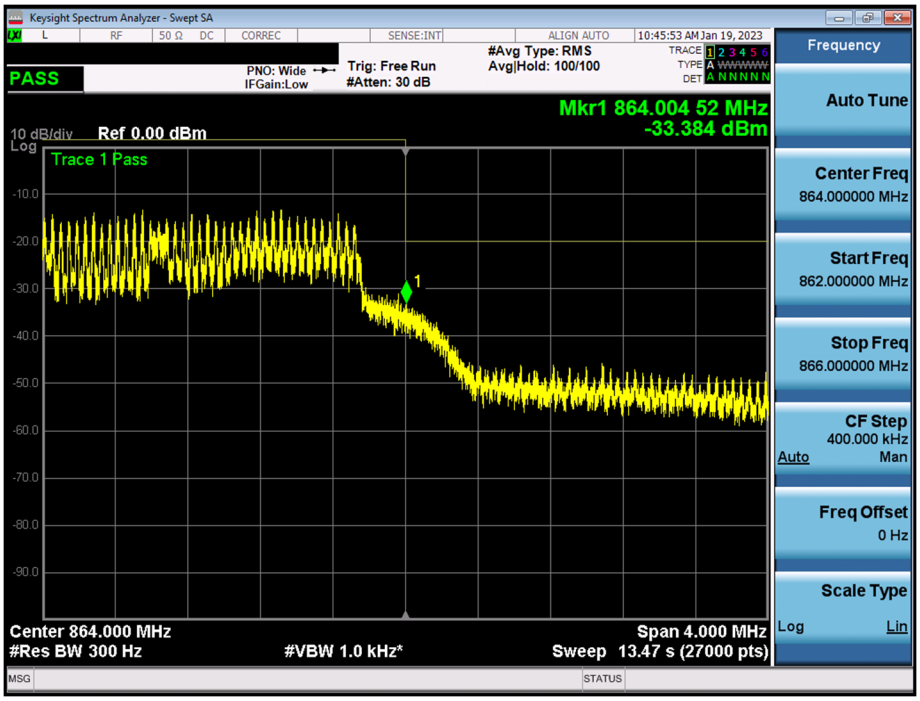
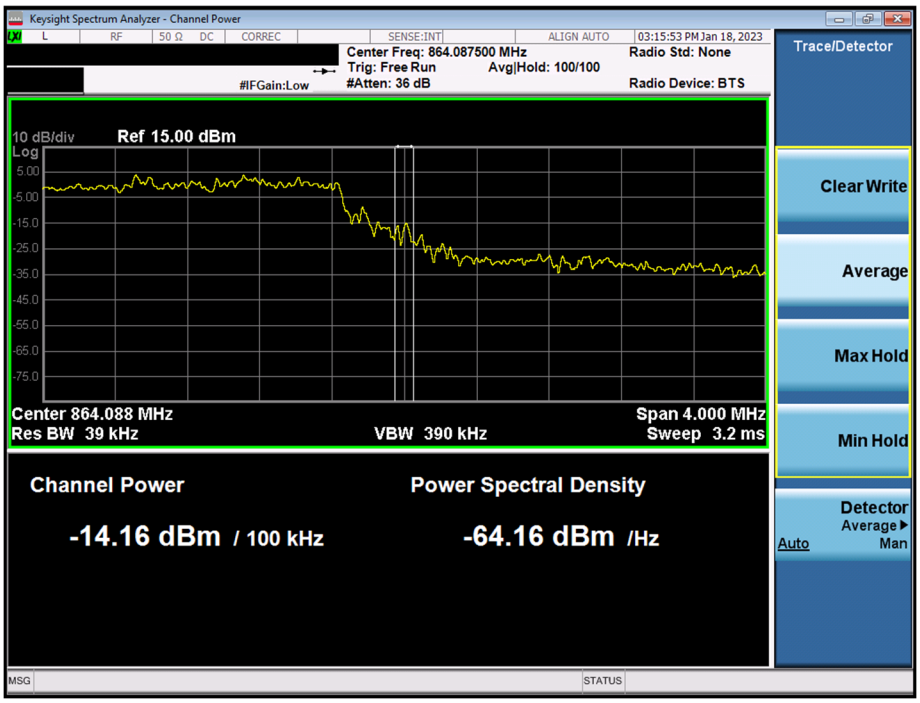
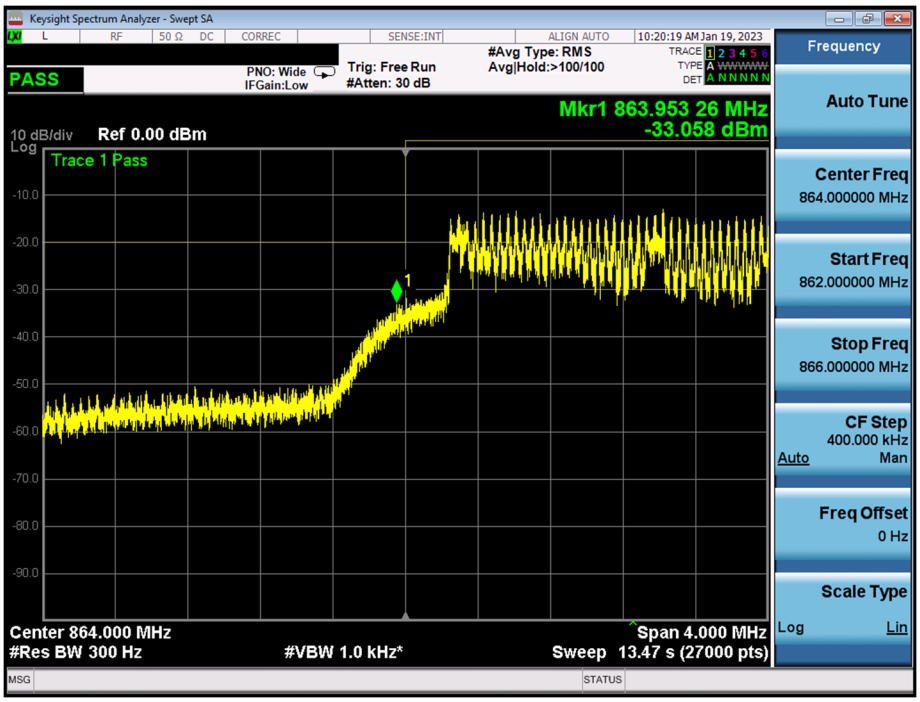


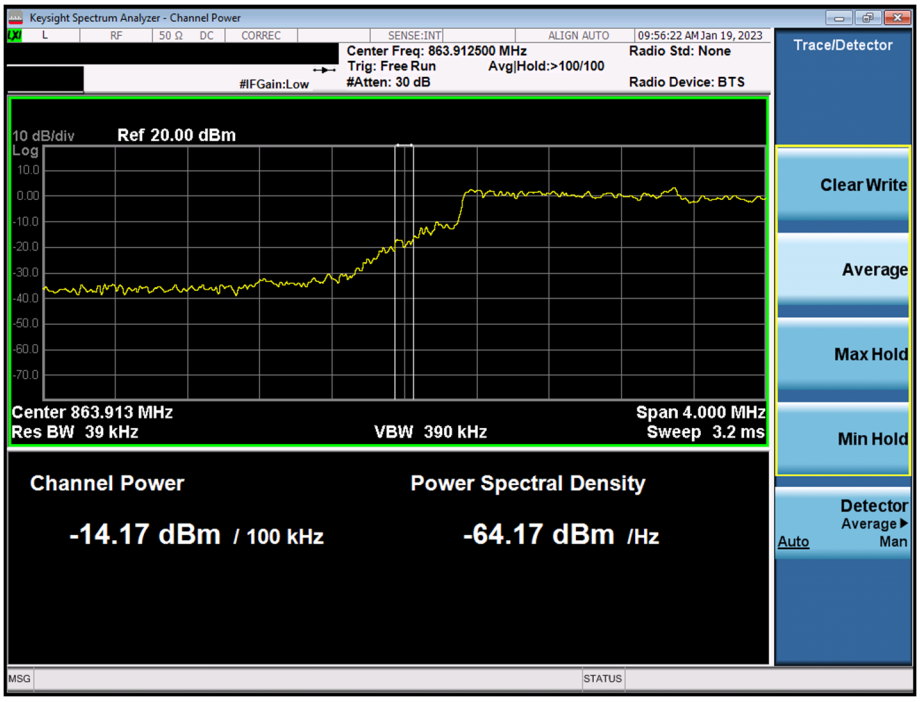
Plot 7-12. Upper Band Edge Plot - (LTE Band 26 - 5MHz QPSK - Low Channel)



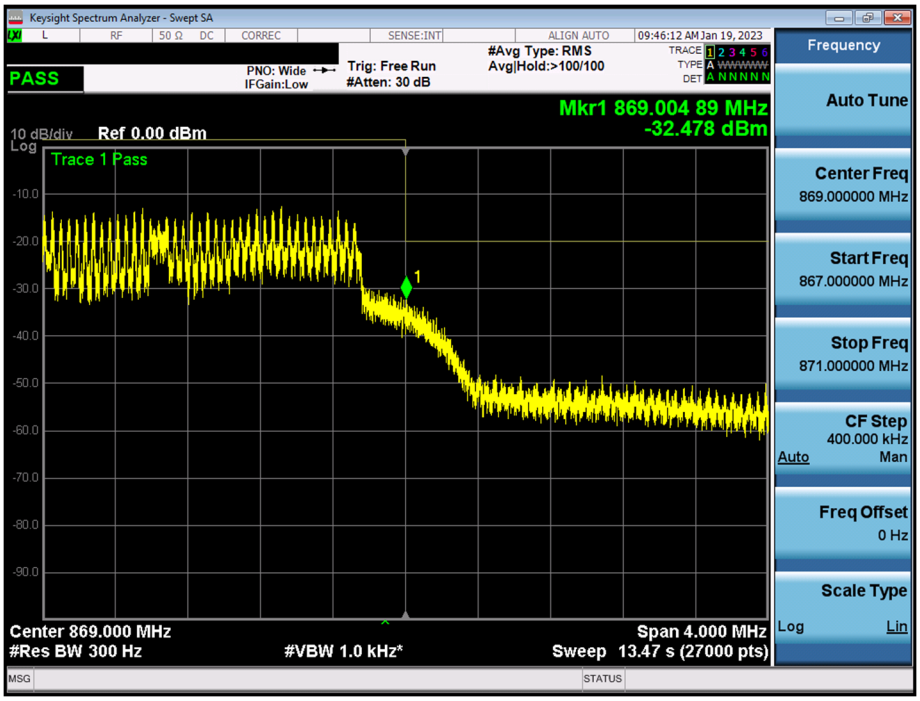
Plot 7-13. Upper Band Edge Plot (LTE Band 26 - 5MHz QPSK - Low Channel)



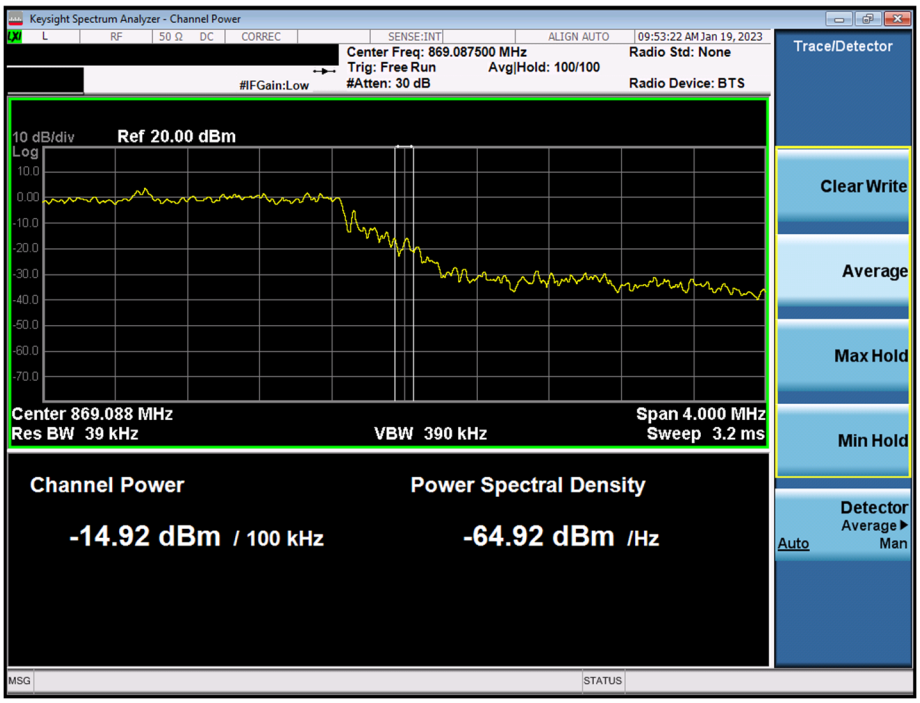
Plot 7-14. Lower Band Edge Plot (LTE Band 26 - 5MHz QPSK - High Channel)



Plot 7-15. Lower Band Edge Plot (LTE Band 26 - 5MHz QPSK - High Channel)



Plot 7-16. Upper Band Edge Plot (LTE Band 26 - 5MHz QPSK - High Channel)



Plot 7-17. Upper Band Edge Plot (LTE Band 26 - 5MHz QPSK - High Channel)

7.6 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in KDB 971168 with the EUT transmitting into an external antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

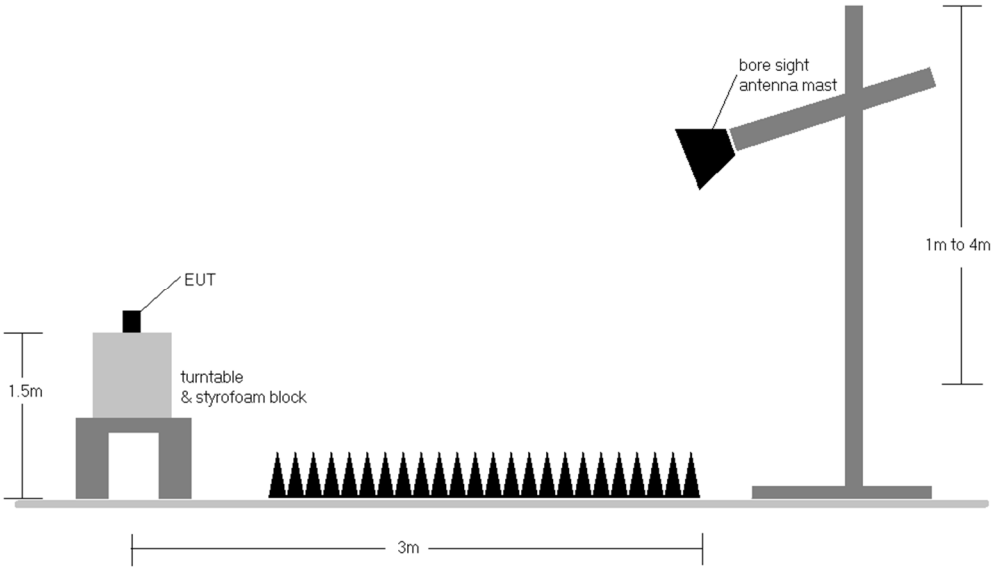


Figure 7-5. Test Instrument & Measurement Setup > 1 GHz

Test Notes

1. Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
   a. E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   b. EIRP (dBm) = E(dBµV/m) + 20logD – 104.8; where D is the measurement distance in meters.

2. For LTE mode, the device was tested under all modulations and channel bandwidth configurations, and the worst case emissions are reported.

3. The radiated spurious emissions data is taken in the worst-case configuration which is with LTE Band 26 operating simultaneously with another supported LTE band as shown in this section.

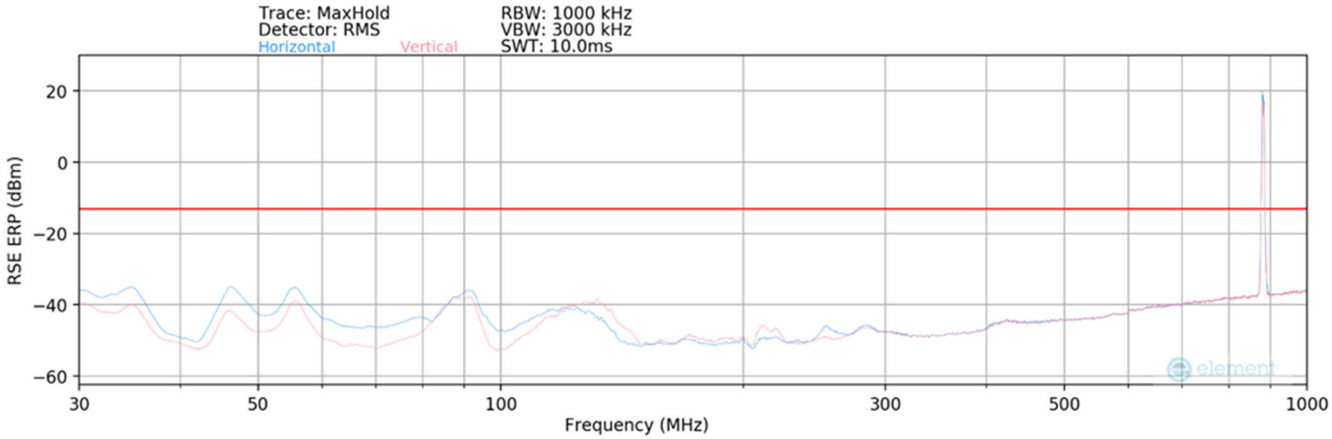
4. This unit was tested with an external 120 VAC power source

5. The EUT was tested in all possible test configurations and positioning. The worst case setup is reported in the tables below.

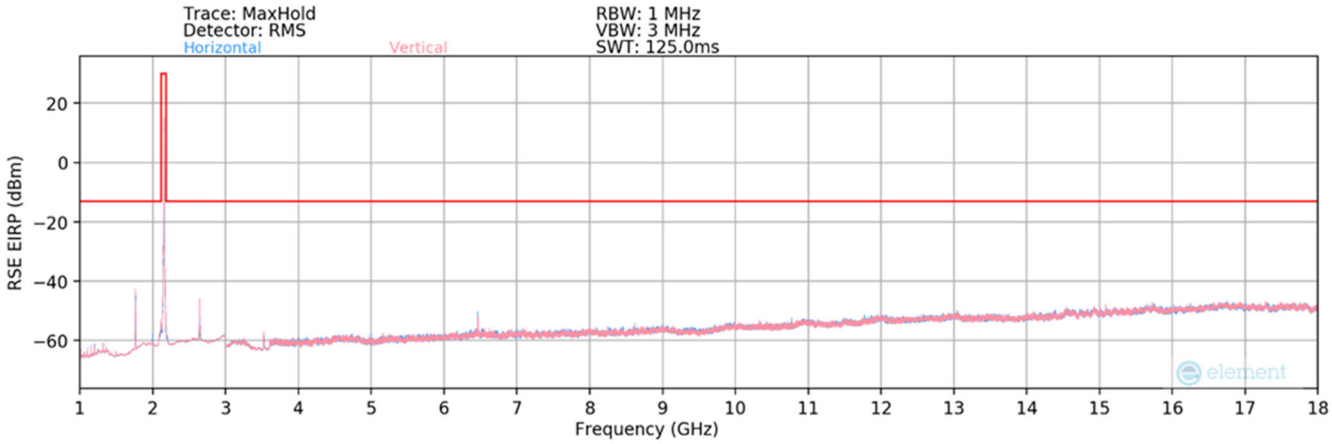
6. The EUT was also tested with all four LTE bands transmitting at the same time for a total of 80W output power. The worst-case emissions are reported.

7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

LTE Band 26- LTE Band 66



Plot 7-18. Radiated Spurious Plot (LTE Band 26- LTE Band 66)- Below 1GHz



Plot 7-19. Radiated Spurious Plot (LTE Band 26- LTE Band 66)- (1-18GHz)

Bandwidth (MHz):	5 & 5
Frequency (MHz):	864 & 2155 MHz
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
392.00	V	-	-	-88.56	23.33	41.77	-53.49	-13.00	-40.49
1760.00	V	142	45	-54.32	-2.45	50.23	-45.03	-13.00	-32.03
2642.30	V	254	208	-64.12	1.41	44.29	-50.97	-13.00	-37.97
3446.00	V	-	-	-74.99	2.62	34.63	-60.63	-13.00	-47.63
4737.00	V	-	-	-76.01	3.67	34.66	-60.59	-13.00	-47.59
6460.00	H	156	302	-69.39	6.91	44.52	-50.74	-13.00	-37.74

Table 7-3. Radiated Spurious Data (LTE Band 26- LTE Band 66 – Mid Channel)

7.7 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

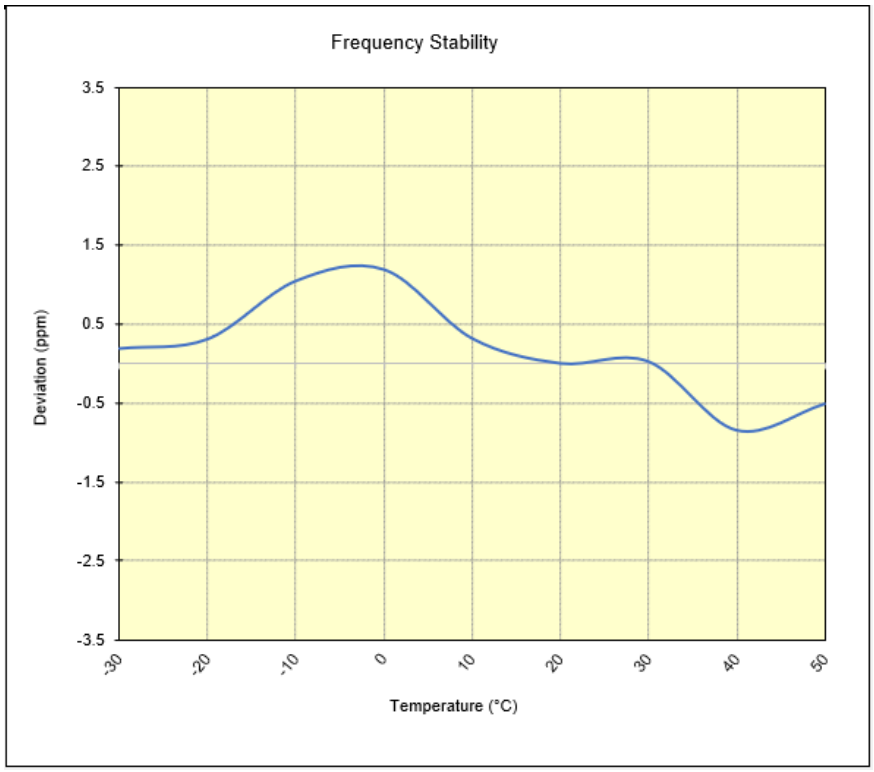
None

LTE Band 26

Operating Frequency (Hz):	864,000,000
Ref. Voltage (VDC):	12.00
Deviation Limit:	± 0.00025% or 2.5 ppm

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	12.00	- 30	863,996,017	162	0.0000188
		- 20	863,996,121	266	0.0000308
		- 10	863,996,756	901	0.0001043
		0	863,996,880	1,025	0.0001186
		+ 10	863,996,127	272	0.0000315
		+ 20 (Ref)	863,995,855	0	0.0000000
		+ 30	863,995,875	20	0.0000023
		+ 40	863,995,124	-731	-0.0000846
		+ 50	863,995,412	-443	-0.0000513
85%	10.20	+ 20	863,995,542	-313	-0.0000362
85%	13.80	+ 20	863,995,493	-362	-0.0000419

Table 7-4. LTE Band 26 Frequency Stability Data



Plot 7-20. LTE Band 26 Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Centum Geolocation System FCC ID: 2A93U-55041-402** complies with all the requirements of Parts 22(H) and 90 of the FCC rules.