



RFQ / TENDER

Tender No: EFQ-21727

Vendor No: 11001386

BOARD LIST
BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT
2000

Purchaser : T. Munyai
Telephone : 011 584 1142
Fax Number:

Please quote reference:
E95/6000621799

Deliver to:
TFR Telecom Building, Isando
155 Pretoria Road
2000 KEMPTONPARK

Closing Date : 13.09.2016
Validity Date : 30.11.2016
RFQ No : 6000621799

SUPPLY OF 4-WIRE E&M DUAL CHANNEL REMOTE CONSOLE WITH EXTERNAL POWER
SUPPLY REQUIRED AT ISANDO.

THE RFQ DOCUMENTS ARE OBTAINABLE FROM THE OFFICE OF TRANSNET FREIGHT RAIL, TENDER ADVISE CENTRE, GROUND
FLOOR, INYANDA HOUSE 1, WELLINGTON ROAD, PARKTOWN, DURING OFFICE HOURS 08:00 TO 15:00 AND RFQ DOCUMENT IS
FOR FREE. RFQ CLOSING DATE: 13 SEPTEMBER 2016.

QUOTATIONS MAYBE FAXED TO : (011) 774-9129/(011) 774-9186.

FOR ANY TECHNICAL ENQUIRIES WITH REGARD TO THIS RFQ YOU CAN CONTACT :MR
THIVHONALI MUNYAI 011 584 1142.

1.1 QUOTATION/S MUST BE SUBMITTED PUNCTUALLY AT 10:00 ON OR BEFORE CLOSING DATE AND LATE QUOTATIONS WILL NOT
BE CONSIDERED.

1.2 IF POSTED:

21 WELLINGTON ROAD
INYANDA HOUSE 1
PARKTOWN
2193

1.3 ,IF DELIVERED BY HAND:

TRANSNET FREIGHT RAIL-SUPPLY CHAIN SERVICES
21 WELLINGTON ROAD
INYANDA HOUSE 1
PARKTOWN

DATE: SIGNATURE OF TENDERER(S):
CONTACT PERSON: TEL No:

RFQ / TENDER

Tender No: EFQ-21727 **Page**
Date : 23.08.2016 2

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

2. CONDITIONS:

2.2 ANY PURCHASE ORDER PLACED AS A RESULT OF YOUR QUOTATION WILL BE SUBJECT TO THE STANDARD TERMS AND CONDITIONS OF CONTRACT, FORM US7, (LATEST), GENERAL TENDER CONDITIONS, FORM CSS5 (LATEST) AND CONDITIONS MENTIONED HEREIN.

2.3 TENDERERS MAY OFFER AN EARLIER VALIDITY DATE, BUT THEIR QUOTATION MAY, IN THAT EVENT, BE DISREGARDED FOR THIS REASON.

2.4 TENDERERS ARE REQUIRED TO OFFER ONLY FIRM PRICES. PRICES SUBJECT TO REVIEW IN TERMS OF CLAUSE 32 OF FORM US7 WILL ONLY BE CONSIDERED SHOULD THE DELIVERY PERIOD REQUIRED EXCEED 6 MONTHS.

2.5 BEST DELIVERY TIME MUST BE OFFERED.

2.6 DISCOUNT (TRADE DISCOUNT) CASH DISCOUNT (CONDITONAL DISCOUNT) VALUE VALUE ADDED TAX (VAT) MUST BE SHOWN SEPARATELY.

2.7 TRANSNET RESERVES THE RIGHT TO NEGOTIATE PRICES AND COMMERCIAL ASPECTS AFTER THE CLOSING DATE OF THE QUOTATION.

PREVIEW COPY

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: EFQ-21727
Date: 23.08.2016

Page
3

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

2.8 DIRECT DELIVERY INTIMATES DELIVERY BEING EFFECTED TO THE DELIVERY ADDRESS
AND SHOULD THEREFORE INCLUDE ANY TRANSPORTATION MODE DEEMED NECESSARY IN EXECUTING THIS METHOD OF
DELIVERY BASIS IN ORDER TO MEET THE REQUIRED DELIVERY DATE.

3. EVALUATION CRITERIA: - ADMINISTRATIVE RESPONSIVENESS TEST -

3.1. COMPLETENESS OF ALL RETURNABLE DOCUMENTS

SUBSTANTIVE RESPONSIVENESS TEST (MANDATORY) -

3.2. COMPLIANCE TO SPECIFICATION (CLAUSE BY CLAUSE DECLARATION)

3.3. COMPETITIVE PRICING AND BBBEE.

TAX CLEARANCE CERTIFICATES:

The Regulations in terms of the Public Finance Management Act, 1999: Framework for Supply Chain Management as published in Government Gazette No. 25767 dated 5 December 2003, Clause 9 (1) (d), stipulates that the accounting officer or accounting authority of an institution to which these regulations apply must reject any bid from a supplier who fails to provide written proof from the South African Revenue that the supplier either has no outstanding tax obligations or has made arrangements to meet outstanding tax obligations. Tenderers will be disqualified if a valid tax clearance certificate or written proof from the South African Revenue Service that supplier has made arrangements to meet outstanding tax obligations is not submitted with the tender.

COMPANY DETAILS:

NAME OF COMPANY: _____

CONTACT PERSON: _____

TEL. NO. _____

FAX NO: _____

REG. NO. _____

BROAD BASED BLACK ECONOMIC EMPOWERMENT (BBBEE)

Transnet fully endorses and supports the Government's Broad-based Black Economic Empowerment Programme and it is strongly of the opinion that all South African Business Enterprises have an equal obligation to redress the imbalances of the past.

Transnet will therefore prefer to do business with local business enterprises who share these same values. Transnet will endeavour to do business with local business enterprises that possess a BBBEE "recognition level" of at least a level 5. Transnet urges Tenderers (large enterprises and QSE's - see below) to have themselves accredited by any one of the various Accreditation Agencies available, who do their BBBEE ratings in accordance with the latest Codes (i.e. those promulgated on 9 February 2007) and whose names appear on the present ABVA (Association of BEE Verification Agencies) - "List of Full Members" as displayed on the ABVA website (www.abva.co.za).

Although no agencies have, as yet, been accredited by SANAS (SA National Accreditation System), Transnet will, in the interim, accept rating certificates of tenderers who have been verified by any of the listed agencies.

Enterprises will be rated by such agency based on the following:

1. Large Enterprises (i.e. annual turnover >R35million:

" Rating level based on all seven elements of the BBBEE scorecard.

2. Qualifying Small Enterprises - (QSE) (i.e. annual turnover >R5million but <R35million:

" Rating based on any four elements of the BBBEE scorecard.

NB:

3. Emerging Micro Enterprises - (EME) (i.e. annual turnover <R5m) are exempted from being rated/verified:

" Automatic rating of Level 4 BBBEE irrespective of race of ownership, i.e. 100% BBBEE recognition

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: EFQ-21727
Date: 23.08.2016

Page
4

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

- " Black ownership >50% or Black Women ownership >30% automatically qualifies as Level 3 BBBEE, i.e. 110% BBBEE recognition
- " EME's should provide certified documentary proof of annual turnover (i.e. audited financials) plus proof of Black ownership if Black ownership >50% or Black Women ownership >30% from the EME's Auditor/Accounting Officer.

4. In addition to the above, Tenderers who wish to enter into a Joint Venture or subcontract portions of the contract to BBBEE companies, must state in their tenders the percentage of the total contract value that will be allocated to such BBBEE companies, should they be successful in being awarded any business. A rating certificate in respect of such BBBEE JV-partners and / or sub-contractor/s, as well as a breakdown of the distribution of the aforementioned percentage must also be furnished

In view of the high emphasis which Transnet places on Broad-based Black Economic Empowerment, Transnet will allow certain preference points for BBBEE in the evaluation of all responses. Depending upon the value of the ensuing business award (i.e. below or in excess of R1m), the 80/20 or 90/10 point preference systems will be utilized where BBBEE will count out of 20 or 10 respectively in the evaluation process.

EACH RESPONDENT IS REQUIRED TO FURNISH PROOF OF THE ABOVE TO TRANSNET. FAILURE TO DO SO WILL RESULT IN A SCORE OF ZERO BEING ALLOCATED FOR BBBEE.

Turnover: Kindly indicate your company's annual turnover for the past year R _____

- " If annual turnover <R5m, please attach certified confirmation from your Auditor/Accounting Officer
- " If annual turnover >R5m please attach original or certified copy of accreditation certificate and detailed scorecard by an ABVA accreditation agency (registered as a "Full Member")

PAYMENT TERMS

The following payment terms will apply as from 1 October 2008.

- " All suppliers will be paid 30 days from receipt of month end statement, i.e. payment term F055.

CONDITIONS:

This quotation is subject to the provisions of the Standard Terms and Conditions of Contract, Form US7, (Latest) and the General Tender Conditions, Form CSS5 (Latest) and any other standard or special conditions mentioned and/or embodied in the quotation request.

SCHEDULE OF REQUIREMENTS

PRICES TENDERED ARE TO BE "DIRECT" AND EXCLUDE VAT.

IN THIS REGARD THE TENDERER'S ATTENTION IS DIRECTED TO PARAGRAPH 16 OF FORM CSS5 (LATEST).

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: EFQ-21727 Page
Date : 23.08.2016 5

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

TRANSNET INSISTS ON HONESTY AND INTEGRITY BEYOND REPROACH AT ALL TIMES AND WILL NOT TOLERATE ANY FORM OF IMPROPER INFLUENCING, BRIBERY, CORRUPTION, FRAUD, OR ANY OTHER UNETHICAL CONDUCT ON THE PART OF BIDDERS/ TRANSNET EMPLOYEES. IF, IN THE OPINION OF TRANSNET'S CHIEF OPERATING OFFICER, A TENDERER / CONTRACTOR / SUPPLIER HAS OR HAS CAUSED TO BE PROMISED, OFFERED OR GIVEN TO ANY TRANSNET EMPLOYEE, ANY BRIBE, COMMISSION, GIFT, LOAN, ADVANTAGE OR OTHER CONSIDERATION, TRANSNET SHALL BE ENTITLED TO REVOKE THE TENDER / CONTRACT BY FOLLOWING ITS INTERNAL POLICIES THAT GOVERN THE EXCLUSION PROCESS. IN SUCH AN EVENT TRANSNET WILL BE ENTITLED TO PLACE ANY TENDERER / CONTRACTOR / SUPPLIER WHO HAS CONTRAVENED THE PROVISIONS OF TRANSNET'S BUSINESS ETHICS ON ITS LIST OF EXCLUDED TENDERERS. THIS LIST WILL ALSO BE DISTRIBUTED TO ALL OTHER STATE OWNED ENTERPRISES AND GOVERNMENT DEPARTMENTS.

TRANSNET INVITES ITS VALUED SUPPLIERS TO REPORT ANY ALLEGATIONS OF FRAUD CORRUPTION OR OTHER UNETHICAL ACTIVITIES TO TRANSNET TIP-OFFS ANONYMOUS, AT ANY OF THE FOLLOWING ADDRESSES / CONTACT NUMBERS:-

TOLL-FREE ANONYMOUS HOTLINE - 0800 003 056
EMAIL - Transnet@tip-offs.com
FAX NUMBER - 0800 007 788
FREEPOST DN 298, UMHLANGA ROCKS, 4320

CONFIDENTIALITY IS GUARANTEED

NB: THE PREFERRED BIDDER MAY BE REQUESTED TO SUBMIT A SAMPLE TO BE TESTED BY THE QUALITY ASSURANCE DEPARTMENT WITHIN TFR PRIOR TO AWARDING

Item	Qty	Material	Description
00010	1	Radio	Communication Equipment

R.....
Each

Delivery Date: 30.09.2016

FULL DETAILS OF DESCRIPTION
SUPPLY OF 4-WIRE E&M DUAL CHANNEL REMOTE CONSOLE WITH EXTERNAL POWER
SUPPLY REQUIRED AT ISANDO.

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: EFQ-21727
Date : 23.08.2016

Page
6

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

3. ADDITIONAL INFORMATION REQUIRED: (WHERE APPLICABLE)

3.1 THE FOLLOWING ADDITIONAL INFORMATION IS REQUIRED:

- (A) DISCOUNT:
- (B) SETTLEMENT DISCOUNT:
- (C) PRICE/S FIRM:
- (D) PRICE/S FIRM UNTIL THEREAFTER SUBJECT TO REVIEW.
- (E) PRICE/S NOT FIRM:
- (F) SABS MARK:
- (G) SABS PERMIT NO:
- (H) BRAND/MAKE/TYPE:
- (I) FULL NAME AND ADDRESS OF MANUFACTURER.:
.....
.....
.....
- (J) FULL NAME AND ADDRESS OF INSPECTION POINT:
.....
.....
.....
- (K) COUNTRY OF ORIGIN:

Comply : _____ Does not Comply : _____ Not applicable : _____

Justification :

(L) SURPLUS MATERIAL:

TENDERERS MUST INDICATE IF THEY WILL BE PREPARED TO PURCHASE BACK FROM TRANSNET ANY SURPLUS MATERIAL WHICH MAY BECOME AVAILABLE FROM ANY RESULTING PURCHASE ORDER/CONTRACT ORIGINATED FROM THE QUOTATION SUBMITTED.

(M) PAYMENT OVERSEAS:

ONLY IF TRANSNET LIMITED IS REQUESTED BY THE TENDERER TO EFFECT PAYMENT OVERSEAS DIRECT TO THE TENDERER'S PRINCIPAL SUPPLIER THE FOLLOWING INFORMATION IS REQUIRED:

- * EXCHANGE RATE ON WHICH THE QUOTATION PRICE IS BASED: R1,00 (S.A. CURRENCY) BEING EQUAL TO (FOREIGN CURRENCY)
- * PERCENTAGE IN RELATION TO THE QUOTATION PRICE TO BE REMITTED OVERSEAS:

- * NAME OF COUNTRY TO WHICH PAYMENT IS TO BE MADE:

- * APPLICABLE DATE OF EXCHANGE RATE:

- * BENEFICIARY'S NAME AND FULL ADDRESS:

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: EFQ-21727
Date : 23.08.2016

Page
7

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

* BENEFICIARY'S BANKERS AND FULL ADDRESS:

* APPLICABLE ACCOUNT NUMBER:

(N) DELIVERY DATE:

TENDERERS MUST FURNISH THEIR ACTUAL DELIVERY AND MANUFACTURING PERIOD HEREUNDER NOTWITHSTANDING THE DELIVERY DATES SPECIFIED BY TRANSNET.

THE FOLLOWING MUST ALSO BE FURNISHED IN REGARD TO THE ABOVE:

1. PERIOD REQUIRED TO OBTAIN RAW MATERIAL.(DAYS)
2. MANUFACTURING PERIOD.(DAYS)
3. PERIOD TO TRANSPORT MATERIAL TO DESTINATION.(DAYS)

MATERIAL NO.	1.(PERIOD)	2.(PERIOD)	3.(PERIOD)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

INDICATE THE PERCENTAGE (%) OF THE PRICE THAT IS SUBJECT TO THE VARIABLE COPPER FEE: -----%.

DATE: _____

SIGNATURE OF TENDERER(S): _____



A Division of Transnet Limited
Registration Number 1990/000900/06

TECHNICAL SPECIFICATION FOR 4-WIRE E&M DUAL CHANNEL REMOTE CONSOLE WITH EXTERNAL POWER SUPPLY

PREVIEW COPY

BBD5896
August 2009

Revision



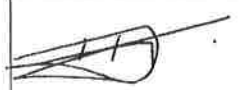

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TABLE OF CONTENTS

I	DOCUMENT AUTHORISATION.....	3
II	DISTRIBUTION.....	3
III	DOCUMENT CHANGE HISTORY	3
IV	CHANGES SINCE LAST REVISION	3
V	RELEVANT DOCUMENTATION.....	4
1.	SCOPE	5
2.	COMPLIANCE.....	5
3.	SERVICE CONDITIONS.....	5
4.	TECHNICAL REQUIREMENTS (<i>Per Channel</i>).....	6
5.	SCHEDULE OF REQUIREMENTS.....	8
6.	QUALITY OF MATERIAL.....	8
7.	ACCEPTANCE TESTS.....	11
8.	MAINTENANCE AND SERVICE	11
9.	TECHNICAL HANDBOOKS	11
10.	GENERAL	12

I DOCUMENT AUTHORISATION

FUNCTION	NAME	TITLE & DIVISION	SIGNATURE	DATE
Compiled by:	A J Kable	Chief Engineering Technician Transmission Engineering (Radio)		16/07/2009
Reviewed by:	M Nuttall	Manager Transmission		2009-07-17
Checked by:	T Dean	Manager Quality Support		4/8/2009
Authorised by:	N van Wyk	Operations Manager Service Execution		16/07/09

II 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.

III DOCUMENT CHANGE HISTORY

ISSUE NO.	DATE ISSUED	ISSUED BY	HISTORY DESCRIPTION

IV CHANGES SINCE LAST REVISION

CLAUSE	DESCRIPTION

V RELEVANT DOCUMENTATION

DOCUMENT NO.	DESCRIPTION	LOCATION
SANS 9001:2000	Quality Management System	External
ISO14001	Environmental Management System	External
RoHS	Restriction on Hazardous substances	External
BS 3939	Standard Graphic Symbols for Circuit, Schematic and Architectural Diagrams	External

ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
A	Ampere
BS	British Standard
dB	Decibel
DC	Direct Current
DTMF	Dual Tone Multi Frequency
Hz	Hertz
ISO	International Organisation for Standardization
LED	Light Emitting Diode
Mic.	Microphone
PTT	Press to Talk
RMS	Root Mean Square
Rx	Radio receiver
SANS	South African National Standards
THD	Total Harmonic Distortion
Tx	Radio transmitter
V	Volts
W	Watt

DEFINITIONS	DESCRIPTION
<u>GENERAL</u>	
dB	The decibel is 1/10 of a Bel. dB is the logarithm of the ratio between a measured quantity and an agreed reference level.
dBc	The absolute power in decibel with reference to the carrier power.
dBm	The absolute power in decibel with reference to 1 mW.

1. SCOPE

This specification covers the requirements of Transnet for the supply of Dual Channel Desk top Remote Consoles to operate on 4-Wire E&M lines with the ability to do paging. The Train Control Officer must be able to monitor both channels or independently switch between channels as required.

A number of consoles will be connected via existing line branching units to three separate radio networks to manage train operations and maintenance staff in the field. Train Control Officers will be required to wear headphones at all times to ensure safe train movements.

2. 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 Offers, which include deviations of a minor nature, not departing greatly from the specification, will be considered at the discretion of Transnet.
- 2.3 Tenderers may offer alternatives for consideration. Alternative offers are to be reflected on a separate schedule and the following particulars are to be provided:
- 2.3.1 A fully detailed technical description in English explaining the functioning of the individual components, the operation of the items of equipment as well as the procedure to be followed in clearing faults and maintenance.
 - 2.3.2 Drawings and brochures supporting the offer.
 - 2.3.3 Details of deviations from the specifications of Transnet.
 - 2.3.4 The values of imported and local components of complete items are to be stated separately.

3. SERVICE CONDITIONS

- 3.1 The equipment must be suitable for continuous operation under the following conditions:
- | | |
|----------------------|---|
| Altitude | : 0 to 1 800 metres above sea level. |
| Ambient temperatures | : Plus 5 °C to plus 40 °C. |
| Air pollution | : Light saline laden industrial and locomotive fumes. |
| Relative humidity | : As high as 85%. |
| Lightning | : Moderate. |
- 3.2 All stated ambient temperature ranges in this specification must be from +5 °C to +40 °C .
- 3.3 All component parts, including wiring, etc. must be manufactured and processed to ensure reliable operation under these conditions.

4. TECHNICAL REQUIREMENTS (Per Channel)

- 4.1 Power Requirements:** 11.0 V DC to 15.6 V DC @ 10 W maximum. Nominal 13.8 V. Internally fused.
- 4.2 Audio Output to Speaker:** 2 W RMS at $\approx 0.5\%$ THD into a 4 ohms Loud Speaker, using supplied wall pack or 12 V DC. Nominal 13.8 V.
- 4.3 Controls:** Volume up/down (*Headset and Speaker*), Transmit, Mute, Channel select and 12-digit keypad.
- 4.4 LEDs:** Data Rx, Transmit and Monitor/Squelch (*Indicating which channel is receiving.*)
- 4.5 Display:** Graphical Display (*Paging code entries and Caller ID.*)
- 4.6 Spurious Radiation from console** ≈ -119 dBm in the radio operating band (Measured at 1m)
- 4.7 Frequency Response:** ± 0.5 dB from 300 to 3000 Hz. 1000 Hz reference.
- 4.8 Signal to Hum and Noise ratio:** ≈ 50 dB below operating level.
- 4.9 Audio Input Line:**
- Impedance: 600 ohms Balanced. (Isolated)
 - Return Loss: ≈ -25 dB
 - Nominal maximum levels: -25 to +5 dBm (Factory set at -10 dBm ± 0.5 dBm)
 - Channel Crosstalk: Better than -65 dBm @ 1000 Hz
 - Common mode rejection: Better than -60 dBm @ 1000 Hz
- 4.10 Audio Output Line:**
- Impedance: 600 ohms Balanced. (Isolated)
 - Return Loss: ≈ -25 dB
 - Nominal maximum levels: -25 to +5 dBm (Factory set at -10 dBm ± 0.5 dBm)
 - Frequency response: ± 0.5 dB from 300 to 3000 Hz. 1000 Hz reference
 - THD: $\approx 0.5\%$
- 4.11 Voice logger Output:** *Transmit and Receive Audio Mixed*
- Impedance: 600 ohms Balanced. (Isolated)
 - Return Loss: ≈ -25 dB
 - Nominal maximum levels: -25 to +5 dBm (Factory set at 0 dBm ± 0.5 dBm)
 - Frequency response: ± 0.5 dB from 300 to 3000 Hz . 1000 Hz reference.
 - THD: $\approx 0.5\%$
- 4.12 Operating Modes:** 4 Wire E&M
- Inputs "E" Lead: 5 to 50 V DC (Isolated *Two wire*) Bi-directional polarity
 - Output "M" Lead: Isolated Voltage free contact - 50 V DC 1 A (resistive) *Two-Wire.*

- 4.13 Paging Formats:** 1 to 8 digits DTMF (*Encode and Decode*)
ZVEI 1/2/3 (*Encode and Decode*)
An alarm must be generated when own code is received.
The selective call function must be channel selectable with a different alarm tone per channel. The operator must be able to cancel/mute the alarm tone. The alarm tone time period must be internally adjustable.
- 4.14 Interface Requirements:** Functionally all interface's must be selectable per channel with outputs to speaker/headset additionally having the ability to monitor both channels. All input levels must be independently adjustable.
Hand Set
Desk top/Boom Mic. (*must be Noise cancelling*)
Headset
Wireless headset (*with PTT function*)
External Speaker (*separate output per channel*)
External PTT foot switch
- 4.15 Data Reception:** Audio to speaker/headset must be muted during FFSK data reception (could be continuously mute and only opened when a voice signal is received).
Indication must be given during Data reception.
Transmitting must be inhibited during data reception.
- 4.16 Console Size:** 250 mm(W) X 200 mm(D) X 80 mm(H) Maximum dimensions.
- 4.17 Wireless Headset** Shall operate seamlessly without interference where other wireless headsets have been deployed or operate in the same radius. Pairing headset to console must be simple robust and secure.
Operating range: Up to 10m.
Talking Time: Up to 5 hours.
Stand-by Time: Up to 120 hours.
Charging time: Less than 2 hours.
Console Speaker volume: Must default to low volume when wireless headset is selected on select Channel but normal volume on monitor channel if headset not selected to monitor both channels.
Press to Talk Function: Must operate from headset or from footswitch.
Transmit Audio: Selectable per channel.
Receive audio: Selectable per channel or both channels monitored.

- 4.18 Foot Switch** The foot switch shall be a common PTT for Headset, wireless headset and desktop microphone selected per channel.
- Housing: Rugged Cast Iron Industrial Type.
- Operating life: $>10^6$ Switching cycles.
- 4.19 Desktop Microphone**
- Type: Rugged high quality flexible goose neck with PTT.
- Polar pattern: Cardioid (Unidirectional)
- Sensitivity adjustment: The desktop microphone shall have an internal amplifier with sensitivity adjustment.
- 4.20 External Power Supply** Both input and output must be fuse protected. The value must be as low as possible without maximum current drain causing the fuse to blow.
- Input Voltage: 220V AC $\pm 10\%$; 50Hz $\pm 5\%$
- Output Voltage setting: 13.8V DC $\pm 2\%$ no load – full load
- Output Voltage regulation: 13.8V DC, 5% at full load
- Output Current: 2Amp
- Output Voltage ripple and noise level: Shall not exceed 30mv peak-to-peak (*measured with resistive load*)
- Radiation of spurious frequencies: ≤ -119 dBm in the radio operating band (Measured at 1m)
- 4.21 Configuration of Console:** VME PC with RS232 or USB adapter cable

5. SCHEDULE OF REQUIREMENTS

- 5.1 Where only equipment in terms of this specification is required by Transnet, a Schedule of Requirements will accompany this specification. Where a system, including other equipment, is to be supplied, a main specification will be included in the tender documents together with a Schedule of Requirements for all the equipment.
- 5.2 The equipment required is listed in the Schedule of Requirements. The equipment must comply with the details therein, in addition to the requirements of the relevant clauses of this specification.
- 5.3 The tenderers statement of compliance as per clause 2 must also cover the relevant clause of the Schedule of Requirements.

6. QUALITY OF MATERIAL

- 6.1 Preference will be given to manufacturers who guarantee that they comply with the provisions of the code of practice for quality management systems as set out in ISO 9000.
- 6.2 Tenderers must note that the technical personnel of Transnet will carry out inspections to determine whether the code of practice has been adhered to.

- 6.3 Tenderers must submit details of procedures they intend to adopt to comply with ISO 9000.
- 6.4 Materials, which may under the influence of heat, light or pressure, decompose or liberate elements or compounds likely to corrode or affect other materials or cause electrolytic corrosion will not be acceptable.
- 6.5 Mounting screws, where used, must not be self-tapping. Bushes and threaded inserts must be used.
- 6.6 All covers, jacks, sockets etc. must be provided with adequate seals.
- 6.7 Evident indicator lamps must be light emitting diode (LED) types.
- 6.8 Printed circuit boards must be used to mount the electronic components.
- 6.9 Printed circuit boards must be guaranteed not to promote or permit the growth of fungi under any conditions.
- 6.10 Printed circuit boards must 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:
- 6.10.1 A suitable tolerance for the correct fitting of the board between guides and the wiring socket can be guaranteed.
 - 6.10.2 Sufficient contact area is provided to guarantee reliable contact.
 - 6.10.3 Sufficient contact pressure is provided to ensure contact but not to remove precious metal from the contacts.
 - 6.10.4 In the final protective coating of the boards, no varnish or other protective material is permitted to cover the contacts.
 - 6.10.5 After 500 insertions and withdrawals, there must be no noticeable deterioration of the contacts of either the board or socket.
- 6.11 All printed circuit board sockets; plugs or edge connectors must be gold plated or better.
- 6.12 Heavy components must not be mounted on printed circuit boards unless it can be guaranteed that the board will stand up to severe handling without fracturing with the components so mounted.
- 6.13 No unmarked and/or untested components may be used.
- 6.14 Only new components must be used.
- 6.15 All subassemblies and printed circuit boards must be permanently marked with an identification code.
- 6.16 Test points 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.
- 6.17 All wiring and terminations between subassemblies must be identified.

- 6.18 No termination must have more than one conductor per solder joint.
- 6.19 Soldering direct to the chassis of any equipment will not be permitted. All chassis terminations must be made with soldering tags.
- 6.20 All pre-set variable controls must be clearly marked and readily identified in the equipment.
- 6.21 Terminations on printed circuit boards must not be made direct to the printed board. Where edge connectors are not used, termination to the printed board must be made via terminal posts.
- 6.22 Where different metals are used in conjunction with each other, tenderers must explicitly guarantee that no electrolytic corrosion will occur under operating conditions.
- 6.23 All components used must be types, which can be readily obtained from local stocks.
- 6.24 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 minimise unnecessary movement of plug-in modules on a trial and error basis when locating faults.
- 6.25 The number of component types must be kept to a minimum consistent with good design of the equipment.
- 6.26 The functions of all controls, switches, etc. must be clearly engraved or otherwise permanently marked by means of approved symbols in English.
- 6.27 All components must be suitably rated for the function they have to perform without interference to neighbouring material.
- 6.28 Resistors and restive components must not rise in temperature so that mounting boards or markings thereon are burnt or discoloured.
- 6.29 Fuses must be rated to give adequate protection to the circuit served while not rupturing prematurely.
- 6.30 The equipment layout must be planned to facilitate fault clearance and maintenance.
- 6.31 All components must be clearly marked and must be capable of easy reference to circuit diagrams and handbooks that are supplied with the equipment.
- 6.32 Equipment using plug-in modules must be fitted with guides for the insertion of modules. It must not be possible to incorrectly insert a module.
- 6.33 Equipment that is designed for desktop applications.
- 6.33.1 Must have suitable rubber feet so as not to damage mounting surfaces.
 - 6.33.2 Must be designed so that operators have easy access to all controls and keypads.
 - 6.33.3 All controls, indicator lamps and keypads must be clearly labelled.
 - 6.33.4 Must be designed so that the graphic display is visible to operators whether seated or in the standing position.

- 6.33.5 All external-wiring connectors must be mounted on the rear of the desktop unit other than the desktop microphone, which may be plugged into the front or side of the desktop unit.
- 6.34 All peripheral connecting sockets must be clearly labelled.
- 6.35 All connectors must be of the lockable/latching type.
- 6.36 All the audio lines must be protected against spikes and surges. The tenderers shall indicate what protection would be provided.

7. ACCEPTANCE TESTS

- 7.1 Transnet will conduct acceptance tests on the equipment. The equipment will not be accepted nor payment authorised until these tests have been completed and it has been confirmed that the equipment supplied is fully in accordance with the requirements of this specification and/or the stated claims of the tenderer as accepted by Transnet.
- 7.2 The successful tenderer must agree to rectify any defects at no cost to Transnet, where the equipment does not meet the tender requirements and/or the stated claims made by the tenderer.

8. MAINTENANCE AND SERVICE

- 8.1 The tenderer must give full particulars of the maintenance, spare parts and service facilities, which will be available in the Republic of South Africa. The names and addresses of the companies concerned must be furnished.
- 8.2 The tenderer must list the major centres where maintenance facilities can be provided and must state if repairs under guarantee can be undertaken at these centres.
- 8.3 Tenderers must state what provision will be made to ensure an adequate supply of locally available spare components for a period of 10 years after the order is placed.
- 8.4 Transnet will not consider tenders from tenderers who cannot provide an efficient spares and maintenance service. Tenderers must state whether they are prepared to agree to an inspection of their maintenance premises by the engineering personnel of Transnet.

9. TECHNICAL HANDBOOKS

- 9.1 Technical handbooks must be clearly and professionally printed in English on quality paper. Photostat copies will not be acceptable unless it simulates professional printing quality and in colour where applicable.
- 9.2 Technical information (handbooks) on compact disc is acceptable.
- 9.3 The technical handbooks must be packed with the equipment.
- 9.4 Each set of handbooks must include the following:
- 9.4.1 Operating instructions.
- 9.4.2 Complete maintenance instructions.

- 9.4.3 Complete and detailed alignment procedures in a proven and easy to follow order.
- 9.4.4 A detailed technical description of the equipment.
- 9.4.5 Complete circuit diagrams, drawings and photographs of the equipment. The photographs and drawings must clearly indicate component and module location in the equipment. All component numbers must be clearly indicated.
- 9.4.6 A list of parts, giving the values of all components, i.e. resistive, capacitive, inductive, integrated circuit and semi-conductor numbers for each schematic, drawing.
- 9.4.7 Detailed printed circuit board wiring diagrams showing component numbers and positions and the wiring itself. Multilayer board wiring must be shown to include all layers of printed wiring clearly and discernible.
- 9.4.8 Voltage levels, current values and test points clearly indicated on circuit diagrams and printed circuit board layouts.
- 9.4.9 Complete circuit diagrams of all individual modules.
- 9.5 All symbols and notations used on drawings and circuit diagrams preferably comply with the requirements laid down in BS 3939. Where symbols and notations do not comply with these requirements, each drawing shall be accompanied by a legend clearly detailing BS 3939 equivalents.
- 9.6 No hand-written notes and numbers must appear in a handbook supplied by a tenderer. All writing must be of proper printed form.
- 9.7 Transnet 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 Transnet.
- 10. GENERAL**
- 10.1 The tenderers must submit technical specification pamphlets and schematic diagrams covering the equipment offered. Photographs and complete drawings clearly displaying the external dimensions and physical appearance of the equipment must also be submitted with the tender.
- 10.2 All Equipment shall carry a 12-month guarantee valid from the date Transnet Freight Rail accepts the equipment. The tenderer shall state the terms of the guarantee.

END OF DOCUMENT

**BY CLAUSE COMPLIANCE SCHEDULE**

The compliance response is to contain ONLY the following statements, "Comply", or "Do not comply" and Reason for "Not comply"

DESCRIPTION	Comply/Not Comply	Explanation/Deviation/Reason
1. SCOPE		
2. COMPLIANCE		
2.1		
2.2		
2.3		
2.3.1		
2.3.2		
2.3.4		
3. SERVICE CONDITIONS		
3.1		
3.2		
3.3		
4. TECHNICAL REQUIREMENTS(Per Channel)		
4.1		
4.2		
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4.4		
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4.9		
4.10		
4.11		
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4.18		
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4.21		
5. SCHEDULE OF REQUIREMENTS		
5.1		
5.2		
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6. QUALITY OF MATERIAL		
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7.ACCEPTANCE TESTS		
7.1		
7.2		
8. MAINTANANCE AND SERVICE		
8.1		
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8.3		



8.4		
9. MAINTANANCE AND SERVICE		
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10. GENERAL		
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10.2		
<p style="text-align: center;">*END OF DOCUMENT*</p>		