

Test report No:  
2210511R-RF-US-P20V01

## FCC Exposure TEST REPORT

Product Name	Tele-matic Control Unit
Model and /or type reference	SRTL-NA
FCC ID	2A673-SRTL-TCU
Applicant's name / address	SiRun (Wuxi) Technology Co., Ltd. 2501, Swan Tower, Wuxi Software Park, Xinwu District, Wuxi City, Jiangsu Province, China
Test method requested, standard	FCC Part1.1310
Verdict Summary	IN COMPLIANCE
Documented by (name / position & signature)	Tim Cao/Project Manager 
Approved by (name / position & signature)	Jack Zhang/ Manager 
Date of issue	2023-06-25
Report Version	V1.1
Report template No	Template_FCC-MPE-RF-V1.0

INDEX

	page
Competences and Guarantees.....	3
General conditions.....	3
Environmental conditions .....	3
Possible test case verdicts.....	4
Abbreviations.....	4
Document History .....	5
Remarks and Comments .....	5
1. RF Exposure Evaluation.....	6
1.1. Limits.....	6
1.2. Test Procedure .....	7
1.3. Test Result of RF Exposure Evaluation .....	7

## COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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## GENERAL CONDITIONS

Test Location	No. 99, Hongye Road, Suzhou Industrial Park Suzhou, 215006, P.R. China
Date(receive sample)	Jan. 18, 2022
Date (start test)	Jan. 28, 2022
Date (finish test)	Apr. 28, 2022

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.

## ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

## POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

## ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
$U_N$	: Nominal voltage
$T_x$	: Transmitter
$R_x$	: Receiver
N/A	: Not Applicable
N/M	: Not Measured

## DOCUMENT HISTORY

Report No.	Version	Description	Issued Date
2210511R-RF-US-P20V01	V1.0	Initial issue of report.	2023-05-12
2210511R-RF-US-P20V01	V1.1	Page 7: Update Bluetooth antenna gain. Page 8,9: Add tune-up tolerance and update calculated data. (The test report No.: 2210511R-RF-US-P20V01 V1.1 is to replace the test report No.: 2210511R-RF-US-P20V01 V1.0, and test report 2210511R-RF-US-P20V01 V1.0 is obsoleted.)	2023-06-25

## REMARKS AND COMMENTS

1. The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).
2. These test results on a sample of the device are for the purpose of demonstrating Compliance with KDB 447498 and FCC Part 1.1310
3. The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to account the uncertainty associated with the measurement result.
4. The test results relate only to the samples tested.
5. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification (Suzhou) Co., Ltd.
6. This report will not be used for social proof function in China market.

## 1. RF Exposure Evaluation

### 1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	Tele-matic Control Unit
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-6

### Antenna information:

Antenna model / type number .....	N/A		
Antenna serial number .....	N/A		
Antenna Delivery .....	<input checked="" type="checkbox"/>	1TX + 1RX	
	<input type="checkbox"/>	2TX + 2RX	
	<input type="checkbox"/>	3TX + 3RX	
	<input type="checkbox"/>	4TX + 4RX	
	<input type="checkbox"/>	Others:.....	
Antenna technology .....	<input checked="" type="checkbox"/>	SISO	
	<input type="checkbox"/>	MIMO	<input type="checkbox"/> CDD
			<input type="checkbox"/> Beam-forming
SISO Antenna Gain .....	<b>Bluetooth</b> 4.97 dBi <b>Wifi:</b> 1.5 dBi <b>WWAN:</b> 3.0dBi		

**Power Density:**

The tune-up power for product is 0.5dB.

**Standalone modes:**

Test Mode	Frequency Band (MHz)	Maximum Output power (dBm)	Maximum EIRP (dBm)	Power Density at R = 35 cm (W/m <sup>2</sup> )	Power Density Limit (W/m <sup>2</sup> )
Bluetooth	2400 ~ 2483.5	6.71	11.68	0.010	10
Wi-Fi 2.4G	2400 ~ 2483.5	17.93	19.43	0.057	10
Wi-Fi 5G	5150 ~ 5350 5470 ~ 5825	15.93	17.43	0.036	10
GSM 850	824.2-848.8	35.91	38.91	5.054	5.49
GSM 1900	1850.2-1909.8	29.72	33.72	1.530	10
WCDMA BandII	1850-1910	22.99	25.99	0.258	10
WCDMA BandIV	1710-1755	24.97	27.97	0.407	10
WCDMA BandV	824-849	24.83	27.83	0.394	5.49
LTE Band 2	1850-1910	24.03	27.03	0.328	10
LTE Band 4	1710-1755	25.85	28.85	0.498	10
LTE Band 5	824-849	25.58	28.58	0.468	5.5
LTE Band 7	2500-2570	26.12	29.12	0.530	10
LTE Band 12	699-716	24.69	27.69	0.382	4.7
LTE Band 13	777-787	24.04	27.04	0.329	5.2

**Simultaneous transmission:****BT+ Wi-Fi 2.4G+ WWAN**

Wireless Configure	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(W/cm <sup>2</sup> )	Power Density S at R = 35 cm (W/m <sup>2</sup> )	Rate	Limit
Bluetooth	2400 ~ 2483.5	11.68	10	0.010	0.927	1
Wi-Fi 2.4G	2400 ~ 2483.5	19.43	10	0.057		
WWAN	824.2-848.8	38.91	5.49	5.504		



**BT+ Wi-Fi 5G+ WWAN**

Wireless Configure	Frequency Range (MHz)	Maximum EIRP (dBm)	Limit of Power Density S(W/cm <sup>2</sup> )	Power Density S at R = 35 cm (W/m <sup>2</sup> )	Rate	Limit
Bluetooth	2400 ~ 2483.5	11.68	10	0.010	0.925	1
Wi-Fi 5G	5150 ~ 5350 5470 ~ 5825	17.43	10	0.036		
WWAN	824.2-848.8	38.91	5.49	5.504		

The safety distance is 35cm for installed for *Tele-matic Control Unit* without any other radio equipment.

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