SKYNET Transition and Transformation Project (SK T&T):

Future Protected Modems (FPM)

Request for Information (RFI)

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# Section 1 - Introduction

1. The Ministry of Defence (MoD) is currently developing a requirement to replace the existing military Satellite Communication (SATCOM) Paradigm Modem System (PMS) through the Future Protected Modem (FPM) project. The MoD is seeking industry’s views on aspects of procurement, design and manufacture of military SATCOM modems to help inform its technical options and programme planning. Therefore, the MoD would like to invite industry to provide feedback on the questions shown in Section 3 – Information Requestedon page 3 of this document.
2. The objective of this RFI is to solicit information and contributions towards achieving the following:
   1. Assessing the market appetite for the proposed future procurement activities.
   2. Confirming MOD’s understanding of the market with the aim of becoming an intelligent customer.
   3. Gaining an understanding of the technologies available in Military SATCOM capabilities and how industry manages hardware & software obsolescence relating to Modems.
   4. Gaining an understanding of how industry assures hardware and software equipment quality throughout the supply chain in relation to Modems.
   5. Gaining an understanding of the delivery of through life support for Military SATCOM Modems.

## Industrial Engagement Approach

1. Industry responses to the questions will be treated as commercially sensitive and respondents may answer as many or as few of the questions as they wish. Only Official or Official-Sensitive responses should be sent to the email address specified on page 4.
2. The content of individual responses (or lack of response) will not be in any way prejudicial to future procurement processes and is for MoD information only.
3. The description of the FPM project and other aspects of the SKYNET programme provided in this document are subject to change without notice or consultation. The MoD will not be held liable for any decisions or investments made based on the information contained in, or inferred from, this document.
4. Please note that it is the responsibility of the respondent to ensure that appropriate rights of distribution are in place for all information shared in response to this RFI.

## RFI Security Information

1. The following security information should be read and understood before responding to this RFI:
   1. The security classification of this RFI is OFFICIAL.
   2. The security of the anticipated future procurement for FPM is of critical national importance. The highest level of classification of the FPM project is UK SECRET 5 EYES ONLY and this will impact on any future competitive activity with regard to this project. The Official Secrets Act and other relevant legislation will also inherently apply to the SKYNET programme. Effective security will need to be designed, implemented and assured throughout the life of the programme and must cover both the system itself, the impact of connected systems and the programmatic aspect of security.

# Section 2 – The FPM Requirement

1. The full range of MoD's SATCOM systems and services are currently delivered under several contracts and memoranda of understanding, with the bulk of services provided under the SKYNET Contract for Implementation and Service Delivery (CISD) awarded in October 2003 under a Private Finance Initiative (PFI). That PFI is with Airbus Defence & Space (ADS) and expires on 31 August 2022.
2. After this date, MoD will transform towards becoming an “Intelligent Owner” and take on responsibility for maintaining all satellite assets, services and capabilities under the SKYNET Programme. This includes the procurement of multiple suppliers to support the service wrap and replenish obsolete assets in order to de-risk capability and maintain service delivery whilst the SKYNET Programme transitions from the PFI.
3. The Future Protected Modem (FPM) workstream sits within the SKYNET Transition & Transformation Project (SK T&T) which is focused on ensuring that replacement equipment is available to maintain or improve the MoD’s SATCOM capability. The focus of this Early Market Engagement Activity is the replacement of the modems, which are scheduled to enter service in 2026.
4. The current Paradigm Modem System (PMS) provides protected and highly assured waveform resilient at all levels of crisis and conflict. The Future Protected Modem (FPM) will be expected to provide:
   * + Resilience, security and flexibility of use while recognising an increasing need for communications.
     + Communications on the Move (CoTM).
     + Supports the incorporation of a flexible Internet Protocol (IP)-based communications network.
     + Ease-of-use through reduced Size, Weight and Power (SWaP).
     + Efficient use of satellite resources.
     + Effective operation of multiband services.
5. The scope of the proposed future procurement is a Future Protected Modem (FPM) System that comprises:
   * + Modem hardware.
     + Modem waveform.
     + The modem system’s control functionality.
     + The modem system’s management functionality.

# Section 3 – Information Requested

1. The Ministry of Defence (MoD) is currently seeking information from Industry on:
2. Please provide details of your available satellite modem product(s) using the table in Annex A to document the details.
3. Please describe industry’s typical approach to product assurance for a SATCOM Modem System?
4. Please describe industry’s general approach to supply chain assurance; please could your response reflect quality and security of supply (e.g. freedom from malware etc)?
5. Please describe the measures industry typically undertake in order to support a SATCOM Modem System through life e.g. management of software and hardware obsolescence?
6. How would industry suggest the MoD manages the delivery of a SATCOM Modem System over an extended period, please could your response highlight key risks (e.g. impact to warranty and price, with proposed mitigations) for a programme duration of:

* 2yrs
* 5yrs
* 10yrs
* 15yrs

1. How would industry suggest the MOD deal with the situation in which it wishes to continue using the SATCOM Modem System (e.g. after 10yr/15yr initial contact period) but the OEM supplier is no longer willing or able to provide through life support e.g the provision of a licence to enable a 3rd party supplier to maintain?
2. Please describe industry’s typical approach to the delivery of a SATCOM Modem System using the table in Annex B to document details.
3. Please support your answers in Annex B with a description of your basis of each estimate?
4. Please describe industry’s preference for delivery of modems (e.g. single bulk order, monthly, quarterly, yearly etc) in order to derive best price?
5. How does industry incrementally improve the performance and functionality of its SATCOM Modem System, for example:
6. Increases in data rates?
7. How are these applied to legacy modem systems (e.g. Software patches)?
8. Please advise what methods industry find most effective in familiarising users, operators and maintainers of SATCOM products?

# Section 4 - How to respond to this RFI

1. Please be aware that the MoD is not seeking promotional material (sales pitches) for unproven technologies in response to this RFI.
2. **Responses to this RFI should be sent directly to mailbox**:

* **ISSComrcl-Skynet-6A-Mailbox@mod.gov.uk**

1. **The closing date for RFI responses is:**

* **7th October 2021 @ 23.59hrs.**

1. Thank you for your interest in this RFI.

# Annex A – Question 1 Responses

|  |  | | **Please provide details of your satellite modem product(s):** | | | |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | | **Example of information required:** | **Product 1: Supplier to complete** | **Product 2: Supplier to complete** | **Product 3: Supplier to complete** |
| Product Maturity | | Product Name: | |  |  |  |
| Modem Hardware | e.g. TRL X |  |  |  |
| Waveform | e.g. TRL X |  |  |  |
| Management System | e.g. TRL X |  |  |  |
| DAMA System | e.g. TRL X |  |  |  |
| Size & weight | | Nominal size (HxWxD) | In Rack Units or cm |  |  |  |
| Weight | in kg |  |  |  |
| Power Consumption | in Watts |  |  |  |
| Interfaces | | Traffic Physical Interface | e.g. Base T |  |  |  |
| Management Physical Interface | e.g. Base T |  |  |  |
| Traffic Logical Interfaces | e.g. Ethernet IP |  |  |  |
| Management Logical Interface | e.g. Base T |  |  |  |
| ESM Signalling Physical Interface | e.g. Serial |  |  |  |
| ESM Signalling Logical Interface | e.g. RS422 |  |  |  |
| RF Physical Interface | e.g. N-type |  |  |  |
| RF Logical Interface | e.g. X-YMHz with X-Y Power Level Rx and Tx |  |  |  |
| Power Interfaces | e.g. AC and DC |  |  |  |
| Performance | | Modulation Type Used | e.g. xPSK |  |  |  |
| Modulation Indices Supported | e.g. 1,2,3,4 |  |  |  |
| FEC Type Used | e.g. R-S/Vit Codes |  |  |  |
| FEC Rates Supported | e.g. 1/2,2/4,3/4,4/5 |  |  |  |
| Resilience | | Method via which Resilience to Interference is provided | e.g. FHSS |  |  |  |
| Technical performance for Resilience to Interference is provided | e.g. Hop Rate and Bandwidth |  |  |  |
| Operation Features | | Receive Only Mode | Yes/No answer required |  |  |  |
| ESM-compatibility mode | Yes/No answer required |  |  |  |
| Demand Assigned Multiple Access supported | Yes/No answer required.  *If Yes please describe capabilities in your response* |  |  |  |
| Adaptive Transmission Rates | Yes/No answer required.  *If Yes please describe capabilities in your response* |  |  |  |
| Military Environmental | | Area of operations | e.g. Global |  |  |  |
| Temperature Operation | e.g. XC to YC |  |  |  |
| Temperature Storage | e.g. XC to YC |  |  |  |
| Vibration  (Operational) | e. g. DEF-STAN, MIL-STAN |  |  |  |
| Vibration  (Non-Operational) | e. g. DEF-STAN, MIL-STAN |  |  |  |
| EMC | e.g. DEF-STAN, MIL-STAN |  |  |  |
| Shock | e.g. DEF-STAN, MIL-STAN |  |  |  |
| M&C | | Secure Management and Control application interfaces to Modem | Yes/No answer required |  |  |  |
| Modem Planning and Configuration tools available | Yes/No answer required  *If Yes please describe capabilities in your response* |  |  |  |
| Modem Key Management Tools available | Yes/No answer required  *If Yes please describe capabilities in your response* |  |  |  |
| Open standard, published Configuration to Secure Management and Control application interface | Yes/No answer required |  |  |  |
| Open standard, published Secure Management and Control application to Modem interface | Yes/No answer required |  |  |  |
| Time to plan a 10 modem network | e.g. X minutes |  |  |  |
| Compliance | | Security Accreditations held | e.g. FIPS |  |  |  |
| Directive Compliance | e.g. UKCA, ROHS3 and WEEE |  |  |  |
| Product’s Export Rating | e.g. ECCN XYZ |  |  |  |
| Price | | Rough Order of Magnitude (ROM) unit price | for one unit | £ | £ | £ |
| for 10 units | £ | £ | £ |
| for 100 units | £ | £ | £ |
| Warranty | | Standard warranty term for Modem System | e.g. 1 or 2 years, please include ROM price for extra year(s) | Year(s):  £ | Year(s):  £ | Year(s):  £ |
| Standard warranty term for Management System | e.g. 1 or 2 years, please include ROM price for extra year(s) | Year(s):  £ | Year(s):  £ | Year(s):  £ |

# Annex B – Question 7 Responses

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Please provide details:** | | | |
| 7.1. What is the average timescale from first order (through develop1, manufacture & test) to first product delivery ready for commissioning?  Footnote 1: *assume* ***Minimal Modification*** *to existing product offerings (e.g. minimal software or firmware changes).* | | | Maximum Period in months: |  |
| 7.2. What is the average timescale from first order (through develop2, manufacture & test) to first product delivery ready for commissioning?  Footnote 2: *assume* ***More Extensive Modifications*** *to existing product offerings (e.g. includes software, firmware and/or hardware changes).* | | | Maximum Period in months: |  |
| 7.3. Please advise the typical number of modems that could be manufactured/ supplied per month? | Minimum Number of Modems: |  | Maximum Number of Modems: |  |
| 7.4. What is the average time from order of additional units to delivery ready for commissioning? | Minimum Period in months: |  | Maximum Period in months: |  |
| 7.5. Please advise the typical order volumes for modems to derive best price? | Minimum Order Quantity: |  | Maximum Order Quantity: |  |