

RF EXPOSURE EVALUATION REPORT FROM UL

For: Inxpect SpA

Product: S201A

FCC ID: 2ANOS-S201A

RF Exposure Evaluation Report Serial No.:
UL/REGA1/MPE15051752B

This RF Exposure Evaluation Report Is Issued Under The Authority
Of Andrew Hoare, Head of Certification:

A handwritten signature in blue ink that reads 'Andrew Hoare'.

Written By: David Doyle

A handwritten signature in blue ink that reads 'David Doyle'.

Checked By: Andrew Hoare

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UL

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1. Client Information

Company Name:	Inxpect SpA
Address:	via Serpente 91 Brescia Italy 25131
Contact Name:	Luca Salgarelli

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2. Description Of The Apparatus And Its Operational Environment

Brand Name:	Inxpect SpA
Model Name:	S201A
Basic Direct Function:	Smart Sensor 200 Series 60GHz Radar
Intended Operating Environment:	Commercial/ Light Industrial

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3. Equipment Specifications

Equipment Category:	V- Band Radar
Type of Unit:	Inxpect SRE 200 Series is an active protection radar system that monitors the dangerous areas of machinery
Operating Frequency Range:	60.6 GHz - 62.8 GHz
Maximum Peak EIRP¹: Profile 1 Profile 2 Profile 3	0dBm * 14dBm * 20dBm *
Duty Cycle:	9% or 29% (Depending on Profile)
Safe operating distance:	20cm

Note 1. the radio profile with different output power is selected by the installer configuring the sensor at the first installation of the device, according to the application. The installer can select one of the three radio profiles, depending on their requirement.

*Antenna gain is included in this figure.

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4. Calculations

The FCC requires that the Maximum EIRP be less than the threshold value at a distance of 20 cm from a device to the body of a user.

The transmitter operation supports 60 GHz Transceiver operation.

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 v07

Mobile and Portable Devices RF Exposure Procedures and Equipment Authorisation Policies

Power Thresholds

From Appendix A of KDB 447498 D01 v07. RF exemption applies if the maximum transmitted power is less than the maximum of the following three criteria:

- i) Less than 1 mw Blanket exemption. **$P_{TH} = 0.001 \text{ W}$ (not met)**
- ii) determination of exemption under the MPE-based §1.1307(b)(3)(i)(C), if i) not meet
- iii) determination of exemption under the SAR-based §1.1307(b)(3)(i)(B) if both i) and ii) are not met;

Determination of threshold power (P_{TH}) under the MPE-based §1.1307(b)(3)(i)(C)

This is only applicable at a separation distance greater than $\lambda/2\pi$.

For the S201A

60GHz operation $\Rightarrow \lambda/2\pi = 0.0008\text{m}$ (0.08cm)

From table 1 - § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation for 60GHz:

$$\text{Threshold ERP (watts) } P_{TH} = 19.2 * R^2$$

For

$$R = 0.2 \text{ m}$$

$$P_{TH} = 19.2 * 0.2^2$$

$$P_{TH} = 19.2 * 0.04$$

$$\mathbf{P_{TH} = 0.768 \text{ W}}$$

Maximum Exemption EIRP = $P_{TH \text{ max}} = 0.768 \text{ W}$

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EIRP Calculation:

Profile 1:

Values:

Transmitter frequency range = 60.6 GHz to 62.8 GHz

Maximum Peak EIRP = 0 dBm (1.0mW)

Duty Cycle 29%

Maximum Transmitted EIRP = $1.0 * 0.29 = 0.29 \text{ mW} = \mathbf{0.0003 \text{ W}}$

Profile 2:

Values:

Transmitter frequency range = 60.6 GHz to 62.8 GHz

Maximum Peak EIRP = 14.0 dBm (25.12 mW)

Duty Cycle 9%

Maximum Transmitted EIRP = $25.12 * 0.09 = 2.26 \text{ mW} = \mathbf{0.0023 \text{ W}}$

Profile 3:

Values:

Transmitter frequency range = 60.6 GHz to 62.8 GHz

Maximum Peak EIRP = 20.0 dBm (100.0 mW)

Duty Cycle 29%

Maximum Transmitted EIRP = $100.0 * 0.29 = 29.0 \text{ mW} = \mathbf{0.029 \text{ W}}$

Maximum Transmitted EIRP = $\mathbf{0.029 \text{ W}}$

5.Conclusion

The maximum EIRP is below the applicable 0.768 W threshold for operation at 60GHz, and therefore RF Exposure Evaluation is not required for the S201A.
