



Test Report Number:	LCZE25080016	Total Page(s): 20
Applicant Name:	ARTCILUX LIGHTING (HK) CO., LIMITED	
Applicant Address:	RM 705, 7/F, FA YUAN COMMERCIAL BUILDING, NOS. 75-77, FA YUEN STREET, KOWLOON, HK.	
Product Name:	Wireless double door touch-sensitive remote control switch	
Model / Type Reference:	2S-S1312SE.2IR	
FCC ID:	2BRRC-S1312SE-2IR	
Date of Issue:	2025-08-11	
Testing Laboratory:	LCTECH Guangdong Testing Services Co., Ltd. 2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China	
Test Specification:	FCC 47 CFR Part 15 Subpart C: Section 15.249	
Test Result:	Passed	
Compiled by:	Reviewed by:	
2025-08-11 Rex He		2025-08-11 Tension Li
<i>Date</i>	<i>Name</i>	<i>Signature</i>
		<i>Date</i>
		<i>Name</i>
		<i>Signature</i>
Remark:		
N/A		
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1 Summary of Test Results

Description of Test Item	Standard	Result
Antenna Requirement	FCC Part 15 Subpart C:15.203	PASS
AC Power Line Conducted Emission	FCC Part 15 Subpart C:15.207	N/A
Field Strength of The Fundamental Signal	FCC Part 15 Subpart C:15.249(b)	PASS
Spurious Emission	FCC Part 15 Subpart C:15.231(b)/15.209	PASS
Band edge	FCC Part 15 Subpart C: 15.249(d)/15.205	PASS
20 dB Bandwidth	FCC Part 15 Subpart C:15.215(c)	PASS
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.		

2. General test information

2.1 Description of EUT

Product Name	: Wireless double door touch-sensitive remote control switch
Model Number	: 2S-S1312SE.2IR
EUT function description	: Please reference user manual of this device
Power supply	: DC 3.0V by coin cell battery
FCC ID	: 2BRRC-S1312SE-2IR
Operation frequency	: 2420MHz
Modulation	: GFSK
Antenna Type	: PCB antenna
Antenna Gain	: 0dBi
Date of Receipt	: 2025/07/25

Remark:

1. Antenna gain information provided by the customer
2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

2.2 Testing

Date of receipt of test item : 2025-07-25

Date (s) of performance of tests : 2025-07-30 to 2025-08-04

2.3 Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	15-35°C
Humidity range:	20-75%
Pressure range:	98-101kPa

2.4 Test laboratory

LCTECH Guangdong Testing Services Co.,Ltd.

Add: 2/F.,Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan,
Guangdong, China

Test Sites: 1/F., Building I, Technology and Enterprise Development Center, Guangyuan Road, Xiaolan,
Zhongshan, Guangdong, China

2.5 Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	3.74dB
Uncertainty for Radiation Emission test(30MHZ-1GHZ)	4.92dB
Uncertainty for Radiation Emission test (Above 1GHz)	4.23dB

Note□ This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3 Equipment list

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
Radiated Emission (30 MHz–1000 MHz)						☒
1	EMI Test Receiver	R&S	ESCI 7	100965	2025-06-13	2026-06-12
2	Log-periodic Dipole Antenna	Schwarzbeck	VULB 9162	058	2025-06-14	2028-06-13
3	3m Semi-anechoic	Zhongshuo Electronics	9mx6mx6m	N/A	2024-12-17	2027-12-16
4	RF Cable	R&S	R01	10403	2024-12-09	2025-12-08
5	EMI Test Software	AUDIX	E3	Version No: 6.111221a	N/A	N/A
Disturbance Voltage						☒
6	EMI Test Receiver	Rohde&Schwarz	ESCI	100939	2024-12-09	2025-12-08
7	Artificial Mains Network	Rohde&Schwarz	ENV216	3560655012	2024-12-09	2025-12-08
8	Shield Room	Rongxiang	8X5X3.5	992276296	2022-07-01	2027-06-30
9	Conducted Emission Test Software	FALA	EZ-EMC	Version No: LCTECH-03A	N/A	N/A
Radiated Emission (Above 1 GHz)						☒
10	EMI Test Receiver	R&S	ESCI 7	100965	2025-06-13	2026-06-12
11	Log-periodic Dipole Antenna	Schwarzbeck	VULB 9162	058	2025-06-14	2028-06-13
12	3m Semi-anechoic	Zhongshuo Electronics	9mx6mx6m	N/A	2024-12-17	2027-12-16
13	RF Cable	R&S	R01	10403	2024-12-09	2025-12-08
14	CDNE	KeHuan	KH3663E	36630822	2025-06-13	2026-06-12
15	Doppelsteg Breitband Hornantenne Double Ridge Broadband Horn	Schwarzbeck	BBHA 9120 D	02777	2024-12-11	2025-12-10
16	Signal Analyzer	Keysight	N9020A	SER MY52220373	2024-12-09	2025-12-08
17	Pre-amplifier	sinancidian	COP-01G18G-45dB	N/A	2024-12-09	2025-12-08
Radiated electromagnetic disturbances(>1.6m)						
18	EMI Test Receiver	R&S	ESCI 7	100965	2025-06-13	2026-06-12
19	EMI Test Software	AUDIX	E3	Version No:	6.111221a	N/A
20	Active loop antenna	SCHWARZBECK	FMZB1519	1519-045	2025-06-14	2028-06-13

4 Test Results

4.1 Antenna requirement

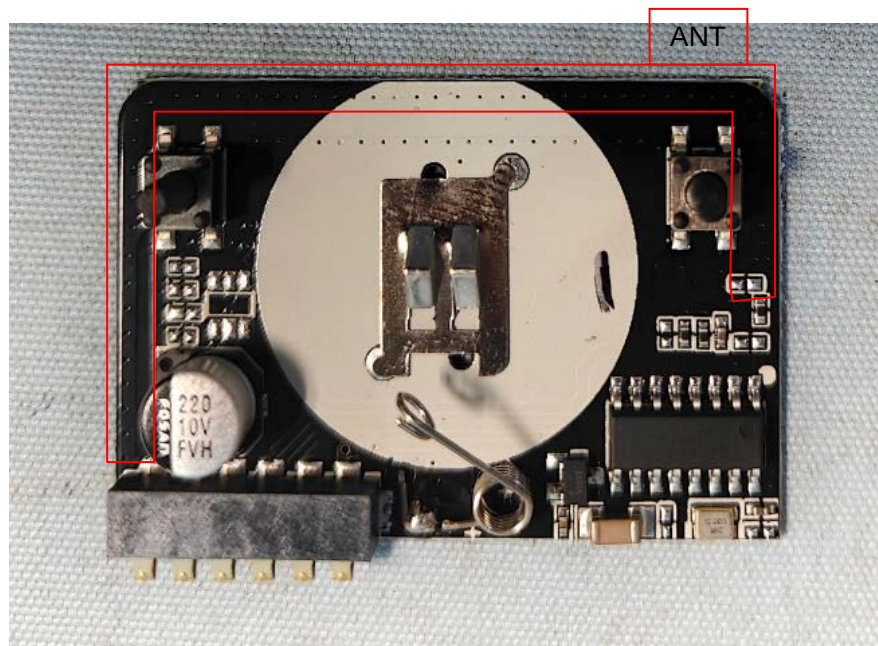
Standard requirement:

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

E.U.T Antenna:

The antenna is PCB antenna. It comply with the standard requirement.



4.2 Radiated Emission

Limit:

Field Strength of the Fundamental Signal

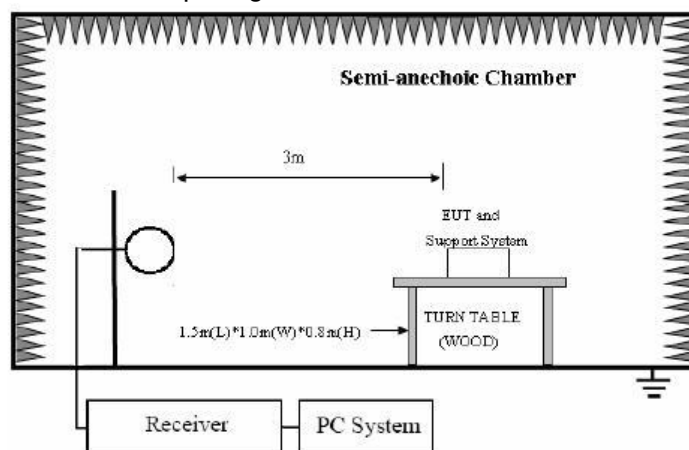
Fundamental Frequency MHz	Field Strength of Fundamental (dB μ V/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dB μ V/m @ 3 m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48**	41.94 to 51.48**
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94**	51.48 to 61.94**
Above 470	81.94	61.94

Spurious Emission

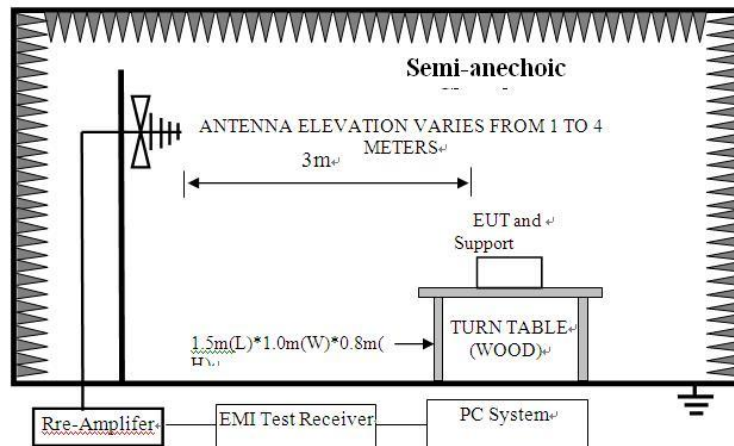
Frequency range (MHz)	Standard requirement	Limit(dB μ V/m)	
		Peak	Average
2420	FCC Part 15 Subpart C: 15.249(a)	114.00	94.00

Test Connection Diagram

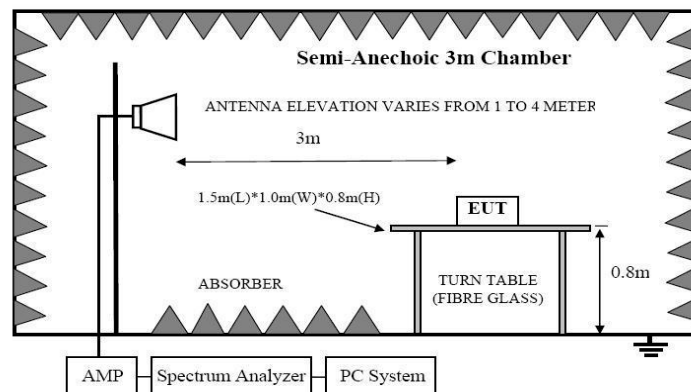
In 3m Anechoic Chamber Test Setup Diagram for 9KHz-30MHz



In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Test Procedure

(1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The lowest of the loop was positioned 1 m above the ground and positioned with its plane vertical at the special distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

(2) 30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

(3) 1 GHz to 40 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

Test Result:

Field Strength of the Fundamental Signal:

Peak value:

Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Preamp Factor (dB)	Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detect or	Polarization Polarization
2420	99.05	27.62	53.96	4.48	77.19	114.00	-36.81	Peak	HORIZONTAL
2420	97.10	27.62	53.96	4.48	75.24	114.00	-38.76	Peak	VERTICAL

Average value:

Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss dB	Preamp Factor (dB)	Level (dBμV/ m)	Limit Line (dBμV/ m)	Over Limit (dB)	Detector	Polarization Polarization
2420	88.05	27.62	53.96	4.48	66.19	94.00	-27.81	Average	HORIZONTAL
2420	87.00	27.62	53.96	4.48	65.14	94.00	-28.86	Average	VERTICAL

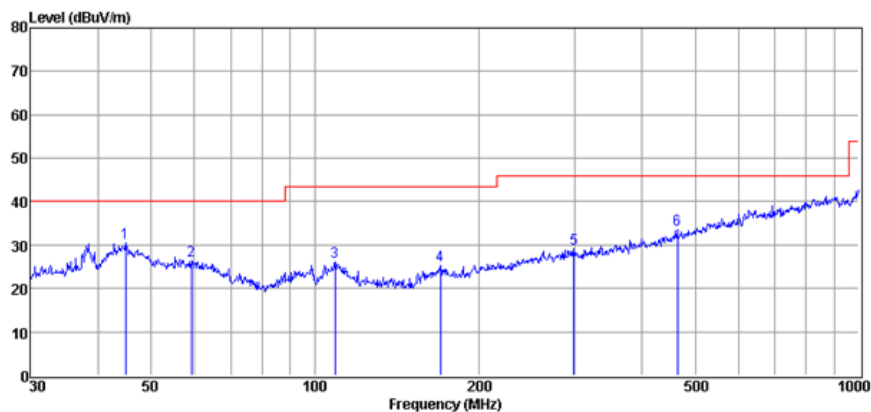
Spurious Emission:

9 kHz~30 MHz Field Strength of Unwanted Emissions. Peak or Quasi-Peak measurement:

The measurements with active loop antenna were lower than 20dB below the average limit, so the test data were not recorded in the test report.

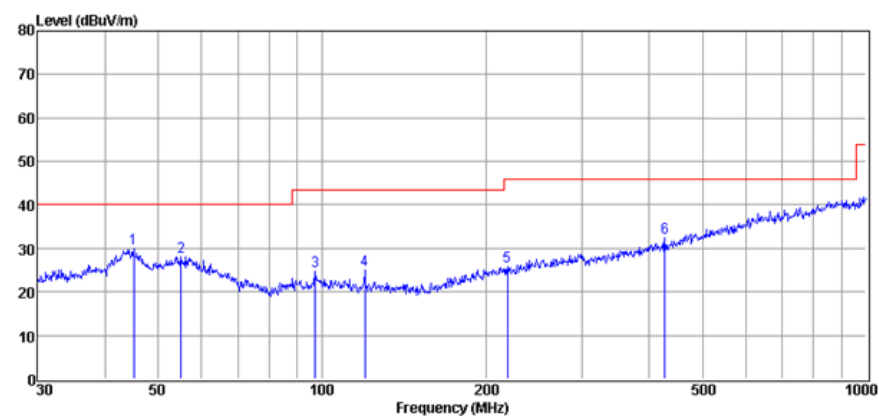
30 MHz~1 GHz Field Strength of Unwanted Emissions. Peak or Quasi-Peak measurement:

Horizontal:



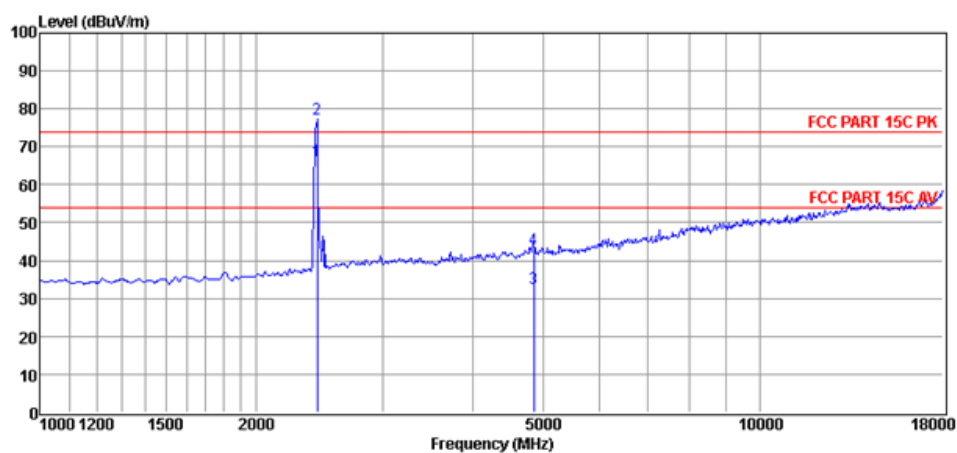
Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	44.90	13.34	16.49	0.00	0.67	30.50	40.00	-9.50	Peak	HORIZONTAL
2	59.23	13.06	12.62	0.00	0.70	26.38	40.00	-13.62	Peak	HORIZONTAL
3	109.03	12.83	12.18	0.00	1.08	26.09	43.50	-17.41	Peak	HORIZONTAL
4	170.20	12.81	10.97	0.00	1.44	25.22	43.50	-18.28	Peak	HORIZONTAL
5	299.32	13.00	14.07	0.00	2.09	29.16	46.00	-16.84	Peak	HORIZONTAL
6	463.97	13.24	17.08	0.00	3.34	33.66	46.00	-12.34	Peak	HORIZONTAL

Vertical:



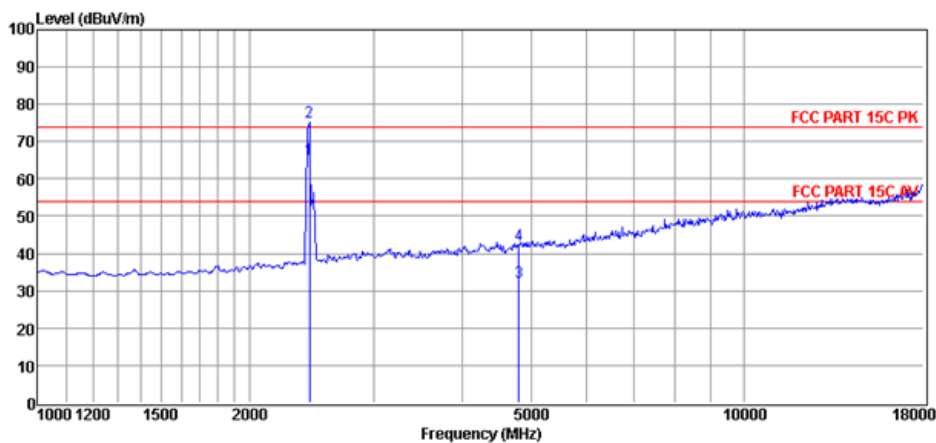
Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	45.06	12.86	16.41	0.00	0.66	29.93	40.00	-10.07	Peak	VERTICAL
2	55.03	13.05	14.40	0.00	0.69	28.14	40.00	-11.86	Peak	VERTICAL
3	97.12	13.99	10.01	0.00	0.82	24.82	43.50	-18.68	Peak	VERTICAL
4	119.86	15.07	8.80	0.00	1.02	24.89	43.50	-18.61	Peak	VERTICAL
5	219.08	12.86	11.36	0.00	1.70	25.92	46.00	-20.08	Peak	VERTICAL
6	426.52	13.29	15.93	0.00	3.10	32.32	46.00	-13.68	Peak	VERTICAL

1 GHz~18 GHz Field Strength of Unwanted Emissions. Peak or Quasi-Peak measurement:
2420MHz
Horizontal:



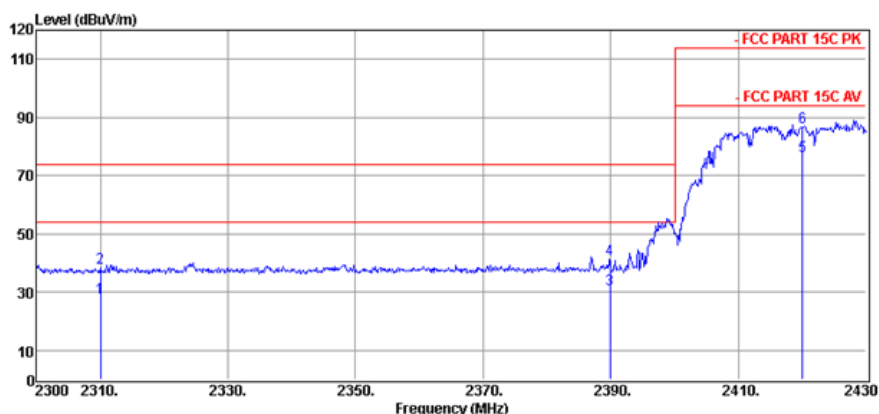
Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2420.00	88.05	27.62	53.96	4.48	66.19	94.00	-27.81	Average	HORIZONTAL
2	2420.00	99.05	27.62	53.96	4.48	77.19	114.00	-36.81	Peak	HORIZONTAL
3	4840.00	48.41	32.52	53.29	5.00	32.64	54.00	-21.36	Average	HORIZONTAL
4	4840.00	58.71	32.52	53.29	5.00	42.94	74.00	-31.06	Peak	HORIZONTAL

Vertical:



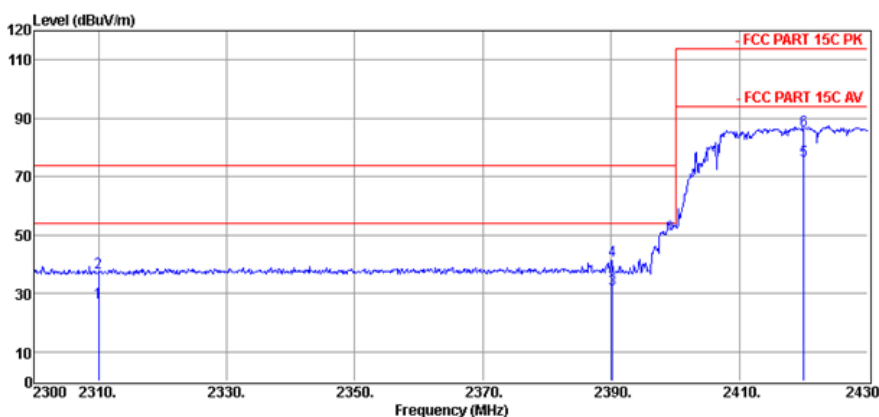
Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2420.00	87.00	27.62	53.96	4.48	65.14	94.00	-28.86	Average	VERTICAL
2	2420.00	97.10	27.62	53.96	4.48	75.24	114.00	-38.76	Peak	VERTICAL
3	4840.00	48.24	32.37	53.31	5.00	32.30	54.00	-21.70	Average	VERTICAL
4	4840.00	58.14	32.37	53.31	5.00	42.20	74.00	-31.80	Peak	VERTICAL

Horizontal:



Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2310.01	50.24	27.35	53.97	4.36	27.98	54.00	-26.02	Average	HORIZONTAL
2	2310.01	60.44	27.35	53.97	4.36	38.18	74.00	-35.82	Peak	HORIZONTAL
3	2389.85	53.07	27.53	53.96	4.44	31.08	54.00	-22.92	Average	HORIZONTAL
4	2389.85	63.17	27.53	53.96	4.44	41.18	74.00	-32.82	Peak	HORIZONTAL
5	2420.00	98.39	27.60	53.96	4.47	76.50	94.00	-17.50	Average	HORIZONTAL
6	2420.00	108.59	27.60	53.96	4.47	86.70	114.00	-27.30	Peak	HORIZONTAL

Vertical:



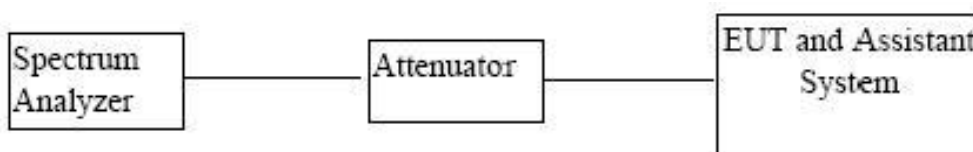
Item (Mark)	Freq (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	PRM Factor dB	Cable Loss dB	Result Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Detector	Polarization
1	2310.01	49.15	27.35	53.97	4.36	26.89	54.00	-27.11	Average	VERTICAL
2	2310.01	59.45	27.35	53.97	4.36	37.19	74.00	-36.81	Peak	VERTICAL
3	2390.12	53.43	27.53	53.96	4.44	31.44	54.00	-22.56	Average	VERTICAL
4	2390.12	63.13	27.53	53.96	4.44	41.14	74.00	-32.86	Peak	VERTICAL
5	2420.00	97.26	27.60	53.96	4.47	75.37	94.00	-18.63	Average	VERTICAL
6	2420.00	107.46	27.60	53.96	4.47	85.57	114.00	-28.43	Peak	VERTICAL

4.3 20 dB Bandwidth

Limit:

Frequency range (MHz)	Standard requirement
2400-2483.5	FCC Part 15 Subpart C: 15.249/15.215

Test setup:

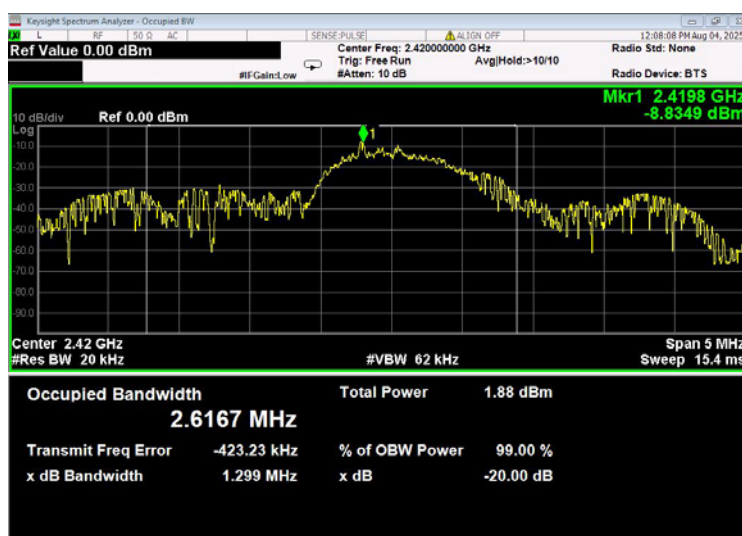


Test procedure:

The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector. Record the 20 dB bandwidth of the carrier.

Test results:

Frequency (MHz)	Measured 20dBbandwidth (MHz)	Result
2420	1.299	Pass

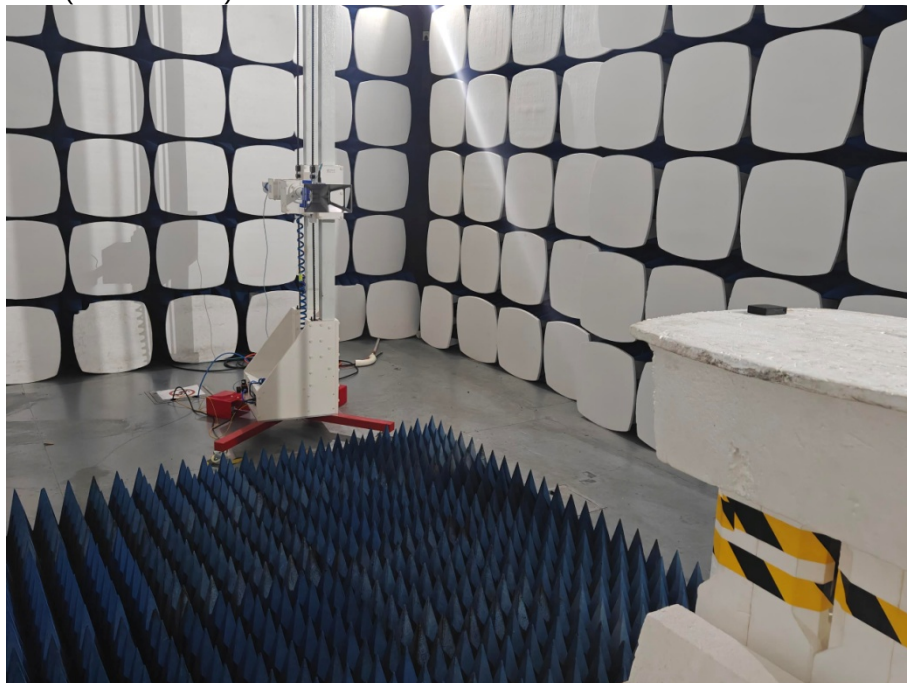


5 Test Setup Photo

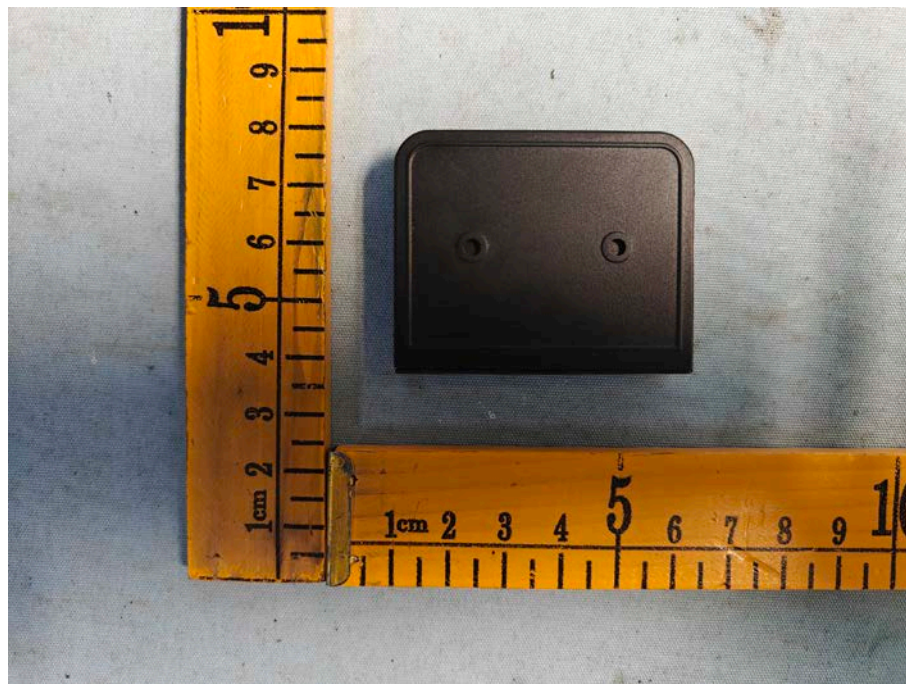
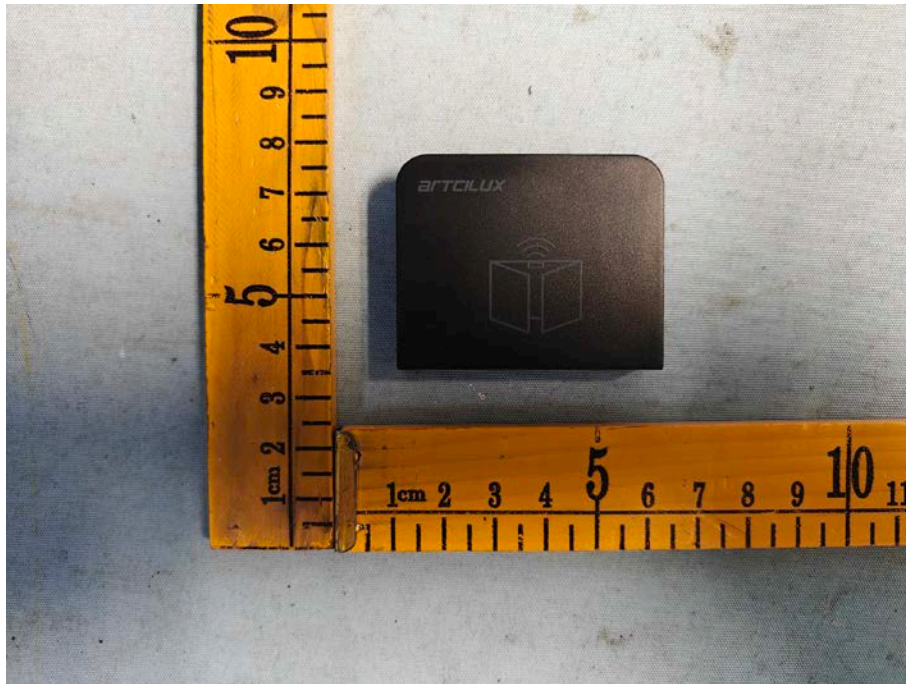
Radiated Emission (30MHz-1GHz) :

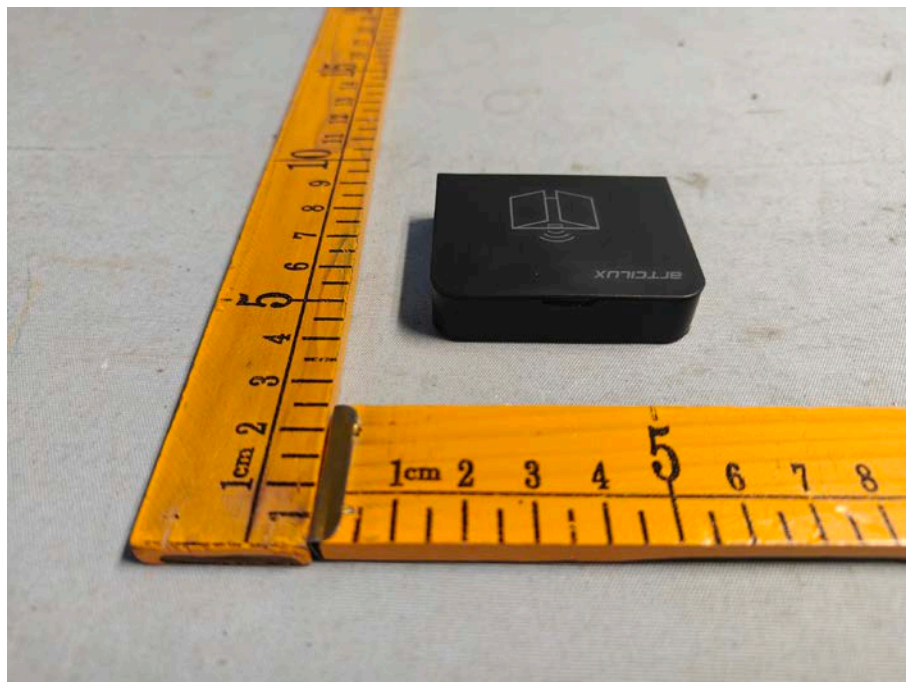
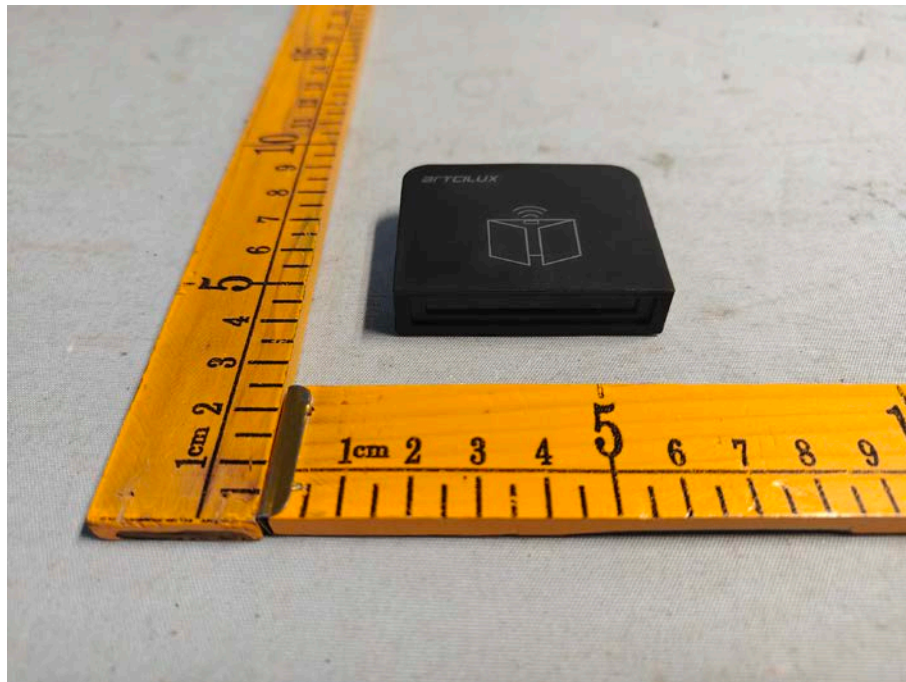


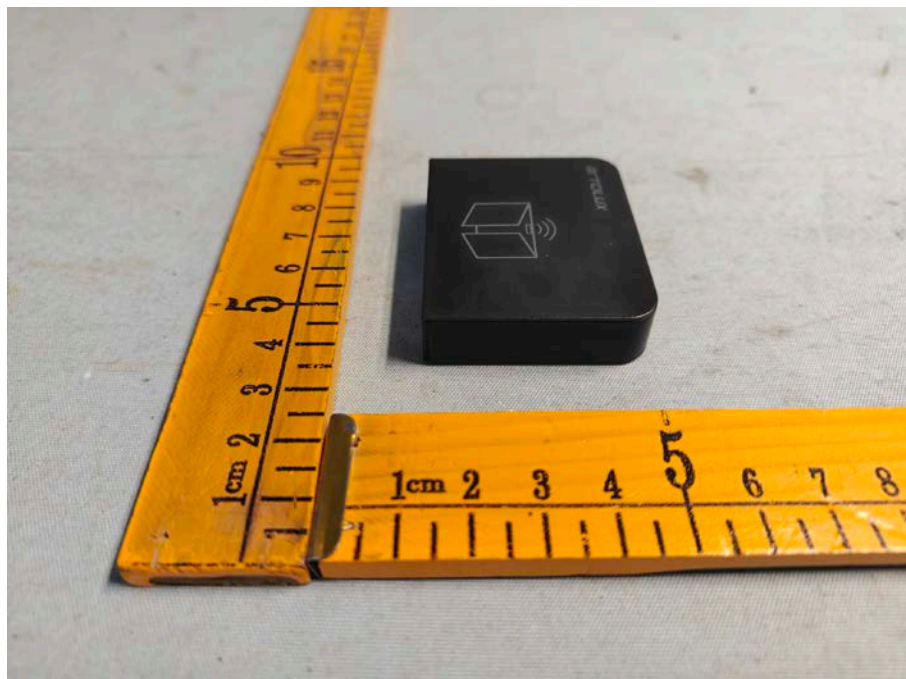
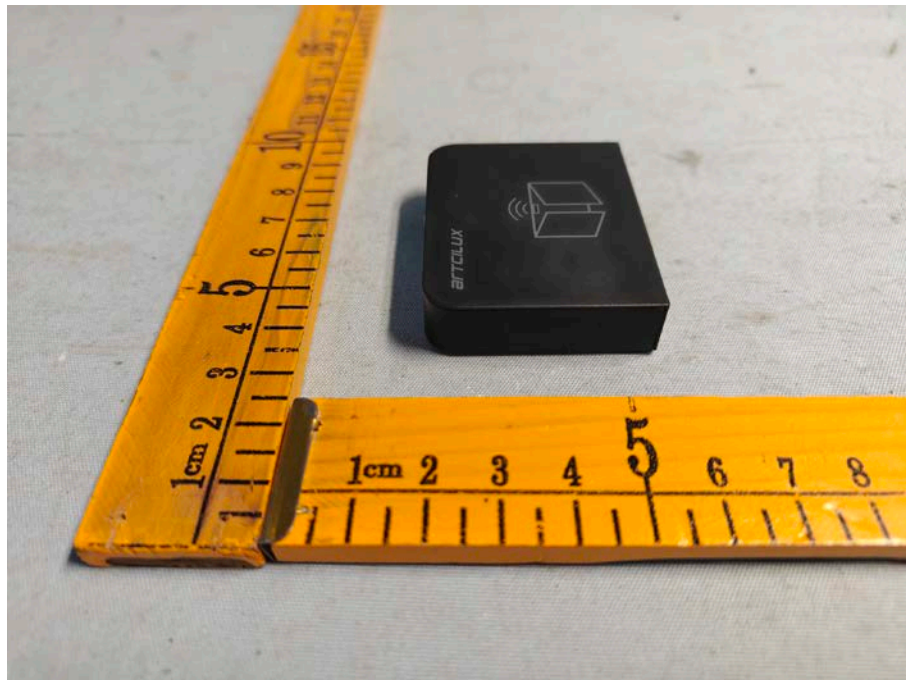
Radiated Emission (Above 1GHz) :

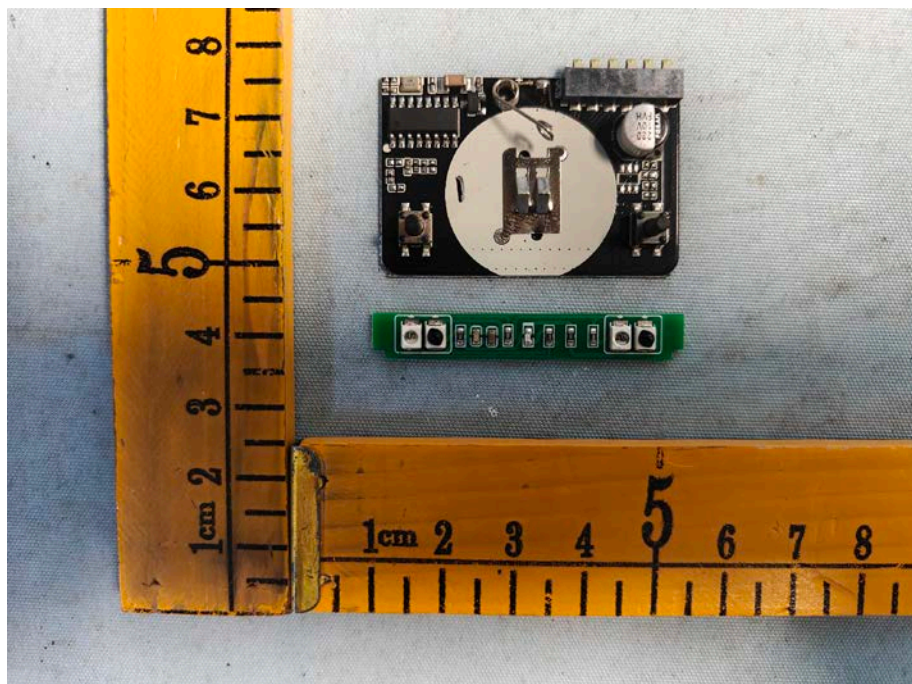
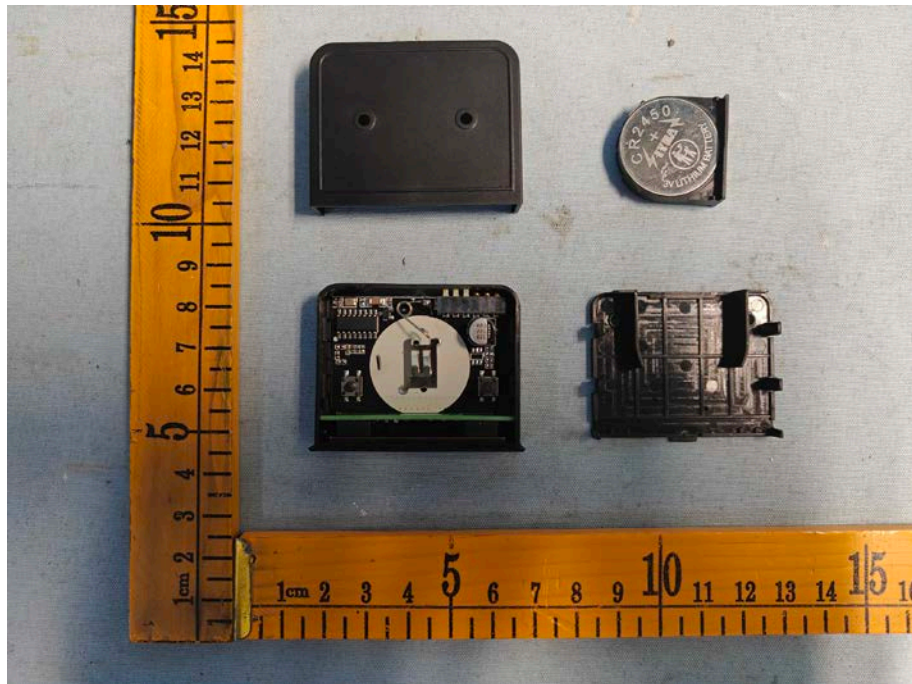


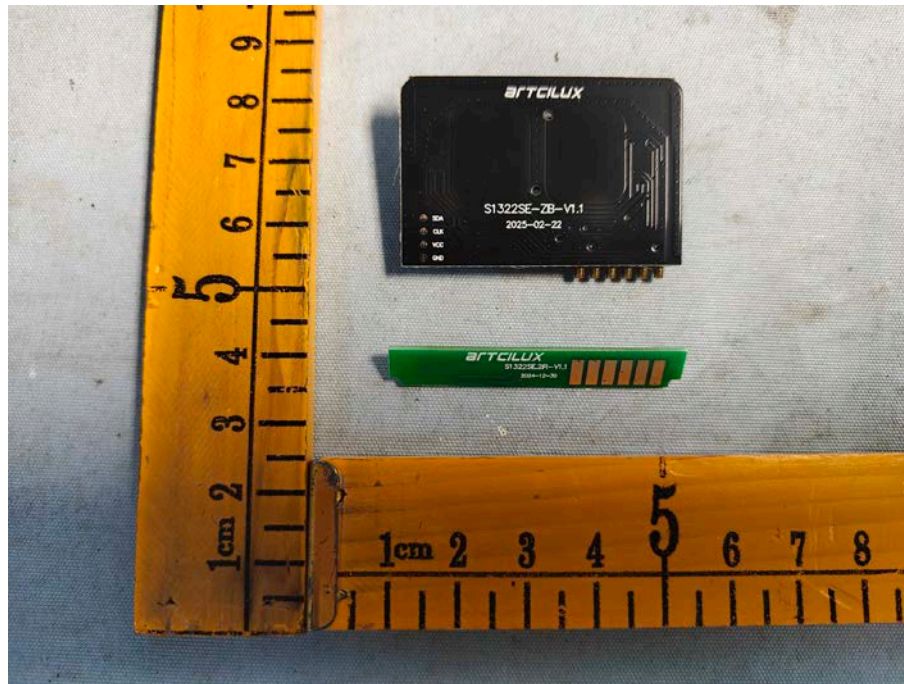
6 Test Setup of EUT











-----End of test report-----