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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 22390.2-2008

**Control and protection equipment of HVDC transmission
systems - Part 2: AC and DC station control equipment**

高压直流输电系统控制与保护设备 第2部分：交直流系统站控设备

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and definitions 2	4
5 Test methods 9	11
6 Inspection Rules 7 signs, labels, Owner's Manual 12 8 packaging, transportation and storage 14 9 sets of supply	14
10 Quality Assurance	14

Foreword

According to the 2003 National Science and Technology Science and Technology Platform project focused "DC power transmission system core technology and infrastructure standard Research "(Project No. 2003DIA7J034) requirements formulated standard" HVDC system control and protection equipment. " GB/T 22390 "HVDC system control and protection equipment" is divided into six parts.

--- Part 1. Operator Control System;

--- Part 2. AC and DC station control system equipment;

--- Part 3. DC pole control system equipment;

--- Part 4. DC system protection equipment;

--- Part 5. DC line fault location device;

--- Part 6. Converter Station transient fault recorder. This is Part 2 GB/T 22390 of. This section proposed by the China Electrical Equipment Industry Association and the China Electricity Council. This part of the National Standardization Technical Committee of HVDC equipment (SAC/TC333) centralized. This part mainly drafted by: Nanjing NARI-RELAYS Electric Co., XJ Group Co., Ltd., Beijing Network of DC engineering technology Ltd., China Southern Power Grid Co., Ltd., Xuchang Relay Research Institute, Chinese Academy of Sciences electricity. The main drafters of this section. Cao Dongming, Haojun Fang, Yu Tao, Yao Zhiqing, Maoshi Tao, around, Li Yaping, Li Yan, Li Zhiyong, Wang Mingxin, Han Wei, Shiyan. This section first release. HVDC system control and protection equipment Part 2. AC and DC station control system equipment

1 Scope

China's national standard for the AC and DC station control equipment of a high voltage

direct current transmission scheme. It is Part 2 of GB/T 22390 and specifies the technical requirements, the test methods, the inspection rules and the supply and documentation requirements for the station control equipment. Station control sits between the operator layer of Part 1 and the pole control of Part 3, and it governs everything in the converter station that is not the conversion itself. On the alternating current side that means the AC switchyard and its switching sequences, the converter transformers and their tap changers, and the filters - which matter more here than anywhere else in a power system, because a line-commutated converter draws heavily distorted current and absorbs a great deal of reactive power. The harmonic filters that absorb the distortion are also the source of the reactive power the converter needs, so the filter banks have to be switched in and out as the transmitted power changes, and getting that wrong causes either a voltage excursion or a harmonic limit violation. Station control does that switching. On the direct current side it governs the switchyard, the earth electrode line, the neutral bus arrangement and the transfer between bipolar, monopolar metallic return and monopolar earth return operation, which is how a link keeps transmitting after losing one pole. It also handles the station auxiliary systems, the cooling plant on which the valves depend, and the coordination with the remote station, since the two ends of an HVDC link operate as one machine and every mode change has to be agreed across the telecommunication link between them. Issued on 24 September 2008 and in force since 1 August 2009.

This section GB/T 22390 specifies the technical requirements of $\pm 500\text{kV}$ HVDC System AC and DC station control system equipment, test Test methods, inspection rules, packaging, transportation, storage, marking, labeling, instruction manual, complete sets of supply and quality assurance. This section applies to $\pm 500\text{kV}$ HVDC System AC and DC station control system equipment (hereinafter referred to as the device).

2 Normative references

The following documents contain provisions which, through reference

GB/T 22390 in this section constitute provisions of this section. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 2887-2000 General specification for computer sites

GB 4208-1993 housing protection (IP Code) (eqv

IEC 60529. 1989) Basic testing method

GB/T 7261-2000 and the relay means

GB/T 9361-1988 computer site security requirements

GB 9969.1-1998 Instructions General Industrial Products

GB/T 11287-2000 Electrical relays - Part 21. Measuring relays and protection equipment vibration, shock, bump and seismic Test Section 1. Vibration tests (sinusoidal) (idt IEC 60255-21-1. 1988) GB/T 13498 HVDC term (GB/T 13498-2007, IEC 60633.1998, IDT)

GB/T 13730-2002 regional dispatching automation system

GB/T 14537-1993 and measure impact crash tests (idt

IEC 60255-21-2. 1988) relays and protection equipment

GB/T 14598.16-2002 Electrical relays - Part 25. Electromagnetic emission tests for measuring relays and protection equipment (IEC 60255-25.2000, IDT)

GB 16836-2003 General requirements Measuring relays and protection equipment safety design