

TEST REPORT

Report No.: SRTC2024-9003(F)-0017
Product Name: Edge Computer
Model Name: EC300-FQ39
Applicant: Beijing InHand Networks Technology Co., Ltd.
Manufacturer: Beijing InHand Networks Technology Co., Ltd.
Specification: FCC Part15B (Certification)
(2023 edition)
ANSI C63.4-2014
FCC ID 2AANY-EC300FQ39

The State Radio_monitoring_center Testing Center (SRTC)
15th Building, No.30 Shixing Street, Shijingshan District,
Beijing, China

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1. General information

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
Test Site 1: 15th Building, No.30 Shixing Street, Shijingshan District
Test Site 2: No.80, Zhaojiachang, Beizang, Daxing District
City: Beijing
Country or Region: P.R.China
Contacted person: Liu Jia
Tel: +86 10 57996183
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Email: liujiaf@srtc.org.cn
Designation Number: CN1267
Registration number: 239125

1.3 Applicant's details

Company: Beijing InHand Networks Technology Co., Ltd.
Address: Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing
City: Beijing
Country or Region: China
Contacted person: Gujichi
Tel: 15281366255
Email: gujc@inhand.com.cn

1.4 Manufacturer's details

Company: Beijing InHand Networks Technology Co., Ltd.
Address: Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing
City: Beijing
Country or Region: China
Contacted person: Gujichi
Tel: 15281366255
Email: gujc@inhand.com.cn

1.5 Application details

Date of reception of test sample: 20th March 2024

Date of test: 20th March 2024 to 12th April 2024

1.6 Reference specification

FCC Part 15B, 2023 (Certification)
ANSI C63.4-2014

1.7 Information of EUT

1.7.1 General information

Name of EUT	Edge Computer
Model Name of EUT	EC300-FQ39
FCC ID	2AANY-EC300FQ39
Frequency Range	LTE: FDD 2/ FDD 4/ FDD 5/ FDD 7/ FDD 12/ FDD 13/FDD 14/ FDD 17/ FDD 25/FDD 26 FDD 30/ FDD 42/ FDD 43/FDD 66/ FDD 71 /TDD 41/TDD 48 WiFi: 2.412GHz~2.472 GHz 5.15-5.25GHz/5.725GHz-5.85GHz
Input Rated Voltage	12VDC
Extreme Temperature	Lowest: -20°C Highest: +70°C
Extreme Voltage(Battery)	Minimum:9V, Maximum:48V
HW Version	V1.2
SW Version	V2.0

1.7.2 EUT details

No.	Model Name	IMEI
EUT1	EC300-FQ39	865723060933257

Note: Test model No. EC300-FQ39 series model No. EC302-FQ39, EC312-FQ39, EC322-FQ39, EC304-FQ39, EC314-FQ39, EC324-FQ39. These models are the same in following: appearance, PCB layout and basic software function. The only difference is that the products are used in different markets. The market for each model is listed below:

EC300-FQ39	New energy charging pile
EC302-FQ39	Smart power system network
EC312-FQ39	Industrial robot networking
EC322-FQ39	Supply of heat/ water/gas
EC304-FQ39	Industrial automation factory
EC314-FQ39	Medical equipment networking
EC324-FQ39	Intelligent agriculture

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Adapter

Equipment	Adapter Power
Manufacturer	KUANTEN
Model Number	KT241120200CHL

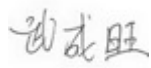
1.7.4 Test mode

Mode No.	Description of test mode
Mode 1:	Charging mode

2. Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	Conducted emissions	15.107	Pass
2	Radiated emissions	15.109	Pass

Approved By: Mr.LiuWei Director of the test department 	Checked By: Mr.Guoyu Vice director of the test department 
Tested By: Mr.Wu Chengwang 	Issued date: 2024.04.12

2.2 Test result

2.2.1 Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
22.6°C	38.3%	100.8kPa

Test Setup with charger:

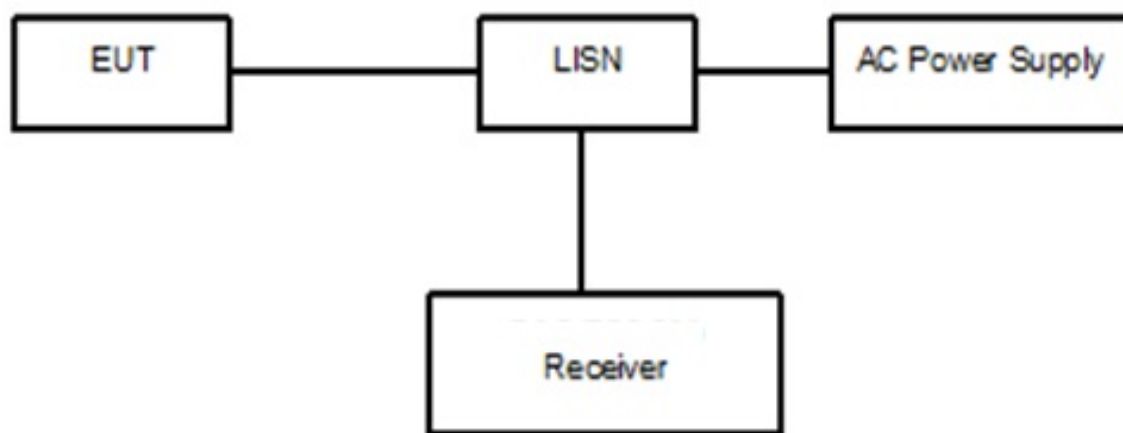


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT is connected with LISN via the charger. The LISN is connected to the reference ground.

The test set-up and the test methods are performed according to ANSI C63.4:2014.

Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.

The data of cable loss has been calibrated in full testing frequency range before the testing.

A “reference path loss” Corr.(dB) is established and the $L_{\text{cable}} + \text{ATT} + \text{VDF}$ is the attenuation of “reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.

The measurement results are obtained as described below:

$$P_{\text{result}} = P_{\text{mea}} + \text{Corr. (dB)}$$

Limit:

Frequency of Emission(MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15~0.5	66 to 56*	56 to 46*
0.5~5	56	46
5~30	60	50

Note: * Decreases with the logarithm of the frequency

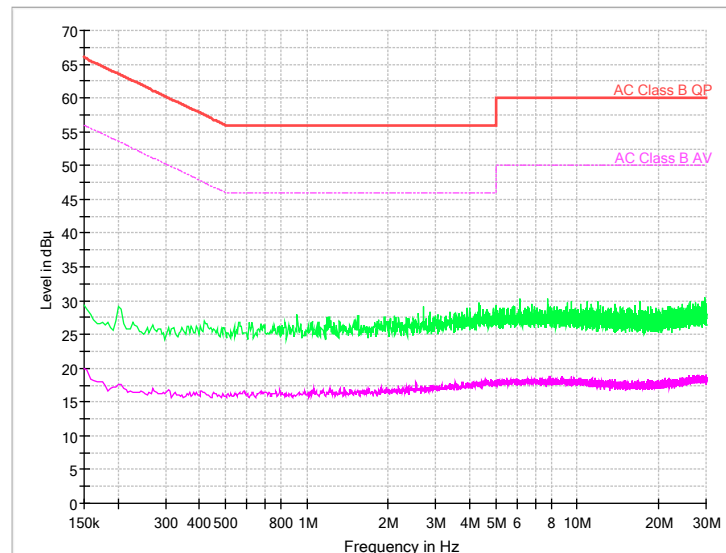
Uncertainty

Quasi-peak: 3.92dB

Average: 3.92dB

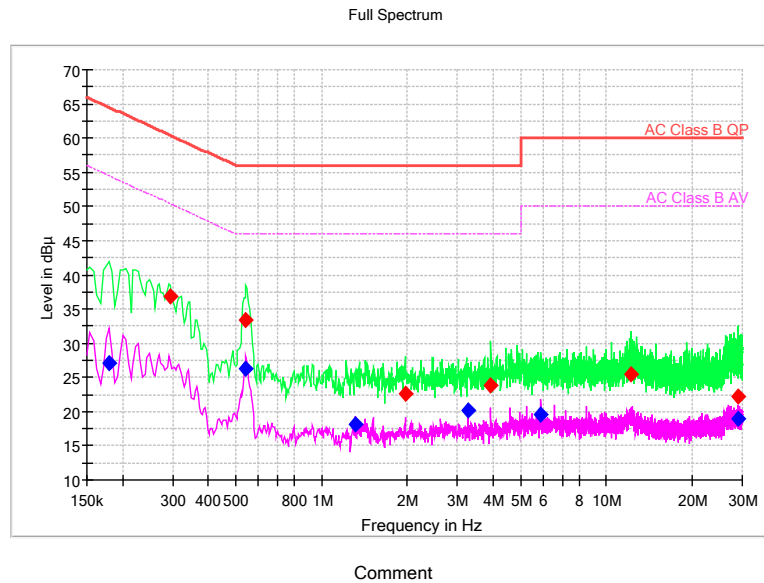
Test result:

Noise Level of the Measuring Instrument



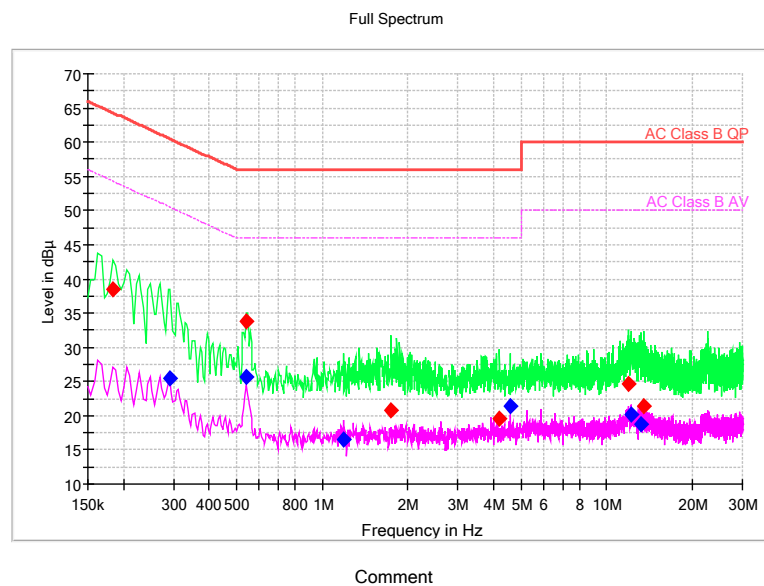
Pic1. Conducted emission L and N Line

EUT1 + AE#1: Adapter:



Pic2. Conducted emission L&N Line 120V AC

EUT1 + AE#1: Adapter:



Pic3. Conducted emission L&N Line 240V AC

2.2.2 Radiated Emissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
22.7°C	37.9%	100.8kPa

Test Setup:

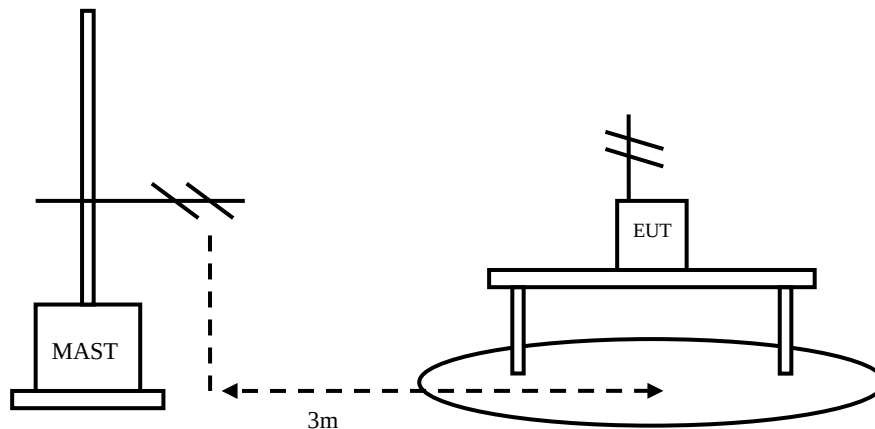


Figure 2

Test Procedure:

EUT+Charger:

The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.

The EUT should work in idle mode. The test set-up and the test methods are performed according to ANSI C63.4:2014.

Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow: 1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.

The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing. All test results are performed with max hold at the horizontal and vertical polarity.

RBW=120kHz, VBW=300kHz, when the test frequency: 30MHz<f<1GHz

RBW=1MHz, VBW=3MHz, when the test frequency: f>1GHz

A “reference path loss” is established and the A_{Rpl} is the attenuation of “reference path loss”,

and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{mea}} + A_{\text{Rpl}}$$

Sample calculation: $(28.35 \text{ dB}\mu\text{V/m}) = (47.65 \text{ dB}\mu\text{V}) + (-19.3\text{dB/m})$, the corresponding frequency is 39.220500MHz.

Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dB μ V/m)
30~88	Quasi-peak	40
88~216	Quasi-peak	43.5
216~960	Quasi-peak	46
960~1000	Quasi-peak	54
1000~5th harmonic of the highest frequency or 40GHz, whichever is lower	Average Peak	54 74

Uncertainty

30MHz~1000MHz 4.73dB

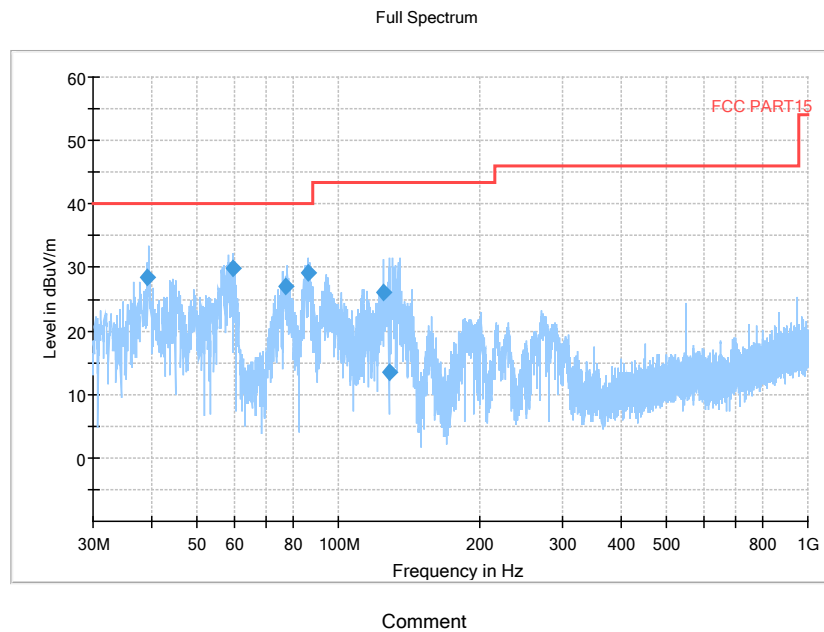
1000MHz~26000MHz 4.58dB

Test result:

EUT1 + AE#1: Adapter:

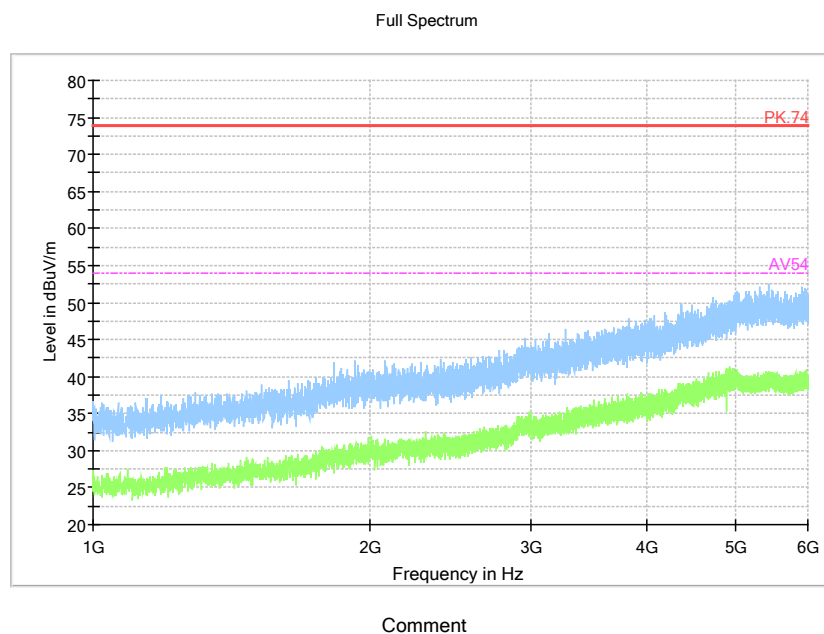
Frequency (MHz)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	ARpl (dB/m)	Pmea (dB μ V)	Polarity
39.220500	28.35	40.00	11.65	-19.3	47.65	V
59.679000	29.78	40.00	10.22	-19.8	49.58	V
77.464000	26.99	40.00	13.01	-22.2	49.19	V
85.940500	29.14	40.00	10.86	-20.8	49.94	V
124.637500	26.08	43.50	17.42	-21.1	47.18	V
128.789000	13.45	43.50	30.05	-21.6	35.05	V

EUT1 + AE#1: Adapter: refer to Pic4 to Pic7



Pic4. Radiated emission (30MHz – 1GHz)

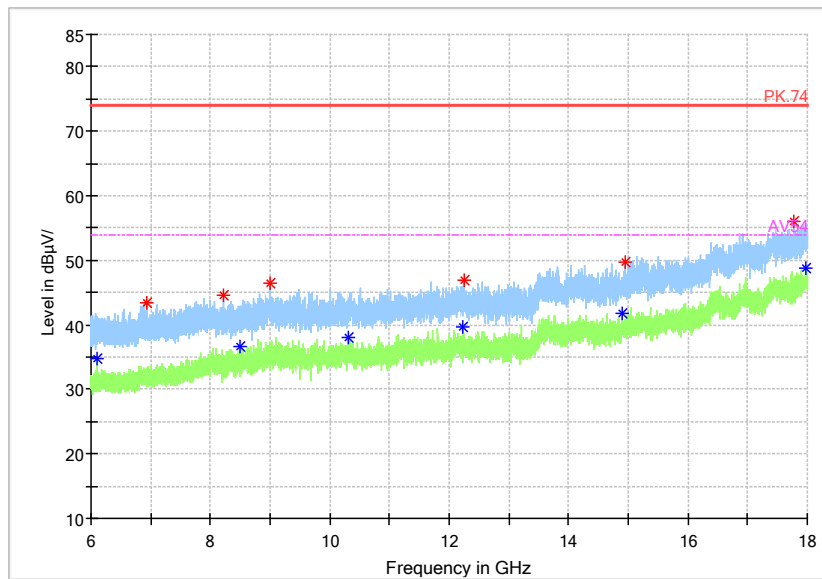
Note: The test data in the graph includes two polarizations: horizontal and vertical



Pic5. Radiated emission (1GHz –6GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

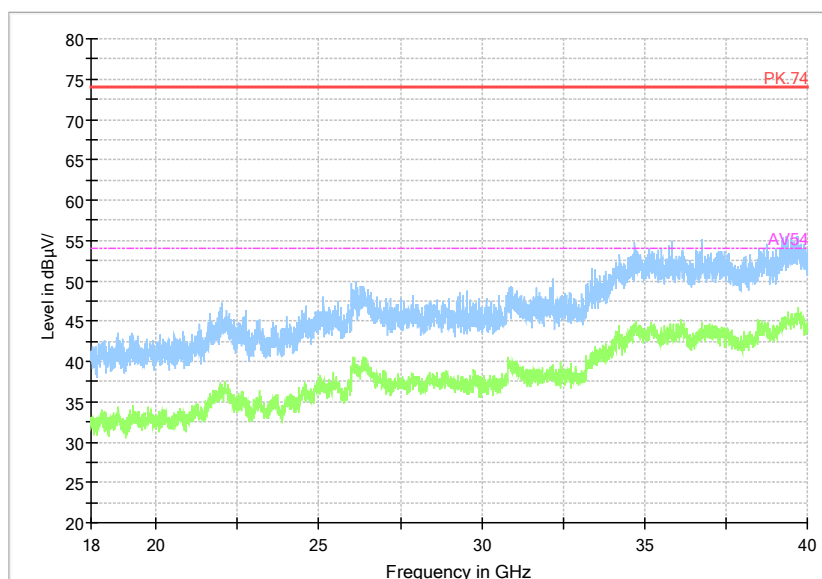
Full Spectrum



Pic6. Radiated emission (6GHz –18GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

Full Spectrum



Pic7. Radiated emission (18GHz –40GHz)

Note: The test data in the graph includes two polarizations: horizontal and vertical

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date	Calibration Date
1	23.18m×16.88m×9.60mS emi-AnechoicChamber	FRANKONIA	-----	2028.09.05	2023.09.05
2	ESW EMI test receiver	R&S	101574	2025.03.06	2024.03.06
3	ESR3 EMI test receiver	R&S	102361	2025.03.06	2024.03.06
4	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	2027.03.25	2022.03.25
5	VULB 9163 Ultra log test antenna	schwarzbeck	727	2025.05.28	2023.05.28
6	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	2025.07.20	2023.07.20
7	SAS-574 Horn Antenna	schwarzbeck	535	2025.05.12	2023.05.12
8	ENV216 AMN	R&S	101881	2024.06.21	2023.06.21
9	EMC32EMI test software	R&S	V10	-----	-----

-----The end-----