

Report Number: SZ2006FS11

Certificate #3464.02

# A Test Lab Techno Corp.

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## **MPE Report**

Test Report No. : SZ2006FS11

Applicant : Guangzhou Tupu Technology Co., Ltd.

Product Type : TupuCheck Pro

Trade Name : TupuCheck Pro

Model Number : TupuCheck Pro

Received Date : Jun. 03, 2020

Test Period : Jun.05 ~ Jun.15 , 2020

Issue Date : Jun. 23, 2020

Test Specification : ANSI / IEEE Std.C95.1-1992 / IEEE Std. 1528-2013

47 CFR § 2.1091

47 CFR § 1.1310

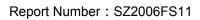
Location of Test Lab. : Chang-an Lab.

Test Firm MRA : TW0010

designation number

- 1. The test operations have to be performed with cautious behavior, the test results are as attached.
- 2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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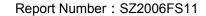
Approved By	:	(out 5)en	Tested By	:	Josefeng
		(Louis Shen)			(Joyce Feng)





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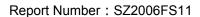




## 1. Description of Equipment under Test (EUT)

		T 1 1 0 111					
	Guangzhou Tupu Technology Co., Ltd.						
Applicant	Room 504, 5/F,Block A1,191 Kexue Avenue, Huangpu District, Guangzhou, Guangdong						
	Province, China						
	Guangzhou Tupu Technology Co., Ltd.						
Manufacturer	Room 504,5/F, Block A1,191 Kexue Avenue, Huangpu District, Guangzhou, Guangdong						
	Province, China						
Product Type	TupuCheck Pro						
Trade Name	TupuCheck Pro						
Model Number	TupuCheck Pro						
FCC ID	2AWGCTUPUCHECKPRO						
		Frequency Range					
Frequency Range		(MHz)					
	IEEE 802.11b / 802	2412 - 2462					
	IEEE 802.11n 2.4	2422 - 2452					
Antenna Information	ANIT	Madal	T	Max. Gain			
	ANT Mod	Model	Туре	(dBi)			
	ANT-0	M12.0140-R0A	Copper tube antenna	2.4 GHz	2.0		
RF Evaluation	0.0117 mW/cm <sup>2</sup>				-		
Temperature Range	-20 ~ +50℃				·		

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 / 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties





### 2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

#### Exposure evaluation

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.





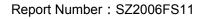
# 3. RF Output Power

The conducted power turn-up tolerance reference manufacturer specification.

Band	Date Rate (Mbps)	Frequency (MHz)	Peak Conducted power (dBm) ANT-0		
		2412.0	15.72		
IEEE 802.11b	1	2437.0	14.74		
		2462.0	14.16		
		2412.0	10.75		
IEEE 802.11g	6	2437.0	11.39		
		2462.0	11.70		
		2412.0	12.84		
IEEE 802.11n 2.4 GHz 20 MHz	6.5	2437.0	11.68		
		2462.0	11.52		
		2422.0	9.55		
IEEE 802.11n 2.4 GHz 40 MHz	13.5	2437.0	11.55		
		2452.0	8.58		

Note: The relevant measured result has the offset with cable loss already.

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### 4. Test Results

Band	Data Rate (Mbps)	Frequency (MHz)	Limit (mw)/cm²	Distance [R] (cm)	Max tune-up Power (upper limit) [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle		Power Density [S] (mw/cm <sup>2</sup> )
IEEE 802.11b	1	2412.0	1	20	15.72	2	1.58	1	58.974	0.0117
		2437.0	1	20	14.74	2	1.58	1	47.061	0.0094
		2462.0	1	20	14.16	2	1.58	1	41.177	0.0082
IEEE 802.11g	6	2412.0	1	20	10.75	2	1.58	1	18.778	0.0037
		2437.0	1	20	11.39	2	1.58	1	21.760	0.0043
		2462.0	1	20	11.70	2	1.58	1	23.370	0.0046
IEEE 802.11n 2.4 GHz 20 MHz	6.5	2412.0	1	20	12.84	2	1.58	1	30.385	0.0060
		2437.0	1	20	11.68	2	1.58	1	23.263	0.0046
		2462.0	1	20	11.52	2	1.58	1	22.421	0.0045
IEEE 802.11n 2.4 GHz 40 MHz	13.5	2422.0	1	20	9.55	2	1.58	1	14.245	0.0028
		2437.0	1	20	11.55	2	1.58	1	22.577	0.0045
		2452.0	1	20	8.58	2	1.58	1	11.393	0.0023

#### Note:

- 1.Mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
- 2.The Numeric Gain calculated by 10<sup>^</sup>(ant. Gain(dBi) /10).
- $3.\mbox{Each}$  band max power which perform MPE of any configurations.