



**Transnet Freight Rail**, a division of

**TRANSNET SOC LTD**

Registration Number 1990/000900/30

[hereinafter referred to as **Transnet**]

**REQUEST FOR QUOTATION [RFO] NO: HOAC-HO- 19412**

**FOR THE SUPPLY OF RADIO COMMUNICATION CABINETS FOR A PERIOD OF THREE MONTHS, REQUIRE TO BE DELIVERED TO VARIOUS LOCATION PLEASE REFER TO ANNEXURE A FOR DELIVERY LOCATIONS;**

**ISSUE DATE: 11 OCTOBER 2015**

**CLOSING DATE: 13 OCTOBER 2015**

**CLOSING TIME: 10H00 am Central African Time**

**"PREVIEW COPY ONLY"**

## Section 1 NOTICE TO BIDDERS

Quotations which must be completed as indicated in Section 2 of this RFQ are to be submitted as follows:

<b>METHOD:</b>	Post, Hand delivery or Courier]
<b>CLOSING VENUE:</b>	21 Wellington Street, Parktown, Ground Floor, Tender Box

### 1 Responses to RFQ

Responses to this RFQ [**Quotations**] must not include documents or reference relating to any other quotation or proposal. Any additional conditions must be embodied in an accompanying letter.

### 2 Broad-Based Black Economic Empowerment [B-BBEE]

Transnet fully endorses and supports the Government's Broad-Based Black Economic Empowerment Programme and it would therefore prefer to do business with local business enterprises who share these same values. As described in more detail in the attached B-BBEE Claim Form Transnet will allow a "preference" to companies who provide a valid B-BBEE Verification Certificate.

The value of this bid is estimated and therefore the **90/10** system shall be applicable. Respondents are required to complete Annexure A [the B-BBEE Preference Point Claim Form] and submit it together with proof of their B-BBEE Status as stipulated in the Claim Form in order to obtain preference points for their B-BBEE status.

**Note: Failure to submit a valid and original B-BBEE certificate or a certified copy thereof at the Closing Date of this RFQ will result in a score of zero being allocated for B-BBEE.**

### 3 Communication

Respondents are warned that a response will be liable for disqualification should any attempt be made by a Respondent either directly or indirectly to canvass any officer(s) or employee of Transnet in respect of this RFQ between the closing date and the date of the award of the business.

A Respondent may, however, before the closing date and time, direct any written enquiries relating to the RFQ to the following Transnet employee:

Name:	Julias Moeti	Email:	Julias.Moeti@transnet.net
Telephone:	011 584 0679		

Respondents may also, at any time after the closing date of the RFQ, communicate with the Secretariat of the Transnet Acquisition Council on any matter relating to its RFQ response:

Telephone	011-544-9486	Email:	Prudence.Nkabinde@transnet.net
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### 4 Legal Compliance

The successful Respondent shall be in full and complete compliance with any and all applicable national and local laws and regulations.

### 5 Changes to Quotations

Changes by the Respondent to its submission will not be considered after the closing date and time.

## 6 Pricing

All prices must be quoted in South African Rand on a fixed price basis, excluding VAT.

### **PLEASE REFER TO BELOW PRICING TERMS**

**Supplier must quote for all items listed in the pricing schedule' FAILURE to quote for an item will lead to qualification.**

## 7 Prices Subject to Confirmation

Prices quoted which are subject to confirmation will not be considered.

## 8 Binding Offer

Any Quotation furnished pursuant to this Request shall be deemed to be an offer. Any exceptions to this statement must be clearly and specifically indicated.

## 9 Disclaimers

Transnet is not committed to any course of action as a result of its issuance of this RFQ and/or its receipt of a Quotation in response to it. Please note that Transnet reserves the right to:

- modify the RFQ's goods / service(s) and request Respondents to re-bid on any changes;
- reject any Quotation which does not conform to instructions and specifications which are detailed herein;
- disqualify Quotations submitted after the stated submission deadline;
- not necessarily accept the lowest priced Quotation or an alternative bid;
- reject all Quotations, if it so decides;
- place an order in connection with this Quotation at any time after the RFQ's closing date;
- award only a portion of the proposed goods / service/s which are reflected in the scope of this RFQ;
- split the award of the order/s between more than one Supplier/Service Provider should it at Transnet's discretion be more advantageous in terms of, amongst others, cost or developmental considerations ;
- or
- make no award at all.

Should a contract be awarded on the strength of information furnished by the Respondent, which after conclusion of the contract, is proved to have been incorrect, Transnet reserves the right to cancel the contract.

Transnet reserves the right to award business to the highest scoring bidder/s unless objective criteria justify the award to another bidder.

Transnet reserves the right to conduct Post Tender Negotiations (PTN) with selected Respondents or any number of short-listed Respondents, such PTN to include, at Transnet's discretion, any evaluation criteria listed in the RFQ document.

Should the preferred bidder fail to sign or commence with the contract within a reasonable period after being requested to do so, Transnet reserves the right to award the business to the next highest ranked bidder, provided that he/she is still prepared to provide the required goods at the quoted price.

Transnet reserves the right to lower the threshold for Technical from 70% to 65% if no Bidders pass the predetermined minimum threshold.

**10 Specification/Scope of Work**

Please reference to the below:

**BBF1026 (GENERIC EQUIPMENT CABINET SPECIFICATION)**

**BBG4664 (SPECIFICATION FOR NODE CABINET EQUIPMENT)**

**BBG6152 (TRUNK NODE EQUIPMENT ACCESSORIES)**

**BBG5461 (EPROM ERASER)**

**BBG4870 UNIVERSAL PROGRAMMER (FUNCTIONAL SPECIFICATION)**

**Transnet urges its clients, suppliers and the general public to report any fraud or corruption to**

**TIP-OFFS ANONYMOUS 0800 907 056**

**"PREVIEW COPY ONLY"**

**Document**

**RFQ FOR THE SUPPLY OF RADIO COMMUNICATION CABINETS**  
**CLOSING VENUE: 21 WELLINGTON STREET, PARKTOWN**  
**CLOSING DATE & TIME: 06<sup>TH</sup> OCTOBER 2015, 10H00 am**  
**VALIDITY PERIOD: 90 Business Days**

**SECTION 2**

**EVALUATION CRITERIA AND RETURNABLE DOCUMENTS**

**1 EVALUATION CRITERIA**

**2 TRANSNET WILL UTILISE THE FOLLOWING CRITERIA [NOT NECESSARILY IN THIS ORDER] IN CHOOSING A SUPPLIER/SERVICE PROVIDER, IF SO REQUIRED:**

Criterion/Criteria	Explanation
<b>Administrative responsiveness</b>	Completeness of response and returnable documents
<b>Substantive responsiveness</b>	<p><b>MANDATORY RETURNABLE DOCUMENTATION</b>  <b>TECHNICAL SUBMISSION" FAILURE TO SUBMIT WILL RESULTED DISQUALIFICATION</b></p> <p><b>BBF1026 (GENERIC EQUIPMENT CABINET SPECIFICATION)</b>  <b>BBG4664 (SPECIFICATION FOR NODE CABINET EQUIPMENT)</b>  <b>BBG6452 (TRUNK NODE EQUIPMENT ACCESSORIES)</b>  <b>BBG5461 (EPROM ERASER)</b>  <b>BBG54870 UNIVERSAL PROGRAMMER (FUNCTIONAL SPECIFICATION)</b></p> <p>i. Drawings/ diagrams, Datasheet and Specifications of the items that will be offered;                      ii. A detailed delivery Schedule;                      iii. A list of references from similar work undertaken;</p>
<b>Functionality threshold</b>	As prescribed in terms of the Preferential Procurement Policy Framework Act (PPPFA), Act 5 of 2000 and its Regulations, Respondents are to note that functionality is included as a threshold with a prescribed percentage threshold of 70%. Compliance to specification / quality, previous performance, delivery lead-time will be considered as part of the technical evaluation.
<b>Final weighted evaluation based on 90/10 preference point</b>	<ul style="list-style-type: none"> <li>• Pricing and price basis [firm]</li> <li>• B-BBEE status of company - Preference points will be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table indicated in Annexure A: B-BBEE Claim Form.</li> </ul>

**3 Validity Period**

Transnet desires a validity period of 90 [thirty] Business Days from the closing date of this RFQ.

This RFQ is valid until 06 January 2016

Respondent's Signature

Date & Company Stamp

**Document**

**4 Disclosure of Prices Quoted**

Respondents must indicate here whether Transnet may disclose their quoted prices and conditions to other Respondents:

YES  NO

**5 Returnable Documents Mandatory documents, failure to submit will result in disqualification'**

- BBF1026 (GENERIC EQUIPMENT CABINET SPECIFICATION)**
- BBG4664 (SPECIFICATION FOR NODE CABINET EQUIPMENT)**
- BBG6152 (TRUNK NODE EQUIPMENT ACCESSORIES)**
- BBG5461 (EPROM ERASER)**
- BBG4870 UNIVERSAL PROGRAMMER (FUNCTIONAL SPECIFICATION)**

- i. Drawings/ diagrams, Datasheet and Specifications of the items that will be offered;**
- ii. A detailed delivery Schedule;**
- iii. A list of references from similar work undertaken;**

**Returnable Documents** means all the documents, Sections and Annexures, as listed in the tables below.

**All Returnable Sections, as indicated in the header and footer of the relevant pages, must be signed, stamped and dated by the Respondent.**

a) Respondents are required to submit with their Quotations the **mandatory Returnable Documents**, as detailed below.

*Failure to provide all these Mandatory Returnable Documents at the Closing Date and time of this RFQ will result in a Respondent's disqualification. Respondents are therefore urged to ensure that all these Documents are returned with their Quotations.*

Respondents confirm submission of these mandatory Returnable Documents by so indicating [Yes or No] in the tables below:

Mandatory Returnable Documents	Submitted [Yes or No]
SECTION 3 : Quotation Form (PRICE)	
Technical Compliance Drawing/ diagrams, Datasheets and Specifications of the items that will be offered A list of references from similar work undertaken <b>BBF1026 (GENERIC EQUIPMENT CABINET SPECIFICATION)</b> <b>BBG4664 (SPECIFICATION FOR NODE CABINET EQUIPMENT)</b> <b>BBG6152 (TRUNK NODE EQUIPMENT ACCESSORIES)</b> <b>BBG5461 (EPROM ERASER)</b> <b>BBG4870 UNIVERSAL PROGRAMMER (FUNCTIONAL SPECIFICATION)</b>	

**Document**

Mandatory Returnable Documents	Submitted [Yes or No]

b) In addition to the requirements of section (a) above, Respondents are further required to submit with their Quotations the following **essential Returnable Documents** as detailed below.

***Failure to provide all these Returnable Documents may result in a Respondent's disqualification. Respondents are therefore urged to ensure that all these documents are returned with their Quotations.***

Essential Returnable Documents	Submitted [Yes or No]
SECTION 2 : Evaluation criteria and list of returnable documents	
- SECTION 4 : RFQ Declaration and Breach of Law Form	
- Valid and original, or a certified copy, of your entity's B-BBEE Verification Certification as per the requirements stipulated in Annexure A: B-BBEE Claims Form Note: failure to provide these required documents at the closing date and time of the RFQ will result in an automatic score of zero being allocated for preference	
- Original valid Tax Clearance Certificate [Constituted / Joint Ventures must submit a separate Tax Clearance Certificate for each party]	

**CONTINUED VALIDITY OF RETURNABLE DOCUMENTS**

The successful Respondent will be required to ensure the validity of all returnable documents, including but not limited to its Tax Clearance Certificate and valid B-BBEE Verification Certificate, for the duration of any contract emanating from this RFQ. Should the Respondent be awarded the contract [**the Agreement**] and fail to present Transnet with such renewals as and when they become due, Transnet shall be entitled, in addition to any other rights and remedies that it may have in terms of the eventual Agreement, to terminate such Agreement forthwith without any liability and without prejudice to any claims which Transnet may have for damages against the Respondent.

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\_\_\_\_\_  
Respondent's Signature

\_\_\_\_\_  
Date & Company Stamp

**Document**

**SECTION 3  
QUOTATION FORM**

I/We \_\_\_\_\_  
hereby offer to supply the goods/services at the prices quoted in the Price Schedule below, in accordance with the conditions related thereto.

I/We agree to be bound by those terms and conditions in:

- the Standard RFQ Terms and Conditions for the Supply of Goods or Services to Transnet; and
- any other standard or special conditions mentioned and/or embodied in this Request for Quotation.

I/We accept that unless Transnet should otherwise decide and so inform me/us, this Quotation [and, if any, its covering letter and any subsequent exchange of correspondence], together with Transnet's acceptance thereof shall constitute a binding contract between Transnet and me/us.

I/We further agree that if, after I/we have been notified of the acceptance of my/our Quotation, I/we fail to deliver the said goods/service/s within the delivery lead-time quoted, Transnet may, without prejudice to any other legal remedy which it may have, cancel the order and recover from me/us any expenses incurred by Transnet in calling for Quotations, as well as and/or having to accept any less favourable offer.

**Price Schedule**

I/We quote as follows for the goods required, on a "delivered nominated destination" basis, excluding VAT: **PLEASE REFER TO ANNEXTURE A**

**PLEASE REFER TO BELOW PRICING TERMS**

**Supplier must quote for all items listed in the pricing schedule' FAILURE to quote for an item will lead to disqualification.**

Delivery Lead-Time from date of purchase order: \_\_\_\_\_ [days/weeks]

**Notes to Pricing:**

- a) All Prices must be quoted in South African Rand, exclusive of VAT
- b) To facilitate like-for-like comparison bidders must submit pricing strictly in accordance with this price schedule and not utilise a different format. Deviation from this pricing schedule could result in a bid being disqualified.

Please note that should you have offered a discounted price(s), Transnet will only consider such price discount(s) in the final evaluation stage if offered on an unconditional basis.

**By signing this Quotation Form the Respondent is deemed to acknowledge that he/she has made himself/herself thoroughly familiar, and agrees, with all the conditions governing this RFQ, including those contained in any printed form stated to form part hereof, including but not limited to the documents stated below and Transnet SOC Ltd will recognise no claim for relief based on an allegation that the Respondent overlooked any such condition or failed properly to take it into account for the purpose of calculating tendered prices or otherwise:**

\_\_\_\_\_  
Respondent's Signature

\_\_\_\_\_  
Date & Company Stamp



**Document**

1. Specifications and drawings included in this RFQ - if applicable; and
2. The following documents all of which are available on Transnet's website or upon request:
  - 2.1. General Bid Conditions;
  - 2.2. Standard RFQ Terms and Conditions for the Supply of Goods or Services to Transnet;
  - 2.3. Supplier Integrity Pact;
  - 2.4. Non-disclosure Agreement; and
  - 2.5. Vendor Application Form and all supporting documents (first time vendors only)Alternatively, for all existing vendors, please provide vendor number(s) here:

Transnet Operating Division	Unique Vendor Number	Yes / No
Transnet Group		
TFR, etc.		

In the Yes/No column above, please confirm that all the information e.g. company address and contact details, banking details etc. are still correct as at the time of allocation of the vendor number(s). Alternatively, Respondents are required to provide the updated information with their bid submission.

SIGNED at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 2015

SIGNATURE OF WITNESSES

ADDRESS OF WITNESSES

1 \_\_\_\_\_  
Name \_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_  
Name \_\_\_\_\_

\_\_\_\_\_

SIGNATURE OF RESPONDENT'S AUTHORISED REPRESENTATIVE: \_\_\_\_\_

NAME: \_\_\_\_\_

DESIGNATION: \_\_\_\_\_

\_\_\_\_\_  
Respondent's Signature

\_\_\_\_\_  
Date & Company Stamp

Document

SECTION 4

RFQ DECLARATION AND BREACH OF LAW FORM

NAME OF ENTITY: \_\_\_\_\_

We \_\_\_\_\_ do hereby certify that:

1. Transnet has supplied and we have received appropriate responses to any/all questions [as applicable] which were submitted by ourselves for RFQ Clarification purposes;
2. we have received all information we deemed necessary for the completion of this Request for Quotation [RFQ];
3. we have been provided with sufficient access to the existing Transnet facilities/sites and any and all relevant information relevant to the Supply of the Goods as well as Transnet information and Employees, and has had sufficient time in which to conduct and perform a thorough due diligence of Transnet's operations and business requirements and assets used by Transnet. Transnet will therefore not consider or permit any pre- or post-contract verification or any related adjustment to pricing, service level or any other provisions/conditions based on any incorrect assumptions made by the Respondent in arriving at his Bid Price.
4. at no stage have we received additional information relating to the subject matter of this RFQ from Transnet sources, other than information formally received from the designated Transnet contact(s) as nominated in the RFQ documents;
5. we are satisfied, insofar as our entity is concerned, that the processes and procedures adopted by Transnet in issuing this RFQ and the requirements requested from Bidders in responding to this RFQ have been conducted in a fair and transparent manner; and
6. furthermore, we declare that a family, business and/or social relationship **exists / does not exist** [delete as applicable] between an owner / member / director / partner / shareholder of our entity and an employee or board member of the Transnet Group including any person who may be involved in the evaluation and/or adjudication of this Bid.
7. In addition, we declare that an owner / member / director / partner / shareholder of our entity **is / is not** [delete as applicable] an employee or board member of the Transnet Group.
8. If such a relationship as indicated in paragraph 6 and/or 7 exists, the Respondent is to complete the following section:

FULL NAME OF OWNER/MEMBER/DIRECTOR/  
PARTNER/SHAREHOLDER:

ADDRESS:

\_\_\_\_\_  
\_\_\_\_\_

Indicate nature of relationship with Transnet:

\_\_\_\_\_  
\_\_\_\_\_

**Document**

*[Failure to furnish complete and accurate information in this regard will lead to the disqualification of a response and may preclude a Respondent from doing future business with Transnet]*

9. We declare, to the extent that we are aware or become aware of any relationship between ourselves and Transnet [other than any existing and appropriate business relationship with Transnet] which could unfairly advantage our entity in the forthcoming adjudication process, we shall notify Transnet immediately in writing of such circumstances.

**BREACH OF LAW**

10. We further hereby certify that I/we **have/have not been** [delete as applicable] found guilty during the preceding 5 [five] years of a serious breach of law, including but not limited to a breach of the Competition Act, 89 of 1998, by a court of law, tribunal or other administrative body. The type of breach that the Respondent is required to disclose excludes relatively minor offences or misdemeanours, e.g. traffic offences. This includes the imposition of an administrative fine or penalty.

Where found guilty of such a serious breach, please disclose:

NATURE OF BREACH:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE OF BREACH: \_\_\_\_\_

Furthermore, I/we acknowledge that Transnet SOC Ltd reserves the right to exclude any Respondent from the bidding process, should that person or entity have been found guilty of a serious breach of law, tribunal or regulatory obligation.

SIGNED at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_

For and on behalf of _____	AS WITNESS:
duly authorised hereto	
Name:	Name:
Position:	Position:
Signature:	Signature:
Date:	Registration No of Company/CC _____
Place:	Registration Name of Company/CC _____

## Annexure A: Pricing Schedule – Node Cabinets

Items	Description	Quantity	Unit Price	Total (Excl. VAT)
	<b>Cabinets:</b>			
1.	47U Cabinet - 19" 600 X 800 Radio cabinet with Accessories :Grey Colour	1		
2.	19U Cabinet - 19" 600 X 800 Radio cabinet with Accessories :Grey Colour	16		
3.	38U Cabinet - 19" 600 X 800 Radio cabinet with Accessories :Grey Colour	13		
4.	1U - 19" Vented Plates: Grey Colour	100		
5.	1U - 19" Mounted brush panels: Grey Colour	40		
6.	1U – 19" 16 way RJ 45 mount panel: Grey Colour	42		
7.	2U - 19" Storage drawer unit with a handle	10		
8.	3U - Vented Plate: Grey Colour	10		
9.	1U - Pull out drawer with a handle (to place a Laptop)	10		
10.	2U - Modem tray fitted into the cabinet (330mm deep)	10		
11.	Finger Trunking (40mm height X 40mm width X 2M length) (Grey)	40		
12.	M6 Cage Nuts (100 x per pack)	4700		
13.	Phillips Drive Screws (100 x per pack)	4700		
14.	Black Cup Washers (100 x per pack)	4700		
	<b>Internal Cable Trays:</b>			
15.	Mesh Cable Tray, Alderson GS75 (300mm wide X 3m long) with suspending wires fitted to secure cables to the ceiling	26		
16.	GS splice clamp	360		
17.	GS hold down bracket	360		
18.	M8 Ring Nut	200		
19.	OL4000 Channel 5m length	50		

20.	M10 galvanised Threaded rod (3 m long)	100		
21.	M10 Galvanised washers (100 per pack)	1000		
22.	M10 Galvanised hex nuts (100 per pack)	1000		
23.	Copper Strips (25mm width X 3m length)	2		
	<b>Cable Rack Bends:</b>			
24.	Cable Rack Bend - 90° Horizontal Bend (Curved)	36		
25.	Cable Rack Bend - 90° Vertical Outside Bend (Curve)	24		
26.	<b>Krone Tools &amp; Accessories:</b>			
27.	Krone tools (Sensor Insertion Tool)	10		
28.	Krone disconnect blocks (10 pair disconnect module)	620		
29.	Krone 19" Rack panel 16 way	3		
30.	47U Cabinet - 19" 600 X 800 cabinet with 19" Krone Rack panel: Grey Colour Note: The 47U Cabinet must come fitted with the 19" Krone rack panel to accommodate the minimum of 100 Krone Blocks.	5		
31.	Krone Hinged label holder 2/10	20		
32.	Krone Test Cord 2/2 both ends (2m)	2		
33.	Krone Test Cord 2/4 both ends (2m)	2		
34.	Krone Test Cord 2/4 with Two banana plugs (2m)	2		
35.	Krone Test Cord 2/4 with Four banana plugs (2m)	2		
36.	Krone Test Cord 2/4 with two banana plugs (2m)	2		
37.	Krone Highband 10 Patch Panel with Two pairs to RJ45 (3m)	2		
38.	Krone disconnect Plug (Red)	10		
39.	EPROM Programmer and Eraser	3		

40.	<b>UTP Cables &amp; Connectors:</b>		
41.	UTP CAT 6 Cable (500m)	12	
42.	20 Pair Indoor Cable (200m)	12	
43.	100 Pair Indoor Cable (200m)	12	
44.	DB9 Female Connector	24	
45.	DB9 Male Connector	216	
46.	DB25Female Connector	36	
47.	DB25 Male Connector	144	
48.	DB9 Female Covers, Shielded	24	
49.	DB9 Male Covers, Shielded	216	
50.	DB25 Female Covers, Shielded	36	
51.	DB25 Male Covers, Shielded	144	
52.	RJ45 Connectors CAT 6	1664	
53.	RJ45 Connector Boots (Red, Yellow, Blue and Green) Note: RJ45 connector boots must be supplied in four (4) different colours (Red = 416, Green = 416, Blue = 416 and Yellow = 416)	1664	
54.	16mm Green/ Yellow Stranded Wire (2m)	12	
55.	25mm Mains Cable (50m)	12	
56.	100mm Cable Ties (200 per pack)	2400	
57.	150mm Cable Ties (200 per pack)	2400	
58.	200mm Cable Ties (200 per pack)	2400	
59.	Cable Ties (RJ9, 11, 12,45)	24	
60.	Cable Labelling Machine (Brady BMP 21-Plus Telecom Printer Kit)	11	
61.	Polyester Strips for component marking, Black on white (9,53mm Width & 6.4m Length), compatible with label machine in item 58.	24	

62.	Heat Shrink Wire and Cable Markers, Black on White (16,4mm width, 2.1m Length, 3.18mm Minimum wire diameter & 8.13 mm Maximum wire diameter), compatible with label machine in item 58.	24		
63.	Heat Shrink Wire and Cable Markers, Black on Yellow (16,4mm width, 2.1m Length, 3.18mm Minimum wire diameters & 8,13 mm Maximum wire diameter), compatible with label machine in Item 58.	24		
64.	Self-laminating wire & Cable Wraps Black on White (38,1mm width, 4.3m Length, 12.7mm Printable area width & 8.1 mm Maximum wire diameter) , compatible with label machine in item 58.	24		
65.	Wire and cable wraps Black on White (12.7 mm Width & 4.9m Length) , compatible with label machine in Item 58.	24		
66.	Indoor / Outdoor vinyl for marking, Black on Orange (19.05 mm Width & 6.4m Length), compatible with label machine in Item 58.	24		
67.	Earth Static Band.	24		
68.	Telephone Handsets	89		
69.	<b>Delivery Cost:</b>			
70.	i. Pretoria – 1 x 47U	1		
	ii. Johannesburg – 3 x 47U	3		
	iii. Standerton – 1 x 47U	1		
	iv. Sentrarrand – 1 x 47U	1		
	v. Newcastle – 1 x 47U	1		
	vi. Ladysmith – 1 x 47U	1		
	vii. Durban – 2 x 47U	2		
	viii. Pietermaritzburg – 1 x 47U	1		
	ix. Richards Bay – 1 x 47U	1		
	x. Ermelo – 1 x 47U	1		
	xi. Tzaneen – 1 x 19U	1		
	xii. Richards Bay – 1 x 19U and 1 x 38U	2		
	xiii. Ermelo – 1 x 19U	1		
	xiv. Johannesburg – 16 x 19U	16		
	xv. Durban – 6 x 38U	6		
	xvi. Ladysmith – 1 x 19U	1		

xvii.	Newcastle	- 1 x 19U	1	
xviii.	Standerton	- 1 x 19U	1	
xix.	Port Elizabeth	- 2 x 19U	2	
xx.	East London	- 1 x 38U	1	
xxi.	Kimberly	- 2 x 19U and 2 x 38U	4	
xxii.	Bloemfontein	- 7 x 19U and 2 x 38U	9	
xxiii.	Beaufort West	- 3 x 19U	3	
xxiv.	Beaufort West	- 1 x 38U	1	
<b>Total</b>				

**Notes to Pricing Schedule – Node Cabinets (Annexure A1.1):**

**A.** Suppliers shall "quote for all items listed in this pricing schedule". Failure to quote for an item will lead to disqualification.

**B. Equipment Distribution**

- i. There shall be an equal distribution of the material to the areas where the 47U Cabinets are required; the material shall be packaged inside the 47U cabinets.
- ii. TFR will advise before delivery of the area where excess material will be delivered.

**C. 38U Cabinet Specification**

- i. The 38U (19") cabinet specification shall be used to build the 19U (19") cabinet.
- ii. In clause 7 of *BBF1026* only clause 7.9 will be applicable for the 19U and 38U cabinets.

**D. The following information shall be submitted with the tender bids:**

- i. Drawings, diagrams, data sheets and Specifications of the items that will be offered;
- ii. A detailed delivery schedule;
- iii. A list of references from similar work undertaken;





**TRANSNET**  
freight rail

**RAIL NETWORK TELECOMMUNICATIONS  
SPECIFICATION**

**TRUNK NODE EQUIPMENT ACCESSORIES**

FUNCTION	TITLE & DIVISION	NAME	SIGNATURE
Author:	Chief Engineering Technician, Network Engineering Radio Planning	Noma Mabiso Mayoli	
Reviewed:	Senior Engineer, Network Engineering Radio Planning	Muhumbulo Mmbengwa	
Approved:	Principal Engineer, Network Engineering	Mlindi Mashologu	

Date: 16/09/2015

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## I. DISTRIBUTION

Once updated, a copy of the latest revision will be published in the document management system in use. E-mail to this effect will be sent to the relevant personnel or heads of department.

## II. DOCUMENT CHANGE HISTORY

ISSUE NO.	DATE ISSUED	ISSUED BY	HISTORY DESCRIPTION
1.00	16 September 2015	Nomaxabiso Mayoli	New document

## III. ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
m	Metre
mm	Millimetre
cm	Centimetre
PVC	Polyvinyl chloride
Kg	Kilogram
LED	Light Emitting Diode
LCD	Light Crystal Display
DTMF	Dial Tone Multi Frequency
Ω	Ohm
°C	Celsius
°	Degrees
%	Percent
-	Minus



## 1. INTRODUCTION

- 1.1. This document is a specification for accessories for a Trunk node.
- 1.2. The accessories included within this specification are: indoor cable duct, internal cable tray, cable labelling machine, telephone handset, insertion tool and a Wrist Earth Static Band.
- 1.3. The quantities of the equipment needed for a tender will be specified on the schedule of requirements.

## 2. OPERATING CONDITIONS

- 2.1. The equipment offered must be suitable for continuous operation under the following conditions:

Ambient temperature	: -5° to 60° Celsius.
Relative humidity	: As high as 95 %.
Altitude	: Up to 2 000 metres.

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### 3. CABLE DUCT

#### 3.1. Main Features

- 3.1.1. Thickness: With appropriate temperature and accurate molds.
- 3.1.2. Hardness: Under pressure ability, high impact resistance.
- 3.1.3. Fire-resistance: Flame-retardant steel resin, highly combustion-retardant, quickly self-extinguishing.
- 3.1.4. Corrosion resistance: moisture, acid and alkali resistance, assuring a lower maintenance cost and a longer performance life. Making it suitable for some environment with high corrosion.
- 3.1.5. Installation: easy to open and close, convenient push-pull, installed with solvent cementing and threading joining.
- 3.1.6. Nonconductive: excellent electricity insulation, which resist voltage, assuring a safe system.
- 3.1.7. Suitable for any environment that needs to be closed.
- 3.1.8. Steel material used should be galvanised.

#### 3.2. Technical Specification

- 3.2.1. Unless specified in the Schedule of requirements the dimensions on Table 1 are to be taken into consideration.

Dimensions

Side Height mm	Width mm	Plate Thickness mm	Length mm	Weight Kg/100m
20.6	41.3	1.6	5000	120.800

Table 1: Dimensions

- 2.1.1. Figure 1 gives an indication of (a) Type of Duct, (b) Guide for Dimensions.

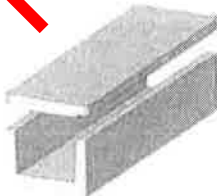


Figure 1 (a): Duct Type

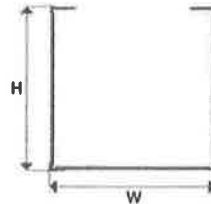


Figure 1(b): Dimension Guide



#### 4. CABLE LABELLING MACHINE AND ACCESSORIES

##### 4.1. Main Features

- 4.1.1. One-touch keys – quickly access font sizes, styles, frames and patterns.
- 4.1.2. Portable, handheld design - perfect for "on-the-go" use.
- 4.1.3. Cable labelling feature to organize wires and cables.
- 4.1.4. Laminated tapes – great for indoor or outdoor use.
- 4.1.5. Easy-access memory, store up the last label.
- 4.1.6. Print 1 or 2 lines of text.
- 4.1.7. Label fast using one of the decorative, pre-formatted label designs.
- 4.1.8. Operates on Rechargeable batteries.
- 4.1.9. Label grabber holds label after cutting.
- 4.1.10. Automatic-label formatting for wire wraps, patch panels, terminal-blocks, cable flags and general banner labels.
- 4.1.11. Label grabber holds label after cutting.

##### 4.2. Hardware Features

Type	Handheld
Tape Sizes	As specified in the Schedule of requirements
Tape Widths	0.25" to 0.75"
Tape Types	Standard Laminated, Flexible ID, Extra Strength Adhesive, Tamper-Evident, Iron-on Fabric, Acid Free
Display	LCD display
Backlight	Yes
Keyboard	Rubber ABCD
Cutter	Manual
Power supply	AC Adapter (220 VAC 60 Hz input)
Batteries	Rechargeable type of batteries
Handle	No - adjustable wrist/neck strap

Table 2



**4.3. Software Features**

Font Sizes	Auto ,( 6 to 40 point)
Font Styles	Normal, Bold, Outline, Italic, Italic Bold, Italic Outline
Built-in Symbols	100 plus Symbols for Electric, Safety and Datacom
Multi-Block	Yes
Label Length Setting	Yes
Auto Incrementation	alpha/numeric
Horizontal Alignment	Left, Center, Right, Justified
Vertical Printing	Yes
Mirror Printing	Yes
Rotate Printing	Yes
Text Insert	Yes
Text Framing/Fill Pattern	Yes
Multi line print	Yes
Memory	Last Label and Favourites

Table 3

**4.4. Accessories**

Carrying Case	Hard Case with enough space for Cartridges
Hands-free	Retractable stand and or Heavy duty magnet for hands-free printing.
Label Cartridges	<ul style="list-style-type: none"> <li>• Polyester Labels for Component Marking</li> <li>• Nylon and vinyl Adhesive Strips for Patch Panels</li> <li>• Self-Laminating Labels for Wire and Cable Wraps</li> <li>• Heat shrink Labels for Wire and Cable Markers</li> </ul>

Table 4





## 5. TELEPHONE HANDSET

### 5.1. Main Features

- Wall Mount Corded Telephone Handset-sleek, slim phone with large button keypad features
- Corded phone with adjustable handset volume
- Flash button
- Tone /Pulse Switchable
- Incoming Ringer Volume Control

### 5.2. Technical Specification

- 10 speed dial entries
- Last number redial
- Recall key
- third-party conference
- Alphanumeric keypad with flash button and mute LED indicator
- Wall mountable phone with long cord of 0.40 to 3 meters, easy installation and operation, pulse dialling, DTMF
- Plug and play installation, pause key, visual signal for incoming calls

### 5.3. Accessories

- Detachable Coil Cord
- Detachable Line Cord



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## 6. INSERTION TOOL AND ACCESSORIES

### 6.1. Disconnect Module

- 6.1.1. The modules offered will come in a 10 pair disconnect module as shown in Figure 2 below.
- 6.1.2. The module must have a minimum of 3 point protection elements.
- 6.1.3. The module must be made from durable plastic that is resistant to a PVC softer, white coloured.
- 6.1.4. The contact shall be made of brass and silver plated.
- 6.1.5. The contact resistance should be less than 3 m $\Omega$ .
- 6.1.6. The insulation resistance must be greater than 50 G $\Omega$ .
- 6.1.7. The current carrying capacity of the contacts should be 2A maximum.
- 6.1.8. The conductor diameter for connected cables should be 0.5 to 0.8 mm.

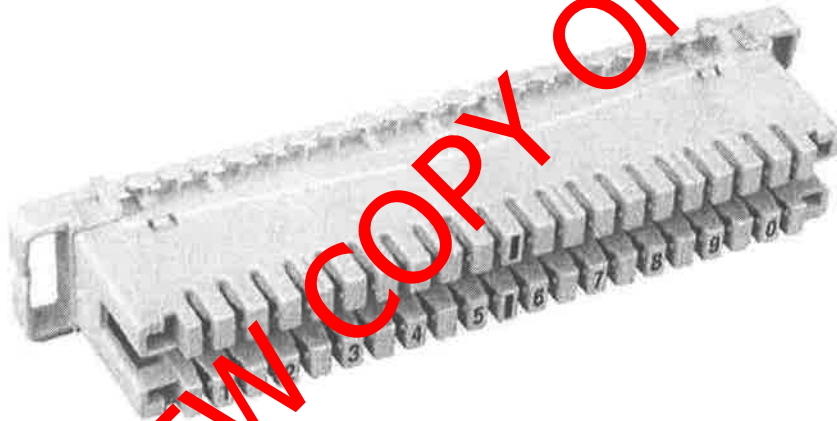


Figure 2: Insertion Disconnect Block

### 6.2. Back Mount Frame

- 6.2.1. The frame must be made for installation on a 19 inch rack
- 6.2.2. The frame must be able to host 18 insertion disconnect modules as shown by the example on Figure 3 below.
- 6.2.3. The frame must be made of stainless steel

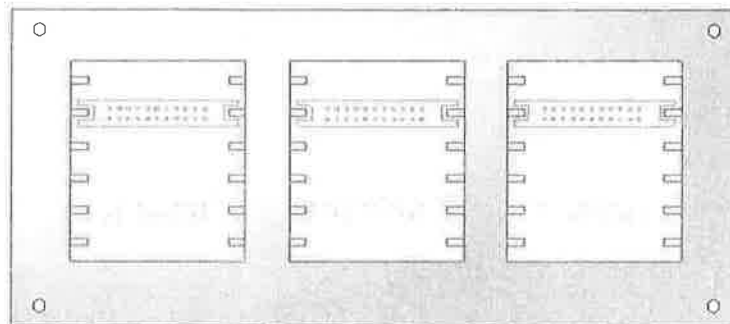


Figure 3: Example of Frame



### 6.3. Insertion tool

- 6.3.1. The insertion tool will be designed for terminations of conductors that are 0.35 to 0.9mm in diameter. The insulation diameter of the conductors must be between 0.7 to 2.6mm.
- 6.3.2. The must be a blade and an extraction hook as part of the tool.
- 6.3.3. The tool must contain a pair of scissors for cable cutting.
- 6.3.4. A wire end-position detector can be provided (optional).
- 6.3.5. The service life should be at least guided by the following.

Wire diameter(mm)	Number of connections
0.4	200 000
0.6	100 000
0.9	40 000



Figure 4: Example of an Insertion Tool

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## 7. INTERNAL CABLE TRAY

### 7.1. Wire Mesh

- 7.1.1. The wire mesh must be made from stainless steel material.
- 7.1.2. The wire mesh must be welded and have the following dimensions(as shown in Figure 5):
  - 7.1.2.1. Height: 50mm
  - 7.1.2.2. Width: 300mm
  - 7.1.2.3. Wire Diameter: 5mm
- 7.1.3. The mesh should be easily cut and configured according to requirements.
- 7.1.4. The cable tray must enable load bearing capability as well as protection of the cabling.
- 7.1.5. The tray must support floor, wall and ceiling installations.
- 7.1.6. The mesh wire tray must be shaped to enable a large surface area contact with the cable.

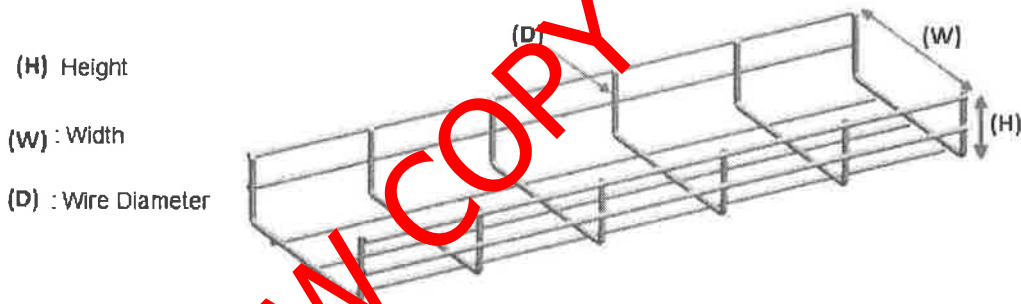


Figure 5: Wire Mesh Cable Tray

### 7.2. Accessories

- 7.2.1. The cable tray must come with all needed accessories.
- 7.2.2. Supports for the tray must every 1.5m must be included.
- 7.2.3. Brackets, splices, supports, cable separates must all be provided according to the requirements.



## 8. WRIST EARTH STATIC BAND

### 8.1. The wrist band

- 8.1.1. The band must be a strap on material with a metal stainless steel interior.
- 8.1.2. A heavy duty conductive elastic band must be used.
- 8.1.3. The band must be flexible and not cause pinching and pulling of hair.
- 8.1.4. The band should be adjustable to ensure it fits to different sizes.
- 8.1.5. The weight of the band should be maximum 35 grams.
- 8.1.6. A durable 4 mm snap stud must be provided.

### 8.2. The cord

- 8.2.1. The length of the cord when extended should be minimum 3.5 metres. The total length when not extended should be 81 cm and the fold length should be 81 cm as shown by Figure 6 below.
- 8.2.2. The resistor for the cord should have 1 mega ohm resistance
- 8.2.3. The snap should be a 4 mm medical grade
- 8.2.4. The colour should preferably black
- 8.2.5. The cord must have markings containing the resistance
- 8.2.6. The other end of the cord must have a spinning and stainless steel banana plug.

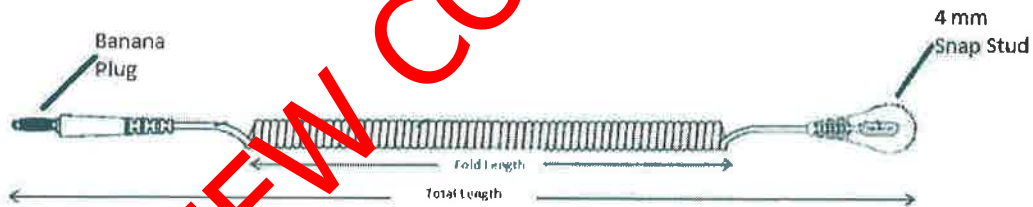


Figure 6: Wrist Bands Cord

### 8.3. Crocodile clip

- 8.3.1. The clip must connect with the banana plug of the cord.
- 8.3.2. The length of the crocodile clip should be less than 40 mm.
- 8.3.3. The jaw of the clip must open for a maximum length of 5 mm
- 8.3.4. The material used for the clip must be stainless steel (must be rust proof)



Figure 7: Crocodile Clip

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**RAIL NETWORK  
TELECOMMUNICATION  
FUNCTIONAL SPECIFICATION**

**UNIVERSAL PROGRAMMER**

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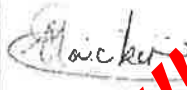


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**I Document Authorisation**

FUNCTION	NAME	TITLE & DIVISION	SIGNATURE	DATE
Compiled by :	Prem Naicker	Chief Engineering Technician Radio, Rail Network, Telecommunication		22/05/2015
Approved by:	Graeme Daly	Divisional Manager Radio, Rail Network, Telecommunication		31 Aug 2015
Authorised by :	Andrew Matseke	Chief Engineer Rail Network, Telecommunication		2015-08-31

**II Distribution**

Once updated, a copy of the latest revision will be published on the document management system, "Project Wise".

**III Document Change History**

ISSUE NO.	DATE ISSUED	ISSUED BY	HISTORY DESCRIPTION
1.00	April 2015	Prem Naicker	New Document

**IV Changes Since Last Revision**

CLAUSES	DESCRIPTION



**V Abbreviations, acronyms and definitions**

The following abbreviations and definitions will apply for the purpose of this functional specification:

<b>ABBREVIATIONS AND ACRONYMS</b>	<b>DESCRIPTION</b>
<b>CMOS</b>	Complementary metal-oxide-semiconductor
<b>DIL</b>	Dual in-line package
<b>EEPROM</b>	Electrically Erasable Programmable Read-Only Memory
<b>EPROM</b>	Erasable programmable read only memory
<b>ESD</b>	Electrostatic discharge
<b>ISP</b>	In-system programming
<b>MS</b>	Microsoft
<b>NMOS</b>	Negative-channel metal-oxide semiconductor
<b>PC</b>	Personal Computer
<b>PSU</b>	Power Supply Unit
<b>PIC</b>	Peripheral Interface Controller
<b>USB</b>	Universal Serial Bus
<b>ZIF</b>	Zero insertion force

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## Universal Programmer

### 1.0 Introduction

- 1.1 This specification covers the requirements of Transnet for the supply of a universal programmer.

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## 2.0 COMPLIANCE

- 2.1 Tenderers must indicate clause by clause, either that their offers comply in every respect with this specification, or, if not, precisely how they differ.
- 2.2 Failure to complete a clause-by-clause compliance in the mentioned manner will result in disqualification.
- 2.3 Offers which include deviations of a minor nature, not departing greatly from the specification, will be considered at the discretion of Transnet.
- 2.4 Tenderers may offer alternatives for consideration. Alternative offers are to be reflected on a separate schedule and the following particulars are to be provided
  - 2.4.1 A fully detailed technical description in English explaining functioning of the individual components, the operation of the items of equipment.
  - 2.4.2 Drawings and brochures supporting the offer.
  - 2.4.3 Details of deviations from the specifications of Transnet.

## 3.0 General

- 3.1 The universal programmer must be small, fast and portable. It may be either a stand-alone unit or PC hosted. It must be capable to program a wide range of devices. Regular software updates must be available free of charge.

## 4.0 Specification

- 4.1 Compatible with PC running MS Windows 7 and Windows 8 operating system.
- 4.2 Connection to PC via USB 2.0/1.1 interface.
- 4.3 Must be equipped with high quality DIL 40 or 48 pin ZIF socket. Life Cycle: 50,000 cycles
- 4.4 The programmer must perform device insertion test (wrong or backward position in socket) and contact check (poor contact pin to socket) before it programs each device.
- 4.5 Must have overcurrent protection and perform signature byte check to help prevent damage to chip and programmer due to operator error.
- 4.6 Must have ISP interface to support serial programming.
- 4.7 Must have a diagnostic self-test facility.
- 4.8 Facility for connection of ground and ESD wrist strap.
- 4.9 Tenderer must include all cables, software 'keys', PSU and any software upgrades that may be required to meet the specification in their offer.
- 4.10 All software and manuals must be in English.

## 5.0 Required File Formats to be supported.

- 5.1 Unformatted (raw) binary
- 5.2 HEX Intel, HEX Intel extended.
- 5.3 Motorola S-record
- 5.4 MOS
- 5.5 Exormax
- 5.6 Tektronix
- 5.7 ASCII-space-HEX
- 5.8 JEDEC (ver. 3.0.A), produced by popular development tools as: ABEL, CUPL, PALASM, WARP, TANGO PLD, OrCAD PLD, PLD Designer ISDATA etc

## 6.0 Required Device Operations

- 6.1 Intelligent device selection by device type, manufacturer or typed fragment of part name.
- 6.2 Automatic selection of EPROM, Flash EPROM, microcontrollers, based on internal Identifier (signature)
- 6.3 Blank check, read and verify to check programming results
- 6.4 Program
- 6.5 Erase
- 6.6 Illegal bit test
- 6.7 Checksum

## 7.0 Required Buffer Operations

- 7.1 View/edit, find/replace.
- 7.2 Kill/copy, move, byte swap, word or double word split.
- 7.3 Checksum
- 7.4 Print.
- 7.5 File load/save.
- 7.6 Automatic file type identification

## 8.0 Required Device Support.

- 8.1 Programmer, in ZIF socket
  - EPROM: NMOS/CMOS, 27xxx and 27Cxxx series, with 8/16 bit data width, full support of LV series (\*1\*2)
  - EEPROM: NMOS/CMOS, 28xxx, 28Cxxx, 27EExxx series, with 8/16 bit data width, full support of LV series (\*1\*2)
  - Flash EPROM: 28Fxxx, 29Cxxx, 29Fxxx, 29BVxxx, 29LVxxx, 29Wxxx, 49Fxxx series, with 8/16 bit data width, full support of LV series (\*1\*2)
  - Serial E(E)PROM: 24Cxxx, 24Fxxx, 25Cxxx, 45Dxxx, 59Cxxx, 25Fxxx, 25Pxxx, 85xxx, 93Cxxx, full support for LV series (\*1)
  - Configuration (EE)PROM: XCFxxx, 37LVxx, XC17xxxx, EPCxxx, AT17xxx, LV series including

- NV RAM: Dallas DSxxx, SGS/Inmos MKxxx, SIMTEK STKxxx, XICOR 2xxx, ZMD U63x series
  - PLD: series: Atmel, AMD-Vantis, Cypress, ICT, Lattice, NS, ... (\*1)
  - microcontrollers 51 series: 87Cxxx, 87LVxx, 89Cxxx, 89Sxxx, 89LVxxx, LPC series from Atmel, Atmel W&M, Intel, Philips, SST, Winbond (\*1\*2)
  - microcontrollers Atmel AVR: ATtiny, AT90Sxxx, ATmega series (\*1\*2)
  - Microcontrollers Cypress: CY8Cxxxxx
  - Microcontrollers ELAN: EM78Pxxx
  - Microcontrollers EM Microelectronic: 4 and 8 bit series
  - microcontrollers Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17Cxxx, PIC18xxx, dsPIC series, 8-40 pins (\*1\*2)
  - microcontrollers Scenix (Uvicom): SXxxx series
- 8.2 Programmer, through ISP connector
- Serial E(E)PROM: IIC series
  - Microcontrollers Atmel: AT89Sxxx, AT90Sxxxx, ATtiny, ATmega series
  - Microcontrollers Cypress: CY8C2xxxx
  - Microcontrollers Elan: EM78Pxxx
  - Microcontrollers EM Microelectronic: 4 and 8 bit series
  - Microcontrollers Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17xxx, PIC18xxx, dsPIC series
  - Microcontrollers Philips: LPC series

END OF DOCUMENT



TFR INFRASTRUCTURE

TELECOMMUNICATIONS SPECIFICATION  
GENERIC EQUIPMENT CABINET

BBF1026  
SEPTEMBER 2011

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### ***I. Document Authorisation***

<b>Function</b>	<b>Name</b>	<b>Title and Division</b>	<b>Signature</b>	<b>Date</b>
Compiled by:	ML Nuttall	Divisional Manager, Transmission		
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Reviewed by:	G Daly	HOD Access		
Reviewed by:	E van der Merwe	Senior Technologist Transmission		
Reviewed by:	F Nel	Divisional Manager, Technical Execution		
Authorised by:	ML Nuttall	Divisional Manager, Transmission		

### ***II. Distribution***

To be registered in TFR's document management system – Projectwise

Emailed to all TFR Telecommunications specialists

Provided to relevant Project Managers, Tenderers and Contractors

### ***III. Change History***

<b>Issue No.</b>	<b>Date</b>	<b>Issued by</b>	<b>Change Summary</b>
1.00	2011-06-13	Transmission	Compilation from old RFPs

### ***IV. Changes since Last Revision***

<b>Clause</b>	<b>Description</b>



**V. Abbreviations and Acronyms**

Acronym	Description
TFR	Transnet Freight Rail

**VI. Definitions**

Term	Definition

**VII. Relevant Documentation**

Document	Description and Relevance

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## 1. SCOPE

This specification covers the requirements of Transnet for the supply of cabinets. The quantities and the number of accessories will be provided in the Schedule of Requirements, or Bill of Quantities, or Design Document.

## 2. COMPLIANCE

- 2.1 Tenders must comply with all the specifications and requirements as indicated in this document. Any deviation from this specification must be indicated in the tenderer's submission document.
- 2.2 Transnet will reserve the right to inspect cabinet samples before adjudication of contract.

## 3. SERVICE CONDITIONS

- 3.1 The equipment must be suitable for continuous operation under the following conditions:
  - 3.1.1 Air pollution: Heavily saline laden industrial and locomotive fumes.
  - 3.1.2 Relative humidity: As high as 95%.
- 3.2 All components and parts must be manufactured and installed to ensure reliable operation under these conditions.

## 4. CABINET COLOUR

The cabinet and all its components must be grey and must be Polyester Structured Powder coated.

## 5. CABINET SIZE

The cabinet height will be stated in the Schedule of Requirements. If not, then the default cabinet sizes must be as follows:

Height (equipment mounting space)	38U
Width	600 mm
Width of the equipment mounting area	482.6 mm (19")
Depth	600 mm

## 6. CABINET MAKE AND ASSEMBLY

- 6.1 Cabinet must be of an IP54 standard.
- 6.2 The cabinet must have a loading capacity of at least 400 kg.
- 6.3 The frame must be an extruded steel frame.
- 6.4 Must be fitted with 19" Rack Punch Profiles, 2 in the front and 2 in the back of the cabinet – punch profiles must be powder coated.
- 6.5 Must be fitted with a top and bottom cable entry and the entry must be fitted with a brush panel.
- 6.6 The front of the cabinet must be fitted with a lockable perforated steel door.
- 6.7 The sides of the cabinet must be fitted with removable doors.

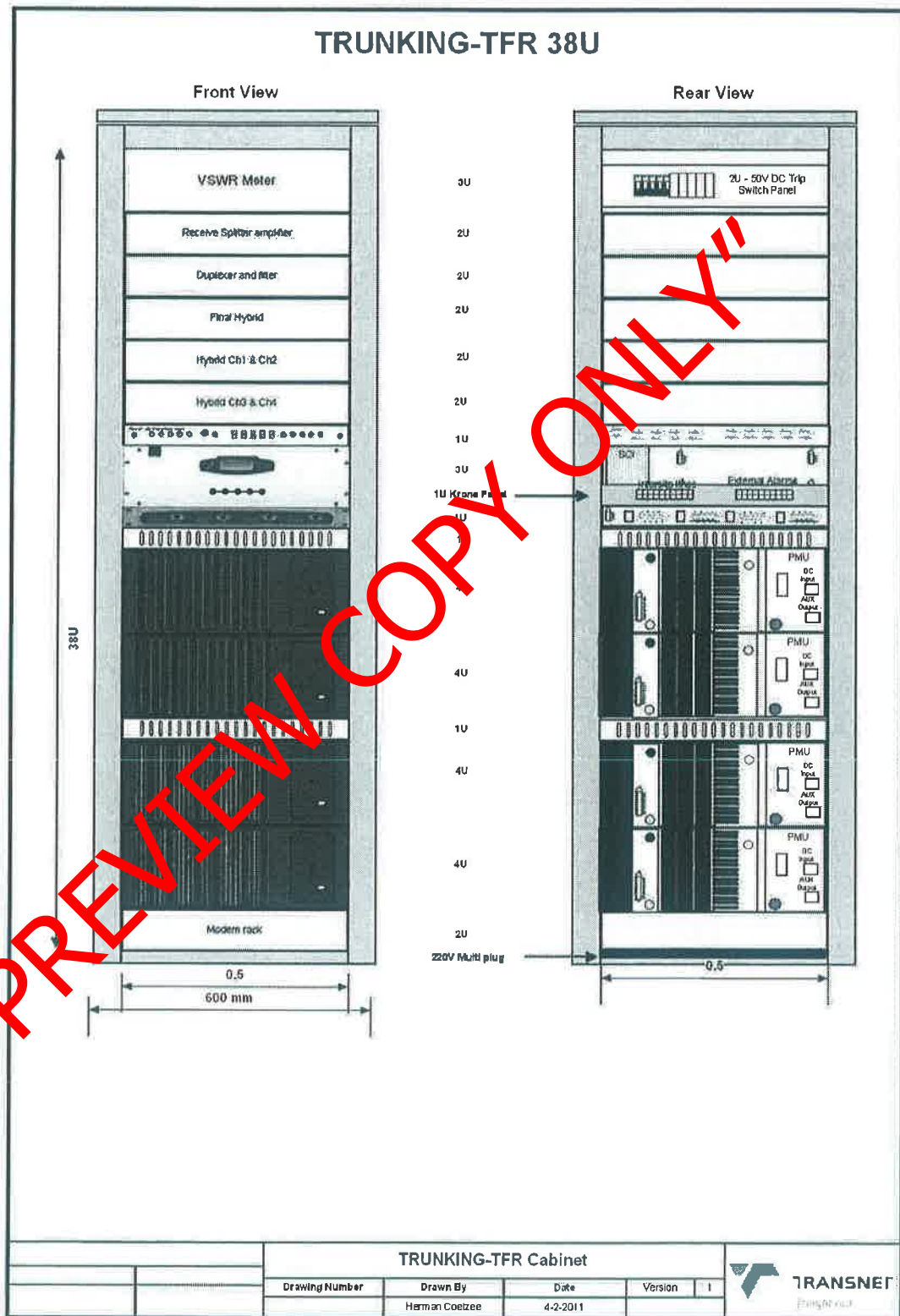
- 6.8 The back door must also be lockable and removable.
- 6.9 All doors must be earthed to the bottom plate with a 6 mm<sup>2</sup> cable that can be removed / unplugged when removing the doors.
- 6.10 Must be fitted with four height adjustable feet. If specified, these should be replaced by wheels. Either must support a 400 kg load
- 6.11 Cabinet must be fitted with a fan tray with 2 x 220 VAC long-life roller bearing fans.
- 6.12 Must be fitted with a 1500 mm Earth Bar with at least 15 earth clamps. The earth bar must be insulated from the cabinet.
- 6.13 The cabinet must be fitted (top of the cabinet) with a 2U Trip Switch Panel with 6 x 48 Volt, 10 Amp trip switches, spare positions for 2 more switches and a common earth bar insulated from the cabinet. The trip switches must be bridged.
- 6.14 Must be fitted with a Mains Outlet Strip, 5-Way, 15 Amp, 220 VAC and it must be equipped with a 15 Amp trip switch.

## **7. ADDITIONAL EQUIPMENT THAT MUST BE SUPPLIED**

- 7.1 The following equipment and material must be supplied with each cabinet:
- 7.2 Modem Trays, 330 mm deep
- 7.3 1U Brush Panels
- 7.4 1U Vent Plates
- 7.5 1U Blanking Plates
- 7.6 1U Drawer unit
- 7.7 10 x 2U Blanking Plates
- 7.8 Cage Nuts, screws, and Black washers, 100 of each.
- 7.9 PVC Finger Trunking (40 x 40 mm) – 2 meter lengths - must be of the Phoenix type and make

## **8. TYPICAL LAYOUTS**

The following drawings illustrate typical layouts for trunking and RTO sites.

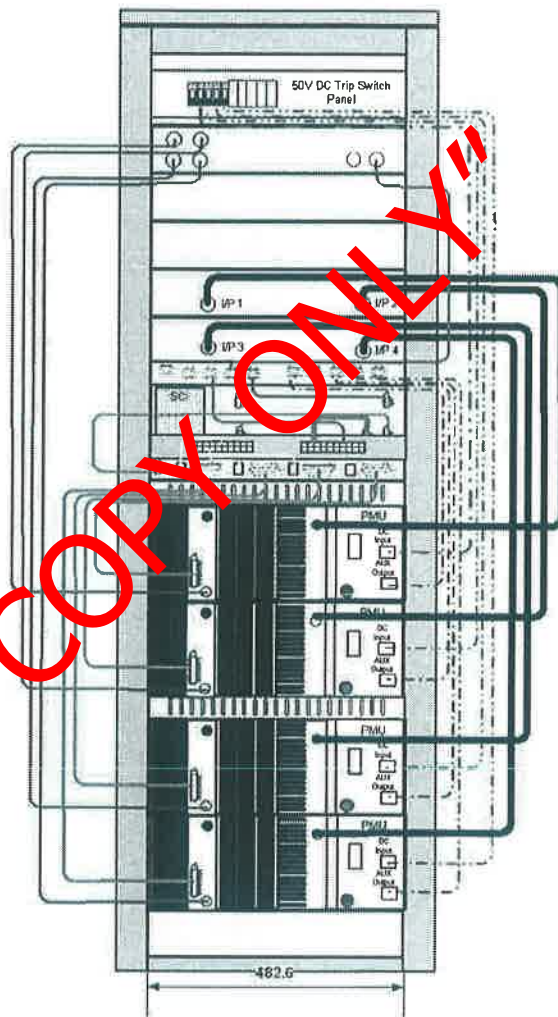


### TRUNKING-TFR 38U

Rear View and Wiring

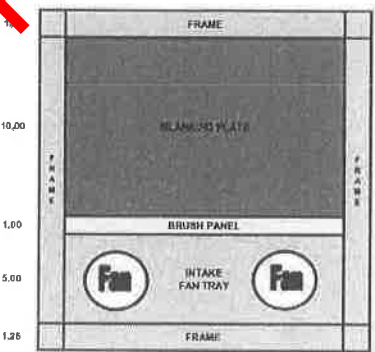
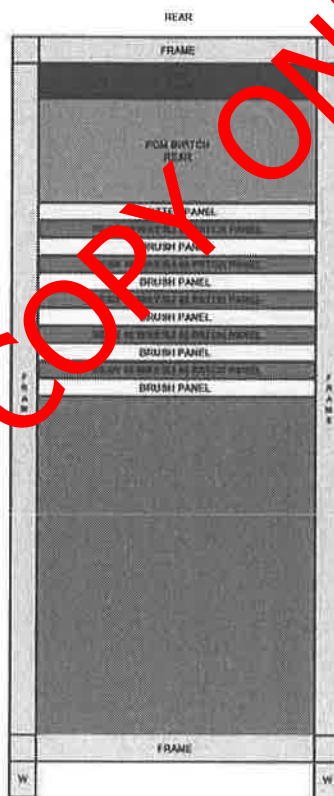
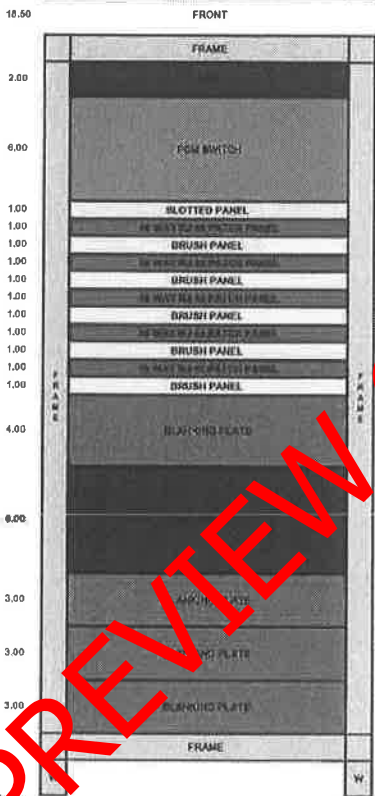
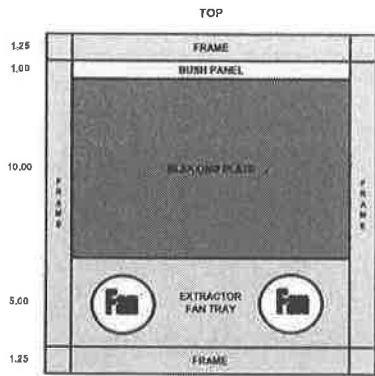
**Legend**

- PDU output – R/B Ripcord 0.55 mm
- - - PDU Input – R/B Ripcord 0.55 mm
- · - · 50V DC Input – R/B Ripcord 2.5mm
- SIG Bus-0.22 Belden 8761 - 1 pair
- TSC card to Repeater - 6pr 0.22 mm Mylar screened
- Intersite line – UTP stranded
- External alarms-10 pr indoor cable
- Ptx Lines - LMR 195
- Tx Lines - LMR 400

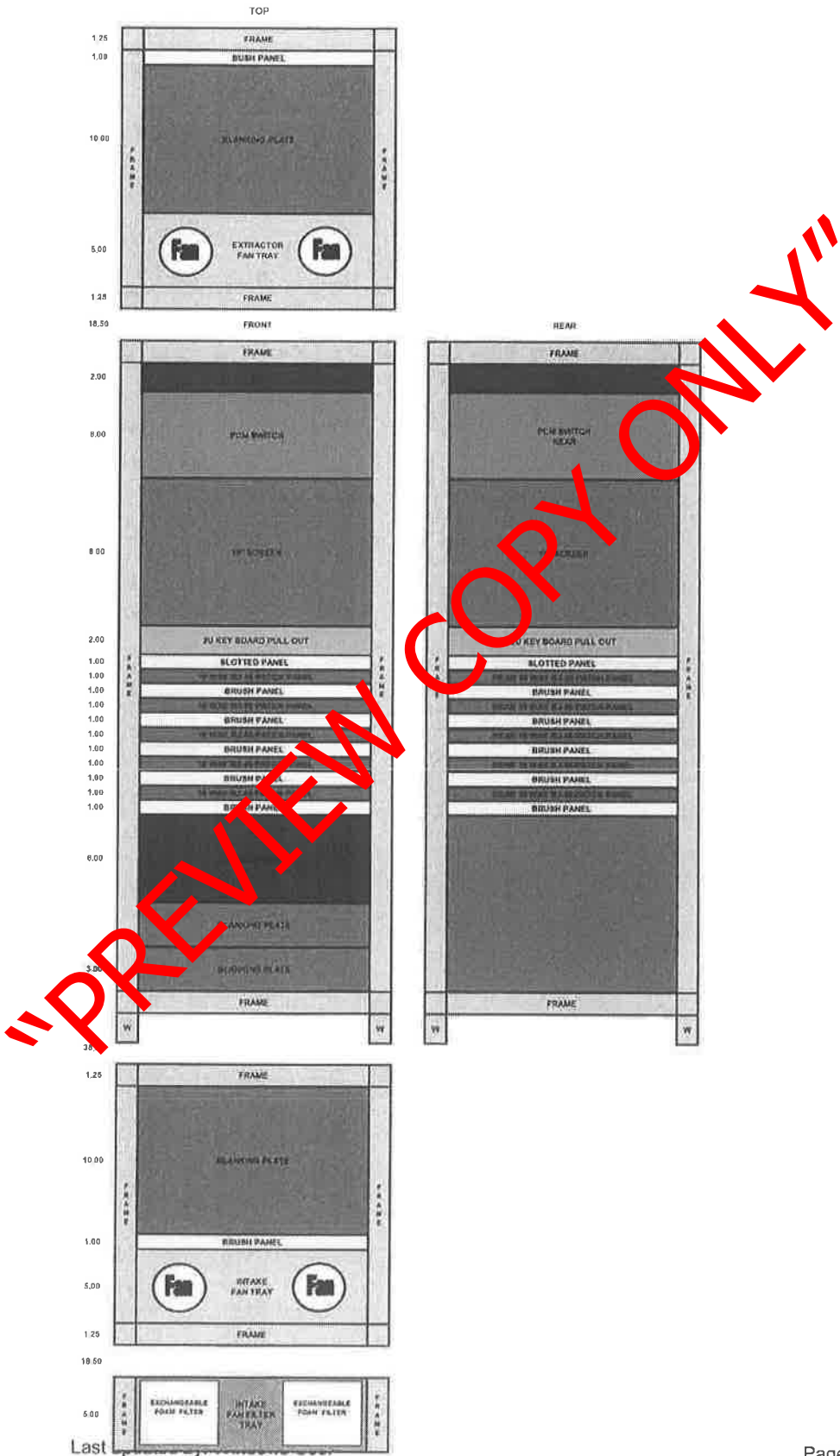


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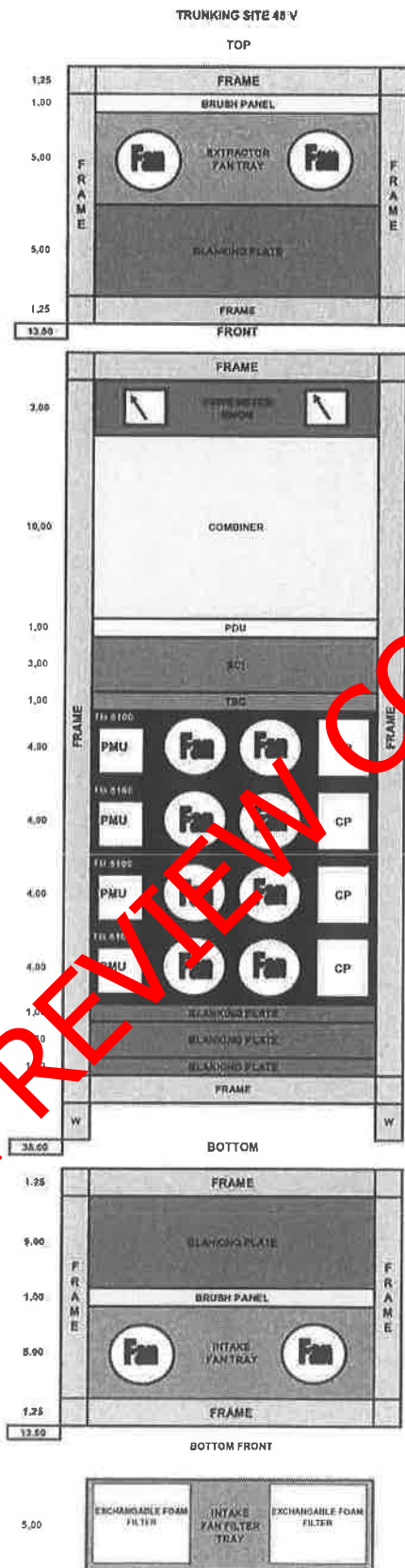
<b>TRUNKING-TFR Cabinet</b>				 <b>TRANSNET</b> <small>Equipment</small>
<small>Drawing Number</small>	<small>Drawn By</small>	<small>Date</small>	<small>Version</small>	
	Herman Coetzee	4-2-2011	1	



Last updated by: Windows User



Last



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**RAIL NETWORK  
TELECOMMUNICATION  
FUNCTIONAL SPECIFICATION**

**EPPROM ERASER**

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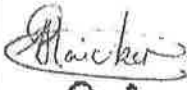


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**I Document Authorisation**

FUNCTION	NAME	TITLE & DIVISION	SIGNATURE	DATE
Compiled by :	Prem Naicker	Chief Engineering Technician Radio, Rail Network, Telecommunication		22/05/2015
Approved by:	Graeme Daly	Divisional Manager Radio, Rail Network, Telecommunication		8 June 2015
Authorised by :	Andrew Marseke	Chief Engineer Rail Network, Telecommunication		30-06-2015

**II Distribution**

Once updated, a copy of the latest revision will be published on the document management system, "Project Wise".

**III Document Change History**

ISSUE NO.	DATE ISSUED	ISSUED BY	HISTORY DESCRIPTION
1.00	April 2015	Prem Naicker	New Document

**IV Changes Since Last Revision**

CLAUSES	DESCRIPTION

**V Abbreviations, acronyms and definitions**

The following abbreviations and definitions will apply for the purpose of this functional specification:

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
EPROM	Erasable programmable read only memory
UV	Ultraviolet
V	Volt
Hz	Hertz
nm	Nanometer

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## **EPROM Eraser**

### **1.0 Introduction**

- 1.1 This specification covers the requirements of Transnet for the supply of an EPROM eraser.

### **2.0 COMPLIANCE**

- 2.1 Tenderers must indicate clause by clause, either that their offers comply in every respect with this specification, or, if not, precisely how they differ.
- 2.2 Failure to complete a clause-by-clause compliance in the mentioned manner will result in disqualification.
- 2.3 Offers which include deviations of a minor nature, not departing greatly from the specification, will be considered at the discretion of Transnet.
- 2.4 Tenderers may offer alternatives for consideration. Alternative offers are to be reflected on a separate schedule and the following particulars are to be provided:
  - 2.4.1 A fully detailed technical description in English explaining functioning of the individual components, the operation of the items of equipment.
  - 2.4.2 Drawings and brochures supporting the offer.
  - 2.4.3 Details of deviations from the specifications of Transnet.

### **3.0 General**

- 3.1 An EPROM eraser is required for low volume applications using controlled UV light exposure.

#### 4.0 Specification

- 4.1 Eraser must accommodate a minimum of five 40pin EPROMs at once.
- 4.2 Eraser must be equipped with a safety interlock to prevent leakage of UV light when door/tray is open.
- 4.3 Required UV light wavelength of 253.7nm
- 4.4 UV light intensity should be adequate to ensure erasure takes 15min or less.
- 4.5 The EPROM holder must be lined with anti-static foam.
- 4.6 The eraser must be equipped with an adjustable timer.
- 4.7 The eraser must be equipped with indicators for power and erase.
- 4.8 The eraser must operate from 230V at 50Hz.
- 4.9 Replacement UV lamps must be available.
- 4.10 All software and manuals must be in English.

END OF DOCUMENT