Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (d)(2)

At operating frequencies less than or equal to 6 GHz, the limits for maximum permissible exposure (MPE), derived from whole-body SAR limits and listed in Table 1 of paragraph CFR 1.1310(e) may be used instead of whole-body SAR limits as set forth in paragraph CFR 1.1310(a) through (c) to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b), except for portable devices as defined in §2.1093 as these evaluations shall be performed according to the SAR provisions in §2.1093 of this chapter.

In this case the EUT is considered a portable device therefore it has been evaluated per CFR 2.1093. See the details following.

SAR Exemption Assessment

The EUT was evaluated for SAR exemption based on KDB 447498.
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 (mW) / min. test separation distance (mm)) * √ (f(GHz)

The answer must be ≤ 3.0 for 1-g SAR and 7.5 for 10-g SAR

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz to 6 GHz. When the minimum test separation distance is less than 5mm, a distance of 5mm is applied.

Note: EUT source based time averaged (SBTA) = (output power + antenna gain * duty cycle)

Evaluation for 2.4 GHz IEEE 802.15.4 radio:

Output Power	16.6 dBm	
Duty Cycle correction	-39.0 dB	
Antenna Gain	1.2 dBi	
SBTA	-21.2 dBm	0.008 mW
Calculation: (0.008 mW/ 5 mm) * (√ 2.440) = 2.37		
SAR limit= ≤ 3.0 (1-g SAR)	2.37	PASS

Note: Separation distance = 5 mm

Evaluation for UWB radio:

Output Power	72.90 dBuV/m or -22.30 dBm	
Duty Cycle correction	Not applied	
Antenna Gain	2.7 dBi	
SBTA	-19.6 dBm	0.011 mW
Calculation: (0.011 mW/ 5 mm) * (√ 4.531) = 0.0022		
SAR limit= ≤ 3.0 (1-g SAR)	0.0022	PASS

Note: Separation distance = 5 mm
Note: conversion from field strength (dBuV/m) to EIRP = dBuV/m – 95.2.