

Appendix B

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

Product Name: Bluetooth Beanie

Trade Mark: N/A

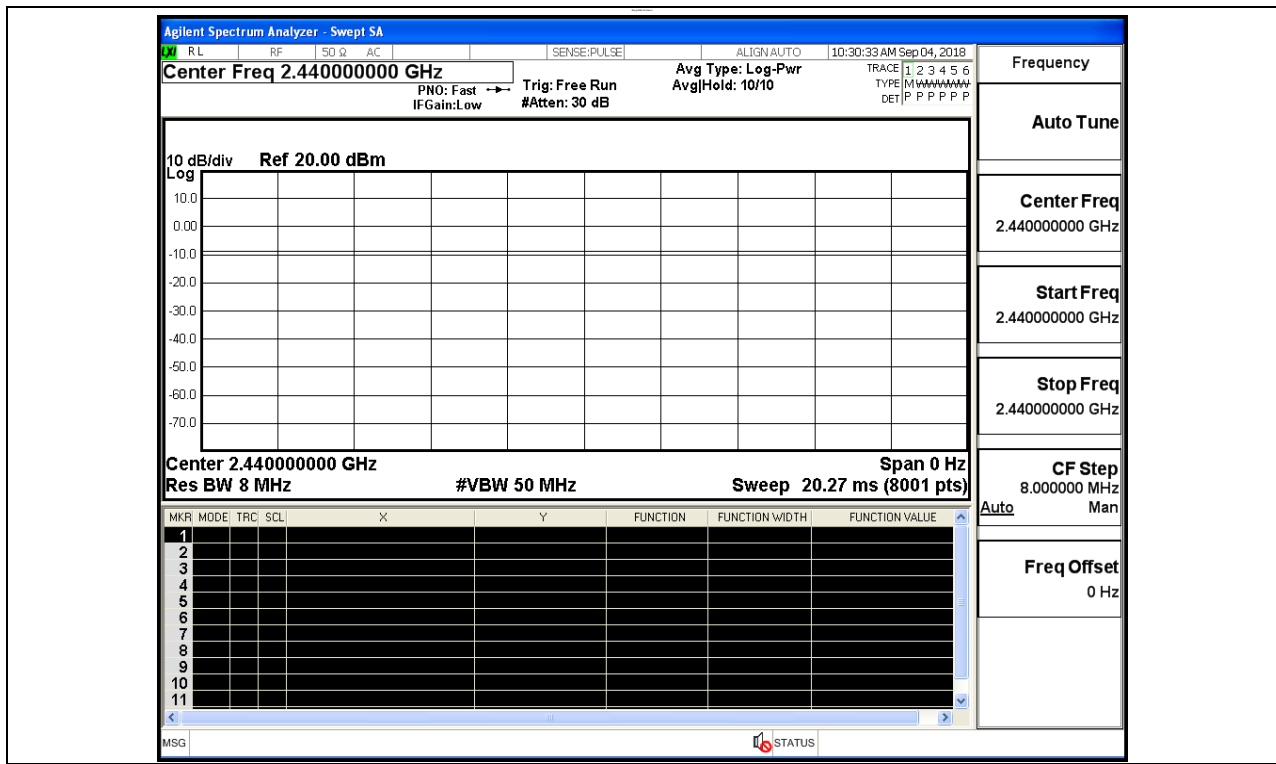
Test Model: AC6916A

Environmental Conditions

Temperature:	24.5 ° C
Relative Humidity:	54.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

B.1 Duty Cycle

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

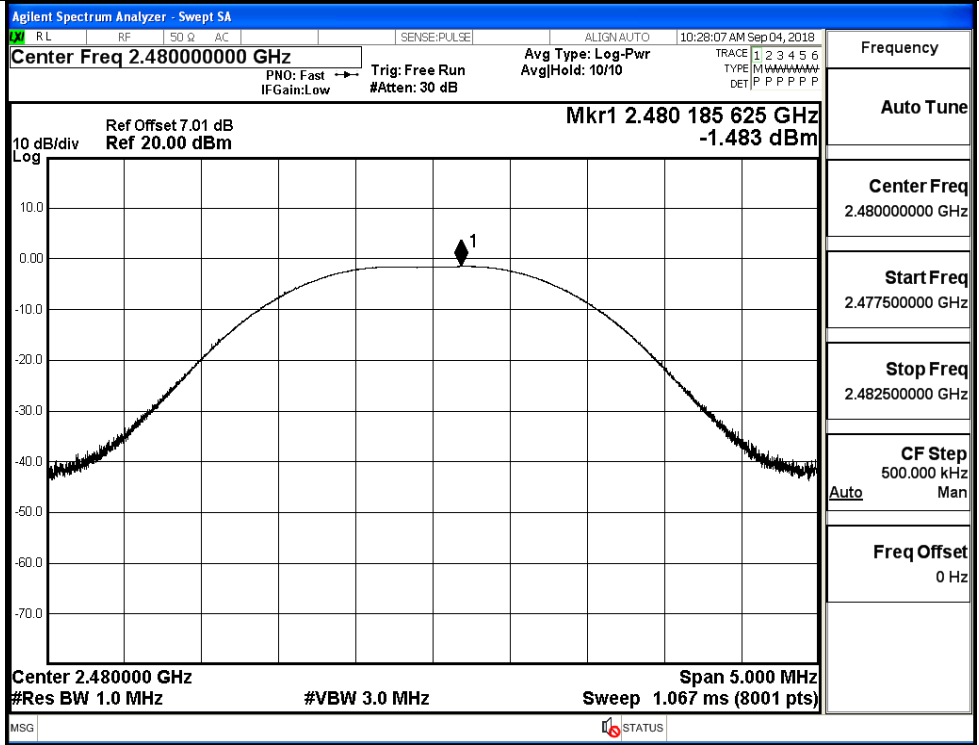


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.782	30	PASS
BT LE	MCH	-1.964	30	PASS
BT LE	HCH	-1.483	30	PASS

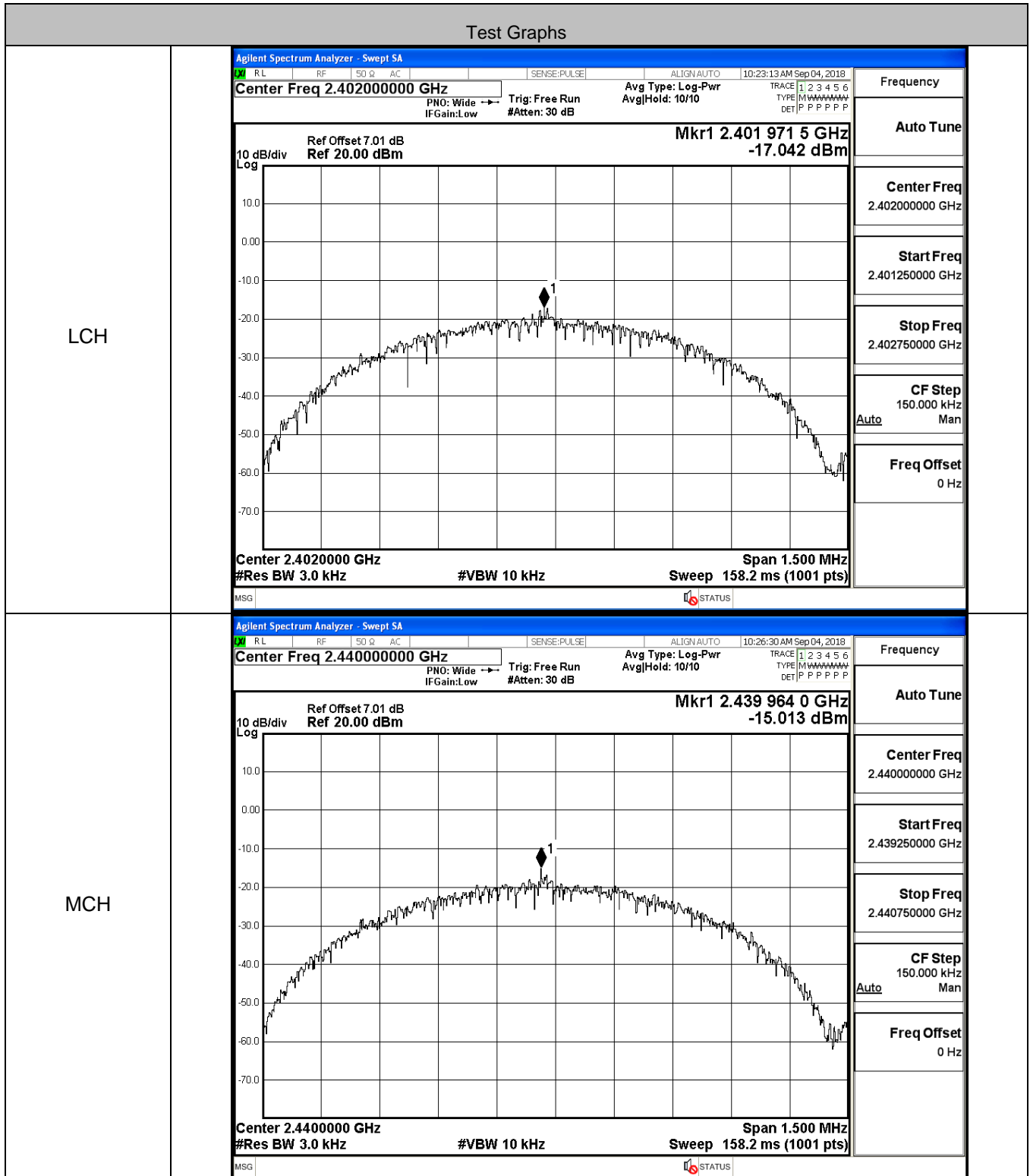
Test Graphs	
LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.40200000 GHz Mkr1 2.402 198 750 GHz -2.782 dBm Ref Offset 7.01 dB Ref 20.00 dBm 10 dB/div Log Center 2.402000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 5.000 MHz Sweep 1.067 ms (8001 pts)</p>
MCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.44000000 GHz Mkr1 2.440 185 625 GHz -1.964 dBm Ref Offset 7.01 dB Ref 20.00 dBm 10 dB/div Log Center 2.440000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Span 5.000 MHz Sweep 1.067 ms (8001 pts)</p>

HCH

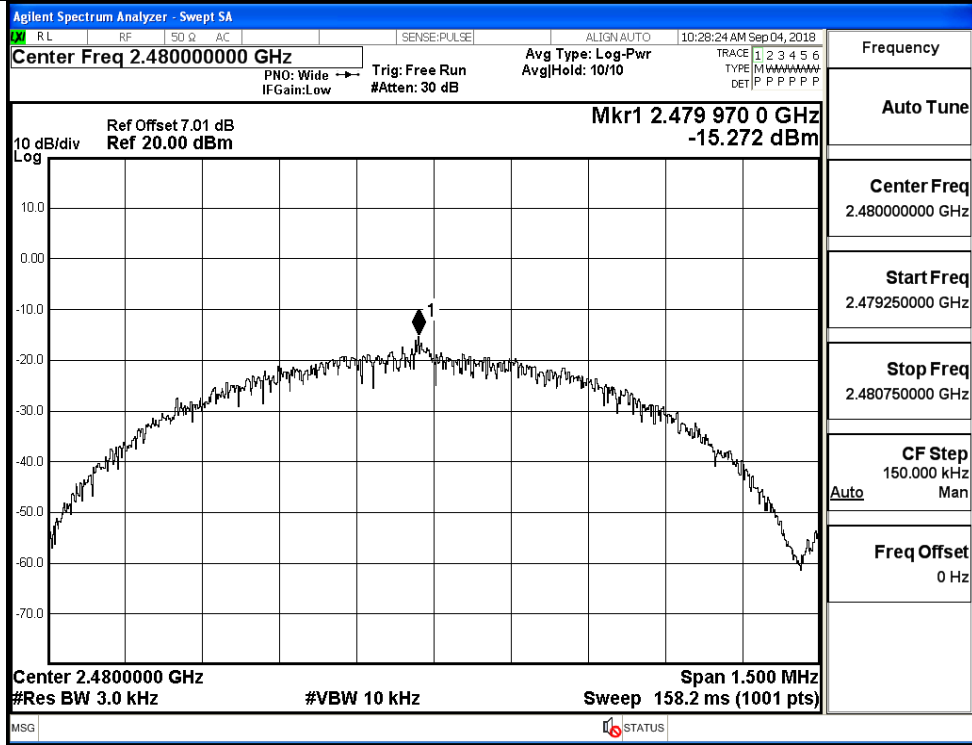


B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-17.042	8	PASS
BT LE	MCH	-15.013	8	PASS
BT LE	HCH	-15.272	8	PASS



HCH



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6680	≥0.5	PASS
BT LE	MCH	0.6723	≥0.5	PASS
BT LE	HCH	0.6660	≥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 10:22:41 AM Sep 04, 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> <p style="margin: 0;">Center 2.402 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="0" style="width: 100%; font-size: small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>3.72 dBm</td> </tr> <tr> <td style="text-align: center;">1.0432 MHz</td> <td></td> <td></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> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	3.72 dBm	1.0432 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
Occupied Bandwidth	Total Power	3.72 dBm											
1.0432 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											
MCH	<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 10:25:58 AM Sep 04, 2018</p> <p style="margin: 0;">Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None Trig: Free Run AvgHold: 1/1 #IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p style="margin: 0;">Center 2.44 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="0" style="width: 100%; font-size: small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>4.54 dBm</td> </tr> <tr> <td style="text-align: center;">1.0416 MHz</td> <td></td> <td></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> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	4.54 dBm	1.0416 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
Occupied Bandwidth	Total Power	4.54 dBm											
1.0416 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											

HCH

Agilent Spectrum Analyzer - Occupied BW

RL	RF	50 Ω	AC	SENSE:PULSE	ALIGN:AUTO	10:27:52 AM Sep 04, 2018
Center Freq 2.480000000 GHz			Center Freq: 2.480000000 GHz		Radio Std: None	
			Trig: Free Run		AvgHold>1/1	
#IFGain:Low			#Atten: 30 dB		Radio Device: BTS	

10 dB/div	Ref Offset 7.01 dB	Mkr1 2.4799719 GHz
Log	Ref 20.00 dBm	-1.6424 dBm

Center 2.48 GHz	#VBW 300 kHz	Span 3 MHz
#Res BW 100 kHz		Sweep 1.067 ms

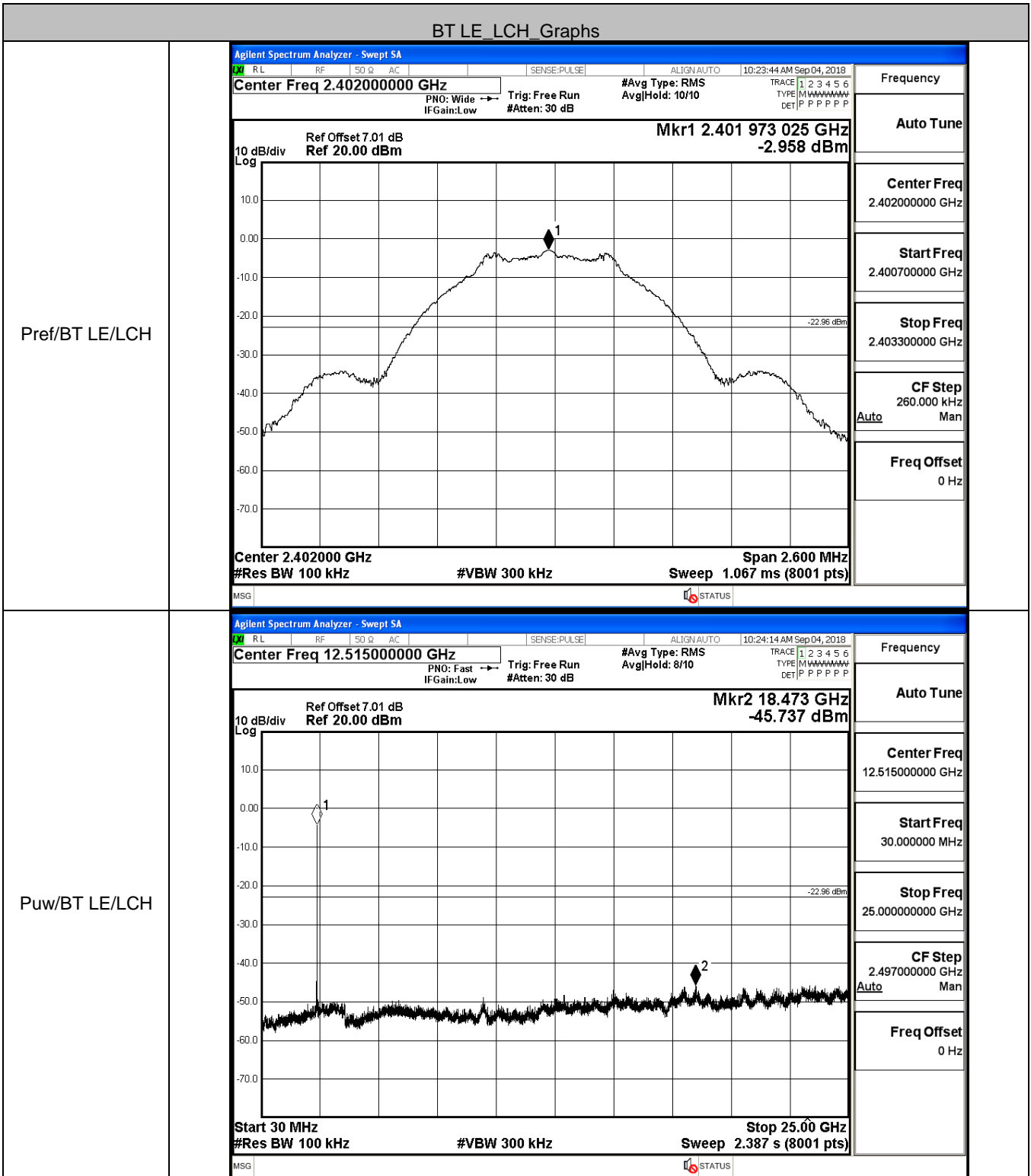
Occupied Bandwidth	Total Power	5.01 dBm
1.0434 MHz		
Transmit Freq Error	-27.026 kHz	OBW Power 99.00 %
x dB Bandwidth	666.0 kHz	x dB -6.00 dB

Frequency	Center Freq 2.480000000 GHz
CF Step	300.000 kHz Auto Man
Freq Offset	0 Hz

MSG
STATUS

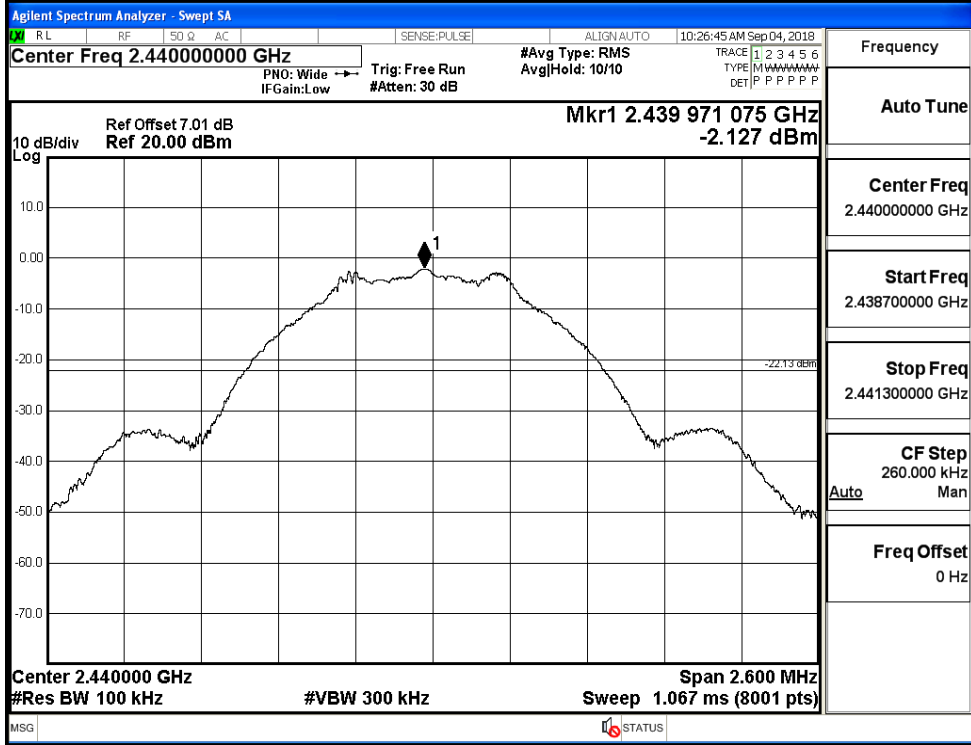
B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.958	-45.737	-22.958	PASS
BT LE	MCH	-2.127	-45.841	-22.127	PASS
BT LE	HCH	-1.677	-45.420	-21.677	PASS

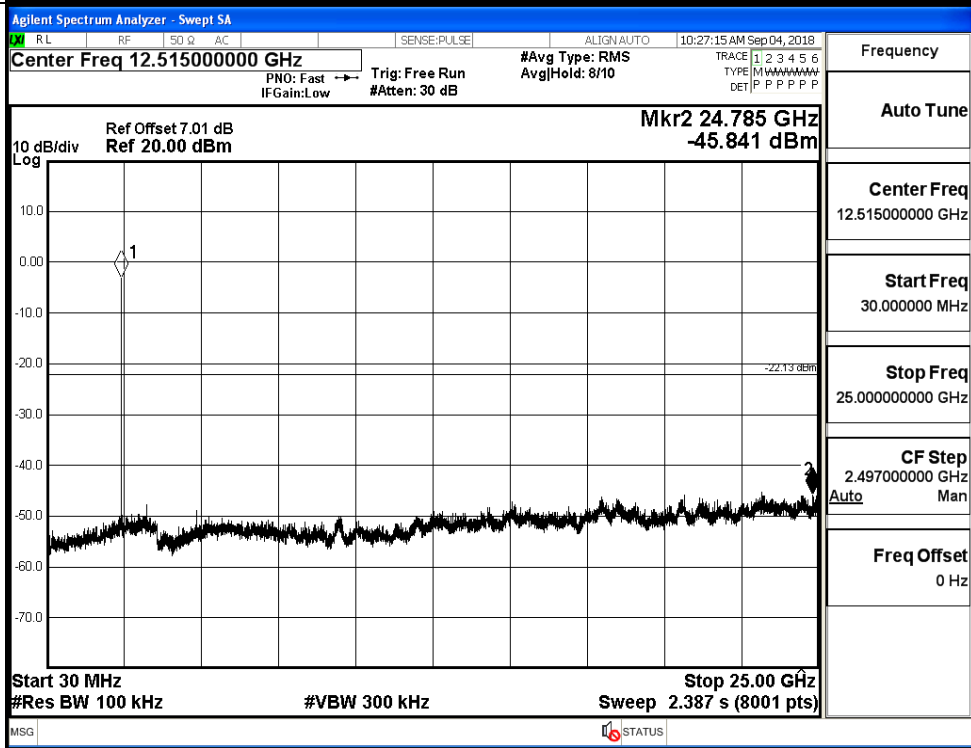


BT LE_MCH_Graphs

Pref/BT LE/MCH

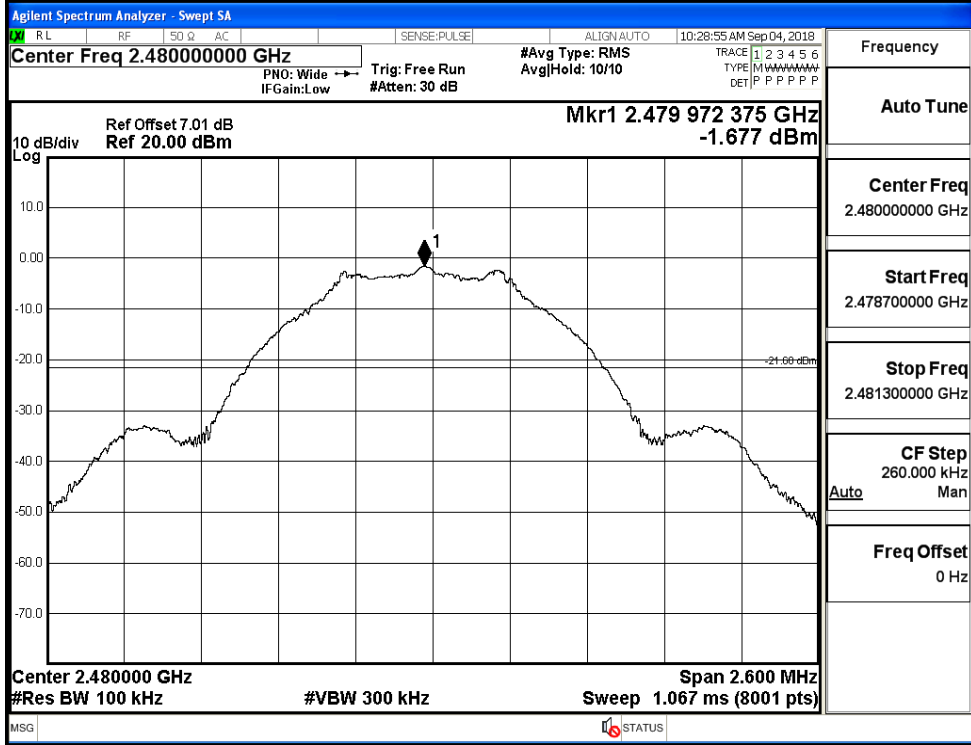


Puw/BT LE/MCH

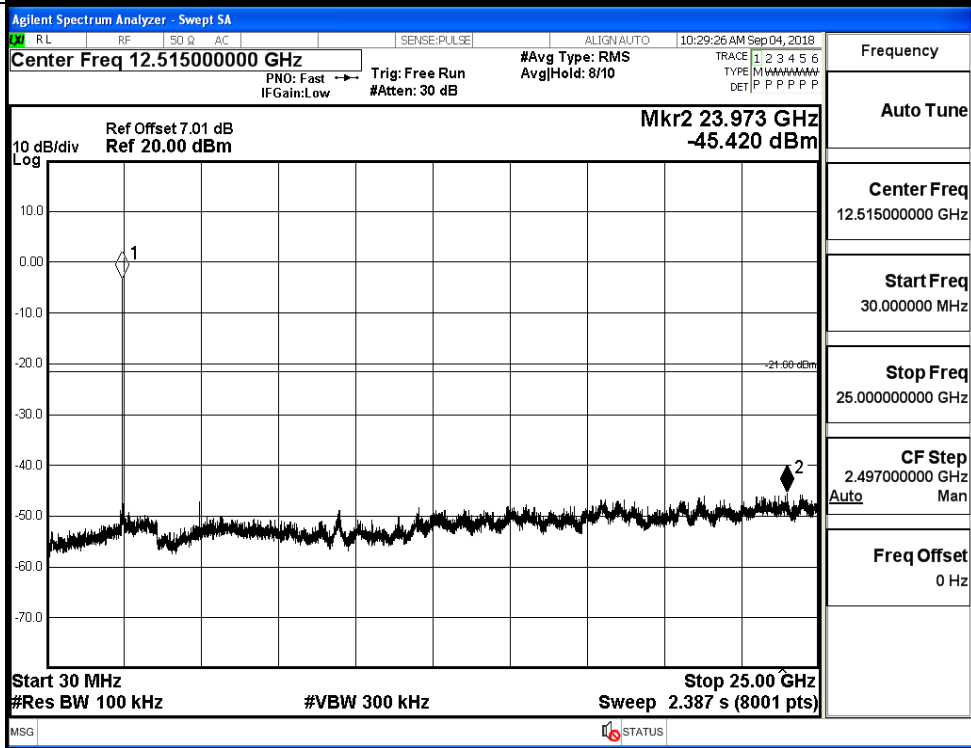


BT LE_HCH_Graphs

Pref/BT LE/HCH



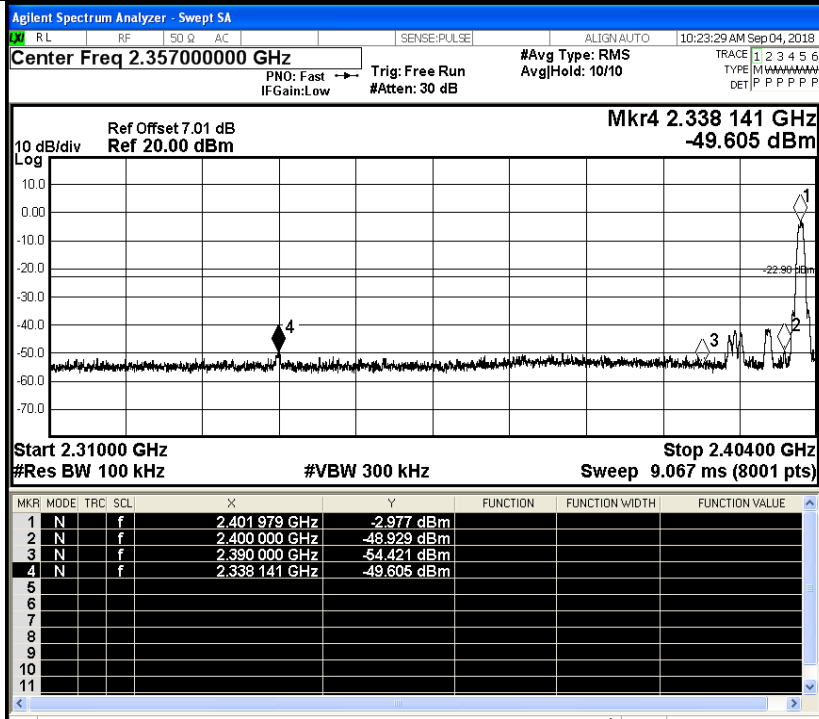
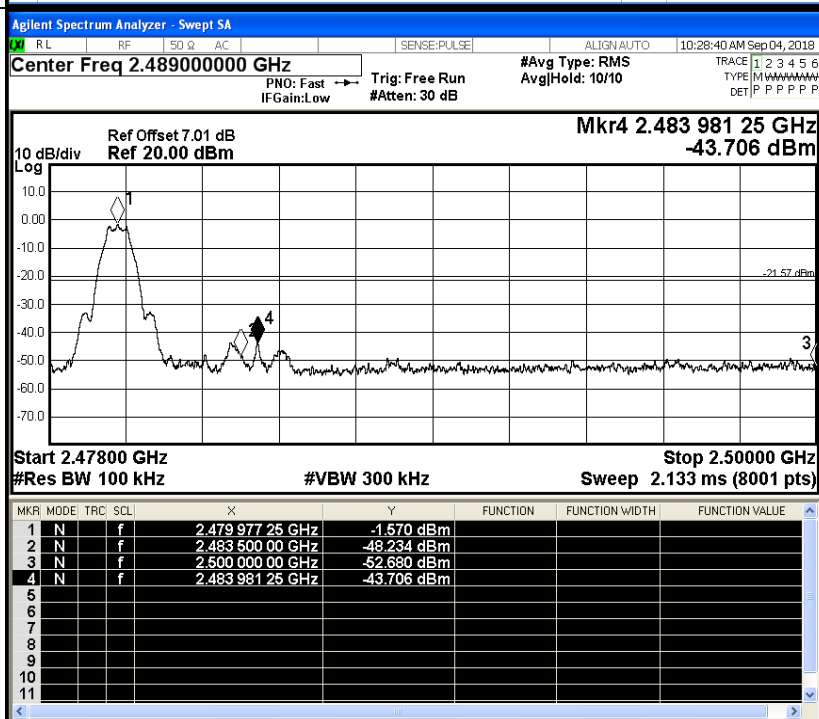
Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.977	-49.605	-22.98	PASS
BT LE	HCH	-1.570	-43.706	-21.57	PASS

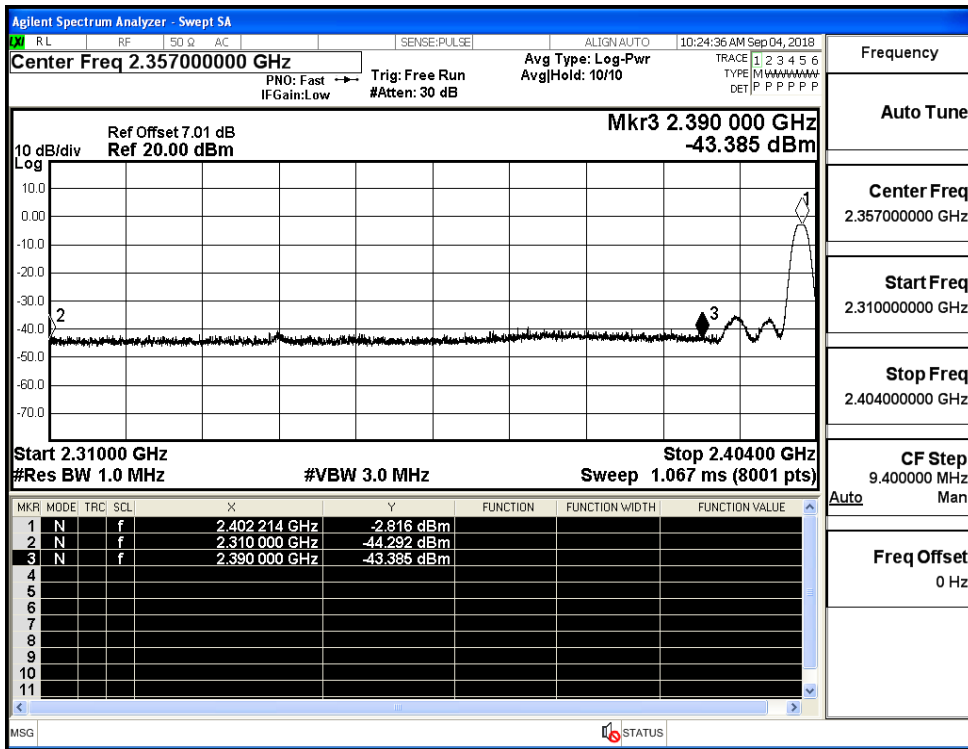
Test Graphs

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>

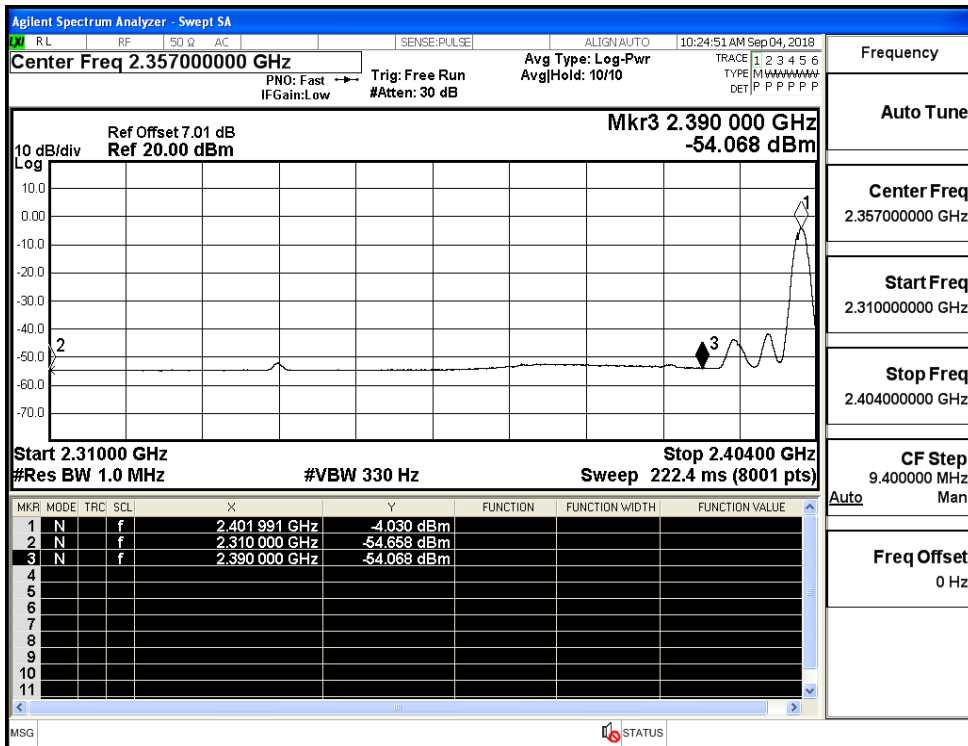
B.7 Restrict-band band-edge measurements

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	-44.29	2.0	0	52.97	PEAK	74	PASS
		Ant1	2310.0	-54.66	2.0	0	42.60	AV	54	PASS
		Ant1	2390.0	-43.39	2.0	0	53.87	PEAK	74	PASS
		Ant1	2390.0	-54.07	2.0	0	43.19	AV	54	PASS
	2480	Ant1	2483.5	-38.44	2.0	0	58.81	PEAK	74	PASS
		Ant1	2483.5	-48.43	2.0	0	48.82	AV	54	PASS
		Ant1	2500.0	-41.78	2.0	0	55.47	PEAK	74	PASS
		Ant1	2500.0	-51.98	2.0	0	45.28	AV	54	PASS

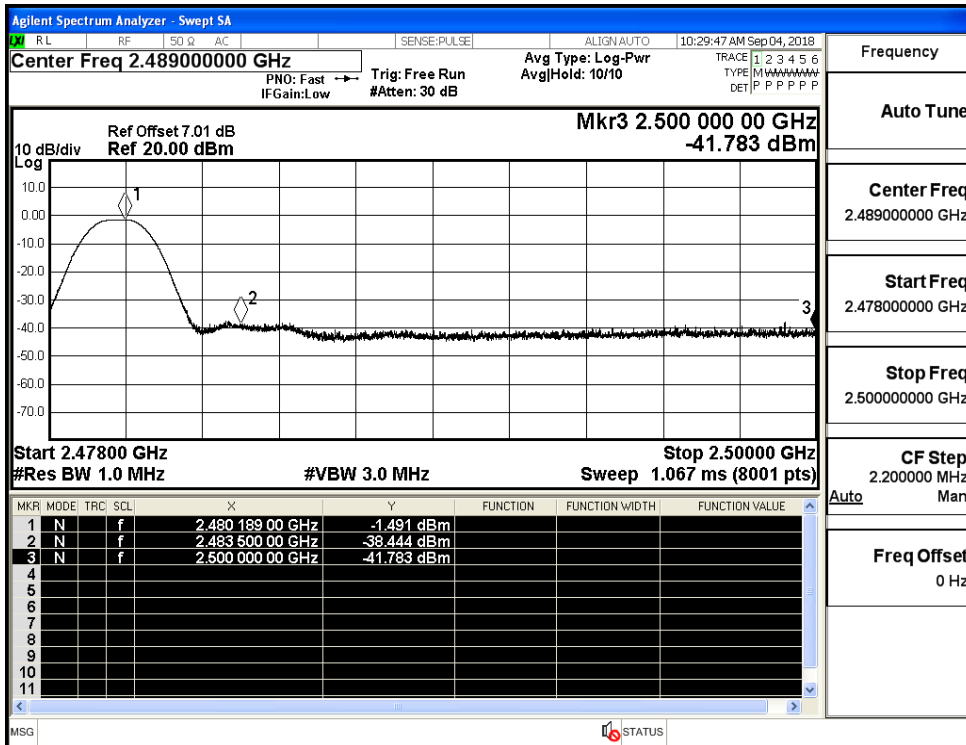
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

