PASSENGER RAIL AGENCY OF SOUTH AFRICA

REQUEST FOR QUOTATION (RFQ)

RFQ NUMBER: KZN/RAIL/2023/10/07/Q-1

REQUEST FOR QUOTATION (RFQ) FOR THE *SUPPLY AND DELIVERY OF TELECOMS RADIOS FOR PRASA RAIL KZN*

SECTION 1: SBD1

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF PASSENGER RAIL AGENCY (PRASA)					
BID NUMBER:	KZN/RAIL/2023/10/07/Q-1	CLOSING DATE:	01 November 2023	CLOSING TIME:	12:00
DESCRIPTION	SUPPLY AND DELIVERY OF TELECOMS RADIOS FOR PRASA RAIL KZN				

BID RESPONSE DOCUMENTS SHALL BE ADDRESSED AS FOLLOWS:
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE **BID BOX NO. 05** SITUATED AT *(STREET ADDRESS)*: **65 MASABALALA YENGWA AVENUE** **PRASA REGIONAL OFFICE FOYER AREA** **HELPDESK** **PRASA SCM** **KWAZULU NATAL** **BID SUBMISSION REGISTER MUST BE COMPLETED WHEN DROPPING OFF BIDS**

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO	
CONTACT PERSON	**RANI PADAYACHEE, SUPPLY CHAIN MANAGEMENT, PRASA RAIL KZN**
TELEPHONE NUMBER	**0318130138**
E-MAIL ADDRESS	**rani.padayachee@prasa.com**

SUPPLIER INFORMATION						
NAME OF BIDDER						
POSTAL ADDRESS						
STREET ADDRESS						
TELEPHONE NUMBER	CODE			NUMBER		
CELLPHONE NUMBER						
FACSIMILE NUMBER	CODE			NUMBER		
E-MAIL ADDRESS						
VAT REGISTRATION NUMBER						
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA……..	

2.1 ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	2.2 ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B: TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER**

1.3. **PRESCRIBED IN THE BID DOCUMENT.**

1.4. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.

2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD

NUMBER MUST BE PROVIDED.

2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID NVALID.

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……

(Proof of authority must be submitted e.g. company resolution)

DATE: ……...

NB:

- ***Quotation(s) must be addressed to PRASA before the closing date and time shown above.***
- ***PRASA General Conditions of Purchase shall apply.***

SECTION 2

NOTICE TO BIDDERS

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.

Proposals must reach the PRASA before the closing hour on the date shown on SBD1 above, and must be enclosed in a sealed envelope.

2 COMMUNICATION

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

3 BIDDERS COMPLAINTS PROCESS

3.1 Bidders are advised utilize this email address (SCM.Complaints@prasa.co.za) for lodging of complains to PRASA in relation to this bid process. The following minimum information about the bidder must be included in the complaint:

3.1.1 Bid/Tender Description

3.1.2 Bid/Tender Reference Number

3.1.3 Closing date of Bid/Tender

3.1.4 Supplier Name;

3.1.5 Supplier Contact details

3.1.6 The detailed compliant

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, including all applicable taxes.

7 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.

8 DISCLAIMERS

PRASA 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 PRASA 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;
- Reject Quotations submitted after the stated submission deadline or at the incorrect venue ;

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, PRASA reserves the right to cancel the contract.

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

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

9 LEGAL REVIEW

Proposed contractual terms and conditions submitted by a Respondent will be subjected to review and acceptance or rejection by PRASA's Legal Counsel, prior to consideration for an award of business.

10 NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE

Respondents are required to self-register on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information. PRASA is required to ensure that price quotations are invited and accepted from prospective bidders listed on the CSD. Business may not be awarded to a

respondent who has failed to register on the CSD. Only foreign suppliers with no local registered entity need not register on the CSD. The CSD can be accessed at https://secure.csd.gov.za/.

11 PROTECTION OF PERSONAL DATA

In responding to this bid, PRASA acknowledges that it may obtain and have access to personal data of the Respondents. PRASA agrees that it shall only process the information disclosed by Respondents in their response to this bid for the purpose of evaluating and subsequent award of business and in accordance with any applicable law.

Furthermore, PRASA will not otherwise modify, amend or alter any personal data submitted by Respondents or disclose or permit the disclosure of any personal data to any Third Party without the prior written consent from the Respondents. Similarly, PRASA requires Respondents to process any personal information disclosed by PRASA in the bidding process in the same manner.

12 EVALUATION METHODOLOGY

PRASA will utilise the following criteria [not necessarily in this order] in choosing a Supplier/Service Provider, if so required:

EVALUATION CRITERIA	WEIGHTING
Stage 1 – Compliance	
Stage 1A	Mandatory Requirements
Stage 1B	Other Mandatory Requirements
Stage 2	
Price	80
Specific Goals	20
TOTAL	**100**

13 ADMINISTRATIVE RESPONSIVENESS

The test for administrative responsiveness will include completeness of response and whether all returnable and/or required documents, certificates; verify completeness of warranties and other bid requirements and formalities have been complied with. Incomplete Bids will be disqualified.

14 VALIDITY PERIOD

14.1 PRASA requires a validity period of **60 Working Days** from the closing date.

14.2 Respondents are to note that they may be requested to extend the validity period of their response, on the same terms and conditions, if the internal processes are not finalized within the validity

period. However, once the delegated authority has approved the process the validity of the successful respondent(s)' bid will be deemed to remain valid until finalization of the of award.),

15 PUBLICATION OF INFORMATION ON THE NATIONAL TREASURY E-TENDER PORTAL

Respondents are to note that, bid awards, amendments and cancellations will be published on the e-tender portal and or media used to advertise the bid. For the award of business, PRASA is required to publish the prices and preferences claimed of the successful and unsuccessful Respondents *inter alia* on the National Treasury e-Tender Publication Portal, (www.etenders.gov.za), on CIDB website for construction related RFQ's. *(Where applicable*).

16 RETURNABLE DOCUMENTS

Returnable Documents means all the documents, Sections and Annexures, as listed in the tables below. There are three types of returnable documents as indicated below and Respondents are urged to ensure that these documents are returned with the quotation based on the consequences of non-submission as indicated below:

15.1. Mandatory Returnable Documents

Failure to provide 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 documents are returned with their Quotations.

SECTION 3

1 EVALUATION CRITERIA:

Bidders are to comply with the following requirements and failure to comply may lead to disqualification.

Stage 1A – Mandatory Requirements

If you do not submit/meet the following mandatory documents/requirements, your be will be automatically disqualified.

Only bidders who comply with stage 1A will be evaluated further.

No.	Description of requirement	
a)	Completion of ALL RFP documentation (includes ALL declarations)	
b)	Price Schedule / Pricing form	
c)	Contractors must quote on all items listed on the BOQ	
d)	Joint Venture, Consortium Agreement or Partnering Agreement signed by all parties. The agreement should indicate the leading bidder where applicable. (Delete if not applicable)	
e)	Bidders to complete submission register when dropping off bids into the tender-box	
f)	Any person/company who deals in radio apparatus (supply, install and repair), either personally or as agent, must be in possession of a radio apparatus certificate issued by the Authority from ICASA	

Stage 1B –Other Mandatory Requirements

If you do not submit/meet the following other mandatory documents/requirements, PRASA may request the bidder to submit the information within five (5) working days. Should this information not be provided, your bid proposal will be disqualified.

Only bidders who comply with stage 1B will be evaluated further.

No.	**Description of requirement**	
a)	Supply of valid SARS Pin	
b)	CSD supplier registration number	

2.1 Stage 2- Price and Specific Goals

The following formula, shall be used to allocate scores to the interested bidders :

The maximum points for this tender are allocated as follows:

DETAILS	POINTS
PRICE	80
SPECIFIC GOALS	20
TOTAL POINTS FOR PRICE AND SPECIFIC GOALS	**100**

FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

POINTS AWARDED FOR PRICE

THE 80/20 PREFERENCE POINT SYSTEMS

A maximum of 80 points is allocated for price on the following basis:

80/20

$$PS = 80\left(1 - \frac{Pt - Pmin}{Pmin}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

POINTS AWARDED FOR SPECIFIC GOALS

3.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
B-BBEE- BEE cert/Affidavit (in case of JV, a consolidate scorecard will be accepted)	4	
Black Women Owned-Certified Copy of ID Documents of the owners	4	
Black Youth Owned-Certified Copy of ID documents of owners.	4	
EME OR QSE 51% Black owned- Audited Annual Financial/B-BBEE Cert/Affidavit	4	
51% Black Owned - CIPC Documents/B-BBEE Certificate/Affidavit	4	
TOTAL	**20**	

SECTION 4

PRASA GENERAL CONDITIONS OF PURCHASE

General

PRASA and the Supplier enter into an order/contract on these conditions to supply the items (goods/services/works) as described in the order/contract.

Conditions

These conditions form the basis of the contract between PRASA and the Supplier. Notwithstanding anything to the contrary in any document issued or sent by the Supplier, these conditions apply except as expressly agreed in writing by PRASA.

No servant or agent of PRASA has authority to vary these conditions orally. These general conditions of purchase are subject to such further special conditions as may be prescribed in writing by PRASA in the order/contract.

Price and payment

The price or rates for the items stated in the order/contract may include an amount for price adjustment, which is calculated in accordance with the formula stated in the order/contract.

The Supplier may be paid in one currency other than South African Rand. Only one exchange rate is used to convert from this currency to South African Rand. Payment to the Supplier in this currency other than South African Rand, does not exceed the amounts stated in the order/contract. PRASA pays for the item within 30 days of receipt of the Suppliers correct tax invoice.

Delivery and documents

The Supplier's obligation is to deliver the items on or before the date stated in the order/contract. Late deliveries or late completion of the items may be subject to a penalty if this is imposed in the order/contract. No payment is made if the Supplier does not provide the item as stated in order/contract.

Where items are to be delivered the Supplier:

Clearly marks the outside of each consignment or package with the Supplier's name and full details of the destination in accordance with the order and includes a packing note stating the contents thereof; On dispatch of each consignment, sends to PRASA at the address for delivery of the items, an advice note specifying the means of transport, weight, number of volume as appropriate and the point and date of dispatch; Sends to PRASA a detailed priced invoice as soon as is reasonably practical after dispatch of the items, and states on all communications in respect of the order the order number and code number (if any).

Containers / packing material

Unless otherwise stated in the order/contract, no payment is made for containers or packing materials or return to the Supplier.

Title and risk

Without prejudice to rights of rejection under these conditions, title to and risk in the items passes to PRASA when accepted by PRASA.

Rejection

If the Supplier fails to comply with his obligations under the order/contract, PRASA may reject any part of the items by giving written notice to the Supplier specifying the reason for rejection and whether and within what period replacement of items or re-work are required.

In the case of items delivered, PRASA may return the rejected items to the Supplier at the Supplier's risk and expense. Any money paid to the Supplier in respect of the items not replaced within the time required, together with the costs of returning rejected items to the Supplier and obtaining replacement items from a third party, are paid by the Supplier to PRASA.

In the case of service, the Supplier corrects non-conformances as indicated by PRASA.

Warranty

Without prejudice to any other rights of PRASA under these conditions, the Supplier warrants that the items are in accordance with PRASA's requirements, and fit for the purpose for which they are intended, and will remain free from defects for a period of one year (unless another period is stated in the Order) from acceptance of the items by PRASA.

Indemnity

The Supplier indemnifies PRASA against all actions, suits, claims, demands, costs, charges and expenses arising in connection therewith arising from the negligence, infringement of intellectual or legal rights or breach of statutory duty of the Supplier, his subcontractors, agents or servants, or from the Supplier's defective design, materials or workmanship.

The Supplier indemnifies PRASA against claims, proceedings, compensation and costs payable arising out of infringement by the Supplier of the rights of others, except an infringement which arose out of the use by the Supplier of things provided by PRASA.

Assignment and sub-contracting

The successful Respondent awarded the contract may only enter into a subcontracting arrangement with PRASA's prior approval. The contract will be concluded between the successful Respondent and PRASA, therefore, the successful Respondent and not the sub-contractor will be held liable for performance in terms of its contractual obligations.

Governing law

The order/contract is governed by the law of the Republic of South Africa and the parties hereby submit to the non-exclusive jurisdiction of the South African courts.

SECTION 5

SBD4

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest1 in the enterprise,
employed by the state? **YES/NO**

1.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

……

……

[1] the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

……..
……..

3 DECLARATION

I, the undersigned, (name)…… In submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium2 will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS

[2] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

…… ……
Signature Date

…… ……
Position Name of bidder

SBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

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2. GENERAL CONDITIONS

2.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

2.2 **To be completed by the organ of state**

(*delete whichever is not applicable for this tender*).

a) The applicable preference point system for this tender is the 80/20 preference point system.

b) Either the 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

2.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

2.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and Specific Goals	**100**

2.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

2.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

3. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

4. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.2. **POINTS AWARDED FOR PRICE**

4.1.1 THE 80/20 PREFERENCE POINT SYSTEMS

A maximum of 80 points is allocated for price on the following basis:

80/20

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

Table 1: Specific goals for the RFQ and points claimed are indicated per the table below.

(Note to organs of state: Where 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
B-BBEE- BEE cert/Affidavit (in case of JV, a consolidate scorecard will be accepted)	4	
Black Women Owned-Certified Copy of ID Documents of the owners	4	
Black Youth Owned-Certified Copy of ID documents of owners.	4	
EME OR QSE 51% Black owned- Audited Annual Financial/B-BBEE Cert/Affidavit	4	
51% Black Owned - CIPC Documents/B-BBEE Certificate/Affidavit	4	
TOTAL	20	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.2. Name of company/firm…….

4.3. Company registration number: ……...

4.4. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited

☐ Non-Profit Company
☐ State Owned Company
[TICK APPLICABLE BOX]

4.5. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....
DATE: .....

ADDRESS: .....

.....

.....

.....

SECTION 6

1. SCOPE OF WORKS AND AREAS OF FOCUS

4.1 SCOPE OF THE DESIRED SOLUTION

The scope of work for this project shall entail the following activities:

4.1.1 SCOPE

4.1.1.1 This specification describes the technical design requirements of a Walkie-Talkie/Radios for PRASA Rail which will operate in the UHF frequency band network owned by the Transnet Freight Rail. The Walkie Talkies/Radios are to be used as Combined Trunked Radios/Conventional or simplex by Train drivers, Prasa Shunters, Technicians, flagmen, etc.

4.1.1.2 The specification details the operating principles, the equipment requirements for the system, and such other information that will enable the contractor to supply equipment which will meet the operational requirements of the Train drivers, Shunters, Technicians, Flagmen, etc-to-Train Control Office (TCO) communication system, between Shunters to Train, between flagman to flagman, between Technicians to Technicians, etc.

4.1.2 COMPLIANCE

4.1.2.1 The design must comply with this specification and standards.

4.1.2.2 Only radio on the current TFR approved list BBD 8208 version 5.3.2 dated January 2015 will be considered for purchase (Transnet internal Document acquired through PRASA TELECOMS), Configuration (Programming) of frequencies should only be done by TFR at the suppliers' costs.

4.1.2.3 The radios will be batch tested by Transnet NTC (Transport Telecom Quality Assurance) for approval prior delivery or shipment at the suppliers cost.

4.1.3 OPERATING CONDITIONS

4.1.3.1 The equipment offered must be suitable for continuous operation under the following conditions:

Ambient temperature : –10° to 60° Celsius

Relative humidity : As high as 95 %

Altitude : 0 to 2 000 metres

Air pollution: Heavily saline laden industrial and locomotive fumes containing metallic dust.

4.2.3.1 Component parts, including wiring, must be manufactured, and processed to ensure reliable operation under above mentioned conditions.

4.2.3.2 The equipment must be suitable for operation under the above stated conditions without the use of blower fans, heaters, or air-conditioners etc.

4.2.3.3 Peak noise levels up to 87 dB(A) were measured inside the cab. Suitable noise cancelling circuitry and microphone must be used to obtain an acceptable signal to noise ratio.

4.1.4 GENERAL REQUIREMENTS

4.1.4.1 **Requirements**

4.1.4.1.1 The Radios/Walkie Talkies must be ICASA type approved as well as Transnet Freight Rail Network (Transport Telecom Quality Assurance) type approved.

4.1.4.1.2 The awarded contractor should be able to supply ICASA certificate for the supplied radios.

4.1.4.1.3 It must be possible to update the parameters and files over the air.

4.1.4.1.4 The software to program the Radio/Walkie Talkies must be compatible with Microsoft Windows XP or better.

4.1.4.1.5 The Walkie Talkies/Radios supplied must be programmed for open channel, Conventional, Simplex/Shunt as well as Trunked working within the 132 channels allocated to Transport Telecom (400-470 MHz with no degradation to the Radio/Walkie Talkies performance or the need for components or module changes.

4.1.4.1.6 The radio must be able to select any of the channels for simplex/shunt mode operation, at low power

4.1.4.1.7 It must be possible for PRASA Rail Telecoms radio maintenance personnel to reprogram the radios/Walkie Talkies if required to do so at a later stage.

4.1.4.1.8 The radio RF output power must be adjustable between 3- and 20-watts software selectable.

4.1.4.1.9 The radio must be able to be programmed to 3-watt transmitting power output on simplex/shunt mode without affecting the radio performance.

4.1.4.1.10 Transmit failure must be indicated on the handset or display.

4.1.4.1.11 Signal strength must be indicated on the handset or display in trunk and conventional mode.

4.1.4.1.12 The Tx and Rx frequencies must be reversible, selectable per user defined plan (Tx high, Rx low or vice versa).

4.1.4.1.13 VSWR monitoring and faulty antenna indication must be displayed.

4.1.4.1.14 User programmable simplex/shunt selection must be available (from all 132 channels).

4.1.4.1.15 User programmable plan selection must be available.

4.1.4.1.16 VCO lock/unlock indication must be displayed

4.1.4.1.17 Software version must be available for display.

4.1.4.1.18 The audible data should be muted in both Tx and Rx mode.

4.1.4.1.19 "Data Tx" should be indicated on the display.

4.1.4.1.20 The selection between trunk, conventional and simplex/shunt modes must not be complicated.

4.1.4.1.21 The radio must support CTCSS.

4.1.4.1.22 Audible alarms to let operator know that the user can speak or failure to find a site must be available (short beep or long beep).

4.1.4.1.23 Trunk frequencies must be barred in conventional and simplex/shunt mode or the programming software must automatically bar the trunked channels.

4.1.4.1.24 Programming software, Leads, Adaptors and technical manuals on CD must be included.

4.1.4.2 **Shunt mode**

4.1.4.2.1 Low power operation must be available in simplex/shunt mode (3 watts).

4.1.4.2.2 In simplex/shunt operation mode the 132 channels upper and lower frequencies must be selectable from the handset.

4.1.4.2.3 Shunt on simplex mode must be selectable from the handset; any one of the 132channels must be selectable, if not barred, as a shunt/simplex channel.

4.1.4.2.4 The radio must not transmit any data in shunt mode.

4.1.4.3 **Interfaces / Connectors**

4.1.4.3.1 There must be the following connectors or functionally equivalent connectors on the rear panel of the radio:

- A RS-232C/V.24 15-pin high density D-type female connector, for connection to an external data device, and for programming of the radio.

4.1.4.4 **Frequencies**

Except when in simplex mode, the radio must operate in half-duplex (two frequency simplex) mode, with a duplex frequency spacing of 10 MHz, as follows:

- The transmit frequency must be in the range 400 — 470 MHz
- The receive frequency must be in the range 400 — 470 MHz
- Channel spacing must be 12.5 kHz. Channel 1 must be defined as 465.0 MHz transmit and 455.0 MHz receive. The radio must be capable of operating on all channels in the specified range.
    - A combination of UHF channels in the above frequency band will be used.
    - The radio must be able to transmit and receive data via the data port in trunked and conventional mode.

4.1.4.5 **Handheld Requirements (walkie talkies)**

4.1.4.5.1 UHF, (400 – 470 MHz band) IP54, **Handheld** conventional radio, with a minimum of 16 conventional 12.5 kHz channels. **(Can specify alternative number of channels).** Excluding - Antenna and Battery **Must comply with Specifications BBD8635 version 8 dated 21 May 2014 and** BBG **1946 version 1 dated 22 May 2014.**

4.1.4.5.2 Quarter wave flexible whip antenna for item 1.1, to cover the 455 to 467 MHz band.

4.1.4.5.3 High-capacity Battery to fit item 1.1, capable of sustaining a 20 - 20 - 60 duty cycle for an 8-hour shift. (Tx, Rx, Standby).

4.1.4.5.4 Single Bay rapid rate Charger for item 1.1 Provision must be made for a standard 3 pin 15-amp mains plug.

4.1.4.5.5 Leather carry bag for item 1 with shoulder strap.

4.1.4.5.6 Programming software, Leads, Adaptors and technical manuals on CD.

4.1.5 TRUNKED RADIO OPERATION

4.1.5.1 **Operation**

4.1.5.1.1 The radio should operate as a trunked radio in accordance with the MPT 1327 and MPT 1343 **SANS.**

4.1.5.1.2 Trunk control channel must be displayed.

4.1.5.1.3 The short message (SM) data transmission and reception should be available in trunked mode on the control channel. The standard MPT1327 short message string applies.

4.1.5.1.4 The radio should monitor the trunk channel while in simplex/shunt mode and raise an alarm to indicate the radio has been called.

4.1.5.1.5 The radio should revert back to the trunked mode when in simplex/shunt mode after a pre-defined period and no activity is detected on the shunt channel (must be able to switch this function on/off (software selectable).

4.1.5.1.6 Channel dragging must be reduced by changing the algorithm.

4.1.5.1.7 The radio must be able to send and receive long data messages up to 1 kilobyte in trunk mode by means of a point-to-point call.

4.1.5.1.8 The handset/display must display in short or long message mode indications that the radio is busy with transmitting or receiving data

4.1.5.1.9 In trunked mode short or long data packets marked for sending or receiving, must only be sent via the data port if the train number in the data string matches the registered train number ID in the radio.

4.1.5.1.10 An indication of channel busy or busy transmitting must be available on the data port by raising or lowering the voltage level on a pin (transmit data) as indicated in clause 6.2.

4.1.5.1.11 It should be possible to display a 16-character scrollable message on the display sent via the external data port or receiving over the air.

4.1.5.1.12 The radio must be capable of initiating and receiving the following MPT 1327 call types:

4.1.5.1.12.1 Individual and group voice calls.

4.1.5.1.12.2 Individual and group non-prescribed data calls.

4.1.5.1.12.3 Individual and group short data messages (SDMs).

4.1.5.1.12.4 Individual status messages.

4.1.5.1.12.5 Calls to and from PABX and PSTN services.

4.1.5.1.12.6 Inter-prefix calls.

4.1.5.1.13 Since the radio will operate as part of a complete train cab radio system, all numbering and dialling shall be specified elsewhere, and need not comply with the formats specified in MPT 1343.

4.1.5.1.14 The radio must have the following MPT 1343 standard options (i.e. the following features must be provided, exactly as described in MPT 1343):

4.1.5.1.14.1 Dynamic call duration timer and radio unit clear down on time-out. The timer is to be displayed during a call.

4.1.5.1.14.2 Vote now. Developer to indicate how control channel information gathered during vote now procedures are handled by the radio.

4.1.5.1.14.3 Background search MPT 1343 standard option must be implemented on the radio.

4.1.5.2 **Parameters**

4.1.5.2.1 The following programmable parameters must be provided (MPT 1343 standard options):

4.1.5.2.2 NPON: Number of Pressel on messages.

4.1.5.2.3 NPOFF: Number of Pressel off messages.

4.1.5.2.4 CLIM: Call limit timer.

4.1.5.2.5 NDD: (Network Dependent Data) Preference data, sub field lengths and priority

4.1.5.2.6 Programmable flags (parameters) must be provided, to selectively bar the Following types of calls:

4.1.5.2.6.1 All group calls.

4.1.5.2.6.2 Inter-fleet group calls.

4.1.5.2.6.3 Inter-prefix calls.

4.1.5.2.6.4 PABX calls.

4.1.5.2.6.5 PSTN calls.

4.1.5.2.6.6 High priority calls.

4.1.5.2.6.7 Emergency calls.

4.1.5.2.7 It should be possible for PRASA Rail to program all of the mandatory parameters described in MPT 1343, as well as those standard options specified.

4.1.5.3 **Data Port Protocol**

4.1.5.3.1 In trunked radio mode, it must be possible to set up all types of calls supported using the data port only.

4.1.5.3.2 Physical Interface: The physical interface of the data port must comply with the MAP 27.

4.1.5.3.3 Data link layer: The data link layer must be capable of handling all network layers messaging transparently

4.1.5.4 **Transparent data link layer:**

4.1.5.5 Packet length: The maximum data field length of the packet must be 255. This necessarily constrains the length of data during a data call to 254 bytes at a time.

4.1.5.6 Transparency: The transmitting entity must examine the packet body and insert a DLE control character immediately following the occurrence of a DLE character. The receiving entity must examine the packet body and discard the second DLE of a two-octet DLE-DLE sequence.

4.1.5.7 Data Terminal Network Layer:

4.1.5.7.1 The data terminal network layer of the data port protocol must comply with section 5 of MAP 27, with the following:

4.1.5.7.2 Extended data (MST) messaging (MAP 27)

4.1.5.7.3 Diversion control (MAP 27).

4.1.5.7.4 Radio personality and control (MAP 27).

4.1.5.7.5 Where applicable, the radio may respond to functions with a protocol information message indicating that the facility is not supported (MAP 27).

4.1.5.7.6 Buffered Data:

- With data link layer
- Without data link layer

4.1.6 OPEN CHANNEL OPERATION

4.1.6.1 When the radio is configured for working OPEN CHANNEL, the following facilities must be activated:

4.1.6.1.1 **Transmit time–out–timer:** This timer must be activated each time the PTT button is pressed and must disable the radio's transmitter if any continuous transmission lasts longer than a programmable period (typically 30 seconds to 240 seconds).

4.1.6.1.2 **Receiver Scanning:** The Receiver shall scan selectable set of channels (plans) if so specified in the schedule of requirement (a separate channel plan and scanning specification will be provided). If receiver scanning is specified, the radio must scan the assigned channels and select the best signal.

4.1.6.1.3 **Busy channel lockout:** (Carrier–detect transmit–inhibit.). The transmitter must be disabled if, within the last scan period, RF carrier greater than 6 dB above the usable sensitivity of the radio is detected for more than 0.5 seconds. If the channel is busy and the user presses the PTT button the radio must ignore the PTT button, and no RF must be transmitted.

4.1.6.2 RS-232 pins

Pin 1	Channel Busy Status (Open channel mode RS-232 levels e.g. -2V to -10V
Pin 2	Receive data
Pin 3	Transmit data
Pin 5	Ground
Pin 6	Radio activation status (RS-232 levels e.g., +2V to +10V radio activated and 0V radio not activated.)
Pin 8	Network Type (RS-232 levels e.g., +2V to +10V open channel or trunk mode e.g. -2V to -10V.)

4.1.6.3 256 Channels must be available in conventional mode.

4.1.6.4 Scanning / voting of 6 channels per plan, with a total of ≥ 300 plans must be user selectable.

4.1.6.5 The data transmission and reception should be unlimited in open channel mode.

4.1.6.6 The selection of conventional channels must be barred in simplex/shunt mode and vice versa.

4.1.6.7 The radio must mute received data.

4.1.6.8 The radio should request an 8-digit numerical number in open channel mode, which will be used to identify the radio or train. After pressing the enter button the standard open channel mode must be entered. Selecting the plan and signal strengths display (optional). This will ensure positive identification of radio/trains and ensure messages are referenced to the correct radio/train.

4.1.6.9 The radio must not operate without this number (001234 is a valid number).

4.1.6.10 It should be possible to check and change the 8-digit train number in open channel mode from the handset. The standard open channel mode must be entered after executing this function.

4.1.6.11 In open channel mode data packets being received over the air must only be sent out on the data port if the radio number in the data string matches the registered radio number in the radio.

4.1.6.12 The handset/display must indicate when the radio is busy transmitting or receiving data by displaying the characters "Sending" and "Receiving".

4.1.6.13 The standard Tx and Rx LEDs on the handset/display must also light up.

4.1.6.14 The radio must output an indication on the data port when the PTT is released. The radio must keep transmitting for a pre-defined period to allow the sending of data without switching the repeaters off.

4.1.6.15 An indication of channel busy or busy transmitting must be available on the data port.

4.1.6.16 The software must be compatible on both the train and base station radios.

4.1.6.17 The radio must revert back to the open channel mode when in simplex/shunt mode after a pre-defined period if no activity is detected on the shunt channel.

4.1.6.18 It must be possible to call the base in open channel mode by entering the base ID number on the handset and transmit the ID over the air.

4.1.6.19 The radio must send the radio ID/train number, GPS latitude, longitude, signal strength, channel, and speed after releasing the PTT by means of the short message method.

4.1.6.20 The radio must send the radio ID/train number, GPS Latitude. Longitude, signal strength, channel and speed when entering any one of the 100 000 pre-defined way points by means of the short message method (optional)

4.1.6.21 The radio must send the radio ID/train number, GPS Latitude. Longitude, signal strength, channel, and speed after receiving a request via a data message. It must be possible to request a particular radio for info identifiable by its train number (optional)

4.1.6.22 The handset must display the GPS coordinates on request (optional).

4.1.6.23 The radio must monitor the open channel while in shunt mode and raise an alarm via the data channel, to indicate the radio is being called (optional).

4.1.6.24 **Calls Established by User**

4.1.6.24.1 Normal Calls

4.1.6.24.2 When the user needs to make a call, he must check the channel busy indication to ensure that the channel is not busy. If the channel is free (radio in normal mode) he may operate the PTT button.

4.1.6.24.3 f selective calling is enabled the radio must automatically transmit its identification code when the PTT button is released.

4.1.7 HANDSET

4.1.7.1 The handset must incorporate the microphone.
4.1.7.2 There should be a volume control on the handset, with pre-set minimum volume
4.1.7.3 PTT switch should be included in the handset.
4.1.7.4 The handset should be coupled to the radio via a 1 m curly cord (fully stretched 1.5 – 2 m).
4.1.7.5 The handset should be robust and should withstand the severe operating and climatic conditions as specified for the radio.
4.1.7.6 The handset microphone should incorporate an acceptable form of noise cancelling technology.
4.1.7.7 The keypad should have back lighting with automatic brightness control.
4.1.7.8 Indications via LEDs on the handset/microphone/radio should include Transmit, Receive and or Service (trunked), Busy, Scan, etc.
4.1.7.9 All modes of operation, functions and selections should be done from the handset keypad.
4.1.7.10 The display intensity should be such that it must be clearly visible during the day and night under various lighting conditions.
4.1.7.11 The handset/microphone should work up to 10 metres from the radio via an extension cable
4.1.7.12 The display should be a high efficiency of 8-character 5X5 dot matrix or similar

4.1.8 QUALITY OF MATERIAL

4.1.8.1 All material used must be of the best quality and of the class most suitable for the purpose for which it is required. Unless otherwise specified or approved, all materials must be to the most recent published standards applicable in the country of origin.

4.1.8.2 Where rack sides are not fully equipped, blanking-off panels must be fitted to all vacant positions.

4.1.8.3 Special attention must be paid to the dustproofing of the equipment, as it will generally be used near railway stations in dust and smoke-laden atmosphere.

4.1.8.4 Plastic materials, which may under the influence of heat, light or pressure, decompose or liberate elements or compounds, which are likely to corrode or otherwise affect metals in contact with them must not be used in the construction of the equipment offered by the supplier

4.1.8.5 Where different metals are used in conjunction with each other, supplier must explicitly guarantee that no electrolytic corrosion will occur under operating conditions.

4.1.8.6 Mounting screws, where used, must not be self-tapping.

4.1.8.7 The equipment must be solid state throughout.

4.1.8.8 Solid-state devices are to be so constructed that they may be easily tested for correct functioning without having to disturb wiring.

4.1.8.9 Printed-wiring boards must be properly washed and, if necessary, neutralized after the etching process so that no hygroscopic crystals remain in the board or printed wiring.

4.1.8.10 Printed wiring boards must be guaranteed not to promote or permit the growth of fungi under any conditions.

4.1.8.11 Printed wiring boards must preferably be fitted with robust plugs and sockets or another approved manner of connecting the boards reliably to the wiring. Edge connectors may be used provided that:

4.1.8.11.1 A suitable tolerance for the correct fitting of the board between guides and the wiring socket can be guaranteed.

4.1.8.11.2 Sufficient contact area is provided to guarantee reliable contact.

4.1.8.11.3 In the final protective coating of the boards, no varnish or other protective materials is permitted to cover the contacts.

4.1.8.11.4 Sufficient contact pressure is provided to ensure contact but not to remove precious metal from the contact.

4.1.8.11.5 After 500 insertions and withdrawals, there must be no noticeable deterioration of the contacts of either the board or socket.

4.1.8.11.6 All printed wiring board's sockets plugs, or edge connectors must be gold plated or better.

4.1.8.11.7 Heavy components must not be mounted on printed wiring boards unless it can be guaranteed that the board will stand up to severe handling without fracturing with the components so mounted.

4.1.8.11.8 Solid-state boards must be provided on a plug-in or other approved basis so that they can, when necessary, be readily removed for repairs. Supplier must recommend the quantities of spare units to be kept on hand.

4.1.8.12 No unmarked and/or untested components may be used.

4.1.8.13 All components used must be types, which can be readily obtained from local suppliers.

4.1.8.14 The number of component types must be kept to a minimum consistent with good design of the equipment.

4.1.8.15 All components must be suitably rated for the function they have to perform without interference to neighbouring material.

4.1.8.16 Resistors and resistive components must not rise in temperature so that mounting boards or marking thereon are burnt or discoloured.

4.1.8.17 Electrolytic capacitors must not be used in any critical timing or frequency control circuits.

4.1.8.18 Fuses must be rated to give adequate protection to the circuits served while not rupturing prematurely.

4.1.8.19 Illuminated status indicators must be light emitting diodes (LED) types.

4.1.8.20 Terminations on printed circuit boards must not be made direct to the printed wiring. Where edge connectors are not used, termination to printed wiring must be made via terminal posts.

4.1.8.21 No termination must have more than one conductor per solder joint.

4.1.8.22 Soldering direct to the chassis of any equipment must not be permitted. All chassis terminations must be made with soldering tags.

4.1.8.23 All components must be clearly marked and must be capable of easy reference to circuit diagrams and handbooks to be supplied with the equipment.

4.1.8.24 The functions of all controls, switches, must be clearly engraved or otherwise permanently marked by means of approved symbols in English.

4.1.8.25 All pre-set variable controls must be clearly marked and readily identified in the equipment.

4.1.8.26 All subassemblies and printed circuit boards must be permanently marked with an identification code.

4.1.8.27 All wiring and terminations between subassemblies must be identified.

4.1.8.28 Test pins must be provided on all units, subunits, and printed circuit boards for the measurement of all important circuit characteristics without the unsoldering of wires. Such test points must be clearly marked and identified in the equipment.

4.1.8.29 The equipment must be built in such a manner that faulty modules can be easily and quickly detected, removed, and replaced, but steps must be taken to minimize unnecessary movements of plug-in modules on a trial-and-error basis when locating faults.

4.1.8.30 The module pins ant its locating /guide pins must be ruggedly constructed and must not easily bend, warp, or break.

4.1.8.31 The equipment must be built in such a manner that faulty modules can be easily and quickly detected, removed, and replaced, but steps must be taken to minimize unnecessary movements of plug-in modules on a trial-and-error basis when locating faults.

4.1.8.32 The equipment layout must be planned to facilitate fault clearance and maintenance.

4.1.9 CONNECTORS

4.1.9.1 NB: - The connectors required must be suitable for use with communications circuits and power feed circuits.

4.1.9.1.1 Electrical Characteristics

4.1.9.1.2 The contacts must withstand a breakdown voltage of 2 000 volts RMS.

4.1.9.1.3 The contacts must be silver plated, 1.5 mm in diameter and rated for 11 amperes continuously

4.1.9.1.4 The contact resistance must be equal or smaller than 1.5 milli-ohms.

4.1.9.2 Mechanical Characteristics

4.1.9.2.1 The insulator must be a neoprene elastomeric material.
4.1.9.2.2 The contacts must be silver plated and must be suitable for at least 500 mating/un-mating operations.

4.1.9.3 Climatic Conditions

4.1.9.3.1 The connector must operate from -40 °C to +85 °C.
4.1.9.3.2 The connector must seal as per NFC.20010-IP61.
4.1.9.3.3 The connector must be spray resistant as per NFC.20611.

4.1.10 **TECHNICAL HANDBOOKS**

4.1.10.1 Technical handbooks must be clearly printed in English. Photostat copies will not be acceptable.

4.1.10.2 Each set of handbooks must include the following:
4.1.10.2.1 Operating instructions.
4.1.10.2.2 Complete maintenance instructions.
4.1.10.2.3 Complete and detailed alignment procedures.
4.1.10.2.4 A detailed technical description of the equipment.
4.1.10.2.5 Complete circuit diagrams, drawings, and photographs of the equipment. The photographs and drawing must clearly indicate component/module location on printed circuit boards etc. All component numbers must be clearly shown.

4.1.10.2 A list of parts giving the values of all components, i.e.

4.1.10.2.1 Resistors,
4.1.10.2.2 Capacitors,
4.1.10.2.3 Integrated circuit numbers etc., for each schematic drawing.

4.1.10.3 Detailed printed circuit board wiring diagrams of all layers showing component numbers and positions must be provided. Panel and or unit wiring diagrams must also be provided.
4.1.10.4 Voltage level, current values, test points etc., should be clearly indicated on all circuit diagrams.
4.1.10.5 complete circuit diagrams of individual modules must be included.
4.1.10.6 A block schematic of the complete system, indicating all test points as well as the level readings which should be obtained at these points.
4.1.10.7 All indicated levels in the equipment and in the instruction, books must be given in power levels (0 dB = 1 mW into 600 ohms).
4.1.10.8 All symbols and notations used on drawings and circuit diagrams must preferably comply with the requirements laid down in BS 3939. Where symbols and notations do not comply

with these requirements each drawing must be accompanied by a legend clearly detailing BS 3939 equivalent.

4.1.10.9 PRASA Rail reserves the right to reproduce in whole or in part, by any means whatsoever, any technical handbook or instruction manual supplied by the successful contractor. Any such reproductions will be for the sole use of PRASA Rail.

4.1.10.10 To enable the personnel of PRASA Rail to become acquainted with the circuitry and design details of the equipment ordered, the successful contractor must deliver one complete set of handbooks to each centre mentioned in the Schedule of Requirements, delivery to be affected at least one month prior to the commencement of the delivery of the equipment.

4.1.10.11 Programming software and service manuals to be supplied on a CD-ROM.

4.1.11 APPLICABLE AND RELEVANT DOCUMENTATION

The equipment must comply with the latest issue of the following specifications:

APPLICABLE

DOCUMENT NO.	DESCRIPTION	LOCATION
BBD8635	Technical Specification and Methods of Measurement for Angle Modulated Radio Equipment	TFR
ISO 9000	Quality Management Systems	EXTERNAL

British Department of Trade and Industry Specification:

MPT 1317	Code of Practice for Transmission of Digital Information over Land Mobile Radio Systems	External
MPT 1327	A signalling Standard for Trunked Private Mobile Radio Systems	External
MPT 1343	System Interface Specification for Radio Units to be used with Commercial Trunked Networks	External

ELEVANT

The following additional specifications are referred to:

DOCUMENT NO.	DESCRIPTION	LOCATION
MAP 27	Mobile Access Protocol for MPT 1327 equipment (UADG) (Version 1.5, January 1998)	External
ITU V.24	RS 232	External

4.1.12 PRE-REQUISIT

Any person/company who deals in radio apparatus (supply, install and repair), either personally or as agent, must be in possession of a radio apparatus certificate issued by the Authority from ICASA

4.1.13 TECHNICAL SPECIFICATIONS FOR TRAIN RADIO POWER SUPPLY

BOX DESCRIPTION Block Diagram

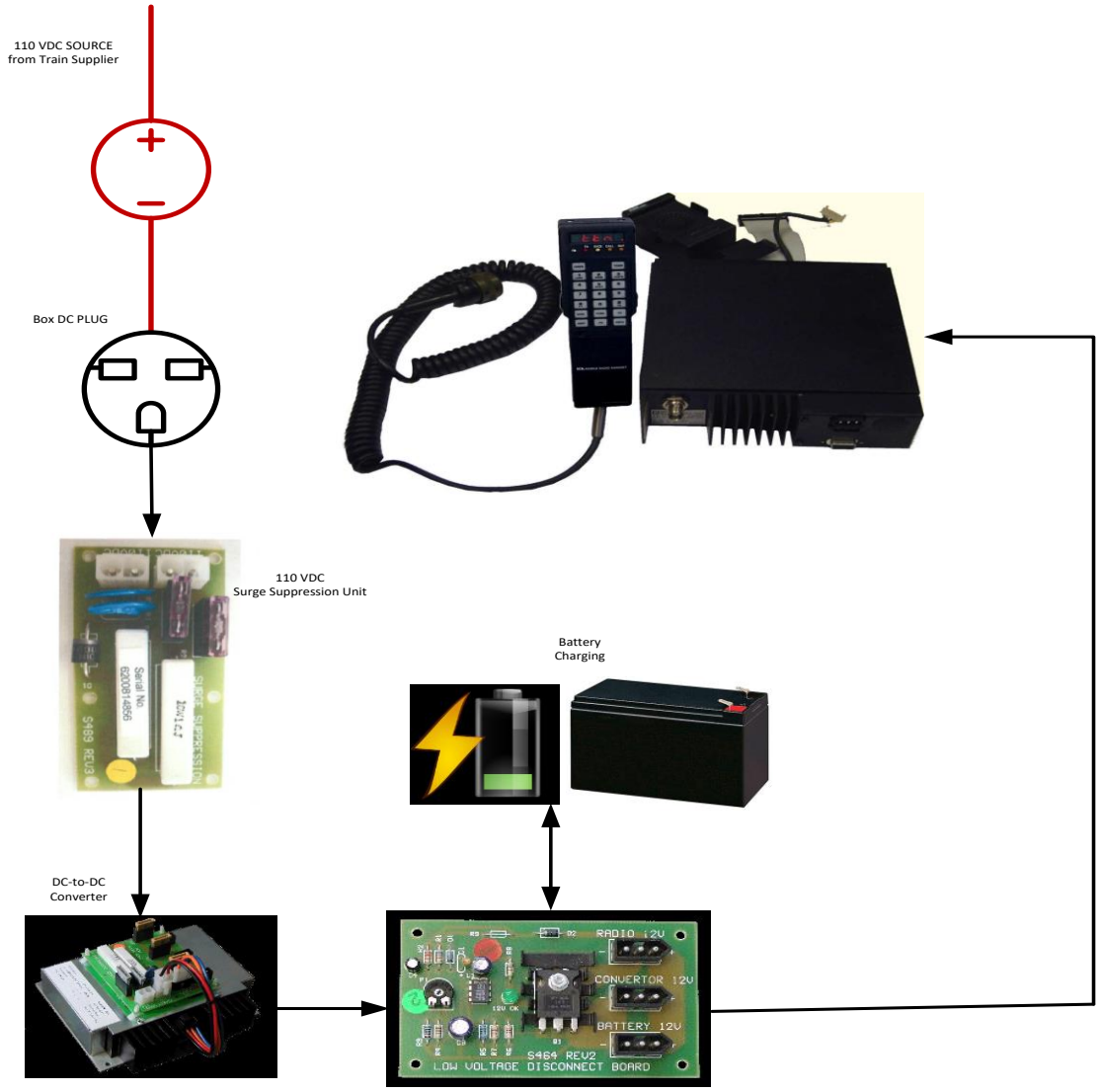

Fig 1

Physical Box: Newly improvement, cost effective, robust, fireproof, suitable for railway Train Bourn with unique locking mechanism for vandal proofing.

All exposed equipment from the box must be vandal proofed.

The Box must have its serial/part number engraved for installation and maintenance purposes.

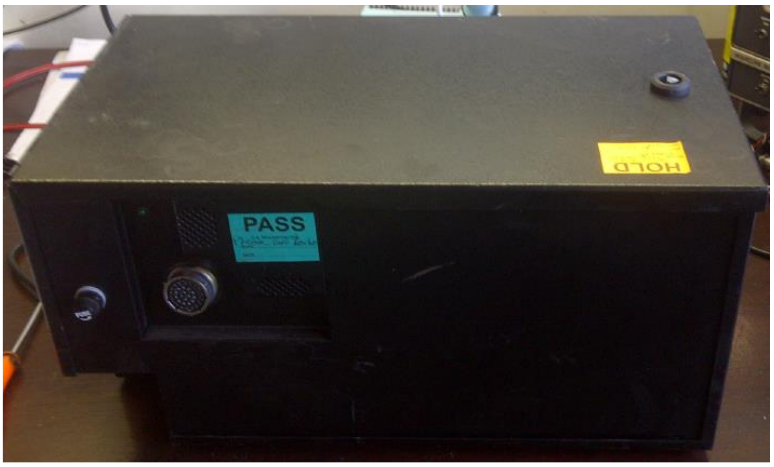

Fig 2

Power INPUT Socket: An industrial DC plug/socket must be used suitable to Railway environment. A power indication LED shall be installed and visible for maintenance purposes.

Power protection circuit: The 110V input voltage may have high, low and spike voltages. An industrial surge suppression unit suitable for Railway cab on-board is needed, the board must be reliable.

Below is the current used board to be used as reference.

S489 *- Input Surge Suppression* • *For 110V DC Inputs* • *Replacement for S424* • *Fuse protection in positive & negative lines*	

Fig 3

DC-DC Isolating converter: The use of industrial DC-to-DC isolation converted is required, the unit shall be reliable and suitable for Railway environment. Below is the current unit used as a reference. **S008A DC-DC Convertor**

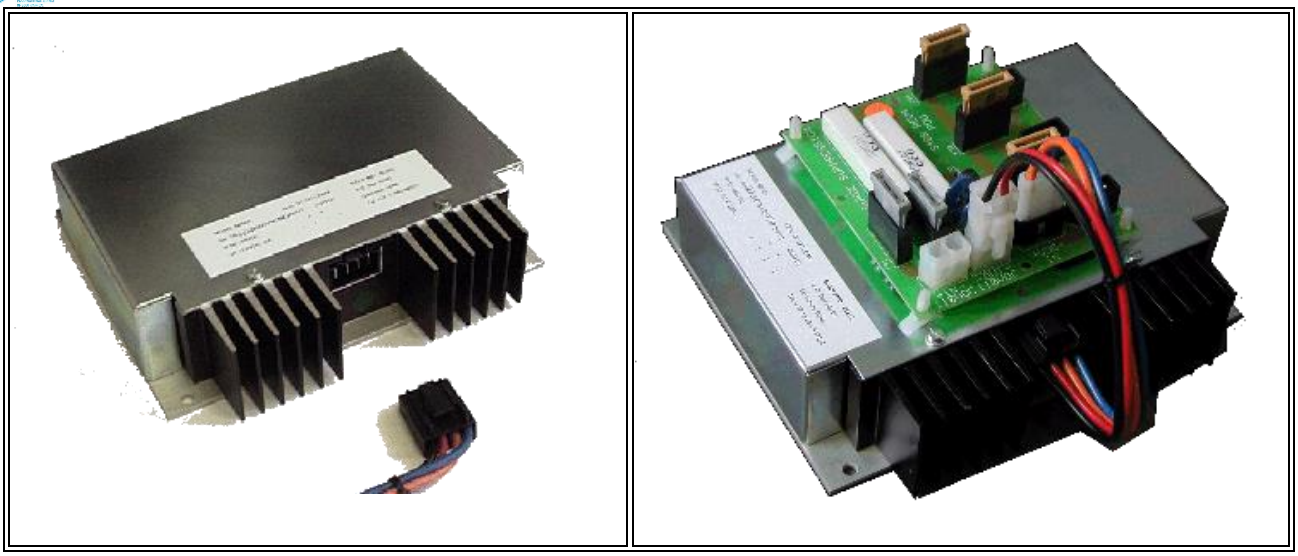

Fig 4

Low Voltage Disconnect: The board is used for protection of the battery and regulates the charging of the battery. The unit also disconnects the power from the battery to the Radio when a low voltage is detected from the Battery. Protection means in this regards is required, a redesigned means reliable and improved with cost effectiveness suitable for Railway environment shall be delivered as a solution for PRASA Rail. Below is the current unit being used as a reference:

S464 - Low Voltage Disconnect Board For use with 12V 7A/Hr Lead-acid battery. Uses N Channel FET to Switch Negative Line. Trip Voltage 10.5V Restore Voltage 12.5V	

Fig 5

External Speaker: Industrial pre-amped speaker with great audio quality and reliability shall be installed in the Box. The volume of the speaker must not be controllable from the box, but through the Radio Handset.

Antenna connector: A panel mount N-type female connector shall be mounted on the inner box. The cable on the inside shall be fitted with an appropriate connector that

will fit onto the radio antenna connector. The cable shall be suitable to be used in the Railway environment.

Battery:

Ni-Cd rail batteries manufactured in accordance with high quality standard meeting all international standards such as the IEC 60623, ISO 9001 and ISO 14001.

The battery must have:

- resistance against electrical and mechanical stress
- no risk of terminal decomposes or sudden death due to material construction
- extremely long lifetime
- operational temperature range between - 40°C and + 50°C
- extremely long storage life – for several years in a discharged state under correct conditions
- maintenance free
- 7 Ah capacity or better (The expected power support must last 6 hours on load)

Below is the current battery used as a reference:

Fig 6

Speaker:

An industrialized external speaker suitable for Railway use shall be used and mounted on the outer box. The speaker shall qualify audio quality designed with the audio output of the supplied radio for optimized audio quality output.

Fig 7

Handheld radio (walkie talkie)

Fig 8

4.2 REQUIRED PROFFESIONAL SERVICES

The appointed company will be required to provide a radio apparatus certificate which is issued by the Authority from ICASA

4.3 TARGETED AREA BY THIS PROJECT

Communication to all end users who use radios as a means of communicating.

4.4 EXTENT AND COVERAGE OF THE PROPOSED PROJECT

The project will cover the following areas:

Communications between drivers and TCO's, Technician working on the PRASA rail infrastructure will have means of communicating, Communication between shunters and their drivers, flagmen working on the rail will ensure safety of their colleagues if they have radios, etc.

4.5 MEASUREMENTS AND PAYMENT

The appointed service provider will supply and deliver as per the contract and thereafter a completion certificate will be issue according for payment process.

5 SPECIFICATION OF THE WORK OR PRODUCTS OR SERVICES REQUIRED

5.1 PROFESSIONAL TECHNICAL STAFF REQUIREMENTS

KEY PROFESSIONAL STAFF

Experience key professional staff in relation to the scope of work – Professionals Services:

Any person/company who deals in radio apparatus (supply, install and repair), either personally or as agent, must be in possession of a ***radio apparatus certificate issued by the Authority from ICASA***

6 TECHNICAL SPECIFICATIONS RELATED TO THIS PROJECT

The design for this project shall meet technical capabilities & performance requirements.

SECTION 7

PRICING AND DELIVERY SCHEDULE

Respondents are required to complete the attached Pricing Schedule **Annexure:** .....

1 Prices must be quoted in South African Rand, inclusive of all applicable taxes.

2 Price offer is firm and clearly indicate the basis thereof.

3 Pricing Bill of Quantity is completed in line with schedule if applicable.

4 Cost breakdown must be indicated.

5 Price escalation basis and formula must be indicated.

6 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 declared non-responsive.

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

8 Respondents are to note that if price offered by the highest scoring bidder is not market related, PRASA may not award the contract to the Respondent. PRASA may:

9 negotiate a market-related price with the Respondent scoring the highest points;;

10 if that Respondent does not agree to a market-related price, negotiate a market-related price with the Respondent scoring the second highest points;

11 if the Respondent scoring the second highest points does not agree to a market-related price, negotiate a market-related price with the Respondent scoring the third highest points;

12 If a market-related price is not agreed with the Respondent scoring the third highest points, PRASA must cancel the RFQ.

I / We _____ (Insert Name of Bidding Entity) of _____ _____ _____ code _____ (Full address) conducting business under the style or title of: _____ represented by: _____ in my capacity as: _____ being duly authorised, hereby offer to undertake and complete the above-mentioned work/services at the prices quoted in the bills of quantities / schedule of quantities or,

where these do not form part of the contract, at a lumpsum, of

R _____ (amount in numbers);

_____

_____

(amount in words) Incl. VAT.

DELIVERY PERIOD: Suppliers are requested to offer their earliest delivery period possible.

Delivery will be effected within ……. working days from date of order. (To be completed by Service provider)

BILL OF QUANTITES

ITEM No	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.1	Supply train trunk radio complete with handset, cables, connectors, brackets, screws, software, etc	Each	90		
1.2	Supply programming lead complete	Each	2		
1.3	Supply programming of train trunk radio as per Transnet allocated frequencies to Metrorail	Each	90		
1.4	Supply handheld Radio (walkie talkie) Complete with battery, Antenna, Software, etc.	Each	70		
1.5	Supply programming lead complete	Each	2		
1.6	Supply programming of handheld Radio (walkie talkie) to be programmed as per Transnet allocated frequencies to Metrorail	Each	70		
			Sub-total		
			Vat		
			Total		