BATF-06-01 ~ 06 & BATF-07-36 **- Harmonization of Test Procedures**

Project number: *BATF-06-01 ~ 06 & BATF-07-36*		**Date:** *31 August 2006*
Title of project: Harmonization of Testing Procedures (Communities of Practice)		
Leading member & co-leading member: Lead: Korea; Co-Leads: U.S. and Japan		
Participants: Australia, India		
Project Overseer: Mr. Jun-Young Choi, PhD, Energy Evaluation Team, Korea Testing Laboratory		
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Financial information	**Total cost of proposal:** *US$ 4.8 million*	
Type of project: □ Demonstration/pilot □ national policy, law, regulation ✓ appliance testing/labeling ✓ Seminar/symposium □ training & technical assistance □ public/consumer information □ Database/website ✓ survey, analysis, research □ others *(please specify)*		
Project start date: *1 Nov 2006*		**Project end date:** *31Oct 2011*
Project summary: In an effort to eliminate a major barrier to developing successful standards and labeling programs, this project will develop harmonized test procedures for a number of agreed upon products using a "communities of practice" model. The project includes the evaluation of existing test procedures, and revisions to existing or the development of new test procedures in an internationally harmonized manner. Data will then be amassed using the resulting test procedure for use by various countries, as desired.		
Signature of Project Overseer: Jun-Young Choi **Date:** 25 August 2006		
Signature of Task Force Chair: Hakdo Kim **Date:** 31 August 2006		
Remark:		

Goals and Objectives

The goals of this project and its sub-projects are:

- To develop a process for arriving at a methodology for test procedures that measure product energy efficiency and/or energy consumption which are harmonized among the participant countries, recognized as such by manufacturers, and could be adopted by other countries interested in developing labeling, regulatory standards or voluntary levels for these products—termed the "communities of practice" model.

- To develop the methodology of harmonization with test procedures for 4 or more products from the priority list using the process described above.

- To share the developed new methodology, and to recommend the formal standards by an economy's standards-setting agency or by an international agency such as the International Standards Organization (ISO) or International Electrotechnical Commission (IEC) or both.

- To amass testing results using the test procedure and potentially existing test procedures for these priority products.

- To develop a process for establishing a base on which mutual acceptance of accreditation of energy efficiency testing facilities and the results of test performed at these facilities can be achieved.

- To develop a screening method to be used for prioritizing additional products for which to develop harmonized test procedures in the future.

As a result of this project, all Partner countries will have access to internationally harmonized test procedures and can individually or in groups propose to develop potential performance levels upon which to base mandatory or voluntary requirements or labeling schemes for these products as projects to fall under the Partnership at a later date.

In addition, it is necessary to accomplish this project in cooperation with other international bodies such as the International Standards Organization (ISO) or International Electrotechnical Commission (IEC) or both. Furthermore, the International Energy Agency (IEA) is advancing its studies (G8 programs of work: Strategic approach to Gleneagles Plan of Action on transforming the way we use energy appliances). Their scope is similar to that of this project, and we acknowledge that conformity is an essential element for these activities.

Performance Indicators

1. Development of a step-by-step process for establishing the methodology of harmonization with test procedures that is inclusive and comprehensive.

2. Share the new methodology with harmonized test procedures and/or recommend to standards-setting agency or by an international agency such as the ISO or IEC (or both) for at least four products from priority list.

3. Robust data sets including comparison test data in each test facilities for each of the four products using the test procedure.

4. List of additional products for BATF to pursue in the future.

5. Screening method for prioritizing additional products of interest to pursue in the future.

The harmonization of test procedures as outlined in this project responds to the priorities set by the PIC by allowing for collaboration to 'create an enabling environment for the development, diffusion, deployment and transfer of existing and new practices' in the form of the test procedures, as described by the Vision Statement. In addition, by evaluating the appropriateness of an existing test procedure to serve as the resulting harmonized test procedure, this project follows section 3.1 of the Action Plan Guidelines, which expects each Task Force to "build on a wide range of actions already in place in Partner countries" and to "leverage existing initiatives to maximize return on resources." Lastly this project responds

to the Work Plan objectives by using "cooperative mechanisms to support further uptake of increasingly more energy-efficient appliances" and attempting to "identify and respond to a potentially significant barrier that would limit the implementation of end-use energy efficiency practices and technologies." If you cannot measure it, you would not know if it is energy-efficient.

Background

Many countries have test procedures, standards, and labeling (mandatory and/or voluntary) schemes for a wide variety of products. In the majority of cases, these test procedures and resulting performance levels are different, resulting in a worldwide patchwork of testing and performance requirements for manufacturers to meet in order to sell in that market. In addition, for countries looking to develop a standards and labeling program the burden of developing a test procedure and performance levels is daunting. Even if the country were looking to use a test procedure developed by another, they would need to first evaluate all of the existing test procedures to determine which is appropriate for the products in their market. Each of these endeavors is intensive in terms of cost, time, and technical expertise to do it properly. Harmonized test procedures are fully achievable for many products and would greatly benefit these countries and reduce the burden on manufacturers of complying with the multitude of standards worldwide.

Test procedures and rules may be published as formal standards by an economy's standards-setting agency or by an international agency such as the International Standards Organization (ISO) or International Electrotechnical Commission (IEC) or both. Some products may already have international test procedures, but they are not fully capable of testing energy consumption on a comparative basis. In addition, it takes a long time to revise or modify an existing test procedure with new technology or realistic test procedures. It should be noted that we need harmonized test procedures for products in large trading and energy consuming Partnership regions.

There have been internationally coordinated test procedure development activities, as well as activities by national governments with limited international cooperation. For example, the U.S. Department of Energy and the US Federal Trade Commission have led efforts since 1975 to develop standards for over 16 types of residential appliances and certain commercial and industrial equipment. The DOE/FTC program was implemented in response to U.S. federal legislation and allows for public/international input through a formal rulemaking process. More recently, through voluntary program approaches, there have been efforts led by the U.S. Environmental Protection Agency to develop testing procedures for external power supplies and computer monitors. These initiatives actively involved international counterparts in all aspects of procedure development and resulted in procedures that are harmonized internationally, as was the goal. Similar efforts are currently under way to develop internationally harmonized test procedures for televisions and compact fluorescent light bulbs.

In addition, the Top Runner (TR) standards have been introduced as an energy conservation standard in Japan. The TR system uses, as a base value, the value of the product with the highest energy consumption efficiency on the market at the time of the standard

establishment process and sets standard values by considering potential technological improvements added as efficiency improvements.[1]

The steps in setting a TR standard are, first, to study and decide on a test procedure, next, to use this procedure to measure the energy-efficiency of all products, and then, to set the standard at the "efficiency level of the most efficient product plus a margin for technological improvement." In the experience of Japan, it is important for appropriate to adopt relevant test procedures that ensure domestic and international harmonization, based on specific equipment's actual usage. When determining methodology for reference values and test procedures, individual technologies (and their technical limit) should be assessed correctly.

Methodology

For the list of products previously identified as priority by BATF (home digital appliances (televisions, set-top boxes, personal computers), motors, HVAC-R (air conditioning, refrigerators, refrigerated display cabinets, and others), lighting (including street lighting))

- Gather information on existing test procedures or existing efforts to develop test procedures, as well as any mandatory and voluntary programs already under way internationally.

- Evaluate quality of existing test procedures as a whole or in parts. It is necessary to consider following points for international harmonization of test procedures:

Methodological points;

Test/actual; and

Denominator definitions (e.g. volume).

- A resulting internationally harmonized test procedure could be the product of putting together parts of several different test procedures.

- Summarizing the methodological issues and set concrete goals for the identification of the best practices with harmonization of test procedures.

Circulate "Best practices with methodology with harmonization of test procedures" to standards-setting agency or by an international agency such as the ISO or IEC or both.

- If there are no existing test procedures, or existing procedures are inadequate, work with testing experts to draft a new test procedure via face-to-face meetings, conference calls, and email in working groups for the listed products.

Circulate draft(s) to international energy efficiency community and industry for comment via e-mail and finalize.

- Document the process for each product.

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1 Target products (21 items): home/office appliances (air conditioners, refrigerators/freezers, microwave ovens, rice cookers, fluorescent lights, TV sets, video cassette recorders, DVD recorders, PCs, magnetic disc units, copying machines, etc), transformers, passenger vehicles, freight vehicles.

Circulate a test procedure to manufacturers encouraging them to test products according to this procedure and existing test procedures and submit results/data.

Get a comparison of test data from different test labs, using the harmonized test procedure and existing test procedures for each product.

Conduct basic market research into these products and how they are sold in each country including, but not limited to:

- Define products and subcategories (classes).
- Identify product manufacturers and brands sold locally.
- Identify distribution channels and ratio of sales.
- Understand the mix of local vs. imported products.
- Survey manufacturers and/or local trade associations regarding number of products sold each year.
- Determine plug load at various settings and market penetration (what does a typical home have, establish installed base of product) through available data or survey homes and businesses.
- Establish an average or typical usage pattern for the product.

Choose a list of additional appliances/products that are of interest to the Task Force.

Establish spreadsheet-based methodology to assess potential benefits for improving the efficiency of products of interest to include:

- Establishing energy efficiency and/or energy consumption baselines for each product.
- Estimating future product energy use and energy savings as a function of energy efficiency.
- Potential environmental and monetary savings to be determined based on country specific inputs.

Narrow list of products to pursue based on product savings potential and market barriers and opportunities. Follow steps 1–3 above for these additional products.

Milestones

Sub-Project	Step-1								Step-2											
	Year 1				Year 2				Year 3				Year 4				Year 5			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
For priority products, gather information on existing test procedures and mandatory/voluntary programs and evaluate																				
Either revise existing procedures or draft new test procedures and circulate new and existing test procedures for review																				
For priority product, finalize test procedures, circulate new and existing test procedures to respective industries for testing of priority product models																				
Organize working group for priority products																				
Amass data for original group of priority products																				
Complete market research of priority products																				
Simultaneously choose a list of additional products for the working group to address and being to conduct market research and develop spreadsheet model for each product																				
For additional products, gather information on existing test procedures and mandatory/voluntary programs and evaluate for additional products																				
For additional products, either revise existing procedures or draft new test procedures and circulate new and existing test procedures for review																				
For additional products, finalize test procedures, circulate new and existing test procedures to respective industries for testing of priority product models																				
For additional products, amass data for original group of priority products																				

Dissemination of Project Results

The majority of interaction and dissemination will occur via email. A dedicated website may be established to facilitate posting of documents and comment on draft documents. Target audience is technical consultants, testing laboratories, government agencies, and other in Partner and (perhaps) other interested countries.

Assessment of Project

Project results include the actual test procedures to measure energy efficiency and/or energy consumption for identified products. Energy savings and associated greenhouse gas reduction can be measured using a variety of methods including Kw per sq m or CO_2 per sq m. For example, energy efficiency measures may reduce the sq m energy consumption and the associated CO_2 emissions may be further reduced where energy is produced by the building, e.g. solar or thermal.

Sub-Project/Task	2007 Funding (US$'000)	2008 Funding (US$'000)	2009 Funding (US$'000)	2010 Funding (US$1,000)	2011 Funding (US$'000)	Total (US$'000)
1. For priority products, gather information on existing test procedures and mandatory/voluntary programs and evaluate	200					200
2. Either revise existing procedures or draft new test procedures and circulate for review	400					400
3. Working groups (x3) & workshops (x2/yr/WG)	200	200	200	200	200	1,000
4. Finalize test procedures, circulate to respective industries for testing of priority product models		400	200			600
5. Complete market research of priority products		200	200			400
6. Amass data for original group of priority products and derive possible spec/MEPS levels		200	200			400
7. For additional products, gather information on existing test procedures and mandatory/voluntary programs and evaluate			200	200		400
8. For additional products, either revise existing procedures or draft new test procedures and circulate for review			200	400		600
9. Finalize test procedures, circulate to respective industries for testing of additional product models					400	400
10. Complete market research of additional products				200		200
11. Amass data for original group of additional products and derive possible spec/MEPS levels					200	200
Sub-total	**800**	**1,000**	**1,200**	**1,000**	**800**	**4,800**

Participation and Management

Management

- Leader: Jun-Young Choi, Korea Testing Laboratory, Korea
- Co-Leader: Keitaro Kimura, METI (Ministry of Economy, Trade and Industry), Japan
- Andrew Fanara and Rachel Schmeltz, EPA, United States

Participation

- Japan: Keitaro Kimura, METI (Ministry of Economy, Trade and Industry); Kiyoshi Saito, JEMA (The Japan Electrical Manufacturers' Association); Tsukasa Kimura, JEITA (Japan Electronics and Information Technology Industries Association); Narito Shibaike, Panasonic
- United States: Andrew Fanara and Rachel Schmeltz of US EPA; Michael McCabe and Richard Karney of US DOE; Chuck Samuels of Association of Home Appliance Manufacturers
- Australia: Shane Holt of Australia Green Office
- Korea: Jeong-Ho Park, Korea Testing Laboratory

Funding

TBD