



Astec Standard Power Europe
Astec House, Waterfront Business
Park, Merry Hill, Dudley
DY5 1LX, UK
Tel: 01384 842211
Fax: 01384 843355

Astec Germany GmbH
Robert-Heil-Str. 8
36251 Bad Hersfeld
Tel: 06621-5057-0
Fax: 06621-5057-20

Astec France
Les Arcades
424, la Closerie Mont d'Est
93194 Noisy Le Grand
Tel: (1) 43 05 86 80
Fax: (1) 43 04 60 33

Application Note Number 33

Product: MVP

Application Overview: Use and approval status of Low Earth Leakage models

Originator: B Lewis

Location: Merry Hill

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Schematic

Description

Versions of the MVP chassis are available with a low earth leakage option. This option has been implemented as a modification to the standard chassis by reducing the values of the Y class capacitors connected between the input mains filter and earth. All other elements of the chassis design remain identical between the standard chassis and the low leakage versions.

While the reduction in the Y class capacitors reduces the earth leakage current, it also has a detrimental effect on the RF emissions from the PSU to the extent that the low leakage versions of MVP are specified to meet the curve A limits for line conducted emissions only.

The earth leakage current of the two model types are as follows:

Standard earth leakage	<2.0mA @ 264Vac
Low earth leakage	<300uA @ 264Vac

The low leakage models are aimed at non-patient connected medical applications or multiple paralleled PSU applications in which the combined earth leakage current of the PSUs must remain within the limits of the required safety standards.

It is important to note that the low earth leakage versions of the chassis are not approved to any medical safety standards: indeed, the creepage and clearance distances within the PSU do not, strictly, meet the requirements of the medical safety standards. They are, however, fully approved to all the international variants of IEC950 to the same extent as the standard MVP chassis.

However, it is also true that many applications exist in which medical safety approvals have been awarded to systems incorporating the low earth leakage MVPs. The lack of medical safety approvals on the low leakage MVPs is not an obstacle to their successful use in medical applications.