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JJG

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

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Replacing JJG 506-1987

**Verification regulation of D.C.current comparator bridge
(English Translation)**

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DC Comparator Bridge test procedures

1 Scope

The order applies to the beginning of the DC current comparator, the potential of the secondary magnetic potential balance and the primary and secondary resistance balancing two strips Under parts, measuring resistance or resistance ratio bridge that DC Comparator Bridge (hereinafter referred to as Comparator Bridge or electricity Bridge) initial verification, subsequent verification and in-service inspection; also applies to the bridge portion of the multi-purpose comparator DC.

This procedure does not apply to DC Comparator Bridge and automatic temperature calibration of DC Comparator Bridge.

2 Citations

JJG 166-1993 DC resistance test procedures JJG 2051-1990 DC Resistance Measuring Instruments Systems GB/T 3930-2008 resistance measurement with DC bridge JJF1002-1998 national verification procedures to write rules JJF1059-1999 Evaluation and Expression of Uncertainty in Measurement when using this procedure, it should pay attention to using the currently valid version of the documents cited.

3 Overview

Comparator Bridge is in DC Current Comparator magnetic potential balance by adjusting the comparator primary or secondary turns, to accurately adjust the current measured resistance ratio between the primary and secondary standard resistor, the two resistor voltage reaches equilibrium, the electric Drag ratio equals the turns ratio, and so relatively high precision resistance measurement instruments.

Comparator Bridge and normal DC resistance bridge, are relatively instrument measuring resistance, but the role of the principle of Different, the difference is. Comparator Bridge to compensate for the measurement of the bridge instead of the latter measurement, thoroughly overcome the potential impact of lead resistance and contact resistance of the side button, and facilitates comparison of different nominal resistance measurements (over Ferry transfer); magnetic potential balance with the former premise, instead of the latter with a turns ratio of the resistance ratio, resulting in higher quasi Accuracy. Comparator Bridge circuit principle shown in Figure 1 works as follows.

- a. magnetic potential balance the primary winding and the secondary measured variable has a respective stator windings trimming DC current, which is generated in the iron core the opposite direction of the magnetic potential, the potential difference detected by the magnetic detection coil, and the closed-loop tracking and have poor conditioning system by manual adjustment Automatically adjust the slave (servo) Power generated by the secondary current, the magnetic potential balance that $I_x W_x = I_s W_s$, so there is $I_x = W_x W_s$
- b. Potential equalization Adjusted measuring disk or the secondary winding trim (deviation

disk) that regulate I_s/I_x , so that means zero galvanometer G , the R_x and the R_s voltage drop equal, $I_x R_x = I_s R_s$, then. $I_s I_x = R_x R_s$