

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:	2A2D3-LORA1276																								
Model number:	LoRa 1276 CI																								
Manufacturer:	B. Thermal Solutions Srl																								
	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 Pth 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 = is 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 λ/4 or if the antenna gain is less than that of a half-wave dipole (1.64 linear value). CALCULATION (1.1307 (b)(3)(i)(B) exemption limit) <table><tr><td>frequency</td><td colspan="3">0.3 GHz ≤ f ≤ 1.5 GHz</td><td>distance</td><td colspan="3">0.5 cm ≤ d ≤ 20 cm</td></tr><tr><td>f [GHz]</td><td>ERP_{20cm} [mW]</td><td>x</td><td>d [cm]</td><td>P_{th} [mW]</td><td>Threshold EIRP [mW]</td><td>EIRP [mW]</td><td>Margin [dB]</td></tr><tr><td>0,903</td><td>1842,12</td><td>1,465</td><td>1,2</td><td>29,9</td><td>49,0</td><td>45,7</td><td>0,60</td></tr></table> The calculation is below the threshold, therefore the product exempt from the SAR test requirements	frequency	0.3 GHz ≤ f ≤ 1.5 GHz			distance	0.5 cm ≤ d ≤ 20 cm			f [GHz]	ERP _{20cm} [mW]	x	d [cm]	P _{th} [mW]	Threshold EIRP [mW]	EIRP [mW]	Margin [dB]	0,903	1842,12	1,465	1,2	29,9	49,0	45,7	0,60
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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:

A handwritten signature in black ink, appearing to read 'O. Frau'.

Date:

June 10, 2021

Name:

O. Frau