

Paris Session 2022



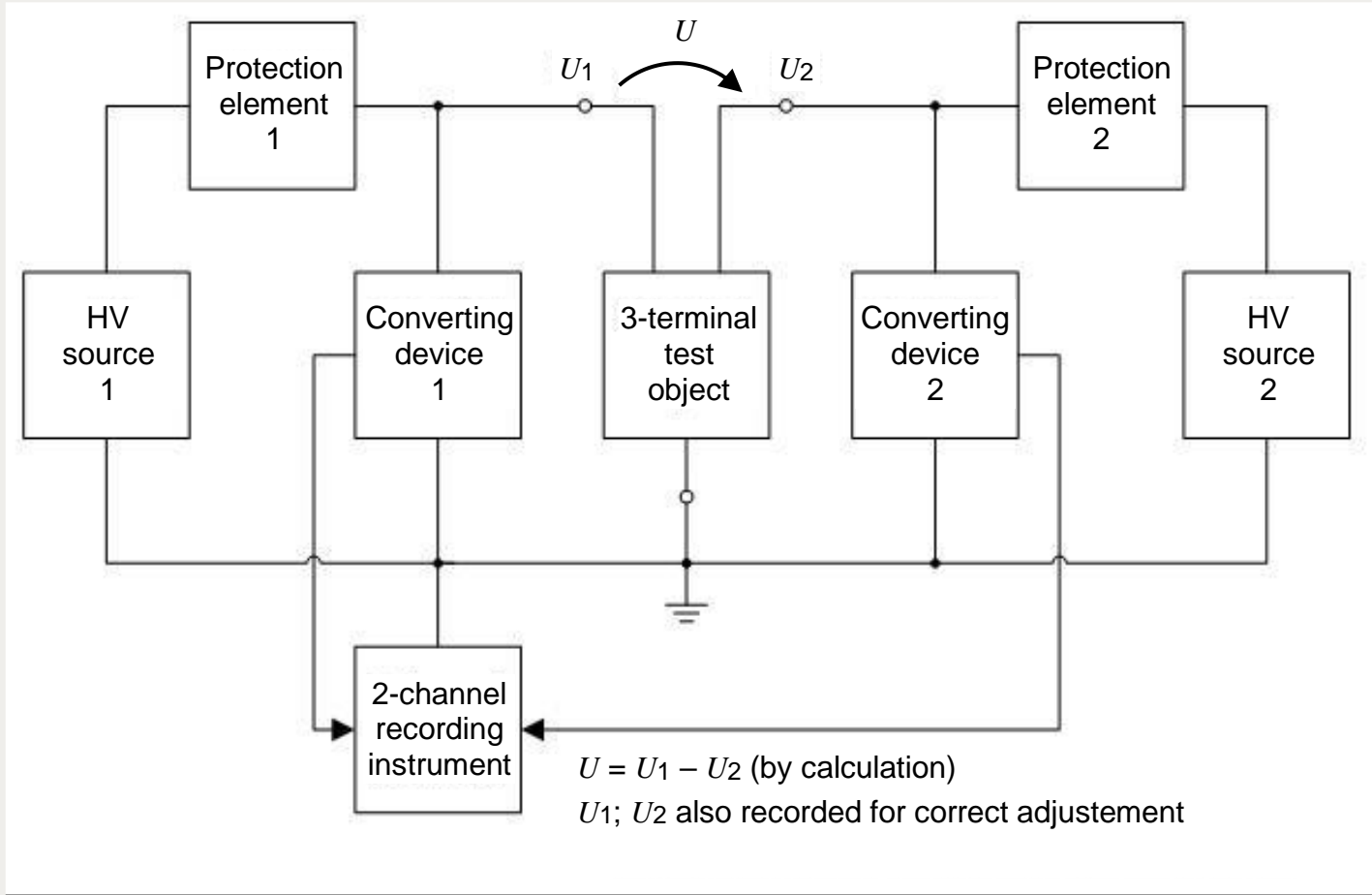
Revision of IEC 60060-1 regarding combined and composite test

D1 Materials and Emerging Test Techniques PS 1 - Testing, Monitoring and Diagnostics Question 1.01

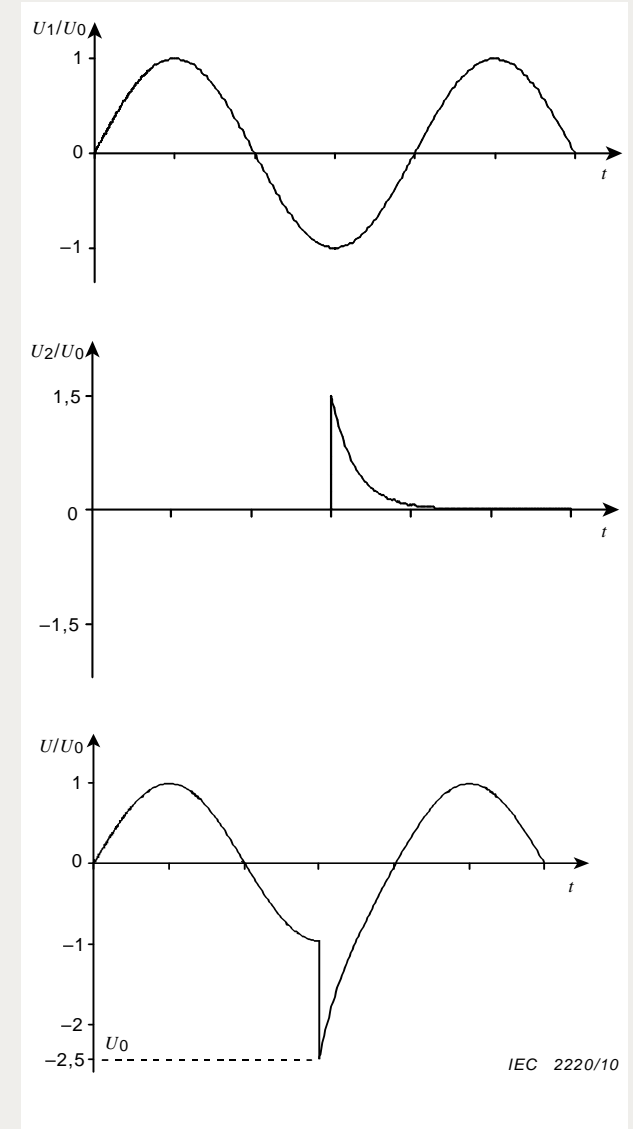
Which parameters require a more precise specification? Which parameters in the superimposed voltage wave form have proven to be particularly critical? Is there any experience with the testing of insulating materials or high voltage components? How can the generation of composite voltages be optimized?

Ernst Gockenbach, Germany

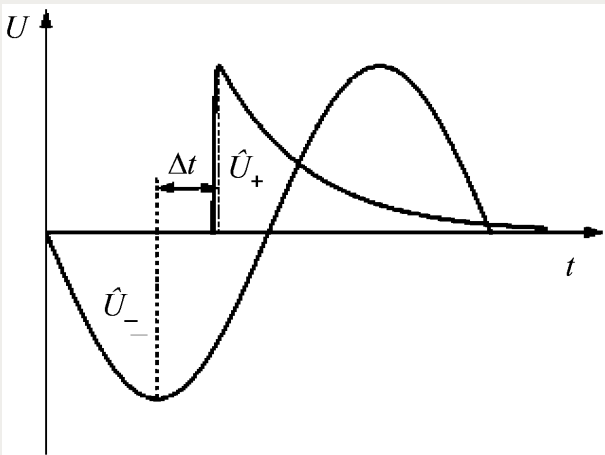
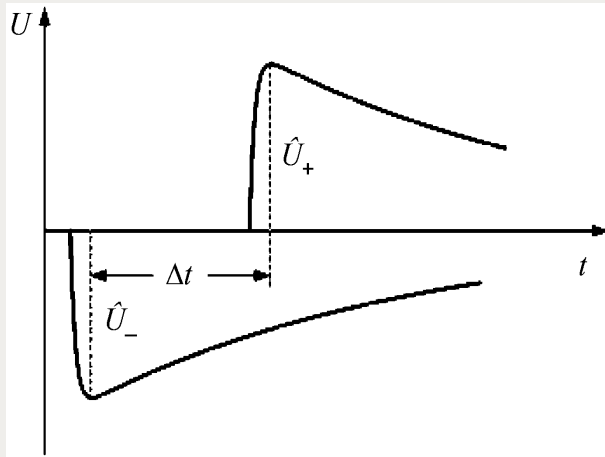
Source: 42/403/CD - IEC 60060-1 ED4: High-voltage test techniques – Part 1: General definitions and test requirements



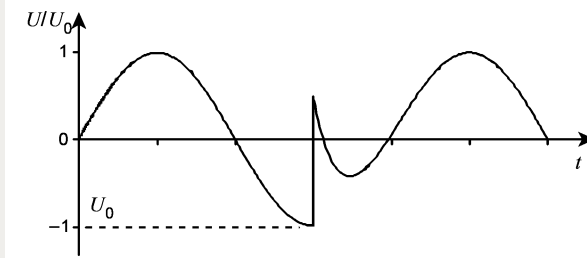
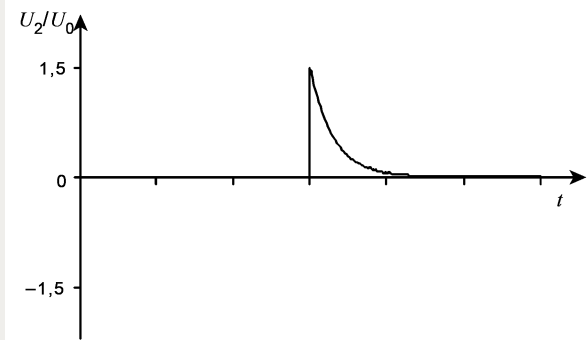
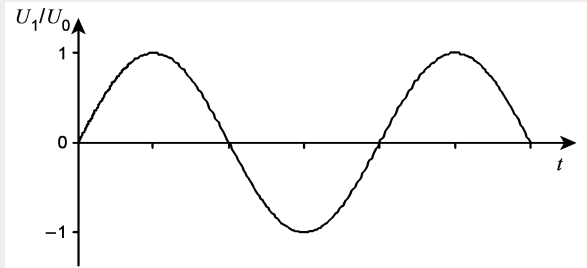
Test Circuit for Combined Test Voltage



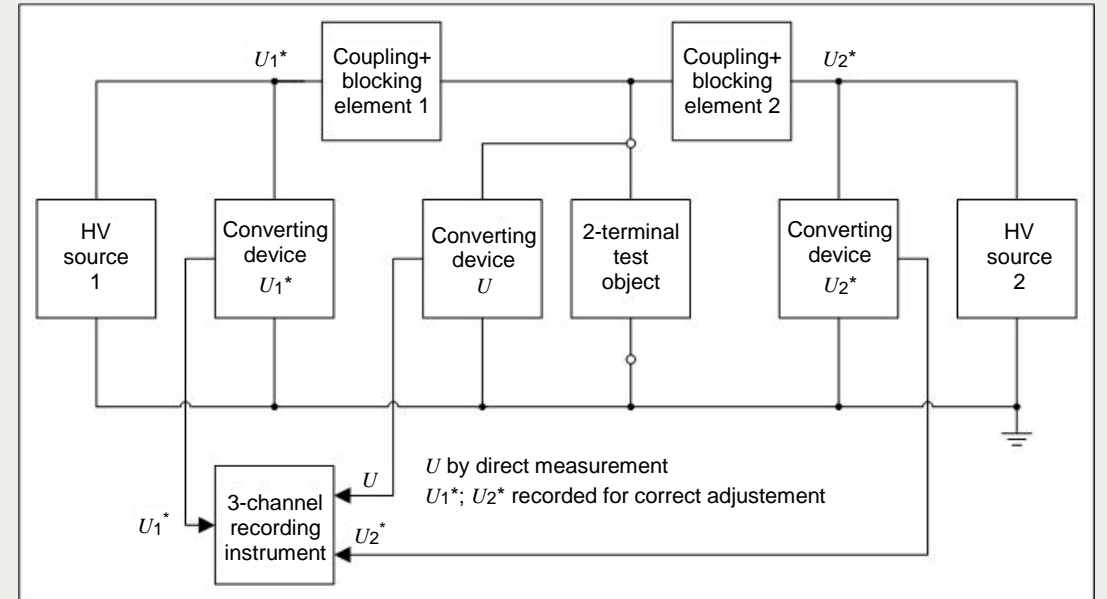
Example AC/Impulse Test Voltage



Examples for Time Delay Δt
Group Discussion Meeting



Example AC/Impulse Test Voltage



Test Circuit for Composite Test Voltage

Source: 42/403/CD - IEC 60060-1 ED4:
High-voltage test techniques - Part 1:
General definitions and test requirements

Summary

Combined test voltage

- each voltage source has its own divider, but the divider should be able to record the voltage from the other source
- protection elements have to protect the voltage sources in case of flashover of the test object
- the test voltage across the test object has to be calculated from the voltages of the two sources, the sign depends on the definition of the single voltages

Composite test voltage

- the voltage across the test object will be directly measured
- the coupling and blocking elements have the task to block one type of voltage and to couple the other type and this requires a kind of compromise, depending on the performance of voltage sources
- voltage dividers for each voltage component are only for control purposes

Combined or composite test voltage

- the time delay influences strongly the value of the test voltage in case of AC/Impulse or Impulse/Impulse combination

Group Discussion Meeting