International Standard

ISO 19082

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Intelligent transport systems — Definition of data elements and data frames between roadside modules and signal controllers for cooperative signal control

PROOF/ÉPREUVE

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Foreword

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

This first edition of ISO 19082 cancels and replaces the first edition of ISO/TS 19082:2020, which has been technically revised.

The main changes are as follows:

— ASN.1 modules have been specified;

— certain data elements have been imported from other documents and the related references have been clarified;

— an architecture reference model has been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Signal controllers and traffic control centres optimize signal timings based on real-time traffic information for each approach. For example, signal controllers can extend the green time for an approach with a long queue.

The aim of this document is to define data elements and data frames that are useful for optimising local and coordinated signal operation.

ISO 22951, on the pre-emption and prioritization signal system for emergency and public transport vehicles (PRESTO), specifies the message sets for signal system pre-emption and priority for transit vehicles, including communications between roadside modules and signal controllers. This document complements ISO 22951 by defining message sets for traffic information that is useful for optimizing normal signal operations. Thus, signal controllers and traffic management centres can generate signal timings referring to the messages of ISO 22951 (PRESTO) and this document. The relationship between this document and ISO 22951 is shown in Annex C.

The red arrows in Figure 1 illustrate message flows that are within scope of this document.

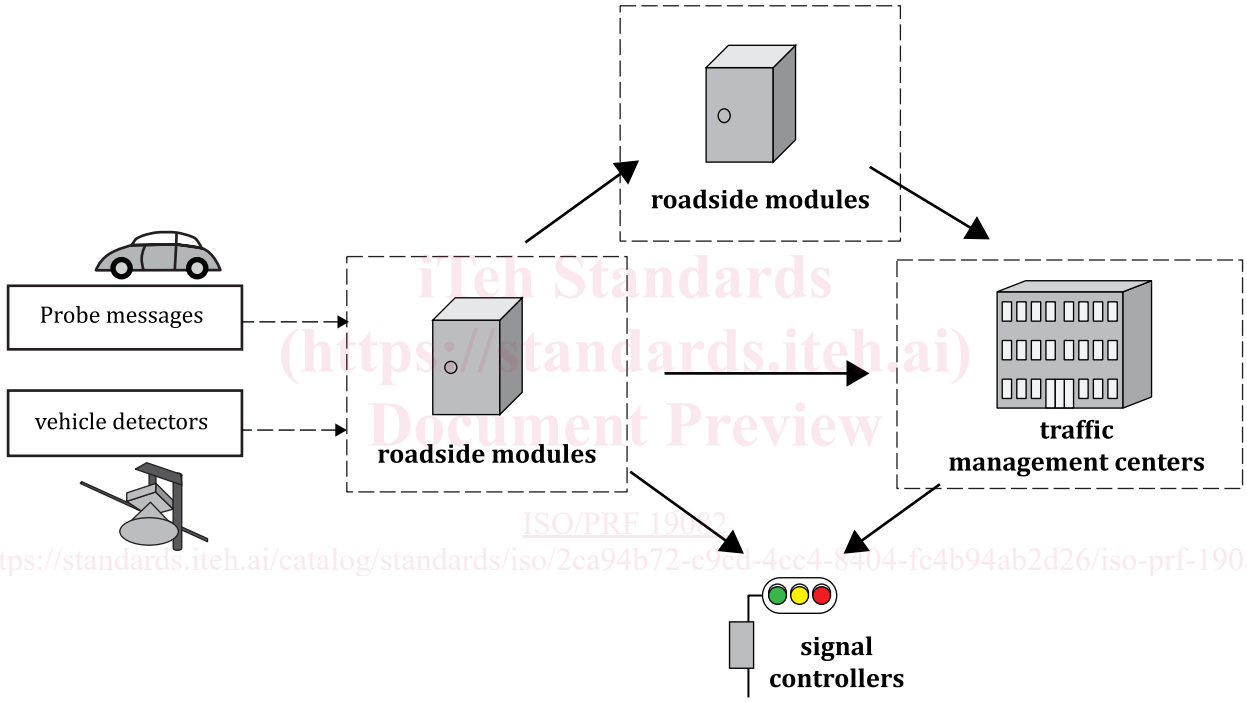

Figure 1 — Physical scope of this document

Figure 2 shows where this document is positioned within the ITS station architecture, as defined in ISO 21217.

This document (Application layer)		
Management	Facilities	Security
	Networking & Transport	(RFC4301, etc)
	Access	

Figure 2 — Architecture reference model

The messages specified in this document may be sent and received based on the facilities layer and lower layer of the ITS station architecture. When using the ITS station architecture, for communicating the data specified in this document, the communication profile can be appropriately selected using the process specified in ISO 17423. The lower layer communication services are provided by the communication profile

hander (CPH) specified in ISO 17429. ITS station management and communications between ITS stations are specified in ISO 24102-6.

The data elements and data frames in this document are typically exchanged using well-known internet protocols, such as UDP/IP or TCP/IP. IPsec, DTLS and TLS can be used for security.

The data structure follows the framework specified in ISO 14817-1, and the data elements and data frames are described by description name, object identifier, definition, and data type following ISO 14817-1. The specifications of this document complement those from ISO/TS 19091 and other standards.

NOTE Roadside modules can generate data based on inputs from vehicle detectors and/or probe data transmitted by vehicles. This document does not address how the roadside module generates the data, it only addresses communication after receiving and processing raw data from one or more sources.

EXAMPLE A roadside module may calculate vehicle volume, average speed, and queue length by utilizing data from vehicle detectors and probe information.