



Eskom

Report

Technology

Title: **TECHNICAL EVALUATION
CRITERIA FOR LV ABC WITH
BARE OR INSULATED
SUPPORTING NEUTRAL**

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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 National document(s)	3
2.2.2 Eskom document(s)	3
2.2.3 Informative	4
2.3 Definitions	4
2.3.1 General	4
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. Requirements	5
3.1 Documentation Evaluation	5
3.2 Evaluation at factory	5
3.3 Technical Evaluation Gate Keepers for LV ABC with Insulated Neutral: Mandatory Technical Evaluation Requirements	6
3.3.1 Technical evaluation criteria LV ABC with Insulated Neutral – Level 2 score	8
3.4 Conclusion	10
4. Authorization	10
5. Revisions	10
6. Development team	10
7. Acknowledgements	10

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 LV ABC with bare or insulated neutral for Eskom. It has clauses developed to address various aspects required to perform the technical evaluation. It has been developed based on the Eskom LV ABC standard.

This document contains both the evaluation criteria used for the documentation evaluation and factory/sample 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 LV ABC bare or insulated supporting neutral 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 LV ABC 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, Distribution and 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 National document(s)

- [1] SANS 1418-1: Aerial Bundled Conductor Systems - Part 1: Cores
- [2] SANS 1418-2: Aerial Bundled Conductor Systems – Part 2: Assembled Insulated Conductor Bundles
- [3] SANS 60811-4-1: Insulating and sheathing materials of electric and optical cables

2.2.2 Eskom document(s)

- [4] 240-84758170: Aerial bundled conductors with bare or insulated neutral supporting conductor.
- [5] D-DT: 3141: COND,ABC XLPE INS NEUT

2.2.3 Informative

- [6] 32-9: Definition of Eskom documents.
- [7] 32-644: Eskom documentation management standard.
- [8] 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.

2.3.2 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
ABC	Aerial Bundled Conductor
LV	Low Voltage
XLPE	Cross-Linked Polyethylene

2.5 Roles and responsibilities

All Eskom employees and/or appointed bodies involved in the procurement of LV ABC bare or insulated supporting neutral shall ensure that the project deliverable meets the requirements of these technical evaluation criteria. Any deviation from these requirements shall constitute non-conformance, unless it was in advance agreed to by a delegated LV ABC bare or insulated supporting neutral specialist and is based on sound engineering judgement.

All suppliers of the LV ABC bare or insulated supporting neutral to Eskom must be conversant with the requirements of this standard and shall comply with the requirements. No deviations will be accepted and suppliers shall ensure that they obtain clarity where required and obtain all supporting information or documents necessary to comply with this document.

2.6 Process for monitoring

The LV ABC bare or insulated supporting neutral acceptance shall be based on fully compliant submission of documents, the factory testing of the LV ABC, and proving manufacturing capability and capacity during factory evaluations.

2.7 Related/supporting documents

Refer to clause/ section 2.2.

3. Requirements

This document contains the technical evaluation criteria LV ABC with bare or insulated supporting neutral. The evaluation methodology will include two main parts, namely the documentation evaluation and the factory evaluation.

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 below.

During the documentation evaluation; fully compliant type, routine, and sample tested LV ABC with bare or insulated supporting neutral in accordance with 240-84758170 and SANS 1418-2 will be required. Failure to submit and comply with the tests requirements specified in these documents will lead to immediate disqualification.

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 below shows how the technical evaluation score will be calculated.

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

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.

Note: Only a 100% combined score achieved for the level 1 mandatory gate-keeper requirements and the level 2 scoring phase will prove 100% product compliance. If all level 1 requirements are met and a final combined score lower than 100% is achieved, the tenderer will be required to ensure all non-compliant aspects are met as part of possible contract award.

3.2 Evaluation at factory

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 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 using checklists. The checklists are used to verify factory capability and manufacturing method compliance to the type tested conductors offered.

The factory evaluation will consist of the conductor 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:

- a) Machinery capability.

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- b) Plant setup.
- c) Raw material and compounds type tested.
- d) Extrusion lines type tested.
- e) Production process and critical check points.
- f) Design and software design capability.
- g) Material handling and storage.
- h) Testing facilities including certification and calibration of testing equipment.
- i) Sample testing and procedures.
- j) Routine testing procedures.
- k) Packaging of materials and LV ABC drums.
- l) The following test facilities shall be observed: (1) Neutral performance test, (2) Phase conductor tensile test, (3) Dielectric hot-set test, (4) HV water immersion insulation test, (5) Conductor resistance test and (6) Dielectric shrink-back test.

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. If major discrepancies and risks are identified the supplier may be disqualified. For minor discrepancies and risks the Tenderer will be given an opportunity to decide whether they agree or disagree to meet Eskom's requirements upon possible contract award. The action plans for resolving the discrepancies and risks will be agreed between Eskom representative(s) and the supplier/manufacturer.

3.3 Sample Evaluation at factory

The factory sample evaluations will be the evaluation of the exact replica product that is offered to Eskom during tender. A product sample will be required; whereby each tenderer is required to prepare only one exact replica sample per LV ABC 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 within two months 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 that was successful to advance to the factory evaluations and factory sample evaluations stages.

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 LV ABC manufacturing plant in South Africa.

3.4 Technical Evaluation Gate Keepers for LV ABC with Bare or Insulated Supporting Neutral: Mandatory Technical Evaluation Requirements

LV ABC with Bare or Insulated Supporting Neutral technical evaluation criteria for the documentation exercise		
Level 1 Gatekeeper		
TASK / MEASURE		
Criteria	Standard/clause	Acceptance: Yes/ No
Is a full list as well as complete English copies of type test reports as per the specification requirements submitted?	N/A	
Are completed technical schedules B submitted in the provided excel format and submitted in pdf?	Technical Schedules A and B (240-84758170)	
Product Codes submitted	D-DT 3141	
Conductor dimensional data and construction drawings including thickness of the dielectric submitted	SANS 1418 and 240-84758170	
Is the insulation piercing test submitted?	CENELEC HD 626 S1	
Type Test Report submitted in accordance with Eskom's requirements (complete table 1, performed at an accredited Test facility) submitted	240-84758170	
Is the marking of cores in accordance with Eskom standard? Marking method provided. Note: there shall be "ESKOM" indented or embossed mark on the phase and supporting core.	240-84758170	
Manufacturer has a valid SABS permit holder for manufacturing to SANS 1418. Permit provided.	D-DT 3141	
Any "NO" on the above scores the supplier will be disqualified. The Type testing should fully comply with the requirements of SANS 1418 to obtain YES under testing requirements. The LV ABC with bare or insulated support neutral should fully comply with Eskom specifications where applicable to obtain a YES.		

3.4.1 Technical evaluation criteria LV ABC with Bare or Insulated supporting Neutral
– Level 2 score

LV ABC with Bare or Insulated Support Neutral technical evaluation for the documentation exercise			
Level 2 scoring/rating - (only submission that passes Level 1 gatekeepers)			
Routine testing and type testing Weight: 4			
Criteria	Clause	Weight	Score
Were type tests performed in the last 10 years? Test reports submitted	SANS 1418	1	
Are all tests reports/certificate in table 1 submitted?	Technical Criteria	1	
Insulation piercing test submitted	240-84758170	1	
Carbon black dispersion test submitted	240-84758170	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 included, and loses 20% for each missing requirement Insulation piercing test and Carbon black dispersion test submitted, supplier gets 100%		Total	/4

**TECHNICAL EVALUATION
CRITERIA FOR LV ABC WITH BARE OR INSULATED
SUPPORTING NEUTRAL**

Unique 240-92934300

Revision: 3

Page: 9 of 12

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), completed technical schedule	Technical schedules A & B	2.5	
Completed table 1	Technical criteria	2.5	
TNB: The technical schedules B are provided on the Annexures of the LV ABC specifications. - Negative marking is done and a penalty of 2 % is applicable for each incorrect completion deviation. - Negative marking is done and a penalty of 3 % is applicable for each deviation from meeting Eskom specification and deviations.		Total	/5
Drawings Weight: 6			
Criteria	Clause	Weight	Score
Drawing number		0.3	
Revision number		0.3	
Dimensions		0.3	
Detailed description provided in "Title".		0.3	
Approved & date drawings		0.3	
Complete legend		0.3	
Marking of phase cores drawing		1.0	
Marking of insulated neutral core drawing		0.6	
Marking of the auxiliary core		0.6	
All conductor cores indicated		1.0	
Complete labelling of all conductors		1.0	
Negative marking and supplier lose the applicable weighting per deviation.		Total	/6
Packaging Weight: 5			
Criteria	Clause	Weight	Score
Are LV ABC drums manufactured in accordance with Eskom specification	240-84758170	3	
Is Marking of LV ABC drum done in accordance with Eskom specification	240-84758170	2	
Negative marking is applied, and supplier loses 10% for each deviation from Eskom specification.		Total	/5

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3.5 Conclusion

This report is effective to specify the technical evaluation criteria for LV ABC with bare or insulated supporting neutral to be used in Eskom. The conductor suppliers are to complete technical schedule B aligned with 240-84758170 as part of the tender deliverables.

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

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
Mfundu Songo	Senior Manager: Technology and Engineering
Kebone Mogase	Senior Advisor Commercial

5. Revisions

Date	Rev.	Compiler	Remarks
June 2017	1	Jutas Maudu	New document.
March 2023	2	Jutas Maudu	Document review
March 2024	3	Jutas Maudu	Document review/Insulated core cable marking

6. Development team

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

- Jutas Maudu: Senior Engineer: Technology
- Masithembe Ngcwama GOU

7. Acknowledgements

None

**TECHNICAL EVALUATION
CRITERIA FOR LV ABC WITH BARE OR INSULATED
SUPPORTING NEUTRAL**

Unique 240-92934300

Revision: 3

Page: 11 of 12

Annexure A – Table 1Complete Test report, testing facility and report date columns

Test	Report no.	Facility	Comments
Conductor resistance			
Conductor Diameter			
Tensile strength and breaking force			
Conductor resistance			
Conductor Diameter			
Tensile strength and breaking force			
Conductor resistance			
Conductor Diameter			
Voltage withstand			
Insulation thickness			
Dielectric resistance			
Impulse voltage withstand			
Carbon Black content			
Carbon Black dispersion			
Dielectric shrink back			
Tensile strength and breaking force			
Conductor resistance			
Conductor Diameter			
Voltage withstand			

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**TECHNICAL EVALUATION
CRITERIA FOR LV ABC WITH BARE OR INSULATED
SUPPORTING NEUTRAL**

Unique **240-92934300**

Revision: **3**

Page: **12 of 12**

Insulation thickness			
Dielectric resistance			
Impulse voltage withstand			
Carbon Black content			
Carbon Black dispersion			
Dielectric shrink back			
Tensile strength and breaking force			

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