

Appendix B

RF Test Data for BT V5.0 (LE & 2LE) (Conducted Measurement)

Product Name: earbud

Trade Mark: BEAN X

Test Model: Wayl Bean X

Environmental Conditions

Temperature:	24.4 °C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	David.Luo
Supervised by:	Tom.Liu

B.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS
BT 2LE	2440	Ant1	100	PASS

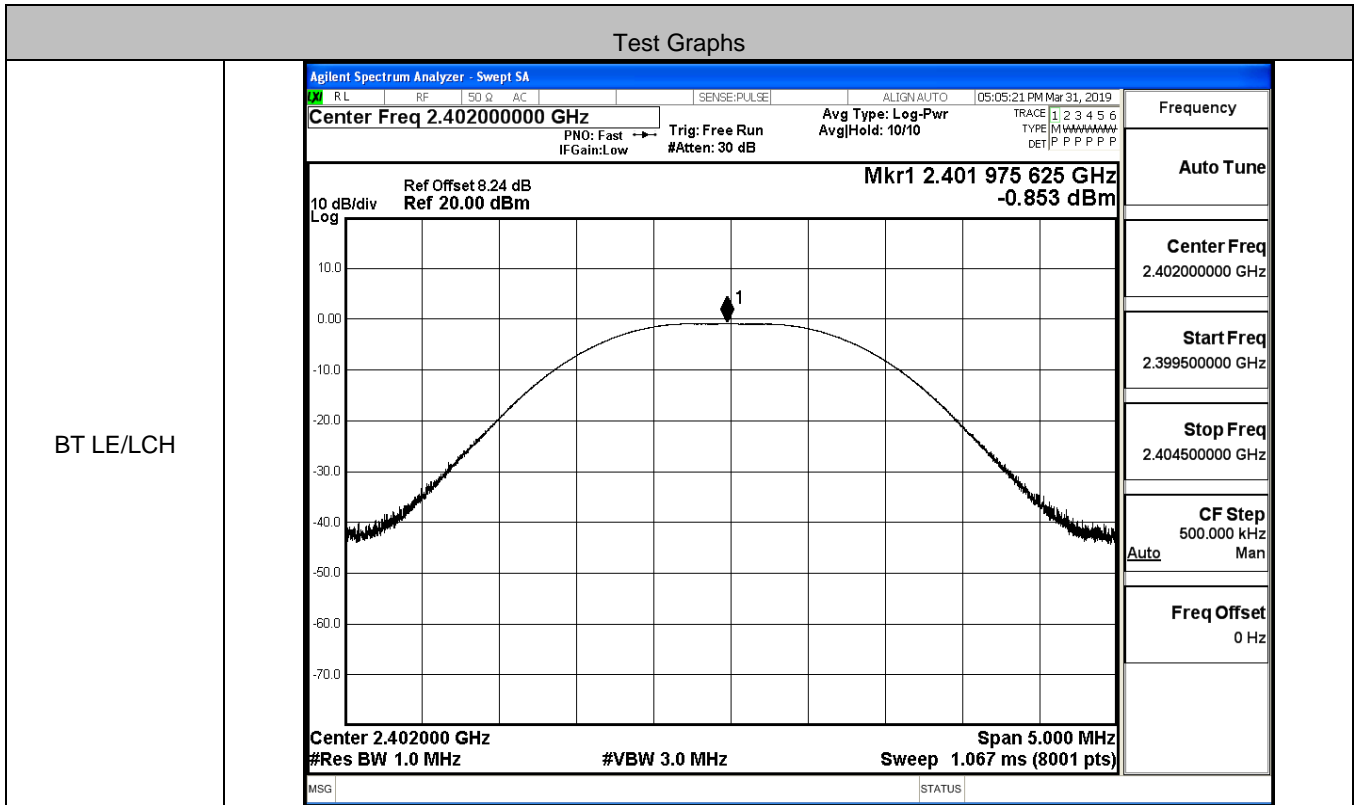
Test Graphs

BT LE

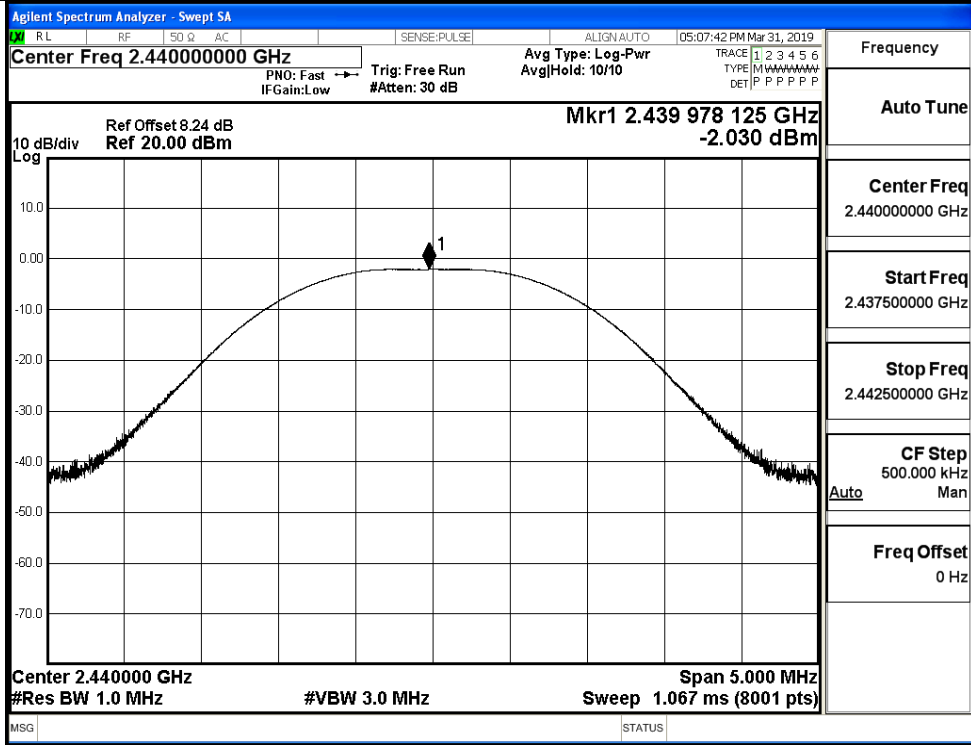
Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.440000000 GHz
 Res BW 8 MHz #VBW 50 MHz Sweep 20.27 ms (8001 pts)
 Span 0 Hz
 Ref 20.00 dBm
 10 dB/div Log
 Avg Type: Log-Pwr AvgHold: 10/10
 Trig: Free Run #Atten: 30 dB
 PNO: Fast IFGain: Low
 Frequency: 2.440000000 GHz
 Start Freq: 2.440000000 GHz
 Stop Freq: 2.440000000 GHz
 CF Step: 8.000000 MHz
 Freq Offset: 0 Hz

B.2 Maximum Conducted Peak Output Power

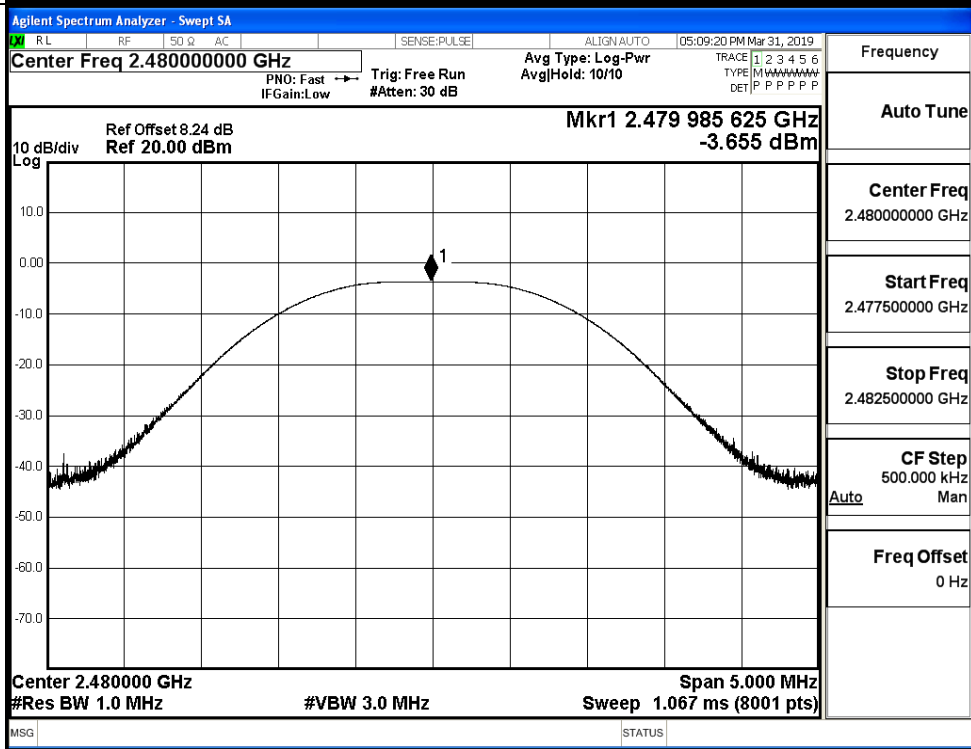
Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.853	30	PASS
BT LE	MCH	-2.03	30	PASS
BT LE	HCH	-3.655	30	PASS
BT 2LE	LCH	-1.317	30	PASS
BT 2LE	MCH	-2.403	30	PASS
BT 2LE	HCH	-3.872	30	PASS



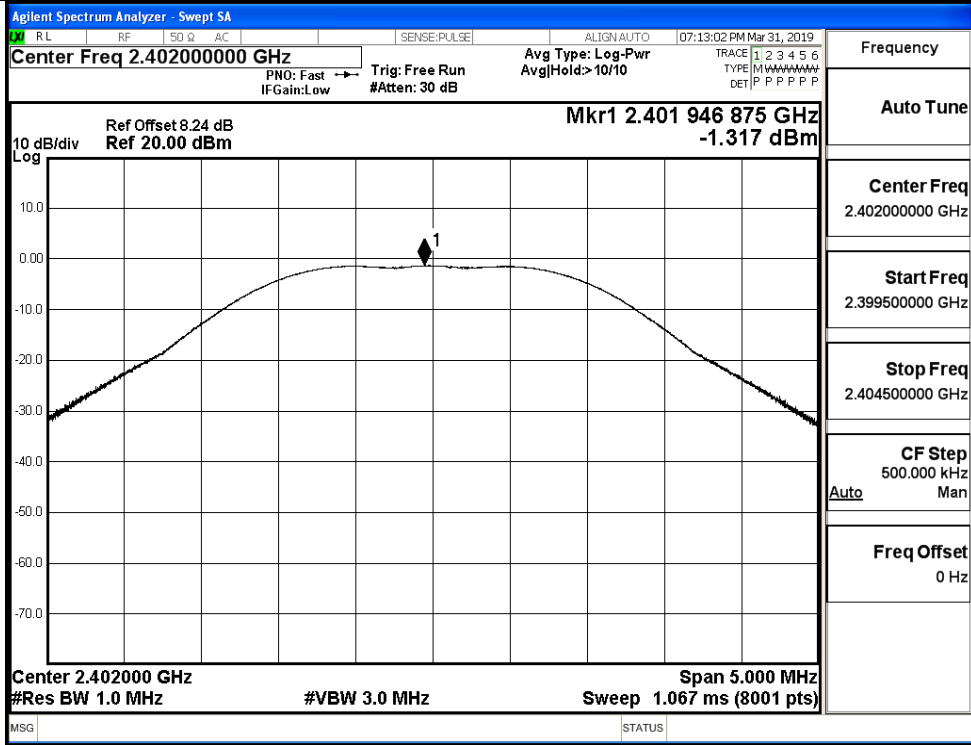
BT LE/MCH



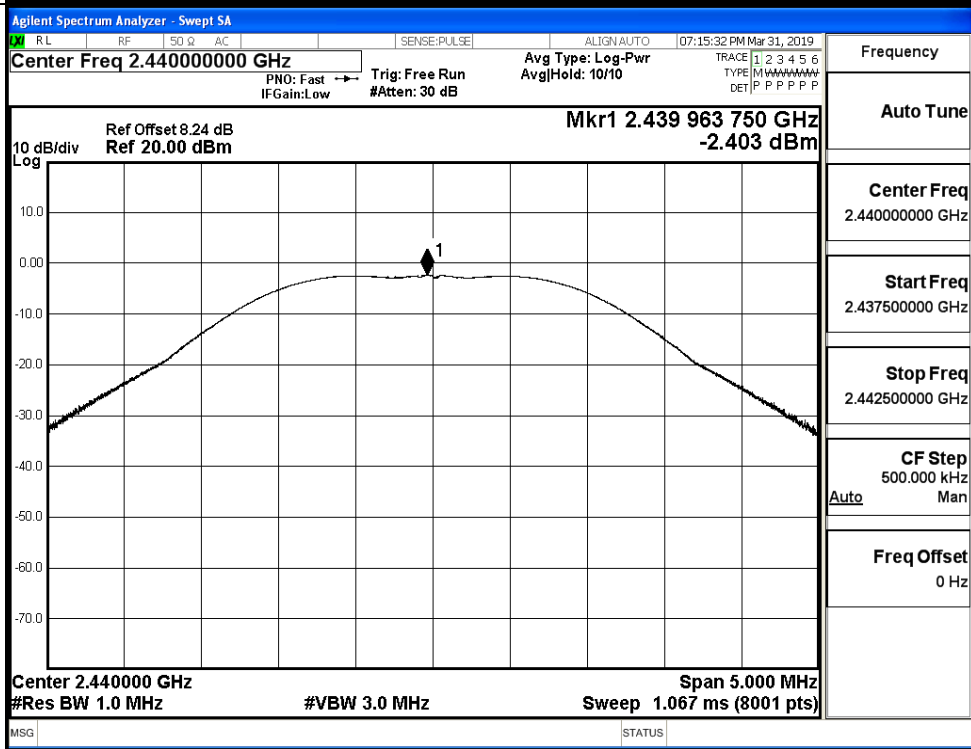
BT LE/HCH



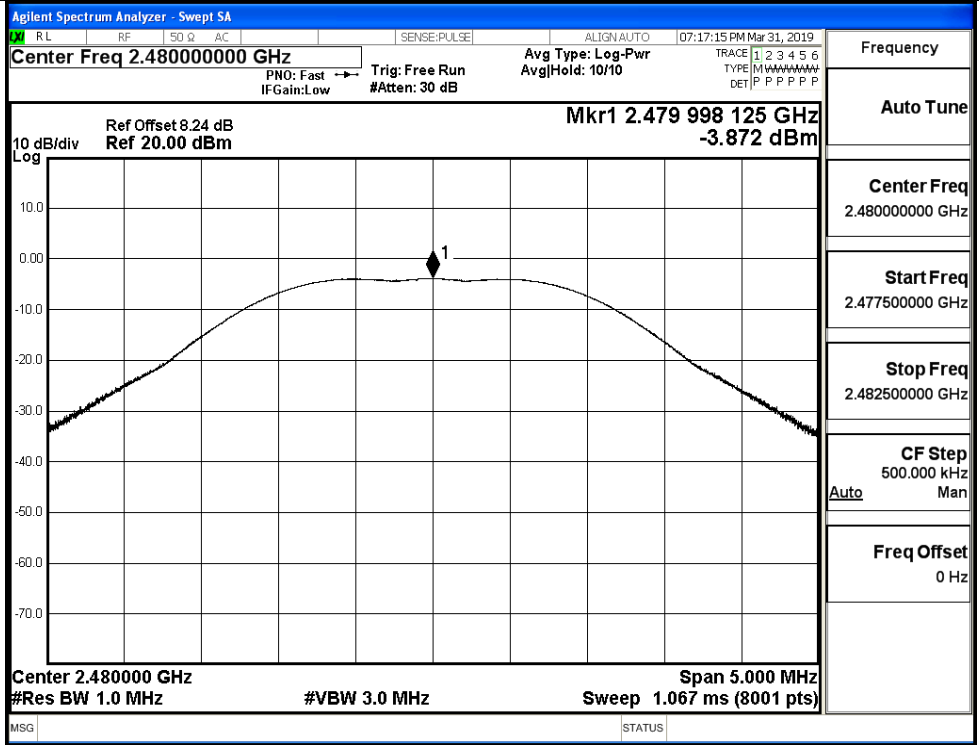
BT 2LE/LCH



BT 2LE/MCH

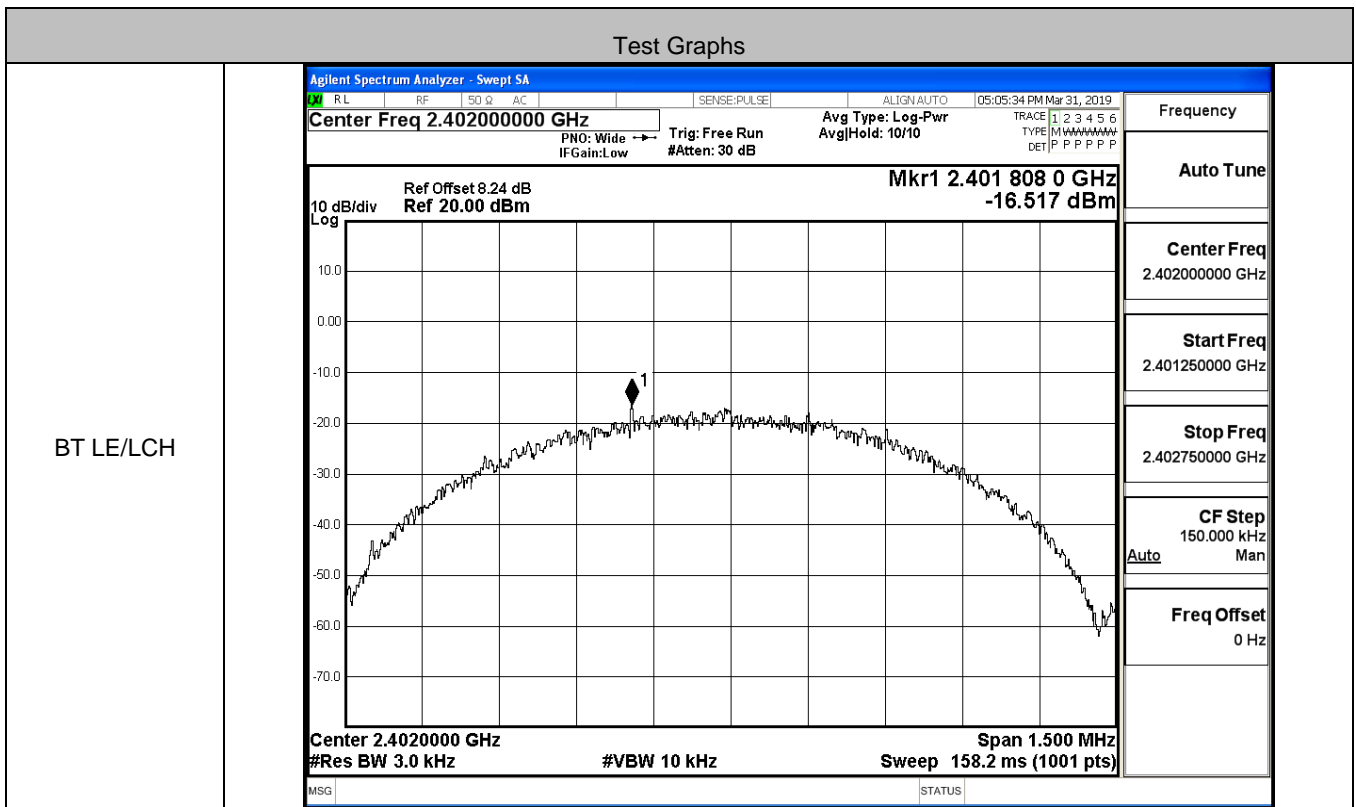


BT 2LE/HCH

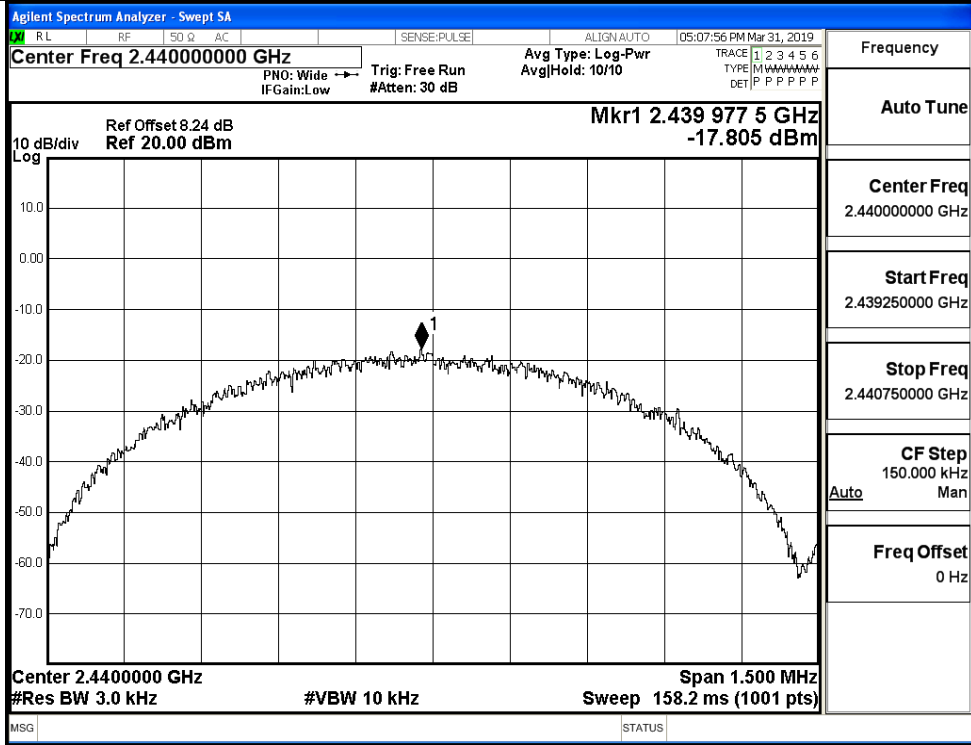


B.3 Maximum Power Spectral Density

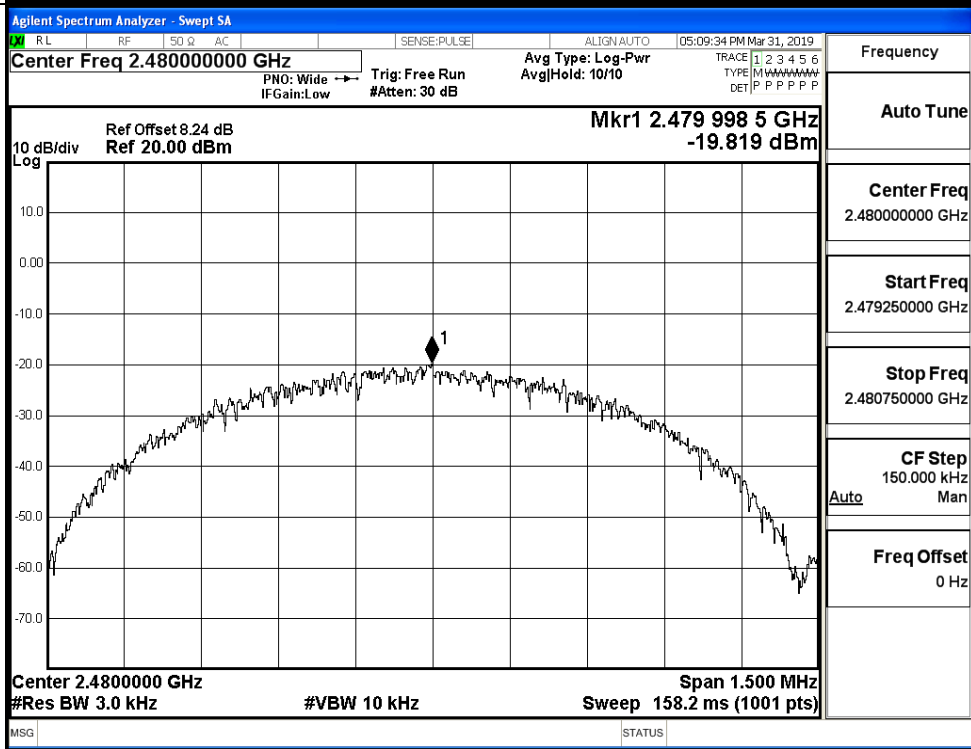
Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-16.517	8	PASS
BT LE	MCH	-17.805	8	PASS
BT LE	HCH	-19.819	8	PASS
BT 2LE	LCH	-18.606	8	PASS
BT 2LE	MCH	-20.965	8	PASS
BT 2LE	HCH	-23.011	8	PASS



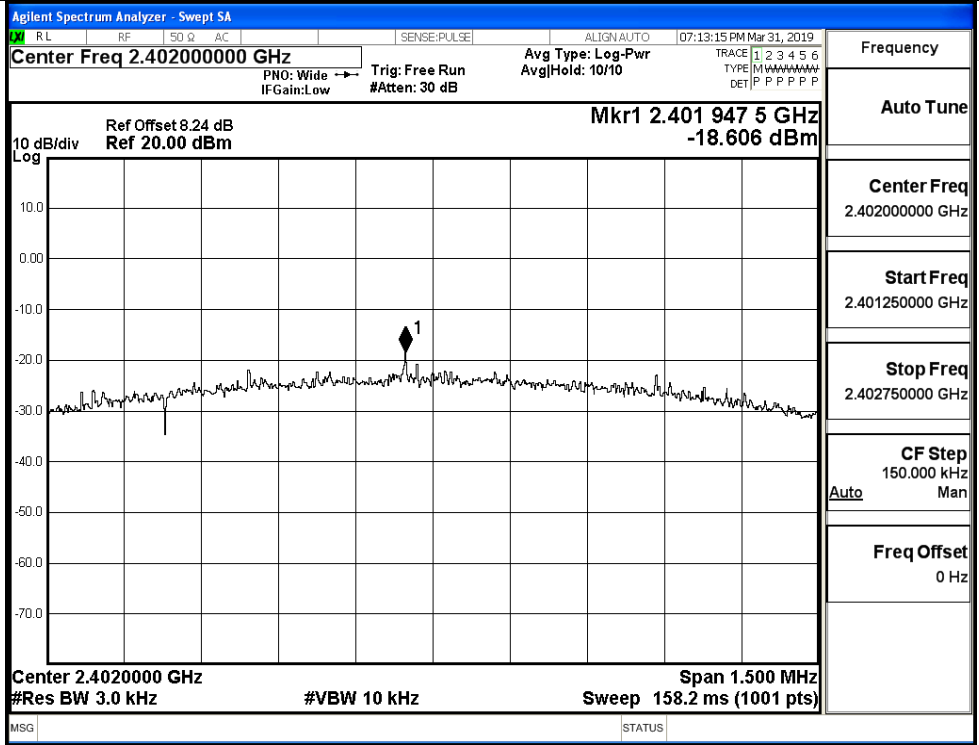
BT LE/MCH



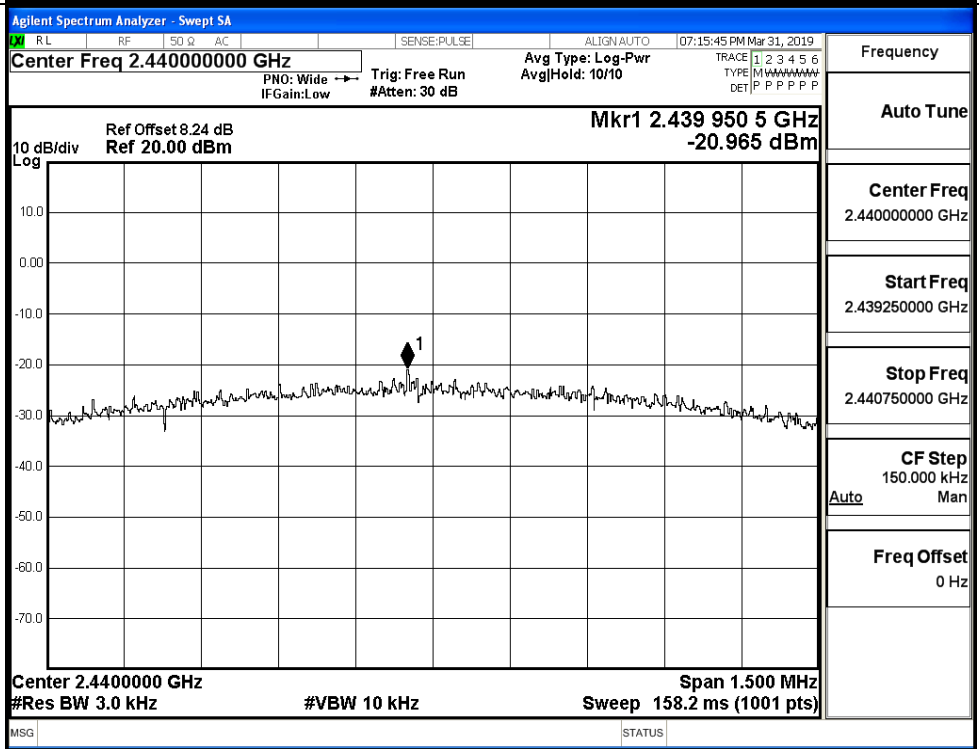
BT LE/HCH

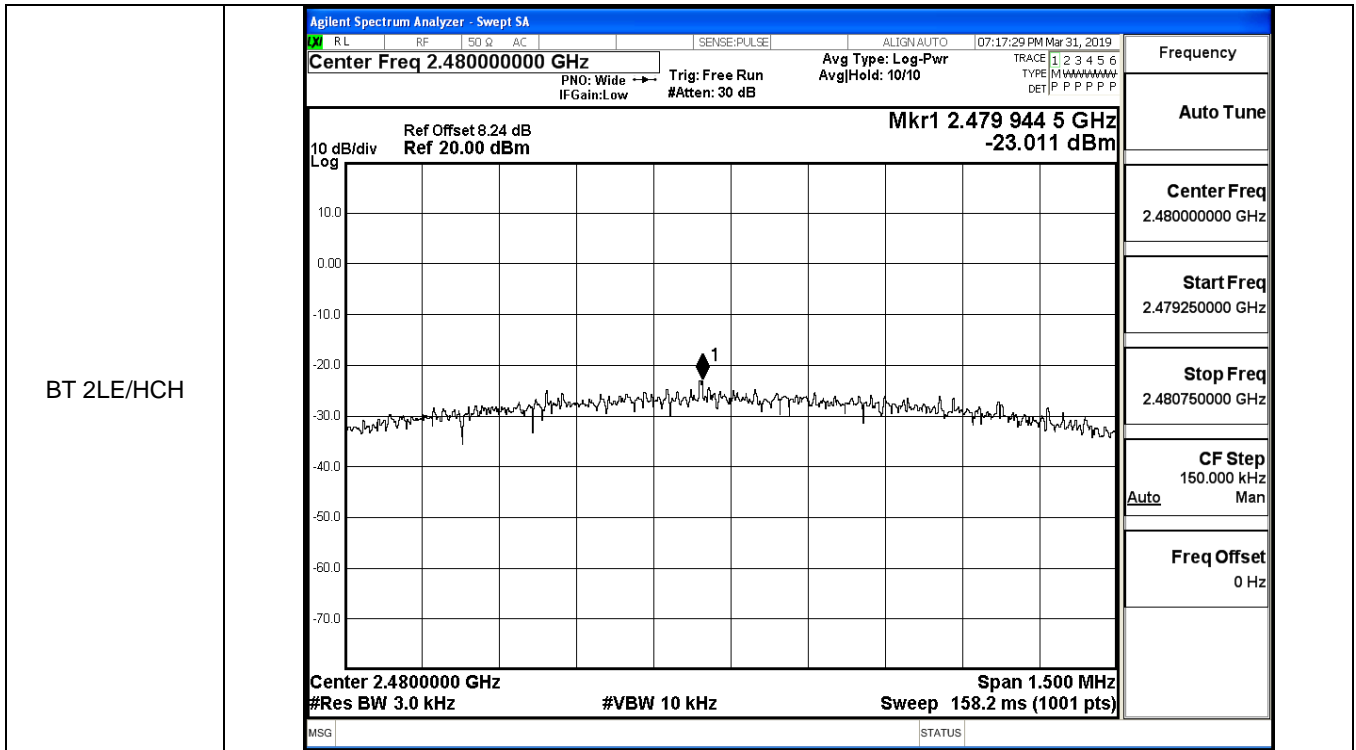


BT 2LE/LCH



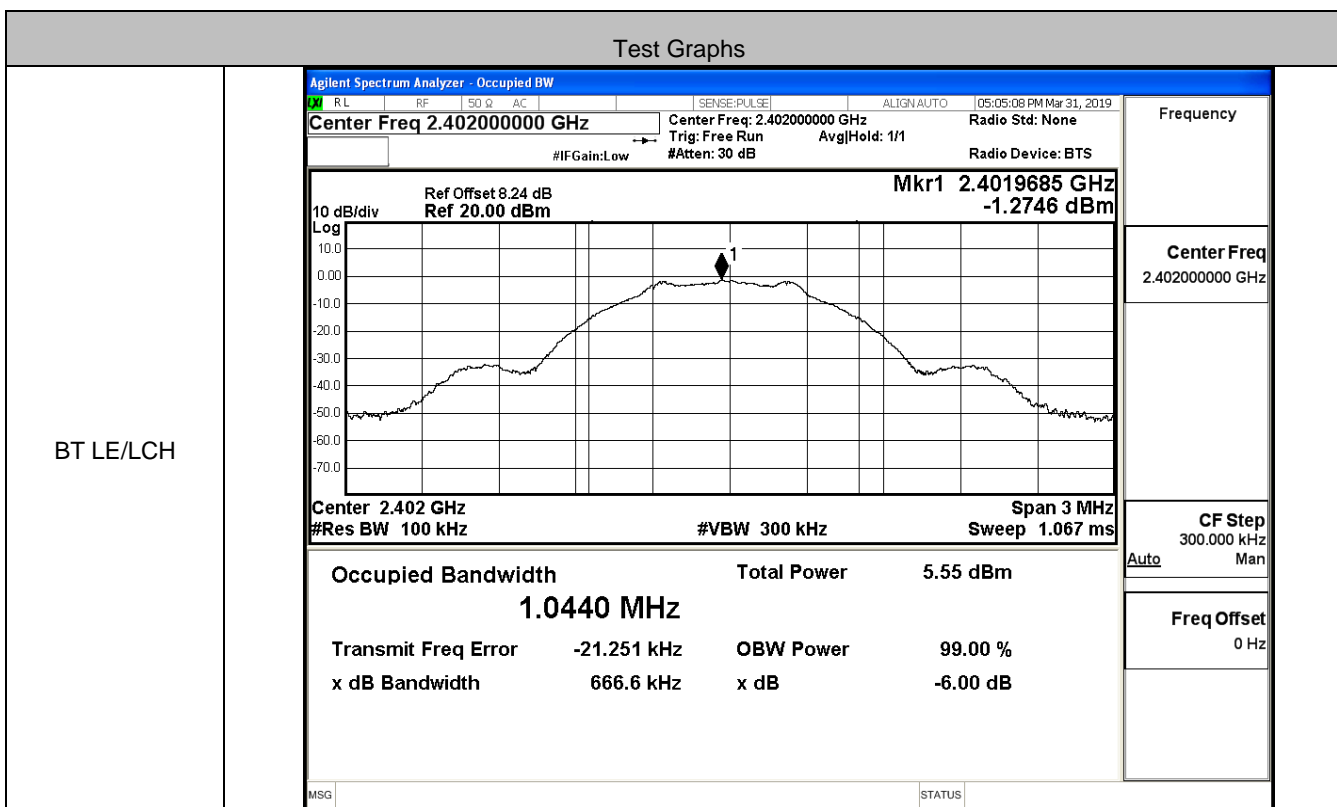
BT 2LE/MCH



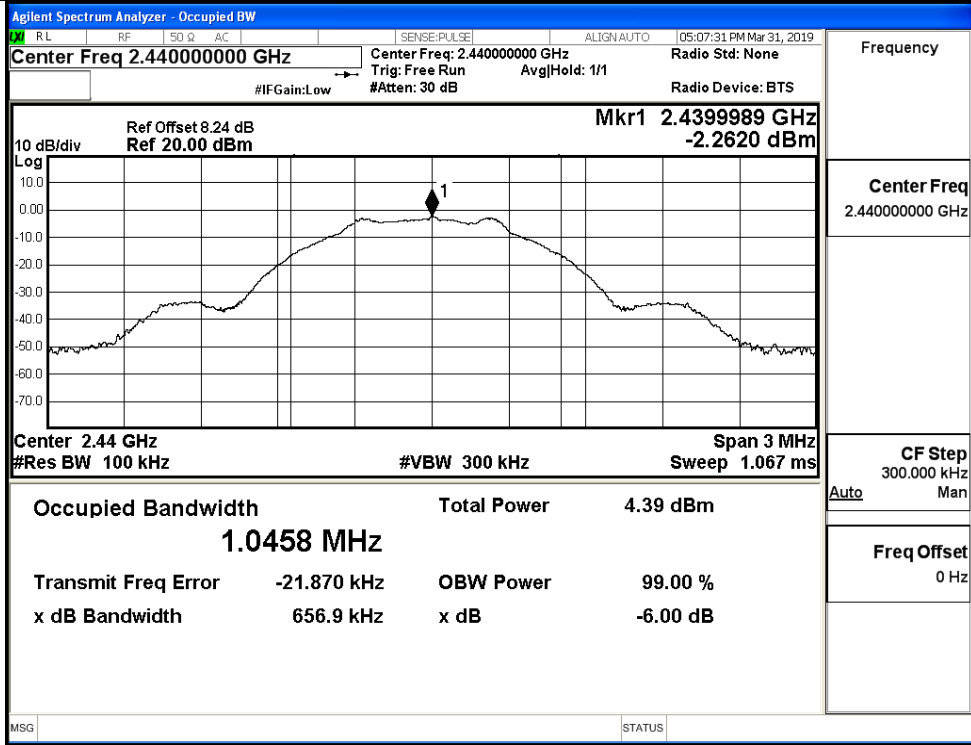


B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6666	≥0.5	PASS
BT LE	MCH	0.6569	≥0.5	PASS
BT LE	HCH	0.6578	≥0.5	PASS
BT 2LE	LCH	1.136	≥0.5	PASS
BT 2LE	MCH	1.117	≥0.5	PASS
BT 2LE	HCH	1.117	≥0.5	PASS

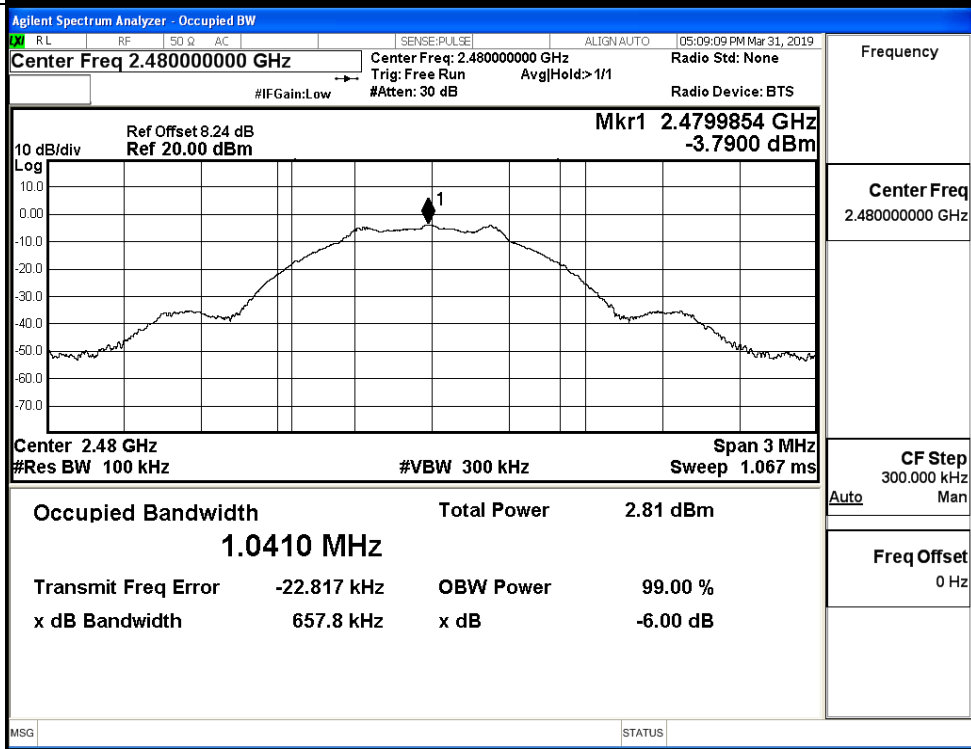


BT LE/MCH



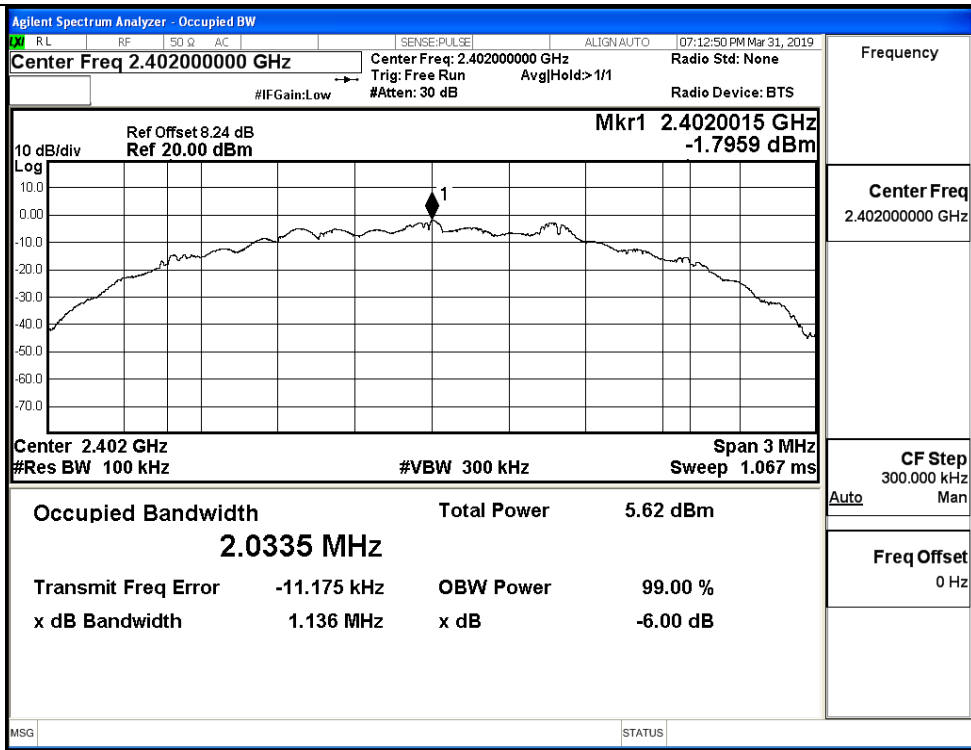
Frequency	2.44000000 GHz
Center Freq	2.44000000 GHz
CF Step	300.000 kHz
Auto	Man
Freq Offset	0 Hz

BT LE/HCH



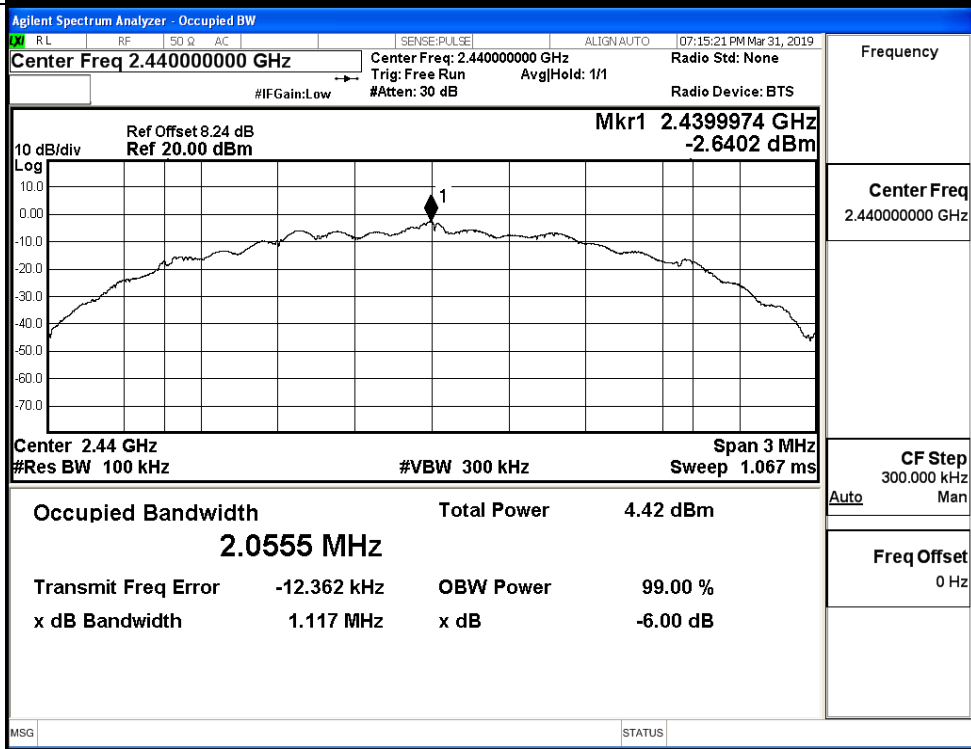
Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	300.000 kHz
Auto	Man
Freq Offset	0 Hz

BT 2LE/LCH



Frequency	2.40200000 GHz
Center Freq	2.40200000 GHz
CF Step	300.000 kHz
Auto	Man
Freq Offset	0 Hz

BT 2LE/MCH



Frequency	2.44000000 GHz
Center Freq	2.44000000 GHz
CF Step	300.000 kHz
Auto	Man
Freq Offset	0 Hz

BT 2LE/HCH

Agilent Spectrum Analyzer - Occupied BW

Center Freq 2.480000000 GHz	Center Freq: 2.480000000 GHz	Radio Std: None	Frequency
#IFGain: Low	Trig: Free Run	AvgHold: 1/1	
	#Atten: 30 dB	Radio Device: BTS	

10 dB/div Ref Offset 8.24 dB **Mkr1 2.4799944 GHz**

Log Ref 20.00 dBm **-4.1619 dBm**

Center 2.48 GHz Span 3 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms

Occupied Bandwidth	Total Power	2.93 dBm
2.0539 MHz		
Transmit Freq Error	-12.876 kHz	OBW Power 99.00 %
x dB Bandwidth	1.117 MHz	x dB -6.00 dB

Center Freq
2.480000000 GHz

CF Step
300.000 kHz
Auto Man

Freq Offset
0 Hz

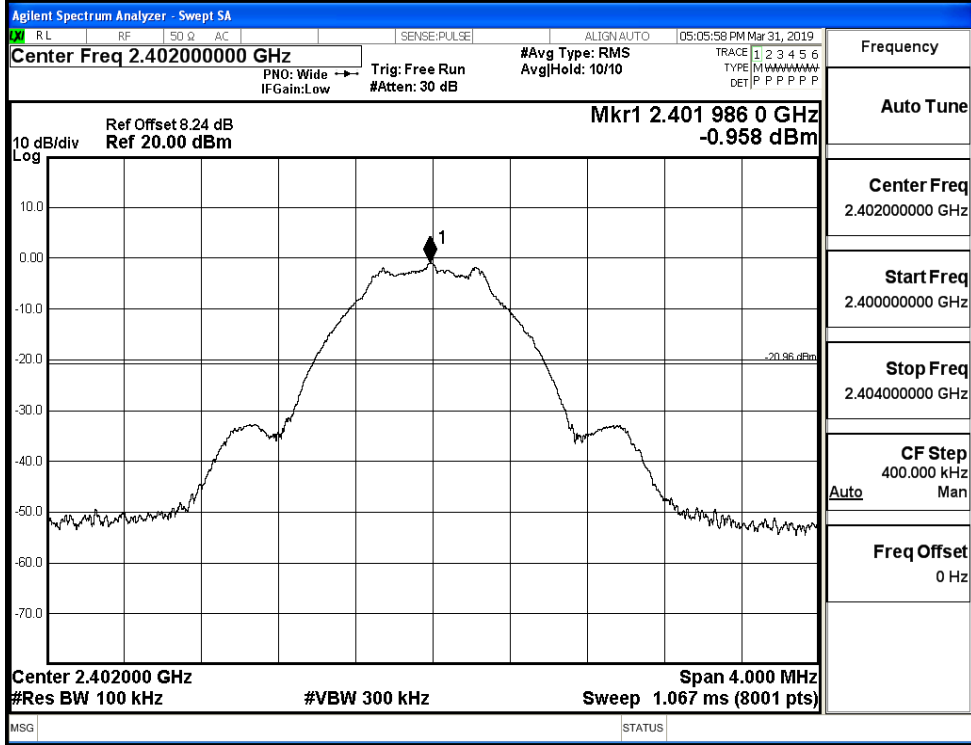
MSG
STATUS

B.5 RF Conducted Spurious Emissions

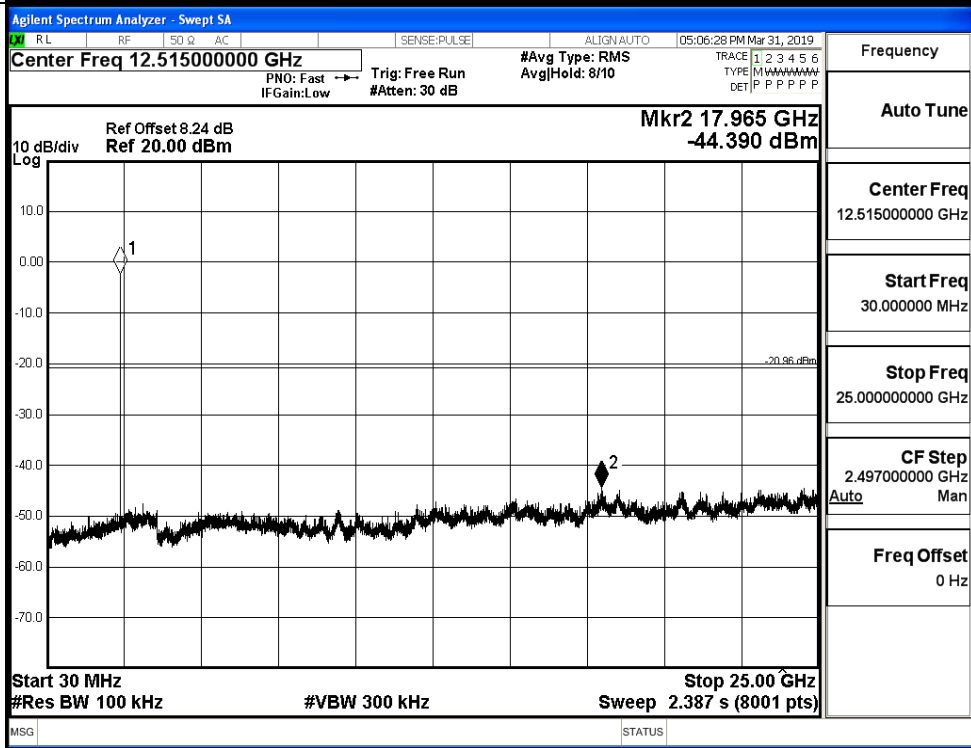
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.958	-44.390	-20.958	PASS
BT LE	MCH	-3.003	-44.577	-23.003	PASS
BT LE	HCH	-3.793	-44.275	-23.793	PASS
BT 2LE	LCH	-1.57	-44.048	-21.570	PASS
BT 2LE	MCH	-2.688	-43.470	-22.688	PASS
BT 2LE	HCH	-4.136	-43.510	-24.136	PASS

BT LE_LCH_Graphs

Pref/BT LE/LCH

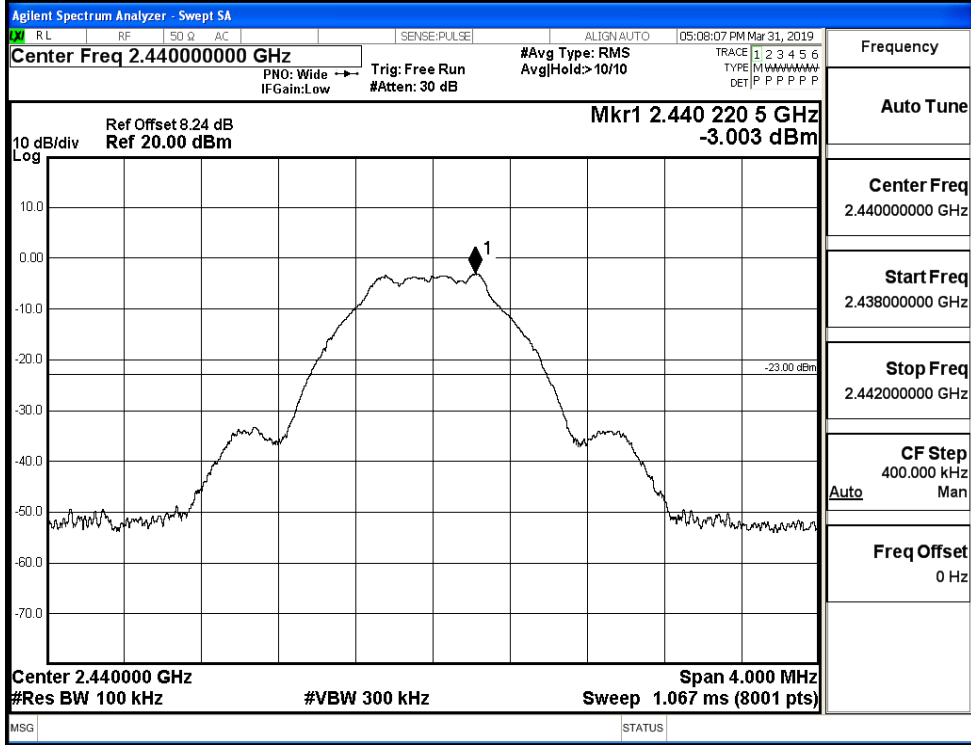


Puw/BT LE/LCH

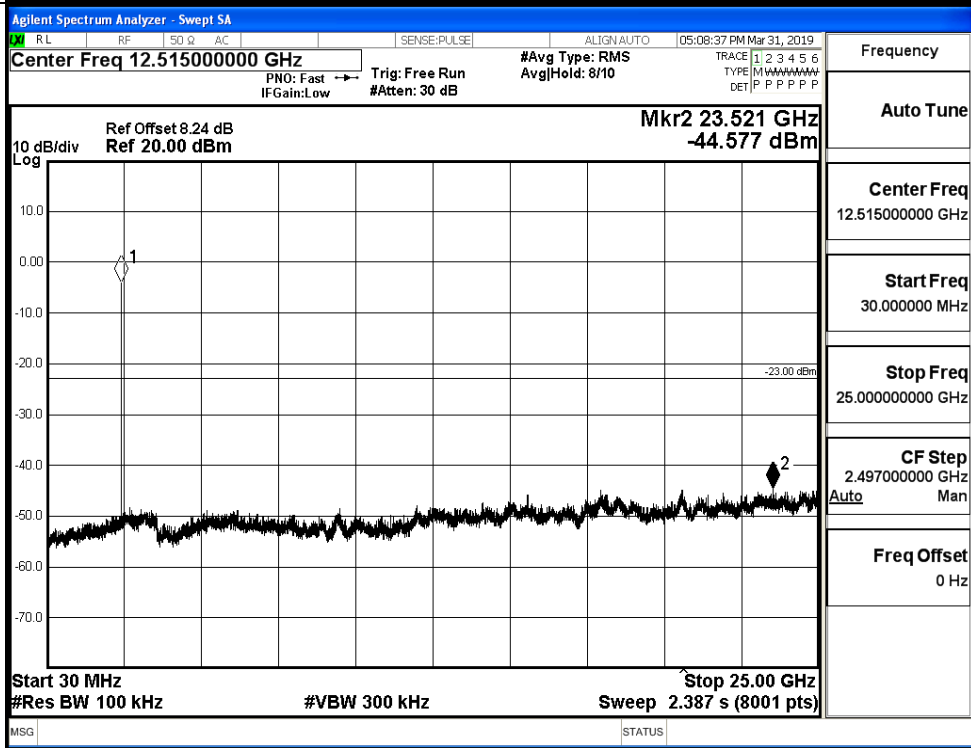


BT LE_MCH_Graphs

Pref/BT LE/MCH

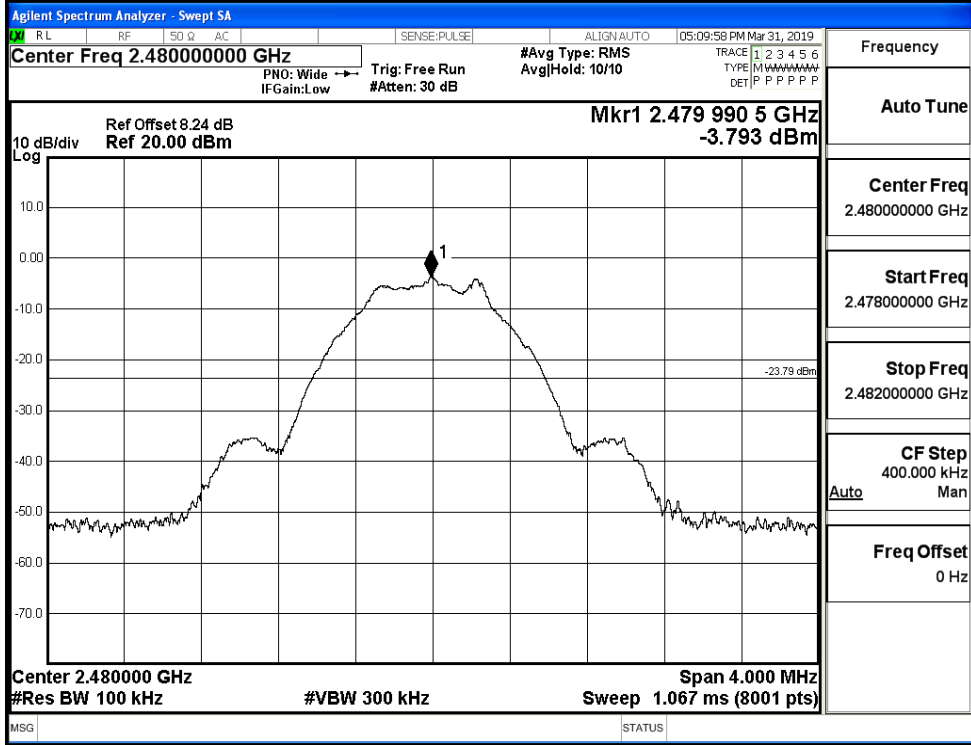


Puw/BT LE/MCH

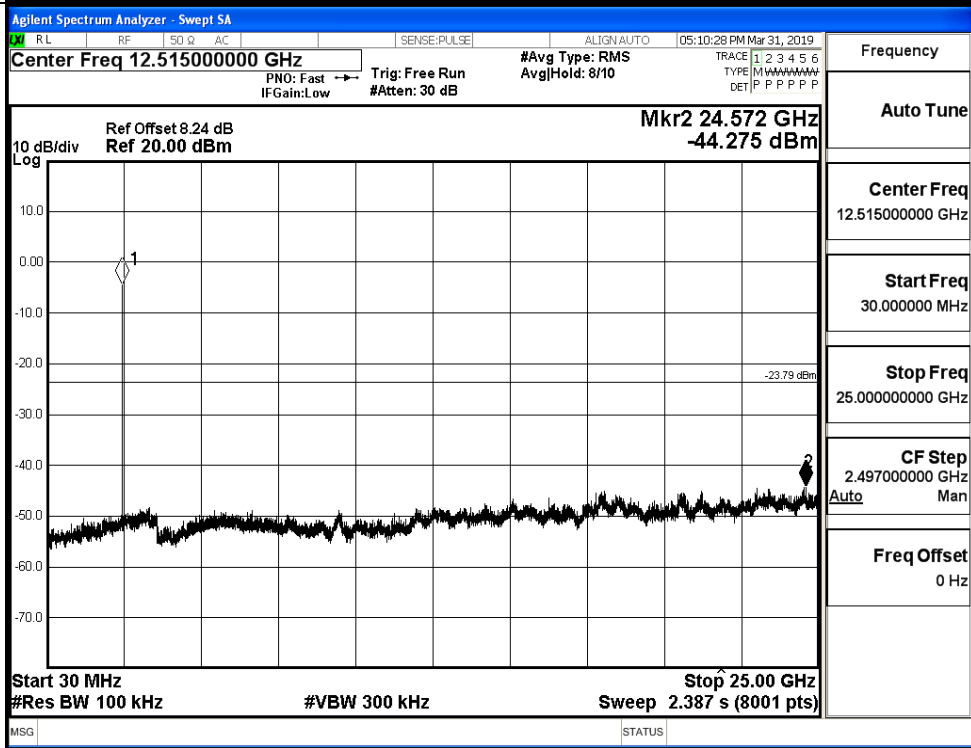


BT LE_HCH_Graphs

Pref/BT LE/HCH

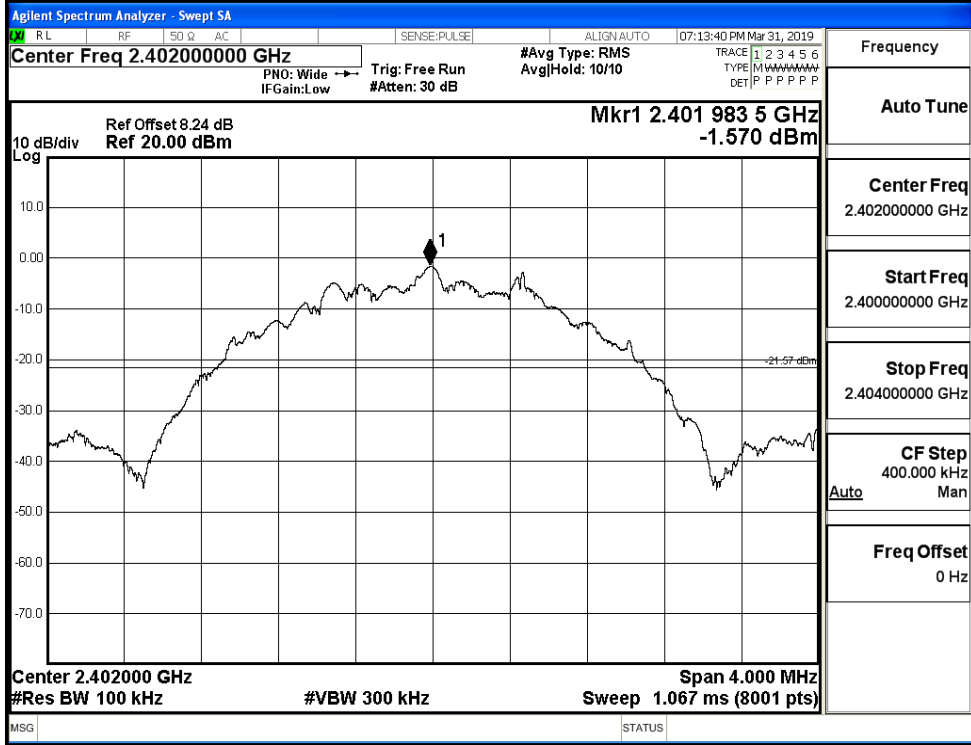


Puw/BT LE/HCH

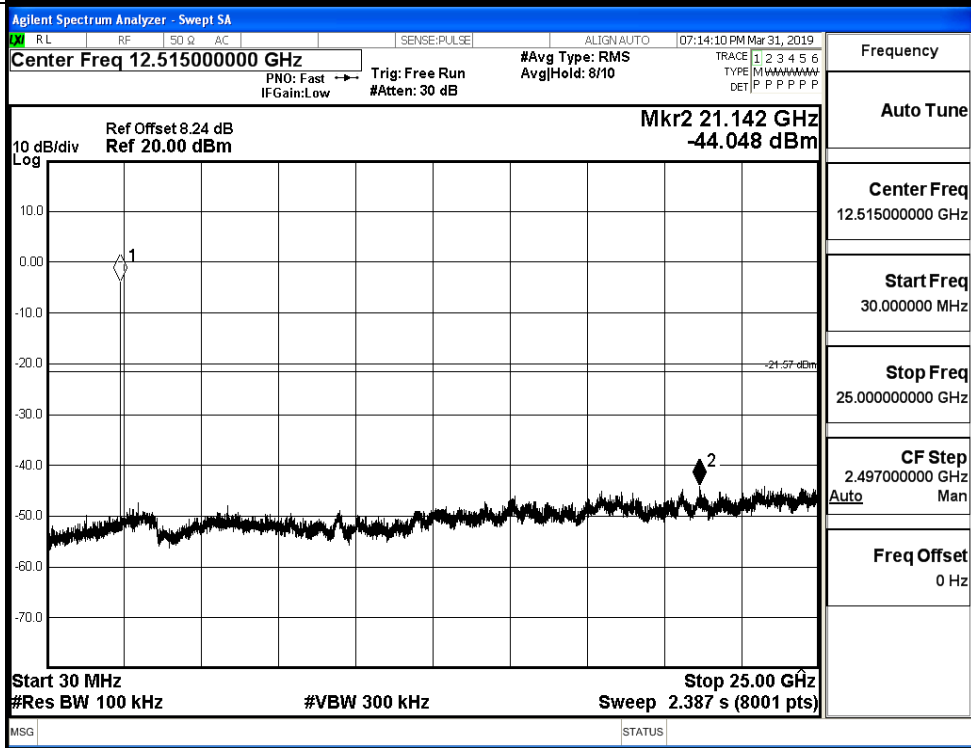


BT 2LE_LCH_Graphs

Pref/BT 2LE/LCH

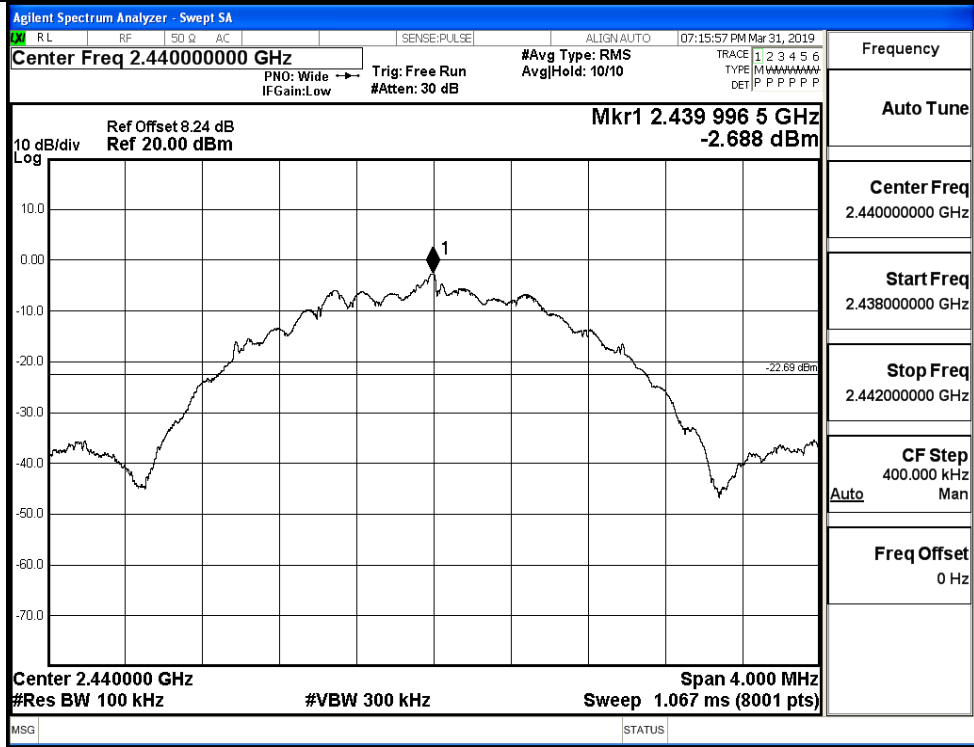


Puw/BT 2LE/LCH

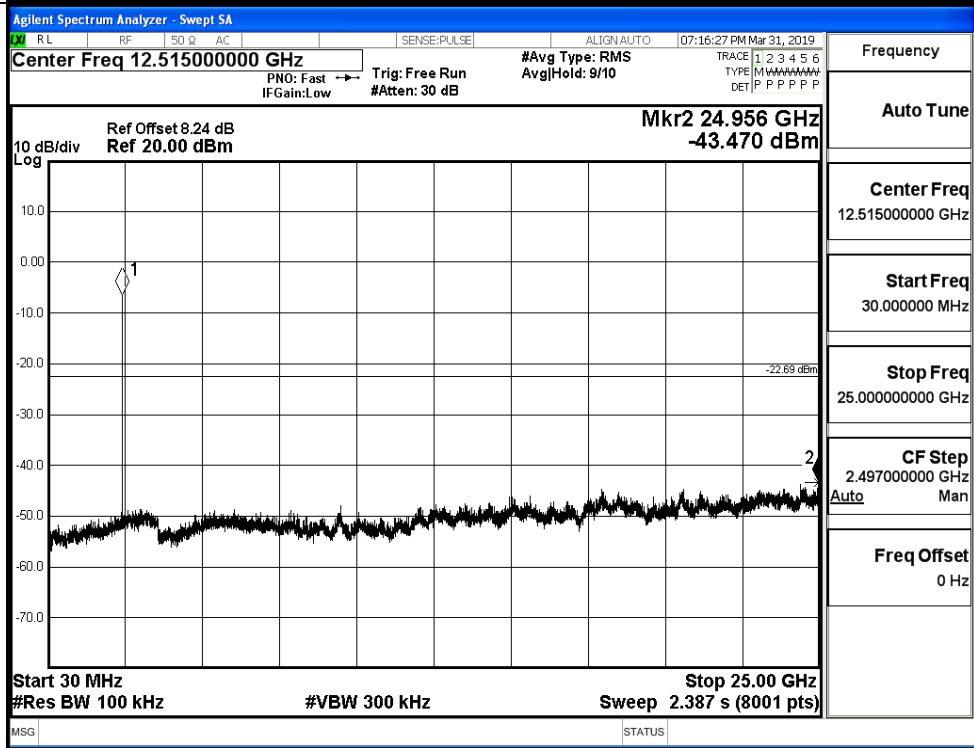


BT 2LE_MCH_Graphs

Pref/BT 2LE/MCH

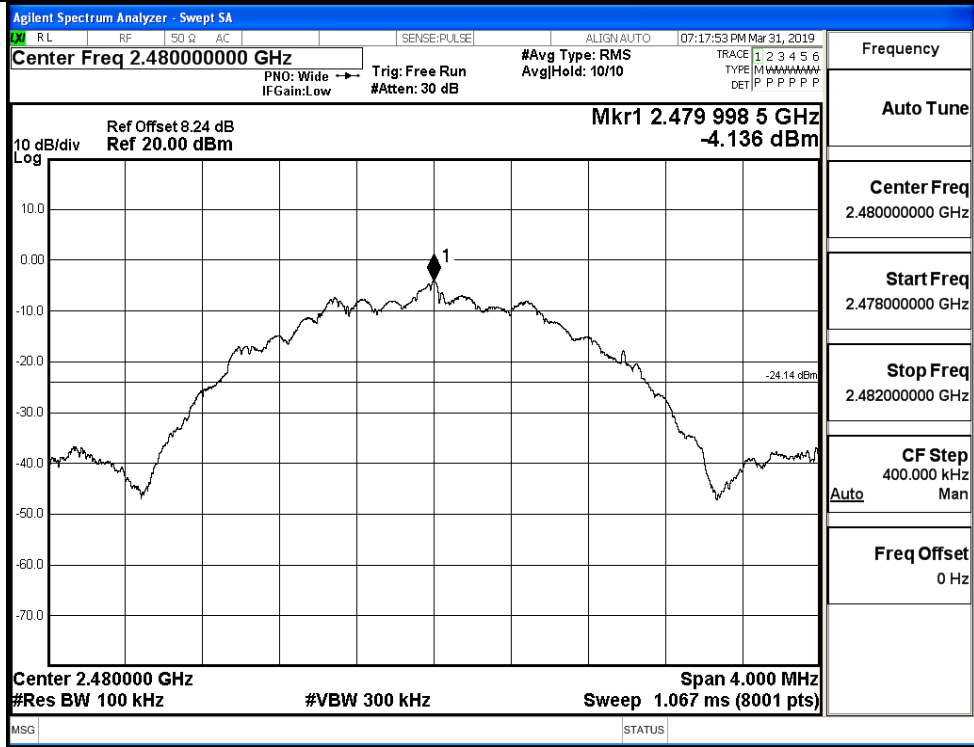


Puw/BT 2LE/MCH

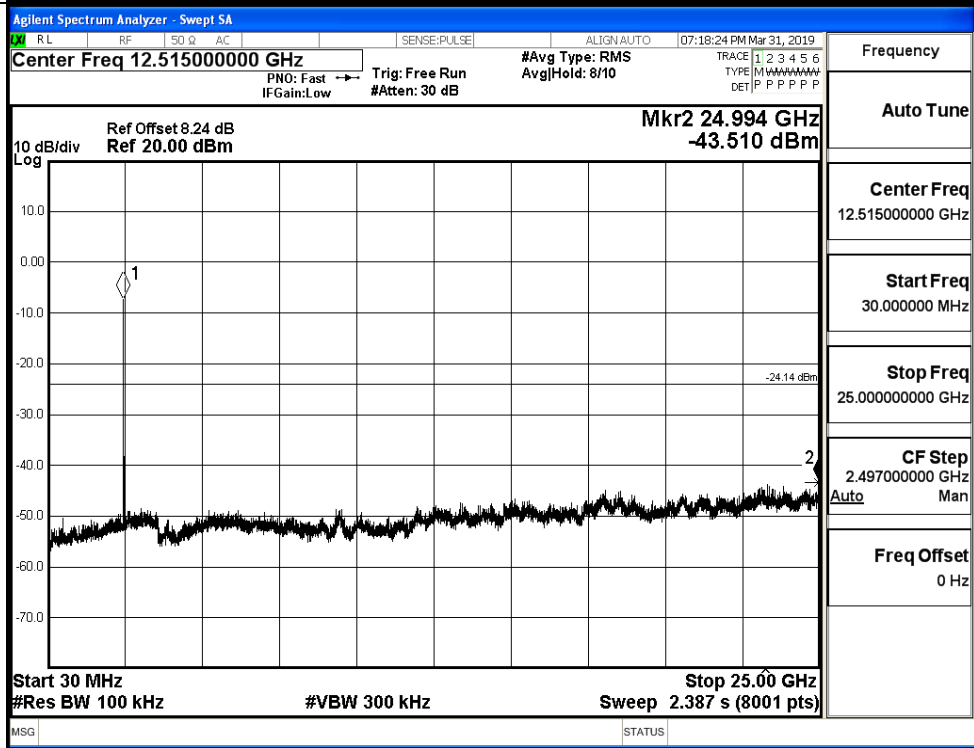


BT 2LE_HCH_Graphs

Pref/BT 2LE/HCH

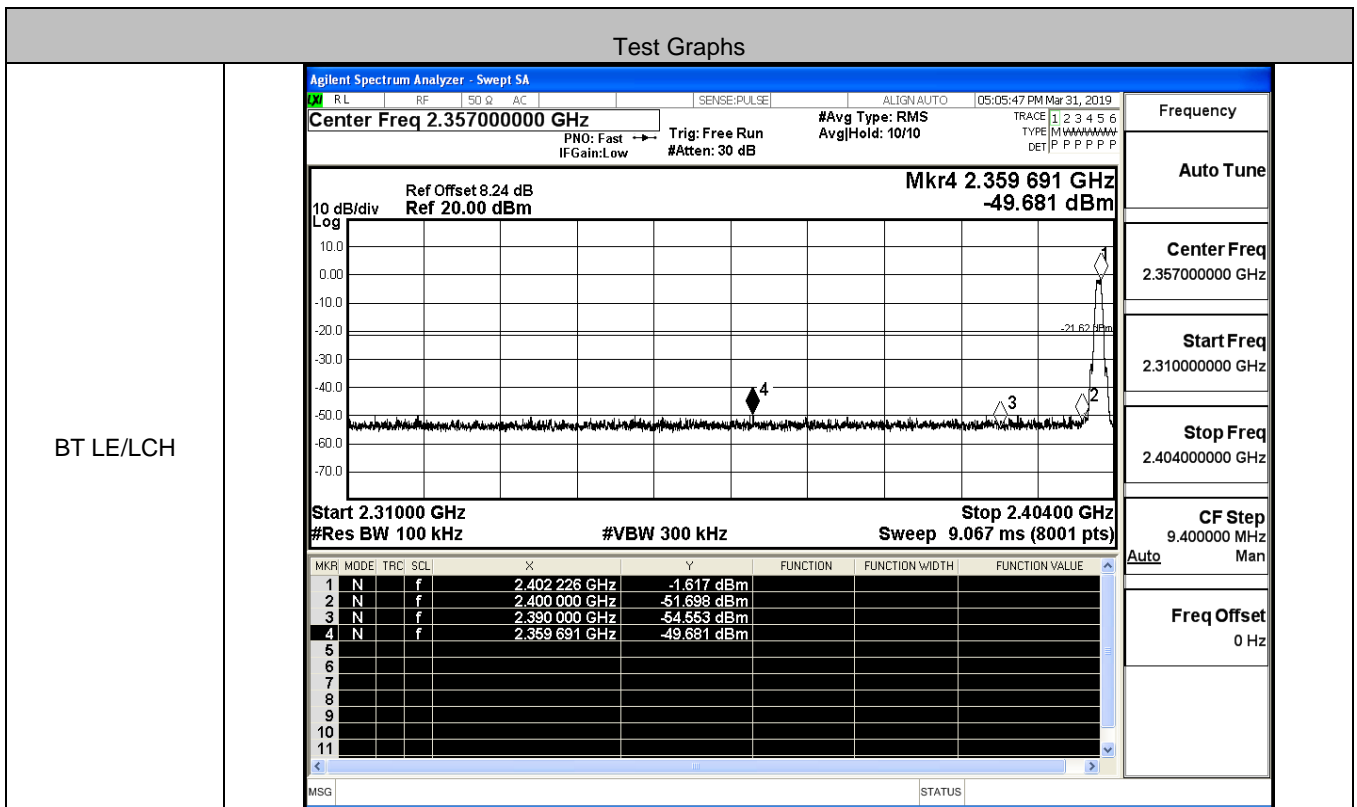


Puw/BT 2LE/HCH

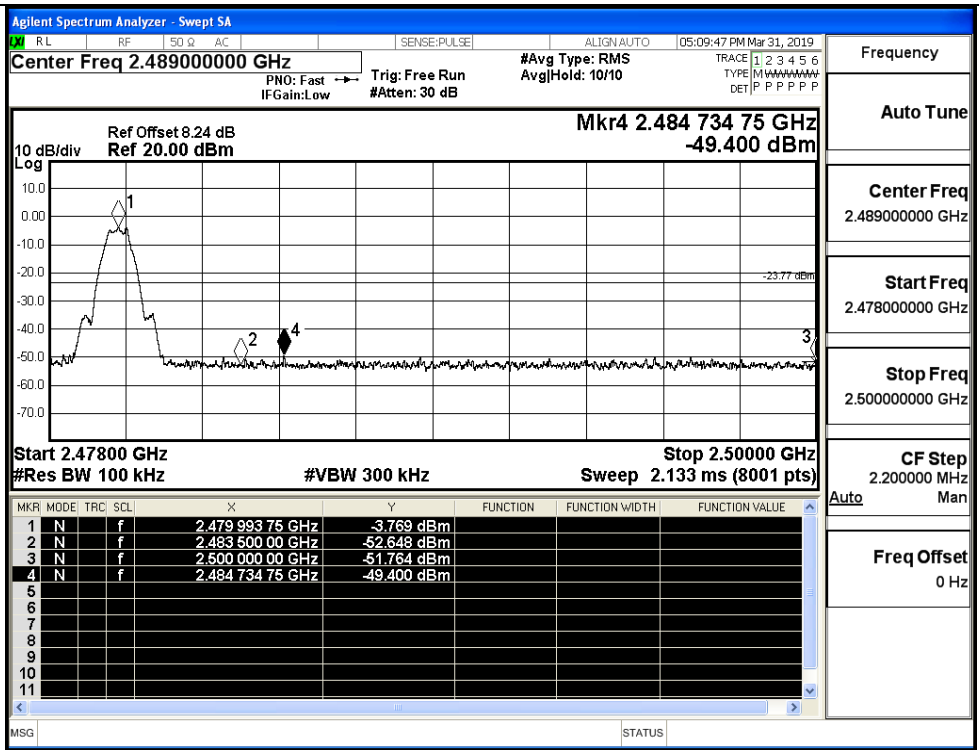


B.6 Band-edge for RF Conducted Emissions

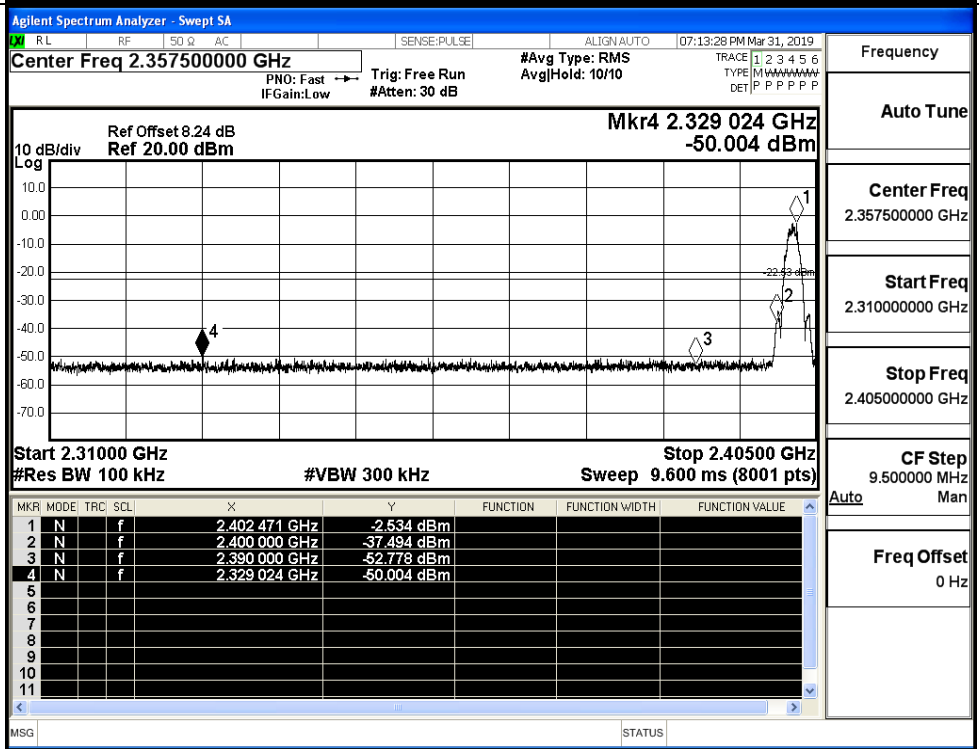
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-1.617	-49.681	-21.62	PASS
BT LE	HCH	-3.769	-49.400	-23.77	PASS
BT 2LE	LCH	-2.534	-50.004	-22.53	PASS
BT 2LE	HCH	-6.551	-50.162	-26.55	PASS



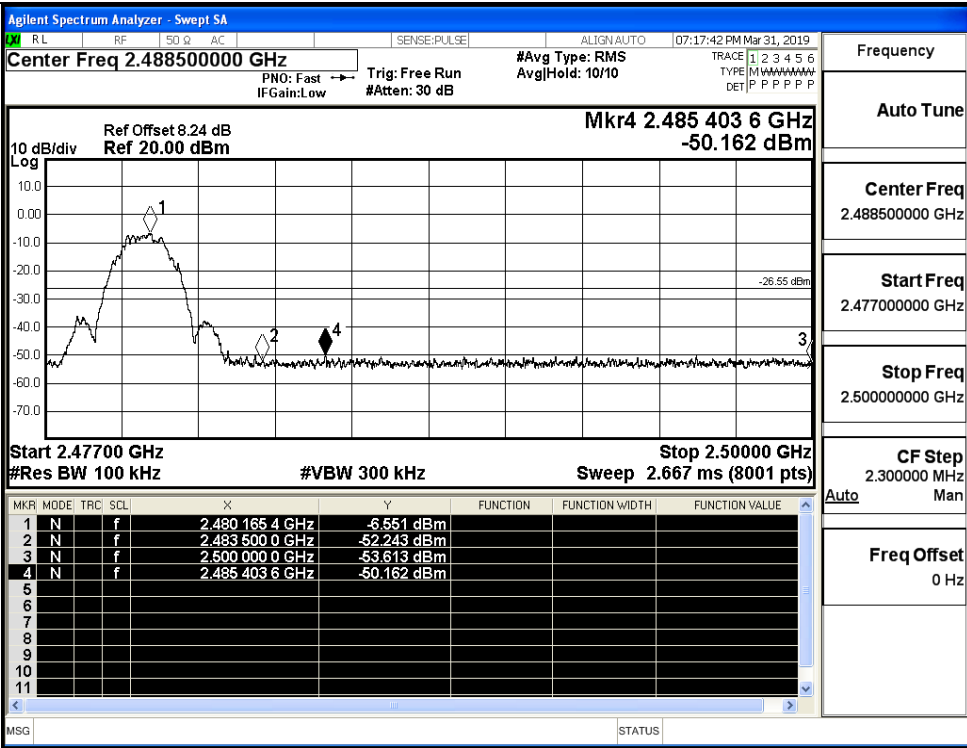
BT LE/HCH



BT 2LE/LCH



BT 2LE/HCH

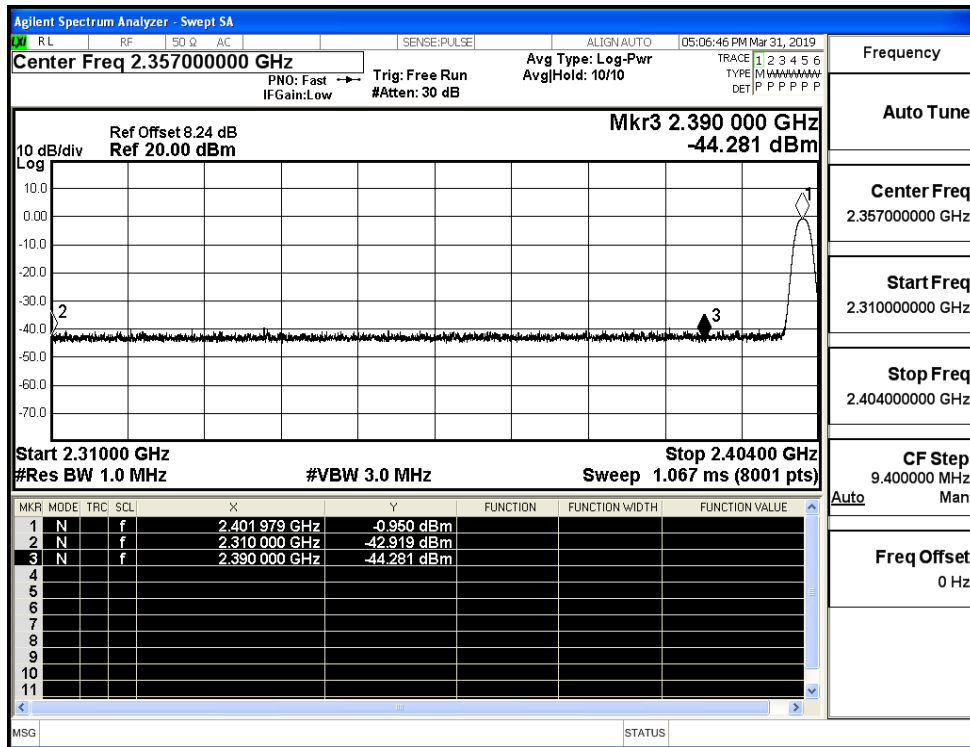


Frequency
Auto Tune
Center Freq 2.488500000 GHz
Start Freq 2.477000000 GHz
Stop Freq 2.500000000 GHz
CF Step 2.300000 MHz Auto Man
Freq Offset 0 Hz

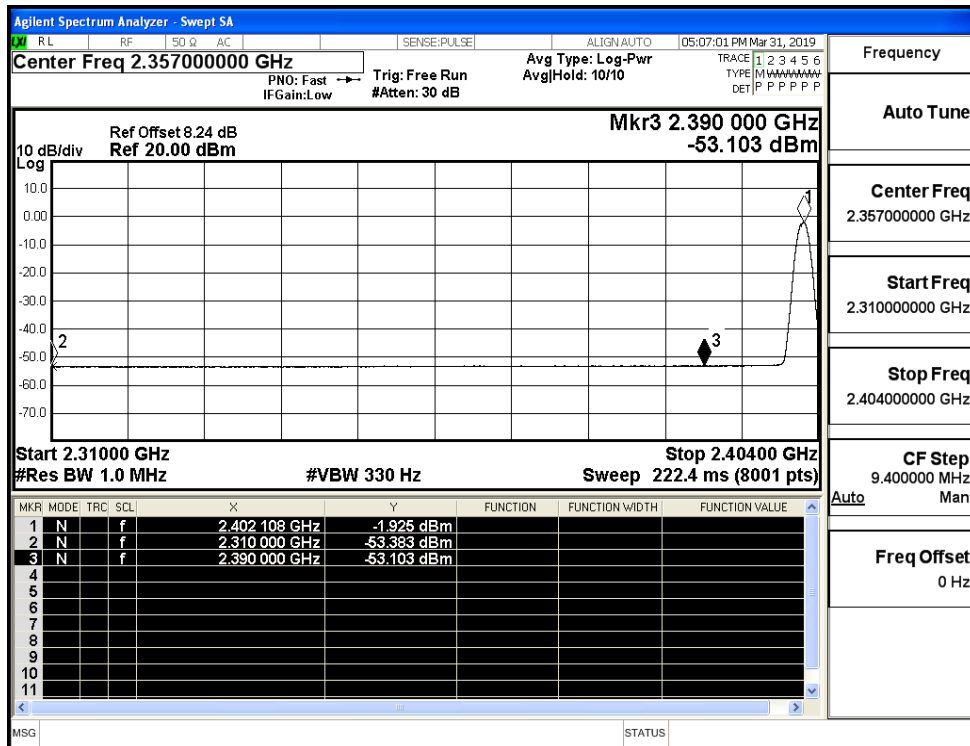
B.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
BT LE	2402	Ant1	2310.0	-42.919	4.00	0	56.309	PEAK	74	PASS
		Ant1	2310.0	-53.383	4.00	0	45.845	AV	54	PASS
		Ant1	2390.0	-44.281	4.00	0	54.947	PEAK	74	PASS
		Ant1	2390.0	-53.103	4.00	0	46.125	AV	54	PASS
	2480	Ant1	2483.5	-42.436	4.00	0	56.792	PEAK	74	PASS
		Ant1	2483.5	-52.826	4.00	0	46.402	AV	54	PASS
		Ant1	2500.0	-42.429	4.00	0	56.799	PEAK	74	PASS
		Ant1	2500.0	-52.703	4.00	0	46.525	AV	54	PASS
BT 2LE	2402	Ant1	2310.0	-41.606	4.00	0	57.622	PEAK	74	PASS
		Ant1	2310.0	-53.429	4.00	0	45.799	AV	54	PASS
		Ant1	2390.0	-42.855	4.00	0	56.373	PEAK	74	PASS
		Ant1	2390.0	-53.135	4.00	0	46.093	AV	54	PASS
	2480	Ant1	2483.5	-41.281	2.0	0	55.947	PEAK	74	PASS
		Ant1	2483.5	-52.680	2.0	0	44.548	AV	54	PASS
		Ant1	2500.0	-42.496	2.0	0	54.732	PEAK	74	PASS
		Ant1	2500.0	-52.929	2.0	0	44.299	AV	54	PASS

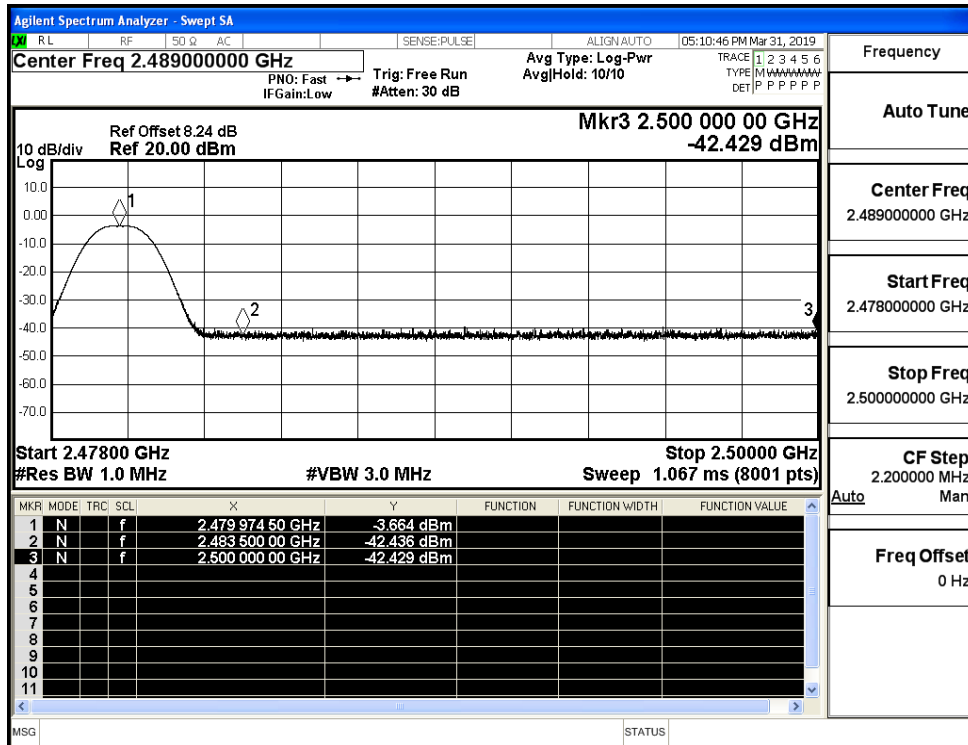
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



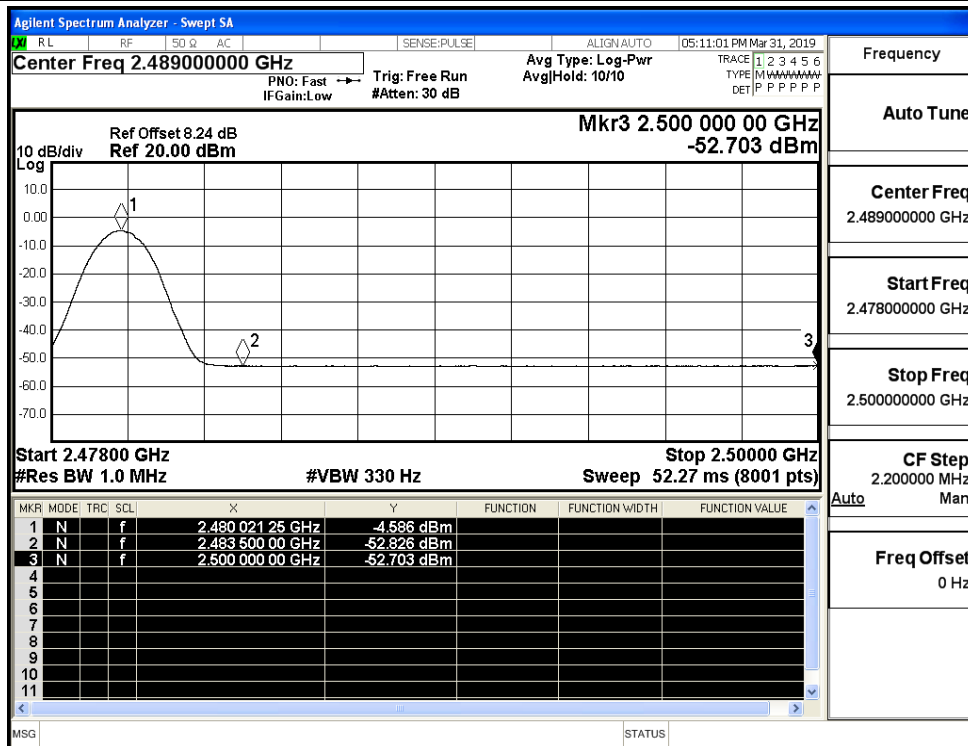
Restrict-band band-edge measurements_BT LE_2402_Ant1_AV



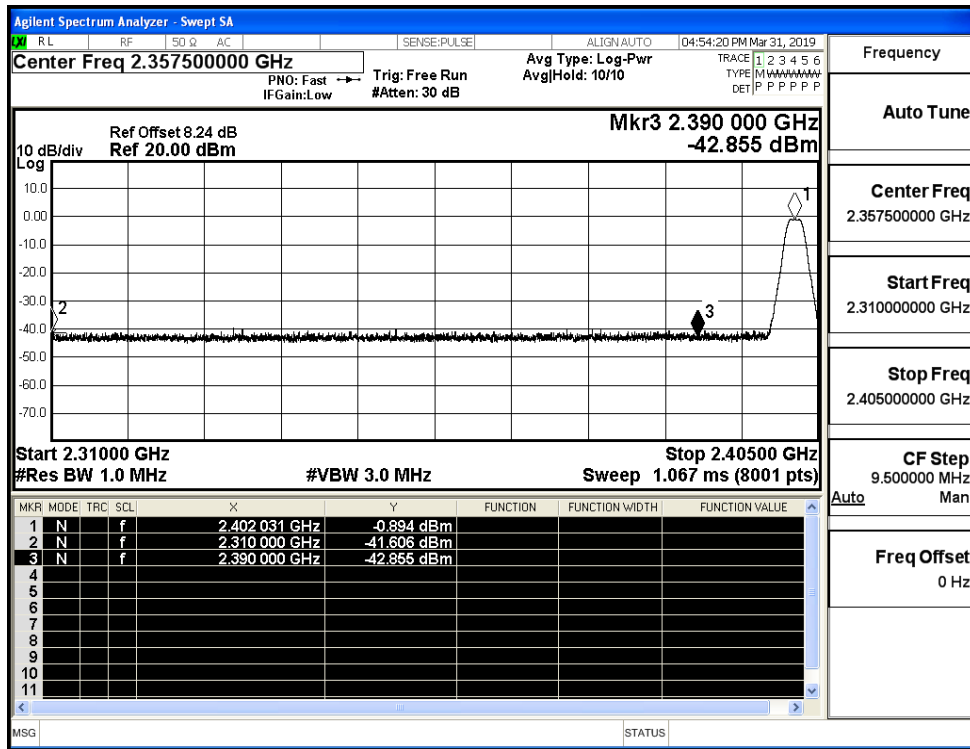
Restrict-band band-edge measurements_BT LE_2480_Ant1_PEAK



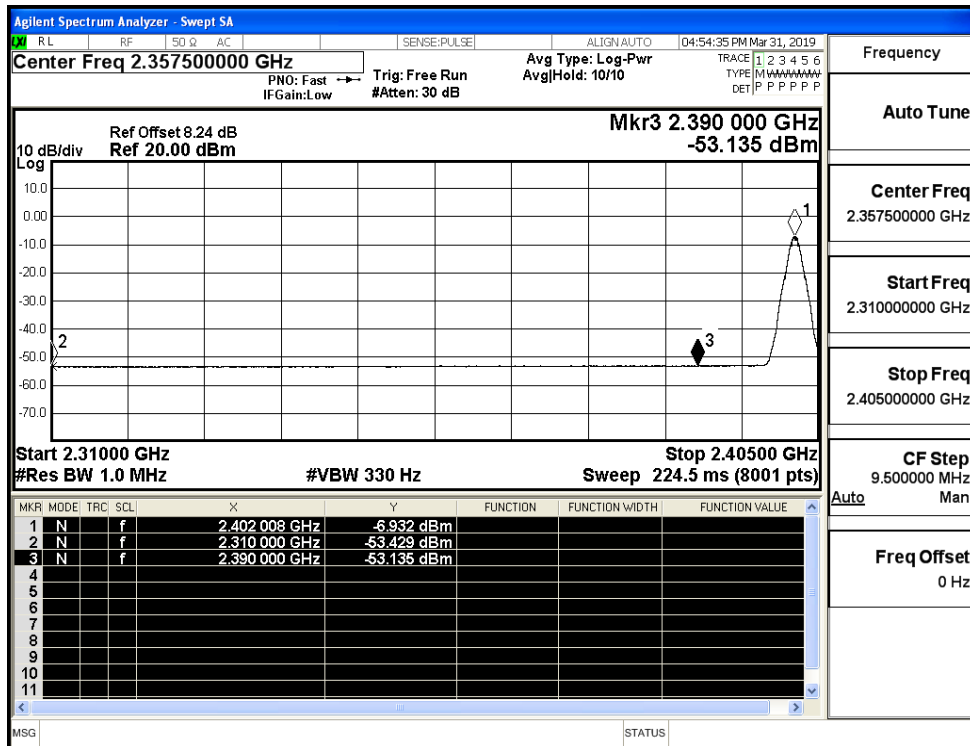
Restrict-band band-edge measurements_BT LE_2480_Ant1_AV



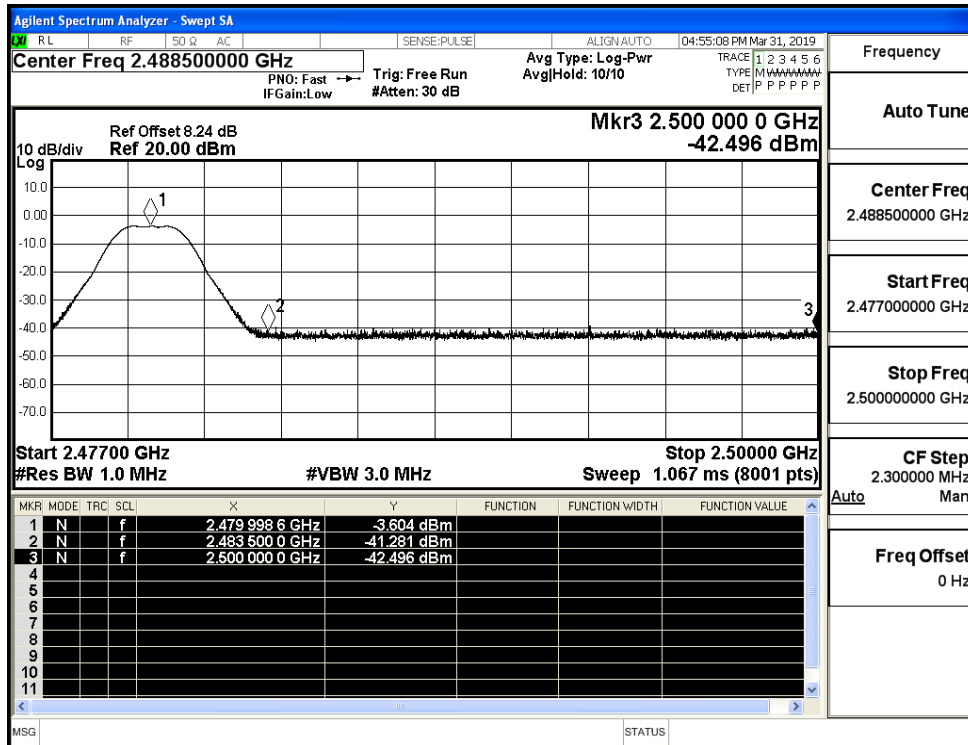
Restrict-band band-edge measurements_BT 2LE_2402_Ant1_PEAK



Restrict-band band-edge measurements_BT LE_2402_Ant1_AV



Restrict-band band-edge measurements_BT 2LE_2480_Ant1_PEAK



Restrict-band band-edge measurements_BT LE_2480_Ant1_AV

