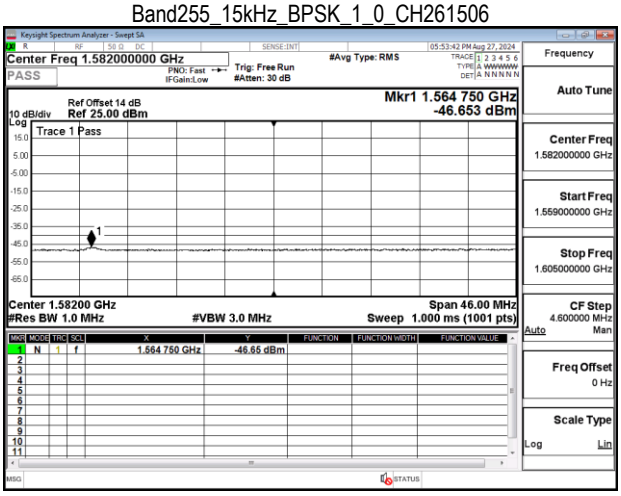
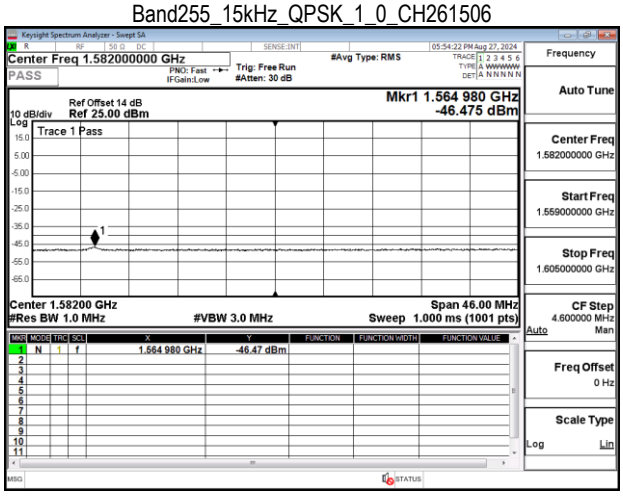
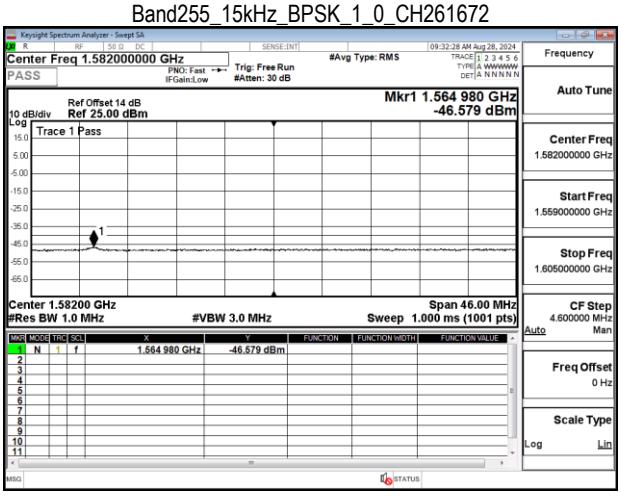
Band255_15kHz_BPSK_1_0_CH261506



Band255_15kHz_QPSK_1_0_CH261506



Band255_15kHz_BPSK_1_0_CH261672



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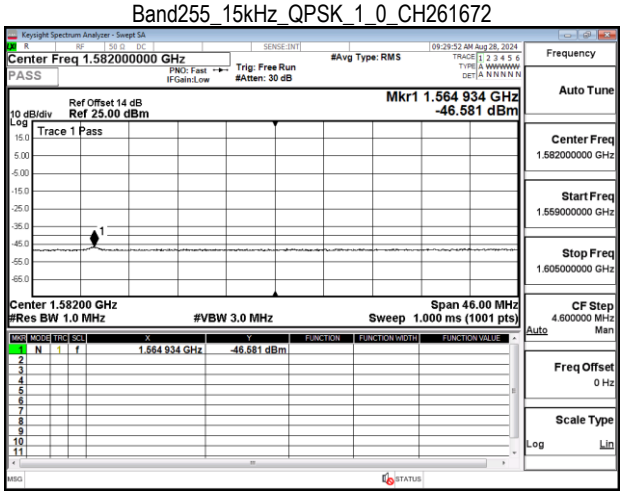

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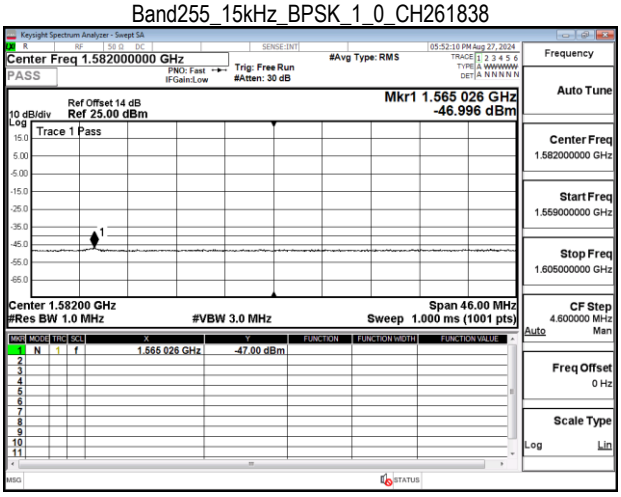

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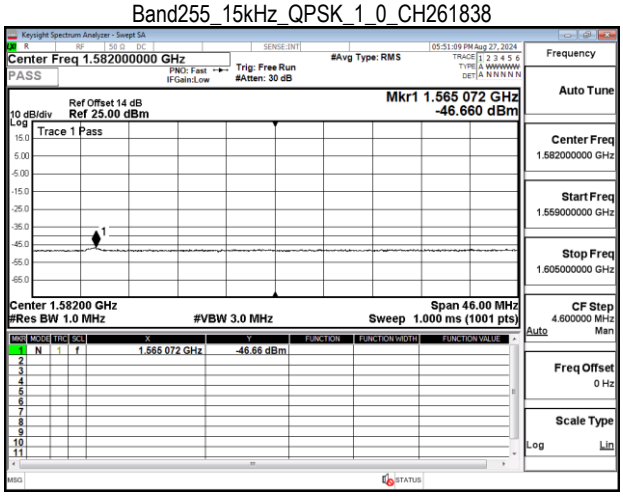

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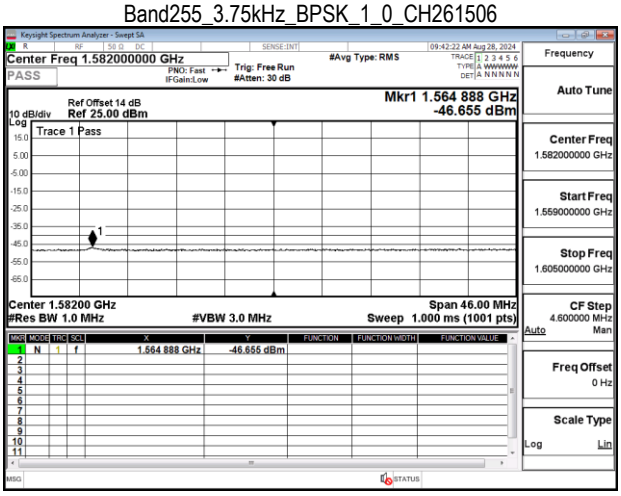
Band255_3.75kHz_BPSK_1_0_CH261506



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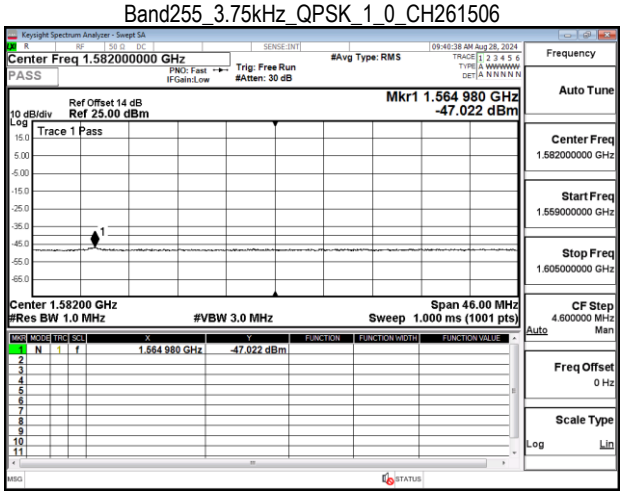

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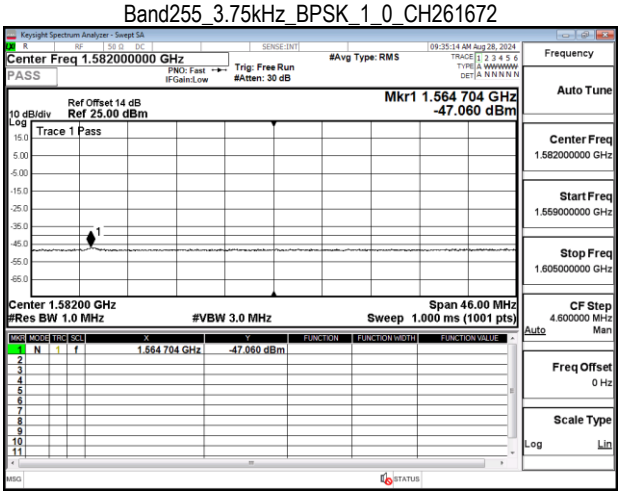

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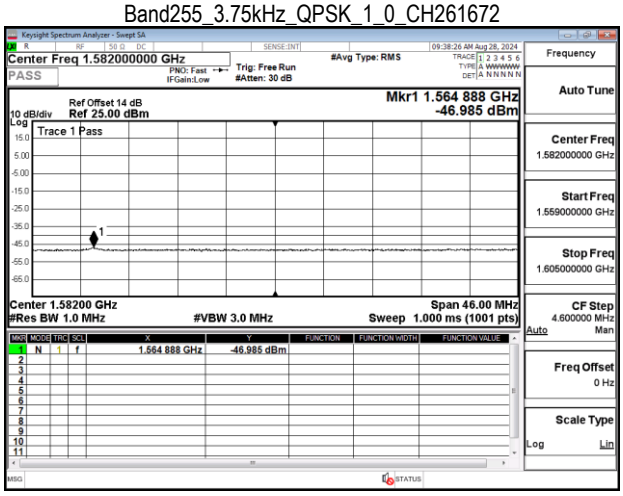

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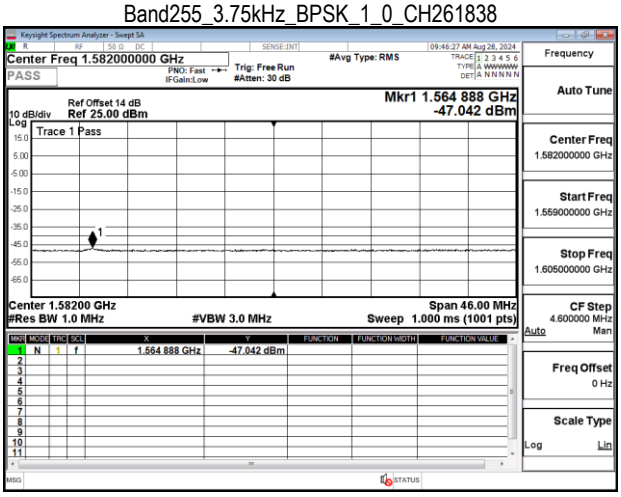

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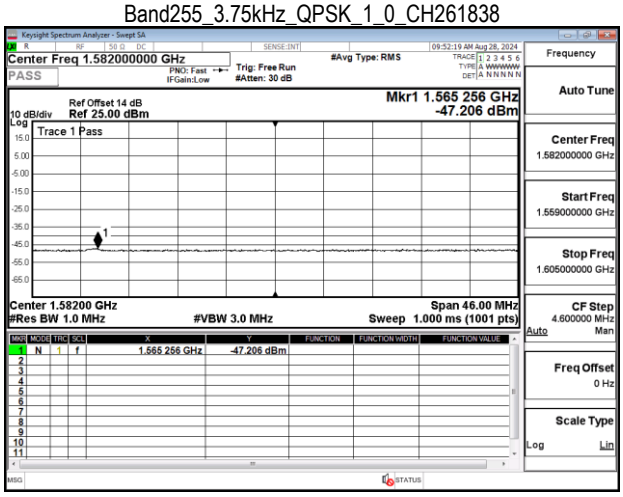

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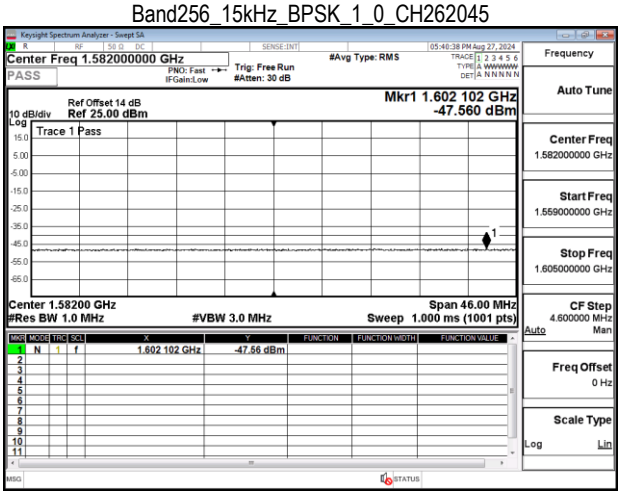
Band256_15kHz_BPSK_1_0_CH262045



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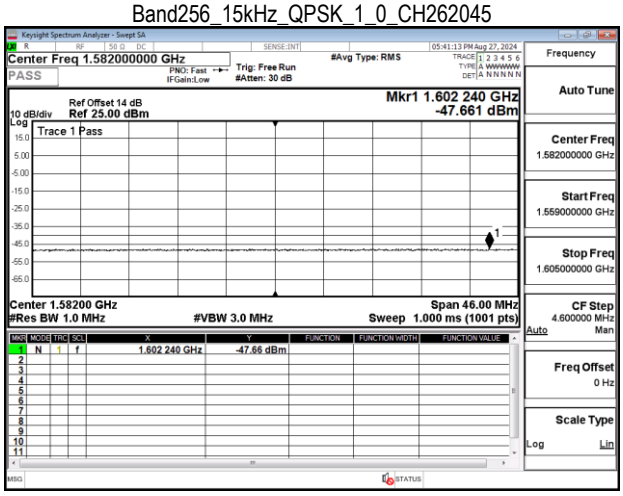

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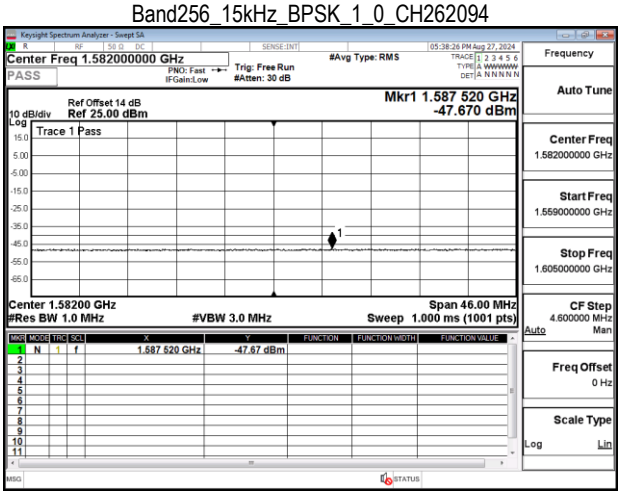

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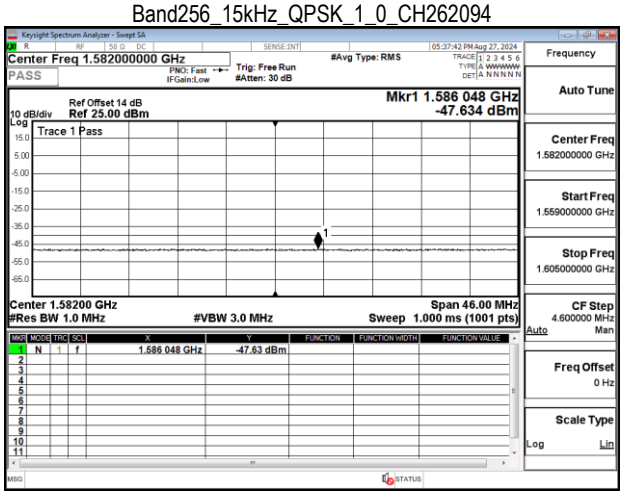

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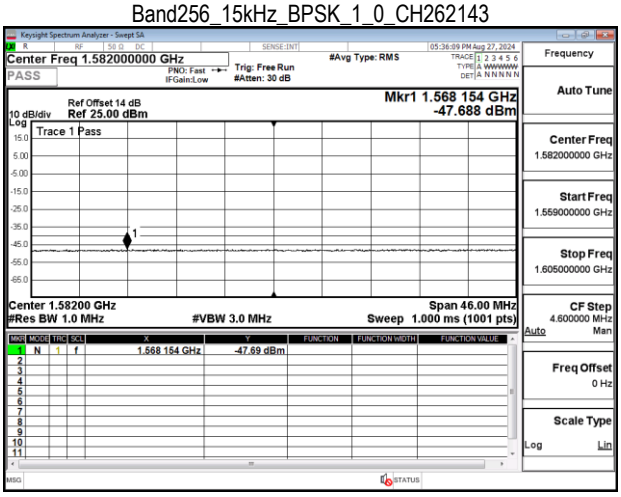

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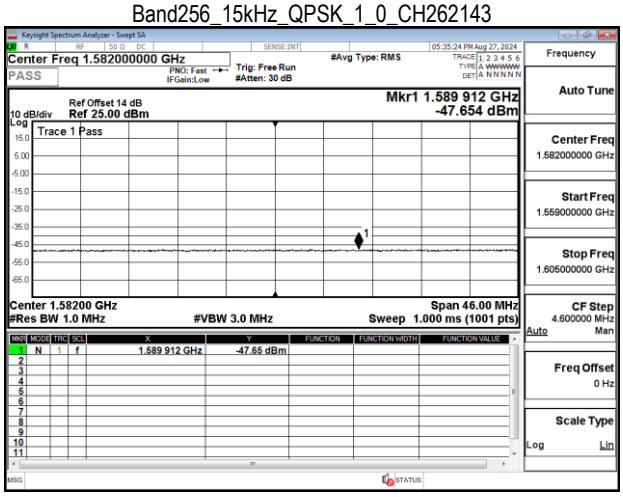

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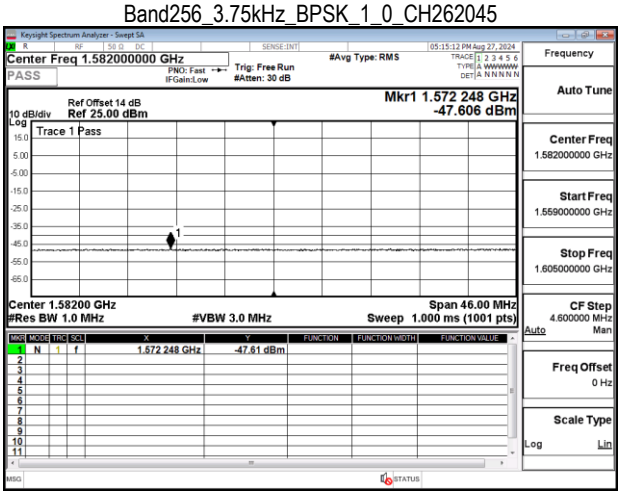
Band256_3.75kHz_BPSK_1_0_CH262045



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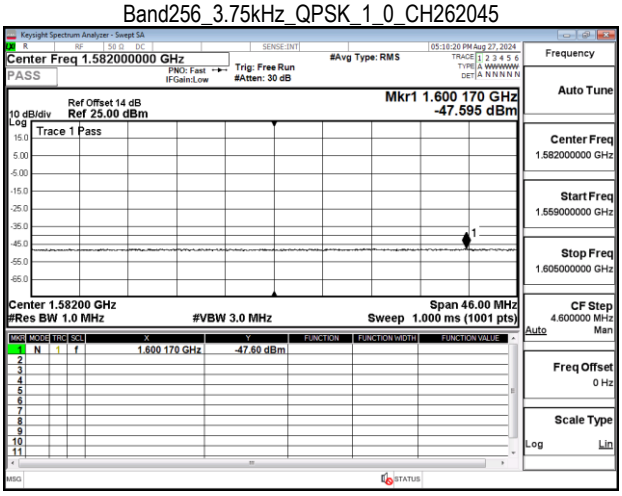

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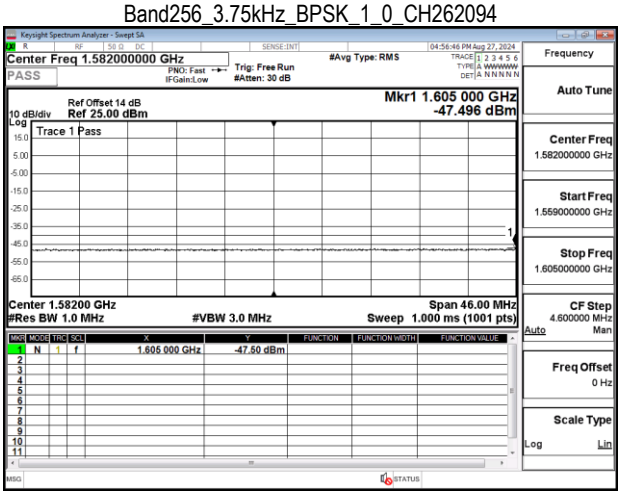

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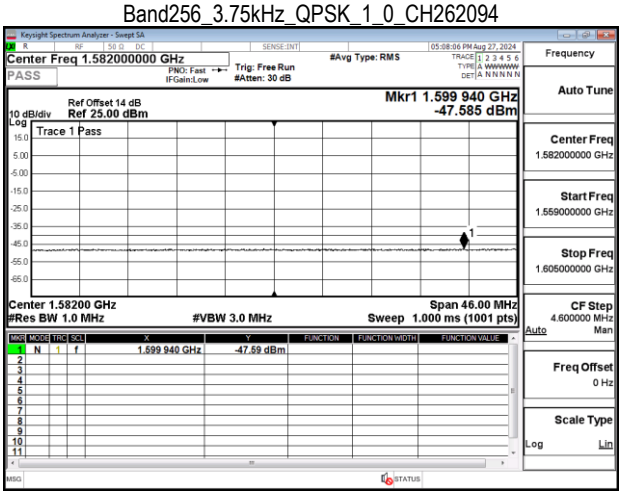

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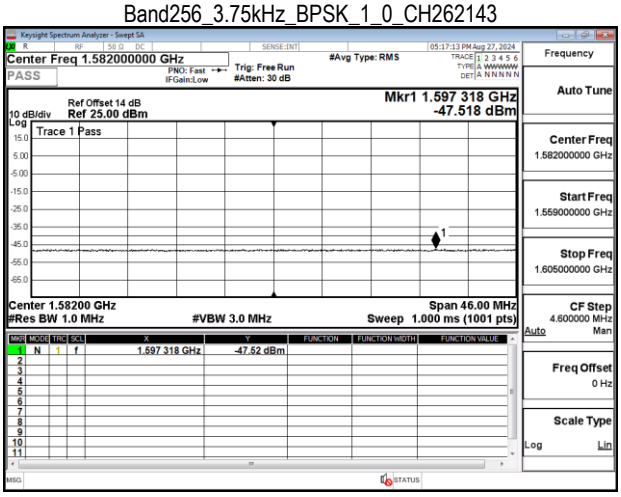

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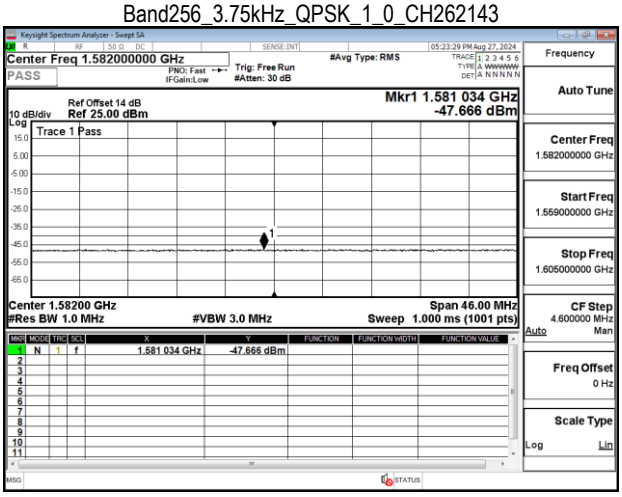

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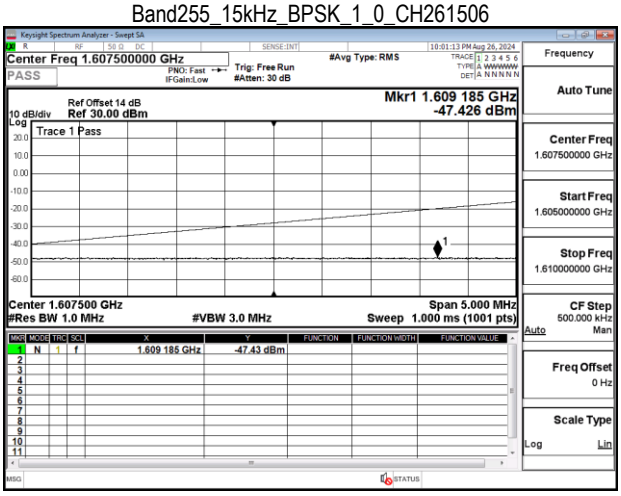
Band255_15kHz_BPSK_1_0_CH261506



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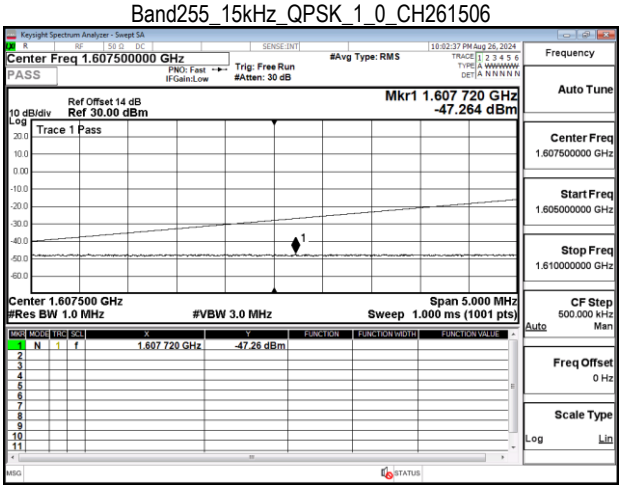
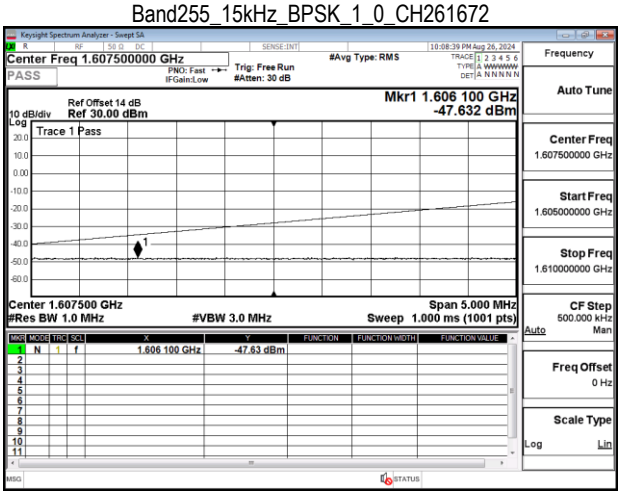
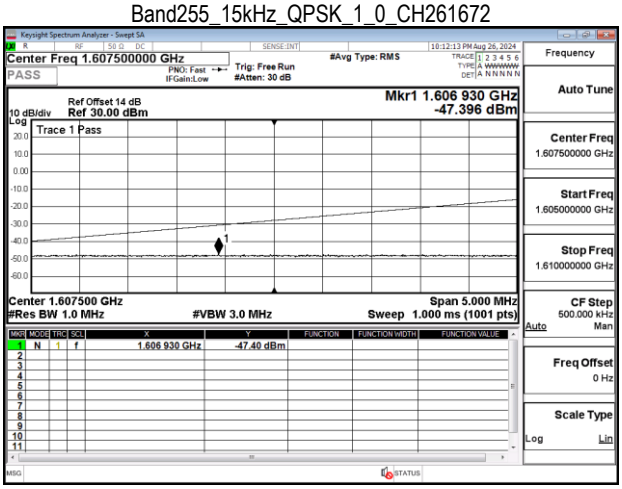


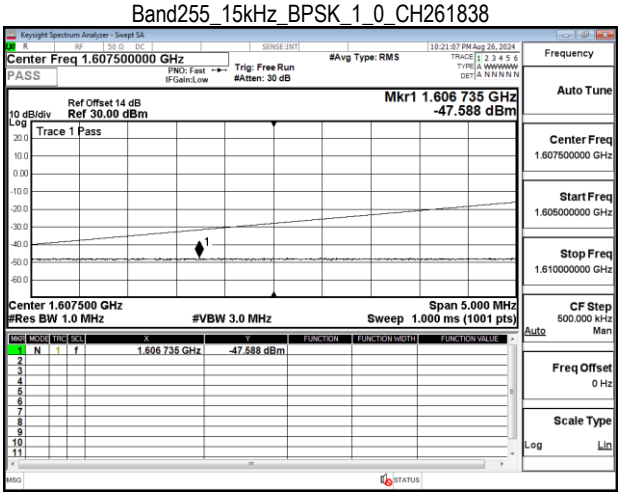
Band255_15kHz_BPSK_1_0_CH261672



Band255_15kHz_QPSK_1_0_CH261672



Band255_15kHz_BPSK_1_0_CH261838



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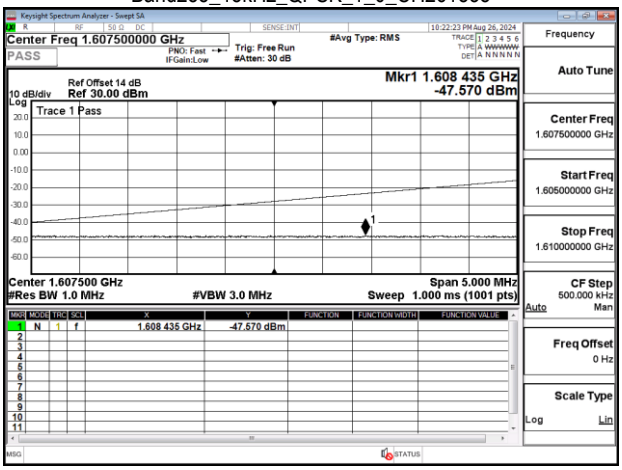

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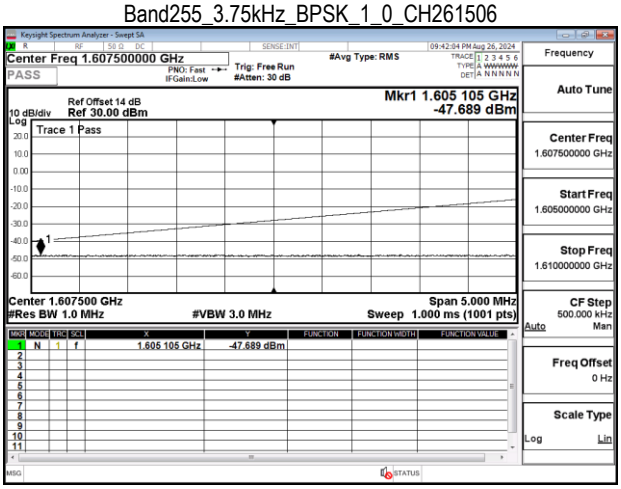
Band255_3.75kHz_BPSK_1_0_CH261506



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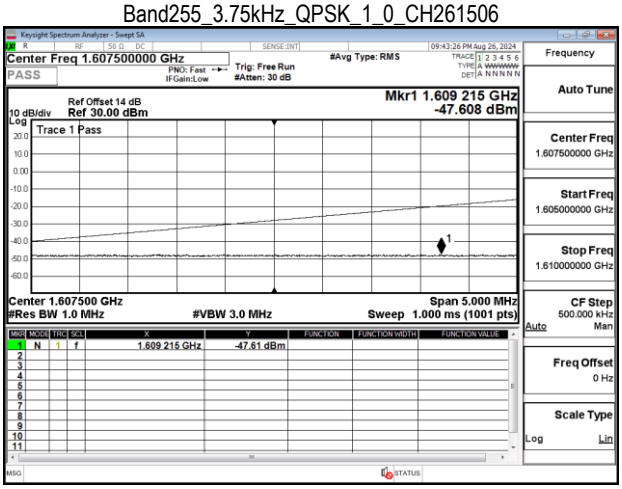

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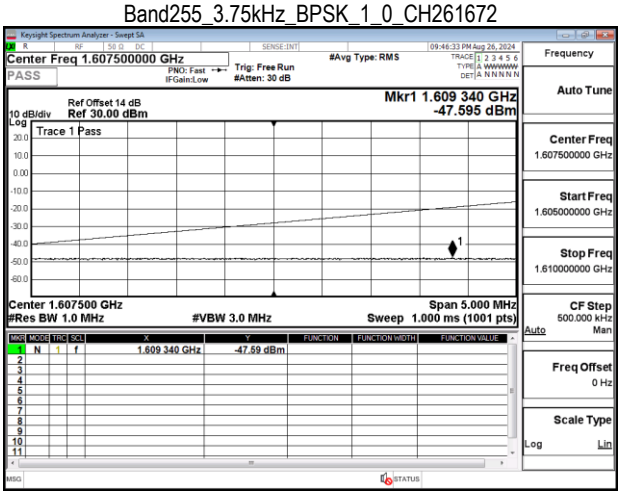

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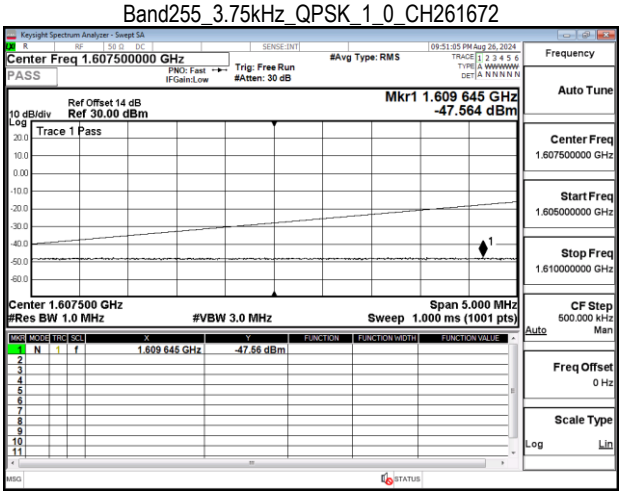

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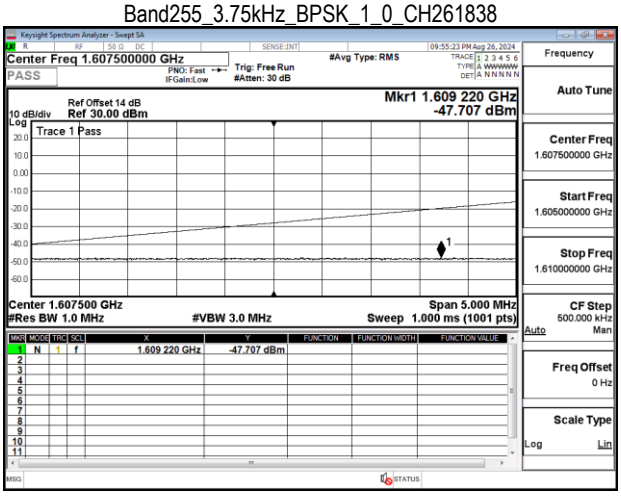

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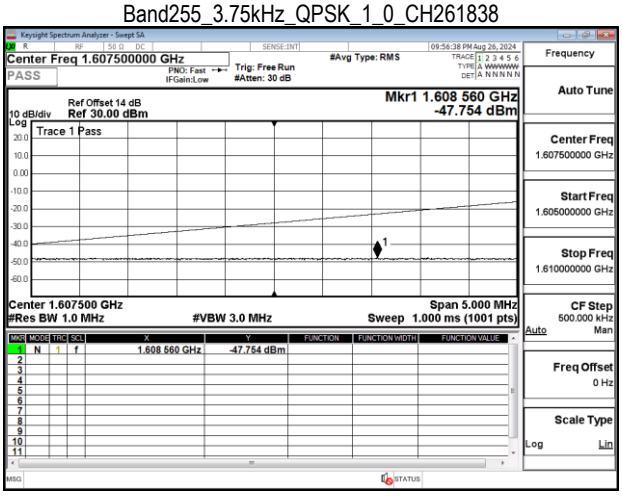

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13 CARRIER-OFF STATE EMISSIONS

13.1 Standard Applicable

According to FCC §25.216(i)

MESs with transmitting frequencies between 1 GHz and 3 GHz shall not exceed -80 dBW/MHz, which is the e.i.r.p. density of carrier-off state emissions in the band 1559-1610 MHz.

13.2 EUT Setup

Same as section 11.2 in this report

13.3 Measurement Procedure:

KDB 971168 D01 v03r01/D02 v02r02

Set RBW = 1MHz, VB = 3MHz, Detector = RMS, Sweep Time = Number of Points x 2ms, and sweep multiple times with Max Hold enabled.

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

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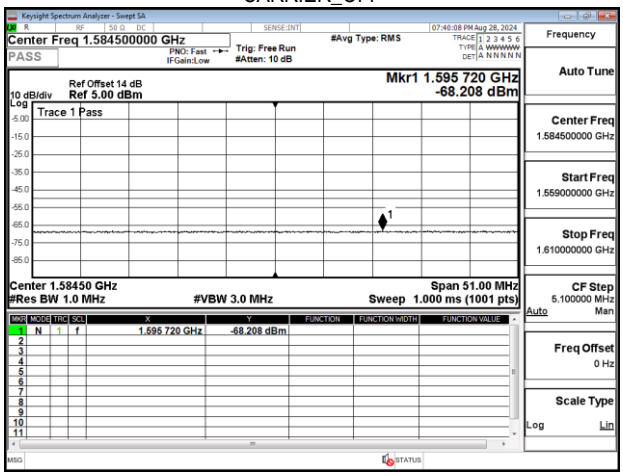
13.4 Measurement Result:

CARRIER_OFF



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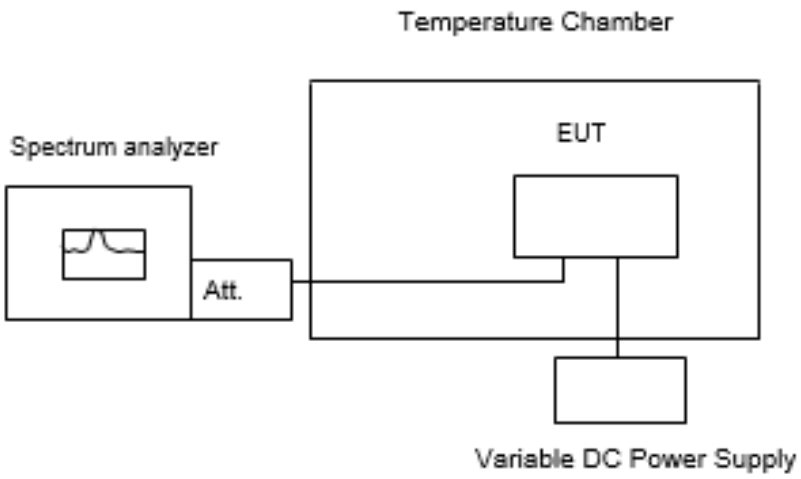
14 FREQUENCY STABILITY MEASUREMENT

14.1 Standard Applicable

According to FCC §25.202(d)

MES equipment, the carrier frequency shall not drift from the reference frequency by more than ±10 ppm(0.001%).

14.2 Test Set-up



Note: Measurement setup for testing on Antenna connector

14.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

14.4 Measurement Result

Note: The DC power is rated 3.6V dc.

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14.4.1 Band 23

NTN Band 23		2010.0	MHz	
Limit: within freqeuncy block				
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)
FREQUENCY ERROR vs. VOLTAGE				
4.14	20	2009.999845	155	-0.077
3.6	20	2009.999806	194	-0.097
3.06	20	2009.999946	54	-0.027
2.8(End point)	20	2009.999994	6	-0.003
FREQUENCY ERROR vs. Temp.				
3.60	50	2009.99990	96	-0.048
3.60	40	2009.99999	10	-0.005
3.60	30	2009.99998	25	-0.012
3.60	20	2010.00005	51	0.025
3.60	10	2010.00005	49	0.024
3.60	0	2009.99988	125	-0.062
3.60	-10	2009.99996	43	-0.021
3.60	-20	2010.00009	93	0.046
3.60	-30	2009.99986	141	-0.070

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14.4.2 Band 255

NTN Band n255		1643.3 MHz		
Limit: within freqeuncy block				
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)
FREQUENCY ERROR vs. VOLTAGE				
4.14	20	1643.300139	366699861	0.085
3.6	20	1643.299806	366700194	-0.118
3.06	20	1643.29996	366700040	-0.024
(End point)	20	1643.299876	366700124	-0.075
FREQUENCY ERROR vs. Temp.				
3.60	50	1643.30017	366699830	0.103
3.60	40	1643.30015	366699854	0.089
3.60	30	1643.30016	366699845	0.094
3.60	20	1643.29997	366700027	-0.016
3.60	10	1643.29985	366700149	-0.091
3.60	0	1643.30017	366699834	0.101
3.60	-10	1643.30004	366699963	0.023
3.60	-20	1643.29995	366700047	-0.029
3.60	-30	1643.29998	366700020	-0.012

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14.4.3 **Band 256**

NTN Band n256		2005.0 MHz		
Limit: within freqeuncy block				
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)
FREQUENCY ERROR vs. VOLTAGE				
4.14	20	2005.00003	4999970	0.015
3.6	20	2005.000046	4999954	0.023
3.06	20	2004.999946	5000054	-0.027
(End point)	20	2005.000093	4999907	0.046
FREQUENCY ERROR vs. Temp.				
3.60	50	2004.99990	5000098	-0.049
3.60	40	2005.00012	4999880	0.060
3.60	30	2005.00011	4999892	0.054
3.60	20	2005.00005	4999951	0.024
3.60	10	2004.99985	5000149	-0.074
3.60	0	2004.99985	5000147	-0.073
3.60	-10	2004.99990	5000104	-0.052
3.60	-20	2004.99994	5000058	-0.029
3.60	-30	2004.99985	5000147	-0.073

~ End of Report ~

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