



MPE TEST REPORT

Applicant KAISSEN
TECHNOLOGY LLC
FCC ID SIT-KT570
Product MOBILE POS DEVICE
Model KT570
Report No. R1912A0735-M1V1
Issue Date June 22, 2020

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.

Handwritten signature of Yu Wang in black ink.

Performed by: Yu Wang

Handwritten signature of Guangchang Fan in black ink.

Approved by: Guangchang Fan

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1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2 Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
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City: Shanghai
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1.3 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	KAISSEN TECHNOLOGY LLC
Applicant address	7412 sw 48 st suite b MIAMI 33155, USA
Manufacturer	Asiatelco Technologies Co.
Manufacturer address	No. 68 Huatuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201203, China

General Technologies

Model	KT570
SN	1#
Hardware Version	725-0741-001-2
Software Version	8.1.0
Date of Testing:	December 16, 2019 ~ December 30, 2019

Note: This revised report (Report No.: R1912A0735-M1V1) supersedes and replaces the previously issued report (Report No.: R1912A0735-M1). Please discard or destroy the previously issued report and dispose of it accordingly.

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		Antenna Gain (dBi)	Numeric gain
		(dBm)	(mW)		
WCDMA II		24.0	251.189	2.0	1.585
WCDMA IV		24.0	251.189	1.2	1.318
WCDMA V		24.0	251.189	0.5	1.122
LTE Band 2		24.0	251.189	2.0	1.585
LTE Band 4		24.0	251.189	1.2	1.318
LTE Band 12		24.0	251.189	-1.5	0.708
2.4G	802.11b	17.0	50.119	0.5	1.122
	802.11g	16.0	39.811	0.5	1.122
	802.11n HT20	14.0	25.119	0.5	1.122
5G	802.11a	16.0	39.811	2.0	1.585
	802.11n HT20	14.5	28.184	2.0	1.585
	802.11n HT40	14.5	28.184	2.0	1.585
	802.11ac HT20	14.0	25.119	2.0	1.585
	802.11ac HT40	13.5	22.387	2.0	1.585
	802.11ac HT80	13.5	22.387	2.0	1.585
Bluetooth		9.0	7.943	0.5	1.122

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 MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	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/f ²)	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/f ²)	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
WCDMA II	$1.0\text{mW}/\text{cm}^2$
WCDMA IV	$1.0\text{mW}/\text{cm}^2$
WCDMA V	$0.55\text{mW}/\text{cm}^2$
LTE Band 2	$1.0\text{mW}/\text{cm}^2$
LTE Band 4	$1.0\text{mW}/\text{cm}^2$
LTE Band 12	$0.47\text{mW}/\text{cm}^2$
Wi-Fi 2.4G	$1.0\text{mW}/\text{cm}^2$
Wi-Fi 5G	$1.0\text{mW}/\text{cm}^2$
Bluetooth	$1.0\text{mW}/\text{cm}^2$

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

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:

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

Where: S = power density (in appropriate units, e.g. mW/cm²)

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
WCDMA II	398.107	0.079	1.0	0.079	Pass
WCDMA IV	331.131	0.066	1.0	0.066	Pass
WCDMA V	281.838	0.056	0.55	0.102	Pass
LTE Band 2	398.107	0.079	1.0	0.079	Pass
LTE Band 4	331.131	0.066	1.0	0.066	Pass
LTE Band 12	177.828	0.035	0.47	0.075	Pass
Wi-Fi 2.4G	56.234	0.011	1.0	0.011	Pass
Wi-Fi 5G	63.096	0.013	1.0	0.013	Pass
Bluetooth	8.913	0.002	1.0	0.002	Pass
Note: R = 20cm $\pi = 3.1416$ The MPE ratio = Mac Test Result ÷ Limit Value					

So the simultaneous transmitting antenna pairs as below:

$$\sum \text{of MPE ratios} = \text{Main Antenna} + \text{WiFi 2.4G} + \text{WiFi 5G} + \text{BT} = 0.102 + 0.011 + 0.013 + 0.002 = 0.128 < 1$$

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

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