

## Improved design for anti-scattering in fault condition of outdoor termination

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As EHV cable system became close to our environment, safety comes to very important issue. Because an outdoor termination is particularly exposed to the outside, there could be a greater problem than other terminations and joints if a breakdown occur. At the situation of breakdown or other surges, short-circuit current is caused. It makes internal arcs and heavy inner pressure inevitably. Due to the inner pressure, broken pieces fly away near the termination and can cause secondary damage.

Many outdoor terminations are not far from downtowns. So damaged outdoor terminations could become mechanical dangerous explosives. This issue is already a problem in many countries, and it has set up provisions to prevent secondary damage led by Europe electric power companies.

We designed a new type of outdoor termination for protecting from this secondary damage. Although breakdown of outdoor termination occurs, the new design secure anti-scattering. In 2012, we proceeded anti-scattering test(internal arc test) in CESI Italy according to HD632 S2(2008) standard. We tested on outdoor terminations for voltage grades of 170kV and 245kV. The tests simulated situations of 31.5kA ~ 50kA short-circuit current occurrence. Test is positive if there is not projection of material which constitute insulator at a distance over 3m from object under test. Tests were successfully completed.



Fig. 1

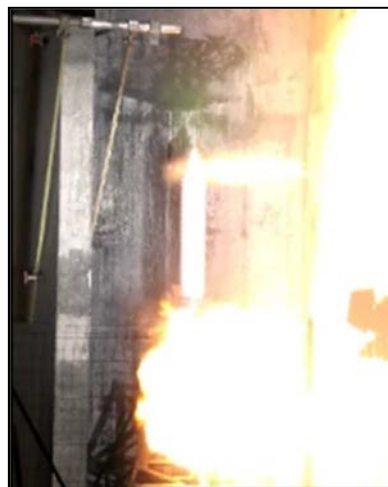


Fig. 2

The paper will give an introduction to an anti-scattering test and items considered when designed.