

Appendix B

RF Test Data for BT LE V4.0(DTS) (Conducted Measurement)

Product Name: Multi-function projector

Trade Mark: PHILIPS

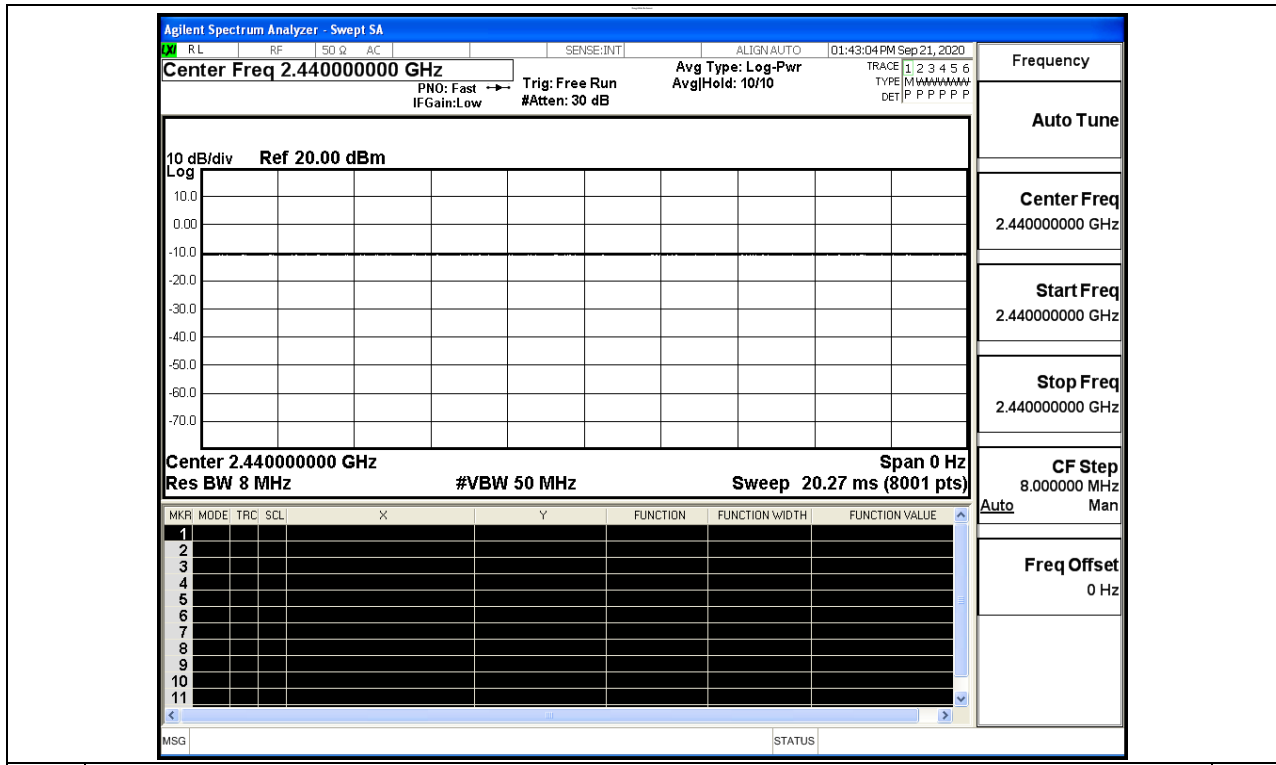
Test Model: NeoPix Prime 2

Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	54.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Li
Supervised by:	Li Huan

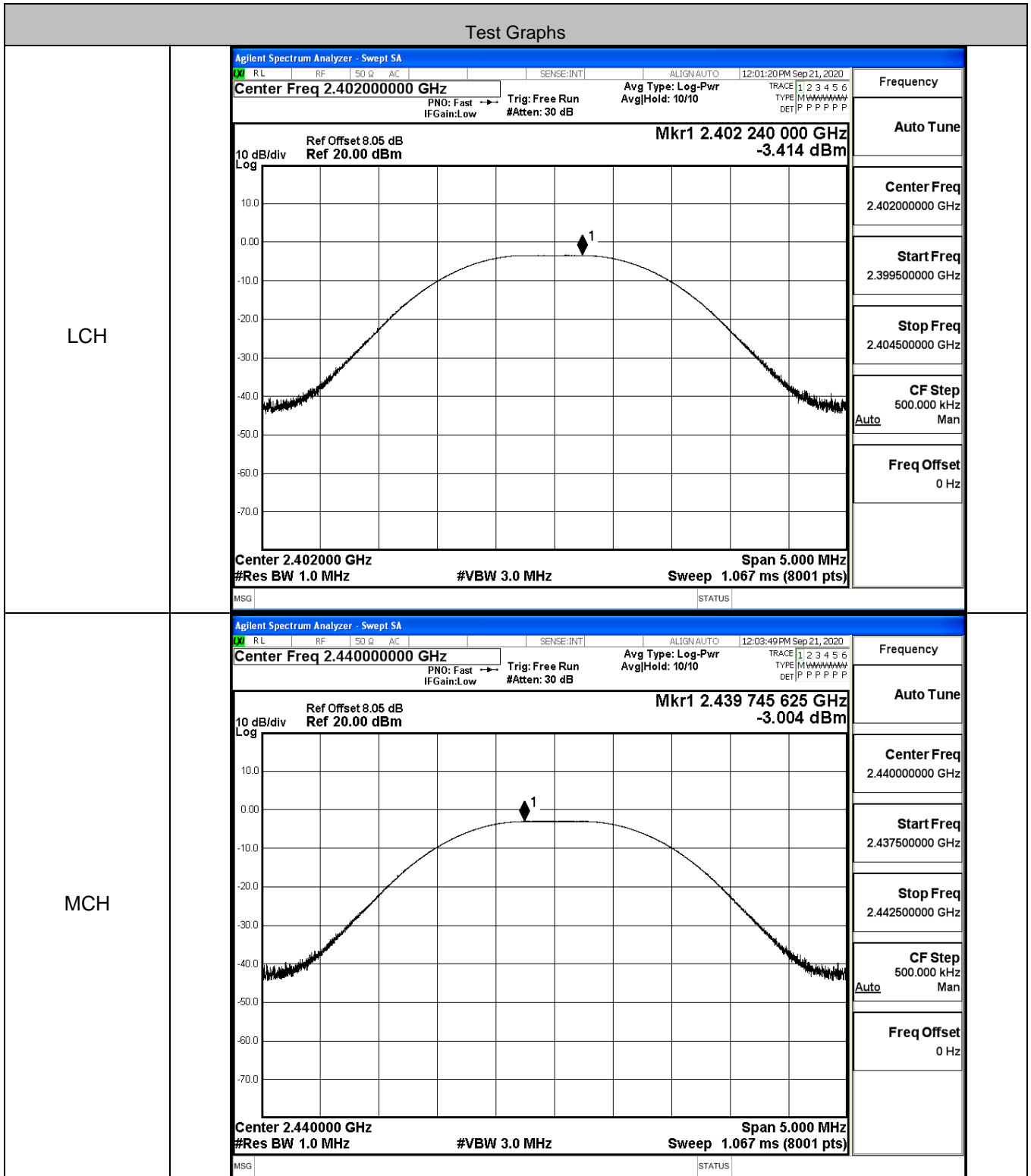
B.1 Duty Cycle

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

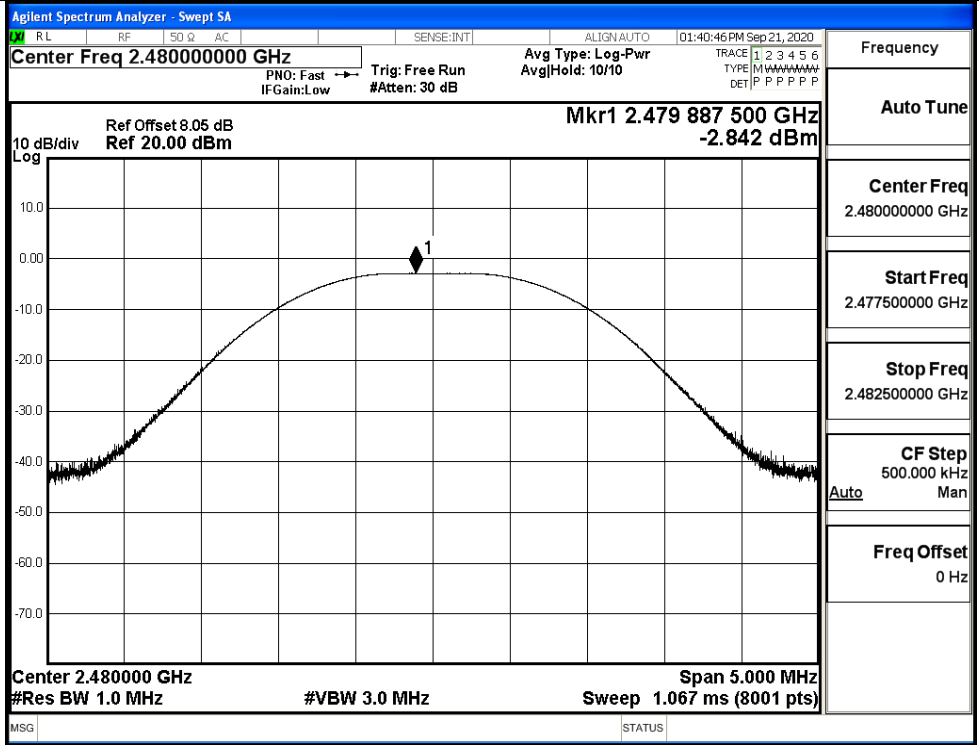


B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-3.414	30	PASS
BT LE	MCH	-3.004	30	PASS
BT LE	HCH	-2.842	30	PASS



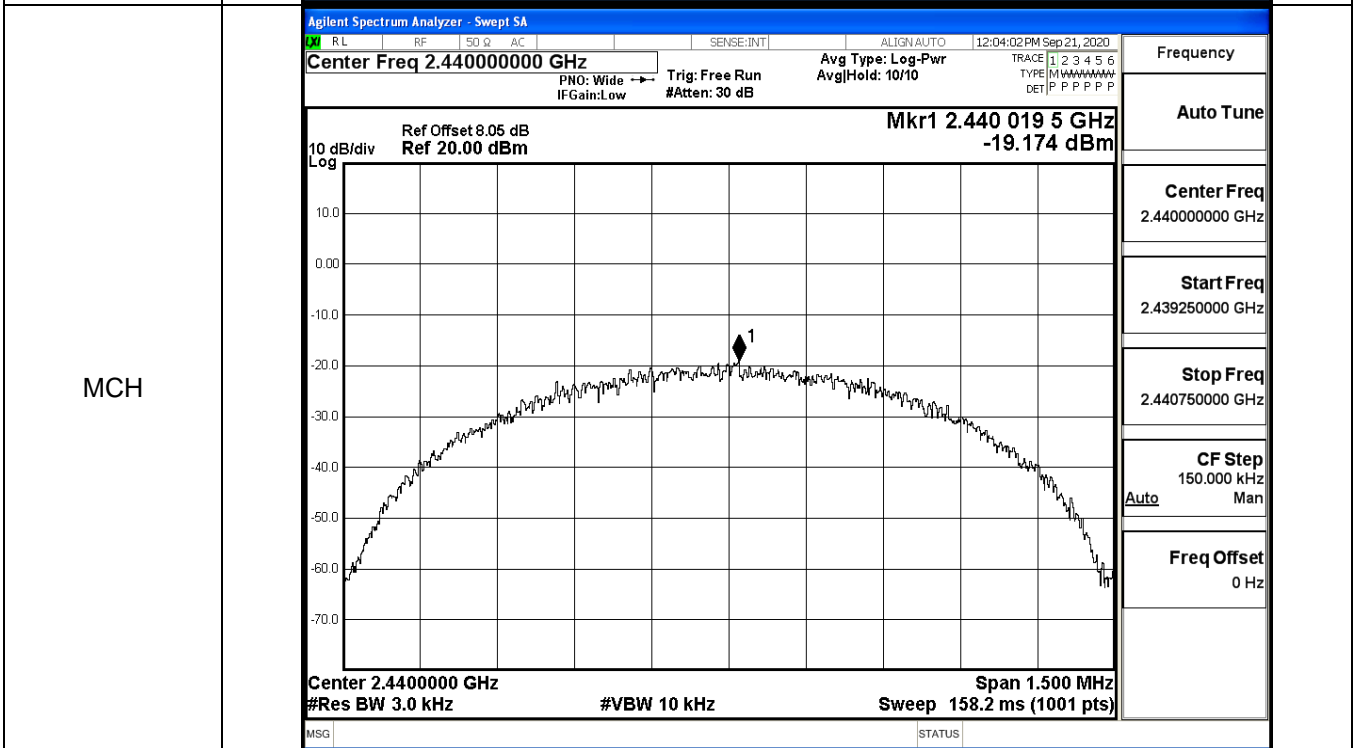
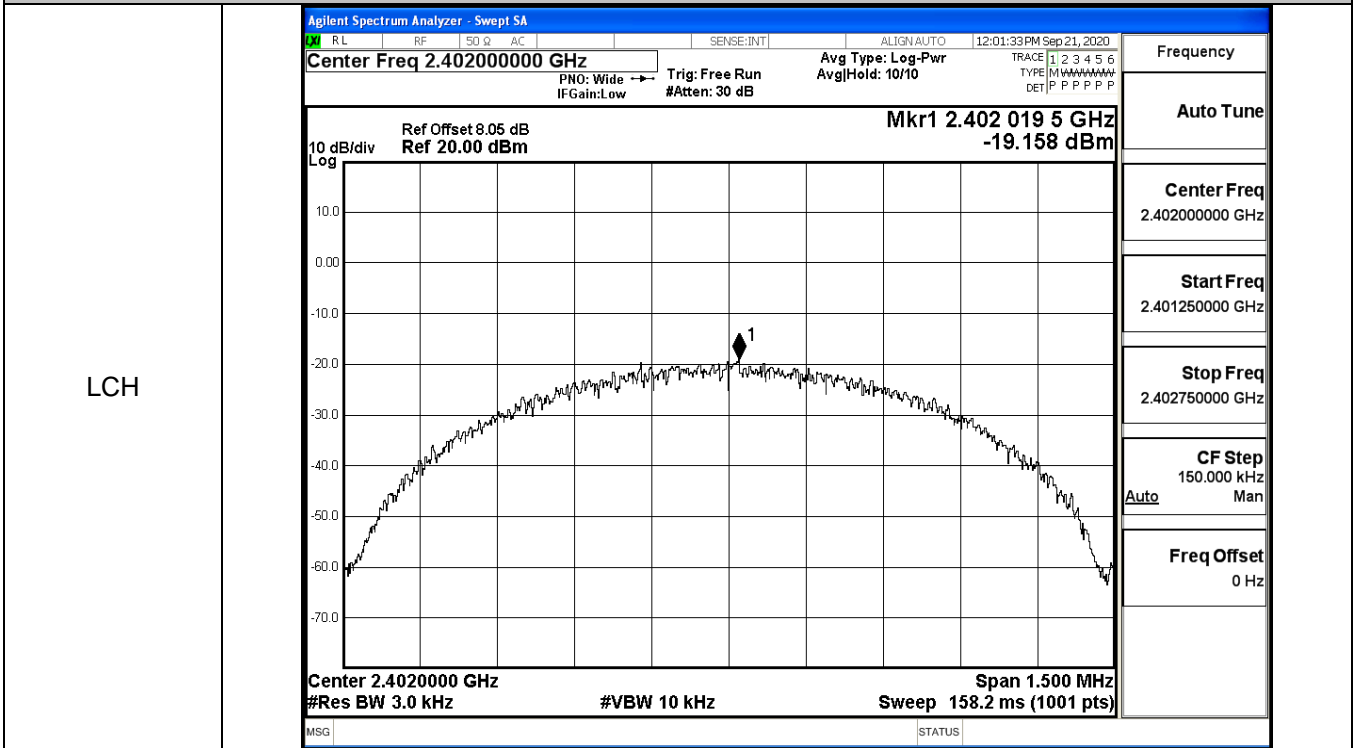
HCH



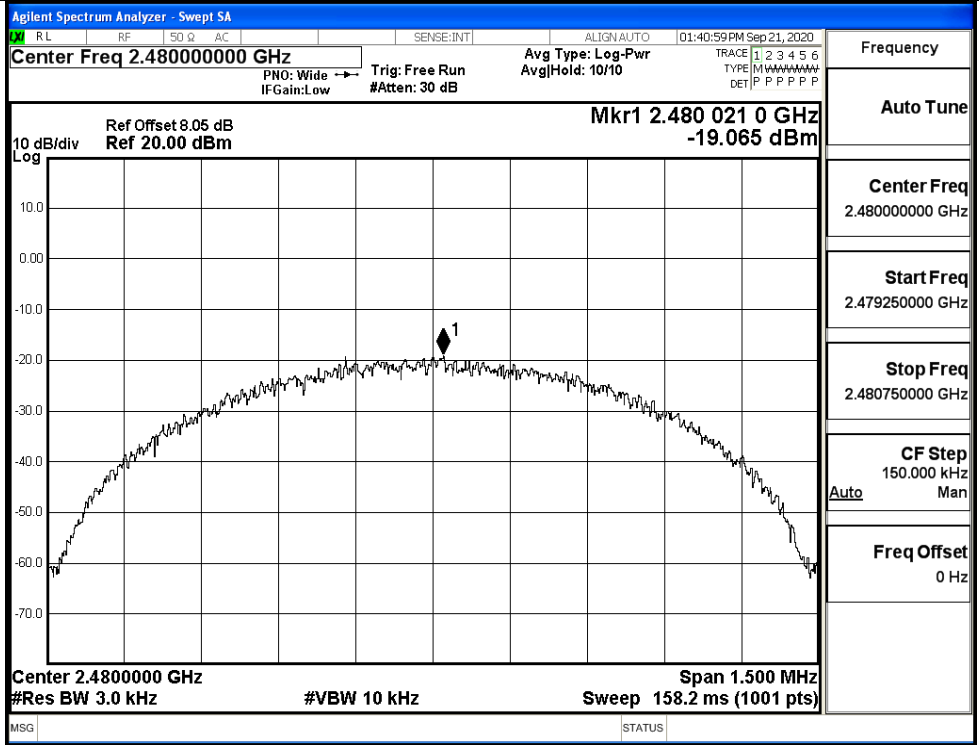
B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-19.158	8	PASS
BT LE	MCH	-19.174	8	PASS
BT LE	HCH	-19.065	8	PASS

Test Graphs

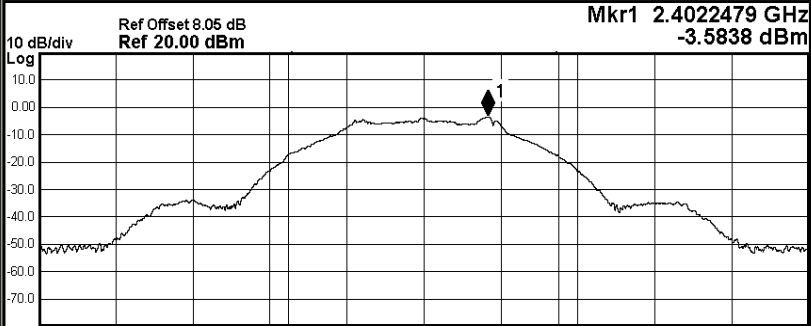
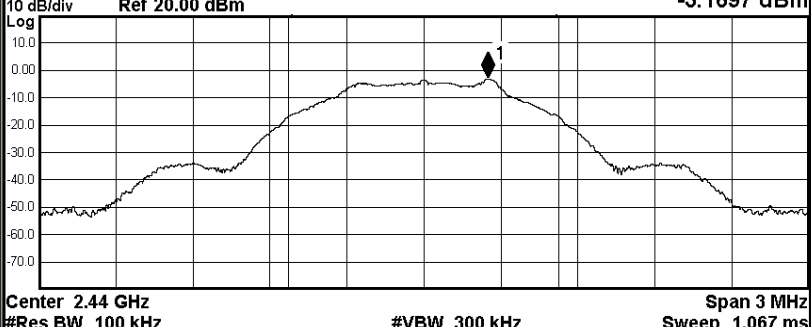


HCH



B.4 6dB Bandwidth

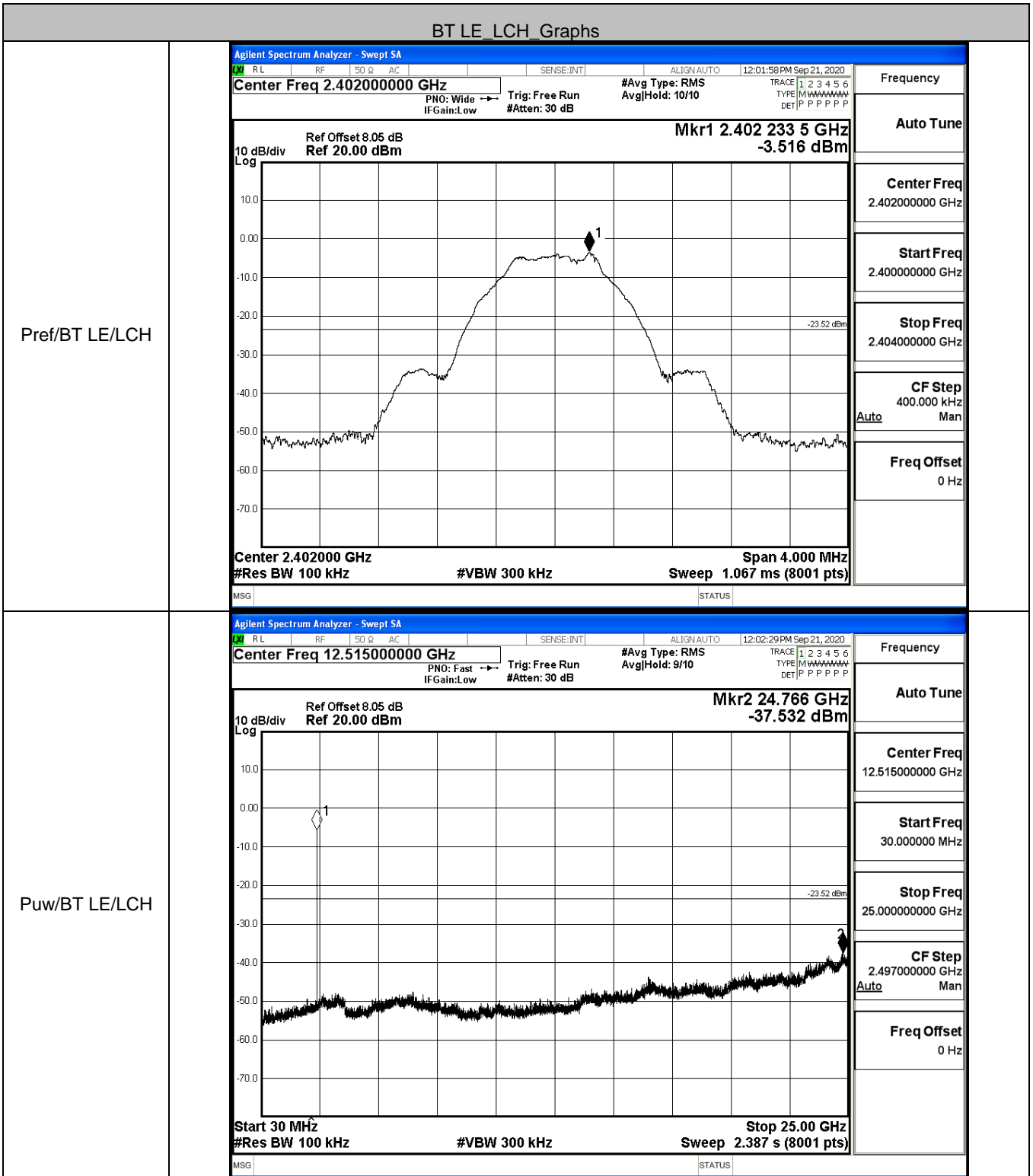
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6631	≥0.5	PASS
BT LE	MCH	0.6545	≥0.5	PASS
BT LE	HCH	0.6614	≥0.5	PASS

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 12:01:09 PM Sep 21, 2020</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="border: 1px solid black; padding: 2px;"> <p style="text-align: right; margin: 0;">Mkr1 2.4022479 GHz -3.5838 dBm</p>  <p style="font-size: x-small; margin: 0;">10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm</p> <p style="font-size: x-small; margin: 0;">Center 2.402 GHz #Res BW 100 kHz #VBW 300 kHz Span 3 MHz Sweep 1.067 ms</p> <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td colspan="2">2.96 dBm</td> </tr> <tr> <td colspan="4" style="text-align: center;">1.0512 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>-1.438 kHz</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>663.1 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 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 12:03:38 PM Sep 21, 2020</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="border: 1px solid black; padding: 2px;"> <p style="text-align: right; margin: 0;">Mkr1 2.4402498 GHz -3.1697 dBm</p>  <p style="font-size: x-small; margin: 0;">10 dB/div Log Ref Offset 8.05 dB Ref 20.00 dBm</p> <p style="font-size: x-small; margin: 0;">Center 2.44 GHz #Res BW 100 kHz #VBW 300 kHz Span 3 MHz Sweep 1.067 ms</p> <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td colspan="2">3.33 dBm</td> </tr> <tr> <td colspan="4" style="text-align: center;">1.0535 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>-1.736 kHz</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>654.5 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div> </div>	Occupied Bandwidth	Total Power	2.96 dBm		1.0512 MHz				Transmit Freq Error	-1.438 kHz	OBW Power	99.00 %	x dB Bandwidth	663.1 kHz	x dB	-6.00 dB	Occupied Bandwidth	Total Power	3.33 dBm		1.0535 MHz				Transmit Freq Error	-1.736 kHz	OBW Power	99.00 %	x dB Bandwidth	654.5 kHz	x dB	-6.00 dB
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x dB Bandwidth	654.5 kHz	x dB	-6.00 dB																														

HCH	Agilent Spectrum Analyzer - Occupied BW			RL	RF	50 Ω	AC	SENSE:INT	ALIGN:AUTO	01:40:35 PM Sep 21, 2020				
	Center Freq 2.480000000 GHz				Center Freq: 2.480000000 GHz			Trig: Free Run		AvgHold: 1/1				
					#IFGain:Low		#Atten: 30 dB		Radio Std: None					
									Radio Device: BTS					
									Mkr1 2.4802374 GHz -3.3096 dBm					
<div style="display: flex; justify-content: space-between;"> 10 dB/div Ref Offset 8.05 dB Log </div>														
Center 2.48 GHz				#Res BW 100 kHz				#VBW 300 kHz		Span 3 MHz				
										Sweep 1.067 ms				
Occupied Bandwidth				Total Power				3.48 dBm						
1.0547 MHz														
Transmit Freq Error				3.370 kHz		OBW Power		99.00 %						
x dB Bandwidth				661.4 kHz		x dB		-6.00 dB						
<table border="0" style="width: 100%;"> <tr> <td style="width: 10%; font-size: x-small;">MSG</td> <td style="width: 80%;"></td> <td style="width: 10%; font-size: x-small;">STATUS</td> </tr> </table>												MSG		STATUS
MSG		STATUS												
			Frequency						Center Freq 2.480000000 GHz					
									CF Step 300.000 kHz Auto Man					
									Freq Offset 0 Hz					

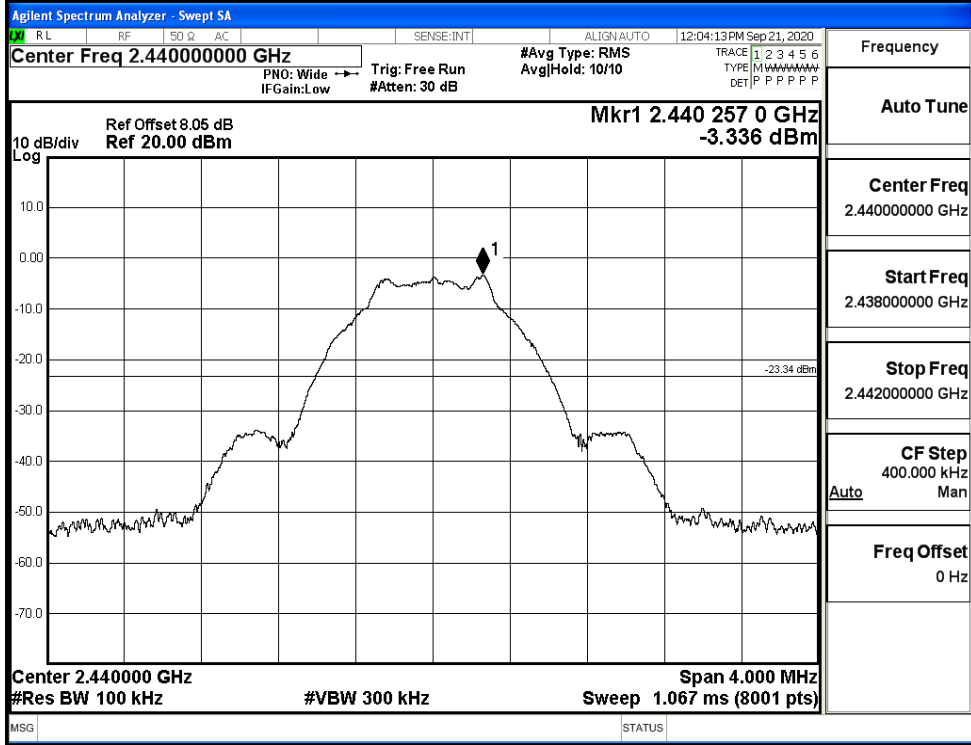
B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-3.516	-37.532	-23.516	PASS
BT LE	MCH	-3.336	-37.701	-23.336	PASS
BT LE	HCH	-3.033	-37.173	-23.033	PASS

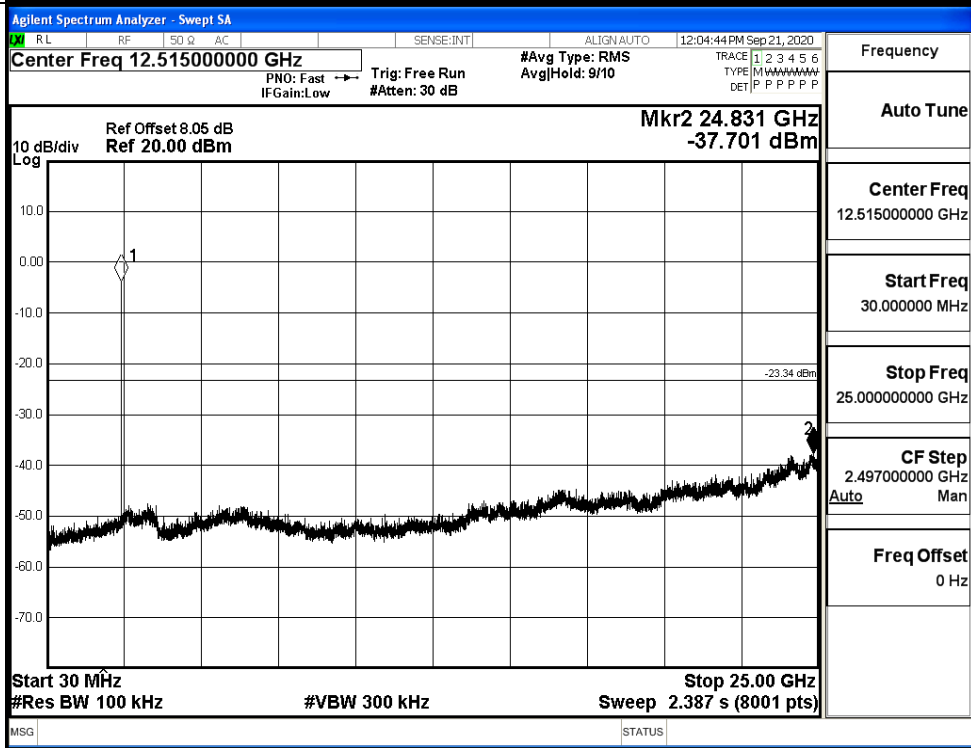


BT LE_MCH_Graphs

Pref/BT LE/MCH

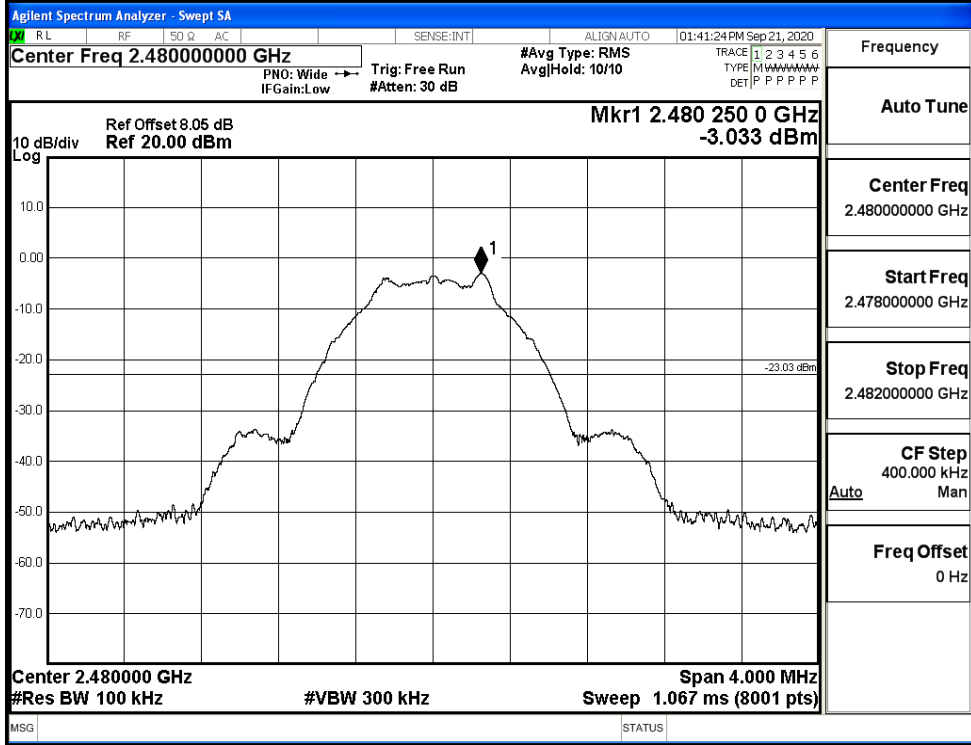


Puw/BT LE/MCH

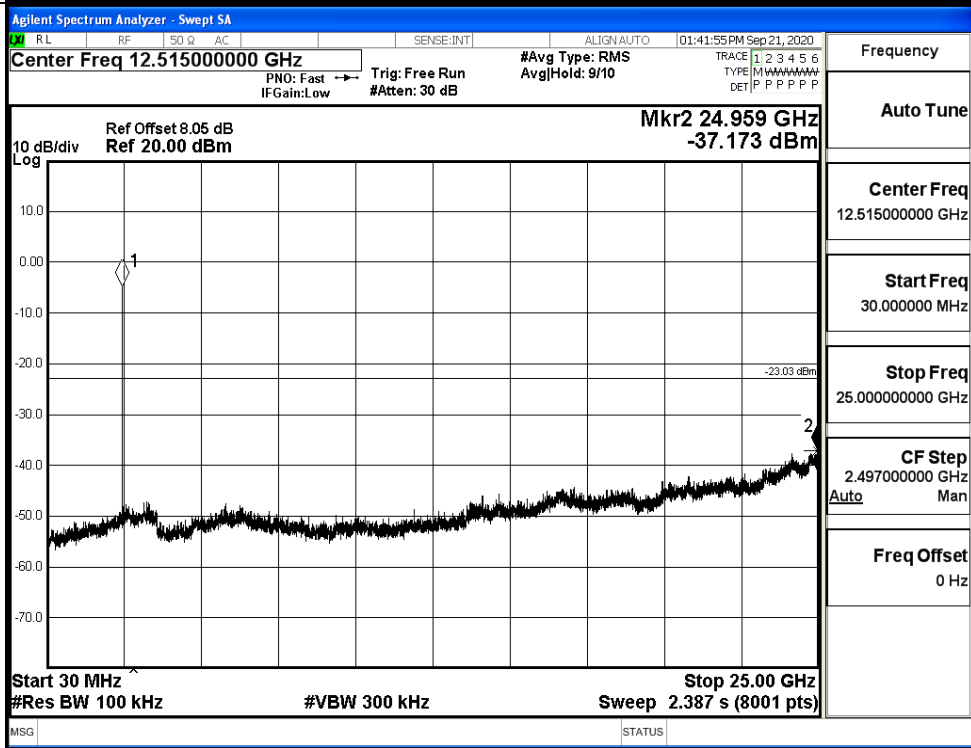


BT LE_HCH_Graphs

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	-3.139	-49.656	-23.14	PASS
BT LE	HCH	-3.062	-49.244	-23.06	PASS

Test Graphs

LCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.35700000 GHz
 Ref Offset 8.05 dB, Ref 20.00 dBm
 Mkr4 2.385 717 GHz, -49.656 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		2.402 249 GHz	-3.139 dBm			
2	N	f		2.400 000 GHz	-52.198 dBm			
3	N	f		2.390 000 GHz	-51.633 dBm			
4	N	f		2.385 717 GHz	-49.656 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
 Ref Offset 8.05 dB, Ref 20.00 dBm
 Mkr1 2.480 262 25 GHz, -3.062 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		2.480 262 25 GHz	-3.062 dBm			
2	N	f		2.483 500 00 GHz	-53.646 dBm			
3	N	f		2.500 000 00 GHz	-51.957 dBm			
4	N	f		2.492 225 75 GHz	-49.244 dBm			

Frequency

Auto Tune

Center Freq
2.48900000 GHz

Start Freq
2.47800000 GHz

Stop Freq
2.50000000 GHz

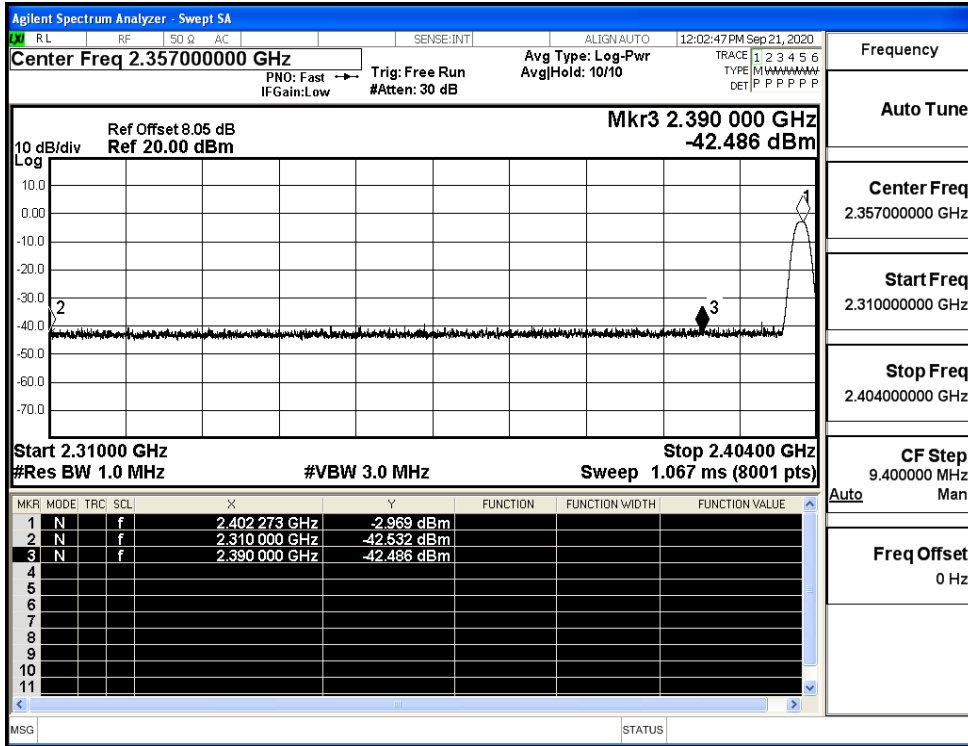
CF Step
2.200000 MHz

Freq Offset
0 Hz

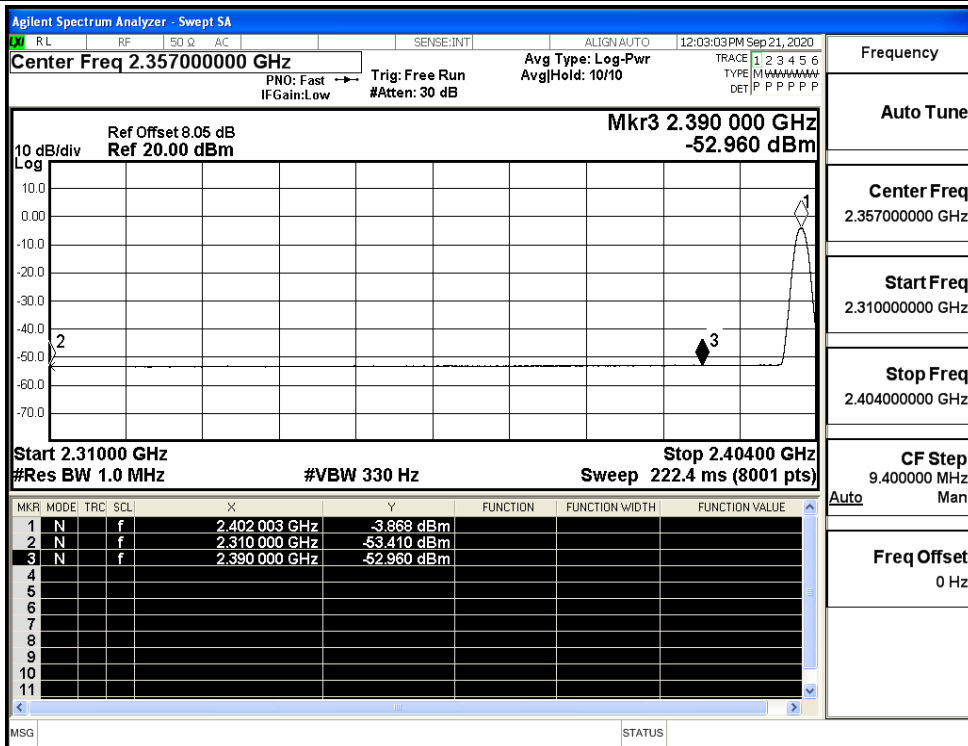
B.7 Restrict-band band-edge measurements

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	-42.53	2.0	0	54.70	PEAK	74	PASS
		Ant1	2310.0	-53.41	2.0	0	43.82	AV	54	PASS
		Ant1	2390.0	-42.49	2.0	0	54.74	PEAK	74	PASS
		Ant1	2390.0	-52.96	2.0	0	44.27	AV	54	PASS
	2480	Ant1	2483.5	-42.83	2.0	0	54.40	PEAK	74	PASS
		Ant1	2483.5	-52.33	2.0	0	44.90	AV	54	PASS
		Ant1	2500.0	-42.19	2.0	0	55.04	PEAK	74	PASS
		Ant1	2500.0	-52.09	2.0	0	45.14	AV	54	PASS

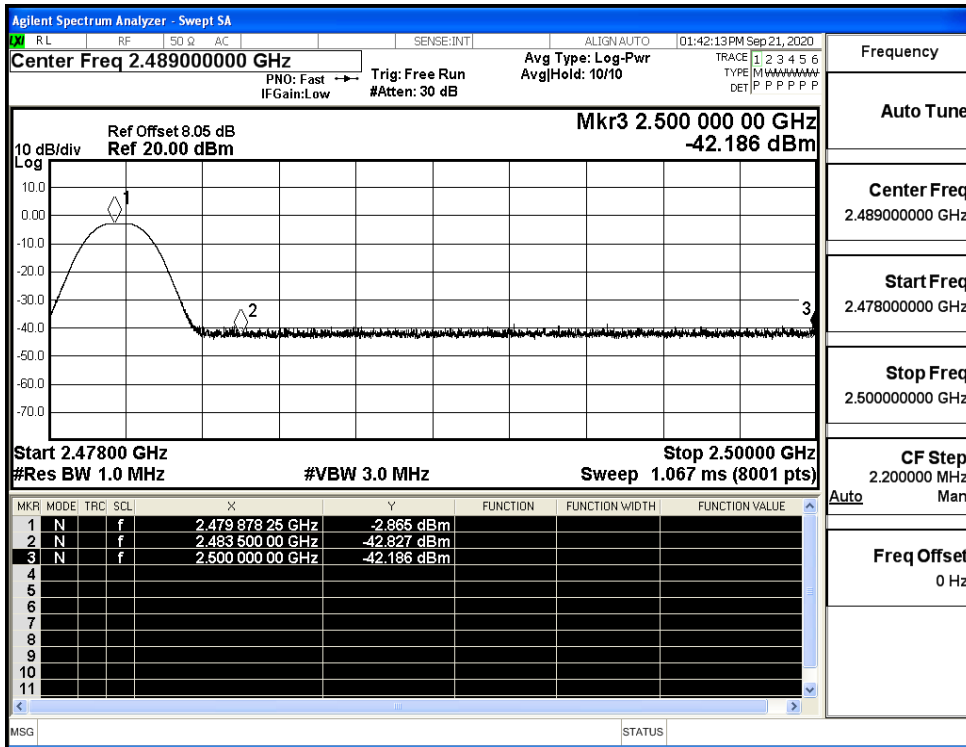
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

