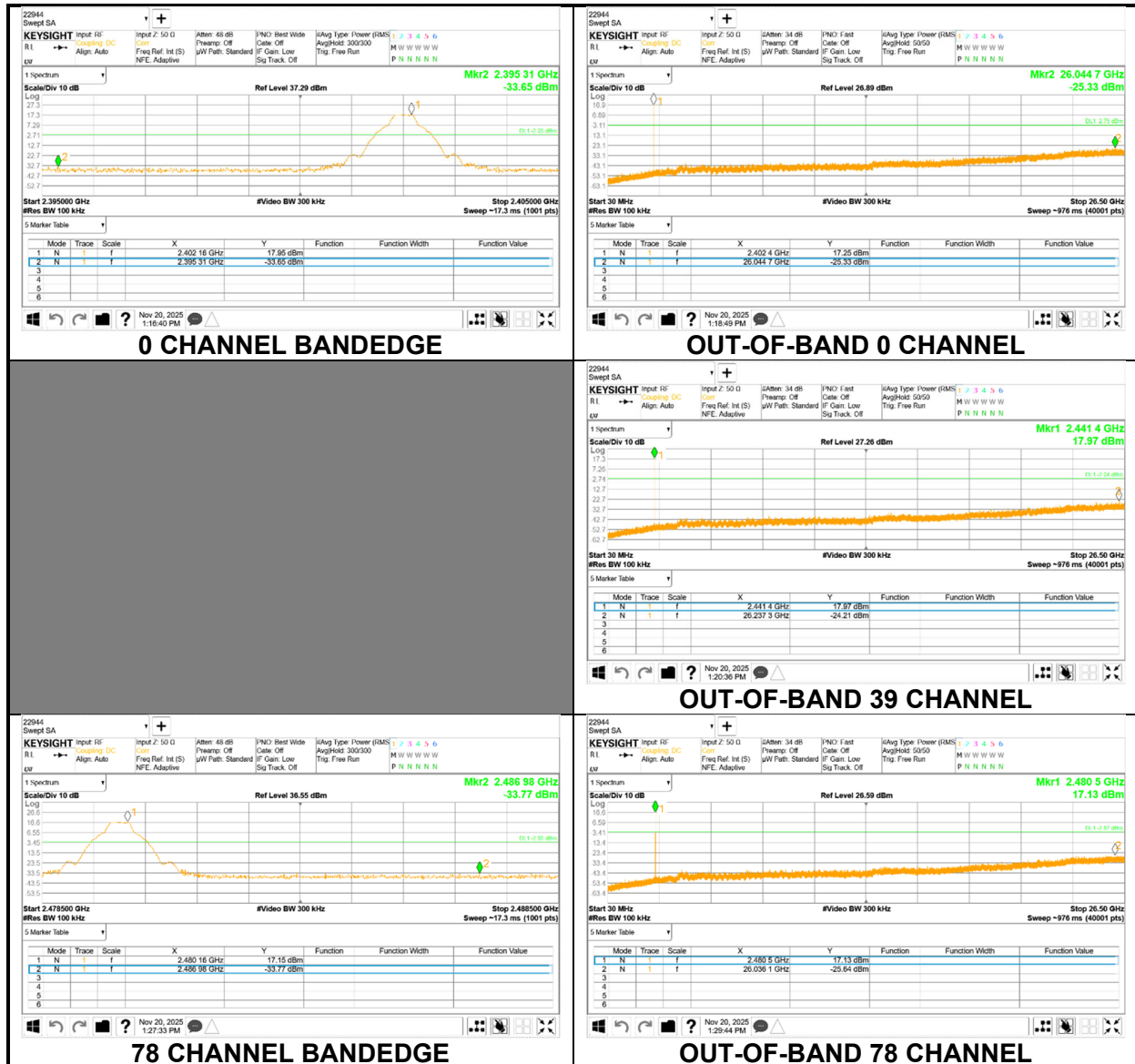
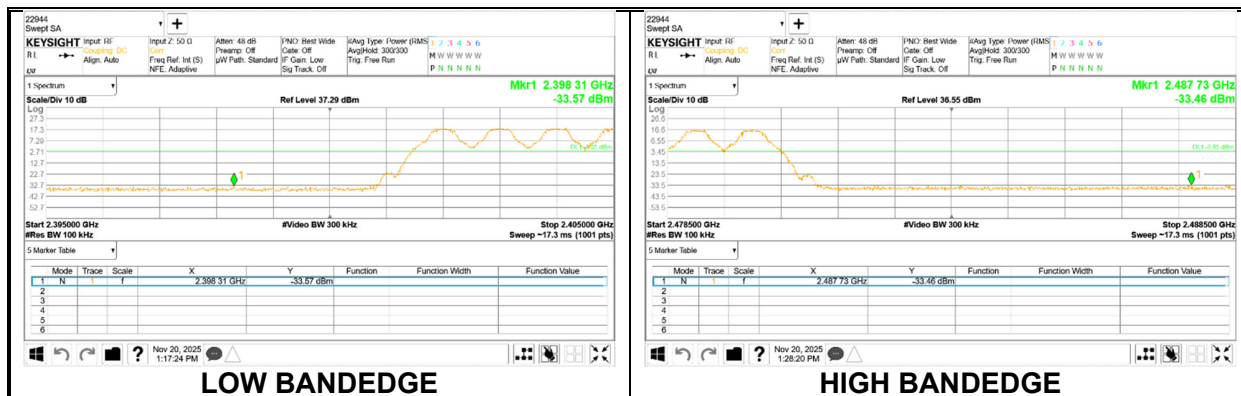


## 9.8.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

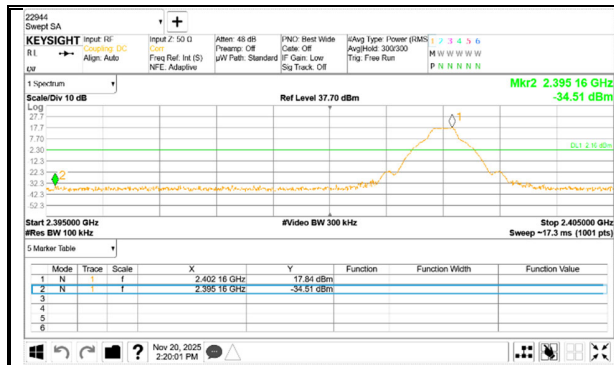
### SPURIOUS EMISSIONS, NON-HOPPING – ANT1



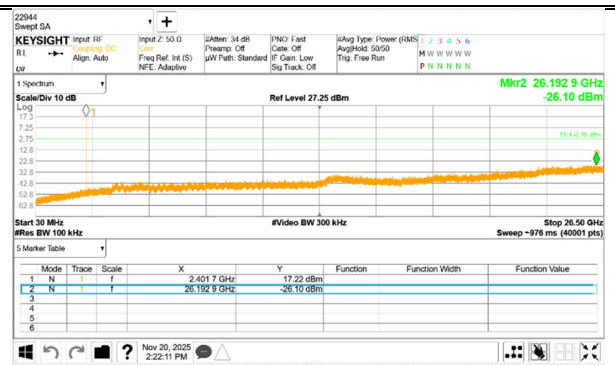
## SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON – ANT1



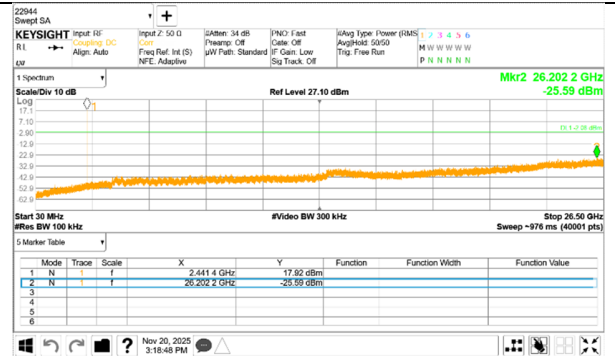
**SPURIOUS EMISSIONS, NON-HOPPING – ANT2**



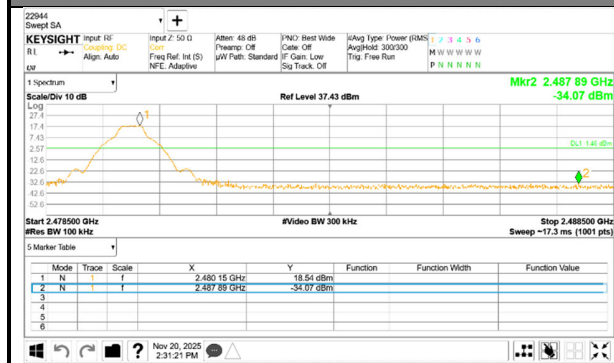
**0 CHANNEL BANDEDGE**



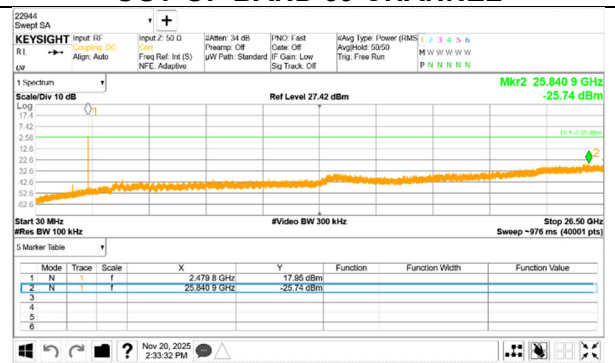
**OUT-OF-BAND 0 CHANNEL**



**OUT-OF-BAND 39 CHANNEL**

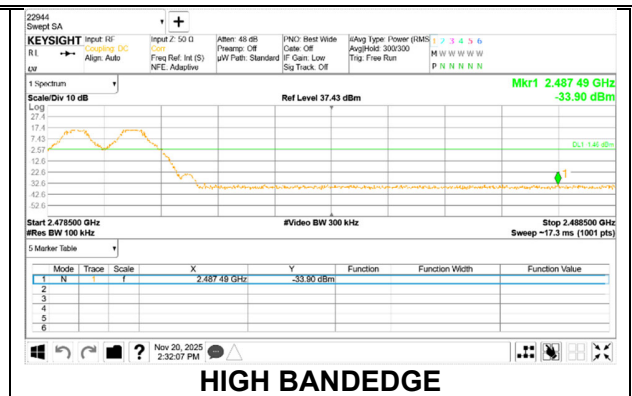
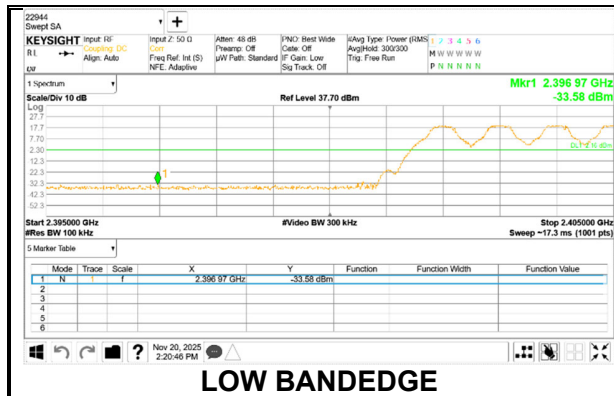


**78 CHANNEL BANDEDGE**



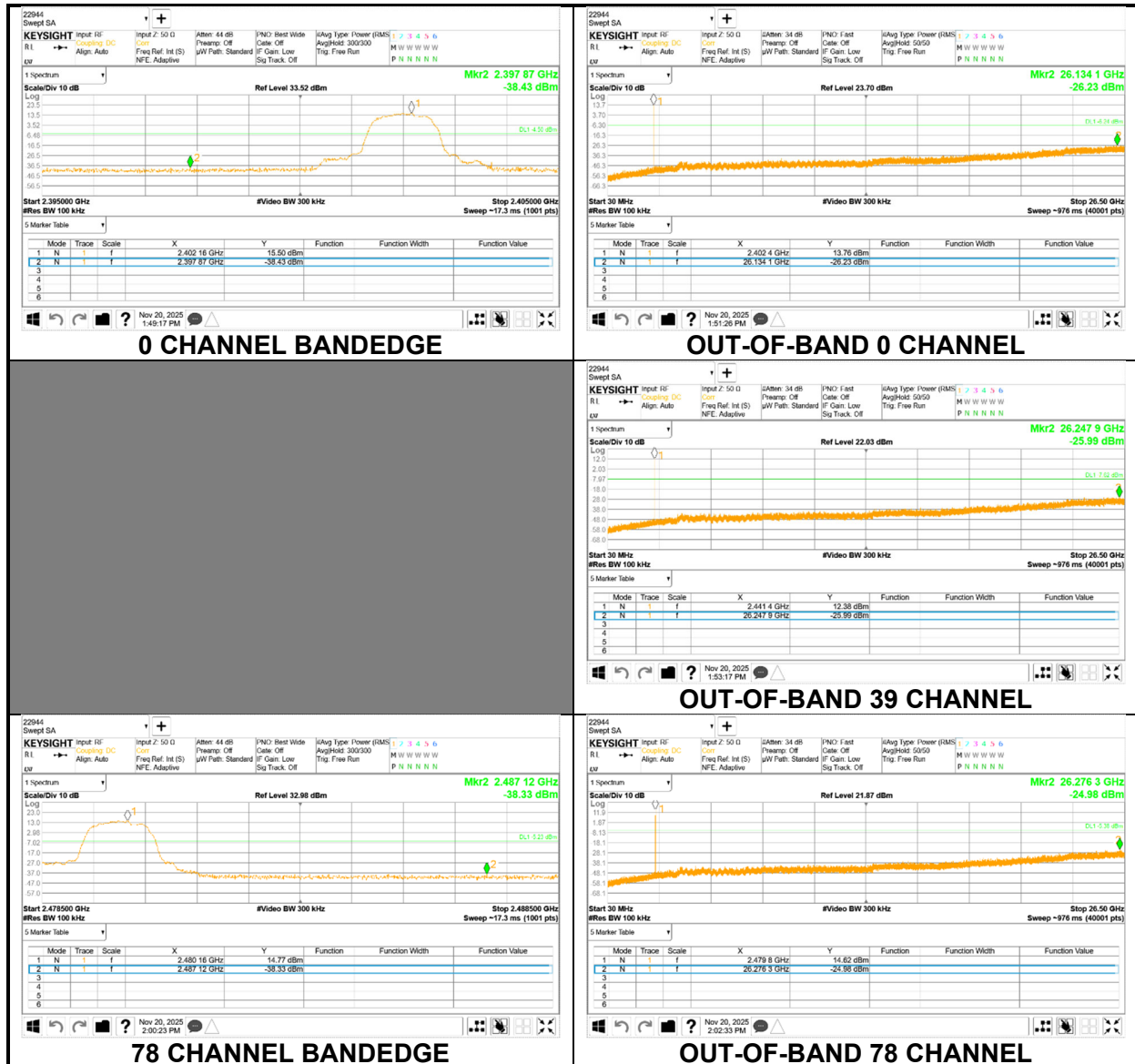
**OUT-OF-BAND 78 CHANNEL**

## SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON – ANT2

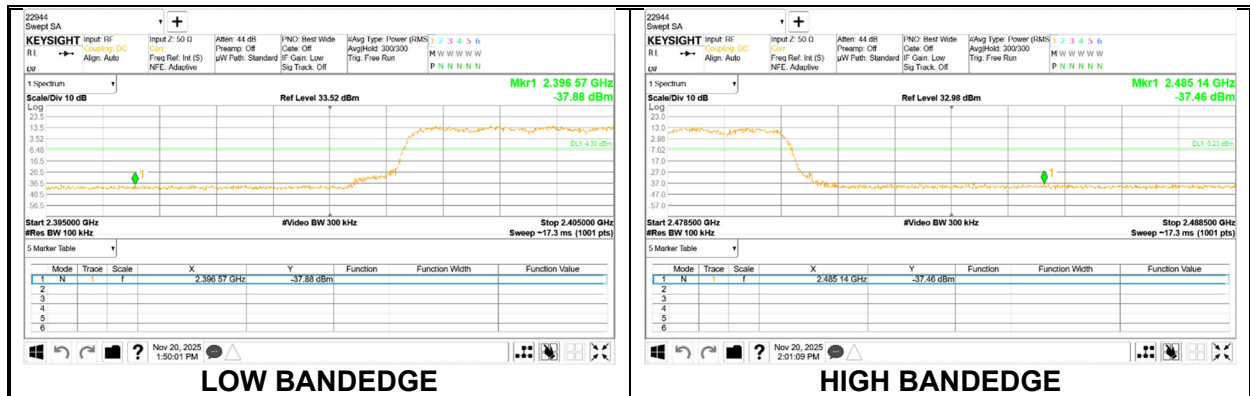


## 9.8.2. BLUETOOTH ENHANCED DATA RATE 8DPSK MODULATION

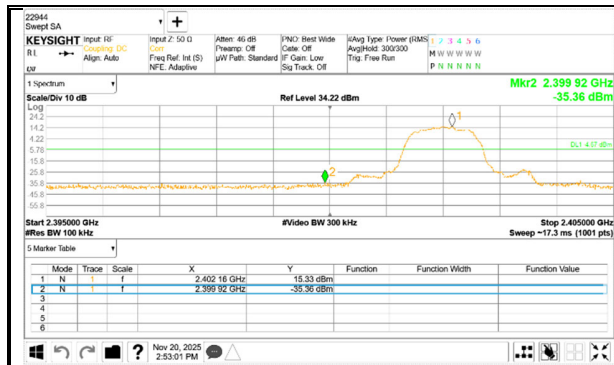
### SPURIOUS EMISSIONS, NON-HOPPING – ANT1



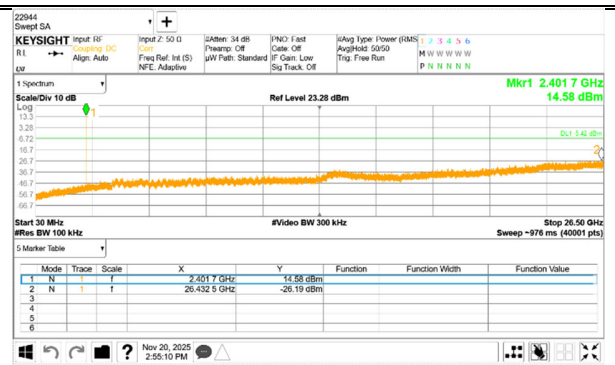
## SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON – ANT1



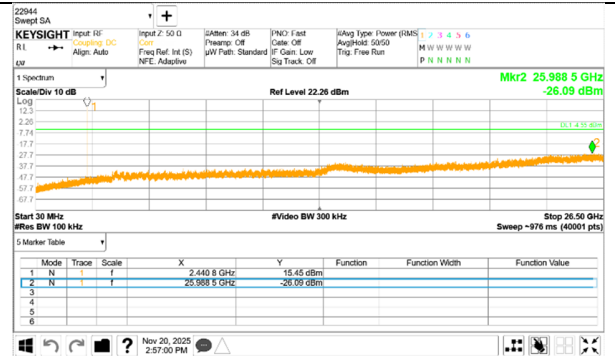
**SPURIOUS EMISSIONS, NON-HOPPING – ANT2**



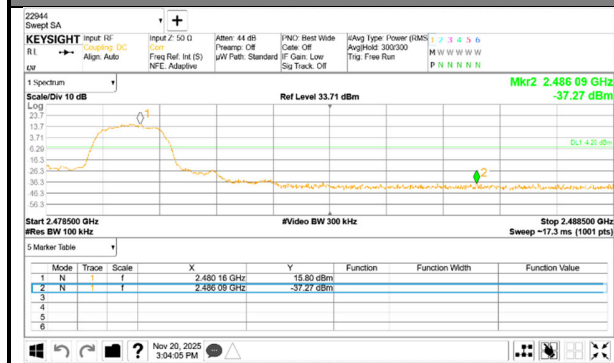
**0 CHANNEL BANDEDGE**



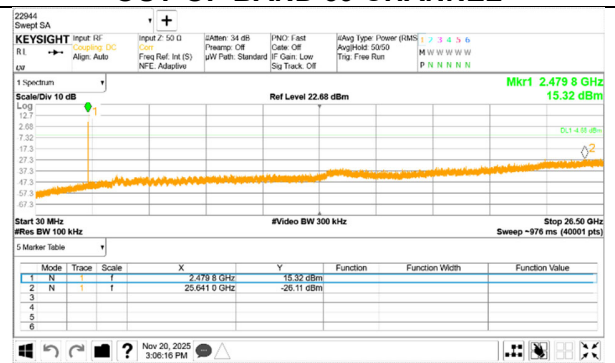
**OUT-OF-BAND 0 CHANNEL**



**OUT-OF-BAND 39 CHANNEL**

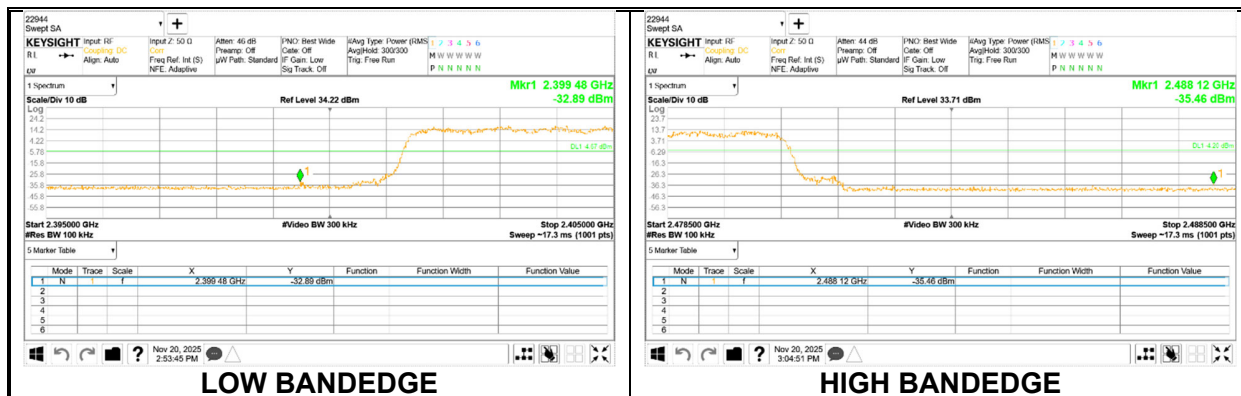


**78 CHANNEL BANDEDGE**



**OUT-OF-BAND 78 CHANNEL**

## SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON – ANT2



## 10. RADIATED TEST RESULTS

### LIMITS

FCC §15.205 and §15.209

| Limits for radiated disturbance of an intentional radiator |                 |                          |
|------------------------------------------------------------|-----------------|--------------------------|
| Frequency range (MHz)                                      | Limits (µV/m)   | Measurement Distance (m) |
| 0.009 – 0.490                                              | 2400 / F (kHz)  | 300                      |
| 0.490 – 1.705                                              | 24000 / F (kHz) | 30                       |
| 1.705 – 30.0                                               | 30              | 30                       |
| 30 – 88                                                    | 100**           | 3                        |
| 88 - 216                                                   | 150**           | 3                        |
| 216 – 960                                                  | 200**           | 3                        |
| Above 960                                                  | 500             | 3                        |

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

| MHz               | MHz                 | MHz            | MHz             | GHz          | GHz           |
|-------------------|---------------------|----------------|-----------------|--------------|---------------|
| 0.009 ~ 0.110     | 8.41425 ~ 8.41475   | 108 ~ 121.94   | 1300 ~ 1427     | 4.5 ~ 5.15   | 14.47 ~ 14.5  |
| 0.495 ~ 0.505     | 12.29 ~ 12.293      | 123 ~ 138      | 1435 ~ 1626.5   | 5.35 ~ 5.46  | 15.35 ~ 16.2  |
| 2.1735 ~ 2.1905   | 12.51975 ~ 12.52025 | 149.9 ~ 150.05 | 1645.5 ~ 1646.5 | 7.25 ~ 7.75  | 17.7 ~ 21.4   |
| 4.125 ~ 4.128     | 12.57675 ~ 12.57725 | 156.52475 ~    | 1660 ~ 1710     | 8.025 ~ 8.5  | 22.01 ~ 23.12 |
| 4.17725 ~ 4.17775 | 13.36 ~ 13.41       | 156.52525      | 1718.8 ~ 1722.2 | 9.0 ~ 9.2    | 23.6 ~ 24.0   |
| 4.20725 ~ 4.20775 | 16.42 ~ 16.423      | 156.7 ~ 156.9  | 2200 ~ 2300     | 9.3 ~ 9.5    | 31.2 ~ 31.8   |
| 6.215 ~ 6.218     | 16.69475 ~ 16.69525 | 162.0125 ~     | 2310 ~ 2390     | 10.6 ~ 12.7  | 36.43 ~ 36.5  |
| 6.26775 ~ 6.26825 | 16.80425 ~ 16.80475 | 167.17         | 2483.5 ~ 2500   | 13.25 ~ 13.4 | Above 38.6    |
| 6.31175 ~ 6.31225 | 25.5 ~ 25.67        | 167.72 ~ 173.2 | 2655 ~ 2900     |              |               |
| 8.291 ~ 8.294     | 37.5 ~ 38.25        | 240 ~ 285      | 3260 ~ 3267     |              |               |
| 8.362 ~ 8.366     | 73 ~ 74.6           | 322 ~ 335.4    | 3332 ~ 3339     |              |               |
| 8.37625 ~ 8.38675 | 74.8 ~ 75.2         | 399.90 ~ 410   | 3345.8 ~ 3358   |              |               |
|                   |                     | 608 ~ 614      | 3600 ~ 4400     |              |               |
|                   |                     | 960 ~ 1240     |                 |              |               |

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

## **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements. (Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.)

For band edge measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1/T (on time) for average measurement.

$GFSK = 1/T = 1 / 0.00288s = 0.35 \text{ kHz}$ .

The minimum VBW was 347Hz, but test receiver(ESU40) couldn't set value 347Hz. Due to this reason, testing VBW was set to 500Hz(Worst cases).

The spectrum from 1GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.  
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

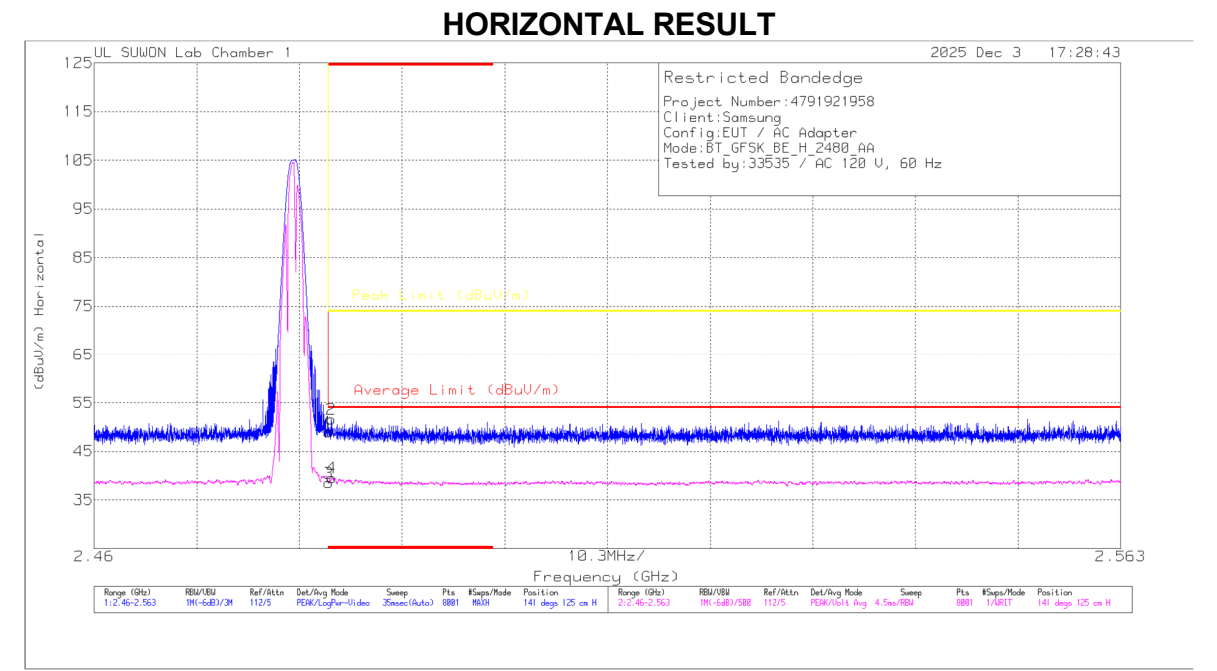
Note : Emission was pre-scanned from 9kHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).  
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.  
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

BANDEDGE (WORST CASE: 78 CHANNEL, DUAL)



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | Antenna Factor (dB/m) | 10dB_Path Loss(dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|-----------------------|--------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.48351       | 42.83                | Pk   | 32                    | -25.8              | 49.03                      | -                      | -           | 74                  | -24.97         | 141            | 125         | H        |
| 2      | * 2.48377       | 45.47                | Pk   | 32                    | -25.8              | 51.67                      | -                      | -           | 74                  | -22.33         | 141            | 125         | H        |
| 3      | * 2.48351       | 32.29                | VA1T | 32                    | -25.8              | 38.49                      | 54                     | -15.51      | -                   | -              | 141            | 125         | H        |
| 4      | * 2.48384       | 33.32                | VA1T | 32                    | -25.8              | 39.52                      | 54                     | -14.48      | -                   | -              | 141            | 125         | H        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band  
Pk - Peak detector  
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

## BANDEDGE TEST DATA

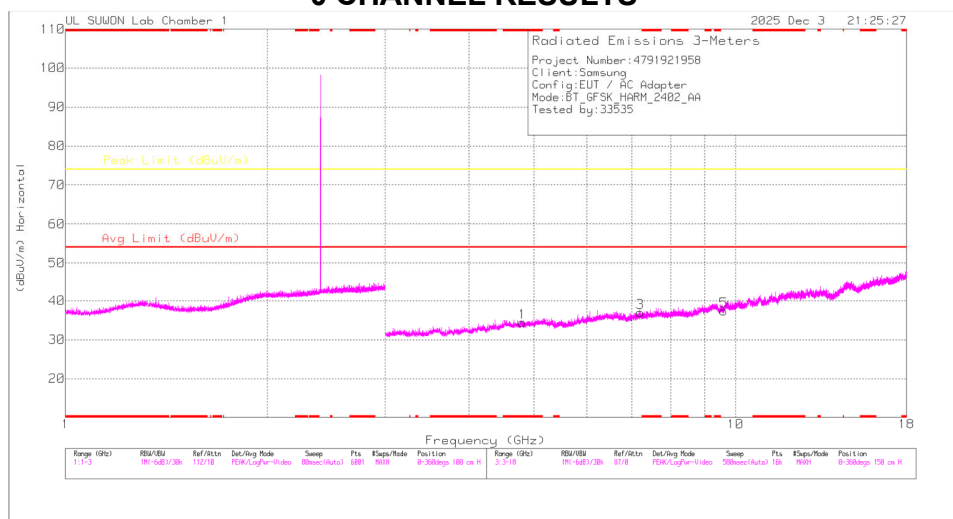
| Freq.<br>[MHz] | Antenna | Frequency<br>[GHz] | Reading<br>[dBuV] | Detector<br>Mode | ANT Factor<br>[dB(1/m)] | Loss<br>[dB] | Result<br>[dBuV/m] | AV Limit<br>[dBuV/m] | AV Margin<br>[dB] | PK Limit<br>[dBuV/m] | PK Margin<br>[dB] | Azimuth<br>[Degs] | Height<br>[cm] | Polarity |
|----------------|---------|--------------------|-------------------|------------------|-------------------------|--------------|--------------------|----------------------|-------------------|----------------------|-------------------|-------------------|----------------|----------|
| 2402           | ANT1    | * 2.39             | 40.28             | Pk               | 32.10                   | -24.90       | 47.48              | -                    | -                 | 74.00                | -26.52            | 170               | 127            | H        |
|                |         | * 2.3822           | 43.31             | Pk               | 32.10                   | -25.00       | 50.41              | -                    | -                 | 74.00                | -23.59            | 170               | 127            | H        |
|                |         | * 2.39             | 28.31             | VA1T             | 32.10                   | -24.90       | 35.51              | 54.00                | -18.49            | -                    | -                 | 170               | 127            | H        |
|                |         | * 2.3883           | 28.79             | VA1T             | 32.10                   | -24.90       | 35.99              | 54.00                | -18.01            | -                    | -                 | 170               | 127            | H        |
|                |         | * 2.39             | 40.54             | Pk               | 32.10                   | -24.90       | 47.74              | -                    | -                 | 74.00                | -26.26            | 97                | 111            | V        |
|                |         | * 2.34021          | 42.94             | Pk               | 32.00                   | -25.00       | 49.94              | -                    | -                 | 74.00                | -24.06            | 97                | 111            | V        |
|                |         | * 2.39             | 28.50             | VA1T             | 32.10                   | -24.90       | 35.70              | 54.00                | -18.30            | -                    | -                 | 97                | 111            | V        |
|                |         | * 2.38892          | 28.71             | VA1T             | 32.10                   | -24.90       | 35.91              | 54.00                | -18.09            | -                    | -                 | 97                | 111            | V        |
| 2480           | ANT1    | * 2.4835           | 48.58             | Pk               | 32.40                   | -24.90       | 56.08              | -                    | -                 | 74.00                | -17.92            | 129               | 110            | H        |
|                |         | * 2.48364          | 49.39             | Pk               | 32.40                   | -24.90       | 56.89              | -                    | -                 | 74.00                | -17.11            | 129               | 110            | H        |
|                |         | * 2.4835           | 31.21             | VA1T             | 32.40                   | -24.90       | 38.71              | 54.00                | -15.29            | -                    | -                 | 129               | 110            | H        |
|                |         | * 2.48359          | 31.18             | VA1T             | 32.40                   | -24.90       | 38.68              | 54.00                | -15.32            | -                    | -                 | 129               | 110            | H        |
|                |         | * 2.4835           | 48.11             | Pk               | 32.40                   | -24.90       | 55.61              | -                    | -                 | 74.00                | -18.39            | 100               | 104            | V        |
|                |         | * 2.48353          | 48.50             | Pk               | 32.40                   | -24.90       | 56.00              | -                    | -                 | 74.00                | -18.00            | 100               | 104            | V        |
|                |         | * 2.4835           | 30.78             | VA1T             | 32.40                   | -24.90       | 38.28              | 54.00                | -15.72            | -                    | -                 | 100               | 104            | V        |
|                |         | * 2.48405          | 30.94             | VA1T             | 32.40                   | -24.90       | 38.44              | 54.00                | -15.56            | -                    | -                 | 100               | 104            | V        |
| Freq.<br>[MHz] | Antenna | Frequency<br>[GHz] | Reading<br>[dBuV] | Detector<br>Mode | ANT Factor<br>[dB(1/m)] | Loss<br>[dB] | Result<br>[dBuV/m] | AV Limit<br>[dBuV/m] | AV Margin<br>[dB] | PK Limit<br>[dBuV/m] | PK Margin<br>[dB] | Azimuth<br>[Degs] | Height<br>[cm] | Polarity |
| 2402           | ANT2    | * 2.39             | 39.52             | Pk               | 32.10                   | -24.90       | 46.72              | -                    | -                 | 74.00                | -27.28            | 153               | 138            | H        |
|                |         | * 2.35224          | 42.74             | Pk               | 32.00                   | -25.00       | 49.74              | -                    | -                 | 74.00                | -24.26            | 153               | 138            | H        |
|                |         | * 2.39             | 28.07             | VA1T             | 32.10                   | -24.90       | 35.27              | 54.00                | -18.73            | -                    | -                 | 153               | 138            | H        |
|                |         | * 2.38878          | 28.37             | VA1T             | 32.10                   | -24.90       | 35.57              | 54.00                | -18.43            | -                    | -                 | 153               | 138            | H        |
|                |         | * 2.39             | 40.25             | Pk               | 32.10                   | -24.90       | 47.45              | -                    | -                 | 74.00                | -26.55            | 97                | 303            | V        |
|                |         | * 2.34189          | 43.20             | Pk               | 32.00                   | -25.00       | 50.20              | -                    | -                 | 74.00                | -23.80            | 97                | 303            | V        |
|                |         | * 2.39             | 28.03             | VA1T             | 32.10                   | -24.90       | 35.23              | 54.00                | -18.77            | -                    | -                 | 97                | 303            | V        |
|                |         | * 2.35566          | 28.62             | VA1T             | 32.00                   | -24.90       | 35.72              | 54.00                | -18.28            | -                    | -                 | 97                | 303            | V        |
| 2480           | ANT2    | * 2.4835           | 48.52             | Pk               | 32.40                   | -24.90       | 56.02              | -                    | -                 | 74.00                | -17.98            | 31                | 133            | H        |
|                |         | * 2.48358          | 48.31             | Pk               | 32.40                   | -24.90       | 55.81              | -                    | -                 | 74.00                | -18.19            | 31                | 133            | H        |
|                |         | * 2.4835           | 29.79             | VA1T             | 32.40                   | -24.90       | 37.29              | 54.00                | -16.71            | -                    | -                 | 31                | 133            | H        |
|                |         | * 2.48384          | 31.48             | VA1T             | 32.40                   | -24.90       | 38.98              | 54.00                | -15.02            | -                    | -                 | 31                | 133            | H        |
|                |         | * 2.4835           | 45.48             | Pk               | 32.40                   | -24.90       | 52.98              | -                    | -                 | 74.00                | -21.02            | 95                | 319            | V        |
|                |         | * 2.48358          | 47.90             | Pk               | 32.40                   | -24.90       | 55.40              | -                    | -                 | 74.00                | -18.60            | 95                | 319            | V        |
|                |         | * 2.4835           | 30.87             | VA1T             | 32.40                   | -24.90       | 38.37              | 54.00                | -15.63            | -                    | -                 | 95                | 319            | V        |
|                |         | * 2.48353          | 31.00             | VA1T             | 32.40                   | -24.90       | 38.50              | 54.00                | -15.50            | -                    | -                 | 95                | 319            | V        |
| Freq.<br>[MHz] | Antenna | Frequency<br>[GHz] | Reading<br>[dBuV] | Detector<br>Mode | ANT Factor<br>[dB(1/m)] | Loss<br>[dB] | Result<br>[dBuV/m] | AV Limit<br>[dBuV/m] | AV Margin<br>[dB] | PK Limit<br>[dBuV/m] | PK Margin<br>[dB] | Azimuth<br>[Degs] | Height<br>[cm] | Polarity |
| 2402           | Dual    | * 2.39             | 42.44             | Pk               | 31.70                   | -26.20       | 47.94              | -                    | -                 | 74.00                | -26.06            | 31                | 144            | H        |
|                |         | * 2.354            | 45.67             | Pk               | 31.70                   | -26.30       | 51.07              | -                    | -                 | 74.00                | -22.93            | 31                | 144            | H        |
|                |         | * 2.39             | 32.62             | VA1T             | 31.70                   | -26.20       | 38.12              | 54.00                | -15.88            | -                    | -                 | 31                | 144            | H        |
|                |         | * 2.38712          | 32.70             | VA1T             | 31.70                   | -26.20       | 38.20              | 54.00                | -15.80            | -                    | -                 | 31                | 144            | H        |
|                |         | * 2.39             | 41.30             | Pk               | 31.70                   | -26.20       | 46.80              | -                    | -                 | 74.00                | -27.20            | 90                | 396            | V        |
|                |         | * 2.34536          | 45.49             | Pk               | 31.60                   | -26.20       | 50.89              | -                    | -                 | 74.00                | -23.11            | 90                | 396            | V        |
|                |         | * 2.39             | 32.47             | VA1T             | 31.70                   | -26.20       | 37.97              | 54.00                | -16.03            | -                    | -                 | 90                | 396            | V        |
|                |         | * 2.38593          | 32.47             | VA1T             | 31.70                   | -26.10       | 38.07              | 54.00                | -15.93            | -                    | -                 | 90                | 396            | V        |
| 2480           | Dual    | * 2.48351          | 42.83             | Pk               | 32.00                   | -25.80       | 49.03              | -                    | -                 | 74.00                | -24.97            | 141               | 125            | H        |
|                |         | * 2.48377          | 45.47             | Pk               | 32.00                   | -25.80       | 51.67              | -                    | -                 | 74.00                | -22.33            | 141               | 125            | H        |
|                |         | * 2.48351          | 32.29             | VA1T             | 32.00                   | -25.80       | 38.49              | 54.00                | -15.51            | -                    | -                 | 141               | 125            | H        |
|                |         | * 2.48384          | 33.32             | VA1T             | 32.00                   | -25.80       | 39.52              | 54.00                | -14.48            | -                    | -                 | 141               | 125            | H        |
|                |         | * 2.48351          | 42.05             | Pk               | 32.00                   | -26.20       | 47.85              | -                    | -                 | 74.00                | -26.15            | 63                | 399            | V        |
|                |         | 2.552              | 45.30             | Pk               | 32.10                   | -26.10       | 51.30              | -                    | -                 | 74.00                | -22.70            | 63                | 399            | V        |
|                |         | * 2.48351          | 32.30             | VA1T             | 32.00                   | -26.20       | 38.10              | 54.00                | -15.90            | -                    | -                 | 63                | 399            | V        |
|                |         | 2.555              | 32.68             | VA1T             | 32.10                   | -26.00       | 38.78              | 54.00                | -15.22            | -                    | -                 | 63                | 399            | V        |

Note1. Pk - Peak detector, VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

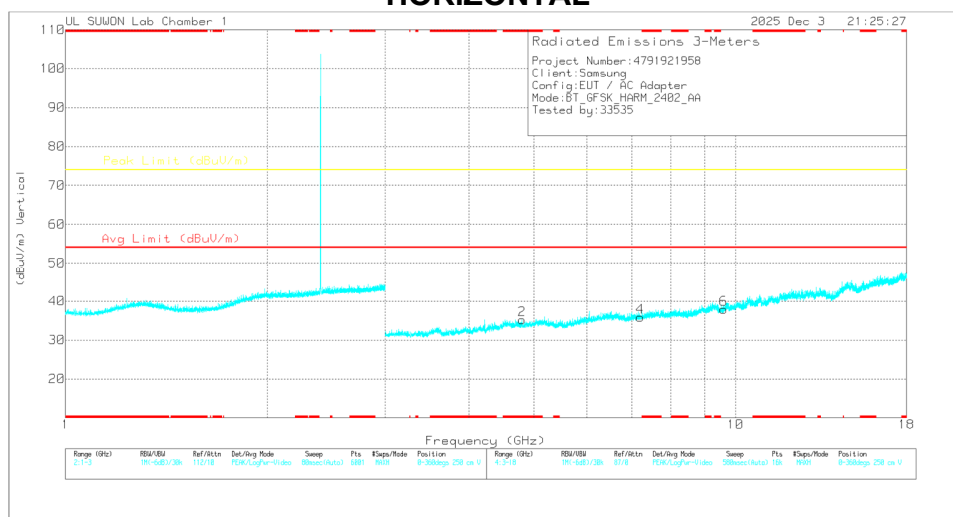
Note2. \* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

## HARMONICS AND SPURIOUS EMISSIONS(WORST CASE – DUAL)

### 0 CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

### Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det  | Antenna Factor (dB/m) | 3GHz_HP_Pat h Loss(dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|-----------------------|------------------------|----------------------------|--------------------|-------------|---------------------|-------------|----------------|-------------|----------|
| * 4.80341       | 41.58                | PKFH | 34.2                  | -33                    | 42.78                      | -                  | -           | 74                  | -31.22      | 220            | 100         | H        |
| * 4.80401       | 31.19                | VA1T | 34.2                  | -33                    | 32.39                      | 54                 | -21.61      | -                   | -           | 220            | 100         | H        |
| * 4.80423       | 41.4                 | PKFH | 34.2                  | -33                    | 42.6                       | -                  | -           | 74                  | -31.4       | 173            | 128         | V        |
| * 4.80407       | 30.74                | VA1T | 34.2                  | -33                    | 31.94                      | 54                 | -22.06      | -                   | -           | 173            | 128         | V        |
| 7.20405         | 38.95                | PKFH | 35.5                  | -30.9                  | 43.55                      | -                  | -           | 74                  | -30.45      | 0              | 100         | H        |
| 7.20803         | 38.71                | PKFH | 35.5                  | -30.9                  | 43.31                      | -                  | -           | 74                  | -30.69      | 0              | 100         | V        |
| 9.60638         | 35.63                | PKFH | 37                    | -27.1                  | 45.53                      | -                  | -           | 74                  | -28.47      | 0              | 100         | H        |
| 9.6077          | 35.98                | PKFH | 37                    | -27.1                  | 45.88                      | -                  | -           | 74                  | -28.12      | 0              | 100         | V        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

## HARMONICS AND SPURIOUS EMISSIONS TEST DATA

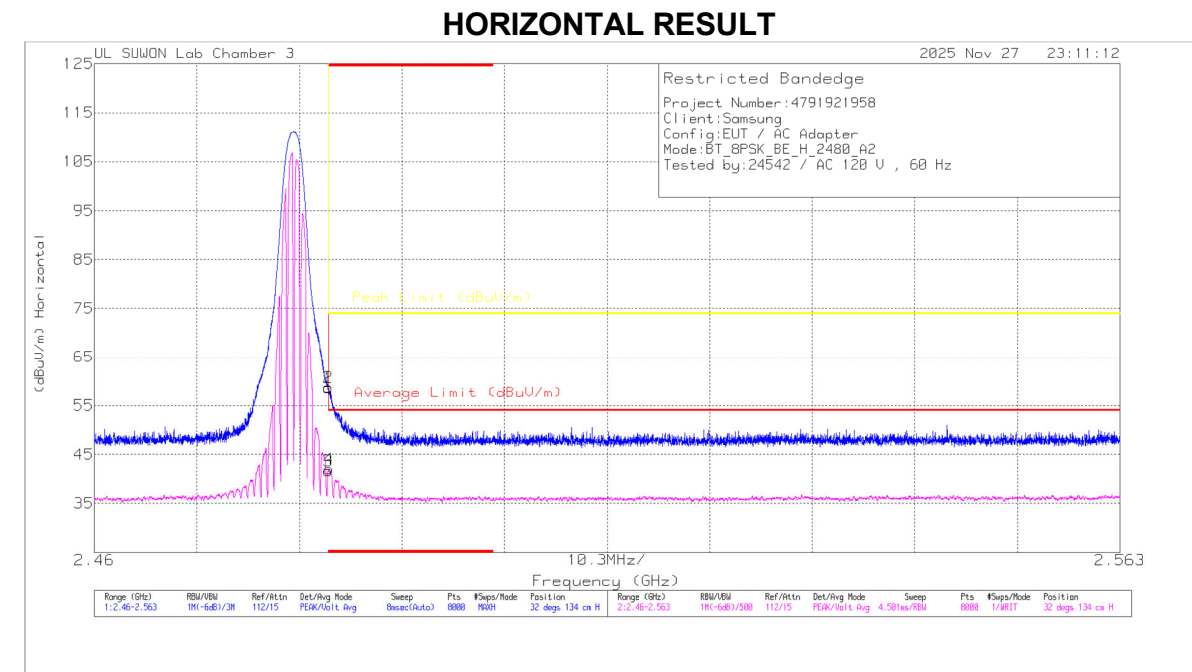
| Freq.<br>[MHz] | Antenna | Frequency<br>[GHz] | Reading<br>[dBuV] | Detector<br>Mode | ANT Factor<br>[dB(1/m)] | Loss<br>[dB] | Result<br>[dBuV/m] | AV Limit<br>[dBuV/m] | AV Margin<br>[dB] | PK Limit<br>[dBuV/m] | PK Margin<br>[dB] | Azimuth<br>[Degs] | Height<br>[cm] | Polarity |
|----------------|---------|--------------------|-------------------|------------------|-------------------------|--------------|--------------------|----------------------|-------------------|----------------------|-------------------|-------------------|----------------|----------|
| 2402           | ANT1    | * 4.80556          | 38.23             | PKFH             | 34.30                   | -30.10       | 42.43              | -                    | -                 | 74.00                | -31.57            | 200               | 100            | H        |
|                |         | * 4.80402          | 24.37             | VA1T             | 34.30                   | -30.10       | 28.57              | 54.00                | -25.43            | -                    | -                 | 200               | 100            | H        |
|                |         | * 4.80402          | 38.56             | PKFH             | 34.30                   | -30.10       | 42.76              | -                    | -                 | 74.00                | -31.24            | 159               | 100            | V        |
|                |         | * 4.80399          | 24.78             | VA1T             | 34.30                   | -30.10       | 28.98              | 54.00                | -25.02            | -                    | -                 | 159               | 100            | V        |
|                |         | 7.208              | 33.24             | PKFH             | 35.80                   | -25.70       | 43.34              | -                    | -                 | 74.00                | -30.66            | 0                 | 100            | H        |
|                |         | 7.205              | 33.27             | PKFH             | 35.80                   | -25.80       | 43.27              | -                    | -                 | 74.00                | -30.73            | 0                 | 100            | V        |
|                |         | 9.607              | 31.63             | PKFH             | 36.70                   | -21.70       | 46.63              | -                    | -                 | 74.00                | -27.37            | 0                 | 100            | H        |
|                |         | 9.610              | 31.34             | PKFH             | 36.70                   | -21.70       | 46.34              | -                    | -                 | 74.00                | -27.66            | 0                 | 100            | V        |
| 2441           | ANT1    | * 4.88096          | 38.49             | PKFH             | 34.20                   | -30.80       | 41.89              | -                    | -                 | 74.00                | -32.11            | 176               | 108            | H        |
|                |         | * 4.88213          | 24.58             | VA1T             | 34.20                   | -30.80       | 27.98              | 54.00                | -26.02            | -                    | -                 | 176               | 108            | H        |
|                |         | * 4.88368          | 38.01             | PKFH             | 34.20                   | -30.80       | 41.41              | -                    | -                 | 74.00                | -32.59            | 179               | 100            | V        |
|                |         | * 4.88196          | 24.90             | VA1T             | 34.20                   | -30.80       | 28.30              | 54.00                | -25.70            | -                    | -                 | 179               | 100            | V        |
|                |         | * 7.32303          | 32.73             | PKFH             | 35.80                   | -25.20       | 43.33              | -                    | -                 | 74.00                | -30.67            | 0                 | 100            | H        |
|                |         | * 7.32252          | 33.71             | PKFH             | 35.80                   | -25.20       | 44.31              | -                    | -                 | 74.00                | -29.69            | 0                 | 100            | V        |
|                |         | 9.762              | 32.16             | PKFH             | 36.90                   | -21.40       | 47.66              | -                    | -                 | 74.00                | -26.34            | 0                 | 100            | H        |
|                |         | 9.762              | 31.26             | PKFH             | 36.90                   | -21.40       | 46.76              | -                    | -                 | 74.00                | -27.24            | 0                 | 100            | V        |
| 2480           | ANT1    | * 4.96036          | 37.62             | PKFH             | 34.30                   | -30.30       | 41.62              | -                    | -                 | 74.00                | -32.38            | 217               | 103            | H        |
|                |         | * 4.96007          | 24.97             | VA1T             | 34.30                   | -30.30       | 28.97              | 54.00                | -25.03            | -                    | -                 | 217               | 103            | H        |
|                |         | * 4.96001          | 38.01             | PKFH             | 34.30                   | -30.30       | 42.01              | -                    | -                 | 74.00                | -31.99            | 172               | 100            | V        |
|                |         | * 4.96008          | 25.29             | VA1T             | 34.30                   | -30.30       | 29.29              | 54.00                | -24.71            | -                    | -                 | 172               | 100            | V        |
|                |         | * 7.44013          | 33.28             | PKFH             | 35.70                   | -25.00       | 43.98              | -                    | -                 | 74.00                | -30.02            | 0                 | 100            | H        |
|                |         | * 7.43985          | 33.48             | PKFH             | 35.70                   | -25.00       | 44.18              | -                    | -                 | 74.00                | -29.82            | 0                 | 100            | V        |
|                |         | 9.918              | 30.69             | PKFH             | 37.10                   | -21.40       | 46.39              | -                    | -                 | 74.00                | -27.61            | 0                 | 100            | H        |
|                |         | 9.921              | 30.82             | PKFH             | 37.10                   | -21.40       | 46.52              | -                    | -                 | 74.00                | -27.48            | 0                 | 100            | V        |
| 2402           | ANT2    | * 4.80398          | 37.40             | PKFH             | 34.30                   | -30.10       | 41.60              | -                    | -                 | 74.00                | -32.40            | 184               | 100            | H        |
|                |         | * 4.8041           | 26.13             | VA1T             | 34.30                   | -30.10       | 30.33              | 54.00                | -23.67            | -                    | -                 | 184               | 100            | H        |
|                |         | * 4.80479          | 36.96             | PKFH             | 34.30                   | -30.10       | 41.16              | -                    | -                 | 74.00                | -32.84            | 147               | 111            | V        |
|                |         | * 4.80387          | 24.56             | VA1T             | 34.30                   | -30.10       | 28.76              | 54.00                | -25.24            | -                    | -                 | 147               | 111            | V        |
|                |         | 7.206              | 32.44             | PKFH             | 35.80                   | -25.80       | 42.44              | -                    | -                 | 74.00                | -31.56            | 0                 | 100            | H        |
|                |         | 7.207              | 33.01             | PKFH             | 35.80                   | -25.70       | 43.11              | -                    | -                 | 74.00                | -30.89            | 0                 | 100            | V        |
|                |         | 9.604              | 30.65             | PKFH             | 36.70                   | -21.70       | 45.65              | -                    | -                 | 74.00                | -28.35            | 0                 | 100            | H        |
|                |         | 9.608              | 30.53             | PKFH             | 36.70                   | -21.70       | 45.53              | -                    | -                 | 74.00                | -28.47            | 0                 | 100            | V        |
| 2441           | ANT2    | * 4.8818           | 37.80             | PKFH             | 34.20                   | -30.80       | 41.20              | -                    | -                 | 74.00                | -32.80            | 191               | 100            | H        |
|                |         | * 4.88193          | 26.32             | VA1T             | 34.20                   | -30.80       | 29.72              | 54.00                | -24.28            | -                    | -                 | 191               | 100            | H        |
|                |         | * 4.88191          | 36.67             | PKFH             | 34.20                   | -30.80       | 40.07              | -                    | -                 | 74.00                | -33.93            | 206               | 100            | V        |
|                |         | * 4.88189          | 24.71             | VA1T             | 34.20                   | -30.80       | 28.11              | 54.00                | -25.89            | -                    | -                 | 206               | 100            | V        |
|                |         | * 7.3208           | 32.29             | PKFH             | 35.80                   | -25.20       | 42.89              | -                    | -                 | 74.00                | -31.11            | 0                 | 100            | H        |
|                |         | * 7.32199          | 32.46             | PKFH             | 35.80                   | -25.20       | 43.06              | -                    | -                 | 74.00                | -30.94            | 0                 | 100            | V        |
|                |         | 9.761              | 30.71             | PKFH             | 36.90                   | -21.30       | 46.31              | -                    | -                 | 74.00                | -27.69            | 0                 | 100            | H        |
|                |         | 9.762              | 31.34             | PKFH             | 36.90                   | -21.40       | 46.84              | -                    | -                 | 74.00                | -27.16            | 0                 | 100            | V        |
| 2480           | ANT2    | * 4.95968          | 37.19             | PKFH             | 34.30                   | -30.40       | 41.09              | -                    | -                 | 74.00                | -32.91            | 168               | 110            | H        |
|                |         | * 4.96004          | 25.51             | VA1T             | 34.30                   | -30.30       | 29.51              | 54.00                | -24.49            | -                    | -                 | 168               | 110            | H        |
|                |         | * 4.9621           | 36.60             | PKFH             | 34.30                   | -30.30       | 40.60              | -                    | -                 | 74.00                | -33.40            | 175               | 106            | V        |
|                |         | * 4.9599           | 24.96             | VA1T             | 34.30                   | -30.40       | 28.86              | 54.00                | -25.14            | -                    | -                 | 175               | 106            | V        |
|                |         | * 7.43998          | 32.55             | PKFH             | 35.70                   | -25.00       | 43.25              | -                    | -                 | 74.00                | -30.75            | 190               | 100            | H        |
|                |         | * 7.43972          | 20.48             | VA1T             | 35.70                   | -25.00       | 31.18              | 54.00                | -22.82            | -                    | -                 | 190               | 100            | H        |
|                |         | * 7.44219          | 31.88             | PKFH             | 35.70                   | -25.00       | 42.58              | -                    | -                 | 74.00                | -31.42            | 0                 | 100            | V        |
|                |         | 9.920              | 30.75             | PKFH             | 37.10                   | -21.50       | 46.35              | -                    | -                 | 74.00                | -27.65            | 0                 | 100            | H        |
| 2402           | DUAL    | * 4.80341          | 41.58             | PKFH             | 34.20                   | -33.00       | 42.78              | -                    | -                 | 74.00                | -31.22            | 220               | 100            | H        |
|                |         | * 4.80401          | 31.19             | VA1T             | 34.20                   | -33.00       | 32.39              | 54.00                | -21.61            | -                    | -                 | 220               | 100            | H        |
|                |         | * 4.80423          | 41.40             | PKFH             | 34.20                   | -33.00       | 42.60              | -                    | -                 | 74.00                | -31.40            | 173               | 128            | V        |
|                |         | * 4.80407          | 30.74             | VA1T             | 34.20                   | -33.00       | 31.94              | 54.00                | -22.06            | -                    | -                 | 173               | 128            | V        |
|                |         | 7.204              | 38.95             | PKFH             | 35.50                   | -30.90       | 43.55              | -                    | -                 | 74.00                | -30.45            | 0                 | 100            | H        |
|                |         | 7.208              | 38.71             | PKFH             | 35.50                   | -30.90       | 43.31              | -                    | -                 | 74.00                | -30.69            | 0                 | 100            | V        |
|                |         | 9.606              | 35.63             | PKFH             | 37.00                   | -27.10       | 45.53              | -                    | -                 | 74.00                | -28.47            | 0                 | 100            | H        |
|                |         | 9.608              | 35.98             | PKFH             | 37.00                   | -27.10       | 45.88              | -                    | -                 | 74.00                | -28.12            | 0                 | 100            | V        |
| 2441           | DUAL    | * 4.88274          | 40.50             | PKFH             | 34.20                   | -33.00       | 41.70              | -                    | -                 | 74.00                | -32.30            | 0                 | 100            | H        |
|                |         | * 4.88136          | 41.26             | PKFH             | 34.20                   | -33.00       | 42.46              | -                    | -                 | 74.00                | -31.54            | 0                 | 100            | V        |
|                |         | * 7.32102          | 39.97             | PKFH             | 35.50                   | -30.70       | 44.77              | -                    | -                 | 74.00                | -29.23            | 0                 | 100            | H        |
|                |         | * 7.32315          | 38.75             | PKFH             | 35.50                   | -30.80       | 43.45              | -                    | -                 | 74.00                | -30.55            | 0                 | 100            | V        |
|                |         | 9.766              | 35.48             | PKFH             | 37.20                   | -26.50       | 46.18              | -                    | -                 | 74.00                | -27.82            | 0                 | 100            | H        |
|                |         | 9.765              | 34.51             | PKFH             | 37.20                   | -26.60       | 45.11              | -                    | -                 | 74.00                | -28.89            | 0                 | 100            | V        |
| 2480           | DUAL    | * 4.96182          | 41.32             | PKFH             | 34.20                   | -33.00       | 42.52              | -                    | -                 | 74.00                | -31.48            | 183               | 100            | H        |
|                |         | * 4.9586           | 29.54             | VA1T             | 34.20                   | -32.90       | 30.84              | 54.00                | -23.16            | -                    | -                 | 183               | 100            | H        |
|                |         | * 4.95829          | 40.60             | PKFH             | 34.20                   | -32.90       | 41.90              | -                    | -                 | 74.00                | -32.10            | 186               | 100            | V        |
|                |         | * 4.96137          | 29.58             | VA1T             | 34.20                   | -32.90       | 30.88              | 54.00                | -23.12            | -                    | -                 | 186               | 100            | V        |
|                |         | * 7.44076          | 39.22             | PKFH             | 35.60                   | -30.40       | 44.42              | -                    | -                 | 74.00                | -29.58            | 0                 | 100            | H        |
|                |         | * 7.43877          | 38.58             | PKFH             | 35.60                   | -30.30       | 43.88              | -                    | -                 | 74.00                | -30.12            | 0                 | 100            | V        |
|                |         | 9.919              | 35.10             | PKFH             | 37.40                   | -27.10       | 45.40              | -                    | -                 | 74.00                | -28.60            | 0                 | 100            | H        |
|                |         | 9.919              | 35.48             | PKFH             | 37.40                   | -27.10       | 45.78              | -                    | -                 | 74.00                | -28.22            | 0                 | 100            | V        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak  
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.1.2.      BLUETOOTH ENHANCED DATA RATE 8DPSK  
                 MODULATION

ANT1  
BANDEDGE (WORST CASE: 78 CHANNEL, ANT2)



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | Antenna Factor (dB/m) | 10dB_Path Loss(dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|-----------------------|--------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.4835        | 51.16                | Pk   | 32.4                  | -24.9              | 58.66                      | -                      | -           | 74                  | -15.34         | 32             | 134         | H        |
| 2      | * 2.48351       | 51.24                | Pk   | 32.4                  | -24.9              | 58.74                      | -                      | -           | 74                  | -15.26         | 32             | 134         | H        |
| 3      | * 2.4835        | 34.18                | VA1T | 32.4                  | -24.9              | 41.68                      | 54                     | -12.32      | -                   | -              | 32             | 134         | H        |
| 4      | * 2.48354       | 34.58                | VA1T | 32.4                  | -24.9              | 42.08                      | 54                     | -11.92      | -                   | -              | 32             | 134         | H        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band  
Pk - Peak detector  
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

## BANDEDGE TEST DATA

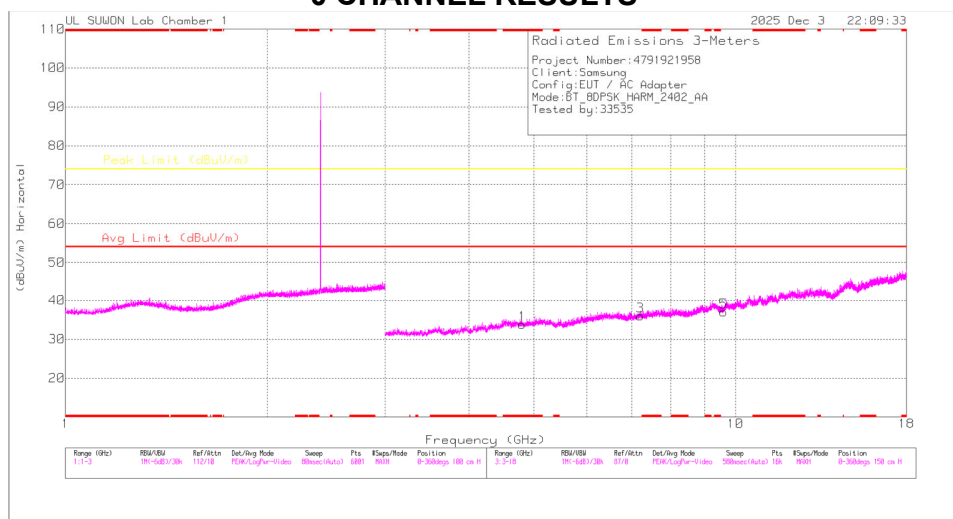
| Freq. [MHz] | Antenna | Frequency [GHz] | Reading [dBuV] | Detector Mode | ANT Factor [dB(1/m)] | Loss [dB] | Result [dBuV/m] | AV Limit [dBuV/m] | AV Margin [dB] | PK Limit [dBuV/m] | PK Margin [dB] | Azimuth [Degs] | Height [cm] | Polarity |
|-------------|---------|-----------------|----------------|---------------|----------------------|-----------|-----------------|-------------------|----------------|-------------------|----------------|----------------|-------------|----------|
| 2402        | ANT1    | * 2.39          | 41.10          | Pk            | 32.10                | -24.90    | 48.30           | -                 | -              | 74.00             | -25.70         | 130            | 127         | H        |
|             |         | * 2.32684       | 42.77          | Pk            | 31.90                | -24.90    | 49.77           | -                 | -              | 74.00             | -24.23         | 130            | 127         | H        |
|             |         | * 2.39          | 28.61          | VA1T          | 32.10                | -24.90    | 35.81           | 54.00             | -18.19         | -                 | -              | 130            | 127         | H        |
|             |         | * 2.38998       | 28.61          | VA1T          | 32.10                | -24.90    | 35.81           | 54.00             | -18.19         | -                 | -              | 130            | 127         | H        |
|             |         | * 2.39          | 40.40          | Pk            | 32.10                | -24.90    | 47.60           | -                 | -              | 74.00             | -26.40         | 97             | 111         | V        |
|             |         | * 2.38963       | 42.67          | Pk            | 32.10                | -24.90    | 49.87           | -                 | -              | 74.00             | -24.13         | 97             | 111         | V        |
|             |         | * 2.39          | 28.17          | VA1T          | 32.10                | -24.90    | 35.37           | 54.00             | -18.63         | -                 | -              | 97             | 111         | V        |
|             |         | * 2.37776       | 28.59          | VA1T          | 32.10                | -25.00    | 35.69           | 54.00             | -18.31         | -                 | -              | 97             | 111         | V        |
| 2480        | ANT1    | * 2.4835        | 46.30          | Pk            | 32.40                | -24.90    | 53.80           | -                 | -              | 74.00             | -20.20         | 132            | 110         | H        |
|             |         | * 2.4836        | 47.45          | Pk            | 32.40                | -24.90    | 54.95           | -                 | -              | 74.00             | -19.05         | 132            | 110         | H        |
|             |         | * 2.4835        | 29.47          | VA1T          | 32.40                | -24.90    | 36.97           | 54.00             | -17.03         | -                 | -              | 132            | 110         | H        |
|             |         | * 2.4839        | 30.73          | VA1T          | 32.40                | -24.90    | 38.23           | 54.00             | -15.77         | -                 | -              | 132            | 110         | H        |
|             |         | * 2.4835        | 44.59          | Pk            | 32.40                | -24.90    | 52.09           | -                 | -              | 74.00             | -21.91         | 83             | 106         | V        |
|             |         | * 2.48354       | 46.22          | Pk            | 32.40                | -24.90    | 53.72           | -                 | -              | 74.00             | -20.28         | 83             | 106         | V        |
|             |         | * 2.4835        | 30.71          | VA1T          | 32.40                | -24.90    | 38.21           | 54.00             | -15.79         | -                 | -              | 83             | 106         | V        |
|             |         | * 2.48354       | 30.51          | VA1T          | 32.40                | -24.90    | 38.01           | 54.00             | -15.99         | -                 | -              | 83             | 106         | V        |
| Freq. [MHz] | Antenna | Frequency [GHz] | Reading [dBuV] | Detector Mode | ANT Factor [dB(1/m)] | Loss [dB] | Result [dBuV/m] | AV Limit [dBuV/m] | AV Margin [dB] | PK Limit [dBuV/m] | PK Margin [dB] | Azimuth [Degs] | Height [cm] | Polarity |
| 2402        | ANT2    | * 2.39          | 40.58          | Pk            | 32.10                | -24.90    | 47.78           | -                 | -              | 74.00             | -26.22         | 153            | 138         | H        |
|             |         | * 2.34107       | 42.80          | Pk            | 32.00                | -25.00    | 49.80           | -                 | -              | 74.00             | -24.20         | 153            | 138         | H        |
|             |         | * 2.39          | 27.87          | VA1T          | 32.10                | -24.90    | 35.07           | 54.00             | -18.93         | -                 | -              | 153            | 138         | H        |
|             |         | * 2.38797       | 28.46          | VA1T          | 32.10                | -24.90    | 35.66           | 54.00             | -18.34         | -                 | -              | 153            | 138         | H        |
|             |         | * 2.39          | 40.33          | Pk            | 32.10                | -24.90    | 47.53           | -                 | -              | 74.00             | -26.47         | 97             | 304         | V        |
|             |         | * 2.3466        | 43.59          | Pk            | 32.00                | -25.00    | 50.59           | -                 | -              | 74.00             | -23.41         | 97             | 304         | V        |
|             |         | * 2.39          | 27.69          | VA1T          | 32.10                | -24.90    | 34.89           | 54.00             | -19.11         | -                 | -              | 97             | 304         | V        |
|             |         | * 2.36046       | 28.65          | VA1T          | 32.00                | -24.90    | 35.75           | 54.00             | -18.25         | -                 | -              | 97             | 304         | V        |
| 2480        | ANT2    | * 2.4835        | 51.16          | Pk            | 32.40                | -24.90    | 58.66           | -                 | -              | 74.00             | -15.34         | 32             | 134         | H        |
|             |         | * 2.48351       | 51.24          | Pk            | 32.40                | -24.90    | 58.74           | -                 | -              | 74.00             | -15.26         | 32             | 134         | H        |
|             |         | * 2.4835        | 34.18          | VA1T          | 32.40                | -24.90    | 41.68           | 54.00             | -12.32         | -                 | -              | 32             | 134         | H        |
|             |         | * 2.48354       | 34.58          | VA1T          | 32.40                | -24.90    | 42.08           | 54.00             | -11.92         | -                 | -              | 32             | 134         | H        |
|             |         | * 2.4835        | 50.68          | Pk            | 32.40                | -24.90    | 58.18           | -                 | -              | 74.00             | -15.82         | 95             | 321         | V        |
|             |         | * 2.48351       | 50.82          | Pk            | 32.40                | -24.90    | 58.32           | -                 | -              | 74.00             | -15.68         | 95             | 321         | V        |
|             |         | * 2.4835        | 29.63          | VA1T          | 32.40                | -24.90    | 37.13           | 54.00             | -16.87         | -                 | -              | 95             | 321         | V        |
|             |         | * 2.48373       | 33.38          | VA1T          | 32.40                | -24.90    | 40.88           | 54.00             | -13.12         | -                 | -              | 95             | 321         | V        |
| Freq. [MHz] | Antenna | Frequency [GHz] | Reading [dBuV] | Detector Mode | ANT Factor [dB(1/m)] | Loss [dB] | Result [dBuV/m] | AV Limit [dBuV/m] | AV Margin [dB] | PK Limit [dBuV/m] | PK Margin [dB] | Azimuth [Degs] | Height [cm] | Polarity |
| 2402        | Dual    | * 2.39          | 42.13          | Pk            | 31.70                | -26.20    | 47.63           | -                 | -              | 74.00             | -26.37         | 27             | 101         | H        |
|             |         | * 2.33523       | 45.15          | Pk            | 31.60                | -26.30    | 50.45           | -                 | -              | 74.00             | -23.55         | 27             | 101         | H        |
|             |         | * 2.39          | 32.54          | VA1T          | 31.70                | -26.20    | 38.04           | 54.00             | -15.96         | -                 | -              | 27             | 101         | H        |
|             |         | * 2.38731       | 32.57          | VA1T          | 31.70                | -26.20    | 38.07           | 54.00             | -15.93         | -                 | -              | 27             | 101         | H        |
|             |         | * 2.39          | 41.16          | Pk            | 31.70                | -26.20    | 46.66           | -                 | -              | 74.00             | -27.34         | 91             | 396         | V        |
|             |         | * 2.33756       | 45.58          | Pk            | 31.60                | -26.20    | 50.98           | -                 | -              | 74.00             | -23.02         | 91             | 396         | V        |
|             |         | * 2.39          | 32.51          | VA1T          | 31.70                | -26.20    | 38.01           | 54.00             | -15.99         | -                 | -              | 91             | 396         | V        |
|             |         | * 2.3858        | 32.47          | VA1T          | 31.70                | -26.10    | 38.07           | 54.00             | -15.93         | -                 | -              | 91             | 396         | V        |
| 2480        | Dual    | * 2.48351       | 42.67          | Pk            | 32.00                | -25.80    | 48.87           | -                 | -              | 74.00             | -25.13         | 142            | 119         | H        |
|             |         | * 2.520         | 45.10          | Pk            | 32.00                | -25.80    | 51.30           | -                 | -              | 74.00             | -22.70         | 142            | 119         | H        |
|             |         | * 2.48351       | 33.06          | VA1T          | 32.00                | -25.80    | 39.26           | 54.00             | -14.74         | -                 | -              | 142            | 119         | H        |
|             |         | * 2.48409       | 33.19          | VA1T          | 32.00                | -25.80    | 39.39           | 54.00             | -14.61         | -                 | -              | 142            | 119         | H        |
|             |         | * 2.48351       | 41.22          | Pk            | 32.00                | -26.20    | 47.02           | -                 | -              | 74.00             | -26.98         | 74             | 289         | V        |
|             |         | * 2.539         | 44.79          | Pk            | 32.00                | -26.00    | 50.79           | -                 | -              | 74.00             | -23.21         | 74             | 289         | V        |
|             |         | * 2.48351       | 32.60          | VA1T          | 32.00                | -26.20    | 38.40           | 54.00             | -15.60         | -                 | -              | 74             | 289         | V        |
|             |         | * 2.48433       | 32.95          | VA1T          | 32.00                | -26.20    | 38.75           | 54.00             | -15.25         | -                 | -              | 74             | 289         | V        |

Note1. Pk - Peak detector, VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

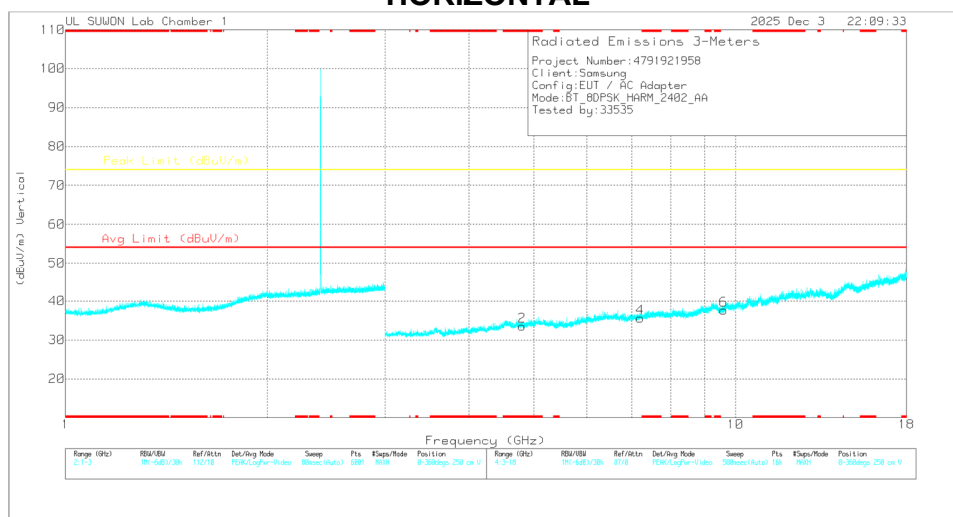
Note2. \* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

## HARMONICS AND SPURIOUS EMISSIONS(WORST CASE – DUAL)

### 0 CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

### Radiated Emissions

| Frequency (GHz) | Meter Reading (dBuV) | Det  | Antenna_Factor (dB/m) | 3GHz_HP_Pat h Loss(dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|-----------------------|------------------------|----------------------------|--------------------|-------------|---------------------|-------------|----------------|-------------|----------|
| * 4.802         | 40.6                 | PKFH | 34.2                  | -33                    | 41.8                       | -                  | -           | 74                  | -32.2       | 219            | 100         | H        |
| * 4.80421       | 29.89                | VA1T | 34.2                  | -33                    | 31.09                      | 54                 | -22.91      | -                   | -           | 219            | 100         | H        |
| * 4.8062        | 40.25                | PKFH | 34.2                  | -32.9                  | 41.55                      | -                  | -           | 74                  | -32.45      | 188            | 113         | V        |
| * 4.80339       | 29.62                | VA1T | 34.2                  | -33                    | 30.82                      | -                  | -23.18      | -                   | -           | 188            | 113         | V        |
| 7.20495         | 38.68                | PKFH | 35.5                  | -30.9                  | 43.28                      | -                  | -           | 74                  | -30.72      | 0              | 100         | H        |
| 7.2044          | 39.95                | PKFH | 35.5                  | -30.9                  | 44.55                      | -                  | -           | 74                  | -29.45      | 0              | 100         | V        |
| 9.60649         | 36.57                | PKFH | 37                    | -27.1                  | 46.47                      | -                  | -           | 74                  | -27.53      | 0              | 100         | H        |
| 9.60711         | 35.29                | PKFH | 37                    | -27.1                  | 45.19                      | -                  | -           | 74                  | -28.81      | 0              | 100         | V        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

# HARMONICS AND SPURIOUS EMISSIONS TEST DATA

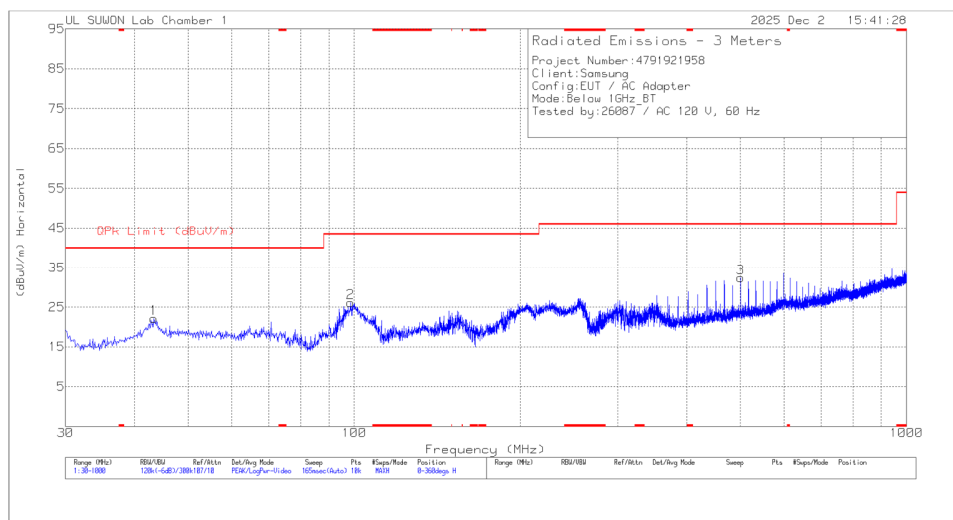
| Freq. [MHz] | Antenna | Frequency [GHz] | Reading [dBuV] | Detector Mode | ANT Factor [dB(1/m)] | Loss [dB] | Result [dBuV/m] | AV Limit [dBuV/m] | AV Margin [dB] | PK Limit [dBuV/m] | PK Margin [dB] | Azimuth [Degs] | Height [cm] | Polarity |
|-------------|---------|-----------------|----------------|---------------|----------------------|-----------|-----------------|-------------------|----------------|-------------------|----------------|----------------|-------------|----------|
| 2402        | ANT1    | * 4.80411       | 37.53          | PKFH          | 34.30                | -30.10    | 41.73           | -                 | -              | 74.00             | -32.27         | 200            | 100         | H        |
|             |         | * 4.804         | 24.12          | VA1T          | 34.30                | -30.10    | 28.32           | 54.00             | -25.68         | -                 | -              | 200            | 100         | H        |
|             |         | * 4.80629       | 38.67          | PKFH          | 34.30                | -30.10    | 42.87           | -                 | -              | 74.00             | -31.13         | 159            | 100         | V        |
|             |         | * 4.80393       | 24.23          | VA1T          | 34.30                | -30.10    | 28.43           | 54.00             | -25.57         | -                 | -              | 159            | 100         | V        |
|             |         | 7.208           | 33.08          | PKFH          | 35.80                | -25.70    | 43.18           | -                 | -              | 74.00             | -30.82         | 0              | 100         | H        |
|             |         | 7.208           | 33.41          | PKFH          | 35.80                | -25.70    | 43.51           | -                 | -              | 74.00             | -30.49         | 0              | 100         | V        |
|             |         | 9.605           | 31.15          | PKFH          | 36.70                | -21.70    | 46.15           | -                 | -              | 74.00             | -27.85         | 0              | 100         | H        |
|             |         | 9.604           | 31.56          | PKFH          | 36.70                | -21.70    | 46.56           | -                 | -              | 74.00             | -27.44         | 0              | 100         | V        |
| 2441        | ANT1    | * 4.88108       | 38.75          | PKFH          | 34.20                | -30.80    | 42.15           | -                 | -              | 74.00             | -31.85         | 176            | 108         | H        |
|             |         | * 4.88211       | 24.37          | VA1T          | 34.20                | -30.80    | 27.77           | 54.00             | -26.23         | -                 | -              | 176            | 108         | H        |
|             |         | * 4.88096       | 37.92          | PKFH          | 34.20                | -30.80    | 41.32           | -                 | -              | 74.00             | -32.68         | 179            | 100         | V        |
|             |         | * 4.88203       | 24.48          | VA1T          | 34.20                | -30.80    | 27.88           | 54.00             | -26.12         | -                 | -              | 179            | 100         | V        |
|             |         | * 7.32182       | 33.79          | PKFH          | 35.80                | -25.20    | 44.39           | -                 | -              | 74.00             | -29.61         | 0              | 100         | H        |
|             |         | * 7.32523       | 32.76          | PKFH          | 35.80                | -25.30    | 43.26           | -                 | -              | 74.00             | -30.74         | 0              | 100         | V        |
|             |         | 9.763           | 31.37          | PKFH          | 36.90                | -21.30    | 46.97           | -                 | -              | 74.00             | -27.03         | 0              | 100         | H        |
|             |         | 9.764           | 31.12          | PKFH          | 36.90                | -21.30    | 46.72           | -                 | -              | 74.00             | -27.28         | 0              | 100         | V        |
| 2480        | ANT1    | * 4.96011       | 38.09          | PKFH          | 34.30                | -30.30    | 42.09           | -                 | -              | 74.00             | -31.91         | 217            | 103         | H        |
|             |         | * 4.95992       | 25.04          | VA1T          | 34.30                | -30.40    | 28.94           | 54.00             | -25.06         | -                 | -              | 217            | 103         | H        |
|             |         | * 4.96008       | 38.04          | PKFH          | 34.30                | -30.30    | 42.04           | -                 | -              | 74.00             | -31.96         | 172            | 100         | V        |
|             |         | * 4.96          | 25.25          | VA1T          | 34.30                | -30.40    | 29.15           | 54.00             | -24.85         | -                 | -              | 172            | 100         | V        |
|             |         | * 7.43777       | 33.66          | PKFH          | 35.70                | -24.90    | 44.46           | -                 | -              | 74.00             | -29.54         | 0              | 100         | H        |
|             |         | * 7.44208       | 33.71          | PKFH          | 35.70                | -25.00    | 44.41           | -                 | -              | 74.00             | -29.59         | 0              | 100         | V        |
|             |         | 9.918           | 32.05          | PKFH          | 37.10                | -21.40    | 47.75           | -                 | -              | 74.00             | -26.25         | 0              | 100         | H        |
|             |         | 9.920           | 31.12          | PKFH          | 37.10                | -21.50    | 46.72           | -                 | -              | 74.00             | -27.28         | 0              | 100         | V        |
| 2402        | ANT2    | * 4.80226       | 37.42          | PKFH          | 34.30                | -30.20    | 41.52           | -                 | -              | 74.00             | -32.48         | 184            | 100         | H        |
|             |         | * 4.80413       | 25.20          | VA1T          | 34.30                | -30.10    | 29.40           | 54.00             | -24.60         | -                 | -              | 184            | 100         | H        |
|             |         | * 4.80567       | 36.73          | PKFH          | 34.30                | -30.10    | 40.93           | -                 | -              | 74.00             | -33.07         | 147            | 111         | V        |
|             |         | * 4.80365       | 24.74          | VA1T          | 34.30                | -30.10    | 28.94           | 54.00             | -25.06         | -                 | -              | 147            | 111         | V        |
|             |         | 7.203           | 33.34          | PKFH          | 35.80                | -25.80    | 43.34           | -                 | -              | 74.00             | -30.66         | 0              | 100         | H        |
|             |         | 7.202           | 32.50          | PKFH          | 35.80                | -25.80    | 42.50           | -                 | -              | 74.00             | -31.50         | 0              | 100         | V        |
|             |         | 9.606           | 30.01          | PKFH          | 36.70                | -21.70    | 45.01           | -                 | -              | 74.00             | -28.99         | 0              | 100         | H        |
|             |         | 9.608           | 31.61          | PKFH          | 36.70                | -21.70    | 46.61           | -                 | -              | 74.00             | -27.39         | 0              | 100         | V        |
| 2441        | ANT2    | * 4.88426       | 37.30          | PKFH          | 34.20                | -30.80    | 40.70           | -                 | -              | 74.00             | -33.30         | 191            | 100         | H        |
|             |         | * 4.88252       | 24.84          | VA1T          | 34.20                | -30.80    | 28.24           | 54.00             | -25.76         | -                 | -              | 191            | 100         | H        |
|             |         | * 4.88034       | 36.86          | PKFH          | 34.20                | -30.80    | 40.26           | -                 | -              | 74.00             | -33.74         | 206            | 100         | V        |
|             |         | * 4.88198       | 24.69          | VA1T          | 34.20                | -30.80    | 28.09           | 54.00             | -25.91         | -                 | -              | 206            | 100         | V        |
|             |         | * 7.32412       | 32.11          | PKFH          | 35.80                | -25.30    | 42.61           | -                 | -              | 74.00             | -31.39         | 0              | 100         | H        |
|             |         | * 7.32239       | 32.17          | PKFH          | 35.80                | -25.20    | 42.77           | -                 | -              | 74.00             | -31.23         | 0              | 100         | V        |
|             |         | 9.763           | 30.28          | PKFH          | 36.90                | -21.30    | 45.88           | -                 | -              | 74.00             | -28.12         | 0              | 100         | H        |
|             |         | 9.764           | 30.35          | PKFH          | 36.90                | -21.30    | 45.95           | -                 | -              | 74.00             | -28.05         | 0              | 100         | V        |
| 2480        | ANT2    | * 4.95565       | 36.96          | PKFH          | 34.30                | -30.50    | 40.76           | -                 | -              | 74.00             | -33.24         | 168            | 110         | H        |
|             |         | * 4.96007       | 24.61          | VA1T          | 34.30                | -30.30    | 28.61           | 54.00             | -25.39         | -                 | -              | 168            | 110         | H        |
|             |         | * 4.96006       | 36.90          | PKFH          | 34.30                | -30.30    | 40.90           | -                 | -              | 74.00             | -33.10         | 175            | 106         | V        |
|             |         | * 4.95993       | 24.19          | VA1T          | 34.30                | -30.40    | 28.09           | 54.00             | -25.91         | -                 | -              | 175            | 106         | V        |
|             |         | * 7.4406        | 31.71          | PKFH          | 35.70                | -25.00    | 42.41           | -                 | -              | 74.00             | -31.59         | 190            | 100         | H        |
|             |         | * 7.44003       | 19.66          | VA1T          | 35.70                | -25.00    | 30.36           | 54.00             | -23.64         | -                 | -              | 190            | 100         | H        |
|             |         | * 7.43923       | 32.62          | PKFH          | 35.70                | -25.00    | 43.32           | -                 | -              | 74.00             | -30.68         | 0              | 100         | V        |
|             |         | 9.918           | 30.43          | PKFH          | 37.10                | -21.50    | 46.03           | -                 | -              | 74.00             | -27.97         | 0              | 100         | H        |
| 2402        | DUAL    | 9.917           | 30.17          | PKFH          | 37.10                | -21.40    | 45.87           | -                 | -              | 74.00             | -28.13         | 0              | 100         | V        |
|             |         | * 4.802         | 40.60          | PKFH          | 34.20                | -33.00    | 41.80           | -                 | -              | 74.00             | -32.20         | 219            | 100         | H        |
|             |         | * 4.80421       | 29.89          | VA1T          | 34.20                | -33.00    | 31.09           | 54.00             | -22.91         | -                 | -              | 219            | 100         | H        |
|             |         | * 4.8062        | 40.25          | PKFH          | 34.20                | -32.90    | 41.55           | -                 | -              | 74.00             | -32.45         | 188            | 113         | V        |
|             |         | * 4.80339       | 29.62          | VA1T          | 34.20                | -33.00    | 30.82           | 54.00             | -23.18         | -                 | -              | 188            | 113         | V        |
|             |         | 7.205           | 38.68          | PKFH          | 35.50                | -30.90    | 43.28           | -                 | -              | 74.00             | -30.72         | 0              | 100         | H        |
|             |         | 7.204           | 39.95          | PKFH          | 35.50                | -30.90    | 44.55           | -                 | -              | 74.00             | -29.45         | 0              | 100         | V        |
|             |         | 9.606           | 36.57          | PKFH          | 37.00                | -27.10    | 46.47           | -                 | -              | 74.00             | -27.53         | 0              | 100         | H        |
| 2441        | DUAL    | 9.607           | 35.29          | PKFH          | 37.00                | -27.10    | 45.19           | -                 | -              | 74.00             | -28.81         | 0              | 100         | V        |
|             |         | * 4.88314       | 41.21          | PKFH          | 34.20                | -33.00    | 42.41           | -                 | -              | 74.00             | -31.59         | 0              | 100         | H        |
|             |         | * 4.88199       | 40.36          | PKFH          | 34.20                | -33.00    | 41.56           | -                 | -              | 74.00             | -32.44         | 0              | 100         | V        |
|             |         | * 7.32217       | 39.23          | PKFH          | 35.50                | -30.70    | 44.03           | -                 | -              | 74.00             | -29.97         | 0              | 100         | H        |
|             |         | * 7.32378       | 38.59          | PKFH          | 35.50                | -30.80    | 43.29           | -                 | -              | 74.00             | -30.71         | 0              | 100         | V        |
|             |         | 9.766           | 34.99          | PKFH          | 37.20                | -26.50    | 45.69           | -                 | -              | 74.00             | -28.31         | 0              | 100         | H        |
|             |         | 9.764           | 35.05          | PKFH          | 37.20                | -26.60    | 45.65           | -                 | -              | 74.00             | -28.35         | 0              | 100         | V        |
|             |         | * 4.96047       | 40.42          | PKFH          | 34.20                | -32.90    | 41.72           | -                 | -              | 74.00             | -32.28         | 0              | 100         | H        |
| 2480        | DUAL    | * 4.9588        | 40.91          | PKFH          | 34.20                | -32.90    | 42.21           | -                 | -              | 74.00             | -31.79         | 0              | 100         | V        |
|             |         | * 7.44091       | 38.68          | PKFH          | 35.60                | -30.40    | 43.88           | -                 | -              | 74.00             | -30.12         | 0              | 100         | H        |
|             |         | * 7.44213       | 38.89          | PKFH          | 35.60                | -30.30    | 44.19           | -                 | -              | 74.00             | -29.81         | 0              | 100         | V        |
|             |         | 9.918           | 35.97          | PKFH          | 37.40                | -27.10    | 46.27           | -                 | -              | 74.00             | -27.73         | 0              | 100         | H        |
|             |         | 9.918           | 35.33          | PKFH          | 37.40                | -27.10    | 45.63           | -                 | -              | 74.00             | -28.37         | 0              | 100         | V        |

\* - indicates frequency in 47 CFR Pt 15 / IC RSS-Restricted Band

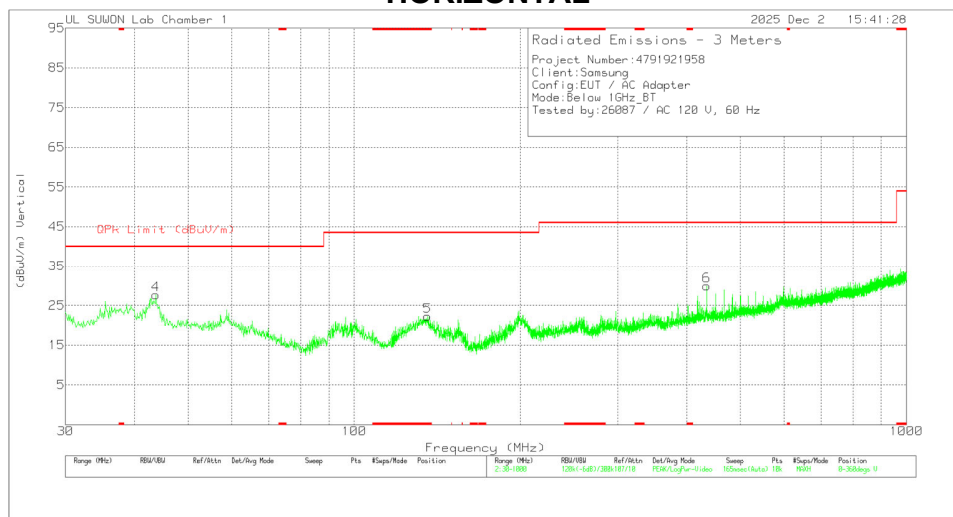
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak  
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

## 10.2. WORST CASE BELOW 1 GHz

### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



#### HORIZONTAL



#### VERTICAL

#### Trace Markers

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Antenna_Factor (dB/m) | Below_1G_Path Loss(dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|-----------------------|------------------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 1      | 43.386          | 33.69                | Pk  | 19.3                  | -30.9                  | 22.09                      | 40                 | -17.91      | 0-360          | 200         | H        |
| 2      | 98.385          | 39.14                | Pk  | 17.2                  | -30.2                  | 26.14                      | 43.52              | -17.38      | 0-360          | 200         | H        |
| 3      | 500.838         | 37.17                | Pk  | 23                    | -27.7                  | 32.47                      | 46.02              | -13.55      | 0-360          | 198         | H        |
| 4      | 43.677          | 39.14                | Pk  | 19.4                  | -30.9                  | 27.64                      | 40                 | -12.36      | 0-360          | 200         | V        |
| 5      | * 135.73        | 38                   | Pk  | 13.9                  | -29.7                  | 22.2                       | 43.52              | -21.32      | 0-360          | 200         | V        |
| 6      | 434.878         | 36.02                | Pk  | 21.8                  | -27.9                  | 29.92                      | 46.02              | -16.1       | 0-360          | 300         | V        |

Pk - Peak detector

## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

| Frequency of Emission (MHz) | Conducted Limit (dBuV) |           |
|-----------------------------|------------------------|-----------|
|                             | Quasi-peak             | Average   |
| 0.15-0.5                    | 66 to 56*              | 56 to 46* |
| 0.5-5                       | 56                     | 46        |
| 5-30                        | 60                     | 50        |

\* Decreases with the logarithm of the frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10:2020.

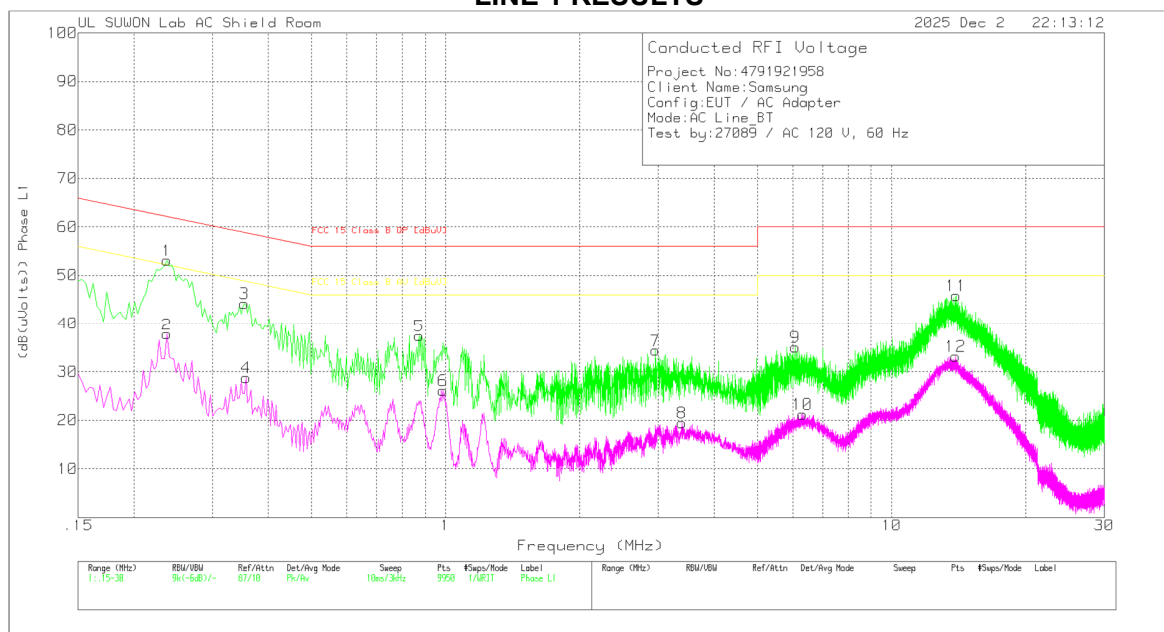
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

### RESULTS

## 11.1. AC Power Line

### LINE 1 RESULTS



### Trace Markers

Range 1: Phase L1 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | 101836_With EX_L1 [dB] | Cable Loss [dB] | Corrected Reading (dB(uVolts)) | FCC 15 Class B QP [dBuV] | Margin (dB) | FCC 15 Class B AV [dBuV] | Margin (dB) |
|--------|-----------------|----------------------|-----|------------------------|-----------------|--------------------------------|--------------------------|-------------|--------------------------|-------------|
| 1      | .237            | 43.28                | Pk  | 9.7                    | .1              | 53.08                          | 62.2                     | -9.12       | -                        | -           |
| 2      | .237            | 27.95                | Av  | 9.7                    | .1              | 37.75                          | -                        | -           | 52.2                     | -14.45      |
| 3      | .354            | 34.3                 | Pk  | 9.8                    | .1              | 44.2                           | 58.87                    | -14.67      | -                        | -           |
| 4      | .357            | 18.86                | Av  | 9.8                    | .1              | 28.76                          | -                        | -           | 48.8                     | -20.04      |
| 5      | .873            | 27.51                | Pk  | 9.8                    | .1              | 37.41                          | 56                       | -18.59      | -                        | -           |
| 6      | .987            | 16.26                | Av  | 9.8                    | .1              | 26.16                          | -                        | -           | 46                       | -19.84      |
| 7      | 2.955           | 24.55                | Pk  | 9.7                    | .1              | 34.35                          | 56                       | -21.65      | -                        | -           |
| 8      | 3.39            | 9.66                 | Av  | 9.7                    | .1              | 19.46                          | -                        | -           | 46                       | -26.54      |
| 9      | 6.081           | 25.04                | Pk  | 9.8                    | .2              | 35.04                          | 60                       | -24.96      | -                        | -           |
| 10     | 6.309           | 11.24                | Av  | 9.8                    | .2              | 21.24                          | -                        | -           | 50                       | -28.76      |
| 11     | 13.947          | 35.58                | Pk  | 10                     | .3              | 45.88                          | 60                       | -14.12      | -                        | -           |
| 12     | 13.902          | 22.91                | Av  | 10                     | .3              | 33.21                          | -                        | -           | 50                       | -16.79      |

Pk - Peak detector

Av - Average detection

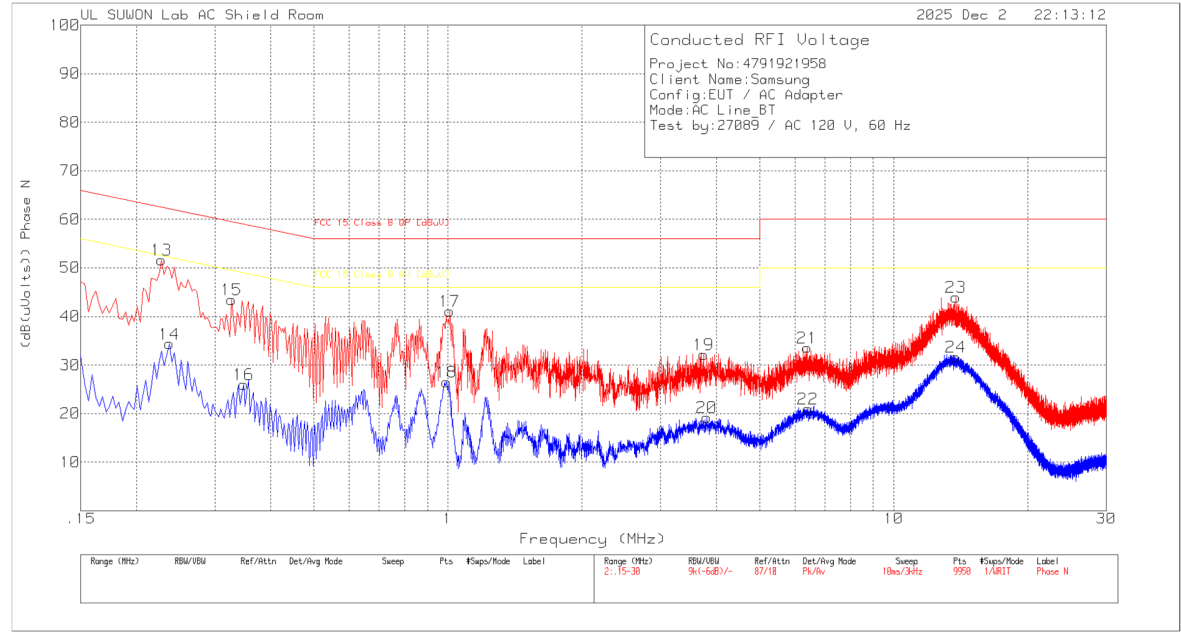
### Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

| Frequency (MHz) | Meter Reading (dBuV) | Det | 101836_With EX_L1 [dB] | Cable Loss [dB] | Corrected Reading (dB(uVolts)) | FCC 15 Class B QP [dBuV] | Margin (dB) | FCC 15 Class B AV [dBuV] | Margin (dB) |
|-----------------|----------------------|-----|------------------------|-----------------|--------------------------------|--------------------------|-------------|--------------------------|-------------|
| .23625          | 30.3                 | Qp  | 9.7                    | .1              | 40.1                           | 62.23                    | -22.13      | -                        | -           |

Qp - Quasi-Peak detector

LINE 2 RESULTS



Trace Markers

| Range 2: Phase N .15 - 30MHz |                 |                      |     |                        |                 |                                |                          |             |                          |             |
|------------------------------|-----------------|----------------------|-----|------------------------|-----------------|--------------------------------|--------------------------|-------------|--------------------------|-------------|
| Marker                       | Frequency (MHz) | Meter Reading (dBuV) | Det | 101836_Wit h EX_N [dB] | Cable Loss [dB] | Corrected Reading (dB(uVolts)) | FCC 15 Class B QP [dBuV] | Margin (dB) | FCC 15 Class B AV [dBuV] | Margin (dB) |
| 13                           | .228            | 41.8                 | Pk  | 9.7                    | .1              | 51.6                           | 62.52                    | -10.92      | -                        | -           |
| 14                           | .237            | 24.55                | Av  | 9.7                    | .1              | 34.35                          | -                        | -           | 52.2                     | -17.85      |
| 15                           | .327            | 33.65                | Pk  | 9.7                    | .1              | 43.45                          | 59.53                    | -16.08      | -                        | -           |
| 16                           | .348            | 16.11                | Av  | 9.8                    | .1              | 26.01                          | -                        | -           | 49.01                    | -23         |
| 17                           | 1.008           | 31.28                | Pk  | 9.7                    | .1              | 41.08                          | 56                       | -14.92      | -                        | -           |
| 18                           | .993            | 16.57                | Av  | 9.8                    | .1              | 26.47                          | -                        | -           | 46                       | -19.53      |
| 19                           | 3.744           | 22.4                 | Pk  | 9.7                    | .1              | 32.2                           | 56                       | -23.8       | -                        | -           |
| 20                           | 3.804           | 9.41                 | Av  | 9.7                    | .1              | 19.21                          | -                        | -           | 46                       | -26.79      |
| 21                           | 6.405           | 23.59                | Pk  | 9.8                    | .2              | 33.59                          | 60                       | -26.41      | -                        | -           |
| 22                           | 6.414           | 10.98                | Av  | 9.8                    | .2              | 20.98                          | -                        | -           | 50                       | -29.02      |
| 23                           | 13.806          | 33.69                | Pk  | 10                     | .3              | 43.99                          | 60                       | -16.01      | -                        | -           |
| 24                           | 13.806          | 21.3                 | Av  | 10                     | .3              | 31.6                           | -                        | -           | 50                       | -18.4       |

Pk - Peak detector  
Av - Average detection

END OF TEST REPORT