

Appendix B

RF Test Data for BT V4.2(BLE) (Conducted Measurement)

Product Name: Retro

Trade Mark: Monster

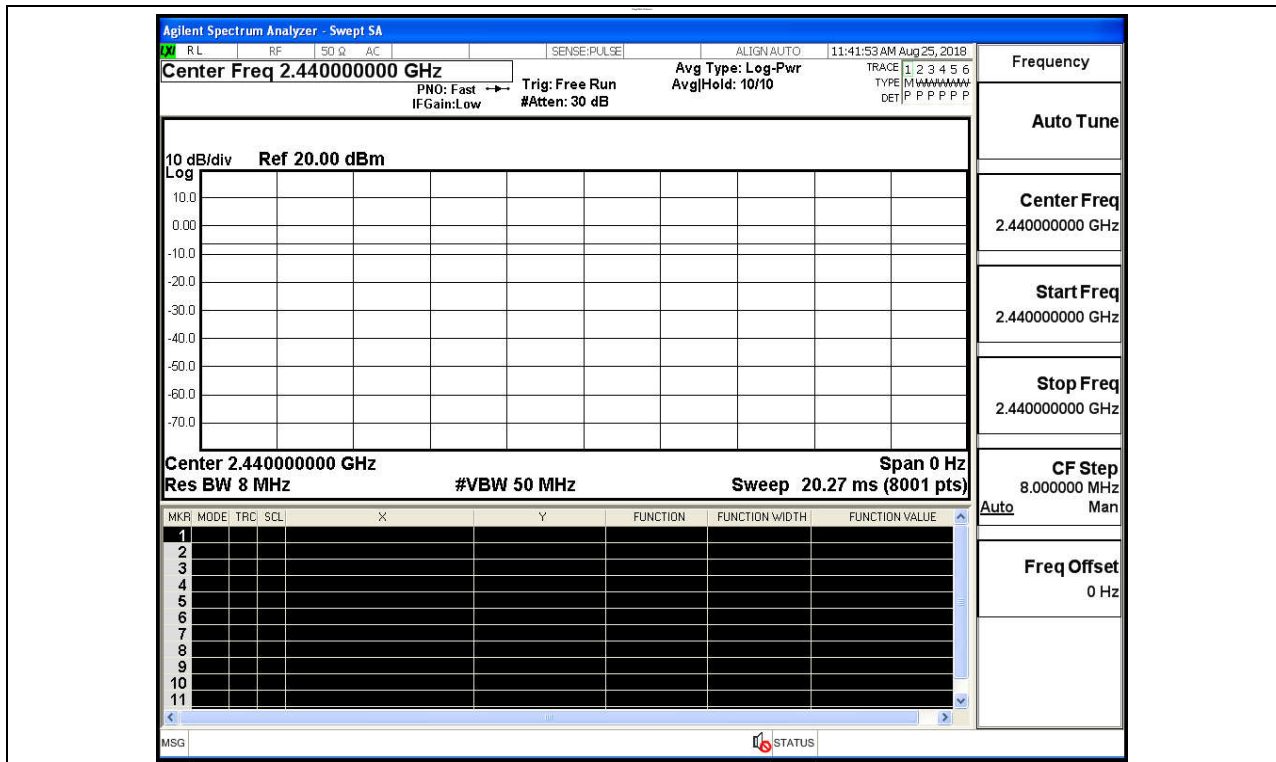
Test Model: MNRETRO-DW

Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Jayden.Zhuo

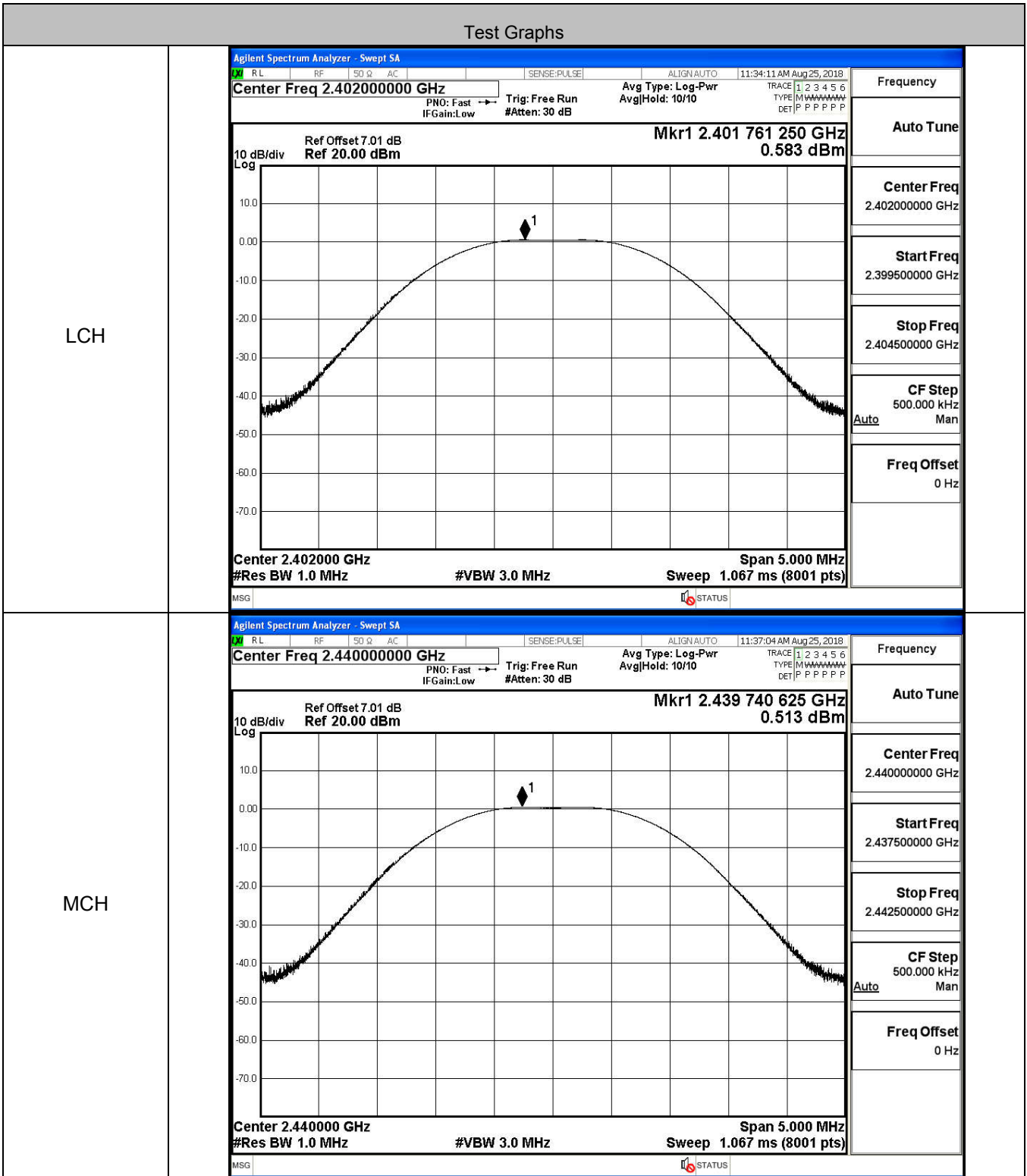
B.1 Duty Cycle

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

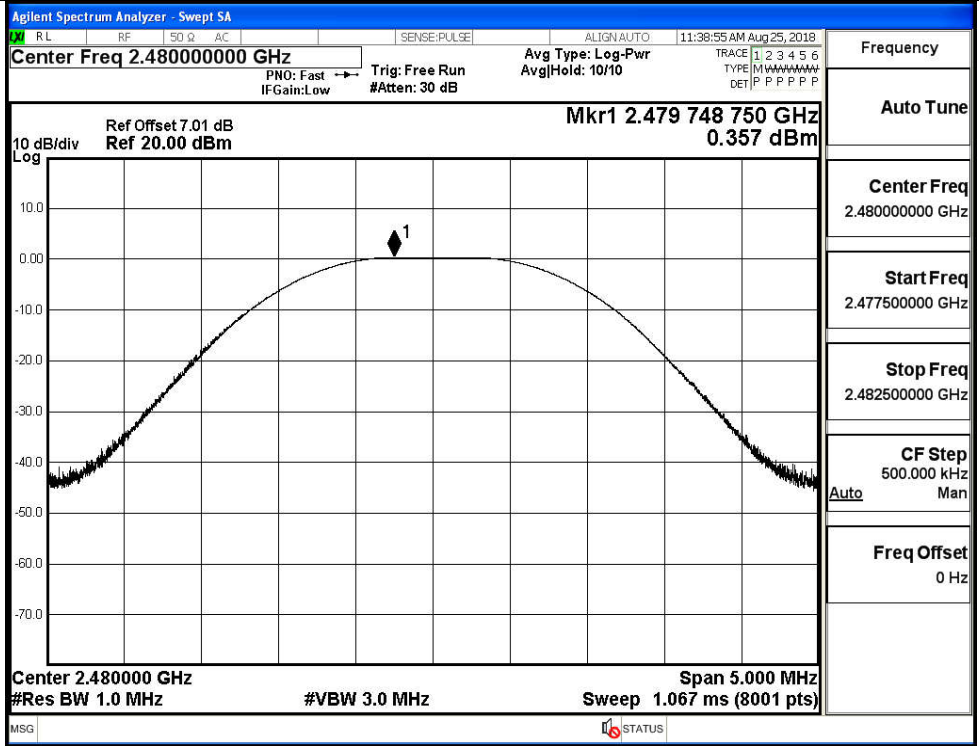


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.583	30	PASS
BT LE	MCH	0.513	30	PASS
BT LE	HCH	0.357	30	PASS



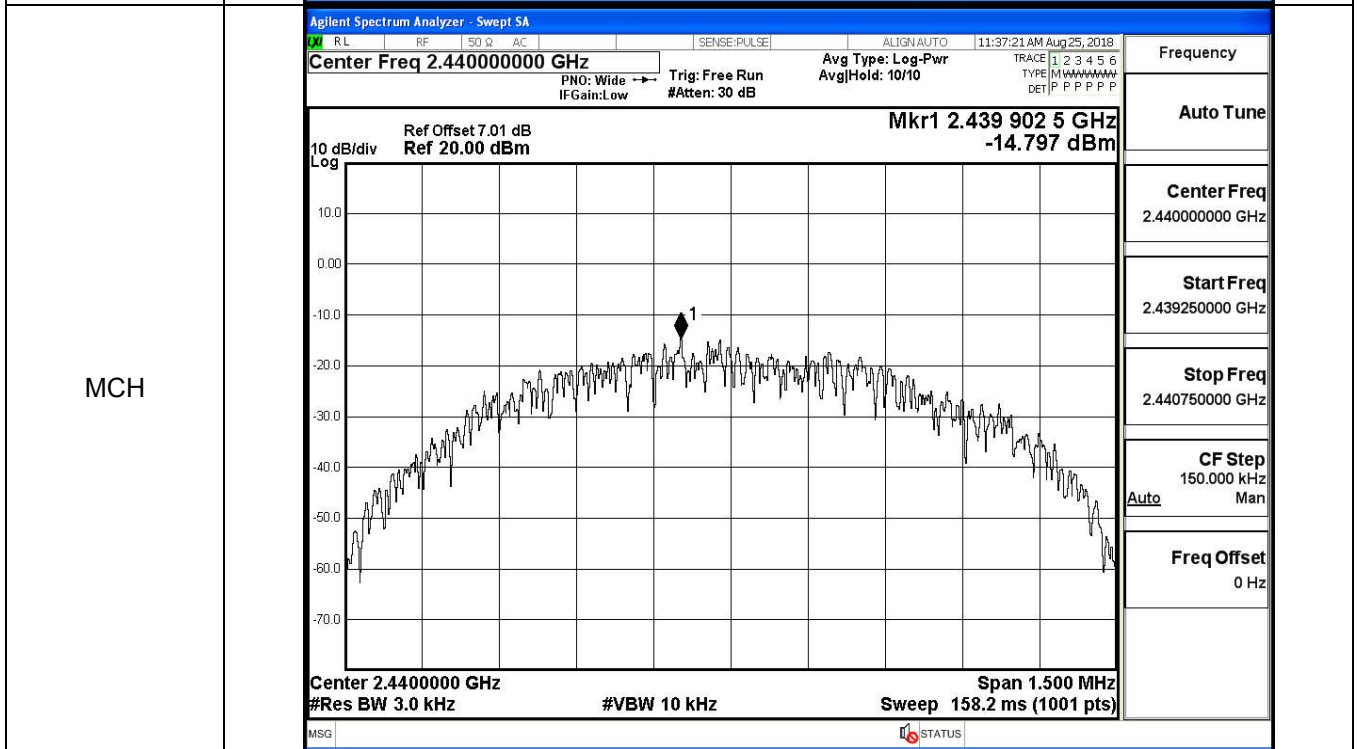
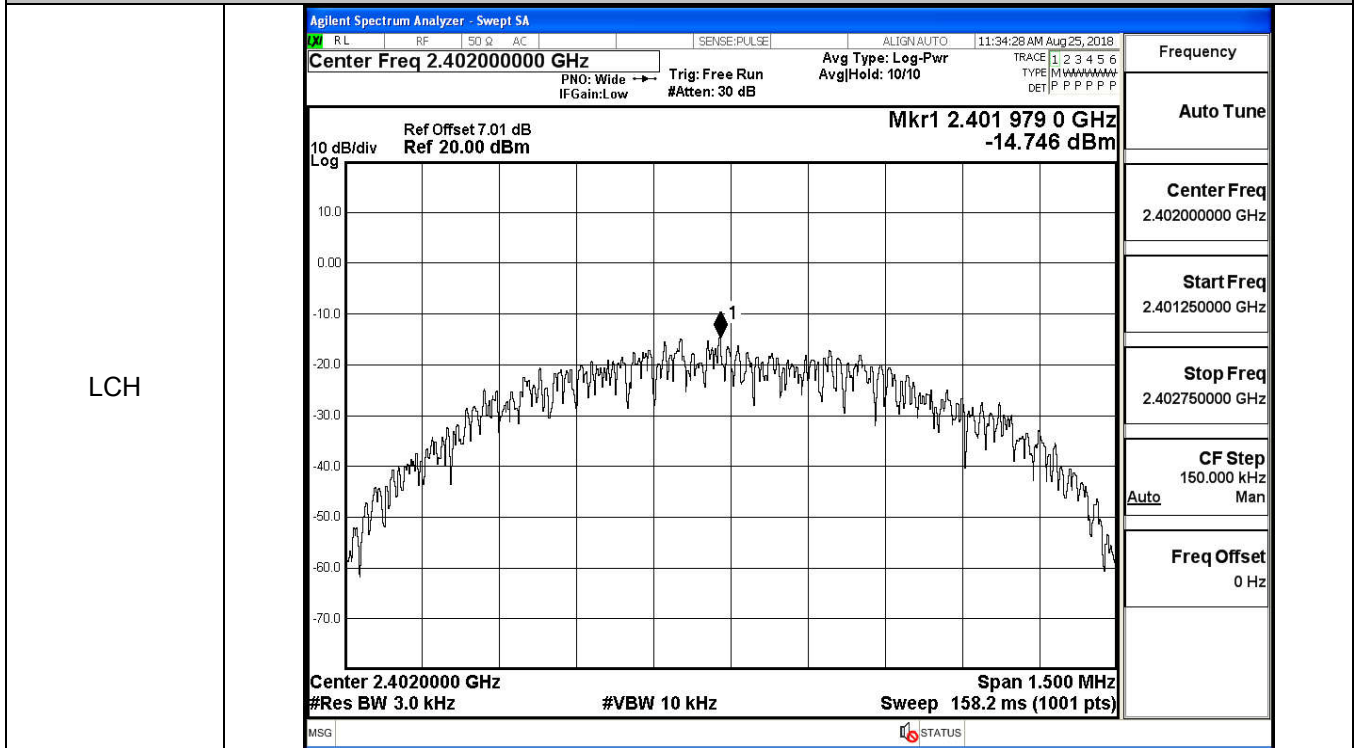
HCH



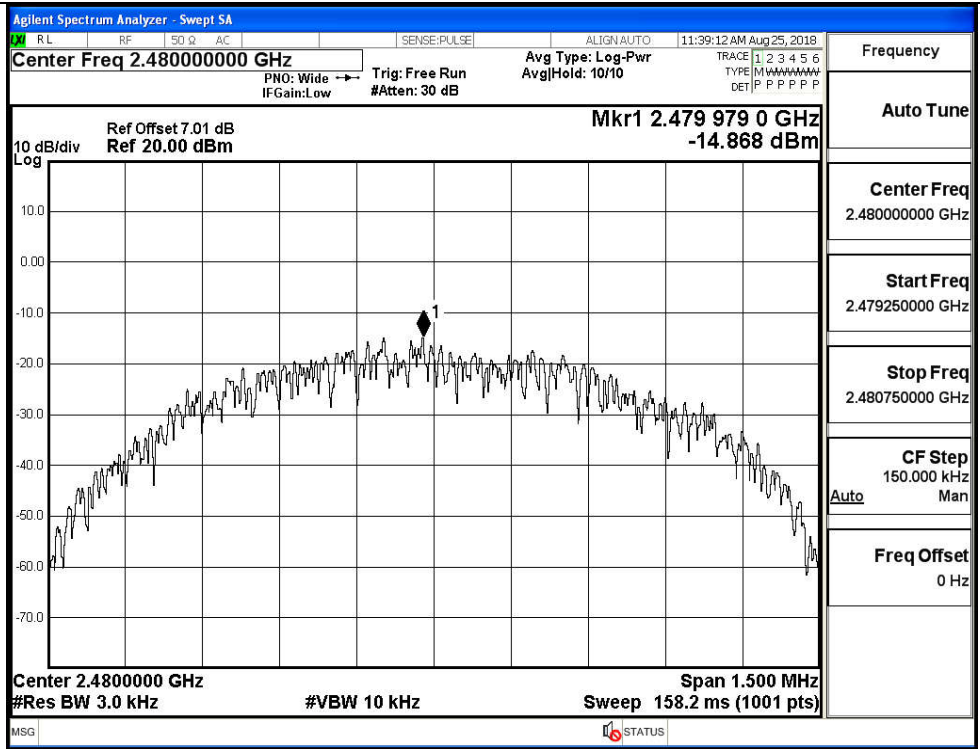
B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.746	8	PASS
BT LE	MCH	-14.797	8	PASS
BT LE	HCH	-14.868	8	PASS

Test Graphs



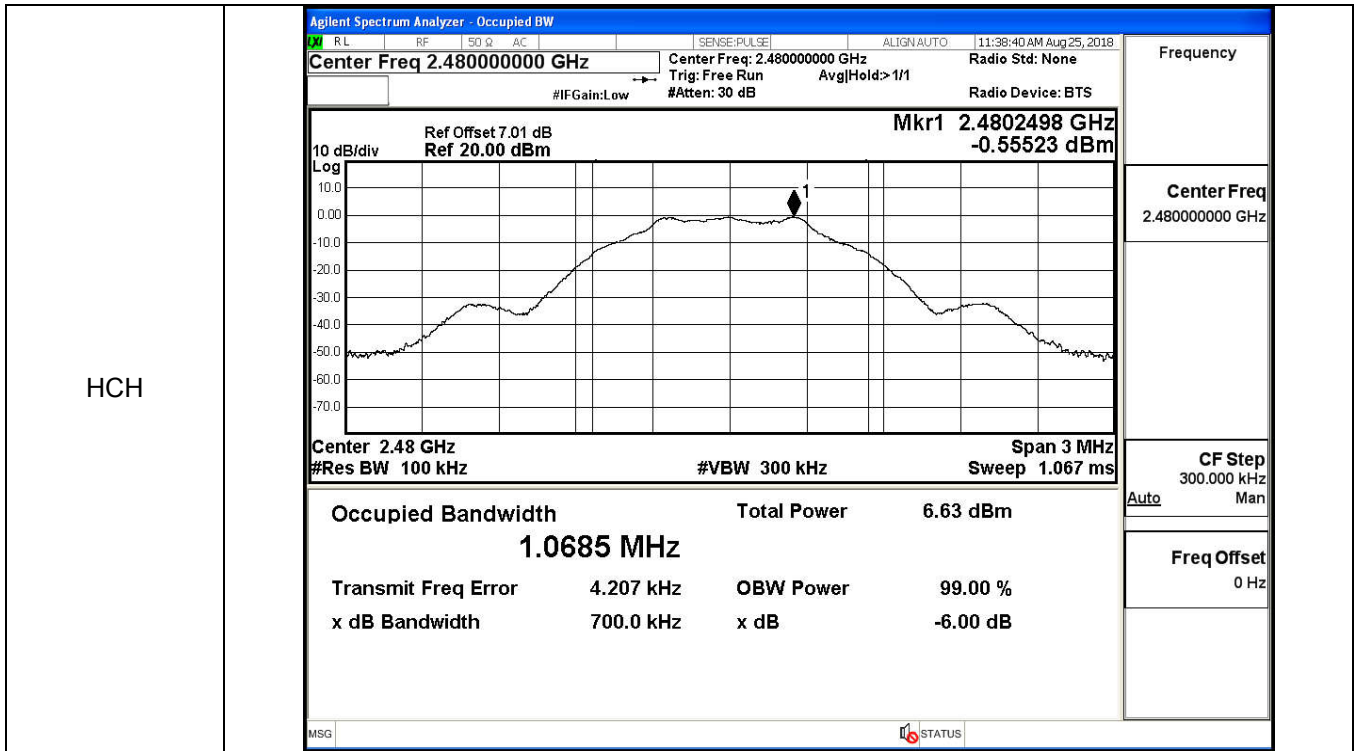
HCH



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.7041	≥0.5	PASS
BT LE	MCH	0.7047	≥0.5	PASS
BT LE	HCH	0.7000	≥0.5	PASS

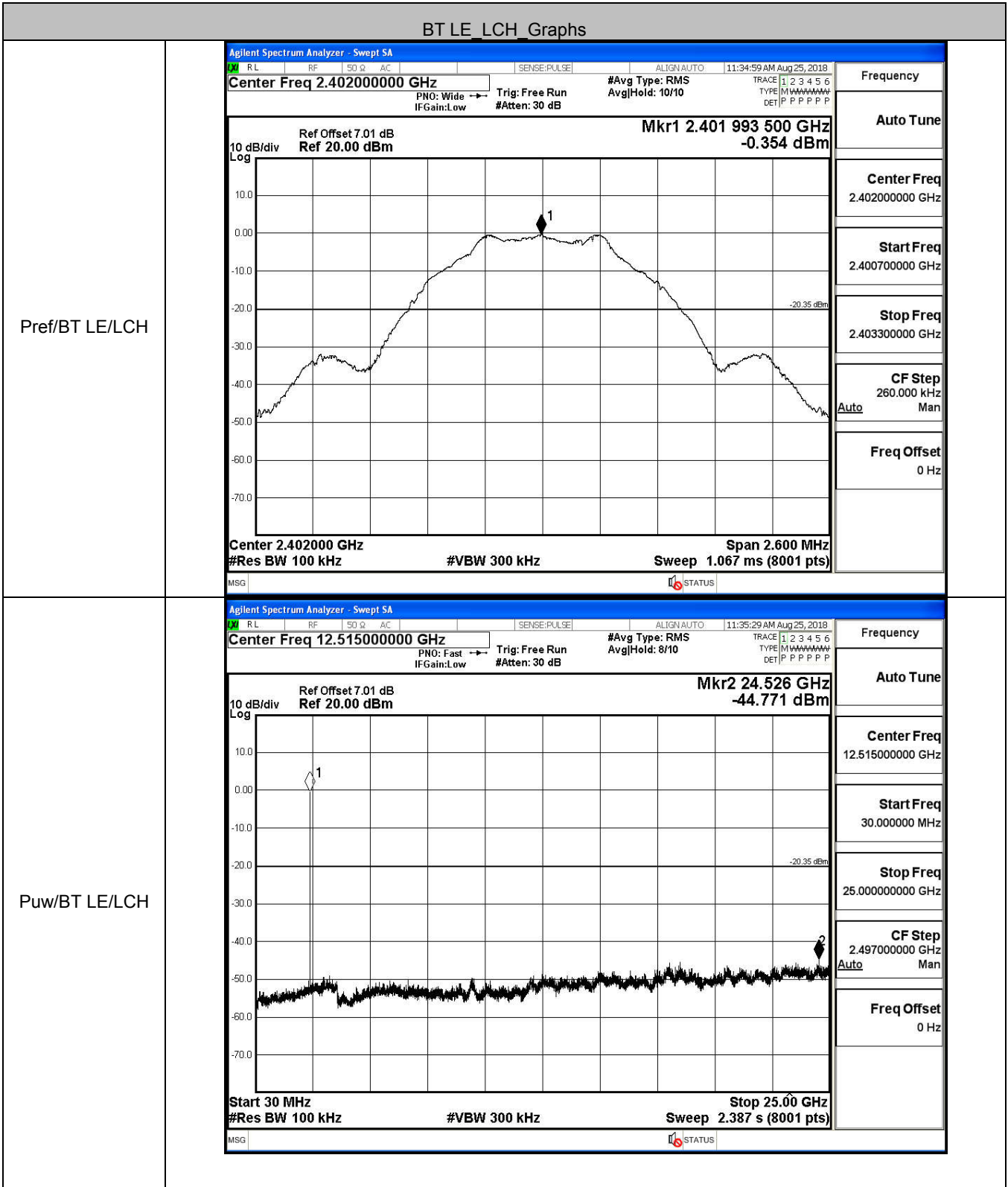
Test Graphs													
LCH	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: small; margin: 0;">RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 11:33:56 AM Aug 25, 2018</p> <p style="margin: 0;">Center 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="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p style="font-size: x-small;">10 dB/div Ref Offset 7.01 dB Mkr1 2.4022456 GHz Log Ref 20.00 dBm -0.30253 dBm</p> <p style="font-size: x-small;">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: x-small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>6.89 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;">1.0699 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table> </div> <div style="width: 35%; border-left: 1px solid black; padding-left: 5px;"> <p style="font-size: x-small;">Frequency</p> <p style="font-size: x-small;">Center Freq 2.402000000 GHz</p> <p style="font-size: x-small;">CF Step 300.000 kHz Auto Man</p> <p style="font-size: x-small;">Freq Offset 0 Hz</p> </div> </div> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	6.89 dBm	1.0699 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
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B.5 RF Conducted Spurious Emissions

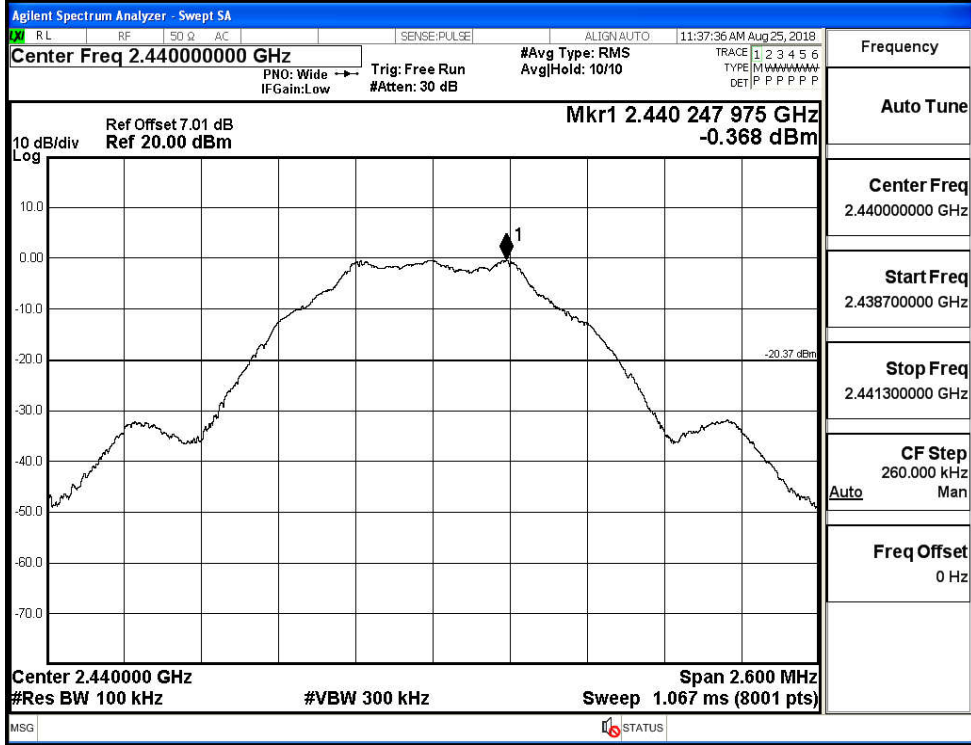
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.354	-44.771	-20.354	PASS
BT LE	MCH	-0.368	-45.565	-20.368	PASS
BT LE	HCH	-0.545	-45.310	-20.545	PASS

BT LE LCH Graphs

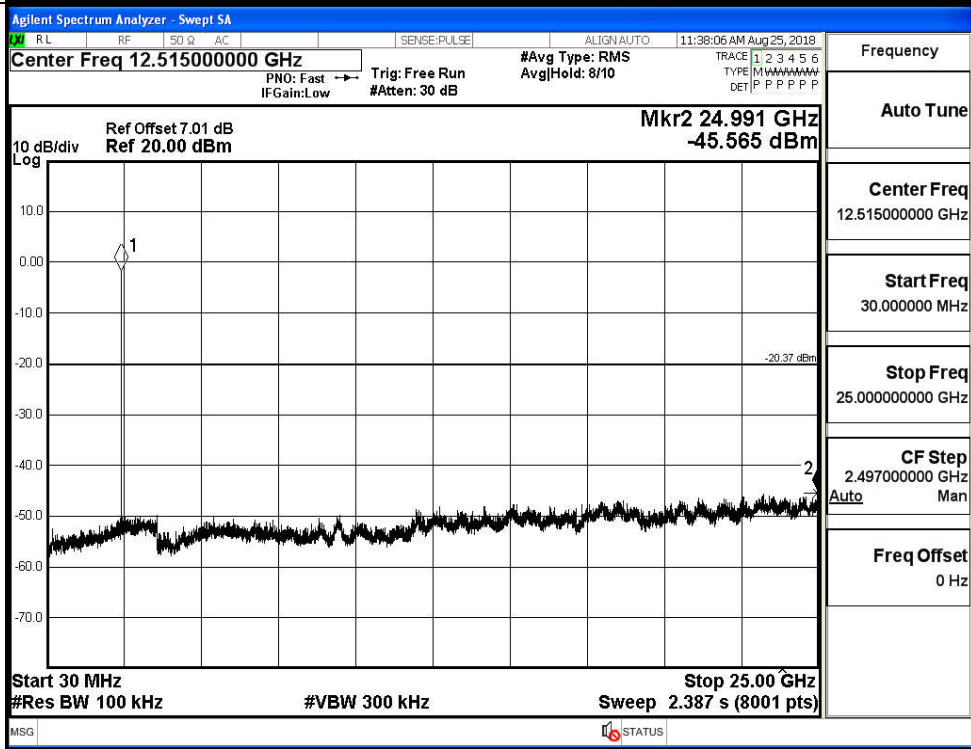


BT LE MCH Graphs

Pref/BT LE/MCH

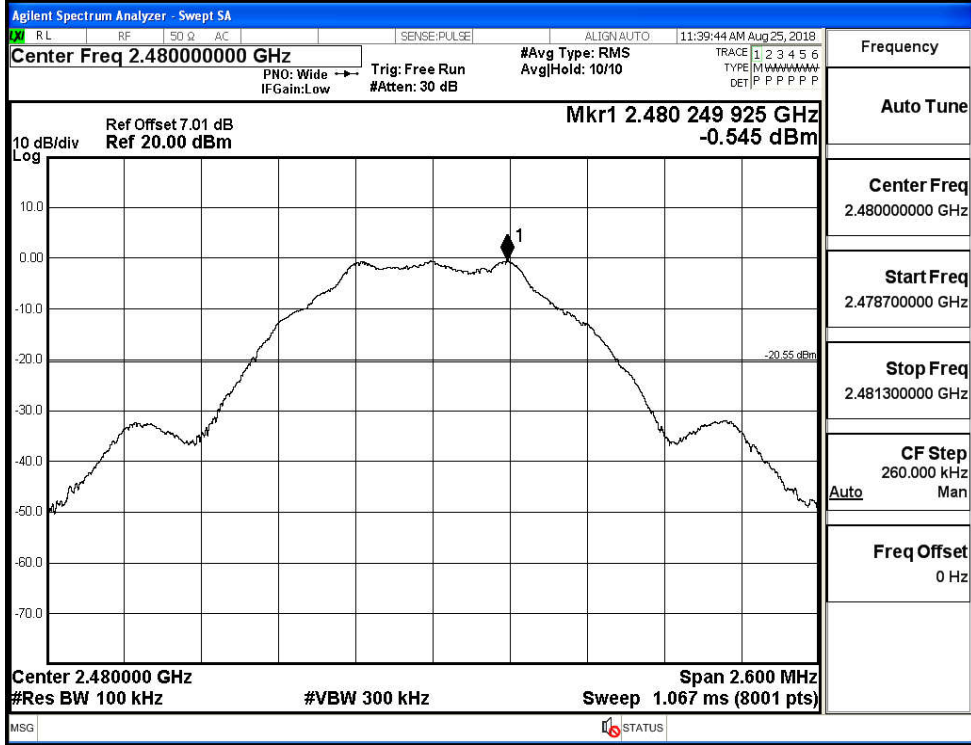


Puw/BT LE/MCH

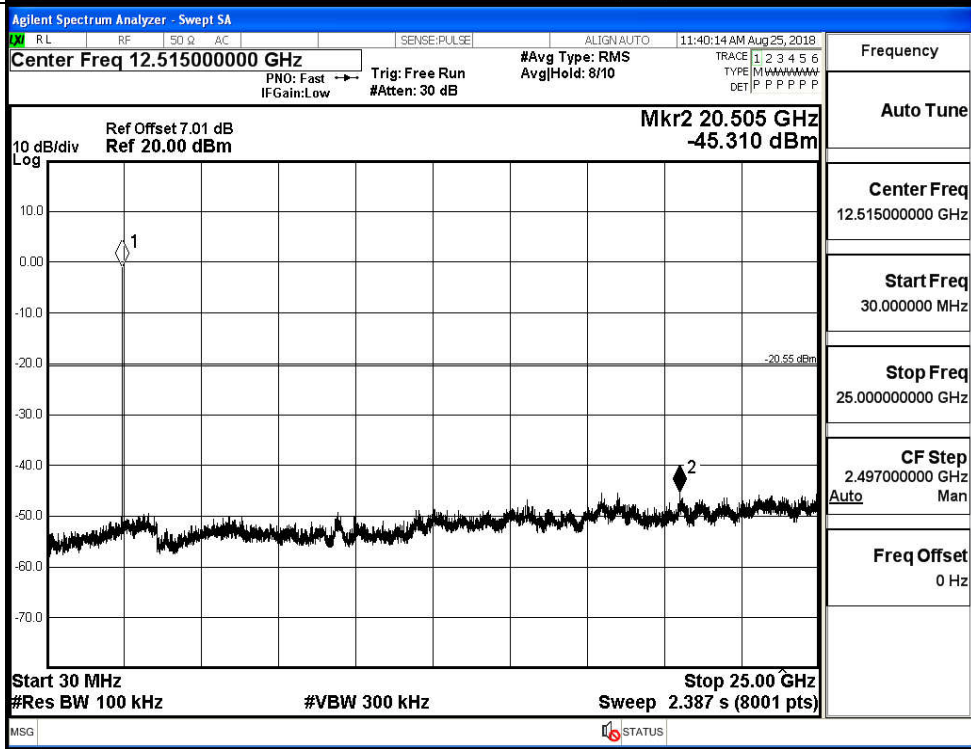


BT LE HCH Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-0.049	-51.214	-20.05	PASS
BT LE	HCH	-0.348	-51.512	-20.35	PASS

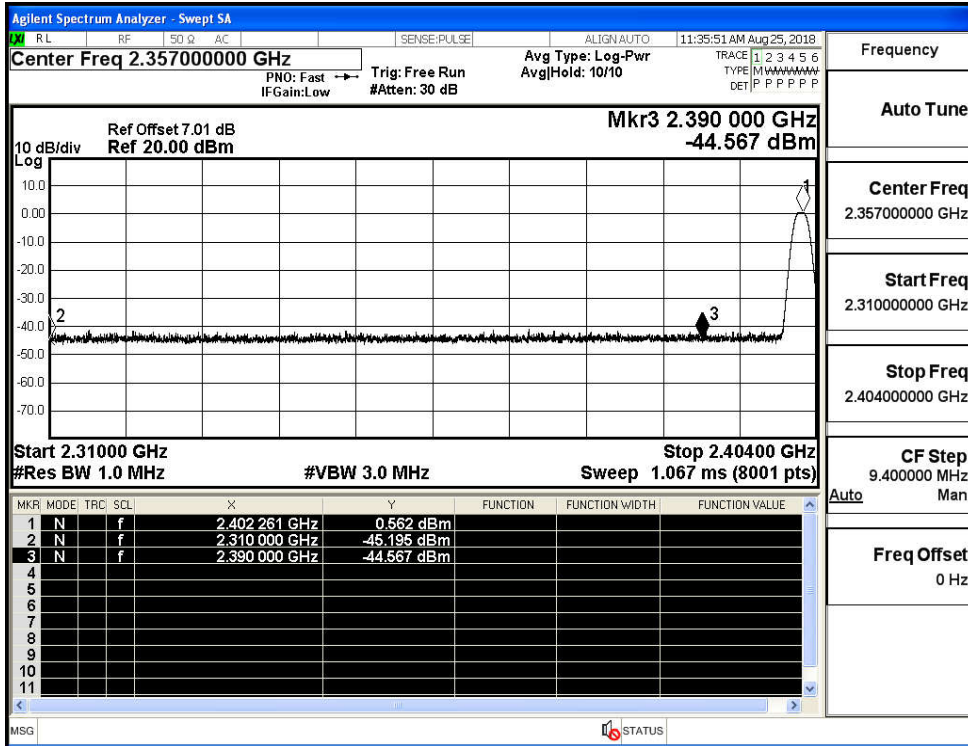
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz Ref Offset 7.01 dB, Ref 20.00 dBm Mkr4 2.316 427 GHz, -51.214 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>2.402 249 GHz</td><td>-0.049 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>-54.711 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>-55.181 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.316 427 GHz</td><td>-51.214 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		2.402 249 GHz	-0.049 dBm				2	N	f		2.400 000 GHz	-54.711 dBm				3	N	f		2.390 000 GHz	-55.181 dBm				4	N	f		2.316 427 GHz	-51.214 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 7.01 dB, Ref 20.00 dBm Mkr4 2.499 392 25 GHz, -51.512 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>2.479 771 00 GHz</td><td>-0.348 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>-54.401 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>-52.199 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.499 392 25 GHz</td><td>-51.512 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		2.479 771 00 GHz	-0.348 dBm				2	N	f		2.483 500 00 GHz	-54.401 dBm				3	N	f		2.500 000 00 GHz	-52.199 dBm				4	N	f		2.499 392 25 GHz	-51.512 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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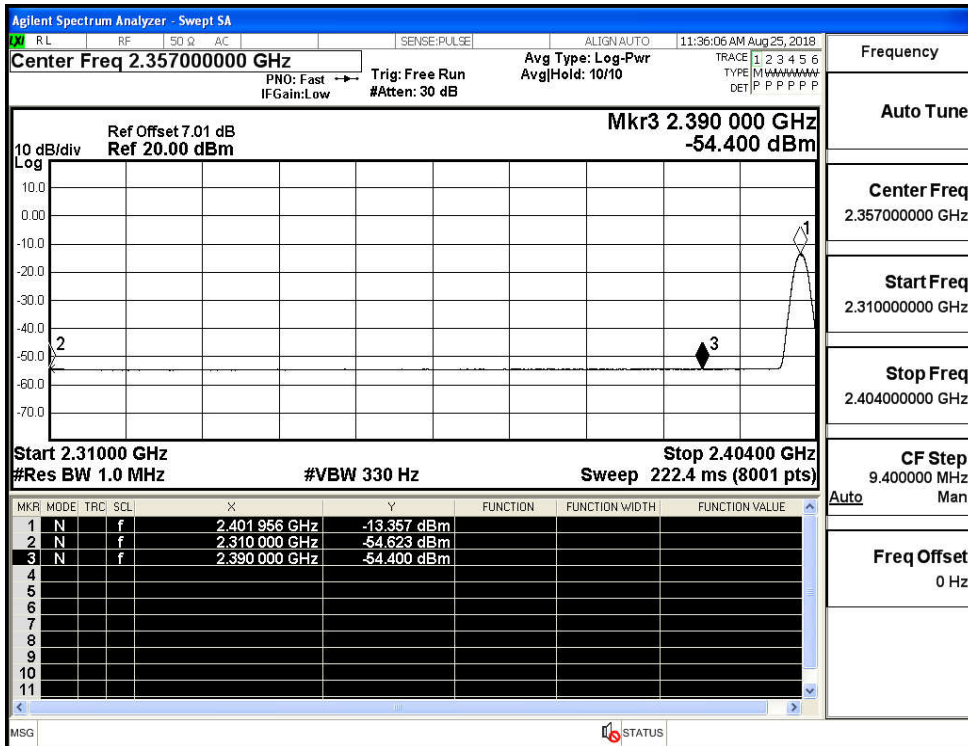
B.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
BT LE	2402	Ant1	2310.0	-45.20	2.0	0	52.03	PEAK	74	PASS
		Ant1	2310.0	-54.62	2.0	0	42.61	AV	54	PASS
		Ant1	2390.0	-44.57	2.0	0	52.66	PEAK	74	PASS
		Ant1	2390.0	-54.40	2.0	0	42.83	AV	54	PASS
	2480	Ant1	2483.5	-44.59	2.0	0	52.64	PEAK	74	PASS
		Ant1	2483.5	-54.21	2.0	0	43.02	AV	54	PASS
		Ant1	2500.0	-43.73	2.0	0	53.50	PEAK	74	PASS
		Ant1	2500.0	-54.11	2.0	0	43.12	AV	54	PASS

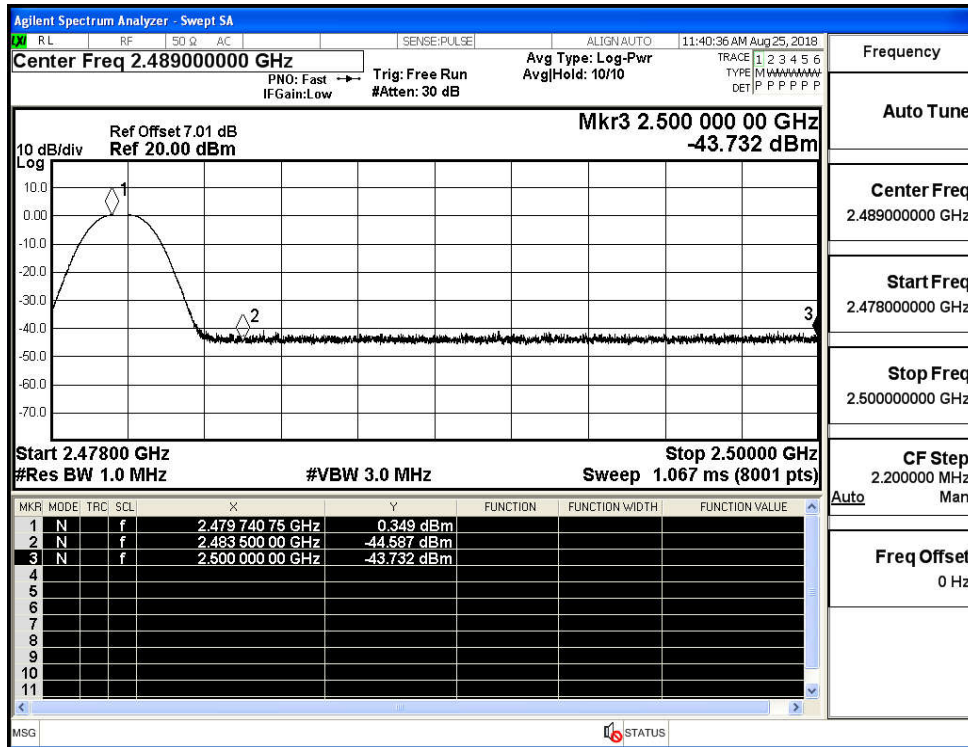
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

