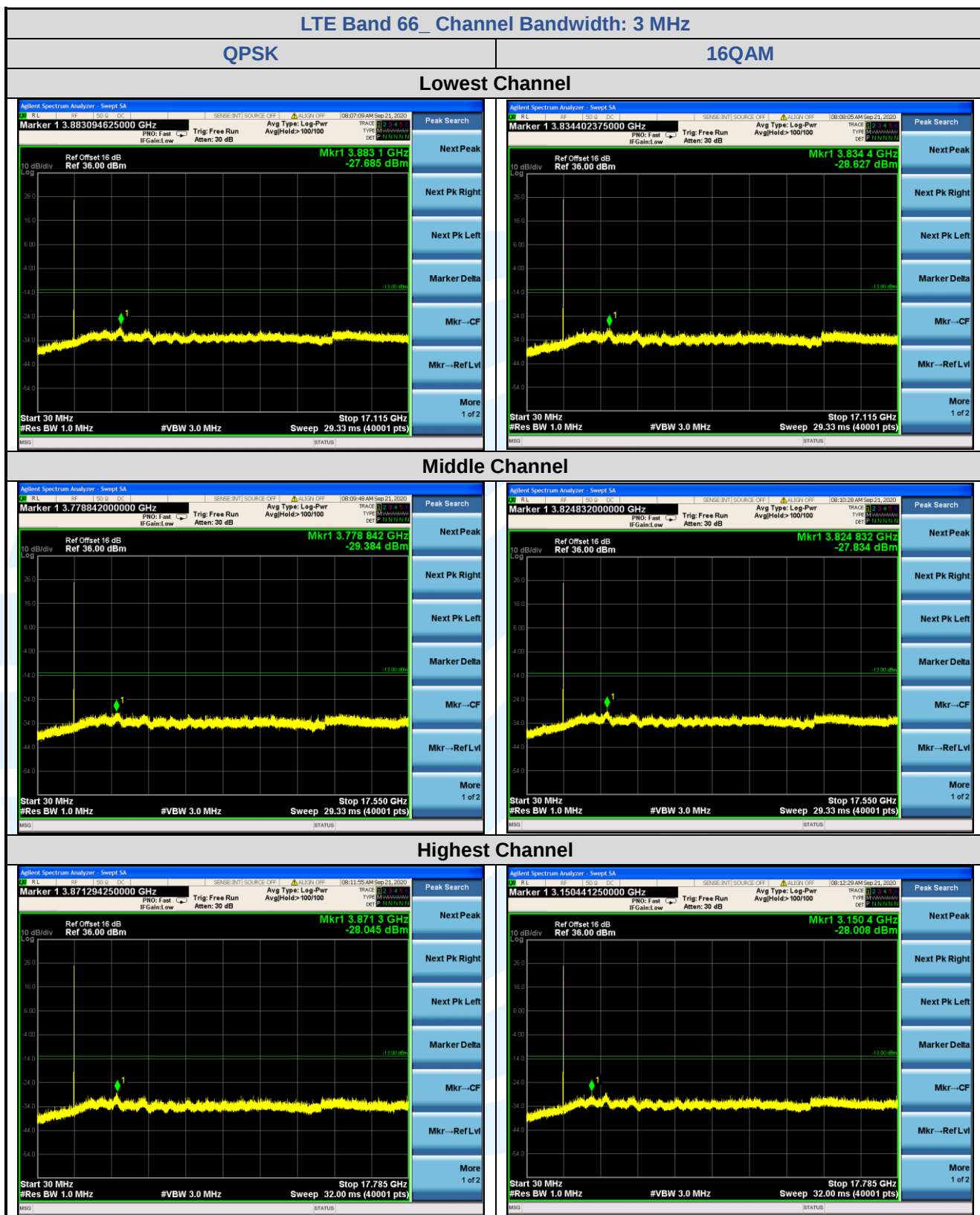
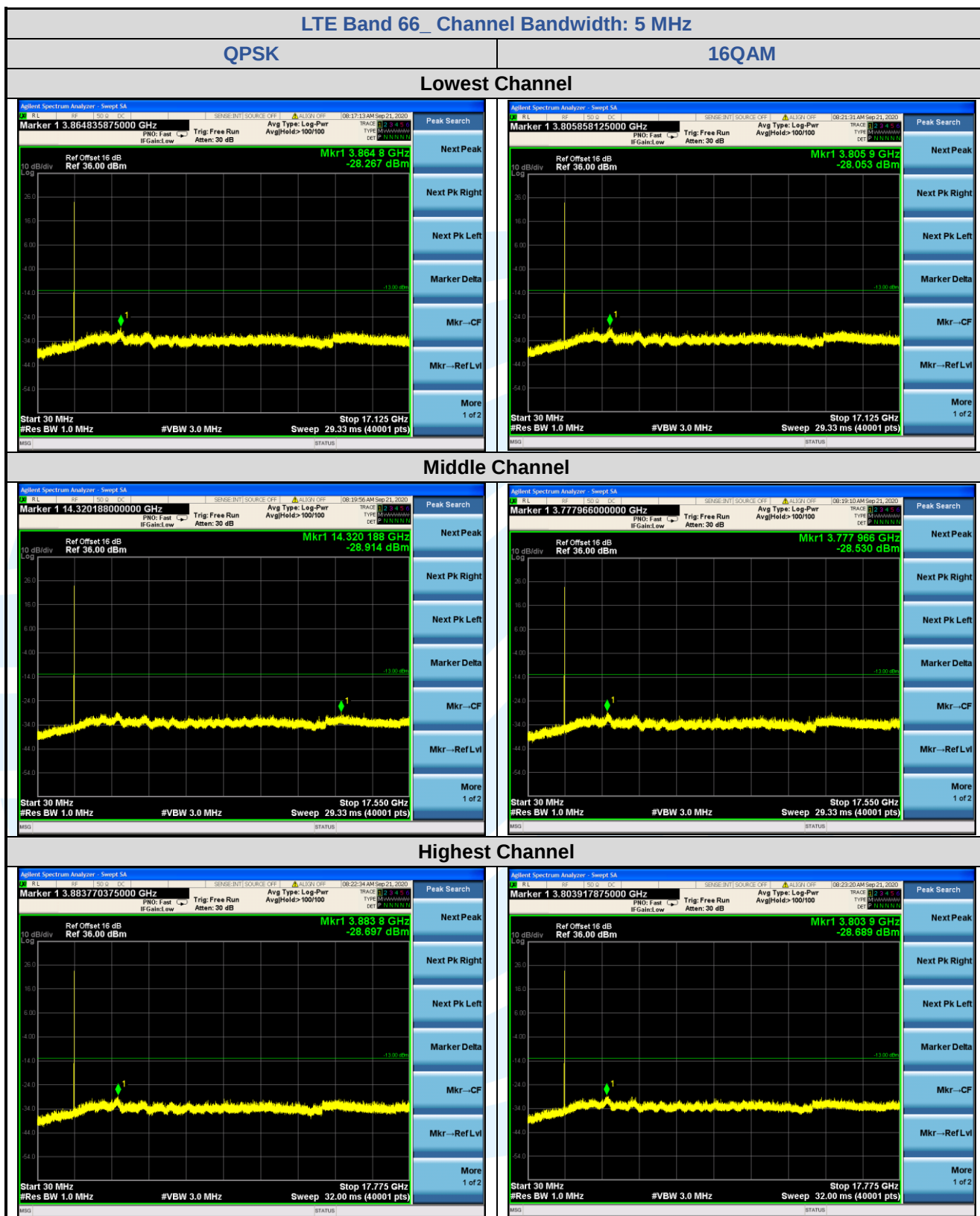
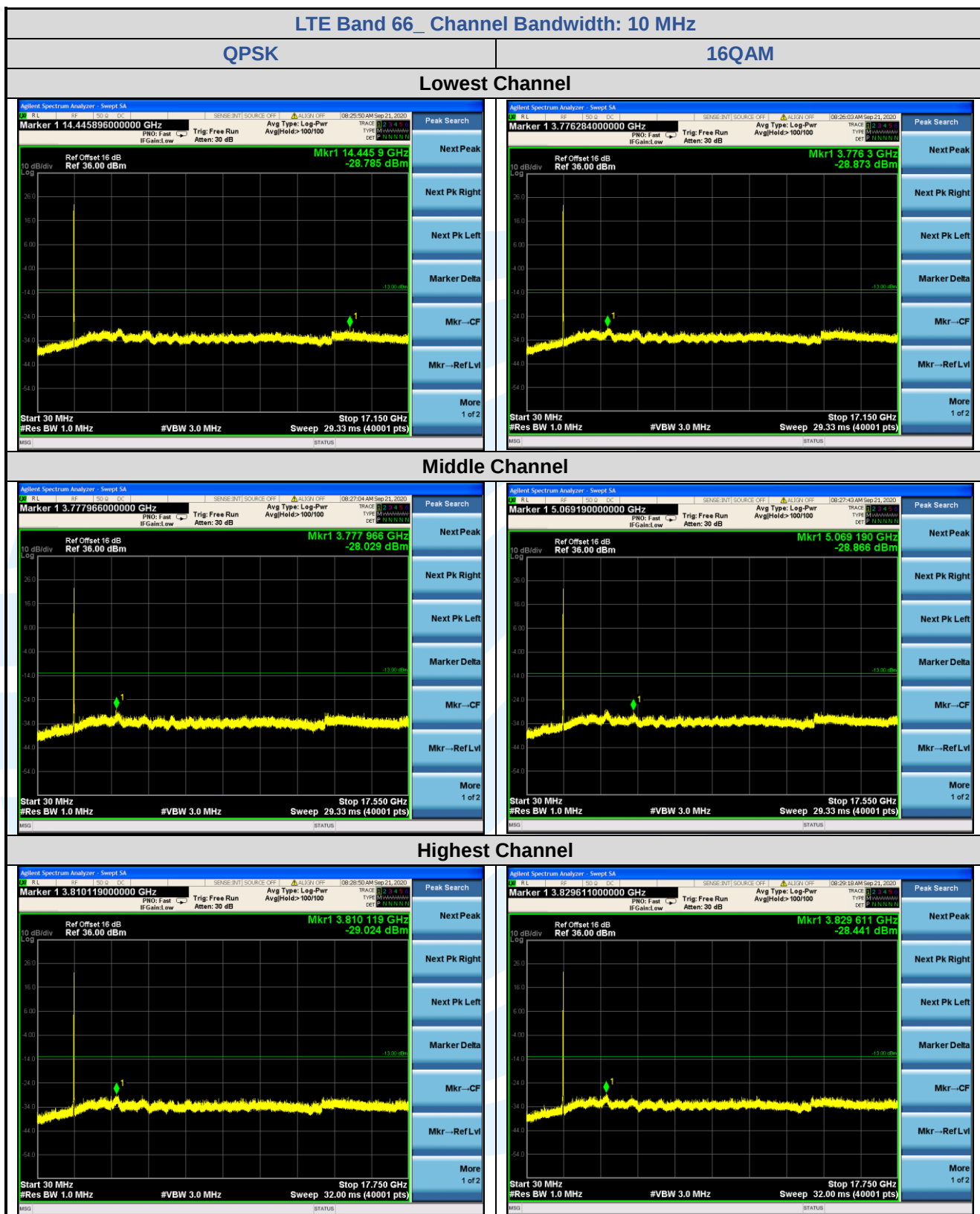








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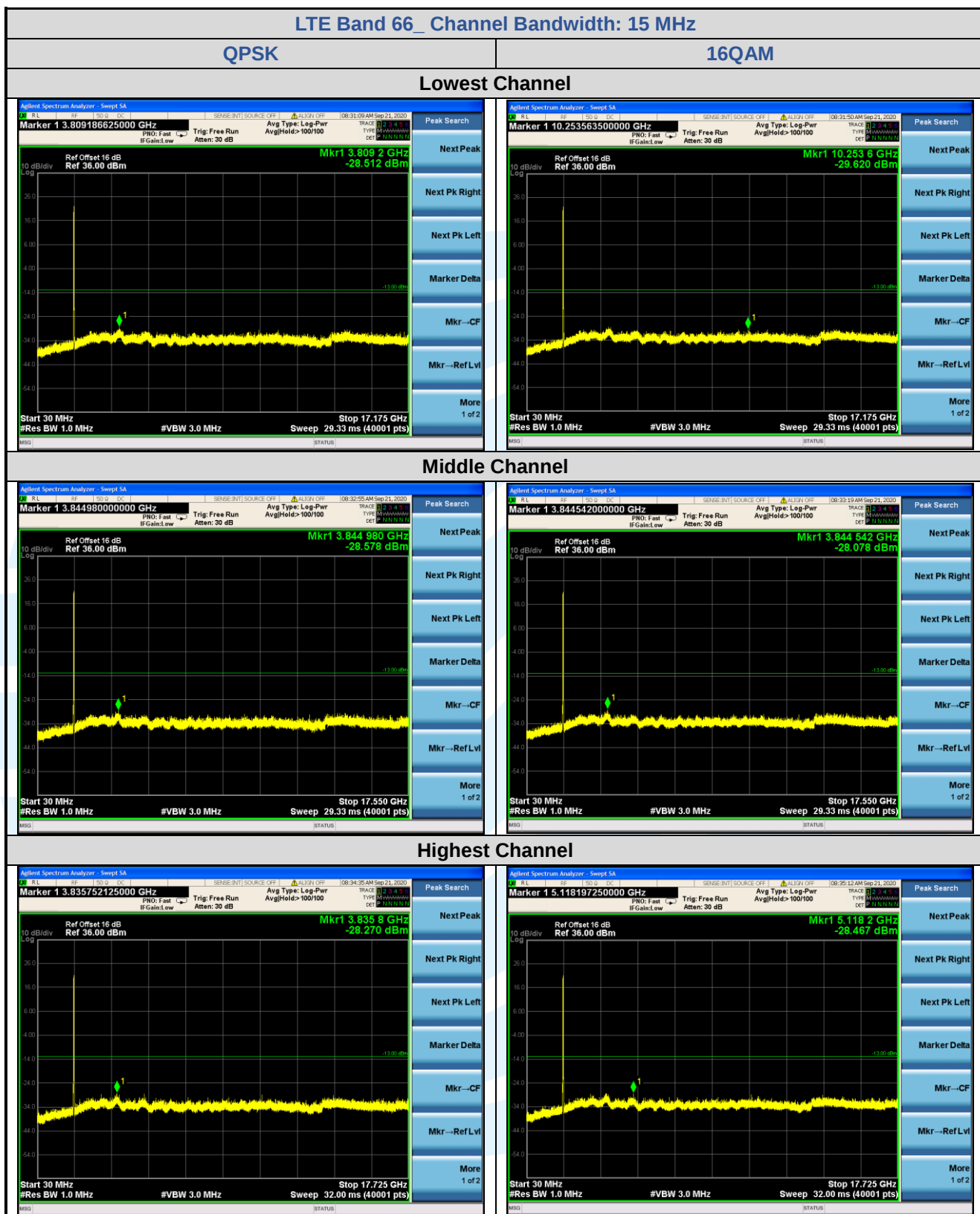
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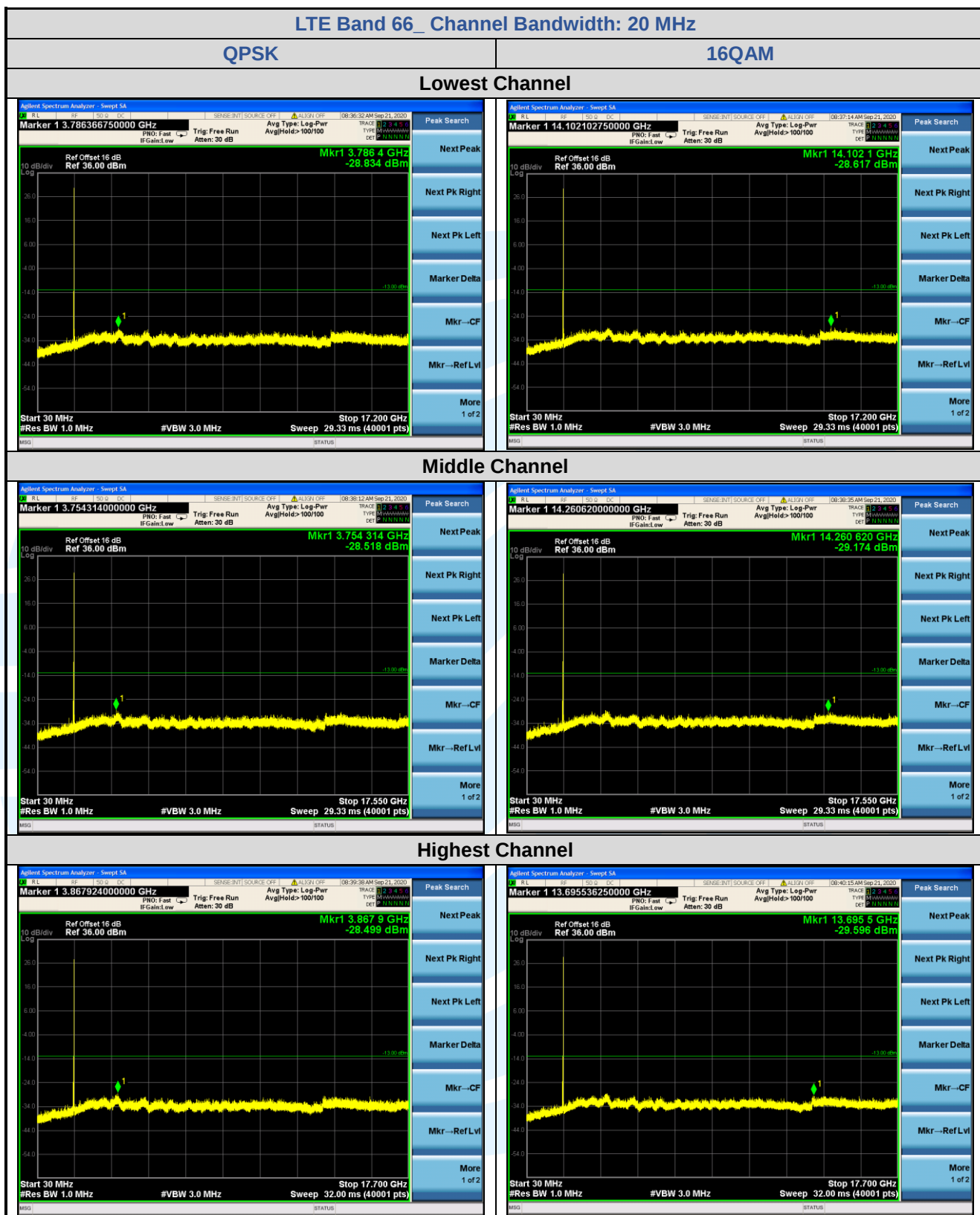
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## 5.8 FIELD STRENGTH OF SPURIOUS RADIATION

**Test Requirement:** **LTE Band 2:** FCC 47 CFR Part 24.238(a), RSS-133 Issue 6, Section 6.5  
**LTE Band 4 & LTE Band 66:** FCC 47 CFR Part 27.53(h), RSS-139 Issue 3, Section 6.6  
**LTE Band 12:** FCC 47 CFR Part 27.53(g), RSS-130 Issue 2, Section 4.7

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

**Receiver Setup:**

| Frequency        | Detector   | RBW     | VBW     | Remark |
|------------------|------------|---------|---------|--------|
| 0.009 MHz-30 MHz | Peak       | 10 kHz  | 30 KHz  | Peak   |
| 30 MHz-1 GHz     | Quasi-peak | 100 kHz | 300 KHz | Peak   |
| Above 1 GHz      | Peak       | 1 MHz   | 3 MHz   | Peak   |

**Limits:**

**FCC 47 CFR Part 24.238(a), 27.53(h)(1), 27.53(g), 27.53(c)(2):**

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.

**FCC 47 CFR Part 27.53:**

(c) 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.

(f) Emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

**RSS-133 Issue 6, Section 6.6, RSS-139 Issue 3, Section 6.5, RSS-130 Issue 2, Section 4.7:**

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:**

### 5.8.1 LTE Band 2

| LTE Band 2_ 20 MHz_ QPSK_ Below 1G |                    |                     |                                |                      |                |                |            |
|------------------------------------|--------------------|---------------------|--------------------------------|----------------------|----------------|----------------|------------|
| No.                                | Frequency<br>(MHz) | SA Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| Lowest Channel                     |                    |                     |                                |                      |                |                |            |
| 1                                  | 54.135             | -71.54              | -5.52                          | -77.06               | -13.00         | -64.06         | Horizontal |
| 2                                  | 105.537            | -76.34              | -3.38                          | -79.72               | -13.00         | -66.72         | Horizontal |
| 3                                  | 938.714            | -82.04              | 14.08                          | -67.96               | -13.00         | -54.96         | Horizontal |
| 4                                  | 51.176             | -66.24              | -5.59                          | -71.83               | -13.00         | -58.83         | Vertical   |
| 5                                  | 117.269            | -71.38              | -3.60                          | -74.98               | -13.00         | -61.98         | Vertical   |
| 6                                  | 899.958            | -81.51              | 12.75                          | -68.76               | -13.00         | -55.76         | Vertical   |
| Middle Channel                     |                    |                     |                                |                      |                |                |            |
| 1                                  | 54.135             | -70.03              | -5.52                          | -75.55               | -13.00         | -62.55         | Horizontal |
| 2                                  | 102.612            | -76.97              | -3.34                          | -80.31               | -13.00         | -67.31         | Horizontal |
| 3                                  | 932.141            | -80.89              | 13.86                          | -67.03               | -13.00         | -54.03         | Horizontal |
| 4                                  | 51.900             | -67.54              | -5.58                          | -73.12               | -13.00         | -60.12         | Vertical   |
| 5                                  | 125.806            | -72.32              | -3.61                          | -75.93               | -13.00         | -62.93         | Vertical   |
| 6                                  | 906.304            | -81.96              | 12.83                          | -69.13               | -13.00         | -56.13         | Vertical   |
| Highest Channel                    |                    |                     |                                |                      |                |                |            |
| 1                                  | 52.634             | -70.89              | -5.41                          | -76.30               | -13.00         | -63.30         | Horizontal |
| 2                                  | 103.335            | -76.47              | -3.36                          | -79.83               | -13.00         | -66.83         | Horizontal |
| 3                                  | 958.714            | -82.67              | 14.29                          | -68.38               | -13.00         | -55.38         | Horizontal |
| 4                                  | 52.634             | -68.42              | -5.57                          | -73.99               | -13.00         | -60.99         | Vertical   |
| 5                                  | 124.050            | -71.43              | -3.64                          | -75.07               | -13.00         | -62.07         | Vertical   |
| 6                                  | 952.000            | -81.91              | 12.97                          | -68.94               | -13.00         | -55.94         | Vertical   |

| LTE Band 2_ 20 MHz_ QPSK_ Above 1G |                    |                     |                                |                      |                |                |            |
|------------------------------------|--------------------|---------------------|--------------------------------|----------------------|----------------|----------------|------------|
| No.                                | Frequency<br>(MHz) | SA Reading<br>(dBm) | Correction<br>factor<br>(dB/m) | EIRP Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Ant. Pol.  |
| Lowest Channel                     |                    |                     |                                |                      |                |                |            |
| 1                                  | 3720.000           | -64.96              | 6.82                           | -58.14               | -13.00         | -45.14         | Horizontal |
| 2                                  | 5580.000           | -66.89              | 10.86                          | -56.03               | -13.00         | -43.03         | Horizontal |
| 3                                  | 3720.000           | -64.87              | 6.81                           | -58.06               | -13.00         | -45.06         | Vertical   |
| 4                                  | 5580.000           | -66.63              | 11.34                          | -55.29               | -13.00         | -42.29         | Vertical   |
| Middle Channel                     |                    |                     |                                |                      |                |                |            |
| 1                                  | 3760.000           | -63.53              | 6.93                           | -56.60               | -13.00         | -43.60         | Horizontal |
| 2                                  | 5640.000           | -65.16              | 10.84                          | -54.32               | -13.00         | -41.32         | Horizontal |
| 3                                  | 3760.000           | -64.95              | 6.93                           | -58.02               | -13.00         | -45.02         | Vertical   |
| 4                                  | 5640.000           | -64.71              | 11.32                          | -53.39               | -13.00         | -40.39         | Vertical   |
| Highest Channel                    |                    |                     |                                |                      |                |                |            |
| 1                                  | 3800.000           | -63.89              | 7.03                           | -56.86               | -13.00         | -43.86         | Horizontal |
| 2                                  | 5700.000           | -65.96              | 10.83                          | -55.13               | -13.00         | -42.13         | Horizontal |
| 3                                  | 3800.000           | -64.07              | 7.05                           | -57.02               | -13.00         | -44.02         | Vertical   |
| 4                                  | 5700.000           | -64.98              | 11.29                          | -53.69               | -13.00         | -40.69         | Vertical   |

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### 5.8.2 LTE Band 4

| LTE Band 4_ 20 MHz_ QPSK_ Below 1G |           |            |                   |             |        |        |            |
|------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                    | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                     |           |            |                   |             |        |        |            |
| 1                                  | 51.900    | -70.09     | -5.35             | -75.44      | -13.00 | -62.44 | Horizontal |
| 2                                  | 334.126   | -80.01     | 3.92              | -76.09      | -13.00 | -63.09 | Horizontal |
| 3                                  | 965.474   | -81.69     | 14.13             | -67.56      | -13.00 | -54.56 | Horizontal |
| 4                                  | 52.634    | -66.78     | -5.57             | -72.35      | -13.00 | -59.35 | Vertical   |
| 5                                  | 117.269   | -73.69     | -3.60             | -77.29      | -13.00 | -64.29 | Vertical   |
| 6                                  | 938.714   | -81.30     | 12.99             | -68.31      | -13.00 | -55.31 | Vertical   |
| Middle Channel                     |           |            |                   |             |        |        |            |
| 1                                  | 53.756    | -69.62     | -5.49             | -75.11      | -13.00 | -62.11 | Horizontal |
| 2                                  | 101.893   | -77.16     | -3.33             | -80.49      | -13.00 | -67.49 | Horizontal |
| 3                                  | 945.334   | -81.63     | 14.30             | -67.33      | -13.00 | -54.33 | Horizontal |
| 4                                  | 54.135    | -67.72     | -5.55             | -73.27      | -13.00 | -60.27 | Vertical   |
| 5                                  | 124.050   | -74.21     | -3.64             | -77.85      | -13.00 | -64.85 | Vertical   |
| 6                                  | 945.334   | -80.71     | 12.97             | -67.74      | -13.00 | -54.74 | Vertical   |
| Highest Channel                    |           |            |                   |             |        |        |            |
| 1                                  | 54.135    | -70.29     | -5.52             | -75.81      | -13.00 | -62.81 | Horizontal |
| 2                                  | 248.732   | -79.23     | 1.46              | -77.77      | -13.00 | -64.77 | Horizontal |
| 3                                  | 938.714   | -81.92     | 14.08             | -67.84      | -13.00 | -54.84 | Horizontal |
| 4                                  | 53.006    | -68.27     | -5.56             | -73.83      | -13.00 | -60.83 | Vertical   |
| 5                                  | 118.096   | -74.25     | -3.62             | -77.87      | -13.00 | -64.87 | Vertical   |
| 6                                  | 952.000   | -81.18     | 12.97             | -68.21      | -13.00 | -55.21 | Vertical   |

| LTE Band 4_ 20 MHz_ QPSK _ Above 1G |           |            |                   |             |        |        |            |
|-------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                 | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                     | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 3440.000  | -63.13     | 5.94              | -57.19      | -13.00 | -44.19 | Horizontal |
| 2                                   | 5160.000  | -63.81     | 9.17              | -54.64      | -13.00 | -41.64 | Horizontal |
| 3                                   | 3440.000  | -63.60     | 5.75              | -57.85      | -13.00 | -44.85 | Vertical   |
| 4                                   | 5160.000  | -64.23     | 9.53              | -54.70      | -13.00 | -41.70 | Vertical   |
| Middle Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 3465.000  | -64.79     | 6.02              | -58.77      | -13.00 | -45.77 | Horizontal |
| 2                                   | 5197.500  | -64.42     | 9.31              | -55.11      | -13.00 | -42.11 | Horizontal |
| 3                                   | 3465.000  | -65.13     | 5.87              | -59.26      | -13.00 | -46.26 | Vertical   |
| 4                                   | 5197.500  | -65.15     | 9.69              | -55.46      | -13.00 | -42.46 | Vertical   |
| Highest Channel                     |           |            |                   |             |        |        |            |
| 1                                   | 3490.000  | -62.34     | 6.11              | -56.23      | -13.00 | -43.23 | Horizontal |
| 2                                   | 5235.000  | -64.85     | 9.50              | -55.35      | -13.00 | -42.35 | Horizontal |
| 3                                   | 3490.000  | -64.26     | 5.99              | -58.27      | -13.00 | -45.27 | Vertical   |
| 4                                   | 5235.000  | -65.72     | 9.89              | -55.83      | -13.00 | -42.83 | Vertical   |

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### 5.8.3 LTE Band 12

| LTE Band 12_ 10 MHz_ QPSK_ Below 1G |           |            |                   |             |        |        |            |
|-------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                 | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                     | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 30.425    | -90.68     | 32.49             | -58.19      | -13.00 | -45.19 | Horizontal |
| 2                                   | 233.488   | -87.81     | 28.91             | -58.90      | -13.00 | -45.90 | Horizontal |
| 3                                   | 938.714   | -86.47     | 43.13             | -43.34      | -13.00 | -30.34 | Horizontal |
| 4                                   | 30.855    | -89.83     | 32.47             | -57.36      | -13.00 | -44.36 | Vertical   |
| 5                                   | 236.793   | -88.03     | 29.09             | -58.94      | -13.00 | -45.94 | Vertical   |
| 6                                   | 958.714   | -86.17     | 42.00             | -44.17      | -13.00 | -31.17 | Vertical   |
| Middle Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 30.212    | -90.61     | 32.61             | -58.00      | -13.00 | -45.00 | Horizontal |
| 2                                   | 241.838   | -88.38     | 29.37             | -59.01      | -13.00 | -46.01 | Horizontal |
| 3                                   | 972.283   | -86.94     | 42.96             | -43.98      | -13.00 | -30.98 | Horizontal |
| 4                                   | 31.959    | -89.76     | 31.77             | -57.99      | -13.00 | -44.99 | Vertical   |
| 5                                   | 427.292   | -87.65     | 35.36             | -52.29      | -13.00 | -39.29 | Vertical   |
| 6                                   | 938.714   | -86.09     | 42.04             | -44.05      | -13.00 | -31.05 | Vertical   |
| Highest Channel                     |           |            |                   |             |        |        |            |
| 1                                   | 30.855    | -90.35     | 32.28             | -58.07      | -13.00 | -45.07 | Horizontal |
| 2                                   | 176.275   | -88.22     | 26.94             | -61.28      | -13.00 | -48.28 | Horizontal |
| 3                                   | 945.334   | -86.59     | 43.34             | -43.25      | -13.00 | -30.25 | Horizontal |
| 4                                   | 30.425    | -90.12     | 32.74             | -57.38      | -13.00 | -44.38 | Vertical   |
| 5                                   | 436.396   | -88.56     | 35.20             | -53.36      | -13.00 | -40.36 | Vertical   |
| 6                                   | 952.000   | -86.61     | 41.99             | -44.62      | -13.00 | -31.62 | Vertical   |

| LTE Band 12_ 10 MHz_ QPSK_ Above 1G |           |            |                   |             |        |        |            |
|-------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                 | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                     | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 1408.000  | -63.91     | -0.43             | -64.34      | -13.00 | -51.34 | Horizontal |
| 2                                   | 2112.000  | -63.86     | 2.00              | -61.86      | -13.00 | -48.86 | Horizontal |
| 3                                   | 1408.000  | -65.83     | -1.20             | -67.03      | -13.00 | -54.03 | Vertical   |
| 4                                   | 2112.000  | -65.72     | 1.52              | -64.20      | -13.00 | -51.20 | Vertical   |
| Middle Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 1415.000  | -63.27     | -0.44             | -63.71      | -13.00 | -50.71 | Horizontal |
| 2                                   | 2122.500  | -63.79     | 2.00              | -61.79      | -13.00 | -48.79 | Horizontal |
| 3                                   | 1415.000  | -64.17     | -1.22             | -65.39      | -13.00 | -52.39 | Vertical   |
| 4                                   | 2122.500  | -65.12     | 1.53              | -63.59      | -13.00 | -50.59 | Vertical   |
| Highest Channel                     |           |            |                   |             |        |        |            |
| 1                                   | 1422.000  | -63.67     | -0.45             | -64.12      | -13.00 | -51.12 | Horizontal |
| 2                                   | 2133.000  | -64.64     | 2.01              | -62.63      | -13.00 | -49.63 | Horizontal |
| 3                                   | 1422.000  | -64.32     | -1.24             | -65.56      | -13.00 | -52.56 | Vertical   |
| 4                                   | 2133.000  | -65.57     | 1.53              | -64.04      | -13.00 | -51.04 | Vertical   |

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#### 5.8.4 LTE Band 66

| LTE Band 66_ 20 MHz_ QPSK_ Below 1G |           |            |                   |             |        |        |            |
|-------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                 | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                     | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 53.379    | -69.66     | -5.46             | -75.12      | -13.00 | -62.12 | Horizontal |
| 2                                   | 101.893   | -77.36     | -3.33             | -80.69      | -13.00 | -67.69 | Horizontal |
| 3                                   | 938.714   | -81.79     | 14.08             | -67.71      | -13.00 | -54.71 | Horizontal |
| 4                                   | 51.900    | -67.35     | -5.58             | -72.93      | -13.00 | -59.93 | Vertical   |
| 5                                   | 124.050   | -72.81     | -3.64             | -76.45      | -13.00 | -63.45 | Vertical   |
| 6                                   | 938.714   | -81.03     | 12.99             | -68.04      | -13.00 | -55.04 | Vertical   |
| Middle Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 51.900    | -71.10     | -5.35             | -76.45      | -13.00 | -63.45 | Horizontal |
| 2                                   | 101.893   | -76.72     | -3.33             | -80.05      | -13.00 | -67.05 | Horizontal |
| 3                                   | 938.714   | -81.64     | 14.08             | -67.56      | -13.00 | -54.56 | Horizontal |
| 4                                   | 53.756    | -67.80     | -5.55             | -73.35      | -13.00 | -60.35 | Vertical   |
| 5                                   | 121.462   | -72.62     | -3.65             | -76.27      | -13.00 | -63.27 | Vertical   |
| 6                                   | 899.958   | -81.28     | 12.75             | -68.53      | -13.00 | -55.53 | Vertical   |
| Highest Channel                     |           |            |                   |             |        |        |            |
| 1                                   | 53.756    | -70.13     | -5.49             | -75.62      | -13.00 | -62.62 | Horizontal |
| 2                                   | 101.893   | -77.70     | -3.33             | -81.03      | -13.00 | -68.03 | Horizontal |
| 3                                   | 992.997   | -81.42     | 13.97             | -67.45      | -13.00 | -54.45 | Horizontal |
| 4                                   | 52.634    | -68.30     | -5.57             | -73.87      | -13.00 | -60.87 | Vertical   |
| 5                                   | 118.929   | -73.60     | -3.64             | -77.24      | -13.00 | -64.24 | Vertical   |
| 6                                   | 925.613   | -80.73     | 13.01             | -67.72      | -13.00 | -54.72 | Vertical   |

| LTE Band 66_ 20 MHz_ QPSK_ Above 1G |           |            |                   |             |        |        |            |
|-------------------------------------|-----------|------------|-------------------|-------------|--------|--------|------------|
| No.                                 | Frequency | SA Reading | Correction factor | EIRP Result | Limit  | Margin | Ant. Pol.  |
|                                     | (MHz)     | (dBm)      | (dB/m)            | (dBm)       | (dBm)  | (dB)   |            |
| Lowest Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 3440.000  | -64.36     | 5.94              | -58.42      | -13.00 | -45.42 | Horizontal |
| 2                                   | 5160.000  | -64.14     | 9.17              | -54.97      | -13.00 | -41.97 | Horizontal |
| 3                                   | 3440.000  | -63.83     | 5.75              | -58.08      | -13.00 | -45.08 | Vertical   |
| 4                                   | 5160.000  | -64.16     | 9.53              | -54.63      | -13.00 | -41.63 | Vertical   |
| Middle Channel                      |           |            |                   |             |        |        |            |
| 1                                   | 3490.000  | -64.46     | 6.11              | -58.35      | -13.00 | -45.35 | Horizontal |
| 2                                   | 5235.000  | -65.86     | 9.50              | -56.36      | -13.00 | -43.36 | Horizontal |
| 3                                   | 3490.000  | -64.91     | 5.99              | -58.92      | -13.00 | -45.92 | Vertical   |
| 4                                   | 5235.000  | -65.13     | 9.89              | -55.24      | -13.00 | -42.24 | Vertical   |
| Highest Channel                     |           |            |                   |             |        |        |            |
| 1                                   | 3540.000  | -64.07     | 6.27              | -57.80      | -13.00 | -44.80 | Horizontal |
| 2                                   | 5310.000  | -65.21     | 9.89              | -55.32      | -13.00 | -42.32 | Horizontal |
| 3                                   | 3540.000  | -63.58     | 6.19              | -57.39      | -13.00 | -44.39 | Vertical   |
| 4                                   | 5310.000  | -65.03     | 10.31             | -54.72      | -13.00 | -41.72 | Vertical   |

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UTTR-RF-FCC4G-V1.1

## 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 24.235 &  
FCC 47 CFR Part 27.54,  
RSS-133 Issue 6, Section 6.3 & RSS-139 Issue 3, Section 6.4  
RSS-130 Issue 2, Section 4.5

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

**Limits:**

### **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.

### **RSS-133 Issue 6, Section 6.3:**

The carrier frequency shall not depart from the reference frequency, in excess of  $\pm 2.5$  ppm for mobile stations and  $\pm 1.0$  ppm for base stations.

### **RSS-139 Issue 3, Section 6.4, RSS-130 Issue 2, Section 4.5:**

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

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

### **Test Procedures:**

- 1) Use CMW 500 or CMU 200 with Frequency Error measurement capability.
  - a) Temp. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
  - b) Voltage = low voltage, 3.2 Vdc, Normal, 3.8Vdc and High voltage, 4.5 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

### 5.9.1 LTE Band 2

| Modulation                   | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit | Pass/ Fail |
|------------------------------|-----------------------|---------|-------------|-----------|-----------|-------|------------|
|                              | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm) |            |
| LTE Band 2 / 20MHz / Full RB |                       |         |             |           |           |       |            |
| QPSK                         | 18900 /<br>1880.0     | VL      | TN          | -12       | -0.0064   | N/A   | Pass       |
|                              |                       | VN      |             | -10       | -0.0053   |       | Pass       |
|                              |                       | VH      |             | -8        | -0.0043   |       | Pass       |
|                              |                       | VN      | 50          | -13       | -0.0069   |       | Pass       |
|                              |                       |         | 40          | -16       | -0.0085   |       | Pass       |
|                              |                       |         | 30          | -6        | -0.0032   |       | Pass       |
|                              |                       |         | 20          | -8        | -0.0043   |       | Pass       |
|                              |                       |         | 10          | -12       | -0.0064   |       | Pass       |
|                              |                       |         | 0           | -14       | -0.0074   |       | Pass       |
|                              |                       |         | -10         | -15       | -0.0080   |       | Pass       |
|                              |                       |         | -20         | -10       | -0.0053   |       | Pass       |
|                              |                       |         | -30         | -11       | -0.0059   |       | Pass       |

### 5.9.2 LTE Band 4

| Modulation                   | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit | Pass/ Fail |
|------------------------------|-----------------------|---------|-------------|-----------|-----------|-------|------------|
|                              | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm) |            |
| LTE Band 4 / 20MHz / Full RB |                       |         |             |           |           |       |            |
| QPSK                         | 20175 /<br>1732.5     | VL      | TN          | -13       | -0.0075   | N/A   | Pass       |
|                              |                       | VN      |             | -13       | -0.0075   |       | Pass       |
|                              |                       | VH      |             | -11       | -0.0063   |       | Pass       |
|                              |                       | VN      | 50          | -16       | -0.0092   |       | Pass       |
|                              |                       |         | 40          | -19       | -0.0110   |       | Pass       |
|                              |                       |         | 30          | -9        | -0.0052   |       | Pass       |
|                              |                       |         | 20          | -11       | -0.0063   |       | Pass       |
|                              |                       |         | 10          | -15       | -0.0087   |       | Pass       |
|                              |                       |         | 0           | -17       | -0.0098   |       | Pass       |
|                              |                       |         | -10         | -18       | -0.0104   |       | Pass       |
|                              |                       |         | -20         | -13       | -0.0075   |       | Pass       |
|                              |                       |         | -30         | -14       | -0.0081   |       | Pass       |

### 5.9.3 LTE Band 12

| Modulation                    | Channel/<br>Frequency | Voltage | Temperature | Deviation | Deviation | Limit | Result |
|-------------------------------|-----------------------|---------|-------------|-----------|-----------|-------|--------|
|                               | (MHz)                 | (Vdc)   | (°C)        | (Hz)      | (ppm)     | (ppm) |        |
| LTE Band 12 / 10MHz / Full RB |                       |         |             |           |           |       |        |
| QPSK                          | 23095 / 707.5         | VL      | TN          | -7        | -0.0099   | N/A   | Pass   |
|                               |                       | VN      |             | -13       | -0.0184   |       | Pass   |
|                               |                       | VH      |             | -12       | -0.0170   |       | Pass   |
|                               |                       | VN      | 50          | -9        | -0.0127   |       | Pass   |
|                               |                       |         | 40          | -12       | -0.0170   |       | Pass   |
|                               |                       |         | 30          | -13       | -0.0184   |       | Pass   |
|                               |                       |         | 20          | -10       | -0.0141   |       | Pass   |
|                               |                       |         | 10          | -12       | -0.0170   |       | Pass   |
|                               |                       |         | 0           | -17       | -0.0240   |       | Pass   |
|                               |                       |         | -10         | -16       | -0.0226   |       | Pass   |
|                               |                       |         | -20         | -13       | -0.0184   |       | Pass   |
|                               |                       |         | -30         | -17       | -0.0240   |       | Pass   |

### 5.9.4 LTE Band 66

| Modulation                    | Channel/<br>Frequency<br>(MHz) | Voltage<br>(Vdc) | Temperature<br>(°C) | Deviation<br>(Hz) | Deviation<br>(ppm) | Limit<br>(ppm) | Result |
|-------------------------------|--------------------------------|------------------|---------------------|-------------------|--------------------|----------------|--------|
| LTE Band 66 / 20MHz / Full RB |                                |                  |                     |                   |                    |                |        |
| QPSK                          | 132322 / 1745                  | VL               | TN                  | -14               | -0.0080            | N/A            | Pass   |
|                               |                                | VN               |                     | -7                | -0.0040            |                | Pass   |
|                               |                                | VH               |                     | -8                | -0.0046            |                | Pass   |
|                               |                                | VN               | 50                  | -11               | -0.0063            |                | Pass   |
|                               |                                |                  | 40                  | -13               | -0.0074            |                | Pass   |
|                               |                                |                  | 30                  | -9                | -0.0052            |                | Pass   |
|                               |                                |                  | 20                  | -4                | -0.0023            |                | Pass   |
|                               |                                |                  | 10                  | -7                | -0.0040            |                | Pass   |
|                               |                                |                  | 0                   | -8                | -0.0046            |                | Pass   |
|                               |                                |                  | -10                 | -12               | -0.0069            |                | Pass   |
|                               |                                |                  | -20                 | -14               | -0.0080            |                | Pass   |
|                               |                                |                  | -30                 | -7                | -0.0040            |                | Pass   |

## 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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