Shenzhen Huatongwei International Inspection Co.,Ltd.
Huatongwei Building, keji'nan 12th Road, High-Tech Industrial Park, Nanshan District,
Shenzhen, Guangdong, China.
Phone:86-755-26715499 E-mail: cs@szhtw.com.cn Website:http://www.szhtw.com.cn

TEST REPORT

For RF

Report No. ..... :	**CHTEW2204013101** Report Verification:
Project No.....:	**SHT2203013510EW**
FCC ID ..... :	**2A6HJVG3SB**
Applicant's name ..... :	**CiVinTec Global Co., Limited.**
Address.....:	F20,Huatong Building,No.8,Ganli Road 2,Jihua Street,Longgang District,Shenzhen,Guangdong,518112,China
Product Name ..... :	**Access Control Door Reader**
Trade Mark .....:	-
Model No. .....:	SC93100-MDEBQ-VG3
Listed Model(s) .....:	Please refer to page 5
Standard ..... :	**FCC CFR Title 47 Part 15 Subpart C Section 15.209**
Date of receipt of test sample.....:	Mar.23, 2022
Date of testing.....:	Mar.23, 2022-Apr.18, 2022
Date of issue.....:	Apr.19, 2022
Result..... .....:	**PASS**

Compiled by (position+printedname+signature)...:	File administrators Fanghui Zhu	Fanghui Zhu
Supervised by (position+printedname+signature)....:	Project Engineer Cheng Xiao	Chengxiao
Approved by (Position+Printed name+Signature):	RF Manager Hans Hu	Hans Hu

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd.**
Address.....:	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Contents

1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.209: Radiated emission limits; general requirements

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version information

Revision No.	Date of issue	Description
N/A	2022-04-19	Original

2. TEST DESCRIPTION

Report clause	Test Item	Section in CFR 47	Result	Test Engineer
5.1	Antenna requirement	15.203	PASS	Caspar Chen
5.2	AC Power Conducted Emissions	15.207	N/A	N/A
5.3	Radiated Emission	15.209	PASS	Jianquan Wu

Noted: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

Applicant:	CiVinTec Global Co., Limited.
Address:	F20,Huatong Building,No.8,Ganli Road 2,Jihua Street,Longgang District,Shenzhen,Guangdong,518112,China
Manufacturer:	CiVinTec Global Co., Limited.
Address:	F20,Huatong Building,No.8,Ganli Road 2,Jihua Street,Longgang District,Shenzhen,Guangdong,518112,China

3.2. Product Description

Main unit information:	
Product Name:	Access Control Door Reader
Trade Mark:	-
Model No.:	SC93100-MDEBQ-VG3
Listed Model(s):	SC93100-MDEBQ-VDI27-S,SC93110-MDEBQ-VDI27-S,SC93100-MDBQ-VDI27-S,SC93110-MDBQ-VDI27-S,SC93100-MDEB-VDI27-S,SC93110-MDEB-VDI27-S,SC93100-MDB-VDI27-S,SC93110-MDB-VDI27-S,SC93100-MDEB-VG3,SC93110-MDEBQ-VG3,SC93100-MDBQ-VG3,SC93110-MDBQ-VG3, SC93110-MDEB-VG3,SC93100-MDB-VG3,SC93110-MDB-VG3,SC9192-SQ Remarks: M:Includes the 13.56 MHz E:Includes 125 KHz B:Contains the BLE module Q:Includes SC9192-SQ QR Code scanning module
Power supply:	DC9V-30V
Hardware version:	V2.0
Software version:	V4.00.00

3.3. Radio Specification Description

Operation frequency:	125kHz
Channel number:	1
Modulation Type:	ASK
Antenna type:	Coil Antenna

3.4. Testing Laboratory Information

Laboratory Name	Shenzhen Huatongwei International Inspection Co., Ltd.	
Laboratory Location	1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China	
Connect information:	Phone: 86-755-26715499 E-mail: cs@szhtw.com.cn http://www.szhtw.com.cn	
Qualifications	Type	Accreditation Number
	FCC	762235

4. TEST CONFIGURATION

4.1. EUT operation mode

TEST MODE

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.

4.2. Test sample information

Test item	HTW sample no.
RF Radiated test items	YPHT22030135001
EMI test items	-

Note:

RF Radiated test items: Radiated Emission, 20dB Bandwidth

EMI test items :AC Power Conducted Emissions

4.3. Support unit used in test configuration and system

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Whether support unit is used?			
✓ No			
Item	Equipement	Trade Name	Model No.
1			
2			

4.4. Testing environmental condition

Type	Requirement	Actual
Temperature:	15~35°C	25°C
Relative Humidity:	25~75%	50%
Air Pressure:	860~1060mbar	1000mbar

4.5. Statement of the measurement uncertainty

Test Items	Measurement Uncertainty
AC Power Conducted Emissions	3.00 dB
Radiated emissions below 1GHz	4.36 dB
Radiated emissions above 1GHz	5.10 dB
Occupied Bandwidth	70Hz for <1GHz 130Hz for >1GHz

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.6. Equipments Used during the Test

● Radiated Emission-6th test site							
Used	Test Equipment	Manufacturer	Equipment No.	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
●	Semi-Anechoic Chamber	Albatross projects	HTWE0127	SAC-3m-02	C11121	2018/09/30	2022/09/29
●	EMI Test Receiver	R&S	HTWE0099	ESCI	100900	2021/09/14	2022/09/13
●	Ultra-Broadband Antenna	SCHWARZBECK	HTWE0119	VULB9163	546	2020/04/28	2023/04/27
●	Pre-Amplifer	SCHWARZBECK	HTWE0295	BBV 9742	N/A	2021/11/05	2022/11/04
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-01	N/A	N/A	2022/02/25	2023/02/24
●	RF Connection Cable	HUBER+SUHNER	HTWE0062-02	SUCOFLEX104	501184/4	2022/02/25	2023/02/24
●	Test Software	R&S	N/A	ES-K1	N/A	N/A	N/A

5. TEST CONDITIONS AND RESULTS

5.1. Antenna requirement

Requirement

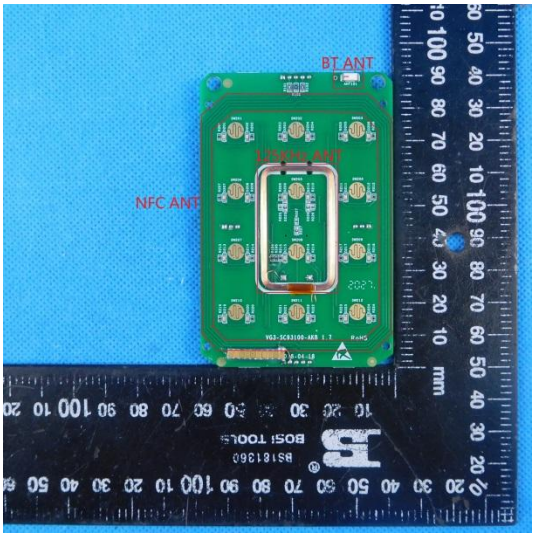
FCC CFR Title 47 Part 15 Subpart C Section 15.203:

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 anantenna 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.

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

The antenna type is a Coil antenna, please refer to the below antenna photo.



5.2. AC Power Conducted Emissions

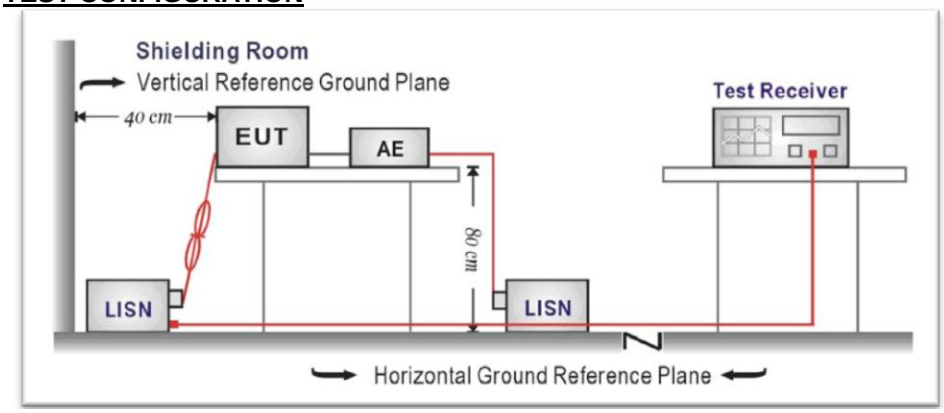
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207:

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was setup according to ANSI C63.10
2. The EUT was placed on a plat form of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50ohm / 50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor,was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST MODE:

Please refer to the clause 4.1

TEST RESULTS

☐ **Passed** ☒ **Not Applicable**

5.3. Radiated Emission

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

Limit for frequency below 30MHz:

Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009~0.490	2400/F(kHz)	300	Quasi-peak
0.490~1.705	24000/F(kHz)	30	Quasi-peak
1.705~30.0	30	30	Quasi-peak

Note: Limit dBuV/m @3m = Limit dBuV/m @300m + 40*log(300/3)= Limit dBuV/m @300m +80,

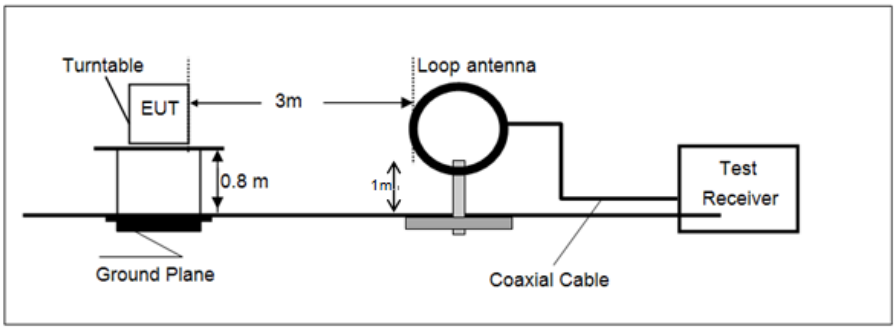
Limit dBuV/m @3m = Limit dBuV/m @30m +40*log(30/3)= Limit dBuV/m @30m + 40.

Limit for frequency above 30MHz:

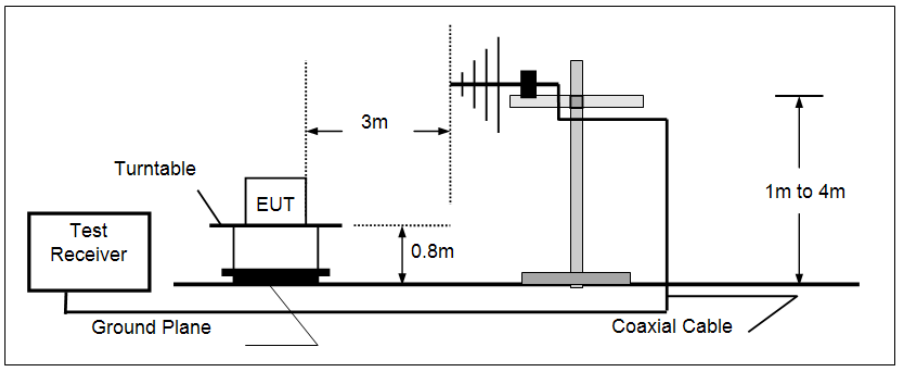
Frequency	Limit (dBuV/m@3m)	Remark
30MHz~88MHz	40.00	Quasi-peak
88MHz~216MHz	43.50	Quasi-peak
216MHz~960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak

TEST CONFIGURATION

- 9 kHz ~ 30 MHz



- 30 MHz ~ 1 GHz



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Below 30MHz:
   RBW=10 kHz, VBW=30 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
   (3) 30MHz to 1 GHz:
   RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
   If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
   (4) From 1 GHz to 10th harmonic:
   RBW=1MHz, VBW=3MHz Peak detector for Peak value.
   RBW=1MHz, VBW=3MHz RMS detector for Average value.

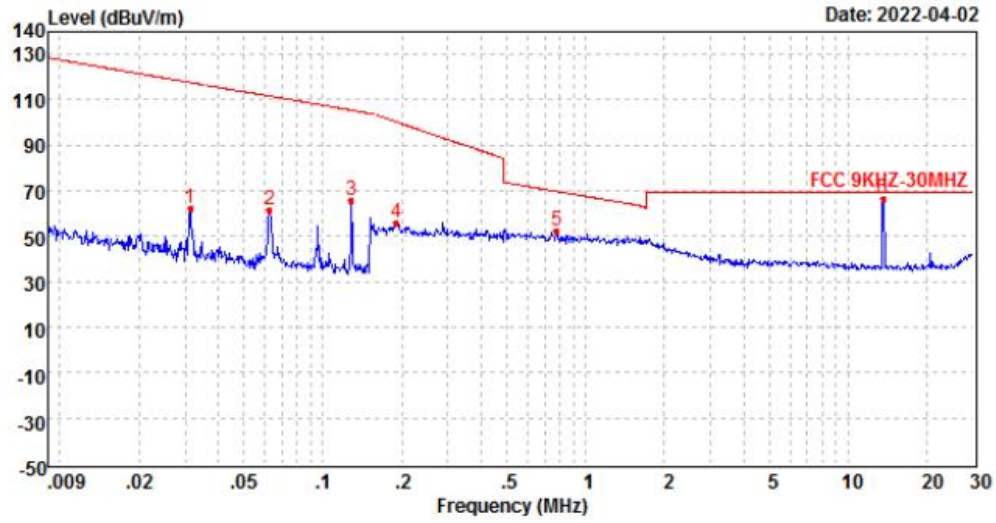
TEST MODE:

Please refer to the clause 4.1

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

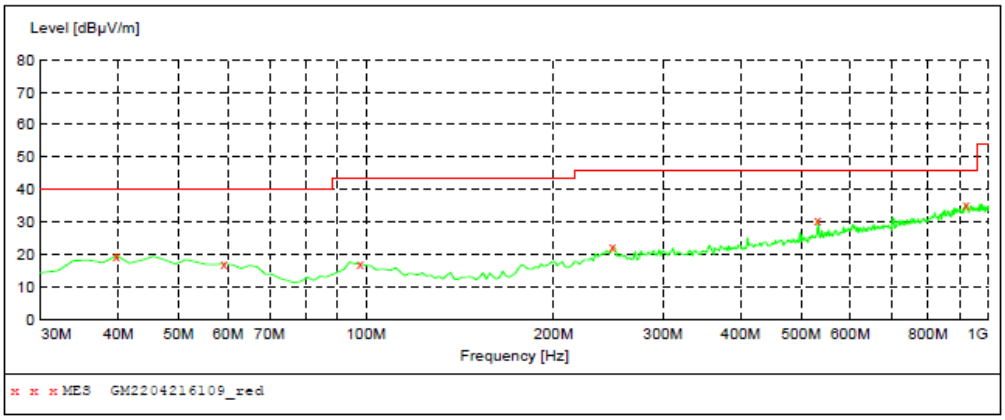
Test frequency range:	Below 30MHz



Mark	Frequency MHz	Reading dBuV/m	Antenna dB	Cable dB	Preamp dB	Level dBuV/m	Limit dBuV/m	Over limit	Remark
1	0.03	32.78	22.35	7.21	0.00	62.34	117.67	-55.33	Peak
2	0.06	32.00	22.30	7.21	0.00	61.51	111.64	-50.13	Peak
3	0.13	36.52	22.26	7.21	0.00	65.99	105.40	-39.41	Peak
4	0.19	26.82	22.21	7.21	0.00	56.24	100.37	-44.13	Peak
5	0.78	22.79	22.20	7.20	0.00	52.19	69.77	-17.58	Peak
6	13.62	39.77	20.02	6.65	0.00	66.44	69.54	-3.10	Peak

Note：Mark6 belongs to other transmitters, NFC (13.56MHz).

Test frequency range:	30MHz~1000MHz
Polarization:	Vertical

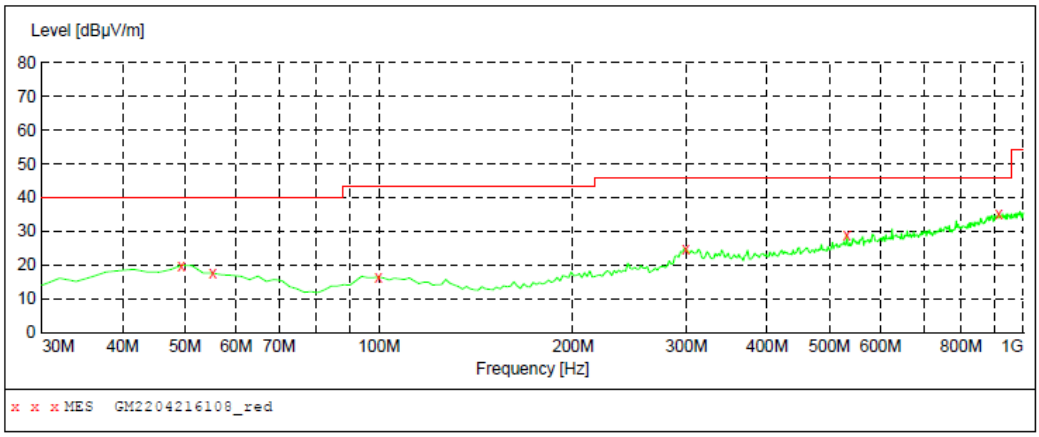


MEASUREMENT RESULT: "GM2204216109_red"

4/21/2022 9:57PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
39.700000	19.70	-9.8	40.0	20.3	QP	100.0	0.00	VERTICAL
59.100000	17.20	-9.9	40.0	22.8	QP	100.0	262.00	VERTICAL
97.900000	17.10	-11.2	43.5	26.4	QP	100.0	191.00	VERTICAL
249.220000	22.30	-9.0	46.0	23.7	QP	100.0	221.00	VERTICAL
532.460000	30.80	-0.7	46.0	15.2	QP	100.0	127.00	VERTICAL
922.400000	35.50	7.2	46.0	10.5	QP	100.0	150.00	VERTICAL

Polarization:	Horizontal



MEASUREMENT RESULT: "GM2204216108_red"

4/21/2022 9:53PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
49.400000	19.90	-9.1	40.0	20.1	QP	100.0	309.00	HORIZONTAL
55.220000	17.50	-9.5	40.0	22.5	QP	100.0	97.00	HORIZONTAL
99.840000	16.40	-10.7	43.5	27.1	QP	300.0	306.00	HORIZONTAL
299.660000	24.90	-7.3	46.0	21.1	QP	100.0	266.00	HORIZONTAL
532.460000	28.80	-0.7	46.0	17.2	QP	300.0	184.00	HORIZONTAL
916.580000	35.20	7.1	46.0	10.8	QP	300.0	360.00	HORIZONTAL

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