

Radiation Hazard Assessment

Date	3 rd October 2022
FCC ID	UAUSLS
Brand Name	TSL
Model Number Tested	Standard (TSL-STD-RK-HL)
Product	Proximity Card Reader with Bluetooth
Manufacturer	Integrated Control Technology Ltd. (ICT)
Country of Origin	New Zealand
Serial Number	E5B50FA6

Product Description:

The TSL Reader is a dual mode Proximity Card Reader that has transmitters operating on 125 kHz and 13.560 MHz

In addition it contains a Bluetooth module that operates in the 2.4 GHz which enables the device to be configured and connected with the outside world.

When tested all three transmitters were transmitting continuously.

FCC part 15 testing as detailed in EMC Technologies NZ Ltd test report number 220704.2 dated 26 August 2022 shows the following:

125 kHz transmitter with a field strength of 70.5 dBuV/m (Peak detector) at a test distance of 10 metres.

This equates to a radiated power of -24.7 dBm which is the same as 0.03700 mW

13.560 MHz transmitter with a field strength of 46.5 dBuV/m (Quasi Peak detector) at a test distance of 10 metres

This equates to a radiated power of -24.7 dBm which is the same as 0.00015 mW

2.4 GHz Bluetooth transmitter with a field strength of 86.6 dBuV/m (Peak) at a test distance of 3 metres.

This equates to a radiated power of 1.8 dBm which is the same as 1.52363 mW

All of these three transmitter comply with the field strength limits contained with FCC Part 15 sections 15.209, 15.225 and 15.249.

As per FCC KDB 447498 D04 and Section 2.1091 radio frequency transmitters are required to be operated in a manner that ensures the public is not exposed to RF energy levels.

In normal use the transmitters in this device are likely to come in close contact with the human body, the hand, when cards are placed in or near the device when a transaction is carried out.

As the 125 kHz and 13.560 MHz transmitters have radiated powers below 1 mW they will be exempt.

The Bluetooth transmitter is above 1.0 mW and operates in the range of 300 MHz – 6000 MHz

Therefore the 1-g SAR test exclusion has been calculated using the formula below:

$$[(\text{transmitter power (mW)}) / \text{separation distance (mm)}] \times [\sqrt{F(\text{GHz})}] = < 3.0$$

$$[1.8 \text{ mW} / \text{distance (mm)}] \times [\sqrt{2.4}] = 3.0$$

$$1.8 / (3.0 / 1.55) = 0.93 \text{ mm}$$

The SAR test excursion to be can be applied as separation of less than 5 mm has been calculated.

Result: Complies