
Addition of annexes E and F to EN

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EUROPEAN STANDARD

EN 61326/A3

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2003

ICS 25.040.40; 33.100

English version

**Electrical equipment for measurement, control and laboratory use -
EMC requirements**

(Annexes E & F of IEC 61326:2002 + corrigendum 2002)

Matériels électriques de mesure,
de commande et de laboratoire -
Prescriptions relatives à la CEM
(Annexes E & F à la CEI 61326:2002 +
corrigendum 2002)

Elektrische Betriebsmittel für Leittechnik
und Laboreinsatz -
EMV-Anforderungen
(Anhänge E & F zu IEC 61326:2002 +
Corrigendum 2002)

This amendment A3 modifies the European Standard EN 61326:1997; it was approved by CENELEC on 2003-09-23. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of Annexes E and F of the International Standard IEC 61326:2002¹⁾ and the corrigendum July 2002 to IEC 61326:2002, prepared by SC 65A, System aspects, of IEC TC 65, Industrial-process measurement and control, was submitted to the formal vote and was approved by CENELEC as amendment A3 to EN 61326:1997 on 2003-09-23.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2004-10-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2006-10-01

Annexes designated "normative" are part of the body of the standard. In this standard, Annexes E, F and ZA are normative. Annex ZA has been added by CENELEC.

Endorsement notice

The text of Annexes E and F of the International Standard IEC 61326:2002 and of the corrigendum July 2002 to IEC 61326:2002 was approved by CENELEC as an amendment to the European Standard without any modification.

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¹⁾ Circulated in IEC in February 2002 as 65A/345/FDIS (A3).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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 61557	Series	Electrical safety in low voltage distribution systems up to 1 kV a.c. and 1,5 kV d.c. - Equipment for testing, measuring or monitoring of protective measures	EN 61557	Series
ANSI/IEEE 488.1	1987	Standard IEEE Standard Digital Interface - for Programmable Instrumentation, 02-Feb-1988	-	-
IEEE 1284	1994	IEEE Standard Signaling Method for a Bidirectional Parallel Peripheral Interface for Personal Computers	-	-
ANSI TIA/EIA-232-F	1997	Interface between data terminal equipment and data circuit - Terminating equipment employing serial binary data interchange	-	-

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Annex E (normative)

Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems

E.1 General

In addition to the requirements of this standard, this annex specifies more detailed test configurations, operational conditions and performance criteria for equipment which is

- used for testing, measuring or monitoring of protective measures in low-voltage distribution systems, and;
- powered by battery and/or from the circuit measured, and;
- portable.

Examples of such EUT include, but are not limited to, voltage detectors, multimeters, insulation testers, earth continuity testers, earth resistance testers, loop impedance testers, RCD-testers and phase sequence testers as defined in IEC 61557.

The manufacturer specifies the environment for which the product is intended to be used, and utilizes the corresponding test levels in this standard.

E.2 Test configurations

E.2.1 Test and measurement I/O ports

Test and measurement ports shall be connected with test leads recommended or supplied with the EUT. Where the test leads are unspecified, typical test leads shall be used. The test leads shall be connected and arranged in a typical configuration for each operation mode, according to figure E.1

If the test leads recommended or supplied are longer than 1 m each one should be bundled up so that the test or measurement object is in a (horizontal) distance of 1 m to the EUT.

The test leads shall be arranged 0,1m apart in a horizontal position on the test table.

Auxiliary equipment (AE) required for generating or monitoring the test object signal shall be connected according to figure E.1 via two EM-clamps as described in IEC 61000-4-6, figure A.3, and/or further decoupling networks.

Voltage measurements shall be made with a $1\,000 \times (1 \pm 10\%)$ ohm resistor (test object) connected in series with one of the test leads as shown in figure E.2. Current measurements shall be made with a $100 \times (1 \pm 10\%)$ ohm resistor (test object) connected in parallel with the test leads as shown in figure E.3.

For other measurements the test object shall be specified by the manufacturer and documented in the test report.

E.2.2 Operational conditions

Test and measurement equipment shall be set to the most sensitive ranges or combination of ranges unless other ranges are known to provide worst-case immunity results within normal application. Each function of multifunctional equipment shall be tested separately.

E.3 Immunity requirements-performance criteria

E.3.1 Electrostatic discharge

Test levels according to annex C, performance criterion B.

Electrostatic discharge shall be applied to the housing, to the terminals of the EUT and to the coupling planes, but not to the inner pins of shielded port or cable connectors (for example, BNC, D-subminiature, IEEE 488 (GPIB), RS232, IEEE 1284-B (parallel printer port), etc.).

E.3.2 EM-field

Test levels according to annex C starting at 80 MHz and performance criterion A as defined in 3.12. If the maximum dimension of the equipment enclosure is $< 0,3$ m, the test is performed from only one side in accordance with figure E.1 and noted in the test report.

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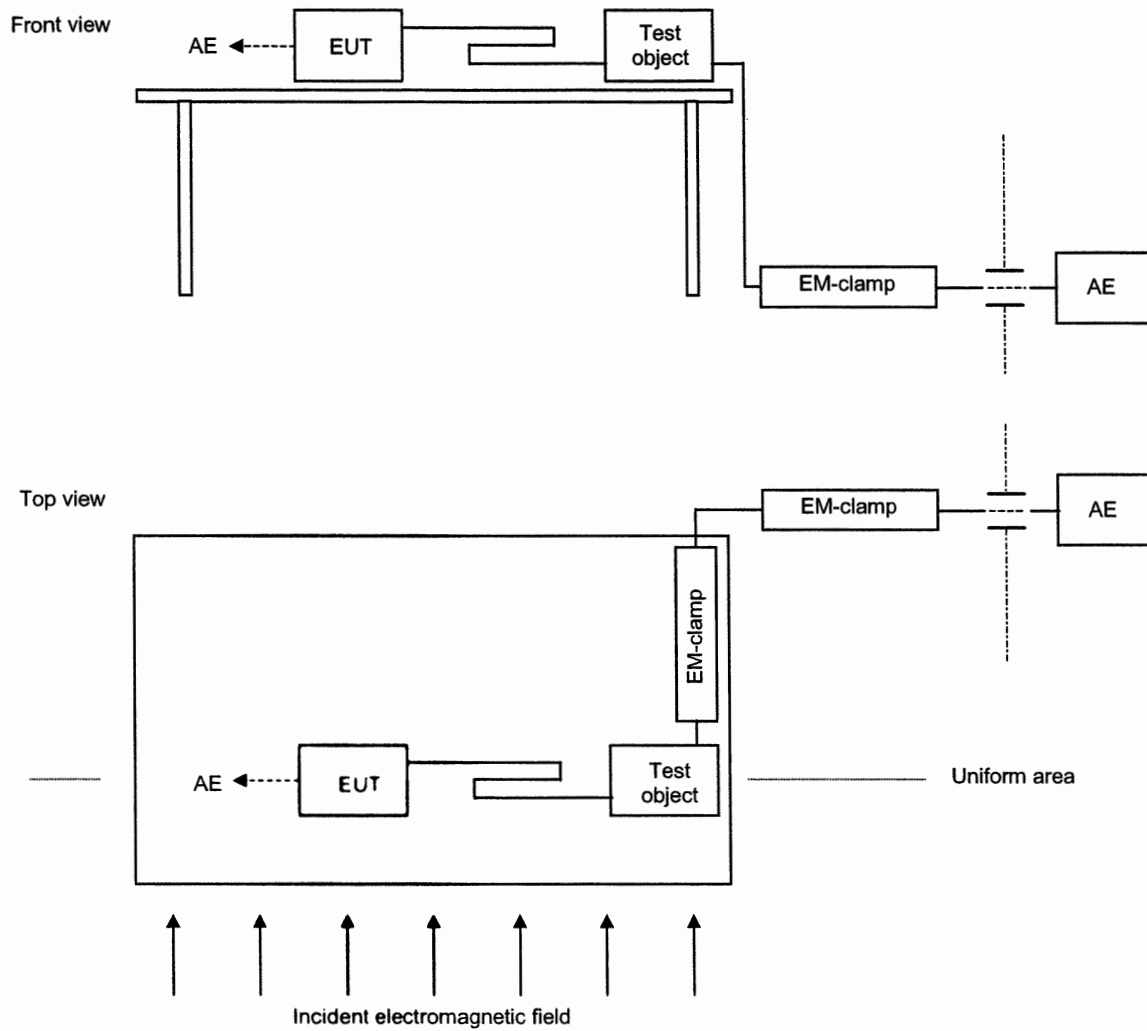
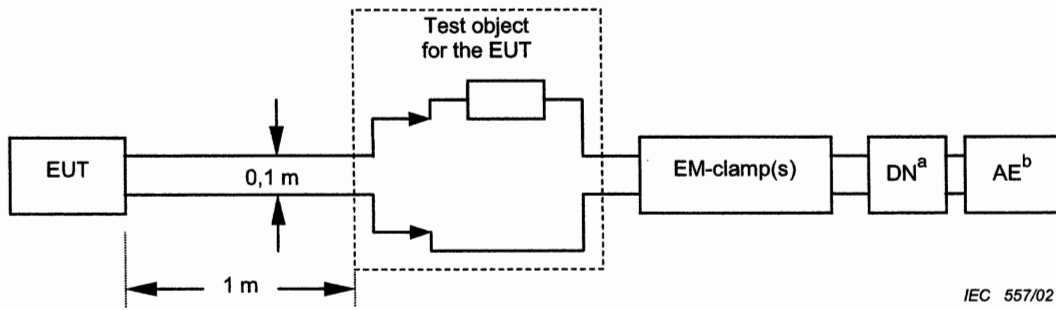


Figure E.1 – Test set-up for portable test, measuring and monitoring equipment based on IEC 61000-4-3

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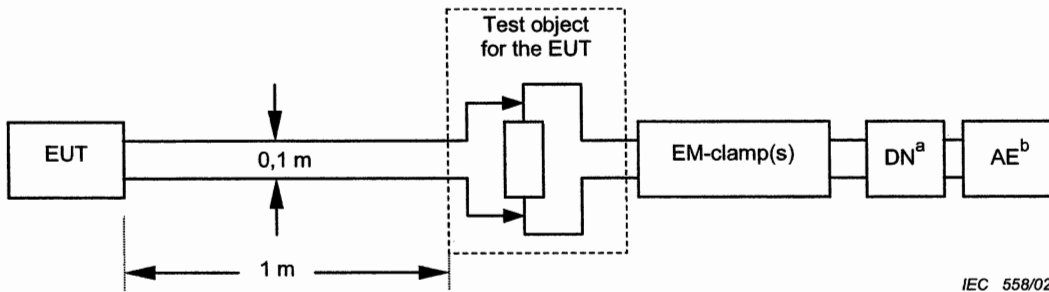
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^a Decoupling network (if necessary)
^b For example, voltage source

Figure E.2 – Example of connection details for voltage measurements



^a Decoupling network (if necessary)
^b For example, current source

Figure E.3 – Example of connection details for current measurements

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Annex F (normative)

Test configurations, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

F.1 General requirements

F.1.1 General considerations

In addition to the requirements of this standard, this annex specifies more detailed test configurations, operational conditions and performance criteria for transducers with integrated or remote signal conditioning.

This annex applies only to transducers characterized by their ability to transform with the aid of an auxiliary energy source a non-electric quantity to a process-relevant electrical signal, and to output the signal at one or more ports. The standard includes transducers for electrochemical and biological measured quantities.

The transducers covered by this annex may be powered by d.c. or a.c. voltage and/or by battery or with internal power supply.

Transducers referred to by this annex comprise at least the following items (see figures F.1 and F.2):

- one or more elements for transforming a non-electrical input quantity to an electrical quantity;
- a transmission link for transferral of the electrical quantity to a component for signal conditioning;
- a unit for signal conditioning that converts the electrical quantity to a process-relevant electrical signal;
- an enclosure for enclosing the above-stated components fully or in parts.

Transducers referred to by this annex may also have the following items (see figures F.1 and F.2):

- a communication and control unit;
- a display unit;
- control elements such as keys, buttons, switches, etc.;
- transducer output signals are clearly assigned to the input signals;
- transducers with signal conditioning which may be integrated or remote.

The manufacturer specifies the environment for which the product is intended to be used and utilizes the corresponding test levels in this standard.