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AMENDMENT 1

Arc welding equipment -
Part 10: Electromagnetic compatibility (EMC) requirements

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Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements

AMENDMENT 1

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Amendment 1 to IEC 60974-10:2020 has been prepared by IEC technical committee TC 26: Electric welding.

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

Draft	Report on voting
26/780/FDIS	26/790/RVD

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

The language used for the development of this Amendment is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

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– reconfirmed,
– withdrawn, or
– revised.

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INTRODUCTION TO THE AMENDMENT

This amendment includes the following significant technical changes with respect to the previous edition:

a) alignment with the 7th edition of CISPR 11:2024;
b) clarification of requirements for portable equipment;
c) more precise references to standards;
d) replacement of Clause 8, Documentation for the purchaser/user, with an informative annex.

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1 Scope

Replace the existing second and third paragraphs with the following new paragraph and note:

Arc welding equipment which incorporates radio transmit or receive functions (host equipment with radio functionality) is included in the scope of this document, see Annex E. However, the emission requirements in this document are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU including their spurious emissions.

NOTE 3 This exclusion only applies to emissions from the intentional radio transmitter. However, combination emissions, for example emissions resulting from intermodulation between the radio and the non-radio subassemblies of the ISM equipment, are not subject to this exclusion.

Add, to the existing list of this subclause, the following new item f) as follows:

f) information on contents for documentation that can be made available to the purchaser/user can be found in Annex F.

2 Normative references

Add, after the existing reference to CISPR 11:2015, the following new reference:

CISPR 11:2024, *Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement*

Add, after the last existing reference, the following new reference:

CISPR 35:2016, *Electromagnetic compatibility of multimedia equipment - Immunity requirements*

3 Terms and definitions

Add, after the introductory text of this clause, the following new note:

NOTE In this document, the forward slash as in "and/or", "purchaser/user", "signal/control", etc. is used in the sense of "either x or y, or both".

3.7
port

Replace the existing definition, example, Figure 1, Note 1 to entry and source with the following:

particular interface of the equipment which couples this equipment with or is influenced by the external electromagnetic environment

Note 1 to entry: Examples of ports of interest are shown in Figure 1. The enclosure port is the physical boundary of the apparatus (e.g. enclosure). The enclosure port provides for radiated and electrostatic discharge (ESD) energy transfer, whereas the other ports provide for conducted energy transfer.

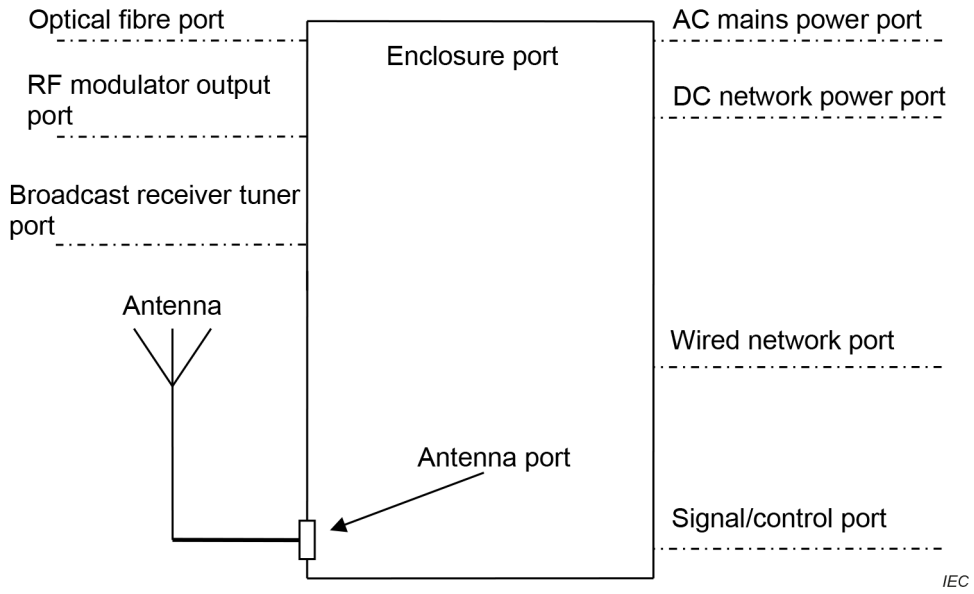

Figure 1 – Equipment ports

[SOURCE: IEC Guide 107:2014, 3.1.12]

3.8
portable, adj

Replace the existing note to entry and source with the following:

Note 1 to entry: Portability is typically specified by the equipment manufacturer based on the intended use and the equipment design.

[SOURCE: IEC 60050-151:2001, 151-16-47, modified – The note to entry has been entirely redrafted.]

Add, after the existing definition 3.11, the following new terms and definitions:

3.12
equipment with radio functionality
non-radio equipment (host equipment) including one or more radio devices or radio modules that can use host control function(s) and/or power supply

Note 1 to entry: The use of the included radio equipment can be for remote control (of the host equipment by an external equipment or vice versa) or for data exchange with external equipment.

Note 2 to entry: A radio device or radio module can be plugged-in, built-in or external.

[SOURCE: CISPR 11:2024, 3.1.12]

3.13
radio device
assembly consisting of one or more radio transmitters and/or receivers, capable to function on a stand-alone basis with or without additional accessories

Note 1 to entry: These accessories can be incorporated in the assembly or connected to it from outside. Examples of accessories are: external antenna, remote control, headsets, power supply, display, etc.

[SOURCE: CISPR 11:2024, 3.1.26]

3.14
radio module
assembly consisting of one or more radio transmitters and/or receivers, intended to be incorporated in a host equipment

Note 1 to entry: A radio module can incorporate a power supply or any other accessories.

Note 2 to entry: A radio module can be plugged-in, built-in or external.

[SOURCE: CISPR 11:2024, 3.1.27]

3.15
radio transmitter
device producing radio-frequency energy intended to be radiated by an antenna for the purpose of radiocommunication or radiodetermination

[SOURCE: CISPR 11:2024, 3.1.28]

4.2 Measuring instruments

Replace the existing text of this subclause with the following new text:

The measuring equipment shall comply with the requirements of CISPR 16-1-1:2019, Clause 4, Clause 5 and Clause 7 for the relevant detectors, and the basic standards referred to in Table 6, Table 7 and Table 8 of this document as applicable.

4.3 Artificial mains network

Replace the existing first paragraph with the following new text:

Measurement of the mains terminal disturbance voltage shall be made using an artificial mains network consisting of 50 Ω/50 µH or 50 Ω/50 µH + 5 Ω V-network as specified in CISPR 16-1-2:2014, 4.3 and 4.4 and CISPR 16-1-2:2014 and CISPR 16-1-2:2014/AMD1:2017, 4.1 and 4.2.

4.4 Voltage probe

Replace the existing text of this subclause with the following new text:

A voltage probe as specified in CISPR 16-1-2:2014, 5.2 shall be used when the artificial mains network cannot be used. The probe is connected sequentially between each line and the reference earth. The probe shall consist of a blocking capacitor and a resistor such that the total resistance between the line and earth is at least 1 500 Ω. The effect on the accuracy of measurement of the capacitor or any other device which may be used to protect the measuring receiver against dangerous currents shall be either less than 1 dB or allowed for in calibration.

4.5 Antennas

Replace the existing first paragraph with the following new paragraphs:

In the frequency range from 30 MHz to 1 GHz, the antenna(s) used shall be as specified in CISPR 16-1-4:2019, 4.5.

In the frequency range from 1 GHz to 6 GHz, the antenna(s) used shall be as specified in CISPR 16-1-4:2019, 4.6.

4.6 Coupling/decoupling network (CDN)

Replace the existing text of this subclause with the following new text:

If a shielded chamber is required and the load is situated outside the shielded chamber, a load-decoupling network connected to the outside load via suitable RF filters shall be used inside the chamber. A 150 Ω CDN AF 2, as specified in IEC 61000-4-6:2013, 6.2 and Figure D.3, suitable for the respective load current and voltage, shall be used. The RF-port of the CDN shall be terminated with 50 Ω.

Any suitable coupling devices specified in CISPR 16-1-2:2014, Clause 7 may be used for the conducted emission assessment of signal, control or measurement ports.

5 Test set-up for emission and immunity

5.1 General

Replace the existing first paragraph with the following new paragraphs:

Emission and immunity testing of equipment that is not PORTABLE shall be carried out on equipment configured in accordance with Figure 2.

For PORTABLE equipment greater than or equal to 0,4 m in height, the test set-up given in Figure 2 shall be used.

For other PORTABLE equipment, the test set-up given in Figure 3 shall be used.