AIMS
Airport Information Management Solutions
機場信息管理技術有限公司

Request for Quotation / 報價請求

Subject:	Data Center Maintenance Service (Period: 1/4/2023 – 31/12/2023)		
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煩請按下列要求報價：

No.	Item / Model / Description	Qty.
1.	Maintenance of Data Center with follow equipment (Period: 1/4/2023 – 31/12/2023) - Diesel Generator Set (SP-C600) x 1 - Emerson APM300 (Double Conversion) Power Outlet 160KVA x 2 - Austin Hughes InfraPower W PDU System x 20 - P2070FASMS1R CRAC System x 3 - Kidde GX-20 FM200 System x 1 - Phantom Access Control System x 1 - Mile Sight MS-N5016 IP CAM System - Sensaphone IMS-1000 BMS System x 1 - Water Leakage Detection System x 1 - ATEN KN2116A KVM System x 1 - Battery Rack x 2 - MVAC Split Unit x 6 - 600A Power MCCB LVSB x 1 - Fire Extinguisher (4.5Kg x 1 and 6Kg x 3) Including: - Quarterly onsite preventive maintenance - Onsite corrective maintenance	1

	- FM200 and Fire Extinguisher Annual Inspection - Diesel Generator Set Annual Inspection Scope of Maintenance: 1. Diesel Generator Set 1.1 Check the input, output and battery cable connection 1.2 Check all Battery Voltage and liquid leakage or bulging 1.3 Check the lubricate oil and fuel level 1.4 Check any oil and water leakage of the engine 1.5 Check the Genset LCD display and front panel indicators 1.6 Check the AC input voltage, current and frequency, DC charger voltage and current 1.7 Check the Genset output voltage, current and frequency, speed 1.8 Check the manual and automatic function 1.9 Check the radiator fans and moving parts 2. UPS and Battery 2.1 The scope of service is limited to the interior of the equipment (electrically and/or mechanically); 2.2 Ensure proper operation condition for the whole system by examining and testing of all system operation parameters; 2.3 Perform complete electrical inspection on the subject equipment including subassemblies, wiring harnesses, contacts, cables, and other major components; 2.4 Check all nuts, bolts, screws, connectors for tightness or heat discoloration and make adjustment where necessary; 2.5 Measure equipment's input & output voltage and current 2.6 Inspect for broken, damaged, burned components or cables 2.7 General clean only the accessible, and de-energized areas of the equipment, all clean works shall be utilizing vacuum cleaner but not Blower; 2.8 Check the integrity of battery rack/cabinet. checking of any leakage of the battery shall be included 2.9 Check UPS synchronization and output frequency stability; 2.10 For multi-modules system, check load-sharing conditions between each UPS module; 2.11 Adjust calibration points on the equipment if necessary; 2.12 Inspect the back-up batteries bank for 2.12.1 Cases damages, deformation and fluid leakage;	

2.12.2 Overheated or corroded cables and connectors;

2.12.3 Loose assemblies on battery racks or cabinets;

2.12.4 Measure each battery's float-charge voltage;

2.12.5 Re-grease all battery's terminals to prevent corrosion;

2.13 Submit all service reports including measurement records to the customers;

2.14 Report any anomalies to the customer and suggest appropriate actions;

2.15 All maintenance procedures mentioned above will not interrupt the equipment's output;

2.16 Clauses 2.7, 2.9, 2,10, 2,11 and 2.13 show above only apply to UPS system

2.17 Scope of Annual Back-up Batteries Performance Test on Actual load

2.17.1 Perform all maintenance procedure as Clause 2.12 above;

2.17.2 Perform system By-pass & Inverter transfer test;

2.17.3 Switch the subject equipment to Back-up mode (UPS on battery) by shutting off the mains input;

2.17.4 Measure and record all the discharging cell voltage and temperature

2.17.5 Restore main input supply to the subject equipment

2.17.6 Return the system to normal operation and verify the charging current & voltage, and output voltage, calibrate wherever necessary;

2.17.7 Submit all service reports including measurement records to the customer;

2.17.8 Report any anomalies to the customer and suggest appropriate actions

2.17.9 The procedures mentioned in the Clause may interrupt the UPS output

3. PDU System

3.1 Visual inspection of equipment for any signs of damage and/or foreign materials

3.2 Verify that all power and control wiring to UPS switchgear are functioning normal.

3.3 Record PDU Input Voltage (3-Phase)

3.4 Record PDU Input Current (3-Phase)

3.5 Record PDU Output Current (3-Phase)

3.6 Inspect unit enclosure and MCCB for any sings of abnormal heart buildup.

3.7 Verify that all labels for circuit and MCB boards are properly in place

3.8 Conduct UPS external bypass test where applicable.

3.9 Verify and test all switchgear (included ATS switch) and major MCCB

4. CRAC System

4.1 Provision of function check for all system operating parameters within the

service period;

4.2 Ensure proper operation condition for the Air-Conditioning system examining and testing of all system operating parameters as follows:

4.2.1 Filers

a. Check the filters for restricted airflow;
b. Check the filter clog switch. Renew the filters if necessary.
c. Wipe the filter section clean.

4.2.2 Humidifier

a. Check the humidifier pan for deposits. Clean the pan.
b. Check for burnt our infrared lamps. Renew if necessary

4.2.3 Indicator Lamp

a. Check and renew the indicator lamps where necessary.

4.2.4 Fan Section

a. Check the belt condition and tension. Tighten if necessary.
b. Check the bearing for wear.
c. Check that the pulley and motor mounts are tight.
d. Check the fan impellers for debris, ensure the impellers are secure on the shaft, and do not rub against the housing.

4.2.5 Compressor Section

a. Check the oil level in the compressor sight glass.
b. Check the sight glass for refrigerant condition.
c. Check the vibration isolation mounts.
d. Check for signs of oil leaks.

4.2.6 Refrigerant Cycle

a. Using gauges check the refrigerant head pressure and suction pressure while the unit is running under load.
b. Inspect all insulation to ensure it is intact.
c. Inspect the evaporator coil and check that it is clean

4.2.7 Condenser

a. Check that the condenser coil is clean and clear of debris.
b. Check that the motor mounts are tight and bearings are free.

4.3 Inspection and periodic lubrication to all mechanical and moving parts;

4.4 General dust cleaning and debris disposal.

4.5 Submit the maintenance report after service.

5. FM200

Visually inspect all F.S. equipment – to check if the equipment is properly fixed, adequately protected and remains undamaged

	5.1 Check and test the detectors will be checked in each of the zones 5.2 Check and test all the audible warning devices 5.3 Check and test all the flashing light devices 5.4 Check and test for proper operation of the FM200 system 5.5 Check and test the function of the fire main panel. 5.6 Check and record the condition of the battery 5.7 Record the FM200 cylinder pressure 6. Access Control System 6.1 Check input and output voltage 6.2 Check connection of control wirings 6.3 Check LCD displace and alarm sounds. 6.4 Check lock and access card module operation 6.5 Backup all logging record 7. IP CAM System 7.1 Check input voltage of NVR 7.2 Check connection of control wirings 7.3 Check the POE switch 7.4 Check NVR alarm sounds and Hard Disk status 7.5 Check interface for all POE IP Cam 7.6 Random play back the backup record 7.7 Check all IP CAM is fixed and function probably 8. BMS System (Sensaphone) 8.1 Check input voltage and the backup battery 8.2 Check connection of control wiring for all module 8.3 Check LED light and alarm sounds 8.4 Check user profile and phone number 8.5 Check the audio dialup function by simulation the fault alarm 9. Water Leakage Detection System 9.1 Check input voltage 9.2 Check connection of control voltage 9.3 Check LED light and alarm sounds 9.4 Check water detection indication panel 9.5 Check sensing cable alarm function and clean if necessary	

10. KVM System
    10.1 Check input voltage of KVM
    10.2 Check connection of control wirings
    10.3 Check the rear switch function by plug in the remote module
    10.4 Check KVM alarm sounds and all button status
    10.5 Check interface
    10.6 Random test the remote PC interface

11. Battery Rack

Please refer to the Item 2 – UPS system

12. MVAC Split Unit
    12.1 Fan
        - Check that the fan moto rotates freely without any abnormal noise, and ensure that the bearings are not running hot.
        - Also check the current absorption
    12.2 Air Filters
        - Verify the state of the filers; in very dusty ambient perform this check more frequently.
    12.3 Control System
        - Verify the operation of LEDs, display and alarms.
    12.4 Electrical Circuit
        - Check the electrical supply on all phases
        - Ensure that all electrical connections are tight.
    12.5 Refrigerant Circuit
        - Check the evaporation pressures (to be done by a refrigeration technician);
        - Check the compressor current absorption, its head temperature and the presence of any unusual noise.
        - Ensure that there is no ice formation on the evaporator

13. Main Switchboard/Distribution Board
    13.1 Check charger and battery for tripping supply output in order
    13.2 Check spare parts, fuses and tools
    13.3 Check and clean switch room and switchboard with care where necessary
    13.4 Check lighting, sockets, emergency lighting of switch room
    13.5 Check earthing system connection of switch room in order
    13.6 Record room humidity/temperature of switch room

	13.7 Doctor Test for switchboard where necessary 13.8 Secondary injection test of IDMT Relays where necessary 13.9 Earth Loop Impedance Test where necessary 13.10 Clean all external & internal dust and dirt from the equipment 13.11 Inspect cable insulation & insulation within the board for evidence of damage or overheating 13.12 Check all cable terminations and earth connection for tightness 13.13 Check all conduit and cable gland terminations associated with the board and tight. 13.14 Check the panel cover door could be securely closed by the screws or the locking system 13.15 Check and update the circuit charts in MCB and MCCB boards where necessary. 13.16 Check on-site socket and MCB output label match the charts or not. 13.17 Provide Thermal scan record to prove no bad contact in the termination	

條款:

1. 報價時請列明所有條款
2. 報價請以澳門幣結算及付款方式
3. 註明完成項目週期