Policy decisions and interpretations related to specification LMB-EG-07

1.0 Scope

This bulletin applies to all electricity meters submitted for approval pursuant to LMB-EG-07 – Specifications for Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices.

2.0 Background

Measurement Canada (MC) has, over the past number of years, made various policy decisions and interpretations related to specification LMB-EG-07. The purpose of this bulletin is to consolidate and communicate these decisions for the information of Measurement Canada staff and electricity stakeholders.

3.0 Policy decisions

3.1 Demand meters – maximum/peak demand reset and static demand meter nameplate markings (relates to sections 7 and 15 of LMB-EG-07)

3.1.1 A meter equipped with a dedicated maximum demand register, indicator or display must also be equipped with capabilities to reset the register. Resetting may be performed through an on-board device or through a remote mechanism. The reset capability will be assessed during approval evaluations to determine if it conforms to technical requirements established for the reset mechanism and to determine if activating the reset has any impact on the metrological characteristics of the meter.

3.1.2 A demand meter which is not equipped with a dedicated maximum demand register, indicator or display shall automatically recalculate the indicated or measured demand value upon completion of the previous demand interval or response period.
3.1.3 The maximum demand measurement capability of a static meter is a function of the meter's maximum rated voltage and current. These values may be used to determine a specific meter's maximum demand capability and therefore, static demand meters need not have maximum demand marked on their nameplates as prescribed in section 15-4 of LMB-EG-07 (see S-E-06 for updates) and need not display maximum demand capability. This applies to single customer meters and to multiple customer metering systems.

3.2 Interval/load profile metering (relates to section 13 of LMB-EG-07)

MC does not currently have specifications relative to the approval of interval or load profile functions that extend beyond the traditional electricity metering areas of demand measurement and pulse initiating and recording devices used for the transmittal of energy or demand measurements to a remote location. Pertinent specifications are expected to be established pursuant to recommendations developed by the Joint MC-electricity industry Working Group on the Establishment of Legal Units of Measure Outside an Approved Meter.

3.3 Telemetering devices and systems – automatic meter readers (relates to section 13 of LMB-EG-07)

3.3.1 Pulse based recording and generating telemetering devices are currently clearly defined in LMB-EG-07, and applicable performance tests are established.

3.3.2 MC does not approve retrofit-type (i.e., installed under the meter glass cover with access restricted by a seal) automatic meter readers (AMRs) per se. The AMR, as a meter component, shall be evaluated to ensure that it functions and does not impair or impact the operation of the meter as a whole. No specific performance testing of the AMR itself is required. The AMR is to be identified in the host meter's notice of approval (NOA).

3.3.3 MC does not approve stand-alone non-pulse based AMRs which operate outside of any host meter and receive data through the host meter's electronic telecommunication devices (e.g., RS-232, power line carrier, RF, etc.). The purpose of these devices is simply to retransmit legal units of measure (LUMs) established by the host meter. No approval for this AMR is required as it does not constitute a "meter" under the definition in the legislation.

3.3.4 MC currently does require approval of AMRs which operate outside of any host meter and which modify or create LUMs, since this type of device does constitute a "meter" as defined by the legislation. For the most part, at this time, such devices are pulse based and approval performance requirements are established in LMB-EG-07. The NOA for such devices will not make reference to host meters, since they operate outside of the host meter and are designed to connect to it in a manner that does not affect the approved host meter pattern.
3.3.5 Bulletin GEN-26\footnote{[link]} establishes policies pertaining to the modification of approved meters. Prior to the issuance of bulletin GEN-26, MC had granted approval for some AMR devices that were built within a host meter. The policies of bulletin GEN-26 imply that modification of any existing AMR approvals (granted prior to the issuance of bulletin GEN-26) will not be accepted by MC. Where the AMR manufacturer makes a modification, MC will inform the manufacturer of the GEN-26 policies, which require that such an AMR (as a component of a meter) must be evaluated as part of the host meter pattern, and the request for approval (revision) must therefore be submitted by the manufacturer(s) of the meter(s) with which the AMR is intended to be used. For modifications to existing AMR approvals which MC deems immaterial, the Agency may (as it sees fit) issue a modification acceptance letter (MAL) under the host meter NOA which identifies the AMR that may be used as a component of that host meter.

3.4 Meter Display (Relates to section 3.2 of LMB-EG-07)

All approved meters must have an indicator/display which forms part of the approval. The indicator may be external or ancillary to the main body of the meter (connected via wires, RF, etc.). It is anticipated, though not specifically required, that the indicator/display will be physically located at the meter site.

3.5 Multi-Rate Registers (Relates to section 3.2 of LMB-EG-07)

The policy pertaining to the approval of meters containing multiple rate registers is outlined in section 5.0 of bulletin GEN-31\footnote{[link]} in accordance with this policy, the energy measurement accuracy of each individual multi-rate register which is integral to a meter and intended for use in revenue metering shall be evaluated in order for the meter to be approved. The accuracy of the rate switching mechanism used to switch energy measurement registration from one register to another will not be evaluated.

3.6 Net metering registers/displays and annunciators (Relates to section 3.2 of LMB-EG-07 and section 5.2 of S-E-05)

3.6.1 A meter which only performs net metering (i.e., result of forward accumulation minus reverse accumulation) does not require separate delivered and received registers. When energy is supplied in reverse it is registered and displayed (with the reverse annunciator), and when supplied in forward (as normal) it is simply registered and displayed as normal. The approvals examiner may exercise some flexibility in regards to the type of annunciator that is used to indicate that energy is being received on the grid. The type of annunciator used by the meter will be indicated in the NOA.

3.6.2 The intent of requirements pertaining to the identification of registers/displays is that registers must indicate the specific electrical quantity they are intended to register/display. In the case of a net meter, the intent is such that when the display is displaying W-h negative, it must label this in some manner that distinguishes it from W-h positive, Var-h negative, etc. The approvals examiner may exercise some flexibility regarding the label's appearance, provided that the NOA indicates which label refers to which electrical quantity and direction.
3.7 Policy on demand measurement interval length (relates to section 15-3.2 of LMB-EG-07 and section 5.15.3 of S-E-06)

3.7.1 The intent of this approval requirement was to ensure that metered demand values would be established from intervals of not less than 15 minutes in length. At the time LMB-EG-07 was issued, metering technology was limited such that a meter's demand interval length was essentially fixed and individual meters were only capable of performing demand measurement by using that fixed interval length. Currently, technology makes it possible for individual meters to be programmed, reprogrammed or altered by an external event such that some demand intervals may be less than 15 minutes in length. In such cases, this results in non-compliance with the approval requirement.

3.7.2 The demand interval length is a legally relevant parameter. Therefore, any operating event applied to a meter which can affect the demand interval length is not permitted, unless it occurs under conditions established in MC policies or specifications.

4.0 Consolidated amendments to specification LMB-EG-07 (established prior to issue of this bulletin)

4.1 The following sections of LMB-EG-07 related to requirements for meter "test links" have been previously revoked (see S-E-06):

1) 4-3.2
2) 7-3.3
3) 15-3.1

4.2 Section 3-2.7.7 of LMB-EG-07 related to requirements for "multi-rate registers" has previously been revoked through PS-E-12.[link 3]

4.3 Section 12-2.1 of LMB-EG-07 related to requirements for reverse detent has previously been revoked through a former Agency memorandum issued by the Director December 27, 1992.

4.4 Approval requirements pertaining to "Test Mode" have been established in section 5.6.2 of MC specification S-E-06.[link 4]

4.5 Approval requirements pertaining to electronic current transformers have been established in MC specification PS-E-13.[link 5]

4.6 Approval requirements pertaining to electronic voltage transformers have been established in MC specification PS-E-16.[link 6]
4.7 Approval requirements pertaining to "Net Metering" have been established in MC specification [S-E-05][link 7].

4.8 Approval requirements pertaining to prepayment meters have been established in MC specification [PS-EG-01][link 8].

4.9 Approval criteria pertaining to the assessment of units of measurement and functions have been established in section 5.3 of MC bulletin [GEN-25][link 9].

4.10 Approval criteria pertaining to test provisions for electronic meters have been established in section 5.6.1 of MC specification [S-E-06][link 10].

4.11 Approval policies pertaining to 2 ½ element metering have been established in section 4.0 of MC bulletin [E-24][link 11].

4.12 Specifications pertaining to the approval of instrument transformers (ITs) (conventional type, not electronic type) have been established in specification [S-E-07][link 12] supersede the requirements established in section 14 of LMB-EG-07, which was revoked. Subsequent to the effective date of S-E-07, section 14 of LMB-EG-07 is no longer applicable to approval of ITs and is thereby revoked.

4.13 Specifications for physical sealing provisions for electricity and gas meters have been established in specification [S-EG-02][link 13]. This specification supplements the requirements already established in section 3-2 of LMB-EG-07.

5.0 Revisions

The purpose of revision 4 is to include section 3.1.3, which removes specific nameplate content requirements for static demand meters. Minor housekeeping amendments have also been made.

The purpose of revision 3 was to include section 3.7, which provides an interpretation of policies surrounding the adjustment of electricity demand measurement interval length. This revision also incorporates minor housekeeping amendments to other sections.

The purpose of revision 2 was to make minor housekeeping amendments to sections 4.1, 4.4 and 4.10.

The purpose of revision 1 was to include identification of new specifications related to specification LMB-EG-07 as identified in sections 4.12 and 4.13 above.
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