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Date: April 12, 2019

**Concerning: DSRFID reader modular Transmitter and 47 CFR part 15 subpart C (concerns FCC ID: HPL-DSRFID)**

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**This note describes the 47 CFR part 15 subpart C test configuration for radio type testing and the modular character of DSRFID tag reader (or reader for short).**

Note that this reader is a spare part for for older FCC certified RFID readers:

- DS5300 (production stopped) with FCC IDs HPL5365 & HPL5365A
- DS5503 with FCC IDs P5ROEM410V12 & HPL5364A
- DS5302 with FCC IDs HPL5366 HPL5366A
- DS Axys with FCC IDs HPL5367 & HPL5367A

The reader is a small printed circuit board with local shielding, local power supply regulation and filtering. The internal code for the reader is A800126.X, where X is version number. The current version number is 4 and it equals the mass production version number), higher values are possible because of bug fixes.

The reader is an intentional radiator that is based on inductive coupling to power a passive tag (or multiple tags) using ISO protocol. The carrier frequency is 13.56MHz – section 15.225. The reader needs to comply with 47 CFR 15 subpart C – 15.207 and 15.209.

The reader is integrated into medical film printer (both manufactured by Agfa NV) using modular approval.

The reader complies with all requirements of modular transmitters – section 15.212:

- (i) The radio element is shielded by a local PCB shield, i.e. the SLRC400 is shielded
- (ii) The data inputs/outputs are buffered by RS232 transceivers
- (iii) The module has local regulators for 3.3V and 5V
- (iv) The antenna is fixed in the printed circuit board
- (v) The module is tested stand-alone, see test report DSRFID PCC-EMC-4528.pdf

- (vi) The module has an FCC ID label on the PCB and a label on the application that it contains a transmitter with FCC ID corresponding to the FCC ID on the reader.
- (vii) The reader module is used as drop-in for existing type tested limited modular approved readers, the reader is not sold to external parties. The integration is fixed and well documented.
- (viii) RF exposure is not applicable to the reader – see details next page

**RF exposure details.** The reader module is an inductive type operating at 13.56MHz for short range RFID applications. The reader is not mobile and not body-worn. The reader is assembled into a printer cassette, which slides into the printer body. The power supply to the reader is contacted when the cassette is in its closed position. When an operator opens or withdraws the cassette the power supply to the reader is interrupted, rendering the reader powerless. The reader cannot function stand-alone. The shortest distance from the antenna center to the external cover is 17cm, much larger than the maximum reader distance of 7-8cm.

The TX power is estimated by means of measuring the current at the TX power supply pin. The measured value is 9.4mA at 3.3V power supply. The antenna is matched and  $\frac{1}{2}$  is dissipated as heat in the TX driver resistance, the other  $\frac{1}{2}$  is dissipated in the loop antenna resistance and series resistors. The latter are used to control the Q-factor of the antenna.

The TX power is very small as this is an inductive application.

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