



243 Jubug-Ri, Yangji-Myeon, Yongin-Si, Gyeonggi-Do, Korea 17159  
Tel: +82-31-323-6008 Fax: +82-31-323-6010  
<http://www.ltalab.com>

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.**

<b>Equipment Class</b>	:	<b>Digital Transmission System (DTS)</b>
<b>Manufacturing Description</b>	:	<b>Electronic Shelf Label</b>
<b>Manufacturer</b>	:	<b>ATEC IoT CO., LTD.</b>
<b>Model name</b>	:	<b>AIR-R58A</b>
<b>Variant Model name</b>	:	<b>-</b>
<b>Test Device Serial No.:</b>	:	<b>Identical prototype</b>
<b>Rule Part(s)</b>	:	<b>FCC Part 15.247 Subpart C ; ANSI C63.10 - 2013</b>
<b>Frequency Range</b>	:	<b>2405 ~ 2480 MHz Zigbee</b>
<b>Max. Output Power</b>	:	<b>Max 4.88 dBm - Conducted</b>
<b>Data of issue</b>	:	<b>April 01 ,2024</b>

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](mailto: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

### 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 <sup>2</sup> )	Averaging time
1.34 - 30.....	824/f	2.19/f	*(180/ f <sup>2</sup> )	30
30 - 300.....	27.5	0.073	0.2	30
300 - 1500.....	.....	.....	<b>f/1500</b>	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><math>S = PG/(4R^2\pi)</math></p> <p><math>S = (3.08 * 0.95) / (4 * 5^2 * \pi)</math></p> <p><math>S = 0.009 \text{ mW/cm}^2</math></p>	<p>Where,</p> <p>S = Maximum power density (mW/cm<sup>2</sup>)</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	4.88	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**

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

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

**Thus, SAR for this device is not required.**