UIC CODE 550-3

1st edition, April 2005

Translation

O

Power supply installations for passenger stock – Effect on electrical installations outside passenger coaches

Installations pour l'alimentation en énergie électrique du matériel à voyageurs - Influence des équipements électriques à l'extérieur des voitures
Elektrische Energieversorgungseinrichtungen für Wagen der Reisezugwagenbauart - Beeinflussung elektrischer Einrichtungen außerhalb der Reisezugwagen

UNION INTERNATIONALE DES CHEMINS DE FER
INTERNATIONALER EISENBAHNVERBAND
INTERNATIONAL UNION OF RAILWAYS

Leaflet to be classified in Volumes:

V - Rolling Stock

IV - Operating

Application:

With effect from 1 April 2005
All members of the International Union of Railways

Record of updates

1 edition, April 2005	First issue. Transfer of provisions from the 10th edition of UIC leaflet 550

The person responsible for this leaflet is named in the UIC Code

Contents

Summary

This leaflet defines the limit values for the effect on electrical and signalling installations outside passenger coaches caused by power supply installations in passenger coaches supplied by the train line. It applies to any passenger stock in generalised use in international traffic.

The general provisions with which power supply installations in passenger coaches must comply are set out in *UIC Leaflet 550*. The conditions for type testing the power supply systems are laid down in *UIC Leaflet 550-2*.

o 1 - General

Electrical installations in passenger coaches, and in particular energy supply systems supplied by the train line, shall not interfere with electrical installations and signalling circuits outside passenger coaches. Therefore the limit values specified for the harmonic currents produced in the current circuit of the train line by installations in coaches and for magnetic fields may not be exceeded.

In order for the signalling installations of railways using direct current to function properly, the minimum values for the input impedance of static converters connected to the train line in coaches must be respected.

Compliance with the specified limit values shall be verified using standardised measurement methods, which may be specific to the railway in question. Compliance shall also constantly be ensured during deployment of coaches.

2 - Effect caused by harmonic currents

2.1 - Permissible limit values

In order to prevent the electrical installations outside the coach, e.g. the signalling circuits, being affected by the harmonic currents generated by the power supply installations in the coaches and causing interference by their return current, these installations shall be designed in such a manner that specified values are not exceeded.

They shall only be valid if account is taken of the natural distribution of the return current of the energy supply system under the trainset, in the adjacent track and on board of the trainset itself.

This means that coaches must be equipped with earth contacts in accordance with *UIC Leaflet 550, point 9.6 and Appendix G* (see Bibliography - page 11). Isolating coaches from one another is not allowed.

The permissible values for a coach as measured on the train line vary in relation to the different train line voltages and are, in each case, defined as follows:

2.1.1 - For 3 000 V d.c. the permissible harmonic currents are shown in Appendix A - page 6.

2.1.2 - For 1 500 V d.c. the permissible harmonic currents are shown in Appendix B - page 7.

2.1.3 - For 1 500 V and 50 Hz the permissible harmonic currents are shown in Appendix C - page 8.

2.1.4 - For 1 000 V and 16 2/3 Hz the permissible harmonic currents are shown in Appendix D - page 9.

2.2 - Measurement methods

Measurement of the permissible harmonic currents shall be done in accordance with *UIC Leaflet 550-2* (see Bibliography - page 11).

2.3 - Field of application

The harmonic currents shown apply only to power supply systems that supply the train line with sinusoidal direct current or alternating currents in accordance with *UIC Leaflet 550, Appendix B* with a known harmonic content.

For diesel traction, rectangular or trapezoidal voltage systems, which are very different from the sinusoidal type, are frequently used. These different systems may only be used in international traffic if covered by bilateral agreements.

3 - Effect caused by magnetic fields

3.1 - Permissible limit values

To be completed.

3.2 - Measurement methods

To be completed.

o 4 - Input impedance

4.1 - Minimum values

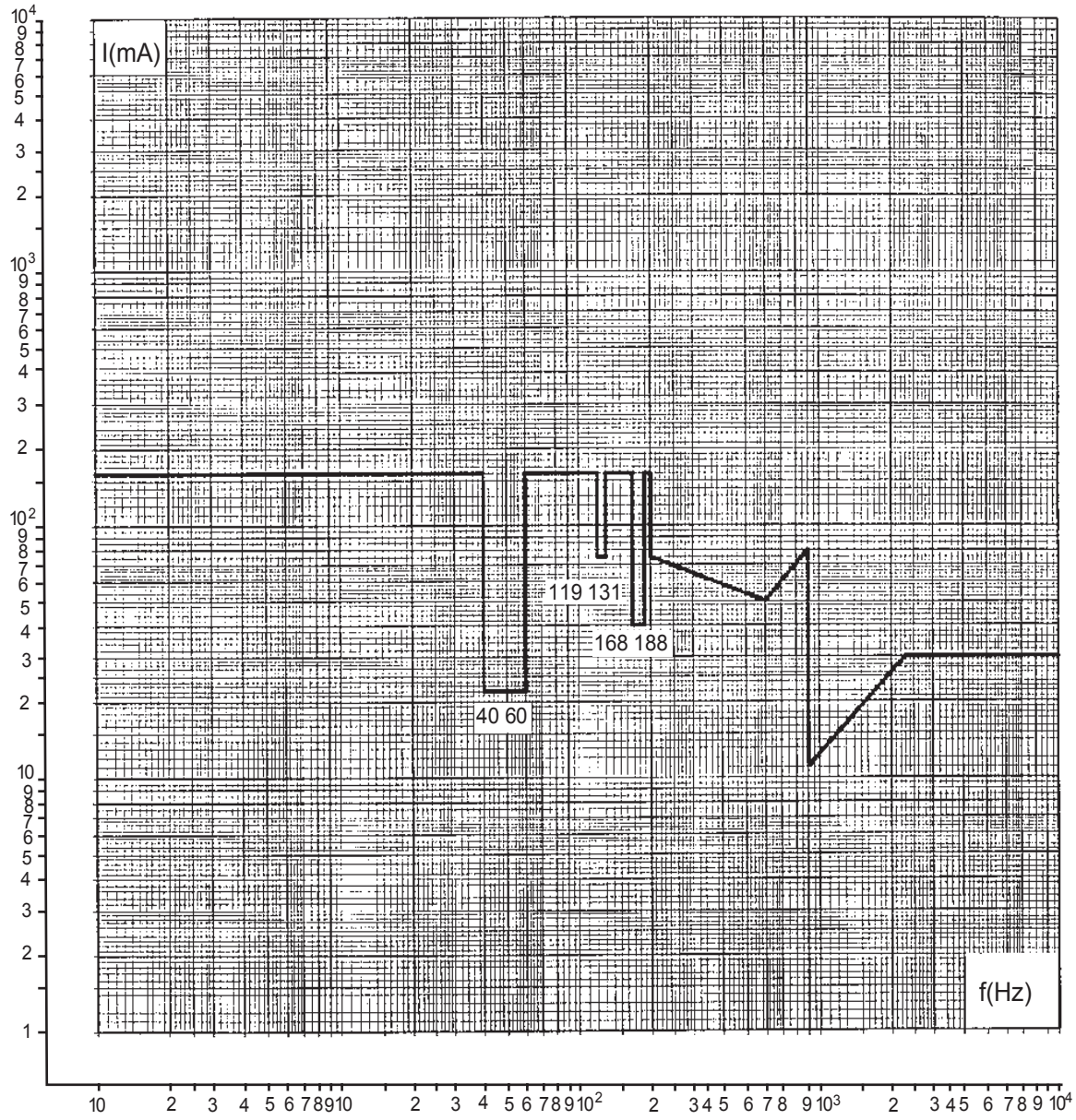
The input impedance of static converters may be either inductive or capacitive. For 1 500 and 3 000 V d.c. the total value of the input impedance Z [Ω] = f (f [Hz]) of all static converters of a coach which are connected to the train line shall be no lower than the impedance values stated in Appendix E - page 10.

On alternating current networks, a specific input impedance is not required.

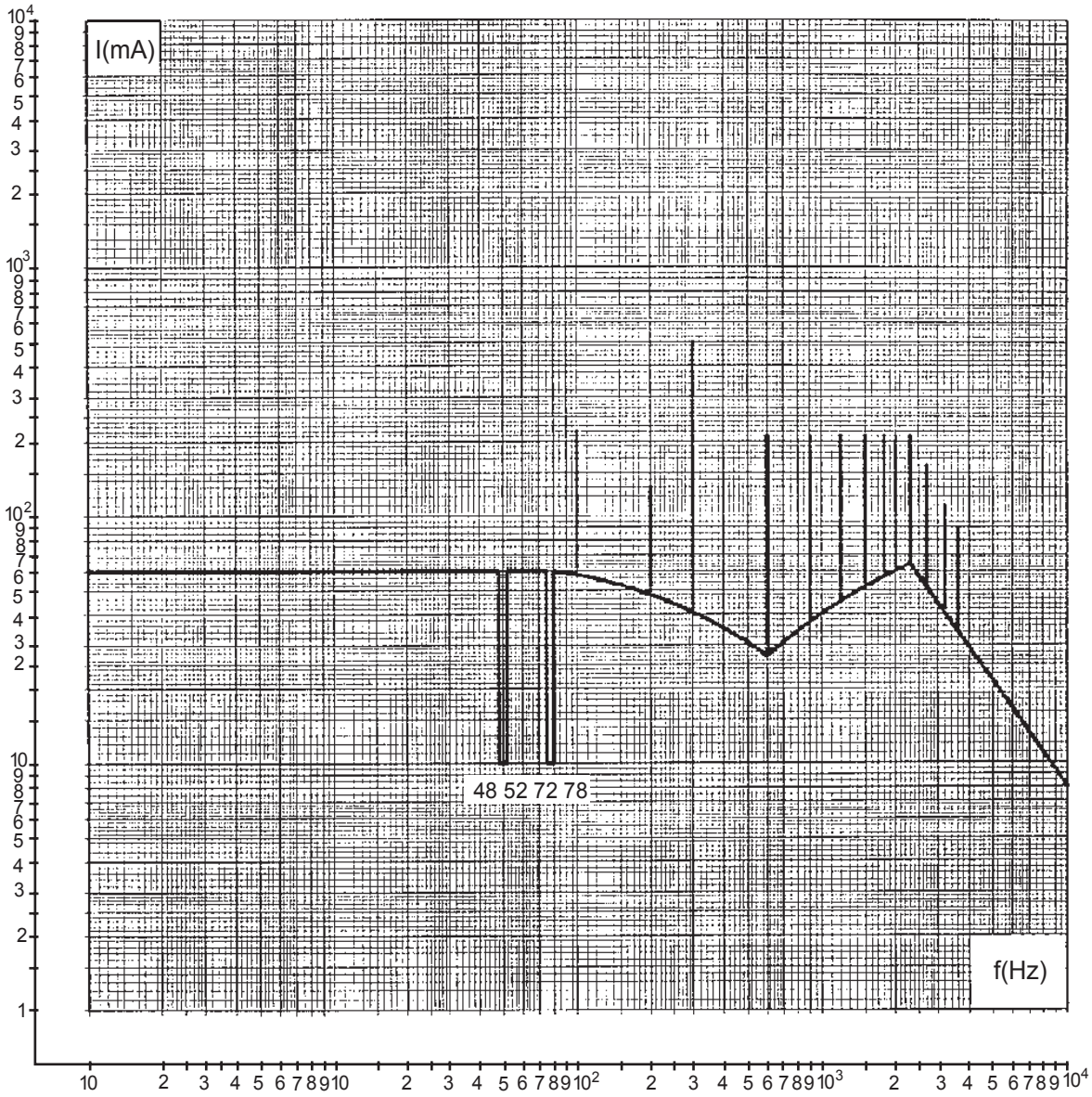
4.2 - Measurement methods

Measurement of the input impedance of a passenger coach shall be done in accordance with *UIC Leaflet 550-2*.

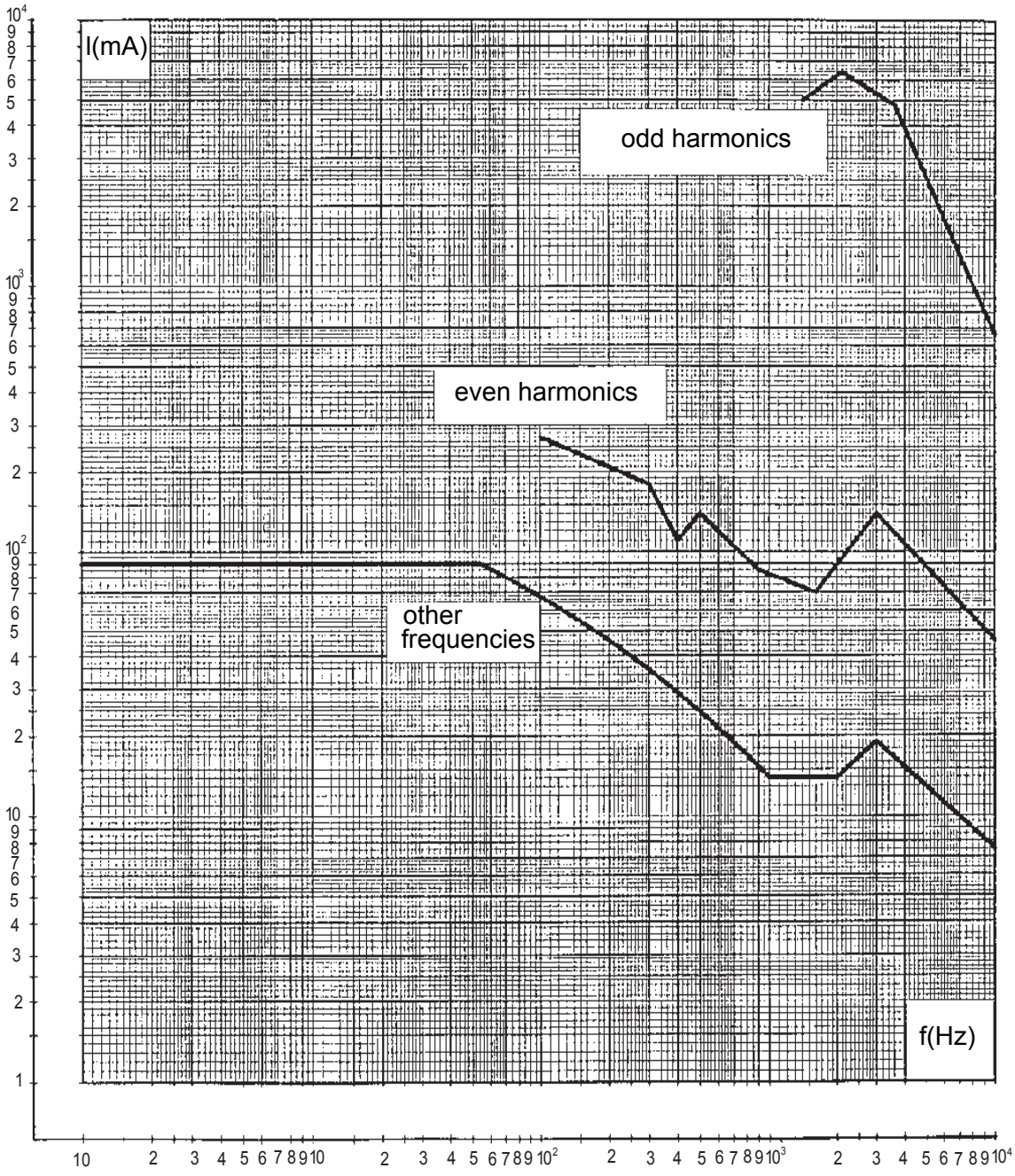
o Appendix A - Harmonic current - Maximum values for 3 000 V d.c.



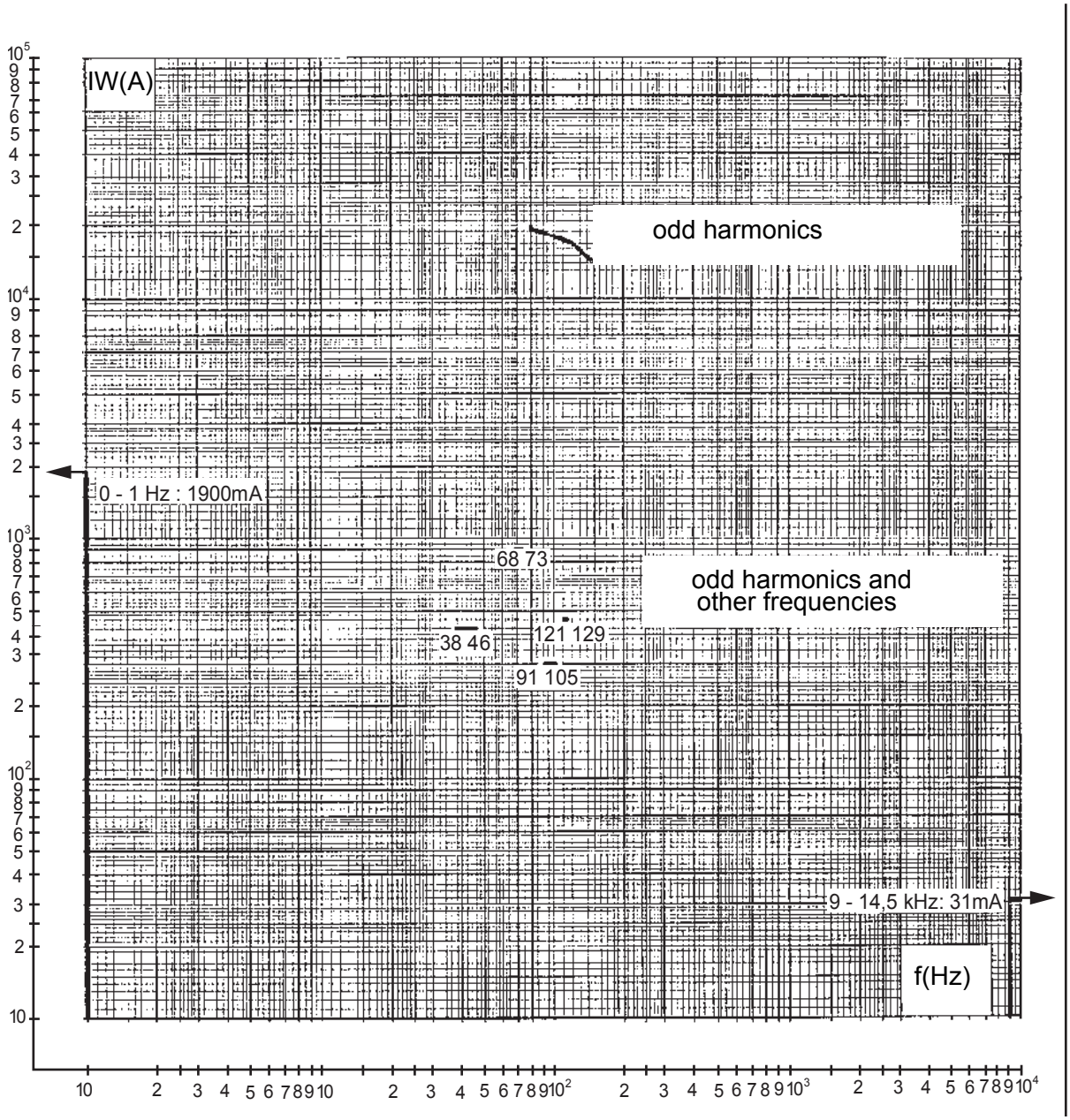
Appendix B - Harmonic current - Maximum values for 1 500 V d.c.



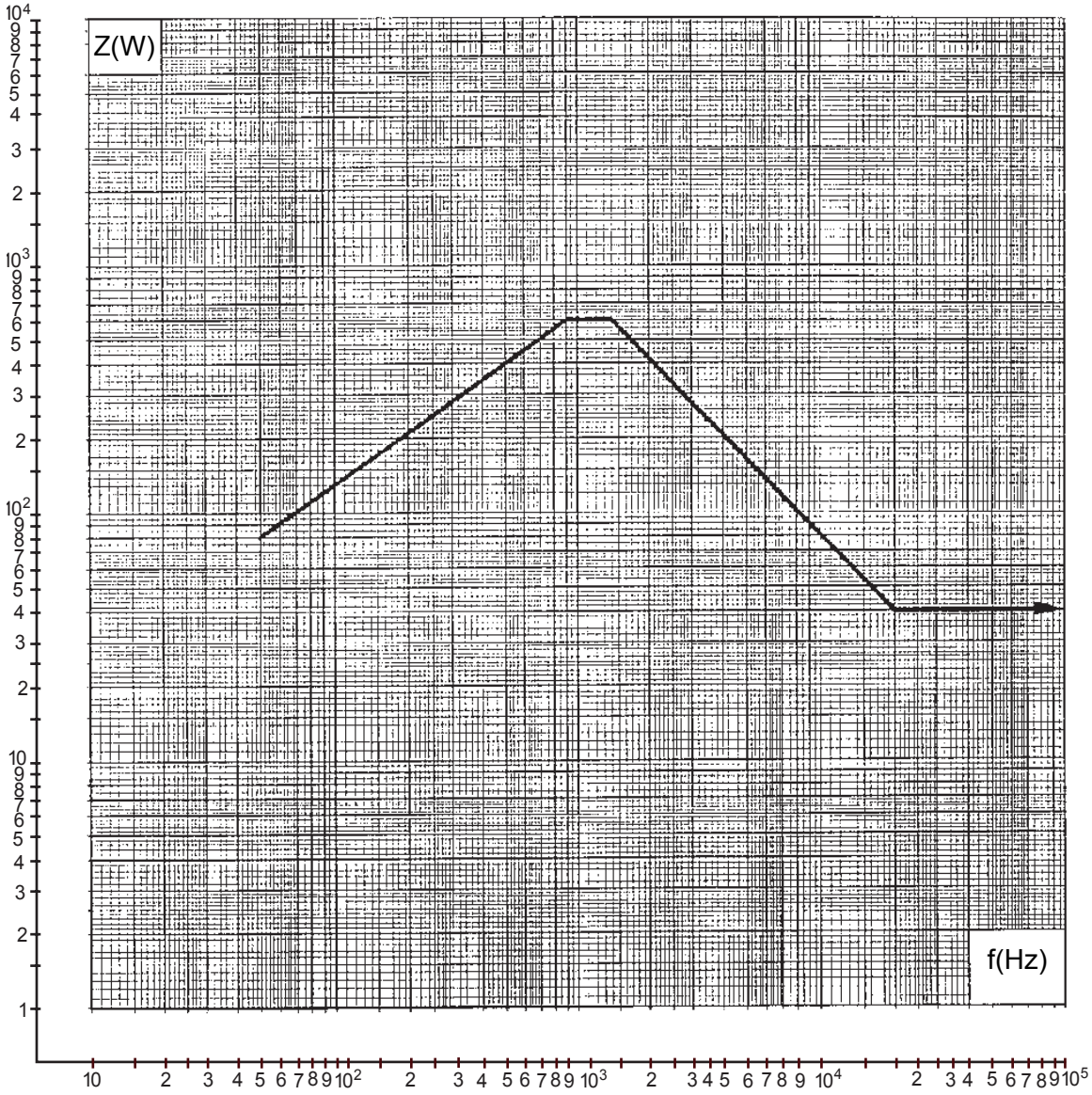
o Appendix C - Harmonic current - Maximum values for 1 500 V 50 Hz



o Appendix D - Harmonic current - Maximum values for 1 000 V 16 2/3 Hz



Appendix E - Input impedance - Minimum values for 1 500 V and 3 000 V d.c.



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UIC Leaflet 557: Diagnostics on passenger rolling stock, 2nd edition of 1.1.98

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UIC Leaflet 626: Production of electrical power on diesel tractive units for supplying the train cable, 3rd edition, April 2004 (reissue)

2. European standards

European standards (CEN)
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Warning

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