

Title: **Technical Evaluation Criteria for  
Fibre Optic Tools and Testing  
Equipment**

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Transmission Grids**

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## CONTROLLED DISCLOSURE

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## **1. INTRODUCTION**

This report provides an overview of the Eskom's technical evaluation criteria to be used when evaluating the tender proposals for Fibre Optic and Teleprotection testing equipment and tools for the use in Secondary Plant Transmission Grids.

The report defines the 'Desktop Evaluation', 'Practical Evaluation', and 'Deemed Offer Risk(s)' criteria that will be used to evaluate responses to the enquiry.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

The report provides the technical evaluation criteria relating to a commercial enquiry for the supply of Fibre Optic and Teleprotection testing equipment, tools and selective level meter to be used in the Transmission Grids Secondary Plant environment.

#### **2.1.1 Purpose**

The purpose of this tender technical evaluation criteria is to define the Evaluation Criteria and TET member responsibilities for tender technical evaluation. The technical evaluation criteria serves as basis for the tender technical evaluation process.

#### **2.1.2 Applicability**

This report may be applied to Eskom Transmission Grids and Apollo & Centralised Services.

### **2.2 NORMATIVE/INFORMATIVE REFERENCES**

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

#### **2.2.1 Normative**

[1] 240-48929482: Tender Technical Evaluation Procedure

#### **2.2.2 Informative**

None

## 2.3 DEFINITIONS

Definition	Description
<b>Eskom evaluation team</b>	The persons appointed by Eskom to perform the evaluation of tender submissions in line with Eskom's requirements.
<b>Normative</b>	Documents that shall be read in conjunction with this report and are binding on Tenderers.

### 2.3.1 Classification

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

## 2.4 ABBREVIATIONS

Abbreviation	Description
CCU	Carrier Combiner Unit
IOLM	Intelligent Optical Link Mapper
LME	Line Matching Equipment
OTDR	Optical time Domain Reflectometer
PLC	Power Line Carrier
SC	Subscriber Connector
ST	Straight Tip Connector
TET	Technical Evaluation Team
VFL	Visual Fault Locator

## 2.5 ROLES AND RESPONSIBILITIES

It is proposed that:

- Apollo & CS and/or Transmission Grids shall utilise this report as a basis for the technical evaluation process.
- Tenderers shall note the evaluation criteria as laid out in this report and submit tenders in compliance to the stipulated requirements.

## **2.6 PROCESS FOR MONITORING**

N/A

## **2.7 RELATED/SUPPORTING DOCUMENTS**

N/A

## **3. TENDER TECHNICAL EVALUATION PROCEDURE**

### **3.1 TECHNICAL EVALUATION CRITERIA**

A supplier may propose an Optical Fusion Splicer, OTDR Single and Multimode Tester, Splicing Toolkit, Selective Level Meter or a combination of any of the above items.

Any actions undertaken by the Tenderer as a consequence of the tendering process remains the tenderer's responsibility and shall not be transferred as a liability unto Eskom.

If the bidder fails to achieve the defined thresholds, as set out in the different stages, then the submission will be deemed non-compliant and will be removed from further evaluation.

The evaluation process has two stages with the corresponding minimum score (threshold) required for a bid to be deemed compliant are:

- a) Desktop Evaluation Criteria which requires >75% compliance threshold.
- b) Practical demonstration which requires >75% compliance threshold.
- c) Deemed offer Risks which should at least be acceptable.

### **3.2 STAGE 1 - DESKTOP EVALUATION CRITERIA**

The relevant A & B Technical Schedules in Annex A pertaining to the proposed products, shall be completed in English, signed, and submitted, together with the Compliance Checklist for Technical Schedules A & B in Annex B shall also be completed, signed, and submitted. Submissions that obtain a minimum pass mark of 75% for the Desktop Evaluation Criteria will proceed to the Practical Demonstration.

**Table 3-1: Desktop Evaluation Criteria**

	<b>Desktop Evaluation Criteria Description</b>	<b>Criteria Weighting (%)</b>	<b>Actual Score (%)</b>	<b>Comments</b>
<b>1.</b>	A & B Technical Schedules (Annex A)	60		
<b>2.</b>	Compliance Checklist for A & B Technical specifications (Annex B)	40		
<b>Subtotal</b>		<b>100</b>		
<b>Threshold</b>		<b>75</b>		

### **3.3 STAGE 2 – PRACTICAL EVALUATION**

The practical evaluation will include a physical demonstration of the Optical Fusion Splicer, OTDR Single and Multimode Tester, Optical Light Source Power Meter, and Selective Level Meter. Details of the test criteria will be provided to suppliers that have progressed to the Practical Evaluation stage, prior to the practical evaluation date.

The demonstration shall be done by the local representative of the tenderer. All suppliers will be given the same product to test and the same allocated time.

The supplier will be responsible for any damage of the product. Eskom will only provide limited support.

An Eskom technical panel will evaluate the demonstration which will form a substantial part of the technical compliance assessment. Suppliers to indicate the time requirement for each of the test functionality listed in Table 3-2 to Table 3-5 where the functionality tests are separated into subcategories. The practical evaluation will comprise of functionality tests with respective weightings as defined in Table 3-2 to Table 3-5. The Eskom evaluation team will score each item, listing their reasoning. Scores assigned by the Eskom evaluation team will not be shared with tenderers during the evaluation.

The Eskom technical team reserves the right not to proceed with the Practical evaluation if required.

**Table 3-2 Functionality Test for the Optical Fusion Splicer**

<b>Number</b>	<b>Demonstration</b>	<b>Weighting (%)</b>
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1	Demonstrate the use of the Optical Fusion Splicer	50
2	Demonstrate the fusion splicing and splicing losses	50

**Table 3-3 OTDR Single and Multimode Tester**

Number	Demonstration	Weighting (%)
1	Demonstrate the use of the OTDR Single and Multimode Tester	10
2	Optical loss testing over a dynamic range of 32/30dB	10
3	Accuracy of wavelength ranges 1310, 1550, 1625.	30
4	Fault location identification	50

**Table 3-4 Functionality Test for Optical Light Source Power Meter**

Number	Demonstration	Weighting (%)
1	Demonstrate the use of the Power Light Source Meter	10
2	Accuracy of wavelength ranges 1310-1625	50
3	Output Optical power: 7/-7dB	40

**Table 3-5: Functionality Test for the Selective Level Meter**

Number	Demonstration	Weighting (%)
1	Accuracy of testing of the Selective level Meter	100

Each item will be assigned a score by the Eskom evaluation team using the below Table 3-6. The score for each item will be multiplied by its weight to obtain the total score per item.

**Table 3-6: Scoring of items for the Practical Evaluation**

Criteria	Score
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<b>Fully Compliant</b> <ul style="list-style-type: none"><li>• Meet technical requirements,</li><li>• Technical Schedules A &amp; B and Compliance Checklist for Schedules A &amp; B submitted and signed,</li><li>• Passed practical evaluation</li></ul>	3
<b>Partially Compliant (minor deviations)</b> <ul style="list-style-type: none"><li>• Does not meet all the technical requirements and/or,</li><li>• Unacceptable technical risk(s) /deviations and/or,</li><li>• No supporting documents provided</li></ul>	1
<b>Non-compliant (major deviation)</b> <ul style="list-style-type: none"><li>• Unacceptable technical risks, and/or</li><li>• Not meeting technical requirements, and/or</li><li>• Non-responsive, and/or</li><li>• Over inflated pricing</li></ul>	0

### 3.4 STAGE 4 – DEEMED OFF RISK

Eskom's evaluation team shall compile a report summarising risks associated with any aspect of the offer:

- noted during the Desktop Evaluation,
- noted during the Practical Demonstration,
- noted during a review of any pricing anomalies that cannot be acceptably clarified,
- noted during a review of the tender's response to Annex A & B,

This report shall be used to determine and motivate whether the risk is deemed low / acceptable / high and will serve as input to the recommendation as to whether the offer should be technically accepted as shown in Table 3-7 below.

**Table 3-7: Deemed Off Risk (s) Evaluation**





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Criteria	Score	Comments
Deemed Offer Risk (s)		
Threshold	Acceptable	

#### 4. AUTHORISATION

This document has been seen and accepted by:

Name	Designation	Signature
Anthea Solomon	Manager Secondary Plant Apollo & CS	
Zakhele Dlamini	Snr Supervisor Secondary Plant Apollo & CS	

#### 5. REVISIONS

None

#### 6. DEVELOPMENT TEAM

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

Maria Mokou

Anthea Solomon

Zakhele Dlamini

#### 7. ACKNOWLEDGEMENTS

None

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## ANNEX A – Offered Product/s

The Supplier shall complete the table below in English, clearly indicating which product/s they are tendering for. This annexure shall be signed and submitted as part of the tender returnable. The corresponding AB Schedule shall be completed, signed, and submitted as a tender returnable.

Nr	Test Equipment/ Tools	AB Schedule name	State which test set(s) /product(s) is offered. (Y/N) – comment
1.	Optical Fusion Splicer	Optical Fusion Splicer A&B Schedule	
2.	OTDR Single and Multimode	OTDR single and Multimode meter A&B Schedule	
3.	Splicing Tool Kit 3.1 Lockable hard-shell case 3.2 Visual Fault Locator (VFL) 3.3 Optical Light source power meter 3.4 Fibre Optic Jacket Stripper 3.5 Fibre Optic Cleaver x2 3.6 Fibre Optic Snips 3.7 Fibre Optic Stripping Scissor 3.8 Fibre Optic Alcohol Cleaner	Splicing tool kit A&B Schedule	
4.	Selective Level Meter	Selective Level Meter A&B Schedule	

Name of Company: \_\_\_\_\_

Name and Surname of company Representative: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

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## ANNEX B – Compliance Checklist for Schedules A&B

1. Optical Fusion Splicer	Item Nr	Required Specifications	Indicate Compliance (Y/N)	Tenderer's Specifications if No
	1	Fibre types: SM (G.652); MM (G.651); DS (G.653); NZDS (G.655); BIF (G.657)		
2. OTDR Single and Multimode Tester	Item Nr	Required Specifications	Indicate Compliance (Y/N)	Tenderer's Specifications if No
	1	Wavelength range 1310, 1550, 1625		
	2	Touch & key dual operation		
	3	Fault location		
3. Splicing Tool kit	Item Nr	Required Specifications	Indicate Compliance (Y/N)	Tenderer's Specifications if No
	1. Lockable hard-shell case	Shock and impacted proof exterior		
	2. Visual Fault Locator (VFL)	1 x 30mW Red Light laser		
	3. Optical Light source power meter	3.1 Wavelength 1310-1625		
		3.2 Connector type: FC/SC		
		4.2 Comfort grip, ergonomic handles		
	4. Fibre Optic Cleaver x2	5.1 Utilises an automatic Anvil Drop for fewer required steps and better leave consistency		
		5.2 Superior blade height and rotational adjustment		
	5. Fibre Optic Snips	Straight cut 250mm or more		
	6. Fibre Optic Stripping Scissor	Type: hybrid size 145mm		
	7. Fibre Optic Alcohol Cleaner	Litres: 750ml or > Alcohol Percentage: 99.8%		

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4. Selective Level Meter	Item Nr	Required Specifications	Indicate Compliance (Y/N)	Tenderer's Specifications if No
	1. General	4.1 Sweep steps: up to 2000 steps in all sweep functions.		
		4.2 Interface: shall be USB or LAN.		
		4.3 Real time clock: time and date stamped		
		4.4 Size: must be portable		
		4.5 Power Supply: a) 220 V AC to charge batteries.		
	2.	4.6 Frequency Range: 200Hz to 600 kHz		
		4.7 Measurement units: V, dBm		
		4.8 SLM must track Signal Generator (Oscillator)		
	3. Level Input	4.9 Max input: $\pm 10V$ peak		
		4.10 Input impedance: a) 75 ohm $\pm 1\%$ , b) 150 ohm $\pm 1\%$ , c) 600 ohm $\pm 1\%$ ,		
	4.Input (Balanced)	4.11 Max input: $\pm 10V$ peak a) Input impedance: As low level input b) Input connection: Banana sockets		
	5. Input (Unbalanced)	4.12 a) The connector shall be BNC. b) Input impedance: 75 ohm $\pm 1\%$ .		
	6. Signal Generator	4.13 Generator Type: single frequency or sweep.		
		4.14 Generator Waveform: sine wave		

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		4.15 Frequency accuracy: $\pm 1$ Hz		
		4.16 Frequency Setting: 1 Hz steps		
		4.17 Level output frequency range: 200 Hz to 600 kHz		
		4.18 Output impedance: a) 75 ohm $\pm 1\%$ b) 150 ohm $\pm 1\%$ c) 600 ohm $\pm 1\%$		
		4.19 Signal Generator must track SLM.		
	7. Insertion Loss testing	4.20 Insertion loss testing on the LME, coaxial cable, CCU and PLC terminal equipment from 20 kHz to 600 kHz.		
	8. Return Loss testing	4.21 Return loss testing on the LME, coaxial cable, CCU and PLC terminal equipment from 20 kHz to 600 kHz.		
	9. Impedance measurement testing	4.22 Impedance measurement testing on the tuning unit of the line trap from 20 kHz to 600 kHz.		

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