

Dates of Tests: March 20, 2024
Test Report S/N: LR500112404J
Test Site : LTA CO., LTD.

CERTIFICATION OF COMPLIANCE

FCC ID.

2AZKWAIR-R58A

APPLICANT

ATEC IoT CO., LTD.

Equipment Class	:	Digital Transmission System (DTS)
Manufacturing Description	:	Electronic Shelf Label
Manufacturer	:	ATEC IoT CO., LTD.
Model name	:	AIR-R58A
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 4.88 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.
Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822
Web site : <http://www.ltalab.com>
E-mail : chahn@ltalab.com
Telephone : +82-31-323-6008
Facsimile : +82-31-323-6010

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-R58A

Serial number : Identical prototype

Date of receipt : February 27 ,2024

EUT condition : Pre-production, not damaged

Antenna type : Pattern Antenna (Gain : -0.23dBi)

Frequency Range : 2405 ~ 2480 MHz

RF output power : Max 4.88 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

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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:

$S = PG/(4R^2\pi)$ $S = (3.08 * 0.95) / (4 * 5^2 * \pi)$ $S = 0.009 \text{ mW/cm}^2$	Where, S = Maximum power density (mW/cm ²) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)
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1.3 MAXIMUM PERMISSIBLE EXPOSURE Prediction

- Calculated under the worst-case conditions of each mode.

(Measured power 3 dBm $\pm$ 0.5dB)

2.4GHz Mode

Max Peak output Power at antenna input terminal	4.88	dBm
Max Peak output Power at antenna input terminal	3.08	mW
Prediction distance	5	cm
Prediction frequency	2440	MHz
Antenna Gain(typical)	-0.23	dBi
Antenna Gain(numeric)	0.95	-

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance $\leq$ 50 mm = **Used**

$[(\text{max.power of channel, including tune-up torelance, mW})/(\text{min. test separation distance, mm})] * [\sqrt{f}(\text{GHz})]$

$= [3.08 / 50] * [\sqrt{2.440}] = 0.10 \leq 3.0$, for 1g SAR

Thus, SAR for this device is not required.