RF exposure Estimation

1.   Introduction

Product: Laser Distance Meter

Model No.: XTape 1, XTape 2, XTape 3, XTape 4, XTape 5, XTape 6, XTape 7, XTape 8, XTape 9, DT10, DT11, DT12, DT20, DT30, DT50, DT60, DT70, DT80, DT90

FCC ID: 2AEOGXTAPE

The EUT is a Laser Distance Meter, which contain BLE function inside.

Note: All models have the same technical construction including circuit diagram, PCB layout, components and component layout. The difference lies only in the marketing purpose of the different models. So all the tests were applied on XTape 1, other models deemed to fulfill the requirement without further testing.

2.   Details about the Test Laboratory

Company name:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
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FCC Registration No.:	514049
FCC Designation Number:	CN5009

3.   Limit and Guidelines on Exposure to Electromagnetic Fields

According to§15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 Mobile Portable RF Exposure v05r02, no SAR required if power is lower than the flowing threshold:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]

[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation25
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz.

4.   Calculation method

[(max. power of` channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0

Conducted Power + tune up tolerance = 2.15dBm= 1.641mW
Distance = 5 mm
f = 2.440 GHz

[1.641/5] * SQRT (2.440) = 0.513
0.513≤ 3.0
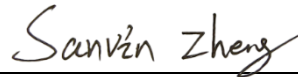Therefore, excluded from SAR testing.

- TÜV SÜD China, Shenzhen Branch –

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