RFQ / TENDER

Tender No: JW00389

Vendor No: 11001386

BOARD LIST
BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT
2000

Purchaser : Joseph Webber
Telephone : 021 9403829
Fax Number: 021 9403883

Please quote reference:
A14/6000607945

Deliver to:
Mr.
Portia Phungula
Transnet Freight Rail, Telecoms
021 940 2100/0832473571

Closing Date :16.10.2014
Validity Date :16.12.2014
RFQ No :6000607945

Prices in South African currency including the cost of packing and packing materials for delivery as follows:

Item	Qty	Material	Description	A: DIRECT by rail to destination point (Railage a/c .....)	B: DIRECT by other means to destination point	C: EX OVERSEAS WORKS
00010	20		Low Profile antenna	R..... Each	..... Each	R..... Each

Delivery Date: 25.03.2015

FULL DETAILS OF DESCRIPTION
SUPPLY LOW PROFILE ANTENNAS REQUIRED AT BELLVILLE

SEE ATTACHED SPECIFICATIONS

DATE: .....

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

CONTACT PERSON: ..... TEL No: .....

RFQ / TENDER

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

				Prices in South African currency including the cost of packing and packing materials for delivery as follows: A: DIRECT by rail to destination point (Railage a/c .....)	B: DIRECT by other means to destination point	C: EX OVERSEAS WORKS
Item	Qty	Material	Description			

1. Transnet indemnifies itself from any claims which may arise as a result of a Bidder not being able to transmit his / her quote to Transnet for any reason whatsoever before the closing time.

2. Server issues outside of the Transnet electronic environment will not be considered as a reason for acceptance of late RFQ's

3. In the closing details paragraph of the RFQ:- RFQ's submitted via email must be addressed to both: carol.swan@transnet.net ; AND Johanna.kotze@transnet.net - the subject of the email must indicate only the RFQ number and closing date. No other details must appear in the subject comm.

4. I/We_____hereby confirm we have read the specifications and clearly understand the requirements and offer to supply the goods/services at the prices quoted in the Price Schedule below, in accordance with the conditions related thereto.

5. Lastly, restrict the return of email documents to the Pricing Schedule and compulsory returnable documents HOWVEVER include the above phrase in yellow in the Quote section 2

Lastly, restrict the return of email documents to the Pricing Schedule and compulsory returnable documents.

DATE: ..... SIGNATURE OF TENDERER(S): ....

1 Broad-Based Black Economic Empowerment [B-BBEE]

Transnet fully endorses and supports the Government's Broad-Based Black Economic Empowerment Programme and it would therefore prefer to do business with local business enterprises who share these same values. Transnet will accordingly allow a "preference" to companies who provide a B-BBEE Verification Certificate. All procurement transactions will be evaluated accordingly.

1.1 B-BBEE Scorecard and Rating

As prescribed in terms of the Preferential Procurement Policy Framework Act (PPPFA), Act 5 of 2000 and its Regulations, Respondents are to note the following:

- Proposals will be evaluated on price which will be allocated 80 points and preference which will be allocated 20 points, dependent on the value of the Services
- The 80/20 preference point system applies where the acquisition of the Services will be less than R1 000 000.00.
- If the 80/20 preference point system is stipulated and all Bids received exceed R1 000 000.00, the RFP will be cancelled

In compliance with the Government Gazette No 34612, Notice No. 754 dated 23 September 2011, as from 1 October 2011 valid B-BBEE Verification Certificates must be issued by:

a) Verification Agencies accredited by the South African National Accreditation System [SANAS]; or

b) Registered Auditors approved by the Independent Regulatory Board of Auditors [**IRBA**], in accordance with the approval granted by the Department of Trade and Industry.

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

c) **Large Enterprises** [i.e. annual turnover greater than R35 million]:
- Rating level based on all seven elements of the B-BBEE scorecard

d) **Qualifying Small Enterprises – QSE** [i.e. annual turnover between R5 million and R35 million]:
- Rating based on any four of the elements of the B-BBEE scorecard

e) **Exempted Micro Enterprises – EME** [i.e. annual turnover less than R5 million]:

In accordance with B-BBEE Codes of Good Practice [Statement 000, Section 41], any enterprise with an annual total revenue of R 5 million or less qualifies as an EME.

- Automatic rating of B-BBEE Level 4 irrespective of race or ownership
- Black ownership greater than 50% or Black Women ownership greater than 50% automatically qualify as B-BBEE Level 3

Sufficient evidence to qualify as an EME would be a certificate (which may be in the form of a letter) from an auditor or accounting officer or a certificate from a Verification Agency accredited by SANAS. The certificate must confirm the company's turnover, black ownership / black female ownership and B-BBEE status level.

Respondents are required to furnish proof of the above to Transnet. [i.e. a detailed scorecard as stipulated above in respect of Large Enterprises and QSEs, or a certificate in respect of EMEs].

Transnet will accordingly allocate a maximum of **20 [twenty] points** in accordance with the **80/20** preference point system prescribed in the Preferential Procurement Policy Framework Act (PPPFA), Act 5 of 2000 and its Regulations to the Respondent's final score based on an entity's B-BBEE scorecard rating.

N.B. Failure to submit a B-BBEE certificate, which is valid as at the Closing Date of this RFP, will result in a score of zero being allocated for B-BBEE.

2 Evaluation Criteria

Transnet will utilise the following criteria in choosing a Supplier/Service Provider:-

- Weighted evaluation based on 80/20 preference point system:
  - **Transnet will utilise the following formula in its evaluation of Price:**
    - $PS = 80\left(1 - \frac{Pt - Pmin}{Pmin}\right)$

Where:

Ps = Score for the Bid under consideration
Pt = Price of Bid under consideration
Pmin = Price of lowest acceptable Bid

- B-BBEE status of company

Preference points will be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (80/20 system)
1	20
2	18
3	16
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

TRANSTEL

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

SPECIFICATION FOR SUPPLY OF LOW PROFILE DC GROUNDED COMBINED UHF AND GSM/WiFi AND GPS TRAIN ANTENNAS

AND

LOW PROFILE DC GROUNDED COMBINED VHF AND GSM/WiFi AND GPS TRAIN ANTENNAS

SPC-01274
DECEMBER 2006

Revision 1.00

TABLE OF CONTENTS

I DOCUMENT AUTHORISATION

FUNCTION	NAME	TITLE & DIVISION	SIGNATURE	DATE
Compiled by :	LJ Valkanyi	Project Manager, Project Services	*Signed LJ Valkanyi*	12/12/2006
Reviewed by :	HG Strydom	Acting Divisional Manager, Transport Telecoms Projects	*Signed HG Strydom*	12/12/2006
Authorised by :	DF Botha	Group Executive, Transport Telecoms	*Signed DF Botha*	12/12/2006

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
1.00	December 2006	Project Services	New document

IV CHANGES SINCE LAST REVISION

CLAUSE	DESCRIPTION
None	

V ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
AC	Alternating current
dB	decibel
dBd	Decibel dipole
dBr	Decibel Relative (Referring to a specific level or starting point)
DC	Direct current
FME	Fujitsu Microelectronics Europe
GPS	Global Positioning System
GSM	Global System for Mobile Communications
SMA	Sub Miniature Version A
UHF	Ultra High Frequency
VHF	Very High Frequency
VSWR	Voltage Standing Wave Ratio
WIFI	Wireless-Fidelity

DEFINITIONS	DESCRIPTION
None	

VI RELEVANT DOCUMENTATION

APPLICABLE

DOCUMENT NO.	DESCRIPTION	LOCATION
BBB 2616 version 0 dated 11 September 2006	Locomotive Antennas for use on Spoornet trains	Spoornet specification
RS-2006/143 dated 8 September 2006	Mechanical and Electrical safety requirements for new tri-band locomotive roof mounted antenna	Spoornet report

1. SCOPE

This specification covers the requirements of Transnet for the supply of combined UHF 450 – 470 MHz and GSM / WiFi and GPS, as well as a VHF 136-174 MHz and GSM/WiFi and GPS low profile train antennas.

2. SCHEDULE OF REQUIREMENTS

2.1 The equipment required is listed in the Schedule of Requirements. The tenderer's clause-by-clause statement of compliance shall also cover the relevant clauses in the Schedule of Requirements.

2.2 The Schedule of Requirements will specify the antenna centre frequency and bandwidth; or the transmit and receive frequencies to be covered by the antennas bandwidth.

2.3 Any special requirements not covered by this specification will be included in the Schedule of Requirements.

3. COMPLIANCE

3.1 Tenderers must submit their offers in terms of this specification.

3.1.1 Offers, which include deviations of a minor nature, not departing greatly from the specification, will be considered at the discretion of Transnet.

3.2 Tenderers may submit alternative offers for equipment considered by them to be equal to or better than that called for in the specification.

3.2.1 Such alternative offers must be accompanied by full explanation supporting the tenderer's claims regarding the suitability of the equipment.

3.2.2 Such alternative offers will be considered at the discretion of Transnet.

3.3 Tenderers must indicate, clause by clause, either that their offers comply in every respect with this specification, or if not, precisely how they differ.

3.4 A broad statement to the effect that the equipment is in accordance with this specification is not acceptable.

3.5 Failure to comply with the above requirements may preclude a tender from consideration.

4. SERVICE CONDITIONS

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

Ambient temperature	:	-30°C to +75°C
Relative humidity	:	As high as 100%
Altitude	:	0 to 2 000 metres
Air pollution	:	Heavily saline laden industrial and locomotive fumes containing metallic dust.
Water	:	100 mm/hour rain when mounted correctly while the train is moving at 100 km/hour.
Lightning	:	Severe
Vibration	:	Severe

4.2 All component parts, including wiring, must be manufactured and processed to ensure reliable operation under these conditions.

5. TECHNICAL REQUIREMENTS FOR ANTENNA

5.1 General Requirements Concerning Antenna Construction

5.1.1 The antenna construction must be such as to incorporate the functionality of the UHF + GSM/WiFi + GPS antenna into the same unit. Each of the antennas must have a separate connector, but all antennas must be incorporated into the same physical housing. This applies to the VHF + GSM/WiFi + GPS antenna as well.

5.1.2 The antenna must be constructed for mounting on a metal train roof and mounting dimensions as per Figure 1.

5.1.3 Care must be taken to ensure easy access to the connectors while the antenna is mounted in position. Flyleads are not preferred. If flyleads cannot be avoided, it must be kept to a distance of less than 20 cm . Flyleads must also be protected against chafing.

5.1.4 The mechanical dimensions of the antenna are as follows :

Height	:	110 mm maximum
Width	:	or diameter 114 mm
Mass	:	1,2 kg maximum

5.1.5 All necessary mounting hardware, gaskets and seals must be supplied, including three mounting studs, 8 mm thick x 3 cm long, including star washers and nyloc nuts. See figure 1 for location of mounting studs.

5.1.6 Where mounting studs are used, they must be waterproofed by means of O-rings or similar means. Tenderers must give full detail of the mechanism used.

5.1.7 The antennas must be insulated against sparking and other discharge from the electrified traction overhead wire as per report RS-2006/143.

5.1.8 If a protective cover or dome is used to cover the internal components of the antenna, it must be of good mechanical standard. The protective cover must have very little or no effect on the efficiency of the antenna.

5.1.9 The protective cover must be able to withstand the impact as per Spoornet report RS-2006/143 under subclause 8.2.

5.1.10 The protective cover must be able to withstand contact with sparks from the electrified traction overhead wires as per Spoornet report RS-2006/143 under subclauses 8.4 and 8.5.

5.1.11 The antenna must be able to operate continuously at speeds of up to 150 km/hour.

5.1.12 The antenna must not be constructed of any materials that may pose a health risk to drivers, maintenance personnel or any other person that may come into contact with the antenna.

5.1.13 The antenna must not require routine maintenance.

5.2 **UHF Antenna Specific Requirements**

5.2.1 The antenna must be supplied cut and tuned for the frequencies specified and no field tuning must be necessary (450 MHz to 470 MHz band).

5.2.2 Transmit power to antenna will not exceed 25 watts.

5.2.3 The antenna must be suitable for operation on frequencies in the band specified in the Schedule of Requirements. Tenderers must state bandwidth of the antenna offered.

5.2.4 The VSWR must not exceed 1,5:1 max over the entire specified bandwidth.

5.2.5 The nominal impedance must be 50 ohms measured at the antenna terminal when mounted as specified.

5.2.6 The antenna must be vertically polarised.

5.2.7 The materials used for the construction of the antenna and mounting clamps etc. must be chosen and/or suitably treated so as to resist weathering and avoid corrosion due to dissimilar metals being in physical contact.

5.2.8 The antenna cable connector must be waterproofed by means of a rubber O-ring or similar arrangement. Tenderers are to give full details of how this is achieved.

5.2.9 Tenderers must submit full technical details, including, but not limited to, polar diagrams showing antenna radiation patterns, mass, wind rating and gain with their quotations. Tenderers must state the protection mechanism from lightning and contact with overhead electric line e.g. direct ground.

5.2.10 Antenna gain.

5.2.10.1 The gain of the antenna in any direction must be taken to mean the ratio of –

(i) the power received in the far-field in that direction by a reference test dipole antenna when a test signal is injected into the antenna-under-test while it is mounted on the roof of a locomotive;

(ii) to the power received at the same place in the far-field by the reference test dipole antenna when the test signal is injected into a half-wave dipole antenna mounted in free space at the same height and in the same position as the antenna-under-test, with the locomotive and the antenna-under-test removed, and all other test conditions the same. The half-wave dipole must be mounted one-half-wavelength from the non-metallic, insulating support post.

5.2.10.2 The antenna must have an omni directional radiation pattern with a minimum gain of 0 dBd (±1 dB) in the horizontal plane (measured at antenna termination point).

5.2.10.3 The gain in the vertical plane for angles less than 30 degrees from the horizontal plane must not vary more than 1 dB from the gain in the horizontal plane.

5.2.10.4 The gain must not vary more than ±1 dBr over the entire frequency band.

5.2.10.5 The radio antenna must be able to transmit at rated output and specified frequency, without affecting or desensing the GPS /GSM receivers/antenna system. Tenderers must provide documentary proof of this.

5.2.10.6 Certified radiation polar diagrams and VSWR readings must be provided with the tender.

5.2.10.7 The antenna connector must be suitable for the frequency of the antenna. The type of connector shall be 50 ohm "N" type female. If another type is proposed, full details must be provided.

5.3 **VHF Antenna Specific Requirements**

5.3.1 The antenna must be supplied cut and tuned for the frequencies specified and no field tuning must be necessary (136 MHz to 174 MHz band).

5.3.2 Transmit power to antenna will not exceed 25 watts.

5.3.3 The antenna must be suitable for operation on frequencies in the band specified in the Schedule of Requirements. Tenderers must state bandwidth of the antenna offered.

5.3.4 The VSWR must not exceed 1,5:1 max over the entire specified bandwidth.

5.3.5 The nominal impedance must be 50 ohms measured at the antenna terminal when mounted as specified.

5.3.6 The antenna must be vertically polarised.

5.3.7 The materials used for the construction of the antenna and mounting clamps etc. must be chosen and/or suitably treated so as to resist weathering and avoid corrosion due to dissimilar metals being in physical contact.

5.3.8 The antenna cable connector must be waterproofed by means of a rubber O-ring or similar arrangement. Tenderers are to give full details of how this is achieved.

5.3.9 Tenderers must submit full technical details, including, but not limited to, polar diagrams showing antenna radiation patterns, mass, wind rating and gain with their quotations. Tenderers must state the protection mechanism from lightning and contact with overhead electric line e.g. direct ground.

5.3.10 Antenna gain.

5.3.10.1 The gain of the antenna in any direction must be taken to mean the ratio of –

(iii) the power received in the far-field in that direction by a reference test dipole antenna when a test signal is injected into the antenna-under-test while it is mounted on the roof of a locomotive;

(iv) to the power received at the same place in the far-field by the reference test dipole antenna when the test signal is injected into a half-wave dipole antenna mounted in free space at the same height and in the same position as the antenna-under-test, with the locomotive and the antenna-under-test removed, and all other test conditions the same. The half-wave dipole must be mounted one-half-wavelength from the non-metallic, insulating support post.

5.3.10.2 The antenna must have an omni directional radiation pattern with a minimum gain of 0 dBd (±1 dB) in the horizontal plane (measured at antenna termination point).

5.3.10.3 The gain in the vertical plane for angles less than 30 degrees from the horizontal plane must not vary more than 1 dB from the gain in the horizontal plane.

5.3.10.4 The gain must not vary more than ±1 dBr over the entire frequency band.

5.3.10.5 The radio antenna must be able to transmit at rated output and specified frequency, without affecting or desensing the GPS /GSM receivers/antenna system. Tenderers must provide documentary proof of this.

5.3.10.6 Certified radiation polar diagrams and VSWR readings must be provided with the tender.

5.3.10.7 The antenna connector must be suitable for the frequency of the antenna. The type of connector shall be 50 ohm "PL259" type female. If another type is proposed, full details must be provided.

5.4 GPS Antenna Specific Requirements

5.4.1 The antenna must be suitable for the use with any GPS receiver unit in the 1,2 – 1,6 GHz band

5.4.2 The antenna must be DC protected, to prevent high voltage from entering the equipment connected to the antenna. This protection mechanism must prevent the GPS equipment from receiving high voltages due to accidental contact with overhead wires or lightning strikes. Tenderers must indicate the proposed mechanism of protection.

5.4.3 The antenna must have a nominal impedance of 50 ohm .

5.4.4 The antenna cable connector must be waterproofed by means of a rubber O-ring or similar arrangement. Tenderers must give full details of how this is achieved.

5.4.5 The antenna must be suitable for operation on locomotives working under 25 k Volt AC, 50 k Volt AC and 3 k Volt DC overhead cables and on diesel and diesel-electric locomotives.

5.5 GSM / WiFi Antenna Specific Requirements

5.5.1 The GSM and WiFi elements can be a combination, covering the appropriate bands (GSM 900/1800/1900 MHz and WiFi band 2,4 -2,5 GHz).

5.5.2 The antenna must be supplied cut and tuned for the frequencies specified and no field tuning must be necessary for both bands.

5.5.3 The antenna must be suitable for operation on frequencies in the band specified in the Schedule of Requirements. Tenderers must state bandwidth of the antenna offered.

5.5.4 The VSWR must not exceed 2:1 max over the entire specified bandwidth.

5.5.5 The nominal impedance must be 50 ohms measured at the antenna terminal when mounted as specified.

5.5.6 The antenna must be vertically polarised.

5.5.7 The materials used for the construction of the antenna and mounting clamps etc. must be chosen and/or suitably treated so as to resist weathering and avoid corrosion due to dissimilar metals being in physical contact.

5.5.8 The antenna cable connector must be waterproofed by means of a rubber O-ring or similar arrangement. Tenderers are to give full details of how this is achieved.

5.5.9 Tenderers must submit full technical details, including, but not limited to, polar diagrams showing antenna radiation patterns, mass, wind rating and gain with their quotations. Tenderers must state the protection mechanism from lightning and contact with overhead electric line e.g. direct ground.

5.5.10 The antenna must have an omni directional radiation pattern in the horizontal plane (measured at antenna termination point).

5.5.11 The gain in the vertical plane for angles less than 30 degrees from the horizontal plane must not vary more than 1 dB from the gain in the horizontal plane.

5.5.12 The radio antenna must be able to transmit at rated output and specified frequency, without affecting or desensing the UHF / VHF receivers/antenna system. Tenderers must provide documentary proof of this.

5.5.13 Certified radiation polar diagrams and VSWR readings must be provided with the tender.

5.5.14 The antenna connector must be suitable for the frequency of the antenna. The type of connector shall be 50 ohm FME/SMA type female in-line If another type is proposed, full details must be provided

6. QUALITY OF MATERIAL

All materials used must be of the best quality and of the class most suitable for the purpose for which it is required. Tenderers must quote the authorised standards to which the material or the equipment offered conforms.

7. EVALUATION

7.1 Tenderers shall be required to submit samples for test and evaluation purposes. The prototype must be available for evaluation within two weeks from the date it is requested. Tests conducted on the sample antenna may include high voltage tests, which may damage the antenna. The cost of the antenna will be recoverable.

7.2 The supplier must provide specifications of the proposed antenna as well as design and test results on the antenna.

8. GENERAL

Technical matters in this specification which are not understood must be discussed with the nominated Transnet person before the closing date of the tender.

9. DRAWING OF ANTENNA FOOTPLATE

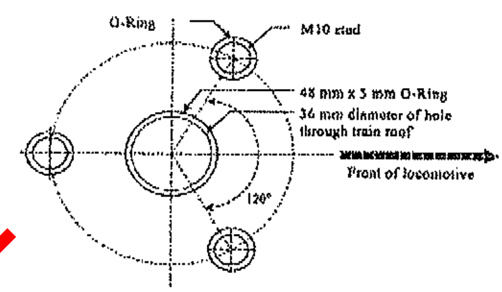

Figure 1 : Antenna footplate

END OF DOCUMENT

TRANSNET
freight rail

SCHEDULE OF REQUIREMENTS FOR LOW PROFILE TRAIN RADIO ANTENNA – CTC 1010

1. SCOPE

The Transnet Freight Rail Infra radio workshop is performing repairs and maintenance to PRASA/Metrorail and TFR train radios and accessories. Train radio antennas are an integral part of the communications, to and from a locomotive. The radio workshop requires a quotation for train radio antennas as listed below.

2. COMPLIANCE

Antennas must comply with specification No. SPC-01274 of December 2006, specifically for UHF.

3. SERVICE CONDITIONS

The antenna must be of a rugged low profile design and must operate under the following conditions:

- Air pollution: Heavily saline laden industrial and locomotive fumes
- Relative humidity: As high as 100%
- Temperature range: -30 to + 75 degrees.
- Vibration: Severe.
- Water: When mounted correctly, be able to handle 100mm/hour rain at 100km/h.

4. SPESIFICATIONS

- The antenna must be able to work on UHF- 455 to 495MHz, WIFI/GSM and GPS. Separate feeders and connectors are to be supplied for all the modes of operation.
- The antenna must be approved by the Transnet Freight Rail radio laboratory for use on the various locomotives as used by TFR and PRASA/Metrorail.
- Antenna must be able to be integrated with the existing TRD455G antennas currently used by TFR and PRASA/Metrorail.

5. SPARES AND QUANTITIES TO BE SUPPLIED

Item	Description	Quantity
1	TRD 450G low profile antenna-UHF, WIFI/GSM and GPS	20
5	Delivery of antennas to Infra Telecoms, Caledon west street, Bellville south	1