

CCL-GD4 Key comparison planning document

Version	Date	Comment
1.0	2009-07-13	Initial copy sent by RT to AL after CCL meeting and updates sent by S-L Tan
1.1	2009-09-01	Updated for latest info on APMP.L-K1.1, added NPL to EURAMET.L-K4.2004
1.2	2009-12-17	Added AU and JP to EURAMET.L-K3.2009
1.3	2010-02-02	Added EURAMET.L-K1.2
1.4	2010-04-27	Tidying up. Added EURAMET.L-K3.1
1.5	2010-05-21	INMETRO added as CCL member for SIM, latest KC info updated
1.6	2010-06-02	Minor edits post APMP report to WG-MRA, plus EURAMET.L-K3.1 is Final
1.7	2010-06-03	Minor edits post SIM report to WG-MRA
1.8	2010-06-28	Updates to participants of CCL-K1.2010
1.9	2011-09-07	Various updates prior to WG-MRA meeting 2011
1.10	2011-09-08	Change of status EURAMET.L-K5.2004.
1.11	2011-09-20	Updates to SIM KC
1.12	2011-09-30	APMP.L-K6 Final
1.13	2011-10-04	Updated after EURAMET TC-L meeting 2011, before WG-MRA meeting
1.14	2011-10-06	Updated during WG-MRA meeting 2011
1.15	2011-10-10	Added NPL to EURAMET.L-K6 list
1.16	2011-10-21	Added EURAMET K11 data and new K11-MeP sheet
1.17	2011-12-13	Added APMP.L-K1.1.2011, sim.L-K3 -> SIM.L-K3.2008
1.18	2012-02-10	Added EUROMET.L-K1.2011 final details
1.19	2012-04-13	Updated several comparisons
1.20_euramet	2012-08-28	All EURAMET TC-L member with CMCs added with their participation data; corrected CCL-S3 & EURAMET.L-S14 mix-up; added CMC column and calculation of years from last comparison for EURAMET TC-L members; some other smaller formulations /A. Lassila
		Added EUROMET.L-K4.2005 and EURAMET.L-K3.1 for Estonia, S11 participants corrected, GUM added to SIM.L-K3.2008, end year of EURAMET.L-k5 chandeg to 2007, updated CMCs
		from EURAMET.L.11.2012
1.201	2012-10-09	Added SMU to K3.2009
1.202	2012-10-22	Added DK to K4.2005
1.203	2012-11-8	Added EURAMET.L-K8.2013
1.3	2013-10-03	Added KC CMC from EURAMET.L.14.2013 (BG K3), checked EURAMET.L.13.2012 (no KC CMCs) and added KC CMCs from EURAMET.L.12.2012 (DFM K4); added EURAMET.L-K4.1.2013, Added UME for K11 2013
1.31	2013-10-04	
1.32.	2014-09-10	Name of follow-up EURAMET.L-K4 was updated to EURAMET.L-K4.2005.1; updated VSL stopped the surface roughness; BG CCL-K11 2014 partic. added
1.33	2015-10-25	Status update of various comparisons; cross check with CCL WG-MRA list
1.34	2016-10-15	Status update of various comparisons; cross check with CCL WG-MRA list
1.34	2016-10-15	Corrections coming from the WGMRA list (participant withdrawal, or addition)
1.35	2017-10-14	Status update of various comparisons; cross check with CCL WG-MRA list
1.36	2018-10-14	Status update of various comparisons; cross check with CCL WG-MRA list (v1.43)
1.45	2019-10-09	Status update and cross-check with CCL WGMRA v1.45
1.46	2019-11-99	Updates after the WG-MRA meeting including new KCDB links
1.47	2020-08-28	Updates: EURAMET.L-K5.2016
1.48	2020-10-08	Updates prior to WG-MRA meeting
1.49	2020-10-13	Updated after EURAMET TC-L meeting 2020. Added countries to EURAMET: HA (Bosniz & Herzegovina, IMBiH), MD (Moldova, INM-MD), ME (Montenegro, MBM), MK (N Macedonia, BoM)
1.50	2020-11-11	Updated KCDB2.0 links for comparisons, updated new comparisons.
1.51	2020-12-17	Post WG-MRA updates to participation
1.52	2021-02-02	Added APMP.L-K5.2021
1.53	2021-10-04	Updated prior to WG-MRA meeting
1.54	2021-10-18	Updated after WG-MRA and prior to CCL
1.55	2021-11-18	Updated after EURAMET TC-L meeting
1.56	2022-02-23	NMIJ accepted into APMP.L-K5, no longer in EURAMET.L-K5.n01
1.57	2022-09-07	SMU no longer have interferometric gauge block CMC, some updates, full SC list

	CMC	X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison
APMP																																								
AU (NMIA)	x					2						4			7				9													16							2	
CN (NIM)	x											4			7				9					12								16							2	
JP (NMIJ)	x											4			7				9					12	14							16							2	
KR (KRISS)	x											4			7																	16							2	
SG (A*STAR)	x														7				9					12								16		19					0	
COOMET																																								
VNIIM	x											4																						19					0	
EURAMET																																								
AT (BEV)	x												5											13									19						0	
CH (METAS)	x			1		2						4	5										12	13								18			19				2	
CZ (CMI, VÚGTK)	x			1			2						5			8				10						13						18		19					0	
DE (PTB)	x			1									5			8							12									18							2	
ES (CEM)	x			1					3				6	5					10							13						18	15		20				0	
FI (MIKES, FGI)	x												5			8							12			13								19	20				0	
FR (LNE, LNE-INM)	x			1								4	5												13								19						0	
IT (INRIM)	x			1									5										12									18		19					0	
NL (NMI VSL)	x			1									5												13								19						0	
SK (SMU)						2							5												13									19					0	
TR (UME)	x														8											13								19	20				0	
UK (NPL)	x			1								4	5												13									19	20				0	
AL (DPM)																																								
BE (SMD)	x												5													13							18						2	
BG (BIM)	x															8											13								20				0	
DK (DANIAmet-DFM, DTU, DTI)	x			1									5										11				13							20					0	
EE (Metroserit)																																			20				0	
GR (EIM)	x															8									13										20				0	
HA (IMBiH)																																								
HR (HMI/FSB-LPMD)	2012																																							
HU (BFKH)	x												5											11			13								20					0
IE (NSAI NML)																																								
LT (VMT/VMC)																																								
LV (LATMB)																																								
MD (INM-MD)																																								

	start	stop	KCDB number & link	Status	Publication reference
1	1991	1992	EUROMET.L-K1.Prev		(Metrologia, 1995, 32, 79-86)
2	1993	1994	CCDM gauge block comparison		(Metrologia, 1998 35, 97)
3	1998	1999	SIM.L-K1.Prev.		(Metrologia, 1999, 36, 421-432)
4	1998	2000	CCL-K1		(Metrologia, 2002, 39, 165-177)
5	2002	2003	EUROMET.L-K1		(KCDB, EUROMET project #471 Final report)
6	2001	2002	SIM.L-K1		(Metrologia, 2007, 44, Tech. Suppl. 04001)
7	2005	2006	APMP.L-K1		(Metrologia, 2006, 43, Tech. Suppl. 04004)
8	1994	1996	EUROMET.L-K1.1		(KCDB, EUROMET project #471 Final report)
9	1998	2000	APMP.L-K1.1		(Metrologia, 2009, 46, Tech. Suppl. 04005)
10	2008	2010	SIM.L-K1.2007		(Metrologia, 2012, 49, Tech. Suppl. 04010)
11	2010	2010	EURAMET.L-K1.2		(Metrologia, 2012, 49, Tech. Suppl. 04005)
12	2011	2013	CCL-K1.2011		(Metrologia, 2022, 59, Tech. Suppl. 04005)
13	2012	2014	EURAMET.L-K1.2011		(Metrologia, 2016, 53, Tech. Suppl. 04003)
14	2011	2012	APMP.L-K1.1.2011		(Metrologia, 2013, 50, Tech. Suppl. 04002)
15	2020	2021	AFRIMETS.L-K1.2020	Running	
16	2020	2021	APMPL-K1.2018	Running	
17	2018	2019	SIM.L-K1.2007.1		(Metrologia, 2021, 58, Tech. Suppl. 04002)
18	2020	2020	EURAMET.L-K1.2019		(Metrologia, 2022, 59, Tech. Suppl. 04002)
19	2022		CCL-K1.n01	Planning	
20	2022		EURAMET.L-K1.n01	Planning	

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
APMP																			
AU (NMIA)	x												2	4					
CN (NIM)	x												2	4					
JP (NMIJ)	x													4					
KR (KRISS)	x													4					
SG (A*STAR)	x													4					
COOMET																			
VNIIM	x												2						
EURAMET																			
AT (BEV)	x						1						2				3		
CH (METAS)	x						1										3		
CZ (CMI)	x																3		
DE (PTB)	x						1						2				3		
ES (CEM)	x						1										3		
FI (MIKES)	x						1										3		
FR (LNE)	x																3		
IT (INRIM)	x						1						2				3		
NL (NMI VSL)	x						1										3		
SK (SMU)	x																3		
TR (UME)	x																3		
UK (NPL)	x						1						2				3		
AFRIMETS																			
SA (NMISA)	x												2						
SIM																			
BR (INMETRO)	x																		
CA (NRC)	x												2						
MX (CENAM)	x																		
USA (NIST)	x												2						

CCL-K2 long gauges joined with CCL-K1 for future comparisons, limited to L <= 500 mm

	start	stop	KCDB number & link	Status	Publication reference
1	1993	1995	EUROMET.L-K2.Prev		(Metrologia, 1996, 33, 485-491)
2	1999	2001	CCL-K2		(Metrologia, 2003, 40, Tech. Suppl. 04004)
3	2002	2005	EUROMET.L-K2		(Metrologia, 2006, 43, Tech. Suppl. 04003)
4	2000	2002	APMP.L-K2		(Metrologia, 2006, 43, Tech. Suppl. 04005)

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison																														
APMP																																																																					
AU (NMIA)	x																		3						7								13							1																													
CN (NIM)	x													2					3						7								15							1																													
JP (NMIJ)	x													2					3						7								15							1																													
KR (KRISS)	x													2					3														15							1																													
SG (A*STAR)	x																		3					6		8							15							1																													
COOMET																																																																					
VNIIM	x													2										10			8														8																												
EURAMET																																																																					
AT (BEV)																																																																					
CH (METAS)	x										1			2									5						12											5																													
CZ (CMI, VUGTK)	x										1												6		7			8					13							1																													
DE (PTB)	x										1			2									5	6		8	8	8	12										5																														
ES (CEM)	x										1																							15	11?					1																													
FI (MIKES, FGI)	x										1												5											13						1																													
FR (LNE, LNE-INM)	x										1			2									5										13						1																														
IT (INRIM)	x										1			2							9			5			11							15	11?					1																													
NL (NMI VSL)	x										1												5		6								13							1																													
SK (SMU)	x										1			2														8						13						8																													
TR (UME)	x										1												5	6									15							1																													
UK (NPL)	x										1												5												13						1																												
AFRIMETS																																												2					3																				
SA (NMISA)																																		15							1																												
SIM																																																																					
BR (INMETRO)	x																						4										14	15						1																													
CA (NRC)														2																			14	15																																			
MX (CENAM)	x													2									4										14	15						1																													
USA (NIST)	x													2									4										14							3																													

? Join 15 ?

	start	stop	KCDB number & link	Status	Publication reference
1	1996	1999	EUROMET.L-K3.Prev		(EUROMET Project 371, PTB-report F-43, 2001)
2	2000	2002	CCL-K3		(Metrologia, 2009, 46, Tech. Suppl. 04004)
3	2005	2007	APMP.L-K3		(Metrologia, 2016, 53, Tech. Suppl. 04006)
4	2008	2010	SIM.L-K3.2008		(Metrologia, 2015, 52, Tech. Suppl. 04008)
5	2010	2010	Loop 1		
6	2011	2012	Loop 2		
7	2013	2013	Loop 3		(Metrologia, 2018, 55, Tech. Suppl. 04001)
8	2014	2016	Loop 4		Note: this comparison ran in 4 loops over long timescale
9	2008	2008	EURAMET.L-K3.1		(Metrologia, 2010, 47, Tech. Suppl. 04005)
10	2011	2012	COOMET.L-K3	Draft B under review	
11	2014	2014	EURAMET.L-K3.2009.1		(Metrologia, 2015, 52, Tech. Suppl. 04011)
12	2017	2017	EURAMET.L-K3.2009.2		(Metrologia, 2018, 55, Tech. Suppl., 04005)
13	2021	2022	EURAMET.L-K3.n01	Running	Recently renumbered as EURAMET.L-K3.n01
14	2019	2021	SIM.L-K3.2019	Draft B under review	
15	2021		CCL-K3.2020	Running	

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison
APMP																																							
AU (NMIA)	x													2						4																	1		
CN (NIM)	x													2														8										7	
JP (NMIJ)																				4																			
KR (KRISS)	x													2						4																	1		
SG (A*STAR)	x																			4																	1		
COOMET																																							
VNIIM	x													2														8					10					2	
EURAMET																																							
AT (BEV)	x																		3									9									6		
CH (METAS)	x																		3								8		9									6	
CZ (CMI, VUGTK)	x									1									3										9									6	
DE (PTB)	x																		3										9									6	
ES (CEM)	x																		3									8	9									6	
FI (MIKES, FGI)	x									1									3										9									6	
FR (LNE, LNE-INM)	x									1									3										9									6	
IT (INRIM)	x									1				2					3							7		8		9								6	
NL (NMI VSL)	x									1									3						7				9									6	
SK (SMU)																																							
TR (UME)	x									1									3										9									6	
UK (NPL)	x									1				2					3								7											9	
AFRIMETS																																							
SA (NMISA)	x													2															8									7	
SIM																																							
BR (INMETRO)	x																		3		6							8									7		
CA (NRC)																			3									8											
MX (CENAM)	x													2							6																7		
USA (NIST)	x													2							6								8								7		

	start	stop	KCDB number & link	Status	Publication reference
1	1996	1998	EUROMET.L-K4.Prev		(Metrologia, 2000, 37, 253-260)
2	2000	2002	CCL-K4a CCL-K4b		(KCDB)
3	2005	2007	EUROMET.L-K4.2005		(Metrologia, 2010, 47, Tech. Suppl. 04001) , (Metrologia, 2010, 47, Tech. Suppl. 04003)
4	2008	2010	APMP.L-K4		(Metrologia, 2014, 51, Tech. Suppl. 04004)
5	2006	2008	COOMET.L-K4.b		Abandoned
6	2009	2010	SIM.L-K4.2009		(Metrologia, 2015, 52, Tech. Suppl. 04004)
7	2013	2014	EURAMET.L-K4.2005.1		(Metrologia, 2020, 57, Tech. Suppl. 04003)
8	2015	2017	CCL.K4.2015	Draft B	
9	2016	2018	EURAMET.L-K4.2015		(Metrologia 2021 58 Tech. Suppl. 04004)
10	2020	2021	COOMET.L-K4.2021	Re-measure needed before Draft A	
11	2021		APMP.L-K4.n01	Registered	

	CMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison
	X/since																																						
APMP																																							
AU (NMIA)	x													2				3	4														8					1	
CN (NIM)	x													2					4											6			8					1	
JP (NMIJ)	x													2					4					5					6				8					1	
KR (KRISS)	x													2					4														8					1	
SG (A*STAR)																														6			8						
COOMET																																							
VNIIM																		3																					
EURAMET																																							
AT (BEV)	x																	3										6										6	
CH (METAS)	x									1				2						4									6									6	
CZ (CMI, VÚGTK)	x																	3											6									6	
DE (PTB)										1				2																									
ES (CEM)	x									1				2				3											6					9				0	
FI (MIKES, FGI)	x																	3																				6	
FR (LNE, LNE-INM)	x																	3										6					8	9				0	
IT (INRIM)	x									1								3										6			6							6	
NL (NMI VSL)	x									1								3												6				8	9				0
SK (SMU)																																							
TR (UME)																																							
UK (NPL)	x									1								3										6						8					6
AFRIMETS																																							
SA (NMISA)	x																	3											6									6	
SIM																																							
BR (INMETRO)	x																	3	4														9					0	
CA (NRC)																		3												6									
MX (CENAM)	x													2				3												6								6	
USA (NIST)	x													2						4									6									6	

	start	stop	KCDB number & link	Status	Publication reference
1	1996	1998	EUROMET.L-K5.Prev		(PTB Report F-37, September 1999)
2	1999	2002	CCL-K5		(Metrologia, 2006, 43, Tech. Suppl. 04006)
3	2004	2007	EUROMET.L-K5.2004		(Metrologia, 2012, 49, Tech. Suppl. 04008)
4	2006	2007	APMP.L-K5.2006		(Metrologia, 2012, 49, Tech. Suppl. 04007)
5	2012	2012	APMP.L-K5.2006.1		(Metrologia, 2017, 54, Tech. Suppl. 05006)
6	2016	2017	EURAMET.L-K5.2016		(Metrologua 2020, 57, Tech. Suppl. 04002)
7	2014	2015	APMP.L-K5.2014		Abandoned
8	2021	2022	APMP.L-K5.2021	Running	
9	2022		EURAMET.L-K5.n01	Planning	

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
APMP																					
AU (NMIA)	x							1							2					4	
CN (NIM)	x														2					4	
JP (NMIJ)	x														2					4	
KR (KRISS)	x																			4	
SG (A*STAR)																					
COOMET																					
VNIIM															2						
EURAMET																					
AT (BEV)	x																				
CH (METAS)	x																3				
CZ (CMI)	x							1							2		3				
DE (PTB)								1							2		3				
ES (CEM)	x																				
FI (MIKES)	x																3			4	
FR (LNE)	x													2							
IT (INRIM)	x																			4	
NL (NMI VSL)	x													2		3					
SK (SMU)																					
TR (UME)																					
UK (NPL)	x													2		3					
AFRIMETS																					
SA (NMISA)	x							1												4	
SIM																					
BR (INMETRO)	x																			4	
CA (NRC)								1							2					4	
MX (CENAM)	x														2						
USA (NIST)	x														2						

CCL-K6 comparison series halted. DG6 discussing new artefacts and comparisons

	start	stop	KCDB number & link	Status	Publication reference
2	2000	2003	CCL-K6		(Metrologia, 2009, 46, Tech. Suppl. 04003)
3	2004	2005	EUROMET.L-K6		(Metrologia, 2013, 50, Tech. Suppl. 04001)
1	1996	1996	SIM.L-K6.Prev.		(Proc. International Dimensional Workshop on "Metrology of the 21st Century", May 1999)
4	2008	2008	APMP.L-K6		(Metrologia, 2014, 51, Tech. Suppl. 04003)
5	2022	2024	APMP.L-S10	Being planned as supplementary comparison	

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison																													
APMP																																																																				
AU (NMIA)	x													2													5													7																												
CN (NIM)	x															3			4									5							8			8		1																												
JP (NMIJ)	x															3											5	5											7																													
KR (KRISS)	x																										5												7																													
SG (A*STAR)	x																		4								5												7																													
COOMET																																																																				
VNIIM	x															3				4													8							1																												
EURAMET																																																																				
AT (BEV)	x													2				4																	8					1																												
CH (METAS)	x				1									2		3				4												8							1																													
CZ (CMI, VÚGTK)	x													2						4														8					1																													
DE (PTB)	x				1									2		3			4														8						1																													
ES (CEM)	x													2					4														8						1																													
FI (MIKES, FGI)	x				1									2		3			4														8						1																													
FR (LNE, LNE-INM)	x				1											3									6		5						8						1																													
IT (INRIM)	x				1											3			4								7							8					6																													
NL (NMI VSL)	x				1											3			4															8					1																													
SK (SMU)	x																	4																8					1																													
TR (UME)																																		8																																		
UK (NPL)	x				1															4														8					1																													
AFRIMETS																																																																				
SA (NMISA)	x																										5													7																												
SIM																																																																				
BR (INMETRO)																			4									5																																								
CA (NRC)																				4																																																
MX (CENAM)	x																		4																8				1																													
USA (NIST)	x															3			4														8						1																													

	start	stop	KCDB number & link	Status	Publication reference
1	1992	1993	EUROMET.L-S1		(EUROMET Project 252, Final report, BNM-LNE Report, September 1995)
2	2003	2004	EUROMET.L-S14		(Metrologia, 2003, 40, Tech. Suppl. 04002)
3	2000	2002	CCL-S3		(EUROMET.L-S14 Final Report, 2004, 38 pages)
4	2006	2008	EUROMET.L-K7.2006		(Metrologia, 2012, 49, Tech. Suppl. 04006)
5	2015	2016	APMP.L-K7		Met Tech. Supp MISSING
6	2014	2014	EURAMET.L-K7.2014		(Metrologia, 2015, 52, Tech. Suppl. 04007)
7	2016	2017	SIM.L-K7.2016	Draft B	
8	2021		EURAMET.L-K7.n01	Draft Protocol (PTB pilot)	

	CMC X/since	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from start of last comparison
APMP																																							
AU (NMIA)	x																			3											6	7						1	
CN (NIM)	x																				3											6	7					1	
JP (NMIJ)	x																				3											7						1	
KR (KRISS)	x																				3											7						1	
SG (A*STAR)	x																			3					5									7				1	
COOMET																																							
VNIIM	x																														6			7				2	
EURAMET	x												2							3			4		5	5						6	7					1	
AT (BEV)	x																								5							6						2	
CH (METAS)	x												2												5							6						2	
CZ (CMI, VÚGTK)	x												2									4				5						6						2	
DE (PTB)	x												2							3												6						2	
ES (CEM)	x												2																			6						2	
FI (MIKES, FGI)	x												2												5													9	
FR (LNE, LNE-INM)	x																						4		5													9	
IT (INRIM)	x												2										4		5													9	
NL (NMI VSL)													2										4		5														
SK (SMU)													2																										
TR (UME)	x												2													5													9
UK (NPL)	x												2							3			4				5						6		7				2
AFRIMETS																																							
SA (NMISA)	x																				3					5												9	
SIM																																							
BR (INMETRO)	x												1								4					5												9	
CA (NRC)													1																										
MX (CENAM)	x												1								4													7				1	
USA (NIST)	x												1								3	4											7	?				1	

	start	stop	KCDB number & link	Status	Publication reference
1	2000	2001	SIM.L-S2		(Metrologia, 2006, 43, Tech. Suppl. 04002)
2	2001	2002	EUROMET.L-S11		(Metrologia, 2004, 41, Tech. Suppl. 04001)
3	2008	2010	APMP.L-K8		(Metrologia, 2013, 50, Tech. Suppl. 04003)
4	2009	2011	EURAMET.L-K8		(Metrologia, 2017, 54, Tech. Suppl. 04005)
5	2013	2015	EURAMET.L-K8.2013		(Metrologia, 2015, 53, Tech. Suppl. 04001)
6	2020	2020	EURAMET.L-K8.2020	Running	
7	2021	2022	APMP.L-K8.2021	Running	

	CMC x/since YYYY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Years from last comparison																													
APMP																																																																				
AU (NMIA)																																R																																				
CN (NIM)	x																					4									R								0																													
JP (NMIJ)	x																				4									R								Node																														
KR (KRISS)	x																													R								0																														
SG (A*STAR)	x																				4									R								0																														
COOMET																																																																				
VNIIM	x																															R								>10																												
EURAMET																																											1								3																	Ref.
AT (BEV)	x										0					1					3																		1																													
CH (METAS)	x		0				0															4											15						Other																													
CZ (CMI, VÚGTK)	x					0				0	0				1							4											15						1																													
DE (PTB)			0									0																											Other																													
ES (CEM)	x					0	0						1					2					5															11																														
FI (MIKES, FGI)	x			0					0	0					1					3																		Node																														
FR (LNE, LNE-INM)	x		0				0								1	2		2																				16																														
IT (INRIM)	x						0						1			2		2																				16																														
NL (NMI VSL)	x						0								1	2											9											7																														
SK (SMU)	x					0											2					4										R						12																														
TR (UME)	x					0									1		2	2			3					7				11								5																														
UK (NPL)	x						0						1												7													Node																														
AFRIMETS																																																																				
SA (NMISA)	x																						6								12								4																													
SIM																																																																				
BR (INMETRO)	x																				3		5															11																														
CA (NRC)	x																																					Node																														
MX (CENAM)	x																					5										R						11																														
USA (NIST)	x																						6															10																														

	start	stop	KCDB number & link	Status	Publication reference
0	1991		BIPM.L-K10		Phys. Rev. Lett., 2000, 85, 18, 3797-3800 Appl. Phys. B, 2001, 72, 221-226 Proc. SPIE, 2001, 4269, 122-133
1	2000	2003	Calibration at BIPM		
2	2004	2006	BIPM.L-K11		(Metrologia, 2005, 42, Tech. Suppl. 04002)(Metrologia, 2005, 42, Tech. Suppl. 04003)(Metrologia, 20(Metrologia, 2005, 42, Tech. Suppl. 04004)
3	2007	2009	CCL-K11	Report for 2007 - 2009	Metrologia, 2010, 47, Tech. Suppl. 04009
4	2010	2010		Report for 2010	(Metrologia, 2011, 48, Tech. Suppl. 04001)
5	2011	2011		Report for 2011	(Metrologia, 2012, 49, Tech. Suppl. 04009)
6	2012	2012		Report for 2012	(Metrologia, 2015, 52, Tech. Suppl. 04005)
7	2013	2013		Report for 2013	(Metrologia, 2015, 52, Tech. Suppl. 04006)
8	2014	2014		Report for 2014	(Metrologia, 2016, 53, Tech. Suppl. 04007)
9	2015	2015		Report for 2015	(Metrologia, 2017, 54, Tech. Suppl. 04001)
10	2016	2016		Report for 2016	(Metrologia, 2018, 55, Tech. Suppl. 04003)
11	2017	2017		Report for 2017	(Metrologia, 2018, 55, Tech. Suppl. 04004)
12	2018	2018		Report for 2018	
13	2019	2019		Report for 2019	
14	2020	2020		Report for 2020	
15	2021	2021		Report for 2021	
R = requested but postponed due to COVID					
APMP.L-K11 ITRI, MSL, NIM, NIMT, NMIJ, NMISA, SIRIM, SCL 2004					
PTB offers CMCs but take a different approach to K11 equivalancy (see WGMRA-19-5.9-3_CCL-K11_TechnicalProtocol_v2.96.docx)					

[illegible]

Number	Title	Participants
CCL-S1	Nanometrology: one-dimensional gratings	METAS, ITRI, IMGC, DFM, KRISS, NIM, NIST, NMU, NPL, PTB, VNIIM
CCL-S2	Nanometrology: step height standards	PTB, CEM,ITRI, IMGC, DFM, GUM, KRISS, METAS, NIM, NIST, NMU, VSL, NPL, VNIIM
CCL-S3	Nanometrology: line scale standards	PTB, LNE, ITRI, IMGC, METAS, MIKES, NIM, NIST, NMU, NRC, RISE, VNIIM
CCL-S4	Nanometrology: two-dimensional gratings	DFM, CMI, ITRI, INRIM, KRISS, METAS, MIKES, NIM, NIST, NMU, NPL, PTB
AFRIMETS.L-S3	Calibration of gauge blocks by mechanical comparison	NIS (EG), COSQ (Iraq), LCAE (Tunisia), NMISA (SA), NSCL (Syria)
AFRIMETS.L-S4	Calibration of gauge blocks by mechanical comparison	LCAE (Tunisia), PTB
AFRIMETS.L-S5	Mechanical determination of length	NIS (EG), BOBS (Botsw.), GSA (Ghana), KEBS (Kenya), LPEE-LNM (Morocco), MSB (Maurit.), NMIE (Ethio.), NMISA (SA), TBS (Tanz.), ZMA (Zamb.)
APMP.L-S1	Thermal expansion coefficient of gauge blocks	NMU, CENAM, CMI, INRIM, METAS, MIKES, PTB
APMP.L-S2	Nanometric lateral scale	NMU, PTB
APMP.L-S3	Gauge block by mechanical comparison	KRISS, NIMT, NML-SIRIM, NPLI, NPSSL (Pakistan), KIM-LIPI, VMI-STAMEQ (Viet Nam)
APMP.L-S3.4.01	Angle gauge blocks	NIMT, EMI (UAE), A*STAR, NMIA, NMIM (Malaysia), SASO-NMCC, SE Ukremtrteststandard, SNSU-BSN (Indonesia), CMI-STATMEQ (Viet Nam)
APMP.L-S4	Geometrical roundness measurements using error separation	NIMT, ITRI, KRISS, NIM, A*STAR, NMIA, NMU, NMISA
APMP.L-S5	Nano particles measurements	ITRI, CENAM, DFM, INMETRO, INRIM, KRISS, LNE, METAS, NIM, NIMT, NMIA, NMU, PTB
APMP.L-S6	Long gauge blocks by comparative method	NIMT, KRISS
APMP.L-S7	Comparison of step height measurements	NPLI, BEV, NIMT, A*STAR, MNJ
APMP.L-S8	Flatness of optical flat measured by flatness interferometer	NIMT, MSL, NIM, A*STAR, NMU, NMISA, NPLI
APMP.L-S9	Thread	NIM, NIMT, A*STAR, PTB
APMP.L-S10	Calibration of coordinate measuring machine (CMM)	NMU
APMP.L-S11	Nanometrology: One-Dimensional Gratings	NIM, KRISS, NIMT, A*STAR, NMIA, NMU
COOMET.L-S1	Comparison of comparators with photoelectric microscopes	NSC, KazinMetr, VNIIM
COOMET.L-S3	Comparison of high accuracy gauge block interferometers	NSC, KazStandard
COOMET.L-S6	Comparison of standard of evolvent surface	NSC, VNIIMS
COOMET.L-S7	Comparison of standards of Length	BelGIM (Belarus), GUM, KazStandard, NSC, SE Ukrmteststandard (Ukraine), SMU
COOMET.L-S8	Comparison of straghtness and flatness national standards	UNIM (Ru), BelGIM (Belarus), KazStandard
COOMET.L-S9	Stabilized He-Ne/2lasers at wavelength 633 nm	VNIIM, BelGIM, KazStandard, NSC
COOMET.L-S10	Comparison of length standards for measuring gear parameters	BelGIM, VNIIMS
COOMET.L-S13	Comparison of reference measuring instruments of surface parameters	NSC, VNIIMS
COOMET.L-S14	Comparison of length standards in the range from 0.001 mm to 1 mm	NSC, KazStandard
COOMET.L-S15	Comparison of flatness standards	NSC, BelGIM, VNIIMS
COOMET.L-S16	Comparison of standards in the field of surface density of coating measurements and coating thickness	PTB, UNIM (Ru)
COOMET.L-S17	Comparison of standards in the field of roundness measurements	NSC, BelGIM, VNIIMS
COOMET.L-S18	Comparison of the determination of parameters linked to involute gears	NSC, PTB, VNIIMS
COOMET.L-S19	Comparison of profiles of measuring bridges	BelGIM, KazStandard
COOMET.L-S20	Calibration of gauge blocks	NMI (MD), INM (RO), PTB, VMC
COOMET.L-S21	Interference units for measurement of tapes up to 20 m	VNIIM, BelGIM, KazStandard
COOMET.L-S22	End standards	NSC, GEOSTM (Georgia)
COOMET.L-S23	Comparison of precision range-finders	NSC, NIM
COOMET.L-S24	Comparisons of precise navigation systems GPS/GLONASS	NSC, BelGIM, NIM
COOMET.L-S25	Nanometer standards	NSC, PTB
COOMET.L-S26	Coordinates of one-dimensional standards	NSC, BelGIM, VNIIMS
COOMET.L-S27	End standards	NSC, BelGIM, FTMC (Lithuania), GEOSTM (Georgia), KazStandard, UzNIM (Uzbekistan)
COOMET.L-S28	Supplementary comparisons of standards in the field of measurement of 3D parameters of surface texture	VNIIMS, BelGIM, KazinMetr
COOMET.L-S29	Calibration of gauge blocks by interferometry on measurement standards of length	BelGIM, KazStandard, NSC, PTB, SE Ukrmteststandard, VNIIM
COOMET.L-S30	Involute gears using a complex standard	VNIIMS, BelGIM
COOMET.L-S31	Linear scale	BelGIM, KazStandard, NSC, SE Ukrmteststandard, VNIIM
COOMET.L-S32	Calibration of long distance standards	BelGIM, SE Ukrmteststandard, VNIFITRI, VNIIM
EUROMET.L-S1	Line scale measurement	BIPM, LNE, MIKES, INRIM, METAS, NMI-VSL, NPL, PTB, RISE
EUROMET.L-S2	Thermal expansion of gauge blocks	METAS, INRIM, NMI-VSL, NPL, PTB
EUROMET.L-S3	Depth setting standards	TUE (NL), CEM, INRIM, METAS, NIST, VSL, PTB, RISE, MIKES
EUROMET.L-S4	External diameter of wires	LNE, METAS, NPL, PTB
EUROMET.L-S5a	Roundness	RISE, LNE, INRIM, DTH (DK), METAS, VSL, PTB
EUROMET.L-S5b	Roundness profiles	TUE (NL), INRIM, METAS, VSL, PTB, RISE
EUROMET.L-S6	Standards of thermal expansion	PTB, NMI-VSL, NPL
EUROMET.L-S7	Flatness of surface plates	PTB, VSL, NPL, MIKES
EUROMET.L-S8	Nd:YAG lasers	INRIM, PTB
EUROMET.L-S9	Two dimensional grid	NPL, PTB
EUROMET.L-S10	Squareness measurements	SMU, LNE, CEM, GUM, IPO, METAS, MIKES, VSL, BFKH, PTB, SMIS, RISE
EUROMET.L-S11	Surface texture measurements	PTB, BEV, CEM, CMI, INRIM, DFM, GUM, IPO, METAS, MIKES, VSL, NPL, SMU, RISE, UME, VMT
EURAMET.L-S12	Calibration of gauge blocks by mechanical comparison	NML(IE), BEV, CMI, EIM, GUM, MIKES, MIRS, BIM (BG), NPL, BFKH, UME, VMT/VMC
EUROMET.L-S13	Cylindrical artefacts	PTB, LNE, IMRIM, METAS, NIST, VSL, RISE
EUROMET.L-S14	Steel tape measurements	METAS, BEV, CEM, CMI, GUM, INM, JV, LATMB, MIKES, MIRS, BIM, NMIA (Australia), BFKH, PTB, SMD, RISE
EUROMET.L-S15	Step height standards	PTB, CMI, INRIM, METAS, VSL
EUROMET.L-S15a	Step height standards	PTB, CMI, INRIM, MIKES, A*STAR, VSL
EUROMET.L-S18	Calibration of gauge blocks by comparison	NPL, FSB, INM, JV, LATMB, METROSERT, MSA, NML (IE), SMD
EUROMET.L-S17	Length intervals on a steel tape	METAS, METROSERT, UME
EUROMET.L-S18	Squareness measurements	SMU, MIKES
EUROMET.L-S19	Squareness measurements	SMU, GUM
EURAMET.L-S20	Laser distance measuring instruments	GUM, METROSERT, BEV, CEM, CMI, INM, INRIM, JV, METAS, MIKES, PTB, SMU, RISE
EURAMET.L-S21	Comparison of parallel thread gauges	FSBm METROSERT, BEV, INRIM, LNE, METAS, MIKES, MIRS, BFKH, UME
EURAMET.L-S22	Calirbation of gauge blocks by mechanical comparison	DTI (DK), METROSERT, BEV, BMM (Montenegro), CEM, DFM, LATMB, MCCA-A-SMI (Malta), MIRS, NPL, NSAI NML, VMT/VMC
EURAMET.L-S23	High precision roundness measurement by error separation techniques	CEM, DTI, INRIM, IPO, LNE, SMD, VSL
EURAMET.L-S24	Involute gear standards	PTB, NGML, NIM, NIMT, NMU, NSC
EURAMET.L-S26	Distance measurements using pocket-type laser instruments (EDMs)	CEM, BEV, VSL
EURAMET.L-S26	Depth of v-shaped grooves	PTB, BEV, CEM, GUM, INRIM, MIKES, NMISA, SP, UME, VNIIMS
EURAMET.L-S26.1	Depth of v-shaped grooves	MIKES, CEM, PTB, UME
EURAMET.L-S27	Length of stainless steel tapes	PTB, METROSERT, BEV, BFKH, BIM, BMM, CEM, CMS, GUM, INTI (Arge.), IPO, JV, LATMB, MASM (Mong.), MIRS, NIM, RISE, SASO, SMD, UME, VNIIM, VUGTK/RIGTC (CZ)
EURAMET.L-S28	Flatness of surface plates	PTB, NIM, NMU, VNIIMS
EURAMET.L-S29	Measurement of a 1 mm stage micrometer	BEV, CEM, DMDM, GUM, INM, INMETRO, INRIM, INTI, NIM, NIMT, NMISA, RISE, UME
EURAMET.L-S30	Determination of roundness in the equator of two alumina spheres	CEM, DTI, INRIM, LNE, VSL
EURAMET.L-S31	Transducer displacement error	MIRS, BEV, CEM, DFM, DTI, JV, METAS, MIKES, VSL
GULFMET.L-S1	Calibration of gauge blocks by mechanical comparison	EMI (UAE), DGSM (Oman), DPM (Albania), NMIM (Malasia), PAI (Kuwait), SASA (SA), UME
GULFMET.L-S2	Calibration of gauge blocks by interferometry	UME, SASO
SIM.L-S1	Gauge blocks by mechanical comparison	NRC, CEM, INDECOPI (Peru), INMETRO, INTI, LCPN-DICTU (Chile), LPMP-UTP (Panama), NIST, SIC (Colombia)
SIM.L-S1.PREV	Short gauge blocks by mechanical comparison	CEM, CCCM (Colombia), CERTI (Brazil), CI-UNAM (MX), CIDESI (MX), INDECOPI (Peru), INMETRO, INTI, PTB, TPYCEA (ES)
SIM.L-S2	Comparison of surface roughness and step height (depth) standards	NRC, CENAM, INMETRO, INTI, NIST
SIM.L-S3.PREV	Measurement of Rockwell hardness indenter geometry	NIST, INRIM, MPA-NRW (DE), NIM, NMU, UM (IT)
SIM.L-S4.PREV	Linewidth standards	NIST, NPL
SIM.L-S5	Nanometrology: one-dimensional grating pitch calibration by optical diffraction	NRC, ITRI, METAS, PTB
SIM.L-S6	Gauge blocks by mechanical comparison	CENAM, BSJ (Jam.), CENAMEP AIP (Pana.), CMI, DICTUC (Chile), IBMETRO (Boliv.), INDECOPI, INEN (Ecu.), INMETRO, INTI, LACOMET (Costa R.), LATU (Urug.), NIST, NPLI, SIC (Colom.), TTBS (CARICOM/Ttrin Tob.)
SIM.L-S7	Calibration of cetral length and variation of 6 steel gauge blocks	INTI, BSJ, CENAM, CANAMEP AIP, DICTUC, IBMETRO, INACAL (Peru), INEN, INM (Colombia), INMETRO, LACOMET, LATU, NIST, PAI, TTBS
SIM.L-S8	Gauge blocks measured by mechanical and interferometric technique	INTI, CENAM, DICTUC, INACAL, INM (Colombia), INMETRO, NIST, NRC