IECEE Global Motor Energy Efficiency Program (GMEE)
2014 Motor Summit Conference

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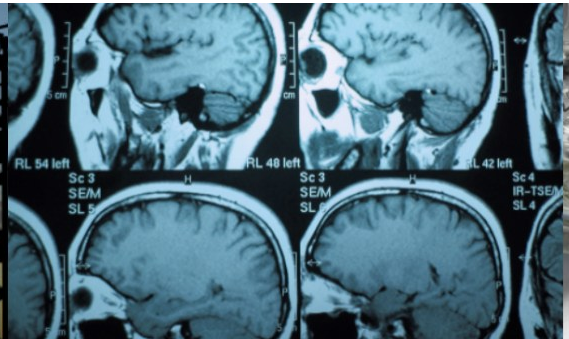
The Association of Electrical and Medical Imaging Equipment Manufacturers



MEPS

- National Motor MEPS increasing steadily
- Developing Nations creating new requirements
- MEPS registrations vary and can slow or block international trade
- Lack of effective MEPS Enforcement and Verification processes
- No Global MEPS Program

Efficiency Levels	Efficiency Classes IEC 60034-30-1	Testing Standard	Country MEPS (Minimum Energy Performance Standard)	Country MEPS Regulation
Premium Efficiency	IE3	Low Uncertainty IEC 60034-2-1, IEEE 112B or CSA C390	USA (1-500HP)	US DOE 10 CFR Part 431, Effective 6/1/2016
			Europe: 2015* (>7.5kW); 2017* (>0.75kW)	ErP Directive, Regulation 640/2009
			Canada (1-200HP)	Canadian EEA, CSA C390
			Mexico (1-500HP)	NOM 016-ENER-2010
			Korea: 2015-2017	MOCIE/KEMCO
High Efficiency	IE2		Canada (201-500HP)	Canadian EEA, CSA C390
			Australia (1-250HP)	AS/NZS 1359:2004
			New Zealand (1-250HP)	AS/NZS 1359:2004
			Brazil	NBR 17094-1
			Korea	MOCIE/KEMCO
			Argentina	IRAM 62405
			China	GB 18613-2010
			Europe	ErP Directive, Regulation 640/2009
			Turkey	SMG-2012/2

*** IE3 or IE2 + VSD**

Let's Dream a little bit…

1 MEPS Certificate Accepted Around the Globe

NEMA / IECEE Collaboration

NEMA Premium License

- 18 Registered Motor Mfgrs
- Follows US Regulations for
  - Test Procedures,
  - Labeling and
  - Certification
- Qualifying products subject to 3rd Party testing
- Annual NVLAP Lab Accreditation validated
- Annual Verification/Challenger Program
- Motor Mfgr agrees to support promotion of NEMA Premium Program

CB Scheme

- IECEE = IEC conformity assessment association
- 57 Member Countries
- Over 80,000 CB certificates issued in 2013
- Uses IEC standards and incorporates national differences
- Reciprocal recognition of CB certificates between National Conformity Assessment Bodies
- Does not include factory inspection or follow up testing

Goals and Objectives

- Expand Global Market Access for Efficient Motor Products
  - Increase adoption of higher energy efficiency motors in developing nations
- Develop Common Global MEPS Registration Process
  - Test Laboratory Qualification
  - Registration and Certification
    - Minimum number of test samples (Reduce cost of repeated testing at each country regulatory)
    - Labeling or Product Marking (Nominal Efficiency Definition – National Differences)
- Harmonize Global MEPS Test Standards
  - IEC 60034-2-1 vs. IEEE 112B vs. CSA C390
- Harmonize Global MEPS Efficiency Levels
  - IEC 60034-30 (IE Levels) vs. National MEPS Levels
- Develop MEPS Enforcement / Verification Program
  - Increase compliance and enforcement of efficiency in motor industry
- Globally Recognized Label
- One **Test Certificate** accepted by national regulators globally

NEMA Premium License + IECEE CB Scheme

IECEE WG 2D: Two – Phase Approach

PHASE 1: GMEE - Global Motor Energy Efficiency (CB Scheme Equivalent)

"Motors Passport = One test report accepted around the globe"

- Follows successful CB Scheme (ISO Guide 17067 Type 1b program)
- "Direct to Market" Certificate approach
- Global Test Standards (IEC 60034-1, -2-1, -30-1)
- ISO Test Laboratory Quality Requirements (ISO 17025)
- Defined Certification Requirements based on US DOE 10 CFR Part 431 guidelines (model selection/number of models/number of tests, AEDM, etc.)
- No Labelling Requirements (CB Test Certificate Number)
- No Verification Program (No Plant Inspections/Follow Up Services/Factory Surveillance)
- Each motor manufacturer determines appropriate IE level for country / region / regulation / customer / etc.

PHASE 2: GMLP – Global Motor Labeling Program

"Motors Passport + Visa = One certification accepted around the globe"

- Develop effective process for Market/Factory Surveillance on top of GMEE Program
- Embed GMLP into national regulations as an alternate certification program
- Global Recognized Motor Efficiency Label

PHASE 1: GMEE Objectives

- Expand Global Market Access for Efficient Motor Products
- Develop Common Global MEPS Registration Process
  - Test Laboratory Qualification
  - Registration and Certification
    - Minimum number of test samples
    - Labeling or Product Marking (Nominal Efficiency Definition – National Differences)
- ~~Harmonize Global MEPS Test Standard~~
  - ~~IEC 60034-2-1 vs. IEEE 112B vs. CSA C390~~
- ~~Harmonize Global MEPS Efficiency Levels~~
  - ~~IEC 60034-30 (IE Levels) vs. National MEPS Levels~~
- ~~Develop MEPS Enforcement / Verification Program~~
- ~~Globally Recognized Label~~
- One Test Certificate accepted globally by national regulators

GMEE = NEMA Premium License + IECEE CB Test Certificate

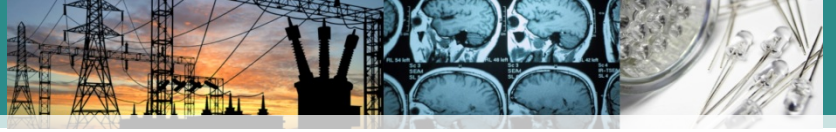
GMEE Status Update

SWG 2Da – "Strategy"

- IECEE Approved Business Plan
- IECEE GMEE Operational Document drafted
- US DOE Approval of IEC 60034-2-1
- Marketing plan to engage national regulatory and conformity assessment bodies
- IECEx best practice integration

SWG 2Db – "Technical"

- Completed Global Efficiency Test Standard Comparison
- Released IEC Efficiency Test Report Form (IEC 60034-2-1 Ed 2.0)
- Common Certification process (number of samples, number of tests, Lab qualifications, AEDM/math model qualification, etc.)
- National Differences (test procedure, lab qualification, regulations, marking, certification, etc.)



GMEE vs GMLP

IECEE Motor Programs

PHASE 1
2Q 2015 Completion

PHASE 2
Following Phase 1 Implementation

GMEE
Global Motor Energy Efficiency

- Expansion of existing CB Scheme program
- ISO Guide 17067 Type 1b
- No Market or Factory Surveillance
- No IECEE Label
- Add IEC 60034 Series to IECEE Approved Standards

GMLP
Global Motor Labeling Program

- Develop Effective Market and Factory Surveillance Methods
- Develop Globally Recognized Label
- Lobby National Regulators to adopt as alternate regulatory program

~~E3 - STR Statement of Test Results~~

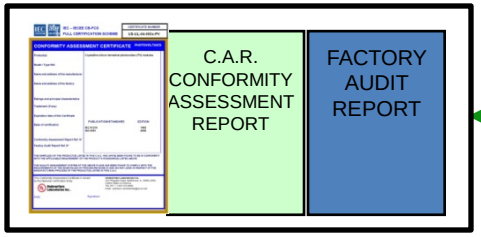
- New program to IECEE (introduced as E3)
- No ISO Guide 17067 Type
- No Certification, Label or Factory Surveillance
- Test against IEC 60034 Series

GMLP Challenges Lie Ahead

- Globally Harmonized Test Standard and Efficiency Levels
  - Future Test Method Harmonization (IEC, IEEE, CSA)
  - IEC 60034-30 IE Levels vs. National Regulatory Levels
- Global “Label” not as easy as it sounds
  - Successful promotion and industry/regulatory acceptance of new label
  - Adoption by existing NCB with recognized labels
  - National Border Patrol education required for effective enforcement
- Industrial Motor Industry newcomers to conformity assessment world
  - Effective Market/Factory Surveillance program needs further industry discussion
  - Motor Industry Concern of potential increased costs
  - IECEE conformity assessment newcomer to the performance/efficiency sector
- Development of globally recognized certification process
  - Product line certification Uncertainty (number of samples, tests, AEDM, etc.)
  - Manufacturing Test Laboratory Qualification Process

Proposed GMEE Process Flowchart

GMEE CBTC- Certification Body Test Certificate



MOTOR MANUFACTURER

STEP 1

NCB - National Conformity Assessment Body

Motor
Manufacturer's
Test Lab or NCB

Product Line Testing

FACTORY AUDIT ISO 9001

STEP 2

GMEE CBTC

National Regulator Registration

(ex: US DOE, Canada, China, Korea, Brazil, EU, etc.)

MARKET

OEM, End User, Distribution

May Require National Compliance Mark (ex: US DOE CC #)

Proposed GMLP Process Flowchart

MOTOR MANUFACTURER

NCB - National Conformity Assessment Body

Motor Manufacturer's Test Lab or NCB

Product Line Testing

FACTORY AUDIT ISO 9001

GMEE CBTC- Conformity Body Test Certificate

C.A.R. CONFORMITY ASSESSMENT REPORT

FACTORY AUDIT REPORT

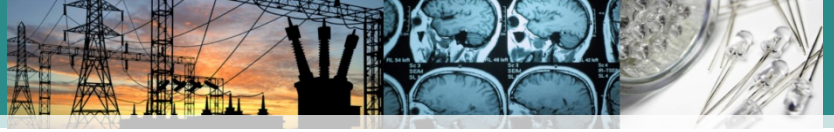
National Regulator Registration

IECEE Member Country Regulatory Agreement

MARKET

OEM, End User, Distribution

IECEE GLOBAL LABEL



Thank You

Questions?