

DEOR

User Manual

V1.0



Digital Edge Solutions, Inc.

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Introduction

This document describes the RF system "DEOR" for occupancy detection in vehicles.

General system description

The function of the DEOR Radar is a radar module using a 60 GHz (ISM band) frequency that is mounted in the vehicle interior (In-cabin) to emit radio waves and analyze the signal reflected by the target to estimate the target's distance/orientation/high/speed simultaneously, and to detect indoor passenger status information (such as seating position) using estimated parameters and algorithms.

Usage restrictions

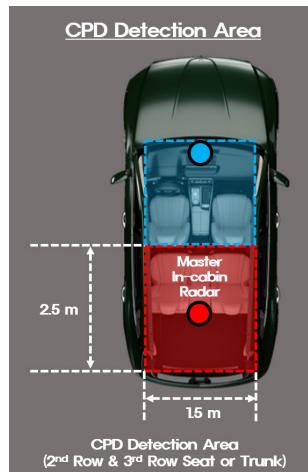
This device is restricted to factory installation in the interior cabin of a passenger motor vehicle—i.e., a "passenger car" or a "multipurpose passenger vehicle" that has more than one row of seats, as those terms are defined at 49 CFR § 571.3, as described in this technical description, for the primary purpose of in-cabin monitoring functions and shall not be marketed in after-market add-on products.

Product specifications

Item	Description
Rated Voltage	DC 12V
Operating Voltage Range	DC 9V ~ 16V
Operating-temperature Range	-40°C ~ +85°C
Storage-temperature Range	-40°C ~ +95°C
Operation Frequency [GHz]	60 ~ 64 GHz

Main Function

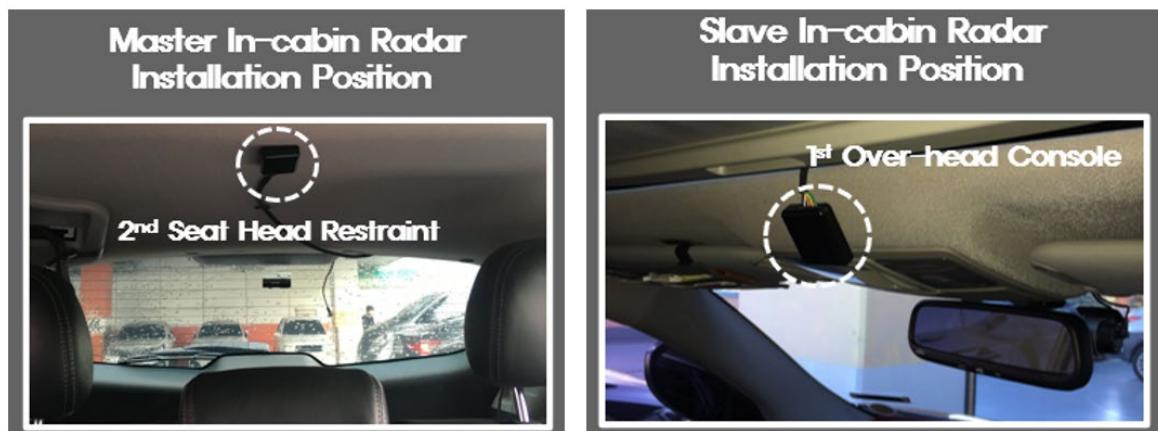
This device provides the functions of "Child Presence Detection".



[Figure 1] CPD Detection Area

Installation

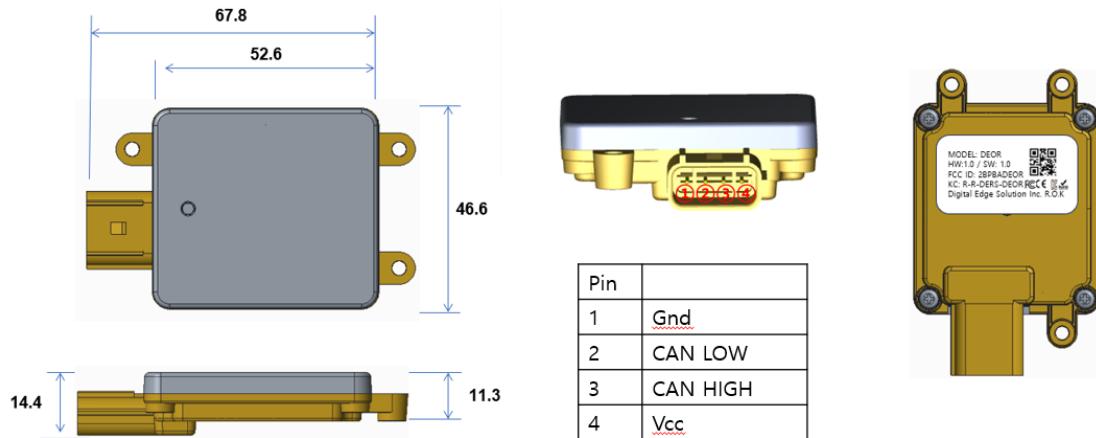
DEOR must be installed inside a car's in-cabin. The installation location must be as shown in the figure below and applicable by the conditions of DA-21-816.



[Figure 2] DEOR Installation

Connectors & Label

The sensor connector has 4 pins. The pin layout of the sensor side connector is used in Figure 3 "Connector Pinout & Label Layout".



[Figure 3] Connector pinout & Label Layout

Safety Instructions

This device has been certified in accordance with the Radio Waves Act of the Republic of Korea through the conformity assessment of broadcasting and communication equipment.

This product is an unlicensed radar system operating in the 60 GHz (ISM band) and must be operated under the output limitations specified by Notice DA-21-816 issued by the National Radio Research Agency (RRA).

The device must be installed and operated at a minimum distance of 20 cm from the human body. Failure to comply may result in exposure beyond acceptable limits.

This product is intended for factory installation by vehicle manufacturers only. Consumer self-installation, aftermarket sales, or general retail distribution are strictly prohibited.

FCC WARNING

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference. and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Caution

Any changes or modifications (including the antenna) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons. This device must not be co-located or operation in conjunction with any other antenna or transmitter.

This equipment complies with FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.