دولة الكويت

وزارة الإعلام

MINISTRY OF INFORMATION

Tender No. ممارسة رقم

صيانة وإصلاح هوائي الإرسال الفضائي في محطة المقوع الفضائية

Maintenance and Repair existing antenna system for standard Ku-Band Satellite Tx/RX antenna system at Al-Magwa Satellite Earth Station

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CHAPTER 1:
SCOPE OF WORK

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1.1 Introduction:

1.1.1. The Ministry of Information (MOI) invites specialised bidders only to quote their best prices to maintain, repair, test, commission, and guarantee an existing antenna system for standard Ku-Band Satellite at Al-Magwa Earth Station. This includes all necessary parts, and accessories (Feed horns, waveguide cables, drive kit, outdoor unit control, hand wheel kit, paint, reflector blades etc.). The existing transmission and receiving (Tx/RX) antenna system is manufactured by Andrew Satellite Communications (ASC).

1.1.2. The project will be implemented at Al-Magwa Earth Station.

1.1.3. In accordance with the specified Tender Document (T.D.) and adhering strictly to the standards and requirements set forth by ITU-R, Arabsat, and Eutelsat, it is imperative that the provided items demonstrate full compatibility and seamless integration with the existing transmission systems.

1.1.4. To be aware of the existing system in the site, the bidder shall be permitted a site visit before the designing phase to assure the compatibility of the system, connections, distances, Power...etc.

1.1.5. The bidder shall gather full information regarding the maintenance site for the specified antenna system during the scheduled site survey visit at Al-Magwa Satellite Earth Station. This information is a crucial prerequisite for the execution of the project.

1.1.6. All software licences provided under this agreement must be perpetual, ensuring indefinite validity without the need for renewal or additional fees.

1.1.7. All offered equipment must be the latest state-of-the-art technology. Due to the importance of such a critical on-air system, the participating bidder must have the required experience in satellite communications to execute the project in very high quality, broadcast standard and WELL-KNOWN manufacturers. The bidder should submit a list of their similar projects that have been done in **GCC.** All offered equipment and works must comply with the **following**:

a) This T.D. explicitly.

b) Arabsat specifications & requirements explicitly.

c) Eutelsat specifications & requirements explicitly.

d) CCIR - ITU Recommendations & Reports.

1.2. Objective:

The scope of work includes delivering extensive maintenance, repairs, testing, commissioning, and guarantee services for the existing Tx/Rx antenna system operating on the Ku-Band. This involves:

1.2.1. **Replacement** of any components deemed damaged or identified as potential risks to transmission integrity, as detailed in **Chapter three (3)** of this documentation.

1.2.2. **Repair** of items evaluated as damaged or likely to cause future damage to the transmission system, in accordance with the assessments outlined in **Chapter three (3)**

1.2.3. **Provision and installation** of complete flexible waveguide cables, as specified in **Chapter three (3)**. In addition, it shall include the Beacon system. This entails full adherence to the outlined requirements and standards for the system's integration and functionality.

1.2.4. **Test** the system after repairing and maintenance to ensure system compatibility and full operating based on the specifications in this tender.

1.3. TIME SCALE:

1.3.1. The project shall be duly completed and formally commissioned no later than **Four (4) months** following the date of handover of the site. This timeline shall be strictly adhered to as per the terms of the agreement.

1.3.2. Upon successful commissioning of the project, a period of **Two (2) weeks** shall be allocated for rigorous testing of the system's reliability. This testing phase is essential to ensure the system's operational efficiency and adherence to specified standards. Following the satisfactory completion of this testing period, the Final Handing-Over Certificate (FHOC) will be issued, signifying the formal conclusion of the project.

1.3.3. The warranty period, spanning **Twenty-Four (24) months**, shall commence from the date of issuance of the **Final Handing-Over Certificate (FHOC)**. This period is dedicated to ensuring the integrity and functionality of the system as per the agreed terms and conditions.

CHAPTER 2:
GENERAL AND SPECIAL TECHNICAL CONDITIONS

2.1 System Engineering, Integration and Verification

2.2 Project Responsibility

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2.7 Selection, Rejection, Addition and/or Modification

2.8 Final Handing Over Certificate (FHOC)

2.9 Pre-Tender Meeting

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2.1 System Engineering, Integration and Verification:

Quality Standards: All equipment proposed must conform to the highest standards of quality, adhering to broadcast industry norms.

2.1.1 Outdoor equipment must be designed to endure the extreme climatic conditions of temperature, humidity, wind, and dust prevalent in the State of Kuwait.

2.1.2 Bidders are required to submit a comprehensive compliance table, using the same numerical order as the tender document, indicating adherence to each specified paragraph and sub-paragraph. In instances of non-compliance, a detailed explanation must be provided.

2.1.3 Comprehensive operation and maintenance manuals, inclusive of detailed diagrams, circuit descriptions (with no omissions), printed circuit layouts, and data sheets, must accompany the supplied equipment. All documentation should be provided in both English and Arabic.

2.1.4 The contractor is responsible for ensuring state-of-the-art design, as well as the meticulous execution of system integration, wiring, and installation processes.

2.1.5 Bidders must demonstrate significant experience in satellite communications, substantiated by at least three references from similar projects, including handover certificates from the end-users.

2.1.6 A detailed price list for each item in the offer must be provided, specifying the brand, model, and licensing information. Additionally, comprehensive pricing for installation and all other services listed in the Bill of Quantity **(B.O.Q)** is required.

2.2 Project Responsibility:

2.2.1 The execution and handover of the project to **MOI** shall be under the full responsibility of the contractor. This includes ensuring the project meets all specified requirements and standards.

2.2.2 The Contractor is solely responsible for the installation, repairs, maintenance, and testing of the equipment. **MOI** will not bear any responsibilities related to these aspects of the project.

2.2.3 **MOI** reserves the right to demand the replacement of any item/s that are found incompatible with existing systems or deemed unsuitable, or non-compliant with prevailing laws and regulations.

2.2.4 The provided **(B.O.Q)** serves as an illustrative guide only. It is incumbent upon the bidder to propose a comprehensive solution that aligns with the specified requirements. Consequently, the bidder is obliged to include and price any additional items necessary for the seamless functioning of the system, even if they are not explicitly mentioned in the initial B.O.Q.

2.3. Approval of Materials and System Drawings:

The submission of materials and system drawings to **MOI** is required to be completed at least **ten (10) working days** prior to the commencement of any onsite work. This is to facilitate thorough review and approval processes. Additionally, it is imperative to design and arrange the project site to ensure unimpeded accessibility to all components and units for maintenance purposes. The layout must be planned to provide clear and obstacle-free access to different equipment and units, ensuring ease of maintenance and operational efficiency.

2.4.Inspection, Testing, Commissioning and Design Review of Equipment:

2.4.1 Inspection Testing and Commissioning of the antenna system:

The proposal must include comprehensive up-link and down-link power budget calculations that demonstrate the overall system performance based on the specifications of the offered equipment. These calculations are critical for submission and review. To align with Arabsat and Eutelsat organisation regulations, the ***following parameters*** must be explicitly detailed and submitted for approval:

1. Maximum Effective Isotropic Radiated Power (EIRP) Per Carrier
2. Modulation Method

3. Antenna G/T Ratio (Gain-to-Temperature): The proposal should account for atmospheric losses and losses from all equipment, including waveguides, transfer switches, etc. This will provide a clear understanding of the system's efficiency in converting the antenna's gain into a usable signal. Complete link budget calculation shall be submitted with the offer.
4. Transmit Gain: Detailing the gain achieved in the transmission process is essential to understand the system's efficacy in signal amplification.
5. Transmission Quality: An assessment of the quality of the transmission, including factors like signal-to-noise ratio and error rates, is important for ensuring the reliability and clarity of the transmitted signals.

2.5 Compliance & Offer Qualification:

2.5.1 Bidders must fully agree with the contents of this Tender Document, including all technical details, English syntax, chapters, and annexes. They should respond to every point and subpoint of the specifications. If there are any reservations, disagreements, or deviations from the tender document, these must be clearly stated in separate Non-Compliance Schedules, detailing the chapter, page, item number, and reasons for non-compliance.

2.5.2 Detailed datasheets for all proposed equipment are required, containing all relevant technical information. Proposals must include a system description and a block diagram to explain the offered solution. **MOI** will reject offers not meeting these requirements.

2.5.3 The proposal must also feature a comprehensive price list for each item and the total price as per the bill of quantity **(B.O.Q)**. This list should include the brand, model, and a description of all features and licences for each unit.

2.6 Warranty:

The Contractor must guarantee all system/subsystems for **twenty-four (**24**) months** post-FHOC issuance. Any defects in units, devices, or components during this period must be replaced at no extra cost or time extension. If catastrophic failures repeatedly affect system performance, reliability, or availability, the Contractor is responsible for rectifying these at no additional cost to MOI. The warranty includes:

2.6.1 Free replacement/repair of defective parts due to material, manufacturing, or design flaws, with a local technician dispatched within **twenty-four** (**24) hours** of failure notification.

2.6.2 Completion of replacement/repair within **four (4) weeks**.

2.6.3 Coverage of transport costs for repair parts.

2.6.4 Provision of necessary updates for equipment functionality and operation throughout the warranty period, free of charge.

2.7 Selection, Rejection, Addition and/or Modification:

- ***Bidders are required to submit their proposals including a softcopy on compact discs. The compliance sheets within these submissions must be provided in both Microsoft Excel and PDF formats.***
- ***It's important to note that the Ministry of Information retains the authority to disqualify any proposal that fails to include the softcopy (CD) of the tender documents, which should encompass both the technical and commercial aspects of the offer.***

2.8 Final Handing Over Certificate (FHOC):

The Final Handing Over Certificate **(FHOC)** will be issued once the project is completed, tested, and accepted by the engineers of the **MOI**. However, if system failures occur, the issuance of the **FHOC** may be delayed until the system's performance is restored to a state that is acceptable to **MOI**.

2.9 Pre-Tender Meeting:

A pre-tender meeting will be organised between the Bidders and representatives of **(MOI)**. This meeting is scheduled to take place **one (1) week** after the tender announcement, as per the details provided in the announcement.

2.10 Site Visits:

To ensure accurate and realistic quotations, all Bidders shall visit the site **(Al-Magwa Satellite Earth Station)**. The arrangements for these site visits will be made during the pre-tender meeting.

CHAPTER 3:

TECHNICAL REQUIREMENTS

3.1 General Requirements and System Description

3.2 Scope of Work

3.3 Equipment Specification

3.1 General Requirements and System Description:

This project involves the maintenance, repair, testing, commissioning, and guaranteeing an existing standard Ku-Band Satellite Tx antenna system, manufactured by ASC Signal, at **Al-Magwa Satellite Earth Station**. It will be operational for either Arabsat or Eutelsat, utilising existing High-Power Amplifiers (HPAs). The project also includes the integration and functionality of the Beacon system, the control unit and the existing HPAs, essential for system alignment, monitoring, and effective operation. These components, along with accessories like feed horns, waveguide cables, drive kits, and others, are crucial for the comprehensive performance of the antenna system.

3.2 Scope of Work:

3.2.1 **Maintenance and Repair**: Perform comprehensive maintenance and repairs on the existing Ku-Band Satellite Tx/RX 5.6m antenna system by Andrew Satellite Communications (ASC) Signal.

3.2.2 **Testing and Commissioning:** Conduct thorough testing and commissioning of the antenna system to ensure optimal performance.

3.2.3 **Guarantee of Operation:** Provide a guarantee for the operational effectiveness of the antenna system.

3.2.4 **Operational Compatibility:** Ensure the antenna system is compatible and operational with both Arabsat and Eutelsat, utilising existing High-Power Amplifiers (HPAs).

3.2.5 **Integration of Beacon System and Control Unit:** Integrate and ensure functionality of the Beacon system and control unit for system alignment and monitoring.

3.2.6 **Accessory Management:** Include management and integration of essential accessories like feed horns, waveguide cables, drive kits, and others for the antenna system.

3.2.7 **Broadcast Capability:** Restore the full function of the antenna system to transmit Kuwait TV bouquet on both Arabsat and Eutelsat.

This scope aims to ensure the comprehensive performance and reliability of the antenna system at the Al-Magwa Satellite Earth Station.

3.3 Equipment Specifications:

3.3.1 Motorized Antenna system

3.3.1.1 Maintain, replace. repair, integrate, test, commission, and guarantee TX/Rx motorised satellite antennas from (**ASC**) Signal formerly Andrew Satellite Communications. The antenna in Al-Magwa satellite Earth Station Shall be used for Ku satellite transmission.

3.3.1.2 Work that should be completed on the antenna system:

- **Replacement/ Maintenance:**
  - Antenna control unit.
  - Antenna pedestal and reflector galvanised surface control.
  - Azimuth jack/reducer, motor, resolver, limit switch, blower motor.
  - Elevation jack/reducer, motor, resolver, limit switch, blower motor.
  - Azimuth CW/CCW limit control.
  - Elevation UP/DOWN limit control.
  - Polarisation CW/CCW limit control.
  - Paint the surface and antenna mount bolt.
  - Screw Jack Housing: Grease fitting on head of jack, two places and one place under boot.
  - Elevation Axis Bearings: Grease fitting on hub elevation lug, one place each side.
  - Azimuth Axis Bearings: Grease fitting on azimuth axis bearing housings, one each per upper and lower bearing.
  - Azimuth Rod End Bearing: Grease fitting on end of rod end.
  - Elevation Rod End Bearing: Grease fitting in hub jack lug.
  - Jack Screws: During periodic maintenance, jack screw boots are to be removed and the screws extended and lubricated.
  - AZ/EL Jack Gear Reducers: No oil change required. Inspect and maintain level above the centre of the output shaft.
  - Indoor/ outdoor electrical components.

- **Commissioning the antenna:**
  - integrating the antenna with the provided tracking system, and transmission system.
  - calibrating the antenna with the requested satellite.

3.3.2 Waveguide:

provide flexible and elliptical waveguide cable for Ku band that is suitable for the antenna transmission system.

CHAPTER 4:
BILL OF QUANTITIES

4.1. B.O.Q.:

No.	Description	Qty.	Unit Price		Total Price	
			K.D.	Fils	K.D.	Fils
1	Replacement/ Maintenance of complete TX/RX satellite antenna system.	L.S.				
2	Waveguide	L.S.				
3	Additional Equipment or works that are required to complete the system but not mentioned in the above specifications and any extra cost/materials not clearly mentioned above.	L.S.				
GRAND TOTAL: (K.D.)						

4.2. Important Notes:

4.2.1. Any items/works not mentioned in the previous pages and/or the attached **(B.O.Q)** but indispensable for proper installations / implementations / performance of the different sub-systems of this project MUST be inserted, described, and priced in the relevant schedule/s. Otherwise, these items/works shall be provided/done free of any charge to MOI, before FHO.

4.2.2. The contractor MUST include in their Detailed **(B.O.Q)** all the Items/work either mentioned or required for successfully completing this project.

4.2.3. Detailed breakdown lists of all offered items/works MUST be submitted in the requested **(B.O.Q)** including manufacturer name and product's part number. The technical evaluation will be performed based only on the part numbers/models that mentioned in the detailed **(B.O.Q)**.

4.2.4. All items must be priced. No option items will be accepted in the **(B.O.Q)**.