



06/22/2022, Updated 11/02/23 (updated section in red)

Subject: Change to USCAR-12, Rev 6 (Revision Letter #4)

Changes have been made to the USCAR-12 specification. Comments and questions can be sent to [EWCAP@uscar.org](mailto:EWCAP@uscar.org).

**Situation:**

USCAR-12 did not have design expectations for high voltage connectors.

**Resolution:**

A new section has been added with the information shown. Note that these are design expectations for most connectors. Specific connectors will be specified as required.

| #   | REQUIREMENT                                                                                                                                                                                                                                                         | CRITERIA                                                                                                                                                                                                    |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HV1 | HV Designs default to the following:<br>a) Application Voltage: 1000 VDC<br>b) Pollution Degree: 2 (per IEC 60664)<br>c) Altitude: 5,000 m<br>d) No reinforcement multipliers                                                                                       | Confirm design is...<br>a) 1000 VDC, unless insufficient for design.<br>b) Pollution Degree 2 is specified.<br>c) Altitude correction is applied for 5000 m.<br>d) Reinforcement per IEC 60664 is not used. |
| HV2 | “Material group classification” is to be based on minimum CTI for plastic components located along the HV creepage path where:<br>Material Group 1 : $600 \leq CTI$<br>Material Group 2: $400 \leq CTI < 600$<br>(Material group and CTI is per IEC 60664, 4.8.1.3) | Confirm group classification is correctly defined.<br><br>(Use of Materials Group 3a and 3b not recommended).                                                                                               |
| HV3 | Design creepage with the following spacing:<br>Material Group 1: Creepage $\geq 5.00$ mm<br>Material Group 2: Creepage $\geq 7.10$ mm                                                                                                                               | Confirm creepage meets requirements using a CAD study for both mated and unmated states.                                                                                                                    |
| HV4 | Design clearance with the following spacing<br>Material Group 1: Clearance $\geq 4.44$ mm<br>Material Group 2: Clearance $\geq 4.44$ mm                                                                                                                             | Confirm clearance meets requirements using a CAD study for both mated and unmated states.                                                                                                                   |