

STN	Zdravotnícke elektrické prístroje. Časť 1-12: Všeobecné požiadavky na základnú bezpečnosť a nevyhnutné prevádzkové vlastnosti. Pridružená norma: Požiadavky na zdravotnícke elektrické prístroje a zdravotnícke elektrické systémy určené na používanie v prostredí záchranej zdravotníckej služby.	STN EN 60601-1-12
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Medical electrical equipment - Part 1-12: General requirements for basic safety and essential performance - Collateral Standard: Requirements for medical electrical equipment and medical electrical systems intended for use in the emergency medical services environment

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/15

Obsahuje: EN 60601-1-12:2015, IEC 60601-1-12:2014

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ICS 11.040

English Version

Medical electrical equipment - Part 1-12: General requirements
for basic safety and essential performance - Collateral Standard:
Requirements for medical electrical equipment and medical
electrical systems intended for use in the emergency medical
services environment
(IEC 60601-1-12:2014)

Appareils électromédicaux - Partie 1-12: Exigences
générales pour la sécurité de base et les performances
essentielle - Norme collatérale: Exigences pour les
appareils électromédicaux et les systèmes électromédicaux
destinés à être utilisés dans l'environnement des services
médicaux d'urgence
(IEC 60601-1-12:2014)

Medizinische elektrische Geräte - Teil 1-12: Allgemeine
Festlegungen für die Sicherheit einschließlich der
wesentlichen Leistungsmerkmale - Ergänzungsnorm:
Anforderungen an medizinische elektrische Geräte und
medizinische elektrische Systeme in der Umgebung für den
Notfalleinsatz
(IEC 60601-1-12:2014)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 62A/932/FDIS, future edition 1 of IEC 60601-1-12, prepared by SC 62A "Common aspects of electrical equipment used in medical practice", of IEC/TC 62 "Electrical equipment in medical practice", was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60601-1-12:2015.

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) 2015-11-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-12-31

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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 Directives 93/42/EEC and 90/385/EEC, see informative Annexes ZZA and ZZB, which are integral parts of this document.

Endorsement notice

The text of the International Standard IEC 60601-1-12:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60038:2009	NOTE	Harmonized as EN 60038:2011 (modified).
IEC 60065	NOTE	Harmonized as EN 60065.
IEC 60335-1:2010	NOTE	Harmonized as EN 60335-1:2012 (modified).
IEC 60364	NOTE	Harmonized in HD 384 / HD 60364 series (partly modified).
IEC 60721-3-7:1995 + A1:1996	NOTE	Harmonized as EN 60721-3-7:1995 (not modified) + A1:1997 (not modified).
IEC 60950-1:2005	NOTE	Harmonized as EN 60950-1:2006 (modified).
IEC 61032:1997	NOTE	Harmonized as EN 61032:1998 (not modified).
ISO 10651-2:2004	NOTE	Harmonized as EN ISO 10651-2:2009 (not modified).

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-27	2008	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	2009
IEC 60068-2-31	2008	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	2008
IEC 60068-2-64	2008	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance	EN 60068-2-64	2008
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May	1993
+ A1	1999		+ A1	2000
IEC 60601-1	2005	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance	EN 60601-1	2006
-	-		+ corrigendum Mar.	2010
+ A1	2012		+ A1	2013
-	-		+ A1/AC	2014
IEC 60601-1-2	2014	Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic disturbances - Requirements and tests	EN 60601-1-2	2014
IEC 60601-1-6	2010	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability	EN 60601-1-6	2010
+ A1	2013		+ A1	2015
IEC 60601-1-8	2006	Medical electrical equipment - Part 1-8: General requirements for basic safety and essential performance - Collateral Standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems	EN 60601-1-8	2007
-	-		+ corrigendum Mar.	2010
+ A1	2012		+ A1	2013
-	-		+ A1/AC	2014

EN 60601-1-12:2015

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60601-1-11	2015	Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	EN 60601-1-11	2015
CISPR 11 (mod)	2009	Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement	EN 55011	2009
ISO 7000	2014	Graphical symbols for use on equipment - Registered symbols	-	-
ISO 7010	2011	Graphical symbols - Safety colours and safety signs - Registered safety signs	EN ISO 7010	2012
+ A1	2012		+ A1	2014
+ A2	2012		+ A2	2014
+ A3	2012		+ A3	2014
+ A4	2013		+ A4	2014
+ A5	2014		+ A5	2015
ISO 15223-1	2012	Medical devices - Symbols to be used with medical device labels, labelling and information to be supplied - Part 1: General requirements	EN ISO 15223-1	2012

Annex ZZA

(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 given in Annex I of EU Directive 93/42/EEC of 14 June 1993 concerning medical devices.

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 can be applied to the products falling within the scope of this standard.

Annex ZZB
(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 given in Annex 1 of EU Directive 90/385/EEC of 20 June 1990 relating to active implantable medical devices.

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 can be applied to the products falling within the scope of this standard.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Medical electrical equipment –
Part 1-12: General requirements for basic safety and essential performance –
Collateral Standard: Requirements for medical electrical equipment and medical
electrical systems intended for use in the emergency medical services
environment**

**Appareils électromédicaux –
Partie 1-12: Exigences générales pour la sécurité de base et les performances
essentielles – Norme collatérale: Exigences pour les appareils électromédicaux
et les systèmes électromédicaux destinés à être utilisés dans l'environnement
des services médicaux d'urgence**



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IEC 60601-1-12

Edition 1.0 2014-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Medical electrical equipment –
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et les systèmes électromédicaux destinés à être utilisés dans l'environnement
des services médicaux d'urgence**

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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	7
1 Scope, object and related standards.....	8
1.1 * Scope.....	8
1.2 * Object.....	8
1.3 Related standards.....	9
1.3.1 IEC 60601-1.....	9
1.3.2 Particular standards.....	9
2 Normative references.....	9
3 Terms and definitions.....	10
4 General requirements.....	11
4.1 * Additional requirements for SUPPLY MAINS for ME EQUIPMENT and ME SYSTEMS.....	11
4.2 * Environmental conditions for ME EQUIPMENT.....	11
4.2.1 * Environmental conditions of transport and storage between uses.....	12
4.2.2 * Environmental operating conditions.....	13
5 * Classification of ME EQUIPMENT and ME SYSTEMS.....	15
6 ME EQUIPMENT identification, marking and documents.....	16
6.1 * Additional requirements for legibility of markings.....	16
6.2 * Additional requirements for marking of IP classification.....	16
6.3 * Instructions for use.....	16
6.3.1 Additional general requirements.....	16
6.3.2 * Additional requirements for an electrical power source.....	17
6.3.3 Additional requirements for ME EQUIPMENT start-up PROCEDURE.....	17
6.3.4 * Additional requirements for operating instructions.....	18
6.3.5 Additional requirements for ME EQUIPMENT messages.....	18
6.4 Technical description – FIXED or PERMANENTLY INSTALLED CLASS I ME EQUIPMENT.....	18
7 * Protection against electrical HAZARDS from ME EQUIPMENT.....	18
8 Protection against excessive temperatures and other HAZARDS.....	19
8.1 Additional requirements for ingress of water or particulate matter into ME EQUIPMENT and ME SYSTEMS.....	19
8.1.1 * Ingress of water or particulate matter into ME EQUIPMENT.....	19
8.1.2 * Ingress of water or particulate matter into ME SYSTEMS.....	19
8.2 Additional requirements for interruption of the power supply to ME EQUIPMENT and ME SYSTEM.....	19
8.3 * Additional requirements for INTERNAL ELECTRICAL POWER SOURCE for ME EQUIPMENT.....	20
9 * Accuracy of controls and instruments and protection against hazardous outputs.....	21
10 Construction of ME EQUIPMENT.....	21
10.1 * Additional requirements for mechanical strength of ME EQUIPMENT intended for the EMS ENVIRONMENT.....	21
10.1.1 General requirements for mechanical strength.....	21
10.1.2 * Requirements for mechanical strength for FIXED or PERMANENTLY INSTALLED ME EQUIPMENT intended for use in a road ambulance.....	22
10.1.3 * Requirements for mechanical strength for TRANSPORTABLE ME EQUIPMENT.....	23

10.1.4	* Requirements for mechanical strength for ME EQUIPMENT intended for airborne use	24
10.2	Requirements for mounting of ME EQUIPMENT.....	25
11	Additional requirements for electromagnetic compatibility of ME EQUIPMENT and ME SYSTEMS	25
Annex A (informative)	General guidance and rationale.....	26
A.1	General guidance.....	26
A.2	Rationale for particular clauses and subclauses.....	28
Annex B (informative)	Guide to marking and labelling requirements for ME EQUIPMENT and ME SYSTEMS	42
B.1	Marking on the outside of ME EQUIPMENT, ME SYSTEMS or their parts	42
B.2	ACCOMPANYING DOCUMENTS, instructions for use.....	42
B.3	ACCOMPANYING DOCUMENTS, technical description.....	43
Annex C (informative)	Symbols on marking.....	44
Bibliography	46
Index of defined terms used in this collateral standard		48
Figure A.1	– Saturation water vapour pressure as function of temperature	31
Table 1	– Mechanical strength test applicability	22
Table A.1	– Saturation water vapour pressure as function of temperature	32
Table B.1	– Marking on the outside of ME EQUIPMENT, ME SYSTEMS or their parts	42
Table B.2	– ACCOMPANYING DOCUMENTS, instructions for use	42
Table B.3	– ACCOMPANYING DOCUMENTS, technical description.....	43
Table C.1	– General symbols	44

INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEDICAL ELECTRICAL EQUIPMENT –**Part 1-12: General requirements for basic
safety and essential performance –
Collateral Standard: Requirements for medical electrical
equipment and medical electrical systems intended for use
in the emergency medical services environment**

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 60601-1-12 has been prepared by a joint working group of IEC subcommittee 62A: Common aspects of electrical equipment used in medical practice, of IEC technical committee 62: Electrical equipment in medical practice, and ISO subcommittee SC3: Lung ventilators and related devices, of ISO technical committee 121: Anaesthetic and respiratory equipment.

This first edition constitutes a collateral standard to IEC 60601-1 (third edition): *Medical electrical equipment – Part 1: General requirements for basic safety and essential performance* hereafter referred to as the general standard.

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

FDIS	Report on voting
62A/932/FDIS	62A/938/RVD

Full information on the voting for the approval of this collateral standard can be found in the report on voting indicated in the above table. In ISO, this International Standard has been approved by 18 P-members out of 19 having cast a vote.

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

In the 60601 series of publications, collateral standards specify general requirements for safety applicable to:

- a subgroup of MEDICAL ELECTRICAL EQUIPMENT (e.g. radiological equipment); or
- a specific characteristic of all MEDICAL ELECTRICAL EQUIPMENT, not fully addressed in the general standard (e.g. ALARM SYSTEMS).

In this collateral standard, the following print types are used:

- requirements and definitions: roman type.
- *test specifications: italic type.*
- informative material appearing outside of tables, such as notes, examples and references: in smaller type. Normative text of tables is also in a smaller type.
- TERMS DEFINED IN CLAUSE 3 OF THE GENERAL STANDARD, IN THIS COLLATERAL STANDARD OR AS NOTED: SMALL CAPITALS.

In referring to the structure of this standard, the term

- “clause” means one of the numbered divisions within the table of contents, inclusive of all subdivisions (e.g. Clause 7 includes subclauses 7.1, 7.2, etc.);
- “subclause” means a numbered subdivision of a clause (e.g. 7.1, 7.2 and 7.3.1 are all subclauses of Clause 7).

References to clauses within this standard are preceded by the term “Clause” followed by the clause number. References to subclauses within this collateral standard are by number only.

In this standard, the conjunctive “or” is used as an “inclusive or” so a statement is true if any combination of the conditions is true.

The verbal forms used in this standard conform to usage described in Annex H of the ISO/IEC Directives, Part 2. For the purposes of this standard, the auxiliary verb:

- “shall” means that compliance with a requirement or a test is mandatory for compliance with this standard;
- “should” means that compliance with a requirement or a test is recommended but is not mandatory for compliance with this standard;
- “may” is used to describe a permissible way to achieve compliance with a requirement or test.

Clauses, subclauses and definitions for which a rationale is provided in informative Annex A are marked with an asterisk (*).

A list of all parts of the IEC 60601 series, published under the general title: *Medical electrical equipment*, 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

Medical practice is increasingly using MEDICAL ELECTRICAL EQUIPMENT and MEDICAL ELECTRICAL SYSTEMS for monitoring, treatment or diagnosis of PATIENTS in the EMERGENCY MEDICAL SERVICES ENVIRONMENT (see 3.1). The safety of MEDICAL ELECTRICAL EQUIPMENT in this uncontrolled, rough environment is a cause for concern.

This collateral standard was developed with contributions from clinicians, engineers and regulators. The terminology, requirements, general recommendations and guidance of this collateral standard are intended to be useful for MANUFACTURERS of MEDICAL ELECTRICAL EQUIPMENT and MEDICAL ELECTRICAL SYSTEMS and for technical committees responsible for the development of particular standards.

MEDICAL ELECTRICAL EQUIPMENT –

Part 1-12: General requirements for basic safety and essential performance – Collateral Standard: Requirements for medical electrical equipment and medical electrical systems intended for use in the emergency medical services environment

1 Scope, object and related standards

1.1 * Scope

This International Standard applies to the BASIC SAFETY and ESSENTIAL PERFORMANCE of MEDICAL ELECTRICAL EQUIPMENT and MEDICAL ELECTRICAL SYSTEMS, hereafter referred to as ME EQUIPMENT and ME SYSTEMS, which are intended, as indicated in the instructions for use by their MANUFACTURER, for use in the EMS ENVIRONMENT (EMERGENCY MEDICAL SERVICES ENVIRONMENT), as defined in 3.1.

NOTE 1 For the purposes of this standard, the intent of the MANUFACTURER is indicated in the instructions for use. The RESPONSIBLE ORGANIZATION and the OPERATOR need to be aware that any other use outside the MANUFACTURER'S INTENDED USE can result in a HAZARDOUS SITUATION for the PATIENT.

The EMS ENVIRONMENT includes

- responding to and providing life support at the scene of an emergency to a PATIENT reported as experiencing injury or illness in a pre-hospital setting, and transporting the PATIENT, while continuing such life support care, to an appropriate professional healthcare facility for further care.
- providing monitoring, treatment or diagnosis during transport between professional healthcare facilities.

This International Standard does not apply to ME EQUIPMENT and ME SYSTEMS intended solely for use in the HOME HEALTHCARE ENVIRONMENT covered by IEC 60601-1-11 or solely for use in professional healthcare facilities covered by IEC 60601-1 without the additions of IEC 60601-1-11 or this collateral standard. ME EQUIPMENT and ME SYSTEMS are often not solely intended for one environment. Such ME EQUIPMENT or ME SYSTEM can be intended for multiple use environments, and as such, if also intended for use in the EMS ENVIRONMENT, are within the scope of this standard.

EXAMPLE ME EQUIPMENT or ME SYSTEM intended for both the EMS ENVIRONMENT and the professional healthcare facility environment.

NOTE 2 EMS ENVIRONMENT ME EQUIPMENT and ME SYSTEMS can be used in locations with unreliable electrical sources and outdoor environmental conditions.

1.2 * Object

The object of this collateral standard is to provide general requirements for ME EQUIPMENT and ME SYSTEMS carried to the scene of an emergency and used there, as well as in transport, in situations where the ambient conditions differ from indoor conditions.

The object of this collateral standard is to specify general requirements that are in addition to those of the general standard and to serve as the basis for particular standards.

1.3 Related standards

1.3.1 IEC 60601-1

For ME EQUIPMENT and ME SYSTEMS, this collateral standard complements IEC 60601-1, hereafter referred to as the general standard.

When referring to IEC 60601-1 or to this collateral standard, either individually or in combination, the following conventions are used:

- "the general standard" designates IEC 60601-1 alone;
- "this collateral standard" designates IEC 60601-1-12 alone;
- "this standard" designates the combination of the general standard and this collateral standard.

1.3.2 Particular standards

A requirement in a particular standard takes priority over the corresponding requirement in this collateral standard.

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.

NOTE 1 The way in which these referenced documents are cited in normative requirements determines the extent (in whole or in part) to which they apply.

NOTE 2 Informative references are listed in the bibliography on page 46.

IEC 60068-2-27:2008, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-31:2008, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-64:2008, *Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*
IEC 60529:1989/AMD1:1999¹

IEC 60601-1:2005, *Medical electrical equipment – Part 1: General requirements for basic safety and essential performance*
IEC 60601-1:2005/AMD1:2012²

IEC 60601-1-2:2014, *Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic disturbances – Requirements and tests*

¹ There exists a consolidated edition 2.1(2001) including IEC 60529:1989 and its Amendment 1:1999.

² There exists a consolidated edition 3.1(2012) including IEC 60601-1:2005 and its Amendment 1:2012.

IEC 60601-1-6:2010, *Medical electrical equipment – Part 1-6: General requirements for basic safety and essential performance – Collateral standard: Usability*
IEC 60601-1-6:2010/AMD1:2013

IEC 60601-1-8:2006, *Medical electrical equipment – Part 1-8: General requirements for basic safety and essential performance – Collateral standard: General requirements, tests and guidance for alarm systems in medical electrical equipment and medical electrical systems*
IEC 60601-1-8:2006/AMD1:2012³

IEC 60601-1-11:—⁴, *Medical electrical equipment – Part 1-11: General requirements for basic safety and essential performance – Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment*

CISPR 11:2009, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

ISO 7000:2014, *Graphical symbols for use on equipment – Registered symbols*

ISO 7010:2011, *Graphical symbols – Safety colours and safety signs – Registered safety signs*

Amendment 1:2012

Amendment 2:2012

Amendment 3:2012

Amendment 4:2013

Amendment 5:2014

ISO 15223-1:2012, *Medical devices – Symbols to be used with medical device labels, labelling and information to be supplied – Part 1: General requirements*

EUROCAE⁵ ED-14G, *Environmental conditions and test procedures for airborne equipment*

RTCA⁶ DO-160G, *Environmental Conditions and Test Procedures for Airborne Equipment*

³ There exists a consolidated edition 2.1(2012) including IEC 60601-1-8:2006 and Amendment 1:2012.

⁴ Second edition, to be published.

⁵ EUROCAE (European Organization for Civil Aviation Electronics), 102 rue Etienne Dolet, 92240 Malakoff, France.

⁶ RTCA (Radio Technical Commission for Aeronautics), 1150 18th St, NW., Suite 910, Washington, DC 20036, USA.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN