

## Appendix A

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

Product Name: NOTEBOOK PC

Trade Mark: THOMSON

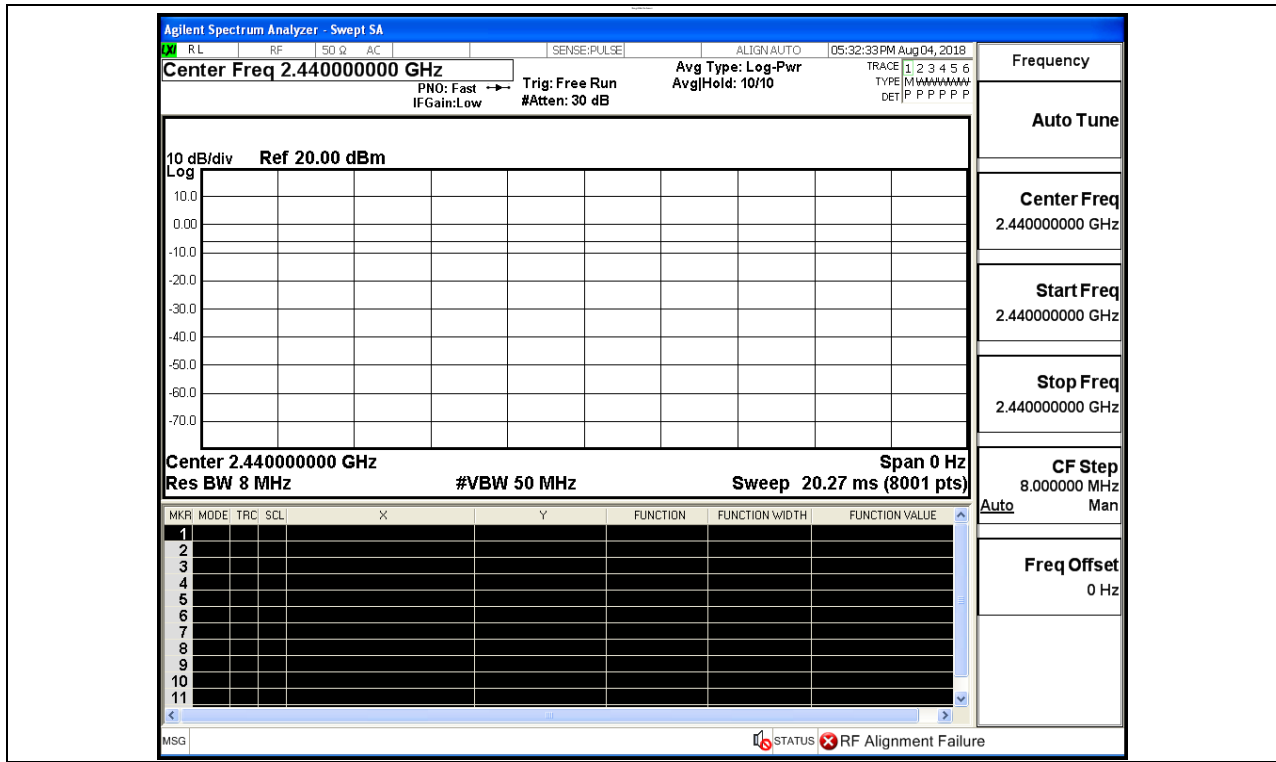
Test Model: WWNEO14C-4BK32F

#### Environmental Conditions

Temperature:	24.3 ° C
Relative Humidity:	53.6%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

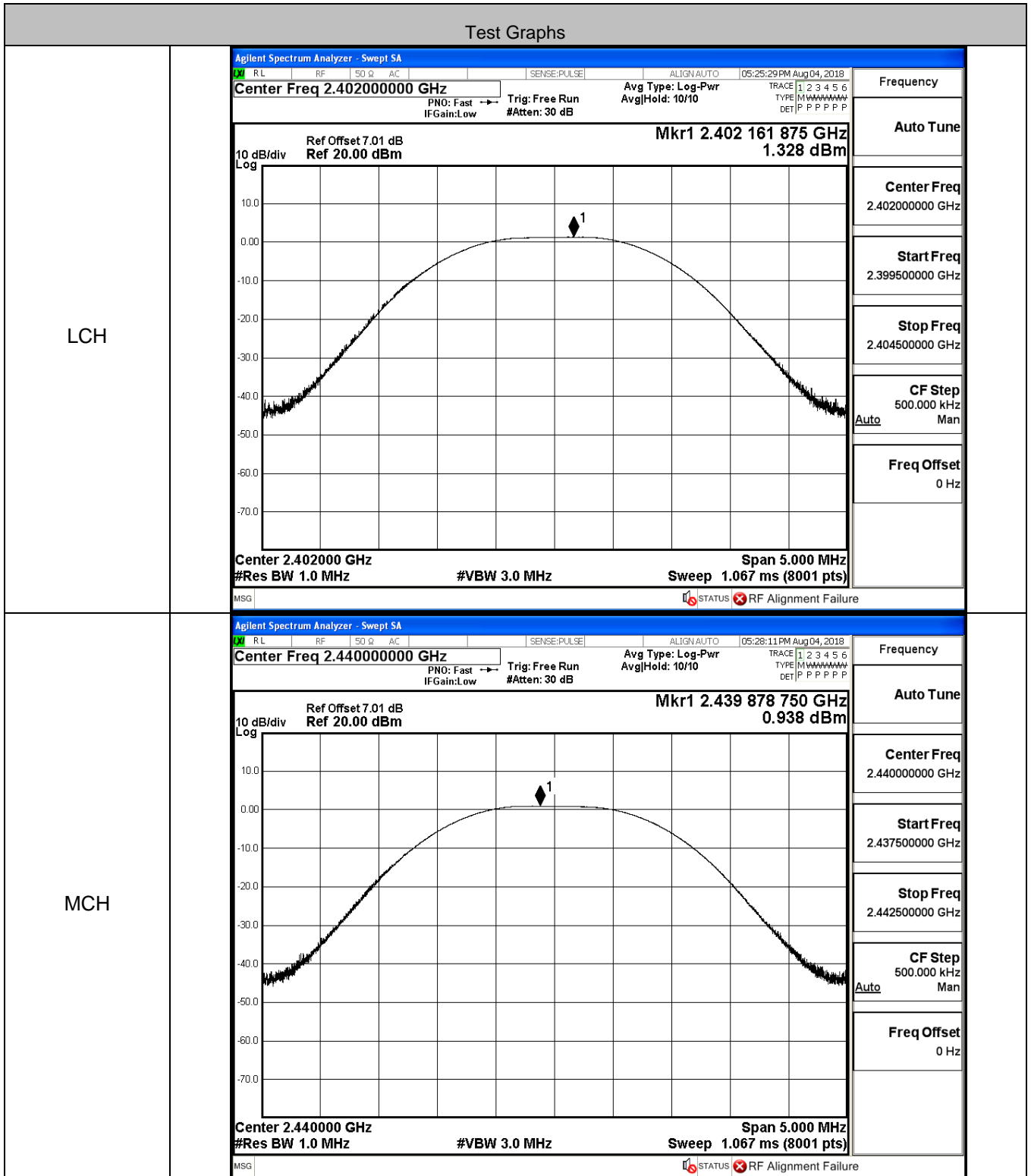
#### A.1 Duty Cycle

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



### A.2 Maximum Conducted Peak Output Power

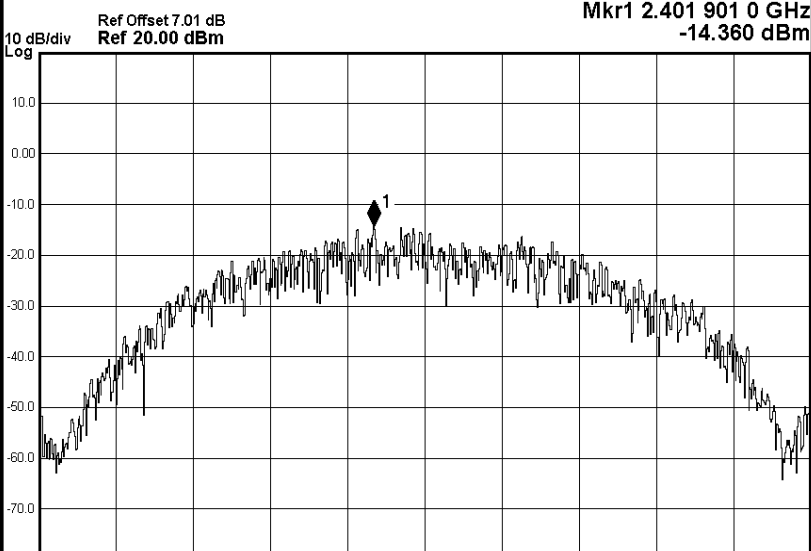
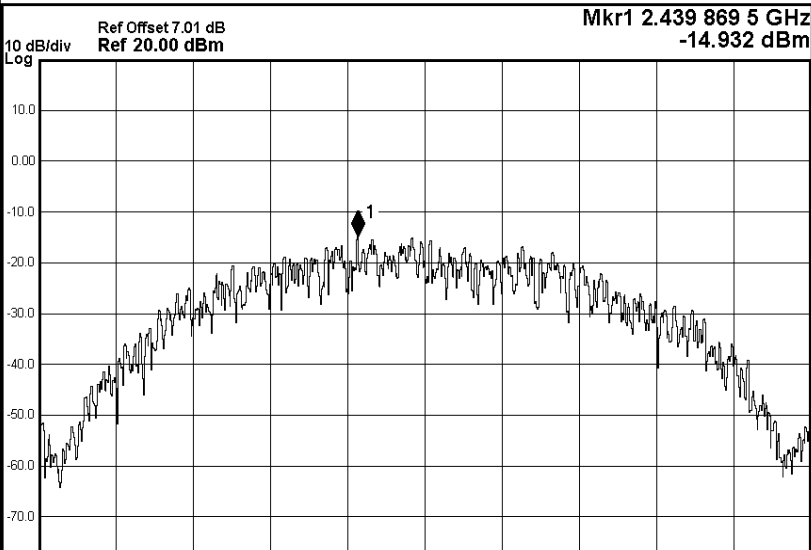
Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.328	30	PASS
BT LE	MCH	0.938	30	PASS
BT LE	HCH	-0.543	30	PASS





### A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-14.360	8	PASS
BT LE	MCH	-14.932	8	PASS
BT LE	HCH	-15.795	8	PASS

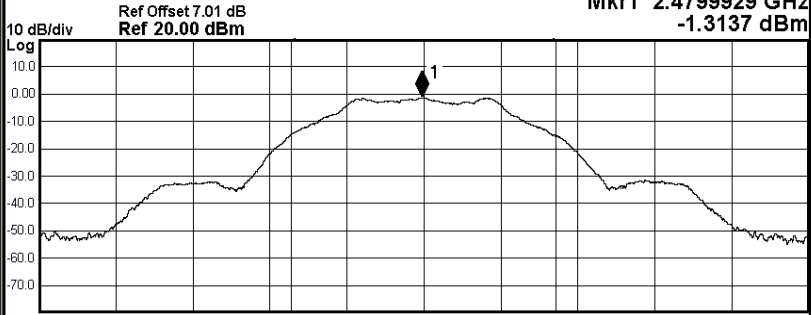
Test Graphs																	
LCH	<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Swept SA</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 05:25:46 PM Aug 04, 2018</p> <p style="font-size: small; 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> <div style="display: flex; justify-content: space-between; font-size: small; margin: 5px 0;"> <span>Ref Offset 7.01 dB</span> <span>Mkr1 2.401 901 0 GHz</span> </div> <div style="display: flex; justify-content: space-between; font-size: small; margin: 0 0 5px 0;"> <span>Ref 20.00 dBm</span> <span>-14.360 dBm</span> </div>  <div style="display: flex; justify-content: space-between; font-size: x-small; margin: 5px 0;"> <span>Center 2.4020000 GHz</span> <span>Span 1.500 MHz</span> </div> <div style="display: flex; justify-content: space-between; font-size: x-small; margin: 0 0 5px 0;"> <span>#Res BW 3.0 kHz</span> <span>#VBW 10 kHz</span> <span>Sweep 158.2 ms (1001 pts)</span> </div> <p style="font-size: x-small; margin: 0;">MSG STATUS RF Alignment Failure</p> </div> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr><td>Frequency</td><td></td></tr> <tr><td>Auto Tune</td><td></td></tr> <tr><td>Center Freq</td><td>2.402000000 GHz</td></tr> <tr><td>Start Freq</td><td>2.401250000 GHz</td></tr> <tr><td>Stop Freq</td><td>2.402750000 GHz</td></tr> <tr><td>CF Step</td><td>150.000 kHz</td></tr> <tr><td>Auto</td><td>Man</td></tr> <tr><td>Freq Offset</td><td>0 Hz</td></tr> </table>	Frequency		Auto Tune		Center Freq	2.402000000 GHz	Start Freq	2.401250000 GHz	Stop Freq	2.402750000 GHz	CF Step	150.000 kHz	Auto	Man	Freq Offset	0 Hz
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**A.4 6dB Bandwidth**

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6783	≥0.5	PASS
BT LE	MCH	0.6818	≥0.5	PASS
BT LE	HCH	0.6773	≥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 05:25:15 PM Aug 04, 2018</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                          Ref Offset 7.01 dB                          Ref 20.00 dBm                     </div> <div style="text-align: right;">                         Mkr1 2.4019944 GHz                          0.49634 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>Occupied Bandwidth</td> <td>Total Power</td> <td>7.57 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>1.0252 MHz</b></td> </tr> <tr> <td>Transmit Freq Error</td> <td>4.404 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>678.3 kHz</td> <td>x dB -6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS RF Alignment Failure</p> </div>	Occupied Bandwidth	Total Power	7.57 dBm	<b>1.0252 MHz</b>			Transmit Freq Error	4.404 kHz	OBW Power 99.00 %	x dB Bandwidth	678.3 kHz	x dB -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:PULSE ALIGN:AUTO 05:27:56 PM Aug 04, 2018</p> <p style="margin: 0;">Center Freq: 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None                      Trig: Free Run AvgHold: &gt;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                          Ref Offset 7.01 dB                          Ref 20.00 dBm                     </div> <div style="text-align: right;">                         Mkr1 2.4399966 GHz                          0.12485 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>Occupied Bandwidth</td> <td>Total Power</td> <td>7.18 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>1.0250 MHz</b></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-590 Hz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>681.8 kHz</td> <td>x dB -6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS RF Alignment Failure</p> </div>	Occupied Bandwidth	Total Power	7.18 dBm	<b>1.0250 MHz</b>			Transmit Freq Error	-590 Hz	OBW Power 99.00 %	x dB Bandwidth	681.8 kHz	x dB -6.00 dB
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<b>1.0250 MHz</b>													
Transmit Freq Error	-590 Hz	OBW Power 99.00 %											
x dB Bandwidth	681.8 kHz	x dB -6.00 dB											

HCH	Agilent Spectrum Analyzer - Occupied BW		RL RF 50 Ω AC SENSE:PULSE ALIGN:AUTO 05:29:48 PM Aug 04, 2018
	Center Freq 2.480000000 GHz		Center Freq: 2.480000000 GHz Trig: Free Run AvgHold: 1/1 Radio Std: None Radio Device: BTS
	#IFGain:Low #Atten: 30 dB		
	Mkr1 2.4799929 GHz -1.3137 dBm		
	 <p>The plot shows a signal spectrum with a peak at 2.4799929 GHz. The y-axis is labeled 'Log' and ranges from -70.0 to 10.0 dB/div. The x-axis represents frequency. A marker '1' is placed at the peak of the signal.</p>		
Center 2.48 GHz #Res BW 100 kHz		#VBW 300 kHz Span 3 MHz Sweep 1.067 ms	Center Freq 2.480000000 GHz
Occupied Bandwidth		Total Power	5.72 dBm
1.0234 MHz			
Transmit Freq Error		203 Hz	OBW Power
x dB Bandwidth		677.3 kHz	99.00 %
x dB		-6.00 dB	CF Step 300.000 kHz Auto Man
			Freq Offset 0 Hz
MSG		STATUS RF Alignment Failure	

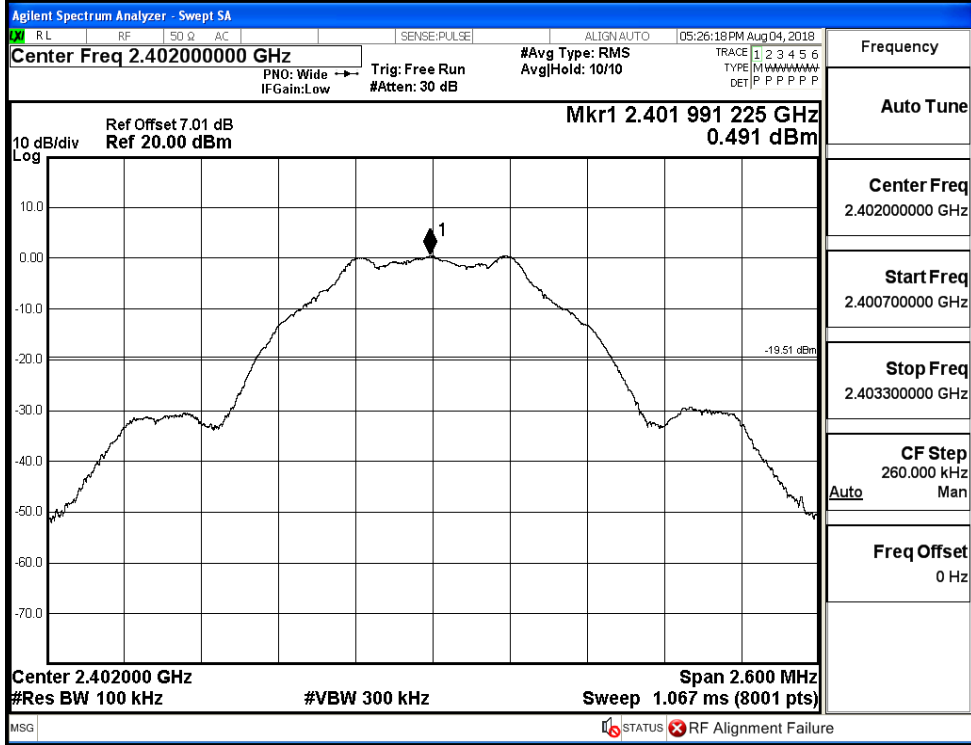
## A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.491	-45.619	-19.509	PASS
BT LE	MCH	0.12	-45.554	-19.880	PASS
BT LE	HCH	-1.351	-45.284	-21.351	PASS

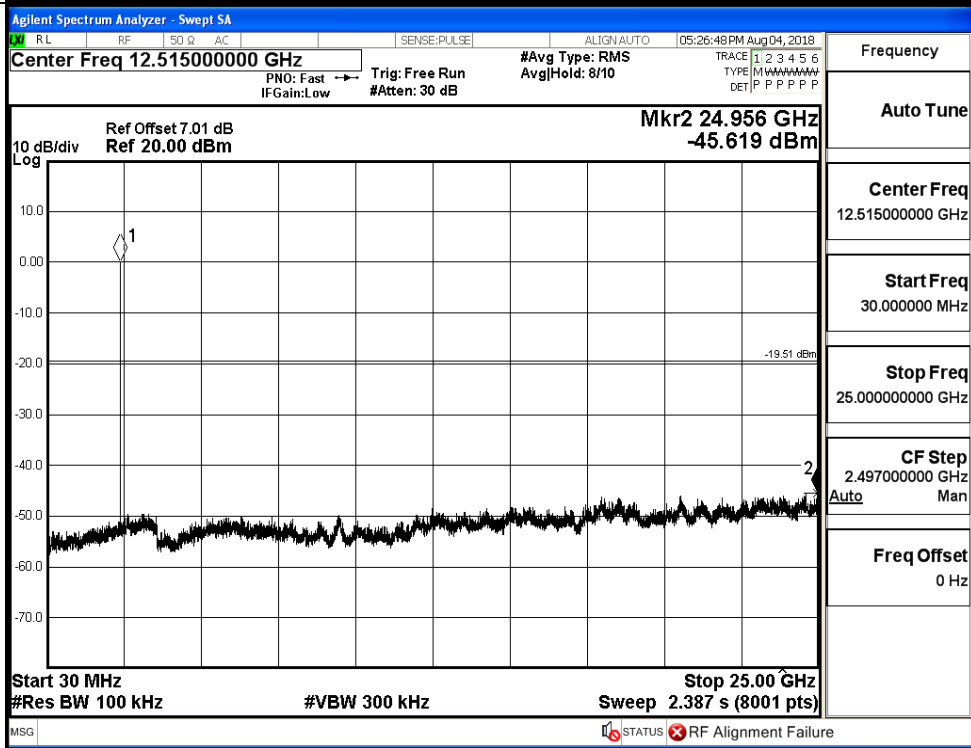


BT LE\_LCH\_Graphs

Pref/BT LE/LCH

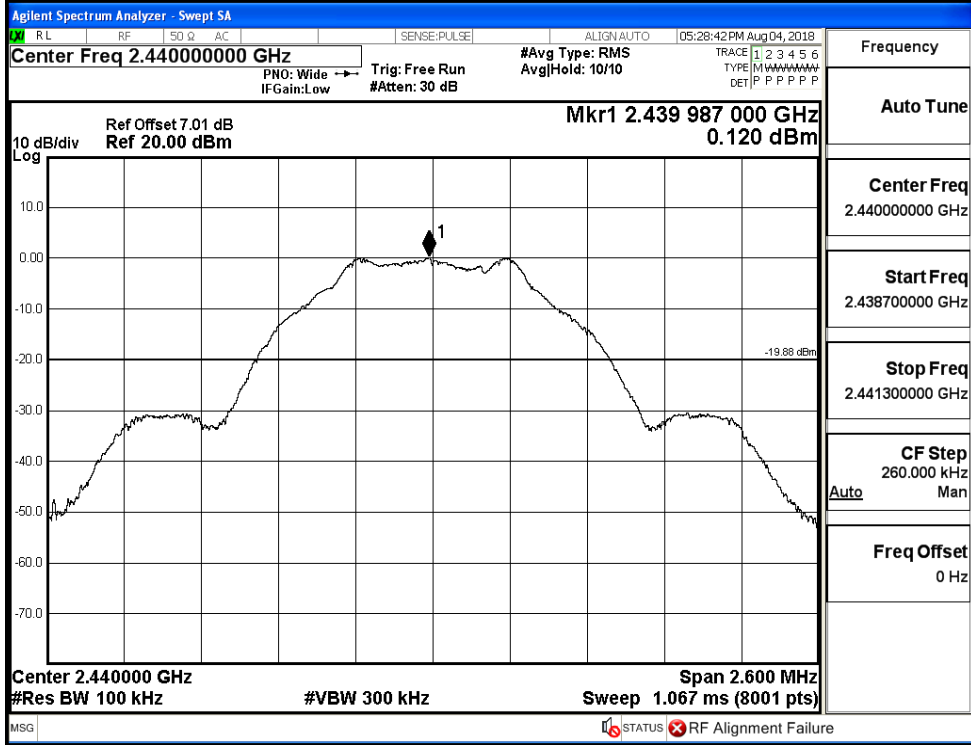


Puw/BT LE/LCH

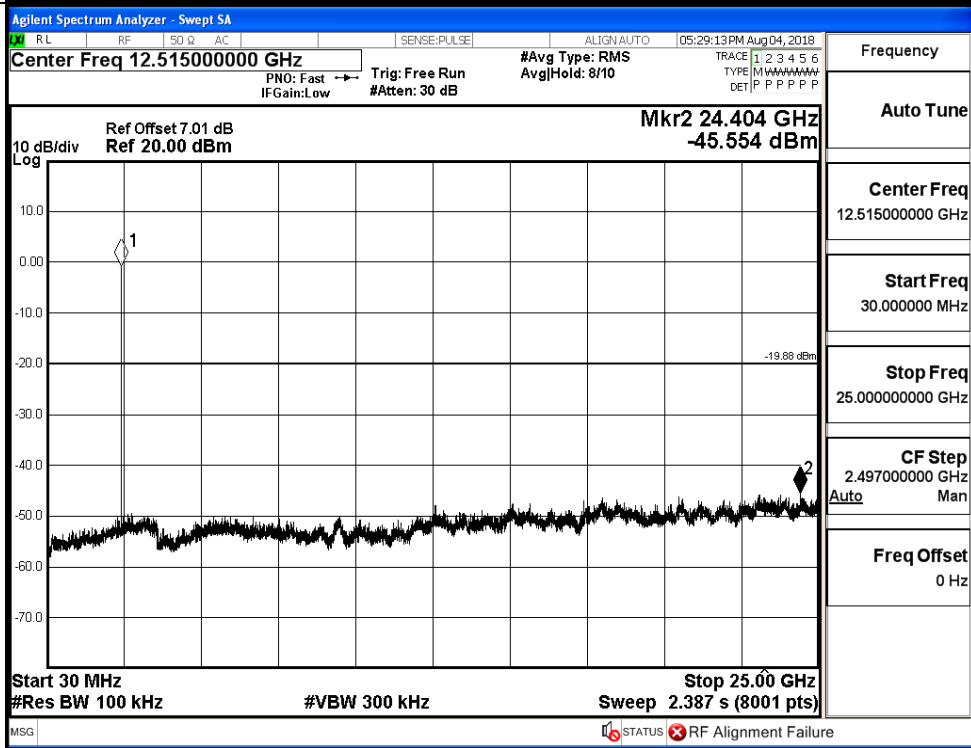


BT LE\_MCH\_Graphs

Pref/BT LE/MCH

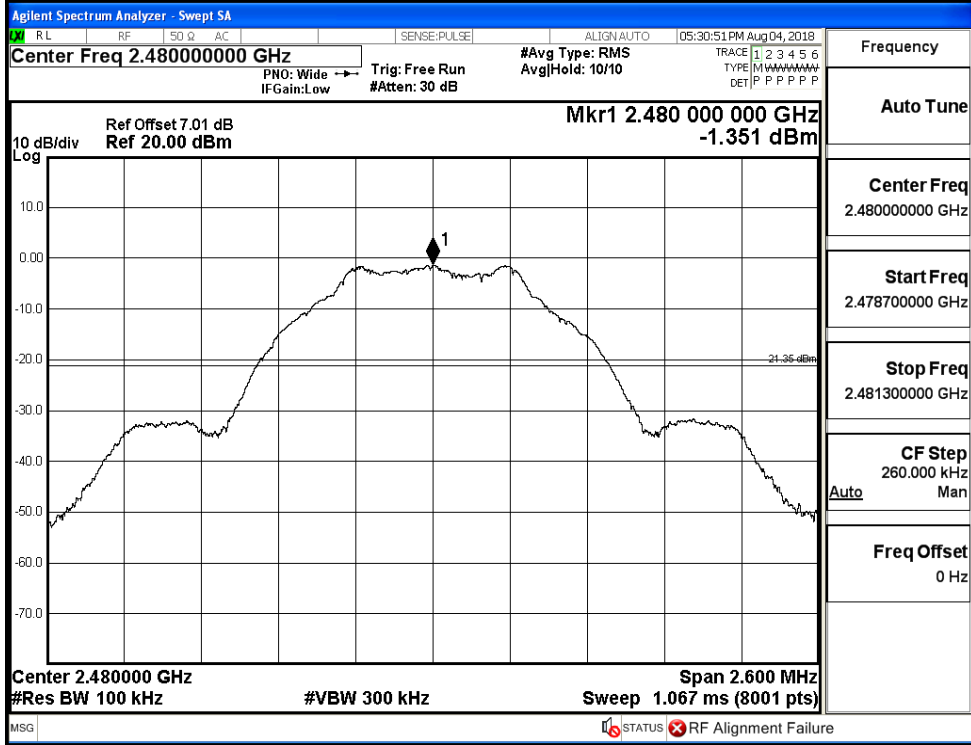


Puw/BT LE/MCH

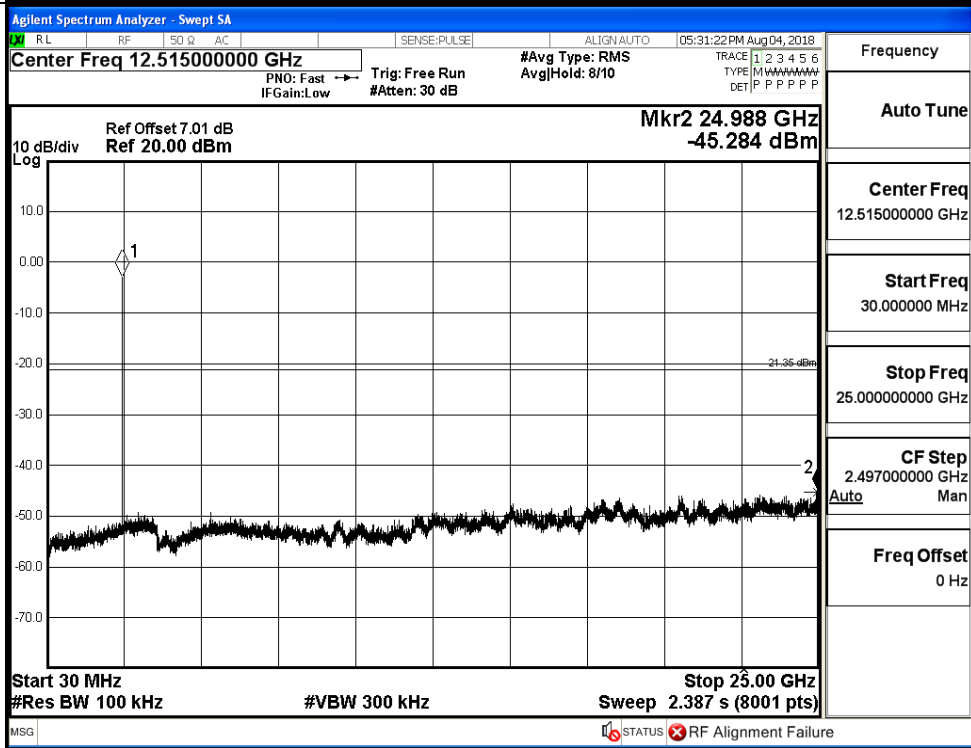


BT LE\_HCH\_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



### A.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.407	-51.094	-19.59	PASS
BT LE	HCH	-1.155	-51.225	-21.16	PASS

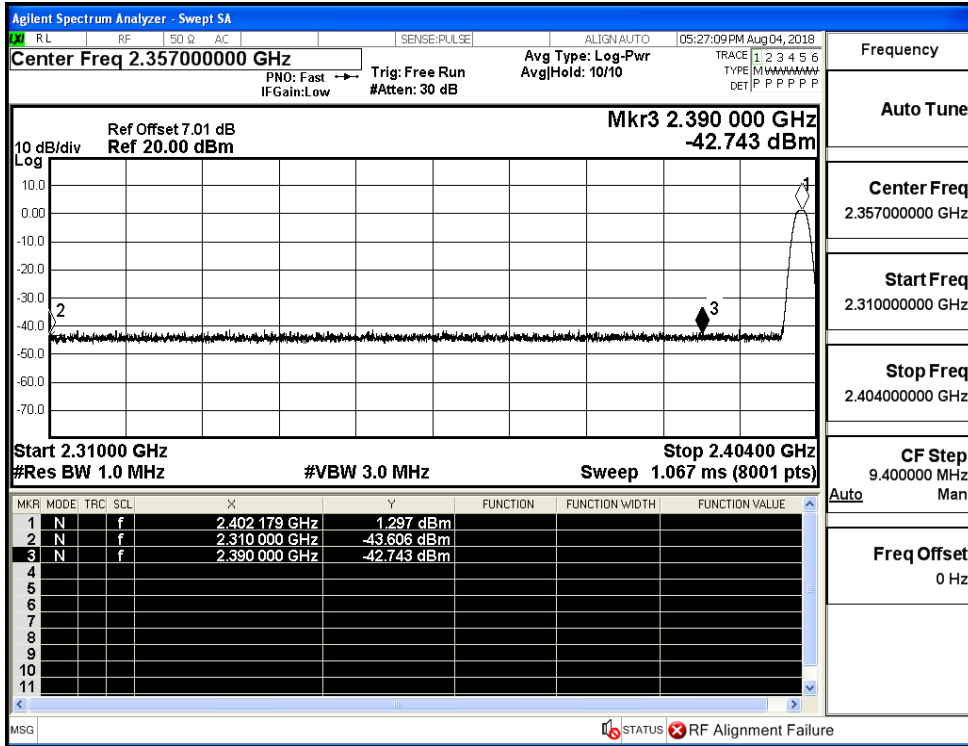
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA                  Center Freq 2.35700000 GHz                  #Avg Type: RMS                  AvgHold: 10/10                  Mkr4 2.329 341 GHz                  -51.094 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>2.401 756 GHz</td><td>0.407 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.400 000 GHz</td><td>-54.329 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.390 000 GHz</td><td>-54.342 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.329 341 GHz</td><td>-51.094 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		2.401 756 GHz	0.407 dBm				2	N	f		2.400 000 GHz	-54.329 dBm				3	N	f		2.390 000 GHz	-54.342 dBm				4	N	f		2.329 341 GHz	-51.094 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
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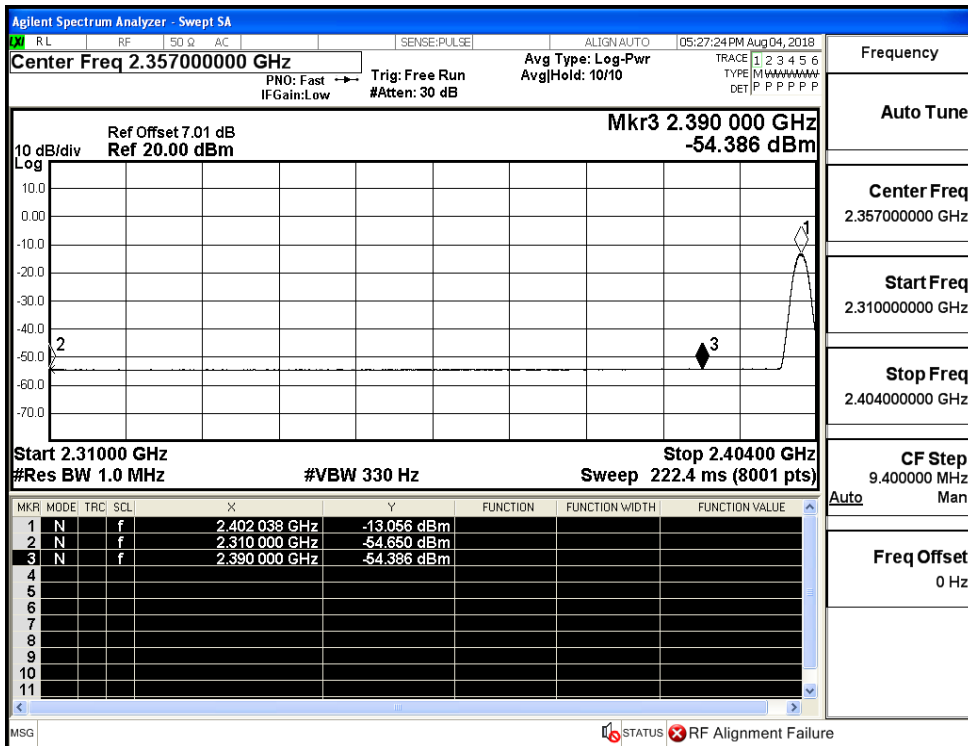
### A.7 Restrict-band band-edge measurements

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	-43.61	2.0	0	53.65	PEAK	74	PASS
		Ant1	2310.0	-54.65	2.0	0	42.61	AV	54	PASS
		Ant1	2390.0	-42.74	2.0	0	54.51	PEAK	74	PASS
		Ant1	2390.0	-54.39	2.0	0	42.87	AV	54	PASS
	2480	Ant1	2483.5	-44.27	2.0	0	52.99	PEAK	74	PASS
		Ant1	2483.5	-54.04	2.0	0	43.22	AV	54	PASS
		Ant1	2500.0	-42.67	2.0	0	54.59	PEAK	74	PASS
		Ant1	2500.0	-54.01	2.0	0	43.24	AV	54	PASS

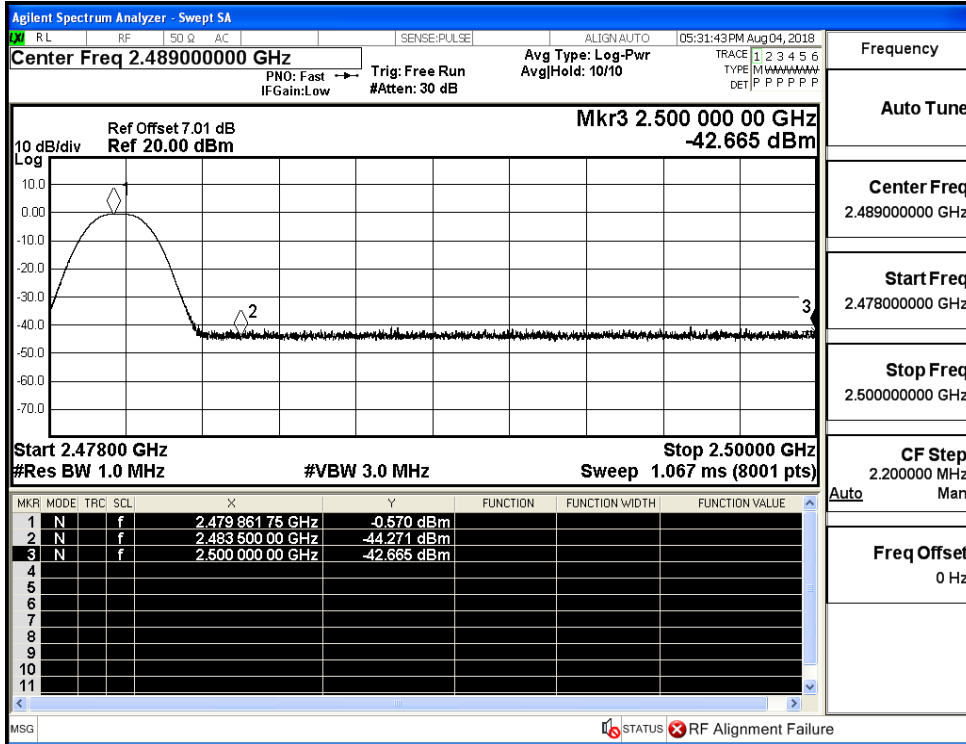
Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_PEAK



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

