

Title: **TECHNICAL EVALUATION
CRITERIA FOR OPTICAL
GROUNDWIRE (OPGW) CABLES**

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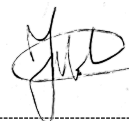


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1. Introduction

This document aims to describe the criteria which will govern the evaluation of tender submissions by OEMs intending to supply OPGW cables. The criteria for each cable type are tabulated in the appendices at the end of this document.

The criteria necessary to perform both the desktop and factory evaluations are outlined.

2. Supporting clauses

2.1 Scope

This document explains the technical evaluation process and criteria associated with OPGW fibre optic cables as described by the relevant Eskom standards.

2.1.1 Purpose

The purpose of this document is to describe the criteria which are to be used when evaluating tender submissions for the supply of OPGW cables.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

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] ISO 9001 Quality Management Systems.
- [2] 32-1034 - Eskom Procurement and Supply Management Procedure.
- [3] NRS 061-1: Overhead Groundwire with Optical Fibre Part 1: Product Specification.

2.2.2 Informative

- [4] NRS 061-2: Overhead Groundwire with Optical Fibre Part 2: Installation Guidelines.

2.3 Definitions

2.3.1 Disclosure classification

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

2.4 Abbreviations

Abbreviation	Description
CV	Curriculum Vitae
OEM	Original Equipment Manufacturer
OPGW	Optical Ground Wire
PLS-CADD	Power Line Systems – computer aided design and drafting

2.5 Roles and responsibilities

Transmission Procurement to ensure document is implemented during tender.

2.6 Process for monitoring

Monitored by Technical Team using tender processes.

2.7 Related/supporting documents

Not applicable.

3. Technical Tender Evaluation Procedure

The technical evaluation procedure is specific to the OPGW cable specifications. The complete evaluation of any potential supplier would involve a desktop evaluation. For previously contracted suppliers a letter is to be submitted confirming that premises, raw materials and production process has not changed.

All bidders who are supplying OPGW 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 submit a letter to indicate if there are changes to their product or not. Eskom will assess the changes and decide if the supplier qualifies or not.

Factory assessments shall be undertaken post contract award, upon placement of the first order

The assessment team has no authority or responsibility in the decision taken by Eskom with respect to contracting for a product or service. During the evaluation, the assessment team will undertake the following steps:

Table 1: Evaluation Steps for Eskom Technical Assessment Team

Steps #	Activities for Eskom Technical Assessment Team
1	Find tables A3.1, A3.2, A3.3, A3.4
2	Complete table 3 mandatory criteria
3	Proceed to evaluate tenderer that meets table 3 mandatory criteria
4	Evaluate technical file of tenderer
5	Review submission for table A3.1 and score table A3.2 for each submitted OPGW - link with type test report submitted
6	Review indexed factory file submission and score table 6
7	Review Data Sheets information submitted for each OPGW and score
8	Review PLSCADD information submitted for each OPGW and score
9	Consolidate scores for desktop evaluation from steps 6, 7 and 8 above
10	Feedback draft report to commercial indicating which Tenderers have passed desktop evaluation
11	Final report completed

Any statements, intentions and/or actions expressed by the assessment team during the assessment and after the assessment should not be interpreted as the awarding of a contract and does not constitute any liability to Eskom with regards to contract placement or post-contract performance guarantees.

From a technical perspective, the submitted documentations should consist of but not be limited to:

- a) Complete Table A3.1. This is in Annex A and an excel version with drop down boxes is submitted with the tender pack. This will give an indication of which OPGW cables are offered.

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- b) Complete Table A3.2. This is in Annex B and an excel version with drop down boxes is submitted with the tender pack. This is required as to the status of the type tests for the OPGW cables offered.
- c) Complete Table A3.3. This is in Annex C and an excel version is submitted with the tender pack. A fully indexed and comprehensive file with relevant factory information is required.
- d) Complete Table A3.4. This is in Annex D and an excel version with various columns is submitted with the tender pack. The fully completed A/B Schedules are required for each OPGW cable offered.
- e) The Manufacturer's Data Sheets per OPGW cable tendered is required for desktop evaluation.
- f) The OPGW information for PLS-CADD with the co-efficient and sag and tension data shall be included for each OPGW tendered.
- g) It must be noted that before any OPGW fibre optic cable is used on Eskom's system, a mechanical compatibility test shall be done with the designated hardware. Agreement between prospective fibre optic cable supplier and prospective hardware supplier shall be concluded. Eskom's only responsibility with this aspect is to review the final test results and on occasion witness these tests.
- h) Tenderers shall ensure that they cater for the manufacture of special cables that may be requested during the contract lifetime.

Documentation that is required from the tenderers is summarized in table 2 below:

Table 2: Requirements from Tenderers

Step #	Activities and Submission Summary for Tenderers
1	Submit a properly indexed Technical File
2	Submit completed Table A3.1 - OPGW cables offered
3	Submit completed Table A3.2 - TYPE TESTS status
4	Submit completed Table A3.3 - FACTORY FILE index completed
5	Submit completed Table A3.4 - A/B Schedules per OPGW offered
6	Submit most recent TYPE TESTS for every OPGW offered
7	Submit most recent DATA SHEETS for every OPGW offered
8	Submit most recent PLSCADD information for every OPGW offered
9	Submit indexed file with Factory Information correlating to Table A3.3

3.1 Mandatory Criteria evaluation

This evaluation exercise is performed by the Eskom evaluating representatives.

The Eskom evaluating representatives will go through the details of the technical returnable submissions that are required to ensure that the Mandatory criteria are met. Tender submissions for Tables A3.1, A3.2, A3.3 and A3.4 will be checked for existence and completeness. Submissions that receive a “No” on any of the Mandatory criteria will not be able to proceed to the Desktop Evaluation and therefore will immediately fail the technical evaluation.

Table 3: Mandatory Criteria

Eskom representative to complete during Desktop Evaluation

OPGW Cable Mandatory Criteria	Comply (Yes/No)
Specify which cables can be manufactured and supplied (Complete Table A3.1)	
State which type tests are submitted and which will be provided during Factory Evaluation. (Complete Table A3.2)	
File of information supplied for factory evaluation (Complete Table A3.3)	
A and B Schedules completed to Eskom requirements for the OPGW cables provided in English from the latest NRS 061-1 (Complete Table A3.4)	

The tables are to be completed together with the submissions and are found in Annexes A, B, C and D. The excel versions of these will be provided in the tender pack and each table has cells which have drop down boxes. Complete each excel table as requested.

3.2 Desktop Evaluation

Submissions that pass the Mandatory criteria will proceed to the desktop evaluation.

3.2.1 Desktop OPGW Assessment

The desktop assessment will score the following items:

- OPGW Type tests reports – only OPGW cables that were submitted as part of the tender shall be evaluated.
- Manufacturer’s Data Sheets per OPGW cable that was submitted for tender.
- The PLS-CADD information with the co-efficient and sag & tension data for each OPGW submitted for tender shall be included.

The items will be scored as per the Table 4 below:

Table 4: Scoring of items in Desktop Evaluation

Criteria	Score
Fully compliant	3
Non-compliant (major deviation)	0

Each Tenderer will be scored per kA rated OPGW submitted as indicated in Table 5.

Table 5: Desktop OPGW Evaluation

OPGW Cable Scoring Criteria	Maximum Score	Threshold
Cable Score (based on Type Tests, Data Sheet and PLSCADD info) 10kA	42	80%/33.6
Cable Score (based on Type Tests, Data Sheet and PLSCADD info) 12kA	42	80%/33.6
Cable Score (based on Type Tests, Data Sheet and PLSCADD info) 16kA	42	80%/33.6
Cable Score (based on Type Tests, Data Sheet and PLSCADD info) 18kA	42	80%/33.6
Cable Score (based on Type Tests, Data Sheet and PLSCADD info) 21kA	42	80%/33.6

The OPGW cable score that passes the threshold score (33.6/80%) shall be considered for the tender.

3.2.2 Desktop Factory File Assessment

The Factory Information File shall be scored as per Table 6. A score of 1 point is given for every item requested.

Table 6: Desktop Factory File Evaluation

OPGW Cable Scoring Criteria	Maximum Score	Threshold
Factory Information	39	80%/31.2

The Factory information file will also be scored for Desktop evaluation and is required to pass the threshold score (31.2)

4. Authorization

This document has been seen and accepted by:

Name and surname	Designation
N/A	N/A

5. Revisions

Date	Rev	Compiler	Remarks
November 2023	3	B. Haridass	Removed statement in section 3 relating to Legal requirements.
June 2023	2	B. Haridass	Changes to content as per Commercial requirements
May 2023	1	B. Haridass	Changes to content as per Commercial requirements
March 2023	0	B. Haridass	Required for Commercial enquiry

6. Development team

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

- Bharat Haridass
- Ameet Nathoo

7. Acknowledgements

Annex A Not applicable– Table A3.1: Mandatory Criteria OPGW List

	Table A3.1 Mandatory Criteria Please state which OPGWs you are tendering for				
	kA Rating				
	10kA	12kA	16kA	18kA	21kA
Greased 48 core					
Ungreased 48 core					

Please place an X for those cables tendered for above. This table can also be found in excel format in the tender pack.

Annex B – Table A3.2: Mandatory Criteria Type Tests

		Table A3.2 Mandatory Criteria OPGW Type Tests Required				
Type Test (Yes/No/FAT) Indicate which Tests have been submitted and which will be available at FAT NOTE: 80% threshold for type tests for each cable must be submitted for Desktop Evaluation		Ungreased				
		48 core				
		10kA	12kA	16kA	18kA	21kA
1	Crush Resistance Test (IEC 60794-1-2)					
2	Tensile Performance Test (IEC 61089)					
3	Cable deformation Test					
4	Stress-Strain Test (IEC 61089)					
5	Impact Test (IEC 60794-1-2)					
6	Sheave Test					
7	Aeolian Vibration Test					
8	Temperature Cycle					
9	Water Ingress Test (IEC 60794-1-2)					
10	Short Circuit Test (IEC 60794-1-2)					
11	Lightning Test (IEC 60794-1-2)					
12	Conductor Creep Test (IEC 61395)					

Please place a Yes/No/FAT to indicate which type tests have been submitted and which will be available at the factory evaluation. NOTE: 80% submission to qualify for Desktop Evaluation. This table can also be found in excel format in the tender pack.

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Annex C – Table A3.3: Mandatory Criteria Factory File

Table A3.3 Mandatory Criteria Provide an Indexed File with answers to the following statements		
Item #	Manufacturing Methods/Product Conformance	State location/Index in File (e.g. Tab 1, Tab 2, Tab A, Tab B)
1	Factory Information - Manufacturing premises address (1pt), staff organogram (1pt) and equipment (1pt), testing facilities (1pt) and plant layout (1pt)	
2	Ability to provide verification of all material utilised in the production of OPGW cable (e.g. Fibre cores, aluminium/steel strands, tube, grease, gel).	
3	Ability to produce complete fibre product- OPGW (assembling of raw material to form a complete product)	
4	Manufacturing to standards, licenses etc. IEC, Eskom spec etc. *Specs available on premises *Staff knowledge on specs *Implementation of specs	
5	Design Capabilities of supplier- In house or external experts etc. (Personnel and software)	
6	Affiliations with any international organisation/ experts in the field.	
7	History and list of external customers that you have supplied similar products to.	
8	Type of testing facilities. * Calibration of equipment (major equipment calibrated accordingly), *Test capabilities (able to perform in-house sample/production tests - Test report and generic testing forms to be submitted), *Competencies of Technicians (ability to perform in-house tests), *Quality of Test reports (all relevant testing information available on test report)	
9	Confirmation of Type Testing Procedures and Facilities (confirm that supplier has ability to type test products in accordance to IEC 60794-1-2, (IEC 61089 and IEC 61395)	
10	Can provide typical packaging details of items after manufacture, treatment of wooden crates etc. if applicable.	
11	Packaging of drums into containers- for international suppliers	
12	Marking on drums as per Eskom requirements	
13	Handling and storage requirements of product.	
14	Verification of product length on drum	
15	Verification of drum gross and net weight.	

Please provide a file with all of the relevant information as requested in the table above.

Annex D – Table A3.4: Mandatory Criteria A/B Schedules

Table A3.4 Mandatory Criteria Please Complete as per OPGW cable tendering					
Item	Clause	Description		Schedule A	Schedule B
B.1	4.1.4	Grease conductor in accordance with SANS 61089?	Yes/No	Greased & Ungreased required	xxxxxxxxxx
	4.1.5	Pollution level, if other than heavy		_____	xxxxxxxxxx
		Maximum temperature, if other than 50 °C	□C	_____	xxxxxxxxxx
		Minimum temperature, if other than –10 °C	□C	_____	xxxxxxxxxx
		Maximum wind speed, if other than 36 m/s	m/s	_____	xxxxxxxxxx
		Route altitude, if other than 2 000 m	m	_____	xxxxxxxxxx
	4.1.6	Name of manufacturer		xxxxxxxxxx	_____
		Place of manufacture		xxxxxxxxxx	_____
		Manufacturer's reference number		xxxxxxxxxx	_____
B.2	4.2.1.1	Type of fibre in accordance with NRS 081 (G.652D)	Yes/No	xxxxxxxxxx	_____
		If no, state fibre type		xxxxxxxxxx	_____
	4.2.2.1	OPGW 1 s current rating	kA	10, 12, 16, 18, 21	_____
	4.2.2.2	Stranding and wire diameter		xxxxxxxxxx	_____
B.3	4.3.1.1	Number of fibres		48 Core	xxxxxxxxxx
	4.3.2.1	Conductor material		xxxxxxxxxx	_____
		Nominal cross-section		xxxxxxxxxx	_____
		Actual cross-sectional area		xxxxxxxxxx	_____
		Maximum overall diameter		xxxxxxxxxx	_____

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		Maximum mass per metre of cable- ungreased	kg/m	xxxxxxxxxx	
		Maximum mass per metre of cable- greased	kg/m	xxxxxxxxxx	_____
		Rated tensile strength (RTS)		xxxxxxxxxx	_____
		Initial modulus of elasticity		xxxxxxxxxx	_____
		Final modulus of elasticity		xxxxxxxxxx	_____
		Maximum drum length		xxxxxxxxxx	_____
		Direction of lay of outer layer		xxxxxxxxxx	_____
		Diameter of all layer strands		xxxxxxxxxx	_____
		Short-circuit 1 s current rating		xxxxxxxxxx	_____
		Short-circuit 0.5 s current rating		xxxxxxxxxx	
		DC resistance at 20 °C/km	□	xxxxxxxxxx	_____
		Continuous current-carrying capability	A	xxxxxxxxxx	_____
	4.3.2.2	Complete details of cable construction, including measures to minimize hydrogen absorption and water ingress.		xxxxxxxxxx	_____
B.4	4.4.1	Is a sample required?	Yes/No	No-will request needed if	xxxxxxxxxx
	4.4.3	Length of sample, if not 1 m		_____	xxxxxxxxxx
B.5	5.1.3.2	Specify class of cable 0, 1, 2 or 3		3	xxxxxxxxxx
B.6	6.2.1	Maximum drum length of OPGW		Xxxxxxxxxxx	_____
		Mass of drum including max. length of OPGW cable		xxxxxxxxxx	_____
B.7	6.3	Is documentation required?	Yes/No	Yes	xxxxxxxxxx

Each OPGW cable offered requires a fully completed A/B schedule. This can be found in an excel version in the tender pack.

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