



CTC Laboratories, Inc.

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Maximum Permissible Exposure Evaluation

FCC ID: 2AZPZ-T25

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

EUT Specification

Product Name:	Taxi Roof LED Display
Trade Mark:	/
Model/Type reference:	YHT-TAXI-T2.5
Listed Model(s):	YHT-TAXI-T2.96, YHT-TAXI-T3.33
Model Difference:	All models are identical with each other except for LED spacing and LED numbers. Unless otherwise specified, all tests were performed on model YHT-TAXI-T2.5 to represent other models.
Frequency band (Operating)	☒ WLAN: 2412MHz~2462MHz ☒ WCDMA Band 2: 1852.4MHz~1907.6MHz ☒ WCDMA Band 5: 826.4MHz~846.6MHz ☒ LTE Band 2: 1850.7MHz~1909.3MHz ☒ LTE Band 4: 1710.7MHz~1754.3MHz ☒ LTE Band 12: 699.7MHz~715.3MHz
Device category	☐ Portable (<5mm separation) ☐ Mobile (>20cm separation) ☒ fixed (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S=5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	☐ Single antenna ☒ Multiple antenna ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Antenna gain (Max)	WLAN: 3.9dBi WCDMA Band 2: 2.4dBi WCDMA Band 5: 3.7dBi LTE Band 2: 2.4dBi LTE Band 4: 2.5dBi LTE Band 12: 3.7dBi
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm ²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE $1mW/cm^2$. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

Note: Only show the value of the worst case mode.

2.4GHz WiFi - Worst case						
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
802.11 n20	2462	20.15	21	3.9	0.0615	1

WCDMA - Worst case						
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
Band 5	836.6	23.01	24	3.7	0.1172	0.5577

LTE - Worst case						
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	Power density Limit (mW/cm^2)
Band 12	707.5	23.56	25	3.7	0.1475	0.4717

The WiFi and LTE can transmit simultaneously.

Worst case						
Type	Frequency (MHz)	Antenna Gain (dBi)	Power density at 20cm (mW/cm^2)	WiFi + LTE Power density at 20cm	Power density Limit	
802.11 n20	2462	3.9	0.0615	0.374	1	
Band 12	707.5	3.7	0.1475			

Note:

1. Calculate by Worst-case mode.
2. Max. Tune Up Power by Manufacturer's Declaration, and Max. Tune Up Power is used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.

*****THE END*****

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