

Redevelopment of DC Test Lines and Related Facilities

Background

A proposal was received for fundamental planning from the Electric Power System Council of Japan (ESCJ), and construction of DC transmission lines between Tokyo and Chubu, as well as between Hokkaido and Honshu, is underway at related electric power companies.

To estimate the electric environment of planned DC overhead transmission lines, gantry towers, DC high voltage sources and ion flow phenomena testing yard are maintained and prediction and evaluation methods of the DC electric environment are developed.

Outline

DC test lines and related facilities consist of test lines, DC high voltage sources and measuring systems. Gantry towers can set the arbitrary location of test lines due to the fact that the arms which support test lines are movable. It is possible to choose polarity of the voltage optionally as

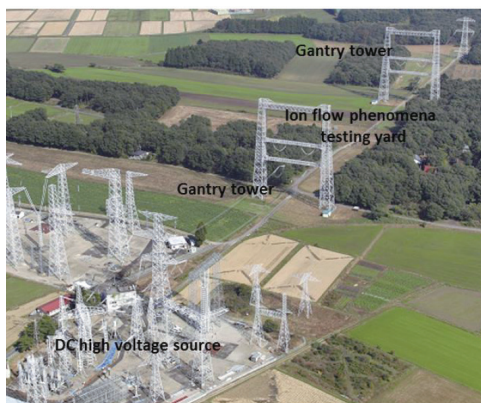
DC high voltage sources can change the form of rectifiers. At an ion flow phenomena testing yard with an area of 30 m × 80 m, it is possible to measure disposition characteristic of the ion flow phenomenon and weather conditions.

Specifications

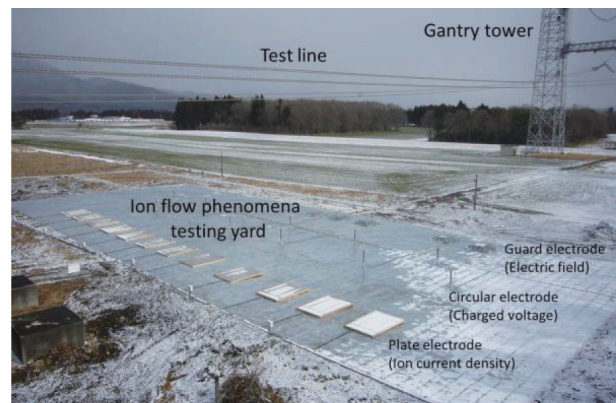
- Test line: Double circuit (Total length 750 m, Measuring span 310 m)
- DC high voltage source: 2 devices (0~±800 kV)
- Measuring system
 - Charged voltage (Circular electrode) : 12ch
 - Electric field (Guard electrode) : 5ch
 - Ion current density (Plate electrode) : 12ch
 - Corona loss: 4ch
 - Audible noise: 2ch
 - Radio interference: 2ch
 - Weather observation: Anemometer, Thermometer, Barometer, Hygrometer, Precipitation detector, Rain gauge, Pyrheliometer

[Location and date of installation]

Shiobara testing yard, March 2015



DC test lines and related facilities



Ion flow phenomena testing yard