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Intelligent transport systems — Framework architecture for plug and play (PnP) functionality in vehicles utilizing nomadic devices

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Foreword

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

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Introduction

This document specifies framework architecture for plug and play (PnP) functionality in vehicles and identifies the issues related to exchanging information between occupants (users) and PnP functions. The connection between PnP vehicles and occupants is established by nomadic devices and the exchanging information is bidirectional. The main purpose of architecture is to utilize the PnP vehicle information and enhance the safety state and improve the convenience of occupants in PnP vehicles by adopting various pieces of information of PnP functionality in vehicles including sensors, mechanical equipment, and communication devices.

This document covers subjects related to representation of the status of a PnP vehicle and occupant. The status of a PnP vehicle and occupant is represented as a safety state/availability state and driver information, respectively. Therefore, information exchange between a PnP vehicle and occupants is mandatory.

This system is based on the following assumptions:

— A PnP vehicle is equipped with several sensors such as radar, lidar, camera, vehicle mechanical information such as steering, acceleration/brake, ECU, and communication devices such as WLAN, Bluetooth. In addition, more sensors or devices can be extensible with the advance of technology, and a PnP vehicle can adapt these devices.

— Occupants have a nomadic device such as smart phone, or wearable which can be used to exchange information with a PnP vehicle. The health information of occupants may be delivered to a PnP vehicle.

— The major use case is to inform the status of a PnP vehicle and occupants using the information between a PnP vehicle and occupants.