PASSENGER RAIL AGENCY OF SOUTH AFRICA

Project specifications and scope of work for Repair, Maintenance and Calibration of Telecoms Equipments on an As and When required basis for a period of 3 years in Gauteng Region.

SPECIFICATION AND SCOPE OF WORK

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PART A: SPECIFICATION

Project specifications and scope of work for Repair, Maintenance and Calibration of Telecoms Equipments on an As and When required basis for a period of 3 years in Gauteng Region.

1   Introduction

1.1   Telecommunications department requires the appointment of a service provider to repair, Maintenance and Calibration of equipments on an as and when required basis for Telecoms department in Gauteng Region.

1.2   Telecoms requires that the contract to continue for the duration of 3 years from the date of acceptance or until the budget is exhausted.

2   Background Information

2.1   Gauteng Telecoms have Optical Time Domain Reflectometer (OTDR) for testing Optic fibre network, Splicing Machine and Cleavers to perform repairs and maintenance on Optic fibre network in Gauteng Region.

2.2   All Telecoms Equipments are due for calibration and repairs.

3   Problem Statement

3.1   The Calibration of our own equipment will help with rapid response and improve on recovery time during repairs and Maintenance.

3.2   At times Telecoms technicians are forced to share maintenance and testing equipments during fibre optic repairs, this makes their work difficult to execute.

4   Special Requirements

4.1   All specifications and requirements as laid down by **SANAS ACT 19 OF 2009**, will be adhered to.

4.2   The service provider must be accredited for the calibration Fibre optic's equipments, according to **SANAS ISO/IEC 17025**.

4.3   Providing lightning-fast results in the first step of fiber-link testing and automated inspection.

4.4   Connector Max application must deliver quick pass/ fail assessment of connector endfaces and is specifically designed to save both time and money in the field.

4.5   All required repaires of the Telecoms equipment should be attended too, including power supply section of the equipment, maintenance, calibration and the software application of the system.

4.6   All equipments are requested to be calibrated within the agreed period unless deviation has been made by the project manager.

4.7   The contractor shall repair equipments that are specified by the project manager with the same quality.

4.8   Noticed must be given prior to the delivery of such materials or equipments.

4.9   Delivery of equipments must be within 20 working days from the date of the purchase order.

5   Scope of work

5.1   Repair, maintenance and Calibration of Telecoms equipment.

5.2   The rate should cover for repair, calibration and testing of the equipments.

5.3   Calibration of an OPTICAL TIME DOMAIN REFLECTOMETER_OTDR.

5.4   Calibration of a Splicing Machines.

5.5   Calibration of cleavers.

5.6 Calibration of Optic Fibre Power Meter.

5.7 The service provider will perform all pre-commissioning tests of the equipment.

5.8 Metrorail reserves the right to witness these tests, the service provider shall rectify all defects of work to the satisfaction of Prasa that may have arises during these tests.

5.9 The service provider shall supply Calibration tests results (certificate) for Telecoms equipments.

5.10 The calibration of equipments must be **verified after 2 years** from the previous date of verification and must be clearly stated on the calibration certificate.

5.11 Prasa shall perform the final commissioning tests with the service provider, acceptance by project manager of satisfactory completion of onsite test in no way relieves the service provider from his duty to ensure compliance to the specification.

5.12 All Test results must be submitted, discussed and approved by Prasa's project manager/technical representative, before final commissioning of the system.

6 TECHNICAL SPECIFICATION

6.1 Specifications For OTDR

6.1.1 SINGLE MODE (SM) OTDR

6.1.2 Wavelength 1310 ±20 / 1550 ±20 / 1625 ±20 nm

6.1.3 Dynamic range 41/40/40 dB

6.1.4 Pulse width 5 ns to 20 μs

6.1.5 Linearity ± 0,03 dB/dB

6.1.6 Sampling resolution from 4cm

6.1.7 Loss resolution 0,001 dB

6.1.8 Loss threshold 0,01 dB

6.1.9 Sampling points up to 256.000

6.1.10 Distance 1,25 to 320 km

6.1.11 Distance accuracy (m) ± (0,75+0,001%xdistance+sampling resolution)

6.1.12 Event dead zone 0,8 m

6.1.13 Attenuation dead zone 4 m.

LEVEL METER

6.1.14 Calibrated wavelengths 1310 / 1490 / 1550 / 1625 nm

6.1.15 Power level +5 to -55 dBm

6.1.16 Accuracy ± 5 %

CW LASER SOURCE

6.1.17 Calibrated wavelengths 1310 / 1550 / 1625 nm

6.1.18 Output power -4,5 dBm

VISUAL FAULT LOCATOR (VFL)

6.1.19 Wavelength ~ 635 nm

6.1.20 Output power 1 mW

GENERAL CHARACTERISTICS

6.1.21 SCREEN

6.1.22 TFT touchscreen at least 6,5 in

6.1.23 Resolution 640 x 480

6.1.24 Visibility under direct sunlight

POWER SUPPLY

6.1.25 Power supply – charger input 100 – 240 VAC 50 – 60 HZ

6.1.26 Rechargeable Li-ion battery with at least 8 hours endurance.

INTERCONNECTIONS

6.1.27 2 USB ports and RJ-45 ethernet port.

MEMORY

6.1.28 Able to store at least 1000 measurement results.

ENVIRONMENTAL

6.1.29 Operation temperature 0 0C to +40 0C

6.1.30 Humidity up to 95% non-condensing.

WEIGHT

6.1.31 Up to 3,5 Kg

6.2 OPTIC FIBRE SPLICING MACHINE

6.2.1 Profile types: single mode and multi-mode.

6.2.2 Cladding diameter: 80 - 150um.

6.2.3 Coating diameter: 100 – 1000um.

6.2.4 Slice time: 5 sec.

6.2.5   Heating time: 9 sec.

6.2.6   Proof test: 1.96 - 2.09N

6.2.7   Splice and heating programs.

6.2.8   Automatic arc calibration.

6.2.9   AC input supply: AC 100 – 240V, 50/60Hz.

6.2.10   DC input supply: DC 10 – 15V.

6.2.11   Battery Pack: Li-ion 10.8V, 6,400mAh

6.2.12   DC output: DC – 12V.

6.2.13   Operating Temperature: -10°C - +50°C.

6.2.14   Size: 128(W) x 154(D) x 130 (H)

6.3   OPTIC FIBRE CLEAVER

Specifications	
Material	Silica Glass
Cladding	Ø 125 um
Fiber count	Single to 12
Cleave Length	5 ˜ 20mm (Ø 0.25) / 10 ˜ 20mm (Ø 0.9)
Cleave Angle	0.5 degrees with single fibre
Off Cut Collector	Option
Single Fibre Adapter	Pre-fitted (AP-FC6M)
Dimensions (mm)	63(W) x 77(D) x 63(H)
Weight	380g
Field replaceable blade	Yes, Use FCP-20BL
Blade life *1	54,000 fibres (2,250 fibres x 24 Positions)

6.3 Power meter

6.3.1 Wavelength Range : 800 – 1700nm

6.3.2 Calibrated Wavelengths   : 850, 980, 1310, 1490, 1550

6.3.3 Measurement Range   : -70 - +10dBm

6.3.4 Operating Temperature   : -25 - +70

6.3.5 Connector Type   : FC/ SC/ ST

7. Bill of Quantity

Item no:	Description	Estimated Qty	Unit	Estimated Unit price	Estimated Total Amount
1.	**REPAIR AND CALIBRATION OF OTDR - OPTICAL TIME DOMAIN REFLECTOMETER**	4	Each	R	R
2.	**REPAIR AND CALIBRATION OF SPLICING MACHINE**	4	Each	R	R
3.	**REPAIRS OF CLEAVERS**	3	Each	R	R
4	**REPAIR AND CALIBRATION OF OPTIC FIBRE POWER METER.**	2	Each	R	R
		Subtotal		**R**	**R**
		Total Amount		**VAT 15% inclusive**	**R**

8. Evaluation Criteria

The evaluation should be done in three stages as follows:

Stage 1: Compliance Requirements

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e.g. Valid Tax Clearance certificate, Company registration documents, Bank rating, security screening

Stage 2: Technical / Functionality Requirements
NOTE: The Technical or Functionality criteria must be guided by the project scope of works and area of focus.

Functionality and Capabilities	Max Points	Points Scored	Minimum Required
Compliance to Technical specification • 100% Compliance with technical specification = 50 points • Non – compliance or Non - Submission = 0 Points **NB!! Provide Item-by-Item Technical Specification** **compliance confirmation letter signed by duly authorized** **persons of the bidding entity.**	50		50*
Company Previous work: Score will be based on successfully executed and completed similar projects on Calibration of equipments. 0: Zero (0)Similar Projects/non-submission/incomplete submission = **0 points** 1: 1 Similar project = **30 points** 2: 2 Similar projects = **50 points** **NB!! The company must be accredited according to SANAS ISO/IEC 17025 and submit certificate of accreditation. Also Submit signed letter of appointment and completion certificate/ letter from your previous work.**	50		30*
GRAND TOTAL	**100**		**80***

Stage 3: Pricing and BBBEE
Pricing

A maximum of 80 points is allocated for price. The evaluation for price will be done based on the following formula:

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where
Ps = Points scored for price of tender under consideration
Pt = Rand value of tender under consideration
Pmin = Rand value of lowest acceptable tender

BBBEE Evaluation

The BBBEE component of evaluation is weighted at 20% of the evaluation criteria.

Bidders will be awarded the following points based on the level of their BBBEE as per their BBBEE Certificate issued by an agency approved by SANAS:

B-BBEE Contribution Level	80:20 Preference System
1	10
2	9
3	8
4	5
5	4
6	3
7	2
8	1
Non-compliant	0