**Technological descrption :**

Superconductivity is a phenomena where the resistance of some material zero by cooling it to a cryogenic temperature .The HTS was found in 1986. We have developed a superconducting cable where we used coated conductors of YBCO wires in order to meet the requirement of low loss and low cost for a power cable & YBCO wire is also know as a coated conductor or 2nd generation HTS wire is expected to be applied for power cable when an AC current flows in a superconducting cable then AC loss is generated in the superconducting wire due to hysteresis behavior & reducing the AC loss is important because the AC loss becomes the load on refrigenerators that are used for cable cooling. YBCO wire with a coated conductor structure applied for an HTS cable in which intermediate layer & a superconducting layer are formed on a substrate & a silver layer is formed to protect the superconducting layer& the intermediate layer is made of an insulating material ,a superconducting layer with thin thickness if large current (over the critical current) flow in the YBCO wire the wire burn out immediately to prevent YBCO tape a copper tape is laminated on it. The Conductor of an HTS power cable has a structure in which the HTS wires are wound spirally around a former (multiple superconducting tapes are spirally wound on the center core called former). A large AC loss is generated at the perpendicular magnetic field on the edge of the tape when an HTS power cable is made with YBCO wires, how to decrease the perpendicular magnetic component applied to the HTS wire is the key point for AC loss reduction. We have found that by winding tapes with a width as narrow as possible around the former with gaps as narrow as possible between the tapes, and by making its shape closer to a cylinder shape the perpendicular magnetic component can be decreased & we can use laser cutting method for cutting these kind of tape as narrow as possible. When we actually cut the wire once & measured the critical current before & after cutting , degradation ratio of the critical current was found to be from 2 to 5 % . this indicate the heat affected zone was limited.Now the former we have made is covered by electric insulation layer & then by a superconducting shielding layer & a protecting layer which constitute a cable core & these core are accommodated in a thermal insulation pipe in which liquid nitrogen flows or say liquid nitrogen flow in the gap between core & inside of the thermal insulation pipe. The cable can be installed in a common cable duct of 150 mm in diameter.& equipment can laminated a 500 m long wire with 200 mm/hr of speed.