

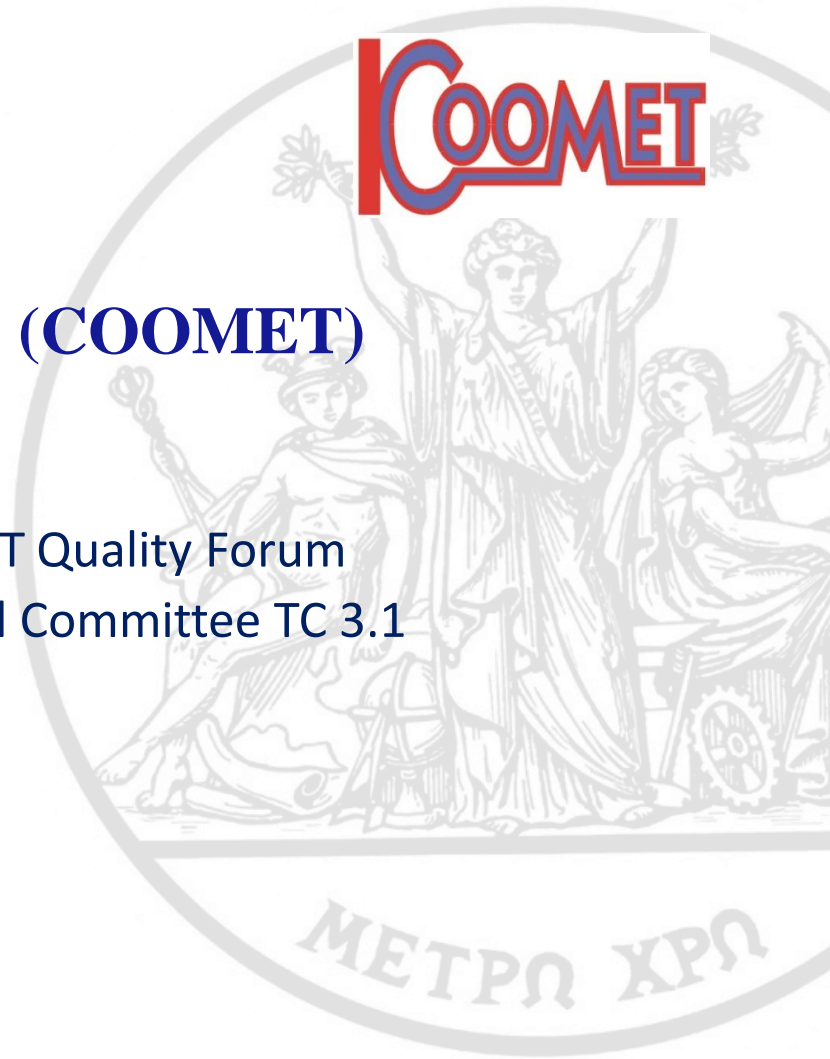


# Euro-Asian Cooperation of National Metrological Institutions (COOMET)

Dr. Andreas Odin, President of COOMET Quality Forum

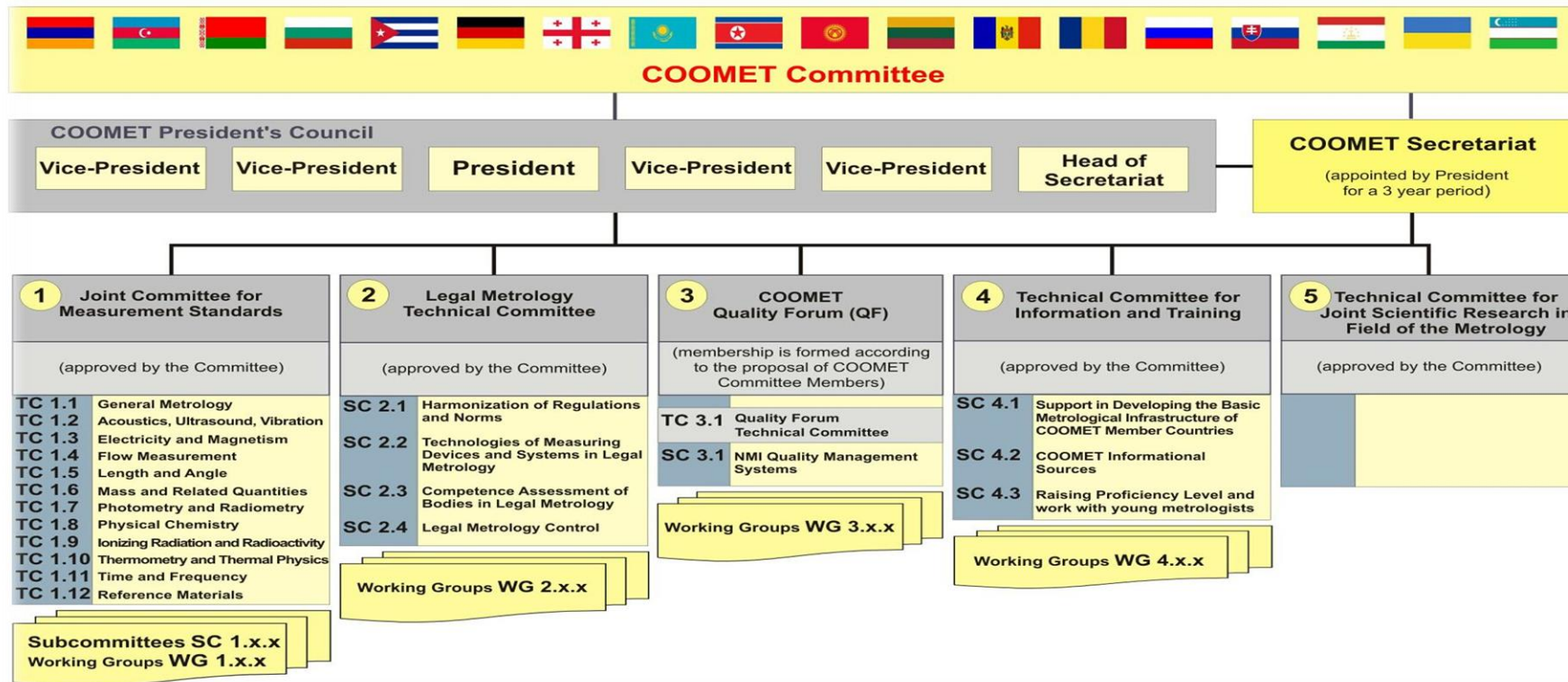
Dr. Natalia Muravskaya, Head Technical Committee TC 3.1

**B**ureau  
♦ **I**nternational des  
♦ **P**oids et  
♦ **M**esures



- COOMET structure
- Role of TCs
- Quality system
- CMC review process
- Summary

# COOMET Structure

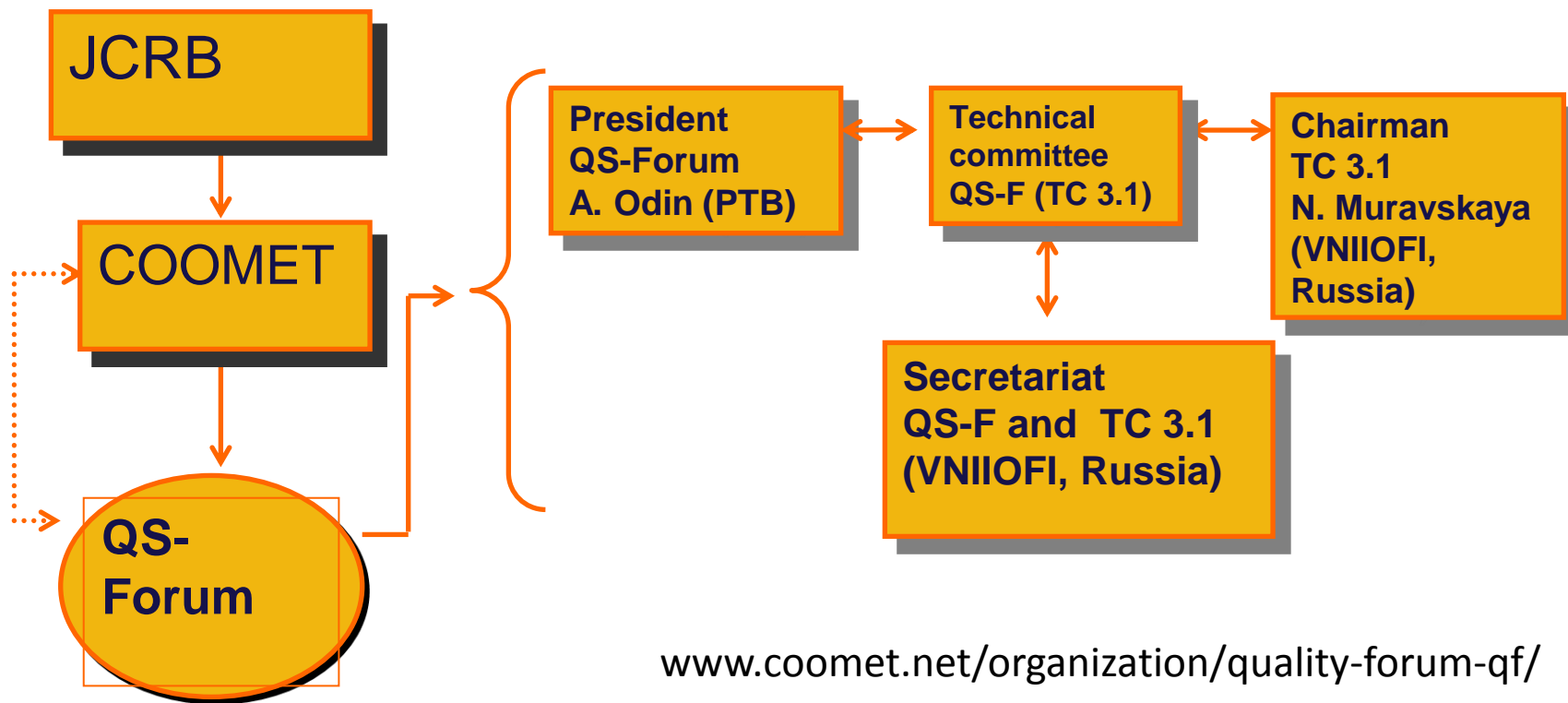


- COOMET members are currently 21 countries including 9 associate members
- Signatories CIPM MRA:  
**Azerbaijan, Belarus, Bulgaria, Bosnia and Herzegovina, China, Cuba, Georgia, Germany, Kazakhstan, Lithuania, Moldova, Russia, Romania, Slovakia, Turkey, Ukraine**
- Future signatories CIPM MRA:  
Armenia, Kyrgyzstan, North Korea, Tajikistan, Uzbekistan

- TC 1 – Joint Committee for Measurement Standards
- TC 2 – Legal Metrology
- TC 3 – Quality Forum (QF)
- TC 4 – Information and Training
- TC 5 – Joint Scientific Research

- TC 1.1 “General Questions Concerning Measurements (General Metrology)”
- TC 1.2 “Acoustics, Ultrasound and Vibration”
- TC 1.3 “Electricity and Magnetism”
- TC 1.4 “Flow Measurement”
- TC 1.5 “Length and Angle”
- TC 1.6 “Mass and Related Quantities”
- TC 1.7 “Photometry and Radiometry”
- TC 1.8 “Physical Chemistry”
- TC 1.9 “Ionizing radiation and Radioactivity”
- TC 1.10 “Thermometry and Thermal Physics”
- TC 1.11 “Time and Frequency”
- TC 1.12 “Reference Materials”

# Management of COOMET Quality Forum



[www.coomet.net/organization/quality-forum-qf/](http://www.coomet.net/organization/quality-forum-qf/)

- Balanced development of quality management systems in metrology and coordination of activities in the RMO COOMET
- Harmonization of the understanding of the ISO/IEC 17025 standard requirements and development of the QMS documentation
- Organization of seminars (introduction and application of ISO/IEC 17025 and ISO Guide 34) in the COOMET NMIs
- Quality Forum confirms a list of COOMET Auditors and Technical Experts
- Performs peer reviews of COOMET NMI
- Monitoring of QMS NMI



- Evaluates the Annual Reports of COOMET NMI
- elaboration of documentation and presentation of QMS by QF participants
- implementation of QF results to wide metrology community in COOMET countries
- elaboration of website with necessary documentation on QMS in COOMET countries
- organization of workshops (implementation and application of ISO/IEC 17025 standard)

- Annually – assessment of the annual reports of QMS (according to the accepted form) to the Secretariat QSF
- Each report is considered by two members of the TC 3.1
- Discussion of the annual reports at the meeting of TC 3.1
- In the case of significant changes in the QMS can be performed an unplanned peer review.

The evaluation of the Quality Management System consists of three stages:

1. Written presentation of the Quality Management System of the NMI
2. Oral presentation of the Quality Management System of the NMI at the QSF COOMET and discussion
3. On-Site assessment of the Quality Management System of NMI performed by auditors and technical experts QSF (peer review)

COOMET conducts peer reviews in NMIs since 2005

2015: VNIIM, VNIIOFI, VNIIMC, VNIIFTRI - Russia  
KazInMetr - Kazakhstan

2016: BelGIM - Belarus  
NNS "IM" and Ukrmetrteststandart, DND "Systema" – Ukraine  
UNIIM, SNIIM, VNIIR - Russia

2017: AzMI – Azerbaijan (an peer review QMS was carried out- 3.11.2017)  
INM – Moldova (an peer review QMS was carried out – 20.10.2017)

# List of auditors



<b>Registration №</b>	<b>Name</b>	<b>Country</b>	<b>Organisation</b>
<b>COOMET – A.01</b>	<b>Lidia Astafyeva</b>	<b>Belarus</b>	<b>BelGIM</b>
<b>COOMET – A.02</b>	<b>Tatiana Kolomiets</b>	<b>Belarus</b>	<b>BelGIM</b>
<b>COOMET – A.03</b>	<b>Irina Voitek</b>	<b>Belarus</b>	<b>BelGIM</b>
<b>COOMET – A.04</b>	<b>Natalia Muravskaya</b>	<b>Russia</b>	<b>VNIIOFI</b>
<b>COOMET – A.05</b>	<b>Andreas Odin</b>	<b>Germany</b>	<b>PTB</b>
<b>COOMET – A.06</b>	<b>Dina Chepurnaya</b>	<b>Russia</b>	<b>VNIIFTRI</b>
<b>COOMET – A.07</b>	<b>Nino Mikanadze</b>	<b>Georgia</b>	<b>GEOSTM</b>

Technical experts selected in consultation with the Chairmen of Technical Committees COOMET of measurements areas

- Acoustics, Ultrasound, Vibration (AUV)
- Electricity and Magnetism (EM)
- Length (L)
- Mass and related quantities (M)
- Photometry and Radiometry (PR)
- Ionizing Radiation (RI)
- Thermometry (T)
- Time and Frequency (TF)
- Chemistry (QM)

There is a list of technical experts [www.coomet.net](http://www.coomet.net)

- Recommendation on Evaluation of Quality Management System of National Metrology Institutes
- Rules and Procedure for Evaluation of QMS in NMIs

[www.coomet.net/organization/quality-forum-qf/tc-31-quality-forum-technical-committee/qf-documents/](http://www.coomet.net/organization/quality-forum-qf/tc-31-quality-forum-technical-committee/qf-documents/)

- Annex 1** Application of the NMI for peer review of the NMI QMS
- Annex 2** Timetable of the peer review realization in COOMET NMIs
- Annex 3** Recommendations for on-site visits by peers and selection criteria for on-site visit peer reviewers
- Annex 4** Plan of QMS NMI peer review realization
- Annex 5** Protocols of non-conformities
- Annex 6** Forms of Auditor and Technical expert reports on QMS NMI peer review
- Annex 7** Form of Report on results of QMS NMI peer review



**Annex 8** Form of Acting plan for removing of non-conformities

**Annex 9** Form of Certificate of COOMET recognition of QMS NMI

**Annex 10** Form of an annual report on the state of QMS NMI

**Annex 11** Recommendations on a drawing-up an annual report

**Annex 12** Form of annual report of QMS NMIs monitoring

**Annex 13** Recommended questionnaire of Technical expert on peer review of QMS NMI

**Annex 14** Recommended questionnaire for Auditor and Technical expert on peer review of QMS NMI according to the requirements of ISO/IEC 17025:2005

**Annex 15** Recommended questionnaire for Technical expert on peer review of QMS NMI according to the requirements of ISO Guide 34:2009

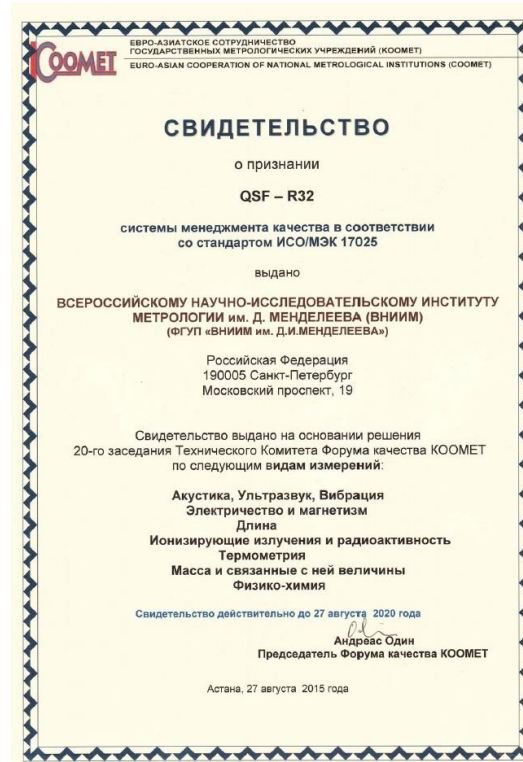
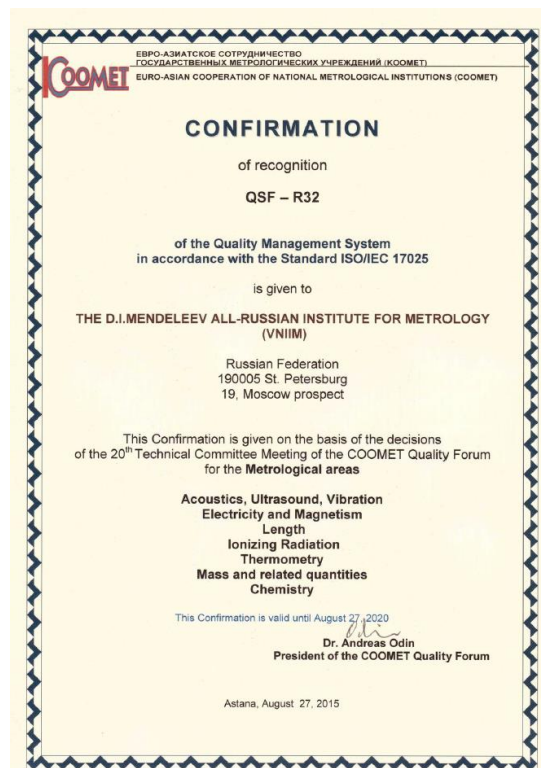
NMI	Status QMS	Conformation of recognition	Date	Valid date	Metrological areas
VNIM (Russia)	recognized	QSF-R39	27.08.2015	27.08.2020	AUV, EM, L, RI, T, M, QM
VNIIOFI (Russia)	recognized	QSF-R34	27.08.2015	27.08.2020	PR, QM
VNIIFTRI (Russia)	recognized	QSF-R36	27.08.2015	27.08.2020	AUV, EM, RI, T, M, QM, TF
VNIMS (Russia)	recognized	QSF-R38	27.08.2015	27.08.2020	L, EM
BelGIM (Belarus)	recognized	QSF-R40	10.05.2016	10.05.2021	AUV, EM, RI, T, M, QM, TF, L, PR
NSC "Institute of Metrology" (Ukraine)	recognized	QSF-R44	10.05.2016	10.05.2021	EM, RI, T, M, TF, L, PR
SE "Ukrmetteststandard" (Ukraine)	recognized	QSF-R42	10.05.2016	10.05.2021	AUV, EM, M, L, PR, QM
SNIM (Russia)	recognized	QSF-R45	15.02.2017	15.02.2022	EM
SE "NDI Systems" (Ukraine)	recognized	QSF-R46	15.02.2017	15.02.2022	AUV
UNIM (Russia)	recognized	QSF-R47	15.02.2017	15.02.2022	EM, T, L, QM, M
INMET (Cuba)	recognized	QSF-R29	24.04.2013	24.04.2018	M, L, QM, T, TF
CENTIS (Cuba)	recognized	QSF-R30	24.04.2013	24.04.2018	RI
CFHR (Cuba)	recognized	QSF-R31	24.04.2013	24.04.2018	RI
SE «Нова Промісна Стандартизація» (Ukraine)	recognized	QSF-R28	24.04.2013	24.04.2018	M
KazInMet (Kazakhstan)	recognized	QSF-R50	15.02.2017	27.08.2020	EM, M, L, QM, T, TF
VNIIR (Russia)	recognized	QSF-R49	15.02.2017	15.02.2022	M
NMI (Moldova)	recognized	QSF-R27	09.11.2012	09.11.2017	T, RI, M
GeoSTM (Georgia)	recognized	QSF-R32	11.02.2014	11.02.2019	EM, M, T
Azstandart (Azerbaijan)	not recognized				
NIM (Armenia)	not recognized				
CSM (Kyrgyzstan)	not recognized				
Tajikstandart (Tajikistan)	not recognized				
Uzstandart (Uzbekistan)	not recognized				

## List of Metrology Areas

- Acoustics, Ultrasound, Vibration
- Electricity and Magnetism
- Length
- Mass and related quantities
- Photometry and Radiometry
- Ionizing Radiation
- Thermometry
- Time and Frequency
- Chemistry

[www.coomet.net/organization/quality-forum-qf/metrological-areas-of-nmi/](http://www.coomet.net/organization/quality-forum-qf/metrological-areas-of-nmi/)


# Conformation on recognition



Organization of workshops to give support for the implementation of the new **ISO/IEC 17025** and ISO 17034 for

- auditors of NMIs to lead the peer-review processes
- quality manager of NMIs

- Support implementation of QMS NMI is non-signatories to the CIPM MRA:  
Armenia, Kyrgyzstan, North Korea, Tajikistan, Uzbekistan.
- Training seminars COOMET Quality Forum for auditors and technical experts  
QMS NMI



## EURO-ASIAN COOPERATION OF NATIONAL METROLOGICAL INSTITUTIONS

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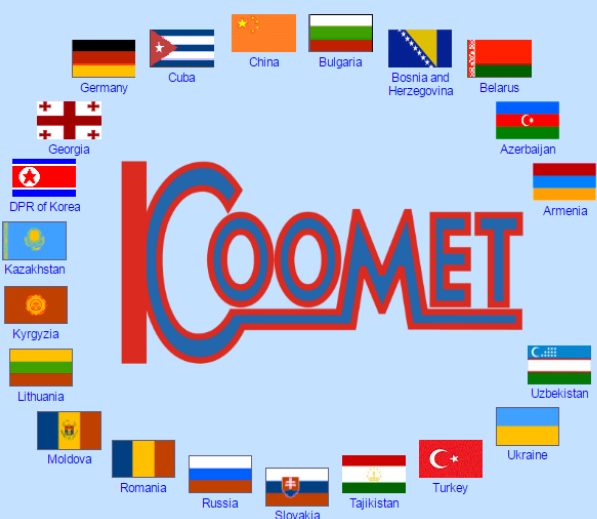
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**COOMET CALENDAR - 2016**

12	iv	Meeting of TC 1.1 "General metrology"
14		Minsk, Belarus
19	iv	14th Joint Committee for Measurement Standards
		Erevan, Armenia
20	iv	26th Committee Meeting
21		Erevan, Armenia
09	v	TC 3.1 "Quality Forum"
12		GEOSTM, Tbilisi, Georgia
18	v	TC 4 "Information and Training"
19		Braunschweig, Germany
24	v	TC 1.8 "Physical chemistry"
		VNIIM, Sankt-Petersburg, Russia
26	v	TC 1.7 "Photometry and Radiometry"
		NIM, Kishenev, Moldova
07	ix	TC 1.10 "Thermometry and thermal physics"
08		Bishkek, Kyrgyzstan
09	ix	TC 1.4 "Flow measurement"
		VNIIR, Kazan, Russia
12	ix	TC 1.12 "Reference materials"
15		UNIIM, Ekaterinburg, Russia
12	ix	TK 1.5 "Length and angle"
16		FTMC, Vilnius, Lithuania
20	ix	TC 1.2 "Acoustics, ultrasound, vibration"
21		BelGIM, Minsk, Belarus
26	ix	TC 2 "Legal metrology"
30		Uzstandart, Tashkent, Uzbekistan
26	ix	TC 1.3 "Electricity and Magnetism"
30	x	GEOSTM, Tbilisi, Georgia
19	x	TC 1.6 "Mass and related quantities"
20		NIM, Chisinau, Moldova
08	x	TC 1.11 "Reference materials"
09	xi	21st Meeting of President's Council
		RSE "KazInMetr", Astana, Kazakhstan

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Euro-Asian Cooperation  
of National Metrological Institutions

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COOMET MEMBERS



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[October 2-6, 2017, Minsk, Belarus: TC 1.3  
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[October 10-11, 2017, Minsk, Belarus: TC 1.6 "Mass  
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**www.coomet.net** provides general information on metrology within the region, news, events, contacts, documents, country profiles, photos, videos, and online training.

You may also visit our database website for COOMET members, with thousands of documents, in particular CIPM MRA related databases: DB CMC and DB Comparisons and Calibrations  
[www.coomet.org](http://www.coomet.org)

1. CMCs are submitted for intraregional review with the quality questionnaire

	<b>COOMET Recommendation</b>	<b>COOMET R/GM7:2014</b>
	<b>Procedure of performing an internal review of COOMET NMIs calibration and measurement capabilities (CMCs), and an interregional review of NMIs of other regional metrology organizations</b>	
<i>Approved by President Council (October 2,2000) Approved at the 14-th COOMET Committee Meeting (Albena, Bulgaria, May27-28, 2004); specified(defined more précised) and supplemented at16-th COOMET Committee Meeting (Braunshweig, Germany, September 4-5, 2006), specified(defined more précised at the 24-th COOMET Committee Meeting (Ekaterinburg, RF, April 16-17, 2014) Updated (actualized) in 2004 ,Updated (actualized) in 2014</i>		



## 2. Order of a review procedure

The procedure establishes stages of carrying out internal reviews of the COOMET. Particular features relating to the participation of the COOMET in interregional reviews are set off in italics.

- 3.1 Any COOMET NMI, while presenting its CMCs in a specific field of measurements to a review, with the help of a TC member from its country sends by E-mail to the Chairman of the corresponding TC the CMCs data in the form of Appendix C to the Agreement and a copy of these data to the JCE COOMET Chairman. The TC Chairman can ask the NMI to send him information characterizing the NMI quality system management in the form of a questionnaire shown in Annex 1 of the given document. It is permitted to supplement the questionnaire with information at discretion of the NMI.

*In case of the interregional review, the CMCs data sent by E-mail right away after putting them on the specialized web-site of the review are received by the TC Chairman<sup>1</sup>. The whole subsequent review is carried out according to the stages indicated in the given document.*

- 3.2 In accordance with the CIPM 2005-07 document "NMIs and other designated institutes" in case of the presence of designated institutes (DI), the TC member from the country of the NMI that submits CMCs, has to verify whether the CMCs submitted to the review coincide with the CMCs already published by some other NMI/DI of this country or they do not.
- 3.3 During **two weeks** the TC Chairman has to adjust with experts in their TC the date of presenting results of the review of the CMCs submitted and to inform the NMI that has submitted the CMCs about this date.

**NMI should verify  
that CMCs from  
DIs do not overlap  
with its capabilities**

# Questionnaire

## Appendix 1

### Questionnaire. Information on maintaining submitted CMCs by NMI's quality management system QUESTIONNAIRE FOR THE REVIEW OF COOMET CALIBRATION AND MEASUREMENT CAPABILITIES

This questionnaire is to be filled in by the COOMET Contact Person (Coordinator – for Russian Federation).


Subject-Field ..... NMI .....

Sub-Field(s) .....

CMC entry or entries .....

Code	CMC review process	Yes	No	Comments
<b>1</b>	Comparison results relevant to the claimed CMCs			
1.1	CIPM key comparisons			
1.2	RMO KC			
1.3	Supplementary comparisons			
1.4	Bilateral comparison			
				Please, specify and provide source of publication
<b>2</b>	<b>Knowledge of the NMI's work and activities</b>			
2.1	Activities of this NMI:			
2.1.1	Reproducibility of units of physical quantities			
2.1.2	Verification and (or) calibration of measuring instruments			
2.1.3	Elaboration of documentary standards			
2.1.4	Certification and testing of measuring instruments			

This document gives guidance how to deal with comparisons

	<b>COOMET Recommendation</b>	<b>COOMET R/GM/11:2010</b>
	<b>REGULATIONS for comparison of measurement standards from the national metrological institutes of COOMET</b>	
<i>Approved at the 3<sup>rd</sup> meeting of Joint Committee on measurement standards Minsk, Belarus, 13 of May 2005 Approved at the 15<sup>th</sup> COOMET Committee Meeting (Vilnius, Lithuania, September 8 –9, 2005) Updated and amended at the 17<sup>th</sup> COOMET Committee Meeting (Minsk, Belarus, April 24-25, 2007) and at the 20<sup>th</sup> COOMET Committee Meeting (Astana, Kazakhstan, on April 21–22, 2010)</i>		

# COOMET calibration Certificates



	<b>COOMET Recommendation</b> The rules of completion of the form of calibration certificates issued by National Metrology Institutes within the scope of the CIPM MRA	<b>COOMET</b> <b>R/GM/15:2007</b>
	Approved at the 17 <sup>th</sup> COOMET Committee Meeting (Minsk, Belarus, April 24 – 25, 2007)	

<b>НАЦИОНАЛЬНЫЙ ИНСТИТУТ МЕТРОЛОГИИ</b> National metrological institute			 NMI NMI
 CIPM MRA logo  The other logo	<b>Сертификат калибровки</b> Calibration certificate		 COOMET logo  The other logo
Номер сертификата Certificate number	Дата калибровки Date when calibrated	Страница Page	из of
Объект калибровки Item calibrated	Наименование эталона / средства измерения / идентификация Description of measurement standard / measuring instrument / identification		
Заказчик Customer	Информация о заказчике, адрес Name of the customer, address		
Метод калибровки Method of calibration	Наименование метода / идентификация Name of the method / identification		
<p>Все измерения имеют прослеживаемость к единицам Международной системы СИ, которые воспроизводятся национальными эталонами NMIs. В сертификате приводятся результаты калибровки, соответствующие к неопределенностям, содержащимся в Приложении С соглашения MRA, разработанным BIPM. В рамках MRA все участники NMIs обязаны признать действительность своих сертификатов калибровки и измерений в отношении измерений, датированных и неопределенностей измерений, указанных в Приложении С (подробности см. <a href="http://www.bipm.org">http://www.bipm.org</a>). Данный сертификат может быть воспроизведен только полностью. Любая публикация или частичное воспроизведение содержания сертификата являются с нарушением соглашения NMIs, подписанного сертификатом.</p> <p>All measurements are traceable to the SI units which are realized by national measurement standards of NMIs. This certificate is consistent with the capabilities that are included in Appendix C of the MRA drawn up by the CIPM. Under the MRA, all participating NMIs recognize the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (for details see <a href="http://www.bipm.org">http://www.bipm.org</a>). This certificate shall not be reproduced, except in full. Any publication extracts from the calibration certificate requires written approval of the issuing NMI.</p>			
Утверждающая подпись Authorizing signature	Дата выдачи Date of issue		
Адрес NMIs / Address of NMIs / Телефон, факс, e-почта, веб-сайт / Phone, fax, e-mail, website			

<b>Сертификат калибровки</b> Calibration certificate	Номер сертификата Certificate number	Страница Page	из of
Калибровка выполнена с помощью Calibration is performed by using	Наименование эталона и его статус / идентификация / доказательство прослеживаемости Description of the reference measurement standards / identification / evidence of traceability		
Условия калибровки Calibration conditions	Условия окружающей среды и другие влияющие факторы Environmental conditions and other influence parameters		
Результаты калибровки, включая неопределенность Calibration results including uncertainty	Расширенная неопределенность получена путем умножения стандартной неопределенности на коэффициент охвата $k = 2$ , соответствующий уровню доверия приблизительно равному 95 % при допущении нормального распределения. Оценки неопределенности проведены в соответствии с «Руководством по выражению неопределенности измерений» (GUM). The expanded uncertainty is obtained by multiplying the combined standard uncertainty by a coverage factor $k = 2$ corresponding to a confidence interval of approximately 95 % assuming a normal distribution. The evaluation of uncertainty is conducted according to the "Guide to the expression of uncertainty in measurement" (GUM).		
Дополнительная информация Additional information	состояние объекта калибровки / регулярные интервалы повторения калибровки до его калибровки / рекомендуемый межкалибровочный интервал по требованию заказчика condition of the item of calibration / adjustments or repair of the item of calibration before calibrated / recommended recalibration period, if requested by the customer		
Подпись лица, выполнившего калибровку Signature of the person who has performed calibration	Ф.И.О и должность / Name and function		

# COOMET calibration Certificates



The purpose of the voluntary use of the CIPM MRA logo in the calibration and measurement certificates is to draw the attention of their customers, and other interested parties, to the recognition, by all other signatories of the CIPM MRA, of the validity of those certificates.

The institutes of COOMET have been authorized to use CIPM MRA logo, for the fields of measurement supported by CMCs published in the KCDB.



НАЦИОНАЛЬНЫЙ ИНСТИТУТ МЕТРОЛОГИИ  
National metrological institute

ИММ  
NMI  
Logo

СЕРТИФИКАТ КАЛИБРОВКИ  
Calibration certificate

COOMET

The other logo

Номер сертификата  
Certificate number

Дата калибровки  
Date when calibrated

Страница  
Page

из  
of

Объект калибровки  
Item calibrated

Наименование эталона / средства измерения / идентификация  
Description of measurement standard / measuring instrument / identification

Заказчик  
Customer

Информация о заказчике, адрес  
Name of the customer, address

Метод калибровки  
Method of calibration

Наименование метода / идентификация  
Name of the method / identification

Все измерения имеют прослеживаемость к эталонам Международной системы SI, которые воспроизводятся национальными эталонами ИММ.  
В сертификате приведены результаты калибровки, соответствующие с возможностями, содержащимися в Приложении С соглашения МРА, референсирования МСМБ. В рамках МРА все участники ИММ обязаны признать действительность своих сертификатов калибровки и измерений в отношении измерений, выполненных в соответствии с измерениями, указанными в Приложении С (подробности см. <http://bipm.org/mra>).  
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