INTERNATIONAL STANDARD

ISO
24103

Intelligent transport systems — Communications access for land mobiles (CALM) — Media adapted interface layer (MAIL)

Systèmes intelligents de transport — Accès aux communications des services mobiles terrestres (CALM) — Couche d'interface adaptée au milieu (MAIL)

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 24103 was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

Introduction

This International Standard is part of a family of International Standards for CALM (communication access for land mobiles) which determine a common architecture, network protocols and air interface definitions for wireless communications using cellular second generation, cellular third generation, mobile wireless broadband, microwaves, millimetre waves, infra-red communications, and so on. Other air interfaces may be added at a later date. These air interfaces are designed for providing parameters and protocols for broadcast, point-point, vehicle-vehicle, and vehicle-point communications in the intelligent transport systems (ITS) sector.

This International Standard determines the media adapted interface layer (MAIL), which enables communication media such as dedicated short-range communication (DSRC) compliant with ISO 15628 (DSRC application layer) to be used as CALM media for internet protocol (IP)-based communications.

DSRC media with the following characteristics are available.

— Proven radio communication for ITS:

1) direct communication based on ISO 15628, e.g. for electronic fee collection (EFC) — in ARIB STD-T75, a 4 MB/s data rate and a communication zone of approximately 30 m, available for response during high-speed driving;

2) practical experiments for IP communication over the ISO 15628 application layer — a DSRC application sub-layer (ARIB STD-T88) that works on application ID 18 of ISO 15628.

— Communication in a comparatively small communication zone:

1) easy identification of a communication partner;

2) reuse frequency in every small zone and effective utilization of frequency resources;

3) less liable to be affected by shadowing.

Intelligent transport systems — Communications access for land mobiles (CALM) — Media adapted interface layer (MAIL)

1 Scope

This International Standard determines the logical structure of using dedicated short-range communication (DSRC) with an OSI (open systems interconnection) application layer as a CALM medium for IP communications. DSRC to which MAIL is applicable are those with an application layer compliant with ISO 15628, and the standards of such DSRC include the following:

— ARIB STD-T75 DSRC (Japan);

— TTAS.KO-06.0025 DSRC in the 5,8 GHz band (Korea);

— EN 12253 DSRC physical layer using microwave in the 5,8 GHz band, EN 12795 DSRC data link layer and EN 12834 DSRC application layer (Europe).

Figure 1 shows the architecture of the MAIL, which can be considered as a specific extension of the communication adaptation layer (CAL) specified by ISO 21218.
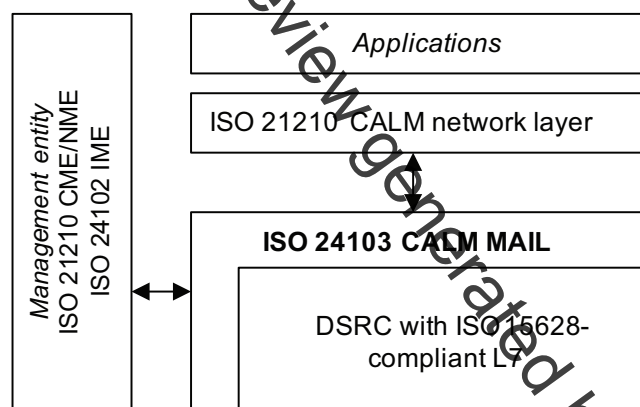
NOTE   In furnishing additional information on CALM MAIL, reference can be made to ARIB STD-T88 (DSRC application sub layer).

Figure 1 — CALM MAIL in CALM architecture

2 Conformance

In order for conformance to be claimed with this International Standard, communication shall be established in full compliance with the procedures and protocols given in ISO 15628, compliant with the appropriate national or regional standards, and shall be in accordance with ISO 21210, ISO 21217 and ISO 21218.