

# FCC RF EXPOSURE REPORT

## FCC ID: 2A3Z6TOBYL3404

**Project No.** : 2112H019  
**Equipment** : LTE Module  
**Brand Name** : TASHANG  
**Test Model** : TOBY-L3404  
**Series Model** : N/A  
**Applicant** : Tashang Semiconductor(Shanghai) Co., Ltd.  
**Address** : Room 818, Building 4, No.89 sanshahong Road, Chengqiao Town, Chongming District, Shanghai.  
**Manufacturer** : Tashang Semiconductor(Shanghai) Co., Ltd.  
**Address** : Room 818, Building 4, No.89 sanshahong Road, Chengqiao Town, Chongming District, Shanghai.  
**Date of Receipt** : Dec. 17, 2021  
**Date of Test** : Dec. 17, 2021 ~ Dec. 30, 2021  
**Issued Date** : Jan. 11, 2022  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: SH2021122662 for the radiation, SH2021122662 for the conducted.  
**Standard(s)** : FCC Title 47 Part 2.1091  
KDB 447498 D01 General RF exposure guidance v06

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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TESTING CERT #5123.03

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**REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	Jan. 11, 2022

## 1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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

Table for Filed Antenna

For GSM850 & 3G Band5 & 4G Band5:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	-0.02	N/A

For PCS1900 & 3G Band2 & 4G Band2:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	0.43	N/A

For 3G Band4 & 4G Band4 & 4G Band66:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	3.05	N/A

For 4G Band7:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	1.48	N/A

For 4G Band12:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	0.73	N/A

For 4G Band13:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Dipole	N/A	0.12	N/A

Note: The antenna gain is provided by the manufacturer.

## 2. TEST RESULTS

For GSM 850

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
-0.02	0.9954	32.50	1778.2794	0.352150	0.55	Complies

For PCS 1900

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
0.43	1.1041	30.00	1000.0000	0.219654	1	Complies

For WCDMA Band 2

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
0.43	1.1041	24.50	281.8383	0.061907	1	Complies

For WCDMA Band 4

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.05	2.0184	24.50	281.8383	0.113172	1	Complies

For WCDMA Band 5

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
-0.02	0.9954	24.00	251.1886	0.049743	0.56	Complies

For LTE Band 2

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
0.43	1.1041	26.00	398.1072	0.087446	1	Complies

## For LTE Band 4

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.05	2.0184	25.50	354.8134	0.142475	1	Complies

## For LTE Band 5

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
-0.02	0.9954	24.50	281.8383	0.055812	0.56	Complies

## For LTE Band 7

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
1.48	1.4060	25.00	316.2278	0.088454	1	Complies

## For LTE Band 12

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
0.73	1.1830	26.00	398.1072	0.093695	0.47	Complies

## For LTE Band 13

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
0.12	1.0280	25.00	316.2278	0.064673	0.52	Complies

## For LTE Band 66

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.05	2.0184	25.50	354.8134	0.142475	1	Complies

Note: The calculated distance is 20 cm.  
Output power including tune up tolerance.

**End of Test Report**