

Appendix A

RF Test Data for BT LE V5.1(DTS) (Conducted Measurement)

Product Name: Wi-Fi & Bluetooth Module

Trade Mark: Dialog

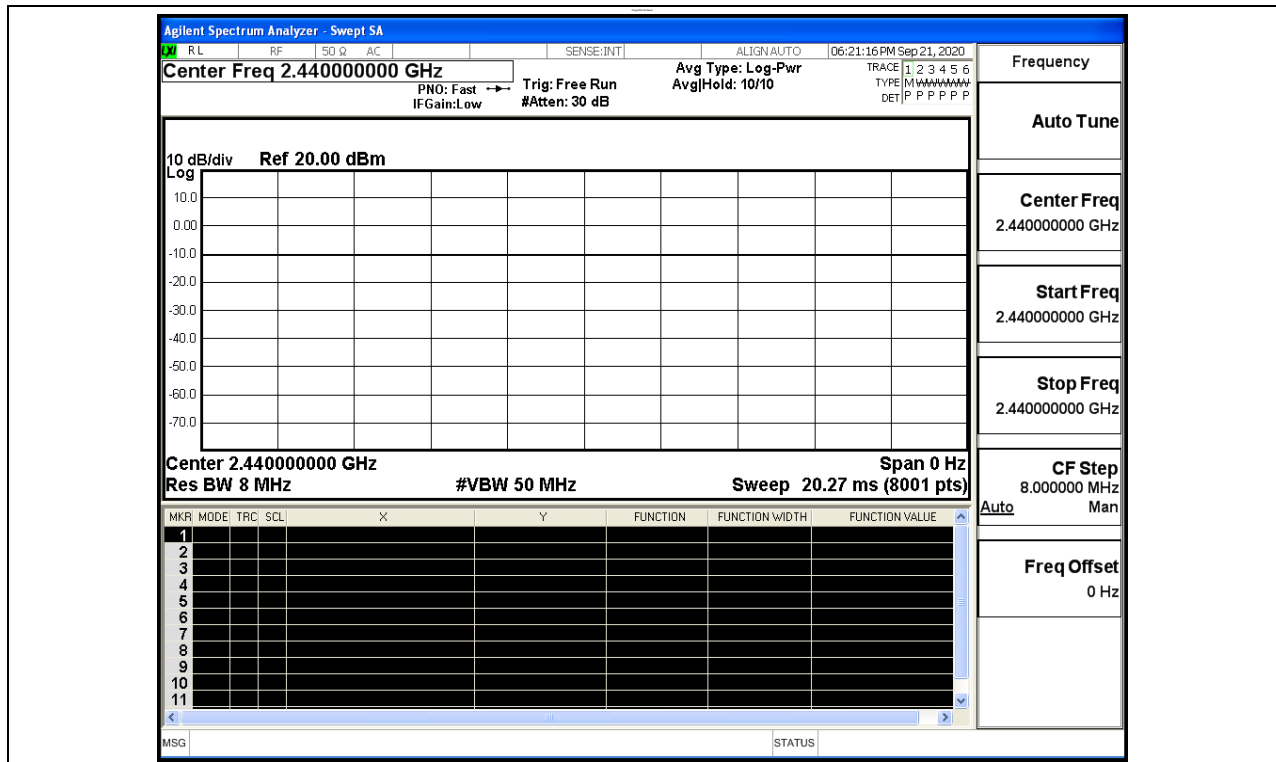
Test Model: DA16600MOD-AAE4WA32

Environmental Conditions

Temperature:	22.8 ° C
Relative Humidity:	53.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Carl Fu
Supervised by:	Li Huan

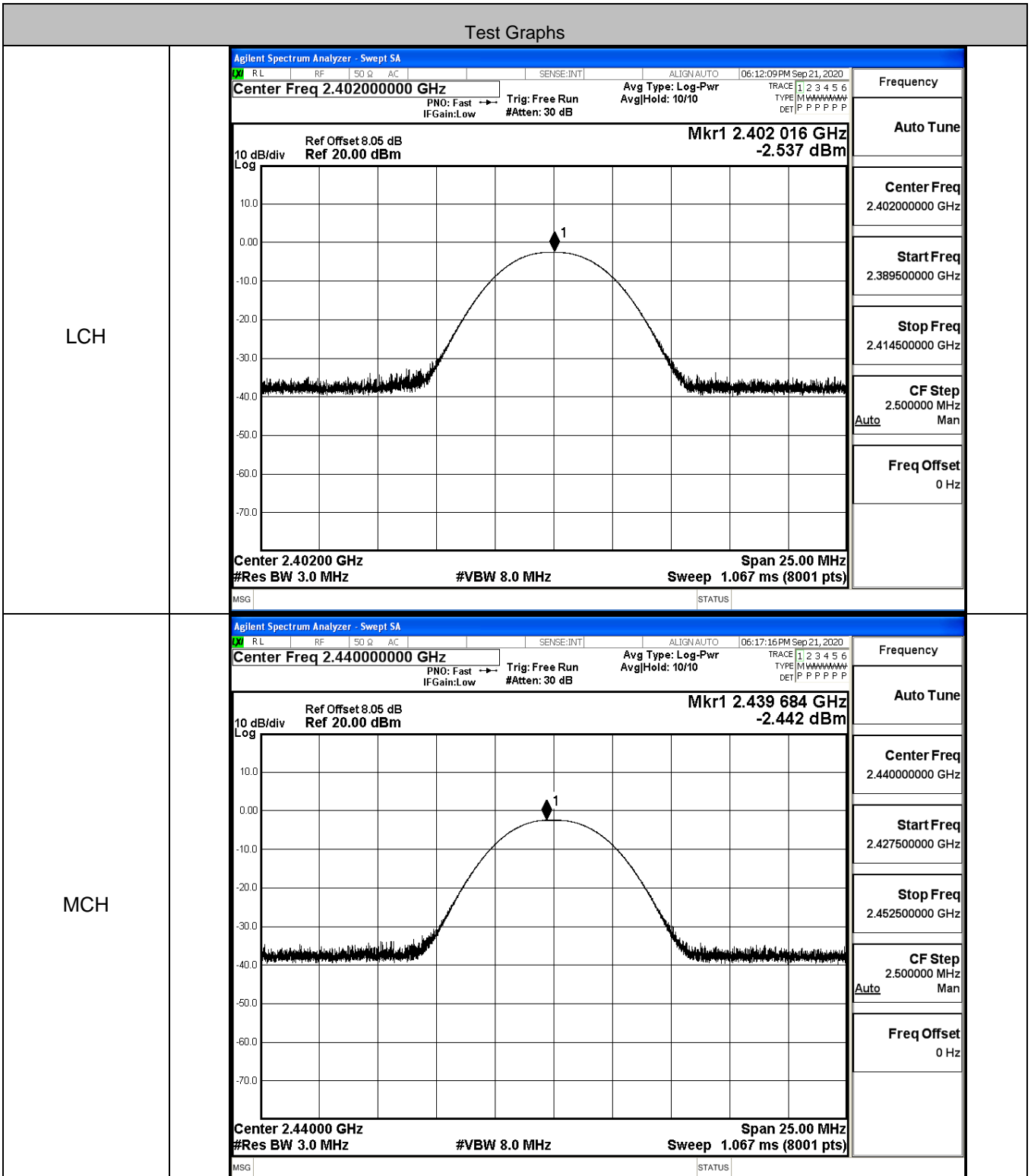
A.1 Duty Cycle

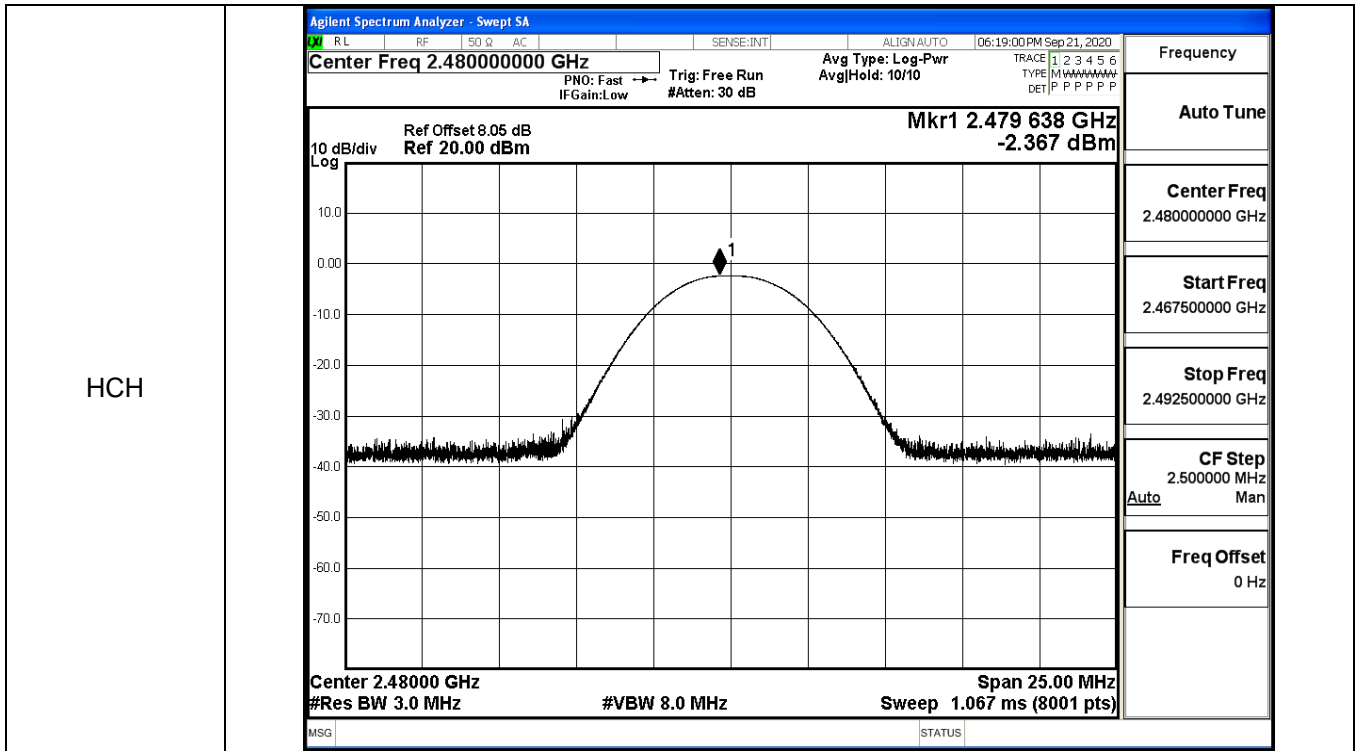
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



A.2 Maximum Conducted Peak Output Power

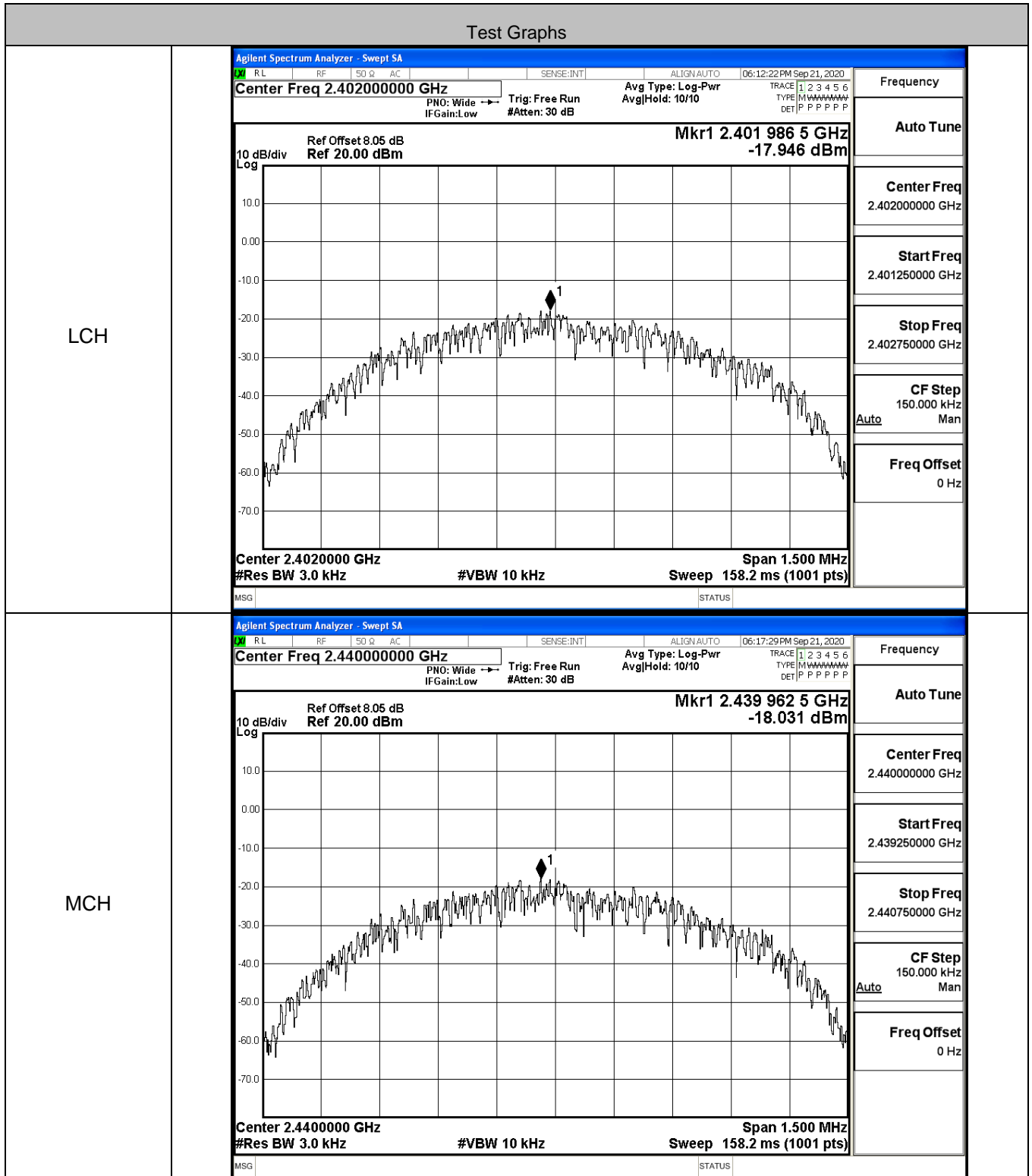
Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.537	30	PASS
BT LE	MCH	-2.442	30	PASS
BT LE	HCH	-2.367	30	PASS

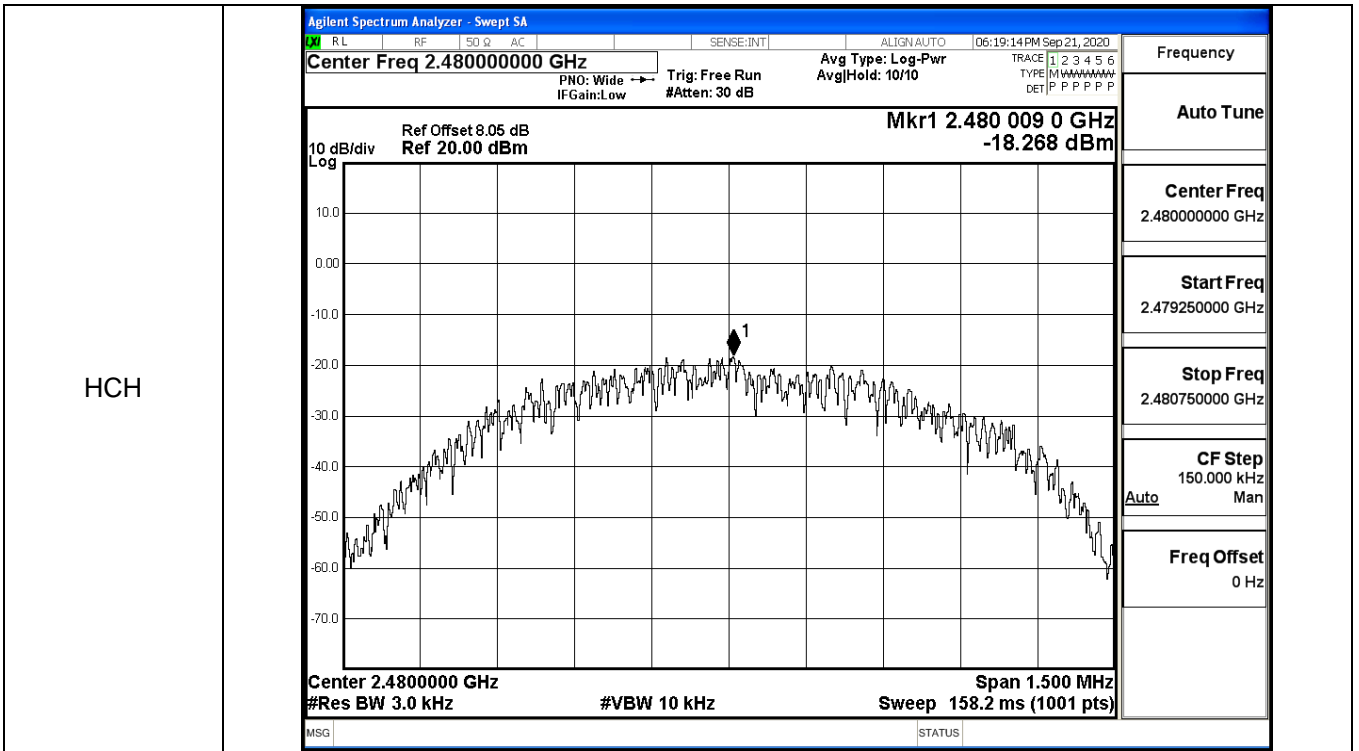




A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-17.946	8	PASS
BT LE	MCH	-18.031	8	PASS
BT LE	HCH	-18.268	8	PASS

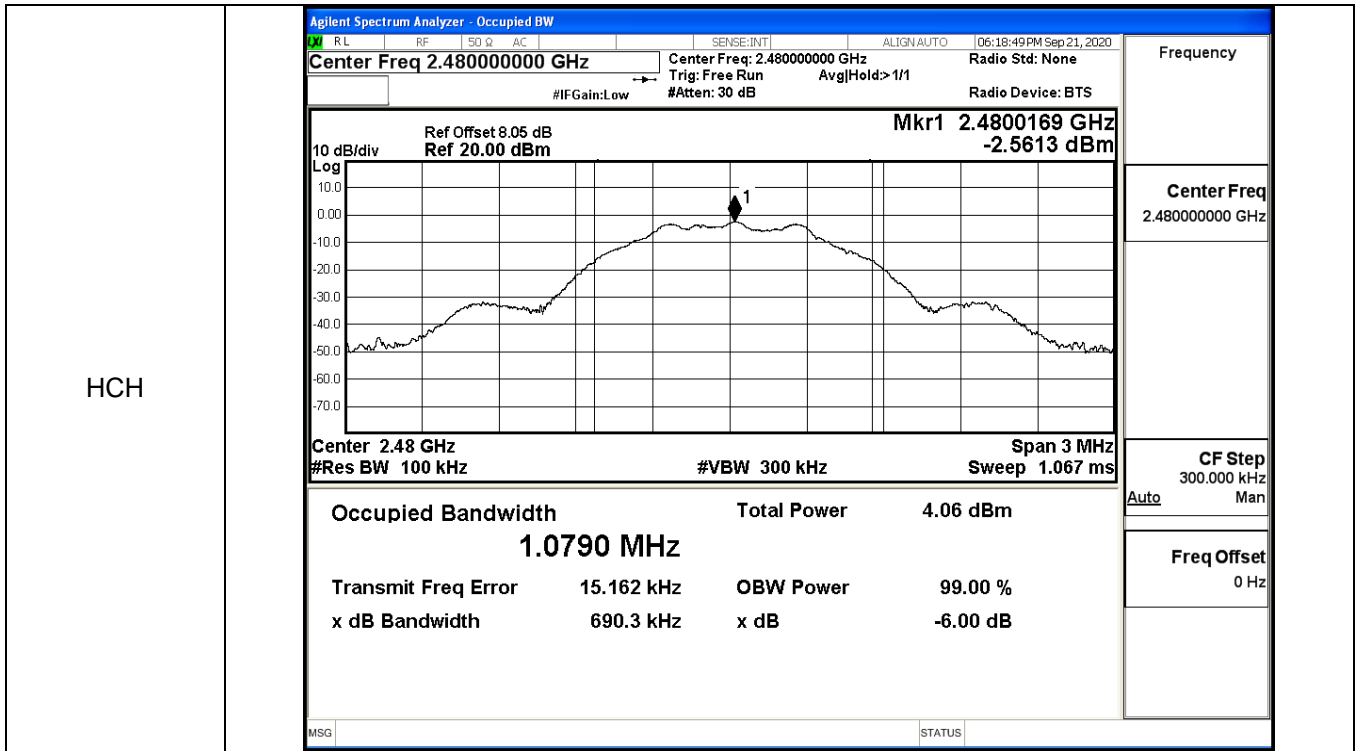




A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6758	≥0.5	PASS
BT LE	MCH	0.6656	≥0.5	PASS
BT LE	HCH	0.6903	≥0.5	PASS

Test Graphs																			
LCH	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 06:11:58 PM Sep 21, 2020</p> <p style="margin: 0;">Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None Trig: Free Run AvgHold: >1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <div style="border: 1px solid black; padding: 2px;"> <p style="text-align: right; margin: 0;">Mkr1 2.4020139 GHz -2.7223 dBm</p> </div> <p style="font-size: small; margin: 0;">Center 2.402 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table style="width: 100%; font-size: small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>3.85 dBm</td> </tr> <tr> <td style="text-align: center;">1.0732 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>13.005 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>675.8 kHz</td> <td>x dB</td> </tr> <tr> <td></td> <td></td> <td>99.00 %</td> </tr> <tr> <td></td> <td></td> <td>-6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	3.85 dBm	1.0732 MHz			Transmit Freq Error	13.005 kHz	OBW Power	x dB Bandwidth	675.8 kHz	x dB			99.00 %			-6.00 dB
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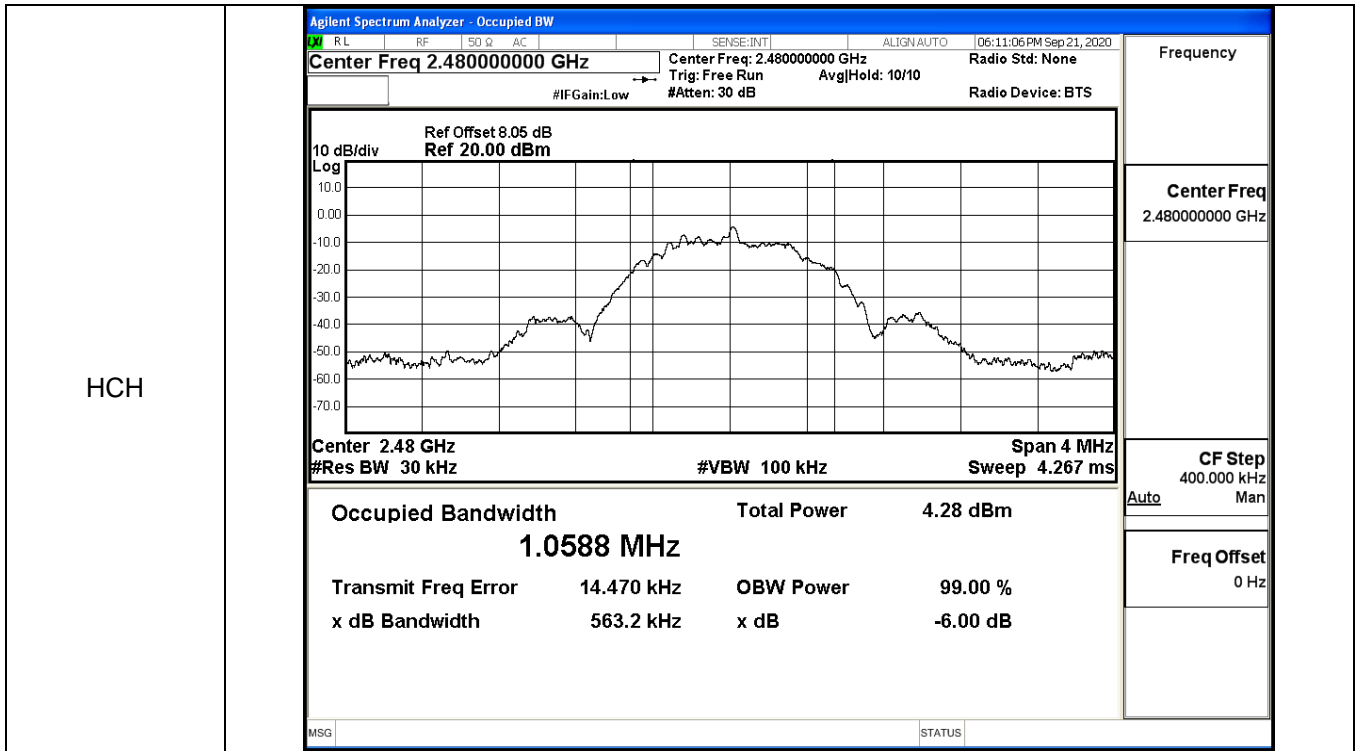


A.5 Occupied Bandwidth

Mode	Channel	Occupied Bandwidth [MHz]	Verdict
BT LE	LCH	1.0539	PASS
BT LE	MCH	1.0537	PASS
BT LE	HCH	1.0588	PASS

Test Graphs

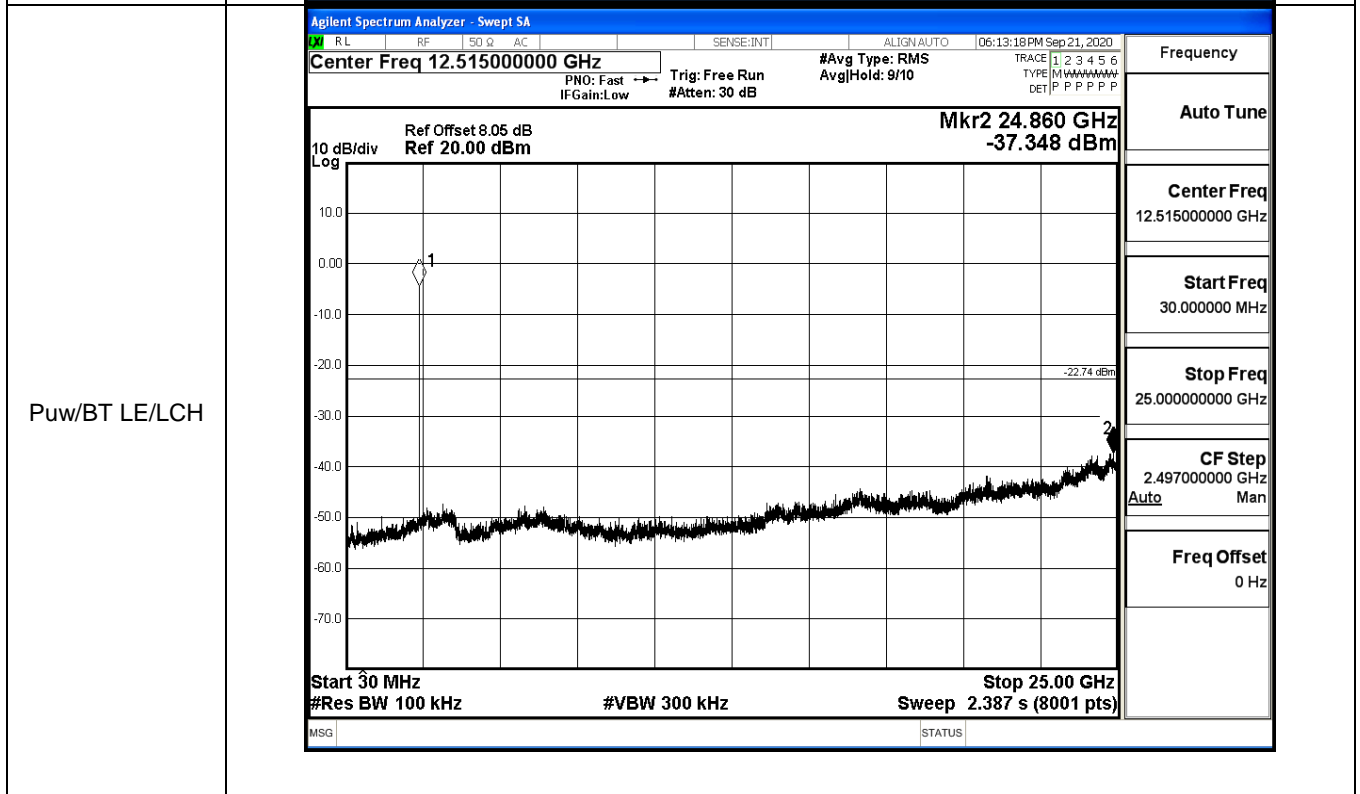
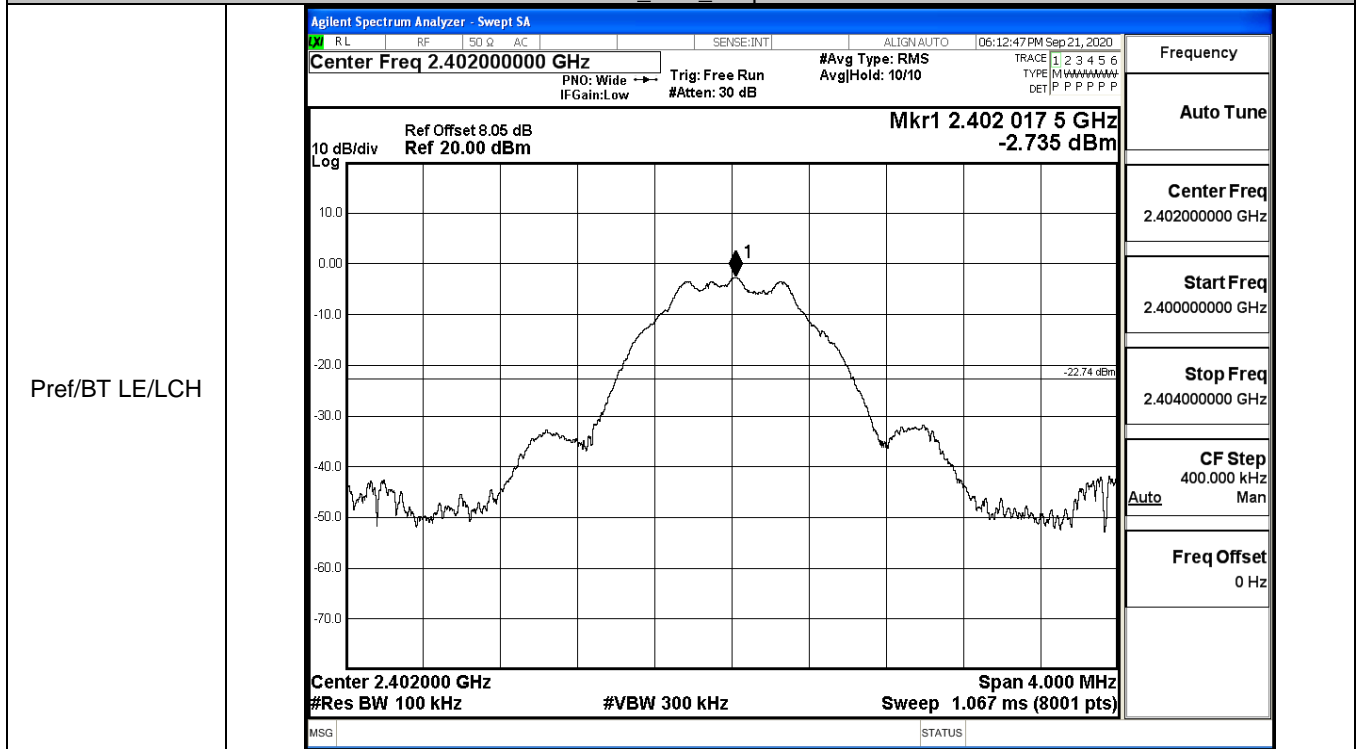
LCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.40200000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Center 2.402 GHz #Res BW 30 kHz</p> <p>Span 4 MHz Sweep 4.267 ms</p> <p>#VBW 100 kHz</p> <p>Occupied Bandwidth 1.0539 MHz</p> <p>Total Power 4.14 dBm</p> <p>Transmit Freq Error 13.878 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 363.9 kHz</p> <p>x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.402000000 GHz</p> <p>CF Step 400.000 kHz</p> <p>Freq Offset 0 Hz</p>
	<p>MSG</p> <p>STATUS</p>	<p>Auto</p> <p>Man</p>
MCH	<p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.440000000 GHz</p> <p>Ref Offset 8.05 dB Ref 20.00 dBm</p> <p>Center 2.44 GHz #Res BW 30 kHz</p> <p>Span 4 MHz Sweep 4.267 ms</p> <p>#VBW 100 kHz</p> <p>Occupied Bandwidth 1.0537 MHz</p> <p>Total Power 4.22 dBm</p> <p>Transmit Freq Error 14.161 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 309.4 kHz</p> <p>x dB -6.00 dB</p>	<p>Frequency</p> <p>Center Freq 2.440000000 GHz</p> <p>CF Step 400.000 kHz</p> <p>Freq Offset 0 Hz</p>
	<p>MSG</p> <p>STATUS</p>	<p>Auto</p> <p>Man</p>



A.6 RF Conducted Spurious Emissions

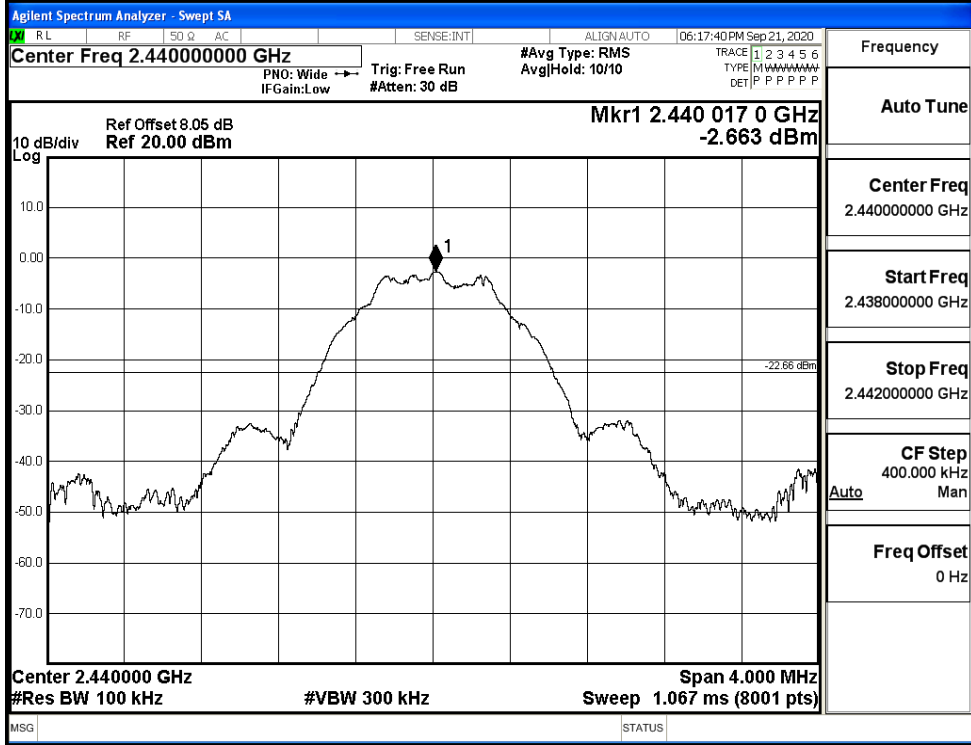
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.735	-37.348	-22.735	PASS
BT LE	MCH	-2.663	-36.897	-22.663	PASS
BT LE	HCH	-2.593	-37.117	-22.593	PASS

BT LE_LCH_Graphs

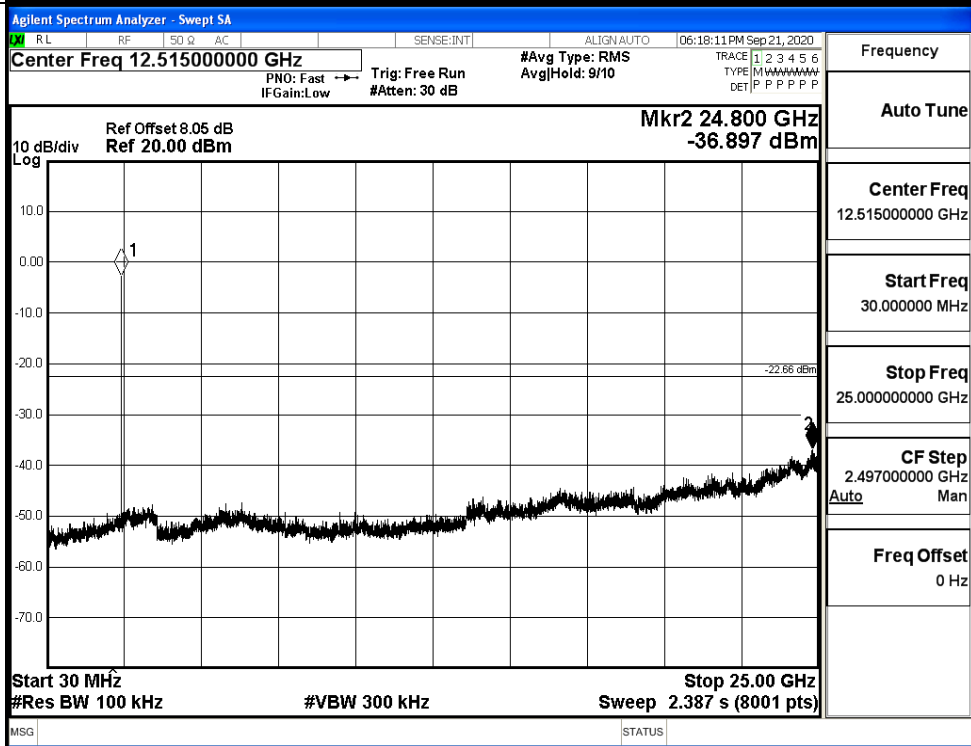


BT LE_MCH_Graphs

Pref/BT LE/MCH

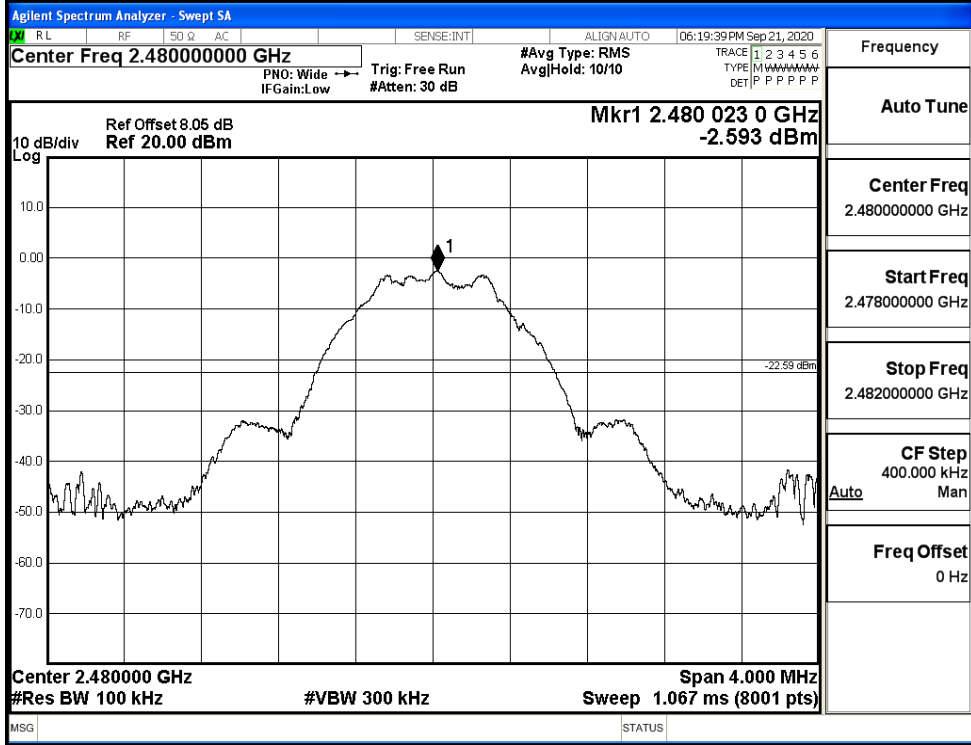


Puw/BT LE/MCH

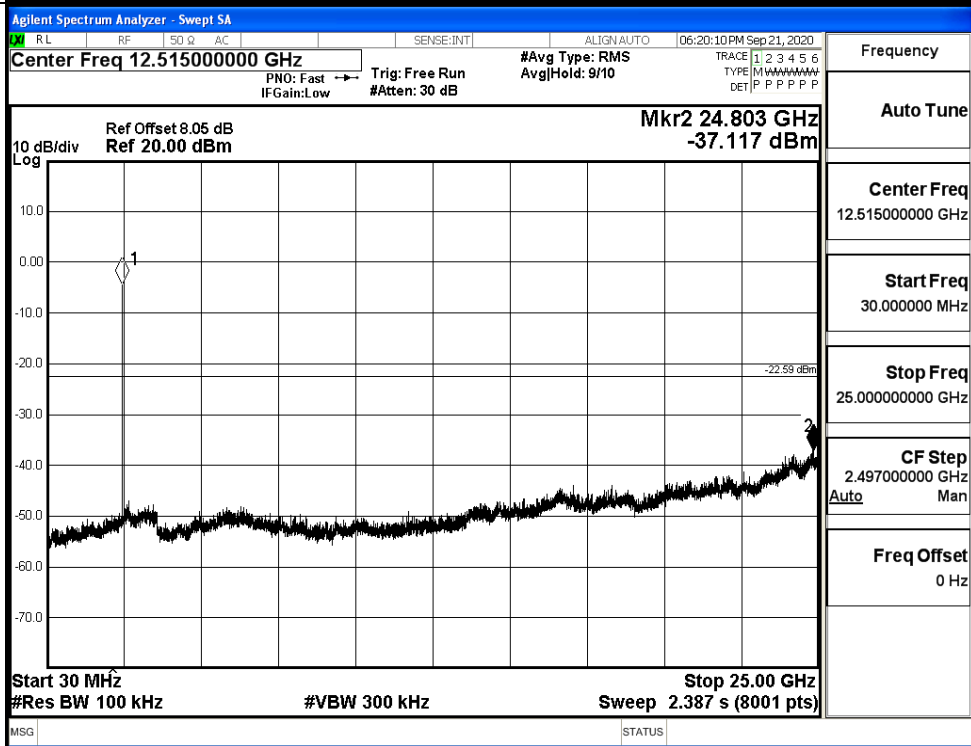


BT LE_HCH_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.711	-49.416	-22.71	PASS
BT LE	HCH	-2.473	-45.826	-22.47	PASS

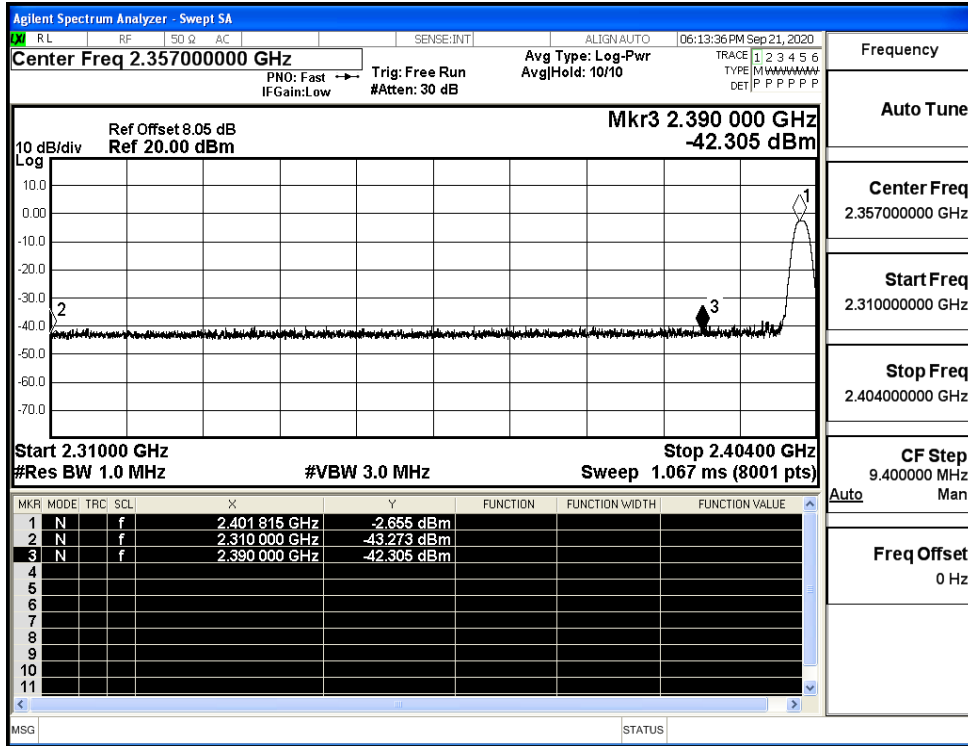
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz Ref Offset 8.05 dB, Ref 20.00 dBm Mkr4 2.385 929 GHz -49.416 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" 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>-2.711 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>-41.303 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>-52.965 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.385 929 GHz</td><td>-49.416 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	-2.711 dBm				2	N	f		2.400 000 GHz	-41.303 dBm				3	N	f		2.390 000 GHz	-52.965 dBm				4	N	f		2.385 929 GHz	-49.416 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 Ref Offset 8.05 dB, Ref 20.00 dBm Mkr4 2.483 832 75 GHz -45.826 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" 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>2.480 018 50 GHz</td><td>-2.473 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>-53.159 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>-52.510 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.483 832 75 GHz</td><td>-45.826 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		2.480 018 50 GHz	-2.473 dBm				2	N	f		2.483 500 00 GHz	-53.159 dBm				3	N	f		2.500 000 00 GHz	-52.510 dBm				4	N	f		2.483 832 75 GHz	-45.826 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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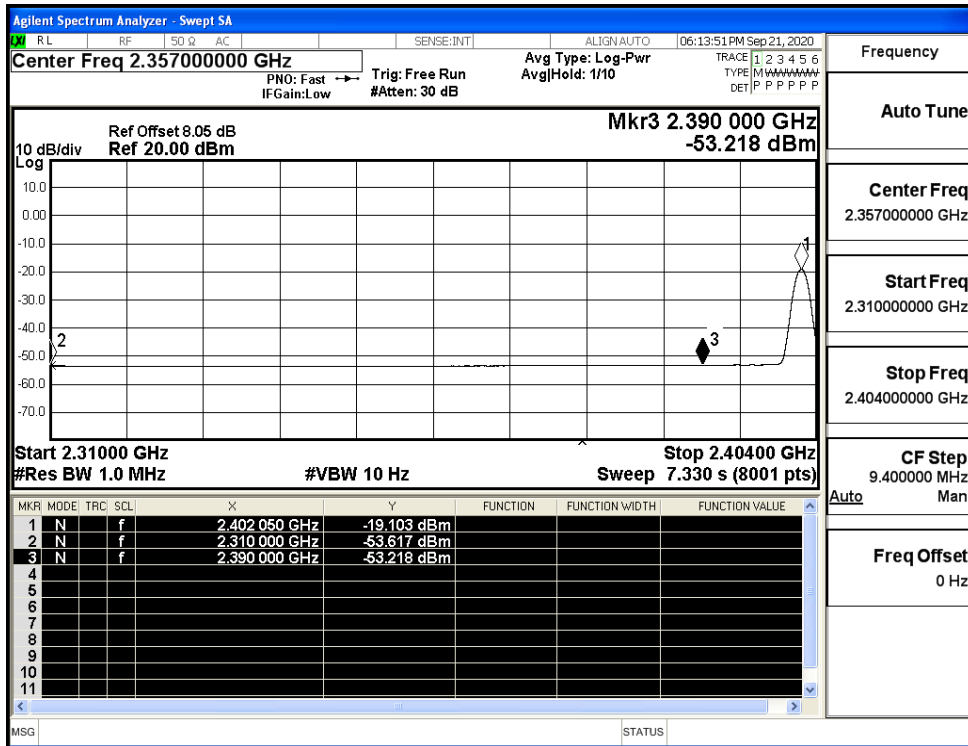
A.8 Restrict-band band-edge measurements

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	-43.27	2.0	0	53.96	PEAK	74	PASS
		Ant1	2310.0	-53.62	2.0	0	43.61	AV	54	PASS
		Ant1	2390.0	-42.31	2.0	0	54.92	PEAK	74	PASS
		Ant1	2390.0	-53.22	2.0	0	44.01	AV	54	PASS
	2480	Ant1	2483.5	-43.65	2.0	0	53.58	PEAK	74	PASS
		Ant1	2483.5	-52.66	2.0	0	44.57	AV	54	PASS
		Ant1	2500.0	-41.66	2.0	0	55.57	PEAK	74	PASS
		Ant1	2500.0	-52.61	2.0	0	44.62	AV	54	PASS

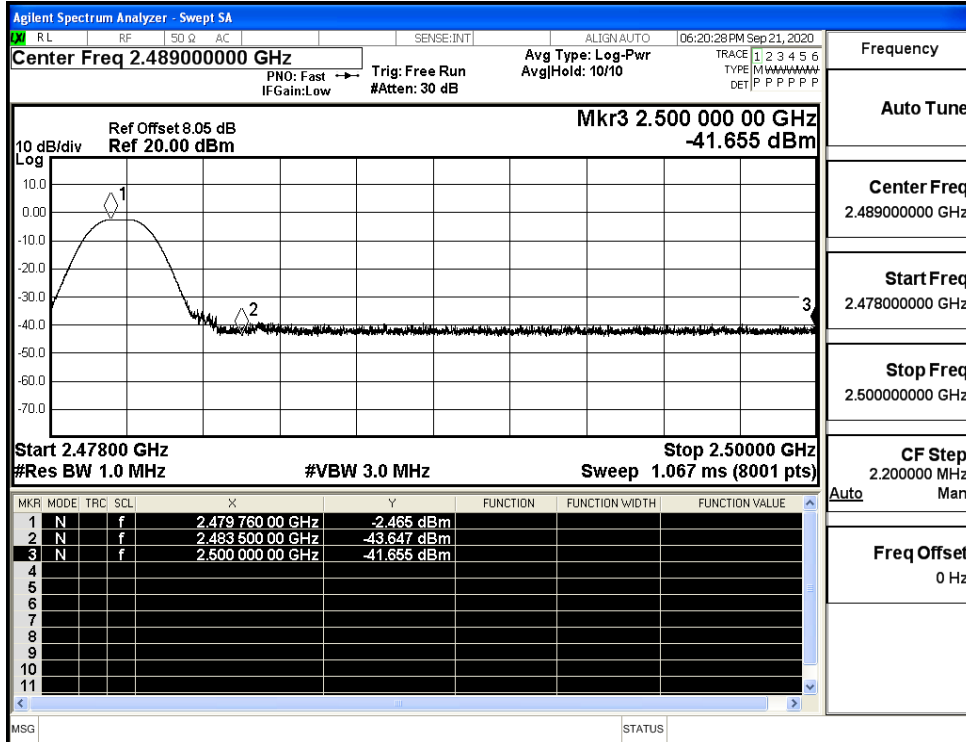
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

