**A logo with a plane in the middle

Description automatically generated**

**Jamaica Civila Aviation Authority**

**Technical Specification**

**Supply, Delivery, and Installation of UPS for NMIA Radar Site**

**SUMMARY**

The Jamaica Civil Aviation Authority (JCAA) invites qualified authorized dealers to submit quotations to supply and installation of two (2) 40 kVA Uninterruptible Power Supply (UPS) System to provide power management and backup power in an N+1 redundant configuration at the Norman Manley International Airport (NMIA) Radar Site. The system shall comply with the latest standards governing UPS solutions such as high efficiency true online double conversion and decentralized parallel architecture. This system will replace the current standalone UPS, bringing reliability of Radar and Air to Ground Communication to Kingston’s FIR.

## Scope of Work

* Decommissioning, Removal and Relocation of Existing UPS to the designated area on site.
* Supply and Installation associated panels, breakers and cables needed for the installation of the system.
* Supply, Installation and Commissioning of new UPS system and all related components.
* Reconnect all electrical distribution circuits to Main UPS Output Distribution Panel.

## Site Visit

* All Bidders should attend a mandatory site visit. Failure to attend the site visit will result in the disqualification of your Proposal.

# SUBMITTALS

Submittals upon UPS delivery shall include:

* Three (3) sets of UPS Service Manuals. Manuals shall include a functional description of the equipment, safety precautions, instructions, step-by-step operating procedures, and routine maintenance guidelines, including illustrations.
* A site acceptance test signed by bidder and authorized representative of the JCAA.

The following shall be submitted with the tender:

* Catalog and/or technical data sheets describing the proposed equipment. The manufacturer’s product safety certification shall be furnished giving company names and UPS model numbers. All deviations to this specification shall be identified and included with the proposal.
* Product Data and Installation Instructions.
* Maintenance Policy
* Detail listing and cost of recommended critical spare parts

# WARRANTY

Manufacturer warrants equipment to be free from defects in materials and workmanship for three (3) years from date of installed and commissioned.

# QUALITY ASSURANCE

* Manufacturer Authorization - Vendor must have manufacturer authorization and certification of the supplied UPS System. A manufacturer authorization letter should be included in the submission.
* The tenderer shall have specialized in the design, supply and installation of Uninterruptible Power Supply systems for a minimum of fifteen (15) years.
* UPS shall be listed by Underwriters Laboratories Inc. in accordance with the applicable UL standards.
* Before shipment, the manufacturer shall fully and completely test the system to assure compliance with the specification. These tests shall include operational discharge and recharge tests on the internal battery to guarantee rated performance.
* Bidder shall prove minimum three (3) Technicians/Engineers trained and certified by the Manufacturer on the proposed UPS.
* The tenderer shall indicate the locations and provide full contact information including, address, telephone/fax numbers and email addresses of contacts in at least ten (10) locations where the tenderer has installed equipment and systems similar to the ones offered for this project in the last 5 years. This information must be precise as representatives from the JCAA may visit those sites to verify the operation of this equipment.
* The tenderer shall provide three (3) written references from customers with similar systems such as the one being proposed.

# STANDARDS REGULATORY REQUIREMENTS

All equipment, materials, manufacturing techniques and workmanship shall be in accordance with the highest accepted international, national standards, building codes and electrical standards.

Where applicable, the equipment shall fully comply with or exceed the requirements of the following documents (latest edition plus any related amendments and any other applicable documents):

1. Safety EN 62040-1-1, EN 60950-1
2. Performance IEC/EN 62040-3
3. Product Specification CE
4. UL Standard 1778, 5th Edition
5. National Electrical Code (NFPA 70)
6. Occupational Safety and Health Administration (OSHA)
7. IEC 60721‐3‐3 “Classification of environmental condition
8. IEC 60228: “Conductors of insulated cable”
9. IEC 60287-1: “Electric cables - Calculation of the current rating – Part 1 Current rating equations (100 % load factor) and calculation of losses”
10. IEEE 485: “Recommended practice for sizing of batteries for stationary applications”
11. Electrical Standands in the Building Code of Jamaica (Formally JS-21)

**The Vender shall:**

* Leave all civil, landscaping, paved/asphalt surfaces, mechanical or other works in, as good or better, condition than found.
* Review this Scope of Work for adequacy and detail. Submit in writing within two days of receipt any omissions and/or modifications deemed necessary to effectively make the sites safe for normal operations.
* Execute all works to the agreed requirements as per System Requirement Document
* Execute all works within the practice as governed by the requisite regulations and safety considerations.
* Supplier must state any pre-requisites, especially technical, at the time of bid submissions. The pre-requisites are deemed to be the full responsibility of the supplier if none are mentioned prior to bid submission.

**REQUIREMENTS**

# The table below shows an itemized listing of ups system requirements.

|  |  |  |
| --- | --- | --- |
| **ITEM** | **QUANTITY** | **DESCRIPTION OF REQUIRED GOODS** |
| 1. | 2 | 40 KVA 380/220VAC Three Phase Transformer-less Modular Decentralized Parallel Architect (DPA) Uninterruptible Power  Supply (UPS) System |
| 2. | 2 | UPS Battery Cabinet |
| 3. | 1 set | Parallel interface, Parallel Cable, Synchronization Kit |
| 4. | 2 | Maintenance Bypass Panel / Wrap around arrangement |
| 5. | 2 | Ethernet card and provisioned remote monitoring Communication |
| 6. | 1 | Central LCD Display Unit |
| 7. | 2 | 200kA minimum SPD |

**DETAIL SPECIFICATIONS:**

**Mandatory requirements are as follows:**

|  |  |  |  |
| --- | --- | --- | --- |
| **INPUT SPECS.** | | | **PROPOSED** |
| 1. | UPS Topology | True on-line double conversion |  |
| 2. | System Design | Transformer-less Modular Decentralized Parallel Architect (DPA) |  |
| 3. | UPS Power Rating | 2 x 40 KVA (2 x 40 KW) |  |
| 4. | UPS  Configuration | The proposed UPS System shall include Parallel interface, Parallel Cable,  Synchronization Kit etc. |  |
| 5. | UPS Frame Scalability | UPS Frame MUST be scalable to 60KW |  |
| 6. | Nominal Input Voltage | Three Phase 380/220 VAC |  |
| 7. | UPS Configuration | Modular |  |
| 8. | Module Power Rating | 20kW |  |
| 9. | Max. Module per frame | 2 |  |
| 10 | Power Factor correction | 1 |  |
| 11 | Input Voltage Range | -20% to +15% |  |
| 12 | Input Power Factor | Power Factor: 0.99 or better @100% load |  |
| 13 | Operating Frequency | Frequency range 35 to 70 Hz,  nominal 50 Hz |  |
| 14 | Back feed Protection | System shall have Back feed Protection Capabilities |  |
| 15 | Input Current Distortion | <3% Thdi harmonics distortion |  |
| 16 | Cable Entry | Bottom Cable Entry |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OUTPUT SPECS.** | | | | **PROPOSED** |
| 1 | | Rating | 40 KVA (40 kW) |  |
| 2 | | Nominal Output Voltage | 380/220 VAC for 40KVA UPS |  |
| 3 | | Output frequency | 50Hz ± 0.1% |  |
| 4 | | AC to AC Efficiency: | >95 % (100% load @ rated PF) |  |
| 5 | | Eco Mode Efficiency | >97 % |  |
| 6 | | Overload capability | 125% for 5 mins minimum with overload alarm condition |  |
| 7 | | Transfer Time | Zero. True Online Double conversion |  |
| **BATTERY SPECS.** | | | | **PROPOSED** |
| 1 | Battery Design Technology | | Sealed maintenance-free Value Regulated Lead Acid (VLRA) |  |
| 2 | Battery charge limiting  Capabilities | | Battery charge current limiting and minimum end-of-discharge battery voltage limit |  |
| 3 | Battery Protection Mechanism | | Fuse Holder or Battery circuit breaker |  |
| 4 | Battery runtime at full load | | One hour minimum battery time at 10kW load |  |
| 5 | Automated battery reliability testing | | Manual/auto battery reliability testing. |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **COMMUNICATIONS SPECS.** | | | **PROPOSED** |
| 1 | Remote Connectivity to Building Management  Systems | Provision of SNMP compatible adapter (Preferably INTERNAL) to provide network connectivity in order to carry out remote monitoring & control including SNMP traps. |  |
| 2 | Email Web Adapter | Web adapter card to provide built-in email capability that alerts designated users of critical UPS conditions. |  |
| 3 | UPS Monitoring Capabilities | UPS Monitoring software for remote management of UPS. This to include shutdown software which includes shutdown time notification and low battery indication for normal operations compatible with Windows. |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Physical SPECS.** | | | **PROPOSED** |
| 1 | Audible Noise | Audio noise level less than 70 DB at 1 Meter |  |
| 2 | Reliability | MTBF >100,000 hours |  |
| 3 | Audio Alarm with silencer | Audio Alarm with silencer |  |
| 4 | Environmental Temperature Monitoring Capability | Environmental Temperature Monitoring Capability |  |
| 5 | UPS Cabinet Design | The UPS cabinet shall be designed for office or computer room applications.  The cabinets shall line up and match in style and appearance for an aesthetically pleasing appearance. Interconnecting cables shall be provided between UPS and Options cabinets. Each cabinet shall include stationary leveling provisions. |  |
| 6 | Cabinet Rating | IP20 Compliant |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OTHER** | | | | **PROPOSED** |
| 1 | UPS Display | | * One (1) Central Displaying Unit * Graphical LCD Display with backlight * Indicator status * Touchscreen or Control button * Capability * System and Module Level Monitoring |  |
| 2 | Module Display | | * Individual Modules Displaying Unit * Graphical LCD Display with backlight * Indicator status * Touchscreen or Control button Capability |  |
| 3 | UPS Capacity Upgrade Capabilities | | System shall be designed in such a way so as to provide for expansion in capacity either by the addition of modules, paralleling or by upgrading its internal component(s). |  |
| 4 | Wrap Around Functionality | | UPS System should facilitate successful transfer of load to bypass and/or taken offline without disruption to operations. This can be achieved by provision of  internal and external component. |  |
| 5 | System Diagnostics | | System diagnostics at start-up with alarm |  |
| 6 | | Historical Event Records Functionality | Alarm/event history (Date/Time stamped) |  |
| 7 | | Auto Restart | Auto restart after “Loss of AC Power” shutdown |  |
| 8 | | Safety Standards | EN 62040-1-1 and EN 60950-1 (Safety), IEC/EN 62040-3 (Performance), CE (Product Specification) |  |
| 9 | | Manuals | Submission of three (3) sets of Service Manuals |  |
| 10 | | Metering Parameters | UPS should be cable of providing metering of the following:   * Input Voltage * Output Voltage * Battery Voltage * Input Frequency * Output Frequency * Power Factor * Current Input * Current Output * Output % * Load % Utilization * KVA/phase * Battery time remaining in minutes Temperature |  |
| 11 | | UPS Warranty | Three (3) years onsite Warranty on parts and labour. (Vendors are to quote on the provision of extended full warranty (parts and labor) where standard warranty is less than three years.) |  |
| 12 | | Preventative UPS Maintenance Servicing Agreement | Preventative UPS Maintenance Servicing under 3 years warranty to include:   * Two (2) Routine Inspection per year * One (1) detailed UPS Servicing per year |  |
| 13 | | Training | Provision of factory training for five (5) JCAA personals |  |

Provide training for support for at least five (5) personnel’s. This should include but not be limited to:

1. Identify fault codes and distinguish between normal and fault operation modes.
2. Be able to startup, shutdown and restart the UPS.
3. Carry out basic infield diagnostics, troubleshooting and problem solving on the UPS.
4. Training should include all requisite training materials and labs.

**UPS TRAINING REQUIREMENTS**

**Evaluation Form**

**Supply, Delivery, and Installation of UPS for NMIA Radar Site**

|  |  |  |  |
| --- | --- | --- | --- |
| **Technical Evaluation Criteria for UPS** | | | |
| # | **Description** | **Total Points** | **Tender** |
| 1. | Relevant Experience and of the Bidder  (Documentary Proof of (copies of work order or details of clients should be furnished) | * Experience of supplying and installation of UPS for twenty (20) years or more (**20 points)** * Experience of supplying and installation of UPS for 15-19 years **(15 points)** * Experience of supplying and installation of UPS 10-14 years but less than 15 years **(10 points)** * Experience of providing Tower Repair less than 10 years **(0 points)** |  |
| 2. | Similar Projects | * Number of total similar projects 10 or more (within 5 years) **(20 points)** * Number of total similar projects 5-9 (within 5 years) **(10 points)** * Number of total similar projects less than 5 **(0 Points)** |  |
| 3. | Written References | * Three references **(10 points)** * Two references **(5 points)** * One reference **(3 points)** |  |
| 4. | Manufacturer Certified Technician | * 3 or more certified technician **(10 Points)** * 1-2 certified technician **(5 Points)** |  |
| 5. | Training And Manufacturer Certified/authorized | Manufacturer Certified/Authorization **(10 points)** |  |
| 6. | Training of technical staff | Supply training of 5 Electrician **(10 points)** |  |
| 7. | Cost | Price Comparison **(20 points)** |  |
|  | Total | Sum of all scores |  |