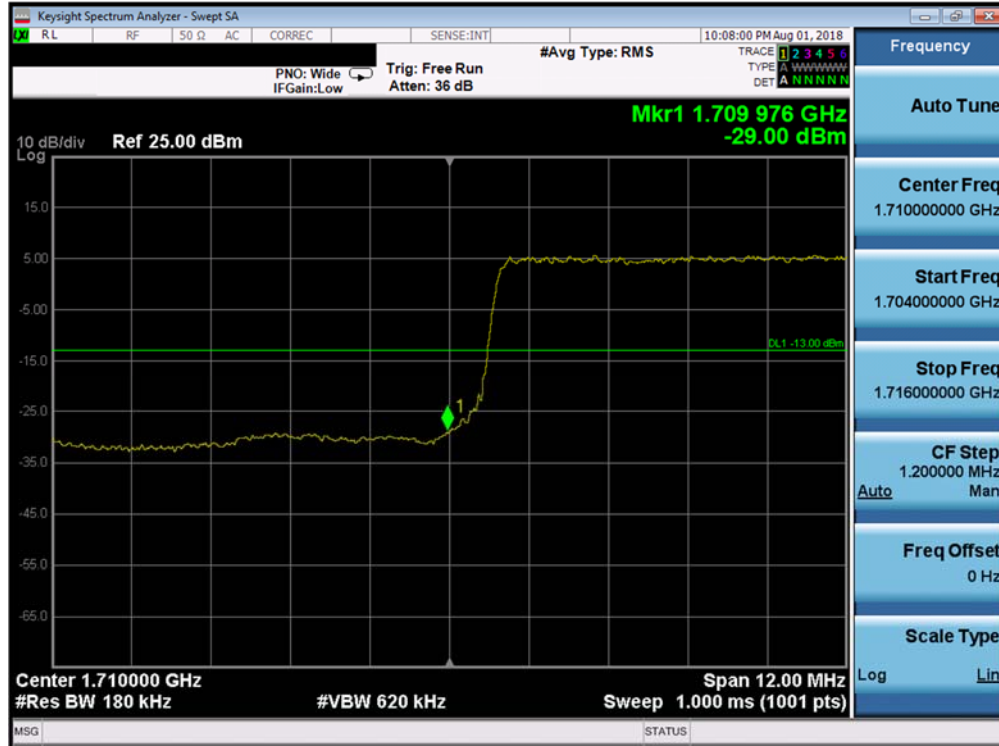
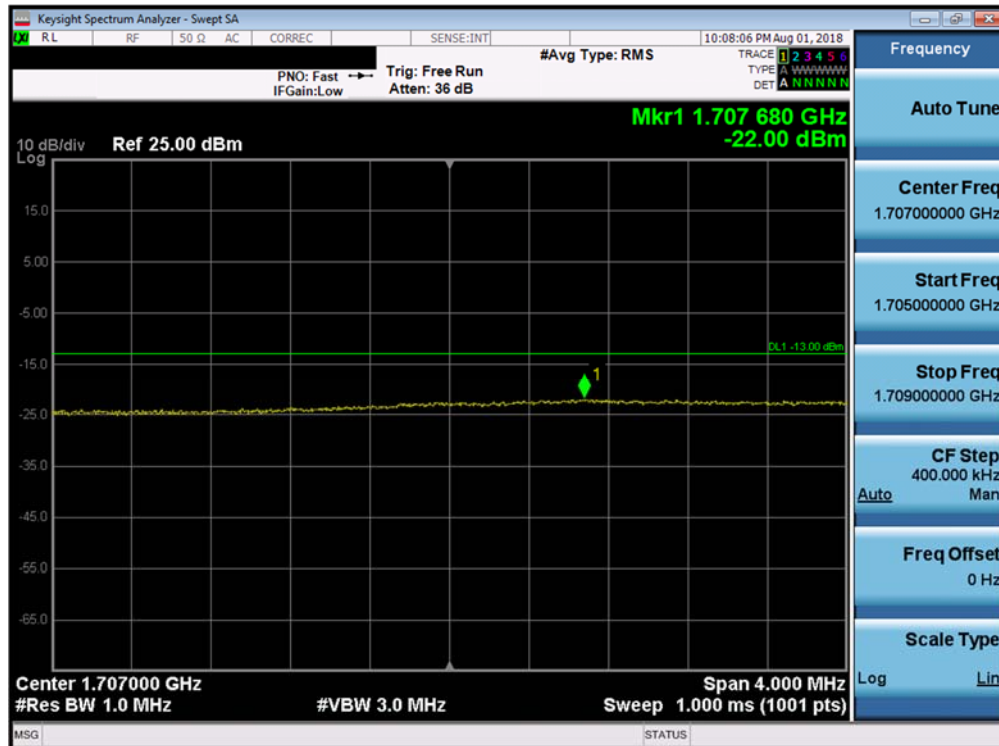


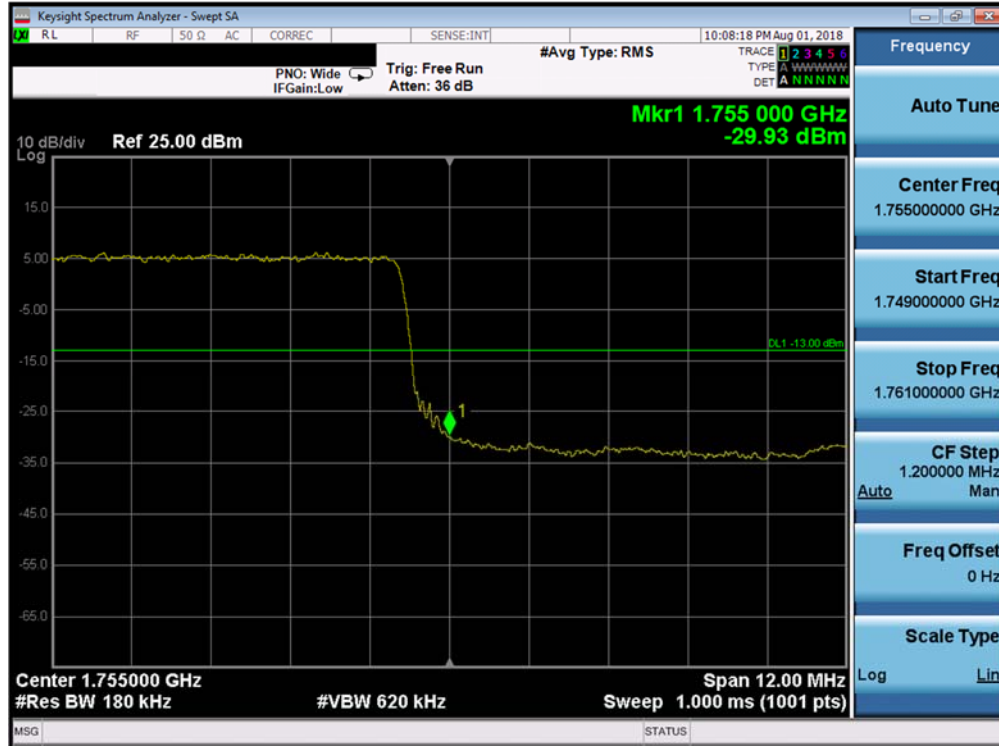


Plot 7-92. Lower Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

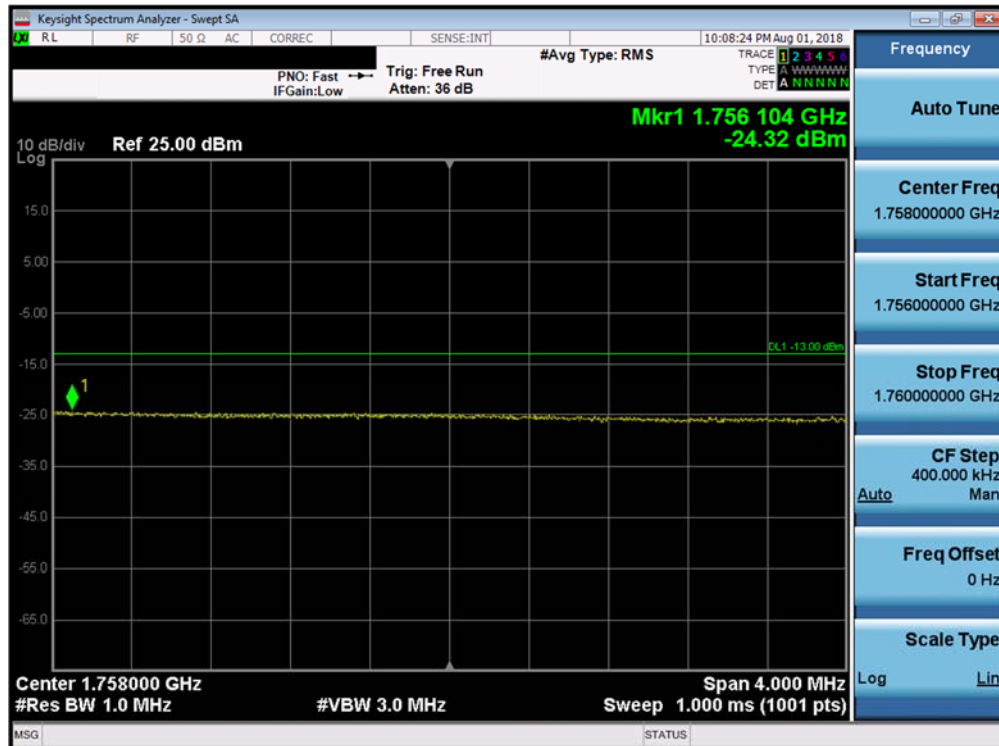


Plot 7-93. Lower Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |    |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018               | EUT Type:<br>Portable Handset         |    | Page 65 of 89                   |

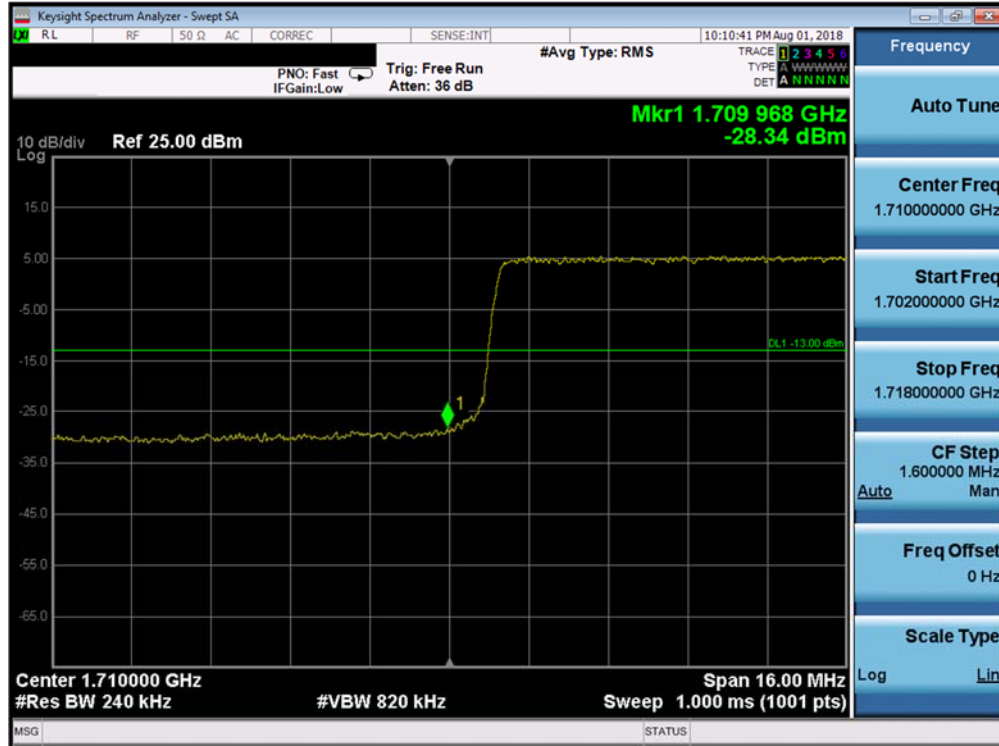


Plot 7-94. Upper Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

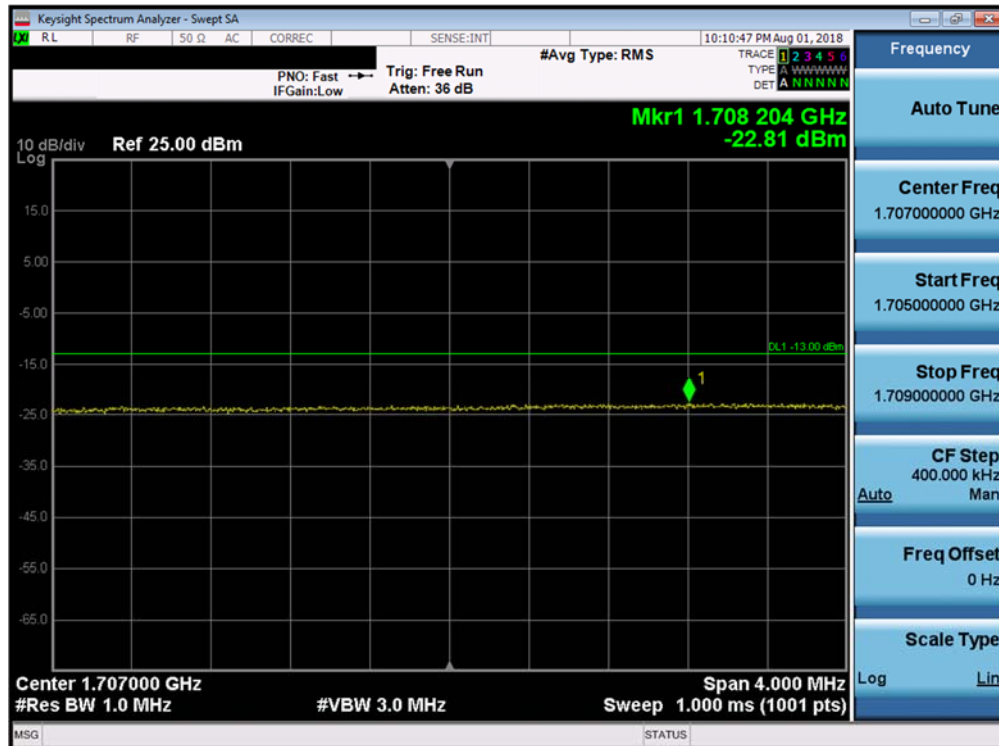


Plot 7-95. Upper Extended Band Edge Plot (Band 4 - 15.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |    |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018               | EUT Type:<br>Portable Handset         |    | Page 66 of 89                   |

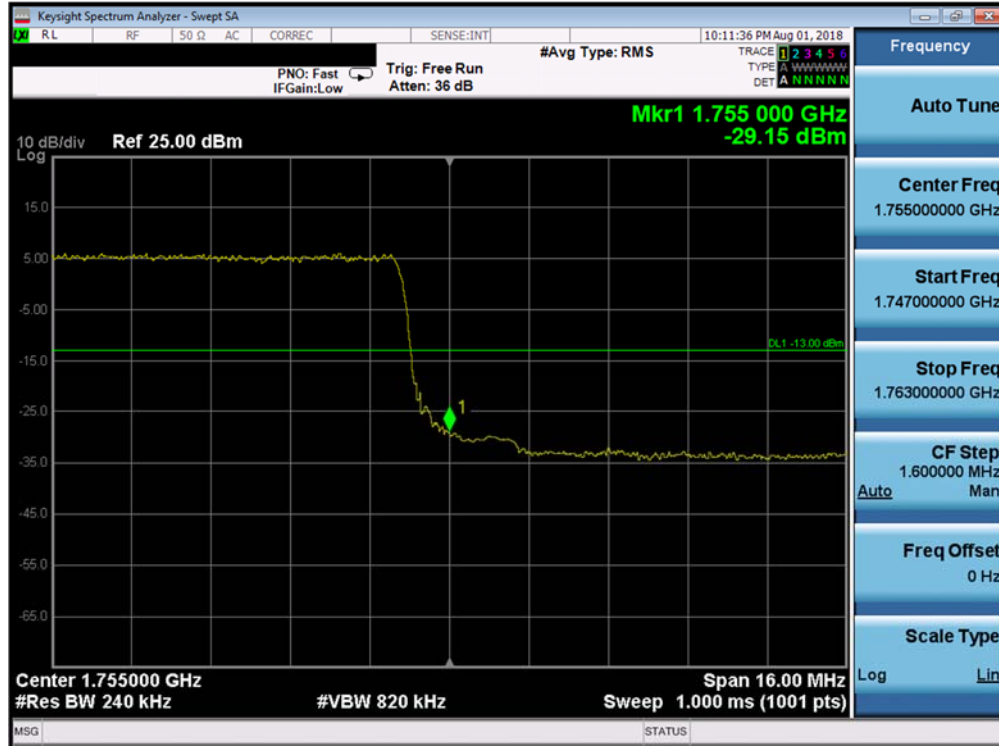


Plot 7-96. Lower Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

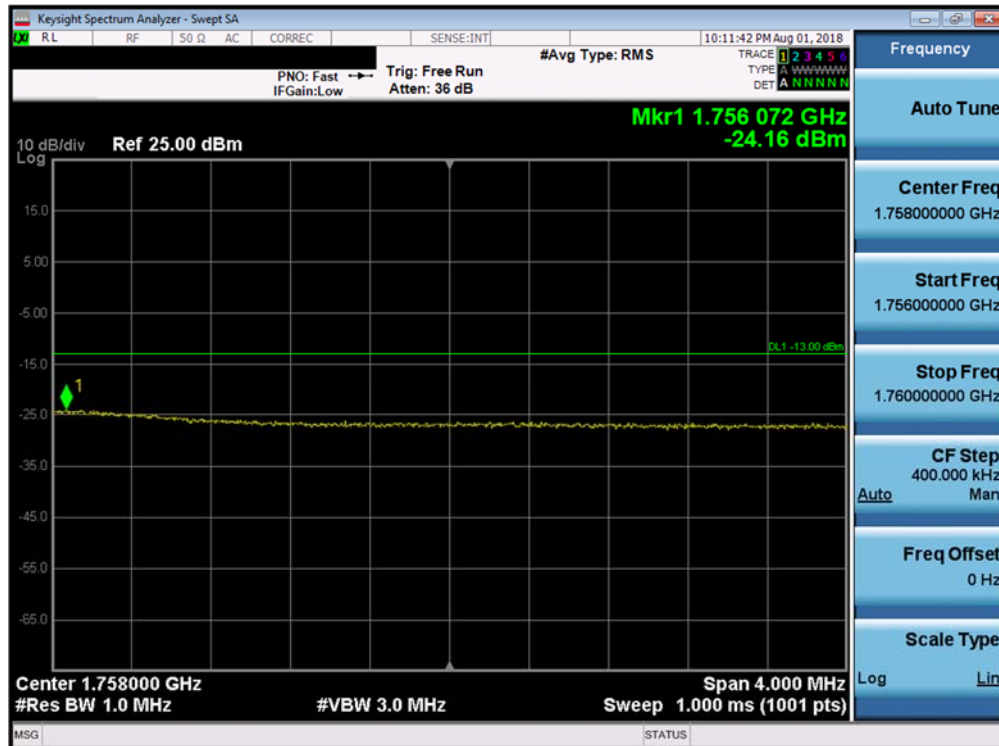


Plot 7-97. Lower Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |    |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018               | EUT Type:<br>Portable Handset         |    | Page 67 of 89                   |



Plot 7-98. Upper Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)



Plot 7-99. Upper Extended Band Edge Plot (Band 4 - 20.0MHz QPSK - Full RB Configuration)

|                                         |                                               |                                       |    |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018               | EUT Type:<br>Portable Handset         |    | Page 68 of 89                   |

## 7.5 Radiated Power (ERP/EIRP)

### Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally 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 average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

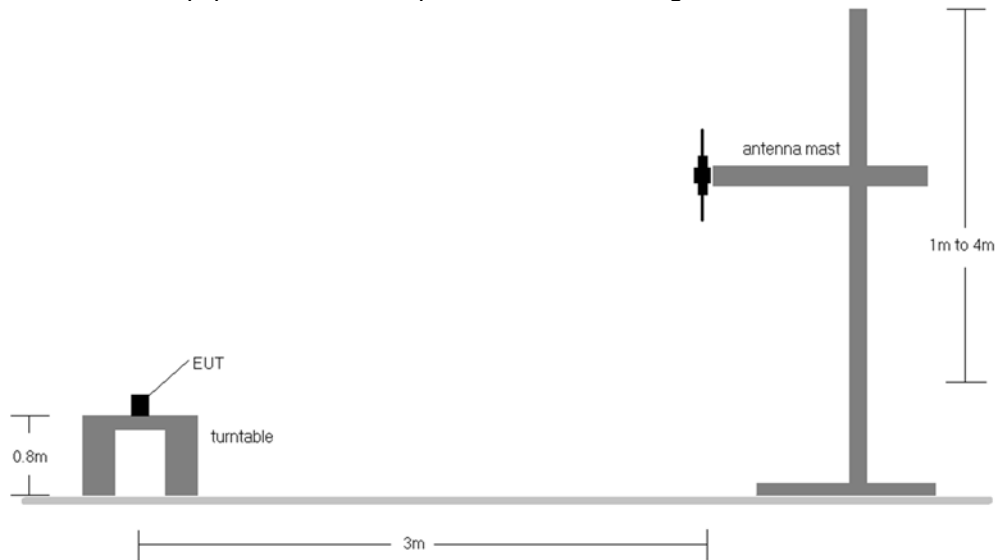
### Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW  $\geq 3 \times$  RBW
4. Span = 1.5 times the OBW
5. No. of sweep points  $\geq 2 \times$  span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

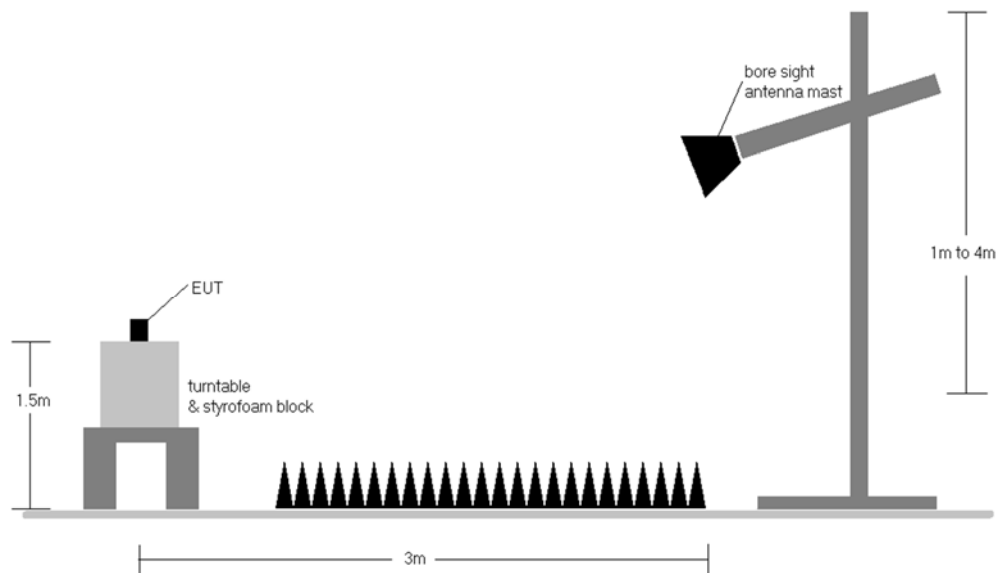
|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 69 of 89                   |

## Test Setup

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



**Figure 7-4. Radiated Test Setup <1GHz**



**Figure 7-5. Radiated Test Setup >1GHz**

## Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

|                                         |                                               |                                       |    |                                 |
|-----------------------------------------|-----------------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018               | EUT Type:<br>Portable Handset         |    | Page 70 of 89                   |

| Frequency [MHz] | Channel Bandwidth [MHz] | Mod.   | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | RB Size/Offset | Substitute Level [dBm] | Ant. Gain [dBi] | ERP [dBm]    | ERP [Watts]  | ERP Limit [dBm] | Margin [dB] |
|-----------------|-------------------------|--------|-----------------|---------------------|----------------------------|----------------|------------------------|-----------------|--------------|--------------|-----------------|-------------|
| 699.70          | 1.4                     | QPSK   | H               | 150                 | 185                        | 1 / 5          | 18.54                  | 1.10            | 17.49        | 0.056        | 34.77           | -17.28      |
| 707.50          | 1.4                     | QPSK   | H               | 150                 | 179                        | 1 / 0          | 18.71                  | 1.13            | 17.69        | 0.059        | 34.77           | -17.08      |
| 715.30          | 1.4                     | QPSK   | H               | 150                 | 175                        | 1 / 0          | 19.76                  | 1.16            | <b>18.77</b> | 0.075        | 34.77           | -16.00      |
| 715.30          | 1.4                     | 16-QAM | H               | 150                 | 175                        | 1 / 0          | 19.05                  | 1.16            | <b>18.06</b> | 0.064        | 34.77           | -16.71      |
| 700.50          | 3                       | QPSK   | H               | 150                 | 179                        | 1 / 14         | 19.28                  | 1.10            | 18.23        | 0.067        | 34.77           | -16.54      |
| 707.50          | 3                       | QPSK   | H               | 150                 | 189                        | 1 / 0          | 19.05                  | 1.13            | 18.03        | 0.064        | 34.77           | -16.74      |
| 714.50          | 3                       | QPSK   | H               | 150                 | 175                        | 1 / 0          | 20.10                  | 1.16            | <b>19.11</b> | <b>0.081</b> | 34.77           | -15.66      |
| 714.50          | 3                       | 16-QAM | H               | 150                 | 175                        | 1 / 0          | 19.37                  | 1.16            | <b>18.38</b> | 0.069        | 34.77           | -16.39      |
| 701.50          | 5                       | QPSK   | H               | 150                 | 190                        | 1 / 24         | 19.62                  | 1.11            | 18.58        | 0.072        | 34.77           | -16.20      |
| 707.50          | 5                       | QPSK   | H               | 150                 | 187                        | 1 / 0          | 19.41                  | 1.13            | 18.39        | 0.069        | 34.77           | -16.38      |
| 713.50          | 5                       | QPSK   | H               | 150                 | 186                        | 1 / 24         | 19.88                  | 1.15            | <b>18.88</b> | 0.077        | 34.77           | -15.89      |
| 713.50          | 5                       | 16-QAM | H               | 150                 | 186                        | 1 / 24         | 19.05                  | 1.15            | <b>18.05</b> | 0.064        | 34.77           | -16.72      |
| 704.00          | 10                      | QPSK   | H               | 150                 | 185                        | 1 / 49         | 18.49                  | 1.12            | 17.46        | 0.056        | 34.77           | -17.31      |
| 707.50          | 10                      | QPSK   | H               | 150                 | 192                        | 1 / 0          | 19.75                  | 1.13            | 18.73        | 0.075        | 34.77           | -16.04      |
| 711.00          | 10                      | QPSK   | H               | 150                 | 189                        | 1 / 49         | 19.90                  | 1.14            | <b>18.89</b> | 0.078        | 34.77           | -15.88      |
| 711.00          | 10                      | 16-QAM | H               | 150                 | 189                        | 1 / 49         | 19.28                  | 1.14            | <b>18.27</b> | 0.067        | 34.77           | -16.50      |
| 714.50          | 3                       | QPSK   | V               | 150                 | 278                        | 1 / 0          | 14.53                  | 1.16            | 13.54        | 0.023        | 34.77           | -21.23      |

**Table 7-3. ERP Data (Band 12)**

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 71 of 89                   |



| Frequency [MHz] | Channel Bandwidth [MHz] | Mod.   | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | RB Size/Offset | Substitute Level [dBm] | Ant. Gain [dBi] | ERP [dBm]    | ERP [Watts]  | ERP Limit [dBm] | Margin [dB] |
|-----------------|-------------------------|--------|-----------------|---------------------|----------------------------|----------------|------------------------|-----------------|--------------|--------------|-----------------|-------------|
| 824.70          | 1.4                     | QPSK   | H               | 150                 | 96                         | 1 / 5          | 18.97                  | 1.50            | 18.32        | 0.068        | 38.45           | -20.13      |
| 836.50          | 1.4                     | QPSK   | H               | 150                 | 82                         | 1 / 5          | 19.58                  | 1.50            | 18.93        | 0.078        | 38.45           | -19.52      |
| 848.30          | 1.4                     | QPSK   | H               | 150                 | 82                         | 1 / 0          | 19.75                  | 1.50            | <b>19.10</b> | 0.081        | 38.45           | -19.35      |
| 848.30          | 1.4                     | 16-QAM | H               | 150                 | 82                         | 1 / 0          | 18.90                  | 1.50            | <b>18.25</b> | 0.067        | 38.45           | -20.20      |
| 825.50          | 3                       | QPSK   | H               | 150                 | 92                         | 1 / 0          | 18.82                  | 1.50            | 18.17        | 0.066        | 38.45           | -20.28      |
| 836.50          | 3                       | QPSK   | H               | 150                 | 92                         | 1 / 0          | 19.50                  | 1.50            | <b>18.85</b> | 0.077        | 38.45           | -19.60      |
| 847.50          | 3                       | QPSK   | H               | 150                 | 85                         | 1 / 0          | 19.47                  | 1.50            | 18.82        | 0.076        | 38.45           | -19.63      |
| 836.50          | 3                       | 16-QAM | H               | 150                 | 92                         | 1 / 0          | 18.40                  | 1.50            | <b>17.75</b> | 0.060        | 38.45           | -20.70      |
| 826.50          | 5                       | QPSK   | H               | 150                 | 92                         | 1 / 0          | 19.28                  | 1.50            | 18.63        | 0.073        | 38.45           | -19.82      |
| 836.50          | 5                       | QPSK   | H               | 150                 | 93                         | 1 / 0          | 19.93                  | 1.50            | <b>19.28</b> | <b>0.085</b> | 38.45           | -19.17      |
| 846.50          | 5                       | QPSK   | H               | 150                 | 86                         | 1 / 24         | 19.80                  | 1.50            | 19.15        | 0.082        | 38.45           | -19.30      |
| 836.50          | 5                       | 16-QAM | H               | 150                 | 93                         | 1 / 0          | 19.05                  | 1.50            | <b>18.40</b> | 0.069        | 38.45           | -20.05      |
| 829.00          | 10                      | QPSK   | H               | 150                 | 89                         | 1 / 49         | 18.41                  | 1.50            | <b>17.76</b> | 0.060        | 38.45           | -20.69      |
| 836.50          | 10                      | QPSK   | H               | 150                 | 88                         | 1 / 49         | 18.22                  | 1.50            | 17.57        | 0.057        | 38.45           | -20.88      |
| 844.00          | 10                      | QPSK   | H               | 150                 | 81                         | 1 / 49         | 18.35                  | 1.50            | 17.70        | 0.059        | 38.45           | -20.75      |
| 829.00          | 10                      | 16-QAM | H               | 150                 | 89                         | 1 / 49         | 17.47                  | 1.50            | <b>16.82</b> | 0.048        | 38.45           | -21.63      |
| 836.50          | 5                       | QPSK   | V               | 150                 | 10                         | 1 / 0          | 16.65                  | 1.50            | 16.00        | 0.040        | 38.45           | -22.45      |

Table 7-4. ERP Data (Band 26/5)

| Frequency [MHz] | Channel Bandwidth [MHz] | Mod.   | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | RB Size/Offset | Substitute Level [dBm] | Ant. Gain [dBi] | ERP [dBm]    | ERP [Watts] | ERP Limit [dBm] | Margin [dB] |
|-----------------|-------------------------|--------|-----------------|---------------------|----------------------------|----------------|------------------------|-----------------|--------------|-------------|-----------------|-------------|
| 831.50          | 15                      | QPSK   | H               | 150                 | 86                         | 1 / 74         | 18.07                  | 1.50            | 17.42        | 0.055       | 38.45           | -21.03      |
| 836.50          | 15                      | QPSK   | H               | 150                 | 96                         | 1 / 74         | 17.91                  | 1.50            | 17.26        | 0.053       | 38.45           | -21.19      |
| 841.50          | 15                      | QPSK   | H               | 150                 | 86                         | 1 / 74         | 18.18                  | 1.50            | <b>17.53</b> | 0.057       | 38.45           | -20.92      |
| 841.50          | 15                      | 16-QAM | H               | 150                 | 86                         | 1 / 74         | 17.33                  | 1.50            | <b>16.68</b> | 0.047       | 38.45           | -21.77      |

Table 7-5. ERP Data (Band 26)

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 72 of 89                   |



| Frequency [MHz] | Channel Bandwidth [MHz] | Mod.   | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | RB Size/Offset | Substitute Level [dBm] | Ant. Gain [dBi] | EIRP [dBm]   | EIRP [Watts] | EIRP Limit [dBm] | Margin [dB] |
|-----------------|-------------------------|--------|-----------------|---------------------|----------------------------|----------------|------------------------|-----------------|--------------|--------------|------------------|-------------|
| 1710.70         | 1.4                     | QPSK   | H               | 150                 | 291                        | 1 / 0          | 17.95                  | 5.56            | <b>23.51</b> | 0.224        | 30.00            | -6.49       |
| 1732.50         | 1.4                     | QPSK   | H               | 150                 | 294                        | 1 / 0          | 17.36                  | 5.41            | 22.77        | 0.189        | 30.00            | -7.23       |
| 1754.30         | 1.4                     | QPSK   | H               | 150                 | 297                        | 1 / 0          | 17.00                  | 5.26            | 22.26        | 0.168        | 30.00            | -7.74       |
| 1710.70         | 1.4                     | 16-QAM | H               | 150                 | 291                        | 1 / 0          | 17.07                  | 5.56            | <b>22.63</b> | 0.183        | 30.00            | -7.37       |
| 1711.50         | 3                       | QPSK   | H               | 150                 | 293                        | 1 / 0          | 18.00                  | 5.55            | <b>23.55</b> | 0.227        | 30.00            | -6.45       |
| 1732.50         | 3                       | QPSK   | H               | 150                 | 296                        | 1 / 0          | 17.38                  | 5.41            | 22.79        | 0.190        | 30.00            | -7.21       |
| 1753.50         | 3                       | QPSK   | H               | 150                 | 299                        | 1 / 0          | 16.92                  | 5.26            | 22.18        | 0.165        | 30.00            | -7.82       |
| 1711.50         | 3                       | 16-QAM | H               | 150                 | 293                        | 1 / 0          | 17.11                  | 5.55            | <b>22.66</b> | 0.185        | 30.00            | -7.34       |
| 1712.50         | 5                       | QPSK   | H               | 150                 | 292                        | 1 / 0          | 18.05                  | 5.55            | <b>23.60</b> | <b>0.229</b> | 30.00            | -6.40       |
| 1732.50         | 5                       | QPSK   | H               | 150                 | 296                        | 1 / 0          | 17.52                  | 5.41            | 22.93        | 0.196        | 30.00            | -7.07       |
| 1752.50         | 5                       | QPSK   | H               | 150                 | 295                        | 1 / 0          | 17.01                  | 5.27            | 22.28        | 0.169        | 30.00            | -7.72       |
| 1712.50         | 5                       | 16-QAM | H               | 150                 | 292                        | 1 / 0          | 17.38                  | 5.55            | <b>22.93</b> | 0.196        | 30.00            | -7.07       |
| 1715.00         | 10                      | QPSK   | H               | 150                 | 295                        | 1 / 0          | 17.75                  | 5.53            | <b>23.28</b> | 0.213        | 30.00            | -6.72       |
| 1732.50         | 10                      | QPSK   | H               | 150                 | 295                        | 1 / 0          | 17.46                  | 5.41            | 22.87        | 0.194        | 30.00            | -7.13       |
| 1750.00         | 10                      | QPSK   | H               | 150                 | 295                        | 1 / 0          | 16.99                  | 5.29            | 22.28        | 0.169        | 30.00            | -7.72       |
| 1715.00         | 10                      | 16-QAM | H               | 150                 | 295                        | 1 / 0          | 16.99                  | 5.53            | <b>22.52</b> | 0.179        | 30.00            | -7.48       |
| 1717.50         | 15                      | QPSK   | H               | 150                 | 295                        | 1 / 0          | 17.59                  | 5.51            | <b>23.10</b> | 0.204        | 30.00            | -6.90       |
| 1732.50         | 15                      | QPSK   | H               | 150                 | 295                        | 1 / 0          | 17.30                  | 5.41            | 22.71        | 0.187        | 30.00            | -7.29       |
| 1747.50         | 15                      | QPSK   | H               | 150                 | 296                        | 1 / 0          | 17.15                  | 5.31            | 22.46        | 0.176        | 30.00            | -7.54       |
| 1717.50         | 15                      | 16-QAM | H               | 150                 | 295                        | 1 / 0          | 16.72                  | 5.51            | <b>22.23</b> | 0.167        | 30.00            | -7.77       |
| 1720.00         | 20                      | QPSK   | H               | 150                 | 291                        | 1 / 0          | 17.48                  | 5.49            | <b>22.97</b> | 0.198        | 30.00            | -7.03       |
| 1732.50         | 20                      | QPSK   | H               | 150                 | 294                        | 1 / 0          | 17.34                  | 5.41            | 22.75        | 0.188        | 30.00            | -7.25       |
| 1745.00         | 20                      | QPSK   | H               | 150                 | 297                        | 1 / 0          | 17.03                  | 5.32            | 22.35        | 0.172        | 30.00            | -7.65       |
| 1720.00         | 20                      | 16-QAM | H               | 150                 | 291                        | 1 / 0          | 16.83                  | 5.49            | <b>22.32</b> | 0.171        | 30.00            | -7.68       |
| 1712.50         | 5                       | QPSK   | V               | 150                 | 302                        | 1 / 0          | 15.53                  | 5.55            | 21.08        | 0.128        | 30.00            | -8.92       |

**Table 7-6. EIRP Data (Band 4)**

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 73 of 89                   |

## 7.6 Radiated Spurious Emissions Measurements

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

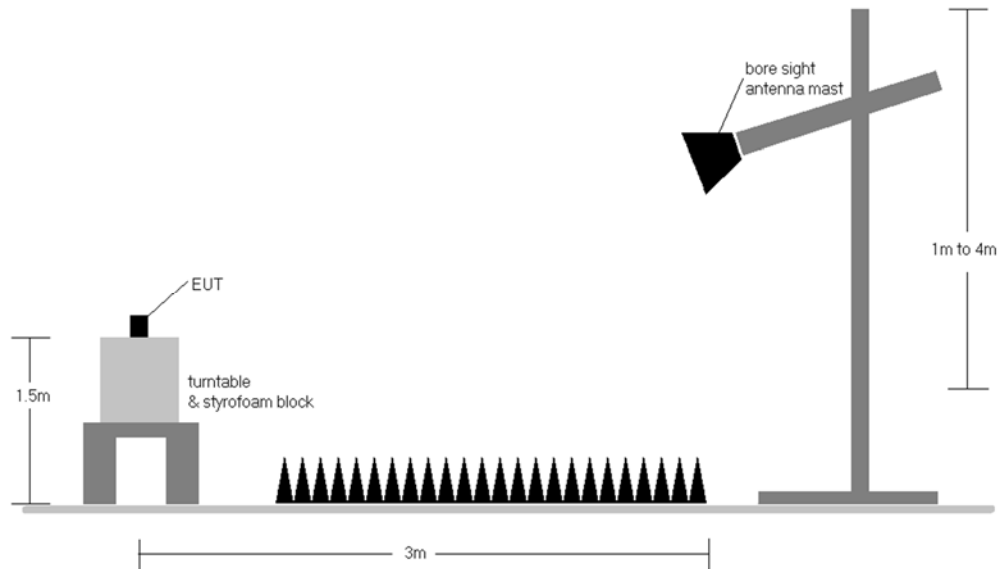
### Test Settings

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

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 74 of 89                   |

## Test Setup

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



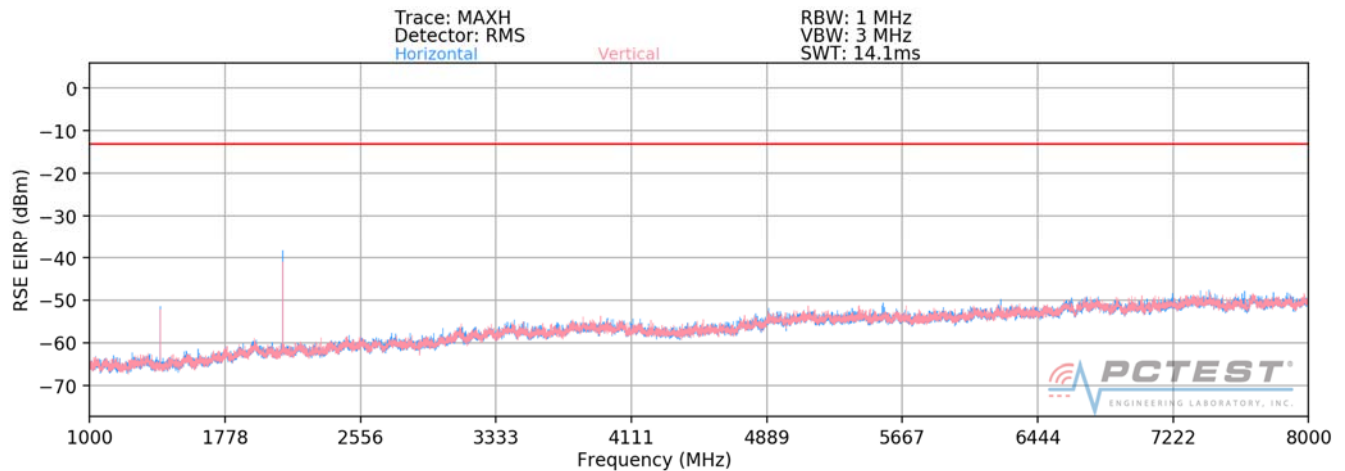
**Figure 7-6. Test Instrument & Measurement Setup**

## Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 75 of 89                   |

## Band 12



**Plot 7-100. Radiated Spurious Plot above 1GHz (Band 12)**

OPERATING FREQUENCY: 700.50 MHz  
CHANNEL: 23025  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 3.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1401.00         | H               | 117                 | 159                        | -66.32                           | 7.92                          | -58.40                        | -45.4       |
| 2101.50         | H               | 159                 | 247                        | -55.71                           | 8.91                          | -46.80                        | -33.8       |
| 2802.00         | H               | -                   | -                          | -78.59                           | 10.06                         | -68.53                        | -55.5       |
| 3502.50         | H               | -                   | -                          | -74.65                           | 9.67                          | -64.98                        | -52.0       |

**Table 7-7. Radiated Spurious Data (Band 12 – Low Channel)**

|                                         |                                        |                                       |    |                                 |
|-----------------------------------------|----------------------------------------|---------------------------------------|----|---------------------------------|
| FCC ID: ZNFH871S                        | PCTEST<br>ENGINEERING LABORATORY, INC. | MEASUREMENT REPORT<br>(CERTIFICATION) | LG | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018        | EUT Type:<br>Portable Handset         |    | Page 76 of 89                   |

OPERATING FREQUENCY: 707.50 MHz  
 CHANNEL: 23095  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1415.00         | H               | 102                 | 153                        | -66.90                           | 8.09                          | -58.81                        | -45.8       |
| 2122.50         | H               | 149                 | 299                        | -53.31                           | 8.88                          | -44.43                        | -31.4       |
| 2830.00         | H               | -                   | -                          | -78.70                           | 10.13                         | -68.57                        | -55.6       |
| 3537.50         | H               | -                   | -                          | -75.51                           | 9.69                          | -65.81                        | -52.8       |

Table 7-8. Radiated Spurious Data (Band 12 – Mid Channel)

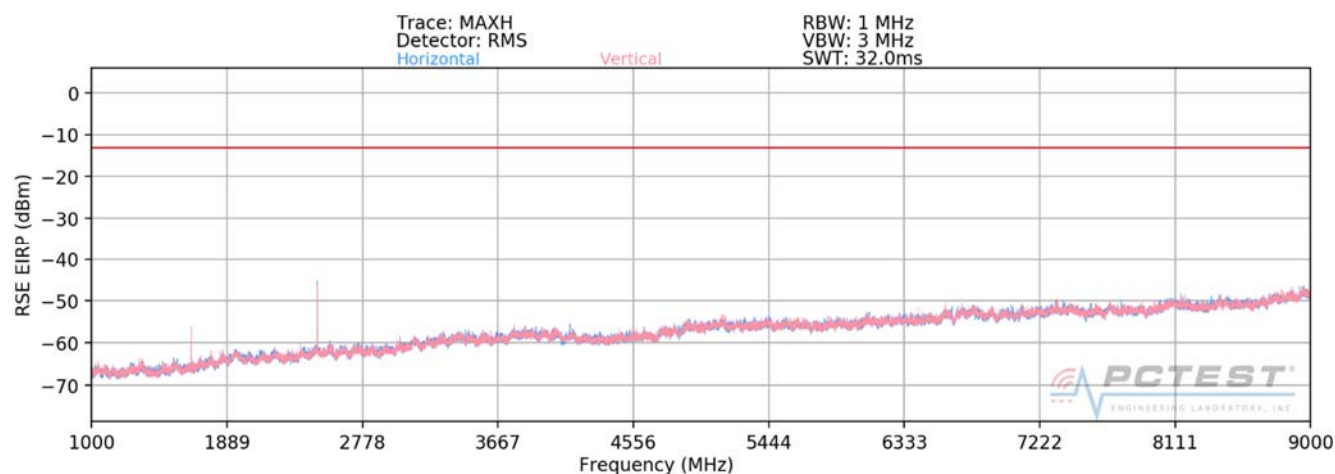
OPERATING FREQUENCY: 714.50 MHz  
 CHANNEL: 23165  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1429.00         | H               | 154                 | 159                        | -66.33                           | 8.25                          | -58.07                        | -45.1       |
| 2143.50         | H               | 127                 | 297                        | -50.80                           | 8.85                          | -41.94                        | -28.9       |
| 2858.00         | H               | -                   | -                          | -78.30                           | 10.18                         | -68.11                        | -55.1       |
| 3572.50         | H               | 116                 | 51                         | -73.48                           | 9.76                          | -63.72                        | -50.7       |
| 4287.00         | H               | -                   | -                          | -76.59                           | 10.67                         | -65.92                        | -52.9       |

Table 7-9. Radiated Spurious Data (Band 12 – High Channel)

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 77 of 89                   |

## Band 26/5



**Plot 7-101. Radiated Spurious Plot above 1GHz (Band 26/5)**

OPERATING FREQUENCY: 826.50 MHz  
CHANNEL: 26815  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 5.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1653.00         | H               | 111                 | 142                        | -71.32                           | 8.99                          | -62.33                        | -49.3       |
| 2479.50         | H               | 127                 | 261                        | -61.14                           | 9.12                          | -52.02                        | -39.0       |
| 3306.00         | H               | -                   | -                          | -74.19                           | 9.37                          | -64.82                        | -51.8       |
| 4132.50         | H               | -                   | -                          | -74.83                           | 9.89                          | -64.94                        | -51.9       |

**Table 7-10. Radiated Spurious Data (Band 26/5 – Low Channel)**

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 78 of 89                   |

OPERATING FREQUENCY: 836.50 MHz  
 CHANNEL: 26915  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1673.00         | H               | 106                 | 139                        | -74.13                           | 8.85                          | -65.28                        | -52.3       |
| 2509.50         | H               | 116                 | 292                        | -58.95                           | 9.17                          | -49.78                        | -36.8       |
| 3346.00         | H               | -                   | -                          | -74.79                           | 9.36                          | -65.43                        | -52.4       |
| 4182.50         | H               | -                   | -                          | -75.08                           | 10.19                         | -64.89                        | -51.9       |

**Table 7-11. Radiated Spurious Data (Band 26/5 – Mid Channel)**

OPERATING FREQUENCY: 846.50 MHz  
 CHANNEL: 27015  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

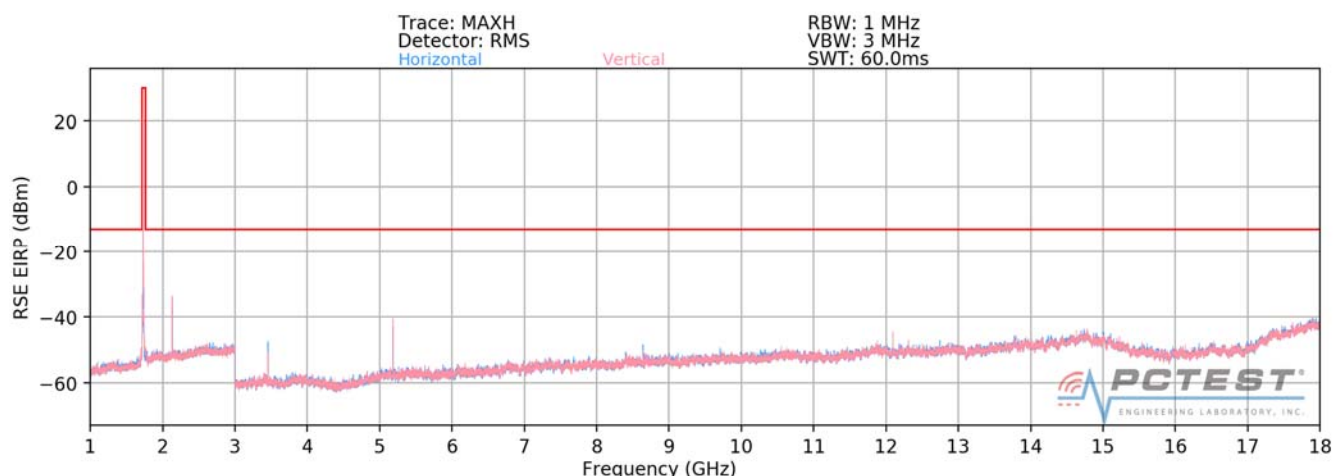
| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 1693.00         | H               | 111                 | 147                        | -73.68                           | 8.70                          | -64.97                        | -52.0       |
| 2539.50         | H               | 111                 | 310                        | -61.04                           | 9.26                          | -51.78                        | -38.8       |
| 3386.00         | H               | -                   | -                          | -75.27                           | 9.44                          | -65.82                        | -52.8       |
| 4232.50         | H               | -                   | -                          | -77.13                           | 10.43                         | -66.70                        | -53.7       |

**Table 7-12. Radiated Spurious Data (Band 26/5 – High Channel)**

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 79 of 89                   |



## Band 4



**Plot 7-102. Radiated Spurious Plot above 1GHz (Band 4)**

OPERATING FREQUENCY: 1712.50 MHz  
CHANNEL: 19975  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 5.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3425.00         | V               | 122                 | 97                         | -60.50                           | 9.52                          | -50.99                        | -38.0       |
| 5137.50         | V               | 182                 | 174                        | -56.32                           | 10.81                         | -45.52                        | -32.5       |
| 6850.00         | V               | 130                 | 44                         | -70.10                           | 10.84                         | -59.26                        | -46.3       |
| 8562.50         | V               | 205                 | 329                        | -65.00                           | 11.66                         | -53.34                        | -40.3       |
| 10275.00        | V               | -                   | -                          | -70.10                           | 12.46                         | -57.64                        | -44.6       |
| 11987.50        | V               | 136                 | 1                          | -57.98                           | 12.24                         | -45.74                        | -32.7       |
| 13700.00        | V               | -                   | -                          | -67.44                           | 12.54                         | -54.90                        | -41.9       |

**Table 7-13. Radiated Spurious Data (Band 4 – Low Channel)**

|                                         |                                           |                               |                                 |
|-----------------------------------------|-------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        | <b>MEASUREMENT REPORT (CERTIFICATION)</b> |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018           | EUT Type:<br>Portable Handset | Page 80 of 89                   |

OPERATING FREQUENCY: 1732.50 MHz  
CHANNEL: 20175  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 5.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3465.00         | V               | 141                 | 84                         | -63.89                           | 9.59                          | -54.30                        | -41.3       |
| 5197.50         | V               | 150                 | 6                          | -57.02                           | 10.83                         | -46.19                        | -33.2       |
| 6930.00         | V               | -                   | -                          | -72.78                           | 10.90                         | -61.87                        | -48.9       |
| 8662.50         | V               | 202                 | 333                        | -66.46                           | 11.76                         | -54.70                        | -41.7       |
| 10395.00        | V               | -                   | -                          | -70.20                           | 12.57                         | -57.63                        | -44.6       |
| 12127.50        | V               | 144                 | 26                         | -58.85                           | 12.31                         | -46.54                        | -33.5       |
| 13860.00        | V               | -                   | -                          | -67.14                           | 12.32                         | -54.82                        | -41.8       |

Table 7-14. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY: 1752.50 MHz  
CHANNEL: 20375  
MODULATION SIGNAL: QPSK  
BANDWIDTH: 5.0 MHz  
DISTANCE: 3 meters  
LIMIT: -13 dBm

| Frequency [MHz] | Ant. Pol. [H/V] | Antenna Height [cm] | Turntable Azimuth [degree] | Level at Antenna Terminals [dBm] | Substitute Antenna Gain [dBi] | Spurious Emission Level [dBm] | Margin [dB] |
|-----------------|-----------------|---------------------|----------------------------|----------------------------------|-------------------------------|-------------------------------|-------------|
| 3505.00         | V               | 117                 | 124                        | -70.31                           | 9.67                          | -60.64                        | -47.6       |
| 5257.50         | V               | 209                 | 357                        | -57.20                           | 10.97                         | -46.24                        | -33.2       |
| 7010.00         | V               | -                   | -                          | -72.41                           | 11.00                         | -61.42                        | -48.4       |
| 8762.50         | V               | 196                 | 332                        | -63.17                           | 11.89                         | -51.28                        | -38.3       |
| 10515.00        | V               | 168                 | 48                         | -68.57                           | 12.58                         | -55.99                        | -43.0       |
| 12267.50        | V               | 163                 | 22                         | -56.09                           | 12.49                         | -43.60                        | -30.6       |
| 14020.00        | V               | -                   | -                          | -65.69                           | 11.91                         | -53.79                        | -40.8       |

Table 7-15. Radiated Spurious Data (Band 4 – High Channel)

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 81 of 89                   |

## 7.7 Frequency Stability / Temperature Variation

### Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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, the frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency. For Part 24, Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.***

### Test Procedure Used

ANSI/TIA-603-E-2016

### 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

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 82 of 89                   |

## Band 12 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz  
 CHANNEL: 23790  
 REFERENCE VOLTAGE: 4.36 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 4.36        | + 20 (Ref) | 707,500,316    | 316             | 0.0000447     |
| 100 %          |             | - 30       | 707,500,039    | 39              | 0.0000055     |
| 100 %          |             | - 20       | 707,499,905    | -95             | -0.0000134    |
| 100 %          |             | - 10       | 707,499,555    | -445            | -0.0000629    |
| 100 %          |             | 0          | 707,499,827    | -173            | -0.0000245    |
| 100 %          |             | + 10       | 707,500,401    | 401             | 0.0000567     |
| 100 %          |             | + 20       | 707,499,919    | -81             | -0.0000114    |
| 100 %          |             | + 30       | 707,499,944    | -56             | -0.0000079    |
| 100 %          |             | + 40       | 707,500,189    | 189             | 0.0000267     |
| 100 %          |             | + 50       | 707,500,453    | 453             | 0.0000640     |
| BATT. ENDPOINT | 3.40        | + 20       | 707,499,611    | -389            | -0.0000550    |

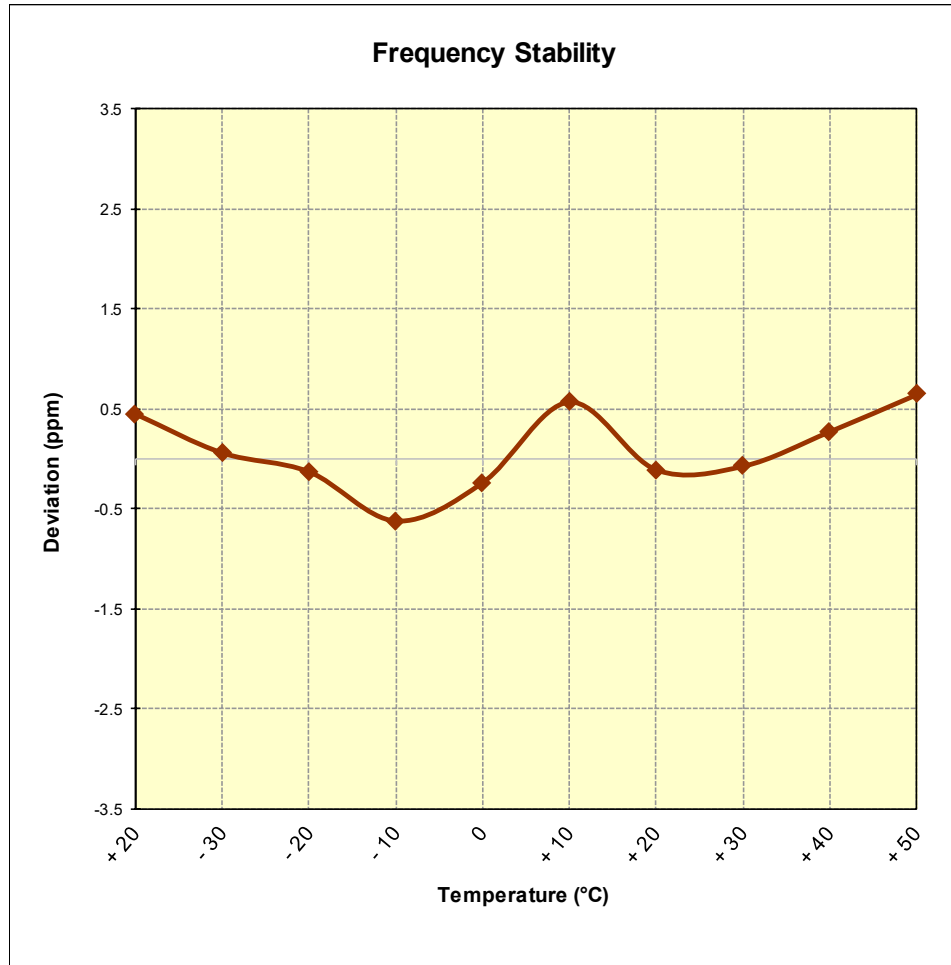
**Table 7-16. Frequency Stability Data (Band 12)**

### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 83 of 89                   |

## Band 12 Frequency Stability Measurements



**Figure 7-7. Frequency Stability Graph (Band 12)**

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 84 of 89                   |

## Band 26/5 Frequency Stability Measurements

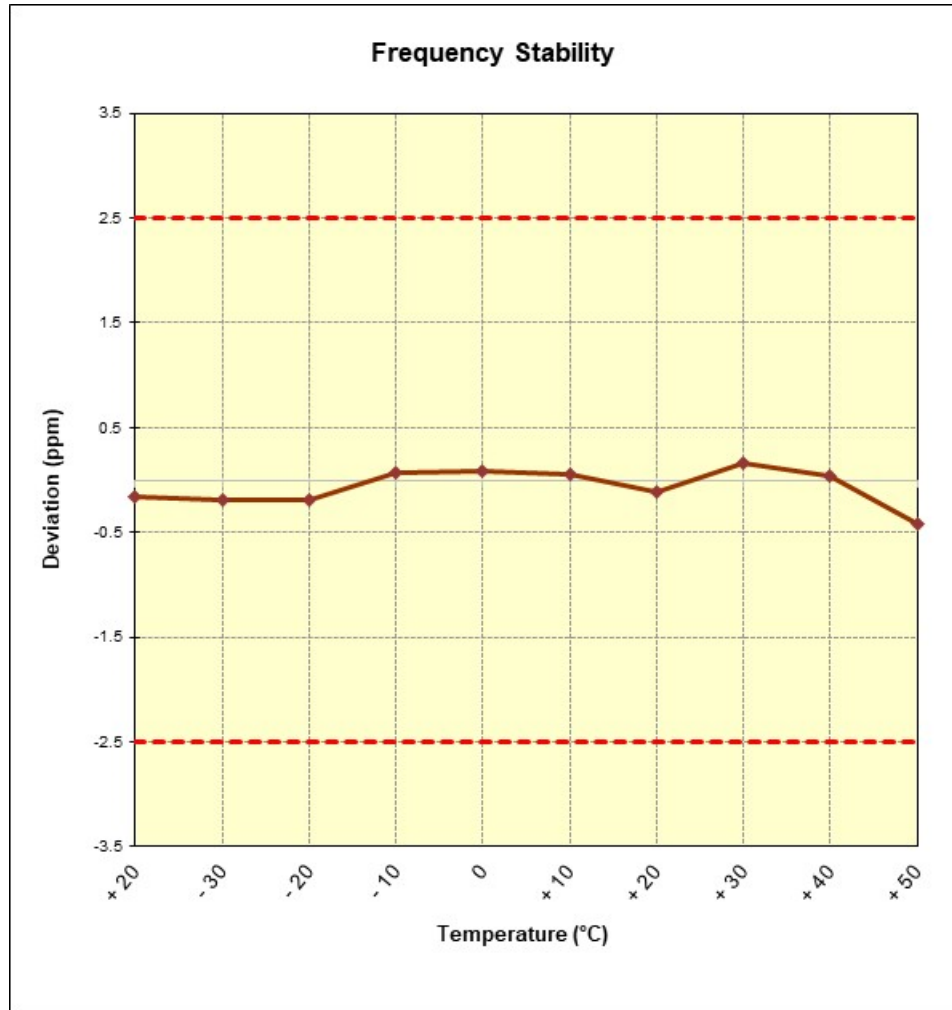
OPERATING FREQUENCY: 831,500,000 Hz  
 CHANNEL: 26865  
 REFERENCE VOLTAGE: 4.36 VDC  
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 4.36        | + 20 (Ref) | 831,499,862    | -138            | -0.0000166    |
| 100 %          |             | - 30       | 831,499,843    | -157            | -0.0000189    |
| 100 %          |             | - 20       | 831,499,846    | -154            | -0.0000185    |
| 100 %          |             | - 10       | 831,500,055    | 55              | 0.0000066     |
| 100 %          |             | 0          | 831,500,066    | 66              | 0.0000079     |
| 100 %          |             | + 10       | 831,500,042    | 42              | 0.0000051     |
| 100 %          |             | + 20       | 831,499,910    | -90             | -0.0000108    |
| 100 %          |             | + 30       | 831,500,136    | 136             | 0.0000164     |
| 100 %          |             | + 40       | 831,500,029    | 29              | 0.0000035     |
| 100 %          |             | + 50       | 831,499,646    | -354            | -0.0000426    |
| BATT. ENDPOINT | 3.40        | + 20       | 831,500,042    | 42              | 0.0000051     |

Table 7-17. Frequency Stability Data (Band 26/5)

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 85 of 89                   |

## Band 26/5 Frequency Stability Measurements



**Figure 7-8. Frequency Stability Graph (Band 26/5)**

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 86 of 89                   |

## Band 4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,732,500,000 Hz  
 CHANNEL: 20175  
 REFERENCE VOLTAGE: 4.36 VDC

| VOLTAGE (%)    | POWER (VDC) | TEMP (°C)  | FREQUENCY (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|----------------|-----------------|---------------|
| 100 %          | 4.36        | + 20 (Ref) | 1,732,499,894  | -106            | -0.0000061    |
| 100 %          |             | - 30       | 1,732,499,787  | -213            | -0.0000123    |
| 100 %          |             | - 20       | 1,732,499,957  | -43             | -0.0000025    |
| 100 %          |             | - 10       | 1,732,500,130  | 130             | 0.0000075     |
| 100 %          |             | 0          | 1,732,500,377  | 377             | 0.0000218     |
| 100 %          |             | + 10       | 1,732,500,290  | 290             | 0.0000167     |
| 100 %          |             | + 20       | 1,732,500,230  | 230             | 0.0000133     |
| 100 %          |             | + 30       | 1,732,499,998  | -2              | -0.0000001    |
| 100 %          |             | + 40       | 1,732,499,849  | -151            | -0.0000087    |
| 100 %          |             | + 50       | 1,732,499,945  | -55             | -0.0000032    |
| BATT. ENDPOINT | 3.40        | + 20       | 1,732,500,054  | 54              | 0.0000031     |

Table 7-18. Frequency Stability Data (Band 4)

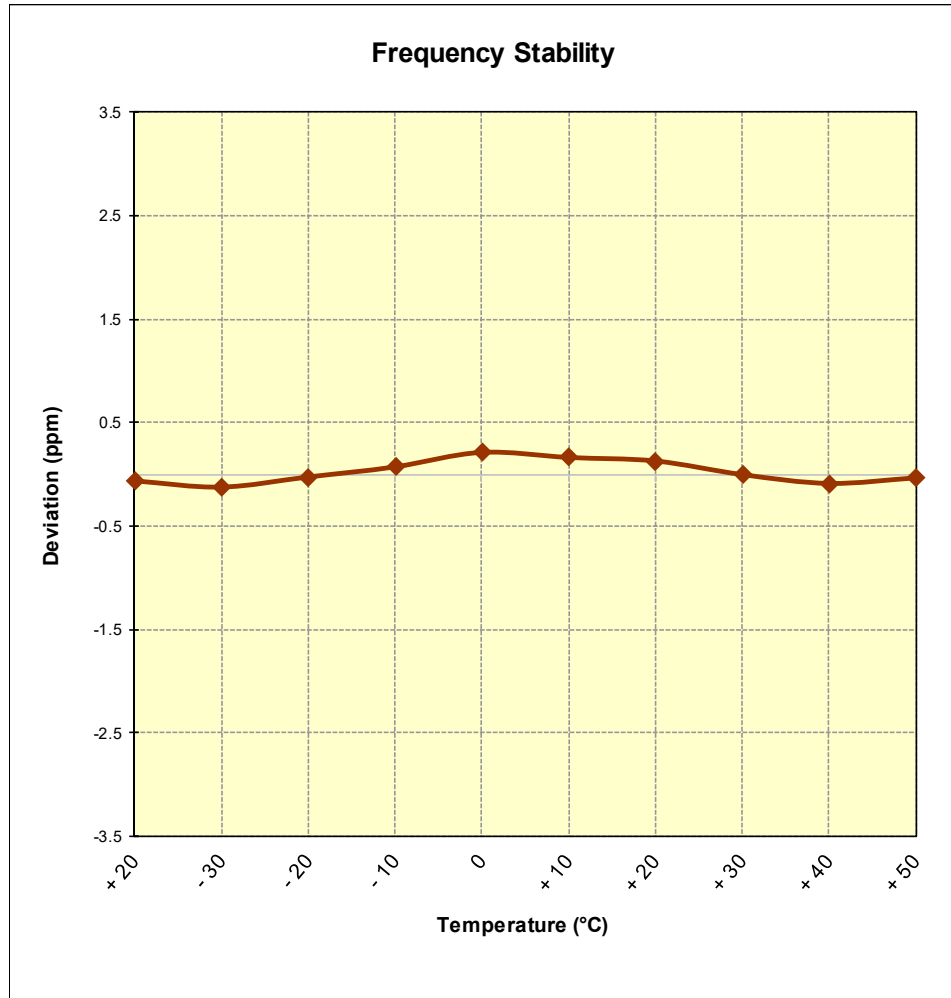
### Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                     | EUT Type:<br>Portable Handset | Page 87 of 89                   |



## Band 4 Frequency Stability Measurements



**Figure 7-9. Frequency Stability Graph (Band 4)**

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1808100154-03.ZNF | Test Dates:<br>7/31 - 8/21/2018                                                                                                                                                                                         | EUT Type:<br>Portable Handset | Page 88 of 89                   |

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **LG Portable Handset FCC ID: ZNFH871S** complies with all the requirements of Part 22 & 27 of the FCC Rules for LTE operation only.

|                                                |                                                                                                                                   |                                                                                       |                                        |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> ZNFH871S                        |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |  | <b>Approved by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>1M1808100154-03.ZNF | <b>Test Dates:</b><br>7/31 - 8/21/2018                                                                                            | <b>EUT Type:</b><br>Portable Handset                                                  | Page 89 of 89                          |