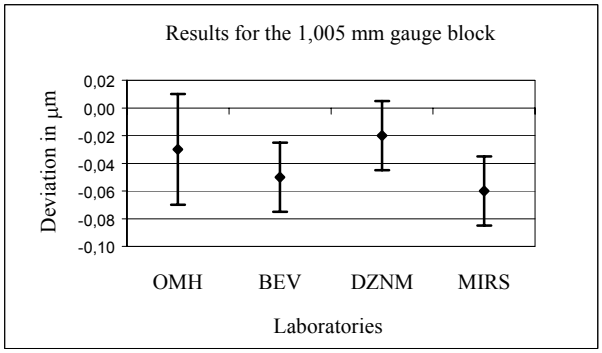
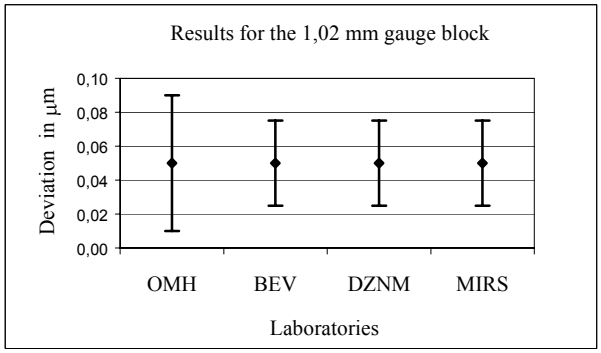
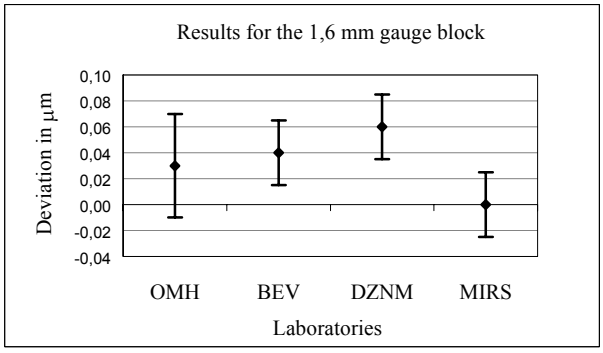
EUROMET PROJECT
FINAL REPORT

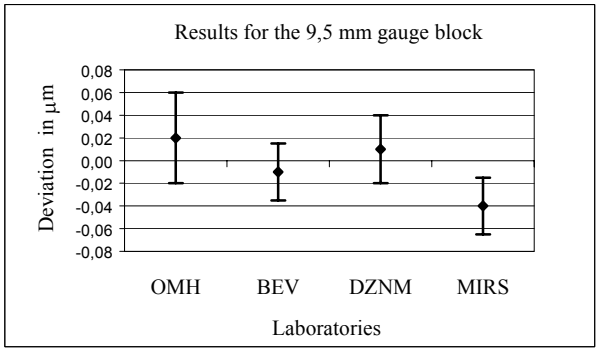
1.	Ref. No.: 652	2. Subject Field: **LENGTH**	
3	Type of collaboration: Co-operation in research		
4A.	Partners: **MIRS, BEV, OMH, DZNM** (institutions)	4B.	CEC funded? No
5.	Participating countries: **SI, AT, HU, HR**		
6.	Title: Calibration of short steel gauge blocks by mechanical comparison		

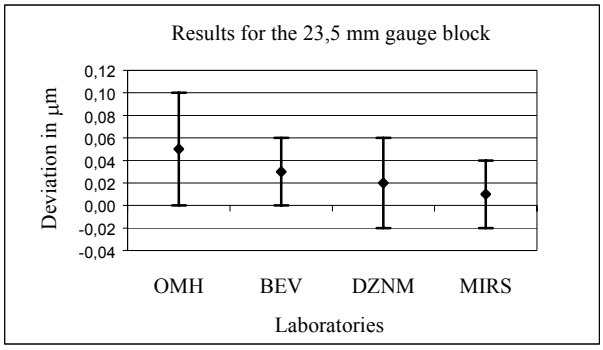
- Progress: The research project was agreed between Slovenian, Hungarian, Austrian and Croatian national metrology institutes with the purpose of showing metrological equivalence of calibration certificates issued by those institutes. The application for the Euromet project was sent in February 2002 to the chairman of the Euromet Length TC and the project was registered in March 2002. The comparison was organised by MIRS – LTM (Slovenia). Seven steel gauge blocks (1,005 mm; 1,2 mm; 1,6 mm; 9,5 mm; 3,5 mm; 50 mm; 90 mm) circulated among the participating laboratories. The gauge blocks were of grade K and of rectangular cross section, according to the international standard ISO 3650:1998. The measurements were performed in the period from April 18 to May 16 2002.
  The deviations of the central lengths from the nominal values and deviations in length relative to the central length at four corner measuring points were recorded for each gauge block. This report contains only results for the deviations of the central lengths. Variations in length were also reported by the laboratories but the uncertainties were not evaluated.
  The results are reported as the measured deviations in μm from nominal length for each gauge block. The uncertainty bars in the figures correspond to the laboratories' stated standard uncertainties (k=1).

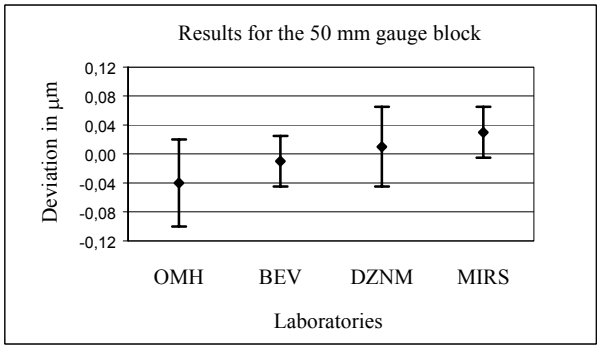


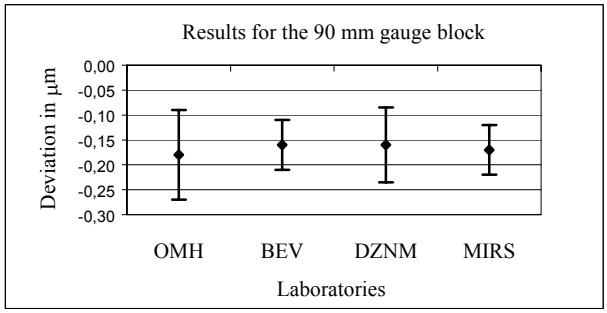












All results agree well within the stated uncertainties. Very good results for long gauge blocks (50 mm an 90 mm) show that the environmental conditions in the laboratories are well maintained and adequate for the stated uncertainties. The greatest contribution to the uncertainty seems to be uncertainty of calibration of the reference gauge blocks as can be also seen in the uncertainty budgets. An important fact is that the laboratories get their traceability from different sources:

- OMH – reference standards calibrated by DFM,
- BEV – reference standards calibrated by BEV,
- DZNM – reference standards calibrated by IMGC,
- MIRS – reference standards calibrated by BNM-LNE.

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9. Completion date: June 2002	10. Coordinator´s signature:	11. Date: December 2, 2002

Notes for completion of the form overleaf

*) Delete as appropriate