Superimposed Impulse Voltage Testing on extruded DC-Cables according IEC 62895

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Agenda

- Superimposed Impulse Voltage Test
- Composite Voltage Tests
- Coupling Capacitor vs. Sphere Gap
- Composite Measuring System
- Conclusion

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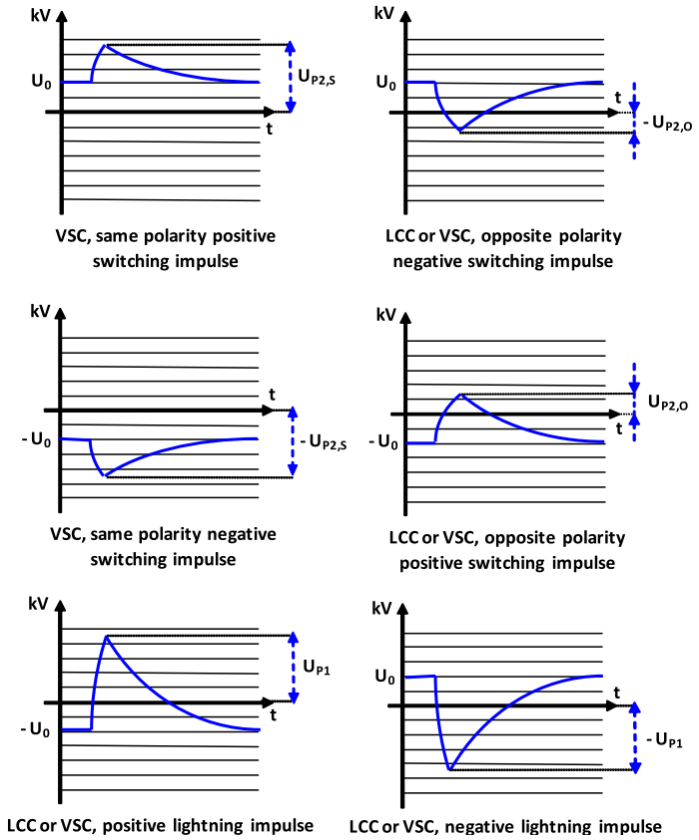
Superimposed Impulse Voltage Test



Source: IEC 62895

- U_{P1}: DC + opposing LI
- $U_{P2,S}$: DC + same SI
- $U_{P2,O}$: DC + opposing SI

- Cigré recommendations (WG B1.32, TB 496):
  - $U_{P1} = 2.1 * U_{DC}$
  - $U_{P2,O} = 1.2 * U_{DC}$

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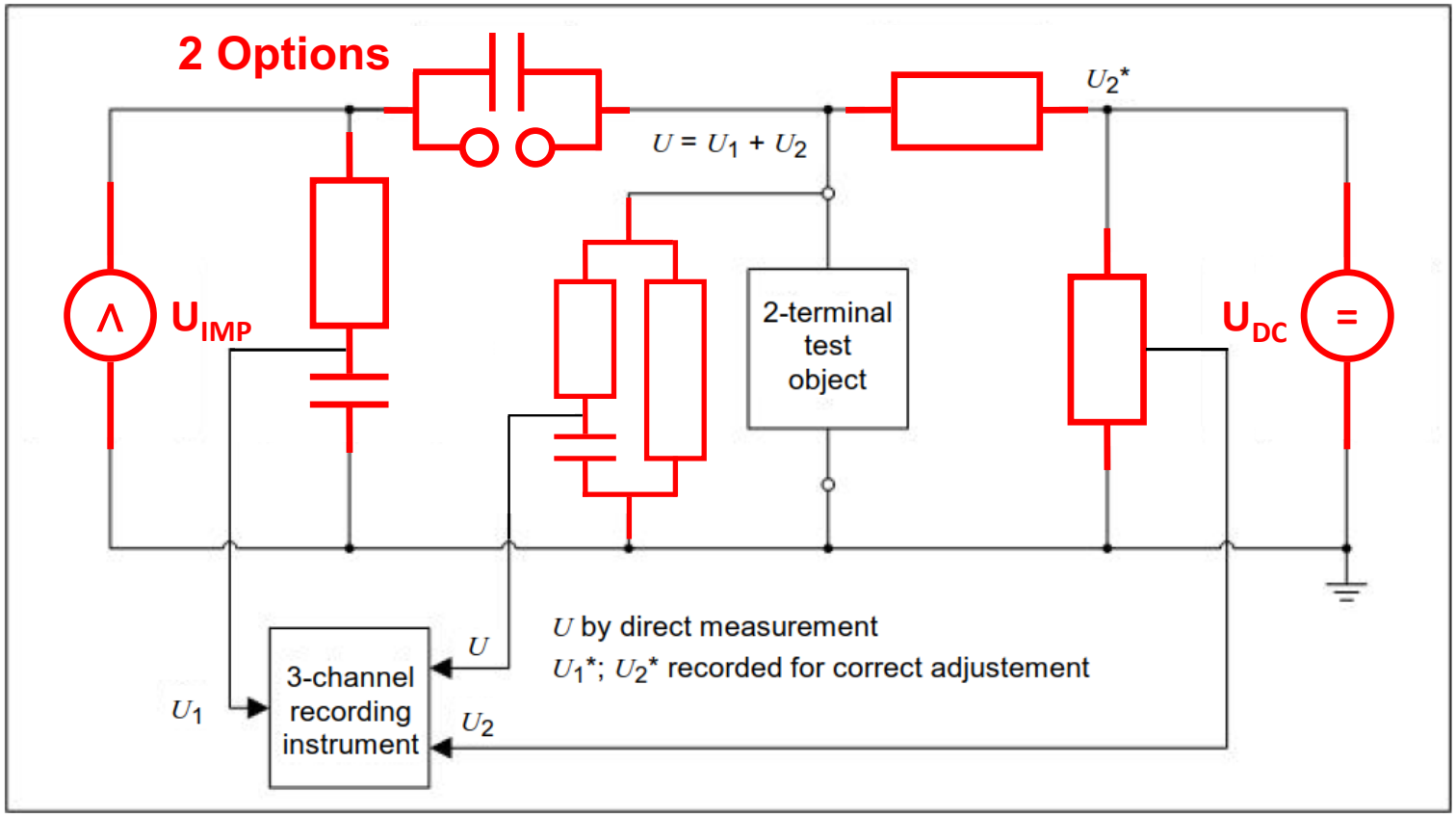
Composite Voltage Tests



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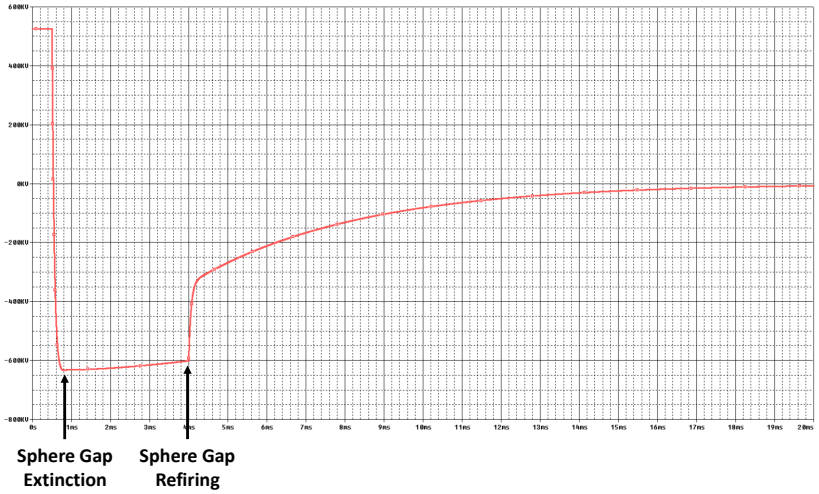
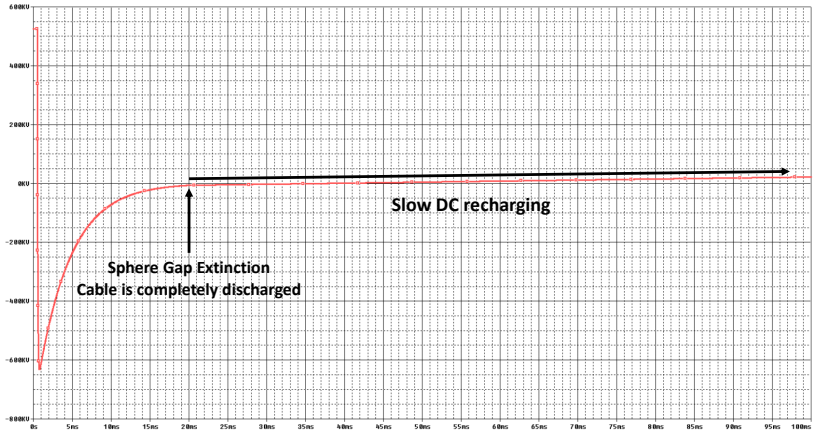
Coupling Capacitor vs. Sphere Gap

- Sphere Gap:

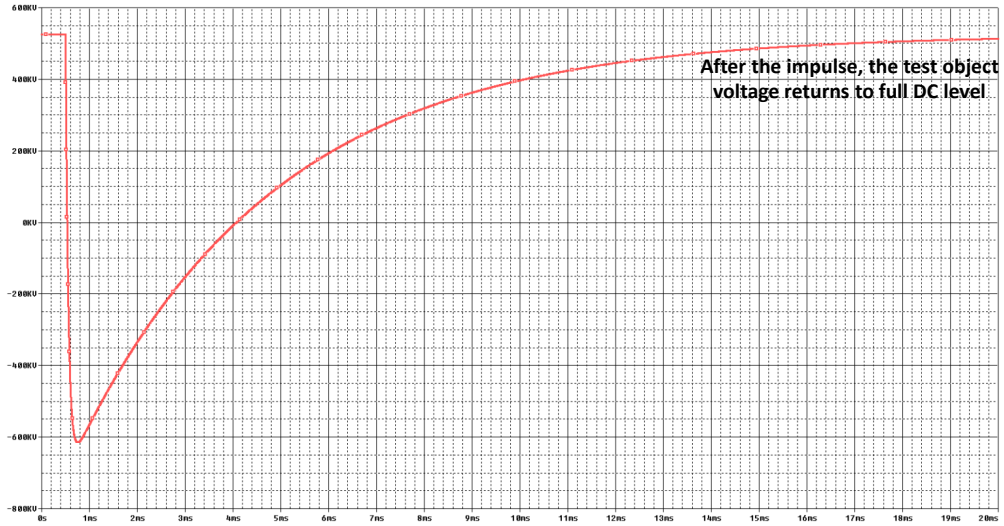




➔ Sphere gap is a cheap and easy solution but not a sophisticated one

Coupling Capacitor vs. Sphere Gap

- Coupling Capacitor:



➔ Coupling Capacitor is the technically superior solution

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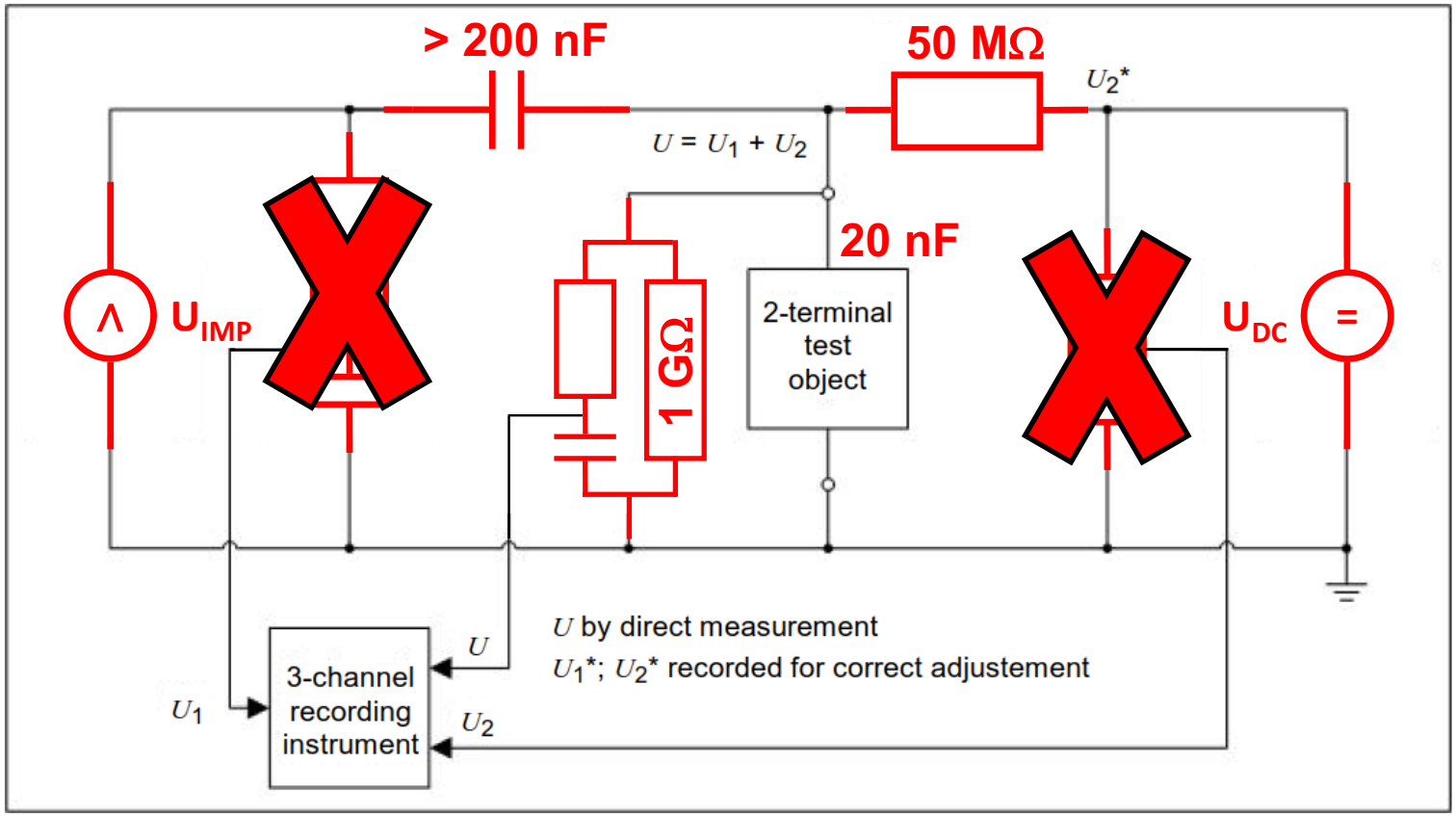
Composite Measuring System



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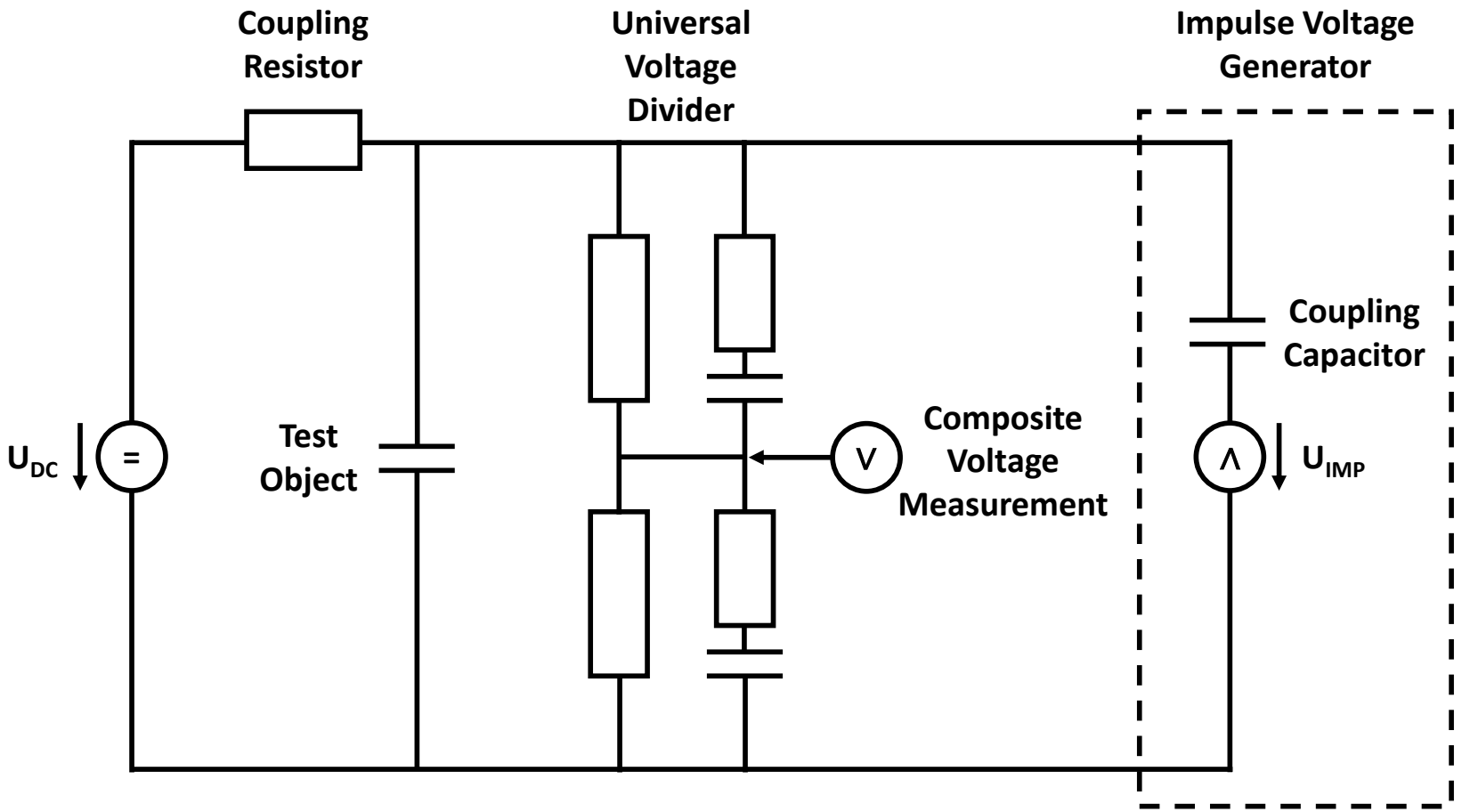
Conclusion


Coupling Resistor
Universal Voltage Divider
Impulse Voltage Generator
U_{DC}
=
Test Object
V
Composite Voltage Measurement
Coupling Capacitor
U_{IMP}

Thank you for your attention!

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