

Consultative Committee for Length (CCL) 17th meeting
14 -15 June 2018



APMP TCL Report

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Members

- ▶ Total 33 member economies in APMP
 - ▶ 24 Members (22 with contact persons)
 - ▶ Australia (AU), Bangladesh (BD), China (CN), Chinese Taipei (TW), Cambodia (KH), Fiji (FJ), Hong Kong China (HK), India (IN), Indonesia (ID), Japan (JP), TCL/TCTF JWG, **Korea, Democratic People's Republic of (KP)**, Korea, Republic of (KR), Malaysia (MY), Mongolia (MN), Nepal (NP), New Zealand (NZ), Pakistan (PK), Papua New Guinea (PG), Philippines (PH), **Russia (RU)**, Singapore (SG), Sri Lanka (LK), Thailand (TH), Vietnam (VN)
 - ▶ 9 Associate Members (6 with contact persons)
 - ▶ Egypt (EG), **Iran (IR)**, Jordan (JO), Kazakhstan (KZ), **Kenya (KE)**, South Africa (ZA), Syria (SY), United Arab Emirates (AE), **United States of America (US)**
- ▶ Chair: Jariya Buajarern (NIMT, Thailand)
- ▶ Vice Chair: Makoto Abe (NMIJ, Japan)

Summary of All Comparisons (Up to June 2018)

Status	Number
Completed	18
On-going	4 (4-Draft A)
In planning	1
Total	23

Comparisons Completed (Since 16th CCL)

No.	Identifier	Description	Pilot Lab	No. of labs	Period or status
1	APMP.L-K3	Angle Standards	NMISA, KRISS	12	Published 2016
2	APMP.L-S6 (Bi-lateral)	Long Gauge Blocks by Comparative Method	NIMT	2	Published 2016
3	CCL-K11 at APMP (NIMT)	Laser Frequency: 633 nm He-Ne Laser	BEV (NMIJ at APMP)	3	Published 2017
4	APMP.L- K5.2006.1 (Bi- lateral)	Step Gauge	NMIJ	NPLI	Published May 2017
5	APMP.L-S8	Optical Flat	NIMT	7	Published 2018

Comparisons on going (Since 16th CCL)

No.	Identifier	Description	Pilot Lab	No. of labs	Period or status
1	APMP.L-K5.2014	Calibration of a step gauge	KRISS	5	Draft A
2	APMP.L-K7.2014	Calibration of a linescale	KRISS	5	Draft A
3	APMP.L-S5	Nano particle measurements	CMS/NMIJ	13	Draft A
4	APMP.L-S7	Comparison of step height measurements	KRISS	5	Draft A

Comparisons in planning

No.	Identifier	Description	Pilot Lab	No. of labs	Period or status
1	APMP.L-K1:2018	Gauge blocks by optical interferometry	KRISS	(TBD)	In planning
2	TBD	EDM	NIM	8 or more	In Planning
3	TBD	Micro CMM	NMISA	5 or more	In Planning
4	TBD	2D CMM	(NMIJ, INRIM)	?	In planning
5	TBD	Thread Plug/Ring Gauge	NIM	?	In planning
6	TBD	Angle gauge	NIMT	3?	In Planning

Summary of Intra-RMO CMC Reviews (May 2006 - June 2018)

Status	Number
Published	27 (0 published from Nov 2016 to Nov 2017)
Inter-RMO	4
Intra-RMO	2 (2+0)
Total	33 (Inter-RMO: 4 submitted from Nov 2016 to Nov 2017, Intra-RMO: 0 submitted from Nov 2016 to Nov 2017)

CMC Review (May 2006 - June 2018)

No.	Identifier	NMI	Status
1	APMP.L.1.2003	CMS & SIRIM	Published
2	APMP.L.2.2004	NMIJ	Published
3	APMP.L.3.2006	NPLI	Published
4	APMP.L.4.2006	KIM-LIPI	Published
5	APMP.L.5.2008	CMS-1	Published
6	APMP.L.6.2008	SCL-1	Published
7	APMP.L.7.2008	NMIJ-1	Published
8	APMP.L.8.2009	NMIJ-2	Published
9	APMP.L.9.2009	SCL-2	Published
10	APMP.L.10.2009	NIM	Published

CMC Review (2)

No.	Identifier	NMI	Status
11	APMP.L.11.2009	NMIJ-4	Published
12	APMP.L.12.2009	MSL	Published
13	APMP.L.13.2009	NMIJ-3	Published
14	APMP.L.14.2010	NIMT-1	Published
15	APMP.L.15.2010	KRISS	Published
16	APMP.L.16.2010	NMC/A*Star	Published
17	APMP.L.17.2010	VMI	Published
18	APMP.L.18.2010	NPLI	Published
19	APMP.L.19.2011	CMS-2	Published
20	APMP.L.20.2011	NIMT-2	Published

CMC Review (3)

No.	Identifier	NMI	Status
21	APMP.L.21.2011	NIM-4	Published
	(APMP.L.22.2013)	SCL-3	Abandoned
22	APMP.L.22.2013	KRISS-2	Published
23	APMP.L.22.2013	SCL-4	Published
24	AFRIMET.L.2.2014	NMISA	Published
25	APMP.L.23.2014	NMIJ-5	Published
26	APMP.L.24.2014	NIM	Published
27	To be assigned	NPLI	Intra-RMO
28	To be assigned	RCM-LIPI	Intra-RMO
29	APMP.L.25.2015	CMS/ITRI	Published

CMC Review (4)

No.	Identifier	NMI	Status
30	APMP.L.26.2017 (1)	NMC/A*STAR	Published
31	APMP.L.26.2017 (2)	SCL	Published
32	APMP.L.26.2017 (3)	MSL	Published
33	APMP.L.26.2017 (4)	NIMT	Published
34	APMP.L.27.2018	KRISS	Inter-RMO
35	APMP.L.28.2018	NMIA	Inter-RMO
-	-	-	-
-	-	-	-
-	-	-	-

Focus Group

Focus Group	Possible Activities	Liaison
Energy Efficiency	<ol style="list-style-type: none"> 1. Alignment and measurement of the turbine and large turbine blade 2. Increase efficiency of the production line (efficient energy usage) such as in-line measurement <ol style="list-style-type: none"> 21. Deformation measurement of the battery for electric vehicles to enhance battery efficiency, increase lifetime of battery 22. Measurement of the 3D printed objects 	A. Tonmueanwai
Medical Metrology	<ol style="list-style-type: none"> 1. Calibration/verification of phantoms for CT, MRI, PET scanners 	P.E. Hsu
Climate Change	<ol style="list-style-type: none"> 1. Measurement of height of the cloud (*by TCT) 2. Measurement of ash particles 	C.-S. Kang
Food Safety	NA	Z. Xue
Clean Water	NA	N. Alfiyati

- ▶ No special activity since last TCL meeting
- ▶ **Any activity to be reported?**

MEDEA project

- ▶ **Follow-up Training of the Workshop on Laser Interferometers for Length Measurement**
 1. Original workshop: 2016. 10. at NMIJ
 2. Follow-up training at the site of the participants by length experts from NMIJ (April 2017 to December 2017).

TC Initiative

- ▶ 1 proposal accepted in 2017
 - ▶ Pilot study on foil/film thickness comparison
 - ▶ Proposed by NIM, China
 - ▶ Possible co-study with TCMM
 - ▶ Budget: 8,000 USD
 - ▶ Period: 2017. 5. - 2019. 5. (2 years)
 - ▶ Study in harmonizing film thickness measurements with various methods
- ▶ Status:
 - ▶ Purchased specimens
 - ▶ Planning a Technical Meeting in 2018 at NIM

Materials	Thickness-1 (μm)	Thickness-2 (μm)
Plated Coating std. Au/Cu	0.5	1.0
Plated Coating std. Ni/Cu	2.0	5.0
Foil std. of Au	0.1	1.0
Foil std. of Ni	0.1	5.0



Thank you for your attention!