

Report No.: TW2501042E

Applicant: Eastern Times Technology Co.,Ltd

Product: 2.4G Dongle

Model No.: 2.4G Dongle

Trademark: ET

Test Standards: FCC Part 15.249

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

Terry Tang

Manager

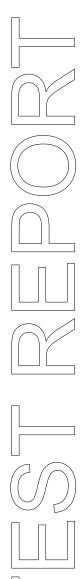
Dated: January 08, 2025

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail: info@timeway-lab.com



Report No.: TW2501042E Page 2 of 38

Date: 2025-01-08



# **Special Statement:**

## FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

## Industry Canada (IC) — Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

## **A2LA** (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

Report No.: TW2501042E

Date: 2025-01-08



# Test Report Conclusion

#### Content General Details ..... 1.0 4 4 1.1 Test Lab Details.... 1.2 Applicant Details.... 4 1.3 Description of EUT .... 4 1.4 Submitted Sample.... 4 Test Duration. 1.5 5 5 1.6 Test Uncertainty. 1.7 Test By..... 5 2.0 List of Measurement Equipment..... 6 7 3.0 Technical Details..... 3.1 Summary of Test Results.... 7 3.2 7 Test Standards.... 4.0 7 EUT Modification. Power Line Conducted Emission Test. 5.0 5.1 Schematics of the Test.... 8 Test Method and Test Procedure.... 5.2 8 Configuration of the EUT.... 5.3 8 5.4 EUT Operating Condition.... 9 5.5 Conducted Emission Limit..... 9 5.6 Test Result. 6.0 Radiated Emission test.... 12 Test Method and Test Procedure.... 12 6.1 6.2 Configuration of the EUT..... 13 EUT Operation Condition.... 6.3 13 6.4 Radiated Emission Limit.... 14 6.5 Test Result.... 15 7.0 Band Edge.... 23 7.1 Test Method and Test Procedure. 23 7.2 Radiated Test Setup. 23 7.3 Configuration of the EUT..... 23 7.4 EUT Operating Condition.... 23 7.5 Band Edge Limit. 23 7.6 Band Edge Test Result. 24 8.0 Antenna Requirement. 28 20dB bandwidth measurement.... 9.0 29 10.0 32 FCC ID Label.

The report refers only to the sample tested and does not apply to the bulk.

11.0

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Photo of Test Setup and EUT View.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2025-01-08



#### 1.0 General Details

#### 1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.

Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le

Village, Nanshan District, Shenzhen, China

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189 For 3m Anechoic Chamber

## 1.2 Applicant Details

Applicant: Eastern Times Technology Co.,Ltd

Address: Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan City,

Guangdong, China.

#### 1.3 Description of EUT

Product: 2.4G Dongle

Manufacturer: Eastern Times Technology Co.,Ltd

Address: Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town,

Dongguan City, Guangdong, China.

Trademark: ET

Model Number: 2.4G Dongle

Additional Model Name N/A Rating: DC5V

Modulation Type: GFSK

Operation Frequency: 2403-2479MHz

Channel List (Unit: MHz): 2403, 2422, 2441, 2463, 2407, 2436, 2459, 2466, 2414, 2419, 2439, 2453,

2426, 2445, 2473, 2479

Hardware Version: 2516-ZA RX V1

Software Version: 955AF3F2

Serial No.: 1S4ZB1R85673NILOOJQ7411

Antenna Designation PCB antenna with gain -2.89dBi Max (Get from the antenna specification)

## 1.4 Submitted Sample: 2 Samples

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2501042E Page 5 of 38

Date: 2025-01-08



#### 1.5 Test Duration

2025-01-07 to 2025-01-08

## 1.6 Test Uncertainty

Conducted Emissions Uncertainty = 3.6dB

Radiated Emissions below 1GHz Uncertainty =4.7dB

Radiated Emissions above 1GHz Uncertainty =6.0dB

Conducted Power Uncertainty =6.0dB

Occupied Channel Bandwidth Uncertainty = 5%

Conducted Emissions Uncertainty = 3.6dB

Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

The sample tested by

Print Name: Andy Xing

Page 6 of 38

Report No.: TW2501042E

Date: 2025-01-08



2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	-	2024-07-12	2025-07-11
RF Cable	Zhengdi	7m	-	2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

## 2.2 Automation Test Software

#### For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

## For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2501042E Page 7 of 38

Date: 2025-01-08



#### 3.0 Technical Details

## 3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	Pass	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	Pass	Complies

## 3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4:2014 and ANSI C63.10:2013

## 4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

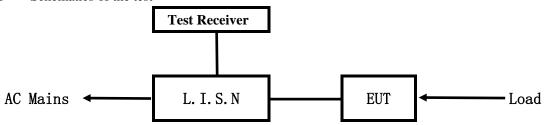
Report No.: TW2501042E

Date: 2025-01-08



#### 5. Power Line Conducted Emission Test

## 5.1 Schematics of the test

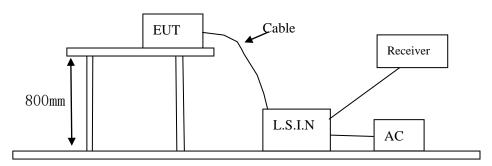


**EUT: Equipment Under Test** 

## 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2014.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



## 5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.4-2014. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

16 channels are provided to the EUT

#### A. EUT

Device	Manufacturer	Model	FCC ID
2.4G Dongle	Eastern Times Technology Co.,Ltd	2.4G Dongle	TUVET-DONGLE

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
--------	--------------	-------	------------

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

Page 9 of 38

Report No.: TW2501042E

Date: 2025-01-08



N/A	27/4		
	N/A		

## C. Peripherals

Device	Manufacturer	Model	Rating
PC	ThinkPad	R4	Input: DC19.5V, 2.31A
AC/DC	Lenovo	ADLX65YDC2D	Input: 100-240V~, 1.8A, 50-60Hz;
ADAPTER			Output: DC20V, 3.25A/ DC15V, 3A/
			DC9V, 2A/ DC5V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2014

- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition
- 5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB μ V)			
(MHz)	Quasi-peak Level	Average Level		
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*		
$0.50 \sim 5.00$	56.0	46.0		
5.00 ~ 30.00	60.0	50.0		

Notes:

- 1. \*Decreasing linearly with logarithm of frequency.
- 2. The tighter limit shall apply at the transition frequencies
- 5.6 Test Results:

Pass

Date: 2025-01-08



## A: Conducted Emission on Live Terminal (150kHz to 30MHz)

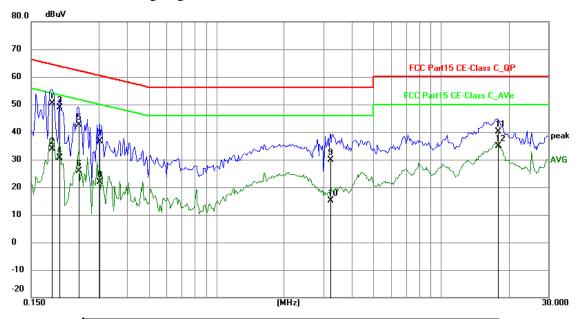
## **EUT Operating Environment**

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting** 

**Results: Pass** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1850	40.06	10.33	50.39	64.26	-13.87	QP	Р
2	0.1850	23.66	10.33	33.99	54.26	-20.27	AVG	Р
3	0.2007	38.50	10.32	48.82	63.58	-14.76	QP	Р
4	0.2007	20.37	10.32	30.69	53.58	-22.89	AVG	Р
5	0.2436	32.30	10.33	42.63	61.97	-19.34	QP	Р
6	0.2436	15.63	10.33	25.96	51.97	-26.01	AVG	Р
7	0.3021	26.35	10.35	36.70	60.18	-23.48	QP	Р
8	0.3021	11.41	10.35	21.76	50.18	-28.42	AVG	Р
9	3.2223	18.23	11.75	29.98	56.00	-26.02	QP	Р
10	3.2223	3.36	11.75	15.11	46.00	-30.89	AVG	Р
11	17.8629	24.25	15.88	40.13	60.00	-19.87	QP	Р
12	17.8629	19.06	15.88	34.94	50.00	-15.06	AVG	Р

Date: 2025-01-08



## B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

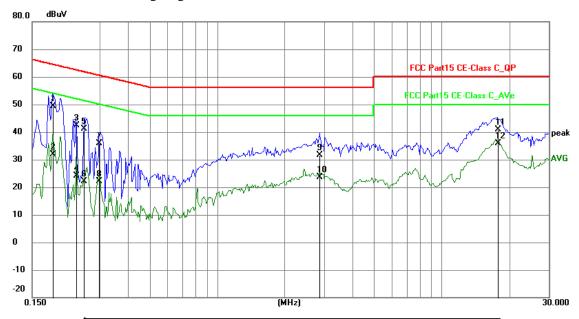
## **EUT Operating Environment**

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Keep Transmitting** 

**Results: Pass** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1850	39.15	10.33	49.48	64.26	-14.78	QP	Р
2	0.1850	21.64	10.33	31.97	54.26	-22.29	AVG	J
3	0.2358	32.12	10.33	42.45	62.24	-19.79	QP	П
4	0.2358	13.85	10.33	24.18	52.24	-28.06	AVG	Р
5	0.2553	30.89	10.33	41.22	61.58	-20.36	QP	Р
6	0.2553	11.89	10.33	22.22	51.58	-29.36	AVG	J
7	0.2982	25.41	10.35	35.76	60.29	-24.53	QP	Р
8	0.2982	11.68	10.35	22.03	50.29	-28.26	AVG	Р
9	2.8566	19.93	11.62	31.55	56.00	-24.45	QP	Ъ
10	2.8566	11.94	11.62	23.56	46.00	-22.44	AVG	Ъ
11	17.8278	25.08	15.87	40.95	60.00	-19.05	QP	Р
12	17.8278	20.05	15.87	35.92	50.00	-14.08	AVG	Р

Report No.: TW2501042E Page 12 of 38

Date: 2025-01-08

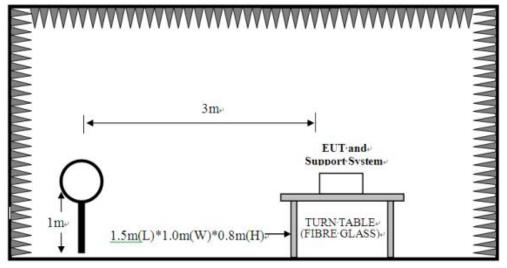


## **6** Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.

## **Block diagram of Test setup**

For radiated emissions from 9kHz to 30MHz

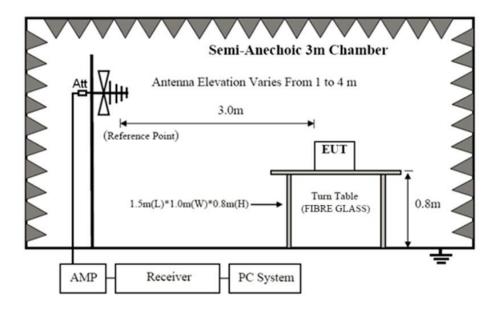


For radiated emissions from 30MHz to1GHz

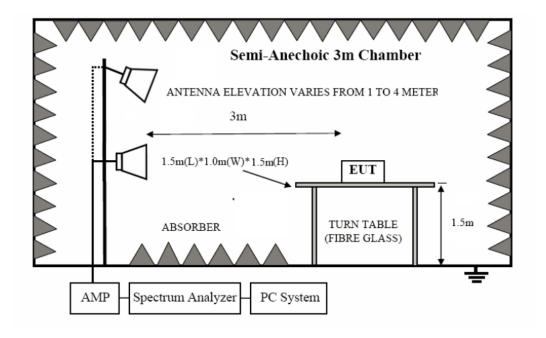
Report No.: TW2501042E

Date: 2025-01-08





For radiated emissions above 1GHz



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition

  Same as section 5.4 of this report.

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2501042E Page 14 of 38

Date: 2025-01-08



#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

## A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

Fundamental Frequency	Field Stre	Field Strength of Fundamental (3m)			Field Strength of Harmonics (3m)		
(MHz)	mV/m	dBuV/m		uV/m	dBuV/m		
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)	

Note:

- 1. RF Field Strength  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- 3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

# B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

- 1. RF Voltage  $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.
- 5. For radiated emissions from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.

Report No.: TW2501042E Page 15 of 38

Date: 2025-01-08

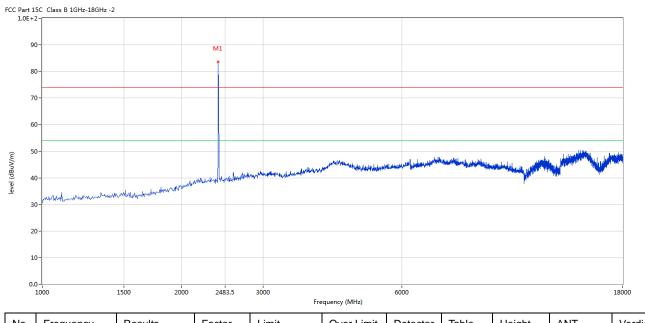


## 6.5 Test result

## A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2403MHz

## Horizontal



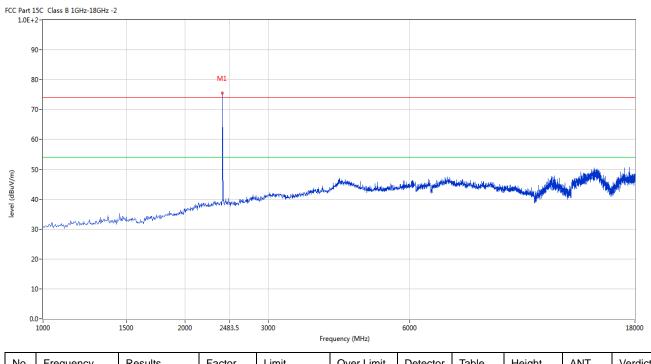
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2403	83.63	-3.57	114.0	-30.37	Peak	181.00	100	Horizontal	Pass

Report No.: TW2501042E Page 16 of 38

Date: 2025-01-08



## Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2403	75.43	-3.57	114.0	-38.57	Peak	288.00	100	Vertical	Pass

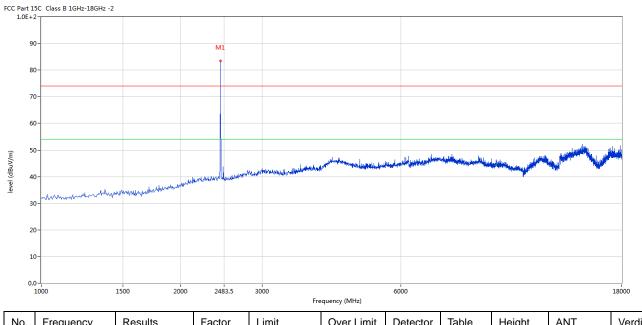
Report No.: TW2501042E Page 17 of 38

Date: 2025-01-08



Please refer to the following test plots for details: Middle Channel-2441MHz

#### **Horizontal**



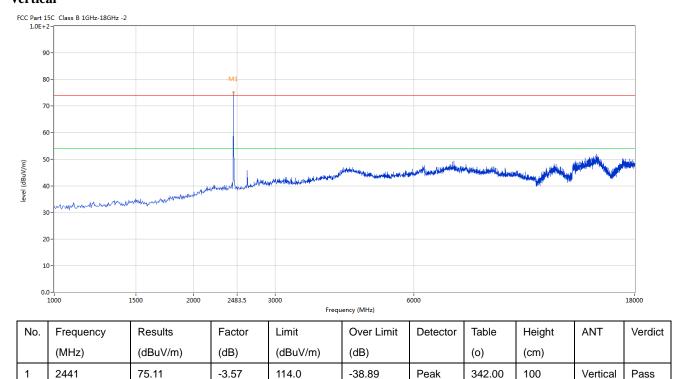
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	83.47	-3.57	114.0	-30.53	Peak	335.00	100	Horizontal	Pass

Report No.: TW2501042E Page 18 of 38

Date: 2025-01-08



## Vertical



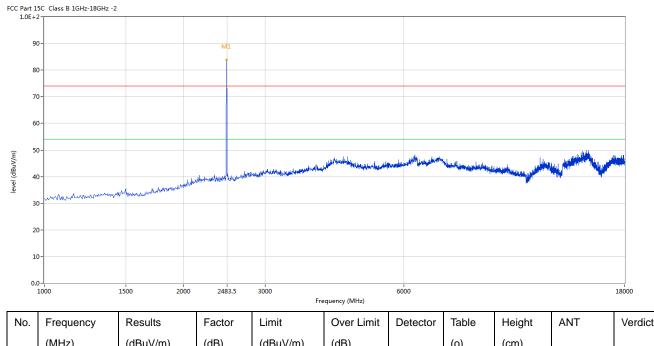
Report No.: TW2501042E Page 19 of 38

Date: 2025-01-08



Please refer to the following test plots for details: High Channel-2479MHz

#### **Horizontal**



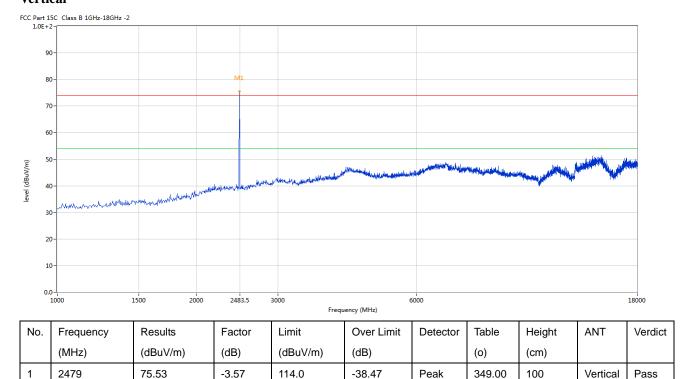
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2479	83.76	-3.57	114.0	-30.24	Peak	172.00	100	Horizontal	Pass

Report No.: TW2501042E Page 20 of 38

Date: 2025-01-08



## Vertical



Note: (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

- (3) Margin=Emission-Limits
- (4) According to section 15.35(b), the peak limit is 20dB higher than the average limit
- (5) For test purpose, keep EUT continuous transmitting
- (5) For emission above 18GHz and Below 30MHz, it is only the floor noise. No necessary to take down.
- (6) the measured PK value less than the AV limit.

Report No.: TW2501042E Page 21 of 38

Date: 2025-01-08

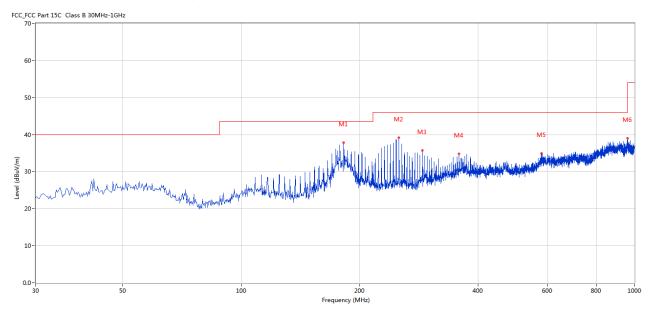


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

**Results:** Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	182.252	37.80	-7.51	43.5	5.70	Peak	81.00	100	Horizontal	Pass
2	251.832	39.21	-5.21	46.0	6.79	Peak	103.00	100	Horizontal	Pass
3	288.925	35.70	-4.45	46.0	10.30	Peak	80.00	100	Horizontal	Pass
4	358.263	34.75	-2.00	46.0	11.25	Peak	185.00	100	Horizontal	Pass
5	579.853	34.97	1.77	46.0	11.03	Peak	155.00	100	Horizontal	Pass
6	960.725	39.04	5.24	54.0	14.96	Peak	298.00	100	Horizontal	Pass

Report No.: TW2501042E Page 22 of 38

Date: 2025-01-08

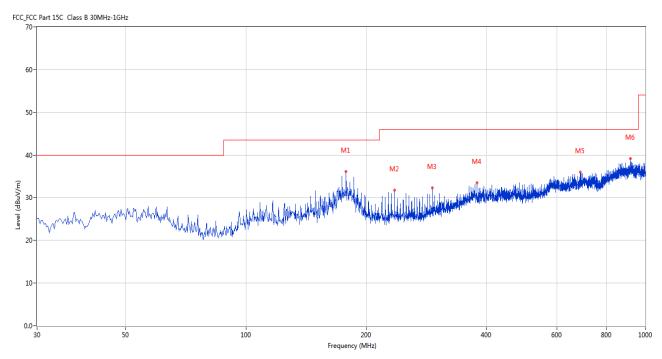


## Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	178.130	36.11	-8.20	43.5	7.39	Peak	103.00	100	Vertical	Pass
2	235.589	31.73	-5.33	46.0	14.27	Peak	275.00	100	Vertical	Pass
3	292.804	32.33	-4.24	46.0	13.67	Peak	201.00	100	Vertical	Pass
4	378.870	33.51	-2.15	46.0	12.49	Peak	37.00	100	Vertical	Pass
5	688.223	36.03	2.08	46.0	9.97	Peak	113.00	100	Vertical	Pass
6	917.571	39.12	5.31	46.0	6.88	Peak	94.00	100	Vertical	Pass

Report No.: TW2501042E Page 23 of 38

Date: 2025-01-08

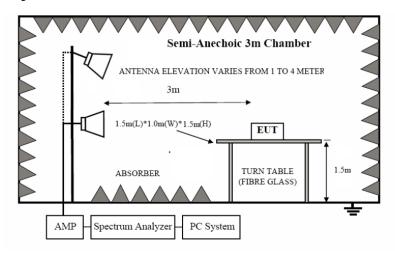


## 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

## 7. 2 Radiated Test Setup



For the actual test configuration, please refer to the related items – Photos of Testing

## 7.3 Configuration of the EUT

Same as section 5.3 of this report

## 7.4 EUT Operating Condition

Same as section 5.4 of this report.

## 7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

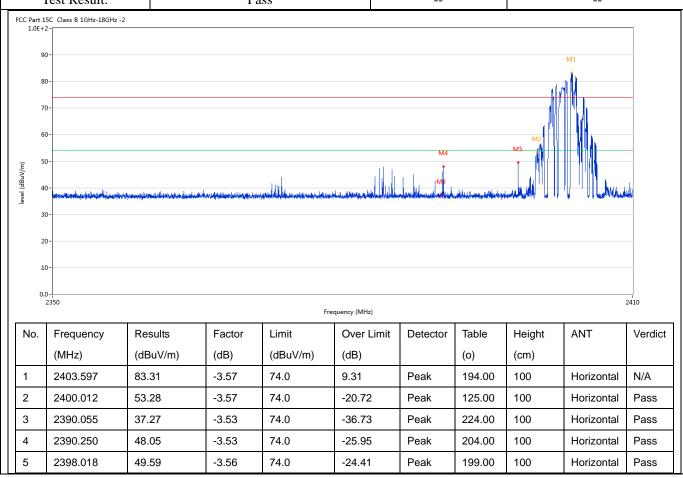
Report No.: TW2501042E Page 24 of 38

Date: 2025-01-08



## 7.6 Test Result

Product:	2.4G Dongle	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

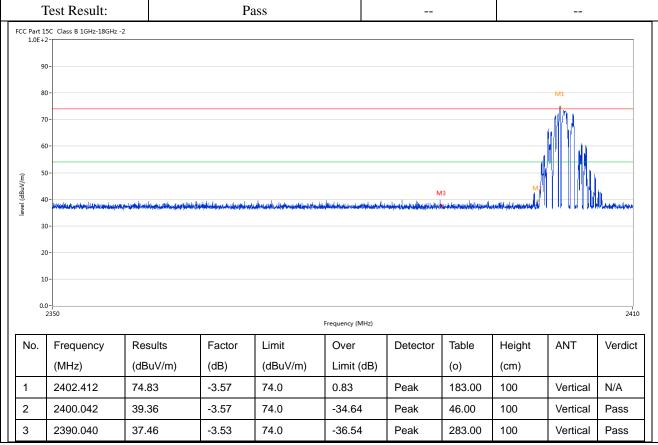


Report No.: TW2501042E Page 25 of 38

Date: 2025-01-08



Product:	2.4G Dongle	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

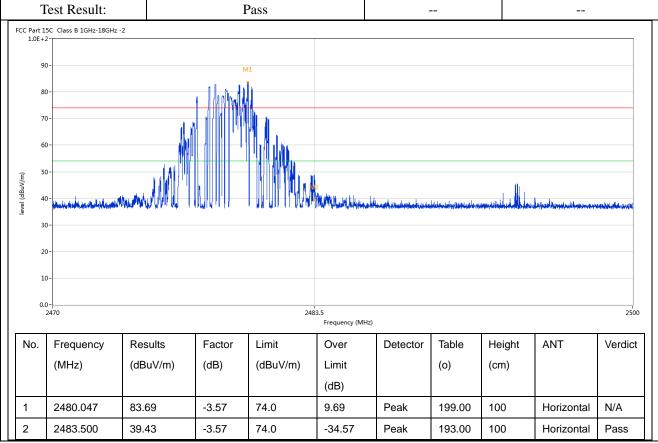


Report No.: TW2501042E Page 26 of 38

Date: 2025-01-08



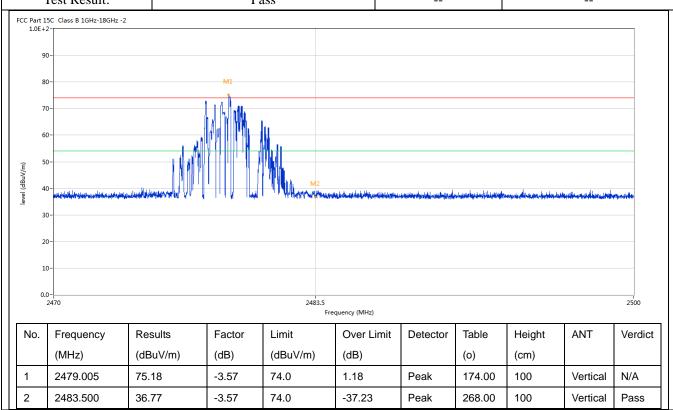
Product:	2.4G Dongle	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC5.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



Page 27 of 38

Report No.: TW25010421 Date: 2025-01-08	E

Product:	2.4G Dongle	Detector	Vertical				
Mode	Keeping Transmitting	Test Voltage	DC5.0V				
Temperature	24 deg. C,	Humidity	56% RH				
Test Result:	Pass						
FCC Part 15C Class R 16Hz-18GHz - 2							



Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

Report No.: TW2501042E Page 28 of 38

Date: 2025-01-08



## 8.0 Antenna Requirement

## **Applicable Standard**

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 shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna. The antenna gain is -2.89dBi Max. It fulfills the requirement of this section. Test Result: Pass

Page 29 of 38

Report No.: TW2501042E

Date: 2025-01-08



Product: 2.4G Dongle				Test Mode:		Keep transmitting		ting	
Mode	Mode Keeping Transmitting				Test Voltage		DC5.0V		
Temperature	Cemperature 24 deg. C,				Humidity			56% RH	
Test Result: Pass				Detector		PK			
20dB Bandwidth	2.320MHz								
Ref 10 de	3m	*Att 20	) dB	*RBW 10 *VBW 30 SWT 2.	0 kHz	Marke	er 1 [T1 -14 2.403000	.72 dBm	
10							T1] 20	.00 dB	
						BW Temp	2.320000 1 [T1 nd	l I	A
DY.								.19 dBm	
PK PAXH 1-10						// n.m.r.	2.401840	000 GHz	
		,				Temp	-34	.96 dBm	
20		$\Lambda$	ſ	1	<u> </u>		2.404160	000 GHz	
		كممعمماكم	Mercant	from	May	A.			
30	7					T2			
40	under Valley					J.	and the state of t	М, з	DB
50 <u>A</u>	<b>-   Y</b>							M	
60									
70									
80									
-90									
Center 2.4	103 GHz		500	kHz/			Spa	n 5 MHz	

The report refers only to the sample tested and does not apply to the bulk.

Date: 8.JAN.2025 15:47:02

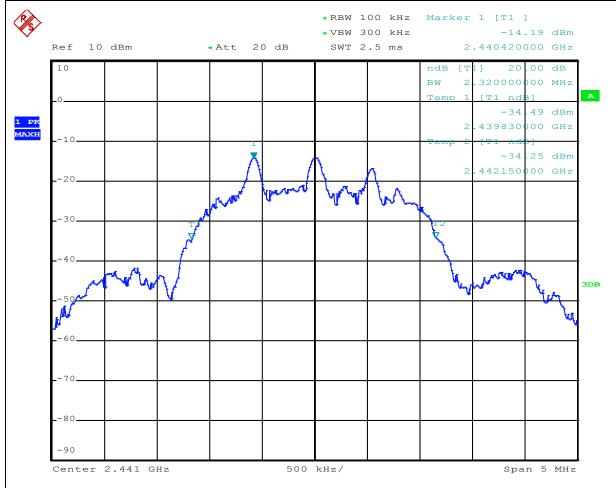
Page 30 of 38

Report No.: TW2501042E

Date: 2025-01-08



Product:	2.4G Dongle	Test Mode:	Keep transmitting	
Mode	Keeping Transmitting	Test Voltage	DC5.0V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
20dB Bandwidth	2.320MHz			



Date: 8.JAN.2025 15:37:00

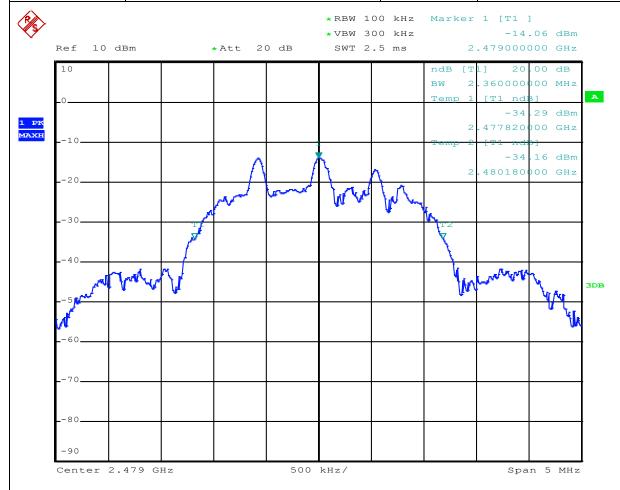
Page 31 of 38

Report No.: TW2501042E

Date: 2025-01-08



Product:	2.4G Dongle	Test Mode:	Keep transmitting	
Mode	Keeping Transmitting	Test Voltage	DC5.0V	
Temperature	24 deg. C,	Humidity	56% RH	
Test Result:	Pass	Detector	PK	
20dB Bandwidth	2.360MHz			



Date: 8.JAN.2025 15:44:08

Report No.: TW2501042E Page 32 of 38

Date: 2025-01-08

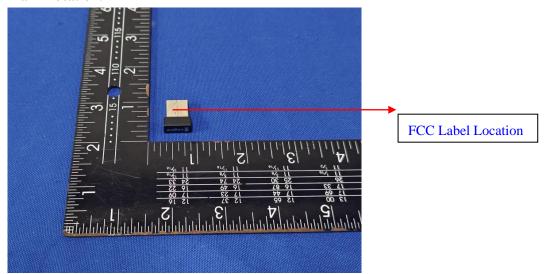


## 10.0 FCC ID Label

#### FCC ID: TUVET-DONGLE

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

## **Mark Location:**



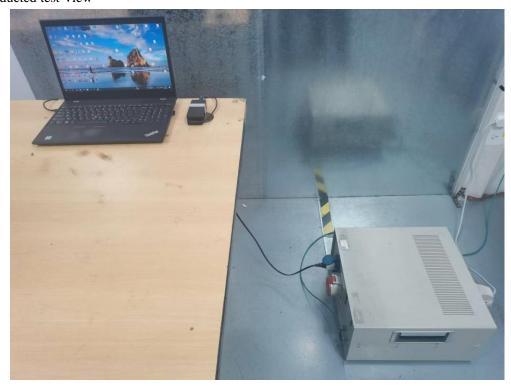
Report No.: TW2501042E Page 33 of 38

Date: 2025-01-08



# 11.0 Photo of testing

## 11.1 Conducted test View



Page 34 of 38

Report No.: TW2501042E

Date: 2025-01-08



## Radiated emission test view



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

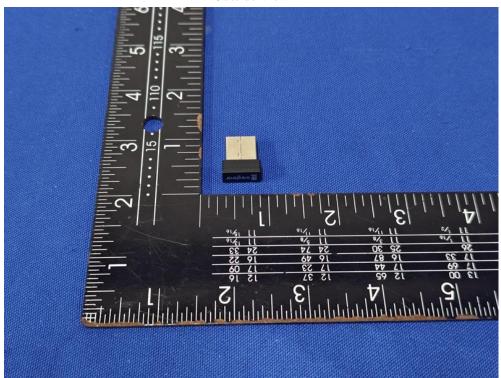
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

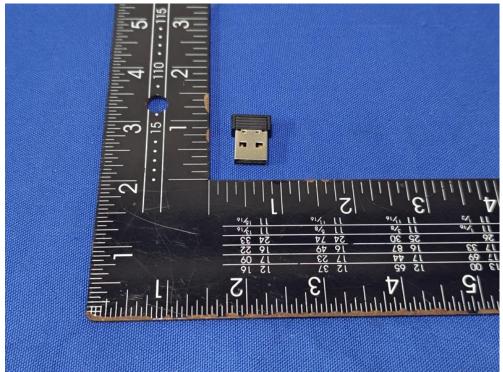
Report No.: TW2501042E Page 35 of 38

Date: 2025-01-08



11.2 Outside View





The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES, reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

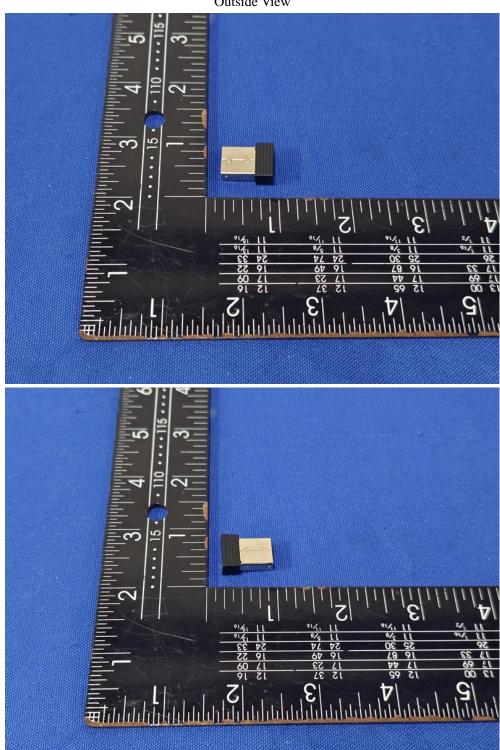
Page 36 of 38

Report No.: TW2501042E

Date: 2025-01-08



Outside View



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into an will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

adopt any other remedies which may be appropriate.

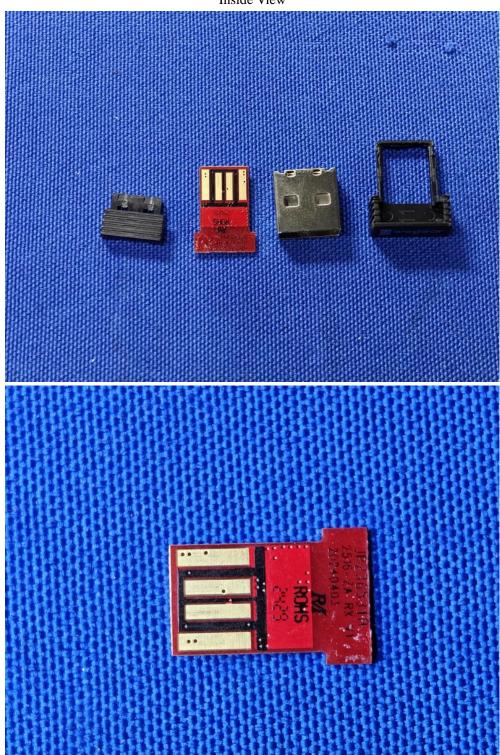
Page 37 of 38

Report No.: TW2501042E

Date: 2025-01-08



Inside View



The report refers only to the sample tested and does not apply to the bulk.

This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES.

will not, without the consent of the client enter into any

discussion of correspondence with any third party concerning the contents of the report.

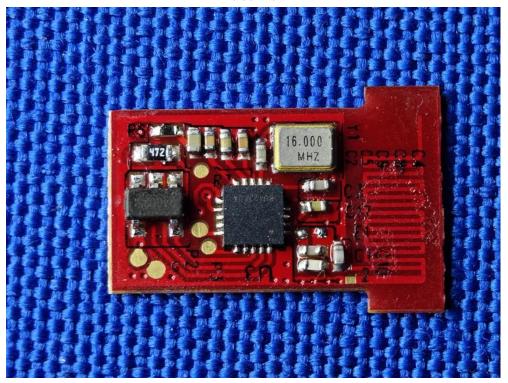
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2501042E Page 38 of 38

Date: 2025-01-08



Inside View



-- End of the Report--