



## FCC / ISSED Test Report

**For:**  
Light Guard LLC.

**Model:**  
WT01

**Product Description:**  
The Wireless Trigger activates and de-activates the Lightguard system by sending a signal over BLE technology.

**FCC ID:** 2A9AAWT01

**Applied Rules and Standards:**  
47 CFR Part 15.247 (DTS)  
RSS-247 Issue 3 (DTSs) & RSS-Gen Issue 5

**REPORT** EMC\_MPCON\_006\_22001\_FCC\_15\_247

**DATE:** 2024-07-22



A2LA Accredited

IC recognized #  
3462B

**CETECOM Inc.**

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: + 1 (408) 586 6200 • Fax: + 1 (408) 586 6299 • E-mail: [contact@cetecom.com](mailto:contact@cetecom.com) • <http://www.cetecom.com>  
CETECOM Inc. is a Delaware Corporation with Corporation number: 2905571

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## 1 Assessment

The following device was evaluated against the applicable criteria specified in FCC rules Parts 15.247 of Title 47 of the Code of Federal Regulations and the relevant ISED Canada standard RSS-247.

No deviations were ascertained.

| Company         | Description                                                                                                    | Model # |
|-----------------|----------------------------------------------------------------------------------------------------------------|---------|
| LightGuard, LLC | The Wireless Trigger activates and de-activates the Lightguard system by sending a signal over BLE technology. | WT01    |

### Responsible for the Report:

| 2024-07-22 | Compliance | Art Thammanavarat<br>(Senior EMC Engineer) |           |
|------------|------------|--------------------------------------------|-----------|
| Date       | Section    | Name                                       | Signature |

The test results of this test report relate exclusively to the test item specified in Section3.  
CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM Inc. USA.

## 2 Administrative Data

### 2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

|                                    |                        |
|------------------------------------|------------------------|
| <b>Company Name:</b>               | CETECOM Inc.           |
| <b>Department:</b>                 | Compliance             |
| <b>Street Address:</b>             | 411 Dixon Landing Road |
| <b>City/Zip Code</b>               | Milpitas, CA 95035     |
| <b>Country</b>                     | USA                    |
| <b>Telephone:</b>                  | +1 (408) 586 6200      |
| <b>Fax:</b>                        | +1 (408) 586 6299      |
| <b>EMC Lab Manager:</b>            | Issa Ghama             |
| <b>Responsible Project Leader:</b> | Sangeetha Sivaraman    |

### 2.2 Identification of the Client

|                        |                              |
|------------------------|------------------------------|
| <b>Client's Name:</b>  | Light Guard LLC.             |
| <b>Street Address:</b> | 820 Harbor Dr., Key Biscayne |
| <b>City/Zip Code</b>   | Key Biscayne 33149           |
| <b>Country</b>         | USA                          |

### 2.3 Identification of the Manufacturer

|                               |                |
|-------------------------------|----------------|
| <b>Manufacturer's Name:</b>   | Same as Client |
| <b>Manufacturers Address:</b> |                |
| <b>City/Zip Code</b>          |                |
| <b>Country</b>                |                |

### 3 Equipment Under Test (EUT)

#### 3.1 EUT Specifications

|                                      |                                                                                                                                                                                                                                                                  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model No</b>                      | WT01                                                                                                                                                                                                                                                             |
| <b>HW Version</b>                    | WT01                                                                                                                                                                                                                                                             |
| <b>SW Version</b>                    | 1.0                                                                                                                                                                                                                                                              |
| <b>PMN</b>                           | Wireless Trigger                                                                                                                                                                                                                                                 |
| <b>FCC ID:</b>                       | 2A9AAWT01                                                                                                                                                                                                                                                        |
| <b>Operating Voltage Range</b>       | 3.5VDC-4.5VDC INPUT (3xType N batteries)                                                                                                                                                                                                                         |
| <b>Operating Temperature Range</b>   | T min: -15°C / T Nom: 20°C / T max: 85 °C                                                                                                                                                                                                                        |
| <b>Radios included in the device</b> | <u><b>Bluetooth &amp; Wi-Fi Modules</b></u><br><b>Model Name</b> : Expressif Systems<br><b>Model Number</b> : ESP32-WROOM-32E-N16<br><b>FCC ID</b> : 2AC7Z-ESP32WROOM32E<br><b>IC</b> : 21098-ESPWROOM32E<br><u><b>Wireless Technologies</b></u><br>Bluetooth LE |
| <b>Sample Revision</b>               | <input type="checkbox"/> Prototype <input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-Production                                                                                                                                        |
| <b>EUT Dimensions</b>                | 43.8mm x18.7mm x 87.8mm                                                                                                                                                                                                                                          |
| <b>Weight</b>                        | 70 grams with Batteries                                                                                                                                                                                                                                          |
| <b>EUT Diameter</b>                  | <input checked="" type="checkbox"/> < 60 cm <input type="checkbox"/> Other _____                                                                                                                                                                                 |

### 3.2 EUT Sample details

| EUT # | Model Number | HW Version | SW Version | Notes/Comments |
|-------|--------------|------------|------------|----------------|
| 1     | WT01         | WT01       | 1.0        | N/A            |

### 3.3 Accessory Equipment (AE) details

| AE # | Type | Model | Manufacturer | Serial Number |
|------|------|-------|--------------|---------------|
| 1    | N/A  | N/A   | N/A          | N/A           |

### 3.4 Test Sample Configuration

| EUT Set-up # | Combination of AE used for test set up | Comments                                                                                                                                                                                       |
|--------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1            | EUT#1                                  | The radio of the EUT was configured to a fixed channel transmission with highest possible duty cycle using software that is not available to the end user. The internal antenna was connected. |

### 3.5 Justification for Worst Case Mode of Operation

During the testing process, the EUT was tested with transmitter sets on low, mid and high channels, and highest possible duty cycle. For radiated measurements, all data in this report shows the worst case between horizontal and vertical antenna polarizations and for all orientations of the EUT.

#### 4 Subject of Investigation

The objective of the measurements done by CETECOM Inc. was to assess the performance of the EUT according to the relevant requirements specified in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Radio Standard Specification RSS-247 of ISSED Canada.

#### 5 Measurement Results Summary

| Test Specification                           | Test Case                                       | Temperature and Voltage Conditions | Mode | Pass                                | NA                                  | NP                                  | Result   |
|----------------------------------------------|-------------------------------------------------|------------------------------------|------|-------------------------------------|-------------------------------------|-------------------------------------|----------|
| §15.247(a)(1)<br>RSS-247 5.2(a)              | Emission Bandwidth                              | Nominal                            | N/A  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Note 1,4 |
| §15.247(e)<br>RSS-247 5.2(b)                 | Power Spectral Density                          | Nominal                            | N/A  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Note 1,5 |
| §15.247(b)(1)<br>RSS-247 5.4(d)              | Maximum Conducted Output Power and EIRP         | Nominal                            | N/A  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Note 1,3 |
| §15.247(d)<br>RSS-247 5.5                    | Band edge compliance<br>Unrestricted Band Edges | Nominal                            | N/A  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Note 1,6 |
| §15.247; 15.209; 15.205<br>RSS-Gen 8.9; 8.10 | Band edge compliance<br>Restricted Band Edges   | Nominal                            | N/A  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Note 1,6 |
| §15.247(d); §15.209<br>RSS-Gen 6.13          | TX Spurious emissions-<br>Radiated              | Nominal                            | BTLE | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | Complies |
| §15.207(a)<br>RSS Gen 8.8                    | AC Conducted Emissions                          | Nominal                            | -    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Note 1,2 |

**Note 1:** NA= Not Applicable; NP= Not Performed.

**Note 2:** The DUT operated by battery.

**Note 3:** Leveraged from report # RSHD200218007-00A, Section Maximum conducted output power (FCC ID: 2AC7Z-ESP32WROOM32E)

**Note 4:** Leveraged from report # RSHD200218007-00A, Section 6 dB Emission Bandwidth (FCC ID: 2AC7Z-ESP32WROOM32E)

**Note 5:** Leveraged from report # RSHD200218007-00A, Section Power Spectral Density (FCC ID: 2AC7Z-ESP32WROOM32E)

**Note 6:** Leveraged from report # RSHD200218007-00A, Section 100 kHz Bandwidth of Frequency Band Edge (FCC ID: 2AC7Z-ESP32WROOM32E)

## 6 **Measurement Uncertainty**

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus, with 95% confidence interval (in dB delta to result), based on a coverage factor  $k=2$ .

| Measurement System               | EMC 1   | EMC 2   |
|----------------------------------|---------|---------|
| Conducted Emissions (mains port) | 1.12 dB | 0.46 dB |
| Radiated Emissions               |         |         |
| (<30 MHz)                        | 3.66 dB | 3.88 dB |
| (30 MHz – 1 GHz)                 | 3.17 dB | 3.34 dB |
| (1 GHz – 3 GHz)                  | 5.01 dB | 4.45 dB |
| (> 3 GHz)                        | 4.0 dB  | 4.79 dB |

RF conducted measurement  $\pm 0.5$  dB

According to TR 102 273 a multiplicative propagation of error is assumed for RF measurement systems. For this reason the RMS method is applied to dB values and not to linear values as appropriate for additive propagation of error. Also used: <http://physics.nist.gov/cuu/Uncertainty/typeb.html>. The above calculated uncertainties apply to direct application of the Substitution method. The Substitution method is always used when the EUT comes closer than 3dB to the limit.

### 6.1 **Environmental Conditions During Testing:**

The following environmental conditions were maintained during the course of testing:

- Ambient Temperature: 20-25° C
- Relative humidity: 40-60%

### 6.2 **Dates of Testing:**

2023-01-09 – 2023-01-19

### 6.3 **Decision Rule:**

Cetecom advanced follows ILAC G8:2019 chapter 4.2.1 (Simple Acceptance Rule).

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed in chapter 3. The measurement uncertainty is mentioned in this test report, See chapter 9, but is not taken into account – neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong.

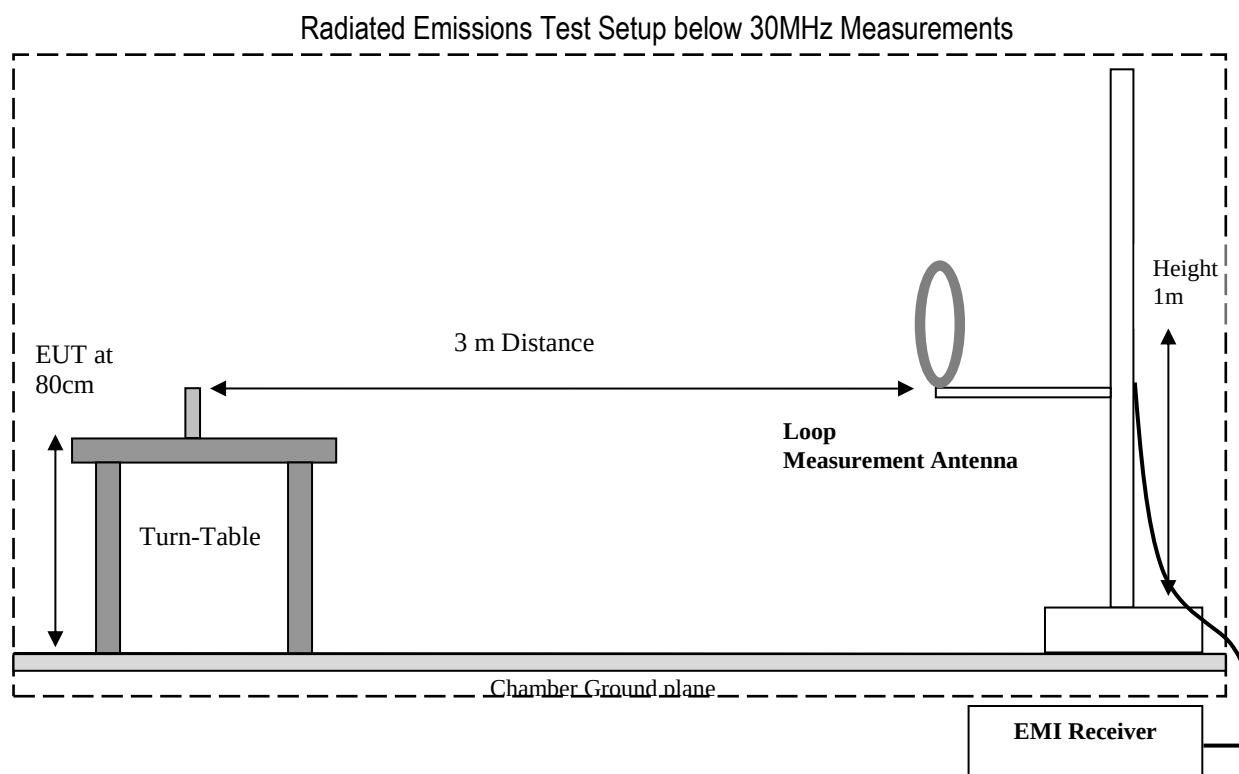


## 7 Measurement Procedures

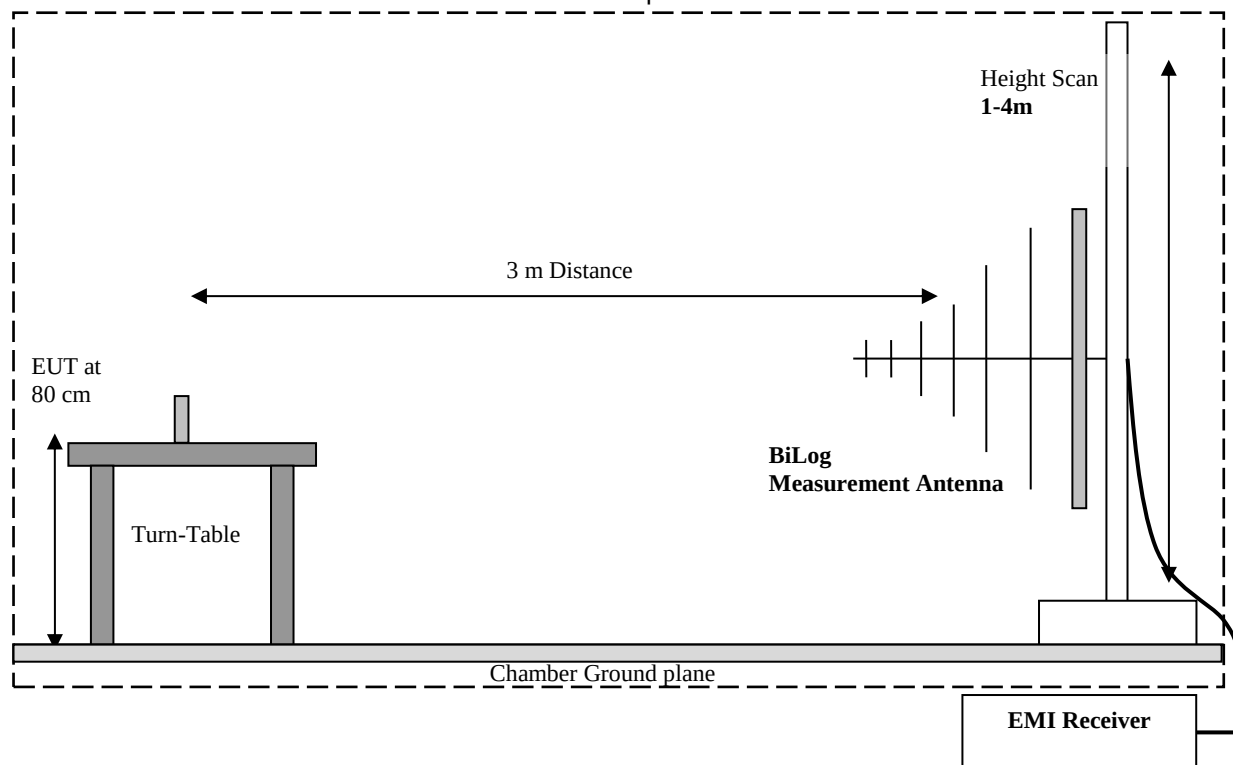
### 7.1 Radiated Measurement

The radiated measurement is performed according to ANSI C63.10 (2013)

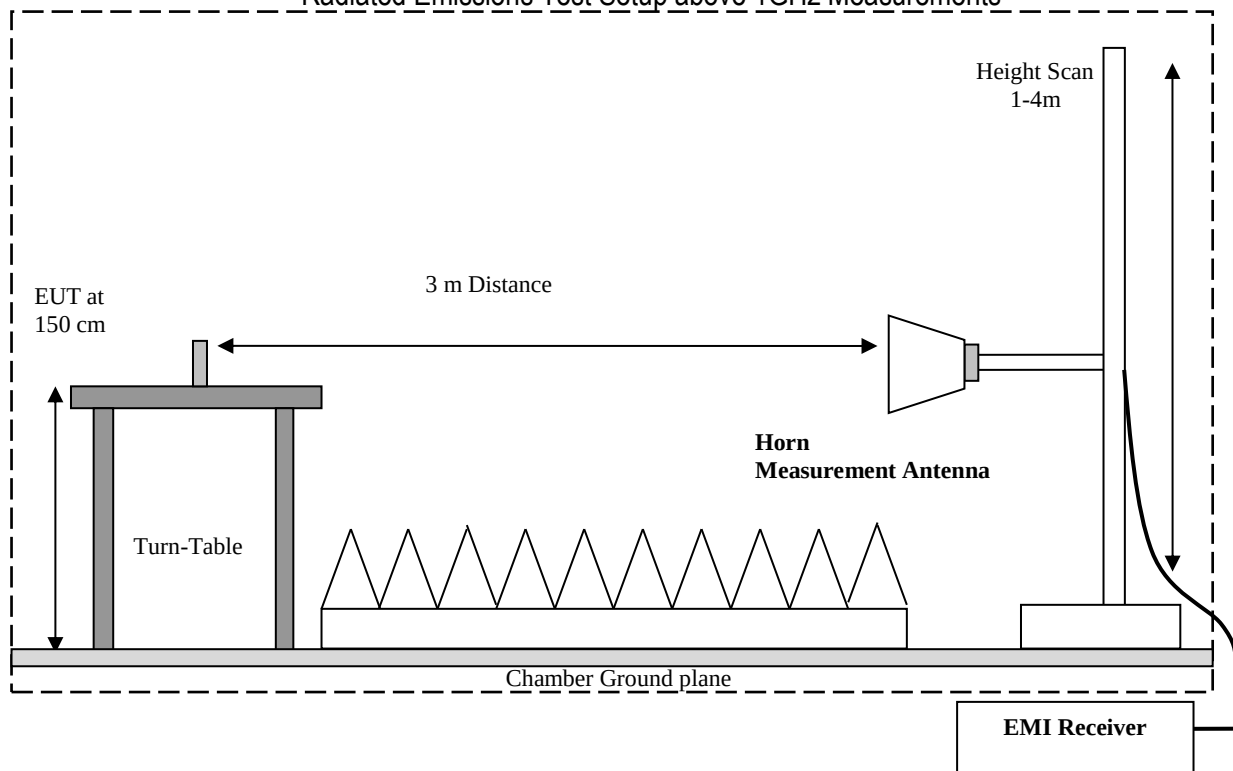
- The exploratory measurement is accomplished by running a matrix of 16 sweeps over the required frequency range with R&S Test-SW EMC32 for 4 positions of the turntable, two orthogonal positions of the EUT and both antenna polarizations. This procedure exceeds the requirement of the above standards to cover the 3 orthogonal axis of the EUT. A max peak detector is utilized during the exploratory measurement. The Test-SW creates an overall maximum trace for all 12 sweeps and saves the settings for each point of this trace. The maximum trace is part of the test report.
- The 10 highest emissions are selected with an automatic algorithm of EMC32 searching for peaks in the noise floor and ensuring that broadband signals are not selected multiple times.
- The maxima are then put through the final measurement and again maximized in a 90deg range of the turntable, fine search in frequency domain and height scan between 1m and 4m.
- The above procedure is repeated for all possible ways of power supply to EUT and for all supported modulations.
- In case there are no emissions above noise floor level only the maximum trace is reported as described above.
- The results are split up into up to 4 frequency ranges due to antenna bandwidth restrictions. A magnetic loop is used from 9 kHz to 30 MHz, a Biconilog antenna is used from 30 MHz to 1 GHz, and two different horn antennas are used to cover frequencies up to 40 GHz.



## Radiated Emissions Test Setup 30MHz-1GHz Measurements



## Radiated Emissions Test Setup above 1GHz Measurements



### 7.1.1 Sample Calculations for Field Strength Measurements

Field Strength is calculated from the Spectrum Analyzer/ Receiver readings, taking into account the following parameters:

1. Measured reading in dB $\mu$ V
2. Cable Loss between the receiving antenna and SA in dB and
3. Antenna Factor in dB/m

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the following equation:

$$FS \text{ (dB}\mu\text{V/m)} = \text{Measured Value on SA (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$$

Example:

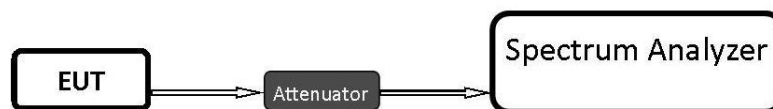
| Frequency (MHz) | Measured SA (dB $\mu$ V) | Cable Loss (dB) | Antenna Factor Correction (dB) | Field Strength Result (dB $\mu$ V/m) |
|-----------------|--------------------------|-----------------|--------------------------------|--------------------------------------|
| 1000            | 80.5                     | 3.5             | 14                             | 98.0                                 |

### 7.2 Power Line Conducted Measurement Procedure

AC Power Line conducted emissions measurements performed according to: ANSI C63.4 (2014)

### 7.3 RF Conducted Measurement Procedure

Testing procedures are based on 558074 D01 15.247 Meas Guidance v05r02 – “GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES” - April 2, 2019, by the Federal Communications Commission, Office of Engineering and Technology, Laboratory Division.



- Connect the equipment as shown in the above diagram.
- Adjust the settings of the SA (Rohde-Schwarz Spectrum Analyzer) to connect the EUT at the required mode of test.
- Measurements are to be performed with the EUT set to the low, middle and high channels and for worst case modulation schemes.

## 8 Test Result Data

### 8.1 Radiated Transmitter Spurious Emissions and Restricted Bands

#### 8.1.1 Measurement according to ANSI C63.10 (2013)

##### Spectrum Analyzer Settings:

- Frequency = 9 KHz – 30 MHz
- RBW = 9 KHz
- Detector: Peak
  
- Frequency = 30 MHz – 1 GHz
- Detector = Peak / Quasi-Peak
- RBW= 120 KHz (<1GHz)
  
- Frequency > 1 GHz
- Detector = Peak / Average
- RBW = 1 MHz
  
- Radiated spurious emissions shall be measured for the transmit frequencies, transmit power, and data rate for the lowest, middle and highest channel in each frequency band of operation and for the highest gain antenna for each antenna type, and using the appropriate parameters and test requirements.
- The highest (or worst-case) data rate shall be recorded for each measurement.
- For testing frequencies below 30 MHz at distance other than the specified in the standard, the limit conversion is calculated by using the FCC materials for the ANSI 63 committee issued on January, 27 1991.

#### 8.1.2 Limits:

##### FCC §15.247

- In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

## FCC §15.209 &amp; RSS-Gen 8.9

- Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency of emission (MHz) | Field strength (μV/m) | Measurement Distance (m) | Field strength @ 3m (dBμV/m) |
|-----------------------------|-----------------------|--------------------------|------------------------------|
| 0.009–0.490                 | 2400/F(kHz) / -----   | 300                      | -                            |
| 0.490–1.705                 | 24000/F(kHz) / -----  | 30                       | -                            |
| 1.705–30.0                  | 30 / (29.5)           | 30                       | -                            |
| 30–88                       | 100                   | 3                        | 40 dBμV/m                    |
| 88–216                      | 150                   | 3                        | 43.5 dBμV/m                  |
| 216–960                     | 200                   | 3                        | 46 dBμV/m                    |
| Above 960                   | 500                   | 3                        | 54 dBμV/m                    |

## FCC §15.205 &amp; RSS-Gen 8.10

- Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz               | MHz                 | MHz           | GHz         |
|-------------------|---------------------|---------------|-------------|
| 0.090-0.110       | 16.42-16.423        | 399.9-410     | 4.5-5.15    |
| 10.495-0.505      | 16.69475-16.69525   | 608-614       | 5.35-5.46   |
| 2.1735-2.1905     | 16.80425-16.80475   | 960-1240      | 7.25-7.75   |
| 4.125-4.128       | 25.5-25.67          | 1300-1427     | 8.025-8.5   |
| 4.17725-4.17775   | 37.5-38.25          | 1435-1626.5   | 9.0-9.2     |
| 4.20725-4.20775   | 73-74.6             | 1645.5-1646.5 | 9.3-9.5     |
| 6.215-6.218       | 74.8-75.2           | 1660-1710     | 10.6-12.7   |
| 6.26775-6.26825   | 108-121.94          | 1718.8-1722.2 | 13.25-13.4  |
| 6.31175-6.31225   | 123-138             | 2200-2300     | 14.47-14.5  |
| 8.291-8.294       | 149.9-150.05        | 2310-2390     | 15.35-16.2  |
| 8.362-8.366       | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4   |
| 8.37625-8.38675   | 156.7-156.9         | 2690-2900     | 22.01-23.12 |
| 8.41425-8.41475   | 162.0125-167.17     | 3260-3267     | 23.6-24.0   |
| 12.29-12.293      | 167.72-173.2        | 3332-3339     | 31.2-31.8   |
| 12.51975-12.52025 | 240-285             | 3345.8-3358   | 36.43-36.5  |
| 12.57675-12.57725 | 322-335.4           | 3600-4400     | Above 38.6  |
| 13.36-13.41       |                     |               |             |

- Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

\*PEAK LIMIT= 74 dBμV/m

\*AVG. LIMIT= 54 dBμV/m

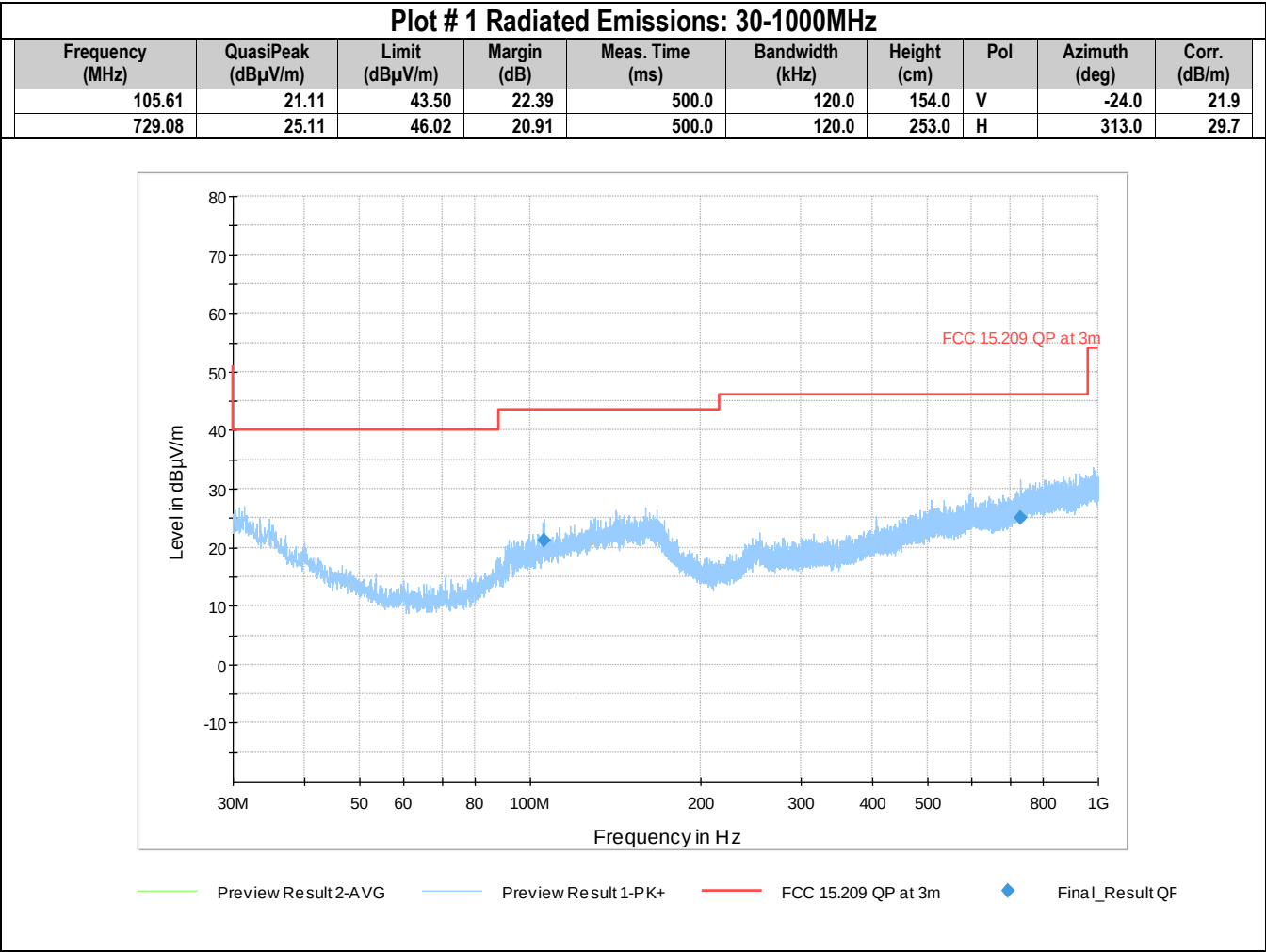
**8.1.3 Test conditions and setup:**

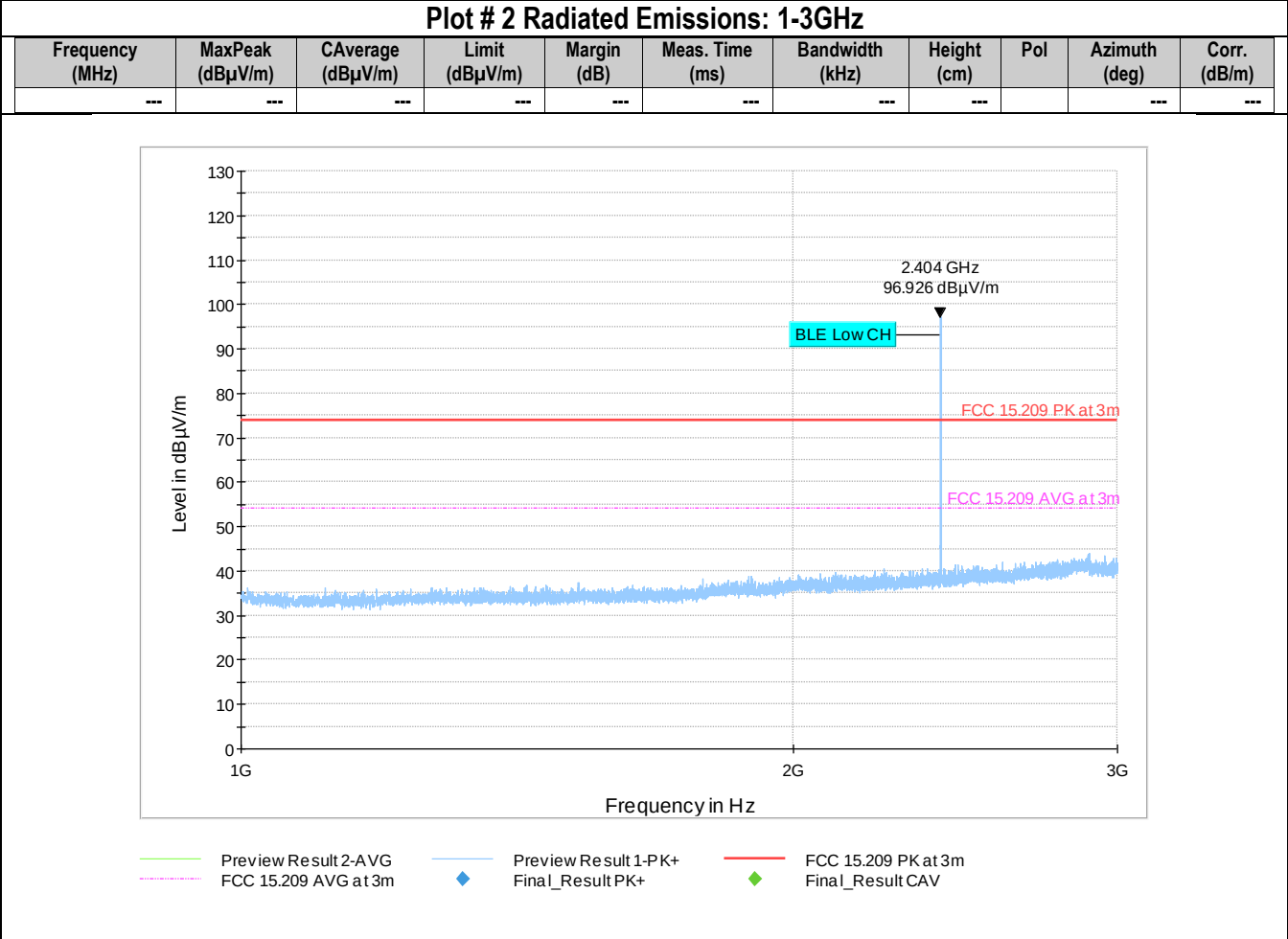
| Ambient Temperature | EUT Set-Up # | EUT operating mode            | Power Input |
|---------------------|--------------|-------------------------------|-------------|
| 21.1° C             | 1            | GFSK continuous fixed channel | 4.5 VDC     |

**8.1.4 Measurement result:**

| Plot # | Channel # | Scan Frequency  | Limit             | Result |
|--------|-----------|-----------------|-------------------|--------|
| 1-3    | Low       | 30 MHz – 18 GHz | See section 8.1.2 | Pass   |
| 4-8    | Mid       | 9 kHz – 26 GHz  | See section 8.1.2 | Pass   |
| 9-11   | High      | 30 MHz – 18 GHz | See section 8.1.2 | Pass   |

8.1.5 Measurement Plots:

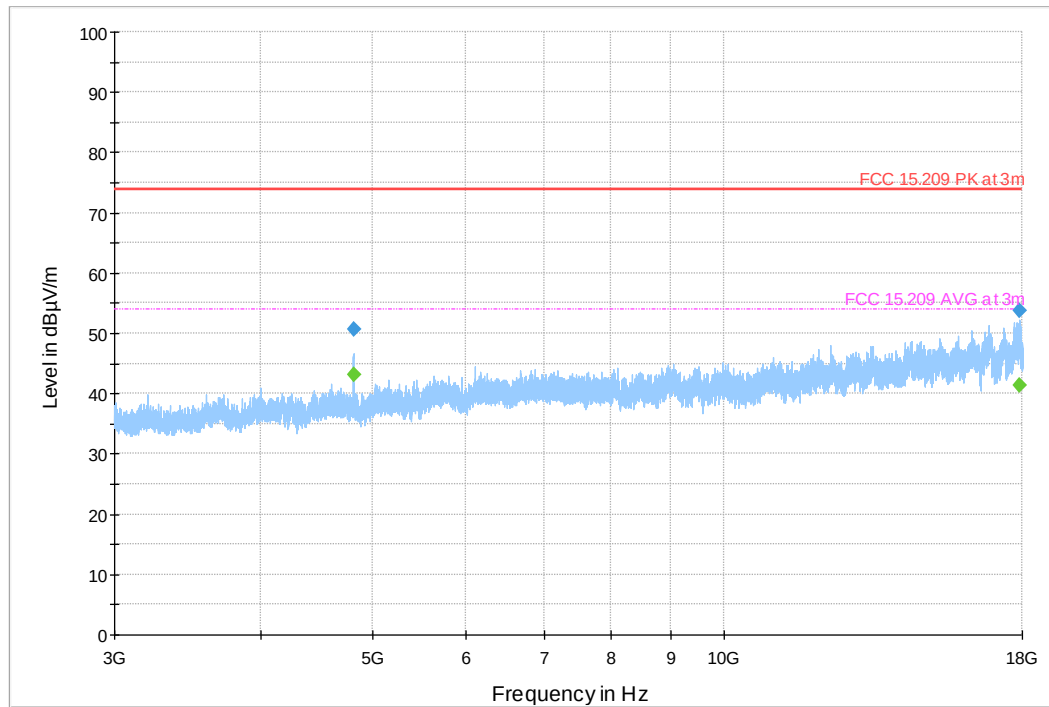




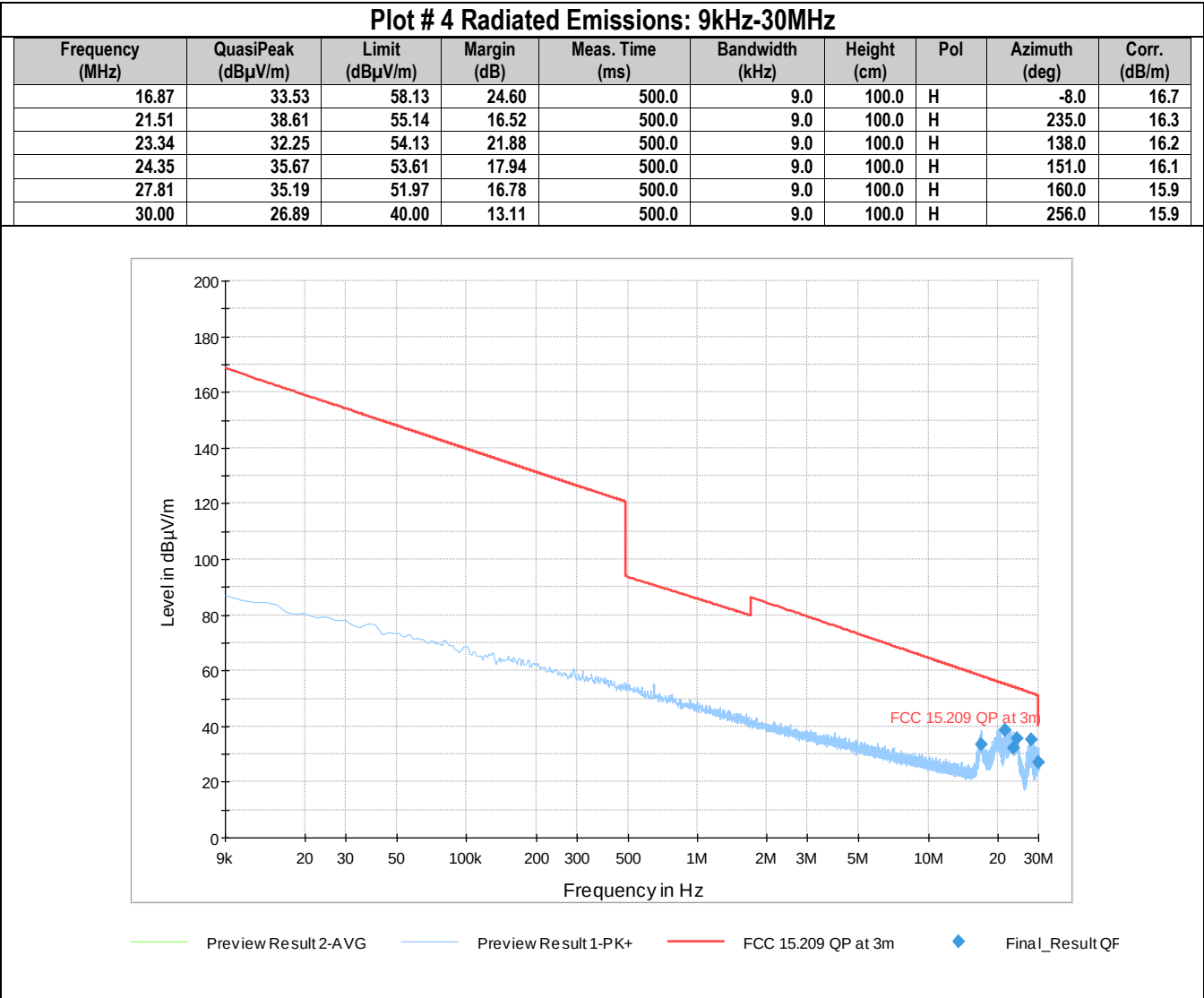


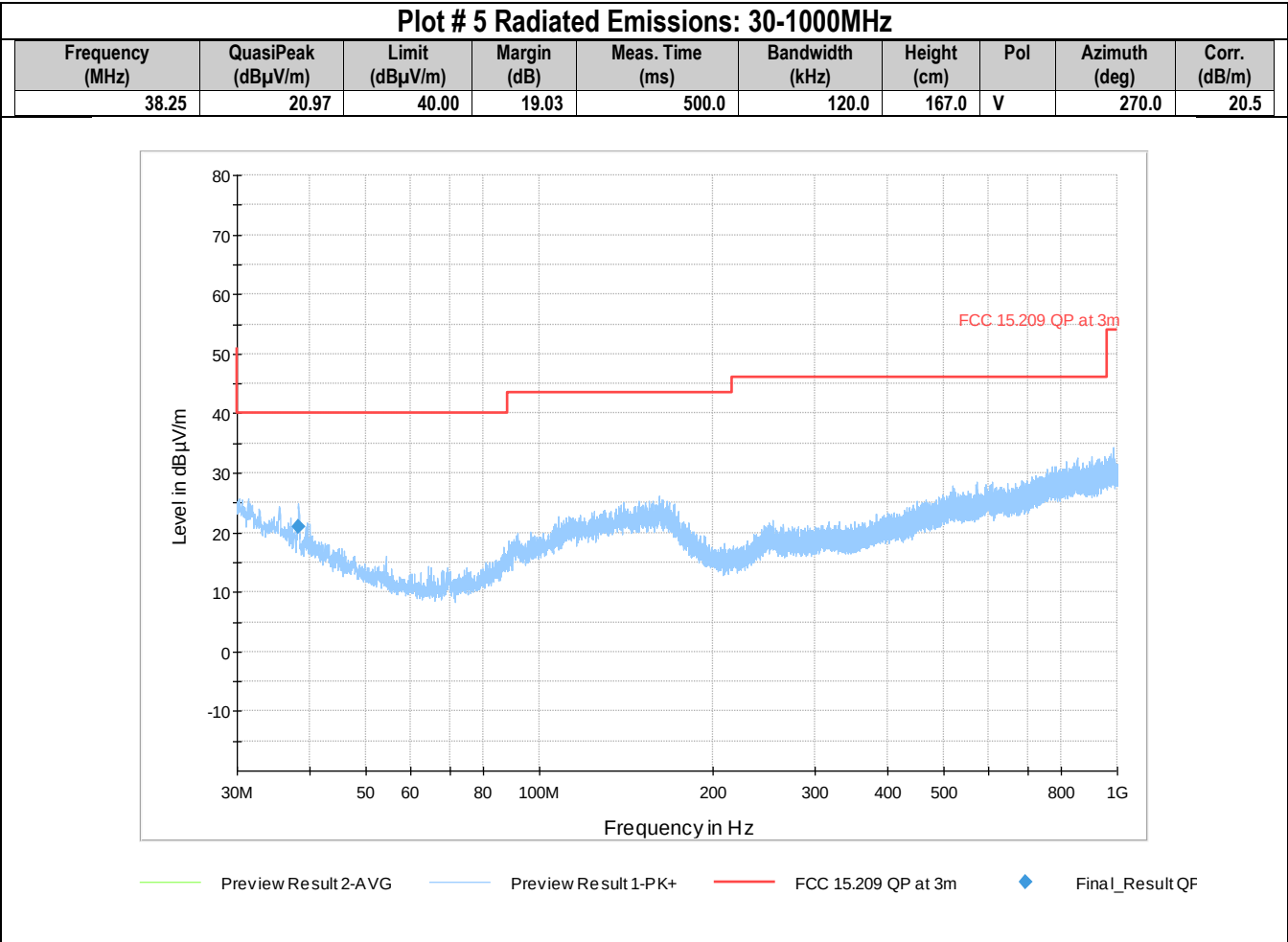
**Plot # 3 Radiated Emissions: 3-18GHz**

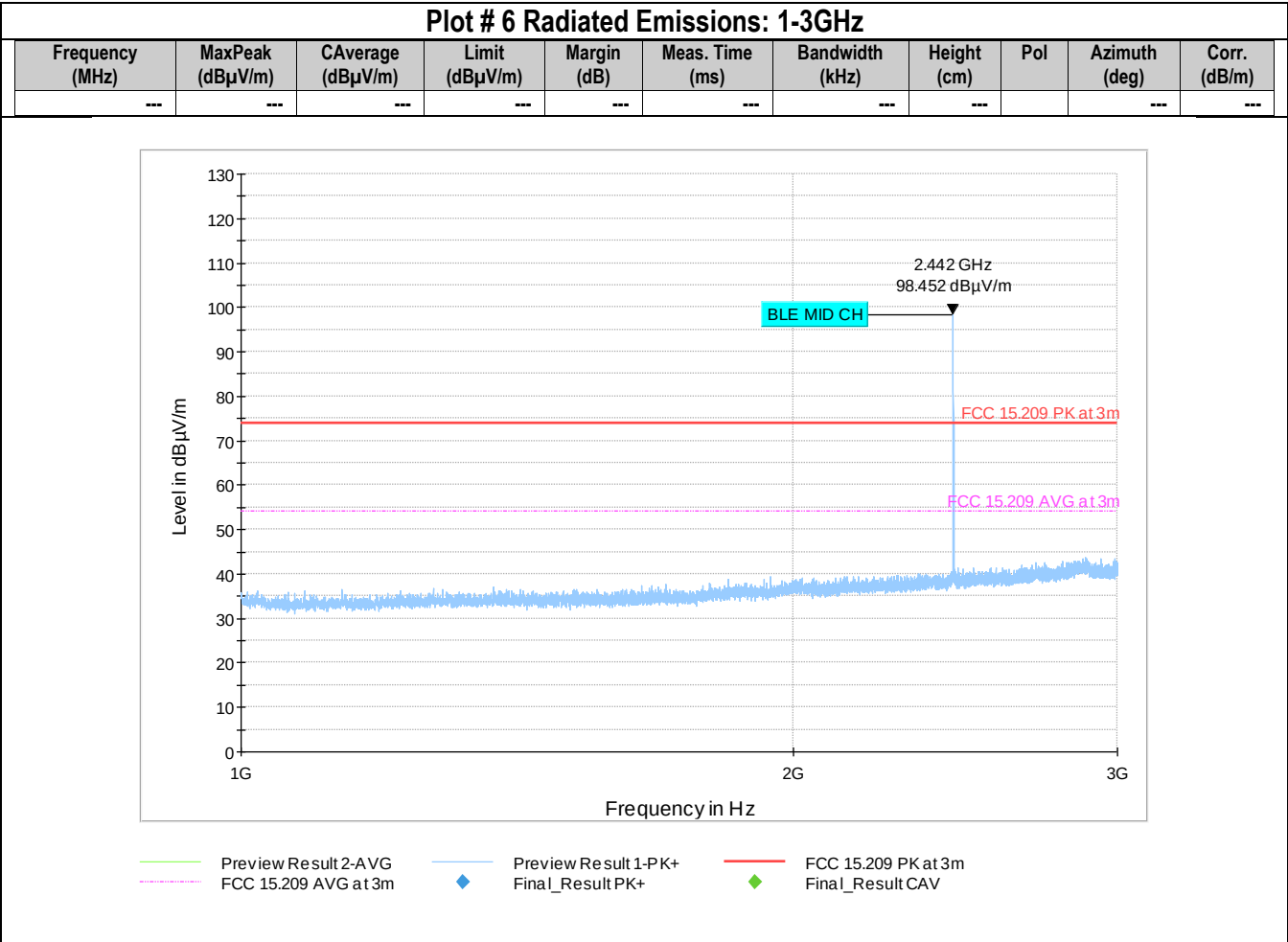
| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 4807.75         | 50.58            | ---               | 73.98          | 23.40       | 500.0           | 1000.0          | 100.0       | V   | 289.0         | -3.3         |
| 4807.75         | ---              | 43.19             | 53.98          | 10.79       | 500.0           | 1000.0          | 100.0       | V   | 289.0         | -3.3         |
| 17890.00        | 53.85            | ---               | 73.98          | 20.13       | 500.0           | 1000.0          | 258.0       | H   | -37.0         | 18.3         |
| 17890.00        | ---              | 41.35             | 53.98          | 12.63       | 500.0           | 1000.0          | 258.0       | H   | -37.0         | 18.3         |



Preview Result 2-AVG      Preview Result 1-PK+      FCC 15.209 PK at 3m  
FCC 15.209 AVG at 3m      Final\_Result PK+      Final\_Result CAV

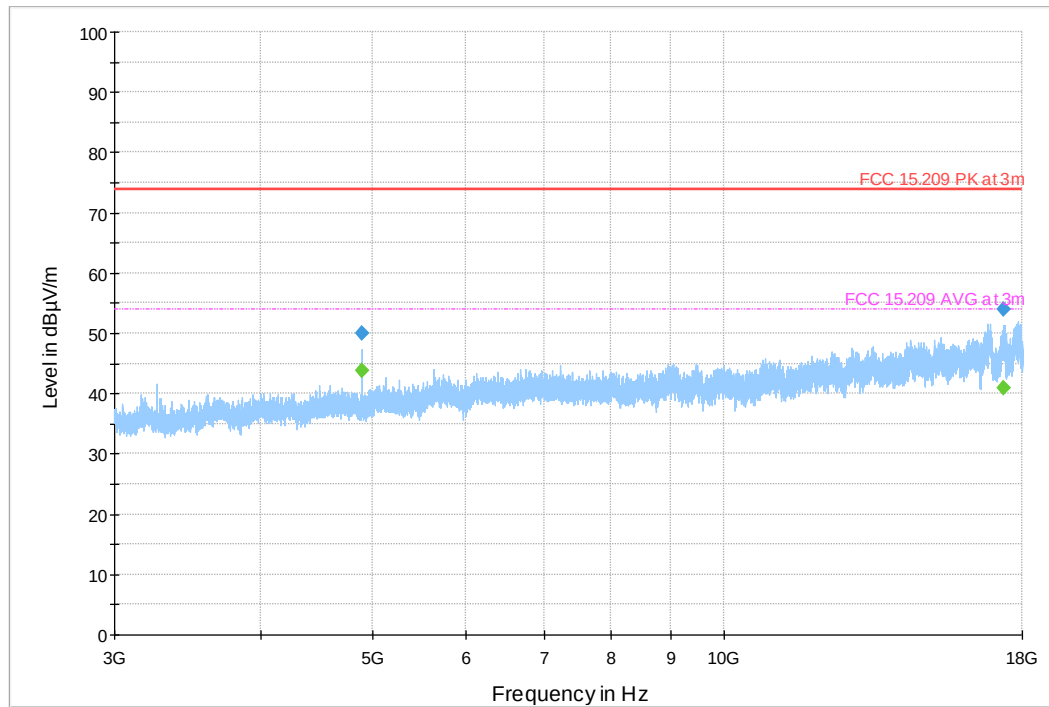






**Plot # 7 Radiated Emissions: 3-18GHz**

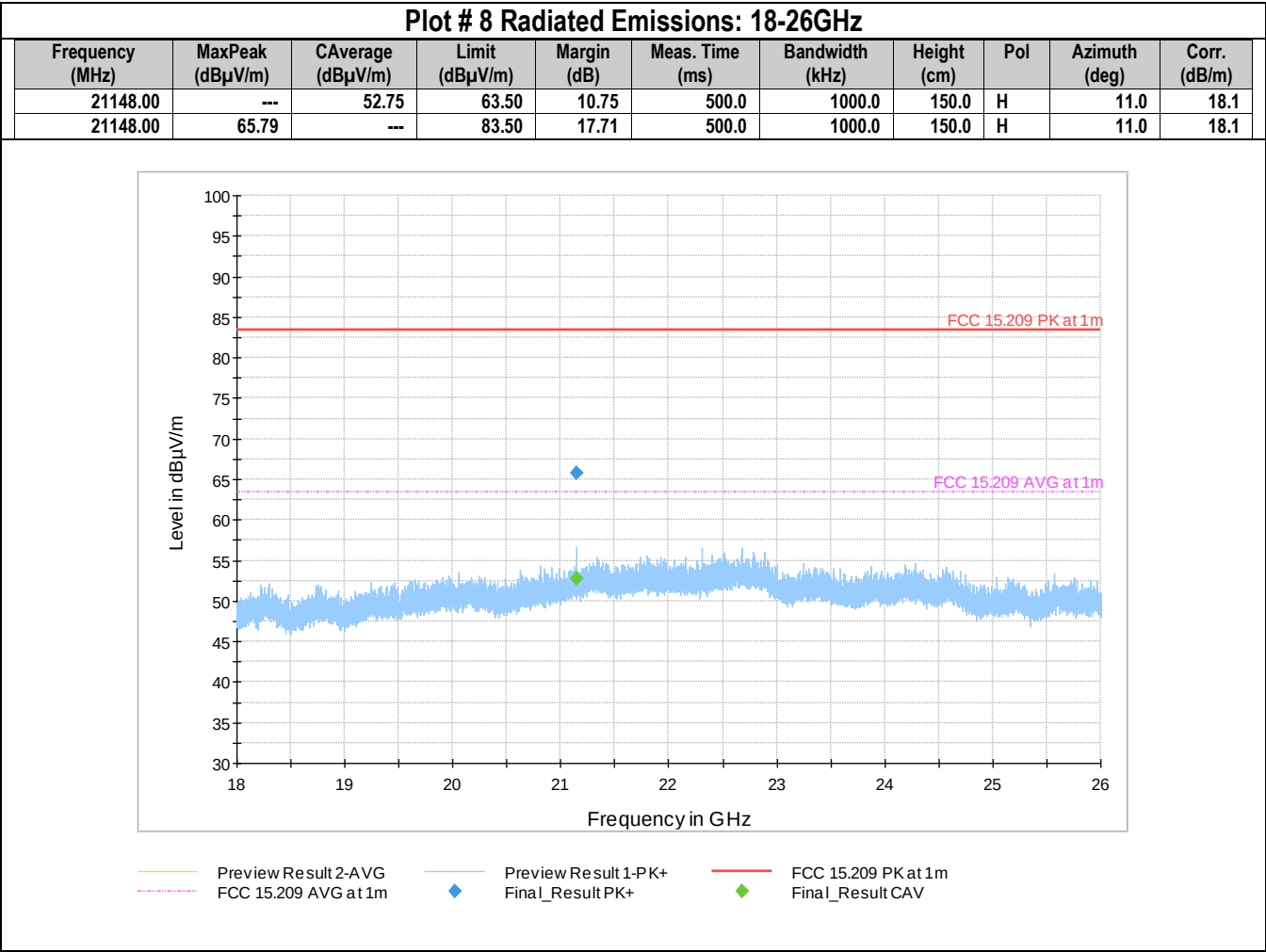
| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 4892.00         | 50.09            | ---               | 73.98          | 23.89       | 500.0           | 1000.0          | 161.0       | V   | 226.0         | -3.8         |
| 4892.00         | ---              | 43.73             | 53.98          | 10.25       | 500.0           | 1000.0          | 161.0       | V   | 226.0         | -3.8         |
| 17345.50        | 53.89            | ---               | 73.98          | 20.09       | 500.0           | 1000.0          | 196.0       | H   | 91.0          | 15.8         |
| 17345.50        | ---              | 40.95             | 53.98          | 13.03       | 500.0           | 1000.0          | 196.0       | H   | 91.0          | 15.8         |



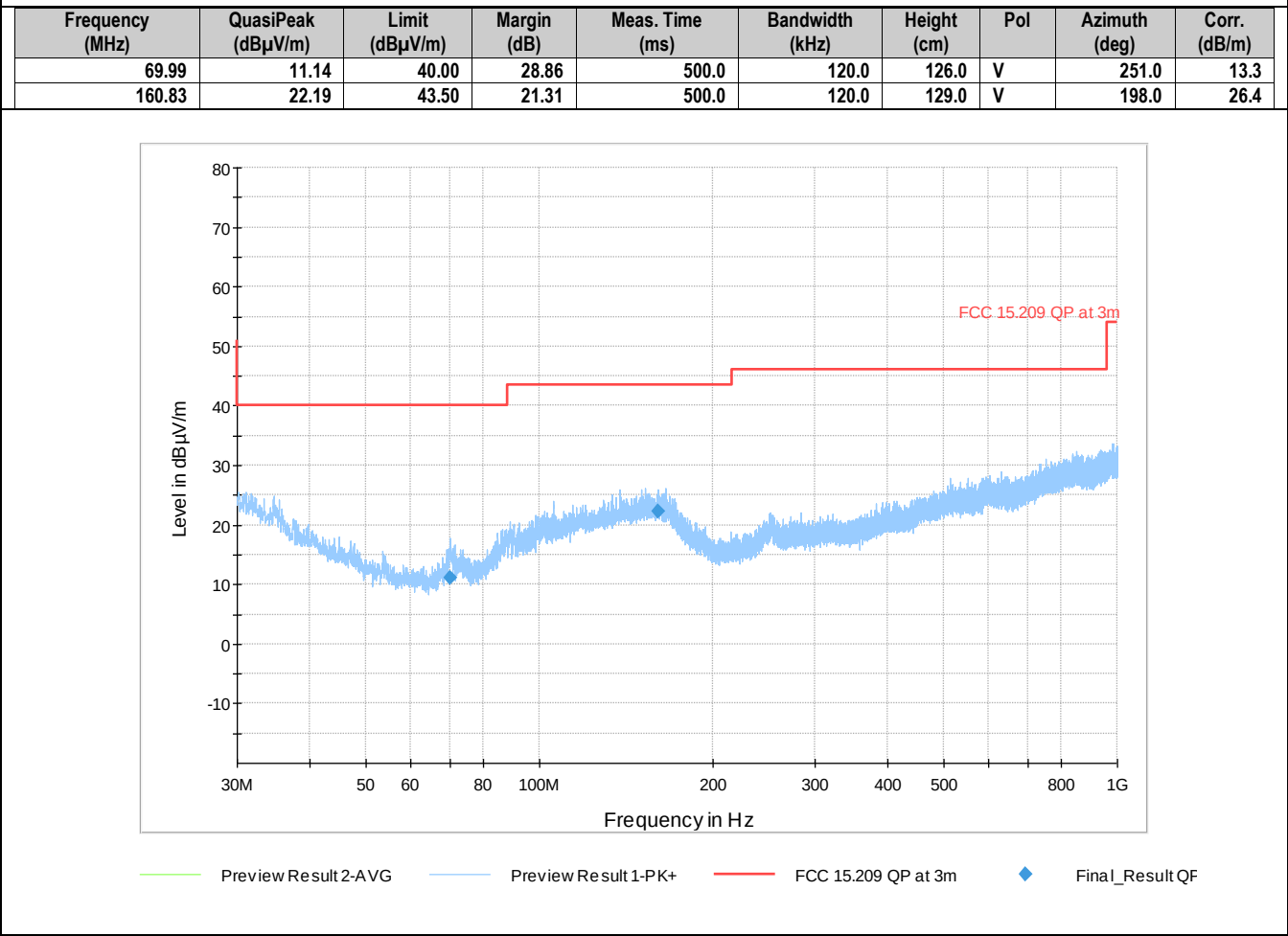
Preview Result 2-AVG  
FCC 15.209 AVG at 3m

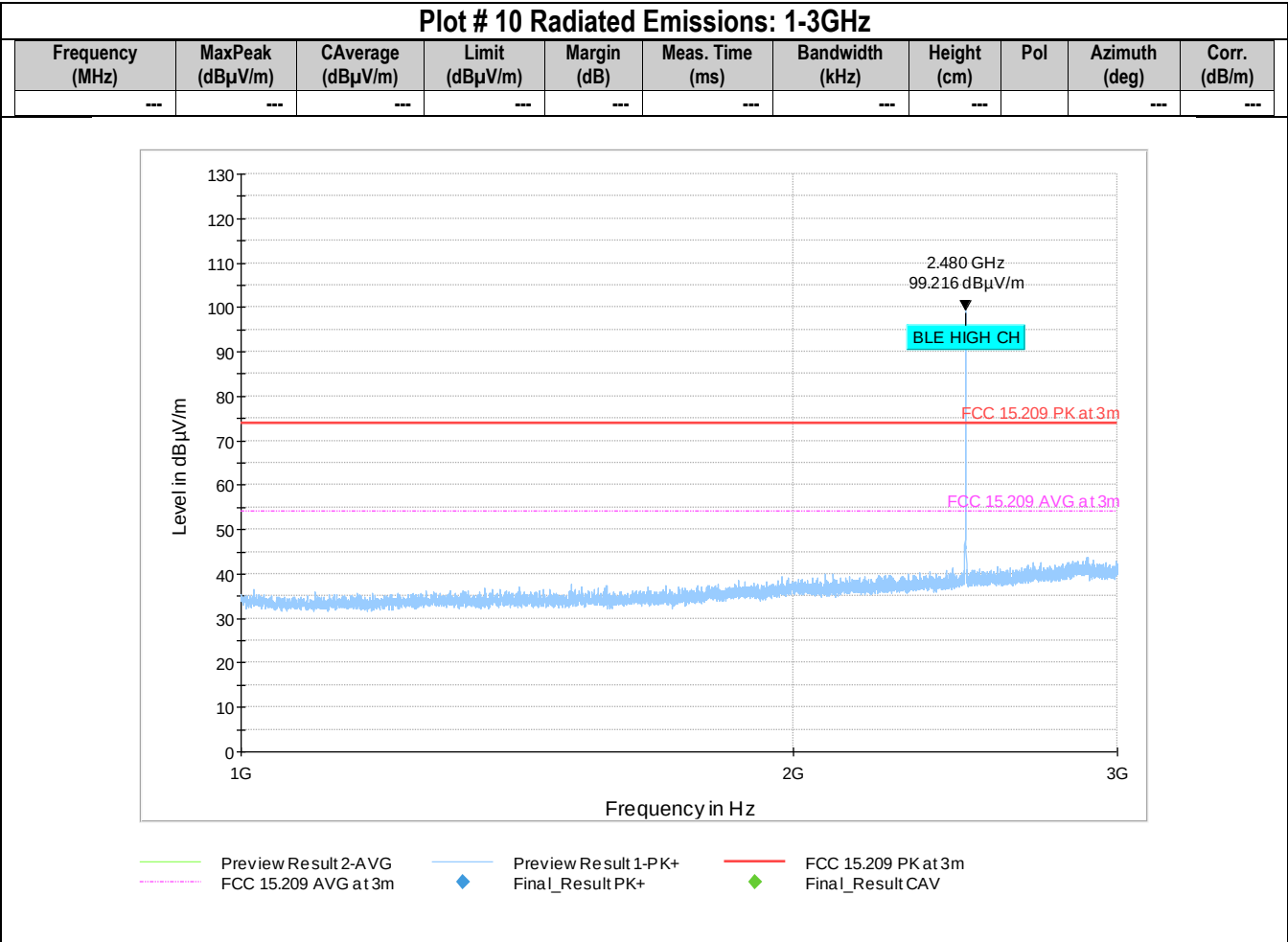
Preview Result 1-PK+  
Final Result PK+

FCC 15.209 PK at 3m  
Final Result CAV



Plot # 9 Radiated Emissions: 30-1000MHz

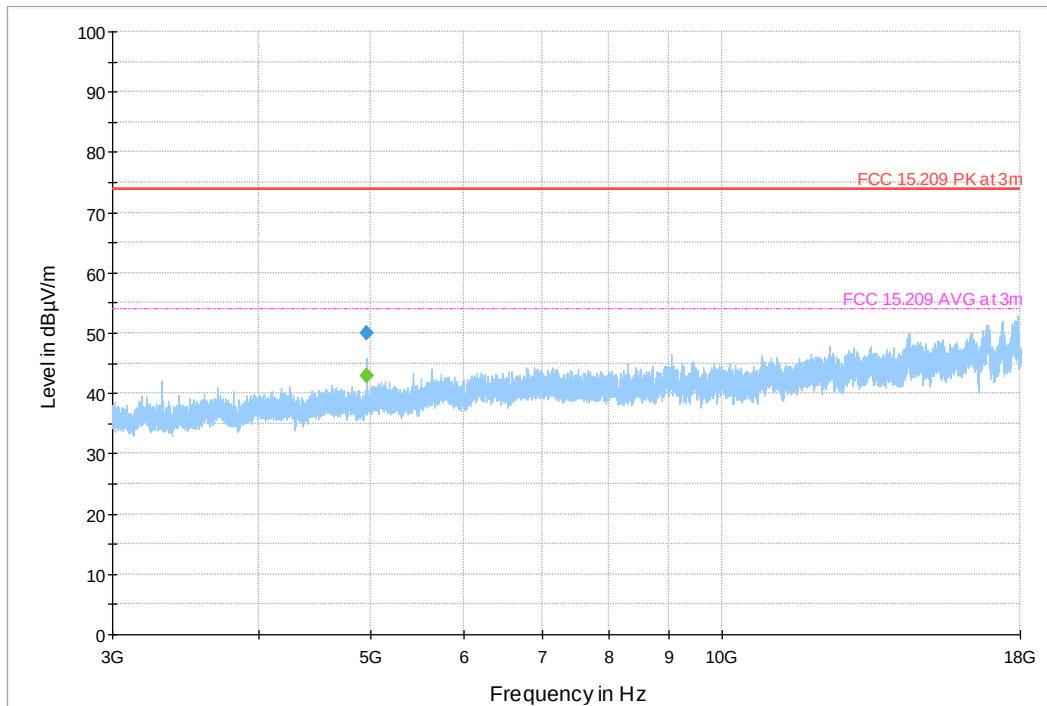






## Plot # 11 Radiated Emissions: 3-18GHz

| Frequency (MHz) | MaxPeak (dBμV/m) | CAverage (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|-------------------|----------------|-------------|-----------------|-----------------|-------------|-----|---------------|--------------|
| 4960.00         | ---              | 42.96             | 53.98          | 11.02       | 500.0           | 1000.0          | 142.0       | V   | 210.0         | -3.2         |
| 4960.00         | 49.92            | ---               | 73.98          | 24.06       | 500.0           | 1000.0          | 142.0       | V   | 210.0         | -3.2         |



Preview Result 2-AVG  
FCC 15.209 AVG at 3m

Preview Result 1-PK+  
Final\_Result PK+

FCC 15.209 PK at 3m  
Final\_Result CAV

## 9 Test setup photos

Setup photos are included in supporting file name: "EMC\_MPCON\_006\_22001\_FCC\_Setup\_Photos"

## 10 Test Equipment And Ancillaries Used For Testing

| Equipment Type      | Manufacturer    | Model     | Serial #  | Calibration Cycle | Last Calibration Date |
|---------------------|-----------------|-----------|-----------|-------------------|-----------------------|
| ACTIVE LOOP ANTENNA | ETS LINDGREN    | 6507      | 00161344  | 3 YEARS           | 10/30/2020            |
| BILOG ANTENNA       | ETS.LINDGREN    | 3142E     | 00166067  | 3 YEARS           | 10/21/2021            |
| HORN ANTENNA        | EMCO            | 3115      | 00035111  | 3 YEARS           | 09/30/2021            |
| HORN ANTENNA        | ETS.LINDGREN    | 3117      | 00215984  | 3 YEARS           | 01/31/2021            |
| HORN ANTENNA        | ETS.LINDGREN    | 3116      | 00070497  | 3 YEARS           | 11/23/2020            |
| TEST RECEIVER       | R&S             | ESU40     | 100251    | 3 YEARS           | 09/13/2021            |
| DIGITAL THRMOMETER  | CONTROL COMPANY | 36934-164 | 181230565 | 3 YEARS           | 10/20/2021            |

Note: Equipment used meets the measurement uncertainty requirements as required per applicable standards for 95% confidence levels.

Calibration due dates, unless defined specifically, falls on the last day of the month. Items indicated "N/A" for cal status either do not specifically require calibration or is internally characterized before use.

**11 History**

| Date       | Report Name                    | Changes to report | Prepared by       |
|------------|--------------------------------|-------------------|-------------------|
| 2024-07-22 | EMC_MPCON_006_22001_FCC_15_247 | Initial Version   | Art Thammanavarat |
|            |                                |                   |                   |
|            |                                |                   |                   |

&lt;&lt;&lt; The End &gt;&gt;&gt;