

# FCC 47 CFR PART 15 Subpart B

## TEST REPORT

Equipment Motorized Elliptical Trainer  
Trademark N/A  
FCC ID: 2A5GJ-TD001S-18  
Model No. TD001S-18, TD001S-19, TD001S-20, TD00S-21, TD001S-22,  
TD001S-23, TD001S-24, TD001S-25  
Report No. CTB220307032RF  
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Test Standard(s) CFR47, FCC Part 15 Subpart B, ANSI C63.4: 2014

In the configuration tested, the EUT complied with the standards specified above.

Compiled by:



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## Revision History

| Rev. | Issue Date   | Revisions     | Effect Page | Revised By |
|------|--------------|---------------|-------------|------------|
| 0    | Mar. 7, 2022 | Initial Issue | All Page    | Rita Xiao  |
|      |              |               |             |            |

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## 1. GENERAL INFORMATION

### 1.1. Description of EUT

|                         |                                                                                                                                                         |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment               | Motorized Elliptical Trainer                                                                                                                            |
| Trade Mark              | N/A                                                                                                                                                     |
| Model Name              | TD001S-18                                                                                                                                               |
| Serial No.              | TD001S-19, TD001S-20, TD00S-21, TD001S-22, TD001S-23, TD001S-24, TD001S-25                                                                              |
| Model Difference        | All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: TD001S-18 |
| Operating Frequency     | AC120V/60Hz                                                                                                                                             |
| Max Operating frequency | 24MHz                                                                                                                                                   |
| I/O Port                | N/A                                                                                                                                                     |
| EUT Power Rating        | AC 120V/60Hz                                                                                                                                            |
| Configuration           | <input type="checkbox"/> Table-top <input checked="" type="checkbox"/> Floor-standing                                                                   |
| Accessory Device        | Adapter                                                                                                                                                 |
| Cable Supplied          | N/A                                                                                                                                                     |

**Note:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

#### 1. Other Accessory Device List and Details

| Description | Manufacturer | Model | Note |
|-------------|--------------|-------|------|
| -           |              |       |      |
|             |              |       |      |

#### External I/O Cable

| Cable Description | Shielded Type                                                           | Ferrite Core                                             | Length(m) | Note |
|-------------------|-------------------------------------------------------------------------|----------------------------------------------------------|-----------|------|
| -                 | <input type="checkbox"/> Shielded <input type="checkbox"/> Non-shielded | <input type="checkbox"/> Yes <input type="checkbox"/> No | -         |      |
|                   |                                                                         |                                                          |           |      |

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

## 2. TEST SUMMARY

Test procedures according to the technical standards:

| FCC Rules | Test Item          | Test Result |
|-----------|--------------------|-------------|
| §15.107   | Conducted Emission | PASS        |
| §15.109   | Radiated Emission  | PASS        |

Remark: N/A is abbreviation for Not Applicable.

The test was carried out in all the test modes, only the worst data are list in report.

### 3. FACILITIES

#### 3.1. Test Facility

Shenzhen CTB Testing Technology Co., Ltd.

Floor 1&2, Building A, No. 26 of Xinhe Road, Xinqiao Street, Baoan District, Shenzhen China

CNAS Registration Number is L4595.

A2LA Certificate Number is 5599.01.

#### 3.2. Test Instruments

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards.

**Table list of the test and measurement equipment**

| Conducted Emission Measurement |                   |               |              |            |                 |                  |
|--------------------------------|-------------------|---------------|--------------|------------|-----------------|------------------|
| No.                            | Equipment         | Manufacturer  | Model No.    | Serial No. | Calibrated date | Calibrated until |
| 1                              | AMN               | ROHDE&SCHWARZ | ESH3-Z5      | 831551852  | 2021.09.27      | 2022.08.05       |
| 2                              | Pulse limiter     | ROHDE&SCHWARZ | ESH3Z2       | 357881052  | 2021.09.27      | 2022.08.05       |
| 3                              | EMI TEST RECEIVER | ROHDE&SCHWARZ | ESCS30       | 834115/006 | 2021.09.27      | 2022.08.05       |
| 4                              | Coaxial cable     | ZDECL         | Z302S        | 18091904   | 2021.09.27      | 2022.08.05       |
| 5                              | AAN               | Schwarzbeck   | NTFM8158     | 6114       | 2021.09.27      | 2022.08.05       |
| 6                              | EZ-EMC            | Frad          | EMC-con3A1.1 | /          | /               | /                |

| Radiated Emission Measurement |                                      |               |                            |            |                 |                  |
|-------------------------------|--------------------------------------|---------------|----------------------------|------------|-----------------|------------------|
| No.                           | Equipment                            | Manufacturer  | Model No.                  | Serial No. | Calibrated date | Calibrated until |
| 1                             | Double Ridged Broadband Horn Antenna | Schwarzbeck   | BBHA 9120D                 | 1911       | 2021.09.27      | 2022.08.07       |
| 2                             | TRILOG Broadband Antenna             | Schwarzbeck   | VULB 9168                  | 869        | 2021.09.27      | 2022.08.07       |
| 3                             | Amplifier                            | Agilent       | 8449B                      | 3008A01838 | 2021.09.27      | 2022.08.05       |
| 4                             | Amplifier                            | HP            | 8447E                      | 2945A02747 | 2021.09.27      | 2022.08.05       |
| 5                             | EMI TEST RECEIVER                    | ROHDE&SCHWARZ | ESPI7                      | 100362     | 2021.09.27      | 2022.08.05       |
| 6                             | Coaxial cable                        | ETS           | RFC-SNS-100<br>-NMS-80 NI  | /          | 2021.09.27      | 2022.08.05       |
| 7                             | Coaxial cable                        | ETS           | RFC-SNS-100<br>-NMS-20 NI  | /          | 2021.09.27      | 2022.08.05       |
| 8                             | Coaxial cable                        | ETS           | RFC-SNS-100<br>-SMS-20 NI  | /          | 2021.09.27      | 2022.08.05       |
| 9                             | Coaxial cable                        | ETS           | RFC-NNS-100<br>-NMS-300 NI | /          | 2021.09.27      | 2022.08.05       |
| 10                            | EZ-EMC                               | Frad          | EMC-con3A1.1               | /          | /               | /                |



#### 4. Measurement uncertainty

The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4 and ANSI C63.4.

| Test               | Parameters                           | Expanded Uncertainty ( $U_{Lab}$ ) | Expanded Uncertainty ( $U_{Cispr}$ ) |
|--------------------|--------------------------------------|------------------------------------|--------------------------------------|
| Conducted Emission | Level Accuracy:<br>150kHz to 30MHz   | $\pm 1.22$ dB                      | $\pm 3.6$ dB                         |
| Radiated Emission  | Level Accuracy:<br>30MHz to 1000 MHz | $\pm 3.67$ dB                      | $\pm 5.2$ dB                         |
| Radiated Emission  | Level Accuracy:<br>Above 1000MHz     | $\pm 4.79$ dB                      | N/A                                  |

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

##### 4.1. Operating condition of EUT

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively

| Pretest Mode | Description |
|--------------|-------------|
| Mode         | Charging    |
| Mode         | Running     |

| For Conducted Test |             |
|--------------------|-------------|
| Final Test Mode    | Description |
| Mode               | Charging    |

| For Radiated Test |             |
|-------------------|-------------|
| Final Test Mode   | Description |
| Mode              | Charging    |
| Mode              | Running     |

Charging, USB and HDMI three modes were tested at AC 120V/60Hz and AC230V/50Hz, only the worst result of Charging test mode for AC 120V/60Hz was reported.

##### 4.2. Test conditions

Temperature: 15-35°C

Relative Humidity: 30-60 %

Atmospheric pressure: 800hPa-1060hPa

## 5. Conducted Emission

### 5.1.Limit

☒ Except for Class A devices:

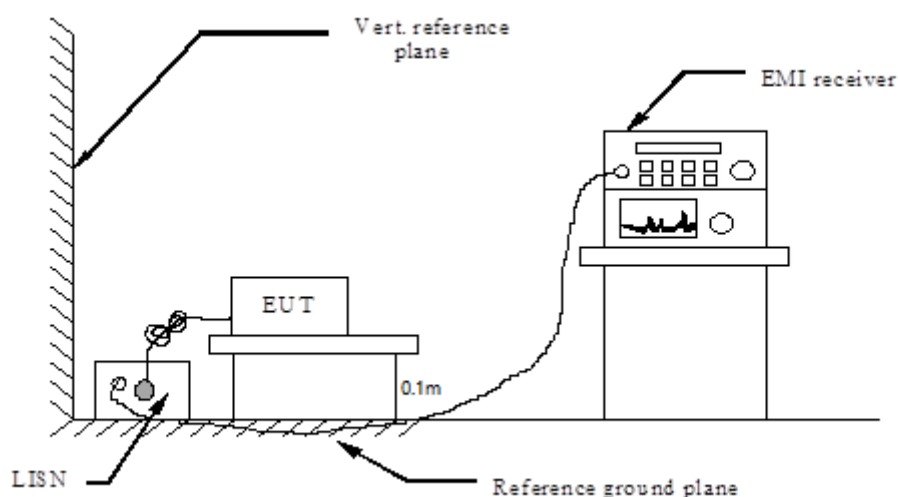
| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | Quasi-peak                   | Average   |
| 0.15-0.5                    | 66 to 56*                    | 56 to 46* |
| 0.5-5                       | 56                           | 46        |
| 5-30                        | 60                           | 50        |

\*Decreases with the logarithm of the frequency.

☐ For Class A devices:

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |         |
|-----------------------------|------------------------------|---------|
|                             | Quasi-peak                   | Average |
| 0.15-0.5                    | 79                           | 66      |
| 0.5-30                      | 73                           | 60      |

### 5.2. Test setup



The setup of EUT is according with ANSI C63.4 measurement procedure. Specification used with FCC Part 15 limits.

### 5.3.EMI Test Receiver Setup

|                      |                                            |
|----------------------|--------------------------------------------|
| Frequency Range      | 9kHz-30MHz                                 |
| Resolution Bandwidth | 200Hz (9kHz-150kHz)<br>9kHz (150kHz-30MHz) |



#### 5.4. Test procedure

Measurement was performed in shielded room, and instruments used were followed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 7 of ANSI C63.4.

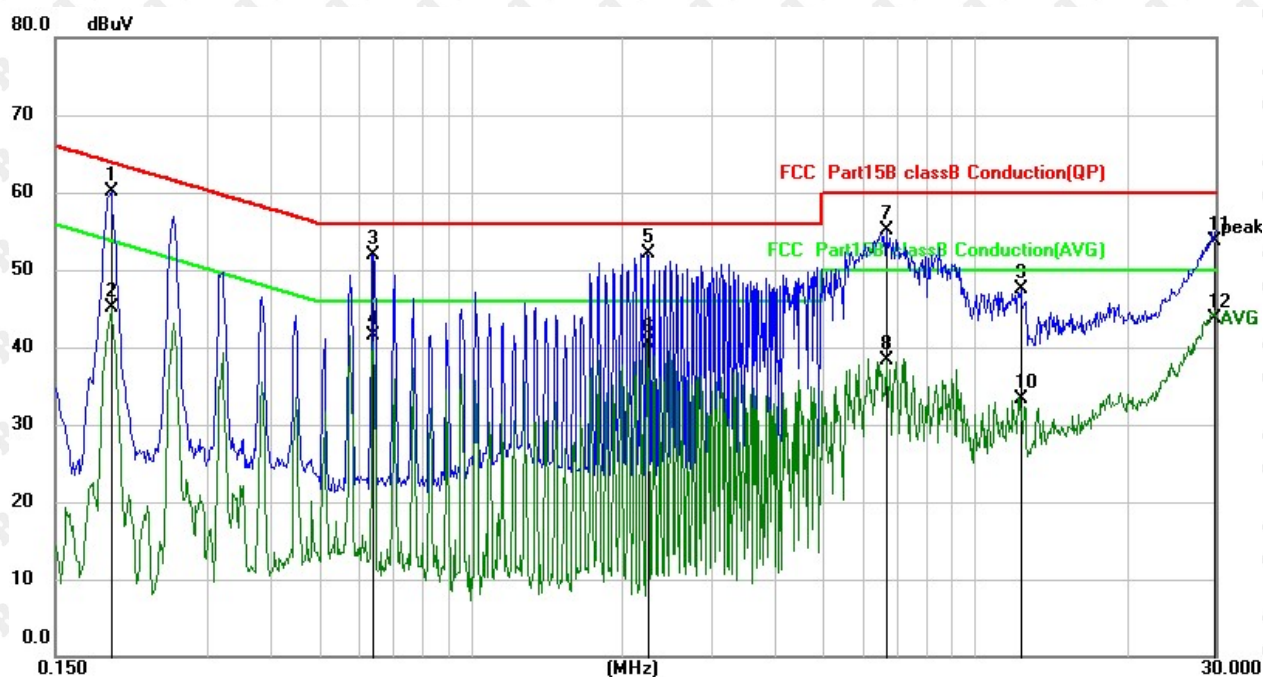
Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

#### 5.5. Test results

**PASS**

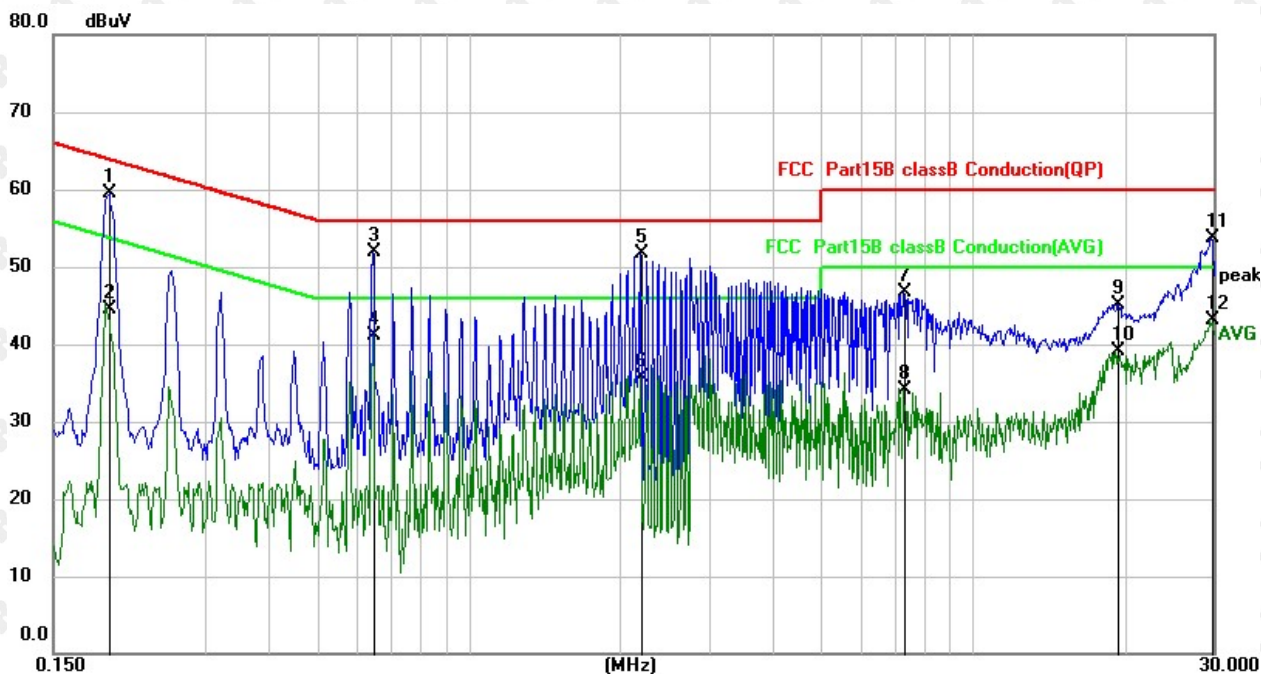
Please refer to the following page.

Polarization: L



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Margin | Detector |
|-----|-----|---------|---------------|----------------|-------------|-------|--------|----------|
|     |     | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     |          |
| 1   | *   | 0.1940  | 49.39         | 10.69          | 60.08       | 63.86 | -3.78  | QP       |
| 2   |     | 0.1940  | 34.34         | 10.69          | 45.03       | 53.86 | -8.83  | AVG      |
| 3   |     | 0.6380  | 41.27         | 10.55          | 51.82       | 56.00 | -4.18  | QP       |
| 4   |     | 0.6380  | 30.91         | 10.55          | 41.46       | 46.00 | -4.54  | AVG      |
| 5   |     | 2.2460  | 41.55         | 10.63          | 52.18       | 56.00 | -3.82  | QP       |
| 6   |     | 2.2460  | 29.81         | 10.63          | 40.44       | 46.00 | -5.56  | AVG      |
| 7   |     | 6.6939  | 44.32         | 10.71          | 55.03       | 60.00 | -4.97  | QP       |
| 8   |     | 6.6939  | 27.53         | 10.71          | 38.24       | 50.00 | -11.76 | AVG      |
| 9   |     | 12.3539 | 36.70         | 10.86          | 47.56       | 60.00 | -12.44 | QP       |
| 10  |     | 12.3539 | 22.43         | 10.86          | 33.29       | 50.00 | -16.71 | AVG      |
| 11  |     | 29.7820 | 42.61         | 11.03          | 53.64       | 60.00 | -6.36  | QP       |
| 12  |     | 29.7820 | 32.61         | 11.03          | 43.64       | 50.00 | -6.36  | AVG      |

Polarization: N



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Margin | Detector |
|-----|-----|---------|---------------|----------------|-------------|-------|--------|----------|
|     |     | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     |          |
| 1   |     | 0.1940  | 48.90         | 10.69          | 59.59       | 63.86 | -4.27  | QP       |
| 2   |     | 0.1940  | 33.72         | 10.69          | 44.41       | 53.86 | -9.45  | AVG      |
| 3   | *   | 0.6460  | 41.29         | 10.55          | 51.84       | 56.00 | -4.16  | QP       |
| 4   |     | 0.6460  | 30.56         | 10.55          | 41.11       | 46.00 | -4.89  | AVG      |
| 5   |     | 2.1900  | 41.00         | 10.63          | 51.63       | 56.00 | -4.37  | QP       |
| 6   |     | 2.1900  | 25.07         | 10.63          | 35.70       | 46.00 | -10.30 | AVG      |
| 7   |     | 7.3258  | 35.90         | 10.73          | 46.63       | 60.00 | -13.37 | QP       |
| 8   |     | 7.3258  | 23.41         | 10.73          | 34.14       | 50.00 | -15.86 | AVG      |
| 9   |     | 19.3857 | 34.13         | 10.98          | 45.11       | 60.00 | -14.89 | QP       |
| 10  |     | 19.3857 | 28.10         | 10.98          | 39.08       | 50.00 | -10.92 | AVG      |
| 11  |     | 29.7740 | 42.61         | 11.03          | 53.64       | 60.00 | -6.36  | QP       |
| 12  |     | 29.7740 | 32.02         | 11.03          | 43.05       | 50.00 | -6.95  | AVG      |



## 6. Radiated emissions

### 6.1.Limit

☐ Except for Class A devices (at 3m):

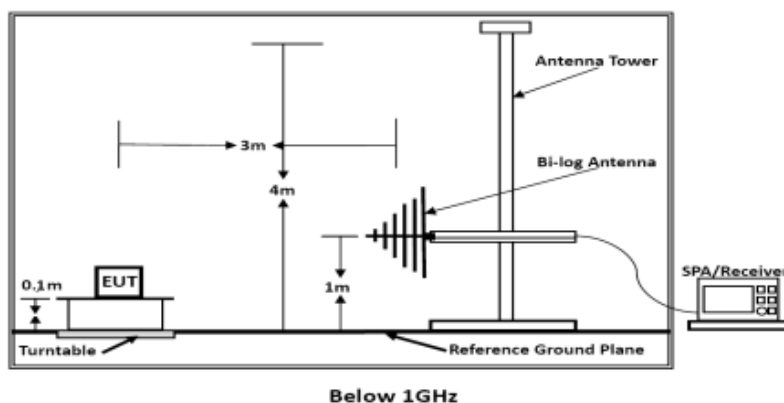
| Frequency of emission<br>(MHz) | Field strength (microvolts/meter) |                |
|--------------------------------|-----------------------------------|----------------|
|                                | (microvolts/meter)                | (dB $\mu$ V/m) |
| 30-88                          | 100                               | 40             |
| 88-216                         | 150                               | 43.5           |
| 216-960                        | 200                               | 46             |
| Above 960                      | 500                               | 54             |

☒ For Class A devices (at 10m):

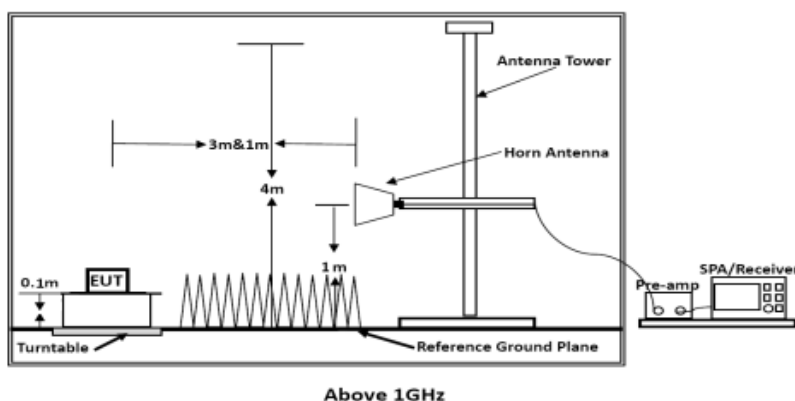
| Frequency of emission<br>(MHz) | Field strength (microvolts/meter) |                |
|--------------------------------|-----------------------------------|----------------|
|                                | (microvolts/meter)                | (dB $\mu$ V/m) |
| 30-88                          | 90                                | 39             |
| 88-216                         | 150                               | 43.5           |
| 216-960                        | 210                               | 46.4           |
| Above 960                      | 300                               | 49.5           |

### 6.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz



Radiated Emission Test Set-Up Frequency Above 1GHz



The radiated tests were performed in semi-anechoic(3m) test site, using the setup accordance with the ANSI C63.4:2014.

### 6.3. EMI Test Receiver Setup and Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

| Frequency Range | RBW    | Video B/W | IF B/W | Detector |
|-----------------|--------|-----------|--------|----------|
| 30MHz-1000MHz   | 100kHz | 300kHz    | 120kHz | QP       |
| Above 1GHz      | 1MHz   | 3MHz      | /      | PK       |
|                 | 1MHz   | 10Hz      | /      | AVG      |

### 6.4. Test procedure

The measurement was performed in a 3m semi-anechoic chamber, and instruments used were followed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 8 of ANSI C63.4.

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB /10 decades.

### 6.5. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

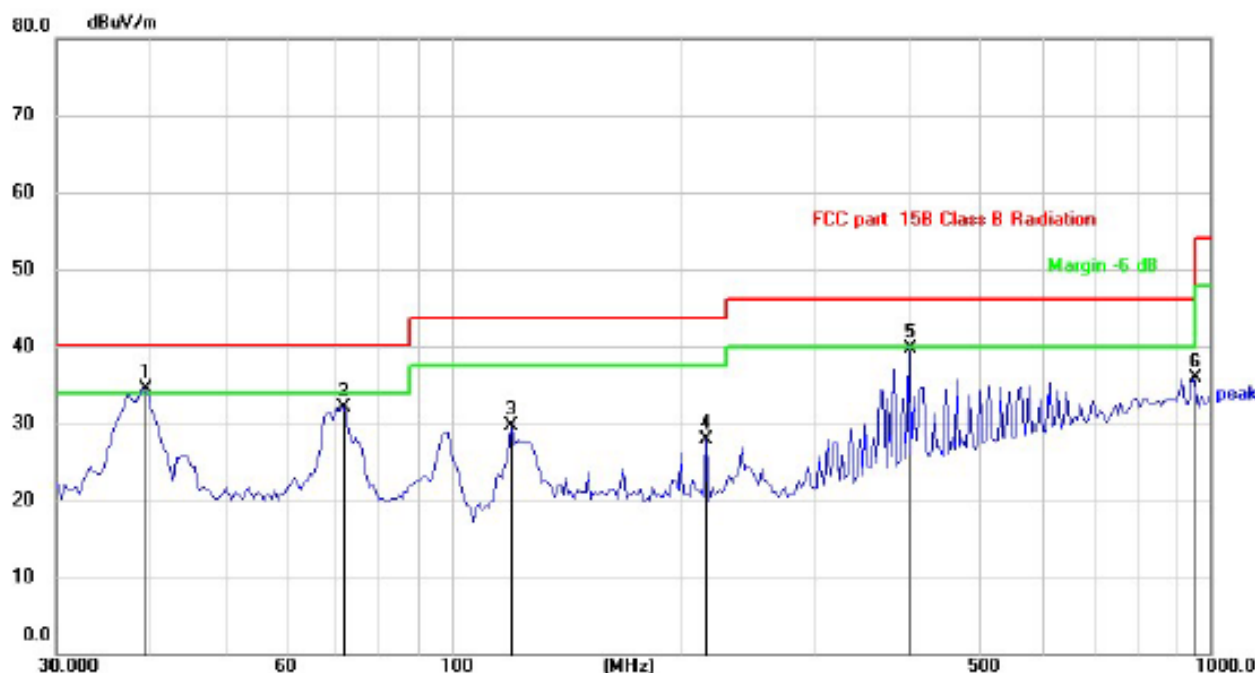
### 6.6. Test results

**PASS**

Please refer to the following page.

Below 1 G

Polarization: H

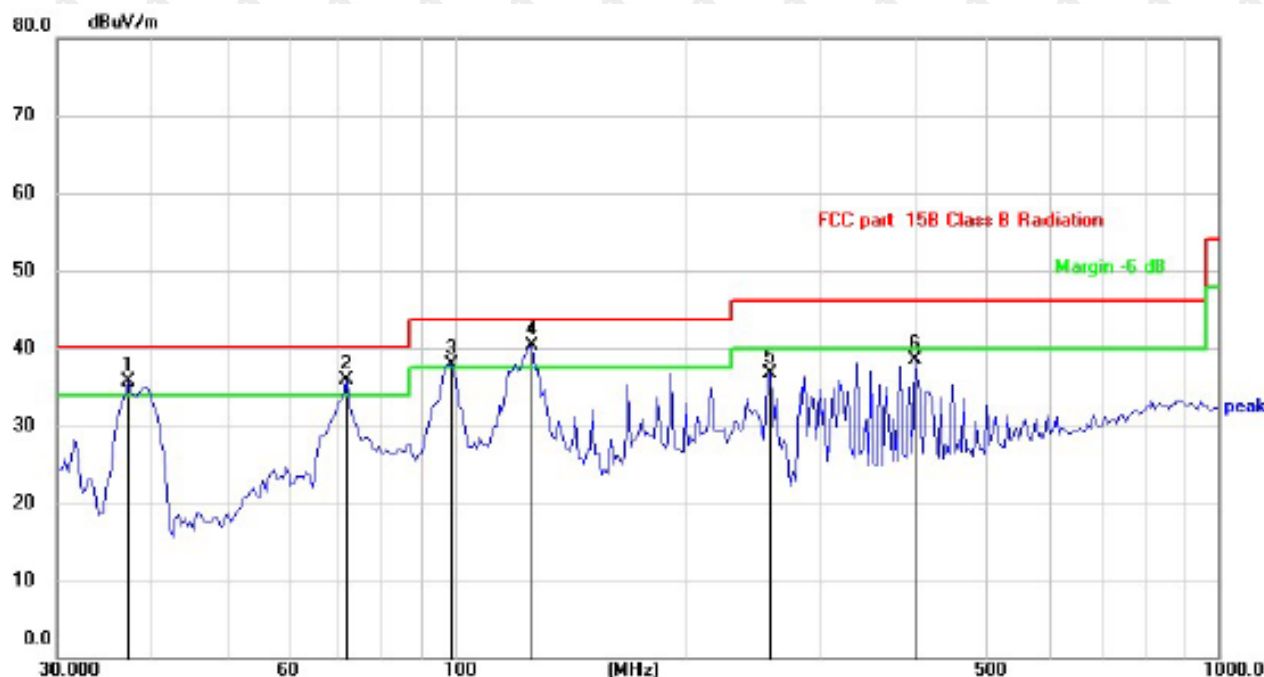


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dB/m | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|---------------|------------|----------|
| 1   | *   | 39.0245      | 40.07                    | -5.51                   | 34.56                      | 40.00         | -5.44      | QP       |
| 2   |     | 72.0843      | 40.45                    | -8.31                   | 32.14                      | 40.00         | -7.86      | QP       |
| 3   |     | 119.8556     | 36.57                    | -6.91                   | 29.66                      | 43.50         | -13.84     | QP       |
| 4   |     | 217.5443     | 34.77                    | -6.88                   | 27.89                      | 43.50         | -15.61     | QP       |
| 5   |     | 401.8385     | 41.36                    | -1.64                   | 39.72                      | 46.00         | -6.28      | QP       |
| 6   |     | 948.7610     | 30.09                    | 5.91                    | 36.00                      | 46.00         | -10.00     | QP       |

Note: Result=Reading+Factor  
Over Limit=Result-Limit



Polarization: V



| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit | Over  |          |
|-----|-----|----------|---------|---------|----------|-------|-------|----------|
|     |     | MHz      | Level   | Factor  | ment     |       |       | Detector |
|     |     |          | dBuV    | dB      | dBuV/m   | dB/m  | dB    |          |
| 1   | !   | 37.3509  | 41.52   | -5.91   | 35.61    | 40.00 | -4.39 | QP       |
| 2   | !   | 72.0841  | 44.21   | -8.31   | 35.90    | 40.00 | -4.10 | QP       |
| 3   | !   | 97.9700  | 46.85   | -8.86   | 37.99    | 43.50 | -5.51 | QP       |
| 4   | *   | 126.3285 | 46.63   | -6.42   | 40.21    | 43.50 | -3.29 | QP       |
| 5   |     | 259.2337 | 42.36   | -5.61   | 36.75    | 46.00 | -9.25 | QP       |
| 6   |     | 401.8383 | 40.19   | -1.64   | 38.55    | 46.00 | -7.45 | QP       |

Note: Result=Reading+Factor  
Over Limit=Result-Limit

## 7. Photographs of test setup

Photograph of test setup for Conducted Emission



Photograph of test setup for Radiated Emission below 1 G





## 8. Photographs of EUT

Photographs of EUT





**Photographs of EUT**

\*\*\*End of report\*\*\*