



## 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)	<input checked="" type="checkbox"/> WLAN: 2412MHz~2462MHz <input checked="" type="checkbox"/> WCDMA Band 2: 1852.4MHz~1907.6MHz <input checked="" type="checkbox"/> WCDMA Band 5: 826.4MHz~846.6MHz <input checked="" type="checkbox"/> LTE Band 2: 1850.7MHz~1909.3MHz <input checked="" type="checkbox"/> LTE Band 4: 1710.7MHz~1754.3MHz <input checked="" type="checkbox"/> LTE Band 12: 699.7MHz~715.3MHz
Device category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> fixed (>20cm separation)
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antenna <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> 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	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> 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 <sup>2</sup> )	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:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = Power density in  $mW/cm^2$

$P_{out}$  = output power to antenna in mW

$G$  = gain of antenna in linear scale

$\pi$  = 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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