



Specifications

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Specification for the approval of type of electricity meters and auxiliary devices— Amendments to Measurement Canada specification LMB-EG-07

1.0 Scope

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

2.0 Authority

This specification is issued under the authority of section 12 of the *Electricity and Gas Inspection Regulations*.

3.0 References

3.1 LMB-EG-07—Specifications for Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices

3.2 S-E-05—Specification for Approval of Type of Electronic Meters—Net Metering

4.0 Background

Since the beginning of the application of Measurement Canada specification LMB-EG-07 and prior to the implementation of the Agency's revised publication process in the 1990s, the Agency has implemented changes to some of the requirements of the specification which have not yet been published. The purpose of this specification is to consolidate and officially communicate the applicable requirements of LMB-EG-07 that have been changed over the years and that are currently being applied during type approval evaluation.

5.0 Amendments to sections of LMB-EG-07

5.1 Amendments to section 1 – Scope of LMB-EG-07

Reserved for future amendments to section 1 of LMB-EG-07.

5.2 Amendments to section 2 – Definitions of LMB-EG-07

5.2.1 Section 2-23 is amended as follows:

Display

A device or other means used to visually present the value of a measured quantity and other relevant information. It may take the form of an integral part of a meter or a separate display module.

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5.2.2 Section 2-34 is amended as follows:

Minimum current

The smallest load current for which a device must operate within specified error limits. The minimum current shall be taken to be 1% of I_{max} or less than 1% of I_{max} if specified by the applicant.

5.2.3 Section 2-59 is amended as follows:

Register (electronic)

A memory location in the meter where the value of a measured quantity is electronically recorded.

Register (mechanical)

A mechanical device integral to the meter where the value of a measured quantity is recorded and visually presented.

5.3 Amendments to section 3 – General requirements of LMB-EG-07

5.3.1 Section 3-2.5.1 (a), which requires the word "line" to be indicated on single-phase self-contained meters, is revoked.

5.3.2 Section 3-2.7.4 is amended as follows:

3-2.7.4 Multiplier

The meter multiplier, if other than one (1.0), shall be marked permanently and prominently, on the register face.

Note: This requirement may be satisfied through physical marking or via electronic display.

5.3.3 Section 3-2.7.5 is amended as follows:

3-2.7.5 Clock registers

The minimum diameter of clock dial circles shall be 10 mm. Each dial shall be divided into ten equal and clearly numbered divisions. Preferably, the dials shall be distinctly separated from each other. The gearing shall be such that a complete revolution of any pointer shall cause the adjacent pointer on the left to advance one division.

The dial centres shall be located so as to avoid any possibility of ambiguity in reading.

5.3.4 Section 3-2.7.6 is amended to remove the requirement that all windows in the register face lie in a straight line and be of the same size. Section 3-2.7.6 is amended as follows:

3-2.7.6 Cyclometer registers

The test dial of a cyclometer register may be of either the drum or pointer type.

If the test dial is of the drum type, it shall be divided into ten equal numbered divisions, marked "test dial", and a reference mark shall be provided on the register face for accurate reading.

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The arrangement of the cyclometer drums and the cutouts on the register face shall be such that, with the exception of the fastest-moving drum, one and only one digit is in full view, except when a drum is advancing from one position to another. The duration of this change period shall not exceed the time required for the fastest-moving drum to make one-tenth of a revolution.

The size and shape of any numerals shall be such that they are clearly legible.

5.3.5 Section 3-2.7.7, "Multi-rate registers", is revoked effective January 24, 2005, and replaced with PS-E-12, Provisional Specifications for the Approval of Type of Electricity Meters – Approval Requirements for Electricity Meters with Multiregister Metering Functions.

5.3.6 The title of section 3-2.7 is amended as follows: Registers (Mechanical).

5.3.7 Section 3-3.5 is modified to remove reference to "time-of-use metering" as follows:

3-3.5 A device used as a master timing reference for other devices and not having access to external timing information shall have a battery carry-over feature to maintain the timing reference over the temperature range specified for the device over the following minimum intervals:

- a) 24 hours for a device with automatically recharges the standby battery upon the restoration of power following an electrical outage.
- b) 7 days for all other devices.

The carry-over time base shall be accurate to within ± 30 seconds over a period of 7 days.

5.3.8 Section 3-2.9 is added to section 3-2 to include requirements for electronic registers.

3-2.9 Registers (Electronic)

Electronic registers shall be non-volatile (they shall be capable of storing the last recorded value of a measured quantity if the meter is subjected to a power failure). Stored values shall not be overwritten and shall be capable of being retrieved upon restoration of power.

Electronic registers shall be capable of storing measurement information in a manner which provides for at least 5 digits of resolution at the display.

5.3.9 Section 3-2.10 is added to section 3-2 to include the requirement for a means to indicate the value of any legal unit of measure recorded by the meter.

3-2.10 Means of indication

The meter shall have one or more means of indication capable of accurately presenting or displaying the numerical value of each legal unit of measure for which the meter is approved. The means of indication may be either a register (mechanical) or a display.

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5.3.10 Section 3-4.1 is amended as follows:

3-4.1 Nameplates

Every meter, instrument or device shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly visible from the front, with all covers in place:

- i) Name or mark of manufacturer
- ii) Type or designation
- iii) Serial number
- iv) Departmental approval number
- v) Operating temperature range

Note: This requirement shall only apply if the operating temperature range is less than -40 °C to +53 °C (i.e., intended for temperature-controlled locations). This requirement may be satisfied through physical marking or via electronic display.

3-4.1.1 Space shall be provided for affixing the inspection number.

3-4.1.2 Additional marking requirements applicable to various types of meters and devices are set forth in subsequent sections specific to them.

5.3.11 Section 3-5.4 is amended by adding the following:

Polyphase meters incorporating a unidirectional register or pulse output shall determine net polyphase registration resulting from the combined measurements of all elements of the meter prior to applying any detent function which prevents registration or pulse outputs when energy is applied in the reverse direction.

5.4 Amendments to section 4 – Induction-type watt-hour meters of LMB-EG-07

5.4.1 Section 4-2.1.1 is amended to remove the requirement that the direction of rotation be indicated by an arrow. Section 4-2.1.1 is amended as follows:

4-2.1.1 Direction of rotation

Viewed from above, the direction of rotation of the disc shall be counter-clockwise.

5.4.2 Section 4-2.1.2.2 is amended to remove the requirement that every fifth division be longer than the others. Section 4-2.1.2.2 is amended as follows:

4-2.1.2.2

On self-contained single-phase meters, the disc shall carry the following markings, in black:

On the upper periphery, one hundred divisions, with every tenth division identified consecutively by the figures 10, 20, ..., 90.

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5.4.3 Section 4-2.2.3 is amended to remove the requirement that the test dial be located out of line with other dials or be distinctly different in appearance. These requirements are redundant given the other requirements stipulated in this section. Section 4-2.2.3 is amended as follows:

4-2.2.3 Test dials

With the exception of meters equipped with a multi-rate register, all single-phase meters shall be provided with a special test dial for testing the register. In the case of polyphase meters, if the lowest reading dial or drum requires more than one hour to make one complete revolution when the meter under single-phase conditions specified in 3-5.1 (vi) is running on maximum load or 100 A, whichever is lesser, a test dial shall be provided.

The pointer of the test dial shall rotate at ten times the speed of the lowest reading dial or drum. There shall be no figures on the test dial but it shall be divided into ten equal divisions. The direction of rotation shall be indicated by means of an arrow.

5.4.4 Section 4.3.2, “Test Links”, is revoked. Advances in technology have made it possible to facilitate the safe, effective and accurate testing of electricity meters without the use of test links. Electricity meters submitted to Measurement Canada for approval of type pursuant to specification LMB-EG-07 are not required to make use of test links.

5.4.5 Section 4-4 is amended as follows:

4-4.1 Nameplates

In addition to the requirements of subsection 3-4, every meter used for single-point metering shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly legible from the front, with all covers in place.

- i) Rated frequency^a
- ii) Rated voltage or voltages
- iii) Minimum and maximum rated currents
- iv) Disc constant^a
- v) Meter configuration notations. The following examples are recommended:^a

- 1-phase, 2-wire
- 1-phase, 3-wire
- 1-phase, 3-wire, 2-element
- 2-element network
- 2½ (2.5)-element wye or delta
- 3-element wye
- Auto detect

^a These requirements may be satisfied through physical marking or the meter.

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vi) For single-phase transformer-type meters, the words "transformer type"

vii) For transformer-rated meters:

- a) Primary disc constant^a
- b) Current transformer rating (e.g., 1000-5 A)^a
- c) Voltage transformer rating (e.g., 600-120 V)^a

Note 1: Accepted symbols are Ø, EL, Y and Δ.

Note 2: For 2½-element wye and 3-element meters, rated voltage is phase to neutral voltage.

4-4.1.1

If the meter is fitted with accessories such as a reverse running detent or retransmitting contacts, this shall be specified on the nameplate or on an auxiliary plate, and a diagram of connections shall be provided.

5.5 Amendments to section 5 – Induction-type var hour and Q-hour meters of LMB-EG-07

Reserved for future amendments to section 5 of LMB-EG-07.

5.6 Amendments to section 6 – Static integrating meters of LMB-EG-07

5.6.1 Section 6-2.2 is amended to clarify the requirements to facilitate efficient testing using conventional testing methodologies. Section 6-2.2 is amended as follows:

6-2.2 Testing provisions

6-2.2.1

Each meter shall provide testing means analogous to counting the disc revolutions of an induction watt-hour meter. A means of testing shall be provided for each energy quantity measured (e.g., W·h, var·h, etc.).

6-2.2.2

Each meter shall provide pulses or some other form of discrete indication (e.g., light, KYZ, LCD, etc.) of energy accumulation registered by the meter. Each pulse or indication shall represent the same finite amount of energy.

6-2.2.3

Each meter shall provide discrete energy accumulation indications, including pulses, in sufficient numbers and frequency to ensure that the time required to test the meter is comparable to the time required to test an electromechanical energy meter of the same load rating and configuration.

6-2.2.4

Access to the means for testing shall be available with the meter cover in place, without the need to break the verification seal at either the operational location or at another location.

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6-2.2.5

In addition to the test provision requirements above, an applicant may request the assessment of additional test output means such as:

- optical ports
- serial ports
- parallel ports

The manufacturer shall clearly identify the following information in the approval application:

- output device type
- data transfer medium
- intervening data probes
- couplers
- receivers
- interpretation equipment
- software

The approval application shall include a comprehensive procedure that:

- clearly illustrates the setup of all equipment and connections,
- includes a step-by-step description of all operations required to conduct meter tests and establish meter errors.

Measurement Canada will assess the data output as a form of test mode.

6-2.2.6

Specialized test equipment that may be required to test devices which have unique testing means and are compliant with the above requirements shall be provided free of charge by the contractor, as prescribed under section 19 of the *Electricity and Gas Inspection Act*. The specialized equipment shall also be provided during the approval process by the approval applicant.

6-2.2.7

A comparative registration assessment between the value of energy presented by the meter's means of indication and the correlating value as determined through the meter's test provision shall result in a relative difference of 0.3% or less. The test shall be performed at any one test point used to assess performance requirements applicable to the meter type.

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5.6.2 Section 6.2.3 is added to section 6.2 to include the requirements for approval of the test mode for use during inspections of meters as follows:

Section 6-2.3 Test Modes

6-2.3.1

Electronic meters submitted to Measurement Canada for approval of any test mode for use during inspections shall have the test mode evaluated to determine the extent to which it is suitable for meter verification testing.

6-2.3.2

The meter design schematics, operational block diagrams or other engineering and technical data shall be evaluated to confirm that there are no internal or external factors which can cause a difference between the resultant measured values obtained via the test mode and normal operating modes.

6-2.3.3

Each legal unit of measurement evaluated for approval shall be evaluated in accordance with the requirements of sections 6.2.3.4 and 6.2.3.5, as applicable, for each mode of operation.

6-2.3.4

The accuracy of the energy quantities shall be evaluated, as a minimum, at 50% power factor, maximum rated voltage, and at 25% and 2.5% I_{max} . For the purposes of evaluation, the voltage circuits shall be connected in parallel and current circuits connected in series, in a single-phase configuration. The error differential between the test results in normal mode and those in test mode shall not exceed 0.2%.

6-2.3.5

The accuracy of the demand quantities shall be evaluated, as a minimum, at 50% power factor, maximum rated voltage, and at 50% I_{max} . For the purposes of evaluation, the voltage circuits shall be connected in parallel and current circuits connected in series, in a single-phase configuration. The error differential between the test results in normal mode and those in test mode shall not exceed 0.2%.

6-2.3.6

The Notice of Approval will indicate all test modes and means that comply with 6-2.3.4 and 6-2.3.5. These test modes and means are the only ones approved to verify the performance and accuracy of energy and/or demand values for legal units of measurement.

The Notice of Approval will indicate all specified external equipment (including software and versions) that must be used in conjunction with the identified test mode(s) for purposes of meter verification.

5.6.3 Section 6-3.2 is amended to remove the requirement that the information be indicated in red. The information shall be permanently and prominently indicated, irrespective of colour.

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5.6.4 Section 6-3.3 is added to section 6.3 to include the requirement that firmware versions be indicated as follows:

6-3.3 Firmware versions

Meter firmware versions shall be prominently indicated either on the meter nameplate or via the electronic display.

5.6.5 Sections 6-3.4 and 6-3.5 are added to section 6.3 to include requirements for nameplates as follows:

6-3.4 Nameplates for single customer meters

In addition to the requirements of subsection 3-4, every single customer meter used for single-point metering shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly legible from the front, with all covers in place.

- a) Rated frequency^b
- b) Rated voltage or voltages
- c) Minimum and maximum rated currents
- d) Disc constant^b
- e) Meter configuration notations. The following examples are recommended:^b
 - 1-phase, 2-wire
 - 1-phase, 3-wire
 - 1-phase 3-wire, 2-element
 - 2-element network
 - 2½ (or 2.5)-element wye or delta
 - 3-element wye
 - Auto detect
- f) For single-phase transformer-type meters, the words "transformer type"
- g) For transformer-rated meters:
 - 1) Primary disc constant^b
 - 2) Current transformer rating (e.g., 1000-5 A)^b
 - 3) Voltage transformer rating (e.g., 600-120 V)^b

In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter may be placed elsewhere on the meter, on condition that this same information also appears either inside or outside of the cover of an enclosure which shall be submitted as part of the approval of type application.

^b These requirements may be satisfied through physical marking or via the meter's approved electronic display.

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In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter may be placed on the terminal cover on condition that this same information also appears elsewhere on the meter itself. In such a case, as a minimum, the serial number affixed on the meter itself shall be visible when the meter is installed.

Meters approved with nameplate information not legible from the front of the meter shall be approved for installation only on the load side of the main switch or circuit breaker of the service for which the meter is installed. This installation restriction will be contained in the Notice of Approval.

Note 1: Accepted symbols are Ø, EL, Y and Δ.

Note 2: For 2½-element wye and 3-element meters, rated voltage is phase to neutral voltage.

6-3.4.1

If the meter is fitted with accessories such as a reverse running detent or retransmitting contacts, this shall be specified on the nameplate or on an auxiliary plate, and a diagram of connections shall be provided.

6-3.5 Nameplates for multiple customer metering systems

In addition to the requirements of subsection 3-4, every multiple customer metering system (MCMS) shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly legible from the front, with all covers in place.

- i) Rated frequency^c
- ii) Rated voltage or voltages
- iii) Minimum and maximum rated currents
- iv) Disc constant^c
- v) The actual configuration of each meter, as programmed in the MCMS. The following examples are recommended:^c

- 1-phase, 2-wire
- 1-phase, 3-wire, 2-element
- 2-element network
- 2-element, delta
- 3-element, wye

^c These requirements may be satisfied through physical marking or via the meter's approved electronic display.

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vi) For single-phase transformer-type meters, the words "transformer type"

vii) For transformer-rated meters:

- 1) Primary disc constant^c
- 2) Current transformer rating (e.g., 200-100 mA)^c
- 3) Voltage transformer rating (e.g., 600-120 V)^c

In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter shall be placed elsewhere on the meter on condition that this same information also appears either inside or outside of the cover of an enclosure which shall be submitted as part of the approval of type application.

Where the configuration information is not available on the nameplate or approved electronic display, the MCMS unit shall have a secondary nameplate, configuration chart or supporting documentation which provides the specific configuration information of each meter as programmed in the MCMS. The information shall be clearly identified as supporting documentation for the configuration of the device. Provision of configuration information may be satisfied through the use of an alternate electronic display such as a laptop or a PC connected to the MCMS.

If an MCMS has more than one configuration, all approved configurations specific to that model shall be on the nameplate. If an MCMS has the same configuration for each meter, the applicable configuration can be the only one to appear on the nameplate.

In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter may be placed on the terminal cover on condition that this same information also appears elsewhere on the meter itself. In such a case, as a minimum, the serial number affixed on the meter itself shall be visible when the meter is installed.

Meters approved with nameplate information not legible from the front of the meter shall be approved for installation only on the load side of the main switch or circuit breaker of the service for which the meter is installed. This installation restriction will be contained in the Notice of Approval.

Note 1: Accepted symbols are Ø, EL, Y and Δ.

Note 2: For 3-element meters, rated voltage is phase to neutral voltage.

6-3.5.1

If the meter is fitted with accessories such as a reverse running detent or retransmitting contacts, this shall be specified on the nameplate or on an auxiliary plate, and a diagram of connections shall be provided.

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5.7 Amendments to section 7 – Demand meters of LMB-EG-07

5.7.1 Section 7-2.1.2.1 is amended as follows:

7-2.1.2.1 General

All clock-type indicators shall have at least three dials.

The minimum diameter of clock dial circles shall be 10 mm.

Each dial shall be divided into ten equal and clearly numbered divisions. The gearing shall be such that a complete revolution of any pointer shall cause the adjacent pointer to the left to advance one division.

5.7.2 Section 7-2.1.3.1 is amended as follows:

7-2.1.3.1 General

All cyclometer-type demand indicators shall have at least three digits.

The size and shape of the numerals shall be such that they are clearly legible.

The arrangement of the cyclometer drums and the cutouts on the demand-indicator face shall be such that, with the exception of the fastest moving drum, one and only one digit is in full view at all times except when the drum is advancing from one position to the next.

5.7.3 Section 7-3.3, "Test Links", is revoked. Advances in technology have made it possible to facilitate the safe, effective and accurate testing of electricity meters without the use of test links. Electricity meters submitted to Measurement Canada for approval of type pursuant to specification LMB-EG-07 are not required to make use of test links.

5.7.4 Section 7-4 is amended as follows:

7-4 Markings

7.4.1 Nameplate Marking

In addition to the requirements of subsection 4-4, demand meter nameplates shall bear the following information:

- i) Response period or demand interval^d
- ii) Full-scale demand rating
- iii) Single-phase test constant (if applicable)
- iv) All information required to determine the demand from the meter indication

7-4.1.1

The marking shall be indelible, distinct, and visible from outside the meter with its cover in place.

^d This requirement may be satisfied through physical display marking or via electronic display.

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5.8 Amendments to Section 8 – Induction Type Loss Meters of LMB-EG-07

5.8.1 Section 8-4 is amended as follows:

8-4 Markings

8.4.1 Nameplate Marking

In addition to the requirements of subsection 4-4, every meter shall bear, as appropriate, the following information:

- (i) Auxiliary supply voltage
- (ii) For secondary rated meters, the disc constant in $A^2 \cdot h$ per revolution
- (iii) For primary rated meters:
 - (a) Primary line resistance
 - (b) Primary disk constant in $kW \cdot h$ per revolution

5.9 Amendments to Section 9 – Static Loss Meters of LMB-EG-07

5.9.1 Section 9-3 is amended as follows:

9-3 Markings

9.3.1 Nameplate Marking

In addition to the requirements of subsection 8-4, every meter shall bear, as appropriate, the following information:

- (i) Voltage and frequency of auxiliary power supply.
- (ii) For secondary rated meters, the test constant and pulse constant in $A^2 \cdot h$ per pulse.

5.10 Amendments to Section 10 – Transducers of LMB-EG-07

Reserved for future amendments to section 10 of LMB-EG-07.

5.11 Amendments to Section 11 – Null Balancing Instruments of LMB-EG-07

Reserved for future amendments to section 11 of LMB-EG-07.

5.12 Amendments to Section 12 – Pulse Devices of LMB-EG-07

5.12.1 Section 12-4, "Markings", is amended as follows:

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12-4 Markings

12-4.1 Nameplate Marking

In addition to the requirements of subsection 3-4.1, every pulse device shall bear, as appropriate, the following information:

12-4.1.1 Pulse Initiators (information may be on initiator or host meter)

- (i) Pulse initiator output constant K_p

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12-4.1.2 Relays and Pulse Amplifiers

- (i) Type of input (2 or 3-wire)
- (ii) Type of output (2 or 3-wire)
- (iii) Voltage and frequency of the auxiliary power supply (if applicable)
- (iv) Rated or maximum voltage and frequency (pulses per unit time) of input pulses
- (v) Minimum pulse width, if critical to the operation of the device
- (vi) Connection diagram

12-4.1.3 Totalizers

- (i) Input to output pulse ratio (prescaler unit)
- (ii) Number of additive and subtractive elements. If both are present, each shall be clearly identified
- (iii) Type of input (2-wire or 3-wire)
- (iv) Type of output (2-wire or 3-wire)
- (v) Voltage and frequency of the auxiliary power supply
- (vi) Rated or maximum voltage and frequency (pulses per unit time) of the input pulses
- (vii) Connection diagram

Note: For devices which are part of an approved meter, these requirements may be satisfied through physical marking or via the meter's approved electronic display. For stand-alone devices, these requirements shall be satisfied through physical marking.

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5.13 Amendments to Section 13 – Programmable Devices and Pulse Recorders of LMB-EG-07

5.13.1 Sections 13-2 and 13-3 are replaced as follows:

13-2 Programmable devices and pulse recorders are subject to the general requirements of section 3 of LMB-EG-07 as applicable.

13-3 Programmable devices and pulse recorders that are capable of storing billing data or programming information are subject to the requirement of section 3-2.8.5 of LMB-EG-07.

5.13.2 Section 13-4 is amended as follows:

13-4 Markings

13-4.1 Nameplate Marking

In addition to the requirements of subsection 3-4.1, every programmable device and pulse recorder shall bear, as appropriate, the following information:

- (i) Demand interval^e
- (ii) Update interval, and for each channel, input identification, pulse constant and multiplier or prescaler unit^f
- (iii) Rated voltage and frequency of the auxiliary power supply
- (iv) Rated or maximum voltage and frequency (pulses per unit time) of the input pulses
- (v) Connection diagram

Note: Where the device is a register included as an integral part of a meter and it is not detachable, the above information may be shown on the meter nameplate.

5.14 Amendments to Section 14 – Instrument Transformers of LMB-EG-07

This section is revoked (effective July 1, 2008) and replaced with specification S-E-07, Specifications for the Approval of Measuring Instrument Transformers.

^e The demand interval shall be marked on any device which measures or calculates a demand quantity over a specific interval. If no such measurements or calculations are made, then the demand interval is not applicable to the markings required on the nameplate.

^f If a device simply receives pulses, temporarily stores them and then retransmits them, or a fraction or multiple thereof, then the pulse constant need not be marked on the nameplate since the pulses could come from any source and be sent to any other receiving device.

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5.15 Amendments to Section 15 – Static Demand Meters of LMB-EG-07

5.15.1 Section 15-2 is amended to include technical requirements to evaluate maximum demand reset mechanism of static demand meters as follows:

15-2.1 General

The requirements of subsection 3-2 shall apply.

15-2.2 Reset Device

A mechanical reset device shall be such that, in its normal position, it does not affect the values stored in maximum demand registers and/or displayed by them. Means shall be provided for sealing the reset device in this position. Resetting of any maximum demand register shall only be possible either after breaking the seal or with a special tool.

5.15.2 Section 15-3.1, “Test Links”, is revoked. Advances in technology have made it possible to facilitate the safe, effective and accurate testing of electricity meters without the use of test links. Electricity meters submitted to Measurement Canada for approval of type pursuant to specification LMB-EG-07 are not required to make use of test links.

5.15.3 Section 15-3.2 is revised to remove a repeated sentence. Section 15-3.2 is amended as follows:

15-3.2 Demand Interval

The demand interval shall be not less than 15 minutes. The demand shall be averaged over the demand interval, but it may be recalculated after each update interval.

5.15.4 Section 15-3 is amended to include technical requirements to evaluate electronic means of maximum demand reset as follows:

15-3.4 Reset Device

15-3.4.1

A meter that is equipped with a register for maximum demand values of any legal unit of measurement, and is not equipped with a mechanical reset mechanism shall have electronic means by which the maximum demand register may be reset.

15-3.4.2

Resetting shall be performed through an on-board device or a remote mechanism. Actuation of the reset means shall have the effect of resetting demand values stored in any maximum demand register to zero, or to the current demand value.

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5.15.5 Section 15.4 is amended as follows:

15-4 Markings

15-4.1 Nameplates for Single-Customer Meters

In addition to the requirements of subsection 3-4, every meter used for single-point metering shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly legible from the front, with all covers in place.

- (i) Rated frequency⁹
- (ii) Rated voltage or voltages
- (iii) Minimum and maximum rated currents
- (iv) Response period or demand interval⁹
- (v) Update interval (if applicable)⁹
- (vi) Maximum demand rating⁹
- (vii) Single-phase test constant (if applicable)⁹
- (viii) Meter configuration notations, the following examples are recommended:⁹

1-phase, 2-wire	1-phase, 3-wire
1-phase, 3-wire, 2-element	2-element, network
2-element, delta	2½ (or 2.5)-element wye or delta
3-element wye	Auto detect
- (ix) All information required to determine the demand from the meter indication⁹
- (x) For primary rated meters:
 - (a) Current transformer rating (e.g., 100:5 A)⁹
 - (b) Voltage transformer rating (e.g., 600:120 V)⁹
- (xi) For single-phase transformer-type meters, the words “transformer type”
- (xii) Loss compensated (indelibly marked on the nameplate of meters which are internally compensated for line or transformer losses)
- (xiii) Firmware versions⁹

⁹ These requirements may be satisfied through physical marking or via the meter’s approved electronic display.

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In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter may be placed elsewhere on the meter on condition that this same information also appears either inside or outside of the cover of an enclosure which shall be submitted as part of the approval of type application.

Meters approved with nameplate information not legible from the front of the meter shall be approved for installation only on the load side of the main switch or circuit breaker of the service for which the meter is installed. This installation restriction will be contained in the Notice of Approval.

Note 1: Accepted symbols are Ø, EL, Y and Δ.

Note 2: For 2½-element wye and 3-element meters, rated voltage is phase to neutral voltage.

If the meter is provided with accessories such as retransmitting contacts, this shall be specified on the nameplate and a diagram of connections shall be provided if considered necessary by the Director.

15-4.2 Meters Compensated for Line or Transformer Losses

This section is revoked as of December 1, 2012.

15-4.3 Nameplates for Multiple Customer Metering Systems

In addition to the requirements of subsection 3-4, every multiple customer metering system (MCMS) shall have the following details indelibly and distinctly marked on one or more nameplates attached in such a way as to be clearly legible from the front, with all covers in place.

- (i) Rated frequency^h
- (ii) Rated voltage or voltages
- (iii) Minimum and maximum rated currents
- (iv) Response period or demand interval^h
- (v) Update interval (if applicable)^h
- (vi) Maximum demand rating^h
- (vii) Single-phase test constant (if applicable)^h
- (viii) The actual configuration of each meter, as programmed in the MCMS. The following examples are recommended:^h

1-phase, 2-wire

1-phase, 3-wire, 2-element

^h These requirements may be satisfied through physical marking or via the meter's approved electronic display.

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2-element, network
3-element, wye

2-element, delta

- (ix) All information required to determine the demand from the meter indication^h
(x) For primary rated meters:

- (a) Current transformer rating (e.g., 200 A:100 mA)^h
(b) Voltage transformer rating (e.g., 600:120 V)^h

- (xi) For single-phase transformer-type meters, the words "transformer type"

- (xii) Loss compensated (indelibly marked on the nameplate of meters which are internally compensated for line or transformer losses)

- (xiii) Firmware versions^h

In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter shall be placed elsewhere on the meter on condition that this same information also appears either inside or outside of the cover of an enclosure which shall be submitted as part of the approval of type application.

Where the configuration information is not available on the nameplate or approved electronic display, the MCMS unit shall have a secondary nameplate, configuration chart or supporting documentation which provides the specific configuration information of each meter as programmed in the MCMS. The information shall be clearly identified as supporting documentation for the configuration of the device. Provision of configuration information may be satisfied through the use of an alternate electronic display such as a laptop or a PC connected to the MCMS.

If an MCMS has more than one configuration, all approved configurations specific to that model shall be on the nameplate. If an MCMS has the same configuration for each meter, the applicable configuration can be the only one to appear on the nameplate.

In the case where the size or the design of the meter limits the amount of information that can be put on the front of the meter, the information not appearing on the front of the meter may be placed on the terminal cover on condition that this same information also appears elsewhere on the meter itself. In such a case, as a minimum, the serial number affixed on the meter itself shall be visible when the meter is installed.

Meters approved with nameplate information not legible from the front of the meter shall be approved for installation only on the load side of the main switch or circuit breaker of the service for which the meter is installed. This installation restriction will be contained in the Notice of Approval.

Note 1: Accepted symbols are Ø, EL, Y and Δ.

Note 2: For 2½-element wye and 3-element meters, rated voltage is phase to neutral voltage.

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If the meter is provided with accessories such as retransmitting contacts, this shall be specified on the nameplate and a diagram of connections shall be provided if considered necessary by the Director.

5.16 Amendments to Section 16 – Induction-Type Voltage-Squared Hour Meters of LMB-EG-07

5.16.1 A reference to section 4.4 related to applicable common marking requirements is added and the marking requirements adequately addressed in section 4.4 have been removed from this section. Section 16.4 is amended as follows:

16-4 Markings

16-4.1 Nameplates

In addition to the applicable requirements of section 4-4, the nameplate shall bear the following information:

- (i) For secondary rated meters, the single phase test constant and the pulse constant K_p in $V^2 \cdot h$ per pulse
- (ii) For primary rated meters:
 - (a) Voltage transformer ratio
 - (b) Pulse constant K_p in $V^2 \cdot h$ per pulse

5.17 Amendments to Section 17 – Static-Type Voltage-Squared Hour Meters of LMB-EG-07

5.17.1 A reference to section 16.4 related to applicable common marking requirements has been added and the marking requirements adequately addressed in section 16.4 have been removed from this section. Section 17.4 is amended as follows:

17-4 Markings

17-4.1 Nameplates

In addition to the requirements of section 16-4, the nameplate shall bear the following information:

- (i) Firmware versions (prominently indicated either on the meter nameplate or via the electronic display).

5.18 Amendments to Section 18 – Sub-metering of LMB-EG-07

Reserved for future amendments to section 18 of LMB-EG-07.

5.19 Amendments to Section 19 – Signal Converters of LMB-EG-07

Reserved for future amendments to section 19 of LMB-EG-07.

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6.0 Revisions

6.1 The purpose of revision 1 was to remove requirements identified under the Government of Canada Paperwork Burden Reduction Initiative. The requirements in E-20, PS-E-06 and PS-E-07 were also transferred to this specification to maintain all the changes to LMG-EG-07 in one document to facilitate consistent implementation and reduce the number of locations users have to search to find the applicable approval requirements.

6.2 The purpose of revision 2 was to include requirements for the provision of a means of indication pursuant to the policy established in section 3.4 of bulletin E-30 and as recommended by the Legal Units of Measurement Joint Working Group, to include specifications for electronic registers, to include an allowance for certain marking requirements to be displayed electronically (sections 5.3.2, 5.3.9, 5.4.5, 5.7.4 and 5.15.5), and to make minor amendments to the English version of section 5.12.

6.3 The purpose of revision 3 was to clarify the allowance for certain marking requirements to be displayed electronically, to add requirements for nameplates for MCMSs (sections 5.4.5 and 5.15.5), to clarify that polyphase meters which incorporate a detent function shall not apply the detent to individual meter elements (section 5.3.10), and to clarify the term "minimum current" in section 5.2.

6.4 The purpose of revision 4 was to clarify the wording in 5.3.10 by replacing the word "sum" with "net" and to clarify the marking requirements in sections 5.4.5 and 5.15.5 (network meters and marking placement).

6.5 The purpose of revision 5 was to add requirements for transformer-rated meters in section 5.6.5 (6-3.5 (vii)) and clarify nameplate requirements for MCMSs in sections 5.4.5, 5.6.5 and 5.15.5.

6.6 The purpose of revision 6 was to make minor editorial modifications, remove a reference to time-of-use metering, clarify test requirements, and clarify marking requirements.

6.7 The purpose of revision 7 was to modify sections 6-2.2 and 6-2.3 to clarify existing wording and provide for the approval assessment of non-traditional output means and modes to be used in the verification of meters.