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Lightning and surge voltage protection for photovoltaic (PV) power supply systems

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LIGHTNING AND SURGE VOLTAGE PROTECTION FOR PHOTOVOLTAIC (PV) POWER SUPPLY SYSTEMS

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LIGHTNING AND SURGE VOLTAGE PROTECTION FOR PHOTOVOLTAIC (PV) POWER SUPPLY SYSTEMS

1 Scope

This document deals with the protection of PV power supply systems against detrimental effects of lightning strikes and surge voltages of atmospheric origin. In the event that a lightning and/or surge voltage protection is required to be erected, this document describes requirements and measures for maintaining the safety, functionality, and availability of the PV power supply systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60364-4-44:2007/AMD1:2015, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*

IEC 60364-7-712:2017, *Low voltage electrical installations – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems*

IEC 61643-11:2011, *Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems – Requirements and test methods*

IEC 61643-21, *Low voltage surge protective devices – Part 21: Surge protective devices connected to telecommunications and signalling networks – Performance requirements and testing methods*

IEC 61643-31, *Low-voltage surge protective devices – Part 31: Requirements and test methods for SPDs for photovoltaic* installations

IEC 62305-1, *Protection against lightning – Part 1: General principles*

IEC 62305-2, *Protection against lightning – Part 2: Risk management*

IEC 62305-3:2010, *Protection against lightning – Part 3: Physical damage to structures and life hazard*

IEC 62305-4, *Protection against lightning – Part 4: Electrical and electronic systems within structures*

IEC 62561-1, *Lightning Protection System Components (LPSC) – Part 1: Requirements for connection components*

IEC 62561-2, *Lightning Protection System Components (LPSC) – Part 2: Requirements for conductors and earth electrodes*

IEC 62561-3, *Lightning Protection System Components (LPSC) – Part 3: Requirements for isolating spark gaps (ISG)*

IEC 62561-4, *Lightning protection system components (LPSC) – Part 4: Requirements for conductor fasteners*