

| Channel Bandwidth: 20 MHz |         |                  |        |                          |                       |         |
|---------------------------|---------|------------------|--------|--------------------------|-----------------------|---------|
| Modulation                | Channel | RB Configuration |        | Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Verdict |
|                           |         | Size             | Offset |                          |                       |         |
| QPSK                      | LCH     | 100              | 0      | 17.970                   | 19.01                 | PASS    |
|                           | MCH     | 100              | 0      | 17.990                   | 19.09                 | PASS    |
|                           | HCH     | 100              | 0      | 17.896                   | 18.94                 | PASS    |
| 16QAM                     | LCH     | 100              | 0      | 17.948                   | 19.00                 | PASS    |
|                           | MCH     | 100              | 0      | 17.994                   | 19.07                 | PASS    |
|                           | HCH     | 100              | 0      | 17.871                   | 18.94                 | PASS    |

### LTE Band 38

| Channel Bandwidth: 5 MHz |         |                  |        |                          |                       |         |
|--------------------------|---------|------------------|--------|--------------------------|-----------------------|---------|
| Modulation               | Channel | RB Configuration |        | Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Verdict |
|                          |         | Size             | Offset |                          |                       |         |
| QPSK                     | LCH     | 25               | 0      | 4.4934                   | 4.842                 | PASS    |
|                          | MCH     | 25               | 0      | 4.5035                   | 4.830                 | PASS    |
|                          | HCH     | 25               | 0      | 4.4906                   | 4.892                 | PASS    |
| 16QAM                    | LCH     | 25               | 0      | 4.4914                   | 4.845                 | PASS    |
|                          | MCH     | 25               | 0      | 4.4929                   | 4.866                 | PASS    |
|                          | HCH     | 25               | 0      | 4.4864                   | 4.874                 | PASS    |

| Channel Bandwidth: 10 MHz |         |                  |        |                          |                       |         |
|---------------------------|---------|------------------|--------|--------------------------|-----------------------|---------|
| Modulation                | Channel | RB Configuration |        | Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Verdict |
|                           |         | Size             | Offset |                          |                       |         |
| QPSK                      | LCH     | 50               | 0      | 8.9938                   | 9.524                 | PASS    |
|                           | MCH     | 50               | 0      | 8.9665                   | 9.595                 | PASS    |
|                           | HCH     | 50               | 0      | 8.9736                   | 9.518                 | PASS    |
| 16QAM                     | LCH     | 50               | 0      | 8.9741                   | 9.576                 | PASS    |
|                           | MCH     | 50               | 0      | 8.9694                   | 9.541                 | PASS    |
|                           | HCH     | 50               | 0      | 8.9675                   | 9.601                 | PASS    |

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| Channel Bandwidth: 15 MHz |         |                  |        |                          |                       |         |
|---------------------------|---------|------------------|--------|--------------------------|-----------------------|---------|
| Modulation                | Channel | RB Configuration |        | Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Verdict |
|                           |         | Size             | Offset |                          |                       |         |
| QPSK                      | LCH     | 75               | 0      | 13.461                   | 14.29                 | PASS    |
|                           | MCH     | 75               | 0      | 13.455                   | 14.27                 | PASS    |
|                           | HCH     | 75               | 0      | 13.480                   | 14.30                 | PASS    |
| 16QAM                     | LCH     | 75               | 0      | 13.453                   | 14.30                 | PASS    |
|                           | MCH     | 75               | 0      | 13.470                   | 14.32                 | PASS    |
|                           | HCH     | 75               | 0      | 13.448                   | 14.29                 | PASS    |

| Channel Bandwidth: 20 MHz |         |                  |        |                          |                       |         |
|---------------------------|---------|------------------|--------|--------------------------|-----------------------|---------|
| Modulation                | Channel | RB Configuration |        | Occupied Bandwidth (MHz) | -26dB Bandwidth (MHz) | Verdict |
|                           |         | Size             | Offset |                          |                       |         |
| QPSK                      | LCH     | 100              | 0      | 17.984                   | 19.02                 | PASS    |
|                           | MCH     | 100              | 0      | 17.942                   | 18.99                 | PASS    |
|                           | HCH     | 100              | 0      | 17.927                   | 18.98                 | PASS    |
| 16QAM                     | LCH     | 100              | 0      | 17.985                   | 18.98                 | PASS    |
|                           | MCH     | 100              | 0      | 17.957                   | 18.99                 | PASS    |
|                           | HCH     | 100              | 0      | 17.921                   | 18.97                 | PASS    |

Note: Please refers to Appendix B for compliance test plots for Occupied Bandwidth & Emission Bandwidth.

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## 13. BAND EDGE

### 13.1 MEASUREMENT OVERVIEW

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

### 13.2 MEASUREMENT METHOD

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1% of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq 2 \times \text{Span}/\text{RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### TEST NOTE

#### §90.543(e)

1. On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations.
2. On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.
3. On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.
4. Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
5. Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater.

However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30kHz may be employed.

#### §27.53(m)

Equipment shall comply with the following unwanted emission limits:

- a) for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$
- b) for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $40 + 10 \log_{10} p$  from the channel

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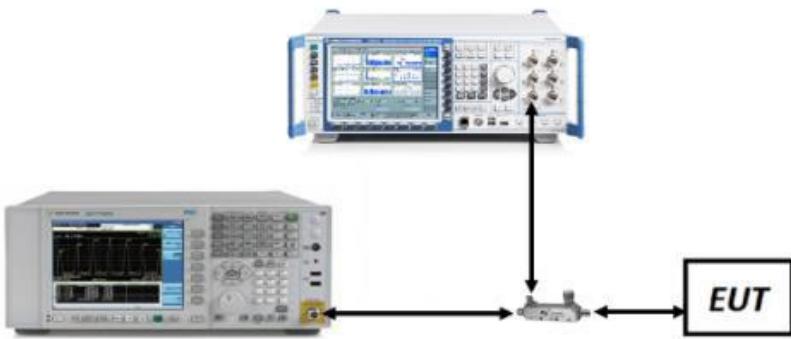
edges to 5 MHz away  $43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and  $55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges. In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

According to FCC 22.917, 24.238, 27.53 specified that 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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. All measurements were done at 2 channels (low and high operational frequency range.)

The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

### 13.3 MEASUREMENT METHOD



### 13.4 MEASUREMENT RESULT

NOTE: Please refer to Appendix C for compliance test plots for band edge

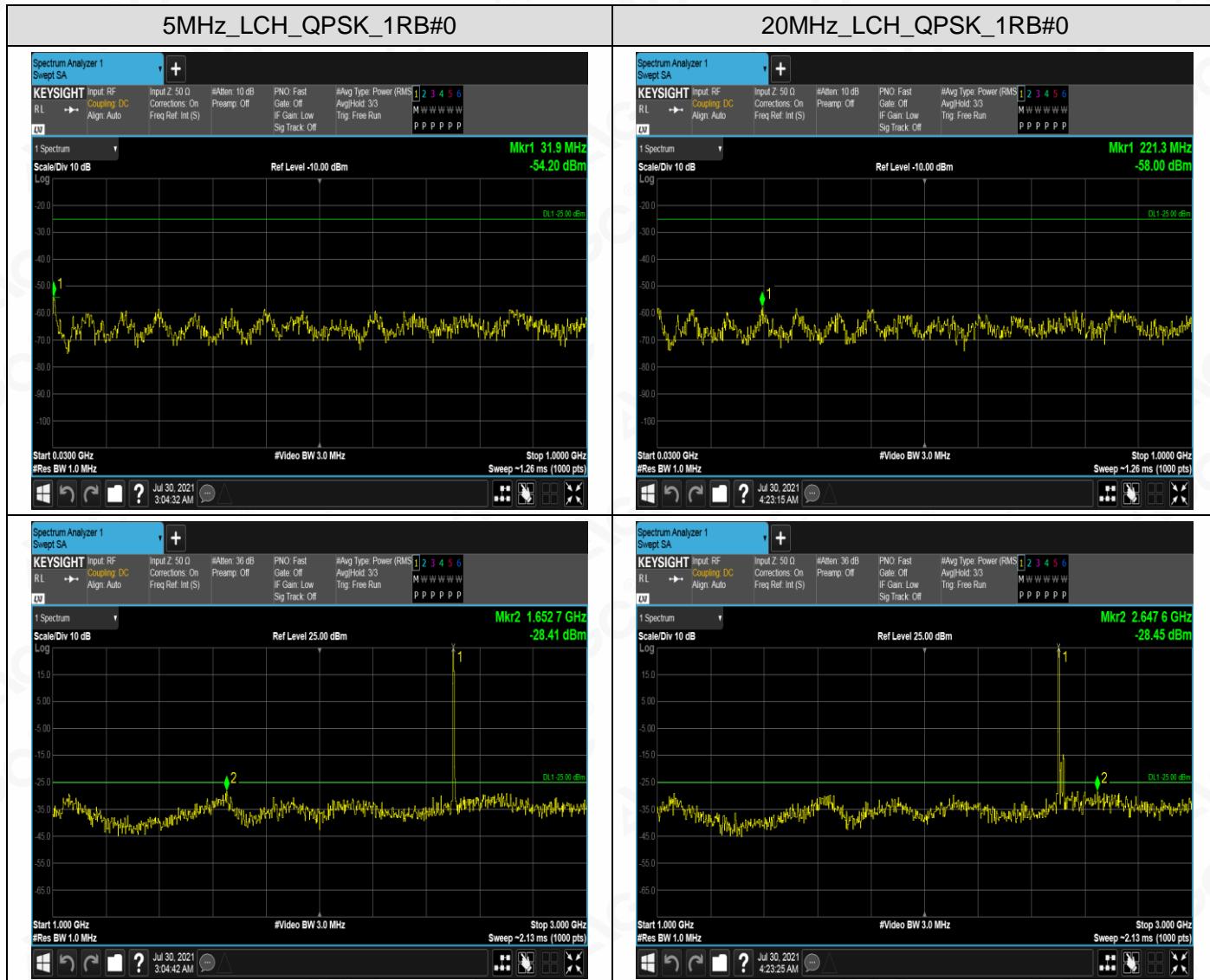
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APPENDIX A TEST PLOTS FOR SPURIOUS EMISSIONS AT ANTENNA TERMINALS  
 LTE BAND 7


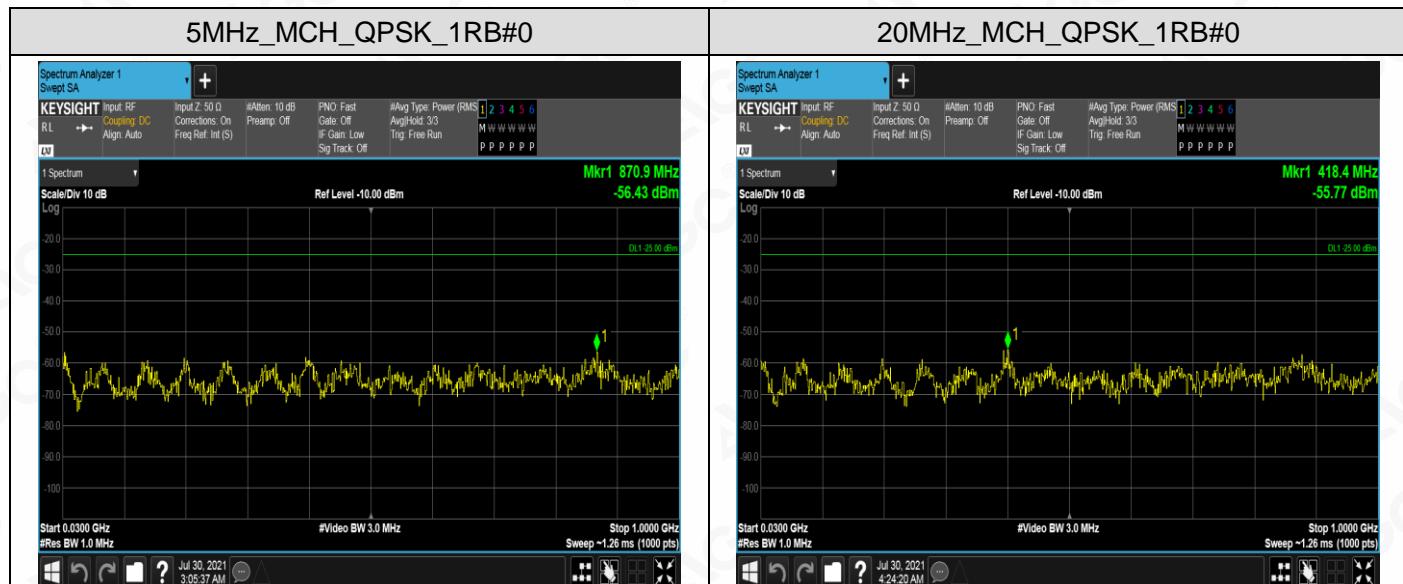
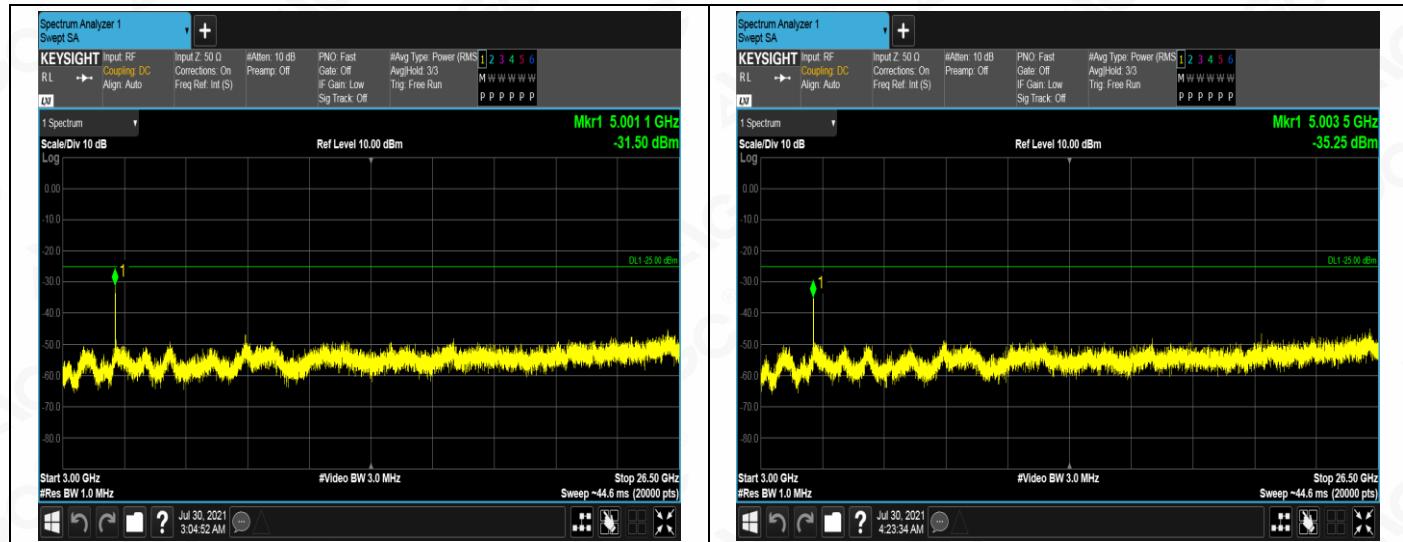
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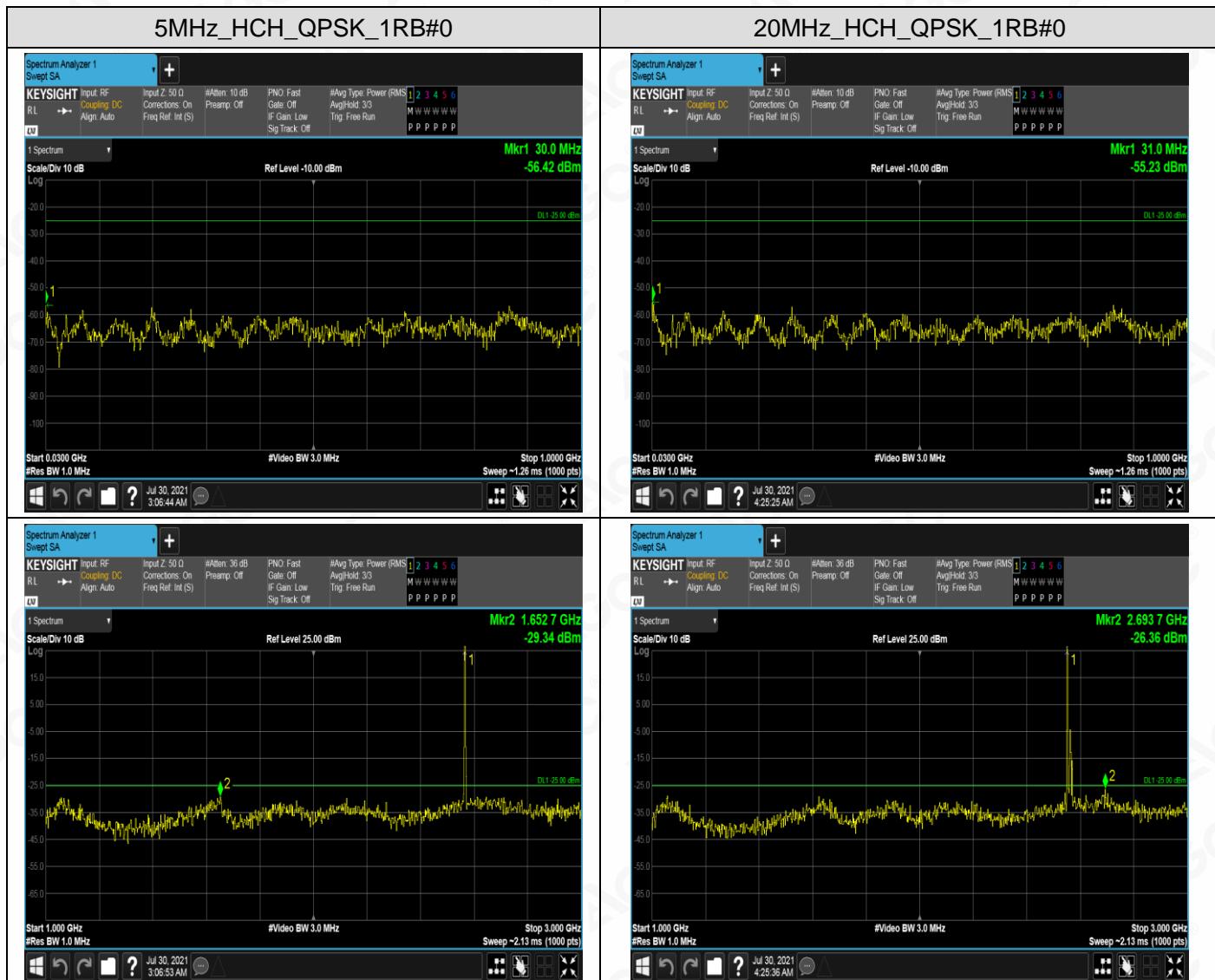
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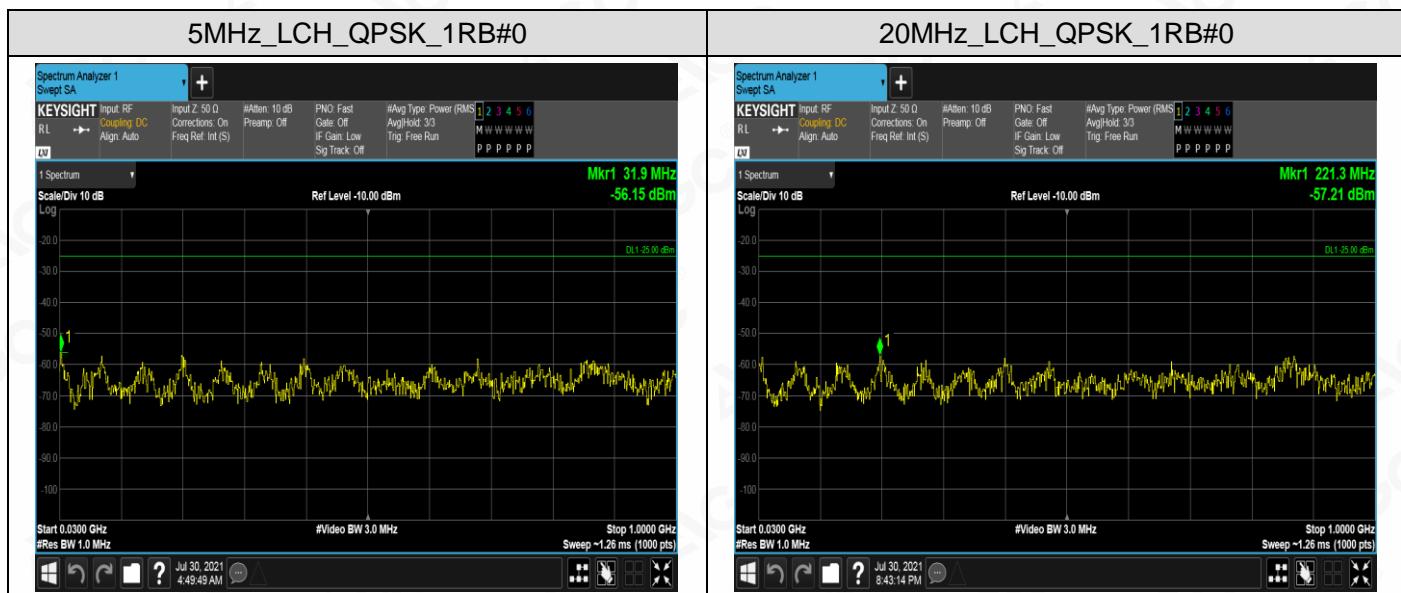
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### LTE BAND 38



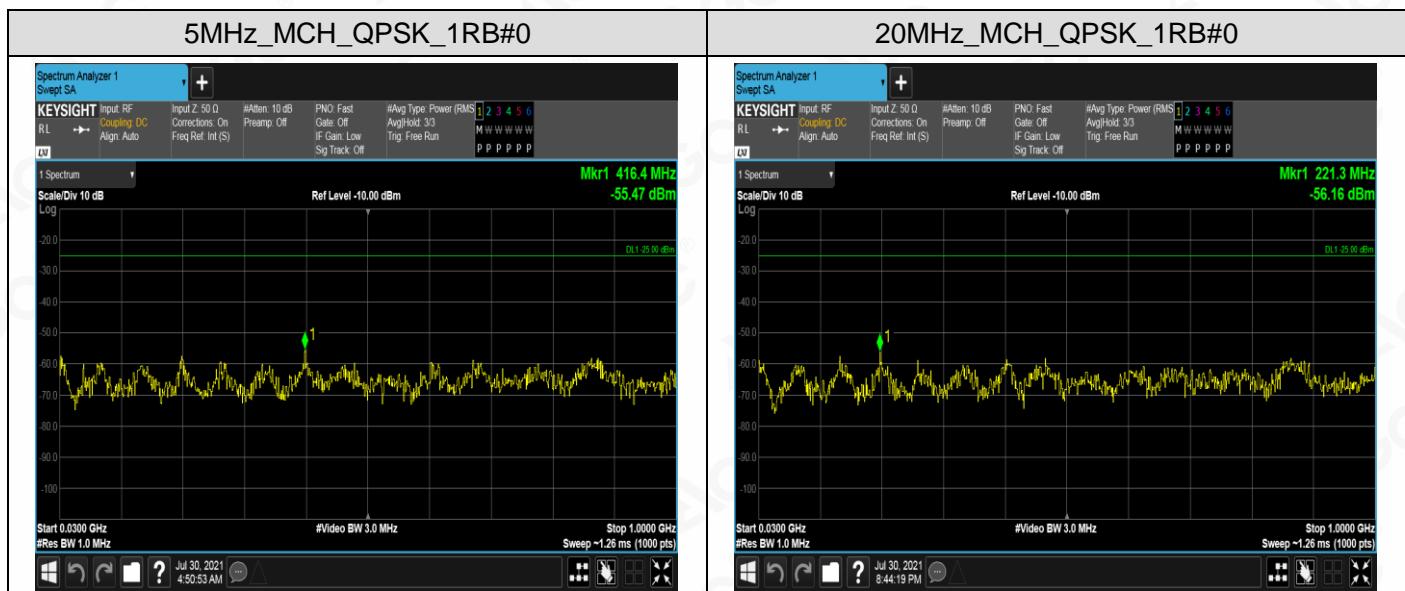
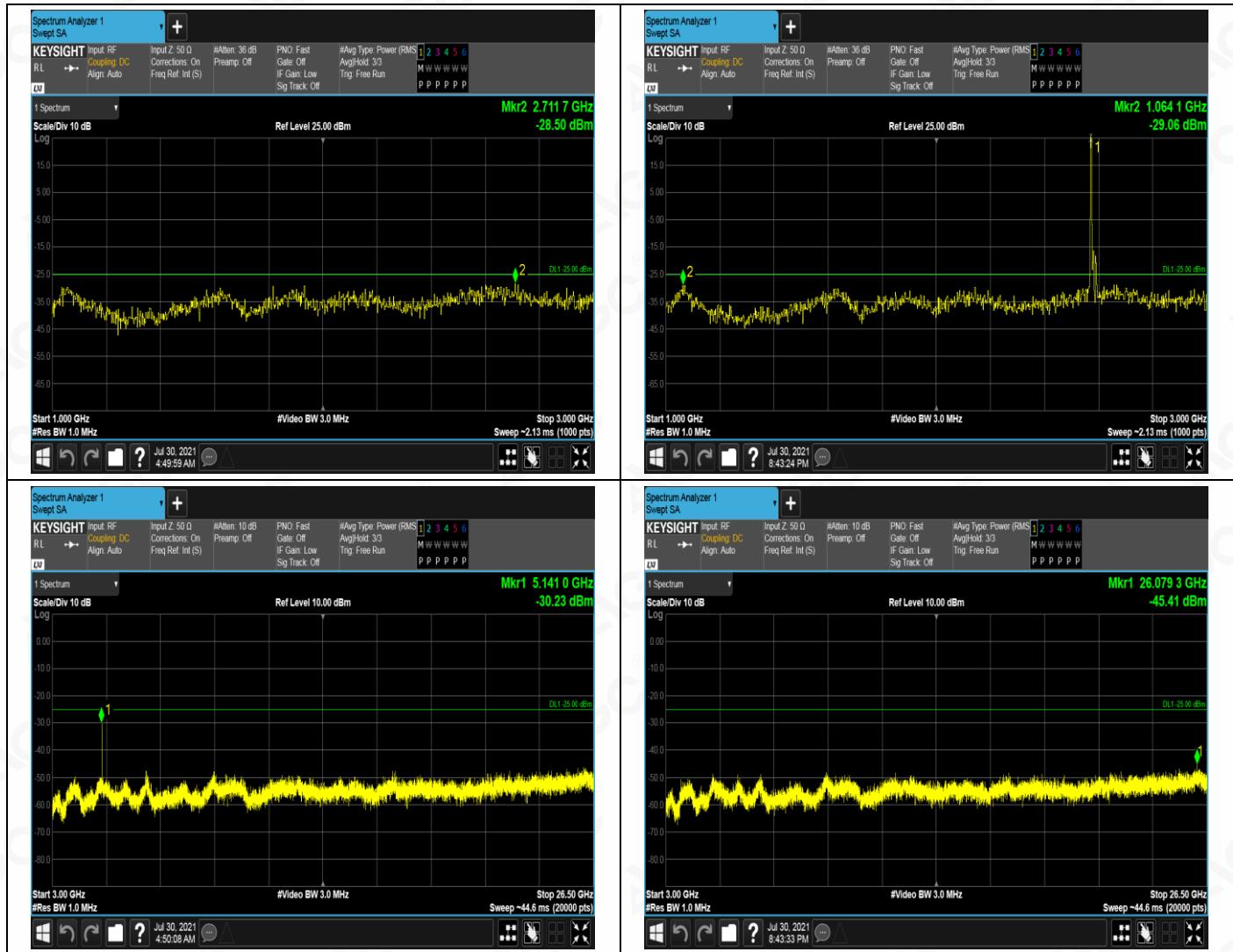
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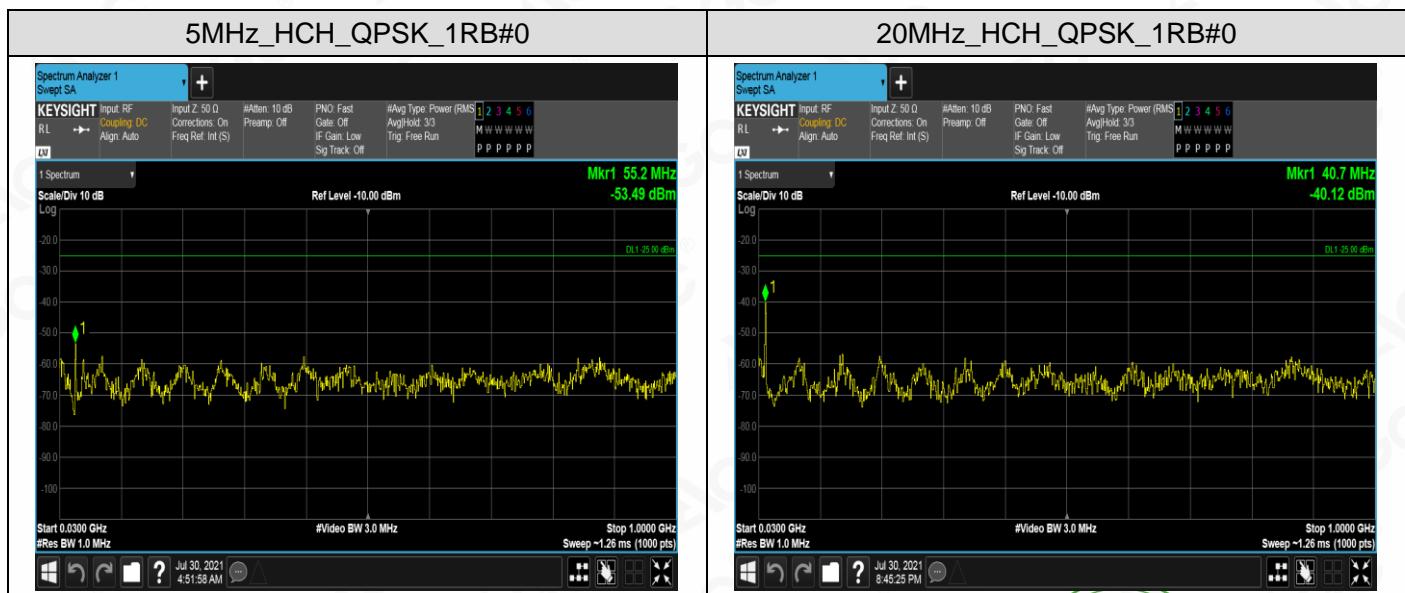
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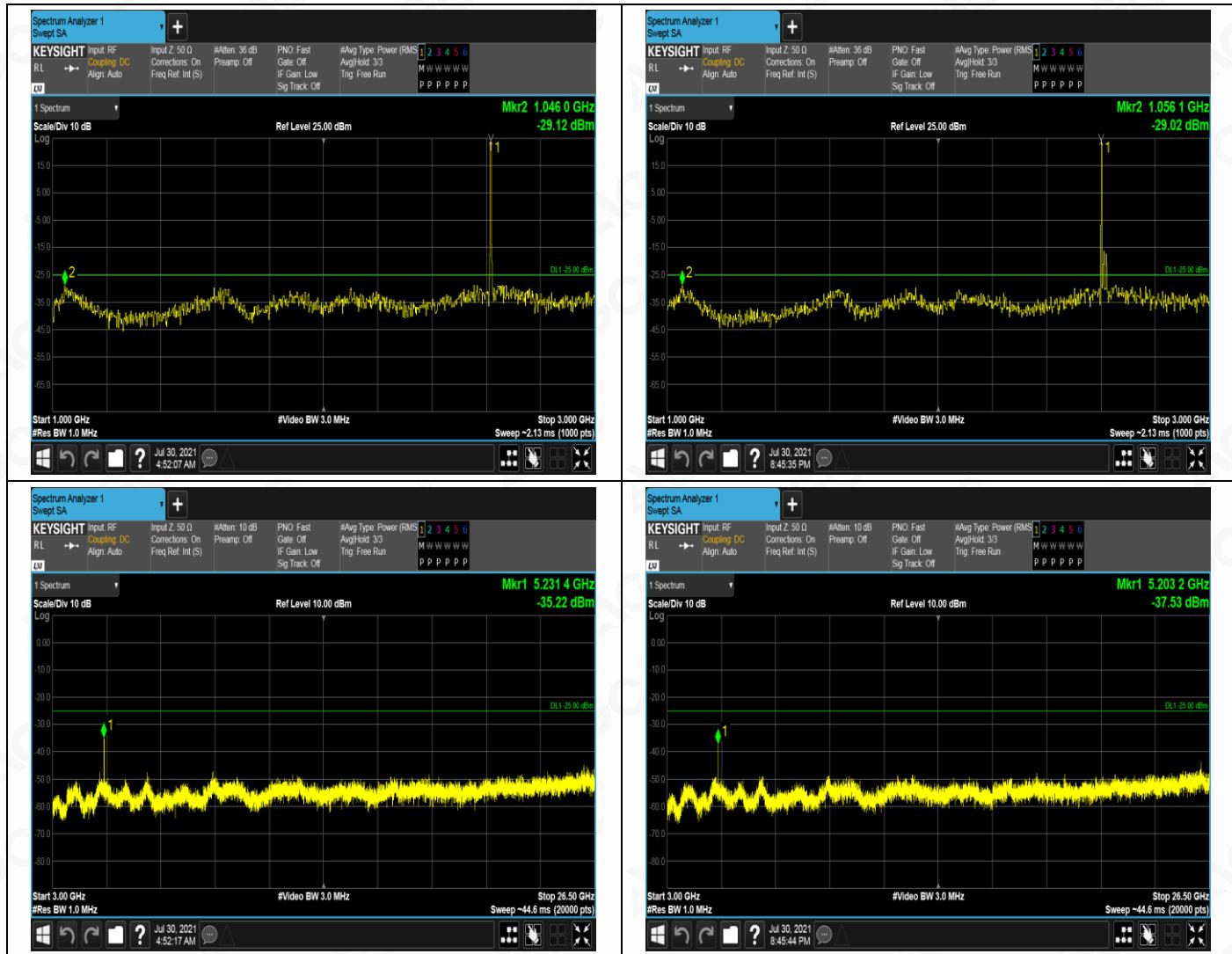
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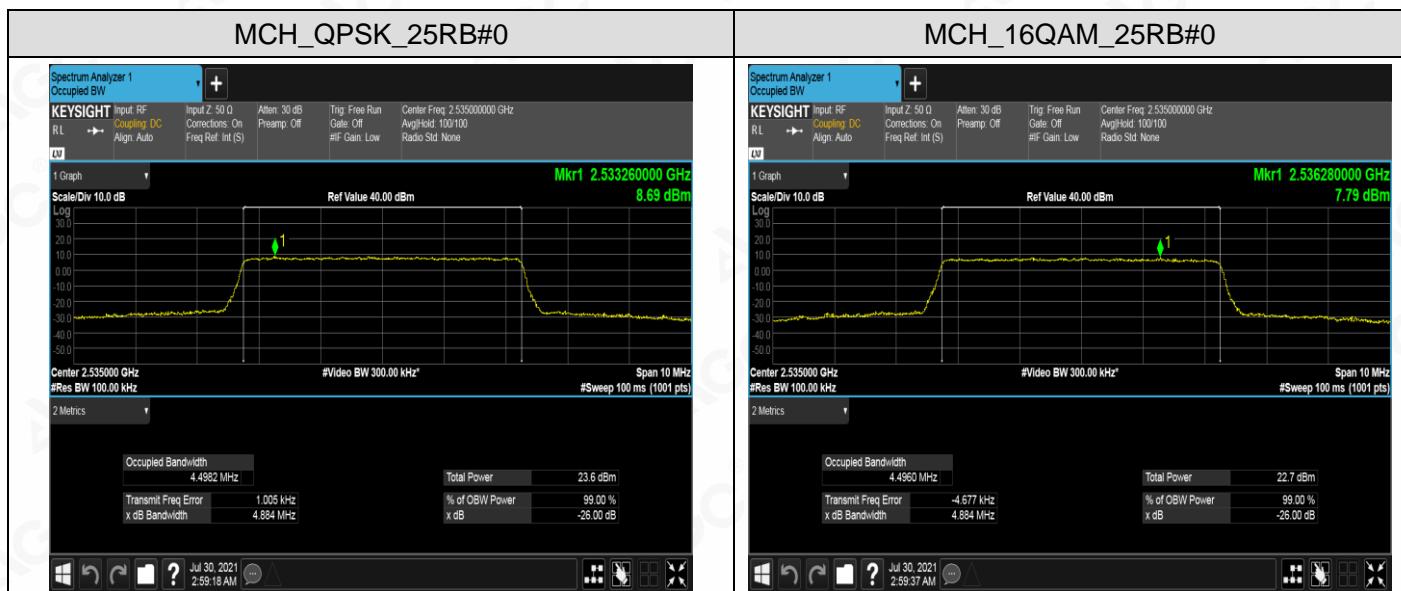
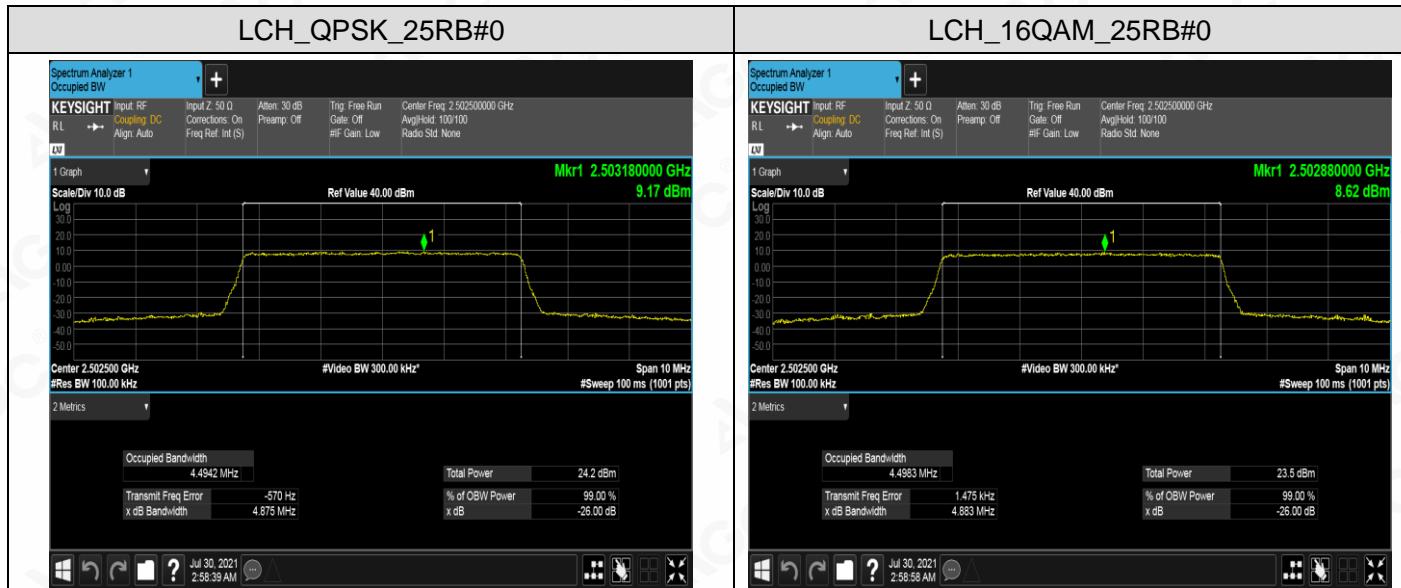
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APPENDIX B TEST PLOTS FOR OCCUPIED BANDWIDTH&EMISSION BANDWIDTH  
 LTE Band 7

## Channel Bandwidth: 5MHz



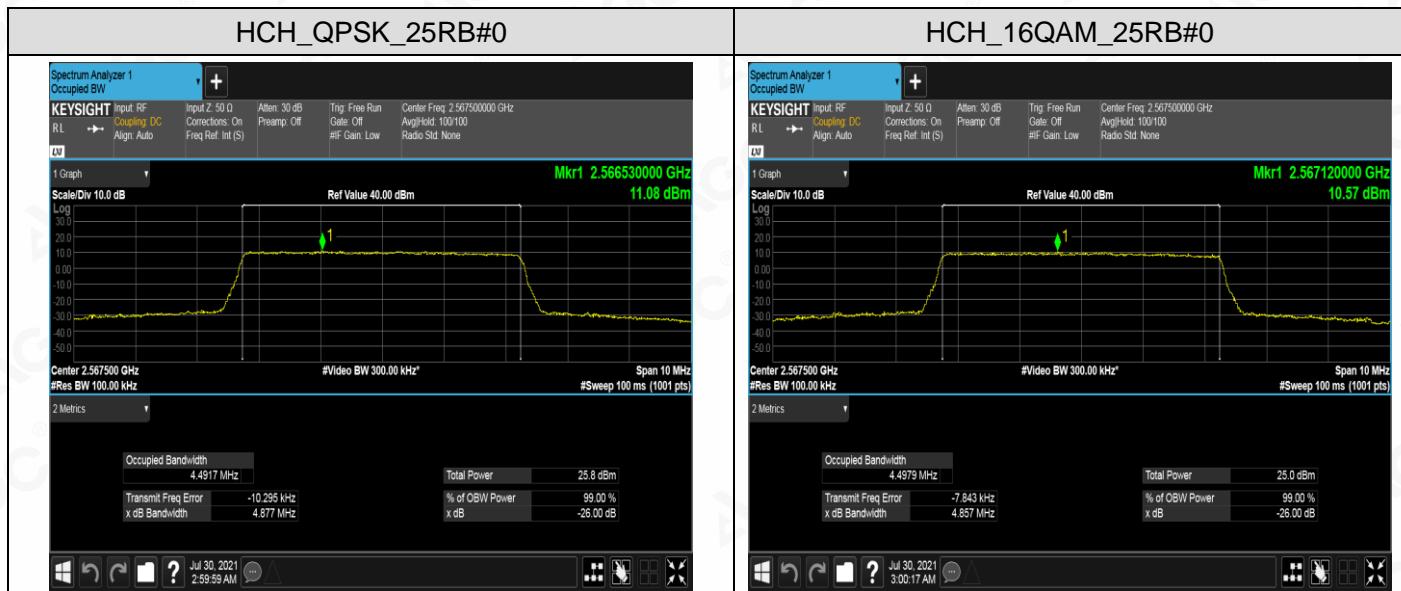
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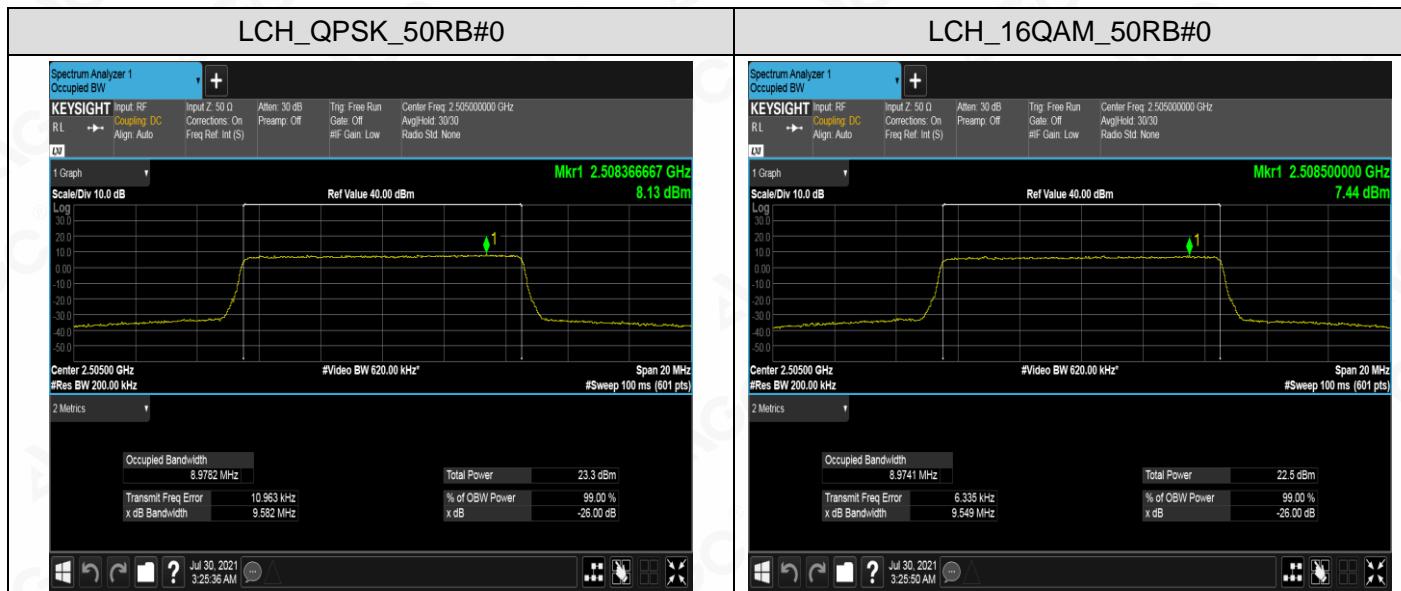
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### Channel Bandwidth: 10 MHz



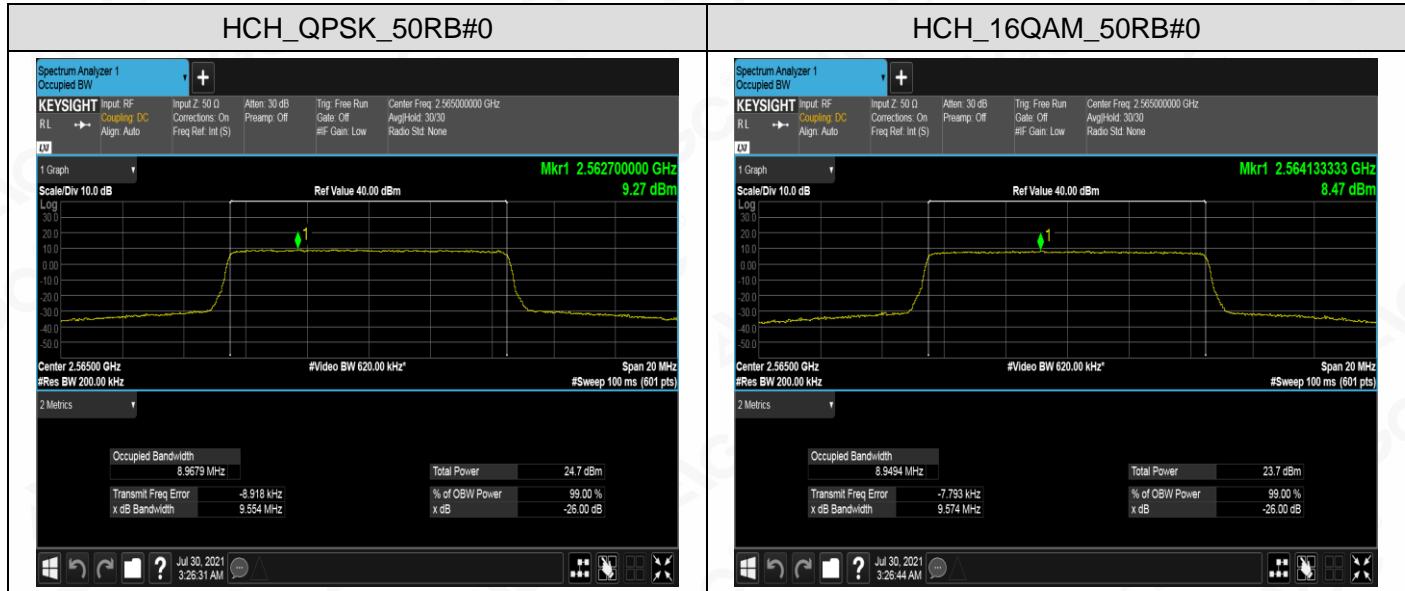
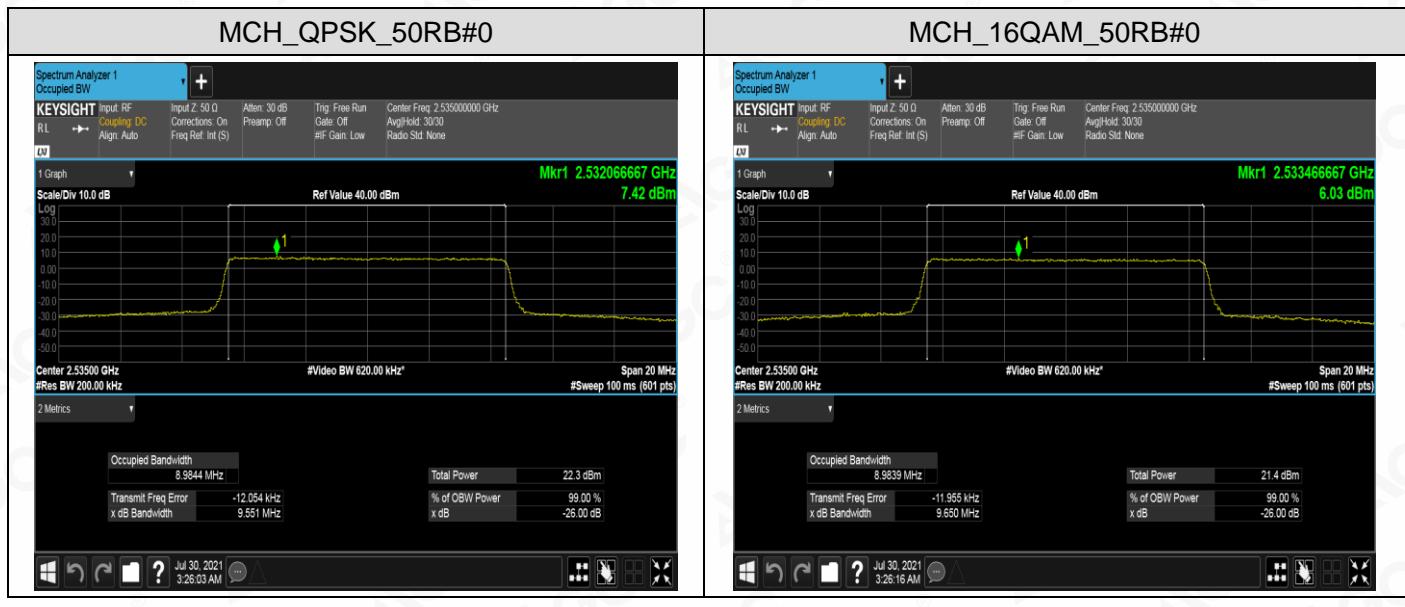
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