Ministry of Defence

de&s

Statement of Work for eLoran PSS

Space Delivery Team

Date of Issue: 09 Oct 2024

Amendment record

Issue	Modification	Date
0.1	Initial draft	08/10/2024
1.0	Initial issue	09/10/2024

Contents

Scope

The DE&S Alt PNT Programme assessment phase is focused on maturing diverse and complementary alternative PNT (non-GNSS) technologies, in order to develop a suite of information & options to inform subsequent exploitation by the UK MOD. In particular, the project is intending to mature technologies that are currently in prototype form, through to a stage where representative demonstrators & supporting information exists. As part of achieving the aims for the project, a deployable eLoran infrastructure (transmitter network) has been identified as a capability that the project is keen to mature to meet MOD's needs.

Work is required to support the preparation for a potential future deployable eLoran contract by producing a report to cover the below, which in-turn will be used to formulate System Requirements and a Statement of Work for the deployable eLoran contract.

Assumptions

a. REDACTED UNDER FOIA SECTION 26 DEFENCE

Description

The key tasks required to meet the objectives of this contract are:

a. Support to determining the optimal shape, height and power of the transmitters, when considering the need for transportation & resulting coverage area. Consideration of

   the robustness requirements for transportation need to be taken into account. i.e. will the deployable transmitters withstand the forces (vibration profiles) they are subjected to and what does that mean for protecting the hardware? Additionally, consideration for the amount of people available for set up and tear down.

b. Support to identifying and determining the most appropriate use / augmentations / additions to introduce onto the Loran Data Channel REDACTED UNDER FOIA SECTION 26 DEFENCE

c. Support to identifying and determining suitable and feasible requirements for the timing system architecture for the transmitter network development REDACTED UNDER FOIA SECTION 26 DEFENCE

b.

c. Support to investigating the features & advantages of each data broadcasting standard / signal specification and informing the final data broadcasting standard selected (Eurofix and/or 9th Pulse).

d. Support to determining the components required within a deployable transmitter, and any deviations from those required in a permanent transmitter.

Governance

It should be noted that the representatives from Space DT are willing, and expect, to be involved with all aspects and throughout the life of the project. As the outputs of this analysis work will directly support other activities being conducted within Space DT, a collaborative approach to priorities and ongoing, informal, sharing of information is expected.

It is accepted that any meeting to do with the project can either be held at the supplier premises, MOD Abbey Wood, or online via Teams if appropriate.

Deliverables

The contractor shall be responsible for delivering a final report, in both PDF and Word format, to include but not limited to:

a. Summary of work done
b. Size, weight, and power (SWaP) trade-offs and associated considerations for the set-up and tear down of the deployable transmitter system.
c. Modelling results of the coverage area of the transmitter system for i) a range of SWaP combinations and, ii) differing transmitter geometric set-ups
d. Identified augmentations and additions to the Loran Data channel and recommendations for most appropriate defence application.
e. Identified and recommended timing system architectures with potential sources and associated performance metrics.
f. Description of the eLoran broadcasting standards / signal specifications available to adopt and associated advantages & disadvantages.
g. Identification and recommendation for a physical architecture including components of a deployable transmitter, highlighting deviations from permanent infrastructure. Consideration of the robustness of the transmitter to be taken into account.
h. Conclusion and recommendations

The contractor is additionally required to deliver the following:

a. A kick-off meeting to set mutual expectations and outline requirements.
b. A final meeting no earlier than five working days after delivery of the final report. This meeting will provide an opportunity for any clarification questions from the Authority to be answered.

Scoring

Section (% Weighting)	Question	Scoring	Weighting	Word Count
Technical Competence (30%)	Please submit a CV highlighting specific technical competence in eLoran and RF modelling	See scoring definition	30%	
Work Packages (70%)	For each of the below questions			
1	Please describe how you plan to conduct the SWaP analysis of the transmitter system, referencing previous relevant experience	See scoring definition	16%	500
2	Please describe how you intend to model the coverage area of the eLoran transmitters, referencing previous relevant experience	See scoring definition	16%	500
3	Please describe how you plan to investigate the exploitability of the Loran Data Channel, referencing previous relevant experience	See scoring definition	16%	500
4	Please describe how you plan to investigate potential timing architectures for a deployable eLoran transmitter, referencing previous relevant experience	See scoring definition	11%	250
5	Please describe you plan to investigate the available broadcasting standards / signal specifications, referencing previous relevant experience	See scoring definition	11%	250

Scoring Definition

Score	Criteria
0	No Answer - No evidence of past experience demonstrating an ability to perform requirements that are technically or professionally comparable to the requirement.
1	Poor - Evidence of past experience demonstrates a limited ability to perform requirements (i.e. failure to meet time, cost or performance parameters) that are technically or professionally comparable to the requirement. Proposed but untried mitigation to prevent re-occurrence of problems.
2	Satisfactory - Evidence of past experience demonstrates a limited ability to perform requirements (i.e. failure to meet time, cost or performance parameters) that are technically or professionally comparable to the requirement. Evidence provided why this was not the fault of the contractor or of proven mitigation to prevent re-occurrence of problems.
3	Good - Evidence of past experience demonstrates an ability to perform requirements effectively (i.e. achieving time, cost or performance parameters) that are technically or professionally comparable to the requirement.
4	Very good - Evidence of past experience demonstrates an exceptional ability to perform requirements (i.e. surpassing time, cost or performance parameters) that are technically or professionally comparable to the requirement.