Appendix A

RF Test Data (Conducted Measurement)

Product Name: LiquidAider

Trade Mark: LiquidAider

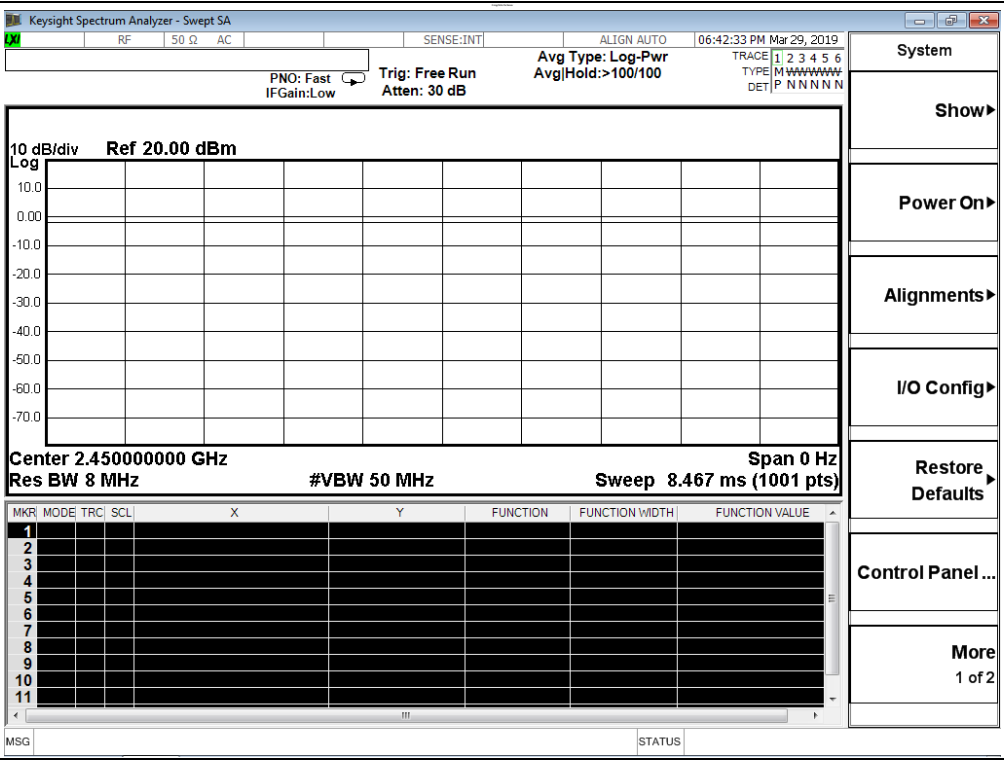
Test Model: LAB-001

Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang.Chuang
Supervised by:	Tom.Liu

A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
TX Mode	2450	Ant1	100	PASS

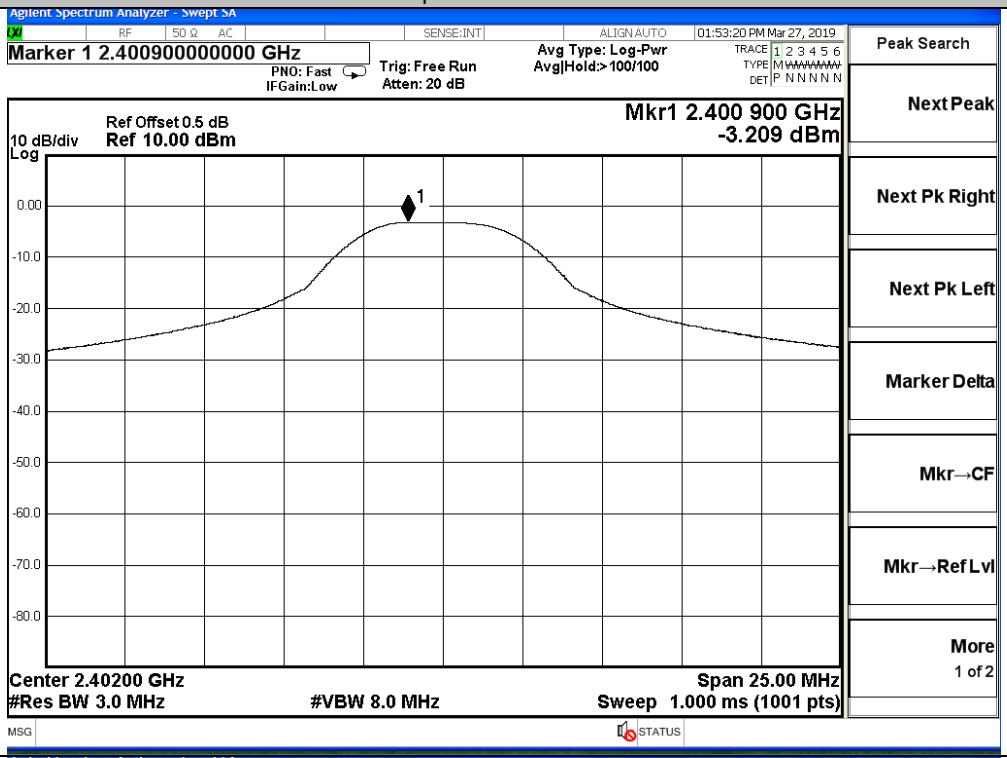


A.2 Maximum Conducted Peak Output Power

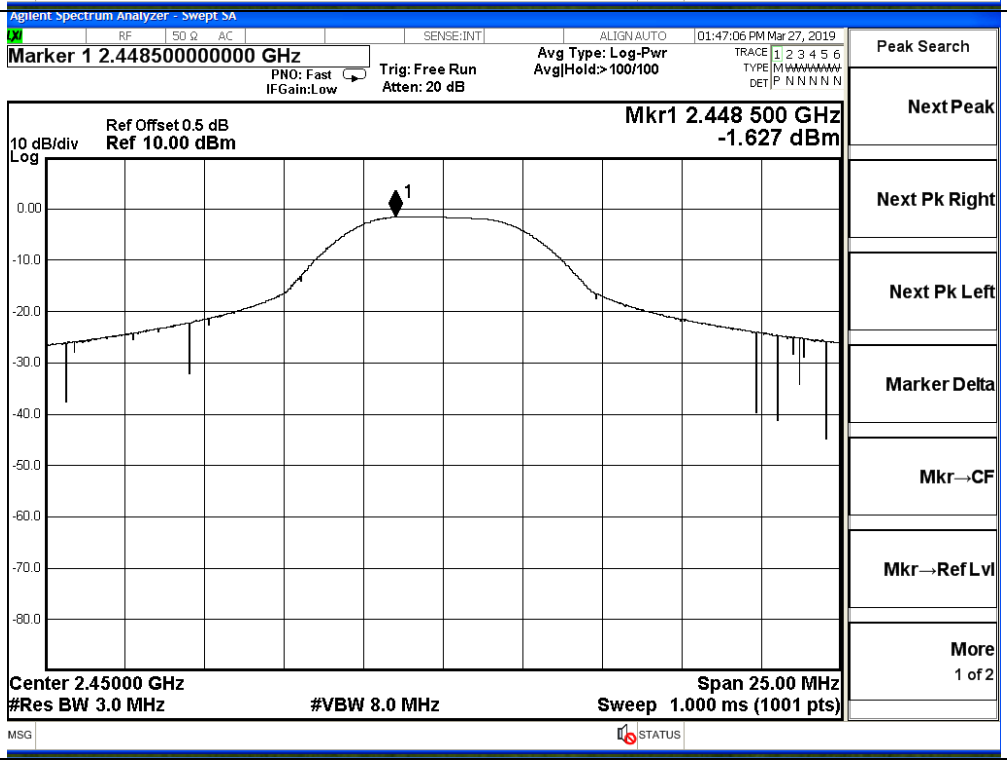
Mode	Channel	Conduct Peak Power[dBm]	Limit [dBm]	Verdict
TX Mode	LCH	-3.209	30	PASS
TX Mode	MCH	-1.627	30	PASS
TX Mode	HCH	-1.052	30	PASS

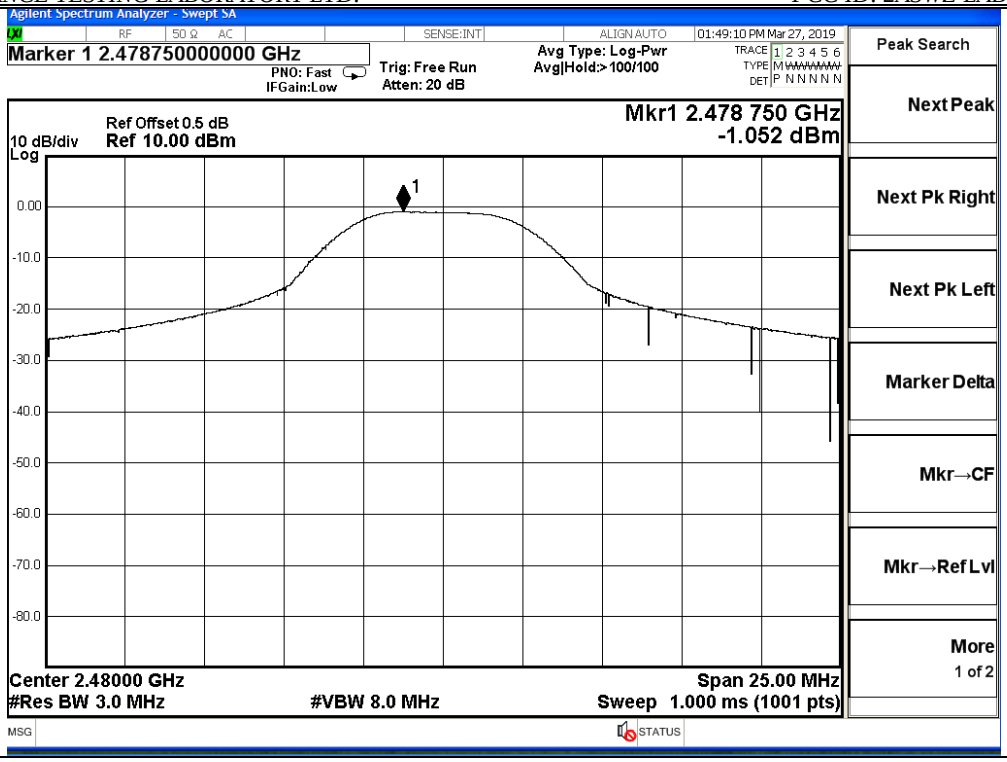
Test Graphs

LCH



MCH

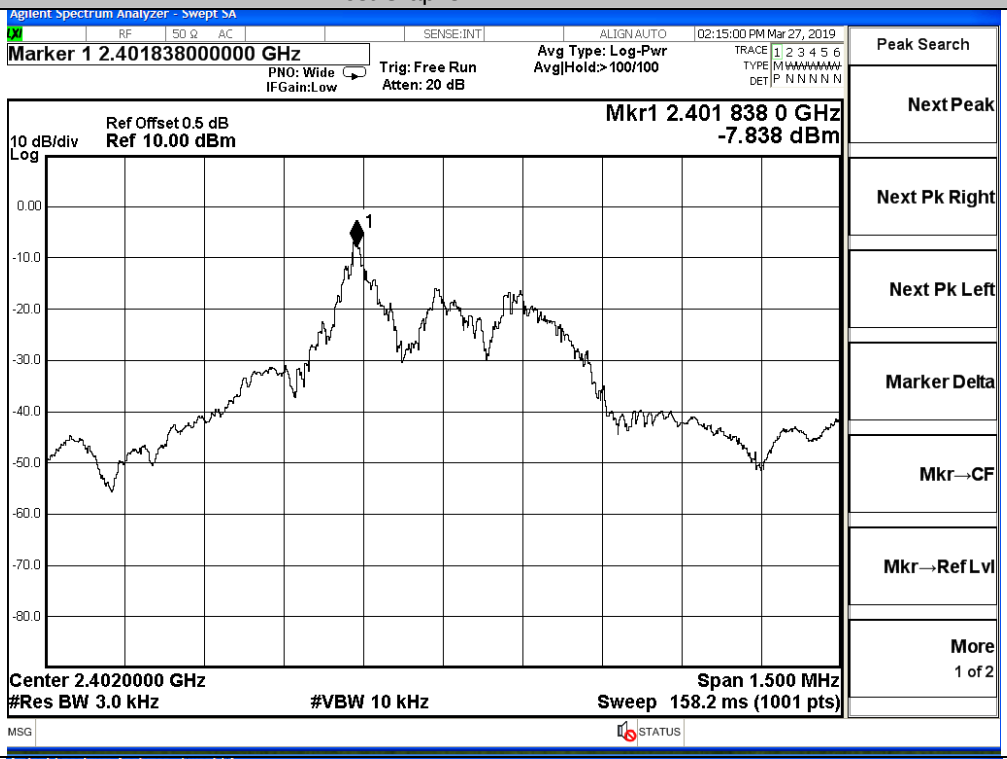


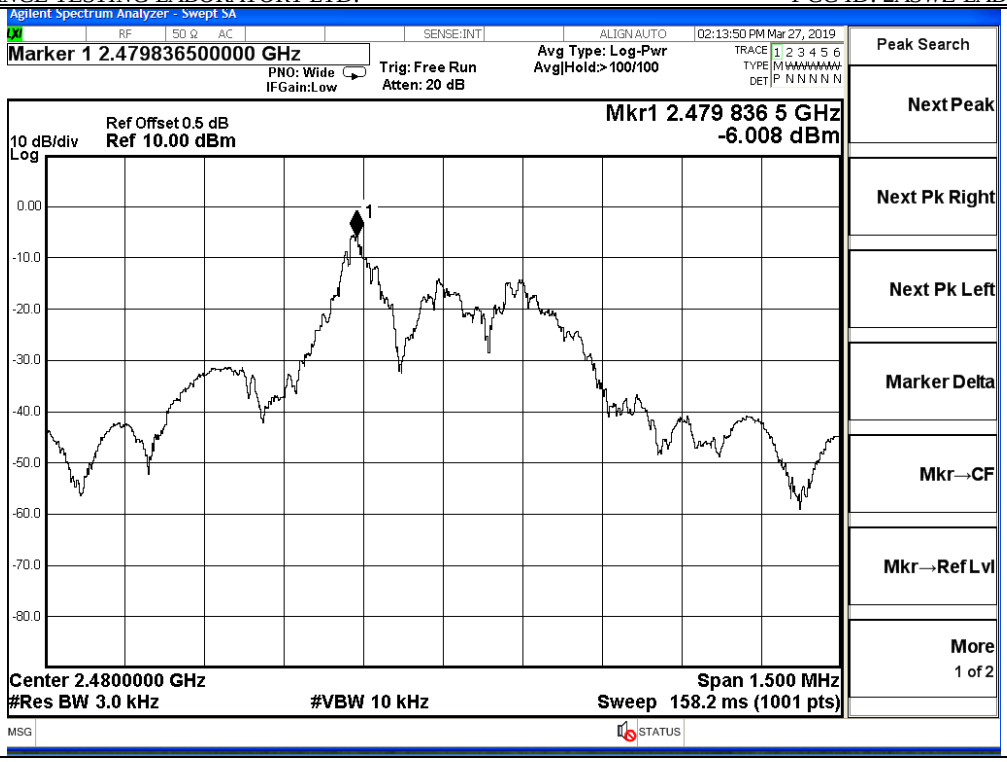
HCH	

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
01:49:10 PM Mar 27, 2019
Marker 1 2.478750000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 2.478 750 GHz
-1.052 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.48000 GHz
#Res BW 3.0 MHz
#VBW 8.0 MHz
Span 25.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

A.3 Maximum Power Spectral Density

Mode	Channel	PSD [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
TX Mode	LCH	-7.838	8	PASS
TX Mode	MCH	-7.069	8	PASS
TX Mode	HCH	-6.008	8	PASS

Test Graphs	
LCH	
MCH	

HCH	

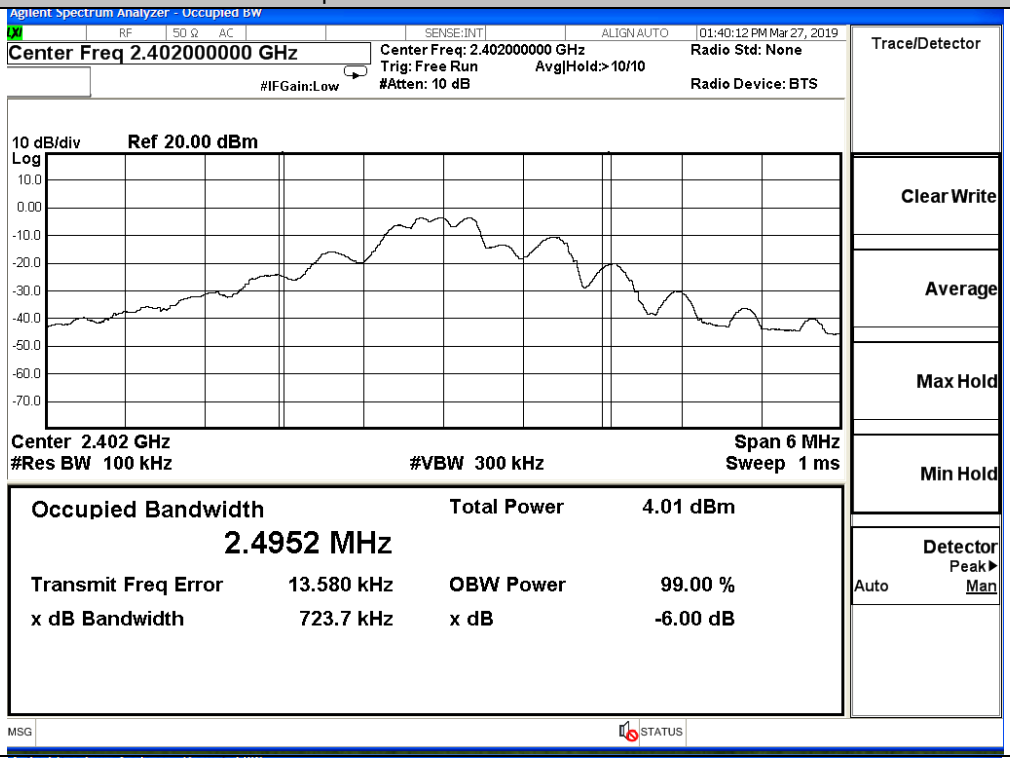
Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
02:13:50 PM Mar 27, 2019
Marker 1 2.479836500000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 2.479 836 5 GHz
-6.008 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.4800000 GHz
#Res BW 3.0 kHz
#VBW 10 kHz
Span 1.500 MHz
Sweep 158.2 ms (1001 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

A.4 Bandwidth

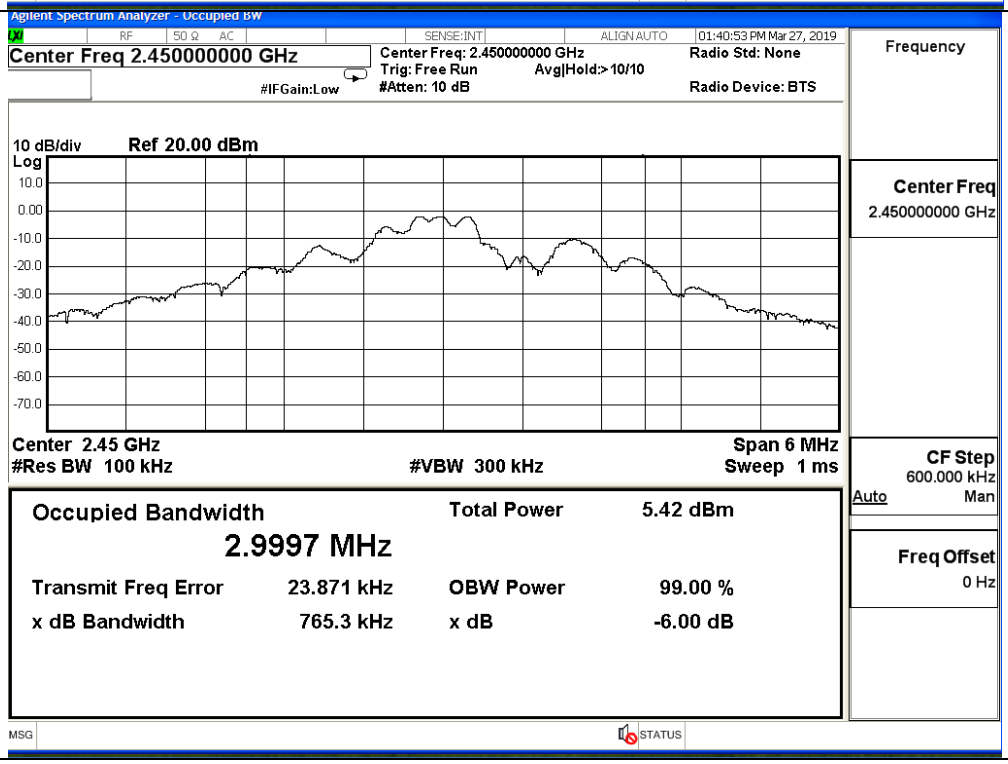
Mode	Channel	6dB Bandwidth [MHz]	99% Bandwidth [MHz]	Limit [MHz]	Verdict
TX Mode	LCH	0.7237	2.4142	≥0.5	PASS
TX Mode	MCH	0.7653	2.9426	≥0.5	PASS
TX Mode	HCH	0.7387	2.8730	≥0.5	PASS

Test Graphs for 6dB Bandwidth

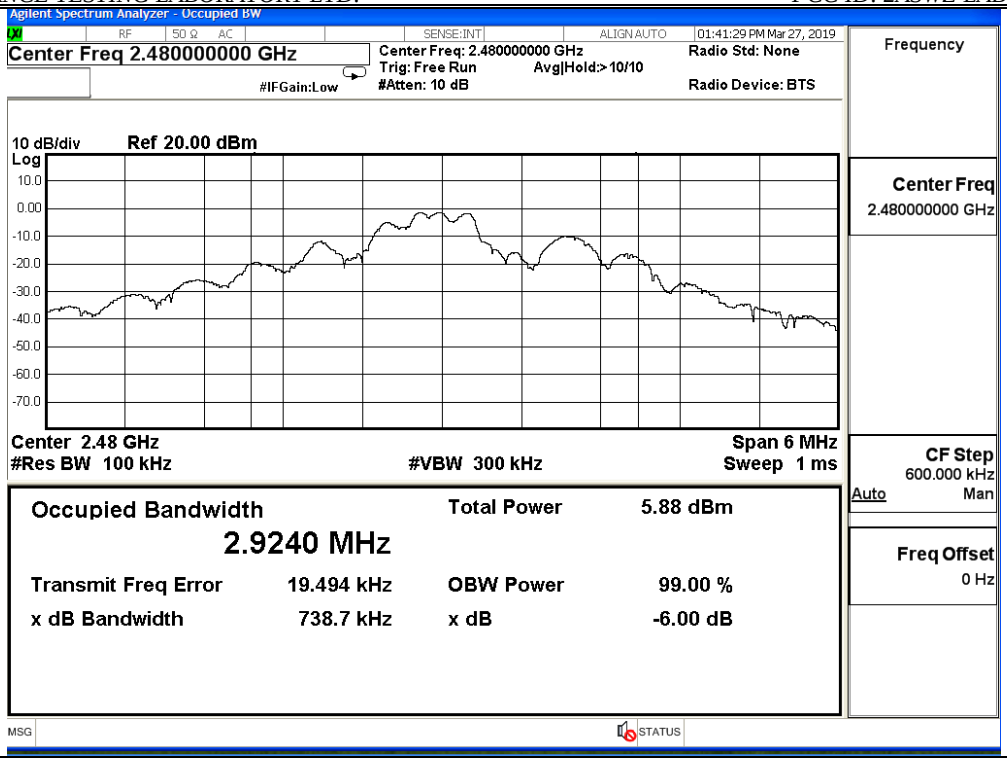
LCH



MCH

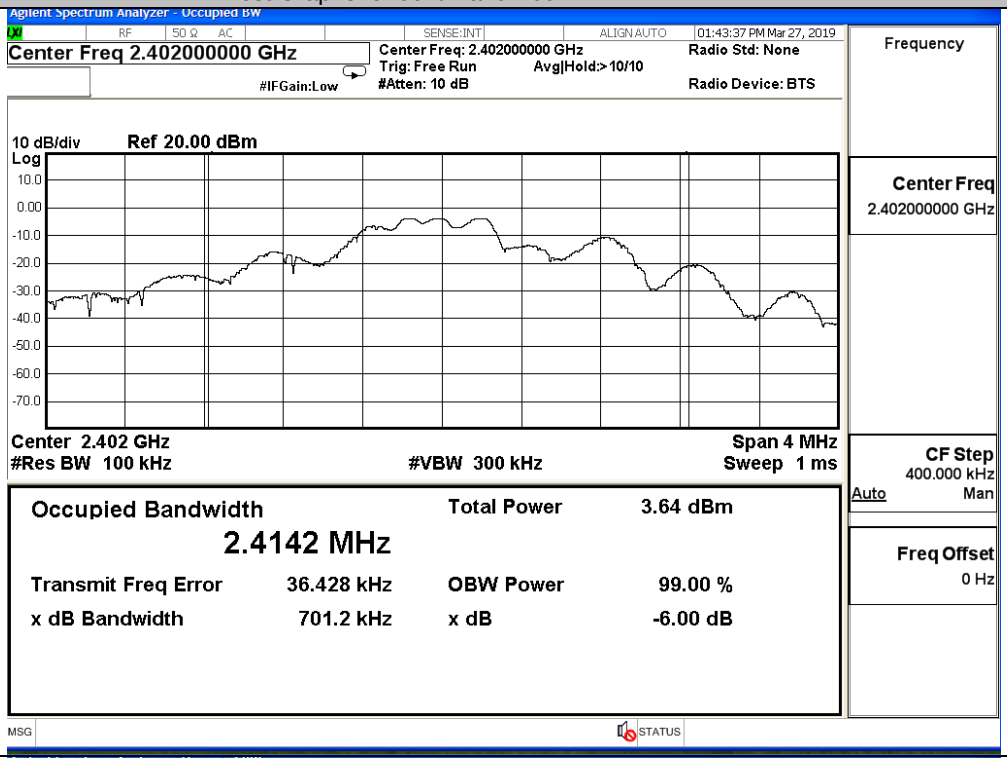


HCH

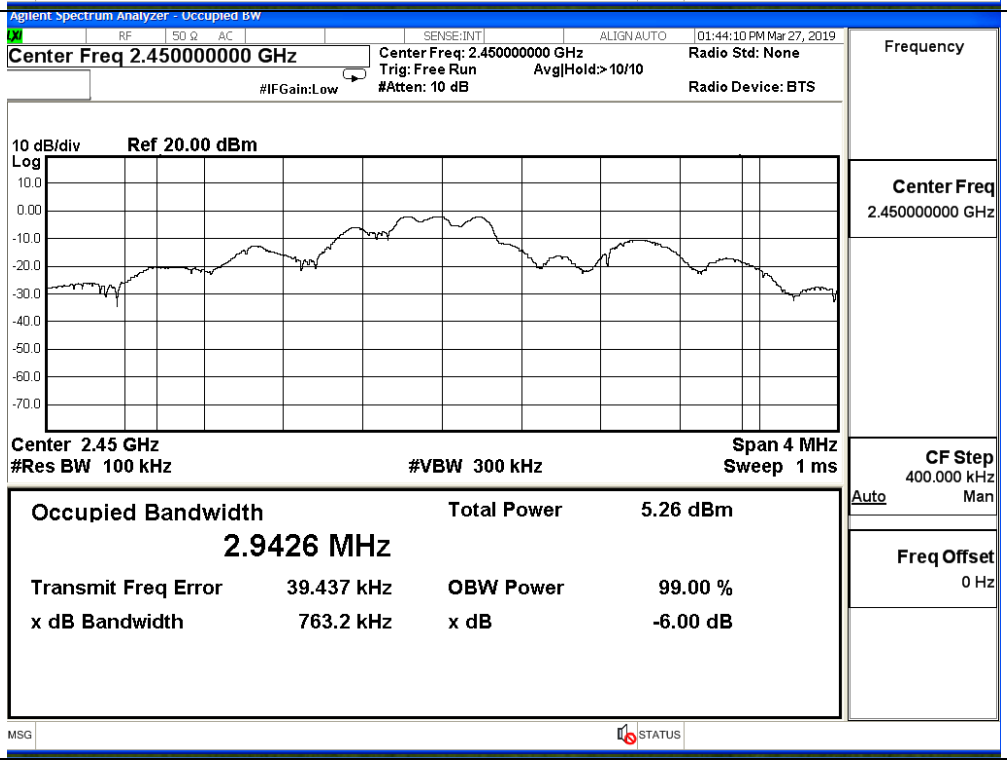

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
01:41:29 PM Mar 27, 2019
Center Freq 2.480000000 GHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center Freq
2.480000000 GHz
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 6 MHz
Sweep 1 ms
CF Step
600.000 kHz
Auto
Man
Occupied Bandwidth
2.9240 MHz
Total Power 5.88 dBm
Transmit Freq Error 19.494 kHz
OBW Power 99.00 %
x dB Bandwidth 738.7 kHz
x dB -6.00 dB
Freq Offset
0 Hz
MSG
STATUS

Test Graphs for 99% Bandwidth

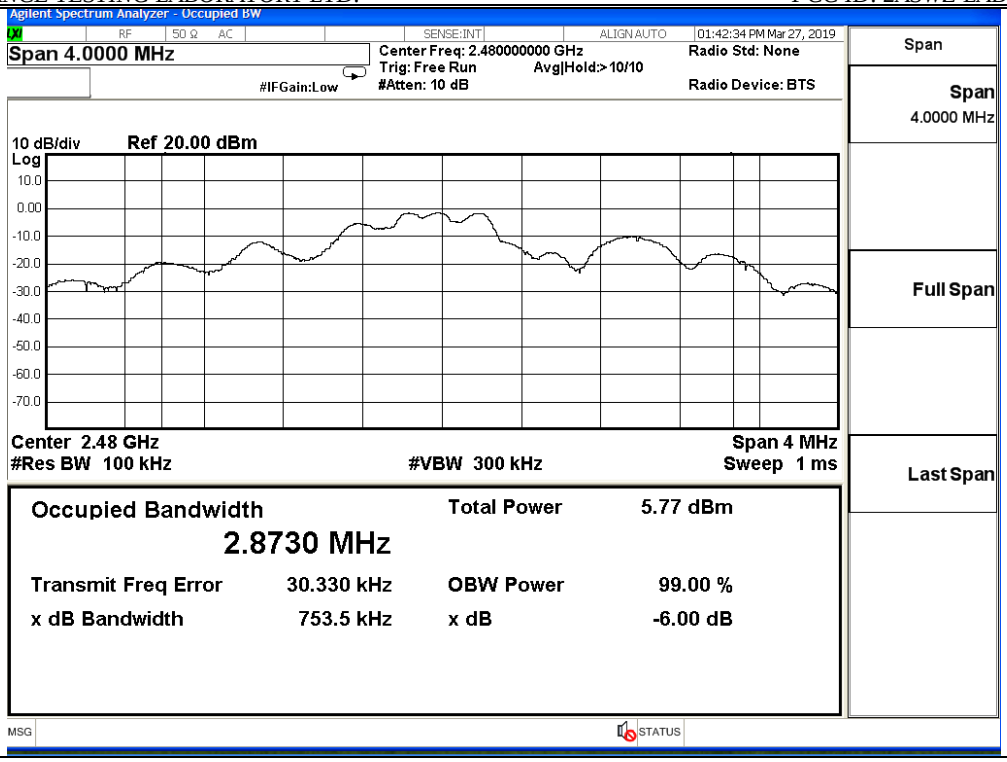
LCH



MCH

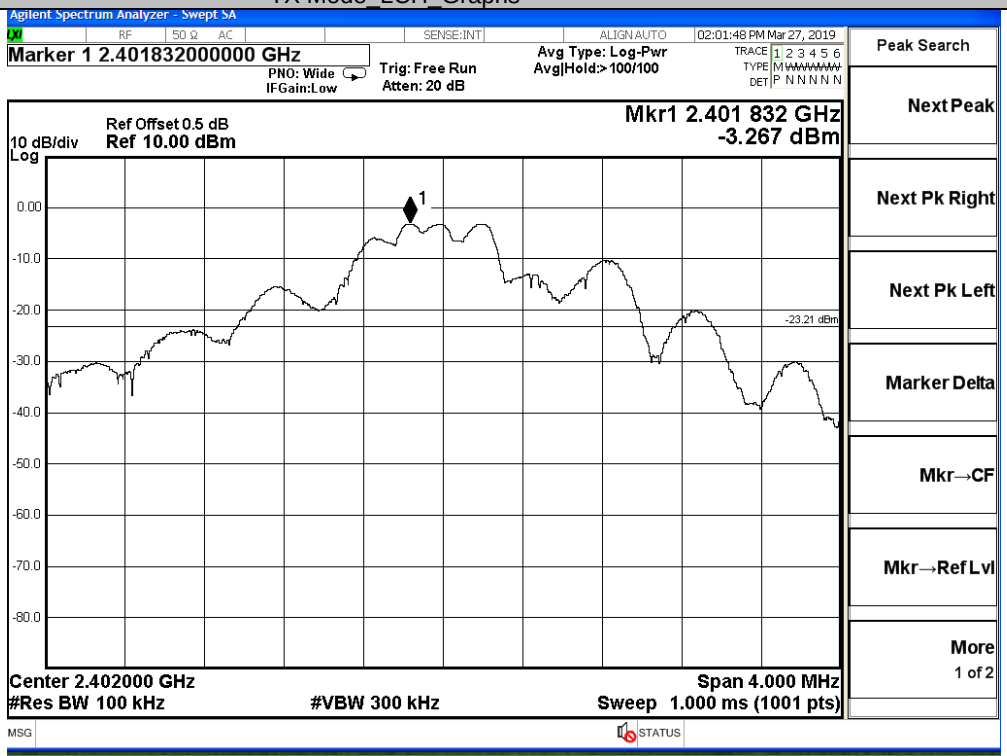
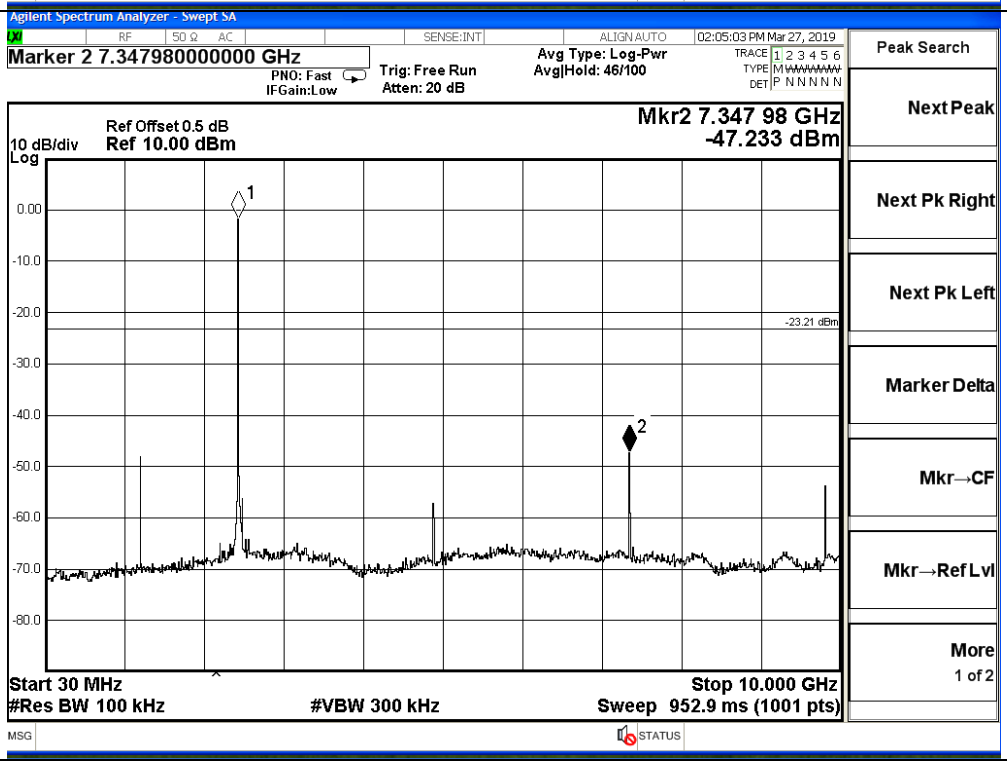


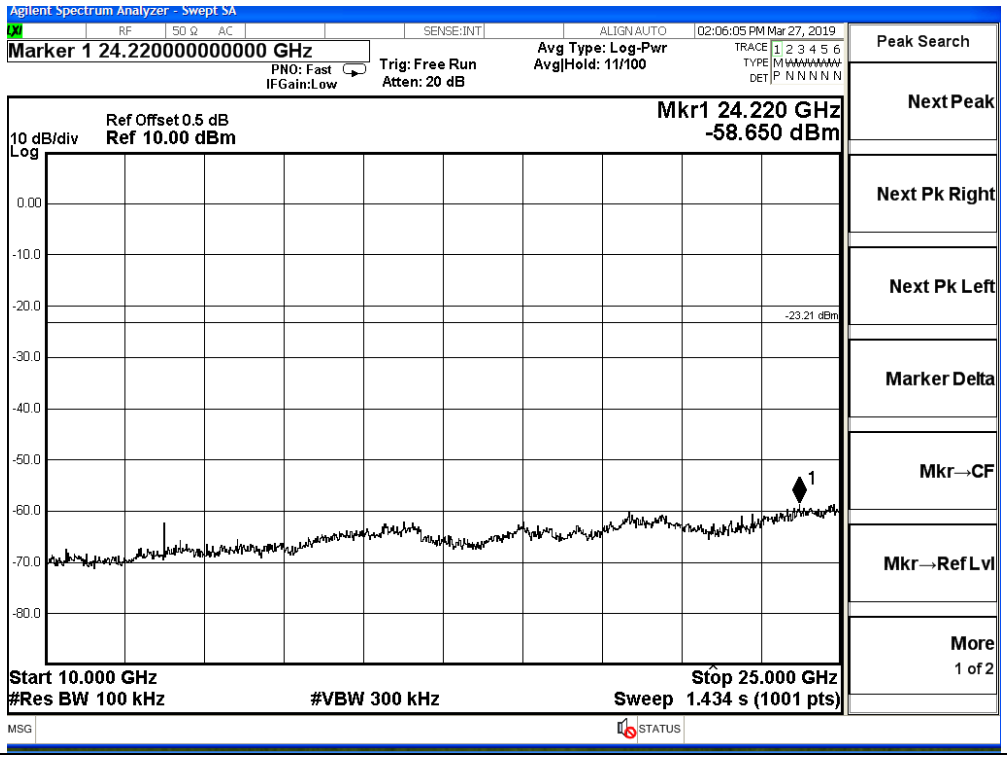
HCH

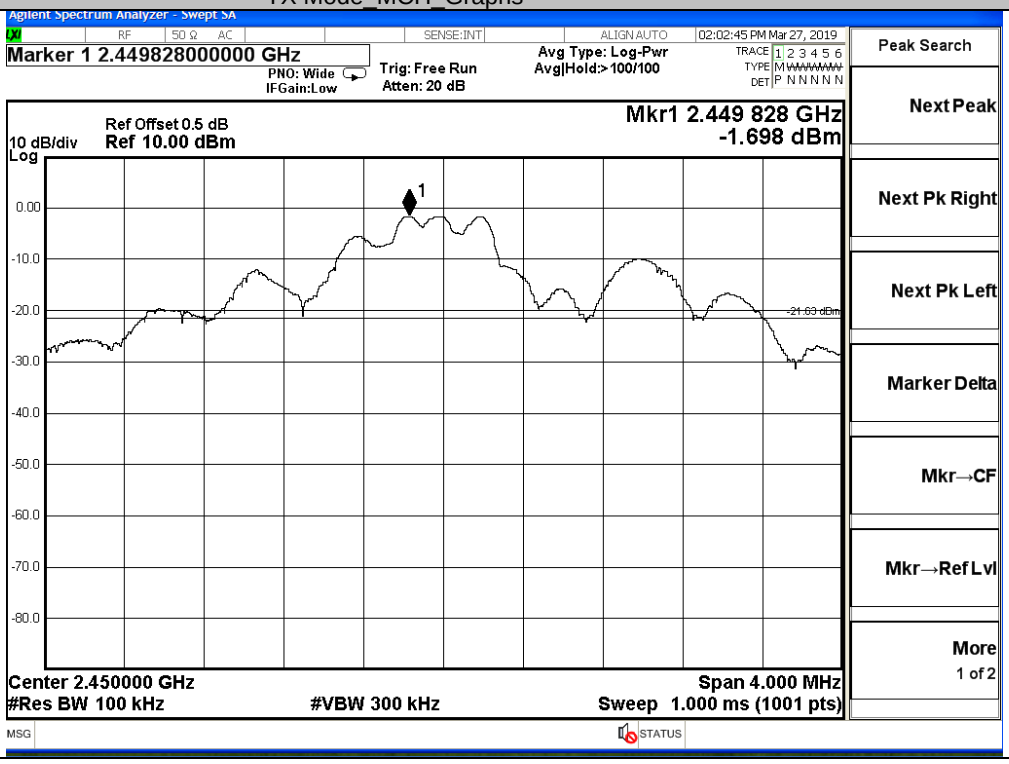

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
01:42:34 PM Mar 27, 2019
Span 4.0000 MHz
Center Freq: 2.480000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 10 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
10 dB/div
Ref 20.00 dBm
Log
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.48 GHz
#Res BW 100 kHz
#VBW 300 kHz
Span 4 MHz
Sweep 1 ms
Occupied Bandwidth
2.8730 MHz
Total Power 5.77 dBm
Transmit Freq Error 30.330 kHz
OBW Power 99.00 %
x dB Bandwidth 753.5 kHz
x dB -6.00 dB
MSG
STATUS
Span
Span
4.0000 MHz
Full Span
Last Span

A.5 RF Conducted Spurious Emissions

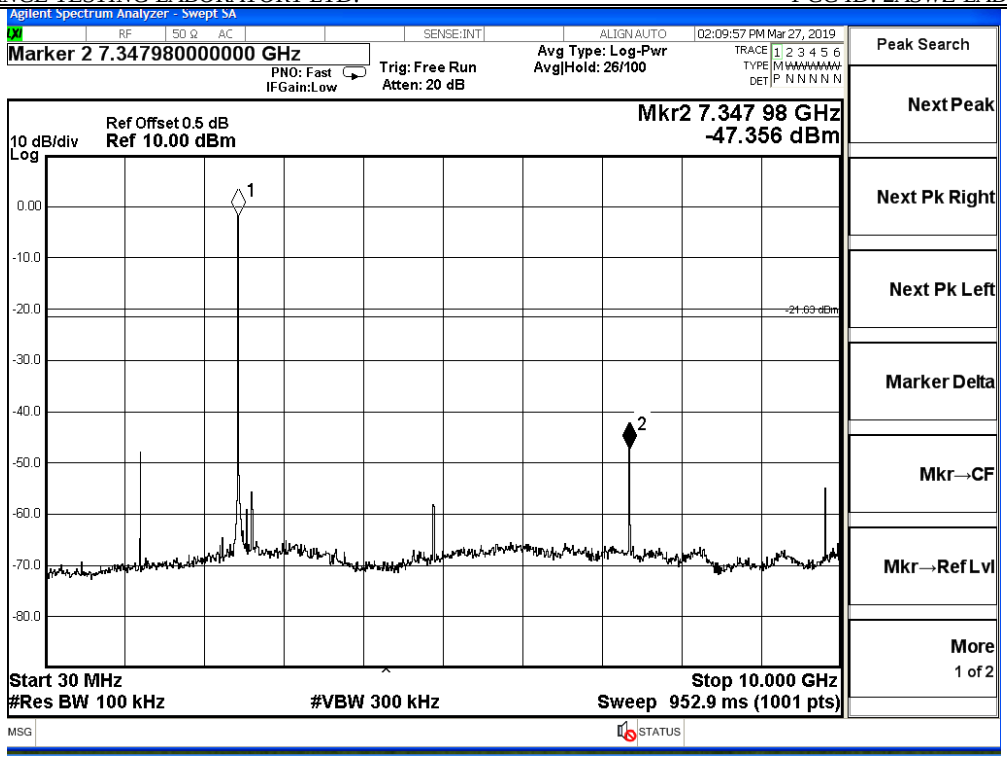
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
TX Mode	LCH	-3.267	-47.233	-23.21	PASS
TX Mode	MCH	-1.698	-47.356	-21.69	PASS
TX Mode	HCH	-1.153	-47.343	-21.10	PASS

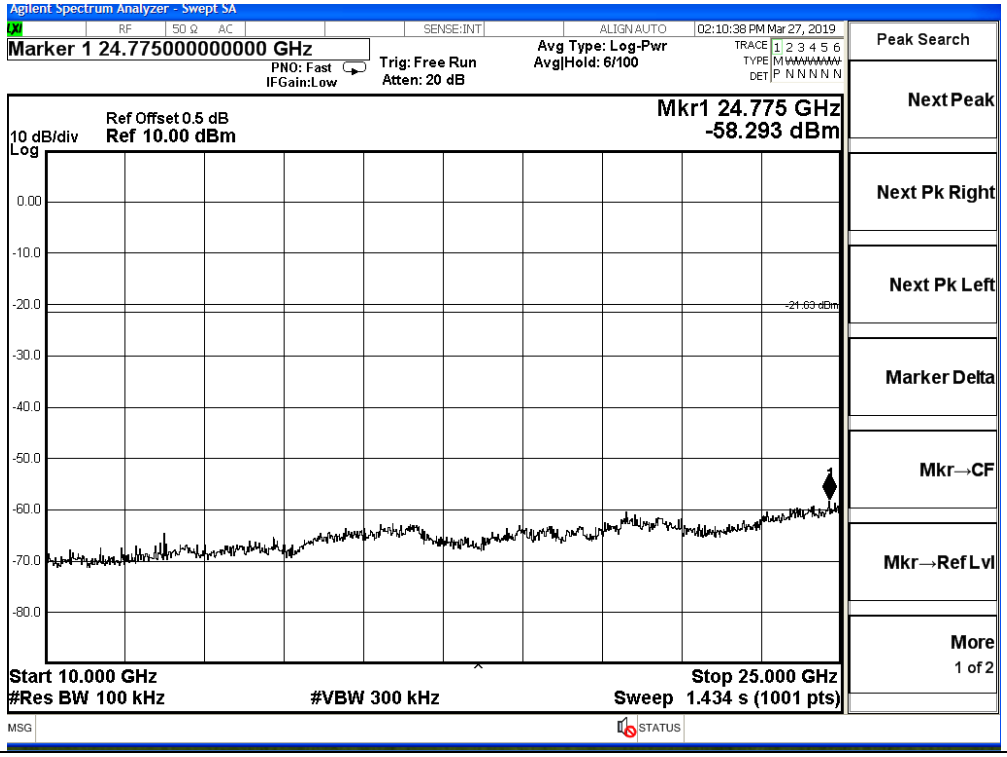
TX Mode_LCH_Graphs	
Pref/TX Mode/LCH	
Puw/TX Mode/LCH	

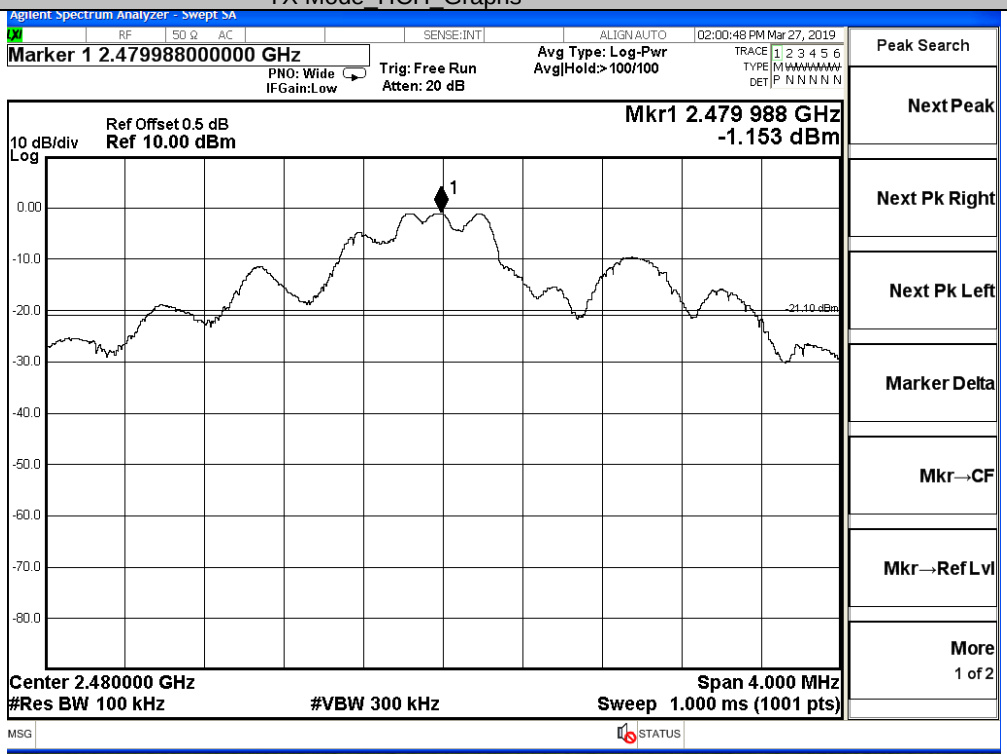
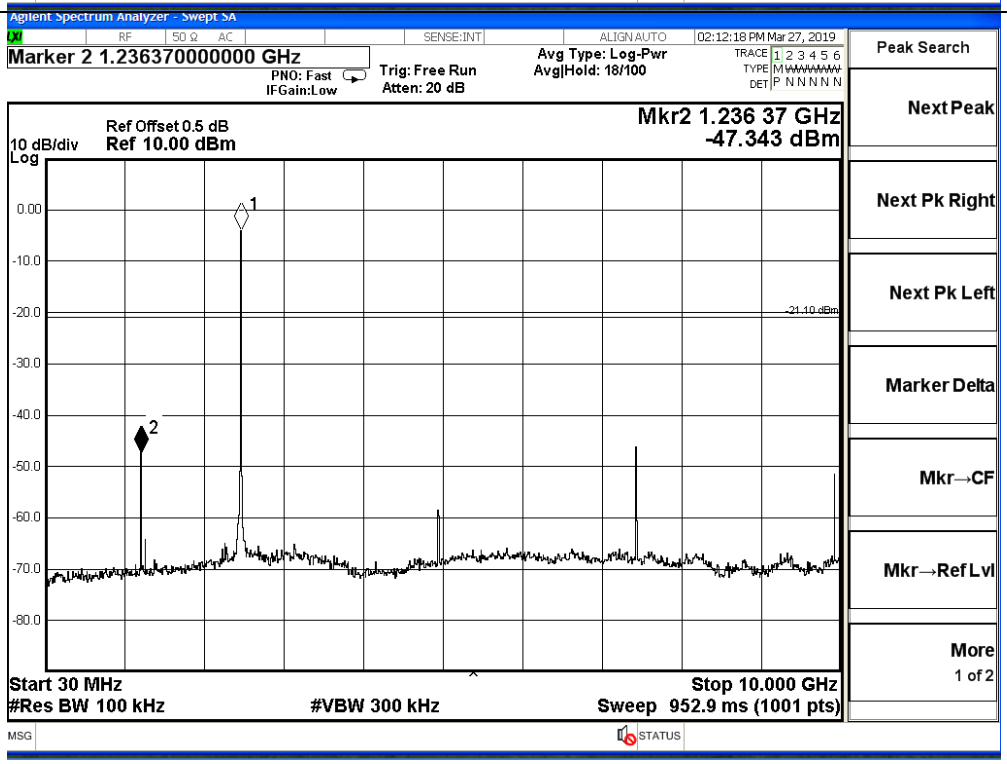


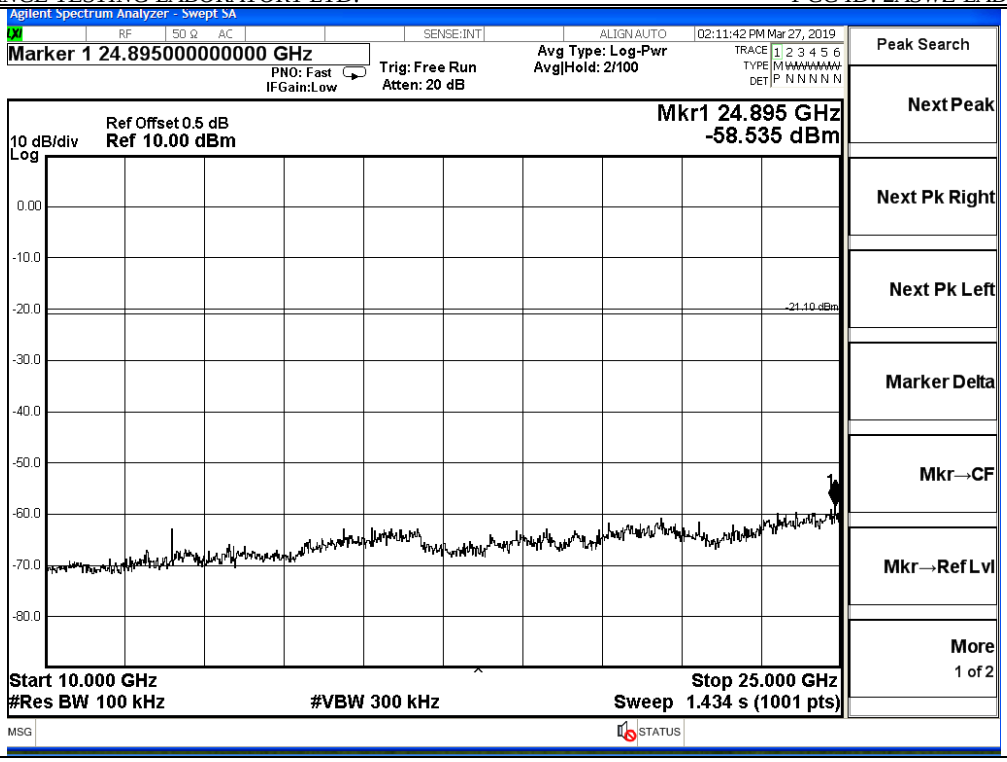
TX Mode_MCH_Graphs	
Pref/TX Mode/MCH	

Puw/TX Mode/MCH





TX Mode_HCH_Graphs	
Pref/TX Mode/HCH	
Puw/TX Mode/HCH	

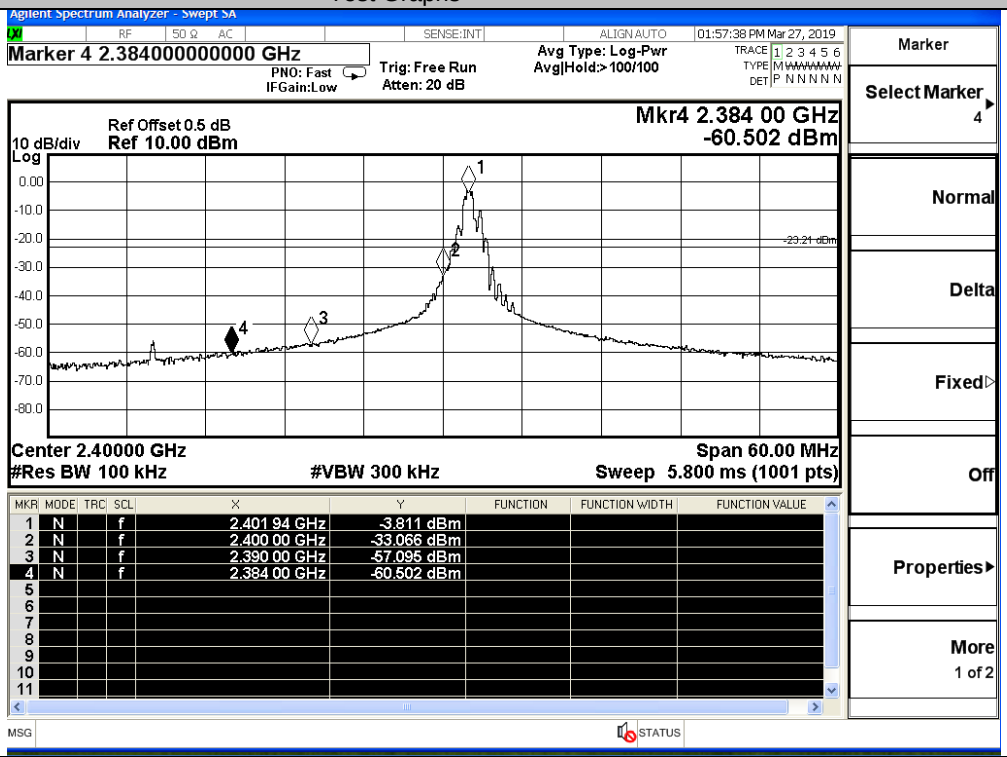

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
02:11:42 PM Mar 27, 2019
Marker 1 24.895000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 2/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.5 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 24.895 GHz
-58.535 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-21.10 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.434 s (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

A.6 Band-edge for RF Conducted Emissions

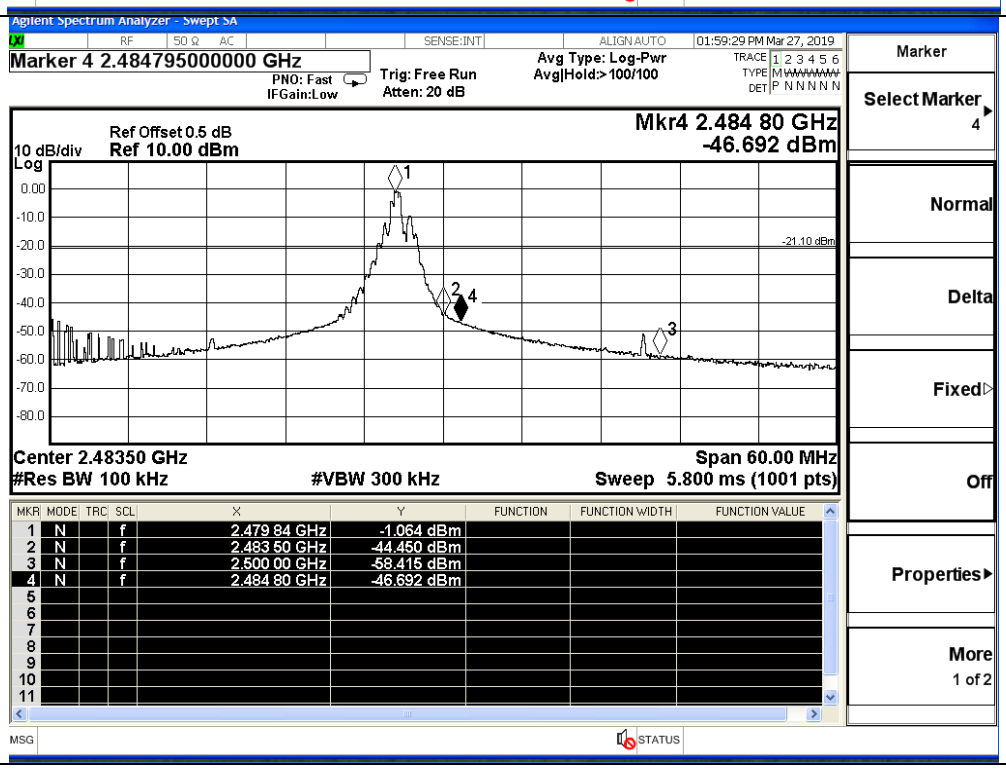
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
TX Mode	LCH	-3.811	-33.066	-23.21	PASS
TX Mode	HCH	-1.064	-44.450	-21.10	PASS

Test Graphs

LCH



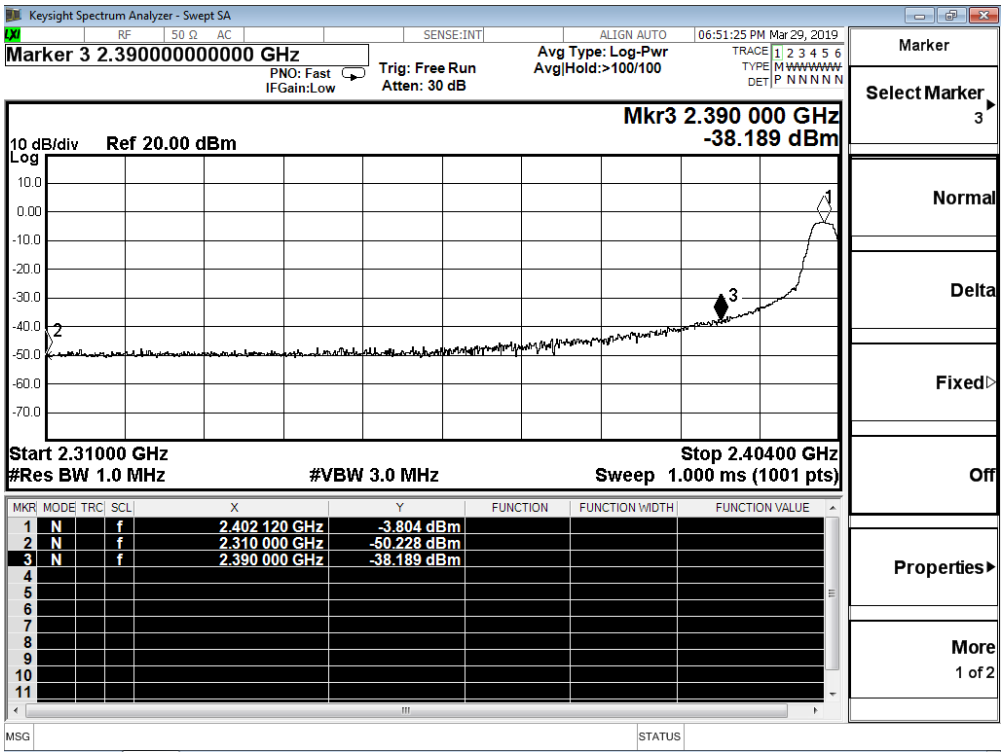
HCH



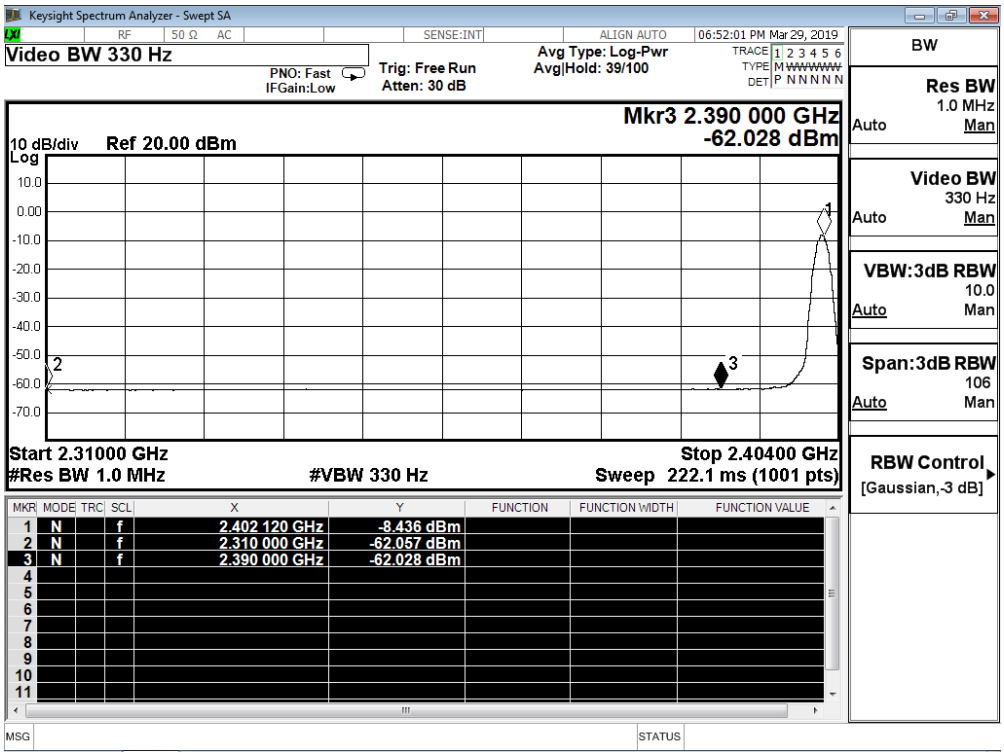
A.7 Restrict-band band-edge measurements

Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
TX Mode	2402	Ant1	2310.0	-50.228	2.00	0	47.002	PEAK	74	PASS
		Ant1	2310.0	-62.057	2.00	0	35.173	AV	54	PASS
		Ant1	2390.0	-38.189	2.00	0	59.041	PEAK	74	PASS
		Ant1	2390.0	-62.028	2.00	0	35.202	AV	54	PASS
	2480	Ant1	2483.5	-47.838	2.00	0	49.392	PEAK	74	PASS
		Ant1	2483.5	-59.762	2.00	0	37.468	AV	54	PASS
		Ant1	2500.0	-50.867	2.00	0	46.363	PEAK	74	PASS
		Ant1	2500.0	-61.653	2.00	0	35.577	AV	54	PASS

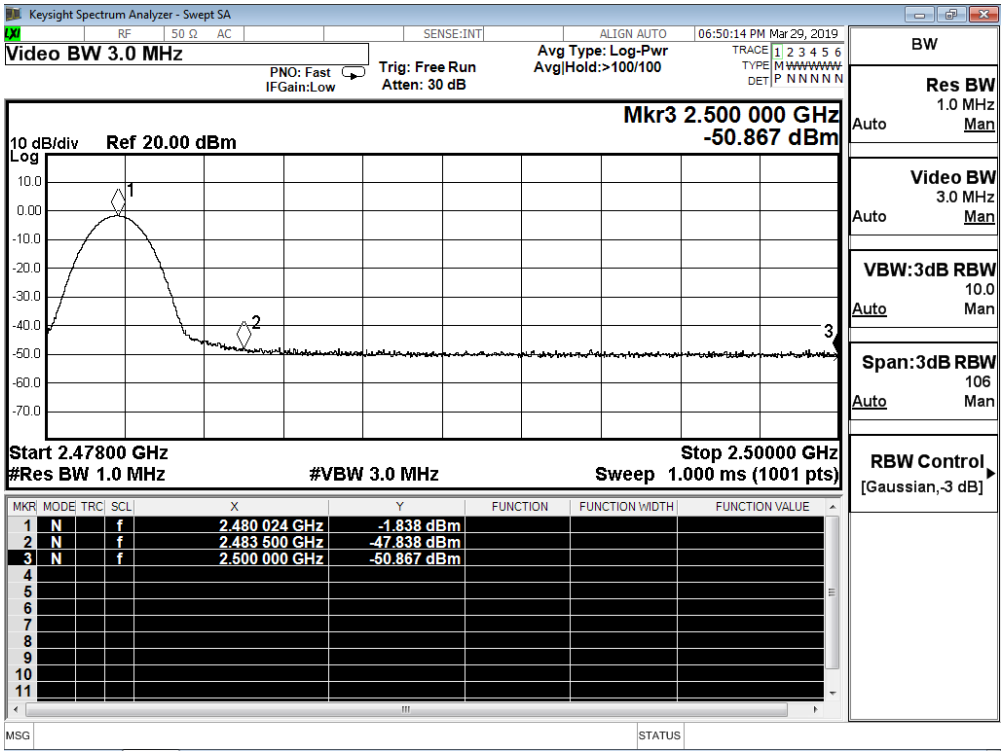
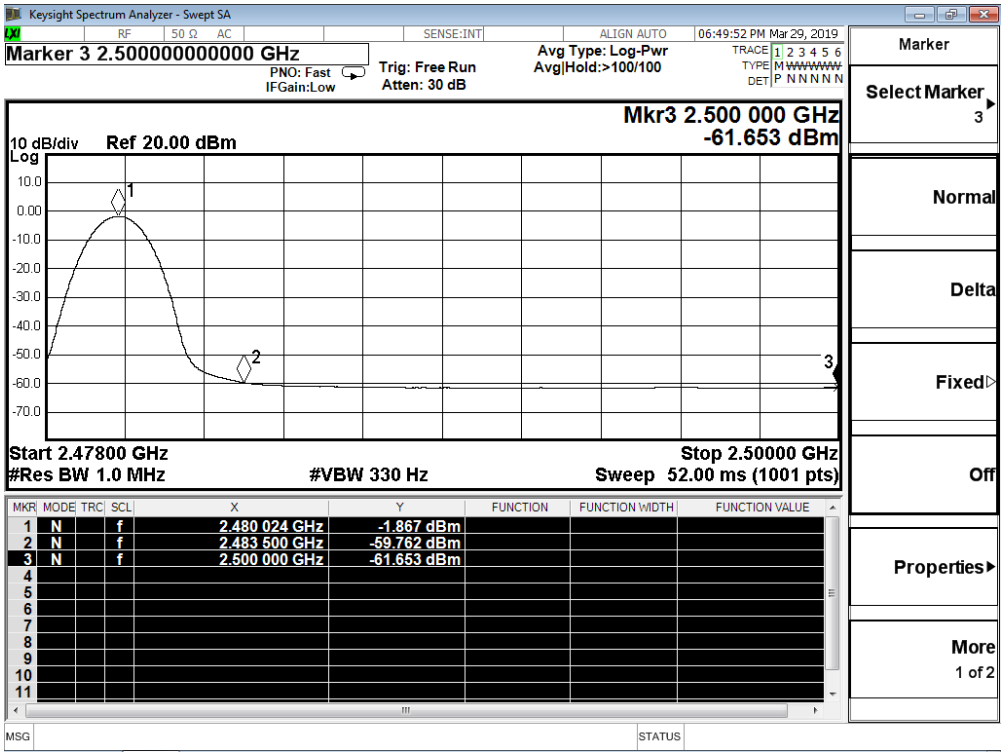
Restrict-band band-edge measurements_TX Mode_2402_Ant1_PEAK



Restrict-band band-edge measurements_TX Mode_2402_Ant1_AV



Restrict-band band-edge measurements_TX Mode_2480_Ant1_PEAK



Restrict-band band-edge measurements_TX Mode_2480_Ant1_AV