

PAKISTAN AERONAUTICAL COMPLEX, KAMRA
MIRAGE REBUILD FACTORY
TENDER NOTICE NO MRF/20-21/25 DATED 26 April, 2021.

1. Mirage Rebuild Factory, Pakistan Aeronautical Complex Board Kamra invites sealed bids from the Original manufacturer / authorized distributors / suppliers / contractor registered with Income Tax and Sales Tax Department and PACB registered for supply of following miscellaneous items on F.O.R Basis (Professional Tax certificate, Punjab is mandatory). Detail of requirement is as follows:-

“Multimeter, Primer Green Epoxy, Activator, Power Supply 5000W, Moly Stud 1/4-20UNC X 1-1/2 inch, Moly Nut Hex 1/4-20UNC, Moly Stud 10-32UNF X7/8 INCH, Moly Nut Hex 10-32UNF, Heating Element, Channeling W/Head, Intel core i5 6th Generation or higher with LED and complete Accessories(Branded), Base Station (Versatile Digital Mobile Two-Way Radio), Photo State Machine, Intelligent Workstation PC Computer along with all accessories and 20” LED Display Screen, Spring Test Interface Card Stic-11, Spring Test Machine, Lapping Film Paper, Variable Speed Motor, Abrasive Media, DI-Ammonium Hydrogen Citrate, Steel Tank, Alcohol Methyl, Salt Tablets, Diamond Jet Oxyregu, Power Controller”

2. List of items can also be downloaded from PPRA website www.ppra.org.pk and as well as PACB website www.pac.org.pk free of cost or can be collected from DTE of Log (LP Section) MRF PAC Kamra Distt Attock from 27-04-2021 during working hours (except holidays).

3. The quotations, prepared in accordance with the instruction in the Tender List, must reach at Mirage Rebuild Factory PACB Kamra **before 11-05-2021 at 1000 Hrs. Quotations will be opened on the same day at 1100 Hrs.** The advertisement is also available on PPRA website at www.ppra.org.pk and as well as PACB website www.pac.org.pk

DUE DATE : 11-05-2021 before 1000 Hrs.
TENDER OPENING TIME : 11-05-2021 at 1100 Hrs.

Please contact **Tele # 051-9099-4727** or **Fax No 057-9317412** for any other information.

DIRECTOR LOGISTICS
MRF PACB KAMRA
DISTT ATTOCK

Directorate of Logistics MRF, PAC Kamra



**LIST OF OPEN TENDER NO MRF/20-21/25
DATED 26-04-2021 OPENING DATE 11-05-2021**

| S NO | PART NO | NOUN | U/I | QTY | SPECIFICATION |
|------|------------|----------------------------------|-----|-----------|--|
| 1 | R-10 | Multimeter | Ea | As Req | Specifications are attached at the end, please |
| 2 | 535k020 | Primer Green Epoxy | GI | | Fluid Resistant Epoxy Paint Lot No 10513963 Shelf Life 24 months Weight 1 US Gallon (3.79 L). Note: Quotation must be put with all specifications mentioned by MRF. |
| 3 | 930k097 | Activator | GI | | Fluid Resistant Epoxy Paint Lot 10508443 Weight 0.25 US Gallon (946 ML) Shelf Life 24 months Mix Ratio 2:1 Note: Quotation must be put with all specifications mentioned by MRF. |
| 4 | | Power Supply 5000W | EA | | POWER RATING : 5000W OUTPUT VOLTAGE : SINGLE PHASE, 220VAC / 50Hz Oil Type Diesel To be provided with Portable Trolley & Towing Bar Towable with MRF Tester Minimum 01 Year Repair Warranty Brochure / Pictures of offered item should be provided with quotation. Note: Quotation must be put with all specifications mentioned by MRF. |
| 5 | TR25M01-87 | Moly Stud 1/4-20UNC X 1-1/2 INCH | EA | | TR25M01-87 Moly Stud 1/4-20UNC X 1-1/2 INCH Material: Molybdenum |
| 6 | MH7010 | Moly Nut Hex 1/4-20UNC | EA | | MH7010 Moly Nut Hex 1/4-20UNC Material: Molybdenum |



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| S NO | PART NO | NOUN | U/I | QTY | SPECIFICATION |
|------|-------------------|--|-----|-----------|--|
| 7 | TR10M00-87 | Moly Stud 10-32UNF X7/8 INCH | EA | As Req | TR10M00-87 Moly Stud 10-32UNF X7/8 INCH Material: Molybdenum |
| 8 | MH7006 | Moly Nut Hex 10- 32UNF | EA | | MH7006 Moly Nut Hex 10-32UNF Material: Molybdenum |
| 9 | PINNE11101 03 | Heating Element | EA | | PINNE1110103 Heating Element Material: Molybdenum |
| 10 | 9MB15 | Channeling W/Head | EA | | 9MB15 Channeling W/Head Material: Molybdenum |
| 11 | 7020PK1480 001 | Intel core i5 6th Generation or higher with LED and complete Accessories(Brand ed) | EA | | Specifications (a) Motherboard: Intel® (b) Processor: Intel® Core TM i5 (c) Ram: 04 GB DDR-III/ DDR-IV (d) Hard Disk: 500 GB SATA (e) Network Card: 010/100/1000 Mbps Built in (f) Keyboard: Branded (g) Mouse: Branded (h) Casing: Tower Branded (j) Power Supply: Branded (k) Display: 19.5" LED Branded (l) Warranty: Minimum 01 year Note: Quotation must be put with all specifications mentioned by MRF. |
| 12 | PD788/PD78 8GB | Base Station (Versatile Digital Mobile Two-Way Radio) | EA | | Specifications are attached at the end, please |
| 13 | | Intelligent Workstation PC Computer along with all accessories and 20" LED Display Screen | EA | | Specifications Core i5 8 th Generation or Higher (9M Cache) 500GB SSDGB Extendable to 8GB RAM or Higher NOTE: Quotation must be put with all specifications mentioned by MRF. |



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| S NO | PART NO | NOUN | U/I | QTY | SPECIFICATION |
|------|---------------|------------------------------------|-----|--------|--|
| 14 | 14C/NIV-L-74J | Photo State Machine | EA | | <p>Repair Work Required</p> <p>Scope of work:- Machine has stopped its function for the following:- (a) Developer powder empty. (b) Developer unit to be replaced/repair. (c) Transfer roller damage to be replaced/ repair. (d) Minimum 01 year warranty will be provided and must be specified.</p> <p>NOTE: Quotation must be put with all specifications mentioned by MRF.</p> |
| 15 | SF-22/3 | Spring Test Interface Card Stic-11 | EA | As Req | <p>Technical Specification</p> <ul style="list-style-type: none"> • Load capacity 0.01 lbf to 200 lbf • Accuracy / Resolution 0.001 lbf • Maximum travel / deflection 0.1mm -300mm • Travel Rate = 1.27 mm per hand wheel <p>Other requirement</p> <ul style="list-style-type: none"> • Precision measuring certificate to be provided <p>Error Chart</p> |
| 16 | SF-22 | Spring Test Machine | EA | | <p>Technical Specification</p> <ul style="list-style-type: none"> • Load capacity 0.01 lbf to 200 lbf • Accuracy / Resolution 0.001 lbf • Maximum travel / deflection 0.1mm -300mm • Travel Rate = 1.27 mm per hand wheel • Other requirement <p>Precision measuring certificate to be provided.</p> |
| 17 | P-314 | Lapping Film Paper | SH | | P-314 Lapping Film Paper |



| S NO | PART NO | NOUN | U/I | QTY | SPECIFICATION |
|------|----------------|------------------------------|-----|--------|---|
| 18 | P132M | VARIABLE SPEED MOTOR | Ea | As Req | Repair Work Required Scope of work:- (a) Suspected armature winding burnt. (b) Complete Serviceability of motor with testing of accessories. (c) Minimum 01 year Repair Warranty will be provided and must be specified. |
| 19 | GRIT1200 | Abrasive Media | Kg | | GRIT1200 Abrasive Media |
| 20 | CASNO3012-65-5 | DI-Ammonium Hydrogen Citrate | Kg | | CASNO3012-65-5 DI-AMMONIUM HYDROGEN CITRATE |
| 21 | 303036 | STEEL TANK | Ea | | Control Steam Heated with railing cover 3'X3'X3' |
| 22 | 0-M-232 | Alcohol Methyl | Gl | | 0-M-232 Alcohol Methyl |
| 23 | 7647-14-5 | Salt Tablets | Kg | | Chemical Noun: Sodium Chloride Chemical Formula: Nacl Purity %age: 99.9% |
| 24 | 2DJRO1031550 | DIAMOND JET OXYREGU | Ea | | DOUBLE STAGE REGULATOR INLET PRESSURE: 4000 psi OUTLET PRESSURE: 400 psi USA/ UK OR equivalent |
| 25 | TC1028 | Power Controller | Ea | | Specifications:- (a) The item may be new/ refurbished but minimum 06 months warranty required along with requisite installation and any other modalities like integration with furnace to be ensured. Ensure provisioning of required plugs, wiring as well as software. (b) Required part no is TC1028. But if any firm will provide in lieu part no then its compatibility in terms of requisite installation and any other modalities like integration with furnace to be ensured along with warranty of provided power controller. Ensure provisioning of required plugs, wiring as well as software along with requisite manuals. NOTE: QUOTATION MUST BE PUT WITH ALL SPECIFICATIONS MENTIONED BY MRF. |



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SPECIFICATIONS OF S NO 1 (Multimeter)

| TEST | Range | Resolution | Accuracy \pm (% of Rdg+Counts) |
|--|---|----------------------------------|----------------------------------|
| DC Volt, Mili Volt Measurement | 1000 V dc | 1 V | \pm (0.09%+2) |
| DC Voltage | 600.00 m volt | 50 Hz to 60 Hz | \pm (1%+3) |
| Frequency counter sensitivity | 600.00 m volt AC | 5 Hz to 20 Hz | 100.0 mv |
| Temperature measurement | -40c ⁰ to +1000c ⁰ | 0.1c ⁰ | \pm (1%+10 counts) |
| Insulation test | Voltages 50 v, 100 v, 250 v, 500 v, 1000 v | | - |
| DC VOLTAGE MEASUREMENT | | | |
| Range | Resolution | Accuracy \pm (% of Rdg+Counts) | Remarks |
| 6.000 V dc | 0.001 V | \pm (0.09%+2) | |
| 60.00 V dc | 0.01 V | \pm (0.09%+2) | |
| 600.00 V dc | 0.1 V | \pm (0.09%+2) | |
| 1000 V dc | 1 V | \pm (0.09%+2) | |
| Input Impedance | 10 M Ω (Normal), < 100 pF | | |
| Normal mode rejection ratio | >60 dB @ 50 Hz or 60 Hz | | |
| Common mode rejection ratio | >120 dB @ dc,50 Hz or 60 Hz (1 k unbalance) | | |
| Accuracy apply to \pm 100% of range | | | |
| RESISTANCE MEASUREMENT | | | |
| Resistance | 0.1 Ω to 50 M Ω | - | - |
| AC VOLTAGE MEASUREMENT | | | |
| Range | Resolution | Accuracy \pm (% of Rdg+Counts) | Remarks |
| 6.000 V Ac | 0.001 V | \pm (0.09%+2) | |
| 60.00 V Ac | 0.01 V | \pm (0.09%+2) | |
| 600.00 V Ac | 0.1 V | \pm (0.09%+2) | |
| 1000 V Ac | 1 V | \pm (0.09%+2) | |
| Input Impedance | 10 M Ω (Normal), < 100 pF | | |
| Normal mode rejection ratio | >60 dB @ 50 Hz or 60 Hz | | |
| Common mode rejection ratio | >120 dB @ dc,50 Hz or 60 Hz (1 k unbalance) | | |
| Range of temperature measurement Required range is from 25c ⁰ , to 1000c ⁰ | | | |



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SPECIFICATIONS (S NO 12)

| GENERAL SPECIFICATIONS | | | | | |
|------------------------|------------------|---|---|---|---|
| DM4600 / DM4601 | | | DM4400 / DM4401 | | |
| | | VHF | UHF Band 1 | VHF | UHF Band 1 |
| Channel Capacity | | Up to 1,000 | | 32 | |
| Typical RF Output | Low Power | 1-25 W | 1-25 W | 1-25 W | 1-25 W |
| | High Power | 25-45 W | 25-40 W | 25-45 W | 25-40 W |
| Dimensions (HxWxL) | | 53.3x175.3x205.7mm (2.1x6.9x8.1 in) | | 53.3 x 175.3 x 205.7 mm (2.1 x 6.9 x 8.1 in) | |
| Weight | | 1.8kg (3.9lbs) | | 1.8 kg (3.9 lbs) | |
| Current Drain | Standby | 0.81 A max | 0.81 A max | 0.81 A max | 0.81 A max |
| | Rx @ Rated Audio | 2 A max | 2 A max | 2 A max | 2 A max |
| | Transmit | 1-25 W: 11.0 A max 25-45 W: 14.5 A max | 1-25 W: 11.0 A max 25-40 W: 14.5 A max | 1-25 W: 11.0 A max 25-45 W: 14.5 A max | 1-25 W: 11.0 A max 25-40 W: 14.5 A max |

| RECEIVER: DM4000 SERIES | | |
|---|---|------------------------------------|
| | VHF | UHF Band 1 |
| Frequencies | 136-174MHz | 403-470 MHz |
| Channel Spacing | 12.5 kHz / 20 kHz / 25 kHz | |
| Frequency Stability (-30°C, +60°C, +25°C Ref) | ±0.5 ppm | |
| Analogue Sensitivity (12dB SINAD) | 0.3uV 0.22uV (typical) | |
| Digital Sensitivity | 5% BER: 0.3uV | |
| Intermodulation (TIA603D) | 78 dB | 75 dB |
| Adjacent Channel Selectivity (TIA603D) | 50 dB @ 12.5 kHz 80 dB @ 25 kHz | 50 dB @ 12.5 kHz 75 dB @ 25 kHz |
| Spurious Rejection (TIA603D) | 80 dB | 75 dB |
| Rated Audio | 3 W (Internal) 7.5 W (External - 8 ohms) 13 W (External - 4 ohms) | |
| Audio Distortion @ Rated Audio | 3% (typical) | |
| Hum and Noise | -40 dB @ 12.5 kHz / -45 dB @ 25 kHz | |
| Audio Response | TIA 603D | |
| Conducted Spurious Emission (TIA603D) | -57dBm | |

| TRANSMITTER: DM4000 SERIES | | |
|---|---|-------------|
| | VHF | UHF Band 1 |
| Frequencies | 136-174MHz | 403-470 MHz |
| Channel Spacing | 12.5 kHz / 20 kHz / 25 kHz | |
| Frequency Stability (-30°C, +60°C, +25°C Ref) | ± 0.5 ppm | |
| Low Power Output | 1-25 W | 1-25 W |
| High Power Output | 25-45 W | 25-40 W |
| Modulation Limiting | ± 2.5 kHz @ 12.5 kHz / ± 5.0 kHz @ 25 kHz | |
| FM Hum and Noise | -40 dB @ 12.5 kHz / -45 dB @ 25 kHz | |
| Conducted/Radiated Emission | -36 dBm < 1 GHz / -30 dBm > 1 GHz | |
| Adjacent Channel Power | 60 dB @ 12.5 kHz / 70 dB @ 25 kHz | |
| Audio Response | TIA 603D | |
| Audio Distortion | 3% | |
| FM Modulation | 12.5 kHz: 11K0F3E / 25 kHz: 16K0F3E | |
| 4FSK Digital Modulation | 12.5 kHz Data: 7K60F1D & 7K60FXD | |
| | 12.5 kHz Voice: 7K60F1E & 7K60FXE | |
| | Combination of 12.5 kHz Voice & Data: 7K60F1W | |
| Digital Vocoder Type | AMBE+2™ | |
| Digital Protocol | ETSI TS 102 361-1, -2, -3 | |



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PRODUCT SPECSHEET

MILITARY STANDARDS: DM4000 SERIES

| APPLICABLE MIL-STD | 810C | | 810D | | 810E | | 810F | | 810G | |
|--------------------|--------|-----------------|--------|-------------|--------|-------------|--------|---------------|--------|-----------------|
| | METHOD | PROCEDURES | METHOD | PROCEDURES | METHOD | PROCEDURES | METHOD | PROCEDURES | METHOD | PROCEDURES |
| Low Pressure | 500.1 | I | 500.2 | II | 500.3 | II | 500.4 | II | 500.5 | II |
| High Temperature | 501.1 | I, II | 501.2 | I/A1, II/A1 | 501.3 | I/A1, II/A1 | 501.4 | I/Hot, II/Hot | 501.5 | I/A1, II |
| Low Temperature | 502.1 | I | 502.2 | I/C3, II/C1 | 502.3 | I/C3, II/C1 | 502.4 | I/C3, II/C1 | 502.5 | I/C3, II |
| Temperature Shock | 503.1 | - | 503.2 | I/A1/C3 | 503.3 | I/A1/C3 | 503.4 | I | 503.5 | I/C |
| Solar Radiation | 505.1 | II | 505.2 | I | 505.3 | I | 505.4 | I | 505.5 | I/A1 |
| Rain | 506.1 | I, II | 506.2 | I, II | 506.3 | I, II | 506.4 | I, III | 506.5 | I, III |
| Humidity | 507.1 | II | 507.2 | II | 507.3 | II | 507.4 | - | 507.5 | II - Aggravated |
| Salt fog | 509.1 | - | 509.2 | - | 509.3 | - | 509.4 | - | 509.5 | - |
| Dust | 510.1 | I | 510.2 | I | 510.3 | I | 510.4 | I | 510.5 | I |
| Vibration | 514.2 | VIII/F, Curve-W | 514.3 | I/10, II/3 | 514.4 | I/10, II/3 | 514.5 | I/24 | 514.6 | I/24 |
| Shock | 516.2 | I, II | 516.3 | I, IV | 516.4 | I, IV | 516.5 | I, IV | 516.6 | I, IV, V, VI |

GPS: DM4401 / DM4601

Accuracy specs are for long-term tracking (95th percentile values > 5satellites visible at a nominal -130dBm signal strength)

| | |
|---------------------------------------|--------------|
| TTF (Time To First Fix) Cold Start | < 1 minute |
| TTF (Time To First Fix) Hot Start | < 10 seconds |
| Horizontal Accuracy | < 5 metres |

BLUETOOTH: DM4401 / DM4601

| | |
|--------------------|--|
| Version | Supports Bluetooth® 2.1 + EDR Specification |
| Profiles Supported | Bluetooth Headset Profile (HSP), Serial Port Profile (SPP), Motorola fast push-to-talk |
| Devices Supported | Radio supports 1 Bluetooth audio accessory and 1 Bluetooth data device simultaneously |
| Range | Class 2, 10 metres |

ENVIRONMENTAL SPECIFICATIONS: DM4000 SERIES

| | |
|--------------------------|-----------------------|
| Operating Temperature | -30°C / +60°C |
| Storage Temperature | -40°C / +85°C |
| Thermal Shock | Per MIL-STD |
| Humidity | Per MIL-STD |
| ESD | IEC 61000-4-2 Level 3 |
| Dust and Water Intrusion | IP54, MIL-STD |

Specifications subject to change without notice. All specifications shown are typical.

Radio meets applicable regulatory requirements.

**LIST OF OPEN TENDER NO MRF/20-21/25
DATED 26-04-2021 OPENING DATE 11-05-2021**

TERMS & CONDITIONS:-

- (i) GST may be indicated separately. The envelopes must be marked with "Item's name and Commercial / Technical offer". Literature / brochures of equipment must be attached with technical offer and company stamped.
- (ii) Quotations must be submitted in two copies for **single line** item i.e. one copy with technical details without price and one copy as commercial offer in one envelopes.
- (iii) Validity period should not be less than **90-120 days**.
- (iv) Complete technical specifications, MSDS, OEM & Conformance Certificate, Calibration certificate, Fitness report where applicable are required. Sample of chemicals may be asked for test.
- (v) 05 % earnest money required in shape of CDR/BG.
- (vi) Quotation received after due date / time will not be entertained. The CFA reserves the right to accept / reject the part or whole tender.
- (vii) Professional Tax certificate, Punjab
- (viii) Quantity can be increased / decreased at the time of order as per our requirement.
- (IX) All quoted items / Tools must be Original / Branded and accompanied with OEM conformance and originality certificate

