

Appendix B

RF Test Data for BT 4.2(BLE) (Conducted Measurement)

Product Name: **Wireless Remote Control**

Trade Mark: **AODELAN**

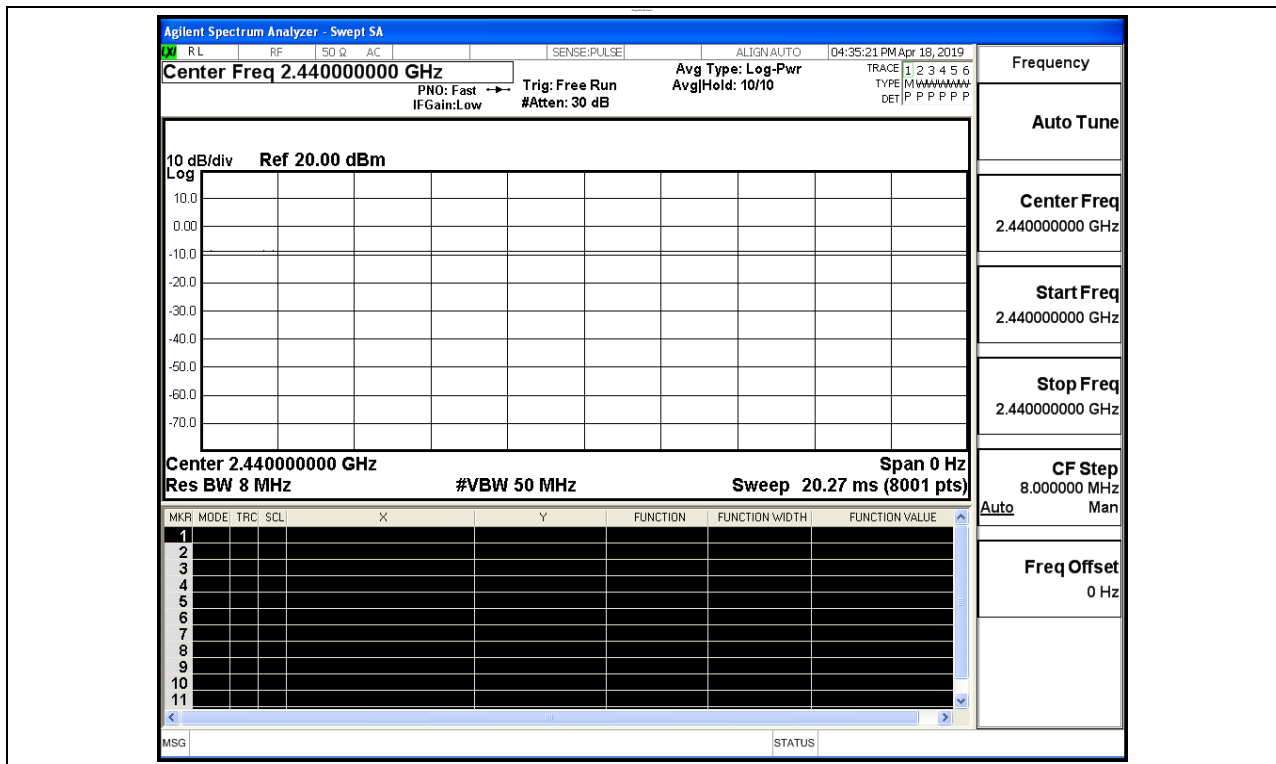
Test Model: **ML-L7A**

Environmental Conditions

Temperature:	24.1 °C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Tom.Liu

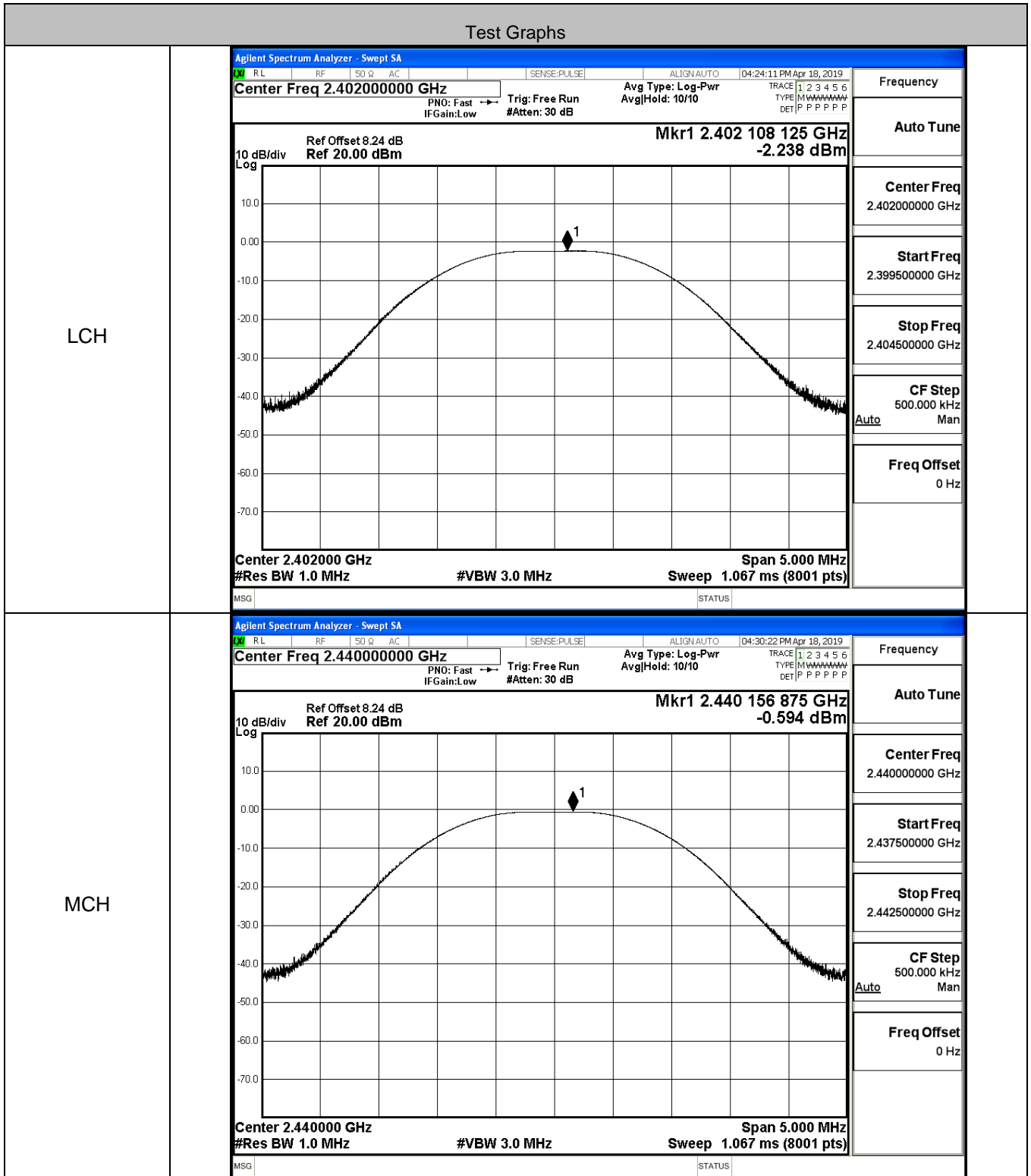
B.1 Duty Cycle

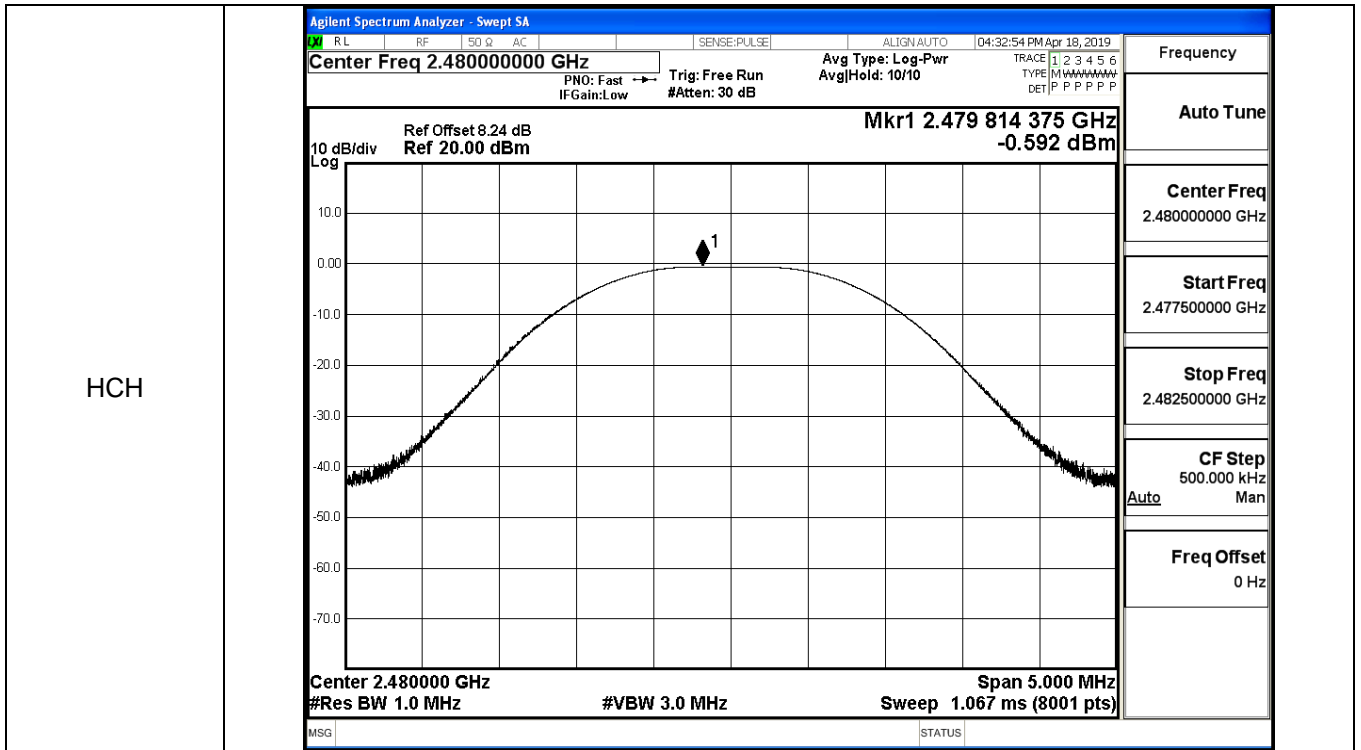
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.238	30	PASS
BT LE	MCH	-0.594	30	PASS
BT LE	HCH	-0.592	30	PASS

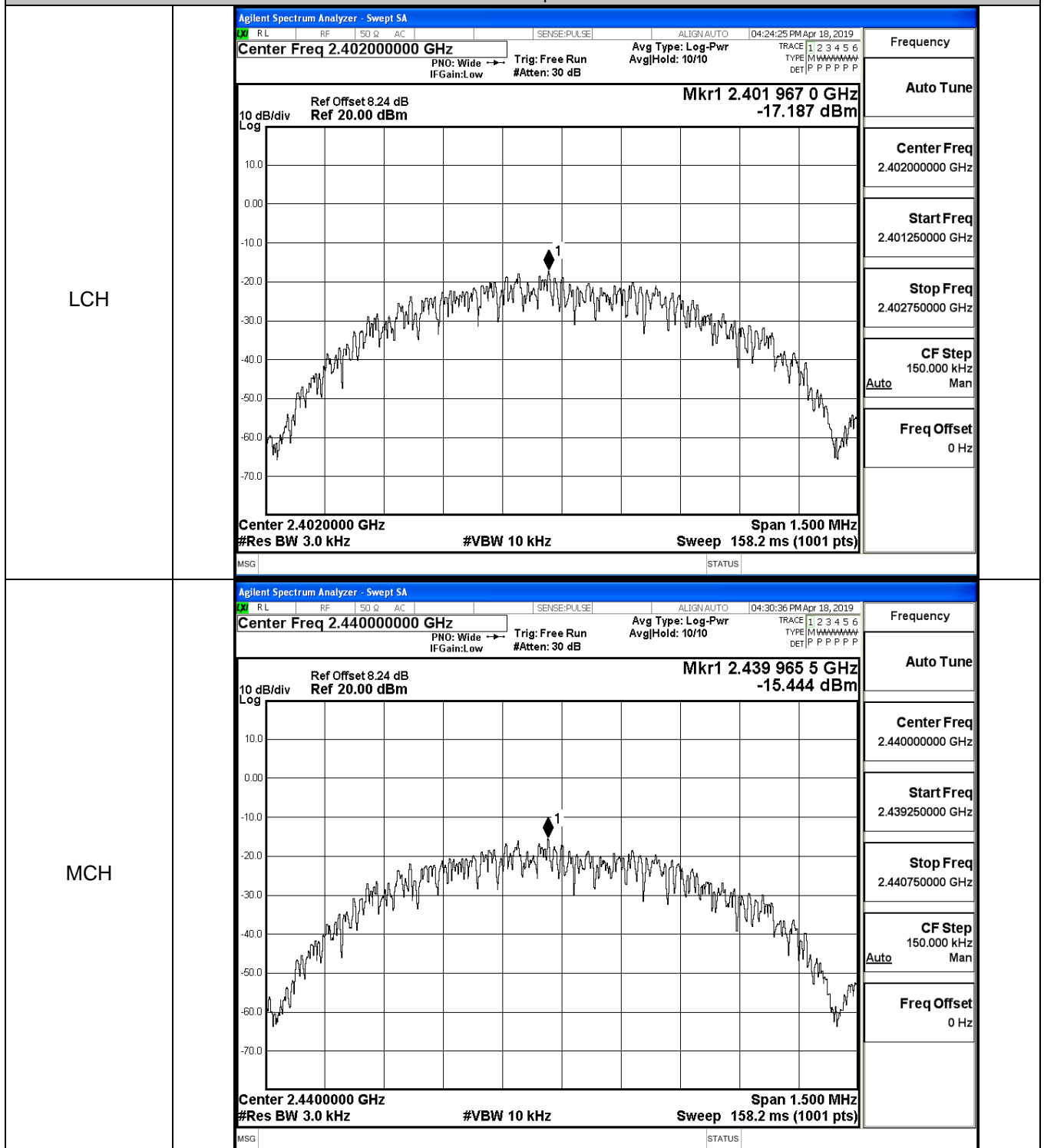




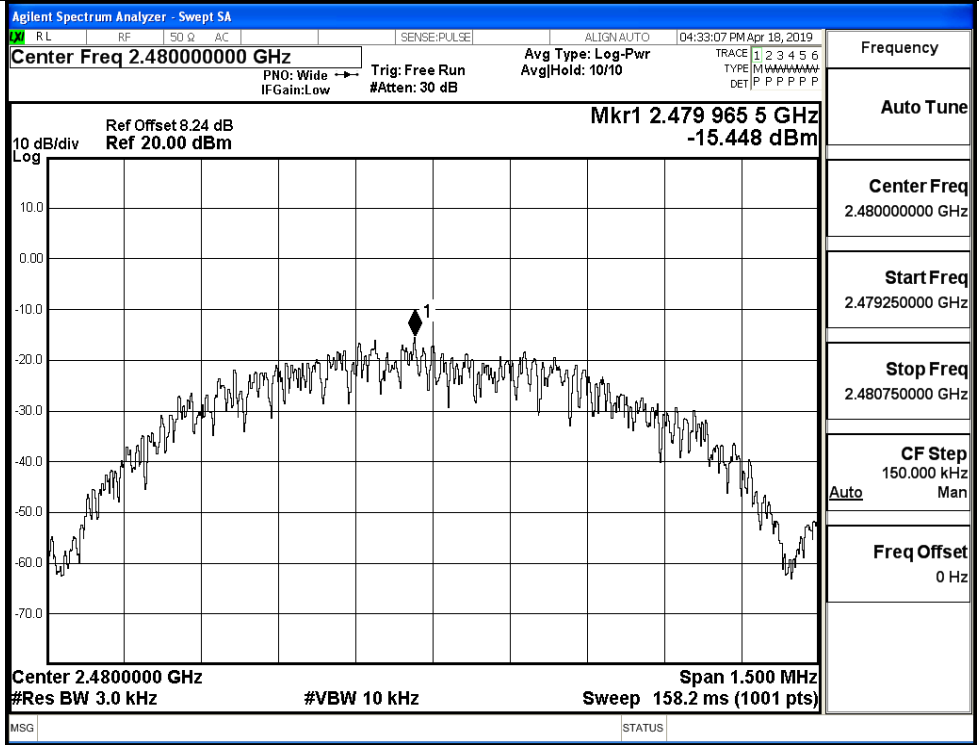
B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-17.187	8	PASS
BT LE	MCH	-15.444	8	PASS
BT LE	HCH	-15.448	8	PASS

Test Graphs

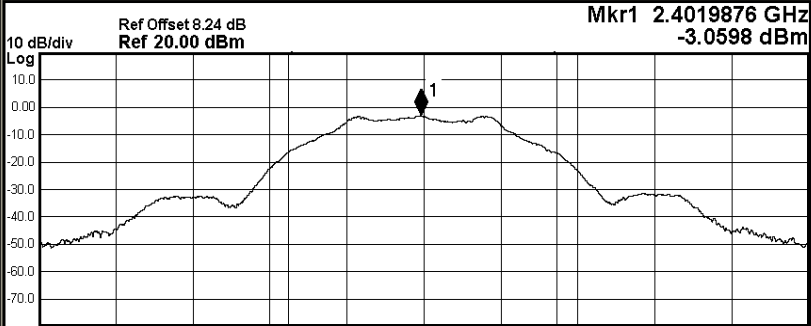
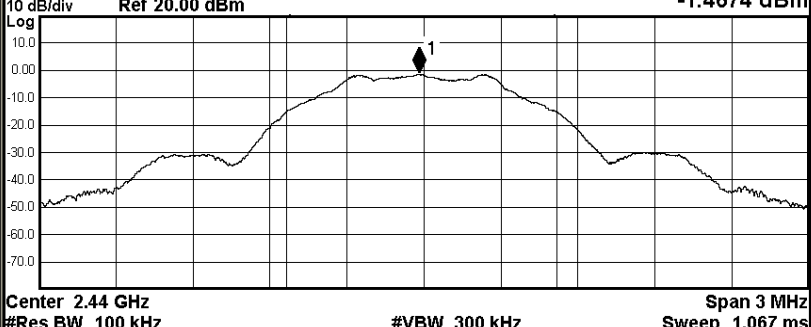


HCH



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6925	≥0.5	PASS
BT LE	MCH	0.6901	≥0.5	PASS
BT LE	HCH	0.6845	≥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 04:24:00 PM Apr 18, 2019</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="width: 45%;"> <p style="font-size: x-small;">10 dB/div Ref Offset 8.24 dB Log Ref 20.00 dBm</p>  <p style="font-size: x-small;">Center 2.402 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="0" style="width: 100%; font-size: x-small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>3.97 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;">1.0464 MHz</td> </tr> <tr> <td>Transmit Freq Error</td> <td>-4.488 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>692.5 kHz</td> <td>x dB -6.00 dB</td> </tr> </table> </div> <div style="width: 50%; border-left: 1px solid black; padding-left: 5px;"> <p style="font-size: x-small;">Mkr1 2.4019876 GHz -3.0598 dBm</p> <p style="font-size: x-small;">Center Freq 2.402000000 GHz</p> <p style="font-size: x-small;">CF Step 300.000 kHz Auto Man</p> <p style="font-size: x-small;">Freq Offset 0 Hz</p> </div> </div> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	3.97 dBm	1.0464 MHz			Transmit Freq Error	-4.488 kHz	OBW Power 99.00 %	x dB Bandwidth	692.5 kHz	x dB -6.00 dB
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HCH

Agilent Spectrum Analyzer - Occupied BW

RL	RF	50 Ω	AC	SENSE:PULSE	ALIGN:AUTO	04:32:43 PM Apr 18, 2019
Center Freq 2.480000000 GHz			Center Freq: 2.480000000 GHz		Radio Std: None	
			Trig: Free Run		AvgHold>1/1	
#IFGain:Low			#Atten: 30 dB		Radio Device: BTS	

10 dB/div	Ref Offset 8.24 dB	Mkr1 2.4799835 GHz
Log	Ref 20.00 dBm	-1.3107 dBm

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

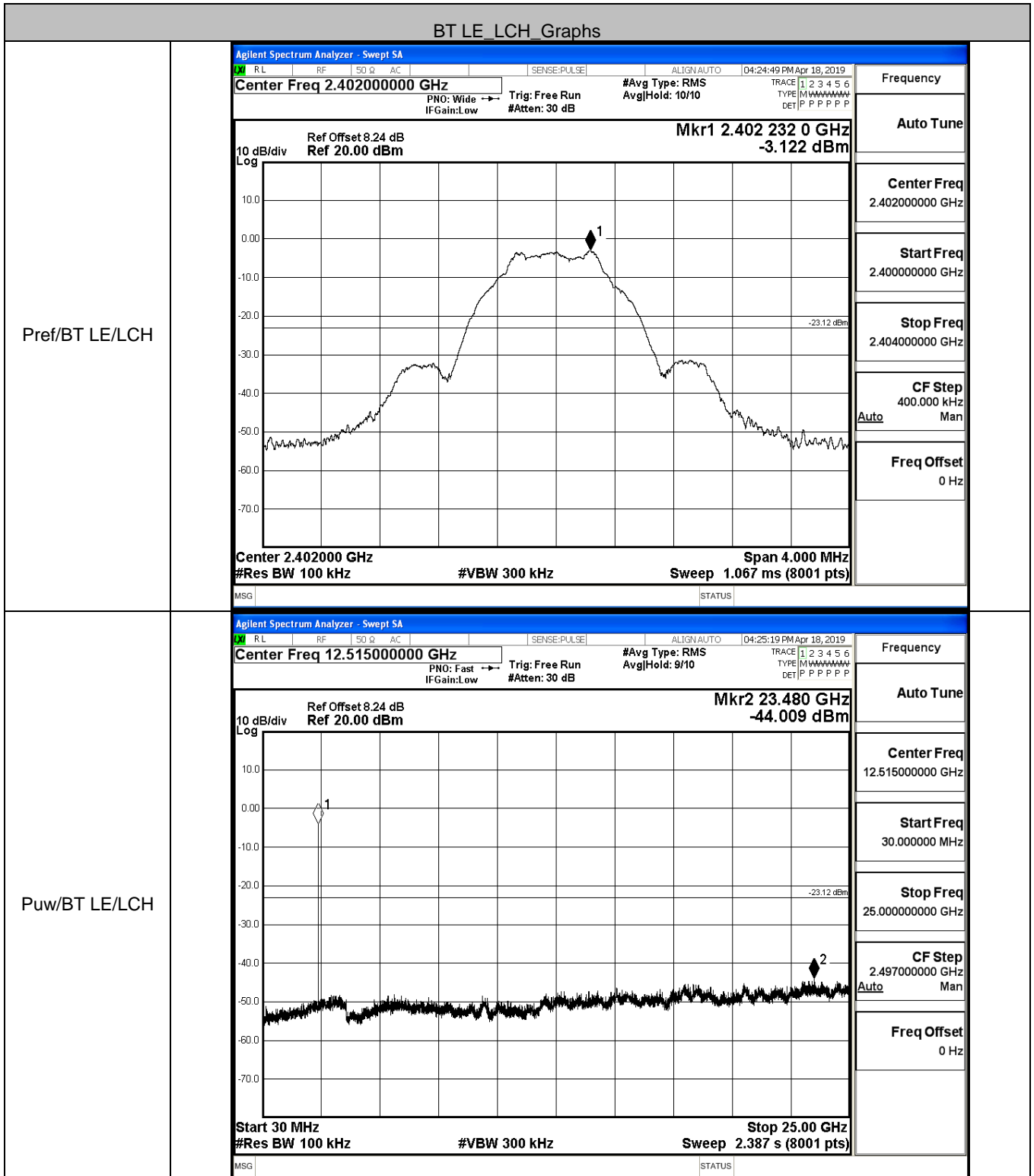
Occupied Bandwidth	Total Power	5.69 dBm
1.0434 MHz		
Transmit Freq Error	-9.219 kHz	OBW Power 99.00 %
x dB Bandwidth	684.5 kHz	x dB -6.00 dB

Frequency	
Center Freq	2.480000000 GHz
CF Step	300.000 kHz
	Auto Man
Freq Offset	0 Hz

MSG
STATUS

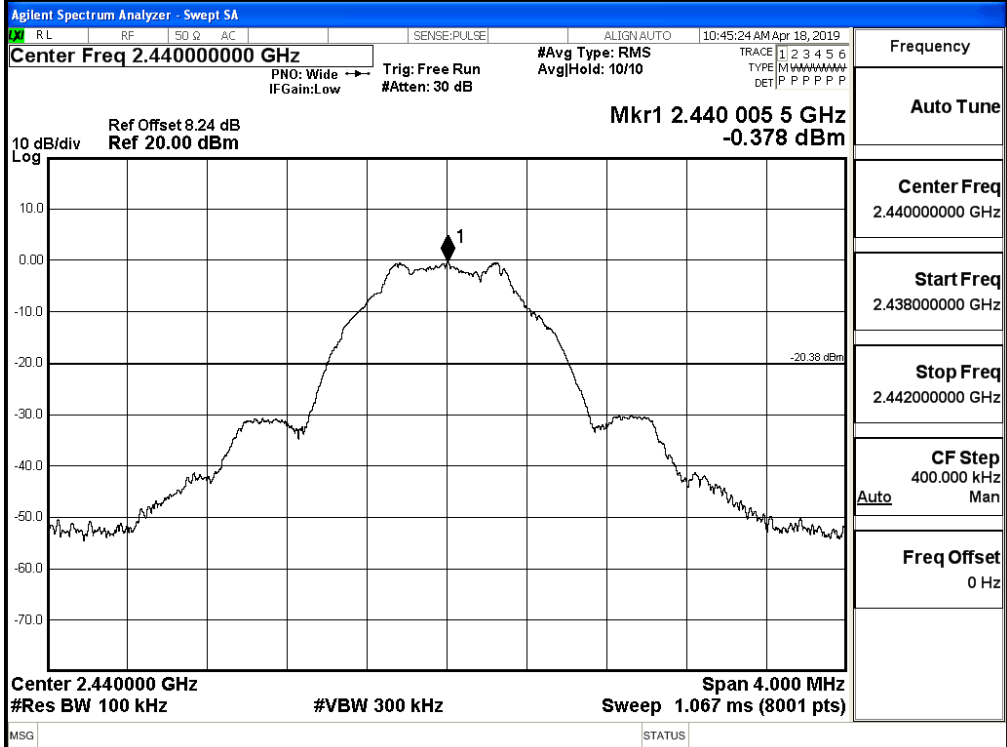
B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-3.122	-44.009	-23.12	PASS
BT LE	MCH	-0.378	-44.059	-23.12	PASS
BT LE	HCH	-1.359	-43.414	-20.36	PASS

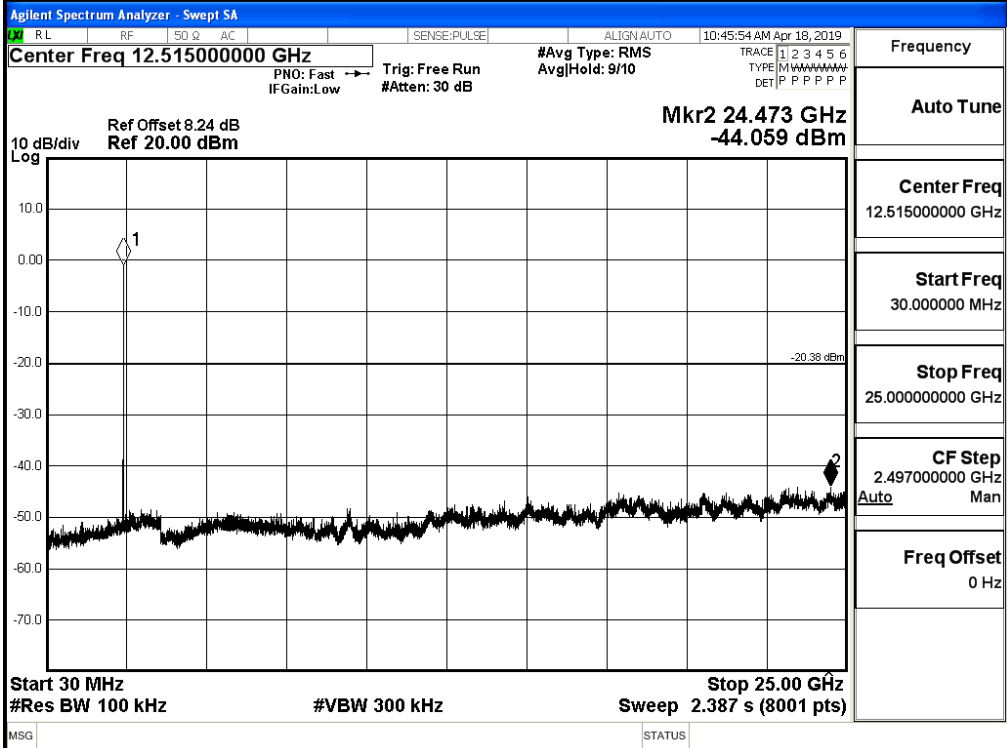


BT LE_MCH_Graphs

Pref/BT LE/MCH

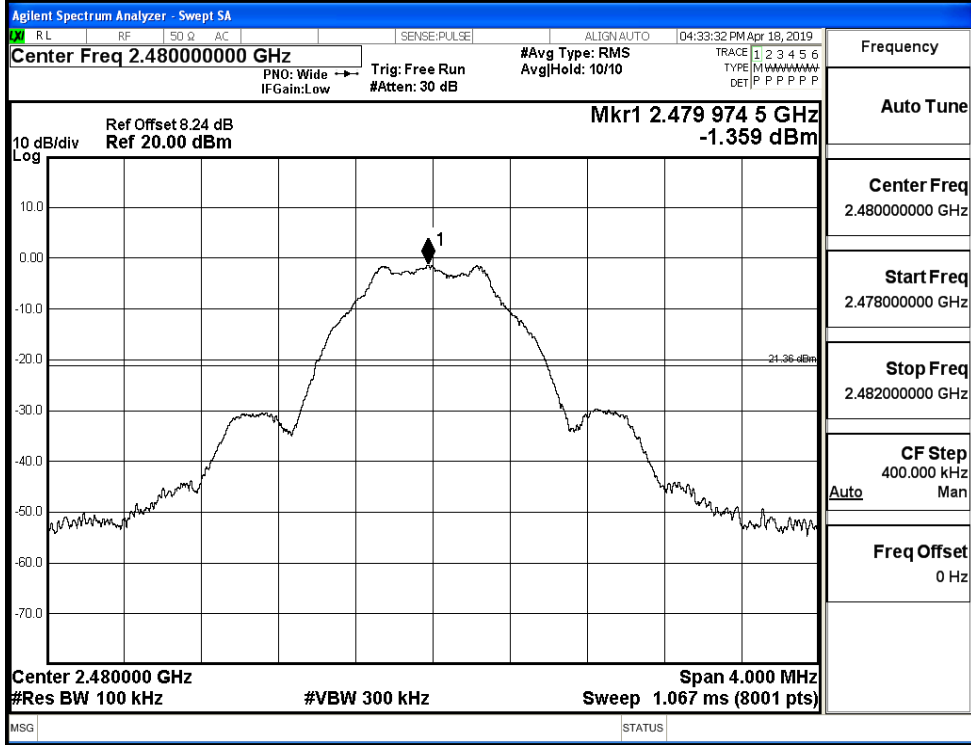


Puw/BT LE/MCH

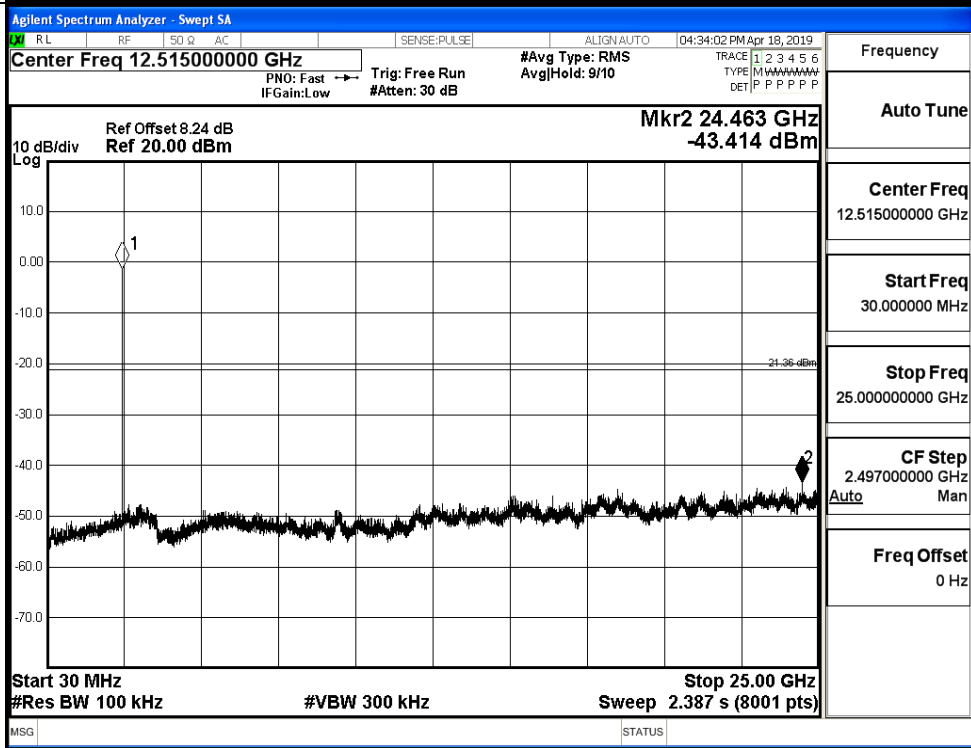


BT LE_HCH_Graphs

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	-2.898	-50.473	-22.9	PASS
BT LE	HCH	-1.236	-49.306	-21.24	PASS

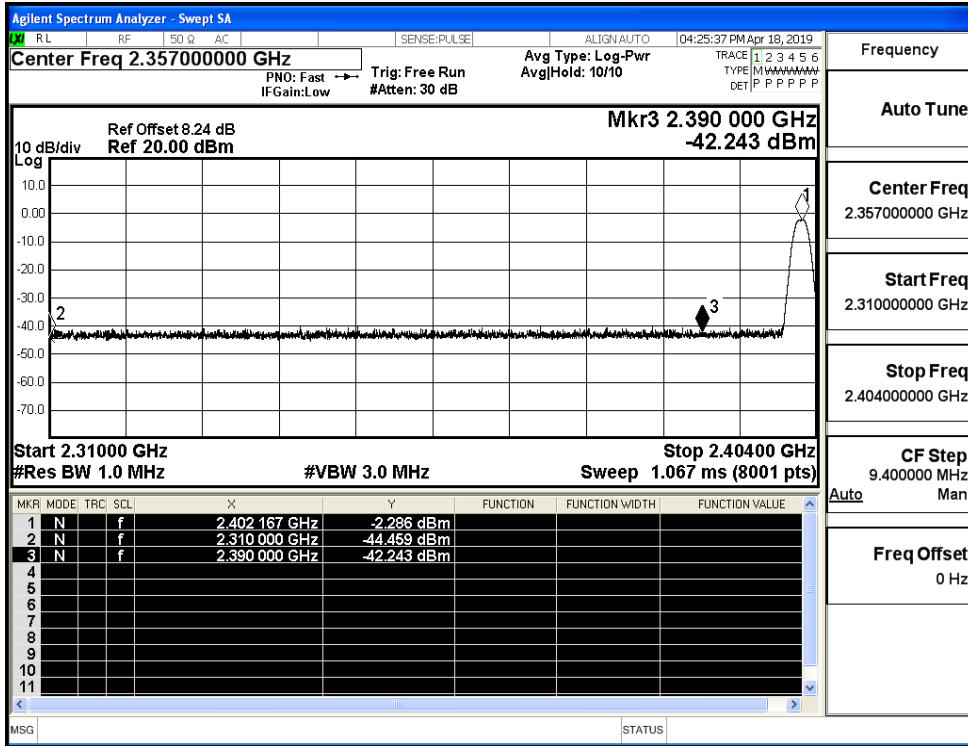
Test Graphs

LCH	<table border="1" style="width: 100%; border-collapse: collapse; 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>2.402 238 GHz</td><td>-2.898 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>-52.813 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>-51.484 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.370 219 GHz</td><td>-50.473 dBm</td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	f		2.402 238 GHz	-2.898 dBm				2	N	f		2.400 000 GHz	-52.813 dBm				3	N	f		2.390 000 GHz	-51.484 dBm				4	N	f		2.370 219 GHz	-50.473 dBm				5									6									7									8									9									10									11									<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.35700000 GHz</p> <p>Start Freq 2.31000000 GHz</p> <p>Stop Freq 2.40400000 GHz</p> <p>CF Step 9.400000 MHz</p> <p>Freq Offset 0 Hz</p>
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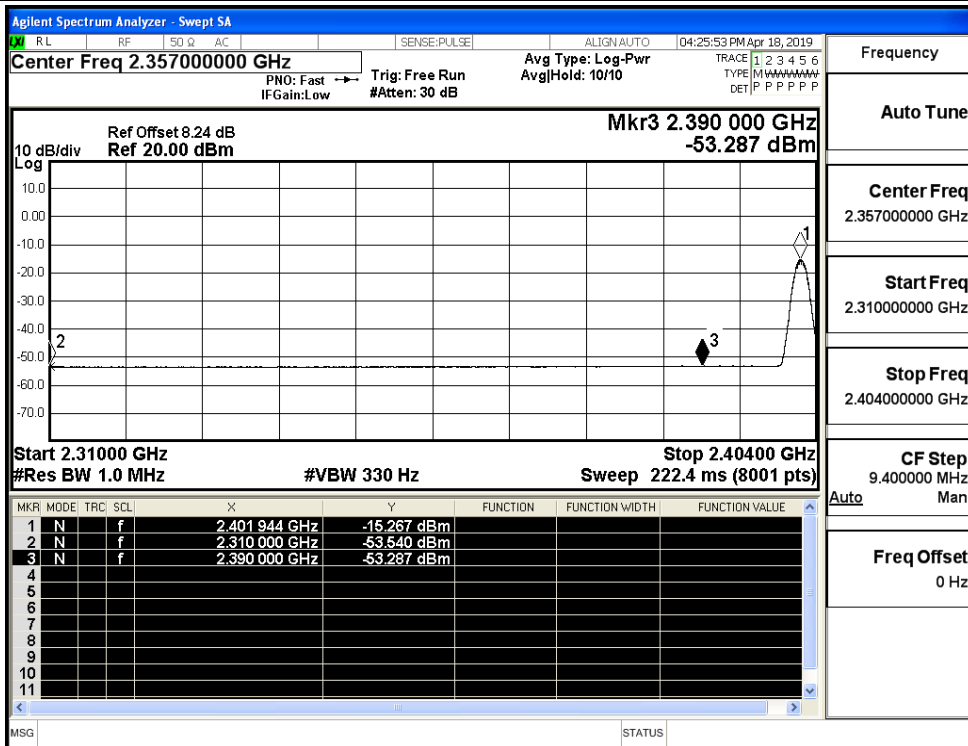
B.7 Restrict-band band-edge measurements

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	-44.46	3.0	0	53.8	PEAK	74	PASS
		Ant1	2310.0	-53.54	3.0	0	44.72	AV	54	PASS
		Ant1	2390.0	-42.24	3.0	0	56.02	PEAK	74	PASS
		Ant1	2390.0	-53.29	3.0	0	44.97	AV	54	PASS
	2480	Ant1	2483.5	-43.58	3.0	0	54.68	PEAK	74	PASS
		Ant1	2483.5	-53.03	3.0	0	45.23	AV	54	PASS
		Ant1	2500.0	-42.85	3.0	0	55.41	PEAK	74	PASS
		Ant1	2500.0	-52.84	3.0	0	45.42	AV	54	PASS

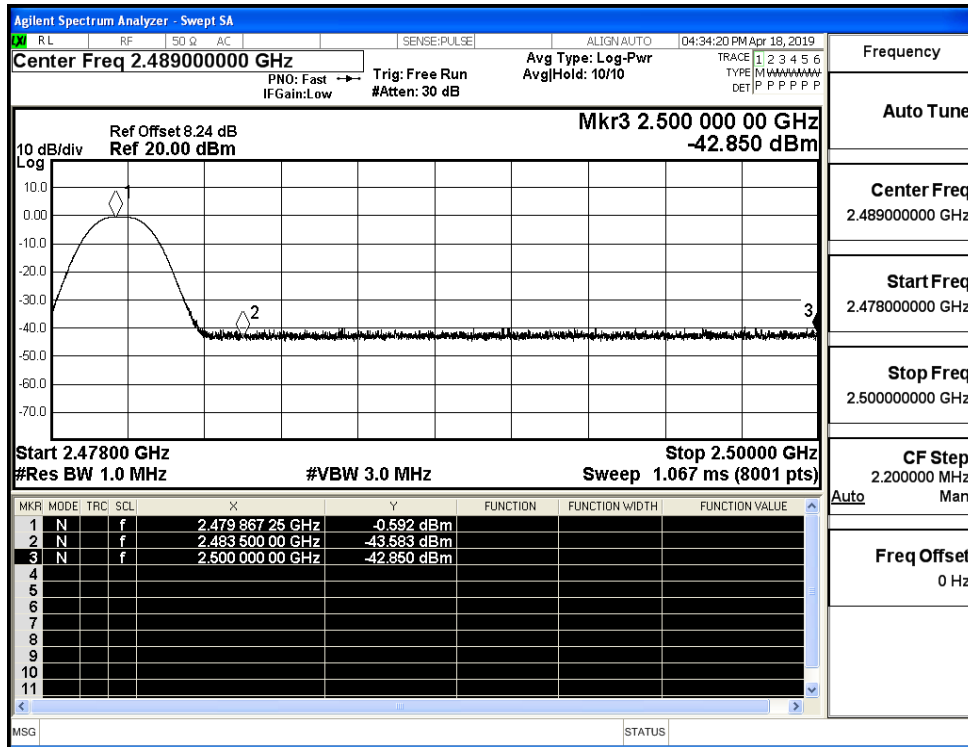
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

