

## Appendix B

### RF Test Data for BT V5.1 (BT LE) (Conducted Measurement)

Product Name: Portable Data Collector

Trade Mark: Newland

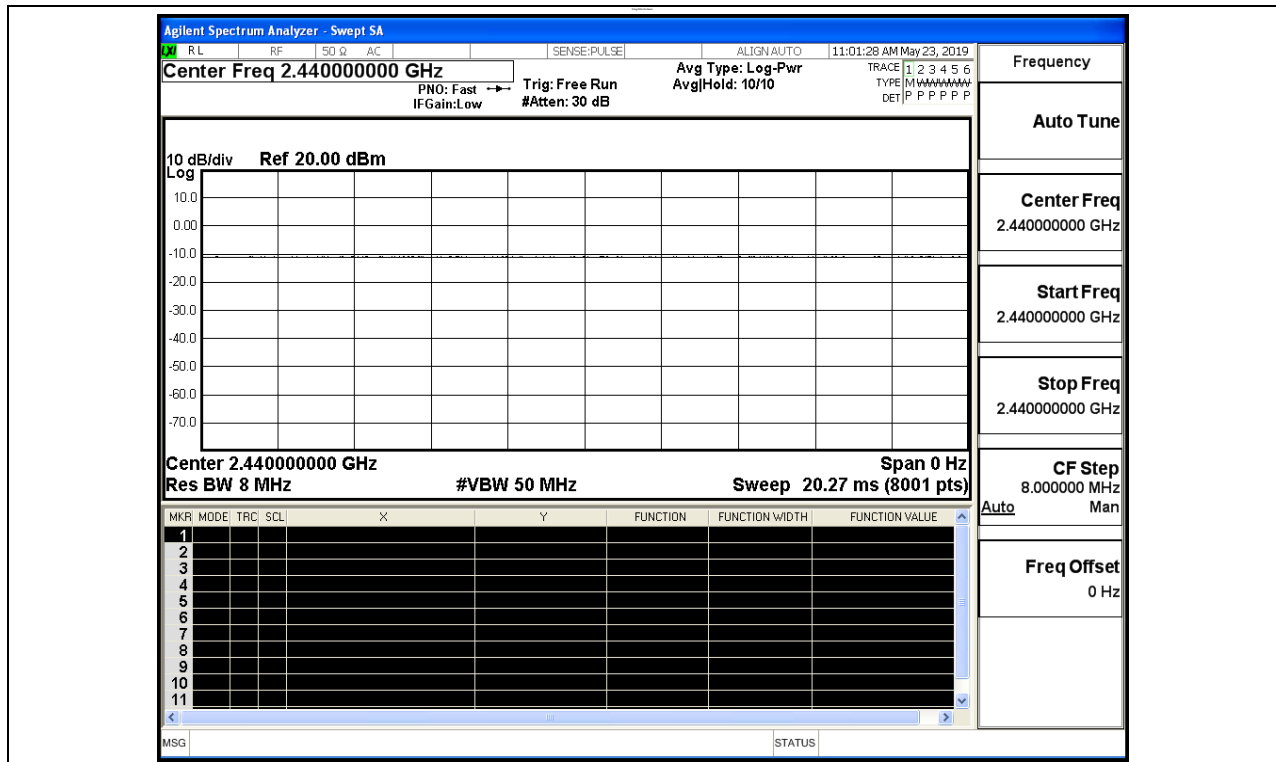
Test Model: NLS-NFT10

#### Environmental Conditions

Temperature:	22.6 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	WANGCHUANG
Supervised by:	Tom.Liu

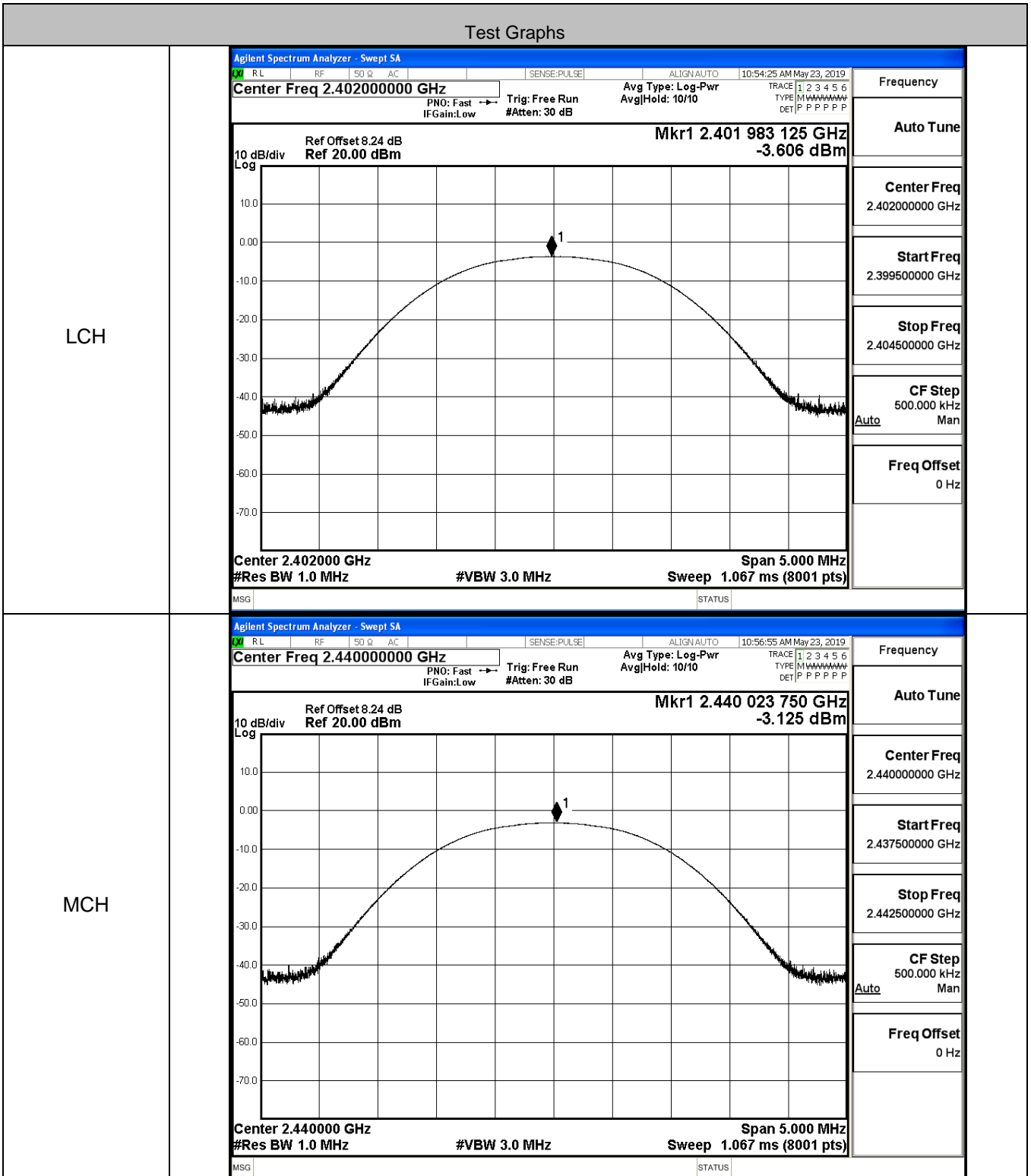
#### B.1 Duty Cycle

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	-3.606	30	PASS
BT LE	MCH	-3.125	30	PASS
BT LE	HCH	-4.095	30	PASS

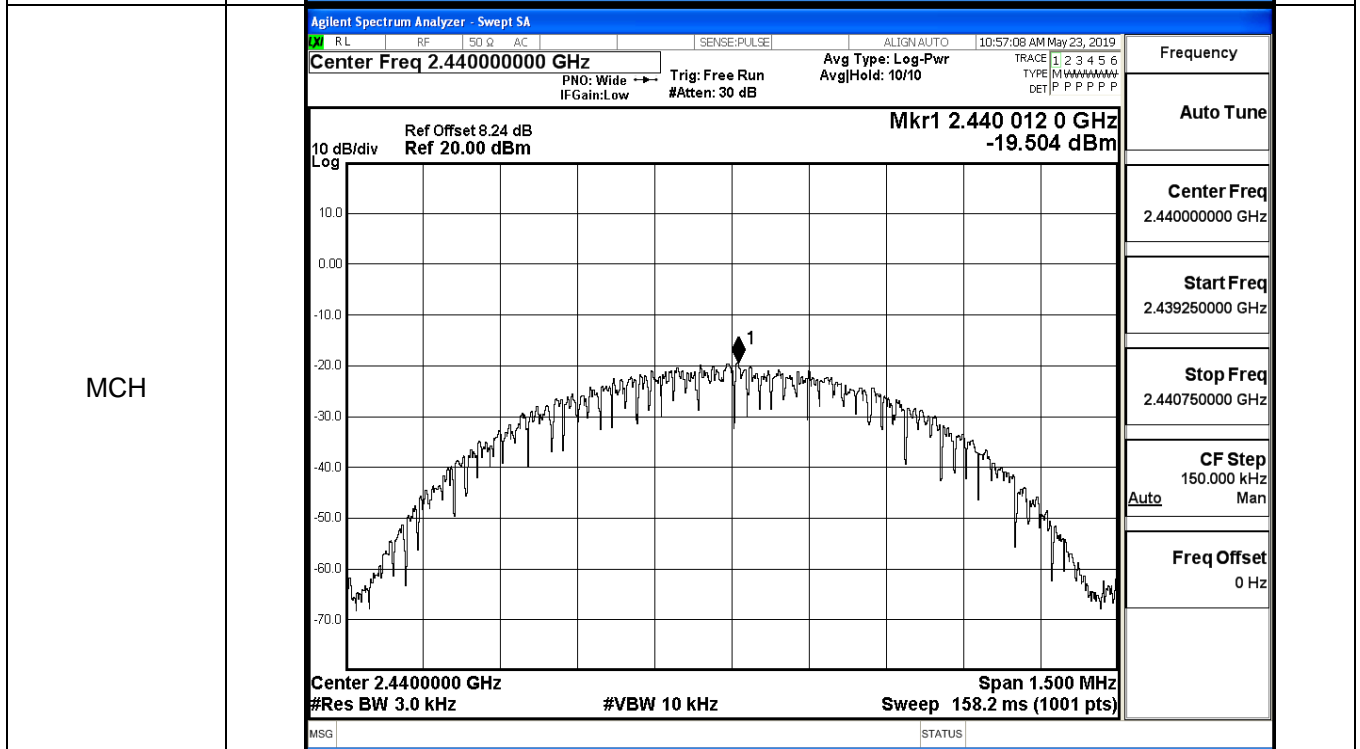
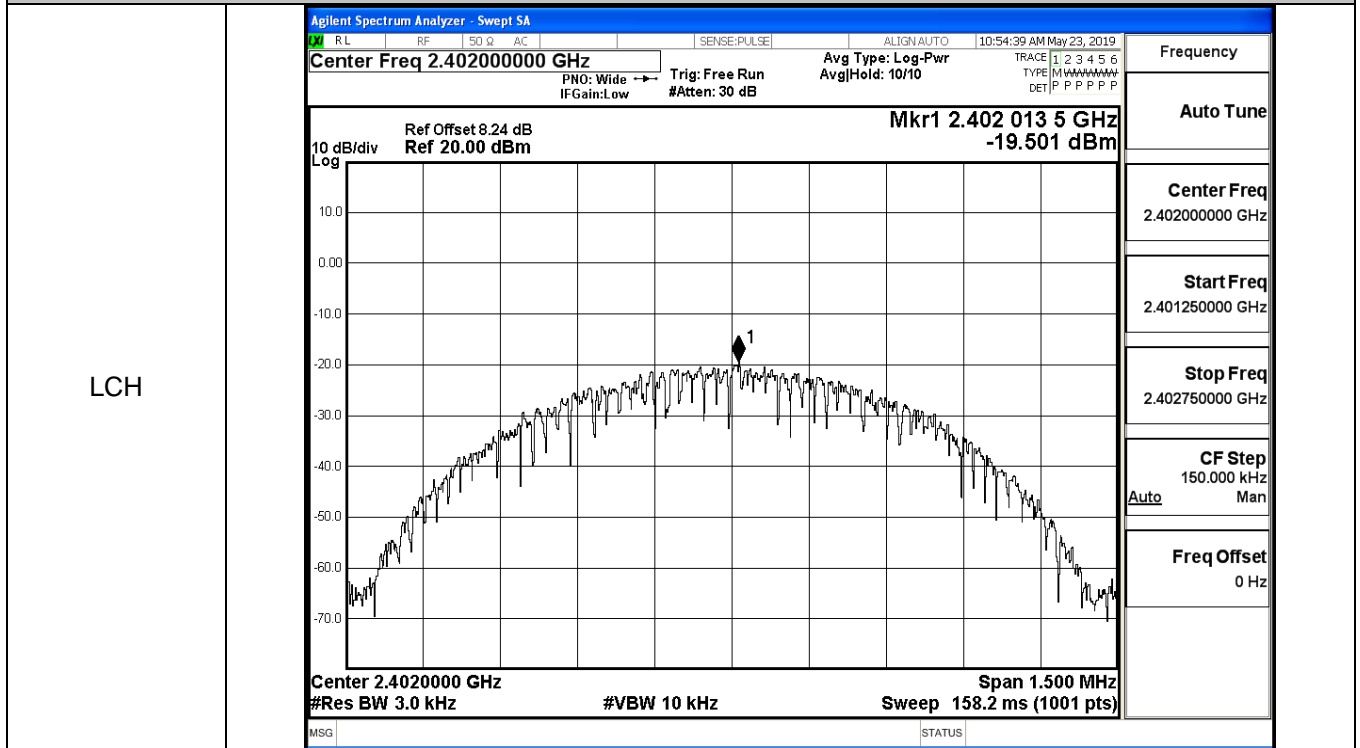




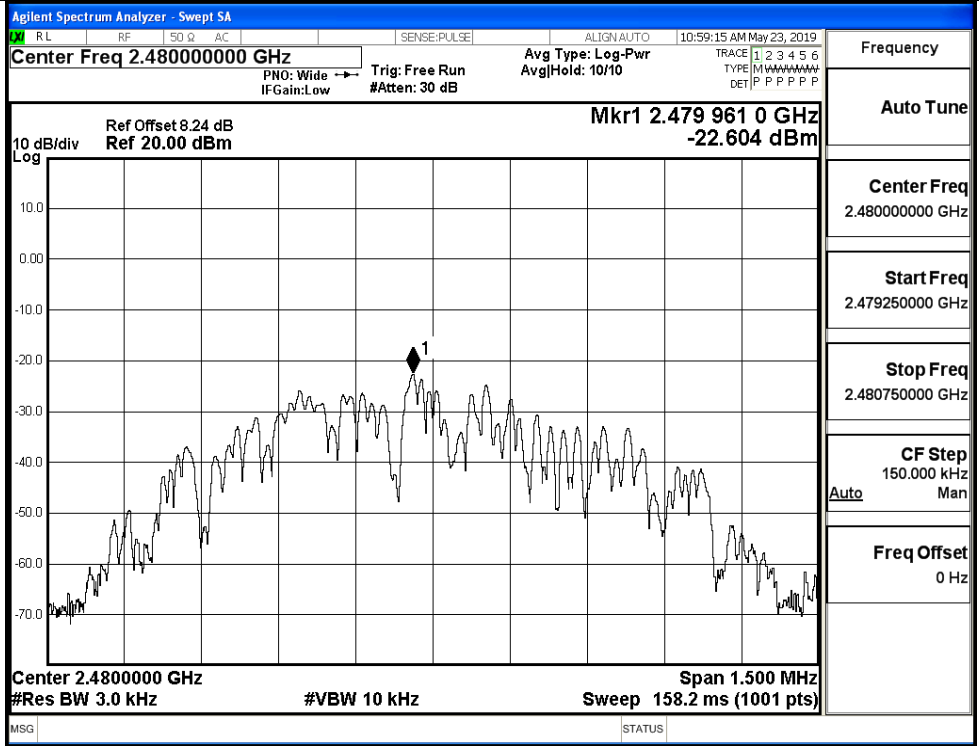
### B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-19.501	8	PASS
BT LE	MCH	-19.504	8	PASS
BT LE	HCH	-22.604	8	PASS

#### Test Graphs

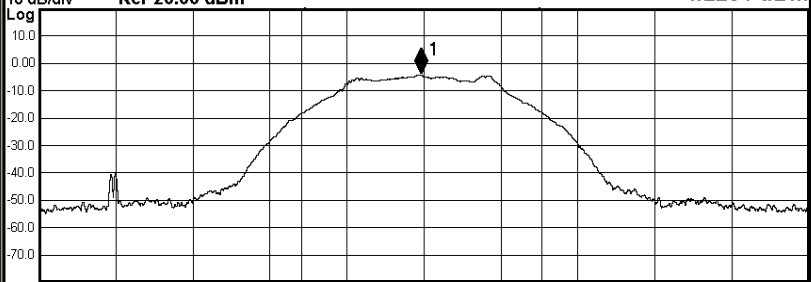
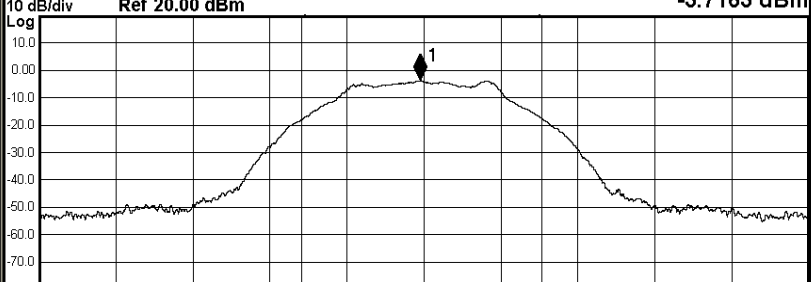


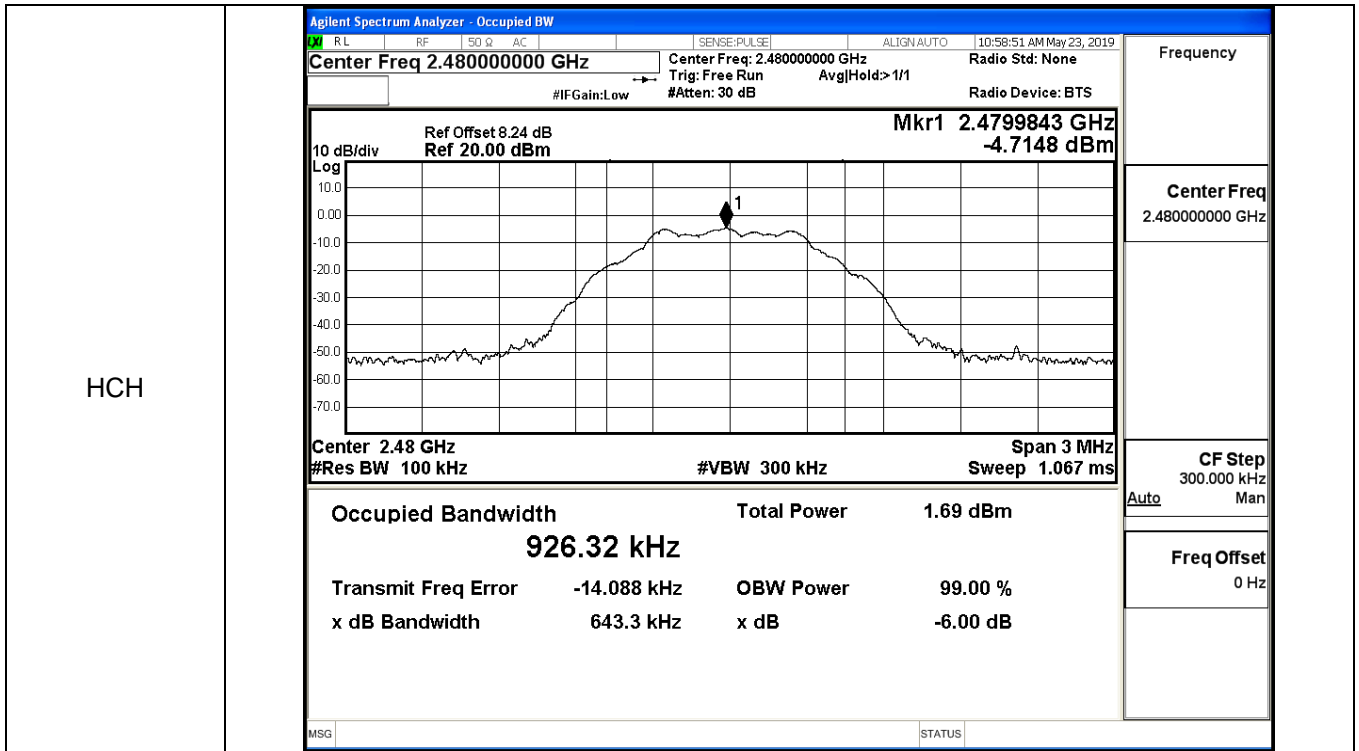
HCH



**B.4 6dB Bandwidth**

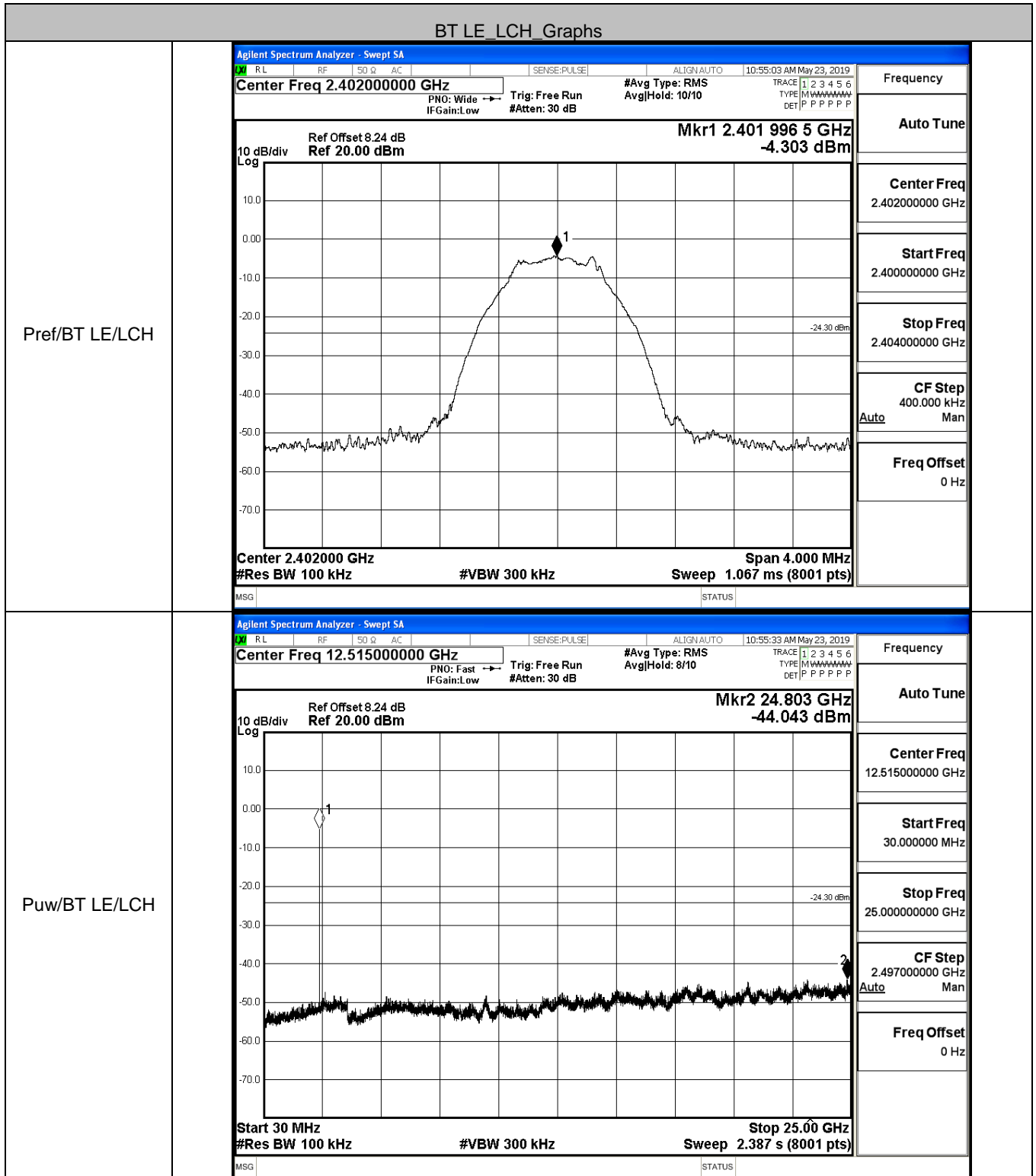
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6461	≥0.5	PASS
BT LE	MCH	0.6493	≥0.5	PASS
BT LE	HCH	0.6433	≥0.5	PASS

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 10:54:14 AM May 23, 2019</p> <p style="margin: 0;">Center Freq 2.40200000 GHz Center Freq: 2.40200000 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; margin: 5px 0;"> <p style="font-size: x-small; margin: 0;">10 dB/div Ref Offset 8.24 dB Mkr1 2.4019895 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm -4.2254 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>2.42 dBm</td> </tr> <tr> <td style="text-align: center;"><b>930.37 kHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table> <p style="font-size: x-small; margin: 0;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	2.42 dBm	<b>930.37 kHz</b>			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
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### B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-4.303	-44.043	-24.303	PASS
BT LE	MCH	-3.783	-42.737	-23.783	PASS
BT LE	HCH	-4.806	-44.029	-24.806	PASS

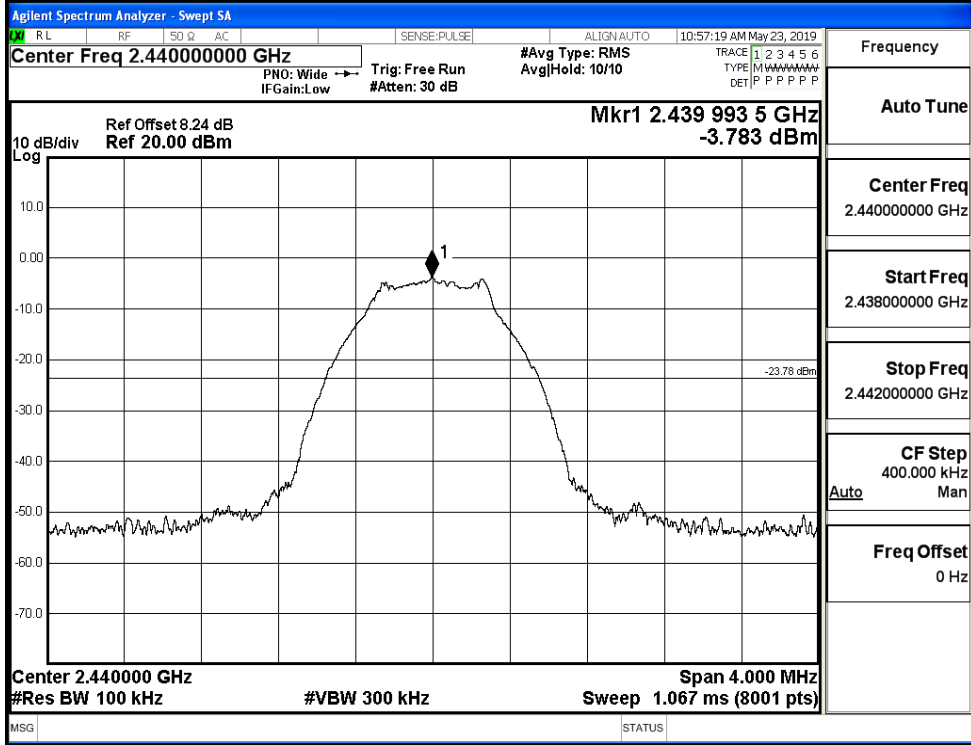




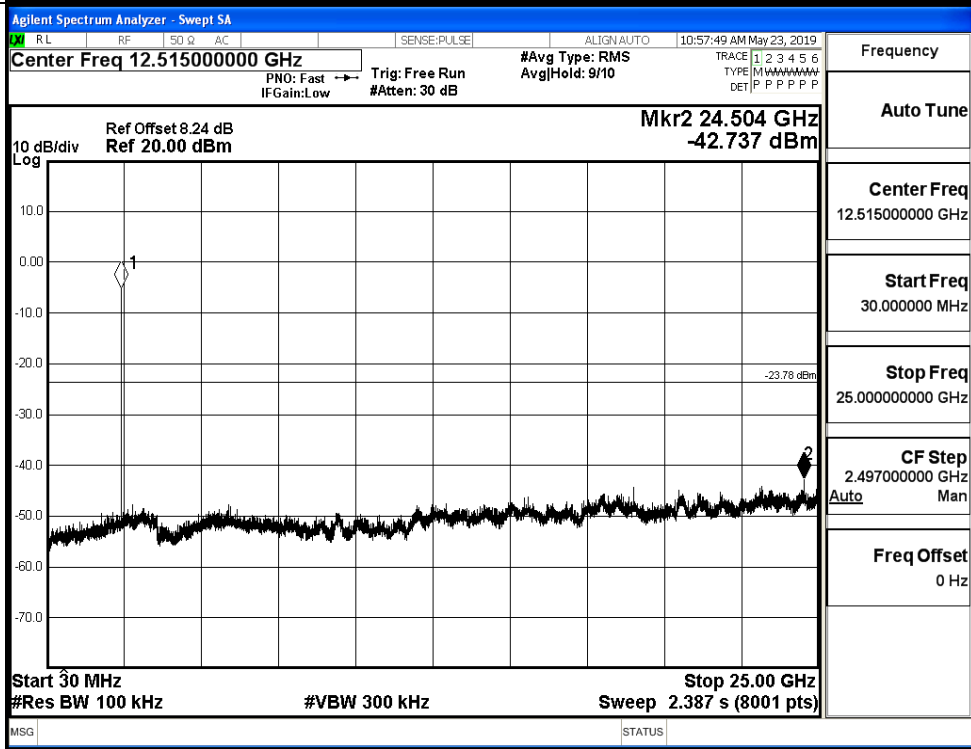
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BT LE\_MCH\_Graphs

Pref/BT LE/MCH

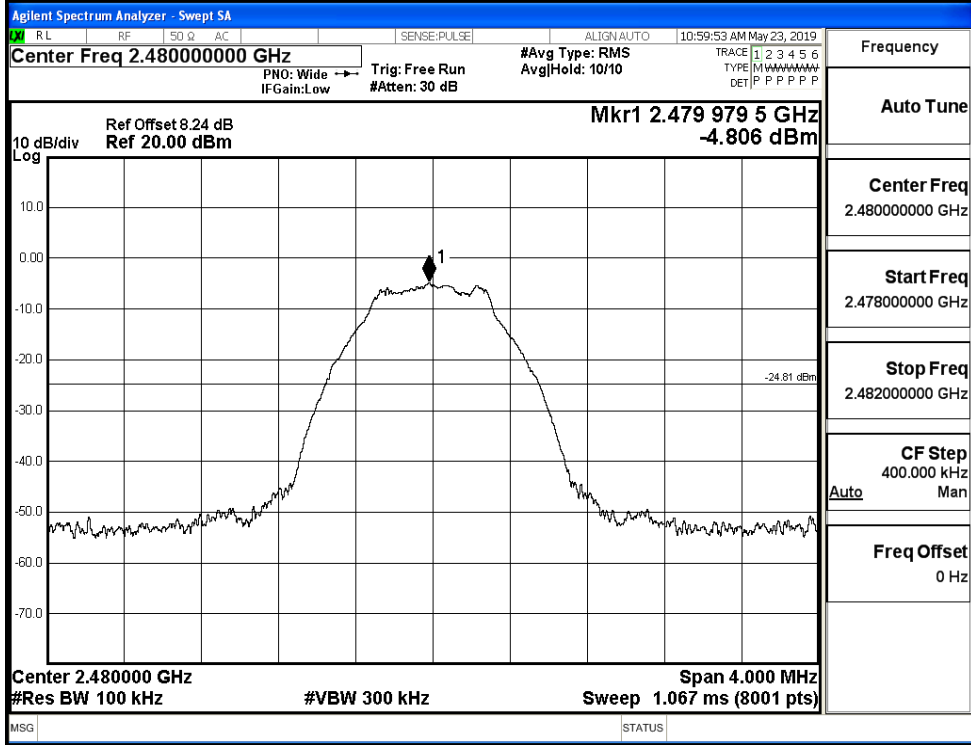


Puw/BT LE/MCH

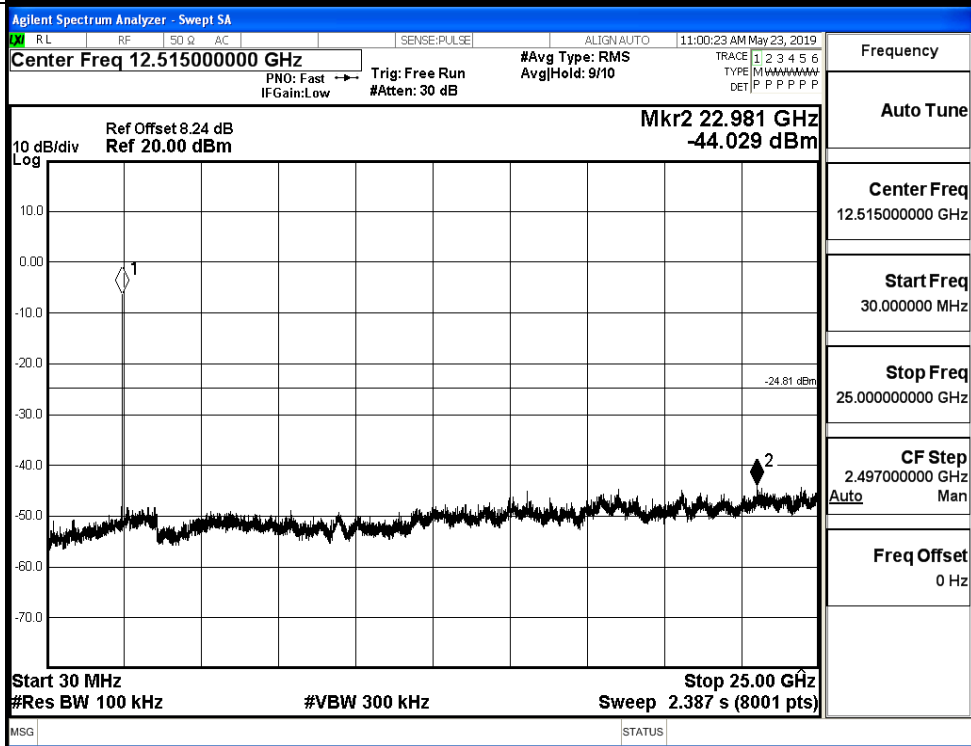


BT LE\_HCH\_Graphs

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	-3.999	-50.056	-24	PASS
BT LE	HCH	-4.773	-49.042	-24.77	PASS

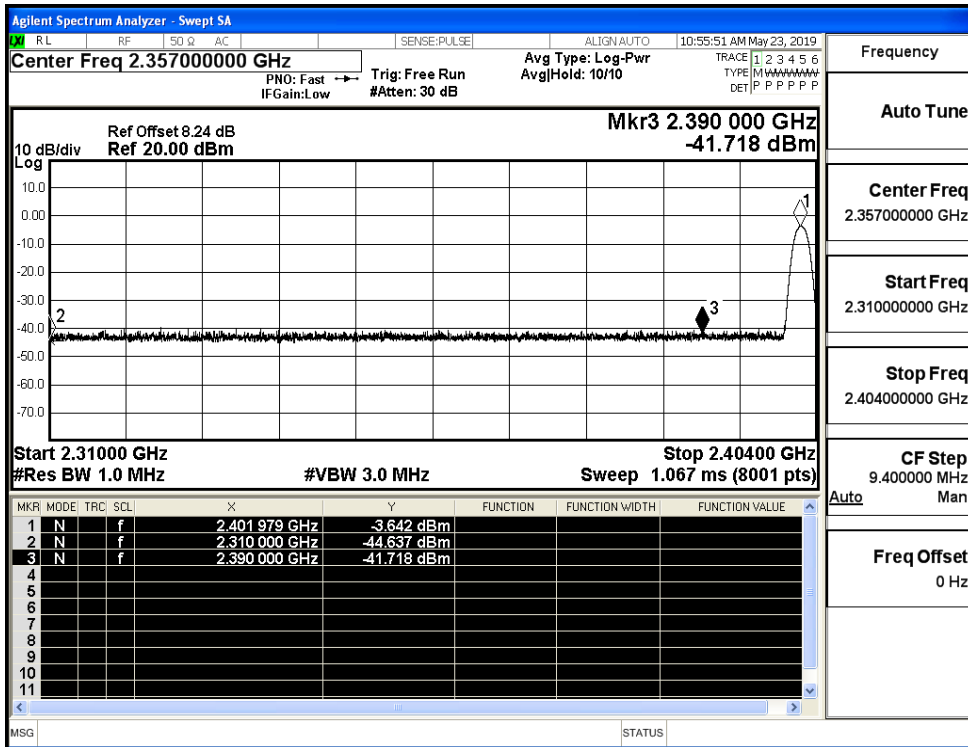
Test Graphs

LCH	<table border="1" style="width: 100%; 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>-3.999 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>-53.423 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>-53.660 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.334534 GHz</td><td>-50.056 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	-3.999 dBm				2	N	f		2.400000 GHz	-53.423 dBm				3	N	f		2.390000 GHz	-53.660 dBm				4	N	f		2.334534 GHz	-50.056 dBm				<table border="1" style="width: 100%; font-size: x-small;"> <tr><td>Frequency</td></tr> <tr><td>Auto Tune</td></tr> <tr><td>Center Freq 2.35700000 GHz</td></tr> <tr><td>Start Freq 2.31000000 GHz</td></tr> <tr><td>Stop Freq 2.40400000 GHz</td></tr> <tr><td>CF Step 9.400000 MHz</td></tr> <tr><td>Auto</td></tr> <tr><td>Freq Offset 0 Hz</td></tr> </table>	Frequency	Auto Tune	Center Freq 2.35700000 GHz	Start Freq 2.31000000 GHz	Stop Freq 2.40400000 GHz	CF Step 9.400000 MHz	Auto	Freq Offset 0 Hz
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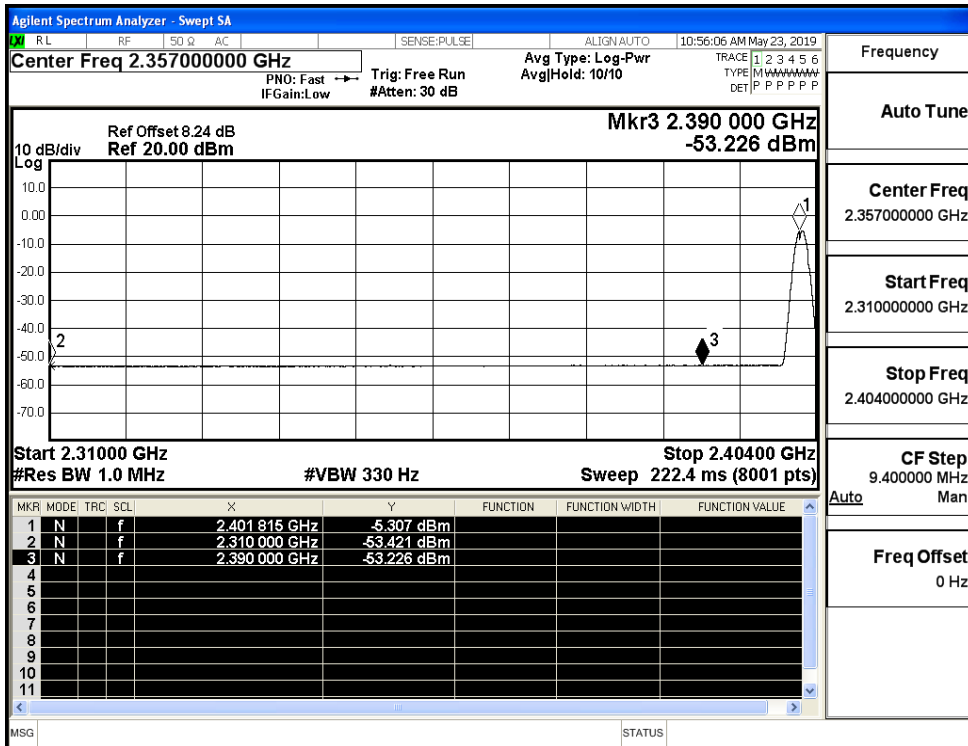
## B.7 Restrict-band band-edge measurements

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	-44.64	2.0	0	52.62	PEAK	74	PASS
		Ant1	2310.0	-53.42	2.0	0	43.84	AV	54	PASS
		Ant1	2390.0	-41.72	2.0	0	55.54	PEAK	74	PASS
		Ant1	2390.0	-53.23	2.0	0	44.03	AV	54	PASS
	2480	Ant1	2483.5	-42.13	2.0	0	55.13	PEAK	74	PASS
		Ant1	2483.5	-52.85	2.0	0	44.41	AV	54	PASS
		Ant1	2500.0	-42.33	2.0	0	54.93	PEAK	74	PASS
		Ant1	2500.0	-52.72	2.0	0	44.54	AV	54	PASS

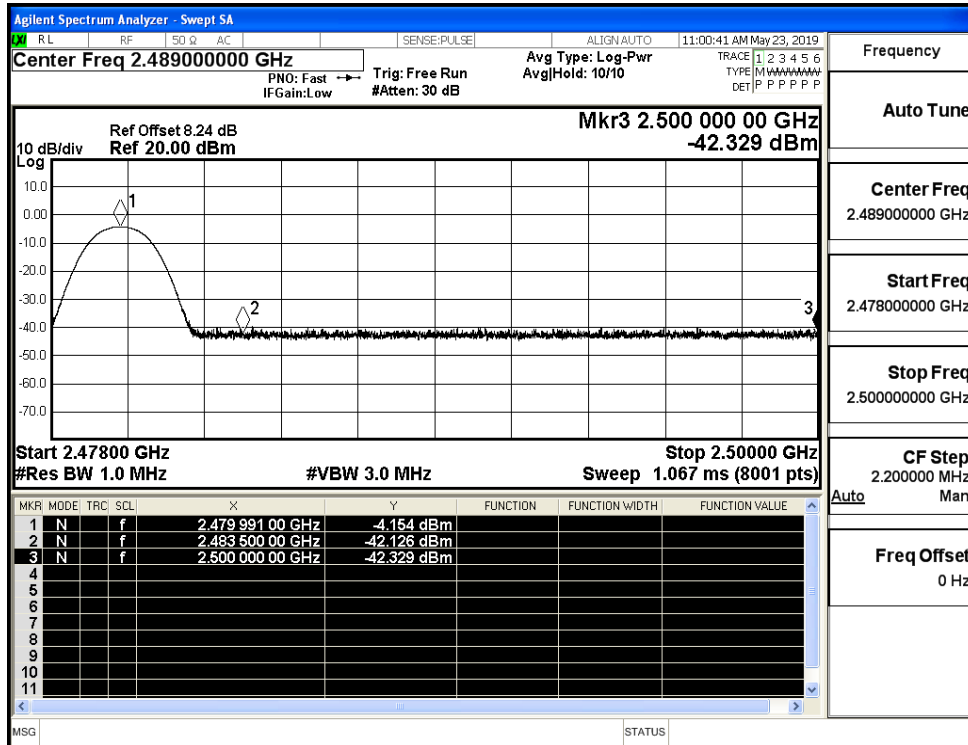
Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_PEAK



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

