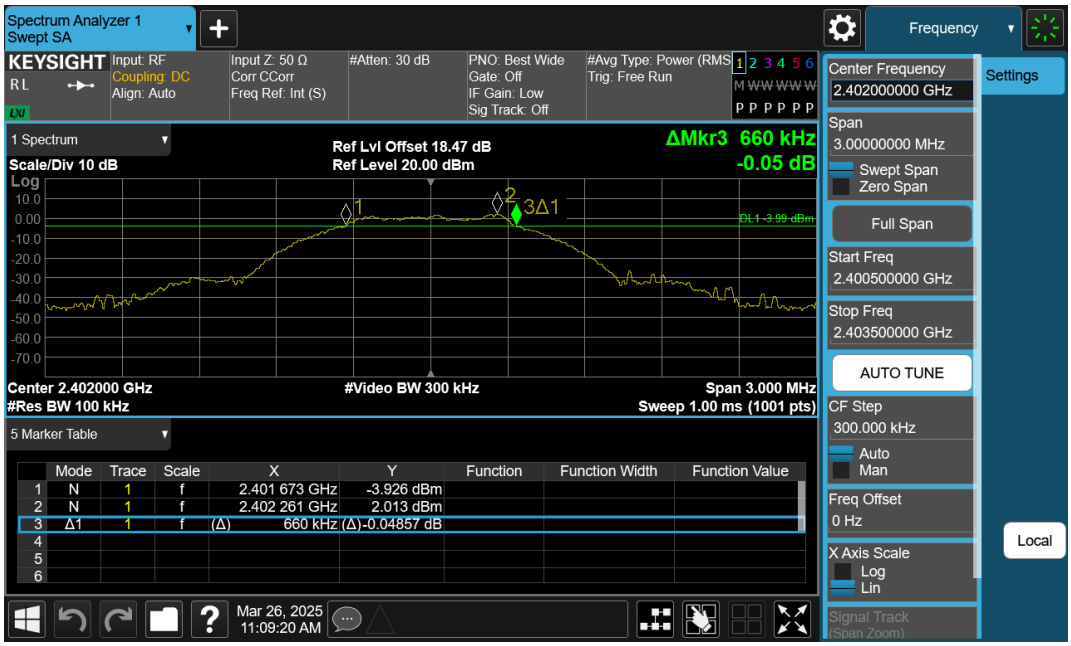
Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.660	2401.673	2402.333	0.5	PASS
BLE_1M	Ant1	2440	0.660	2439.658	2440.318	0.5	PASS
BLE_1M	Ant1	2480	0.654	2479.667	2480.321	0.5	PASS

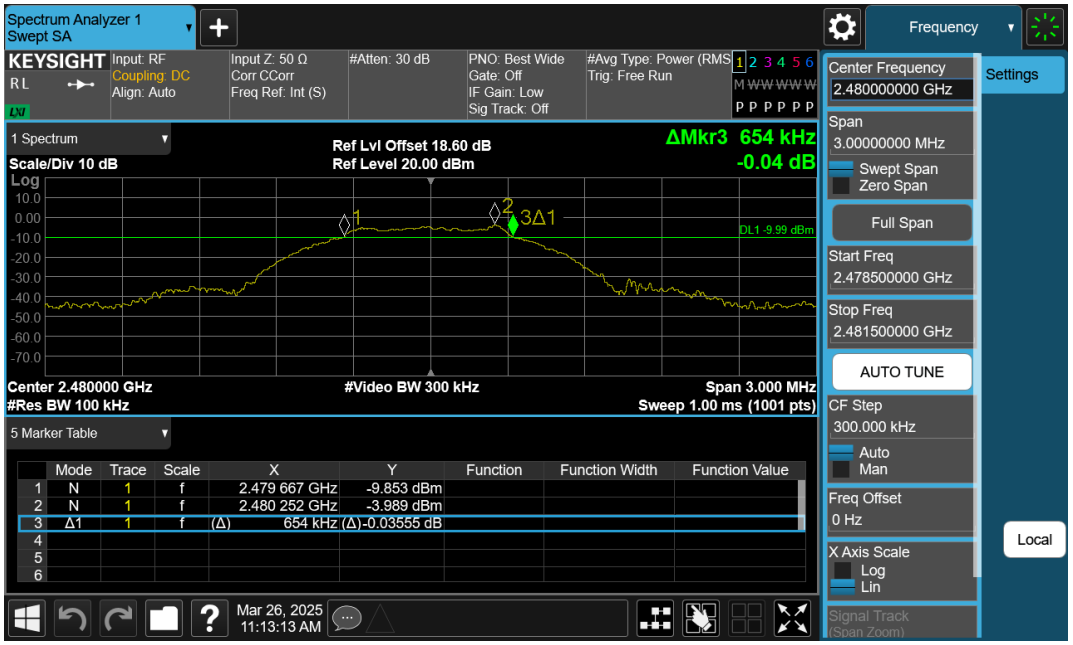
Test Graphs

BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS

BLE_1M-Ant1-2480-PASS


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 30 dB
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
#Avg Type: Power (RMS
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Ref Lvl Offset 18.60 dB
Ref Level 20.00 dBm
ΔMkr3 654 kHz
-0.04 dB
DL1 -9.99 dBm
Center 2.480000 GHz
#Res BW 100 kHz
#Video BW 300 kHz
Span 3.000 MHz
Sweep 1.00 ms (1001 pts)
5 Marker Table
Mode Trace Scale X Y Function Function Width Function Value
1 N 1 f 2.479 667 GHz -9.853 dBm
2 N 1 f 2.480 252 GHz -3.989 dBm
3 Δ1 1 f (Δ) 654 kHz (Δ)-0.03555 dB
Mar 26, 2025
11:13:13 AM
Frequency
Center Frequency
2.480000000 GHz
Span
3.00000000 MHz
Swept Span
Zero Span
Full Span
Start Freq
2.478500000 GHz
Stop Freq
2.481500000 GHz
AUTO TUNE
CF Step
300.000 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local

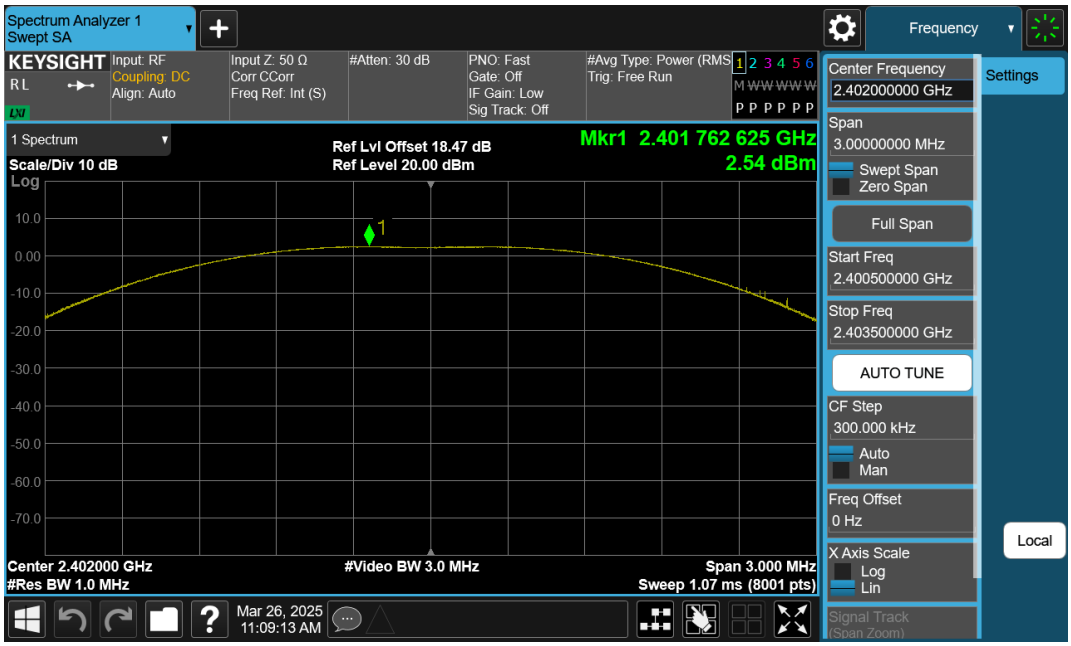
Appendix B: Maximum conducted output power

Test Result Peak

TestMode	Antenna	Frequency[MHz]	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	2.54	≤30	PASS
BLE_1M	Ant1	2440	-0.94	≤30	PASS
BLE_1M	Ant1	2480	-3.30	≤30	PASS

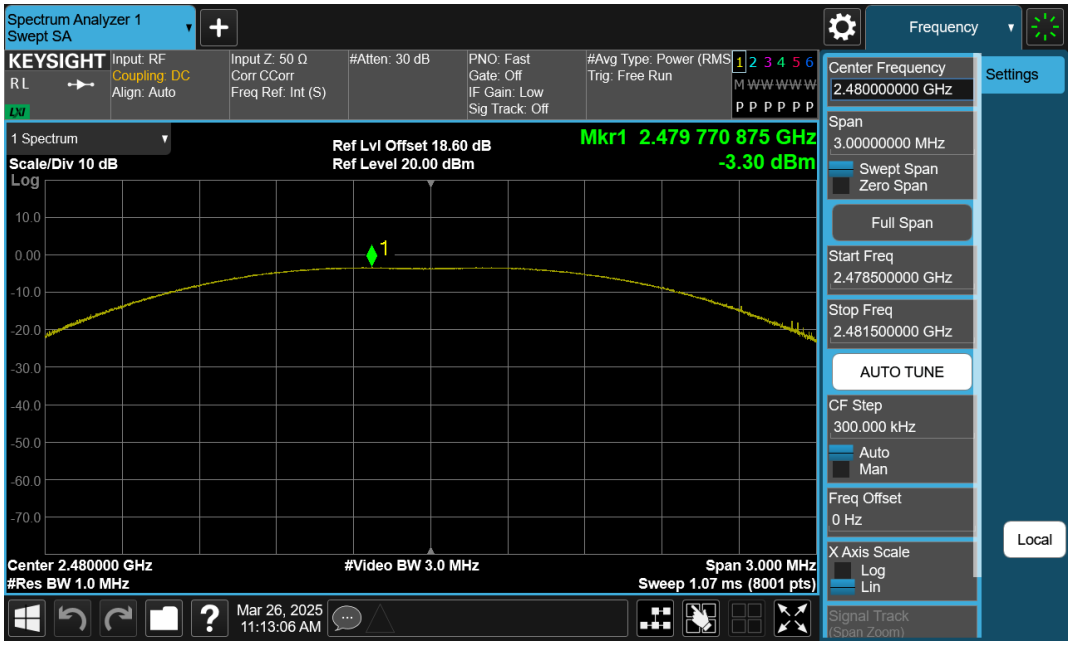
Test Graphs Peak

BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS

BLE_1M-Ant1-2480-PASS



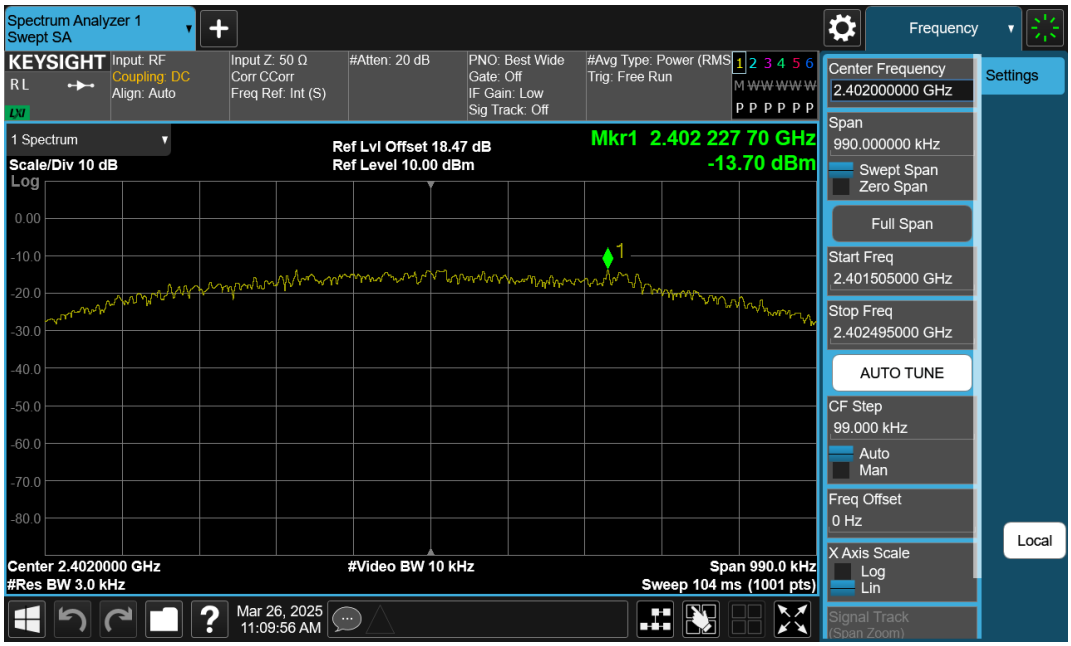
Appendix C: Maximum power spectral density

Test Result

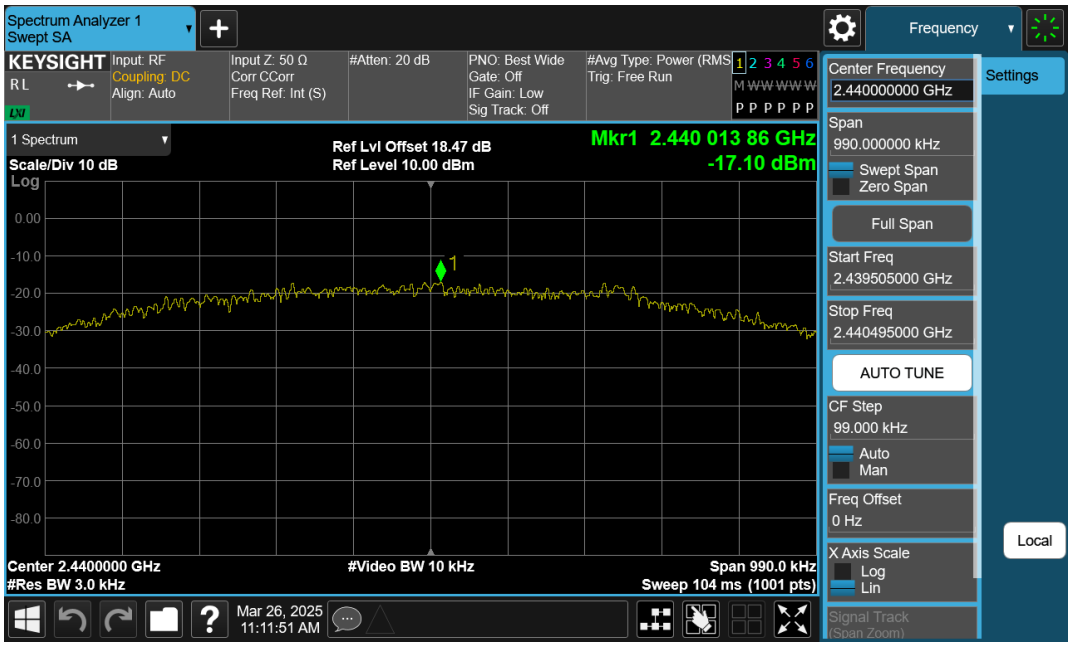
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-13.70	≤8.00	PASS
BLE_1M	Ant1	2440	-17.10	≤8.00	PASS
BLE_1M	Ant1	2480	-19.55	≤8.00	PASS

Test Graphs

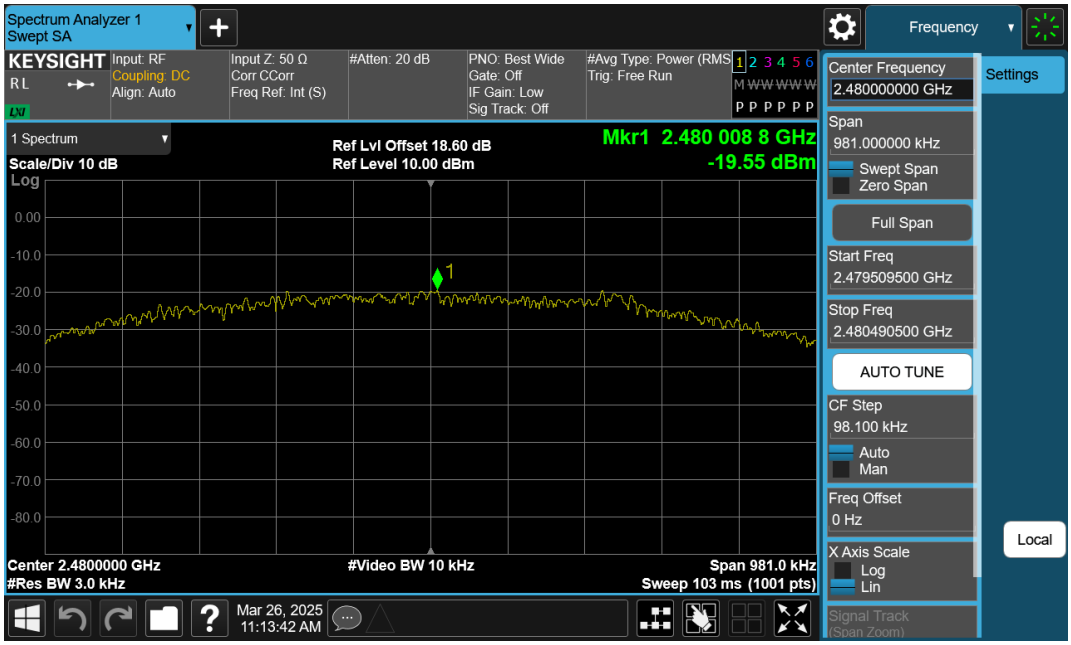
BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS



BLE_1M-Ant1-2480-PASS


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 20 dB
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
#Avg Type: Power (RMS
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 18.60 dB
Ref Level 10.00 dBm
Mkr1 2.480 008 8 GHz
-19.55 dBm
Center 2.4800000 GHz
#Res BW 3.0 kHz
#Video BW 10 kHz
Span 981.0 kHz
Sweep 103 ms (1001 pts)
Mar 26, 2025
11:13:42 AM
Frequency
Center Frequency
2.480000000 GHz
Span
981.000000 kHz
Swept Span
Zero Span
Full Span
Start Freq
2.479509500 GHz
Stop Freq
2.480490500 GHz
AUTO TUNE
CF Step
98.100 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local

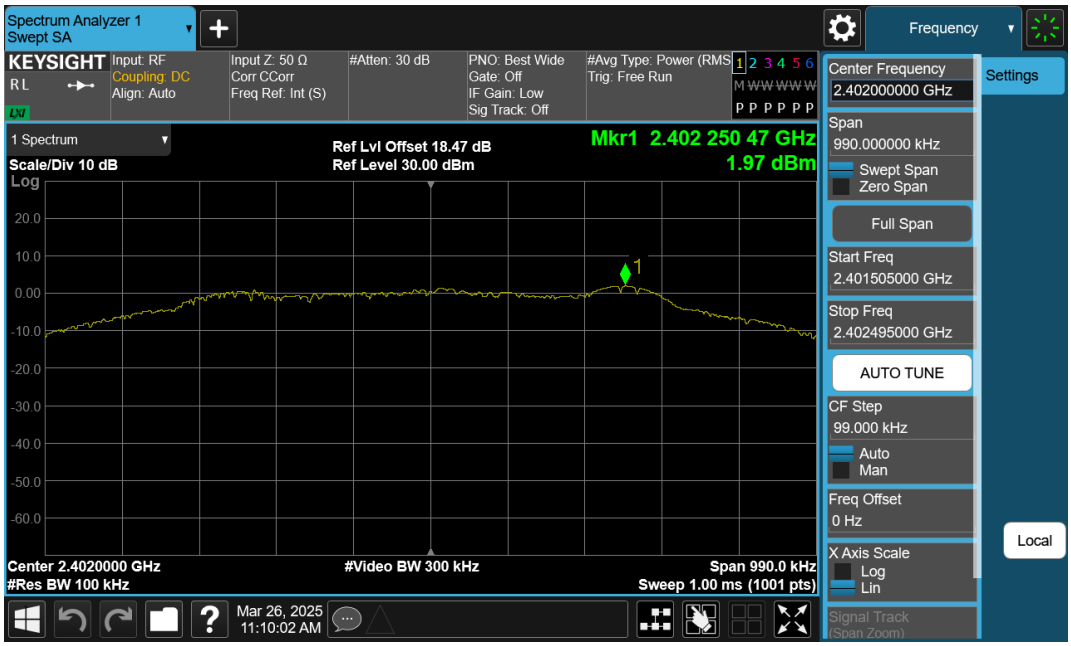
Appendix D: Reference level measurement

Test Result

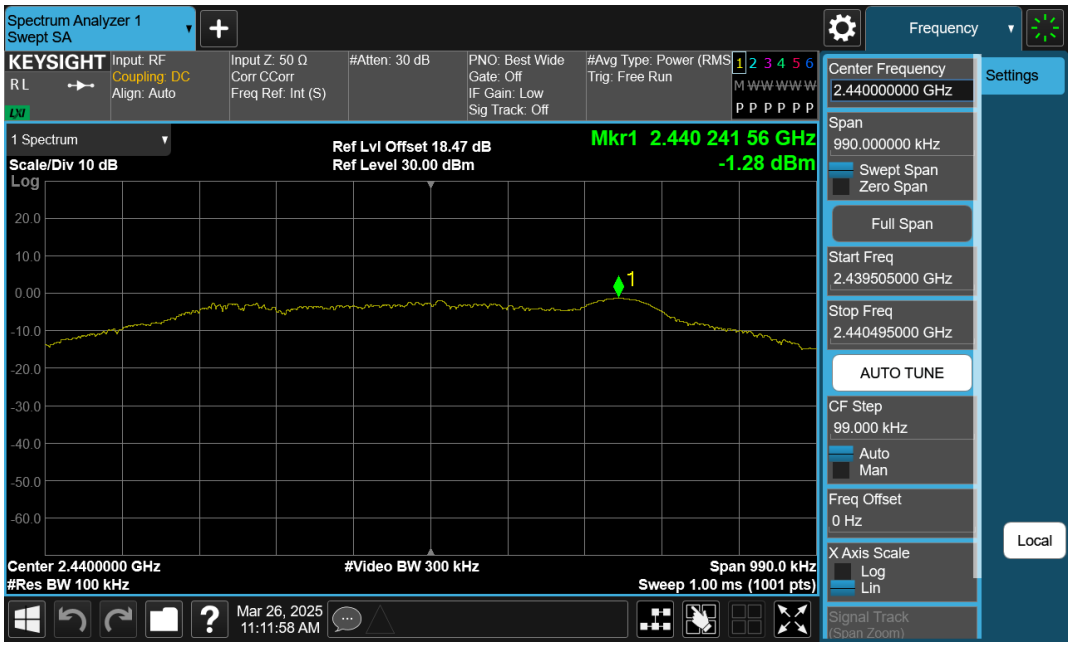
TestMode	Antenna	Freq(MHz)	Max.Point[MHz]	Result[dBm]
BLE_1M	Ant1	2402	2402.25	1.97
BLE_1M	Ant1	2440	2440.24	-1.28
BLE_1M	Ant1	2480	2480.25	-3.88

Test Graphs

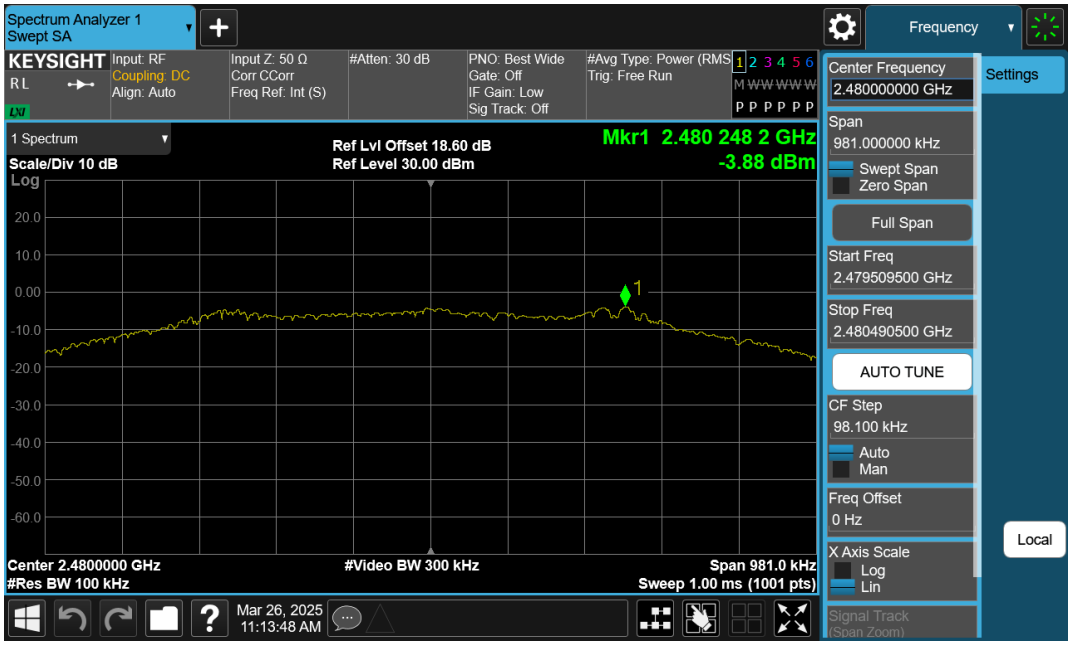
BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2440-PASS



BLE_1M-Ant1-2480-PASS


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 30 dB
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
#Avg Type: Power (RMS
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 18.60 dB
Ref Level 30.00 dBm
Mkr1 2.480 248 2 GHz
-3.88 dBm
Center 2.4800000 GHz
#Res BW 100 kHz
#Video BW 300 kHz
Span 981.0 kHz
Sweep 1.00 ms (1001 pts)
Mar 26, 2025
11:13:48 AM
Frequency
Center Frequency
2.480000000 GHz
Span
981.000000 kHz
Swept Span
Zero Span
Full Span
Start Freq
2.479509500 GHz
Stop Freq
2.480490500 GHz
AUTO TUNE
CF Step
98.100 kHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local

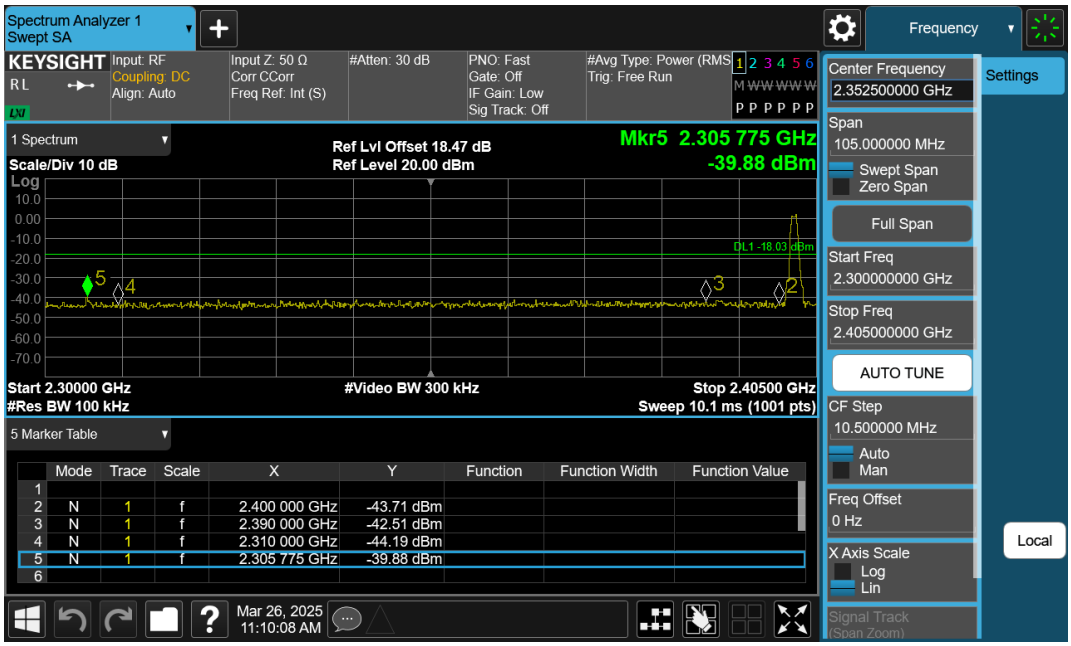
Appendix E: Band edge measurements

Test Result

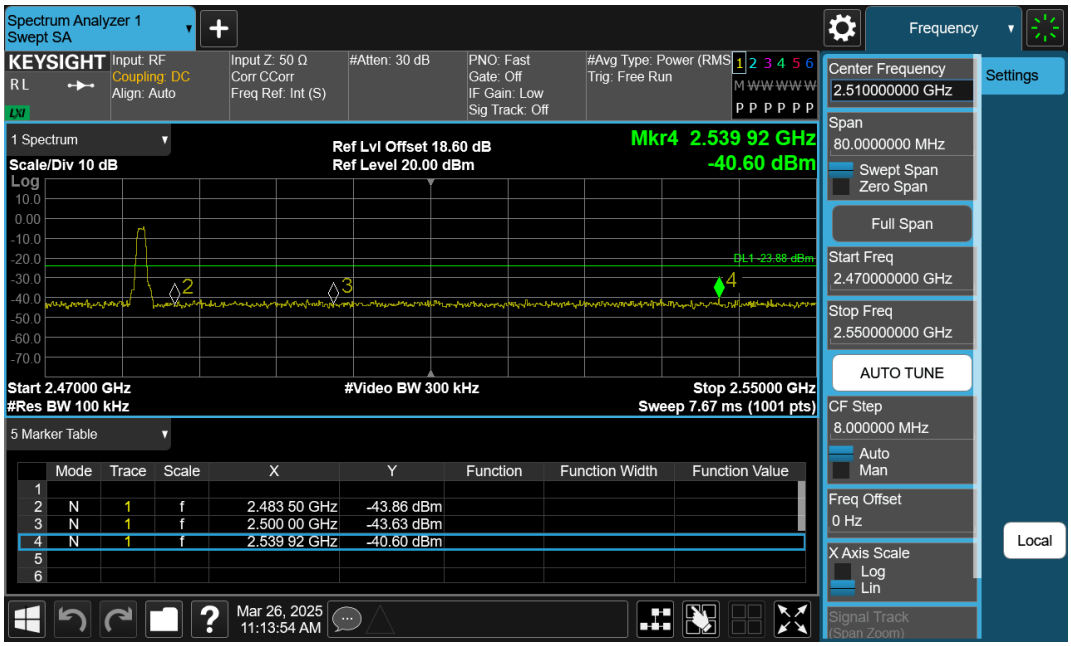
TestMode	Antenna	ChName	Frequency[MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	1.97	-39.88	≤-18.03	PASS
BLE_1M	Ant1	High	2480	-3.88	-40.60	≤-23.88	PASS

Test Graphs

BLE_1M-Ant1-2402-PASS



BLE_1M-Ant1-2480-PASS



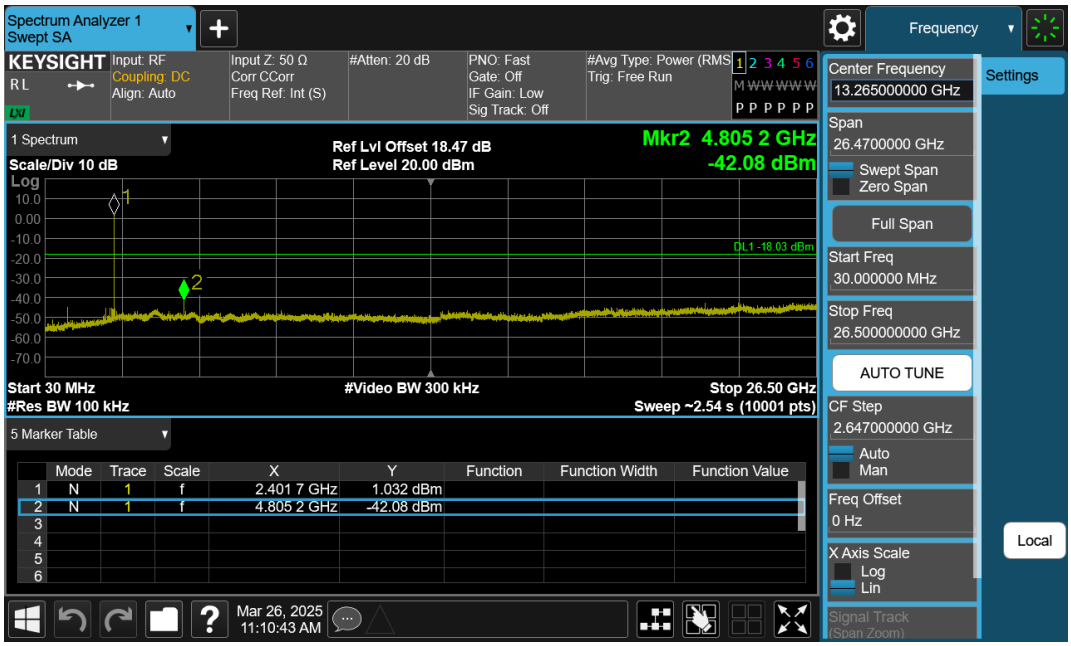
Appendix F: Conducted Spurious Emission

Test Result

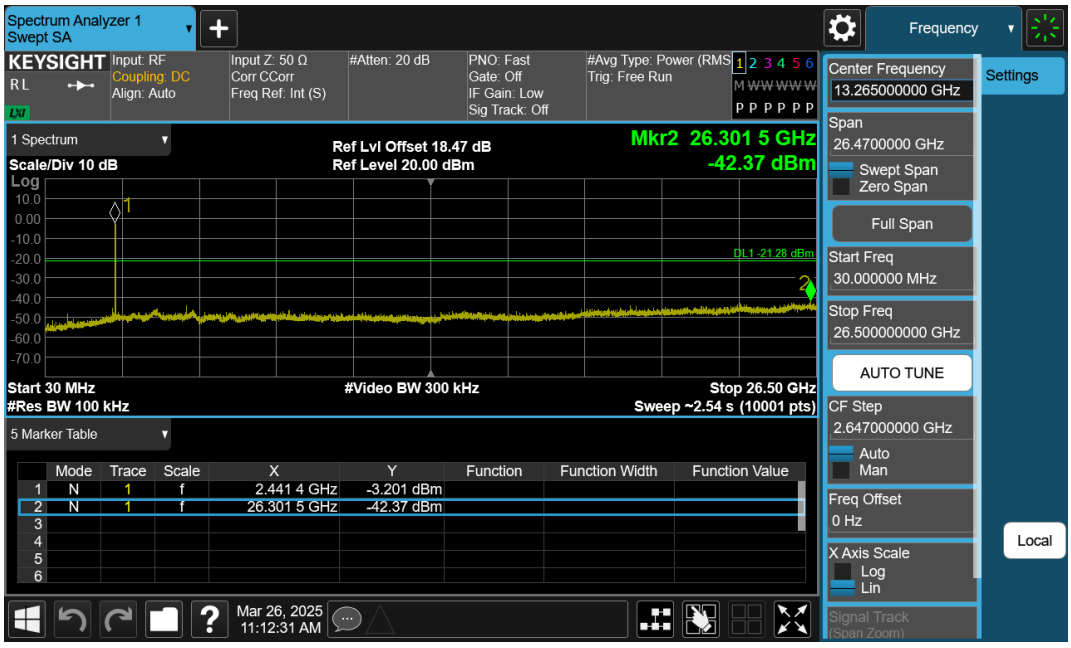
TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	30~26500	1.97	-42.08	≤-18.03	PASS
BLE_1M	Ant1	2440	30~26500	-1.28	-42.37	≤-21.28	PASS
BLE_1M	Ant1	2480	30~26500	-3.88	-41.78	≤-23.88	PASS

Test Graphs

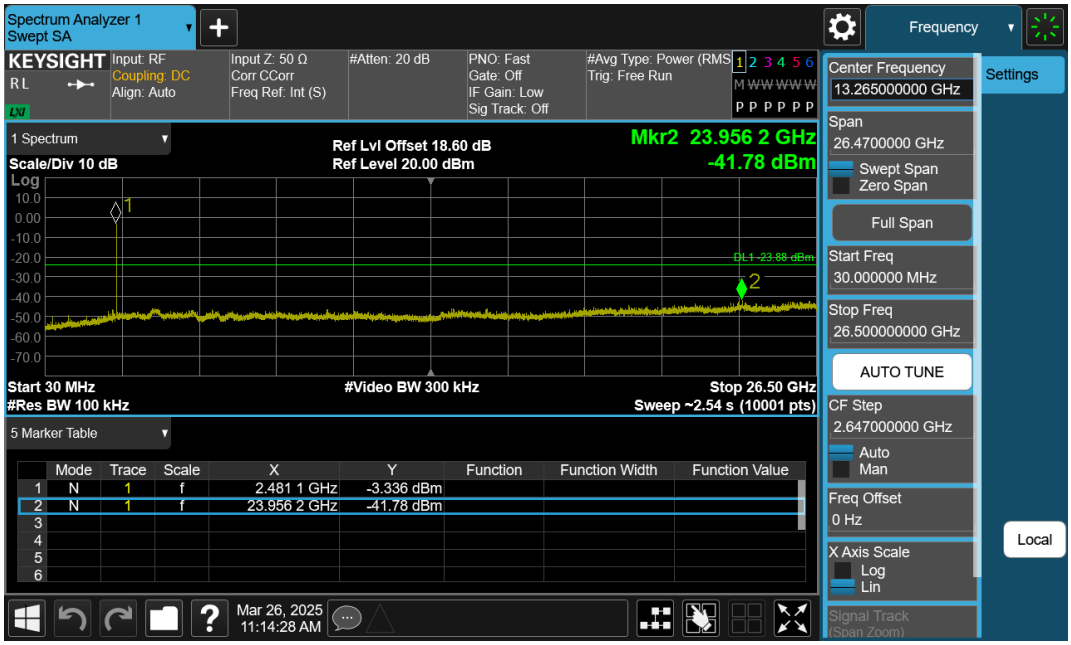
BLE_1M-Ant1-2402-30~26500-PASS



BLE_1M-Ant1-2440-30~26500-PASS



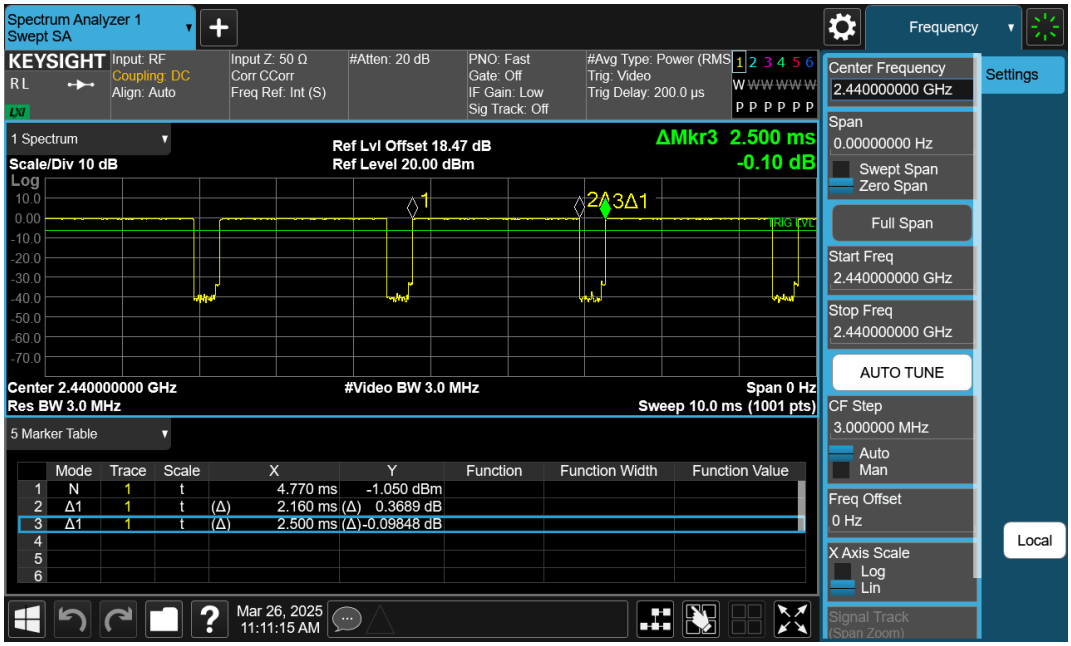
BLE_1M-Ant1-2480-30~26500-PASS


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 20 dB
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
#Avg Type: Power (RMS)
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Ref Lvl Offset 18.60 dB
Ref Level 20.00 dBm
Mkr2 23.956 2 GHz
-41.78 dBm
Start 30 MHz
#Res BW 100 kHz
#Video BW 300 kHz
Stop 26.50 GHz
Sweep ~2.54 s (10001 pts)
5 Marker Table
Mode Trace Scale X Y Function Function Width Function Value
1 N 1 f 2.481 1 GHz -3.336 dBm
2 N 1 f 23.956 2 GHz -41.78 dBm
Mar 26, 2025
11:14:28 AM
Frequency
Center Frequency
13.265000000 GHz
Span
26.4700000 GHz
Swept Span
Zero Span
Full Span
Start Freq
30.000000 MHz
Stop Freq
26.500000000 GHz
AUTO TUNE
CF Step
2.647000000 GHz
Auto
Man
Freq Offset
0 Hz
X Axis Scale
Log
Lin
Signal Track
(Span Zoom)
Settings
Local

Appendix G: Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]
BLE_1M	Ant1	2440	2.16	2.50	86.40	0.63

Test Graphs

NTNV-BLE_1M-Ant1-2440