TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2BGDM-ECX1	
Test Report No..... :	TCT240509E050	
Date of issue..... :	May 24, 2024	
Testing laboratory ..... :	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name..... :	AEAI PTE.LTD.	
Address..... :	3 PHILLIP STREET, #09-02 ROYAL GROUP BUILDING SING, Singapore	
Manufacturer's name ... :	AEAI PTE.LTD.	
Address..... :	3 PHILLIP STREET, #09-02 ROYAL GROUP BUILDING SING, Singapore	
Standard(s) ..... :	FCC CFR Title 47 Part 1.1307	
Product Name..... :	Aethir Edge Computing Server	
Trade Mark ..... :	N/A	
Model/Type reference..... :	ECX1, ECX2, ECX3, DN003, S-DN003	
Rating(s)..... :	Refer to EUT description of page 3	
Date of receipt of test item ..... :	May 09, 2024	
Date (s) of performance of test..... :	May 09, 2024 ~ May 24, 2024	
Tested by (+signature) ... :	Ronaldo LUO	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

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1. General Product Information

1.1. EUT description

Product Name.....:	Aethir Edge Computing Server
Model/Type reference.....:	ECX1
Sample Number.....:	TCT240509E010-0101
Operation Frequency.....:	For BT/BLE: 2402MHz~2480MHz For 2.4GWIFI: 2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)/802.11ax(HT20)) 2422MHz~2452MHz (802.11n(HT40)/802.11ax(HT40)) For 5GWIFI: Band 1: 5180 MHz~5240 MHz Band 3: 5745 MHz~5825 MHz
Modulation Type.....:	For BT: GFSK, π/4-DQPSK, 8DPSK For BLE: GFSK For 2.4GWIFI: DSSS(802.11b), OFDM (802.11g/802.11n//802.11ax) For 5GWIFI: 256QAM, 64QAM, 16QAM, BPSK, QPSK
Antenna Type.....:	Internal Antenna
Antenna Gain.....:	For BT/BLE: 5.27dBi For 2.4GWIFI: Antenna 0: 5.27dBi Antenna 1: 4.47dBi For 5GWIFI: Band 1: Antenna 1: 2.58dBi, Antenna 2: 3.91dBi Band 3: Antenna 1: 4.64dBi, Antenna 2: 4.05dBi
Rating(s).....:	Adapter Information: Model: CS-1204000 Input: AC 100-240V, 50/60Hz, 2A Max. Output: DC 12.0V, 4.0A, 48.0W

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

No.	Model No.	Tested with
1	ECX1	☒
Other models	ECX2, ECX3, DN003, S-DN003	☐

Note: ECX1 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names and appearance. So the test data of ECX1 can represent the remaining models.

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2. General Information

2.1. Test environment and mode

Item	Normal condition
Temperature	+25ºC
Voltage	AC 120 V/60 Hz
Humidity	56%
Atmospheric Pressure:	1008 mbar
Test Mode:	
Engineering mode:	Keep the EUT in continuous transmitting by select channel

2.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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3. Facilities and Accreditations

3.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

  SHENZHEN TONGCE TESTING LAB

  Designation Number: CN1205

  The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  SHENZHEN TONGCE TESTING LAB

  CAB identifier: CN0031

  The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

3.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4. Test Results and Measurement Data

According to §1.1307(b), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

Remark: 1)

SISO mode:

For BT: The maximum output power for antenna is 7.96dBm (6.25mW) at 2402MHz, 5.27dBi antenna gain(with 3.37 numeric antenna gain);

For BLE(1M): The maximum output power for antenna is 7.23dBm (5.28mW) at 2402MHz, 5.27dBi antenna gain(with 3.37 numeric antenna gain);

For BLE(2M): The maximum output power for antenna is 6.94dBm (4.94mW) at 2402MHz, 5.27dBi antenna gain(with 3.37 numeric antenna gain);

For 2.4G WIFI: The maximum output power is in 802.11b mode at 2462MHz, with antenna 2 is 14.76dBm (29.92mW), 4.47dBi antenna gain(2.80 numeric antenna gain);

For Band 1: The maximum output power is in 802.11n(HT20) mode at 5825MHz, with antenna 2 is 15.45dBm (35.08mW), 3.91dBi antenna gain(2.46 numeric antenna gain)

For Band 3: The maximum output power is in 802.11ax(VHT20) mode at 5785MHz, with antenna 2 is 17.03dBm (50.47mW), 4.05 antenna gain(2.54 numeric antenna gain)

MIMO mode:

For 2.4G WIFI: The maximum output power is in 802.11n(HT20) mode at 2462MHz, for total power is 16.11dBm (40.83mW), 7.89dBi antenna gain(with 6.15 numeric antenna gain)

For Band 1: The maximum output power is in 802.11n(HT20) mode at 5825MHz, for total power is 17.95dBm (62.37mW), 6.28dBi antenna gain(with 4.25 numeric antenna gain)

For Band 3: The maximum output power is in 802.11ac(HT20) mode at 5785MHz, for total power is 18.86dBm (76.91mW), 7.36dBi antenna gain(with 5.46 numeric antenna gain.)

2) For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20cm, even if the calculation indicate that the MPE distance would be lesser.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = *Field Strength in Volts / meter*
P = *Power in Watts*
G = *Numeric antenna gain*
d = *Distance in meters*
S = *Power Density in milliwatts / square centimeter*

Substituting the MPE safe distance using d=20cm into above equation.
Yields: $S=0.000199*P*G$

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SISO mode:

Maximum Emissions Level					
Mode	**Power(mW)**	**numeric antenna gain**	**Power density (mW/cm^2)**	**Limit (mW/cm^2)**	**Result**
BT	6.25	3.37	0.004191	1.0	PASS
BLE(1M)	5.28	3.37	0.003541		
BLE(2M)	4.94	3.37	0.003313		
2.4G WIFI	29.92	2.80	0.016671		
Band 1	35.08	2.46	0.017173		
Band 3	50.47	2.54	0.025511		

MIMO mode:

Maximum Emissions Level					
Mode	**Power(mW)**	**numeric antenna gain**	**Power density (mW/cm^2)**	**Limit (mW/cm^2)**	**Result**
2.4G WIFI	40.83	6.15	0.049970	1.0	PASS
Band 1	62.37	4.25	0.052749		
Band 3	76.91	5.46	0.083566		

Simultaneous transmitting:

Maximum Emissions Level					
Mode	**BT**	**WIFI**	**Total MPE**	**Limit**	**Result**
BT + WIFI	0.004191	0.049970	0.054161	1.0	PASS
BT + U-NII	0.004191	0.083566	0.087757		

********END OF REPORT********

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