Orolia Limited

Silver Point
Airport Service Road
Portsmouth
PO3 5PB
United Kingdom
Int + 44 (0)23 9262 3900

RED-Z423 Exhibit 20 – RF exposure exemption

Orolia has declared that this device is exempt from SAR evaluation under FCC CFR47 1.1310 rule with the following justification:

During Cospas -Sarsat testing, the maximum measured PEIRP (Peak Effective Isotropic Radiated Power at 406 MHz was determined to be 19.5 W for 406MHz and 27mW for 121.5MHz.

Considering the 406MHz transmission is 520ms every 50 seconds, and average exposure time of 6 minutes, duty cycle to apply to EIRP is (7 x 0.52)/(6 x 60) = 0.01.

For 121.5MHz, we consider a full-time transmission.

406 MHz transmission

Average 406 MHz EIRP, is then equivalent to 19.5 W x 0.01 = 194mW.

In FCC CFR47 1.1310 rule, the SAR limit is fixed to 4W/kg:

$$SAR = (E^2 \times \sigma)/\rho$$

Where
E is the incident field strength in V/m
σ is the specific conductivity of a body in S/m
ρ is the mass density in $Kg.m^3$

For 406MHz, the distance at which the 4W/kg is met is :

$$\sqrt{[(120\pi \times 0.93 \times 0.194) / (4 \times 1000 \times 4\pi)]} = 3.6 \text{ cm}$$

121.5 MHz transmission

Average 121.5 MHz EIRP is then equivalent to 27 mW.

In FCC CFR47 1.1310 rule, the SAR limit is fixed to 4W/kg:

$$SAR = (E^2 \times \sigma)/\rho$$

Where
E is the incident field strength in V/m
σ is the specific conductivity of a body in S/m
ρ is the mass density in $Kg.m^3$

For 121.5MHz, the distance at which the 4W/kg is met is :

$$\sqrt{[(120\pi \times 0.8 \times 0.038) / (4 \times 1000 \times 4\pi)]} = 1.2 \text{ cm}$$

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The photo below shows that the 3.6 cm (36mm) are compliant with the PLB shape (black zone needs to be unfettered once beacon activated).

It can then be concluded that the **PLB is compliant with the FCC CFR47 1.1310 rule.**

Erwan THOMAS
Certification and Hardware Engineer
erwan.thomas@orolia.com