# FCC TEST REPORT

| | |
|---|---|
| Applicant | Crestron Electronics, Inc. |
| Address | 15 Volvo Drive, Rockleigh, New Jersey, 07647, USA |

| | |
|---|---|
| Manufacturer or Supplier | YEALINK(XIAMEN) NETWORK TECHNOLOGY CO.,LTD. |
| Address | 309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China |
| Product | Smart Business Phone |
| Brand Name | CRESTRON |
| Model | UC-PHONE |
| Additional Model & Model Difference | N/A |
| Date of tests | Aug. 20, 2018 ~ Sep. 28, 2018 |

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

☒ **FCC Part 15, Subpart B, Class B**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

| Tested by Andy Zhu<br>Project Engineer / EMC Department | Approved by Glyn He<br>Supervisor / EMC Department |
|---|---|
|  |  <br>Date: Oct. 25, 2018 |

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# TABLE OF CONTENTS

# RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|---|---|---|
| FS180820N019 | Original release | Sep. 28, 2018 |
| FS180829N017 | Based on the original report FS180820N019 changed the information about the applicant, model no. and Brand Name, but it doesn't need to be retest after engineer evaluated. | Oct. 25, 2018 |

# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 15, Subpart B | | | |
|---|---|---|---|
| **Standard Section** | **Test Item** | **Result** | **Remark** |
| FCC Part 15, Subpart B, Class B | Conducted test | PASS | Meets limits minimum passing margin is -7.10 dB at 0.34575 MHz |
| | Radiated Emission Test (30MHz ~ 1GHz) | PASS | Meets limits minimum passing margin is -3.78 dB at 47.364 MHz |
| | Radiated Emission Test (Above 1GHz) | PASS | Meets limits minimum passing margin is -11.68 dB at 2531.02 MHz |

## 1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

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

| MEASUREMENT | FREQUENCY | UNCERTAINTY |
|---|---|---|
| Conducted emission test | 0.15MHz ~ 30MHz | +/- 2.70 dB |
| Radiated emissions | 30MHz ~ 1GHz | + /- 4.04 dB |
| | Above 1GHz | + /- 5.02dB |

# 2 GENERAL INFORMATION

## 2.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| **PRODUCT** | Smart Business Phone |
| **MODEL NO.** | UC-PHONE |
| **ADDITIONAL MODEL** | N/A |
| **FCC ID** | ERO-UCP |
| **POWER SUPPLY** | DC 5V from Adapter or DC 48V From POE |
| **CABLE SUPPLIED** | RJ45 Line: Shielded detachable 200cm<br>Handset Line: unshielded detachable 330cm |
| **HIGHEST OPERATION FREQUENCY** | 1GHz |

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.

3. Please refer to the EUT photo document (Reference No.: 180829N017) for detailed product photo.

4. The EUT uses following adapters.

| Adapter 1: | |
|---|---|
| Brand | Yealink |
| Model | YLPS052000B-US |
| Input Power | AC 100-240V, 50/60Hz 0.35A Max |
| Output Power | DC 5V, 2A |
| DC Line | Unshielded, Undetachable, 1.80m. |
| Adapter 2: | |
| Brand | Yealink |
| Model | YLPS052000C-US |
| Input Power | AC 100-240V, 50/60Hz 0.5A Max. |
| Output Power | DC 5V, 2A |
| DC Line | Unshielded, Undetachable, 1.80m. |

5. This report is issued for changing the model SIP-T56A to UC-PHONE base on the original report FS180820N019, and the model SIP-T56A is identical with the model UC-PHONE except the model no. and Brand Name for trading purpose.

## 2.2 DESCRIPTION OF TEST MODES

The EUT were tested under the following modes, the final worst mode was marked in boldface and recorded in this report.

◆ **CONDUCTED EMISSION TEST:**

| Test Mode | Power Supply | Test Voltage |
|---|---|---|
| Wired Network Link +Earphone +Video Call(Handset) | POE | DC 48V |
| Wired Network Link +Earphone +Video Call(handsfree) | | |
| Wired Network Link +Earphone +Video Call(Earphone) | | |
| USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(100Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(1000Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(idle) +RJ45 Connect to PC + Earphone | | |
| Memory Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| Wired Network Link +Earphone +Video Call(Handset) +Adapter | **YLPS052000B-US**; YLPS052000C-AU | AC120V/60Hz |
| Wired Network Link +Earphone +Video Call(handsfree) +Adapter | | |
| Wired Network Link +Earphone +Video Call(Earphone) +Adapter | | |
| **USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter** | | |
| USB Playing + Wired Network Link(100Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |
| USB Playing + Wired Network Link(1000Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |
| USB Playing + Wired Network Link(idle) +RJ45 Connect to PC + Earphone+Adapter | | |
| Memory Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |

◆ **RADIATED EMISSION TEST:**

| Test Mode | Power Supply | Test Voltage |
|---|---|---|
| Wired Network Link +Earphone +Video Call(Handset) | POE | DC 48V |
| Wired Network Link +Earphone +Video Call(handsfree) | | |
| Wired Network Link +Earphone +Video Call(Earphone) | | |
| USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(100Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(1000Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| USB Playing + Wired Network Link(idle) +RJ45 Connect to PC + Earphone | | |
| Memory Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone | | |
| Wired Network Link +Earphone +Video Call(Handset) +Adapter | **YLPS052000B-US**; YLPS052000C-AU | AC120V/60Hz |
| Wired Network Link +Earphone +Video Call(handsfree) +Adapter | | |
| Wired Network Link +Earphone +Video Call(Earphone) +Adapter | | |
| **USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter** | | |
| USB Playing + Wired Network Link(100Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |
| USB Playing + Wired Network Link(1000Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |
| USB Playing + Wired Network Link(idle) +RJ45 Connect to PC + Earphone+Adapter | | |
| Memory Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | | |

## 2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|---|---|---|---|---|---|
| 1 | POE Power | Yealink | YLPOE30 | N/A | N/A |
| 2 | Notebook | DELL | Latitude 5280 | CZFTNH2 | N/A |
| 3 | Wireless Router | TP-LINK | TL-WDR3310 | 1240431130 | N/A |
| 4 | Earphone | N/A | N/A | N/A | N/A |
| 5 | USB Driver 3.0 | Kingston | DTSE9G2/16GB | YVLP9-B8HTAQ-XXAYB | N/A |

| NO. | DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|---|---|
| 1 | AC Line: Unshielded, detachable 1.75m; RJ45 Line: Unshielded, detachable 10m |
| 2 | AC Line: Unshielded, detachable 0.8m; DC Line: Unshielded, Undetachable 1.8m |
| 3 | DC Line: Unshielded, detachable 1.2m |
| 4 | Earphone Line: Unshielded, detachable 1.8m |
| 5 | N/A |

# 3 EMISSION TEST

## 3.1 CONDUCTED EMISSION MEASUREMENT

### 3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

**TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107)**

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | |
|---|---|---|---|---|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 - 0.5 | 79 | 66 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 73 | 60 | 56 | 46 |
| 5.0 - 30.0 | 73 | 60 | 60 | 50 |

**NOTES**: (1) The lower limit shall apply at the transition frequencies.
(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 3.1.2 TEST INSTRUMENTS

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| EMI Test Receiver | Rohde&Schwarz | ESR7 | 101494 | Mar. 21,18 | Mar. 20,19 |
| Artificial Mains Network | Rohde&Schwarz | ENV216 | 101173 | Mar. 03,18 | Mar. 02,19 |
| Artificial Mains Network | Rohde&Schwarz | ESH3-Z5 | 100317 | Apr. 11,18 | Apr. 10,19 |
| Voltage probe | SCHWARZBECK | TK 9421 | TK 9421-176 | Jan. 17,18 | Jan. 16,19 |
| Test software | ADT | ADT_Cond_V 7.3.7 | N/A | N/A | N/A |

**NOTE:** 1. The test was performed at Shielded Room 553.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

## 3.1.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4:2014 (section 7).

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

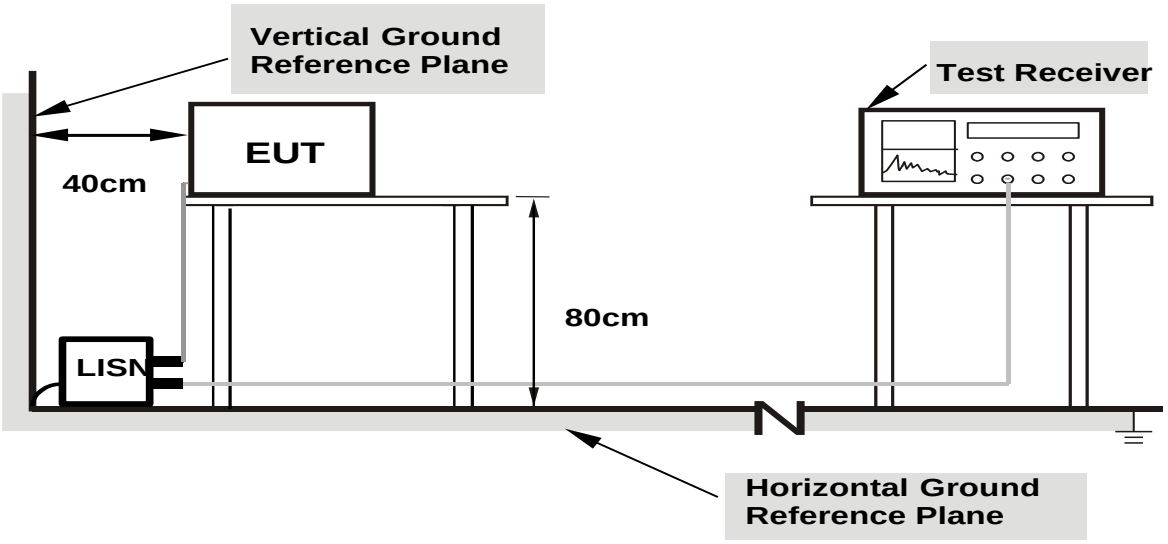
**NOTE:**

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

## 3.1.4 DEVIATION FROM TEST STANDARD

No deviation.

## 3.1.5 TEST SETUP




**Note: 1.Support units were connected to second LISN.**
**2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.**

## 3.1.6 EUT OPERATING CONDITIONS

a. Turned on the power of all equipment.

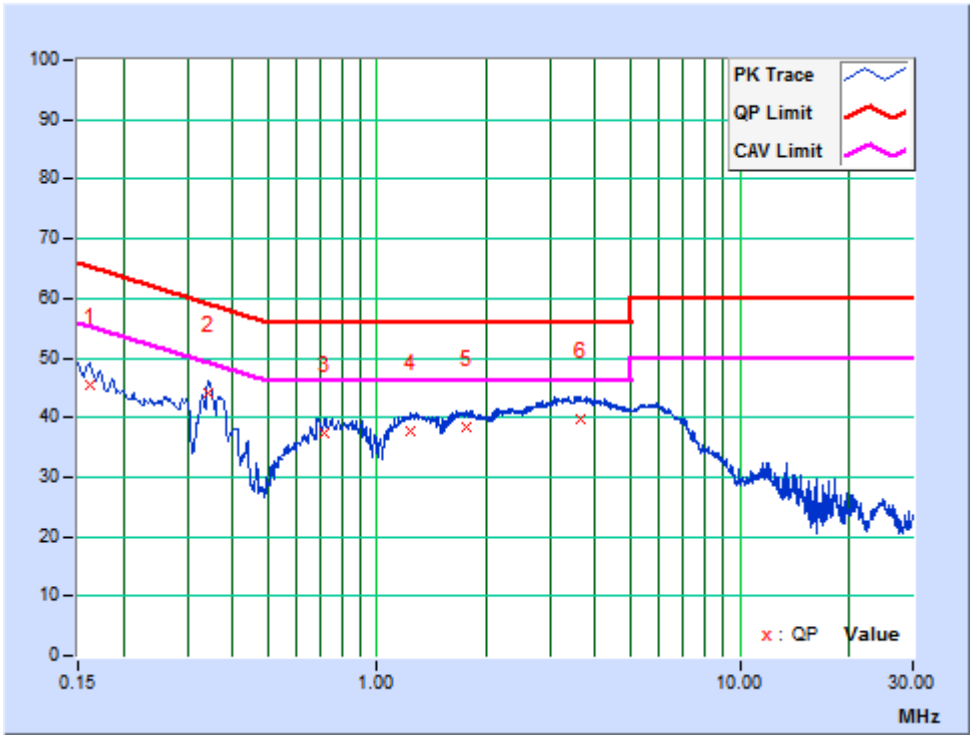
b. EUT was operated according to the type description in manufacturer's specifications or the User's Manual.

## 3.1.7 TEST RESULTS

| | | | |
|---|---|---|---|
| **TEST MODE** | USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | **6DB BANDWIDTH** | 9 kHz |
| **TEST VOLTAGE** | AC 120V 60Hz | **PHASE** | Line (L) |
| **ENVIRONMENTAL CONDITIONS** | 27deg.C, 46% RH | **TESTED BY** | Dargon |

| No. | Freq. | Corr. Factor | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.16125 | 10.11 | 35.51 | 24.55 | 45.62 | 34.66 | 65.40 | 55.40 | -19.78 | -20.74 |
| 2 | 0.34335 | 9.93 | 34.07 | 31.33 | 44.00 | 41.26 | 59.12 | 49.12 | -15.12 | -7.86 |
| 3 | 0.71534 | 10.36 | 27.02 | 21.92 | 37.38 | 32.28 | 56.00 | 46.00 | -18.62 | -13.72 |
| 4 | 1.24214 | 10.04 | 27.58 | 20.75 | 37.62 | 30.79 | 56.00 | 46.00 | -18.38 | -15.21 |
| 5 | 1.77225 | 9.88 | 28.39 | 20.44 | 38.27 | 30.32 | 56.00 | 46.00 | -17.73 | -15.68 |
| 6 | 3.61725 | 9.84 | 30.02 | 21.44 | 39.86 | 31.28 | 56.00 | 46.00 | -16.14 | -14.72 |

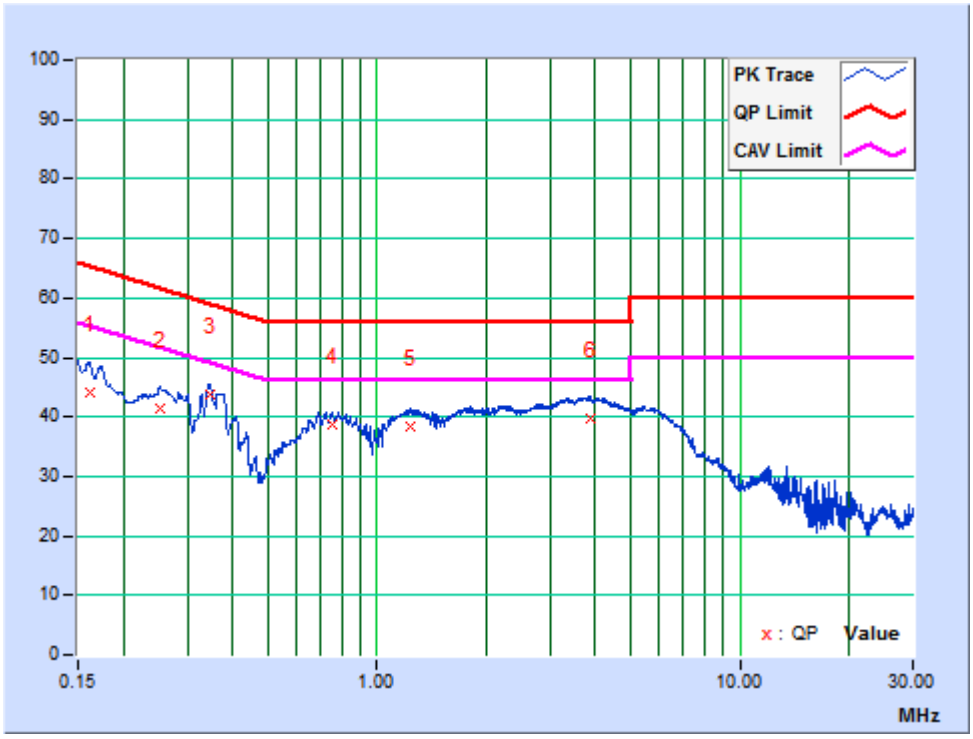
**REMARKS:** The emission levels of other frequencies were very low against the limit.



| | | | |
|---|---|---|---|
| **TEST MODE** | USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | **6DB BANDWIDTH** | 9 kHz |
| **TEST VOLTAGE** | AC 120V 60Hz | **PHASE** | Neutral (N) |
| **ENVIRONMENTAL CONDITIONS** | 27deg.C, 46% RH | **TESTED BY** | Dargon |

| No. | Freq. | Corr. Factor | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.16093 | 9.85 | 34.36 | 24.65 | 44.21 | 34.50 | 65.42 | 55.42 | -21.21 | -20.92 |
| 2 | 0.25144 | 10.45 | 30.98 | 24.19 | 41.43 | 34.64 | 61.71 | 51.71 | -20.28 | -17.07 |
| **3** | **0.34575** | **9.62** | **34.16** | **32.35** | **43.78** | **41.97** | **59.06** | **49.06** | **-15.29** | **-7.10** |
| 4 | 0.75016 | 10.38 | 28.33 | 20.89 | 38.71 | 31.27 | 56.00 | 46.00 | -17.29 | -14.73 |
| 5 | 1.24214 | 10.08 | 28.29 | 21.14 | 38.37 | 31.22 | 56.00 | 46.00 | -17.63 | -14.78 |
| 6 | 3.86250 | 10.36 | 29.44 | 19.81 | 39.80 | 30.17 | 56.00 | 46.00 | -16.20 | -15.83 |

**REMARKS:** The emission levels of other frequencies were very low against the limit.



## 3.2 RADIATED EMISSION MEASUREMENT

### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

**TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)**

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

| Radiated Emissions Limits at 10 meters (dBμV/m) | | | | |
|---|---|---|---|---|
| **Frequencies (MHz)** | **FCC 15B/ ICES-003, Class A** | **FCC 15B / ICES-003, Class B** | **CISPR 22, Class A** | **CISPR 22, Class B** |
| 30-88 | 39 | 29.5 | 40 | 30 |
| 88-216 | 43.5 | 33.1 | | |
| 216-230 | 46.4 | 35.6 | | |
| 230-960 | | | 47 | 37 |
| 960-1000 | 49.5 | 43.5 | | |
| 1000-3000 | Avg: 49.5<br>Peak: 69.5 | Avg: 43.5<br>Peak: 63.5 | Not defined | Not defined |
| Above 3000 | | | Not defined | Not defined |

| Radiated Emissions Limits at 3 meters (dBμV/m) | | | | |
|---|---|---|---|---|
| **Frequencies (MHz)** | **FCC 15B / ICES-003, Class A** | **FCC 15B / ICES-003, Class B** | **CISPR 22, Class A** | **CISPR 22, Class B** |
| 30-88 | 49.5 | 40 | 50.5 | 40.5 |
| 88-216 | 54 | 43.5 | | |
| 216-230 | 56.9 | 46 | | |
| 230-960 | | | 57.5 | 47.5 |
| 960-1000 | 60 | 54 | | |
| 1000-3000 | Avg: 60<br>Peak: 80 | Avg: 54<br>Peak: 74 | Avg: 56<br>Peak: 76 | Avg: 50<br>Peak: 70 |
| Above 3000 | | | Avg: 60<br>Peak: 80 | Avg: 54<br>Peak: 74 |

# FREQUENCY RANGE OF RADIATED MEASUREMENT
## (For unintentional radiators)

| Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz) | Range (MHz) |
|---|---|
| Below 1.705 | 30 |
| 1.705 – 108 | 1000 |
| 108 – 500 | 2000 |
| 500 – 1000 | 5000 |
| Above 1000 | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |

Note: (1) The lower limit shall apply at the transition frequencies.
(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

## 3.2.2 TEST INSTRUMENTS

**FREQUENCY RANGE BELOW 1GHz**

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| EMI Test Receiver | Rohde&Schwarz | ESU26 | 100005 | Jun. 05,18 | Jun. 04,19 |
| EMI Test Receiver | Rohde&Schwarz | ESR7 | 101564 | Jan. 18,18 | Jan. 17,19 |
| Trilog-Broadband Antenna | SCHWARZBECK | VULB 9168 | 9168-555 | Nov. 10, 17 | Nov. 09, 18 |
| Trilog-Broadband Antenna | SCHWARZBECK | VULB 9168 | 9168-554 | Dec. 10, 17 | Dec. 09, 18 |
| Preamplifier | EMCI | EMC1135 | 980378 | Mar. 19,18 | Mar. 18,19 |
| Preamplifier | EMCI | EMC1135 | 980423 | Mar. 19,18 | Mar. 18,19 |
| 10m Semi-anechoic Chamber | CHANGLING | 21.4m*12.1m*8.8m | NSEMC006 | Feb. 10,18 | Feb. 09,19 |
| Test Software | ADT | ADT_Radiated_V8.7.07 | N/A | N/A | N/A |

**NOTES:** 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The FCC Site Registration No. is 749762.

**FREQUENCY RANGE ABOVE 1GHz**

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|
| Horn Antenna | ETS-Lindgren | 3117 | 00085519 | Dec. 10, 17 | Dec. 09, 18 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA9170242 | May 05,18 | May 04,19 |
| Signal and Spectrum Analyzer | Rohde&Schwarz | FSV40 | 101003 | Apr. 21,18 | Apr. 20,19 |
| Broadband Preamplifier (1~18GHz) | SCHWARZBECK | BBV9718 | 266 | Apr. 18,18 | Apr. 18,19 |
| Pre-Amplifier (18GHz-40GHz) | EMCI | EMC 184045 | 980102 | Nov. 08,17 | Nov. 07,18 |
| Test Software | ADT | ADT_Radiated_V8.7.07 | N/A | N/A | N/A |

**NOTES:** 1. The test was performed in 10m Chamber.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The FCC Site Registration No. is 749762.

## 3.2.3 TEST PROCEDURE

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

**<Frequency Range below 1GHz>**

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from 1 meter to 4 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.

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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

**NOTE:**

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier)
4. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier)
5. Margin value = Emission level – Limit value

**<Frequency Range above 1GHz>**

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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.

c. The height of antenna can be varied from one meter-to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The bore sight should be used during the test above 1GHz.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test receiver/spectrum was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

**NOTE:**

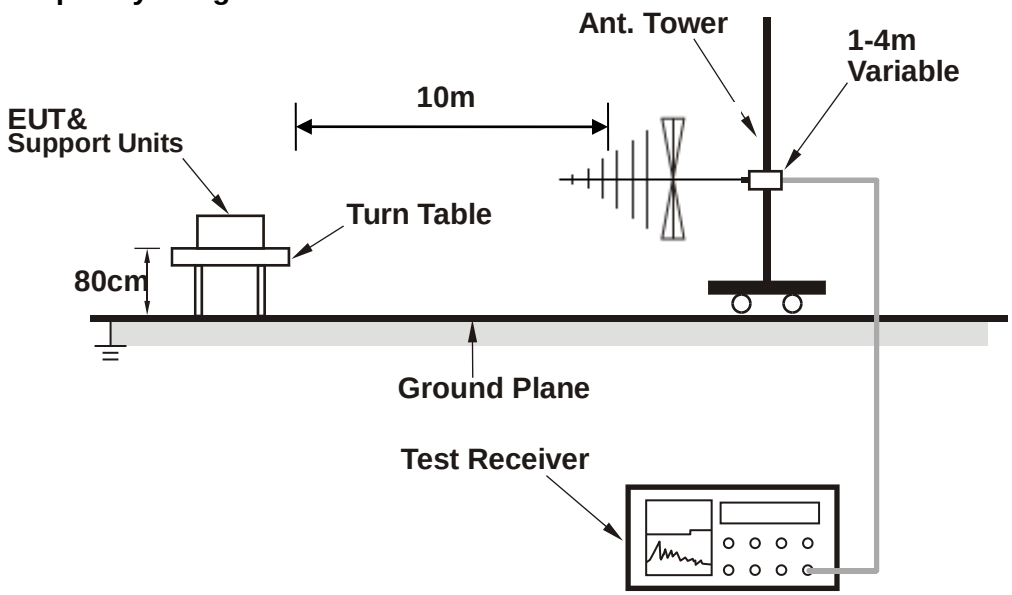
1. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
3. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier)
5. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
6. Margin value = Emission level – Limit value

## 3.2.4 DEVIATION FROM TEST STANDARD

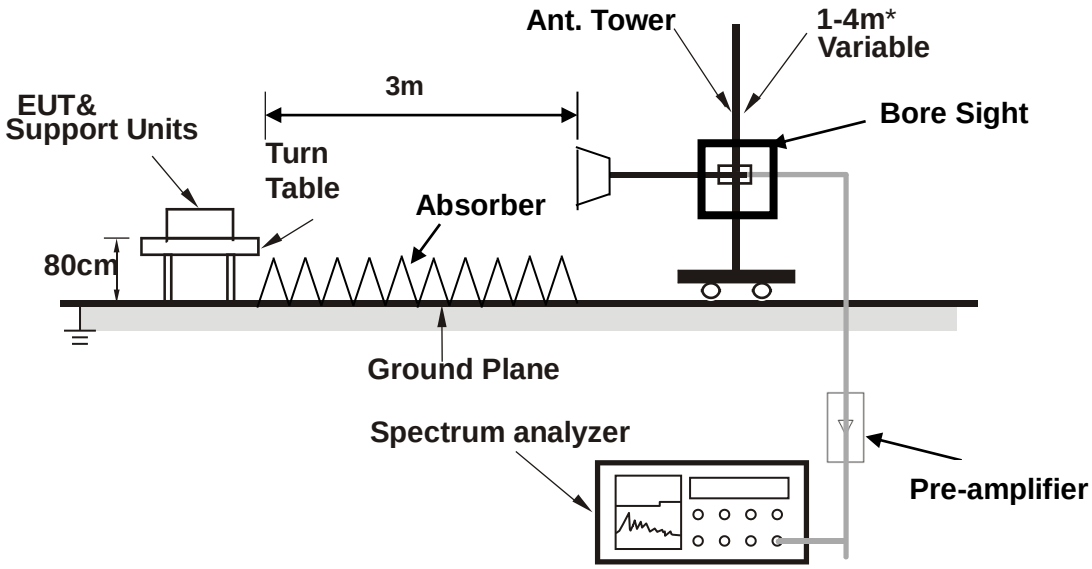
No deviation.

## 3.2.5 TEST SETUP

**<Frequency Range below 1GHz>**




**<Frequency Range above 1GHz>**




***** : depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

## 3.2.6 EUT OPERATING CONDITIONS

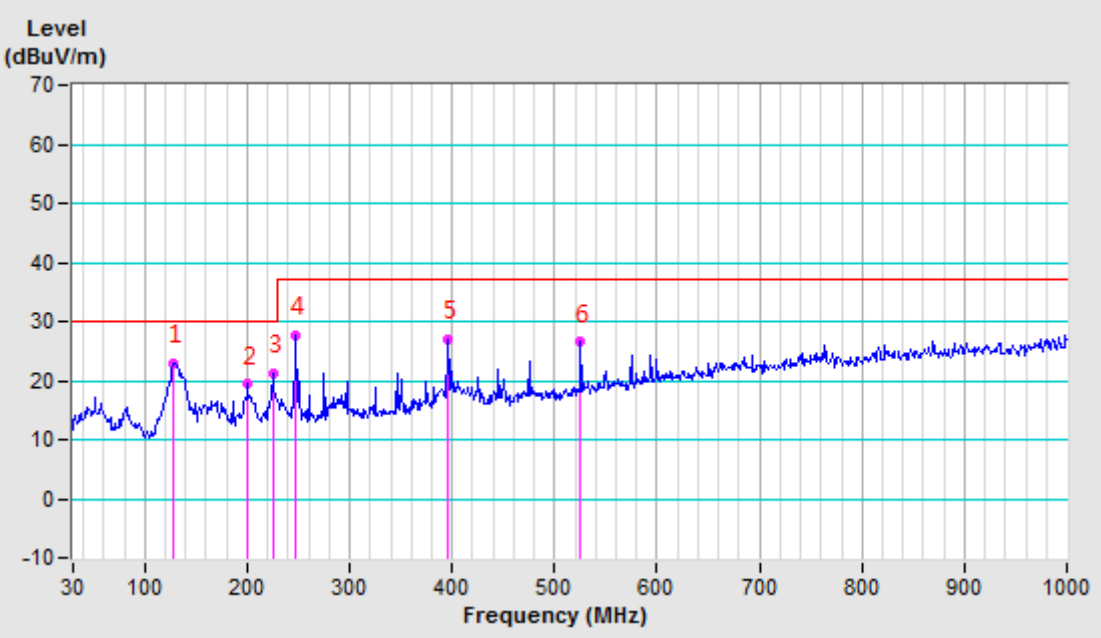
See items 3.1.6.

## 3.2.7 TEST RESULTS (BELOW 1GHz)

| | | | |
|---|---|---|---|
| **TEST MODE** | USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | **FREQUENCY RANGE** | 30-1000MHz |
| **TEST VOLTAGE** | AC 120V 60Hz | **DETECTOR FUNCTION & RESOLUTION BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 23deg. C, 56% RH | **TESTED BY**: Daniel | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Correction Factor (dB/m) | Raw Value (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) |
| 1 | 128.455 | -18.46 | 41.41 | 22.95 | 30.00 | -7.05 | 200 | 23 |
| 2 | 199.993 | -19.32 | 38.67 | 19.35 | 30.00 | -10.65 | 200 | 23 |
| 3 | 224.970 | -18.29 | 39.47 | 21.18 | 30.00 | -8.82 | 400 | 107 |
| 4 | 247.523 | -17.41 | 45.14 | 27.73 | 37.00 | -9.27 | 400 | 60 |
| 5 | 396.054 | -13.17 | 40.23 | 27.06 | 37.00 | -9.94 | 200 | 338 |
| 6 | 525.064 | -10.61 | 37.07 | 26.46 | 37.00 | -10.54 | 200 | 222 |

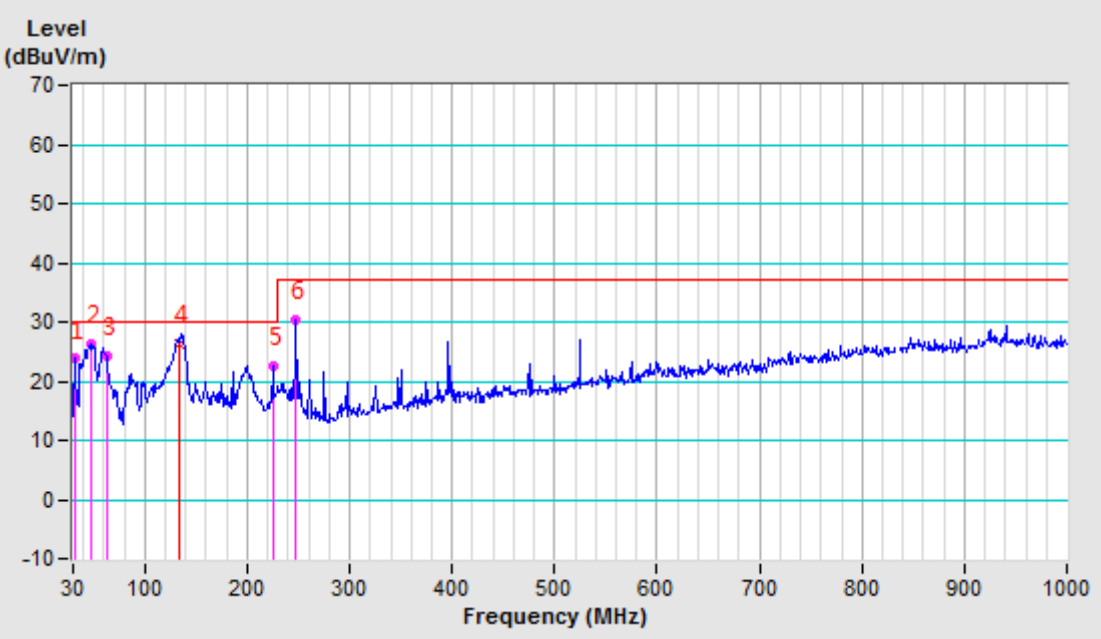
**REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 1000MHz.
4. Only emissions significantly above equipment noise floor are reported.



| | | | |
|---|---|---|---|
| **TEST MODE** | USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | **FREQUENCY RANGE** | 30-1000MHz |
| **TEST VOLTAGE** | AC 120V 60Hz | **DETECTOR FUNCTION & RESOLUTION BANDWIDTH** | Quasi-Peak, 120kHz |
| **ENVIRONMENTAL CONDITIONS** | 23deg. C, 56% RH | **TESTED BY**: Daniel | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Correction Factor (dB/m) | Raw Value (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) |
| 1 | 32.183 | -18.77 | 42.56 | 23.79 | 30.00 | -6.21 | 100 | 339 |
| **2** | **47.364** | **-17.97** | **44.19** | **26.22** | **30.00** | **-3.78** | **300** | **21** |
| 3 | 62.497 | -19.37 | 43.65 | 24.28 | 30.00 | -5.72 | 100 | 230 |
| 4 | 134.260 | -17.23 | 43.43 | 26.20 | 30.00 | -3.80 | 100 | 280 |
| 5 | 224.980 | -17.96 | 40.49 | 22.53 | 30.00 | -7.47 | 100 | 313 |
| 6 | 247.485 | -16.30 | 46.72 | 30.42 | 37.00 | -6.58 | 100 | 337 |

**REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 30MHz to 1000MHz.
4. Only emissions significantly above equipment noise floor are reported.



## 3.2.8 TEST RESULTS (ABOVE 1GHz)

| | | | |
|---|---|---|---|
| **TEST MODE** | USB Playing + Wired Network Link(10Mbps data transmitting) +RJ45 Connect to PC + Earphone+Adapter | **FREQUENCY RANGE** | Above 1GHz |
| **TEST VOLTAGE** | AC 120V 60Hz | **DETECTOR FUNCTION & RESOLUTION BANDWIDTH** | Peak, Average<br>1MHz |
| **ENVIRONMENTAL CONDITIONS** | 21deg. C, 54% RH | **TESTED BY**: Tom | |

| **ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| No. | Freq. (MHz) | Correction Factor (dB/m) | Raw Value (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) |
| 1 | 1289.34PK | -2.82 | 59.07 | 56.25 | 74.00 | -17.75 | 162 | 301 |
| 2 | 1289.34AV | -2.82 | 42.03 | 39.21 | 54.00 | -14.79 | 162 | 301 |
| 3 | 1865.24PK | 0.54 | 56.70 | 57.24 | 74.00 | -16.76 | 132 | 261 |
| 4 | 1865.24AV | 0.54 | 39.47 | 40.01 | 54.00 | -13.99 | 132 | 261 |
| 5 | 2453.59PK | 3.33 | 54.52 | 57.85 | 74.00 | -16.15 | 100 | 213 |
| 6 | 2453.59AV | 3.33 | 37.58 | 40.91 | 54.00 | -13.09 | 100 | 213 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| No. | Freq. (MHz) | Correction Factor (dB/m) | Raw Value (dBuV) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) |
| 1 | 1251.36PK | -2.87 | 58.12 | 55.25 | 74.00 | -18.75 | 136 | 251 |
| 2 | 1251.36AV | -2.87 | 41.78 | 38.91 | 54.00 | -15.09 | 136 | 251 |
| 3 | 1896.35PK | 0.80 | 56.46 | 57.26 | 74.00 | -16.74 | 120 | 103 |
| 4 | 1896.35AV | 0.80 | 40.22 | 41.02 | 54.00 | -12.98 | 120 | 103 |
| 5 | 2531.02PK | 3.42 | 54.19 | 57.61 | 74.00 | -16.39 | 165 | 284 |
| **6** | **2531.02AV** | **3.42** | **38.90** | **42.32** | **54.00** | **-11.68** | **165** | **284** |

**REMARKS:** 1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
2. Negative sign (-) in the margin column signify levels below the limit.
3. Frequency range scanned: 1GHz to 6GHz.
4. Only emissions significantly above equipment noise floor are reported.

# 4 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

**---END---**