

Test Report

Verified code: 250370

Report No.: E202204024904-3

Customer: Chengdu Vantron Technology Co., Ltd.

Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

Sample Name: Wireless Module

Sample Model: VT-ANT-257

Receive Sample Date: Apr.02,2022

Test Date: Apr.02,2022 ~ Apr.02,2022

Reference Document: CFR 47, FCC Part 2.1093 Radio frequency radiation exposure evaluation: portable devices.

Test Result: Pass

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Reviewed by: Wu Haoting

Approved by: Xiao Liang

GUANGZHOU GRG METROLOGY & TEST CO., LTD

Issued Date: 2022-04-02

GUANGZHOU GRG METROLOGY & TEST CO., LTD.

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202204024904-3	Original Issue	2022/04/02

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1. GENERAL DESCRIPTION OF DUT

1.1 APPLICANT

Name: Chengdu Vantron Technology Co., Ltd.
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

1.2 MANUFACTURER

Name: Chengdu Vantron Technology Co., Ltd.
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

1.3 FACTORY

Name: Chengdu Vantron Technology Co., Ltd.
Address: No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China 610045

1.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Wireless Module
Model No.: VT-ANT-257
Adding Model: /
Trade Name: Vantron
FCC ID: 2AAGE-257
Power Supply: DC 3V
Frequency Range: 2450MHz~2457MHz
Transmit Power: Peak: 95.52dBuV/m (Max.)
Average: 66.65dBuV/m (Max.)
Type of Modulation: GFSK
Antenna Specification: PCB antenna with 0.8dBi gain (Max.)
Temperature Range: -40 °C ~ +85 °C
Hardware Version: V1.1
Software Version: V1.1
Sample No: E202204024904-0001
Note: /

2. LABORATORY AND ACCREDITATIONS

2.1 LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add.: No.1301 Guanguang Road Xinlan Community, Guanlan Street, Longhua District Shenzhen, 518110, People's Republic of China.

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2.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA A2LA (Certificate#:2861.01)

China CNAS (L0446)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada ISED (Company Number: 24897, CAB identifier:CN0069)

USA FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

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3. EVALUATION METHOD

Exposure category: General population/uncontrolled environment

EUT Type: Production Unit

Device Type: Portable Device

Refer Standard: KDB 447498 D01 General RF Exposure Guidance v06

FCC Part 2 §2.1093

4. LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz and 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f \text{ (GHz)}}]$
 ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

5. ESTIMATION RESULT

5.1 POWER TEST RESULTS

Test Mode	Frequency (MHz)	Field Strength of Fundamental (dBuV/m)	Polarization
2.4GHz	2457	95.52	Peak

According to KDB 412172 D01 Determining ERP and EIRP format;

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{E} \times \text{d})^2 / 30$$

Where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m,

d = measurement distance in meters (m),

So, For 2457MHz EIRP(mW) = $(10^{((95.52-120)/20)} \times 3)^2 / 30 \times 1000\text{mW} = 1.07\text{mW}$,

So $(1.07\text{mW}/5\text{mm}) \times \sqrt{2.475\text{GHz}} = 0.34$.

$0.34 < 3.0$ for 1-g SAR

5.2 CONCLUSION

So the sar report is not required.

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