TEST REPORT

Report Number: C21T00142-SAR01-V00

Applicant	Shanghai Sunmi Technology Co.,Ltd.
Product Name	Data Processing Terminal
Model Name	L3561
Brand Name	SUNMI
FCC ID	2AH25D2SKDS
IC	22621-D2SKDS

Industrial Internet Innovation Center (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in FCC 47 CFR Part 2 2.1091, RSS 102.

Prepared by	李浪	Reviewed by	鄢航
Approved by	宋城平	Issue Date	2022-01-18

Industrial Internet Innovation Center (Shanghai) Co., Ltd.

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11. After confirmation with the customer, the Max power and antenna gain information provided by the customer may affect the validity of the measurement results in this report, and the customer shall bear the impact and consequences.

Test Laboratory:
Industrial Internet Innovation Center (Shanghai) Co., Ltd.
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Revision Version

Report Number	Revision	Date	Memo
C21T00142-SAR01-V00	00	2022-01-18	Initial creation of test report

CONTENTS

1. Test Laboratory

1.1. Testing Location

Primary Lab:

Company Name	Industrial Internet Innovation Center (Shanghai) Co., Ltd.
Address	Building 4, No. 766 Jingang Rd, Pudong, Shanghai, China
FCC Registration No.	958356
FCC Designation No.	CN1177
IC Designation No.	10766A

1.2. Testing Environment

Normal Temperature	18℃~25℃
Relative Humidity	25%RH~75%RH

1.3. Project Information

Project Leader	Wang Wenwen

2. Client Information

2.1. Applicant Information

Company Name	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Telephone	+86 18501703215

2.2. Manufacturer Information

Company Name	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Telephone	+86 18501703215

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

3.1. About EUT

Product Name	Data Processing Terminal
Model name	L3561
Supported Radio Technology and Bands	BT4.2, BLE WLAN 802.11a/b/g/n/ac
Hardware Version	Athens_MB_V1.1
Software Version	d2-userdebug 11 RQ1D.210105.003 97 release-keys
FCC ID	2AH25D2SKDS
IC	22621-D2SKDS

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

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of Receipt
N/A	N/A	N/A	N/A	N/A

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Model	SN/Remark
N/A	N/A	N/A	N/A

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

4. Reference Documents for FCC

4.1. Reference Documents for testing

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

Reference	Title
FCC 47 CFR Part 2 2.1091	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS. Section 2.1091 Radiofrequency radiation exposure evaluation: mobile devices

4.2. Criteria

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with the reference this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

Limits for Occupational / Controlled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Times |E|2, |H|2 or S (minitues)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1824/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1	6
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Times |E|2, |H|2 or S (minitues)
0.3 – 1.34	614	1.63	(100)*	30
1.34 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	F/1500	30
1500 - 100000	--	--	1	30
Note: f = frequency in MHz; * Plane-wave equivalent power density. For the DUT, the limits for General Population / Uncontrolled Exposure are applicable.				

4.3. Reference Information from client

All technical documents are supplied by the client or manufacturer, which is the basis of testing. (such as antenna gain, etc.)

4.4. Calculation Method

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.
Based on the FCC KDB 447498 D01 and 47 CFR §2.1091, the DUT is evaluated as a mobile device.

$$S = \frac{P \times G}{4\pi d^2}$$

Where
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power density in milliwatts / square centimeter

5. Test Summary for FCC

5.1. RF Power Output

Band	Max power(dBm)	Highest Output Power (dBm)	Antenna Gain(dBi)
BT	8	8	1.58
BLE	7.5	7.5	1.58
WI-FI 2.4G 802.11b	16.5	16.5	1.58
WI-FI 2.4G 802.11g	16.5	16.5	1.58
WI-FI 2.4G 802.11n	16.5	16.5	1.58
WI-FI5G U-NII-1 802.11a	14.5	14.5	0.36
WI-FI5G U-NII-1 802.11n	14.5	14.5	0.36
WI-FI5G U-NII-1 802.11ac	14.5	14.5	0.36
WI-FI5G U-NII-3 802.11a	14.5	14.5	1.02
WI-FI5G U-NII-3 802.11n	14.5	14.5	1.02
WI-FI5G U-NII-3 802.11ac	14.5	14.5	1.02

5.2. Duty Cycle

Mode	Duty Cycle
BT	1:1
BLE	1:1
Wi-Fi	1:1

5.3. Summary of Evaluation Results

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	Power density at 20cm	Limit W/cm²
BT4.2	2402	8	8	1.58	1.439	0.002	1.000
BLE	2402	7.5	7.5	1.58	1.439	0.002	1.000
WI-FI2.4G 802.11b	2412	16.5	16.5	1.58	1.439	0.005	1.000
WI-FI2.4G 802.11g	2412	16.5	16.5	1.58	1.439	0.005	1.000
WI-FI2.4G 802.11n	2412	16.5	16.5	1.58	1.439	0.005	1.000
WI-FI5G U-NII-1 802.11a	5180	14.5	14.5	0.36	1.086	0.003	1.000
WI-FI5G U-NII-1 802.11n	5180	14.5	14.5	0.36	1.086	0.003	1.000
WI-FI5G U-NII-1 802.11ac	5180	14.5	14.5	0.36	1.086	0.003	1.000
WI-FI5G U-NII-3 802.11a	5745	14.5	14.5	1.02	1.265	0.004	1.000
WI-FI5G U-NII-3 802.11n	5745	14.5	14.5	1.02	1.265	0.004	1.000
WI-FI5G U-NII-3 802.11ac	5745	14.5	14.5	1.02	1.265	0.004	1.000

The product is under the MPE limits. All is pass.

5.4. Simultaneous SAR Evaluation

Power density /Limit		∑(Power density /Limit) of
1	2	
BT	WI-FI	1+2
0.002	0.005	0.007
Power density /Limit		∑(Power density /Limit) of
3	4	
BLE	WI-FI	3+4
0.002	0.005	0.007

Note:

1. ∑(Power density /Limit) : This is a summation of [(Power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for Wi-Fi+BT.
2. Considering the BT collocation with the Wi-Fi transmitter of the Highest output power performance listed in the table above, the aggregated (Power density /Limit) is smaller than1, and MPE collocated transmitters is compliant.

5.5. Statements

The L3561, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a new product for evaluation.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 5.1.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

6. Reference Documents for IC

6.1. Reference Documents for evaluation

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

Reference	Title	Version
RSS 102	Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands)	2015

6.2. Criteria

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

Frequency (MHz)	Base	Maximum e.i.r.p (w)
< 20	Source	1
20 – 48	Source	22.48/f0.5
48 – 300	Source	0.6
300 – 6000	Source	$1.31*10^{-2}*f^{0.6834}$
> 6000	Source	5
Note: f = frequency in MHz; The result should be adjusted for tune-up tolerance.		

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

6.3. Reference Information from client

All technical documents are supplied by the client or manufacturer, which is the basis of testing. (such as antenna gain, etc.)

6.4. Calculation Method

At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1.31 x 10-2 f0.6834 W (adjusted for tune-up tolerance), where f is in MHz.

7. Test Summary for IC

7.1. RF Power Output

Band	Max power(dBm)	Highest Output Power (dBm)	Antenna Gain(dBi)
BT	8	8	1.58
BLE	7.5	7.5	1.58
WI-FI 2.4G 802.11b	16.5	16.5	1.58
WI-FI 2.4G 802.11g	16.5	16.5	1.58
WI-FI 2.4G 802.11n	16.5	16.5	1.58
WI-FI5G U-NII-1 802.11a	14.5	14.5	0.36
WI-FI5G U-NII-1 802.11n	14.5	14.5	0.36
WI-FI5G U-NII-1 802.11ac	14.5	14.5	0.36
WI-FI5G U-NII-3 802.11a	14.5	14.5	1.02
WI-FI5G U-NII-3 802.11n	14.5	14.5	1.02
WI-FI5G U-NII-3 802.11ac	14.5	14.5	1.02

7.2. Duty Cycle

Mode	Duty Cycle
BT	1:1
BLE	1:1
Wi-Fi	1:1

7.3. Summary of Evaluation Results

Band	Frequency	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	e.i.r.p(W)	Limit W/cm²
BT 4.2	2402	8	8	1.58	1.439	0.009	2.676
BLE	2402	7.5	7.5	1.58	1.439	0.009	2.676
WI-FI2.4G 802.11b	2412	16.5	16.5	1.58	1.439	0.018	2.684
WI-FI2.4G 802.11g	2412	16.5	16.5	1.58	1.439	0.018	2.684
WI-FI2.4G 802.11n	2412	16.5	16.5	1.58	1.439	0.018	2.684
WI-FI5G U-NII-1 802.11a	5180	14.5	14.5	0.36	1.086	0.016	4.525
WI-FI5G U-NII-1 802.11n	5180	14.5	14.5	0.36	1.086	0.016	4.525
WI-FI5G U-NII-1 802.11ac	5180	14.5	14.5	0.36	1.086	0.016	4.525
WI-FI5G U-NII-3 802.11a	5745	14.5	14.5	1.02	1.265	0.016	4.857
WI-FI5G U-NII-3 802.11n	5745	14.5	14.5	1.02	1.265	0.016	4.857
WI-FI5G U-NII-3 802.11ac	5745	14.5	14.5	1.02	1.265	0.016	4.857

The product is under the MPE limits. All is pass.

7.4. Simultaneous SAR Evaluation

e.i.r.p /Limit		∑(e.i.r.p /Limit) of
1	2	
BT	Wi-Fi	1+2
0.009	0.018	0.027
e.i.r.p /Limit		∑(e.i.r.p /Limit) of
3	4	
BLE	Wi-Fi	3+4
0.009	0.018	0.027

Note:

1. ∑(Power density /Limit) : This is a summation of [(Power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for Wi-Fi+BT.
2. Considering the BT collocation with the Wi-Fi transmitter of the Highest output power performance listed in the table above, the aggregated (Power density /Limit) is smaller than1, and MPE collocated transmitters is compliant.

8. Statements

The L3561, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a new product for evaluation.

Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the evaluated device specified in section 3 of this evaluation report is successfully evaluated according to the procedure and evaluation methods as defined in type certification requirement listed in section 4 of this evaluation report.

**********END OF REPORT**********