



July 2, 2015

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, Maryland 21046

Subject: FCC ID 2AE6484A237140 Cover Letter

To whom it may concern,

We are requesting an original certification for a wireless communication device – FCC ID number 2AE6484A237140, to be certified under FCC Rule Part 15.247. The device in question is located in the cabin of railway locomotives, and transmits/receives data pertaining to drivetrain health monitoring system to/from units on the axels of the locomotives. The chosen transmission protocol for this unit is IEEE 802.15.4-2006 – a complete description of which can be found here:  
<http://standards.ieee.org/getieee802/download/802.15.4-2006.pdf>

The transceiver circuit in question utilizes a TI CC2520 transceiver, connected to a Johanson Technology 2450BM15B0002 Balun/Matching Network, in order to finally transceive the 2400MHz signal through the Linx SWLP.2450.12.4.B.02 antenna.

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**Functional Description of the Sensor/Gateway pair:** The sensor takes capacitance, temperature, accelerometer, etc. data readings periodically and communicates them to the gateway if it is in range. An operator can also get in close proximity to the sensor and trigger readings from it with a handheld RFID unit. The units are designed to go on locomotives. RFID in the sensor is passive. The Gateway collects, organizes, and transmits relevant data to monitor and control systems within the cabin of the locomotive.

Sincerely,

A handwritten signature in blue ink that reads "Brian T. Hemmelman". The signature is fluid and cursive, with "Brian" and "T." on the first line and "Hemmelman" on the second line.

Brian T. Hemmelman  
Principal Engineer, DarCEO Inc.