

RF exposure Estimation for WPTT

1. Introduction

Product:	Diagnostic Ultrasound System
Model no.:	Acclarix AX8
Brand Name	EDAN
FCC ID:	SMQAX8EDAN
Rating:	14.4Vdc 6150mAh supplied by Rechargeable Li-ion Battery
RF Transmission Frequency:	2412-2462MHz
No. of Operated Channel:	11
Modulation:	DSSS, OFDM
Antenna Type:	Integral Antenna
Antenna Gain:	Antenna0: 3.0dBi Antenna1: 3.0dBi
Description of the EUT:	EUT is an electrocardiogram with WiFi function which operated at 2.4GHz.

2. 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 v06, no SAR required if power is lower than the following 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:

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

$$\left[\sqrt{f(\text{GHz})} \right] \leq 3.0$$
 for 1-g SAR and ≤ 7.5 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. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

3. 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 = 9.3mW

Distance = 5 mm

f = 2.437GHz

$[9.3 / 5] \cdot \text{SQRT}(2.437) = 2.9$

$2.9 \leq 3.0$

Therefore, excluded from SAR testing.

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