

Appendix B

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

Product Name: PORTABLE PARTY SPEAKER

Trade Mark: DS18

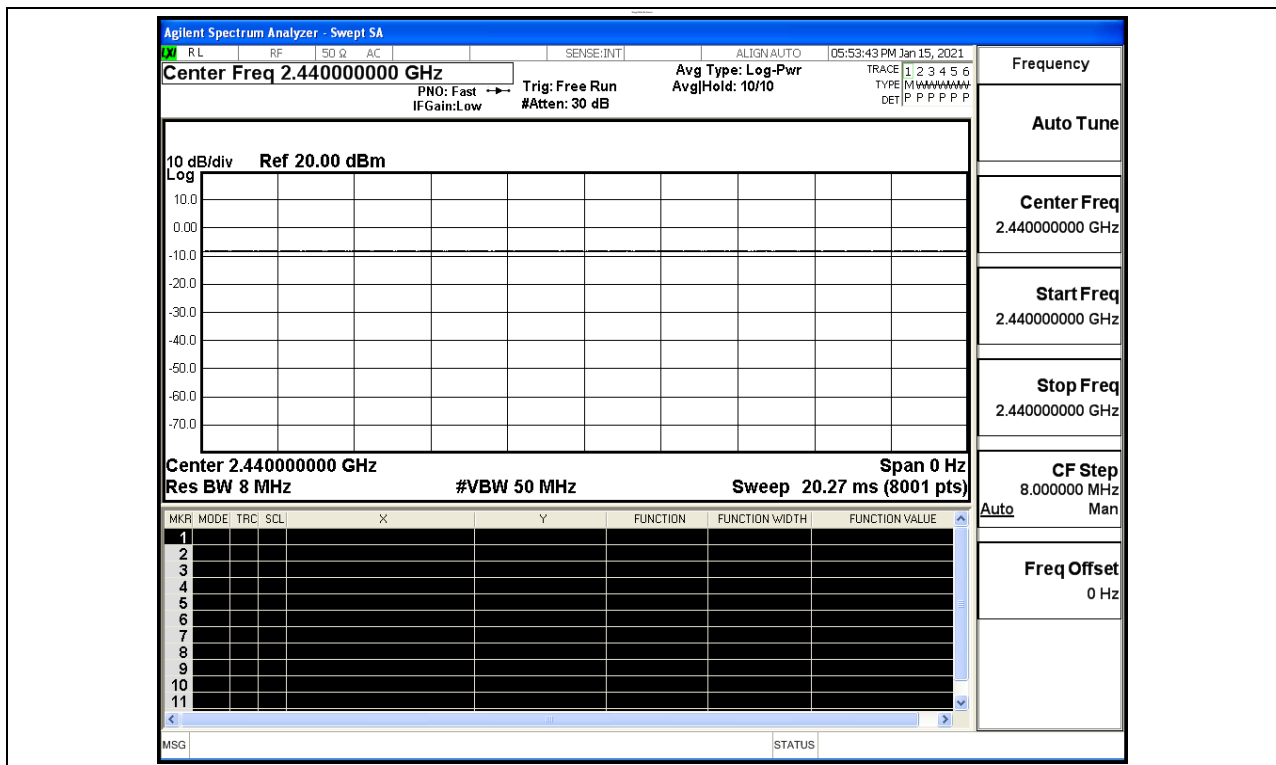
Test Model: TLV6

Environmental Conditions

Temperature:	22.3° C
Relative Humidity:	53.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

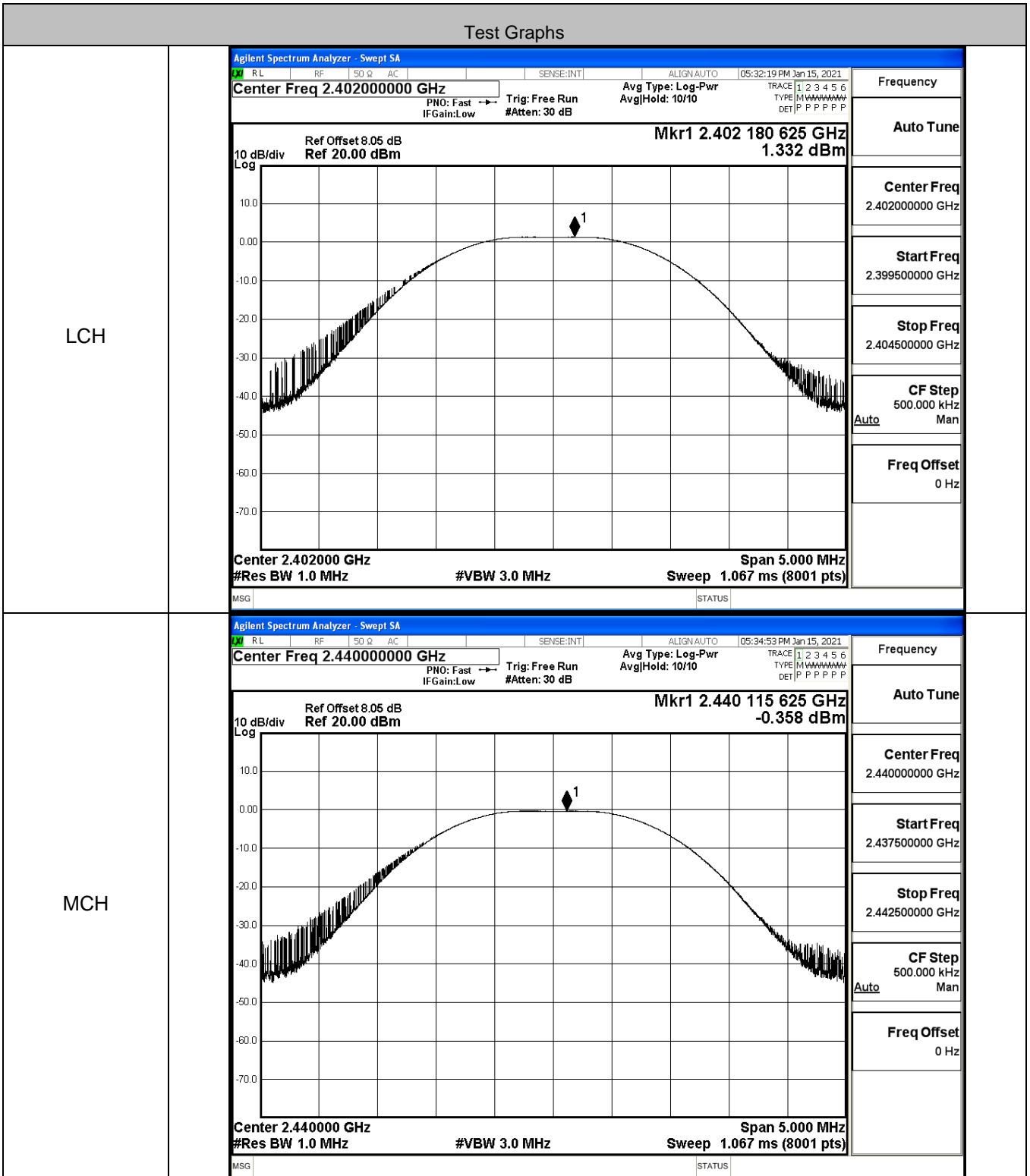
B.1 Duty Cycle

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

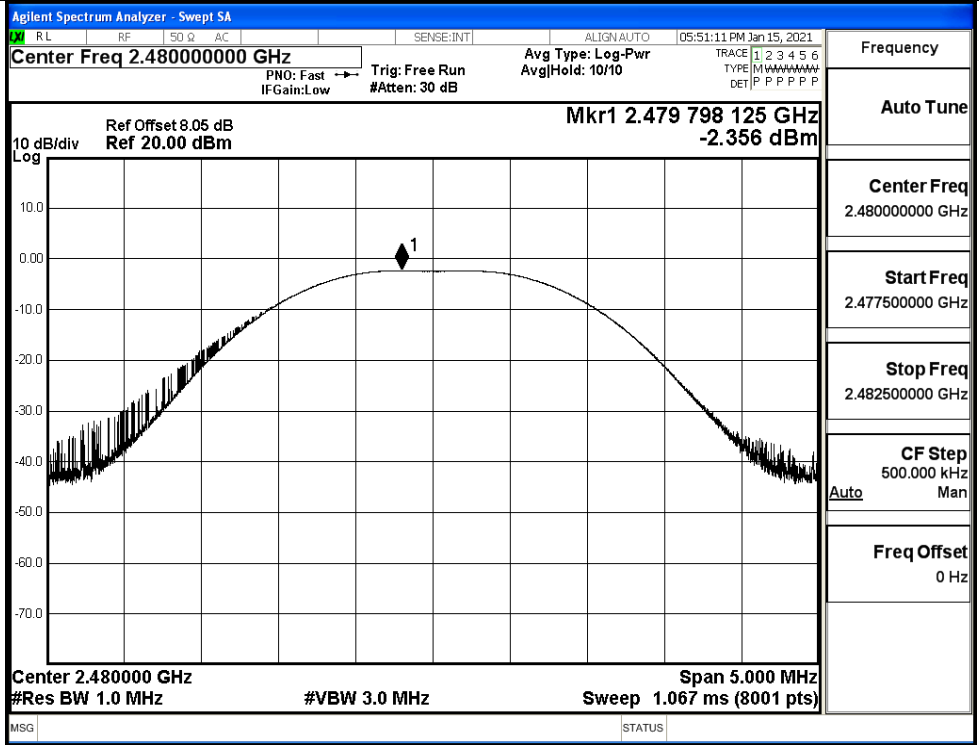


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.332	30	PASS
BT LE	MCH	-0.358	30	PASS
BT LE	HCH	-2.356	30	PASS



HCH



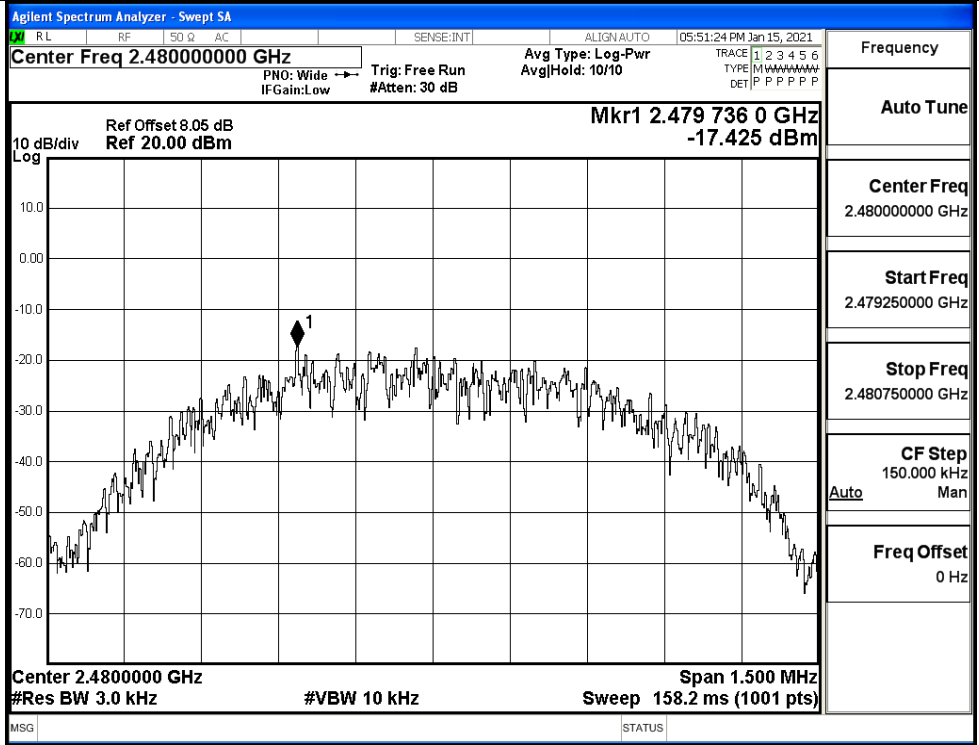
B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-13.745	8	PASS
BT LE	MCH	-15.378	8	PASS
BT LE	HCH	-17.425	8	PASS

Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.40200000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.401 736 0 GHz -13.745 dBm Center 2.4020000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.40200000 GHz Start Freq 2.401250000 GHz Stop Freq 2.402750000 GHz CF Step 150.000 kHz Auto Freq Offset 0 Hz
	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.44000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.439 736 0 GHz -15.378 dBm Center 2.4400000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts)</p>	Frequency Auto Tune Center Freq 2.440000000 GHz Start Freq 2.439250000 GHz Stop Freq 2.440750000 GHz CF Step 150.000 kHz Auto Freq Offset 0 Hz

HCH



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6958	≥0.5	PASS
BT LE	MCH	0.6843	≥0.5	PASS
BT LE	HCH	0.6862	≥0.5	PASS

Test Graphs

LCH	<p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 05:32:06 PM Jan 15, 2021</p> <p style="font-size: small; 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</p> <p style="font-size: x-small; margin: 0;">#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 8.05 dB Mkr1 2.401745 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm 1.1792 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%;">7.67 dBm</td> </tr> <tr> <td style="text-align: center;">1.0352 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>8.038 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>695.8 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>	Occupied Bandwidth	Total Power	7.67 dBm	1.0352 MHz			Transmit Freq Error	8.038 kHz	OBW Power	x dB Bandwidth	695.8 kHz	x dB			99.00 %			-6.00 dB	<p style="font-size: x-small; margin: 0;">Frequency</p> <hr/> <p style="font-size: x-small; margin: 0;">Center Freq 2.402000000 GHz</p> <hr/> <p style="font-size: x-small; margin: 0;">CF Step 300.000 kHz Auto Man</p> <hr/> <p style="font-size: x-small; margin: 0;">Freq Offset 0 Hz</p>
	Occupied Bandwidth	Total Power	7.67 dBm																	
	1.0352 MHz																			
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x dB Bandwidth	695.8 kHz	x dB																		
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		-6.00 dB																		

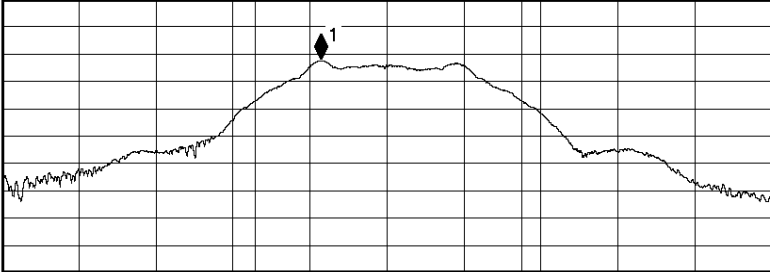
MCH	<p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 05:34:42 PM Jan 15, 2021</p> <p style="font-size: small; margin: 0;">Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold>1/1</p> <p style="font-size: x-small; margin: 0;">#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 8.05 dB Mkr1 2.4397401 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm -0.50607 dBm</p>  </div> <p style="font-size: x-small; margin: 0;">Center 2.44 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%;">5.96 dBm</td> </tr> <tr> <td style="text-align: center;">1.0349 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>8.716 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>684.3 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>	Occupied Bandwidth	Total Power	5.96 dBm	1.0349 MHz			Transmit Freq Error	8.716 kHz	OBW Power	x dB Bandwidth	684.3 kHz	x dB			99.00 %			-6.00 dB	<p style="font-size: x-small; margin: 0;">Frequency</p> <hr/> <p style="font-size: x-small; margin: 0;">Center Freq 2.440000000 GHz</p> <hr/> <p style="font-size: x-small; margin: 0;">CF Step 300.000 kHz Auto Man</p> <hr/> <p style="font-size: x-small; margin: 0;">Freq Offset 0 Hz</p>
	Occupied Bandwidth	Total Power	5.96 dBm																	
	1.0349 MHz																			
	Transmit Freq Error	8.716 kHz	OBW Power																	
x dB Bandwidth	684.3 kHz	x dB																		
		99.00 %																		
		-6.00 dB																		

HCH

Agilent Spectrum Analyzer - Occupied BW

RL	RF	50 Ω	AC	SENSE:INT	ALIGN:AUTO	05:51:00 PM Jan 15, 2021
Center Freq 2.480000000 GHz			Center Freq: 2.480000000 GHz		Radio Std: None	
			Trig: Free Run		AvgJHold: 1/1	
			#IFGain:Low		#Atten: 30 dB	
			Radio Device: BTS			

10 dB/div	Ref Offset 8.05 dB	Mkr1 2.4797439 GHz
Log	Ref 20.00 dBm	-2.4953 dBm



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

Occupied Bandwidth	Total Power	3.98 dBm
1.0336 MHz		
Transmit Freq Error	7.796 kHz	OBW Power
x dB Bandwidth	686.2 kHz	x dB
		99.00 %
		-6.00 dB

Frequency

Center Freq

2.480000000 GHz

CF Step

300.000 kHz

Auto Man

Freq Offset

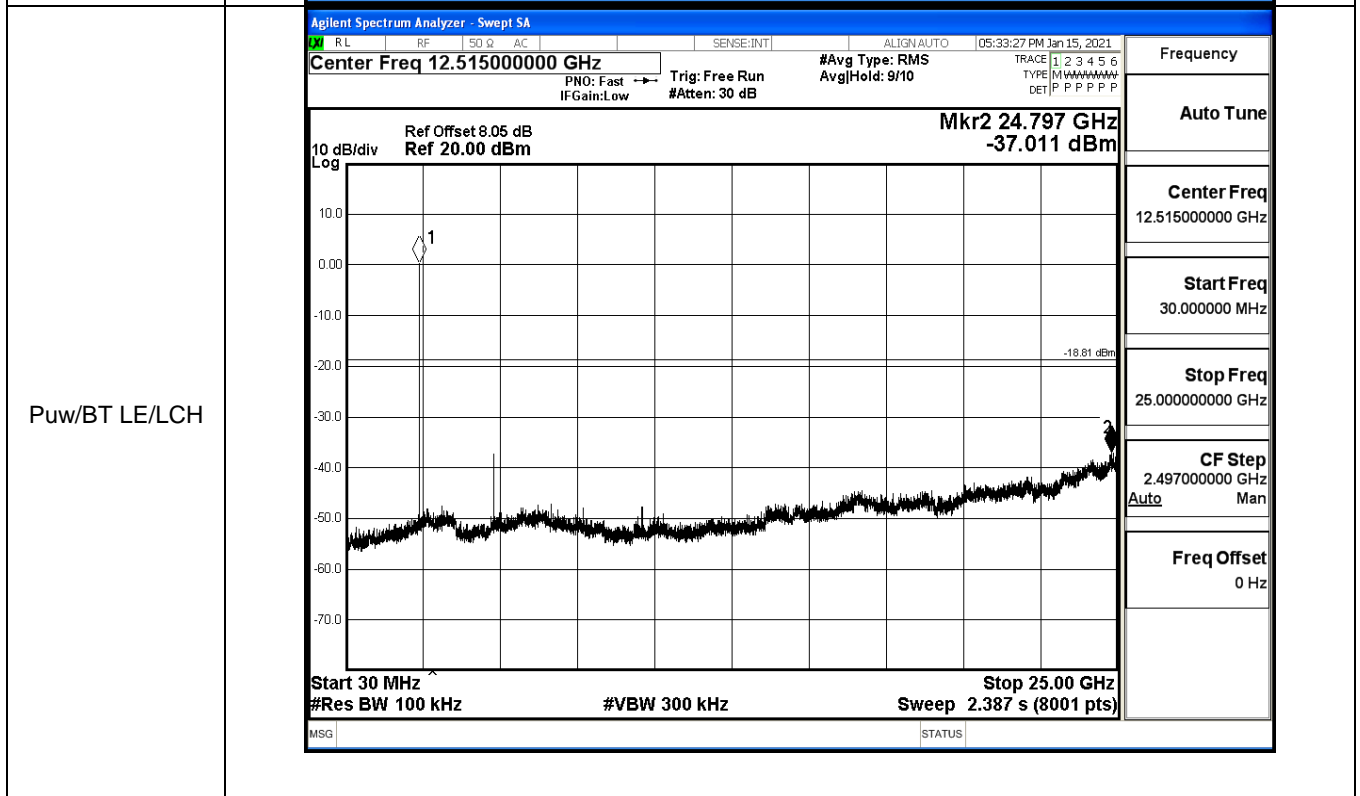
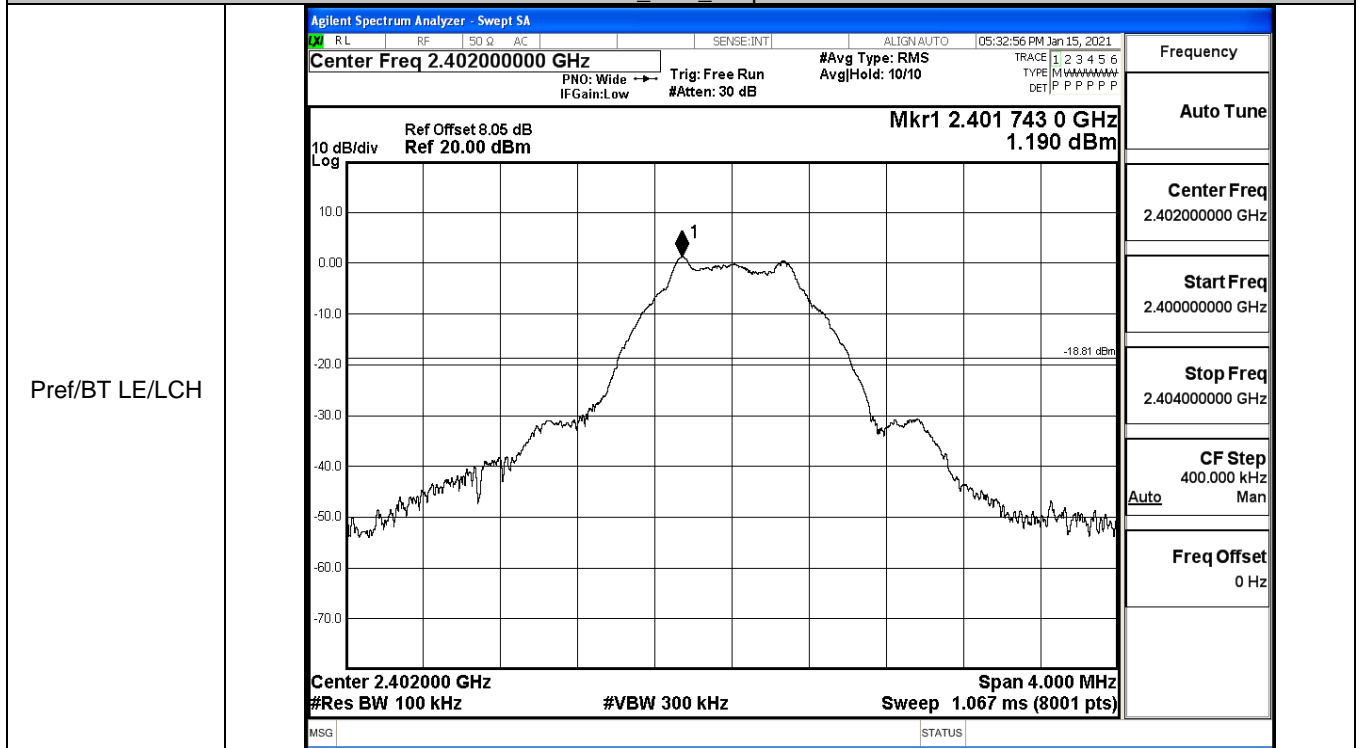
0 Hz

MSG
STATUS

B.6 RF Conducted Spurious Emissions

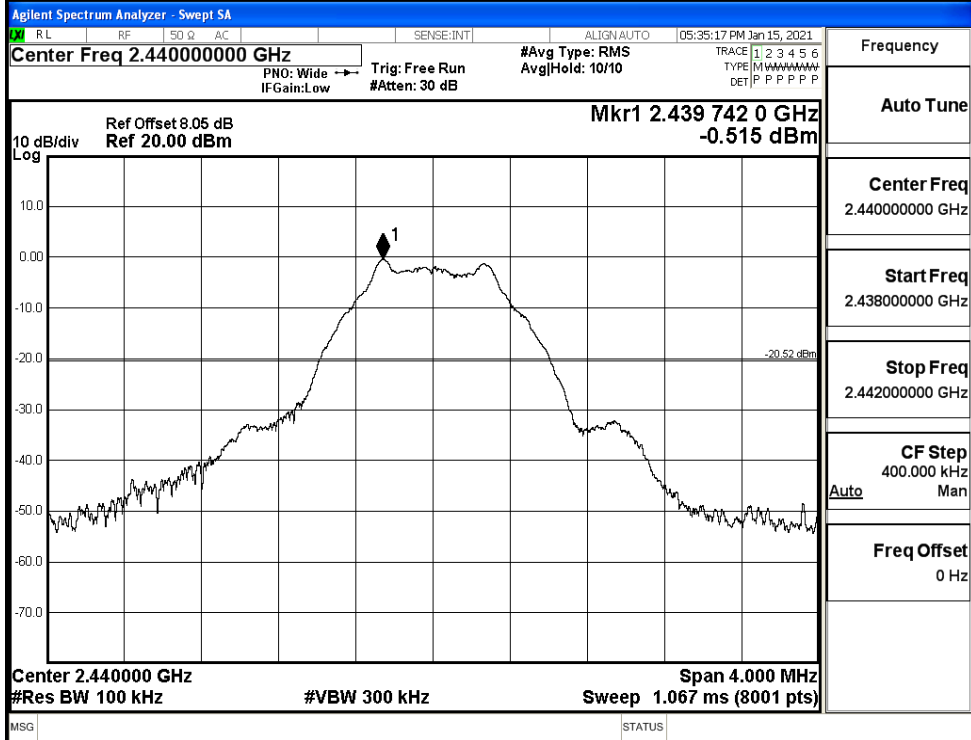
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.19	-37.011	-18.810	PASS
BT LE	MCH	-0.515	-37.021	-20.515	PASS
BT LE	HCH	-2.529	-37.474	-22.529	PASS

BT LE_LCH_Graphs

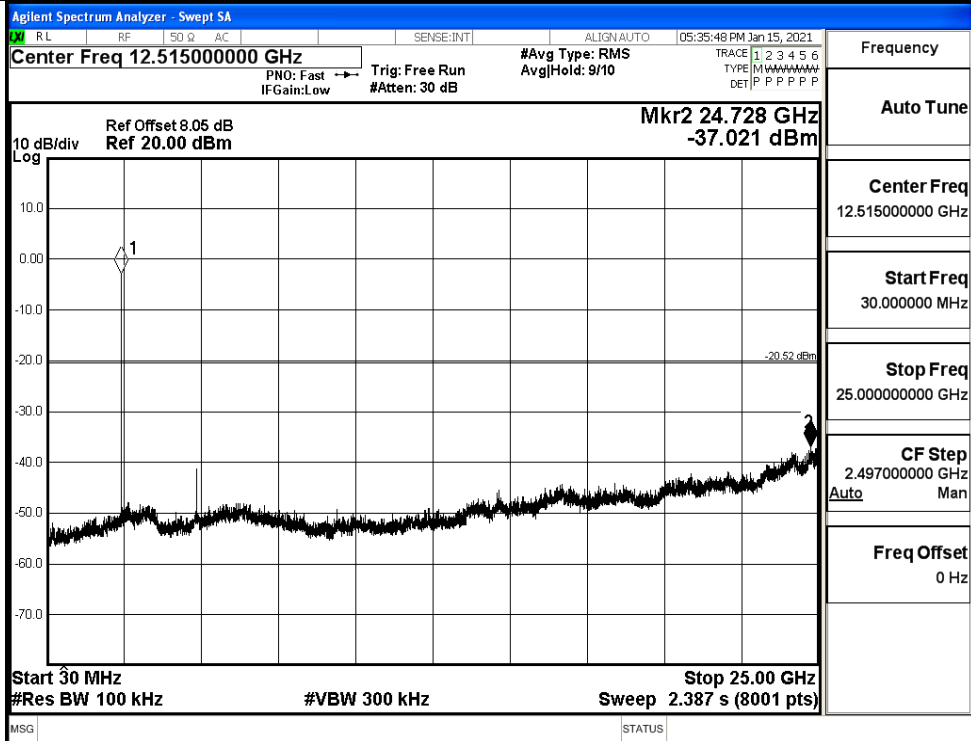


BT LE_MCH_Graphs

Pref/BT LE/MCH

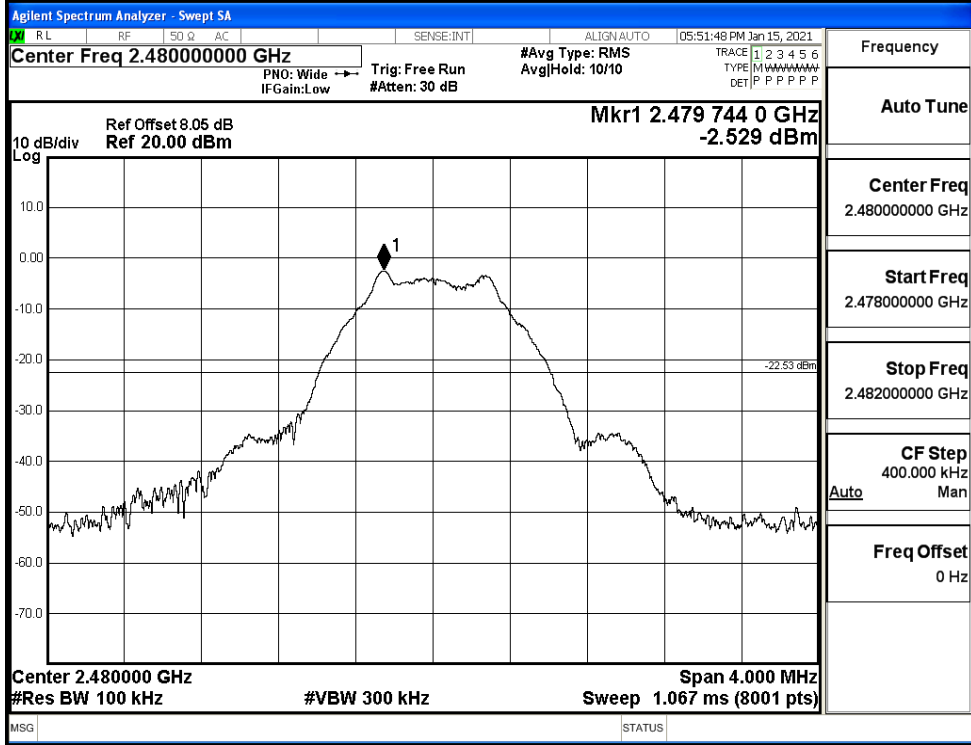


Puw/BT LE/MCH

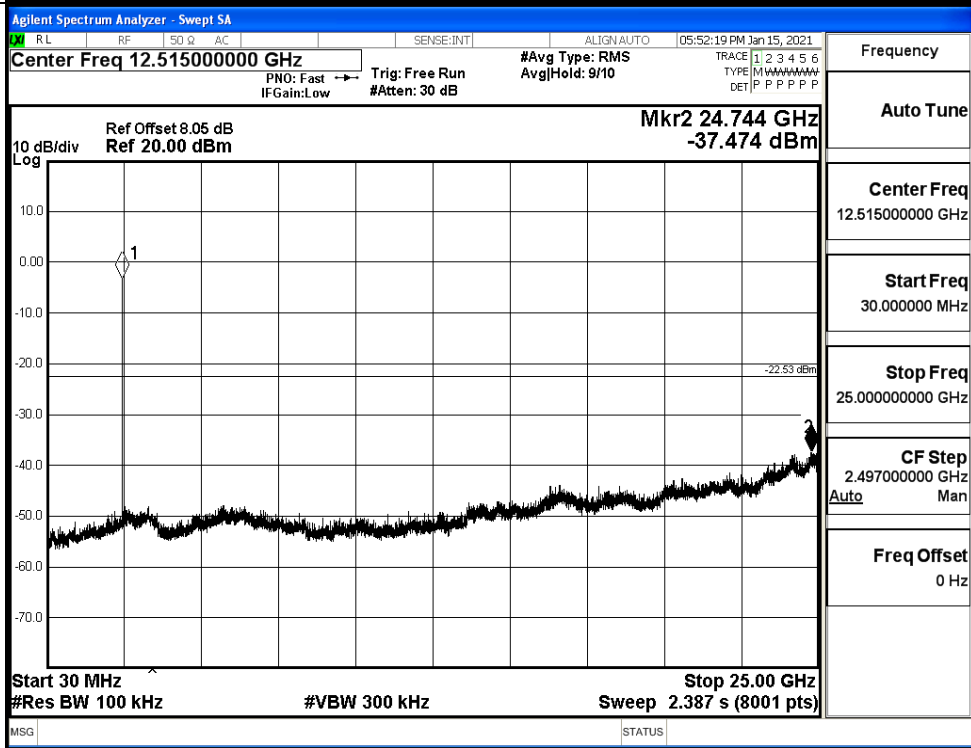


BT LE_HCH_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



B.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.205	-48.325	-18.8	PASS
BT LE	HCH	-2.511	-49.375	-22.51	PASS

Test Graphs

LCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.35700000 GHz
 Max Spurious Level -48.325 dBm
 Mkr4 2.375 753 GHz
 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		2.401 744 GHz	1.205 dBm			
2	N	f		2.400 000 GHz	-52.538 dBm			
3	N	f		2.390 000 GHz	-53.266 dBm			
4	N	f		2.375 753 GHz	-48.325 dBm			

Frequency

Auto Tune

Center Freq
2.35700000 GHz

Start Freq
2.310000000 GHz

Stop Freq
2.404000000 GHz

CF Step
9.400000 MHz

Freq Offset
0 Hz

HCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.48900000 GHz
 Max Spurious Level -49.375 dBm
 Mkr4 2.494 337 75 GHz
 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		2.479 749 00 GHz	-2.511 dBm			
2	N	f		2.483 500 00 GHz	-53.922 dBm			
3	N	f		2.500 000 00 GHz	-52.470 dBm			
4	N	f		2.494 337 75 GHz	-49.375 dBm			

Frequency

Auto Tune

Center Freq
2.489000000 GHz

Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

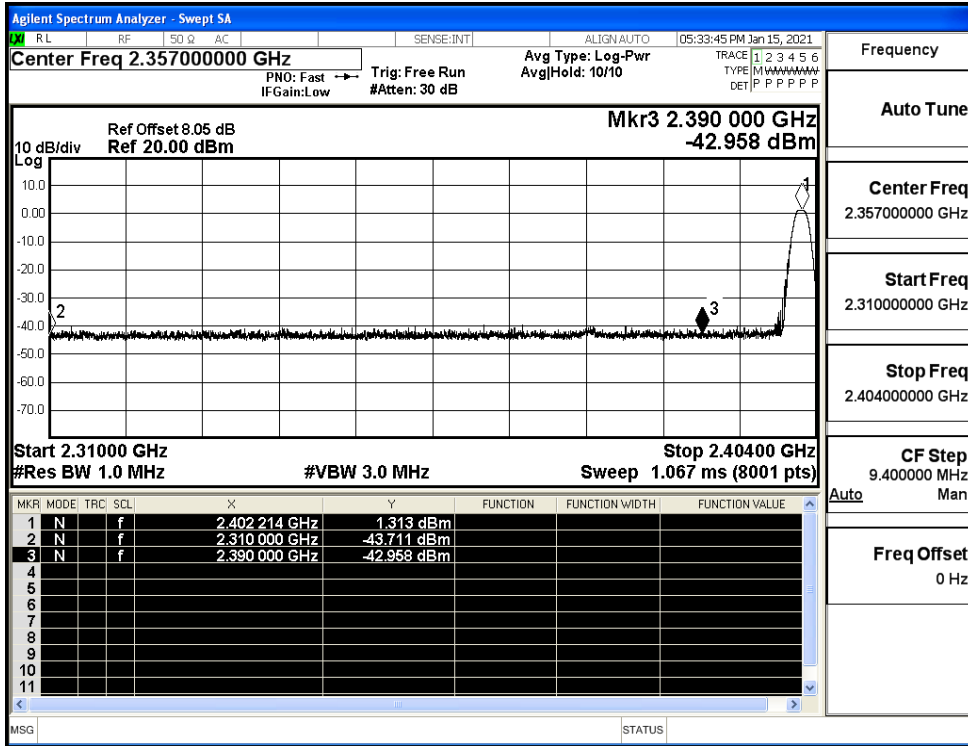
CF Step
2.200000 MHz

Freq Offset
0 Hz

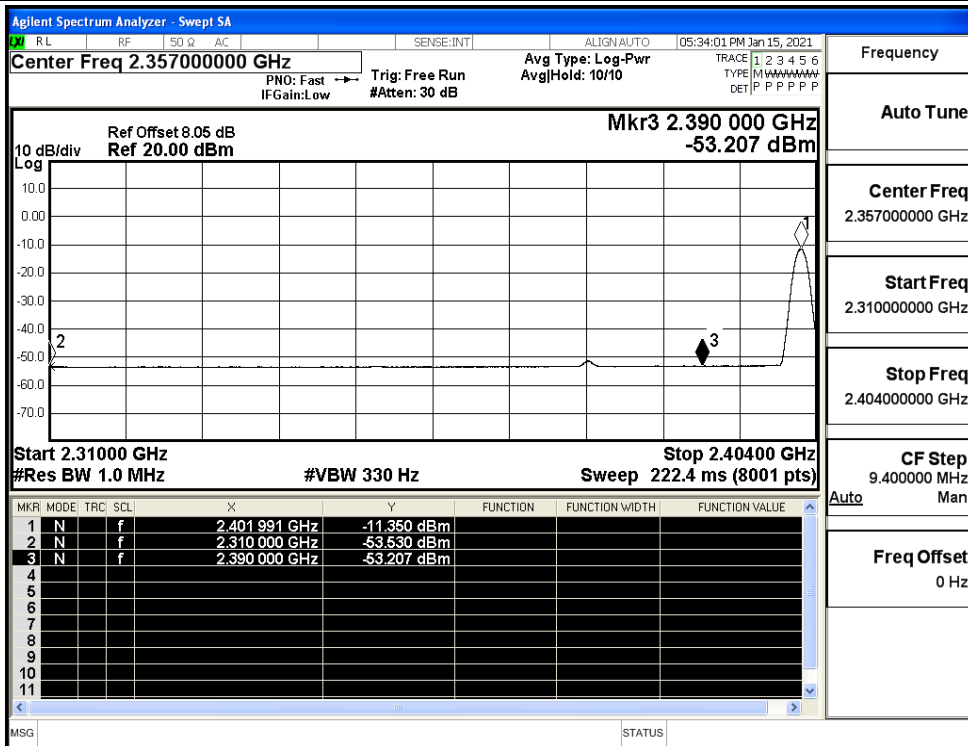
B.8 Restrict-band band-edge measurements

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	-43.71	2.0	0	51.55	PEAK	74	PASS
		Ant1	2310.0	-53.53	2.0	0	41.73	AV	54	PASS
		Ant1	2390.0	-42.96	2.0	0	52.30	PEAK	74	PASS
		Ant1	2390.0	-53.21	2.0	0	42.05	AV	54	PASS
	2480	Ant1	2483.5	-42.83	2.0	0	52.43	PEAK	74	PASS
		Ant1	2483.5	-52.74	2.0	0	42.51	AV	54	PASS
		Ant1	2500.0	-43.01	2.0	0	52.25	PEAK	74	PASS
		Ant1	2500.0	-52.52	2.0	0	42.74	AV	54	PASS

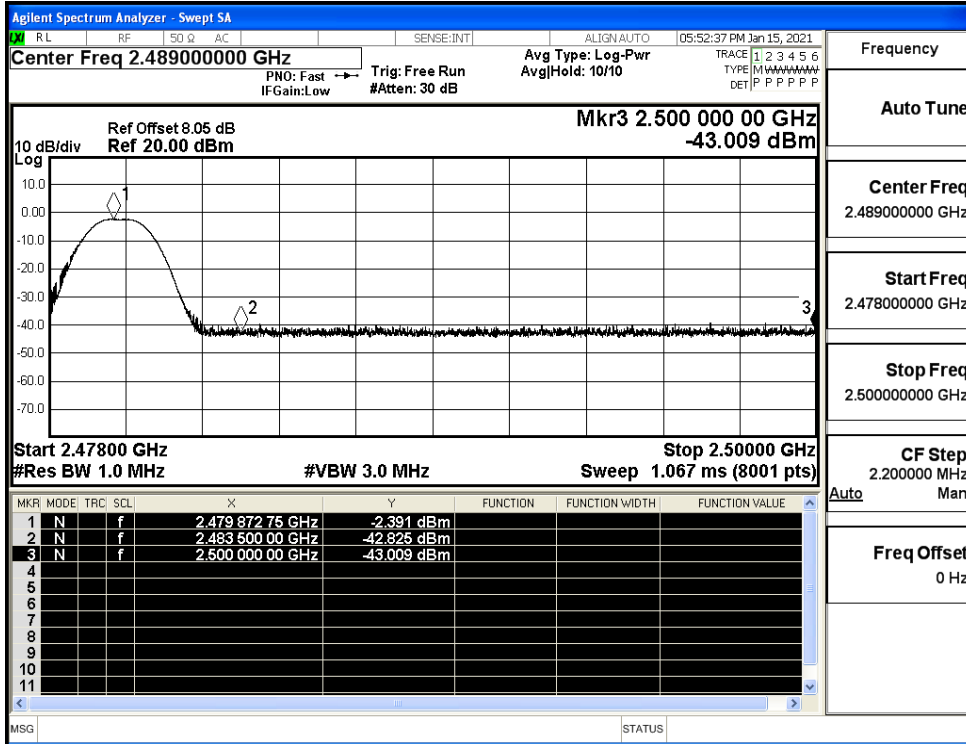
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

