

Paris Session 2022



Best practices for Partial Discharge Monitoring of HVDC Cable Systems and Qualification Tests

SC B1- INSULATED CABLES PS 1-Q1

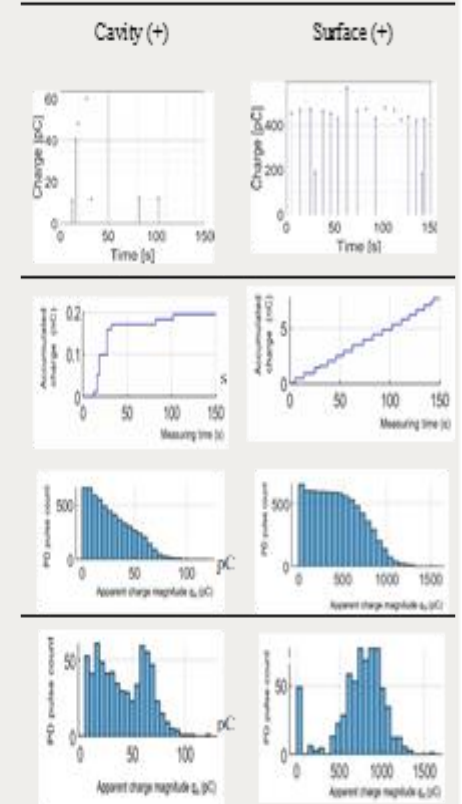
With PD measurements and analysis for initial installation and long-term monitoring, has the application of this monitoring system become commonly used and what challenges remain for using this technology e.g. on long HVDC cable systems?

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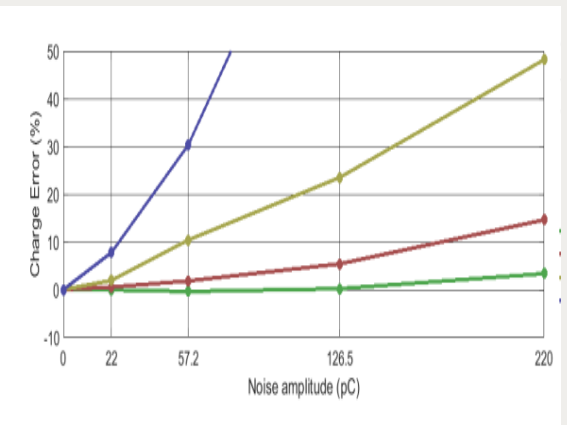
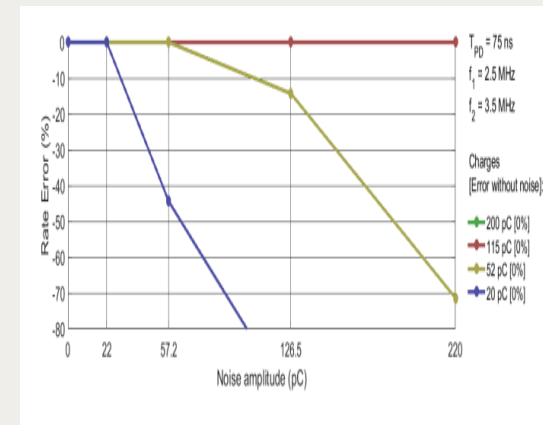
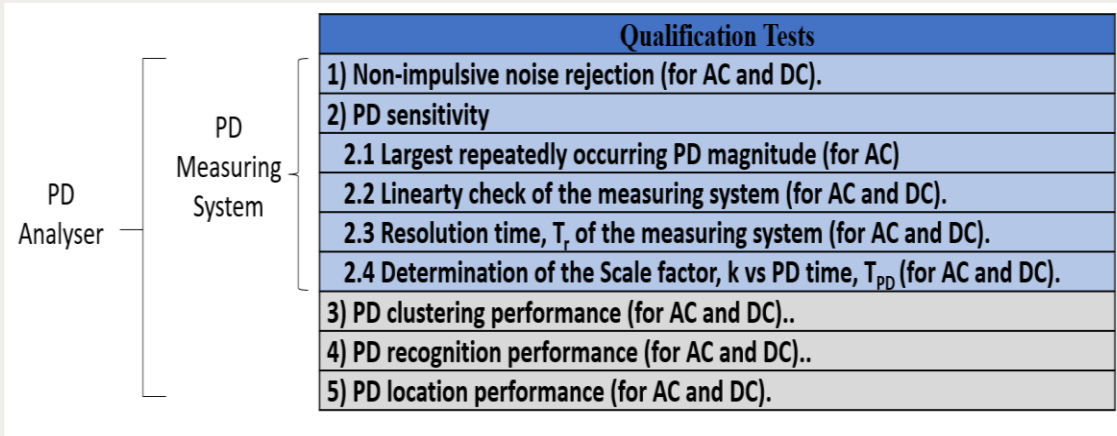
What challenges remain for using this technology e.g. on long HVDC cable systems.

- *Online PD monitoring systems must have a powerful noise filtering tool and a PD clustering tool to separate noise and the different PD sources detected by the sensors.*
- *They must also identify each PD source with a type defect : cavity, external surface defect, corona, floating potential, etc. by means of an A.I. recognition tool. For this purpose a wide catalog of PD patterns associated with different types of defects must be available for the learning process.*
- *A reference database of PD current pulses linked to type defects has been generated by laboratory tests. It is advisable that other research institutes develop more reference databases of "defect types" to make international comparisons that lead to international traceability of reference PD pulse trains linked to "defect types".*



What challenges remain for using this technology e.g. on long HVDC cable systems.

• A PD qualification procedure with five tests has been developed :



• Using the checking setup corresponding to a PD emulator, a round robin test is being carried out among five research institutes that apply the developed qualification procedure.

• For long HVDC cables it will be necessary to have sensors along the cable system due to signal attenuation e.g. integrated and self-powered PD sensors.



Group Discussion Meeting