

 <b>Eskom</b>	<b>Standard</b>	<b>Technology</b>
--	-----------------	-------------------

Title: **TECHNICAL EVALUATION  
STANDARD FOR CURRENT  
TRANSFORMERS**

Unique Identifier: **240-170000571**

Alternative Reference Number: **n/a**

Area of Applicability: **Engineering**

Documentation Type: **Standard**

Revision: **2**

Total Pages: **14**

Next Review Date: **June 2028**

Disclosure Classification: **Controlled  
Disclosure**

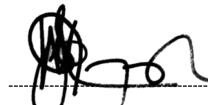
**Compiled by**



**Sanele Miya**  
**Engineer**

Date: 15 June 2023

**Approved by**



**Sibongile Maphosa**  
**Engineer**

Date: 15 June 2023

**Authorized by**



**Bheki Ntshangase**  
**Senior Manager TX AM –  
SE&D**

Date: 15 June 2023

**Supported by SCOT/SC**



**Bheki Ntshangase**  
**SCOT/SC Chairperson**

Date: 15 June 2023

## Content

	Page
1. Introduction .....	3
2. Supporting clauses .....	3
2.1 Scope .....	3
2.1.1 Purpose .....	3
2.1.2 Applicability .....	3
2.2 Normative/informative references .....	3
2.2.1 Normative .....	3
2.2.2 Informative .....	3
2.3 Definitions .....	3
2.3.1 General .....	3
2.3.2 Disclosure classification .....	4
2.4 Abbreviations .....	4
2.5 Roles and responsibilities .....	4
2.6 Process for monitoring .....	4
2.7 Related/supporting documents .....	4
3. Technical tender evaluation procedure .....	4
3.1 Functionality evaluation .....	4
3.1.1 Desktop Evaluation .....	4
3.2 Objective assessment .....	7
3.3 Factory and practical assessment .....	7
3.3.1 Scope .....	7
3.3.2 Confidentiality .....	7
3.3.3 Assessment methodology .....	7
4. Authorization .....	8
5. Revisions .....	8
6. Development team .....	8
7. Acknowledgements .....	8
Annex A – Functionality evaluation criteria – mandatory evaluation .....	9
Annex B – Factory evaluation criteria .....	10

## Tables

Table 1: Required Technical Documents .....	5
Table 2: Point Allocation for Desktop Evaluation .....	5

## 1. Introduction

This standard is aimed at setting the standard technical evaluation criteria for evaluating current transformers' tender submissions. It covers and explains the technical evaluation criteria thereby ensuring that the evaluation is carried out in a uniform way. The evaluation criterion is outlined to ensure fairness to prospective suppliers and the integrity of the evaluation process.

## 2. Supporting clauses

### 2.1 Scope

The document contains functional and objective evaluation criteria for current transformers to be, used within Eskom Holdings SOC (Ltd) when evaluating current transformers' tender submissions.

#### 2.1.1 Purpose

The document contains the standard documented technical evaluation criteria to be used for evaluating tender submissions in line with Eskom Holdings SOC (Ltd) requirements. It is written to ensure that the evaluation process is fair, consistent, impartial, transparent, and auditable.

#### 2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited, its Divisions, subsidiaries, and entities wherein Eskom has a controlling interest.

## 2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

### 2.2.1 Normative

- [1] 32-1034, Eskom procurement and supply management procedure
- [2] 240-48929482 – Tender engineering evaluation Procedure
- [3] 240-56062864 – Eskom standard for current transformers up to 132kV
- [4] 240-170000559 – Eskom standard for top core current transformers rated from 132kV up to 765kV

### 2.2.2 Informative

- [5] QM 58: Supplier Contract Quality Requirements Specification

## 2.3 Definitions

### 2.3.1 General

Definition	Description
<b>Cross Functional Team</b>	A team of experts who specialise in different in different fields, which is assembled to work towards achieving a goal.
<b>Enquiry</b>	A competitive or non-competitive request for information, interest, quotations or proposals made to a supplier, a group of suppliers or the market at large.
<b>Submission</b>	The tender in accordance with the requirements of the enquiry.

Definition	Description
Technical Evaluation Team (TET) Member	The delegated engineers / technical specialists who are responsible to review and evaluate technical aspects of the tender documentation as per the Tender Technical Evaluation Strategy.

### 2.3.2 Disclosure classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 Abbreviations

Abbreviation	Description
CT	Current Transformer
Eskom	Eskom Holdings SOC (Ltd)
OEM	Original Equipment Manufacturer
OU	Operating Unit
RFI	Request for Information
RFQ	Request for Quotation

## 2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement of current transformers shall ensure that the product is technically evaluated as per the criteria outlined in this standard and meets the requirements of this standard.

The Eskom Instrument Transformer Care Group shall be responsible for ensuring the validity of this document.

## 2.6 Process for monitoring

This document and its relevance will be evaluated by the instrument transformers Care Group.

## 2.7 Related/supporting documents

Not applicable.

# 3. Technical tender evaluation procedure

The technical evaluation procedure is specific for current transformers of each voltage level due to different technical requirements. All bidders must submit complete documents required for the technical evaluation (Table 1). The evaluation procedure has three parts i.e., Desktop, Objective and Factory assessments. Factory assessments shall be undertaken post contract award, upon placement of the first order.

All bidders who are supplying CTs to Eskom currently and have not changed their product and their manufacturing plant (factory) will be exempted from the technical evaluation, but they must still submit all required technical documents listed in Table 1 and complete the declaration form to indicate if there are changes to their product or not. Eskom will assess the changes and decide if the supplier qualifies or not.

## 3.1 Functionality evaluation

### 3.1.1 Desktop Evaluation

This part of the evaluation starts when submissions are opened for the first time. The evaluation is done using the documents listed in table 1 below and is done by TET members.

**ESKOM COPYRIGHT PROTECTED**

**Table 1: Required Technical Documents**

Item	Required documents
1.	Completed Technical Schedule (A & B)
2.	Deviations Schedule (only if there are deviations)
3.	Outline Drawing of the CT
4.	Outline Drawing of Insulator(s) used with the CT
5.	Test Reports
6.	Technical Manual addressing Packaging, Transportation, Installation, Storage & Maintenance.

The documents in table 1 are required to carry out the desktop evaluation and to award scores to prospective suppliers. NB: information submitted including test reports must be in English and units on drawings must be in SI units. If the original test report is not in English, it must be translated to English and both the original report, and the translated report must be submitted.

Desktop evaluation will have a total allocation of 100 percentage points. Out of the 100 percentage points, 50 percentage points will be based on documents and the other 50 percent points will be based on test reports as captured in table 2 below.

**Table 2: Point Allocation for Desktop Evaluation**

Activity	Weight
Completed Technical Schedule (A & B)	35
Outline drawing	5
Insulator Drawing	5
Manual	5
Test Reports	50

### 3.1.1.1 Technical schedule

The technical schedule is a Microsoft Excel document containing Eskom's requirements, corresponding clauses from the relevant current transformers' standard and blank spaces which must be completed by OEM's representatives. The document is deliberately given in electronic format and must be completed using a computer and converted to Pdf format when submitted. This is done to avoid unclear handwritings and the possibility of the information being tampered with. The technical schedule must be submitted in both Excel and Pdf formats respectively.

The A part of the technical schedule states Eskom's requirements and OEM's representatives must fully complete the B part where there are blank spaces (deviations must be included / stated). The "x" marks / signs on the B part of the schedule are used to indicate items which are for information purposes and must be left unchanged.

It is important to note that deviations are not allowed on the following items:

- Primary terminals
- Secondary terminals
- Mounting arrangement
- Current transformer class and burden
- Knee-point r.m.s. voltage
- Secondary tap points
- Maximum magnetization current at knee-point

**ESKOM COPYRIGHT PROTECTED**

- Maximum secondary winding resistance at 75°C

The technical schedules will be scored based on completeness of information completed by OEMs. Noncompliance or deviation to any of the items listed above will have a 35 points penalty. If the OEM complies with all the items listed above, the technical schedule will be scored, and the rest of the items not completed in the technical schedule will have a 1-point penalty each.

#### **3.1.1.2 Deviation schedule**

The deviation schedule should only be completed if there are deviations on Eskom's requirements. This section allows OEMs to state their deviations and to offer reasons for such deviations. The TET will decide whether the deviations are acceptable or not based on sound engineering principles. If there are deviations in the technical schedule and the deviation schedule is not completed to explain the deviations, the technical schedule will be deemed to have scored zero (0) points.

**Note:** OEMs are encouraged to pose questions or enquiries in cases of uncertainty and obtain clarity upfront before tender closing time or period through the responsible tender person.

#### **3.1.1.3 Outline drawing of current transformer**

The dimensions must be in SI (System International) units and preferably in millimetres. The outline drawing must comply with the requirements stated in section 10 of [3] or [4] and the following key information must be shown:

- Overall dimensions of the current transformer
- Total creepage and arcing distance of the hollow core insulator
- Primary terminal dimensions and markings
- Mounting details and position of earthing terminal and
- Mass of complete current transformer and the volume of primary insulation medium

A point will be deducted if any of the major items listed above is not addressed in the drawing.

#### **3.1.1.4 Outline drawing of insulator used with CT**

The dimensions of the post insulator drawing must be in SI (System International) units and preferably in millimetres. The drawing must show dimensions of the insulator.

#### **3.1.1.5 User manual**

The user manual must be written in English and address the following:

- Packaging,
- Transportation,
- Installation,
- Storage and
- Maintenance

A point will be deducted for each item not addressed e.g., if storage is not addressed, a point will be deducted

#### **3.1.1.6 Test reports**

Test reports must be carried out as per requirements stated in [3] or [4]. The tests must be performed or carried out at an IEC approved third party laboratory. The test report must be in English or translated to English. In case the reports are translated to English, both reports (report in original language and English translation) must be submitted.

The tests required are different for current transformers across voltages levels. The required test (i.e., type and special) will be clearly specified in the technical schedule(s). Depending on the number of tests required, the submitted test reports will be divided by the total number of tests required in the technical schedule and multiplied by 50 to give a total of 50 points. As an example if a current transformer requires 6 tests and an OEM submits 4 test reports, their score will be calculated as follows:

$$\text{Test score} = \frac{4}{6} * 50 = 33.3 \text{ points}$$

The minimum threshold required to pass the desktop top evaluation is 70%. The outstanding items can then be used as conditions of contract award if the OEM is successful.

### **3.2 Objective assessment**

All items in the desktop assessment which are not fulfilled by successful OEMs (i.e., OEMs who passed the desktop evaluation) will form part of the objective assessment and be used as conditions of contract award. Eskom will negotiate with successful suppliers to indicate whether they are willing to comply with Eskom's requirements and by when (date). OEMs who are unwilling to meet Eskom's requirements or fail to comply with Eskom's requirements on the agreed date will be disqualified.

### **3.3 Factory and practical assessment**

This assessment will be done post contract award, upon placement of the first order. The OEM will inform Eskom at least two months in advance of the date upon which the ordered units will be completed and ready for routine testing. Eskom will then send its representatives to do the factory evaluation and to witness the routine testing of the ordered units. Eskom reserves the right to waive the factory assessment where Eskom has assessed the OEM factory before.

#### **3.3.1 Scope**

Eskom representative(s) will arrange a visit to the factory on the agreed dates between Eskom and the OEM. The factory evaluation will include two activities i.e., Quality and Work practices assessment using the checklist (see Annexure B) and routine tests witnessing.

The checklist is used to verify capability of the factory to supply the required product and compliance to the equipment specification and documents submitted for the tender. The same checklists will be used across all suppliers to ensure fairness of assessment.

At the end of this exercise, Eskom assessment representative(s) will list all the deviations or improvement initiatives on the evaluation document. The representative will conduct formal discussions of the deviations in line with Eskom's requirements. Herein, the supplier shall indicate whether they agree or disagree to meet Eskom's requirements. At the end of the assessment, Eskom and supplier's representatives will sign the assessment document.

#### **3.3.2 Confidentiality**

All information reviewed, observed, recorded during factory evaluation, and reported because of this assessment will be treated as, and remains highly confidential. Eskom's cross functional team members will be the only parties included in communication pertaining to such information i.e., it will not be released to external parties and / or competitors.

#### **3.3.3 Assessment methodology**

The assessment will follow a documented OEM capability and capacity assessment criteria as shown in Annexure B. These criteria are intended to assess the technical capabilities of the supplier and the product offered for tender to ensure it meets the tender requirements. During the assessment the following areas are evaluated in detail:

- Confirmation of submitted technical schedules

- Manufacturing methods
- Work practices
- Design practices and application
- Testing facility and practices
- Raw material procurement, storage, and sub-contractor practices
- Site and other services

The factory must have the capability to do all routine tests specified in IEC 61869-2 and the tested units / specimen must pass all the routine tests.

#### 4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Sibongile Maphosa	Engineer (Transmission Asset Management - SED)
Bheki Ntshangase	Senior Manager (Transmission Asset Management - SED)

#### 5. Revisions

Date	Rev	Compiler	Remarks
June 2023	2	S. Miya	Revisions made as follows: <ul style="list-style-type: none"><li>• The composition of Desktop Evaluation was modified</li><li>• Clarified 3.2 Objective Assessment</li></ul>
Aug 2021	1	S Maphosa	New document

#### 6. Development team

The following people were involved in the development of this document:

- Sibongile Maphosa
- Mantsie Hlakudi
- Patrick Van Der Colff
- Henri Groenewald
- Japhta Makgotlho

#### 7. Acknowledgements

The development team would like to acknowledge all members of the Instrument Transformers Care Group who contributed to this standard.



**Annex A – Functionality evaluation criteria – mandatory evaluation**

Specifications Referred to	240-56062864 and 240-170000559,	
Voltage Class Referred to	Refer to Technical Schedules A & B	
Level 1 – Functionality: Mandatory Requirements		
Activity	Compliance	Qualification Criteria
a) Is a completed Technical Schedule (A & B) submitted?	Yes/No	Level 1
b) If there are deviations, are technical deviations submitted?	Yes/No	Level 1
c) Is the outline drawing submitted?	Yes/No	Level 1
d) Is the insulator drawing submitted?	Yes/No	Level 1
e) Is the equipment manual submitted?	Yes/No	Level 1
f) Are tests reports submitted?	Yes/No	Level 1
Level 2 – Scoring/Rating (only submission that passes Level 1 (mandatory requirements))		
2.1 Level 2 task/measure – technical schedules, documents and tests reports – 100 points		
Activity	Weight	Qualification Criteria
a) Completed Technical Schedule (A & B)	40	Level 2
b) Outline drawing	5	Level 2
c) Insulator drawing	5	Level 2
d) Equipment Manual	5	Level 2
e) Test Reports	50	Level 2

**Annex B – Factory evaluation criteria**

<b>1. GENERAL INFORMATION</b>	
a) Name of Manufacturer:	
b) Registered name and full street address of the factory at which the audit and inspection is done:	
<b>c) Factory Representatives</b>	
Name:	Position:
Name:	Position:
Name:	Position:
Name:	Position:

<b>2. RECEIVING / GOODS INWARDS INSPECTION AND STORAGE</b>		
a) Are materials, components and sub-assemblies verified by the factory as complying with the applicable requirements	Yes	No
Comments: Inspect the receiving data sheets, supplier's quality plan, physical inspections, etc.		
b) If the factory relies on certificates of conformity of test results from suppliers, do these clearly identify the products, specifications, quantity of items, dated and signed?	Yes	No
Comments:		
c) Are records from incoming inspection(s) appropriate and kept by the factory?	Yes	No
Comments:		
d) Are non-conforming products/components/materials clearly identified and segregated to prevent their use?	Yes	No
Comments:		
e) Are records of raw material received kept / saved? In what format and for how long?	Yes	No
Comments:		
f) Is there a system in place to manage reception and allocation of raw materials?	Yes	No
Comments:		

<b>3. PRODUCTION LINE INSPECTION AND ROUTINE TESTS</b>		
a) ASSEMBLY: Do the personnel have readily available up-to-date procedures, assembly instructions, photographs, drawings or reference samples?	Yes	No
Comments:		
b) PRODUCTION LINE TEST: Do the personnel have readily available up-to-date procedures, work instructions, and drawings related to required testing to be carried out on the intermediate stage and the final product related to conformance of the finished product.	Yes	No
Comments:		
c) Are the test results monitored for trends or recurrences and reported to the production / quality management?	Yes	No
Comments:		
d) Are repaired and reworked products re-inspected in accordance with documented procedures?	Yes	No
Comments:		
e) Do the Production Line Inspection and Routine Tests performed by the factory sufficiently cover all the applicable requirements?	Yes	No
Comments:		
f) Are personnel involved in the assembly and quality control adequately briefed on their duties and competent to perform them?	Yes	No
<b>4. CALIBRATION OF TEST EQUIPMENT AND TESTING FACILITY</b>		
a) Is all equipment used for testing calibrated?	Yes	No
Comments:		
b) Is the equipment provided with a label or similar method indicating the date of the last calibration and the next due date?	Yes	No
Comments:		
c) Are records from equipment calibrations appropriate and kept by	Yes	No
Comments:		
d) Do the records indicate that the calibration is traceable to National/International Metrology Standards?	Yes	No
Comments:		

e) Does the factory have the capability to carry out all routine tests?	Yes	No
Comments:		
f) Do test reports identify the test specimen, are properly signed and stored?	Yes	No
Comments:		
<b>5. FACTORY CAPABILITY AND QUALITY MANAGEMENT SYSTEM</b>		
a) Does the factory have a documented Quality Management System?	Yes	No
Comments:		
b) Does the factory regularly perform internal audits of its quality management system, and periodically check that all documented procedures, including those required for certification, are followed?	Yes	No
Comments:		
c) Are records from internal audits and corrective actions available and are they sufficiently detailed to demonstrate that the Quality Management System is effective?	Yes	No
Comments:		
d) Are the personnel carrying out the internal audits and checks mentioned in 10.2, appropriately trained and, in addition, independent of the process being audited?	Yes	No
Comments:		
<b>6. COMPLAINTS / NON-CONFORMANCE</b>		
a) Does the factory have a documented system for handling complaints?	Yes	No
Comments:		
b) Does the factory review complaints from customers or others, and take appropriate action?	Yes	No
Comments:		
c) Are records kept of the complaints and of corrective actions taken?	Yes	No
Comments:		
<b>7. CHANGE CONTROL</b>		
a) Is there a documented procedure covering control of products and production process changes?	Yes	No
b) Does the procedure cover the review and approval of product or production process changes by the responsible management?	Yes	No
c) Are there provisions to ensure that changes to the product construction are accepted by competent / authorised personnel?	Yes	No
d) Is there an up-to-date parts list or similar evidence available specifying the components/parts to be used during production of the products?	Yes	No

<b>8. DESIGN PRACTICES</b>		
a) Are designs done in-house?	Yes	No
Comments:		
b) Does the company have design tools and guidelines?	Yes	No
Comments:		
c) Is there a design process workflow system?	Yes	No
Comments:		
d) Is there a documented process for verification and validation of designs?	Yes	No
Comments:		
e) Are new designs approved and verified by competent personnel?	Yes	No
Comments:		
f) Following final design approval, is there a process in place to link the new design to the manufacturing process?	Yes	No
<b>9. FINDINGS</b>		
<b>10. CONCLUSION</b>		
<b>11. RECOMMENDATION(S)</b>		

A copy of this report is provided to the undersigned contact person in the factory, who confirms to be aware of the contents by signing below:

Date:	Date:
Auditor's Name:	Factory Representative:
Signature:	Signature:

**ACKNOWLEDGEMENT BY THE AUDITED FACTORY**

We acknowledge and agree with the content of this Factory Inspection Audit Report.	
We acknowledge the content of this Factory Inspection Audit Report and we disagree with the content as reported in the following clauses/sub-clauses and/or findings.	
Comments:	
Date:	
Contact Person's Name and Position:	
Signature:	