# Jicable-HVDC'17 – YRC08

| Title | **Finite element simulation for HVDC performance tests parameters setting** |
|---|---|

| Version of the document | V1 | Date | 01-05-2017 |
|---|---|---|---|
| Proposed topic [1] | Progress on the understanding of physical phenomena and on materials for use in HVDC | | |

| Author's information – (Main author in the first row) | | | | |
|---|---|---|---|---|
| Name | Company | Country | e-mail | Direct phone |
| Basil Salamé | Nexans | France | basil.salame@nexans.com | 0437372202 |
| Quentin Eyssautier | Nexans | France | quentin.eyssautier@nexans.com | 0391912560 |
| Adrien Charmetant | Nexans | France | adrien.charmetant@nexans.com | 0437372186 |

## SUMMARY

It is common to cover HVDC cables by insulating foam during performance tests to control boundary conditions. It permits to reach the tests specifications and verify the cable performance in real operating conditions. Yet the tests stand up to one year and undergo high ambient temperature variations which complicate their parameters setting.

Finite element simulation of a HVDC test loop allows determining the optimal foam thicknesses that represent the real operating conditions of the circuit. Moreover it permits to calculate for each thickness the current intensity needed to reach the test specifications depending on the temperature variation over the year.

In this paper we present the simulation of the thermoelectric behavior of a HVDC loop in a load cycle and the parameters setting that allow meeting the test requirements.