

# **Long And Short High Voltage Cable Effects On Transient Overvoltages**

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## **Summary**

Lightning is known to be one of the primary sources of most surges in high Keraunic areas. It is a well-known fact that surge overvoltage is a significant contribution in cable failures. The other source of surge voltage is due to switching and it is pronounce on extra high voltage power transmission systems. The effect of both lightning an switching surges is weakening the cable insulation. The progressive weakening of such insulation will lead to cable deterioration and eventually its failure. Each surge impulse on the cable will contribute with other factor towards cable insulation strength deterioration and ultimately cable can fail by an overvoltage level below the cable basic impulse level (BIL). This paper presents the effect of cable length on transient behavior of cables. Two cable lengths, short and long are analyzed for transient voltage reflections taking into account attenuation and distortion factors. EMTP is used for modeling and simulation. The resultant overvoltages are related to possible surge arrester protective schemes and cable BIL's

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