



Appendix A

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

Product Name: Bluetooth Headphone

Trade Mark: GoldenPlayer

Test Model: GP102BT

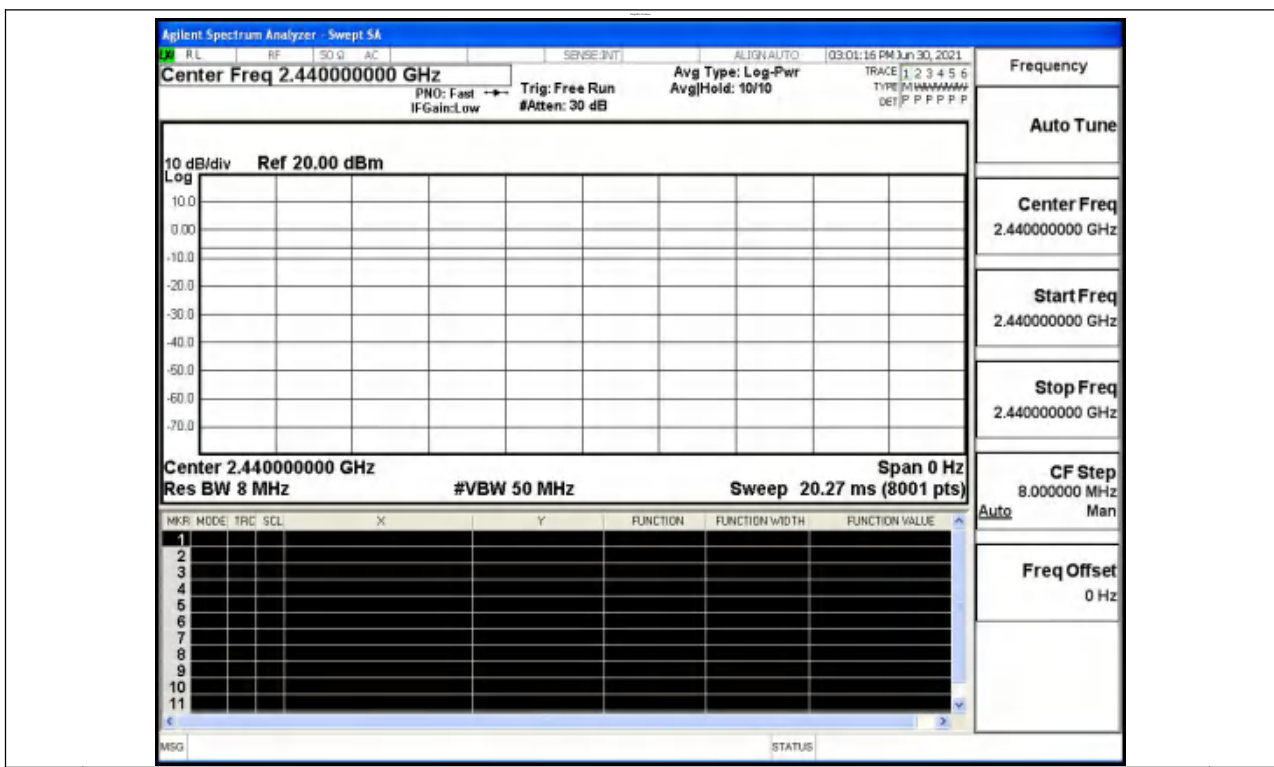
Environmental Conditions

Temperature:	22.0°C
Relative Humidity:	53.0%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

A.1 Duty Cycle

BT LE

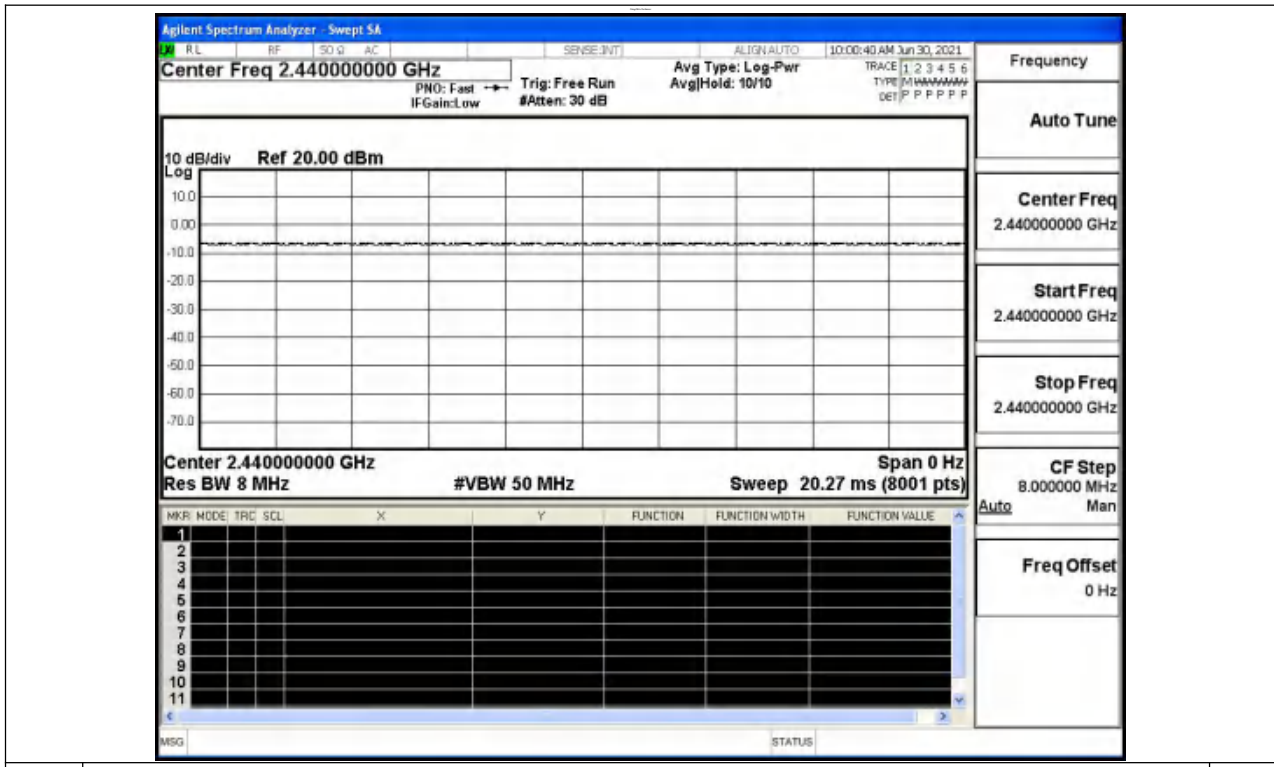
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS





BT 2LE

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



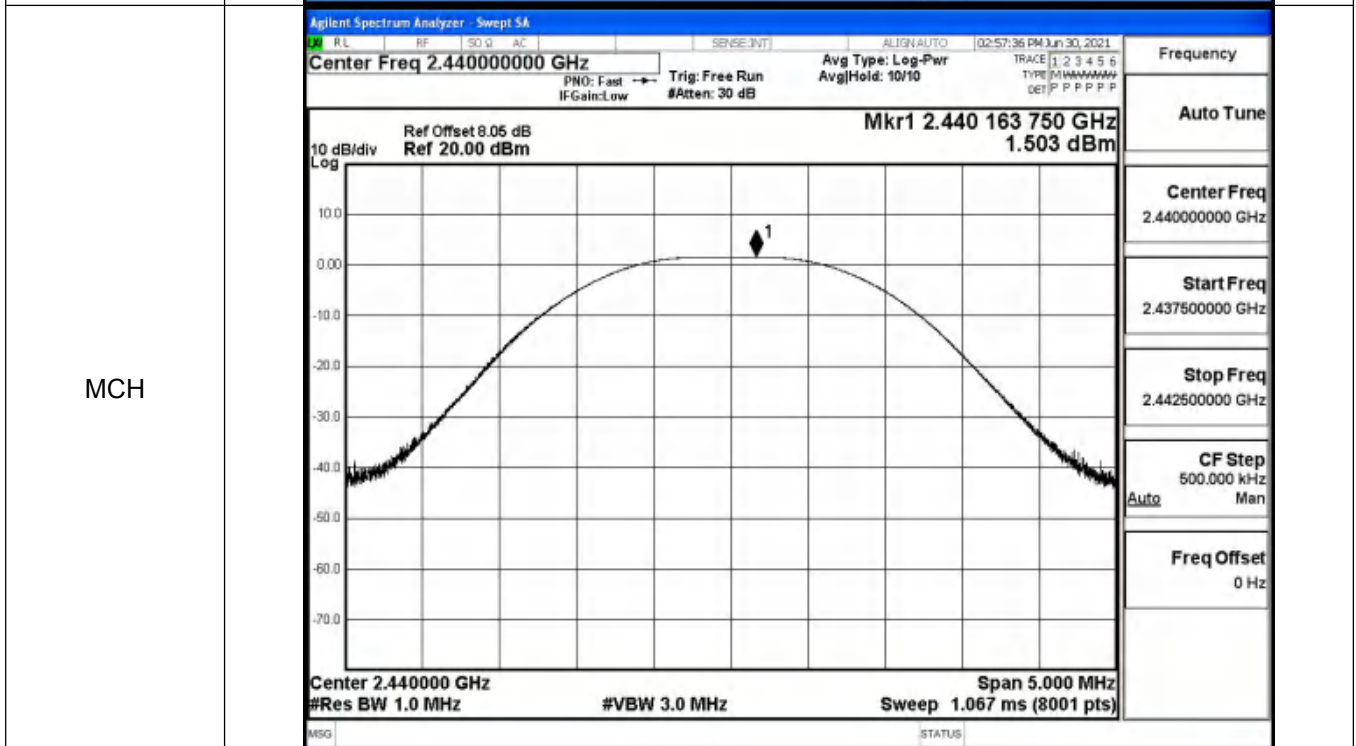
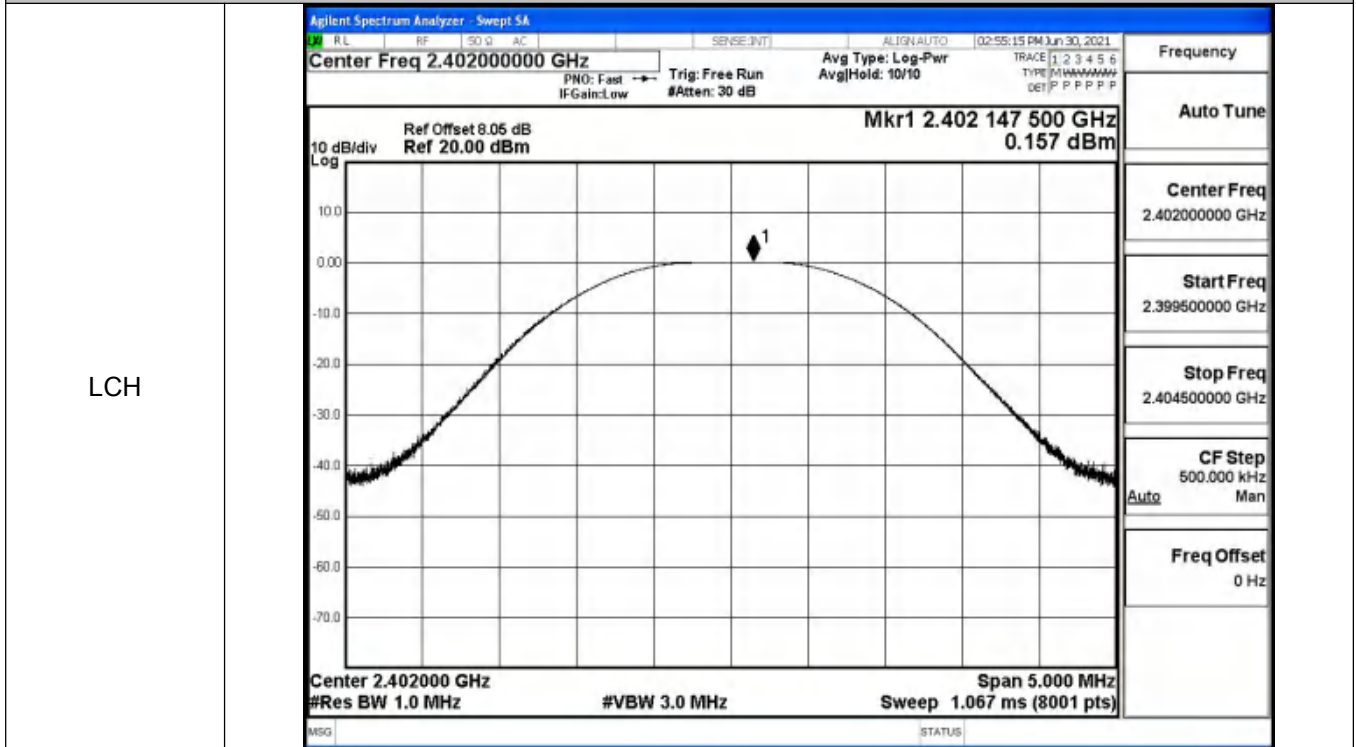


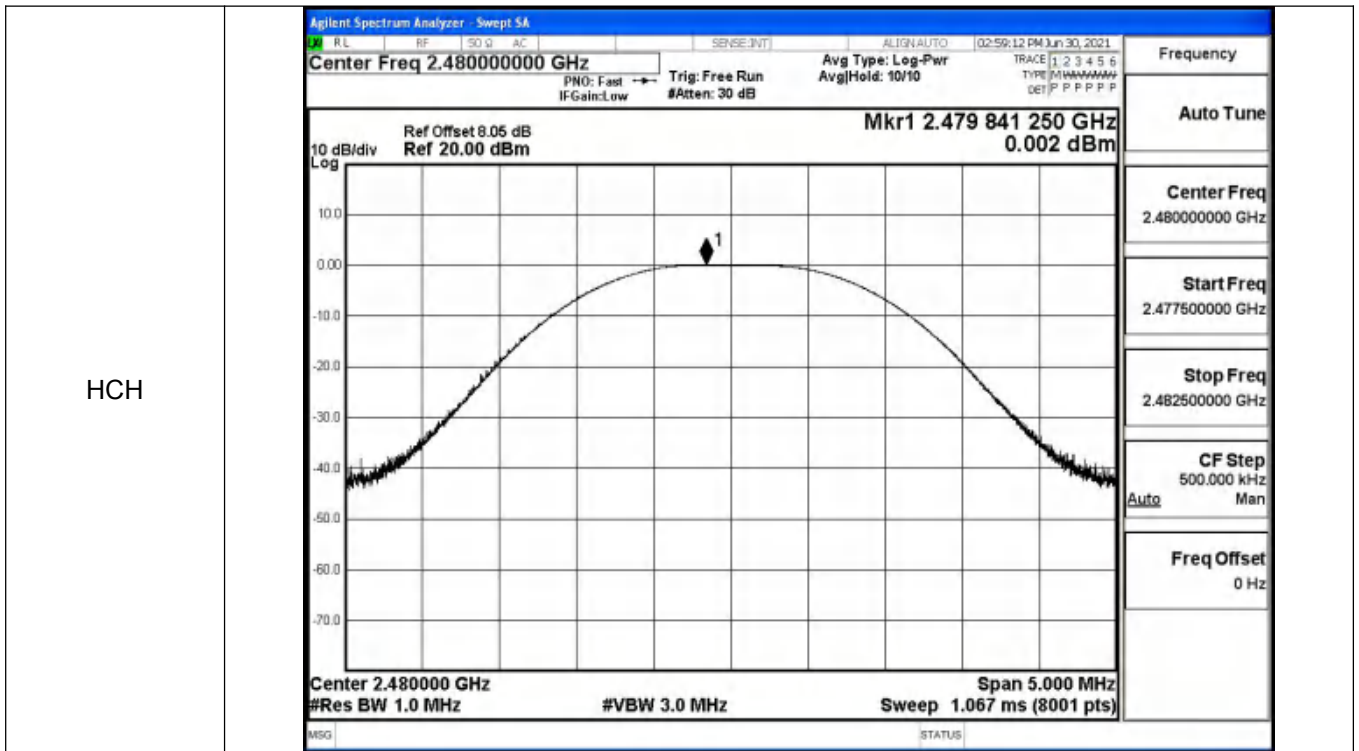
A.2 Maximum Conducted Peak Output Power

BT LE

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.157	30	PASS
BT LE	MCH	1.503	30	PASS
BT LE	HCH	0.002	30	PASS

Test Graphs

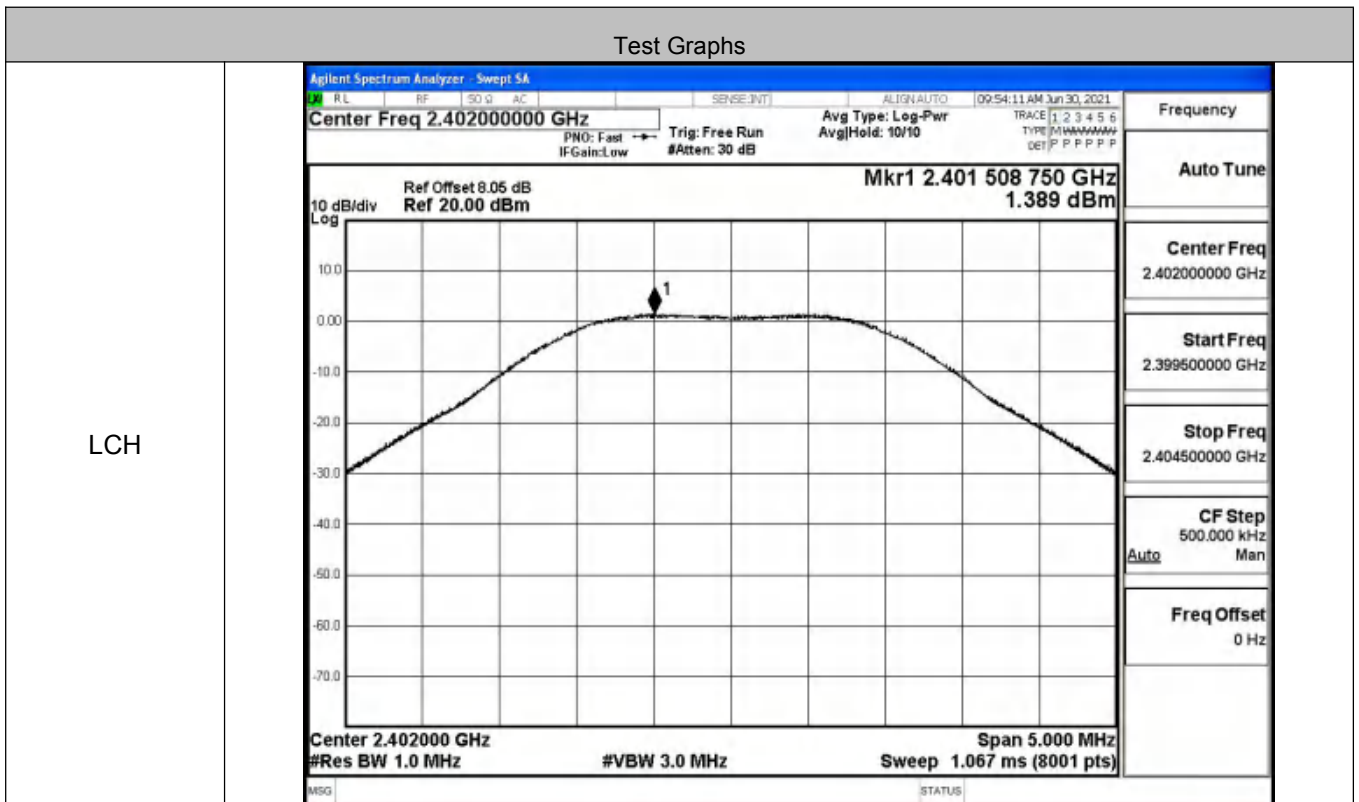




BT 2LE

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT 2LE	LCH	1.389	30	PASS
BT 2LE	MCH	1.458	30	PASS
BT 2LE	HCH	1.917	30	PASS

Test Graphs





<p>MCH</p>	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.44000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.439 488 125 GHz 1.458 dBm 10 dB/div Log Center 2.440000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 5.000 MHz Sweep 1.067 ms (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.44000000 GHz</p> <p>Start Freq 2.437500000 GHz</p> <p>Stop Freq 2.442500000 GHz</p> <p>CF Step 500.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>HCH</p>	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.48000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.479 556 250 GHz 1.917 dBm 10 dB/div Log Center 2.480000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 5.000 MHz Sweep 1.067 ms (8001 pts)</p>	<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.480000000 GHz</p> <p>Start Freq 2.477500000 GHz</p> <p>Stop Freq 2.482500000 GHz</p> <p>CF Step 500.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>

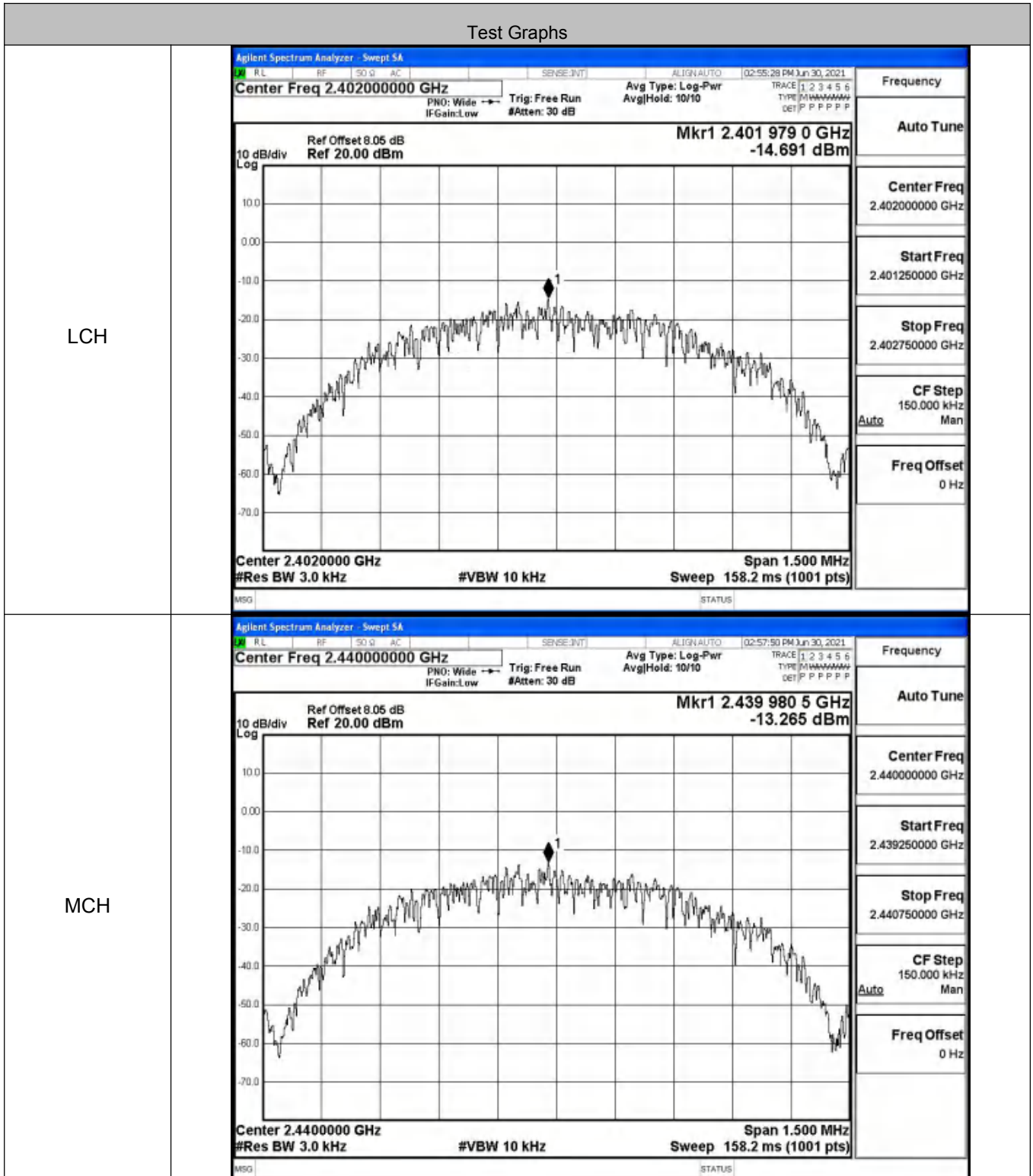


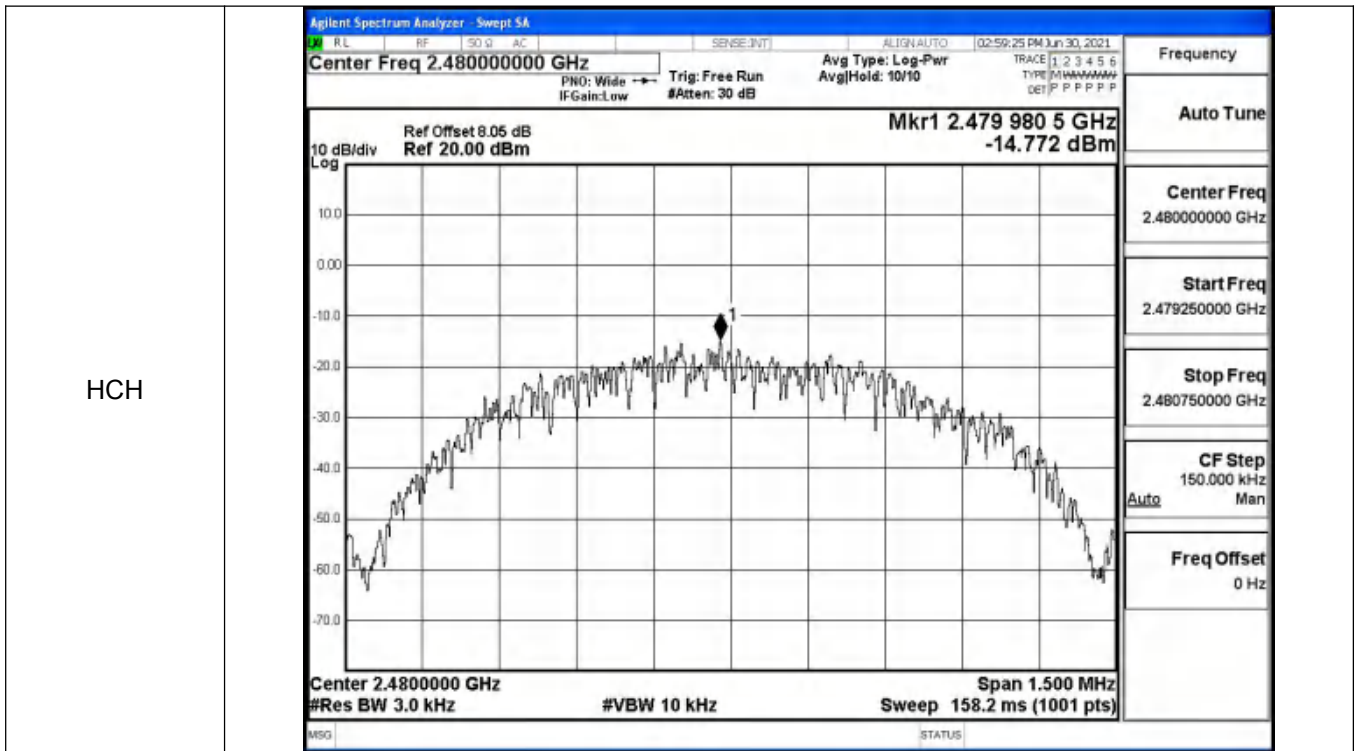
A.3 Maximum Power Spectral Density

BT LE

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.691	8	PASS
BT LE	MCH	-13.265	8	PASS
BT LE	HCH	-14.772	8	PASS

Test Graphs

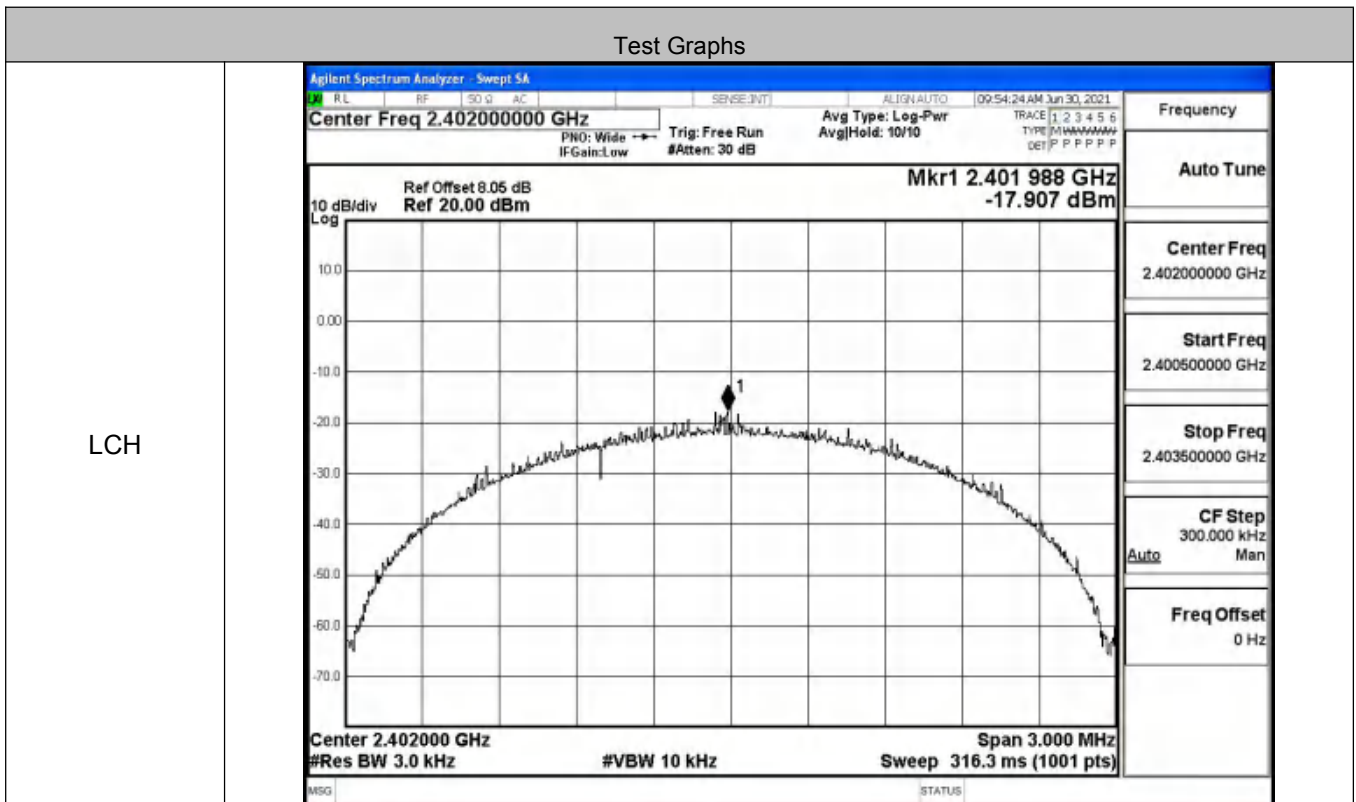




BT 2LE

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT 2LE	LCH	-17.907	8	PASS
BT 2LE	MCH	-17.884	8	PASS
BT 2LE	HCH	-17.315	8	PASS

Test Graphs





MCH	<p>Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 09:56:54 AM Jun 30, 2021 Center Freq 2.44000000 GHz Avg Type: Log-Pwr TRAC 1 2 3 4 5 6 PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB AvgHold: 10/10 TYPE: M M M M M M M M M M DET: P P P P P P P P</p> <p>Ref Offset 8.05 dB Mkr1 2.439 982 GHz Ref 20.00 dBm -17.884 dBm</p> <p>10 dB/div Log</p> <p>Center 2.440000 GHz Span 3.000 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 316.3 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.44000000 GHz Start Freq 2.438500000 GHz Stop Freq 2.441500000 GHz CF Step 300.000 kHz Auto Man Freq Offset 0 Hz
HCH	<p>Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 09:58:48 AM Jun 30, 2021 Center Freq 2.48000000 GHz Avg Type: Log-Pwr TRAC 1 2 3 4 5 6 PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB AvgHold: 10/10 TYPE: M M M M M M M M M M DET: P P P P P P P P</p> <p>Ref Offset 8.05 dB Mkr1 2.479 964 GHz Ref 20.00 dBm -17.315 dBm</p> <p>10 dB/div Log</p> <p>Center 2.480000 GHz Span 3.000 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 316.3 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.480000000 GHz Start Freq 2.478500000 GHz Stop Freq 2.481500000 GHz CF Step 300.000 kHz Auto Man Freq Offset 0 Hz



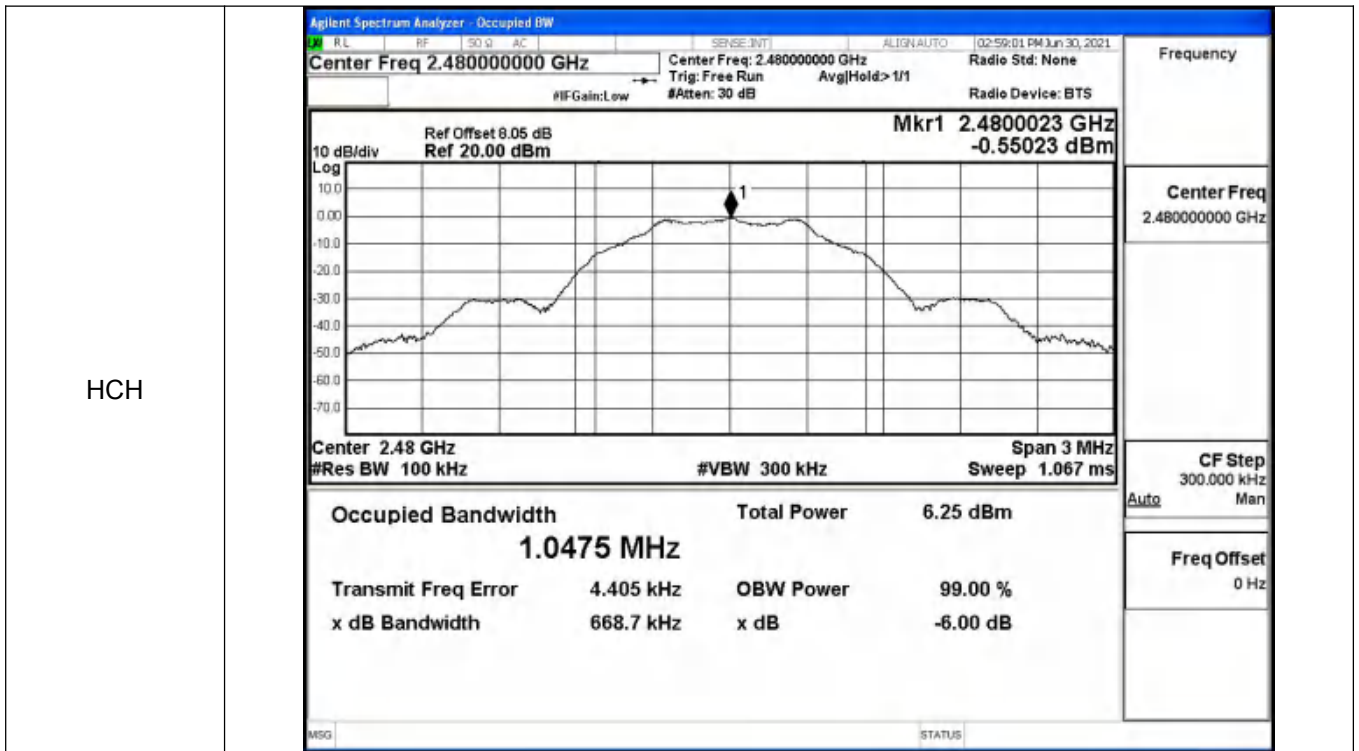
A.4 6dB Bandwidth

BT LE

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6715	≥0.5	PASS
BT LE	MCH	0.6718	≥0.5	PASS
BT LE	HCH	0.6687	≥0.5	PASS

Test Graphs

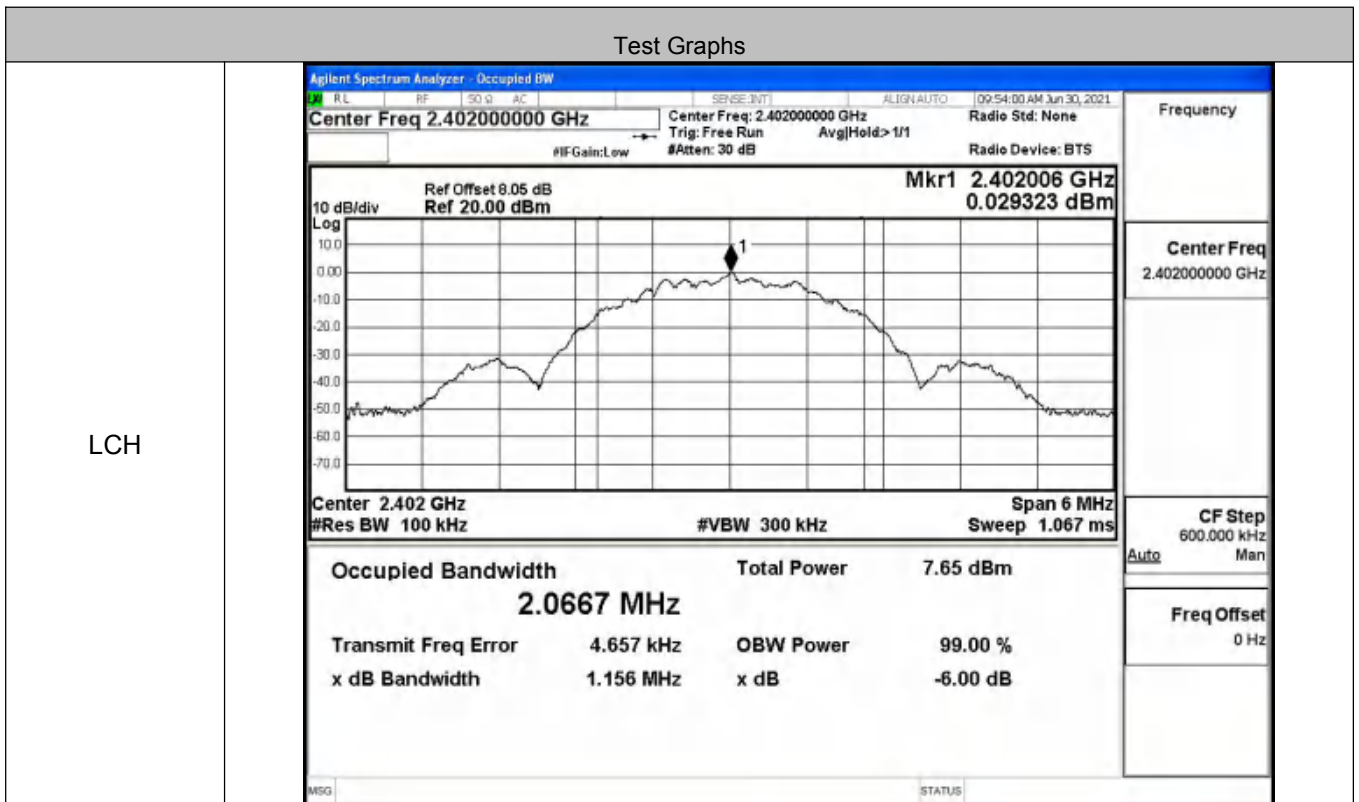
LCH	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 2.402000000 GHz Mkr1 2.401997 GHz -0.42046 dBm Occupied Bandwidth 1.0506 MHz Total Power 6.32 dBm</p>	<p>Frequency</p> <p>Center Freq 2.402000000 GHz</p> <p>CF Step 300.000 kHz</p> <p>Freq Offset 0 Hz</p>
	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq 2.440000000 GHz Mkr1 2.440003 GHz 0.98223 dBm Occupied Bandwidth 1.0481 MHz Total Power 7.73 dBm</p>	<p>Frequency</p> <p>Center Freq 2.440000000 GHz</p> <p>CF Step 300.000 kHz</p> <p>Freq Offset 0 Hz</p>



BT 2LE

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT 2LE	LCH	1.156	≥0.5	PASS
BT 2LE	MCH	1.255	≥0.5	PASS
BT 2LE	HCH	1.151	≥0.5	PASS

Test Graphs





<p>MCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.44000000 GHz Center Freq: 2.440000000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.439991 GHz -0.20812 dBm</p> <p>10 dB/div Log</p> <p>Center 2.44 GHz #Res BW 100 kHz #VBW 300 kHz Span 6 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 2.0649 MHz Total Power 7.67 dBm</p> <p>Transmit Freq Error 1.513 kHz OBW Power 99.00 % x dB Bandwidth 1.255 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.44000000 GHz</p> <p>CF Step 600.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>
<p>HCH</p>	<p>Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.48000000 GHz Center Freq: 2.480000000 GHz Trig: Free Run #Atten: 30 dB Radio Std: None Radio Device: BTS</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.480113 GHz 0.63228 dBm</p> <p>10 dB/div Log</p> <p>Center 2.48 GHz #Res BW 100 kHz #VBW 300 kHz Span 6 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 2.0685 MHz Total Power 8.22 dBm</p> <p>Transmit Freq Error 4.149 kHz OBW Power 99.00 % x dB Bandwidth 1.151 MHz x dB -6.00 dB</p> <p>MSG STATUS</p>	<p>Frequency</p> <p>Center Freq 2.48000000 GHz</p> <p>CF Step 600.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>

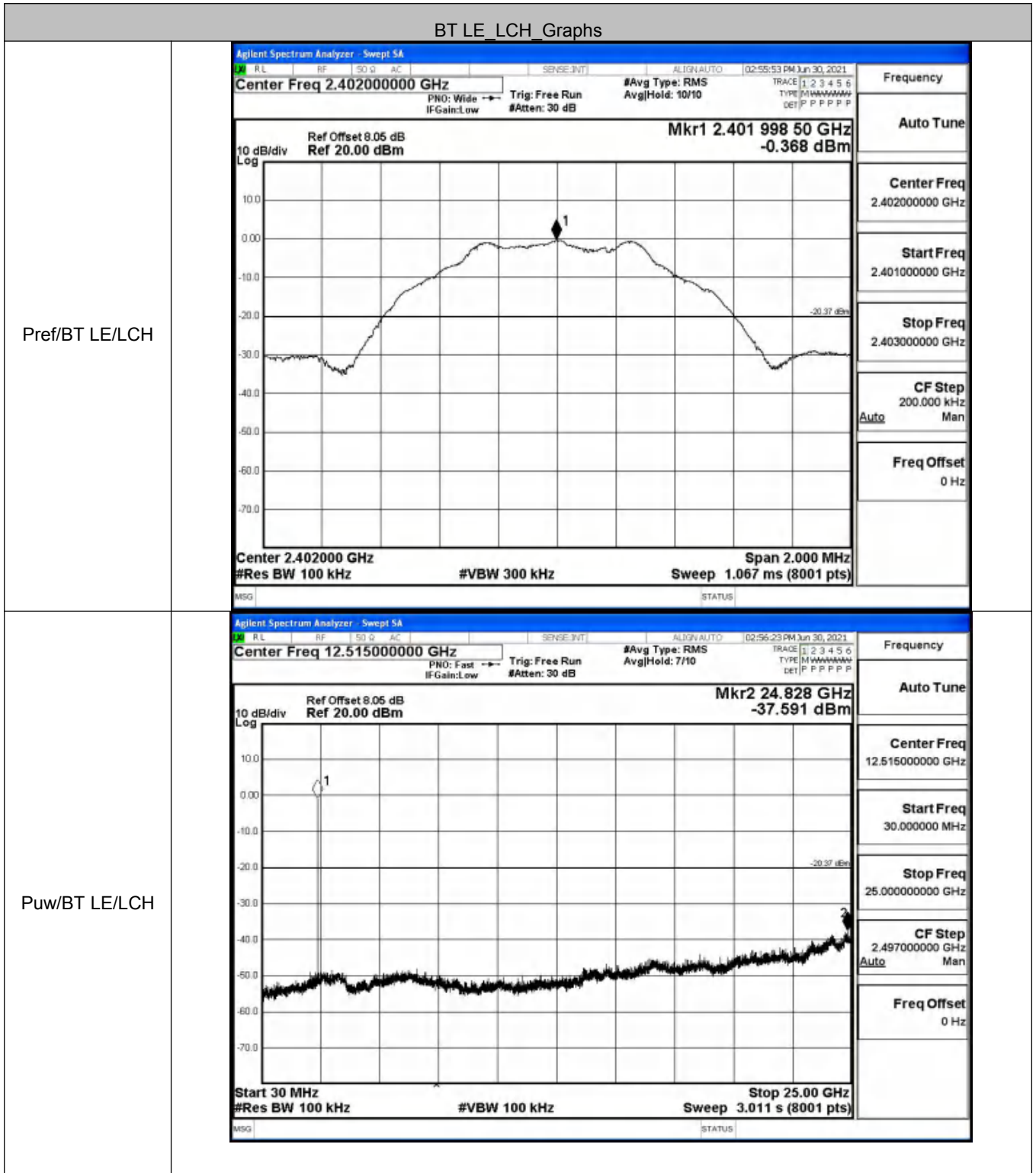


A.5 RF Conducted Spurious Emissions

BT LE

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.368	-37.591	-20.368	PASS
BT LE	MCH	0.994	-37.017	-19.006	PASS
BT LE	HCH	-0.525	-37.911	-20.525	PASS

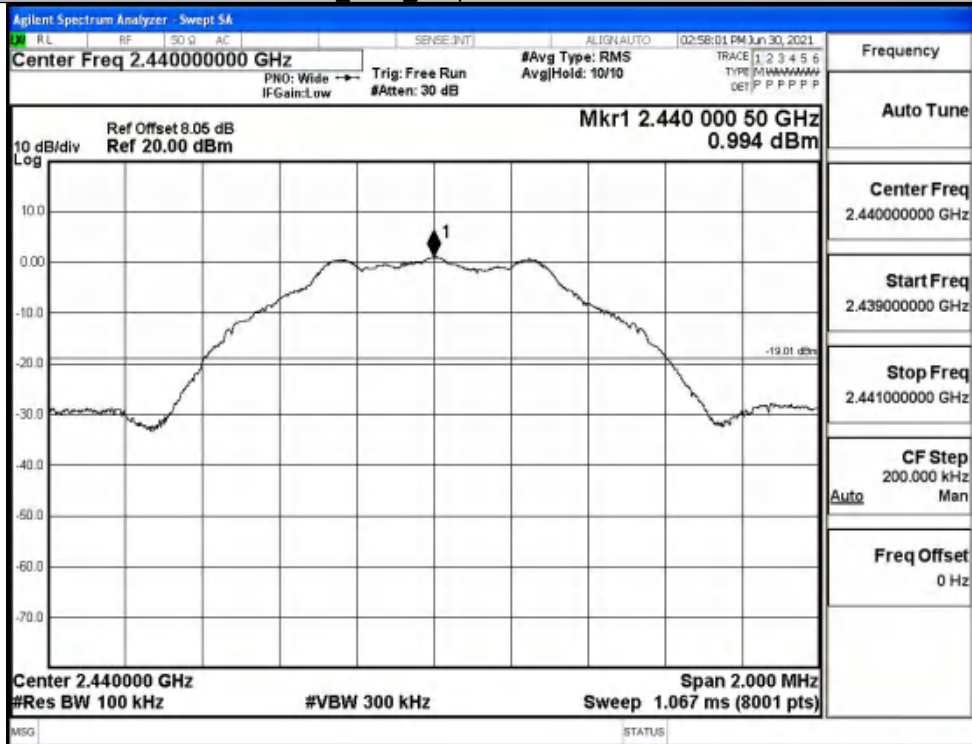
BT LE_LCH_Graphs





BT LE MCH Graphs

Pref/BT LE/MCH



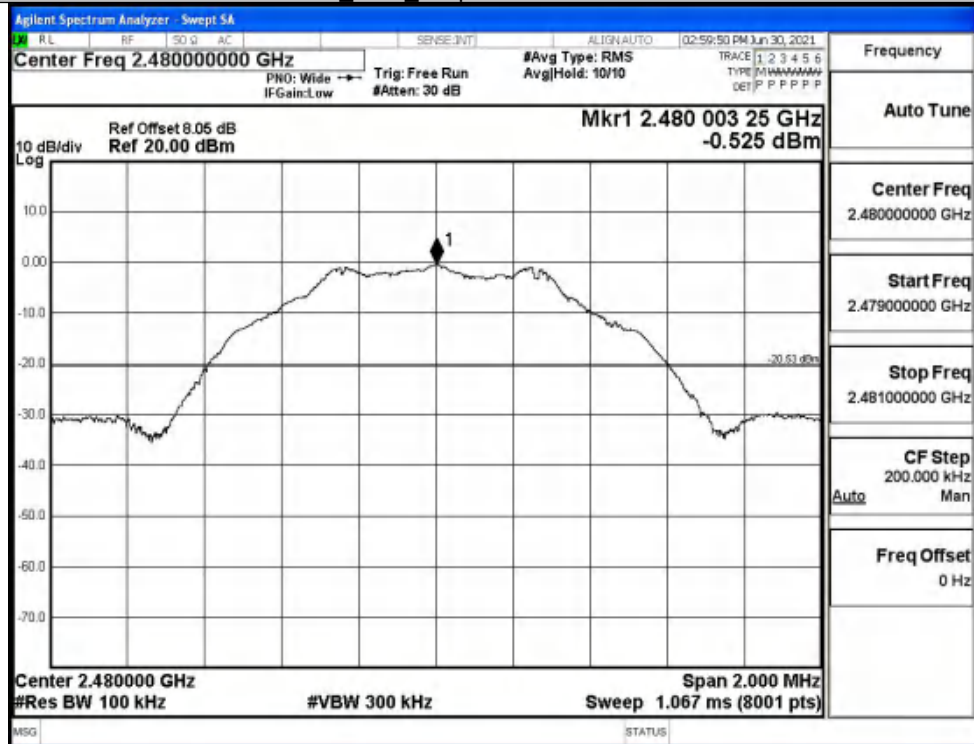
Puw/BT LE/MCH





BT LE_HCH Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH

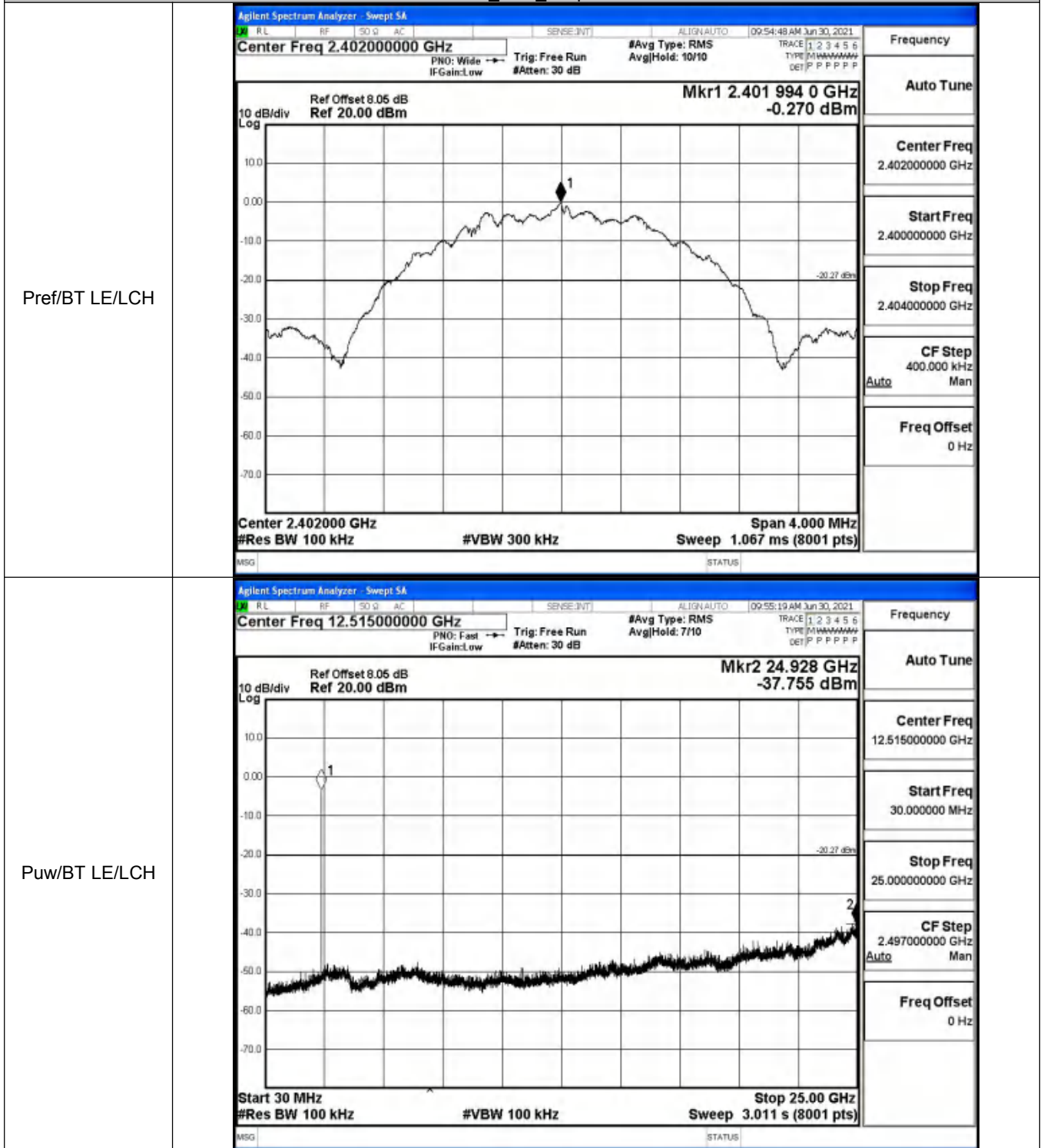




BT 2LE

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT 2LE	LCH	-0.27	-37.755	-20.270	PASS
BT 2LE	MCH	0.011	-38.273	-19.989	PASS
BT 2LE	HCH	0.339	-37.590	-19.661	PASS

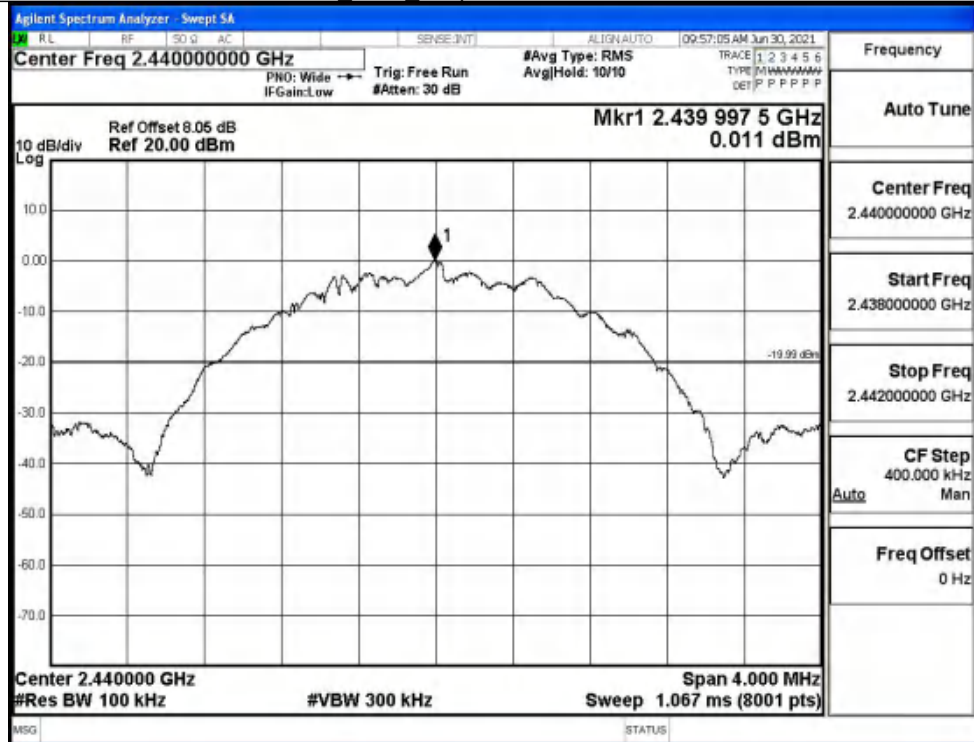
BT LE_LCH_Graphs



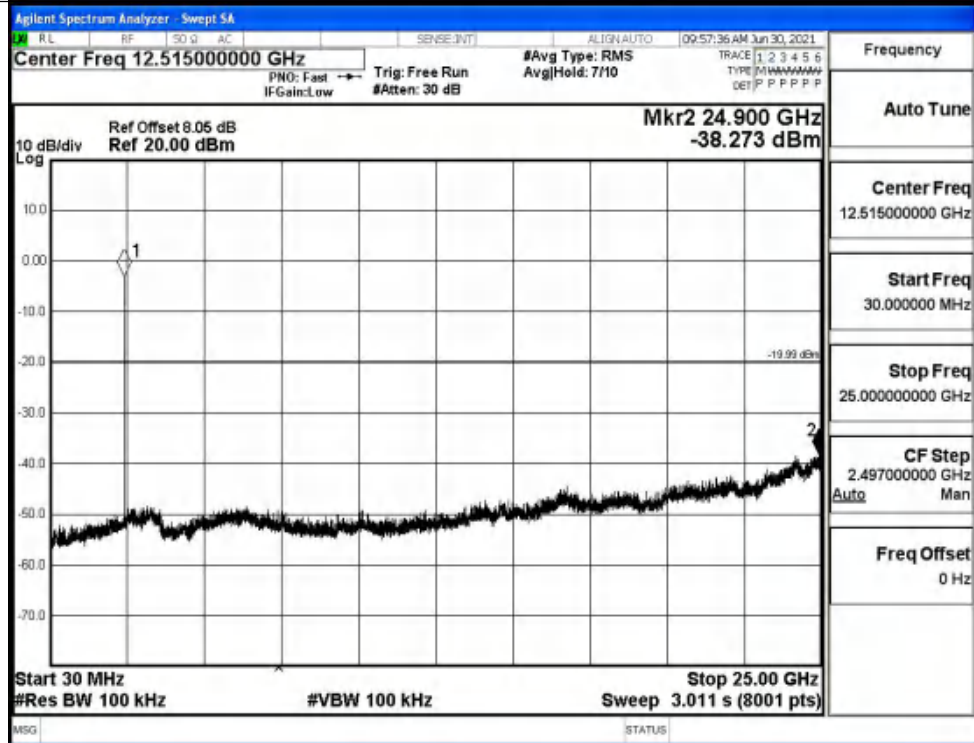


BT LE MCH Graphs

Pref/BT LE/MCH



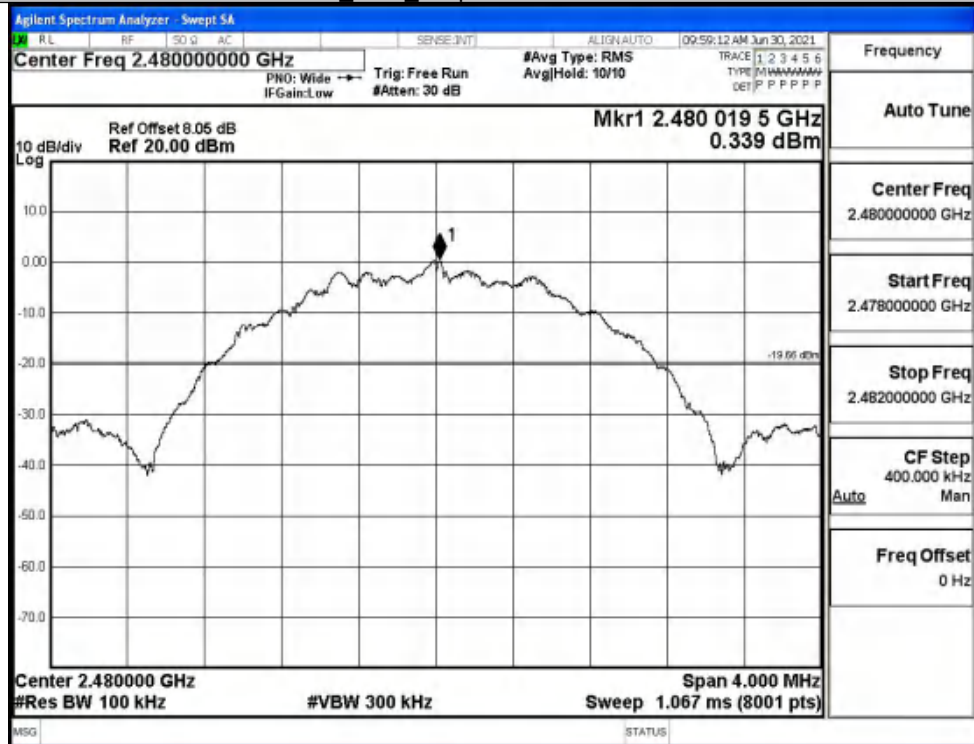
Puw/BT LE/MCH



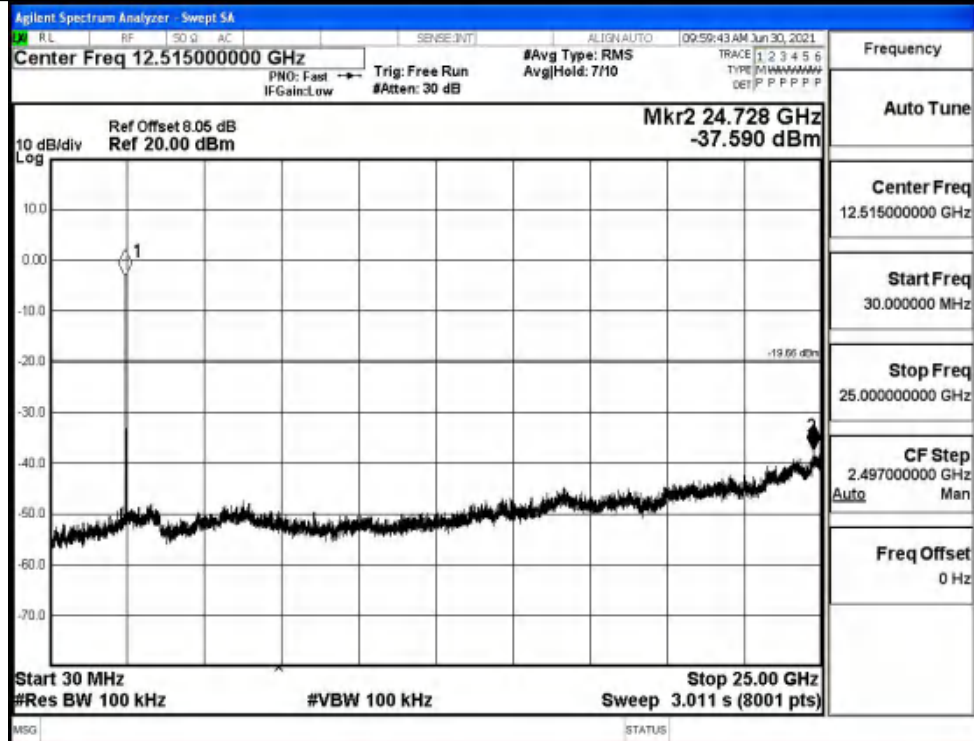


BT LE_HCH Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH





A.6 Band-edge for RF Conducted Emissions

BT LE

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.614	-50.428	-20.61	PASS
BT LE	HCH	-0.364	-50.061	-20.36	PASS

Test Graphs

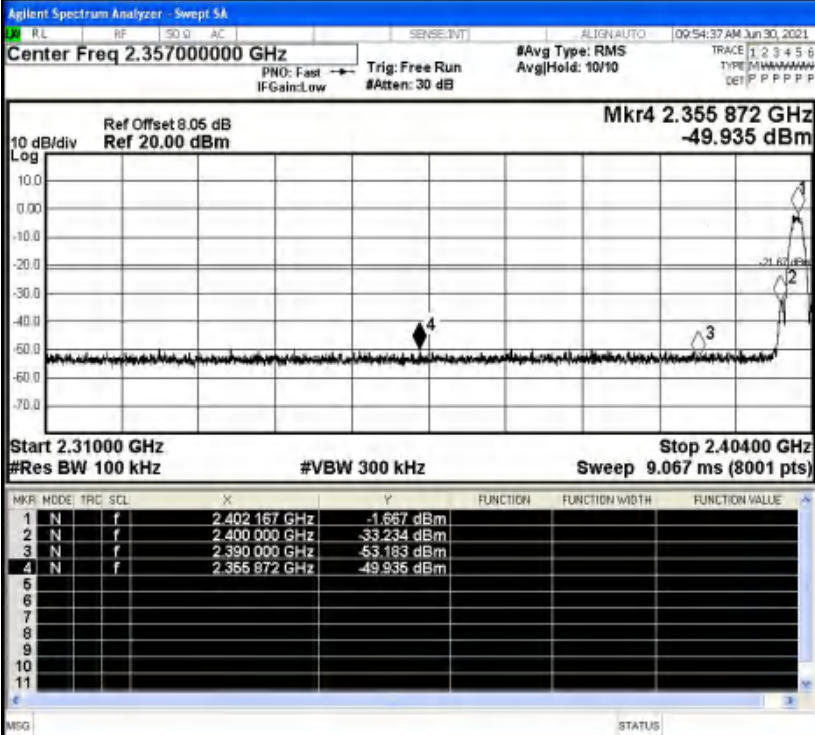
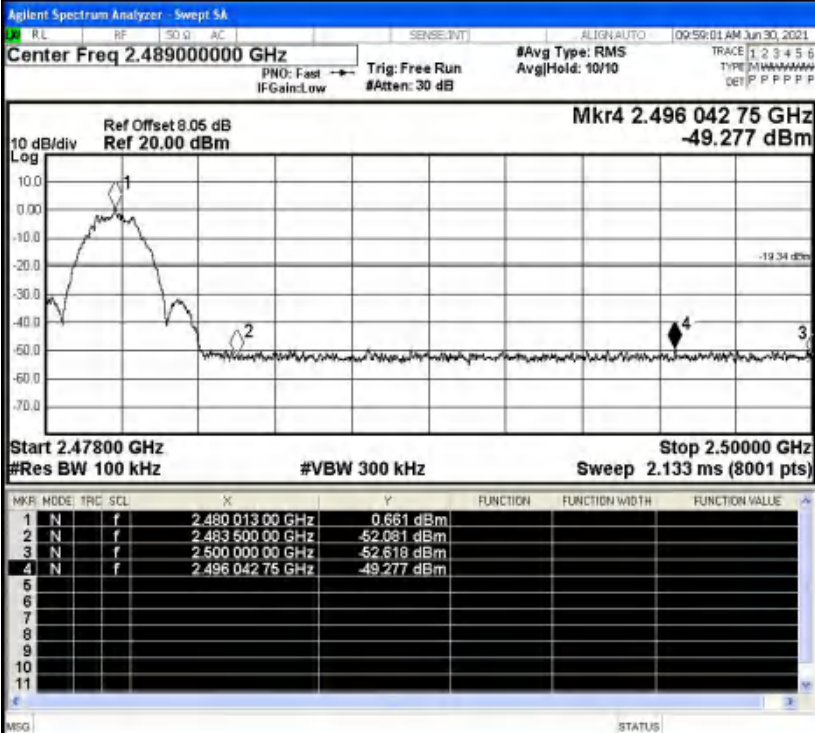
LCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.357000000 GHz</p> <p>Start Freq 2.310000000 GHz</p> <p>Stop Freq 2.404000000 GHz</p> <p>CF Step 9.400000 MHz</p> <p>Freq Offset 0 Hz</p>
HCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.489000000 GHz</p> <p>Start Freq 2.478000000 GHz</p> <p>Stop Freq 2.500000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p>



BT 2LE

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT 2LE	LCH	-1.667	-49.935	-21.67	PASS
BT 2LE	HCH	0.661	-49.277	-19.34	PASS

Test Graphs

LCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.357000000 GHz</p> <p>Start Freq 2.310000000 GHz</p> <p>Stop Freq 2.404000000 GHz</p> <p>CF Step 9.400000 MHz</p> <p>Freq Offset 0 Hz</p>
HCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.489000000 GHz</p> <p>Start Freq 2.478000000 GHz</p> <p>Stop Freq 2.500000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p>



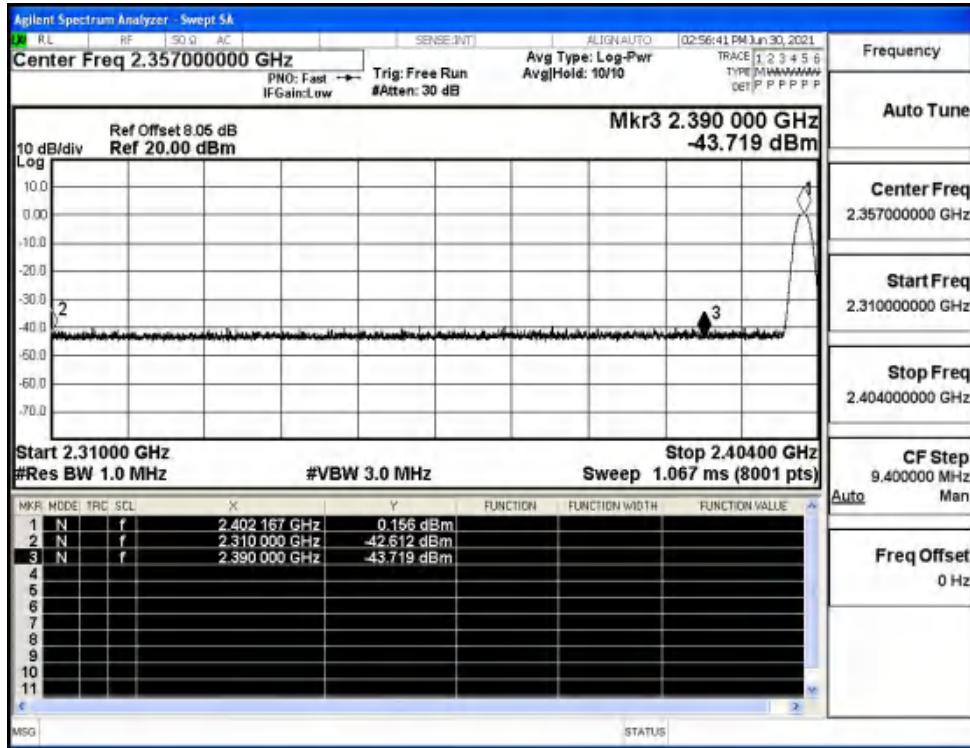
B.7 Restrict-band band-edge measurements

BT LE

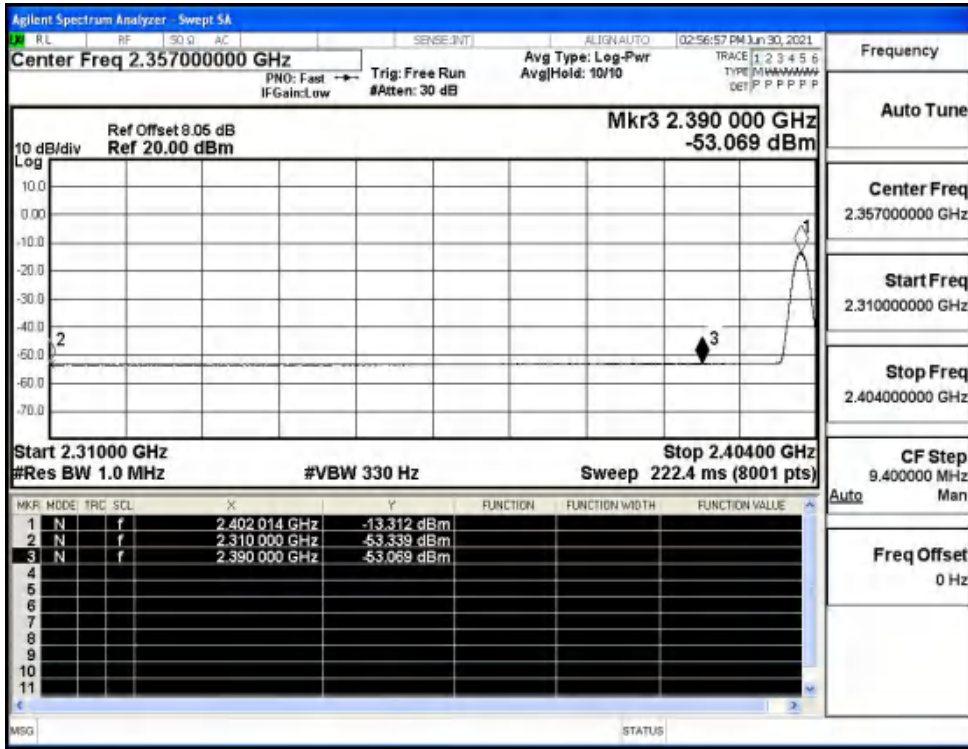
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdi
BT LE	2402	Ant1	2310.0	-42.61	2.0	0	54.62	PEAK	74	PASS
		Ant1	2310.0	-53.34	2.0	0	43.89	AV	54	PASS
		Ant1	2390.0	-43.72	2.0	0	53.51	PEAK	74	PASS
		Ant1	2390.0	-53.07	2.0	0	44.16	AV	54	PASS
	2480	Ant1	2483.5	-43.12	2.0	0	54.11	PEAK	74	PASS
		Ant1	2483.5	-52.57	2.0	0	44.66	AV	54	PASS
		Ant1	2500.0	-41.56	2.0	0	55.67	PEAK	74	PASS
		Ant1	2500.0	-52.46	2.0	0	44.77	AV	54	PASS



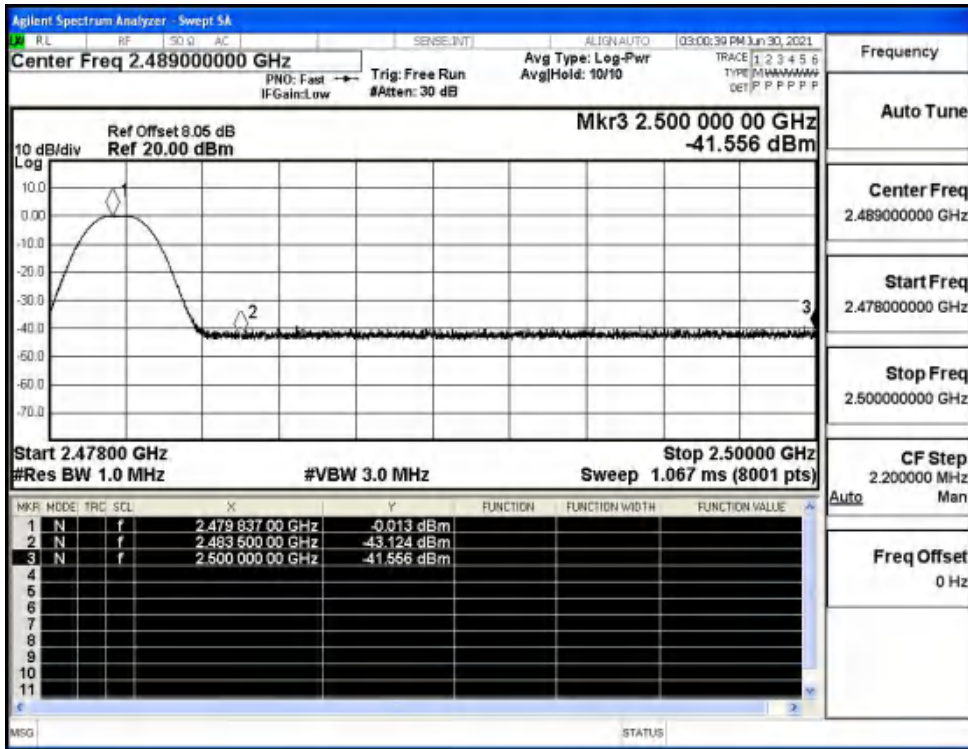
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



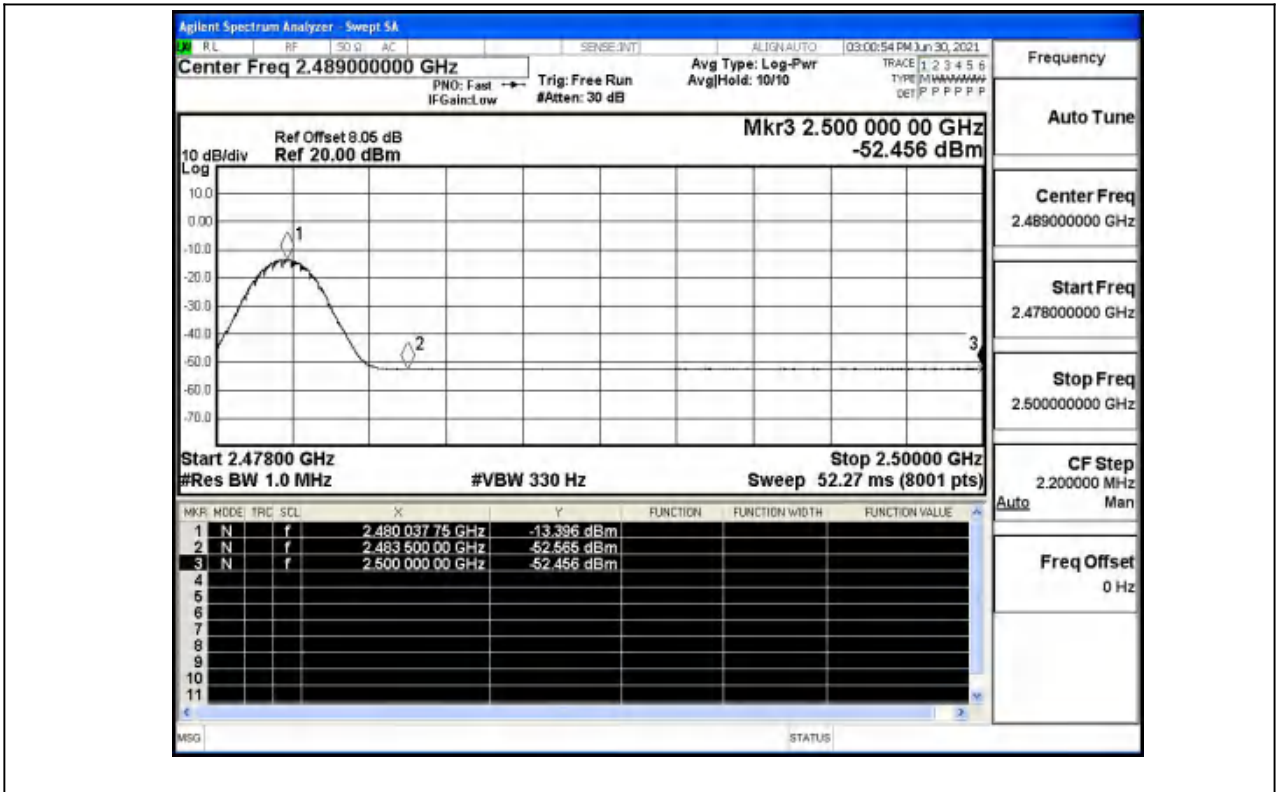
Restrict-band band-edge measurements_BT LE_2402_Ant1_AV



Restrict-band band-edge measurements_BT LE_2480_Ant1_PEAK



Restrict-band band-edge measurements_BT LE_2480_Ant1_AV

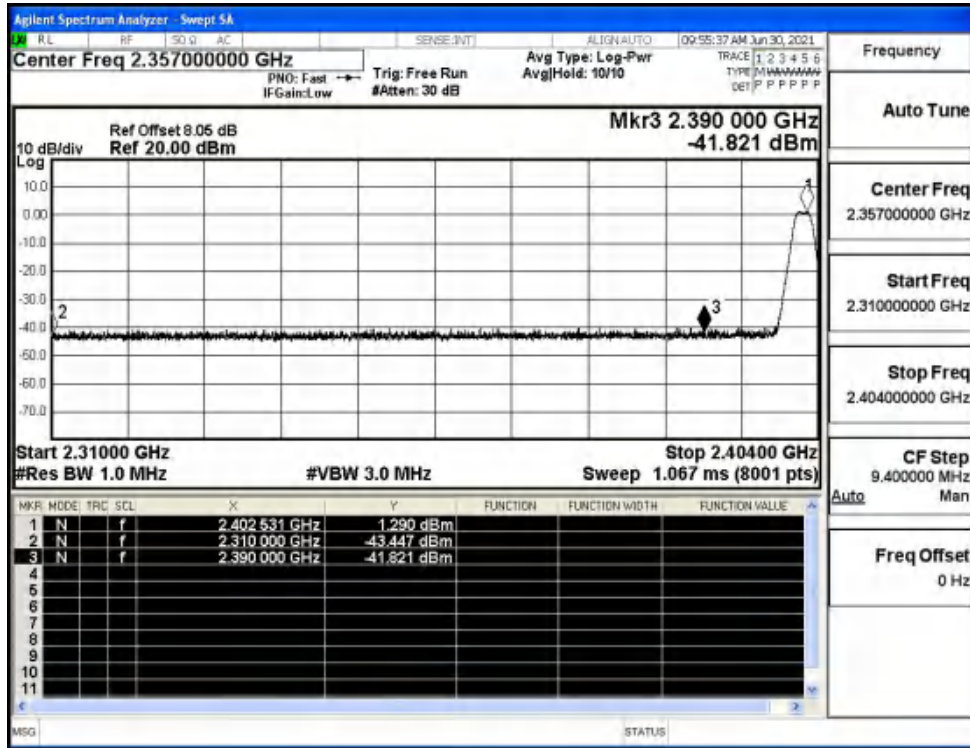


BT 2LE

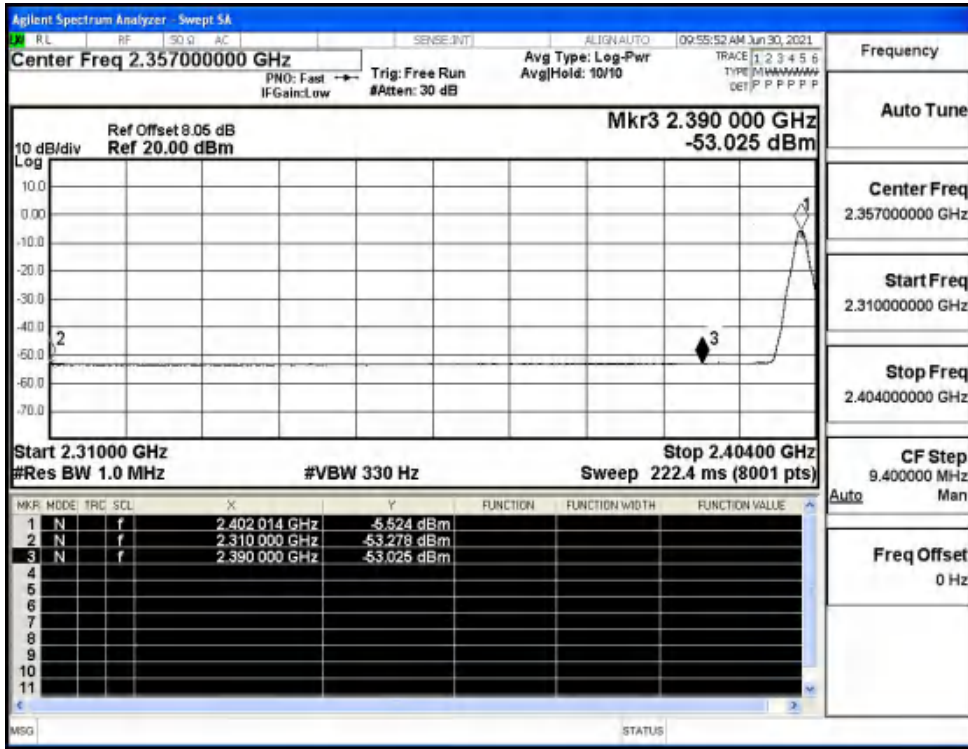
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdi
BT 2LE	2402	Ant1	2310.0	-43.45	2.0	0	53.78	PEAK	74	PASS
		Ant1	2310.0	-53.28	2.0	0	43.95	AV	54	PASS
		Ant1	2390.0	-41.82	2.0	0	55.41	PEAK	74	PASS
		Ant1	2390.0	-53.03	2.0	0	44.20	AV	54	PASS
	2480	Ant1	2483.5	-40.54	2.0	0	56.69	PEAK	74	PASS
		Ant1	2483.5	-51.47	2.0	0	45.76	AV	54	PASS
		Ant1	2500.0	-43.44	2.0	0	53.79	PEAK	74	PASS
		Ant1	2500.0	-52.28	2.0	0	44.95	AV	54	PASS



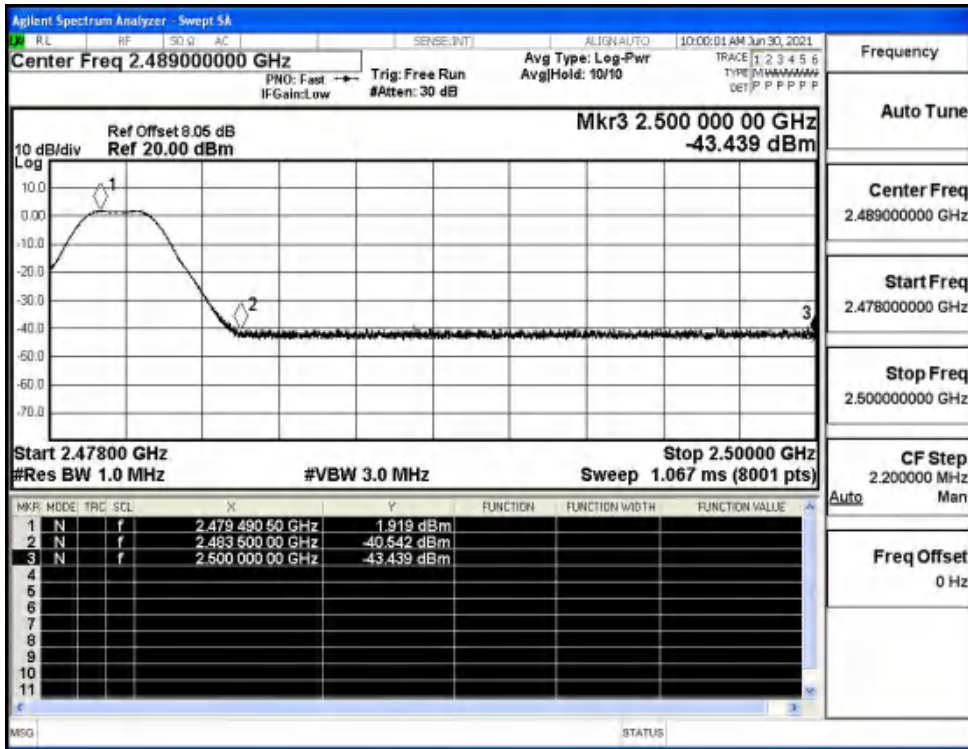
Restrict-band band-edge measurements_BT 2LE_2402_Ant1_PEAK



Restrict-band band-edge measurements_BT 2LE_2402_Ant1_AV



Restrict-band band-edge measurements_BT 2LE_2480_Ant1_PEAK



Restrict-band band-edge measurements_BT 2LE_2480_Ant1_AV

