



RFQ / TENDER

Tender No: HAM 78

Vendor No: 11001386

BOARD LIST
BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT
2000

Purchaser : Helena Mauger
Telephone : 011 584 0604
Fax Number: .

Please quote reference:
DD3/6000567997

Deliver to:
Mr.
Johan Visser
1 Caledon West Street BELLVILLE CAP

Closing Date : 28.06.2011
Validity Date : 30.09.2011
RFQ No : 6000567997

1. RETURN OF QUOTATION/S:

1.1 QUOTATION/S MUST BE SUBMITTED PUNCTUALLY AT 10:00 ON THE CLOSING DATE AND LATE QUOTATIONS WILL NOT BE CONSIDERED, AND MUST BE ENCLOSED IN A SEALED ENVELOPE WHICH MUST HAVE INSCRIBED ON THE OUTSIDE: TENDER NO: HAM 78, DESCRIPTION: MICROWAVE LINK : CLOSING DATE & TIME: 28 JUNE 2011 AT 10:00 AM

1.2 IF POSTED:

SECRETARY (TRANSNET ACQUISITION COUNCIL)
PO BOX 4244
JOHANNESBURG
2000

1.3 IF DELIVERED BY HAND:

SECRETARY (TRANSNET ACQUISITION COUNCIL)
GROUND FLOOR
21 WELLINGTON ROAD
PARKTOWN
2193

2. CONDITIONS:

2.1, 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.

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

2.3, TENDERERS ARE REQUIRED TO OFFER ONLY FIRM PRICES.

2.4, BEST DELIVERY TIME MUST BE OFFERED.

2.5, DISCOUNT (TRADE DISCOUNT) CASH DISCOUNT (CONDITIONAL DISCOUNT) VALUE ADDED TAX (VAT) MUST BE SHOWN SEPARATELY.

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

DATE: SIGNATURE OF TENDERER(S):

CONTACT PERSON: TEL No:

RFQ / TENDER

Tender No: HAM 78 Page
Date : 14.06.2011 2

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

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

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.

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
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 R2m), 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.

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: HAM 78 **Page**
Date : 14.06.2011 **3**

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

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.

All CiDB suppliers will be paid 21 days from date of invoice, i.e. payment term F057.

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.

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: HAM 78
Date : 14.06.2011

Page
4

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

SCHEDULE OF REQUIREMENTS

TENDERERS SHOULD INSERT THEIR PRICE/S UNDER THE APPROPRIATE HEADINGS HEREUNDER.

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

NB. TENDERERS OFFERING GOODS FROM IMPORTED SUPPLIES MUST SUBMIT THEIR PRICES ON THE DELIVERY BASIS APPEARING UNDER COLUMN (C) OF THIS SCHEDULE OF REQUIREMENTS.

Item	Qty	Material	Description
------	-----	----------	-------------

00010 2 TRANSCEIVER

R.....

Each

Delivery Date: 19.08.2011

FULL DETAILS OF DESCRIPTION

SUPPLY & DELIVERY OF A DIGITAL MICROWAVE LINK IN THE 8 GHz FREQUENCY BAND.

THE EQUIPMENT MUST FULLY COMPLY TO SPECIFICATION SPC-TFRT0004 DATED SEPTEMBER 2009, ATTACHED.

A CLAUSE BY CLAUSE STATEMENT OF COMPLIANCE TO SPECIFICATION IS REQUIRED. THE EQUIPMENT MUST BE "1+ OPERATION SPLIT TYPE" EQUIPMENT.

TRANSNET FREIGHT RAIL RESERVES THE RIGHT TO INSPECT AND TEST THE EQUIPMENT PRIOR TO AWARD.

TRANSEIVER (TRANSMIT POWER MUST BE AT LEAST 24 dBm (HIGH POWER).

MUST BE IN THE 8 GHz BAND.

FREQUENCIES 8 482 000 AND 356 000.

RF BANDWIDHT MUST BE 7.000 MHz.

CHANNEL SEPARATION MUST BE 420 MHz.

REQUIRED AT BELLVILLE CAPE TOWN.

00020 2 INTEGRAL ANTENNA - 0.6 METER

R.....

Each

Delivery Date: 19.08.2011

FULL DETAILS OF DESCRIPTION

REQUIRED AT BELLVILLE CAPE TOWN.

00030 2 4 X E1 - 120 OHM INDOOR UNIT

R.....

Each

Delivery Date: 19.08.2011

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: HAM 78 Page
Date : 14.06.2011 5

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

Item	Qty	Material	Description
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FULL DETAILS OF DESCRIPTION

MUST HAVE ETHERNET CAPABILITIES FOR 10BASET. REQUIRED AT BELLVILLE CAPE TOWN

00040 2 50 METER INDOOR TO OUTDOOR CABLE WITH 50

R.....
Set

Delivery Date: 19.08.2011

FULL DETAILS OF DESCRIPTION

50 METER INDOOR TO OUTDOOR CABLE WITH 50 CABLE CLAMPS. REQUIRED AT BELLVILLE CAPE TOWN.

00050 2 INSTALLATION MATERIAL & CONNECTORS

R.....
Set

Delivery Date: 19.08.2011

FULL DETAILS OF DESCRIPTION

INSTALLATION MATERIAL & CONNECTORS (ALL AS REQUIRED FOR INSTALLATION).

REQUIRED AT BELLVILLE CAPE TOWN

DATE:

SIGNATURE OF TENDERER(S):

RFQ / TENDER

Tender No: HAM 78 Page
Date : 14.06.2011 6

BOARD LIST
TRANSNET FREIGHT RAIL
PROCUREMENT DEPARTMENT

3. ADDITIONAL INFORMATION REQUIRED: (WHERE APPLICABLE)

3.1 THE FOLLOWING ADDITIONAL INFORMATION IS REQUIRED:

- (A) TRADE DISCOUNT.....
- (B) PRICE/S FIRM:
- (C) PRICE/S FIRM UNTIL THEREAFTER SUBJECT TO REVIEW.

(D) 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)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

DATE:

SIGNATURE OF TENDERER(S):

**SPECIFICATION FOR DIGITAL
MICROWAVE RADIO EQUIPMENT
IN THE 7 TO 38 GHz BANDS**

**SPECIFICATION NO. SPC-TFRT0004
September 2009**

Revision 1.00

NON-DISCLOSURE OF INFORMATION

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TABLE OF CONTENTS

I	DOCUMENT AUTHORISATION.....	3
II	ABBREVIATIONS, ACRONYMS AND DEFINITIONS	3
1.	SCOPE AND PURPOSE	4
2.	DESCRIPTION.....	4
2.1	Microwave Equipment	4
2.2	Power Supply	7
2.3	Antennas	8
2.4	Alarms Monitoring	8
2.5	General	9
2.6	Craft Terminal Software	9
3.	COMPLIANCE	10
4.	SUPPORTING DOCUMENTATION.....	10

I DOCUMENT AUTHORISATION

FUNCTION	NAME	TITLE & DIVISION	SIGNATURE	DATE
Reviewed By:	E van der Merwe	Operational Manager Transmission		Sept 2009
Approved By:	ML Nuttall	Divisional Manager Transmission		Sept 2009

II ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATIONS AND ACRONYMS	DESCRIPTION
AC	Alternating Current
ATPC	Automatic Transmit Power Control
BER	Bit Error Ratio
DC	Direct Current
EMC	Electromagnetic compatibility
EOW	Engineering Order Wire
ERM	Radio Spectrum Matters
FEC	Forward Error Correction
ICASA	Independent Communications Authority of SA
ITU-R	International Telecommunications Union - Radio communication Sector
ITU-T	International Telecommunication Union - Telecom. Standard. Sector
MHSB	Monitored Hot standby
PDH	Plesiochronous Digital Hierarchy
PoE	Power over Ethernet
RSTP	Rapid Spanning Tree Protocol
SDH	Synchronous Digital Hierarchy

DEFINITIONS	DESCRIPTION

1. SCOPE AND PURPOSE

- 1.1 This specification covers the requirements of Transnet Freight Rail for the supply of digital microwave radio equipment operating all capacities, short and long haul in the 7 to 38 Gigahertz (GHz) frequency bands.
- 1.2 The material to be supplied must include microwave transceivers with associated alarm equipment, management system, service channels, power supply equipment, integral and/or separate antennas, spares, essential test cords, plugs and adapters and EOW headsets.

2. DESCRIPTION

2.1 Microwave Equipment

- 2.1.1 The equipment shall deliver PDH capacities from 2E1 and a maximum of 16E1 plus 1 E1 wayside traffic, and SDH capacities from 1 to 2x STM-1.
- 2.1.2 The equipment shall provide a single platform solution for PDH, and SDH, and Gigabit Ethernet applications.
- 2.1.3 The equipment shall incorporate duplicated modem and PoE injector for maximum reliability
- 2.1.4 The equipment shall be capable of being deployed in split mount type of architecture.
- 2.1.5 The proposed equipment shall support configurations as follows:
- 2.1.6 Non-Protected 1+0
- 2.1.7 Monitored Hot Standby (MHSB) 1+1
- 2.1.8 Space Diversity (SD)
- 2.1.9 RSTP or equivalent for Gigabit Ethernet Ring support.
- 2.1.10 The radio equipment should have the capability to support mixed mode, i.e. Ethernet + TDM Nx E1 traffic with bandwidth adjustment capability on the Ethernet throughput in 2Mbps increments up to the maximum capacity of the link. Ethernet traffic interface options should include 10/100/1000base-T, with Intelligent Layer 2 Ethernet QoS features
- 2.1.11 The equipment shall support Power over Ethernet (PoE) with off-the-shelf weatherproof Cat 5e cable & accessories.
- 2.1.12 All split type Outdoor radio units must be Bit Rate independent.
- 2.1.13 The operating frequency must comply to the following ITU-R specifications:

7,1	to	7,7 GHz	:	ITU-R Rec 385-6
7,7	to	8,5 GHz	:	ITU-R Rec 386-6
12,75	to	13,25 GHz	:	ITU-R Rec 497-6
14,40	to	15,35 GHz	:	ITU-R Rec 636-3
21,22	to	22,45 Ghz	:	ITU-R Rec 637-1
24,80	to	26,5 GHz	:	ITU-R Rec 748-3
37,00	to	39,5 GHz	:	ITU-R Rec 749-1

2.1.14 The minimum transmitter output power before any branching must be at least:

7,1	to	7,7 GHz	=	>+20 dBm
7,7	to	8,5 GHz	=	>+20 dBm
12,75	to	13,25 GHz	=	>+18 dBm
14,4	to	15,35 GHz	=	>+18 dBm
21,22	to	22,45 Ghz	=	>+16 dBm
24,8	to	26,5 GHz	=	>+15 dBm
37,0	to	39,5 GHz	=	>+16 dBm

2.1.15 All transmitters within the indicated frequency bands must have an attenuation range of 20 dB added manually under software control, in 0.1dB increments..

2.1.16 The tenderer must state whether the required TX output power is achieved with normal or high output power transmitters.

2.1.17 The transmitter must support Automatic Transmitter Power Control (ATPC) over the full transmit manual attenuation range, with the operator able to select a not-to-exceed transmit power.

2.1.18 The outdoor unit shall be of a fully environmentally sealed design, with no user access for repair or maintenance.

2.1.19 The ODU shall weigh less than 7kg.

2.1.20 The ODU shall incorporate a handle for easy handling.

2.1.21 The ODU shall incorporate the same mechanical design and dimensions for all frequency bands from 6 to 38GHz to ensure common handling and installation procedures.

2.1.22 The ODU shall contain a connector for providing indicative AGC levels during antenna alignment.

2.1.23 The transmitter must use a modulation technique which will limit the RF channel bandwidth as per following table:

3,5 MHz At 30 dB below the unmodulated carrier for the digital signal of 2 × 2 Mbit/s, or

- | | | |
|--------|----------|--|
| 7 MHz | At 30 dB | below the unmodulated carrier for the digital signal of 4 x 2 Mbit/s, or |
| 14 MHz | At 30 dB | below the unmodulated carrier for the digital signal of 8 x 2 Mbit/s, or |
| 28 MHz | At 30 dB | below the unmodulated carrier for the digital signal of 16 x 2 Mbit/s or 34 Mbit/s, or |
| 28 MHz | At 30 dB | below the unmodulated carrier for the digital signal of 155 Mbit/s |

2.1.24 The frequency stability of the radio must be $\leq \pm 10$ ppm over a temperature range of -30 °C to $+ 55$ °C.

2.1.25 The modulator must make use of FEC (Forward Error Correction).

2.1.26 The receiver threshold (at $P_e = 10^{-6}$) measured at the branching filter input must be at least:

- 2.1.26.1 For Frequencies of 7 to 15 GHz:
- 86 dBm for a capacity of 2 x 2 Mbit/s;
 - 83 dBm for a capacity of 4 x 2 Mbit/s;
 - 80 dBm for a capacity of 8 x 2 Mbit/s;
 - 77 dBm for a capacity of 16 x 2 Mbit/s
 - 67 dBm for a capacity of 155 Mbit/s

- 2.1.26.2 For Frequencies of 23 to 26 GHz:
- 84 dBm for a capacity of 2 x 2 Mbit/s;
 - 81 dBm for a capacity of 4 x 2 Mbit/s,
 - 78 dBm for a capacity of 8 x 2 Mbit/s
 - 75 dBm for a capacity of 16 x 2 Mbit/s
 - 65 dBm for a capacity of 155 Mbit/s

- 2.1.26.3 For Frequencies of 38 GHz:
- 80 dBm for a capacity of 2 x 2 Mbit/s;
 - 77 dBm for a capacity of 4 x 2 Mbit/s,
 - 74 dBm for a capacity of 8 x 2 Mbit/s
 - 71 dBm for a capacity of 16 x 2 Mbit/s
 - 64 dBm for a capacity of 155 Mbit/s

2.1.27 Tributary and radio facing loopbacks, AIS insertion, and a PRBS generator and receiver for trib BER measurement should be supported.

2.1.28 Line isolation and surge protection should be included.

2.1.29 All receivers must be able to operate with a BER better than 10^{-6} at an input level of -20 dBm.

2.1.30 All radios must provide at least two service channels with each channels having a bandwidth of 64kbit/s

2.1.31 The two service channels must be independently configurable for:

- (a) EOW or 4 Wire working,
- (b) V.24 or V.11.

2.1.32 One service channel will be used for an Engineering Order Wire service, handset/headset to be provided. The second service channel must be able to be programmed for V.24 or V.11.

2.1.33 The Engineering Order Wire must be provided on the basis of one per station. Selective and group calling facilities must be available. It must be possible to branch/conference one EOW service channel into more than one direction.

2.1.34 Radios with a capacity of 34 Mbit/s and greater must have a minimum of one 2 Mbit/s wayside tributary interface.

2.1.35 All receiver baseband switching must be of the hitless type when used in a 1 + 1 radio system configuration.

2.1.36 Transmitter switching due to hardware failure must be less than 200 ms in duration.

2.1.37 All 2 Mbit/s tributaries offered must be 120 ohm balanced, using HDB3 code as per ITU-T Recommendation G703.

2.1.38 8 Mbit/s (if available) and 34 Mbit/s Traffic Interfaces must be 75 ohm / unbalanced as per ITU-T Recommendation G703.

2.1.39 155 Mbit/s Traffic Interfaces must be available in

- 2.1.39.1 Electrical 75 ohm to G.703 ,
- 2.1.39.2 Optical to G.957 S.1.1
- 2.1.39.3 LAN(10/100/1000 Base).

2.1.40 All split type indoor units must be frequency independent.

2.2 Power Supply

2.2.1 The operating voltage must be Wide-mouth -24 to -48VDC power input $\pm 15\%$. Tenderers must state the power consumption of the equipment offered

2.2.2 When operating at 48 volts DC the equipment must operate from an external DC battery supply that has its positive terminal connected to earth.

2.2.3 The polarity of the power supply connections must be clearly indicated, and the equipment must be fully protected against reversed polarity connections.

2.2.4 Protection must be provided on the power supply against power/voltage surges from induced voltages and lightning. EMC and ERM to the following standards EN 301 489-4 and EN 300 386 V1

2.3 Antennas

2.3.1 It must be possible to change the outdoor radio unit without removing the antenna.

2.3.2 Antennas must as a minimum cover the complete frequency range for each frequency band.

2.3.3 The minimum Cross Polar Discrimination for all size antennas in all frequency bands must be 30 dB or greater.

2.3.4 The minimum Front to Back ratio must be at least as per the following table (in dB):

Antenna	7/8 GHz	13 GHz	15 GHz		23 GHz	26 GHz	38 GHz
0,3 m	-	-	52		60	62	60
0,6 m	57	61	64		66	67	63
1,2 m	63	67	72		73	73	-
1,8 m	68	70	71		75	-	-
2,4 m	68	-	-		-	-	-
3,0 m	70	-	-		-	-	-

2.3.5 It must be possible to rotate either the complete antenna, or only the hornfeed to change the polarity of the radiated signal.

2.3.6 The full range of antenna sizes and prices to be included in the pricing schedule.

2.3.7 In case a splitter needs to be used in a 1+1 configuration, additional mechanical support must be given to the splitter if the splitter is not part of the integral antenna.

2.4 Alarms Monitoring

2.4.1 The following alarms must be displayed either on a Liquid Crystal Display or light emitting diode as a minimum:

2.4.1.1 No input data.

2.4.1.2 Low receive level.

2.4.1.3 Transmitter failure.

2.4.1.4 Receiver failure.

2.4.2 The indoor unit must have a minimum of eight potential free contacts for the purpose of monitoring external station alarms on the Microwave Network Management system.

2.5 General

2.5.1 Spares must be quoted separately

2.5.2 Tenderers must detail the spares offered.

2.5.3 Environmental Conditions Temperature range.

Outdoor unit: -30 to +55 degrees C. (Full performance), -40 to +60 degrees C. (Full functionality).

Indoor unit: -5 to +45 degrees C. (Full performance), -20 to +60 degrees C. (Full functionality).

Conditions: All weather operation (passive cooling).

2.5.4 Indoor / Outdoor Interface.

The minimum interface distance between the indoor and outdoor unit using the standard type interfacing cable must be at least 200 m .

2.5.5 Installation material

All additional installation material specific to the configuration such as connectors, interface cables, Grounding kits, etc must be indicated

No crimped type connectors on baseband cables preferred.

2.6 Craft Terminal Software

2.6.1 The microwave radio system offered must incorporate as a minimum, the following management facilities in the Local Craft Terminal software. Software must be Microsoft© Windows ©(2003, XP or newer) compatible

2.6.2 Configuration of local and remote terminal set-up.

2.6.3 Alarm monitoring of internal and external alarms.

2.6.4 The monitoring of transmit and receive signal strength.

2.6.5 Perform loopback tests at:

2.6.5.1 Local and remote base band

2.6.5.2 Local and remote IF

2.6.5.3 Local RF

2.6.6 Performance monitoring according to ITU-T G.821 and G.826 at E1 level.

2.6.7 Firmware download to local and remote sites.

- 2.6.8 Adjustment of software controlled RF output power.
- 2.6.9 Both terminals of a microwave link must be visible on the same graphics screen.
- 2.6.10 Non intrusive testing and provisioning of new services compulsory.

3. COMPLIANCE

- 3.1 Unless otherwise specified, the equipment offered must comply with the recommendations of the ITU-R for the microwave equipment and ITU-T for the associated digital interfaces at 2 Mbit/s or multiples thereof.
- 3.2 Equipment must be type approved and certified by ICASA. ICASA issued type approval certificate for each frequency band must be included with tender submission.

4. SUPPORTING DOCUMENTATION

APPLICABLE

DOCUMENT NO.	DESCRIPTION	LOCATION
	ITU-R, ITU-T	

END OF SPECIFICATION