CCM.P-K4 .2012

MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa

p_i: corrected mean gauge reading obtained by laboratory i (see CCM.P-K4.2012 Final Report, page 15)

u_i: combined standard uncertainty of p_i (see CCM.P-K4 Final Report, page 22)

Lab *i*	Nominal pressure / Pa	p_i / Pa	u_i / Pa	Measurement method	Date of measurement
PTB	1	1.002	0.006	Static expansion system and FRS5	June 2012
	3	3.004	0.006		
	10	10.007	0.010		
	30	30.00	0.02		
	100	99.99	0.02		
	300	299.95	0.02		
	1 000	999.83	0.03		
	3 000	2999.56	0.08		
	7 000	6998.94	0.17		
	10 000	9998.6	0.2		
CMI	1	1.005	0.019	Force balanced piston gauge	September 2012
	3	3.017	0.019		
	10	10.031	0.019		
	30	30.039	0.019		
	100	100.015	0.019		
	300	299.97	0.02		
	1 000	999.85	0.03		
	3 000	2999.54	0.06		
	7 000	6998.95	0.11		
	10 000	9998.73	0.15		
NMIJ	1	1.002	0.007	Static expansion system and calibrated transducer	November 2012
	3	3.006	0.007		
	10	10.01	0.03		
	30	30.00	0.08		
	100	99.96	0.09		
	300	299.92	0.08		
	1 000	999.80	0.09		
	3 000	2999.47	0.16		
	7 000	6998.9	0.3		
	10 000	9998.6	0.4		

MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa

p_i: corrected mean gauge reading obtained by laboratory i (see CCM.P-K4.2012 Final Report, page 15)

u_i: combined standard uncertainty of p_i (see CCM.P-K4 Final Report, page 22)

Lab i	Nominal pressure / Pa	p_i / Pa	u_i / Pa	Measurement method	Date of measurement
NIST	1	1.008	0.004	Mercury and oil ultrasonic interferometer manometers	April 2012, January 2013 and September 2013
	3	3.010	0.004		
	10	10.012	0.004		
	30	30.012	0.004		
	100	99.993	0.006		
	300	299.944	0.005		
	1 000	999.799	0.013		
	3 000	2999.43	0.02		
	7 000	6998.73	0.03		
	10 000	9998.41	0.04		
CENAM	1	0.992	0.014	Static expansion system and piston gauge	March 2013
	3	2.989	0.015		
	10	9.96	0.02		
	30	29.87	0.05		
	100	99.82	0.11		
	300	299.8	0.3		
	1 000	999.50	1.07		
	3 000	2999.51	0.06		
	7 000	6998.74	0.08		
	10 000	9998.39	0.09		
VNIIM	1	1.001	0.014	Mercury and oil laser interferometer manometers	April 2013
	3	2.999	0.014		
	10	10.000	0.015		
	30	29.998	0.015		
	100	99.951	0.014		
	300	299.865	0.019		
	1 000	999.57	0.06		
	3 000	2999.8	0.5		
	7 000	6999.2	0.5		
	10 000	9998.9	0.5		

CCM.P-K4 .2012

MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa

For each nominal pressure value, the key comparison reference value, p_R, is obtained from an unweighted mean of the measurement method means, excluding CENAM for the determination of p_R at 10 Paz and 30 Pa.

The combined standard uncertainty of p_R is u_R.

Nominal pressure / Pa	1	3	10	30	100
p_R / Pa	1.002	3.004	10.003	29.987	99.955
u_R / Pa	1.01E-05	3.00E-05	4.63E-05	1.12E-05	1.77E-03

Nominal pressure / Pa	300	1000	3000	7000	10000
p_R / Pa	299.904	999.726	2999.553	6998.902	9998.604
u_R / Pa	1.60E-03	7.56E-03	5.56E-03	9.38E-03	1.29E-02

The degree of equivalence of each laboratory with respect to the reference value is given by a pair of terms: $D_i = (p_i - p_R)$ and U_i, its expanded uncertainty at a 95% level of confidence, both expressed in Pa.

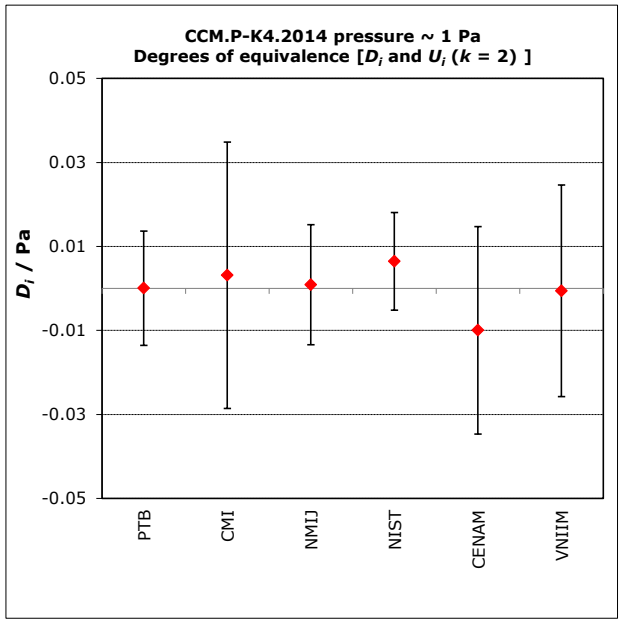
The degree of equivalence between two laboratories is given at p. 29 of the Final Report.

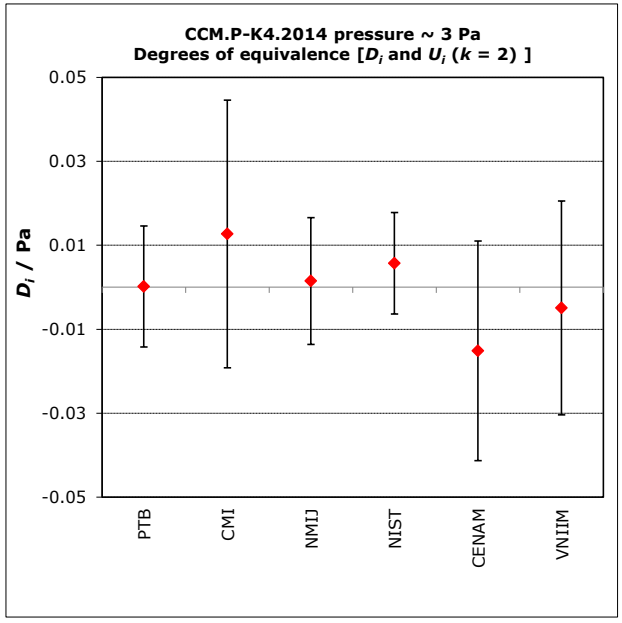
Lab *i*	1 Pa		3 Pa		10 Pa		30 Pa		100 Pa	
	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa
PTB	**0.000**	0.014	**0.000**	0.014	**0.004**	0.021	**0.018**	0.050	**0.039**	0.053
CMI	**0.003**	0.032	**0.013**	0.032	**0.028**	0.034	**0.052**	0.046	**0.061**	0.049
NMIJ	**0.001**	0.014	**0.001**	0.015	**0.005**	0.048	**0.013**	0.135	**0.004**	0.059
NIST	**0.006**	0.012	**0.006**	0.012	**0.010**	0.016	**0.024**	0.035	**0.038**	0.039
CENAM	**-0.010**	0.025	**-0.015**	0.026	**-0.044**	0.041	**-0.118**	0.095	**-0.138**	0.177
VNIIM	**-0.001**	0.025	**-0.005**	0.025	**-0.003**	0.028	**0.011**	0.042	**-0.004**	0.045

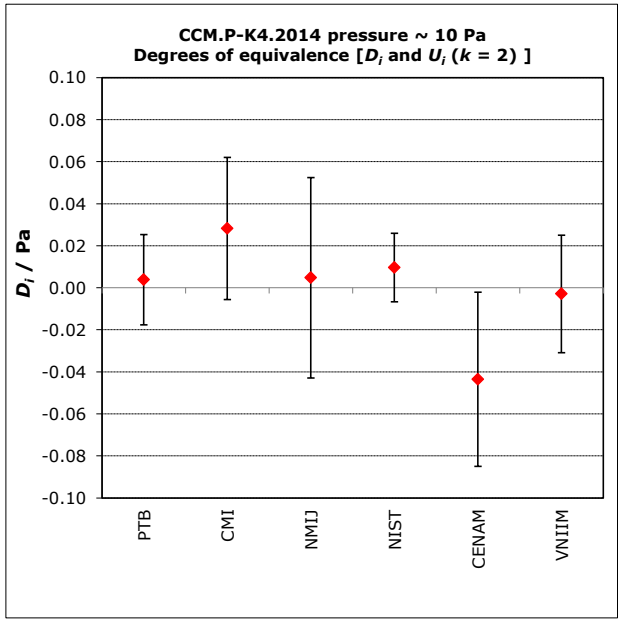
Lab *i*	300 Pa		1 000 Pa		3 000 Pa		7 000 Pa		1 0000 Pa	
	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa	D_i / Pa	U_i / Pa
PTB	**0.042**	0.117	**0.11**	0.36	**0.01**	0.21	**0.04**	0.34	**-0.03**	0.46
CMI	**0.063**	0.115	**0.12**	0.36	**-0.01**	0.19	**0.05**	0.27	**0.12**	0.34
NMIJ	**0.017**	0.171	**0.08**	0.39	**-0.08**	0.31	**-0.03**	0.49	**0.00**	0.62
NIST	**0.039**	0.110	**0.07**	0.36	**-0.12**	0.17	**-0.18**	0.21	**-0.19**	0.24
CENAM	**-0.122**	0.528	**-0.23**	1.78	**-0.04**	0.20	**-0.17**	0.24	**-0.21**	0.27
VNIIM	**-0.039**	0.114	**-0.15**	0.37	**0.25**	0.79	**0.28**	0.82	**0.31**	0.85

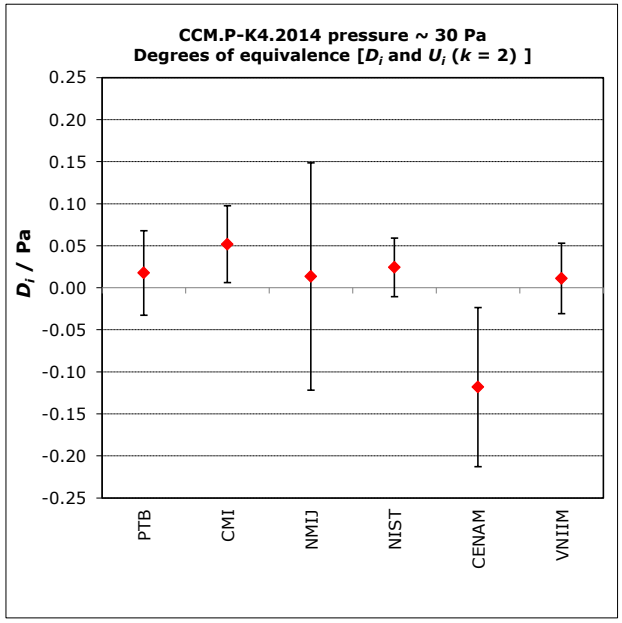
MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa



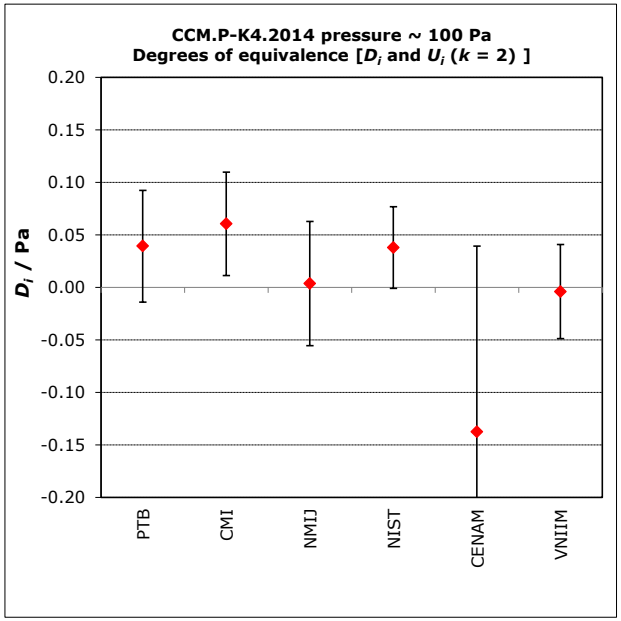


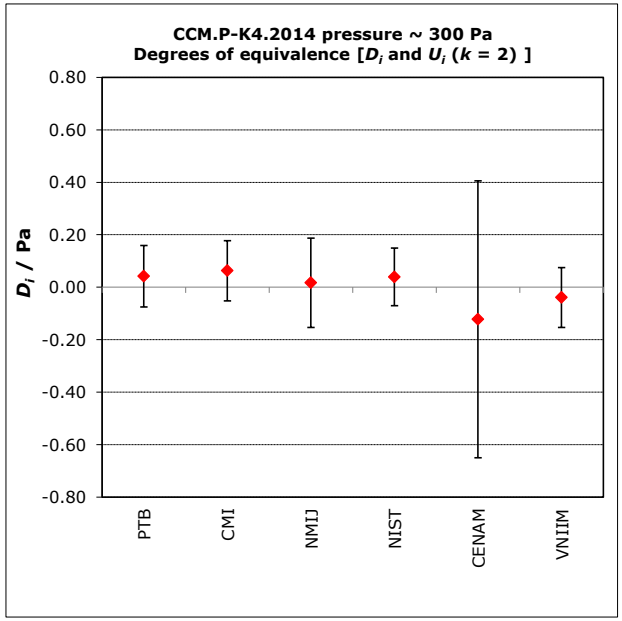


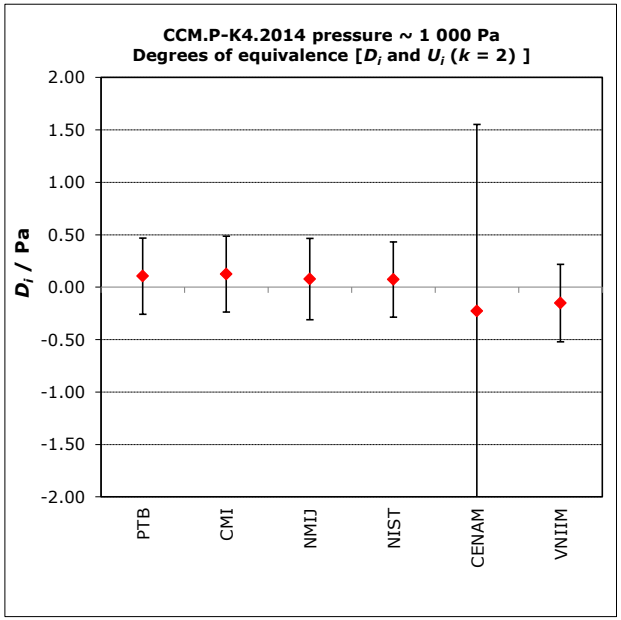


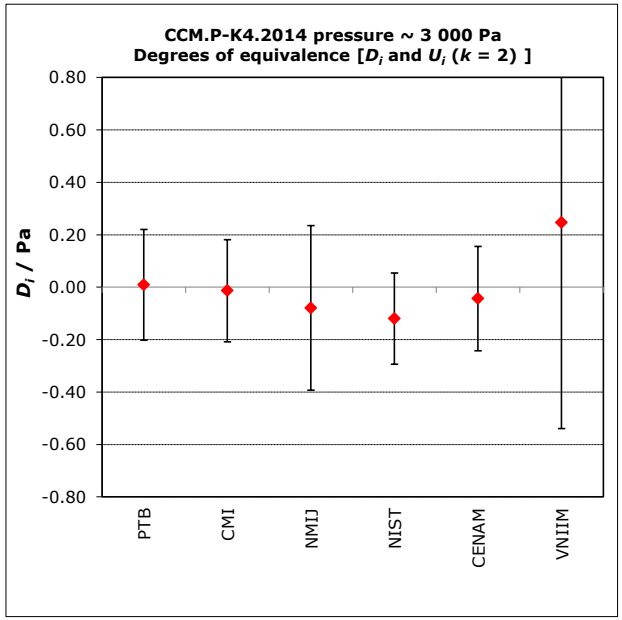
MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa









MEASURAND: Pressure

NOMINAL VALUES: 1 Pa, 3 Pa, 10 Pa, 30 Pa,100 Pa, 300 Pa, 1 000 Pa, 3 000 Pa, 7 000 Pa and 10 000 Pa