

# Interlaboratory Comparison of Critical Current Measurements on Ag-sheathed Bi-2223 tapes

Kyu Won Lee<sup>a</sup>, Gi-Youl Han<sup>a,b</sup>

<sup>a</sup> *Korea Research Institute of Standards and Science, Taejon, Korea*

<sup>b</sup> *Chungbuk National University, Cheongju, Chungbuk, Korea*

Critical current is one of the most important parameters for practical applications using Ag-sheathed Bi-2223 superconducting tapes. There are many laboratories are developing the Ag-sheathed Bi-2223 tapes and their applications. We have performed a Round Robin test of Ag-sheathed Bi-2223 tapes to establish a standard procedure of the critical current measurements. Two specimen tapes were prepared for parallel and series comparisons and sent to five participating laboratories. The critical currents of the specimens were measured at 77 K in zero magnetic field. In the first comparison, four different specimens were used and participating laboratories made measurements using their own procedures. As a result, coefficients of variation for the first comparison showed 8-12%. A major source of these variations was attributed to different measurement techniques. Thus, the second comparisons of measurements were done on three specimens under specified measurement condition, particularly in terms of cooling procedure. The coefficient of variation decreased to 2.2%, which is regarded as a reasonable base for establishment of a standard measurement method.

keywords : Ag-sheathed Bi-2223 tape, critical current measurement, interlaboratory comparison, standardization.