

## Appendix B

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

Product Name: iConnect Rectangle

Trade Mark: iConnect By Timex

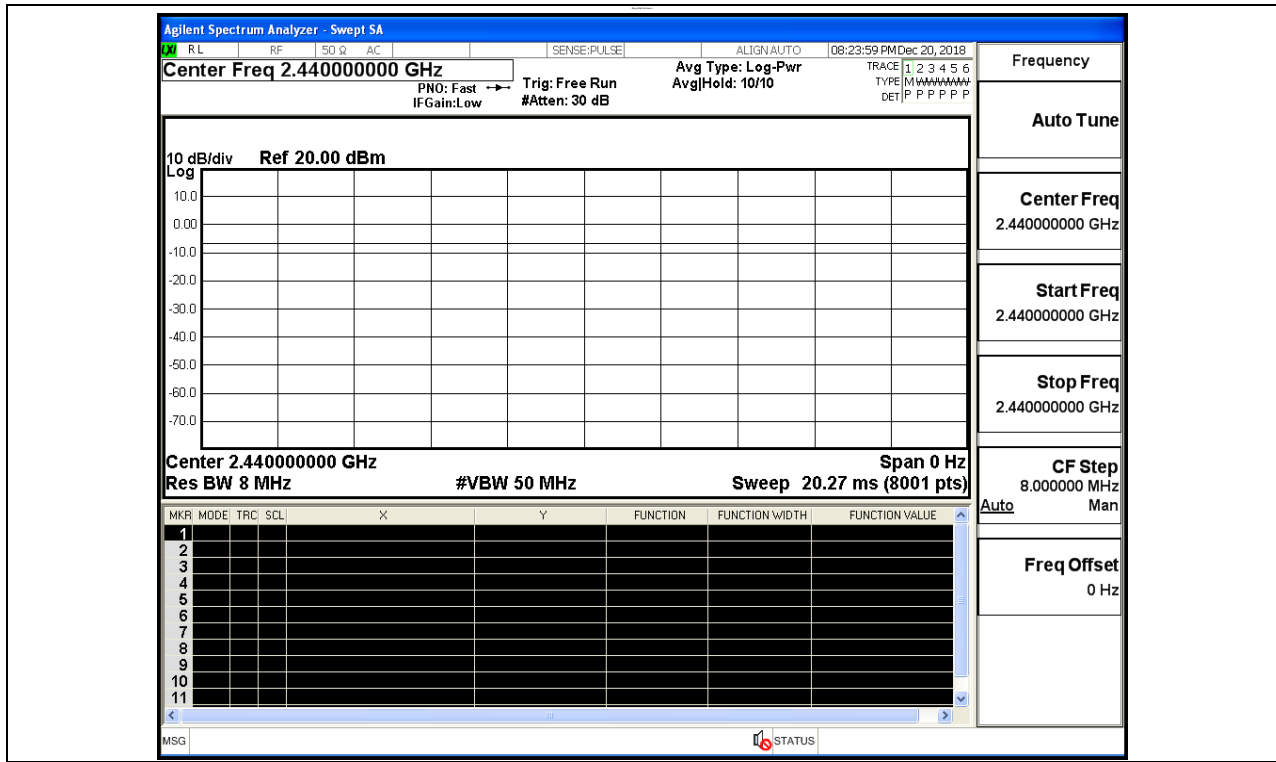
Test Model: M03Y

#### Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

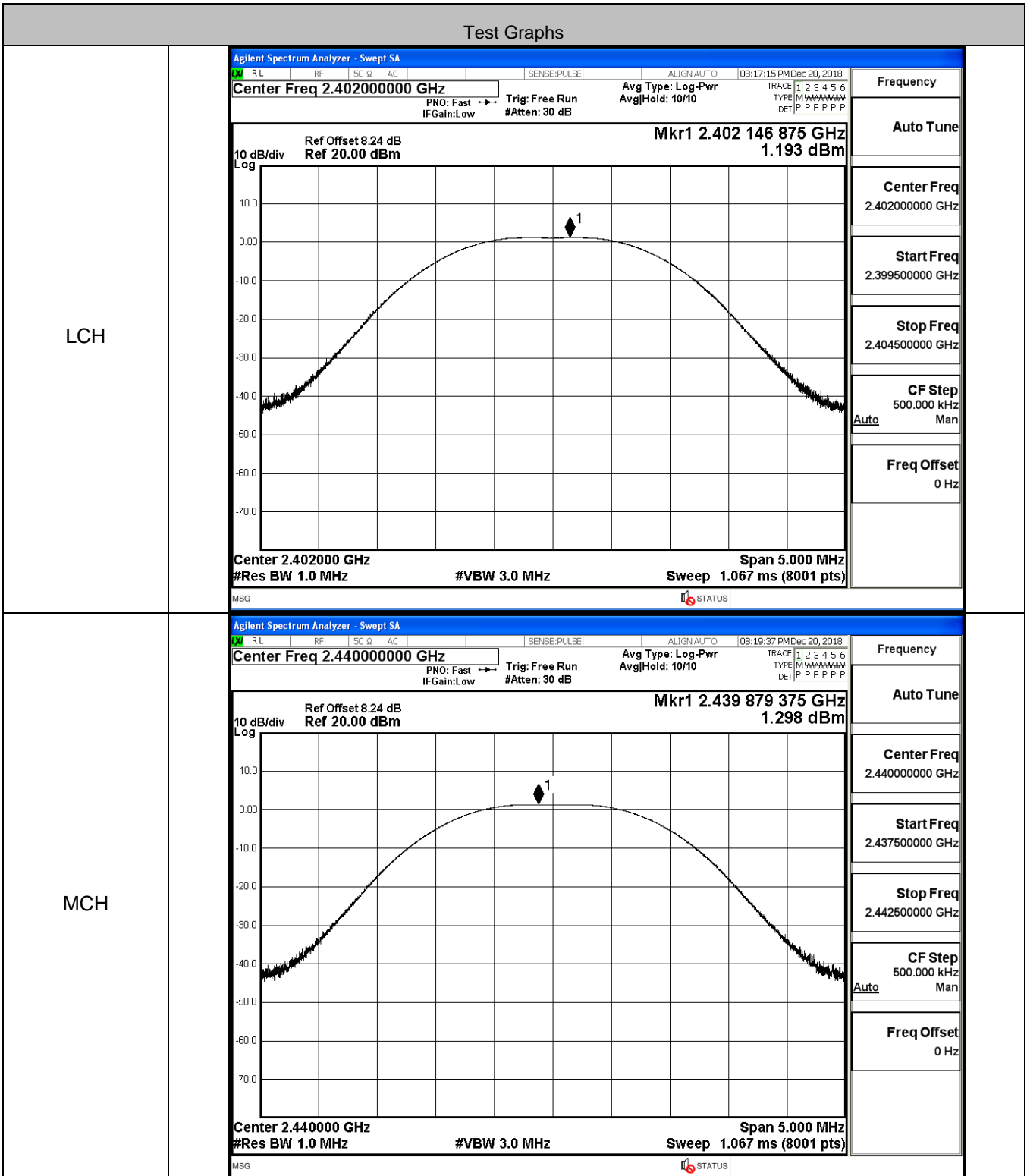
#### B.1 Duty Cycle

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

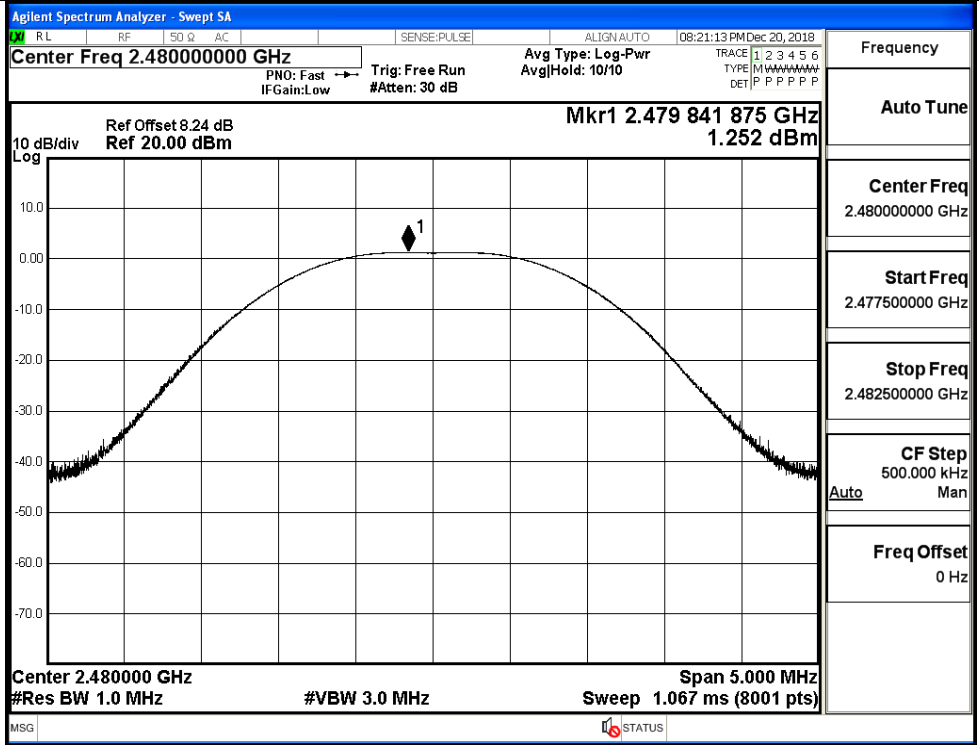


**B.2 Maximum Conducted Peak Output Power**

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.193	30	PASS
BT LE	MCH	1.298	30	PASS
BT LE	HCH	1.252	30	PASS



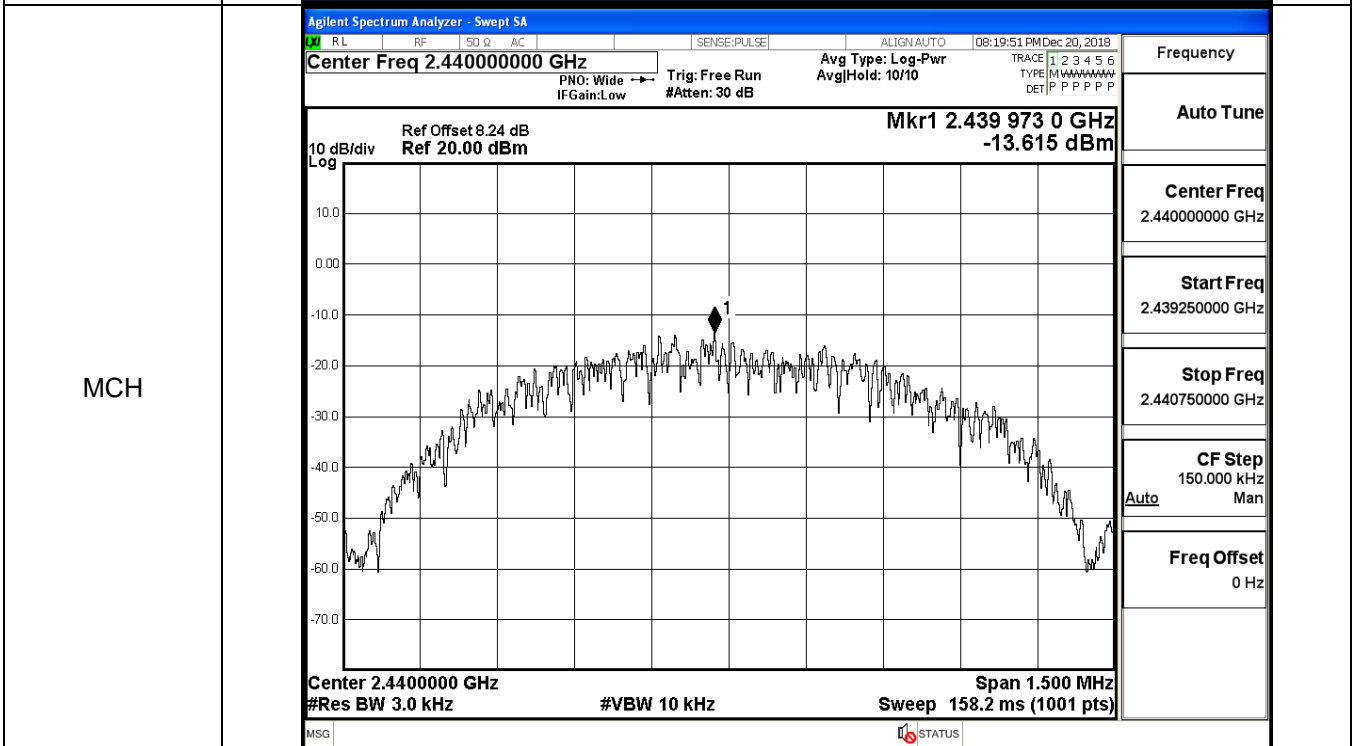
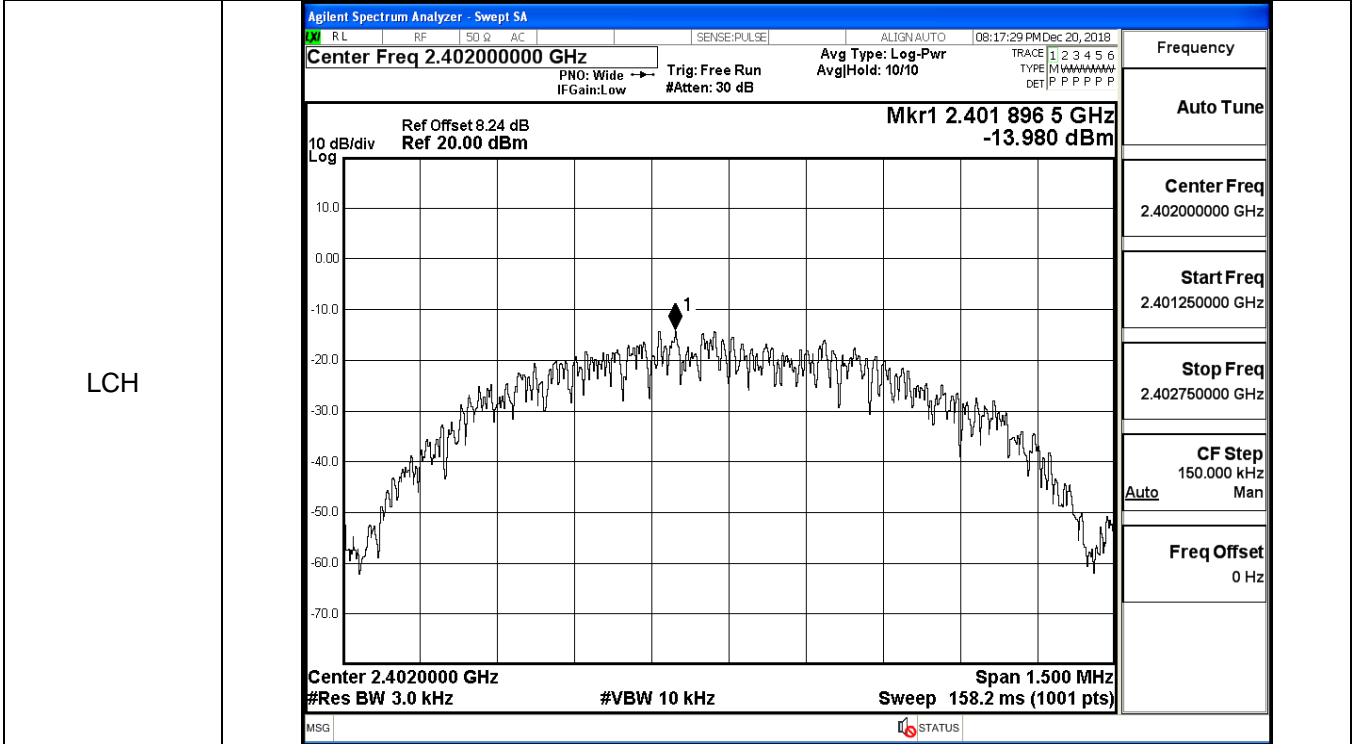
HCH



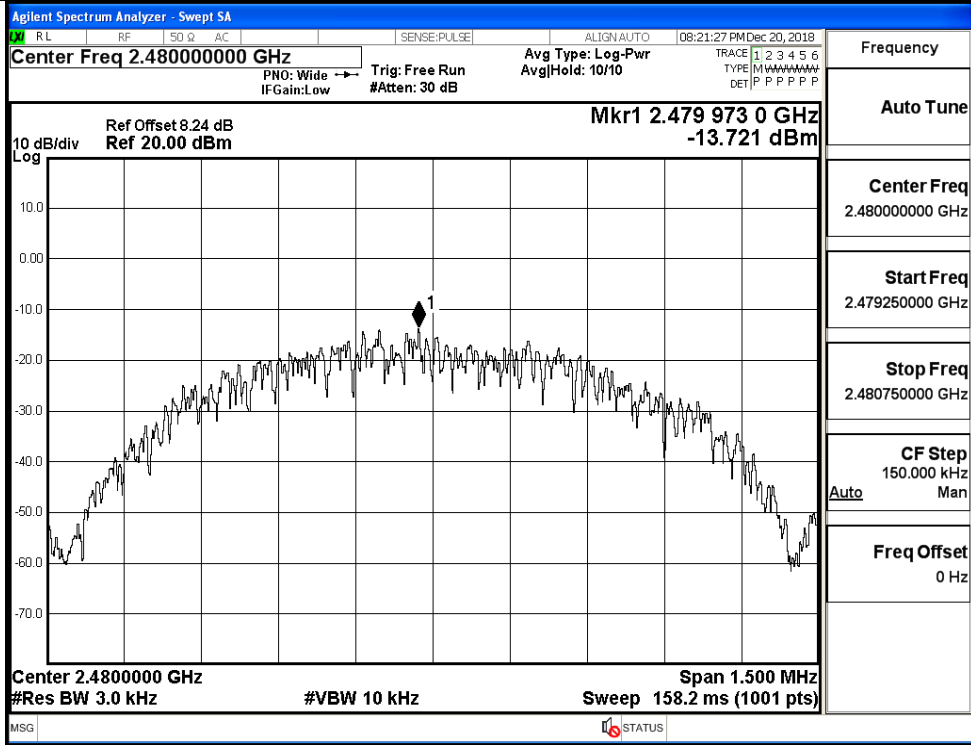
**B.3 Maximum Power Spectral Density**

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-13.980	8	PASS
BT LE	MCH	-13.615	8	PASS
BT LE	HCH	-13.721	8	PASS

**Test Graphs**



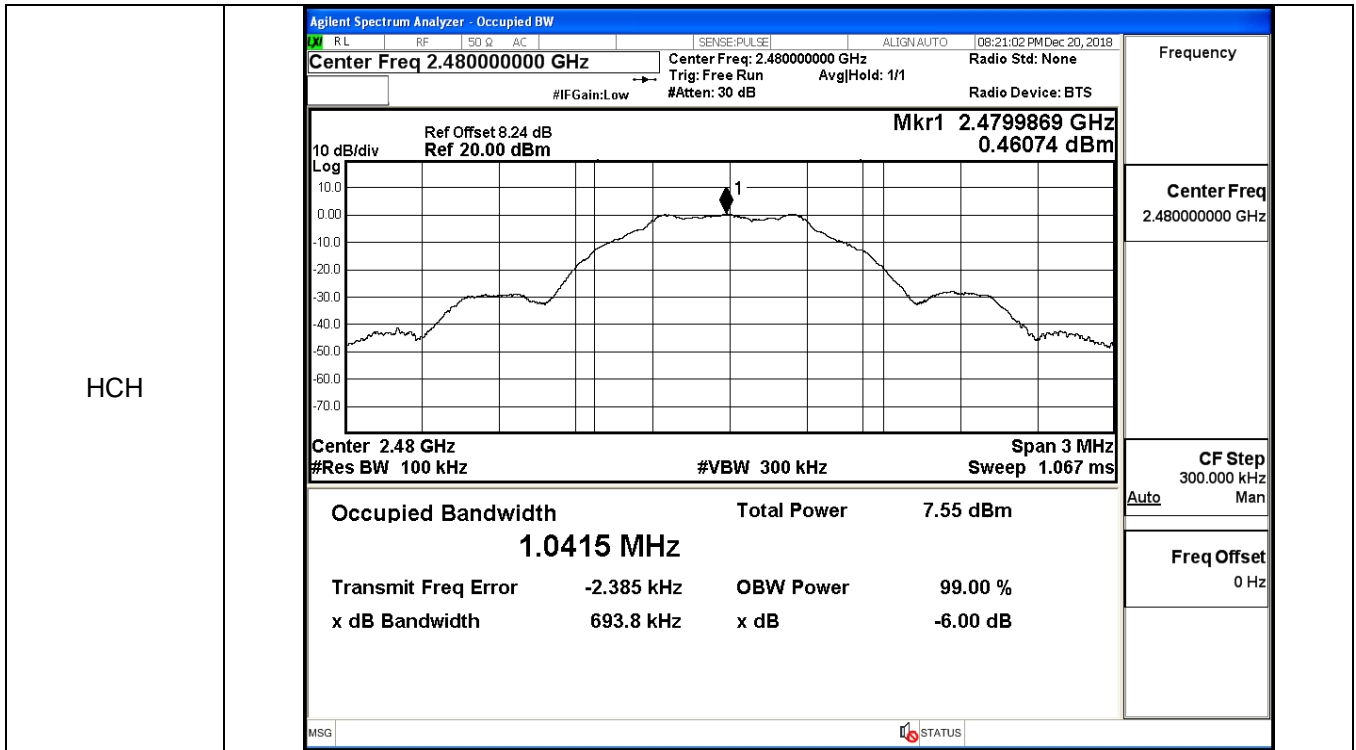
HCH



**B.4 6dB Bandwidth**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.7019	≥0.5	PASS
BT LE	MCH	0.6973	≥0.5	PASS
BT LE	HCH	0.6938	≥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 08:17:04 PM Dec 20, 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;">#IFGain:Low Trig: Free Run AvgHold: 1/1 Radio Device: BTS</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p style="font-size: x-small; margin: 0;">Ref Offset 8.24 dB Mkr1 2.4019843 GHz</p> <p style="font-size: x-small; margin: 0;">Ref 20.00 dBm 0.38310 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>Occupied Bandwidth</td> <td>Total Power</td> <td>7.51 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>1.0439 MHz</b></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-2.125 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>701.9 kHz</td> <td>x dB -6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	7.51 dBm	<b>1.0439 MHz</b>			Transmit Freq Error	-2.125 kHz	OBW Power 99.00 %	x dB Bandwidth	701.9 kHz	x dB -6.00 dB
Occupied Bandwidth	Total Power	7.51 dBm											
<b>1.0439 MHz</b>													
Transmit Freq Error	-2.125 kHz	OBW Power 99.00 %											
x dB Bandwidth	701.9 kHz	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 08:19:26 PM Dec 20, 2018</p> <p style="margin: 0;">Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">#IFGain:Low Trig: Free Run AvgHold: 1/1 Radio Device: BTS</p> <div style="border: 1px solid black; padding: 2px; margin: 5px 0;"> <p style="font-size: x-small; margin: 0;">Ref Offset 8.24 dB Mkr1 2.4399869 GHz</p> <p style="font-size: x-small; margin: 0;">Ref 20.00 dBm 0.53875 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>Occupied Bandwidth</td> <td>Total Power</td> <td>7.60 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>1.0443 MHz</b></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-2.193 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>697.3 kHz</td> <td>x dB -6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	7.60 dBm	<b>1.0443 MHz</b>			Transmit Freq Error	-2.193 kHz	OBW Power 99.00 %	x dB Bandwidth	697.3 kHz	x dB -6.00 dB
Occupied Bandwidth	Total Power	7.60 dBm											
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Transmit Freq Error	-2.193 kHz	OBW Power 99.00 %											
x dB Bandwidth	697.3 kHz	x dB -6.00 dB											

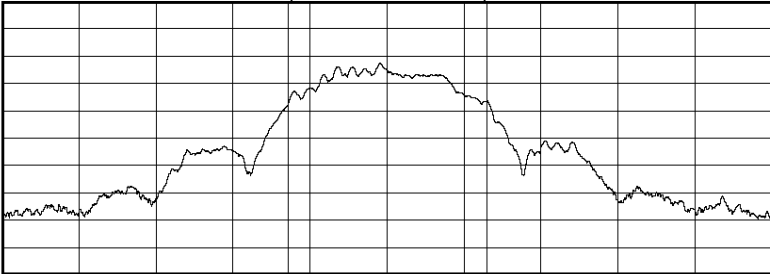


**B.5 Occupied Bandwidth**

Mode	Channel	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	1.0319	No Limit	PASS
BT LE	MCH	1.0317	No Limit	PASS
BT LE	HCH	1.0319	No Limit	PASS

Test Graphs																			
LCH	<div style="border: 1px solid black; padding: 5px;"> <p><b>Agilent Spectrum Analyzer - Occupied BW</b></p> <p>RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 04:18:57 PM Dec 21, 2018</p> <p>Center Freq 2.40200000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p>Trig: Free Run AvgHold: 10/10</p> <p>#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>Ref Offset 8.24 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.402 GHz Span 4 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>6.21 dBm</td> </tr> <tr> <td><b>1.0319 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>4.130 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>655.7 kHz</td> <td></td> <td></td> </tr> </table> <p>MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	6.21 dBm	<b>1.0319 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	4.130 kHz	x dB	-6.00 dB	x dB Bandwidth			655.7 kHz		
Occupied Bandwidth	Total Power	6.21 dBm																	
<b>1.0319 MHz</b>																			
Transmit Freq Error	OBW Power	99.00 %																	
4.130 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
655.7 kHz																			
MCH	<div style="border: 1px solid black; padding: 5px;"> <p><b>Agilent Spectrum Analyzer - Occupied BW</b></p> <p>RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 04:19:34 PM Dec 21, 2018</p> <p>Center Freq 2.44000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p>Trig: Free Run AvgHold: 10/10</p> <p>#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <p>Ref Offset 8.24 dB Ref 20.00 dBm</p> <p>10 dB/div Log</p> <p>Center 2.44 GHz Span 4 MHz #Res BW 30 kHz #VBW 100 kHz Sweep 4.267 ms</p> <table border="1"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>6.80 dBm</td> </tr> <tr> <td><b>1.0317 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>3.641 kHz</td> <td>x dB</td> <td>-6.00 dB</td> </tr> <tr> <td>x dB Bandwidth</td> <td></td> <td></td> </tr> <tr> <td>659.1 kHz</td> <td></td> <td></td> </tr> </table> <p>MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	6.80 dBm	<b>1.0317 MHz</b>			Transmit Freq Error	OBW Power	99.00 %	3.641 kHz	x dB	-6.00 dB	x dB Bandwidth			659.1 kHz		
Occupied Bandwidth	Total Power	6.80 dBm																	
<b>1.0317 MHz</b>																			
Transmit Freq Error	OBW Power	99.00 %																	
3.641 kHz	x dB	-6.00 dB																	
x dB Bandwidth																			
659.1 kHz																			



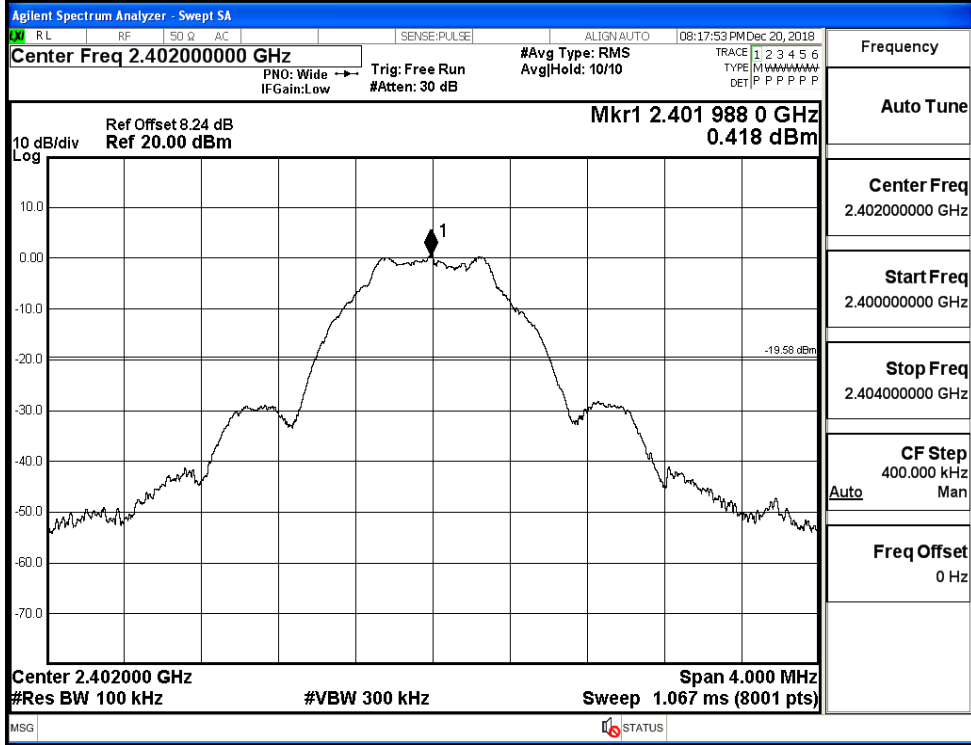
HCH	Agilent Spectrum Analyzer - Occupied BW	RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 04:20:00 PM Dec 21, 2018																		
	<b>Center Freq 2.480000000 GHz</b>	Center Freq: 2.480000000 GHz Trig: Free Run AvgHold>10/10	Radio Std: None Radio Device: BTS																	
	#IFGain:Low	#Atten: 30 dB																		
	10 dB/div Log	Ref Offset 8.24 dB Ref 20.00 dBm																		
			Center Freq 2.480000000 GHz																	
Center 2.48 GHz #Res BW 30 kHz	#VBW 100 kHz	Span 4 MHz Sweep 4.267 ms																		
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"><b>Occupied Bandwidth</b></td> <td style="width: 33%;"><b>Total Power</b></td> <td style="width: 33%;"><b>7.52 dBm</b></td> </tr> <tr> <td style="text-align: center;"><b>1.0319 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>3.282 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>657.8 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>		<b>Occupied Bandwidth</b>	<b>Total Power</b>	<b>7.52 dBm</b>	<b>1.0319 MHz</b>			Transmit Freq Error	3.282 kHz	OBW Power	x dB Bandwidth	657.8 kHz	x dB			99.00 %			-6.00 dB	CF Step 400.000 kHz Auto Man
<b>Occupied Bandwidth</b>	<b>Total Power</b>	<b>7.52 dBm</b>																		
<b>1.0319 MHz</b>																				
Transmit Freq Error	3.282 kHz	OBW Power																		
x dB Bandwidth	657.8 kHz	x dB																		
		99.00 %																		
		-6.00 dB																		
		Freq Offset 0 Hz																		
MSG		STATUS																		

**B.6 RF Conducted Spurious Emissions**

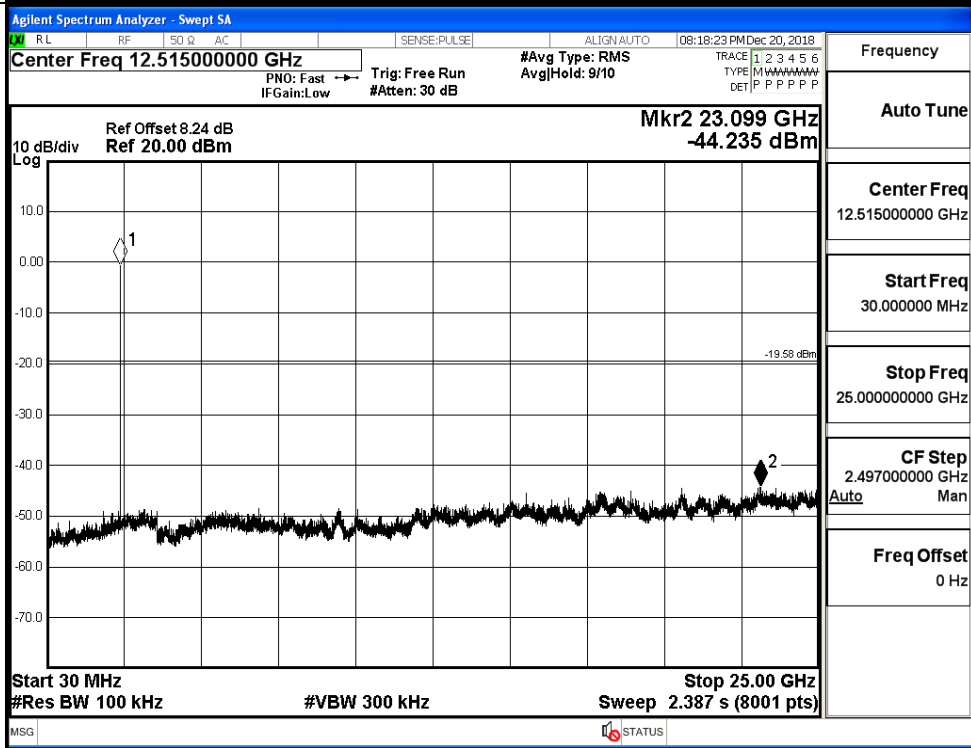
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.418	-44.235	-19.582	PASS
BT LE	MCH	0.524	-44.295	-19.476	PASS
BT LE	HCH	0.416	-44.082	-19.584	PASS

BT LE\_LCH\_Graphs

Pref/BT LE/LCH

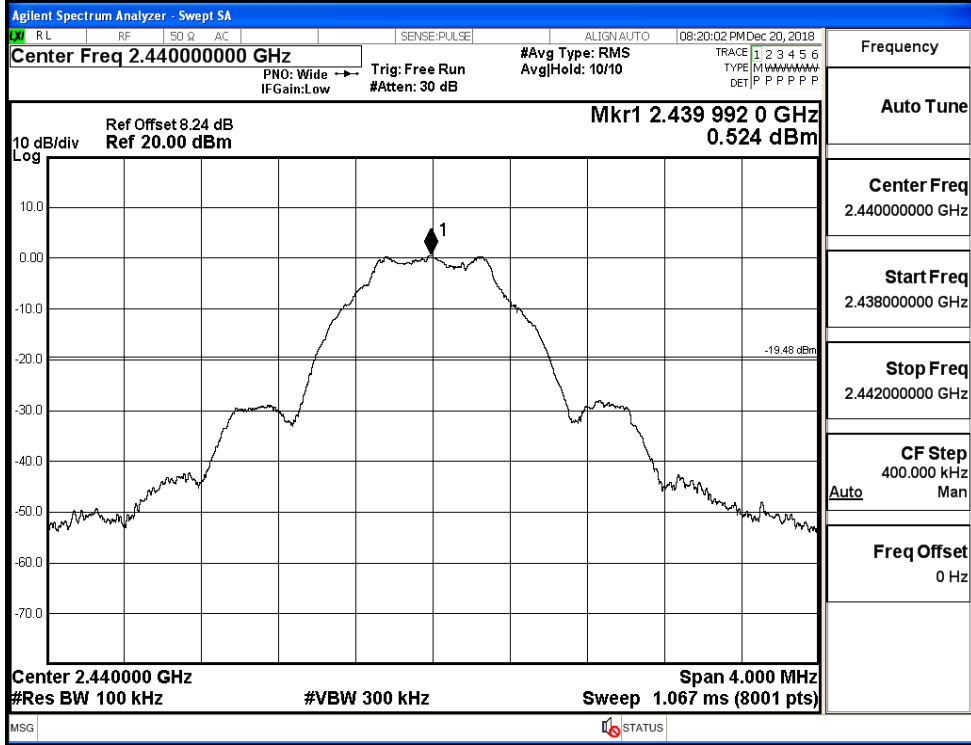


Puw/BT LE/LCH

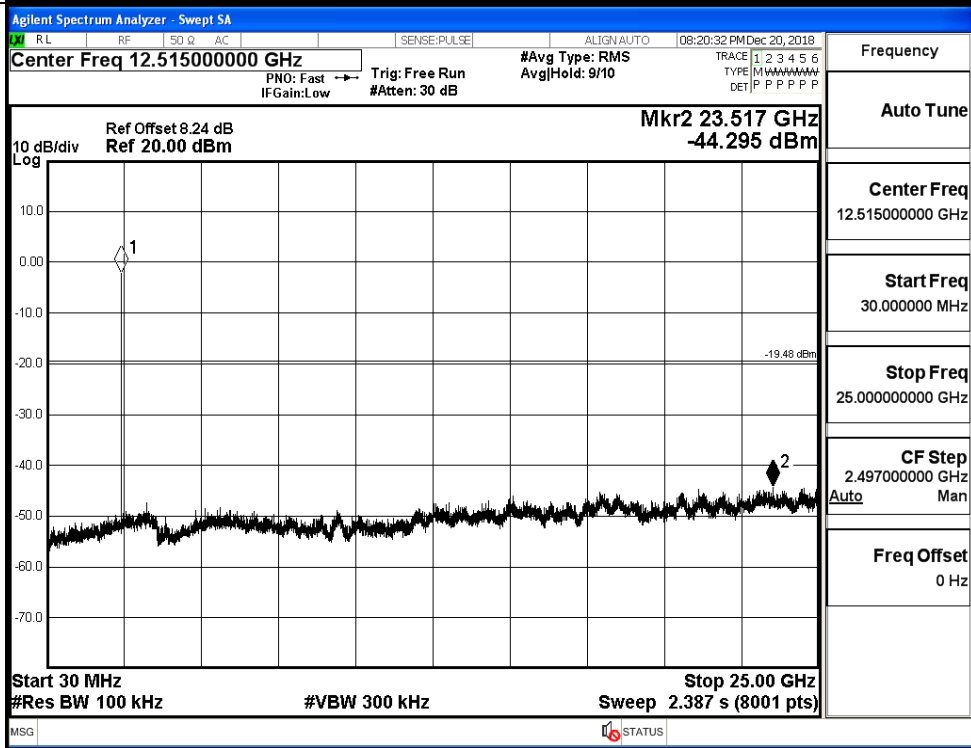


BT LE\_MCH\_Graphs

Pref/BT LE/MCH

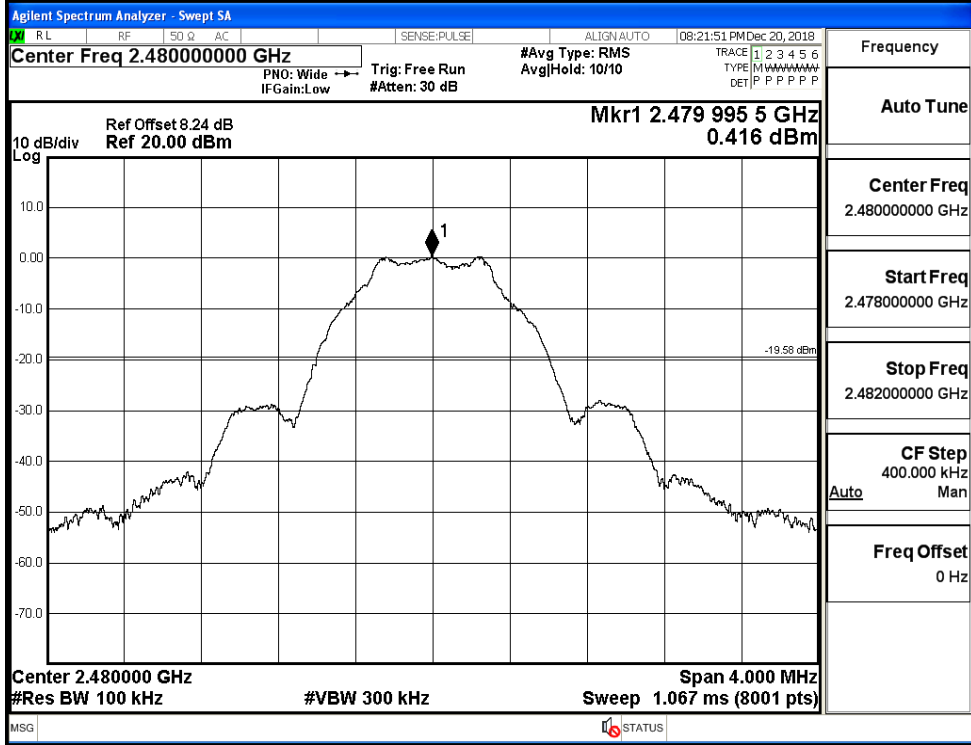


Puw/BT LE/MCH

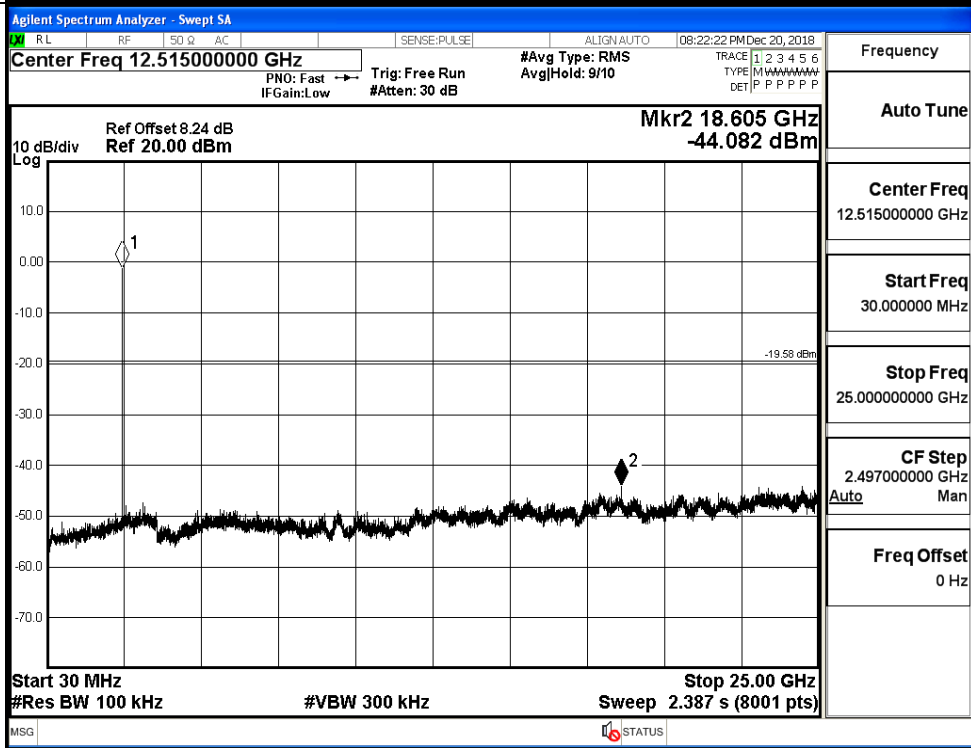


BT LE\_HCH\_Graphs

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	0.453	-49.819	-19.55	PASS
BT LE	HCH	0.518	-49.143	-19.48	PASS

**Test Graphs**

LCH

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

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HCH

Frequency

Auto Tune

Center Freq  
2.48900000 GHz

Start Freq  
2.47800000 GHz

Stop Freq  
2.50000000 GHz

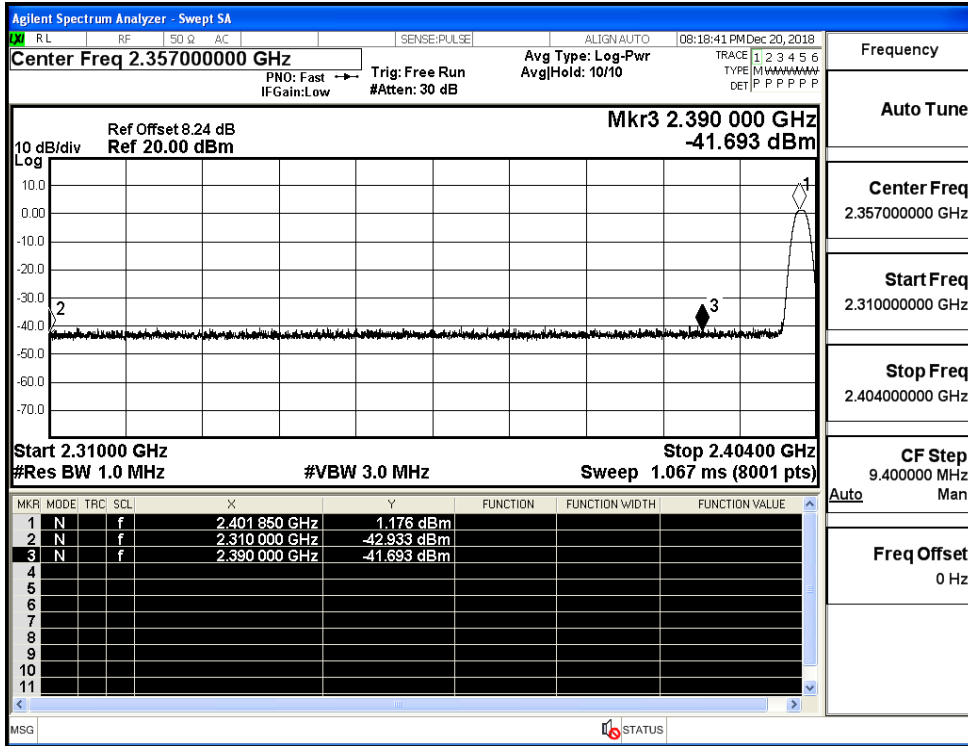
CF Step  
2.200000 MHz

Freq Offset  
0 Hz

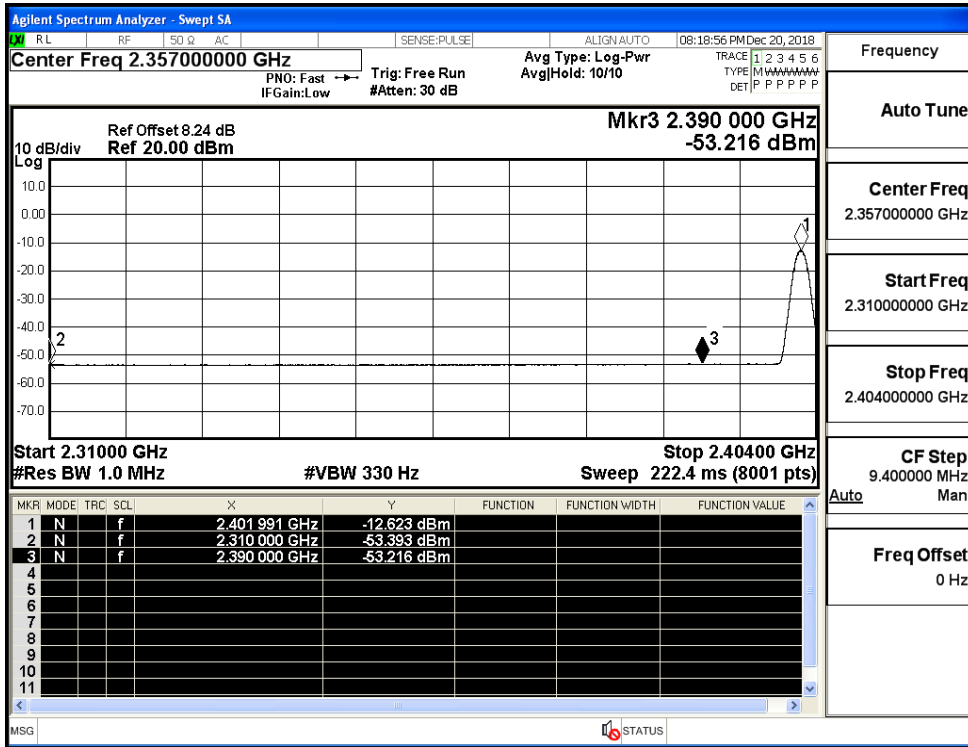
**B.8 Restrict-band band-edge measurements**

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	-42.93	2.0	0	54.33	PEAK	74	PASS
		Ant1	2310.0	-53.39	2.0	0	43.87	AV	54	PASS
		Ant1	2390.0	-41.69	2.0	0	55.57	PEAK	74	PASS
		Ant1	2390.0	-53.22	2.0	0	44.04	AV	54	PASS
	2480	Ant1	2483.5	-43.75	2.0	0	53.51	PEAK	74	PASS
		Ant1	2483.5	-53.01	2.0	0	44.25	AV	54	PASS
		Ant1	2500.0	-41.94	2.0	0	55.32	PEAK	74	PASS
		Ant1	2500.0	-52.93	2.0	0	44.33	AV	54	PASS

Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_PEAK

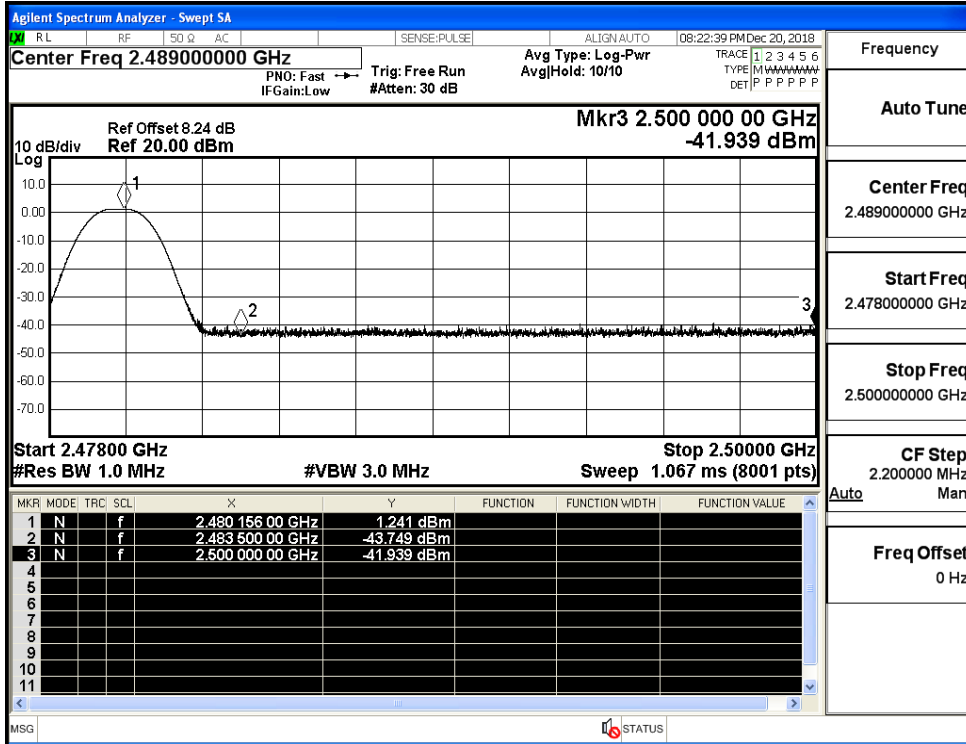


Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_AV





Restrict-band band-edge measurements\_BT LE\_2480\_Ant1\_PEAK



Restrict-band band-edge measurements\_BT LE\_2480\_Ant1\_AV

