

English Version

Cooperative intelligent transport systems (C-ITS) -  
Position, velocity and time functionality in the ITS station  
(ISO/TS 21176:2020)

Systèmes de transport intelligents coopératifs (C-ITS) -  
Fonctionnalité de position, de vitesse et de temps dans  
la Station ITS (ISO/TS 21176:2020)

Intelligente Verkehrssysteme - Kooperative ITS -  
Position, Geschwindigkeit und Zeitfunktionen in einer  
ITS-Station (ISO/TS 21176:2020)

This Technical Specification (CEN/TS) was approved by CEN on 24 August 2020 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	3

## European foreword

This document (CEN ISO/TS 21176:2020) has been prepared by Technical Committee ISO/TC 204 "Intelligent transport systems" in collaboration with Technical Committee CEN/TC 278 "Intelligent transport systems" the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

## Endorsement notice

The text of ISO/TS 21176:2020 has been approved by CEN as CEN ISO/TS 21176:2020 without any modification.

---

---

## Cooperative intelligent transport systems (C-ITS) — Position, velocity and time functionality in the ITS station

*Systèmes de transport intelligents coopératifs (STI-C) –  
Fonctionnalités de position, de vitesse et de temps dans la station STI*



## **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](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>2</b>
<b>4 Abbreviated terms</b>	<b>4</b>
<b>5 Conformance</b>	<b>5</b>
<b>6 PVT service in the ITS station and communication architecture</b>	<b>5</b>
6.1 ITS station and communication architecture	5
6.2 ITS-S application processes (ITS-S-APs)	6
6.3 ITS-S facilities layer services	6
6.4 PVT service provided by the ITS-S facilities layer	8
6.5 Access to the PVT service	8
6.6 PVT-augmented ADUs	9
<b>7 PVT service</b>	<b>9</b>
7.1 PVT service reference model	9
7.2 PVT-related input parameters	10
7.3 PVT output parameters	11
7.3.1 General	11
7.3.2 PvtInfoEcdd	12
7.3.3 PvtInfoEcdd-PosVelocityTime	16
7.3.4 PvtInfoEcdd-PosTime	16
7.3.5 PvtInfoEcdd-VelocityAccelerationTime	16
7.3.6 PvtInfoEcdd-VelocityTime	16
7.3.7 PvtInfoEcdd-SpeedTime	16
7.3.8 PvtInfoNmeaData	17
<b>8 PVT-SAP service primitives</b>	<b>17</b>
8.1 General	17
8.1.1 Overview	17
8.1.2 PVTinit	18
8.1.3 Return codes	18
8.2 Get-PVT	18
8.3 Subscribe-PVT-related service primitives	19
8.3.1 Subscribe-PVT	19
8.3.2 Notify-PVT	20
8.3.3 Cancel-PVT	20
<b>9 PVT capability</b>	<b>20</b>
<b>Annex A (normative) PVT data type specifications</b>	<b>22</b>
<b>Annex B (normative) Implementation conformance statement proforma</b>	<b>23</b>
<b>Bibliography</b>	<b>27</b>