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Dates of Tests: March 20 ,2024
Test Report S/N: LR500112404F
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID. **2AZKWAIR-R29A**
APPLICANT **ATEC IoT CO., LTD.**

Equipment Class : **Digital Transmission System (DTS)**
Manufacturing Description : **Electronic Shelf Label**
Manufacturer : **ATEC IoT CO., LTD.**
Model name : **AIR-R29A**
Variant Model name : **-**
Test Device Serial No.: : **Identical prototype**
Rule Part(s) : **FCC Part 15.247 Subpart C ; ANSI C63.10 - 2013**
Frequency Range : **2405 ~ 2480 MHz Zigbee**
Max. Output Power : **Max 4.98 dBm - Conducted**
Data of issue : **April 01 ,2024**

This test report is issued under the authority of:

Ja-Beom Koo, Manager

The test was supervised by:

Eun-Hwan Jung, Test Engineer

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1. General information

1-1 Test Performed

Company name : LTA Co., Ltd.
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Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the “General requirements for the competents of calibration and testing laboratory”.

1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	2025-03-29	FCC CAB
VCCI	JAPAN	C-4948,	2026-09-10	VCCI registration
VCCI	JAPAN	T-2416,	2026-09-10	VCCI registration
VCCI	JAPAN	R-4483(10 m),	2026-10-15	VCCI registration
VCCI	JAPAN	G-847	2024-12-13	VCCI registration
IC	CANADA	5799A-1	2024-08-15	IC filing

2. Information about test item

2-1 Client & Manufacturer

Client Company name : ATEC IoT CO., LTD.
 Address : 289, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
 Tel / Fax : +82-31-696-9829 / +82-31-696-9899
 Manufacturer : ATEC IoT CO., LTD.
 Address : 289, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea
 Tel / Fax : +82-31-696-9829 / +82-31-696-9899

2-2 Equipment Under Test (EUT)

Model name : AIR-R29A
 Serial number : Identical prototype
 Date of receipt : February 27 ,2024
 EUT condition : Pre-production, not damaged
 Antenna type : Pattern Antenna (Gain : 0.29dBi)
 Frequency Range : 2405 ~ 2480 MHz
 RF output power : Max 4.98 dBm – Conducted
 Type of Modulation : GFSK, O-QPSK
 Power Source : DC 3 V

2-3 Tested frequency

Bluetooth	LOW	MID	HIGH
Frequency (MHz)	2405	2440	2480

2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Notebook	-	MS-1736	MSI

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
§ 1.1310 and §2.1091	RF EXPOSURE EVULATION	-	-	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

3.2 RF EXPOSURE EVULATION

1.1 Limit

According to §1.1310 and §2.1091 RF exposure is calculated.

(B) Limits for General Population/Uncontrolled Exposures

Frequency range (MHz)	Electric field Strength	Magnetic field Strength	Power density (mW/cm ²)	Averaging time
1.34 - 30.....	824/f	2.19/f	*(180/ f ²)	30
30 - 300.....	27.5	0.073	0.2	30
300 - 1500.....	f/1500	30
1500 - 100.000.....	1.0	30

F = frequency in MHz
 * = Plane-wave equivalent power density

1.2 MAXIMUM PERMISSIBLE EXPOSURE Prediction

Prediction of MPE limit at a given distance

Power density at the specific separation:

<p>$S = PG/(4R^2\pi)$</p> <p>$S = (3.15 * 1.07) / (4 * 20^2 * \pi)$</p> <p>$S = 0.0007 \text{ mW/cm}^2$</p>	<p>Where,</p> <p>S = Maximum power density (mW/cm²)</p> <p>P = Power input to the antenna (mW)</p> <p>G = Numeric power gain of the antenna</p> <p>R = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)</p>
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1.3 MAXIMUM PERMISSIBLE EXPOSURE Prediction

- Calculated under the worst-case conditions of each mode.
 (Measured power 3 dBm ± 0.5dB)

2.4GHz Mode

Max Peak output Power at antenna input terminal	4.98	dBm
Max Peak output Power at antenna input terminal	3.15	mW
Prediction distance	0.5	cm
Prediction frequency	2405	MHz
Antenna Gain(typical)	0.29	dBi
Antenna Gain(numeric)	1.07	-

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance ≤ 50 mm = **Used**
 $[(\text{max.power of channel, including tune-up torelance, mW})/(\text{min. test separation distance, mm})] * [\sqrt{f}(\text{GHz})]$
 $= [3.15 / 5] * [\sqrt{2.405 }] = 0.981 \leq 3.0$, for 1g SAR
Thus, SAR for this device is not required.