

# Top Victory Electronics (Taiwan) Co. Ltd.

## TEST REPORT

**Model:**

SAT1001R-02, SAT1001\*\*\*\*

**REPORT NUMBER**

221100115THC-001

**ISSUE DATE**

Dec. 20, 2022

**PAGES**

21

**DOCUMENT CONTROL NUMBER**

GFT-OP-10h (28-Nov-2018)

© 2020 Intertek

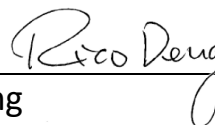


# Radio Spectrum TEST REPORT

|                               |                                                                                                                                                                          |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>             | <b>Top Victory Electronics (Taiwan) Co. Ltd.</b><br>9F., No. 230, Liancheng Rd., Zhonghe Dist., New Taipei City<br>23553, Taiwan                                         |
| <b>Product:</b>               | <b>Home Monitoring Platform</b>                                                                                                                                          |
| <b>Model No.:</b>             | <b>SAT1001R-02, SAT1001****</b>                                                                                                                                          |
| <b>FCC ID:</b>                | <b>ARS-SAT1001</b>                                                                                                                                                       |
| <b>Test Method/ Standard:</b> | <b>47 CFR FCC Part 15.249 &amp; ANSI C63.10 2013</b>                                                                                                                     |
| <b>Test By:</b>               | <b>Intertek Testing Services Taiwan Ltd.,<br/>Hsinchu Laboratory<br/>No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li,<br/>Shiang-Shan District, Hsinchu City, Taiwan</b> |




**Mark Chang**  
Engineer



**Rico Deng**  
Reviewer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

### Revision History

| Report No.       | Issue Date    | Revision Summary |
|------------------|---------------|------------------|
| 221100115THC-001 | Dec. 20, 2022 | Original report  |

## Table of Contents

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| Summary of Tests .....                                                   | 4  |
| 1. General Information .....                                             | 5  |
| 1.1 Identification of the EUT .....                                      | 5  |
| 1.2 Additional information about the EUT .....                           | 5  |
| 1.3 Antenna description .....                                            | 5  |
| 1.4 Peripherals equipment .....                                          | 5  |
| 2. Test specifications.....                                              | 6  |
| 2.1 Test standard .....                                                  | 6  |
| 2.2 Operation mode .....                                                 | 6  |
| 3. 20dB Bandwidth test .....                                             | 7  |
| 3.1 Operating environment .....                                          | 7  |
| 3.2 Test setup & procedure .....                                         | 7  |
| 3.3 Measured data of modulated bandwidth test results .....              | 7  |
| 4. Radiated emission test FCC 15.249 (C).....                            | 9  |
| 4.1 Operating environment .....                                          | 9  |
| 4.2 Test setup & procedure .....                                         | 9  |
| 4.3 Emission limit .....                                                 | 11 |
| 4.3.1 Fundamental and harmonics emission limits .....                    | 11 |
| 4.3.2 General radiated emission limits.....                              | 12 |
| 4.4 Radiated spurious emission test data .....                           | 13 |
| 4.4.1 Measurement results: frequency range from 9 kHz to 30 MHz.....     | 13 |
| 4.4.2 Measurement results: frequencies equal to or less than 1 GHz ..... | 14 |
| 4.4.3 Measurement results: frequency above 1GHz.....                     | 15 |
| 4.4.4 Measurement results: Fundamental.....                              | 15 |
| 5. Conducted emission test FCC 15.207 .....                              | 16 |
| 5.1 Operating environment .....                                          | 16 |
| 5.2 Test setup & procedure .....                                         | 16 |
| 5.3 Emission limit .....                                                 | 16 |
| 5.4 Conducted emission data FCC 15.207 .....                             | 17 |
| Appendix A: Test equipment list.....                                     | 19 |
| Appendix B: Measurement Uncertainty.....                                 | 21 |

**Summary of Tests**

| Test                           | Reference         | Results |
|--------------------------------|-------------------|---------|
| 20dB Bandwidth                 | 15.215(c)         | Pass    |
| Radiated Emission test         | 15.249(c), 15.209 | Pass    |
| Emission on the Band Edge      | 15.249(d)         | Pass    |
| Conducted Emission of AC Power | 15.207            | Pass    |
| Antenna Requirement            | 15.203            | Pass    |

Note: Please note that the test results with statement of conformity, the decision rules which are based on: Safety Testing: the specification, standard or IEC Guide 115.

Other Testing: the specification, standard and not taking into account the measurement uncertainty.

## 1. General Information

### 1.1 Identification of the EUT

|                               |                          |
|-------------------------------|--------------------------|
| <b>Product:</b>               | Home Monitoring Platform |
| <b>Model No.:</b>             | SAT1001R-02              |
| <b>Operating Frequency:</b>   | 915 MHz                  |
| <b>Channel Number:</b>        | 1 channel                |
| <b>Rated Power:</b>           | 100-240Vac, 50/60Hz      |
| <b>Power Cord:</b>            | N/A                      |
| <b>Sample receiving date:</b> | 2022/11/07               |
| <b>Sample condition:</b>      | Workable                 |
| <b>Test Date(s):</b>          | 2022/11/28~ 2022/12/07   |

### 1.2 Additional information about the EUT

The customer confirmed SAT1001\*\*\*\* is a series model to SAT1001R-02 (EUT), the different model numbers are served as marketing strategy.

Explanation of model designation SAT1001\*\*\*\*:

The customer confirmed the “\*” can be any alphanumeric character including blank, for marketing differences.

### 1.3 Antenna description

Antenna Type: Chip Antenna

Connector Type: Fixed

### 1.4 Peripherals equipment

| Peripherals | Brand | Model No.         | Serial No. | Data cable              |
|-------------|-------|-------------------|------------|-------------------------|
| Notebook PC | HP    | HP Probook 440 G3 | 5CD8021S99 | USB shielded cable 1.5m |
| Fixture     | N/A   | N/A               | N/A        | Type-B USB 1.5m         |

## 2. Test specifications

### 2.1 Test standard

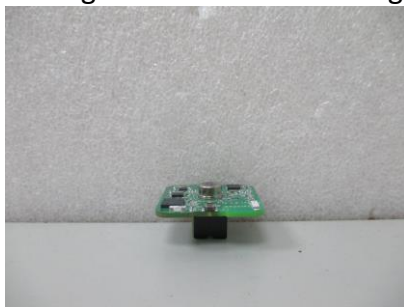
The EUT was performed according to the procedures in FCC Part 15 Subpart C Paragraph 15.249 for non-spread spectrum devices.

The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of this frequency band were all meet limit requirement, thus we evaluate the EUT pass the specified test.

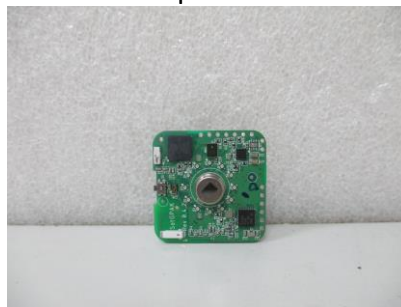
### 2.2 Operation mode

TX mode: EUT use 「SmartRF Studio 7 v2.27.0」 entering test mode to transmit.

The signal is maximized through rotation and placement in the three orthogonal axes.



**X axis**



**Y axis**



**Z axis**

After verifying three axes, we found the maximum electromagnetic field was occurred at Y axis. The final test data was executed under this configuration.

| Mode | Frequency (MHz) | Signal on time(ms) | Signal on & off time(ms) | Duty cycle | Duty Cycle factor |
|------|-----------------|--------------------|--------------------------|------------|-------------------|
| GFSK | 915             | 100                | 100                      | 1.000      | 0.000             |

### 3. 20dB Bandwidth test

#### 3.1 Operating environment

|                    |            |    |
|--------------------|------------|----|
| Temperature:       | 20         | °C |
| Relative Humidity: | 65         | %  |
| Test date:         | 2022/12/07 |    |

#### 3.2 Test setup & procedure

Step 1: The 20dB bandwidth was measured using a 50 ohm spectrum analyzer

Step 2: The span range for the SA display shall be between two times and five times the OBW.

Step 3: The nominal IF filter bandwidth (3 dB RBW) should be approximately 1 % to 5 % of the OBW, unless otherwise specified, depending on the applicable requirement.

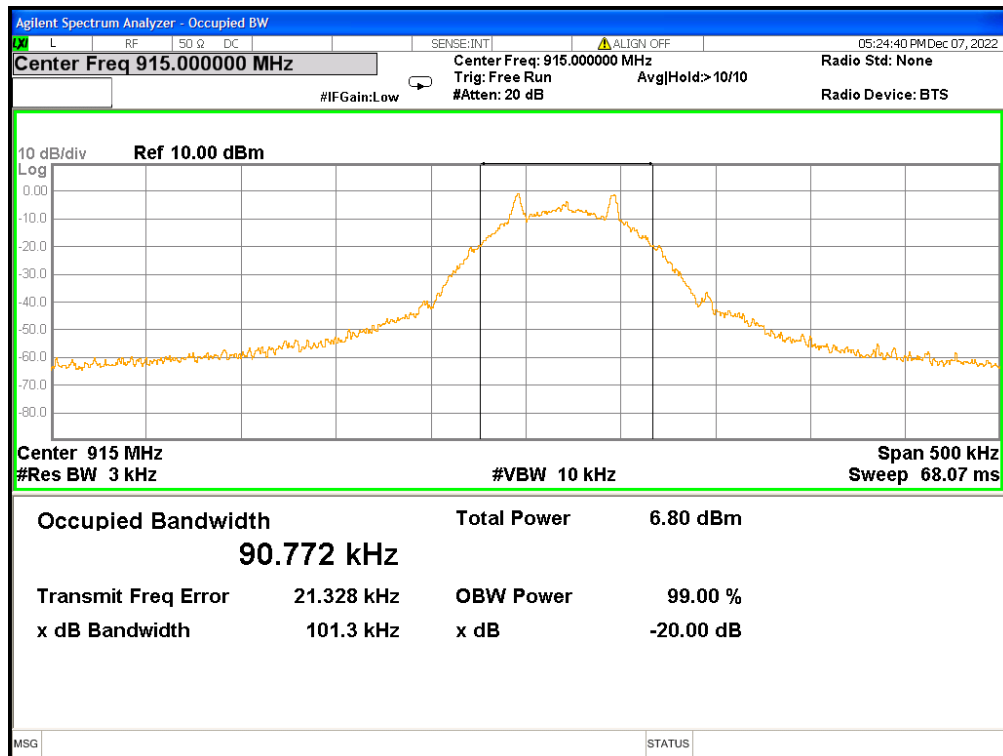
Step 4: The test was performed at 1 channel. The maximum 20dB modulation bandwidth is in the following Table.

#### 3.3 Measured data of modulated bandwidth test results

| Mode | Frequency (MHz) | 20dB Occupied Bandwidth (MHz) |
|------|-----------------|-------------------------------|
| GFSK | 915             | 0.1013                        |

Please see the plot below.

## 20dB Bandwidth @ 915MHz



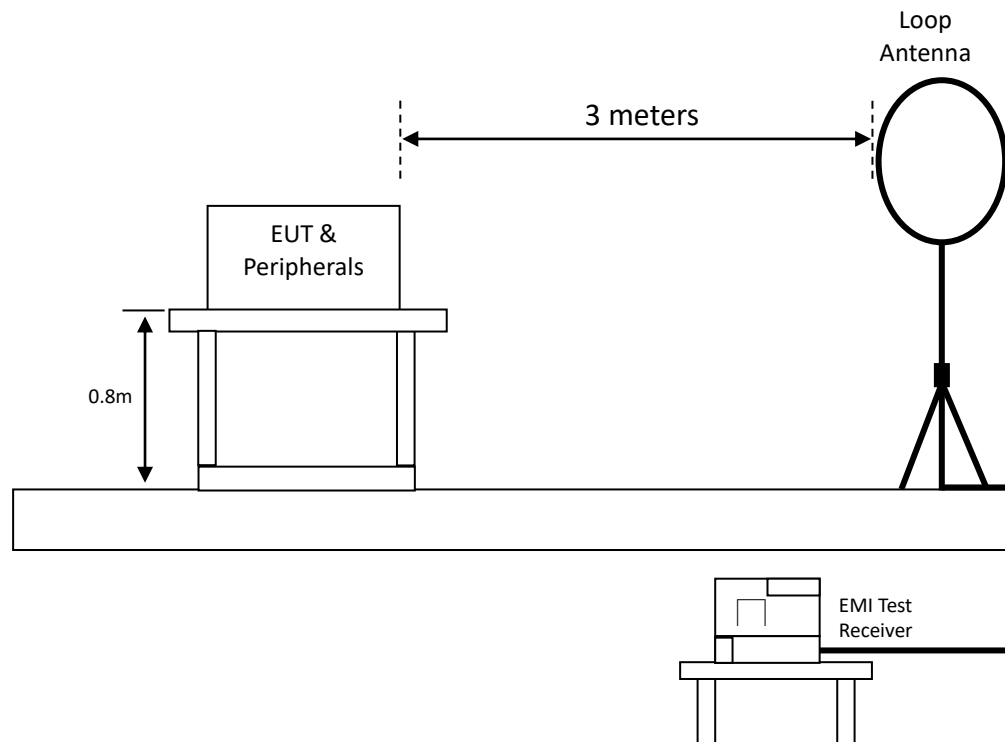
#### 4. Radiated emission test FCC 15.249 (C)

##### 4.1 Operating environment

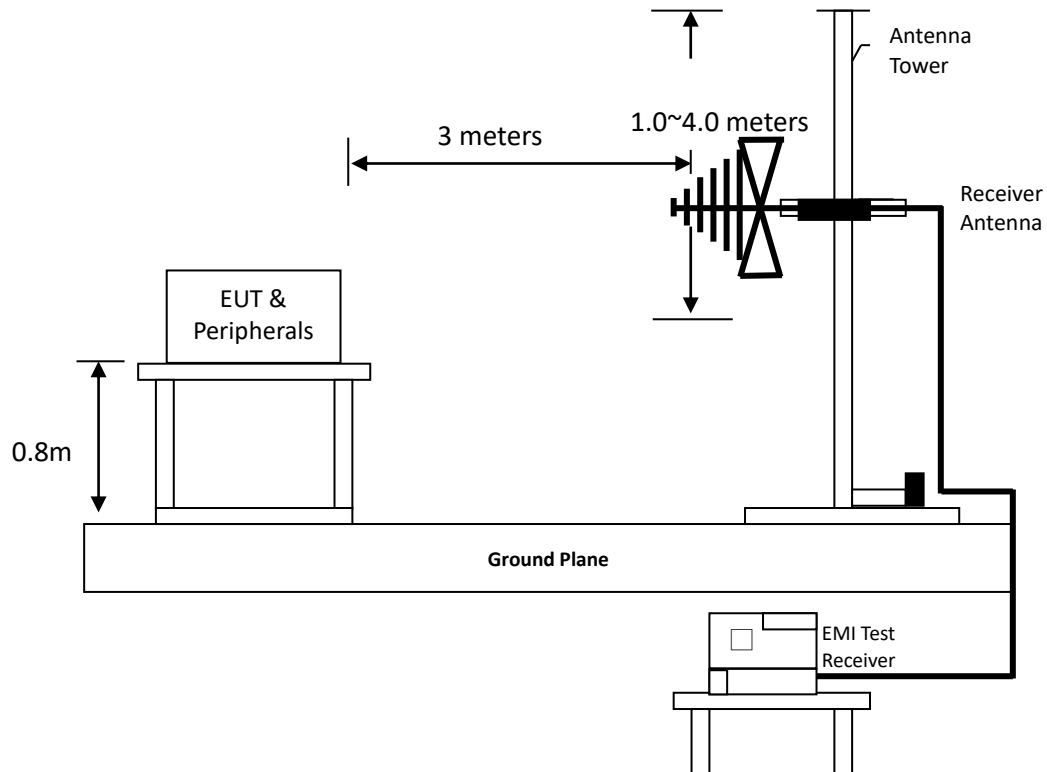
|                       |                         |    |
|-----------------------|-------------------------|----|
| Temperature:          | 20-26                   | °C |
| Relative Humidity:    | 56-60                   | %  |
| Atmospheric Pressure: | 2022/11/28 ~ 2022/12/05 |    |

##### 4.2 Test setup & procedure

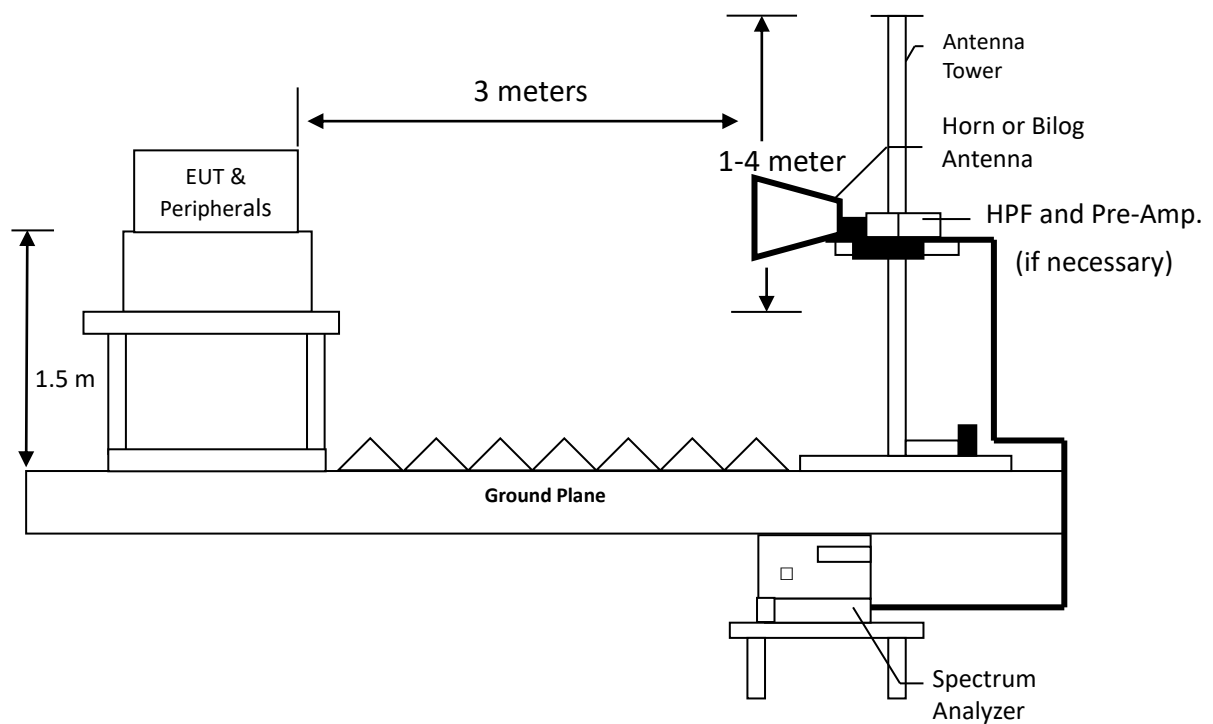
Radiated emission from 9kHz to 30MHz uses Loop Antenna:



### Radiated emission below 1GHz using Bilog Antenna



### Radiated emission above 1GHz using Horn Antenna



## TEST REPORT

Radiated emissions were investigated cover the frequency range from 30MHz to 1000MHz using a receiver RBW of 120kHz record QP reading, and the frequency over 1GHz using a spectrum analyzer RBW of 1MHz and 10Hz VBW record Average reading. (15.209 paragraph), the Peak reading (1 MHz RBW/ 3 MHz VBW) recorded also on the report.

The EUT for testing is arranged on a turntable. If some peripherals apply to the EUT, the peripherals will be connected to EUT and the whole system. During the test, all cables were arranged to produce worst-case emissions. The signal is maximized through rotation. The height of antenna and polarization is changing constantly for exploring for maximum signal level. The height of antenna can be up to 4 meters and down to 1 meter.

The measurement for radiated emission will be done at the distance of three meters unless the signal level is too low to measure at that distance. In the case of the reading under noise floor, a pre-amplifier is used and/or the test is conducted at a closer distance. And then all readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance.

### 4.3 Emission limit

#### 4.3.1 Fundamental and harmonics emission limits

| Frequency<br>(MHz) | Field Strength of Fundamental |             | Field Strength of Harmonics |             |
|--------------------|-------------------------------|-------------|-----------------------------|-------------|
|                    | (mV/m@3m)                     | (dBuV/m@3m) | (uV/m@3m)                   | (dBuV/m@3m) |
| 902-928            | 50                            | 94          | 500                         | 54          |

#### 4.3.2 General radiated emission limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| Frequency<br>MHz | 15.209 Limits<br>(dB $\mu$ V/m@3m) |
|------------------|------------------------------------|
| 30-88            | 40                                 |
| 88-216           | 43.5                               |
| 216-960          | 46                                 |
| Above 960        | 54                                 |

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

## TEST REPORT

### 4.4 Radiated spurious emission test data

#### 4.4.1 Measurement results: frequency range from 9 kHz to 30 MHz

| Antenna<br>Polarity | Frequency<br>(MHz) | Detector | Correction<br>Factor<br>(dB/m) | Reading<br>(dBμV) | Corrected<br>Reading<br>(dBμV/m) | Limit<br>@ 3 m<br>(dBμV/m) | Margin<br>(dB) |
|---------------------|--------------------|----------|--------------------------------|-------------------|----------------------------------|----------------------------|----------------|
| Perpendicular       | 0.489              | AV       | 18.79                          | 41.18             | 59.97                            | 93.82                      | -33.85         |
| Perpendicular       | 0.969              | QP       | 19.08                          | 33.73             | 52.81                            | 67.88                      | -15.07         |
| Perpendicular       | 1.479              | QP       | 19.10                          | 29.28             | 48.38                            | 64.20                      | -15.82         |
| Perpendicular       | 1.958              | QP       | 19.10                          | 24.57             | 43.67                            | 69.54                      | -25.87         |
| Perpendicular       | 2.468              | QP       | 19.10                          | 21.84             | 40.94                            | 69.54                      | -28.60         |
| Perpendicular       | 3.368              | QP       | 19.18                          | 16.86             | 36.04                            | 69.54                      | -33.50         |

Remark: Corr. Factor = Antenna Factor + Cable Loss

| Antenna<br>Polarity | Frequency<br>(MHz) | Detector | Correction<br>Factor<br>(dB/m) | Reading<br>(dBμV) | Corrected<br>Reading<br>(dBμV/m) | Limit<br>@ 3 m<br>(dBμV/m) | Margin<br>(dB) |
|---------------------|--------------------|----------|--------------------------------|-------------------|----------------------------------|----------------------------|----------------|
| Parallel            | 0.489              | AV       | 18.79                          | 36.76             | 55.55                            | 93.82                      | -38.27         |
| Parallel            | 0.969              | QP       | 19.08                          | 29.54             | 48.62                            | 67.88                      | -19.26         |
| Parallel            | 1.179              | QP       | 19.10                          | 26.16             | 45.26                            | 66.17                      | -20.91         |
| Parallel            | 1.479              | QP       | 19.10                          | 25.19             | 44.29                            | 64.20                      | -19.91         |
| Parallel            | 1.958              | QP       | 19.10                          | 21.65             | 40.75                            | 69.54                      | -28.79         |
| Parallel            | 2.468              | QP       | 19.10                          | 19.41             | 38.51                            | 69.54                      | -31.03         |

Remark: Corr. Factor = Antenna Factor + Cable Loss

| Antenna<br>Polarity | Frequency<br>(MHz) | Detector | Correction<br>Factor<br>(dB/m) | Reading<br>(dBμV) | Corrected<br>Reading<br>(dBμV/m) | Limit<br>@ 3 m<br>(dBμV/m) | Margin<br>(dB) |
|---------------------|--------------------|----------|--------------------------------|-------------------|----------------------------------|----------------------------|----------------|
| Ground-parallel     | 0.489              | AV       | 18.79                          | 30.49             | 49.28                            | 93.82                      | -44.54         |
| Ground-parallel     | 0.999              | QP       | 19.10                          | 23.65             | 42.75                            | 67.61                      | -24.86         |
| Ground-parallel     | 1.479              | QP       | 19.10                          | 19.44             | 38.54                            | 64.20                      | -25.66         |
| Ground-parallel     | 1.988              | QP       | 19.10                          | 17.73             | 36.83                            | 69.54                      | -32.71         |
| Ground-parallel     | 4.238              | QP       | 19.40                          | 12.71             | 32.11                            | 69.54                      | -37.43         |
| Ground-parallel     | 6.187              | QP       | 19.93                          | 12.71             | 32.64                            | 69.54                      | -36.90         |

Remark: Corr. Factor = Antenna Factor + Cable Loss

## TEST REPORT

### 4.4.2 Measurement results: frequencies equal to or less than 1 GHz

| Antenna Polarity (H/V) | Frequency (MHz) | Spectrum Analyzer Detector | Correction Factor (dB/m) | Reading (dBμV) | Corrected Reading (dBμV/m) | Limit @ 3 m (dBμV/m) | Margin (dB) |
|------------------------|-----------------|----------------------------|--------------------------|----------------|----------------------------|----------------------|-------------|
| Horizontal             | 80.44           | QP                         | 13.57                    | 21.22          | 34.79                      | 40.00                | -5.21       |
| Horizontal             | 191.02          | QP                         | 17.37                    | 11.39          | 28.76                      | 43.50                | -14.74      |
| Horizontal             | 334.58          | QP                         | 23.04                    | 7.76           | 30.80                      | 46.00                | -15.20      |
| Horizontal             | 498.51          | QP                         | 26.25                    | 5.60           | 31.85                      | 46.00                | -14.15      |
| Horizontal             | 731.31          | QP                         | 29.45                    | 2.06           | 31.51                      | 46.00                | -14.49      |
| Horizontal             | 819.58          | QP                         | 31.20                    | 4.25           | 35.45                      | 46.00                | -10.55      |

Remark: Corr. Factor = Antenna Factor + Cable Loss

| Antenna Polarity (H/V) | Frequency (MHz) | Spectrum Analyzer Detector | Correction Factor (dB/m) | Reading (dBμV) | Corrected Reading (dBμV/m) | Limit @ 3 m (dBμV/m) | Margin (dB) |
|------------------------|-----------------|----------------------------|--------------------------|----------------|----------------------------|----------------------|-------------|
| Vertical               | 56.19           | QP                         | 18.41                    | 17.23          | 35.64                      | 40.00                | -4.36       |
| Vertical               | 80.44           | QP                         | 13.57                    | 24.65          | 38.22                      | 40.00                | -1.78       |
| Vertical               | 130.88          | QP                         | 22.95                    | 5.50           | 28.45                      | 43.50                | -15.05      |
| Vertical               | 166.77          | QP                         | 18.89                    | 8.52           | 27.41                      | 43.50                | -16.09      |
| Vertical               | 372.41          | QP                         | 23.91                    | 4.75           | 28.66                      | 46.00                | -17.34      |
| Vertical               | 644.01          | QP                         | 29.56                    | 2.05           | 31.61                      | 46.00                | -14.39      |

Remark: Corr. Factor = Antenna Factor + Cable Loss

## TEST REPORT

### 4.4.3 Measurement results: frequency above 1GHz

| Mode | Frequency<br>(MHz) | Spectrum<br>Analyzer<br>Detector | Ant.<br>Pol.<br>(H/V) | Correctio<br>n<br>Factor<br>(dB/m) | Reading<br>(dBμV) | Corrected<br>Reading<br>(dBμV/m) | Limit<br>@ 3 m<br>(dBμV/m) | Margin<br>(dB) |
|------|--------------------|----------------------------------|-----------------------|------------------------------------|-------------------|----------------------------------|----------------------------|----------------|
| GFSK | 2134               | PK                               | H                     | -17.97                             | 59.70             | 41.73                            | 74                         | -32.27         |
|      | 2745               | PK                               | H                     | -15.64                             | 58.89             | 43.25                            | 74                         | -30.75         |
|      | 3313               | PK                               | H                     | -14.79                             | 60.23             | 45.44                            | 74                         | -28.56         |
|      | 3988               | PK                               | H                     | -11.38                             | 53.96             | 42.58                            | 74                         | -31.42         |
|      | 2071               | PK                               | V                     | -18.86                             | 68.50             | 49.64                            | 74                         | -24.36         |
|      | 2745               | PK                               | V                     | -15.64                             | 61.00             | 45.36                            | 74                         | -28.64         |
|      | 3997               | PK                               | V                     | -11.31                             | 59.80             | 48.49                            | 74                         | -25.51         |
|      | 4258               | PK                               | V                     | -10.43                             | 66.99             | 56.56                            | 74                         | -17.44         |
|      | 4258               | AV                               | V                     | -10.43                             | 52.99             | 42.56                            | 54                         | -11.44         |
|      | 5500               | PK                               | V                     | -5.84                              | 53.72             | 47.88                            | 74                         | -26.12         |

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre\_Amplifier Gain

### 4.4.4 Measurement results: Fundamental

| Mode | Frequency<br>(MHz) | Spectrum<br>Analyzer<br>Detector | Antenna<br>Polarity<br>(H/V) | Correction<br>Factor<br>(dB/m) | Reading<br>(dBμV) | Corrected<br>Reading<br>(dBμV/m) | Limit<br>@ 3 m<br>(dBμV/m) | Margin<br>(dB) |
|------|--------------------|----------------------------------|------------------------------|--------------------------------|-------------------|----------------------------------|----------------------------|----------------|
| GFSK | 915                | PK                               | H                            | 32.80                          | 60.49             | 93.29                            | 114.00                     | -20.71         |
|      | 915                | PK                               | V                            | 32.80                          | 57.18             | 89.98                            | 114.00                     | -24.02         |

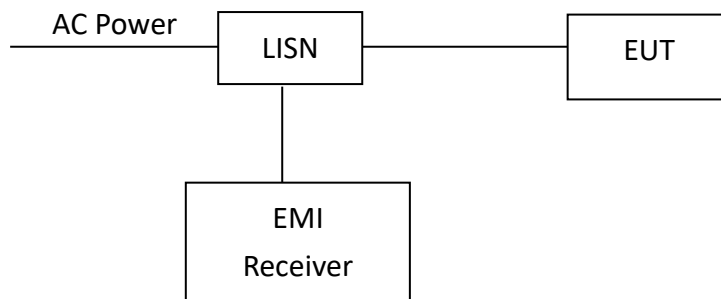
Remark: Correction Factor = Antenna Factor + Cable Loss

## 5. Conducted emission test FCC 15.207

### 5.1 Operating environment

|                       |      |     |
|-----------------------|------|-----|
| Temperature:          | 23   | °C  |
| Relative Humidity:    | 55   | %   |
| Atmospheric Pressure: | 1006 | hPa |

### 5.2 Test setup & procedure



The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50 ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination.

Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4/2003 on conducted measurement.

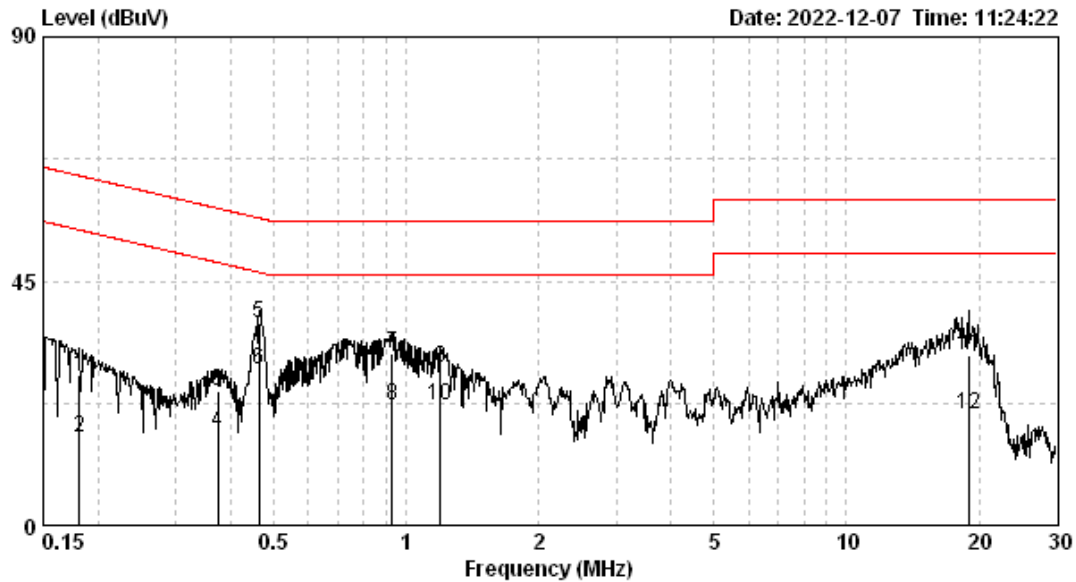
The bandwidth of the field strength meter (R & S Test Receiver ESCI 30) is set at 9kHz.

### 5.3 Emission limit

| Freq.<br>(MHz) | Conducted Limit (dBuV) |          |
|----------------|------------------------|----------|
|                | Q.P.                   | Ave.     |
| 0.15~0.50      | 66 – 56*               | 56 – 46* |
| 0.50~5.00      | 56                     | 46       |
| 5.00~30.0      | 60                     | 50       |

\*Decreases with the logarithm of the frequency.

## 5.4 Conducted emission data FCC 15.207



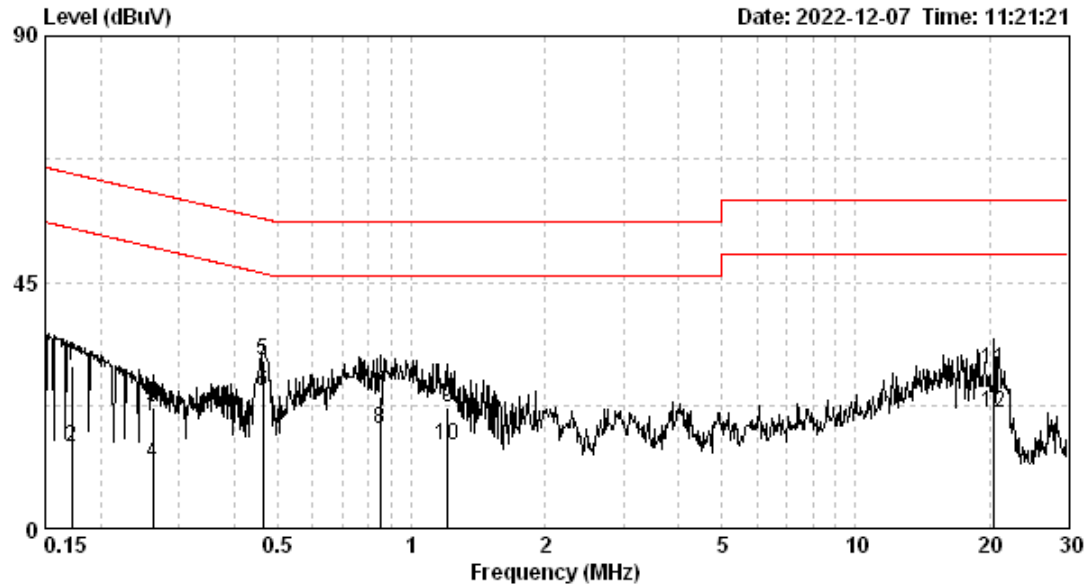
Test voltage : AC 120V/60Hz  
 Temp. / R.H. : 23°C / 55%RH  
 Atmospheric pressure : 1006hPa

| Phase | Frequency (MHz) | Corr. Factor (dB) | Reading QP (dBuV) | Level QP (dBuV) | Limit QP (dBuV) | Reading AV (dBuV) | Level AV (dBuV) | Limit AV (dBuV) | Margin (dB) |        |
|-------|-----------------|-------------------|-------------------|-----------------|-----------------|-------------------|-----------------|-----------------|-------------|--------|
|       |                 |                   |                   |                 |                 |                   |                 |                 | QP          | AV     |
| LINE  | 0.182           | 9.65              | 17.95             | 27.60           | 64.42           | 6.54              | 16.19           | 54.42           | -36.82      | -38.23 |
| LINE  | 0.373           | 9.66              | 15.20             | 24.85           | 58.43           | 7.65              | 17.30           | 48.43           | -33.58      | -31.13 |
| LINE  | 0.464           | 9.66              | 27.60             | 37.26           | 56.63           | 18.96             | 28.62           | 46.63           | -19.37      | -18.01 |
| LINE  | 0.928           | 9.69              | 22.04             | 31.73           | 56.00           | 12.31             | 22.00           | 46.00           | -24.27      | -24.00 |
| LINE  | 1.197           | 9.69              | 19.23             | 28.92           | 56.00           | 12.35             | 22.05           | 46.00           | -27.08      | -23.95 |
| LINE  | 18.920          | 9.83              | 21.41             | 31.25           | 60.00           | 10.65             | 20.48           | 50.00           | -28.75      | -29.52 |

### Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
3. Margin (dB) = Level (dBuV) – Limit (dBuV)

# TEST REPORT



Test voltage : AC 120V/60Hz  
Temp. / R.H. : 23°C / 55%RH  
Atmospheric pressure : 1006hPa

| Phase   | Frequency (MHz) | Corr. Factor (dB) | Reading QP (dBuV) | Level QP (dBuV) | Limit QP (dBuV) | Reading AV (dBuV) | Level AV (dBuV) | Limit AV (dBuV) | Margin (dB) |        |
|---------|-----------------|-------------------|-------------------|-----------------|-----------------|-------------------|-----------------|-----------------|-------------|--------|
|         |                 |                   |                   |                 |                 |                   |                 |                 | QP          | AV     |
| NEUTRAL | 0.172           | 9.66              | 20.08             | 29.75           | 64.86           | 5.03              | 14.70           | 54.86           | -35.11      | -40.16 |
| NEUTRAL | 0.262           | 9.66              | 12.44             | 22.11           | 61.38           | 2.28              | 11.94           | 51.38           | -39.27      | -39.44 |
| NEUTRAL | 0.464           | 9.67              | 20.88             | 30.55           | 56.63           | 15.44             | 25.11           | 46.63           | -26.08      | -21.52 |
| NEUTRAL | 0.853           | 9.70              | 14.45             | 24.15           | 56.00           | 8.37              | 18.07           | 46.00           | -31.85      | -27.93 |
| NEUTRAL | 1.210           | 9.71              | 12.43             | 22.14           | 56.00           | 5.39              | 15.10           | 46.00           | -33.86      | -30.90 |
| NEUTRAL | 20.486          | 9.93              | 19.21             | 29.13           | 60.00           | 11.17             | 21.10           | 50.00           | -30.87      | -28.90 |

## Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBuV) = Corr. Factor (dB) + Reading (dBuV)
3. Margin (dB) = Level (dBuV) – Limit (dBuV)

## Appendix A: Test equipment list

| Test Equipment/<br>Test site         | Brand                          | Model No.     | Serial No.                | Calibration<br>Date | Next<br>Calibration<br>Date |
|--------------------------------------|--------------------------------|---------------|---------------------------|---------------------|-----------------------------|
| EMI Test Receiver                    | Rohde & Schwarz                | ESR7          | 101822                    | 2022/08/09          | 2023/08/08                  |
| Signal Analyzer                      | Agilent                        | N9030A        | MY51380492                | 2022/08/09          | 2023/08/08                  |
| Active Loop Antenna                  | SCHWARZBECK<br>MESS-ELEKTRONIC | FMZB1519      | 1519-067                  | 2022/04/13          | 2023/04/12                  |
| Bilog Hybrid Antenna                 | ETC                            | MCTD 2786B    | BLB17J04019<br>& JB-5-019 | 2022/10/04          | 2023/10/03                  |
| Horn Antenna                         | SHWARZBECK                     | BBHA 9120 D   | 9120D-456                 | 2022/01/21          | 2023/01/20                  |
| Broadband Amplifier                  | SGH                            | SGH118(45dB)  | 20220105-1                | 2022/01/07          | 2023/01/06                  |
| Power Meter                          | Anritsu                        | ML2495A       | 0844001                   | 2022/07/04          | 2023/07/03                  |
| Power Sensor                         | Anritsu                        | MA2491A       | 031543                    | 2022/03/07          | 2023/03/06                  |
| 966-2(A) Cable                       | SUHNER                         | SMA / EX 100  | N/A                       | 2022/03/04          | 2023/03/03                  |
| 966-2(B) Cable                       | SUHNER                         | SUCOFLEX 104P | CB0005                    | 2022/03/04          | 2023/03/03                  |
| 966-2 Cable                          | SUHNER                         | SUCOFLEX 104P | 9403/4P                   | 2022/11/25          | 2023/11/24                  |
| 966-2_3m<br>Semi-Anechoic<br>Chamber | 966_2                          | CEM-966_2     | N/A                       | 2022/01/14          | 2023/01/13                  |
| 20dB Attenuator                      | Mini-Circuits                  | BW-S20W5+     | N/A                       | 2022/05/25          | 2023/05/24                  |
| Test software                        | Audix                          | e3            | V9                        | NCR                 | NCR                         |

Note: No Calibration Required (NCR).

**TEST REPORT**

| Test Equipment    | Brand  | Model No.                | Serial No.   | Calibration Date | Next Calibration Date |
|-------------------|--------|--------------------------|--------------|------------------|-----------------------|
| EMI Test Receiver | R&S    | ESCI                     | 100018       | 2022/11/07       | 2023/11/06            |
| LISN              | R&S    | ENV216                   | 101160       | 2022/07/13       | 2023/07/12            |
| CON-2 Cable       | SUHNER | EMCCFD300-B<br>M-NM-6000 | 170502       | 2022/04/29       | 2023/04/28            |
| Test software     | Audix  | e3                       | V4.20040112L | NCR              | NCR                   |

Note: No Calibration Required (NCR).

## Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of  $k=2$ .

| Item                                                                                                           | Uncertainty |
|----------------------------------------------------------------------------------------------------------------|-------------|
| Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m      | 5.16 dB     |
| Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m    | 5.02 dB     |
| Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m                           | 5.17 dB     |
| Vertically polarized Radiated disturbances from 18GHz~26.5GHz in a semi-anechoic chamber at a distance of 1m   | 2.39 dB     |
| Horizontally polarized Radiated disturbances from 18GHz~26.5GHz in a semi-anechoic chamber at a distance of 1m | 2.39 dB     |
| Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m                           | 3.70 dB     |
| Emission on the Band Edge Test                                                                                 | 4.32 dB     |
| Occupied Bandwidth                                                                                             | 7.78 %      |
| AC Power Line Conducted Emission                                                                               | 3.08 dB     |