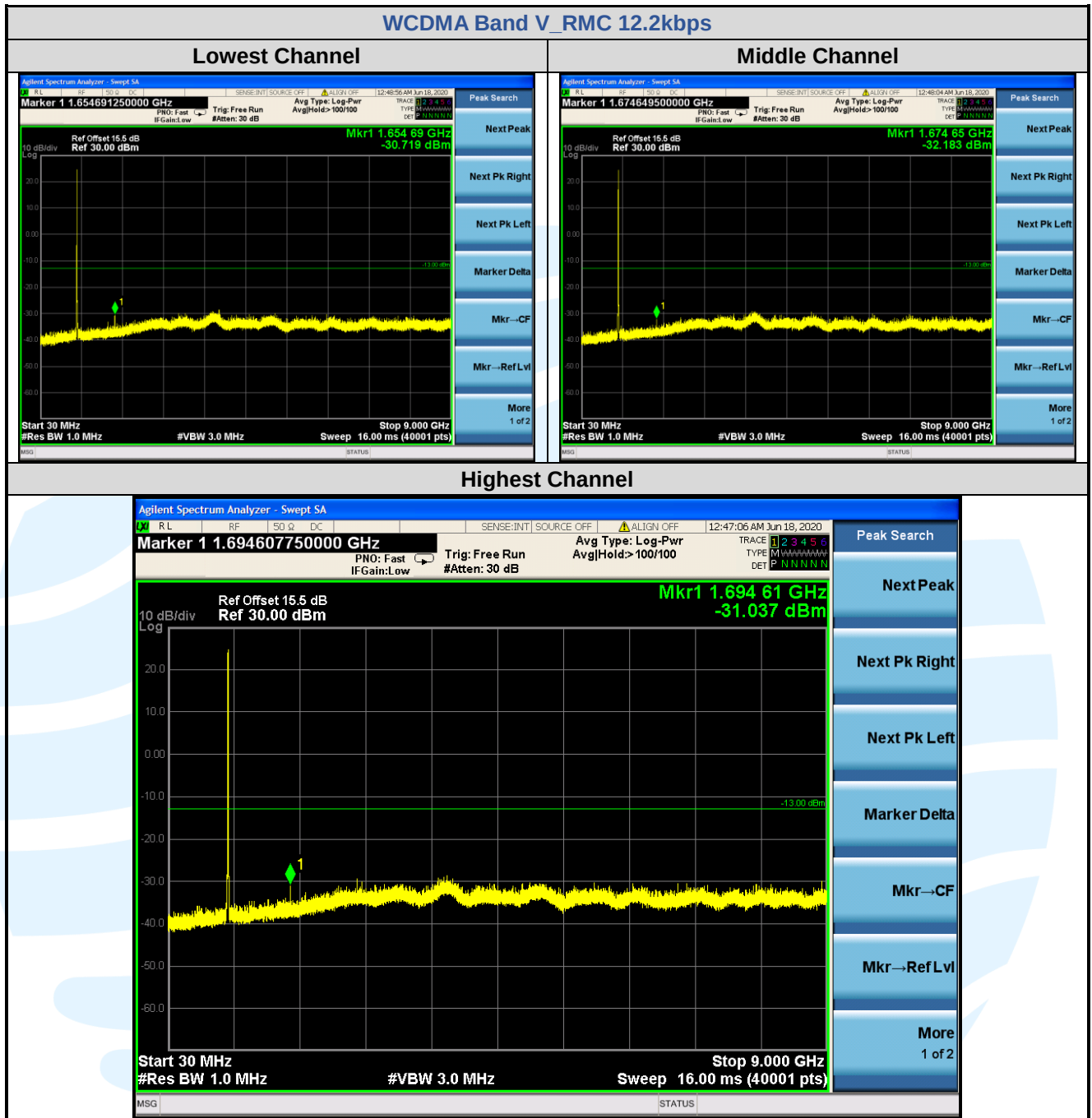




## 5.8 FIELD STRENGTH OF SPURIOUS RADIATION

**Test Requirement:** FCC 47 CFR Part 2.1053,  
FCC 47 CFR Part 22.917(a)(b),  
FCC 47 CFR Part 24.238(a)(b),  
FCC 47 CFR Part 27.53(h)(1)

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 7

**Limits:**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. The emission limit equal to -13 dBm.

**Test Setup:** Refer to section 4.2.1 for details.

**Test Procedures:** KDB 971168 D01v03r01 Section 7

**Equipment Used:** Refer to section 3 for details.

**Test Result:** Pass

**The measurement data as follows:**

### Below 1G

| GSM 850              |                    |                        |                                |                         |                |                |            |
|----------------------|--------------------|------------------------|--------------------------------|-------------------------|----------------|----------------|------------|
| No.                  | Frequency<br>(MHz) | SA<br>Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP<br>Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| GPRS_ Lowest Channel |                    |                        |                                |                         |                |                |            |
| 1                    | 159.759            | -83.58                 | 33.24                          | -50.34                  | -13.00         | -37.34         | Horizontal |
| 2                    | 240.144            | -82.01                 | 36.38                          | -45.63                  | -13.00         | -32.63         | Horizontal |
| 3                    | 754.963            | -87.56                 | 47.50                          | -40.06                  | -13.00         | -27.06         | Horizontal |
| 4                    | 46.708             | -84.91                 | 30.80                          | -54.11                  | -13.00         | -41.11         | Vertical   |
| 5                    | 433.340            | -85.03                 | 41.32                          | -43.71                  | -13.00         | -30.71         | Vertical   |
| 6                    | 502.247            | -83.76                 | 43.49                          | -40.27                  | -13.00         | -27.27         | Vertical   |
| GPRS_ Middle Channel |                    |                        |                                |                         |                |                |            |
| 1                    | 31.735             | -91.18                 | 37.66                          | -53.52                  | -13.00         | -40.52         | Horizontal |
| 2                    | 159.759            | -83.29                 | 33.24                          | -50.05                  | -13.00         | -37.05         | Horizontal |
| 3                    | 240.144            | -81.34                 | 36.38                          | -44.96                  | -13.00         | -31.96         | Horizontal |
| 4                    | 43.233             | -84.85                 | 31.61                          | -53.24                  | -13.00         | -40.24         | Vertical   |
| 5                    | 433.340            | -86.39                 | 41.32                          | -45.07                  | -13.00         | -32.07         | Vertical   |
| 6                    | 498.730            | -84.47                 | 43.34                          | -41.13                  | -13.00         | -28.13         | Vertical   |
| GPRS_ Middle Channel |                    |                        |                                |                         |                |                |            |
| 1                    | 159.759            | -83.41                 | 33.24                          | -50.17                  | -13.00         | -37.17         | Horizontal |
| 2                    | 240.144            | -81.95                 | 36.38                          | -45.57                  | -13.00         | -32.57         | Horizontal |
| 3                    | 679.435            | -87.68                 | 47.15                          | -40.53                  | -13.00         | -27.53         | Horizontal |
| 4                    | 43.233             | -84.86                 | 31.61                          | -53.25                  | -13.00         | -40.25         | Vertical   |
| 5                    | 433.340            | -85.37                 | 41.32                          | -44.05                  | -13.00         | -31.05         | Vertical   |
| 6                    | 498.730            | -84.61                 | 43.34                          | -41.27                  | -13.00         | -28.27         | Vertical   |

| PCS 1900              |           |            |                   |             |        |        |            |
|-----------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                   | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                       | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| GPRS_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                     | 159.759   | -82.58     | 33.24             | -49.34      | -13.00 | -36.34 | Horizontal |
| 2                     | 240.144   | -81.35     | 36.38             | -44.97      | -13.00 | -31.97 | Horizontal |
| 3                     | 1000.000  | -87.29     | 53.15             | -34.14      | -13.00 | -21.14 | Horizontal |
| 4                     | 43.845    | -84.29     | 31.47             | -52.82      | -13.00 | -39.82 | Vertical   |
| 5                     | 502.247   | -83.65     | 43.49             | -40.16      | -13.00 | -27.16 | Vertical   |
| 6                     | 972.283   | -86.36     | 51.84             | -34.52      | -13.00 | -21.52 | Vertical   |
| GPRS_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                     | 159.759   | -82.97     | 33.24             | -49.73      | -13.00 | -36.73 | Horizontal |
| 2                     | 240.144   | -83.01     | 36.38             | -46.63      | -13.00 | -33.63 | Horizontal |
| 3                     | 979.139   | -86.95     | 52.26             | -34.69      | -13.00 | -21.69 | Horizontal |
| 4                     | 42.630    | -85.70     | 31.76             | -53.94      | -13.00 | -40.94 | Vertical   |
| 5                     | 200.043   | -89.33     | 34.30             | -55.03      | -13.00 | -42.03 | Vertical   |
| 6                     | 502.247   | -84.63     | 43.49             | -41.14      | -13.00 | -28.14 | Vertical   |
| GPRS_ Highest Channel |           |            |                   |             |        |        |            |
| 1                     | 159.759   | -83.44     | 33.24             | -50.20      | -13.00 | -37.20 | Horizontal |
| 2                     | 240.144   | -83.10     | 36.38             | -46.72      | -13.00 | -33.72 | Horizontal |
| 3                     | 979.139   | -86.71     | 52.26             | -34.45      | -13.00 | -21.45 | Horizontal |
| 4                     | 42.931    | -86.31     | 31.69             | -54.62      | -13.00 | -41.62 | Vertical   |
| 5                     | 205.746   | -89.34     | 34.56             | -54.78      | -13.00 | -41.78 | Vertical   |
| 6                     | 912.695   | -87.81     | 49.93             | -37.88      | -13.00 | -24.88 | Vertical   |

| WCDMA Band II                 |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -83.00     | 33.24             | -49.76      | -13.00 | -36.76 | Horizontal |
| 2                             | 240.144   | -80.28     | 36.38             | -43.90      | -13.00 | -30.90 | Horizontal |
| 3                             | 734.037   | -87.93     | 47.56             | -40.37      | -13.00 | -27.37 | Horizontal |
| 4                             | 44.154    | -86.13     | 31.39             | -54.74      | -13.00 | -41.74 | Vertical   |
| 5                             | 554.171   | -89.13     | 44.67             | -44.46      | -13.00 | -31.46 | Vertical   |
| 6                             | 952.000   | -86.92     | 51.61             | -35.31      | -13.00 | -22.31 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -82.67     | 33.24             | -49.43      | -13.00 | -36.43 | Horizontal |
| 2                             | 240.144   | -80.25     | 36.38             | -43.87      | -13.00 | -30.87 | Horizontal |
| 3                             | 992.997   | -86.97     | 52.85             | -34.12      | -13.00 | -21.12 | Horizontal |
| 4                             | 46.056    | -83.96     | 30.96             | -53.00      | -13.00 | -40.00 | Vertical   |
| 5                             | 498.730   | -85.09     | 43.34             | -41.75      | -13.00 | -28.75 | Vertical   |
| 6                             | 992.997   | -86.95     | 52.79             | -34.16      | -13.00 | -21.16 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -82.86     | 33.24             | -49.62      | -13.00 | -36.62 | Horizontal |
| 2                             | 240.144   | -82.20     | 36.38             | -45.82      | -13.00 | -32.82 | Horizontal |
| 3                             | 992.997   | -86.99     | 52.85             | -34.14      | -13.00 | -21.14 | Horizontal |
| 4                             | 32.184    | -91.02     | 37.83             | -53.19      | -13.00 | -40.19 | Vertical   |
| 5                             | 43.538    | -84.54     | 31.54             | -53.00      | -13.00 | -40.00 | Vertical   |
| 6                             | 498.730   | -84.16     | 43.34             | -40.82      | -13.00 | -27.82 | Vertical   |

| WCDMA Band IV                 |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 31.292    | -91.34     | 37.94             | -53.40      | -13.00 | -40.40 | Horizontal |
| 2                             | 240.144   | -83.72     | 36.38             | -47.34      | -13.00 | -34.34 | Horizontal |
| 3                             | 992.997   | -87.65     | 52.85             | -34.80      | -13.00 | -21.80 | Horizontal |
| 4                             | 43.538    | -84.54     | 31.54             | -53.00      | -13.00 | -40.00 | Vertical   |
| 5                             | 498.730   | -84.16     | 43.34             | -40.82      | -13.00 | -27.82 | Vertical   |
| 6                             | 945.334   | -86.77     | 51.37             | -35.40      | -13.00 | -22.40 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -84.24     | 33.24             | -51.00      | -13.00 | -38.00 | Horizontal |
| 2                             | 240.144   | -83.72     | 36.38             | -47.34      | -13.00 | -34.34 | Horizontal |
| 3                             | 992.997   | -87.06     | 52.85             | -34.21      | -13.00 | -21.21 | Horizontal |
| 4                             | 43.845    | -86.94     | 31.47             | -55.47      | -13.00 | -42.47 | Vertical   |
| 5                             | 343.651   | -89.32     | 38.94             | -50.38      | -13.00 | -37.38 | Vertical   |
| 6                             | 979.139   | -87.62     | 52.09             | -35.53      | -13.00 | -22.53 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -83.62     | 33.24             | -50.38      | -13.00 | -37.38 | Horizontal |
| 2                             | 240.144   | -85.16     | 36.38             | -48.78      | -13.00 | -35.78 | Horizontal |
| 3                             | 972.283   | -87.59     | 52.00             | -35.59      | -13.00 | -22.59 | Horizontal |
| 4                             | 30.425    | -90.67     | 39.06             | -51.61      | -13.00 | -38.61 | Vertical   |
| 5                             | 46.056    | -86.20     | 30.96             | -55.24      | -13.00 | -42.24 | Vertical   |
| 6                             | 945.334   | -85.60     | 51.37             | -34.23      | -13.00 | -21.23 | Vertical   |

| WCDMA Band V                  |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -83.87     | 33.24             | -50.63      | -13.00 | -37.63 | Horizontal |
| 2                             | 240.144   | -83.38     | 36.38             | -47.00      | -13.00 | -34.00 | Horizontal |
| 3                             | 875.013   | -74.33     | 48.26             | -26.07      | -13.00 | -13.07 | Horizontal |
| 4                             | 42.931    | -84.65     | 31.69             | -52.96      | -13.00 | -39.96 | Vertical   |
| 5                             | 502.247   | -84.76     | 43.49             | -41.27      | -13.00 | -28.27 | Vertical   |
| 6                             | 875.013   | -76.87     | 48.56             | -28.31      | -13.00 | -15.31 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -87.30     | 33.24             | -54.06      | -13.00 | -41.06 | Horizontal |
| 2                             | 230.230   | -82.83     | 35.96             | -46.87      | -13.00 | -33.87 | Horizontal |
| 3                             | 887.398   | -75.79     | 48.69             | -27.10      | -13.00 | -14.10 | Horizontal |
| 4                             | 46.056    | -85.04     | 30.96             | -54.08      | -13.00 | -41.08 | Vertical   |
| 5                             | 498.730   | -83.62     | 43.34             | -40.28      | -13.00 | -27.28 | Vertical   |
| 6                             | 887.398   | -77.62     | 48.99             | -28.63      | -13.00 | -15.63 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 159.759   | -82.36     | 33.24             | -49.12      | -13.00 | -36.12 | Horizontal |
| 2                             | 228.617   | -83.67     | 35.89             | -47.78      | -13.00 | -34.78 | Horizontal |
| 3                             | 893.656   | -73.55     | 48.90             | -24.65      | -13.00 | -11.65 | Horizontal |
| 4                             | 44.466    | -84.77     | 31.32             | -53.45      | -13.00 | -40.45 | Vertical   |
| 5                             | 502.247   | -84.71     | 43.49             | -41.22      | -13.00 | -28.22 | Vertical   |
| 6                             | 893.656   | -78.08     | 49.20             | -28.88      | -13.00 | -15.88 | Vertical   |

#### Above 1G

| GSM 850               |           |            |                   |             |        |        |            |
|-----------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                   | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                       | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| GPRS_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                     | 1648.400  | -69.05     | 4.50              | -64.55      | -13.00 | -51.55 | Horizontal |
| 2                     | 2472.600  | -69.06     | 10.87             | -58.19      | -13.00 | -45.19 | Horizontal |
| 3                     | 1648.400  | -68.88     | 3.72              | -65.16      | -13.00 | -52.16 | Vertical   |
| 4                     | 2472.600  | -69.49     | 10.47             | -59.02      | -13.00 | -46.02 | Vertical   |
| GPRS_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                     | 1673.200  | -70.45     | 4.68              | -65.77      | -13.00 | -52.77 | Horizontal |
| 2                     | 2509.800  | -72.44     | 10.87             | -61.57      | -13.00 | -48.57 | Horizontal |
| 3                     | 1673.200  | -70.55     | 3.92              | -66.63      | -13.00 | -53.63 | Vertical   |
| 4                     | 2509.800  | -74.34     | 10.46             | -63.88      | -13.00 | -50.88 | Vertical   |
| GPRS_ Highest Channel |           |            |                   |             |        |        |            |
| 1                     | 1697.600  | -72.24     | 4.86              | -67.38      | -13.00 | -54.38 | Horizontal |
| 2                     | 2546.400  | -73.64     | 10.91             | -62.73      | -13.00 | -49.73 | Horizontal |
| 3                     | 1697.600  | -71.69     | 4.12              | -67.57      | -13.00 | -54.57 | Vertical   |
| 4                     | 2546.400  | -73.47     | 10.48             | -62.99      | -13.00 | -49.99 | Vertical   |

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UTTR-RF-FCC23G-V1.0

| PCS 1900              |           |            |                   |             |        |        |            |
|-----------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                   | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                       | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| GPRS_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                     | 3700.400  | -70.62     | 14.91             | -55.71      | -13.00 | -42.71 | Horizontal |
| 2                     | 5550.600  | -70.50     | 16.38             | -54.12      | -13.00 | -41.12 | Horizontal |
| 3                     | 3700.400  | -72.15     | 14.89             | -57.26      | -13.00 | -44.26 | Vertical   |
| 4                     | 5550.600  | -69.41     | 16.87             | -52.54      | -13.00 | -39.54 | Vertical   |
| GPRS_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                     | 3760.000  | -66.00     | 15.03             | -50.97      | -13.00 | -37.97 | Horizontal |
| 2                     | 5640.000  | -69.52     | 16.56             | -52.96      | -13.00 | -39.96 | Horizontal |
| 3                     | 3760.000  | -73.43     | 15.03             | -58.40      | -13.00 | -45.40 | Vertical   |
| 4                     | 5640.000  | -69.77     | 17.04             | -52.73      | -13.00 | -39.73 | Vertical   |
| GPRS_ Highest Channel |           |            |                   |             |        |        |            |
| 1                     | 3819.600  | -70.83     | 15.14             | -55.69      | -13.00 | -42.69 | Horizontal |
| 2                     | 5729.400  | -71.02     | 16.95             | -54.07      | -13.00 | -41.07 | Horizontal |
| 3                     | 3819.600  | -72.35     | 15.17             | -57.18      | -13.00 | -44.18 | Vertical   |
| 4                     | 5729.400  | -71.16     | 17.40             | -53.76      | -13.00 | -40.76 | Vertical   |

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| WCDMA Band II                 |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 3704.800  | -66.36     | 14.92             | -51.44      | -13.00 | -38.44 | Horizontal |
| 2                             | 5557.200  | -71.49     | 16.38             | -55.11      | -13.00 | -42.11 | Horizontal |
| 3                             | 3704.800  | -62.37     | 14.90             | -47.47      | -13.00 | -34.47 | Vertical   |
| 4                             | 5557.200  | -69.52     | 16.87             | -52.65      | -13.00 | -39.65 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 3760.000  | -63.16     | 15.03             | -48.13      | -13.00 | -35.13 | Horizontal |
| 2                             | 5640.000  | -70.47     | 16.56             | -53.91      | -13.00 | -40.91 | Horizontal |
| 3                             | 3760.000  | -61.43     | 15.03             | -46.40      | -13.00 | -33.40 | Vertical   |
| 4                             | 5640.000  | -68.63     | 17.04             | -51.59      | -13.00 | -38.59 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 3815.200  | -66.75     | 15.14             | -51.61      | -13.00 | -38.61 | Horizontal |
| 2                             | 5722.800  | -68.24     | 16.92             | -51.32      | -13.00 | -38.32 | Horizontal |
| 3                             | 3815.200  | -64.12     | 15.17             | -48.95      | -13.00 | -35.95 | Vertical   |
| 4                             | 5722.800  | -67.74     | 17.37             | -50.37      | -13.00 | -37.37 | Vertical   |

| WCDMA Band IV                 |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 3424.800  | -71.38     | 13.63             | -57.75      | -13.00 | -44.75 | Horizontal |
| 2                             | 5137.200  | -70.08     | 15.82             | -54.26      | -13.00 | -41.26 | Horizontal |
| 3                             | 3424.800  | -71.60     | 13.42             | -58.18      | -13.00 | -45.18 | Vertical   |
| 4                             | 5137.200  | -69.28     | 16.17             | -53.11      | -13.00 | -40.11 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 3464.800  | -70.55     | 13.88             | -56.67      | -13.00 | -43.67 | Horizontal |
| 2                             | 5197.200  | -69.37     | 16.02             | -53.35      | -13.00 | -40.35 | Horizontal |
| 3                             | 3464.800  | -71.53     | 13.73             | -57.80      | -13.00 | -44.80 | Vertical   |
| 4                             | 5197.200  | -68.74     | 16.40             | -52.34      | -13.00 | -39.34 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 3505.200  | -71.18     | 14.13             | -57.05      | -13.00 | -44.05 | Horizontal |
| 2                             | 5257.800  | -68.99     | 16.12             | -52.87      | -13.00 | -39.87 | Horizontal |
| 3                             | 3505.200  | -70.91     | 14.04             | -56.87      | -13.00 | -43.87 | Vertical   |
| 4                             | 5257.800  | -68.18     | 16.52             | -51.66      | -13.00 | -38.66 | Vertical   |

| WCDMA Band V                  |           |            |                   |             |        |        |            |
|-------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                           | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                               | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| RMC 12.2kbps_ Lowest Channel  |           |            |                   |             |        |        |            |
| 1                             | 1652.800  | -69.65     | 4.54              | -65.11      | -13.00 | -52.11 | Horizontal |
| 2                             | 2479.200  | -72.34     | 10.87             | -61.47      | -13.00 | -48.47 | Horizontal |
| 3                             | 1652.800  | -70.84     | 3.76              | -67.08      | -13.00 | -54.08 | Vertical   |
| 4                             | 2479.200  | -72.37     | 10.47             | -61.90      | -13.00 | -48.90 | Vertical   |
| RMC 12.2kbps_ Middle Channel  |           |            |                   |             |        |        |            |
| 1                             | 1672.800  | -71.04     | 4.68              | -66.36      | -13.00 | -53.36 | Horizontal |
| 2                             | 2509.200  | -73.22     | 10.87             | -62.35      | -13.00 | -49.35 | Horizontal |
| 3                             | 1672.800  | -70.93     | 3.92              | -67.01      | -13.00 | -54.01 | Vertical   |
| 4                             | 2509.200  | -72.05     | 10.46             | -61.59      | -13.00 | -48.59 | Vertical   |
| RMC 12.2kbps_ Highest Channel |           |            |                   |             |        |        |            |
| 1                             | 1693.200  | -70.65     | 4.83              | -65.82      | -13.00 | -52.82 | Horizontal |
| 2                             | 2539.800  | -73.62     | 10.91             | -62.71      | -13.00 | -49.71 | Horizontal |
| 3                             | 1693.200  | -71.89     | 4.08              | -67.81      | -13.00 | -54.81 | Vertical   |
| 4                             | 2539.800  | -74.63     | 10.48             | -64.15      | -13.00 | -51.15 | Vertical   |

#### Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

## 5.9 FREQUENCY STABILITY

**Test Requirement:** FCC 47 CFR Part 2.1055 &  
FCC 47 CFR Part 22.355 &  
FCC 47 CFR Part 24.235 &  
FCC 47 CFR Part 27.54

**Test Method:** ANSI C63.26-2015 & KDB 971168 D01v03r01

**Limits:**

**FCC 47 CFR Part 22.355,**

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

**FCC 47 CFR Part 24.235, FCC 47 CFR Part 27.54**

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

**Test Setup:** Refer to section 4.2.2 for details.

**Test Procedures:**

- 1) Use CMW 500 with Frequency Error measurement capability.
  - a) Temp. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
  - b) Voltage = low voltage, 3.6 Vdc, Normal, 3.8 Vdc and High voltage, 4.3 Vdc.

- 2) Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}\text{C}$  and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until  $+50^{\circ}\text{C}$  is reached.

- 3) Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

**Equipment Used:** Refer to section 3 for details.

**Test Result:** Pass

| Modulation | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>( $^{\circ}\text{C}$ ) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|------------|--------------------------------|------------------|---------------------------------------|-------------------|--------------------|----------------|--------|
| GSM 850    |                                |                  |                                       |                   |                    |                |        |
| GPRS       | 190 / 836.6                    | VL               | TN                                    | 21                | 0.0251             | $\pm 2.5$      | Pass   |
|            |                                | VN               |                                       | 23                | 0.0275             | $\pm 2.5$      | Pass   |
|            |                                | VH               |                                       | 31                | 0.0371             | $\pm 2.5$      | Pass   |
|            |                                | VN               | 50                                    | 31                | 0.0371             | $\pm 2.5$      | Pass   |
|            |                                |                  | 40                                    | 35                | 0.0418             | $\pm 2.5$      | Pass   |
|            |                                |                  | 30                                    | 31                | 0.0371             | $\pm 2.5$      | Pass   |
|            |                                |                  | 20                                    | 36                | 0.0430             | $\pm 2.5$      | Pass   |
|            |                                |                  | 10                                    | 31                | 0.0371             | $\pm 2.5$      | Pass   |
|            |                                |                  | 0                                     | 35                | 0.0418             | $\pm 2.5$      | Pass   |
|            |                                |                  | -10                                   | 38                | 0.0454             | $\pm 2.5$      | Pass   |
|            |                                |                  | -20                                   | 33                | 0.0394             | $\pm 2.5$      | Pass   |
|            |                                |                  | -30                                   | 28                | 0.0335             | $\pm 2.5$      | Pass   |

| Modulation | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Pass/ Fail |
|------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|------------|
| GSM 850    |                                |                  |                     |                   |                    |                |            |
| EDGE       | 190 / 836.6                    | VL               | TN                  | 34                | 0.0406             | ± 2.5          | Pass       |
|            |                                | VN               |                     | 35                | 0.0418             | ± 2.5          | Pass       |
|            |                                | VH               |                     | 36                | 0.0430             | ± 2.5          | Pass       |
|            |                                | VN               | 50                  | 37                | 0.0442             | ± 2.5          | Pass       |
|            |                                |                  | 40                  | 28                | 0.0335             | ± 2.5          | Pass       |
|            |                                |                  | 30                  | 35                | 0.0418             | ± 2.5          | Pass       |
|            |                                |                  | 20                  | 28                | 0.0335             | ± 2.5          | Pass       |
|            |                                |                  | 10                  | 32                | 0.0383             | ± 2.5          | Pass       |
|            |                                |                  | 0                   | 34                | 0.0406             | ± 2.5          | Pass       |
|            |                                |                  | -10                 | 26                | 0.0311             | ± 2.5          | Pass       |
|            |                                |                  | -20                 | 27                | 0.0323             | ± 2.5          | Pass       |
|            |                                |                  | -30                 | 35                | 0.0418             | ± 2.5          | Pass       |

| Modulation | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|--------|
| PCS 1900   |                                |                  |                     |                   |                    |                |        |
| GPRS       | 661 / 1880.0                   | VL               | TN                  | -27               | -0.0144            | N/A            | Pass   |
|            |                                | VN               |                     | -29               | -0.0154            |                | Pass   |
|            |                                | VH               |                     | -31               | -0.0165            |                | Pass   |
|            |                                | VN               | 50                  | -25               | -0.0133            |                | Pass   |
|            |                                |                  | 40                  | -33               | -0.0176            |                | Pass   |
|            |                                |                  | 30                  | -28               | -0.0149            |                | Pass   |
|            |                                |                  | 20                  | -37               | -0.0197            |                | Pass   |
|            |                                |                  | 10                  | -25               | -0.0133            |                | Pass   |
|            |                                |                  | 0                   | -36               | -0.0191            |                | Pass   |
|            |                                |                  | -10                 | -26               | -0.0138            |                | Pass   |
|            |                                |                  | -20                 | -23               | -0.0122            |                | Pass   |
|            |                                |                  | -30                 | -28               | -0.0149            |                | Pass   |

| Modulation | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Pass/ Fail |
|------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|------------|
| PCS 1900   |                                |                  |                     |                   |                    |                |            |
| EDGE       | 661 / 1880.0                   | VL               | TN                  | 31                | 0.0165             | N/A            | Pass       |
|            |                                | VN               |                     | 33                | 0.0176             |                | Pass       |
|            |                                | VH               |                     | 27                | 0.0144             |                | Pass       |
|            |                                | VN               | 50                  | 36                | 0.0191             |                | Pass       |
|            |                                |                  | 40                  | 31                | 0.0165             |                | Pass       |
|            |                                |                  | 30                  | 33                | 0.0176             |                | Pass       |
|            |                                |                  | 20                  | 27                | 0.0144             |                | Pass       |
|            |                                |                  | 10                  | 24                | 0.0128             |                | Pass       |
|            |                                |                  | 0                   | 27                | 0.0144             |                | Pass       |
|            |                                |                  | -10                 | 36                | 0.0191             |                | Pass       |
|            |                                |                  | -20                 | 26                | 0.0138             |                | Pass       |
|            |                                |                  | -30                 | 33                | 0.0176             |                | Pass       |

| Modulation    | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|---------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|--------|
| WCDMA Band II |                                |                  |                     |                   |                    |                |        |
| RMC 12.2kbps  | 9400 / 1880.0                  | VL               | TN                  | 26                | 0.0138             | N/A            | Pass   |
|               |                                | VN               |                     | 33                | 0.0176             |                | Pass   |
|               |                                | VH               |                     | 32                | 0.0170             |                | Pass   |
|               |                                | VN               | 50                  | 26                | 0.0138             |                | Pass   |
|               |                                |                  | 40                  | 33                | 0.0176             |                | Pass   |
|               |                                |                  | 30                  | 38                | 0.0202             |                | Pass   |
|               |                                |                  | 20                  | 26                | 0.0138             |                | Pass   |
|               |                                |                  | 10                  | 28                | 0.0149             |                | Pass   |
|               |                                |                  | 0                   | 31                | 0.0165             |                | Pass   |
|               |                                |                  | -10                 | 33                | 0.0176             |                | Pass   |
|               |                                |                  | -20                 | 26                | 0.0138             |                | Pass   |
|               |                                |                  | -30                 | 29                | 0.0154             |                | Pass   |

| Modulation    | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|---------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|--------|
| WCDMA Band IV |                                |                  |                     |                   |                    |                |        |
| RMC 12.2kbps  | 1412 / 1732.4                  | VL               | TN                  | 31                | 0.0179             | N/A            | Pass   |
|               |                                | VN               |                     | 28                | 0.0162             |                | Pass   |
|               |                                | VH               |                     | 31                | 0.0179             |                | Pass   |
|               |                                | VN               | 50                  | 26                | 0.0150             |                | Pass   |
|               |                                |                  | 40                  | 29                | 0.0167             |                | Pass   |
|               |                                |                  | 30                  | 33                | 0.0190             |                | Pass   |
|               |                                |                  | 20                  | 27                | 0.0156             |                | Pass   |
|               |                                |                  | 10                  | 35                | 0.0202             |                | Pass   |
|               |                                |                  | 0                   | 31                | 0.0179             |                | Pass   |
|               |                                |                  | -10                 | 35                | 0.0202             |                | Pass   |
|               |                                |                  | -20                 | 31                | 0.0179             |                | Pass   |
|               |                                |                  | -30                 | 25                | 0.0144             |                | Pass   |

| Modulation   | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|--------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|--------|
| WCDMA Band V |                                |                  |                     |                   |                    |                |        |
| RMC 12.2kbps | 4182 / 836.4                   | VL               | TN                  | 26                | 0.0311             | ± 2.5          | Pass   |
|              |                                | VN               |                     | 31                | 0.0371             | ± 2.5          | Pass   |
|              |                                | VH               |                     | 28                | 0.0335             | ± 2.5          | Pass   |
|              |                                | VN               | 50                  | 34                | 0.0407             | ± 2.5          | Pass   |
|              |                                |                  | 40                  | 21                | 0.0251             | ± 2.5          | Pass   |
|              |                                |                  | 30                  | 29                | 0.0347             | ± 2.5          | Pass   |
|              |                                |                  | 20                  | 34                | 0.0407             | ± 2.5          | Pass   |
|              |                                |                  | 10                  | 25                | 0.0299             | ± 2.5          | Pass   |
|              |                                |                  | 0                   | 29                | 0.0347             | ± 2.5          | Pass   |
|              |                                |                  | -10                 | 31                | 0.0371             | ± 2.5          | Pass   |
|              |                                |                  | -20                 | 25                | 0.0299             | ± 2.5          | Pass   |
|              |                                |                  | -30                 | 32                | 0.0383             | ± 2.5          | Pass   |

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UTTR-RF-FCC23G-V1.0

## APPENDIX 1 PHOTOS OF TEST SETUP

See test photos attached in Appendix 1 for the actual connections between Product and support equipment.

## APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal photos.

\*\*\* End of Report \*\*\*

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