

## Extended data analysis of bilateral comparisons with air and natural gas up to 5 MPa

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In 2015, the PTB (Germany), Cesame Exadebit (France), NIM (China) and NIST (USA) performed several informal bilateral comparisons using critical venturi nozzles (CVN). The scope of the comparisons was the proof of the equivalence of their primary standards for gas flow with pressurized air and natural gas as well in a pressure range from 100 kPa up to 5 MPa.

At first, the paper will give an overview to technical background of the three different comparisons PTB-NIM, PTB-Cesame and NIM-NIST. Secondly, the equivalence of the participants will be demonstrated by the established, conventional evaluation for comparisons [Cox]. With the bilateral proof of the equivalence between PTB-Cesame, PTB-NIM and NIM-NIST we will discuss possible statements about the equivalence Cesame-NIM, PTB-NIST and Cesame-NIST.

Going beyond this, the data base gathered in these experiments allows demonstrating the application of curve fitting for the evaluation of comparisons. Some key points of the application of curves will be discussed and conclusions will be made for the future of comparisons in the field of fluid flow measurement.