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Your ref.: FCC ID: OG3-SCALA1
Our ref.: FCC ID: OG3-SCALA1

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RF Exposure and Transmitter Power Considerations for the SCALA1

FCC ID: OG3-SCALA1

The FCC requires that the calculated MPE be equal to or less than a given limit dependent on frequency at a distance of 20 cm from a device to the body of a user.

The following FCC Rule Parts and procedures are applicable:
Part 1.1310 – Radiofrequency radiation exposure limits

Part 2.1091 – Radiofrequency radiation exposure evaluation: mobile devices

KDB447498 D01 v06
Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

MPE CALCULATION

The MPE calculation to calculate the safe operating distance for the user is.

$$S = EIRP/4 \pi R2$$

Where S = Power density
EIRP = Effective Isotropic Radiated Power (EIRP = P x G)
P = Conducted Transmitter Power
G = Antenna Gain (relative to an isotropic radiator)
R = distance to the centre of radiation of the antenna (safe operating distance)

For the SCALA1

Values:
Transmitter frequency range = 2402 MHz to 2480 MHz
Pmax = 5.1dBm
Gmax= 0.1dBi
EIRP = 5.2dBm = 3.31mW
R = 20cm

Power Density Requirement

From table 1 (b) - Limits for General Population/ Uncontrolled Exposure of FCC Rule Part 1.1310 for 2.4GHz

S_{req1} = 1.0 mW/cm2

Calculation:

S = 3.31/4 π R2
S = 3.31/(12.56 x 202)
S = 3.31/(5024)

S_1 = 0.00066mW/ cm2 (<1.0 mW/cm2)

This represents a safe operating distance of 0.5cm for S = 1.0 mw/cm2

Conclusion

The required 20cm RF exposure limits for General Population/ Uncontrolled Exposure will not be exceeded for the SCALA1 using an antenna having a maximum gain of 0dBi.

Yours sincerely,
GRUNDFOS Holding A/S

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