

特高压输电

向家坝—上海±800 kV直流示范工程干式平波电抗器雷电冲击型式试验分析

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摘要:

为验证向家坝—上海±800kV特高压直流示范工程用干式平波电抗器的绝缘性能, 针对雷电冲击全波和截波现场试验的接线方法和试验程序进行详细论述, 分析了顺次施加各种冲击电压下的电流峰值、波前时间、截断时间、过零系数等参数的特点, 研究了试验回路的调整和布置对电压电流波形及试验结果的影响, 并给出波形曲线加以验证, 得出电抗器满足通过雷电冲击型式试验要求的结论, 并对电抗器结构下一步的研究方向进行了探讨。

关键词:

Analysis on Lightning Impulse Type Test for Dry-Type Smoothing Reactor of ±800 kV DC Transmission Demonstration Project from Xiangjiaba to Shanghai

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Abstract:

In order to test the insulating property of Dry-type Smoothing Reactor of ±800 kV UHVDC Transmission Project from Xiangjiaba to Shanghai, Introduction for the test circuits and procedure of full lightning impulse and chopped lightning impulse applied on the smoothing reactor, analysis on the test figure and waveform in detail, coming to the conclusion that the smoothing reactor body passed the lightning impulse test, suggesting the further research direction of the smoothing reactor structure.

Keywords:

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参考文献:

[1] 刘振亚. 特高压电网[M]. 北京: 中国经济出版社, 2005: 400-470. [2] 刘振亚. 特高压直流输电技术研究成果专辑[M]. 北京: 中国电力出版社, 2005: 121-130. [3] 刘振亚. 特高压直流输电技术研究成果专辑[M]. 北京: 中国电力出版社, 2006: 176-181. [4] 舒印彪, 刘泽洪, 袁骏, 等. 2005年国家电网公司特高压输电论证工作综述[J]. 电网技术, 2006, 30(5): 1-12. Shu Yinbiao, Liu Zehong, Yuan Jun, et al. A survey on demonstration of UHV power transmission by State Grid Corporation of China in the year of 2005[J]. Power System Technology, 2006, 30(5): 1-12(in Chinese). [5] 舒印彪, 刘泽洪, 高理迎, 等. ±800 kV 6400 MW特高压直流输电工程设计[J]. 电网技术, 2006, 30(1): 1-8. Shu Yinbiao, Liu Zehong, Gao Liying, et al. A preliminary exploration for design of ±800 kV UHVDC project with transmission capacity of 6400 MW[J]. Power System Technology, 2006, 30(1): 1-8(in Chinese). [6] 常浩, 樊纪超. 特高压直流输电系统成套设计及其国产化[J]. 电网技术, 2006, 30(16): 1-5. Chang Hao, Fan Jichao. System design and its localization of UHVDC transmission project[J]. Power System Technology, 2006, 30(16): 1-5(in Chinese). [7] 马为民, 聂定珍, 曹燕明. 向家坝—上海±800 kV特高压直流工程中的关键技术方案[J]. 电网技术, 2007, 31(11): 1-5. Ma Weimin, Nie Dingzhen, Cao Yanming. Key technical schemes for ±800 kV UHVDC project from Xiangjiaba to Shanghai[J]. Power System Technology, 2007, 31(11): 1-5(in Chinese). [8] 张文亮, 于永清, 李光范, 等. 特高压直流技术研究[J]. 中国电机工程学报, 2007, 27(22): 1-7. Zhang Wenliang, Yu Yongqing, Li Guangfan, et al.

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Researches on UHVDC technology[J]. Proceedings of the CSEE, 2007, 27(22): 1-7(in Chinese). [9] 张文亮, 陆家榆, 鞠勇, 等.  $\pm 800$  kV直流输电线路的导线选型研究[J]. 中国电机工程学报, 2007, 27(27): 3-8. Zhang Wenliang, Lu Jiayu, Ju Yong, et al. Design consideration of conductor bundles of  $\pm 800$  kV DC transmission lines[J]. Proceedings of the CSEE, 2007, 27(27): 3-8(in Chinese). [10] 薛辰东, 瞿雪弟, 杨一鸣, 等.  $\pm 800$  kV换流站无线电干扰研究[J]. 电网技术, 2008, 32(2): 1-6. Xue Chendong, Qu Xuedi, Yang Yiming, et al. Study on radio interference in  $\pm 800$  kV converter station [J]. Power System Technology, 2008, 32(2): 1-6(in Chinese). [11] IEC 60722-1982. Guide to the lightning impulse and switching impulse testing of power transformers and reactors first edition[S]. [12] 孙昭英, 廖蔚明, 丁玉剑, 等.  $\pm 800$  kV直流输电工程空气间隙放电特性试验及间隙距离选择[J]. 电网技术, 2008, 32(22): 8-12. Sun Zhaoying, Liao Weiming, Ding Yujian, et al. Air gap flashover characteristics and selection of gap distances for  $\pm 800$  kV UHVDC transmission project[J]. Power System Technology, 2008, 32(22): 8-12(in Chinese). [13] Q/GDW 149-2006, 高压直流输电统用 $\pm 800$  kV干式平波电抗器通用技术规范[S]. [14] C010-CT-CG-03, 国家电网公司向家坝—上海 $\pm 800$  kV特高压直流示范工程干式平波电抗器技术规范[S]. [15] 中国南方电网公司. 800 kV直流输电技术研究[M]. 北京: 中国电力出版社, 2006: 276-281. [16] IEEE std 1277, IEEE trial-use standard general requirements and test code for dry-type and oil-immersed smoothing reactors for DC power transmission[S]. [17] IEC61000-4-5, Electromagnetic Compatibility (EMC) testing and measurement techniques, surge immunity test[S]. [18] Feilat E A. Prony analysis technique for estimation of the mean curve of lightning impulses[J]. IEEE Transactions on Power Delivery, 2006, 21(4): 2088-2090. [19] Marcos R, Martin A U, Pedro J M. Measurement of the voltage induced on an overhead power line 20m from triggered lightning [J]. IEEE Transactions on Electromagnetic Compatibility, 1994, 36(2): 134-140.

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