



TEST REPORT

REPORT NUMBER: 24B02W000029-001

ON

Type of Equipment: Smart POS system

Type of Designation: T6F10

Brand Name: SUNMI

Manufacturer: Shanghai Sunmi Technology Co.,Ltd.

FCC ID: 2AH25T6F10

ACCORDING TO
FCC Part 2, FCC Part 90
ANSI C63.26

Chongqing Academy of Information and Communications Technology

Month date, year

Aug 05, 2024

Signature



Jin Zhou

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.



Report No.: 24B02W000029-001

Revision Version

Report Number	Revision	Date
24B02W000029-001	00	2024-08-05

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1. Test Laboratory

1.1. Testing Location

Name:	Chongqing Academy of Information and Communications Technology
Designation Number:	CN1239
Address:	No.19EastRoad,Xiantao Big-data Valley,Yubei District,Chongqing,People's Republic of China
Postal Code:	401336
Telephone:	0086-23-88069965
Fax:	0086-23-88608777




1.2. Testing Environment

Normal Temperature:	15-35°C
Relative Humidity:	30-70%

1.3. Project data

Testing Start Date:	2024-07-02
Testing End Date:	2024-07-23

1.4. Signature

	2024-08-05
Junxin Dong (Prepared this test report)	Date
	2024-08-05
Lili Wang (Reviewed this test report)	Date
	2024-08-05
Jin Zhou Director of the laboratory (Approved this test report)	Date

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2. Client Information

2.1. Applicant Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address /Post:	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China
City:	Shanghai
Country:	China
Telephone:	18826519551
Fax:	N/A
Email:	chenxuanfei@sunmi.com
Contact Person:	chenxuanfei

2.2. Manufacturer Information

Company Name:	Shanghai Sunmi Technology Co.,Ltd.
Address /Post:	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China
City:	Shanghai
Country:	China
Telephone:	18826519551
Fax:	N/A
Email:	chenxuanfei@sunmi.com
Contact Person:	chenxuanfei

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3. Equipment under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Smart POS system
Model name	T6F10
Brand name	SUNMI
GSM Frequency Band	GSM850/GSM900/DCS1800/PCS1900
WCDMA Frequency Band	WCDMA Band I/II/IV/V/VI/VIII/XIX
LTE Frequency Band	LTE Band 1/2/3/4/5/7/8/18/19/20/26/28/34/38/39/40/41
Type of LTE modulation	QPSK/16QAM
Power Class 2	N/A
Power Class 3	LTE Band 1/2/3/4/5/7/8/18/19/20/26/28/34/38/39/40/41
Extreme Temperature	-10/+50°C
Nominal Voltage	7.7V
Extreme High Voltage	8.8V
Extreme Low Voltage	6.0V

Note1: Photographs of EUT are shown in ANNEX A of this test report.

Note2: High and low voltage values in extreme condition test are given by manufacturer.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
24B02W000029#S1	868393070001227*868393070003223	V1.0(LA+EU)	V3.0.0	2024-07-02
24B02W000029#S2	868393070001276*868393070003272	V1.0(LA+EU)	V3.0.0	2024-07-02

*EUT ID is used to identify the test sample in the lab internally.

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3.3. Outline of Equipment under Test

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
4G	26	814-824	859-869	--

Band	BW (MHz)	Low Channel	Low Freq. (MHz)	Mid Channel	Mid Freq. (MHz)	High Channel	High Freq. (MHz)
Band 26 (814-824MHz)	1.4	26697	814.7	23890	819	23933	823.3
	3	23855	815.5	23890	819	23925	822.5
	5	23865	816.5	23890	819	23915	821.5
	10	/	/	23890	819	/	/

No.	Maximum of Antenna Gain	Data
1	LTE band 26	-1.63 dBi
Note: The data of antenna gain is provided by the customer may affect the validity of the test results in this report, and the impact and consequences of this shall be undertaken by the customer.		

Note: This is a report for LTE B26(814-824MHz) only.

3.4. Internal Identification of AE used during the test

AE ID*	Description	Model	SN/Remark
24B02W000029#AE1	RF Cable	N/A	N/A
24B02W000029#CA01	Adapter	TPA-141A050200UU01	N/A
24B02W000029#CB01	Adapter	UC13US	N/A
24B02W000029#CC01	Adapter	TPA-23A050200UU01	N/A
24B02W000029#UA01	AC Cable	N/A	N/A
24B02W000029#BA02	Battery	HPPA	Guangdong Highpower NewEnergy Technology Co., Ltd.

*AE ID is used to identify the test sample in the lab internally.

*By verifying that CC01+BA02 is the worst battery and adapter combination, this battery and adapter are used in all tests.

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4. Reference Documents

4.1. Documents supplied by applicant

PICS/PIXIT, referring to Annex B for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC 47 CFR Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	--
FCC 47 CFR Part 90	REGULATIONS GOVERNING LICENSING AND USE OF FREQUENCIES IN THE 806–824, 851–869, 896–901, AND 935–940 MHZ BANDS	--
ANSI C63.26-2015	AMERICAN NATIONAL STANDARD OF PROCEDURES FOR COMPLIANCE TESTING OF LICENSED TRANSMITTERS USED IN LICENSED RADIO	2015
KDB 971168 D01	MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS	v03r01
Note: KDB 971168 D01 have not been accredited by A2LA.		

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5. Test Equipments Utilized

5.1. RF Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacturer	Cal. Interval	Cal.Due Date
1	Universal Radio Communication Tester	CMW500	166779	--	--	R&S	1 Year	2025-06-28
2	Splitter	--	--	--	--	--	--	--

5.2. RSE Test System

No.	Equipment	Model	SN	HW Version	SW Version	Manufacturer	Cal. Interval	Cal.Due Date
1	EMI Test Receiver	ESU40	100307	--	--	R&S	1 Year	2025-06-28
2	TRILOG Broadband Antenna	VULB9163	9163-586	--	--	Schwarzbeck	1 Year	2024-10-28
3	Horn antenna	9120D	1083	--	--	Schwarzbeck	2 Year	2024-12-14
4	Horn antenna	DATE 1152	LM7127	--	--	ETS	2 Year	2024-09-06
5	Horn antenna	DATE 1012	LM5945	--	--	ETS	2 Year	2024-09-06
6	Amplifier1	SCU-08F1	8320027	--	--	R&S	1 Year	2025-06-28
7	Amplifier2	SCU-18F	180093	--	--	R&S	1 Year	2025-06-28

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5.3. Climate Chamber

No.	Name	Type	SN	HW Version	SW Version	Manuf acture	Cal. Interv al	Cal.Due Date
--	--	--	--	--	--	--	--	--

5.4. Anechoic chamber Vibration table

No.	Name	Type	SN	HW Version	SW Version	Manuf acture	Cal. Interval	Cal.Due Date
1	Fully- Anechoic Chamber	FAC 5	--	--	--	TDK	3 Year	2024-09-22
2	Anechoic Chamber	SAC 10	--	--	--	TDK	3 Year	2024-08-26

5.5. Test software

No.	Name	version	SN	Manufacture
1	EMC32	V 10.20.01	--	R&S
2	T-RFS500	V2.0	--	Manufacturer:Beijing Zhiwang Xince Technology Co., Ltd.

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6. Test Results

6.1. Summary of Test Results

A brief summary of the tests carried out is shown as following.

FCC Rules	Name of Test	Result
2.1046/90.635(b)	Output Power and EIRP/ERP	PASS
2.1053/90.691	Emission Limit	PASS

Note:

The T6F10 manufactured by Shanghai Sunmi Technology Co.,Ltd. is a variant product for testing. This project is a C2PC project based on the FCC ID: 2AH25T6F10(Date of Grant:02/06/2024), the content of the change is referred to the Product Change Description.

According to the Product Change Description, we mainly verified the output power of the worst mode and retest Radiated Spurious Emission.

There are two configurations Mainly Supply and Secondary Supply in this project, we tested the Mainly Supply and the worst mode of Secondary Supply.

The description of the differences between Mainly Supply and Secondary Supply are as follows:

Model Difference	T6F10 (High Configuration) (Mainly Supply)	T6F10 (Basic Configuration) (Secondary Supply)
Scanner	Yes	No
LCD (Just different manufacturers)	SHENZHEN DJN PHOTOELECTRIC TECHNOLOGY CO., LTD	CPT Technology (Group) Co.,Ltd
DDR	It's just that the manufacturer and memory are different	
EMMC	It's just that the manufacturer and memory are different	

Chongqing Academy of Information and Communication Technology only performed test cases which identified with Pass/Fail/Inc result in section 6.1.

Chongqing Academy of Information and Communication Technology has verified that the compliance of the tested device specified in section 3.1 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 6 of this test report.

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6.2. Output Power

Specifications:	FCC Part 2.1046/90.635(b)
DUT Serial Number:	24B02W000029#S1
Test conditions:	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

6.2.1. Measurement Limit

FCC §90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

6.2.2. Method of Measurements

Method of measurements please refer to KDB971168 D01 v03 clause 5.

The EUT was set up for the max output power with pseudo random data modulation.

The power was measured with Rhode & Schwarz base station CMW500.

These measurements were done at 3 frequencies.(bottom, middle and top of operational frequency range).

1. The transmitter output port was connected to base station.
2. Set the EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record maximum average power for other modulation signal.
5. During the process of testing, the EUT was controlled Rhode & Schwarz Digital Radio.
6. Communication tester to ensure max power transmission and proper modulation.
7. This result contains output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

$EIRP = \text{Conducted power} + \text{Gain}$, $ERP = EIRP - 2.15\text{dBi}$.

6.2.3. Test procedures

The transmitter output power was connected to calibrated attenuator, the other end of which was connected to signal analyzer. Transmitter output power was read off the power in dBm. The power outputs at the transmitter antenna port was determined by adding the value of attenuator to the signal analyzer reading.

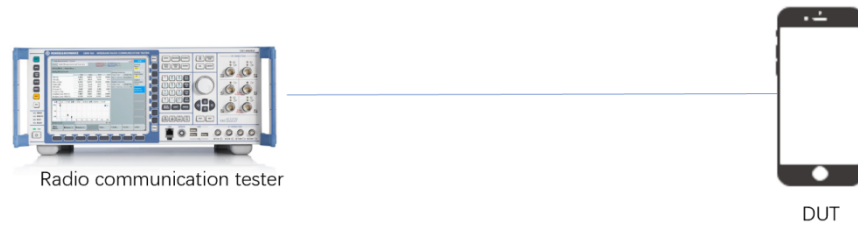
6.2.4. Measurement Uncertainty

Expanded Uncertainty	0.6dB (k=2)
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6.2.5. Test Setup



6.2.6. Test result

BAND	Mode	Output power(dBm)
Band 26 (814-824)	QPSK	22.38

Note: The power of the worst part is verified to meet the requirements.

6.2.7. EIRP/ERP results

BAND	Mode	EIRP (dBm)	ERP (dBm)
Band 26 (814-824)	QPSK	20.75	18.60

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6.3. EMISSION LIMIT

Specifications:	FCC Part 2.1053/90.691
DUT Serial Number:	24B02W000029#S2
Test conditions:	Ambient Temperature: 15°C-35°C Relative Humidity: 30%-60% Air pressure: 86-106kPa
Test Results:	Pass

6.3.1. Measurement Limit

FCC§90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

6.3.2. Method of Measurement

The measurements procedures in TIA-603E-2016 are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in FCC §90.669

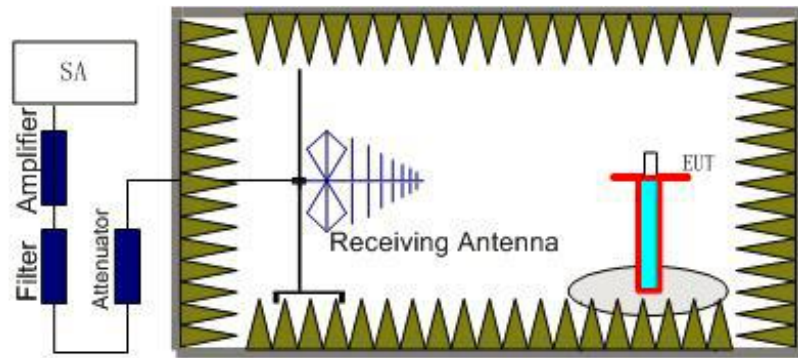
The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of LTE Band.

The procedure of radiated spurious emissions is as follows

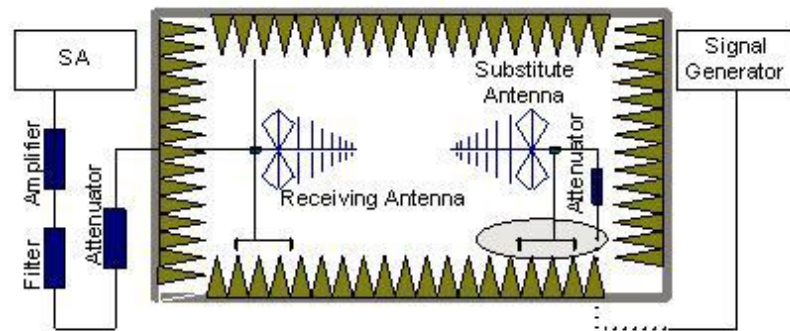
1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.

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2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (Pcl) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (Ga) should be recorded after test.

A amplifier should be connected in for the test.

The Path loss (Pcl) is the summation of the cable loss .

The measurement results are obtained as described below:

$$\text{Power(EIRP)} = \text{PMea} - \text{Pcl} + \text{Ga}$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15

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dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15\text{dBi}$

6.3.3. Measurement Uncertainty

Expanded Uncertainty	30MHz-150MHz 3.82 dB (k=2) 150MHz-1000MHz 3.97 dB (k=2) 1000MHz-3000MHz 3.09 dB (k=2) 3000MHz-6000MHz 3.29 dB (k=2) 6000MHz-18000MHz 3.91 dB (k=2) 18000MHz-26000MHz 4.60 dB (k=2) 26000MHz-40000MHz 4.77 dB (k=2)
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6.3.4. Measurement Results

Band	BW (MHz)	Low Freq. (MHz)	Mid Freq. (MHz)	High Freq. (MHz)	Result
Band 26 (814-824MHz)	1.4	814.7	819	823.3	PASS
	3	815.5	819	822.5	PASS
	5	816.5	819	821.5	PASS
	10	/	819	/	PASS

RSE-LTE26-L-816.5

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Test Result (dBm)	Limit(dBm)	Margin(dBm)	Polarization
1630.0	-52.55	4.2	4.7	-52.05	-13	39.05	V
2416.5	-43.44	5.3	5.6	-43.14	-13	30.14	V
3258.8	-52.87	6.1	6.9	-52.07	-13	39.07	V
4073.6	-52.45	6.9	8.6	-50.75	-13	37.75	H
4892.4	-53.07	7.7	9.6	-51.17	-13	38.17	H
5709.6	-54.73	8.5	10.2	-53.03	-13	40.03	H

RSE-LTE26-M-819

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Test Result (dBm)	Limit(dBm)	Margin(dBm)	Polarization
1639.7	-52.11	4.2	4.7	-51.61	-13	38.61	V
2458.1	-44.15	5.4	5.6	-43.95	-13	30.95	H

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3286.0	-53.28	6.2	6.9	-52.58	-13	39.58	H
4095.2	-55.31	7.0	8.6	-53.71	-13	40.71	H
4932.8	-52.95	7.7	9.6	-51.05	-13	38.05	H
5793.2	-53.12	8.4	10.2	-51.32	-13	38.32	H

RSE-LTE26-H-821.5

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Test Result (dBm)	Limit(dBm)	Margin(dBm)	Polarization
1696.1	-51.02	4.5	4.7	-50.82	-13	37.82	V
2544.2	-41.08	5.4	5.6	-40.88	-13	27.88	V
3424.4	-54.76	6.3	7.8	-53.26	-13	40.26	V
4268.4	-53.87	7.1	8.9	-52.07	-13	39.07	H
5176.4	-52.81	8.0	9.4	-51.41	-13	38.41	H
5955.6	-53.63	8.5	10.2	-51.93	-13	38.93	H

Note: Only worse case is recorded in this report.

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Annex A EUT Photos

See the document “24B02W000029-External Photos”.

See the document “24B02W000029-Internal Photos”.

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Annex B Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

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