



5200 Auto Club Dr.  
Dearborn, Michigan 48126-9982  
(313) 593-9000

Re: Certification for Lear Corporation  
Transmitter, RFA-04  
FCC ID: KOBGT04A  
CANADA: 3521A-T04A

## **DESCRIPTION OF OPERATION**

### **GENERAL DESCRIPTION**

The product for which certification is pursued will be manufactured for General Motors Corporation by Lear Corporation for automotive applications. This 315 MHz transmitter works in conjunction with a receiver that is mounted in the vehicle. There are two receivers possible, a Super-regenerative or heterodyne. The transmitter is a 3-volt, single cell battery operated fob type that is carried by the user. It is part of a keyless entry system and can be used to perform certain functions such as lock and unlock the driver and passenger doors, open the trunk, etc... depending on how the receiver module in the vehicle is programmed.

There can be 2 to 7 button versions of this transmitter. The only differences between these units are the number of buttons used, the printing on the buttons, and the GM/LEAR part number stamped on the back. The PCB is the same for all versions. Electrically, all six units are identical except diode population for versions with more than 4 button inputs. Each additional button over 4 requires placing additional 2 diodes. Also, there are two types of receivers this transmitter will be used with, super-regenerative and heterodyne. This requires a unique encoder for each with slightly unique software. The two piece exterior housing is injection molded plastic with GM/LEAR # and programming instruction's molded into the back of the housing. The FCC/IC numbers will be located on the printed circuit board.

### **TECHNICAL DESCRIPTION**

When the buttons are depressed, the encoder IC will power up and generate the proper data code which can only be recognized by a matched receiver. The code is carried by 315 MHz carrier with AM OOK (on-off keying) modulation and radiated by a printed circuit board antenna. The data code is of a pulse width modulation format to express bits "0" and "1". The encoder clock controls the data code period, which is a RC oscillator type that is integrated into the encoder. The antenna is a loop PCB trace. The 315 MHz transmit frequency is generated by a SAWR (Surface Acoustic Wave Resonator) stabilized, Colpits oscillator. Frequency tolerance is better than 315 MHz, +/- 100 kHz.

### **NAME AND ADDRESS OF MANUFACTURER**

#### **Lear Corporation**

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And

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