

# FCC Test Report

Client Name : Shenzhen Samkoon Technology Corporation Ltd.  
Address : Building 7, Fashion Industry Park, E'bu Town, ShenShan  
Special cooperation zone, Shenzhen City, Guangdong  
Province  
Product Name : Motion controller  
Date : Mar. 30, 2020



## Shenzhen Anbotek Compliance Laboratory Limited

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# TEST REPORT

Applicant : Shenzhen Samkoon Technology Corporation Ltd.  
Manufacturer : Shenzhen Samkoon Technology Corporation Ltd.  
Product Name : Motion controller  
Model No. : CR100-CPXT, CR100-CMMM, CR100-CPMM, CR100-CPXX, CR100-CPTT,  
CR100-CPXT, CR100-CPXA, CR100-CPTA, CR100-C(a)  
(a) the model number contains suffixes that can be blank or any  
combination of Numbers and or symbols to represent the  
customer identity  
Trade Mark : Samkoon  
Rating(s) : Input: DC, 24V  
**Test Standard(s) : FCC Rules and Regulations Part 15 Subpart B: 2019**  
**Test Method(s) : ANSI C63.4-2014**

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited To determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited Is assumed full responsibility for the accuracy and completeness of these measurements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited

Date of Receipt: Mar. 06, 2020

Date of Test: Mar. 06~28, 2020

Prepared By: Jane Ding  
(Engineer / Jane Ding)

Reviewer: Well Wang  
(Supervisor / Well Wang)

Approved & Authorized Signer: Tom Chen  
(Manager / Tom Chen)



## 1. General Information

### 1.1. Client Information

|              |   |                                                                                                                    |
|--------------|---|--------------------------------------------------------------------------------------------------------------------|
| Applicant    | : | Shenzhen Samkoon Technology Corporation Ltd.                                                                       |
| Address      | : | Building 7, Fashion Industry Park, E'Bu Town, ShenShan Special cooperation zone, Shenzhen City, Guangdong Province |
| Manufacturer | : | Shenzhen Samkoon Technology Corporation Ltd.                                                                       |
| Address      | : | Building 7, Fashion Industry Park, E'Bu Town, ShenShan Special cooperation zone, Shenzhen City, Guangdong Province |
| Factory      | : | Shenzhen Samkoon Technology Corporation Ltd.                                                                       |
| Address      | : | Building 7, Fashion Industry Park, E'Bu Town, ShenShan Special cooperation zone, Shenzhen City, Guangdong Province |

### 1.2. Description of Device (EUT)

|                                                                                                                                      |   |                                                                                                                                                                                                                                                                                                                                                                            |     |
|--------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Product Name                                                                                                                         | : | Motion controller                                                                                                                                                                                                                                                                                                                                                          |     |
| Model No.                                                                                                                            | : | CR100-CPXT, CR100-CMMM, CR100-CPMM, CR100-CPXX, CR100-CPTT, CR100-CPXT, CR100-CPXA, CR100-CPTA, CR100-C(a)<br>(a) the model number contains suffixes that can be blank or any combination of Numbers and or symbols to represent the customer identity<br>(Note: All samples are the same except the model number & appearance, so we prepare "CR100-CPXT" for test only.) |     |
| Trade Mark                                                                                                                           | : | Samkoon                                                                                                                                                                                                                                                                                                                                                                    |     |
| Test Power Supply                                                                                                                    | : | DC 24V                                                                                                                                                                                                                                                                                                                                                                     |     |
| Test Sample No.                                                                                                                      | : | 1-1-1                                                                                                                                                                                                                                                                                                                                                                      |     |
| Product Description                                                                                                                  | : | Adapter:                                                                                                                                                                                                                                                                                                                                                                   | N/A |
| <b>Remark:</b> (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. |   |                                                                                                                                                                                                                                                                                                                                                                            |     |

### 1.3. Auxiliary Equipment Used During Test

|     |   |  |
|-----|---|--|
| N/A | : |  |
|-----|---|--|



## 1.4. Description of Test Mode

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1       | On          |

For Mode 1 Block Diagram of Test Setup



## 1.5. Test Summary

| Test Items                                             | Test Mode | Status |
|--------------------------------------------------------|-----------|--------|
| Power Line Conducted Emission Test (150KHz To 30MHz)   | Mode 1    | P      |
| Radiated Emission Test (30MHz To 1000MHz)              | Mode 1    | P      |
| P) Indicates "PASS".<br>N) Indicates "Not applicable". |           |        |

## 1.6. Test Equipment List

Conducted Emission Measurement

| Item | Equipment                               | Manufacturer            | Model No. | Serial No. | Last Cal.     | Cal. Interval |
|------|-----------------------------------------|-------------------------|-----------|------------|---------------|---------------|
| 1.   | L.I.S.N.<br>Artificial Mains<br>Network | Rohde & Schwarz         | ENV216    | 100055     | Nov. 04, 2019 | 1 Year        |
| 2.   | L.I.S.N.<br>Artificial Mains<br>Network | Schwarzbeck             | NSLK 8127 | 8127386    | Nov. 04, 2019 | 1 Year        |
| 3.   | EMI Test Receiver                       | Rohde & Schwarz         | ESCI      | 100627     | Nov. 04, 2019 | 1 Year        |
| 4.   | RF Switching Unit                       | Compliance<br>Direction | RSU-M2    | 38303      | Nov. 04, 2019 | 1 Year        |
| 5.   | Software Name<br>EZ-EMC                 | Ferrari Technology      | ANB-03A   | N/A        | N/A           | N/A           |

## Radiated Emission Measurement

| Item | Equipment               | Manufacturer       | Model No. | Serial No. | Last Cal.     | Cal. Interval |
|------|-------------------------|--------------------|-----------|------------|---------------|---------------|
| 1.   | EMI Test Receiver       | Rohde & Schwarz    | ESCI      | 100627     | Nov. 04, 2019 | 1 Year        |
| 2.   | Pre-amplifier           | Schwarzbeck        | BBV-9745  | 9745-075   | Nov. 04, 2019 | 1 Year        |
| 3.   | Bilog Broadband Antenna | SCHWARZBECK        | VULB 9163 | 01109      | Nov. 01, 2019 | 1 Year        |
| 4.   | Software Name<br>EZ-EMC | Ferrari Technology | EMEC-3A1  | N/A        | N/A           | N/A           |

## 1.7. Measurement Uncertainty

|                         |   |                          |
|-------------------------|---|--------------------------|
| Radiation Uncertainty   | : | Ur = 4.7 dB (Horizontal) |
|                         |   | Ur = 4.3 dB (Vertical)   |
| Conduction Uncertainty  | : | Uc = 3.4 dB              |
| Disturbance Uncertainty | : | Ud = 3.4 dB              |

## 1.8. Description of Test Facility

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

**FCC-Registration No.: 184111**

Shenzhen Anbotek Compliance Laboratory Limited, 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 our files. Registration No. 184111, September 27, 2019.

**ISED-Registration No.: 8058A**

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A, March 07, 2019.

**Test Location**

Shenzhen Anbotek Compliance Laboratory Limited.  
1/F, Building D, Sogood Science and Technology Park, Sanwei community, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.518128



## 2. Power Line Conducted Emission Test

### 2.1. Test Standard and Limit

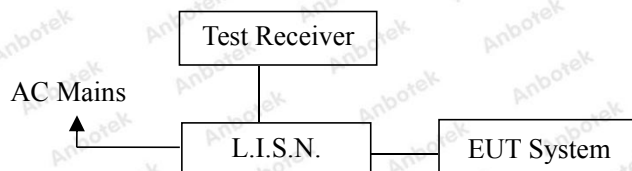
|               |                       |
|---------------|-----------------------|
| Test Standard | FCC Part 15 Subpart B |
|---------------|-----------------------|

Power Line Conducted Emission Measurement Limits (FCC Part 15 Class B)

| Test Limit | Frequency (MHz) | At mains terminals (dB $\mu$ V) |               |
|------------|-----------------|---------------------------------|---------------|
|            |                 | Quasi-peak Level                | Average Level |
|            | 0.15 ~ 0.50     | 66 ~ 56*                        | 56 ~ 46*      |
|            | 0.50 ~ 5.00     | 56                              | 46            |
|            | 5.00 ~ 30.00    | 60                              | 50            |

**Remark:** (1) The lower limit shall apply at the transition frequencies.  
 (2) \* Decreasing linearly with logarithm of frequency.

### 2.2. Test Setup



### 2.3. EUT Configuration on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

### 2.4. Operating Condition of EUT

- 2.4.1. Setup the EUT as shown in Section 2.2.
- 2.4.2. Turn on the power of all equipments.
- 2.4.3. Let the EUT work in test mode and measure it.

## 2.5. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

All the test results are listed in Section 2.6.

## 2.6. Test Results

**PASS**

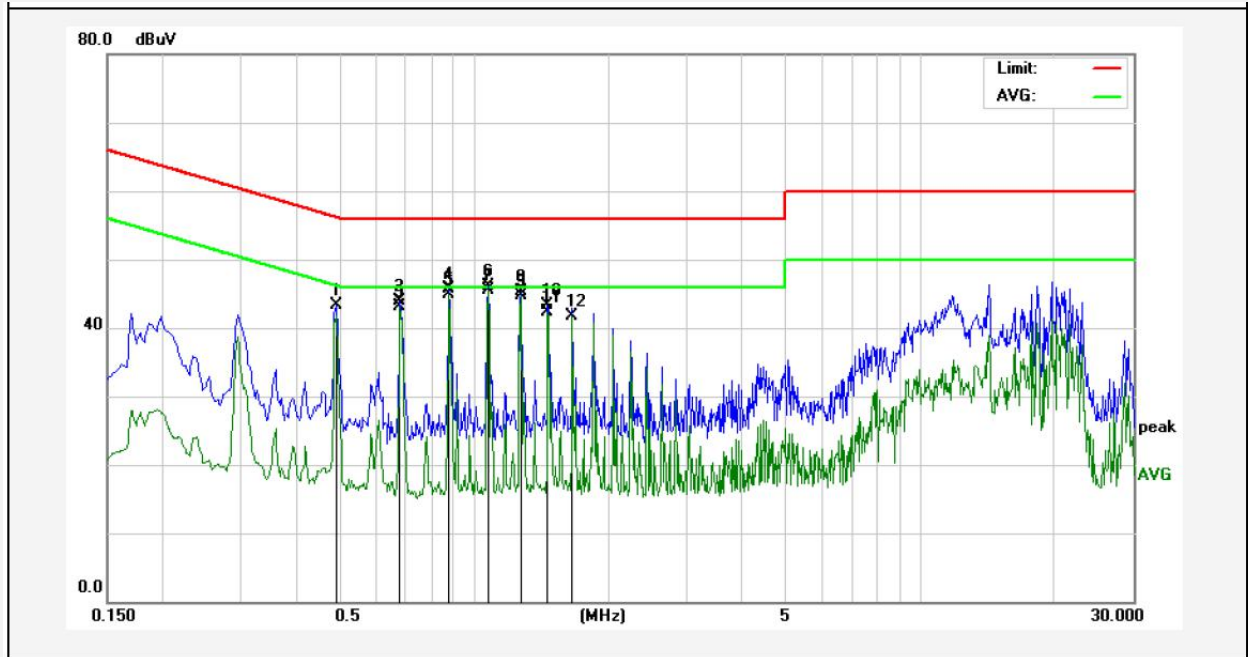
The test curves are shown in the following pages.





**Conducted Emission Test Data**

Test Site: 1# Shielded Room  
 Test Specification: DC 24V  
 Comment: +  
 Temp.: 26°C Hum.: 53%

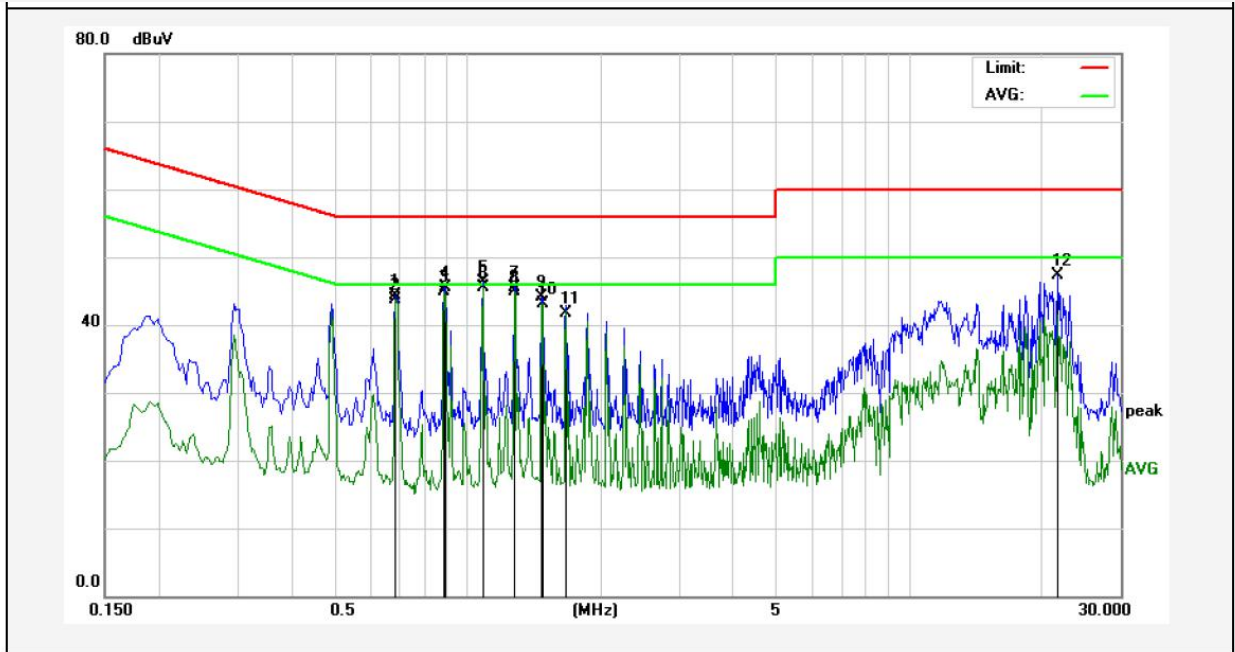


| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|--------------|-----------------|----------|--------|
| 1   | 0.4900      | 23.25          | 19.98       | 43.23         | 56.17        | -12.94          | QP       |        |
| 2   | 0.6820      | 23.90          | 20.03       | 43.93         | 56.00        | -12.07          | QP       |        |
| 3   | 0.6820      | 23.17          | 20.03       | 43.20         | 46.00        | -2.80           | AVG      |        |
| 4   | 0.8780      | 25.58          | 20.09       | 45.67         | 56.00        | -10.33          | QP       |        |
| 5   | 0.8780      | 24.84          | 20.09       | 44.93         | 46.00        | -1.07           | AVG      |        |
| 6   | 1.0740      | 25.93          | 20.12       | 46.05         | 56.00        | -9.95           | QP       |        |
| 7   | 1.0740      | 25.32          | 20.12       | 45.44         | 46.00        | -0.56           | AVG      |        |
| 8   | 1.2700      | 25.18          | 20.13       | 45.31         | 56.00        | -10.69          | QP       |        |
| 9   | 1.2700      | 24.53          | 20.13       | 44.66         | 46.00        | -1.34           | AVG      |        |
| 10  | 1.4620      | 23.26          | 20.13       | 43.39         | 56.00        | -12.61          | QP       |        |
| 11  | 1.4620      | 22.23          | 20.13       | 42.36         | 46.00        | -3.64           | AVG      |        |
| 12  | 1.6580      | 21.56          | 20.13       | 41.69         | 46.00        | -4.31           | AVG      |        |

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

**Conducted Emission Test Data**

Test Site: 1# Shielded Room  
 Test Specification: DC 24V  
 Comment: -  
 Temp.: 26°C Hum.: 53%



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit (dBuV) | Over Limit (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|--------------|-----------------|----------|--------|
| 1   | 0.6860      | 24.29          | 20.04       | 44.33         | 56.00        | -11.67          | QP       |        |
| 2   | 0.6860      | 23.62          | 20.04       | 43.66         | 46.00        | -2.34           | AVG      |        |
| 3   | 0.8820      | 24.80          | 20.09       | 44.89         | 46.00        | -1.11           | AVG      |        |
| 4   | 0.8860      | 25.38          | 20.09       | 45.47         | 56.00        | -10.53          | QP       |        |
| 5   | 1.0780      | 26.15          | 20.12       | 46.27         | 56.00        | -9.73           | QP       |        |
| 6   | 1.0780      | 25.33          | 20.12       | 45.45         | 46.00        | -0.55           | AVG      |        |
| 7   | 1.2740      | 25.47          | 20.13       | 45.60         | 56.00        | -10.40          | QP       |        |
| 8   | 1.2740      | 24.75          | 20.13       | 44.88         | 46.00        | -1.12           | AVG      |        |
| 9   | 1.4700      | 23.92          | 20.13       | 44.05         | 56.00        | -11.95          | QP       |        |
| 10  | 1.4740      | 23.02          | 20.13       | 43.15         | 46.00        | -2.85           | AVG      |        |
| 11  | 1.6660      | 21.67          | 20.13       | 41.80         | 46.00        | -4.20           | AVG      |        |
| 12  | 21.6620     | 26.90          | 20.32       | 47.22         | 60.00        | -12.78          | QP       |        |

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

### 3. Radiated Emission Test

#### 3.1. Test Standard and Limit

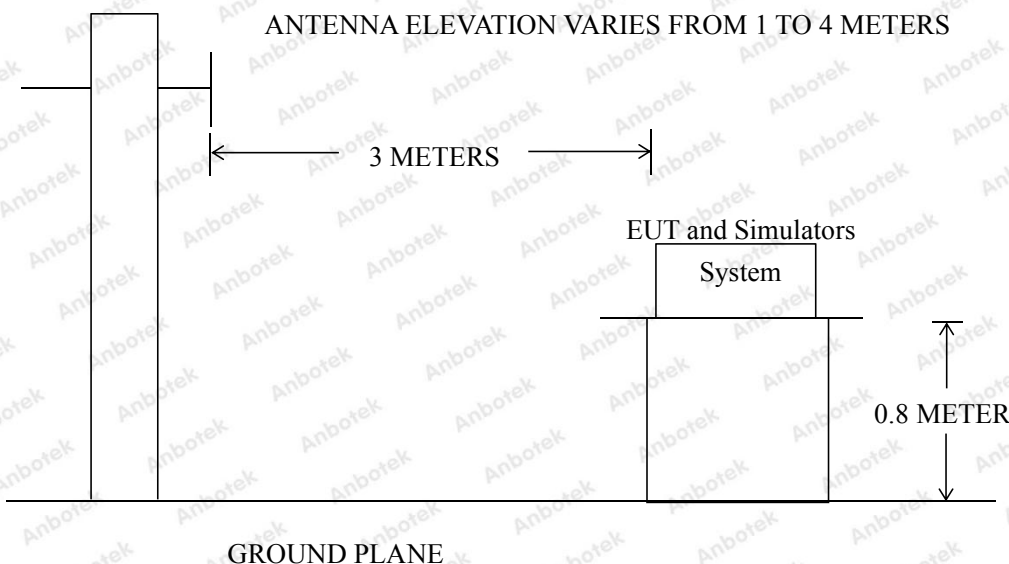
|               |                       |
|---------------|-----------------------|
| Test Standard | FCC Part 15 Subpart B |
|---------------|-----------------------|

Radiated Emission Test Limit (Subpart B Class B)

| Test Limit | Frequency (MHz) | DISTANCE (Meters) | FIELD STRENGTHS LIMIT |          |
|------------|-----------------|-------------------|-----------------------|----------|
|            |                 |                   | μV/m                  | (dBμV/m) |
|            | 30 ~ 88         | 3                 | 100                   | 40       |
|            | 88 ~ 216        | 3                 | 150                   | 43.5     |
|            | 216 ~ 960       | 3                 | 200                   | 46       |
|            | 960 ~ 1000      | 3                 | 500                   | 54       |

**Remark:** (1) Emission level (dB)μV = 20 log Emission level μV/m  
 (2) The smaller limit shall apply at the cross point between two frequency bands.  
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

#### 3.2. Test Setup



#### 3.3. EUT Configuration on Measurement

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.



### 3.4. Operating Condition of EUT

3.4.1. Setup the EUT as shown in Section 3.2.

3.4.2. Turn on the power of all equipments.

3.4.3. Let the EUT work in test mode and measure it.

### 3.5. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (Trilog Broadband Antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (ESCI) is set at 120kHz.

The frequency range from 30MHz to 1000MHz is checked.

The test results are listed in Section 3.6.

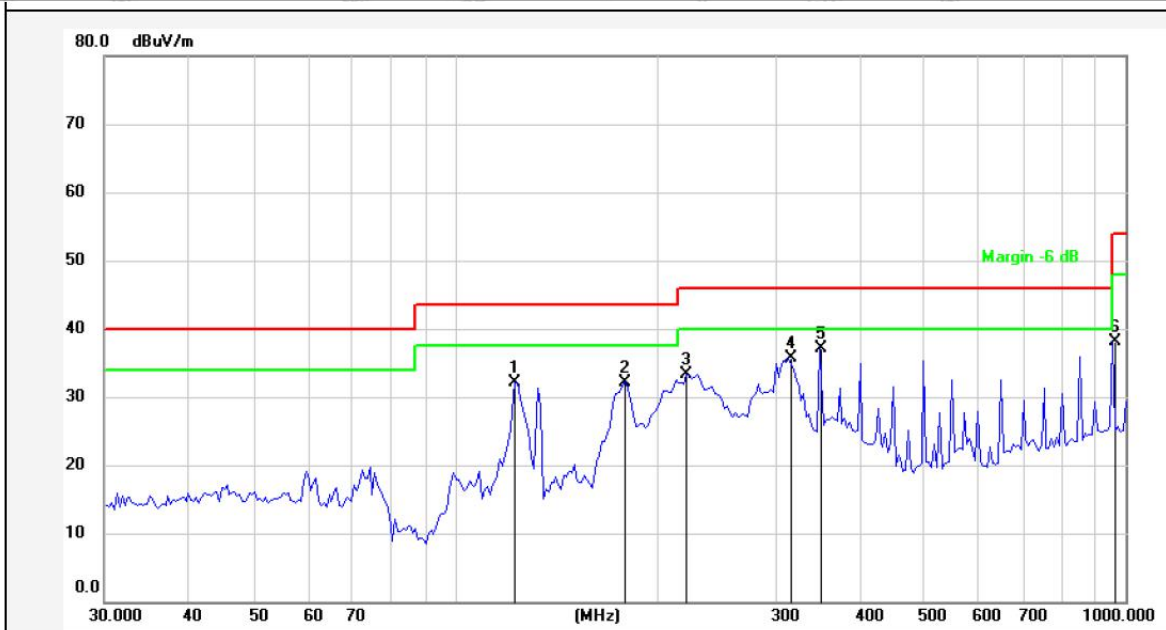
### 3.6. Test Results

**PASS**

The test curves are shown in the following pages.



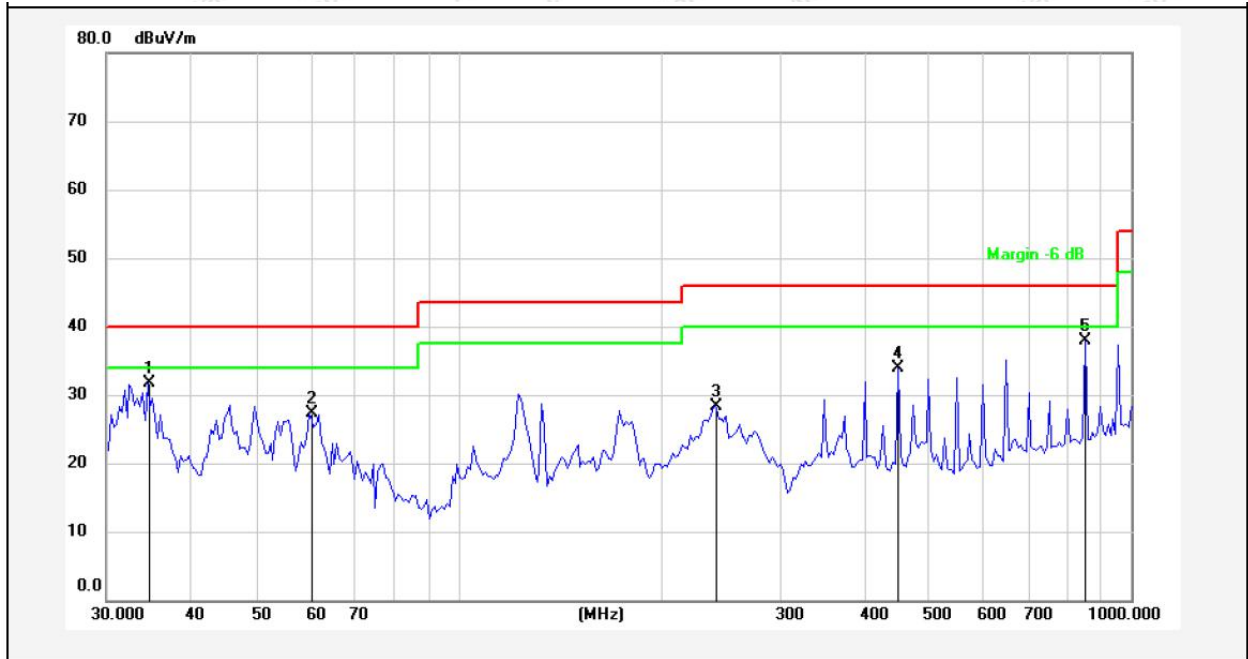
**Test item:** Radiation Test      **Polarization:** Horizontal  
**Standard:** (RE)FCC Part 15 Subpart B      **Power Source:** DC 24V  
**Distance:** 3m      **Temp.(°C)/Hum.(%RH):** 23( °C)/56%RH



| No. | Freq. (MHz) | Reading (dBuV) | Factor ( ) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1   | 123.0495    | 56.60          | -24.40     | 32.20           | 43.50          | -11.30          | peak     |             |              |        |
| 2   | 179.3863    | 54.98          | -22.78     | 32.20           | 43.50          | -11.30          | peak     |             |              |        |
| 3   | 221.3921    | 55.38          | -22.00     | 33.38           | 46.00          | -12.62          | peak     |             |              |        |
| 4   | 314.3765    | 54.06          | -18.44     | 35.62           | 46.00          | -10.38          | peak     |             |              |        |
| 5   | 349.2500    | 53.83          | -16.74     | 37.09           | 46.00          | -8.91           | peak     |             |              |        |
| 6   | 957.1148    | 46.13          | -8.05      | 38.08           | 46.00          | -7.92           | peak     |             |              |        |

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

**Test item:** Radiation Test      **Polarization:** Vertical  
**Standard:** (RE)FCC Part 15 Subpart B      **Power Source:** DC 24V  
**Distance:** 3m      **Temp.(°C)/Hum.(%RH):** 23( °C)/56%RH



| No. | Freq. (MHz) | Reading (dBuV) | Factor ( ) | Result (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Detector | Height (cm) | degree (deg) | Remark |
|-----|-------------|----------------|------------|-----------------|----------------|-----------------|----------|-------------|--------------|--------|
| 1   | 34.5173     | 48.48          | -16.85     | 31.63           | 40.00          | -8.37           | peak     |             |              |        |
| 2   | 59.9639     | 43.80          | -16.41     | 27.39           | 40.00          | -12.61          | peak     |             |              |        |
| 3   | 239.5670    | 44.62          | -16.22     | 28.40           | 46.00          | -17.60          | peak     |             |              |        |
| 4   | 450.3447    | 48.82          | -14.88     | 33.94           | 46.00          | -12.06          | peak     |             |              |        |
| 5   | 854.0247    | 46.11          | -8.21      | 37.90           | 46.00          | -8.10           | peak     |             |              |        |

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



## APPENDIX I -- TEST SETUP PHOTOGRAPH

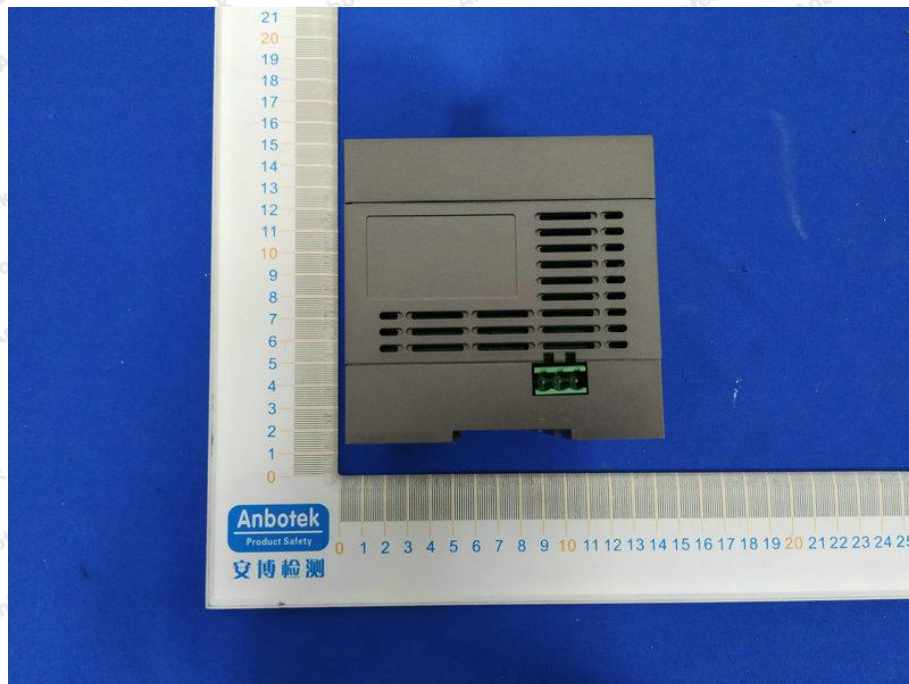
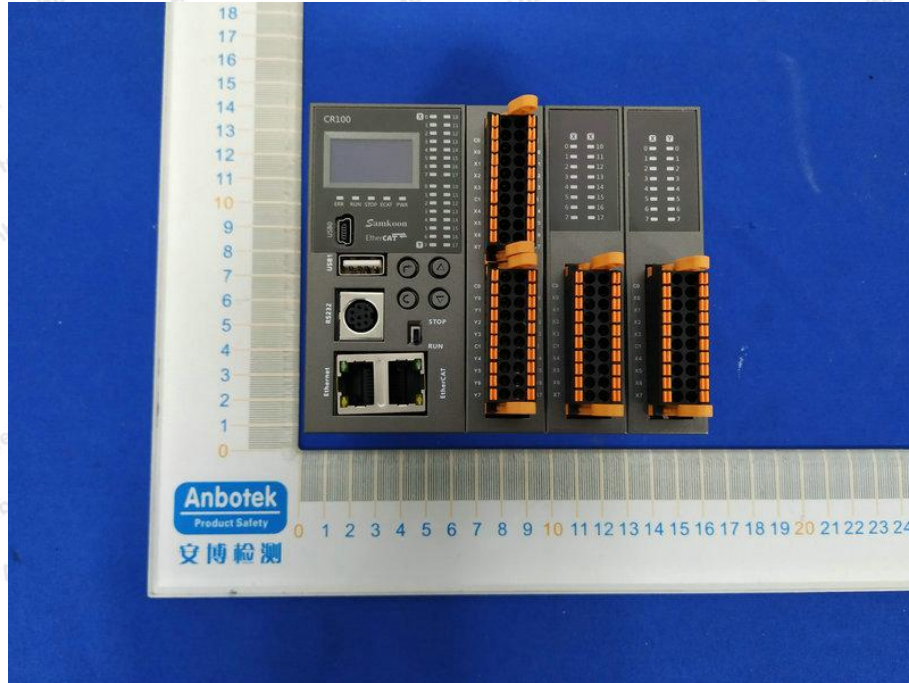
Photo of Power Line Conducted Emission Test



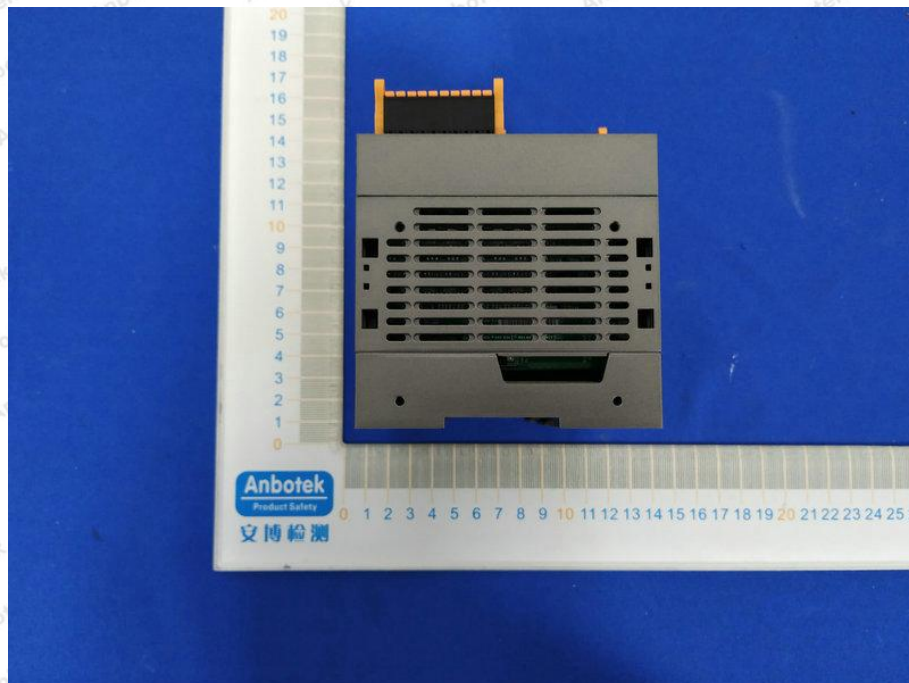
Photo of Radiated Emission Test



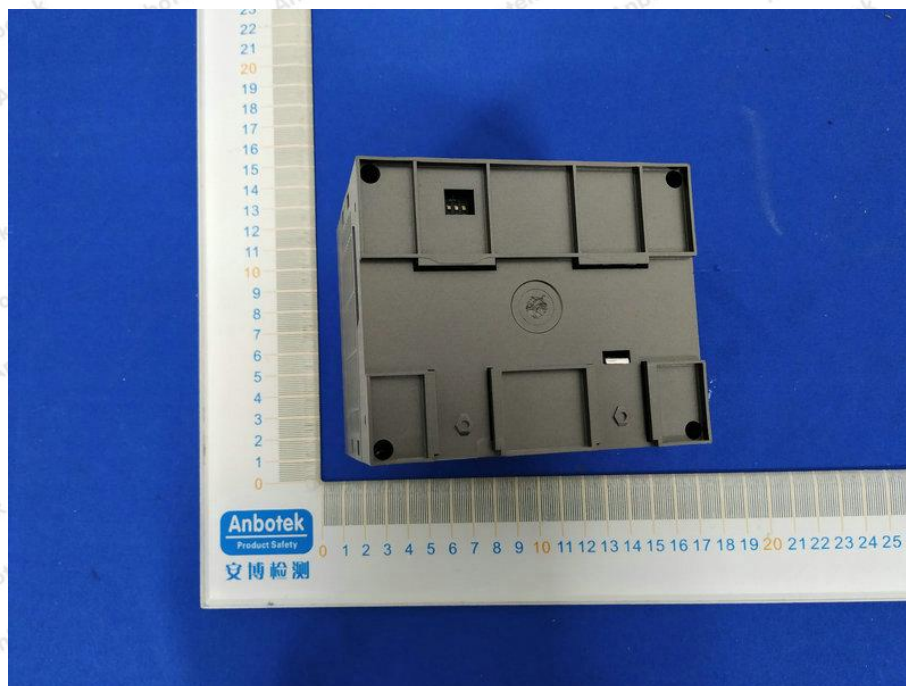
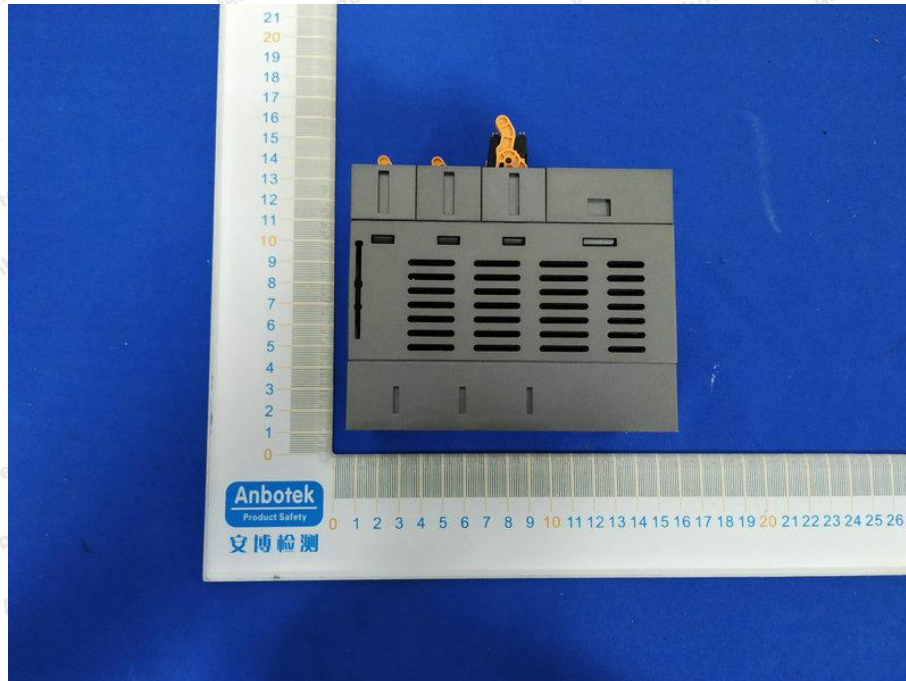
## APPENDIX II -- EXTERNAL PHOTOGRAPH









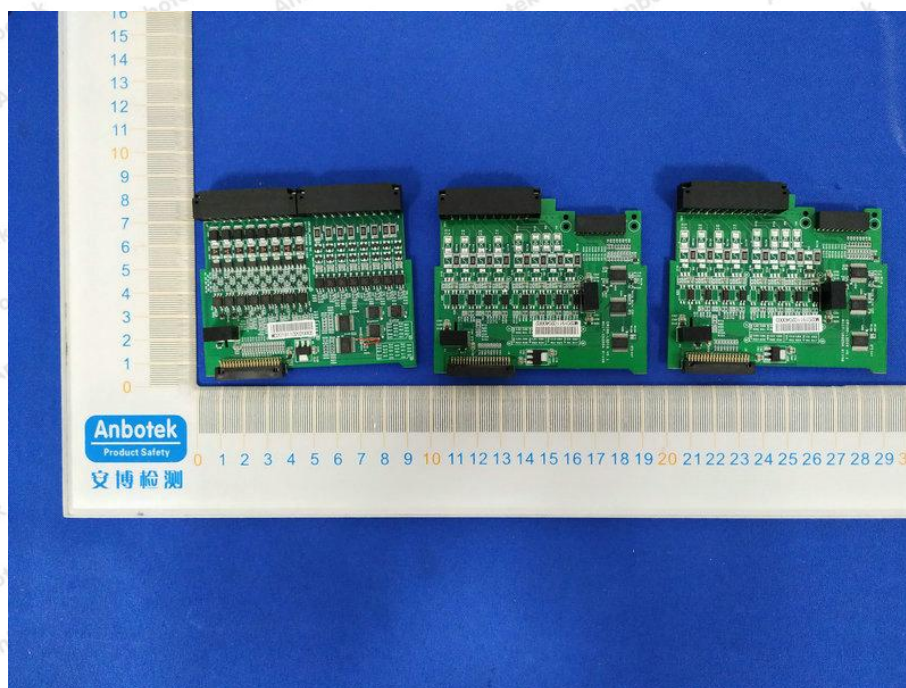
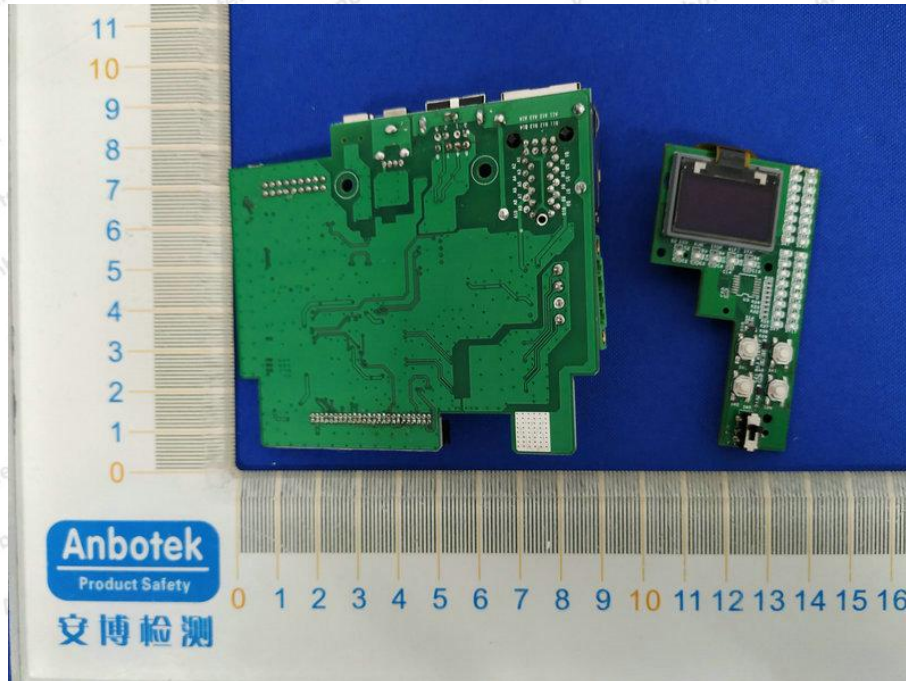




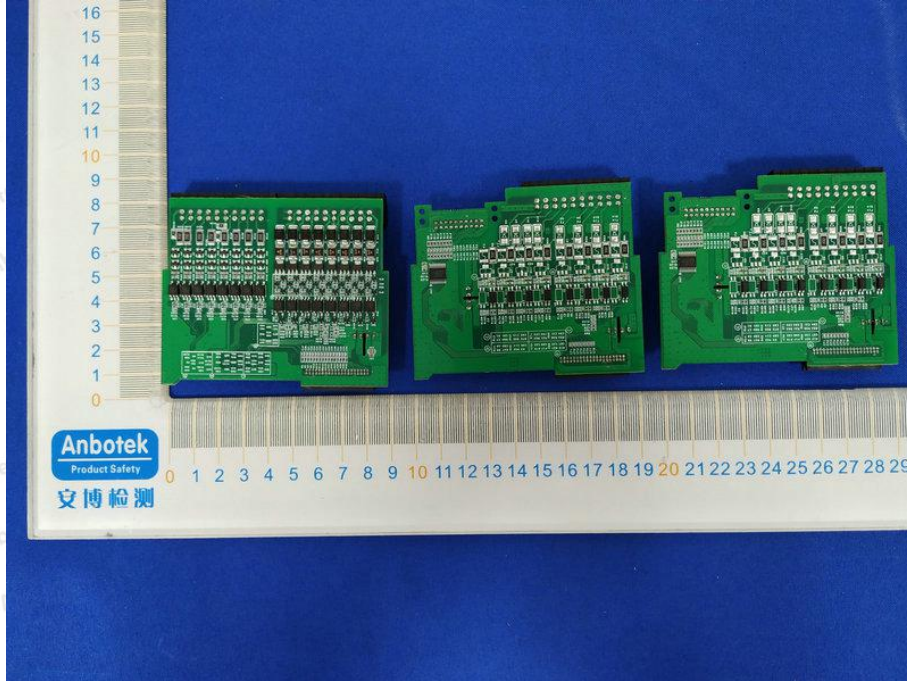
### APPENDIX III -- INTERNAL PHOTOGRAPH















----- End of Report -----