

Appendix B

RF Test Data for BT V4.2 (BT LE) (Conducted Measurement)

Product Name: Bluetooth Speaker

Trade Mark: GSOU

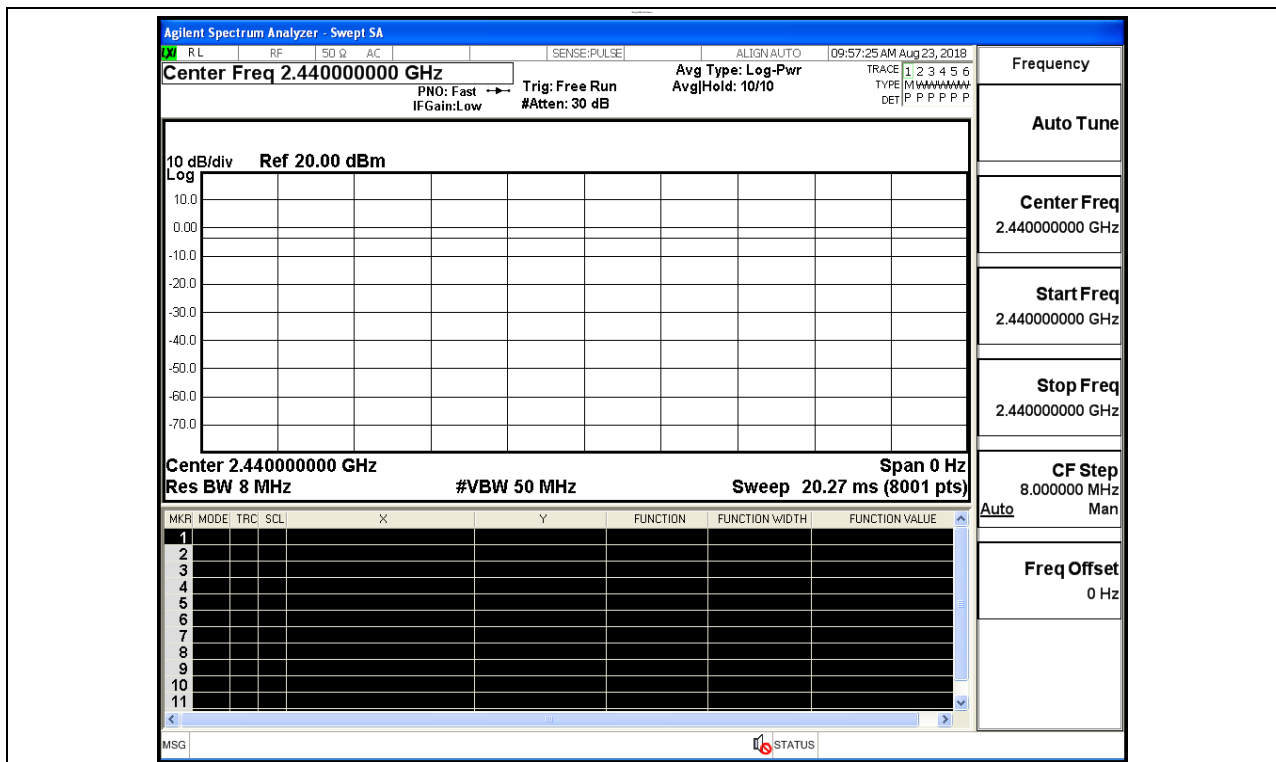
Test Model: U3

Environmental Conditions

Temperature:	22.6 ° C
Relative Humidity:	52.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Jayden.Zhuo

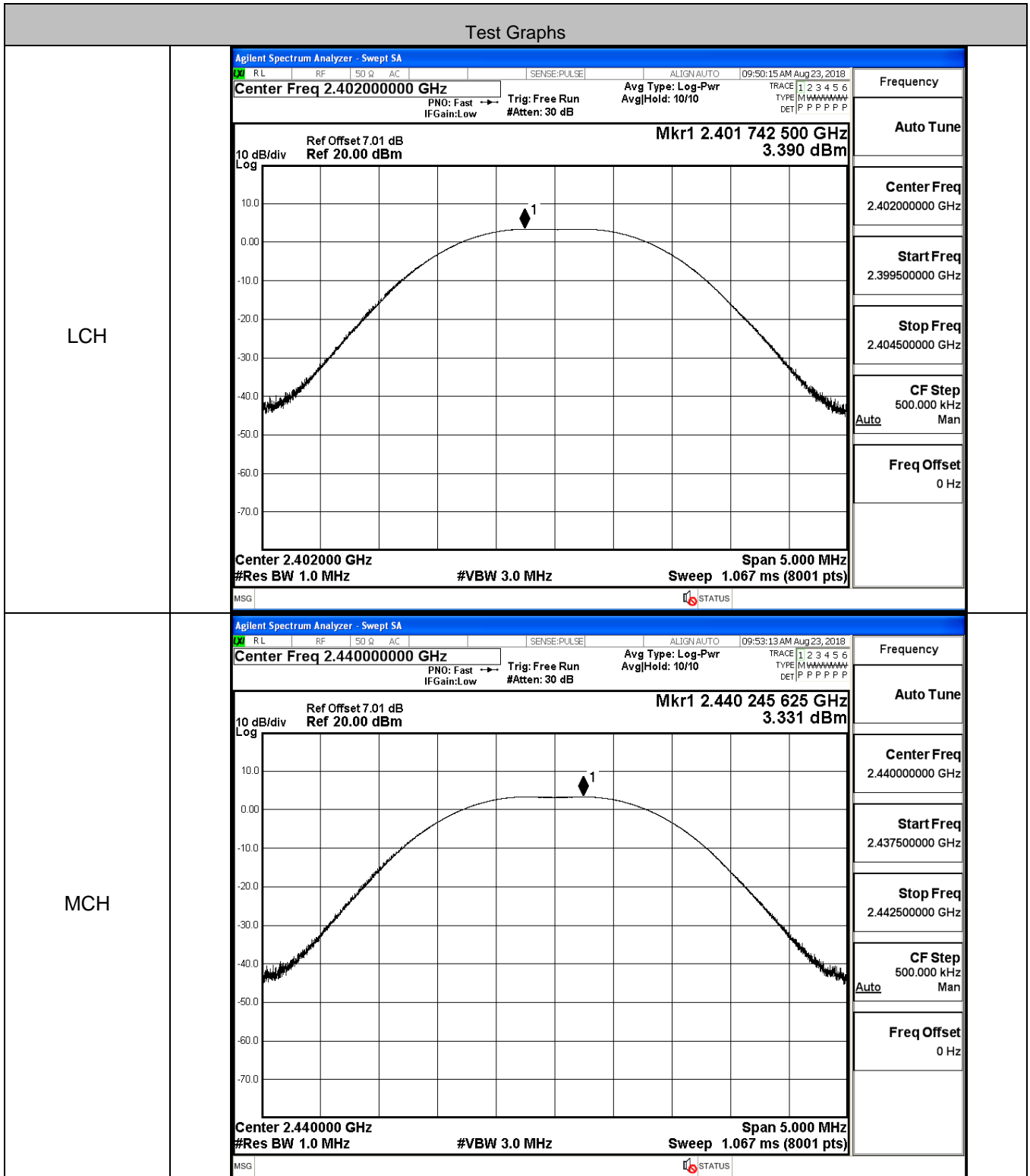
B.1 Duty Cycle

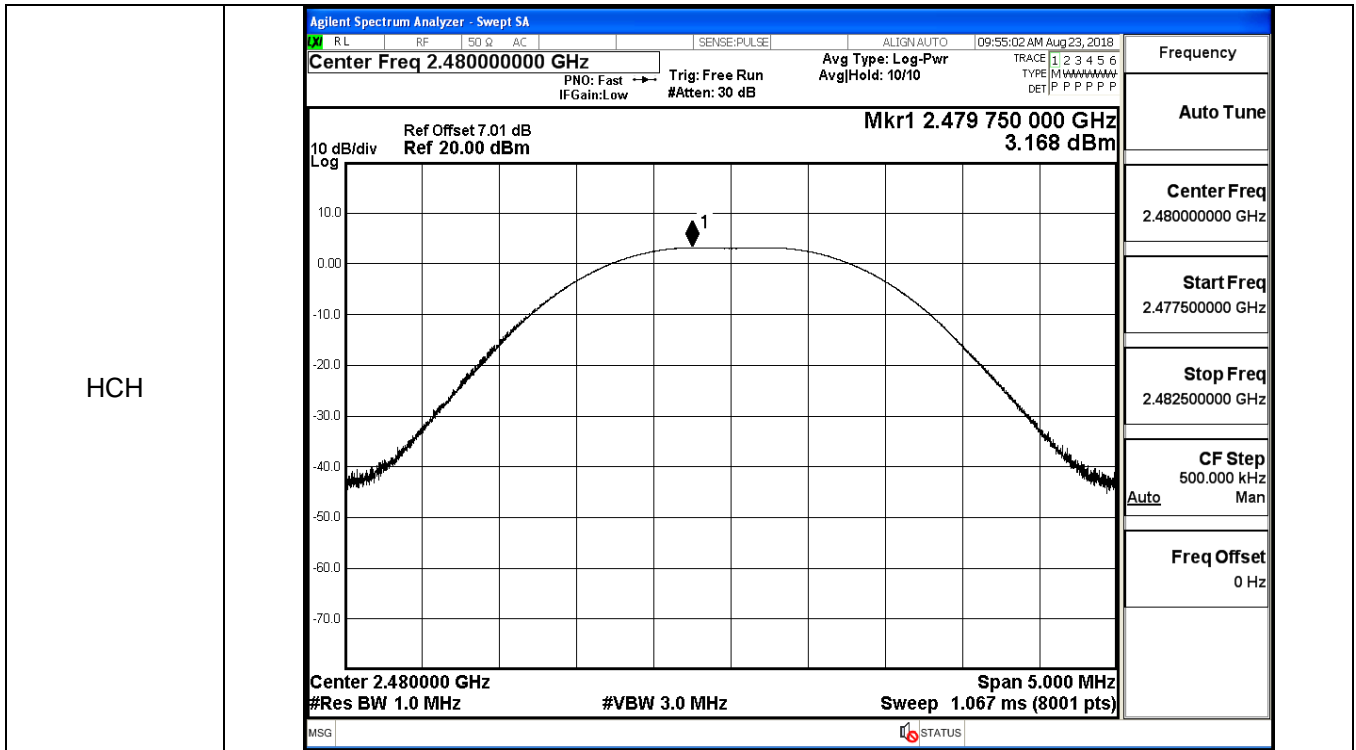
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	3.390	30	PASS
BT LE	MCH	3.331	30	PASS
BT LE	HCH	3.168	30	PASS

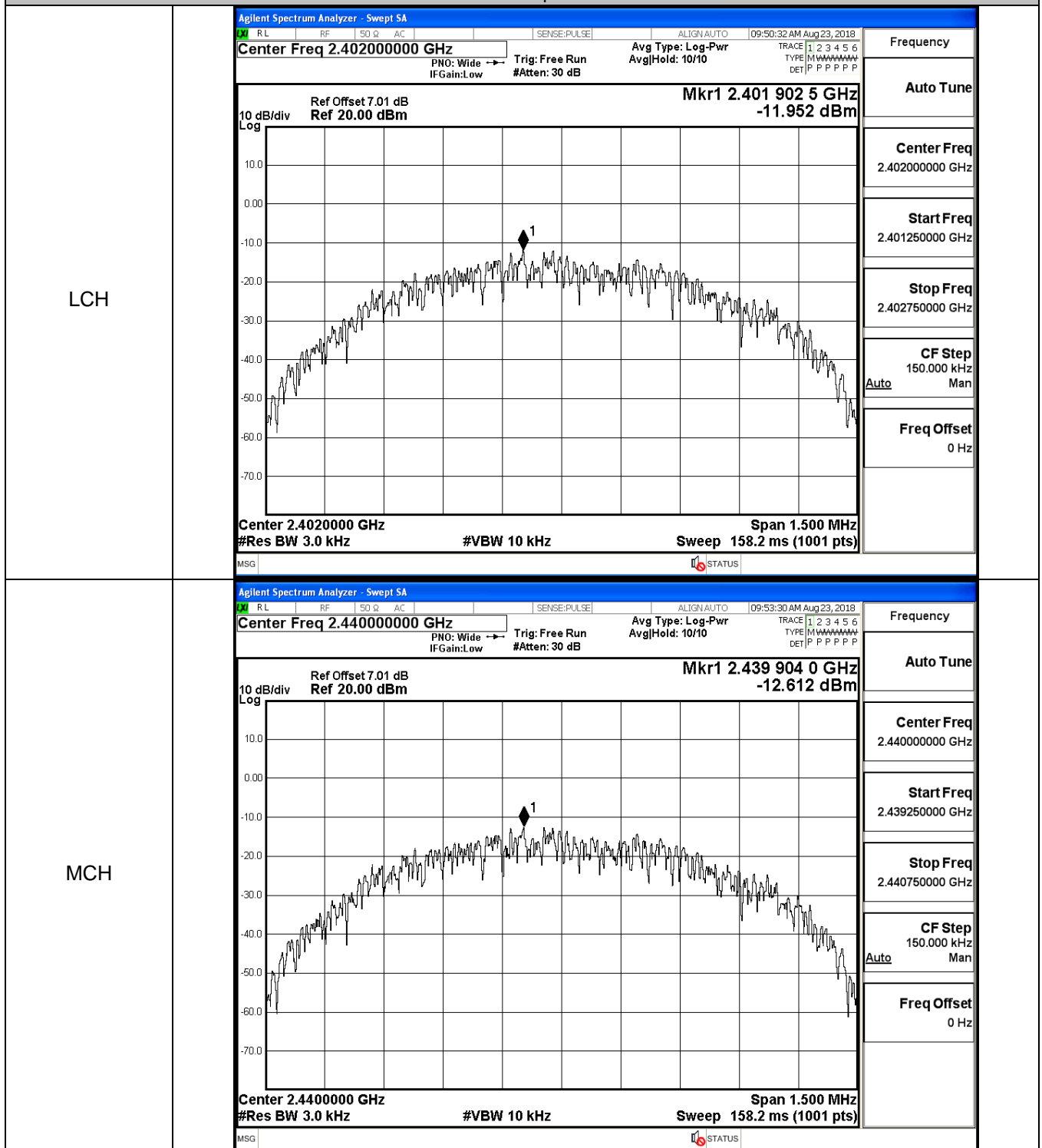




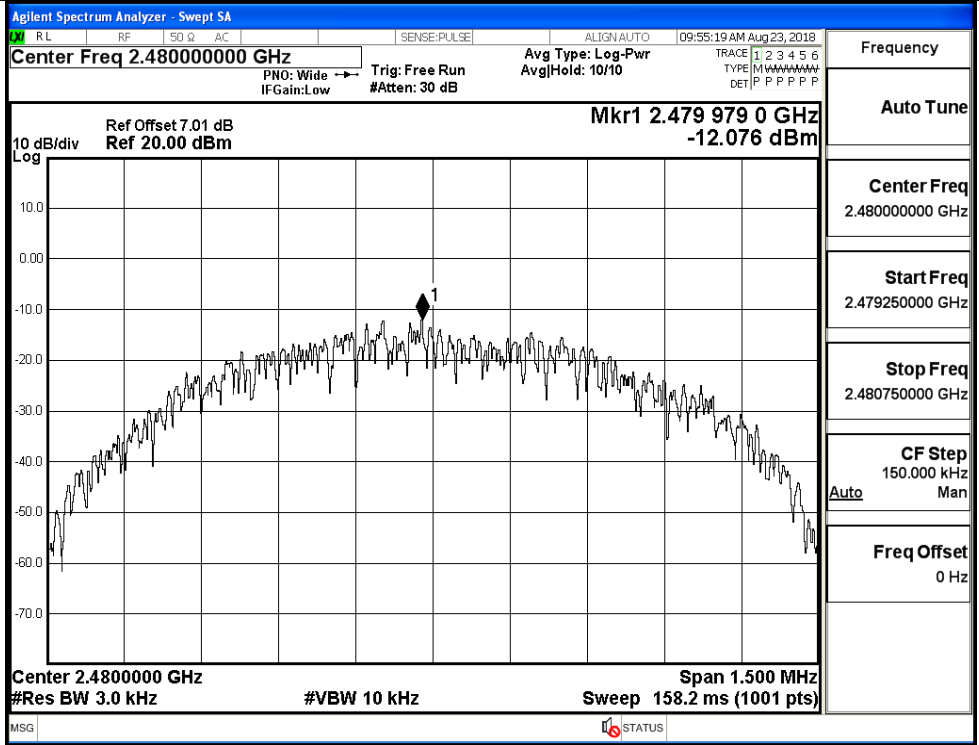
B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-11.952	8	PASS
BT LE	MCH	-12.612	8	PASS
BT LE	HCH	-12.076	8	PASS

Test Graphs



HCH



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.7037	≥0.5	PASS
BT LE	MCH	0.7000	≥0.5	PASS
BT LE	HCH	0.7040	≥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 09:50:00 AM Aug 23, 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="width: 60%;"> <p style="margin: 0;">10 dB/div Ref Offset 7.01 dB Mkr1 2.4022479 GHz Log Ref 20.00 dBm 2.5143 dBm</p> <p style="margin: 0;">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: small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>9.70 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;">1.0698 MHz</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> </div> <div style="width: 35%;"> <p style="margin: 0;">Frequency</p> <hr/> <p style="margin: 0;">Center Freq 2.402000000 GHz</p> <hr/> <p style="margin: 0;">CF Step 300.000 kHz Auto Man</p> <hr/> <p style="margin: 0;">Freq Offset 0 Hz</p> </div> </div> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	9.70 dBm	1.0698 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	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 09:52:58 AM Aug 23, 2018</p> <p style="margin: 0;">Center Freq: 2.440000000 GHz Center Freq: 2.440000000 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: 60%;"> <p style="margin: 0;">10 dB/div Ref Offset 7.01 dB Mkr1 2.4402453 GHz Log Ref 20.00 dBm 2.4408 dBm</p> <p style="margin: 0;">Center 2.44 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p> <table border="0" style="width: 100%; font-size: small;"> <tr> <td>Occupied Bandwidth</td> <td>Total Power</td> <td>9.62 dBm</td> </tr> <tr> <td colspan="3" style="text-align: center;">1.0690 MHz</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> </div> <div style="width: 35%;"> <p style="margin: 0;">Frequency</p> <hr/> <p style="margin: 0;">Center Freq 2.440000000 GHz</p> <hr/> <p style="margin: 0;">CF Step 300.000 kHz Auto Man</p> <hr/> <p style="margin: 0;">Freq Offset 0 Hz</p> </div> </div> <p style="font-size: x-small; margin-top: 5px;">MSG STATUS</p> </div>	Occupied Bandwidth	Total Power	9.62 dBm	1.0690 MHz			Transmit Freq Error	OBW Power	99.00 %	x dB Bandwidth	x dB	-6.00 dB
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1.0690 MHz													
Transmit Freq Error	OBW Power	99.00 %											
x dB Bandwidth	x dB	-6.00 dB											

HCH

Agilent Spectrum Analyzer - Occupied BW

RL	RF	50 Ω	AC	SENSE:PULSE	ALIGN:AUTO	09:54:46 AM Aug 23, 2018
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
 Log

Ref Offset 7.01 dB
 Ref 20.00 dBm

Mkr1 2.4802475 GHz
 2.2922 dBm

Center 2.48 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 3 MHz

Sweep 1.067 ms

Occupied Bandwidth	Total Power	9.47 dBm
1.0682 MHz		
Transmit Freq Error	4.804 kHz	OBW Power 99.00 %
x dB Bandwidth	704.0 kHz	x dB -6.00 dB

MSG

STATUS

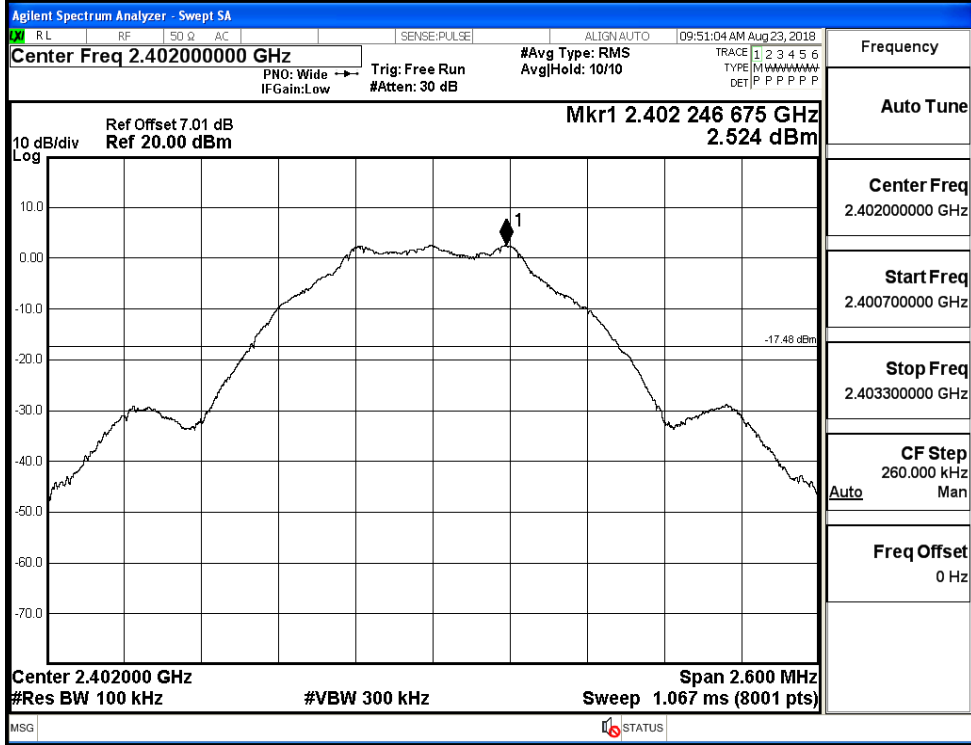
Frequency
Center Freq 2.480000000 GHz
CF Step 300.000 kHz Auto Man
Freq Offset 0 Hz

B.5 RF Conducted Spurious Emissions

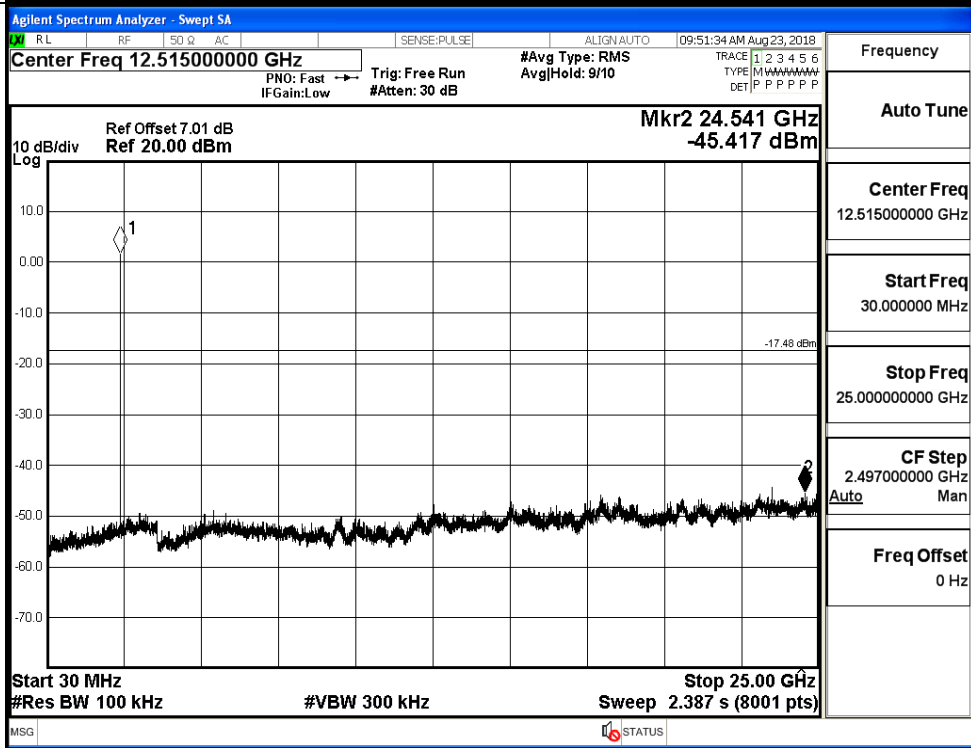
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	2.524	-45.417	-17.476	PASS
BT LE	MCH	2.467	-45.327	-17.533	PASS
BT LE	HCH	2.305	-45.458	-17.695	PASS

BT LE_LCH_Graphs

Pref/BT LE/LCH

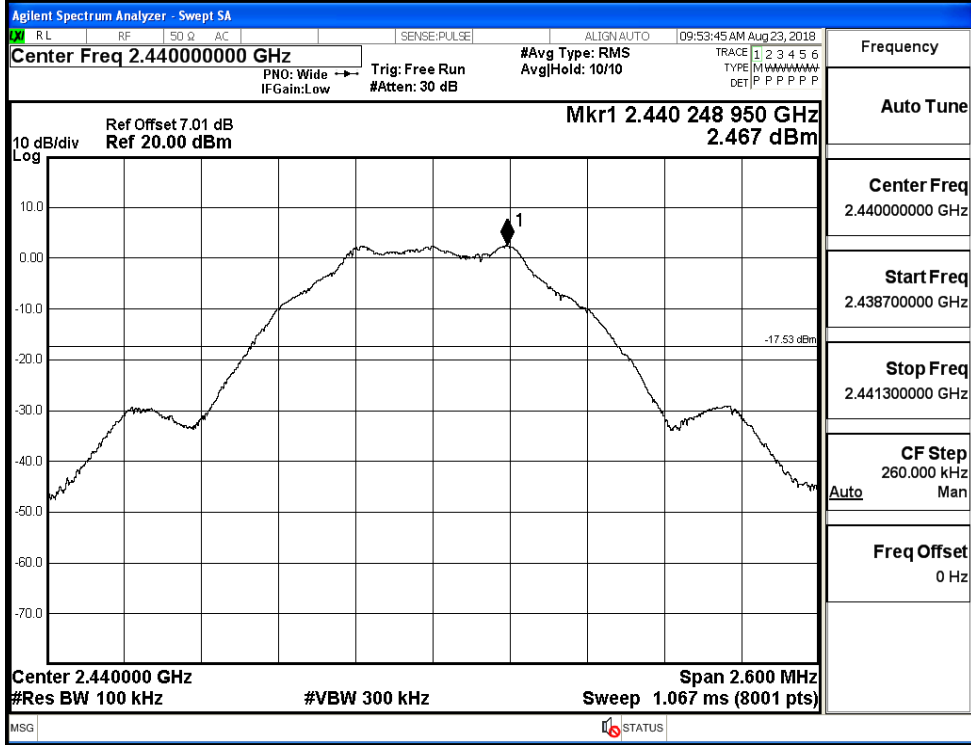


Puw/BT LE/LCH

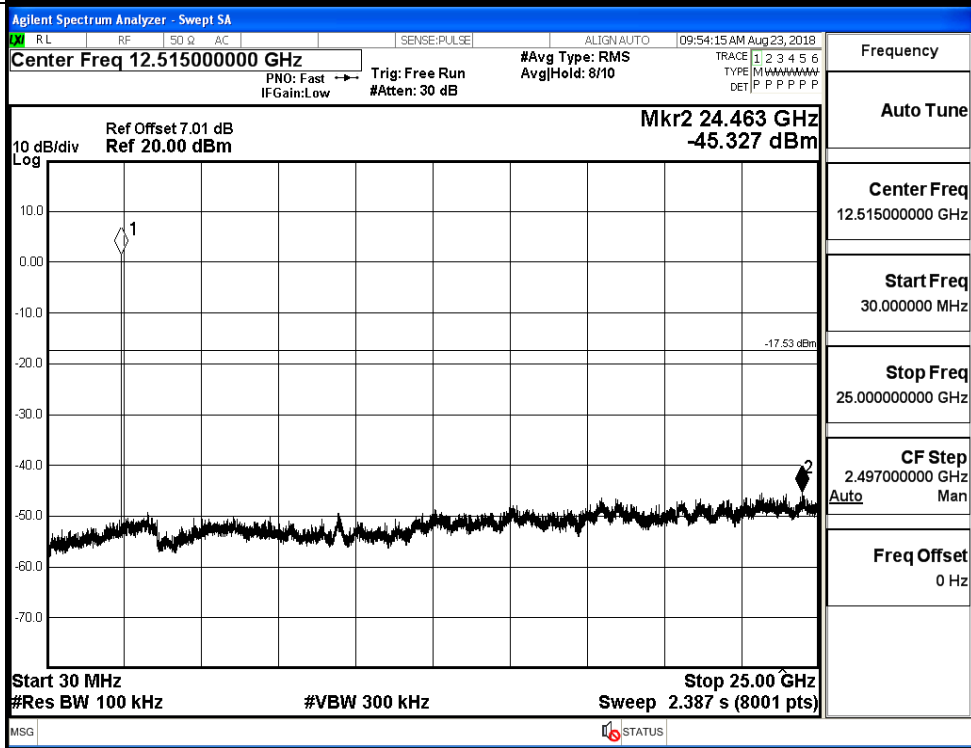


BT LE_MCH_Graphs

Pref/BT LE/MCH

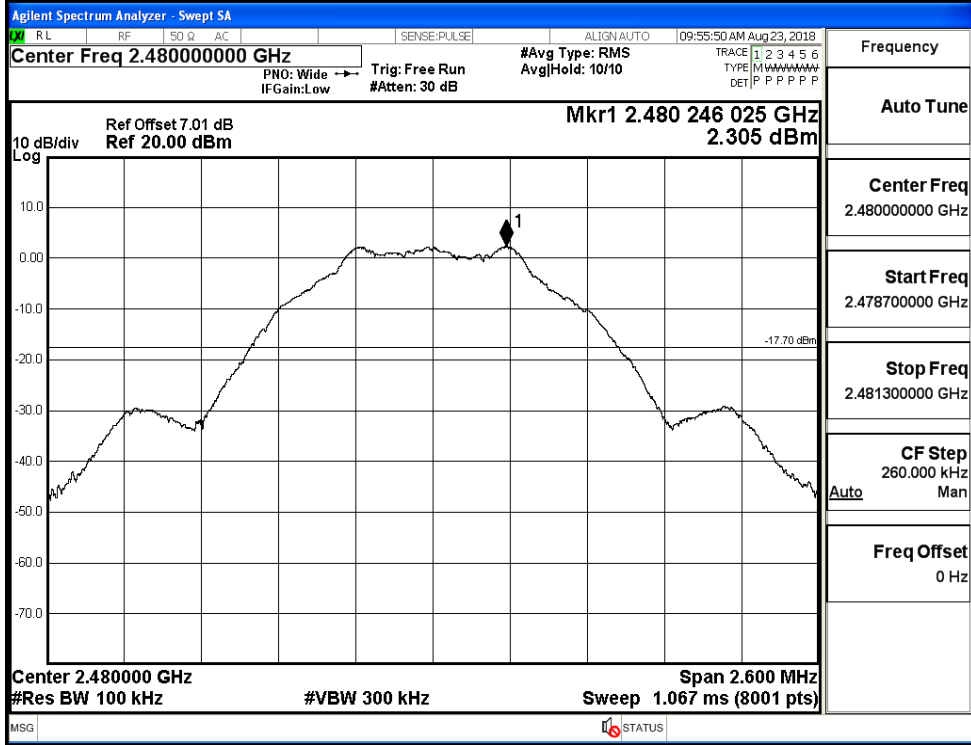


Puw/BT LE/MCH

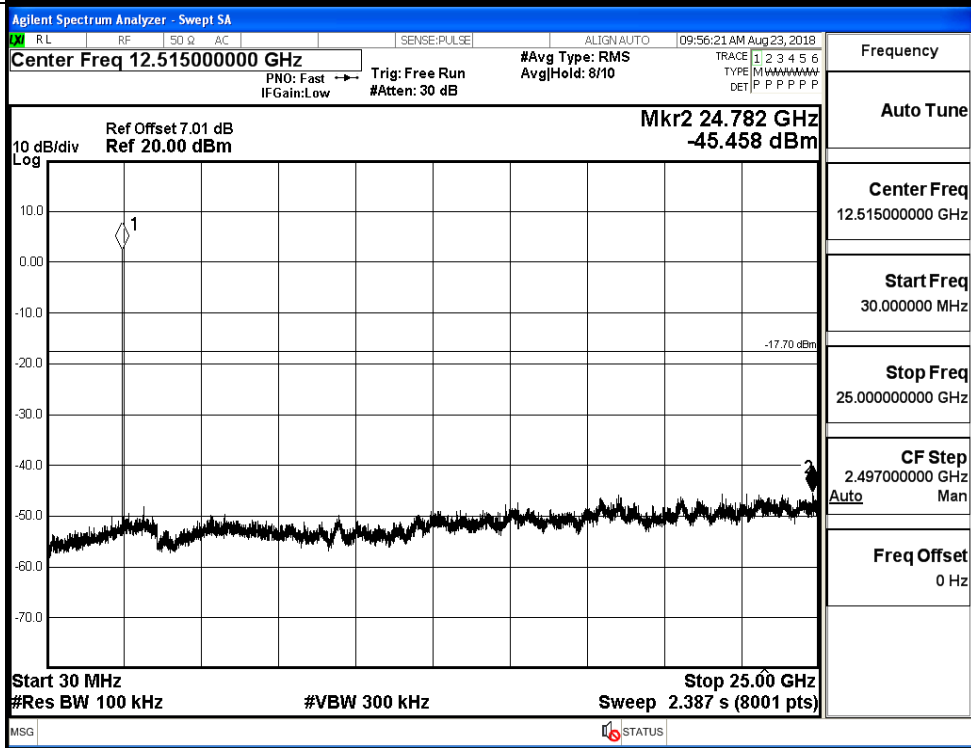


BT LE_HCH_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	2.692	-50.932	-17.31	PASS
BT LE	HCH	2.518	-50.610	-17.48	PASS

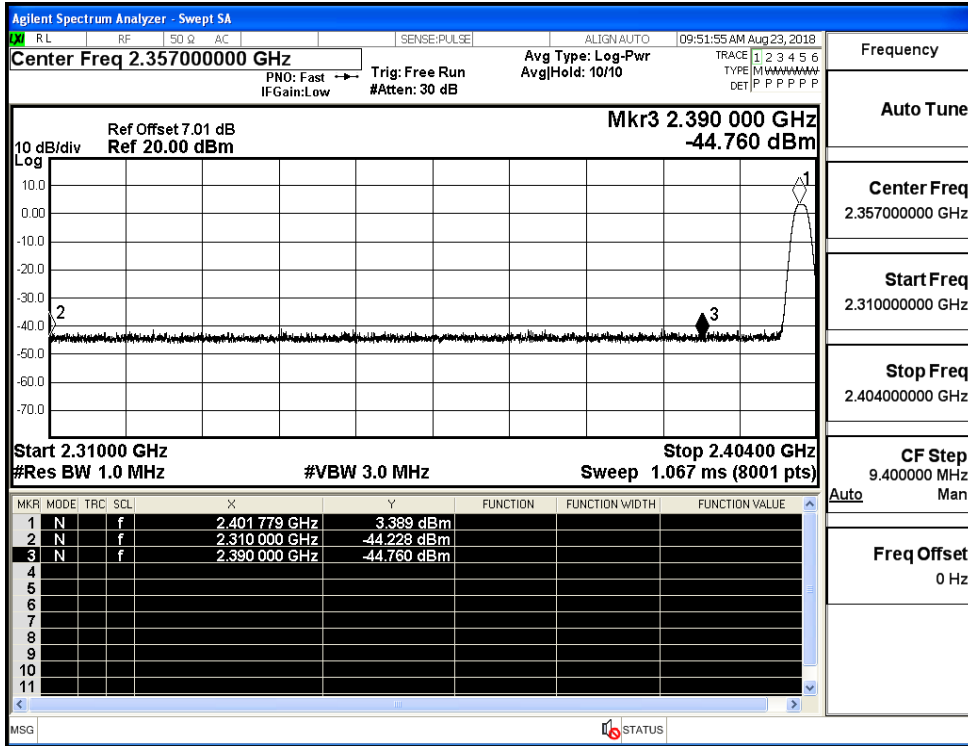
Test Graphs

LCH	<p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.35700000 GHz #Avg Type: RMS AvgHold: 10/10 Mkr4 2.360 525 GHz -50.932 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>2.692 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>-53.919 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>-53.331 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.360 525 GHz</td><td>-50.932 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	2.692 dBm				2	N	f		2.400 000 GHz	-53.919 dBm				3	N	f		2.390 000 GHz	-53.331 dBm				4	N	f		2.360 525 GHz	-50.932 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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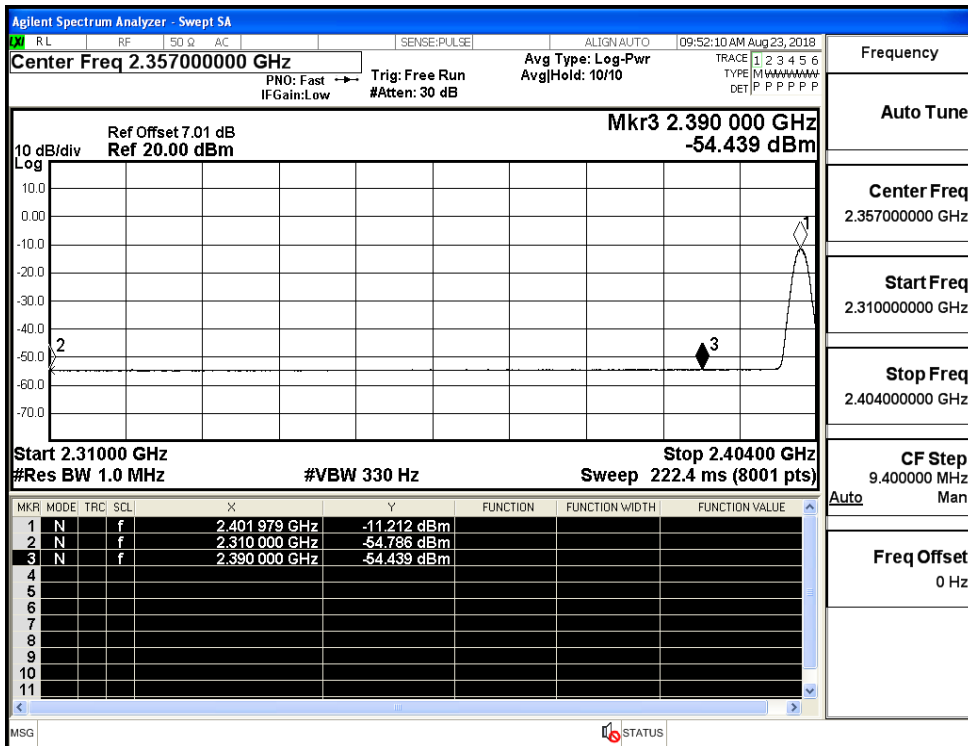
B.7 Restrict-band band-edge measurements

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	-44.23	2.0	0	51.03	PEAK	74	PASS
		Ant1	2310.0	-54.79	2.0	0	40.47	AV	54	PASS
		Ant1	2390.0	-44.76	2.0	0	50.50	PEAK	74	PASS
		Ant1	2390.0	-54.44	2.0	0	40.82	AV	54	PASS
	2480	Ant1	2483.5	-44.64	2.0	0	50.62	PEAK	74	PASS
		Ant1	2483.5	-54.18	2.0	0	41.08	AV	54	PASS
		Ant1	2500.0	-44.10	2.0	0	51.16	PEAK	74	PASS
		Ant1	2500.0	-54.13	2.0	0	41.13	AV	54	PASS

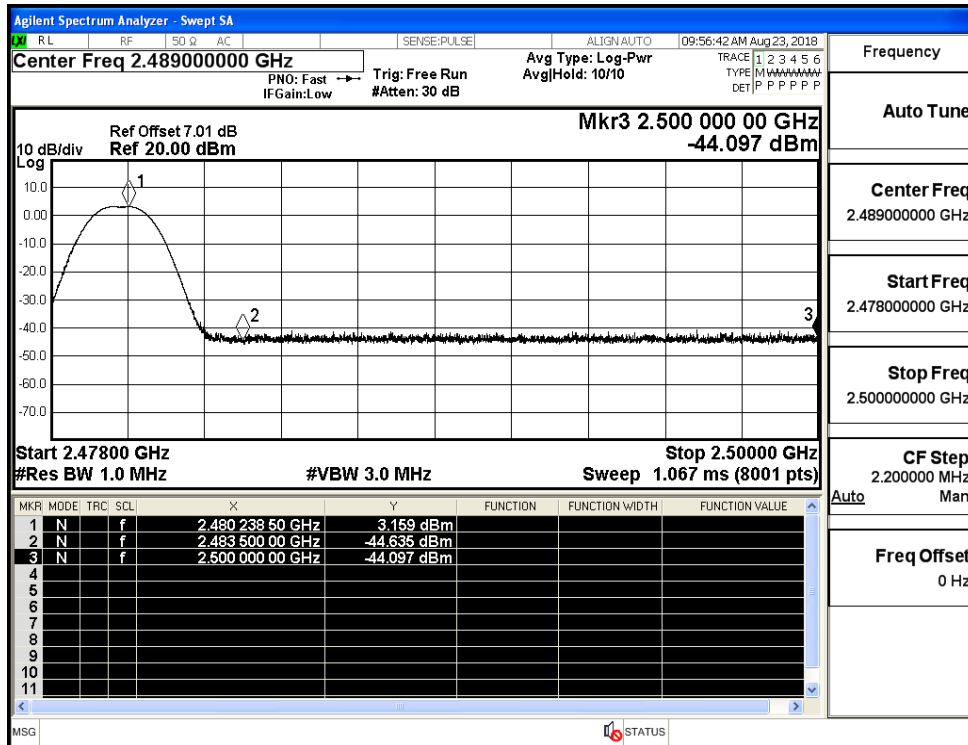
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

