

October 26, 2011

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RE: Certification for GM Aftermarket ASK 315MHz TPM Sensor  
Model #: 221849-104  
FCC ID: GQ4-48T  
Canada IC: 1470A-29T

**GENERAL DESCRIPTION**

The TPM Sensor is an RF transmitting device that contains an integrated tire valve stem that is mounted in the valve hole of each of the wheel rims on the vehicle. The sensor transmits the pressure and temperature inside the tire, as well as the battery voltage status of the transmitter. Each sensor's unique tire identification code (ID) is also sent with each transmission. The sensor will transmit at 315MHz periodically when the vehicle speed is ~20mph. The vehicle speed is determined from an accelerometer that is contained within the sensor. The sensor will also transmit data if a change in the air pressure occurs while the vehicle is stationary or in a rolling state. The transmissions from each sensor have a random delay to ensure that RF signals from each tire will not interference due to simultaneous transmissions. The RF transmission format is ASK (Amplitude Shift Keying) Manchester encoded at 315 MHz.

**Description of Operations**

<b>Mode of Operation</b>	<b>Explanation</b>	<b>Frequency of Transmission</b>
Storage Mode	No transmission. Measures temperature, pressure, & battery voltage	16 words when activation occurs with TPM diagnostic tool for LF Learn
Normal Mode	Measures temperature, pressure, acceleration, & battery voltage. Transmits periodically. Enters this mode from storage when pressure goes above threshold.	<ul style="list-style-type: none"><li>• 6 words every 60seconds</li><li>• 16 words when activation occurs with TPM diagnostic tool for LF Learn</li></ul>
Alert Mode	Transmits when significant pressure delta detected	6 words whenever pressured delta > threshold