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3P83 - Design of Ultra Wide Band Large Capacitance Load Pulse Source

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Considerding the research of the overvoltage of the converter station, the EMTP or EMTDC software is used for digital simulation. However, whether the equipment equivalent model used in the digital simulation can accurately reflect the true dynamic characteristics of the equipment directly affects the accuracy of the simulation analysis results.
In order to establish a high-frequency model of the key equipment of the converter station, the frequency domain method is generally used to measure the high-frequency response of the equipment. But the frequency domain method is far less than the normal working voltage of the equipment due to the output power limitation of the measuring equipment, and the measuring lead The impact on the measurement results is significant. This paper attempts to establish a high-frequency response model of the key equipment of the UHV converter station by using the time domain pulse method.
According to the load characteristics of the key equipment of the converter station and the measurement frequency band (ultra-wideband), this paper develops a pulse generator for high-frequency response time-domain measurement of key equipment of UHV converter station. Resonant charging, magnetic switch, cut-off switch, etc. are used to achieve multi-stage compression of the pulse. Finally, it can be recognized to maintain the 50Hz to 1MHz ultra-wide band when accessing a large capacitive load of the order of ten nf. The test device voltage and current are all available. Measuring range (100V, 1mA or more).

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