



ЕВРО-АЗИАТСКОЕ СОТРУДНИЧЕСТВО ГОСУДАРСТВЕННЫХ МЕТРОЛОГИЧЕСКИХ УЧРЕЖДЕНИЙ (КООМЕТ)

EURO-ASIAN COOPERATION OF NATIONAL METROLOGICAL INSTITUTIONS (COOMET)

CCAUV/15-37

# COOMET TC-AUV

Report for the 10<sup>th</sup> CCAUV meeting

November 2015

# General features of cooperation in the AUV area

The NMIs from **15** COOMET member countries are represented in TC 1.2  
“Acoustics. Ultrasound. Vibration”.

**9 NMIs**, i.e.

Azerbaijan, Armenia, Belarus, Georgia, Cuba, Moldova,  
Russia, Uzbekistan and Ukraine  
submit their AUV CMCs via COOMET

**6 NMIs**, i.e.

Bulgaria, Germany, Lithuania, Slovakia, Romania and KDPR  
do this through other RMOs

Only **3 countries**: Belarus, Russia and Ukraine  
have published their CMCs in AUV by now

## Participation of COOMET NMIs in key comparisons of CCAUV

Acoustics Sound in air	Acoustics Sound in water	Ultrasound	Vibration
<ul style="list-style-type: none"> <li>◆ CCAUV.A-K1</li> <li>◆ CCAUV.A-K2</li> <li>◆ CCAUV.A-K3</li> <li>— CCAUV.A-K4</li> <li>◆ CCAUV.A-K5</li> </ul>	<ul style="list-style-type: none"> <li>◆ CCAUV.W-K1</li> <li>* CCAUV.W-K2</li> </ul>	<ul style="list-style-type: none"> <li>◆ CCAUV.U-K1</li> <li>— CCAUV.U-K2</li> <li>◆ CCAUV.U-K3</li> <li>- CCAUV.U-K3-1</li> </ul>	<ul style="list-style-type: none"> <li>◆ CCAU.V-K1</li> <li>◆ CCAU.V-K2</li> <li>➤ CCAUV.V-K3</li> </ul>

- ◆ completed CCAUV comparisons
- \* planned CCAUV comparisons
- CCAUV comparisons in progress
- CCAUV comparisons COOMET NMIs do not (did not) participate in

# Participation of COOMET NMI in key comparisons of CCAUV

Last CCAUV comparisons completed up to 2014

<b><u>CCAUV.A- K5</u></b>	Comparison of laboratory standard microphone calibrations 2011 - 2012
Comparison type, Field Parameter(s) Status	Key comparison in AUV, Acoustics Frequency: 2Hz to 10 kHz Approved for equivalence, <a href="#">Results available</a>
<b><u>CCAUV.U- K3</u></b>	Ultrasonic power 2008 - 2012
Comparison type, Field Parameter(s) Status	Key comparison in AUV, Ultrasound Frequency: 2 MHz to 15 MHz Power: 10 mW to 15 W Approved for equivalence, <a href="#">Results available</a>
<b><u>CCAUV.V- K2</u></b>	Vibration acceleration 2009 - 2012
Comparison type, Field Parameter(s) Status	Key comparison in AUV, Vibration Frequency: 10 Hz to 10 kHz Approved for equivalence, <a href="#">Results available</a>

# Participation of COOMET NMIs in key comparisons of CCAUV

## CCAUV ongoing and future comparisons

<b><u>CCAUV.V- K3</u></b>	Acceleration complex sensitivity 2013 - 2015
Comparison type, Field Parameter(s) Status	Key comparison in AUV, Vibration Different frequencies from 0,1 Hz to 40 Hz with specified acceleration amplitudes <b>In progress</b>

<b><u>CCAUV.W- K2</u></b>	Comparison of free-field hydrophone calibrations in water 2014 - 2015
Comparison type, Field Parameter(s) Status	Key comparison in AUV, Underwater acoustics The frequency range from 250 Hz to 500 kHz <b>Planned</b>

# COOMET comparisons

Last COOMET comparisons completed up to 2015

<b><u>COOMET.AUV.A-S1</u></b>	<b>Comparison of national acoustic standards 2009 - 2010</b>
<b>Comparison type, Field Parameter(s) Status</b>	<b>Supplementary comparison in AUV, Acoustics Frequency: 250 Hz and 1/3-oktave frequencies from 20 Hz to 20 kHz <b>Approved and published</b></b>

<b><u>COOMET.AUV.W-S1</u></b>	<b>Comparison of free-field hydrophone calibrations for underwater acoustics 2012 - 2013</b>
<b>Comparison type, Field Parameter(s) Status</b>	<b>Supplementary comparison in AUV, Underwater acoustics Frequency: 250 Hz to 8 kHz <b>Approved and published</b></b>

# COOMET comparisons

## COOMET ongoing and future key and supplementary comparisons

<p><b><u>COOMET.AUV.A-K5</u></b></p>	<p>Subsequent key comparison of primary calibration of laboratory standard microphones 2015</p>
<p>Comparison type, Field Parameter(s) Status</p>	<p>Key comparison in AUV, Acoustics Frequency: 20 Hz to 10 kHz <b>Planned</b></p>
<p><b><u>COOMET.AUV.A-S2</u></b></p>	<p>Supplementary comparison of national standards of sound pressure in air 2014</p>
<p>Comparison type, Field Parameter(s) Status</p>	<p>Key comparison in AUV, Acoustics Frequency range from 20 Hz to 8 kHz for microphone type WS1P and from 20 Hz to 20 kHz for microphone type WS2P <b>Report in progress, Draft A</b></p>
<p><b><u>COOMET.AUV.U-K3</u></b></p>	<p>Ultrasonic power 2014 - 2015</p>
<p>Comparison type, Field Parameter(s) Status</p>	<p>Key comparison in AUV, Ultrasound Frequency: 1,5 MHz to 12 MHz Power: 10 mW to 1 W <b>Report in progress, Draft A</b></p>
<p><b><u>COOMET.AUV.V-K1</u></b></p>	<p>Vibration acceleration 20007 - 2008</p>
<p>Comparison type, Field Parameter(s) Status</p>	<p>Key comparison in AUV, Vibration Frequency: 40 Hz to 5 kHz <b>Report in progress, Draft B (approval is ongoing)</b></p>

## COOMET pilot studies

Project No	Description	Participants of comparison
<b>COOMET No 646/RU/14</b>	Pilot comparisons of underwater particle velocity receiver in the frequency range from 5 Hz to 4.0 kHz  <b>Status:</b> The Technical Protocol is under approval; Ongoing study of temporal stability of VNIIFTRI velocity vector sensor which will be used as a reference standard in this comparison.	VNIIFTRI, Russia HAARI, China
<b>COOMET No 561/RU/12</b>	Pilot comparison of hydrophone calibrations in the frequency range from 3 to 200 kHz  <b>Status:</b> Report in progress, Draft B	VNIIFTRI, Russia NIOT , India WTD71, Germany



## Cooperation between NMIs within the framework of COOMET

The recent 10th meeting of COOMET TC (22 to 23 September 2015, Moscow, Russia) decided to provide guidance and consulting assistance for NMIs from **Azerbaijan**, **Moldova** and **Uzbekistan** to facilitate the development of vibroacoustic metrological capabilities in the above countries.

## The COOMET NMIs have the status of QMS Recognition

No	State and name of NMI	Status QMS	Given	Valid	Given (after 5 years)	Valid
1	Russia, VNIIM	Recognition	20.09.2005	20.09.2010 (prolonged until 20.2.2011)	14.10.2010	14.10.2015
					28.08.2015	28.08.2020
2	Russia, VNIIFTRI	Recognition	20.12.2005	20.12.2010	14.10.2010	14.10.2015
					28.08.2015	28.08.2020
3	Belarus, BelGIM	Recognition	20.12.2005	20.12.2010 (prolonged until 31.5.2011)	19.05.2011	19.05.2016
4	Ukraine, DNDI "Systema"	Recognition	30.03.2007	30.03.2012	14.03.2012	14.03.2017

## **Cooperation in AUV field with the relevant international and regional organizations**

Since 2004, members of TC 1.2 have attended the meetings of CIPM Consultative Committee for AUV and its Working Groups. Joint comparisons between COOMET and EURAMET or COOMET and APMP are conducted.

TC 1.2 members attend the meetings of IEC/TC29, IEC/TC 87 and ISO/TC 43 on a regular basis.

In 2014 TC representatives attended the following meetings: meeting of SC 3 «Underwater acoustics» ISO/TC 43 (Delft, Netherlands), meeting EURAMET TC AUV, (Turin, Italy)

In 2015, TC members attended the meetings of TC 87 „Ultrasound” (March 2015, London, UK and December 2015, Washington, USA), meeting of ISO TC 43/SC 3 (May 2015, ANSI, Seattle, USA).

Also, TC representatives attended the following relevant international events: 2nd and 3rd International Underwater Acoustics Conferences UA2014 and UA2015 (Rhodes, Greece), 44th International Congress and Exposition on Noise Control Engineering InterNoise 2015 (IHCE/USA, San Francisco, USA).

***Thank you for attention!***

**Valentina Pozdeeva**  
**Chair of COOMET TCAUV**  
**October 2015**

**Alexander Enyakov**  
**TC assistant chairman**