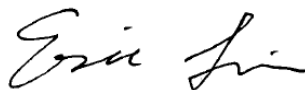


TEST REPORT

Application No.: KSCR2209001699AT
FCC ID: 2AH25T6820
Applicant: Shanghai Sunmi Technology Co.,Ltd.
Address of Applicant: Room 505, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Manufacturer: Shanghai Sunmi Technology Co.,Ltd.
Address of Manufacturer: Room 505, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Equipment Under Test (EUT):
EUT Name: Smart POS system
Model No.: T6820
Trade Mark: SUNMI
Standard(s) : 47 CFR Part 2; 47 CFR Part 22H;47 CFR Part 24 subpart E
Date of Receipt: 2022-09-08
Date of Test: 2022-11-29 to 2022-11-29
Date of Issue: 2022-12-09

Test Result:	Pass*
---------------------	--------------

* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Add two configurations	2022-12-09	Based on KSCR220400050306AT

Authorized for issue by:			
		Damon Zhou	
		Damon_Zhou/Project Engineer	
		Eric Lin	
		Eric Lin /Reviewer	



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2 Test Summary

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Field strength of spurious radiation	47 CFR Part 2; 47 CFR Part 22H; 47 CFR Part 24 subpart E	ANSI C63.26, KDB 971168 D01 v03	§2.1051, §22.917, §24.238,	Pass

This report based on KSCR220400050306AT, added two configurations. expressed as SKU5 and SKU6. SKU5 (HVIN:T6820-1) stand for support HD screen, not support scanner version. SKU6 (HVIN:T6820-2) stand for support laser scanner version.



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 7.2V by Rechargeable Li-ion Battery charged by Adapter Battery Model: LKPA Nominal voltage:7.2V Limited charge voltage:8.4V Rated capacity:2500mAh/18Wh Typical capacity:2600mAh/18.72Wh Adapter Model 1: UC13US INPUT:100-240V,50/60Hz,0.35A OUTPUT:5V,2A Adapter Model 2: UC11US INPUT:100-240V,50/60Hz,0.2A OUTPUT:5V,1A Adapter Model 3: TPA-46B050100UU INPUT:100-240V,50/60Hz,0.2A OUTPUT:5V,1A Adapter Model 4: TPA-23A050200UU01 INPUT:100-240V,50/60Hz,0.3A OUTPUT:5V,2A
Test voltage:	DC 7.2V
Serial Number:	TJ06P28C20009
Firmware version:	SP6228A_V11_20220501_sunmi
Sample Type:	Portable production
Support Network:	GPRS, EGPRS
Operation Frequency Band:	GSM850/GSM1900
Modulation Type:	GMSK for GPRS/EGPRS; 8PSK for EGPRS
GPRS Class:	12
EGPRS Class:	12
Antenna Type:	PIFA Antenna
Antenna Gain:	GSM850: 0.8dBi (Provided by the manufacturer) GSM1900: 2.0dBi (Provided by the manufacturer)
Extreme temp. Tolerance:	-10°C to +50°C
Extreme vol. Limits:	6.12V DC to 8.28V DC (nominal: 7.2V DC)
IMEI:	867223060217692



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4.2 Test Frequency

Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM1900	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz

4.3 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	48%	
Atmospheric Pressure:	1015Pa	
Temperature:	TN	25 °C
Voltage:	VL	6.12V
	VN	7.2V
	VH	8.28V

NOTE: VL= lower extreme test voltage
 VN= nominal voltage
 VH= upper extreme test voltage
 TN= normal temperature

4.4 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.



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4.5 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4 x 10 ⁻⁸
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

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



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4.6 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

4.7 Test Facility

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

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED (CAB identifier CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None



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Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR220900169906

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5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/22/2022	08/21/2023
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/22/2022	08/21/2023
3	Spectrum Analyzer	Keysight	N9030B	KSEM021-1	01/22/2022	01/21/2023
4	Signal Generator	R&S	SMW200A	KSEM020-1	08/22/2022	08/21/2023
5	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/22/2022	08/21/2023
6	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/22/2022	08/21/2023
7	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	04/01/2022	03/31/2023
8	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/22/2022	08/21/2023
9	Switcher	CCSRF	FY562	KUS2001M001-3	08/22/2022	08/21/2023
10	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
11	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
12	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/16/2022	01/15/2023
13	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	04/01/2021	03/31/2023
14	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	04/14/2022	04/13/2023
15	Software	BST	TST-PASS	/	N/A	N/A
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/22/2022	08/21/2023
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	04/01/2022	03/31/2023
3	Signal Generator	Agilent	E8257C	KS301066	08/22/2022	08/21/2023
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	04/13/2021	04/12/2023
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2021	06/28/2023
6	Bilog Antenna	SCHWARZBECK	VULB9160	CZ301016	04/13/2021	04/12/2024
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	04/02/2022	04/01/2024
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	02/22/2021	02/21/2023
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	03/17/2022	03/16/2023
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/22/2022	01/21/2023
11	Amplifier(18~40GHz)	COM-POWER	PAM-840A	KUS1710E001	01/22/2022	01/21/2023
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	11/13/2022	11/12/2023
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	01/04/2022	31/03/2023
14	Software	Faratronic	EZ_EMV-v 3A1	/	N/A	N/A



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6 Radio Spectrum Matter Test Results

6.1 Field strength of spurious radiation

Test Requirement §2.1051, §22.917, §24.238,
 Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit:
 Limit: ≤ -13dBm

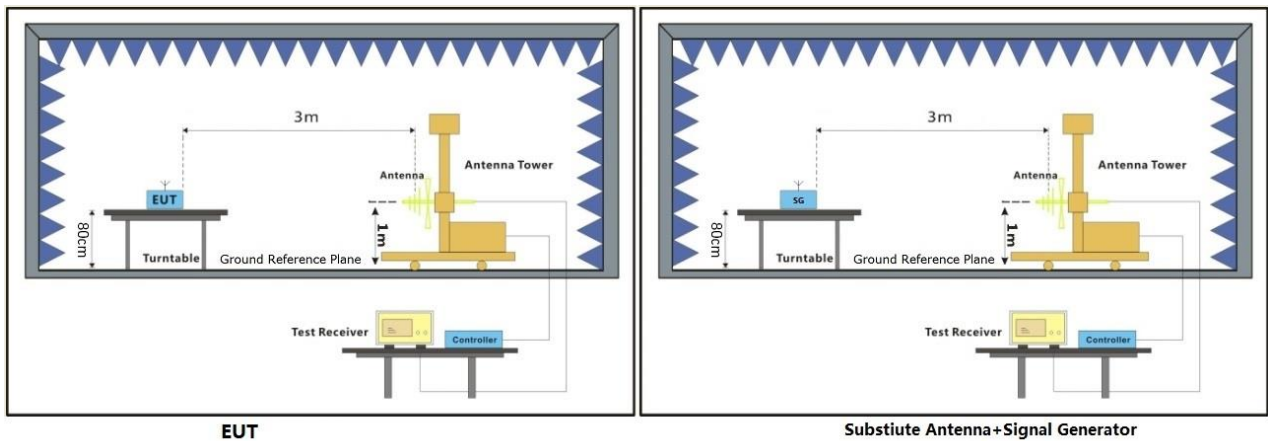
6.1.1 E.U.T. Operation

Operating Environment:
 Temperature: 23.3 °C Humidity: 47.4 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	15	TX mode_Keep the EUT (SKU6) with adapter 1 in transmitting mode
Final test	06	TX mode_Keep the EUT (SKU5) with adapter 1 in transmitting mode

6.1.3 Test Setup Diagram



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6.1.4 Measurement Procedure and Data

Test Procedure:

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.



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GSM850-Low channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1648.400	-54.03	-13	-41.03	Horizontal
2472.600	-56.83	-13	-43.83	Horizontal
3296.800	-55.66	-13	-42.66	Horizontal
1648.400	-53.71	-13	-40.71	Vertical
2472.600	-57.08	-13	-44.08	Vertical
3296.800	-54.63	-13	-41.63	Vertical

GSM850- Middle channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1672.800	-51.95	-13	-38.95	Horizontal
2509.200	-60.72	-13	-47.72	Horizontal
3345.600	-55.35	-13	-42.35	Horizontal
1672.800	-50.25	-13	-37.25	Vertical
2509.200	-57.70	-13	-44.70	Vertical
3345.600	-55.86	-13	-42.86	Vertical

GSM850- High channel				
Frequency (MHz)	Level (dBm)	Limit (dBm)	Over Limit (dB)	Polarization
1697.600	-56.80	-13	-43.80	Horizontal
2546.400	-59.71	-13	-46.71	Horizontal
3395.200	-53.50	-13	-40.50	Horizontal
1697.600	-58.42	-13	-45.42	Vertical
2546.400	-61.74	-13	-48.74	Vertical
3395.200	-55.75	-13	-42.75	Vertical



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GSM1900-Low channel				
Frequency	Level	Limit	Over Limit	Polarization
(MHz)	(dBm)	(dBm)	(dB)	
3700.400	-45.28	-13	-32.28	Horizontal
5550.600	-50.90	-13	-37.90	Horizontal
7400.800	-46.73	-13	-33.73	Horizontal
3700.400	-51.35	-13	-38.35	Vertical
5550.600	-49.04	-13	-36.04	Vertical
7400.800	-46.31	-13	-33.31	Vertical

GSM1900-Middle channel				
Frequency	Level	Limit	Over Limit	Polarization
(MHz)	(dBm)	(dBm)	(dB)	
3760.000	-45.55	-13	-32.55	Horizontal
5640.000	-51.22	-13	-38.22	Horizontal
7520.000	-46.90	-13	-33.90	Horizontal
3760.000	-45.10	-13	-32.10	Vertical
5640.000	-52.52	-13	-39.52	Vertical
7520.000	-48.82	-13	-35.82	Vertical

GSM1900-High channel				
Frequency	Level	Limit	Over Limit	Polarization
(MHz)	(dBm)	(dBm)	(dB)	
3819.600	-46.15	-13	-33.15	Horizontal
5729.400	-51.25	-13	-38.25	Horizontal
7639.200	-45.15	-13	-32.15	Horizontal
3819.600	-53.27	-13	-40.27	Vertical
5729.400	-49.24	-13	-36.24	Vertical
7639.200	-41.14	-13	-28.14	Vertical



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7 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2209001699AT

8 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2209001699AT

- End of the Report -



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