

RF exposure Estimation

1. Introduction

Product: Laser Distance Meter

Model No.: D9 PRO, S2, S3, S5, S6, S7, S7A, S7Q, S7C, S8G, S8GA, S8GB, S9, S9G, S11G, S12G, S5Y, S2K, S2C, S2Z, S23, D3, D5, D5T, D6, D7, D8, D9, D9A, D9B, D9C, D9+, D520, D520T, D530, D530T, D550, D550T, D560, D560T, D5U, DP10, DP20, DP30, D110, D110S, P9, P910, P920, XTAPE1

FCC ID: 2AEOGD9PRO

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

Note: All models are identical in technical construction including circuit diagram, PCB layout, components and component layout, the differences lies only in the color and marketing purpose of different models. So all the tests were applied on D9 PRO, 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
Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu,
Nantou, Nanshan District, Shenzhen 518052, P.R. China

Telephone: 86 755 8828 6998

Fax: 86 755 828 5299

FCC Registration No.: 514049

No.:

FCC Designation CN5009

Number:

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:

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

$$[\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ 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

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$

Conducted Power + tune up tolerance = 2.35dBm = 1.718mW

Distance = 5 mm

$f = 2.402$ GHz

$[1.718/5] \cdot \text{SQRT}(2.402) = 0.533$

$0.533 \leq 3.0$

Therefore, excluded from SAR testing.

- TÜV SÜD China, Shenzhen Branch -

Reviewed by:

Prepared By:



John Zhi/Project Manager
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Sanvin Zheng/Project Engineer
Date: 2024-09-09