

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

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

**Matériel de soudage à l'arc –
Partie 10: Exigences de compatibilité électromagnétique (CEM)**

IEC 60974-10:2014/AMD1:2015

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FOREWORD

This amendment has been prepared by technical committee 26: Electric welding.

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

CDV	Report on voting
26/549/CDV	26/560/RVC

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

5.1 General

Add, after the existing first paragraph of this subclause, the following new paragraph:

For the measurement of the output current ripple, there are no specific requirements for the equipment configuration.

5.2 Load

Add, after the existing first paragraph of this subclause, the following new paragraph:

For the measurement of the output current ripple, the inductance of the load including welding cables at the fundamental frequency shall be less than 10 μH per 100 $\text{m}\Omega$ total resistance.

6.2.1.1 Test conditions for RF emission tests

Replace the existing items a) and b) of the list by the following new items:

- a) at rated minimum welding current;
- b) at rated welding current at 100 % duty cycle. If no rated current is specified for 100 % duty cycle, the test shall be carried out at 50 % of $I_{2\text{max}}$.

Add, at the end of the existing 6.2.1.3, the following new subclause:

6.2.1.4 Test conditions for output current ripple

The welding power source shall be tested at the conventional load voltages referenced in 6.2.2 at rated welding current at 100 % duty cycle. If no rated current is specified for 100 % duty cycle, the test shall be carried out at 50 % of $I_{2\text{max}}$.

The current ripple shall be recorded in the time domain.

6.2.2 Load

Replace the existing title of this subclause by the following new title:

6.2.2 Load voltages

Add, after the existing Figure 5, the following new subclause:

6.3.5 Output current ripple

The output current ripple of Class B arc welding power sources shall comply with the limits given in Table 4.

NOTE 1 Application of these limits to the peak-peak amplitude of the output current ripple ensures compliance with the limits for magnetic field emissions at a protection distance of 10 m from the welding circuit in the range from 150 kHz to 30 MHz as given in CISPR 11.

NOTE 2 The permissible peak-peak value is selected based on the fundamental frequency of the output current ripple. Compliance with this value at the fundamental frequency, which can be below the frequency range where limits for the magnetic field strength are defined, ensures compliance of all spectral components.

Table 4 – Output current ripple limits for Class B arc welding power sources

Frequency range MHz	Current ripple amplitude in time domain dBA ^a peak-peak
0,01 to 0,150	55,6 Decreasing linearly with logarithm of frequency to 8,6
0,150 to 30	8,6 Decreasing linearly with logarithm of frequency to -27,4
^a dBA is a logarithmic unit where 0 dBA represents a current of 1 A.	

Table 1 – Immunity levels – Enclosure

Replace the existing table by the following new table:

Table 1 – Immunity levels – Enclosure

Phenomena		Units	Test specification	Basic standard	Remarks	Performance criteria
Radiofrequency EM field, amplitude modulated		MHz V/m (unmod. r.m.s.) % AM (1 kHz)	80 to 1 000 10 80	IEC 61000-4-3	The test level specified is prior to modulation	A
		GHz V/m (unmod. r.m.s.) % AM (1 kHz)	1,4 to 2,0 3 80	IEC 61000-4-3	The test level specified is prior to modulation	A
		GHz V/m (unmod. r.m.s.) % AM (1 kHz)	2,0 to 2,7 1 80	IEC 61000-4-3	The test level specified is prior to modulation	A
Electrostatic discharge	Contact discharge	kV (charge voltage)	±4 ^a	IEC 61000-4-2	See basic standard for applicability of contact and/or air discharge test.	B
	Air discharge	kV (charge voltage)	±8 ^a			B
^a Testing is not required at lower levels than those specified.						

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