

FCC SAR Exemption per KDB 447498

KDB 447498 D01 General RF Exposure Guidance v06 (October 23, 2015)

1. Declaration of RF exposure compliance for exemption from routine evaluation limits

FCC ID:	VFZKLRMZZ005
Model number:	ZZ005
Manufacturer:	Zadi S.p.A.

A portable device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimetres of the body of the user.

Under §2.1093(c)(1) is stated that:

Evaluation of compliance with the exposure limits in § 1.1310 is necessary for portable devices having single RF sources with more than an available maximum time-averaged power of 1 mW, more than the ERP listed in Table 1 to § 1.1307(b)(3)(i)(C), or more than the P_{th} in the following formula, whichever is greater. The following formula shall only be used in conjunction with portable devices not exempt by § 1.1307(b)(3)(i)(C) at distances from 0.5 centimetres to 20 centimetres and frequencies from 0.3 GHz to 6 GHz:

$$P_{th} \text{ (mW)} = \begin{cases} (ERP_{20 \text{ cm}} (d/20 \text{ cm})^x) & d \leq 20 \text{ cm} \\ (ERP_{20 \text{ cm}}) & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

4.3.1. Standalone SAR test exclusion considerations:

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the minimum separation distance (cm) in any direction from any part of the device antenna(s) or radiating structure(s) to the body of the device user.

f = the lower operating frequency [GHz]

Remark: If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

CALCULATION

According to ANSI C63.10-2013, § 9.5:

$$EIRP = E_{\text{meas}} + 20 \log (d_{\text{meas}}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{meas} is the field strength of the emission at the measurement distance, in dB μ V/m

d_{meas} is the measurement distance, in m

$$\text{Maximum Output Power} = 59.38 + 20 \log (3) - 104.7 = -35.78 \text{ dBm} = 0.00026 \text{ mW} < 1 \text{ mW}$$

According to § 2.1093(c)(1), the product exempts from the SAR test requirements.

2. Attestation

ATTESTATION: I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:	
Date:	December 21, 2023
Name:	Oscar Frau