

Appendix A

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

Product Name: Mibro Air

Trade Mark:

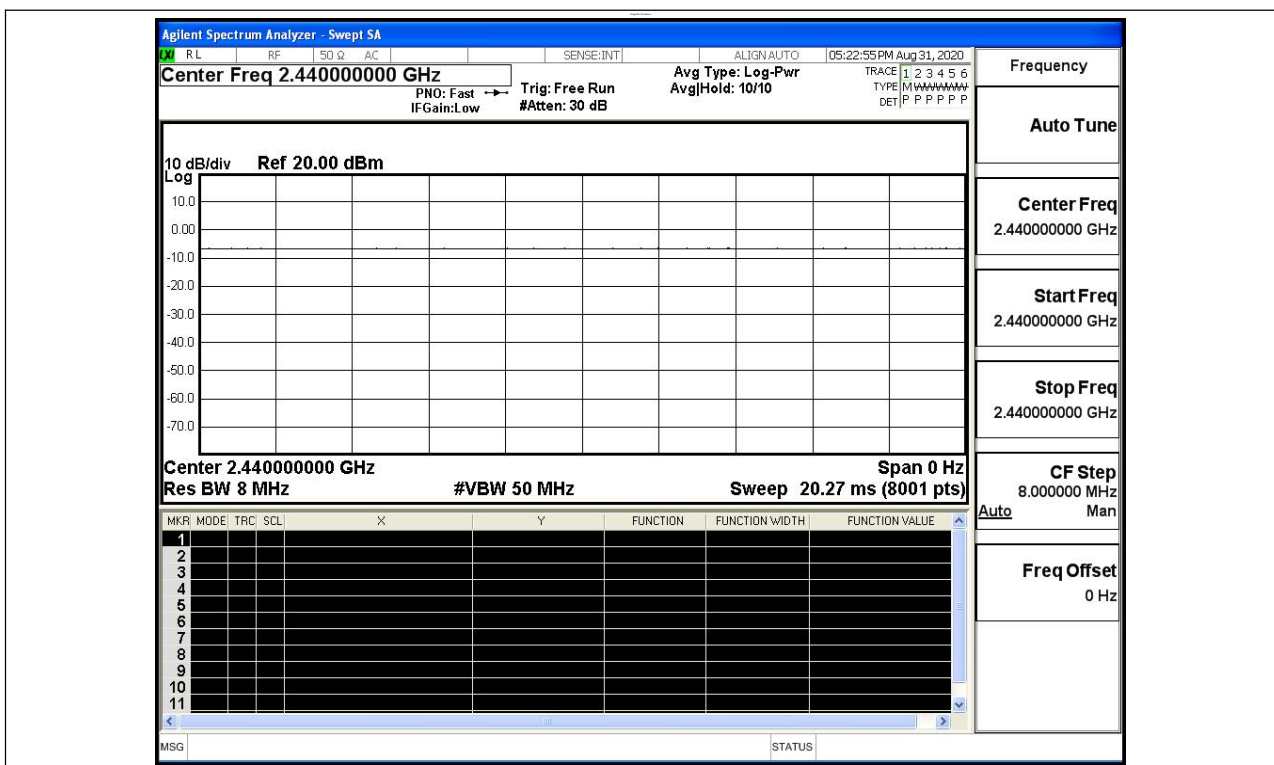
Test Model: XPAW001

Environmental Conditions

Temperature:	23.9° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

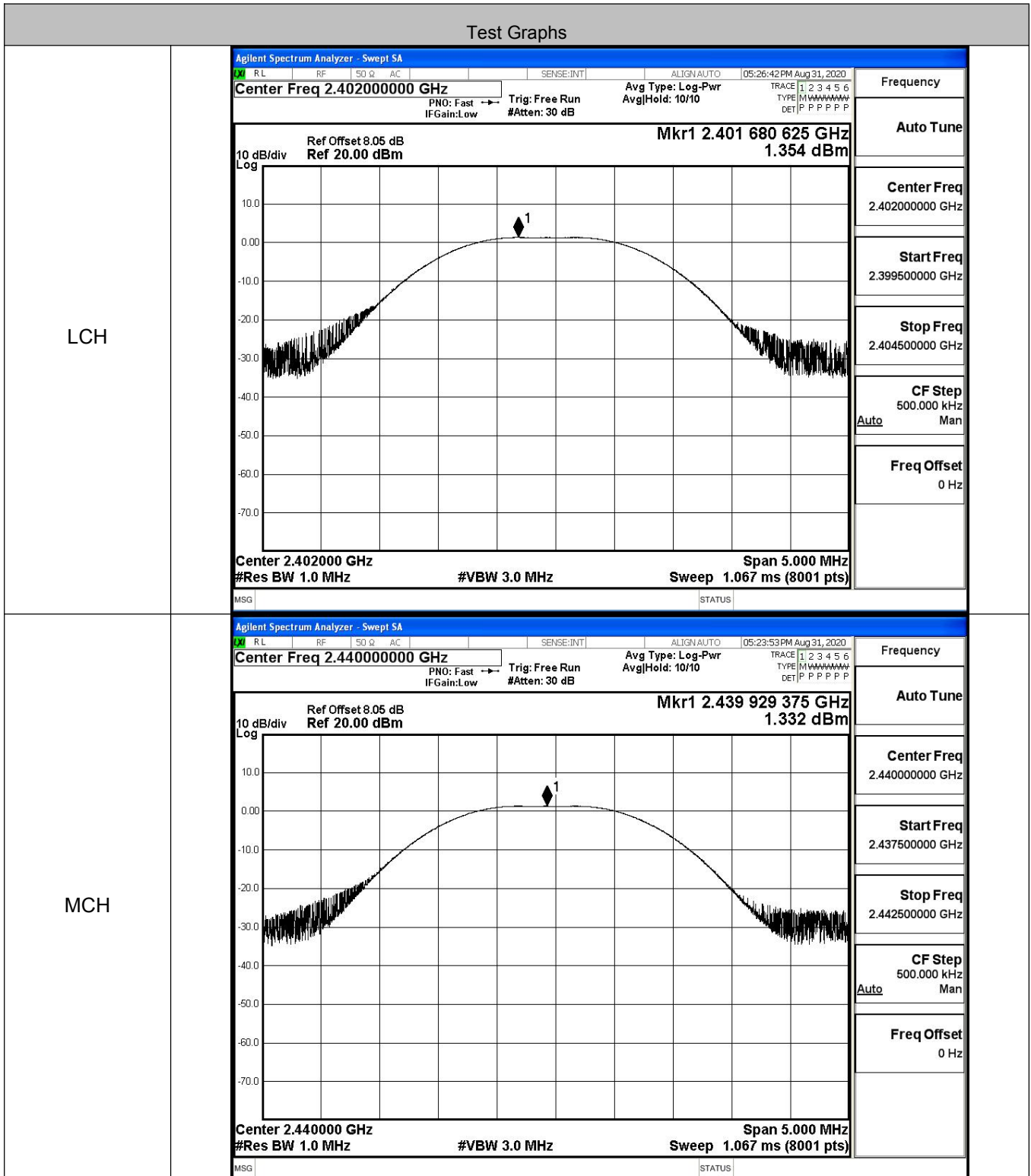
A.1 Duty Cycle

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

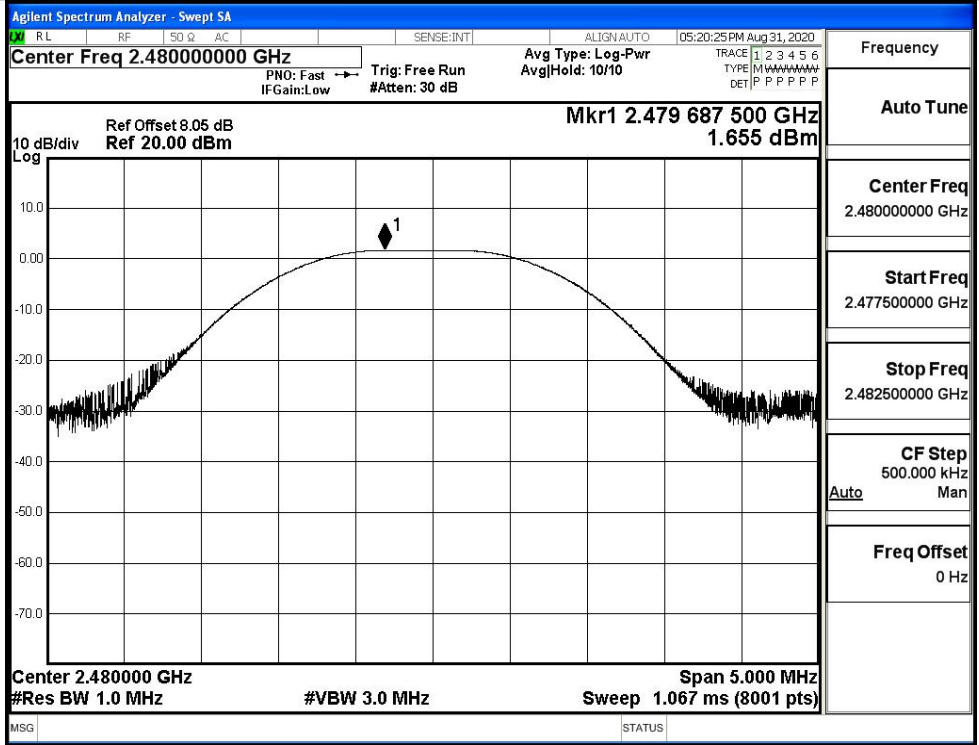


A.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.354	30	PASS
BT LE	MCH	1.332	30	PASS
BT LE	HCH	1.655	30	PASS



HCH



A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.016	8	PASS
BT LE	MCH	-13.560	8	PASS
BT LE	HCH	-13.234	8	PASS

Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.40200000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.401 905 5 GHz -14.016 dBm Center 2.4020000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.40200000 GHz Start Freq 2.401250000 GHz Stop Freq 2.402750000 GHz CF Step 150.000 kHz Auto Man Freq Offset 0 Hz
	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.44000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.439 905 5 GHz -13.560 dBm Center 2.4400000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.440000000 GHz Start Freq 2.439250000 GHz Stop Freq 2.440750000 GHz CF Step 150.000 kHz Auto Man Freq Offset 0 Hz

A.4 6dB Bandwidth

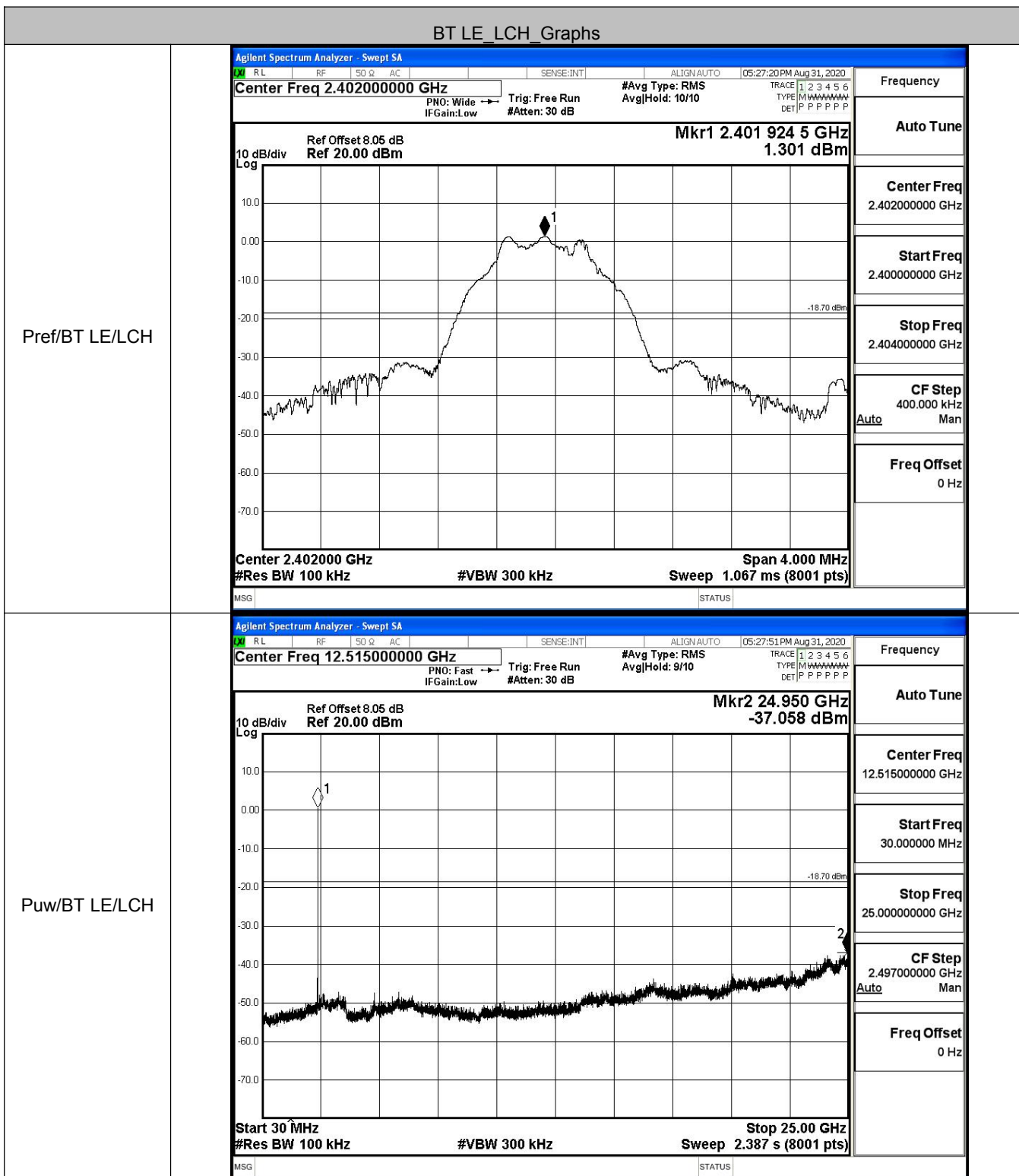
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6368	≥0.5	PASS
BT LE	MCH	0.6518	≥0.5	PASS
BT LE	HCH	0.6560	≥0.5	PASS

Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.40200000 GHz</p> <p>Center Freq: 2.40200000 GHz</p> <p>Trig: Free Run AvgHold: 1/1</p> <p>#IFGain:Low #Atten: 30 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Mkr1 2.4016783 GHz 1.2892 dBm</p> <p>Center 2.402 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Span 3 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 1.0288 MHz</p> <p>Total Power 7.80 dBm</p> <p>Transmit Freq Error -67.455 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 636.8 kHz x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.40200000 GHz</p> <p>CF Step 300.000 kHz</p> <p>Auto Man</p> <p>Freq Offset 0 Hz</p>
	MCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.44000000 GHz</p> <p>Center Freq: 2.44000000 GHz</p> <p>Trig: Free Run AvgHold: 1/1</p> <p>#IFGain:Low #Atten: 30 dB</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Mkr1 2.4399243 GHz 1.2950 dBm</p> <p>Center 2.44 GHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Span 3 MHz Sweep 1.067 ms</p> <p>Occupied Bandwidth 1.0333 MHz</p> <p>Total Power 7.69 dBm</p> <p>Transmit Freq Error -70.806 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 651.8 kHz x dB -6.00 dB</p>

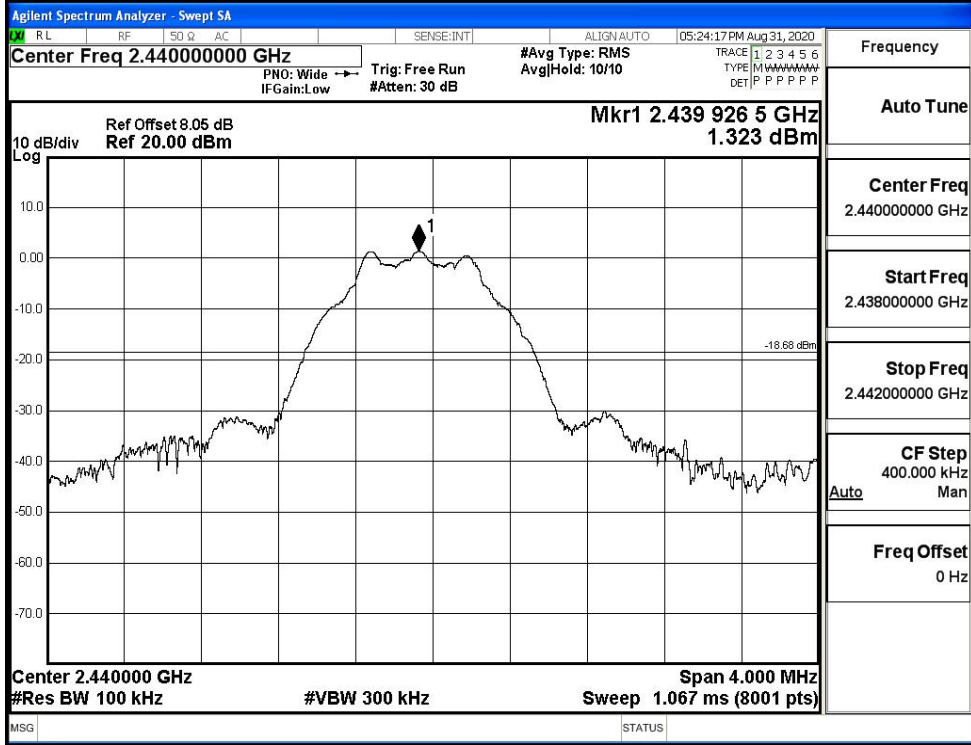
A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.301	-37.058	-18.699	PASS
BT LE	MCH	1.323	-37.208	-18.677	PASS
BT LE	HCH	1.64	-37.782	-18.360	PASS

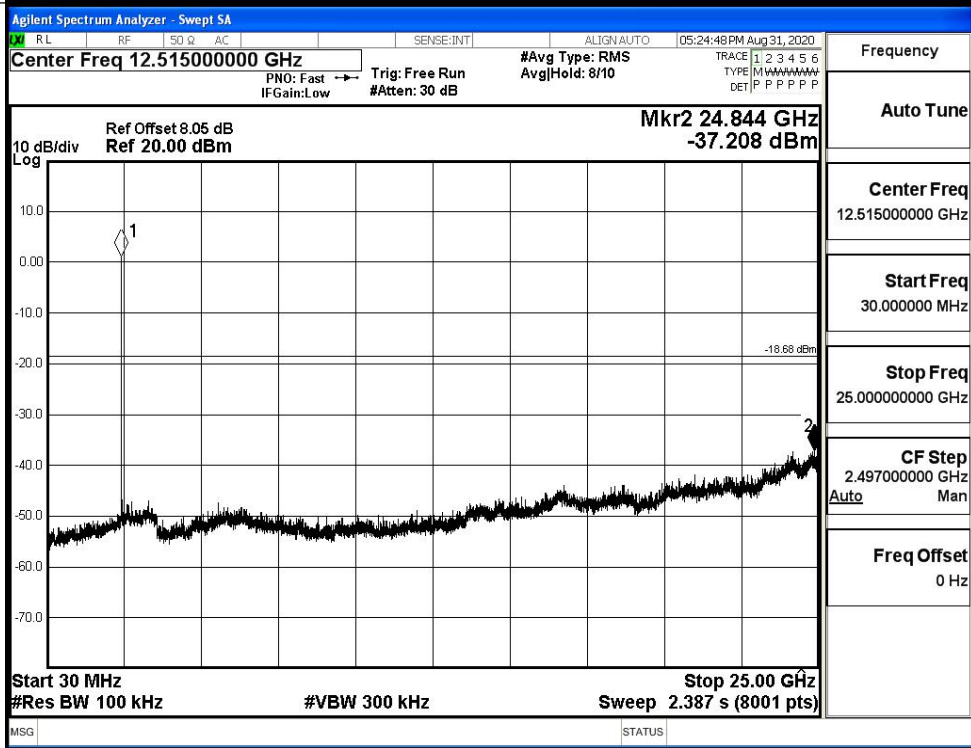


BT LE MCH Graphs

Pref/BT LE/MCH

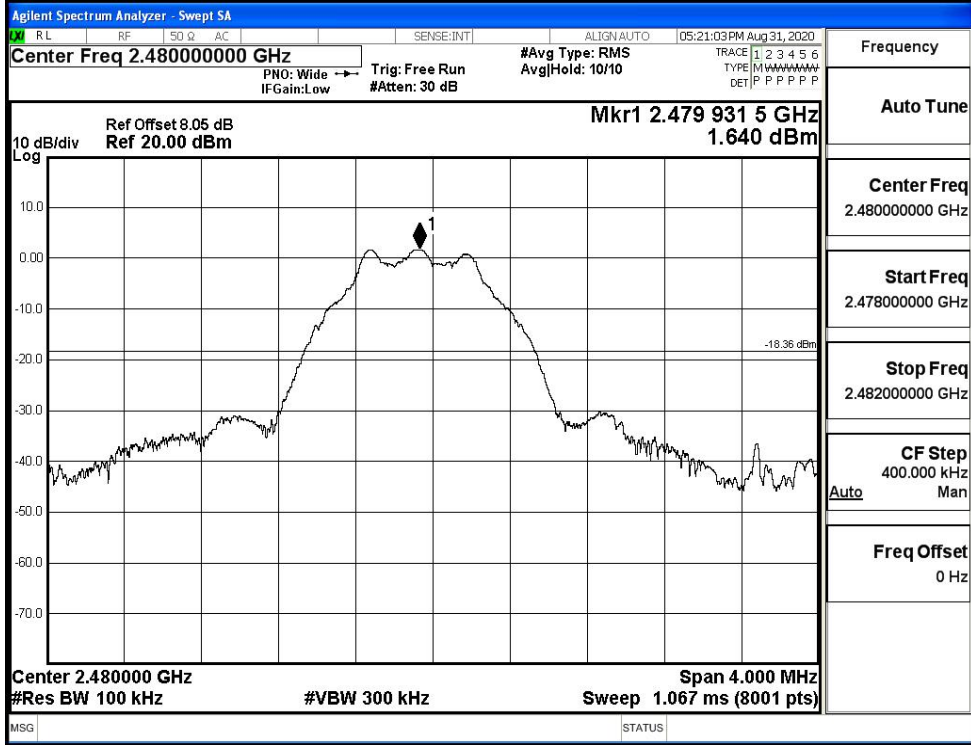


Puw/BT LE/MCH

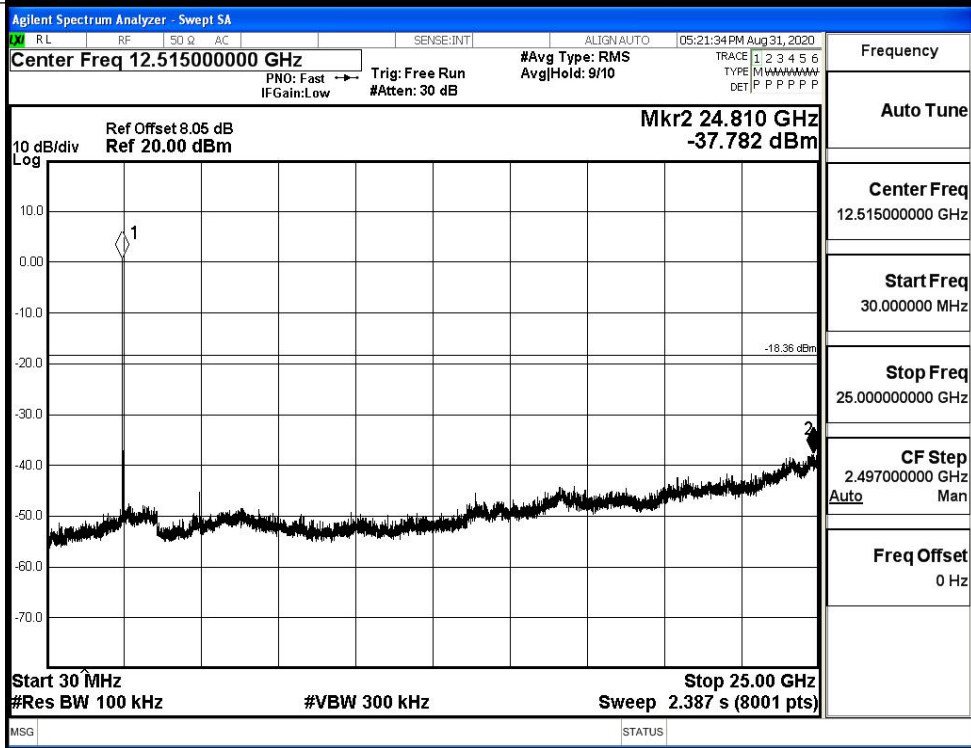


BT LE HCH Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.487	-48.328	-18.51	PASS
BT LE	HCH	1.832	-29.788	-18.17	PASS

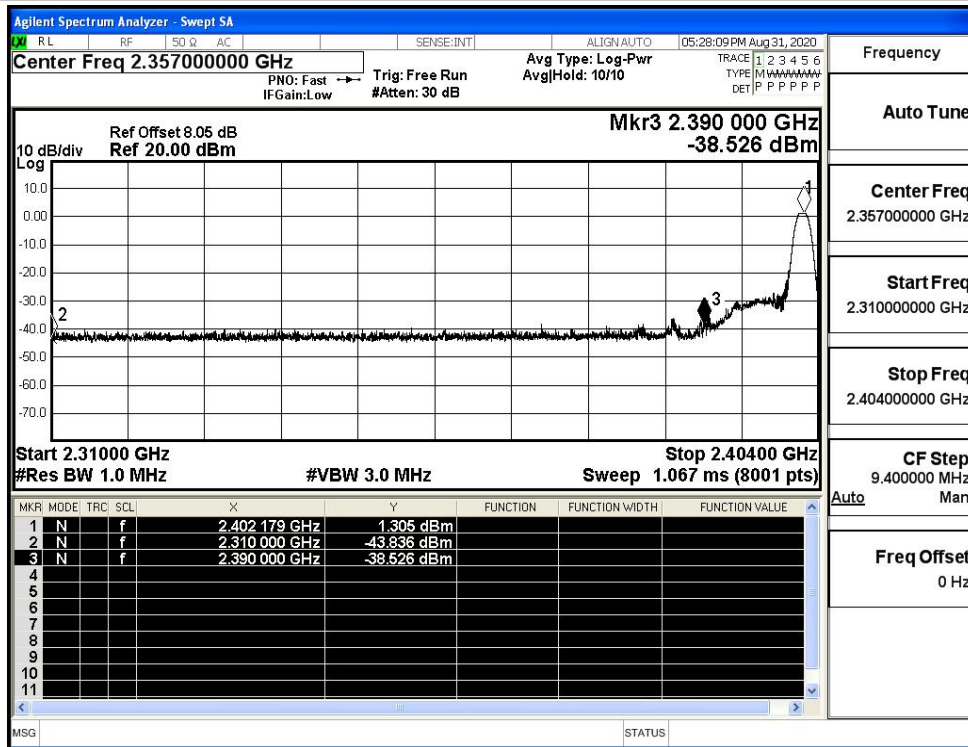
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz Mkr4 2.389 924 GHz -48.328 dBm Start 2.31000 GHz Stop 2.40400 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 9.067 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.401 920 GHz</td><td>1.487 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.400 000 GHz</td><td>-39.850 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.390 000 GHz</td><td>-51.309 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.389 924 GHz</td><td>-48.328 dBm</td><td></td><td></td><td></td></tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	f		2.401 920 GHz	1.487 dBm				2	N	f		2.400 000 GHz	-39.850 dBm				3	N	f		2.390 000 GHz	-51.309 dBm				4	N	f		2.389 924 GHz	-48.328 dBm				<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.35700000 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>
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HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.48900000 GHz Mkr4 2.484 919 00 GHz -29.788 dBm Start 2.47800 GHz Stop 2.50000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.133 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.479 922 25 GHz</td><td>1.832 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.483 500 00 GHz</td><td>-40.157 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.500 000 00 GHz</td><td>-48.194 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.484 919 00 GHz</td><td>-29.788 dBm</td><td></td><td></td><td></td></tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	f		2.479 922 25 GHz	1.832 dBm				2	N	f		2.483 500 00 GHz	-40.157 dBm				3	N	f		2.500 000 00 GHz	-48.194 dBm				4	N	f		2.484 919 00 GHz	-29.788 dBm				<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>
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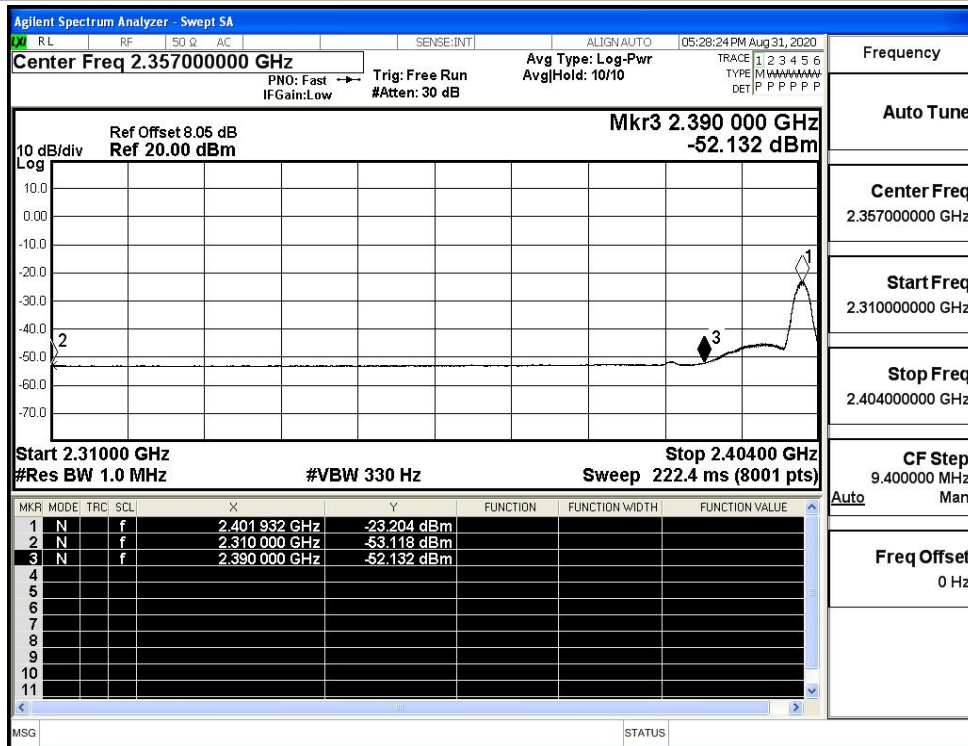
A.7 Restrict-band band-edge measurements

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	-43.84	2.0	0	53.39	PEAK	74	PASS
		Ant1	2310.0	-53.12	2.0	0	44.11	AV	54	PASS
		Ant1	2390.0	-38.53	2.0	0	58.70	PEAK	74	PASS
		Ant1	2390.0	-52.13	2.0	0	45.10	AV	54	PASS
	2480	Ant1	2483.5	-29.77	2.0	0	67.46	PEAK	74	PASS
		Ant1	2483.5	-45.05	2.0	0	52.18	AV	54	PASS
		Ant1	2500.0	-42.04	2.0	0	55.19	PEAK	74	PASS
		Ant1	2500.0	-52.06	2.0	0	45.17	AV	54	PASS

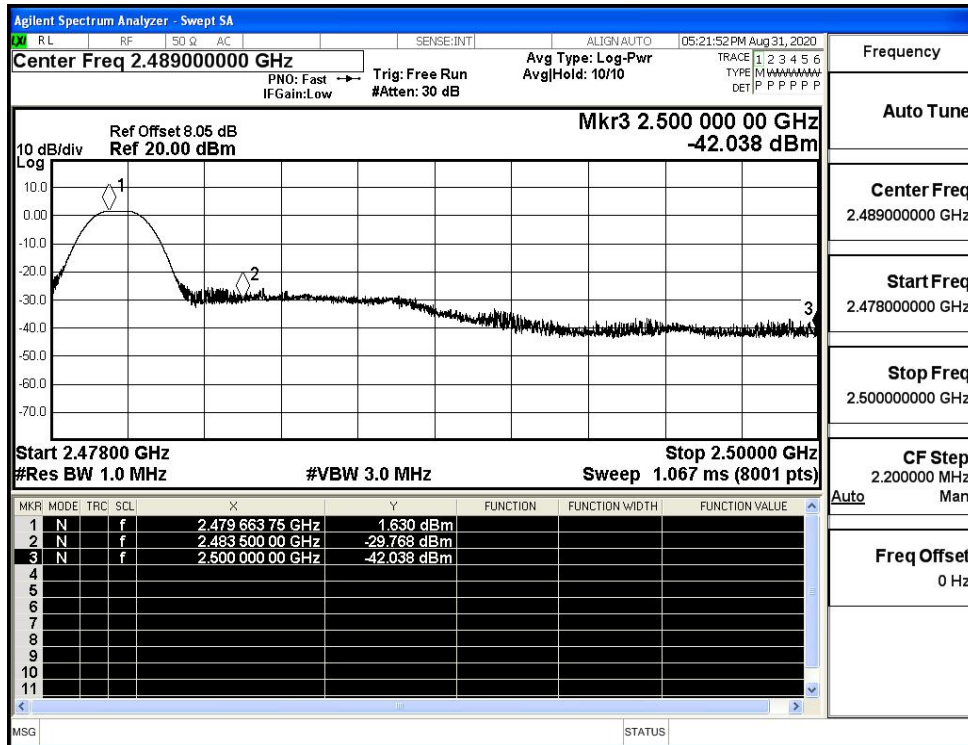
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

