

Appendix A

RF Test Data for BT V5.0 (Conducted Measurement)

Product Name: Smart Hub+



Trade Mark: AMERICAN LIGHTING

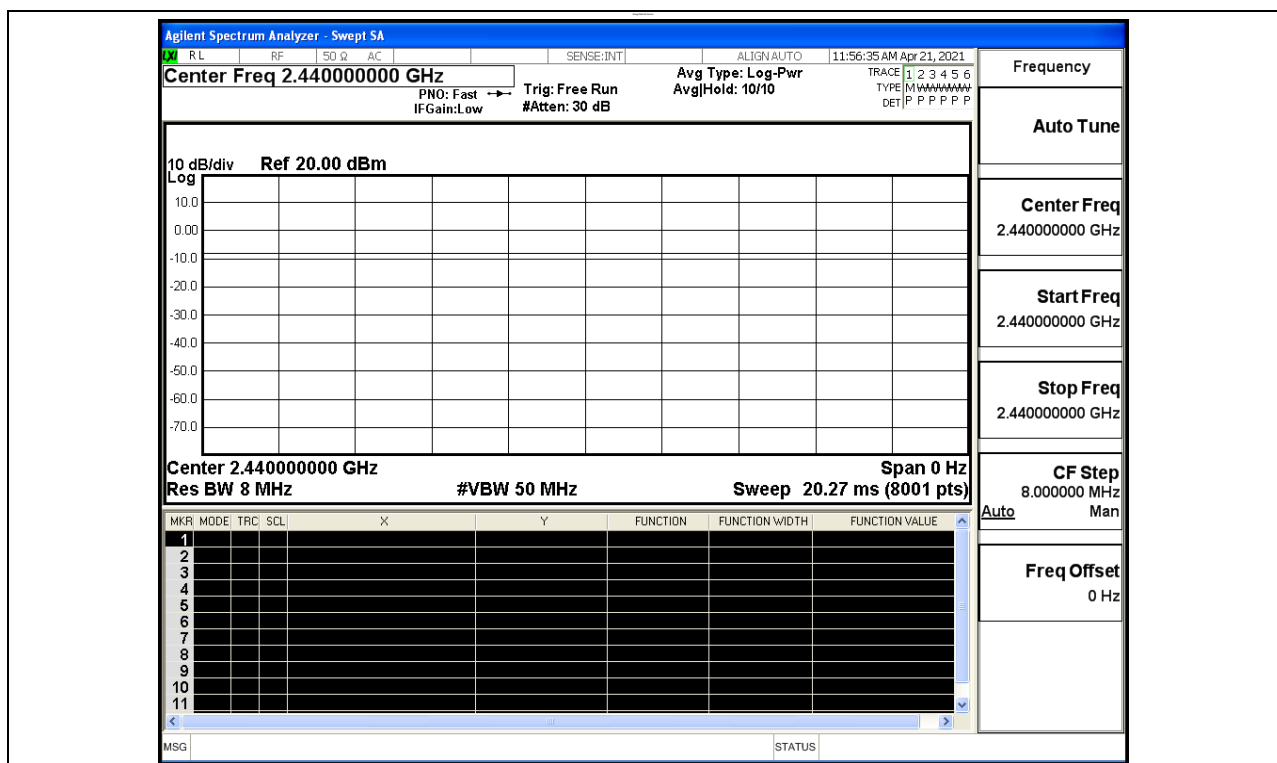
Test Model: SPKPL-GTWY

Environmental Conditions

Temperature:	24.6 °C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Kay Hu
Supervised by:	Li Huan

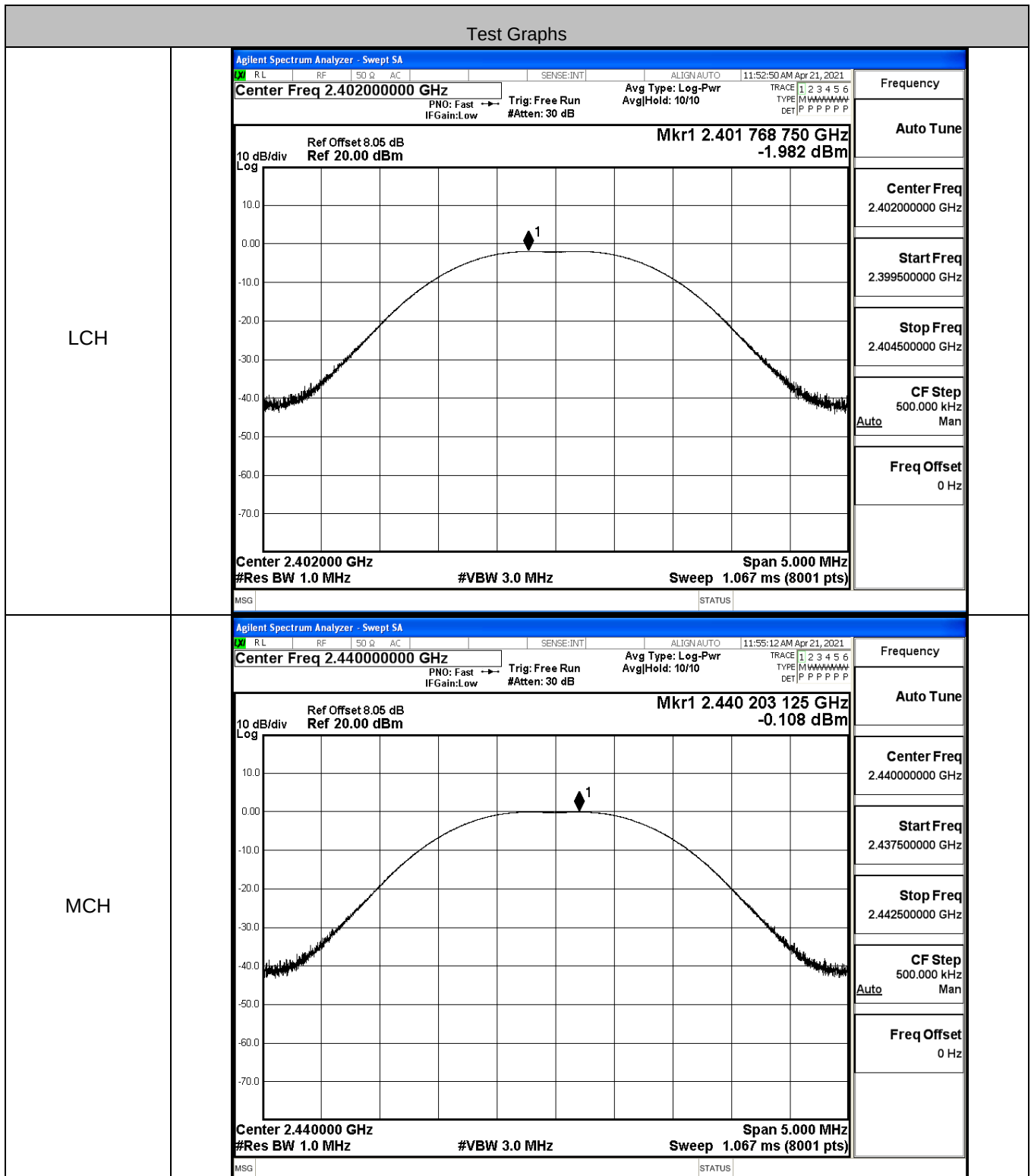
A.1 Duty Cycle

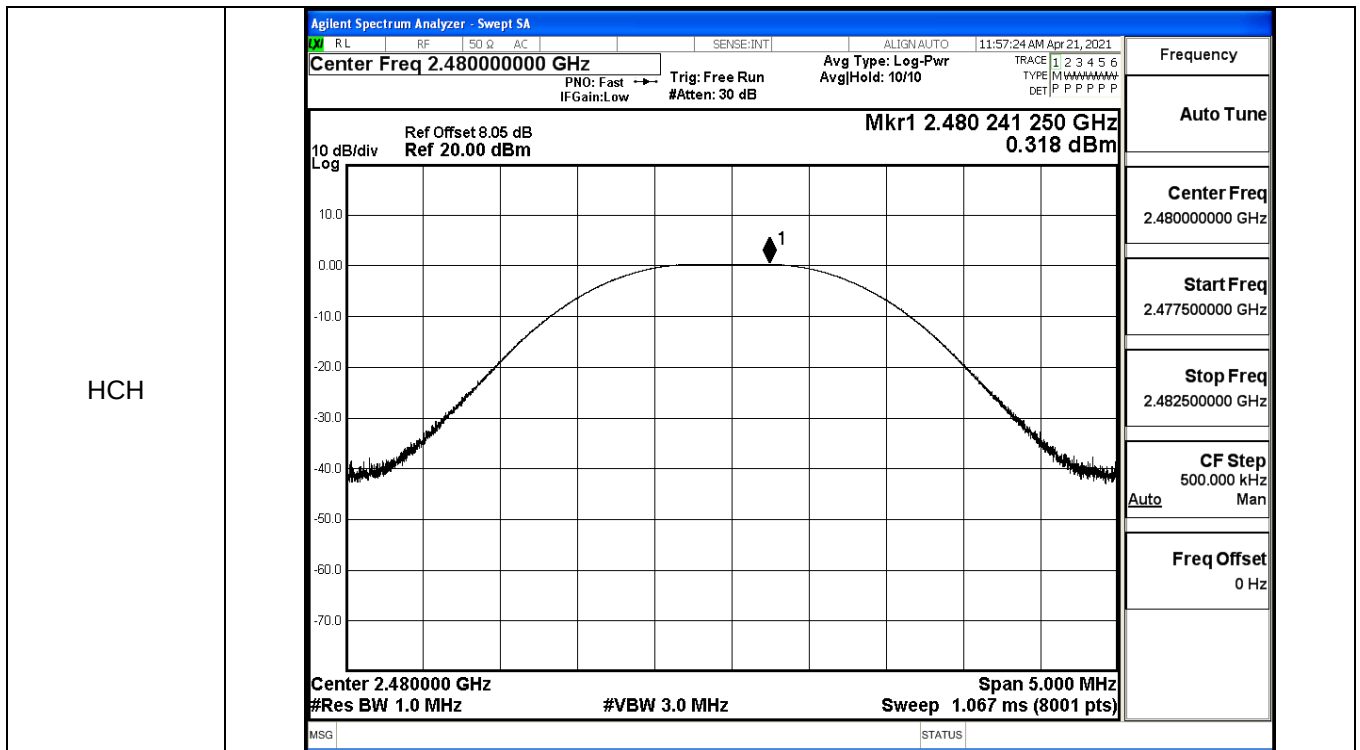
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



A.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	-1.982	30	PASS
BT LE	MCH	-0.108	30	PASS
BT LE	HCH	0.318	30	PASS



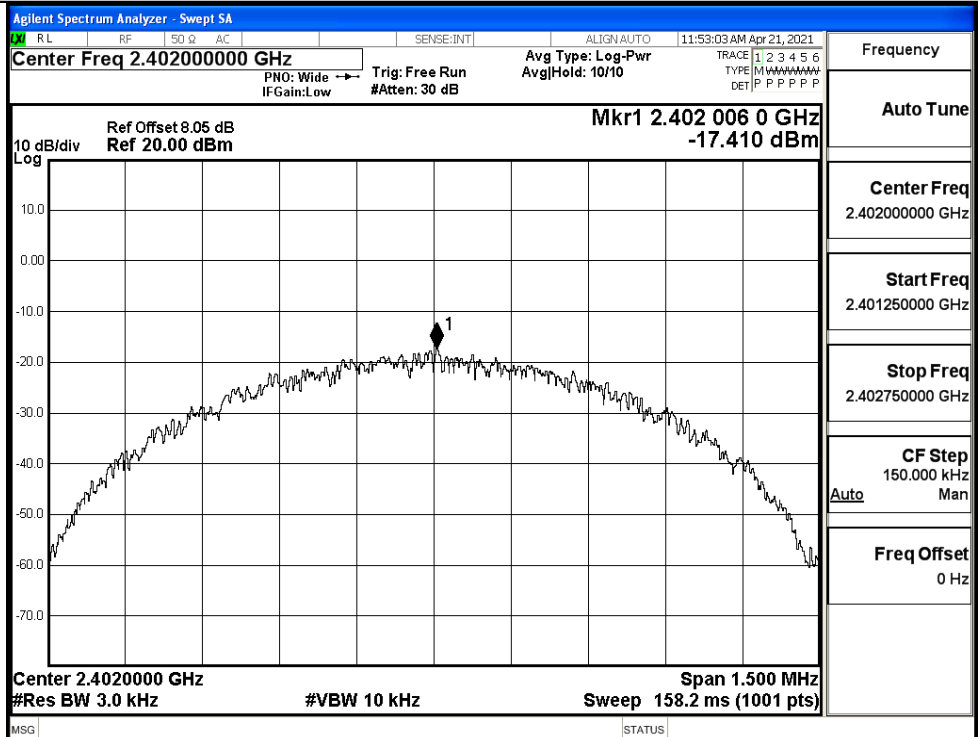


A.3 Maximum Power Spectral Density

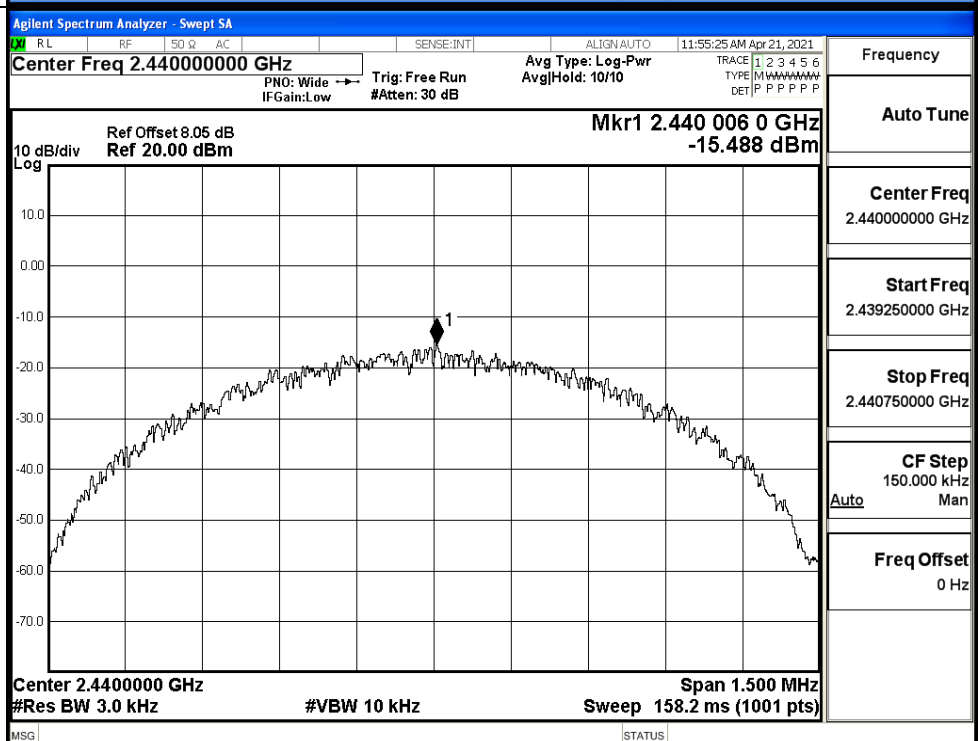
Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-17.410	8	PASS
BT LE	MCH	-15.488	8	PASS
BT LE	HCH	-15.255	8	PASS

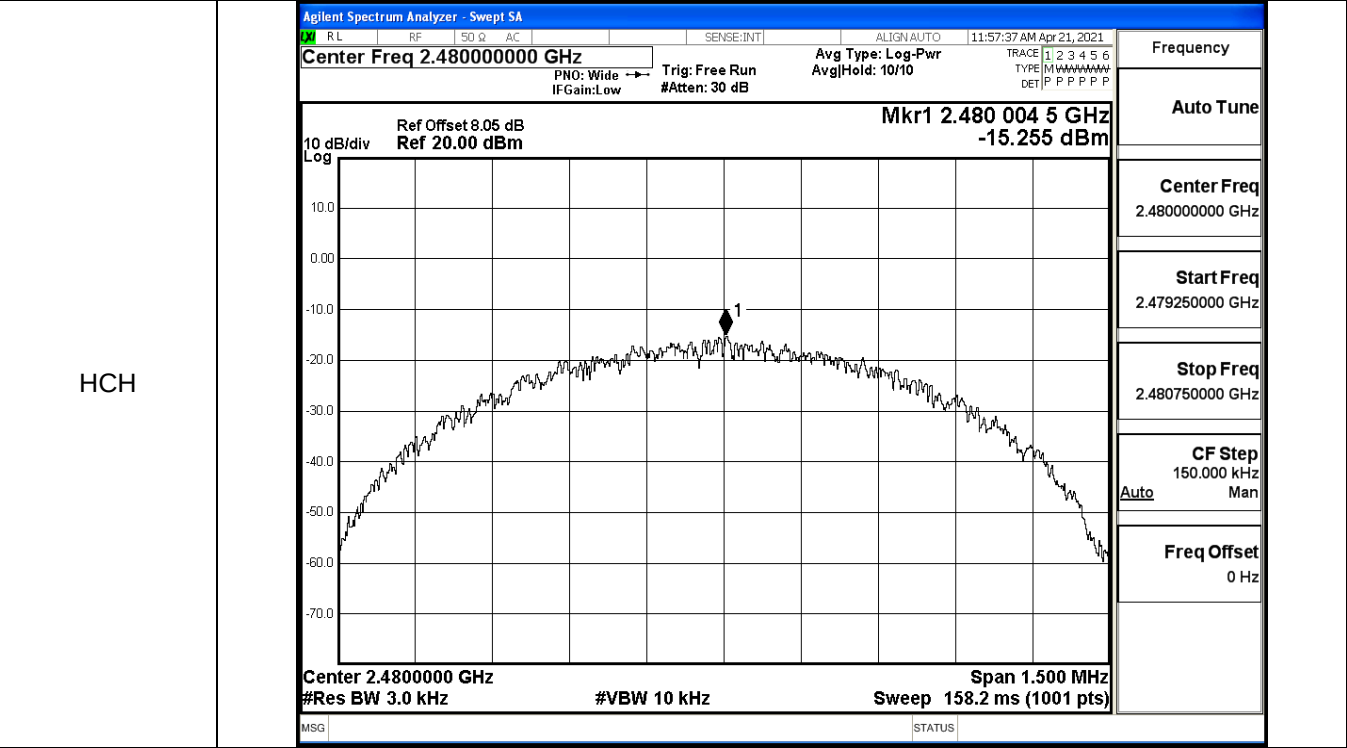
Test Graphs

LCH



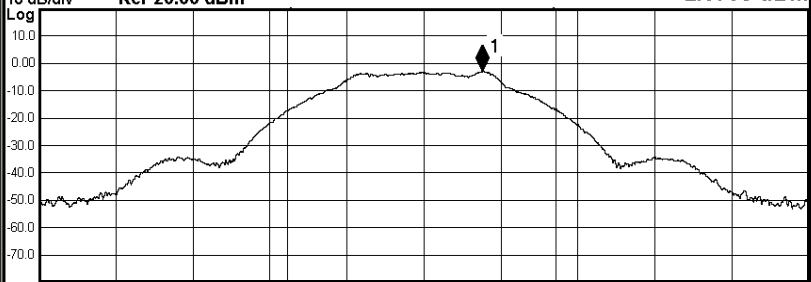
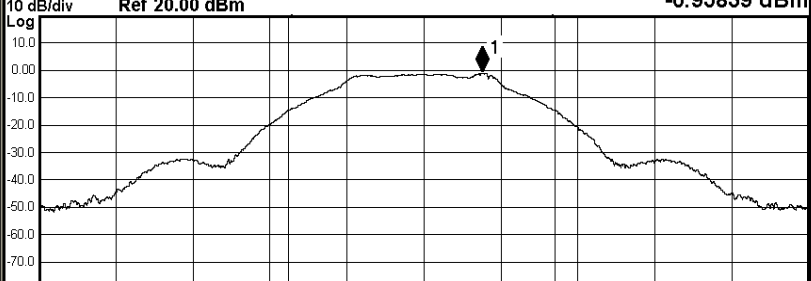
MCH



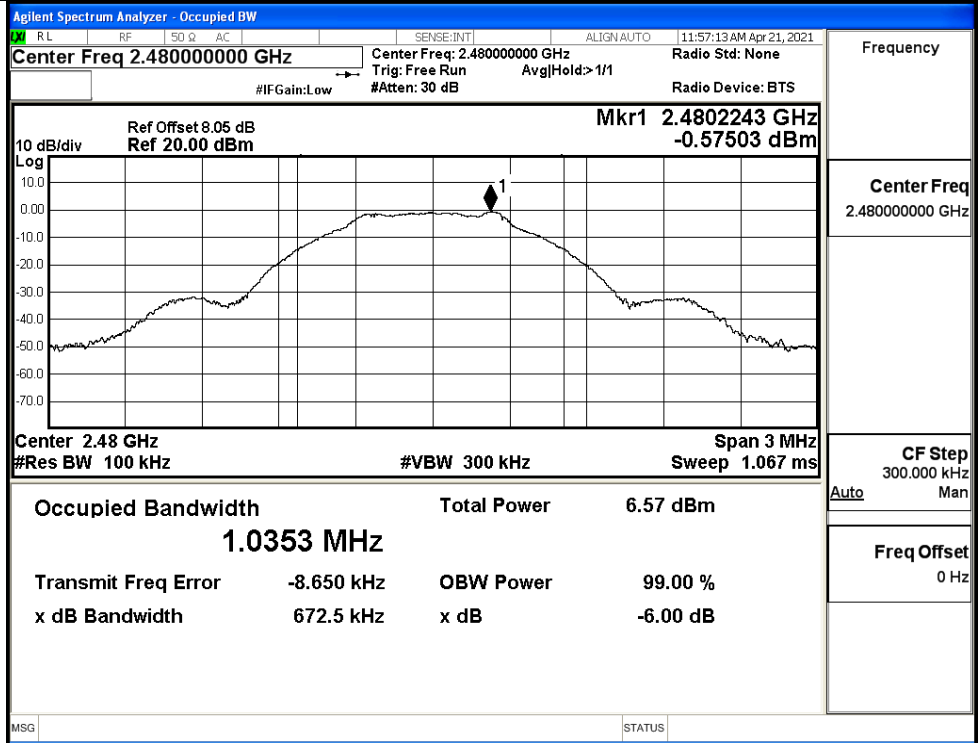


A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.6728	≥ 0.5	PASS
BT LE	MCH	0.6792	≥ 0.5	PASS
BT LE	HCH	0.6725	≥ 0.5	PASS

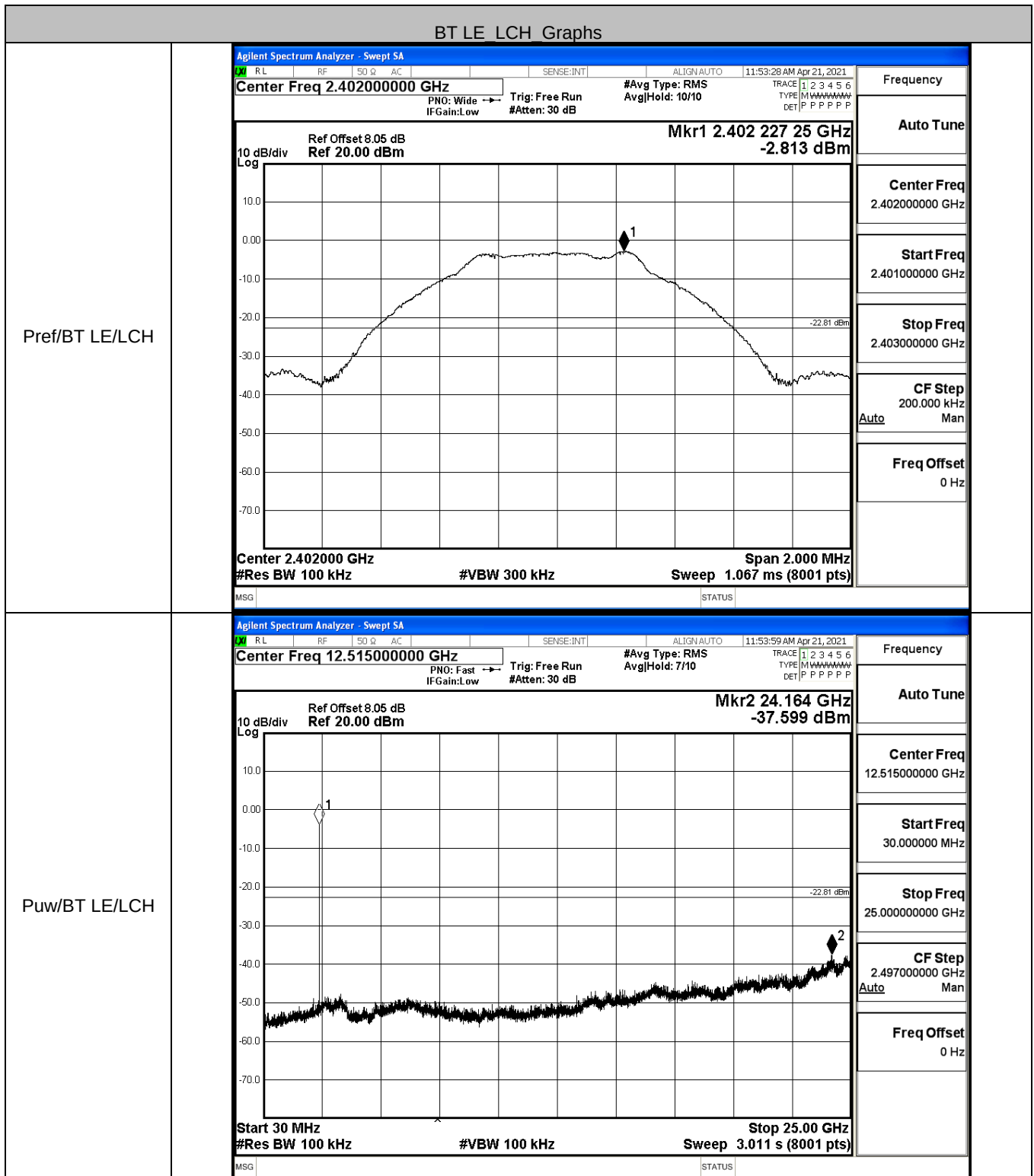
Test Graphs			
LCH		Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:52:39 AM Apr 21, 2021 Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None Trig: Free Run AvgHold: 1/1 #IFGain: Low #Atten: 30 dB Radio Device: BTS Ref Offset 8.05 dB Mkr1 2.402228 GHz Ref 20.00 dBm -2.9793 dBm  Center 2.402 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms Occupied Bandwidth Total Power 4.13 dBm 1.0363 MHz Transmit Freq Error -5.522 kHz OBW Power 99.00 % x dB Bandwidth 672.8 kHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.402000000 GHz CF Step 300.000 kHz Auto Man Freq Offset 0 Hz
MCH		Agilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:55:01 AM Apr 21, 2021 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 Ref Offset 8.05 dB Mkr1 2.4402269 GHz Ref 20.00 dBm -0.95839 dBm  Center 2.44 GHz Span 3 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms Occupied Bandwidth Total Power 6.20 dBm 1.0362 MHz Transmit Freq Error -8.801 kHz OBW Power 99.00 % x dB Bandwidth 679.2 kHz x dB -6.00 dB MSG STATUS	Frequency Center Freq 2.440000000 GHz CF Step 300.000 kHz Auto Man Freq Offset 0 Hz

HCH



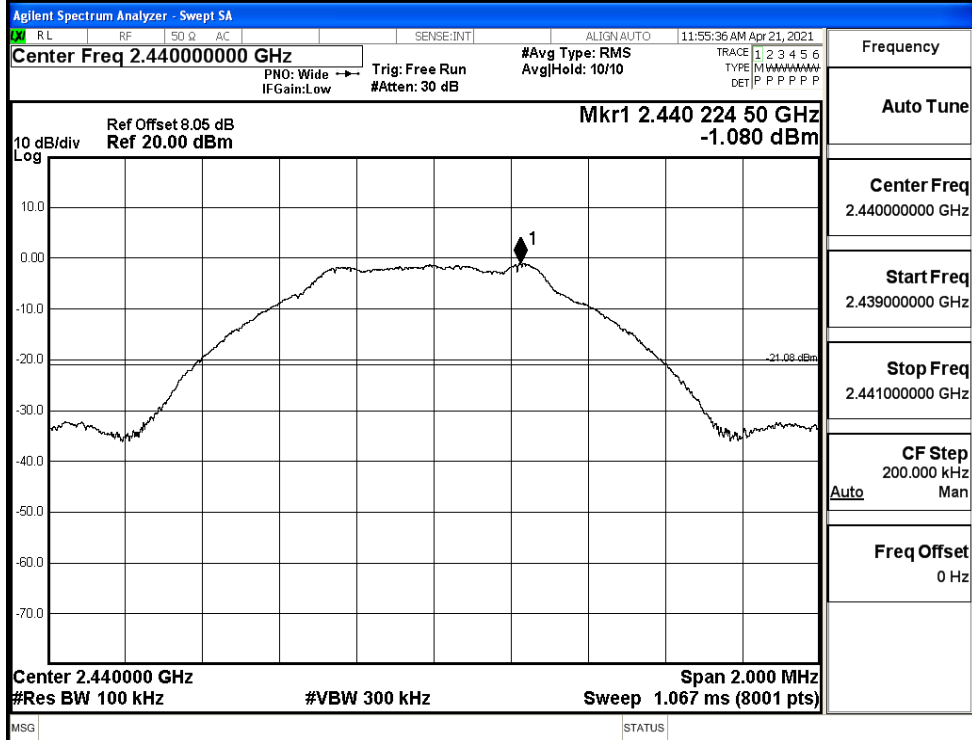
A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.813	-37.599	-22.813	PASS
BT LE	MCH	-1.08	-38.021	-21.080	PASS
BT LE	HCH	-0.646	-37.704	-20.646	PASS

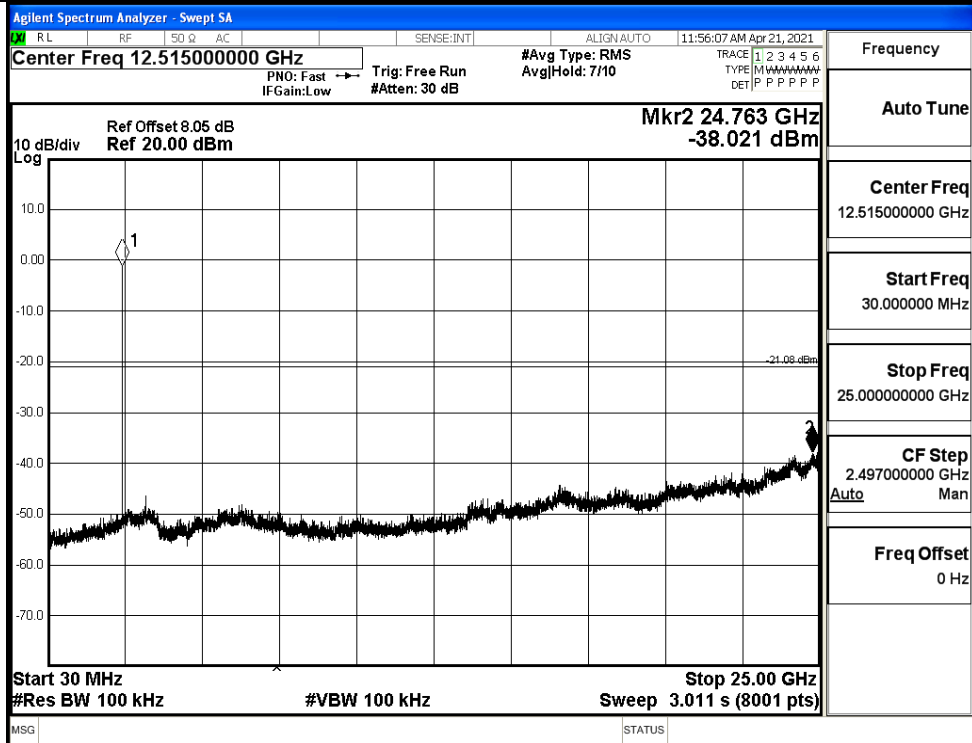


BT LE MCH Graphs

Pref/BT LE/MCH

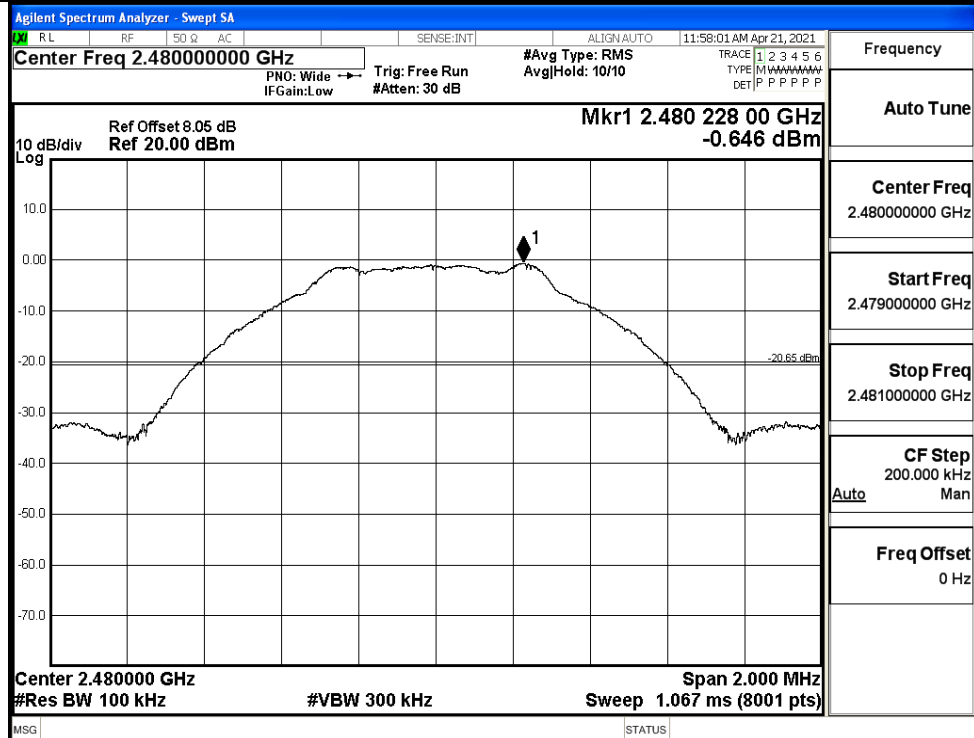


Puw/BT LE/MCH

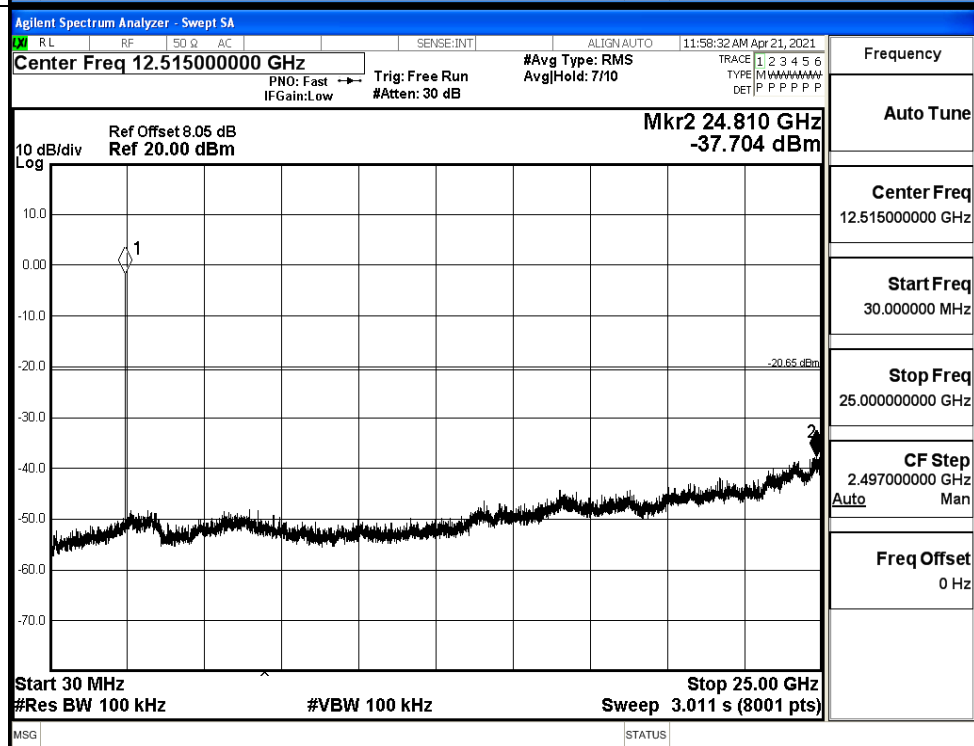


BT LE HCH Graphs

Pref/BT LE/HCH

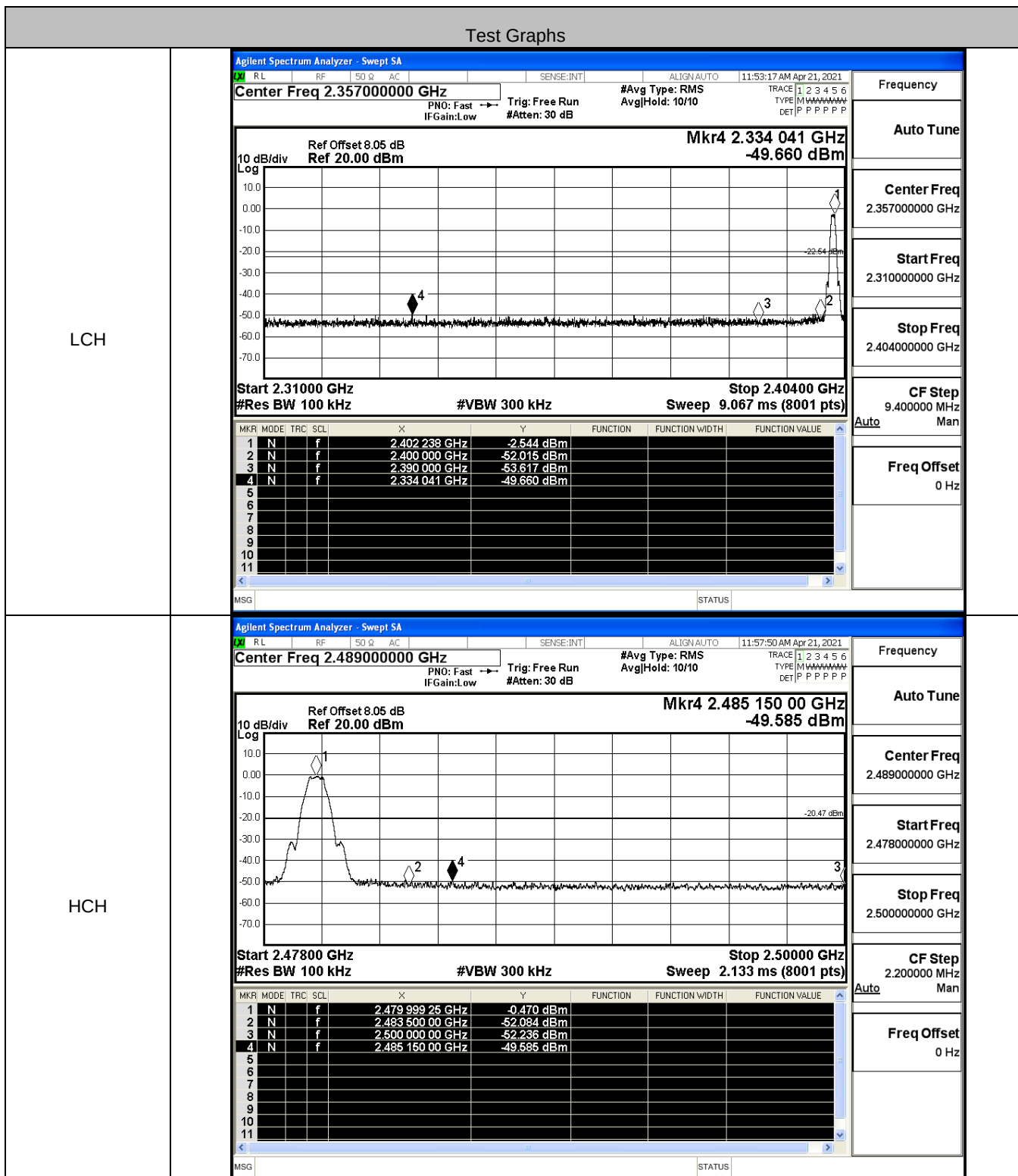


Puw/BT LE/HCH



A.6 Band-edge for RF Conducted Emissions

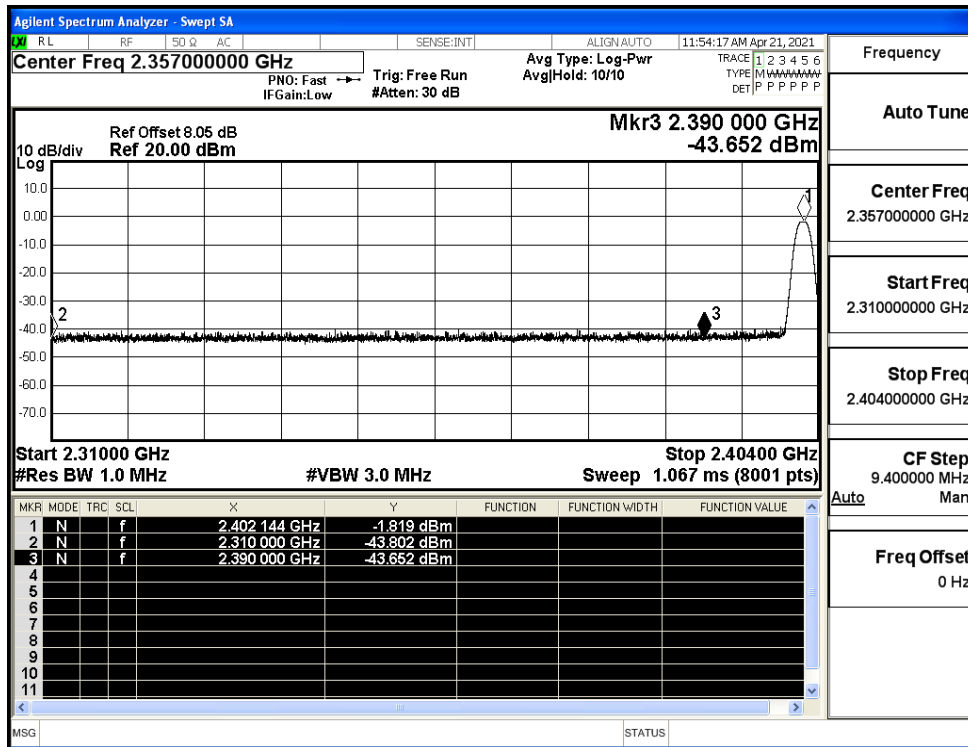
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	-2.544	-49.660	-22.54	PASS
BT LE	HCH	-0.470	-49.585	-20.47	PASS



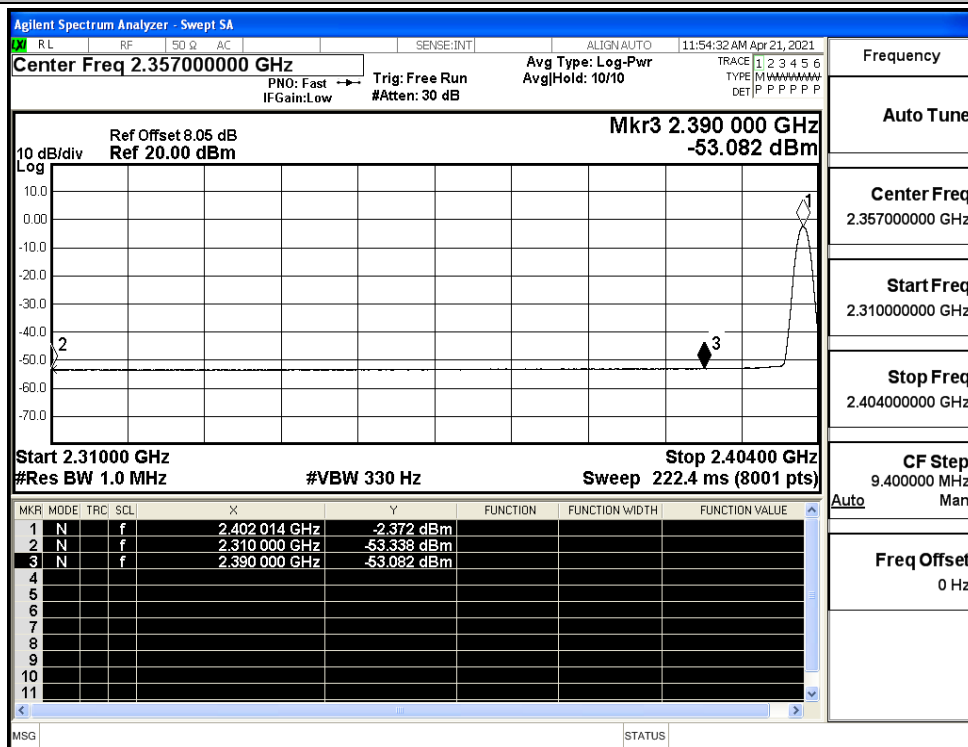
A.7 Restrict-band band-edge measurements

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	-43.80	2.5	0	53.96	PEAK	74	PASS
		Ant1	2310.0	-53.34	2.5	0	44.42	AV	54	PASS
		Ant1	2390.0	-43.65	2.5	0	54.11	PEAK	74	PASS
		Ant1	2390.0	-53.08	2.5	0	44.68	AV	54	PASS
	2480	Ant1	2483.5	-41.82	2.5	0	55.94	PEAK	74	PASS
		Ant1	2483.5	-51.45	2.5	0	46.31	AV	54	PASS
		Ant1	2500.0	-42.84	2.5	0	54.92	PEAK	74	PASS
		Ant1	2500.0	-52.29	2.5	0	45.47	AV	54	PASS

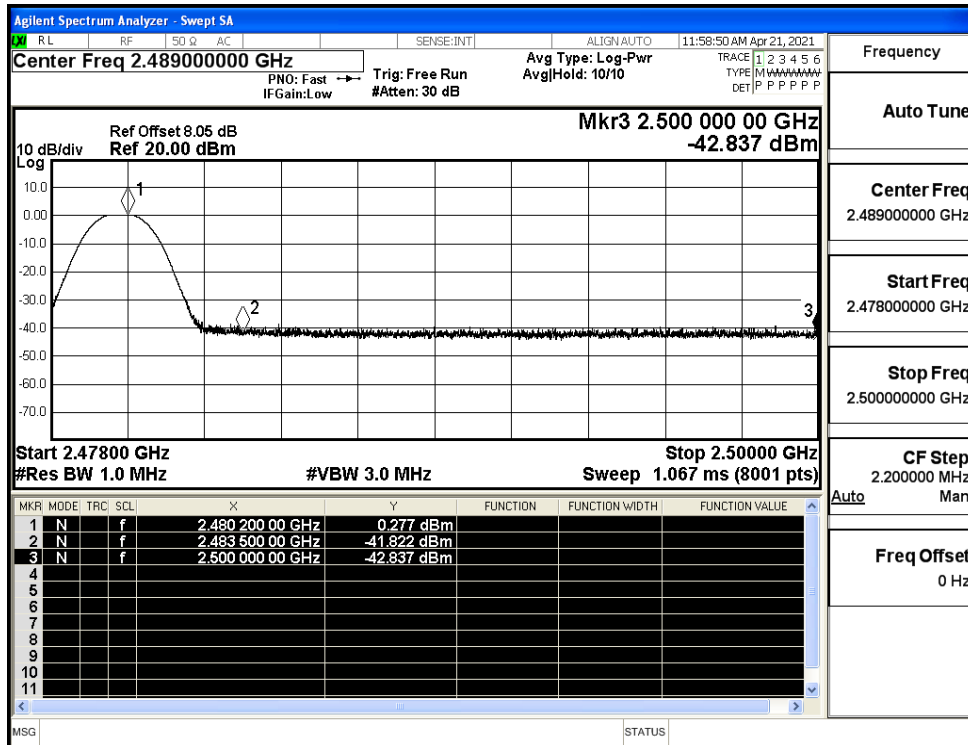
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



Restrict-band band-edge measurements_BT LE_2402_Ant1_AV



Restrict-band band-edge measurements_BT LE_2480_Ant1_PEAK



Frequency

Auto Tune

Center Freq
2.489000000 GHz

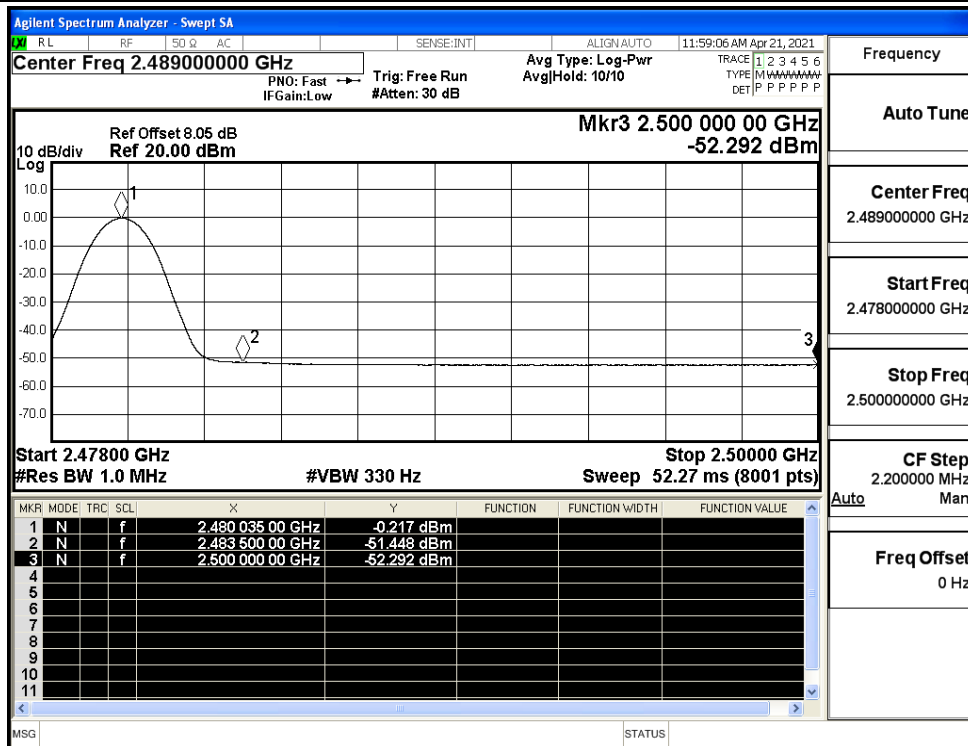
Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz

Restrict-band band-edge measurements_BT LE_2480_Ant1_AV



Frequency

Auto Tune

Center Freq
2.489000000 GHz

Start Freq
2.478000000 GHz

Stop Freq
2.500000000 GHz

CF Step
2.200000 MHz
Auto Man

Freq Offset
0 Hz