

4. Conclusions

In this study, the electric field distributions in the vicinity of 132kv composite insulator under dry and clean conditions have been presented. FEM based electric field analysis program ANSYS has been used for the calculation of electric field. The following conclusions can be drawn from the proposed work.

- 1) The distribution of the potential for all the cases are found to be same, the diameter of the corona ring does not change the potential distribution.
- 2) The electric stress obtained at the end fitting, on triple junction point, around first shed without corona ring are higher and slightly more than the stress limits recommended by EPRI.
- 3) By the application of corona ring, the magnitude of the maximum E-field at all the regions of interest can be brought down below the respective critical E-field values.
- 4) Application of corona ring shifts the region of occurrence of maximum E- field away from the most vulnerable region for starting and initiation of partial arcs.

From the above simulations it can be concluded that a corona ring of outer diameter 240mm and cross section diameter of 50mm is the appropriate for 132kV composite long rod insulator.

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