RF Exposure Evaluation

FCC ID: 2A59F-M501

IC: 28411-M501

1. Client Information

Applicant	:	TEAM YTD CO.,LIMITED
Address	:	1101B,11/F.,LIPPO SUN PLAZA, 28 CANTON ROAD, TSIM SHA TSUI, KOWLOON, HONG KONG
Manufacturer	:	Dongguan Togran Electronics Technology Co.,Ltd.
Address	:	262 Shijie Rd., 3rd Industrial Area, Juzhou, Shijie Town, Dongguan City, Guangdong, China 523290

2. General Description of EUT

EUT Name	:	M501 Trackball Mouse	
HVIN/Model	:	M501 For ISED	
Models No.	:	M501, M505, M506, M507, M508, M509, M510, M511, M512, M513 For FCC	
Model Different	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is that appearance.	
Product Description	:	Operation Frequency:	Bluetooth V5.0(BDR+EDR): 2402~2480 MHz Bluetooth 5.0(BLE): 2402MHz~2480MHz 2.4G: 2403MHz~2480MHz
		Number of Channel:	Bluetooth 5.0 (BLE): 40 channels Bluetooth V5.0(BDR+EDR):79 channels 2.4G: 16 channels
		RF Output Power:	BT:2.698 dBm (Max) BLE:-1.522dBm (Max) 2.4G:1.607dBm (Max)
		Antenna Gain:	-2 dBi PCB Antenna
		Modulation Type:	GFSK
		Bit Rate of Transmitter:	1Mbps
Power Supply	:	Input: DC 5V, 0.3A DC 3.7V by 500mAh Rechargeable Li-ion battery	

1/F.,Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

Software Version	:	V5.3.5.7
Hardware Version	:	V06
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.		

Note: More test information about the EUT please refer the RF Test Report.

SAR Test Exclusion Calculations

1. **FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.**
   (1) Clause 4.3: General SAR test reduction and exclusion guidance
   Sub clause 4.31: Standalone SAR test exclusion considerations
   1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance≤5 mm are determined by:
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤3.0 for 1-g SAR
   [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[$\sqrt{f_{(GHz)}}$] ≤7.5.0 for 10-g SAR

2. Calculation:

Test separation: 5mm						
BT						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	2.698	3±1	4	2.512	0.779	**3.0**
2.441	2.064	2±1	3	1.995	0.623	**3.0**
2.480	2.035	2±1	3	1.995	0.628	**3.0**
BLE						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-1.522	-1±1	0	1.000	0.310	**3.0**
2.440	-2.01	-2±1	-1	0.794	0.248	**3.0**
2.480	-1.895	-1±1	0	1.000	0.315	**3.0**
2.4G						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2403	1.607	2±1	3	1.995	0.618	**3.0**
2441	1.253	1±1	2	1.585	0.495	**3.0**
2480	1.191	1±1	2	1.585	0.499	**3.0**

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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