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|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.18 Peak spectral power density at mid frequency

CHANNEL SPACING:

50 MHz

ANTENNA CHAIN:

1

Modulation:

16QAM





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Report ID: AIRRAD\_FCC.52632\_Rev1.docx

Date of Issue: 21-Feb-24

|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.19 Peak spectral power density at mid frequency

CHANNEL SPACING:

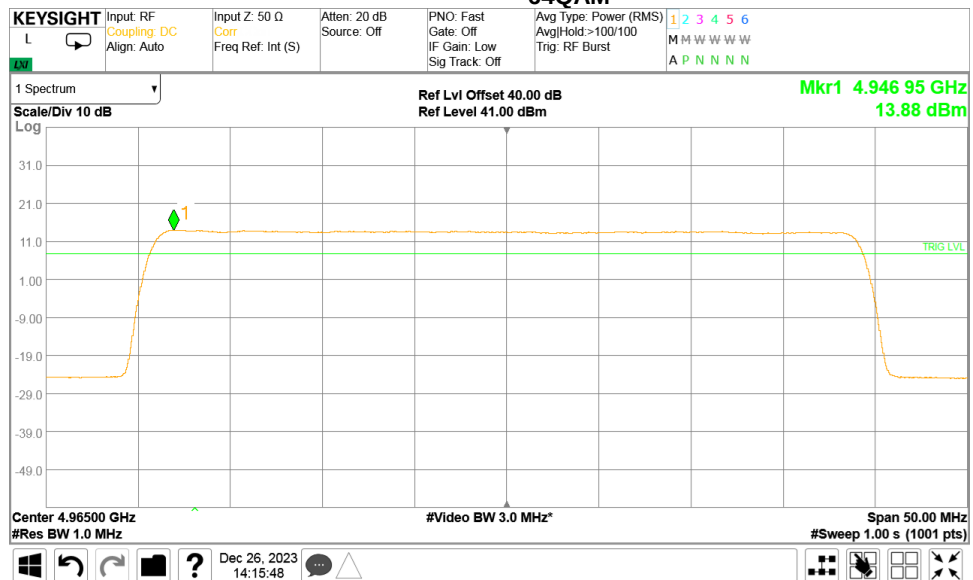
50 MHz

ANTENNA CHAIN:

1

Modulation:

64QAM





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|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.20 Peak spectral power density at mid frequency

CHANNEL SPACING:

50 MHz

ANTENNA CHAIN:

1

Modulation:

256QAM





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|                                                                      |                         |                        |               |
|----------------------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.1215, Maximum output power            |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |                         |                        |               |
| Test mode: Compliance                                                |                         | Verdict: PASS          |               |
| Date(s): 26-Dec-23                                                   |                         |                        |               |
| Temperature: 24 °C                                                   | Relative Humidity: 39 % | Air Pressure: 1018 hPa | Power: 48 VDC |
| Remarks:                                                             |                         |                        |               |

Plot 7.1.21 Peak spectral power density at mid frequency

CHANNEL SPACING:

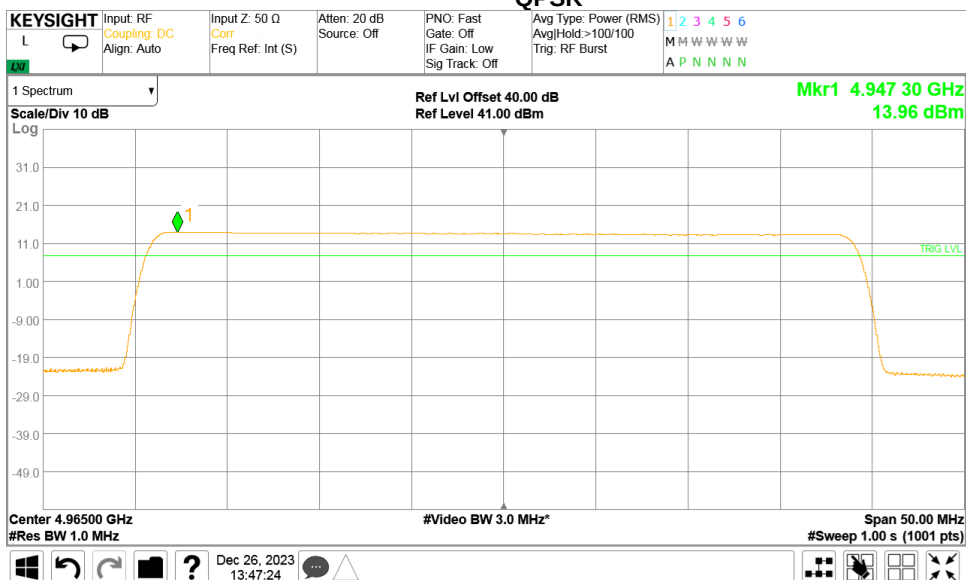
50 MHz

ANTENNA CHAIN:

2

Modulation:

QPSK





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|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.22 Peak spectral power density at mid frequency

CHANNEL SPACING:

50 MHz

ANTENNA CHAIN:

2

Modulation:

16QAM





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|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.23 Peak spectral power density at mid frequency

CHANNEL SPACING:

50 MHz

ANTENNA CHAIN:

2

Modulation:

64QAM





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|                     |                         |                                                      |               |
|---------------------|-------------------------|------------------------------------------------------|---------------|
| Test specification: |                         | Section 90.1215, Maximum output power                |               |
| Test procedure:     |                         | 47 CFR, Section 2.1046; TIA/EIA-603-A, Section 2.2.1 |               |
| Test mode:          |                         | Verdict: PASS                                        |               |
| Date(s):            |                         |                                                      |               |
| 26-Dec-23           |                         |                                                      |               |
| Temperature: 24 °C  | Relative Humidity: 39 % | Air Pressure: 1018 hPa                               | Power: 48 VDC |
| Remarks:            |                         |                                                      |               |

Plot 7.1.24 Peak spectral power density at mid frequency

CHANNEL SPACING:

50 MHz

ANTENNA CHAIN:

2

Modulation:

256QAM





|                                                                      |                                |                               |                      |
|----------------------------------------------------------------------|--------------------------------|-------------------------------|----------------------|
| <b>Test specification:</b> <b>Section 90.209, Occupied bandwidth</b> |                                |                               |                      |
| <b>Test procedure:</b> 47 CFR, Section 2.1049                        |                                |                               |                      |
| <b>Test mode:</b> Compliance                                         |                                | <b>Verdict:</b> <b>PASS</b>   |                      |
| <b>Date(s):</b> 28-Dec-23                                            |                                |                               |                      |
| <b>Temperature:</b> 23 °C                                            | <b>Relative Humidity:</b> 47 % | <b>Air Pressure:</b> 1016 hPa | <b>Power:</b> 48 VDC |
| <b>Remarks:</b>                                                      |                                |                               |                      |

## 7.2 Occupied bandwidth test

### 7.2.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.2.1. The test results are provided in Table 7.2.2 and the associated plots.

**Table 7.2.1 Occupied bandwidth limits**

| Assigned frequency, MHz | Modulation envelope reference points*, % | Maximum allowed bandwidth, MHz |
|-------------------------|------------------------------------------|--------------------------------|
| 4940.0 – 4990.0         | 99                                       | 10, 20, 40 MHz                 |

\* - Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

### 7.2.2 Test procedure

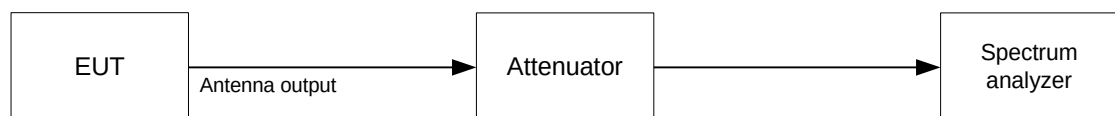
**7.2.2.1** The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

**7.2.2.2** The EUT was set to transmit the unmodulated carrier and the reference peak power level was measured.

**7.2.2.3** The EUT was set to transmit the normally modulated carrier.

**7.2.2.4** The transmitter occupied bandwidth was measured with spectrum analyzer as a frequency delta between the reference points on modulation envelope and provided in Table 7.2.2 and the associated plots.

**Figure 7.2.1 Occupied bandwidth test setup**





|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

Table 7.2.2 Occupied bandwidth test results

DETECTOR USED: Peak hold  
 RESOLUTION BANDWIDTH: 1 – 5% of the OBW  
 VIDEO BANDWIDTH: > RBW  
 MODULATION ENVELOPE REFERENCE POINTS: 99%

| Carrier frequency, MHz        | Occupied bandwidth, MHz | Limit, MHz | Margin, MHz | Verdict |
|-------------------------------|-------------------------|------------|-------------|---------|
| <b>Channel spacing 10 MHz</b> |                         |            |             |         |
| <b>Modulation QPSK</b>        |                         |            |             |         |
| 4945.0                        | 8.623                   | NA         | NA          | Pass    |
| 4965.0                        | 8.628                   | NA         | NA          | Pass    |
| 4985.0                        | 8.638                   | NA         | NA          | Pass    |
| <b>Modulation 16QAM</b>       |                         |            |             |         |
| 4945.0                        | 8.643                   | NA         | NA          | Pass    |
| 4965.0                        | 8.640                   | NA         | NA          | Pass    |
| 4985.0                        | 8.645                   | NA         | NA          | Pass    |
| <b>Modulation 64QAM</b>       |                         |            |             |         |
| 4945.0                        | 8.639                   | NA         | NA          | Pass    |
| 4965.0                        | 8.645                   | NA         | NA          | Pass    |
| 4985.0                        | 8.643                   | NA         | NA          | Pass    |
| <b>Modulation 256QAM</b>      |                         |            |             |         |
| 4945.0                        | 8.627                   | NA         | NA          | Pass    |
| 4965.0                        | 8.624                   | NA         | NA          | Pass    |
| 4985.0                        | 8.626                   | NA         | NA          | Pass    |

| Carrier frequency, MHz        | Occupied bandwidth, MHz | Limit, MHz | Margin, MHz | Verdict |
|-------------------------------|-------------------------|------------|-------------|---------|
| <b>Channel spacing 25 MHz</b> |                         |            |             |         |
| <b>Modulation QPSK</b>        |                         |            |             |         |
| 4952.5                        | 18.390                  | NA         | NA          | Pass    |
| 4967.5                        | 18.382                  | NA         | NA          | Pass    |
| 4977.5                        | 18.371                  | NA         | NA          | Pass    |
| <b>Modulation 16QAM</b>       |                         |            |             |         |
| 4952.5                        | 18.432                  | NA         | NA          | Pass    |
| 4967.5                        | 18.434                  | NA         | NA          | Pass    |
| 4977.5                        | 18.416                  | NA         | NA          | Pass    |
| <b>Modulation 64QAM</b>       |                         |            |             |         |
| 4952.5                        | 18.439                  | NA         | NA          | Pass    |
| 4967.5                        | 18.429                  | NA         | NA          | Pass    |
| 4977.5                        | 18.430                  | NA         | NA          | Pass    |
| <b>Modulation 256QAM</b>      |                         |            |             |         |
| 4952.5                        | 18.393                  | NA         | NA          | Pass    |
| 4967.5                        | 18.384                  | NA         | NA          | Pass    |
| 4977.5                        | 18.378                  | NA         | NA          | Pass    |



|                                                               |                                |                               |                      |
|---------------------------------------------------------------|--------------------------------|-------------------------------|----------------------|
| <b>Test specification:</b> Section 90.209, Occupied bandwidth |                                |                               |                      |
| <b>Test procedure:</b> 47 CFR, Section 2.1049                 |                                |                               |                      |
| <b>Test mode:</b> Compliance                                  |                                | <b>Verdict:</b> PASS          |                      |
| <b>Date(s):</b> 28-Dec-23                                     |                                |                               |                      |
| <b>Temperature:</b> 23 °C                                     | <b>Relative Humidity:</b> 47 % | <b>Air Pressure:</b> 1016 hPa | <b>Power:</b> 48 VDC |
| <b>Remarks:</b>                                               |                                |                               |                      |

Table 1.1.7.2.3 Occupied bandwidth test results (continuation)

DETECTOR USED: Peak hold  
 RESOLUTION BANDWIDTH: 1 – 5% of the OBW  
 VIDEO BANDWIDTH: > RBW  
 MODULATION ENVELOPE REFERENCE POINTS: 99%

| Carrier frequency, MHz        | Occupied bandwidth, MHz | Limit, MHz | Margin, MHz | Verdict |
|-------------------------------|-------------------------|------------|-------------|---------|
| <b>Channel spacing 50 MHz</b> |                         |            |             |         |
| <b>Modulation QPSK</b>        |                         |            |             |         |
| 4965.0                        | 38.277                  | NA         | NA          | Pass    |
| <b>Modulation 16QAM</b>       |                         |            |             |         |
| 4965.0                        | 38.331                  | NA         | NA          | Pass    |
| <b>Modulation 64QAM</b>       |                         |            |             |         |
| 4965.0                        | 38.327                  | NA         | NA          | Pass    |
| <b>Modulation 256QAM</b>      |                         |            |             |         |
| 4965.0                        | 38.302                  | NA         | NA          | Pass    |

**Reference numbers of test equipment used**

|         |         |  |  |  |  |  |
|---------|---------|--|--|--|--|--|
| HL 5376 | HL 5933 |  |  |  |  |  |
|---------|---------|--|--|--|--|--|

Full description is given in Appendix A



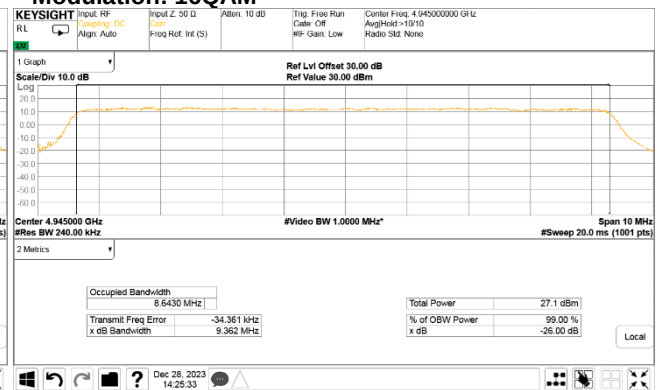
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|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

Plot 7.2.1 Occupied bandwidth test result at low frequency

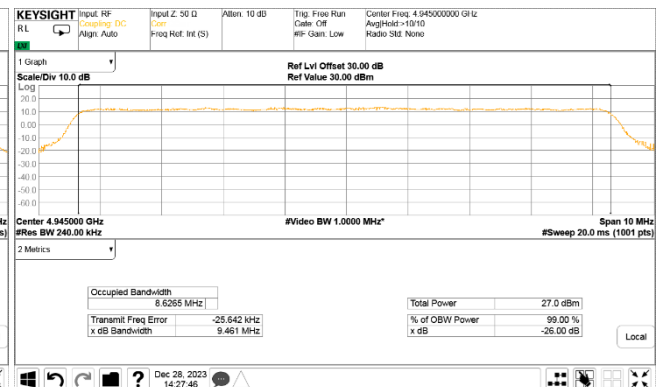
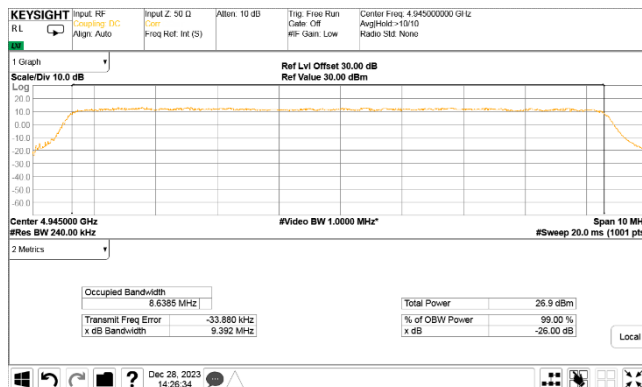
CHANNEL SPACING:  
ANTENNA PORT:  
Modulation: QPSK

10 MHz  
1  
Modulation: 16QAM



Modulation: 64QAM

Modulation: 256QAM





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|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

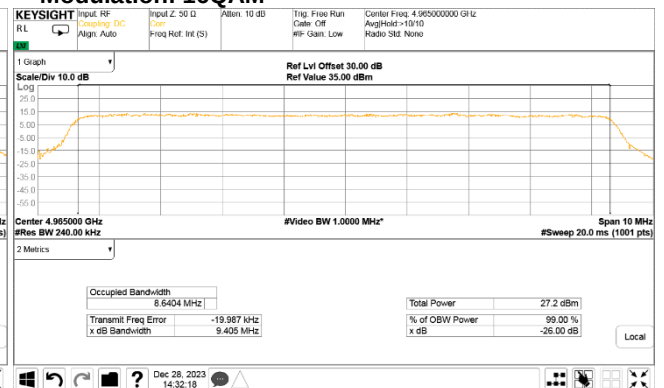
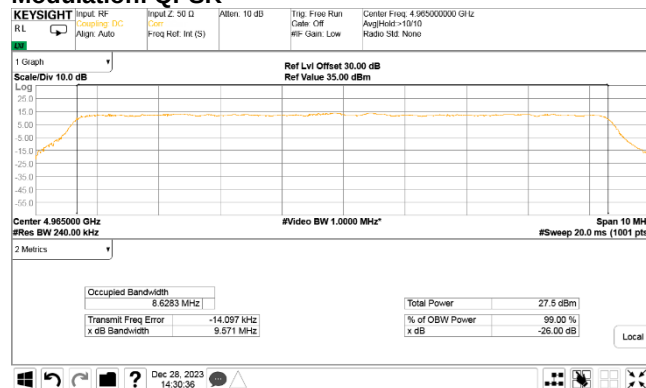
Plot 7.2.2 Occupied bandwidth test result at mid frequency

CHANNEL SPACING:  
ANTENNA PORT:  
Modulation: QPSK

10 MHz

1

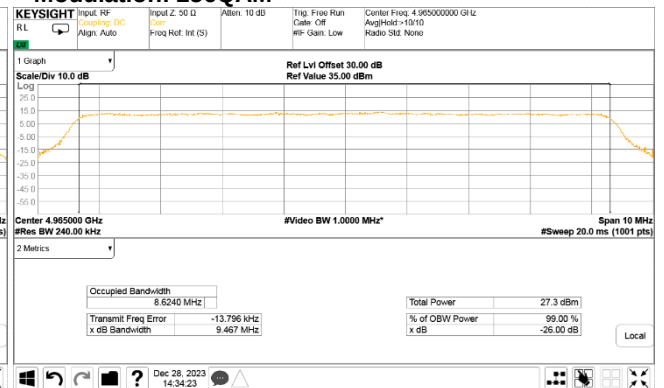
Modulation: 16QAM



Modulation: 64QAM



Modulation: 256QAM



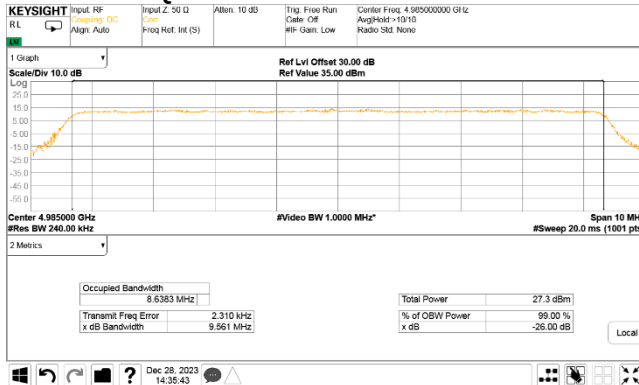


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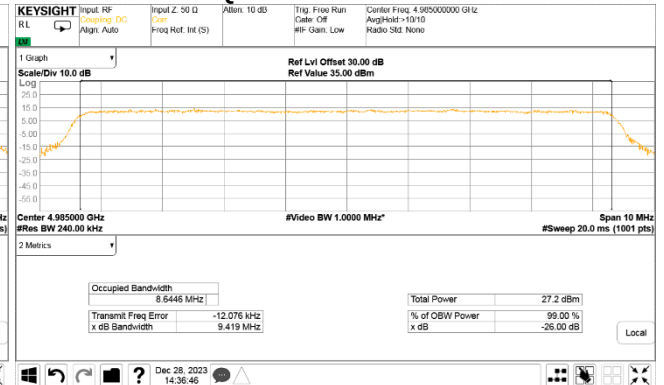
|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

Plot 7.2.3 Occupied bandwidth test result at high frequency

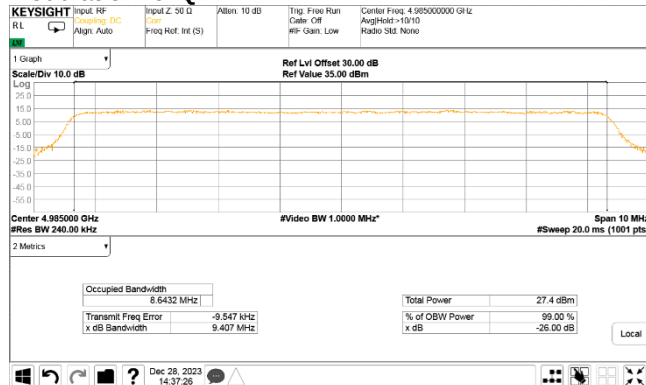
CHANNEL SPACING:  
ANTENNA PORT:  
Modulation: QPSK



10 MHz  
1  
Modulation: 16QAM



Modulation: 64QAM



Modulation: 256QAM



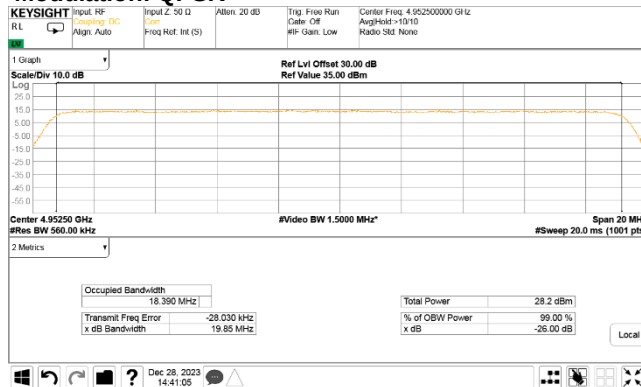


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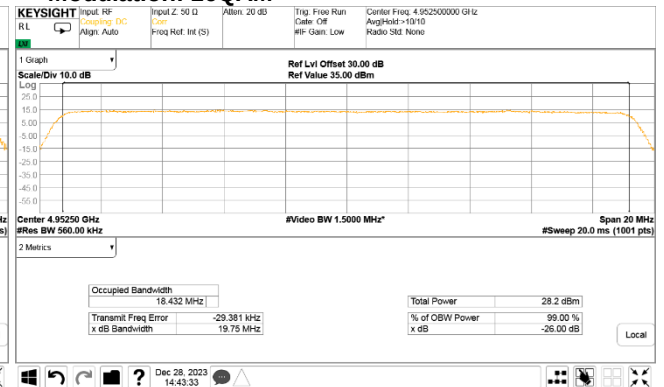
|                     |                         |                                    |               |
|---------------------|-------------------------|------------------------------------|---------------|
| Test specification: |                         | Section 90.209, Occupied bandwidth |               |
| Test procedure:     |                         | 47 CFR, Section 2.1049             |               |
| Test mode:          |                         | Verdict: PASS                      |               |
| Date(s):            |                         |                                    |               |
| 28-Dec-23           |                         |                                    |               |
| Temperature: 23 °C  | Relative Humidity: 47 % | Air Pressure: 1016 hPa             | Power: 48 VDC |
| Remarks:            |                         |                                    |               |

Plot 7.2.4 Occupied bandwidth test result at low frequency

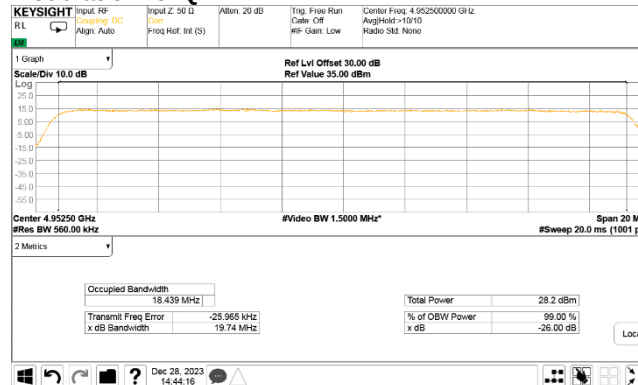
CHANNEL SPACING:  
ANTENNA PORT:  
Modulation: QPSK



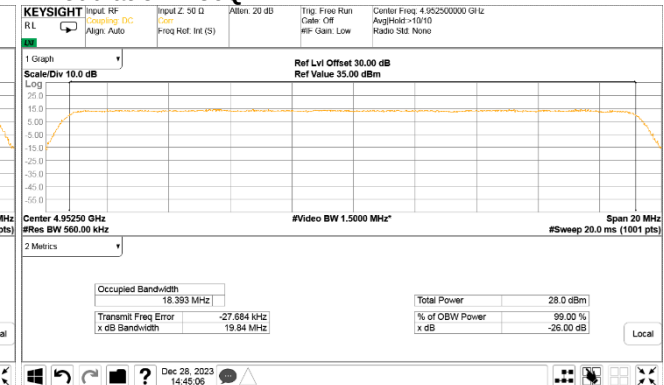
25 MHz  
1  
Modulation: 16QAM



Modulation: 64QAM



Modulation: 256QAM





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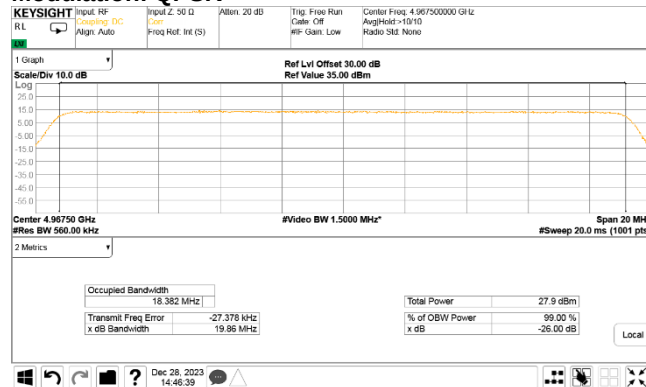
|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

Plot 7.2.5 Occupied bandwidth test result at mid frequency

CHANNEL SPACING:

ANTENNA PORT:

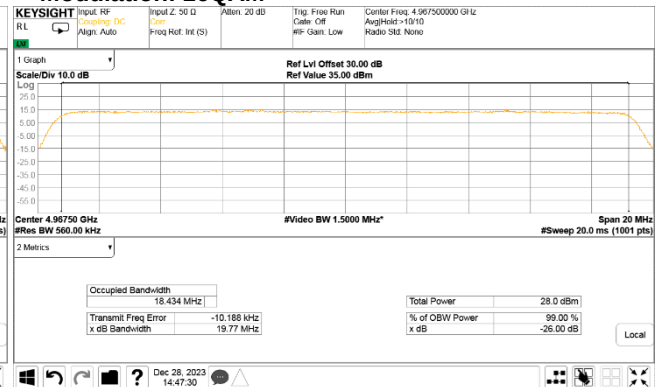
Modulation: QPSK



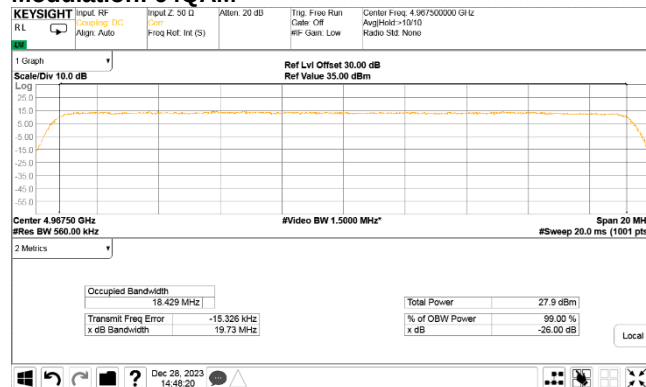
25 MHz

1

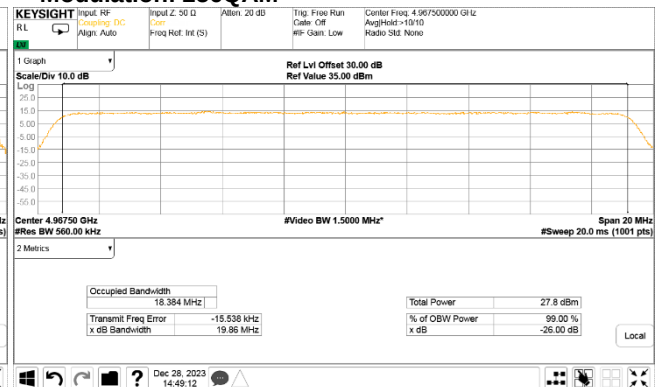
Modulation: 16QAM



Modulation: 64QAM



Modulation: 256QAM



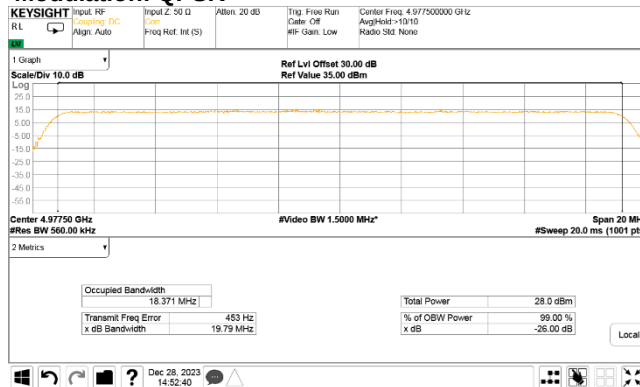


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|                                                        |                         |                        |               |
|--------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.209, Occupied bandwidth |                         |                        |               |
| Test procedure: 47 CFR, Section 2.1049                 |                         |                        |               |
| Test mode: Compliance                                  |                         | Verdict: PASS          |               |
| Date(s): 28-Dec-23                                     |                         |                        |               |
| Temperature: 23 °C                                     | Relative Humidity: 47 % | Air Pressure: 1016 hPa | Power: 48 VDC |
| Remarks:                                               |                         |                        |               |

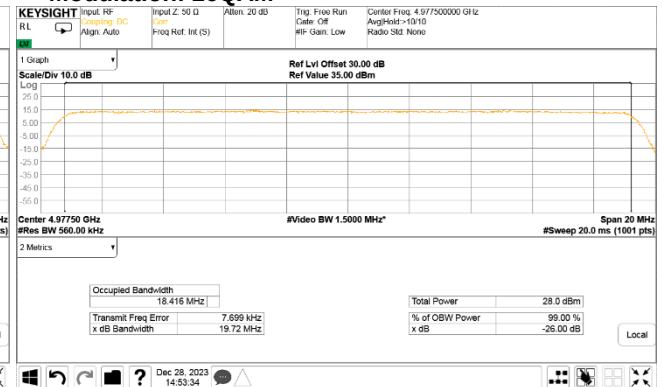
### Plot 7.2.6 Occupied bandwidth test result at high frequency

CHANNEL SPACING:  
ANTENNA PORT:  
Modulation: QPSK

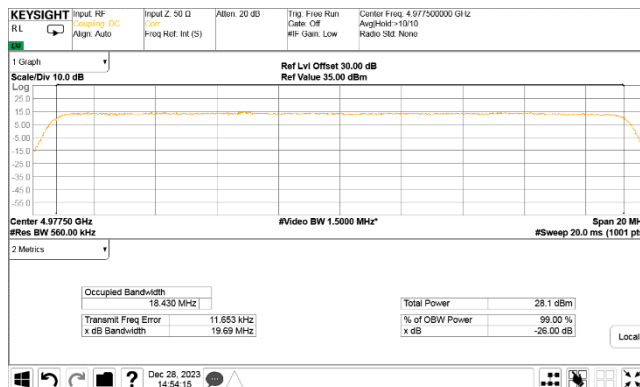


25 MHz  
1

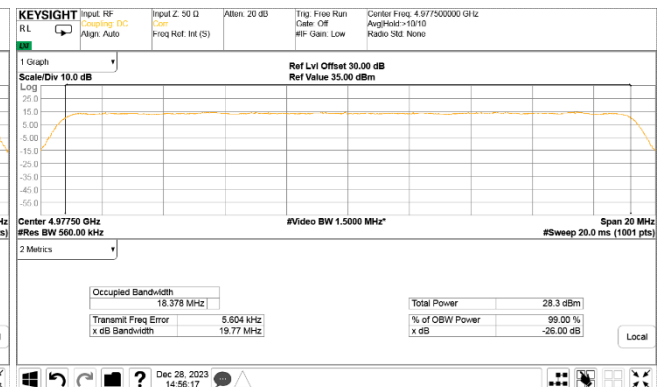
Modulation: 16QAM



Modulation: 64QAM



Modulation: 256QAM





CHANNEL SPACING:  
ANTENNA PORT:  
**Modulation: QPSK**

1

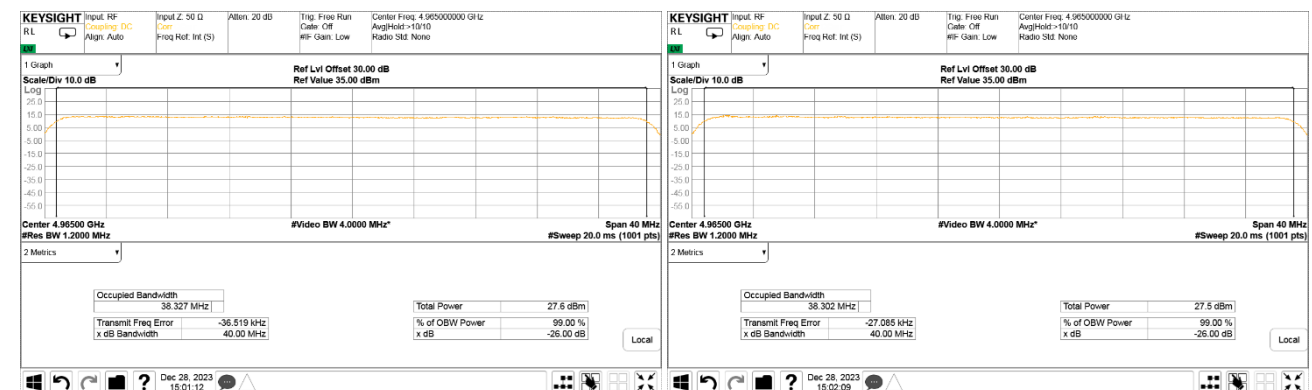
**Left Plot Metrics:**

|                      |                    |                           |             |
|----------------------|--------------------|---------------------------|-------------|
| Center 4.965500 GHz  | #Res BW 1.2000 MHz | #Video BW 4.0000 MHz      | Span 40 MHz |
| 2 Metrics            |                    | #Sweep 20.0 ms (1001 pts) |             |
| Occupied Bandwidth   | 38.277 MHz         | Total Power               | 27.6 dBm    |
| Transmitt Freq Error | -55.910 kHz        | % of OBW Power            | 99.00 %     |
| x dB Bandwidth       | 40.00 MHz          | x dB                      | -26.00 dB   |

**Right Plot Metrics:**

|                      |                    |                           |             |
|----------------------|--------------------|---------------------------|-------------|
| Center 4.965500 GHz  | #Res BW 1.2000 MHz | #Video BW 4.0000 MHz      | Span 40 MHz |
| 2 Metrics            |                    | #Sweep 20.0 ms (1001 pts) |             |
| Occupied Bandwidth   | 38.331 MHz         | Total Power               | 27.6 dBm    |
| Transmitt Freq Error | -44.581 kHz        | % of OBW Power            | 99.00 %     |
| x dB Bandwidth       | 40.00 MHz          | x dB                      | -26.00 dB   |

**Modulation: 256QAM**





|                                                                      |                                |                               |                      |
|----------------------------------------------------------------------|--------------------------------|-------------------------------|----------------------|
| <b>Test specification:</b> <b>Section 90.210, Emission mask</b>      |                                |                               |                      |
| <b>Test procedure:</b> 47 CFR, Sections 2.1051, 2.1047 and 90.210(m) |                                |                               |                      |
| <b>Test mode:</b> Compliance                                         |                                | <b>Verdict:</b> <b>PASS</b>   |                      |
| <b>Date(s):</b> 27-Dec-23                                            |                                |                               |                      |
| <b>Temperature:</b> 23 °C                                            | <b>Relative Humidity:</b> 47 % | <b>Air Pressure:</b> 1014 hPa | <b>Power:</b> 48 VDC |
| <b>Remarks:</b>                                                      |                                |                               |                      |

## 7.3 Emission mask test

### 7.3.1 General

This test was performed to measure emission mask at RF antenna connector. Specification test limits are given in Table 7.3.1 and Table 7.3.2 and Table 7.3.3.

**Table 7.3.1 Emission mask limits for 10 MHz channel bandwidth**

| Frequency displacement from carrier         | Attenuation below carrier, dBc |
|---------------------------------------------|--------------------------------|
| Emission mask M (Occupied bandwidth 10 MHz) |                                |
| 0 – 4.5 MHz                                 | 0***                           |
| 4.5 – 5.0 MHz                               | $568\log(F^*/4.5)$             |
| 5.0 – 5.5 MHz                               | $26+145\log(F^*/5.0)$          |
| 5.5 – 10.0 MHz                              | $32+31\log(F^*/5.5)$           |
| 10.0 – 15.0 MHz                             | $40+57\log(F^*/10.0)$          |
| More than** 15.0 MHz                        | 50                             |

\* - F – frequency in MHz removed from center

\*\* - emission mask includes carrier modulation envelope within  $\pm 150\%$  of the authorized bandwidth; the frequency range removed beyond  $\pm 150\%$  of the authorized bandwidth from carrier was investigated as spurious emission

\*\*\* - Zero dB reference measured relative to the highest average power of the fundamental emission measured across designated channel bandwidth

**Table 7.3.2 Emission mask limits for 25 MHz channel bandwidth**

| Frequency displacement from carrier         | Attenuation below carrier, dBc |
|---------------------------------------------|--------------------------------|
| Emission mask M (Occupied bandwidth 20 MHz) |                                |
| 0 – 11.25 MHz                               | 0***                           |
| 11.25 – 12.50 MHz                           | $568\log(F^*/4.5)$             |
| 12.50 – 13.75 MHz                           | $26+145\log(F^*/5.0)$          |
| 13.75 – 25.00 MHz                           | $32+31\log(F^*/5.5)$           |
| 25.00 – 37.50 MHz                           | $40+57\log(F^*/10.0)$          |
| More than** 37.50 MHz                       | 50                             |

\* - F – frequency in MHz removed from center

\*\* - emission mask includes carrier modulation envelope within  $\pm 150\%$  of the authorized bandwidth; the frequency range removed beyond  $\pm 150\%$  of the authorized bandwidth from carrier was investigated as spurious emission

\*\*\* - Zero dB reference measured relative to the highest average power of the fundamental emission measured across designated channel bandwidth



|                                                               |                         |                        |               |
|---------------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.210, Emission mask             |                         |                        |               |
| Test procedure: 47 CFR, Sections 2.1051, 2.1047 and 90.210(m) |                         |                        |               |
| Test mode: Compliance                                         |                         | Verdict: PASS          |               |
| Date(s): 27-Dec-23                                            |                         |                        |               |
| Temperature: 23 °C                                            | Relative Humidity: 47 % | Air Pressure: 1014 hPa | Power: 48 VDC |
| Remarks:                                                      |                         |                        |               |

Table 7.3.3 Emission mask limits for 50 MHz channel bandwidth

| Frequency displacement from carrier         | Attenuation below carrier, dBc |
|---------------------------------------------|--------------------------------|
| Emission mask M (Occupied bandwidth 40 MHz) |                                |
| 0 – 22.50 MHz                               | 0***                           |
| 22.50 – 25.00 MHz                           | 568log(F*/4.5)                 |
| 25.00 – 27.50 MHz                           | 26+145log(F*/5.0)              |
| 27.50 – 50.00 MHz                           | 32+31log(F*/5.5)               |
| 50.00 – 75.00 MHz                           | 40+57log(F*/10.0)              |
| More than** 75.00 MHz                       | 50                             |

\* - F – frequency in MHz removed from center

\*\* - emission mask includes carrier modulation envelope within  $\pm 150$  % of the authorized bandwidth; the frequency range removed beyond  $\pm 150$  % of the authorized bandwidth from carrier was investigated as spurious emission

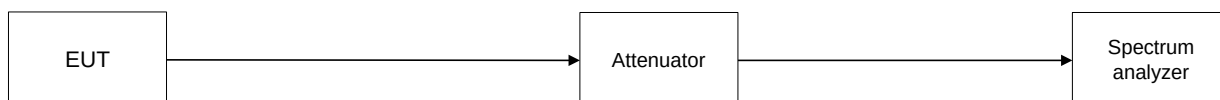
\*\*\* - Zero dB reference measured relative to the highest average power of the fundamental emission measured across designated channel bandwidth

### 7.3.2 Test procedure

**7.3.2.1** The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

**7.3.2.2** The emission mask was measured with spectrum analyzer with RBW set to 1% of emission bandwidth and VBW = 30 kHz as provided in the associated plots. The test results are provided in the associated plots.

Figure 7.3.1 Emission mask test setup





|                     |                         |                                               |               |
|---------------------|-------------------------|-----------------------------------------------|---------------|
| Test specification: |                         | Section 90.210, Emission mask                 |               |
| Test procedure:     |                         | 47 CFR, Sections 2.1051, 2.1047 and 90.210(m) |               |
| Test mode:          |                         | Verdict: PASS                                 |               |
| Date(s):            |                         |                                               |               |
| 27-Dec-23           |                         |                                               |               |
| Temperature: 23 °C  | Relative Humidity: 47 % | Air Pressure: 1014 hPa                        | Power: 48 VDC |
| Remarks:            |                         |                                               |               |

Table 7.3.4 Emission mask test results at 10 MHz channel bandwidth

| Carrier frequency, MHz | Limit           | Verdict |
|------------------------|-----------------|---------|
| 4945.0                 | Emission mask M | Pass    |
| 4965.0                 |                 |         |
| 4985.0                 |                 |         |

Table 7.3.5 Emission mask test results at 25 MHz channel bandwidth

| Carrier frequency, MHz | Limit           | Verdict |
|------------------------|-----------------|---------|
| 4952.5                 | Emission mask M | Pass    |
| 4967.5                 |                 |         |
| 4977.5                 |                 |         |

Table 7.3.6 Emission mask test results at 50 MHz channel bandwidth

| Carrier frequency, MHz | Limit           | Verdict |
|------------------------|-----------------|---------|
| 4965.0                 | Emission mask M | Pass    |

## Reference numbers of test equipment used

|         |         |         |  |  |  |  |  |  |
|---------|---------|---------|--|--|--|--|--|--|
| HL 5637 | HL 5376 | HL 5933 |  |  |  |  |  |  |
|---------|---------|---------|--|--|--|--|--|--|

Full description is given in Appendix A.



HERMON LABORATORIES

|                                                               |                         |                        |               |
|---------------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.210, Emission mask             |                         |                        |               |
| Test procedure: 47 CFR, Sections 2.1051, 2.1047 and 90.210(m) |                         |                        |               |
| Test mode: Compliance                                         |                         | Verdict: PASS          |               |
| Date(s): 27-Dec-23                                            |                         |                        |               |
| Temperature: 23 °C                                            | Relative Humidity: 47 % | Air Pressure: 1014 hPa | Power: 48 VDC |
| Remarks:                                                      |                         |                        |               |

Plot 7.3.1 Emission mask test results at low, mid, high carrier frequency, 10 MHz CBW

OPERATING FREQUENCY RANGE:

DETECTOR USED:

MODULATION:

MODULATING SIGNAL:

TRANSMITTER OUTPUT POWER SETTINGS:

ANTENNA CHAIN

4945.0 – 4985.0 MHz

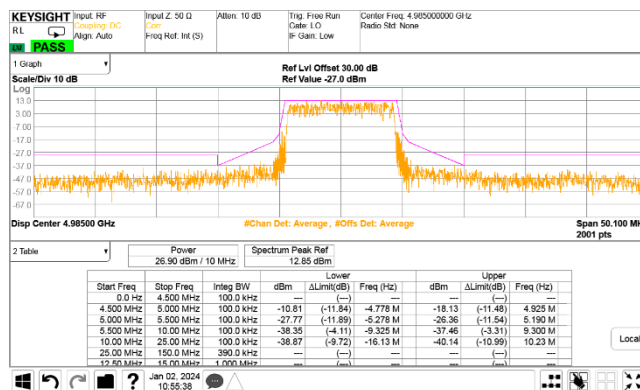
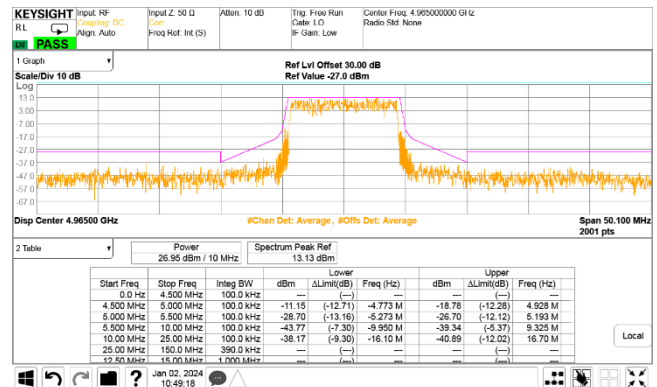
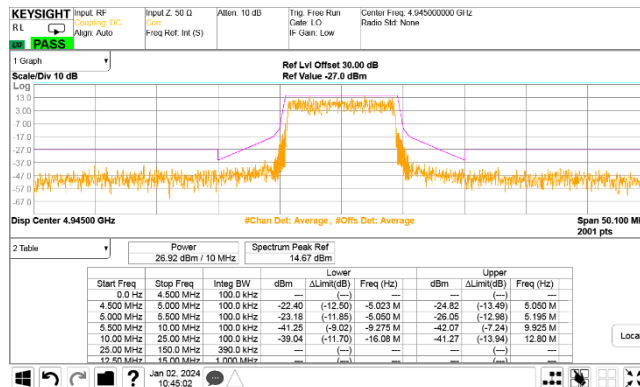
Peak

QPSK

PRBS

Maximum

1





HERMON LABORATORIES

|                                                               |                         |                        |               |
|---------------------------------------------------------------|-------------------------|------------------------|---------------|
| Test specification: Section 90.210, Emission mask             |                         |                        |               |
| Test procedure: 47 CFR, Sections 2.1051, 2.1047 and 90.210(m) |                         |                        |               |
| Test mode: Compliance                                         |                         | Verdict: PASS          |               |
| Date(s): 27-Dec-23                                            |                         |                        |               |
| Temperature: 23 °C                                            | Relative Humidity: 47 % | Air Pressure: 1014 hPa | Power: 48 VDC |
| Remarks:                                                      |                         |                        |               |

Plot 7.3.2 Emission mask test results at low, mid, high carrier frequency, 10 MHz CBW

OPERATING FREQUENCY RANGE:

4945.0 – 4985.0 MHz

DETECTOR USED:

Peak

MODULATION:

16QAM

MODULATING SIGNAL:

PRBS

TRANSMITTER OUTPUT POWER SETTINGS:

Maximum

ANTENNA CHAIN

1

