

## 高电压技术

### 云雾气象条件下绝缘子污秽的微波辐射特性

高强, 吕旭东

华北电力大学 电气与电子工程学院, 河北省 保定市 071003

#### 摘要:

染污绝缘子在雾、露、毛毛雨等不利气象条件下可能发生污秽闪络。为研究云雾气象条件对绝缘子污秽物微波辐射特性的影响, 选择了XP-70瓷绝缘子为试品, 在不同的气象条件下对污秽绝缘子进行试验。试验结果表明, 云雾气象条件下, 绝缘子辐射的天线温度与等值附盐密度为幂函数的关系, 且等值盐密对天线温度影响的特征指数保持不变; 在一定的等值盐密与等值附灰密度条件下, 天线温度随着大气湿度的增加而减小, 天线温度试验测量结果与理论计算结果具有较好的一致性。

#### 关键词:

Microwave Radiation Characteristic of Insulator Contamination Under Cloud and Mist Weather Conditions

GAO Qiang ,Lü Xudong

School of Electrical and Electronic Engineering, North China Electric Power University, Baoding 071003, Hebei Province, China

#### Abstract:

Under unfavorable weather conditions, such as mist, dew and drizzle, contamination flashover may occur on polluted insulators. To research the influences of cloud and mist weather conditions on microwave radiation characteristic of contaminated insulators, the XP-70 porcelain insulators are selected as test object and the polluted insulators are tested under various weather conditions. Test results show that under cloud and mist weather conditions, the relation between antenna temperature radiated by insulators and equivalent salt deposit density (ESDD) can be represented by power function, and the characteristic exponent of the influence of ESDD on antenna temperature is 0.013 and remains constant; under the condition of a certain ESDD and equivalent dust deposit density, antenna temperature descends with the increasing of atmospheric humidity. The test and measurement results well conform to theoretical calculation results.

#### Keywords:

收稿日期 2010-05-27 修回日期 2010-07-09 网络版发布日期 2010-09-08

#### DOI:

#### 基金项目:

通讯作者: 高强

#### 作者简介:

作者Email: gaoqiang0001@sohu.com

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