

TEST REPORT

Applicant: YUE XING LONG TOYS FACTORY
Address of Applicant: CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, China
Manufacturer: YUE XING LONG TOYS FACTORY
Address of Manufacturer: CHENGHAI DISTRICT, SHANTOU CITY, GUANGDONG PROVINCE, China
Equipment Under Test (EUT)

Product Name: Remote control car toy series
Model No.: RC-KD64-GY, RC-KD64-GN, RC-KD64-YL
FCC ID: 2BGI3KD64
Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.227
Date of sample receipt: June 07, 2024
Date of Test: June 07-13, 2024
Date of report issued: June 13, 2024
Test Result : PASS *

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

Authorized Signature:



Robinson Luo

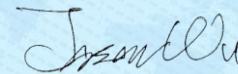
Laboratory Manager

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.

2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 01 | June 13, 2024 | Original |
| | | |
| | | |
| | | |
| | | |

Prepared By:



Date:

June 13, 2024

Project Engineer

Check By:



Date:

June 13, 2024

Reviewer

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4 Test Summary

| Test Item | Section in CFR 47 | Result |
|--|----------------------|--------|
| Antenna Requirement | 15.203/15.227 | Pass |
| AC Power Line Conducted Emission | 15.207 | N/A |
| 20dB Bandwidth | 15.215(c) | Pass |
| Field Strength of the Fundamental Signal | 15.227(a) | Pass |
| Radiated Emissions | 15.227(b) & C 15.209 | Pass |

Remarks:

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *N/A: Not applicable. The product does not work while charging.*
3. *Test according to ANSI C63.10:2013*

4.1 Measurement Uncertainty

| Test Item | Frequency Range | Measurement Uncertainty | Notes |
|-------------------|-----------------|-------------------------|-------|
| Radiated Emission | 9kHz-30MHz | 3.1dB | (1) |
| Radiated Emission | 30MHz-200MHz | 3.8039dB | (1) |
| Radiated Emission | 200MHz-1GHz | 3.9679dB | (1) |
| Radiated Emission | 1GHz-18GHz | 4.29dB | (1) |

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

| | |
|--|--|
| Product Name: | Remote control car toy series |
| Model No.: | RC-KD64-GY, RC-KD64-GN, RC-KD64-YL |
| Test Model No.: | RC-KD64-YL |
| Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose. | |
| Serial No.: | 234145472 |
| Test sample(s) ID: | GTS2024060065-1 |
| Sample(s) Status: | Engineer sample |
| Operation Frequency: | 27.145MHz |
| Channel Number: | 1 |
| Modulation: | FSK |
| Antenna type: | Spring antenna |
| Antenna gain: | 0dBi(Declared by applicant) |
| Power supply: | DC 3.0V (1.5V x 2 "AA" Size Batteries) |

Remark:

1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.
3. The report is for TX device only.

5.2 Test mode

| | | | |
|--|--|--|--|
| Transmitter mode | Keep the EUT in continuously transmitting. | | |
| Remark: new battery is used during all test. | | | |

Pre-test mode.

GTS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

| Axis | X | Y | Z |
|------------------------|-------|-------|-------|
| Field Strength(dBuV/m) | 54.27 | 55.48 | 53.14 |

Final Test Mode:

According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup”: Y axis (see the test setup photo)

5.3 Description of Support Units

None.

5.4 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.

- **ISED—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 ISED 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).

5.5 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

6 Equipment List

| Radiated Emission: | | | | | | |
|--------------------|-------------------------------------|-----------------------------|-----------------------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | June 23, 2021 | June 22, 2024 |
| 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 | April 11, 2024 | April 10, 2025 |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9168 | GTS640 | March 19, 2023 | March 18, 2025 |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120 D | GTS208 | April 17, 2023 | April 16, 2025 |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 7 | Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | GTS575 | April 11, 2024 | April 10, 2025 |
| 8 | Loop Antenna | ZHINAN | ZN30900A | GTS534 | Nov. 13, 2023 | Nov.12, 2024 |
| 9 | Broadband Preamplifier | SCHWARZBECK | BBV9718 | GTS535 | April 11, 2024 | April 10, 2025 |
| 10 | Amplifier(1GHz-26.5GHz) | HP | 8449B | GTS601 | April 11, 2024 | April 10, 2025 |
| 11 | Horn Antenna (18-26.5GHz) | / | UG-598A/U | GTS664 | Oct. 29, 2023 | Oct. 28, 2024 |
| 12 | Horn Antenna (26.5-40GHz) | A.H Systems | SAS-573 | GTS665 | Oct. 29, 2023 | Oct. 28, 2024 |
| 13 | FSV·Signal Analyzer (10Hz-40GHz) | Keysight | FSV-40-N | GTS666 | March 12, 2024 | March 11, 2025 |
| 14 | Amplifier | / | LNA-1000-30S | GTS650 | April 11, 2024 | April 10, 2025 |
| 15 | CDNE M2+M3-16A | HCT | 30MHz-300MHz | GTS692 | Nov. 08, 2023 | Nov.07, 2024 |
| 16 | Wideband Amplifier | / | WDA-01004000-15P35 | GTS602 | April 11, 2024 | April 10, 2025 |
| 17 | Thermo meter | JINCHUANG | GSP-8A | GTS643 | April 18, 2024 | April 17, 2025 |
| 18 | RE cable 1 | GTS | N/A | GTS675 | July 31. 2023 | July 30. 2024 |
| 19 | RE cable 2 | GTS | N/A | GTS676 | July 31. 2023 | July 30. 2024 |
| 20 | RE cable 3 | GTS | N/A | GTS677 | July 31. 2023 | July 30. 2024 |
| 21 | RE cable 4 | GTS | N/A | GTS678 | July 31. 2023 | July 30. 2024 |
| 22 | RE cable 5 | GTS | N/A | GTS679 | July 31. 2023 | July 30. 2024 |
| 23 | RE cable 6 | GTS | N/A | GTS680 | July 31. 2023 | July 30. 2024 |
| 24 | RE cable 7 | GTS | N/A | GTS681 | July 31. 2023 | July 30. 2024 |
| 25 | RE cable 8 | GTS | N/A | GTS682 | July 31. 2023 | July 30. 2024 |

| RF Conducted Test: | | | | | | |
|--------------------|--|--------------|------------------|------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | MXA Signal Analyzer | Agilent | N9020A | GTS566 | April 11, 2024 | April 10, 2025 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | April 11, 2024 | April 10, 2025 |
| 3 | PSA Series Spectrum Analyzer | Agilent | E4440A | GTS536 | April 11, 2024 | April 10, 2025 |
| 4 | MXG vector Signal Generator | Agilent | N5182A | GTS567 | April 11, 2024 | April 10, 2025 |
| 5 | ESG Analog Signal Generator | Agilent | E4428C | GTS568 | April 11, 2024 | April 10, 2025 |
| 6 | USB RF Power Sensor | DARE | RPR3006W | GTS569 | April 11, 2024 | April 10, 2025 |
| 7 | RF Switch Box | Shongyi | RFSW3003328 | GTS571 | April 11, 2024 | April 10, 2025 |
| 8 | Programmable Constant Temp & Humi Test Chamber | WEWON | WHTH-150L-40-880 | GTS572 | April 11, 2024 | April 10, 2025 |
| 9 | Thermo meter | JINCHUANG | GSP-8A | GTS641 | April 18, 2024 | April 17, 2025 |

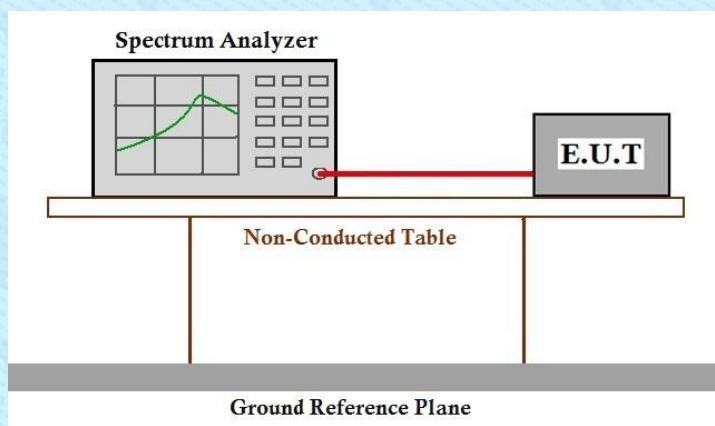
| General used equipment: | | | | | | |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | Barometer | KUMAO | SF132 | GTS647 | April 18, 2024 | April 17, 2025 |

7 Test results and Measurement Data

7.1 Antenna Requirement

| | |
|--|-----------------------------|
| Standard requirement: | FCC Part15 C Section 15.203 |
| 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. | |
| E.U.T Antenna: | |
| The antenna is spring antenna, reference to the appendix II for details. | |

7.2 20dB Bandwidth

| | | | | | | |
|-------------------|--|-------|---------|-----|---------|-----------|
| Test Requirement: | 47 CFR Part 15, Subpart C 15.215(c) | | | | | |
| Test Method: | ANSI C63.10:2013 | | | | | |
| Test setup: |  | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1 012mbar |
| Test Instruments: | Refer to section 6 for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test results: | Pass | | | | | |

Measurement data:

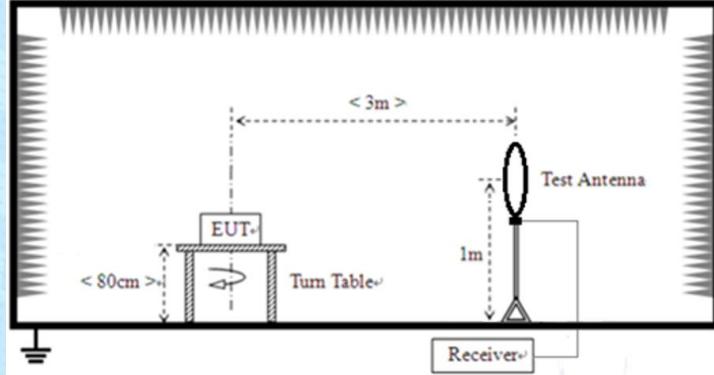
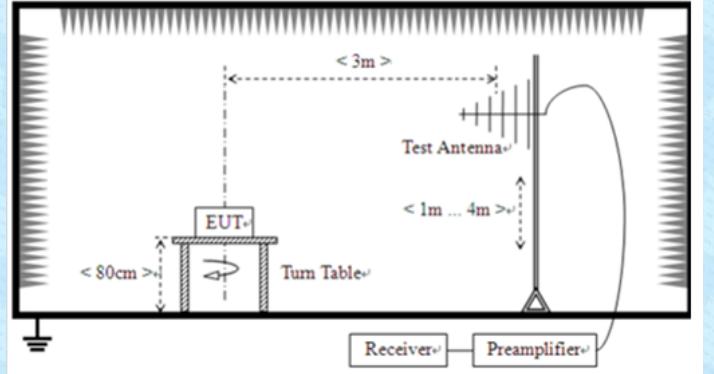
| Mode | Frequency (MHz) | -20dB Bandwidth (kHz) | Limit | Conclusion |
|------|-----------------|-----------------------|-------|------------|
| TX | 27.145 | 89.13 | N/A | Pass |

Test plot as follows:

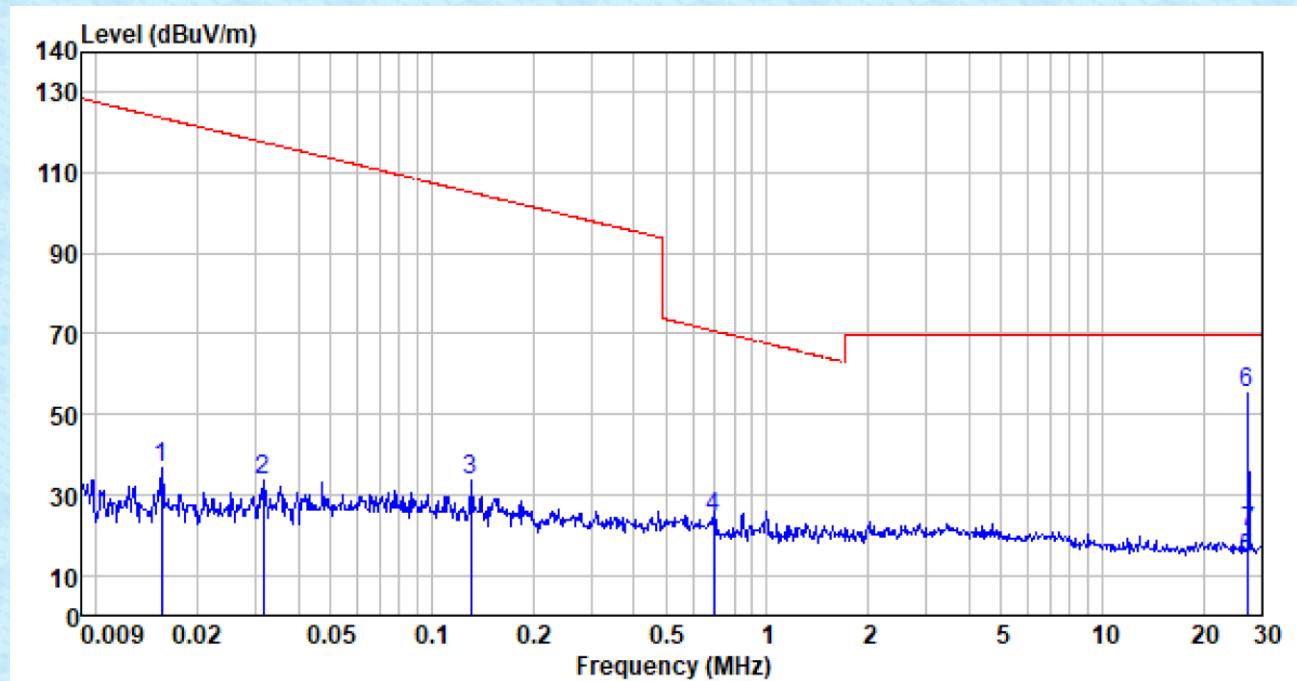


7.3 Field Strength of the Fundamental Signal and Radiated Emissions

| Test Requirement: | 47 CFR Part 15, Subpart C 15.227(a), 15.227(b) & 15.209 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|------------------------------|--|----------------|-----------------------------------|------------------------------|----------------|-------------|---------------|-------------|--------------|------------|------------|----|----|----------------|-----------------------------------|------------------------------|-------|-----|---|--------|-----|---|---------|-----|---|-----------|-----|---|
| Test Method: | ANSI C63.10:2013 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Frequency Range: | 9kHz to 1000MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test site: | Measurement Distance: 3m | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Limit: (Field strength of the fundamental signal) | <table border="1"> <thead> <tr> <th>Frequency</th> <th>Limit (dBuV/m @3m)</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>26.96-27.28MHz</td> <td>80</td> <td>Average Value</td> </tr> <tr> <td></td> <td>100</td> <td>Peak Value</td> </tr> </tbody> </table> | | | Frequency | Limit (dBuV/m @3m) | Remark | 26.96-27.28MHz | 80 | Average Value | | 100 | Peak Value | | | | | | | | | | | | | | | | | | |
| Frequency | Limit (dBuV/m @3m) | Remark | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26.96-27.28MHz | 80 | Average Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 100 | Peak Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Limit: (Radiated Emissions) | <table border="1"> <thead> <tr> <th>Frequency(MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance(meters)</th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(kHz)</td> <td>300</td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(kHz)</td> <td>30</td> </tr> <tr> <td>1.705-30.0</td> <td>30</td> <td>30</td> </tr> </tbody> </table> <p>Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz and 110-490kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.</p> <table border="1"> <thead> <tr> <th>Frequency(MHz)</th> <th>Field strength (microvolts/meter)</th> <th>Measurement distance(meters)</th> </tr> </thead> <tbody> <tr> <td>30-88</td> <td>100</td> <td>3</td> </tr> <tr> <td>88-216</td> <td>150</td> <td>3</td> </tr> <tr> <td>216-960</td> <td>200</td> <td>3</td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> </tr> </tbody> </table> <p>Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for above 1000MHz. Radiated emission limits above 1000MHz is based on measurements employing an average detector.</p> | | | Frequency(MHz) | Field strength (microvolts/meter) | Measurement distance(meters) | 0.009-0.490 | 2400/F(kHz) | 300 | 0.490-1.705 | 24000/F(kHz) | 30 | 1.705-30.0 | 30 | 30 | Frequency(MHz) | Field strength (microvolts/meter) | Measurement distance(meters) | 30-88 | 100 | 3 | 88-216 | 150 | 3 | 216-960 | 200 | 3 | Above 960 | 500 | 3 |
| Frequency(MHz) | Field strength (microvolts/meter) | Measurement distance(meters) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.009-0.490 | 2400/F(kHz) | 300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.490-1.705 | 24000/F(kHz) | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.705-30.0 | 30 | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Frequency(MHz) | Field strength (microvolts/meter) | Measurement distance(meters) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30-88 | 100 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 88-216 | 150 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 216-960 | 200 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Above 960 | 500 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|------------------------|--|
| Test setup: | <p>Below 30MHz</p>  <p>Below 1GHz</p>  |
| Test Procedure: | <p>Below 30MHz:</p> <ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is fixed at one meter The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report. <p>Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> <p>30Mhz-1000MHz:</p> <ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 0.8 meters above the |

| | |
|-------------------|---|
| | <p>ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <p>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>c. 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.</p> <p>d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.</p> <p>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</p> <p>f. 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.</p> <p>g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.</p> <p>Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p> |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test environment: | Temp.: 25 °C Humid.: 50% Press.: 1 010mbar |
| Test voltage: | DC 3V |
| Test results: | Pass |

Measurement data:
9kHz~30MHz


| No. Mk. | Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Remark |
|---------|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------|
| 1 | 0.016 | 15.51 | 21.30 | 0.04 | 0.00 | 36.85 | 123.73 | -86.88 | PK |
| 2 | 0.031 | 12.41 | 21.00 | 0.09 | 0.00 | 33.50 | 117.67 | -84.17 | PK |
| 3 | 0.131 | 13.32 | 20.01 | 0.18 | 0.00 | 33.51 | 105.27 | -71.76 | PK |
| 4 | 0.696 | 3.29 | 20.45 | 0.30 | 0.00 | 24.04 | 70.75 | -46.71 | QP |
| 5 | 26.960 | -7.08 | 20.59 | 0.55 | 0.00 | 14.06 | 69.54 | -55.48 | QP |
| 6* | 27.145 | 34.36 | 20.57 | 0.55 | 0.00 | 55.48 | 100.00 | -44.52 | PK |
| 7 | 27.280 | -0.62 | 20.54 | 0.55 | 0.00 | 20.47 | 69.54 | -49.07 | QP |

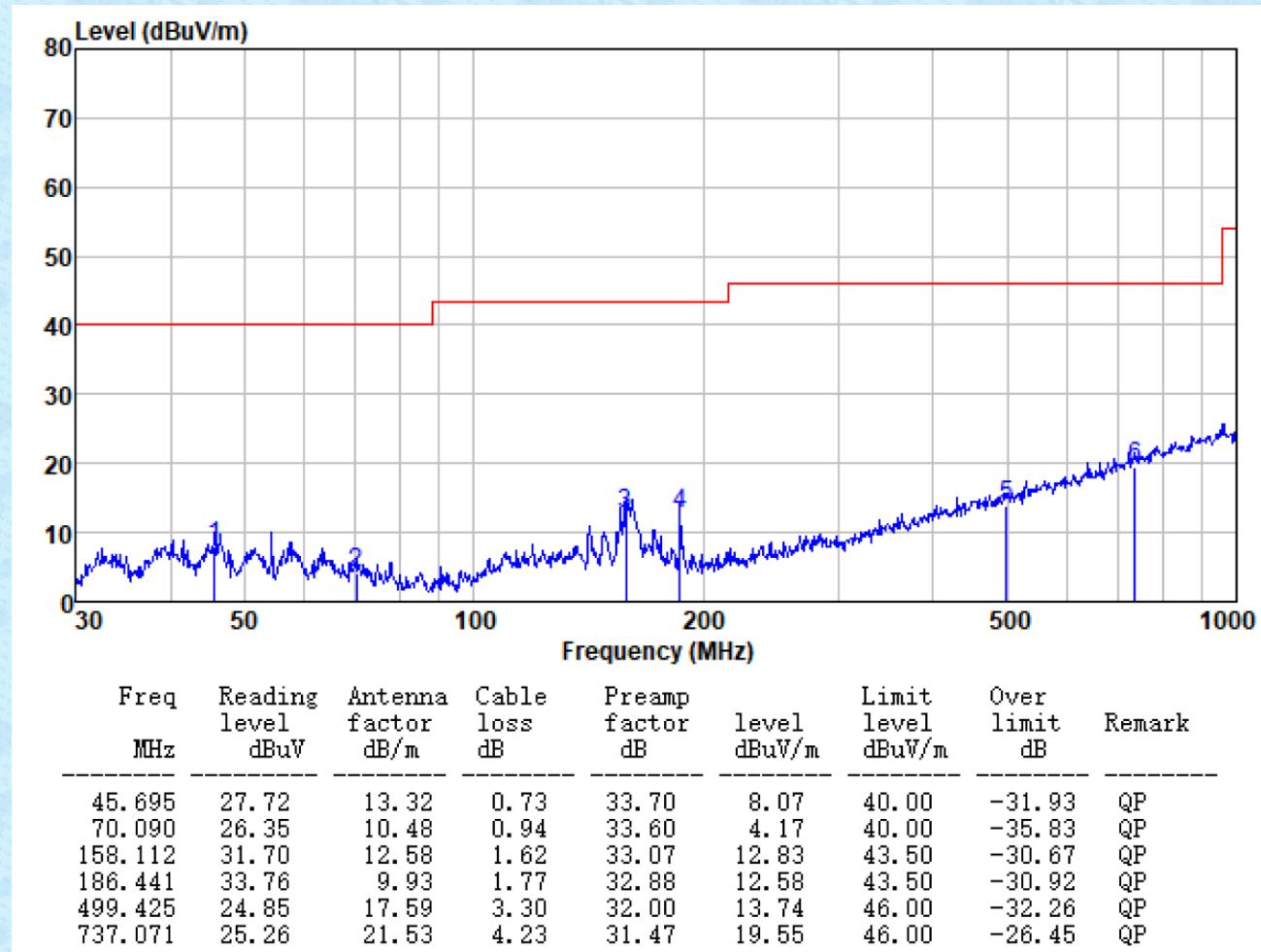
Remarks:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

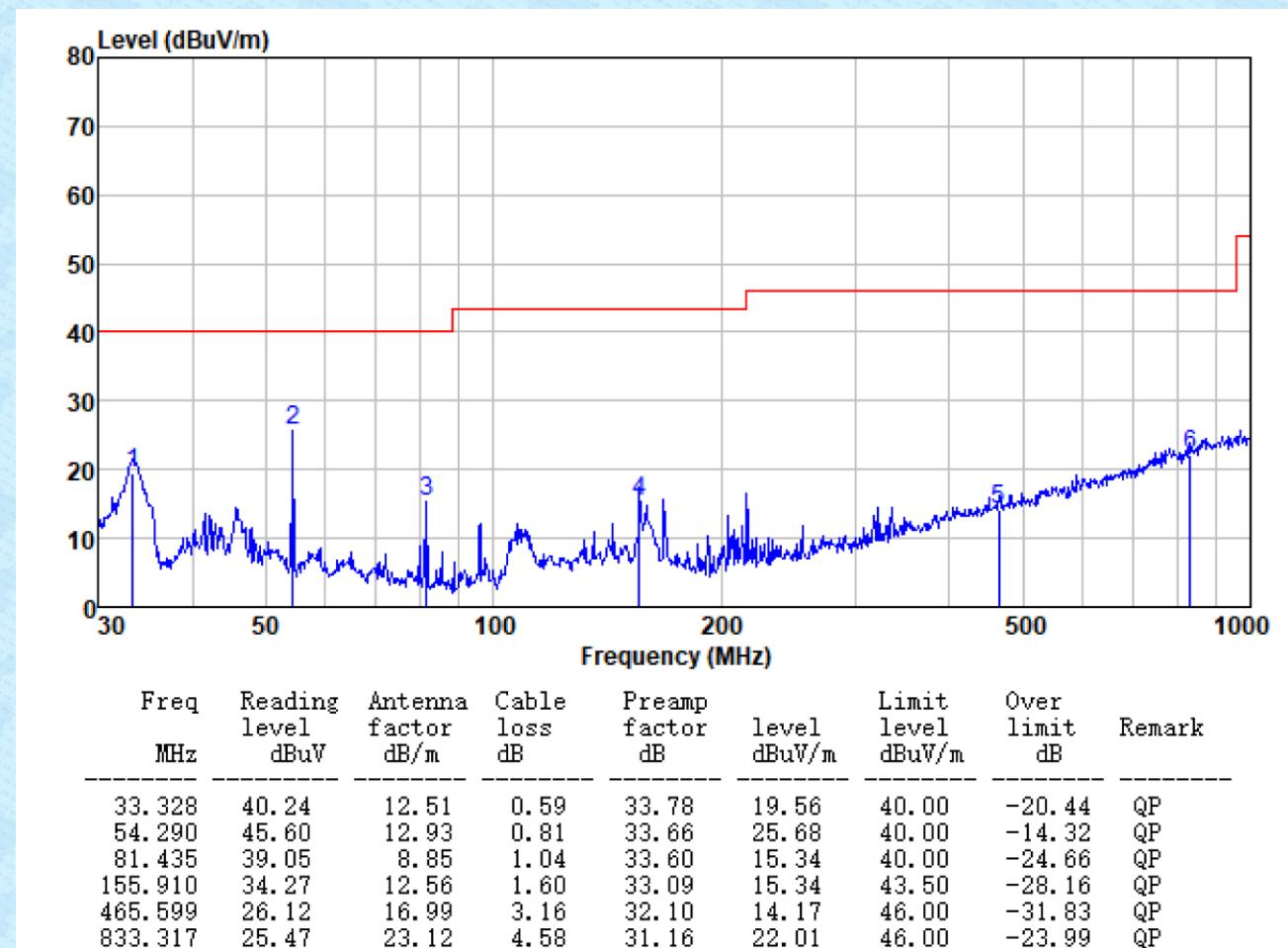
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$
- 2) *: Field Strength of the Fundamental Signal.
 The peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the above measurement data were shown in the report.

30MHz~1GHz

| | | | |
|-------|-------------------|---------------|------------|
| Mode: | Transmitting mode | Polarization: | Horizontal |
|-------|-------------------|---------------|------------|



| | | | |
|-------|-------------------|---------------|----------|
| Mode: | Transmitting mode | Polarization: | Vertical |
|-------|-------------------|---------------|----------|



Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----