

Appendix B

RF Test Data for BT V4.2 (BDR/EDR) (Conducted Measurement)

Product Name: **BLUETOOTH SPEAKER**

Trade Mark: **N/A**

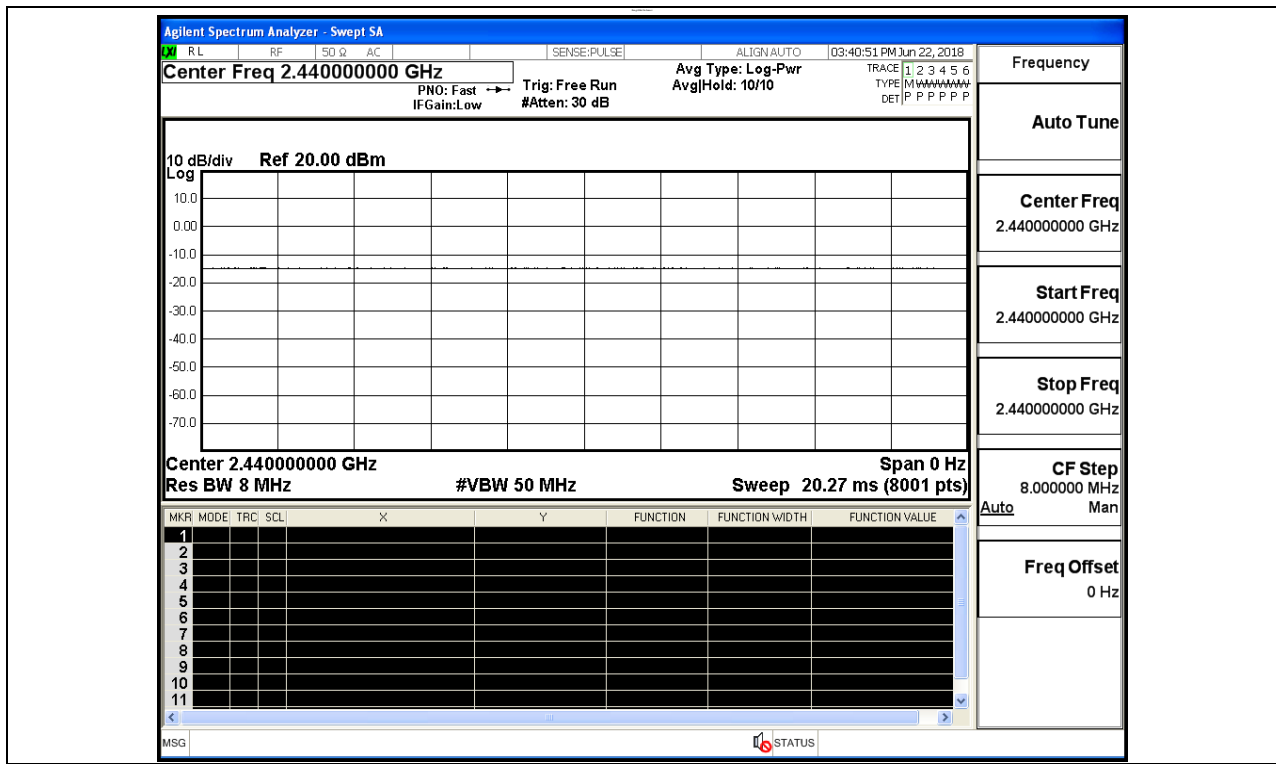
Test Model: **F300**

Environmental Conditions

Temperature:	23.2 ° C
Relative Humidity:	53.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Wilson Hong
Supervised by:	Jayden.Zhuo

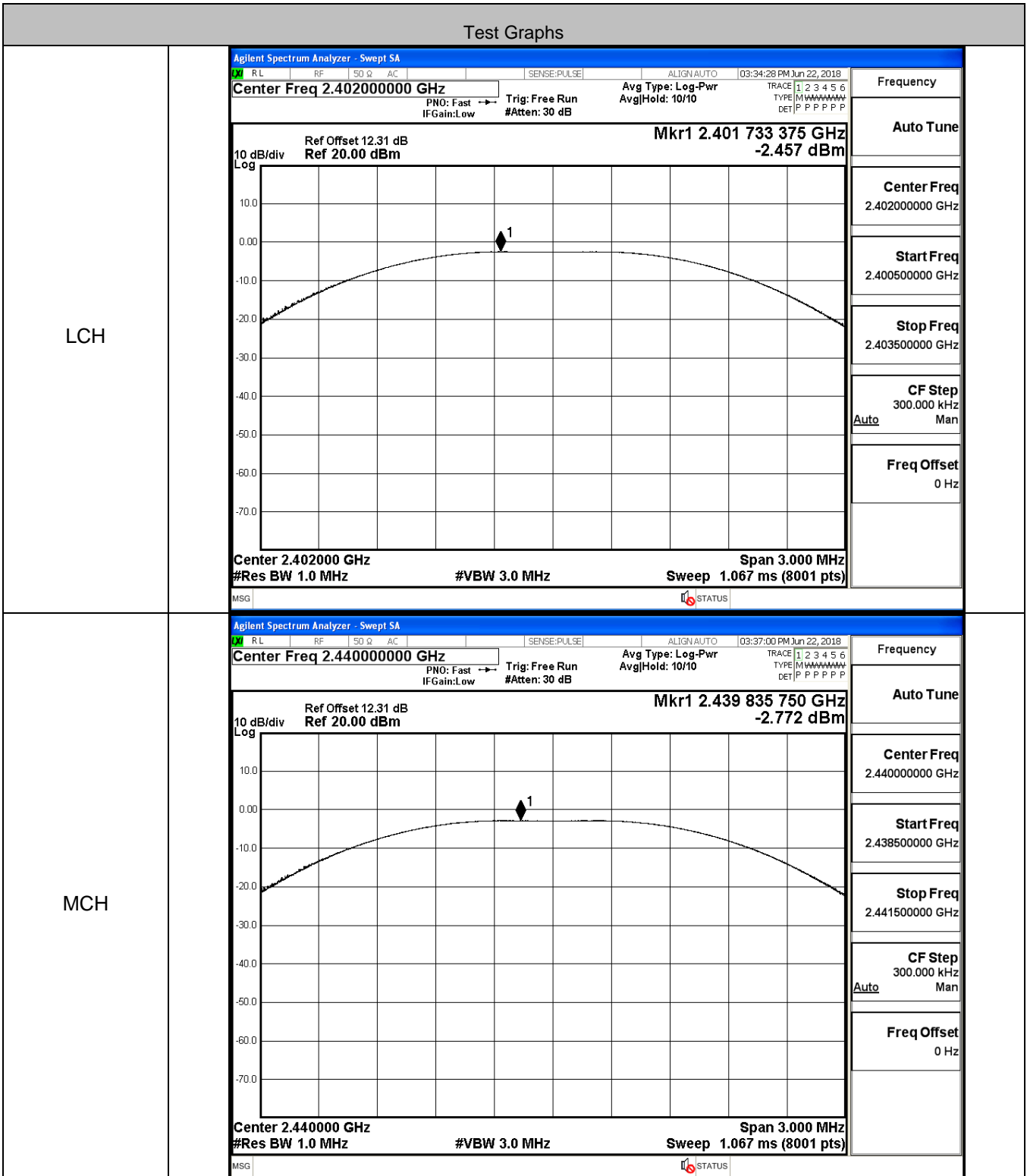
B.1 Duty Cycle

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



B.2 Maximum Conducted Peak Output Power

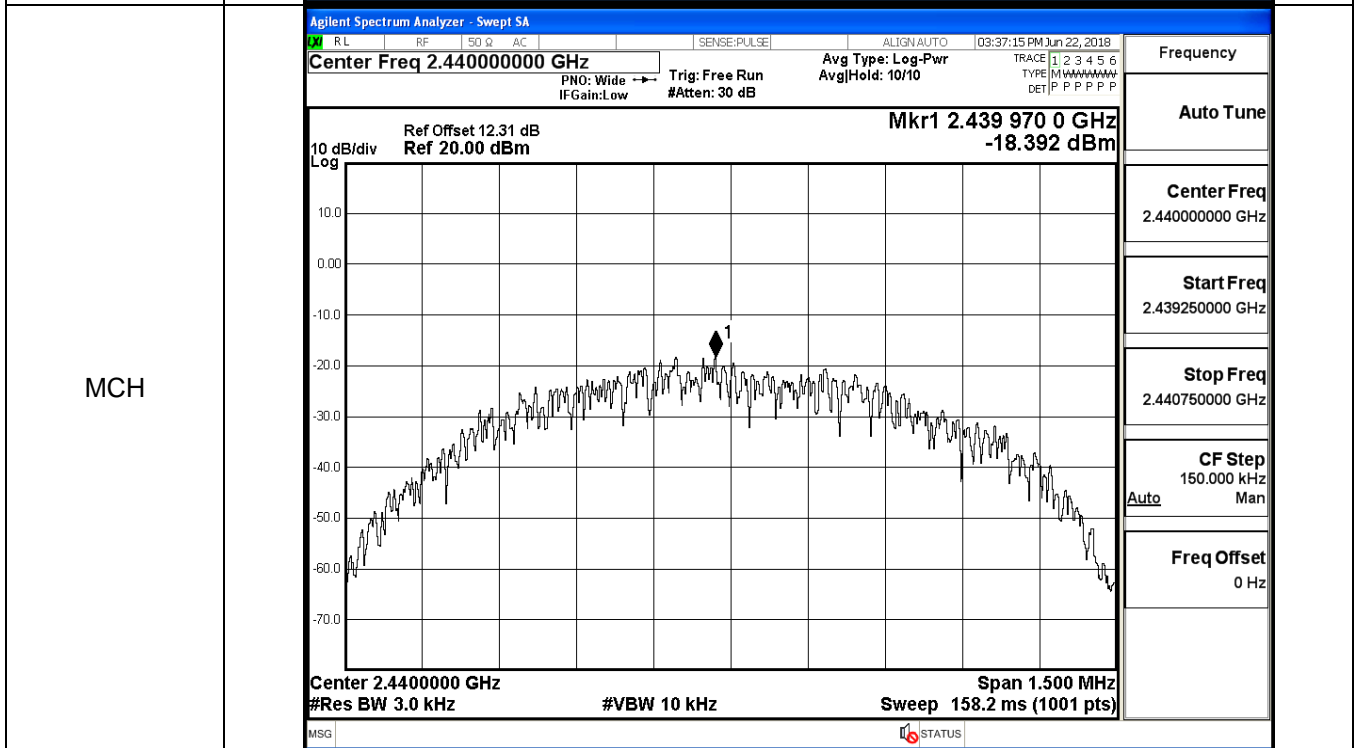
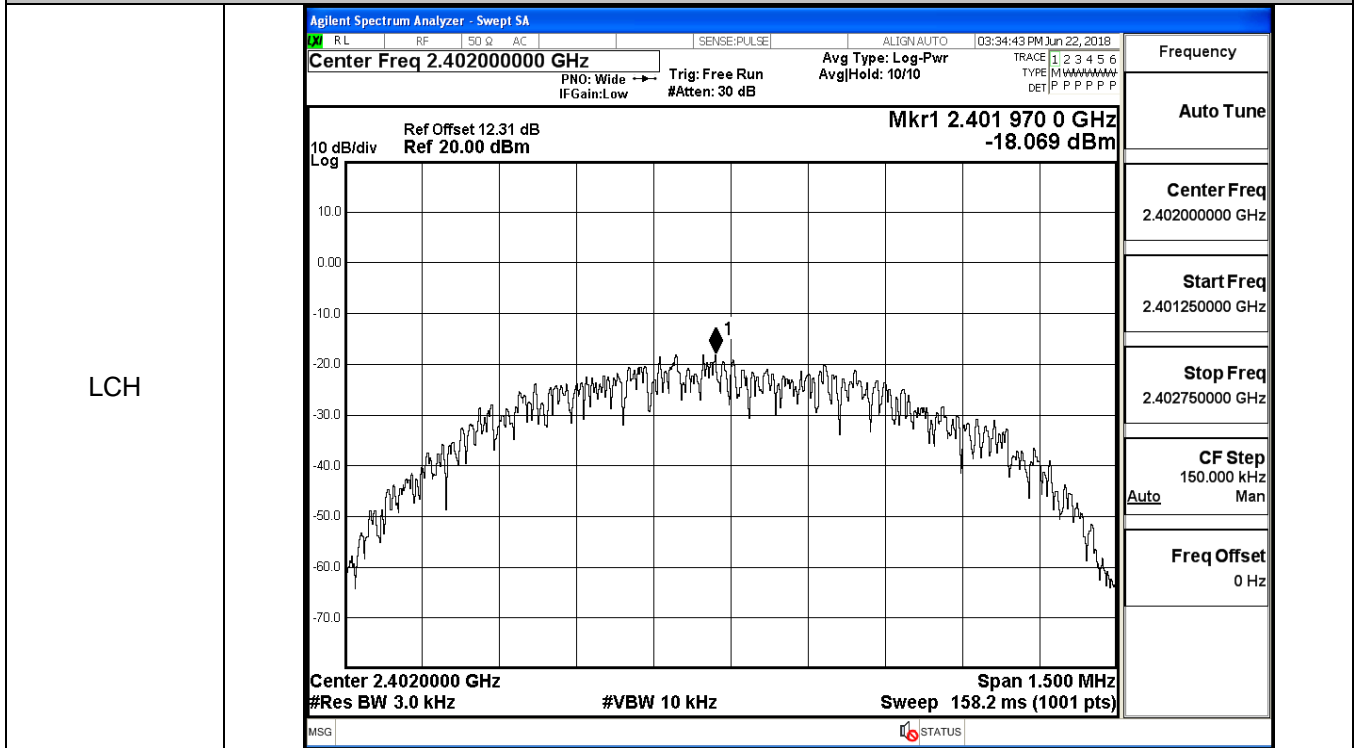
Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.457	30	PASS
BT LE	MCH	-2.772	30	PASS
BT LE	HCH	-2.493	30	PASS



B.3 Maximum Power Spectral Density

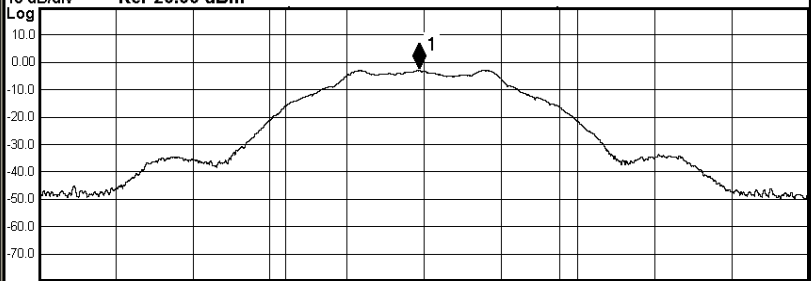
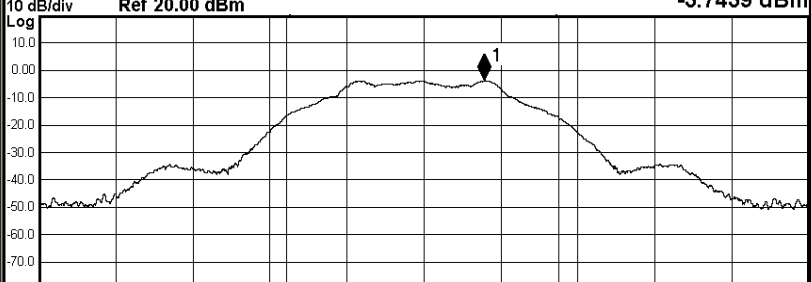
Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-18.069	8	PASS
BT LE	MCH	-18.392	8	PASS
BT LE	HCH	-18.097	8	PASS

Test Graphs



B.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6975	≥0.5	PASS
BT LE	MCH	0.7075	≥0.5	PASS
BT LE	HCH	0.7077	≥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 03:34:16 PM Jun 22, 2018</p> <p style="margin: 0;">Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold>1/1 #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 12.31 dB Mkr1 2.4019831 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm -2.8593 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>Occupied Bandwidth</td> <td>Total Power</td> <td>4.30 dBm</td> </tr> <tr> <td style="text-align: center;">1.0629 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-4.961 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>697.5 kHz</td> <td>x dB -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: 50%;">Frequency</td> <td style="width: 50%;">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	4.30 dBm	1.0629 MHz			Transmit Freq Error	-4.961 kHz	OBW Power 99.00 %	x dB Bandwidth	697.5 kHz	x dB -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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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 03:36:48 PM Jun 22, 2018</p> <p style="margin: 0;">Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold>1/1 #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 12.31 dB Mkr1 2.4402359 GHz</p> <p style="font-size: x-small; margin: 0;">Log Ref 20.00 dBm -3.7439 dBm</p>  <p style="font-size: x-small; margin: 0;">Center 2.44 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>3.41 dBm</td> </tr> <tr> <td style="text-align: center;">1.0617 MHz</td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>-4.864 kHz</td> <td>OBW Power 99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>707.5 kHz</td> <td>x dB -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: 50%;">Frequency</td> <td style="width: 50%;">2.440000000 GHz</td> </tr> <tr> <td>Center Freq</td> <td>2.440000000 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	3.41 dBm	1.0617 MHz			Transmit Freq Error	-4.864 kHz	OBW Power 99.00 %	x dB Bandwidth	707.5 kHz	x dB -6.00 dB	Frequency	2.440000000 GHz	Center Freq	2.440000000 GHz	CF Step	300.000 kHz	Auto	Man	Freq Offset	0 Hz
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Center Freq	2.440000000 GHz																						
CF Step	300.000 kHz																						
Auto	Man																						
Freq Offset	0 Hz																						

HCH

Agilent Spectrum Analyzer - Occupied BW

RL	RF	50 Ω	AC	SENSE:PULSE	ALIGN:AUTO	03:38:32 PM Jun 22, 2018
Center Freq 2.480000000 GHz				Center Freq: 2.480000000 GHz	Radio Std: None	Frequency
				Trig: Free Run	AvgHold>1/1	
				#IFGain:Low	#Atten: 30 dB	Radio Device: BTS

Mkr1 2.4799884 GHz
-3.4380 dBm

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

Occupied Bandwidth		Total Power	
1.0618 MHz		3.74 dBm	
Transmit Freq Error	-4.560 kHz	OBW Power	99.00 %
x dB Bandwidth	707.7 kHz	x dB	-6.00 dB

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

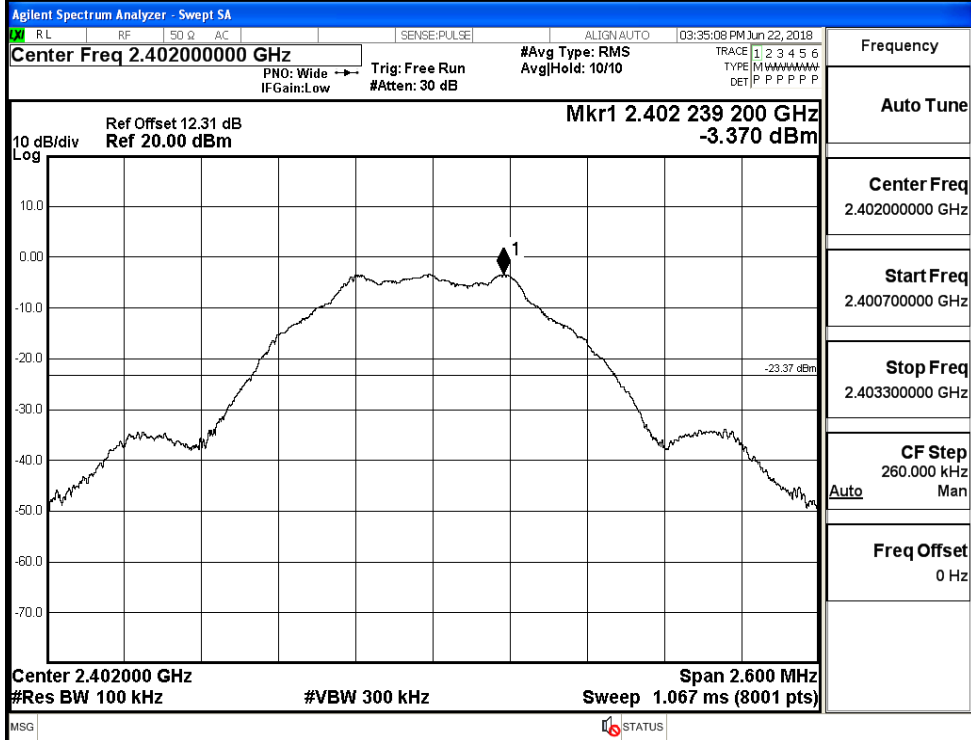
MSG STATUS

B.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-3.37	-37.925	-23.370	PASS
BT LE	MCH	-3.732	-37.584	-23.732	PASS
BT LE	HCH	-3.423	-39.858	-23.423	PASS

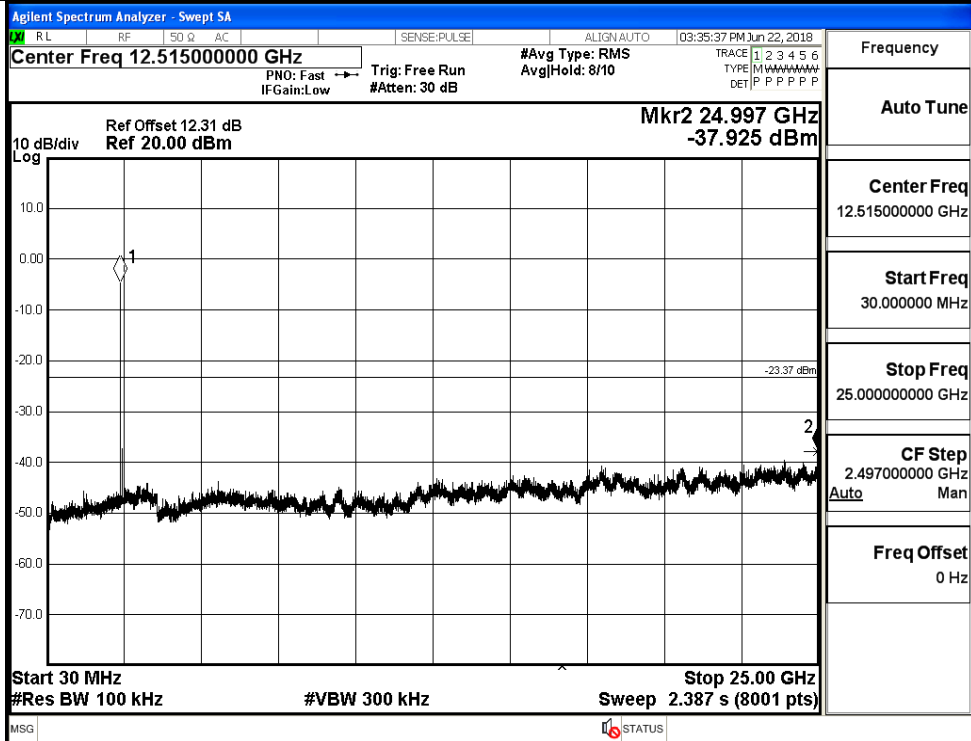
BT LE_LCH_Graphs

Pref/BT LE/LCH



Frequency	
Auto Tune	
Center Freq	2.402000000 GHz
Start Freq	2.400700000 GHz
Stop Freq	2.403300000 GHz
CF Step	260.000 kHz
Auto	Man
Freq Offset	0 Hz

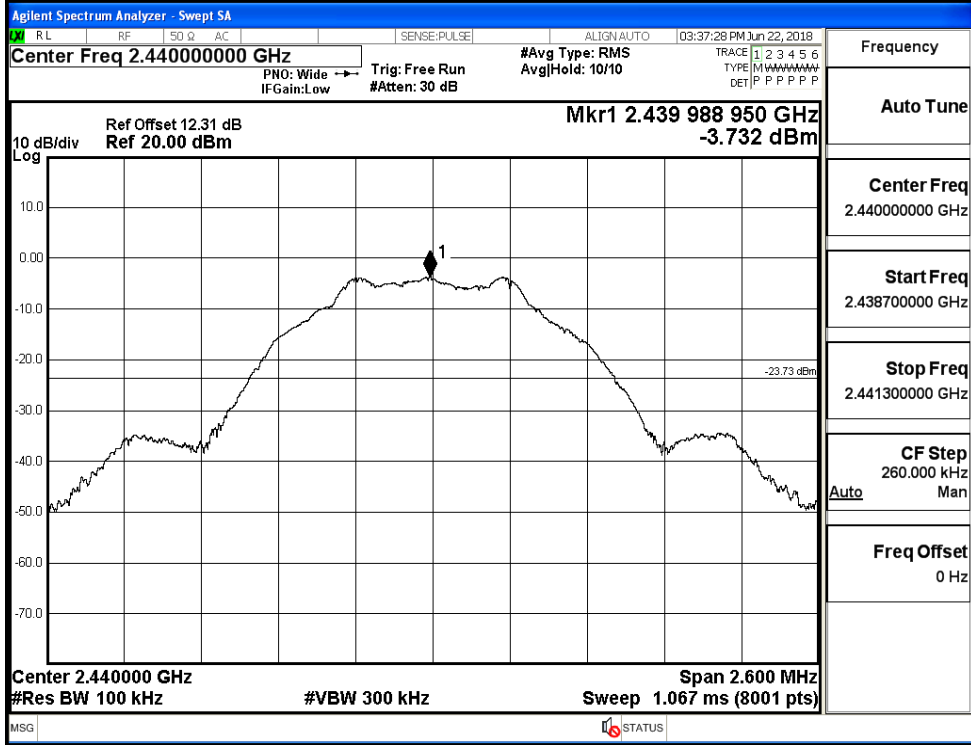
Puw/BT LE/LCH



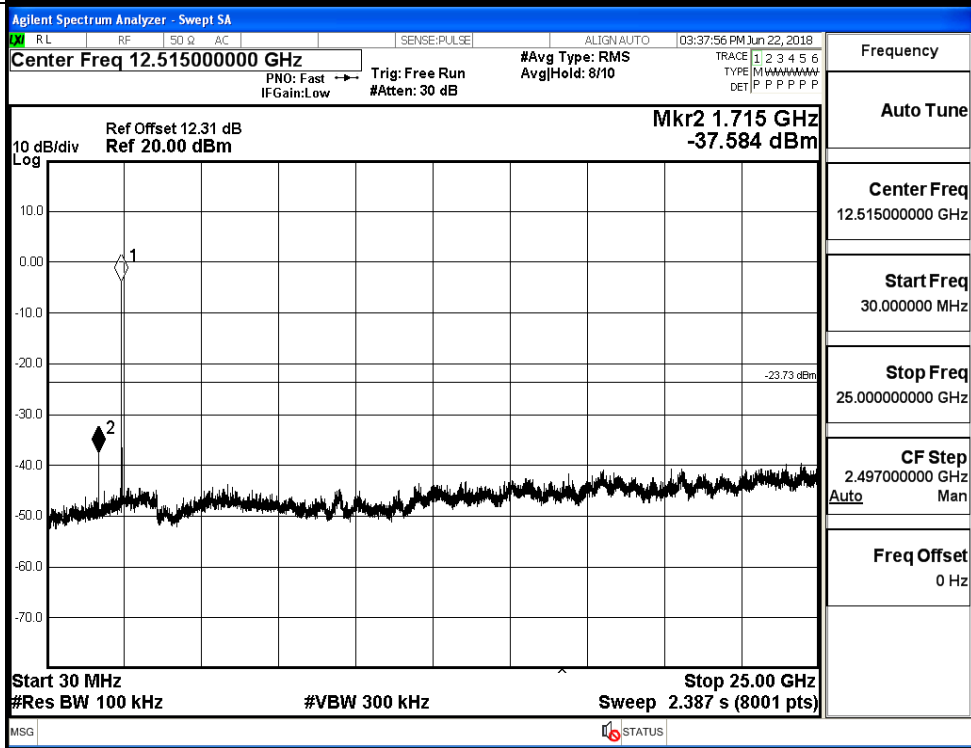
Frequency	
Auto Tune	
Center Freq	12.515000000 GHz
Start Freq	30.0000000 MHz
Stop Freq	25.000000000 GHz
CF Step	2.497000000 GHz
Auto	Man
Freq Offset	0 Hz

BT LE_MCH_Graphs

Pref/BT LE/MCH

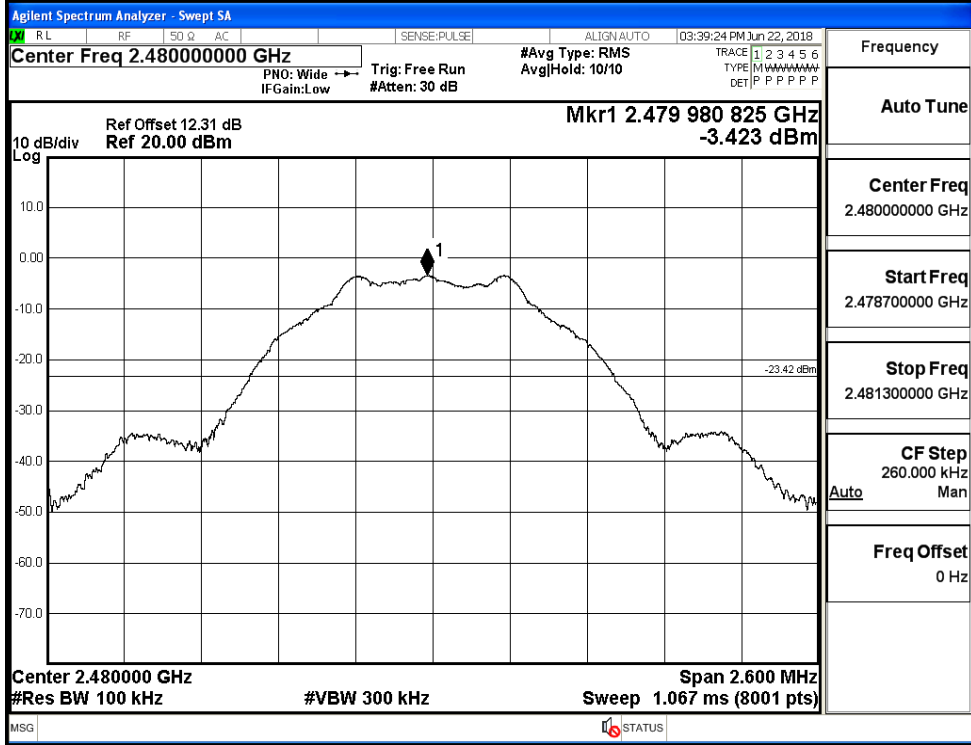


Puw/BT LE/MCH

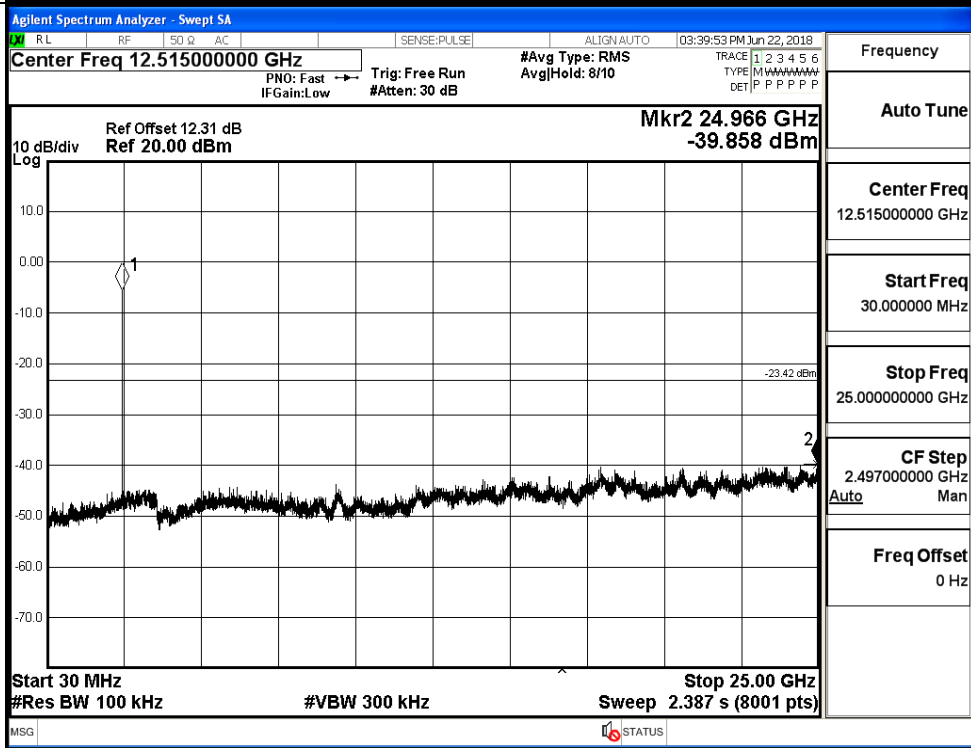


BT LE_HCH_Graphs

Pref/BT LE/HCH



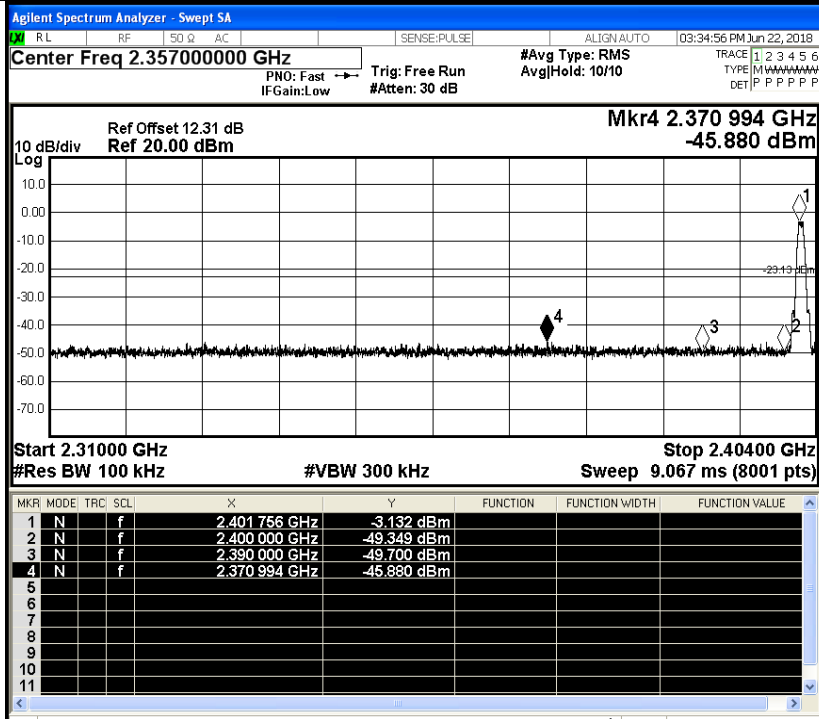
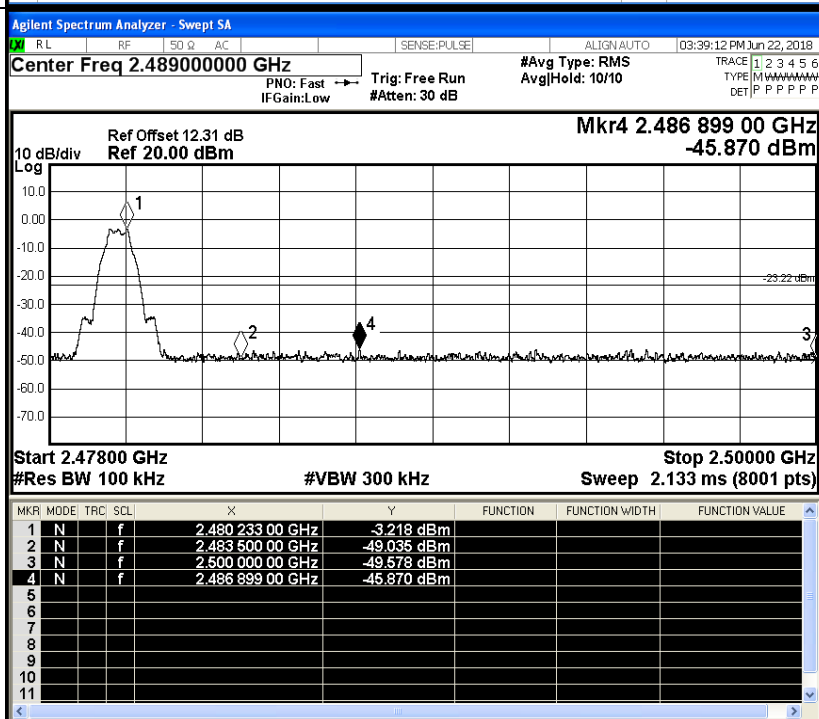
Puw/BT LE/HCH



B.6 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-3.132	-45.880	-23.13	PASS
BT LE	HCH	-3.218	-45.870	-23.22	PASS

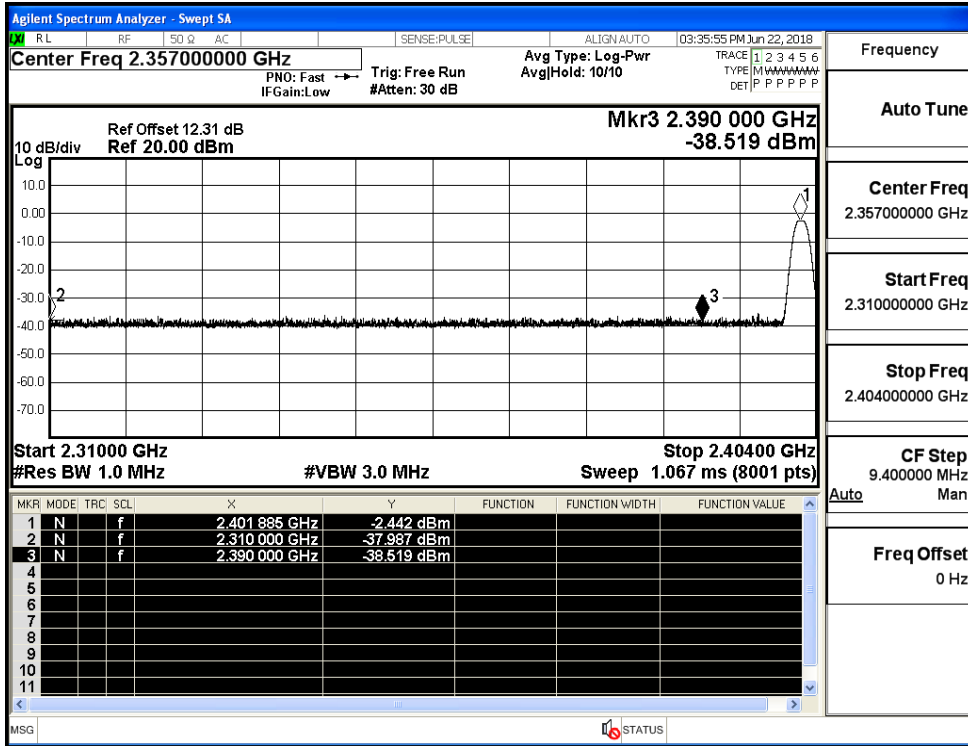
Test Graphs

LCH		<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>
HCH		<p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.48900000 GHz</p> <p>Start Freq 2.47800000 GHz</p> <p>Stop Freq 2.50000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p>

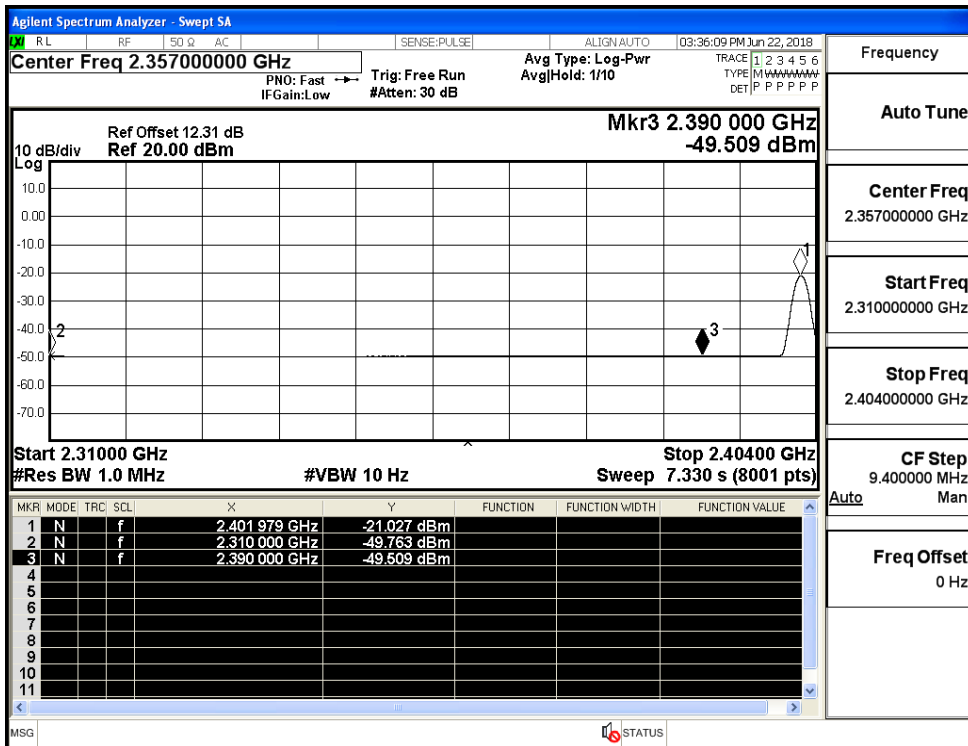
B.7 Restrict-band band-edge measurements

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	-37.99	2.0	0	59.27	PEAK	74	PASS
		Ant1	2310.0	-49.76	2.0	0	47.49	AV	54	PASS
		Ant1	2390.0	-38.52	2.0	0	58.74	PEAK	74	PASS
		Ant1	2390.0	-49.51	2.0	0	47.75	AV	54	PASS
	2480	Ant1	2483.5	-37.02	2.0	0	60.24	PEAK	74	PASS
		Ant1	2483.5	-49.34	2.0	0	47.92	AV	54	PASS
		Ant1	2500.0	-39.88	2.0	0	57.38	PEAK	74	PASS
		Ant1	2500.0	-49.15	2.0	0	48.10	AV	54	PASS

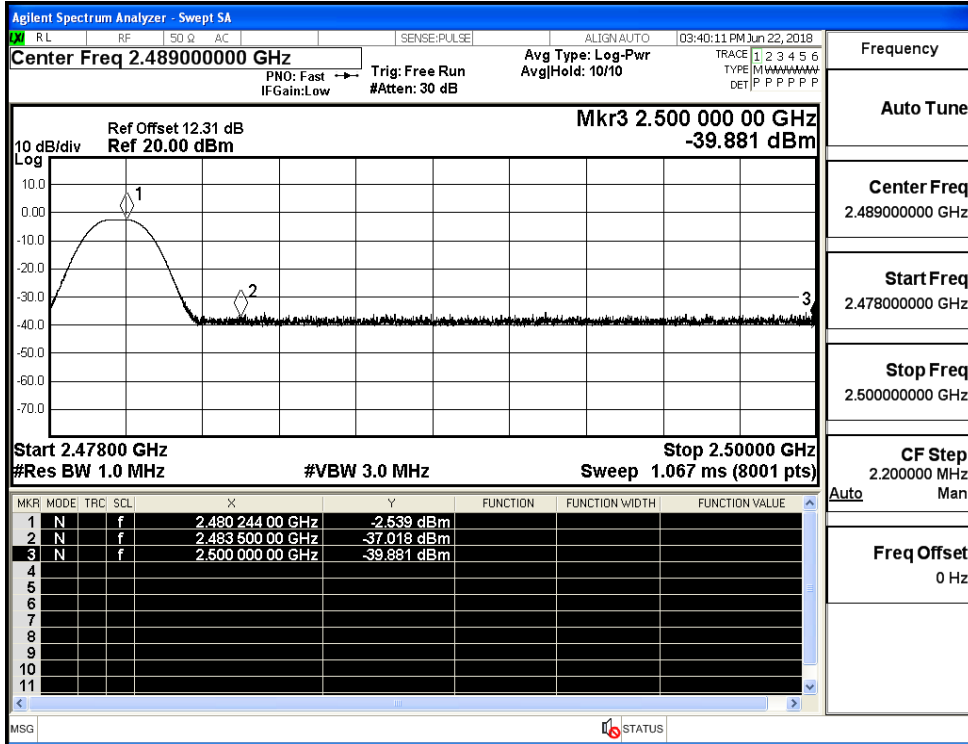
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

