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Irish Standard  
I.S. EN 61375-3-2:2012

# Electronic railway equipment - Train communication network (TCN) -- Part 3-2: MVB (Multifunction Vehicle Bus) conformance testing (IEC 61375-3-2:2012 (EQV))

## I.S. EN 61375-3-2:2012

*Incorporating amendments/corrigenda issued since publication:*

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**Electronic railway equipment -  
Train communication network (TCN) -  
Part 3-2: MVB (Multifunction Vehicle Bus) conformance testing  
(IEC 61375-3-2:2012)**

Matériel électronique ferroviaire -  
Réseau embarqué de train (TCN) -  
Partie 3-2: Essais de conformité MVB  
(Bus de Véhicule Multifonctions)  
(CEI 61375-3-2:2012)

Elektronische Betriebsmittel für Bahnen -  
Zug-Kommunikations-Netzwerk -  
Teil 3-2: MVB (Multipurpose-Vehicle-Bus)  
Konformitätsprüfung  
(IEC 61375-3-2:2012)

This European Standard was approved by CENELEC on 2012-07-26. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

**I.S. EN 61375-3-2:2012**

EN 61375-3-2:2012

- 2 -

**Foreword**

The text of document 9/1645/FDIS, future edition 1 of IEC 61375-3-2, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61375-3-2:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-04-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-07-26

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

**Endorsement notice**

The text of the International Standard IEC 61375-3-2:2012 was approved by CENELEC as a European Standard without any modification.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60063 + A1 + A2	1963 1967 1977	Preferred number series for resistors and capacitors	-	-
IEC 60571	-	Electronic equipment used on rail vehicles	-	-
IEC 60807	Series	Rectangular connectors for frequencies below 3 MHz	-	-
IEC 61375-2-1	-	Electronic railway equipment - Train communication network (TCN) - Part 2-1: Wire Train Bus (WTB)	EN 61375-2-1	-
IEC 61375-2-2	-	Electronic railway equipment - Train communication network (TCN) - Part 2-2: Wire Train Bus conformance testing	EN 61375-2-2	-
IEC 61375-3-1	-	Electronic railway equipment - Train communication network (TCN) - Part 3-1: Multifunction Vehicle Bus (MVB)	EN 61375-3-1	-
ISO/IEC 8482	1993	Information technology - Telecommunications - and information exchange between systems - Twisted pair multipoint interconnections	-	-
ISO/IEC 9646-1	1994	Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts	-	-
ISO/IEC 9646-7	1995	Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements	-	-

**Annex ZZ**  
(informative)

**Coverage of Essential Requirements of EU Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Annex III of the EU Directive 2008/57/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

**WARNING:** Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

## CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions .....	9
4 Conformance test: approach, requirements and boundaries .....	9
4.1 Approach.....	9
4.1.1 Requirements .....	9
4.1.2 Requirements declaration statements for an IUT .....	11
4.2 Boundaries .....	12
4.2.1 General .....	12
4.2.2 Basic interconnection tests .....	13
4.2.3 Capability tests.....	13
4.2.4 Behaviour tests.....	14
4.2.5 Conformance resolution tests .....	14
4.2.6 Interpretation of clauses/subclauses and statements .....	15
4.2.7 Relation to interoperability.....	17
4.2.8 Relation to performance test.....	17
4.3 Conformance assessment process outline .....	18
4.3.1 General .....	18
4.3.2 Analysis of results, outcomes and verdicts .....	18
5 Conformance test of an MVB device .....	19
5.1 PICS .....	19
5.1.1 Instructions for filling the PICS pro-forma .....	19
5.1.2 PICS tables .....	21
5.2 Test suites .....	29
5.2.1 Basic interconnection tests .....	29
5.2.2 Capability tests.....	30
5.2.3 Behavioural tests.....	31
5.2.4 Electrical short distance medium .....	31
5.2.5 Electrical middle distance medium .....	35
5.2.6 Slave device status test suites.....	40
5.2.7 Process data test suites .....	48
5.2.8 Slave message data capability test suite .....	60
5.2.9 MVB repeater conformance tests .....	77
6 Conformance test of RTP .....	86
6.1 General.....	86
6.2 Ports and Traffic_Store .....	86
6.3 Dataset consistency .....	86
6.3.1 Error handling.....	87
6.3.2 Freshness supervision.....	87
6.3.3 Synchronisation dataset .....	87
6.3.4 Dataset polling .....	87
6.3.5 Dataset, port and logical address .....	87
6.3.6 Traffic_Store Identifier .....	87

6.4	Port_Address .....	88
6.5	Link_Process_Data_Interface primitives .....	88
6.6	Messages services and protocols .....	88
7	Conformance test of NM .....	88
Annex A (normative) Test laboratory role and client role .....		89
Annex B (informative) Test instrumentation and dedicated test beds .....		96
Bibliography .....		98
Figure 1 – Application of the waveshaper .....		29
Figure 2 – ESD test layout .....		31
Figure 3 – ESD terminator connector test .....		33
Figure 4 – ESD waveform measurement .....		34
Figure 5 – Measurement of an EMD device .....		36
Figure 6 – Measurement of insertion loss .....		37
Figure 7 – EMD transmitter test circuits .....		38
Figure 8 – Example of test hardware implementation .....		49
Figure 9 – F_code + Address .....		54
Figure 10 – Concept of message data testing .....		60
Figure 11 – Model of the relation between TE and IUT for message data testing .....		61
Figure 12 – Relation between TE and IUT in case of test of IUT as caller .....		61
Figure 13 – Packet formats (transport layer body) .....		62
Figure 14 – Test message task of IUT .....		63
Figure 15 – Caller timeout identification .....		66
Figure 16 – Nesting address with 0x83 .....		71
Figure 17 – Block diagram of a line .....		77
Figure 18 – Frames in test RP-1.2 .....		78
Figure 19 – Inter-frame spacing .....		79
Figure 20 – Pulse distortion .....		80
Figure 21 – Frame with out-of-place transition .....		80
Figure 22 – Frames in test RP-1.4 .....		81
Figure B.1 – Test bed configuration MRTB1 .....		96
Figure B.2 – Test bed configuration MRTB2 .....		97
Table 1 – Document structure .....		7
Table 2 – Continuance indication .....		16
Table 3 – Weak statements .....		17
Table 4 – Relation to interoperability .....		17
Table 5 – Relation to performance test .....		17
Table 6 – ESD basic interconnection tests .....		30
Table 7 – EMD basic interconnection tests .....		30
Table 8 – Measurement idle .....		32
Table 9 – Measurement with load for minimum current .....		32
Table 10 – Measurement with load for maximum current .....		32



Table 11 – Measurement with load for overcurrent.....	33
Table 12 – ESD measurements pin to pin .....	33
Table 13 – Event poll strategy.....	64
Table 14 – Abbreviations .....	68
Table 15 – Addressing type .....	68
Table 16 – Test function directory .....	70
Table 17 – Test station directory.....	71
Table 18 – Nesting address .....	72
Table 19 – Read_Memory and Write_Memory sequence.....	73
Table 20 – Configuration of periodic data in BA .....	84
Table 21 – Configuration of periodic ports in CU-1 .....	84
Table 22 – Configuration of periodic ports in CU-2.....	85

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### **ELECTRONIC RAILWAY EQUIPMENT – TRAIN COMMUNICATION NETWORK (TCN) –**

#### **Part 3-2: MVB (Multifunction Vehicle Bus) conformance testing**

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61375-3-2 has been prepared by IEC Technical Committee 9: Electrical equipment and systems for railways.

This first edition cancels the clauses of the IEC 61375-2 first edition published in 2007 relevant to the specification of MVB conformance testing and constitutes a technical revision.

It was prepared taking into account the IEC 61375-3-1 first edition.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/1645/FDIS	9/1669/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of IEC 61375 series, under the general title *Electronic railway equipment – Train communication network (TCN)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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## INTRODUCTION

TCN is an International Standard with the aim of defining interfaces so as to achieve plug-in compatibility:

- a) between equipment located in different vehicles, and
- b) between equipment and devices located within the same vehicle.

One of the key success factors for the deployment of any technology is standardisation and ensuring interoperability among various implementations. To facilitate interoperability a conformance test should be implemented.

In this part of IEC 61375, the conformance testing of the MVB defined in IEC 61375-3-1 is specified.

This standard is structured into 5 clauses and 2 annexes.

The clauses and annexes are listed and briefly described in Table 1.

**Table 1 – Document structure**

<b>Clause</b>	<b>Description</b>
1 Scope	This clause describes the scope of this standard and.
2. Normative references	This clause contains a list of referred norms.
3 Terms and definitions	This clause introduces basic terms and abbreviations not reported in IEC 61375-3-1.
4 Conformance test: approach, requirements and boundaries	<p>This clause is an overview of the methods of TCN implementation verification that are available to the developer and regulatory personnel.</p> <p>Supplies information concerning the ICS and IXITpPro-forma(s).</p>
5 Conformance test of an MVB device	<p>This clause covers all tests on MVB devices that are grouped by classes, from Class 0 up to Class 4. The main contents are:</p> <p>the MVB PICS and PIXIT;</p> <p>the MVB test suites;</p> <p>the MVB test procedures.</p>
6 Conformance test of RTP	This clause covers the conformance tests of real time protocols.
7 Conformance test of NM	This clause covers network management services' testing.
Annex A – Test laboratory role and client role	This annex is normative.
Annex B – Test instrumentation and dedicated test beds	This annex is informative.

## **ELECTRONIC RAILWAY EQUIPMENT – TRAIN COMMUNICATION NETWORK (TCN) –**

### **Part 3-2: MVB (Multifunction Vehicle Bus) conformance testing**

#### **1 Scope**

This part of IEC 61375 applies to all equipment and devices implemented according to IEC 61375-3-1, i.e. it covers the procedures to be applied to such equipment and devices when the conformance should be proven.

The applicability of this standard to a TCN implementation allows for individual conformance checking of the implementation itself and is a pre-requisite for further interoperability checking between different TCN implementations.

NOTE 1 An example of TCN implementation is given in UIC 556.

#### **2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60063: 1963, *Preferred number series for resistors and capacitors*  
Amendment 1:1967  
Amendment 2:1977

IEC 60571: *Electronic equipment used on rail vehicles*

IEC 60807 (all parts), *Rectangular connectors for frequencies below 3 MHz*

IEC 61375-2-1: *Electronic railway equipment – Train Communication Network (TCN) – Part 2-1: Wire Train Bus (WTB)*

IEC 61375-2-2: *Electronic railway equipment – Train Communication Network (TCN) – Part 2-2: Wire Train Bus conformance testing*

IEC 61375-3-1: *Electronic railway equipment – Train Communication Network (TCN) – Part 3-1: Multifunction Vehicle Bus (MVB)*

ISO/IEC 8482: 1993, *Information technology – Telecommunications and information exchange between systems – Twisted pair multipoint interconnections*

ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts* (Also available as ITU-T Recommendation X.290 (1995))

ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements* (Also available as ITU-T Recommendation X.296 (1995))

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