



RF Exposure Evaluation Declaration

FCC ID: 2AV2OITS-AXX

Applicant: Changsha Microbrain Intelligent Technology Co., Ltd.

Application Type: Certification

Product: Millimeter wave radar

Model No.: ITS-A08

Serial Model No.: ITS-AXX (X means 0-9)

Test Rule(s): Part 95 Subpart M, Section 95.3385

Test Date: March 28 ~ 30, 2020

Reviewed By:

Sunny Sun

(Sunny Sun)

Approved By:

Robin Wu

(Robin Wu)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2009RSU016-U2	Rev. 01	Initial Report	09-01-2020	Valid

General Information

Applicant:	Changsha Microbrain Intelligent Technology Co., Ltd.
Applicant Address:	8th Floor, HeadquarterBuilding of CEC Software Park, NO.39 Jianshan Road, High-Tech Development Zone, Changsha, Hunan, China
Manufacturer:	Changsha Microbrain Intelligent Technology Co., Ltd.
Manufacturer Address:	8th Floor, HeadquarterBuilding of CEC Software Park, NO.39 Jianshan Road, High-Tech Development Zone, Changsha, Hunan, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is an FCC accredited testing laboratory (MRT Designation No. CN1166) on the FCC website.
- MRT facility is an ISED recognized testing laboratory (MRT Reg. No. CN0001) on the ISED website.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the A2LA under the A2LA Program (Cert. No. 3628.01) and CNAS under the CNAS Program (Cert. No. L10551) in EMC, Safety, Radio, Telecommunications and SAR testing.

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Millimeter wave radar
Model No.:	ITS-A08
Serial Model No.:	ITS-AXX (X means 0-9)
Transmitting Frequency:	77 ~ 81GHz
Type of Modulation:	FMCW
Emission Designator:	2G86N0N
Working Voltage Range:	10VDC ~ 16VDC
Working Temperature Range:	-40°C ~ 85°C
Antenna Type:	Integrated antenna

Note: The different of models only for marketing different client, the other was the same.

2. RF EXPOSURE EVALUATION

2.1. Limits

FCC 95.3385

Regardless of the power density levels permitted under this subpart, devices operating under the provisions of this subpart are subject to the radiofrequency radiation exposure requirements specified in §§1.1307(b), 2.1091, and 2.1093 of this chapter, as appropriate. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

§2.1091 Radiofrequency radiation exposure evaluation: portable devices

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

§1.1310 Radiofrequency radiation exposure limits.

Below sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

f= Frequency in MHz

* = Plane-wave equivalent power density

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2) = E / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

E = EIRP in mW

G = gain of antenna in linear scale

π = 3.14

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

2.2. Test Result of RF Exposure Evaluation

Product	Millimeter wave radar
Test Item	RF Exposure Evaluation

Frequency Range (GHz)	Maximum EIRP (dBm)	Power Density at r = 20 cm (mW/cm ²)	Limit (mW/cm ²)
77 ~ 81	8	0.0013	1

CONCLUSION:

The Power density at 20cm as below:

$$P_d(20\text{cm}) = E/(4 \cdot \pi \cdot r^2) = 10^{(8/10)}/(4 \cdot 3.14 \cdot 20^2) \text{ mW/cm}^2 = 0.0013 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$$

So the EUT complies with the FCC 95.3385 requirement.

_____ The End _____

Appendix - EUT Photograph

Refer to “2009RSU016-UE” file.