Appendix B

RF Test Data for BT LE (Conducted Measurement)

Product Name: bluetooth headset

Test Model: A6pro

Environmental Conditions

Temperature:	23.8 ° C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Joker Hu
Supervised by:	Jack Cheng

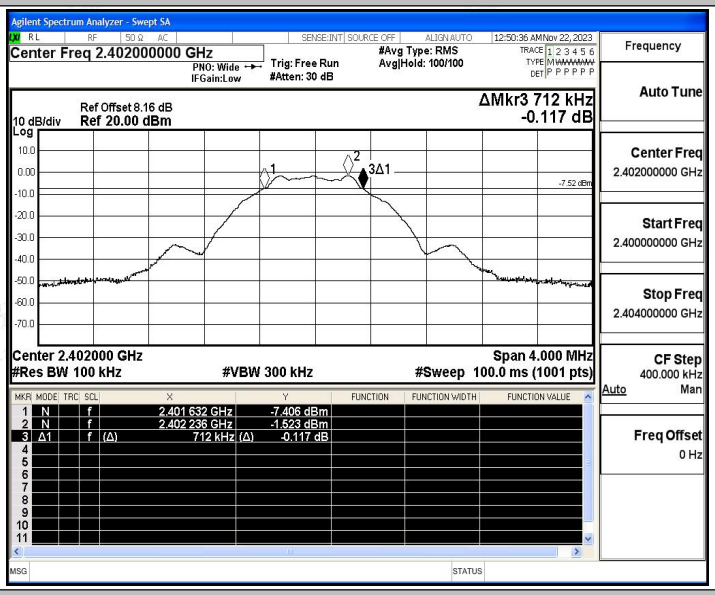
B.1 DTS Bandwidth

Test Result

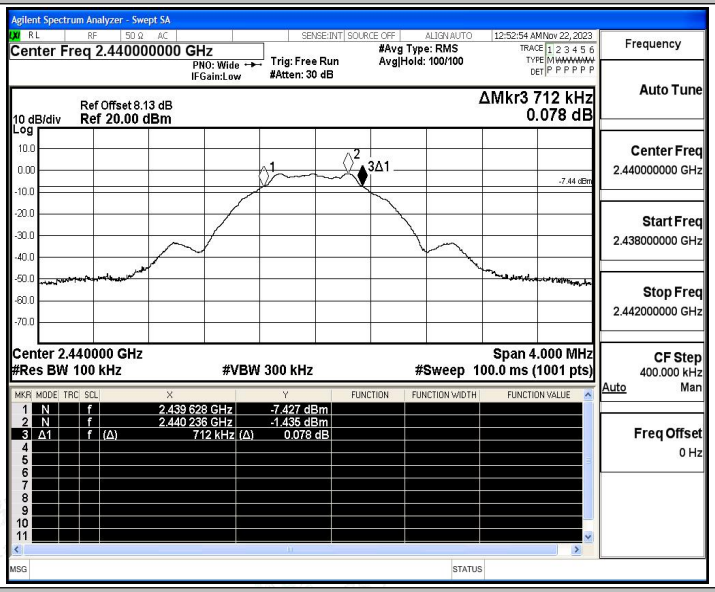
TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.712	2401.632	2402.344	0.5	PASS
		2440	0.712	2439.628	2440.340	0.5	PASS
		2480	0.716	2479.628	2480.344	0.5	PASS

Test Graphs

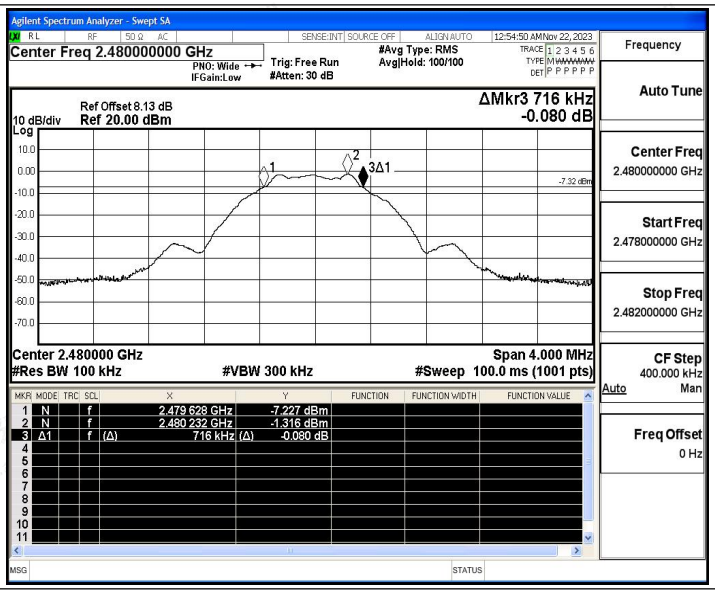
BLE_1M_Ant1_2402



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: 100/100
12:54:50 AM Nov 22, 2023
Ref Offset 8.13 dB
10 dB/div Ref 20.00 dBm
ΔMkr3 716 kHz
-0.080 dB
-7.32 dBm
Center 2.480000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4.000 MHz
#Sweep 100.0 ms (1001 pts)
1 N 1 f 2.479 628 GHz -7.227 dBm
2 N 1 f 2.480 232 GHz -1.316 dBm
3 Δ1 1 f (Δ) 716 kHz (Δ) -0.080 dB
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478000000 GHz
Stop Freq
2.482000000 GHz
CF Step
400.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

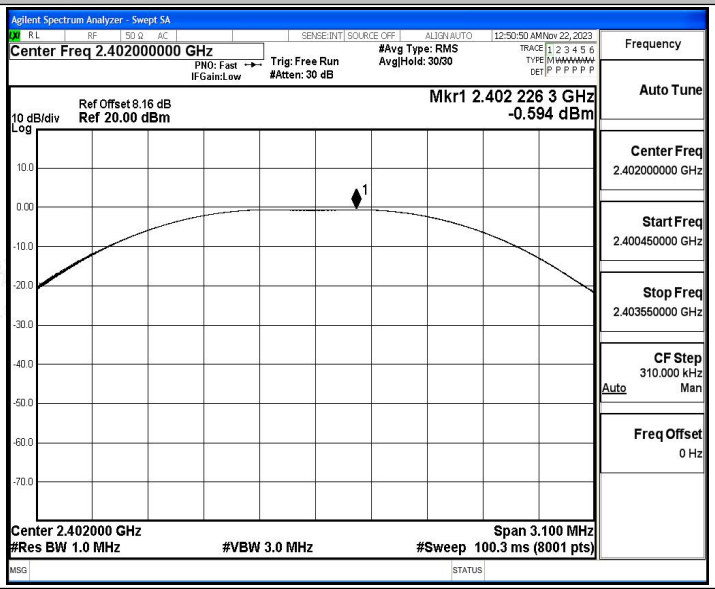
B.2 Maximum peak conducted output power

Test Result

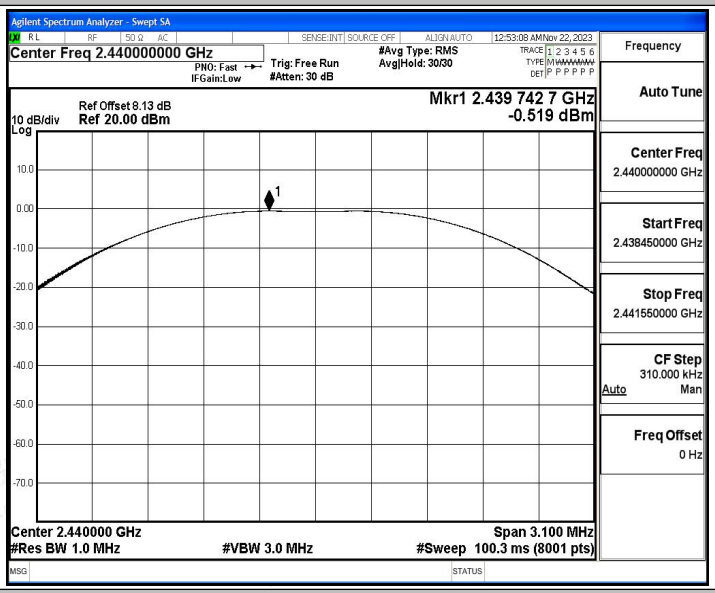
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	-0.59	≤30	PASS
		2440	-0.52	≤30	PASS
		2480	-0.37	≤30	PASS

Test Graphs

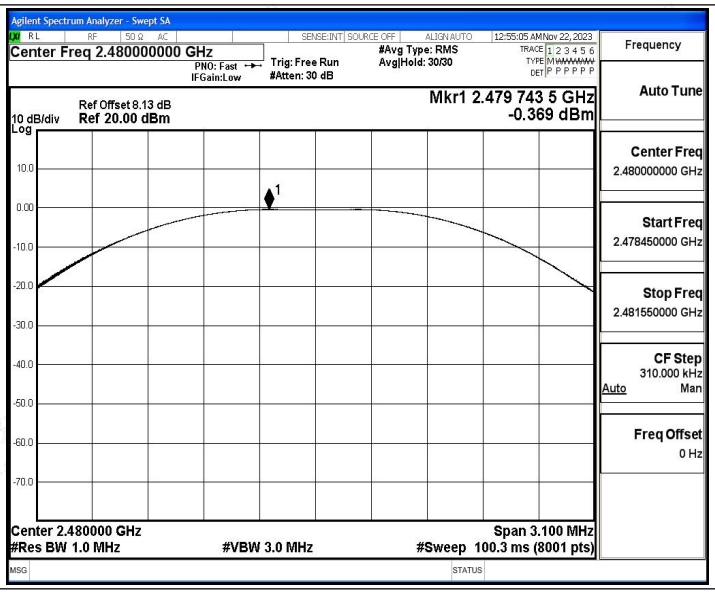
BLE_1M_Ant1_2402



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: 30 dB
#Avg Type: RMS
Avg|Hold: 30/30
12:55:05 AM Nov 22, 2023
Ref Offset 8.13 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 2.479 743 5 GHz
-0.369 dBm
Center 2.480000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 3.100 MHz
#Sweep 100.3 ms (8001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.478450000 GHz
Stop Freq
2.481550000 GHz
CF Step
310.000 kHz
Auto
Man
Freq Offset
0 Hz

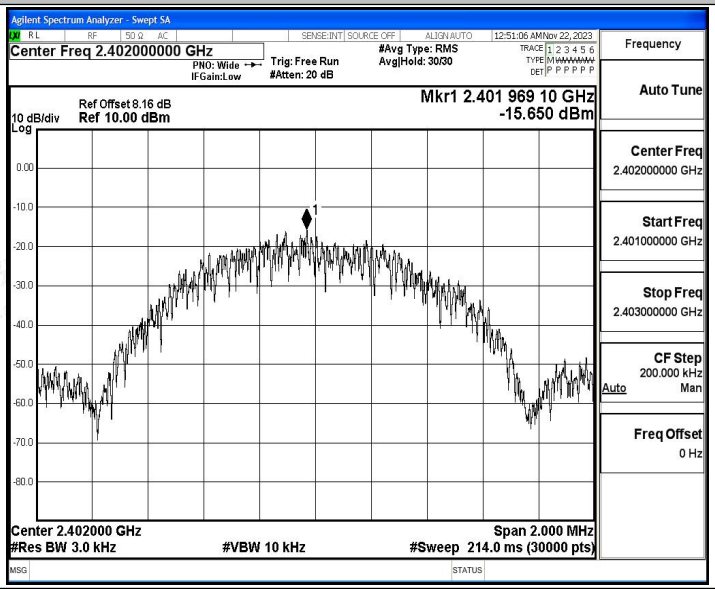
B.3 Maximum power spectral density

Test Result

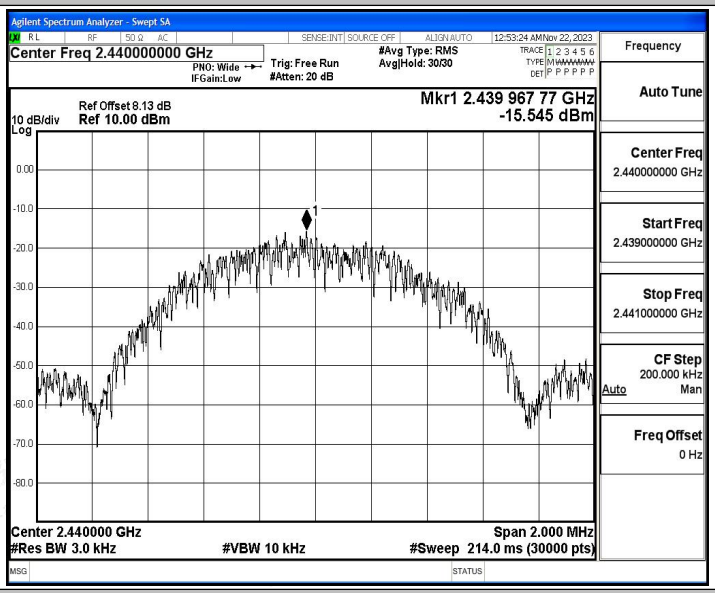
TestMode	Antenna	Channel	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-15.65	≤8.00	PASS
		2440	-15.55	≤8.00	PASS
		2480	-15.44	≤8.00	PASS

Test Graphs

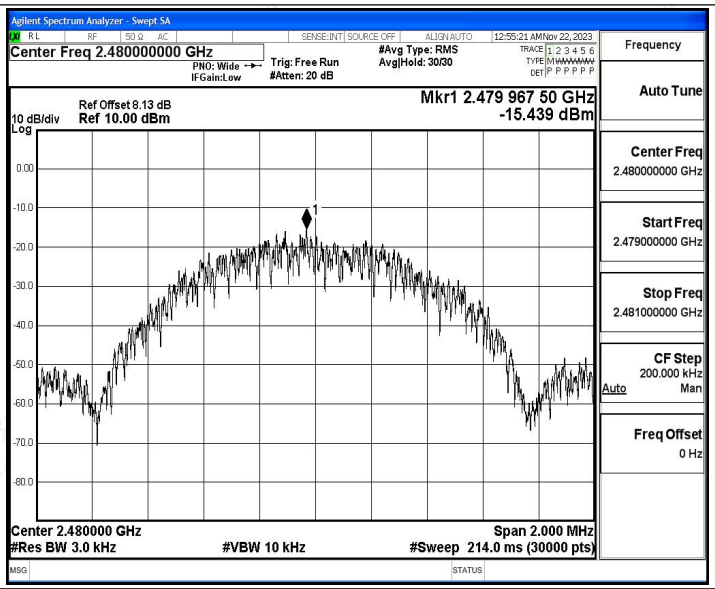
BLE_1M_Ant1_2402



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: 20 dB
#Avg Type: RMS
Avg|Hold: 30/30
12:55:21 AM Nov 22, 2023
Frequency
Auto Tune
Ref Offset 8.13 dB
10 dB/div Ref 10.00 dBm
Log
Mkr1 2.479 967 50 GHz
-15.439 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center Freq
2.480000000 GHz
Start Freq
2.479000000 GHz
Stop Freq
2.481000000 GHz
CF Step
200.000 kHz
Auto
Man
Freq Offset
0 Hz
Center 2.480000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 2.000 MHz
#Sweep 214.0 ms (30000 pts)
MSG
STATUS

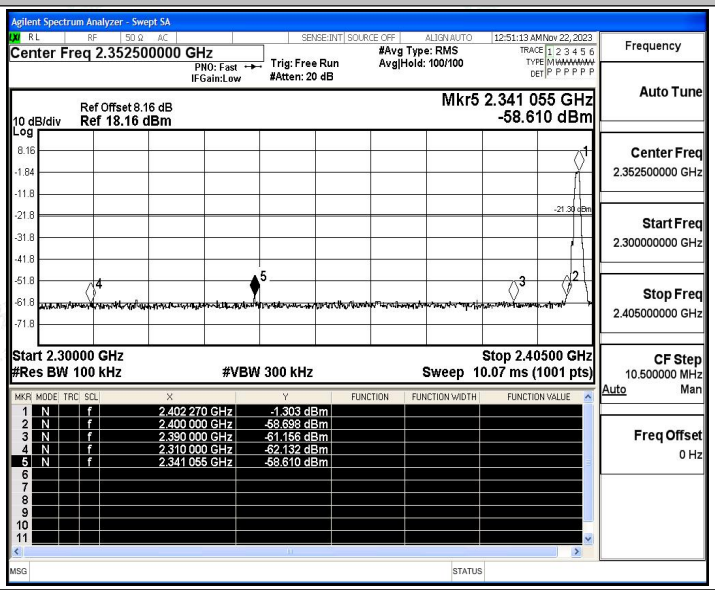
B.4 Band edge measurements

Test Result

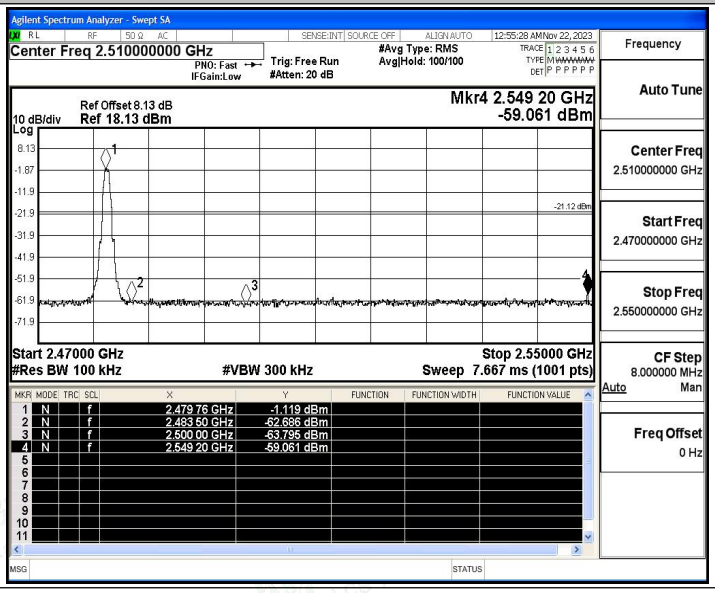
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	-1.30	-58.61	≤-21.3	PASS
		High	2480	-1.12	-59.06	≤-21.12	PASS

Test Graphs

BLE_1M_Ant1_Low_2402



BLE_1M_Ant1_High_2480



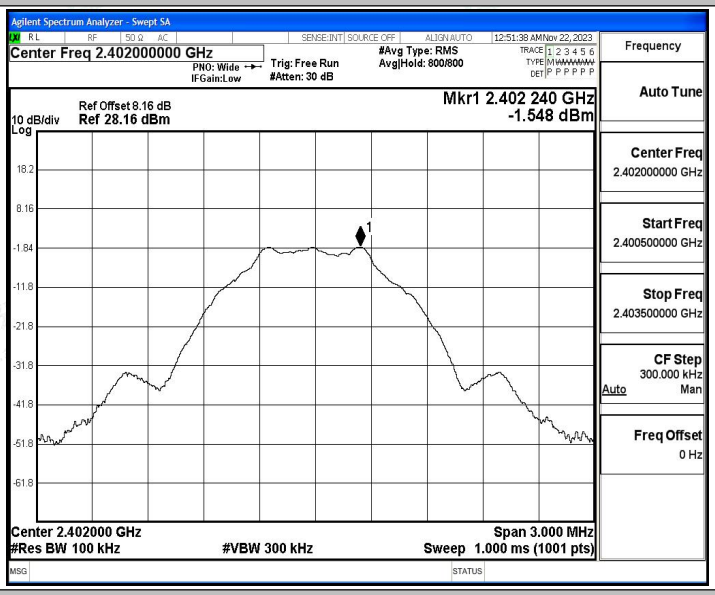
B.5 Conducted Spurious Emission

Test Result

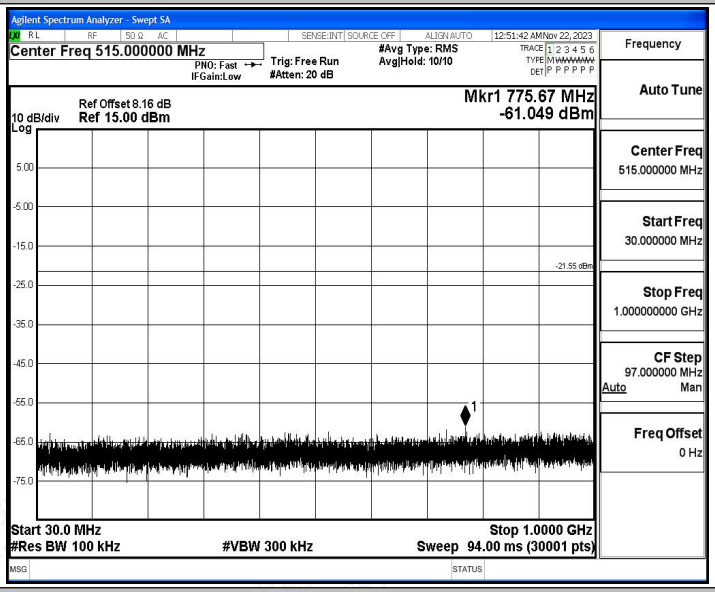
TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	-1.55	-1.55	---	PASS
			30~1000	-1.55	-61.05	≤-21.55	PASS
			1000~26500	-1.55	-49.11	≤-21.55	PASS
		2440	Reference	-1.53	-1.53	---	PASS
			30~1000	-1.53	-60.8	≤-21.53	PASS
			1000~26500	-1.53	-48.64	≤-21.53	PASS
		2480	Reference	-1.30	-1.30	---	PASS
			30~1000	-1.30	-61.67	≤-21.3	PASS
			1000~26500	-1.30	-49.19	≤-21.3	PASS

Test Graphs

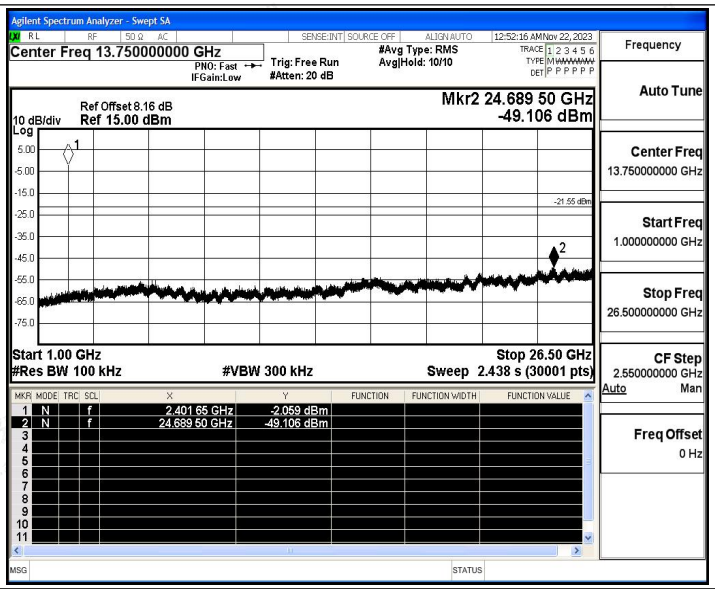
BLE_1M_Ant1_2402_0~Reference



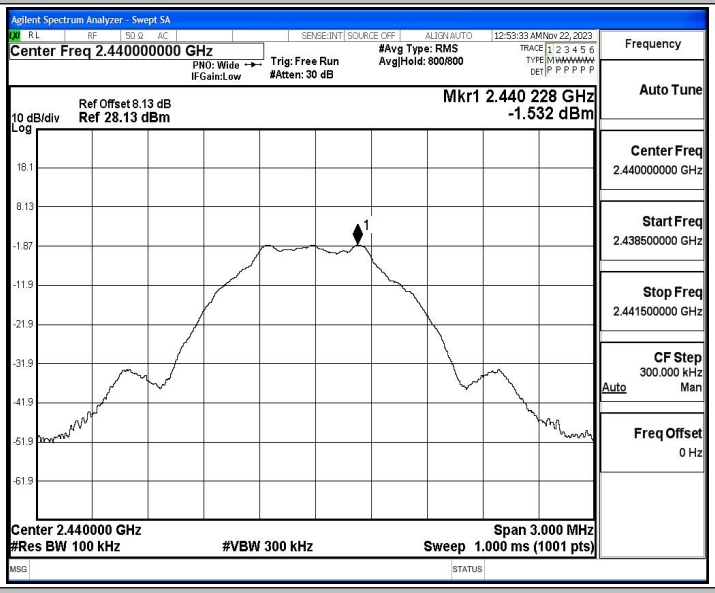
BLE_1M_Ant1_2402_30~1000



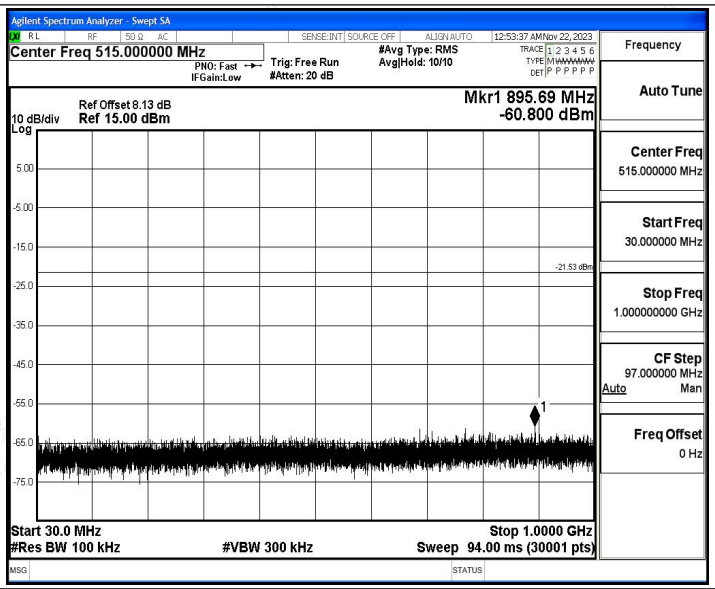
BLE_1M_Ant1_2402_1000~26500



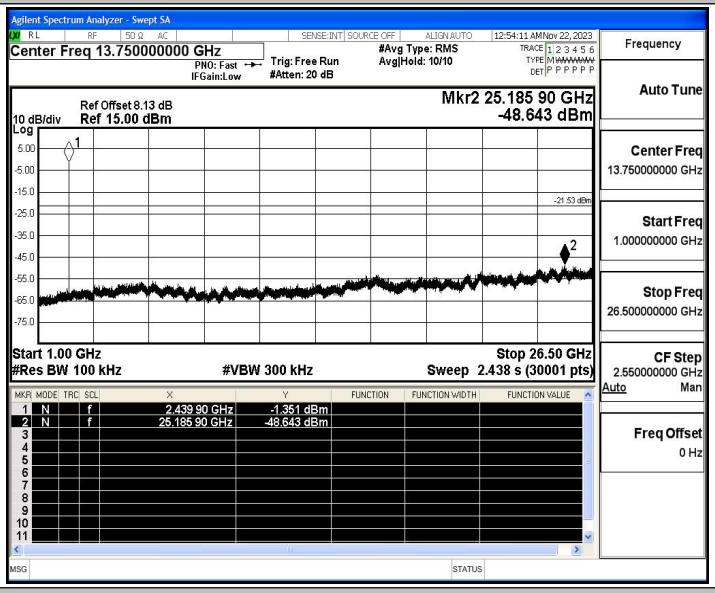
BLE_1M_Ant1_2440_0~Reference



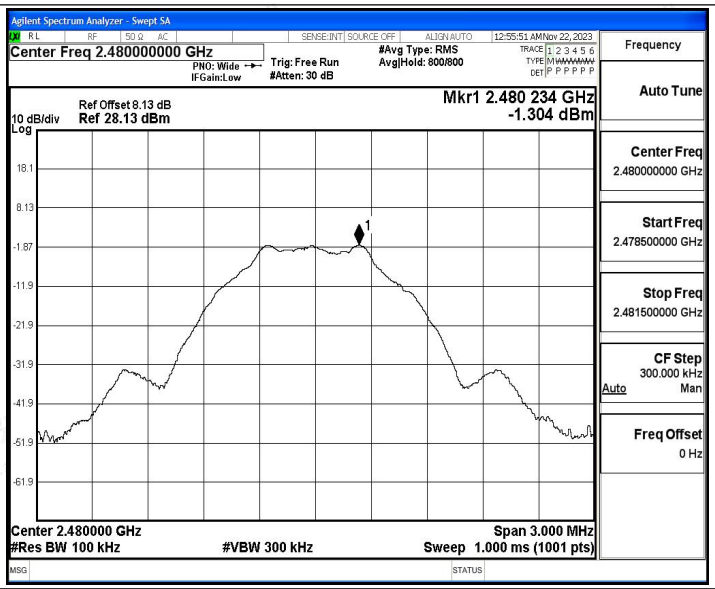
BLE_1M_Ant1_2440_30~1000



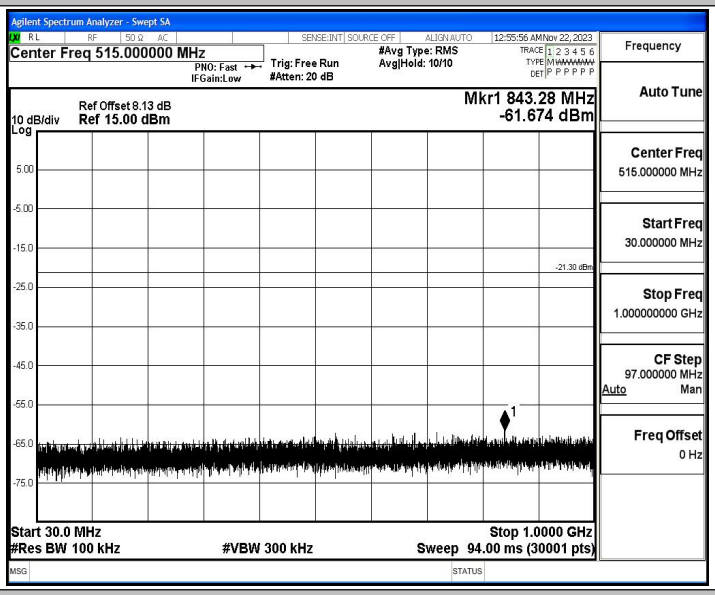
BLE_1M_Ant1_2440_1000~26500



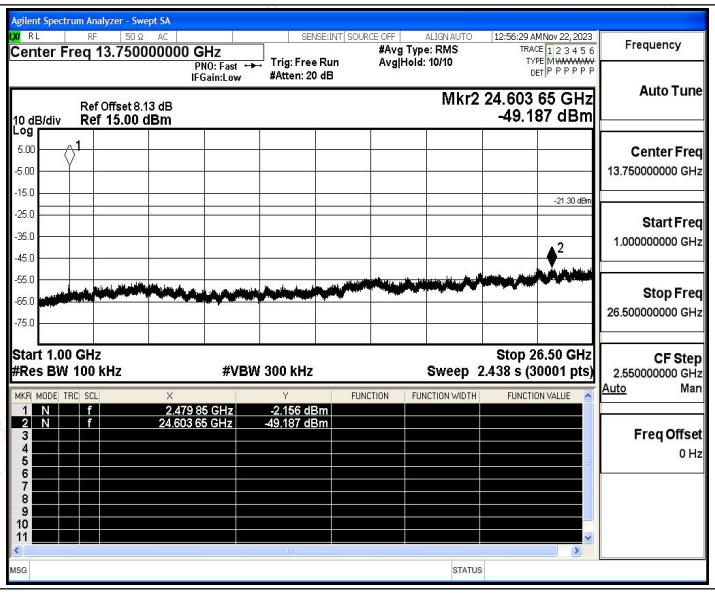
BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
Avg|Hold: 10/10
12:56:29 AM Nov 22, 2023
Ref Offset 8.13 dB
10 dB/div
Log
Ref 15.00 dBm
Mkr2 24.603 65 GHz
-49.187 dBm
-21.30 dBm
Start 1.00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 26.50 GHz
Sweep 2.438 s (30001 pts)
1 N 1 f 2.479 85 GHz -2.156 dBm
2 N 1 f 24.603 65 GHz -49.187 dBm
Frequency
Auto Tune
Center Freq
13.750000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
26.500000000 GHz
CF Step
2.550000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

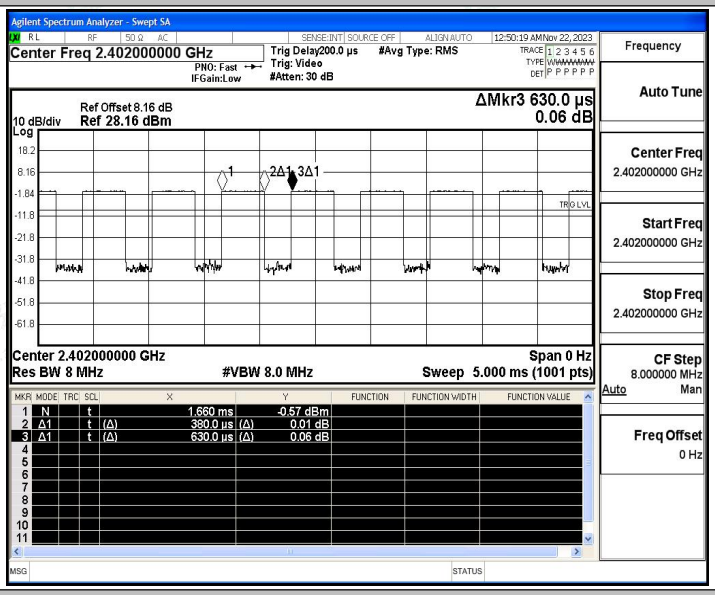
B.6 Duty Cycle

Test Result

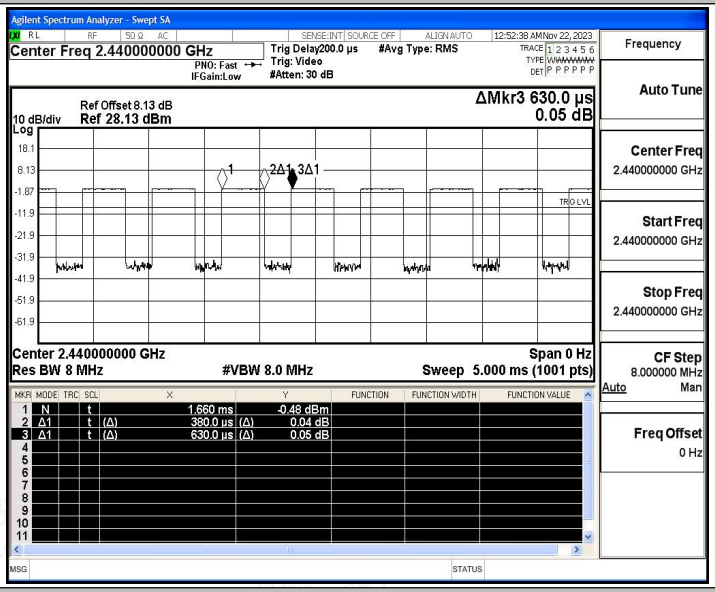
TestMode	Antenna	Channel	ON Time [ms]	Period [ms]	X	DC [%]	xFactor	1/T	Limit	Verdict
BLE_1M	Ant1	2402	0.38	0.63	0.6032	60.32	2.20	2.63	---	---
		2440	0.38	0.63	0.6032	60.32	2.20	2.63	---	---
		2480	0.38	0.63	0.6032	60.32	2.20	2.63	---	---

Test Graphs

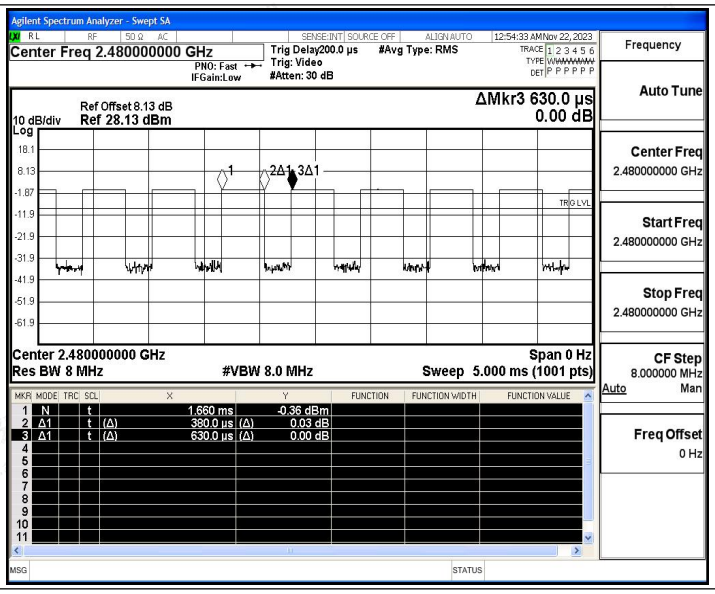
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480


Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig Delay200.0 µs
Trig: Video
#Avg Type: RMS
#Atten: 30 dB
12:54:33 AM Nov 22, 2023
Ref Offset 8.13 dB
10 dB/div Ref 28.13 dBm
ΔMkr3 630.0 µs
0.00 dB
Center 2.480000000 GHz
Res BW 8 MHz
#VBW 8.0 MHz
Span 0 Hz
Sweep 5.000 ms (1001 pts)
1 N 1 t 1.660 ms -0.36 dBm
2 Δ1 t (Δ) 380.0 µs (Δ) 0.03 dB
3 Δ1 t (Δ) 630.0 µs (Δ) 0.00 dB
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.480000000 GHz
Stop Freq
2.480000000 GHz
CF Step
8.000000 MHz
Auto Man
Freq Offset
0 Hz

B.7 Emissions in Restricted Bands

Test Result

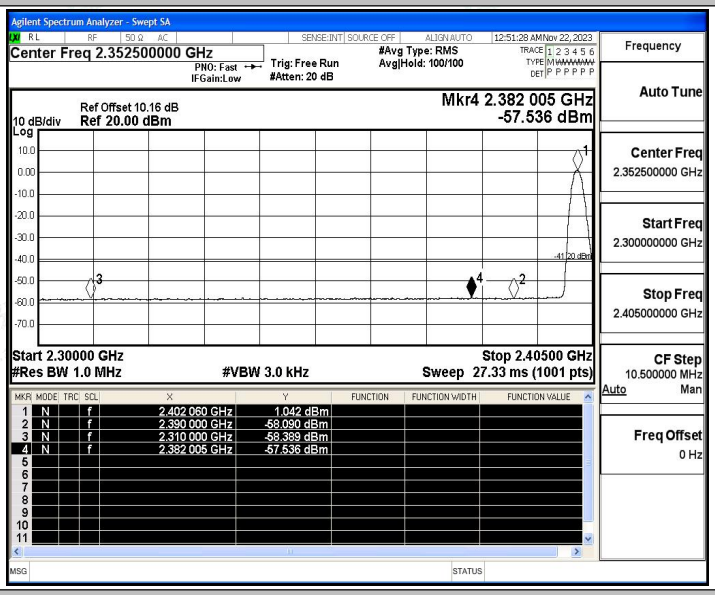
TestMode	Antenna	ChName	Channel	Detector	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
BLE_1M	Ant1	Low	2402	AV	2310.000	-58.39	≤-41.20	36.81	≤54	PASS
				AV	2382.005	-57.54	≤-41.20	37.66	≤54	PASS
				AV	2390.000	-58.09	≤-41.20	37.11	≤54	PASS
				Peak	2310.000	-52.19	≤-21.20	43.01	≤74	PASS
				Peak	2374.235	-48.04	≤-21.20	47.16	≤74	PASS
				Peak	2390.000	-49.02	≤-21.20	46.18	≤74	PASS
		High	2480	AV	2483.500	-54.24	≤-41.20	40.96	≤54	PASS
				AV	2483.520	-54.24	≤-41.20	40.96	≤54	PASS
				AV	2500.000	-58.07	≤-41.20	37.13	≤54	PASS
				Peak	2483.500	-52.13	≤-21.20	43.07	≤74	PASS
				Peak	2495.520	-49.11	≤-21.20	46.09	≤74	PASS
				Peak	2500.000	-52.56	≤-21.20	42.64	≤74	PASS

Note：

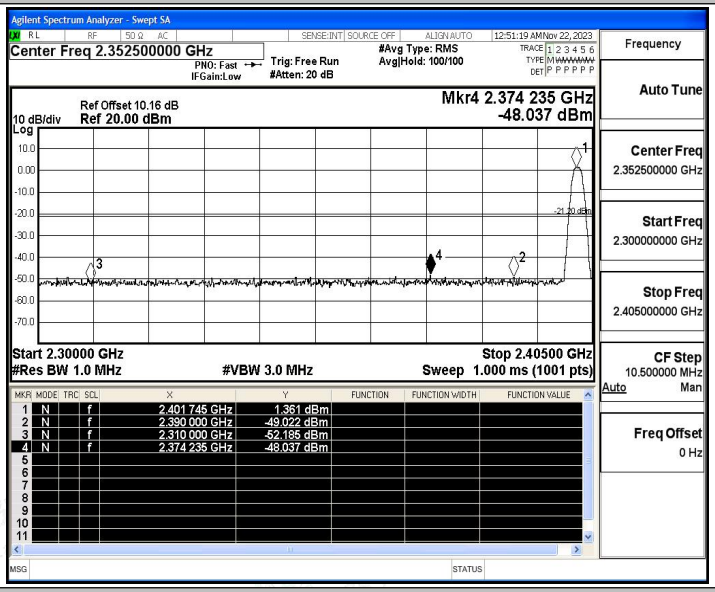
1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Test Graphs

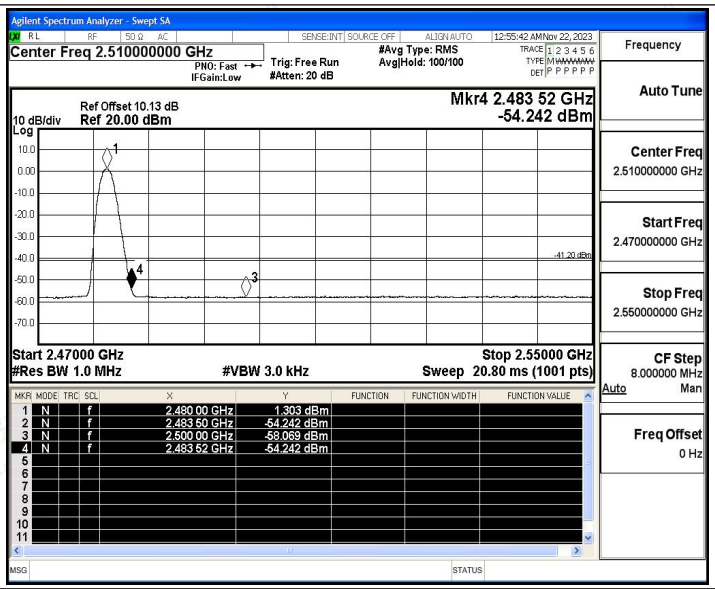
BLE_1M_Ant1_Low_2402_AV



BLE_1M_Ant1_Low_2402_Peak



BLE_1M_Ant1_High_2480_AV



BLE_1M_Ant1_High_2480_Peak