

# Global United Technology Services Co., Ltd.

Report No.: GTS202204000048F01

# **TEST REPORT**

**Applicant:** Shenzhen Golden Vision Technology Development Co., Ltd

**Address of Applicant:** No.6 Bao Fu Road, Bao Lai industrial Park, Shang Mu Gu

Villiage, Pinghu Street, Longgang District, Shenzhen City,

Guangdong Province, 518000, China

Manufacturer: Shenzhen Golden Vision Technology Development Co., Ltd

No.6 Bao Fu Road, Bao Lai industrial Park, Shang Mu Gu Address of Villiage, Pinghu Street, Longgang District, Shenzhen City, Manufacturer:

Guangdong Province, 518000, China

**Equipment Under Test (EUT)** 

Smart Pet Feeder **Product Name:** 

Model No.: BL<sub>6</sub>

Add. Model No.: BL5, BL7, BL4, BL3, WF, BL8, C1, C2, C3

**Trade Mark:** N/A

FCC ID: 2APD7-BL6

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 2022-04-28

Date of Test: 2022-04-28 to 2022-04-29

Date of report issued: 2022-04-29

PASS \* Test Result:



**Robinson Luo Laboratory Manager** 

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver. Page 1 of 22

<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



## 2 Version

| Report No.         | Version No. | Date       | Description   |
|--------------------|-------------|------------|---|
| GTS202003000215F01 | 00          | 2020-03-19 | Original  |
| GTS202108000036F01 | 01          | 2021-08-05 | Add model number, product photos.   |
| GTS202204000048F01 | 02          | 2022-04-29 | This report base on the previous report with report number GST202003000215F01 and GTS202108000036F01, since the updated version number added model and cancel the positioning hole on the small PCB, only the false emission (30- 1000MHz) was re-tested, and no other test items needed to be re-tested. |
|                    |             |            |   |
|                    |             |            |   |

| Prepared By: | Trankly          | Date:                     | 2022-04-29 |
|--------------|------------------|---------------------------|------------|
|              | Project Engineer |                           |            |
| Check By:    | Johnson Lund     | Date:                     | 2022-04-29 |
|              | Reviewer         | the state of the state of |            |



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## 4 Test Summary

| Test Item                        | Section                    | Result |
|----------------------------------|----------------------------|--------|
| Antenna requirement              | FCC part 15.203/15.247 (c) | NA     |
| AC Power Line Conducted Emission | FCC part 15.207            | NA     |
| Conducted Peak Output Power      | FCC part 15.247 (b)(3)     | NA     |
| Channel Bandwidth & 99% OCB      | FCC part 15.247 (a)(2)     | NA     |
| Power Spectral Density           | FCC part 15.247 (e)        | NA     |
| Band Edge                        | FCC part 15.247(d)         | NA     |
| Spurious Emission                | FCC part 15.205/15.209     | Pass   |

Remark: Test according to ANSI C63.10:2013 and RSS-Gen

Pass: The EUT complies with the essential requirements in the standard.

## **Measurement Uncertainty**

| Test Item                        | Frequency Range                    | Measurement Uncertainty           | Notes |
|----------------------------------|------------------------------------|-----------------------------------|-------|
| Radiated Emission                | 30MHz-200MHz                       | 3.8039dB                          | (1)   |
| Radiated Emission                | 200MHz-1GHz                        | 3.9679dB                          | (1)   |
| Radiated Emission                | 1GHz-18GHz                         | 4.29dB                            | (1)   |
| Radiated Emission                | 18GHz-40GHz                        | 3.30dB                            | (1)   |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz                    | 3.44dB                            | (1)   |
| Note (1): The measurement uncert | tainty is for coverage factor of k | =2 and a level of confidence of 9 | 95%.  |



#### 5 General Information

## 5.1 General Description of EUT

| Product Name:          | Smart Pet Feeder  |
|------------------------|---|
| Model No.:             | BL6   |
| Add. Model No.:        | BL5, BL7, BL4, BL3, WF, BL8, C1, C2, C3   |
| Hardware Version:      | V1.0  |
| Software Version:      | V1.0  |
| Test sample(s) ID:     | GTS202003000215-1   |
| Sample(s) Status:      | Engineer sample   |
| Sample(s) Status:      | Engineer sample   |
| Channel numbers:       | 802.11b/802.11g /802.11n(HT20): 11<br>802.11n(HT40):7   |
| Channel separation:    | 5MHz  |
| Modulation technology: | 802.11b: Direct Sequence Spread Spectrum (DSSS)<br>802.11g/802.11n(H20)/802.11n(HT40):<br>Orthogonal Frequency Division Multiplexing (OFDM) |
| Antenna Type:          | FPC Antenna   |
| Antenna gain:          | 3.5dBi  |
| Power supply:          | Input: AC 120V/60Hz   |
| AL ( M L L (DLO)       | 1 /DI 5 DI 7 DI 4 DI 6 IWE DI 6 O4 O6 O6)/I I'''  |

Note: Models (BL6) and models (BL5, BL7, BL4, BL3, WF,BL8, C1, C2, C3)the difference is only to distinguish different sales areas of different customers, the model name is different, and the products are exactly the same.

| Operation | Operation Frequency each of channel |         |           |         |           |         |           |  |  |
|-----------|-------------------------------------|---------|-----------|---------|-----------|---------|-----------|--|--|
| Channel   | Frequency                           | Channel | Frequency | Channel | Frequency | Channel | Frequency |  |  |
| 1         | 2412MHz                             | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |  |  |
| 2         | 2417MHz                             | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |  |  |
| 3         | 2422MHz                             | 6       | 2437MHz   | 9       | 2452MHz   |         |           |  |  |

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Toot shound     | Frequen                       | cy (MHz)      |
|-----------------|-------------------------------|---------------|
| Test channel    | 802.11b/802.11g/802.11n(HT20) | 802.11n(HT40) |
| Lowest channel  | 2412MHz                       | 2422MHz       |
| Middle channel  | 2437MHz                       | 2437MHz       |
| Highest channel | 2462MHz                       | 2452MHz       |



#### 5.2 Test mode

Transmitting mode Keep the EUT in continuously transmitting mode

Remark: During the test, the dutycycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

| 78 00 | Mode      | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) |
|-------|-----------|---------|---------|---------------|---------------|
|       | Data rate | 1Mbps   | 6Mbps   | 6.5Mbps       | 13Mbps        |

#### 5.3 Description of Support Units

None.

#### 5.4 Deviation from Standards

None.

#### 5.5 Abnormalities from Standard Conditions

None.

#### 5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• FCC —Registration No.: 381383

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen 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 files.

• IC —Registration No.: 9079A

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

• NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

#### 5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480 Fax: 0755-27798960

#### 5.8 Additional Instructions

| Test Software Version | Realtek 11n 8188F USB WLAN MP Diagnostic          |  |  |  |  |
|-----------------------|---|--|--|--|--|
|                       | Program 1.25.20170609                             |  |  |  |  |
| Power Setting         | Power Setting: not applicable, test used software |  |  |  |  |
|                       | default power level.                              |  |  |  |  |

Global United Technology Services Co., Ltd.

No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone,

Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102



## 6 Test Instruments list

| Rad  | Radiated Emission:                  |                                |                             |                  |                        |                            |  |  |  |
|------|-------------------------------------|--------------------------------|-----------------------------|------------------|------------------------|----------------------------|--|--|--|
| Item | Test Equipment                      | Manufacturer                   | Model No.                   | Inventory<br>No. | Cal.Date<br>(mm-dd-yy) | Cal.Due date<br>(mm-dd-yy) |  |  |  |
| 1    | 3m Semi- Anechoic<br>Chamber        | ZhongYu Electron               | 9.2(L)*6.2(W)* 6.4(H)       | GTS250           | July. 02 2020          | July. 01 2025              |  |  |  |
| 2    | Control Room                        | ZhongYu Electron               | 6.2(L)*2.5(W)* 2.4(H)       | GTS251           | N/A                    | N/A                        |  |  |  |
| 3    | EMI Test Receiver                   | Rohde & Schwarz                | ESU26                       | GTS203           | June. 24 2021          | June. 23 2022              |  |  |  |
| 4    | BiConiLog Antenna                   | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163                    | GTS214           | June. 24 2021          | June. 23 2022              |  |  |  |
| 5    | Double -ridged<br>waveguide horn    | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120 D                 | GTS208           | June. 24 2021          | June. 23 2022              |  |  |  |
| 6    | Horn Antenna                        | ETS-LINDGREN                   | 3160                        | GTS217           | June. 24 2021          | June. 23 2022              |  |  |  |
| 7    | EMI Test Software                   | AUDIX                          | E3                          | N/A              | N/A                    | N/A                        |  |  |  |
| 8    | Coaxial Cable                       | GTS                            | N/A                         | GTS213           | June. 24 2021          | June. 23 2022              |  |  |  |
| 9    | Coaxial Cable                       | GTS                            | N/A                         | GTS211           | June. 24 2021          | June. 23 2022              |  |  |  |
| 10   | Coaxial cable                       | GTS                            | N/A                         | GTS210           | June. 24 2021          | June. 23 2022              |  |  |  |
| 11   | Coaxial Cable                       | GTS                            | N/A                         | GTS212           | June. 24 2021          | June. 23 2022              |  |  |  |
| 12   | Amplifier(100kHz-3GHz)              | HP                             | 8347A                       | GTS204           | June. 24 2021          | June. 23 2022              |  |  |  |
| 13   | Amplifier(2GHz-20GHz)               | HP                             | 84722A                      | GTS206           | June. 24 2021          | June. 23 2022              |  |  |  |
| 14   | Amplifier (18-26GHz)                | Rohde & Schwarz                | AFS33-18002<br>650-30-8P-44 | GTS218           | June. 24 2021          | June. 23 2022              |  |  |  |
| 15   | Band filter                         | Amindeon                       | 82346                       | GTS219           | June. 24 2021          | June. 23 2022              |  |  |  |
| 16   | Power Meter                         | Anritsu                        | ML2495A                     | GTS540           | June. 24 2021          | June. 23 2022              |  |  |  |
| 17   | Power Sensor                        | Anritsu                        | MA2411B                     | GTS541           | June. 24 2021          | June. 23 2022              |  |  |  |
| 18   | Wideband Radio Communication Tester | Rohde & Schwarz                | CMW500                      | GTS575           | June. 24 2021          | June. 23 2022              |  |  |  |
| 19   | Splitter                            | Agilent                        | 11636B                      | GTS237           | June. 24 2021          | June. 23 2022              |  |  |  |
| 20   | Loop Antenna                        | ZHINAN                         | ZN30900A                    | GTS534           | June. 24 2021          | June. 23 2022              |  |  |  |
| 21   | Breitband<br>hornantenne            | SCHWARZBECK                    | BBHA 9170                   | GTS579           | Oct. 17 2021           | Oct. 16 2022               |  |  |  |
| 22   | Amplifier                           | TDK                            | PA-02-02                    | GTS574           | Oct. 17 2021           | Oct. 16 2022               |  |  |  |
| 23   | Amplifier                           | TDK                            | PA-02-03                    | GTS576           | Oct. 17 2021           | Oct. 16 2022               |  |  |  |
| 24   | PSA Series Spectrum<br>Analyzer     | Rohde & Schwarz                | FSP                         | GTS578           | June. 24 2021          | June. 23 2022              |  |  |  |



| Con  | ducted Emission               |                             |                      | The state of the state of | the state of the state of | of the state of th |
|------|-------------------------------|-----------------------------|----------------------|---------------------------|---------------------------|--|
| Item | Test Equipment                | Manufacturer                | Model No.            | Inventory<br>No.          | Cal.Date<br>(mm-dd-yy)    | Cal.Due date<br>(mm-dd-yy)   |
| 1    | Shielding Room                | ZhongYu Electron            | 7.3(L)x3.1(W)x2.9(H) | GTS252                    | May.15 2019               | May.14 2022  |
| 2    | EMI Test Receiver             | R&S                         | ESCI 7               | GTS552                    | June. 24 2021             | June. 23 2022  |
| 3    | Coaxial Switch                | ANRITSU CORP                | MP59B                | GTS225                    | June. 24 2021             | June. 23 2022  |
| 4    | ENV216 2-L-V-<br>NETZNACHB.DE | ROHDE&SCHWARZ               | ENV216               | GTS226                    | June. 24 2021             | June. 23 2022  |
| 5    | Coaxial Cable                 | GTS                         | N/A                  | GTS227                    | N/A                       | N/A  |
| 6    | EMI Test Software             | AUDIX                       | E3                   | N/A                       | N/A                       | N/A  |
| 7    | Thermo meter                  | KTJ                         | TA328                | GTS233                    | June. 24 2021             | June. 23 2022  |
| 8    | Absorbing clamp               | Elektronik-<br>Feinmechanik | MDS21                | GTS229                    | June. 24 2021             | June. 23 2022  |
| 9    | ISN                           | SCHWARZBECK                 | NTFM 8158            | GTD565                    | June. 24 2021             | June. 23 2022  |
| 10   | High voltage probe            | SCHWARZBECK                 | TK9420               | GTS537                    | June. 09 2021             | June. 08 2022  |

| RF C | RF Conducted Test:                                   |              |                  |            |                        |                            |  |
|------|--|--------------|------------------|------------|------------------------|----------------------------|--|
| Item | Test Equipment                                       | Manufacturer | Model No.        | Serial No. | Cal.Date<br>(mm-dd-yy) | Cal.Due date<br>(mm-dd-yy) |  |
| 1    | MXA Signal Analyzer                                  | Agilent      | N9020A           | GTS566     | June. 24 2021          | June. 23 2022              |  |
| 2    | EMI Test Receiver                                    | R&S          | ESCI 7           | GTS552     | June. 24 2021          | June. 23 2022              |  |
| 3    | Spectrum Analyzer                                    | Agilent      | E4440A           | GTS533     | June. 24 2021          | June. 23 2022              |  |
| 4    | MXG vector Signal<br>Generator                       | Agilent      | N5182A           | GTS567     | June. 24 2021          | June. 23 2022              |  |
| 5    | ESG Analog Signal<br>Generator                       | Agilent      | E4428C           | GTS568     | June. 24 2021          | June. 23 2022              |  |
| 6    | USB RF Power Sensor                                  | DARE         | RPR3006W         | GTS569     | June. 24 2021          | June. 23 2022              |  |
| 7    | RF Switch Box  | Shongyi      | RFSW3003328      | GTS571     | June. 24 2021          | June. 23 2022              |  |
| 8    | Programmable Constant<br>Temp & Humi<br>Test Chamber | WEWON        | WHTH-150L-40-880 | GTS572     | June. 24 2021          | June. 23 2022              |  |

| Gene | General used equipment:            |              |           |               |                        |                            |  |
|------|------------------------------------|--------------|-----------|---------------|------------------------|----------------------------|--|
| Item | Test Equipment                     | Manufacturer | Model No. | Inventory No. | Cal.Date<br>(mm-dd-yy) | Cal.Due date<br>(mm-dd-yy) |  |
| 1    | Humidity/ Temperature<br>Indicator | КТЈ          | TA328     | GTS243        | June. 24 2021          | June. 23 2022              |  |
| 2    | Barometer                          | ChangChun    | DYM3      | GTS255        | June. 24 2021          | June. 23 2022              |  |



#### 7 Test results and Measurement Data

## 7.1 Antenna requirement

Standard requirement: FCC Part15 C Section 15.203 /247(c)

#### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### 15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

#### **EUT Antenna:**

The antennas are FPC antenna, the best case gain of the antennas are 3.5dBi, reference to the appendix II for details



#### 7.2 Conducted Emissions

| Test Method:  Test Frequency Range:  Receiver setup:  RBW=9KHz, VBW=30KHz, Sweep time=auto  Limit:  Frequency range (MHz)  Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 0.5-5-30 60 50  *Decreases with the logarithm of the frequency.  Test setup:  Reference Plane  LISN Limit Felliter AC power  Formalic  Formalic | Test Requirement:     | FCC Part15 C Section 15.207  |  |  |   |  |
|--|-----------------------|--|--|--|---|--|
| Receiver setup:    Comparison  | Test Method:          | ANSI C63.10:2013   |  |  |   |  |
| Limit:  Frequency range (MHz)  Quasi-peak  Average  0.15-0.5  66 to 56*  56 to 46*  0.5-5  5-30  Decreases with the logarithm of the frequency.  Reference Plane  LISN  AUX  Equipment  LISN  Filter  Ac power  LISN  Filter  Ac power  LISN  AUX  Equipment  Test abole/linsulation plane  Test procedure:  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. 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 C63.10:2013 on conducted measurement.  Test Instruments:  Refer to section 6.0 for details  Test environment:  Test environment:  Temp: 20.2 °C Humid.: 45% Press.: 1010mbar   | Test Frequency Range: | 150KHz to 30MHz  |  |  |   |  |
| Test procedure:  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.  Test Instruments:  Refer to section 5.2 for details  Test environment:  Test voltage:  NA  | Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto   |  |  |   |  |
| Test procedure:  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.  Test Instruments:  Refer to section 5.2 for details  Test environment:  Test voltage:  NA  | Limit:                | Francisco (MILE)   | Limit  | t (dBuV)   |   |  |
| Test setup:    Test setup:   Test setup:   Test table/Insulation plane   E.U.T   Test table/Insulation plane   E.U.T   Emil   Receiver   E.U.T   Equipment Under Test   LISN   Line impedance Stabilization Network   Test table/Insulation plane   E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment.   2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs).   3. Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.   Test Instruments: Refer to section 6.0 for details   Refer to section 5.2 for details   Test environment:   Temp.:   20.2 °C   Humid.:   45%   Press.:   1010mbar   Test voltage:   NA  |                       | Frequency range (MHz)  | Quasi-peak Avera   |  |   |  |
| Test setup:    Reference Plane   |                       | 77. 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2   |  |  |   |  |
| * Decreases with the logarithm of the frequency.  Test setup:  **Reference Plane  **LISN   |                       |  |  |  | 17 TA |  |
| Test setup:    Reference Plane   |                       |  | 1 0 <sub>11</sub> 10 <sub>11</sub> 2 10 <sub>11</sub> 10   | 5  | 0   |  |
| Test procedure:  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.  2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. 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 C63.10:2013 on conducted measurement.  Test Instruments:  Refer to section 6.0 for details  Test mode:  Refer to section 5.2 for details  Test environment:  Temp.: 20.2 °C Humid.: 45% Press.: 1010mbar  Test voltage:  | T                     |  |  | of the state of th |   |  |
| LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).  3. Both sides of A.C. 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 C63.10:2013 on conducted measurement.  Test Instruments:  Refer to section 6.0 for details  Test mode:  Refer to section 5.2 for details  Test environment:  Temp.: 20.2 °C Humid.: 45% Press.: 1010mbar Test voltage:  | Test procedure:       | Remark E.U.T Equipment Under Test LISN Line Impedence Stabilization Network Test table height=0.6m  1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. 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 |  |  |   |  |
| Test mode:       Refer to section 5.2 for details         Test environment:       Temp.:       20.2 °C       Humid.:       45%       Press.:       1010mbar         Test voltage:       NA   |                       |  |  |  |   |  |
| Test environment: Temp.: 20.2 °C Humid.: 45% Press.: 1010mbar Test voltage: NA   | Test Instruments:     | Refer to section 6.0 for details   |  |  |   |  |
| Test voltage: NA   | Test mode:            | Refer to section 5.2 for details   |  |  |   |  |
|  | Test environment:     | Temp.: 20.2 °C Hun   | nid.: 45%  | Press.:  | 1010mbar  |  |
|  | Test voltage:         | NA   | The state of the s | State of the state of the  | The state of the state of   |  |
| I est results: NA  | Test results:         | NA   |  |  |   |  |

#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Emission Level= Read Level+ Correct Factor
- 4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.



## 7.3 Conducted Peak Output Power

| Test Requirement : | FCC Part15 C Section 15.247 (b)(3)                              |  |  |  |
|--------------------|---|--|--|--|
| Test Method :      | KDB558074 D01 DTS Meas Guidance V05or02                         |  |  |  |
| Limit:             | 30dBm   |  |  |  |
| Test setup:        | Power Meter  E.U.T  Non-Conducted Table  Ground Reference Plane |  |  |  |
| Test Instruments:  | Refer to section 6.0 for details                                |  |  |  |
| Test mode:         | Refer to section 5.2 for details                                |  |  |  |
| Test results:      | NA  |  |  |  |



## 7.4 Channel Bandwidth & 99% Occupy Bandwidth

| Test Requirement : | FCC Part15 C Section 15.247 (a)(2)                                    |  |  |  |
|--------------------|---|--|--|--|
| Test Method :      | KDB558074 D01 DTS Meas Guidance V05or02                               |  |  |  |
| Limit:             | >500KHz   |  |  |  |
| Test setup:        | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane |  |  |  |
| Test Instruments:  | Refer to section 6.0 for details                                      |  |  |  |
| Test mode:         | Refer to section 5.2 for details                                      |  |  |  |
| Test results:      | NA  |  |  |  |



## 7.5 Power Spectral Density

| A                 |  |  |  |  |
|-------------------|--|--|--|--|
| Test Requirement: | FCC Part15 C Section 15.247 (e)  |  |  |  |
| Test Method:      | KDB558074 D01 DTS Meas Guidance V05or02  |  |  |  |
| Limit:            | 8dBm/3kHz  |  |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane  |  |  |  |
| Test Instruments: | Refer to section 6.0 for details   |  |  |  |
| Test mode:        | Refer to section 5.2 for details   |  |  |  |
| Test results:     | NA STATE OF THE PROPERTY OF TH |  |  |  |



## 7.6 Band edges

## 7.6.1 Conducted Emission Method

| Test Requirement: | FCC Part15 C Section 15.247 (d)   |  |  |  |  |
|-------------------|---|--|--|--|--|
| Test Method:      | KDB558074 D01 DTS Meas Guidance V05or02   |  |  |  |  |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. |  |  |  |  |
| Test setup:       |   |  |  |  |  |
| Test Instruments: | Refer to section 6.0 for details  |  |  |  |  |
| Test mode:        | Refer to section 5.2 for details  |  |  |  |  |
| Test results:     | NA  |  |  |  |  |



#### 7.6.2 Radiated Emission Method

| Toot Doguiroments     | FCC Dort4F C C   | Castian 15 200                        | and 15 20  | * O1 - O1  |  |  |  |
|-----------------------|--|---------------------------------------|--|--|--|--|--|
| Test Requirement:     | FCC Part15 C Section 15.209 and 15.20  |                                       |  |  |  |  |  |
| Test Method:          | ANSI C63.10: 2013  |                                       |  |  |  |  |  |
| Test Frequency Range: | All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.   |                                       |  |  |  |  |  |
| Test site:            | Measurement Distance: 3m   |                                       |  |  |  |  |  |
| Receiver setup:       | Frequency  | Frequency Detector                    |  |  | Value  |  |  |
|                       | the state of the s | Peak                                  | 1MHz   | 3MHz   | Peak   |  |  |
| A                     | Above 1GHz   | Average                               | 1MHz   | 3MHz   | Average  |  |  |
| Limit:                | Freque   |                                       | Limit (dBuV/   | m @3m)   | Value  |  |  |
|                       | The Control of the Co | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 54.0   |  | Average  |  |  |
|                       | Above 1  | IGHZ                                  | 74.0   |  | Peak   |  |  |
| Test setup:           | Tum Table < 150cm > 4  | < 3n                                  | Test Antenna   |  |  |  |  |
| Test Procedure:       | <ol> <li>The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> <li>The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test</li> </ol>  |                                       |  |  |  |  |  |
| Test Instruments:     | Refer to section   |                                       | A STATE OF THE STATE OF  | the state of the s | Charles and Charle |  |  |
| Test mode:            | Refer to section   | 5.2 for details                       | The state of the s |  |  |  |  |
| Test results:         | NA   | and the same                          | N CO ON CONTROL  | Contract of the Contract of th | The state of the s |  |  |



## 7.7 Spurious Emission

## 7.7.1 Conducted Emission Method

| Test Requirement: | FCC Part15 C Section 15.247 (d)  |  |  |  |  |
|-------------------|--|--|--|--|--|
| Test Method:      | KDB558074 D01 DTS Meas Guidance V05or02  |  |  |  |  |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.  |  |  |  |  |
| Test setup:       | Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane  |  |  |  |  |
| Test Instruments: | Refer to section 6.0 for details   |  |  |  |  |
| Test mode:        | Refer to section 5.2 for details   |  |  |  |  |
| Test results:     | NA The state of th |  |  |  |  |



#### 7.7.2 Radiated Emission Method

| 7.7.2 Radiated Emission Met | illou a a a a a a a a a a a a a a a a a a a   | Con . " C                  | A CONTRACTOR OF THE | the Walter  | Sales and    | the things | The same of the sa |
|-----------------------------|---|----------------------------|---------------------|-------------|--------------|------------|--|
| Test Requirement:           | FCC Part15 C Section  | on 15                      | .209                | on on on    | 200          |            |  |
| Test Method:                | ANSI C63.10: 2013   |                            |                     |             |              |            |  |
| Test Frequency Range:       | 9kHz to 25GHz   |                            |                     |             |              |            |  |
| Test site:                  | Measurement Distar  | nce: 3                     | 3m                  | On the last | 4            | A COLOR    |  |
| Receiver setup:             | Frequency   | % or □                     | etector             | RBW VBW     |              | VBW        | Value  |
|                             | 9KHz-150KHz   | Qu                         | ıasi-peak           | 2001        | Hz           | 600H       | z Quasi-peak   |
|                             | 150KHz-30MHz  | 150KHz-30MHz Quasi-peak 9K |                     |             | 9KHz 30KHz   |            | z Quasi-peak   |
|                             | 30MHz-1GHz  | Qu                         | asi-peak            | 100K        | 100KHz 300KH |            | Iz Quasi-peak  |
|                             | Above 1GHz  | 200                        | Peak                | 1MHz        |              | 3MHz       | z Peak   |
|                             | 7,5000 10112  | On the                     | Peak                | 1MHz        |              | 10Hz       | Average  |
| Limit:                      | Frequency   |                            | Limit (u\           | //m)        | V            | 'alue      | Measurement<br>Distance  |
|                             | 0.009MHz-0.490M   | Hz                         | 2400/F(K            | (Hz)        | 91           | QP         | 300m   |
|                             | 0.490MHz-1.705M   | Hz                         | 24000/F(I           | KHz)        | On the       | QP         | 300m   |
|                             | 1.705MHz-30MH   | Z                          | 30                  |             | 70 m         | QP         | 30m  |
| 6                           | 30MHz-88MHz   | 300                        | 100                 | Or or or    | San On       | QP         |  |
|                             | 88MHz-216MHz  | 99                         | 150                 | n and       | 0            | QP         |  |
|                             | 216MHz-960MH  | 9%                         | 200                 | The same of |              | QP         | 3m   |
|                             | 960MHz-1GHz 500   |                            | -                   | QP          |              |            |  |
|                             | Above 1GHz  | Above 1GHz 500             |                     |             | - 7/A        | erage      |  |
| Test setup:                 |   | 70                         | 5000                | On the last | 77 0         | Peak       |  |
|                             | For radiated emissions from 9kHz to 30MHz  Tum Table  Receiver  Tum Table  Receiver  Tum Table  Tum Table  Receiver  Preamplifier |                            |                     |             |              |            |  |
|                             |   |                            |                     |             |              |            |  |



|                   | Report No.: GTS202204000048F01   |
|-------------------|--|
|                   | For radiated emissions above 1GHz  |
|                   | Tum Table -  |
| Test Procedure:   | <ol> <li>The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol> |
| Test Instruments: | Refer to section 6.0 for details   |
| Test mode:        | Refer to section 5.2 for details   |
| Test voltage:     | AC120V 60Hz  |
| Test environment: | Temp.: 23.6 °C Humid.: 49% Press.: 1012mbar  |
| Test voltage:     | AC 120V, 60Hz  |
| Test results:     | Pass   |
|                   |  |



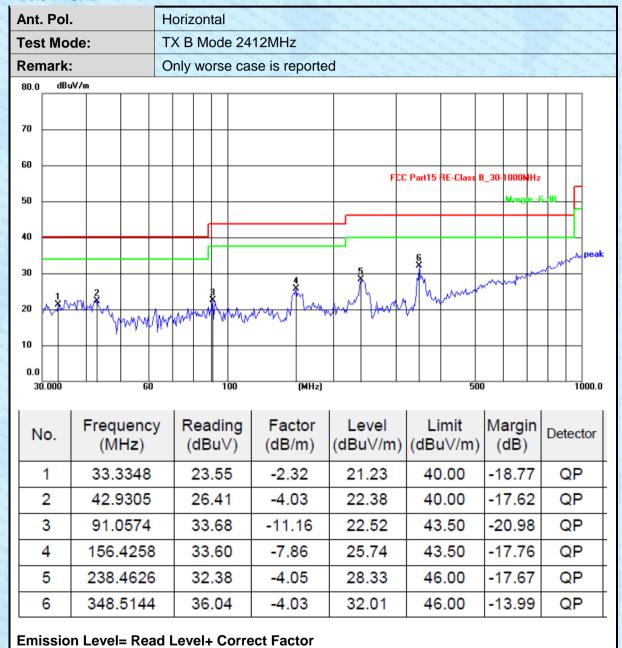
Measurement data:

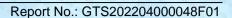
Report No.: GTS202204000048F01

#### ■ 9kHz~30MHz

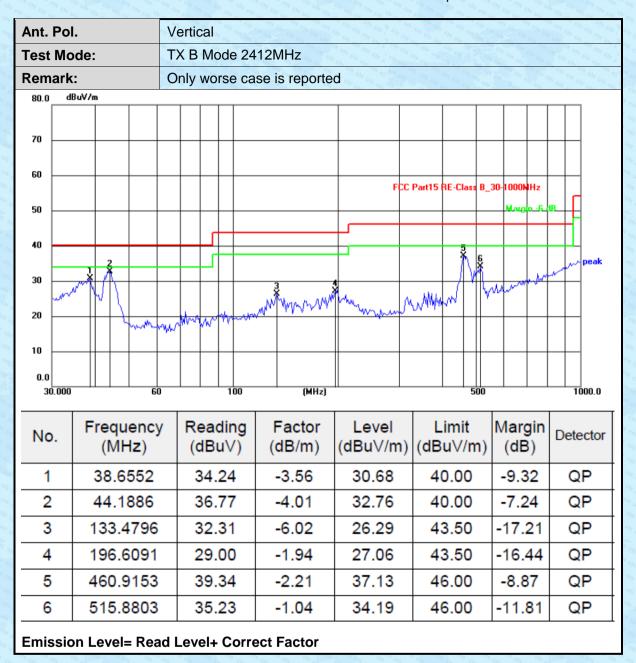
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

#### ■ Below 1GHz











#### ■ Above 1GHz

NA

#### Remark:

1.No report for the emission which more than 10 dB below the prescribed limit.

2.Emission Level= Read Level+ Correct Factor



## 8 Test Setup Photo

Reference to the appendix I for details.

## 9 EUT Constructional Details

Reference to the appendix II for details.

-----End-----