

Appendix A

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

Product Name: Smart Watch

Trade Mark: N/A

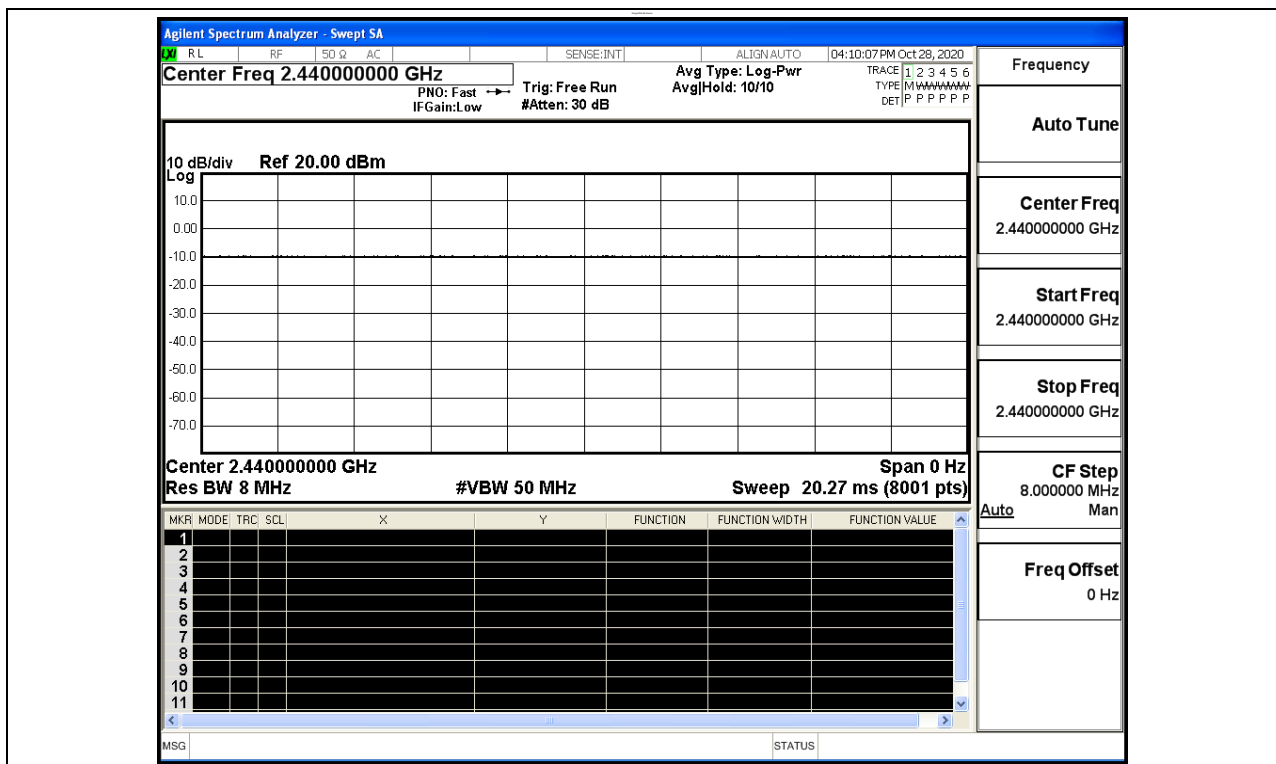
Test Model: TS12M

Environmental Conditions

Temperature:	24.6° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jenny Wu
Supervised by:	Li Huan

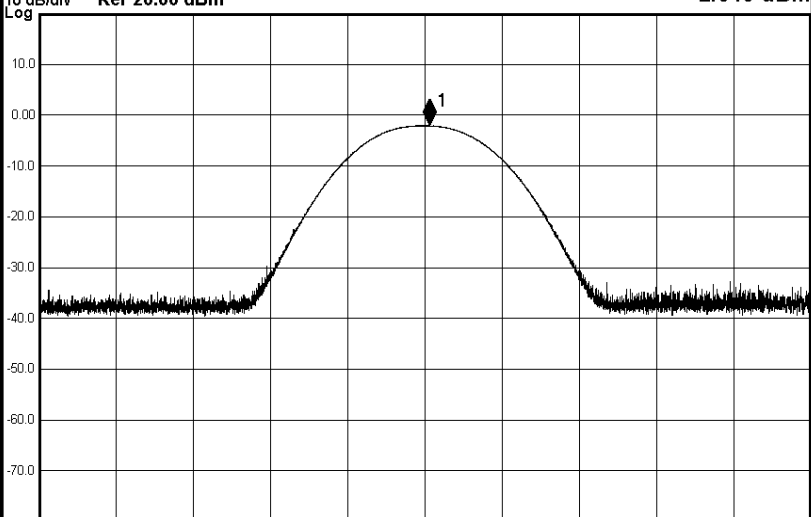
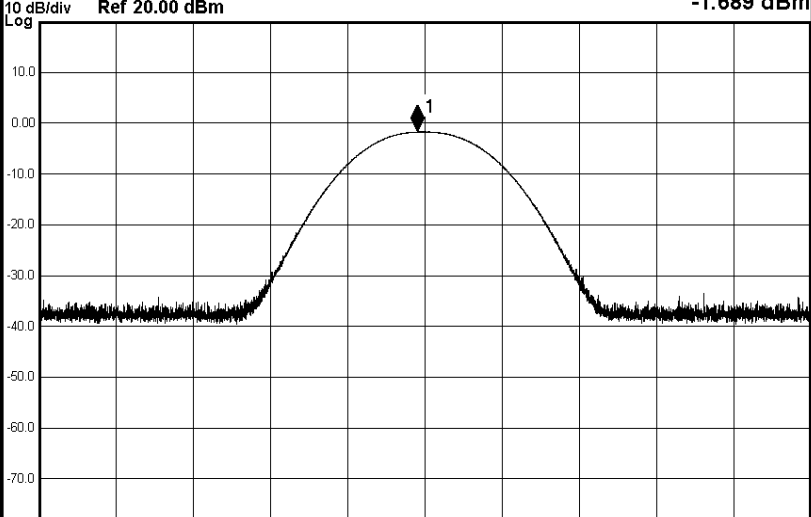
A.1 Duty Cycle

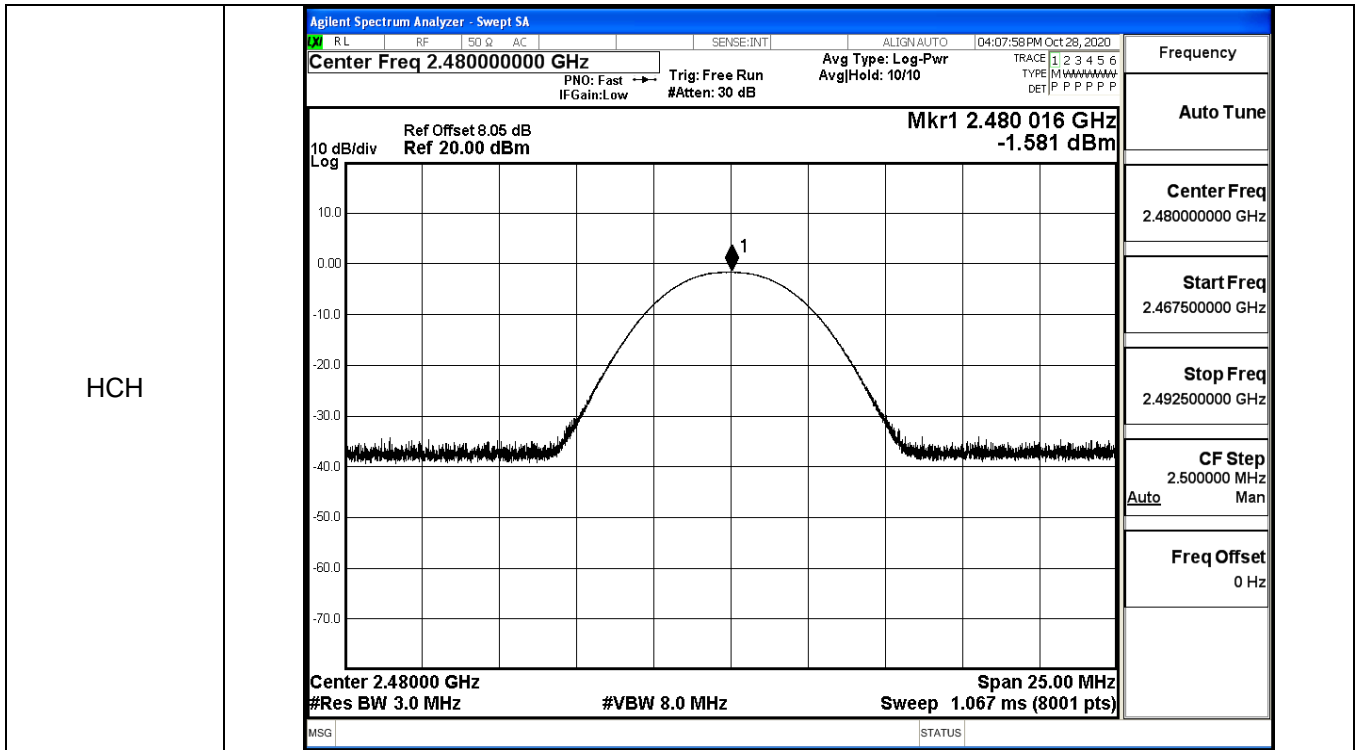
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



A.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.040	30	PASS
BT LE	MCH	-1.689	30	PASS
BT LE	HCH	-1.581	30	PASS

Test Graphs															
LCH	<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Swept SA</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 04:03:51 PM Oct 28, 2020</p> <p style="font-size: small; margin: 0;">Center Freq 2.40200000 GHz Avg Type: Log-Pwr PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB</p> <p style="font-size: x-small; margin: 0;">Mkr1 2.402 141 GHz -2.040 dBm</p>  <p style="font-size: x-small; margin: 0;">Center 2.40200 GHz Span 25.00 MHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td>Frequency</td><td></td></tr> <tr><td>Auto Tune</td><td></td></tr> <tr><td>Center Freq</td><td>2.402000000 GHz</td></tr> <tr><td>Start Freq</td><td>2.389500000 GHz</td></tr> <tr><td>Stop Freq</td><td>2.414500000 GHz</td></tr> <tr><td>CF Step</td><td>2.500000 MHz</td></tr> <tr><td>Freq Offset</td><td>0 Hz</td></tr> </table>	Frequency		Auto Tune		Center Freq	2.402000000 GHz	Start Freq	2.389500000 GHz	Stop Freq	2.414500000 GHz	CF Step	2.500000 MHz	Freq Offset	0 Hz
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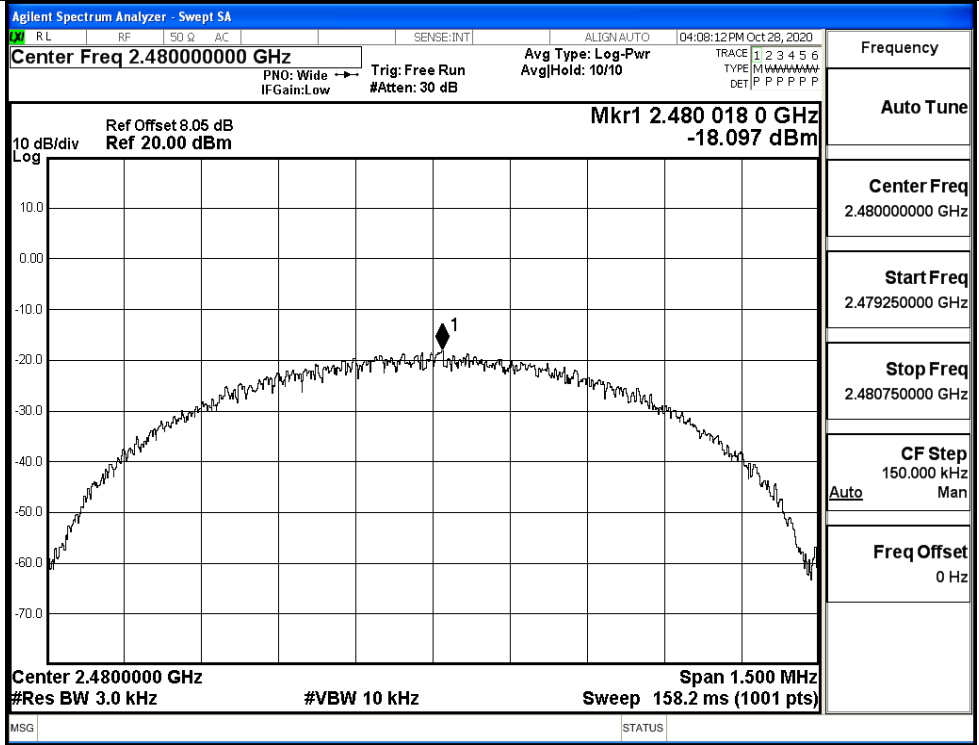
A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-18.780	8	PASS
BT LE	MCH	-18.166	8	PASS
BT LE	HCH	-18.097	8	PASS

Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.40200000 GHz PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 10/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.402 009 0 GHz -18.780 dBm 10 dB/div Log Center 2.4020000 GHz Span 1.500 MHz #Res BW 3.0 kHz #VBW 10 kHz 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 Freq Offset 0 Hz
	MCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.44000000 GHz PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 10/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.440 018 0 GHz -18.166 dBm 10 dB/div Log Center 2.4400000 GHz Span 1.500 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 158.2 ms (1001 pts)</p>

HCH

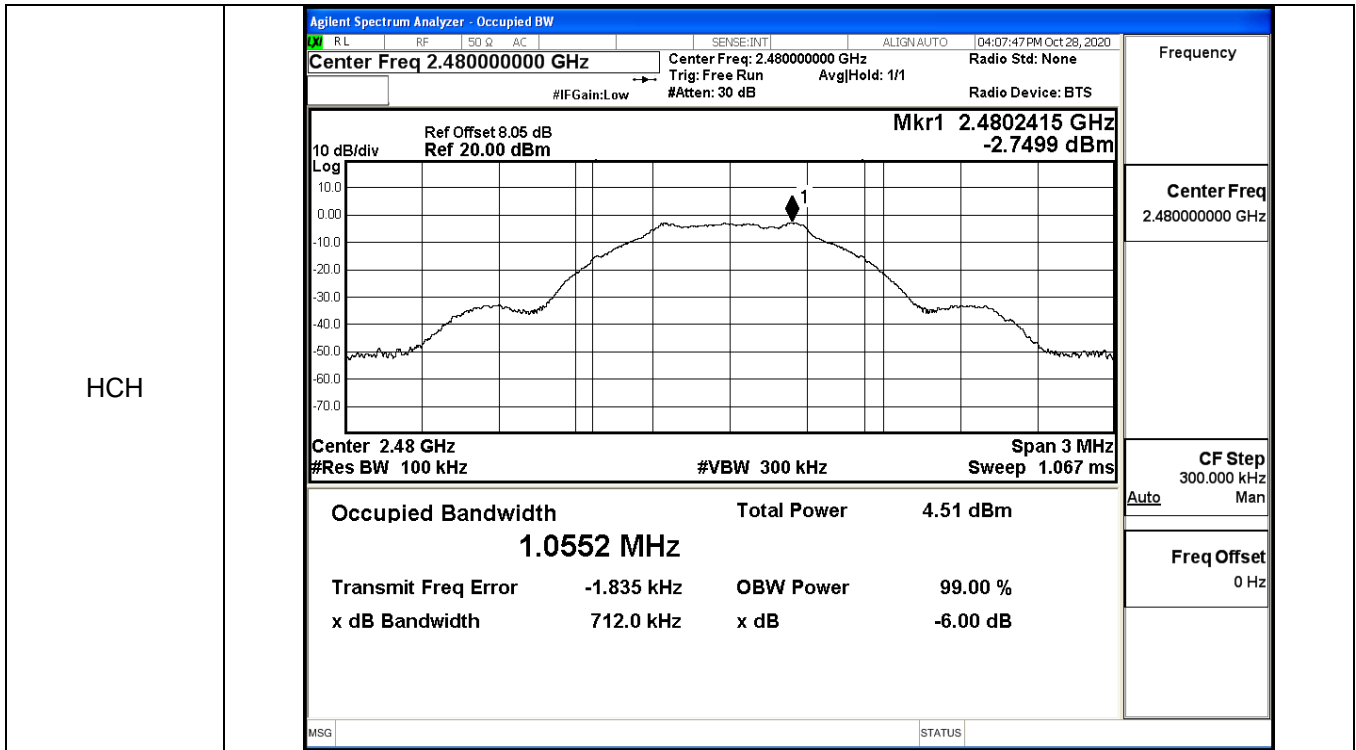


A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6618	≥0.5	PASS
BT LE	MCH	0.6544	≥0.5	PASS
BT LE	HCH	0.7120	≥0.5	PASS

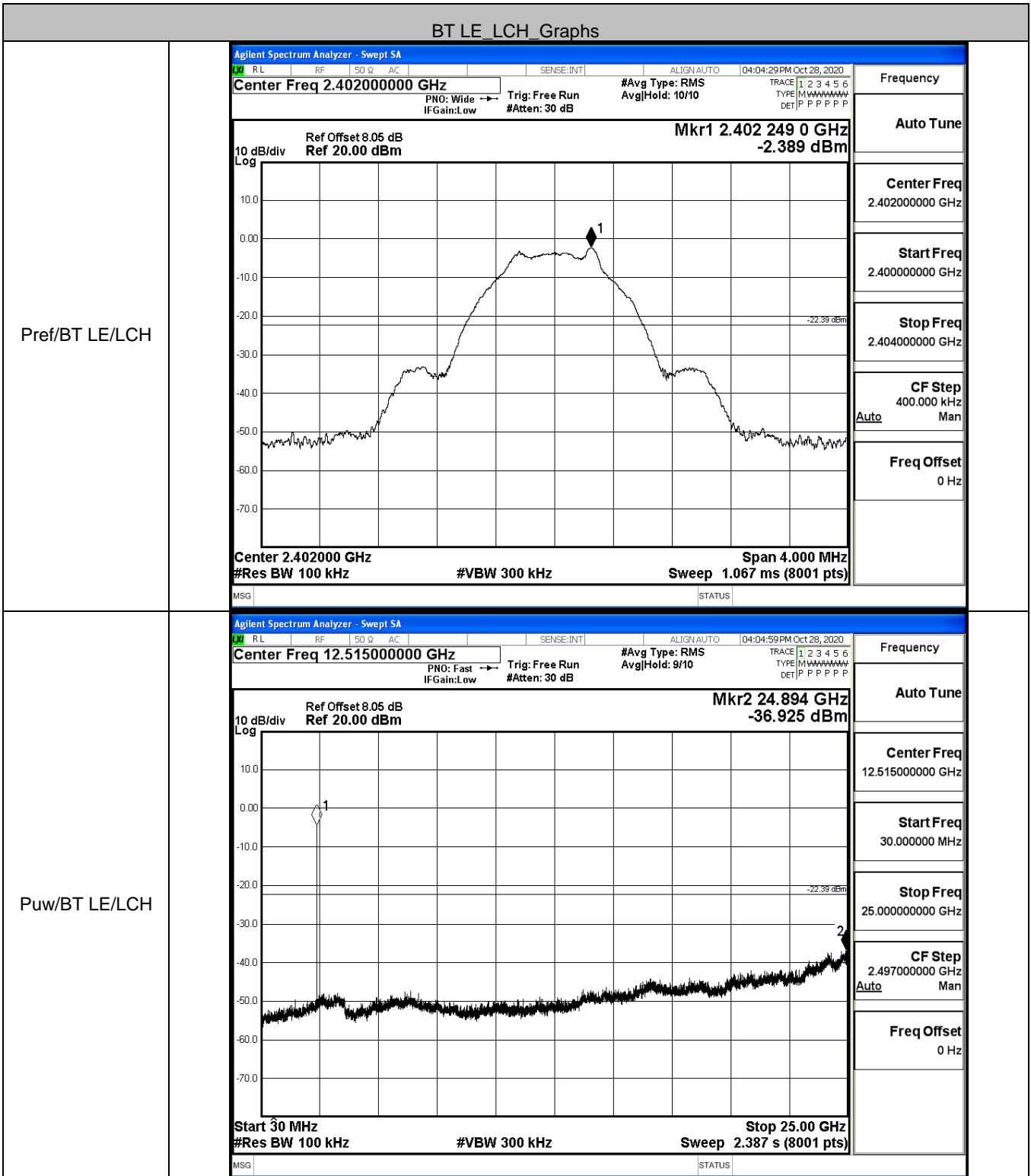
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p>Trig: Free Run AvgHold: 1/1</p> <p>#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.4022453 GHz -2.3768 dBm</p> <p>Center 2.402 GHz #Res BW 100 kHz #VBW 300 kHz Span 3 MHz Sweep 1.067 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>4.08 dBm</td> </tr> <tr> <td>1.0535 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-1.989 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>661.8 kHz</td> <td>x dB</td> </tr> <tr> <td></td> <td></td> <td>-6.00 dB</td> </tr> </table> <p>MSG STATUS</p>	Occupied Bandwidth	Total Power	4.08 dBm	1.0535 MHz			Transmit Freq Error	-1.989 kHz	OBW Power	x dB Bandwidth	661.8 kHz	x dB			-6.00 dB	<p>Frequency</p> <p>Center Freq 2.402000000 GHz</p> <p>CF Step 300.000 kHz Auto Man</p> <p>Freq Offset 0 Hz</p>
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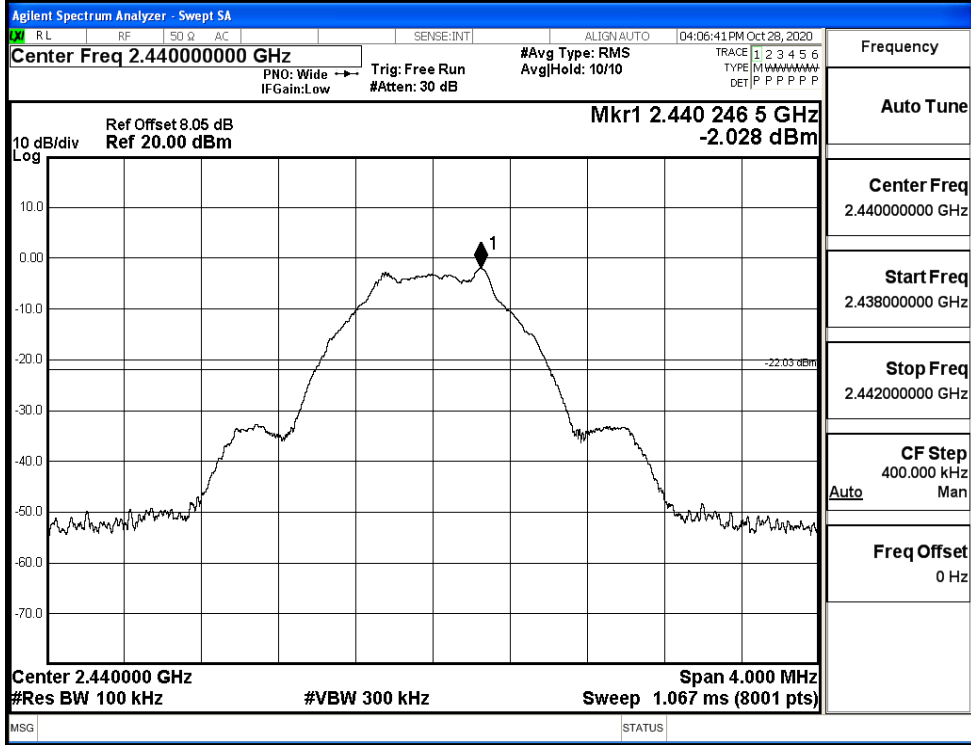
A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.389	-36.925	-22.389	PASS
BT LE	MCH	-2.028	-36.641	-22.028	PASS
BT LE	HCH	-2.001	-37.349	-22.001	PASS

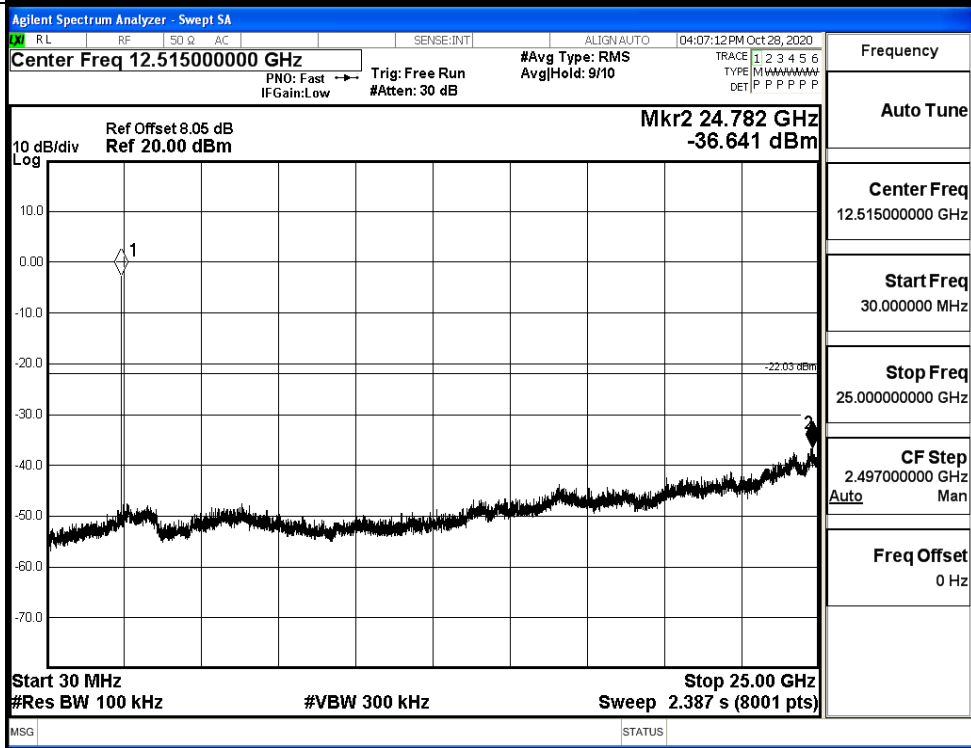


BT LE_MCH_Graphs

Pref/BT LE/MCH

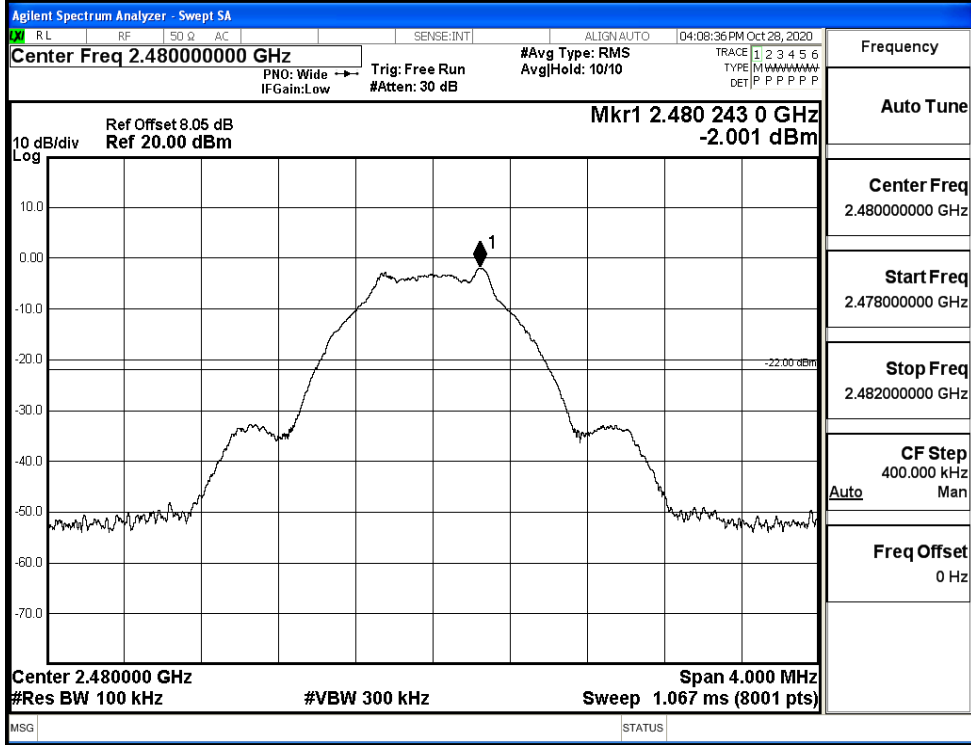


Puw/BT LE/MCH

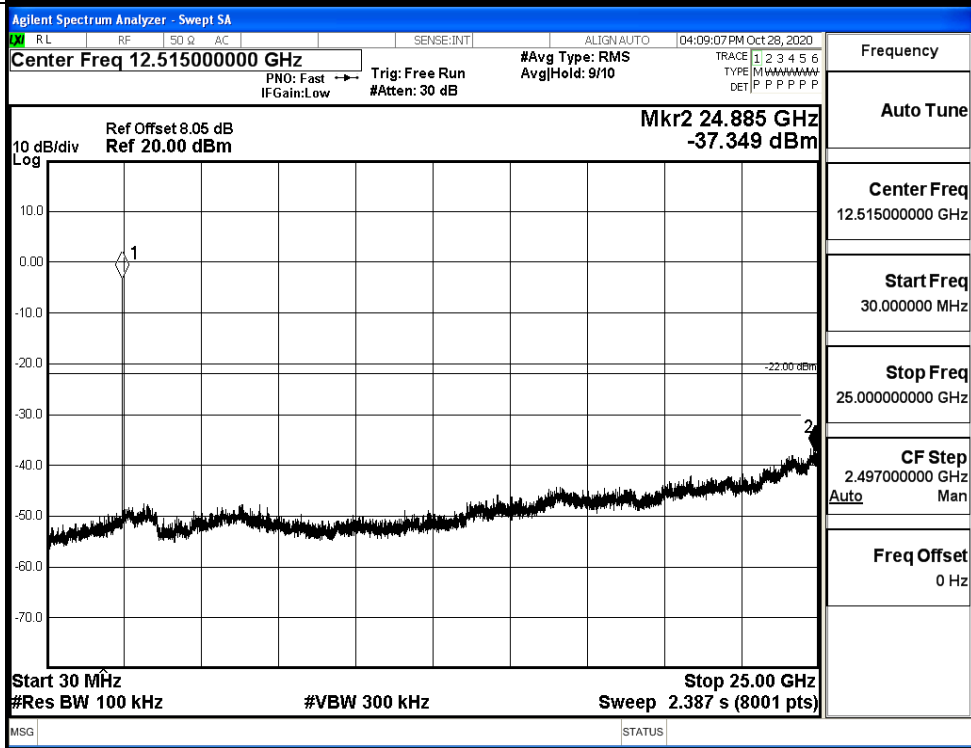


BT LE_HCH_Graphs

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	-3.164	-49.555	-23.16	PASS
BT LE	HCH	-1.930	-49.029	-21.93	PASS

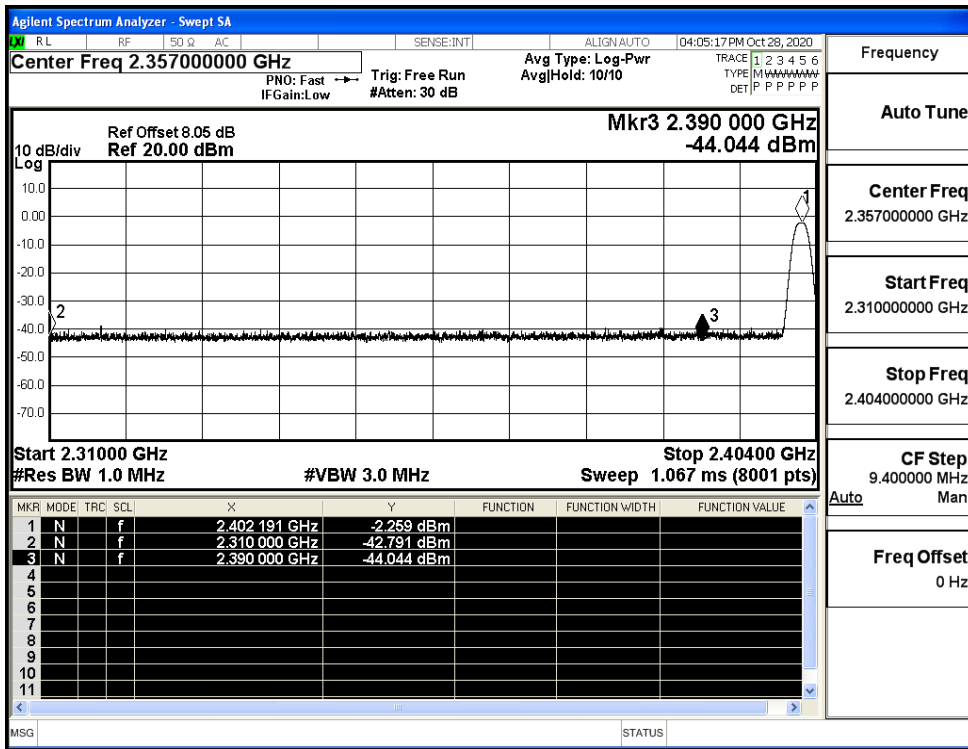
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz Max Spurious Level -49.555 dBm Mkr4 2.316 803 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>2.402 014 GHz</td><td>-3.164 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>-51.704 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>-52.812 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.316 803 GHz</td><td>-49.555 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		2.402 014 GHz	-3.164 dBm				2	N	f		2.400 000 GHz	-51.704 dBm				3	N	f		2.390 000 GHz	-52.812 dBm				4	N	f		2.316 803 GHz	-49.555 dBm				Frequency Auto Tune Center Freq 2.35700000 GHz Start Freq 2.310000000 GHz Stop Freq 2.404000000 GHz CF Step 9.400000 MHz Freq Offset 0 Hz
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4	N	f		2.316 803 GHz	-49.555 dBm																																										
HCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.48900000 GHz Max Spurious Level -49.029 dBm Mkr4 2.495 404 75 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>2.480 262 25 GHz</td><td>-1.930 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>-53.300 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>-52.192 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.495 404 75 GHz</td><td>-49.029 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		2.480 262 25 GHz	-1.930 dBm				2	N	f		2.483 500 00 GHz	-53.300 dBm				3	N	f		2.500 000 00 GHz	-52.192 dBm				4	N	f		2.495 404 75 GHz	-49.029 dBm				Frequency Auto Tune Center Freq 2.489000000 GHz Start Freq 2.478000000 GHz Stop Freq 2.500000000 GHz CF Step 2.200000 MHz Freq Offset 0 Hz
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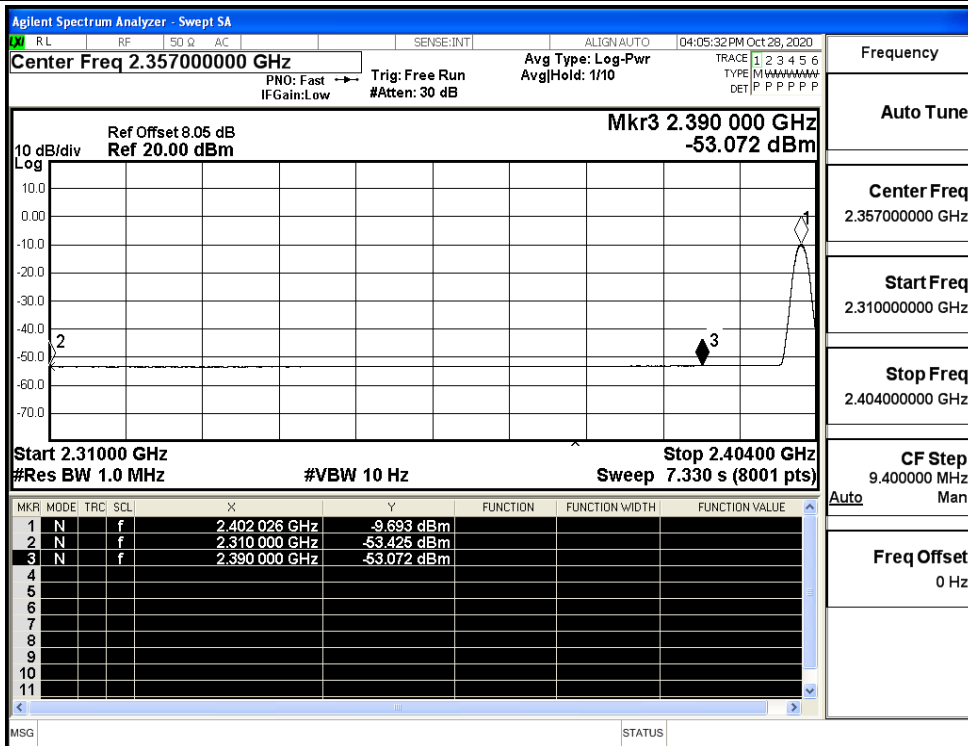
A.7 Restrict-band band-edge measurements

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	-42.79	2.0	0	52.47	PEAK	74	PASS
		Ant1	2310.0	-53.43	2.0	0	41.83	AV	54	PASS
		Ant1	2390.0	-44.04	2.0	0	51.21	PEAK	74	PASS
		Ant1	2390.0	-53.07	2.0	0	42.19	AV	54	PASS
	2480	Ant1	2483.5	-41.99	2.0	0	53.27	PEAK	74	PASS
		Ant1	2483.5	-52.61	2.0	0	42.65	AV	54	PASS
		Ant1	2500.0	-41.99	2.0	0	53.27	PEAK	74	PASS
		Ant1	2500.0	-52.42	2.0	0	42.83	AV	54	PASS

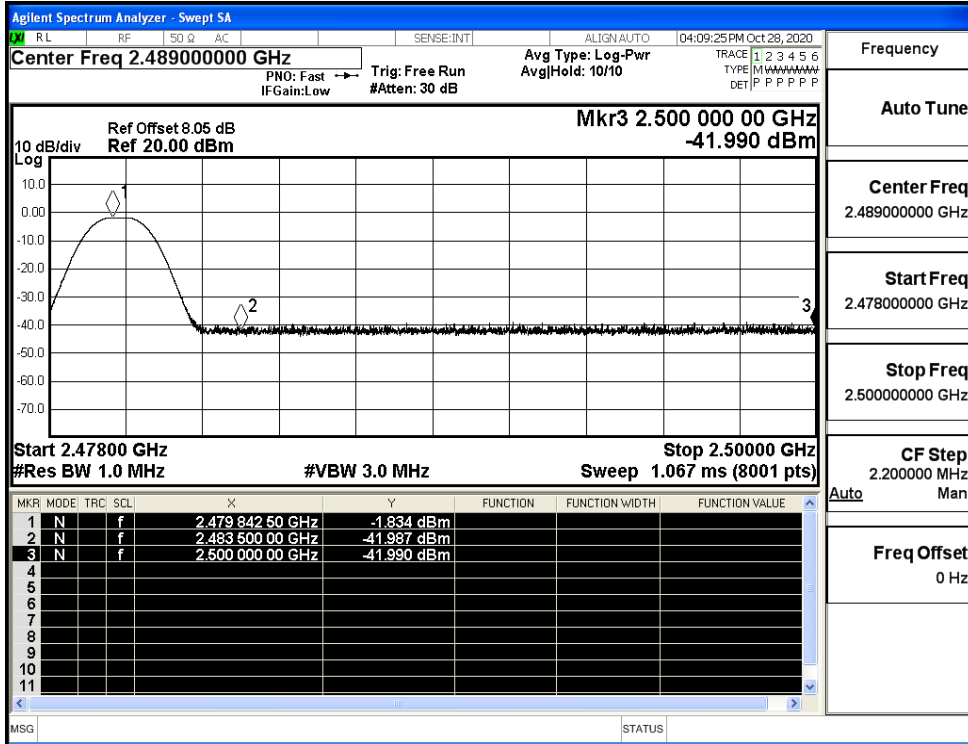
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

