

# CSA Development of a New Set of Instrument Transformer Standards

## Revenue Metering Subcommittee Meeting

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- q **IEEE has developed a new standard for High Accuracy Instrument Transformers**
  - ü **IEEE PC57.13.6/D3 DRAFT published Oct. 21, 2004**
- q **It defines two new ANSI classes for Current Transformers:**
  - ü **0.15 class maintains 0.3% accuracy at 5% rated current and 0.15% accuracy at 100% \* RF**
  - ü **0.15S class maintains 0.15% accuracy from 5% rated current to 100% rated current \* RF**  
(“S” designation is based on IEC Convention for “Special Application”)
- q **IEEE standard will be formally published by Dec. 31, 2005**
- q **Manufacturers of medium and transmission class ITs offer devices built to IEEE PC57.13.6/D3 standard today**

- q **CSA formed a technical working group in January, 2004 to update the CAN3-C13.M83 Instrument Transformer Standard**
- q **Working group members include most provincial transmitters, Measurement Canada, and several Canadian IT manufacturers**
- q **Canadian input was used to update the IEC series of IT standards in 2000 to 2002**
- q **CSA proposed adopting the IEC IT standards with a covering section of “Canadian Deviations” that recognize North American conventions**
- q **Canadian Deviations developed from January to May 2004 and were published to working group members for comment in July, 2004**
- q **IESO joined the CSA working group in January, 2005**
- q **Target date for publication of new series (CSA-C60044-x) of CSA Instrument Transformer Standards is June 30, 2006**
- q **Measurement Canada expected to recognize the new CSA IT Standards to replace existing references to CAN3-C13.M83 within LMB-EG-07 “*Specification for Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices*”**

- q IESO has recommended the following addition in **red** to the current draft of the Canadian Deviations for “**CSA –C60044-1 Instrument Transformers – Part 1: Current Transformers**”

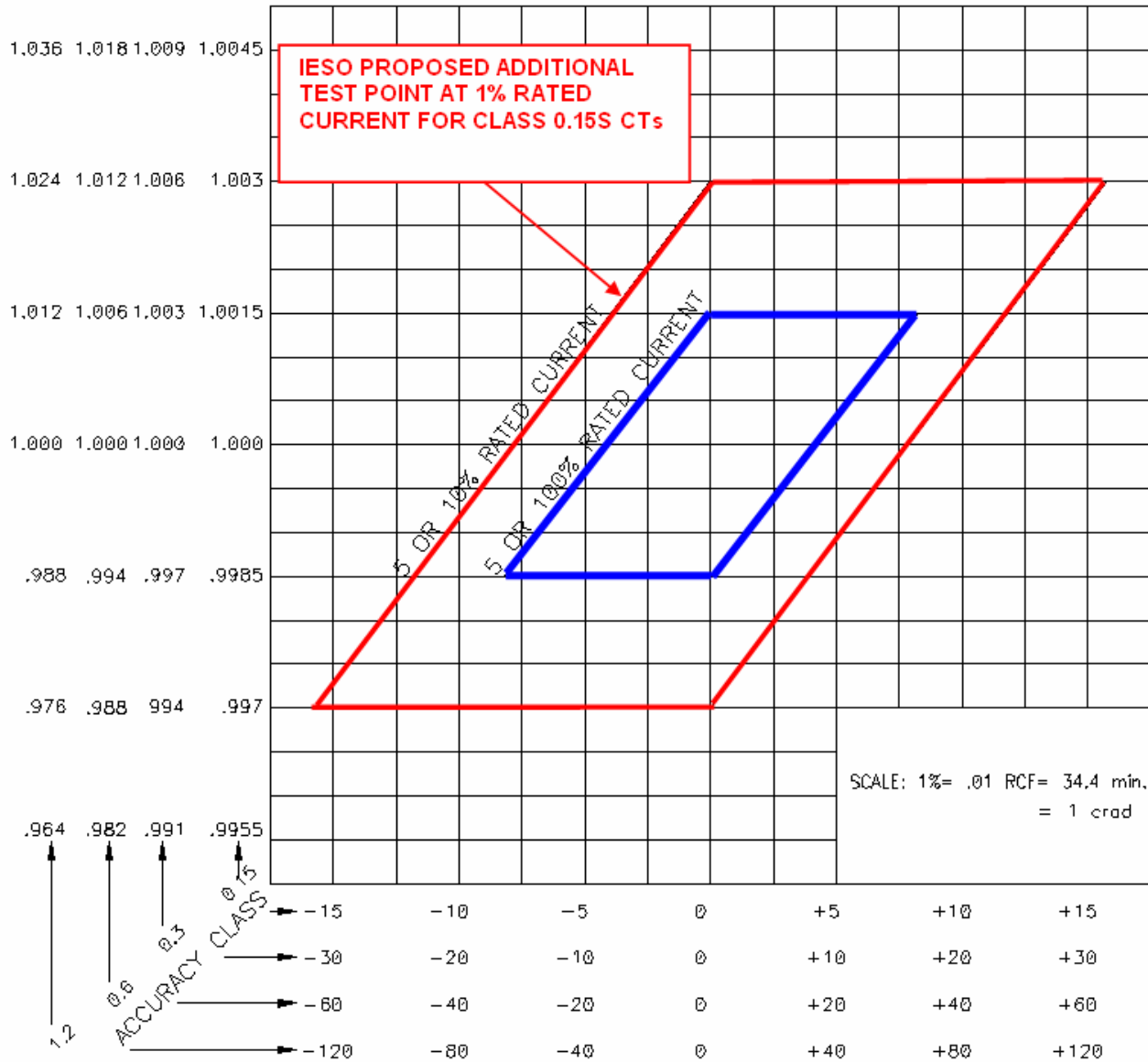
Table I  
Accuracy Classes and Corresponding Limits of Transformer Correction Factors for  
Measuring Current Transformers (1)

Measuring Accuracy Classes	Limits of Transformer Correction Factor								Limits of Power Factor (Lag) of Metered Power Load
	100% Rated Current (2)		10% Rated Current		5% Rated Current		1% Rated Current		
0.15	0.9985	1.0015	-	-	0.997	1.003	<b>0.994</b>	<b>1.006</b>	0.6-1
<b>0.15S</b>	<b>0.9985</b>	<b>1.0015</b>	<b>-</b>	<b>-</b>	<b>0.9985</b>	<b>1.0015</b>	<b>0.997</b>	<b>1.003</b>	<b>0.6-1</b>
0.3	0.997	1.003	0.994	1.006	-	-	-	-	0.6-1
0.6	0.994	1.006	0.988	1.012	-	-	-	-	0.6-1
1.2	0.988	1.012	0.976	1.024	-	-	-	-	0.6-1

Note 1 : See Figure A

Note 2: These limits also apply at the maximum continuous current rating factor (RF)

# Limits of Accuracy Classes for Measuring Current Transformers



# Consistency with Conforming Meters' Approved Current Range

- q Movement by Measurement Canada towards an approved lower limit of **1%** of nominal CT secondary current (**0.05 A**) for 0.15S class CTs would result in a “consistent and approved operating current range” for a wholesale metering installation using these CTs
- q IESO Conforming Main Meters are presently approved for operation down to 1% of nominal 5.0 A CT current
  - Measurement Canada Notice of Approval documents for both ION 8x00 series meters and Q1000 meter state an approved nameplate operating current range of **0.05 A** to 20.0 A
- q All existing IESO Conforming Meters (Mains and Alternates) have published starting currents of less than or equal to 0.005 A (5 mA)

- q **CSA working group has reviewed all responses to the request for public comments on 7 Instrument Transformer standards documents**
  - CAN/CSA-C60044-1 - Part 1: Current Transformers
  - CAN/CSA-C60044-2 - Part 2: Voltage Transformers
  - CAN/CSA-C60044-3 - Part 3: Combined Transformers
  - CAN/CSA-C60044-5 - Part 5: Capacitor Voltage Transformers
  - CAN/CSA-C60044-6 - Part 6: Requirements for Protective Current Transformers for Transient Performance
  - CAN/CSA-C60044-7 - Part 7: Electronic Voltage Transformers
  - CAN/CSA-C60044-8 - Part 8: Electronic Current Transformers
  
- q **Measurement Canada and several IT manufacturer's have indicated CT testing at 1% of nominal current is expensive and customer demand for these CTs is expected to be limited**
  
- q **For this reason, CSA working group members presently support adding the 1% test point to only the 0.15S class CTs**
  
- q **Project on track for publishing the new series (CSA-C60044-x) of Instrument Transformer Standards in Q2 of 2006**

## Questions ?

