

Full Spectrum

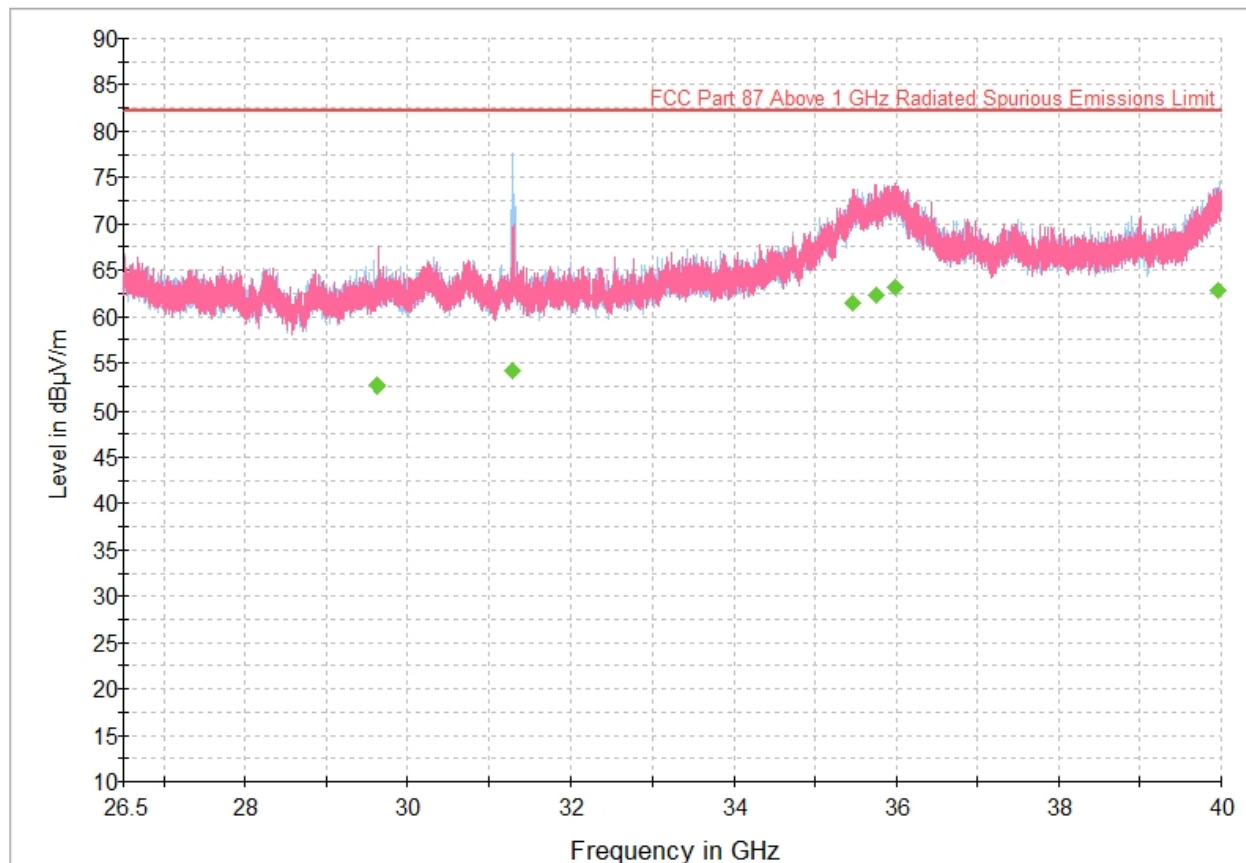


Figure 8.5-4: Radiated emissions spectral plot (26.5 GHz - 40 GHz)

Table 8.5-4: Radiated emissions results

| Frequency (MHz) | CAverage (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 29628.737500    | 52.56             | 82.23          | 29.67       | 5000.0          | 1000.000        | 100.0       | V   | 124.0         | 48.4         |
| 31283.387500    | 54.09             | 82.23          | 28.14       | 5000.0          | 1000.000        | 179.0       | H   | 42.0          | 48.3         |
| 35466.568750    | 61.45             | 82.23          | 20.78       | 5000.0          | 1000.000        | 121.0       | V   | 146.0         | 54.9         |
| 35756.743750    | 62.29             | 82.23          | 19.94       | 5000.0          | 1000.000        | 145.0       | V   | 11.0          | 55.8         |
| 35994.081250    | 63.24             | 82.23          | 18.99       | 5000.0          | 1000.000        | 137.0       | V   | 245.0         | 56.4         |
| 39969.812500    | 62.82             | 82.23          | 19.41       | 5000.0          | 1000.000        | 128.0       | H   | 110.0         | 53.7         |

Notes:

<sup>1</sup> Field strength (dBµV/m) = receiver/spectrum analyzer value (dBµV) + correction factor (dB)

<sup>2</sup> Correction factors = antenna factor ACF (dB) + cable loss (dB)

<sup>3</sup> Emissions that were continuously present for a minimum of 1 second and occurred more than once for every 15 seconds observation period were considered valid emissions. The maximum value of valid emissions has been recorded.

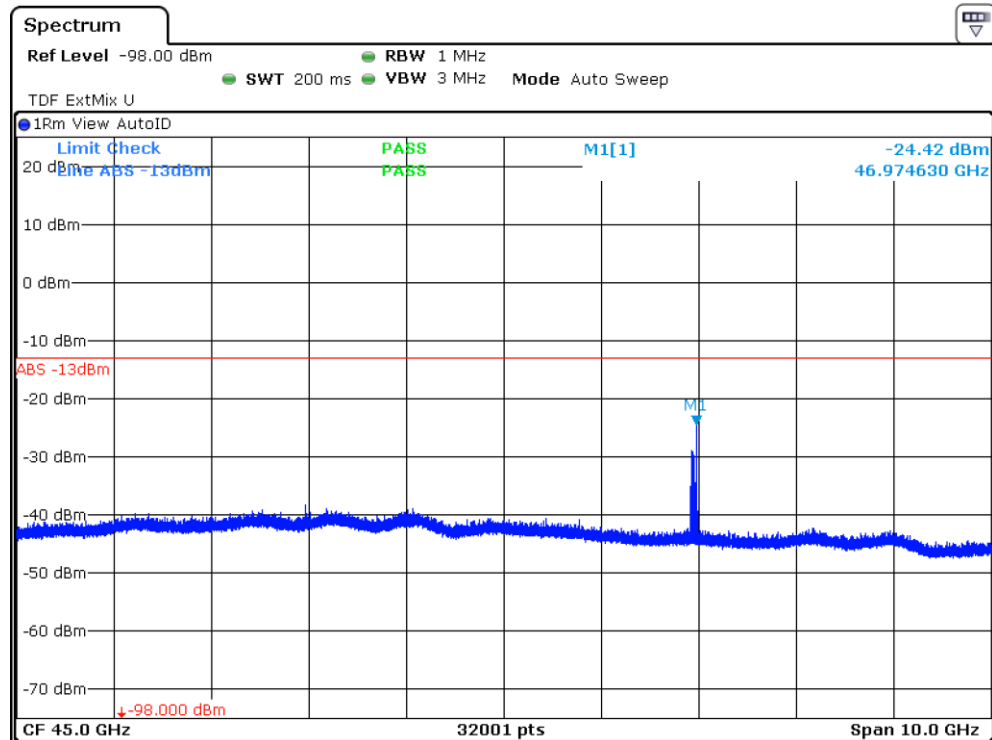


Figure 8.5-5: Radiated emissions spectral plot (40 GHz - 50 GHz) Horizontal

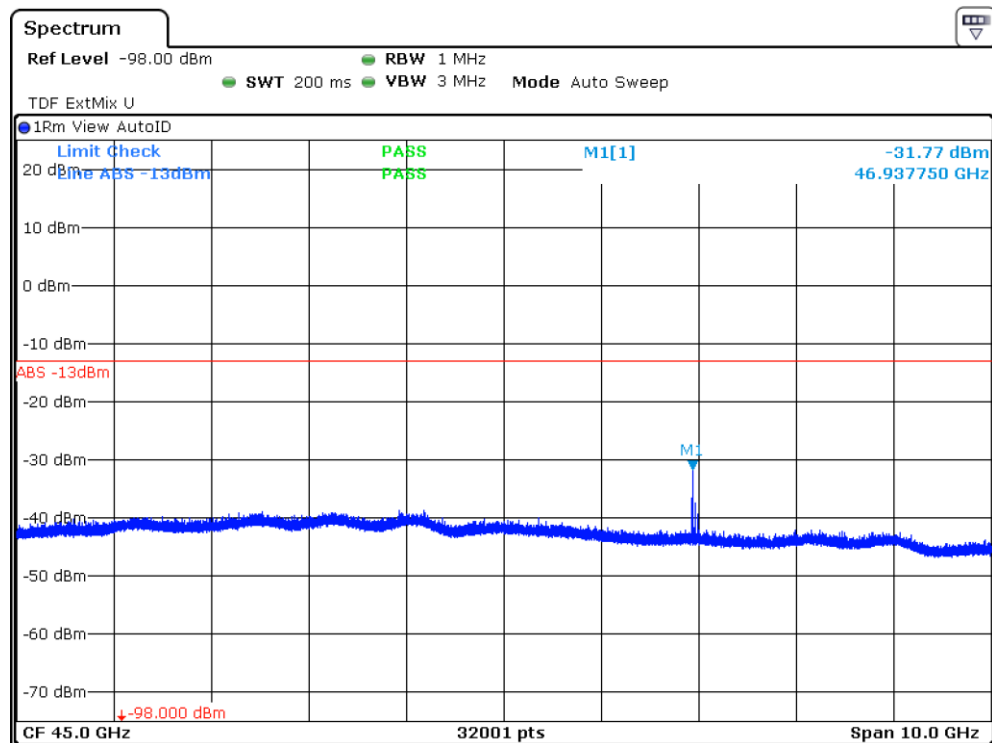


Figure 8.5-6: Radiated emissions spectral plot (40 GHz - 50 GHz) Vertical

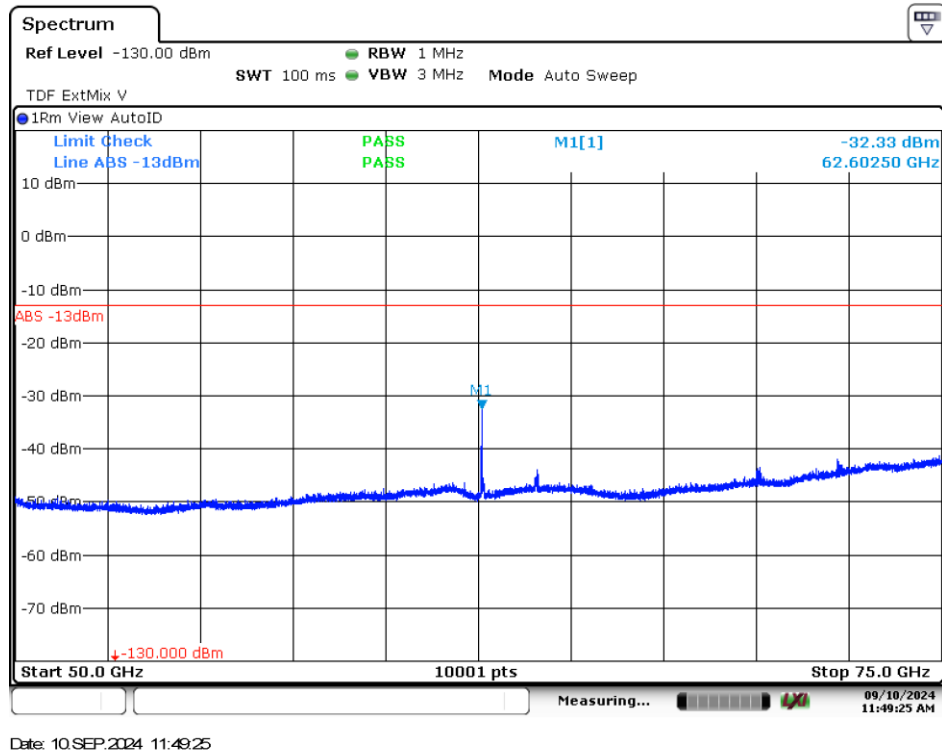


Figure 8.5-7: Radiated emissions spectral plot (50 GHz - 75 GHz) Horizontal

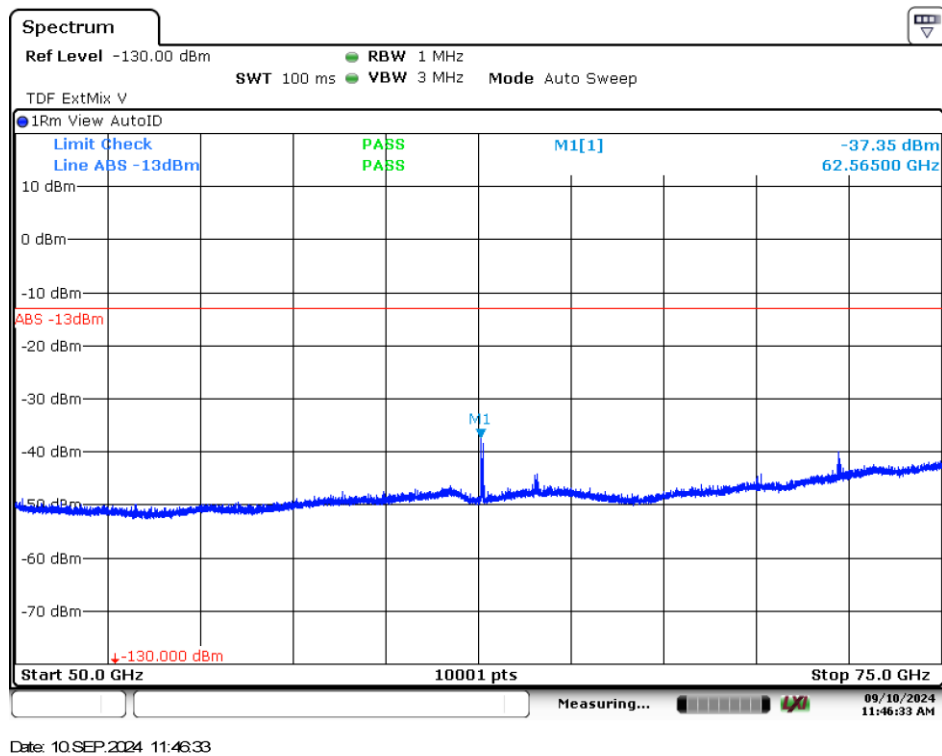


Figure 8.5-8: Radiated emissions spectra I plot (50 GHz - 75 GHz) Vertical

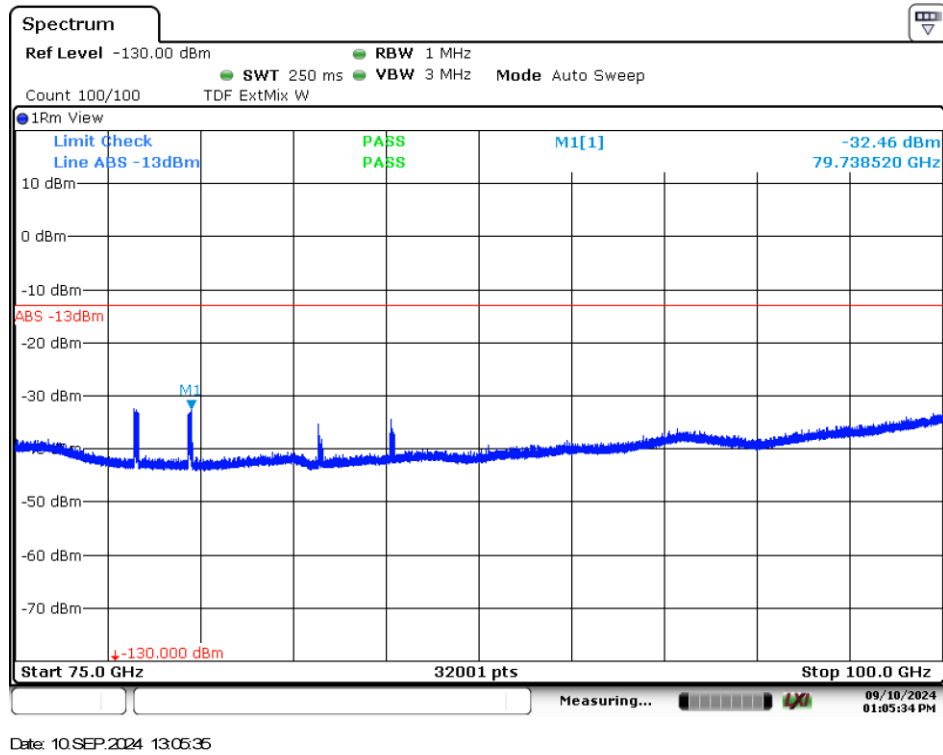


Figure 8.5-9: Radiated emissions spectral plot (75 GHz - 100 GHz) Horizontal

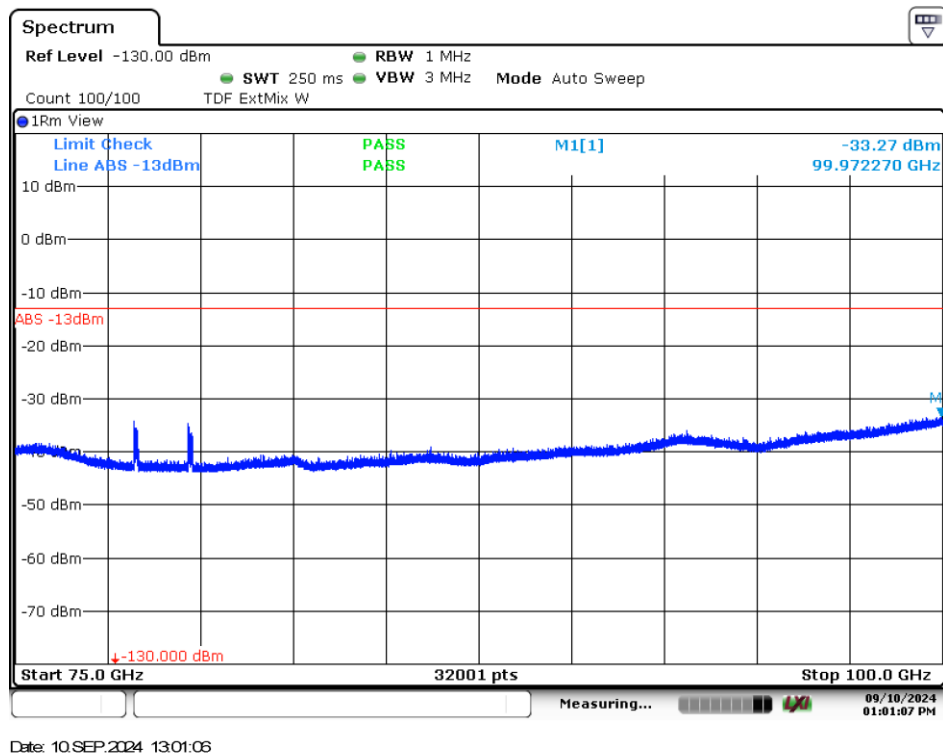


Figure 8.5-10: Radiated emissions spectral plot (75 GHz - 100 GHz) Vertical

## 8.6 Frequency stability

### 8.6.1 References and limits

- FCC 47 CFR Part 87: §87.133
- Test method: ANSI C63.26 (5.6.3)
  - (a) Except as provided in paragraphs (c), (d), (f), and (g) of this section, the carrier frequency of each station must be maintained within these tolerances:

| Frequency band (lower limit exclusive, upper limit inclusive),<br>and categories of stations | Tolerance <sup>1</sup> | Tolerance <sup>2</sup> |
|----------------------------------------------------------------------------------------------|------------------------|------------------------|
| Radionavigation stations                                                                     | 5000                   | 5000                   |

### 8.6.2 Test summary

|               |                                                                                                                                                                                                                          |                   |          |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|
| Verdict       | Pass                                                                                                                                                                                                                     |                   |          |
| Test date     | September 13, 2024                                                                                                                                                                                                       | Temperature       | 18°C     |
| Test engineer | Chenhao Ma, Wireless Test Technician                                                                                                                                                                                     | Air pressure      | 1006mbar |
| Test location | <input type="checkbox"/> Wireless bench<br><input type="checkbox"/> 10 m semi-anechoic chamber<br><input type="checkbox"/> 3 m semi-anechoic chamber<br><input checked="" type="checkbox"/> Other: Environmental chamber | Relative humidity | 51 %     |

### 8.6.3 Notes

Testing was performed with the transmitter operating on a fixed channel at full power. An unmodulated signal with a frequency center in the middle channel was selected for this test (15.55 GHz).

### 8.6.4 Setup details

|                             |                                                                                                                                                                     |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT power input during test | 28 V DC                                                                                                                                                             |
| EUT setup configuration     | <input type="checkbox"/> Table-top<br><input type="checkbox"/> Floor standing<br><input checked="" type="checkbox"/> Other: Mounted on a fixture provided by client |

Spectrum analyzer settings:

|                      |          |
|----------------------|----------|
| Resolution bandwidth | 30 kHz   |
| Video bandwidth      | 3 MHz    |
| Detector mode        | Peak     |
| Trace mode           | Max Hold |

8.6.5 Test data

**Table 8.6-1:** Frequency stability results.

| Voltage       | Temperature | Channel frequency<br>(Hz) | Measured frequency<br>(Hz) | ppm    | Limit<br>(ppm) | Result |
|---------------|-------------|---------------------------|----------------------------|--------|----------------|--------|
| 28 V          | -40°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | -30°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | -20°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | -10°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | 0°C         | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | +10°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | +20°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 23.8 V (-15%) | +20°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 32.2 V (+15%) | +20°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | +30°C       | 15550000000               | 15549992800                | -0.463 | 5000           | Pass   |
| 28 V          | +40°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | +50°C       | 15550000000               | 15550000000                | 0.0000 | 5000           | Pass   |
| 28 V          | +60°C       | 15550000000               | 15549992800                | -0.463 | 5000           | Pass   |
| 28 V          | +65°C       | 15550000000               | 15549992800                | -0.463 | 5000           | Pass   |

End of test report