RF Test Data for BT(BLE) (Conducted Measurement)

Product Name: Smart watches

Trade Mark: W&O

Test Model: X7 PLUS

FCC ID: 2A7G4-X7PLUS

Environmental Conditions

Temperature:	22.8°C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Nancy Li
Supervised by:	Hugo Chen
NOTE	N/A

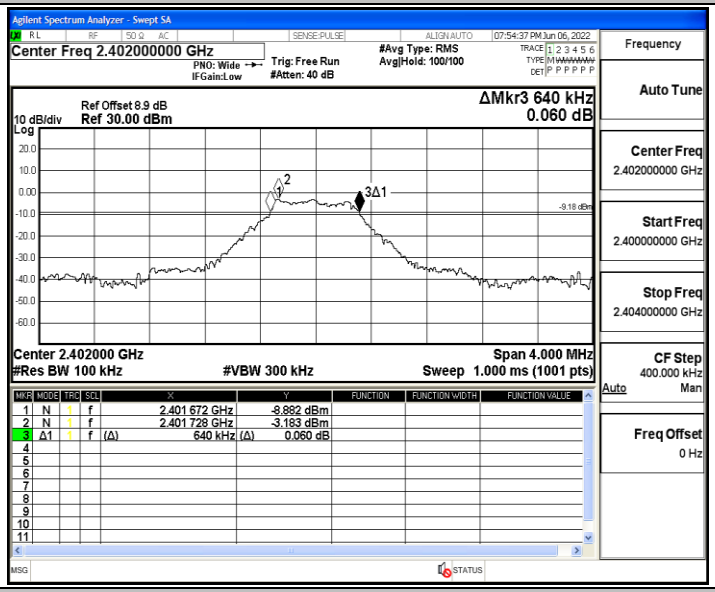
Appendix A: DTS Bandwidth

Test Result

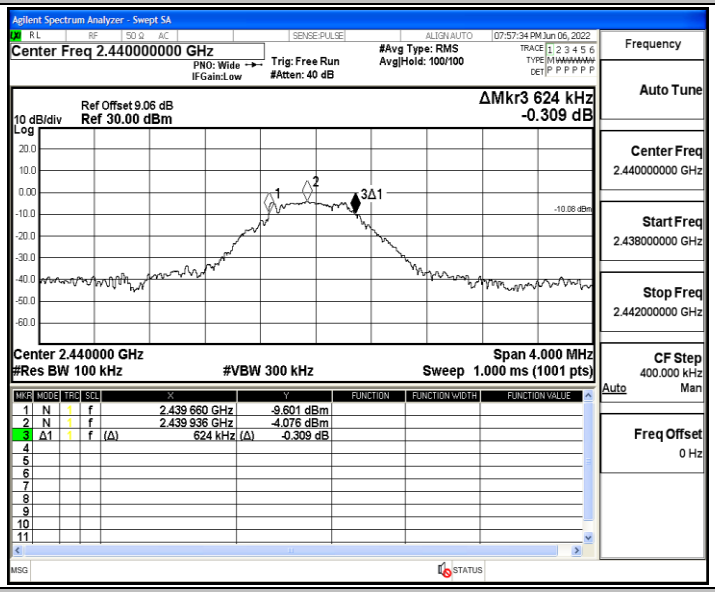
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.640	2401.672	2402.312	0.5	PASS
		2440	0.624	2439.660	2440.284	0.5	PASS
		2480	0.632	2479.676	2480.308	0.5	PASS

Test Graphs

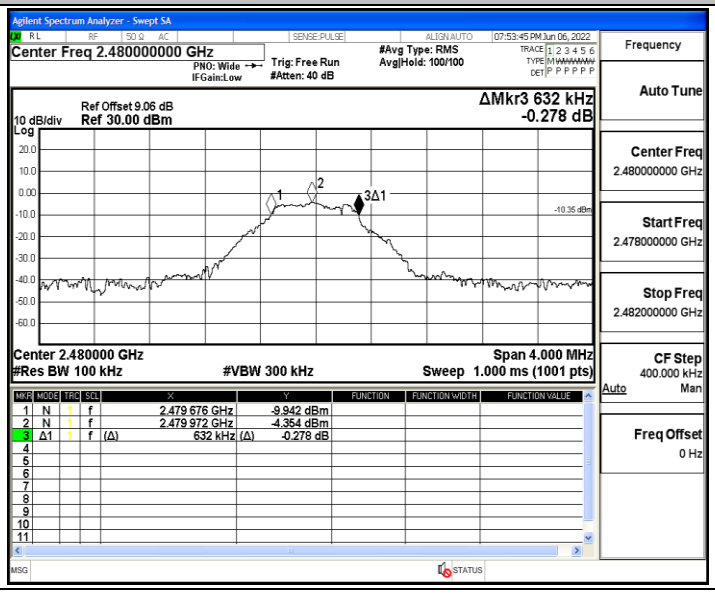
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



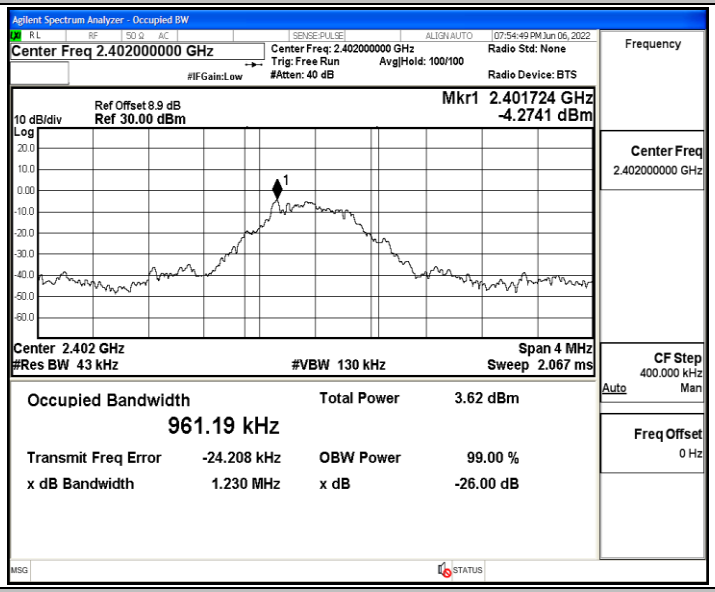
Appendix B: Occupied Channel Bandwidth

Test Result

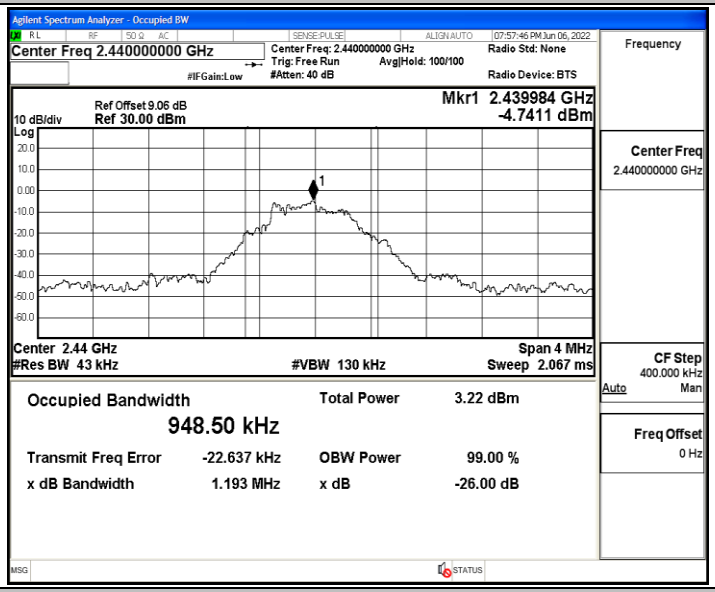
TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.96119	2401.495	2402.456	---	---
		2440	0.94850	2439.503	2440.452	---	---
		2480	0.92931	2479.502	2480.431	---	---

Test Graphs

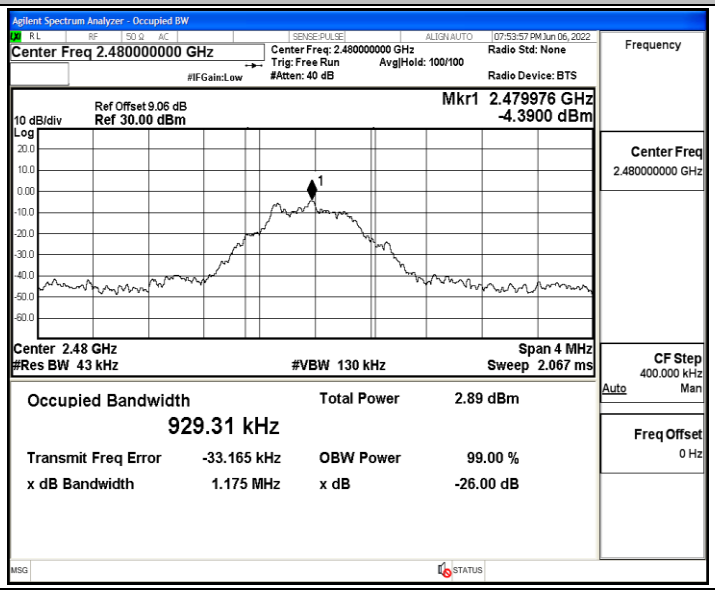
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



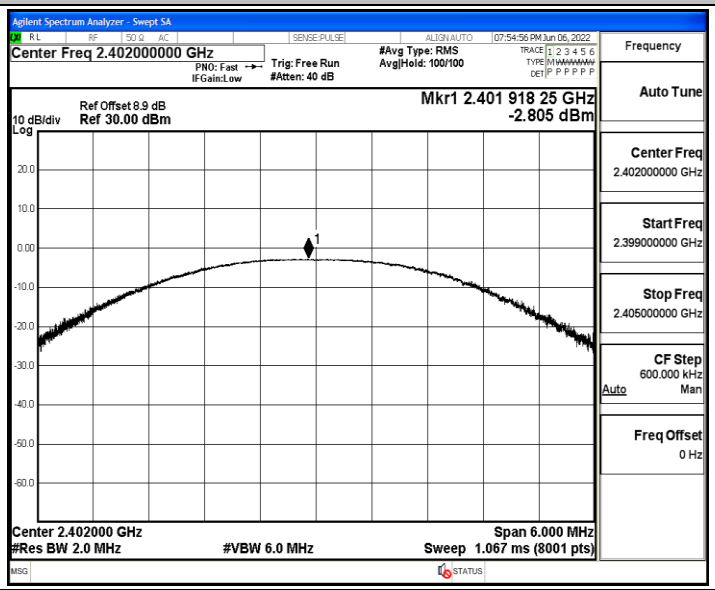
Appendix C: Maximum conducted output power

Test Result

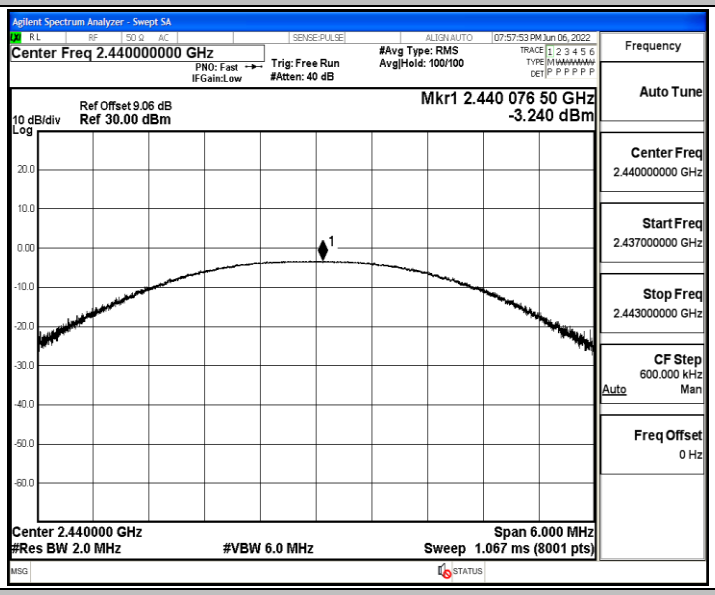
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-2.81	≤30	PASS
		2440	-3.24	≤30	PASS
		2480	-3.66	≤30	PASS

Test Graphs

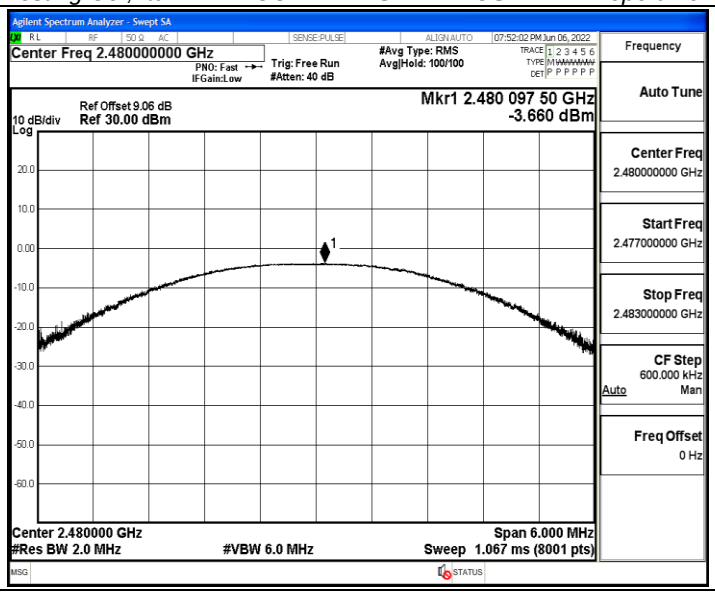
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
#Avg Type: RMS
Avg|Hold: 100/100
07:52:02 PM Jun 06, 2022
Frequency
Auto Tune
Ref Offset 9.06 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 2.480 097 50 GHz
-3.660 dBm
Center Freq
2.480000000 GHz
Start Freq
2.477000000 GHz
Stop Freq
2.483000000 GHz
CF Step
600.000 kHz
Auto
Man
Freq Offset
0 Hz
Center 2.480000 GHz
#Res BW 2.0 MHz
#VBW 6.0 MHz
Span 6.000 MHz
Sweep 1.067 ms (8001 pts)

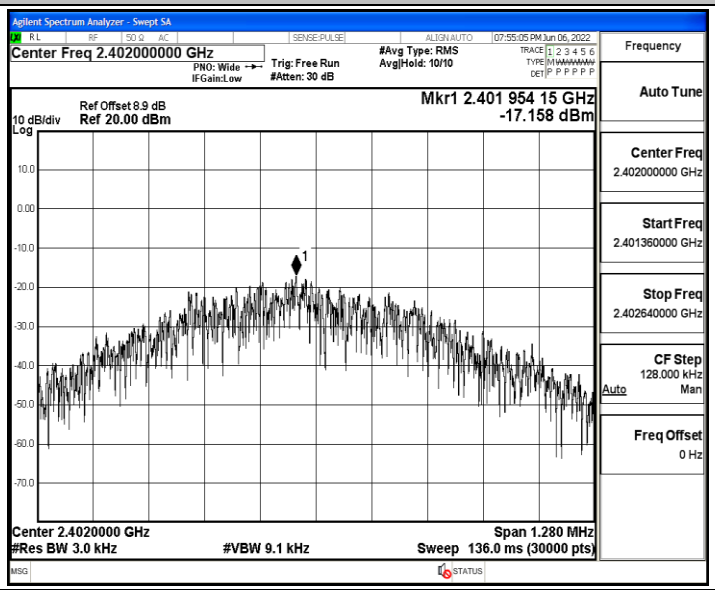
Appendix D: Maximum power spectral density

Test Result

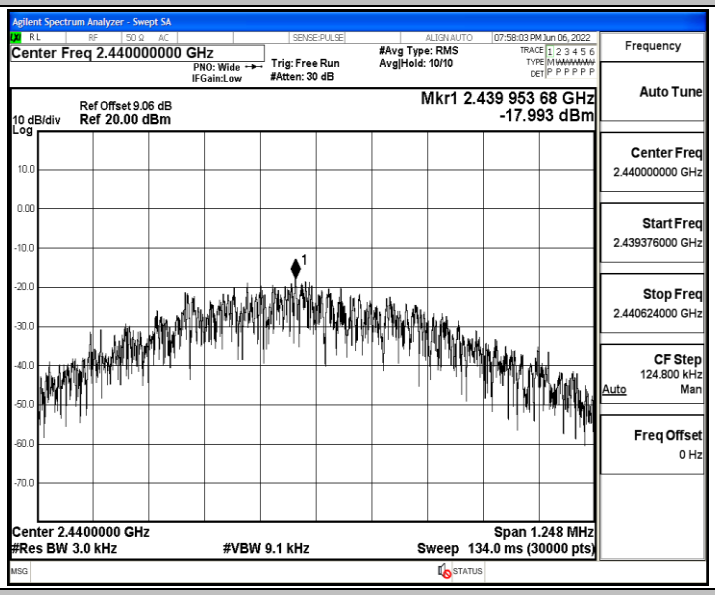
TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-17.16	≤8.00	PASS
		2440	-17.99	≤8.00	PASS
		2480	-19.1	≤8.00	PASS

Test Graphs

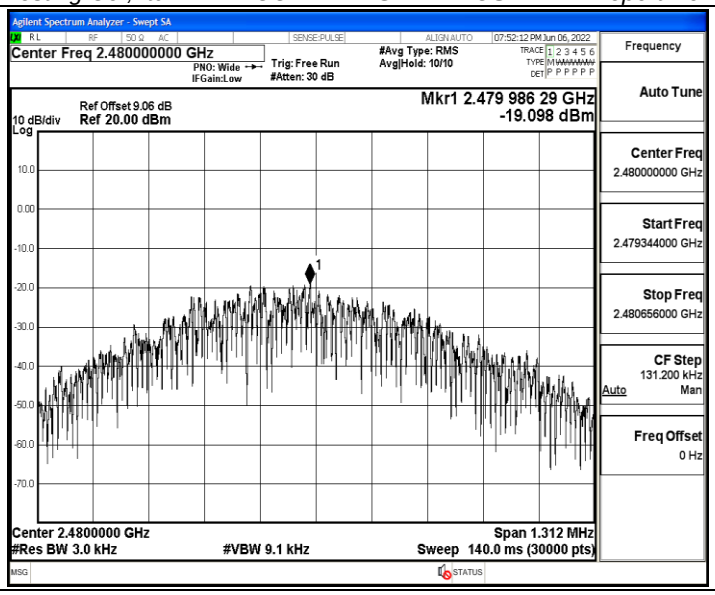
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
#Avg Type: RMS
Avg|Hold: 10/10
07:52:12 PM Jun 06, 2022
Frequency
Auto Tune
Ref Offset 9.06 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.479 986 29 GHz
-19.098 dBm
Center Freq
2.480000000 GHz
Start Freq
2.479344000 GHz
Stop Freq
2.480656000 GHz
CF Step
131.200 kHz
Auto
Man
Freq Offset
0 Hz
Center 2.4800000 GHz
#Res BW 3.0 kHz
#VBW 9.1 kHz
Span 1.312 MHz
Sweep 140.0 ms (30000 pts)

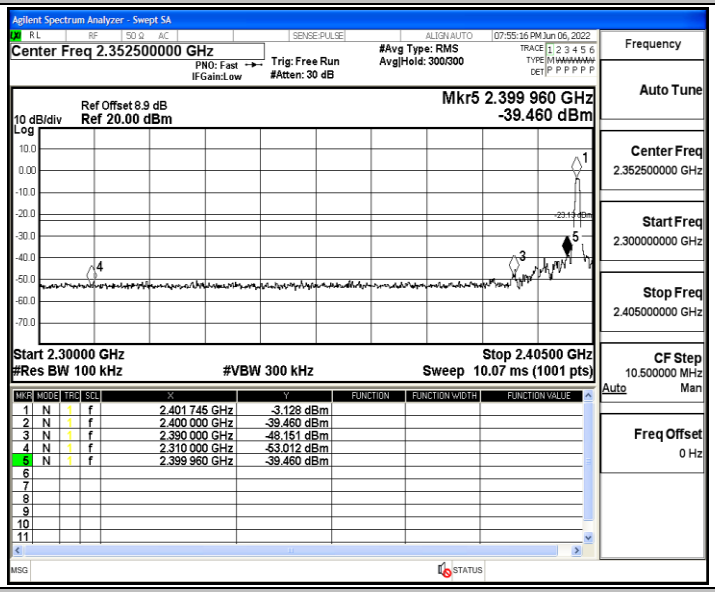
Appendix E: Band edge measurements

Test Result

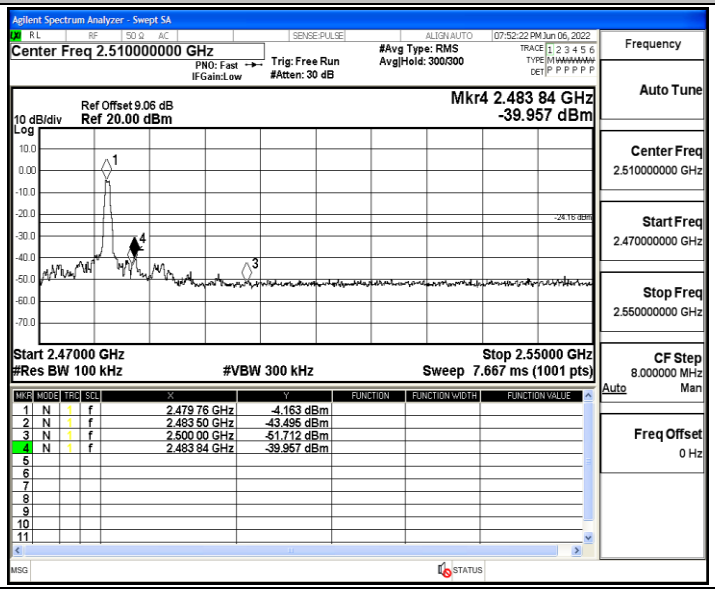
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-3.13	-39.46	≤-23.13	PASS
		High	2480	-4.16	-39.96	≤-24.16	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



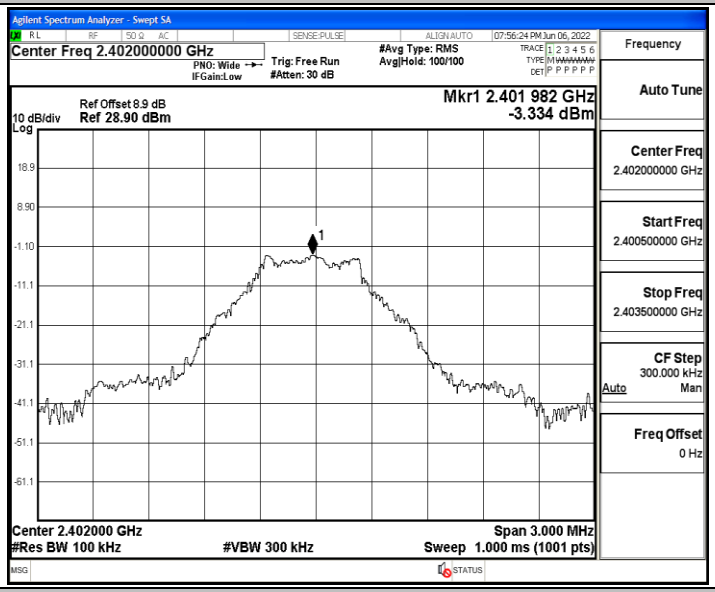
Appendix F: Conducted Spurious Emission

Test Result

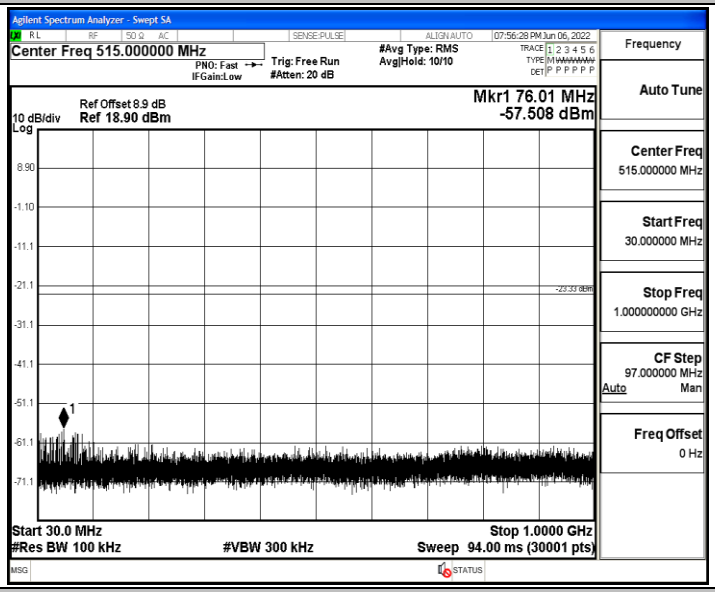
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-3.33	-3.33	---	PASS
			30~1000	-3.33	-57.51	≤-23.33	PASS
			1000~26500	-3.33	-48.9	≤-23.33	PASS
		2440	Reference	-4.02	-4.02	---	PASS
			30~1000	-4.02	-56.89	≤-24.02	PASS
			1000~26500	-4.02	-51.47	≤-24.02	PASS
		2480	Reference	-4.60	-4.60	---	PASS
			30~1000	-4.60	-57.38	≤-24.6	PASS
			1000~26500	-4.60	-51.28	≤-24.6	PASS

Test Graphs

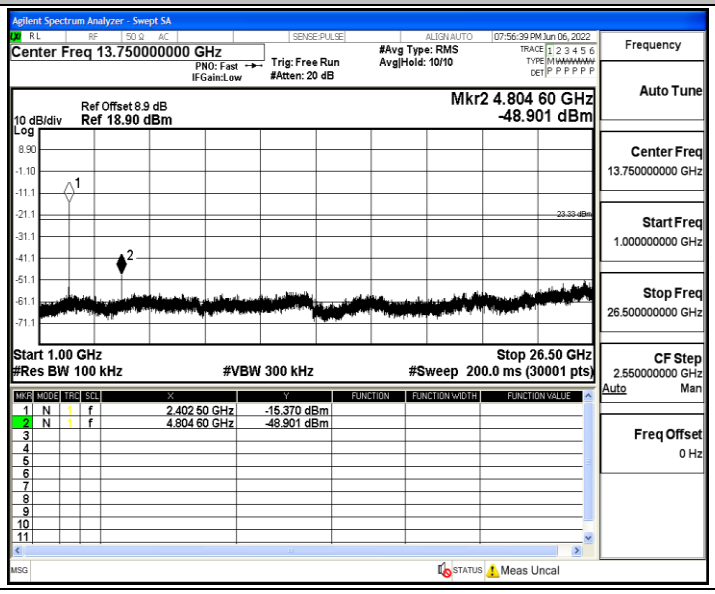
BLE_1M_Ant1_2402_0~Reference



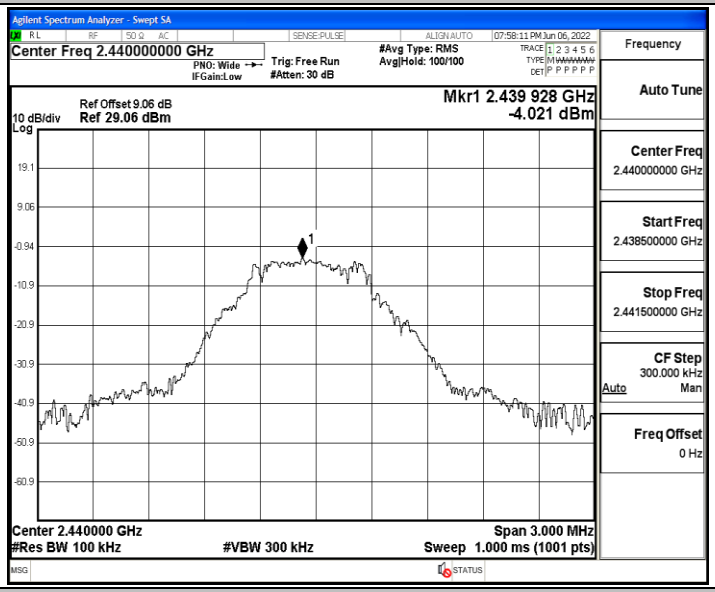
BLE_1M_Ant1_2402_30~1000



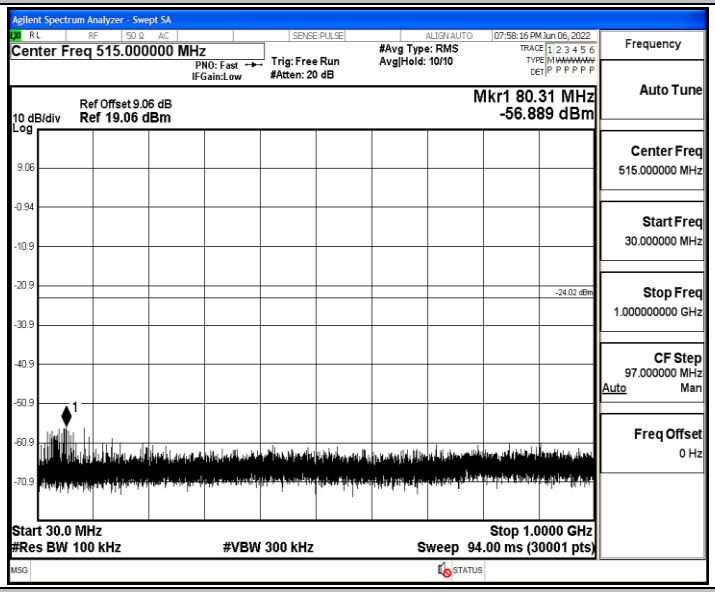
BLE_1M_Ant1_2402_1000~26500



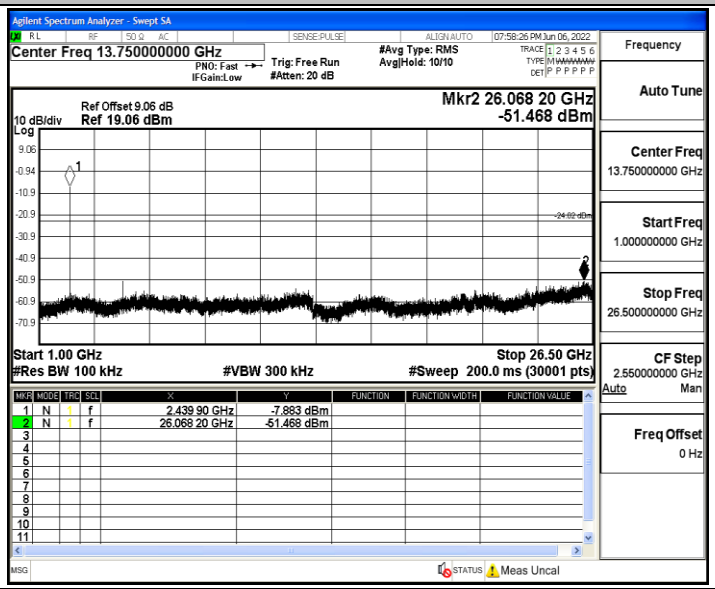
BLE_1M_Ant1_2440_0~Reference



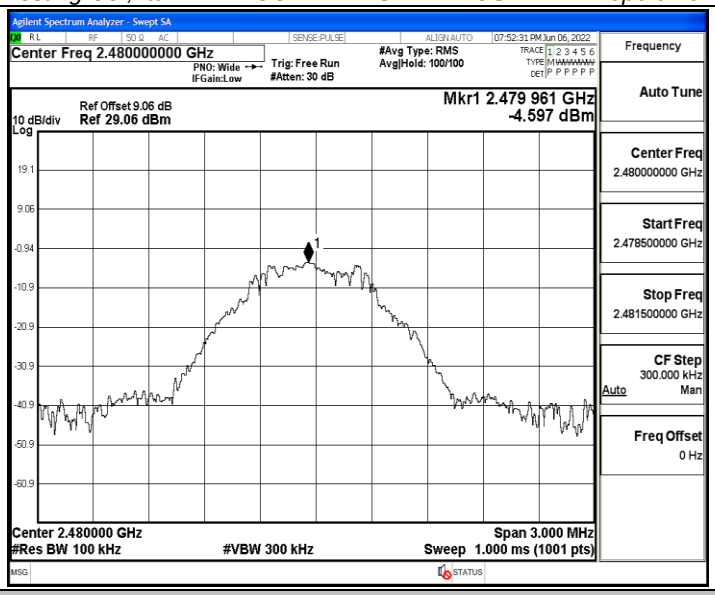
BLE_1M_Ant1_2440_30~1000



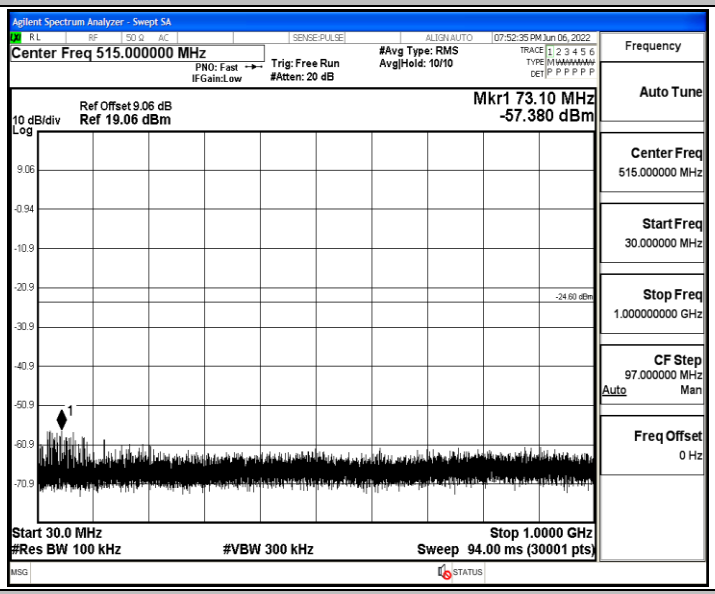
BLE_1M_Ant1_2440_1000~26500



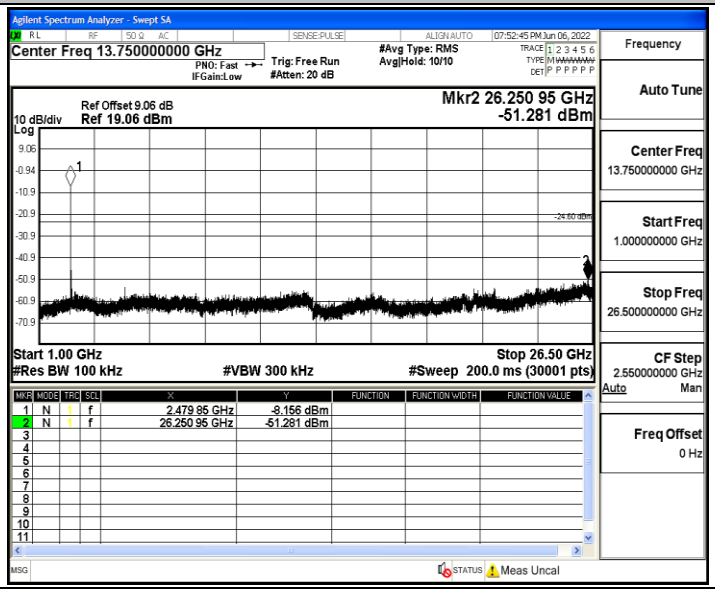
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



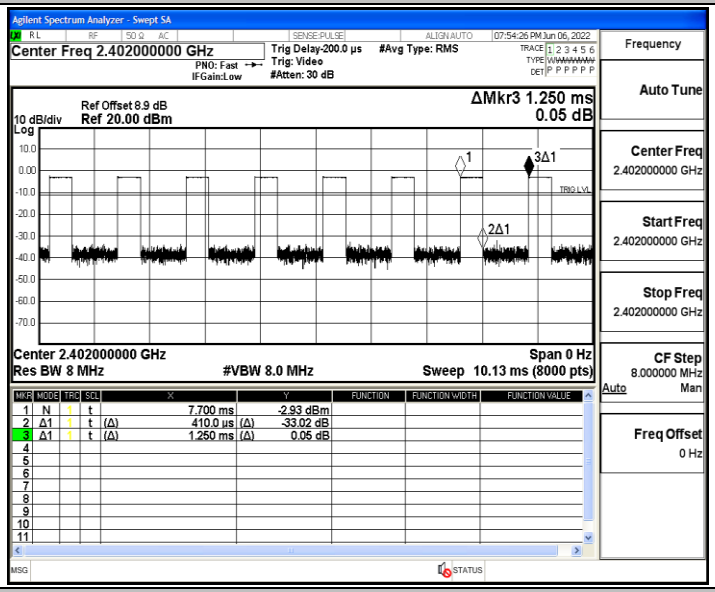
Appendix G: Duty Cycle

Test Result

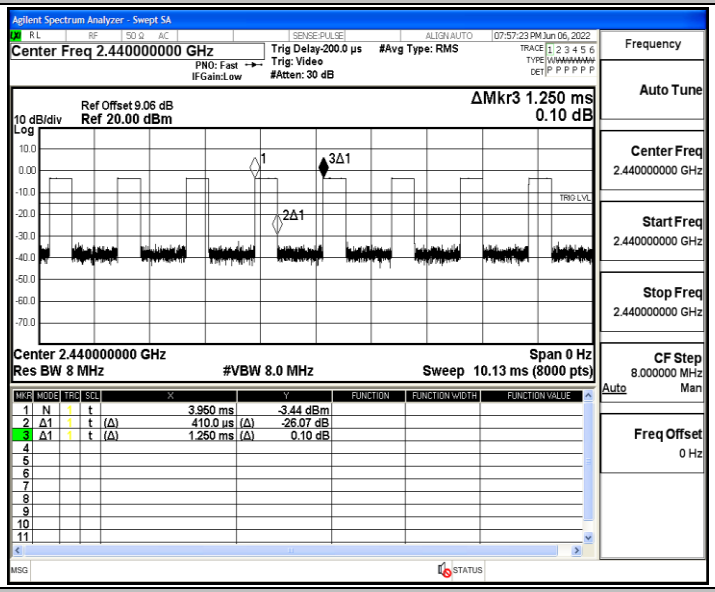
TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[kHz]
BLE_1M	Ant1	2402	0.41	1.25	32.80	2.44
		2440	0.41	1.25	32.80	2.44
		2480	0.41	1.25	32.80	2.44

Test Graphs

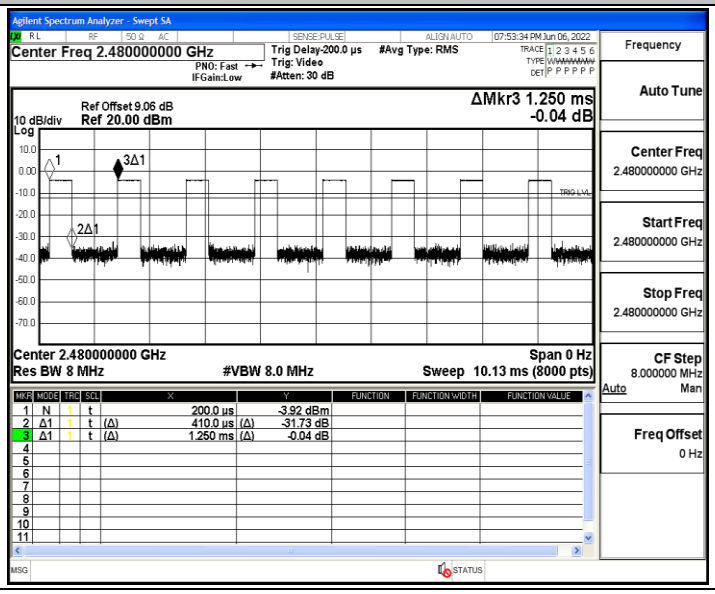
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix H: Emissions in Restricted Bands

Test Result

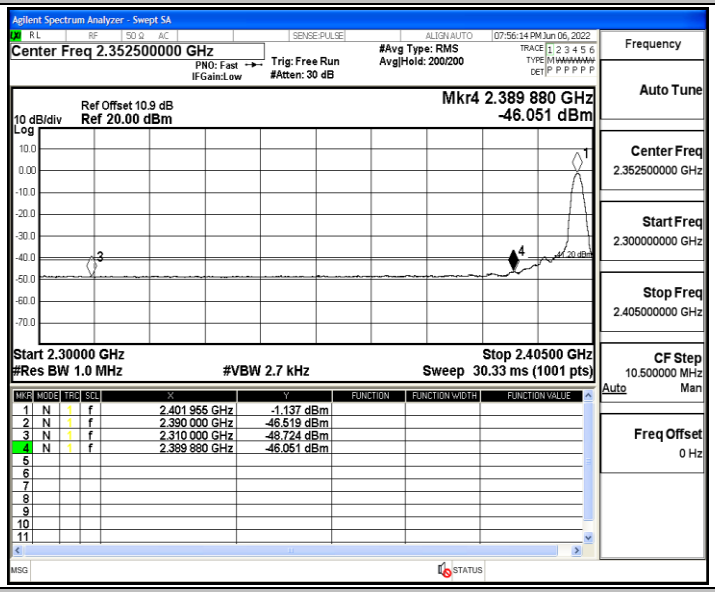
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-48.72	≤-41.20	PASS
				AV	2389.880	-46.05	≤-41.20	PASS
				AV	2390.000	-46.52	≤-41.20	PASS
				Peak	2310.000	-39.81	≤-21.20	PASS
				Peak	2389.775	-34.44	≤-21.20	PASS
				Peak	2390.000	-34.59	≤-21.20	PASS
		High	2480	AV	2483.500	-42.32	≤-41.20	PASS
				AV	2486.880	-41.82	≤-41.20	PASS
				AV	2500.000	-53	≤-41.20	PASS
				Peak	2483.500	-29.84	≤-21.20	PASS
				Peak	2483.600	-28.04	≤-21.20	PASS
				Peak	2500.000	-52.47	≤-21.20	PASS

Note：

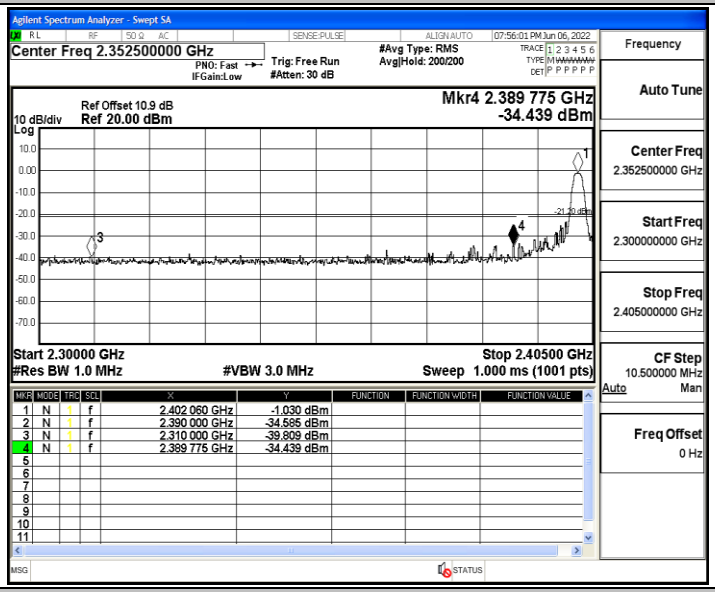
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

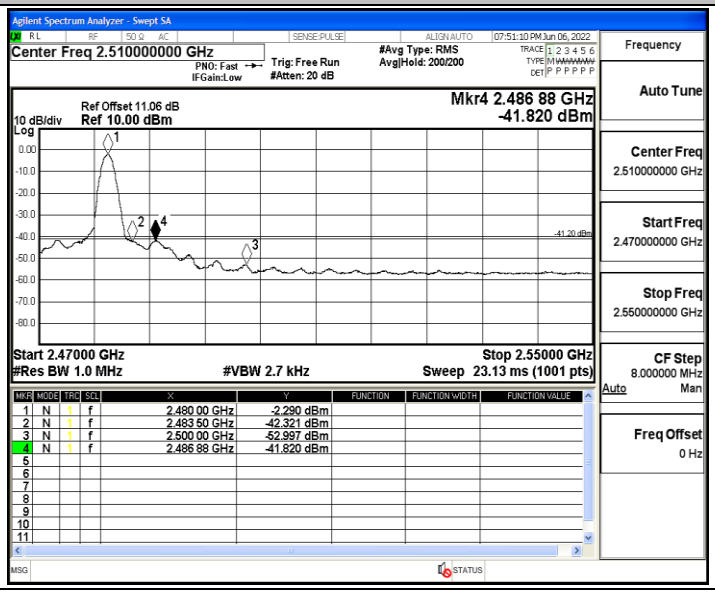
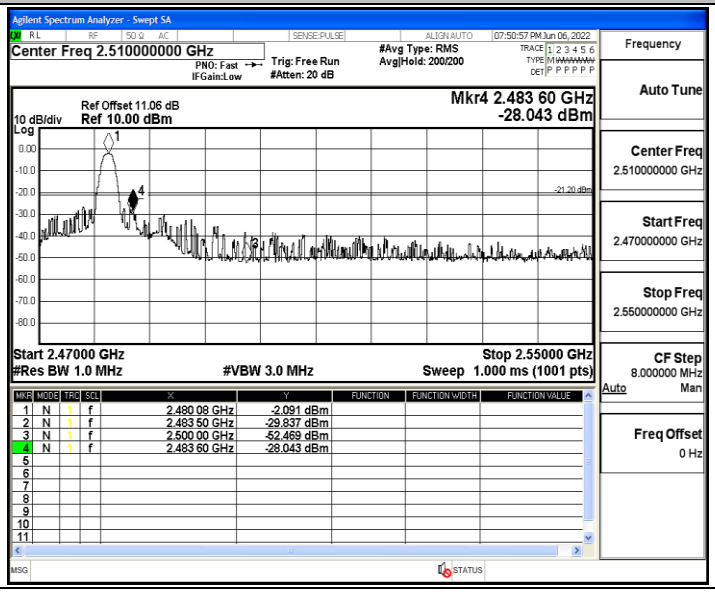
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak