Input-Versus-Output Signal Comparison

Governing Doc	FCC Part 90.210 (j) (h) (g) (c) (d) and (e)	Room Temperature (°C)	20.5
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Daniel Lee	Date	Nov 08, 2019
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz		

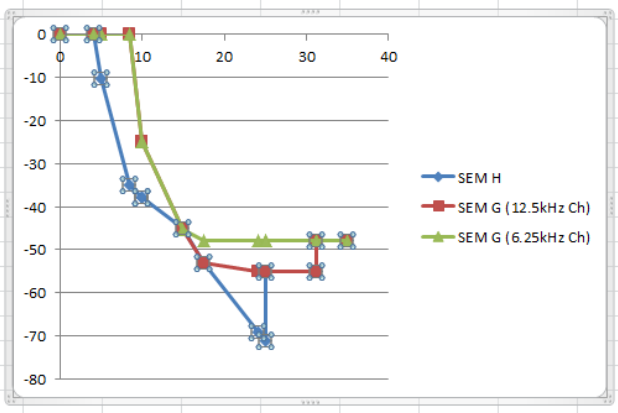
Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	06/12/19	06/12/21
Spectrum Analyzer	Keysight	N9010A	MY50520285	07/29/19	07/23/21

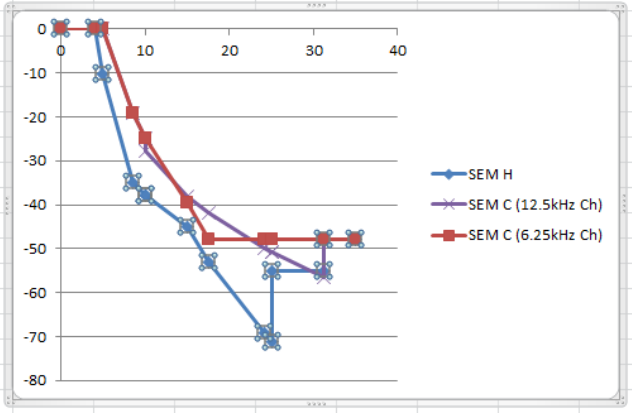
Frequency Range:	☒ 851 MHz – 861 MHz ☒ 450 MHz – 470 MHz ☒ 152 MHz – 174 MHz
Detector:	☒ Peak
RBW/VBW:	☒100 Hz
Type of Facility:	☒ Testbench
Distance:	☒ direct connect
Arrangement of EUT:	☒ Table-top only ☐ Floor-standing only ☐ Rack Mounted

Based on FCC Part90.210, transmitters without audio low pass filter used in frequency band
851 - 854 MHz must comply to emission mask H;
854 - 861 MHz must comply to emission mask G;
450 - 512 MHz operates with 6.25kHz channel must comply to emission mask E;
450 - 512 MHz operates with 12.5kHz channel must comply to emission mask D.

For simplicity of the test, noting that SEM H is more strigent than SEM G and SEM C, SEM H is applied to limit check on channels operate in frequency band 854 - 861 MHz in this test report.

SEM diagram show SEM H is more strigent than SEM G and SEM C:



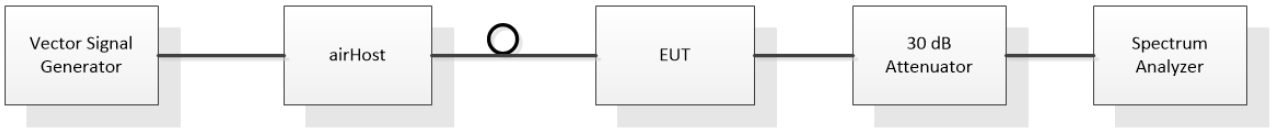


Signal of all types of modulation is contained within the emission mask.

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

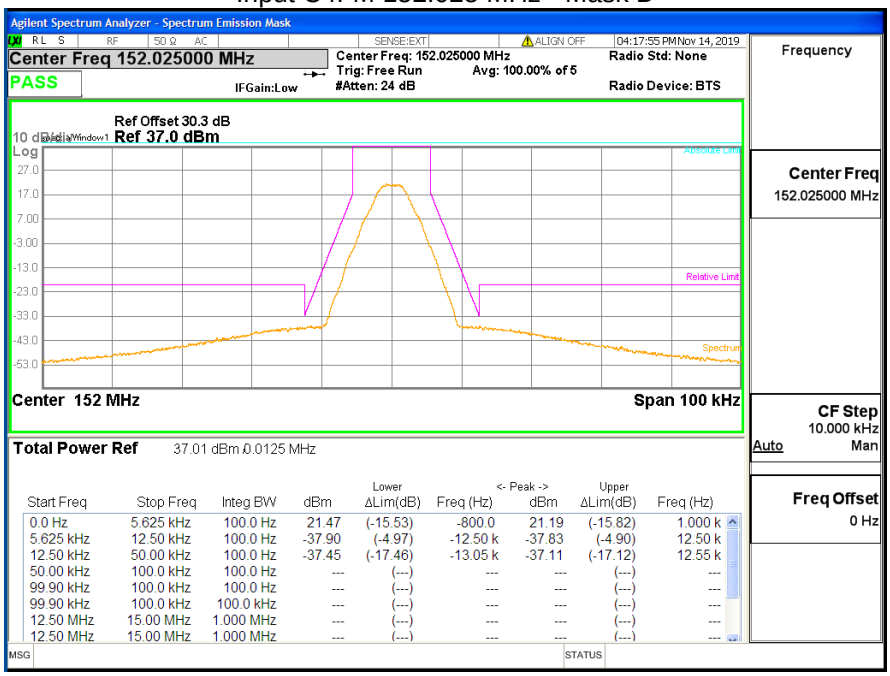
Test setup

Description of test set-up:
Spectrum Emission Mask is measured by connecting a Spectrum Analyzer to the RF output connector. The input power was adjusted to produce maximum output power on the antenna port. The reference level was measured with integrated BW of the designated channel BW. The emission was measured with RBW 100 Hz. The EUT was set to **Operation Mode #1 with configuration Mode #1.**

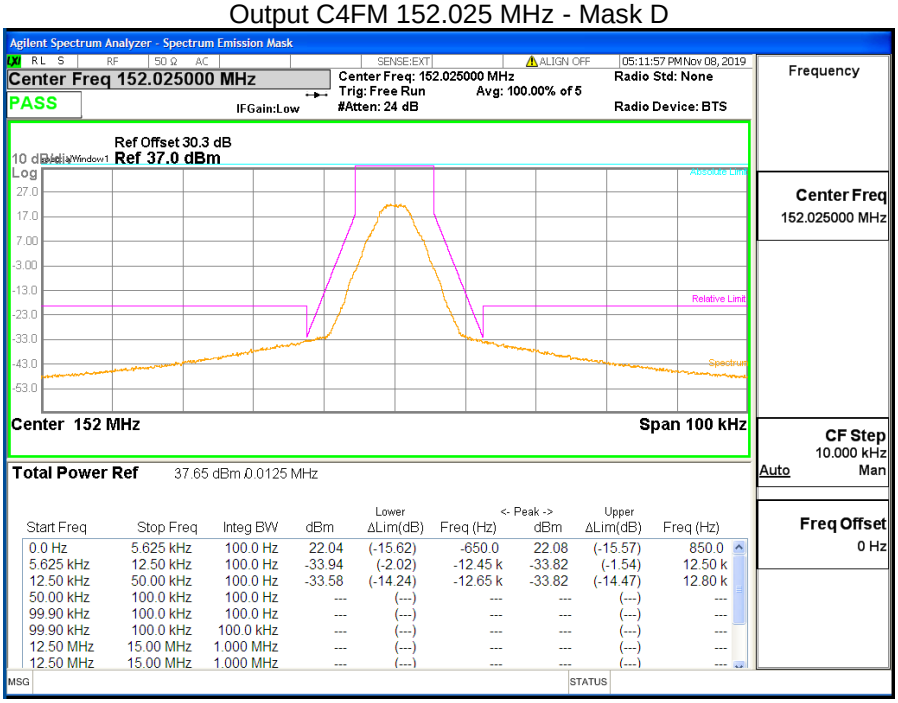


Results

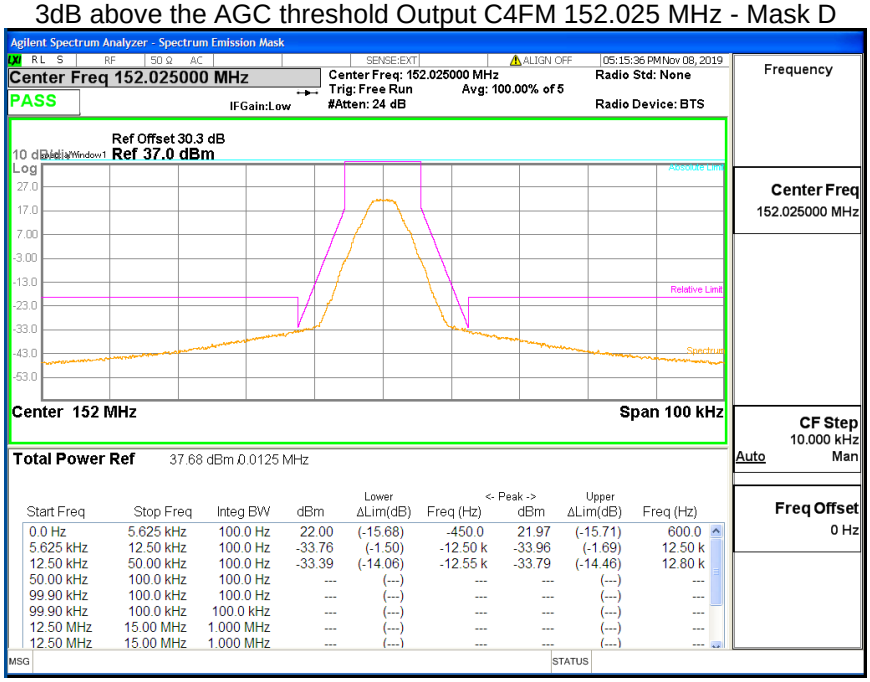
Input C4FM 152.025 MHz - Mask D



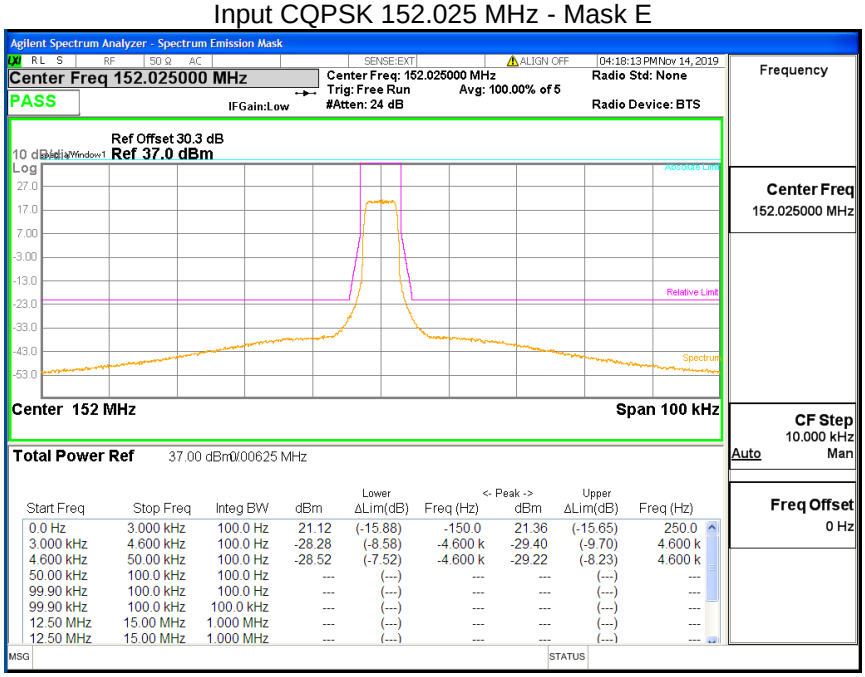
Output C4FM 152.025 MHz - Mask D



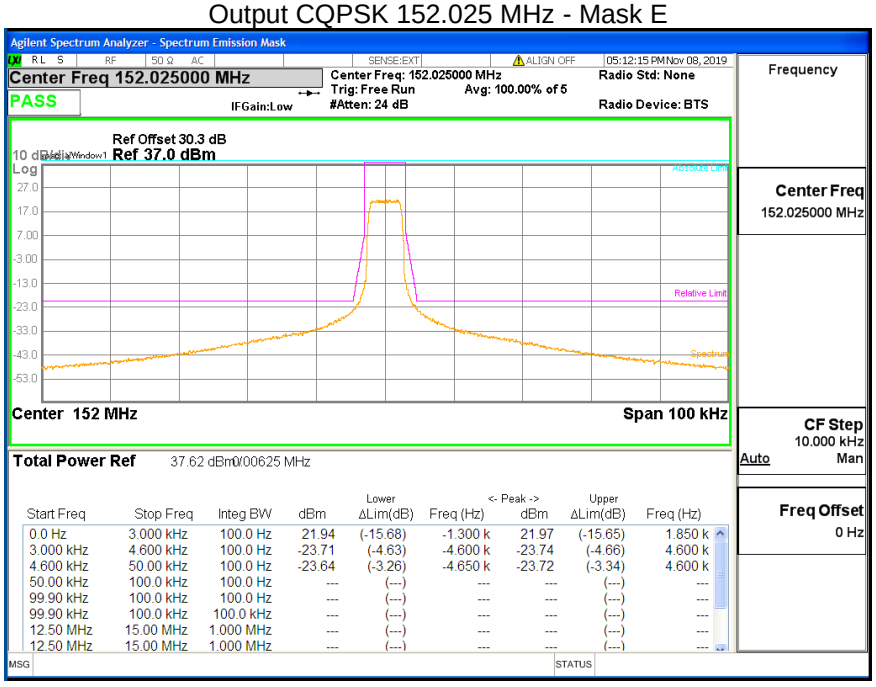
3dB above the AGC threshold Output C4FM 152.025 MHz - Mask D



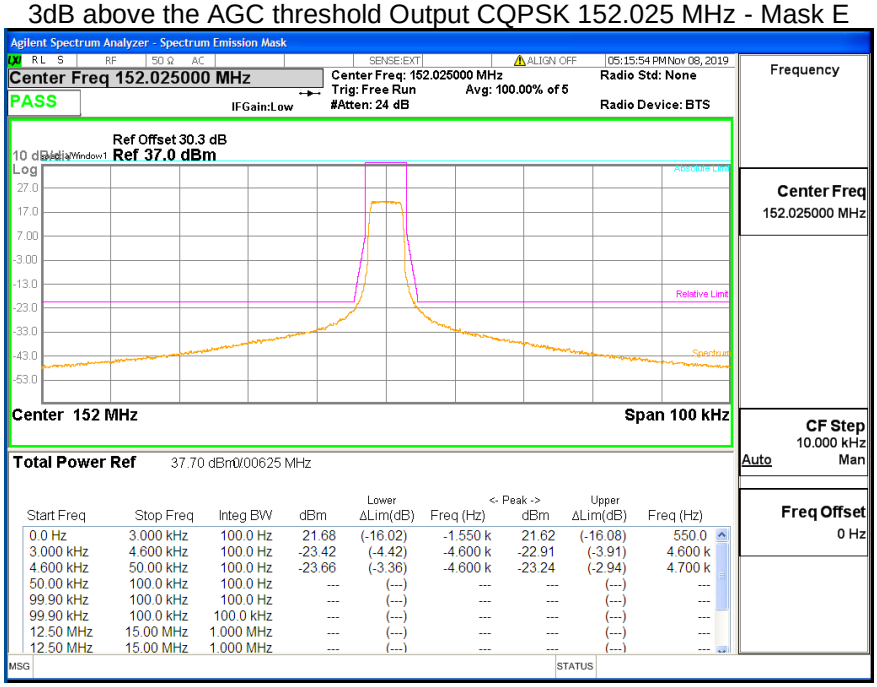
Input CQPSK 152.025 MHz - Mask E



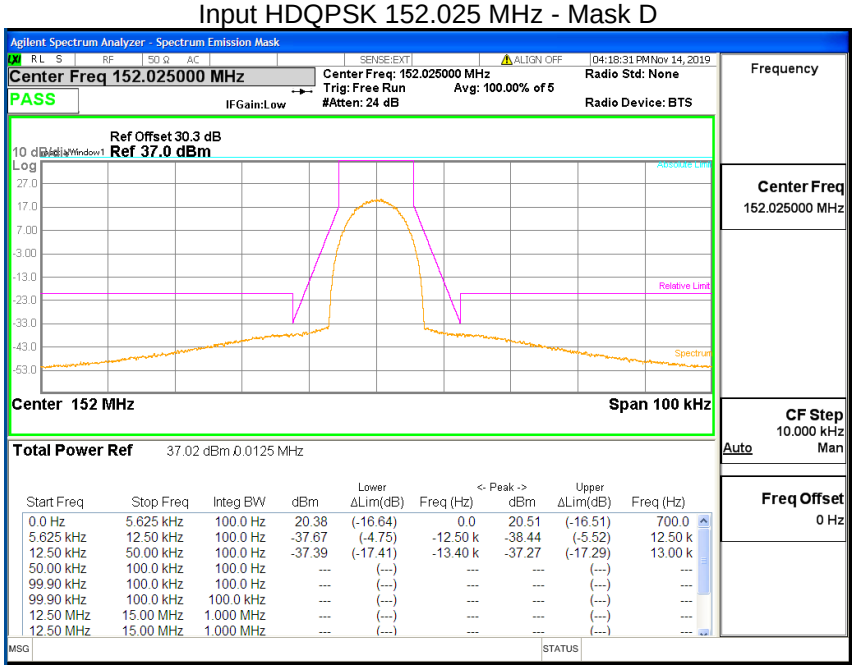
Output CQPSK 152.025 MHz - Mask E



3dB above the AGC threshold Output CQPSK 152.025 MHz - Mask E

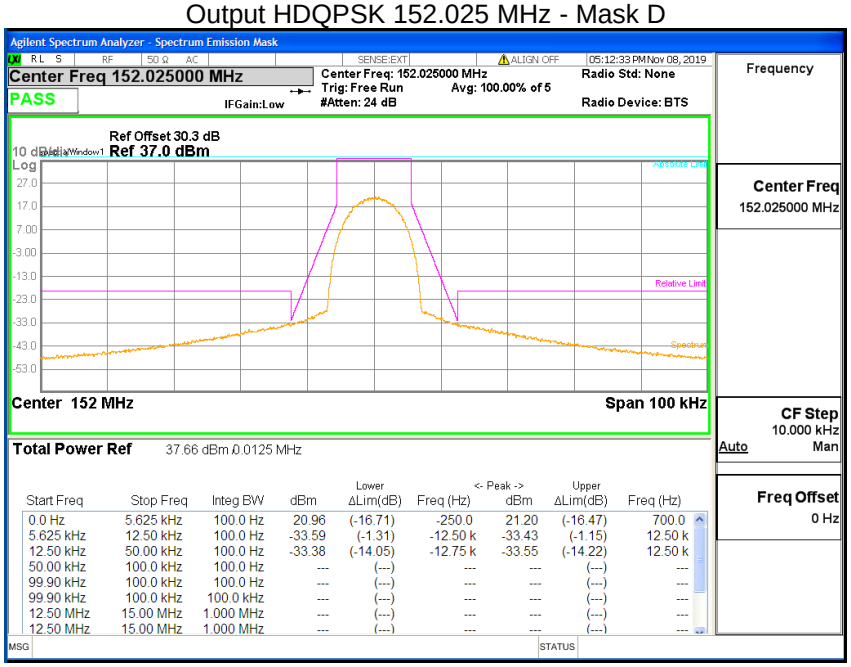


Input HDQPSK 152.025 MHz - Mask D



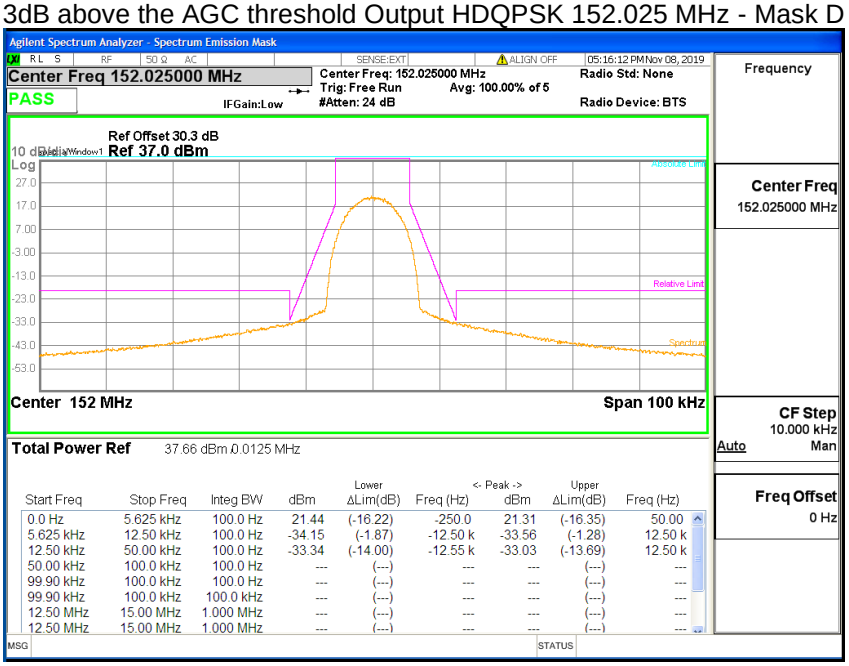
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.38	(-16.64)	0.0	20.51	(-16.51)	700.0
5.625 kHz	12.50 kHz	100.0 Hz	-37.67	(-4.75)	-12.50 k	-38.44	(-5.52)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-37.39	(-17.41)	-13.40 k	-37.27	(-17.29)	13.00 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output HDQPSK 152.025 MHz - Mask D

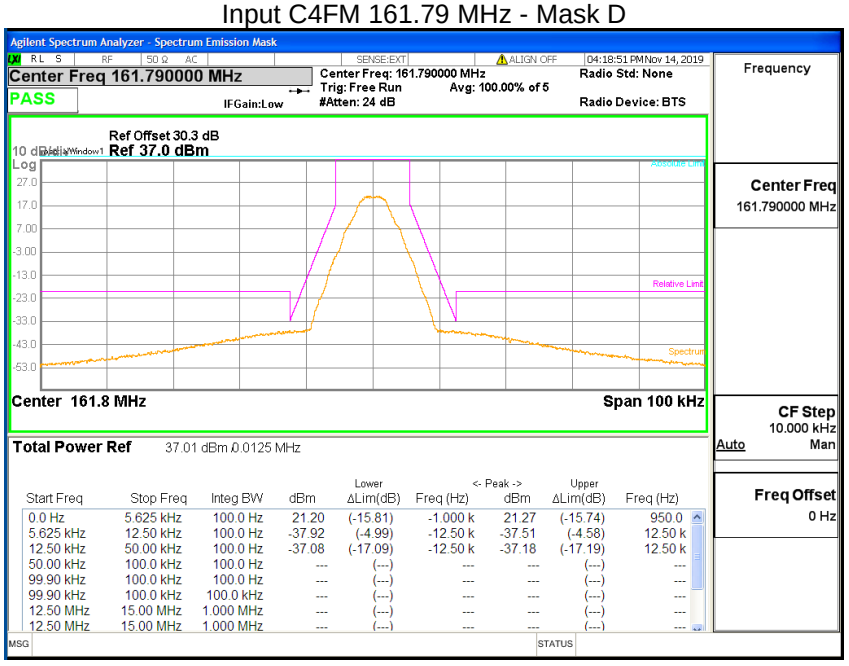


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.96	(-16.71)	-250.0	21.20	(-16.47)	700.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.59	(-1.31)	-12.50 k	-33.43	(-1.15)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.38	(-14.05)	-12.75 k	-33.55	(-14.22)	12.50 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

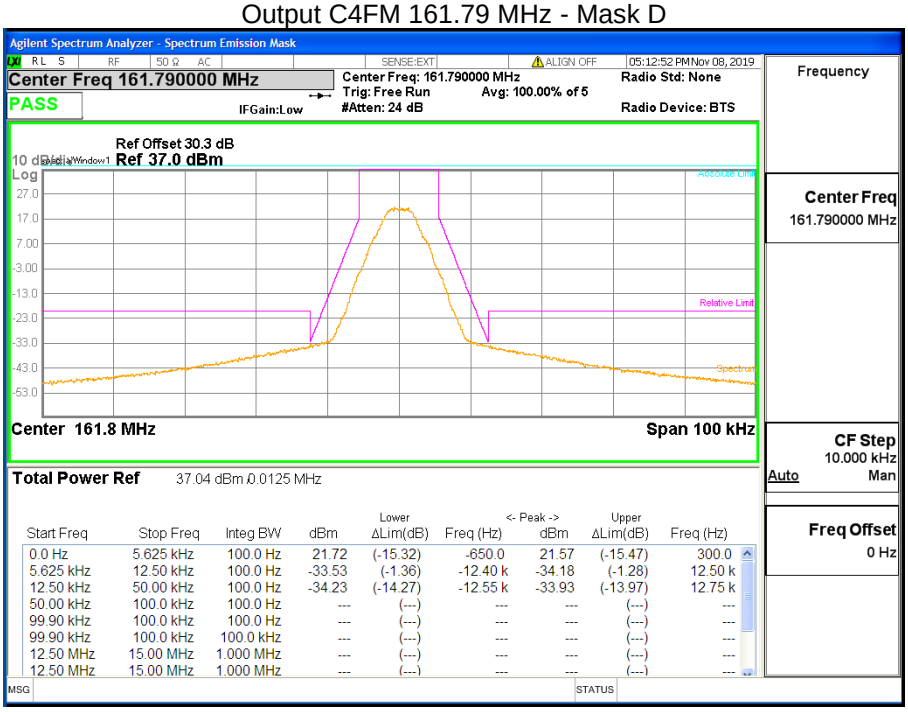
3dB above the AGC threshold Output HDQPSK 152.025 MHz - Mask D



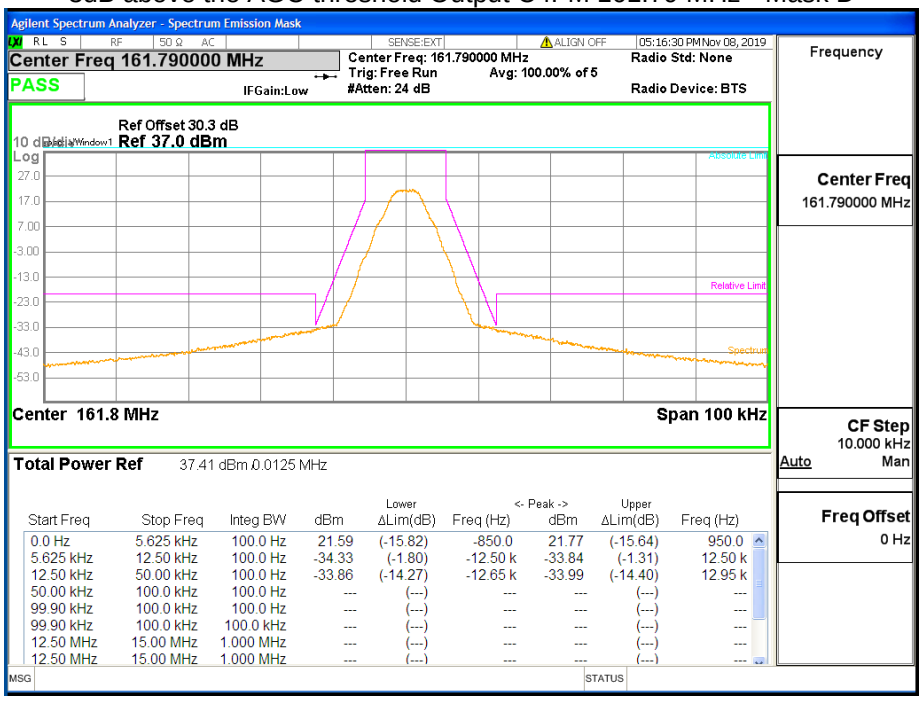
Input C4FM 161.79 MHz - Mask D



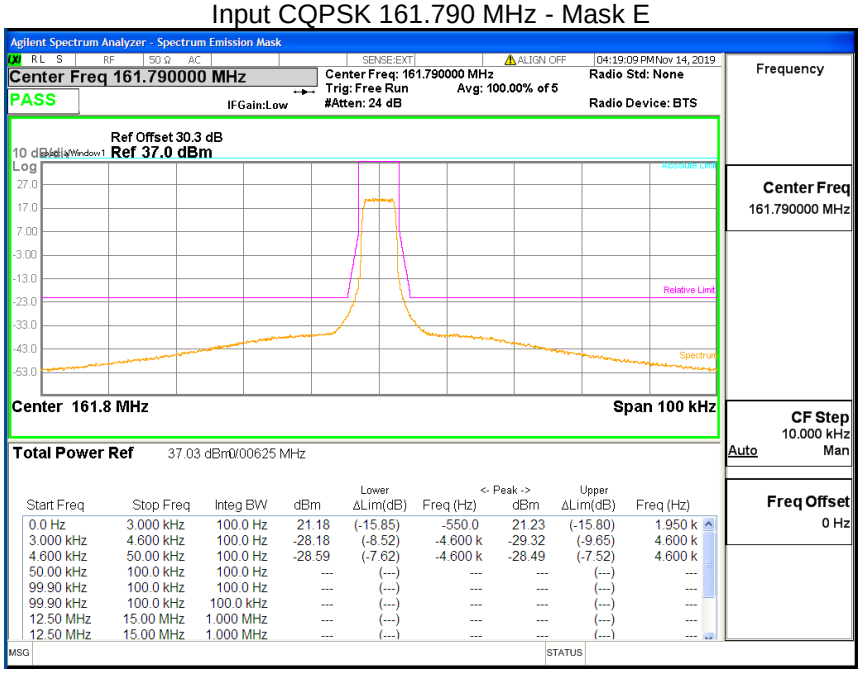
Output C4FM 161.79 MHz - Mask D



3dB above the AGC threshold Output C4FM 161.79 MHz - Mask D

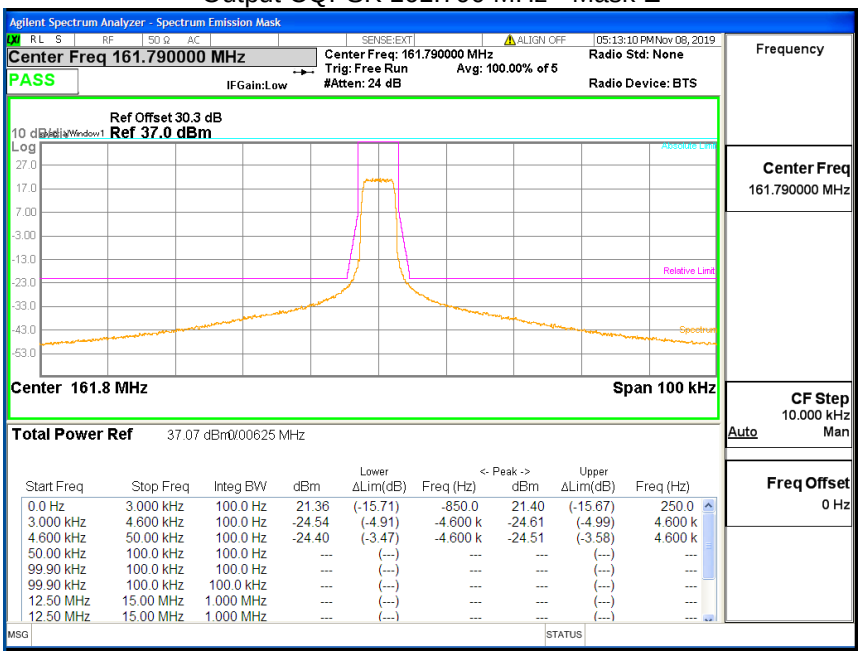


Input CQPSK 161.790 MHz - Mask E



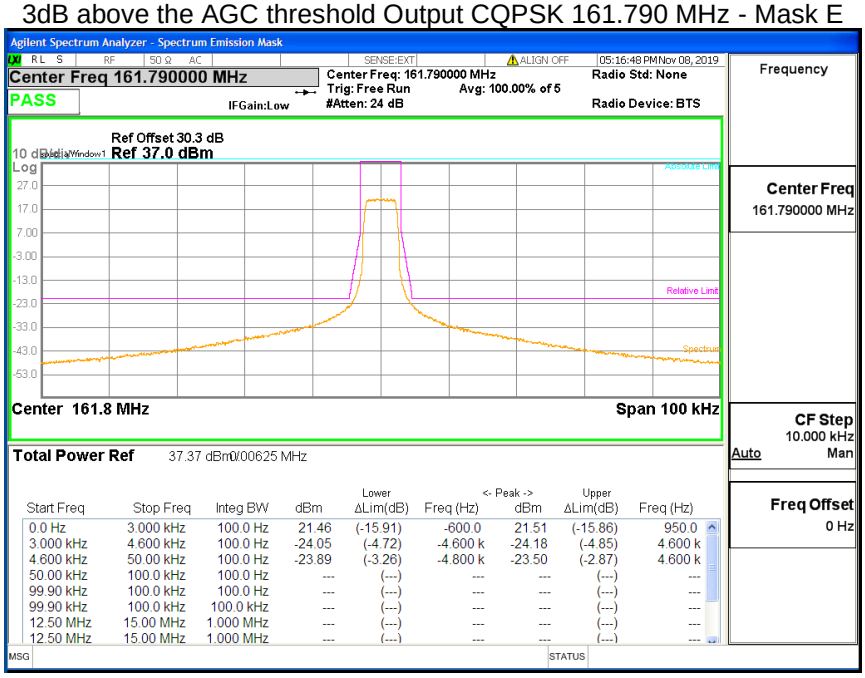
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.18	(-15.85)	-550.0	21.23	(-15.80)	1.950 k
3.000 kHz	4.600 kHz	100.0 Hz	-28.18	(-8.52)	-4.600 k	-29.32	(-9.65)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-28.59	(-7.62)	-4.600 k	-28.49	(-7.52)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 161.790 MHz - Mask E

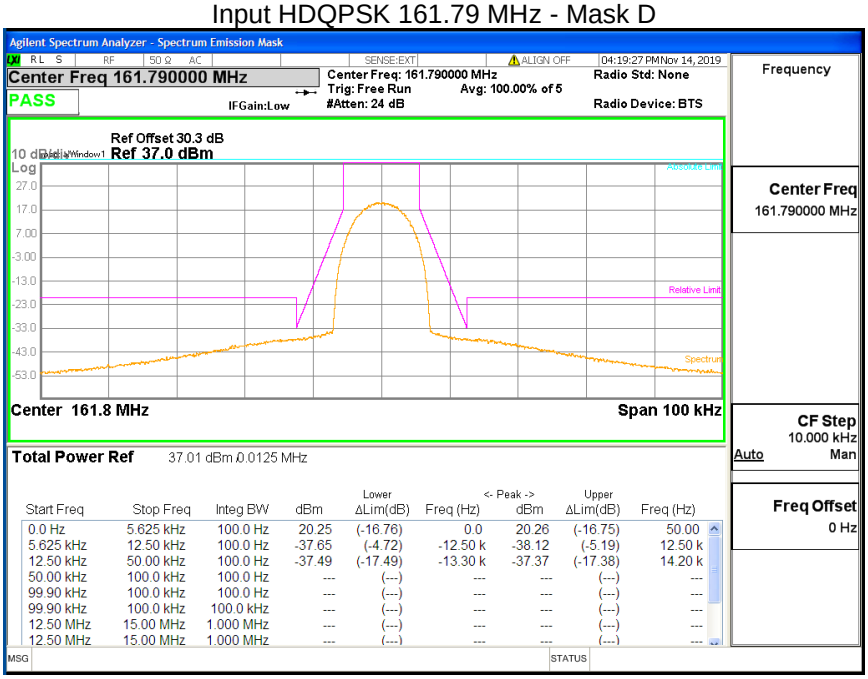


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.36	(-15.71)	-850.0	21.40	(-15.67)	250.0
3.000 kHz	4.600 kHz	100.0 Hz	-24.54	(-4.91)	-4.600 k	-24.61	(-4.99)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-24.40	(-3.47)	-4.600 k	-24.51	(-3.58)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

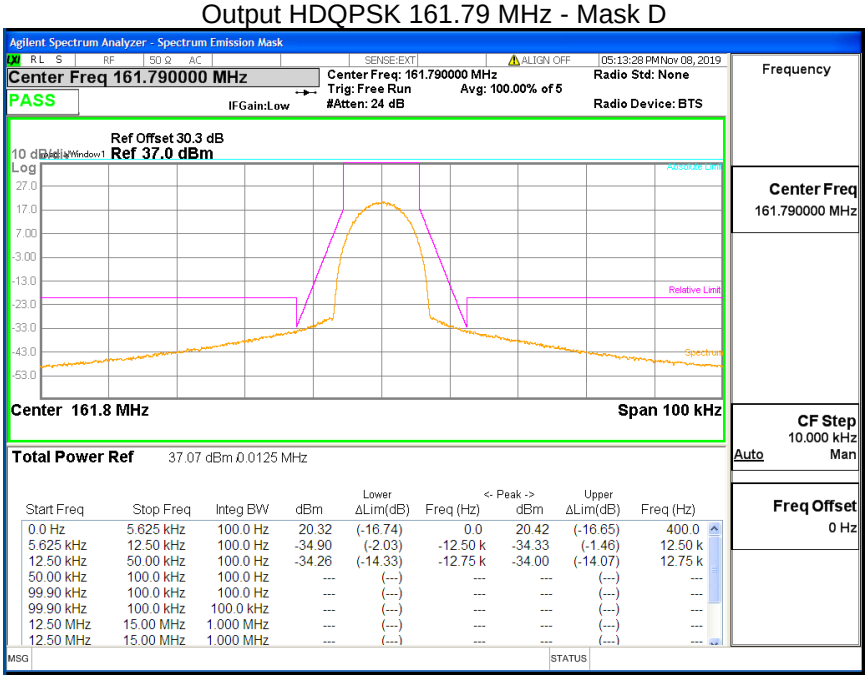
3dB above the AGC threshold Output CQPSK 161.790 MHz - Mask E



Input HDQPSK 161.79 MHz - Mask D

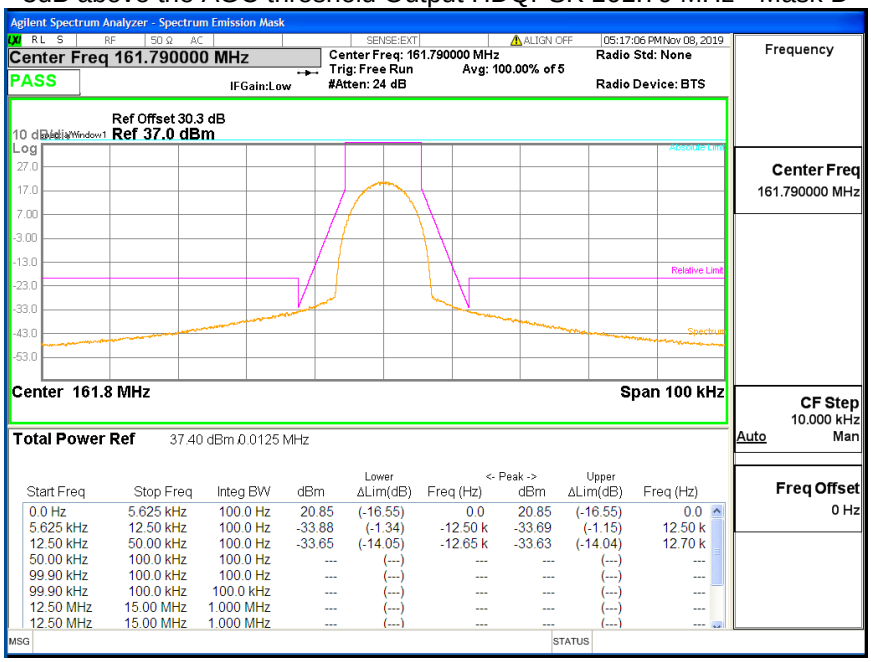


Output HDQPSK 161.79 MHz - Mask D



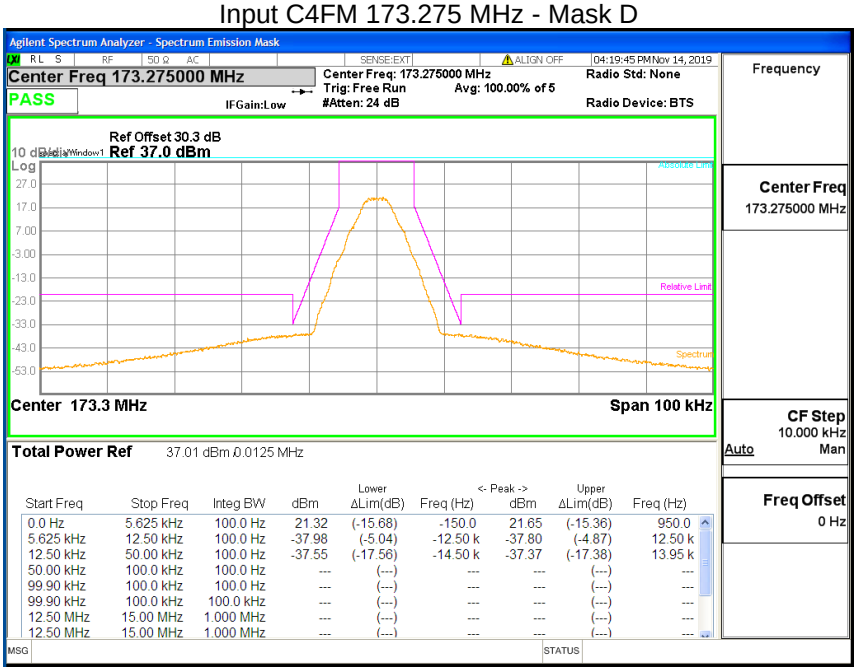
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.32	(-16.74)	0.0	20.42	(-16.65)	400.0
5.625 kHz	12.50 kHz	100.0 Hz	-34.90	(-2.03)	-12.50 k	-34.33	(-1.46)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-34.26	(-14.33)	-12.75 k	-34.00	(-14.07)	12.75 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output HDQPSK 161.79 MHz - Mask D

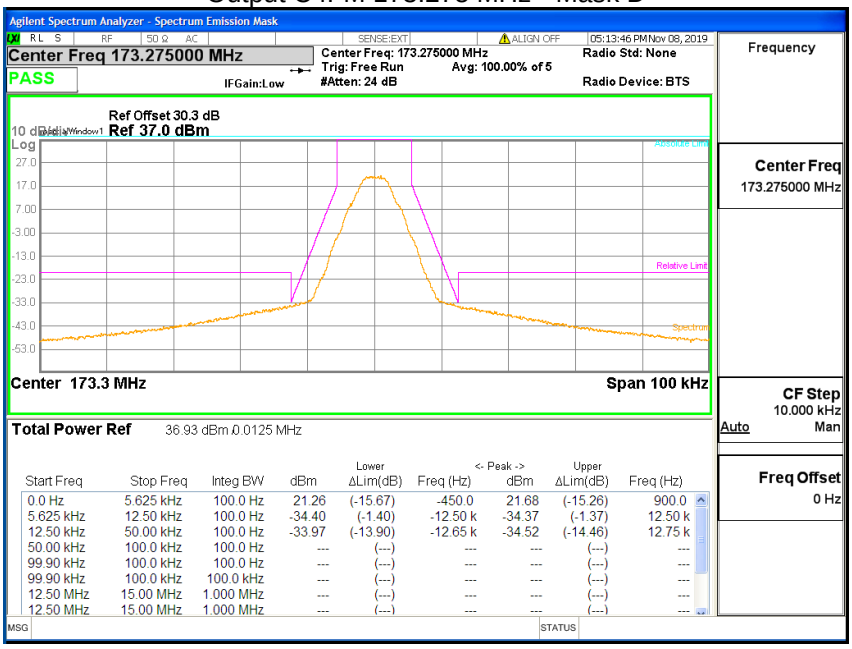


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.85	(-16.55)	0.0	20.85	(-16.55)	0.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.88	(-1.34)	-12.50 k	-33.69	(-1.15)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.65	(-14.05)	-12.65 k	-33.63	(-14.04)	12.70 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

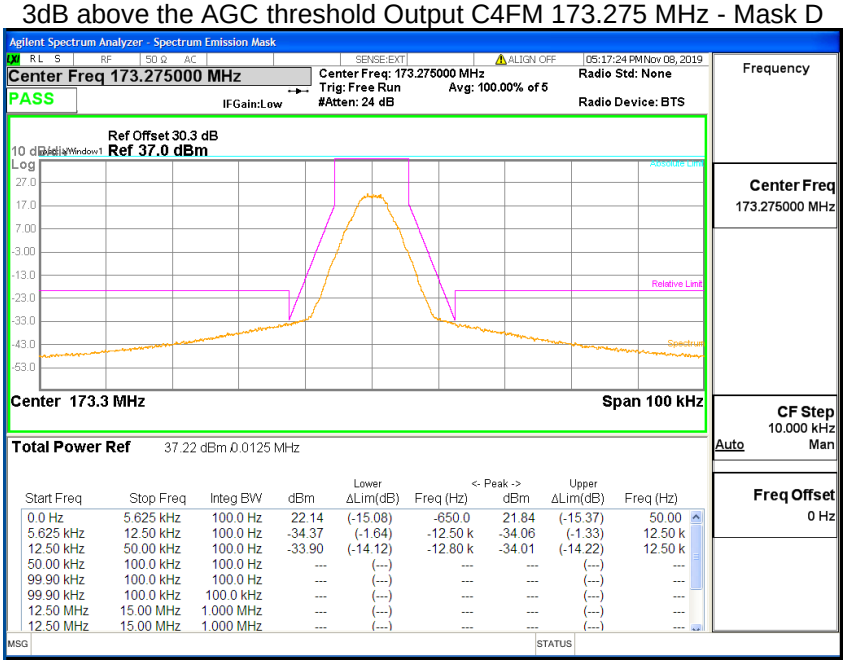
Input C4FM 173.275 MHz - Mask D



Output C4FM 173.275 MHz - Mask D

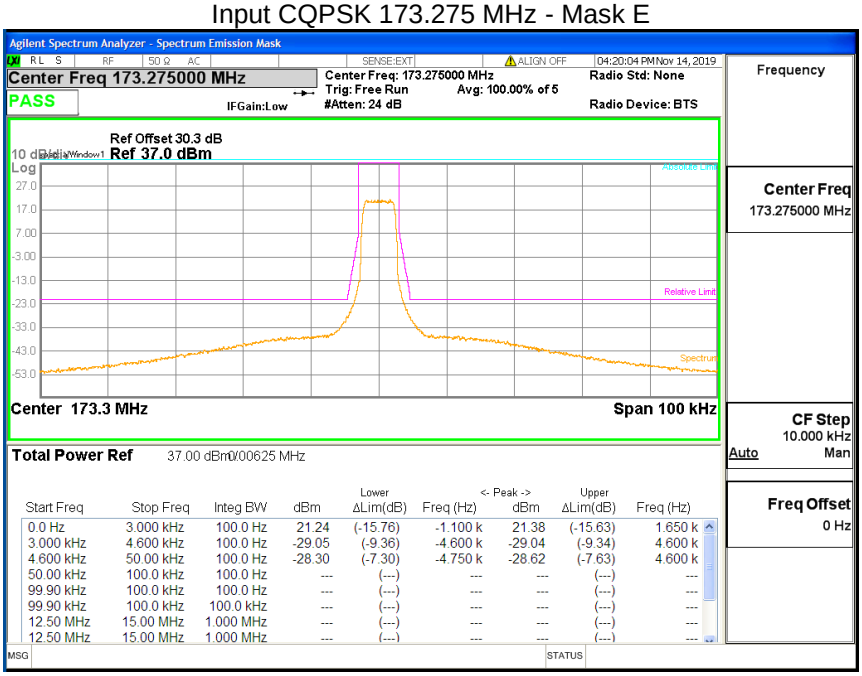


3dB above the AGC threshold Output C4FM 173.275 MHz - Mask D



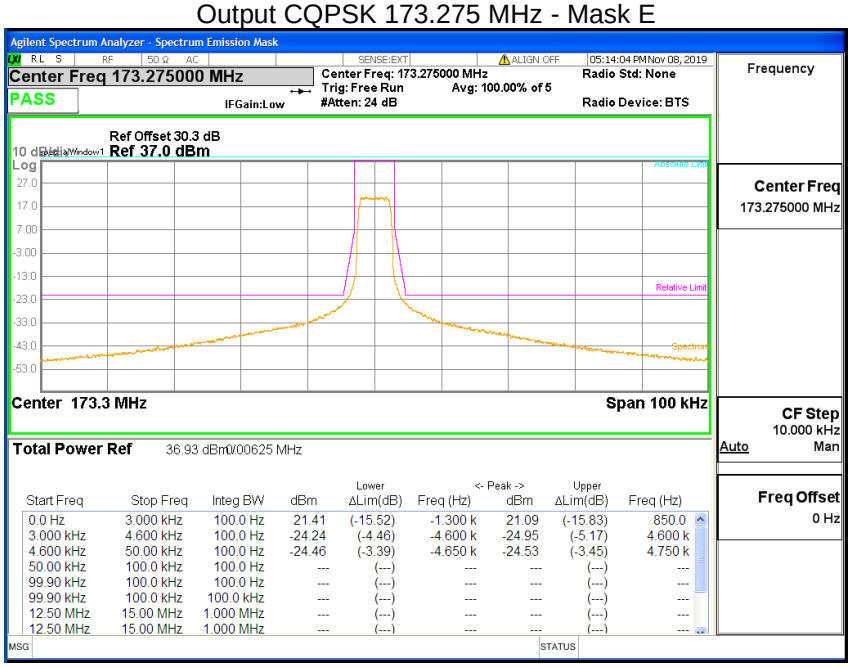
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	22.14	(-15.08)	-650.0	21.84	(-15.37)	50.00
5.625 kHz	12.50 kHz	100.0 Hz	-34.37	(-1.64)	-12.50 k	-34.06	(-1.33)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.90	(-14.12)	-12.80 k	-34.01	(-14.22)	12.50 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input CQPSK 173.275 MHz - Mask E

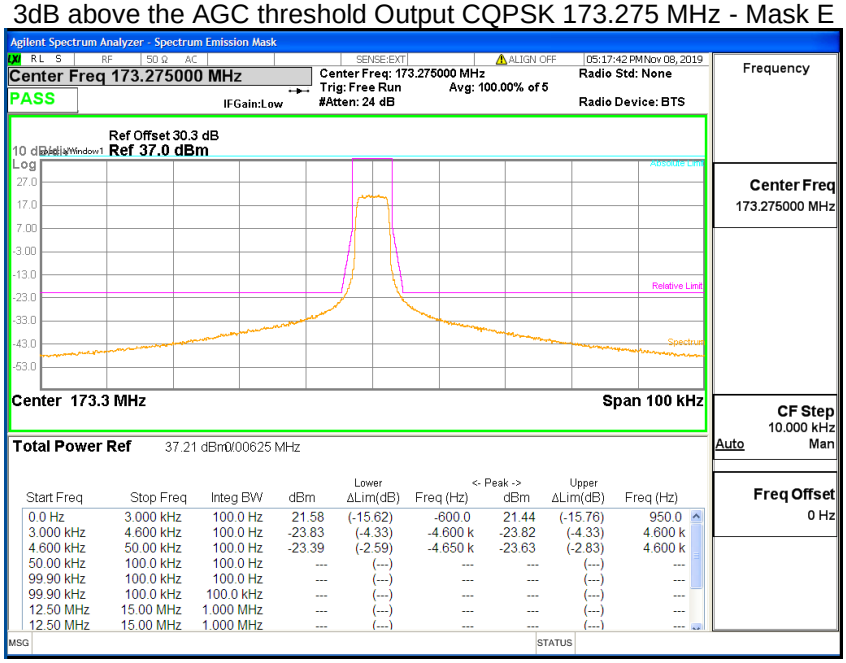


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.24	(-15.76)	-1.100 k	21.38	(-15.63)	1.650 k
3.000 kHz	4.600 kHz	100.0 Hz	-29.05	(-9.36)	-4.600 k	-29.04	(-9.34)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-28.30	(-7.30)	-4.750 k	-28.62	(-7.63)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

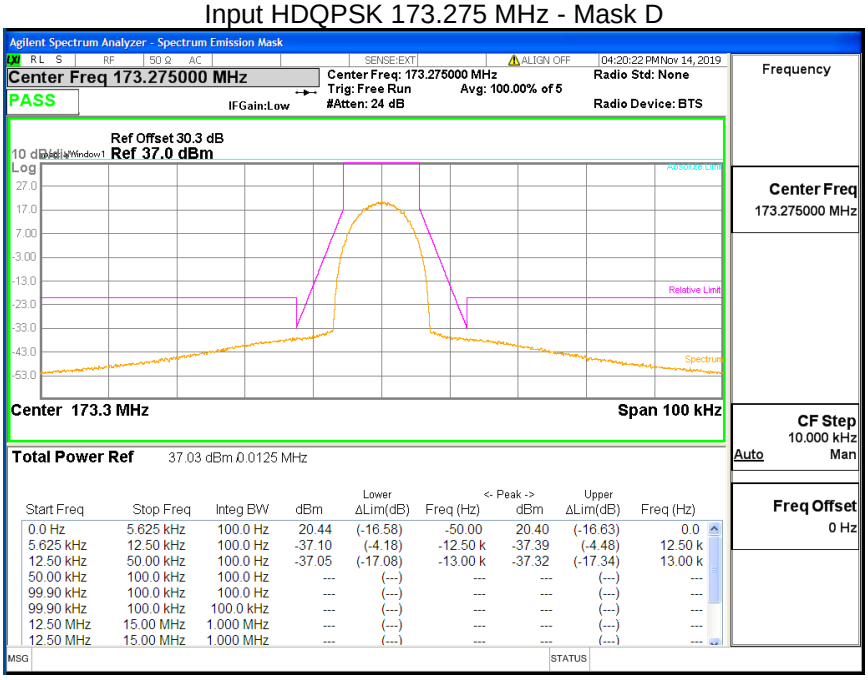
Output CQPSK 173.275 MHz - Mask E



3dB above the AGC threshold Output CQPSK 173.275 MHz - Mask E

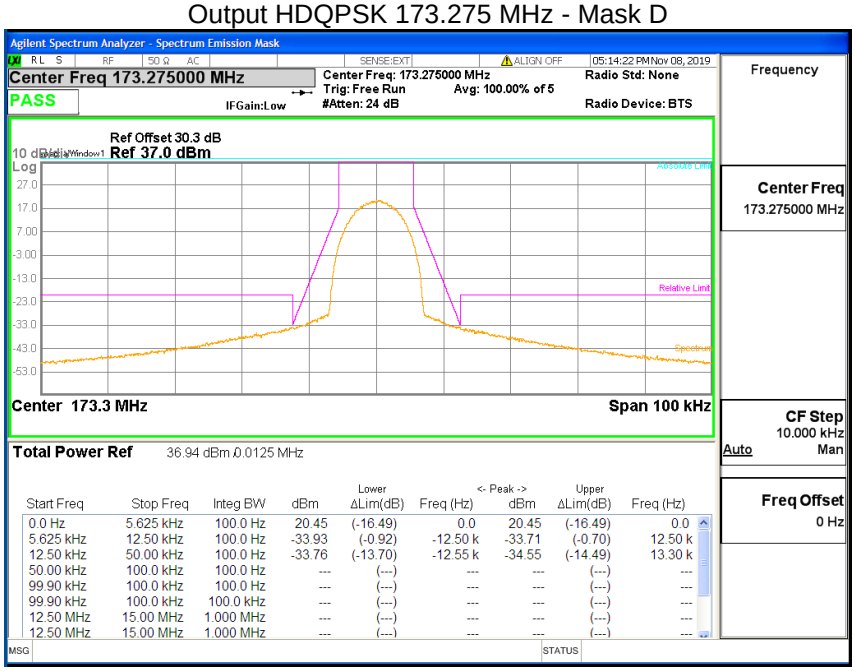


Input HDQPSK 173.275 MHz - Mask D



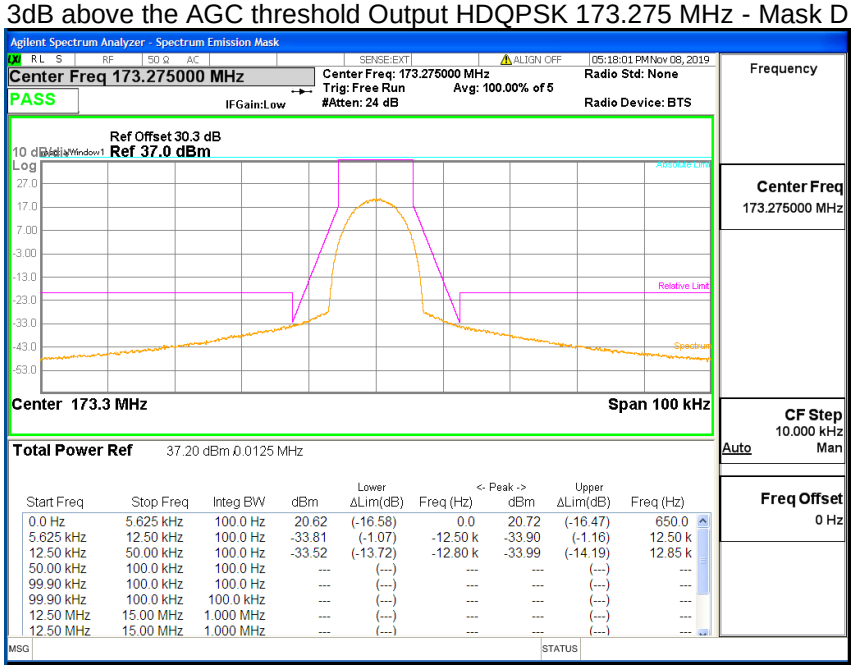
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.44	(-16.58)	-50.00	20.40	(-16.63)	0.0
5.625 kHz	12.50 kHz	100.0 Hz	-37.10	(-4.18)	-12.50 k	-37.39	(-4.48)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-37.05	(-17.08)	-13.00 k	-37.32	(-17.34)	13.00 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output HDQPSK 173.275 MHz - Mask D



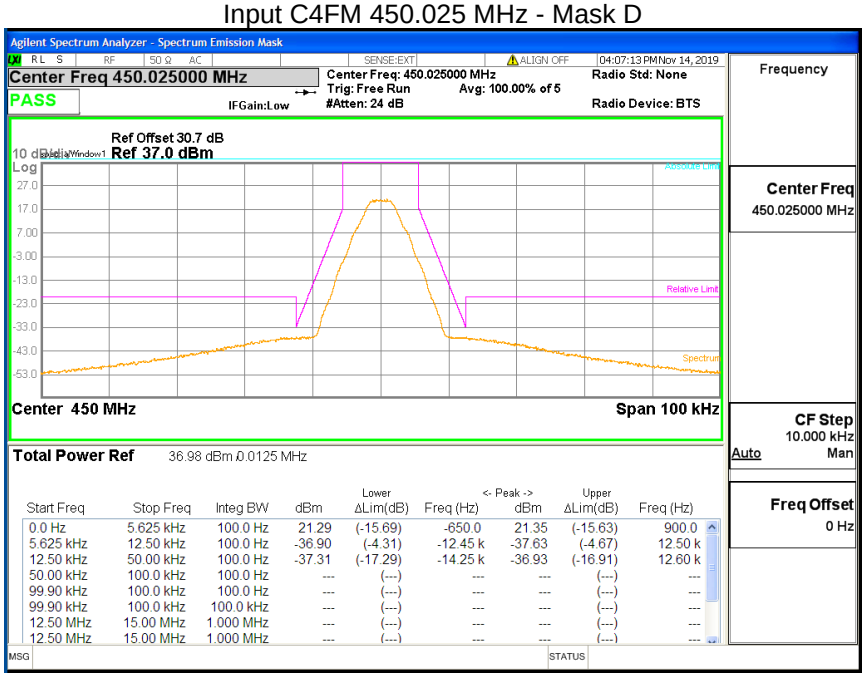
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.45	(-16.49)	0.0	20.45	(-16.49)	0.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.93	(-0.92)	-12.50 k	-33.71	(-0.70)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.76	(-13.70)	-12.55 k	-34.55	(-14.49)	13.30 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output HDQPSK 173.275 MHz - Mask D



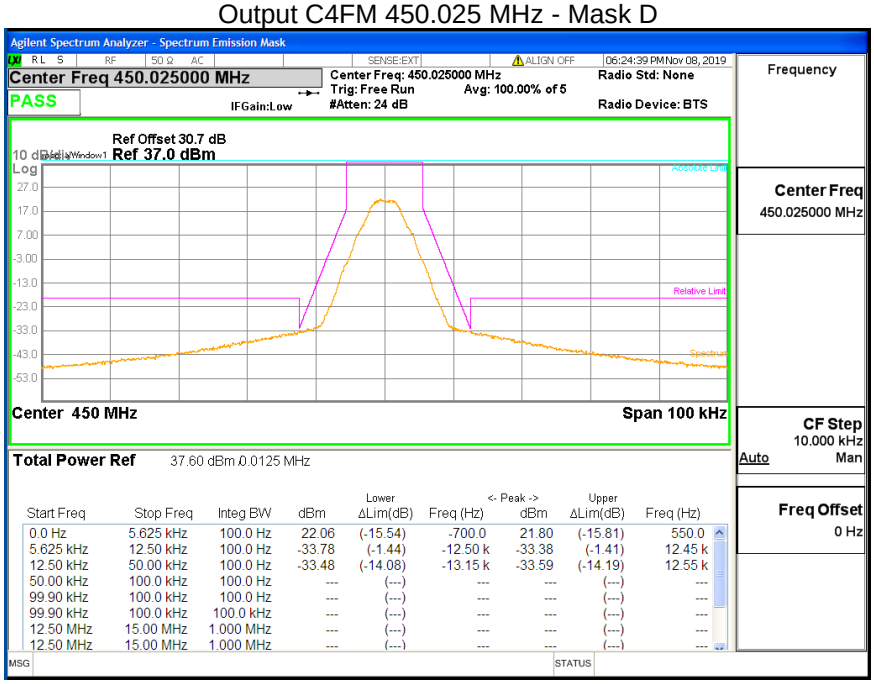
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.62	(-16.58)	0.0	20.72	(-16.47)	650.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.81	(-1.07)	-12.50 k	-33.90	(-1.16)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.52	(-13.72)	-12.80 k	-33.99	(-14.19)	12.85 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input C4FM 450.025 MHz - Mask D



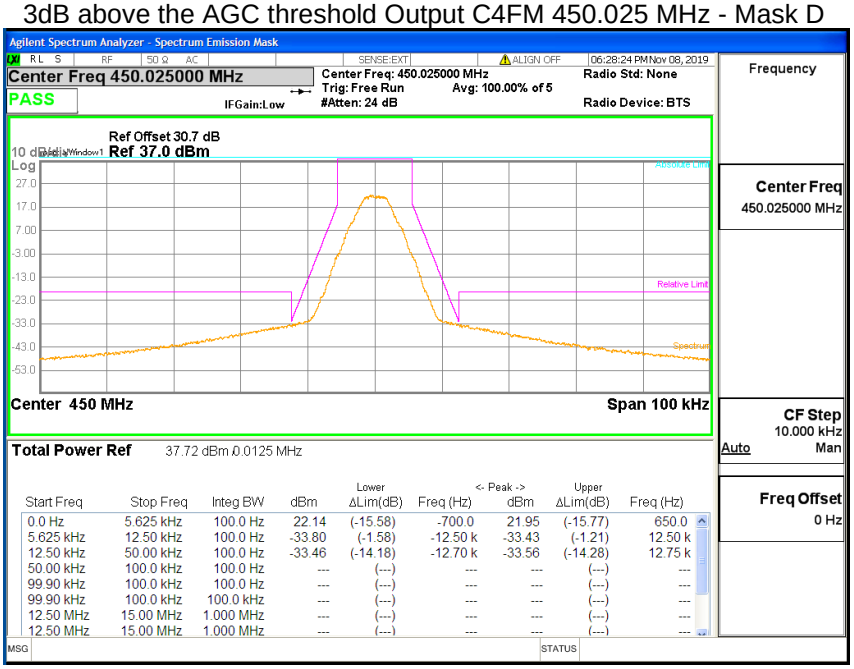
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	21.29	(-15.69)	-650.0	21.35	(-15.63)	900.0
5.625 kHz	12.50 kHz	100.0 Hz	-36.90	(-4.31)	-12.45 k	-37.63	(-4.67)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-37.31	(-17.29)	-14.25 k	-36.93	(-16.91)	12.60 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output C4FM 450.025 MHz - Mask D



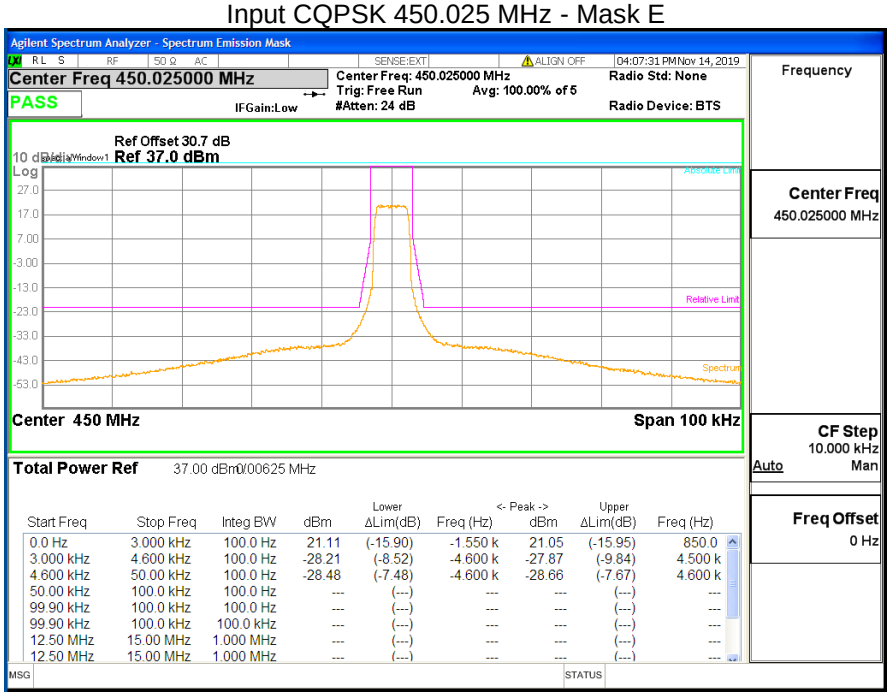
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	22.06	(-15.54)	-700.0	21.80	(-15.81)	550.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.78	(-1.44)	-12.50 k	-33.38	(-1.41)	12.45 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.48	(-14.08)	-13.15 k	-33.59	(-14.19)	12.55 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output C4FM 450.025 MHz - Mask D



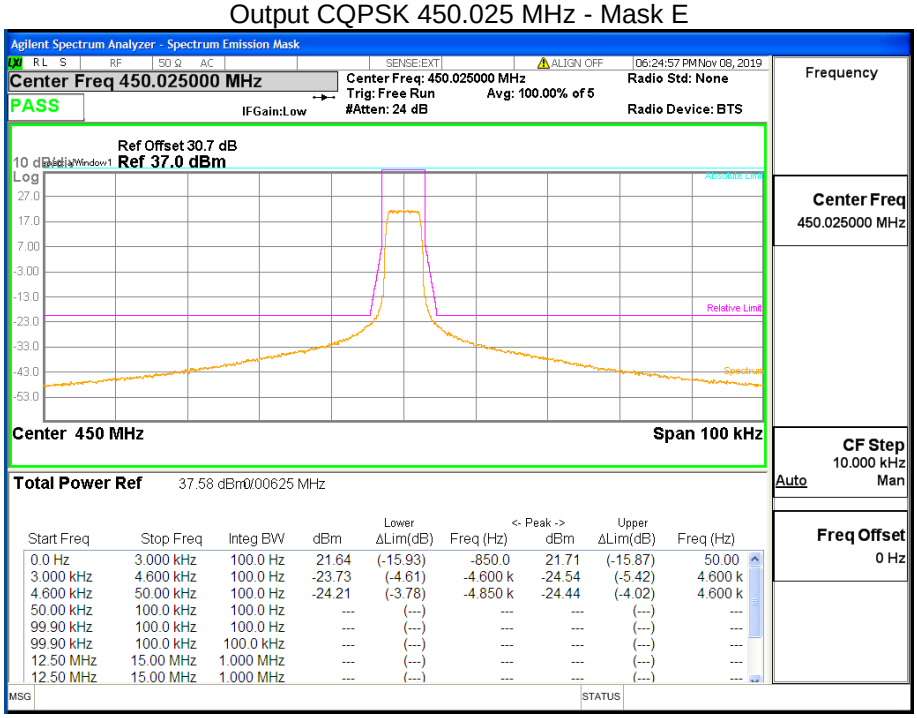
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	22.14	(-15.58)	-700.0	21.95	(-15.77)	650.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.80	(-1.58)	-12.50 k	-33.43	(-1.21)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.46	(-14.18)	-12.70 k	-33.56	(-14.28)	12.75 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input CQPSK 450.025 MHz - Mask E



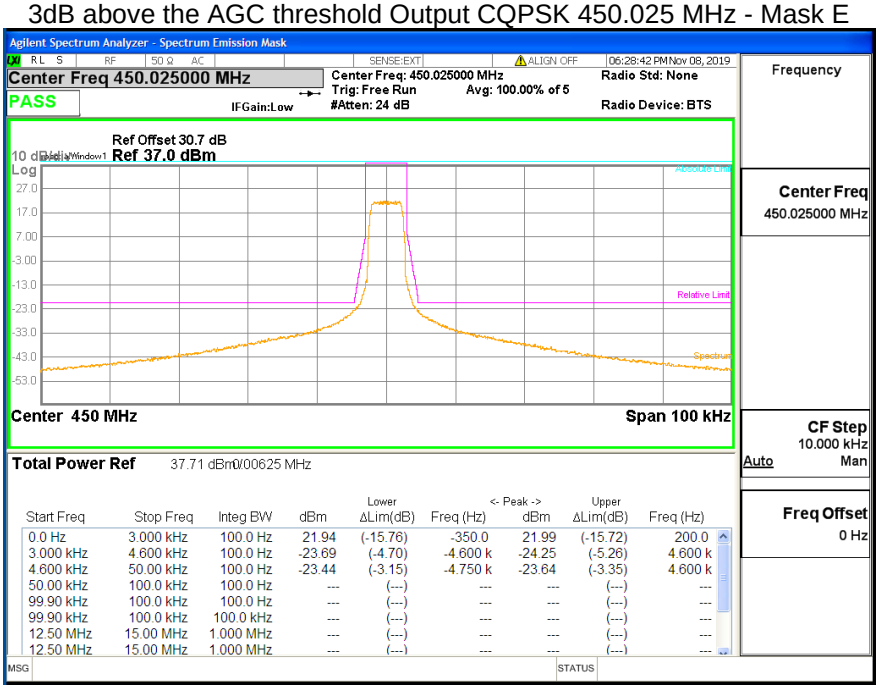
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.11	(-15.90)	-1.550 k	21.05	(-15.95)	850.0
3.000 kHz	4.600 kHz	100.0 Hz	-28.21	(-8.52)	-4.600 k	-27.87	(-9.84)	4.500 k
4.600 kHz	50.00 kHz	100.0 Hz	-28.48	(-7.48)	-4.600 k	-28.66	(-7.67)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 450.025 MHz - Mask E

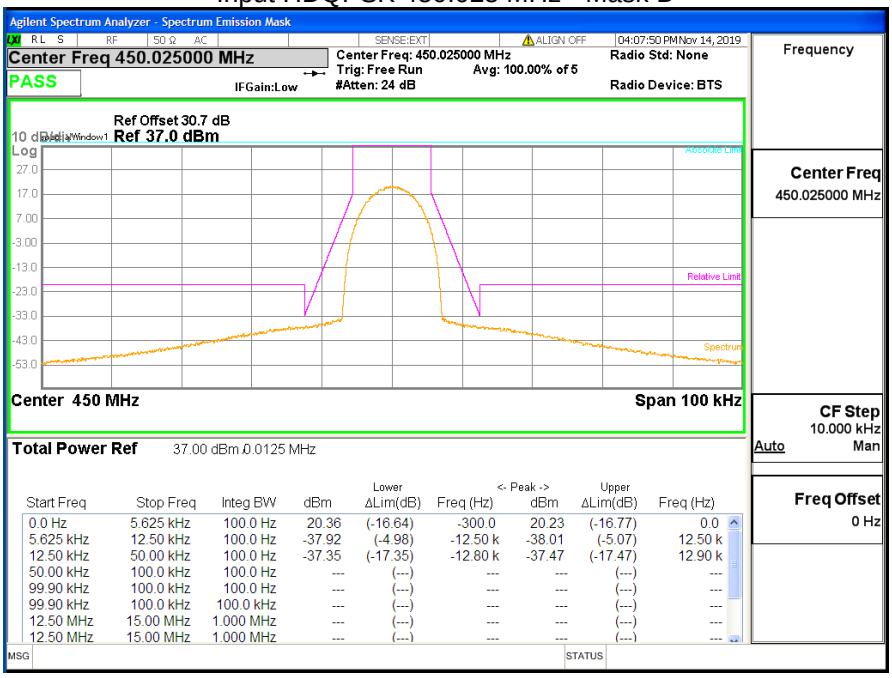


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.64	(-15.93)	-850.0	21.71	(-15.87)	50.00
3.000 kHz	4.600 kHz	100.0 Hz	-23.73	(-4.61)	-4.600 k	-24.54	(-5.42)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-24.21	(-3.78)	-4.850 k	-24.44	(-4.02)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

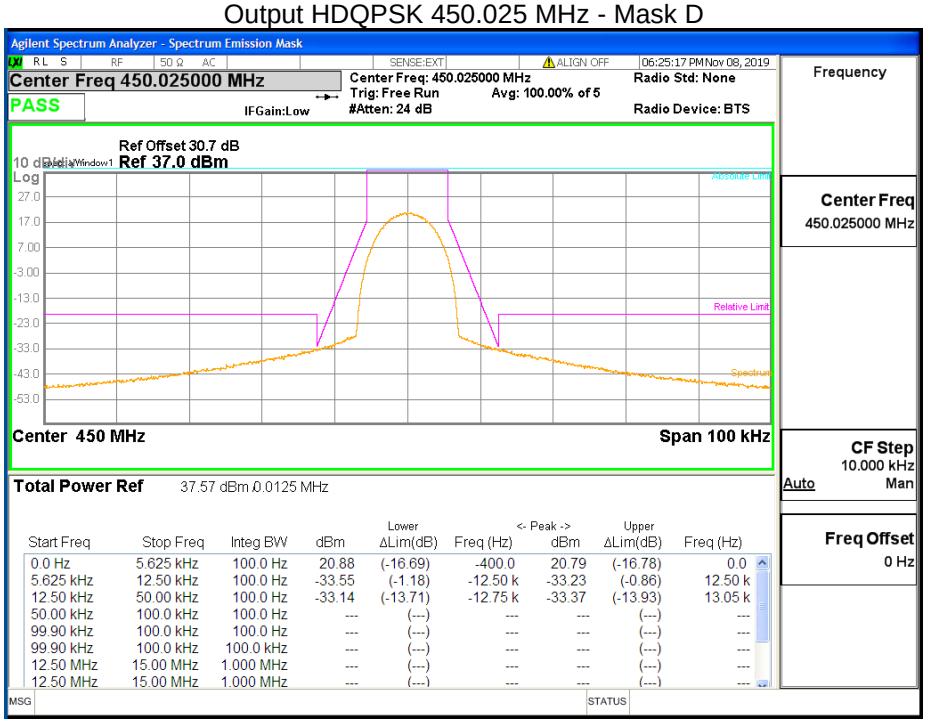
3dB above the AGC threshold Output CQPSK 450.025 MHz - Mask E



Input HDQPSK 450.025 MHz - Mask D

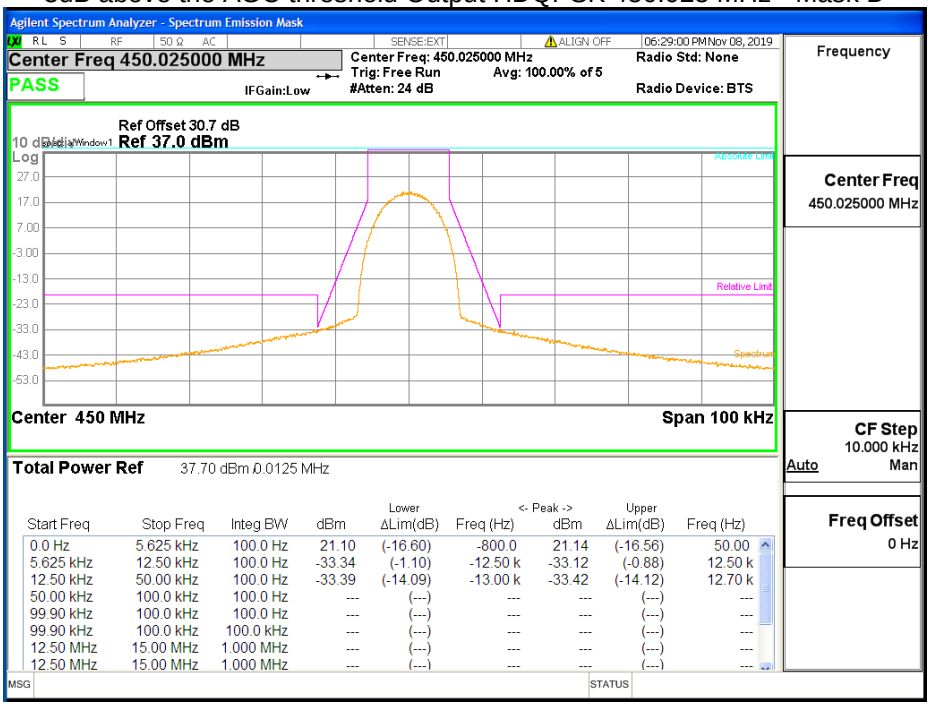


Output HDQPSK 450.025 MHz - Mask D



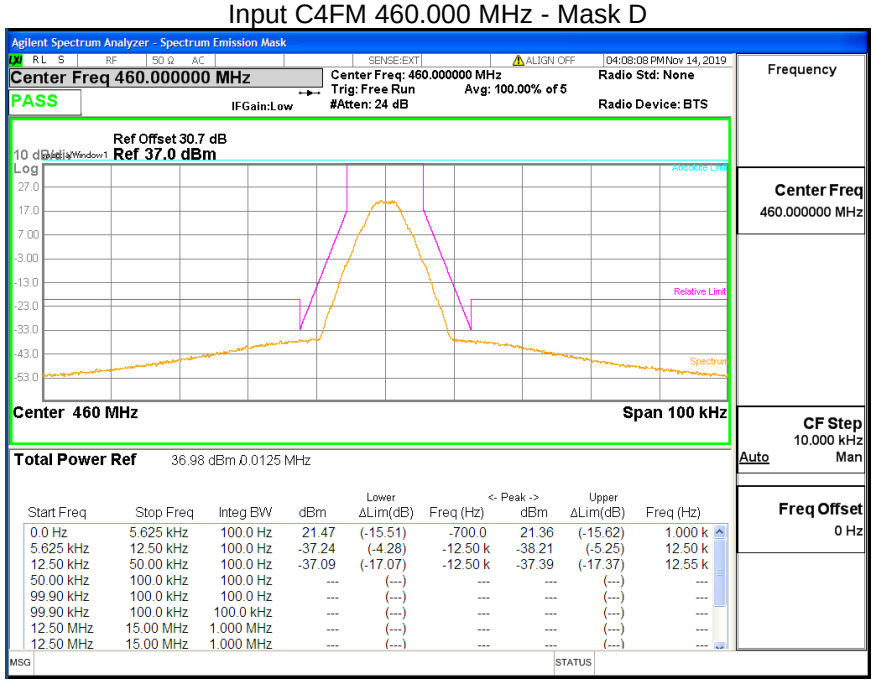
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.88	(-16.69)	-400.0	20.79	(-16.78)	0.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.55	(-1.18)	-12.50 k	-33.23	(-0.86)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.14	(-13.71)	-12.75 k	-33.37	(-13.93)	13.05 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output HDQPSK 450.025 MHz - Mask D

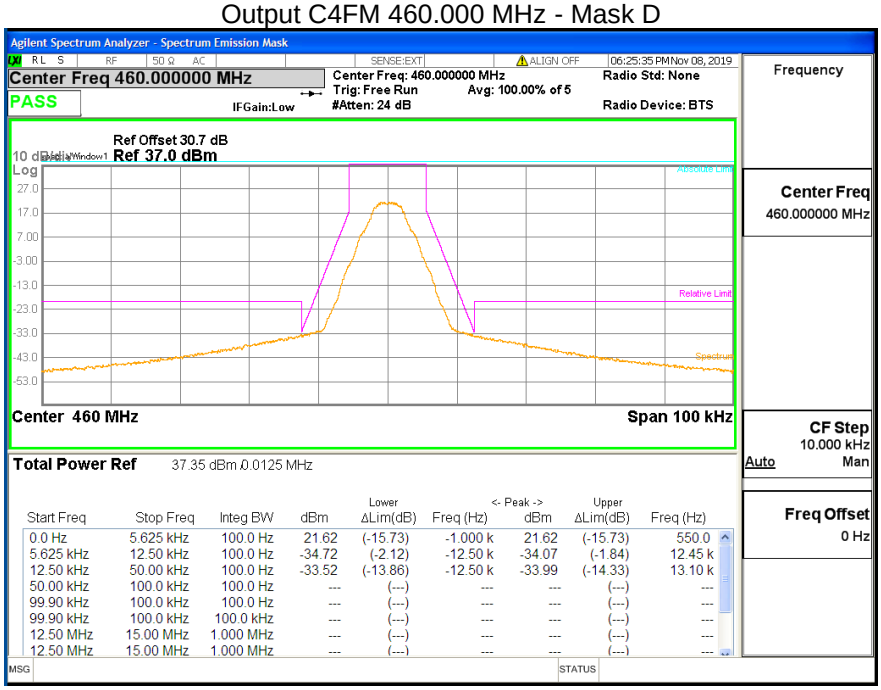


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	21.10	(-16.60)	-800.0	21.14	(-16.56)	50.00
5.625 kHz	12.50 kHz	100.0 Hz	-33.34	(-1.10)	-12.50 k	-33.12	(-0.88)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.39	(-14.09)	-13.00 k	-33.42	(-14.12)	12.70 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

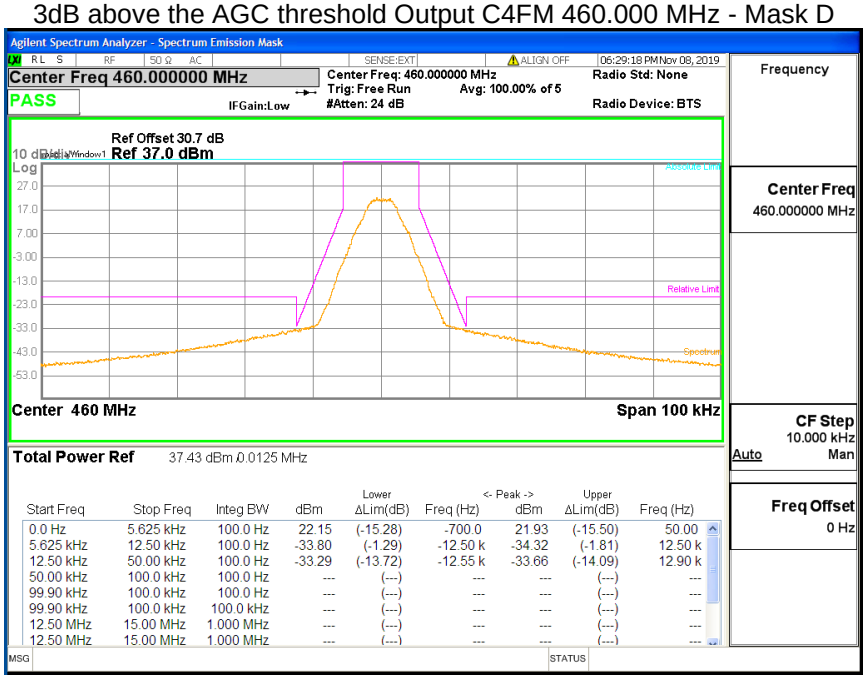
Input C4FM 460.000 MHz - Mask D



Output C4FM 460.000 MHz - Mask D

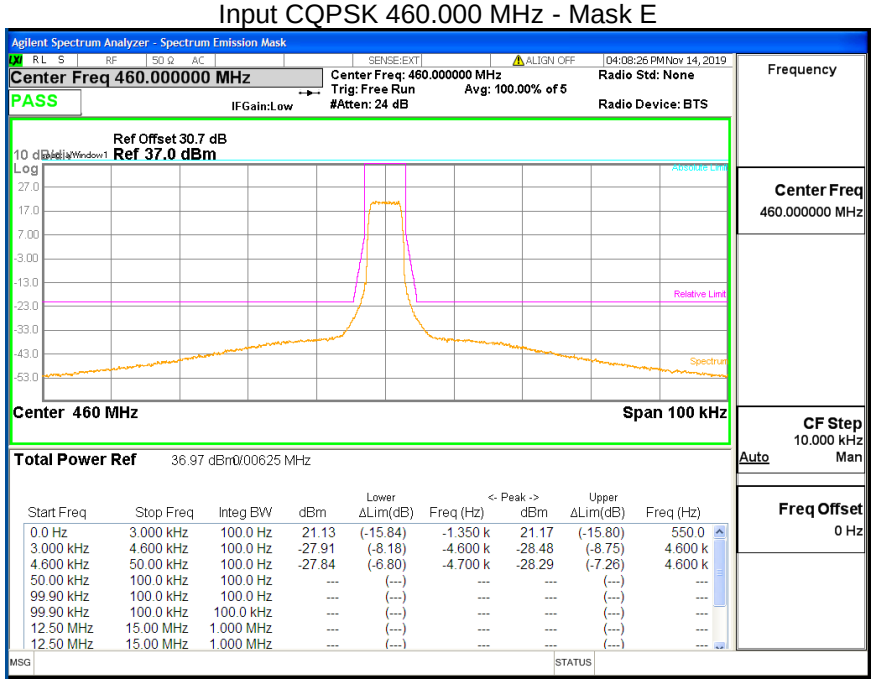


3dB above the AGC threshold Output C4FM 460.000 MHz - Mask D



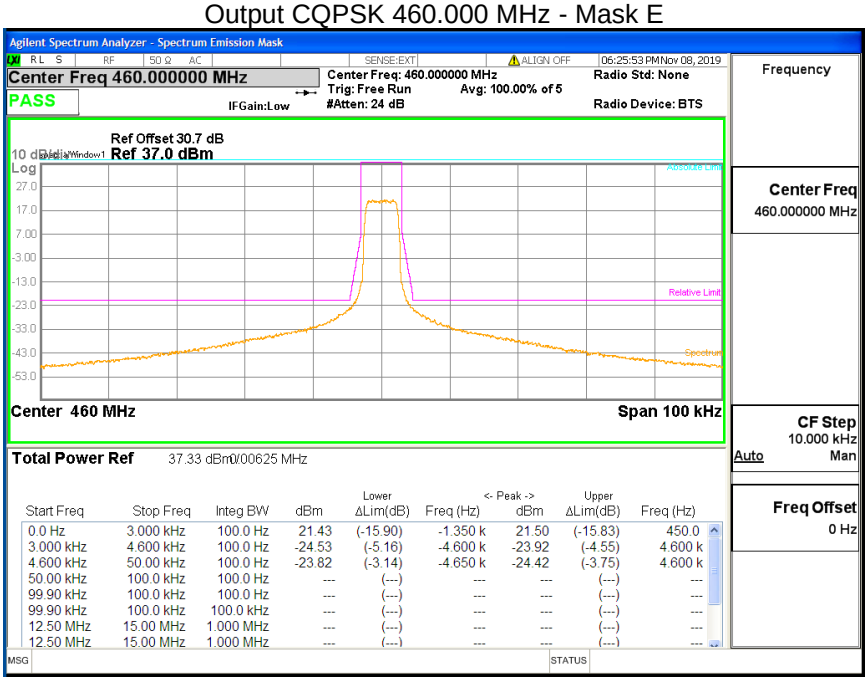
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	22.15	(-15.28)	-700.0	21.93	(-15.50)	50.00
5.625 kHz	12.50 kHz	100.0 Hz	-33.80	(-1.29)	-12.50 k	-34.32	(-1.81)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.29	(-13.72)	-12.55 k	-33.66	(-14.09)	12.90 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input CQPSK 460.000 MHz - Mask E



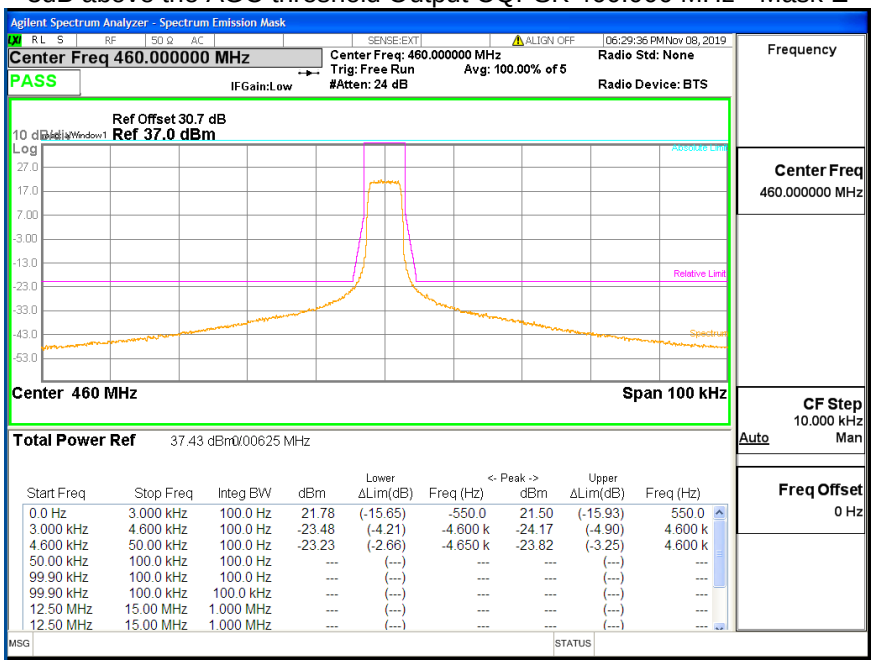
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.13	(-15.84)	-1.350 k	21.17	(-15.80)	550.0
3.000 kHz	4.600 kHz	100.0 Hz	-27.91	(-8.18)	-4.600 k	-28.48	(-8.75)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-27.84	(-6.80)	-4.700 k	-28.29	(-7.26)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 460.000 MHz - Mask E



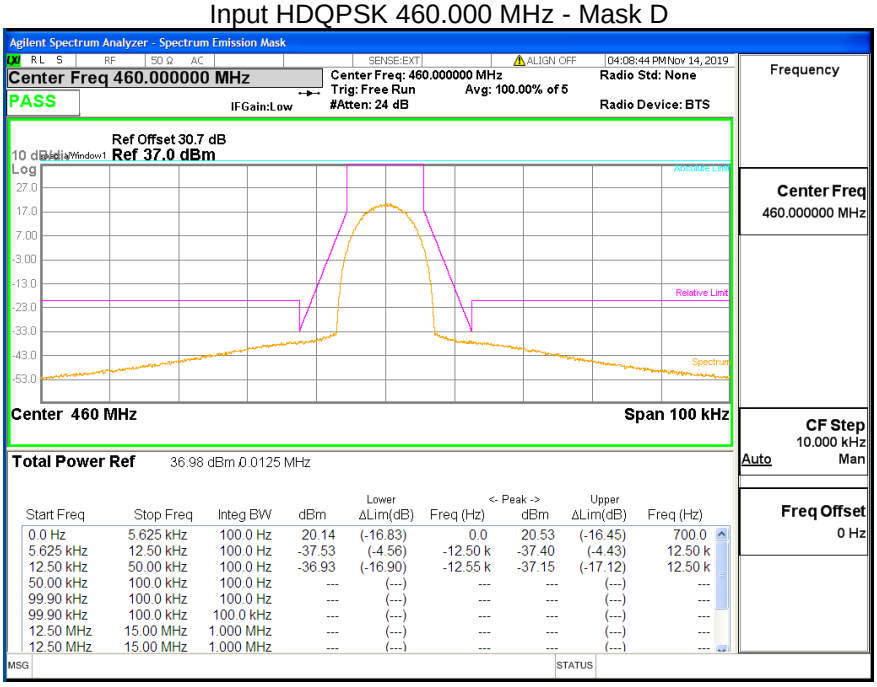
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.43	(-15.90)	-1.350 k	21.50	(-15.83)	450.0
3.000 kHz	4.600 kHz	100.0 Hz	-24.53	(-5.16)	-4.600 k	-23.92	(-4.55)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-23.82	(-3.14)	-4.650 k	-24.42	(-3.75)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output CQPSK 460.000 MHz - Mask E

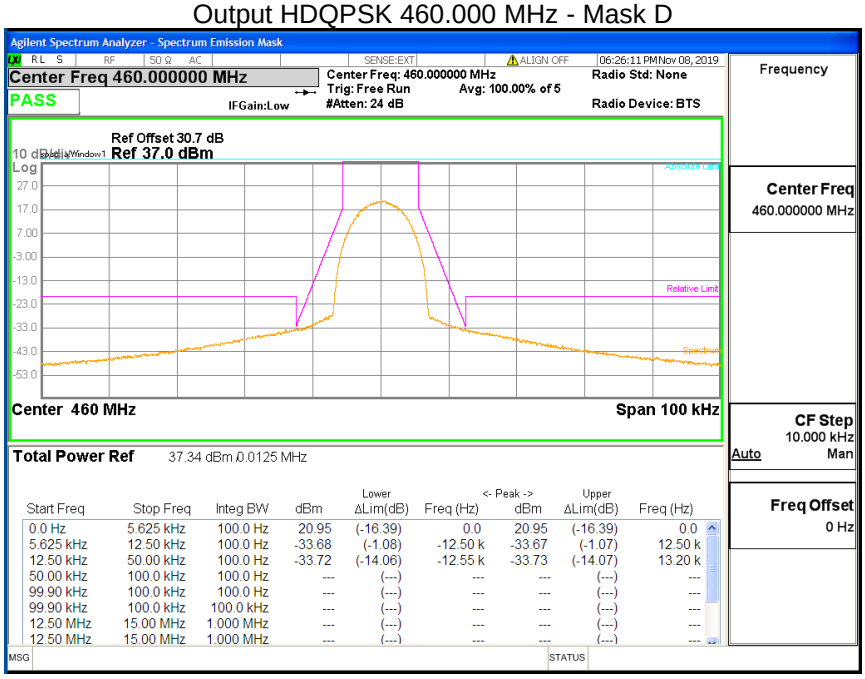


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.78	(-15.65)	-550.0	21.50	(-15.93)	550.0
3.000 kHz	4.600 kHz	100.0 Hz	-23.48	(-4.21)	-4.600 k	-24.17	(-4.90)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-23.23	(-2.66)	-4.650 k	-23.82	(-3.25)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

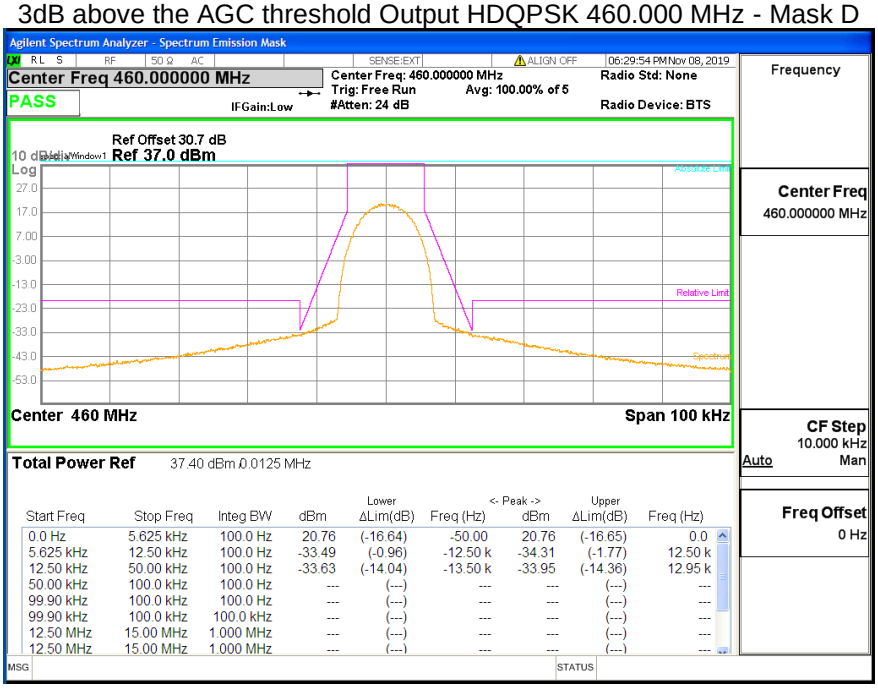
Input HDQPSK 460.000 MHz - Mask D



Output HDQPSK 460.000 MHz - Mask D

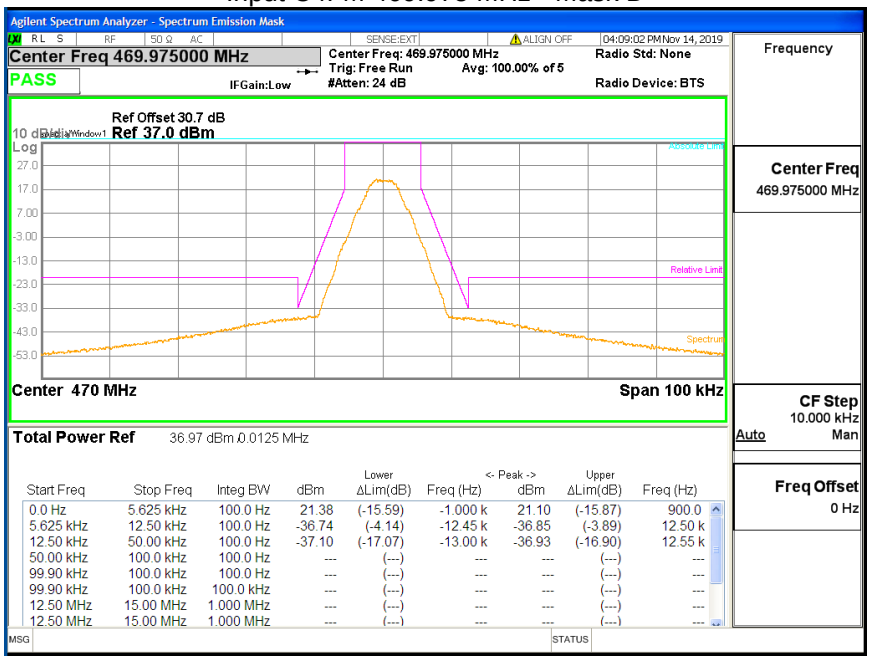


3dB above the AGC threshold Output HDQPSK 460.000 MHz - Mask D



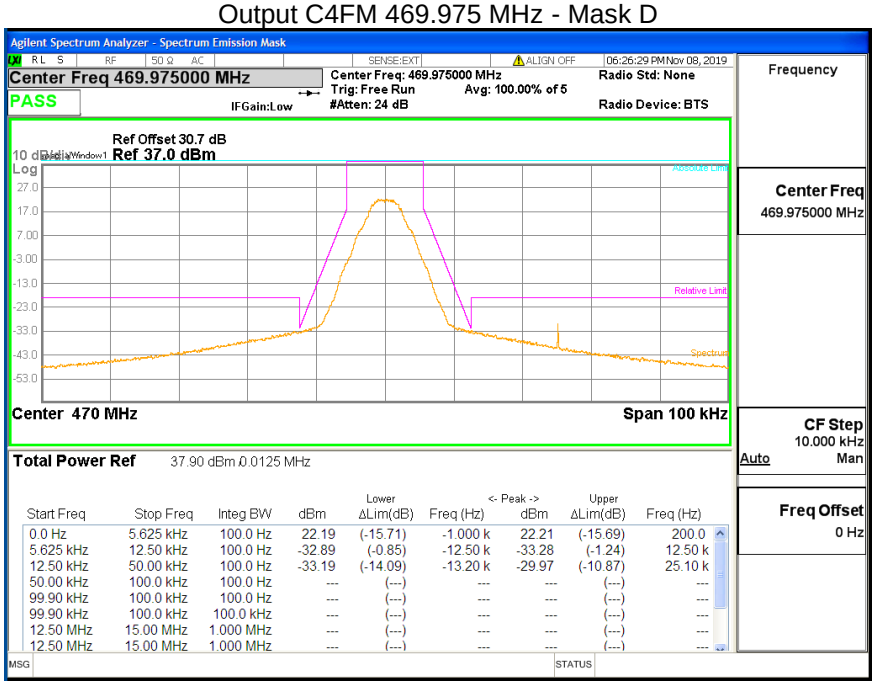
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	20.76	(-16.64)	-50.00	20.76	(-16.65)	0.0
5.625 kHz	12.50 kHz	100.0 Hz	-33.49	(-0.96)	-12.50 k	-34.31	(-1.77)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-33.63	(-14.04)	-13.50 k	-33.95	(-14.36)	12.95 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input C4FM 469.975 MHz - Mask D

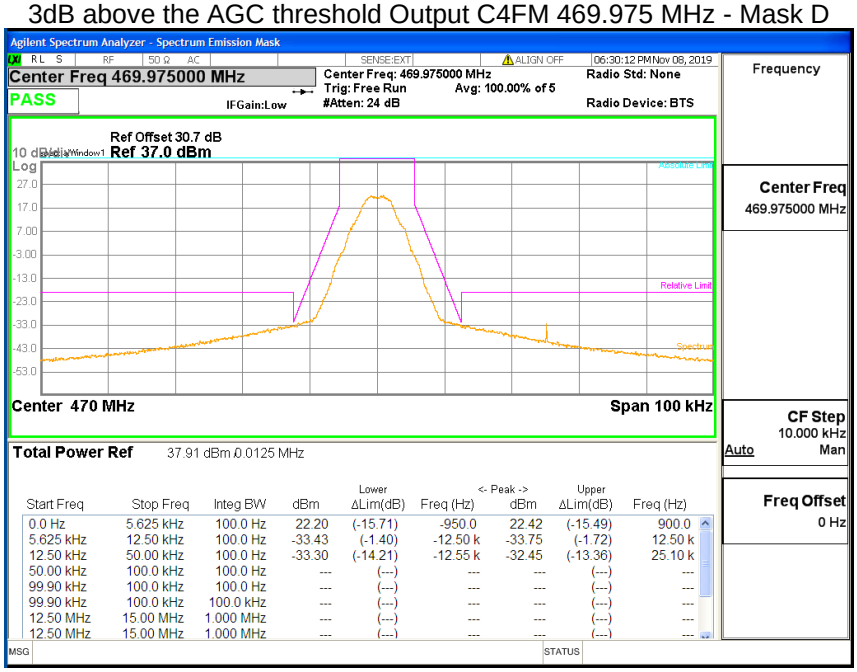


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	5.625 kHz	100.0 Hz	21.38	(-15.59)	-1.000 k	21.10	(-15.87)	900.0
5.625 kHz	12.50 kHz	100.0 Hz	-36.74	(-4.14)	-12.45 k	-36.85	(-3.89)	12.50 k
12.50 kHz	50.00 kHz	100.0 Hz	-37.10	(-17.07)	-13.00 k	-36.93	(-16.90)	12.55 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

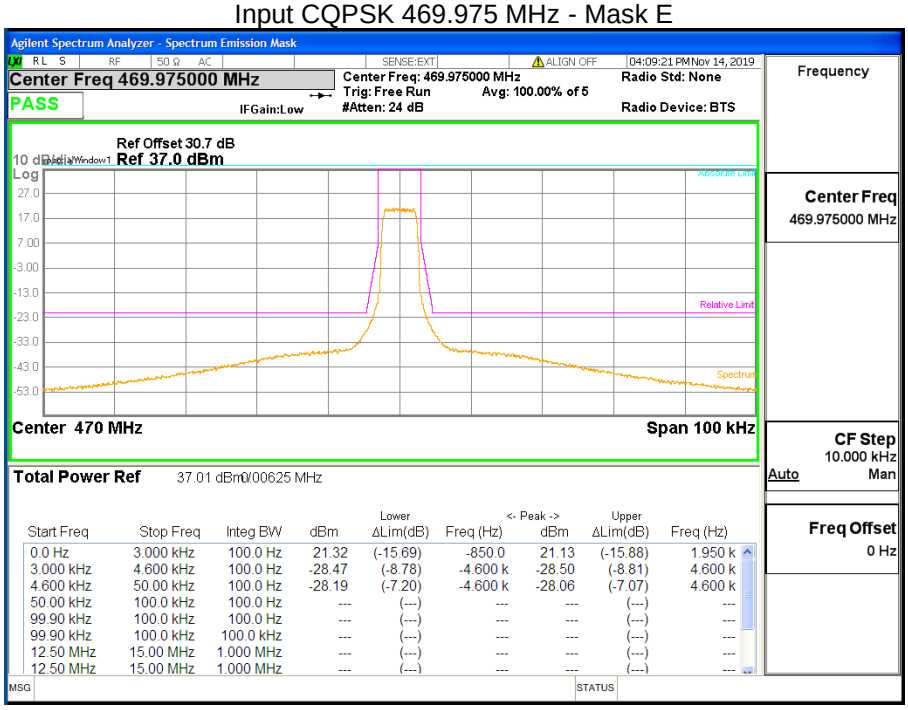
Output C4FM 469.975 MHz - Mask D



3dB above the AGC threshold Output C4FM 469.975 MHz - Mask D

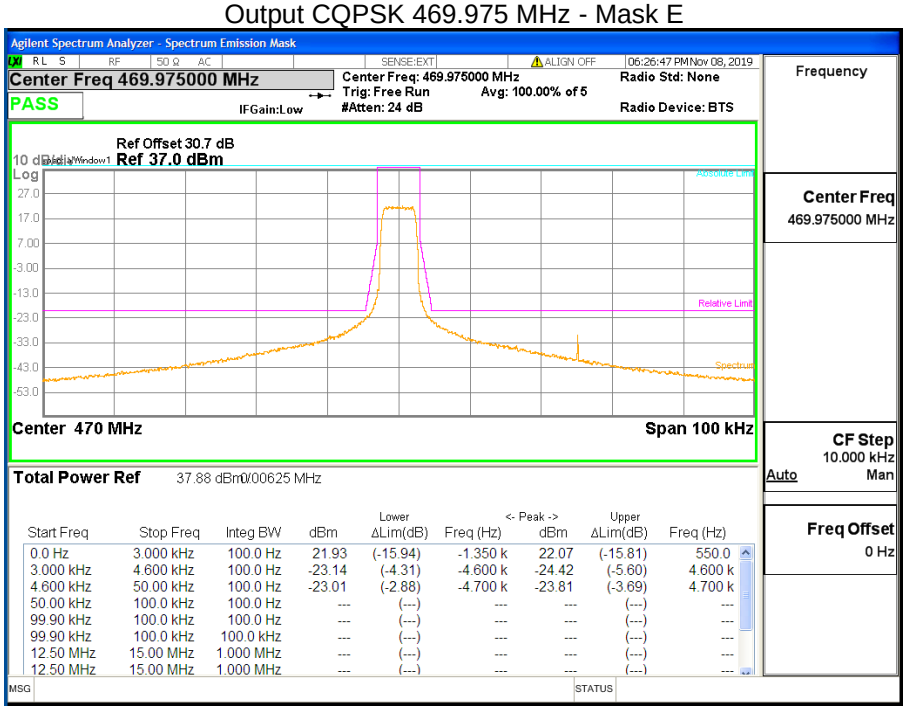


Input CQPSK 469.975 MHz - Mask E



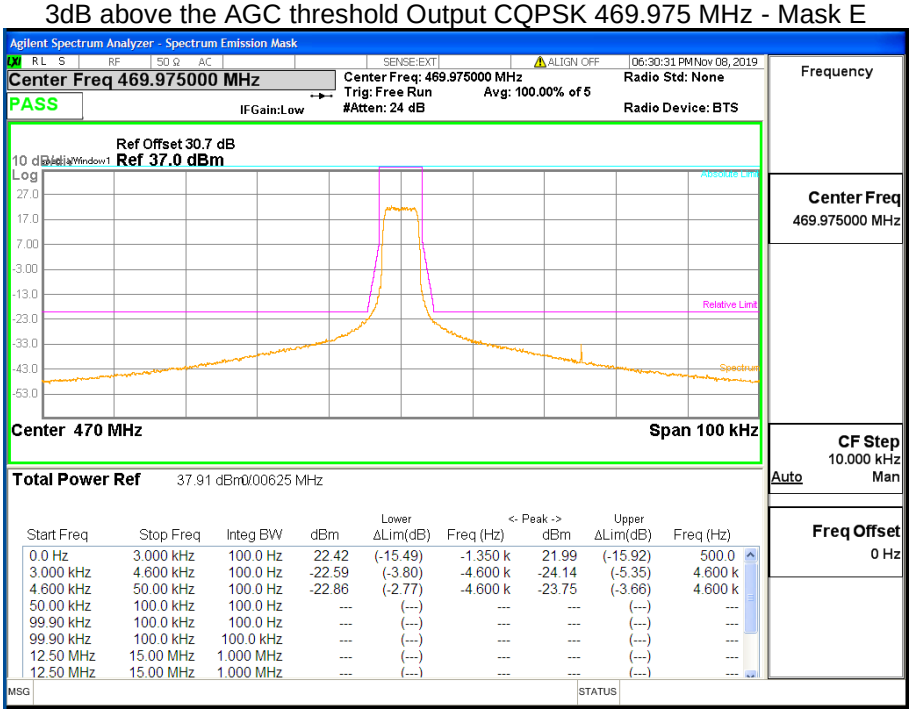
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.32	(-15.69)	-850.0	21.13	(-15.88)	1.950 k
3.000 kHz	4.600 kHz	100.0 Hz	-28.47	(-8.78)	-4.600 k	-28.50	(-8.81)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-28.19	(-7.20)	-4.600 k	-28.06	(-7.07)	4.600 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 469.975 MHz - Mask E

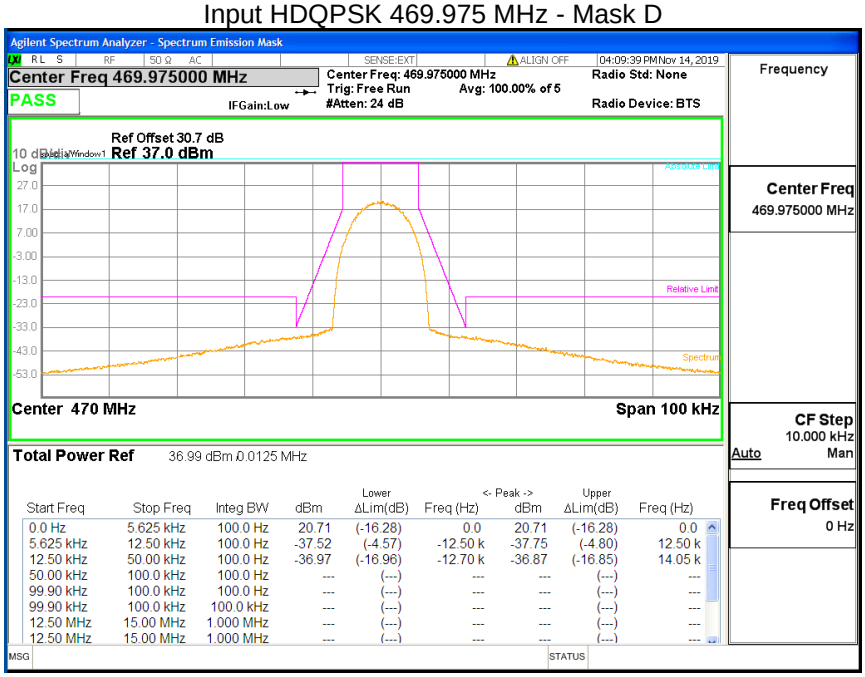


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	3.000 kHz	100.0 Hz	21.93	(-15.94)	-1.350 k	22.07	(-15.81)	550.0
3.000 kHz	4.600 kHz	100.0 Hz	-23.14	(-4.31)	-4.600 k	-24.42	(-5.60)	4.600 k
4.600 kHz	50.00 kHz	100.0 Hz	-23.01	(-2.88)	-4.700 k	-23.81	(-3.69)	4.700 k
50.00 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 Hz	---	(---)	---	---	(---)	---
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

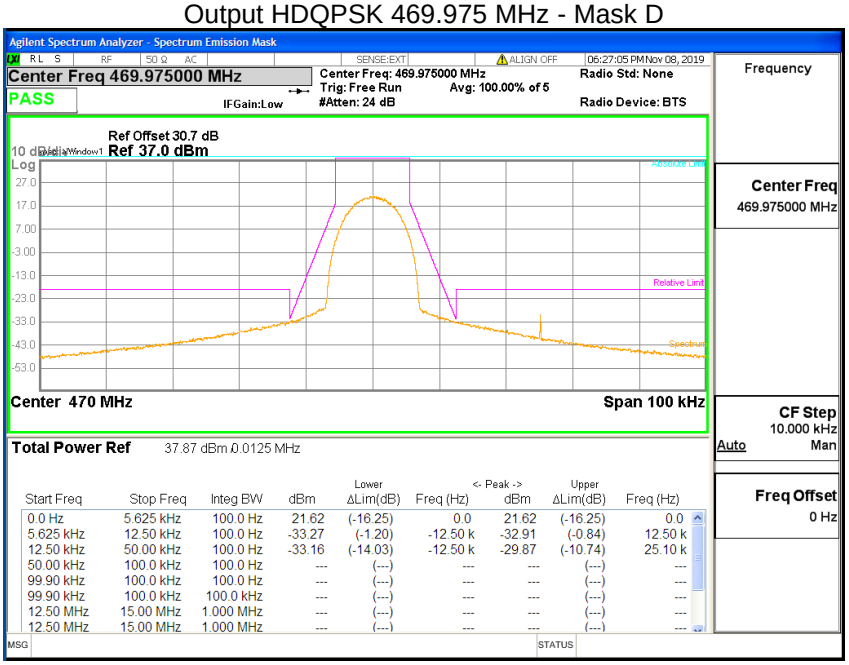
3dB above the AGC threshold Output CQPSK 469.975 MHz - Mask E



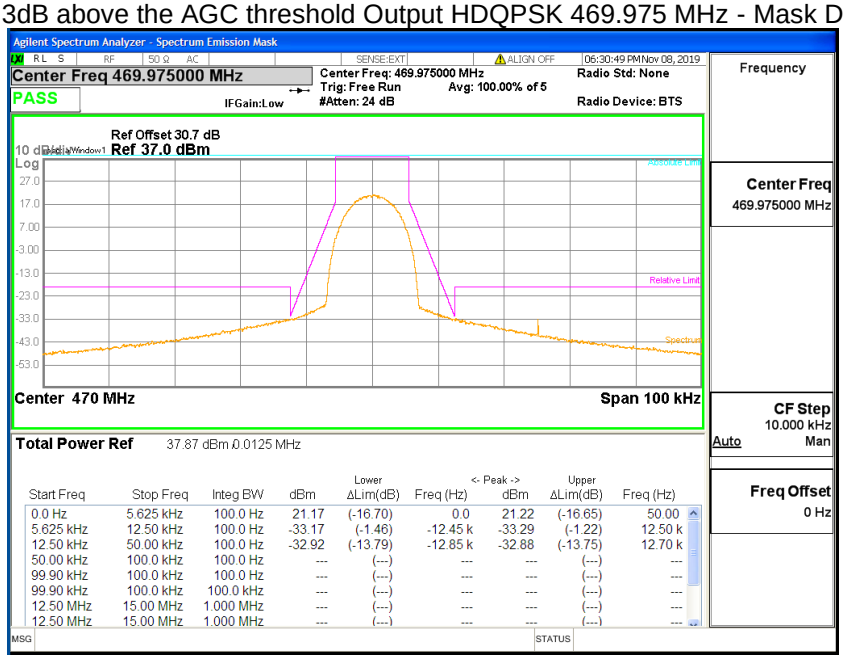
Input HDQPSK 469.975 MHz - Mask D



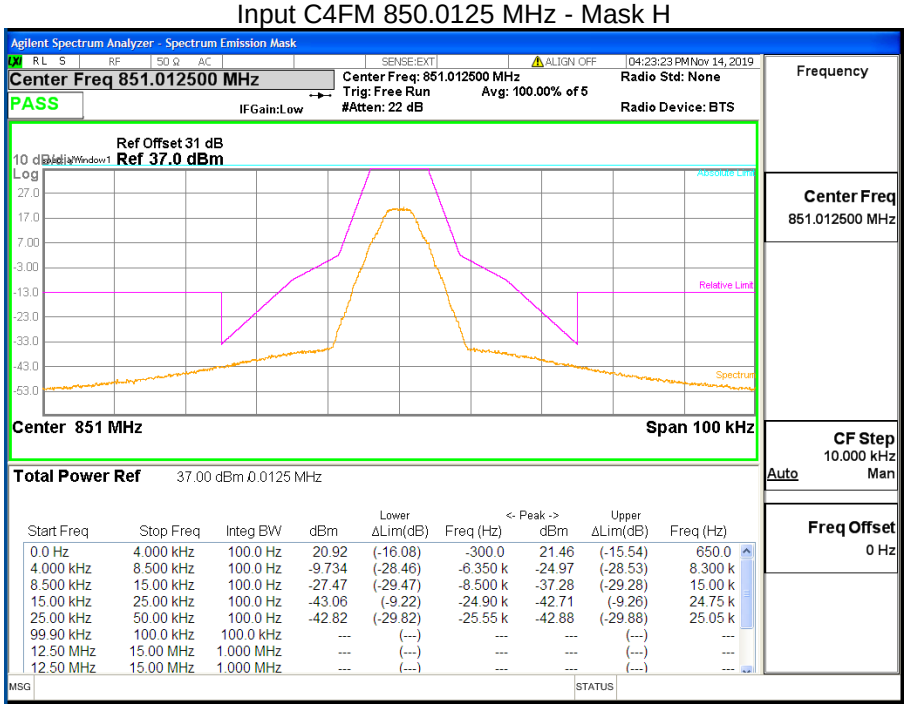
Output HDQPSK 469.975 MHz - Mask D



3dB above the AGC threshold Output HDQPSK 469.975 MHz - Mask D

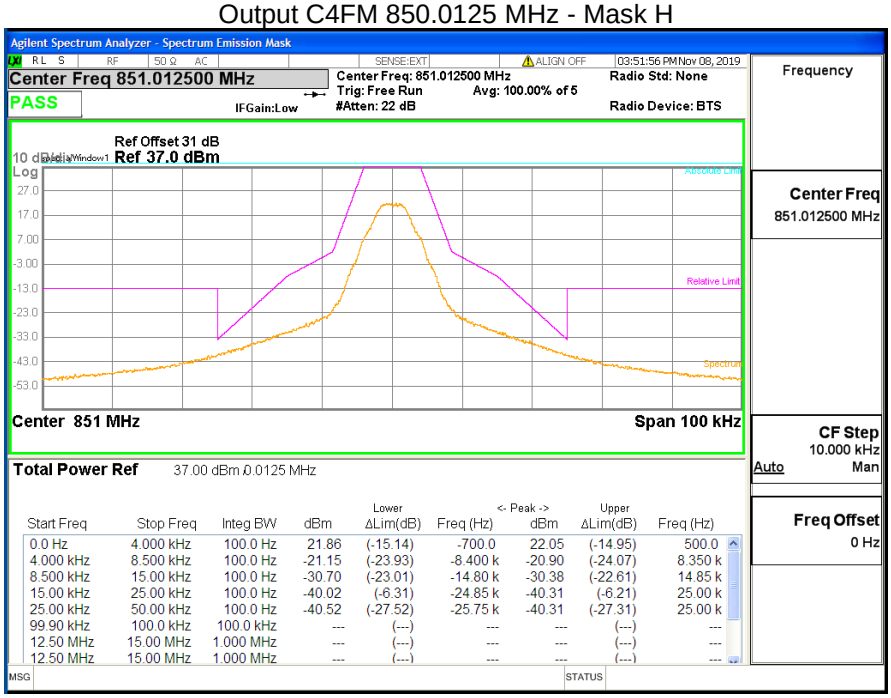


Input C4FM 850.0125 MHz - Mask H



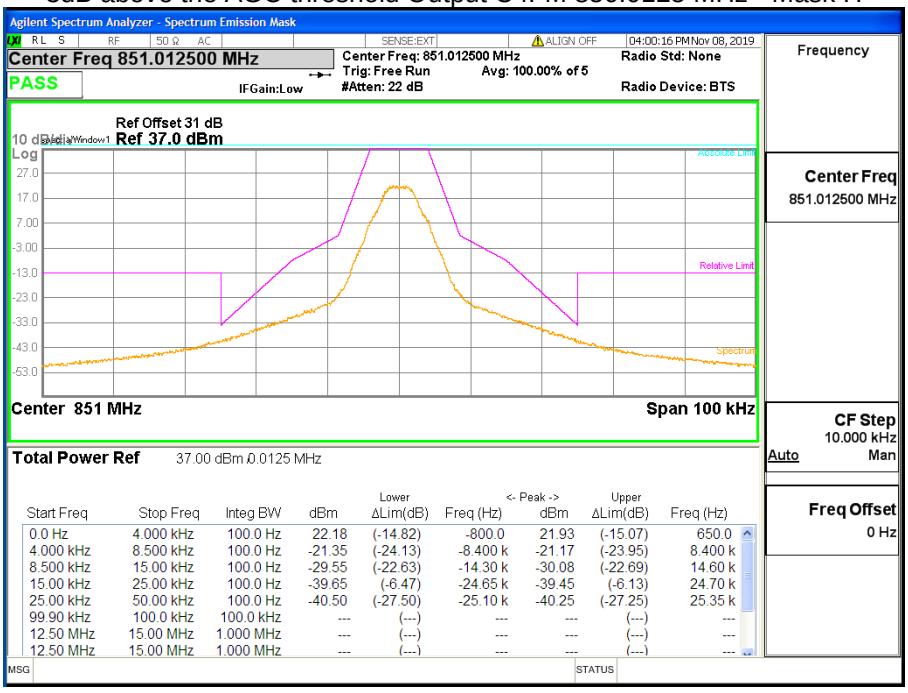
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.92	(-16.08)	-300.0	21.46	(-15.54)	650.0
4.000 kHz	8.500 kHz	100.0 Hz	-9.734	(-28.46)	-6.350 k	-24.97	(-28.53)	8.300 k
8.500 kHz	15.00 kHz	100.0 Hz	-27.47	(-29.47)	-8.500 k	-37.28	(-29.28)	15.00 k
15.00 kHz	25.00 kHz	100.0 Hz	-43.06	(-9.22)	-24.90 k	-42.71	(-9.26)	24.75 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.82	(-29.82)	-25.55 k	-42.88	(-29.88)	25.05 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output C4FM 850.0125 MHz - Mask H



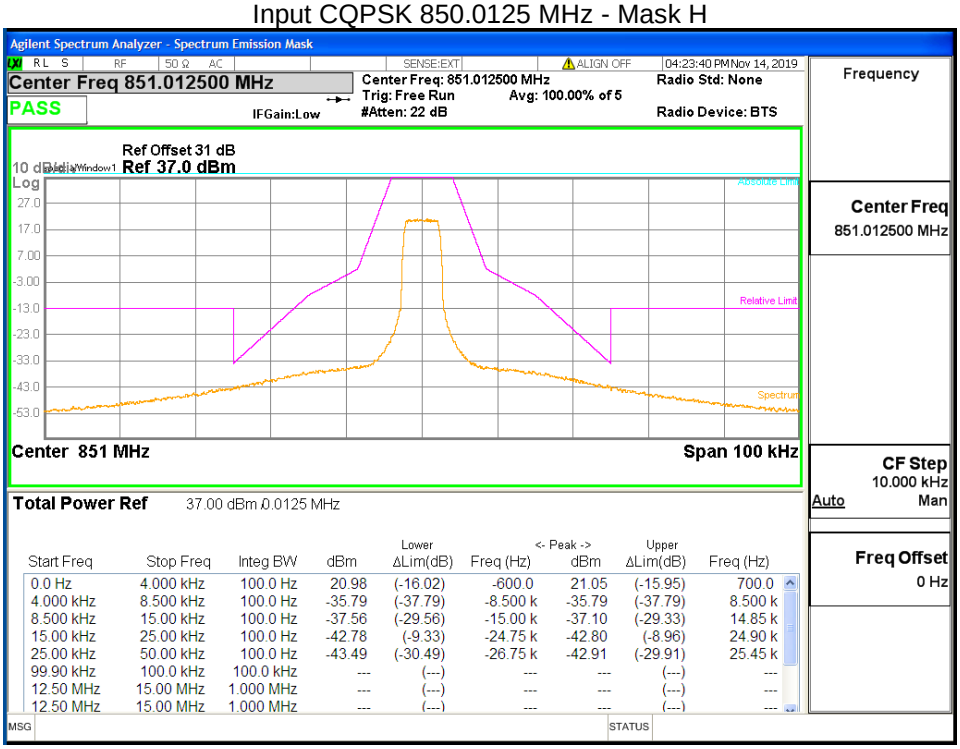
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.86	(-15.14)	-700.0	22.05	(-14.95)	500.0
4.000 kHz	8.500 kHz	100.0 Hz	-21.15	(-23.93)	-8.400 k	-20.90	(-24.07)	8.350 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.70	(-23.01)	-14.80 k	-30.38	(-22.61)	14.85 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.02	(-6.31)	-24.85 k	-40.31	(-6.21)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.52	(-27.52)	-25.75 k	-40.31	(-27.31)	25.00 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output C4FM 850.0125 MHz - Mask H



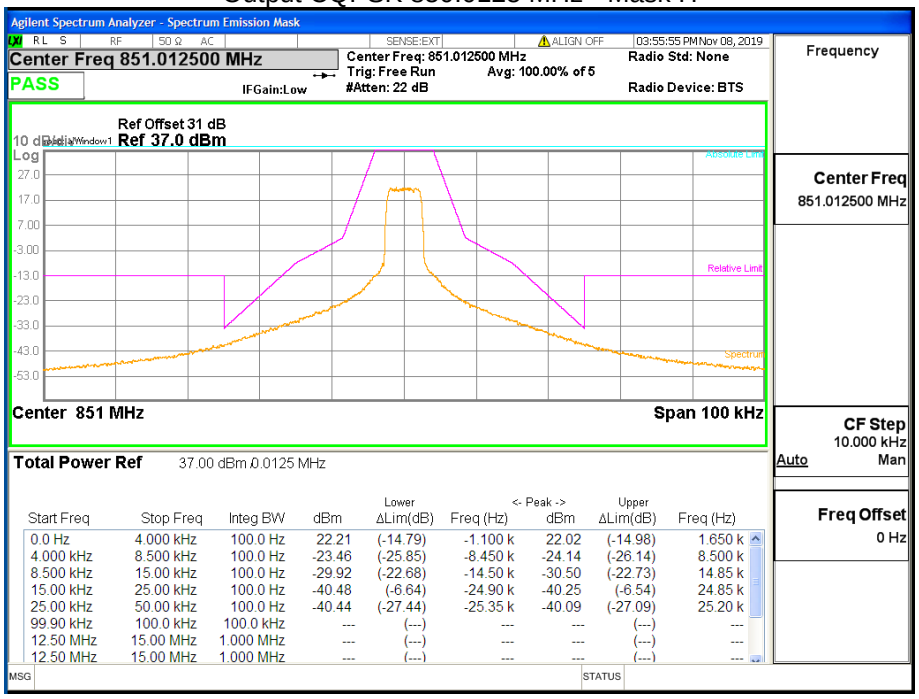
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	22.18	(-14.82)	-800.0	21.93	(-15.07)	650.0
4.000 kHz	8.500 kHz	100.0 Hz	-21.35	(-24.13)	-8.400 k	-21.17	(-23.95)	8.400 k
8.500 kHz	15.00 kHz	100.0 Hz	-29.55	(-22.63)	-14.30 k	-30.08	(-22.69)	14.60 k
15.00 kHz	25.00 kHz	100.0 Hz	-39.65	(-6.47)	-24.65 k	-39.45	(-6.13)	24.70 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.50	(-27.50)	-25.10 k	-40.25	(-27.25)	25.35 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input CQPSK 850.0125 MHz - Mask H



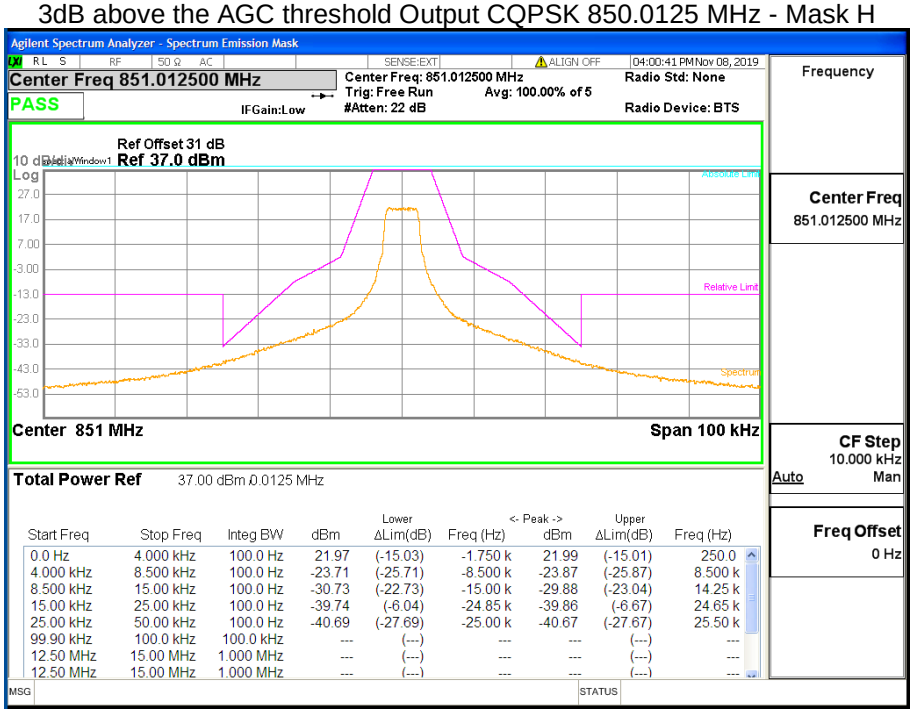
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.98	(-16.02)	-600.0	21.05	(-15.95)	700.0
4.000 kHz	8.500 kHz	100.0 Hz	-35.79	(-37.79)	-8.500 k	-35.79	(-37.79)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-37.56	(-29.56)	-15.00 k	-37.10	(-29.33)	14.85 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.78	(-9.33)	-24.75 k	-42.80	(-8.96)	24.90 k
25.00 kHz	50.00 kHz	100.0 Hz	-43.49	(-30.49)	-26.75 k	-42.91	(-29.91)	25.45 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 850.0125 MHz - Mask H



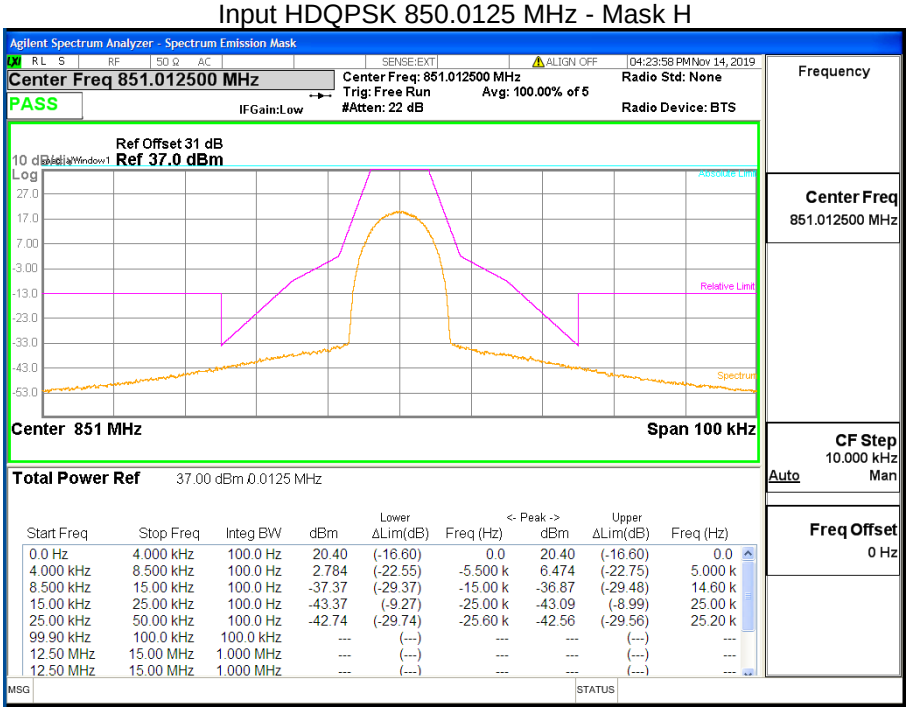
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	22.21	(-14.79)	-1.100 k	22.02	(-14.98)	1.650 k
4.000 kHz	8.500 kHz	100.0 Hz	-23.46	(-25.85)	-8.450 k	-24.14	(-26.14)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-29.92	(-22.68)	-14.50 k	-30.50	(-22.73)	14.85 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.48	(-6.64)	-24.90 k	-40.25	(-6.54)	24.85 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.44	(-27.44)	-25.35 k	-40.09	(-27.09)	25.20 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output CQPSK 850.0125 MHz - Mask H

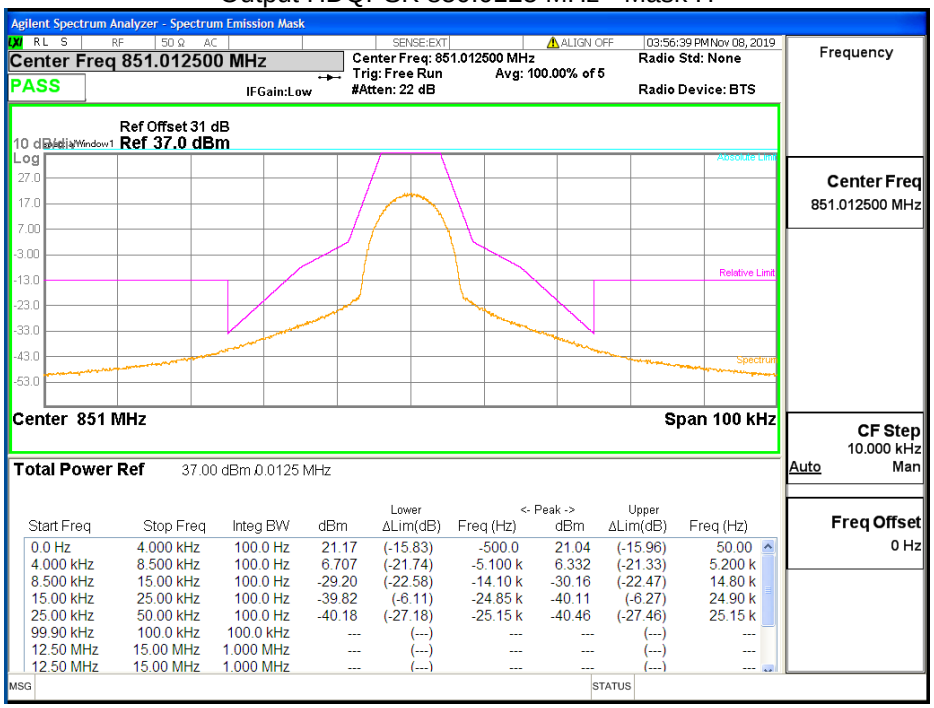


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.97	(-15.03)	-1.750 k	21.99	(-15.01)	250.0
4.000 kHz	8.500 kHz	100.0 Hz	-23.71	(-25.71)	-8.500 k	-23.87	(-25.87)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.73	(-22.73)	-15.00 k	-29.88	(-23.04)	14.25 k
15.00 kHz	25.00 kHz	100.0 Hz	-39.74	(-6.04)	-24.85 k	-39.86	(-6.67)	24.65 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.69	(-27.69)	-25.00 k	-40.67	(-27.67)	25.50 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

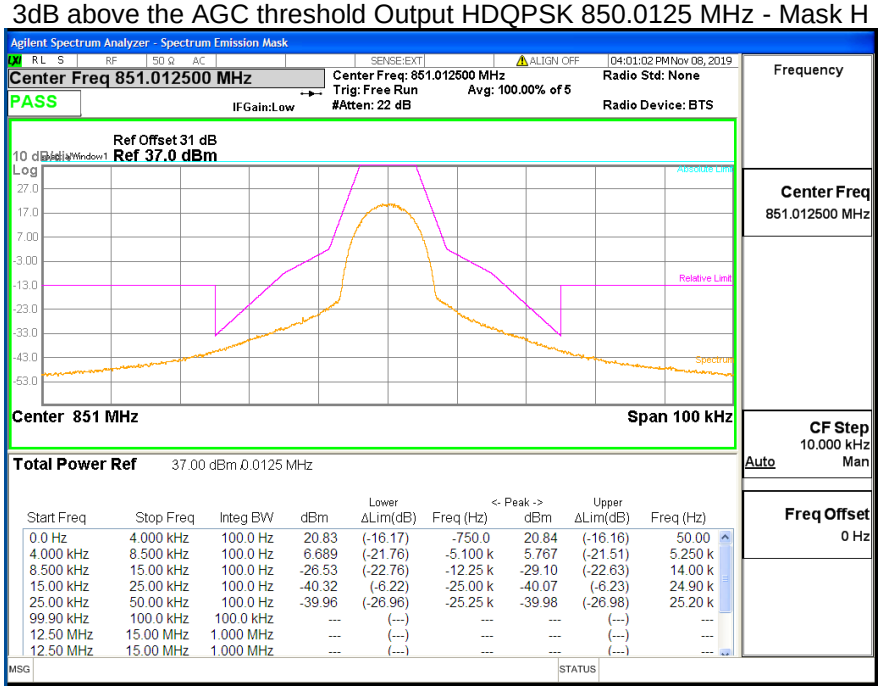
Input HDQPSK 850.0125 MHz - Mask H



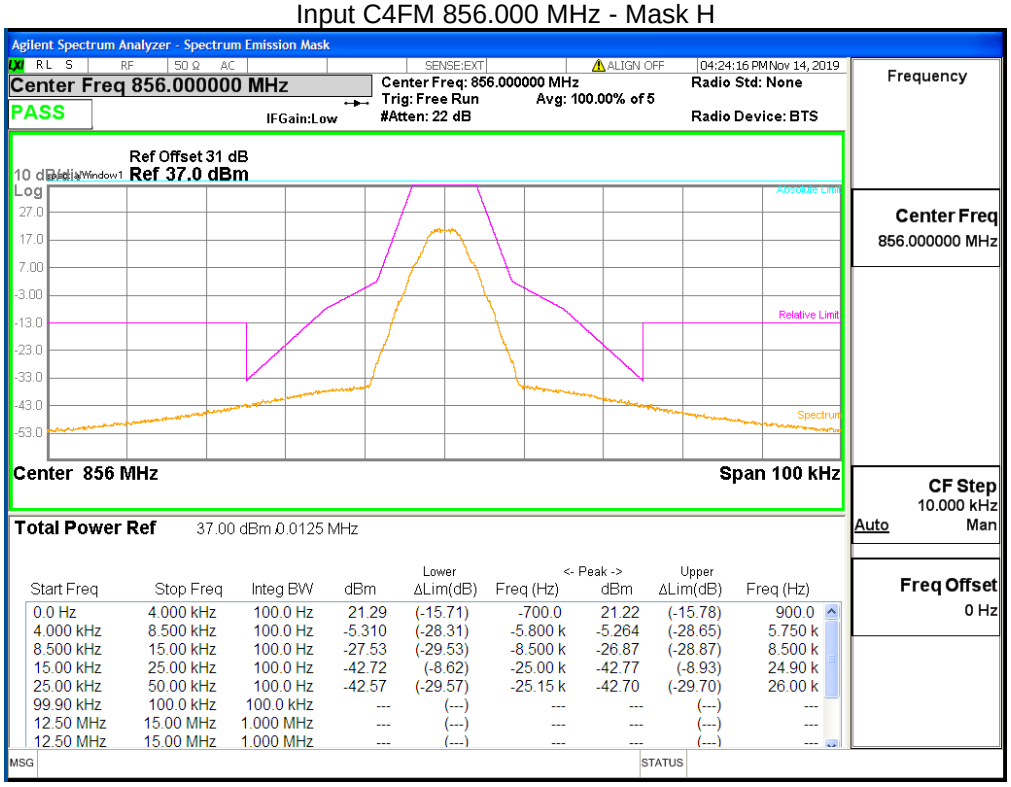
Output HDQPSK 850.0125 MHz - Mask H



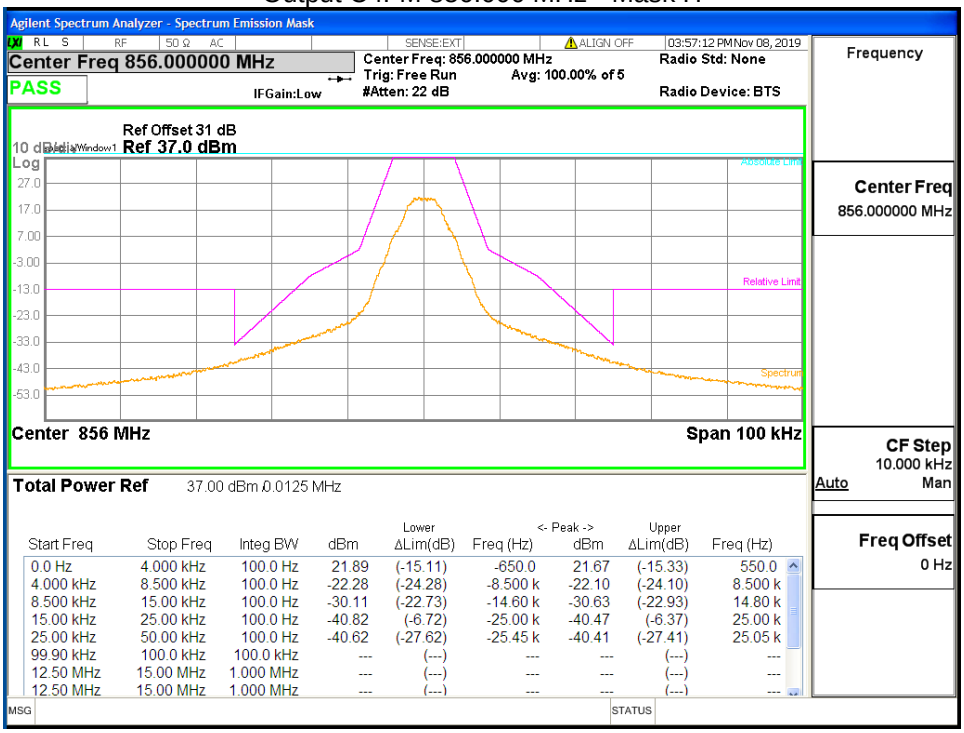
3dB above the AGC threshold Output HDQPSK 850.0125 MHz - Mask H



Input C4FM 856.000 MHz - Mask H

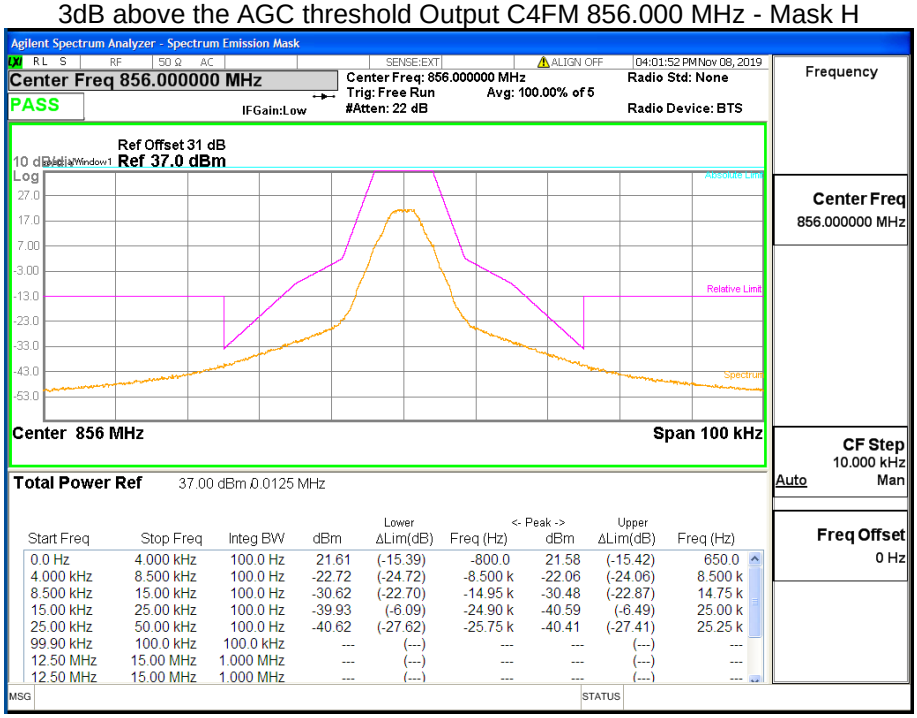


Output C4FM 856.000 MHz - Mask H



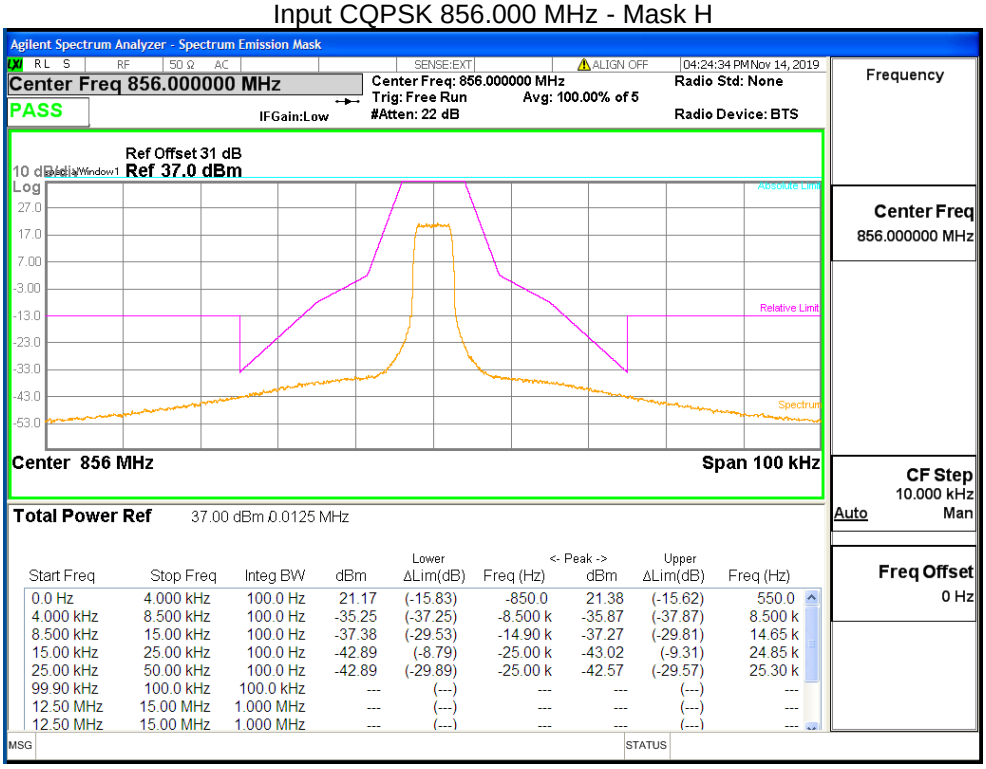
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.89	(-15.11)	-650.0	21.67	(-15.33)	550.0
4.000 kHz	8.500 kHz	100.0 Hz	-22.28	(-24.28)	-8.500 k	-22.10	(-24.10)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.11	(-22.73)	-14.60 k	-30.63	(-22.93)	14.80 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.82	(-6.72)	-25.00 k	-40.47	(-6.37)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.62	(-27.62)	-25.45 k	-40.41	(-27.41)	25.05 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output C4FM 856.000 MHz - Mask H



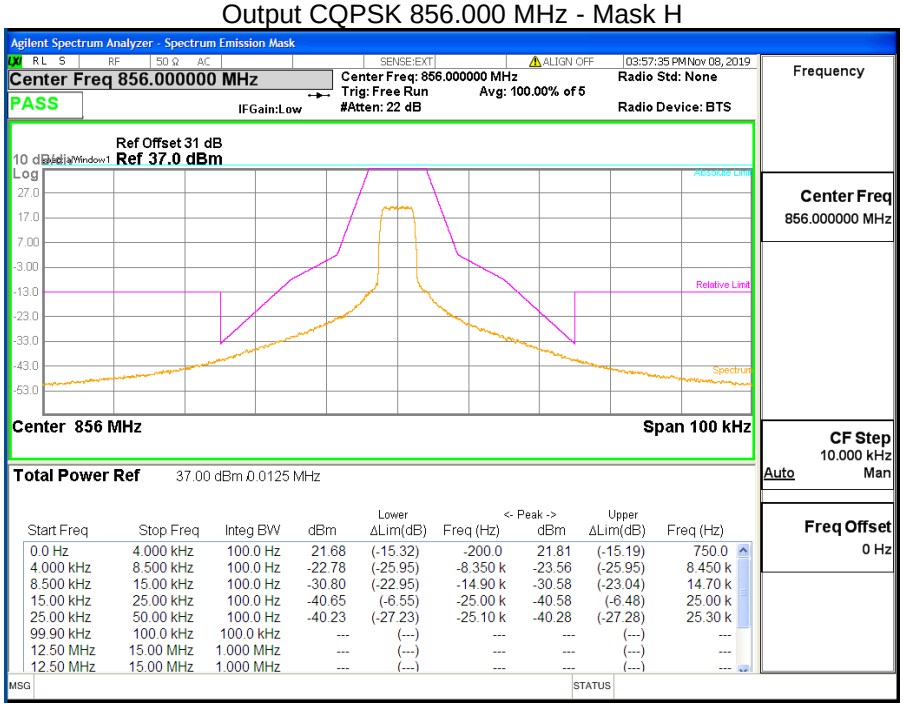
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.61	(-15.39)	-800.0	21.58	(-15.42)	650.0
4.000 kHz	8.500 kHz	100.0 Hz	-22.72	(-24.72)	-8.500 k	-22.06	(-24.06)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.62	(-22.70)	-14.95 k	-30.48	(-22.87)	14.75 k
15.00 kHz	25.00 kHz	100.0 Hz	-39.93	(-6.09)	-24.90 k	-40.59	(-6.49)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.62	(-27.62)	-25.75 k	-40.41	(-27.41)	25.25 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input CQPSK 856.000 MHz - Mask H



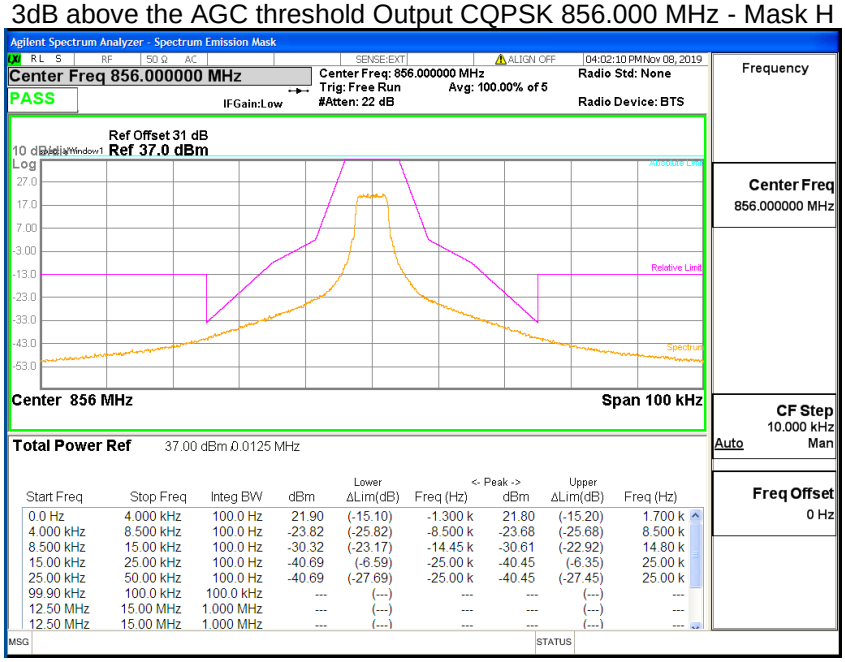
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.17	(-15.83)	-850.0	21.38	(-15.62)	550.0
4.000 kHz	8.500 kHz	100.0 Hz	-35.25	(-37.25)	-8.500 k	-35.87	(-37.87)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-37.38	(-29.53)	-14.90 k	-37.27	(-29.81)	14.65 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.89	(-8.79)	-25.00 k	-43.02	(-9.31)	24.85 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.89	(-29.89)	-25.00 k	-42.57	(-29.57)	25.30 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output CQPSK 856.000 MHz - Mask H



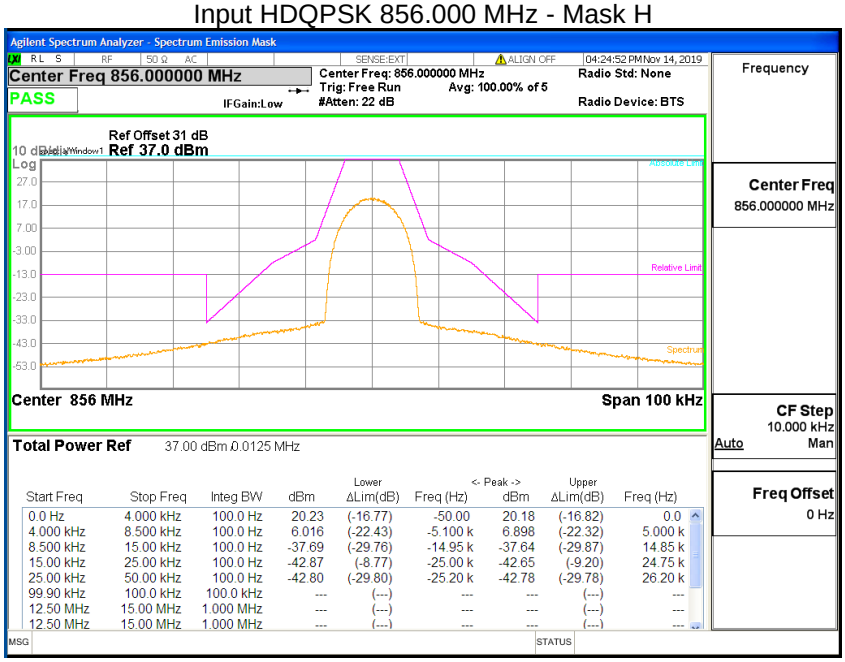
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.68	(-15.32)	-200.0	21.81	(-15.19)	750.0
4.000 kHz	8.500 kHz	100.0 Hz	-22.78	(-25.95)	-8.350 k	-23.56	(-25.95)	8.450 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.80	(-22.95)	-14.90 k	-30.58	(-23.04)	14.70 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.65	(-6.55)	-25.00 k	-40.58	(-6.48)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.23	(-27.23)	-25.10 k	-40.28	(-27.28)	25.30 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output CQPSK 856.000 MHz - Mask H



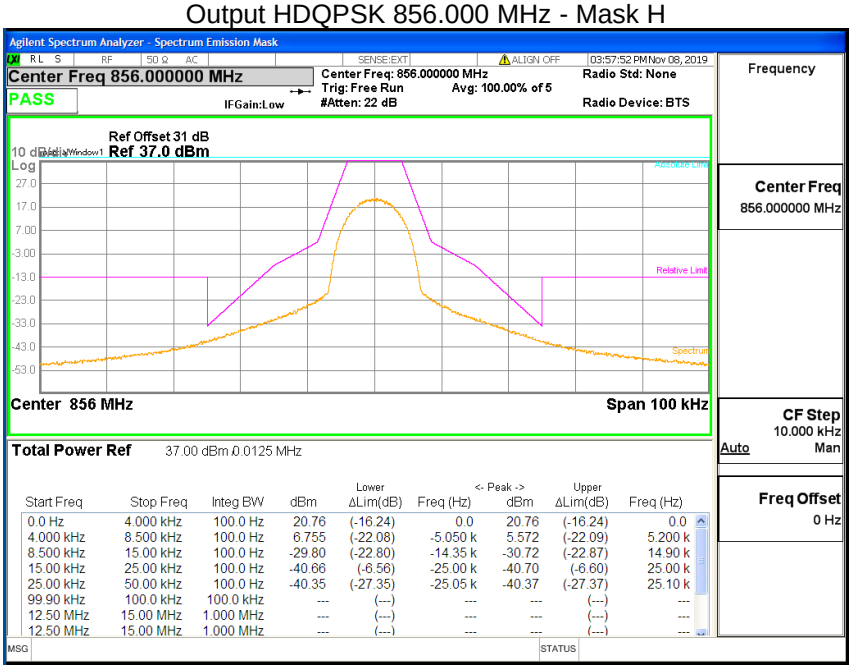
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.90	(-15.10)	-1.300 k	21.80	(-15.20)	1.700 k
4.000 kHz	8.500 kHz	100.0 Hz	-23.82	(-25.82)	-8.500 k	-23.68	(-25.68)	8.500 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.32	(-23.17)	-14.45 k	-30.61	(-22.92)	14.80 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.69	(-6.59)	-25.00 k	-40.45	(-6.35)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.69	(-27.69)	-25.00 k	-40.45	(-27.45)	25.00 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input HDQPSK 856.000 MHz - Mask H



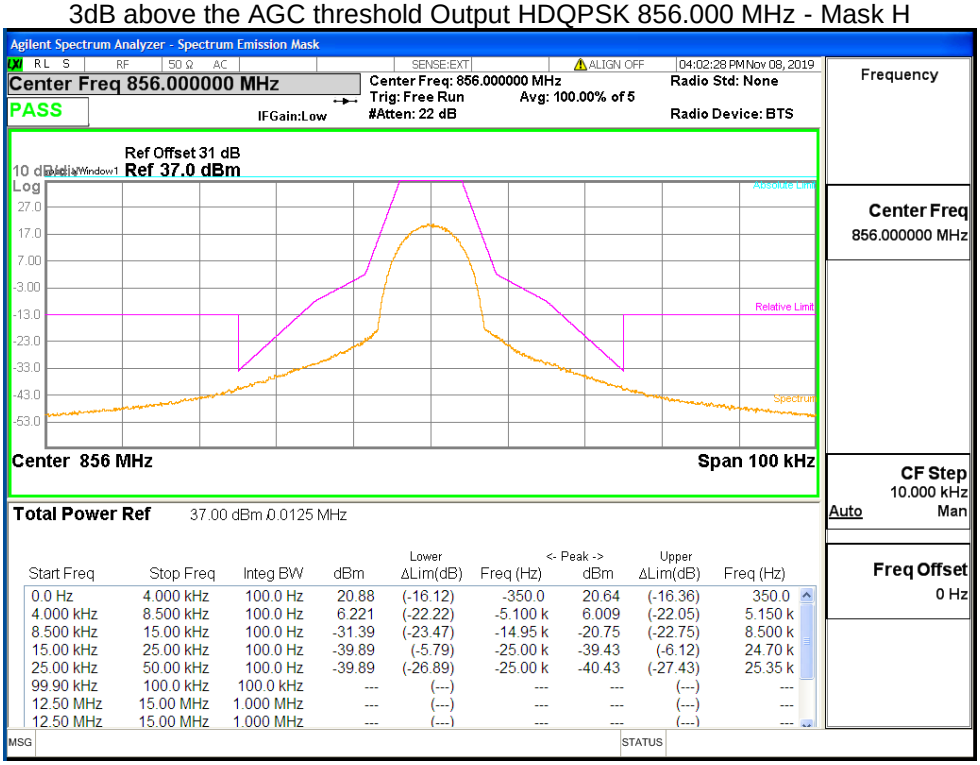
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.23	(-16.77)	-50.00	20.18	(-16.82)	0.0
4.000 kHz	8.500 kHz	100.0 Hz	6.016	(-22.43)	-5.100 k	6.898	(-22.32)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-37.69	(-29.76)	-14.95 k	-37.64	(-29.87)	14.85 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.87	(-8.77)	-25.00 k	-42.65	(-9.20)	24.75 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.80	(-29.80)	-25.20 k	-42.78	(-29.78)	26.20 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output HDQPSK 856.000 MHz - Mask H



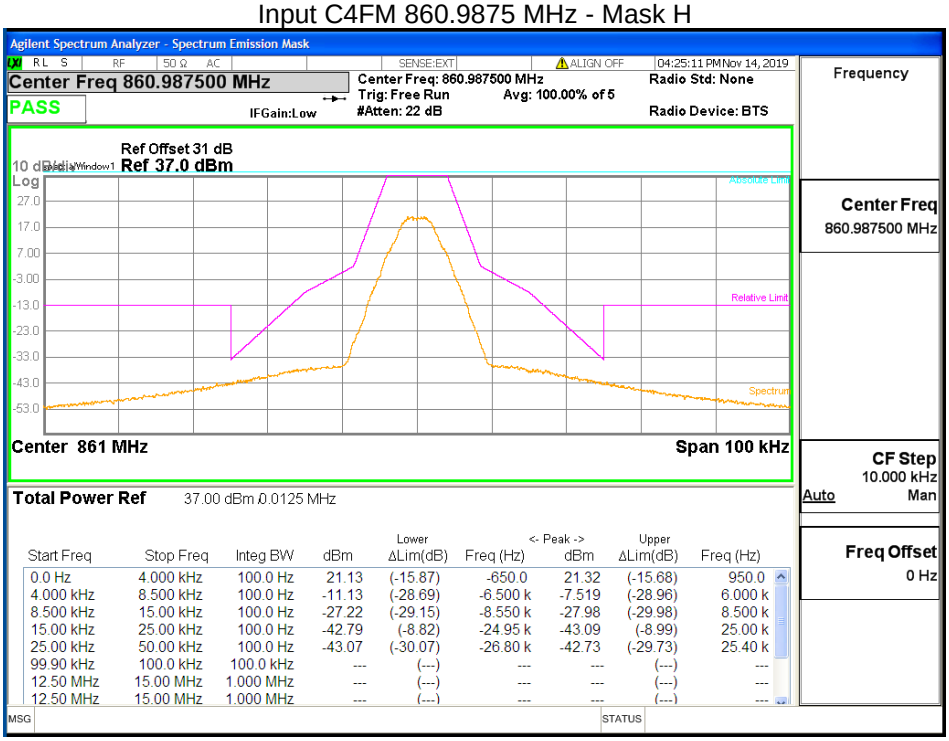
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.76	(-16.24)	0.0	20.76	(-16.24)	0.0
4.000 kHz	8.500 kHz	100.0 Hz	6.755	(-22.08)	-5.050 k	5.572	(-22.09)	5.200 k
8.500 kHz	15.00 kHz	100.0 Hz	-29.80	(-22.80)	-14.35 k	-30.72	(-22.87)	14.90 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.66	(-6.56)	-25.00 k	-40.70	(-6.60)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.35	(-27.35)	-25.05 k	-40.37	(-27.37)	25.10 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output HDQPSK 856.000 MHz - Mask H



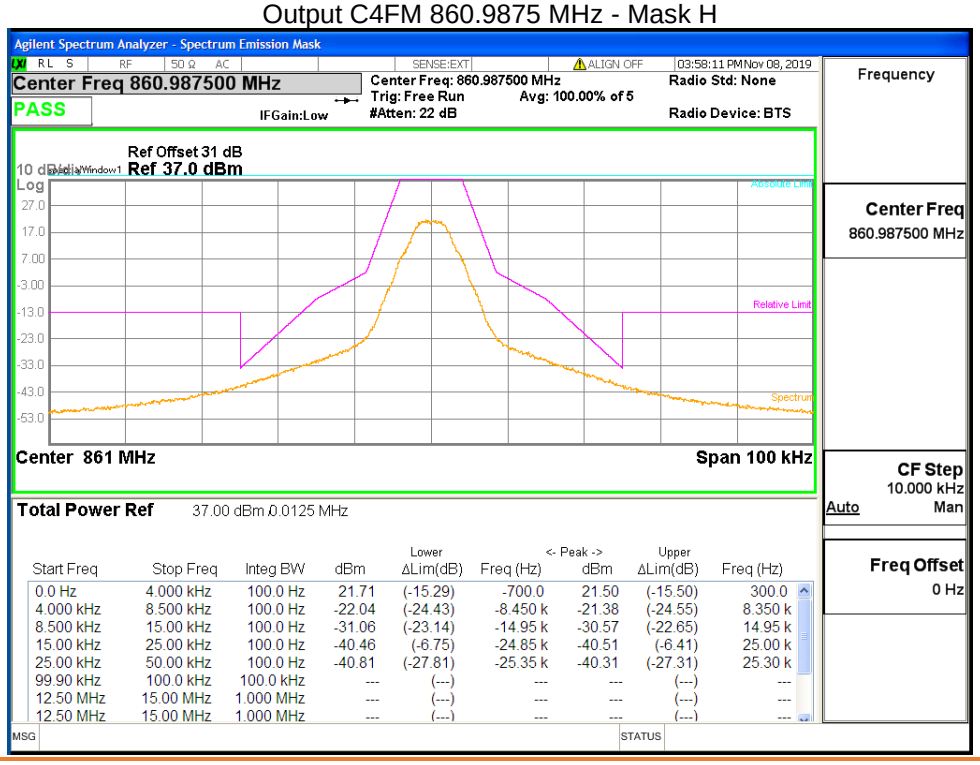
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.88	(-16.12)	-350.0	20.64	(-16.36)	350.0
4.000 kHz	8.500 kHz	100.0 Hz	6.221	(-22.22)	-5.100 k	6.009	(-22.05)	5.150 k
8.500 kHz	15.00 kHz	100.0 Hz	-31.39	(-23.47)	-14.95 k	-20.75	(-22.75)	8.500 k
15.00 kHz	25.00 kHz	100.0 Hz	-39.89	(-5.79)	-25.00 k	-39.43	(-6.12)	24.70 k
25.00 kHz	50.00 kHz	100.0 Hz	-39.89	(-26.89)	-25.00 k	-40.43	(-27.43)	25.35 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input C4FM 860.9875 MHz - Mask H



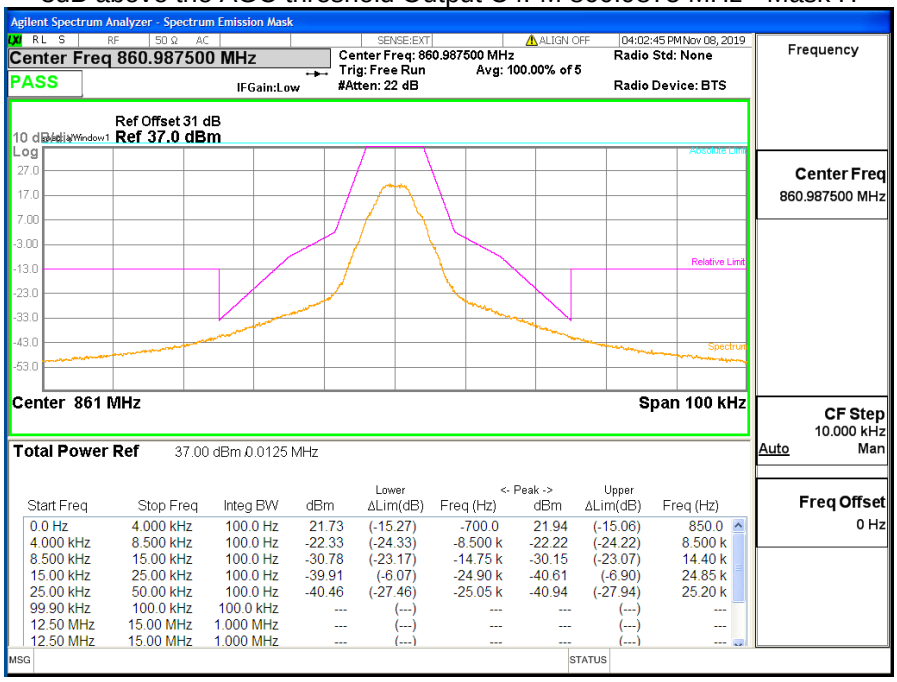
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.13	(-15.87)	-650.0	21.32	(-15.68)	950.0
4.000 kHz	8.500 kHz	100.0 Hz	-11.13	(-28.69)	-6.500 k	-7.519	(-28.96)	6.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-27.22	(-29.15)	-8.550 k	-27.98	(-29.98)	8.500 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.79	(-8.82)	-24.95 k	-43.09	(-8.99)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-43.07	(-30.07)	-26.80 k	-42.73	(-29.73)	25.40 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output C4FM 860.9875 MHz - Mask H

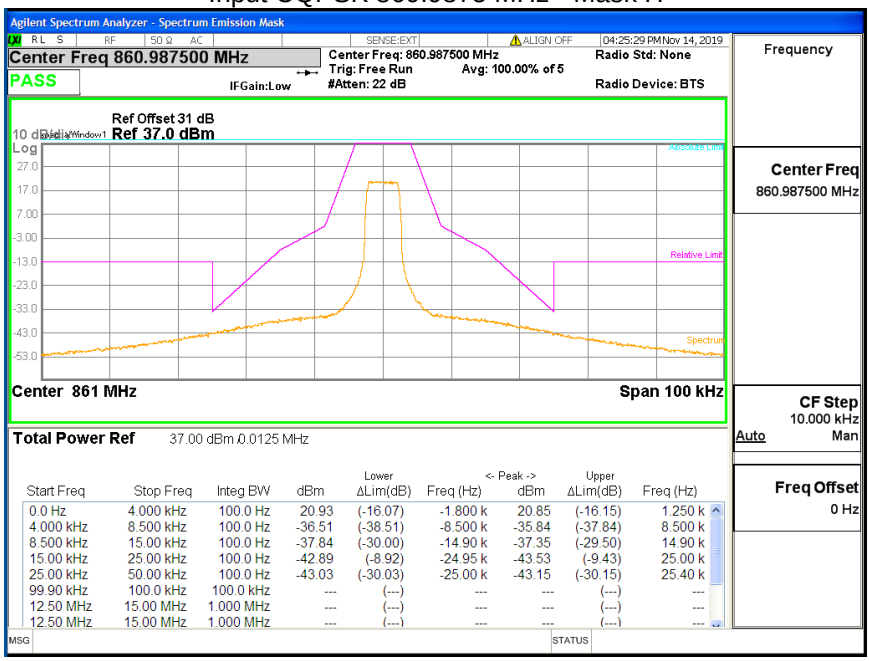


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	21.71	(-15.29)	-700.0	21.50	(-15.50)	300.0
4.000 kHz	8.500 kHz	100.0 Hz	-22.04	(-24.43)	-8.450 k	-21.38	(-24.55)	8.350 k
8.500 kHz	15.00 kHz	100.0 Hz	-31.06	(-23.14)	-14.95 k	-30.57	(-22.65)	14.95 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.46	(-6.75)	-24.85 k	-40.51	(-6.41)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.81	(-27.81)	-25.35 k	-40.31	(-27.31)	25.30 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

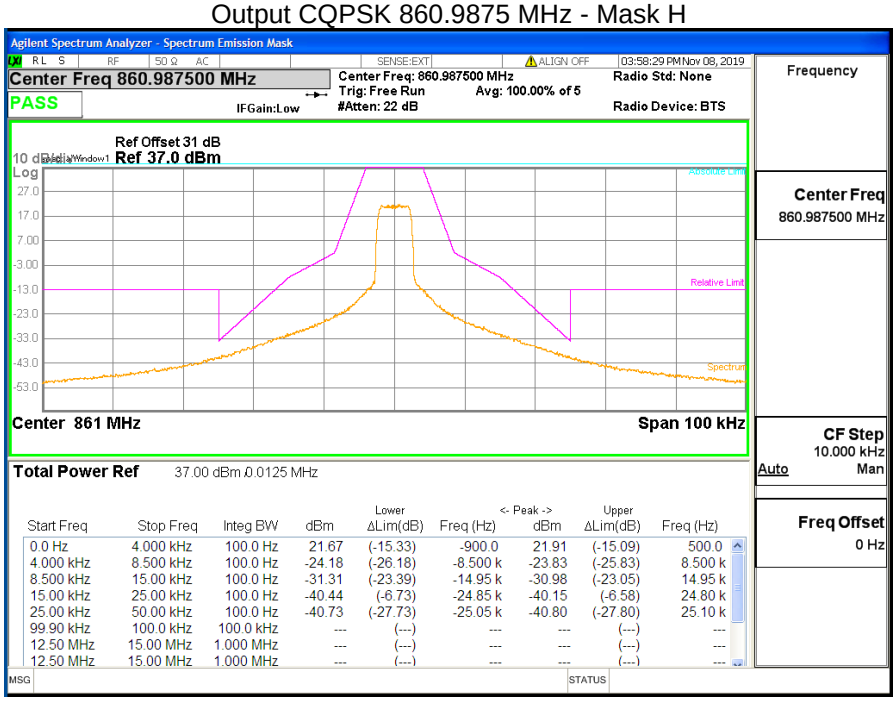
3dB above the AGC threshold Output C4FM 860.9875 MHz - Mask H



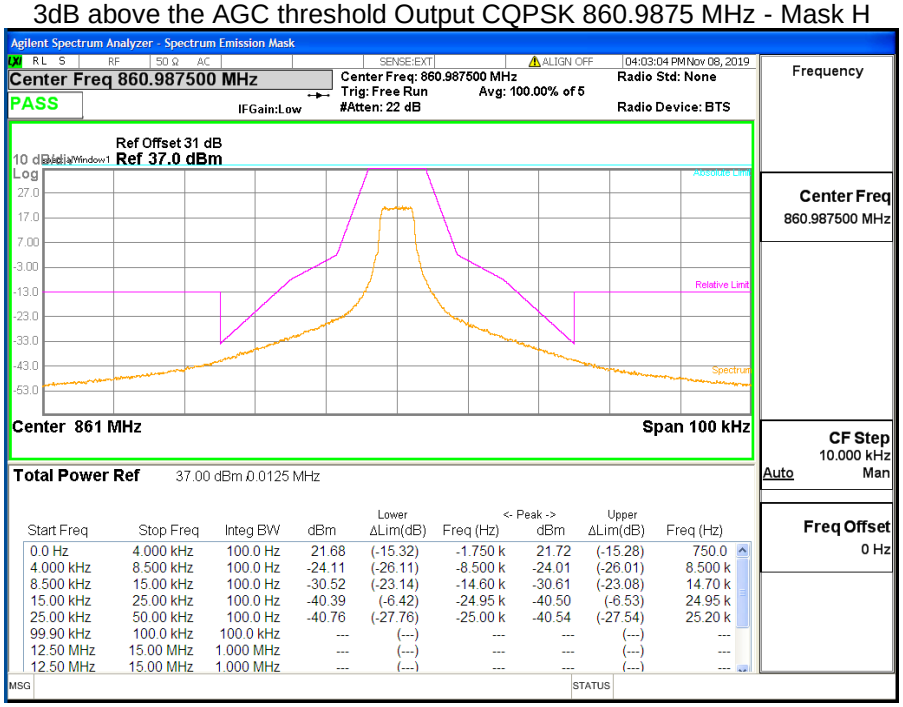
Input CQPSK 860.9875 MHz - Mask H



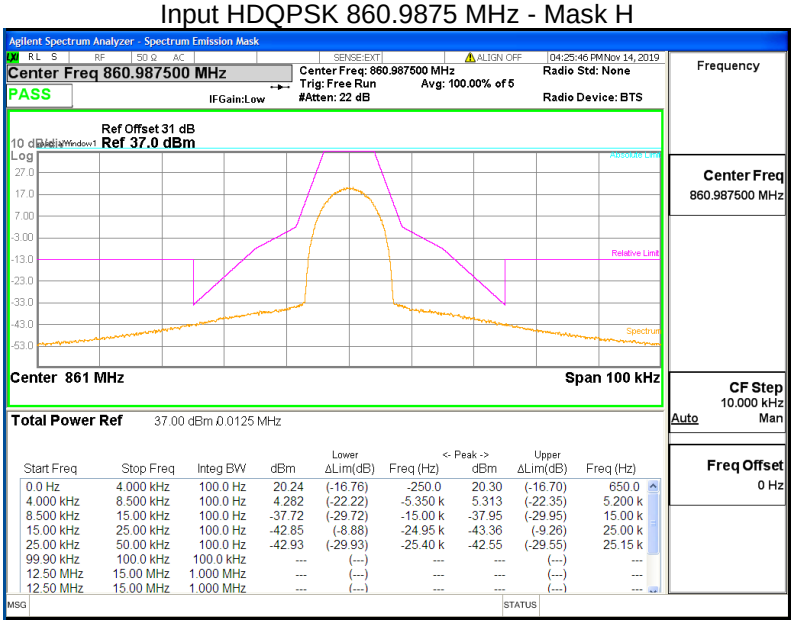
Output CQPSK 860.9875 MHz - Mask H



3dB above the AGC threshold Output CQPSK 860.9875 MHz - Mask H

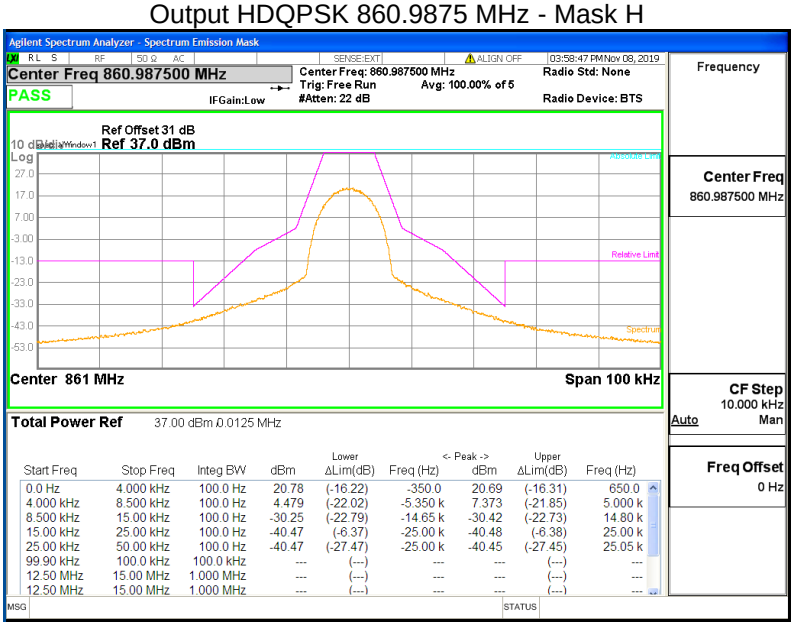


Input HDQPSK 860.9875 MHz - Mask H



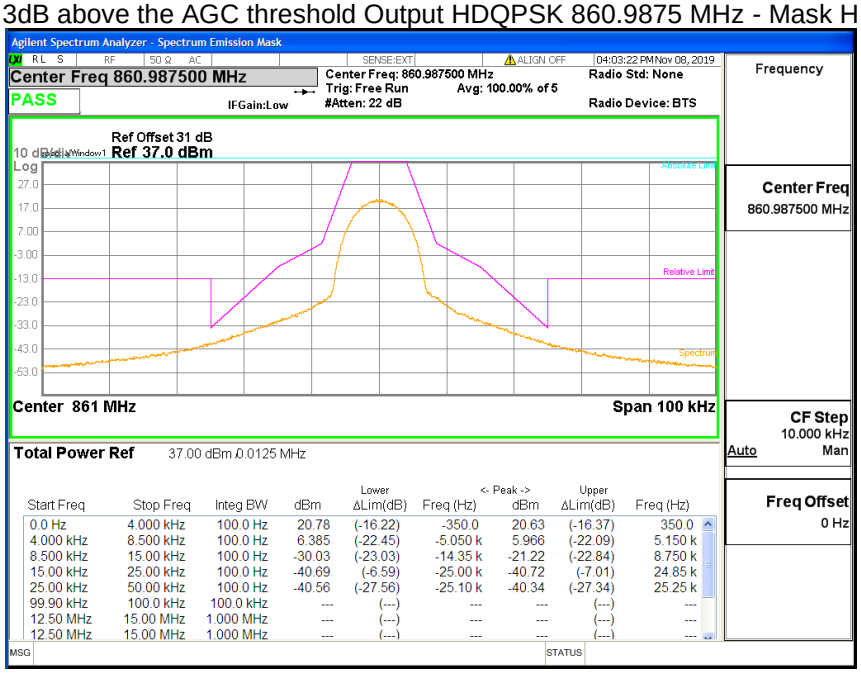
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.24	(-16.76)	-250.0	20.30	(-16.70)	650.0
4.000 kHz	8.500 kHz	100.0 Hz	4.282	(-22.22)	-5.350 k	5.313	(-22.35)	5.200 k
8.500 kHz	15.00 kHz	100.0 Hz	-37.72	(-29.72)	-15.00 k	-37.95	(-29.95)	15.00 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.85	(-8.88)	-24.95 k	-43.36	(-9.26)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.93	(-29.93)	-25.40 k	-42.55	(-29.55)	25.15 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output HDQPSK 860.9875 MHz - Mask H



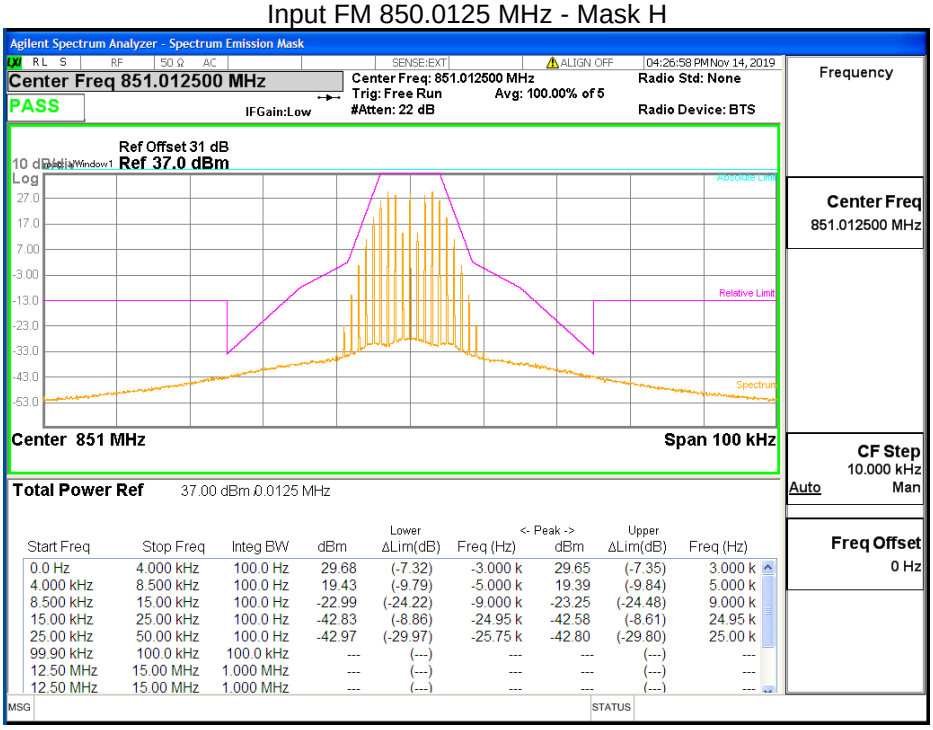
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.78	(-16.22)	-350.0	20.69	(-16.31)	650.0
4.000 kHz	8.500 kHz	100.0 Hz	4.479	(-22.02)	-5.350 k	7.373	(-21.85)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.25	(-22.79)	-14.65 k	-30.42	(-22.73)	14.80 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.47	(-6.37)	-25.00 k	-40.48	(-6.38)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.47	(-27.47)	-25.00 k	-40.45	(-27.45)	25.05 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output HDQPSK 860.9875 MHz - Mask H



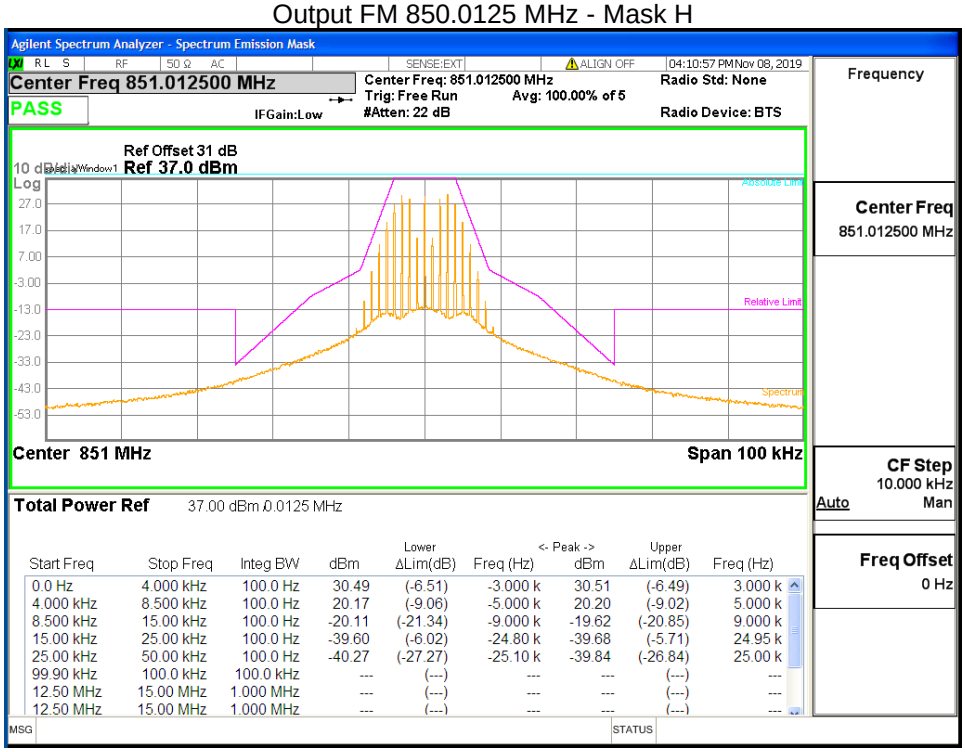
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	20.78	(-16.22)	-350.0	20.63	(-16.37)	350.0
4.000 kHz	8.500 kHz	100.0 Hz	6.385	(-22.45)	-5.050 k	5.966	(-22.09)	5.150 k
8.500 kHz	15.00 kHz	100.0 Hz	-30.03	(-23.03)	-14.35 k	-21.22	(-22.84)	8.750 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.69	(-6.59)	-25.00 k	-40.72	(-7.01)	24.85 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.56	(-27.56)	-25.10 k	-40.34	(-27.34)	25.25 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input FM 850.0125 MHz - Mask H

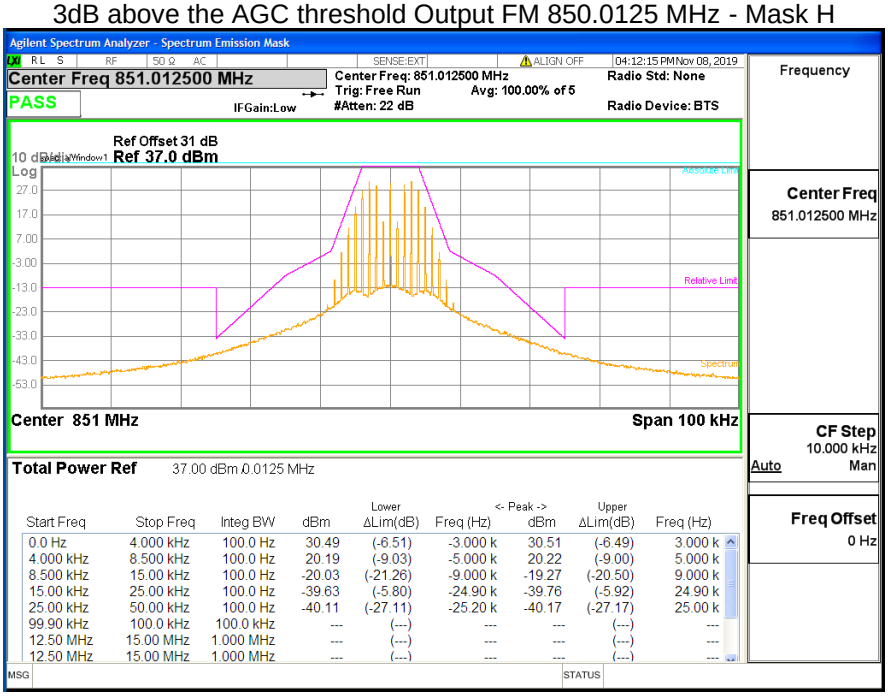


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	29.68	(-7.32)	-3.000 k	29.65	(-7.35)	3.000 k
4.000 kHz	8.500 kHz	100.0 Hz	19.43	(-9.79)	-5.000 k	19.39	(-9.84)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-22.99	(-24.22)	-9.000 k	-23.25	(-24.48)	9.000 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.83	(-8.86)	-24.95 k	-42.58	(-8.61)	24.95 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.97	(-29.97)	-25.75 k	-42.80	(-29.80)	25.00 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

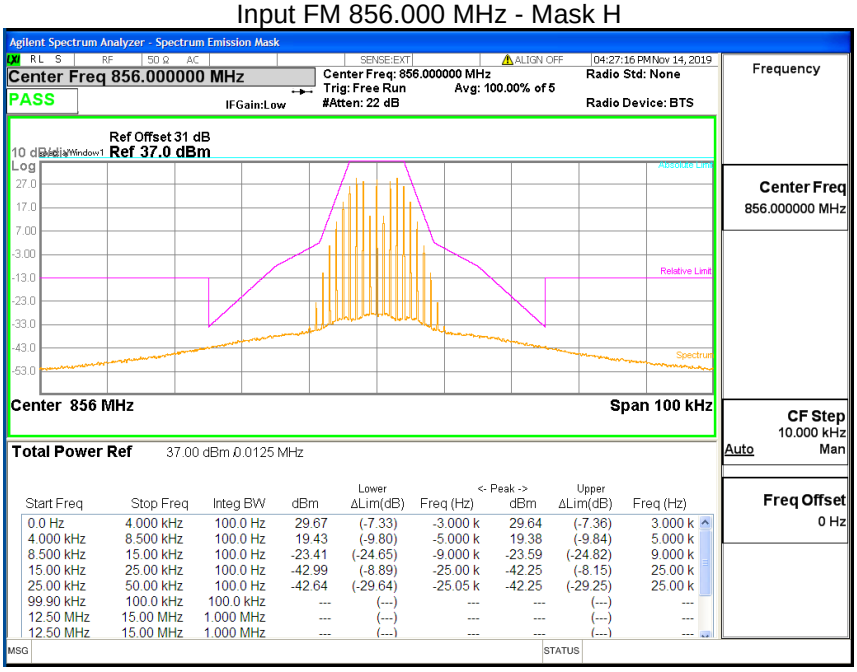
Output FM 850.0125 MHz - Mask H



3dB above the AGC threshold Output FM 850.0125 MHz - Mask H

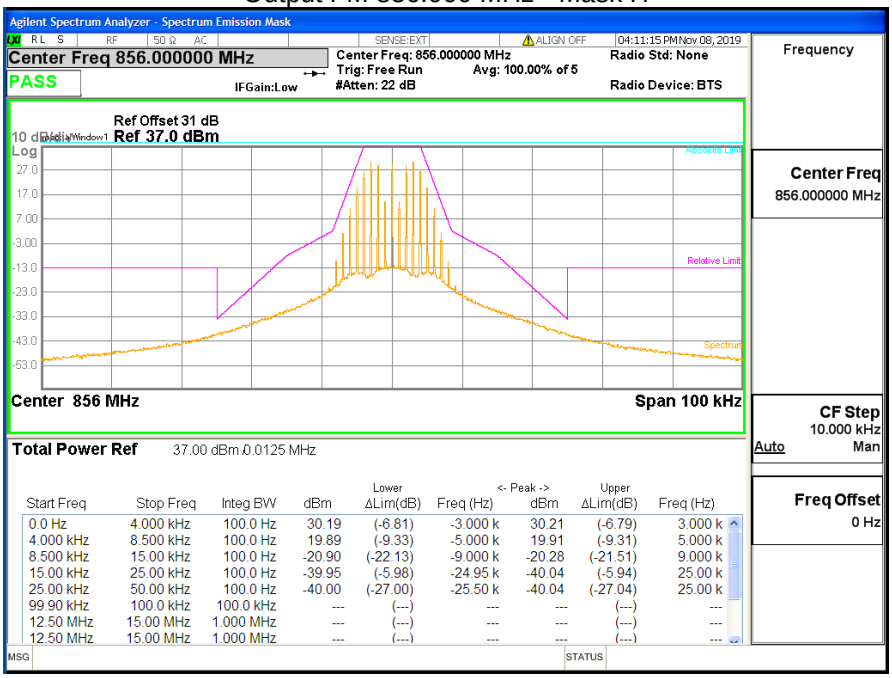


Input FM 856.000 MHz - Mask H



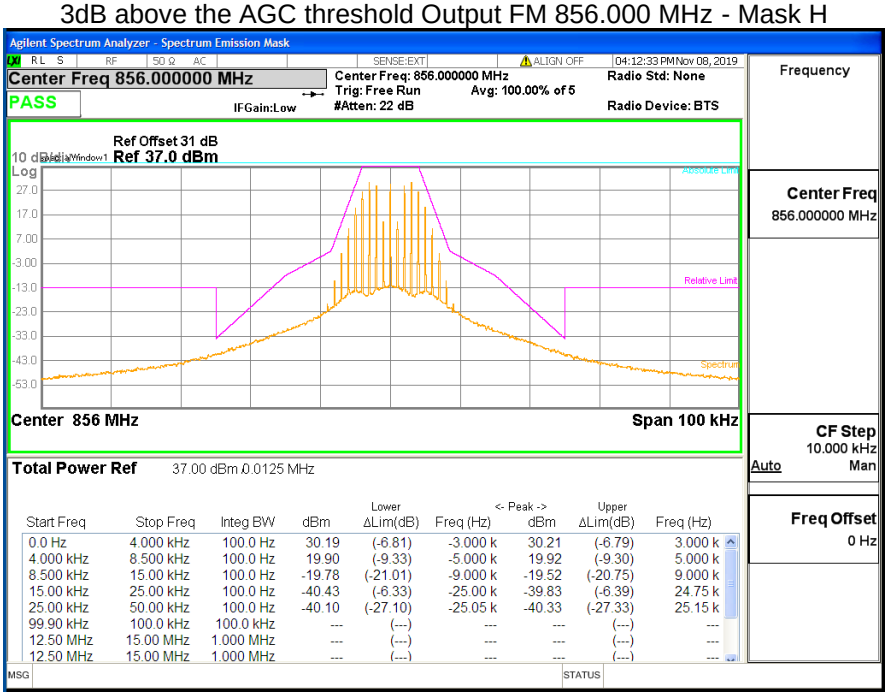
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	29.67	(-7.33)	-3.000 k	29.64	(-7.36)	3.000 k
4.000 kHz	8.500 kHz	100.0 Hz	19.43	(-9.80)	-5.000 k	19.38	(-9.84)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-23.41	(-24.65)	-9.000 k	-23.59	(-24.82)	9.000 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.99	(-8.89)	-25.00 k	-42.25	(-8.15)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.64	(-29.64)	-25.05 k	-42.25	(-29.25)	25.00 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output FM 856.000 MHz - Mask H



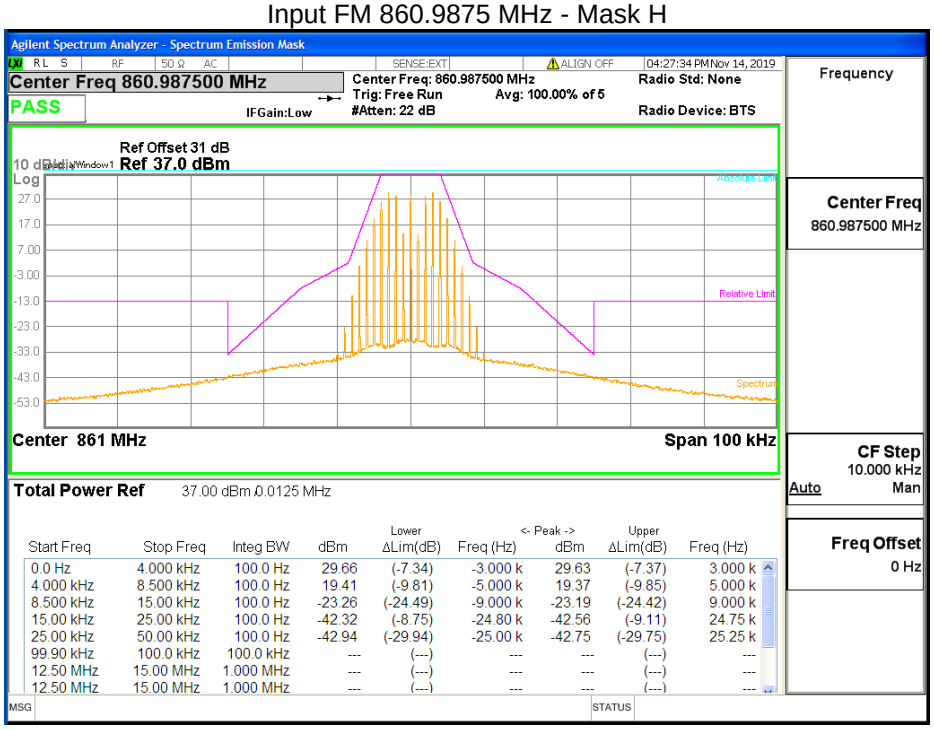
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	30.19	(-6.81)	-3.000 k	30.21	(-6.79)	3.000 k
4.000 kHz	8.500 kHz	100.0 Hz	19.89	(-9.33)	-5.000 k	19.91	(-9.31)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-20.90	(-22.13)	-9.000 k	-20.28	(-21.51)	9.000 k
15.00 kHz	25.00 kHz	100.0 Hz	-39.95	(-5.98)	-24.95 k	-40.04	(-5.94)	25.00 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.00	(-27.00)	-25.50 k	-40.04	(-27.04)	25.00 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

3dB above the AGC threshold Output FM 856.000 MHz - Mask H



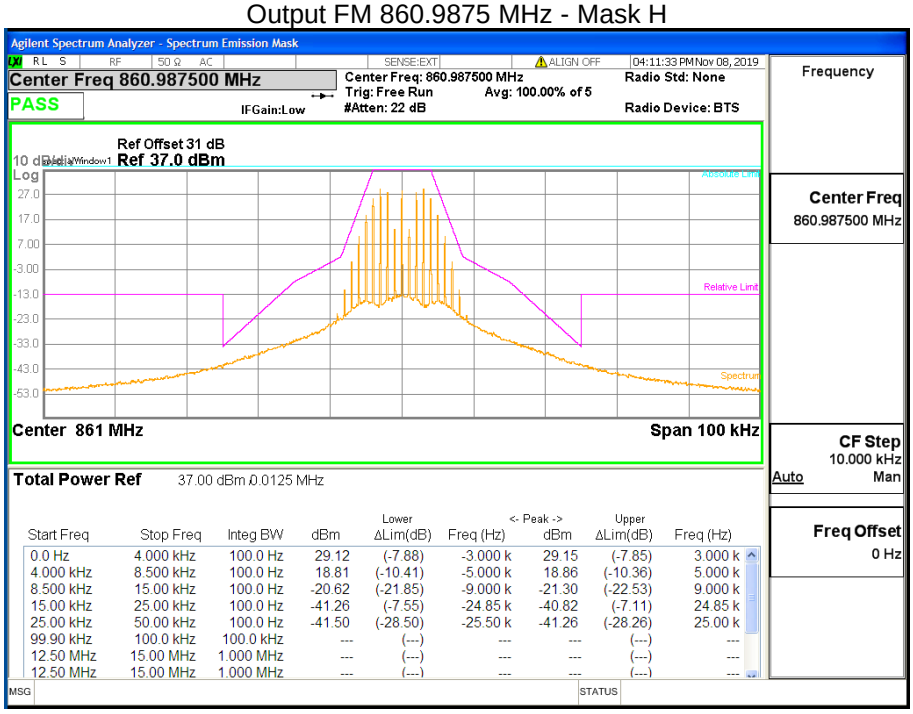
Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	30.19	(-6.81)	-3.000 k	30.21	(-6.79)	3.000 k
4.000 kHz	8.500 kHz	100.0 Hz	19.90	(-9.33)	-5.000 k	19.92	(-9.30)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-19.78	(-21.01)	-9.000 k	-19.52	(-20.75)	9.000 k
15.00 kHz	25.00 kHz	100.0 Hz	-40.43	(-6.33)	-25.00 k	-39.83	(-6.39)	24.75 k
25.00 kHz	50.00 kHz	100.0 Hz	-40.10	(-27.10)	-25.05 k	-40.33	(-27.33)	25.15 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Input FM 860.9875 MHz - Mask H

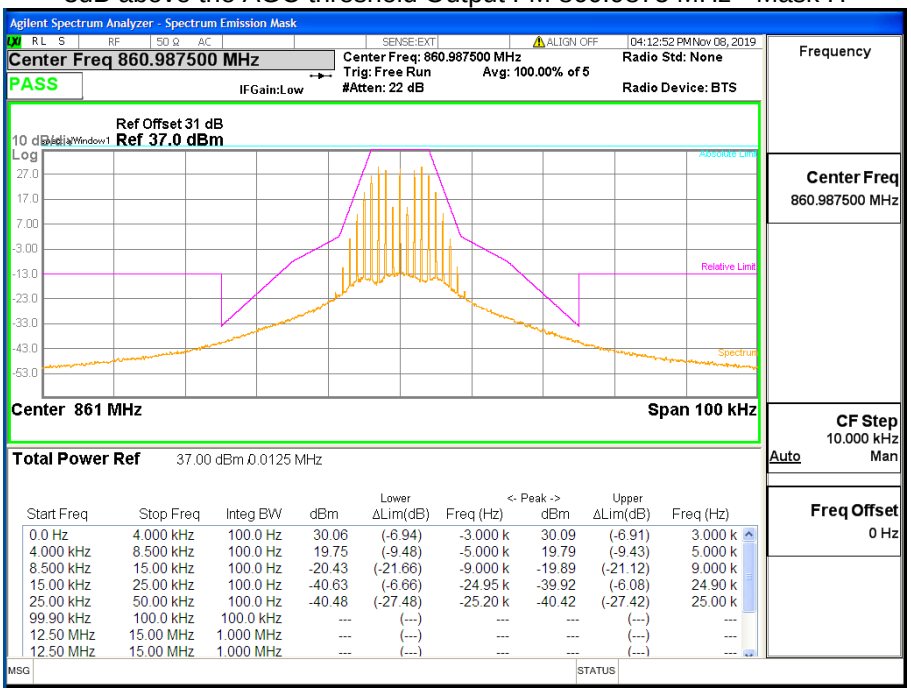


Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	Lower Freq (Hz)	<- Peak -> dBm	Upper ΔLim(dB)	Upper Freq (Hz)
0.0 Hz	4.000 kHz	100.0 Hz	29.66	(-7.34)	-3.000 k	29.63	(-7.37)	3.000 k
4.000 kHz	8.500 kHz	100.0 Hz	19.41	(-9.81)	-5.000 k	19.37	(-9.85)	5.000 k
8.500 kHz	15.00 kHz	100.0 Hz	-23.26	(-24.49)	-9.000 k	-23.19	(-24.42)	9.000 k
15.00 kHz	25.00 kHz	100.0 Hz	-42.32	(-8.75)	-24.80 k	-42.56	(-9.11)	24.75 k
25.00 kHz	50.00 kHz	100.0 Hz	-42.94	(-29.94)	-25.00 k	-42.75	(-29.75)	25.25 k
99.90 kHz	100.0 kHz	100.0 kHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---
12.50 MHz	15.00 MHz	1.000 MHz	---	(---)	---	---	(---)	---

Output FM 860.9875 MHz - Mask H



3dB above the AGC threshold Output FM 860.9875 MHz - Mask H



Input/output Power and Amplifier/Booster Gain

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Jeremy Lee	Date	Nov 08, 2019
EUT Voltage	☒ DC ☐ 120VAC @ 60Hz		

Test Equipment Used	Manufacturer	Model	Identifier	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	06/12/19	06/12/21
Spectrum Analyzer	Keysight	N9010A	MY50520285	07/29/19	07/23/21

Span:	☒ Max Gain Frequency ± 1500kHz
Detector:	☒ Peak
RBW/VBW:	☒100k Hz/ 300 kHz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

Maximum booster gain is 95.1dB.

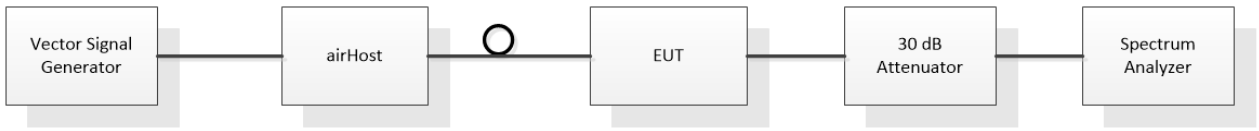
Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

Description of test set-up:

The procedure used was ANSI/TIA-603-E-2016 and FCC KDB 935210 D05 Indus Booster Basic Meas v01r02:. A CW tone was input at the frequency where the system gain is the maximum in the pass band, with the nominal input power level -58 dBm. The spectrum analyzer was connected to the output RF port via a 50 Ohm 30 dB attenuator. The maximum hold trace and peak detector was used to capture the output power. The output power minus the input power (-58dBm) equals to the booster gain in dB.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**



Results

Test Band	Frequency (MHz)	Input Power (dBm)	Output Power (dBm)	Gain (dB)
150PS	163	-58.1	37	95.1
450PS	460	-56.5	37	93.5
800PS	856	-54.5	37	91.5

Noise Figure

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Daniel Lee	Date	Nov 08, 2019
EUT Voltage	☒ DC ☐ 120VAC @ 60Hz		

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Spectrum Analyzer	Keysight	N9010A	MY50520285	07/29/19	07/23/21

Frequency Range:	☒ 2 times of the passband on each band
Detector:	☒ Average
RBW:	☒ 910 kHz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

Noise Figure on each band is less than the 9 dB required.

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

Description of test set-up:

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the system maximum gain and the noise density is measured.Measurements were performed within the EUT's passband.

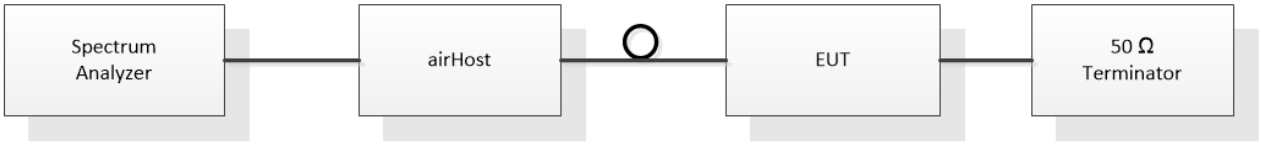
The noise figure is then calculated by NF = NP – Gain + KTB Noise; where

NP is in band noise power per Herz,

Gain is measured at the maximum noise frequence with -55 dBm input signal in UL.

KTB Noise is 174dBm/Hz.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**



Results

Test Band	Link	Gain (dB)	KTB (dBm/Hz)	Measured Value (dBm/Hz)	Noise Figure (dB)
150PS	DownLink	95.1	174	-73.56	5.34
450PS	DownLink	93.3	174	-75.59	5.11
800PS	DownLink	91.6	174	-74.28	8.12

Out-Of-Band / Out-Of-Block Intermodulation and Spurious Emissions

Governing Doc	FCC Part 90.219	Room Temperature (°C)	20.5
Test Procedure	ANSI/TIA-603- E; FCC KDB 935210 D05, v01r03	Relative Humidity (%)	38.6
Test Location	Richmond	Barometric Pressure (kPa)	101.8
Test Engineer	Daniel Lee	Date	Nov 08, 2019
EUT Voltage	☒ +48VDC ☐ 120VAC @ 60Hz		

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	06/12/19	06/12/21
Spectrum Analyzer	Keysight	N9010A	MY50520285	07/29/19	07/29/21

Frequency Range:	☒ Max Gain Frequency ± 50kHz
Detector:	☒ Average
RBW/VBW:	☒100/910Hz
Type of Facility:	☒ Tabletop
Distance:	☒ Direct

On 800 band, 450 band and 150 band: The intermodulation product of 2 tone is below the -13dBm emission limit with input power

- 0.5dBm below AGC threshold and
- 3 dB above AGC threshold

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

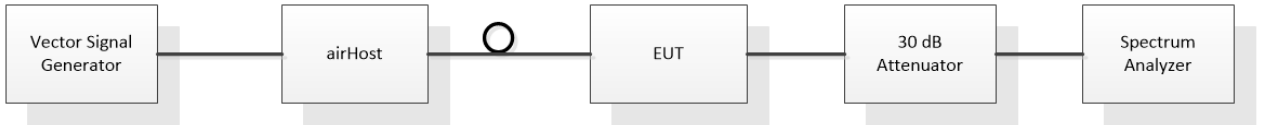
Description of test set-up:

The procedure used was ANSI/TIA-603-E-2016. Two tones (CW) method was used. The input power to the amplifier was set at maximum drive level by combining the two tones. The two tones were chosen in such a way (1) the third order intermodulation product frequencies are located within the pass band of the DUT and (2) they produce the worst-case emissions out of band. All signals were modulated.

Based on FCC KDB 935210 D05 Indus Booster Basic Meas v01r03: 2019, the two tone was located on either side of the maximum gain frequence in the passing band, and separated with the available spacing, which is 12.5kHz.

Measurements were performed with modulated -tone at identical input amplitude which produced integrated maximum rated output power.

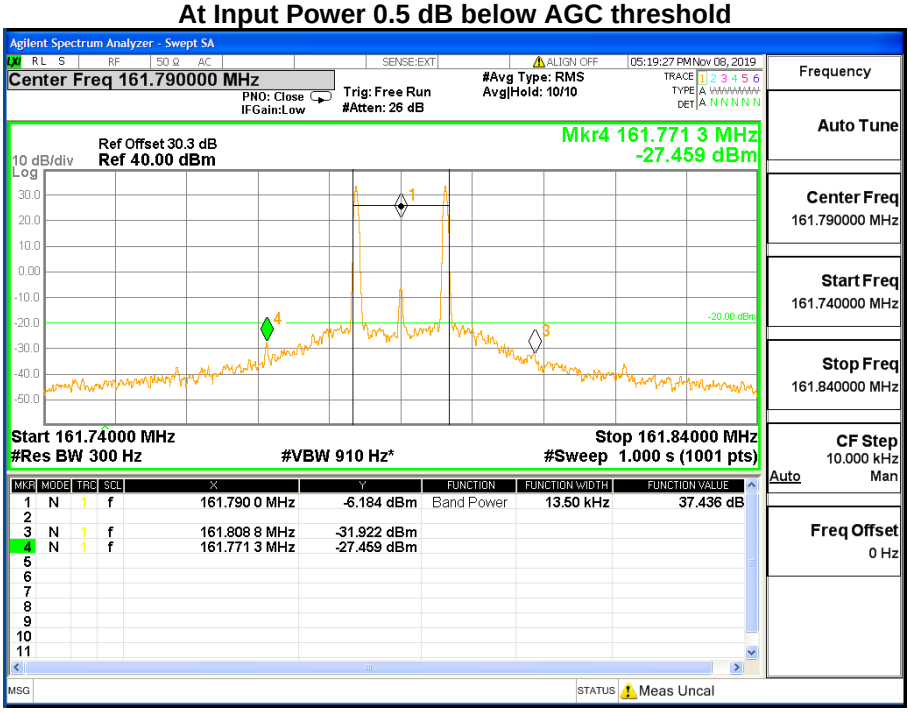
The EUT was set to **Operation Mode #1 with configuration Mode #1.**



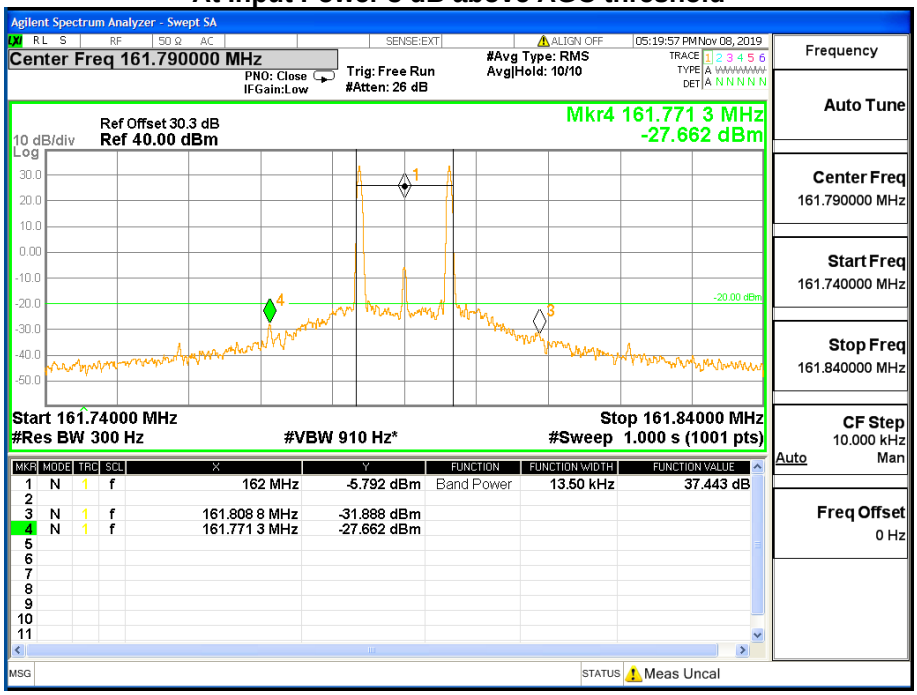
Results Screenshots

161.79 MHz:

At Input Power 0.5 dB below AGC threshold

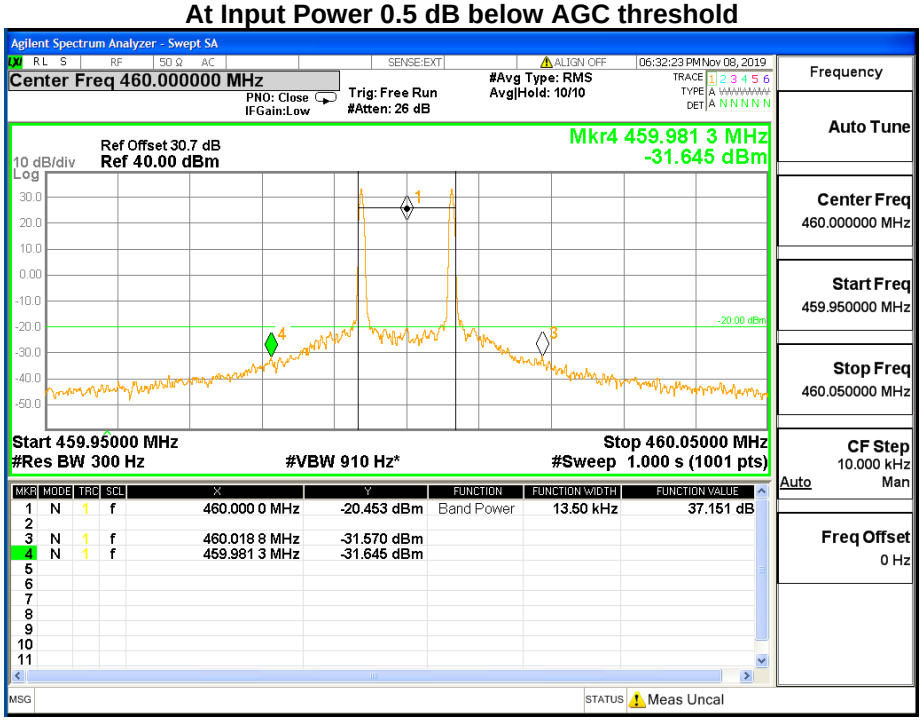


At Input Power 3 dB above AGC threshold

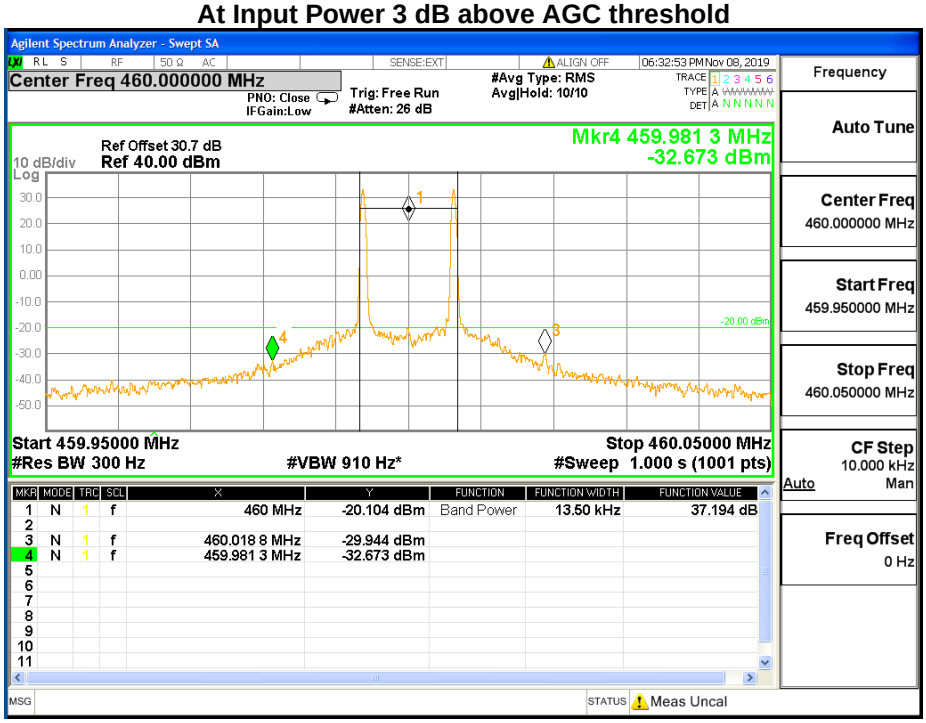


460 MHz:

At Input Power 0.5 dB below AGC threshold

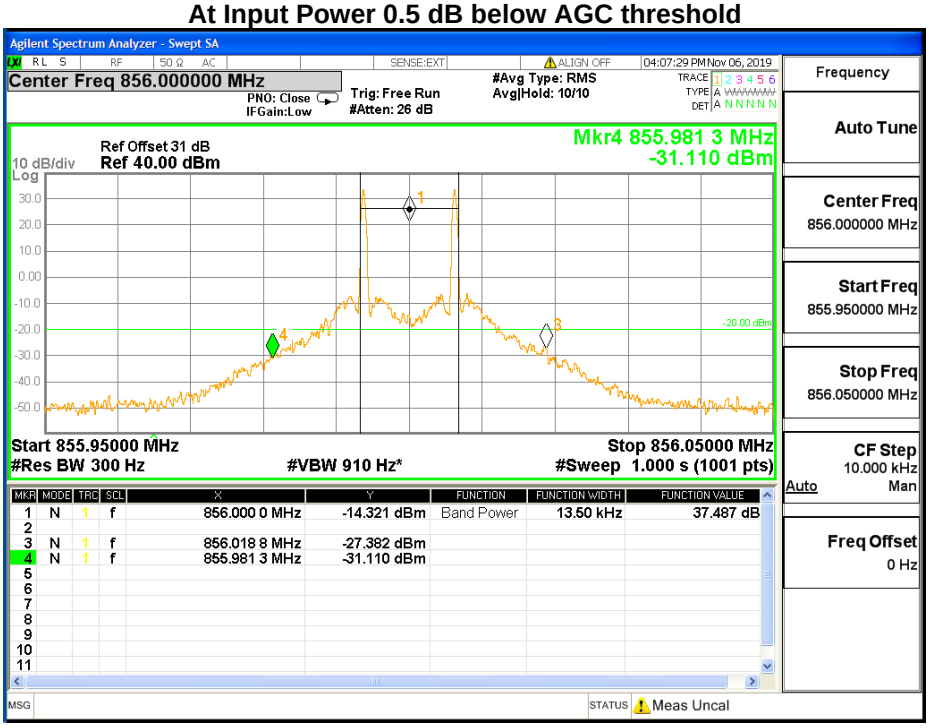


At Input Power 3 dB above AGC threshold

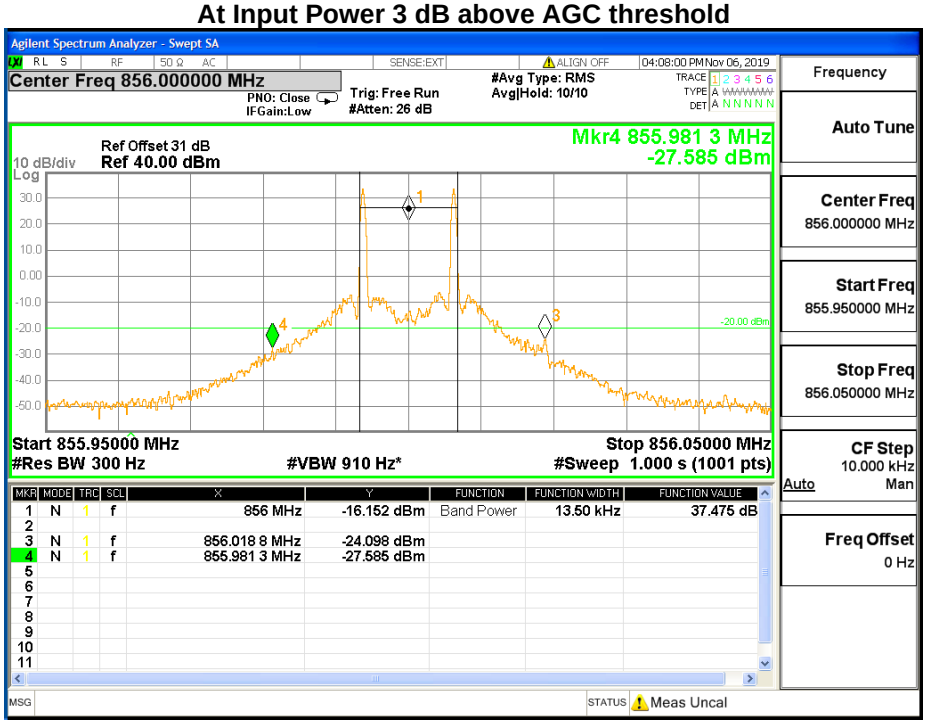


856 MHz:

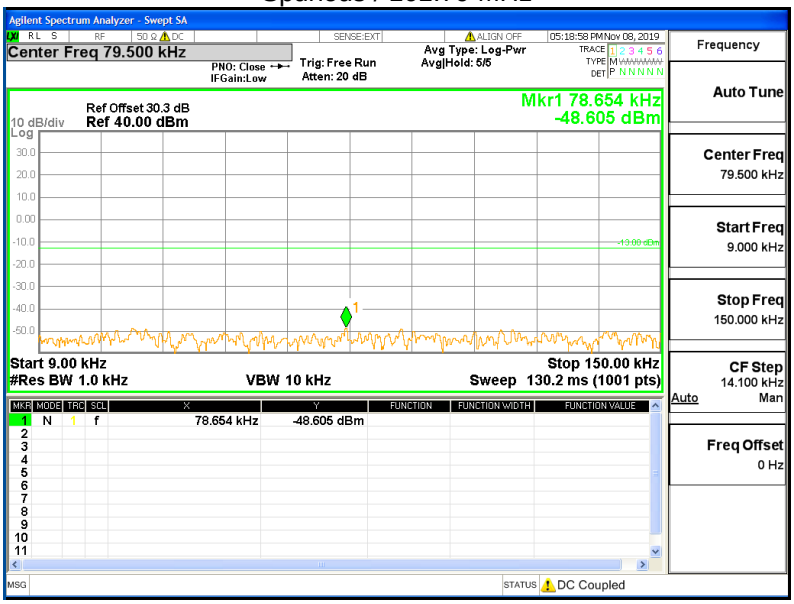
At Input Power 0.5 dB below AGC threshold

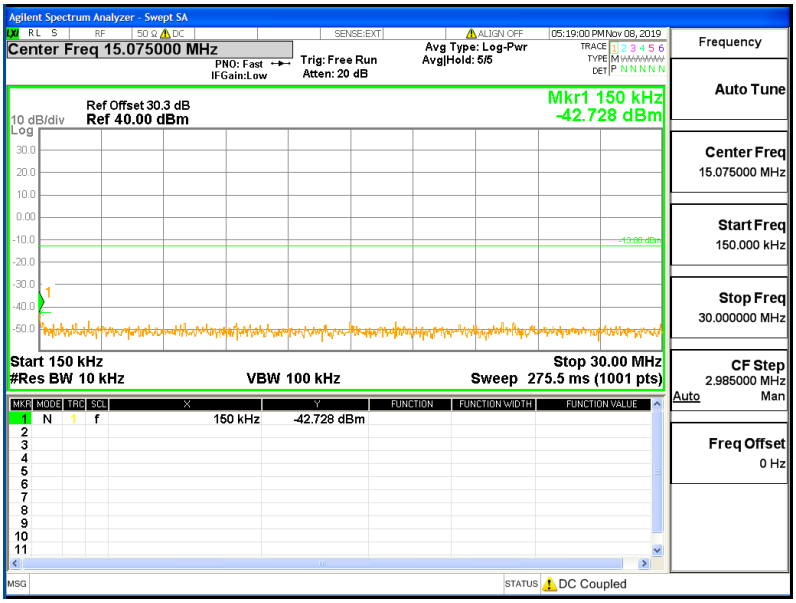


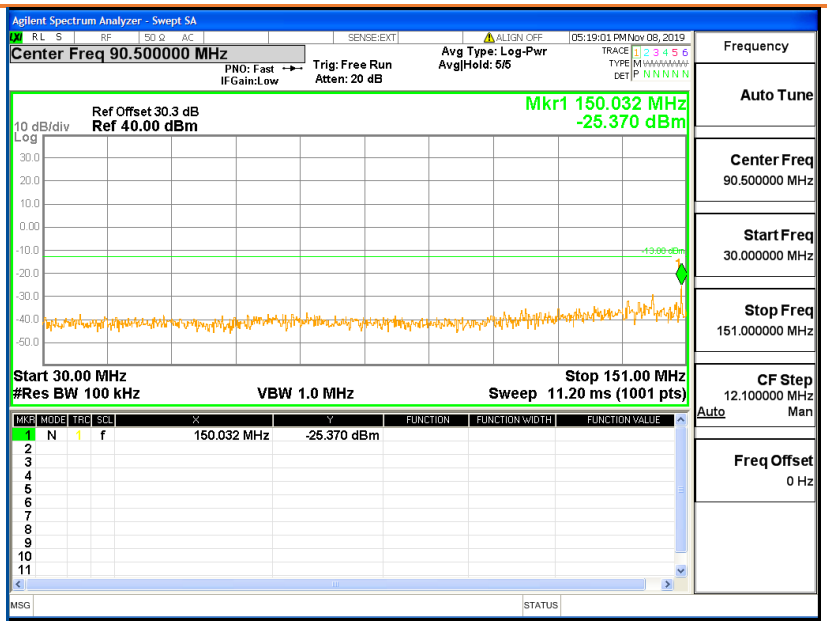
At Input Power 3 dB above AGC threshold

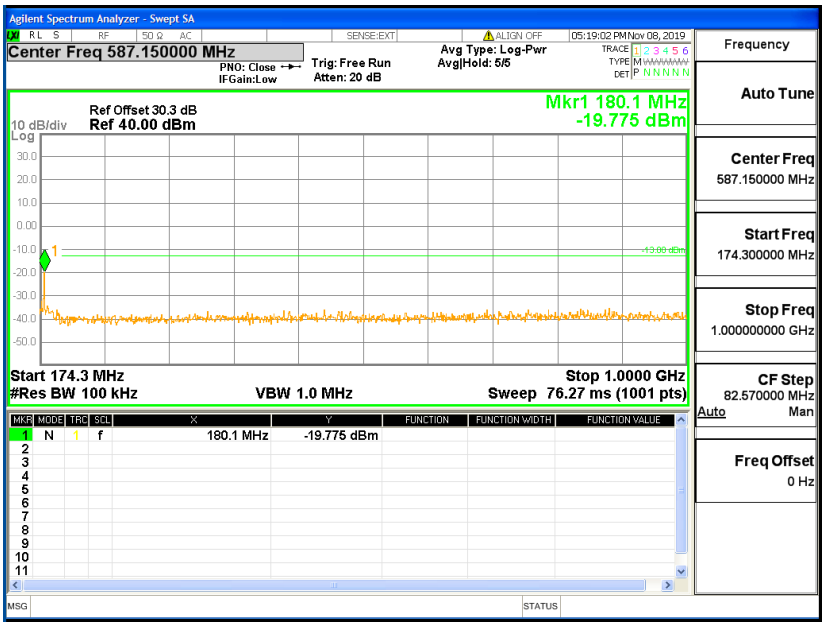


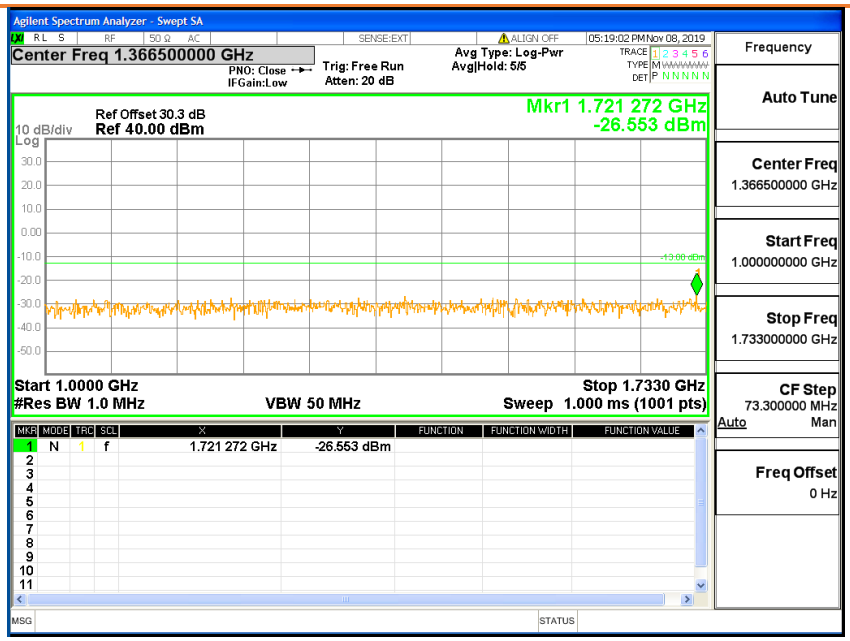
Spurious / 161.79 MHz



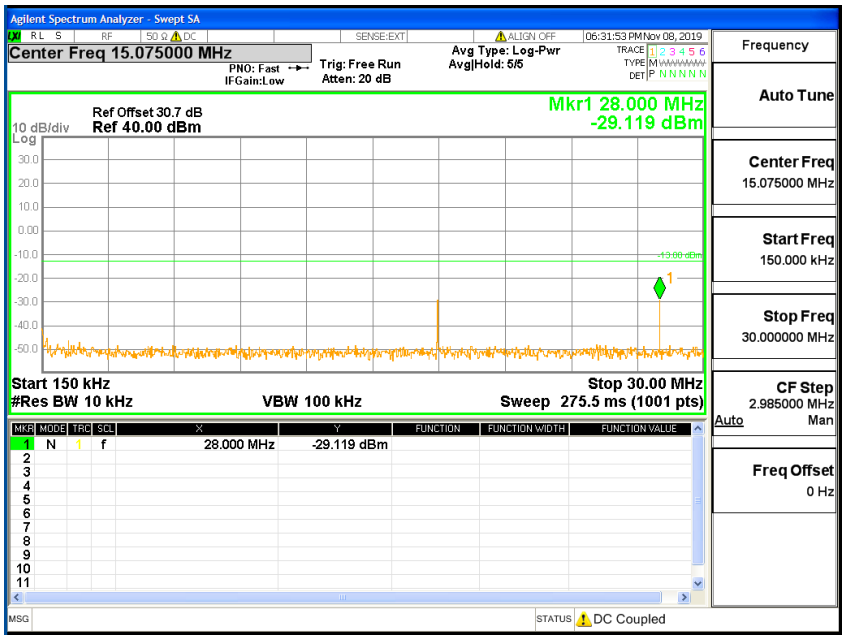


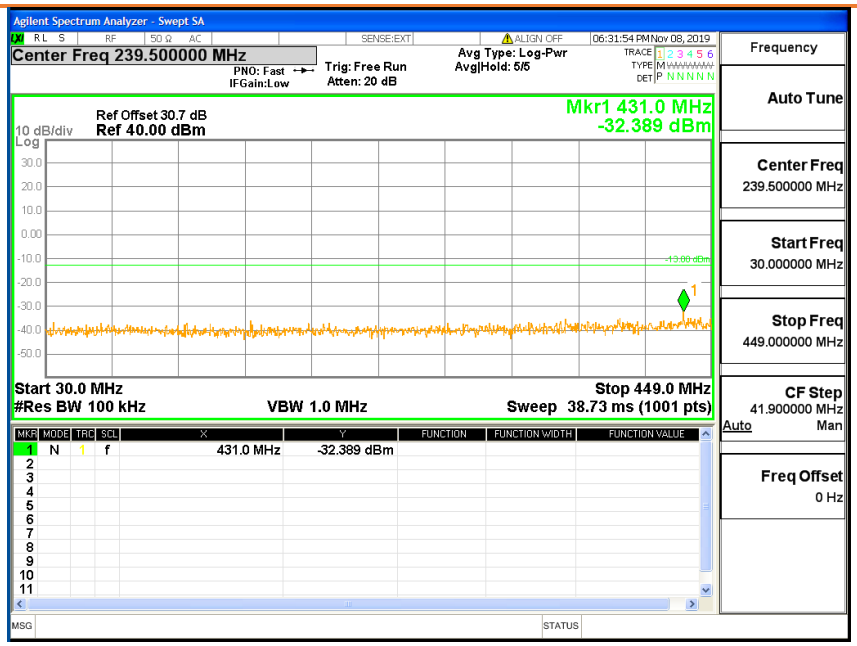


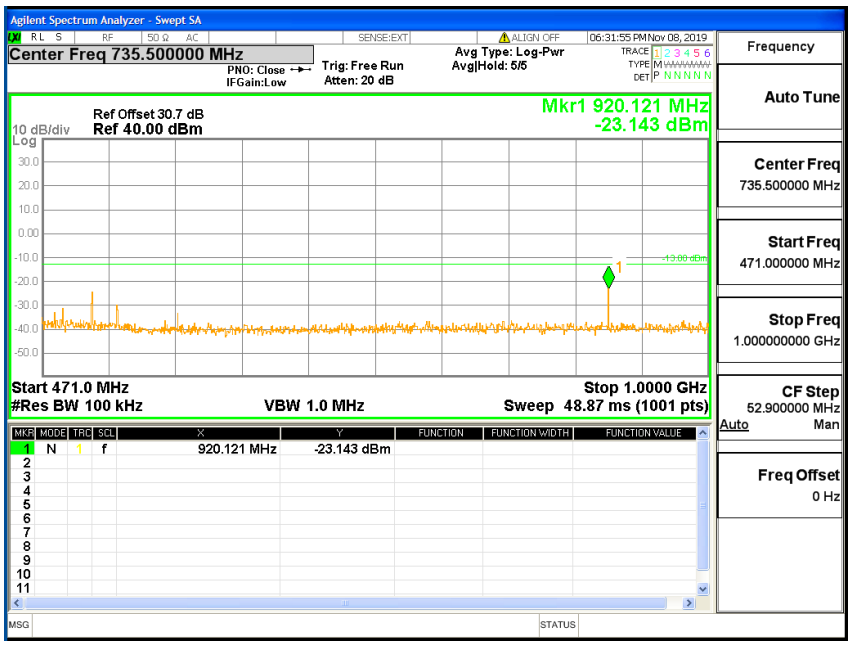


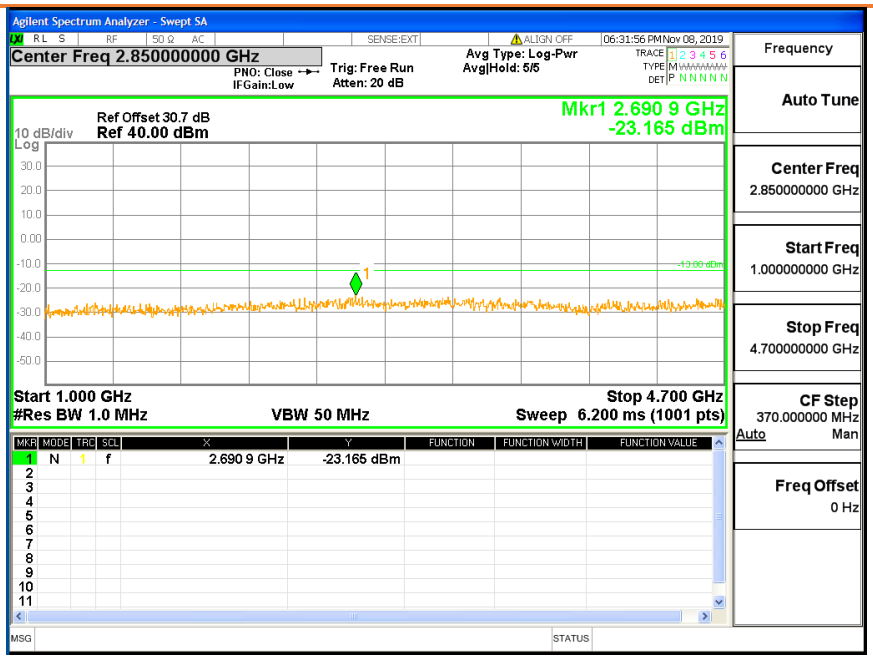


Spurious / 460 MHz

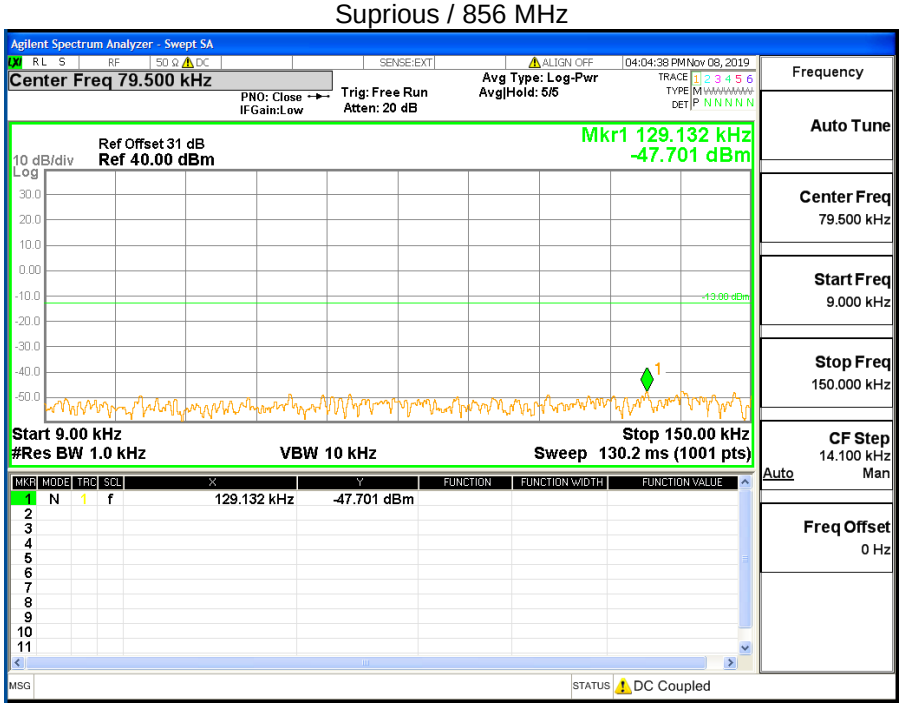


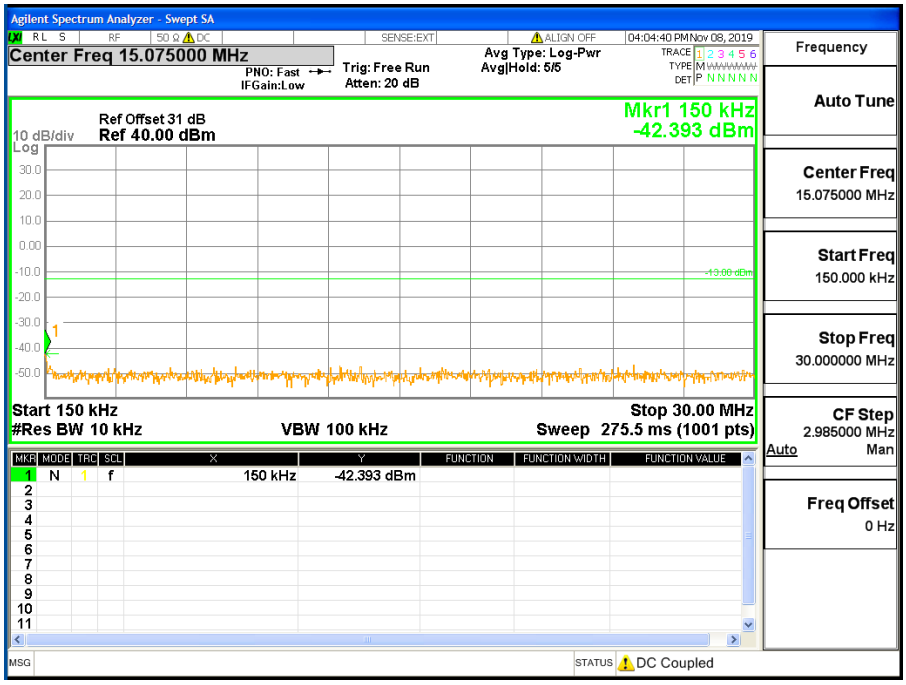


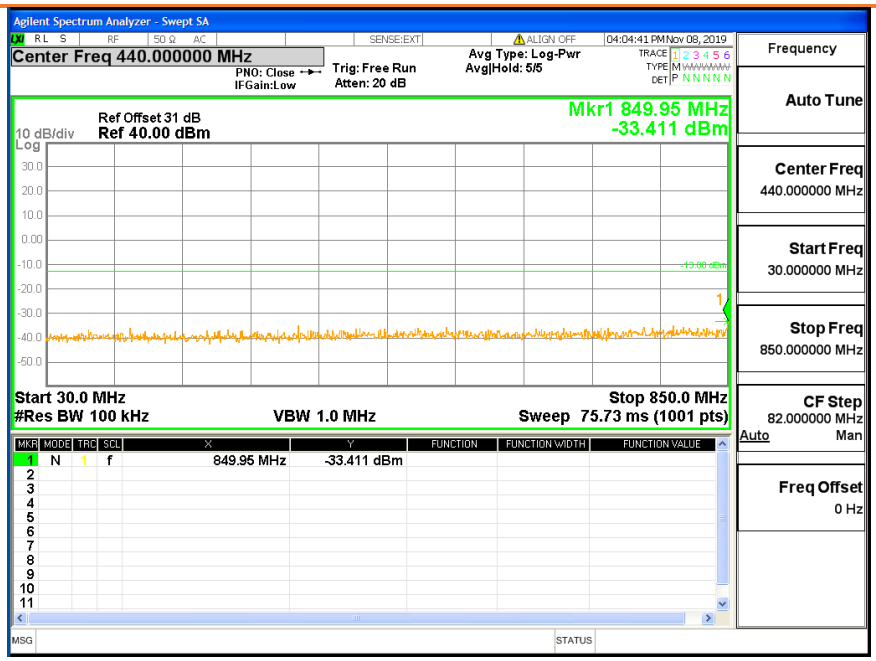


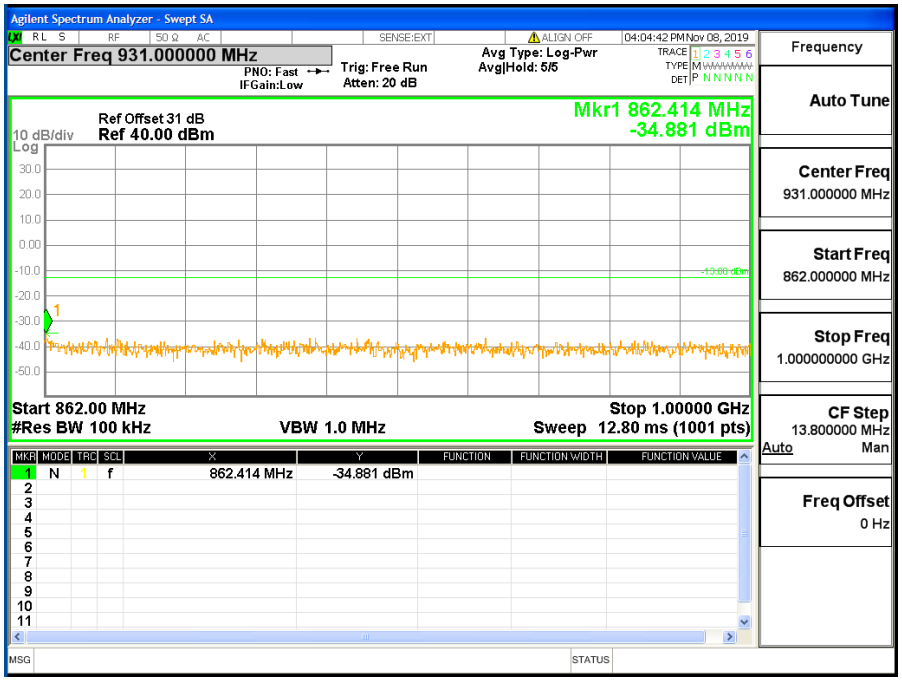


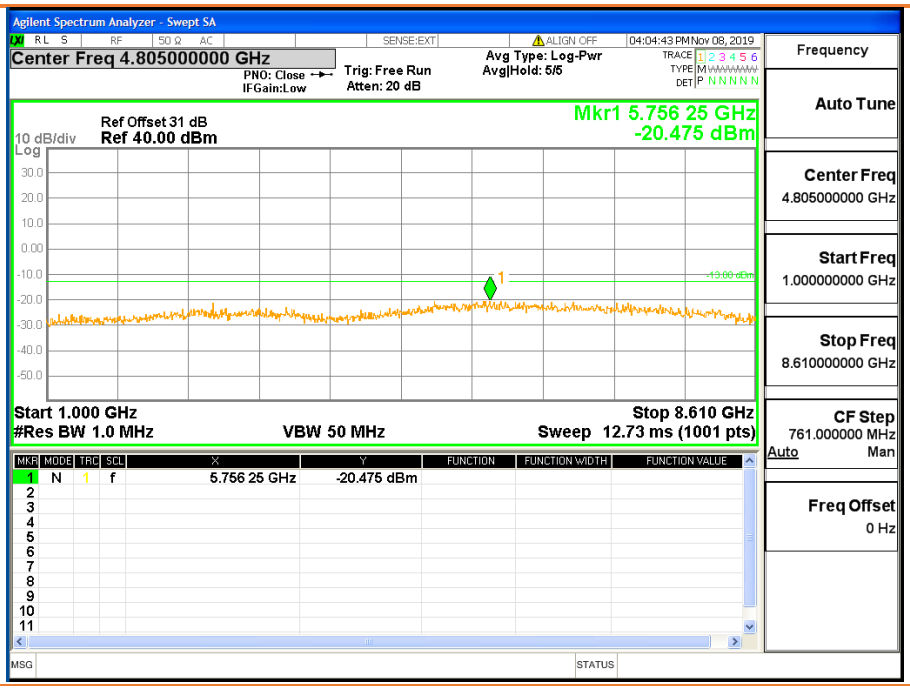
Suprious / 856 MHz











Frequency Stability

The airHost and hd37 are sychronized to the same reference clock. Therefore there is no frequency error after down and up frequency conversion are performed.

The frequency stability check is not applicable to the EUT.

Spurious emissions radiated measurements

Governing Doc	FCC Part 2.1053, FCC Part 90.210 & FCC Part 90.219	Room Temperature (°C)	22.7 to 23.0
Test Procedure	ANSI C63.4	Relative Humidity (%)	34.7 to 34.8
Test Location	Richmond	Barometric Pressure (kPa)	102.3
Test Engineer	Daniel Lee	Date	Nov. 07, 2019
EUT Voltage	☒ +48VDC	☐ 120VAC @ 60Hz	

Test Equipment Used	Manufacturer	Model	Identifier	Calibration date	Calibration
EMC Analyzer	KeySight	N9038A	702	13-May-2019	13-May-2020
Broadband Antenna	Sunol	JB1	967	12-Oct-2018	12-Oct-2020
LPDA Antenna	Schwarzbeck Mess	VUSLP9111B	996	26-Mar-2019	26-Mar-2021
BiCon Antenna	A.H Systems	SAS-540	1115	29-Apr-2019	29-Apr-2021
Horn Antenna	A.H Systems	SAS-571	227C	18-Oct-2018	18-Oct-2020
Motion Controller	Sunol	SC104V	235A	IHC[1]	IHC[1]
Antenna Tower	Sunol	TWR95-4	235B	IHC[1]	IHC[1]
Turn Table	Sunol	SM46C	235C	IHC[1]	IHC[1]
EMC Shielded Enclosure	USC	USC-26	374	IHC[1]	IHC[1]
RF Cable	MRO	n/a	n/a	IHC[2]	IHC[2]
RF Preamplifier	Agilent	8449B	273	IHC[2]	IHC[2]
AC Power Source	California Instruments	5001i	059	IHC[3]	IHC[3]
Used Software	☒ Tile 7! v7.3.0.6				
Used Template	_FCC_RadEmi_30-300MHz_Final_20190716 _FCC_RadEmi_300-1000MHz_Final_20190716 _FCC_RadEmi_1-10GHz_90SPUR_20190716				

Note1) In House Calibration Ref. # 4
Note2) In House Calibration Ref. # 6
Note3) In House Calibration Ref. # 7

Frequency Range:	☒ 9kHz-30MHz	☒ 30-1000MHz	☒ 1-18GHz
Detector:	☒ Peak (for Prescan)	☒ Quasi-Peak(for Formal))	☒ Average(for Formal)
RBW/VBW:	☒ 9/30kHz	☒ 120/300kHz	☒ 1/3MHz
Type of Facility:	☒ SAC	☒ FSOATS	☐ *in-situ*
Distance:	☒ 3meter	☐ 10meter	☐ 1meter
Arrangement of EUT:	☒ Table-top only	☐ Floor-standing only	☐ Rack Mounted

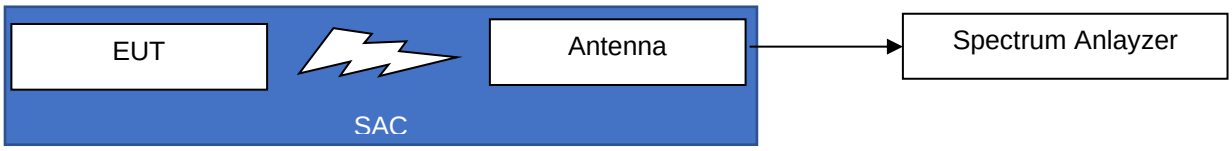
Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

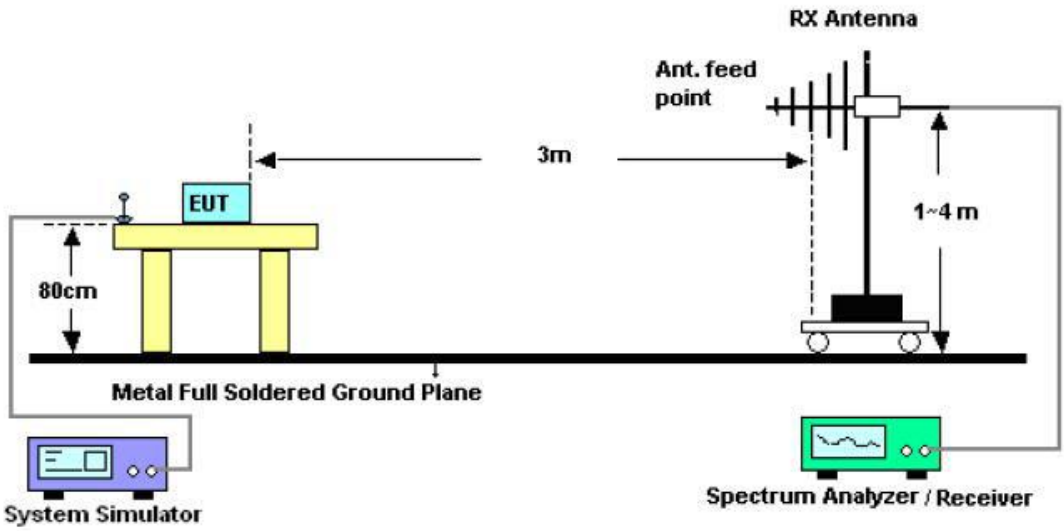
Description of test set-up:

The EUT was placed on a nonconducting platform (i.e., an “EUT support table”), of nominal size 1 m by 1.5 m, whose top surface is nominally 80 cm above the reference ground plane. The EUT was set up on 3 meters away from the EUT. The EUT was set continually on its Radio, 5W Max., which was downlinked from airHost. And the output of RF was terminated via 30dB attenuator, for rejecting the high power of carrier. The lowest, middle and highest channels were used for measuring of all radiated spurious emisions .

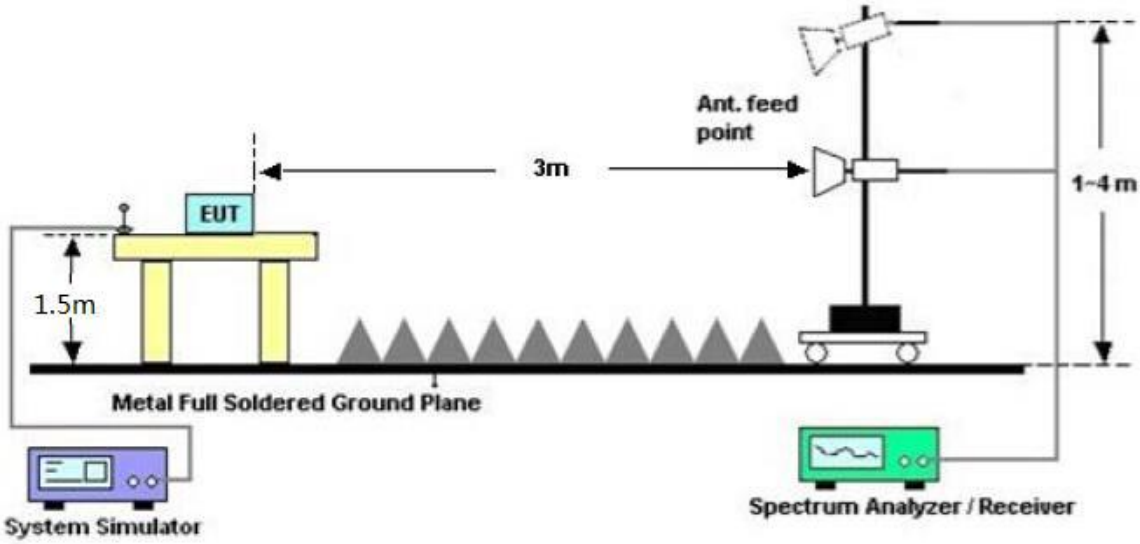
The EUT was set to **Operation Mode #1 with configuration Mode #1.**



- Radiated Emission 30 to 1,000MHz, with JB-1



- Radiated Emission 1 to 18GHz, with SAS-571



Measurement Procedure

Testing was performed in accordance with the test standard(s) referenced in the test summary section of this report. The Equipment Under Test (EUT) was configured based upon the requirements of the applicable test standard. Initially, the primary emission frequencies are identified by positioning a broadband receive antenna three meter from the EUT.

Scans were made with an EMC Analyzer, controlled by EMC Test Software, Tile7!, from 30kHz to 10GHz with the receiver in the peak mode. The receiver IF bandwidth was 9kHz,120 kHz or 1MHz as appropriate for the frequency and scan step was about 30kHz. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to produce horizontal and vertical polarities while the turntable is rotated to determine the worst emitting configuration. Under 30MHz was only tested at 1meter height and Antenna was changed both polarization, Horizontal and Vertical. Measurements were then made using CISPR quasi peak when the peak readings were within 10dB of the limit line. The numerical results are included herein to demonstrate compliance.

Test Result

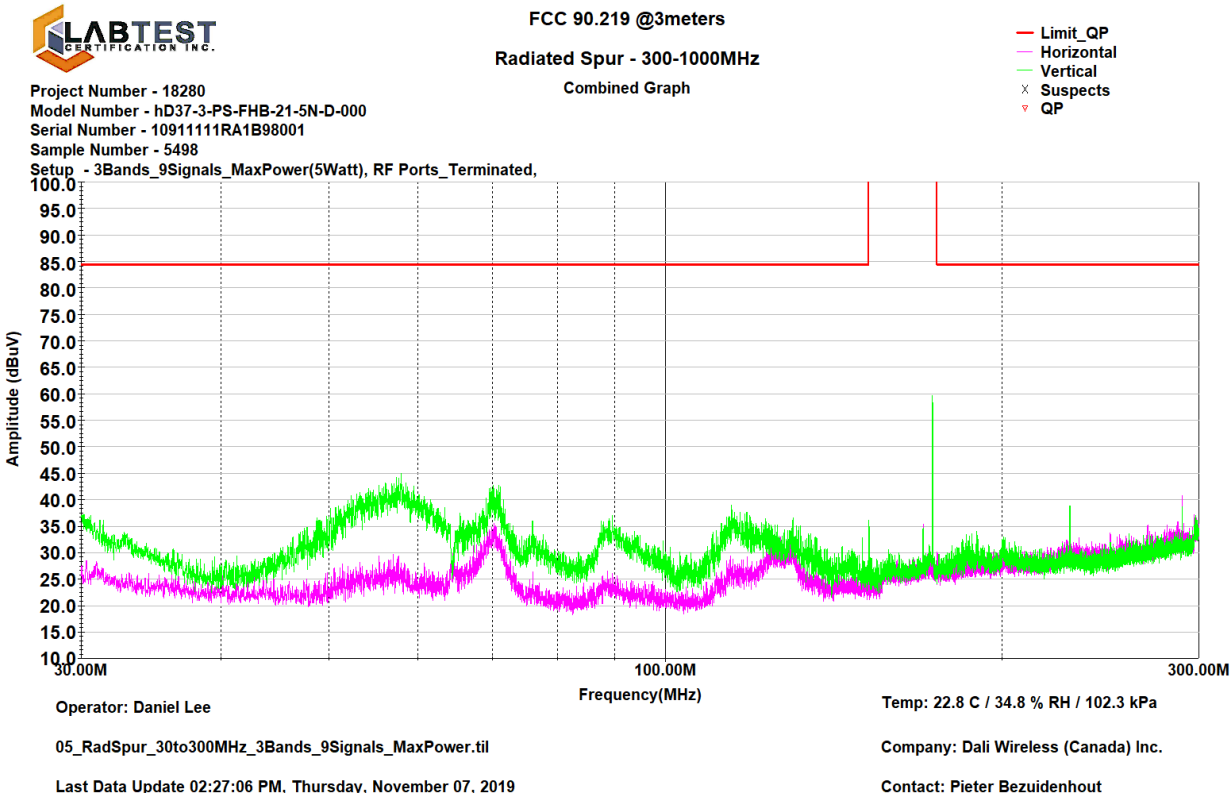
The output of EUT was set to 5 Watts(+37dBm), the PASS level of Spurious is: 43 + 10log(P) = 43 + 10log(5) = 50dB attenuation = -13dBm Since of radiated measurement was performed at 3 meters, the limit line was converted to dBuV/m using the formulas ad outlined in KDB 971168: -13 dBm ERP = 84.38 dBuV/m at 3 meters. Spurious Emission level (dBuV/m) = Detected level (dBuV) + Path Loss(dB) + Antenna Factor (dB/m) - Preamplifier's Gain (dB)

Graphical Representation for Emission - Radiated 30kHz to 30MHz

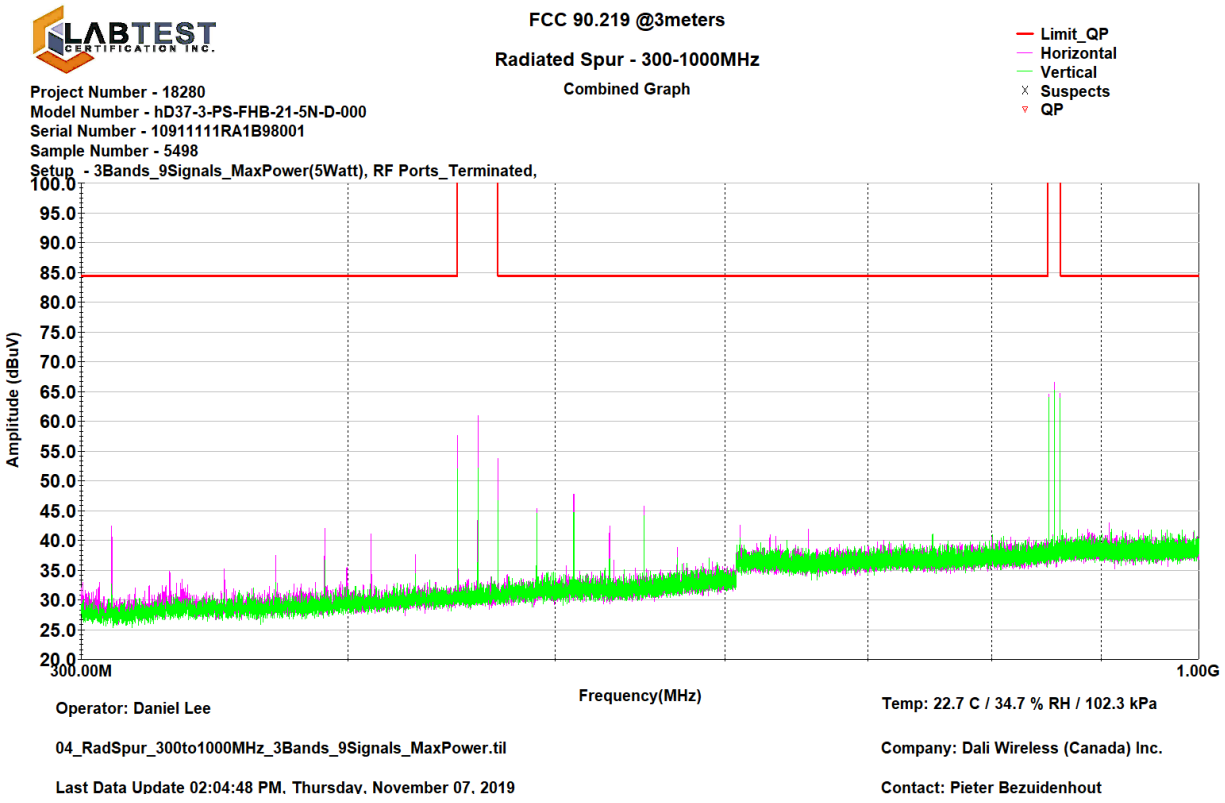
Spectrum was scanned manually from 30kHz to 30MHz. No automated plot is available for this frequency range. No spurious emissions from the product were detectable

Graphical Representation for Emission - Radiated 30MHz to 1GHz

- 30 to 300MHz with SAS-540



- 300 to 1,000MHz with VUSLP9111B



Graphical Representation for Emission - Radiated 1 to 10GHz

- 1 to 10GHz with SAS-572

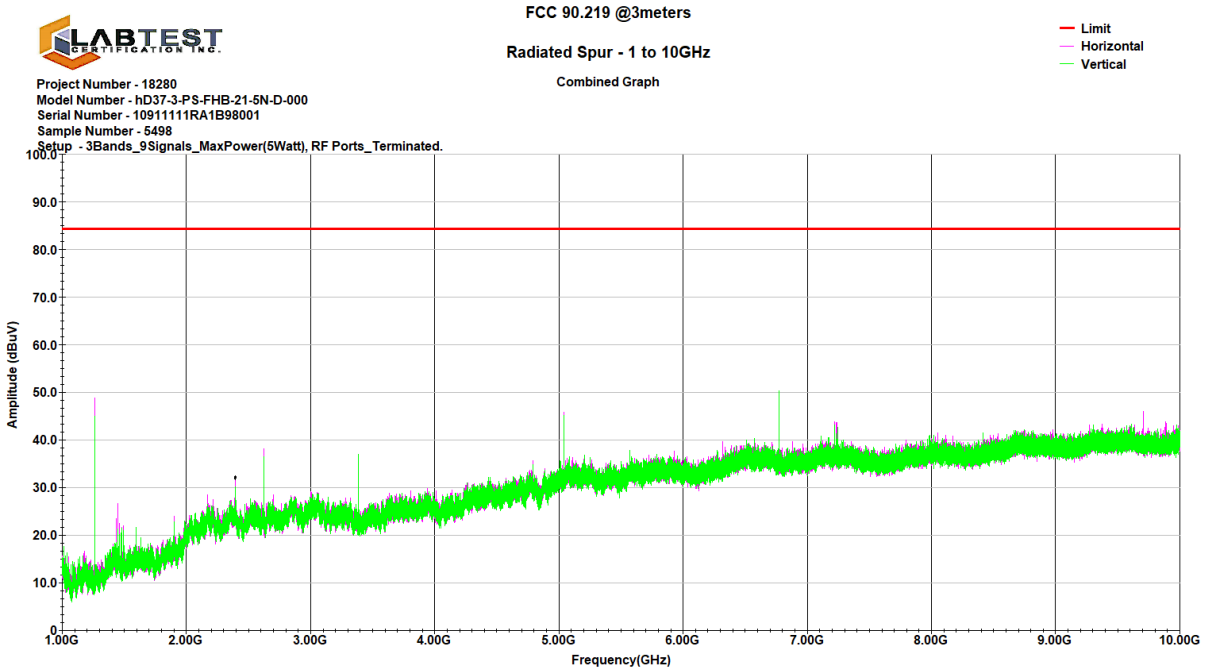


Table Representation for Emission - Radiated 30MHz to 10GHz

No Emissions were measured. All emissions detected, other than the fundamental, were related to the Digital Mode circuitry. No Transmitter Spurious Emissions were detectable and are greater than 20dB below the limit line.

END OF REPORT