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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Railway applications – Rolling stock equipment – Capacitors for power electronics –
Part 2: Aluminium electrolytic capacitors with non-solid electrolyte

Applications ferroviaires – Matériel roulant – Condensateurs pour électronique de puissance –
Partie 2: Condensateurs électrolytiques à l'aluminium, à électrolyte non solide

IEC 61881-2:2012

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International Standard IEC 61881-2 has been prepared by technical committee 9: Electrical equipment and systems for railways.

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

FDIS	Report on voting
9/1679/FDIS	9/1707/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 61881 series, under the general title *Railway applications – Rolling stock equipment – Capacitors for power electronics*, 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- withdrawn,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.

RAILWAY APPLICATIONS – ROLLING STOCK EQUIPMENT – CAPACITORS FOR POWER ELECTRONICS –

Part 2: Aluminium electrolytic capacitors with non-solid electrolyte

1 Scope

This part of IEC 61881 applies to d.c. aluminium electrolytic capacitors (cell, module and bank) for power electronics intended to be used on rolling stock.

This standard specifies quality requirements and tests, safety requirements, and describes installation and operation information.

NOTE Example of the application for capacitors specified in this Standard; d.c. filtering, etc.

Capacitors not covered by this Standard:

– IEC 61881-1: Paper/plastic film capacitors;
– IEC 61881-3: Electric double-layer capacitors.

Guidance for installation and operation is given in Clause 9.

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 60062:2004, *Marking codes for resistors and capacitors*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17:1994, *Environmental testing – Part 2-17: Tests. Test Q: Sealing*

IEC 60068-2-20, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60384-1:2008, *Fixed capacitors for use in electronic equipment – Part 1: Generic specification*

IEC 60384-4:2007, *Fixed capacitors for use in electronic equipment – Part 4: Sectional specification – Aluminium electrolytic capacitors with solid (MnO_2) and non-solid electrolyte*

IEC 60721-3-5:1997, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 5: Ground vehicle installations*

IEC 61373:2010, *Railway applications – Rolling stock equipment – Shock and vibration tests*

IEC 62497-1, *Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment*

IEC 62498-1:2010, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
capacitor element
indivisible electrolytic capacitor with non-solid electrolyte

3.2
capacitor cell
one or more capacitor elements, packaged in the same enclosure with terminals brought out

SEE: Annex A

3.3
capacitor module
assembly of two or more capacitor cells, electrically connected to each other with or without additional electronics

SEE: Annex A

3.4
capacitor bank
assembly of two or more capacitor modules

SEE: Annex A

3.5
capacitor
general term used when it is not necessary to state whether reference is made to capacitor cell, module or bank

[SOURCE: IEC 61881-1:2010, 3, modified]

3.6
capacitor equipment
assembly of capacitor banks and their accessories intended for connection to a network

SEE: Annex A

3.7
capacitor for power electronics
capacitor intended to be used in power electronic equipment and capable of operating continuously under sinusoidal and non-sinusoidal current and voltage

Note 1 to entry: Capacitor in this standard is d.c. capacitor.