

Plot 7-130. Radiated Spurious Plot Above 1GHz (WCDMA Cell) – OPEN

| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4132 |
| Frequency (MHz): | 826.4 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1652.80 | H | 120 | 277 | -75.41 | -7.02 | 24.57 | -70.68 | -13.00 | -57.68 |
| 2479.20 | H | 151 | 261 | -65.53 | -3.83 | 37.64 | -57.62 | -13.00 | -44.62 |
| 3305.60 | H | - | - | -78.15 | -0.39 | 28.46 | -66.80 | -13.00 | -53.80 |
| 4132.00 | H | - | - | -78.21 | 1.52 | 30.31 | -64.94 | -13.00 | -51.94 |
| 4958.40 | H | - | - | -78.03 | 2.06 | 31.03 | -64.23 | -13.00 | -51.23 |

Table 7-52. Radiated Spurious Data (WCDMA Cell – Low Channel) – HALF OPEN

| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4183 |
| Frequency (MHz): | 836.6 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1673.20 | H | 121 | 275 | -75.76 | -6.97 | 24.27 | -70.99 | -13.00 | -57.99 |
| 2509.80 | H | 150 | 245 | -66.75 | -4.05 | 36.20 | -59.06 | -13.00 | -46.06 |
| 3346.40 | H | - | - | -76.85 | -0.44 | 29.71 | -65.55 | -13.00 | -52.55 |
| 4183.00 | H | - | - | -77.36 | 1.09 | 30.73 | -64.53 | -13.00 | -51.53 |
| 5019.60 | H | - | - | -78.06 | 1.96 | 30.90 | -64.36 | -13.00 | -51.36 |

Table 7-53. Radiated Spurious Data (WCDMA Cell – Mid Channel) – HALF OPEN

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
| FCC ID: A3LSMF936U | PART 22 MEASUREMENT REPORT | | Approved by: Technical Manager |
| Test Report S/N: 1M2204010046-02.A3L | Test Dates: 04/05 – 06/07/2022 | EUT Type: Portable Handset | Page 104 of 113 |

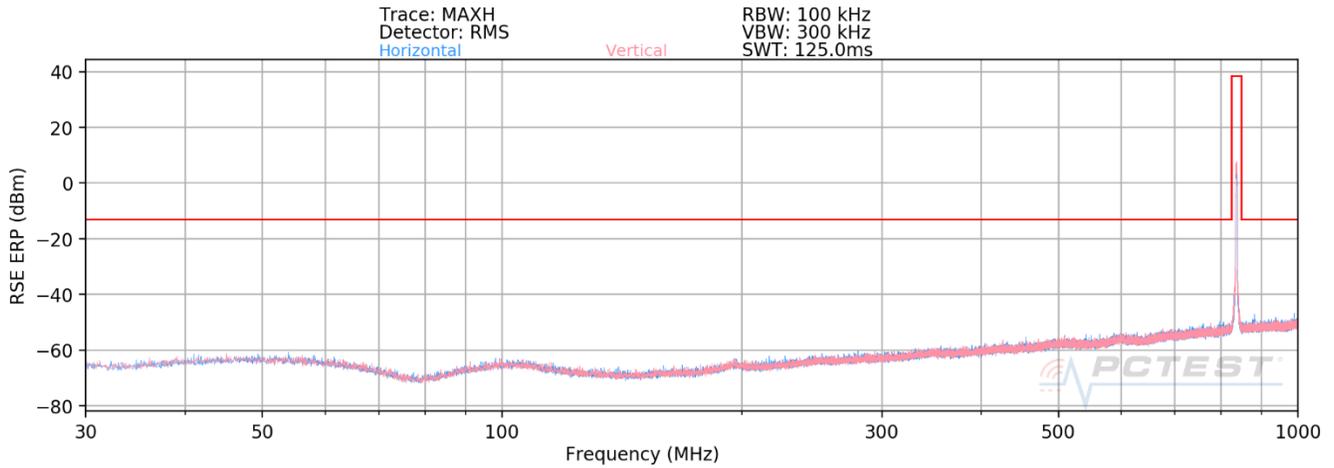
| | |
|-------------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4233 |
| Frequency (MHz): | 846.6 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1693.20 | H | 129 | 273 | -76.10 | -7.51 | 23.39 | -71.87 | -13.00 | -58.87 |
| 2539.80 | H | 151 | 255 | -63.83 | -3.92 | 39.25 | -56.01 | -13.00 | -43.01 |
| 3386.40 | H | - | - | -77.94 | -0.43 | 28.63 | -66.63 | -13.00 | -53.63 |
| 4233.00 | H | - | - | -77.91 | 0.82 | 29.91 | -65.35 | -13.00 | -52.35 |
| 5079.60 | H | - | - | -78.24 | 2.59 | 31.35 | -63.91 | -13.00 | -50.91 |

Table 7-54. Radiated Spurious Data (WCDMA Cell – High Channel) – HALF OPEN

| | | | |
|--|--|--------------------------------------|--|
| FCC ID: A3LSMF936U | PART 22 MEASUREMENT REPORT | | Approved by: Technical Manager |
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WCDMA Cell AntA

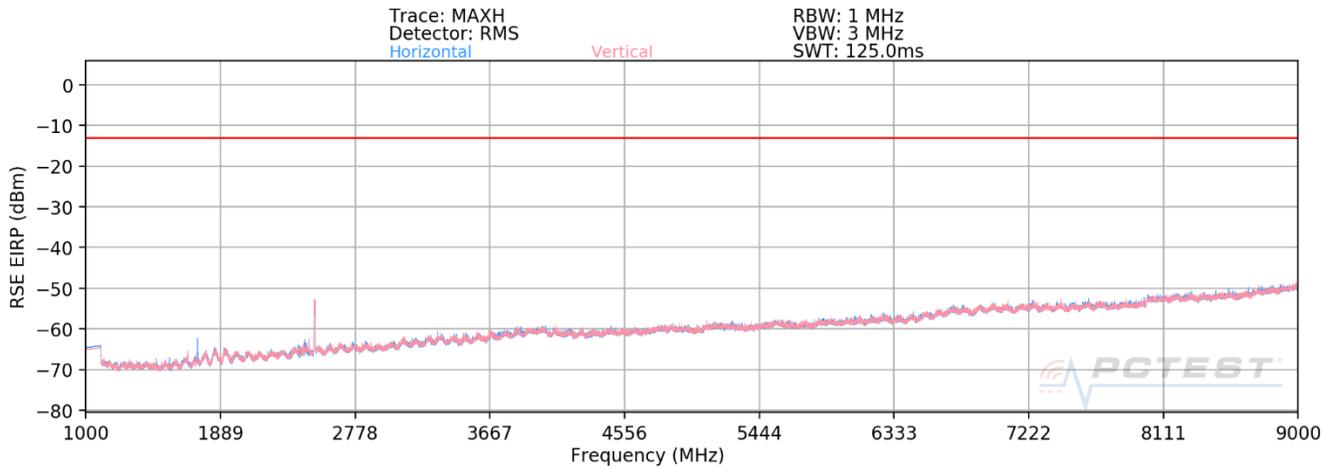


Plot 7-131. Radiated Spurious Plot Below 1GHz (WCDMA Cell) – CLOSE

| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4183 |
| Frequency (MHz): | 836.6 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 850.14 | V | - | - | -79.34 | 24.43 | 52.09 | -43.16 | -13.00 | -30.16 |

Table 7-55. Radiated Spurious Data (WCDMA Cell) – CLOSE



Plot 7-132. Radiated Spurious Plot Above 1GHz (WCDMA Cell) – CLOSE

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
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| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4132 |
| Frequency (MHz): | 826.4 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1652.80 | H | 132 | 332 | -71.08 | -7.02 | 28.90 | -66.35 | -13.00 | -53.35 |
| 2479.20 | H | 102 | 336 | -65.11 | -3.83 | 38.06 | -57.20 | -13.00 | -44.20 |
| 3305.60 | H | - | - | -78.00 | -0.39 | 28.61 | -66.65 | -13.00 | -53.65 |
| 4132.00 | H | - | - | -77.87 | 1.52 | 30.65 | -64.60 | -13.00 | -51.60 |
| 4958.40 | H | - | - | -77.99 | 2.06 | 31.07 | -64.19 | -13.00 | -51.19 |

Table 7-56. Radiated Spurious Data (WCDMA Cell – Low Channel) – CLOSE

| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4183 |
| Frequency (MHz): | 836.6 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1673.20 | H | 167 | 329 | -72.13 | -6.97 | 27.90 | -67.36 | -13.00 | -54.36 |
| 2509.80 | H | 124 | 338 | -61.33 | -4.05 | 41.62 | -53.64 | -13.00 | -40.64 |
| 3346.40 | H | - | - | -76.85 | -0.44 | 29.71 | -65.55 | -13.00 | -52.55 |
| 4183.00 | H | - | - | -77.25 | 1.09 | 30.84 | -64.42 | -13.00 | -51.42 |
| 5019.60 | H | - | - | -78.11 | 1.96 | 30.85 | -64.41 | -13.00 | -51.41 |

Table 7-57. Radiated Spurious Data (WCDMA Cell – Mid Channel) – CLOSE

| | |
|------------------|-----------|
| Mode: | WCDMA RMC |
| Channel: | 4233 |
| Frequency (MHz): | 846.6 |

| 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] |
|-----------------|-----------------|---------------------|----------------------------|----------------------|-------------|-------------------------|------------------------------------|-------------|-------------|
| 1693.20 | H | 171 | 331 | -72.87 | -7.51 | 26.62 | -68.64 | -13.00 | -55.64 |
| 2539.80 | H | 142 | 358 | -62.40 | -3.92 | 40.68 | -54.58 | -13.00 | -41.58 |
| 3386.40 | H | - | - | -78.11 | -0.43 | 28.46 | -66.80 | -13.00 | -53.80 |
| 4233.00 | H | - | - | -77.92 | 0.82 | 29.90 | -65.36 | -13.00 | -52.36 |
| 5079.60 | H | - | - | -78.30 | 2.59 | 31.29 | -63.97 | -13.00 | -50.97 |

Table 7-58. Radiated Spurious Data (WCDMA Cell – High Channel) – CLOSE

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
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7.8 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.

For Part 22 and RSS-132, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 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

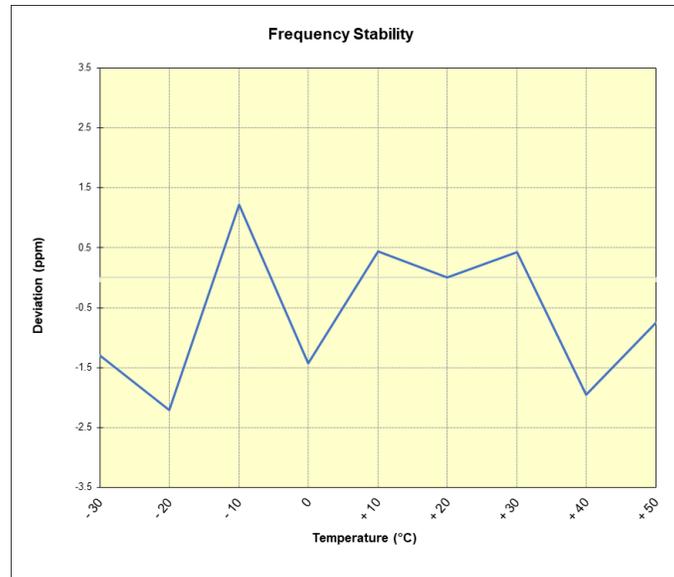
None.

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
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LTE Band 26/5

| LTE Band 26/5 | | | | | |
|------------------|-------------|---------------------------|----------------|-----------------------|---------------|
| | | Operating Frequency (Hz): | | 836,500,000 | |
| | | Ref. Voltage (VDC): | | 4.35 | |
| | | Deviation Limit: | | ± 0.00025% or 2.5 ppm | |
| Voltage (%) | Power (VDC) | Temp (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) |
| 100 % | 4.35 | - 30 | 836,497,662 | -1,091 | -0.0001304 |
| | | - 20 | 836,496,908 | -1,846 | -0.0002206 |
| | | - 10 | 836,499,772 | 1,019 | 0.0001218 |
| | | 0 | 836,497,561 | -1,192 | -0.0001425 |
| | | + 10 | 836,499,126 | 373 | 0.0000446 |
| | | + 20 (Ref) | 836,498,753 | 0 | 0.0000000 |
| | | + 30 | 836,499,111 | 358 | 0.0000428 |
| | | + 40 | 836,497,125 | -1,628 | -0.0001946 |
| | | + 50 | 836,498,125 | -628 | -0.0000751 |
| Battery Endpoint | 3.69 | + 20 | 836,499,357 | 604 | 0.0000722 |

Table 7-59. LTE Band 26/5 Frequency Stability Data



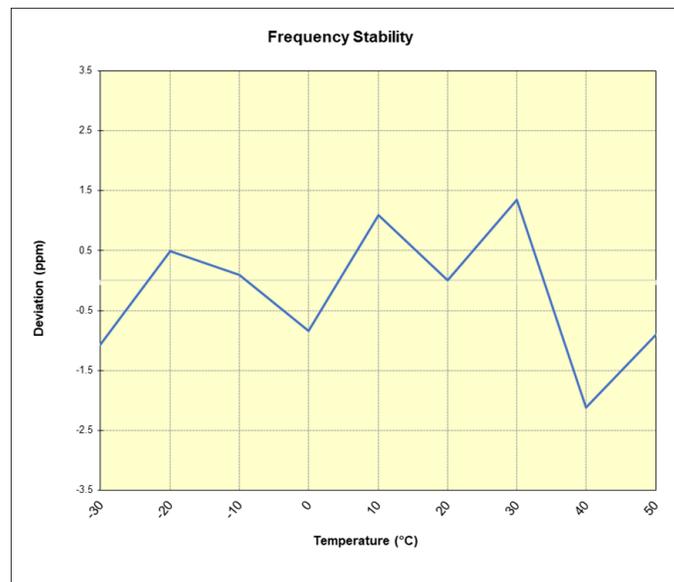
Plot 7-133. LTE Band 26/5 Frequency Stability Chart

| | | | |
|--|--|--------------------------------------|--|
| FCC ID: A3LSMF936U | PART 22 MEASUREMENT REPORT | | Approved by: Technical Manager |
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NR Band n5

| NR Band n5 | | | | | |
|---------------------------|-------------|-----------------------|----------------|-----------------|---------------|
| Operating Frequency (Hz): | | 836,500,000 | | | |
| Ref. Voltage (VDC): | | 4.35 | | | |
| Deviation Limit: | | ± 0.00025% or 2.5 ppm | | | |
| Voltage (%) | Power (VDC) | Temp (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) |
| 100 % | 4.35 | - 30 | 836,466,854 | -895 | -0.0001070 |
| | | - 20 | 836,468,161 | 412 | 0.0000493 |
| | | - 10 | 836,467,834 | 85 | 0.0000102 |
| | | 0 | 836,467,050 | -699 | -0.0000836 |
| | | + 10 | 836,468,664 | 915 | 0.0001094 |
| | | + 20 (Ref) | 836,467,749 | 0 | 0.0000000 |
| | | + 30 | 836,468,882 | 1,133 | 0.0001355 |
| | | + 40 | 836,465,975 | -1,774 | -0.0002121 |
| Battery Endpoint | 3.69 | + 20 | 836,466,977 | -772 | -0.0000923 |

Table 7-60. NR Band n5 Frequency Stability Data



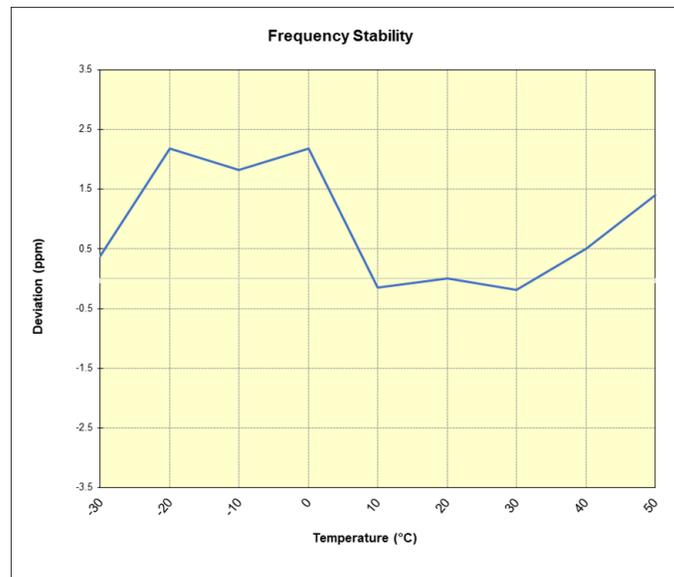
Plot 7-134. NR Band n5 Frequency Stability Chart

| | | | |
|--|--|--------------------------------------|--|
| FCC ID: A3LSMF936U | PART 22 MEASUREMENT REPORT | | Approved by: Technical Manager |
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GSM/GPRS Cell

| GSM/GPRS Cellular | | | | | |
|---------------------------|-------------|-----------------------|----------------|-----------------|---------------|
| Operating Frequency (Hz): | | 836,600,000 | | | |
| Ref. Voltage (VDC): | | 4.35 | | | |
| Deviation Limit: | | ± 0.00025% or 2.5 ppm | | | |
| Voltage (%) | Power (VDC) | Temp (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) |
| 100 % | 4.35 | - 30 | 836,600,101 | 311 | 0.0000372 |
| | | - 20 | 836,601,617 | 1,827 | 0.0002184 |
| | | - 10 | 836,601,311 | 1,521 | 0.0001818 |
| | | 0 | 836,601,609 | 1,819 | 0.0002174 |
| | | + 10 | 836,599,662 | -128 | -0.0000153 |
| | | + 20 (Ref) | 836,599,790 | 0 | 0.0000000 |
| | | + 30 | 836,599,631 | -159 | -0.0000190 |
| | | + 40 | 836,600,213 | 423 | 0.0000506 |
| | | + 50 | 836,600,961 | 1,171 | 0.0001399 |
| Battery Endpoint | 3.69 | + 20 | 836,600,216 | 426 | 0.0000509 |

Table 7-61. GSM/GPRS Cell Frequency Stability Data



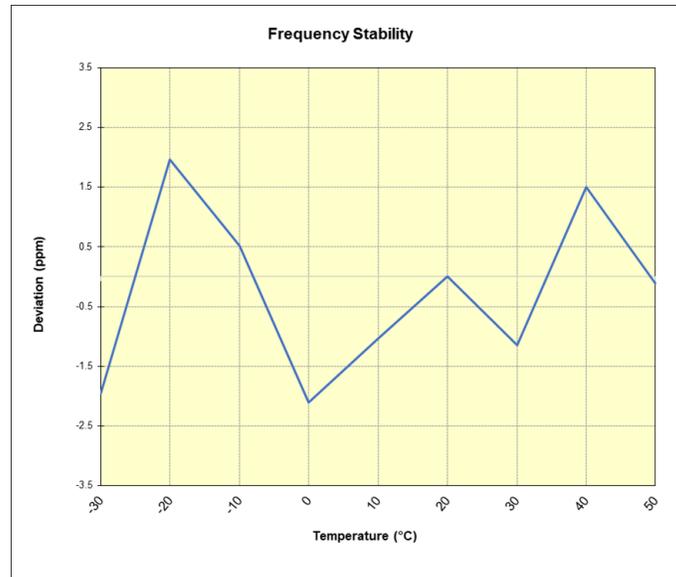
Plot 7-135. GSM/GPRS Cell Frequency Stability Chart

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
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WCDMA Cell

| WCDMA Cellular | | | | | |
|---------------------------|-------------|-----------------------|----------------|-----------------|---------------|
| Operating Frequency (Hz): | | 836,600,000 | | | |
| Ref. Voltage (VDC): | | 4.35 | | | |
| Deviation Limit: | | ± 0.00025% or 2.5 ppm | | | |
| Voltage (%) | Power (VDC) | Temp (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) |
| 100 % | 4.35 | - 30 | 836,598,124 | -1,632 | -0.0001951 |
| | | - 20 | 836,601,401 | 1,645 | 0.0001966 |
| | | - 10 | 836,600,187 | 431 | 0.0000515 |
| | | 0 | 836,597,992 | -1,764 | -0.0002109 |
| | | + 10 | 836,598,897 | -859 | -0.0001027 |
| | | + 20 (Ref) | 836,599,756 | 0 | 0.0000000 |
| | | + 30 | 836,598,799 | -957 | -0.0001144 |
| | | + 40 | 836,601,011 | 1,255 | 0.0001500 |
| | | + 50 | 836,599,661 | -96 | -0.0000114 |
| Battery Endpoint | 3.69 | + 20 | 836,600,175 | 419 | 0.0000501 |

Table 7-62. WCDMA Cell Frequency Stability Data



Plot 7-136. WCDMA Cell Frequency Stability Chart

| | | | |
|---|-----------------------------------|-------------------------------|-----------------------------------|
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF936U** complies with all the requirements of Part 22 of the FCC rules.

| | | | |
|--|--|--------------------------------------|--|
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