Irish Standard
I.S. EN 50530:2010

Overall efficiency of grid connected photovoltaic inverters

I.S. EN 50530:2010

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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English version

Overall efficiency of grid connected photovoltaic inverters

Efficacité globale des onduleurs photovoltaïques raccordés au réseau

Gesamtwirkungsgrad von Photovoltaik-Wechselrichtern

This amendment A1 modifies the European Standard EN 50530:2010; it was approved by CENELEC on 2012-12-24. 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.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

This document (EN 50530:2010/A1:2013) has been prepared by CLC/TC 82 "Solar photovoltaic energy systems".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-12-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-12-24

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I.S. EN 50530:2010

EUROPEAN STANDARD

NORME EUROPÉENNE

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CENELEC

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

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Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 82, Solar photovoltaic energy systems. It was submitted to the Unique Acceptance Procedure and approved by CENELEC on 2010-04-01.

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1 Scope

This European Standard provides a procedure for the measurement of the efficiency of the maximum power point tracking (MPPT) of inverters, which are used in grid-connected photovoltaic systems. In that case the inverter energizes a low voltage grid with rated AC voltage and rated frequency. Both the static and dynamic MPPT efficiency is considered.

Based on the static MPPT efficiency and conversion efficiency the overall inverter efficiency is calculated. The dynamic MPPT efficiency is indicated separately.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 61683, *Photovoltaic systems – Power conditioners – Procedure for measuring efficiency* (IEC 61683)

EN 50160, Voltage characteristics of electricity supplied by public distribution networks

EN 50524, *Data sheet and name plate for photovoltaic inverters*

CLC/TS 61836, *Solar photovoltaic energy systems - Terms, definitions and symbols*
(IEC/TS 61836:2007)

3 Terms and definitions

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

3.1 Inverter input (PV generator)

3.1.1
maximum input voltage (U_{DCmax})
allowed maximum voltage at the inverter input

NOTE Exceeding of U_{DCmax} may destroy the equipment under test.

3.1.2
minimum input voltage (U_{DCmin})
minimum input voltage for the inverter to energize the utility grid, independent of mode of operation

3.1.3
rated input voltage ($U_{DC,r}$)
input voltage specified by the manufacturer, to which other data sheet information refers

NOTE If this value is not specified by the manufacturer, $V_{dc,r} = (V_{mppmax} + V_{mppmin})/2$ shall be used.

3.1.4
maximum MPP voltage (U_{MPPmax})
maximum voltage at which the inverter can convert its rated power under MPPT conditions

NOTE If the specified value of the manufacturer for U_{MPPmax} is higher than $0,8 \times U_{DCmax}$, the measurement must be performed with $U_{MPPmax} = 0,8 \times U_{DCmax}$.