

Appendix B

RF Test Data for BT V5.0(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: N/A

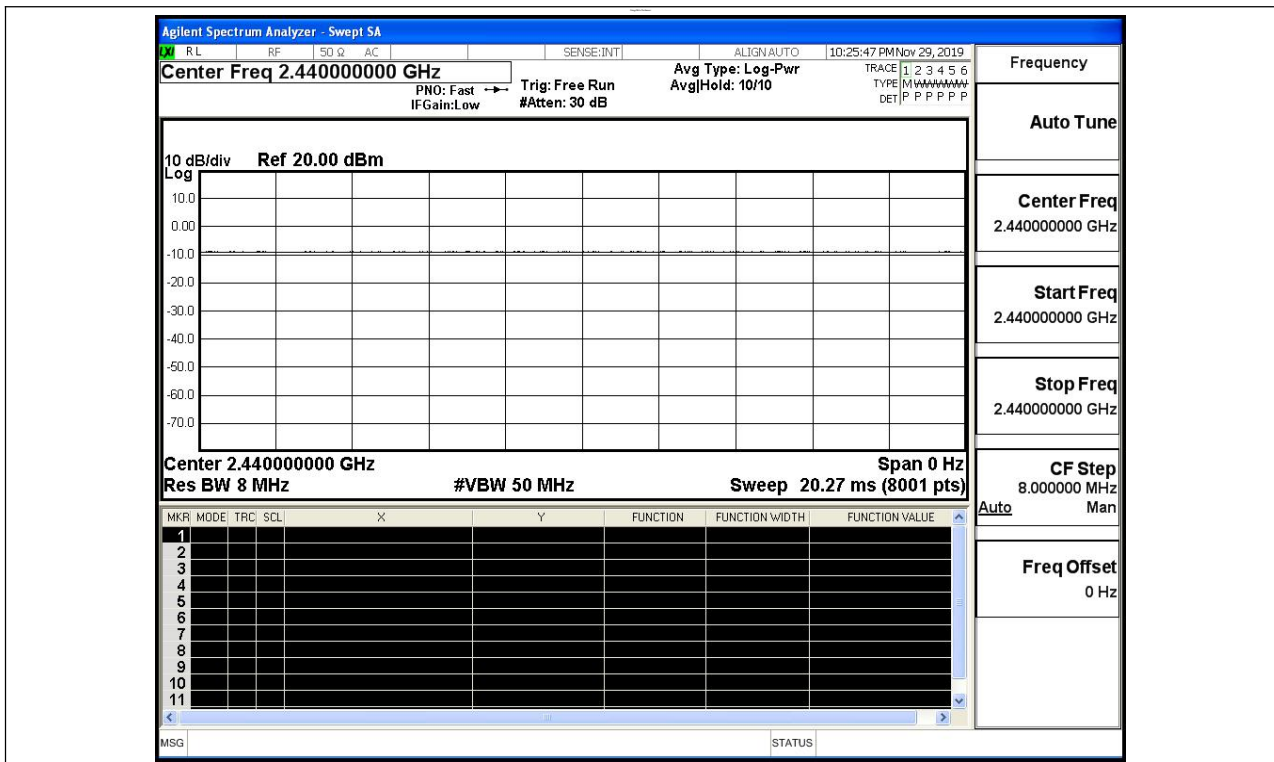
Test Model: ZQS-6201

Environmental Conditions

Temperature:	22.6 ° C
Relative Humidity:	53.2%
ATM Pressure:	100.0 kPa
Test Engineer:	Scout Wu
Supervised by:	Tom.Liu

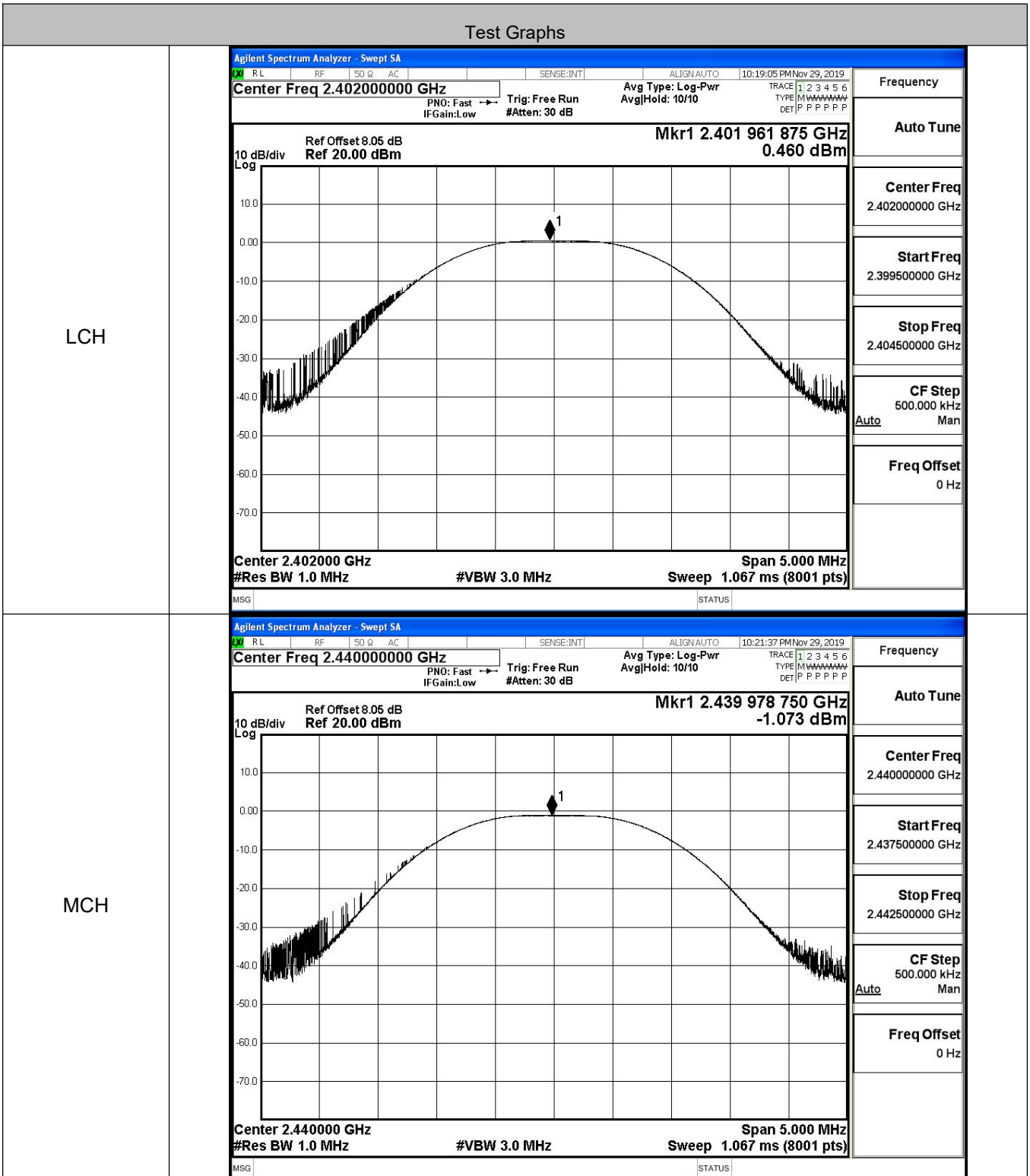
B.1 Duty Cycle

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

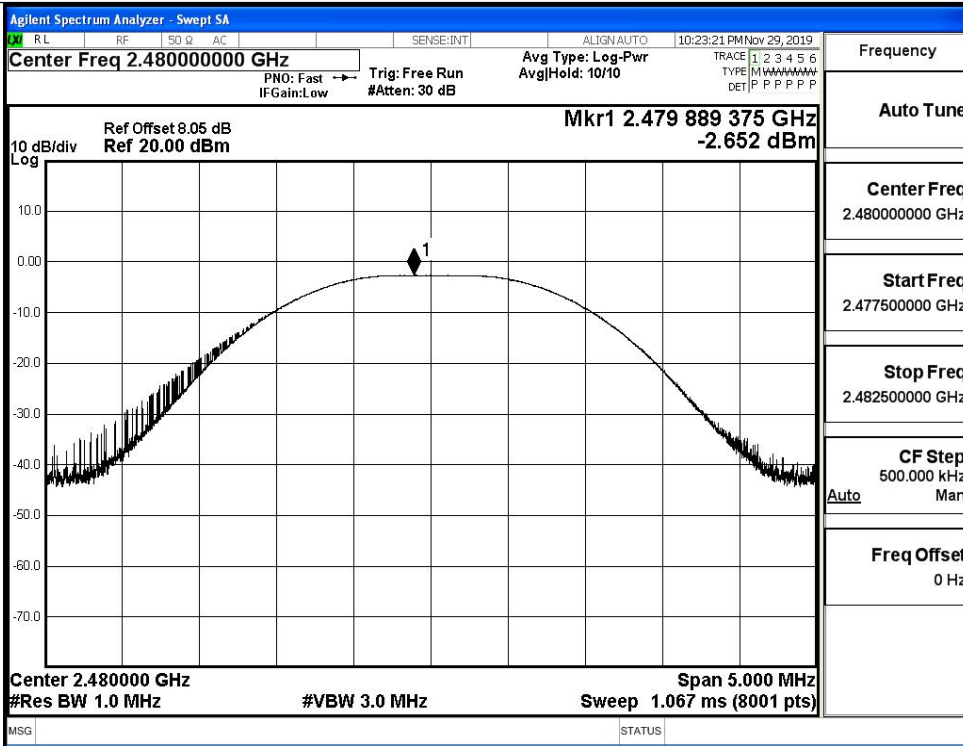


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.46	30	PASS
BT LE	MCH	-1.073	30	PASS
BT LE	HCH	-2.652	30	PASS



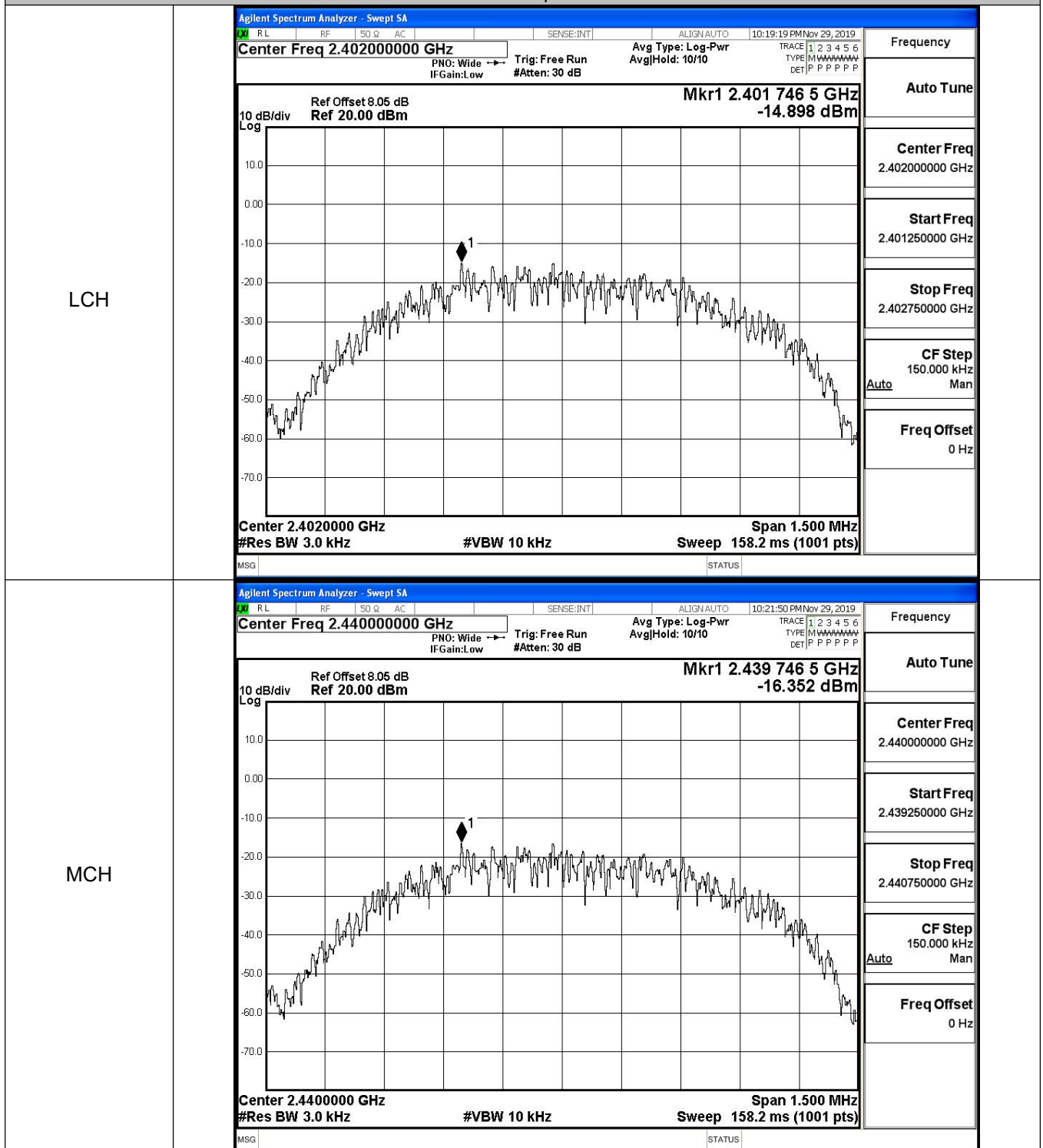
HCH



B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.898	8	PASS
BT LE	MCH	-16.352	8	PASS
BT LE	HCH	-18.039	8	PASS

Test Graphs

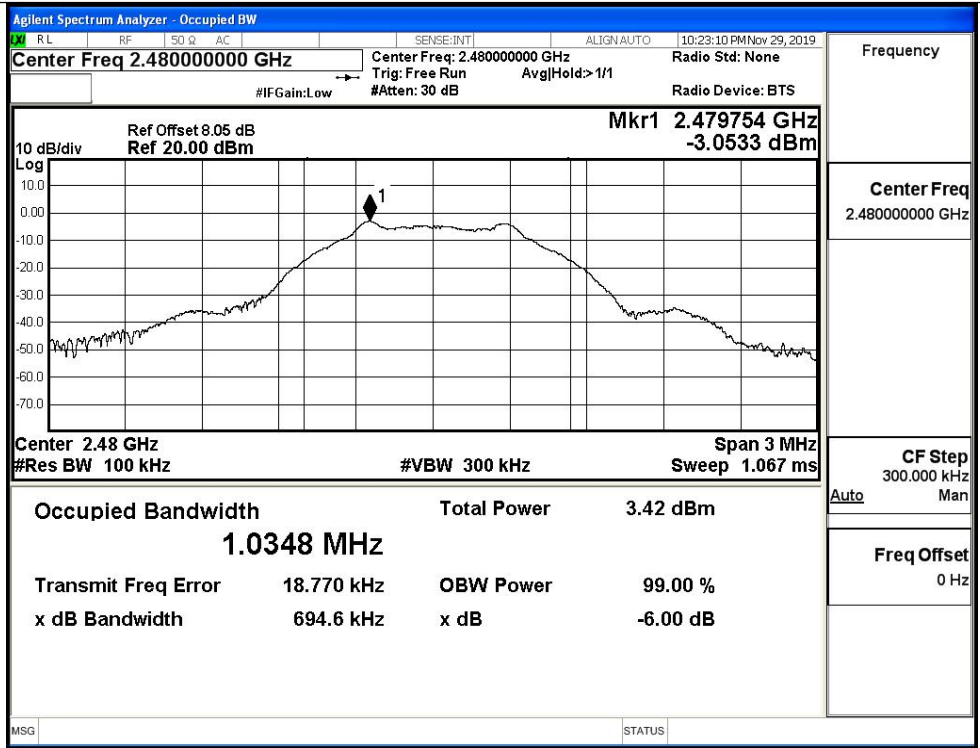


B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6865	≥0.5	PASS
BT LE	MCH	0.6935	≥0.5	PASS
BT LE	HCH	0.6946	≥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 10:18:53 PM Nov 29, 2019</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="font-size: x-small;">10 dB/div Log</div> <div style="text-align: right;">Mkr1 2.4017529 GHz 0.043328 dBm</div> </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <div>Center 2.402 GHz #Res BW 100 kHz</div> <div>#VBW 300 kHz</div> <div>Span 3 MHz Sweep 1.067 ms</div> </div> <table style="width: 100%; font-size: x-small; margin-top: 5px;"> <tr> <td style="width: 33%;">Occupied Bandwidth</td> <td style="width: 33%;">Total Power</td> <td style="width: 33%;">6.50 dBm</td> </tr> <tr> <td style="text-align: center;">1.0324 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>18.981 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>686.5 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-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	6.50 dBm	1.0324 MHz			Transmit Freq Error	18.981 kHz	OBW Power	x dB Bandwidth	686.5 kHz	x dB			99.00 %			-6.00 dB
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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:INT ALIGN:AUTO 10:21:26 PM Nov 29, 2019</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> <div style="display: flex; justify-content: space-between;"> <div style="font-size: x-small;">10 dB/div Log</div> <div style="text-align: right;">Mkr1 2.4397578 GHz -1.5593 dBm</div> </div> <div style="display: flex; justify-content: space-between; font-size: x-small;"> <div>Center 2.44 GHz #Res BW 100 kHz</div> <div>#VBW 300 kHz</div> <div>Span 3 MHz Sweep 1.067 ms</div> </div> <table style="width: 100%; font-size: x-small; margin-top: 5px;"> <tr> <td style="width: 33%;">Occupied Bandwidth</td> <td style="width: 33%;">Total Power</td> <td style="width: 33%;">4.99 dBm</td> </tr> <tr> <td style="text-align: center;">1.0343 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>18.448 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>693.5 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-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	4.99 dBm	1.0343 MHz			Transmit Freq Error	18.448 kHz	OBW Power	x dB Bandwidth	693.5 kHz	x dB			99.00 %			-6.00 dB
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x dB Bandwidth	693.5 kHz	x dB																	
		99.00 %																	
		-6.00 dB																	

HCH

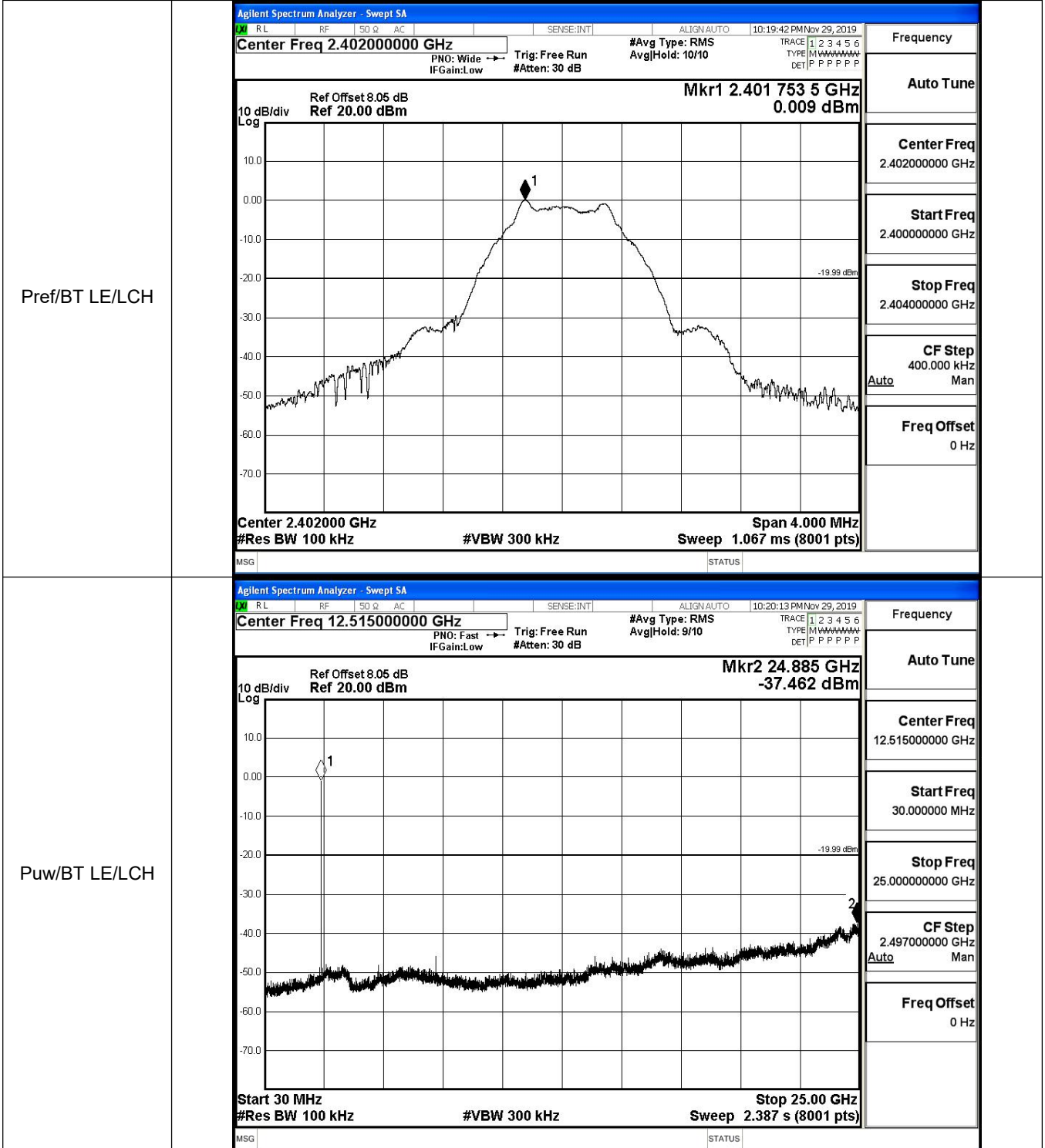


Frequency	2.48000000 GHz
Center Freq	2.48000000 GHz
CF Step	300.000 kHz
	Auto Man
Freq Offset	0 Hz

B.5 RF Conducted Spurious Emissions

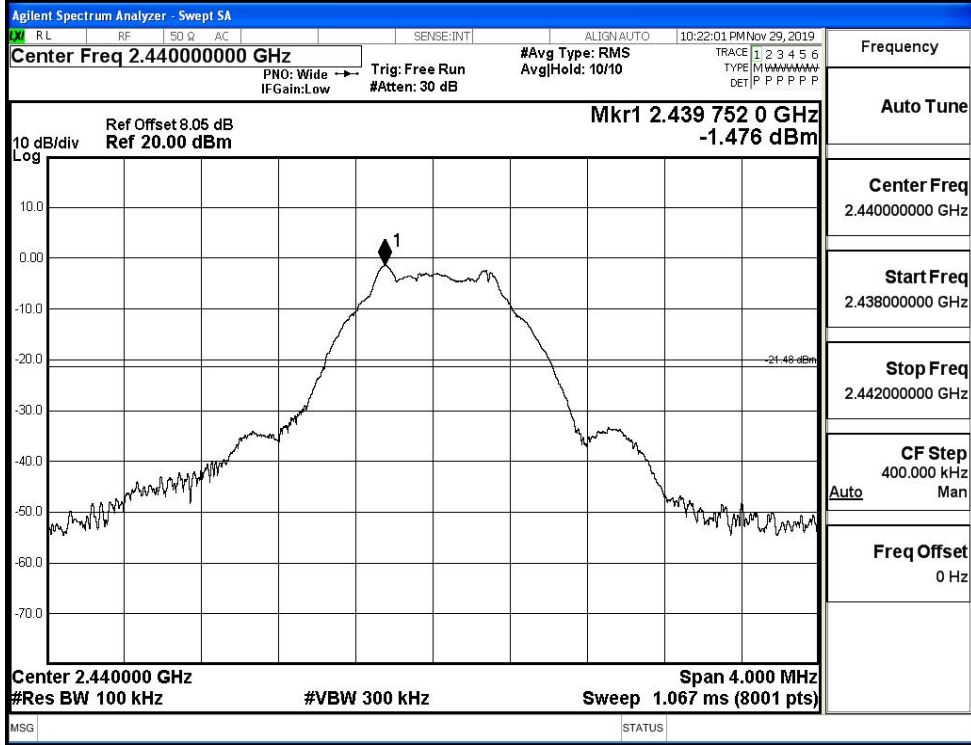
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.009	-37.462	-19.991	PASS
BT LE	MCH	-1.476	-37.242	-21.476	PASS
BT LE	HCH	-3.036	-36.162	-23.036	PASS

BT LE_LCH_Graphs

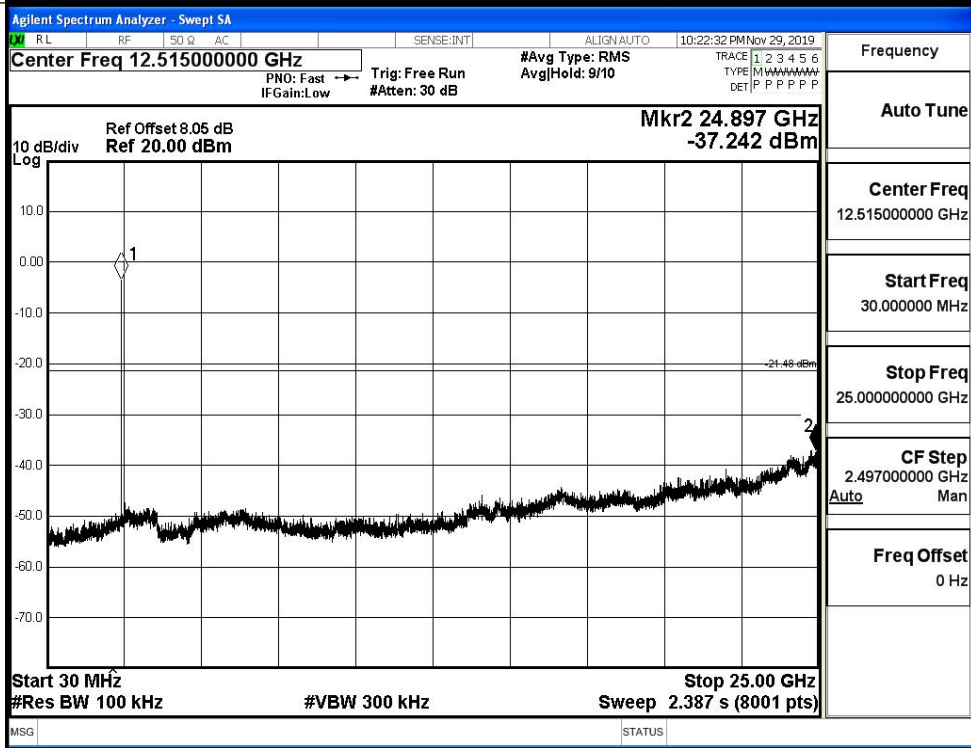


BT LE MCH Graphs

Pref/BT LE/MCH

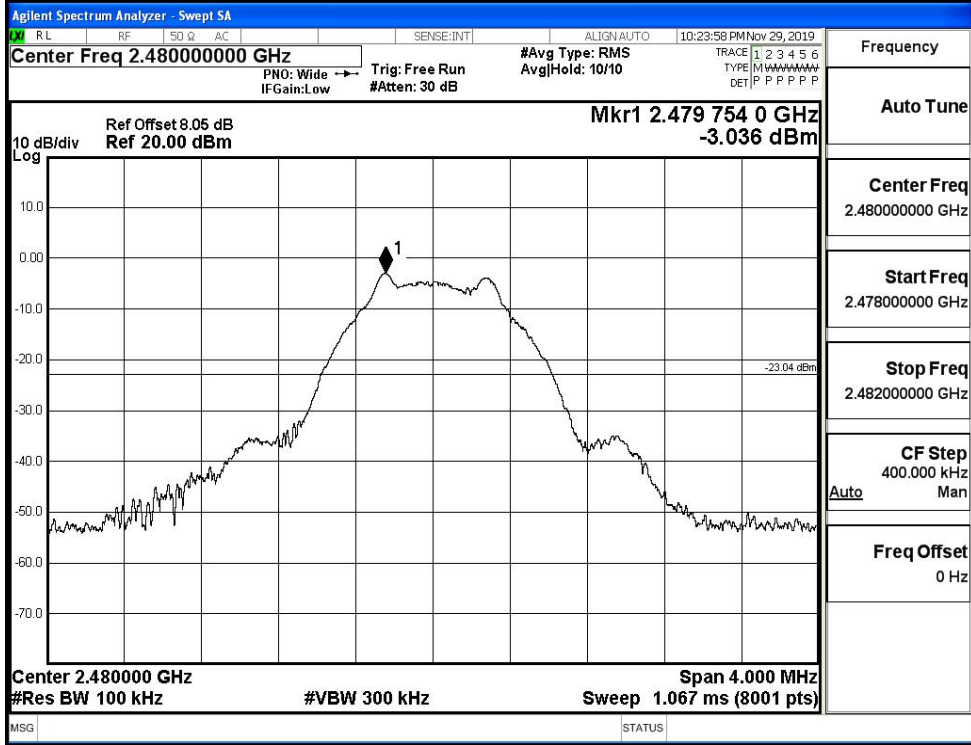


Puw/BT LE/MCH

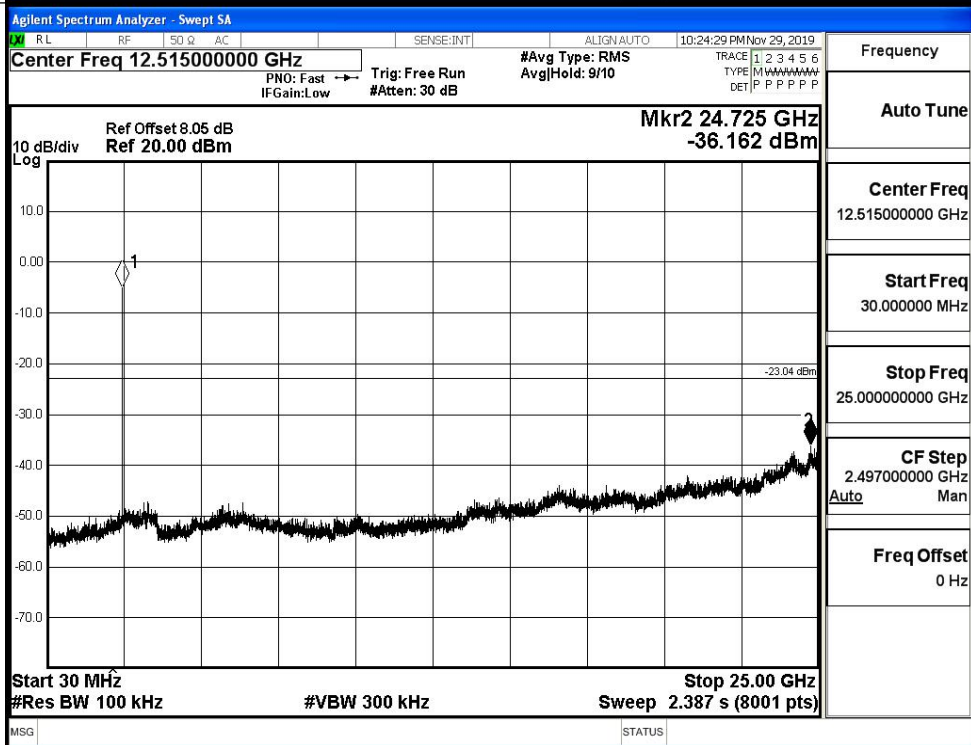


BT LE HCH Graphs

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	0.035	-49.658	-19.97	PASS
BT LE	HCH	-3.079	-49.702	-23.08	PASS

Test Graphs

LCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.35700000 GHz
 Mkr4 2.352 147 GHz -49.658 dBm
 Start 2.31000 GHz Stop 2.40400 GHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 9.067 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.401 756 GHz	0.035 dBm			
2	N	f		2.400 000 GHz	-53.301 dBm			
3	N	f		2.390 000 GHz	-52.435 dBm			
4	N	f		2.352 147 GHz	-49.658 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

HCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.48900000 GHz
 Mkr4 2.496 730 25 GHz -49.702 dBm
 Start 2.47800 GHz Stop 2.50000 GHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 2.133 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.479 767 25 GHz	-3.079 dBm			
2	N	f		2.483 500 00 GHz	-52.518 dBm			
3	N	f		2.500 000 00 GHz	-52.626 dBm			
4	N	f		2.496 730 25 GHz	-49.702 dBm			

Frequency

Auto Tune

Center Freq
2.48900000 GHz

Start Freq
2.47800000 GHz

Stop Freq
2.50000000 GHz

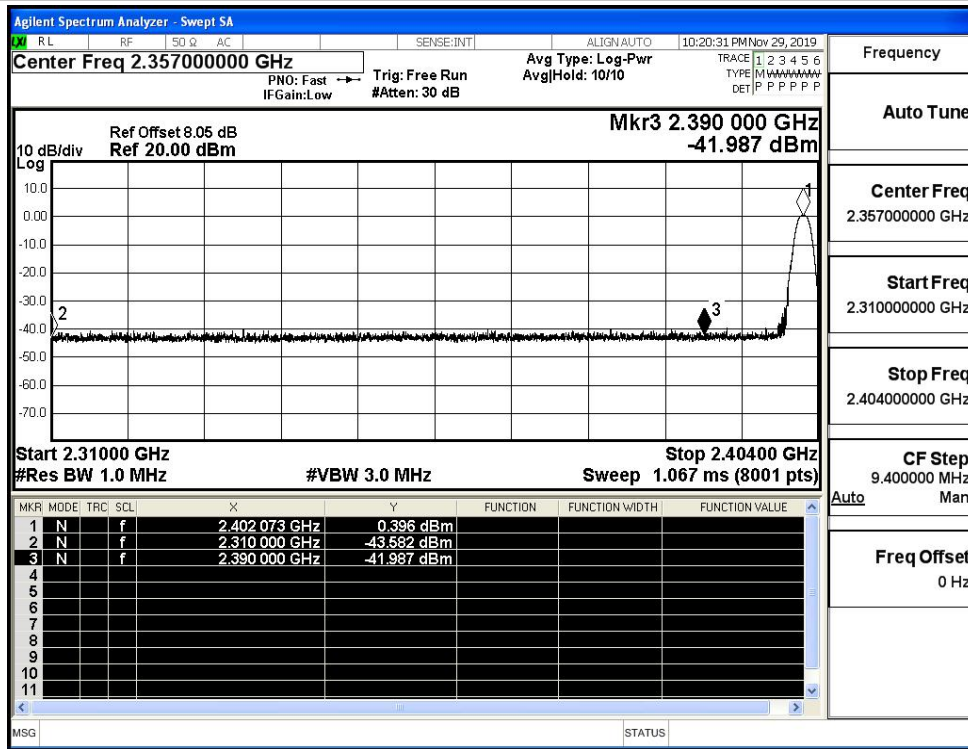
CF Step
2.200000 MHz

Freq Offset
0 Hz

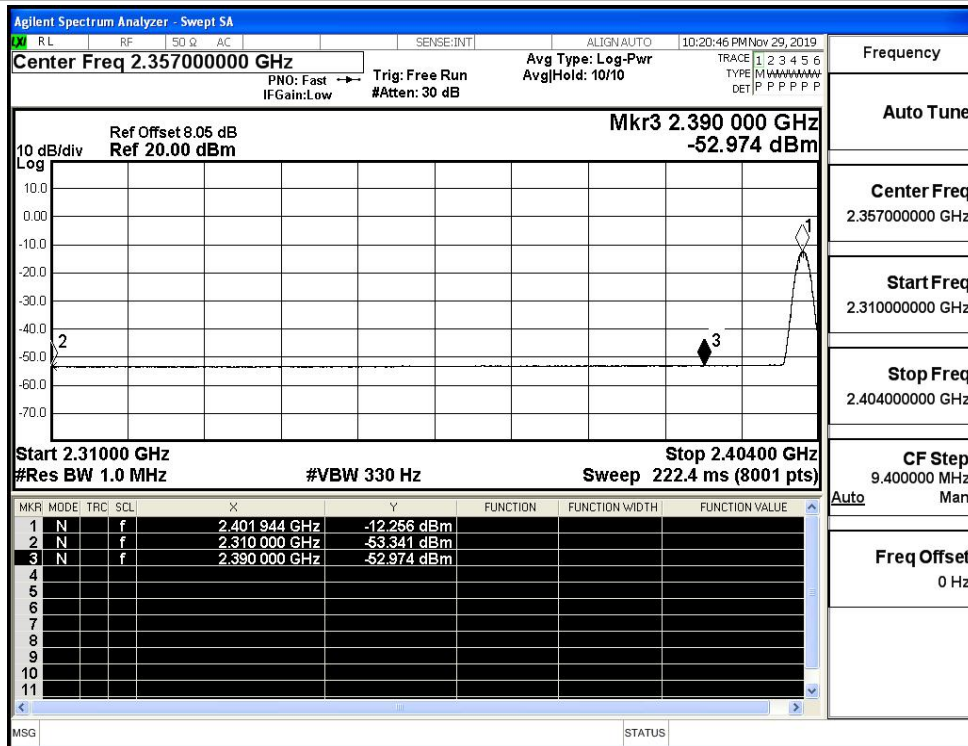
B.7 Restrict-band band-edge measurements

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	-43.58	2.0	0	51.68	PEAK	74	PASS
		Ant1	2310.0	-53.34	2.0	0	41.92	AV	54	PASS
		Ant1	2390.0	-41.99	2.0	0	53.27	PEAK	74	PASS
		Ant1	2390.0	-52.97	2.0	0	42.28	AV	54	PASS
	2480	Ant1	2483.5	-42.44	2.0	0	52.82	PEAK	74	PASS
		Ant1	2483.5	-52.62	2.0	0	42.63	AV	54	PASS
		Ant1	2500.0	-42.76	2.0	0	52.50	PEAK	74	PASS
		Ant1	2500.0	-52.20	2.0	0	43.06	AV	54	PASS

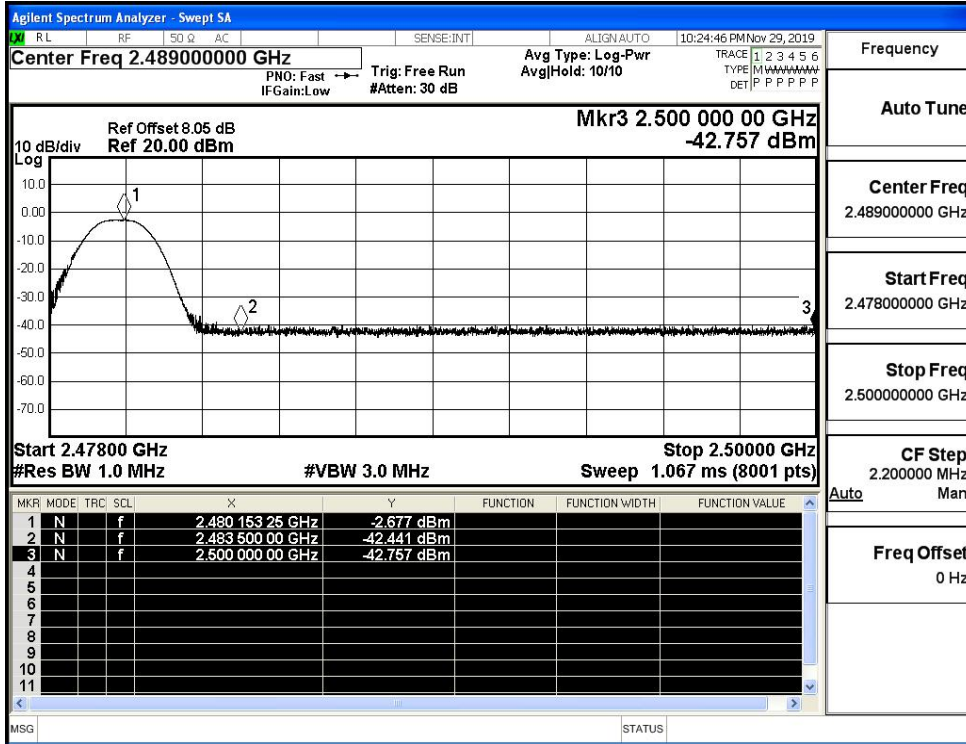
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

