

 Eskom	Report	Technology
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Title: **TECHNICAL EVALUATION
CRITERIA FOR LV PVC CABLES**

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1. Introduction

This document has been developed to set the standard technical evaluation criteria to be used when evaluating the tender submissions. This covers the technical evaluation on the low voltage PVC cables for Eskom. It has clauses developed to address various aspects required to perform the technical evaluation. It has been developed based on the Eskom cable equipment specifications.

This document contains both the evaluation criteria used for the documentation evaluation and factory evaluation. In addition it contains the questions which are required for technical evaluation purposes.

2. Supporting clauses

2.1 Scope

The document covers the criteria for the evaluation of the low voltage cables within Eskom Holdings SOC (Ltd).

2.1.1 Purpose

The document addresses the standard documented technical evaluation criteria to be used when evaluating the tender submissions for the cables in line with the Eskom Holdings SOC (Ltd) requirements and it is applicable to all the technical evaluations for the related tender submissions.

2.1.2 Applicability

This document shall apply for Eskom Holdings Limited, Transmission Division 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] SANS 1507-3: Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1900/3300 V).
- [2] 240-56063805: Specification for LV power and control cable with rated voltage 600/1000V.
- [3] D-DT-3128: CABLE, 1 kV 1C, 2C, 3C, 4C, 7C, 12C, 19C, CU LV cables.
- [4] D-DT-2128: CABLE, 1 kV, Cu and Al LV cables

2.2.2 Informative

- [5] 32-9: Definition of Eskom documents.
- [6] 32-644: Eskom documentation management standard.
- [7] 474-65: Operating manual of the Steering Committee of Technologies (SCOT).

2.3 Definitions

2.3.1 General

Definition	Description
Eskom Evaluating Representative(s)	The person(s) appointed by Eskom to perform the evaluation of tender submission(s) in line with the Eskom requirements.

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2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
LV	Low Voltage

2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement of the LV shall utilise this document as the basis for the technical evaluation process.

Tenderers shall note the evaluation criteria as laid out in this document and submit tenders in compliance to the stipulated requirements

2.6 Process for monitoring

Eskom will monitor the compliance to this document.

2.7 Related/supporting documents

Refer to clause/ section 2.2.

3. Requirements

This document contains the technical evaluation criteria for LV cables. The evaluation methodology will include three main stages, namely the documentation evaluation, factory evaluations. and factory sample evaluations.

3.1 Documentation Evaluation

The documentation evaluation exercise is performed by the Eskom evaluating representatives. This initial part of the evaluation starts when submissions are opened and assessed for the first time. The submitted documents will be evaluated against the evaluation criteria as stated in clause 3.4.

During the documentation evaluation; fully compliant type tested LV PVC cables in accordance with SANS 1507-3 (for LV) will be required. Failure to submit and comply with the type test requirements specified in these documents will lead to immediate disqualification.

The documentation evaluations are meant for establishing if all the key tender deliverables are met with regard to the cables offered. The documentation evaluation will be performed in two levels: 1) the mandatory technical evaluation requirements and deliverables (Level 1: mandatory gate-keeper), and 2) the scoring phase (level 2: submission requirements).

The Level 1 mandatory gate-keeper constitute a total of 80 of the technical evaluation documentation score, while the level 2 submission requirements constitute 20 of the technical evaluation documentation score. If all stages of the complete technical evaluation (i.e. documentation, factory and factory sample evaluations) were successfully completed and found compliant per product range offered, the technical evaluation documentation score achieved will by default be the final technical evaluation score outcome.

The documentation tender submission must meet all the level 1 gate-keeper mandatory technical evaluation requirements. Failure to meet all the mandatory requirements will result to a score of 0 achieved for the 80 scoring weight allowed and immediate disqualification; thus a tenderer can only obtain 0 or 80, and nothing in between for level 1 mandatory gate-keeper requirements. Equation 1 shows how the technical evaluation score will be calculated.

Technical evaluation score = 80 (level 1 mandatory gate-keeper requirements) + 20 (level 2 submission evaluation requirements) (1)

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Immediate disqualification during the level 1 gate-keepers mandatory technical evaluation stage will mean that Eskom will be allowed to stop the technical evaluations without concluding the review of all the level 1 gate-keeper mandatory technical evaluation requirements not yet reviewed. Any further review of the level 1 gate-keeper mandatory technical evaluation requirements will be at the discretion of Eskom.

3.2 Factory Evaluation

The factory evaluations are only performed on the submissions that have met all the mandatory technical evaluation requirements in level 1: mandatory gate-keeper requirements as stated in this document. Eskom Commercial shall make the arrangements for factory visits and ensure the technical representatives are invited on time.

At the factory, the Eskom evaluating representative(s) conducts the evaluation through the use of table 1 below. Table 1 will be used to verify factory capability and manufacturing method compliance to the type tested cables offered.

The factory evaluation will consist of the cable manufacturing plant evaluation (i.e design capability, type tested compounds, extrusion lines, manufacturing plant, processes, sample and routine testing, etc).

The following areas shall be assessed during the manufacturing evaluation:

Table 1: Factory evaluation Check list

Item Nr	Item description	Clause	Weight	Score
1.	Design and software design capability.	240-56063805 Clause 3.2	10	
2.	Machinery capability.	240-56063805 Clause 3.2	20	
3.	Plant setup.		10	
4.	Material handling and storage.	240-56063805 Clause 3.10	10	
5	Production process and critical checkpoints.	240-56063805 Clause 3.9	10	
6	Testing facilities including certification and calibration of testing equipment.	240-56063805 Clause 3.8.4	10	
7	Sample and routine testing and procedures.	240-56063805 Clause 3.8.4	10	
8	Cable, conductor and cable outer sheath marking.	240-56063805 Clause 3.4 to 3.6	10	
9	Packaging of materials and cable drums.	240-56063805 Clause 3.7	10	
Tenderers will be required to score a minimum of 80/100 to proceed to the next phase of evaluation (SDL&I, Finance and Commercial).				/100

At the end of this exercise, the Eskom evaluating representative(s) lists all the deviations and identified risks if any. The representative conducts a formal discussion of the deviations and risks in line with Eskom's requirements.

3.3 Factory Sample Evaluation

The factory sample evaluations will be the evaluation of the exact replica product that is offered to Eskom during the tender phase. A product sample will be required; whereby each tenderer is required to prepare only one exact replica sample per cable type offered for factory sample evaluations.

The factory sample evaluations are only performed on the submissions that have met all the documentation mandatory technical evaluation requirements in level 1 and were found compliant for the factory evaluations concluded, in accordance with this document.

It is required that the tenderer ensure that the required exact replica samples in accordance with the Eskom specifications and technical evaluation criteria are manufactured, tested and ready for evaluation after Eskom notified the tenderer that Eskom will proceed with factory evaluations and factory sample evaluations. The Eskom notification will include a list of the product ranges to be prepared for factory sample evaluations, and the proposed date for the performance of factory and factory sample evaluation.

Eskom Commercial shall make the necessary arrangements for the exact replica factory sample evaluations, by ensuring the companies are notified and the technical representatives are invited on time.

The factory sample evaluations shall be performed at the cable manufacturing plant in South Africa. All the routine tests shall be performed on the prepared sample in accordance with SANS 1507-3.

Failure to prepare and present a sample for sample evaluation will lead to disqualification.

3.4 Technical Evaluation Criteria for LV Cables

3.4.1 Technical Evaluation Criteria LV Power and Control Cables: Mandatory Technical Evaluation Requirements

LV Power and Control Cable technical evaluation criteria for the documentation exercise: Level 1 Gatekeeper		
TASK / MEASURE		
Criteria	Clause	Acceptance: Yes/ No
Is a full list as well as complete English copies of type test reports as per the specification requirements submitted?	240-56063805 Clause 3.8.4	
Is summary of tests schedule submitted in the provided excel format?	240-56063805 Clause 3.8.3	
Is summary of tests schedule signed and submitted (pdf format)?	240-56063805 Clause 3.8.3	
Are completed technical schedules B submitted in the provided excel format?	Technical Schedules A and B	
Are completed technical schedules B submitted and signed (pdf format)?	Technical Schedules A and B	
Are cable construction drawings submitted?	240-56063805 Clause 3.8.1	
Are cable dimensional data drawings submitted?	240-56063805 Clause 3.8.1	
Are cable rating data and calculations submitted for current rating and fault current ratings?	240-56063805 Clause 3.8.2	
Has type testing been performed at an accredited Test facility?	240-56063805 Clause 3.8.4	
Are Type testing requirements met in accordance with Eskom requirements and SANS 1507-3?	240-56063805 Clause 3.8.4	
Is the cable conductor marking method provided?	240-56063805 Clause 3.4	

LV Power and Control Cable technical evaluation criteria for the documentation exercise: Level 1 Gatekeeper		
TASK / MEASURE		
Criteria	Clause	Acceptance: Yes/ No
Is the cable marking method provided?	240-56063805 Clause 3.8.4	
Does the materials and construction of cable meet the Eskom requirements?	240-56063805 & SANS 1507-3	
Does cable core colouring meet Eskom requirements?	240-56063805, Table 1 (for relevant number of cores)	
Is the marking of cable outer sheath provided?	240-56063805 Clause 3.8.6	
Does schedule B meet Eskom schedule A requirement.	240-56063805 Clause 3.8.3	
Is the factory routine tests failure rate less than 5%? Note: This is number of cables tested and failed per annum/number of cables tested per annum. Figures must be auditable for the last 2 years. Suppliers with greater than 5% failure rates will be excluded.	For quality assurance	
Any "NO" on the above scores the supplier will be disqualified. The Type testing should fully comply with the requirements of SANS 1507-3.		

3.4.2 Technical evaluation criteria LV Power and Control Cables – Level 2 Scoring

Level 2 scoring shall only be performed on the submissions that have met all the mandatory technical evaluation requirements in level 1

LV Power and Control Cable technical evaluation criteria for the documentation exercise: Level 2 (scoring)			
Routine testing and type testing Weight: 4			
Criteria	Clause	Weight	Score
Were type tests performed in the last 10 years?	240-56063805 Clause 3.8.4	2	
Generic routine test certificate & reports submitted?	240-56063805 Clause 3.8.4	1	
Does cable core colouring meet Eskom requirements?	240-56063805 Table 1	1	
- For type testing performed within the last 10 Years supplier gets 100% and loses 20 % for each additional year. - For the routine test certificate or report supplier gets 100 % if all requirements as per SANS 1507-3 are included, and loses 20% for each missing requirement. - Is cable core colouring document submitted and meets Eskom requirements? If yes supplier gets 100 %, and if not 0%.		Total	/4

Technical schedules Weight: 5 Total			
Criteria	Clause	Weight	Score
Correctness of completion i.e. no "TBA, comply, noted, supplied later, noted, acceptable only when Eskom informs"	Technical schedules A & B	2.5	
No technical deviations on technical schedules.	Technical schedules A & B	2.5	
NB: The technical schedules B shall be provided on separate excel sheet as part of the Tender technical pack. - Negative marking is done and a penalty of 2 % is applicable for each incorrect completion deviation. - Negative marking is done and a penalty of 10 % is applicable for each deviation from meeting Eskom specification.		Total	/5
Drawings Weight: 6			
Criteria	Clause	Weight	Score
Drawing number shown on drawing?	240-56063805 Clause 3.8.1	0.3	
Revision number shown on drawing?	240-56063805 Clause 3.8.1	0.3	
Dimensions shown on drawing?	240-56063805 Clause 3.8.1	0.3	
Detailed description provided in "Title"?	240-56063805 Clause 3.8.1	0.3	
Approval date shown on drawing?	240-56063805 Clause 3.8.1	0.3	
Completed legend?	240-56063805 Clause 3.8.1	0.3	
Marking of conductor drawing submitted?	240-56063805 Clause 3.8.1	1.0	
Marking of cable drawing submitted?	240-56063805 Clause 3.8.1	0.6	
Marking of outer sheath drawing submitted?	240-56063805 Clause 3.8.1	0.6	
All cable layers indicated on drawing?	240-56063805 Clause 3.8.1	1.0	
Complete labelling of all cable layers?	240-56063805 Clause 3.8.1	1.0	
Negative marking and supplier loses the applicable weighting per deviation.		Total	/6
Packaging Weight: 5			
Criteria	Clause	Weight	Score
Are cable drums manufactured in accordance with Eskom specification?	240-56063805 Clause 3.7	3	
Is Marking of cable drum done in accordance with Eskom specification?	240-56063805 Clause 3.7	2	
Negative marking is applied, and supplier loses 10% for each deviation from Eskom specification.		Total	/5

3.5 Conclusion

This report is effective to specify the technical evaluation criteria for LV cables to be used in Eskom. The cable suppliers are to complete technical schedule B in accordance with 240-165711912, SANS 1507-3 as part of the tender deliverables.

The technical evaluation criteria for this project are specified in clause 3.4 of this document.

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4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Nombuso Msibi	Application Designs Manager: PTM&C
Andre de La Guerre	Technology Manager PTM&C
Nelson Luthuli	Senior Manager: PTM&C

5. Revisions

Date	Rev	Compiler	Remarks
Jan 2022	2	Queeneth Khumalo	Factory evaluation check sheet included.
Oct 2021	1	Lumka Mahlangeni	New document.

6. Development team

The following personnel is involved in the development of this document:

- Queeneth Khumalo Chief Engineer: Dx Operations Enablement HV Plant

7. Acknowledgements

Not applicable.