Maximum Permissible Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S** as per the respective limits in Table 1 below, at a distance, d, of 20 cm (Mobile condition) from the EUT.

Table 1. Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE for 2400 MHz – 2483.5 MHz for the Cognosos, Inc RB-300 radio device:

Limit: 1.0 mW/cm^2
Peak Power (dBm) = 2.28 dBm
Peak Power (Watts) = 0.017 W
Gain of Transmit Antenna = 3.3 dB_i = 2.14 numeric

d = Distance = 20 cm = 0.2 m

$S = (PG/ 4\pi d^2)$ = EIRP/4A = 0.017(2.14)/4*π*0.2*0.2
= 0.0364/0.5030 = 0.0724 W/m^2
= (0.0724 W/m^2) (1m^2/W) (0.1 mW/cm^2)
= 0.00724 mW/cm^2

which is << less than S = 1.0 mW/cm^2

RSS-102, 2.5.2 compliance for 2400 MHz – 2483.5 MHz for the Cognosos, Inc RB-300 radio device:

At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

In this case f = 2440 MHz

$1.31 * 10^{-2} * 2440^{0.6834} = 2.7$ W
EUT max EIRP = 2.28 dBm + (3.3 dBi) = 5.6 dBm EIRP = 0.036 W
Which is << than 2.7 W

All calculations performed by:

Test Engineer: George Yang

Signature:  Date: April 2, 2021