MPE TEST REPORT

Applicant	:	AiRISTA Flow, Inc.
Address of Applicant	:	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.
Product Name	:	BLE Beaconing Gateway UNIT
Brand Name	:	AiRISTA Flow
Model Name	:	BGU.C
Sample Acquisition Method	:	Sent by Client
Sample No.	:	E24030088-01#03 E24030088-01#02
FCC ID	:	TA7-BGU
Standard	:	FCC Part 2.1091
Date of Receipt	:	2024-03-27
Date of Test	:	2024-03-28~ 2024-04-12
Date of Issue	:	2024-04-17

Remark:

This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

Prepared by: Erik. Yang (Erik Yang) Reviewed by: Jennifer zhou (Jennifer Zhou) Approved by: Echo Mu (Authorized signatory: Echo Mu)

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1 General Information

1.1 Testing Laboratory

Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd.
Address	No.1298, Pingan Road, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

1.2 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060
Ambient noise & Reflection（W/kg）	< 0.012

1.3 Details of Application

Applicant Company Name	AiRISTA Flow, Inc.
Address	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.
Contact Person	Patrick Jenkins
Telephone	(443) 212-4251
Email	Patrick.Jenkins@Airista.com
Manufacturer Company Name	AiRISTA Flow, Inc.
Address	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.
Factory Company Name	AiRISTA Flow, Inc.
Address	1966 Greenspring Drive, Suite 125 Timonium, Maryland 21093.

1.4 Details of EUT

Product Name	BLE Beaconing Gateway UNIT	
Brand Name	AiRISTA Flow	
Test Model Name	BGU.C	
FCC ID	TA7-BGU	
Mode of Operation	WLAN 802.11b/g/n(HT20/40) for 2.4GHz Bluetooth BLE Version 5.0	
Frequency Range	Band	Frequency (MHz)
	802.11b/g/n(HT20/40)	2400~2483.5
	Bluetooth	2400~2483.5
Modulation Type	DSSS/OFDM for WLAN 2.4GHz	

	GFSK for Bluetooth
Antenna Type	(CC2642R1F) BLE1: Internal Antenna (CC2642R1F) BLE2: Internal Antenna (RTL8720DN) BLE: PCB Antenna
Antenna Gain	(CC2642R1F) BLE1: 2.5dBi (CC2642R1F) BLE2: 2.5dBi (RTL8720DN) BLE&2.4GWiFi: 0.43dBi
Hardware Version	1.0
Software Version	1000.2338

2 Maximum Permissible Exposure (MPE)

2.1 Limits

According to FCC Part 1.1307, systems operating under the provisions of this section shall be operated in a manner the ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidelines.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

2.2 Assessment methods

Calculation Formula from FCC OET 65:

$$S = \frac{\mathrm{P} * \mathrm{G}}{4 * \pi * R^2}$$

Where:

S = Power Density (mW/cm2)

P = Input Power of the Antenna (mW)

G = Antenna Gain Relative to an Isotropic Antenna

R = Distance from the Antenna to the Point of Investigation (cm)

2.3 Test Result

Operation Mode	Frequency Range (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	Max EIRP (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
WLAN 2.4GHz	2400~2483.5	17.74	0.43	65.61	0.013053	1.0
(RTL8720DN) BLE	2400~2483.5	5.83	0.43	4.23	0.000841	1.0
(CC2642R1F) BLE1	2400~2483.5	-2.76	2.5	0.94	0.000187	1.0
(CC2642R1F) BLE2	2400~2483.5	-1.30	2.5	1.32	0.000262	1.0

2.4 Results for transmit simultaneously

Configurations	Transmit Simultaneously	Limit
WLAN 2.4GHz+(CC2642R1F) BLE1+(CC2642R1F) BLE2	0.013502	1.0
(RTL8720DN) BLE+(CC2642R1F) BLE1+(CC2642R1F) BLE2	0.001290	1.0

Note(s):

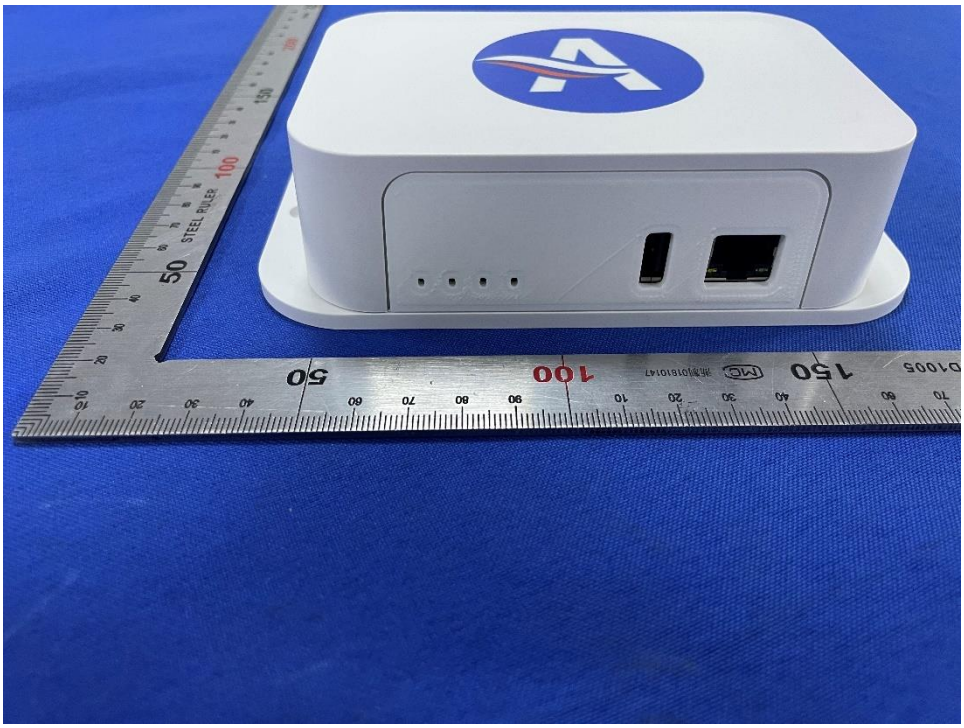
1. For 300 – 1,500MHz: Power Density limit is f/1500 mW/cm2
2. For 1,500 – 100,000MHz: Power Density limit is 1.0 mW/cm^2
3. MPE Ratios are Calculated as [(MPE1/Limit)+ (MPE2/Limit) + ……]≤1

2.5 Conclusion

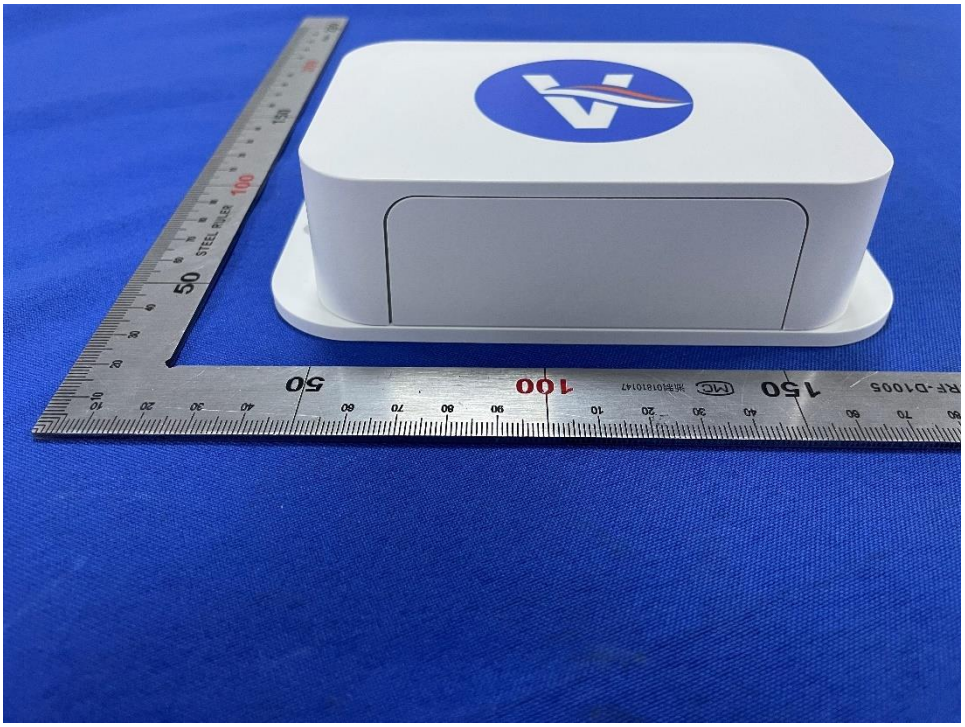
The Power Density at the position which is 20 cm far from the EUT is smaller than the General Population/Uncontrolled Exposure limit.

3 Appendixes

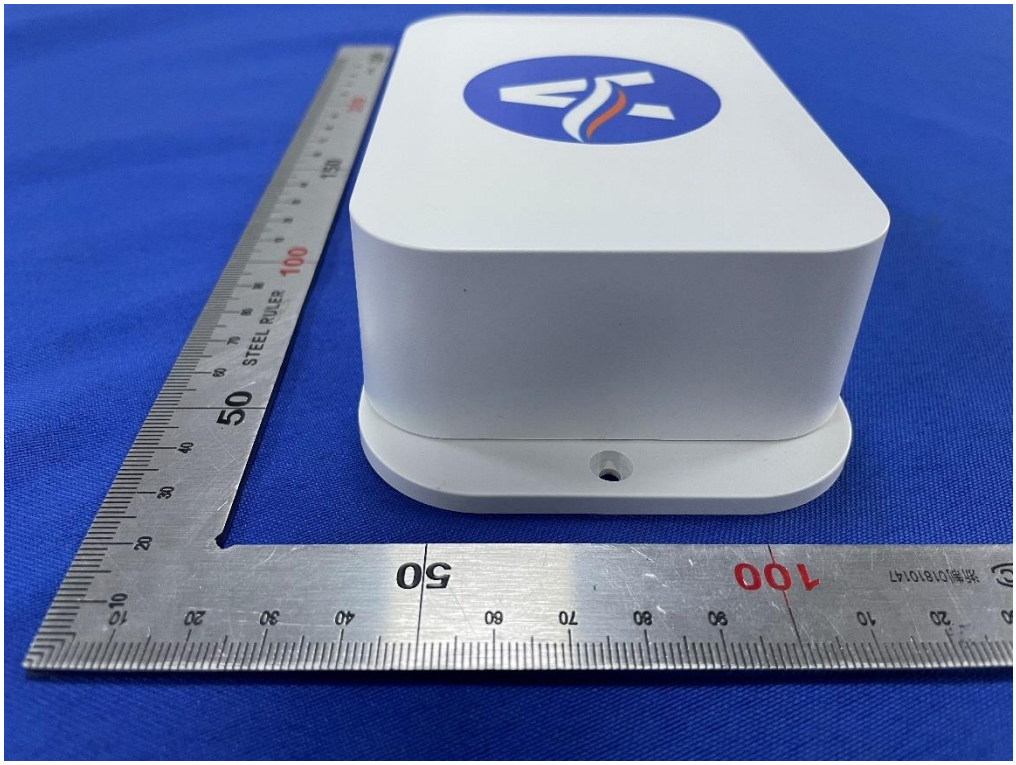
3.1 Sample Photograph



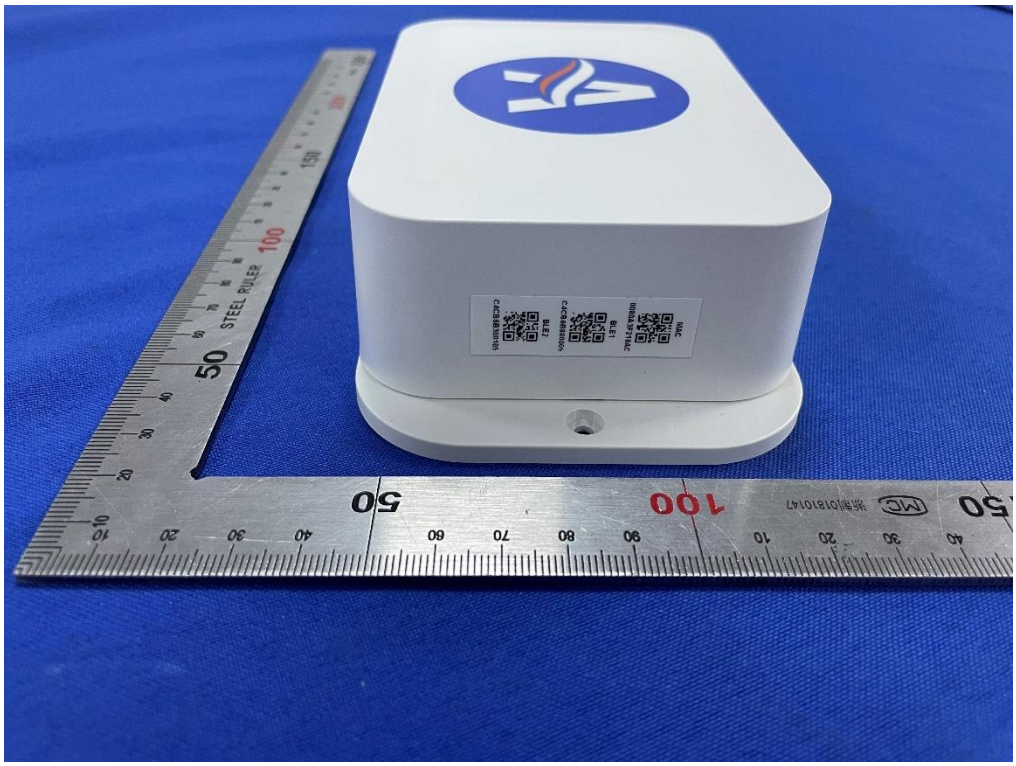
Front of the sample



Rear of the sample



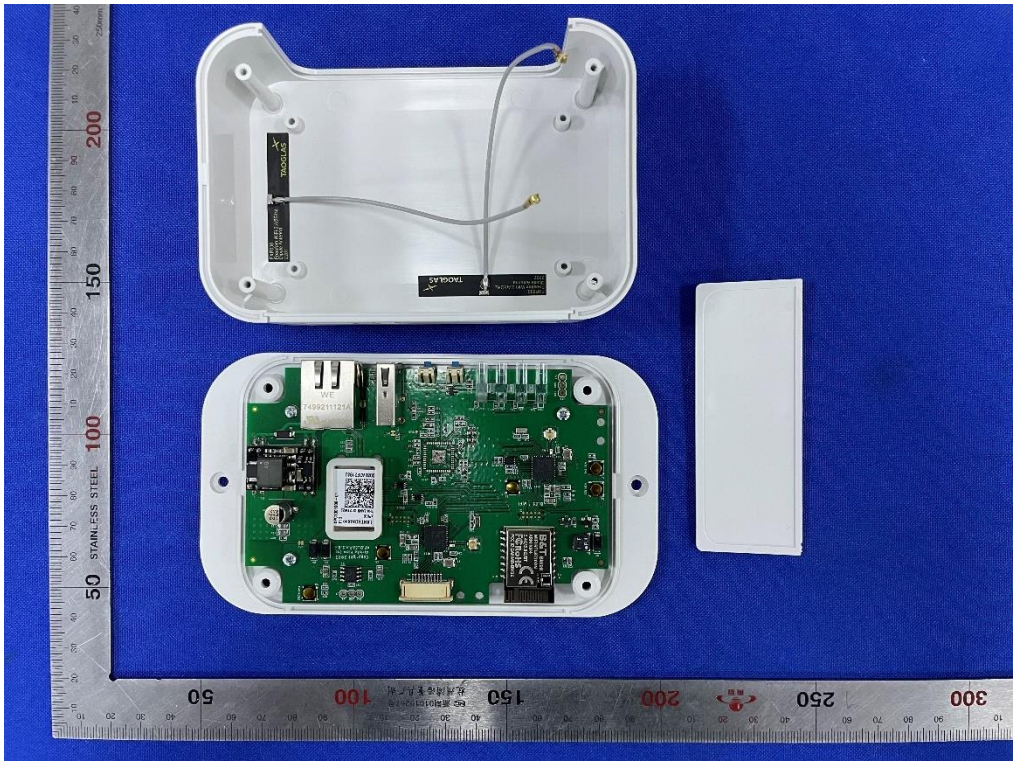
Left of the sample



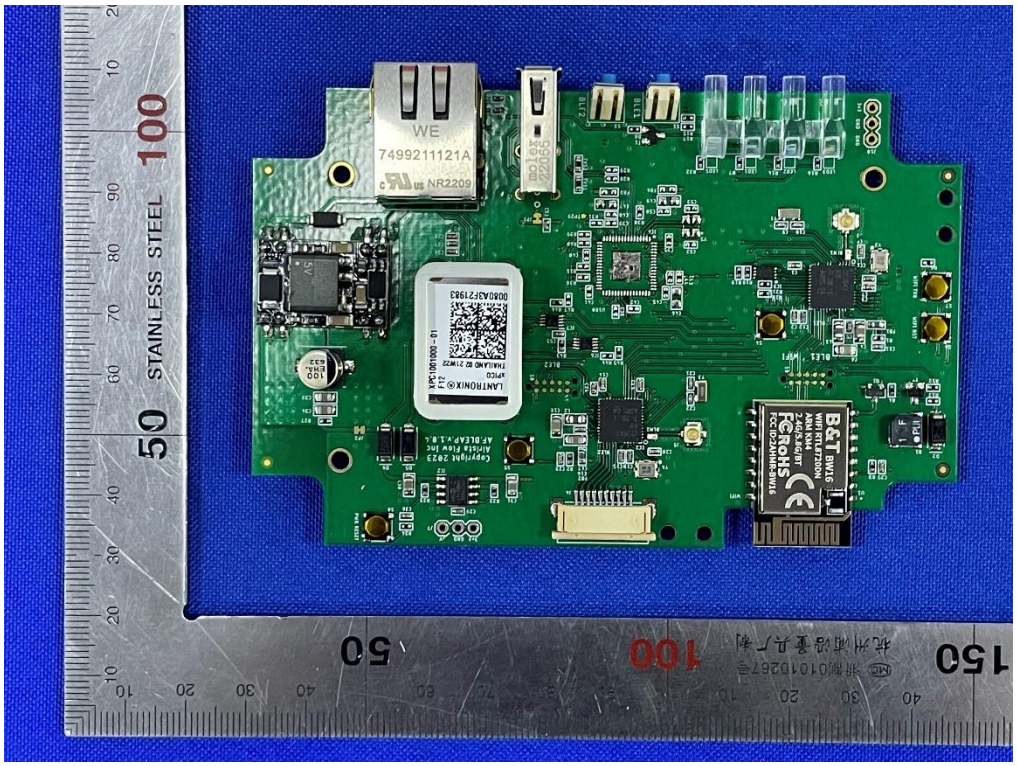
Right of the sample

Top of the sample

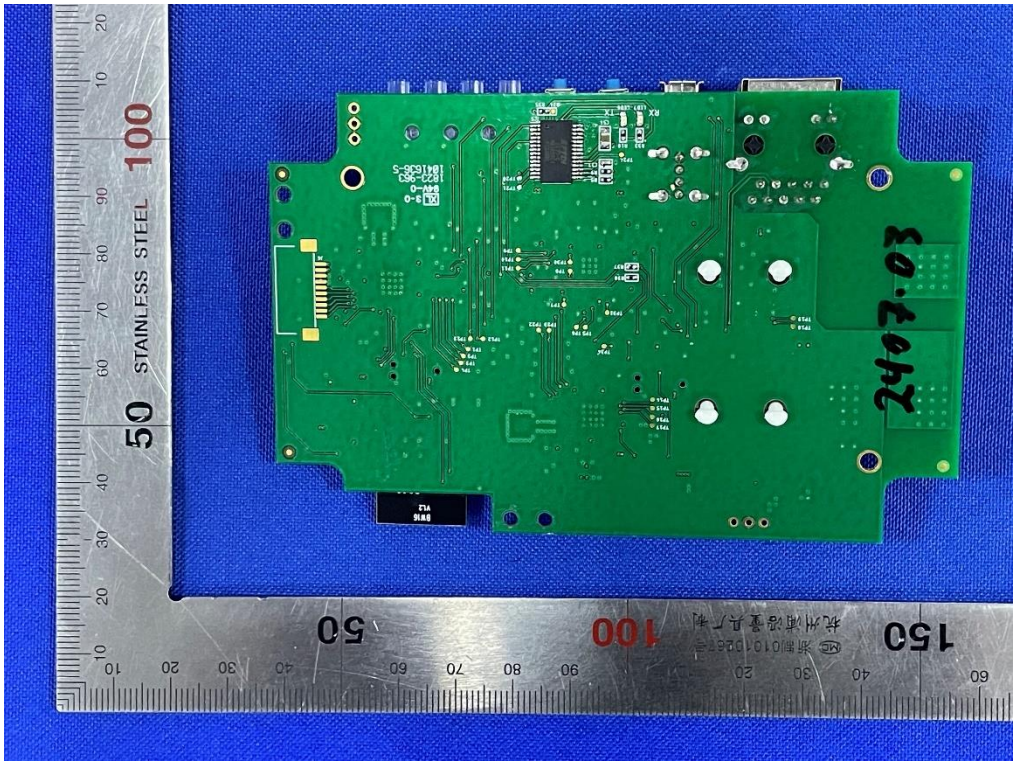
Bottom of the sample



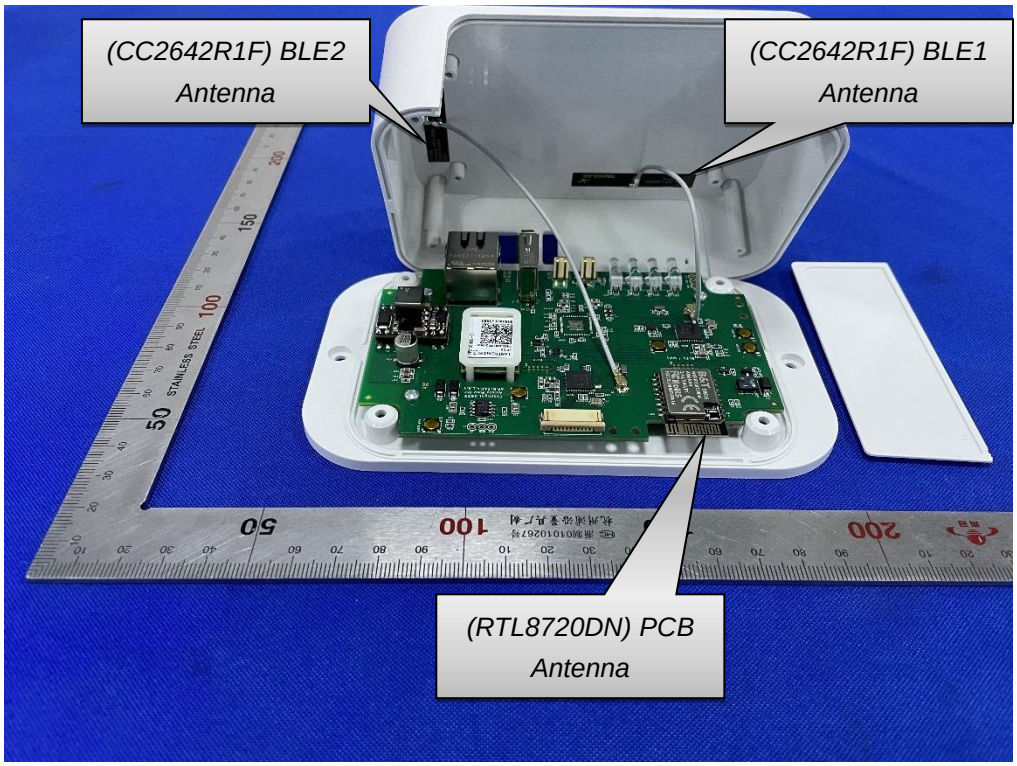
Open of the sample



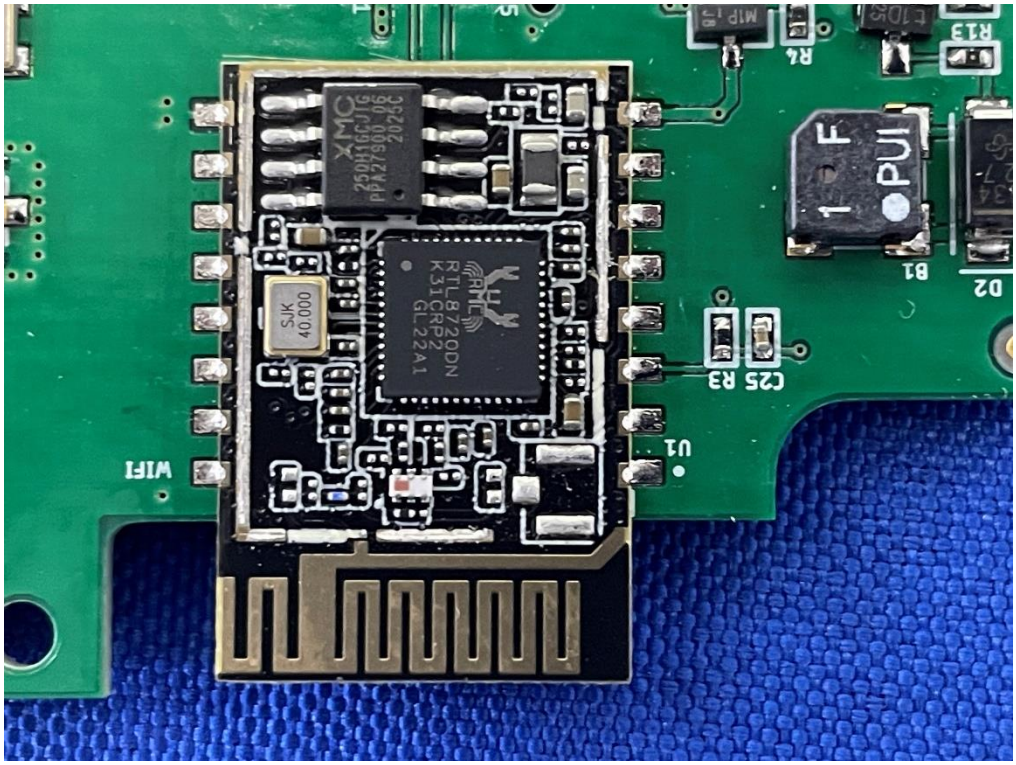
Internal-1 of the sample



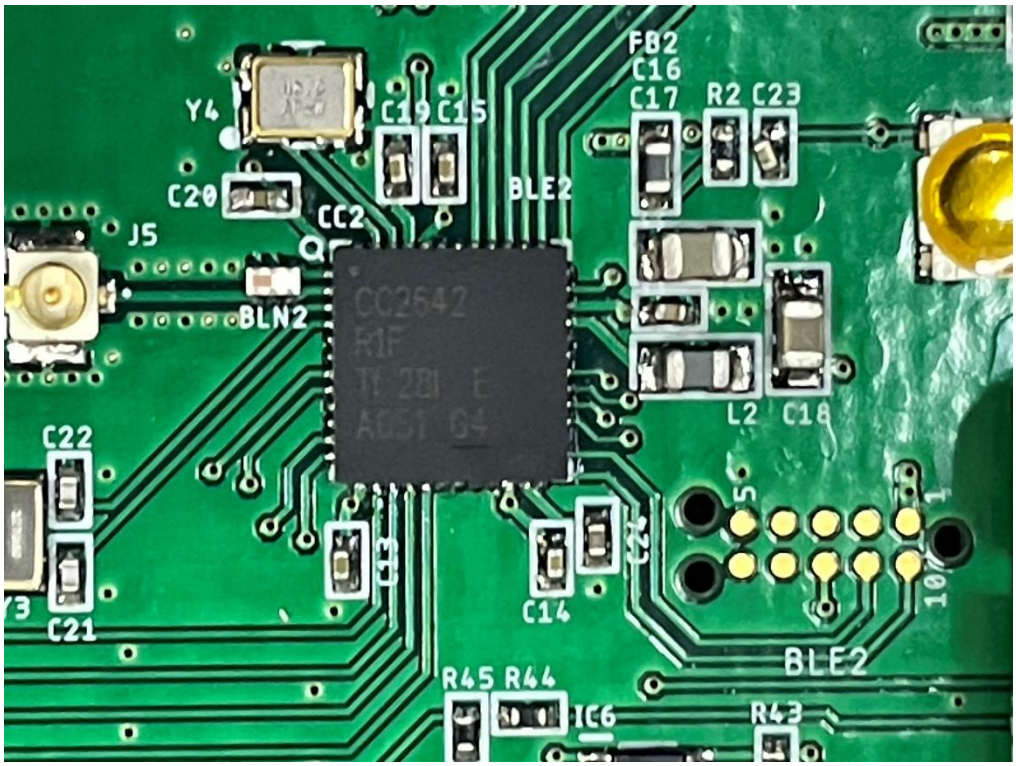
Internal-2 of the sample



Antenna Position



Chip-1



Chip-2

End of the report