



**1.3 – Characteristics of the cables:**

Cable type : \_\_\_\_\_ NA2XS(FL) 1x1600 RE/200+FO \_\_\_\_\_  
 Manufacturer(s) : \_\_\_\_\_ NKT \_\_\_\_\_  
 Installation: underground (in tunnels, in ducts, in concrete, directly buried...), submarine (embedding depth, cable protections...)  
 \_\_\_\_\_ underground pipes in concrete, triangle, trench size ca. 1 meter (wide) x 2 meter (depth) \_\_\_\_\_  
 Forced cooling:  
 Yes :  , type : \_\_\_\_\_  
 No :  x  
 Insulating material : polymer, \_\_\_\_\_ VPE (XLPE) \_\_\_\_\_  
 paper, ...  
 Metallic screens \_\_\_\_\_ cross-bonding, 3 main sections \_\_\_\_\_  
 bonding :  
 Lineic inductance : \_\_\_\_\_ 0,624 mH/km \_\_\_\_\_  
 Lineic capacitance : \_\_\_\_\_ 0,187µF/km \_\_\_\_\_  
 Testing of the link (before \_\_\_\_\_ production-accompanying test, sample and routine tests on cables and  
 commissioning, and during \_\_\_\_\_ accessories, component selection, extended prequalification test of the  
 operation): \_\_\_\_\_ cable system, HV test after installation, measurement of zero-sequence  
 impedance

**1.4 – Is a compensation of the reactive power achieved?**

Yes :  No :  x  
 Why? : \_\_\_\_\_  
 Position of the compensation : \_\_\_\_\_  
 At the end, intermediary, Why? \_\_\_\_\_

**1.5 – Characteristics of the compensation:**

Nominal power (Mvar) : \_\_\_\_\_  
 Technology : \_\_\_\_\_  
 Occupied space (m<sup>2</sup>): \_\_\_\_\_  
 Cost (€ or US\$) : \_\_\_\_\_

**1.6 – How are considered the problems of cable integration into the system?**

- Stability of voltage and frequency:
  - Propagation of slow transients, resonances:
  - Distribution of currents related to the different impedances
- \_\_\_\_\_ no problems are expected \_\_\_\_\_

**1.7 – Operating results of the compensated link:**

Technical and economical performances:  
 Start of operation: middle 2015

**1.8 – Publications or available documents concerning this link:**

Schell, F., Uhlenkücken, H.: The network connection of Niehl 3 CCPP - The first 380 kV long-distance cable project in Germany since the Bewag projects in 2000, Jicable'15, paper A1.2, 2015