

EUROMET PROJECT FINAL REPORT

1. Ref. No.: 626	2. Subject Field: Electricity / Josephson voltage standard	
3 Type of collaboration: COOPERATION		
4A. Partners: BIPM, LNE, NPL, METAS, SP, NMi, JV, PTB, VTT/MIKES, IEN, BEV	4B. CEC funded? NO	
5. Participating countries: International, France, United Kingdom, Switzerland, Sweden, The Netherlands, Norway, Germany, Finland, Italy, Austria		
6. Title: Analysis of different measurement set-ups for a programmable Josephson voltage standard		
<p>Results: The electrical characteristics of two different 1-V binary programmable Josephson arrays, an SINIS-type Josephson array and an externally shunted SIS-type Josephson array, were investigated at all metrology institutes. Various operational parameters were evaluated and compared using different Josephson Array Voltage Standard set-ups at microwave frequencies around 70 GHz. The results of the measurements show that both arrays have been working very well and the main differences were not imposed by the arrays themselves, but by the different measurement set-ups of the laboratories. A paper was presented at the CPEM 2002 conference, Ottawa, Canada, that summarizes most of these investigations [1].</p> <p>After the CPEM conference BEV, Austria, joined the project. Both arrays were successfully measured. In addition several other institutes (LNE, BIPM, and NMi) performed tests with one of the Josephson arrays in order to further investigate measurement routines or to verify instruments. The reports of the partners will be distributed to support/motivate future bilateral discussions. This would help all partners to further improve their set-ups or to investigate new components. Furthermore, to give all partners the possibility of testing equipment, both programmable Josephson arrays will still be available on request.</p> <p>[1] R. Behr et al., IEEE Trans. Instrum. Meas., vol. 52 (2003), in press.</p>		
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9. Completion date: 2003-01-31	10. Coordinator's signature: Ralf Behr	11. Date: 2003-02-11

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