

## Appendix B

### RF Test Data for BT V5.0(BLE) (Conducted Measurement)

Product Name: **Wireless Flight Adapter**

Trade Mark: **RHA**

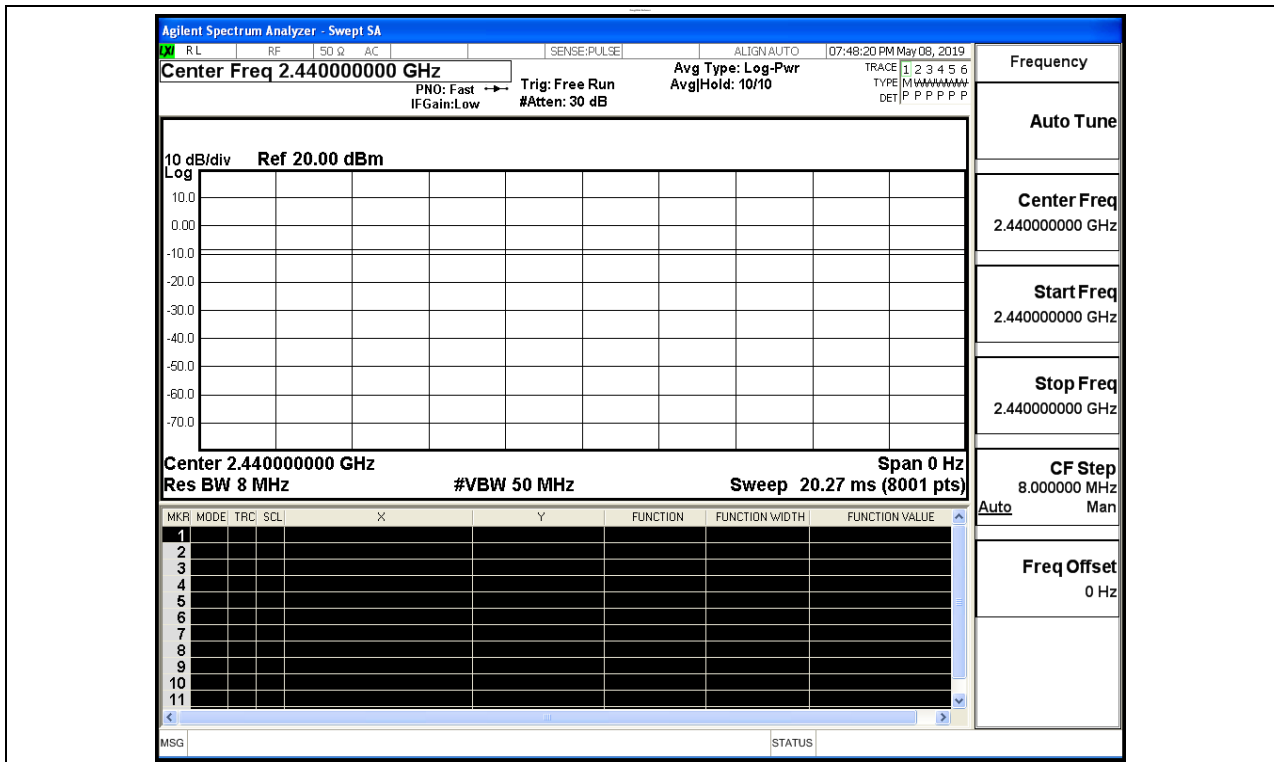
Test Model: **Flight Adapter**

#### Environmental Conditions

Temperature:	24.9 ° C
Relative Humidity:	53.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.lu
Supervised by:	Tom.Liu

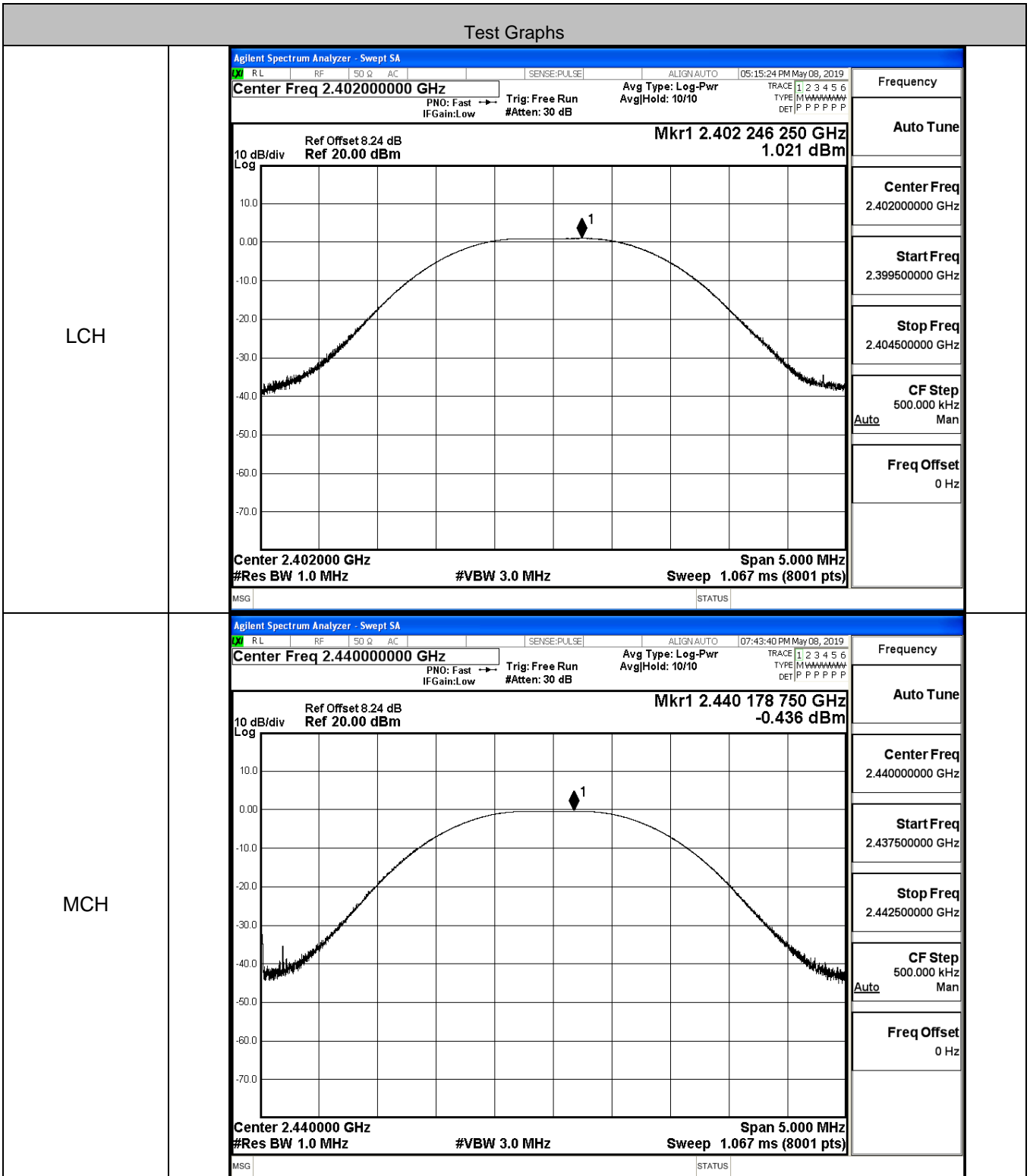
#### B.1 Duty Cycle

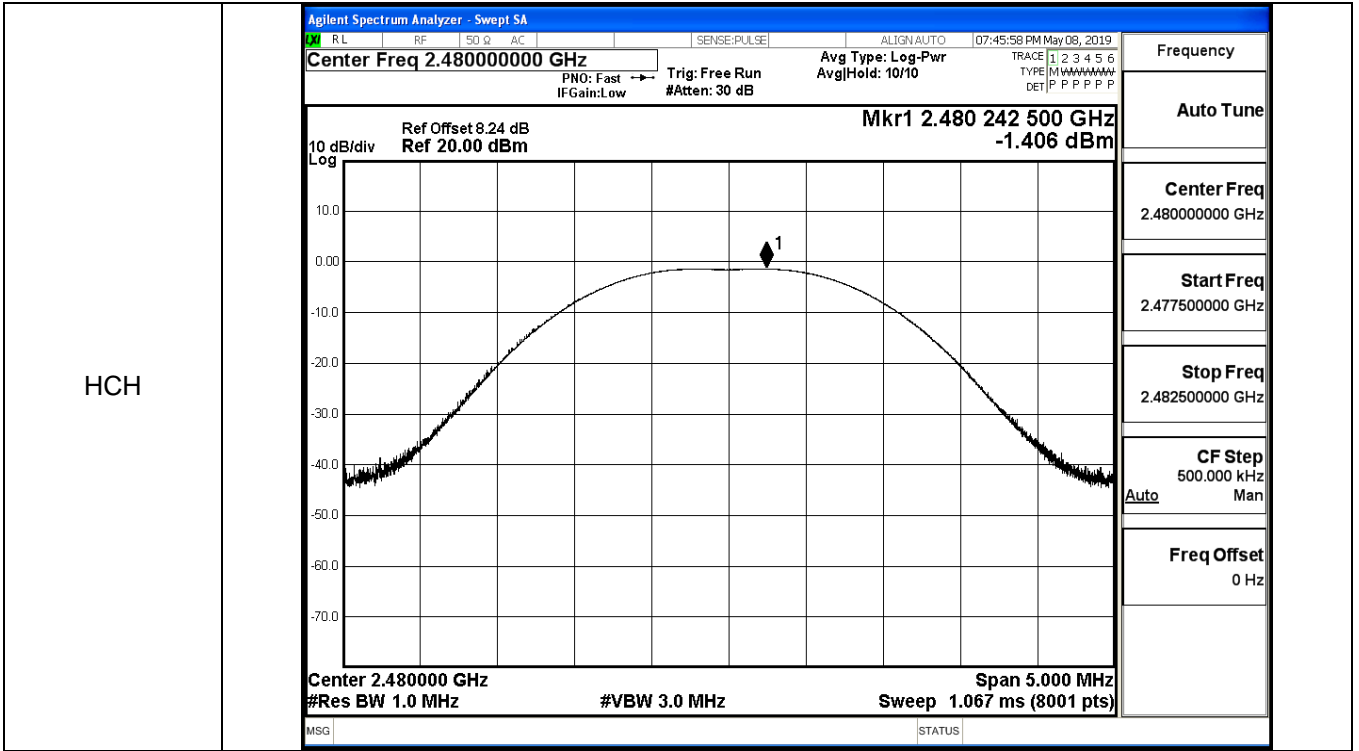
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



### B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.021	30	PASS
BT LE	MCH	-0.436	30	PASS
BT LE	HCH	-1.406	30	PASS

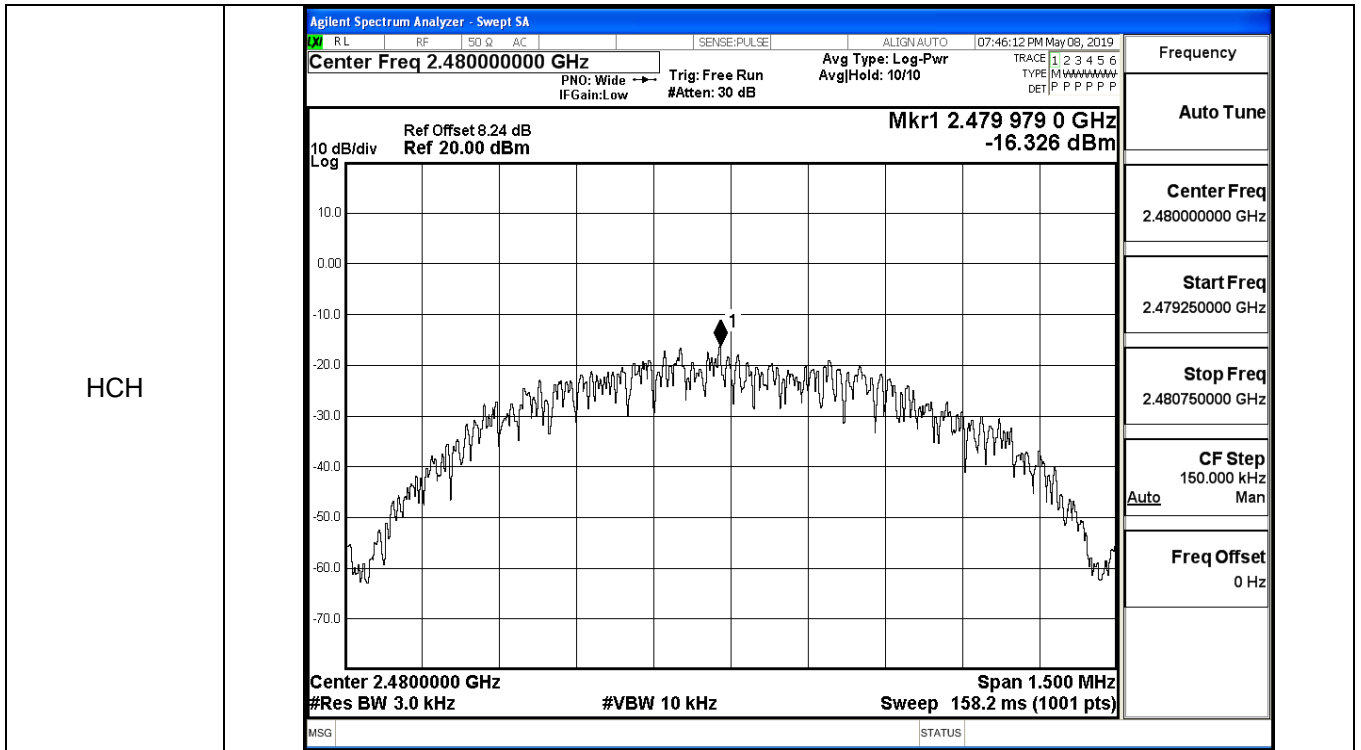




### B.3 Maximum Power Spectral Density

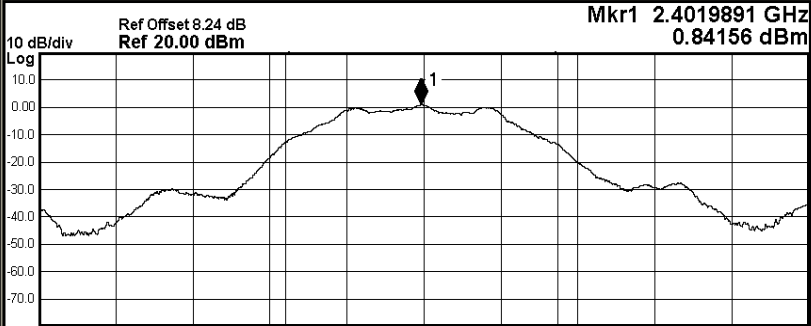
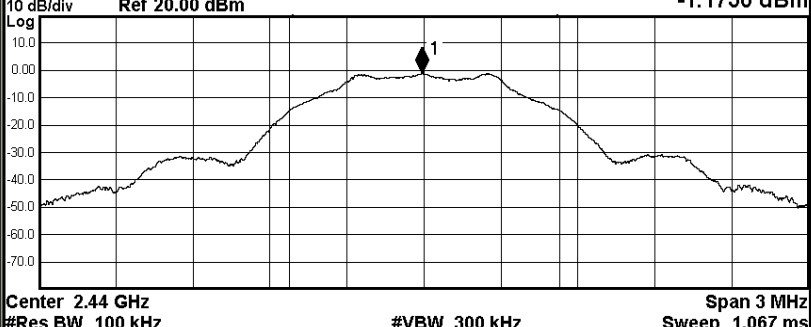
Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.318	8	PASS
BT LE	MCH	-15.466	8	PASS
BT LE	HCH	-16.326	8	PASS

Test Graphs	
LCH	<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Swept SA</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 05:15:37 PM May 08, 2019</p> <p style="font-size: small; margin: 0;">Center Freq 2.40200000 GHz Avg Type: Log-Pwr TRACE 1 2 3 4 5 6</p> <p style="font-size: x-small; margin: 0;">PNO: Wide → Trig: Free Run AvgHold: 10/10 TYPE M W W W W W W W</p> <p style="font-size: x-small; margin: 0;">IFGain:Low #Atten: 30 dB DET P P P P P P P</p> <div style="display: flex; justify-content: space-between; font-size: small;"> <div>Ref Offset 8.24 dB Ref 20.00 dBm</div> <div>Mkr1 2.401 856 0 GHz -14.318 dBm</div> </div> <div style="display: flex; justify-content: space-between; font-size: small; margin-top: 5px;"> <div>Center 2.4020000 GHz #Res BW 3.0 kHz</div> <div>#VBW 10 kHz</div> <div>Span 1.500 MHz Sweep 158.2 ms (1001 pts)</div> </div> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>
MCH	<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Swept SA</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 07:43:54 PM May 08, 2019</p> <p style="font-size: small; margin: 0;">Center Freq 2.44000000 GHz Avg Type: Log-Pwr TRACE 1 2 3 4 5 6</p> <p style="font-size: x-small; margin: 0;">PNO: Wide → Trig: Free Run AvgHold: 10/10 TYPE M W W W W W W W</p> <p style="font-size: x-small; margin: 0;">IFGain:Low #Atten: 30 dB DET P P P P P P P</p> <div style="display: flex; justify-content: space-between; font-size: small;"> <div>Ref Offset 8.24 dB Ref 20.00 dBm</div> <div>Mkr1 2.439 977 5 GHz -15.466 dBm</div> </div> <div style="display: flex; justify-content: space-between; font-size: small; margin-top: 5px;"> <div>Center 2.4400000 GHz #Res BW 3.0 kHz</div> <div>#VBW 10 kHz</div> <div>Span 1.500 MHz Sweep 158.2 ms (1001 pts)</div> </div> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>



**B.4 6dB Bandwidth**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6954	≥0.5	PASS
BT LE	MCH	0.6831	≥0.5	PASS
BT LE	HCH	0.6784	≥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 05:15:13 PM May 08, 2019</p> <p style="margin: 0;">Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p style="margin: 0;">Trig: Free Run AvgHold&gt;1/1</p> <p style="margin: 0;">#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> <div style="border: 1px solid black; padding: 2px;"> <p style="font-size: x-small; margin: 0;">10 dB/div Ref Offset 8.24 dB Mkr1 2.4019891 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm 0.84156 dBm</p>  <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%;">7.40 dBm</td> </tr> <tr> <td style="text-align: center;"><b>1.0565 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-8.842 kHz</td> <td>OBW Power</td> </tr> <tr> <td>x dB Bandwidth</td> <td>695.4 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> </div> </div> <table style="width: 100%; font-size: x-small; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 33%;">Frequency</td> <td>2.402000000 GHz</td> </tr> <tr> <td>Center Freq</td> <td>2.402000000 GHz</td> </tr> <tr> <td>CF Step</td> <td>300.000 kHz</td> </tr> <tr> <td>Auto</td> <td>Man</td> </tr> <tr> <td>Freq Offset</td> <td>0 Hz</td> </tr> </table>	Occupied Bandwidth	Total Power	7.40 dBm	<b>1.0565 MHz</b>			Transmit Freq Error	-8.842 kHz	OBW Power	x dB Bandwidth	695.4 kHz	x dB			99.00 %			-6.00 dB	Frequency	2.402000000 GHz	Center Freq	2.402000000 GHz	CF Step	300.000 kHz	Auto	Man	Freq Offset	0 Hz
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Freq Offset	0 Hz																												

HCH	Agilent Spectrum Analyzer - Occupied BW			RL	RF	50 Ω	AC	SENSE: PULSE	ALIGN: AUTO	07:45:47 PM May 08, 2019	
	<b>Center Freq 2.480000000 GHz</b>			Center Freq: 2.480000000 GHz			Radio Std: None			Frequency	
	#IF Gain: Low			Trig: Free Run			Avg Hold: 1/1			Radio Device: BTS	
	#Atten: 30 dB			Mkr1 2.48 GHz			-2.1736 dBm			Center Freq 2.480000000 GHz	
	Ref Offset 8.24 dB			Ref 20.00 dBm			Span 3 MHz			CF Step 300.000 kHz	
10 dB/div			Log			#Res BW 100 kHz			#VBW 300 kHz		
Center 2.48 GHz			Sweep 1.067 ms			Occupied Bandwidth			Total Power 4.86 dBm		
#Res BW 100 kHz			1.0441 MHz			Transmit Freq Error 4.994 kHz			OBW Power 99.00 %		
#Res BW 100 kHz			x dB Bandwidth 678.4 kHz			x dB			-6.00 dB		
MSG			STATUS			Auto			Freq Offset 0 Hz		

### B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.163	-43.630	-22.163	PASS
BT LE	MCH	-1.171	-43.603	-21.171	PASS
BT LE	HCH	-2.298	-43.143	-22.298	PASS

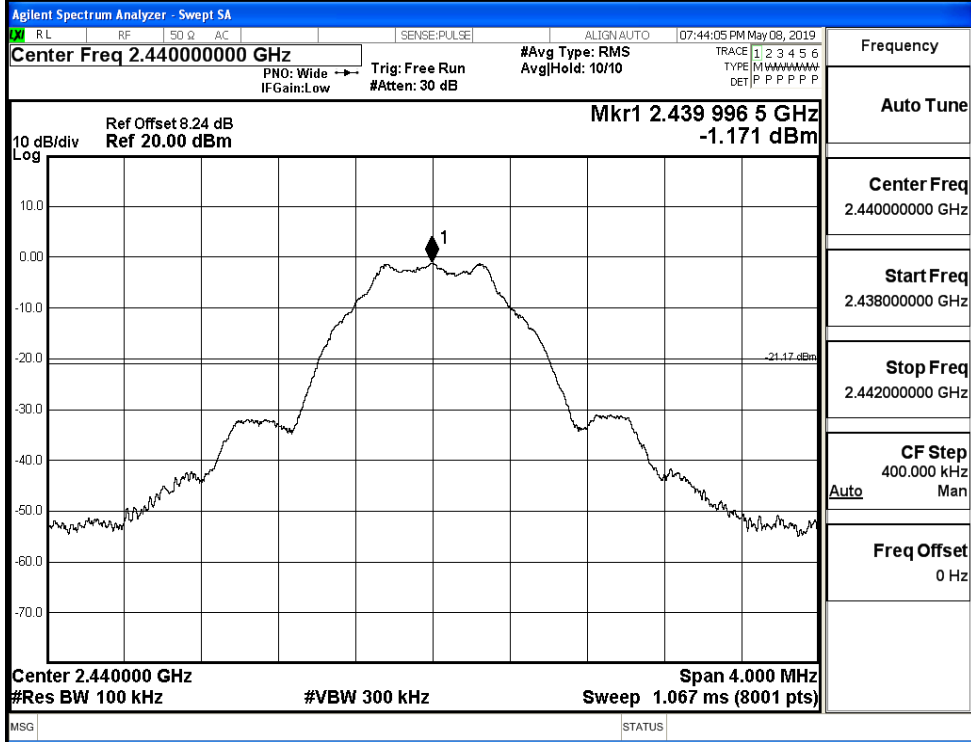
BT LE\_LCH\_Graphs

Pref/BT LE/LCH	<p>Agilent Spectrum Analyzer - Swept SA          Center Freq 2.40200000 GHz          Mkr1 2.4019965 GHz -2.163 dBm          Span 4.000 MHz          #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)</p>	Frequency Auto Tune Center Freq 2.402000000 GHz Start Freq 2.400000000 GHz Stop Freq 2.404000000 GHz CF Step 400.000 kHz Man Freq Offset 0 Hz
Puw/BT LE/LCH	<p>Agilent Spectrum Analyzer - Swept SA          Center Freq 12.51500000 GHz          Mkr2 5.533 GHz -43.630 dBm          Start 30 MHz Stop 25.00 GHz          #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (8001 pts)</p>	Frequency Auto Tune Center Freq 12.515000000 GHz Start Freq 30.0000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Man Freq Offset 0 Hz

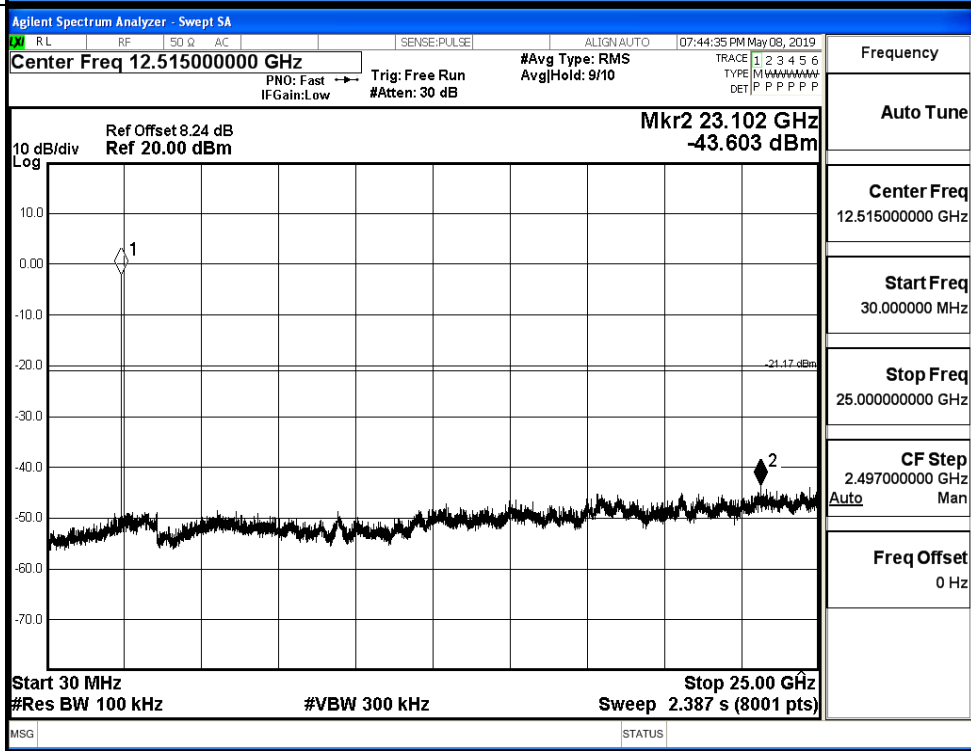


BT LE\_MCH\_Graphs

Pref/BT LE/MCH

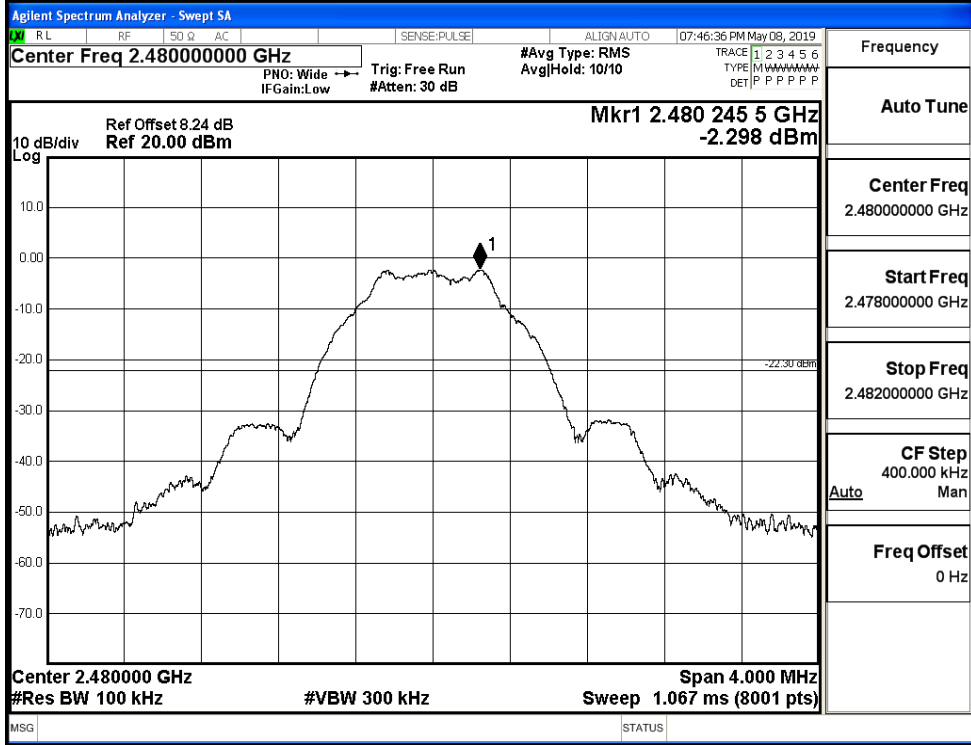


Puw/BT LE/MCH

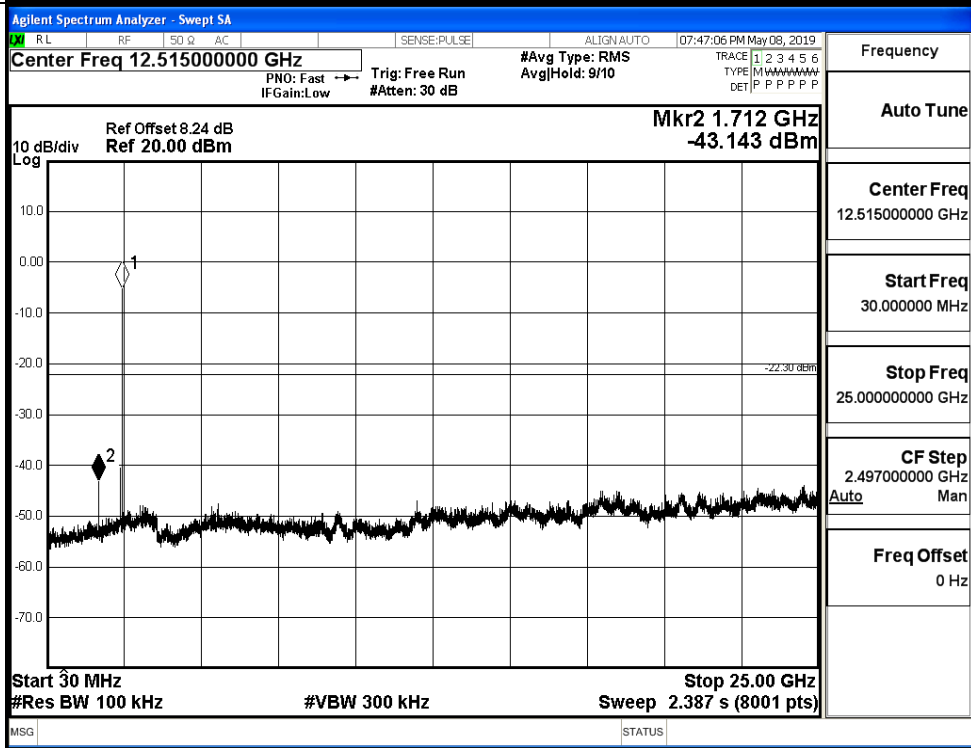


BT LE\_HCH\_Graphs

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	1.193	-49.827	-18.81	PASS
BT LE	HCH	-1.989	-50.172	-21.99	PASS

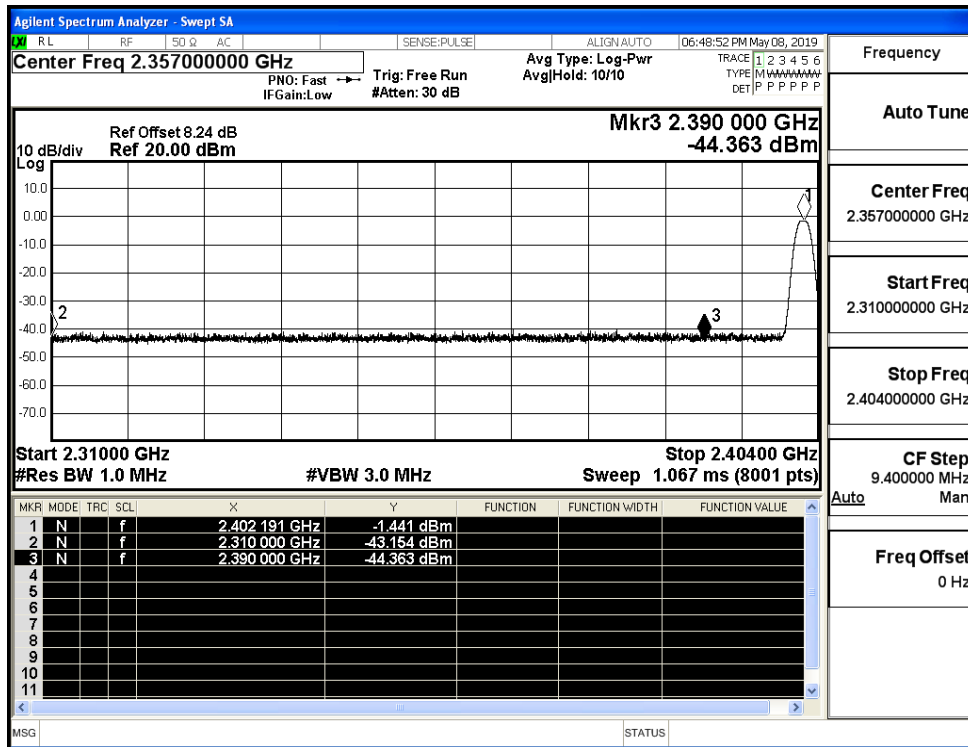
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA                  Center Freq 2.35700000 GHz                  Ref Offset 8.24 dB, Ref 20.00 dBm                  Mkr4 2.384 436 GHz, -49.827 dBm                  Start 2.31000 GHz, Stop 2.40400 GHz                  #Res BW 100 kHz, #VBW 300 kHz, Sweep 9.067 ms (8001 pts)</p> <table border="1" style="font-size: small;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.401991 GHz</td><td>1.193 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.400000 GHz</td><td>-45.929 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.390000 GHz</td><td>-54.314 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.384436 GHz</td><td>-49.827 dBm</td><td></td><td></td><td></td></tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	f		2.401991 GHz	1.193 dBm				2	N	f		2.400000 GHz	-45.929 dBm				3	N	f		2.390000 GHz	-54.314 dBm				4	N	f		2.384436 GHz	-49.827 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
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HCH	<p>Agilent Spectrum Analyzer - Swept SA                  Center Freq 2.48900000 GHz                  Ref Offset 8.24 dB, Ref 20.00 dBm                  Mkr4 2.488 087 00 GHz, -50.172 dBm                  Start 2.47800 GHz, Stop 2.50000 GHz                  #Res BW 100 kHz, #VBW 300 kHz, Sweep 2.133 ms (8001 pts)</p> <table border="1" style="font-size: small;"> <thead> <tr> <th>MKR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.47999650 GHz</td><td>-1.989 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.48350000 GHz</td><td>-50.363 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.50000000 GHz</td><td>-52.906 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.48808700 GHz</td><td>-50.172 dBm</td><td></td><td></td><td></td></tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	f		2.47999650 GHz	-1.989 dBm				2	N	f		2.48350000 GHz	-50.363 dBm				3	N	f		2.50000000 GHz	-52.906 dBm				4	N	f		2.48808700 GHz	-50.172 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
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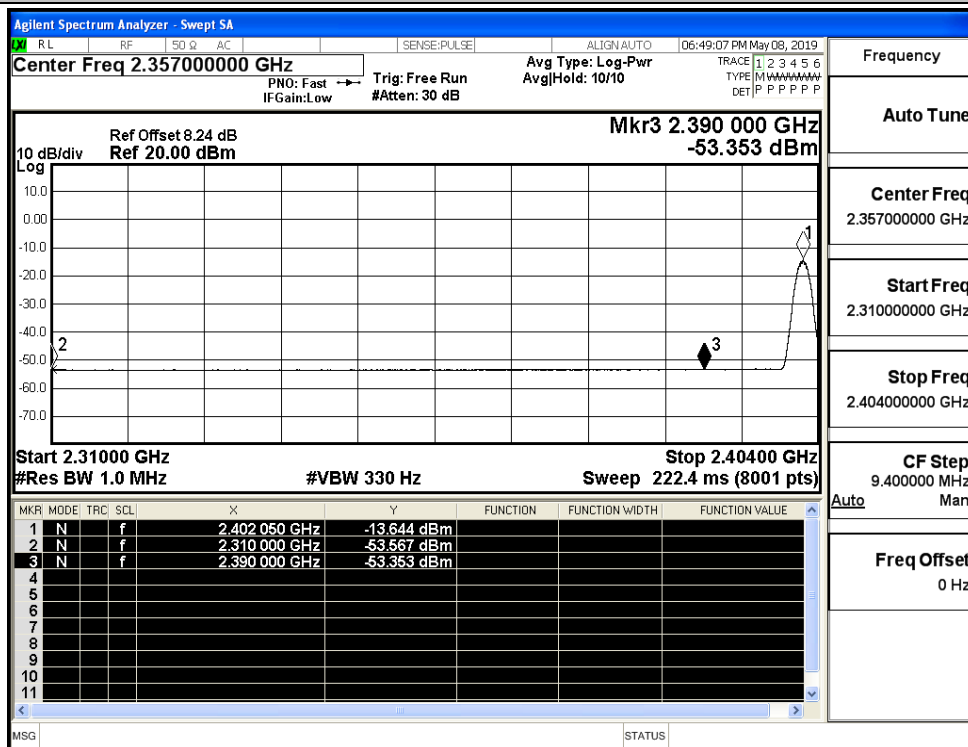
## B.7 Restrict-band band-edge measurements

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	-43.15	3.0	0	55.11	PEAK	74	PASS
		Ant1	2310.0	-53.57	3.0	0	44.69	AV	54	PASS
		Ant1	2390.0	-44.36	3.0	0	53.9	PEAK	74	PASS
		Ant1	2390.0	-53.35	3.0	0	44.91	AV	54	PASS
	2480	Ant1	2483.5	-42.86	3.0	0	55.4	PEAK	74	PASS
		Ant1	2483.5	-53.04	3.0	0	45.22	AV	54	PASS
		Ant1	2500.0	-43.62	3.0	0	54.64	PEAK	74	PASS
		Ant1	2500.0	-52.97	3.0	0	45.29	AV	54	PASS

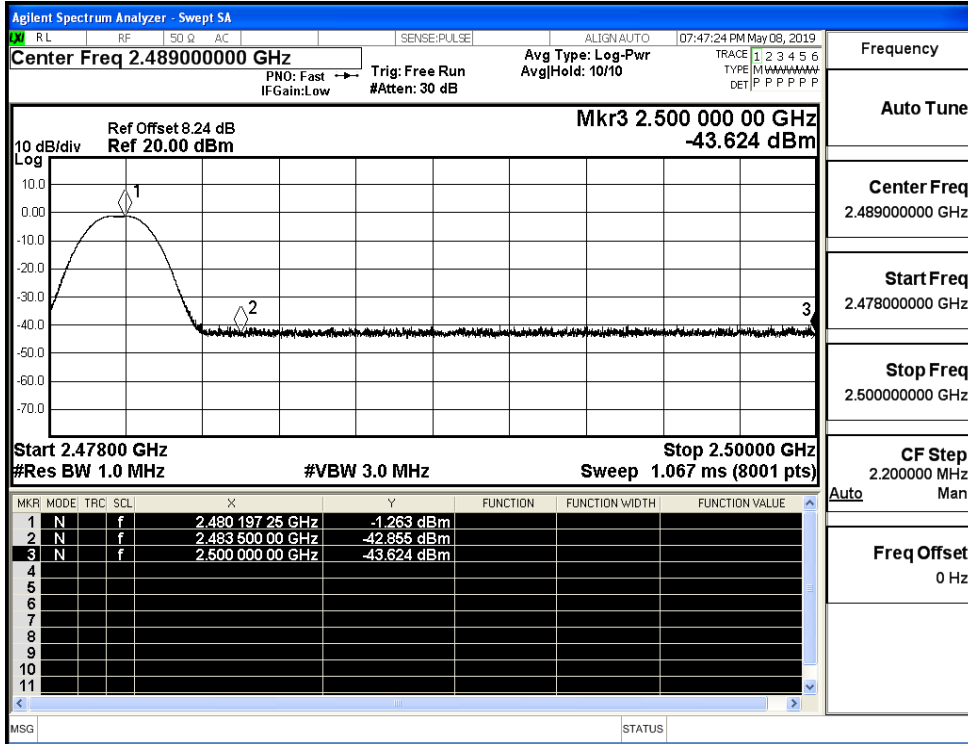
Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_PEAK



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

