

Proposed IEEE P802.3 (IEEE 802.3dc) comment
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Comment:

I believe that SELV has always been an objective of IEEE 802.3 PoE projects. Item (b) of subclause 33.1.1 'Objectives' of both IEEE Std 802.3af-2003 and IEEE Std 802.3at-2009 read:

b) Safety — A PSE designed to the standard will not introduce non-SELV (Safety Extra Low Voltage) power into the wiring plant.

While IEEE Std 802.3 no longer includes such 'objectives' text in the body of the standard, the IEEE P802.3bt project objectives <https://ieee802.org/3/bt/P802d3bt_objectives.pdf> included:

IEEE Std 802.3 will comply to the limited power source and SELV requirements as defined in ISO/IEC 60950

With the replacement of IEC 60950 with the IEC 62368 series of standards, the IEEE Std 802.3cr-2021 amendment has changed the text:

All equipment subject to this clause shall conform to IEC 60950-1' in subclause 33.7.1 'General safety' (Power over Ethernet over 2 Pairs)

to read:

All equipment subject to this clause shall conform to the general safety requirements as specified in J.2.

Similar changes were made to subclause 104.8.1 'General safety' (Power over Data Lines (PoDL) of Single-Pair Ethernet) and subclause 145.6.1 'General safety' (Power over Ethernet). The referenced subclause J.2 'General safety' reads:

Equipment shall comply with all applicable local, state, national and application-specific standards, such as the applicable sections of IEC 62368-1:2018.

In addition, the IEEE Std 802.3cr-2021 amendment changes the text in subclause 33.7.1 'General safety':

The PSE shall be classified as a Limited Power Source in accordance with IEC 60950-1.

to read:

The PSE shall be classified as a Limited Power Source in accordance with Annex Q of IEC 62368-1:2018, as applicable.

Again, similar changes are found in subclauses 104.8.1 and 145.6.1.

The above seems to confirm my understanding, that it has always been an objective of PoE projects to meet SELV requirements, and to not introduce non-SELV power on to the wiring plant. While IEC 60950-1 defined SELV, it did include a note to the SELV definition that said, 'This definition of a SELV circuit differs from the term "SELV system" as used in IEC 61140'. This is aligned with my understanding that equipment standards, such as IEC 60950, and more recently IEC 62368, are not entirely aligned with the electrical installation standards, such as the IEC 60364 Low voltage electrical installations series, which is based on IEC 61140 Protection against electric shock – Common aspects for installation

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and equipment. It should be noted that IEC 60364 includes 'fixed wiring for information and communications technology' within its scope.

IEEE 802.3 currently normatively references Annex Q of IEC 62368 62368-1:2018, but based on the comparison in the attached <ES1_LPS_SELV_1_0821.pdf>, I don't think this is sufficient to prevent the introduction of non-SELV power into the wiring plant as defined by the applicable parts of the IEC 60364 series. While Annex J.2 says that all equipment shall comply with all applicable local, state, national and application-specific standards, and they apply regardless of what IEEE 802.3 says, it has been our practice to normatively reference certain standards to meet items specifically called out in objectives. As a result, if it remains as I believe it should be, the intent to not introduce non-SELV power into the wiring plant, IEEE Std 802.3 should also reference the appropriate SELV standard for wiring such as IEC 60364 or IEC 61140.

Suggested Remedy:

Change the text 'The PSE shall be classified as a Limited Power Source in accordance with Annex Q of IEC 62368-1:2018, as applicable.' to read 'The PSE shall be classified as a Limited Power Source in accordance with Annex Q of IEC 62368-1:2018, as applicable, and meet the SELV requirements in IEC 60364-7-716:20XX'.