

Appendix B

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: **Bluetooth Backpack Speaker**

Trade Mark: **WizPak**

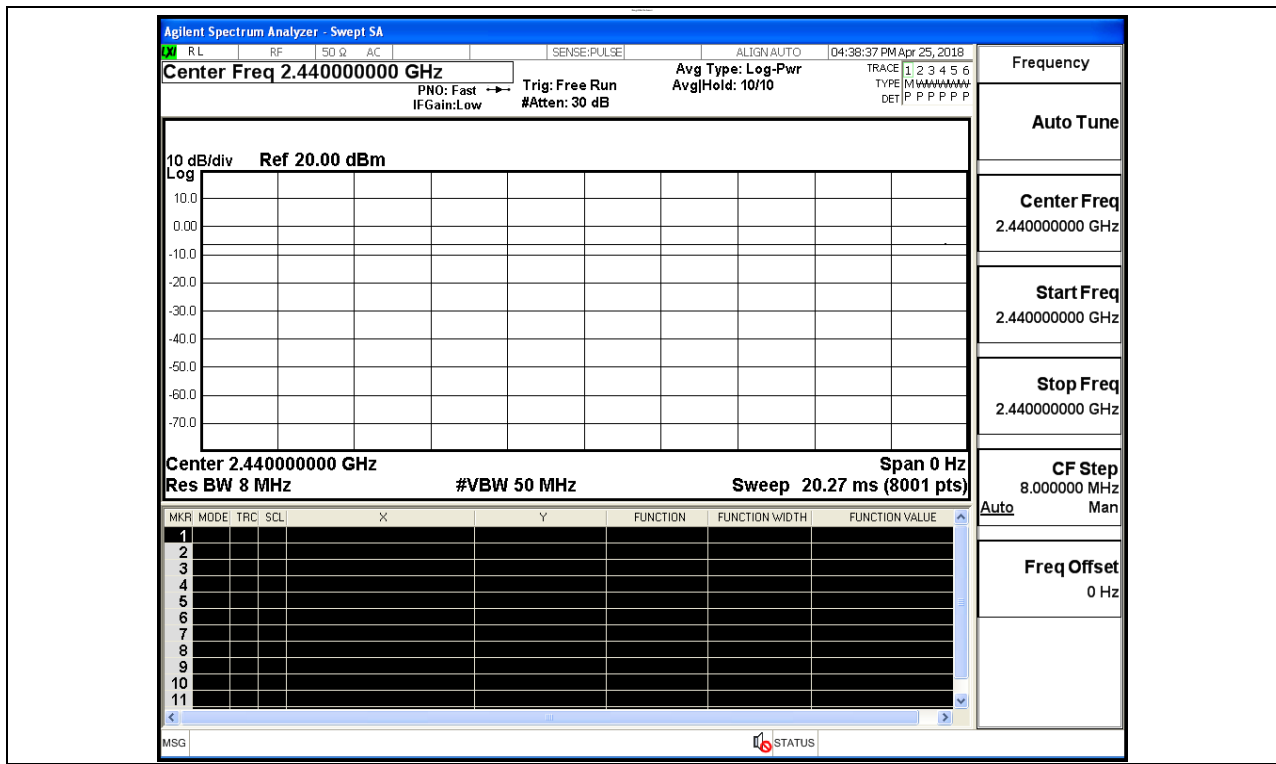
Test Model: **WizPak**

Environmental Conditions

Temperature:	21.3 ° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Wilson.Hong
Supervised by:	Jayden.Zhuo

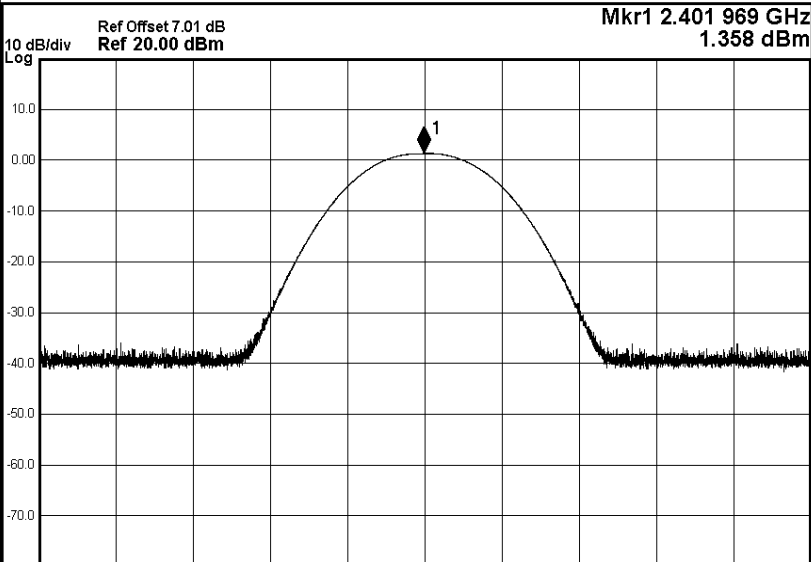
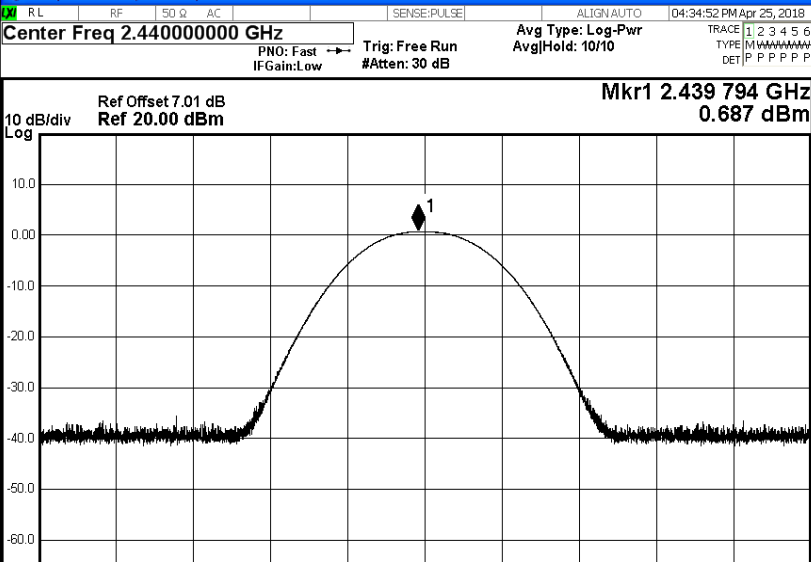
B.1 Duty Cycle

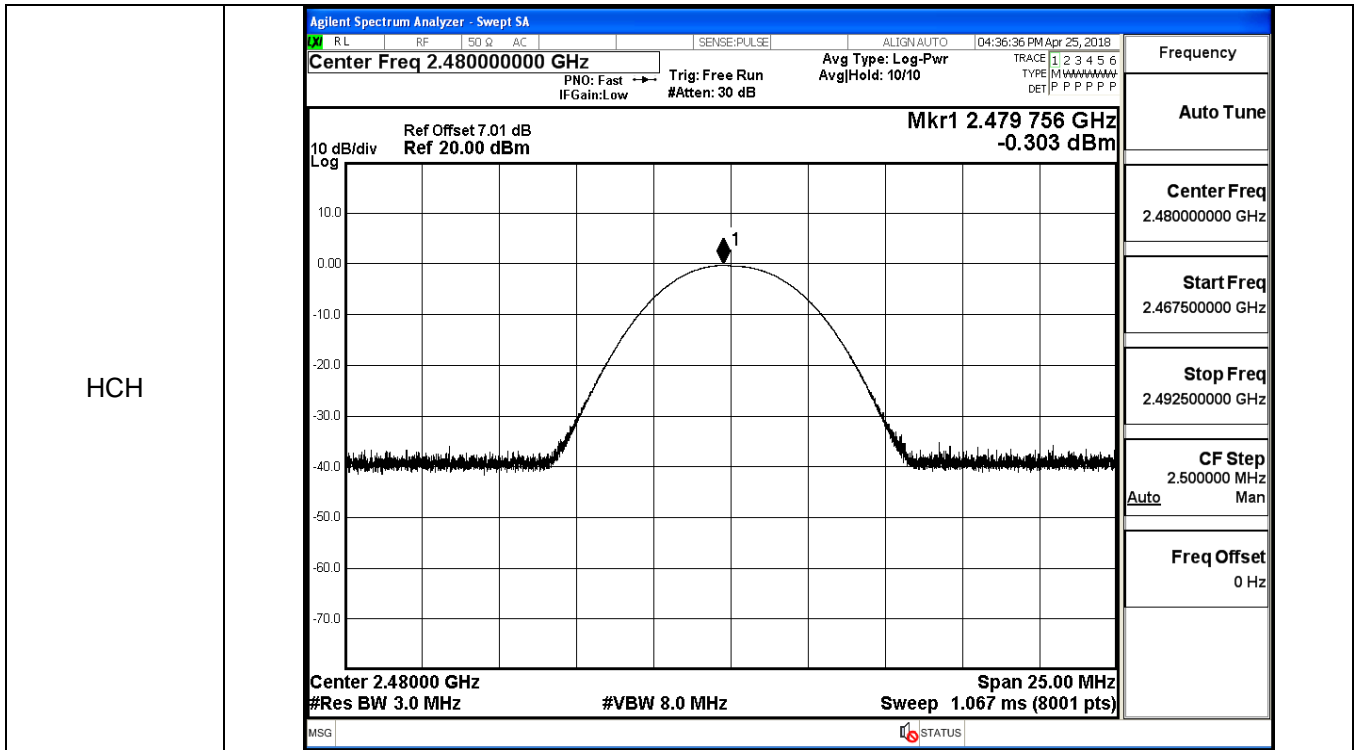
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.358	30	PASS
BT LE	MCH	0.687	30	PASS
BT LE	HCH	-0.303	30	PASS

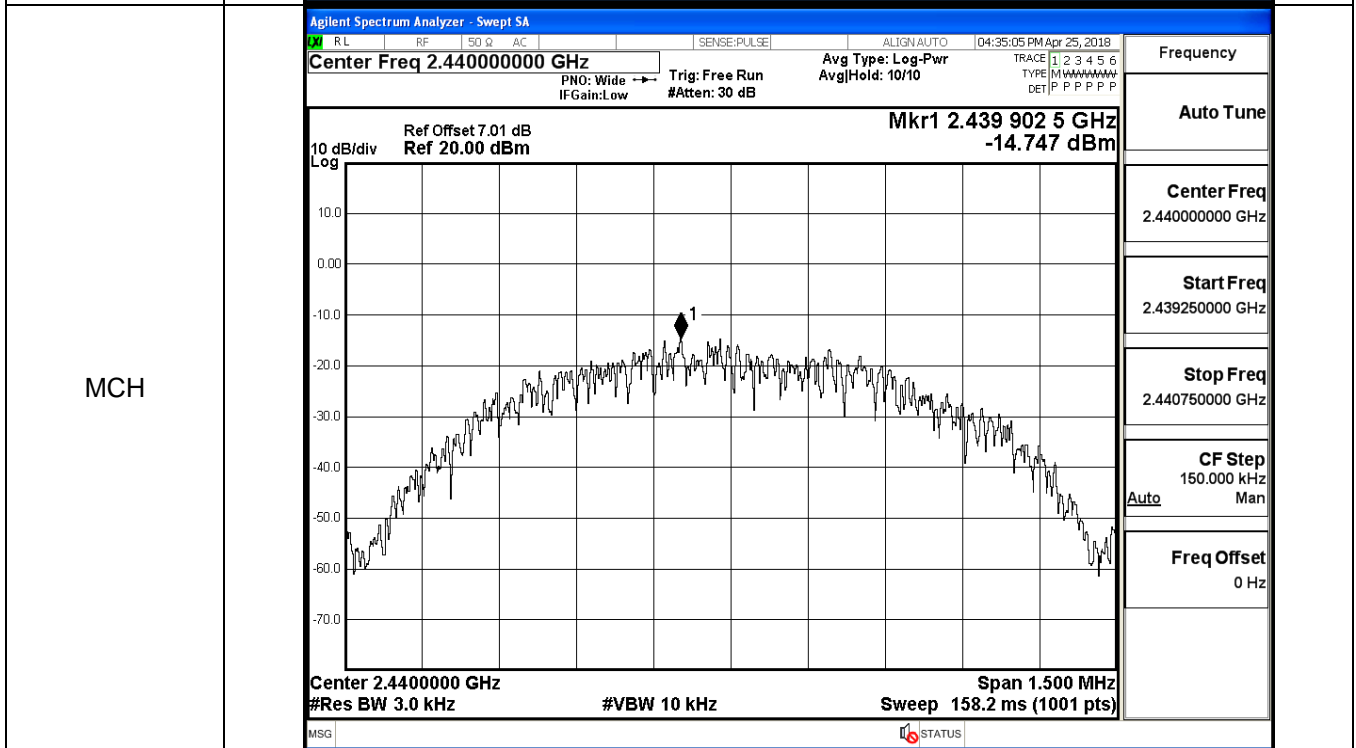
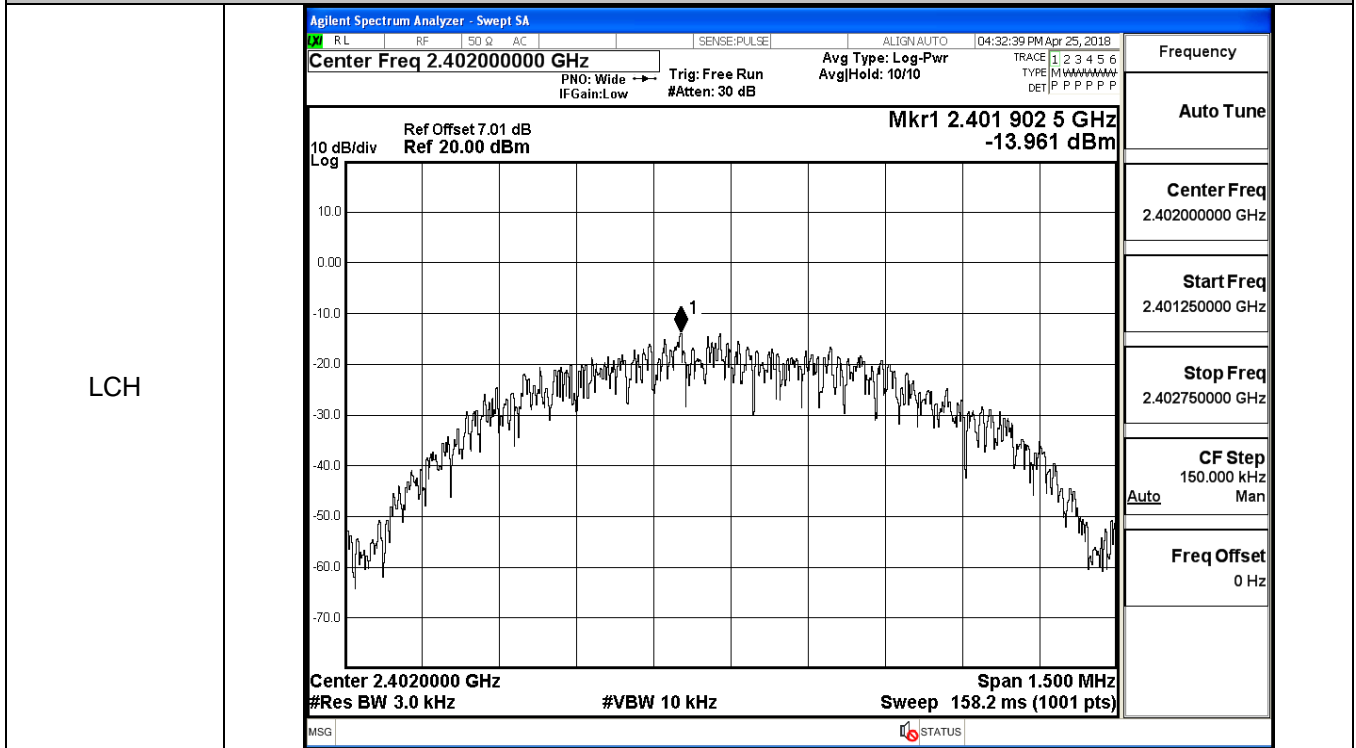
Test Graphs	
LCH	<div style="border: 1px solid black; padding: 5px;"> <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.40200000 GHz</p> <p>Mkr1 2.401 969 GHz 1.358 dBm</p>  <p>Center 2.40200 GHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)</p> </div>
MCH	<div style="border: 1px solid black; padding: 5px;"> <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.44000000 GHz</p> <p>Mkr1 2.439 794 GHz 0.687 dBm</p>  <p>Center 2.44000 GHz #Res BW 3.0 MHz #VBW 8.0 MHz Sweep 1.067 ms (8001 pts)</p> </div>

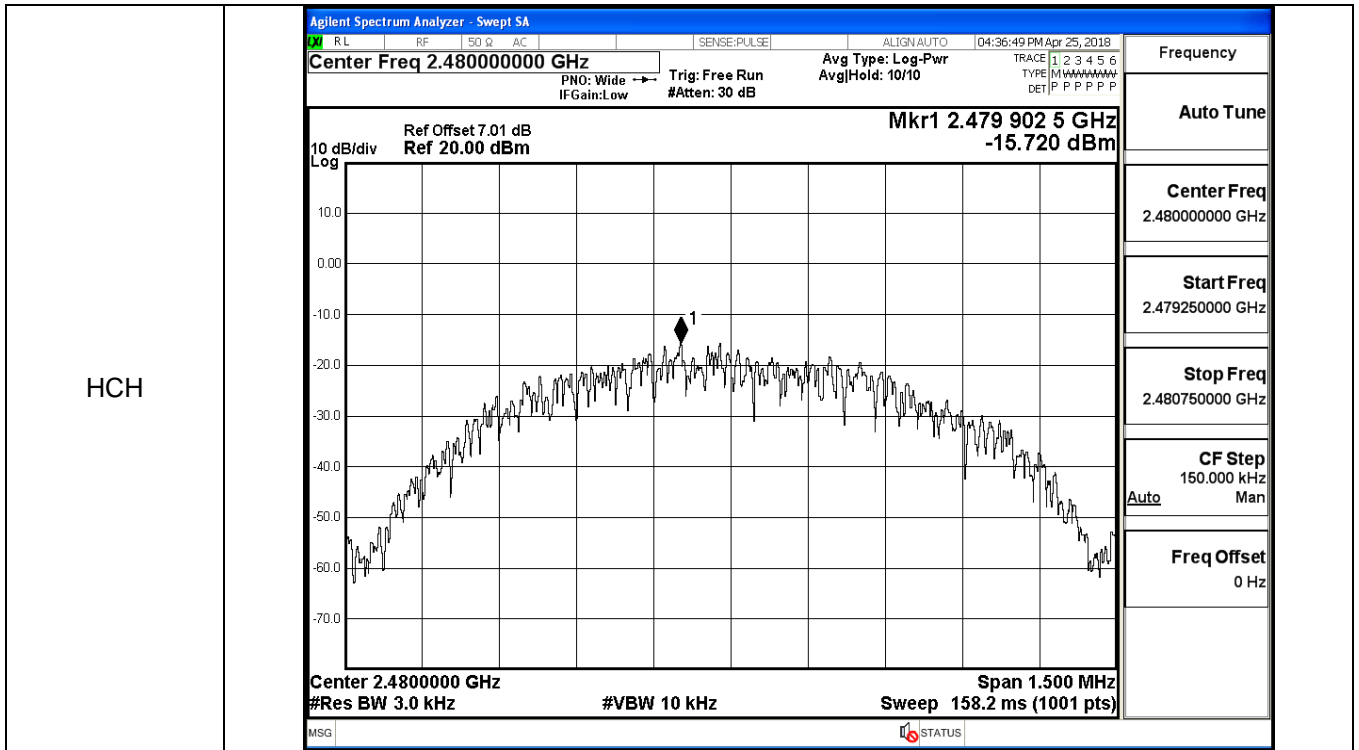


B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-13.961	8	PASS
BT LE	MCH	-14.747	8	PASS
BT LE	HCH	-15.720	8	PASS

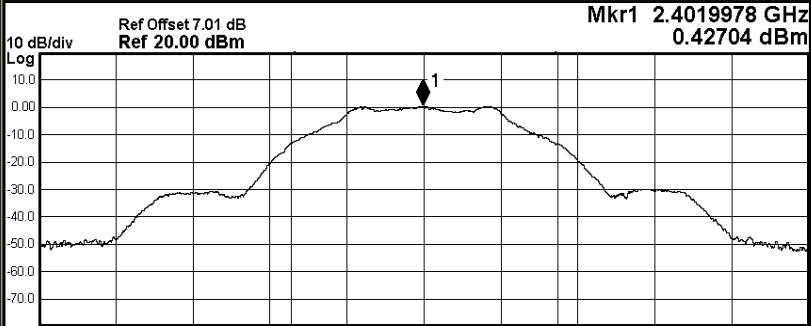
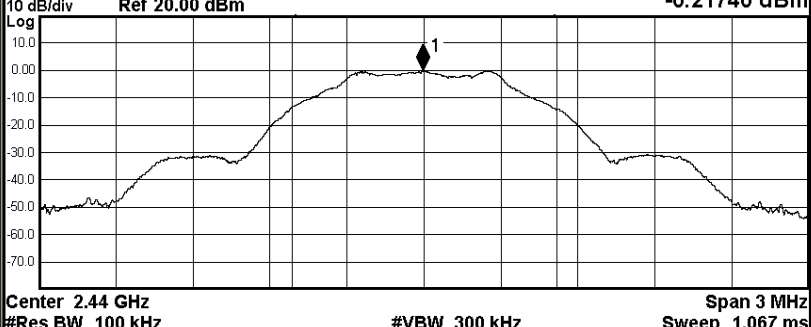
Test Graphs

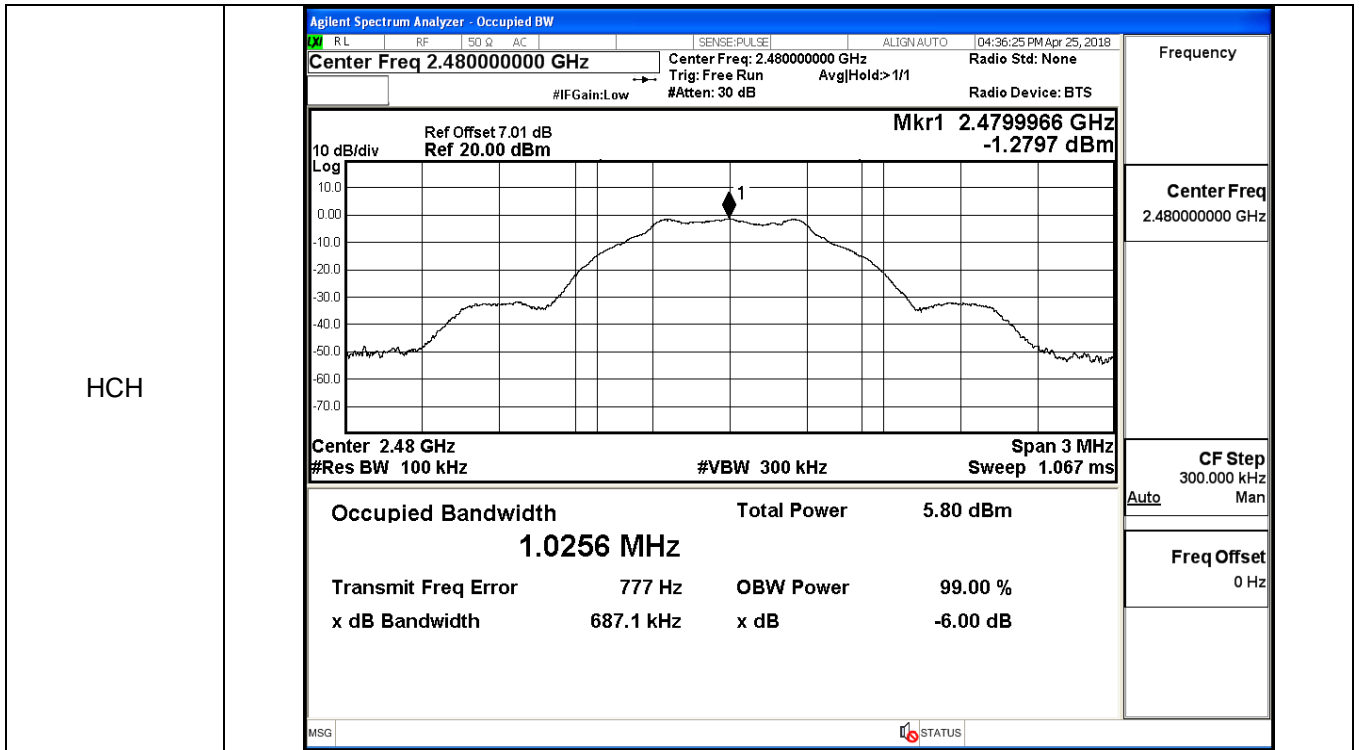




B.4 6dB Bandwidth

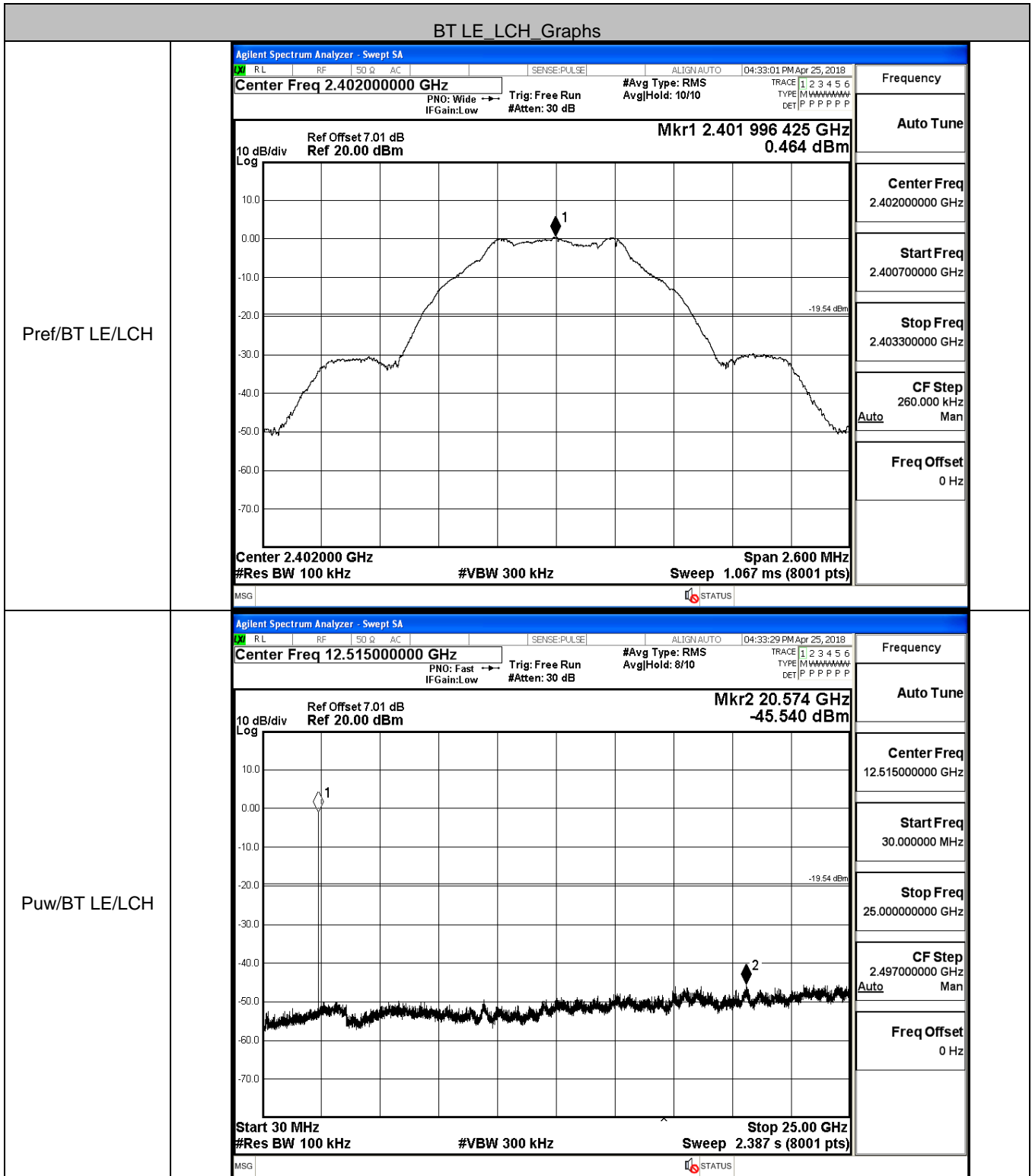
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6784	≥0.5	PASS
BT LE	MCH	0.6774	≥0.5	PASS
BT LE	HCH	0.6871	≥0.5	PASS

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 04:32:15 PM Apr 25, 2018</p> <p style="margin: 0;">Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p style="font-size: x-small; margin: 0;">10 dB/div Ref Offset 7.01 dB Mkr1 2.4019978 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm 0.42704 dBm</p>  </div> <p style="font-size: x-small; margin: 0;">Center 2.402 GHz Span 3 MHz</p> <p style="font-size: x-small; margin: 0;">#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td style="width: 33%;">Occupied Bandwidth</td> <td style="width: 33%;">Total Power</td> <td style="width: 33%;">7.51 dBm</td> </tr> <tr> <td style="text-align: center;">1.0277 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>5.492 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>678.4 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> <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <table style="width: 100%; font-size: x-small;"> <tr> <td style="width: 50%;">Frequency</td> <td style="text-align: center;">2.402000000 GHz</td> </tr> <tr> <td>Center Freq</td> <td style="text-align: center;">2.402000000 GHz</td> </tr> <tr> <td>CF Step</td> <td style="text-align: center;">300.000 kHz</td> </tr> <tr> <td>Auto</td> <td style="text-align: center;">Man</td> </tr> <tr> <td>Freq Offset</td> <td style="text-align: center;">0 Hz</td> </tr> </table> </div>	Occupied Bandwidth	Total Power	7.51 dBm	1.0277 MHz			Transmit Freq Error	5.492 kHz	OBW Power	x dB Bandwidth	678.4 kHz	x dB			99.00 %			-6.00 dB	Frequency	2.402000000 GHz	Center Freq	2.402000000 GHz	CF Step	300.000 kHz	Auto	Man	Freq Offset	0 Hz
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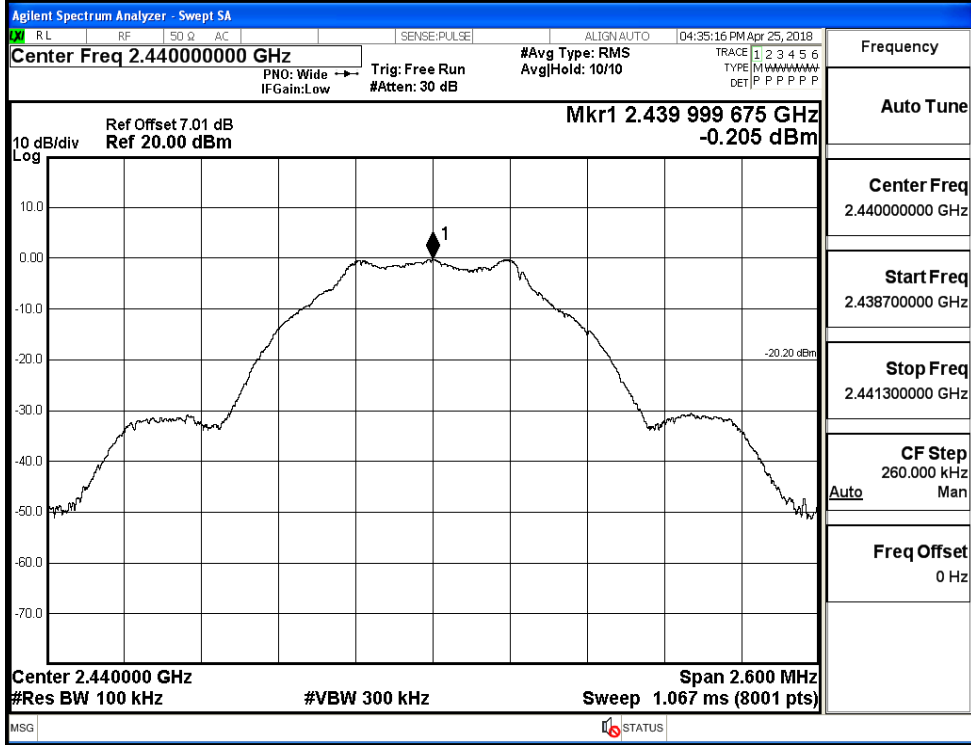
B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.464	-45.540	-19.536	PASS
BT LE	MCH	-0.205	-45.382	-20.205	PASS
BT LE	HCH	-1.292	-45.259	-21.292	PASS

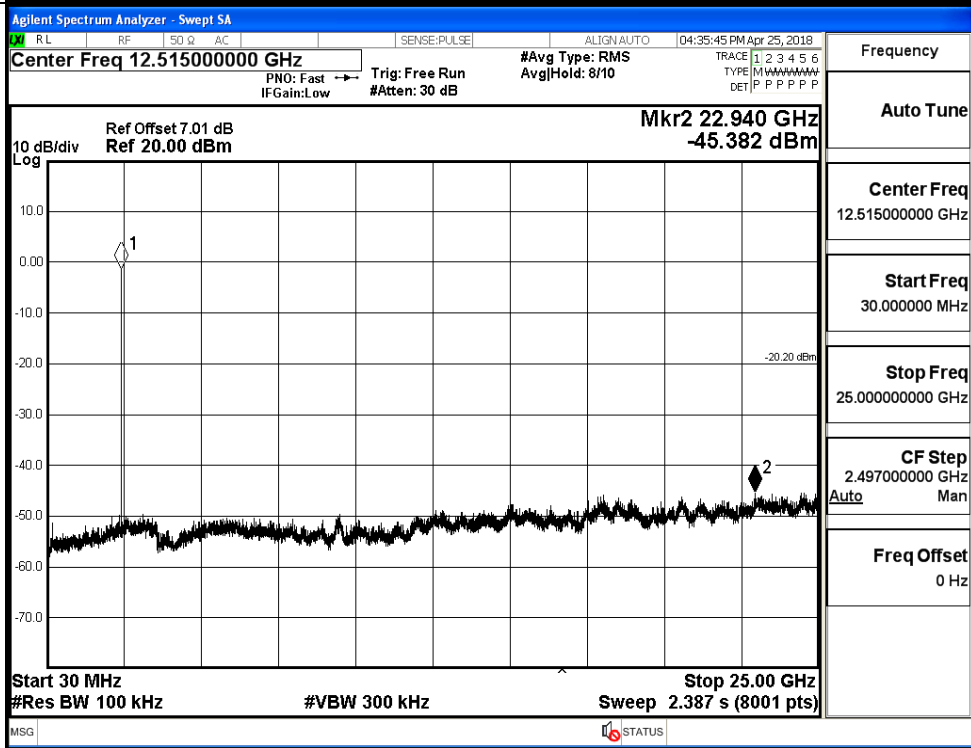


BT LE_MCH_Graphs

Pref/BT LE/MCH

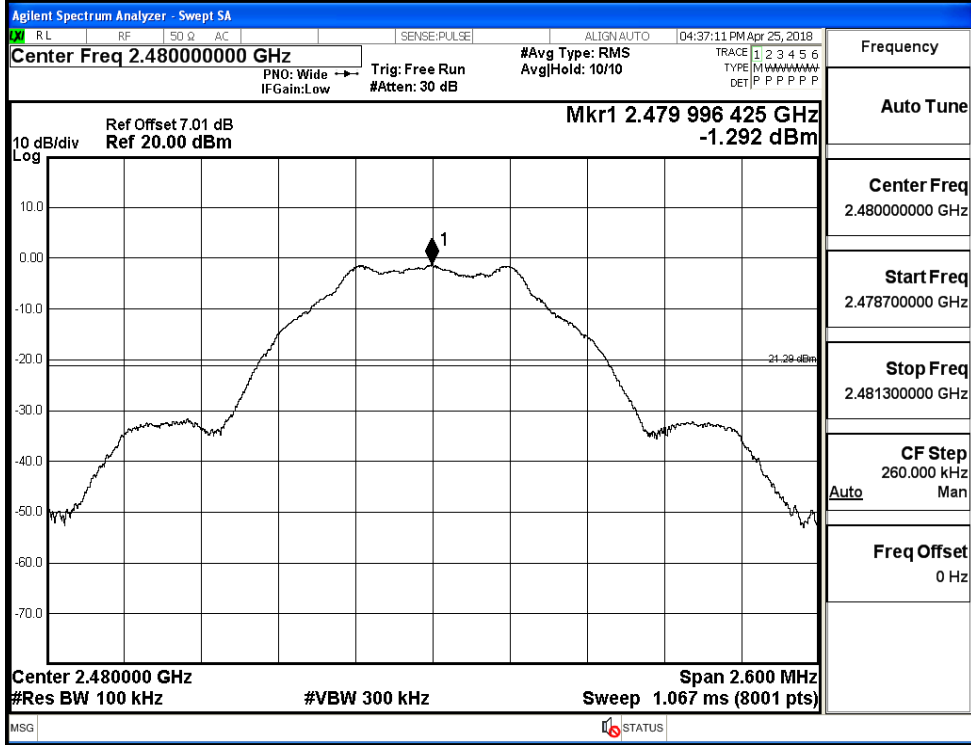


Puw/BT LE/MCH

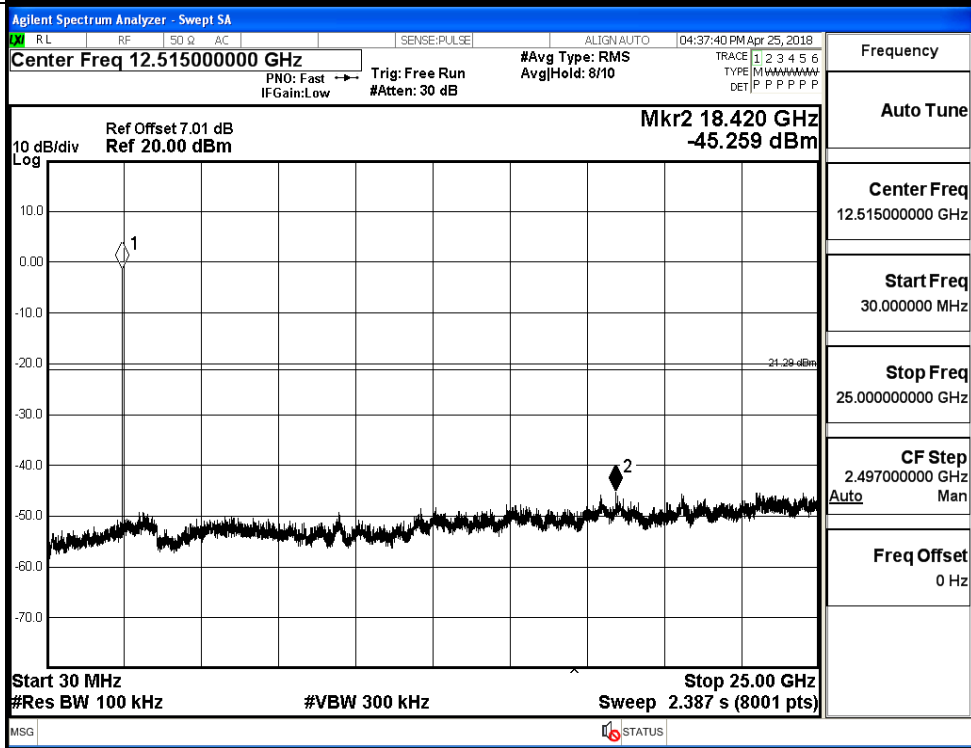


BT LE_HCH_Graphs

Pref/BT LE/HCH



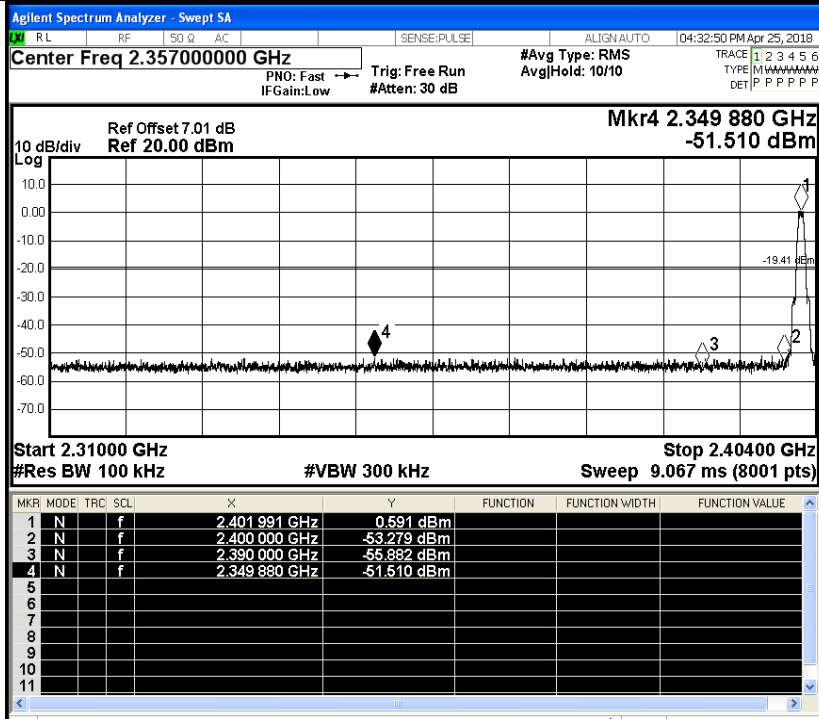
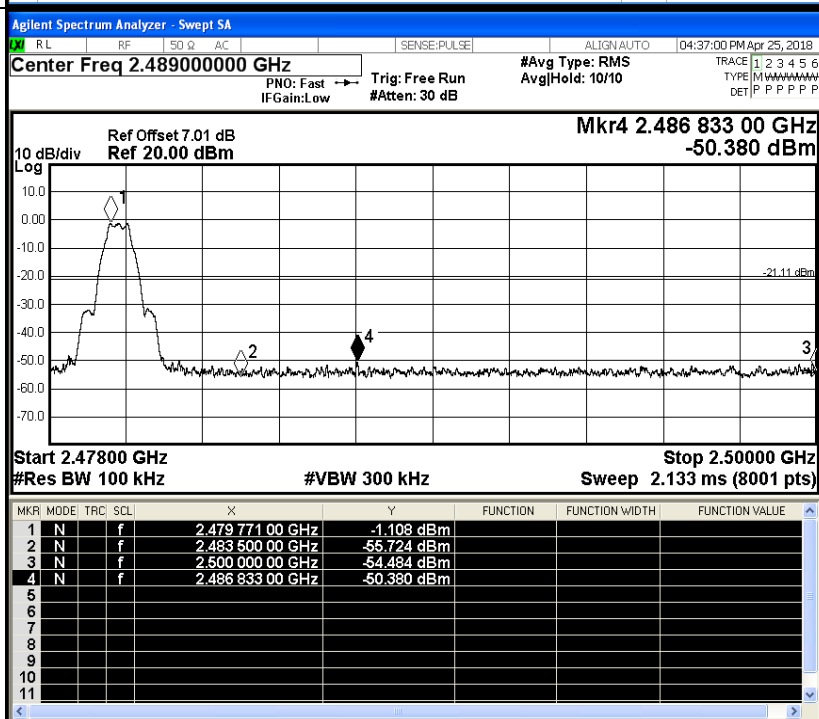
Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.591	-51.510	-19.41	PASS
BT LE	HCH	-1.108	-50.380	-21.11	PASS

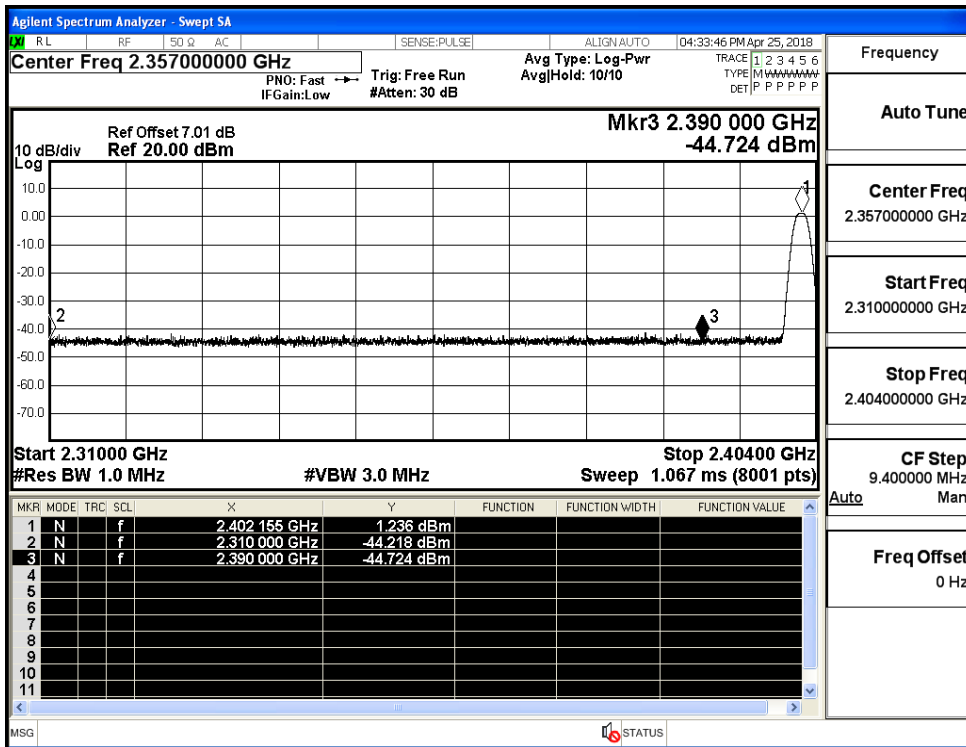
Test Graphs

LCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.35700000 GHz</p> <p>Start Freq 2.31000000 GHz</p> <p>Stop Freq 2.40400000 GHz</p> <p>CF Step 9.400000 MHz</p> <p>Freq Offset 0 Hz</p>
HCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.48900000 GHz</p> <p>Start Freq 2.47800000 GHz</p> <p>Stop Freq 2.50000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p>

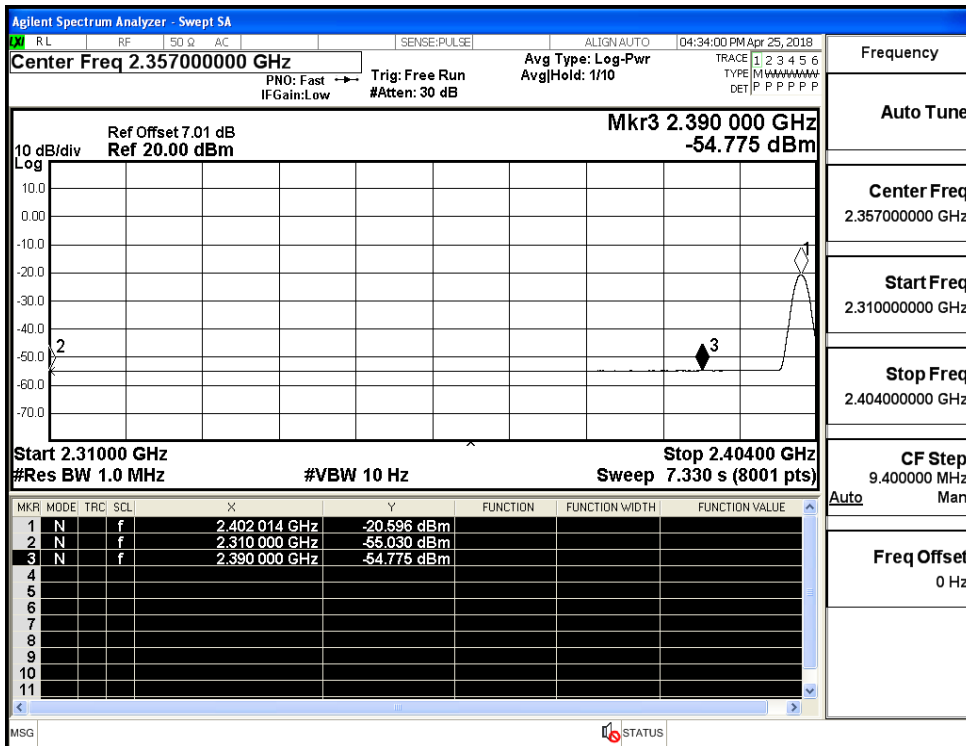
B.7 Restrict-band band-edge measurements

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	-44.22	2.0	0	53.04	PEAK	74	PASS
		Ant1	2310.0	-55.03	2.0	0	42.23	AV	54	PASS
		Ant1	2390.0	-44.72	2.0	0	52.53	PEAK	74	PASS
		Ant1	2390.0	-54.78	2.0	0	42.48	AV	54	PASS
	2480	Ant1	2483.5	-43.76	2.0	0	53.50	PEAK	74	PASS
		Ant1	2483.5	-54.56	2.0	0	42.70	AV	54	PASS
		Ant1	2500.0	-43.67	2.0	0	53.59	PEAK	74	PASS
		Ant1	2500.0	-54.47	2.0	0	42.78	AV	54	PASS

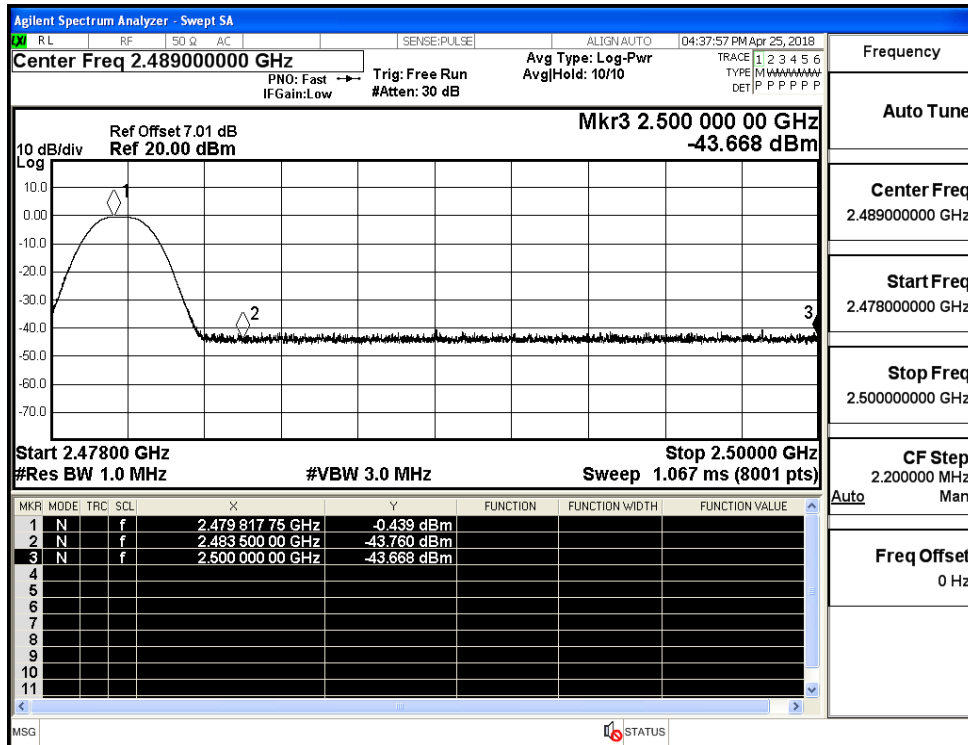
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

