



## ASSESSMENT TO EFFECTIVENESS OF THE NEW EARLY STREAMER EMISSION LIGHTNING PROTECTION SYSTEM

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*Abstract- A novel early streamer emission (ESE) lightning air terminal system is designed and fabricated. By comparing the intercepted artificial lightning striking numbers of the new ESE lightning protection device and the conventional lightning rod (CLR) lightning protection device in laboratory, the effectiveness of intercepting the artificial lightning strokes by the new ESE lightning protection device is superior to that by the conventional lightning rod lightning protection device. A modified Tesla Coil (TC) discharging by powering AC voltage up to 650 kV with the controlled triggering function generator is used to produce simulated lightning strokes. The top tips of both devices in the same horizontal plane are placed at the same distance to the modified TC during all the test processes. Exchanging their positions makes no obvious difference between the recorded results. The test data validate the effectiveness of the new ESE lightning protection device under the laboratory environment.*

**Index terms:** Early streamer emission, electric field, zone of protection.

