

**DECISION**  
**of COOMET TC 1.5 "Length and angle" meeting**  
15-16 May 2013  
PTB, Braunschweig, Germany

The following basic questions were discussed at the meeting of TC 1.5:

- report of the Chairman of TC 1.5 about the state of the COOMET projects at the current moment;
- report of the Chairman of TC 1.5 about the events undertaken between the meetings of TC;
- actualization of the comparison projects by the previously carried out planned activities;
- reports (presentations) of TC members and representatives of National Metrological Institutes (NMI) of COOMET member countries:
  - H. Bosse, Head of Division 5 "Precision Engineering" PTB, Germany;
  - K.V. Chekirda, Head of geometrical measurements department, "VNIIM", Russia;
  - V. Sikharulidze, Head of geometrical measurements department, Institute of Metrology, Georgia;
  - T. Ahbe, Research associate of Subdivision 5.1 "Surface Metrology" PTB, Germany;
  - V. Kazantsev, Deputy Director, "UNIIM", Russia;
  - Y. Shimolin, Head of the laboratory of mass measurements, force and linear and angular units, "UNIIM", Russia;
  - A. Dautletbaev, Acting Head of Laboratory № 3, "KazInMetr" Kazakhstan;
  - L. Gaydamovichyute, General Director of Vilnius Metrological Center, Lithuania;
  - V.B. Makarevich, Head of the department of geometric quantities measurements, "BelGIM" R. Belarus;
  - V.G. Lysenko, Head of the department of geometric quantities measurements, "VNIIMS" Russia;
- organizational issues about the activities of TC 1.5.

The following decisions were made at the result of raised in TC 1.5 Meeting Programme questions:

**1. Regarding the organization of TC work**

1.1 To consider the cooperation within COOMET TC 1.5 "Length and angle" as satisfactory.

1.2 To extend the authorization of the Chairman of COOMET TC 1.5 "Length and angle" V.S. Kupko for the next years.

**2. Regarding the agreed and proposed projects**

2.1 It's recommended for the coordinators to follow actively the state of the comparisons which are being carried out.

## 2.2 To confirm the relevance of the following comparison projects:

### Proposed projects:

No.	Project ID	Name of the proposed project
1	370/RU/06	Interlaboratory comparison of length standards in the nanometer range
2	527/RU/11	Additional comparisons of surface density of coatings
3	563/RU/12	Comparisons of measurement standards of length unit in the field of roundness deviation measurements
4	564/RU/12	Comparisons of measurement standards of length unit in the field of sphere deviation measurements
5	568/UA/12	Comparisons of reference measuring instruments of surface parameters
6	569/UA/12	Comparison of length standards in the range of 0.001 to 1 mm
7	570/UA/12	Comparisons of standards of flatness
8	590/UA/12	Comparison of precise rangefinder systems
9	591/UA/12	Comparison of precise navigation systems GPS/GLONASS
10	610/UA/13	Comparisons of standards of flatness up to 300 mm

### Agreed projects:

No.	Project ID	Name of the proposed project
1	440/RU/08	International comparison of stabilized He-Ne/I <sub>2</sub> lasers at 633 nm
2	450/UA/09	Comparison of measurement standards of length unit for roughness parameters
3	501/UA/10	Comparisons of optical standards of flatness
4	524/UA-RU/11	Intercomparison of the national standards unit of the plane angle
5	529/RU/11	Comparison of interferometers for measurement of tapes up to 20 m

**Projects 450/UA/09 and 501/UA/10** decided to complete.  
Preparing reporting documents of comparisons.

#### **Project 440/RU/08**

Comparison is completed.

#### **Project 524/UA-RU/11**

Measurements are carried out by members of comparisons.

#### **Project 529/RU/11**

Measurements are carried out by NSC "Institute of metrology", Ukraine.



**Excluded projects:**

No.	Project ID	Name of the proposed project
1	278/UA-a/03	Comparison of interferometers

**Project 278/UA-a/03**

It was decided to exclude due to the inexpediency of carrying out further work on the project.

## 2.3 Expansion of CMC services of TC 1.5

**Project 529/RU/11** "Comparison of interferometers for measurement of tapes up to 20 m".

Comparisons will expand the capability of NMI CMC services.

L.2.3.7.	(Surveyor, engineer, pi) tape, (geodetic) wire: line spacing	геодезическая (инженерная) рулетка, геодезическая (инварная) проволока: линейный интервал
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**Project 563/RU/12** "Comparisons of measurement standards of length unit in the field of roundness deviation measurements".

At this stage the project is proposed, the participants are expected. Comparisons will expand the capability of NMI CMC services.

L.4.2.1.	External cylinder: roundness	Внешний цилиндр: округлость
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**Project 564/RU/12** "Comparisons of measurement standards of length unit in the field of sphere deviation measurements".

At this stage the project is proposed, the participants are expected. Comparisons will expand the capability of NMI CMC services.

L.4.2.3.	Sphere (hemisphere): roundness	Сфера (полушарие): круглость
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**Project 568/UA/12** "Comparisons of reference measuring instruments of surface parameters".

Proposed to carry out comparisons of reference measuring instruments of surface parameters according to the international ISO standards. At this stage the project is proposed, the participants are expected. Comparisons will expand the capability of NMI CMC services.

L.5.1.1.	(Groove) depth (step height) standard (e.g. ISO 5436-1 Type A): step height, (groove) depth	(Канавка) эталон (высота шага) глубины (например ISO 5436-1 Тип А): высота шага, глубина (канавки)
L.5.1.2.	Tip-condition standard (e.g. ISO 5436-1 Type B): radii, angle	Условный стандарт нанометрии (пример ISO 5436-1 Тип В), радиус, угол

L.5.1.3.	Spacing standard (e.g. ISO 5436-1 Type C): amplitude or wavelength parameters	Эталон интервалов (например ISO 5436-1 Тип С) параметры амплитуды и длины волны
L.5.1.4.	Roughness standard (e.g. ISO 5436-1 Type D): ISO roughness parameters	Эталон шероховатости (например ISO 5436-1 Тип D) параметры шероховатости ISO
L.5.1.5.	Profile coordinate standard (e.g. ISO 5436-1 Type E): profile coordinates	Эталон профильных координат (например ISO 5436-1 Тип E) профильные координаты

**Project 569/UA/12** "Comparison of length standards in the range of 0.001 to 1 mm".

Proposed to carry out comparisons of the glass line scales of small range. At this stage the project is proposed, the participants are expected. Comparisons are designed to confirm the NMI CMC services.

L.2.3.1.	Precision line scale: line spacing	Точная штриховая шкала: расстояние между штрихами
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**Project 570/UA/12** "Comparisons of standards of flatness".

Planned comparison of interferometric systems for measuring the flatness of products up to 120 mm. Comparisons will expand the capability of NMI CMC services.

L.4.1.1.	Optical flat: flatness	Оптическая плоскостность: плоскостность
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**Project 590/UA/12** "Comparison of precise rangefinder systems".

At this stage the project is proposed, the participants are expected. Comparisons will expand the capability of NMI CMC services.

L.6.4.1.	Geodetic baseline: interval distances	Геодезическая базовая линия: расстояния между базами
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**Project 591/UA/12** "Comparison of precise navigation systems GPS/GLONASS".

At this stage the project is proposed, the participants are expected. Comparisons will expand the capability of NMI CMC services.

L.6.4.1.	Geodetic baseline: interval distances	Геодезическая базовая линия: расстояния между базами
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**Project 610/UA/13** "Comparisons of standards of flatness up to 300 mm".

Planned comparison of interferometric systems for measuring the flatness of products up to 300 mm. Comparisons will expand the capability of NMI CMC services.

L.4.1.1.	Optical flat: flatness	Оптическая плоскостность: плоскостность
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### 3. Propositions on the results of the meeting of TC 1.5

3.1 To agree the project on the development of comparative analysis methods of different methods of measuring large lengths. Consult to the "VNIIFTRI" with a request to join this work.

3.2 Ask to join the comparisons in the measurement of plane angle R. Cuba and Romania.

3.3 To ask member countries of COOMET "Length and angle" to declare their measurement capabilities in the measurement of internal dimensions up to 150 mm.

3.4 To carry out additional comparisons of standards in the area of internal dimensions measurement and if project will be agreed ask PTB to be laboratory-pilot.

3.5 To agree the research work in the area of spherometry. R. Belarus expressed its willingness to join in contributing of the project.

3.6 To invite the other member country COOMET "Length and angle" to participate actively in the ongoing comparisons.

3.7.1 Technical Committee TC 1.5 "Length and angle" to consider the establishment in the direction of the committee "Measurements of deformation" in order to coordinate the establishment of standards for storage, reproduction and transmission unit of length in the area of deformation measurement.

3.7.2 To analyze the measurement capabilities of the countries - members of COOMET in the area of deformation measurements for the planning and organization of work on international comparisons.

3.7.3 To analyze the possibility of registering the direction of "Measurements of deformation" in a database of measurement capabilities (BIPM).

3.8.1 To clarify of project name of comparisons № 527/Ru/2011, and participants of comparisons (position 22 "COOMET Programme of comparison", approved. In November 2012), by specifying:

"Additional comparisons of national standards in the area of measurements of the surface density of the coating in the range (0,04-0,90) kg / m<sup>2</sup> and coating thickness in the range (4-100) µm".

NMI pilot - coordinator: "UNIIM" Russia, 620000, Ekaterinburg, Krasnoarmeiskaya, 4. Phone (8-343) 355-48-85. Fax (8-343) 350-21-68, E-mail: Kazantsev@uniim.ru.

Members of comparisons: "UNIIM" Russia, PTB Germany.

3.8.2 Include in the COOMET Programme of comparison project:

"Pilot comparisons of national standards in the field of measurements of the surface density at values of 0.10 g/m<sup>2</sup> and 0.45 g/m<sup>2</sup> and thickness of the coating with the values of 10 nm and 50 nm".

NMI pilot - coordinator: "UNIIM" Russia, 620000, Ekaterinburg, Krasnoarmeiskaya, 4. Phone (8-343) 355-48-85. Fax (8-343) 350-21-68, E-mail: Kazantsev@uniim.ru.

Members of comparisons: "UNIIM" Russia, PTB Germany.

Starting date: 2014.

3.8.3 Include in the COOMET Programme of comparison project:

"Additional comparisons of national standards in the area of measurements of the surface density coating in the range (0.007-0.21) kg/m<sup>2</sup> and coating thickness in the range (1-30) µm".

NMI pilot - coordinator: "UNIIM" Russia, 620000, Ekaterinburg, Krasnoarmeiskaya, 4. Phone (8-343) 355-48-85. Fax (8-343) 350-21-68, E-mail: Kazantsev@uniim.ru.

Members of comparisons: "UNIIM" Russia, PTB Germany.

Starting date: 2014.

3.9 To carry out additional comparisons of standards in the area of measuring deviations from linearity (starting in 2014) and if project will be approved to ask BelGIM to become of pilot-laboratory.

3.10 To carry out comparisons within COOMET to confirm the calibration capabilities at the level of the calibration daily activities, not only at the level of the state standards.

To note the perspective of cooperation direction of COOMET member-countries with international and regional organizations in terms of participation in the international metrological projects, scientific workshops and conferences.

#### **4. Place and date of the next meeting of TC 1.5**

The next meeting of COOMET TC 1.5 "Length and angle" to carry out at "VNIIMS", Moscow, Russia, in May 2014 (to agree the date by correspondence).

Chairperson of COOMET TC 1.5  
"Length and angle"



V. S. Kupko