

Report No.: TW2205130E

File reference No.: 2022-06-06

Applicant: Siser North America

Product: Juliet

Model No.: SNAHDCR24, SNAHDCJ12

Trademark:

Siser

Test Standards: FCC Part 15.247

Test result:

It is herewith confirmed and found to comply with the

requirements set up by ANSI C63.10, FCC Part 15.247 for the

evaluation of electromagnetic compatibility

Approved By

Terry Jan

Terry Tang

Manager

Dated: June 06, 2022

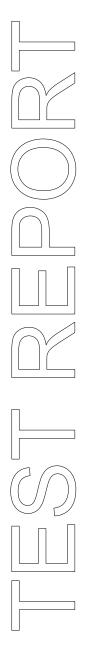
Results appearing herein relate only to the sample tested

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.: TW2205130E

Date: 2022-06-06



Page 2 of 44

Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

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

Page 3 of 44

Report No.: TW2205130E

Date: 2022-06-06



Test Report Conclusion

Content

1.0	General Details	4
1.1	Test Lab Details.	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	5
1.5	Test Duration.	5
1.6	Test Uncertainty	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	8
3.1	Summary of Test Results	8
3.2	Test Standards.	8
4.0	EUT Modification.	8
5.0	Power Line Conducted Emission Test.	9
5.1	Schematics of the Test.	9
5.2	Test Method and Test Procedure.	9
5.3	Configuration of the EUT	9
5.4	EUT Operating Condition.	10
5.5	Conducted Emission Limit.	10
5.6	Test Result.	10
6.0	Radiated Emission test	13
5.1	Test Method and Test Procedure.	13
6.2	Configuration of the EUT	14
6.3	EUT Operation Condition.	14
6.4	Radiated Emission Limit	14
7.0	Out of Band Measurement	20
8.0	Antenna Requirement	25
9.0	FCC ID Label	26
10.0	Photo of Test Setup and EUT View	27

Report No.: TW2205130E

Date: 2022-06-06



Page 4 of 44

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 Listed with Federal Communications commission (FCC)

Registration Number:744189 For 3m Anechoic Chamber

Site Listed with Industry Canada of Ottawa, Canada

Registration Number: IC: 5205A

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Siser North America

Address: 12900 Hall Rd. Suite 270 Sterling Heights, MI 48313

Telephone: 866-301-9409

Fax: --

1.3 Description of EUT

Product: Juliet

Manufacturer: SHENZHEN JINGWEIXIAN TECHNOLOGY CO., LTD

Address: Building C, XinHang Technology Park, No. 229, Qingshui Road, Wulian

Community, Longgang Street, Longgang District, Shenzhen, China, 518116

Trademark:

Siser

Model Number: SNAHDCR24
Additional Model Number: SNAHDCJ12

Hardware Version: V7
Software Version: V22

Serial No.: SS121090622095850

Rating: 24V, 2A

Power Supply: Model: FJ-SW20172402700;

Input: 100-240V~, 50/60Hz, 1.5A; Output: DC24V; 2.7A; 64W

Alternative Power Model: GM60-240275-F;

Supply: Input: 100-240V~, 50/60Hz, 2.0A; Output: DC24V; 2.75A; 66W

Type of Modulation IEEE 802.11b: DSSS (CCK, QPSK, DBPSK)

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.: TW2205130E Page 5 of 44

Date: 2022-06-06



IEEE 802.11g/n (HT20/HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)

Frequency range IEEE 802.11b/g/n (HT20): 2412-2462MHz;

IEEE 802.11n (HT40): 2422-2452MHz;

Channel Spacing 5MHz for IEEE 802.11b/g/n (HT20/HT40)

Air Data Rate IEEE 802.11b: 11, 5.5, 2, 1 Mbps

IEEE 802.11g: 54, 48,36, 24, 18, 12, 9, 6 Mbps

IEEE 802.11n HT20/HT40: mcs0-mcs7

Frequency Selection By software

Channel Number IEEE 802.11b/g/n (HT20): 11 Channels; IEEE 802.11n (HT40): 7 Channels;

Antenna: PCB Antenna with Male IPEX connector, the gain is 0dBi Maximum

1.4 Submitted Sample: 3 Samples

1.5 Test Duration

2022-05-13 to 2022-06-06

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%

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

Andy - xing

Report No.: TW2205130E Page 6 of 44

Date: 2022-06-06



2.0 Test Equipment						
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date	
ESPI Test Receiver	R&S	ESPI 3	100379	2021-06-18	2022-06-17	
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2021-06-18	2022-06-17	
Loop Antenna	EMCO	6507	00078608	2021-06-18	2024-06-17	
Spectrum	R&S	FSIQ26	100292	2021-06-18	2022-06-17	
Horn Antenna	A-INFO	LB-180400-KF	ANT01060660	2021-07-02	2024-07-02	
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-02	
Power meter	Anritsu	ML2487A	6K00003613	2021-06-18	2022-06-17	
Power sensor	Anritsu	MA2491A	32263	2021-06-18	2022-06-17	
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01	
9*6*6 Anechoic			N/A	2021-07-02	2022-07-01	
EMI Test Receiver	RS	ESVB	826156/011	2021-06-18	2022-06-17	
EMI Test Receiver	RS	ESH3	860904/006	2021-06-18	2022-06-17	
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2021-06-18	2022-06-17	
Spectrum	HP/Agilent	E4407B	MY50441392	2021-06-18	2022-06-17	
Spectrum	RS	FSP	1164.4391.38	2022-01-14	2023-01-13	
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2021-06-18	2022-06-17	
RF Cable	Zhengdi	7m		2021-06-18	2022-06-17	
RF Switch	EM	EMSW18	060391	2021-06-18	2022-06-17	
Pre-Amplifier	Schwarebeck	BBV9743	#218	2021-06-18	2022-06-17	
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2021-06-18	2022-06-17	
LISN	SCHAFFNER	NNB42	00012	2022-01-05	2023-01-04	

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

Report No.: TW2205130E

Date: 2022-06-06



Page 7 of 44

3. DESCRIPTION OF TEST MODES

IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 1Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 6Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: mcs0 (worst case) were chosen for full testing;

IEEE 802.11n (HT40) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2422
Middle	2437
High	2452

IEEE 802.11n (HT40) mode: mcs0 data rate (worst case) were chosen for full testing

Note: During the test, the duty cycle was set up to >98%

Report No.: TW2205130E Page 8 of 44

Date: 2022-06-06



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, Paragraph15.203	Antenna Requirement	Pass	Complies			
FCC Part 15, Paragraph15.207	Conducted Emission Test	Pass	Complies			
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System	Pass	See page 24-26 of test report: CTL1812124011-WF03			
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power	Pass	See page 20 of test report: CTL1812124011-WF03			
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission	Pass	Complies			
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density	Pass	See page 21-23 of test report: CTL1812124011-WF03			
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation	Pass	For Band Edge, see page See page 27-35 of test report: CTL1812124011-WF03			

Note: 1. For 6dB occupied band, Maximum output power, PSD, and Band Edge tests, please see test report: CTL1812124011-WF03 with FCC ID: 2AHMR-ESP32-S

- 2. The test report CTL1812124011-WF03 is for WIFI Module with model name: ESP32-S. During this module approval, an PCB antenna used.
- 3. Juliet also employs Wi-Fi Module: ESP32-S. But the antenna is changed and a PCB antenna with male IPEX connector used. The other parts of Wi-Fi module remain the same.

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES.

Page 9 of 44

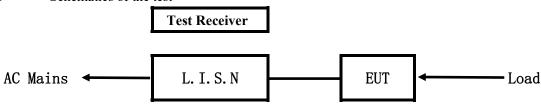
Report No.: TW2205130E

Date: 2022-06-06



5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

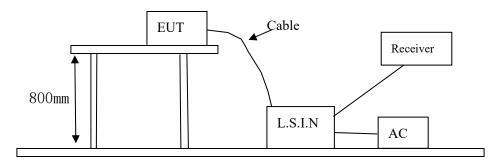


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10-2013.

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



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Manufacturer Model		
T1: -4	SHENZHEN JINGWEIXIAN	SNAHDCR24,		
Juliet	TECHNOLOGY CO., LTD	SNAHDCJ12	2A6VOTAPHTIEKEVAD	

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable

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.: TW2205130E Page 10 of 44

Date: 2022-06-06



5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013.

- 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			
$5.00 \sim 30.00$	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

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: Two power supplies were tested and only the worst case was recorded in the test report.

Page 11 of 44 Report No.: TW2205130E

Date: 2022-06-06



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

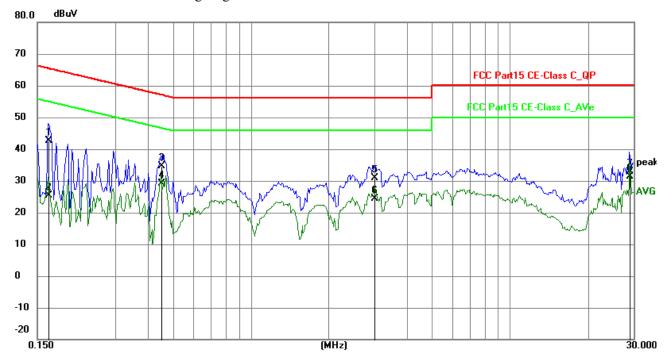
EUT Operating Environment

Humidity: 65%RH Atmospheric Pressure: 101 kPa Temperature: 26°C

EUT set Condition: Keep WIFI 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	0.1655	32.97	9.77	42.74	65.18	-22.44	QP	Р
2	0.1655	15.66	9.77	25.43	55.18	-29.75	AVG	Р
3	0.4503	24.90	9.77	34.67	56.87	-22.20	QP	Р
4	0.4503	19.47	9.77	29.24	46.87	-17.63	AVG	Р
5	3.0039	20.95	9.84	30.79	56.00	-25.21	QP	Р
6	3.0039	14.45	9.84	24.29	46.00	-21.71	AVG	Р
7	28.9662	21.68	11.24	32.92	60.00	-27.08	QP	Р
8	28.9662	20.09	11.24	31.33	50.00	-18.67	AVG	Р

Page 12 of 44 Report No.: TW2205130E

Date: 2022-06-06



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

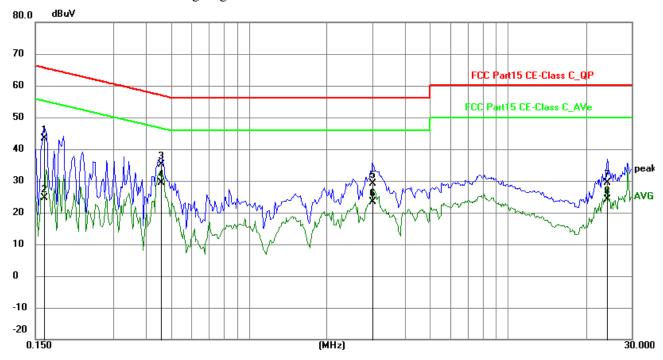
EUT Operating Environment

Humidity: 65%RH Atmospheric Pressure: 101 kPa Temperature: 26°C

EUT set Condition: Keep WIFI 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	0.1617	33.54	9.78	43.32	65.38	-22.06	QP	Р
2	0.1617	14.90	9.78	24.68	55.38	-30.70	AVG	Р
3	0.4581	25.38	9.77	35.15	56.73	-21.58	QP	Р
4	0.4581	19.62	9.77	29.39	46.73	-17.34	AVG	Р
5	3.0000	19.40	9.84	29.24	56.00	-26.76	QP	Р
6	3.0000	13.66	9.84	23.50	46.00	-22.50	AVG	Ъ
7	24.0990	18.55	10.93	29.48	60.00	-30.52	QP	Р
8	24.0990	13.19	10.93	24.12	50.00	-25.88	AVG	Р

Report No.: TW2205130E Page 13 of 44

Date: 2022-06-06

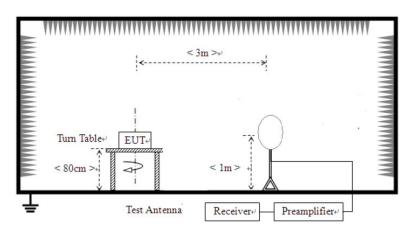


6 Radiated Emission Test

- 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. F For measurement above 1GHz, peak values with RBW=1MHz VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. 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) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz

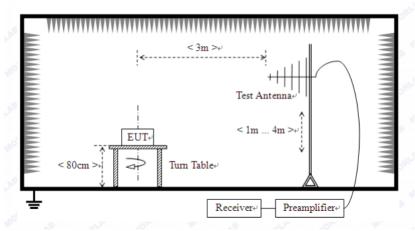


Report No.: TW2205130E

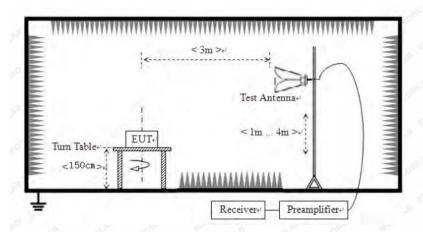
Date: 2022-06-06



For radiated emissions from 30MHz to1GHz



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.
- 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:

Page 15 of 44 Report No.: TW2205130E

Date: 2022-06-06



Frequencies in restricted band are complied to limit on Paragraph 15.209

Frequency Range (MHz)	Distance (m)	Field strength (dB µ 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
30-88	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 Voltage (uV)
- 2. In the Above Table, the higher limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
- 4. Worse case were recorded in the test report. 802.11b was the worst case.

Note: Two power supplies were tested and only the worst case was recorded in the test report.

Page 16 of 44

Report No.: TW2205130E

Date: 2022-06-06

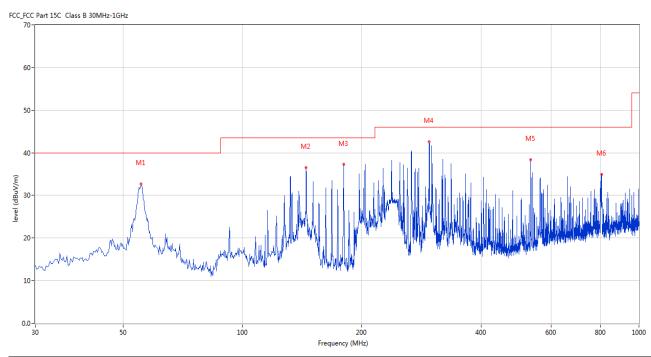


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	55.456	32.70	-11.89	40.0	-7.30	Peak	346.00	100	Horizontal	Pass
2	144.674	36.51	-17.18	43.5	-6.99	Peak	359.00	100	Horizontal	Pass
3	180.070	37.24	-15.31	43.5	-6.26	Peak	360.00	100	Horizontal	Pass
4	295.714	42.62	-11.10	46.0	-3.38	Peak	351.00	100	Horizontal	Pass
5	533.304	38.42	-6.43	46.0	-7.58	Peak	243.00	100	Horizontal	Pass
6	805.079	34.99	-3.10	46.0	-11.01	Peak	325.00	100	Horizontal	Pass

Page 17 of 44

Report No.: TW2205130E

Date: 2022-06-06

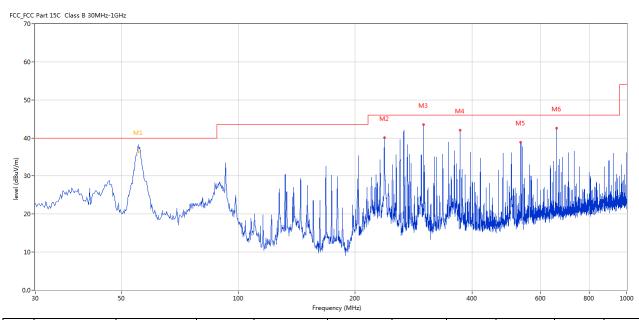


Test result General Radiated Emission Data and Harmonics Radiated Emission Data

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

EUT set Condition: Keep Transmitting

Results: Pass



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	55.214	38.29	-11.83	40.0	-1.71	Peak	0.00	150	Vertical	Pass
1*	55.214	36.41	-11.83	40.0	-3.59	QP	0.00	150	Vertical	Pass
2	237.771	40.10	-12.44	46.0	-5.90	Peak	0.00	150	Vertical	Pass
3	299.835	43.56	-11.03	46.0	-2.44	Peak	0.00	150	Vertical	Pass
4	371.840	42.02	-9.49	46.0	-3.98	Peak	0.00	150	Vertical	Pass
5	533.789	38.94	-6.49	46.0	-7.06	Peak	74.00	150	Vertical	Pass
6	660.100	42.55	-4.64	46.0	-3.45	Peak	16.00	150	Vertical	Pass

Report No.: TW2205130E Page 18 of 44

Date: 2022-06-06



Operation Mode: Transmitting under CH01 for 802.11b mode

	0		
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
4824.00	56.69 (PK) /45.93 (AV)	V	74(Peak)/ 54(AV)
4824.00	60.85 (PK) / 50.14 (AV)	Н	74(Peak)/ 54(AV)
7236.00		H/V	74(Peak)/ 54(AV)
9648.00		H/V	74(Peak)/ 54(AV)
12060		H/V	74(Peak)/ 54(AV)
14472		H/V	74(Peak)/ 54(AV)
16884		H/V	74(Peak)/ 54(AV)
19296		H/V	74(Peak)/ 54(AV)
21708		H/V	74(Peak)/ 54(AV)
24120		H/V	74(Peak)/ 54(AV)

Operation Mode: Transmitting under CH06 for 802.11b mode

Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB \(\mu \)V/m)
4874.00	56.03 (PK) /45.28 (AV)	V	74(Peak)/ 54(AV)
4874.00	59.43 (PK) / 49.03 (AV)	Н	74(Peak)/ 54(AV)
7311.00		H/V	74(Peak)/ 54(AV)
9748.00		H/V	74(Peak)/ 54(AV)
12185		H/V	74(Peak)/ 54(AV)
14622		H/V	74(Peak)/ 54(AV)
17059		H/V	74(Peak)/ 54(AV)
19496		H/V	74(Peak)/ 54(AV)
21933		H/V	74(Peak)/ 54(AV)
24370		H/V	74(Peak)/ 54(AV)

Report No.: TW2205130E Page 19 of 44

Date: 2022-06-06



Operation Mode: Transmitting under CH11 for 802.11b mode

_			
Frequency (MHz)	Level@3m (dB \u03b4 V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4924	55.37 (PK) /45.32 (AV)	V	74(Peak)/ 54(AV)
4924	58.71 (PK) / 48.26 (AV)	Н	74(Peak)/ 54(AV)
7368		H/V	74(Peak)/ 54(AV)
9848		H/V	74(Peak)/ 54(AV)
12310		H/V	74(Peak)/ 54(AV)
14772		H/V	74(Peak)/ 54(AV)
17234		H/V	74(Peak)/ 54(AV)
19696		H/V	74(Peak)/ 54(AV)
22158		H/V	74(Peak)/ 54(AV)
24620		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

- 2. Remark "---" means that the emissions level is too low to be measured
- 3. For 802.11b mode at 1Mbps
- 4. For radiated Emissions from 18-25GHz and below 30MHz, it is only the floor noise and less than the limit for more than 20dB. No necessary to take down.
- 5. Note: the final peak measurement results less than the AV limit. No necessary to take down the final AV measurement result

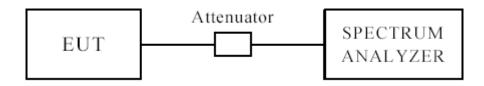
Report No.: TW2205130E Page 20 of 44

Date: 2022-06-06



7.0 Out of Band Measurement

7.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

7.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

7.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test. (Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

7.4 Test Result

Report No.: TW2205130E Page 21 of 44

Date: 2022-06-06



7.5 Restricted band Measurement

EUT	Juliet		Model	SNAHDCR24				
Mode	Keeping	Transmitting	Test Voltage	120V~				
Temperature	24	deg. C,	Humidity	56% RH				
Test Result:		Pass	Detector	PK				
	802.11b mode, Low Channel, Horizontal							
2390	PK (dBµV/m)	49.75	T: :/	$74(dB\mu V/m)$				
	AV (dBμV/m)		Limit	54(dBμV/m)				
	802.11b mode, Vertical							
2390	PK (dBμV/m)	43.35	Limit	74(dBμV/m)				
	AV (dBμV/m)		Lillit	$54(dB\mu V/m)$				

75 Restricted band Measurement

7.5 Restricted band incastrement								
EUT	Juliet		Model	SNAHDCR24				
Mode	Keeping	g Transmitting	Test Voltage	120V~				
Temperature	24	deg. C,	Humidity	56% RH				
Test Result:		Pass	Detector	PK				
	802.11b mode, High Channel, Horizontal							
2483.5	PK (dBµV/m)	55.67	T :!4	$74(dB\mu V/m)$				
	AV (dBμV/m)	44.46	Limit	$54(dB\mu V/m)$				
	802.11b mode, High Channel, Vertical							
2483.5	PK (dBμV/m)	48.43	T ::4	$74(dB\mu V/m)$				
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$				

Report No.: TW2205130E Page 22 of 44

Date: 2022-06-06



7.5 Restricted band Measurement

EUT	Juliet		Model	SNAHDCR24					
Mode	Keeping	Transmitting	Test Voltage	120V~					
Temperature	24	deg. C,	Humidity	56% RH					
Test Result:		Pass	Detector	PK					
	802.11g mode, Low Channel, Horizontal								
2390	PK (dBµV/m)	55.69	T ::4	$74(dB\mu V/m)$					
	AV (dBμV/m)	43.42	Limit	54(dBμV/m)					
	802.11g mode, Vertical								
2390	PK (dBμV/m)	47.69	Limit	$74(dB\mu V/m)$					
	AV (dBμV/m)		Limit	$54(dB\mu V/m)$					

7.5 Restricted band Measurement

1.5 Restricted band weastrement								
EUT		Juliet	Model	SNAHDCR24				
Mode	Keeping	g Transmitting	Test Voltage	120V~				
Temperature	24	deg. C,	Humidity	56% RH				
Test Result:	Pass		Detector	PK				
	802.11g mode, High Channel, Horizontal							
2483.5	PK (dBµV/m)	59.36	T ::4	$74(dB\mu V/m)$				
	AV (dBμV/m)	51.86	Limit	$54(dB\mu V/m)$				
802.11g mode, High Channel, Vertical								
2483.5	PK (dBµV/m)	56.85	T ::4	74(dBμV/m)				
	AV (dBμV/m)	45.46	Limit	$54(dB\mu V/m)$				

Report No.: TW2205130E Page 23 of 44

Date: 2022-06-06



7.5 Restricted band Measurement

EUT		Juliet	Model	SNAHDCR24				
Mode	Keeping	g Transmitting	Test Voltage	120V~				
Temperature	24	deg. C,	Humidity	56% RH				
Test Result:		Pass	Detector	PK				
	802.11n HT20 mode, Low Channel, Horizontal							
2390	PK (dBμV/m)	55.67	T ::4	74(dBμV/m)				
	AV (dBμV/m)	46.14	Limit	54(dBµV/m)				
	802.11n HT20 mode, Low Channel, Vertical							
2390	PK (dBμV/m)	49.25	Limit	74(dBμV/m)				
	AV (dBμV/m)		Limit	54(dBµV/m)				

7.5 Restricted band Measurement

			1				
EUT	Juliet		Model	SNAHDCR24			
Mode	Keeping Transmitting		Test Voltage	120V~			
Temperature	24 deg. C,		Humidity	56% RH			
Test Result:	Pass		Detector	PK			
802.11n HT20 mode, High Channel, Horizontal							
2483.5	PK (dBµV/m)	60.36	Limit	$74(dB\mu V/m)$			
	AV (dBμV/m)	51.74		$54(dB\mu V/m)$			
	80	2.11n HT20 mode, H	igh Channel, Vertic	cal			
2483.5	PK (dBμV/m)	55.69	Limit	74(dBμV/m)			
	AV (dBμV/m)	46.25		54(dBµV/m)			

Report No.: TW2205130E Page 24 of 44

Date: 2022-06-06



7.5 Restricted band Measurement

EUT	Juliet		Model	SNAHDCR24				
Mode	Keeping Transmitting		Test Voltage	120V~				
Temperature	24 deg. C,		Humidity	56% RH				
Test Result:	Pass		Detector	PK				
802.11n H40 mode, Low Channel, Horizontal								
2390	PK (dBμV/m)	59.25	Limit	$74(dB\mu V/m)$				
	AV (dBμV/m)	49.63		54(dBμV/m)				
802.11n HT0 mode, Low Channel, Vertical								
2390	PK (dBμV/m)	52.18	Limit	$74(dB\mu V/m)$				
	AV (dBμV/m)			$54(dB\mu V/m)$				

7.5 Restricted band Measurement

EUT	Juliet		Model	SNAHDCR24				
Mode	Keeping Transmitting		Test Voltage	120V~				
Temperature	24 deg. C,		Humidity	56% RH				
Test Result:	Pass		Detector	PK				
802.11n HT40 mode, High Channel, Horizontal								
2483.5	PK (dBµV/m)	61.72	Limit	74(dBμV/m)				
	AV (dBμV/m)	51.53		$54(dB\mu V/m)$				
802.11n HT40 mode, High Channel, Vertical								
2483.5	PK (dBμV/m)	57.08	Limit	74(dBμV/m)				
	AV (dBμV/m)	46.92		$54(dB\mu V/m)$				

Report No.: TW2205130E

Date: 2022-06-06



Page 25 of 44

8.0 Antenna Requirement

8.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Antenna Connected construction

PCB Antenna with Male IPEX connector, the gain is 0dBi Maximum

Report No.: TW2205130E Page 26 of 44

Date: 2022-06-06



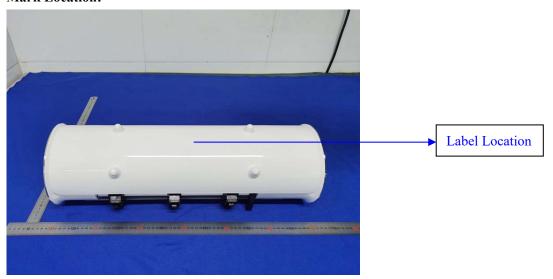
9.0 FCC ID Label

FCC ID: 2A6VOTAPHTIEKEVAD

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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:



Page 27 of 44

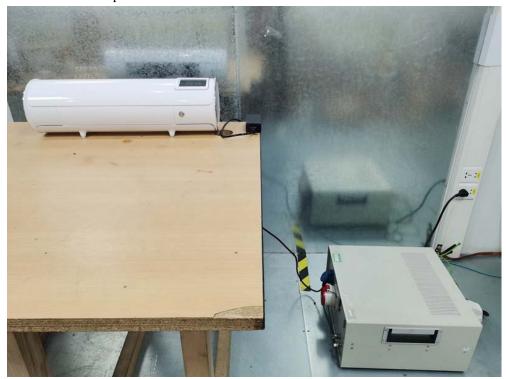
Report No.: TW2205130E

Date: 2022-06-06



10.0 **Photo of testing**

Conducted Emission Test Setup:



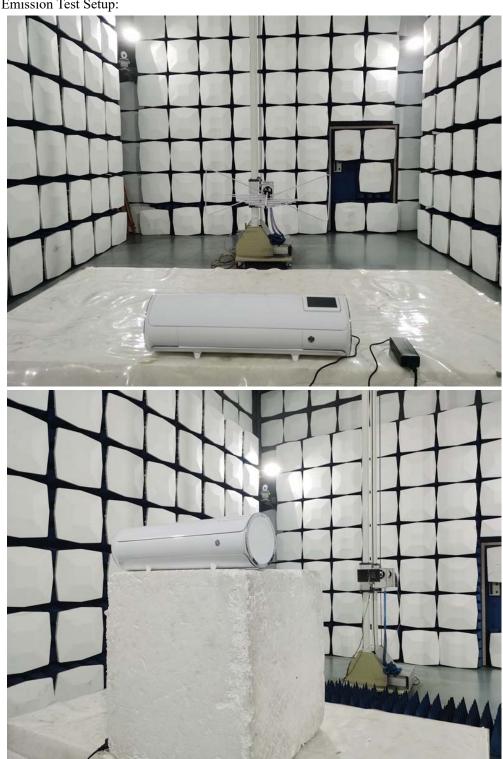
Page 28 of 44

Report No.: TW2205130E

Date: 2022-06-06



Radiated Emission Test Setup:



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.

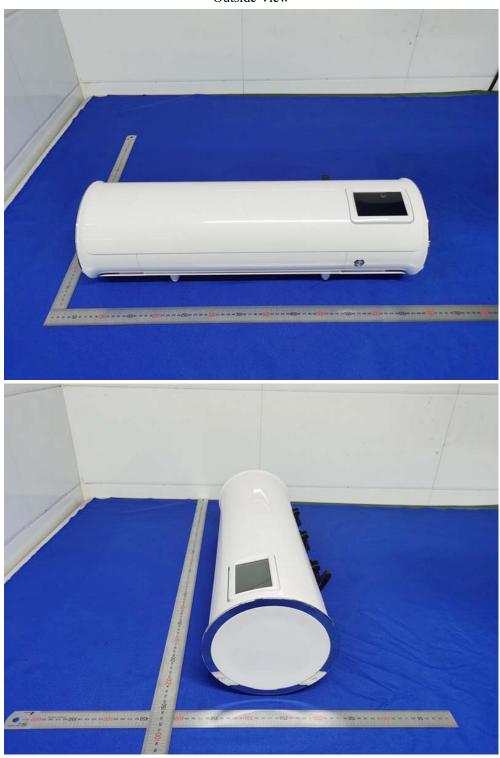
Report No.: TW2205130E

Date: 2022-06-06



Photographs - EUT

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 adopt any other remedies which may be appropriate.

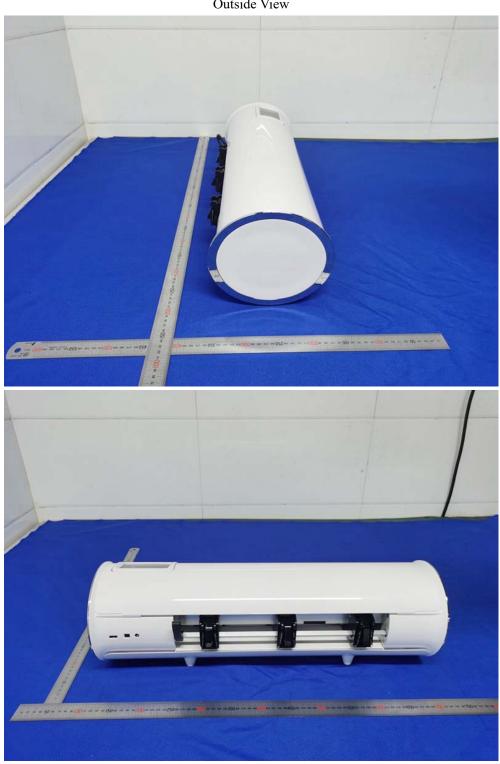
Page 30 of 44

Report No.: TW2205130E

Date: 2022-06-06



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 adopt any other remedies which may be appropriate.

Page 31 of 44

Report No.: TW2205130E

Date: 2022-06-06



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 adopt any other remedies which may be appropriate.

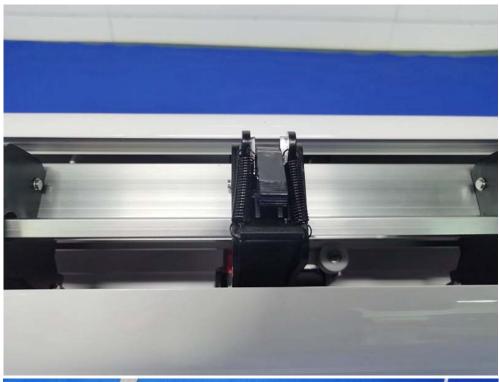
Page 32 of 44

Report No.: TW2205130E

Date: 2022-06-06



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. 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

Page 33 of 44

Report No.: TW2205130E

Date: 2022-06-06



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 adopt any other remedies which may be appropriate.

Page 34 of 44

Report No.: TW2205130E

Date: 2022-06-06



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.

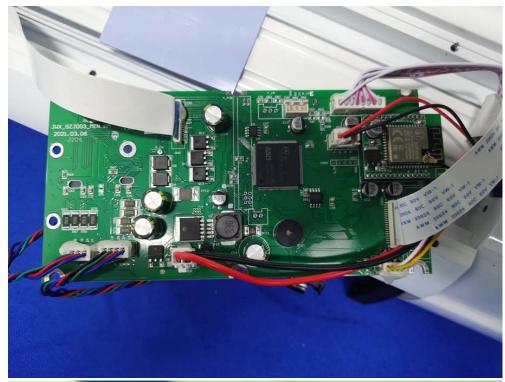
Page 35 of 44

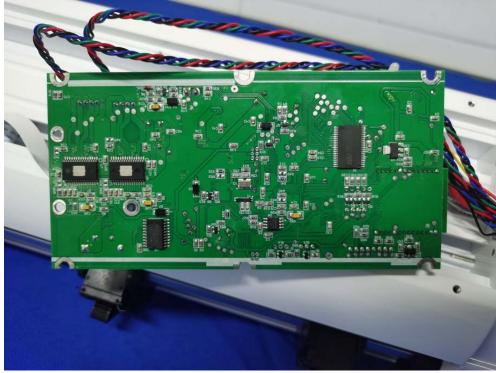
Report No.: TW2205130E

Date: 2022-06-06



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.

Page 36 of 44

Report No.: TW2205130E

Date: 2022-06-06



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.

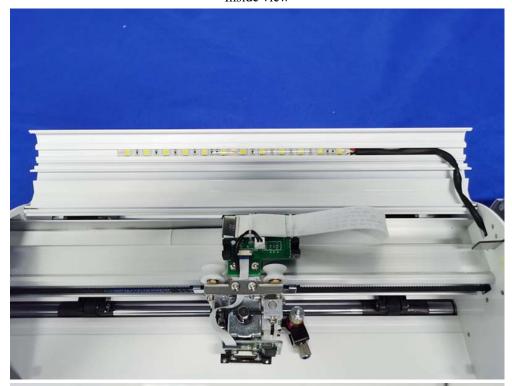
Page 37 of 44

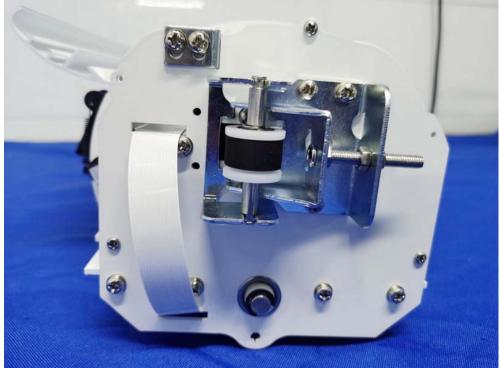
Report No.: TW2205130E

Date: 2022-06-06



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.

Page 38 of 44

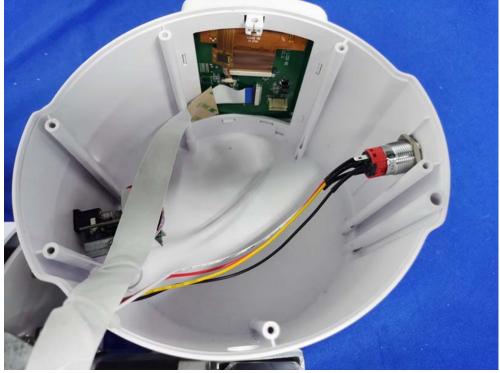
Report No.: TW2205130E

Date: 2022-06-06



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.

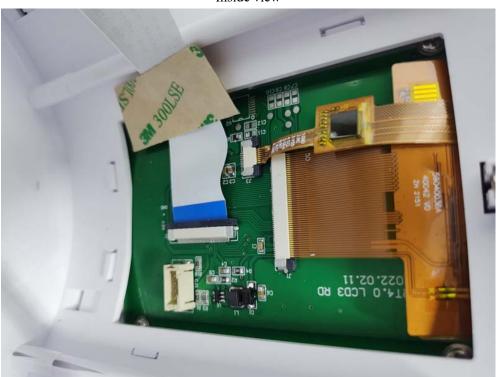
Page 39 of 44

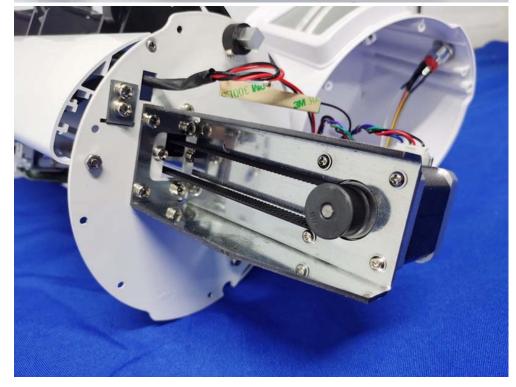
Report No.: TW2205130E

Date: 2022-06-06



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.

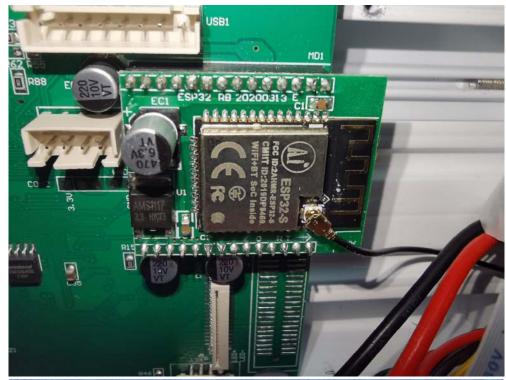
Page 40 of 44

Report No.: TW2205130E

Date: 2022-06-06



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.

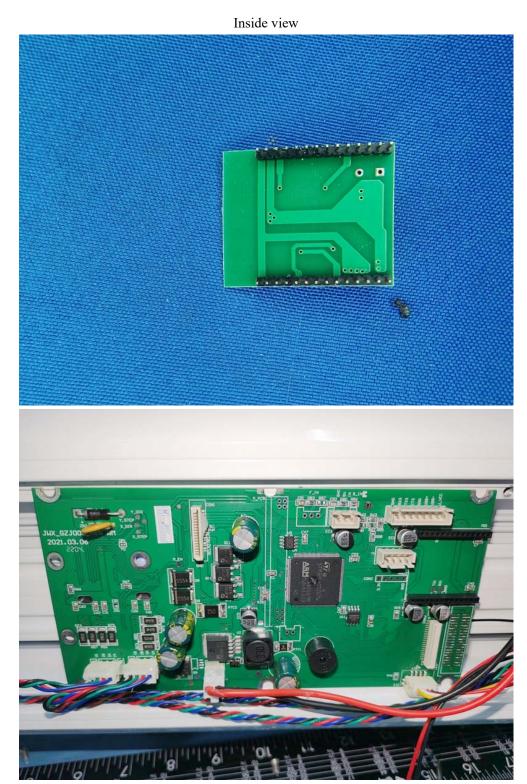
In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Page 41 of 44

Report No.: TW2205130E

Date: 2022-06-06





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.

Page 42 of 44

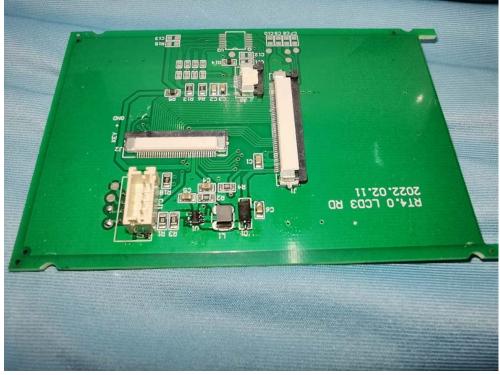
Report No.: TW2205130E

Date: 2022-06-06



Inside view





Page 43 of 44

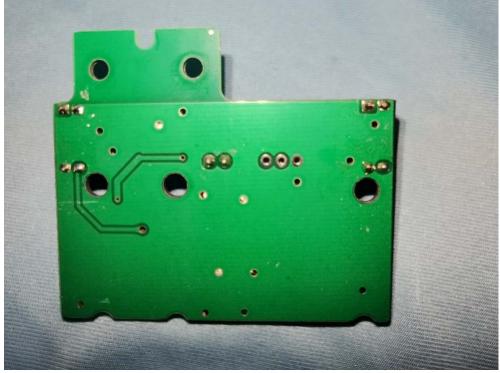
Report No.: TW2205130E

Date: 2022-06-06



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.

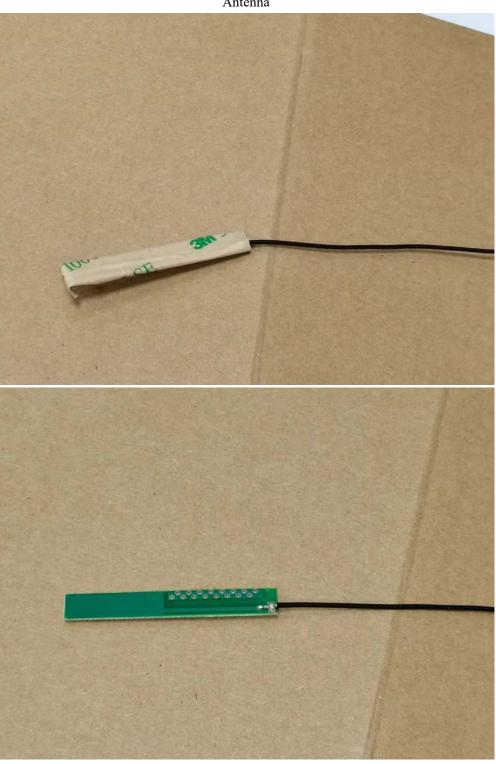
Page 44 of 44

Report No.: TW2205130E

Date: 2022-06-06



Antenna



-End of the 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.