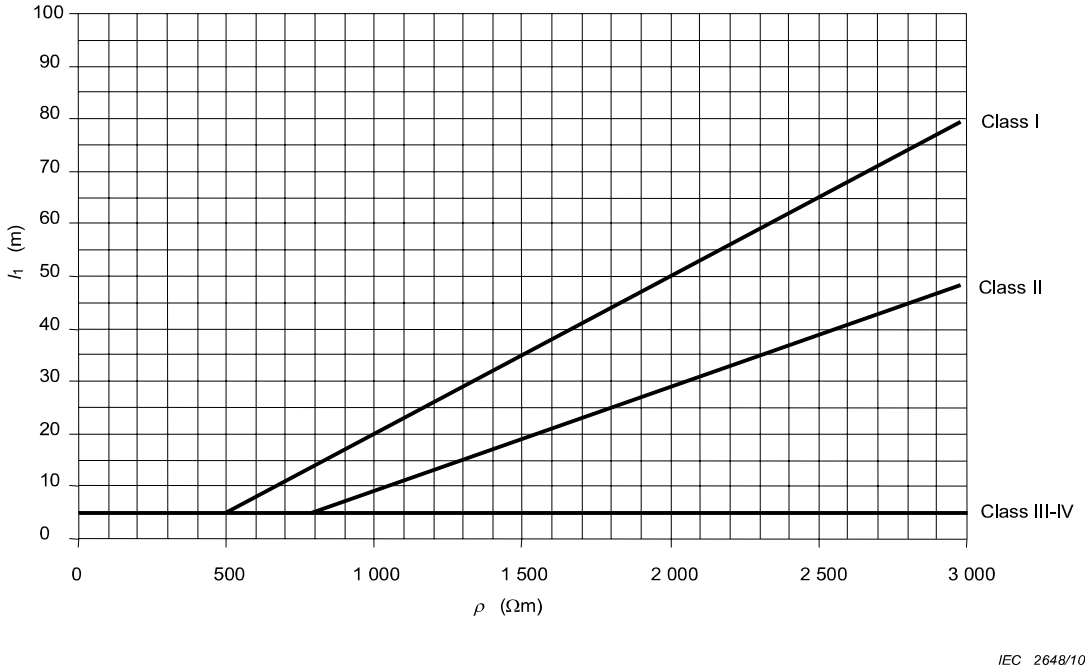
5.4.2 Earthing arrangement in general conditions

For earth-termination systems, two basic types of earth electrode arrangements apply.

5.4.2.1 Type A arrangement

This type of arrangement comprises horizontal or vertical earth electrodes installed outside the structure to be protected connected to each down-conductor or foundation earth electrodes not forming a closed loop.

In type A arrangements, the total number of earth electrodes shall be not less than two.



NOTE Classes III and IV are independent of soil resistivity.

Figure 3 – Minimum length l_1 of each earth electrode according to the class of LPS

The minimum length of each earth electrode at the base of each down-conductor is

– l_1 for horizontal electrodes, or

– 0,5 l_1 for vertical (or inclined) electrodes,

where l_1 is the minimum length of horizontal electrodes shown in the relevant part of Figure 3.

For combined (vertical or horizontal) electrodes, the total length shall be considered.

The minimum lengths stated in Figure 3 may be disregarded provided that an earthing resistance of the earth-termination system less than 10 Ω (measured at a frequency different from the power frequency and its multiple in order to avoid interference) is achieved.

NOTE 1 When the above-mentioned requirements cannot be met, a type B earth arrangement shall be used.

NOTE 2 Reduction of earthing resistance by the extension of earth electrodes is practically convenient up to 60 m. In soil with resistivity higher than 3 000 Ωm, the use of type B earth electrodes or earthing enhancing compounds is recommended.

NOTE 3 For further information, refer to Annex E.