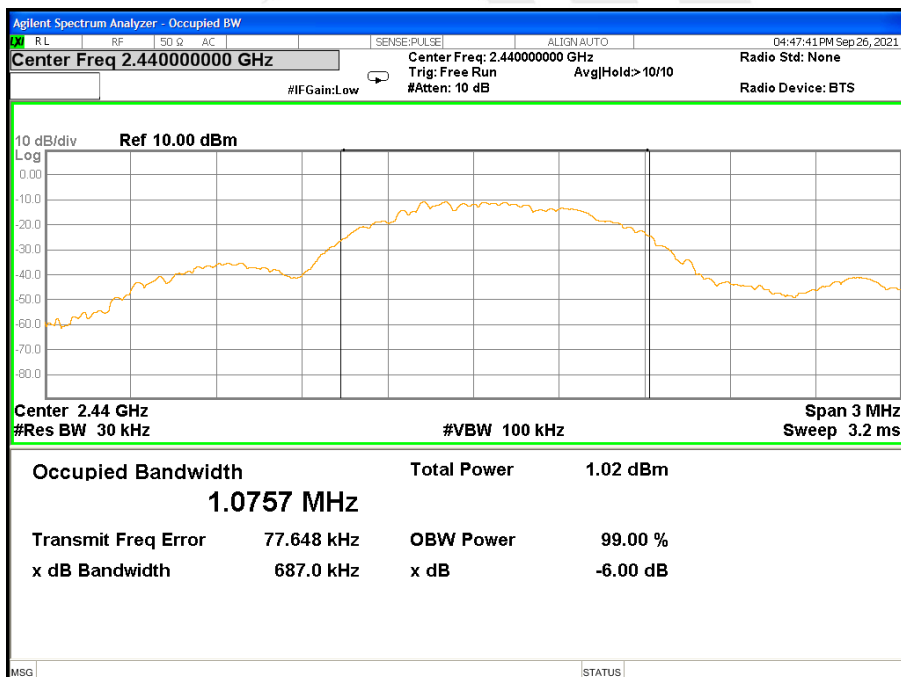




99% Bandwidth TX CH 00

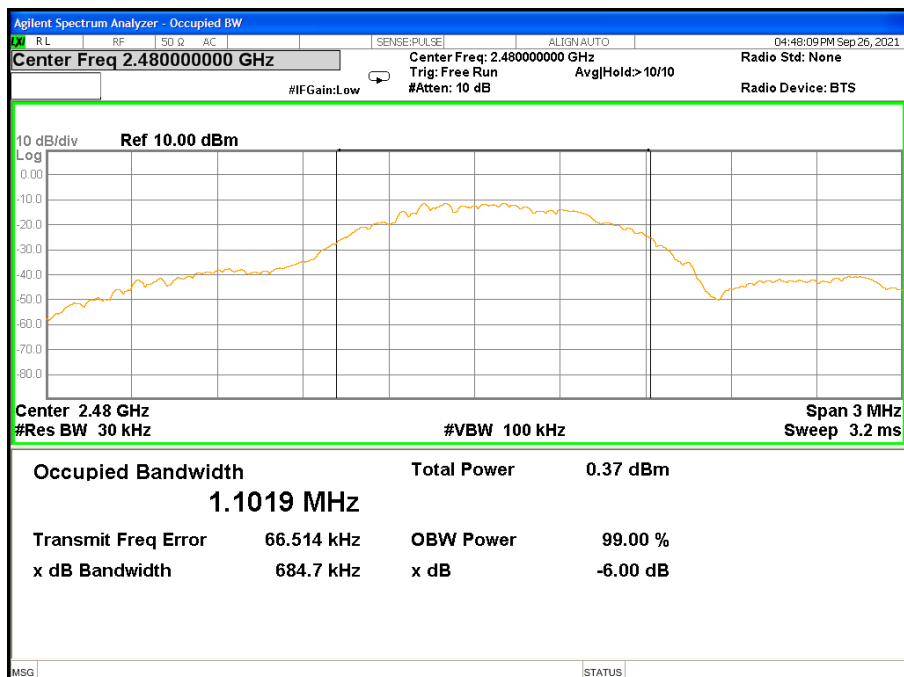


99% Bandwidth TX CH 19





99% Bandwidth TX CH 39

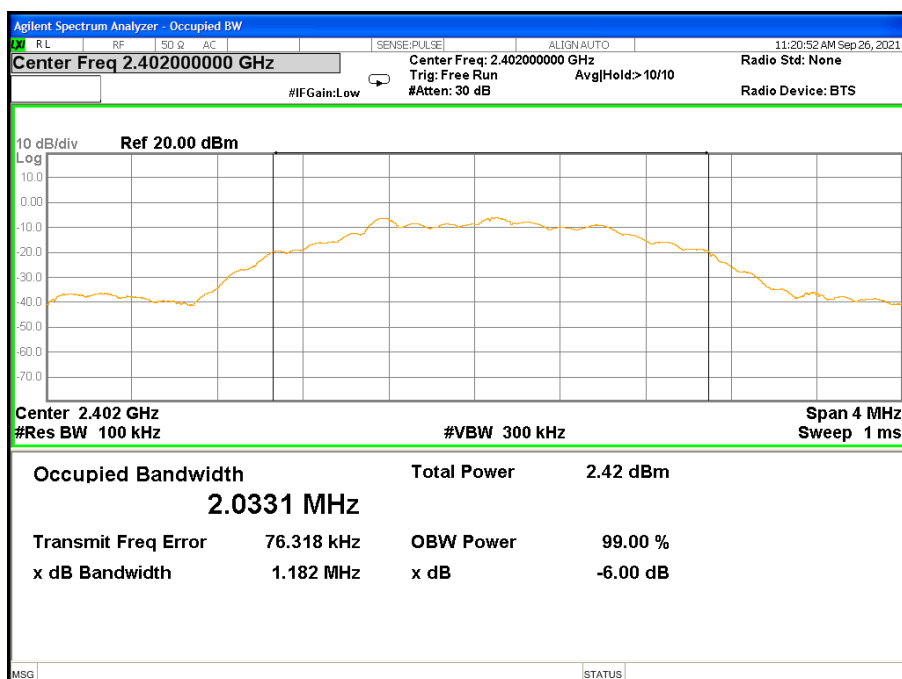




2M PHY

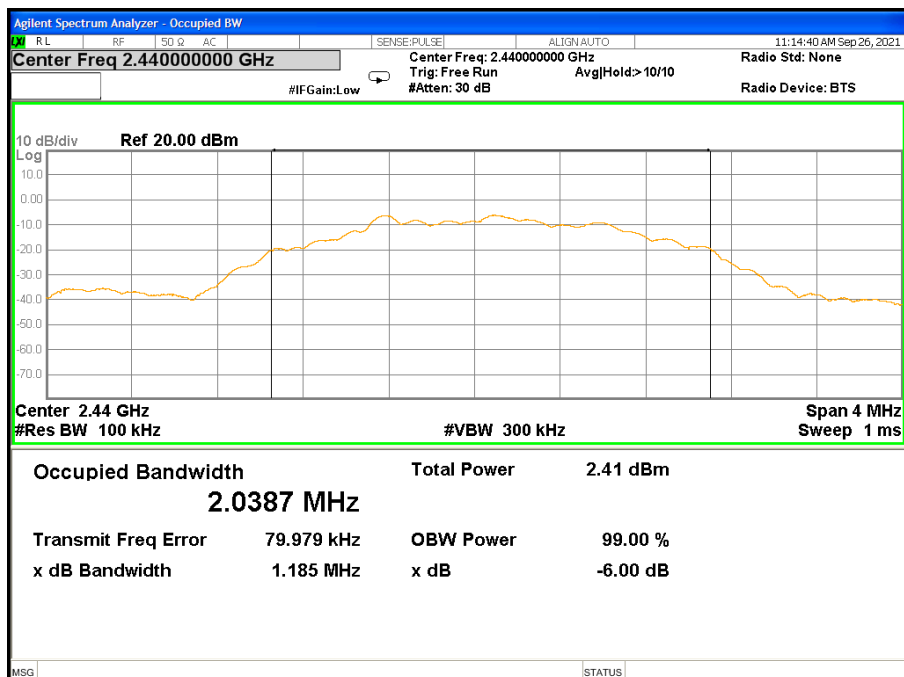
Frequency	6dB Bandwidth (KHz)	99% Bandwidth (KHz)	6dB Bandwidth Limit (KHz)	Result
2402 MHz	1182.000	2058.000	≥500KHz	PASS
2440 MHz	1185.000	2065.100	≥500KHz	PASS
2480 MHz	1181.000	2064.400	≥500KHz	PASS

6dB Bandwidth TX CH 00

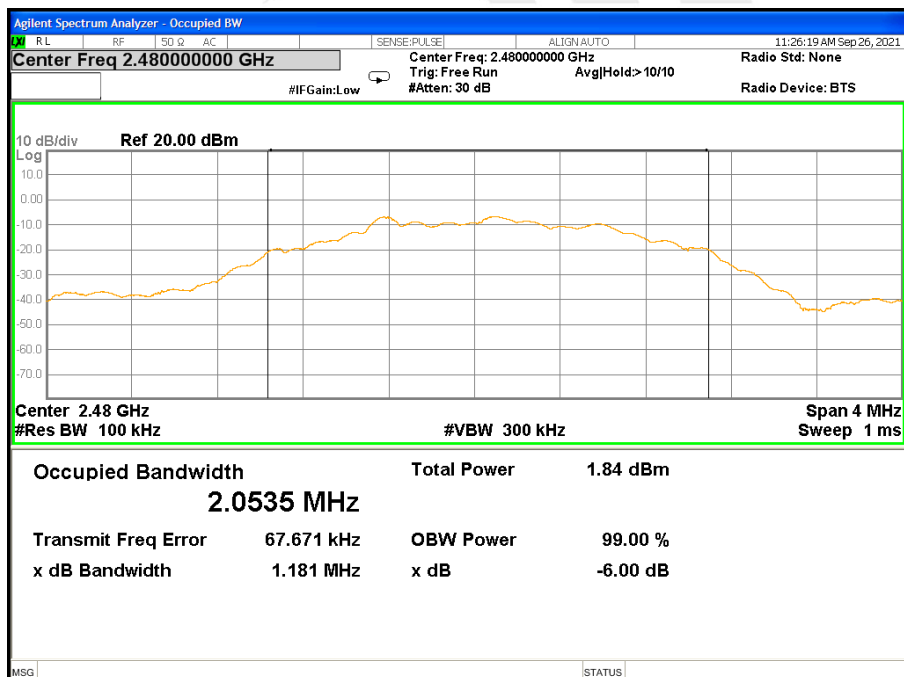




6dB Bandwidth TX CH 19

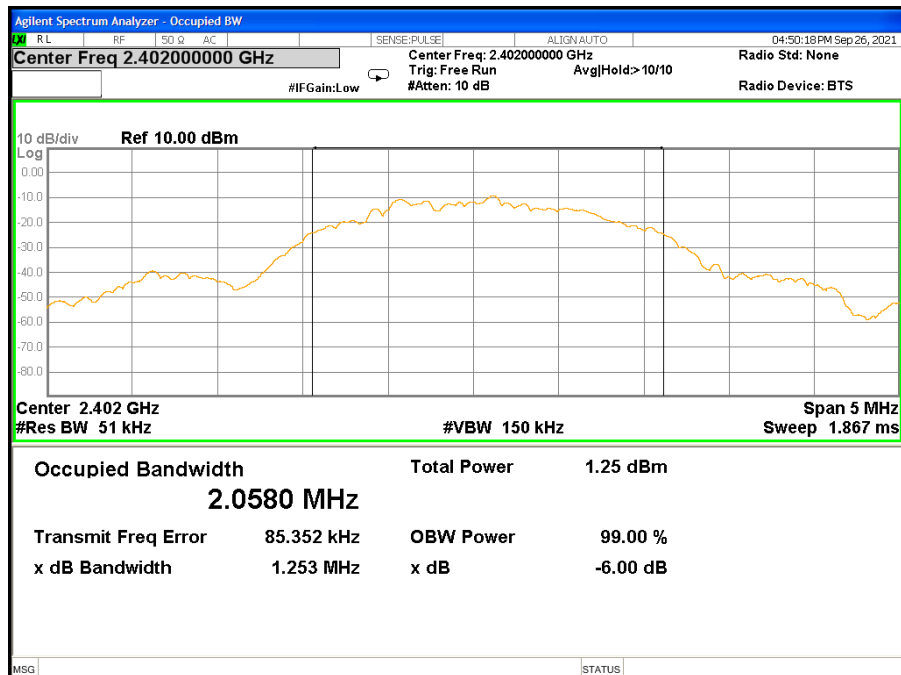


6dB Bandwidth TX CH 39

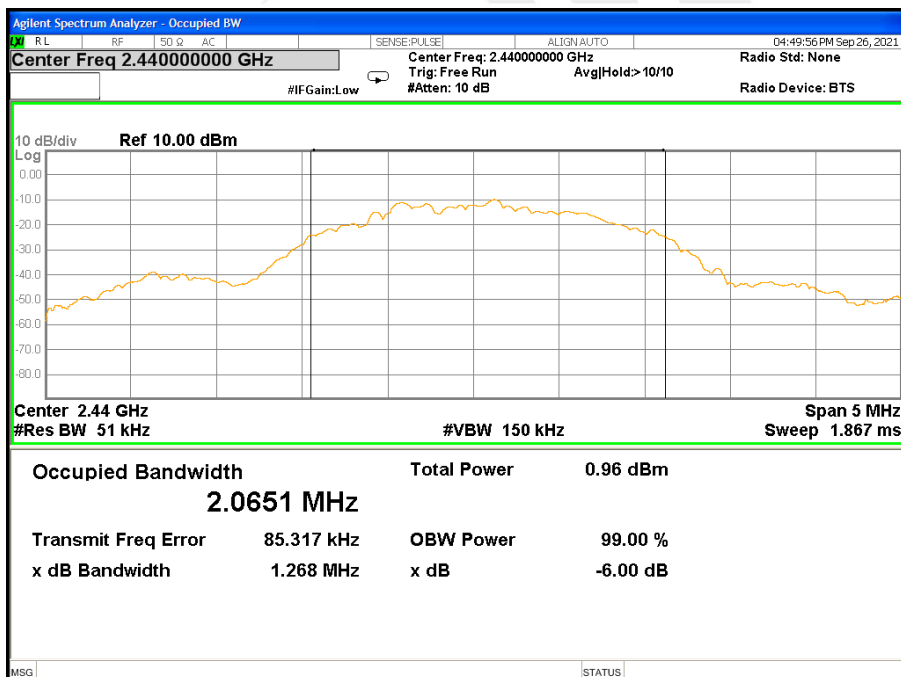




99% Bandwidth TX CH 00

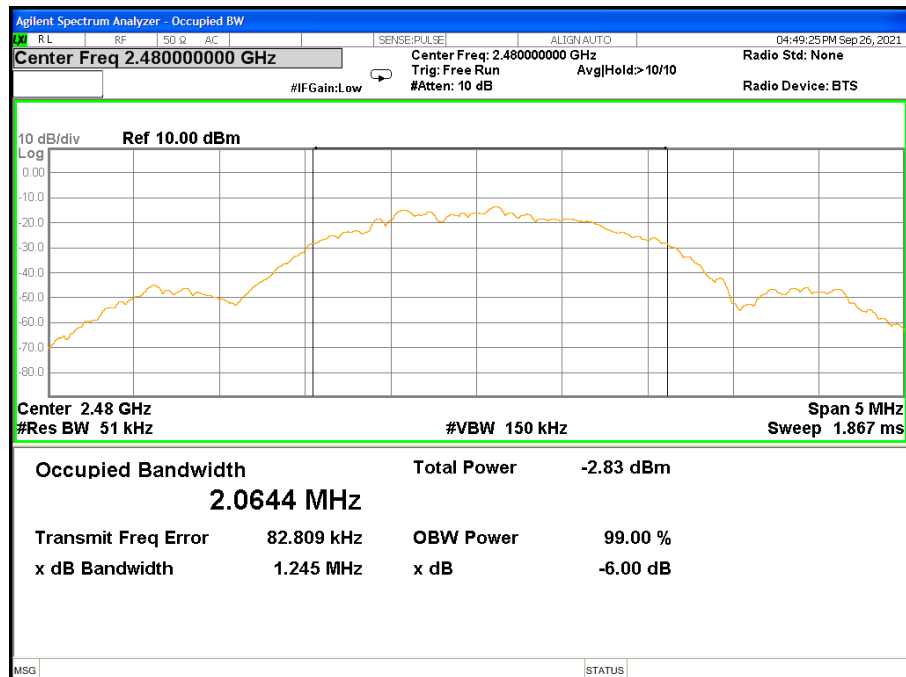


99% Bandwidth TX CH 19





99% Bandwidth TX CH 39





8. PEAK OUTPUT POWER TEST

8.1 LIMIT

FCC Part 15.247, Subpart C RSS-247 Issue 2				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3) RSS 247 Issue 2	Output Power	1 watt or 30dBm	2400-2483.5	PASS
RSS-247	EIRP	4W	2400-2483.5	PASS

8.2 TEST PROCEDURE

One of the following procedures may be used to determine the maximum peak conducted output power of a DTS EUT.

RBW $\geq$ DTS bandwidth

The following procedure shall be used when an instrument with a resolution bandwidth that is greater than the DTS bandwidth is available to perform the measurement:

- Set the RBW $\geq$ DTS bandwidth.
- Set VBW $\geq$ [3 $\times$ RBW].
- Set span $\geq$ [3 $\times$ RBW].
- Sweep time = auto couple.
- Detector = peak.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use peak marker function to determine the peak amplitude level.

Integrated band power method:

The following procedure can be used when the maximum available RBW of the instrument is less than the

DTS bandwidth:

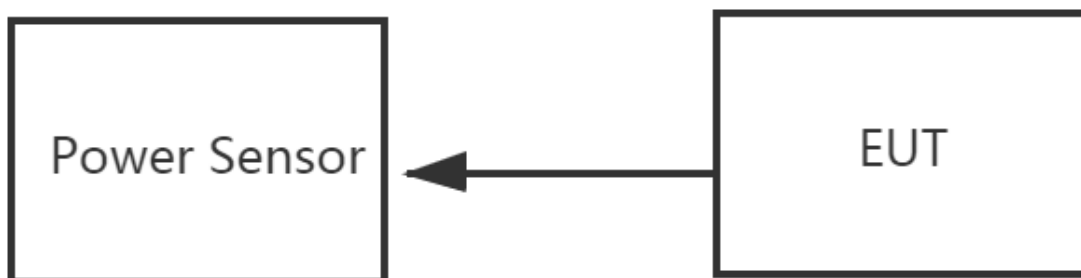
- Set the RBW = 1 MHz.
- Set the VBW $\geq$ [3 $\times$ RBW].
- Set the span $\geq$ [1.5 $\times$ DTS bandwidth].
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select the peak detector). If the instrument does not have a band power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS channel bandwidth.

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.



8.3 TEST SETUP



8.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.





8.5 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX Mode /CH00, CH19, CH39

1M PHY

Test Channe	Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH0	2402	-4.07	-5.20	30
CH19	2440	-4.32	-5.42	30
CH39	2480	-4.63	-5.72	30

2M PHY

Test Channe	Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
	(MHz)	(dBm)	(dBm)	dBm
CH0	2402	-4.17	-5.32	30
CH19	2440	-4.39	-5.53	30
CH39	2480	-4.69	-5.82	30

Note: Our power sensor test AVG power has no duty cycle display. The power sensor measures AVG power is Burst power. The software has considered the factor of the duty cycle factor, so it is unnecessary to add it again.

EIRP
1M PHY

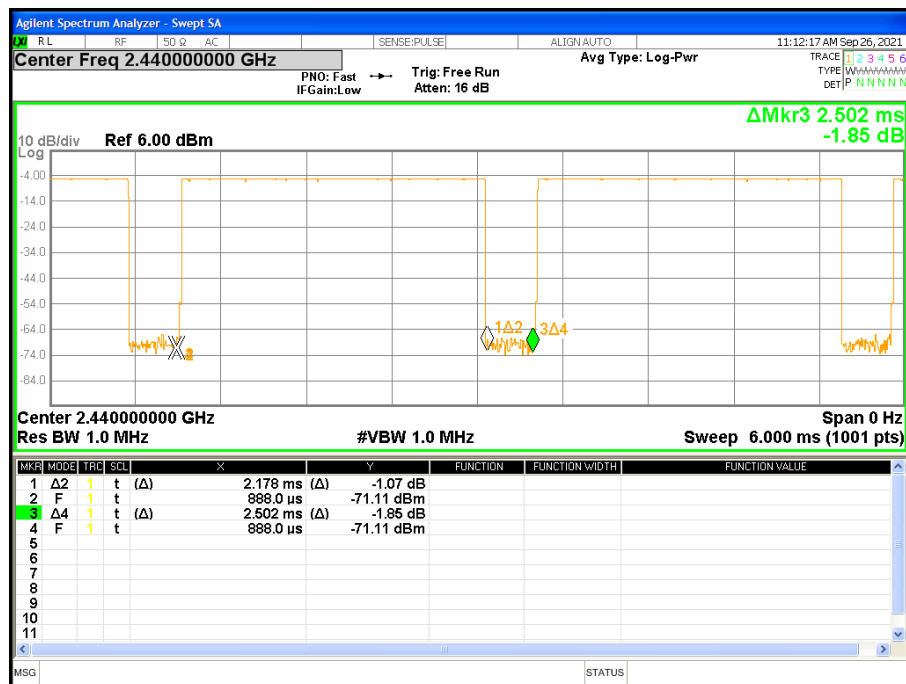
Test Channel	Frequency	Peak Conducted Output Power	Antenna Gain	EIRP Power	LIMIT
	(MHz)	(dBm)	(dBi)	(dBm)	dBm
CH0	2402	-4.07	2.13	-1.94	36.02
CH19	2440	-4.32	2.13	-2.19	36.02
CH39	2480	-4.63	2.13	-2.50	36.02

2M PHY

Test Channel	Frequency	Peak Conducted Output Power	Antenna Gain	EIRP Power	LIMIT
	(MHz)	(dBm)	(dBi)	(dBm)	dBm
CH0	2402	-4.17	2.13	-2.04	36.02
CH19	2440	-4.39	2.13	-2.26	36.02
CH39	2480	-4.69	2.13	-2.56	36.02

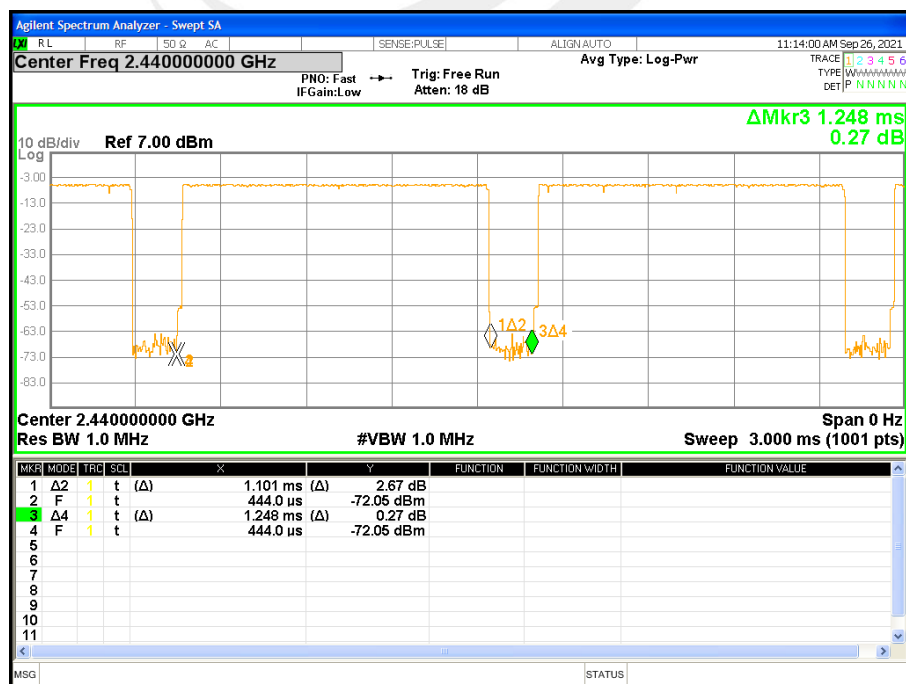


Duty cycle
1M PHY



Ton	Tp	Duty cycle(%)	Duty factor(dB)
2.178	2.502	87.05%	1.20

2M PHY



Ton	Tp	Duty cycle(%)	Duty factor(dB)
1.101	1.248	88.22%	1.09



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

15.203&RSS Gen Issue 5 requirement: For intentional device, according to 15.203&RSS Gen Issue 5: 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.

9.2 EUT ANTENNA

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





10. FREQUENCY STABILITY

10.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/-0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage, and for a variation in primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees.

10.2 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

10.3 TEST RESULT

1M PHY

Channel 19 (2440MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
12.765	2440.0020
11.1	2440.0017
9.435	2440.0014
Max.Deviation(MHz)	0.0020
Max.Deviation(ppm)	0.82

Rated working voltage: AC 120V/60Hz

Temperature vs. Frequency Stability

Temperature(°C)	Measurement Frequency(MHz)
-30	2440.0022
-20	2440.0021
-10	2440.0019
0	2440.0017
10	2440.0015
20	2440.0013
30	2440.0019
40	2440.0021
50	2440.0021
Max.Deviation(MHz)	0.0022
Max.Deviation(ppm)	0.90



2M PHY

Channel 19 (2440MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
12.765	2440.0014
11.1	2440.0007
9.435	2440.0008
Max.Deviation(MHz)	0.0014
Max.Deviation(ppm)	0.57

Rated working voltage: AC 120V/60Hz

Temperature vs. Frequency Stability

Temperature(°C)	Measurement Frequency(MHz)
-30	2440.0018
-20	2440.0013
-10	2440.0011
0	2440.0012
10	2440.0012
20	2440.0011
30	2440.0008
40	2440.0014
50	2440.0016
Max.Deviation(MHz)	0.0018
Max.Deviation(ppm)	0.74



11. EUT TEST PHOTO

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※END OF THE REPORT※※※※

