

Appendix B

RF Test Data for BT V4.0(LE) (Conducted Measurement)

Product Name: Smart Doorbell

Trade Mark: BOSMA

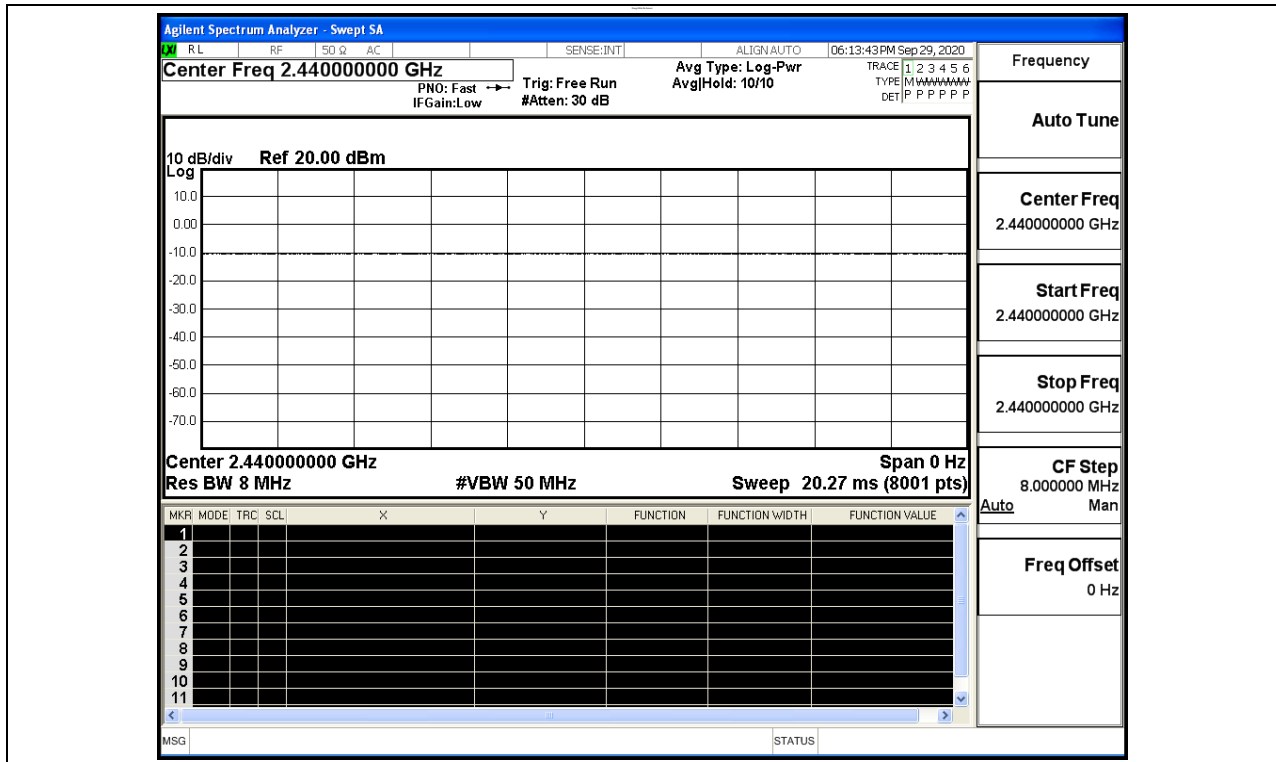
Test Model: SENTRY PRO

Environmental Conditions

Temperature:	23.2 ° C
Relative Humidity:	53.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

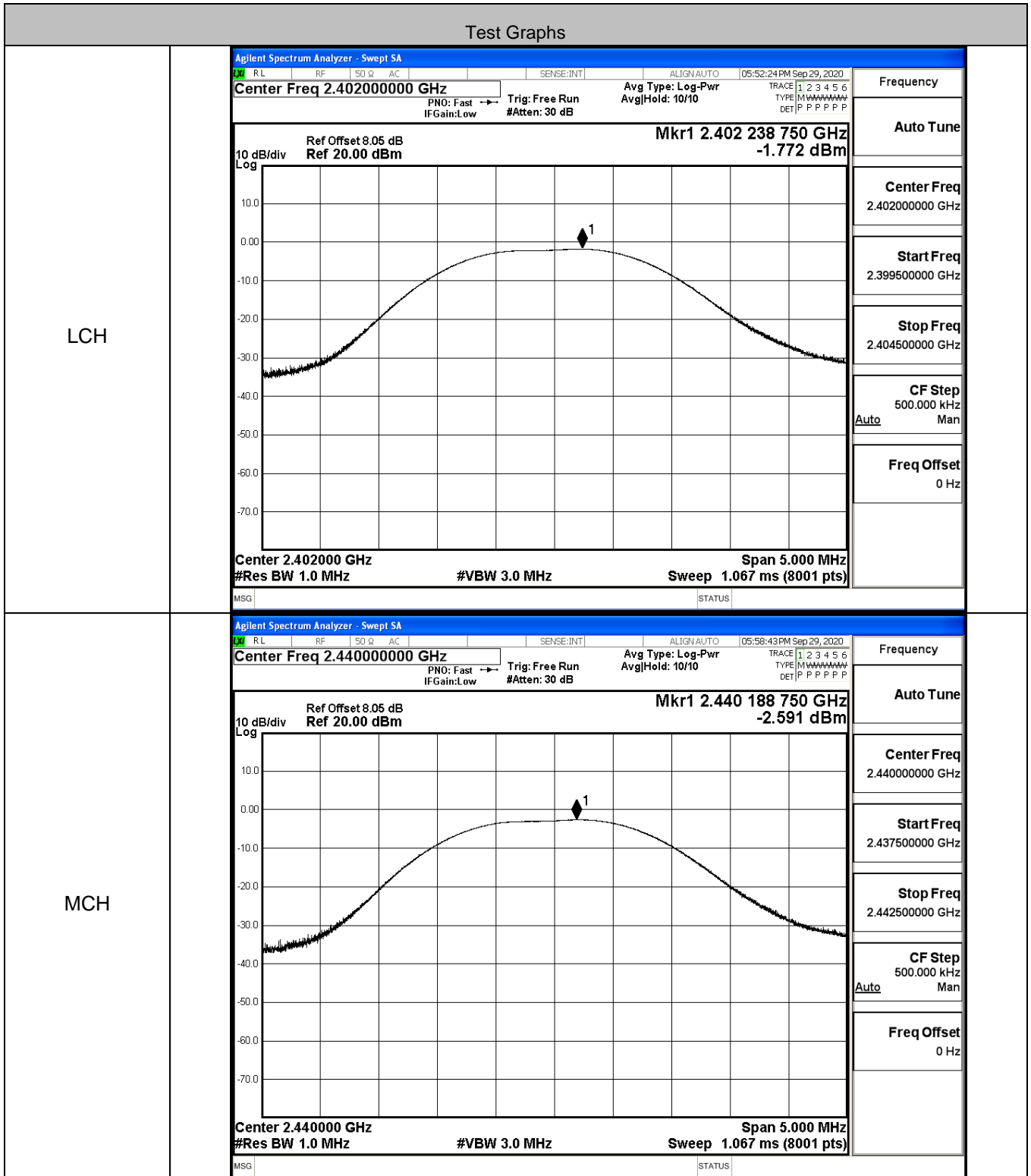
B.1 Duty Cycle

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

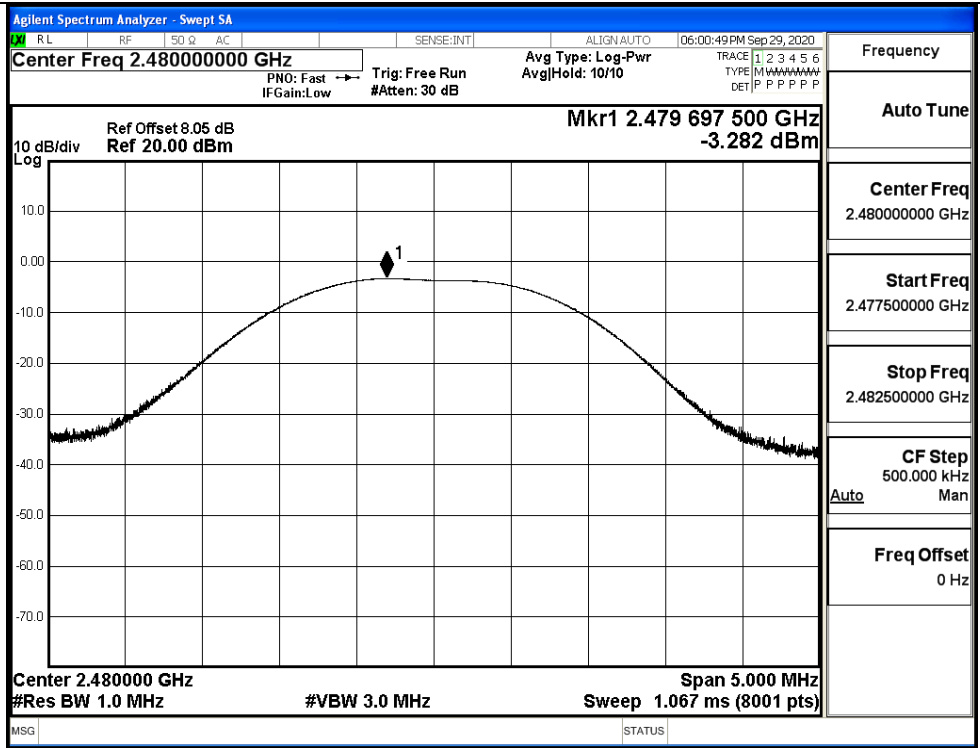


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-1.772	30	PASS
BT LE	MCH	-2.591	30	PASS
BT LE	HCH	-3.282	30	PASS



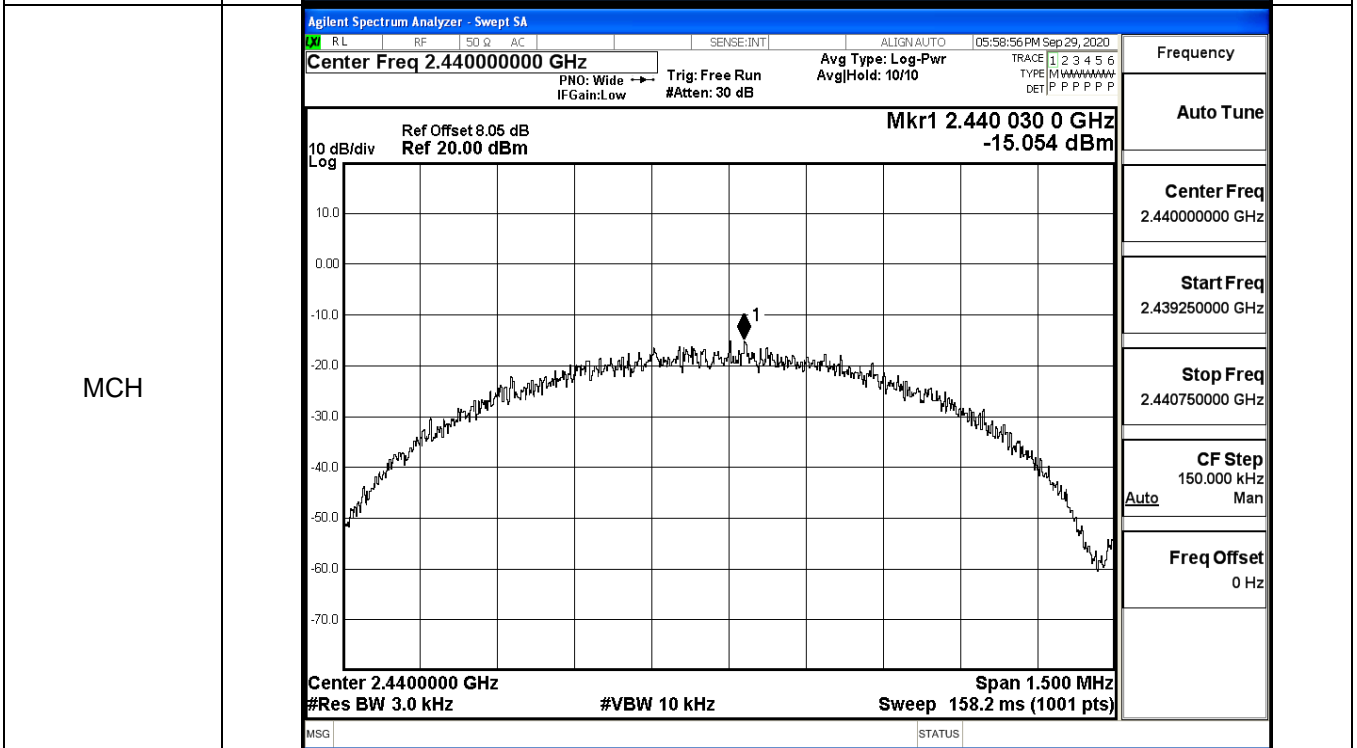
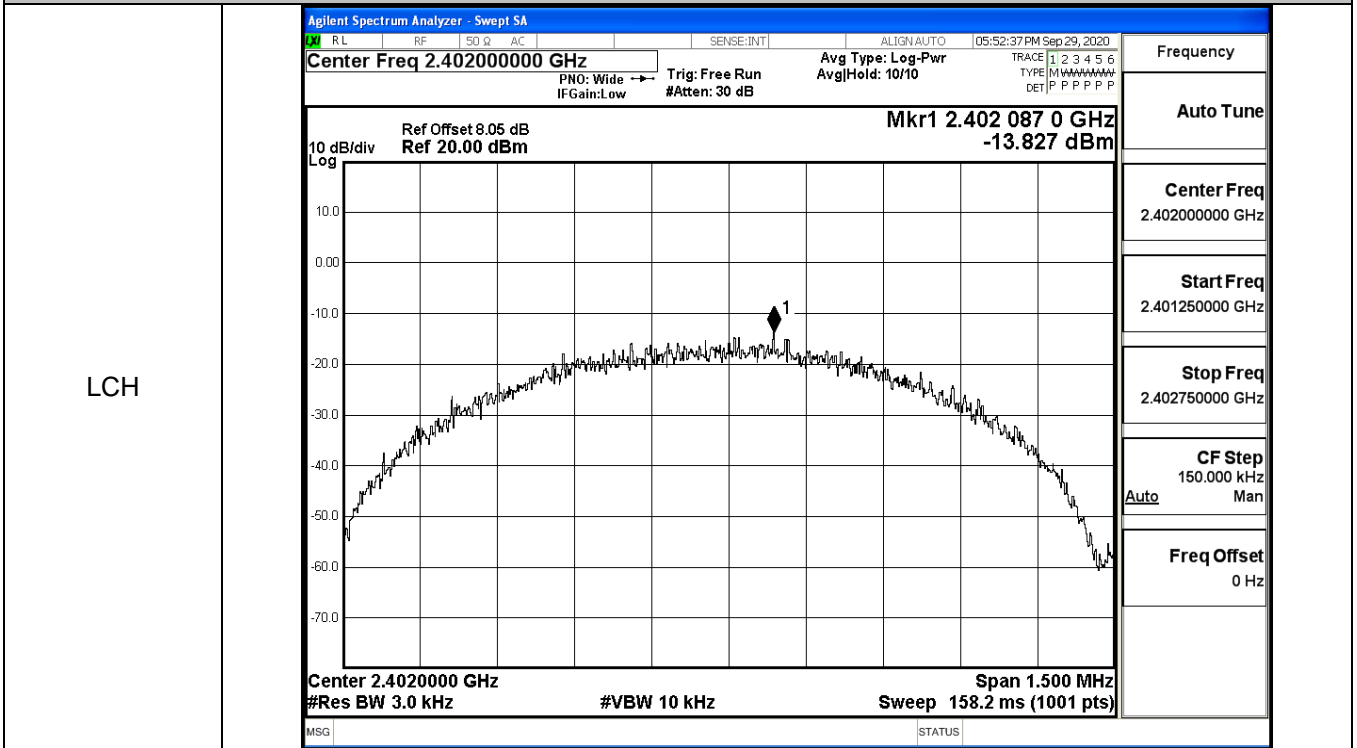
HCH



B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-13.827	8	PASS
BT LE	MCH	-15.054	8	PASS
BT LE	HCH	-16.947	8	PASS

Test Graphs



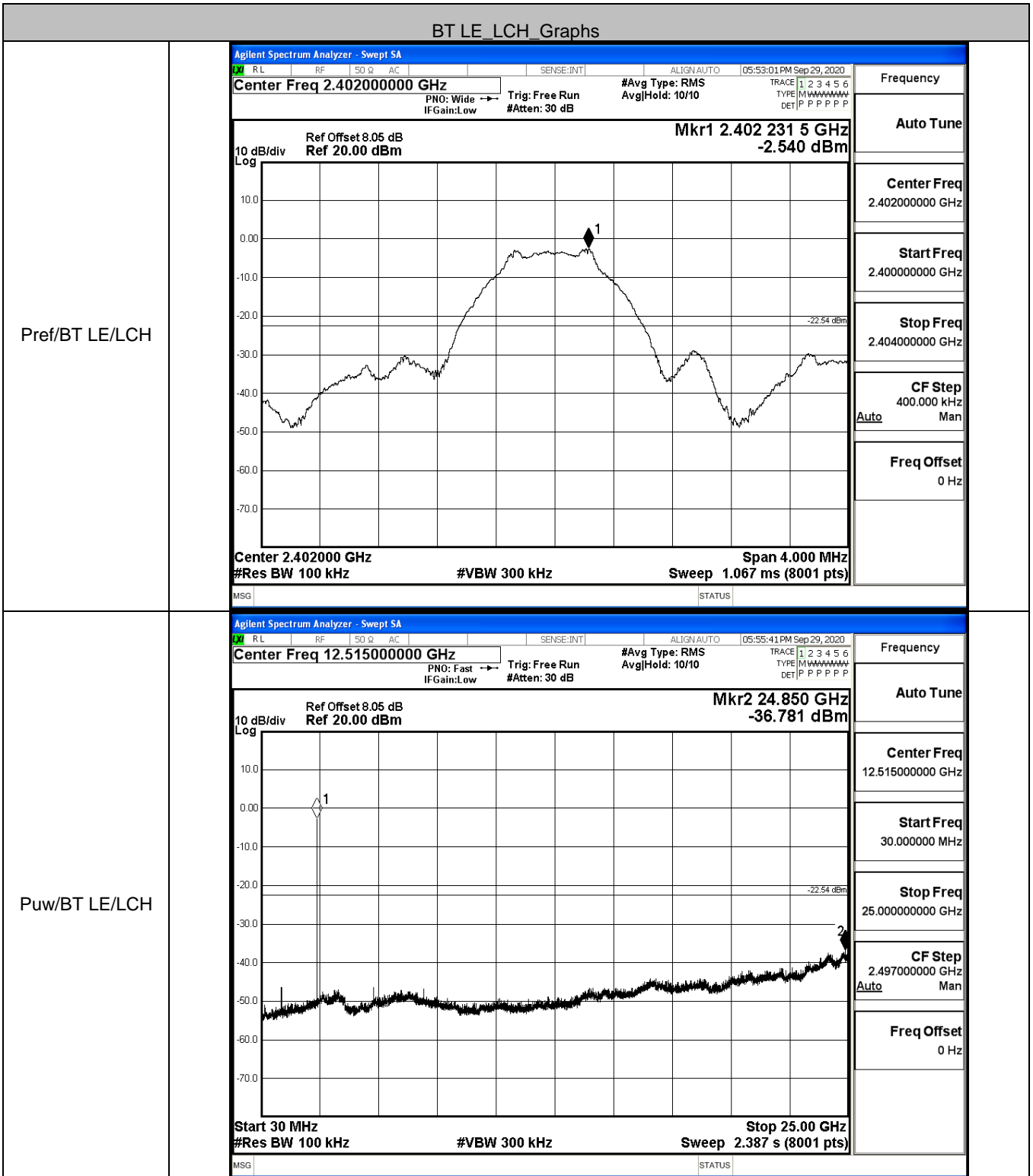
B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6714	≥0.5	PASS
BT LE	MCH	0.6898	≥0.5	PASS
BT LE	HCH	0.6813	≥0.5	PASS

Test Graphs																			
LCH	<div data-bbox="416 562 1390 1294"> <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.40200000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p>Trig: Free Run AvgHold: 1/1 Radio Device: BTS</p> <p>#IFGain:Low #Atten: 30 dB</p> <p>Ref Offset 8.05 dB Mkr1 2.4022205 GHz</p> <p>Ref 20.00 dBm -2.0907 dBm</p> <p>Center 2.402 GHz Span 3 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>4.50 dBm</td> </tr> <tr> <td>1.0742 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-25.239 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>671.4 kHz</td> <td></td> <td></td> </tr> </table> <p>MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	4.50 dBm	1.0742 MHz			Transmit Freq Error	OBW Power	99.00 %	-25.239 kHz	x dB	-6.00 dB	x dB Bandwidth			671.4 kHz		
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MCH	<div data-bbox="416 1305 1390 2042"> <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.44000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p>Trig: Free Run AvgHold: 1/1 Radio Device: BTS</p> <p>#IFGain:Low #Atten: 30 dB</p> <p>Ref Offset 8.05 dB Mkr1 2.4397293 GHz</p> <p>Ref 20.00 dBm -3.4754 dBm</p> <p>Center 2.44 GHz Span 3 MHz</p> <p>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>3.58 dBm</td> </tr> <tr> <td>1.0756 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>-22.250 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>689.8 kHz</td> <td></td> <td></td> </tr> </table> <p>MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	3.58 dBm	1.0756 MHz			Transmit Freq Error	OBW Power	99.00 %	-22.250 kHz	x dB	-6.00 dB	x dB Bandwidth			689.8 kHz		
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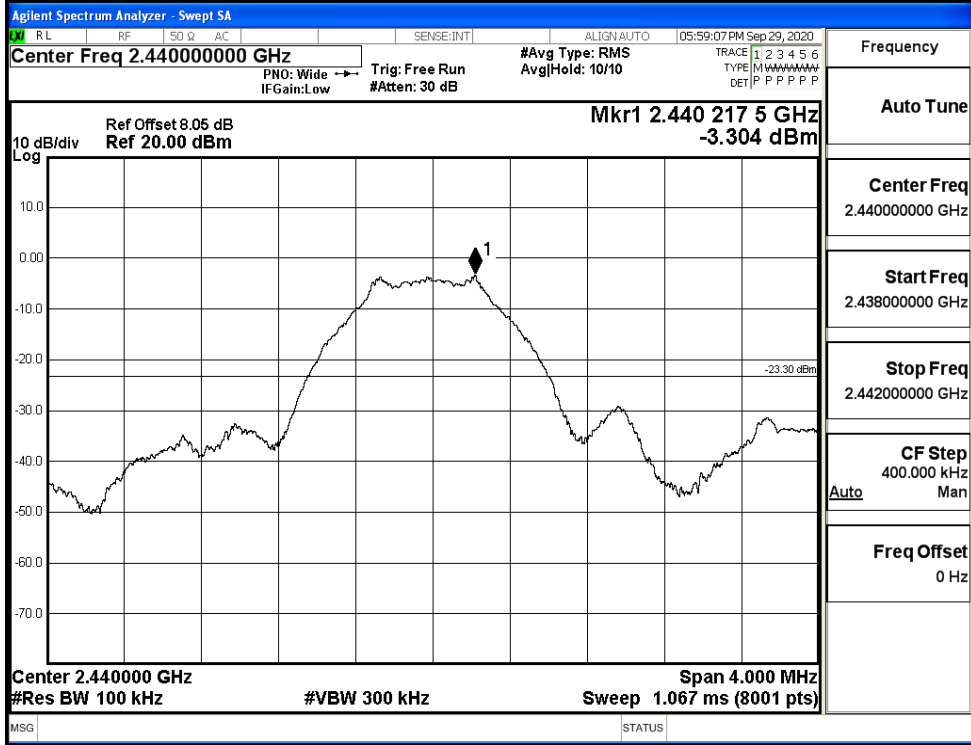
B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.54	-36.781	-22.540	PASS
BT LE	MCH	-3.304	-37.120	-23.304	PASS
BT LE	HCH	-4.05	-36.073	-24.050	PASS

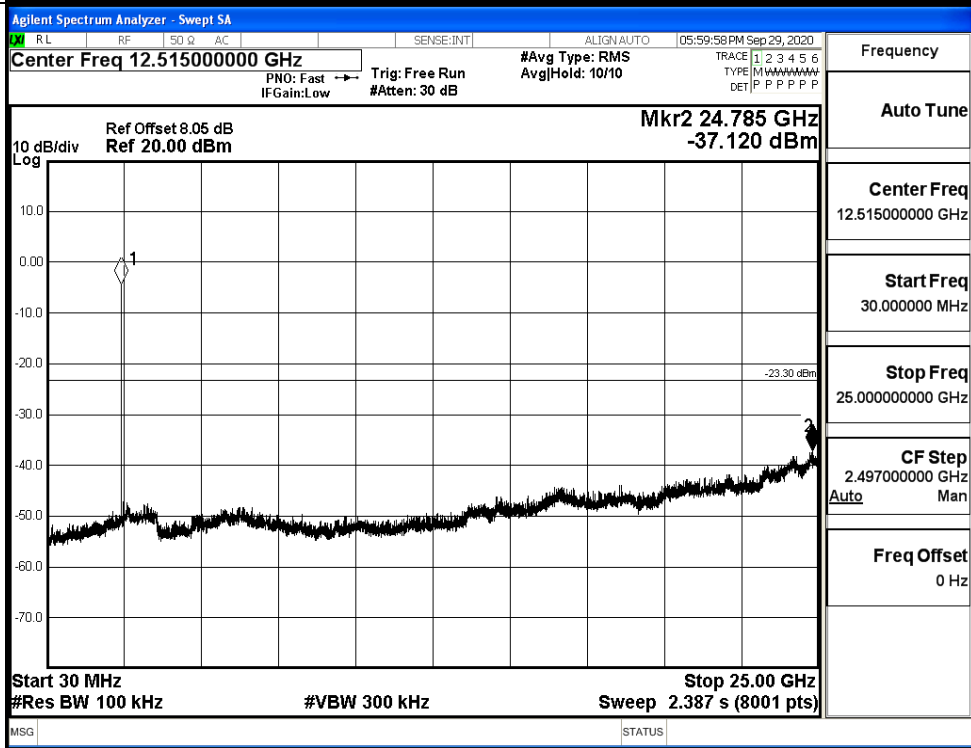


BT LE_MCH_Graphs

Pref/BT LE/MCH

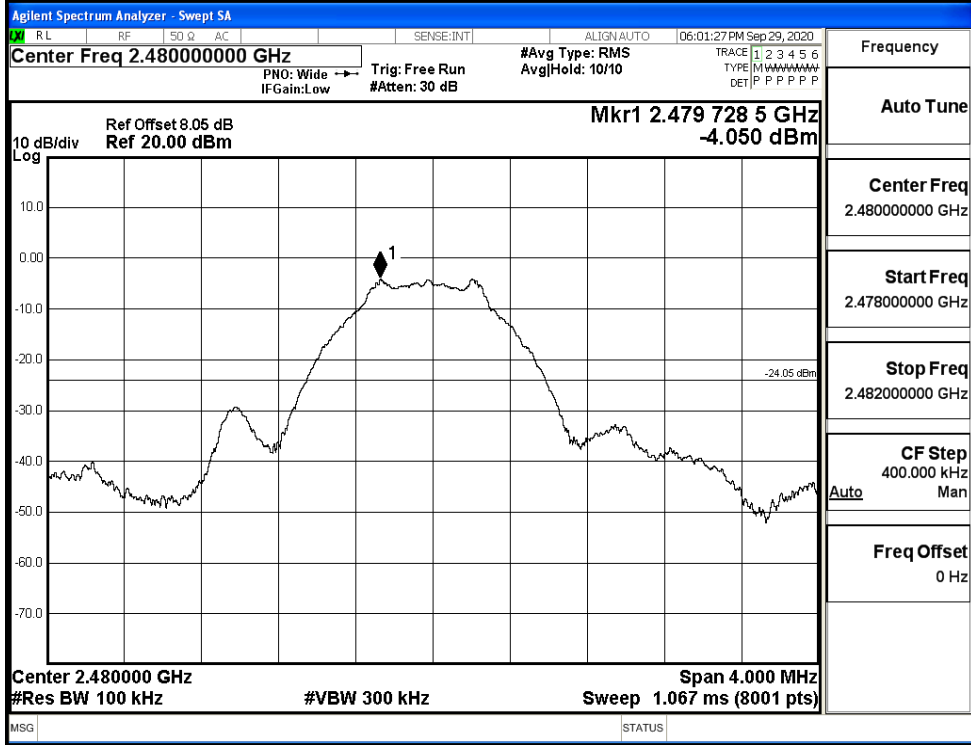


Puw/BT LE/MCH

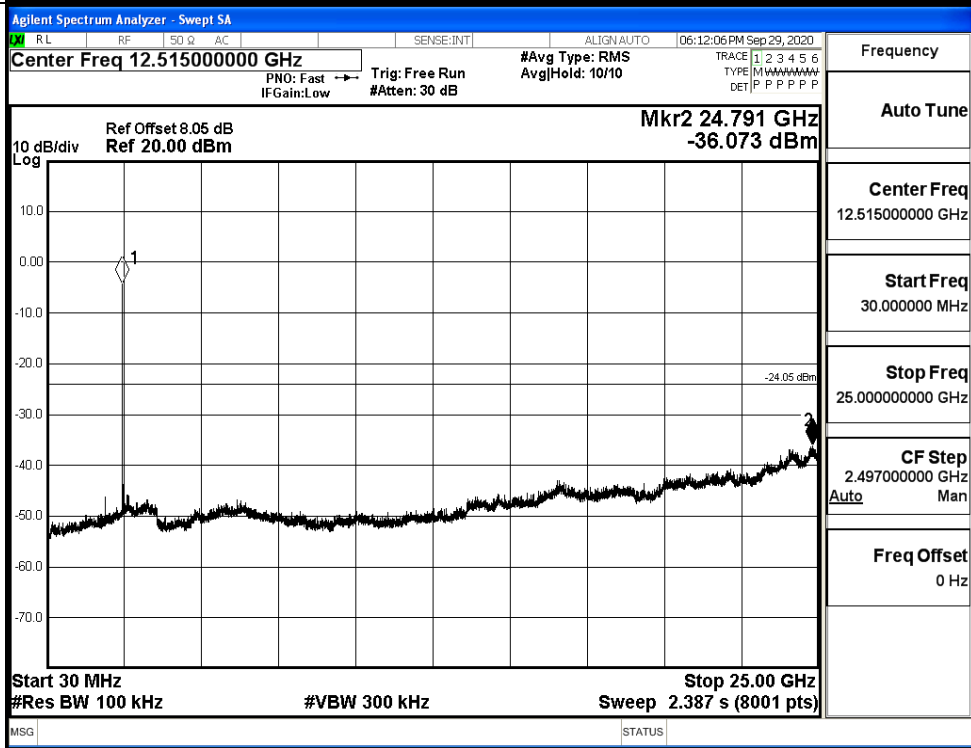


BT LE_HCH_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.567	-49.940	-22.57	PASS
BT LE	HCH	-4.027	-48.279	-24.03	PASS

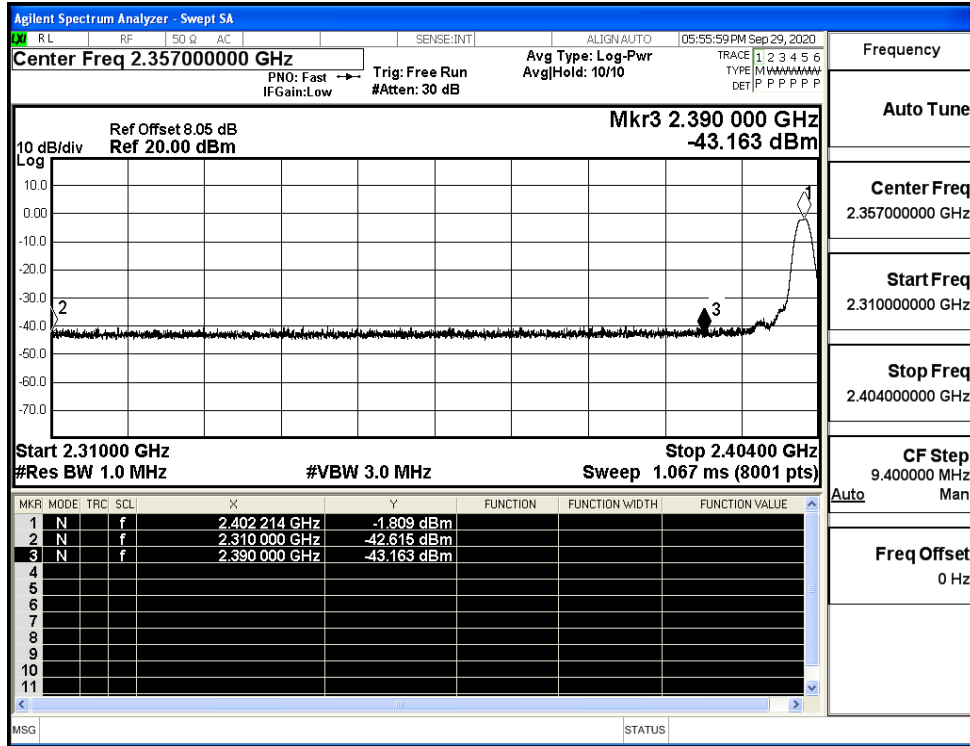
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz Max Spurious Level -49.940 dBm Mkr4 2.387 867 GHz 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" style="font-size: small;"> <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>2.401991 GHz</td><td>-2.567 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.400000 GHz</td><td>-41.323 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.390000 GHz</td><td>-52.954 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.387867 GHz</td><td>-49.940 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		2.401991 GHz	-2.567 dBm				2	N	f		2.400000 GHz	-41.323 dBm				3	N	f		2.390000 GHz	-52.954 dBm				4	N	f		2.387867 GHz	-49.940 dBm				Frequency Auto Tune Center Freq 2.35700000 GHz Start Freq 2.31000000 GHz Stop Freq 2.40400000 GHz CF Step 9.400000 MHz Freq Offset 0 Hz
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HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.48900000 GHz Max Spurious Level -48.279 dBm Mkr4 2.485 183 00 GHz 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" style="font-size: small;"> <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>2.47996075 GHz</td><td>-4.027 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.48350000 GHz</td><td>-50.262 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.50000000 GHz</td><td>-51.681 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.48518300 GHz</td><td>-48.279 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		2.47996075 GHz	-4.027 dBm				2	N	f		2.48350000 GHz	-50.262 dBm				3	N	f		2.50000000 GHz	-51.681 dBm				4	N	f		2.48518300 GHz	-48.279 dBm				Frequency Auto Tune Center Freq 2.48900000 GHz Start Freq 2.47800000 GHz Stop Freq 2.50000000 GHz CF Step 2.200000 MHz Freq Offset 0 Hz
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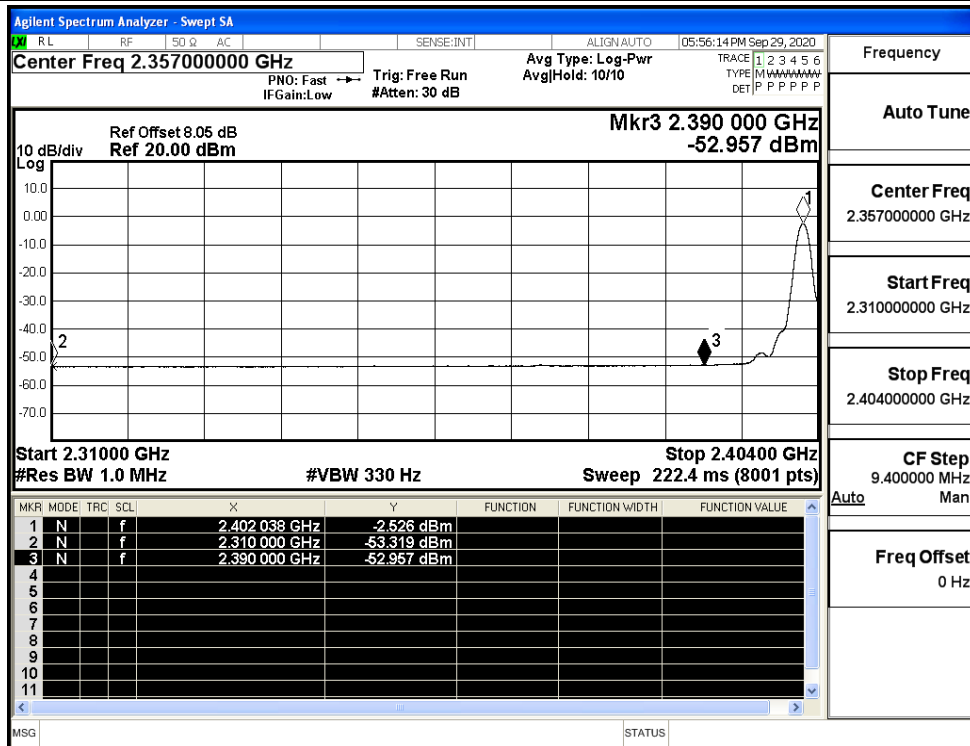
B.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdi
BT LE	2402	Ant1	2310.0	-42.62	3.0	0	55.64	PEAK	74	PASS
		Ant1	2310.0	-53.32	3.0	0	44.94	AV	54	PASS
		Ant1	2390.0	-43.16	3.0	0	55.1	PEAK	74	PASS
		Ant1	2390.0	-52.96	3.0	0	45.3	AV	54	PASS
	2480	Ant1	2483.5	-40.51	3.0	0	57.75	PEAK	74	PASS
		Ant1	2483.5	-49.49	3.0	0	48.77	AV	54	PASS
		Ant1	2500.0	-40.82	3.0	0	57.44	PEAK	74	PASS
		Ant1	2500.0	-52.29	3.0	0	45.97	AV	54	PASS

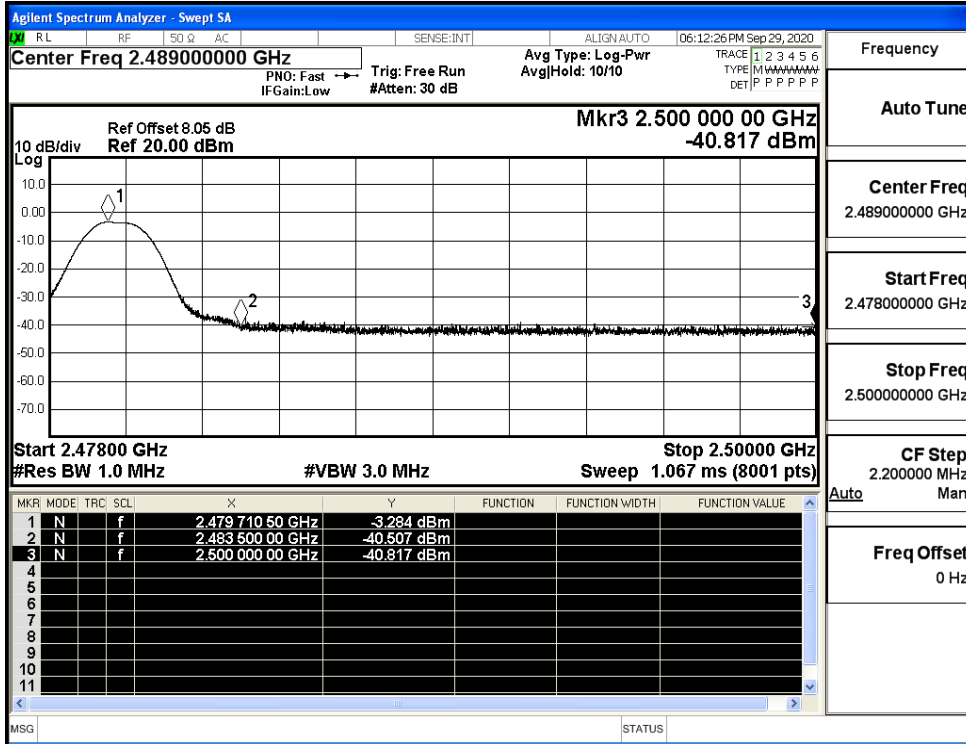
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

