EUROPEAN POWER SUPPLIES MANUFACTURERS' ASSOCIATION
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Overvoltage categories and their implication in the specification of power supplies

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The document reviews requirements for power supplies intended to be used at locations where higher mains transients are expected than in OVC II, i.e., OVC III or OVC IV. It covers requirements for power supplies according to IEC 62368-1 and IEC 61010-1/61010-2-201.

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The European Power Supplies Manufacturers' Association was established in 1995, to represent the European power supply industry.

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Introduction

Usually, Power Supply Units (PSUs) are designed and certified for an Overvoltage Category II (OVC) environment. This means that they are intended for connection to the AC mains supply voltage through a supply cable and wall socket outlets.

However, more and more PSUs are nowadays included in the distribution panel, tariff meter or other equipment connected directly to the distribution network, which means that they are used in a harsher environment. This means that they are connected to supply voltages at a higher OVC level, mostly OVC III. Sometimes, they are used in transformer substations, which means that they need to comply with requirements for OVC IV. Telecommunications equipment, including 4G and 5G, is installed predominantly outdoors, on masts, rooftops, or in shelters. Power supplies for such equipment are subjected to higher transients from OVC III or OVC IV mains.

To cover the global market, a PSU needs to be designed for higher level requirements, such as OVC III or IV, or additional protective means must be utilised with power supplies designed for OVC II.

This document covers requirements according to IEC 62368-1:2014, IEC 62368-1:2018 and IEC 61010-1:2010 + A1:2016.