

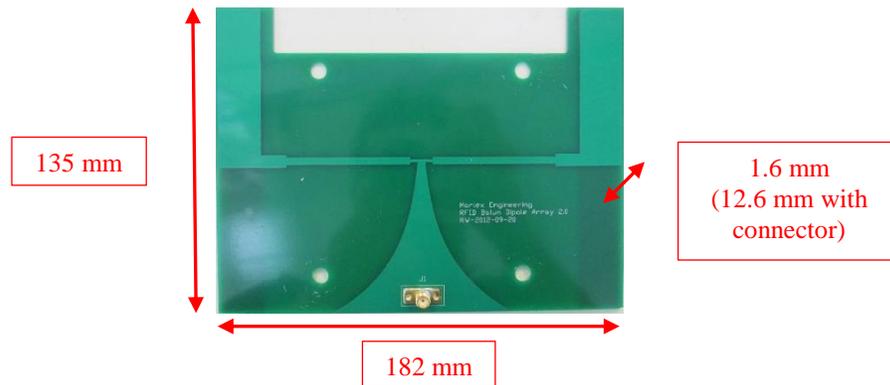
RF Exposure Technical Brief (Maximum Permissible Exposure)

1. General Information

Applicant: Scan~Link Technologies Inc.	IC Certification ID: 9283A-SLAU270NB	Model Number: SLAU-270NB	RF Exposure Environment: Controlled Use
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2. Device operating configurations and test conditions

- Test device is an identical prototype.
- For locations of antennas, see *Internal Photos* exhibit.
- EUT is to be mounted to heavy construction equipment and used at distances > 20 cm from a personnel. It is not body worn.
- Distance between surfaces of 900MHz and 2.4GHz antenna (in a straight line): 70mm.
- 900 MHz device
 - PCB Antenna
 - Antenna gain: 8.7 dBi (max measured)
 - Antenna dimensions:



- Frequency range: 902.3 – 927.7 MHz
- Max power output: 26.1 dBm (34.8 dBm E.I.R.P.).
- Device is tested in continuous transmission mode, 100% duty, with modulated data, and the output level is set to “25,” as that would be the maximum setting used by the manufacturer.

3. Purpose

- The purpose of this evaluation is to ensure that the RF energy intentionally transmitted from the EUT at a stated operating distance does not exceed the limits listed below as defined in the applicable test standard, as calculated based upon readings obtained during testing. This helps protect human exposure to excessive RF fields.

4. Limit(s) and Method

- The RF Field Strength Limit for use in Controlled Environments are defined in RSS-102 section 4, Table 6.
- For devices used in controlled environments where the separation distance between the user and the device is > 20 cm, and operating in the 100 – 6000 MHz range, the power density is $0.6455f^{0.5} \text{ W/m}^2$.
Where: f = frequency in MHz
- This device operates in the frequency range of 902 – 928 MHz, at distances > 20 cm from the user.
- Therefore, the power density limit for the device is 19.4 W/m^2 (1.94 mW/cm^2) at the worst case frequency.

5. Calculations for 15.247 device

$$P_d = (\text{EIRP}) / (4 * \pi * R^2)$$

Where:

P_d = Power density

EIRP = Equivalent Isotropic Radiated Power

R = Distance = 20 cm

Max peak field strength measured at 3m: 130.0 dBuV/m = 3.16 V/m

$$\text{EIRP} = 130.0 \text{ dBuV/m} - 95.2 = 34.8 \text{ dBm} = 3020 \text{ mW}$$

$$P_d = (3020 \text{ mW}) / (4 * \pi * 20^2 \text{ cm}^2)$$

$$P_d = 0.6008 \text{ mW/cm}^2$$

$$P_d = \mathbf{0.6008 \text{ mW/cm}^2} < \mathbf{1.94 \text{ mW/cm}^2}$$

6. Results

- The EUT passed the requirements. The calculated power density of the transmitter is under the limits for controlled environments.