

Appendix A

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

Product Name: Bluetooth mechanical keyboard

Trade Mark: N/A

Test Model: keychron K4

FCC ID: 2ASF4-K4

Environmental Conditions

Temperature:	22.8° C
Relative Humidity:	50%
ATM Pressure:	100.0 kPa
Test Engineer:	Gary Qian
Supervised by:	Eden Hu

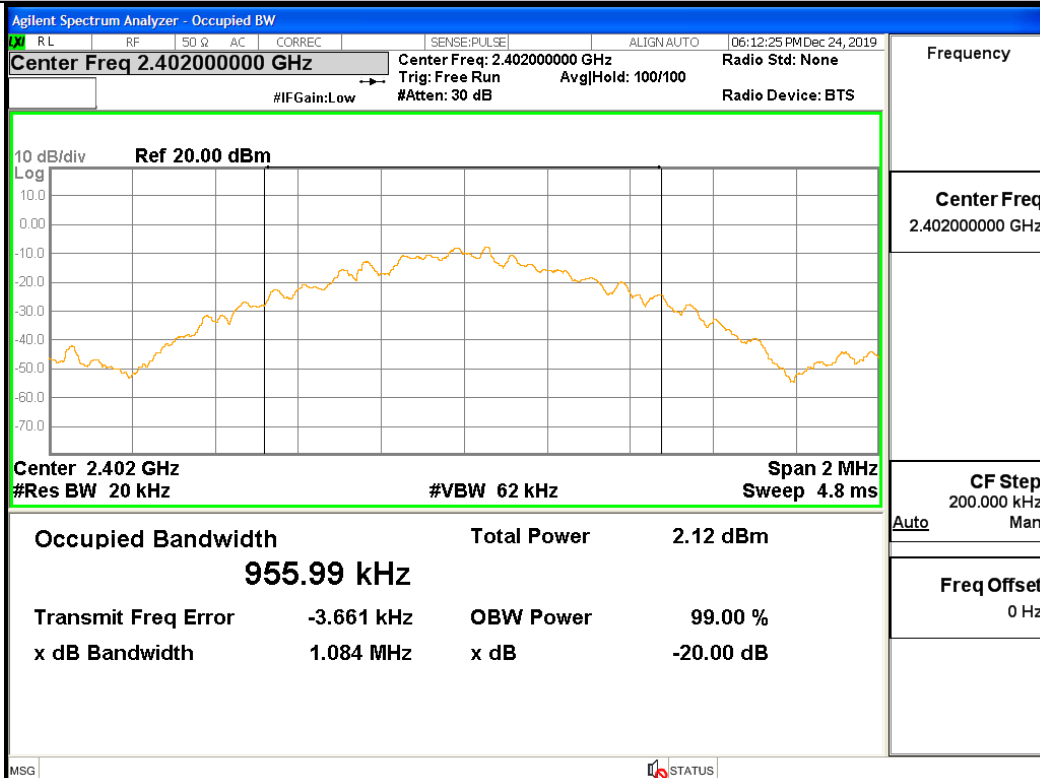
A.1 20 dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit(MHz)	Verdict
GFSK	LCH	1.084	Not Specified	PASS
GFSK	MCH	1.108	Not Specified	PASS
GFSK	HCH	1.020	Not Specified	PASS

Test Graph

Graphs

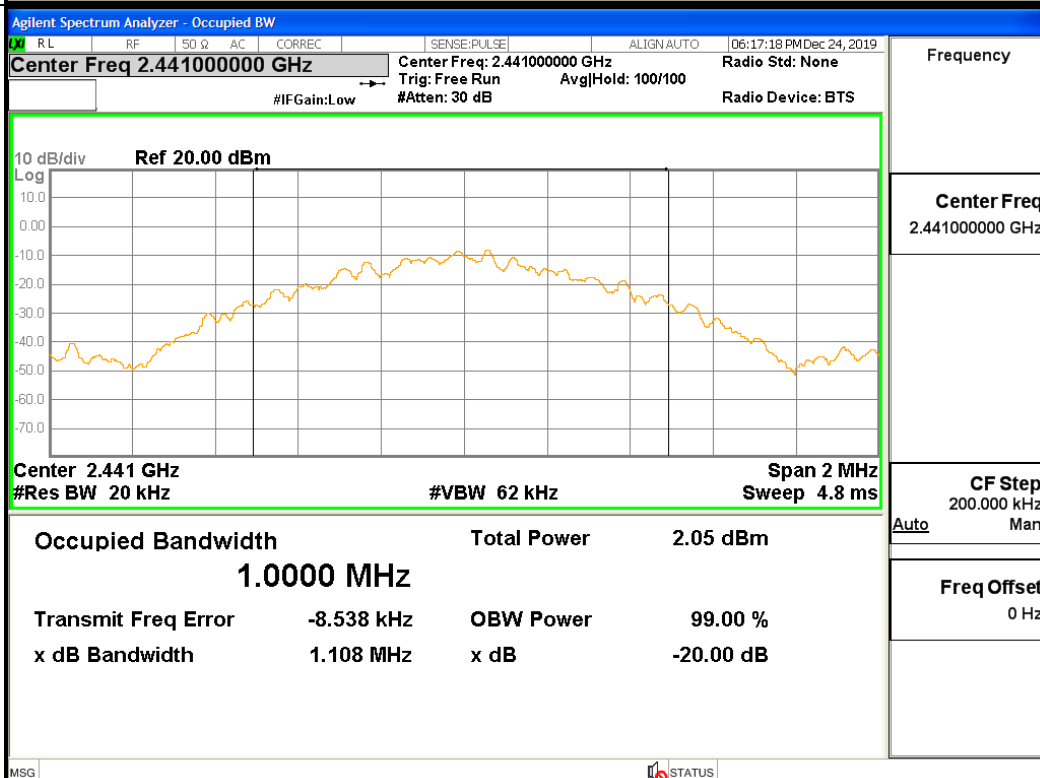
GFSK/LCH



Frequency

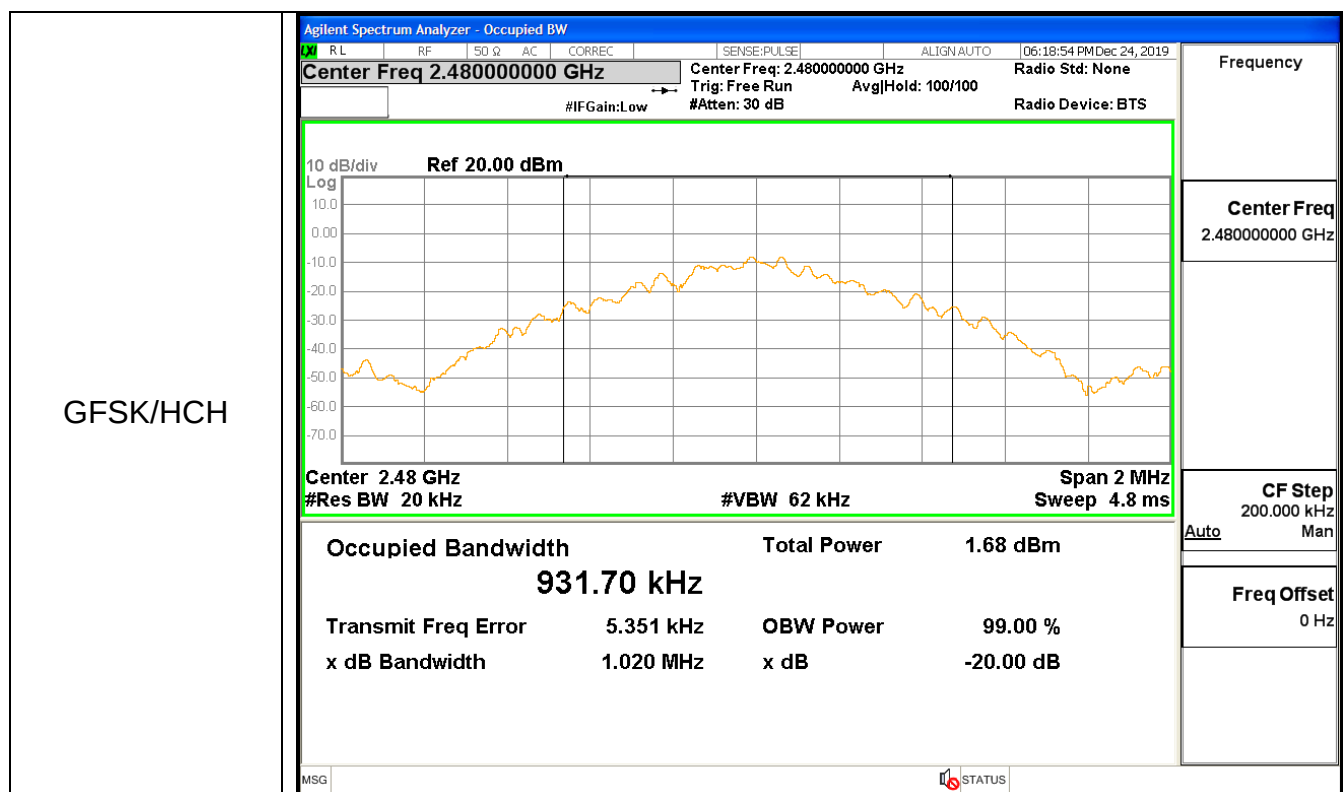
Center Freq
2.402000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

GFSK/MCH



Frequency

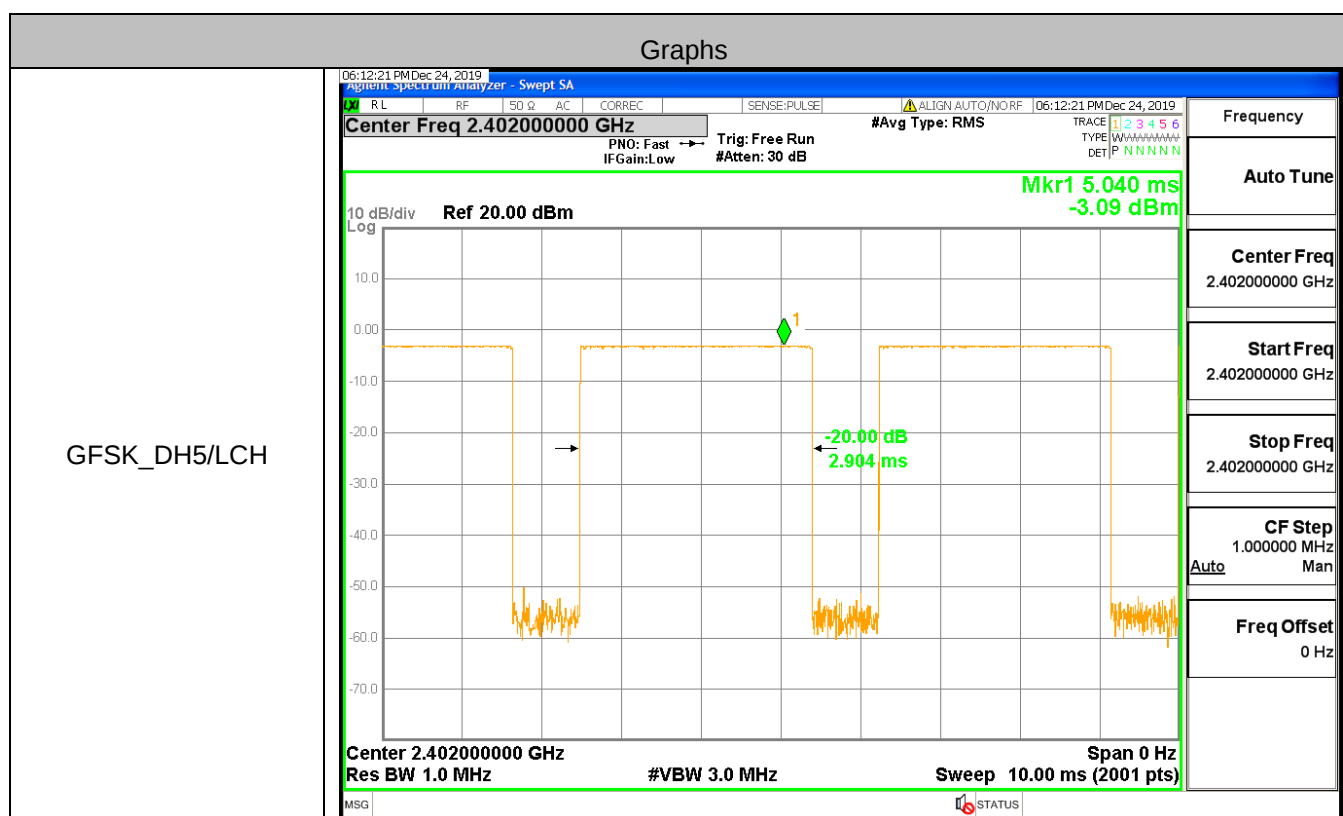
Center Freq
2.441000000 GHzCF Step
200.000 kHz
Auto ManFreq Offset
0 Hz

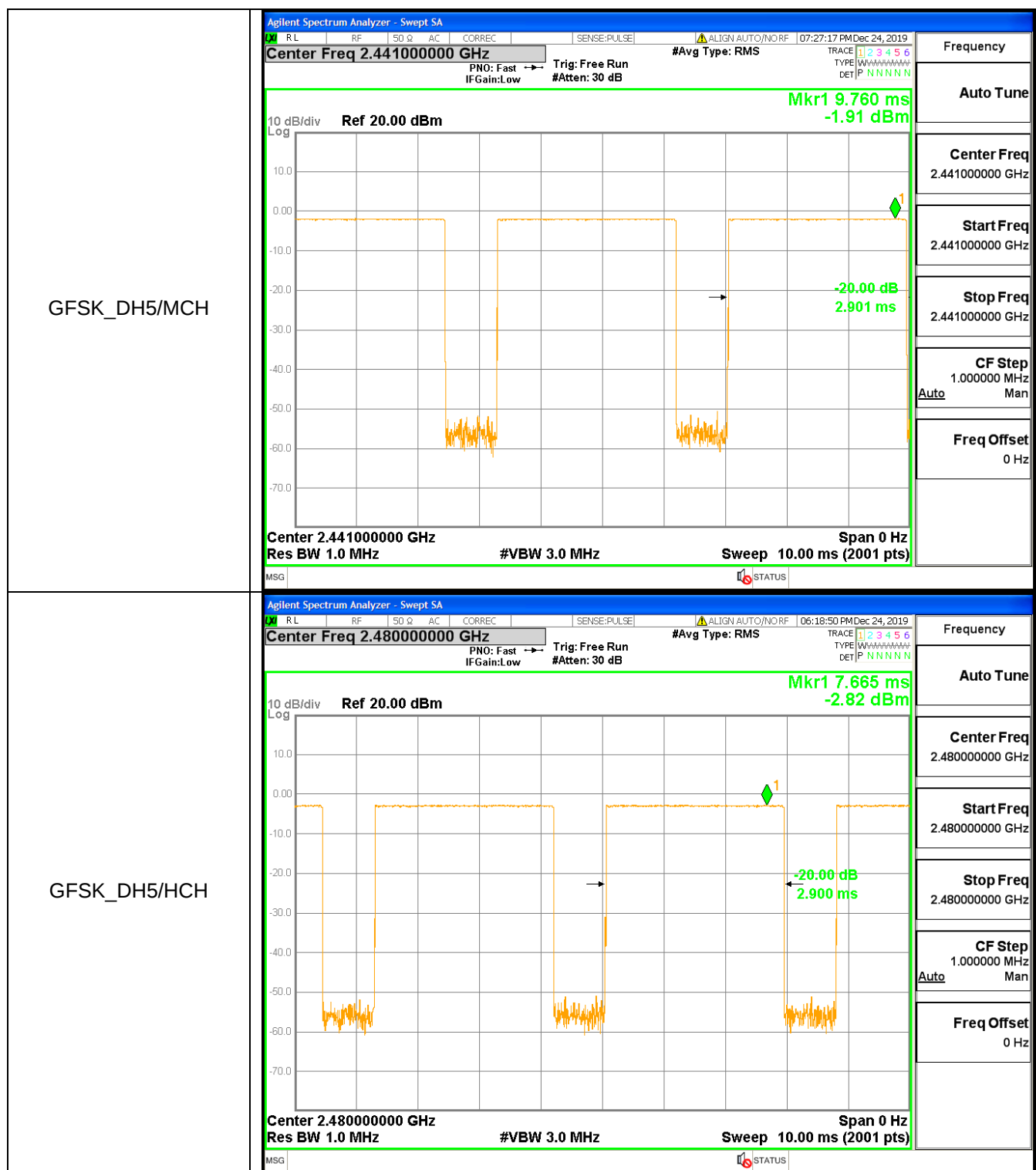


A.2 Dwell Time

Mode	Packet	Channel	Burst Width [s/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	0.002904	106.7	0.309871	0.4	PASS
GFSK	DH5	MCH	0.002901	106.7	0.309498	0.4	PASS
GFSK	DH5	HCH	0.002900	106.7	0.309393	0.4	PASS

Test Graph

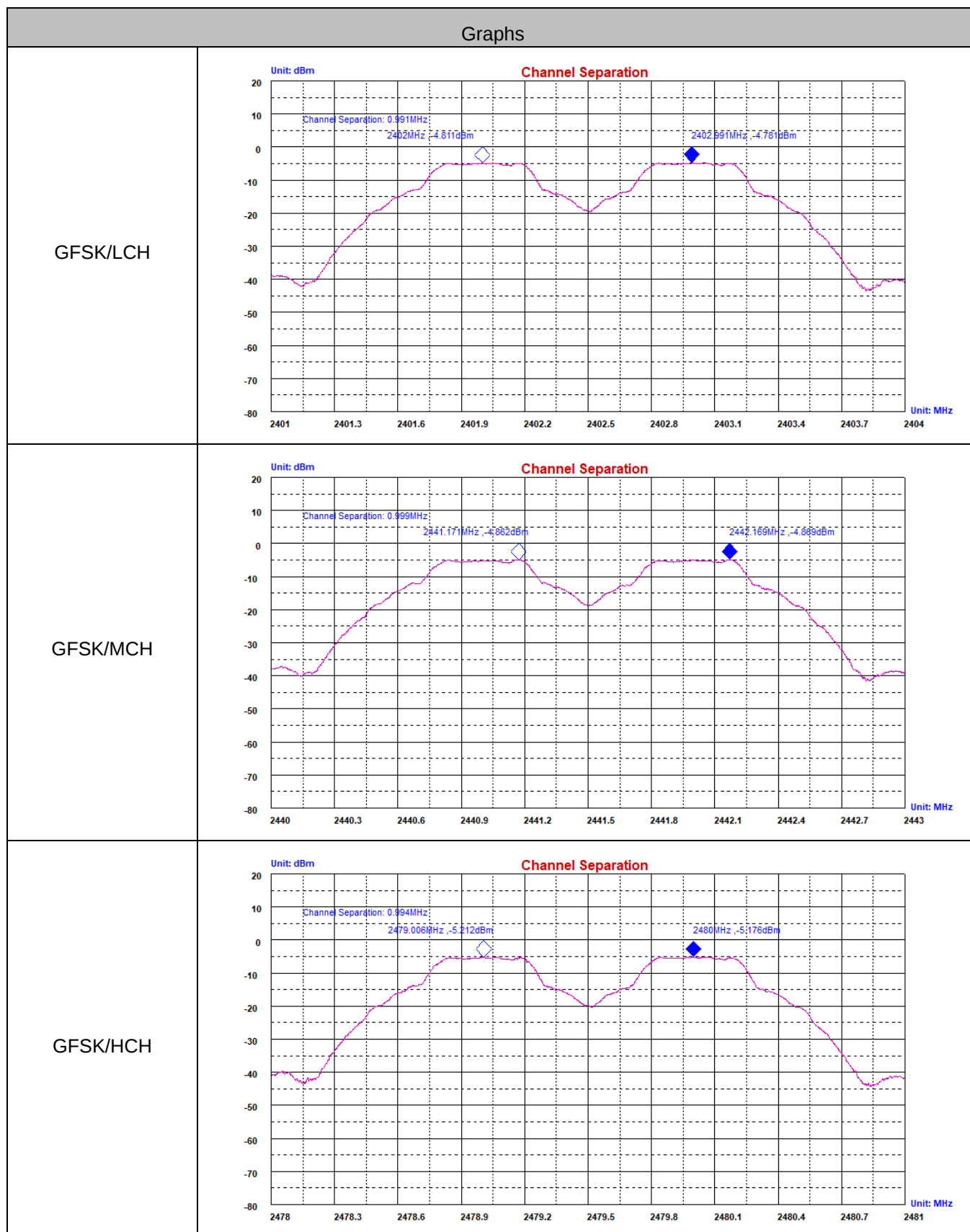




A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.991	0.72	PASS
GFSK	MCH	0.999	0.74	PASS
GFSK	HCH	0.994	0.68	PASS

Test Graph



A.4 Hopping Channel Number

Mode	Channel.	Number of Hopping Channel[N]	Limit[N]	Verdict
GFSK	Hop	79	>=15	PASS

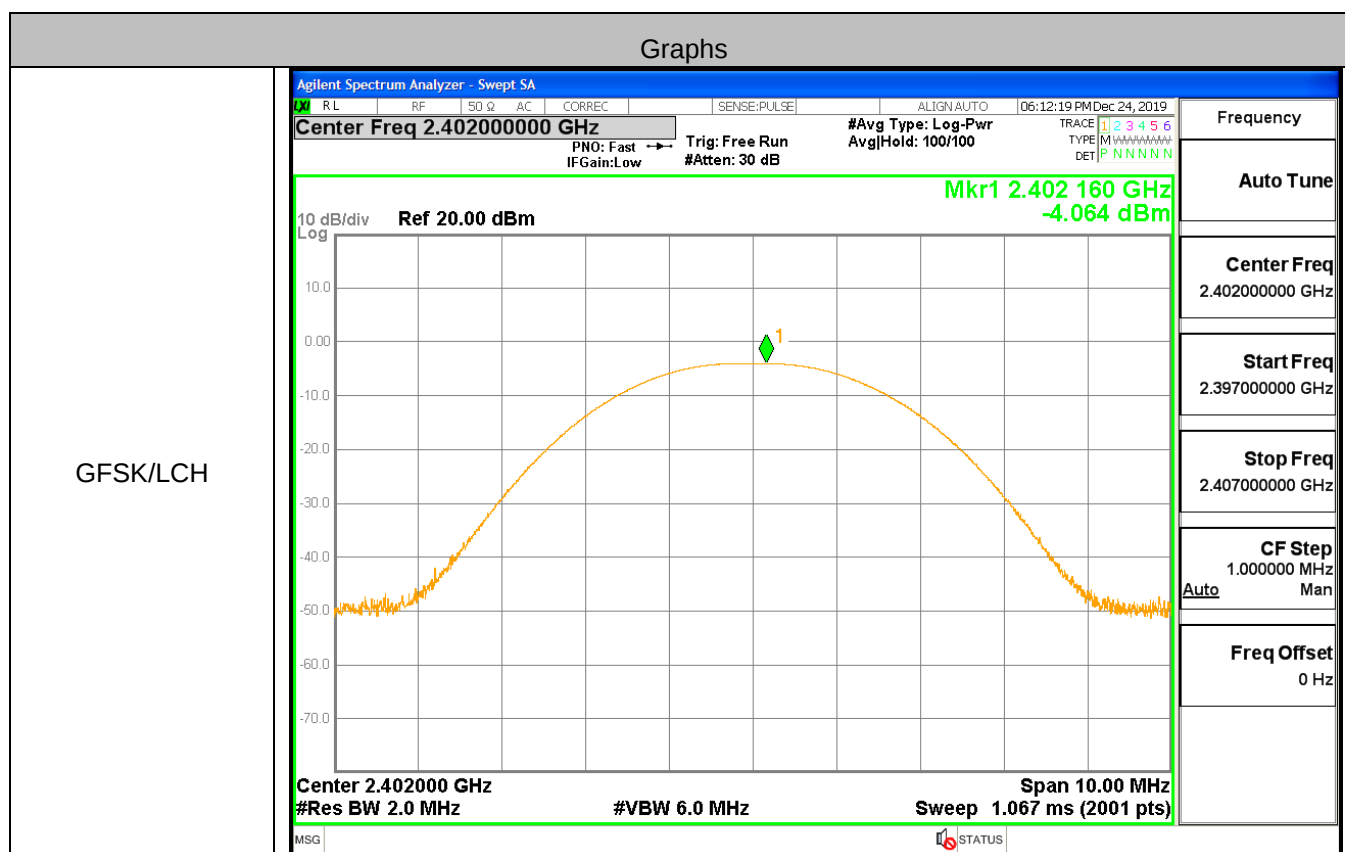
Test Graph

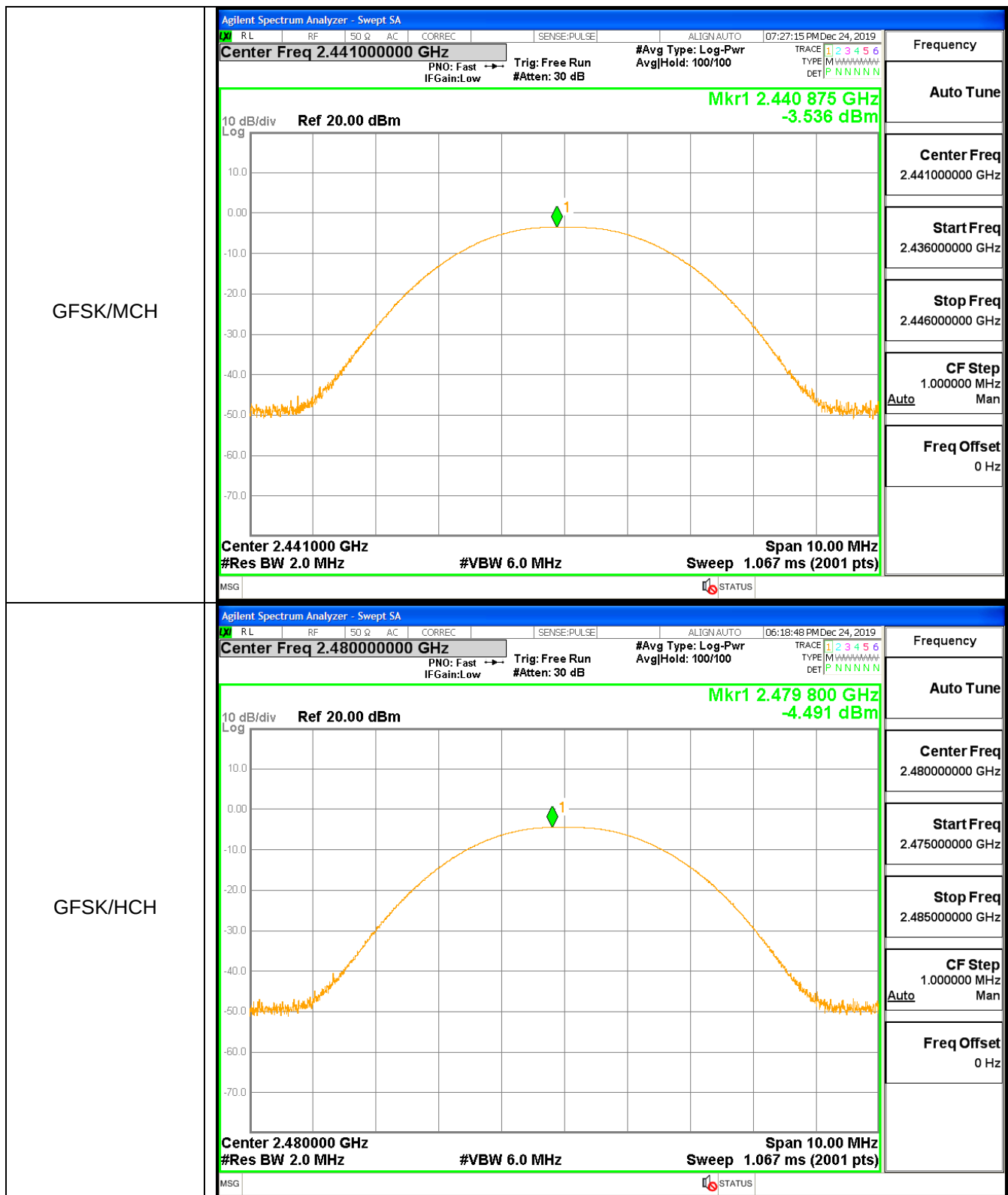


A.5 Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-4.064	21	PASS
GFSK	MCH	-3.536	21	PASS
GFSK	HCH	-4.491	21	PASS

Test Graph





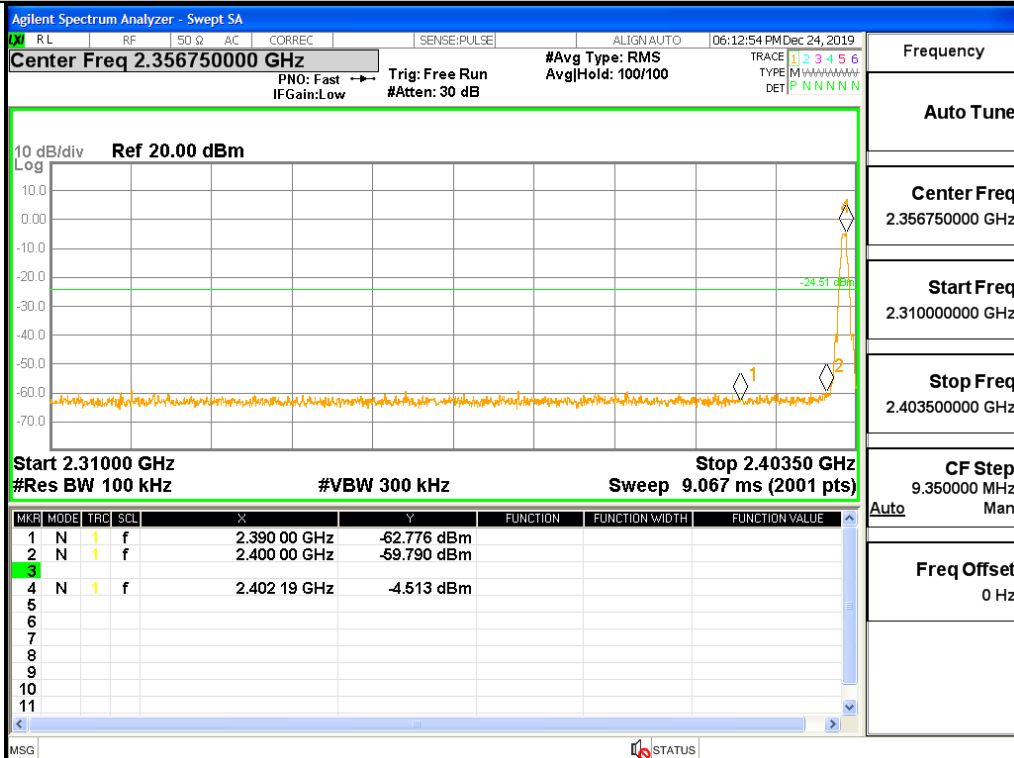
A.6 Band-edge for RF Conducted Emissions

Type	Carrier Frequency(MHz)	Frequency(MHz)	Carrier Frequency Power [dBm]	Bandedge Peak(dBm)	Upper limit(dBm)	Conclusion
1DH5	2402	2400	-4.513	-59.79	-24.513	Pass
1DH5	2480	2495.034	-4.307	-58.199	-24.307	Pass
1DH5-Hopping	2402	2399.79	-3.434	-48.695	-23.434	Pass
1DH5-Hopping	2480	2500	-3.605	-58.643	-23.605	Pass

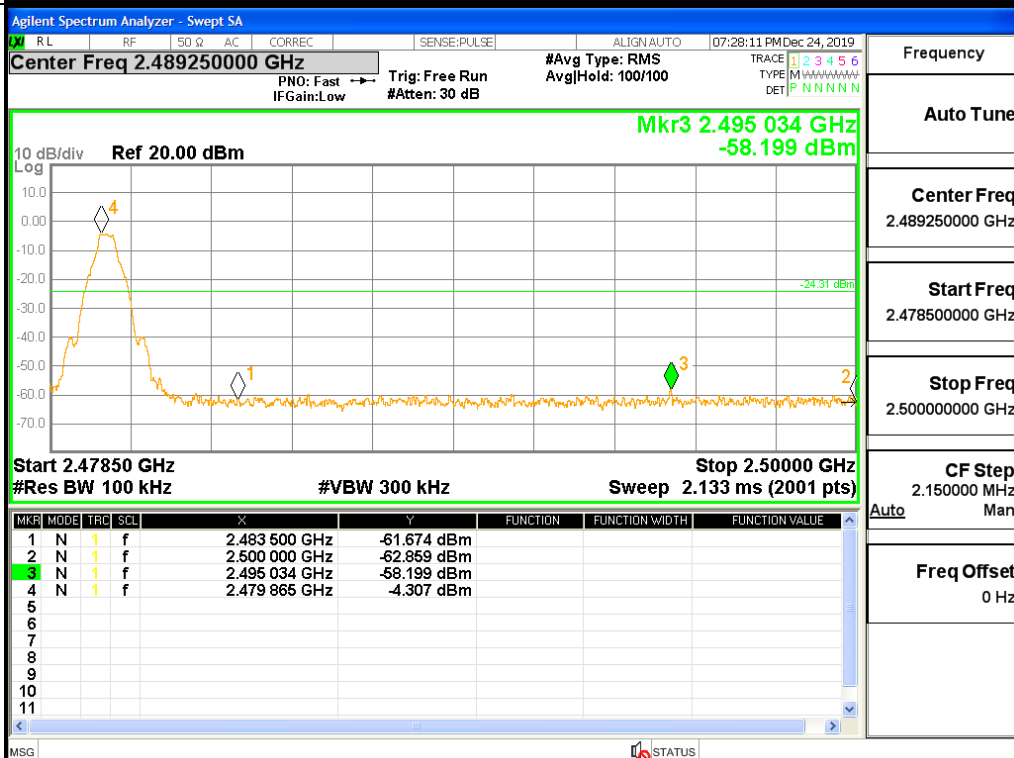
Test Graph

Graphs

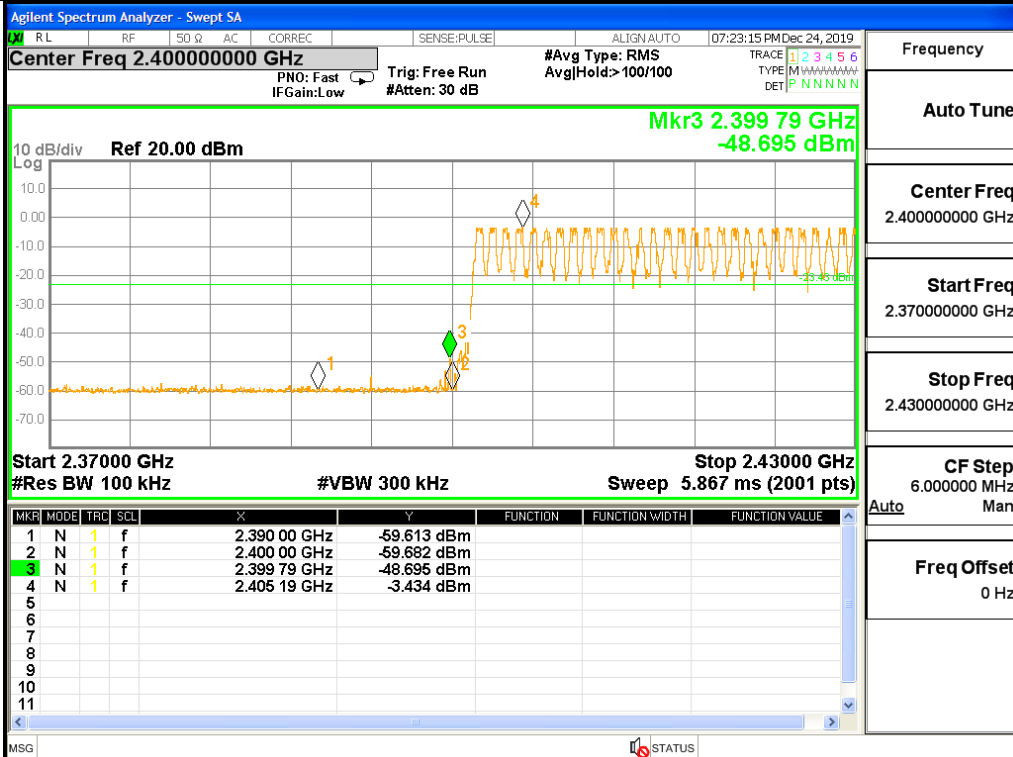
GFSK/LCH/No Hop



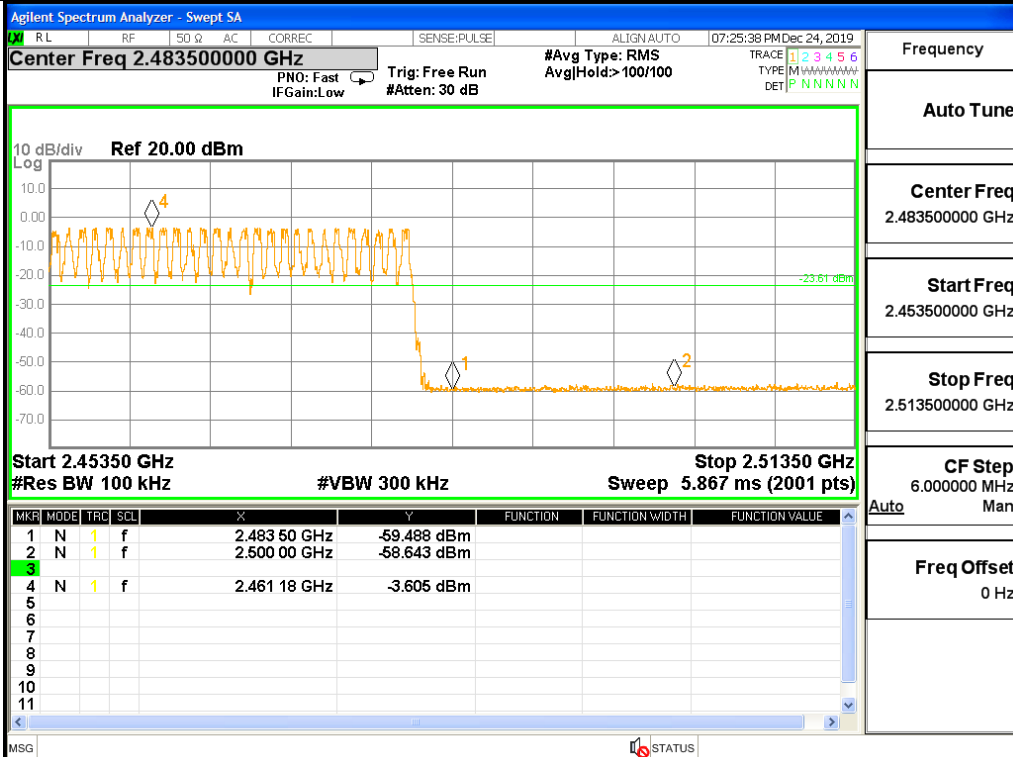
GFSK/HCH/No Hop



GFSK/LCH/Hop

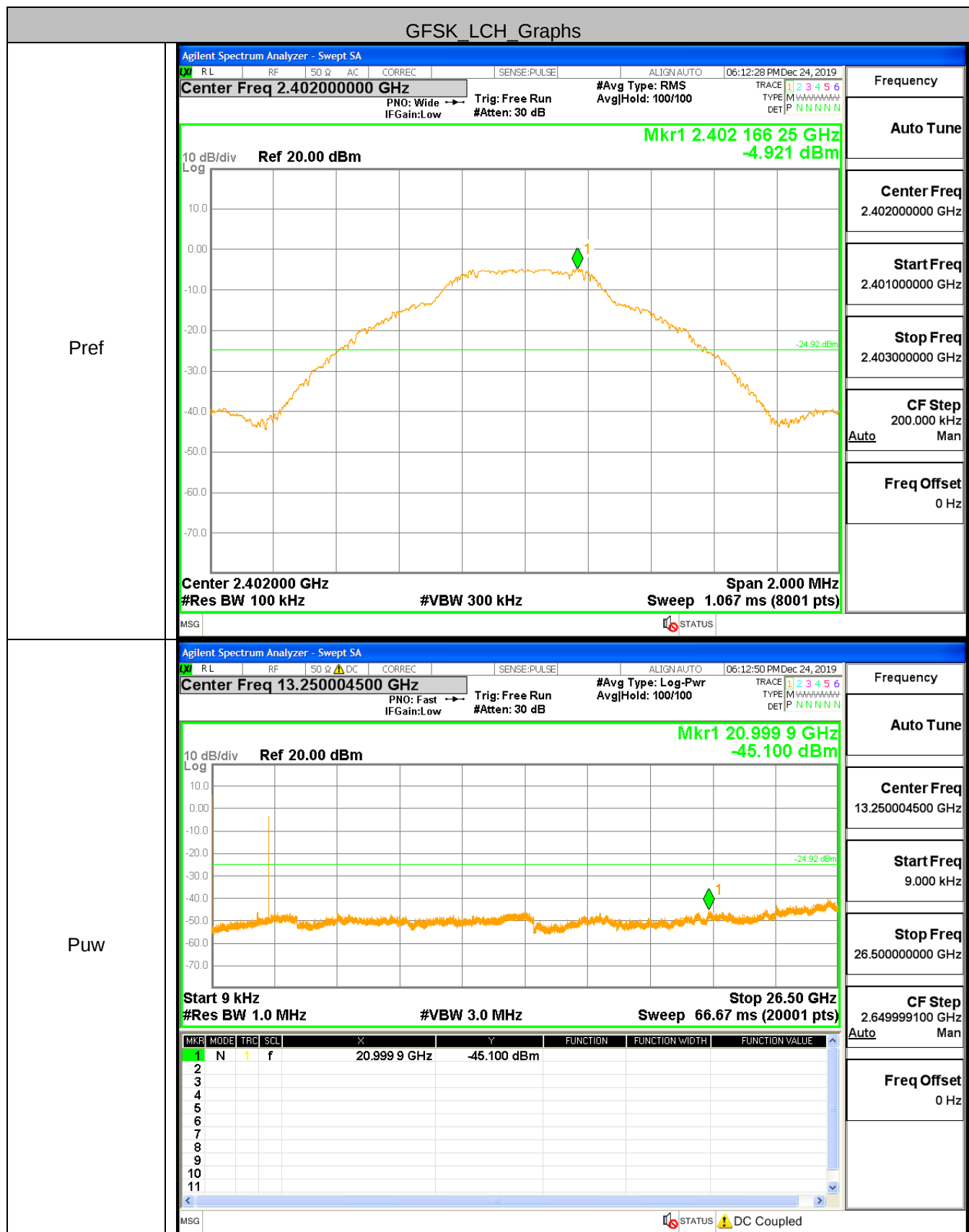


GFSK/HCH/Hop



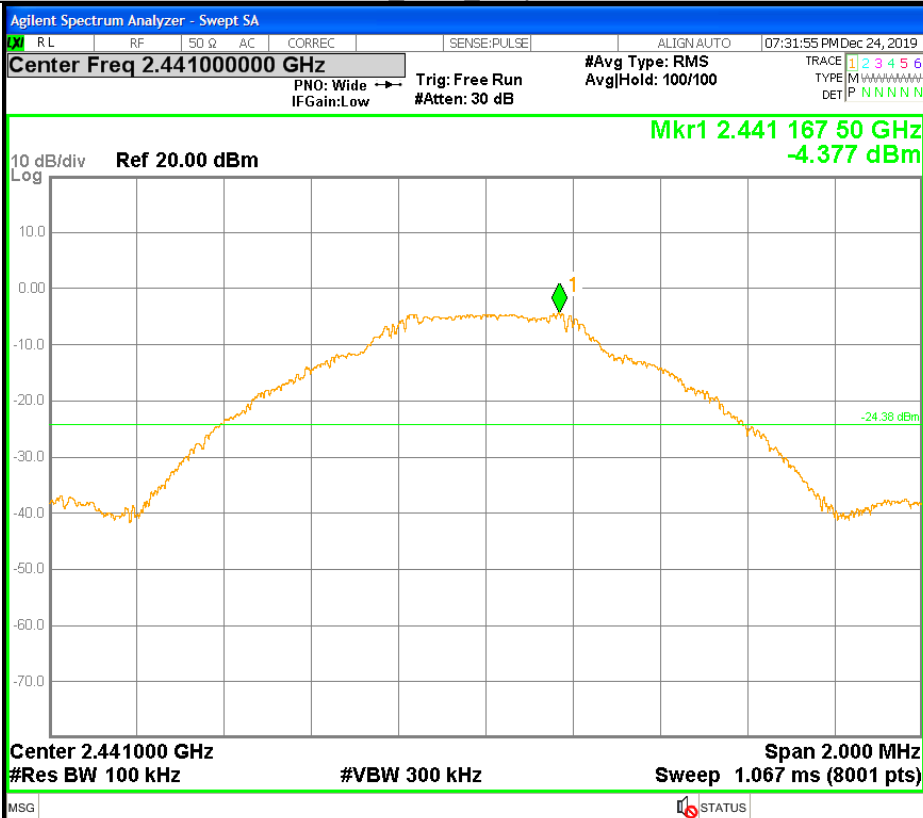
A.7 RF Conducted Spurious Emissions

Test Graph



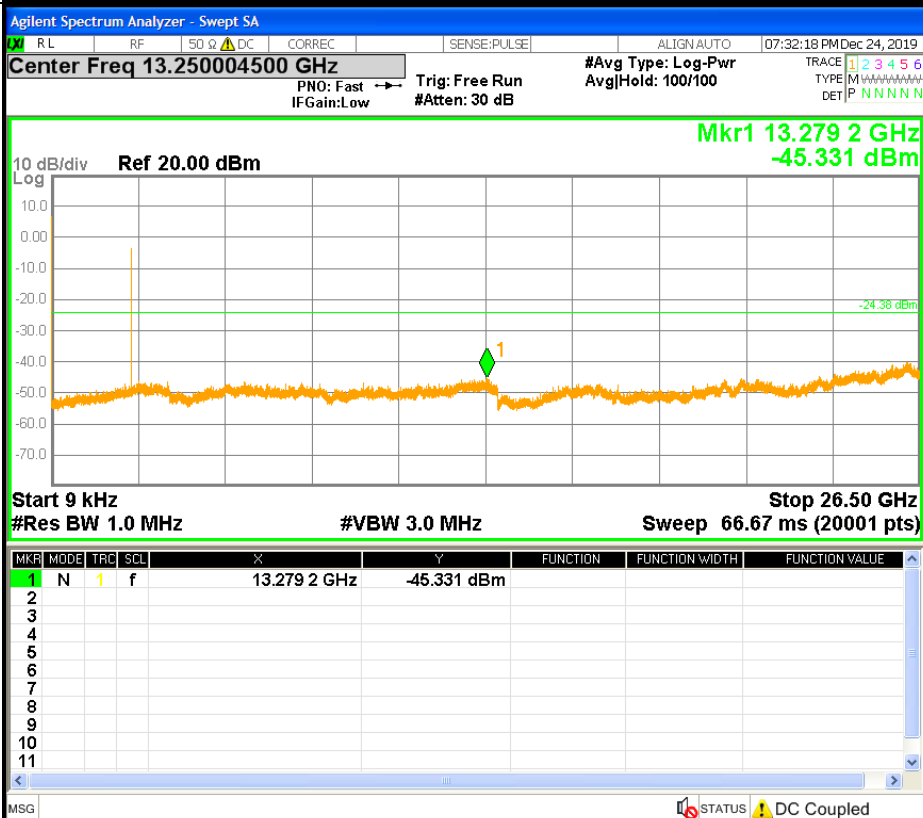
GFSK MCH Graphs

Pref



Frequency
Auto Tune
Center Freq 2.441000000 GHz
Start Freq 2.440000000 GHz
Stop Freq 2.442000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

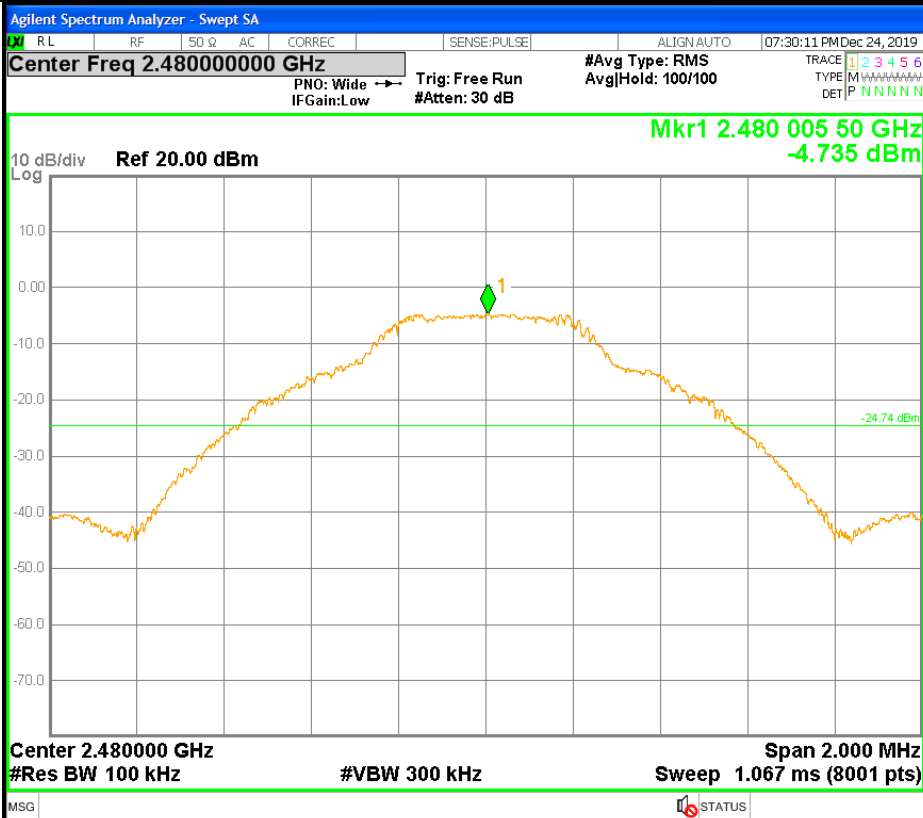
Puw



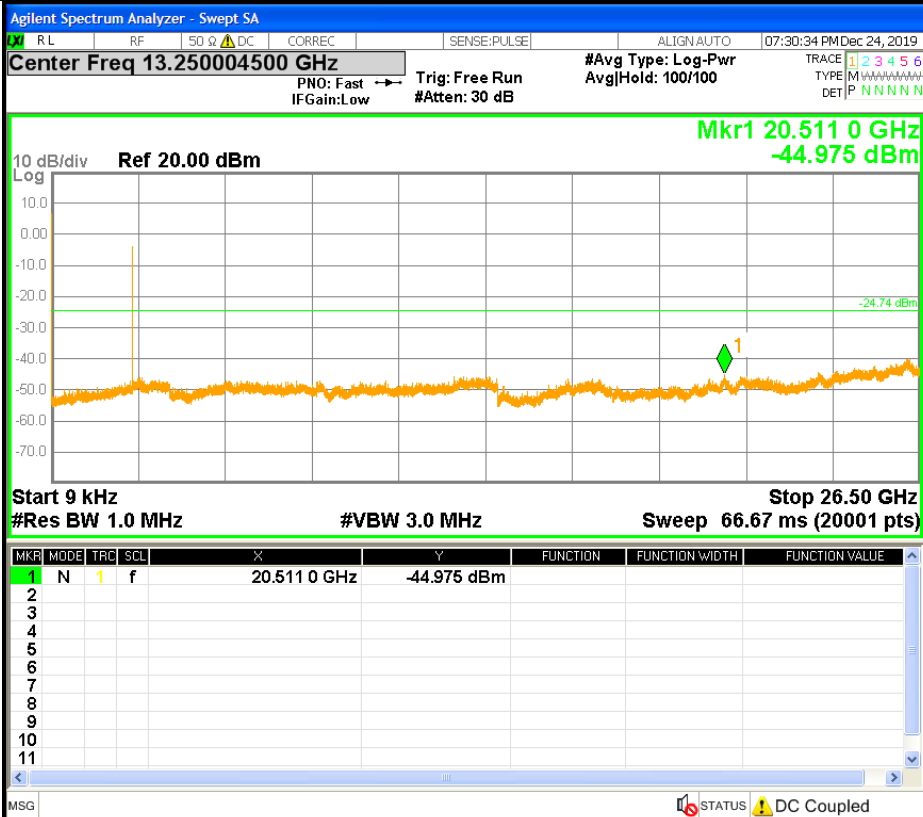
Frequency
Auto Tune
Center Freq 13.250004500 GHz
Start Freq 9.000 kHz
Stop Freq 26.500000000 GHz
CF Step 2.649999100 GHz Auto Man
Freq Offset 0 Hz

GFSK HCH Graphs

Pref



Puw

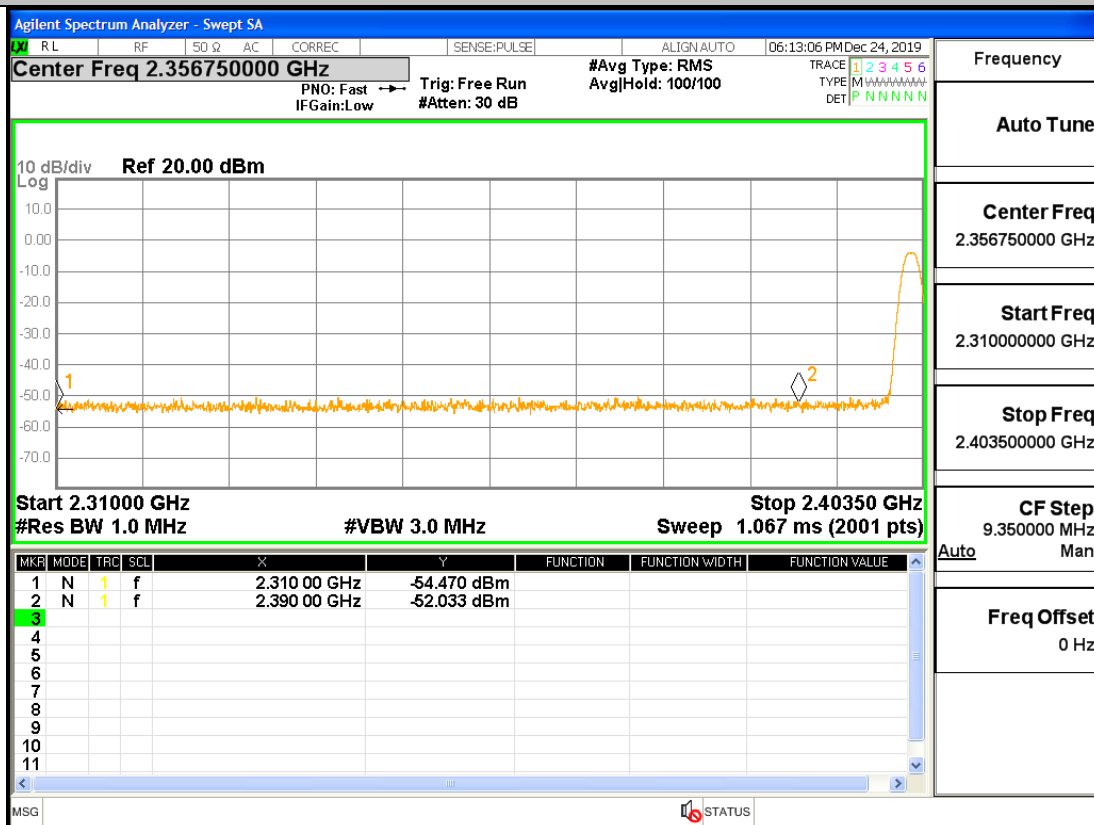


A.8 Restrict-band band-edge measurements

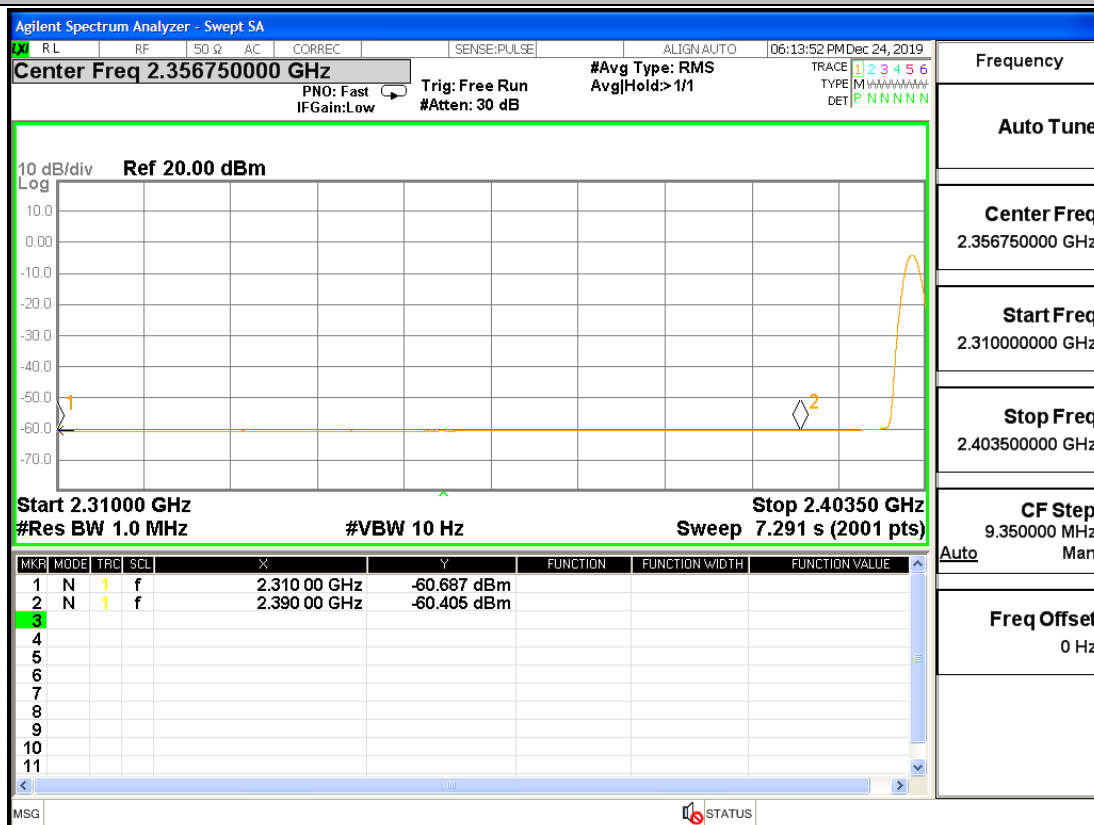
Type	Carrier Frequency (MHz)	Frequency (MHz)	Gain (dBi)	Ground Factor(dB)	Peak Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390	2.00	0.00	-52.033	45.167	74	Pass
1DH5	2480	2496.453	2.00	0.00	-48.460	48.74	74	Pass

Type	Carrier Frequency (MHz)	Frequency (MHz)	Gain (dBi)	Ground Factor(dB)	Average Value(dBm)	E [dBuV/m]	Limit [dBuV/m]	Conclusion
1DH5	2402	2390	2.00	0.00	-60.405	36.795	54	Pass
1DH5	2480	2496.453	2.00	0.00	-58.272	38.928	54	Pass

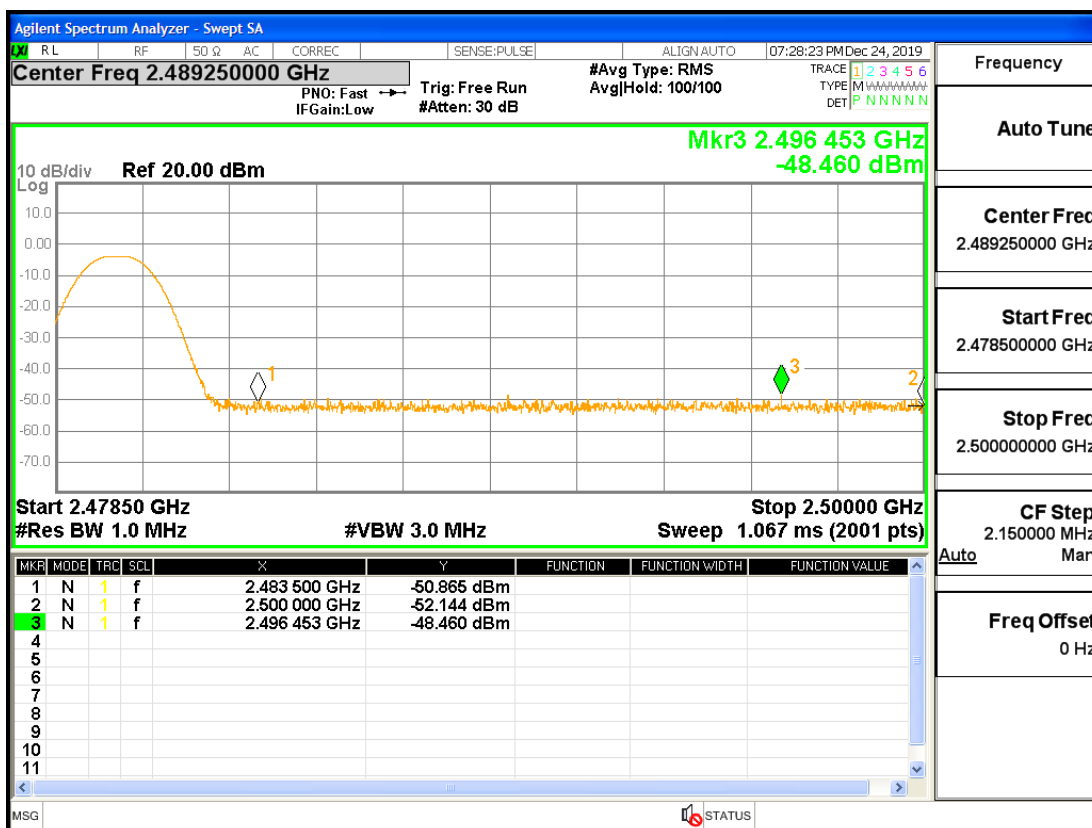
Restrict-band band-edge measurements_2402_PEAK_DH5



Restrict-band band-edge measurements_2402_AV_DH5



Restrict-band band-edge measurements_2480_PEAK_DH5



Restrict-band band-edge measurements_2480_AV_DH5

