ABSTRACT

Medium voltage line distribution is widely used to supply loads to consumers. Medium voltage distribution lines use wire, aerial cable and ground wire. In this study, the 20 kV and 6.6 kV distribution channel systems were evaluated using ground cables of type N2XSEYBY 3X50 mm2, N2XSY 3X1X50 mm2 and N2XSY 3X1X120 mm2 at the distribution substation of PT. Pelindo II (PT. Pelabuhan Indonesia) or IPC (Indonesia Port Corporation) Teluk Bayur Padang, which is associated with the capacity of the GCB SF6 power breaker. Determination of the breaker current, required nominal current, safety current and positive, negative and zero sequence impedance values, as well as short circuit current. Based on the calculations obtained, the PMT used is 18.59 kA for the 20 kV side and 25 kA for the 6.6 kV side. After analysis, it was obtained GCB SF6 20 kA for the 20 kV side and 25 kA for the 6.6 kV side.

Keywords: nominal current, rating current, short circuit current, breaking current capacity (breaker capacity), GCB SF6.