



# EMC TEST REPORT

**Report No.:** 20240617G10762X-W1

**Product Name:** VISTA Thermal Imaging Monocular

**FCC ID:** 2BHFB-3C-00

**Main Model No. :** VISTA H50R

**Series Model No. :** VISTA H50, VISTA H35, VISTA H35R

**Applicant:** Inlumen Technologies Co., Ltd.

**Address:** Building B3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.

**Received Date:** 2024.06.18

**Dates of Testing:** 2024.06.18~2024.06.21

**Issued by:** CCIC Southern Testing Co., Ltd.

**Lab Location:** Electronic Testing Building, No.43, Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

**Tel:** 86-755-26627338 **E-Mail:** manager@ccic-set.com

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## Test Report

**Product Name**..... VISTA Thermal Imaging Monocular

**Model No.** ..... VISTA H50R

**Trade name**..... Nocpix

**Applicant**..... Inlumen Technologies Co., Ltd.

**Applicant Address**..... Building B3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.

**Manufacturer**..... Inlumen Technologies Co., Ltd.

**Manufacturer Address**..... Building B3, NO.800 Wangjiang West Road, National High-tech Industry Development District, Hefei, Anhui, China.

**Test Standards**..... 47 CFR Part 15 Subpart B

**Test Result**..... PASS

**Tested by** ..... Sun Jiaohui  
Sun Jiaohui, Test Engineer 2024.09.02

**Reviewed by**..... Chris You  
Chris You, Senior Engineer 2024.09.02

**Approved by**..... Wang Shijie  
Wang Shijie, Manager 2024.09.02



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| Change History |            |                   |
|----------------|------------|-------------------|
| Issue          | Date       | Reason for change |
| 1.0            | 2024.09.02 | First edition     |
|                |            |                   |
|                |            |                   |



## 1. GENERAL INFORMATION

### 1.1 EUT Description

|                        |                                                                                                                                         |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name.....:         | VISTA Thermal Imaging Monocular                                                                                                         |
| Trade Name.....:       | Nocpix                                                                                                                                  |
| Hardware Version.....: | V1.0_D                                                                                                                                  |
| Software Version.....: | 1.3.4                                                                                                                                   |
| Power supply:          | Battery<br>Product Name: IBP-7<br>Nominal Voltage: 3.6V<br>Rated Capacity: 4.4Ah<br>Manufactory: Jinqu Electronics (Zhejiang) Co., Ltd. |

*Note1:* The EUT is a VISTA Thermal Imaging Monocular;

*Note2:* For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.



## 1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

| No. | Identity                    | Document Title          |
|-----|-----------------------------|-------------------------|
| 1   | 47 CFR Part 15<br>Subpart B | Radio Frequency Devices |

Test detailed items/section required by FCC rules and results are as below:

| No. | Section | Description        | Result |
|-----|---------|--------------------|--------|
| 1   | 15.107  | Conducted Emission | N.A    |
| 2   | 15.109  | Radiated Emission  | PASS   |

NOTE:

- (1) The EUT has been tested according to 47 CFR Part 15 Subpart B, Class B. The test procedure is according to ANSI C63.4:2014.
- (2) AC conduction is not applicable because the product is 3.6V DC power supply.



## 1.3 Facilities and Accreditations

### 1.3.1 Facilities

#### **FCC-Registration No.: CN1283**

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until Jun 30, 2025.

#### **ISED Registration: 11185A-1**

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Jun 30, 2025.

#### **A2LA Code: 5721.01**

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

### 1.3.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

|                             |              |
|-----------------------------|--------------|
| Temperature (°C):           | 15°C - 35°C  |
| Relative Humidity (%):      | 25% -75%     |
| Atmospheric Pressure (kPa): | 86kPa-106kPa |

### 1.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

|                                                   |                   |
|---------------------------------------------------|-------------------|
| Uncertainty of Conducted Emission:                | Uc = 3.2 dB (k=2) |
| Uncertainty of Radiated Emission:<br>(30MHz~1GHz) | Uc = 5.8 dB (k=2) |
| Uncertainty of Radiated Emission:<br>(1~6GHz)     | Uc = 5.1 dB (k=2) |
| Uncertainty of Radiated Emission:<br>(6~18GHz)    | Uc = 5.5 dB (k=2) |

## 2. TEST CONDITIONS SETTING

### 2.1 Test Peripherals

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

#### Support Equipment:

| Description | Brand name | Model    | Serial No. | FCCID |
|-------------|------------|----------|------------|-------|
| Adapter     | /          | VC56JBCH | /          | /     |

#### Support Cable:

| Description           | Shield Type   | Ferrite Core | Length |
|-----------------------|---------------|--------------|--------|
| DC Power Cable        | Un- shielding | /            | 3.5m   |
| Data Connection Cable | Un- shielding | /            | 5m     |

### 2.2 Test Mode

The EUT have the following typical setups during the test:

Setup1: 2.4G WIFI + Charger;

Setup2: 2.4G WIFI + Battery;

Setup3: EUT + PC Notebook + DATA;

Setup4: Idle + Charger;

Note1: The VISTA H50 / VISTA H35 / VISTA H35R have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with VISTA H50R. The difference lies only in lens focal length or removes the laser module of the different models. All the patterns have been tested and only the worst results are recorded in the report.

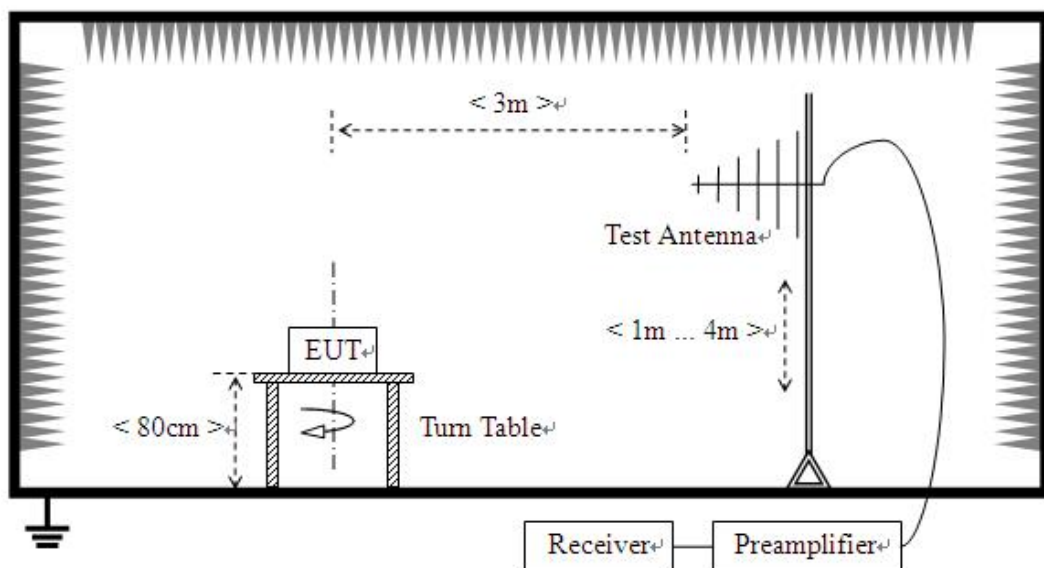
Note2: All models are tested and the worst results are provided in the report.

## 2.3 Test Setup and Equipments List

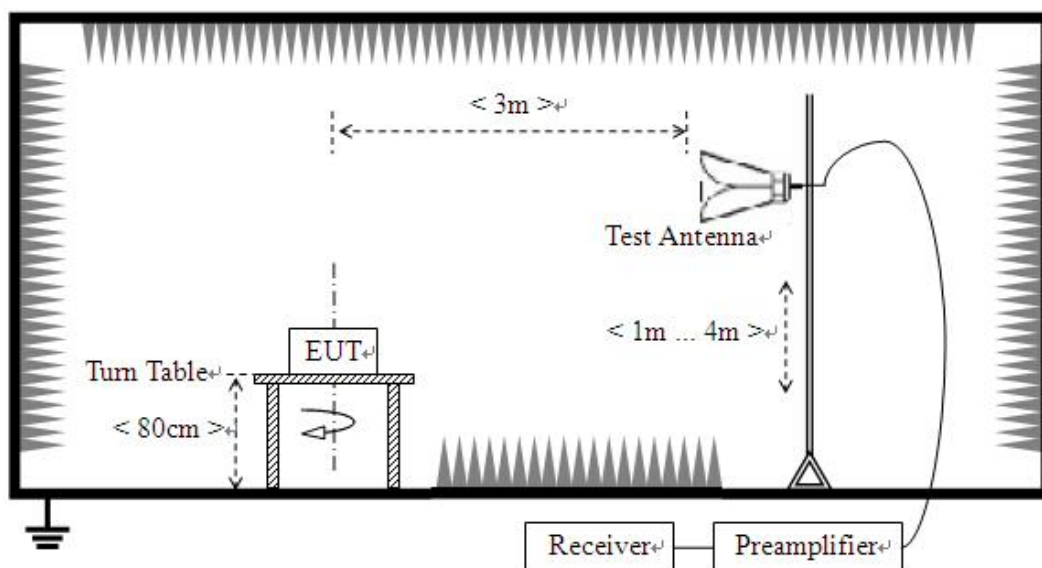
### 2.3.1 Radiated Emission

#### A. Test Setup:

- 1) For radiated emissions from 30MHz to 1GHz



- 2) For radiated emissions above 1GHz



**B. Test Procedure**

The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

- 1) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

**C. Equipments List:**

| Description         | Manufacturer  | Model                     | Serial No. | Calibration Date | Calibration Due. Date |
|---------------------|---------------|---------------------------|------------|------------------|-----------------------|
| EMI Test Receiver   | ROHDE&SCHWARZ | ESIB7                     | A0501375   | 2024.02.29       | 2025.02.28            |
| Broadband Ant.      | ETC           | MCTD2786                  | A240204135 | 2024.01.19       | 2025.01.18            |
| 3M Anechoic Chamber | Albatross     | SAC-3MAC<br>9*6*6m        | A0412375   | 2024.02.28       | 2027.02.27            |
| EMI Test Receiver   | ROHDE&SCHWARZ | ESW26                     | A180502935 | 2024.05.24       | 2025.05.23            |
| 5M Anechoic Chamber | Albatross     | SAC-5MAC<br>12.8x6.8x6.4m | A0304210   | 2023.08.02       | 2026.08.01            |
| EMI Horn Ant.       | ROHDE&SCHWARZ | HF906                     | A0304225   | 2022.04.12       | 2025.04.11            |

### 3. 47 CFR PART 15B REQUIREMENTS

#### 3.1 Radiated Emission

##### 3.1.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency range (MHz) | Field Strength  |      | Field Strength Limitation at 3m Measurement Dist |                              |
|-----------------------|-----------------|------|--------------------------------------------------|------------------------------|
|                       | $\mu\text{V/m}$ | Dist | ( $\mu\text{V/m}$ )                              | ( $\text{dB}\mu\text{V/m}$ ) |
| 30.0 - 88.0           | 100             | 3m   | 100                                              | 20log 100                    |
| 88.0 - 216.0          | 150             | 3m   | 150                                              | 20log 150                    |
| 216.0 - 960.0         | 200             | 3m   | 200                                              | 20log 200                    |
| Above 960.0           | 500             | 3m   | 500                                              | 20log 500                    |

| Frequency range (MHz) | Field Strength Limitation at 3m Measurement Dist |                                             |
|-----------------------|--------------------------------------------------|---------------------------------------------|
|                       | Class A(3m) QP ( $\text{dB}\mu\text{V/m}$ )      | Class B(3m) QP ( $\text{dB}\mu\text{V/m}$ ) |
| 30 - 88               | 49.0                                             | 40.0                                        |
| 88 - 216              | 53.5                                             | 43.5                                        |
| 216 - 230             | 56.5                                             | 46.0                                        |
| 230 - 960             | 56.5                                             | 46.0                                        |
| 960-1000              | 59.5                                             | 54.0                                        |
| Frequency range (MHz) | Field Strength Limitation at 3m Measurement Dist |                                             |
|                       | Class A(3m) ( $\text{dB}\mu\text{V/m}$ )         | Class B(3m) ( $\text{dB}\mu\text{V/m}$ )    |
| Above 1G              | 60(AV) /80(PK)                                   | 54(AV) /74(PK)                              |

- For frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.
- Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.
- For below 1G: QP detector RBW 120 kHz, VBW 300 kHz.



For Above 1G: PK detector RBW 1MHz, VBW 3MHz for PK value; AV detector RBW 1MHz, VBW 10Hz for AV value.

**Note:**

- 1) The tighter limit shall apply at the boundary between two frequency ranges.
- 2) Limitation expressed in dBuV/m is calculated by  $20\log$  Emission Level (uV/m).
- 3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of  $Ld1 = Ld2 * (d2/d1)^2$ .

Example:

F.S Limit at 30m distance is 30uV/m, then F.S Limitation at 3m distance is adjusted as

$$Ld1 = L1 = 30\text{uV/m} * (10)^2 = 100 * 30\text{uV/m}.$$

### 3.1.2 Test Description

See section 2.3.2 of this report.

### 3.1.3 Test Result

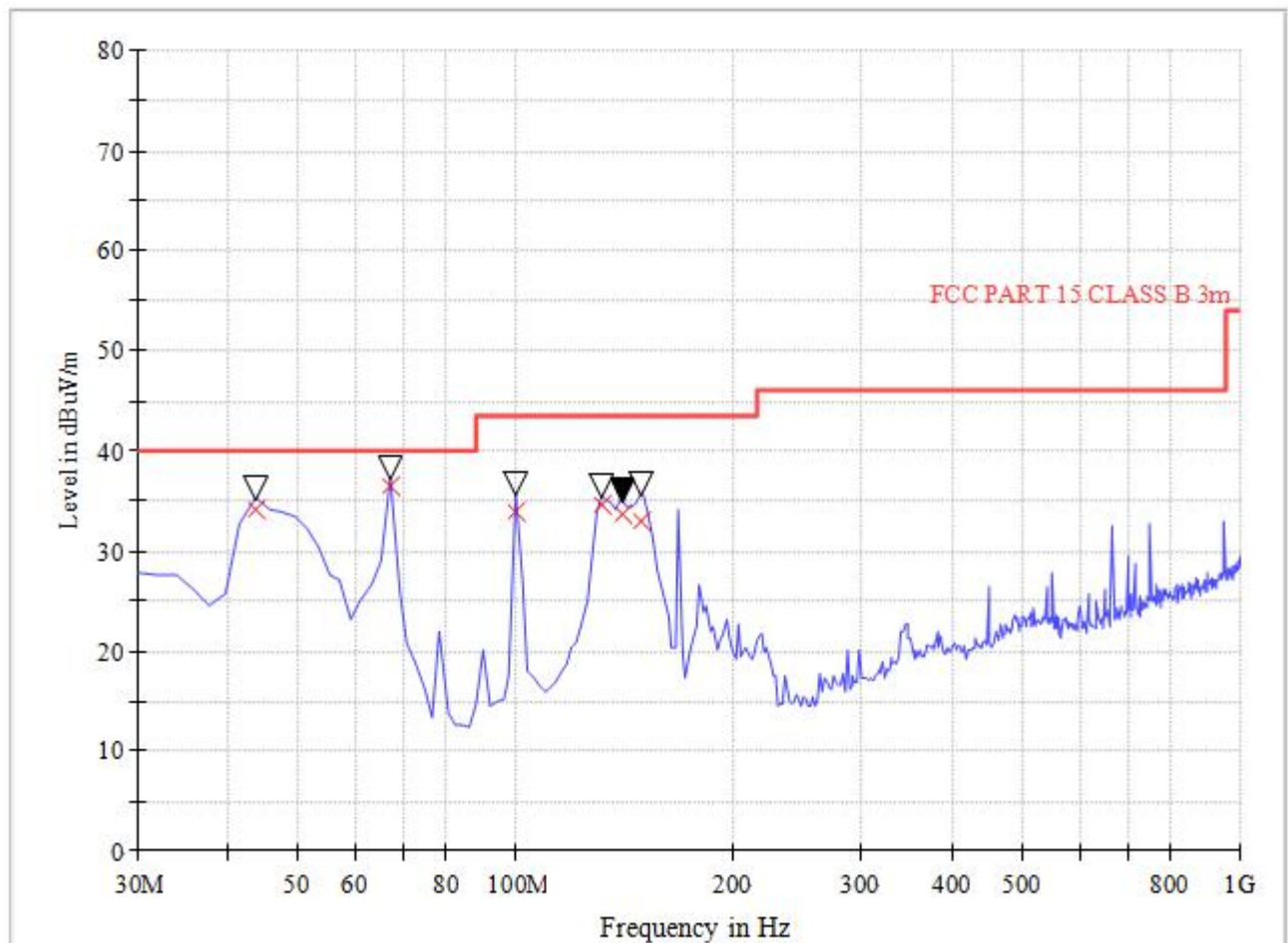
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

Note:

1. All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.

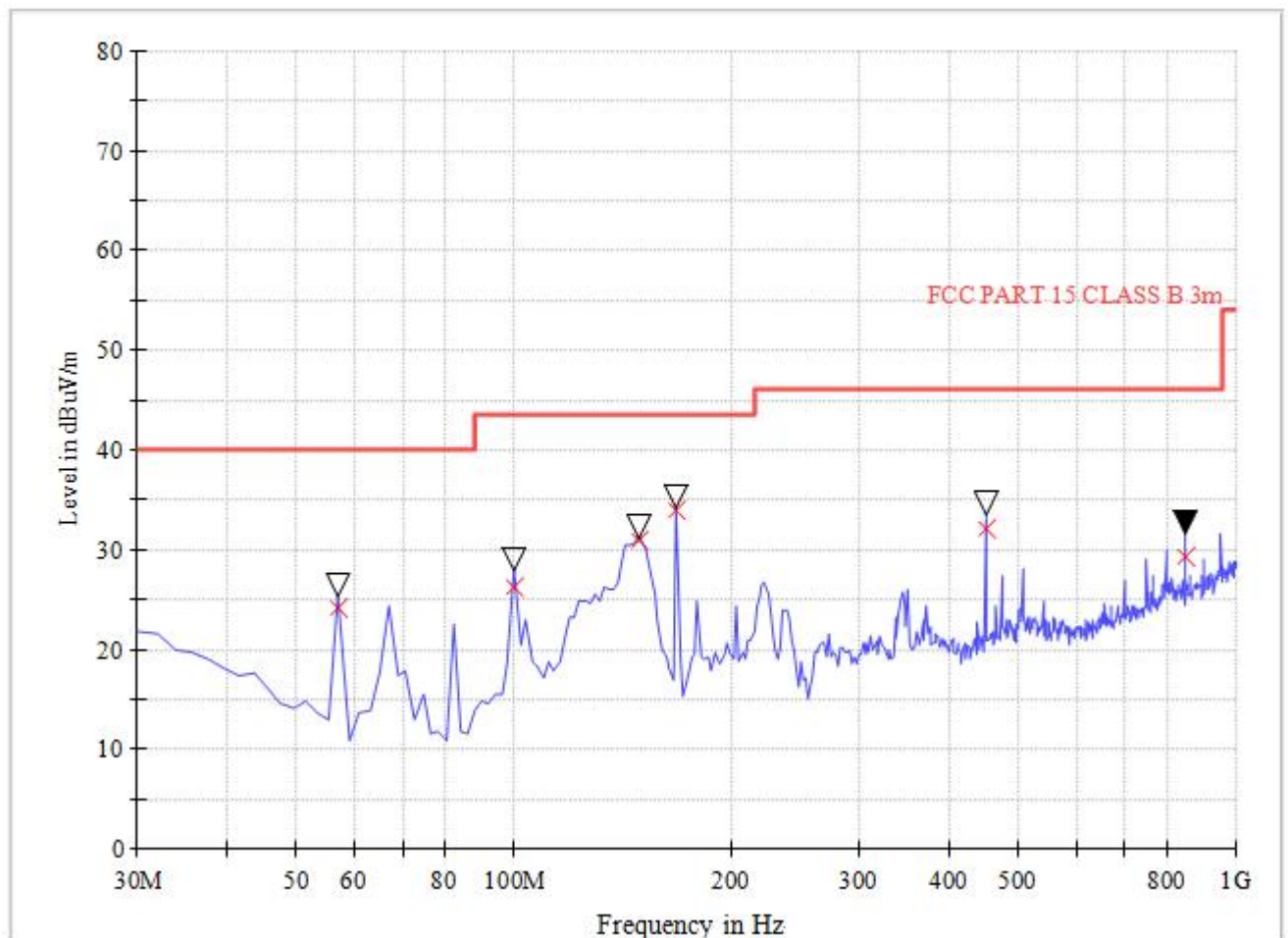
## A. Radiation disturbances, antenna polarization: Vertical, Setup1



(Plot C: Test Antenna Vertical 30M - 1G)

| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Bandwidth (kHz) | Antenna height (cm) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna  | Cable Loss(dB) | ANT. Factor(dB ) | Verdict |
|-----------------|--------------------------|-----------------|---------------------|----------------------|-------------|----------|----------------|------------------|---------|
| 43.60           | 34.08                    | 120.000         | 105                 | 40.00                | 5.92        | Vertical | 0.5            | 11.3             | Pass    |
| 66.92           | 36.51                    | 120.000         | 103                 | 40.00                | 3.49        | Vertical | 0.8            | 5.8              | Pass    |
| 99.96           | 34.00                    | 120.000         | 107                 | 43.50                | 9.50        | Vertical | 0.8            | 10.0             | Pass    |
| 131.08          | 34.52                    | 120.000         | 102                 | 43.50                | 8.98        | Vertical | 1.0            | 11.6             | Pass    |
| 140.80          | 33.67                    | 120.000         | 105                 | 46.00                | 9.83        | Vertical | 1.0            | 11.6             | Pass    |
| 148.56          | 32.91                    | 120.000         | 101                 | 46.00                | 10.59       | Vertical | 1.0            | 11.5             | Pass    |

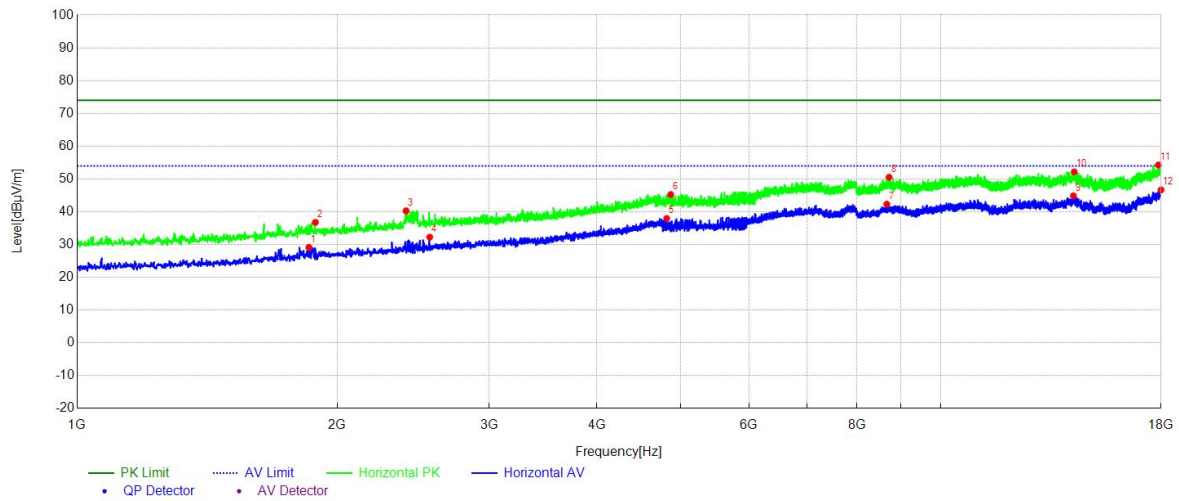
## B. Radiation disturbances, antenna polarization: Horizontal, Setup1



(Plot D: Test Antenna Horizontal 30M - 1G)

| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Bandwidth (kHz) | Antenna height (cm) | Limit (dB $\mu$ V/m) | Margin (dB) | Antenna    | Cable Loss(dB) | ANT. Factor(dB) | Verdict |
|-----------------|--------------------------|-----------------|---------------------|----------------------|-------------|------------|----------------|-----------------|---------|
| 57.20           | 24.03                    | 120.000         | 104                 | 40.00                | 15.97       | Horizontal | 0.7            | 5.9             | Pass    |
| 99.96           | 26.24                    | 120.000         | 102                 | 40.00                | 17.26       | Horizontal | 0.8            | 10.0            | Pass    |
| 148.56          | 30.80                    | 120.000         | 107                 | 43.50                | 12.70       | Horizontal | 1.0            | 11.5            | Pass    |
| 168.00          | 33.94                    | 120.000         | 104                 | 43.50                | 9.56        | Horizontal | 1.2            | 10.8            | Pass    |
| 449.88          | 32.07                    | 120.000         | 106                 | 46.00                | 13.93       | Horizontal | 1.5            | 17.3            | Pass    |
| 850.32          | 29.24                    | 120.000         | 103                 | 46.00                | 16.76       | Horizontal | 2.0            | 21.9            | Pass    |

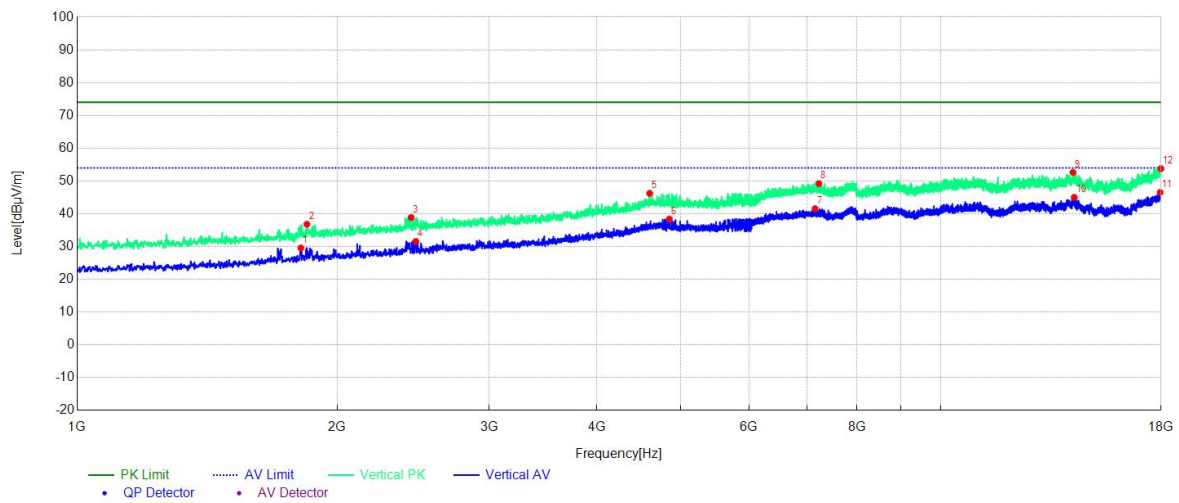
## A. Radiation disturbances, antenna polarization: Horizontal, Setup1



(Plot M: Test Antenna Horizontal 1G – 18G)

| NO. | Freq.<br>[MHz] | Level<br>[dBμV/m] | Factor<br>[dB] | Limit<br>[dBμV/m] | Margin[dB<br>μV/m] | Trace | Height<br>[cm] | Angle<br>[°] | Polarity   |
|-----|----------------|-------------------|----------------|-------------------|--------------------|-------|----------------|--------------|------------|
| 1   | 1855.19        | 29.13             | -12.49         | 54.00             | 24.87              | AV    | 104            | 84           | Horizontal |
| 2   | 1887.49        | 36.76             | -12.34         | 74.00             | 37.24              | PK    | 108            | 303          | Horizontal |
| 3   | 2404.34        | 40.28             | -10.64         | 74.00             | 33.72              | PK    | 103            | 255          | Horizontal |
| 4   | 2560.76        | 32.25             | -10.07         | 54.00             | 21.75              | AV    | 104            | 192          | Horizontal |
| 5   | 4816.88        | 37.95             | -0.94          | 54.00             | 16.05              | AV    | 105            | 114          | Horizontal |
| 6   | 4869.59        | 45.25             | -1.27          | 74.00             | 28.75              | PK    | 101            | 306          | Horizontal |
| 7   | 8662.67        | 42.29             | 4.42           | 54.00             | 11.71              | AV    | 103            | 122          | Horizontal |
| 8   | 8715.37        | 50.52             | 4.37           | 74.00             | 23.48              | PK    | 106            | 324          | Horizontal |
| 9   | 14249.42       | 44.86             | 9.66           | 54.00             | 9.14               | AV    | 109            | 341          | Horizontal |
| 10  | 14280.03       | 52.17             | 9.80           | 74.00             | 21.83              | PK    | 108            | 266          | Horizontal |
| 11  | 17870.79       | 54.26             | 14.32          | 74.00             | 19.74              | PK    | 101            | 245          | Horizontal |
| 12  | 18000.00       | 46.67             | 14.86          | 54.00             | 7.33               | AV    | 105            | 272          | Horizontal |

## B. Radiation disturbances, antenna polarization: Vertical, Setup1



(Plot N: Test Antenna Vertical 1G – 18G)

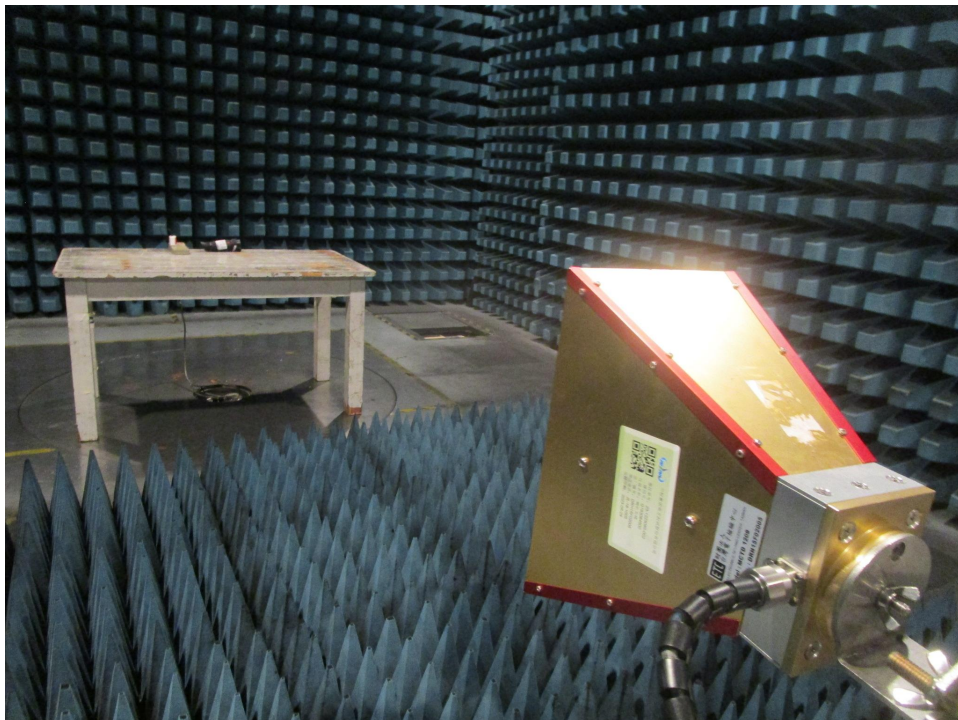
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin[dB μV/m] | Trace | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------|-------------|----------------|-----------------|-------|-------------|-----------|----------|
| 1   | 1816.08     | 29.57          | -12.67      | 54.00          | 24.43           | AV    | 108         | 351       | Vertical |
| 2   | 1844.98     | 36.80          | -12.54      | 74.00          | 37.20           | PK    | 104         | 193       | Vertical |
| 3   | 2436.64     | 38.86          | -10.51      | 74.00          | 35.14           | PK    | 105         | 95        | Vertical |
| 4   | 2467.25     | 31.55          | -10.39      | 54.00          | 22.45           | AV    | 107         | 314       | Vertical |
| 5   | 4602.66     | 46.24          | -1.51       | 74.00          | 27.76           | PK    | 103         | 306       | Vertical |
| 6   | 4850.89     | 38.39          | -1.15       | 54.00          | 15.61           | AV    | 102         | 12        | Vertical |
| 7   | 7154.62     | 41.53          | 3.46        | 54.00          | 12.47           | AV    | 106         | 337       | Vertical |
| 8   | 7226.02     | 49.20          | 3.46        | 74.00          | 24.80           | PK    | 109         | 248       | Vertical |
| 9   | 14230.72    | 52.62          | 9.58        | 74.00          | 21.38           | PK    | 104         | 45        | Vertical |
| 10  | 14280.03    | 44.99          | 9.80        | 54.00          | 9.01            | AV    | 105         | 334       | Vertical |
| 11  | 17957.50    | 46.52          | 14.77       | 54.00          | 7.48            | AV    | 101         | 342       | Vertical |
| 12  | 17993.20    | 53.76          | 14.85       | 74.00          | 20.24           | PK    | 102         | 339       | Vertical |

## Appendix II: Photographs of EMC Test Configuration

### 1. Radiated Emission Measurement below 1GHz



### 2. Radiated Emission Measurement above 1GHz



-----End of Report-----