Re: Certification for Lear Corporation
Ford TPMS Wheel Electronics Unit
FCC ID: KOBFTD06A
IC: 3521A-FTD06A

DESCRIPTION OF OPERATION

GENERAL DESCRIPTION OF FORD TPMS WHEEL ELECTRONICS UNIT

The product for which certification is pursued is a Tire Pressure Monitoring System (TPMS) transmitter. It will be manufactured for the Ford Motor Company by the Lear Corporation for automotive applications. The module is intended to report tire information like pressure and temperature, along with battery information to a central receiving module. This device is called a wheel electronics unit (WEU).

There are two versions of the WEU; high pressure (115 psi) and low pressure (50 psi). The only difference between the two is the pressure sensor. They have different calibration ranges. All other electronic components are identical. The transmitter section of the design is identical between the two different versions. The PCB, microprocessor and RF circuitry on all versions are identical.

The two parts are differentiated by the following: housing color, blue for 50 psi and green for 115 psi and the Ford / Lear part number that are laser etched onto the housing.

The transmitter, operating at 315 MHz, works in conjunction with a receiver that is mounted in the vehicle's passenger compartment. The transmitter is a 3-volt, single cell battery operated module which will be fixed to a special holder that is (mounted to the rim via a band) inside each tire. The WEU transmits tire environmental information, such as pressure, temperature, and acceleration to the receiver.

The WEU transmitter contains one 3 volt battery and a printed circuit board assembly. The one piece exterior housing is a molded plastic with the Ford / Lear #, FCC ID #, and IC # molded or laser etched into the plastic. The PCB is inserted to the housing and is potted to keep all foreign materials out.

TECHNICAL DESCRIPTION

The WEU functions in accordance with Ford specification ES-6L2T-1A150-AE.

In general, the microprocessor makes interval measurements of pressure, temperature, and acceleration. The data is then transmitted by RF to the receiver at certain intervals. The code is carried by a 315 MHz carrier with ASK and FSK modulation and radiated by an on board antenna. The data code is Manchester modulation format to express bits "0" and "1". The clock out from the RF PLL (Phase Lock Loop) is used to stabilize the data. The antenna is a rigid wire. The 315 MHz transmit frequency is generated by a PLL, stabilized by a crystal. Frequency tolerance is better than 315 MHz, +/- 65 kHz.
The WEU is capable of forced communication through a 125 kHz interface.

K. Cotton, LEAR ESD RF