Appendix A

Report of the Activities of the International Organization of Legal Metrology (OIML) and Regional Legal Metrology Organizations

National Institute of Standards and Technology (NIST), Office of Weights and Measures (OWM)

INTRODUCTION

The OWM at NIST is responsible for coordinating United States participation in OIML and other international legal metrology organizations. Learn more about OIML at www.oiml.org and about NIST, OWM at www.nist.gov/owm. Dr. Charles Ehrlich, Program Leader of the International Legal Metrology Program, can be contacted at (301) 975-4834 or charles.ehrlich@nist.gov.

Note: OIML publications are available electronically without cost at www.oiml.org.

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Table B Glossary of Acronyms and Terms

Acronym	Term	Acronym	Term
ANSI	American National Standards Institute	ISO	International Standardization Organization
APEC	Asia-Pacific Economic Cooperation	IWG	International Work Group
APLMF	Asia-Pacific Legal Metrology Forum	LMWG	Legal Metrology Work Group
APMP	Asia-Pacific Metrology Program	MAA	Mutual Acceptance Agreement
В	Basic Publication	MTL	Manufacturers' Testing Laboratory
BIML	International Bureau of Legal Metrology	NIST	National Institute of Standards and Technology
BIPM	International Bureau of Weights and Measures	NTEP	National Type Evaluation Program
CD	Committee Draft ¹	OIML	International Organization of Legal Metrology
CIML	International Committee of Legal Metrology	OWM	Office of Weights and Measures
CTT	Conformity to Type	PG	Project Group
D	Document	R	Recommendation
DD	Draft Document ²	SC	Technical Subcommittee
DoMC	Declaration of Mutual Confidence	SIM	Inter-American Metrology System
DR	Draft Recommendation ²	TC	Technical Committee
DV	Draft Vocabulary ²	USNWG	U.S. National Work Group
GA	General Assembly	VIM	International Vocabulary of Metrology
IEC	International Electrotechnical Commission	VIML	International Vocabulary of Legal Metrology
IQ Mark	International Quantity Mark	WD	Working Draft ³
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¹ CD: a committee draft at the stage of development within a technical committee, subcommittee or project group; in this document, successive drafts are numbered 1 CD, 2 CD, etc.

Details of All Items (In order by Reference Key)

² DD, DR, and DV: a draft document approved at the level of the technical committee, subcommittee or project group concerned and sent to BIML for approval by CIML.

³WD: working draft that precedes the development of a CD; in this document, successive drafts are number 1 WD, 2 WD, etc.

I. REPORT ON THE ACTIVITIES OF THE OIML TECHNICAL COMMITTEES

This section reports on recent activities and the status of work in the OIML Technical Committees (TCs), Technical Subcommittees (SCs), and Project Groups (PGs) of specific interest to members of the National Conference on Weights and Measures (NCWM). Schedules of future activities of the TC/SC Secretariats, PG Conveners, the U.S. National Work Groups (USNWGs), and the International Work Groups (IWGs) and Project Groups of the TCs and SCs are also included.

TC 3/SC 5 Conformity Assessment (United States)

Please see the section on the OIML Certification System (OIML-CS), found at the end of this Section of Appendix A.

TC 5/SC 1 Environmental Conditions (Netherlands)

OIML D 11 General requirements for measuring instruments - Environmental conditions is a very important document in the OIML system and is used by all of the OIML TCs as a general reference for technical and testing requirements on all measuring instruments. Highlights of the most recent revision cycle include: expanding the terminology section, updating several testing sections to reflect the latest International Electrotechnical Commission (IEC) reference standards, and including a new environmental class ("E3") for a non-mains local source of electrical power supply. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov, if you would like additional information on TC5/SC1 or OIML D 11.

TC 5/SC 2 Software (Germany and BIML)

OIML D 31 *General Requirements for Software-controlled Measuring Instruments* serves as guidance for the software requirements in all of the OIML International Recommendations.

The recently revised D31 was published on the OIML website in December 2019. The document now includes methods/means of software verification and improved harmonization of terminology. This includes a subset of terms for "Measurement Result Relevant Information" and "Measurement (Process) Information"; this will distinguish data necessary for legal metrology purposes from data that is necessary for instrument operation but otherwise not legally necessary.

Because some issues in the last revision cycle in OIML D31 were not fully resolved, a new project has been started to "immediately revise" the document. This project is now ongoing, and parties interested in these OIML software efforts should contact Dr. Katya Delak at (301) 975-2520 or katya.delak@nist.gov if they have questions or would like to participate.

TC 6 Prepackaged Products (South Africa)

A new Guide, OIML G 21, entitled "Guidance for Defining the Requirements for a Certification System for Prepackages" has been published. This guideline was developed to assist countries in establishing reciprocal agreements to accept the test results on prepackaged goods.

The latest edition of OIML Recommendation R 87 "Quantity of Product in Prepackages" (equivalent to NIST Handbook 133 "Checking the Net Contents of Packaged Goods") was published in 2016. This edition includes a comprehensive overhaul of the statistical requirements and sampling plans. The U.S. and several other countries were successful in opposing efforts by several European Union countries to add drained weight test procedures and packaging requirements utilized in that region to the new edition of R87. Those procedures were rejected primarily because they failed to recognize drained weight test methods that have been in use around the world for decades and which have been adopted by Codex Alimentarius. A new Project was approved at the CIML meeting in 2019 to create a "R87 Prepackage Template".

The latest edition of OIML R 79 *Labeling Requirements for Prepackaged Products* was published in 2015. For more information or to participate in the activities of this committee, please contact Mr. Ken Butcher at (301) 975-4859 or kbutcher@nist.gov.

TC 7/SC 5 Multi-dimensional Measuring Instruments (Australia and Canada)

There is significant interest in maximizing harmonization between OIML R129 "Multi-dimensional Measuring Instruments" and the US requirements for these instruments. Canada became the Co-Convener with Australia on this project and hosted the Project Group's first meeting in Ottawa in May 2019. The comment period on the 4CD revision of OIML R129 closed in March 2020. The Project Group resolved all of the international comments received on the 4CD through the use of a "minor change procedure" in April 2020 and distributed the R129 Preliminary Online Ballot in May 2020. It is expected that OIML R129 will receive final CIML approval in November 2020. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov, if you would like copies of this document.

TC 8 Measurement of Quantities of Fluids (Japan)

In June 2019, Japan distributed the First Committee Draft (1CD) of a revision of R 63 *Petroleum Measurement Tables* (1994) now that the corresponding ISO standard has been recently revised. The Secretariat also distributed the 1CD of a revision of R 119 *Pipe Provers for Testing of Measuring Systems for Liquids* in June 2019 -- this document is important for other OIML Recommendations involving liquid measurement. The comments received on the 1CDs were resolved, and the 2CD packages of both of these documents were distributed in December 2019. Both documents passed their Preliminary Online Ballot in July 2020, and it is expected that both documents will receive final CIML approval in November 2020. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov, if you would like copies of any of these documents.

TC 8/SC 1 Static Volume and Mass Measurement (United States)

The United States chairs the Project Groups that are revising OIML R 71 Fixed Storage Tanks and R 85 Automatic Level Gages for Measuring the Level of Liquid in Fixed Storage Tanks to add specific requirements for specialized tanks. The 2CDs of R 71 and R 85 are planned to be distributed for project group vote and comment in early 2021. The Subcommittee has discussed the importance of revising OIML R 125 Measuring Systems for the Mass of Liquids in Tanks, and a new project to revise R 125 has been approved by the CIML. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov, if you would like copies of the documents or to participate in any of these projects.

TC 8/SC 3 Dynamic Volume and Mass Measurement for Liquids Other Than Water (United States and Germany)

OIML R 117 *Dynamic Measuring Systems for Liquids Other Than Water* received final CIML approval in October 2019 and was published in April 2020. This recent project to revise R117 fully harmonized all three parts of the Recommendation and added new annexes for several complete measuring systems, including: (a) measuring systems for the unloading of ships' tanks and for rail and road tankers using an intermediate tank, (b) measuring systems for liquefied gases under pressure (other than LPG dispensers), (c) measuring systems for bunker fuel, and (d) measuring systems for liquefied natural gas (LNG). The 2CD of R 117 was distributed in December 2018 and achieved 100% "yes" votes by the project group. At a March 2019 meeting in Cape Town, South Africa, the project group resolved all 70 pages of international comments received on the 2CD. The PG also developed and approved a 3CD at the meeting, incorporating all of the comment resolutions. The Recommendation passed the CIML Preliminary Ballot in September 2019. If you have any questions about R117 or the systems that it covers, please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov.

TC 8/SC 6 Measurement of Cryogenic Liquids (United States)

The Secretariat for OIML R 81, *Dynamic Measuring Devices and Systems for Cryogenic Liquids* has distributed a first committee draft (1CD) of R 81 to Project Group members and the USNWG for their review and comment. These comments have now been resolved, and a 2CD is anticipated to be distributed in early 2021. To obtain more information or to participate in this project, please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov.

TC 8/SC 7 Gas Metering (Netherlands)

All three parts of OIML R 137 *Gas Meters* have been published. Extensive United States comments on the 1 CD, the 2 CD, and the DR were developed in cooperation with the measurement committees of the American Gas Association. The OIML R 137 document is especially important to the U. S. interests because the American National Standards Institute (ANSI) B 109 committee on gas measurement is using the published R 137 to create a new performance-based standard for gas meters in the United States. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov, if you would like to participate in these efforts or if you would like to obtain a copy of any of these gas measurement documents.

The Netherlands and Japan served as Co-Conveners on a project to revise OIML R 139, Compressed gaseous fuel measuring systems for vehicles that mostly focused on ensuring that the Recommendation fully and accurately includes proper requirements and test procedures for hydrogen fuel dispensers. This standard is important to US stakeholders, especially in the effort to maximize harmonization between domestic and international legal metrology requirements used for the delivery of alternative fuels. The revised Recommendation has been published on the OIML website. To obtain more information on this effort, please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov.

TC 9 Instruments for Measuring Mass (United States)

OIML R 60 *Metrological Regulation for Load Cells* (Metrological and technical requirements and Metrological controls and performance tests) was published in 2018. It is expected that the CIML will approve a project to do a minor revision (called an "update") on R60. This update is expected to be started and completed in 2021. For more information on TC 9 activities, please contact Mr. John Barton at (301) 975-4002 or john.barton@nist.gov.

TC 9/SC 1 Non-Automatic Weighing Instruments (Germany and France)

A project to revise OIML R 76:2006 *Non-automatic weighing instruments* is in progress. In addition to revising the R 76 Recommendation, the project group has been requested to provide suggestions on how to best approach the verification and inspection of measuring instruments in this category. Several Project Sub-Groups have been tasked with reformatting and updating the Recommendation and with developing field verification and inspection procedures for these measuring instruments. Other Sub-Groups will develop proposals for adding up-to-date software requirements and for considering the inclusion of new test procedures for modules. A first Committee Draft (1CD) of the R 76 revision may be available in early 2021. Please contact Mr. Ken Butcher at (301) 975-4859 or kbutcher@nist.gov if you are interested in the effort to revise this document.

TC 9/SC 2 Automatic Weighing Instruments (United Kingdom)

The effort to develop a new OIML Recommendation on *Continuous totalizing automatic weighing instruments of* the arched chute type is almost complete. This type of measuring instrument measures centripital force on an arched chute. The third committee draft (3CD) of this new document passed the PG vote in November 2019, with a significant number of international comments. A 4CD passed the PG vote in March 2020. It is expected that this

new Recommendation will receive final CIML approval in November 2020. To receive copies of the documents concerning this project or to obtain more information on the work of this subcommittee, please contact Mr. Ken Butcher at (301) 975-4859 or kbutcher@nist.gov.

The Preliminary Ballot of OIML R 61 *Automatic gravimetric filling instruments* received final CIML approval and has been published.

The CIML has approved new projects to revise OIML R 51 *Automatic catch-weighing instruments* and R134 *Automatic instruments for weighing road vehicles in motion and measuring axle loads*. Both of these Recommendations were last approved/published in 2006 and both of the revision projects are currently in the Working Draft stage. A subcommittee meeting to discuss both of these projects had been scheduled for 2020, but this meeting has been postponed. Please contact Mr. Ken Butcher (301) 975-4859 or kbutcher@nist.gov if you are interested in the projects to revise these Recommendations.

TC 12 Instruments for measuring electrical quantities (Australia)

OIML R 46 Active Electrical Energy Meters is undergoing revision. The United States participated in the Project Group meeting that was held in May 2019 in Helsinki, Finland, and provided comments on the third working draft (3WD) of R46 that was distributed in January 2020. The Project Group has established four Subgroups to work on specific issues related to the revision and continuing development of R46: (1) Electric Vehicle (EV) Charging Stations; (2) Fundamental vs. Harmonic power and Reactive Energy; (3) Smart Street Lighting; and (4) Remote Displays and Meters with Modular Components. The R46 Project Group postponed a meeting that had been scheduled for May 2020 in The Netherlands. Please contact Dr. Katya Delak at (301) 975-2520 or katya.delak@nist.gov if you have questions about this project or would like to participate.

OIML Certification System (OIML-CS)

OIML has operated a Certificate System for OIML Type Evaluation of Measuring Instruments since 1991. Because of difficulties encountered by the International Bureau of Legal Metrology (BIML) in adequately obtaining and summarizing peer review and/or accreditation data from test laboratories, and also to promote better awareness of the certificate system, an effort to develop a significantly improved and more robust OIML Certification System (OIML-CS) was started in 2015.

After three years of development, implementation of the new OIML-CS began in January 2018. Load cells (R 60) and non-automatic weighing instruments (R 76) entered under what is called Scheme A (an advanced level of the OIML-CS where accreditation or peer review is used as the basis for demonstrating compliance with the requirements of the OIML-CS for both OIML Issuing Authorities and Test Laboratories). Several other instrument categories (see the OIML web site, www.oiml.org, for a complete list) entered under Scheme B (an introductory level of the OIML-CS where "self-declaration" is used as the basis for demonstrating compliance with the requirements of the OIML-CS). All thirty-seven (37) instrument categories are scheduled to be completely transitioned to Scheme A starting in Jan 2021.

In 2020, Mr. Bill Loizides (the CIML Member from Australia), who had been serving as the Deputy Chairperson of the OIML-CS Management Committee, has temporarily served as the Chair. Dr. Charles Ehrlich of NIST (the U.S. CIML Member), serves on the Management Committee of the OIML-CS. Mr. Darrell Flocken of NCWM/NTEP serves on the Review Committee, which is now part of the Management Committee. Dr. Ehrlich and Mr. Flocken had planned to attend the 3rd Annual Meeting of the OIML-CS in New Delhi, India, in March 2020, but the meeting

was cancelled due to the coronavirus pandemic. Online videoconference meetings of the Management Committee were instead held in May, June, and July 2020. The CIML plans to appoint Mr. Mannie Panesar (UK) as the new OIML-CS MC Chairperson for a term of three years starting in January 2021.

Details and specifics about the OIML Certificate System are available on the OIML website. If there are any questions about the OIML-CS, or for more information, please contact Dr. Ehrlich at (301) 975-4834 or charles.ehrlich@nist.gov.

II. REPORT ON THE 55TH CIML MEETING IN OCTOBER 2020 (held online)

The 16th OIML International Conference and the 55th CIML Meeting were both scheduled to be held in Suzhou (near Shanghai), P.R. China, in October 2020. However, because of the pandemic, it was decided to postpone the Conference until October 2021 and to hold the 55th CIML Meeting as 3-day online meeting (20-22 Oct 2020).

The Committee decided to utilize the voting rules that apply during "in-meeting" conditions for all decisions that would be made by the Committee during the online CIML meeting. The Committee also approved the use of the secure voting tools on the OIML website for CIML draft resolutions and for secret ballots on appointments.

The OIML currently has 61 Member States and 63 Corresponding Members, and efforts are ongoing to encourage new economies to join the Organization.

The CIML President, Dr. Roman Schwartz (Germany), reported on OIML activities during the previous year and also discussed the challenges caused by the pandemic to international legal metrology efforts.

The BIML Director, Mr. Anthony Donnellan, reported on the activities and achievements of the Bureau and its staff, including: efforts to improve the effectiveness of OIML technical work and activities, efforts related to Countries and Economies with Emerging Metrology Systems (CEEMS), the OIML Certification System (OIML-CS), World Metrology Day, and work with liaison organizations.

Dr. Schwartz provided a report that supports stronger cooperation between the OIML and the BIPM. The Committee approved the Terms of Reference of a new OIML/BIPM Joint Task Group (JTG) and appointed Dr Roman Schwartz, Dr Charles Ehrlich, and Mr Anthony Donnellan to serve as the OIML representatives on that JTG.

The CIML held discussions on the following Recommendations during the online meeting; it is expected that all of these Recommendations will receive final CIML approval through secure online voting in November 2020.

- New Recommendation *Non-invasive non-automated sphygmomanometers* (Revision of R 16-1);
- New Recommendation Non-invasive automated sphygmomanometers (Revision of R 16-2);
- New Recommendation Continuous totalizing automatic weighing instruments of the arched chute type;
- Revision of R 129 Multi-dimensional measuring instruments;
- Revision of D 1 National metrology systems Developing the institutional and legislative framework;
- New Document Petroleum measurement tables (Revision of R 63); and
- New Document *Pipe provers for testing measuring systems for liquids* (Revision of R 119).

The Committee approved a new project to update OIML R 60:2017 *Metrological regulation for load cells* under the responsibility of the OIML-CS Management Committee and the BIML.

The BIML gave a report on the technical work of the OIML, with an emphasis on high-priority projects and high-priority documents. A discussion took place on the OIML Bulletin and the plan that has been initiated to promote/improve contributions from the Membership in the form of articles for future Bulletins.

A report and update on the OIML Certification System (OIML-CS) was provided by Mr. Bill Loizides (Australia) who has served as Management Committee (MC) Acting Chairperson for the past several months. The report highlighted the increased participation in the OIML-CS, promotion and awareness-raising activities, and the key issues that the MC will be addressing in the future. The CIML plans to appoint Mr. Mannie Panesar (UK) as the new OIML-CS MC Chairperson for a term of three years starting in January 2021. The CIML also plans to re-appoint Mr. Bill Loizides as OIML-CS MC Deputy Chairperson for another three-year term.

Based on a strong effort by the US and following the recommendation of the OIML Certification System Management Committee, the CIML decided that all references to the marking (especially restrictions on marking) of the OIML certificate number on measuring instruments should be removed from all OIML publications. The Committee requested that the OIML-CS MC revise the relevant OIML-CS publications and develop a Guidance Note regarding the meaning of the OIML certificate number when it is marked on a measuring instrument. The BIML was instructed to review all OIML publications to identify those that include a reference to the marking of the OIML certificate number on measuring instruments and select the most appropriate method to amend/revise the relevant publications.

The Advisory Group on matters concerning Countries and Economies with Emerging Metrology Systems (CEEMS AG) was created by the CIML to provide advice to the OIML on any matter relating to CEEMS. Mr. Peter Mason, Chair of the CEEMS AG, delivered a report on the activities of this AG, including an online meeting of the AG that was held on 06 Oct 2020. His report focused on progress related to the 2018 CIML resolution concerning CEEMS. The CIML expressed their appreciation for the progress made by the Advisory Group, especially the significant effort made by the AG to complete the revision of OIML International Document D 1. The CIML also endorsed a proposal for the Advisory Group to develop a strategy on the application of online technology for capacity building and other CEEMS activities.

The new Chairperson of the Regional Legal Metrology Organization Round Table, Dr. Charles Ehrlich (US) (who also serves as the CIML 1st VP), provided an update on the activities of the RLMO RT including an online meeting of the RLMO RT that was held on 08 Oct 2020. Significant progress has been made to improve the functioning and the effectiveness of the RLMO RT in 2020. Discussions were held concerning how both the RLMOs and their individual member countries were coping and operating during the coronavirus pandemic. Discussions were also held about further expanding the scope of the RLMO Round Table and improving the collaboration between the RLMOs – such as the sharing of training materials and e-learning modules.

The following is a list of the six RLMOs that actively participate in the Round Table:

- AFRIMETS (Intra-Africa Metrology System);
- APLMF (Asia-Pacific Legal Metrology Forum);
- COOMET (Euro-Asian Cooperation of National Metrological Institutions);
- GULFMET (Gulf Association for Metrology);
- SIM (The Inter-American Metrology System); and
- WELMEC (European Cooperation in Legal Metrology).

Other organizations in liaison (including the BIPM, CECIP, IAF, ILAC, OECD and UNIDO) submitted reports to the CIML meeting that are available on the OIML website.

An OIML Medal was awarded to Dr Tsuyoshi Matsumoto (Japan) in recognition of his outstanding contributions to OIML and international legal metrology. Letters of Appreciation were presented to Mr. Ralph Richter (US), Dr. Michael Rinker (Germany), and Dr. Peter Ulbig (Germany) for their contributions to the work of the OIML.

The 55th CIML Meeting Resolutions, documents and presentations can be found on the OIML website at:

http://online-55ciml.oiml.org/ciml.html

III. FUTURE OIML MEETINGS

The People's Republic of China has confirmed its invitation to host the 56th CIML Meeting and the 16th International Conference in 2021.

IV. REGIONAL LEGAL METROLOGY ORGANIZATIONS

A meeting of the Inter-American Metrology System (SIM) General Assembly is organized annually and is the event where delegates from National Metrology Institutes of the Americas meet to discuss important issues. The two most recent in-person meetings of the SIM General Assembly were in Gaithersburg, Maryland (at NIST) and in Santa Cruz, Bolivia.

The SIM Legal Metrology Working Group (LMWG) held its most recent in-person meeting in Cartagena, Columbia. Several issues of importance to the SIM countries were discussed, including: recent weights and measures training that participants felt had been successful, how the new OIML-CS certification system would affect the weights and measures programs in each country, and the problems that many programs faced concerning adequate and stable access to resources. The meeting closed with a discussion on the future needs and expectations of each of their countries. Possible next steps and planning for future training and future LMWG communication and meetings were considered. The SIM LMWG elected a new chair in July 2020, Mr. Pedro Pérez Vargas of the Superintendencia de Industria y Comercio in Columbia. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov for more information on SIM and the activities of the SIM LMWG.

The 26th Meeting of the Asia-Pacific Legal Metrology Forum (APLMF) was hosted by Vietnam and was held in November 2019. New Zealand currently holds the APLMF Secretariat, and Mr. Stephen O'Brien of New Zealand's Ministry of Business, Innovation & Employment (MBIE) assumed the APLMF Presidency.

The main objectives of APLMF are to coordinate regional training courses in legal metrology and to provide a forum for exchange of information among legal metrology authorities. APLMF activities have been facilitated through its seven work groups. A meeting of the APLMF Working Groups (WGs) was held on the day prior to the APLMF meeting. The most active WG has been the Working Group on Training Coordination. Because of the importance of the training mission to APLMF, this WG has now become a permanent part of the APLMF Secretariat (instead of a separate WG). The results of a recent APLMF survey clearly indicated that the more than 20 courses conducted by APLMF in the last 10 years were highly valued by the member economies, promoted harmonization in the Asia-Pacific region, and frequently led to revised/improved legislation and regulations in the member economies.

A significant joint project entitled "Metrology Enabling Developing Economies in Asia" (MEDEA) has been conducted over the past several years by APLMF, the Asia Pacific Metrology Programme (APMP) and the Physikalisch-Technische Bundesanstalt (PTB). This project has been managed by PTB and is primarily funded by Germany. The project aims to foster and further develop the capabilities of the APLMF and the Asia-Pacific Metrology Program (APMP) to support developing economies in the Asia-Pacific region, to promote metrology

systems within developing economies, and to strengthen the metrology systems/infrastructure within developing economies.

The 2020 APLMF Annual Meeting was scheduled to be hosted by the Republic of the Philippines, but this meeting will instead be held as an online meeting in Dec 2020. Please contact Mr. Ralph Richter at (301) 975-3997 or ralph.richter@nist.gov for more information on APLMF.