

INTERNATIONAL
STANDARD

ISO
21217

Third edition
2020-12

**Intelligent transport systems —
Station and communication
architecture**

*Systèmes de transport intelligents — Architecture du station et du
communication*



Reference number
ISO 21217:2020(E)

© ISO 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	7
5 Requirements	10
6 Overview of ITS communications	10
6.1 ITS services and applications	10
6.2 ITS communication technologies	11
6.3 ITS communication characteristics	12
6.4 Localized and networked communications	13
6.5 Hybrid communications	13
6.6 ITS communication networks	13
6.7 ITS station interconnection scenarios	14
6.8 Communication paths and data flows	16
7 ITS station — overview	17
7.1 ITS station — concept	17
7.2 ITS station architecture	18
7.2.1 Generalized OSI model	18
7.2.2 ITS station nodes	21
7.2.3 Protocol and service data units in the ITS-S protocol stack	22
7.2.4 Distributed implementations of ITS-S roles	23
8 Details of elements of ITS-S reference architecture	25
8.1 ITS-S interfaces	25
8.1.1 Implementation habits	25
8.1.2 ITS-S management interfaces	25
8.1.3 ITS-S security interfaces	26
8.1.4 ITS-S communications interfaces	26
8.1.5 ITS-S application programming interface	26
8.2 ITS-S access layer	26
8.2.1 Access technologies	26
8.2.2 Details of the ITS-S access layer	27
8.2.3 Logical channels	28
8.2.4 Prioritization of transmission requests	29
8.3 ITS-S networking and transport layer	30
8.3.1 ITS-S networking and transport layer details	30
8.3.2 Networking protocols	31
8.3.3 Transport protocols	31
8.4 ITS-S facilities layer	32
8.4.1 ITS-S facilities layer details	32
8.4.2 ITS-S facilities services	33
8.5 ITS-S management entity	34
8.5.1 Management entity details	34
8.5.2 Management functionality	36
8.6 ITS-S security entity	36
8.6.1 Security entity details	36
8.6.2 Functionality	38
8.7 ITS-S applications	38
8.7.1 ITS-S applications details	38
8.7.2 ITS service	40