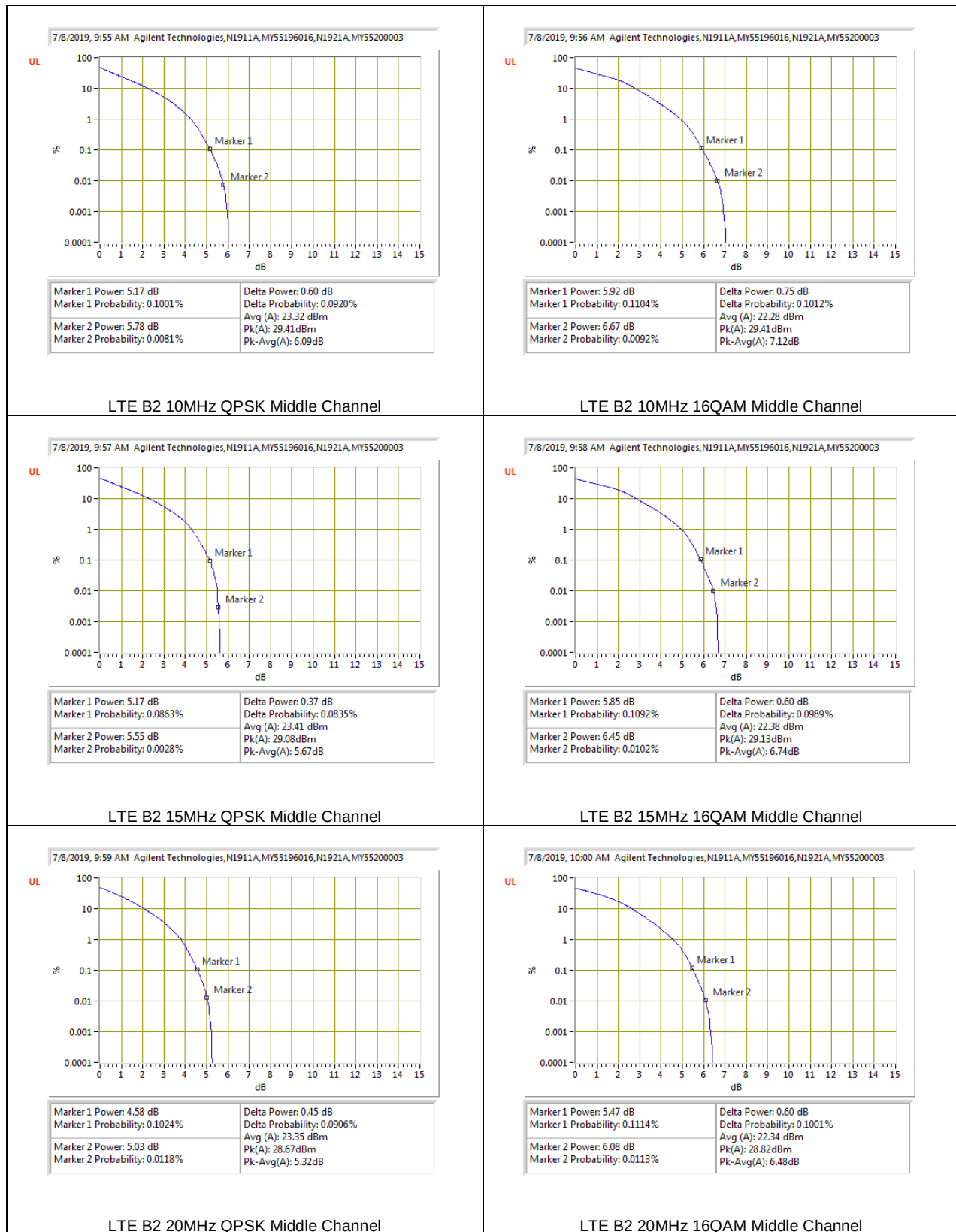


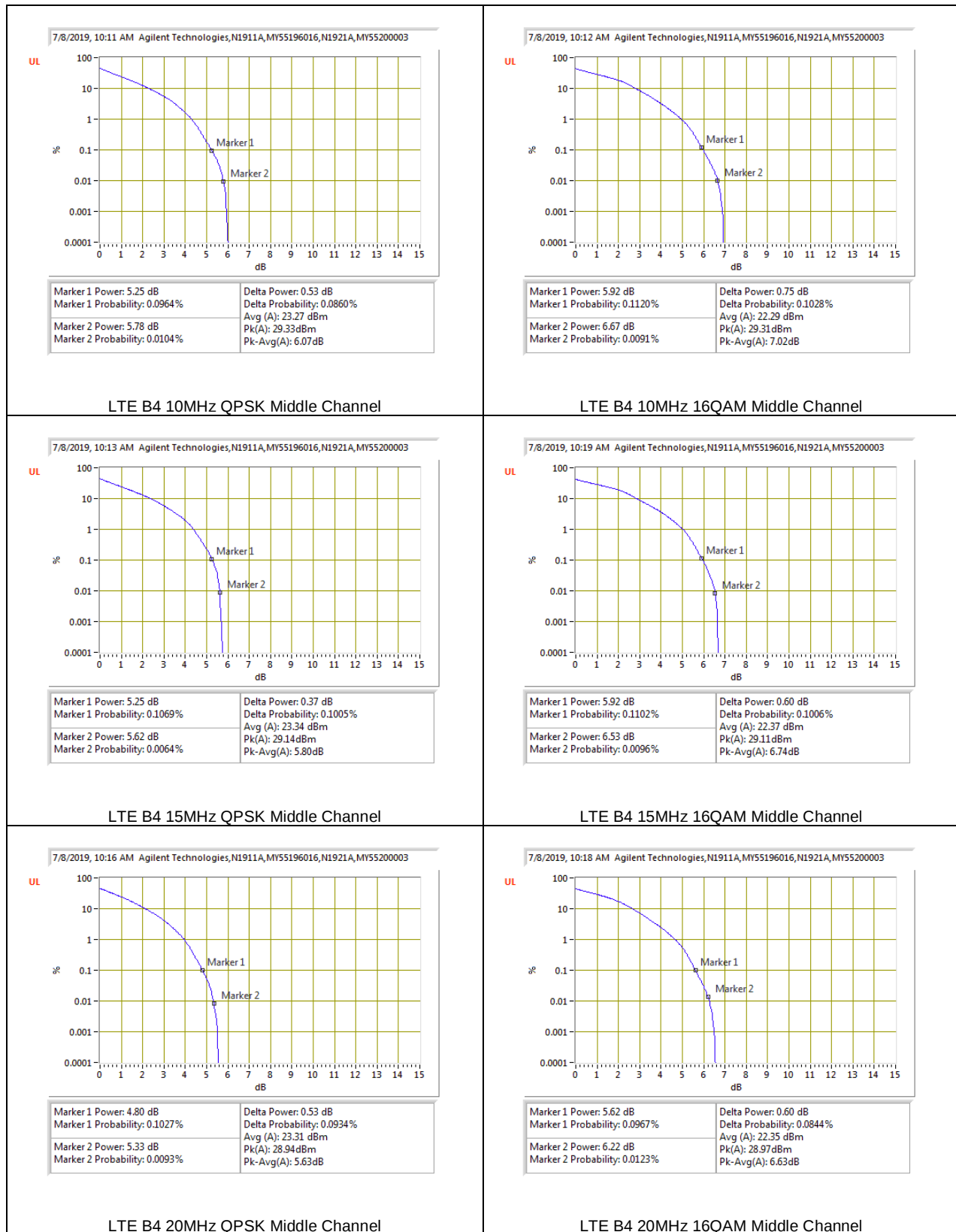
## 8.5.1. LTE BAND 2





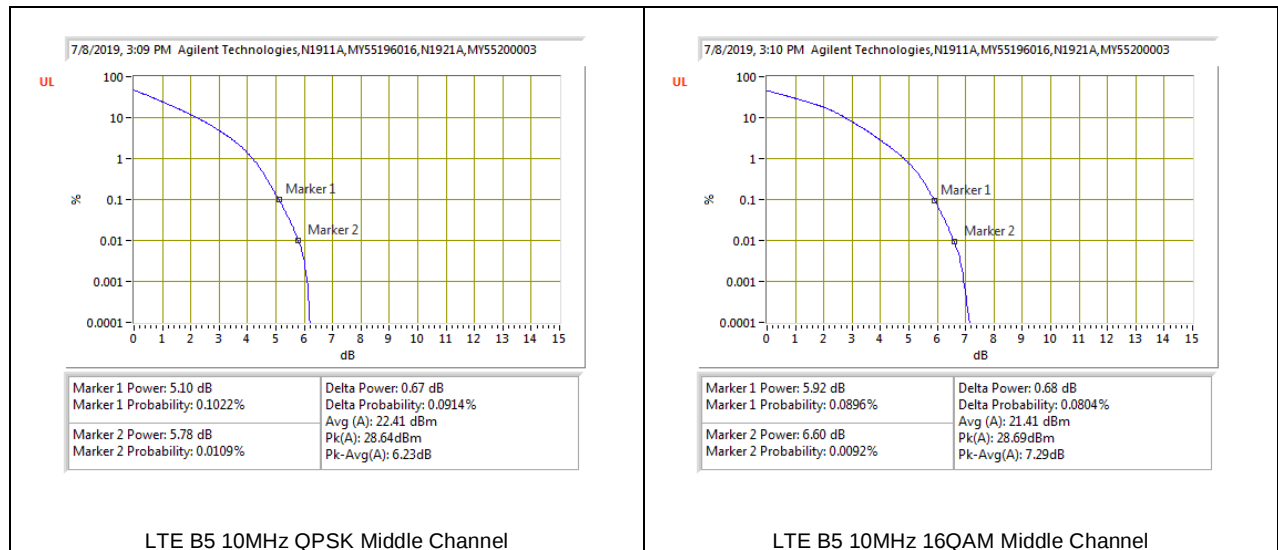
## 8.5.2. LTE BAND 4





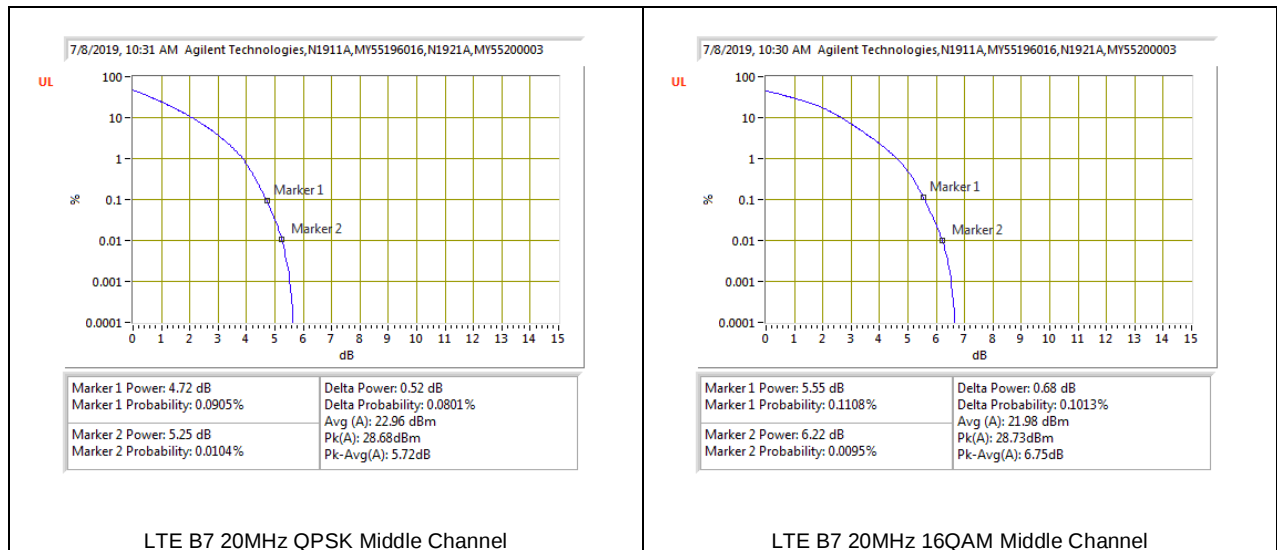
### 8.5.3. LTE BAND 5





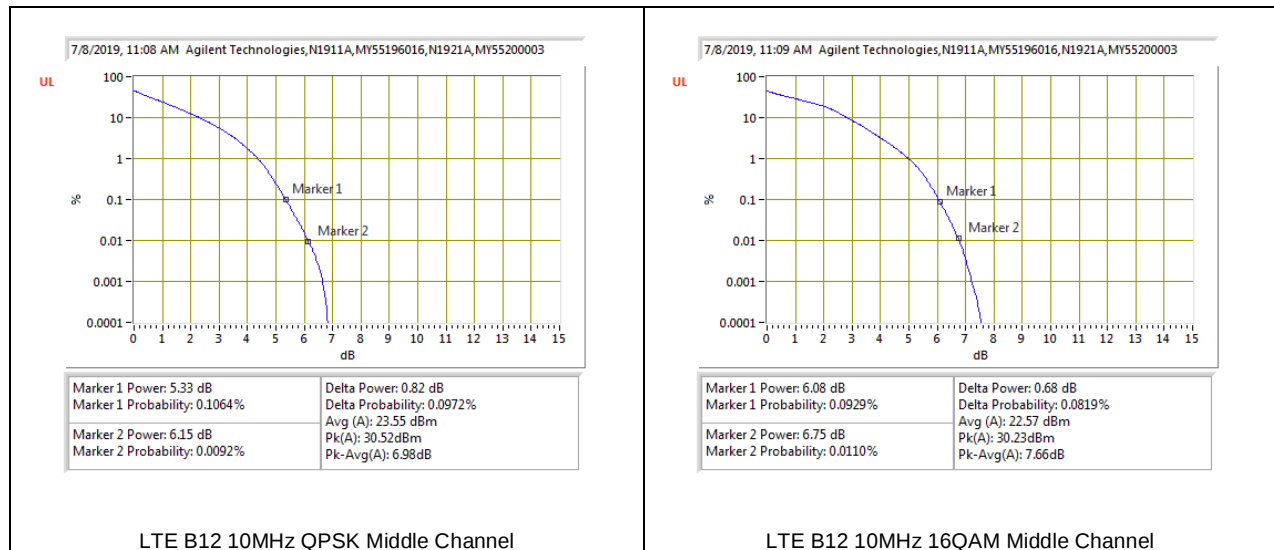
## 8.5.4. LTE BAND 7



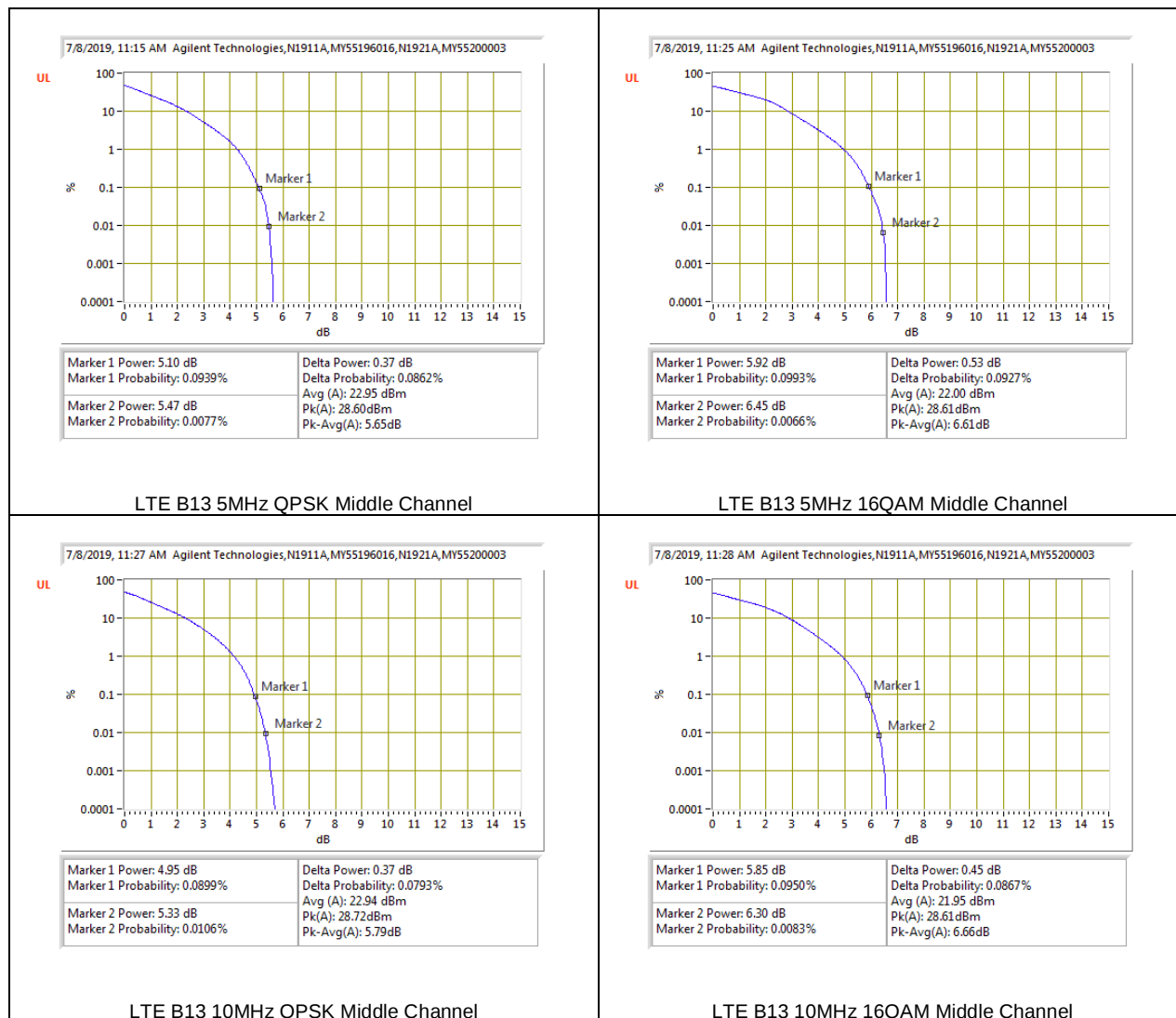


## 8.5.5. LTE BAND 12

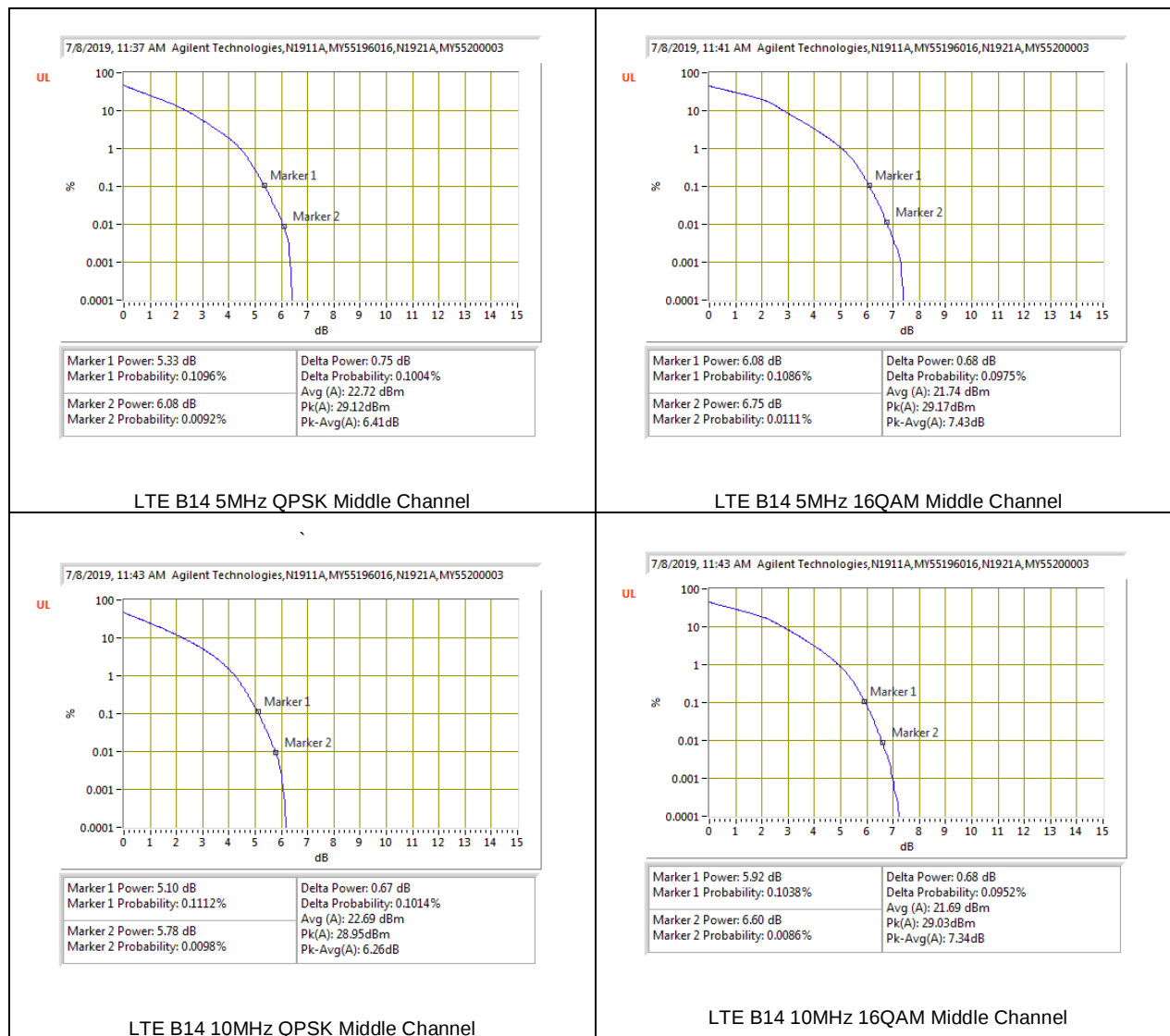




## 8.5.6. LTE BAND 13

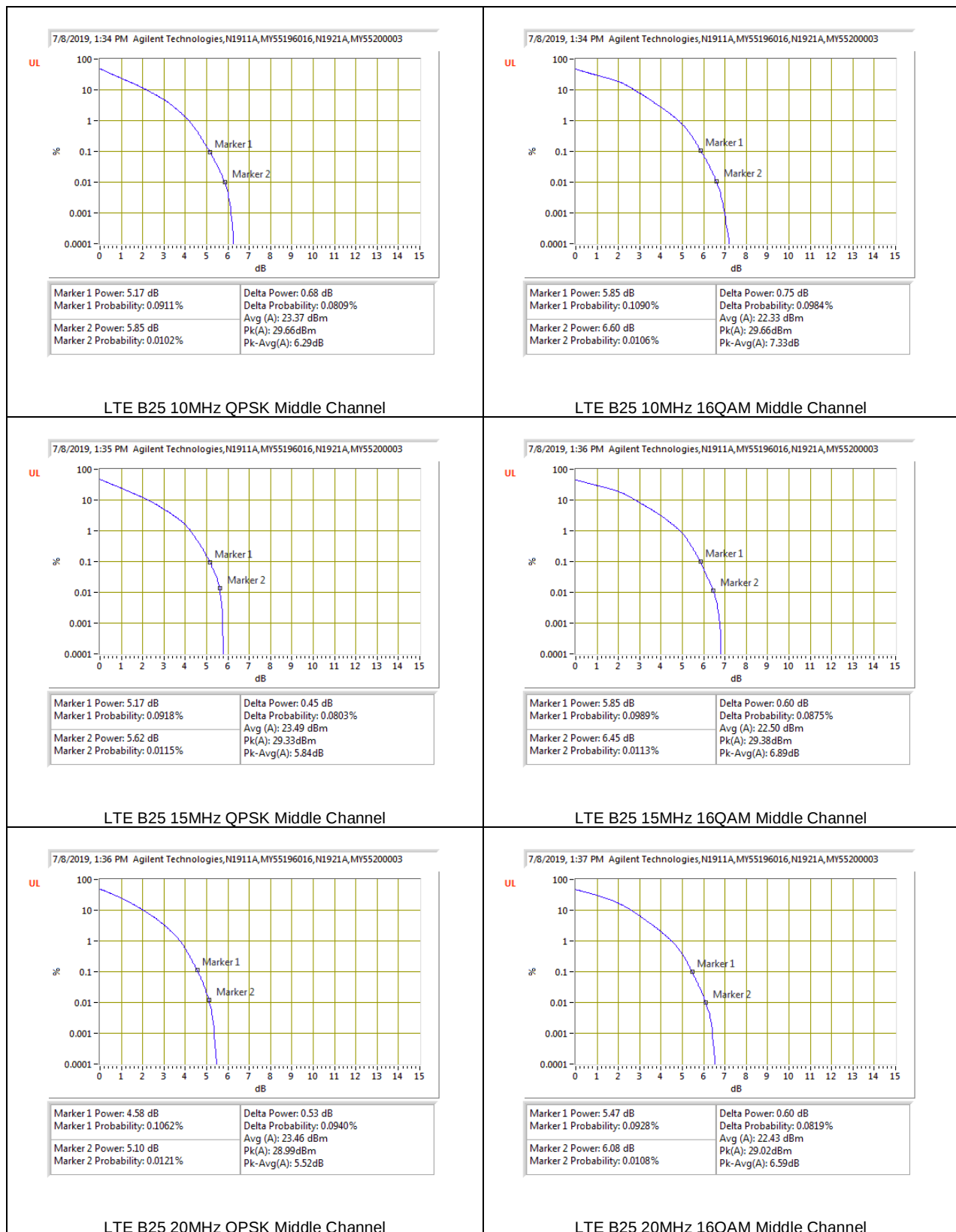


## 8.5.7. LTE BAND 14



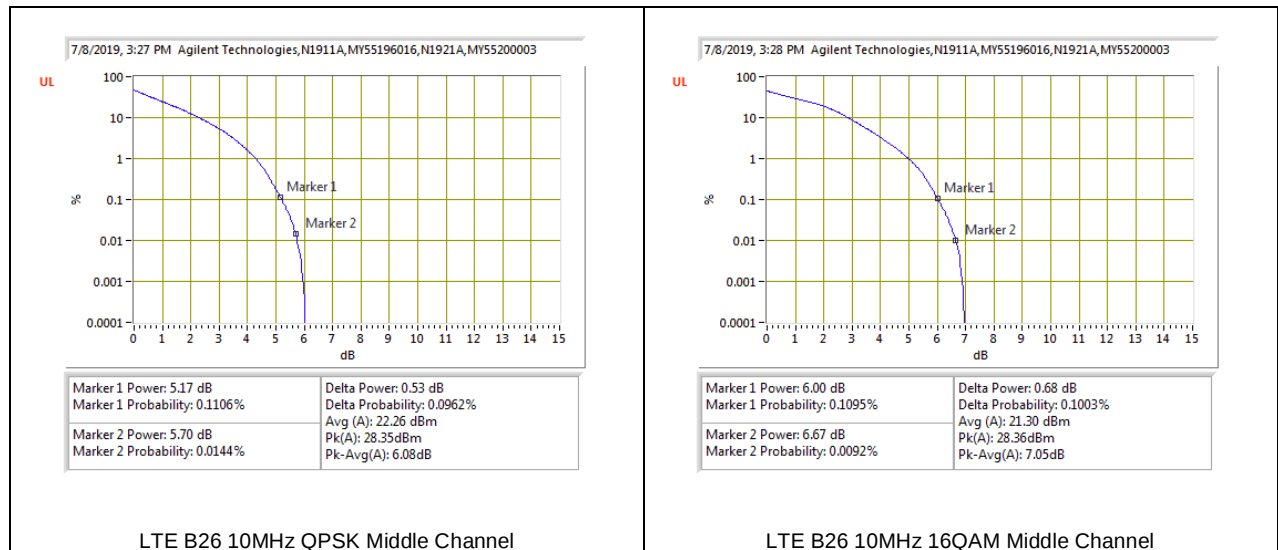
## 8.5.8. LTE BAND 25





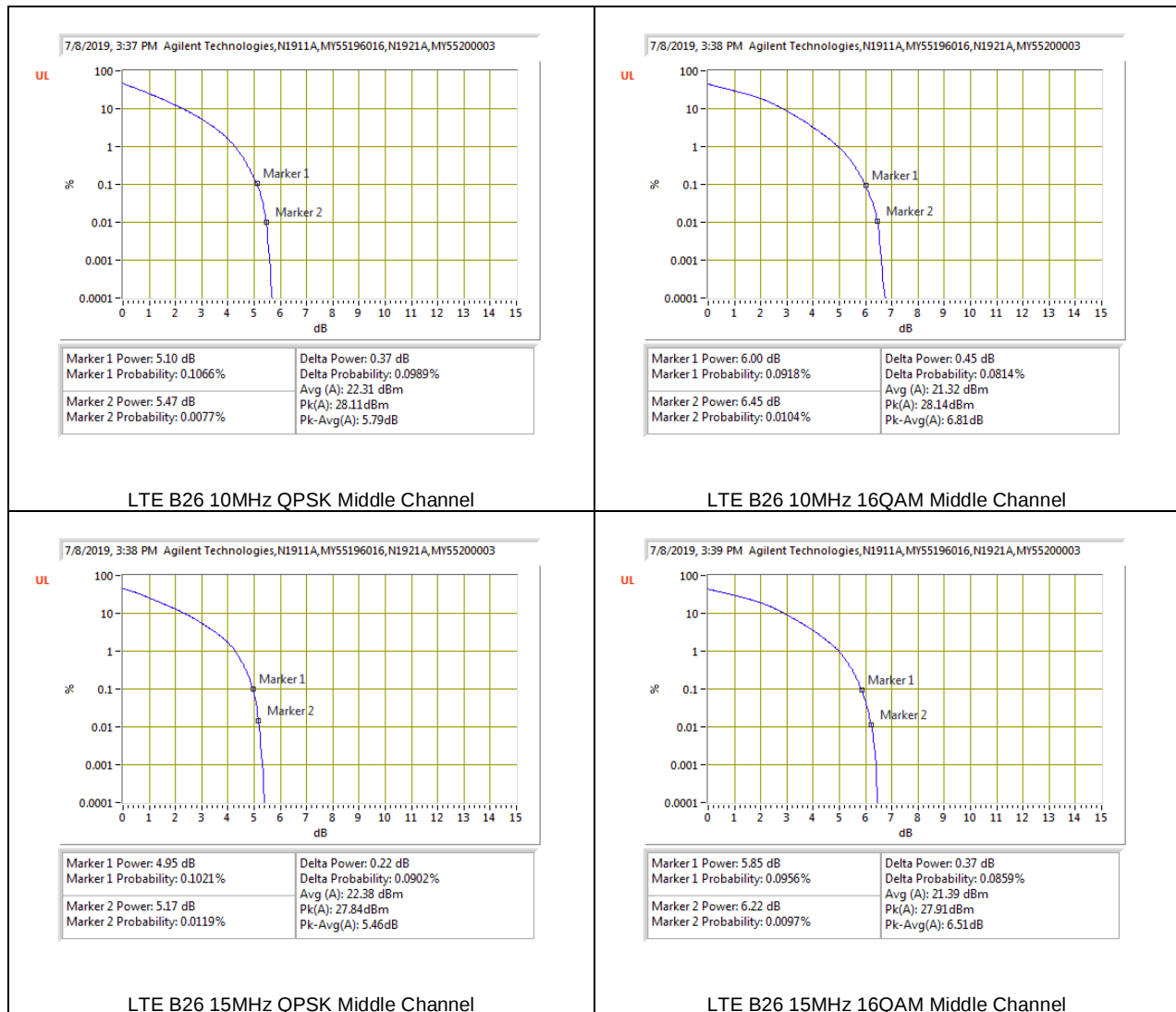
### 8.5.9. LTE BAND 26 (FCC PART 90S)



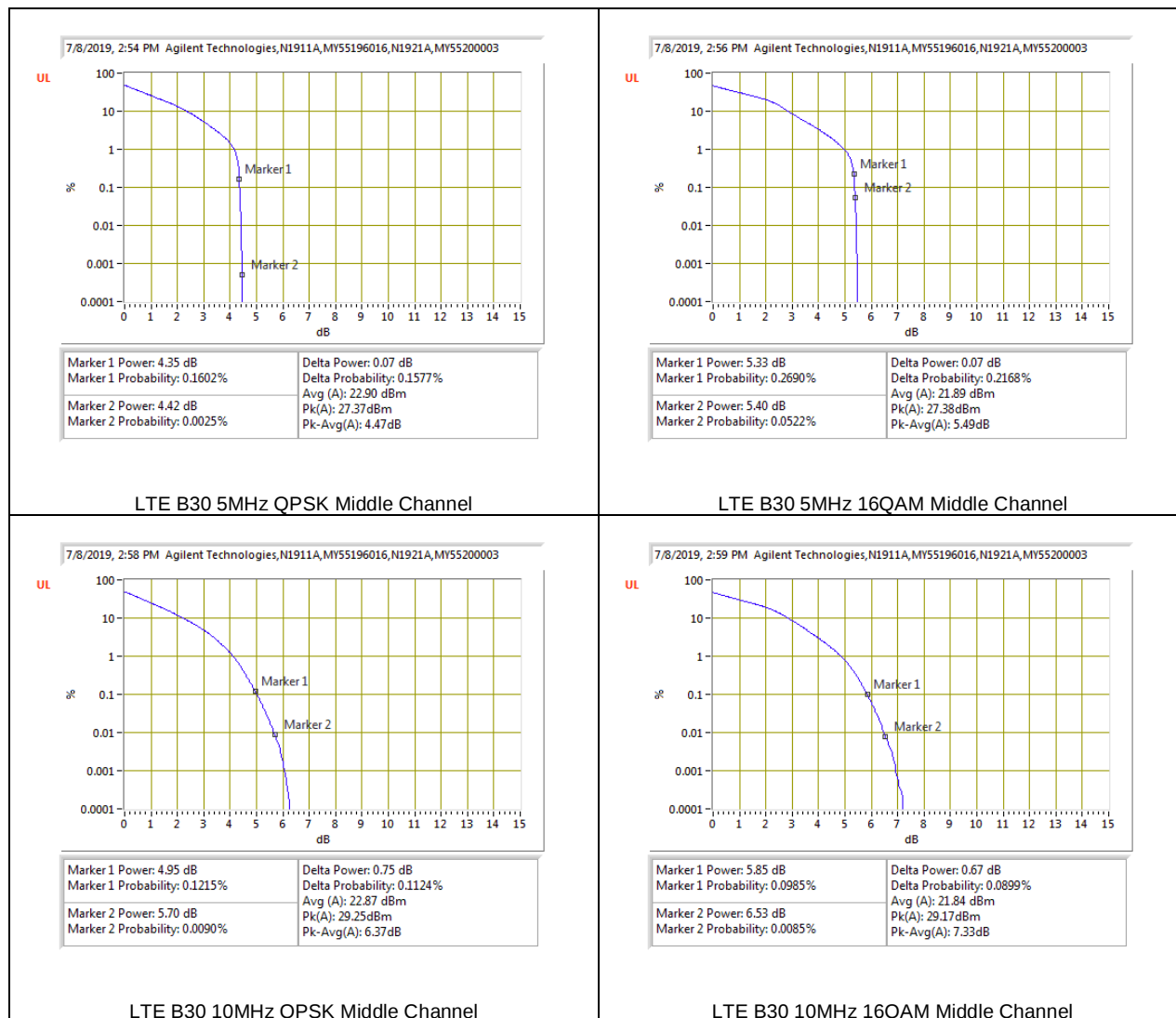


## 8.5.10. LTE BAND 26 (FCC PART 22)





## 8.5.11. LTE BAND 30



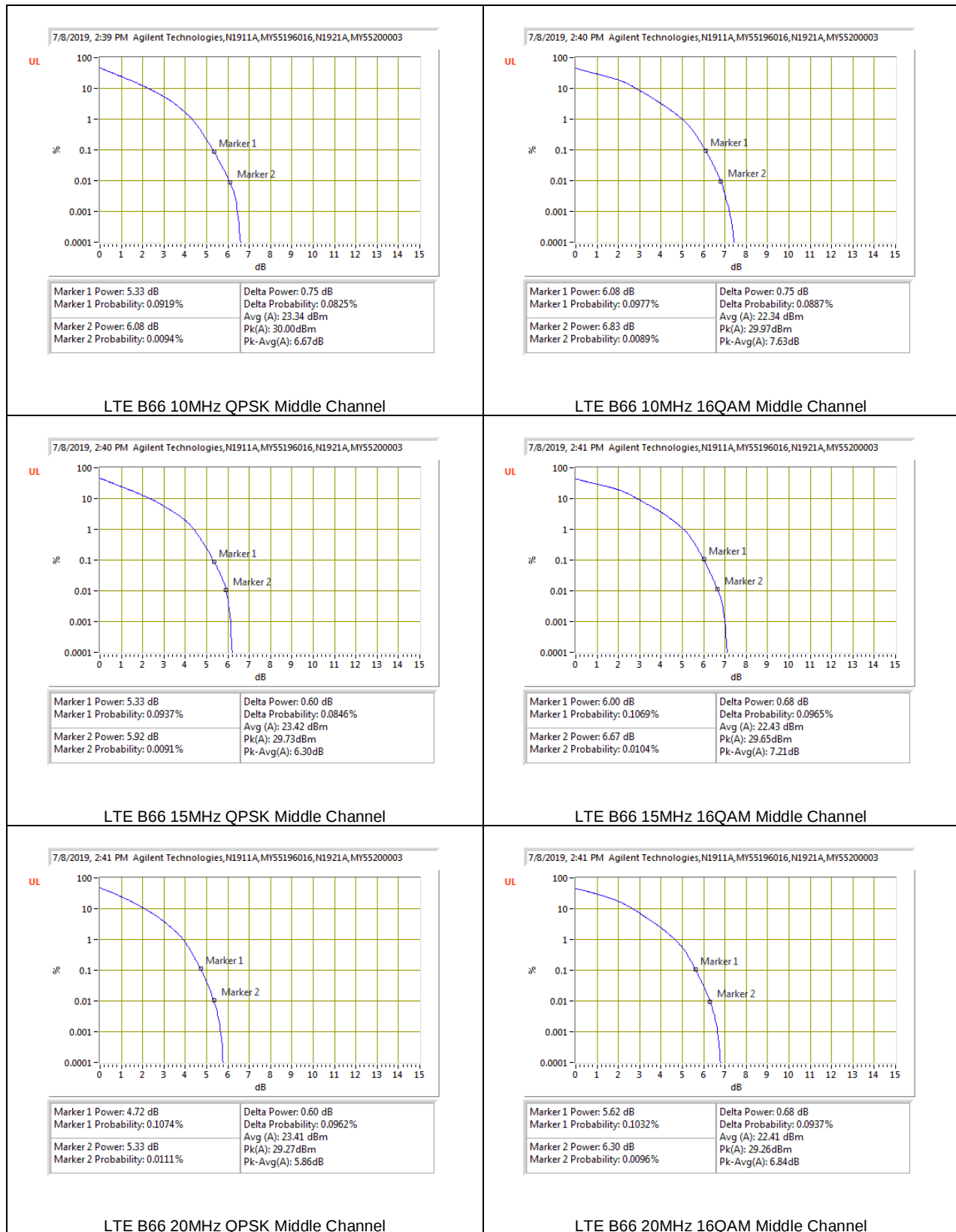
## 8.5.12. LTE BAND 41 (FCC)

|            |          |              |        |
|------------|----------|--------------|--------|
| <b>ID:</b> | 19498 ER | <b>Date:</b> | 7/8/19 |
|------------|----------|--------------|--------|

| Band                                                                                       | Bandwidth (MHz) | Frequency (MHz) | RB Allocation | RB OffSet | Modulation | Conducted Power (dBm) |         | Peak-to-Average Power Ratio (dB) |
|--------------------------------------------------------------------------------------------|-----------------|-----------------|---------------|-----------|------------|-----------------------|---------|----------------------------------|
|                                                                                            |                 |                 |               |           |            | Peak                  | Average |                                  |
| Band 41                                                                                    | 5MHz            | 2593.0          | 25            | 0         | QPSK       | 28.36                 | 21.40   | 4.71                             |
|                                                                                            |                 |                 |               |           | 16QAM      | 28.39                 | 20.4    | 5.74                             |
|                                                                                            | 10MHz           |                 | 50            | 0         | QPSK       | 28.34                 | 21.4    | 4.69                             |
|                                                                                            |                 |                 |               |           | 16QAM      | 28.36                 | 20.36   | 5.75                             |
|                                                                                            | 15MHz           |                 | 75            | 0         | QPSK       | 28.25                 | 21.51   | 4.49                             |
|                                                                                            |                 |                 |               |           | 16QAM      | 28.26                 | 20.46   | 5.55                             |
|                                                                                            | 20MHz           |                 | 100           | 0         | QPSK       | 28.02                 | 21.38   | 4.39                             |
|                                                                                            |                 |                 |               |           | 16QAM      | 28.14                 | 20.4    | 5.49                             |
| Duty Cycle Correction Factor (dB) =                                                        |                 |                 | 2.25          |           |            |                       |         |                                  |
| Peak-to-Average Power Ratio= Peak Reading - Average Reading - Duty Cycle Correction Factor |                 |                 |               |           |            |                       |         |                                  |

### 8.5.13. LTE BAND 66





## 9. RADIATED TEST RESULTS

### 9.1. FIELD STRENGTH OF SPURIOUS RADIATION

#### RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53, §90.691, §90.543

#### LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (g), (h), §90.691

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.

FCC: §27.53 (Band 13)

(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, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

FCC: §90.543 Emission Limitations. (Band 14)

(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC: §27.53 (a) (Band 30)

For mobile and portable stations operating in the 2305-2315 MHz: by a factor of not less than  $43 + 10 \log (P)$  dB on all frequencies between 2360 and 2365 MHz, and not less than  $70 + 10 \log (P)$  dB above 2365 MHz.

FCC: §27.53 (m) (Band 7, 41)

At least  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section.

## **TEST PROCEDURE**

KDB 971168 D01 v03r01/D02 v02/r01

All tests above 1GHz were done with a Resolution Bandwidth of 1MHz, and a Video Bandwidth of 3MHz.

## **MODES TESTED**

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 66

## **RESULTS**

## 9.1.1. LTE BAND 2

### QPSK LTE BAND 2 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 2 QPSK 20MHz        |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1860MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.85053         | -54.98              | Pk  | 26.5                 | -35.8        | 14           | -50.28                  | -13   | -37.28         | 0-360          | 148         | H        |
| 2       | 3.70831         | -66.64              | Pk  | 30.5                 | -33.4        | 12.1         | -57.44                  | -13   | -44.44         | 0-360          | 148         | H        |
| 3       | 5.54059         | -69.65              | Pk  | 34.1                 | -30.3        | 12.3         | -53.55                  | -13   | -40.55         | 0-360          | 148         | H        |
| 4       | 7.39944         | -71.07              | Pk  | 37.8                 | -27.9        | 12.3         | -48.87                  | -13   | -35.87         | 0-360          | 148         | H        |
| 5       | 1.85053         | -53.05              | Pk  | 26.5                 | -35.8        | 11.7         | -50.65                  | -13   | -37.65         | 0-360          | 148         | V        |
| 6       | 3.69981         | -67.07              | Pk  | 30.5                 | -33.5        | 11.8         | -58.27                  | -13   | -45.27         | 0-360          | 148         | V        |
| 7       | 5.54431         | -69.18              | Pk  | 34.1                 | -30.4        | 12           | -53.48                  | -13   | -40.48         | 0-360          | 148         | V        |
| 8       | 7.39359         | -71.74              | Pk  | 37.8                 | -27.9        | 12.2         | -49.64                  | -13   | -36.64         | 0-360          | 148         | V        |
| 1880MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.87072         | -56.19              | Pk  | 26.6                 | -35.8        | 12.4         | -52.99                  | -13   | -39.99         | 0-360          | 148         | H        |
| 2       | 3.7455          | -66.2               | Pk  | 30.7                 | -33.4        | 11.8         | -57.1                   | -13   | -44.1          | 0-360          | 148         | H        |
| 3       | 5.60063         | -70.35              | Pk  | 34                   | -30.5        | 11.8         | -55.05                  | -13   | -42.05         | 0-360          | 148         | H        |
| 4       | 7.50409         | -72.19              | Pk  | 37.5                 | -27.9        | 12.1         | -50.49                  | -13   | -37.49         | 0-360          | 148         | H        |
| 5       | 1.87072         | -55.83              | Pk  | 26.6                 | -35.8        | 12.7         | -52.33                  | -13   | -39.33         | 0-360          | 148         | V        |
| 6       | 3.74019         | -67.96              | Pk  | 30.6                 | -33.4        | 11.8         | -58.96                  | -13   | -45.96         | 0-360          | 148         | V        |
| 7       | 5.61922         | -68.78              | Pk  | 34                   | -30.6        | 12           | -53.38                  | -13   | -40.38         | 0-360          | 148         | V        |
| 8       | 7.47381         | -72.49              | Pk  | 37.5                 | -27.8        | 11.7         | -51.09                  | -13   | -38.09         | 0-360          | 148         | V        |
| 1900MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.89038         | -57.02              | Pk  | 26.6                 | -35.8        | 13.2         | -53.02                  | -13   | -40.02         | 0-360          | 148         | H        |
| 2       | 3.788           | -67.51              | Pk  | 30.9                 | -33.1        | 11.4         | -58.31                  | -13   | -45.31         | 0-360          | 148         | H        |
| 3       | 5.67341         | -68.78              | Pk  | 34                   | -30.4        | 12           | -53.18                  | -13   | -40.18         | 0-360          | 148         | H        |
| 4       | 7.56094         | -71.85              | Pk  | 37.4                 | -27.9        | 12.2         | -50.15                  | -13   | -37.15         | 0-360          | 148         | H        |
| 5       | 1.89091         | -60.03              | Pk  | 26.6                 | -35.7        | 12.5         | -56.63                  | -13   | -43.63         | 0-360          | 148         | V        |
| 6       | 3.77684         | -68.24              | Pk  | 30.8                 | -33.2        | 11.5         | -59.14                  | -13   | -46.14         | 0-360          | 148         | V        |
| 7       | 5.67659         | -69.69              | Pk  | 34                   | -30.4        | 12.1         | -53.99                  | -13   | -40.99         | 0-360          | 148         | V        |
| 8       | 7.56944         | -71.68              | Pk  | 37.4                 | -27.8        | 11.9         | -50.18                  | -13   | -37.18         | 0-360          | 148         | V        |

**16QAM LTE BAND 2 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 2 16QAM 20MHz       |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1860MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.85106         | -55.5               | Pk  | 26.5                 | -35.8        | 14.1         | -50.7                   | -13   | -37.7          | 0-360          | 148         | H        |
| 2       | 3.70619         | -67.02              | Pk  | 30.5                 | -33.4        | 12.1         | -57.82                  | -13   | -44.82         | 0-360          | 148         | H        |
| 3       | 5.53847         | -69.62              | Pk  | 34.1                 | -30.3        | 12.4         | -53.42                  | -13   | -40.42         | 0-360          | 148         | H        |
| 4       | 7.39094         | -71.56              | Pk  | 37.8                 | -27.9        | 12.3         | -49.36                  | -13   | -36.36         | 0-360          | 148         | H        |
| 5       | 1.85053         | -52.31              | Pk  | 26.5                 | -35.8        | 11.7         | -49.91                  | -13   | -36.91         | 0-360          | 148         | V        |
| 6       | 3.70566         | -67.41              | Pk  | 30.5                 | -33.5        | 11.8         | -58.61                  | -13   | -45.61         | 0-360          | 148         | V        |
| 7       | 5.55919         | -69.1               | Pk  | 34.1                 | -30.5        | 11.9         | -53.6                   | -13   | -40.6          | 0-360          | 148         | V        |
| 8       | 7.41113         | -71.81              | Pk  | 37.7                 | -27.8        | 12           | -49.91                  | -13   | -36.91         | 0-360          | 148         | V        |
| 1880MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.87072         | -55.63              | Pk  | 26.6                 | -35.8        | 12.4         | -52.43                  | -13   | -39.43         | 0-360          | 148         | H        |
| 2       | 3.75028         | -67.68              | Pk  | 30.7                 | -33.3        | 11.9         | -58.38                  | -13   | -45.38         | 0-360          | 148         | H        |
| 3       | 5.60116         | -70.18              | Pk  | 34                   | -30.5        | 11.8         | -54.88                  | -13   | -41.88         | 0-360          | 148         | H        |
| 4       | 7.48284         | -71.3               | Pk  | 37.5                 | -27.8        | 11.9         | -49.7                   | -13   | -36.7          | 0-360          | 148         | H        |
| 5       | 1.87072         | -56.69              | Pk  | 26.6                 | -35.8        | 12.7         | -53.19                  | -13   | -40.19         | 0-360          | 148         | V        |
| 6       | 3.74019         | -67.51              | Pk  | 30.6                 | -33.4        | 11.8         | -58.51                  | -13   | -45.51         | 0-360          | 148         | V        |
| 7       | 5.62028         | -69.38              | Pk  | 34                   | -30.6        | 12           | -53.98                  | -13   | -40.98         | 0-360          | 148         | V        |
| 8       | 7.47913         | -72.47              | Pk  | 37.5                 | -27.8        | 11.7         | -51.07                  | -13   | -38.07         | 0-360          | 148         | V        |
| 1900MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.89091         | -56.37              | Pk  | 26.6                 | -35.7        | 13.2         | -52.27                  | -13   | -39.27         | 0-360          | 148         | H        |
| 2       | 3.78056         | -67.67              | Pk  | 30.8                 | -33.2        | 11.4         | -58.67                  | -13   | -45.67         | 0-360          | 148         | H        |
| 3       | 5.68191         | -68.49              | Pk  | 34                   | -30.4        | 12.2         | -52.69                  | -13   | -39.69         | 0-360          | 148         | H        |
| 4       | 7.57156         | -70.59              | Pk  | 37.4                 | -27.8        | 12.2         | -48.79                  | -13   | -35.79         | 0-360          | 148         | H        |
| 5       | 1.89091         | -60.53              | Pk  | 26.6                 | -35.7        | 12.5         | -57.13                  | -13   | -44.13         | 0-360          | 148         | V        |
| 6       | 3.77684         | -66.89              | Pk  | 30.8                 | -33.2        | 11.5         | -57.79                  | -13   | -44.79         | 0-360          | 148         | V        |
| 7       | 5.66491         | -69.88              | Pk  | 34                   | -30.4        | 12           | -54.28                  | -13   | -41.28         | 0-360          | 148         | V        |
| 8       | 7.56891         | -71.55              | Pk  | 37.4                 | -27.8        | 11.9         | -50.05                  | -13   | -37.05         | 0-360          | 148         | V        |

## 9.1.2. LTE BAND 4

### QPSK LTE BAND 4 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 4 QPSK 20MHz        |
| Chamber #:     | Chamber J               |

| Marker    | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1720MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.71081         | -59.1               | Pk  | 26                   | -35.8        | 11.6         | -57.3                   | -13   | -44.3          | 0-360          | 148         | H        |
| 2         | 3.42197         | -66.04              | Pk  | 30.7                 | -34.4        | 11.9         | -57.84                  | -13   | -44.84         | 0-360          | 148         | H        |
| 3         | 5.14747         | -68.29              | Pk  | 35.7                 | -31.2        | 11.9         | -51.89                  | -13   | -38.89         | 0-360          | 148         | H        |
| 4         | 6.85756         | -71.38              | Pk  | 37.1                 | -28.1        | 12.4         | -49.98                  | -13   | -36.98         | 0-360          | 148         | H        |
| 5         | 1.71081         | -58.03              | Pk  | 26                   | -35.8        | 12           | -55.83                  | -13   | -42.83         | 0-360          | 148         | V        |
| 6         | 3.41188         | -66.86              | Pk  | 30.8                 | -34.4        | 12           | -58.46                  | -13   | -45.46         | 0-360          | 148         | V        |
| 7         | 5.14056         | -67.54              | Pk  | 35.7                 | -31.3        | 12           | -51.14                  | -13   | -38.14         | 0-360          | 148         | V        |
| 8         | 6.85809         | -70.95              | Pk  | 37.1                 | -28.1        | 12.4         | -49.55                  | -13   | -36.55         | 0-360          | 148         | V        |
| 9         | 8.55544         | -56.96              | Pk  | 38                   | -26.3        | 12.1         | -33.16                  | -13   | -20.16         | 0-360          | 148         | V        |
| 1732.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.72303         | -59.1               | Pk  | 26                   | -35.8        | 11.3         | -57.6                   | -13   | -44.6          | 0-360          | 148         | H        |
| 2         | 3.44694         | -64.3               | Pk  | 30.6                 | -34.3        | 11.9         | -56.1                   | -13   | -43.1          | 0-360          | 148         | H        |
| 3         | 5.17297         | -69.3               | Pk  | 35.6                 | -31          | 12.2         | -52.5                   | -13   | -39.5          | 0-360          | 148         | H        |
| 4         | 6.88572         | -70.28              | Pk  | 37.1                 | -28.2        | 12.2         | -49.18                  | -13   | -36.18         | 0-360          | 148         | H        |
| 5         | 8.61759         | -65.86              | Pk  | 38.1                 | -26.1        | 12.4         | -41.46                  | -13   | -28.46         | 0-360          | 148         | H        |
| 6         | 1.72356         | -59.2               | Pk  | 26                   | -35.8        | 12.4         | -56.6                   | -13   | -43.6          | 0-360          | 148         | V        |
| 7         | 3.44375         | -65.66              | Pk  | 30.6                 | -34.3        | 12           | -57.36                  | -13   | -44.36         | 0-360          | 148         | V        |
| 8         | 5.17031         | -68.87              | Pk  | 35.6                 | -31          | 12.1         | -52.17                  | -13   | -39.17         | 0-360          | 148         | V        |
| 9         | 6.89103         | -71.27              | Pk  | 37.2                 | -28.3        | 12           | -50.37                  | -13   | -37.37         | 0-360          | 148         | V        |
| 10        | 8.61759         | -54.23              | Pk  | 38.1                 | -26.1        | 12.1         | -30.13                  | -13   | -17.13         | 0-360          | 148         | V        |
| 1745MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.73578         | -62.08              | Pk  | 26.1                 | -35.7        | 11.6         | -60.08                  | -13   | -47.08         | 0-360          | 148         | H        |
| 2         | 3.47191         | -63.61              | Pk  | 30.5                 | -34.1        | 12           | -55.21                  | -13   | -42.21         | 0-360          | 148         | H        |
| 3         | 5.21122         | -69.27              | Pk  | 35.5                 | -31          | 12.2         | -52.57                  | -13   | -39.57         | 0-360          | 148         | H        |
| 4         | 6.93778         | -69.98              | Pk  | 37.2                 | -28.2        | 12           | -48.98                  | -13   | -35.98         | 0-360          | 148         | H        |
| 5         | 1.73578         | -59.97              | Pk  | 26.1                 | -35.7        | 12.5         | -57.07                  | -13   | -44.07         | 0-360          | 148         | V        |
| 6         | 3.47669         | -66.31              | Pk  | 30.5                 | -34.1        | 11.9         | -58.01                  | -13   | -45.01         | 0-360          | 148         | V        |
| 7         | 5.20431         | -68.93              | Pk  | 35.5                 | -31.1        | 11.7         | -52.83                  | -13   | -39.83         | 0-360          | 148         | V        |
| 8         | 6.95106         | -72.11              | Pk  | 37.2                 | -28.2        | 11.8         | -51.31                  | -13   | -38.31         | 0-360          | 148         | V        |
| 9         | 8.68028         | -56.08              | Pk  | 38.2                 | -26.1        | 12.1         | -31.88                  | -13   | -18.88         | 0-360          | 148         | V        |

**16QAM LTE BAND 4 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 4 16QAM 20MHz       |
| Chamber #:     | Chamber J               |

| Marker    | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1720MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.71081         | -60.92              | Pk  | 26                   | -35.8        | 11.6         | -59.12                  | -13   | -46.12         | 0-360          | 148         | H        |
| 2         | 3.42197         | -66.16              | Pk  | 30.7                 | -34.4        | 11.9         | -57.96                  | -13   | -44.96         | 0-360          | 148         | H        |
| 3         | 5.131           | -68.98              | Pk  | 35.7                 | -31.2        | 11.9         | -52.58                  | -13   | -39.58         | 0-360          | 148         | H        |
| 4         | 6.82197         | -70.55              | Pk  | 37                   | -28.2        | 12.2         | -49.55                  | -13   | -36.55         | 0-360          | 148         | H        |
| 5         | 8.55491         | -66.58              | Pk  | 38                   | -26.3        | 12.3         | -42.58                  | -13   | -29.58         | 0-360          | 148         | H        |
| 6         | 1.71081         | -57.45              | Pk  | 26                   | -35.8        | 12           | -55.25                  | -13   | -42.25         | 0-360          | 148         | V        |
| 7         | 3.42675         | -66.67              | Pk  | 30.7                 | -34.4        | 11.8         | -58.57                  | -13   | -45.57         | 0-360          | 148         | V        |
| 8         | 5.13206         | -68.79              | Pk  | 35.7                 | -31.2        | 11.9         | -52.39                  | -13   | -39.39         | 0-360          | 148         | V        |
| 9         | 6.84534         | -70.94              | Pk  | 37.1                 | -28.2        | 12.3         | -49.74                  | -13   | -36.74         | 0-360          | 148         | V        |
| 10        | 8.55544         | -56.27              | Pk  | 38                   | -26.3        | 12.1         | -32.47                  | -13   | -19.47         | 0-360          | 148         | V        |
| 1732.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.72356         | -58.81              | Pk  | 26                   | -35.8        | 11.3         | -57.31                  | -13   | -44.31         | 0-360          | 148         | H        |
| 2         | 3.44694         | -64.86              | Pk  | 30.6                 | -34.3        | 11.9         | -56.66                  | -13   | -43.66         | 0-360          | 148         | H        |
| 3         | 5.16659         | -69.54              | Pk  | 35.6                 | -31          | 12.2         | -52.74                  | -13   | -39.74         | 0-360          | 148         | H        |
| 4         | 6.91334         | -71.47              | Pk  | 37.2                 | -28.2        | 12.4         | -50.07                  | -13   | -37.07         | 0-360          | 148         | H        |
| 5         | 8.61759         | -66.94              | Pk  | 38.1                 | -26.1        | 12.4         | -42.54                  | -13   | -29.54         | 0-360          | 148         | H        |
| 6         | 1.72303         | -58.48              | Pk  | 26                   | -35.8        | 12.3         | -55.98                  | -13   | -42.98         | 0-360          | 148         | V        |
| 7         | 3.44269         | -66.4               | Pk  | 30.6                 | -34.3        | 11.9         | -58.2                   | -13   | -45.2          | 0-360          | 148         | V        |
| 8         | 5.17563         | -68.67              | Pk  | 35.6                 | -31          | 12.1         | -51.97                  | -13   | -38.97         | 0-360          | 148         | V        |
| 9         | 6.88784         | -70.93              | Pk  | 37.1                 | -28.2        | 12.1         | -49.93                  | -13   | -36.93         | 0-360          | 148         | V        |
| 10        | 8.61759         | -54.41              | Pk  | 38.1                 | -26.1        | 12.1         | -30.31                  | -13   | -17.31         | 0-360          | 148         | V        |
| 1745MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.73578         | -59.7               | Pk  | 26.1                 | -35.7        | 11.6         | -57.7                   | -13   | -44.7          | 0-360          | 148         | H        |
| 2         | 3.47191         | -63.51              | Pk  | 30.5                 | -34.1        | 12           | -55.11                  | -13   | -42.11         | 0-360          | 148         | H        |
| 3         | 5.20033         | -68.5               | Pk  | 35.5                 | -31.1        | 12           | -52.1                   | -13   | -39.1          | 0-360          | 148         | H        |
| 4         | 6.94602         | -72                 | Pk  | 37.2                 | -28.2        | 12.1         | -50.9                   | -13   | -37.9          | 0-360          | 148         | H        |
| 5         | 1.73578         | -60.07              | Pk  | 26.1                 | -35.7        | 12.5         | -57.17                  | -13   | -44.17         | 0-360          | 148         | V        |
| 6         | 3.46659         | -66.44              | Pk  | 30.5                 | -34.1        | 12.1         | -57.94                  | -13   | -44.94         | 0-360          | 148         | V        |
| 7         | 5.20006         | -69.37              | Pk  | 35.5                 | -31.1        | 11.5         | -53.47                  | -13   | -40.47         | 0-360          | 148         | V        |
| 8         | 6.933           | -72.1               | Pk  | 37.2                 | -28.2        | 11.9         | -51.2                   | -13   | -38.2          | 0-360          | 148         | V        |
| 9         | 8.68028         | -57.09              | Pk  | 38.2                 | -26.1        | 12.1         | -32.89                  | -13   | -19.89         | 0-360          | 148         | V        |

### 9.1.3. LTE BAND 5

#### QPSK LTE BAND 5 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 5 QPSK 10MHz        |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE LIMIT | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 829MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.64919         | -55.28              | Pk  | 25.7                 | -35.8        | 12.4         | -52.98                  | -13       | -39.98      | 0-360          | 148         | H        |
| 2        | 2.47316         | -62                 | Pk  | 29.9                 | -35.5        | 11.5         | -56.1                   | -13       | -43.1       | 0-360          | 148         | H        |
| 3        | 3.21213         | -64.74              | Pk  | 31.7                 | -34.7        | 11.7         | -56.04                  | -13       | -43.04      | 0-360          | 148         | H        |
| 4        | 1.64866         | -63.65              | Pk  | 25.7                 | -35.8        | 11.2         | -62.55                  | -13       | -49.55      | 0-360          | 148         | V        |
| 5        | 2.46944         | -65.27              | Pk  | 29.9                 | -35.5        | 11.7         | -59.17                  | -13       | -46.17      | 0-360          | 148         | V        |
| 6        | 3.21584         | -66.65              | Pk  | 31.7                 | -34.7        | 11.4         | -58.25                  | -13       | -45.25      | 0-360          | 148         | V        |
| 836.5MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.66353         | -57.74              | Pk  | 25.8                 | -35.8        | 12.1         | -55.64                  | -13       | -42.64      | 0-360          | 149         | H        |
| 2        | 2.40197         | -61.05              | Pk  | 29.6                 | -35.5        | 11.6         | -55.35                  | -13       | -42.35      | 0-360          | 149         | H        |
| 3        | 3.43366         | -64.63              | Pk  | 30.7                 | -34.3        | 11.9         | -56.33                  | -13       | -43.33      | 0-360          | 149         | H        |
| 4        | 1.66353         | -60.73              | Pk  | 25.8                 | -35.8        | 11.2         | -59.53                  | -13       | -46.53      | 0-360          | 149         | V        |
| 5        | 2.51247         | -60.95              | Pk  | 30                   | -35.5        | 11.7         | -54.75                  | -13       | -41.75      | 0-360          | 149         | V        |
| 6        | 3.34175         | -65.69              | Pk  | 31.3                 | -34.5        | 11.8         | -57.09                  | -13       | -44.09      | 0-360          | 149         | V        |
| 844MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.67894         | -60.57              | Pk  | 25.8                 | -35.8        | 11.9         | -58.67                  | -13       | -45.67      | 0-360          | 148         | H        |
| 2        | 2.52097         | -65.09              | Pk  | 30.1                 | -35.4        | 12.3         | -58.09                  | -13       | -45.09      | 0-360          | 148         | H        |
| 3        | 3.34706         | -65.56              | Pk  | 31.2                 | -34.4        | 11.8         | -56.96                  | -13       | -43.96      | 0-360          | 148         | H        |
| 4        | 1.67894         | -63.82              | Pk  | 25.8                 | -35.8        | 11.7         | -62.12                  | -13       | -49.12      | 0-360          | 148         | V        |
| 5        | 1.87869         | -60.59              | Pk  | 26.6                 | -35.8        | 12.2         | -57.59                  | -13       | -44.59      | 0-360          | 148         | V        |
| 6        | 2.40144         | -62.33              | Pk  | 29.6                 | -35.5        | 12.3         | -55.93                  | -13       | -42.93      | 0-360          | 148         | V        |
| 7        | 2.51513         | -65.03              | Pk  | 30.1                 | -35.4        | 11.8         | -58.53                  | -13       | -45.53      | 0-360          | 148         | V        |
| 8        | 3.33431         | -65.77              | Pk  | 31.3                 | -34.5        | 11.9         | -57.07                  | -13       | -44.07      | 0-360          | 148         | V        |

**16QAM LTE BAND 5 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 5 16QAM 10MHz       |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE LIMIT | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 829MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.64919         | -55.74              | Pk  | 25.7                 | -35.8        | 12.4         | -53.44                  | -13       | -40.44      | 0-360          | 148         | H        |
| 2        | 2.47369         | -61.88              | Pk  | 29.9                 | -35.5        | 11.5         | -55.98                  | -13       | -42.98      | 0-360          | 148         | H        |
| 3        | 3.41878         | -65.79              | Pk  | 30.8                 | -34.4        | 11.9         | -57.49                  | -13       | -44.49      | 0-360          | 148         | H        |
| 4        | 1.64919         | -62.64              | Pk  | 25.7                 | -35.8        | 11.2         | -61.54                  | -13       | -48.54      | 0-360          | 148         | V        |
| 5        | 2.35575         | -63.8               | Pk  | 29.2                 | -35.6        | 12.2         | -58                     | -13       | -45         | 0-360          | 148         | V        |
| 6        | 3.28969         | -65.79              | Pk  | 31.5                 | -34.5        | 11.9         | -56.89                  | -13       | -43.89      | 0-360          | 148         | V        |
| 836.5MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.66406         | -58.77              | Pk  | 25.8                 | -35.8        | 12.1         | -56.67                  | -13       | -43.67      | 0-360          | 148         | H        |
| 2        | 2.496           | -62.27              | Pk  | 30                   | -35.5        | 11.6         | -56.17                  | -13       | -43.17      | 0-360          | 148         | H        |
| 3        | 3.31838         | -66.96              | Pk  | 31.4                 | -34.5        | 11.6         | -58.46                  | -13       | -45.46      | 0-360          | 148         | H        |
| 4        | 1.66406         | -61.56              | Pk  | 25.8                 | -35.8        | 11.2         | -60.36                  | -13       | -47.36      | 0-360          | 148         | V        |
| 5        | 2.47953         | -56.18              | Pk  | 29.9                 | -35.5        | 11.2         | -50.58                  | -13       | -37.58      | 0-360          | 148         | V        |
| 6        | 3.30881         | -66.85              | Pk  | 31.4                 | -34.5        | 11.4         | -58.55                  | -13       | -45.55      | 0-360          | 148         | V        |
| 844MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.67894         | -60.25              | Pk  | 25.8                 | -35.8        | 11.9         | -58.35                  | -13       | -45.35      | 0-360          | 148         | H        |
| 2        | 2.39081         | -65.31              | Pk  | 29.5                 | -35.5        | 12           | -59.31                  | -13       | -46.31      | 0-360          | 148         | H        |
| 3        | 3.28172         | -65.1               | Pk  | 31.5                 | -34.5        | 12.2         | -55.9                   | -13       | -42.9       | 0-360          | 148         | H        |
| 4        | 1.69913         | -65.15              | Pk  | 25.9                 | -35.8        | 12.2         | -62.85                  | -13       | -49.85      | 0-360          | 148         | V        |
| 5        | 2.51034         | -63.82              | Pk  | 30                   | -35.5        | 11.7         | -57.62                  | -13       | -44.62      | 0-360          | 148         | V        |
| 6        | 3.33059         | -64.72              | Pk  | 31.3                 | -34.5        | 11.8         | -56.12                  | -13       | -43.12      | 0-360          | 148         | V        |

## 9.1.4. LTE BAND 7

### QPSK LTE BAND 7 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 7 QPSK 20MHz        |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 2510MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.00563       | -68.45              | Pk  | 35.1                 | -31.4        | 12           | -52.75                  | -25       | -27.75      | 0-360          | 148         | H        |
| 3       | * 7.50728       | -73.24              | Pk  | 37.5                 | -27.9        | 12.1         | -51.54                  | -25       | -26.54      | 0-360          | 148         | H        |
| 5       | 10.01106        | -73.23              | Pk  | 38                   | -25.1        | 12.4         | -47.93                  | -25       | -22.93      | 0-360          | 148         | H        |
| 2       | * 5.00881       | -69.55              | Pk  | 35.2                 | -31.3        | 11.7         | -53.95                  | -25       | -28.95      | 0-360          | 148         | V        |
| 4       | * 7.50834       | -71.01              | Pk  | 37.5                 | -27.9        | 12           | -49.41                  | -25       | -24.41      | 0-360          | 148         | V        |
| 6       | 10.01106        | -73.63              | Pk  | 38                   | -25.1        | 12.3         | -48.43                  | -25       | -23.43      | 0-360          | 148         | V        |
| 2535MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.06088       | -69.57              | Pk  | 35.5                 | -31.1        | 11.9         | -53.27                  | -25       | -28.27      | 0-360          | 148         | H        |
| 3       | * 7.59069       | -72.07              | Pk  | 37.3                 | -27.7        | 12           | -50.47                  | -25       | -25.47      | 0-360          | 148         | H        |
| 5       | 10.10881        | -73.38              | Pk  | 38                   | -25.4        | 12.3         | -48.48                  | -25       | -23.48      | 0-360          | 148         | H        |
| 2       | * 5.06088       | -69.75              | Pk  | 35.5                 | -31.1        | 11.8         | -53.55                  | -25       | -28.55      | 0-360          | 148         | V        |
| 4       | * 7.58963       | -72.41              | Pk  | 37.3                 | -27.7        | 11.8         | -51.01                  | -25       | -26.01      | 0-360          | 148         | V        |
| 6       | 10.11147        | -74.79              | Pk  | 37.9                 | -25.4        | 12.2         | -50.09                  | -25       | -25.09      | 0-360          | 148         | V        |
| 2560MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.11241       | -69.52              | Pk  | 35.7                 | -31          | 12.3         | -52.52                  | -25       | -27.52      | 0-360          | 148         | H        |
| 3       | * 7.66134       | -72.79              | Pk  | 37.4                 | -27.6        | 12           | -50.99                  | -25       | -25.99      | 0-360          | 148         | H        |
| 4       | * 7.66134       | -72.79              | Pk  | 37.4                 | -27.6        | 12           | -50.99                  | -25       | -25.99      | 0-360          | 148         | H        |
| 5       | 10.21294        | -74.56              | Pk  | 38                   | -25.1        | 12.3         | -49.36                  | -25       | -24.36      | 0-360          | 148         | H        |
| 2       | * 5.10922       | -69.11              | Pk  | 35.7                 | -31          | 12.3         | -52.11                  | -25       | -27.11      | 0-360          | 148         | V        |
| 6       | 10.21081        | -75.2               | Pk  | 38                   | -25.1        | 12.2         | -50.1                   | -25       | -25.1       | 0-360          | 148         | V        |

**16QAM LTE BAND 7 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 7 16QAM 20MHz       |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 2510MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.00669       | -68.51              | Pk  | 35.1                 | -31.4        | 12           | -52.81                  | -25       | -27.81      | 0-360          | 148         | H        |
| 3       | * 7.51419       | -72.69              | Pk  | 37.5                 | -27.9        | 12           | -51.09                  | -25       | -26.09      | 0-360          | 148         | H        |
| 5       | 10.01372        | -73.36              | Pk  | 38                   | -25          | 12.5         | -47.86                  | -25       | -22.86      | 0-360          | 148         | H        |
| 2       | * 5.01147       | -69.42              | Pk  | 35.2                 | -31.4        | 11.6         | -54.02                  | -25       | -29.02      | 0-360          | 148         | V        |
| 4       | * 7.51578       | -73.25              | Pk  | 37.5                 | -27.9        | 11.9         | -51.75                  | -25       | -26.75      | 0-360          | 148         | V        |
| 6       | 10.01106        | -71.96              | Pk  | 38                   | -25.1        | 12.3         | -46.76                  | -25       | -21.76      | 0-360          | 148         | V        |
| 2535MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.06619       | -69.89              | Pk  | 35.6                 | -31.2        | 12           | -53.49                  | -25       | -28.49      | 0-360          | 148         | H        |
| 3       | * 7.68366       | -72.97              | Pk  | 37.5                 | -27.6        | 12.3         | -50.77                  | -25       | -25.77      | 0-360          | 148         | H        |
| 5       | 10.13272        | -74.09              | Pk  | 37.9                 | -25.4        | 12.4         | -49.19                  | -25       | -24.19      | 0-360          | 148         | H        |
| 2       | * 5.06459       | -70.4               | Pk  | 35.6                 | -31.2        | 11.9         | -54.1                   | -25       | -29.1       | 0-360          | 148         | V        |
| 4       | * 7.67941       | -71.7               | Pk  | 37.5                 | -27.6        | 12.3         | -49.5                   | -25       | -24.5       | 0-360          | 148         | V        |
| 6       | 10.12953        | -74.48              | Pk  | 37.9                 | -25.4        | 12.3         | -49.68                  | -25       | -24.68      | 0-360          | 148         | V        |
| 2560MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 5.10763       | -68.94              | Pk  | 35.7                 | -31          | 12.2         | -52.04                  | -25       | -27.04      | 0-360          | 148         | H        |
| 3       | * 7.65816       | -71.64              | Pk  | 37.4                 | -27.6        | 12           | -49.84                  | -25       | -24.84      | 0-360          | 148         | H        |
| 5       | 10.20869        | -73.53              | Pk  | 37.9                 | -25.1        | 12.3         | -48.43                  | -25       | -23.43      | 0-360          | 148         | H        |
| 2       | * 5.11028       | -69.64              | Pk  | 35.7                 | -31          | 12.2         | -52.74                  | -25       | -27.74      | 0-360          | 148         | V        |
| 4       | * 7.65975       | -72.89              | Pk  | 37.4                 | -27.6        | 11.9         | -51.19                  | -25       | -26.19      | 0-360          | 148         | V        |
| 6       | 10.20816        | -74.56              | Pk  | 37.9                 | -25.1        | 12.2         | -49.56                  | -25       | -24.56      | 0-360          | 148         | V        |

## 9.1.5. LTE BAND 12

### QPSK LTE BAND 12 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 12 QPSK 10MHz       |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 704MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.39844         | -58.68              | Pk  | 25.2                 | -35.9        | 12.5         | -56.88                  | -13       | -43.88      | 0-360          | 148         | H        |
| 2        | 2.09863         | -60.14              | Pk  | 28.2                 | -35.6        | 12.3         | -55.24                  | -13       | -42.24      | 0-360          | 148         | H        |
| 3        | 2.80944         | -66.02              | Pk  | 29.3                 | -35.2        | 12.3         | -59.62                  | -13       | -46.62      | 0-360          | 148         | H        |
| 4        | 1.39897         | -60.62              | Pk  | 25.2                 | -35.9        | 10.7         | -60.62                  | -13       | -47.62      | 0-360          | 148         | V        |
| 5        | 2.09863         | -61                 | Pk  | 28.2                 | -35.6        | 11           | -57.4                   | -13       | -44.4       | 0-360          | 148         | V        |
| 6        | 2.81475         | -65.97              | Pk  | 29.3                 | -35.2        | 11.7         | -60.17                  | -13       | -47.17      | 0-360          | 148         | V        |
| 707.5MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.40588         | -52.03              | Pk  | 25.2                 | -35.9        | 12.5         | -50.23                  | -13       | -37.23      | 0-360          | 149         | H        |
| 3        | 2.10925         | -63.27              | Pk  | 28.2                 | -35.6        | 12.2         | -58.47                  | -13       | -45.47      | 0-360          | 149         | H        |
| 5        | 2.82272         | -67.42              | Pk  | 29.3                 | -35.2        | 11.9         | -61.42                  | -13       | -48.42      | 0-360          | 149         | H        |
| 2        | 1.40588         | -51.65              | Pk  | 25.2                 | -35.9        | 11.2         | -51.15                  | -13       | -38.15      | 0-360          | 149         | V        |
| 4        | 2.10872         | -61.76              | Pk  | 28.2                 | -35.6        | 11.1         | -58.06                  | -13       | -45.06      | 0-360          | 149         | V        |
| 6        | 2.82166         | -66.39              | Pk  | 29.3                 | -35.2        | 12           | -60.29                  | -13       | -47.29      | 0-360          | 149         | V        |
| 711MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.38409         | -63.53              | Pk  | 25.1                 | -35.8        | 11.7         | -62.53                  | -13       | -49.53      | 0-360          | 148         | H        |
| 3        | 2.13475         | -65.51              | Pk  | 28.2                 | -35.6        | 12           | -60.91                  | -13       | -47.91      | 0-360          | 148         | H        |
| 5        | 2.86097         | -65.69              | Pk  | 29.4                 | -35.1        | 12.2         | -59.19                  | -13       | -46.19      | 0-360          | 148         | H        |
| 2        | 1.38356         | -64.52              | Pk  | 25.1                 | -35.8        | 10.6         | -64.62                  | -13       | -51.62      | 0-360          | 148         | V        |
| 4        | 2.13369         | -65.83              | Pk  | 28.2                 | -35.6        | 12.2         | -61.03                  | -13       | -48.03      | 0-360          | 148         | V        |
| 6        | 2.86203         | -66.58              | Pk  | 29.4                 | -35.1        | 11.8         | -60.48                  | -13       | -47.48      | 0-360          | 148         | V        |

**16QAM LTE BAND 12 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 12 16QAM 10MHz      |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 704MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.39897         | -59.06              | Pk  | 25.2                 | -35.9        | 12.5         | -57.26                  | -13       | -44.26      | 0-360          | 148         | H        |
| 3        | 2.09863         | -59.63              | Pk  | 28.2                 | -35.6        | 12.3         | -54.73                  | -13       | -41.73      | 0-360          | 148         | H        |
| 5        | 2.81953         | -66.14              | Pk  | 29.3                 | -35.3        | 12           | -60.14                  | -13       | -47.14      | 0-360          | 148         | H        |
| 2        | 1.39897         | -61.35              | Pk  | 25.2                 | -35.9        | 10.7         | -61.35                  | -13       | -48.35      | 0-360          | 148         | V        |
| 4        | 2.09916         | -62.87              | Pk  | 28.2                 | -35.6        | 11           | -59.27                  | -13       | -46.27      | 0-360          | 148         | V        |
| 6        | 2.81581         | -66.62              | Pk  | 29.3                 | -35.2        | 11.8         | -60.72                  | -13       | -47.72      | 0-360          | 148         | V        |
| 707.5MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.40588         | -50.11              | Pk  | 25.2                 | -35.9        | 12.5         | -48.31                  | -13       | -35.31      | 0-360          | 149         | H        |
| 2        | 2.10978         | -63.63              | Pk  | 28.2                 | -35.6        | 12.1         | -58.93                  | -13       | -45.93      | 0-360          | 149         | H        |
| 3        | 2.79244         | -64.68              | Pk  | 29.3                 | -35.2        | 11.6         | -58.98                  | -13       | -45.98      | 0-360          | 149         | H        |
| 4        | 1.40641         | -52.05              | Pk  | 25.2                 | -35.9        | 11.2         | -51.55                  | -13       | -38.55      | 0-360          | 149         | V        |
| 5        | 2.10925         | -61.95              | Pk  | 28.2                 | -35.6        | 11.1         | -58.25                  | -13       | -45.25      | 0-360          | 149         | V        |
| 6        | 2.79244         | -65.13              | Pk  | 29.3                 | -35.2        | 11.8         | -59.23                  | -13       | -46.23      | 0-360          | 149         | V        |
| 711MHz   |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1        | 1.40747         | -65.06              | Pk  | 25.2                 | -35.9        | 12.5         | -63.26                  | -13       | -50.26      | 0-360          | 149         | H        |
| 2        | 2.12678         | -65.36              | Pk  | 28.2                 | -35.6        | 11.8         | -60.96                  | -13       | -47.96      | 0-360          | 149         | H        |
| 3        | 2.84291         | -64.74              | Pk  | 29.3                 | -35.2        | 12.2         | -58.44                  | -13       | -45.44      | 0-360          | 149         | H        |
| 4        | 1.40588         | -65.07              | Pk  | 25.2                 | -35.9        | 11.2         | -64.57                  | -13       | -51.57      | 0-360          | 149         | V        |
| 5        | 2.12838         | -65.44              | Pk  | 28.2                 | -35.6        | 11.9         | -60.94                  | -13       | -47.94      | 0-360          | 149         | V        |
| 6        | 2.84397         | -65.87              | Pk  | 29.3                 | -35.2        | 11.7         | -60.07                  | -13       | -47.07      | 0-360          | 149         | V        |

## 9.1.6. LTE BAND 13

### QPSK LTE BAND 13 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 13 QPSK 10MHz       |
| Chamber #:     | Chamber J               |

| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 782MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1      | 1.56463         | -50.98              | Pk  | 25.5                 | -35.8        | 10.9         | -50.38                  | -40       | -10.38      | 0-360          | 149         | H        |
| 3      | 2.34991         | -65.79              | Pk  | 29.1                 | -35.5        | 13           | -59.19                  | -13       | -46.19      | 0-360          | 149         | H        |
| 5      | 3.11916         | -65.21              | Pk  | 31.3                 | -34.8        | 11.3         | -57.41                  | -13       | -44.41      | 0-360          | 149         | H        |
| 2      | 1.56516         | -62.61              | Pk  | 25.5                 | -35.8        | 12.4         | -60.51                  | -40       | -20.51      | 0-360          | 149         | V        |
| 4      | 2.34725         | -65.61              | Pk  | 29.1                 | -35.5        | 12.1         | -59.91                  | -13       | -46.91      | 0-360          | 149         | V        |
| 6      | 3.108           | -64.83              | Pk  | 31.2                 | -34.8        | 11.8         | -56.63                  | -13       | -43.63      | 0-360          | 149         | V        |

\* Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used

**16QAM LTE BAND 13 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 13 16QAM 10MHz      |
| Chamber #:     | Chamber J               |

| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 782MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1      | 1.56464         | -51.64              | Pk  | 25.5                 | -35.8        | 10.9         | -51.04                  | -40       | -11.04      | 0-360          | 148         | H        |
| 2      | 2.33238         | -66.02              | Pk  | 28.9                 | -35.6        | 12.5         | -60.22                  | -13       | -47.22      | 0-360          | 148         | H        |
| 3      | 3.13084         | -66.55              | Pk  | 31.4                 | -34.8        | 11.4         | -58.55                  | -13       | -45.55      | 0-360          | 148         | H        |
| 4      | 1.56463         | -63.72              | Pk  | 25.5                 | -35.8        | 12.4         | -61.62                  | -40       | -21.62      | 0-360          | 148         | V        |
| 5      | 2.33238         | -64                 | Pk  | 28.9                 | -35.6        | 12.3         | -58.4                   | -13       | -45.4       | 0-360          | 148         | V        |
| 6      | 3.12925         | -65.71              | Pk  | 31.3                 | -34.8        | 11.3         | -57.91                  | -13       | -44.91      | 0-360          | 148         | V        |

\* Emissions in the GPS band were wideband emissions therefore the -40dBm/MHz limit was used

## 9.1.7. LTE BAND 14

### QPSK LTE BAND 14 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 14 QPSK 10MHz       |
| Chamber #:     | Chamber J               |

| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 793MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1      | 1.57694         | -52.93              | Pk  | 25.5                 | -35.8        | 11.2         | -52.03                  | -40       | -12.03      | 0-360          | 148         | H        |
| 3      | 2.36584         | -64.27              | Pk  | 29.3                 | -35.5        | 12.5         | -57.97                  | -13       | -44.97      | 0-360          | 148         | H        |
| 5      | 3.17441         | -65.88              | Pk  | 31.6                 | -34.7        | 11.8         | -57.18                  | -13       | -44.18      | 0-360          | 148         | H        |
| 2      | 1.57694         | -60.8               | Pk  | 25.5                 | -35.8        | 11.8         | -59.3                   | -40       | -19.3       | 0-360          | 148         | V        |
| 4      | 2.36531         | -64.79              | Pk  | 29.3                 | -35.5        | 12.8         | -58.19                  | -13       | -45.19      | 0-360          | 148         | V        |
| 6      | 3.176           | -65.15              | Pk  | 31.6                 | -34.7        | 11.7         | -56.55                  | -13       | -43.55      | 0-360          | 148         | V        |

**16QAM LTE BAND 14 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 14 16QAM 10MHz      |
| Chamber #:     | Chamber J               |

| Marker | Frequency<br>(GHz) | Meter<br>Reading<br>(dBm) | Det | AF<br>PRE0189055<br>(dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected<br>Reading<br>(dBm) | LTE Limit | Margin<br>(dB) | Azimuth<br>(Degs) | Height<br>(cm) | Polarity |
|--------|--------------------|---------------------------|-----|----------------------------|--------------|--------------|-------------------------------|-----------|----------------|-------------------|----------------|----------|
| 793MHz |                    |                           |     |                            |              |              |                               |           |                |                   |                |          |
| 1      | 1.57694            | -52.6                     | Pk  | 25.5                       | -35.8        | 11.2         | -51.7                         | -40       | -11.7          | 0-360             | 148            | H        |
| 2      | 2.35469            | -64.22                    | Pk  | 29.2                       | -35.6        | 12.7         | -57.92                        | -13       | -44.92         | 0-360             | 148            | H        |
| 3      | 3.1675             | -64.69                    | Pk  | 31.5                       | -34.7        | 12           | -55.89                        | -13       | -42.89         | 0-360             | 148            | H        |
| 4      | 1.57694            | -61.73                    | Pk  | 25.5                       | -35.8        | 11.8         | -60.23                        | -40       | -20.23         | 0-360             | 148            | V        |
| 5      | 2.36053            | -64.51                    | Pk  | 29.2                       | -35.5        | 12.5         | -58.31                        | -13       | -45.31         | 0-360             | 148            | V        |
| 6      | 3.16272            | -64.45                    | Pk  | 31.5                       | -34.6        | 11.9         | -55.65                        | -13       | -42.65         | 0-360             | 148            | V        |

## 9.1.8. LTE BAND 25

### QPSK LTE BAND 25 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 25 QPSK 20MHz       |
| Chamber #:     | Chamber J               |

| Marker    | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1860MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.85106         | -54.55              | Pk  | 26.5                 | -35.8        | 14.1         | -49.75                  | -13   | -36.75         | 0-360          | 148         | H        |
| 2         | 3.69981         | -66.67              | Pk  | 30.5                 | -33.5        | 11.9         | -57.77                  | -13   | -44.77         | 0-360          | 148         | H        |
| 3         | 5.54006         | -68.93              | Pk  | 34.1                 | -30.3        | 12.4         | -52.73                  | -13   | -39.73         | 0-360          | 148         | H        |
| 4         | 7.41431         | -70.95              | Pk  | 37.7                 | -27.8        | 11.9         | -49.15                  | -13   | -36.15         | 0-360          | 148         | H        |
| 5         | 1.85106         | -54.08              | Pk  | 26.5                 | -35.8        | 11.8         | -51.58                  | -13   | -38.58         | 0-360          | 148         | V        |
| 6         | 3.70619         | -66.87              | Pk  | 30.5                 | -33.4        | 11.8         | -57.97                  | -13   | -44.97         | 0-360          | 148         | V        |
| 7         | 5.55866         | -68.62              | Pk  | 34.1                 | -30.5        | 11.8         | -53.22                  | -13   | -40.22         | 0-360          | 148         | V        |
| 8         | 7.41272         | -71.97              | Pk  | 37.7                 | -27.8        | 12           | -50.07                  | -13   | -37.07         | 0-360          | 148         | V        |
| 1882.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.87338         | -56.08              | Pk  | 26.6                 | -35.8        | 12.2         | -53.08                  | -13   | -40.08         | 0-360          | 148         | H        |
| 2         | 3.75188         | -66.9               | Pk  | 30.7                 | -33.3        | 11.8         | -57.7                   | -13   | -44.7          | 0-360          | 148         | H        |
| 3         | 5.62719         | -68.84              | Pk  | 34                   | -30.6        | 12.3         | -53.14                  | -13   | -40.14         | 0-360          | 148         | H        |
| 4         | 7.51472         | -71.41              | Pk  | 37.5                 | -27.9        | 12           | -49.81                  | -13   | -36.81         | 0-360          | 148         | H        |
| 5         | 1.87338         | -57.7               | Pk  | 26.6                 | -35.8        | 12.6         | -54.3                   | -13   | -41.3          | 0-360          | 148         | V        |
| 6         | 3.74709         | -66.92              | Pk  | 30.7                 | -33.4        | 11.9         | -57.72                  | -13   | -44.72         | 0-360          | 148         | V        |
| 7         | 5.6155          | -70.11              | Pk  | 34                   | -30.5        | 11.8         | -54.81                  | -13   | -41.81         | 0-360          | 148         | V        |
| 8         | 7.49241         | -72.41              | Pk  | 37.5                 | -27.9        | 11.9         | -50.91                  | -13   | -37.91         | 0-360          | 148         | V        |
| 1905MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.89569         | -55.63              | Pk  | 26.6                 | -35.8        | 13.4         | -51.43                  | -13   | -38.43         | 0-360          | 148         | H        |
| 2         | 3.79969         | -67.32              | Pk  | 31                   | -33.2        | 11.4         | -58.12                  | -13   | -45.12         | 0-360          | 148         | H        |
| 3         | 5.69731         | -70.25              | Pk  | 34.1                 | -30.4        | 12.5         | -54.05                  | -13   | -41.05         | 0-360          | 148         | H        |
| 4         | 7.56625         | -71.5               | Pk  | 37.4                 | -27.8        | 12.2         | -49.7                   | -13   | -36.7          | 0-360          | 148         | H        |
| 5         | 1.89569         | -58.98              | Pk  | 26.6                 | -35.8        | 12.4         | -55.78                  | -13   | -42.78         | 0-360          | 148         | V        |
| 6         | 3.78694         | -67.5               | Pk  | 30.9                 | -33.1        | 11.4         | -58.3                   | -13   | -45.3          | 0-360          | 148         | V        |
| 7         | 5.68456         | -69.06              | Pk  | 34                   | -30.4        | 12.2         | -53.26                  | -13   | -40.26         | 0-360          | 148         | V        |
| 8         | 7.58272         | -72.25              | Pk  | 37.3                 | -27.8        | 11.8         | -50.95                  | -13   | -37.95         | 0-360          | 148         | V        |

**16QAM LTE BAND 25 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 25 16QAM 20MHz      |
| Chamber #:     | Chamber J               |

| Marker    | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1860MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.85106         | -55.24              | Pk  | 26.5                 | -35.8        | 14.1         | -50.44                  | -13   | -37.44         | 0-360          | 148         | H        |
| 2         | 3.70991         | -67.88              | Pk  | 30.5                 | -33.4        | 12.1         | -58.68                  | -13   | -45.68         | 0-360          | 148         | H        |
| 3         | 5.53953         | -68.82              | Pk  | 34.1                 | -30.3        | 12.4         | -52.62                  | -13   | -39.62         | 0-360          | 148         | H        |
| 4         | 7.39625         | -72.18              | Pk  | 37.8                 | -27.8        | 12.3         | -49.88                  | -13   | -36.88         | 0-360          | 148         | H        |
| 5         | 1.85053         | -53.1               | Pk  | 26.5                 | -35.8        | 11.7         | -50.7                   | -13   | -37.7          | 0-360          | 148         | V        |
| 6         | 3.69981         | -66.65              | Pk  | 30.5                 | -33.5        | 11.8         | -57.85                  | -13   | -44.85         | 0-360          | 148         | V        |
| 7         | 5.54431         | -68.03              | Pk  | 34.1                 | -30.4        | 12           | -52.33                  | -13   | -39.33         | 0-360          | 148         | V        |
| 8         | 7.40688         | -72.29              | Pk  | 37.7                 | -27.8        | 12           | -50.39                  | -13   | -37.39         | 0-360          | 148         | V        |
| 1882.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.87284         | -55.48              | Pk  | 26.6                 | -35.8        | 12.2         | -52.48                  | -13   | -39.48         | 0-360          | 148         | H        |
| 2         | 3.74816         | -67.32              | Pk  | 30.7                 | -33.3        | 11.9         | -58.02                  | -13   | -45.02         | 0-360          | 148         | H        |
| 3         | 5.62134         | -68.81              | Pk  | 34                   | -30.6        | 11.9         | -53.51                  | -13   | -40.51         | 0-360          | 148         | H        |
| 4         | 7.49984         | -72.34              | Pk  | 37.5                 | -27.9        | 12           | -50.74                  | -13   | -37.74         | 0-360          | 148         | H        |
| 5         | 1.87284         | -58.4               | Pk  | 26.6                 | -35.8        | 12.6         | -55                     | -13   | -42            | 0-360          | 148         | V        |
| 6         | 3.74816         | -67.03              | Pk  | 30.7                 | -33.3        | 11.8         | -57.83                  | -13   | -44.83         | 0-360          | 148         | V        |
| 7         | 5.61072         | -69.39              | Pk  | 34                   | -30.5        | 11.7         | -54.19                  | -13   | -41.19         | 0-360          | 148         | V        |
| 8         | 7.49825         | -71.7               | Pk  | 37.5                 | -27.9        | 11.8         | -50.3                   | -13   | -37.3          | 0-360          | 148         | V        |
| 1905MHz   |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1         | 1.89622         | -55.52              | Pk  | 26.6                 | -35.8        | 13.4         | -51.32                  | -13   | -38.32         | 0-360          | 148         | H        |
| 2         | 3.80234         | -68.01              | Pk  | 31                   | -33.1        | 11.3         | -58.81                  | -13   | -45.81         | 0-360          | 148         | H        |
| 3         | 5.6835          | -69.2               | Pk  | 34                   | -30.4        | 12.3         | -53.3                   | -13   | -40.3          | 0-360          | 148         | H        |
| 4         | 7.56784         | -71.9               | Pk  | 37.4                 | -27.8        | 12.2         | -50.1                   | -13   | -37.1          | 0-360          | 148         | H        |
| 5         | 1.89569         | -60.08              | Pk  | 26.6                 | -35.8        | 12.4         | -56.88                  | -13   | -43.88         | 0-360          | 148         | V        |
| 6         | 3.79119         | -67.68              | Pk  | 30.9                 | -33.1        | 11.3         | -58.58                  | -13   | -45.58         | 0-360          | 148         | V        |
| 7         | 5.69519         | -68.94              | Pk  | 34                   | -30.4        | 12.4         | -52.94                  | -13   | -39.94         | 0-360          | 148         | V        |
| 8         | 7.57794         | -72.23              | Pk  | 37.3                 | -27.8        | 11.9         | -50.83                  | -13   | -37.83         | 0-360          | 148         | V        |

## 9.1.9. LTE BAND 26 (FCC PART 90S)

### QPSK LTE BAND 26 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 26 QPSK 10MHz       |
| Chamber #:     | Chamber J               |

| Marker | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 819MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1      | 1.629           | -57                 | Pk  | 25.6                 | -35.8        | 12.9         | -54.3                   | -13   | -41.3          | 0-360          | 148         | H        |
| 2      | 2.53266         | -64.96              | Pk  | 30.2                 | -35.4        | 12.4         | -57.76                  | -13   | -44.76         | 0-360          | 148         | H        |
| 3      | 3.26073         | -67.04              | Pk  | 31.6                 | -34.6        | 12           | -58.04                  | -13   | -45.04         | 0-360          | 148         | H        |
| 4      | 1.629           | -60.13              | Pk  | 25.6                 | -35.8        | 10.7         | -59.63                  | -13   | -46.63         | 0-360          | 148         | V        |
| 5      | 2.53213         | -62.58              | Pk  | 30.2                 | -35.4        | 11.7         | -56.08                  | -13   | -43.08         | 0-360          | 148         | V        |
| 6      | 3.25888         | -66.72              | Pk  | 31.6                 | -34.6        | 11.6         | -58.12                  | -13   | -45.12         | 0-360          | 148         | V        |

**16QAM LTE BAND 26 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 26 16QAM 10MHz      |
| Chamber #:     | Chamber J               |

| Marker | Frequency<br>(GHz) | Meter<br>Reading<br>(dBm) | Det | AF<br>PRE0189055<br>(dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected<br>Reading<br>(dBm) | Limit | PK Margin<br>(dB) | Azimuth<br>(Degs) | Height<br>(cm) | Polarity |
|--------|--------------------|---------------------------|-----|----------------------------|--------------|--------------|-------------------------------|-------|-------------------|-------------------|----------------|----------|
| 819MHz |                    |                           |     |                            |              |              |                               |       |                   |                   |                |          |
| 1      | 1.629              | -57.07                    | Pk  | 25.6                       | -35.8        | 12.9         | -54.37                        | -13   | -41.37            | 0-360             | 148            | H        |
| 2      | 2.44341            | -63.76                    | Pk  | 29.8                       | -35.5        | 11.2         | -58.26                        | -13   | -45.26            | 0-360             | 148            | H        |
| 3      | 3.26631            | -66.7                     | Pk  | 31.6                       | -34.6        | 12.1         | -57.6                         | -13   | -44.6             | 0-360             | 148            | H        |
| 4      | 1.629              | -63.09                    | Pk  | 25.6                       | -35.8        | 10.7         | -62.59                        | -13   | -49.59            | 0-360             | 148            | V        |
| 5      | 2.44447            | -55.89                    | Pk  | 29.9                       | -35.5        | 11           | -50.49                        | -13   | -37.49            | 0-360             | 148            | V        |
| 6      | 3.26153            | -66.3                     | Pk  | 31.6                       | -34.6        | 11.7         | -57.6                         | -13   | -44.6             | 0-360             | 148            | V        |

## 9.1.10. LTE BAND 26 (FCC PART 22)

### QPSK LTE BAND 26 (15.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 26 QPSK 15MHz       |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 831.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.64919         | -57.68              | Pk  | 25.7                 | -35.8        | 12.4         | -55.38                  | -13   | -42.38         | 0-360          | 148         | H        |
| 2        | 2.47209         | -65.49              | Pk  | 29.9                 | -35.5        | 11.5         | -59.59                  | -13   | -46.59         | 0-360          | 148         | H        |
| 3        | 3.29234         | -65.07              | Pk  | 31.5                 | -34.5        | 12           | -56.07                  | -13   | -43.07         | 0-360          | 148         | H        |
| 4        | 4.12375         | -63.25              | Pk  | 32.2                 | -32.1        | 11.6         | -51.55                  | -13   | -38.55         | 0-360          | 148         | H        |
| 5        | 1.64919         | -63.85              | Pk  | 25.7                 | -35.8        | 11.2         | -62.75                  | -13   | -49.75         | 0-360          | 148         | V        |
| 6        | 2.46784         | -64.89              | Pk  | 29.9                 | -35.5        | 11.7         | -58.79                  | -13   | -45.79         | 0-360          | 148         | V        |
| 7        | 3.28969         | -66.27              | Pk  | 31.5                 | -34.5        | 11.9         | -57.37                  | -13   | -44.37         | 0-360          | 148         | V        |
| 8        | 4.12375         | -64.24              | Pk  | 32.2                 | -32.1        | 11.3         | -52.84                  | -13   | -39.84         | 0-360          | 148         | V        |
| 836.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.65928         | -53.99              | Pk  | 25.7                 | -35.8        | 12.2         | -51.89                  | -13   | -38.89         | 0-360          | 148         | H        |
| 2        | 2.48963         | -65.04              | Pk  | 29.9                 | -35.4        | 11.6         | -58.94                  | -13   | -45.94         | 0-360          | 148         | H        |
| 3        | 3.32103         | -65.95              | Pk  | 31.4                 | -34.5        | 11.6         | -57.45                  | -13   | -44.45         | 0-360          | 148         | H        |
| 4        | 1.65928         | -61.12              | Pk  | 25.7                 | -35.8        | 11.3         | -59.92                  | -13   | -46.92         | 0-360          | 148         | V        |
| 5        | 2.48697         | -65.61              | Pk  | 29.9                 | -35.4        | 11           | -60.11                  | -13   | -47.11         | 0-360          | 148         | V        |
| 6        | 3.31041         | -66.16              | Pk  | 31.4                 | -34.5        | 11.4         | -57.86                  | -13   | -44.86         | 0-360          | 148         | V        |
| 841.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.66938         | -53.08              | Pk  | 25.8                 | -35.8        | 12.2         | -50.88                  | -13   | -37.88         | 0-360          | 149         | H        |
| 2        | 2.5045          | -64.11              | Pk  | 30                   | -35.5        | 12           | -57.61                  | -13   | -44.61         | 0-360          | 149         | H        |
| 3        | 3.33856         | -65.35              | Pk  | 31.3                 | -34.5        | 11.7         | -56.85                  | -13   | -43.85         | 0-360          | 149         | H        |
| 4        | 1.66938         | -61.63              | Pk  | 25.8                 | -35.8        | 11.6         | -60.03                  | -13   | -47.03         | 0-360          | 149         | V        |
| 5        | 2.50663         | -64.86              | Pk  | 30                   | -35.5        | 11.6         | -58.76                  | -13   | -45.76         | 0-360          | 149         | V        |
| 6        | 3.33538         | -65.88              | Pk  | 31.3                 | -34.5        | 11.9         | -57.18                  | -13   | -44.18         | 0-360          | 149         | V        |

**16QAM LTE BAND 26 (15.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 26 16QAM 15MHz      |
| Chamber #:     | Chamber J               |

| Marker   | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|----------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 831.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.64919         | -58.58              | Pk  | 25.7                 | -35.8        | 12.4         | -56.28                  | -13   | -43.28         | 0-360          | 148         | H        |
| 2        | 2.47369         | -64.98              | Pk  | 29.9                 | -35.5        | 11.5         | -59.08                  | -13   | -46.08         | 0-360          | 148         | H        |
| 3        | 3.29075         | -66.18              | Pk  | 31.5                 | -34.5        | 12.1         | -57.08                  | -13   | -44.08         | 0-360          | 148         | H        |
| 4        | 1.64919         | -61.64              | Pk  | 25.7                 | -35.8        | 11.2         | -60.54                  | -13   | -47.54         | 0-360          | 148         | V        |
| 5        | 2.46997         | -65.37              | Pk  | 29.9                 | -35.5        | 11.8         | -59.17                  | -13   | -46.17         | 0-360          | 148         | V        |
| 6        | 3.28809         | -66.1               | Pk  | 31.5                 | -34.5        | 12           | -57.1                   | -13   | -44.1          | 0-360          | 148         | V        |
| 836.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.65928         | -53.86              | Pk  | 25.7                 | -35.8        | 12.2         | -51.76                  | -13   | -38.76         | 0-360          | 149         | H        |
| 2        | 2.48963         | -65.04              | Pk  | 29.9                 | -35.4        | 11.6         | -58.94                  | -13   | -45.94         | 0-360          | 149         | H        |
| 3        | 3.31891         | -66.66              | Pk  | 31.4                 | -34.5        | 11.6         | -58.16                  | -13   | -45.16         | 0-360          | 149         | H        |
| 4        | 1.65928         | -59.83              | Pk  | 25.7                 | -35.8        | 11.3         | -58.63                  | -13   | -45.63         | 0-360          | 149         | V        |
| 5        | 2.49175         | -66.2               | Pk  | 29.9                 | -35.5        | 11           | -60.8                   | -13   | -47.8          | 0-360          | 149         | V        |
| 6        | 3.31519         | -65.68              | Pk  | 31.4                 | -34.5        | 11.3         | -57.48                  | -13   | -44.48         | 0-360          | 149         | V        |
| 841.5MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1        | 1.66938         | -53.79              | Pk  | 25.8                 | -35.8        | 12.2         | -51.59                  | -13   | -38.59         | 0-360          | 148         | H        |
| 2        | 2.5045          | -64.13              | Pk  | 30                   | -35.5        | 12           | -57.63                  | -13   | -44.63         | 0-360          | 148         | H        |
| 3        | 3.33963         | -65.93              | Pk  | 31.3                 | -34.5        | 11.7         | -57.43                  | -13   | -44.43         | 0-360          | 148         | H        |
| 4        | 1.66938         | -62.55              | Pk  | 25.8                 | -35.8        | 11.6         | -60.95                  | -13   | -47.95         | 0-360          | 148         | V        |
| 5        | 2.50344         | -66.06              | Pk  | 30                   | -35.5        | 11.4         | -60.16                  | -13   | -47.16         | 0-360          | 148         | V        |
| 6        | 3.33006         | -66.37              | Pk  | 31.3                 | -34.5        | 11.8         | -57.77                  | -13   | -44.77         | 0-360          | 148         | V        |

## 9.1.11. LTE BAND 30

### QPSK LTE BAND 30 (10.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 30 QPSK 10MHz       |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 2310MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 4.61091       | -68.34              | Pk  | 32.9                 | -31.8        | 11.7         | -55.54                  | -40       | -15.54      | 0-360          | 148         | H        |
| 3       | 6.91919         | -71.96              | Pk  | 37.2                 | -28.2        | 12.4         | -50.56                  | -40       | -10.56      | 0-360          | 148         | H        |
| 5       | 9.22216         | -70.42              | Pk  | 39.7                 | -25.2        | 12.2         | -43.72                  | -40       | -3.72       | 0-360          | 148         | H        |
| 2       | * 4.61091       | -68.63              | Pk  | 32.9                 | -31.8        | 11.3         | -56.23                  | -40       | -16.23      | 0-360          | 148         | V        |
| 4       | 6.91919         | -72.77              | Pk  | 37.2                 | -28.2        | 12.2         | -51.57                  | -40       | -11.57      | 0-360          | 148         | V        |
| 6       | 9.22216         | -69.36              | Pk  | 39.7                 | -25.2        | 12           | -42.86                  | -40       | -2.86       | 0-360          | 148         | V        |

**16QAM LTE BAND 30 (10.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 10649                   |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 30 16QAM 10MHz      |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | LTE Limit | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-----------|-------------|----------------|-------------|----------|
| 2310MHz |                 |                     |     |                      |              |              |                         |           |             |                |             |          |
| 1       | * 4.61356       | -68.76              | Pk  | 32.9                 | -31.7        | 11.7         | -55.86                  | -40       | -15.86      | 0-360          | 148         | H        |
| 3       | 6.92078         | -72.13              | Pk  | 37.2                 | -28.2        | 12.3         | -50.83                  | -40       | -10.83      | 0-360          | 148         | H        |
| 5       | 9.22242         | -71.4               | Pk  | 39.7                 | -25.2        | 12.3         | -44.6                   | -40       | -4.6        | 0-360          | 148         | H        |
| 2       | * 4.61675       | -68.97              | Pk  | 33                   | -31.7        | 11.3         | -56.37                  | -40       | -16.37      | 0-360          | 148         | V        |
| 4       | 6.92184         | -71.2               | Pk  | 37.2                 | -28.2        | 12.2         | -50                     | -40       | -10         | 0-360          | 148         | V        |
| 6       | 9.22216         | -69                 | Pk  | 39.7                 | -25.2        | 12           | -42.5                   | -40       | -2.5        | 0-360          | 148         | V        |

## 9.1.12. LTE BAND 41 (FCC)

### QPSK LTE BAND 41 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 41 QPSK 20MHz       |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 2506MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.49653         | -53.7               | Pk  | 30                   | -35.5        | 11.6         | -47.6                   | -25   | -22.6          | 0-360          | 148         | H        |
| 2       | 4.99394         | -66.93              | Pk  | 35                   | -31.2        | 12.3         | -50.83                  | -25   | -25.83         | 0-360          | 148         | H        |
| 3       | 7.49134         | -68.46              | Pk  | 37.5                 | -27.9        | 12           | -46.86                  | -25   | -21.86         | 0-360          | 148         | H        |
| 4       | 9.98822         | -72.72              | Pk  | 38.1                 | -25.3        | 12.2         | -47.72                  | -25   | -22.72         | 0-360          | 148         | H        |
| 5       | 2.49653         | -56.27              | Pk  | 30                   | -35.5        | 11.1         | -50.67                  | -25   | -25.67         | 0-360          | 148         | V        |
| 6       | 4.99234         | -68.28              | Pk  | 35                   | -31.2        | 11.8         | -52.68                  | -25   | -27.68         | 0-360          | 148         | V        |
| 7       | 7.49081         | -71.85              | Pk  | 37.5                 | -27.9        | 11.8         | -50.45                  | -25   | -25.45         | 0-360          | 148         | V        |
| 8       | 9.99406         | -73.23              | Pk  | 38                   | -25.2        | 12           | -48.43                  | -25   | -23.43         | 0-360          | 148         | V        |
| 2593MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.58366         | -55.34              | Pk  | 30.2                 | -35.3        | 12.8         | -47.64                  | -25   | -22.64         | 0-360          | 148         | H        |
| 2       | 5.16606         | -69.11              | Pk  | 35.6                 | -31          | 12.2         | -52.31                  | -25   | -27.31         | 0-360          | 148         | H        |
| 3       | 7.75219         | -60.81              | Pk  | 37.5                 | -27.6        | 12.2         | -38.71                  | -25   | -13.71         | 0-360          | 148         | H        |
| 4       | 10.31919        | -73.46              | Pk  | 38.1                 | -25.3        | 12.6         | -48.06                  | -25   | -23.06         | 0-360          | 148         | H        |
| 5       | 2.58419         | -58.91              | Pk  | 30.2                 | -35.3        | 12.2         | -51.81                  | -25   | -26.81         | 0-360          | 148         | V        |
| 6       | 5.16819         | -65.99              | Pk  | 35.6                 | -31          | 12           | -49.39                  | -25   | -24.39         | 0-360          | 148         | V        |
| 7       | 7.75538         | -71.78              | Pk  | 37.5                 | -27.6        | 12           | -49.88                  | -25   | -24.88         | 0-360          | 148         | V        |
| 8       | 10.33619        | -73.45              | Pk  | 38.1                 | -25.4        | 12.2         | -48.55                  | -25   | -23.55         | 0-360          | 148         | V        |
| 2680MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.67078         | -45.12              | Pk  | 29.8                 | -35.2        | 11.3         | -39.22                  | -25   | -14.22         | 0-360          | 148         | H        |
| 2       | 5.33447         | -68.26              | Pk  | 34.7                 | -31.1        | 12.2         | -52.46                  | -25   | -27.46         | 0-360          | 148         | H        |
| 3       | 8.01303         | -69.07              | Pk  | 37.7                 | -27.4        | 12           | -46.77                  | -25   | -21.77         | 0-360          | 148         | H        |
| 4       | 10.68416        | -71.88              | Pk  | 38.6                 | -24.8        | 12.4         | -45.68                  | -25   | -20.68         | 0-360          | 148         | H        |
| 5       | 2.67078         | -52.65              | Pk  | 29.8                 | -35.2        | 11.5         | -46.55                  | -25   | -21.55         | 0-360          | 148         | V        |
| 6       | 5.33713         | -69.58              | Pk  | 34.7                 | -31          | 12           | -53.88                  | -25   | -28.88         | 0-360          | 148         | V        |
| 7       | 8.01356         | -65.25              | Pk  | 37.7                 | -27.4        | 11.9         | -43.05                  | -25   | -18.05         | 0-360          | 148         | V        |
| 8       | 10.68416        | -73.57              | Pk  | 38.6                 | -24.8        | 12.4         | -47.37                  | -25   | -22.37         | 0-360          | 148         | V        |

**16QAM LTE BAND 41 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/17/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 41 16QAM 20MHz      |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 2506MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.49706         | -54.89              | Pk  | 30                   | -35.5        | 11.6         | -48.79                  | -25   | -23.79         | 0-360          | 149         | H        |
| 2       | 4.99394         | -54.54              | Pk  | 35                   | -31.2        | 12.3         | -38.44                  | -25   | -13.44         | 0-360          | 149         | H        |
| 3       | 7.49134         | -71.67              | Pk  | 37.5                 | -27.9        | 12           | -50.07                  | -25   | -25.07         | 0-360          | 149         | H        |
| 4       | 10.00947        | -72.27              | Pk  | 38                   | -25.1        | 12.4         | -46.97                  | -25   | -21.97         | 0-360          | 149         | H        |
| 5       | 2.49706         | -57.83              | Pk  | 30                   | -35.5        | 11.1         | -52.23                  | -25   | -27.23         | 0-360          | 148         | V        |
| 6       | 4.99394         | -67.54              | Pk  | 35                   | -31.2        | 11.7         | -52.04                  | -25   | -27.04         | 0-360          | 148         | V        |
| 7       | 7.49294         | -72.13              | Pk  | 37.5                 | -27.9        | 11.9         | -50.63                  | -25   | -25.63         | 0-360          | 148         | V        |
| 8       | 9.98556         | -72.13              | Pk  | 38.1                 | -25.3        | 12.1         | -47.23                  | -25   | -22.23         | 0-360          | 148         | V        |
| 2593MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.58366         | -56.76              | Pk  | 30.2                 | -35.3        | 12.8         | -49.06                  | -25   | -24.06         | 0-360          | 148         | H        |
| 2       | 5.16766         | -60.47              | Pk  | 35.6                 | -31          | 12.2         | -43.67                  | -25   | -18.67         | 0-360          | 148         | H        |
| 3       | 7.75219         | -69.89              | Pk  | 37.5                 | -27.6        | 12.2         | -47.79                  | -25   | -22.79         | 0-360          | 148         | H        |
| 4       | 10.31759        | -73.53              | Pk  | 38.1                 | -25.3        | 12.6         | -48.13                  | -25   | -23.13         | 0-360          | 148         | H        |
| 5       | 2.58366         | -58.12              | Pk  | 30.2                 | -35.3        | 12.2         | -51.02                  | -25   | -26.02         | 0-360          | 148         | V        |
| 6       | 5.16872         | -68.82              | Pk  | 35.6                 | -31          | 12.1         | -52.12                  | -25   | -27.12         | 0-360          | 148         | V        |
| 7       | 7.75697         | -72.38              | Pk  | 37.5                 | -27.6        | 12           | -50.48                  | -25   | -25.48         | 0-360          | 148         | V        |
| 8       | 10.33619        | -74.1               | Pk  | 38.1                 | -25.4        | 12.2         | -49.2                   | -25   | -24.2          | 0-360          | 148         | V        |
| 2680MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 2.67078         | -47.25              | Pk  | 29.8                 | -35.2        | 11.3         | -41.35                  | -25   | -16.35         | 0-360          | 148         | H        |
| 2       | 5.34563         | -68.98              | Pk  | 34.6                 | -31          | 12.3         | -53.08                  | -25   | -28.08         | 0-360          | 148         | H        |
| 3       | 8.01516         | -71.06              | Pk  | 37.7                 | -27.4        | 12           | -48.76                  | -25   | -23.76         | 0-360          | 148         | H        |
| 4       | 10.67566        | -73.28              | Pk  | 38.6                 | -24.7        | 12.5         | -46.88                  | -25   | -21.88         | 0-360          | 148         | H        |
| 5       | 2.67078         | -53.17              | Pk  | 29.8                 | -35.2        | 11.5         | -47.07                  | -25   | -22.07         | 0-360          | 148         | V        |
| 6       | 5.34669         | -69.7               | Pk  | 34.6                 | -30.9        | 12.2         | -53.8                   | -25   | -28.8          | 0-360          | 148         | V        |
| 7       | 8.01303         | -69.83              | Pk  | 37.7                 | -27.4        | 11.9         | -47.63                  | -25   | -22.63         | 0-360          | 148         | V        |
| 8       | 10.68416        | -72.52              | Pk  | 38.6                 | -24.8        | 12.4         | -46.32                  | -25   | -21.32         | 0-360          | 148         | V        |

## 9.1.13. LTE BAND 66

### QPSK LTE BAND 66 (20.0MHZ BANDWIDTH)

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 66 QPSK 20MHz       |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1720MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.71081         | -60.17              | Pk  | 26                   | -35.8        | 11.6         | -58.37                  | -13   | -45.37         | 0-360          | 148         | H        |
| 2       | 3.4225          | -63.33              | Pk  | 30.7                 | -34.4        | 11.9         | -55.13                  | -13   | -42.13         | 0-360          | 148         | H        |
| 3       | 5.12994         | -68.89              | Pk  | 35.7                 | -31.2        | 11.9         | -52.49                  | -13   | -39.49         | 0-360          | 148         | H        |
| 4       | 6.86022         | -71.13              | Pk  | 37.1                 | -28.1        | 12.4         | -49.73                  | -13   | -36.73         | 0-360          | 148         | H        |
| 5       | 1.71081         | -59.86              | Pk  | 26                   | -35.8        | 12           | -57.66                  | -13   | -44.66         | 0-360          | 148         | V        |
| 6       | 3.42144         | -67.2               | Pk  | 30.7                 | -34.4        | 11.9         | -59                     | -13   | -46            | 0-360          | 148         | V        |
| 7       | 5.13472         | -69.35              | Pk  | 35.7                 | -31.3        | 11.9         | -53.05                  | -13   | -40.05         | 0-360          | 148         | V        |
| 8       | 6.848           | -71.24              | Pk  | 37.1                 | -28.1        | 12.3         | -49.94                  | -13   | -36.94         | 0-360          | 148         | V        |
| 9       | 8.55544         | -55.64              | Pk  | 38                   | -26.3        | 12.1         | -31.84                  | -13   | -18.84         | 0-360          | 148         | V        |
| 1745MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.73578         | -61.67              | Pk  | 26.1                 | -35.7        | 11.6         | -59.67                  | -13   | -46.67         | 0-360          | 148         | H        |
| 2       | 3.47138         | -64.16              | Pk  | 30.5                 | -34.1        | 12           | -55.76                  | -13   | -42.76         | 0-360          | 148         | H        |
| 3       | 5.19422         | -68.94              | Pk  | 35.5                 | -31.2        | 12           | -52.64                  | -13   | -39.64         | 0-360          | 148         | H        |
| 4       | 6.96275         | -70.32              | Pk  | 37.2                 | -28.1        | 12           | -49.22                  | -13   | -36.22         | 0-360          | 148         | H        |
| 5       | 8.68028         | -65.47              | Pk  | 38.2                 | -26.1        | 12.4         | -40.97                  | -13   | -27.97         | 0-360          | 148         | H        |
| 6       | 1.73578         | -58.81              | Pk  | 26.1                 | -35.7        | 12.5         | -55.91                  | -13   | -42.91         | 0-360          | 148         | V        |
| 7       | 3.47031         | -66.93              | Pk  | 30.5                 | -34.1        | 11.9         | -58.63                  | -13   | -45.63         | 0-360          | 148         | V        |
| 8       | 5.20166         | -69.95              | Pk  | 35.5                 | -31.1        | 11.6         | -53.95                  | -13   | -40.95         | 0-360          | 148         | V        |
| 9       | 6.94628         | -70.67              | Pk  | 37.2                 | -28.2        | 11.8         | -49.87                  | -13   | -36.87         | 0-360          | 148         | V        |
| 10      | 8.68028         | -54.45              | Pk  | 38.2                 | -26.1        | 12.1         | -30.25                  | -13   | -17.25         | 0-360          | 148         | V        |
| 1770MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.76075         | -60.21              | Pk  | 26.2                 | -35.8        | 12           | -57.81                  | -13   | -44.81         | 0-360          | 148         | H        |
| 2       | 3.51148         | -66.97              | Pk  | 30.4                 | -33.9        | 12           | -58.47                  | -13   | -45.47         | 0-360          | 148         | H        |
| 3       | 5.29197         | -69.44              | Pk  | 35                   | -30.9        | 12.3         | -53.04                  | -13   | -40.04         | 0-360          | 148         | H        |
| 4       | 7.05147         | -71.17              | Pk  | 37.7                 | -27.7        | 12.2         | -48.97                  | -13   | -35.97         | 0-360          | 148         | H        |
| 5       | 1.76075         | -58.46              | Pk  | 26.2                 | -35.8        | 11.9         | -56.16                  | -13   | -43.16         | 0-360          | 148         | V        |
| 6       | 3.52078         | -67.36              | Pk  | 30.4                 | -33.9        | 11.9         | -58.96                  | -13   | -45.96         | 0-360          | 148         | V        |
| 7       | 5.28666         | -69.67              | Pk  | 35                   | -30.9        | 12           | -53.57                  | -13   | -40.57         | 0-360          | 148         | V        |
| 8       | 7.04563         | -71.78              | Pk  | 37.6                 | -27.7        | 12.2         | -49.68                  | -13   | -36.68         | 0-360          | 148         | V        |
| 9       | 8.80513         | -60.75              | Pk  | 38.4                 | -25.7        | 12           | -36.05                  | -13   | -23.05         | 0-360          | 148         | V        |

**16QAM LTE BAND 66 (20.0MHZ BANDWIDTH)**

|                |                         |
|----------------|-------------------------|
| Company:       | Microsoft               |
| Project #:     | 12802195                |
| Date:          | 7/16/19                 |
| Test Engineer: | 19480 BS                |
| Configuration: | EUT + Support Equipment |
| Mode           | LTE 66 16QAM 20MHz      |
| Chamber #:     | Chamber J               |

| Marker  | Frequency (GHz) | Meter Reading (dBm) | Det | AF PRE0189055 (dB/m) | Amp/Cbl (dB) | Amp/Cbl (dB) | Corrected Reading (dBm) | Limit | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|---------|-----------------|---------------------|-----|----------------------|--------------|--------------|-------------------------|-------|----------------|----------------|-------------|----------|
| 1720MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.71081         | -60.84              | Pk  | 26                   | -35.8        | 11.6         | -59.04                  | -13   | -46.04         | 0-360          | 148         | H        |
| 2       | 3.4225          | -64.96              | Pk  | 30.7                 | -34.4        | 11.9         | -56.76                  | -13   | -43.76         | 0-360          | 148         | H        |
| 3       | 5.11719         | -69.78              | Pk  | 35.7                 | -31          | 12.2         | -52.88                  | -13   | -39.88         | 0-360          | 148         | H        |
| 4       | 6.8565          | -71.43              | Pk  | 37.1                 | -28.1        | 12.4         | -50.03                  | -13   | -37.03         | 0-360          | 148         | H        |
| 5       | 1.71081         | -58.32              | Pk  | 26                   | -35.8        | 12           | -56.12                  | -13   | -43.12         | 0-360          | 148         | V        |
| 6       | 3.41719         | -67.37              | Pk  | 30.8                 | -34.4        | 11.9         | -59.07                  | -13   | -46.07         | 0-360          | 148         | V        |
| 7       | 5.13684         | -68.99              | Pk  | 35.7                 | -31.3        | 11.9         | -52.69                  | -13   | -39.69         | 0-360          | 148         | V        |
| 8       | 6.85225         | -71.15              | Pk  | 37.1                 | -28.1        | 12.3         | -49.85                  | -13   | -36.85         | 0-360          | 148         | V        |
| 9       | 8.55544         | -56.27              | Pk  | 38                   | -26.3        | 12.1         | -32.47                  | -13   | -19.47         | 0-360          | 148         | V        |
| 1745MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.73578         | -61.13              | Pk  | 26.1                 | -35.7        | 11.6         | -59.13                  | -13   | -46.13         | 0-360          | 148         | H        |
| 2       | 3.47191         | -65.33              | Pk  | 30.5                 | -34.1        | 12           | -56.93                  | -13   | -43.93         | 0-360          | 148         | H        |
| 3       | 5.19794         | -68.78              | Pk  | 35.5                 | -31.2        | 12           | -52.48                  | -13   | -39.48         | 0-360          | 148         | H        |
| 4       | 6.94788         | -71.23              | Pk  | 37.2                 | -28.2        | 12.1         | -50.13                  | -13   | -37.13         | 0-360          | 148         | H        |
| 5       | 1.73578         | -59.46              | Pk  | 26.1                 | -35.7        | 12.5         | -56.56                  | -13   | -43.56         | 0-360          | 148         | V        |
| 6       | 3.46606         | -66.64              | Pk  | 30.5                 | -34.1        | 12.1         | -58.14                  | -13   | -45.14         | 0-360          | 148         | V        |
| 7       | 5.21494         | -69.52              | Pk  | 35.4                 | -31          | 11.9         | -53.22                  | -13   | -40.22         | 0-360          | 148         | V        |
| 8       | 6.95372         | -71.45              | Pk  | 37.2                 | -28.1        | 11.9         | -50.45                  | -13   | -37.45         | 0-360          | 148         | V        |
| 9       | 8.68028         | -55                 | Pk  | 38.2                 | -26.1        | 12.1         | -30.8                   | -13   | -17.8          | 0-360          | 148         | V        |
| 1770MHz |                 |                     |     |                      |              |              |                         |       |                |                |             |          |
| 1       | 1.76075         | -60.95              | Pk  | 26.2                 | -35.8        | 12           | -58.55                  | -13   | -45.55         | 0-360          | 148         | H        |
| 2       | 3.51122         | -66.76              | Pk  | 30.4                 | -33.9        | 12           | -58.26                  | -13   | -45.26         | 0-360          | 148         | H        |
| 3       | 5.28613         | -69.64              | Pk  | 35                   | -30.9        | 12.5         | -53.04                  | -13   | -40.04         | 0-360          | 148         | H        |
| 4       | 7.02544         | -70.99              | Pk  | 37.5                 | -27.8        | 12.3         | -48.99                  | -13   | -35.99         | 0-360          | 148         | H        |
| 5       | 1.76075         | -59.21              | Pk  | 26.2                 | -35.8        | 11.9         | -56.91                  | -13   | -43.91         | 0-360          | 148         | V        |
| 6       | 3.52397         | -66.87              | Pk  | 30.4                 | -33.9        | 11.9         | -58.47                  | -13   | -45.47         | 0-360          | 148         | V        |
| 7       | 5.27869         | -69.89              | Pk  | 35.1                 | -31          | 12           | -53.79                  | -13   | -40.79         | 0-360          | 148         | V        |
| 8       | 7.05359         | -71.6               | Pk  | 37.7                 | -27.8        | 12           | -49.7                   | -13   | -36.7          | 0-360          | 148         | V        |
| 9       | 8.80566         | -60.23              | Pk  | 38.4                 | -25.7        | 12           | -35.53                  | -13   | -22.53         | 0-360          | 148         | V        |