This comparison on short gauge blocks measured by interferometry is an RMO Key Comparison and is parallel to the CCL Key Comparison CCL-K1. Participation of LNE, METAS and NPL ensures the link to the CCL-K1 for the purposes of the MRA.

The set of gauge blocks has the same composition as for the CCL-K1, i.e. ten steel gauge blocks and ten tungsten carbide gauge blocks.

The comparison lasted from October 1998 to October 2000 and involved 17 National Metrology Institutes. The draft A of the final report was discussed at the EUROMET contact persons meeting in Maribor (10-2001). A few laboratories have withdrawn their participation, for various reasons, with the agreement of all other participants.

This comparison pointed out that some of the gauge blocks were not stable and required a drift correction in the calculation of the deviation from the reference values. Consequently the uncertainty on the deviation from the reference value for each laboratory is increased compared to the CCL-K1 comparison.

In addition it appears that surfaces rapidly suffered from the repeated wringings, specially for steel gauge blocks, so that some laboratories, at the end of the loop, could not measure both faces and had some difficulties in determining the phase correction. Consequently, these laboratories increased their uncertainties of measurement compared to their best measurement capability.

The measurement results show a good agreement between laboratories. The deviation from the average is, except very few results, smaller than the stated standard uncertainty: one result for steel gauge blocks and nine for tungsten carbide gauge blocks on 160 measurements are unsatisfactory with respect to $E_k$ values ($|E_k| > 1$ for $k = 2$). Except for a few laboratories, the uncertainties given by all participants are rather coherent both in the components and in the quantification. This can be explained by the fact that many laboratories have the same type of interferometer.

Following these conclusions, an additional comparison (EUROMET project # 643, EUROMET L-K1a) was organized for those laboratories which have withdrawn and for those laboratories which have found explanations for any significant offset of their results and improved their process since the publication of the draft A of this report.