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## **Pitch Calculation of 4-layer HTS Power Transmission Cable for Balanced Sharing Current**

*Jin-Hong Joo\*, Seog-Whan. Kim\*, Jeonwook. Cho\*, Joon Han Bae\*, Hae Jong Kim\*,  
Ki Chul Seong\* and Jung Pyo Hong\*\**

\*KERI, P.O.BOX 20, Changwon, 641-600, Korea,

\*\*Dept. of Electrical Eng., Changwon Nat'al Univ., SarimDong, Changwon, 641-773, Korea\*\*

E-mail : jcrimson@freechal.com

**Abstract** – A typical HTS power transmission cable has multi-layer conductor structure to increase the current capacity. The tapes of the innermost layer are wound on a round former, and adjacent tapes of another layer are separated by a thin insulating film. However, usually the current is not evenly distributed among the layers because of inductance difference of each layer, and inductance is provided by a wound pitch of each layer's tape. Consequently a method to make the current distribution more uniform is a adjusting the tape winding pitch, hence reduce the AC loss. Thus, this paper describes a current distribution by adjusting a tape winding pitch of each layer. Also, this paper shows recommendation for future cable conductor prototypes.