



ನವಮಂಗಳೂರುಬಂದರುಪ್ರಾಧಿಕಾರ
नव मंगलूरु पत्तन प्राधिकरण
NEW MANGALORE PORT AUTHORITY
MARINE DEPARTMENT



No. NMPA/AE-MW/VHF-PRC/2023/13

dated: 13 .12.2023

To,
The Prospective Bidders,
Sir,

Sub: **“Supply, Installation. Liaisoning and commissioning of DMR Repeater station, DMR Base/Mobile stations and DMR VHF Handsets at NMPA” – Budgetary Offer requested – Reg.**

With reference to the subject cited above, it is to inform that New Mangalore Port Authority has proposed to invite tender for **“Supply, Installation. Liaisoning and commissioning of DMR Repeater station, DMR Base/Mobile stations and DMR VHF Handsets at NMPA”**.

NMPA holds a licence for establishing a Wireless Station for Port operation and is responsible for maintaining efficient communication systems within the port area. This license was issued by the Government of India, Ministry of Communications and Information Technology. This licence includes VHF Handsets (Make Kenwood, Model No.TK -2207 and TK- 2160), Base/Mobile Sets (Make Kenwood, Model No.TK-7100) and Repeater Station (Make Kenwood, Model No.TK-750) which are almost 13years old. However, some sets are operational and some are defective and beyond economical repairs.

In light of this, NMPA is proposing to procure new Digital Mobile Radio (DMR) sets to enhance communication efficiency while retaining the existing license. The proposal is to reduce the number of defective VHF sets from the existing WPC VHF Licence and incorporate new VHF sets in the existing VHF license issued by WPC.

In this regard, experienced firms are requested to submit the **Budgetary Offer** in writing to The Dy. Conservator, Marine Department, NMPA, through e-mail **dyconservator@nmpt.gov.in** on or before **26.12.2023** at 15:30 hrs. The tentative BOQ, scope of work and technical specifications (Annexure-I, II, III & IV enclosed) for the subject work are as under.

Contd.....2

BOQ:

SL. No.	DESCRIPTION	UNIT PRICE (₹)	Total Qty (In No.)	AMOUNT (Excluding GST)
1.	(a) VHF Full Band Digital Handheld Transceiver with Battery, Battery Charger and Antenna as per specification, Annexure-I		50	
	(b) Spare Batteries as per specification		15	
	(c) Spare Antenna for Handheld Transceiver as per specification		25	
	(d) Spare Battery Charger as per Specification		10	
	(e) Good quality leather case with belt clip & shoulder strip		10	
	(f) Programming kit for the Sr. No-1(a)		01	
2.	(a) Intrinsically safe and DMR digital Walkie talkie with Battery, Battery Charger and Antenna as per specification, Annexure-II		50	
	(b) Spare Intrinsically Safe Batteries as per specification		20	
	(c) Spare Antenna for Intrinsically Safe Handheld Transceiver as per specification		25	
	(d) Spare IS Battery Charger as per specification		10	
	(e) Good quality leather case with belt clip & shoulder strip		10	
	(f) Programming kit for the Sr. No-2 (a)		01	
3.	(a) DMR Digital VHF Repeater with Analog support as per specification, Annexure-III		02	
	(b) Duplexer, 50w		02	
	(c) Duplexer connecting cable		02	
	(d) 6db fiberglass antenna for repeater		02	
	(e) 45Mtrs RG 217 RF Coaxial or better antenna cable with end connectors.		02	
	(f) Programming kit for the Sr. No-3 (a)		01	

4.	(a) DMR digital BASE/ MOBILE Station as per specification, Annexure-IV		30	
	(b) SMPS power supply unit I/P-230V AC, O/P-12VDC/15 amp		10	
	(c) High gain 0db gain or better GP Antenna		10	
	(d) Spare 30Mtrs RG 217 RF Coaxial or better antenna cable with end connectors.		05	
	(e) Programming kit for the Sr. No-3 (a)		01	
	(f) Magmount Whip Antenna 0db with 05Mts cable with end connectors.		05	
5.	Programming, Installation and Commissioning		Lumpsum	
6.	Liaison charges for retaining the existing License of WPC New Delhi. (To reduce the number of defective VHF sets and incorporate new VHF sets in the existing VHF license issued by WPC)		Lumpsum	
Total amount excluding GST				

Scope of Work:

The broad scope of work includes “Supply, Installation. Liaisoning and commissioning of DMR Repeater station, DMR Base/Mobile stations and DMR VHF Handsets at NMPA”.

Terms and Condition:

- 1) As far as implementation of provision for Public Procurement (Preference to make in India) Order 2017 is concerned, the Office orders vide No. P-4502/2/2017-BE-II dt 15.06.2017, which is partially modified by Order No. P-45021/2/2017-PP(BE-II) DT 28.05.2018, Order P-45021/2/2017-PP(BE-II) dt 29.05.2019, order no P-45021/2/2017-PP(BE-II) DT 04.06.2020 AND Order No P-45021/2/2017-PP(BE-II) 16.09.2020 and subsequent Amendments issued by the Department of Promotion of Industries and internal Trade, Ministry of Commerce and Industry regarding Class-I/ Class-II local suppliers, Purchase preference, verification of local contents etc shall be applicable to this tender. Therefore, bidders are requested to ensure compliance of the same while submitting budgetary quotation.

Contd...4

- 2) As per the Government of India Order dated 04.06.2020, Local content involved in the quoted item shall be declared and certified in percentage. Also requested to confirm the place where value addition for the Item takes place.
- 3) Class-I / Class-II local suppliers are only eligible to participate in this tender, as per the office orders mentioned above, Issued by Govt. of India.
- 4) The tendered requirement is having local content minimum 20%. Hence, the provision/evaluation of offers shall be as per the office orders mentioned above, Issued by Govt. of India.
- 5) Price preference shall be extended to the MSEs under the Public Procurement Policy for MSE's. Such MSE's shall produce documentary proof of registration as per provisions of the Policy ie: registration with District Industries Centre (DIC) or Khadi and Village Industries Commission (KVIC) or Khadi and industries Board (KVIB) or Coir Board or National Small Industries Commission (NSIC) or Directorate of Handicrafts and Handlooms or Udyam registration Certificate or any other body specified by the Ministry of MSME.
- 6) Payment will be made only in INDIAN RUPEES. GST will be paid extra as applicable.
- 7) OEM should be a part of the DMR association and must provide the DMR association certificate.
- 8) Bidder shall hold Dealer Possession Licence.
- 9) Bidder to indicate the customer care center and OEM Service center in India, for after sales warranty support.
- 10) Firm must produce certificates of National Accreditation Board of testing and Calibration Laboratories (NABL) approved laboratory and International Laboratory accreditation corporation (ILAC).

- 11) Contractors Default Liability: NMPA may upon written notice of default to the contractor, may terminate the contract in whole or in part in circumstances detailed hereunder:
- i. If in the judgments of the NMPA the Contractor fails to make delivery of stores within the time specified in the contract/agreement or within the period for which extension has been granted by the NMPA to the Contractor.
 - ii. If in the judgments of the NMPA the Contractor fails to comply with any of the other provisions of this Contract.
- 12) Counter terms and conditions of supplier; Where counter terms and conditions / printed or cyclostyled conditions has been offered by the supplier, the same shall not be deemed to have been accepted by NMPA unless specific written acceptance thereof is obtained.
- 13) Stores offered should strictly as per the technical specification mentioned in Annexure-I, II, III and IV.
- 14) The contractor will be solely held responsible for the stores being sufficiently and properly packed for transportation by Rail/Road to withstand transit hazards and ensure safe shipment to the destination hub at NMPA. The expenses incurred for packing and marking should be borne by the contractor.
- 15) NMPA will not pay separately for transit Insurance, all risks in transit being exclusively of the contractor and NMPA shall pay only for such stores as are actually received in good condition in accordance with the contract.
- 16) The contractor is responsible for bearing any charges related to both the service and transportation after the successful supply of materials. This responsibility includes any costs incurred during the warranty period.
- 17) Guarantee/Warranty for the offered items shall be from the date of installation/acceptance of the item at NMPA for the period mentioned in technical specification. The contractor is responsible for providing a guarantee/warranty certificate for all the equipments, if any items is found to be defective within the guarantee period, the contractor is obliged to replace it with a new one till the defective item gets repaired.

- 18) **Liquidity Damages (LD)**: If the ordered items are not supplied within the delivery schedule, LD shall be levied from your bill @ 0.5% per week for the undelivered items subject to a maximum of 10% of the order value for the delayed period.
- 19) **Security Deposit (SD)** : The Bidder have to furnish 3% of the total contract value within 10 days of receipt of work order towards the faithful execution of the order, valid upto the completion date of the work order plus sixty days. (This will be returned immediately on execution of the order satisfactorily completion of work as per order terms. In case of non-performance/poor performance, the amount will be forfeited.
- 20) **Delivery Period** : The time for and the date/ period of delivery of the stores stipulated in the Tender / Purchase Order shall be deemed to be the essence of the contract and deliver must be completed on or before the specified dates.
- 21) **Guarantee & Replacement** :
- a) The contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
 - b) Guarantee for a period of twenty-four months or for a period as specified in the tender document after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 28 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
 - c) If, in the opinion of the NMPA, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to NMPA, provided the notice informing the Contractor of the defected given by NMPA in this regard within the said period of 28 months from the date of acceptance thereof.
 - d) Should the contractor fail to rectify the defects, NMPA shall have the right to reject or repair or replace at the cost of the contractor the whole or any portion of the defective stores.

- e) The decision of NMPA not withstanding any prior approval or acceptance or inspection thereof on behalf of NMPA, as to whether or not the stores supplied by the Contractor are defective or any defect has developed within the said period of 24 months or to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- f) All the replacement stores shall also be guaranteed for a period of 24 months from the date of arrival of the stores at NMPA site. To ensure that the spares shall be available in the open market of India for a period of 10 years.
- 22) **Indemnity:** The Contractor shall warrant and be deemed to have warranted that all stores supplied against this contract are free and lean of infringement of any patent, Copy Right or Trade Mark and shall at all times indemnify NMPA against all claims which may be made in respect of stores for infringement of any right protected by patent, registration of design or trade mark, and shall take all risk of accident or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the Contract.

Yours faithfully,

[Handwritten Signature]
13/12/23

Dock Master
New Mangalore Port Authority

Annexure-I

TECHNICAL SPECIFICATION FOR ORDINARY DMR VHF HANDHELD WALKIE TALKIE	
Frequency Range (MHz)	136-174
Types of Bandwidth	VHF Full Band
Channel Capacity	32
RF Power output Range	1 to 5 Watts (VHF)
Warranty	1 year
PERFORMANCE FEATURES	
Frequency Range (MHz)	136-174
Types of Bandwidth	VHF Full Band
Display	No
Channel Capacity	32
Channel Spacing	12.5 Kilo Hertz
Frequency Stability (±)	0.5 parts per million
Technology	Digital TDMA (2-slot)
Air Interface Standard	Open Standard DMR Tier-II
Antenna Impedance	50 Ohm
TRANSMITTER	
RF Power output	programmable
RF Power output Range	1 to 5 Watts (VHF)
FM Emission	11K0F3E,7K60FXD,7K60FXW
Digital Modulation	4FSK
Transmitter FM Hum/Noise (dB)	-40
Transmitter Modulation Limiting	+/- 2.5 KHz @12.5KHz
Transmitter Adjacent Channel Power (dBc)	-60
Audio Response	+1,-3 dB
Audio Distortion	3 percent
Digital Vocoder	AMBE+2
RECEIVERS	
Analog Receivers Sensitivity for 12dB SINAD	0.22 micro Volt
Digital Receiver Sensitivity at 5% BER	0.22 micro Volt
Receiver Adjacent Channel Selectivity (dB)	70
Inter Modulation (dB)	70
Receiver Audio Output	500 milli Watt
Receiver Rated Audio Distortion	3 percent
ACCESSORIES	
Antenna for Handheld Transceiver Rugged flexible Helical	yes
Programming kit	yes
User Manual with each radio sets provided free of cost in soft as well as hard copy	yes

Contd...2

Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	yes
Battery Charger	
Input voltage	230 V ± 10%,50 Hz
Output voltage	5W
Battery charger suitable for	Lithium-ion
Charging time for standard mode	6 to 14hrs
Charging time for rapid mode	1 to 3 hrs
Number of charging pockets	1
Indicator	For all modes of charging status
Belt clip	yes
VARIOUS FEATURES	
Simple Press to talk	YES
Low Battery Alert	yes
CTCSS or DCS	yes
Mixed Mode Operation (analog & digital)	yes
Signaling	2 Tone,5 Tone, Digital
Busy Channel Lockout	Yes
Selective Call Decode	Yes
Capable of VOX for hands-free operation	Yes
If yes ,hands-free kit provided with radio set	No
Hands-free kit variants	No
PTT ID Encode	Yes
Channel Scanning with call quieting facility	Yes
Emergency SOS/SIREN	Yes
Talk-around	Yes
Automatic Number Identification (ANI)	No
Text message and predefined message	No
Keypad	No
Availability of Inbuilt GPS system	No
If yes, Horizontal accuracy	0 meter
Time to first fix(TTFF) cold start	0 minute
Time to First Fix(TTFF) Hot start	0 second
Capable of being Killed/ Unkilled	No
communication security	NA
Protocols supported in case of third party encryption	NA

GENERIC	
Weight of hand held Transreceiver with Battery	240 gram (apprx)
Other features	CLEAR VOICE
POWER SOURCE/BATTERY	
Chemistry of Battery	Lithium-ion
Voltage rating of the Battery	7.4 Volt
capacity of Battery (mAH)	2000
Average Battery duty cycle '5/5/90 for digital Transmission	22 hour
Average Battery duty cycle '5/5/90 for analog Transmission	16 hour
CERTIFICATION	
BIS registration under CRS of Meity for the battery	Yes
BIS registration number and date for the battery	Yes
EMI/EMC	ETSI EN301 489-1 & ETSI EN301 489-5
Tested by DCPW	No
SAFETY	
Protections	Reverse polarity protection & short circuit protection
SERVICE	
Warranty	24 months for the equipment and one year for the battery and other accessories.
OPERATING CONDITION	
Minimum Operating temperature	-30 degree Celsius
Maximum Operating temperature	55 degree Celsius
Minimum Storage temperature	-40 degree Celsius
Maximum Storage temperature	70 degree Celsius
Operating Humidity @40 degree C	95 percent
TEST REPORT DETAILS	
Dust test as per	MIL-STD-810 F
Vibration test as per	MIL-STD-810 F
Shock test as per	MIL-STD-810 F
Water Intrusion test as per	MIL-STD-810 F
Salt test as per	MIL-STD-810 F
Rain test as per	MIL-STD-810 F
Altitude test as per	MIL-STD-810 F
Availability of Test Reports from Central Govt/ NABL/ILAC accredited lab to prove conformity to the Specifications.	Yes
Test Report Number and Date	Yes
Name and Address of the Lab	Yes

TECHNICAL SPECIFICATION INTRINSICALLY SAFE AND DMR VHF HANDHELD WALKIE TALKIE.	
GENERAL SPECIFICATIONS	
Frequency	136-174 MH2
Channel Spacing	12.5 kHz /20kHz / 25 kHz
CHANNEL Capacity	1024
Radio Dimensions (H x W x D)	125 X 55 X 43 mm
Weight	369 gm
Battery	2400 mAh
Battery life : Analog/ digital:	18/21hrs
Antenna Impedence	50 ohms
Power Supply	7.4V
TRANSMITTER	
4FSK Digital Modulation	12.5 kHz Data: 7K60FXD
12.5 kHz Voice and Data:	7K60FXW
Digital Protocol	ETSI TS 102 361-1,-2,-3
Conducted / Radiated Emissions	-36 dBm < GHz, -30 dBm> 1GHz
Adjacent Channel power	60dB @ 12.5 kHz / 70 dB @ 25 kHz
Frequency Stability	±1.5 PPM
RECEIVER	
Analog Sensitivity	0.22 uV (typical) (12d8 SINAD)
Digital Sensitivity (5% BER)	0.3 uV / BER 5%
Intermodulation	70 db
Adjacent Channel Selectivity	60 dB @ 12.5 kHz / 70 dB @ 25 kHz
Spurious Rejection	70 dB @ 12.5/20/25 kHz
AUDIO	
Digital Vocoder Type	AMBE+2™ or SELP
Audio Response	TIA6030
Rated Audio	0.5 w
Audio Distortion at Rated Audio	≤3%
Hum and Noise	-40 dB (12.5 kHz channel) 43 dB (20 KHz channel) 45 dB (25 kHz channel)
Conducted Spurious Emissions	<-57dBm
GNSS	
Time to first fix, cold start	<1 Mines
Time to first fix, Hot start	<10 seconds
Horizontal Accuracy	Yes <5m (50% probable) <10 m (95% probable)
ENVIRONMENTAL CONDITIONS	
Operating Temperature	-30°C/ +55°C
Storage Temperature	-40 °C to +85°C
Electrostatic Discharge	IEC 61000-4-2 (level 4) ±8KV (contact) ±15KV (AIR)
Dust and Water Intrusion	IP 67 or better
Features	
Display	yes
Analog / Digital	yes
Voice Communications	yes
Voice Announcement	yes
Home Channel Reminder	yes

CUSTOMISATION	
Option Board	yes
Multi-button PTT	No
Programmable Buttons	yes
Emergency Button	yes
SAFETY	
Man Down	yes
Lone Worker	yes
BASIC & 3rd PARTY Encryption	yes
Transmit Interrupt	yes
Emergency Search Tone	yes
Radio Disable/ Enable	yes
SYSTEMS / OPTIONS	
Conventional	yes
IP Site Connect	yes
DMR Pseudo Trunking	yes
VIBRATION	yes
Geo co ordinates without additional hard ware and software.	yes
Roaming	yes
SFR & Full duplex	Optional
Scanning	Yes
Rent	Yes
Analog Digital Mixed Channel	Yes
XPT Pseudo Trunking	Yes
ACCESSORIES	
Antenna for Intrinsically Safe Handheld Transceiver Rugged flexible Helical	yes
Programming kit	yes
User Manual with each radio sets provided free of cost in soft as well as hard copy	yes
Technical repairing & maintenance manual with complete block diagram, circuit layout etc in soft as well as hard copy	yes
Battery Charger	Yes
Input voltage	230 V ± 10%,50 Hz
Output voltage	5W
Battery charger suitable for	Lithium-ion
Charging time for standard mode	6 to 14hrs
Charging time for rapid mode	1 to 3 hrs
Number of charging pockets	1
Indicator	For all modes of charging status
Battery clip	yes
POWER SOURCE/BATTERY	
Chemistry of Battery	Lithium-ion
Voltage rating of the Battery	7.4 Volt
capacity of Battery (mAH)	2500
Average Battery duty cycle '5/5/90 for digital Transmission	22 hour
Average Battery duty cycle '5/5/90 for analog Transmission	16 hour

ADDITIONAL SPECIFICATION FOR INTRINSICALLY SAFE WALKIE TALKIE	
UL 913 certificate	Class i ii iii - Division1, Group C-G -30°C to 55°C, T4
	Class i - Division 2, Group A-D
ADDITION QUALIFICATION CRITERIA	
OEM Authorisation	Tender specific OEM Authorization required.
Service Centre	Bidder should have OEM authorized service centre at Mangalore or Bangalore for after sales and service.
Warranty	24 months for the equipment and one year for the battery and other accessories.
extra requirement	Software and programming kit

Annexure-III

TECHNICAL SPECIFICATION FOR INTRINSICALLY SAFE AND DMR VHF REPEATER WITH ANALOG SUPPORT	
GENERAL	
Frequency Range	136 MHz to 174 MHz
TDMA	2-Slot
Operating Mode	Dual Standard (Digital & Analog) TDMA
Operating Selection	Fully automatic for analog & digital
Channel Capacity	16 or more
Protocol	ETSI TS 102 361-1,2,3
Frequency Stability	± 0.5 PPM or better
Interface	Ethernet port for IP connectivity built in.
Antenna Impedance	50 Ohms
Duty Cycle	100% at 50 W.
Display	Indicator for Transmit & Receive
VSWR	Better than 1.5
Protection	Reverse Polarity
TRANSMITTER	
Conducted / Radiated emissions	-36 dBm < 1 GHz - 30 dBm > 1 GHz
RF Power Out put	50 Watts (Programmable)
FM Modulation	11K0F3E@ 12.5 KHz
Modulation Sensitivity	1 to 10 mV at 1 KHz at mic input for ± 1.5 KHz standard
Digital Modulation	4FSK
Modulation Limiting	± 2.5 KHz
FM Hum & Noise	- 40 dB or better
Adjacent channel power	- 60 dB or better
Audio Response	+1, -3dB
Digital Vocoder	AMBE+2
RECEIVER	
Sensitivity (Analog)	0.20 μ V (12 dB SINAD) or better
Sensitivity (Digital)	0.20 μ V at 5% BER or better
Image Rejection	65 dB or better
Adjacent channel selectivity	60 dB or better
Inter-modulation rejection	70 dB or better
Conducted/radiated emission	-57 dBm \leq 1 GHz -47 dBm > 1 GHz
POWER SUPPLY	
Built in power supply with operating Voltage	12V DC (10.8 to 15.6 V DC), 230V AC $\pm 10\%$ 50 $\pm 1\%$ Hz with float charger, Automatic switchover from AC to DC during mains failure
ENVIRONMENTAL	
Operating Temperature	-30 ° C to +55° C
Storage Temperature	-30 ° C to +60 ° C
Applicable standard	MIL-STD-810 F/G
Humidity	95% non-condensing (-20° C to +60 ° C)
Warranty	2 years

Annexure-IV

TECHNICAL SPECIFICATION FOR DMR BASE/MOBILE STATION.	
PARAMETER	TECH SPECIFICATION / REQUIREMENTS
Frequency Range	136 -176 MHz
Type of Modulation	TDMA 2 Slot
Channel Capacity	255 or more
Channel Spacing	Digital - 12.5 KHz Analogue – 25 KHz
Operating Voltage	10.8 V to 15.6 V DC
Operating Temperature	-30 degree c to + 60 Degree C
Protection	(a) Reverse polarity protection (b) Protection against high VSWR
Antenna Impedance	50 Ω
Weight	Less than 2 Kg
Frequency Stability	+ 0.5 PPM or better
Rated Audio	3W internal
Display	1-Line alphanumeric Display 16 - External Accessory Port
Air Interface standards	Shall be open standards DMR II/III
Warranty	Warranty 5 Yrs Product support – 7 Years after warranty period Shelf Life – 12 Years. The warranty period will start after successful installation of said equipment and not on the manufacturing date.
TRANSMITTER	
RF Power output	Tuneable between 25 to 50 Watts output Amended to - Tune-able 25 Watts output
Frequency Deviation	+/-2.5 KHz Max for 12.5 KHz and +/- 5 KHz Max for 25 KHz channel spacing
Digital Modulation	4FSK
Modulation Limiting	+ 2.5 KHz @ 12.5 KHz
FM Hum & Noise	-40 dB or better
Adjacent Channel Power	-60 dB or better
Audio Response	+1, – 3 db
Audio Distortion	Less than 4%
Digital Vocoder	AMBE +2 or better
Communication Security	System should have Built in AES 256 bit Encryption (erasable) and should have provision for 3 rd party encryption (Open standard for interoperability)
RECEIVER	
Sensitivity	Analog Mode- Better than 0.30 μ V for 12 dB SINAD. Digital Mode- 0.30 μ V or better with BER \leq 5%.
Adjacent Channel Selectivity	60 db or better
Inter modulation Distortion	80 dB or better
Audio output	Minimum 3 W
Audio Distortion	Less than 5% at 1 KHz reference for (\pm) 1.5 KHz (for 12.5 KHz channel spacing) standard deviation

Contd...2

ENVIRONMENTAL	
Operating Temp	Temperature -30 ⁰ C to +60 ⁰ C
Storage Temp	Temperature: -40 ⁰ C to +85 ⁰ C <i>Amended to</i> - 40 ⁰ C to +70 ⁰ C
Humidity	95% Max at +40 ⁰ C non condensing
Vibration	Mil Std 810 G/H
Shock & Drop	Mil Std 810 G/H
Water Intrusion and Dust	Mil Std 810 G/H or IP 68/69 (IEC 60529) <u>Amended to</u> - Mil Std 810 G/H or IP 54 or better (IEC 60529)
Salt	Mil Std 810 G/H
Rain (Blowing Rain)	Mil Std 810 G/H
Low Pressure	Mil Std 810 G/H
Operating and service manual.	yes