MPE TEST REPORT

Applicant	Shanghai Sunmi Technology Co.,Ltd.
FCC ID	2AH25T1711
Product	POS system
Brand	SUNMI
Model	T1711
Report No.	R1911A0661-M1V1
Issue Date	December 31, 2019

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Yu Wang

Performed by: Yu Wang

Guangchang Fan

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1 Test Laboratory

1.1 Notes of the Test Report

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1.2 Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Description of Equipment under Test

Client Information

Applicant	Shanghai Sunmi Technology Co.,Ltd.
Applicant address	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China
Manufacturer	Shanghai Sunmi Technology Co.,Ltd.
Manufacturer address	Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China

General Technologies

Model	T1711
SN	DM03D99940010
Hardware Version	D2MMB60C
Software Version	V1.0.10
Date of Testing:	November 13, 2019~ December 2, 2019

3 Maximum conducted output power (measured) and antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G)=10^(antenna gain/10)

Band	Maximum Conducted Output Power (dBm)		Antenna Gain (dBi)	Numeric gain
	(dBm)	(mW)		
GSM 850	33.00	1995.262	0.21	1.050
GSM 1900	29.00	794.328	0.87	1.222
WCDMA Band II	23.00	199.526	0.87	1.222
WCDMA Band V	24.00	251.189	0.21	1.050
LTE Band 2	23.00	199.526	0.87	1.222
LTE Band 4	23.00	199.526	0.84	1.213
LTE Band 5	24.00	251.189	0.21	1.050
LTE Band 7	23.00	199.526	1.33	1.358
Bluetooth:	6.00	3.981	1.91	1.552
WIFI 2.4G:	19.00	79.433	1.91	1.552

4 Test Result

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500	.....	.....	f/300	6
1500-100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	.....	.....	f/1500	30
1500-100,000	.....	.....	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 300~1500 MHz is f/1500, for 1500~100,000MHz is 1.0.So

Band	The maximum permissible exposure
GSM850	0.55mW/cm^2
GSM1900	1.0mW/cm^2
WCDMA II	1.0mW/cm^2
WCDMA V	0.55mW/cm^2
LTE Band 2	1.0mW/cm^2
LTE Band 4	1.0mW/cm^2
LTE Band 5	0.55mW/cm^2
LTE Band 7	1.0mW/cm^2
Wi-Fi 2.4G	1.0mW/cm^2
Bluetooth (Low Energy)	1.0mW/cm^2

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

$$S = PG / 4\prod R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	PG (mW)	Test Result (mW/cm^2)	Limit Value (mW/cm^2)	The MPE ratio	Conclusion
GSM 900	2094.112	0.417	0.550	0.757	Pass
GSM1800	970.510	0.193	1.000	0.193	Pass
WCDMA Band I	243.781	0.048	1.000	0.048	Pass
WCDMA Band V	263.633	0.052	0.550	0.095	Pass
LTE Band 2	243.781	0.048	1.000	0.048	Pass
LTE Band 4	242.103	0.048	1.000	0.048	Pass
LTE Band 5	263.633	0.052	0.550	0.095	Pass
LTE Band 7	271.019	0.054	1.000	0.054	Pass
Bluetooth:	6.180	0.001	1.000	0.001	Pass
WIFI 2.4G:	123.310	0.025	1.000	0.025	Pass
Note: **R** = 20cm ∏= 3.1416 The MPE ratio = Mac Test Result÷Limit Value					

So the simultaneous transmitting antenna pairs as below:

∑of MPE ratios=WiFi 2.4G + 2/3/4G =0.025+0.757=0.782 <1

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.