

Appendix A

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

Product Name: WTA



Trade Mark:

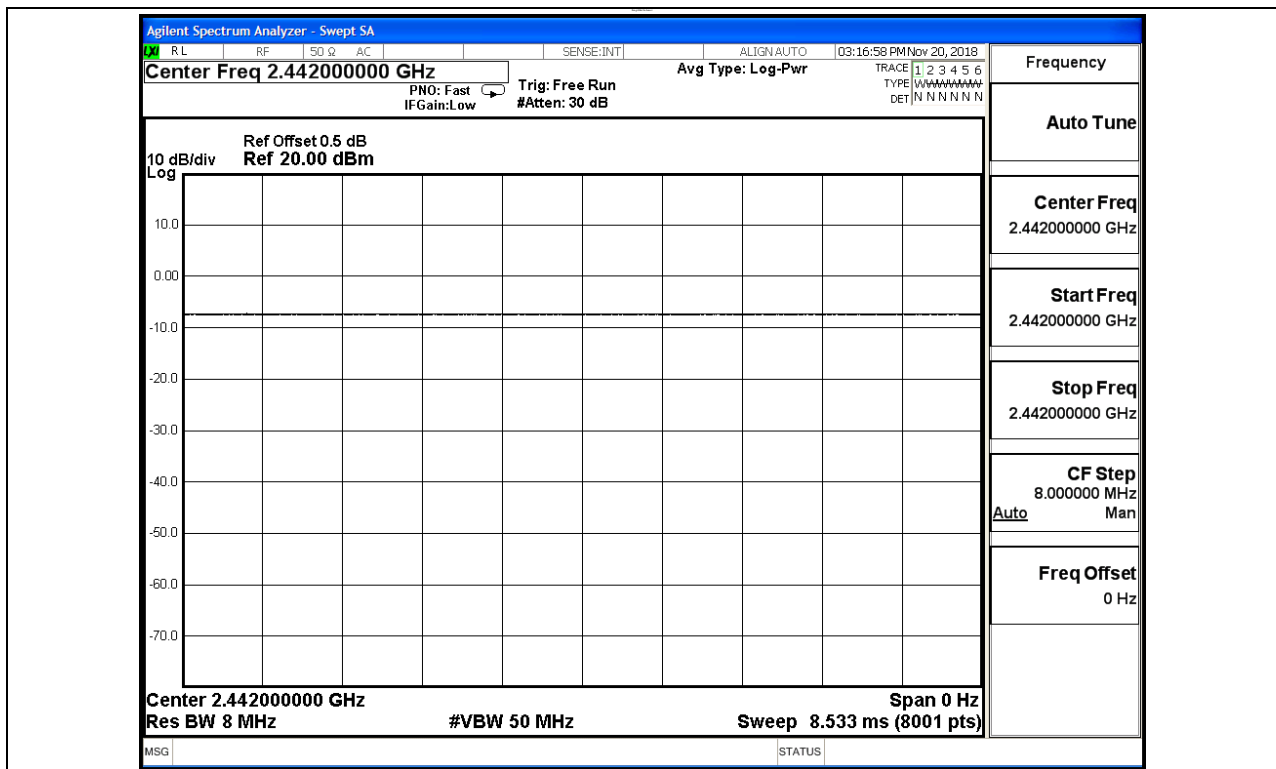
Test Model: Beacon Tag

Environmental Conditions

Temperature:	23.5° C
Relative Humidity:	55%
ATM Pressure:	100.0 kPa
Test Engineer:	WangChuang
Supervised by:	Jayden.Zhuo

A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2442	Ant1	100	PASS

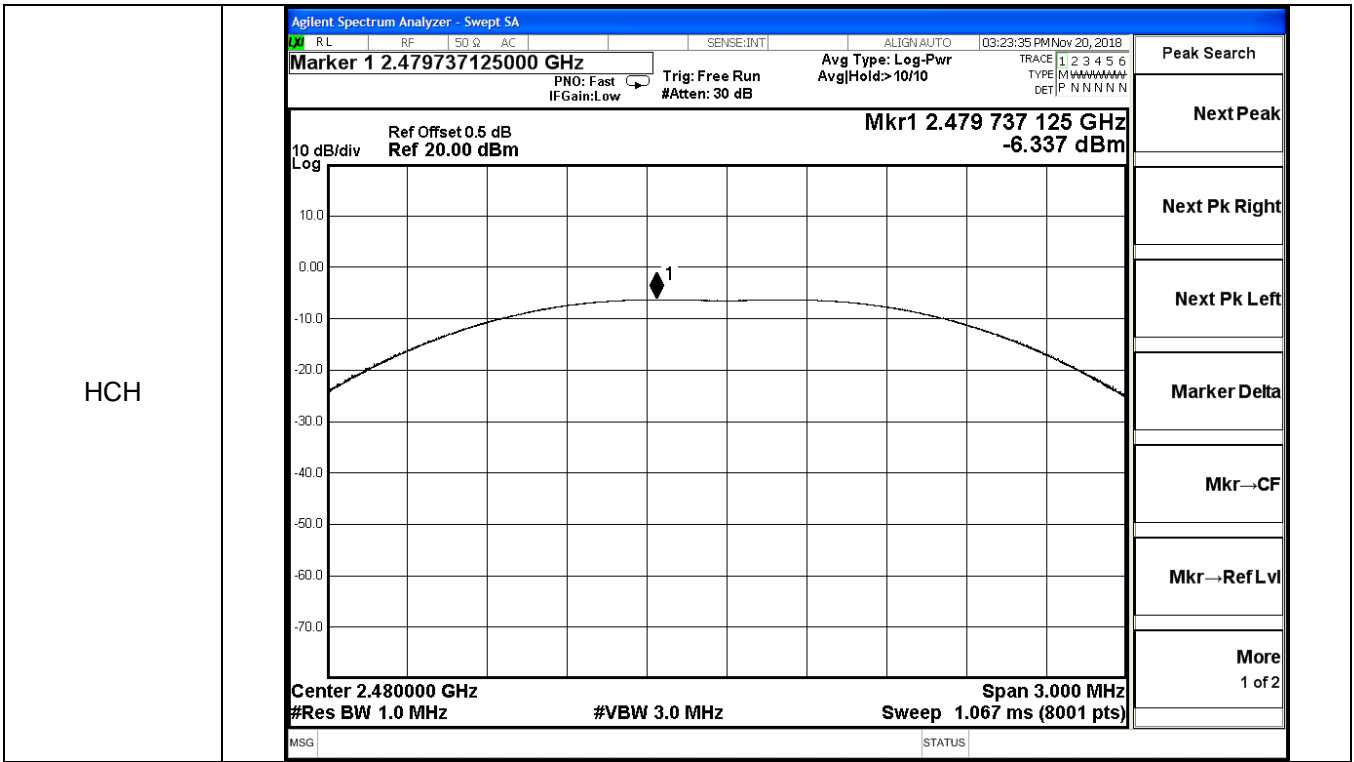


A.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-6.068	30	PASS
BT LE	MCH	-7.379	30	PASS
BT LE	HCH	-6.337	30	PASS

Test Graphs

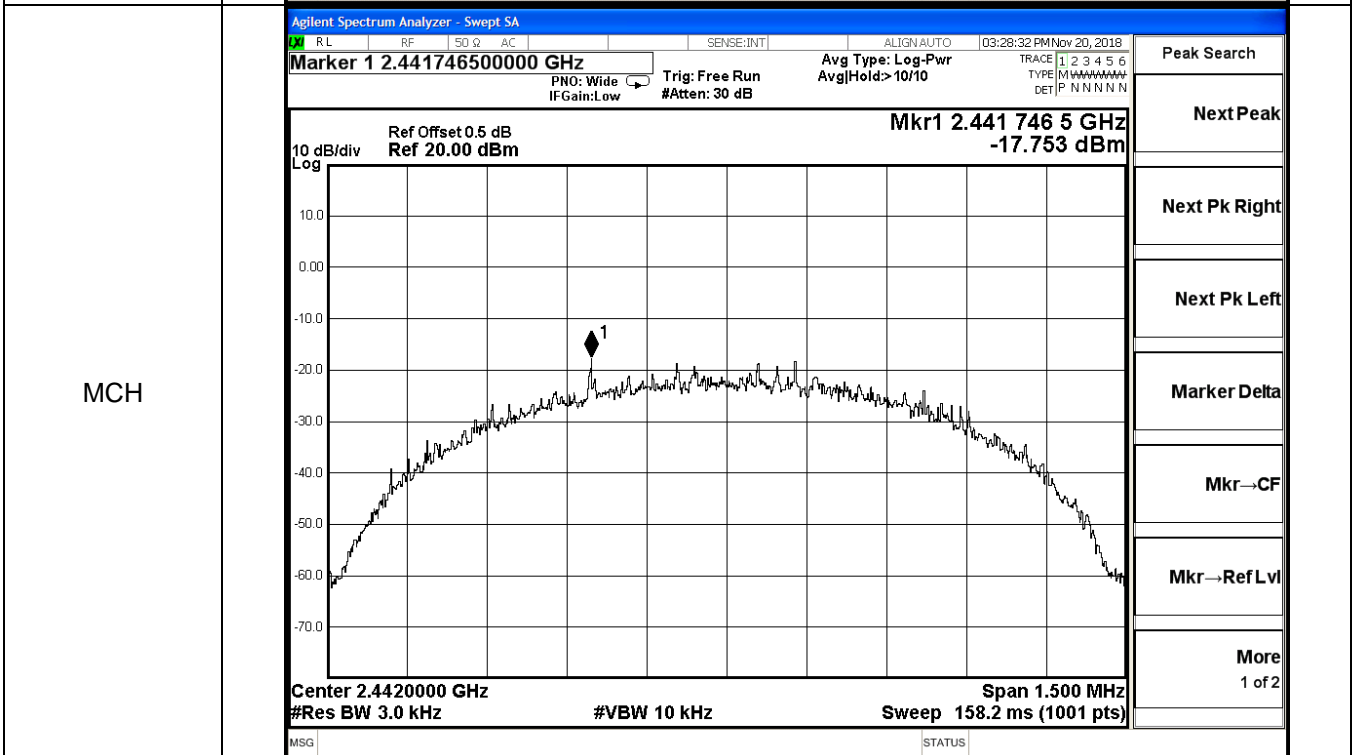
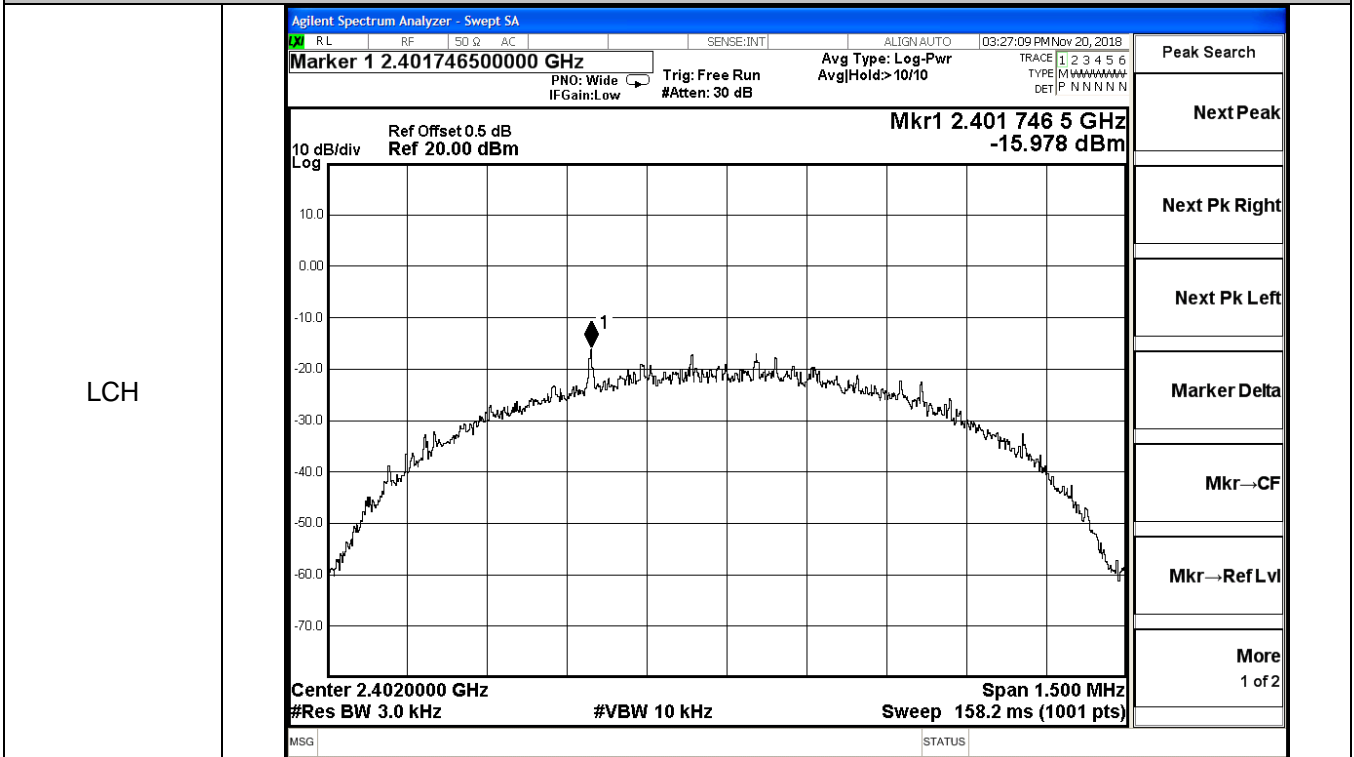
LCH		<p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.40200000 GHz</p> <p>Mkr1 2.401 725 125 GHz -6.068 dBm</p> <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.402000000 GHz</p> <p>Start Freq 2.400500000 GHz</p> <p>Stop Freq 2.403500000 GHz</p> <p>CF Step 300.000 kHz Auto</p> <p>Freq Offset 0 Hz</p>
	MCH	

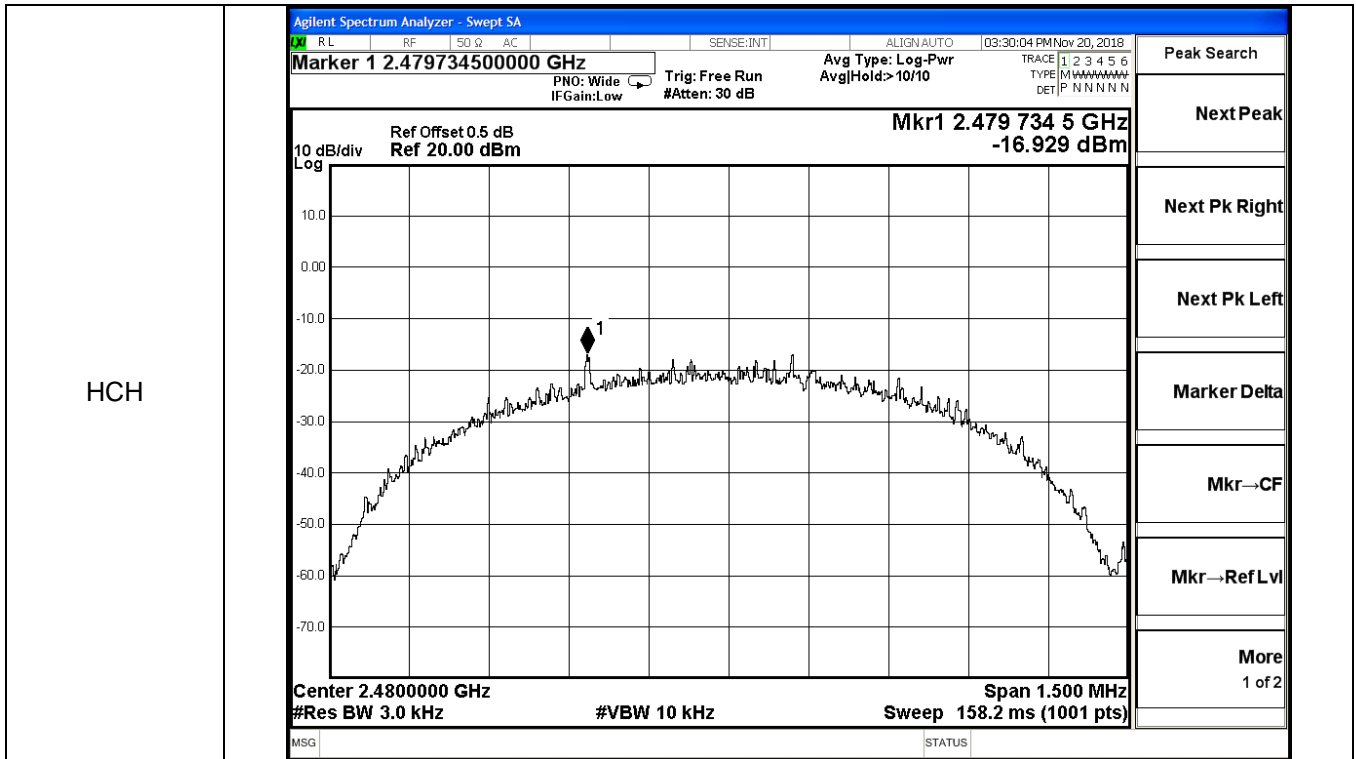


A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-15.978	8	PASS
BT LE	MCH	-17.753	8	PASS
BT LE	HCH	-16.929	8	PASS

Test Graphs

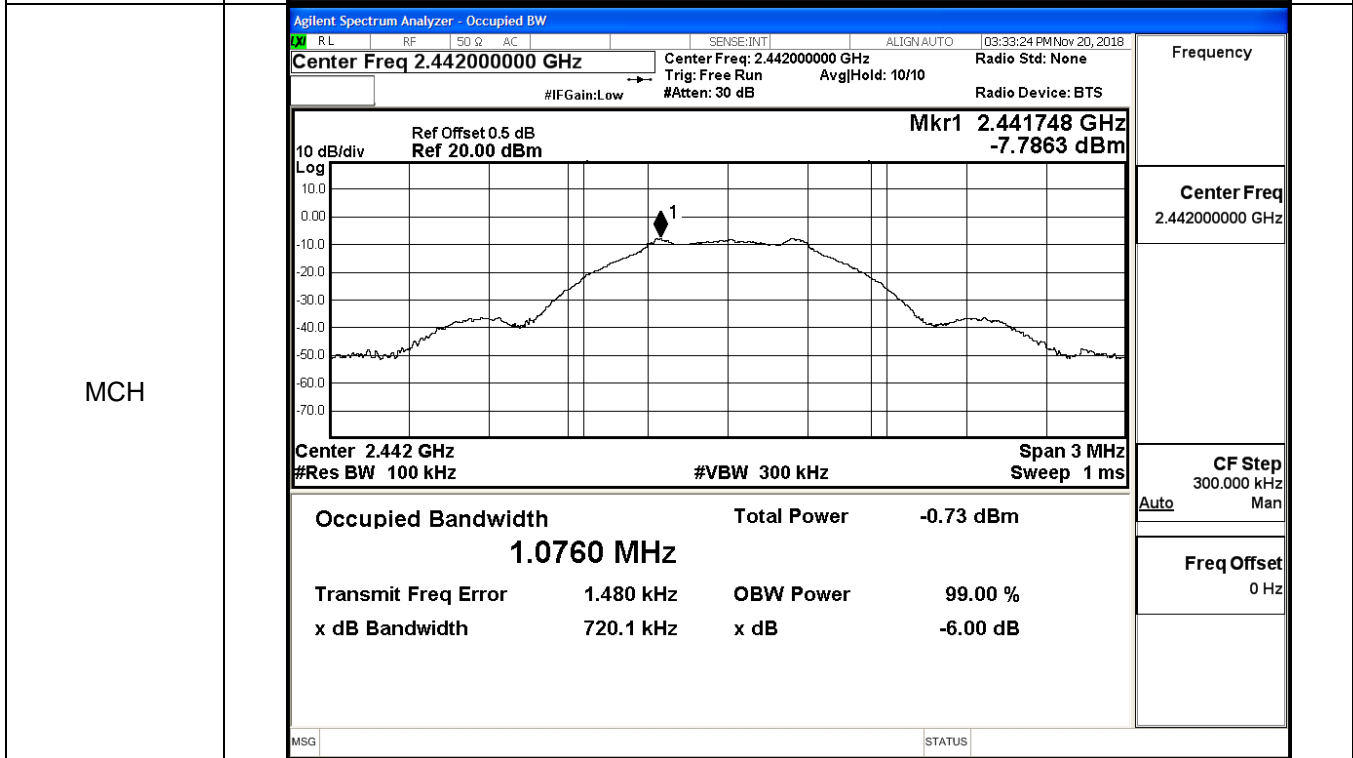
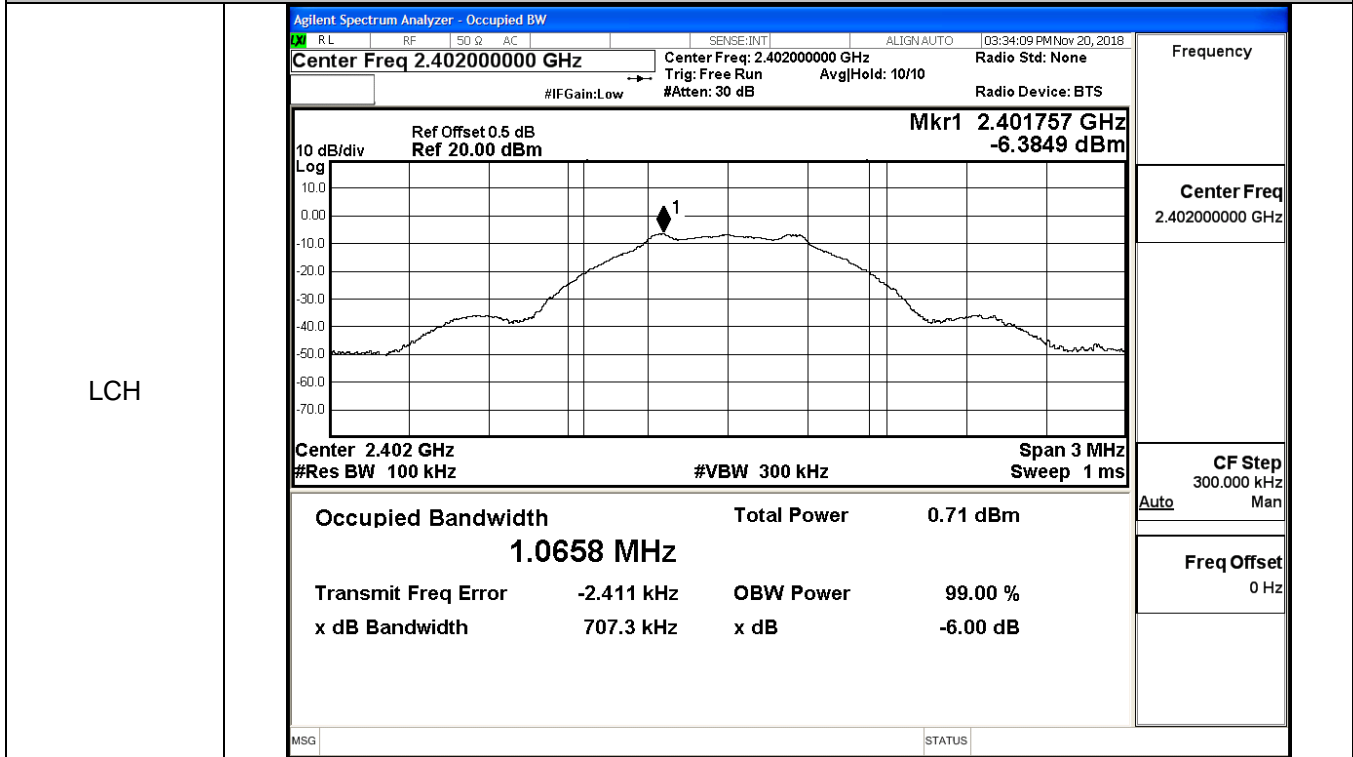


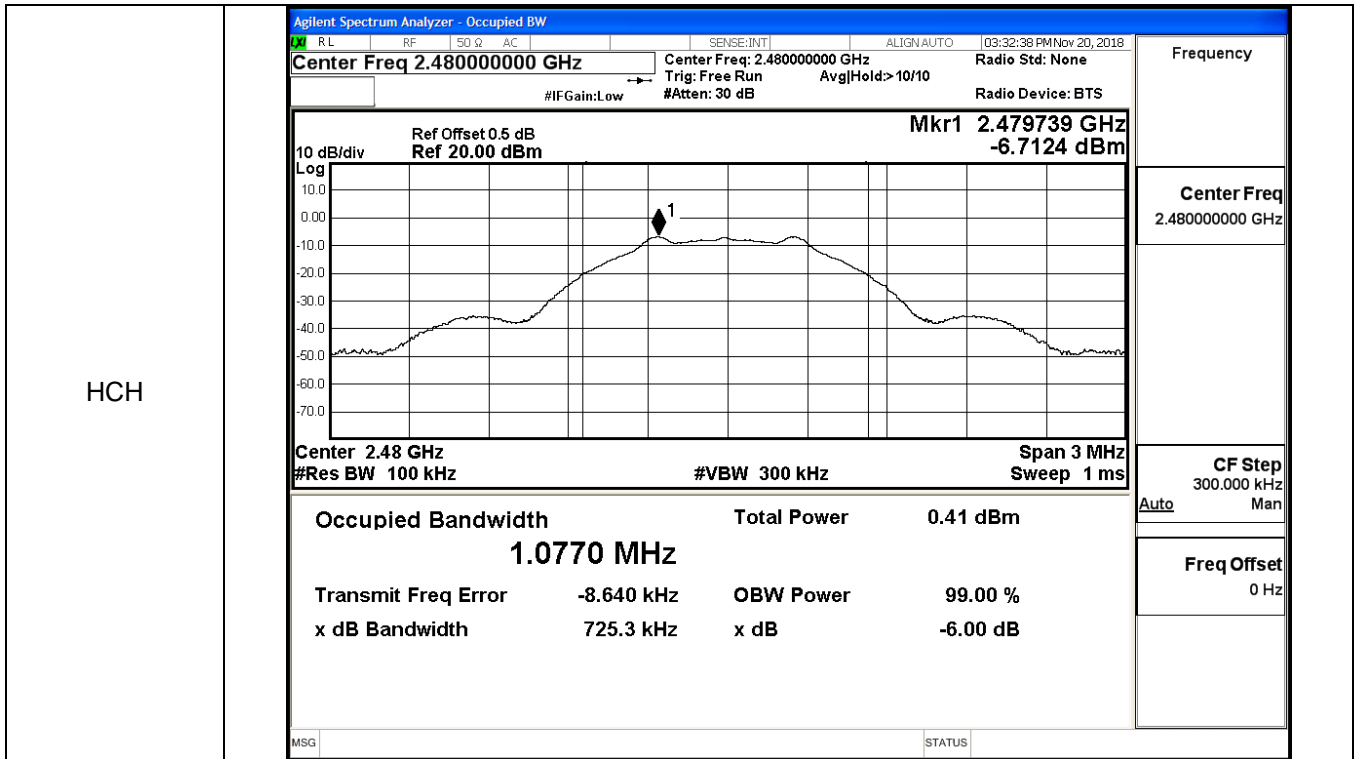


A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.7073	≥0.5	PASS
BT LE	MCH	0.7201	≥0.5	PASS
BT LE	HCH	0.7253	≥0.5	PASS

Test Graphs





A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-6.273	-48.711	-26.27	PASS
BT LE	MCH	-7.582	-51.413	-27.56	PASS
BT LE	HCH	-6.557	-56.432	-26.56	PASS

BT LE_LCH_Graphs

Pref/BT LE/LCH

Agilent Spectrum Analyzer - Swept SA
 Center Freq 2.40200000 GHz
 Ref Offset 0.5 dB Ref 10.00 dBm
 Mkr1 2.402 250 125 GHz -6.273 dBm
 #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms (8001 pts)
 #Avg Type: RMS AvgHold: 10/10

Frequency

Auto Tune

Center Freq
2.402000000 GHz

Start Freq
2.400500000 GHz

Stop Freq
2.403500000 GHz

CF Step
300.000 kHz
Auto Man

Freq Offset
0 Hz

Puw/BT LE/LCH

Agilent Spectrum Analyzer - Swept SA
 Start Freq 30.000000 MHz
 Ref Offset 0.5 dB Ref 10.00 dBm
 Mkr2 4.806 GHz -48.711 dBm
 #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (8001 pts)
 #Avg Type: RMS AvgHold: 6/10

Trace/Detector

Select Trace
1

Clear Write

Trace Average

Max Hold

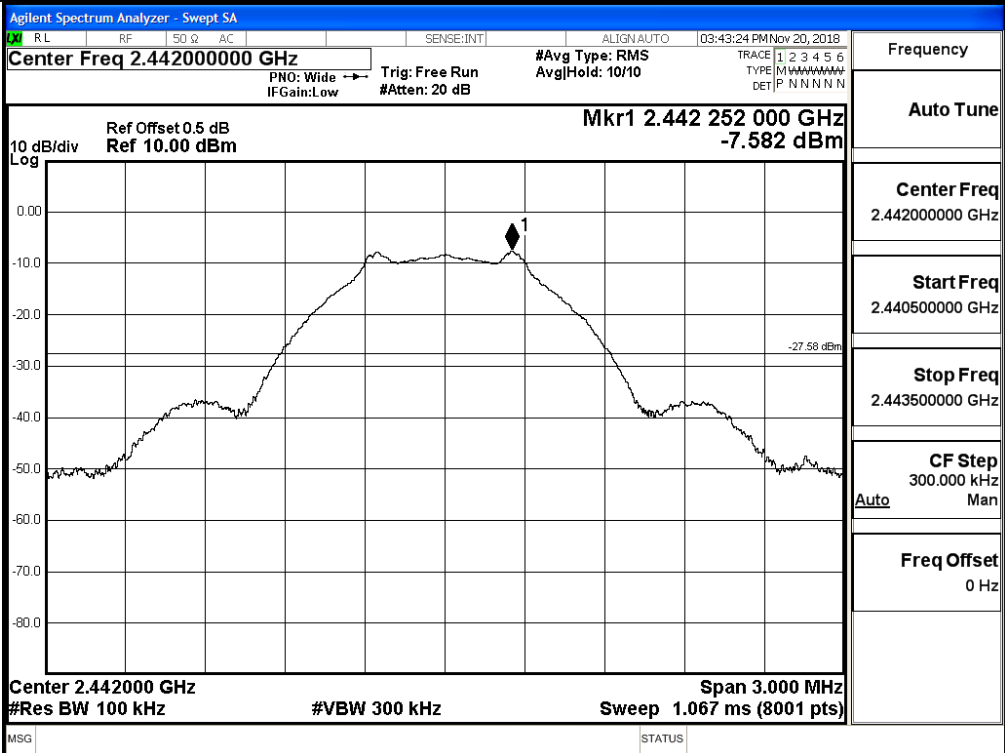
Min Hold

View Blank
Trace On

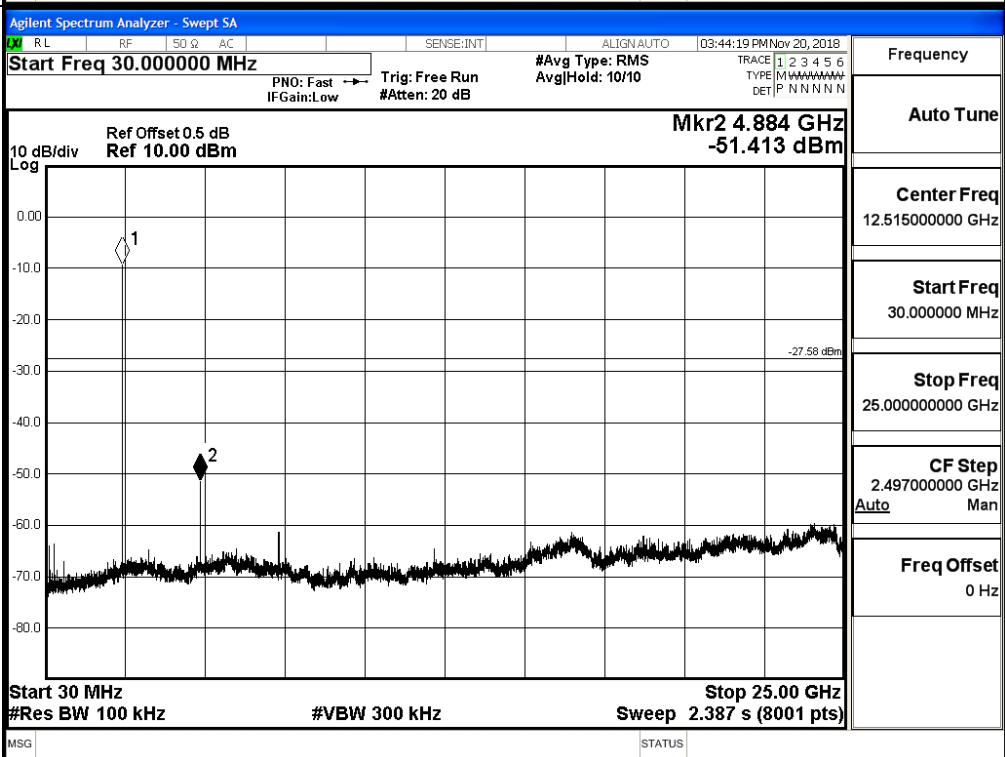
More
1 of 3

BT LE_MCH_Graphs

Pref/BT LE/MCH

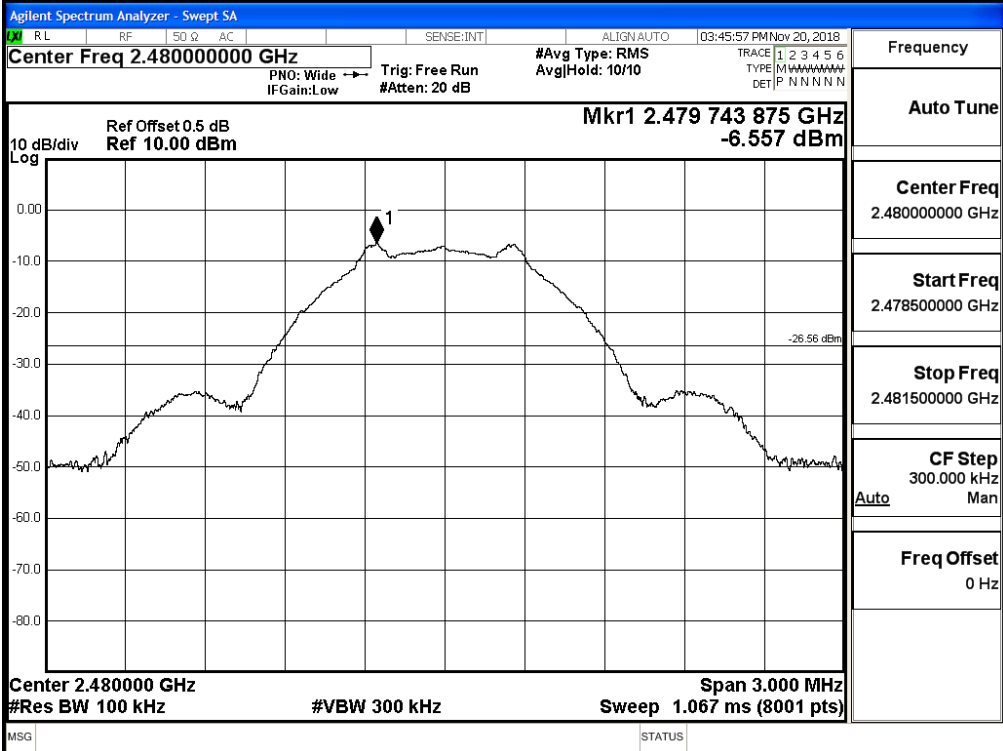


Puw/BT LE/MCH

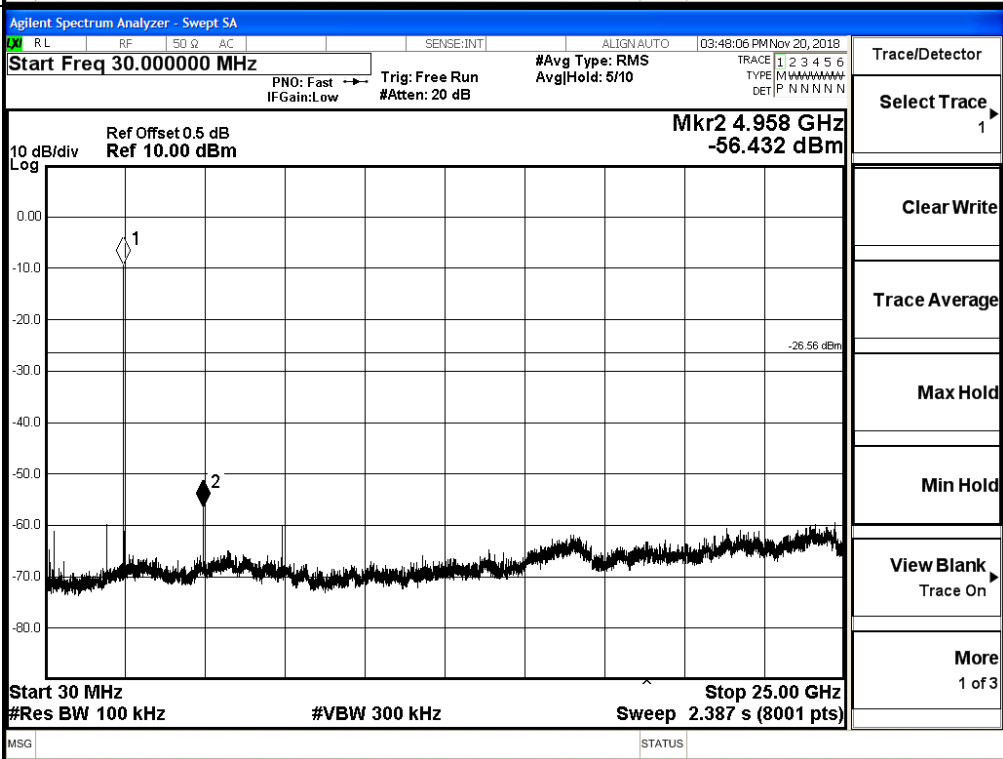


BT LE_HCH_Graphs

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	-6.250	-56.366	-26.25	PASS
BT LE	HCH	-6.479	-56.972	-26.48	PASS

Test Graphs

Agilent Spectrum Analyzer - Swept SA

Start Freq 2.31000000 GHz #Avg Type: RMS 03:54:51 PM Nov 20, 2018

Trig: Free Run AvgHold: 10/10

Ref Offset 0.5 dB Mkr4 2.369 302 GHz

Ref 20.00 dBm -56.366 dBm

Start 2.31000 GHz Stop 2.40400 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 9.067 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.401 756 GHz	-6.250 dBm			
2	N	f		2.400 000 GHz	-53.132 dBm			
3	N	f		2.390 000 GHz	-60.146 dBm			
4	N	f		2.369 302 GHz	-56.366 dBm			

Agilent Spectrum Analyzer - Swept SA

Start Freq 2.47800000 GHz #Avg Type: RMS 03:52:59 PM Nov 20, 2018

Trig: Free Run AvgHold: 10/10

Ref Offset 0.5 dB Mkr4 2.492 569 50 GHz

Ref 20.00 dBm -56.972 dBm

Start 2.47800 GHz Stop 2.50000 GHz

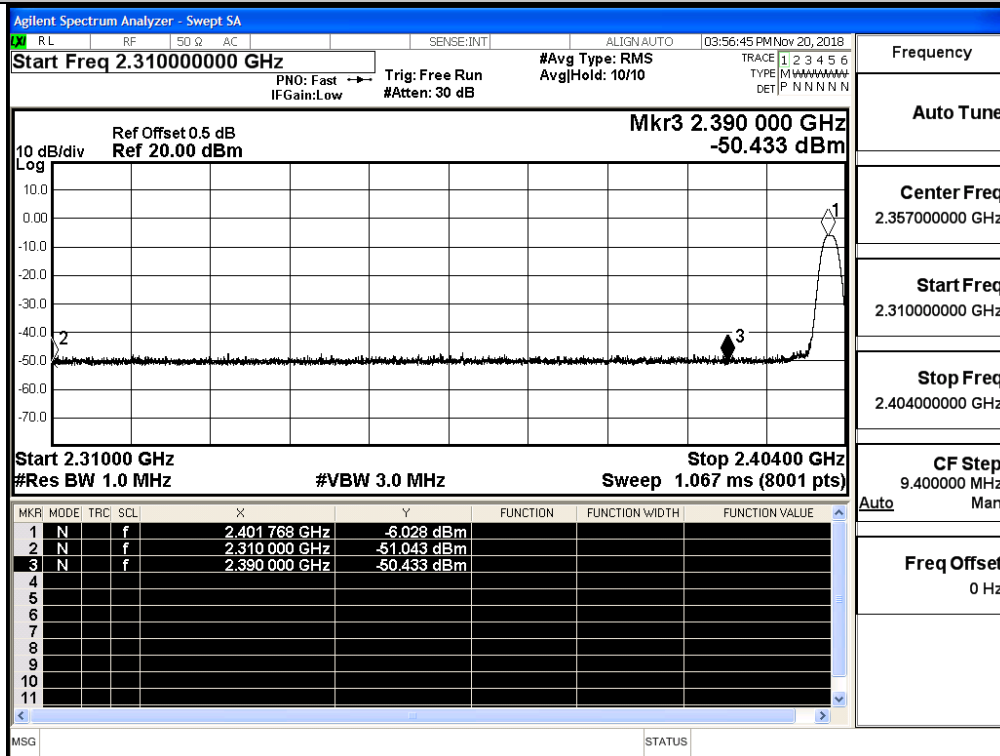
#Res BW 100 kHz #VBW 300 kHz Sweep 2.133 ms (8001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f		2.480 252 25 GHz	-6.479 dBm			
2	N	f		2.483 500 00 GHz	-57.782 dBm			
3	N	f		2.500 000 00 GHz	-59.091 dBm			
4	N	f		2.492 569 50 GHz	-56.972 dBm			

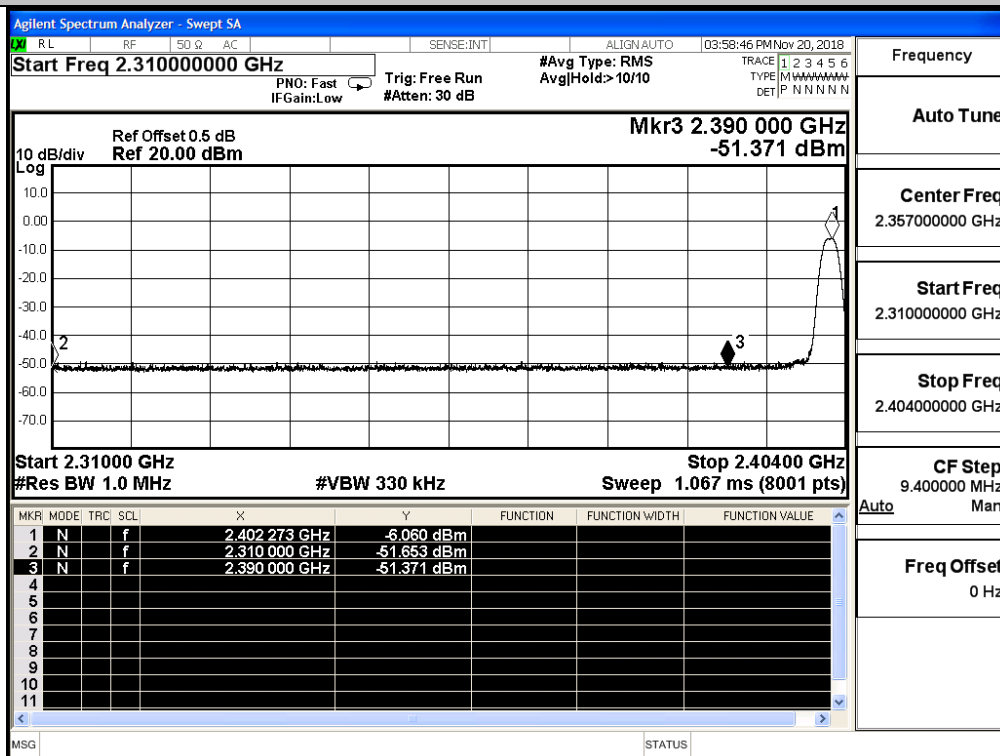
A.7 Restrict-band band-edge measurements

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	-51.043	2	0	46.22	PEAK	74	PASS
		Ant1	2310.0	-51.653	2	0	45.61	AV	54	PASS
		Ant1	2390.0	-50.433	2	0	46.83	PEAK	74	PASS
		Ant1	2390.0	-51.371	2	0	45.89	AV	54	PASS
	2480	Ant1	2483.5	-48.487	2	0	48.77	PEAK	74	PASS
		Ant1	2483.5	-50.942	2	0	46.32	AV	54	PASS
		Ant1	2500.0	-49.554	2	0	47.71	PEAK	74	PASS
		Ant1	2500.0	-50.769	2	0	46.49	AV	54	PASS

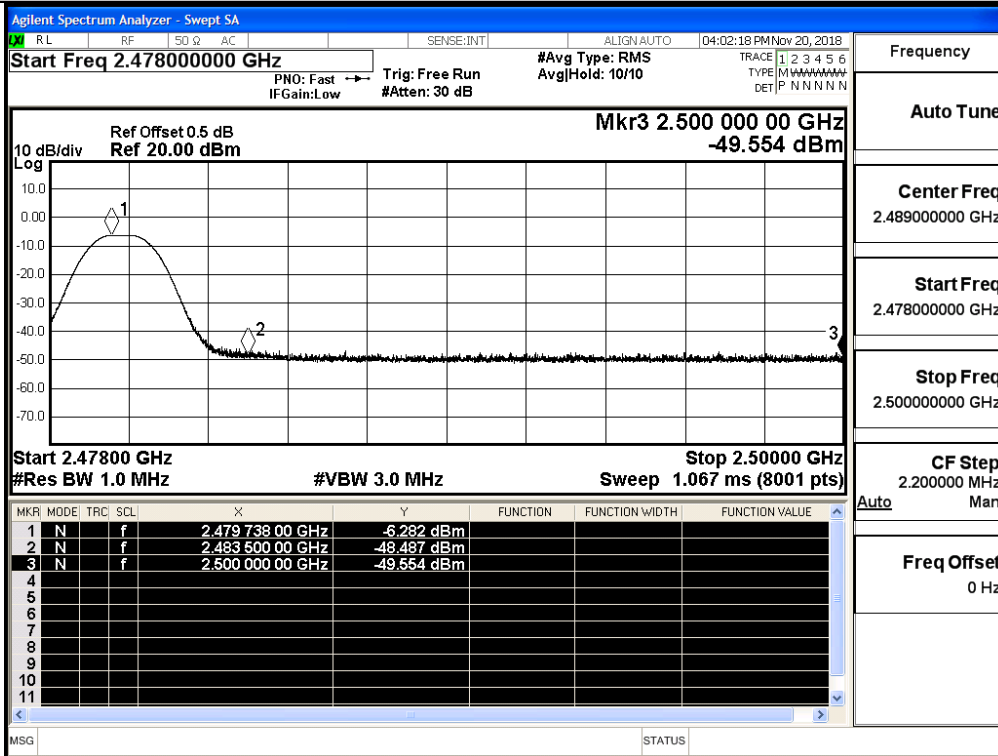
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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

