

July 20, 2011

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RE: Certification for Toyota Pacific Aftermarket 315MHz TPM Sensor  
Model #: 221849-103  
FCC ID: GQ4-43T  
Canada IC: 1470A-24T

**GENERAL DESCRIPTION**

This transmitter is a transmitter device with tire valve, which is mounted in the valve hole of the wheel rim and transmits the pressure and temperature inside the tire, the battery voltage of the transmitter, and the tire identification code (ID) at normal and abnormal condition with the radio wave (RF) that conforms to the used area. Also this device has a countermeasure function such as the random delay of transmission time so that the RF signal from each tire will not interfere due to the simultaneous transmission. The transmitter supports Low Frequency (LF) magnetic field communications allowing the changing of measurement/monitoring states of the transmitter by commands sent via the TPM diagnostic tool. The RF signal operates at 315MHz and uses FSK Manchester and FSK Bi-Phase code modulation. 221849-103 transmits 1 data frame every 60 seconds +/- 5 seconds for random deviation.

**Description of Operations**

<b>Mode of Operation</b>	<b>Explanation</b>	<b>Frequency of Transmission</b>
Storage Mode	No transmission. Measures temperature & pressure	5 bi-phase and 2 Manchester data frames when activation occurs with TPM diagnostic tool
Normal Mode	Measures temperature and pressure. Transmits periodically. Enters this mode from storage when pressure goes above threshold.	<ul style="list-style-type: none"><li>• 1 bi-phase data frame every 60 seconds</li><li>• 5 bi-phase and 2 Manchester data frames when activation occurs with TPM diagnostic tool</li></ul>
Alert Mode	Transmits when: a) significant pressure delta detected b) high temperature is detected	5 bi-phase data frames every 12 seconds 8 times 1 bi-phase data frame every 12 seconds 120 data frames total.