Appendix B

RF Test Data for BT V4.0 (BDR/EDR) (Conducted Measurement)

Product Name: DUO wireless speaker

Trade Mark: HYM originals

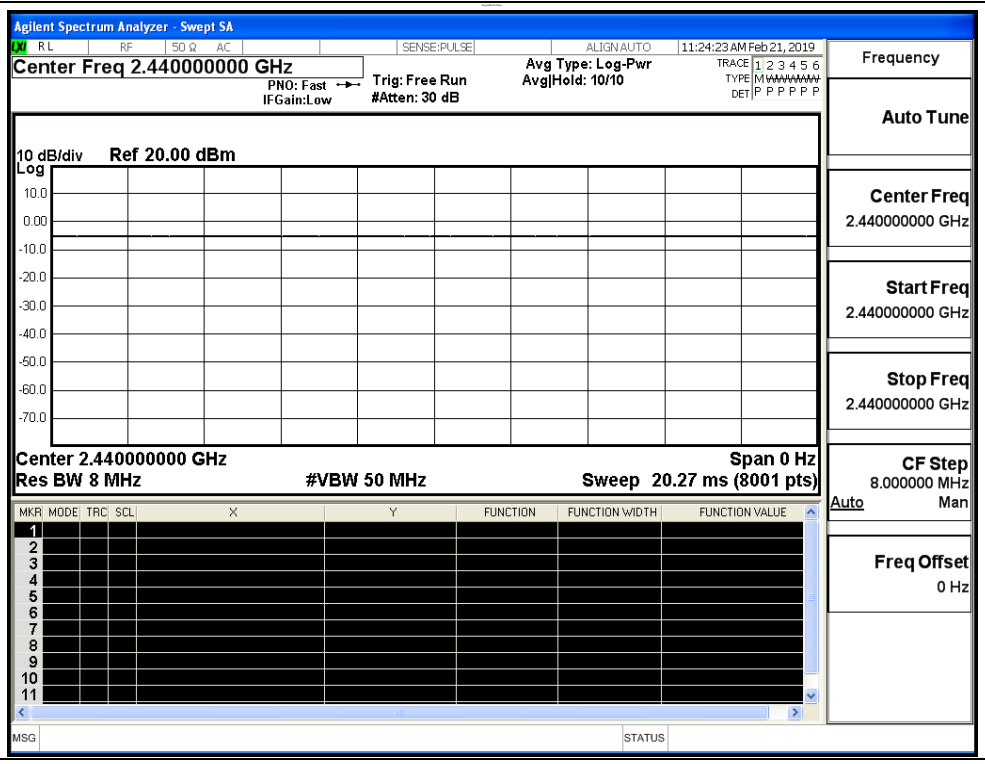
Test Model: H1-duc01

Environmental Conditions

Temperature:	23.7 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden.Zhuo

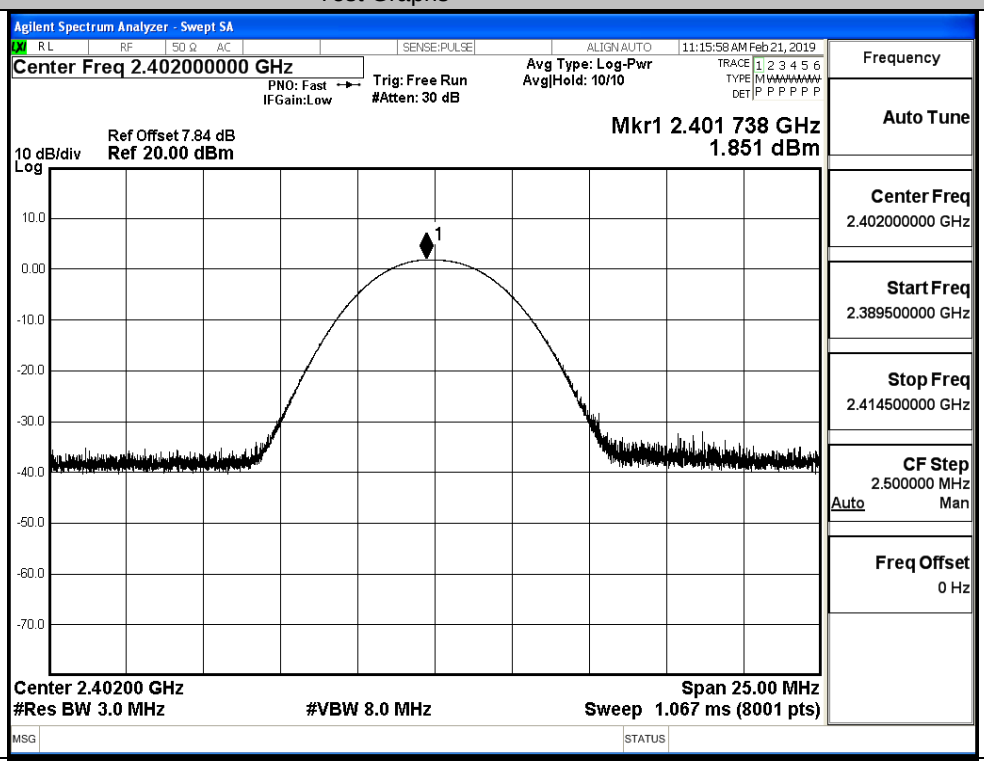
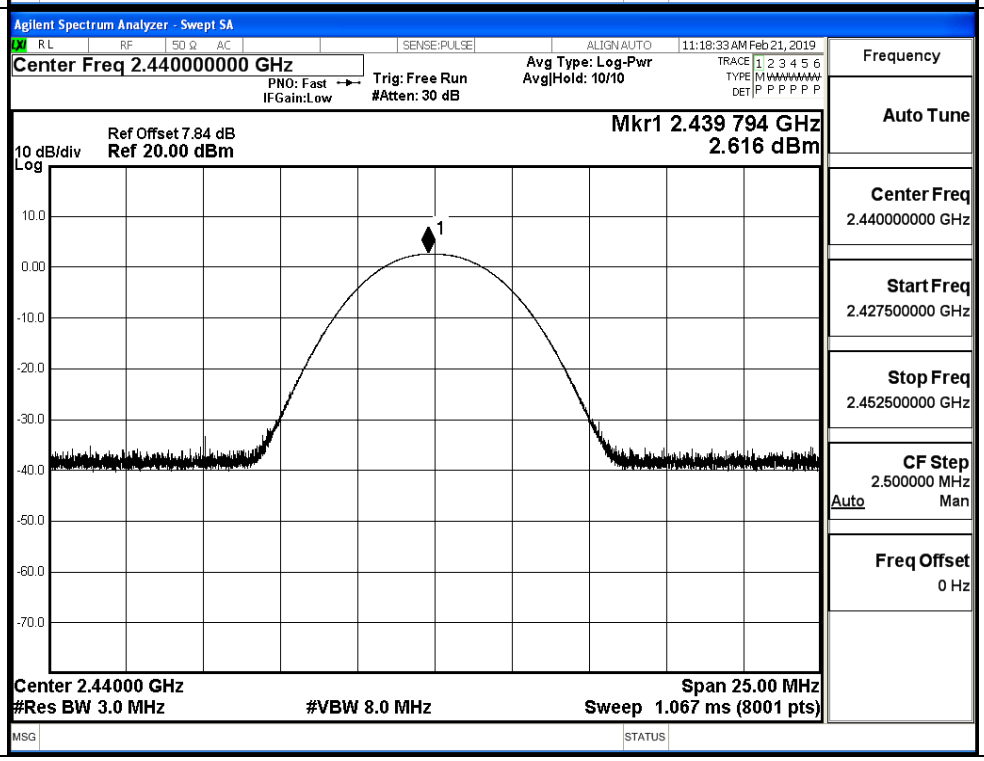
B.1 Duty Cycle

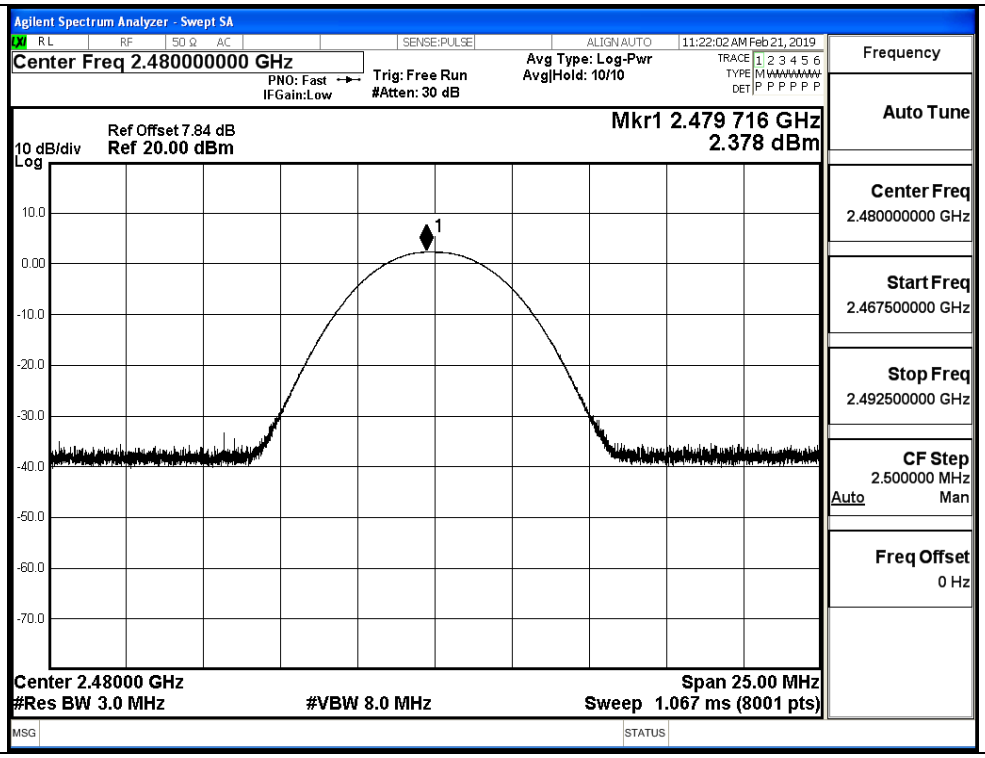
Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
BT LE	2440	Ant1	100	PASS



B.2 Maximum Conducted Peak Output Power

Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.851	30	PASS
BT LE	MCH	2.616	30	PASS
BT LE	HCH	2.378	30	PASS

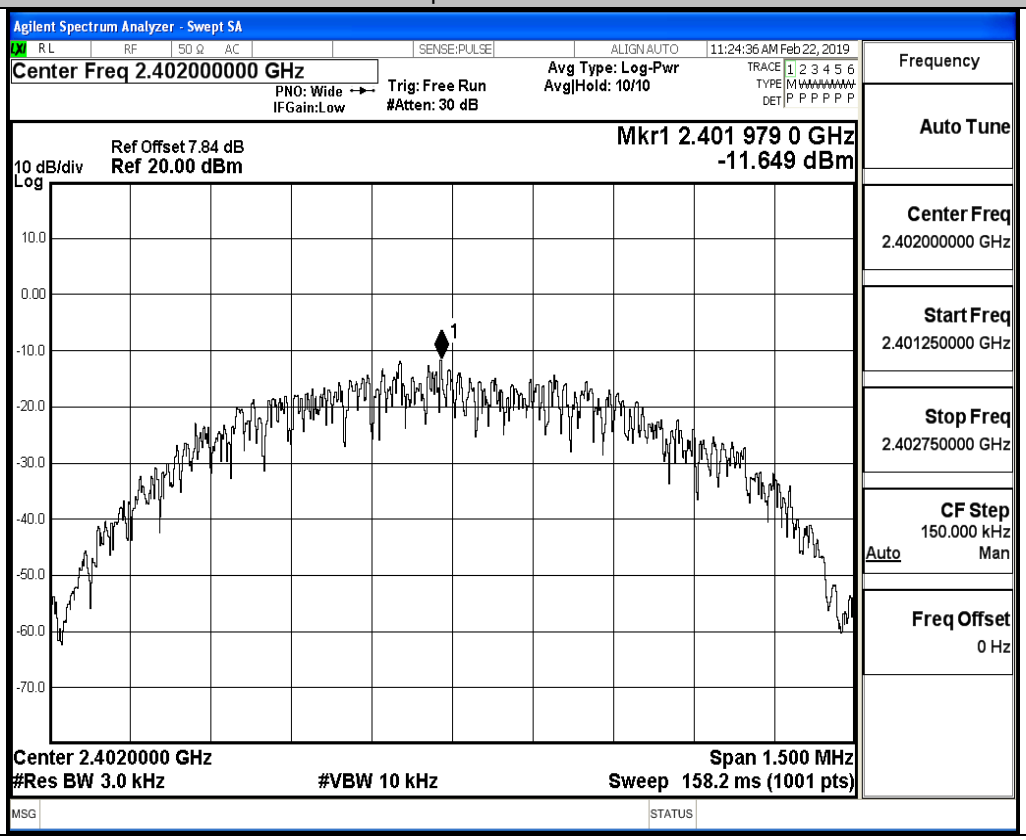
Test Graphs		
LCH		
MCH		

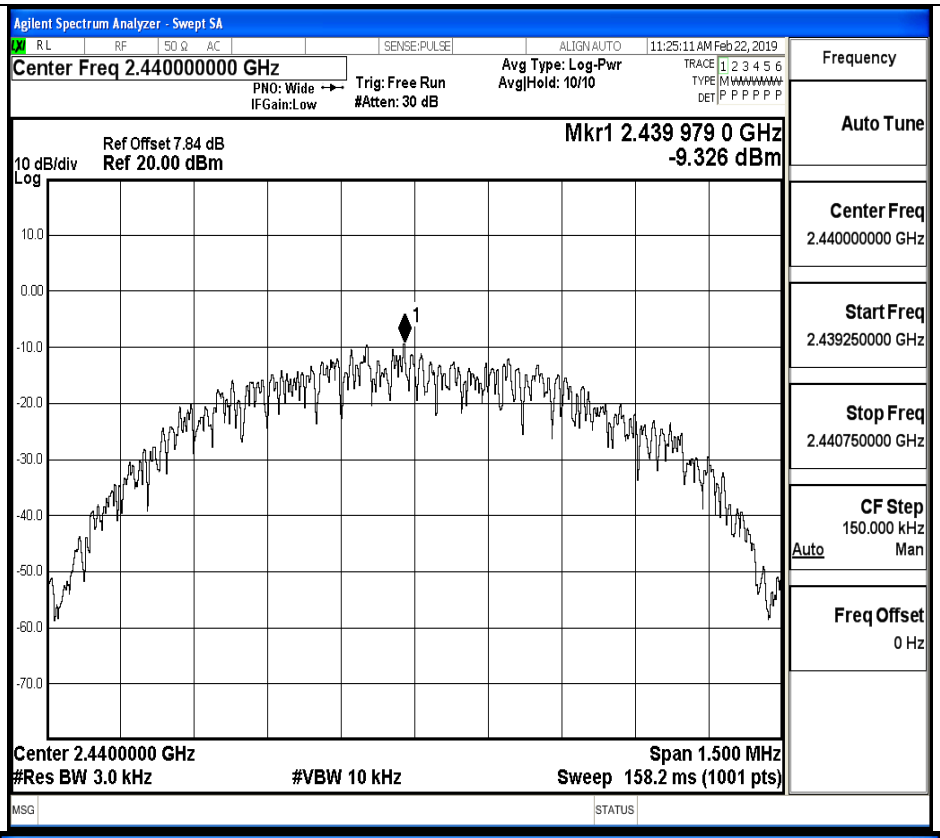
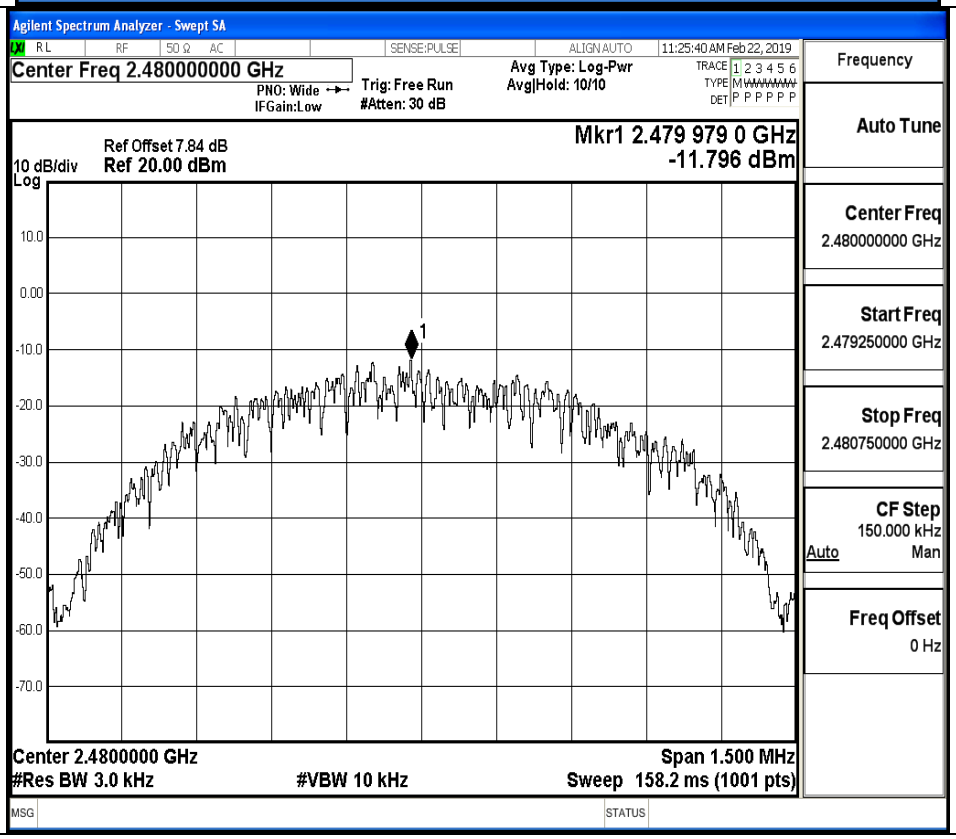
HCH		

Agilent Spectrum Analyzer - Swept SA
Center Freq 2.480000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/10
11:22:02 AM Feb 21, 2019
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.479 716 GHz
2.378 dBm
Center 2.48000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 25.00 MHz
Sweep 1.067 ms (8001 pts)
Frequency
Auto Tune
Center Freq
2.480000000 GHz
Start Freq
2.467500000 GHz
Stop Freq
2.492500000 GHz
CF Step
2.500000 MHz
Auto
Man
Freq Offset
0 Hz

B.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
BT LE	LCH	-11.649	8	PASS
BT LE	MCH	-9.326	8	PASS
BT LE	HCH	-11.796	8	PASS

Test Graphs		
LCH		

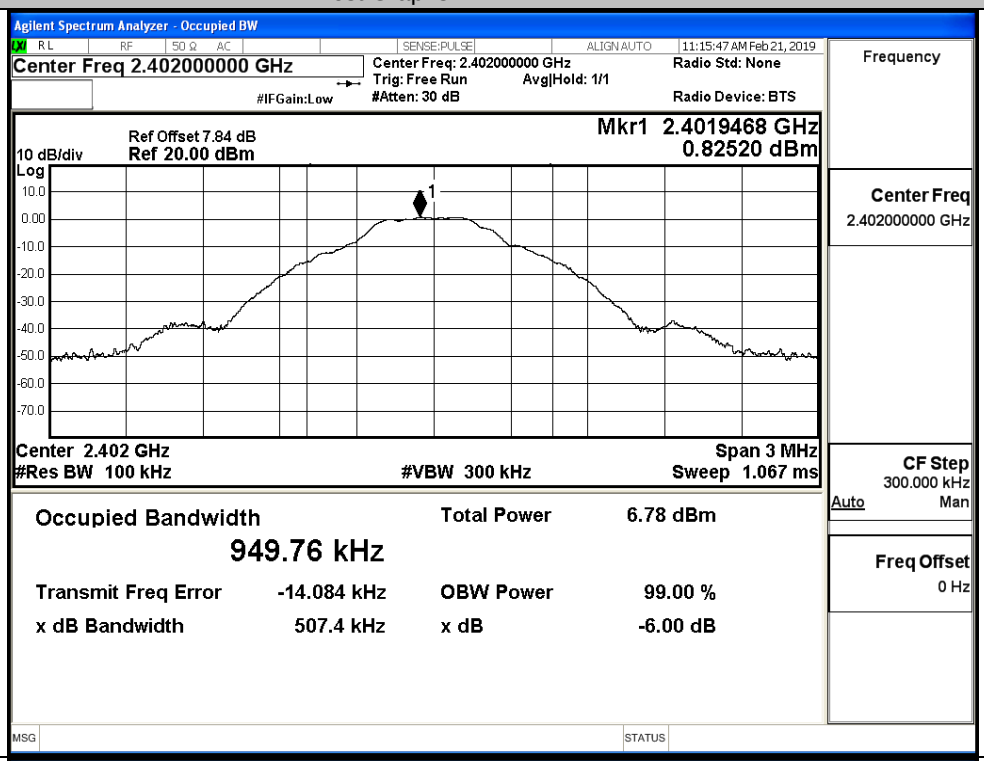
MCH		 Agilent Spectrum Analyzer - Swept SA Center Freq 2.440000000 GHz PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg|Hold: 10/10 11:25:11 AM Feb 22, 2019 Ref Offset 7.84 dB 10 dB/div Ref 20.00 dBm Mkr1 2.439 979 0 GHz -9.326 dBm Center 2.4400000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts) Frequency Auto Tune Center Freq 2.440000000 GHz Start Freq 2.439250000 GHz Stop Freq 2.440750000 GHz CF Step 150.000 kHz Auto Man Freq Offset 0 Hz
HCH		 Agilent Spectrum Analyzer - Swept SA Center Freq 2.480000000 GHz PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr Avg|Hold: 10/10 11:25:40 AM Feb 22, 2019 Ref Offset 7.84 dB 10 dB/div Ref 20.00 dBm Mkr1 2.479 979 0 GHz -11.796 dBm Center 2.4800000 GHz #Res BW 3.0 kHz #VBW 10 kHz Span 1.500 MHz Sweep 158.2 ms (1001 pts) Frequency Auto Tune Center Freq 2.480000000 GHz Start Freq 2.479250000 GHz Stop Freq 2.480750000 GHz CF Step 150.000 kHz Auto Man Freq Offset 0 Hz

B.4 6dB Bandwidth

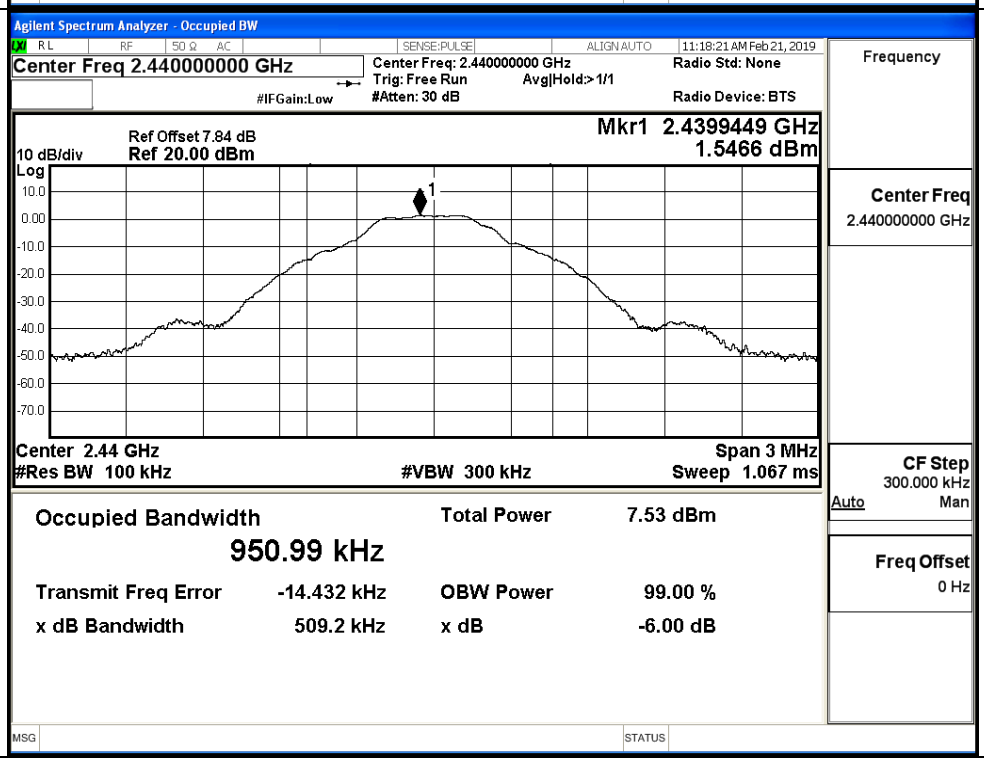
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.5074	≥0.5	PASS
BT LE	MCH	0.5092	≥0.5	PASS
BT LE	HCH	0.5067	≥0.5	PASS

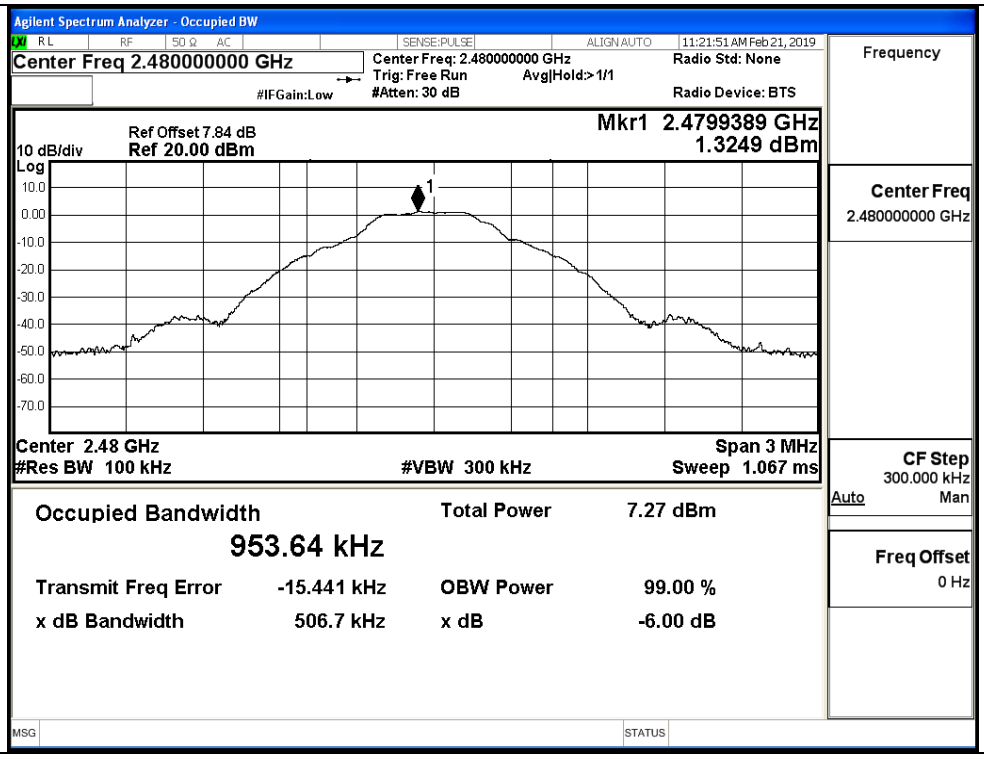
Test Graphs

LCH



MCH



HCH		

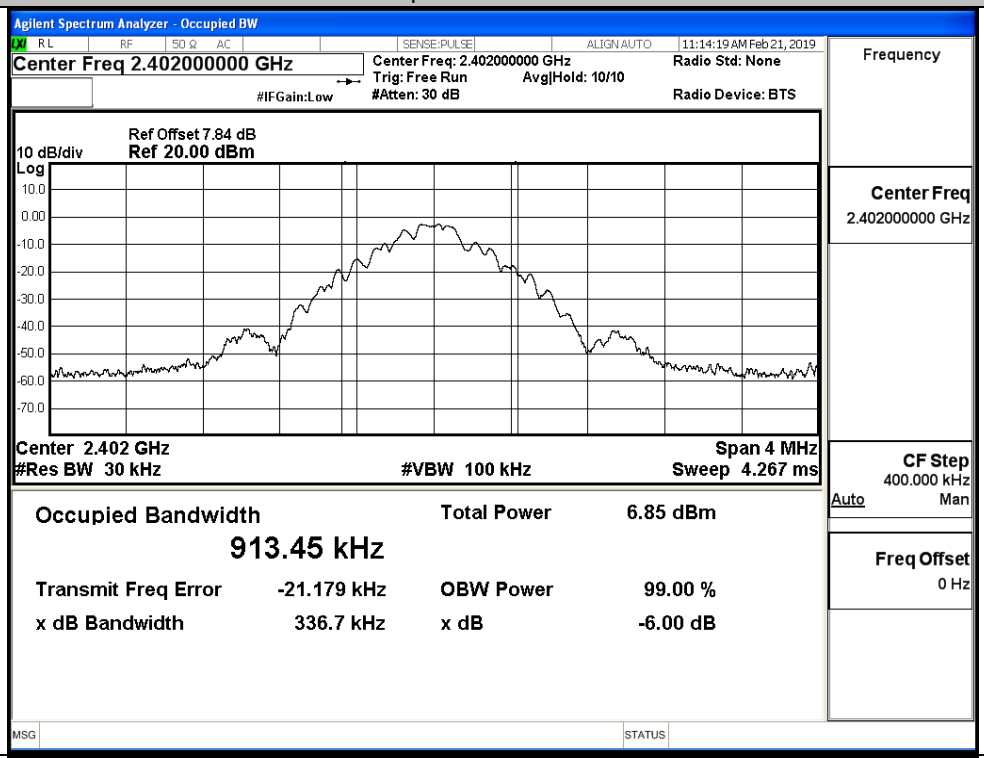
Agilent Spectrum Analyzer - Occupied BW
RL
RF
50 Ω AC
SENSE:PULSE
ALIGN AUTO
11:21:51 AM Feb 21, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>1/1
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Log
Mkr1 2.4799389 GHz
1.3249 dBm
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 3 MHz
Sweep 1.067 ms
CF Step
300.000 kHz
Auto
Man
Occupied Bandwidth
953.64 kHz
Total Power 7.27 dBm
Transmit Freq Error -15.441 kHz
OBW Power 99.00 %
x dB Bandwidth 506.7 kHz
x dB -6.00 dB
Freq Offset
0 Hz
MSG
STATUS

B.5 Occupied Bandwidth

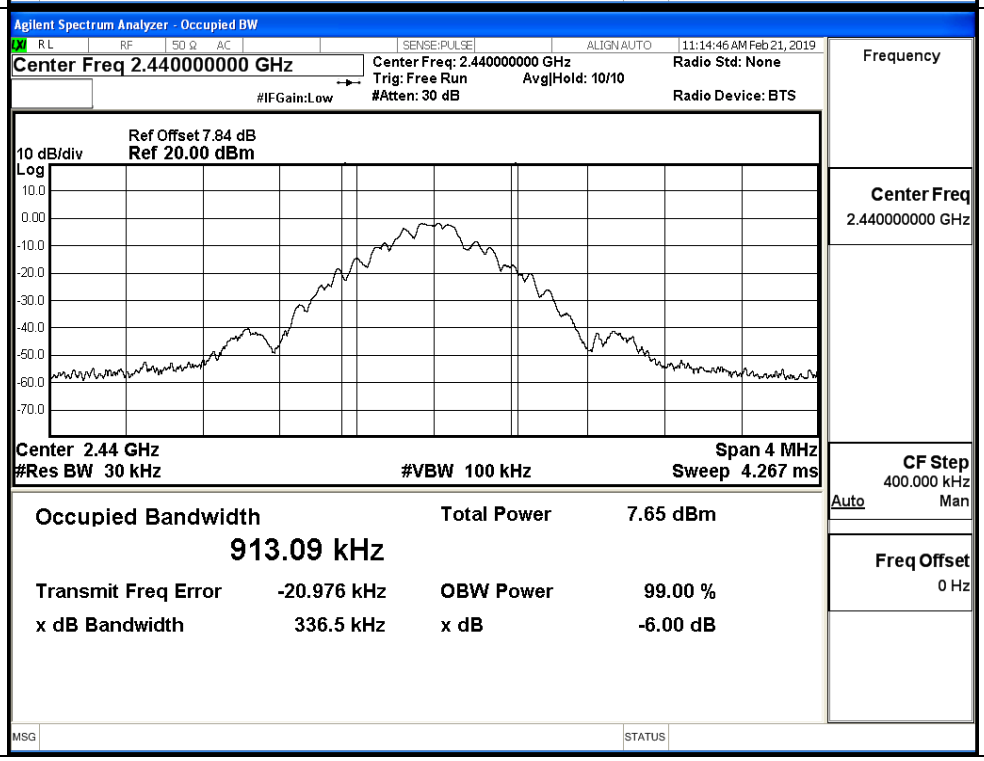
Mode	Channel	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
BT LE	LCH	0.91345	No Limit	PASS
BT LE	MCH	0.91309	No Limit	PASS
BT LE	HCH	0.91522	No Limit	PASS

Test Graphs

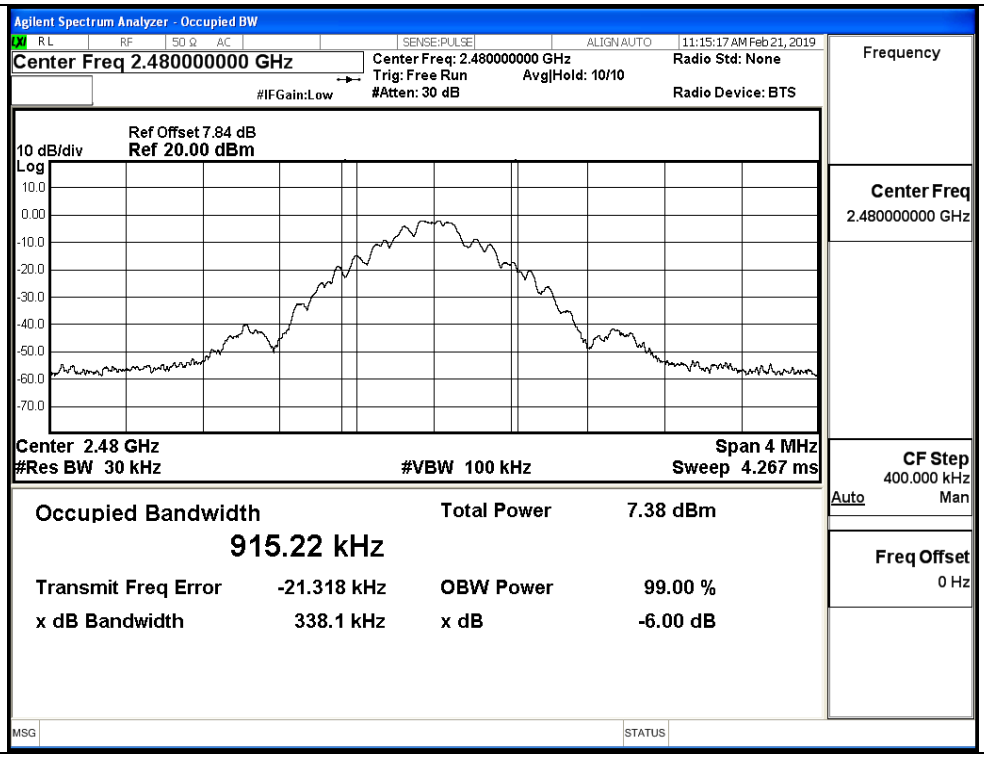
LCH



MCH

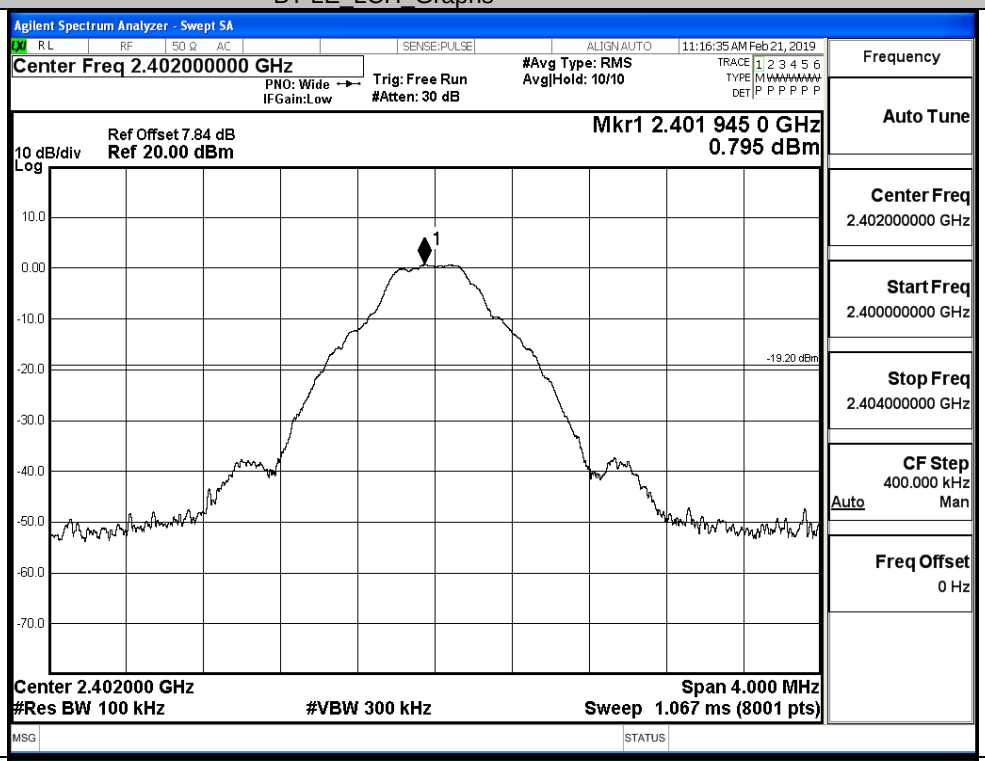
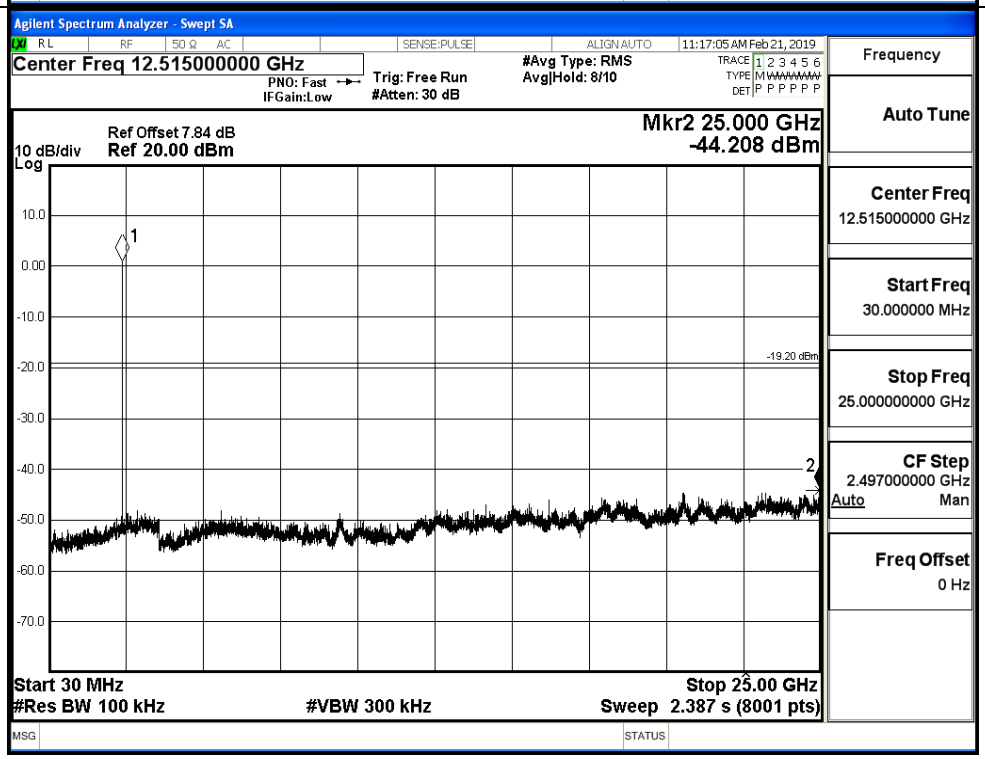


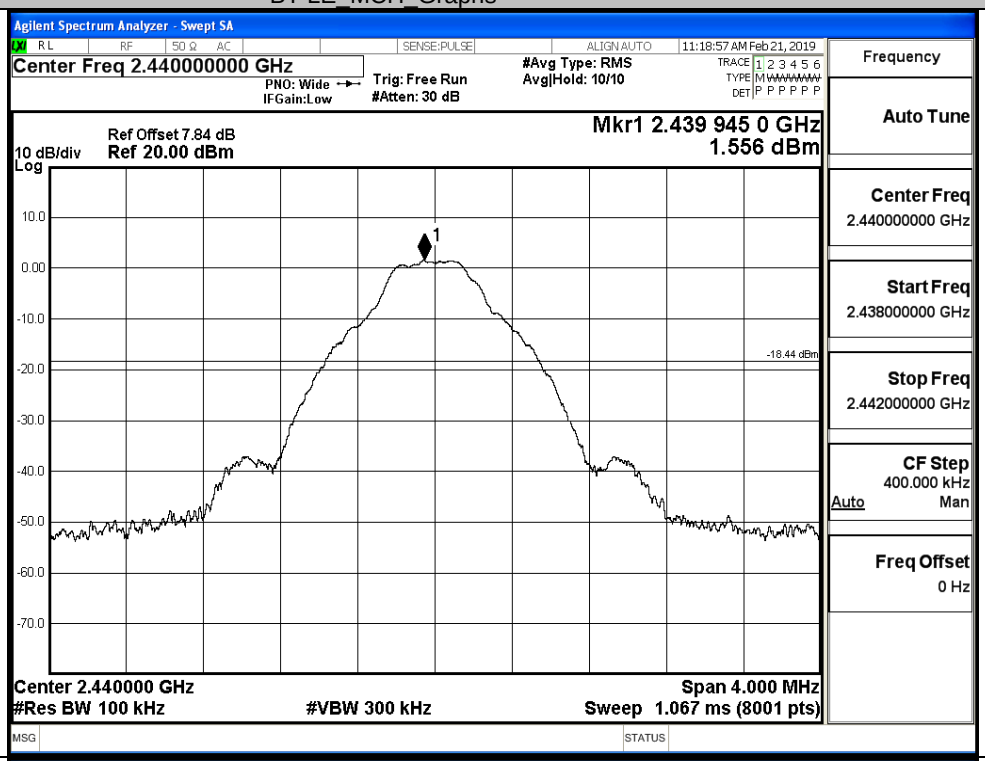
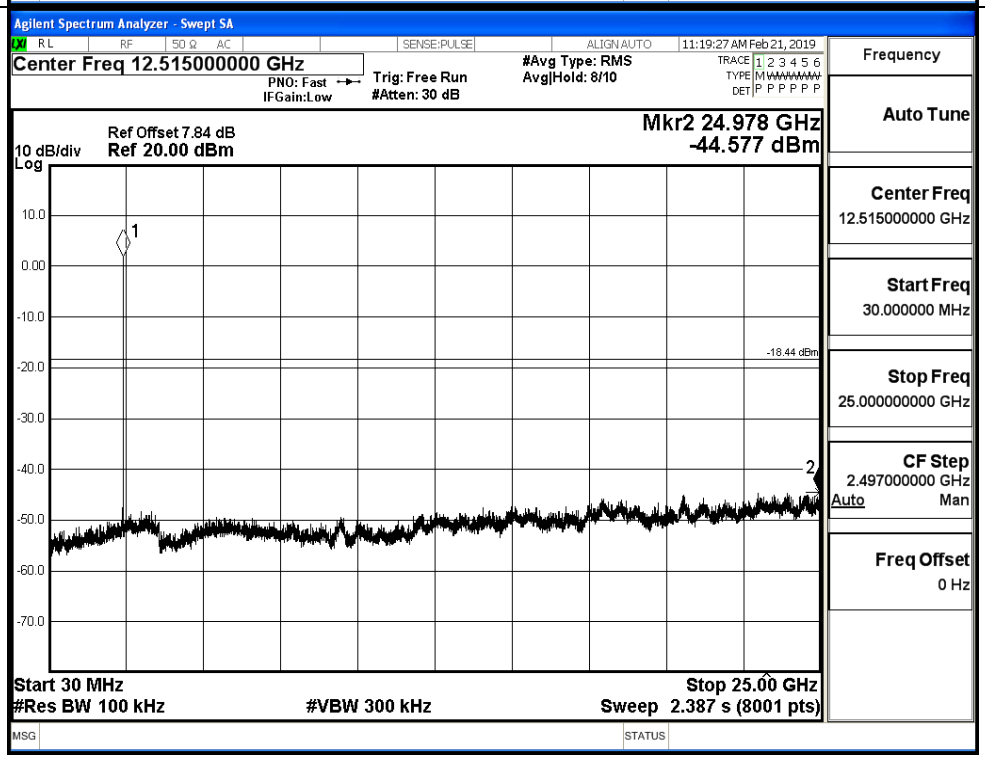
HCH

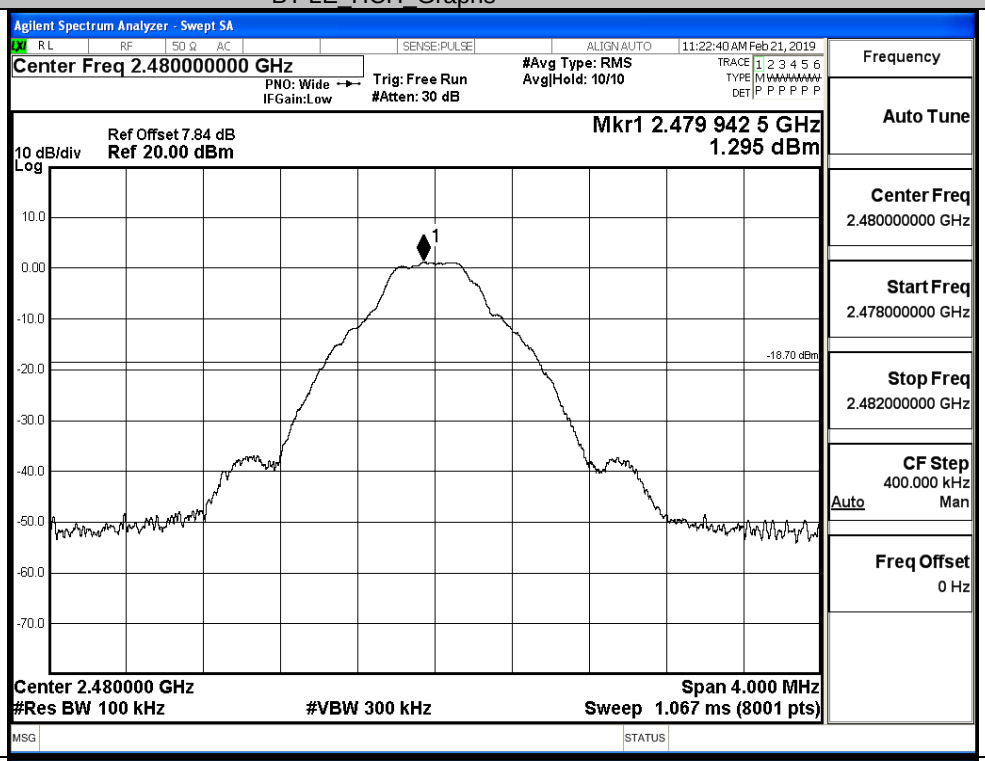
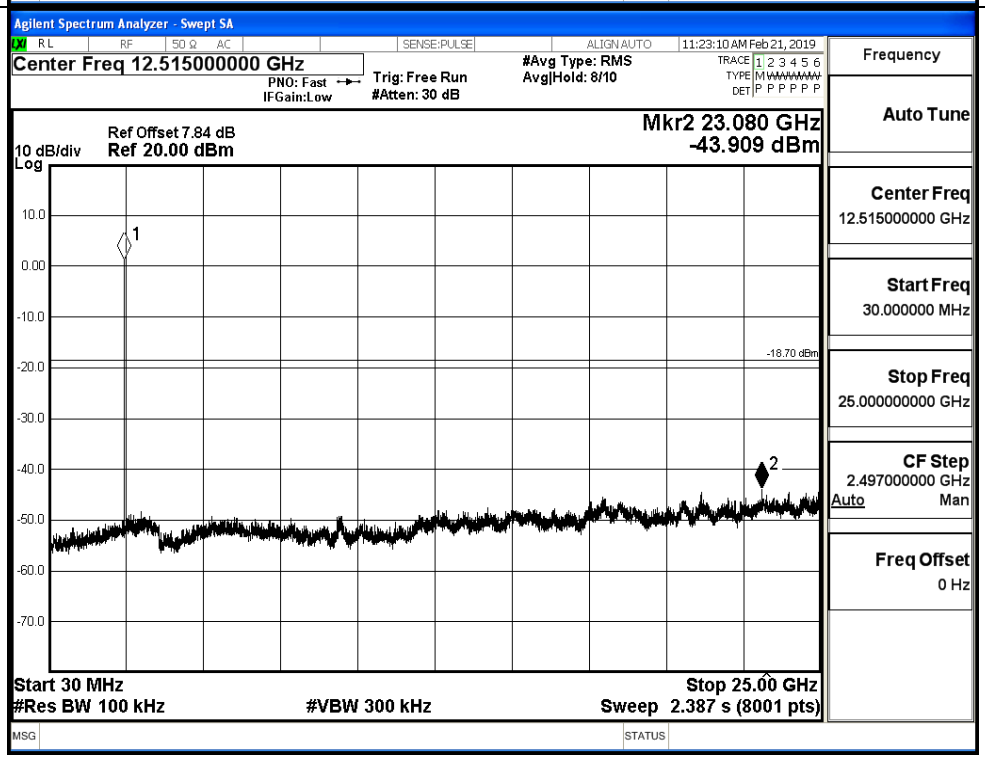

Agilent Spectrum Analyzer - Occupied BW
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold: 10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
11:15:17 AM Feb 21, 2019
Ref Offset 7.84 dB
10 dB/div
Ref 20.00 dBm
Log
Center 2.48 GHz
#Res BW 30 kHz
#VBW 100 kHz
Span 4 MHz
Sweep 4.267 ms
Occupied Bandwidth
915.22 kHz
Total Power 7.38 dBm
Transmit Freq Error -21.318 kHz
OBW Power 99.00 %
x dB Bandwidth 338.1 kHz
x dB -6.00 dB
Frequency
Center Freq
2.480000000 GHz
CF Step
400.000 kHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

B.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	0.795	-44.208	-19.205	PASS
BT LE	MCH	1.556	-44.577	-18.444	PASS
BT LE	HCH	1.295	-43.909	-18.705	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		

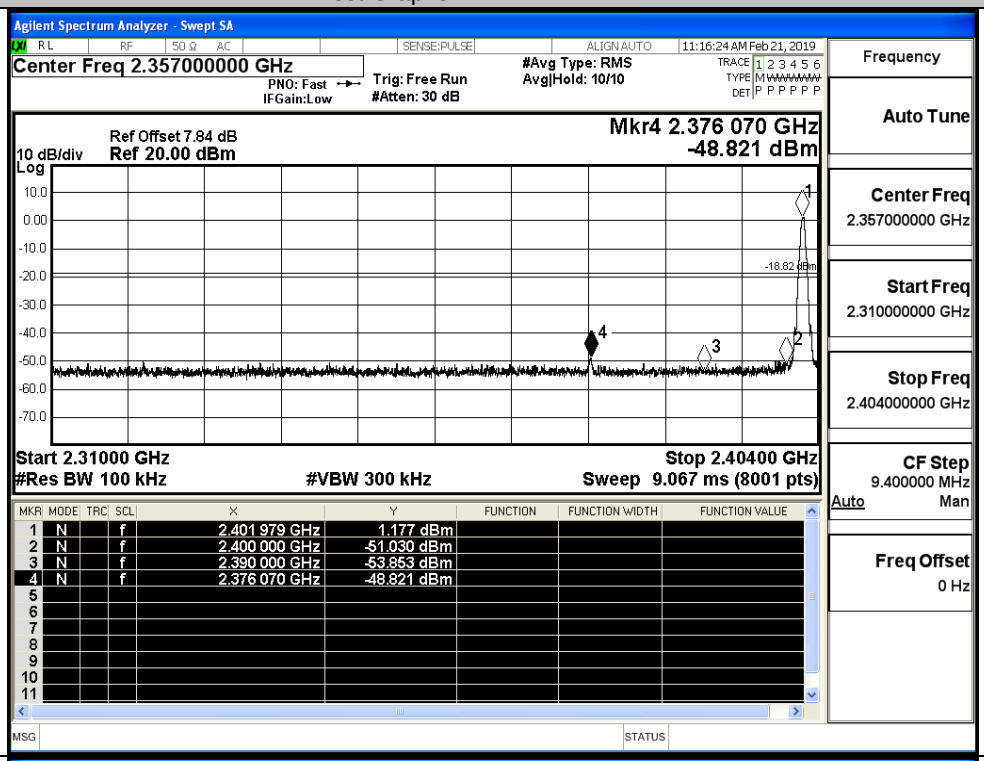
BT LE_HCH_Graphs		
Pref/BT LE/HCH		
Puw/BT LE/HCH		

B.7 Band-edge for RF Conducted Emissions

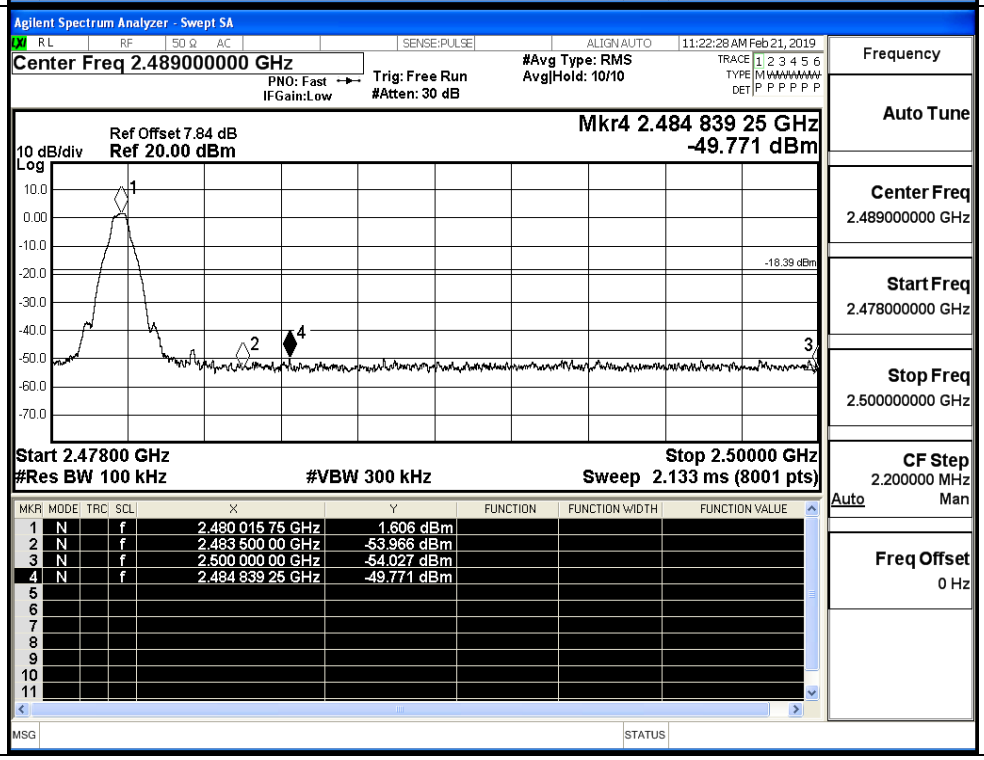
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BT LE	LCH	1.177	-48.821	-18.82	PASS
BT LE	HCH	1.606	-49.771	-18.39	PASS

Test Graphs

LCH



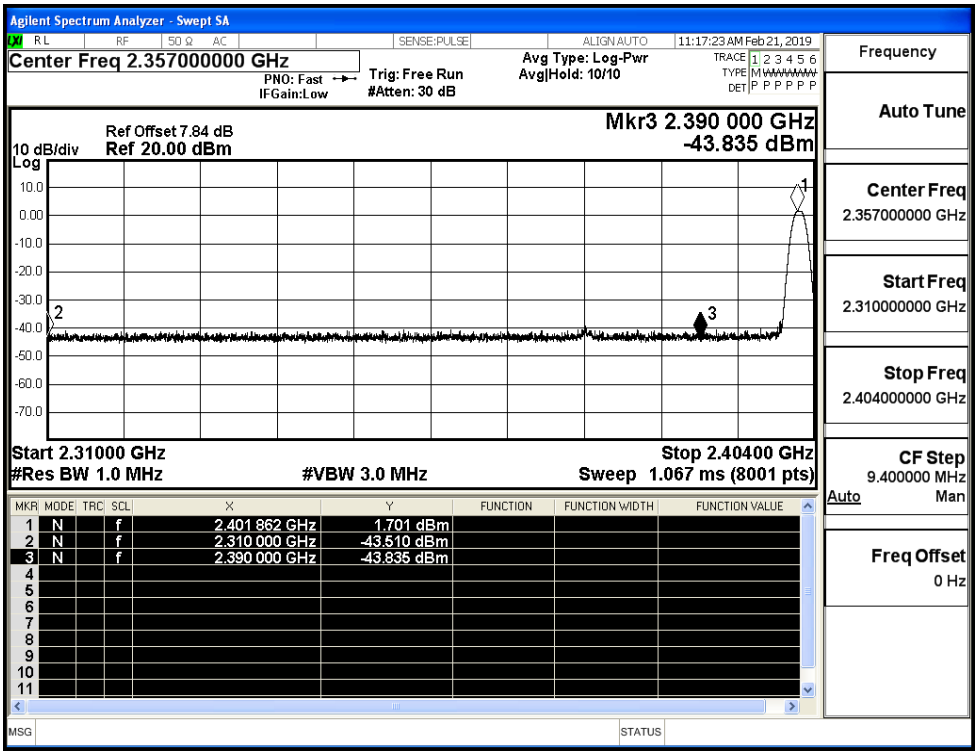
HCH



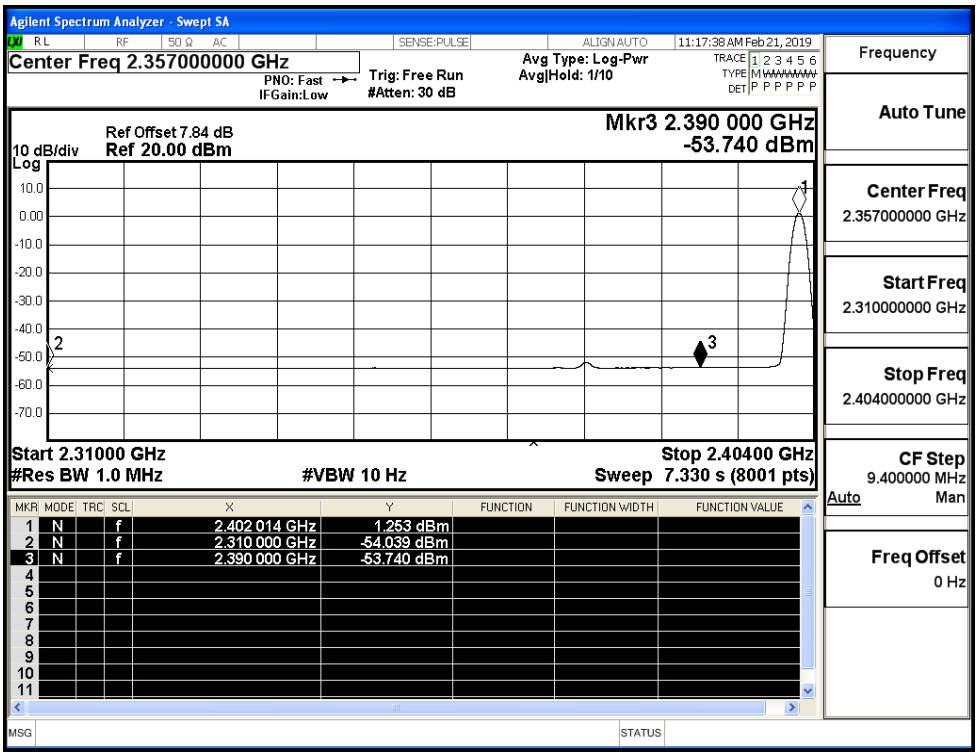
B.8 Restrict-band band-edge measurements

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	-43.51	2.0	0	53.75	PEAK	74	PASS
		Ant1	2310.0	-54.04	2.0	0	43.22	AV	54	PASS
		Ant1	2390.0	-43.84	2.0	0	53.42	PEAK	74	PASS
		Ant1	2390.0	-53.74	2.0	0	43.52	AV	54	PASS
	2480	Ant1	2483.5	-42.18	2.0	0	55.08	PEAK	74	PASS
		Ant1	2483.5	-53.20	2.0	0	44.06	AV	54	PASS
		Ant1	2500.0	-42.55	2.0	0	54.71	PEAK	74	PASS
		Ant1	2500.0	-53.31	2.0	0	43.95	AV	54	PASS

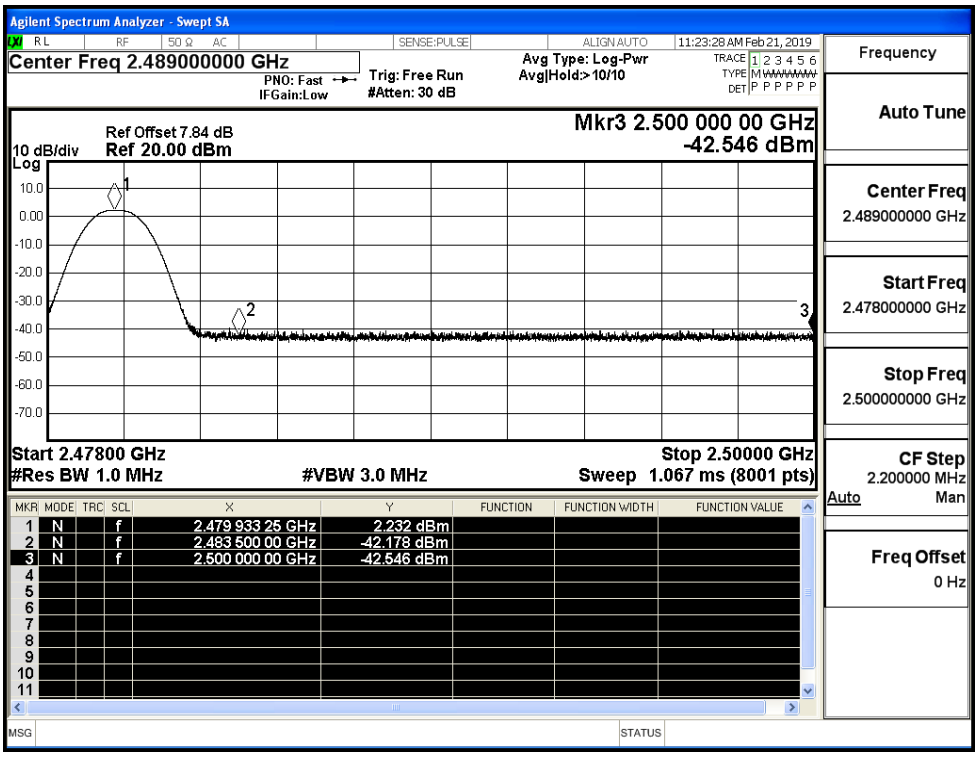
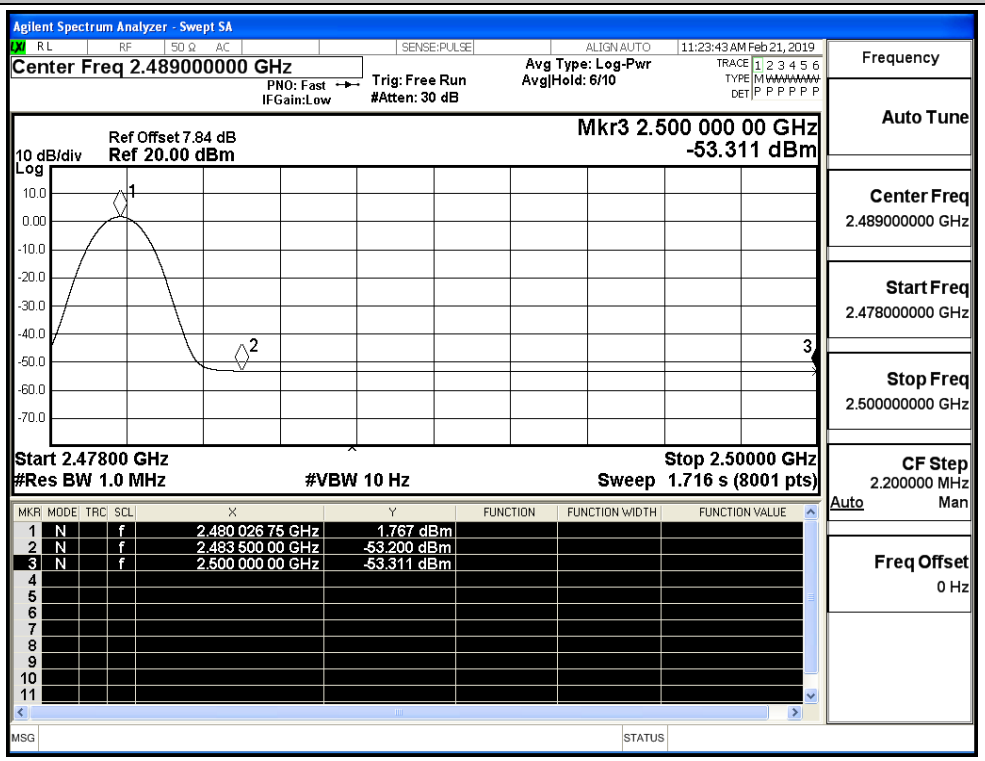
Restrict-band band-edge measurements_BT LE_2402_Ant1_PEAK



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