Serapis Tasking Form

Tasking Form Part 1: *(to be completed by the Authority's Project Manager)*

To:	Lot 4 QinetiQ Plc	**From:**	Dstl

Any Task placed as a result of your quotation will be subject to the Terms and Conditions of Framework Agreement Number:

LOT 4 DSTL/AGR/SERAPIS/AII/01

VERSION CONTROL
Version 0.a

REQUIREMENT			
Proposal Required by:	06/09/2021	**Task ID Number:**	AII74
The Authority Project Manager:	[REDACTED]	**The Authority Technical Point of Contact:**	[REDACTED]
Task Title:	DCEAT WP5 Test & Experimentation: Generation after next Communications Experimentation – National Spectrum Centre		
Required Start Date:	04/01/2022	**Required End Date:**	12/04/2022
Requisition No:	RQ0000001635	**Budget Range**	£400k

TASK DESCRIPTION AND SPECIFICATION	
Serapis Framework Lot	☐ Lot 1: Collect ☐ Lot 2: Space systems ☐ Lot 3: Decide ☒ Lot 4: Assured information infrastructure ☐ Lot 5: Synthetic environment and simulation ☐ Lot 6: Understand

Abstract

This work supports the requirements of the "Deployed Communications Evolving Against the Threat" (DCEAT) programme to meet the need to be able to conduct UK based, testing, prototype and conceptual experiments at RF to support the development of the S&T needed for activities such as the development of the Generation After Next (GaN) communications systems, via the concept of a National Spectrum Centre (NSC).

This SoR is targeted towards QinetiQ and [REDACTED] who are driving the NSC concept using QinetiQ's expertise in conducting, designing, and managing radio experiments and [REDACTED] owned land and facilities

Background

The MOD Science and Technology Strategy 2020[1] highlights that the ultimate goal of Science & Technology (S&T) activity is placing new technology with enhanced capabilities into the hands of the users at the right time. Consequently, experimentation is a vital component of capability development within Defence. S&T experimentation, on early prototypes and proofs of concept. This will be rigorous and the focus of S&T experimentation will be on immature concepts and technologies (with correspondingly low Technology Readiness Levels (TRLs)) to assess the feasibility of exploitation of generation after next research. Prototype or conceptual experimentation will demonstrate the opportunities S&T provides and also give valuable assessment points to change course.

It is against this strategic drive that new facilities and capabilities and know-how need to be developed to enable experimentation of low TRL concepts and ideas to support radio technologies needed for the next generation of Multi-domain Command & Control, Communications and Computers (C4) needed to enable rapid decisions making

The future challenges in a C4 environment include the need for:

- new techniques and technologies that mitigate against rapidly emerging communications threats
- radio systems to operate in an denied, degraded and RF environment due to spectrum congestion and/or interference,
- resilient and robust communications systems (i.e low probabilities of detection, interception and exploitation),
- connectivity to all mobile/static platforms (land, sea, underwater, air),
- communications links that can support communications ranges beyond line of sight and short range,
- communications capacities from low to very high data rate systems
- global operations, often infrastructure less environment
- conducting operations that range from disaster relief, peacekeeping, surveillance to military engagement
- interoperability with national and international partners
- low signature networking,
- new architectures/protocols
- systems that are application aware
- satisfying convergence of systems and networks

There is a need to be able to conduct UK based, testing, prototype and conceptual experiments at RF to support the development of the S&T needed for activities such as the development of the Generation After Next (GaN) communications systems needed for “Deployed Communications Evolving Against the Threat” (DCEAT) research theme.

A particular challenge in conducting RF experiments in the UK include access to; suitable ranges (e.g. indoor, outdoor, hilly, over water etc), spectrum facilities (channel sounder, spectrum monitoring), RF spectrum permissions for unusual experimentation (e.g. high power, interference). This can be particularly problematic for no-traditional defence suppliers (NTDS) or small and medium enterprises. It is also problematic for large systems integrators as access to defence ranges may be limited due to capacity and local security and access procedures. There is a need, therefore, to provide experimentation facilities and know-how, on early prototypes and proofs of concept, and store and curate hypotheses and data effectively to ensure that others can benefit from the experimentation and avoid costly repetition.

Aim

The aim of this SoR is to support the emerging concept of a National Spectrum Centre and contribute to developing the facilities, and capabilities needed for future experimentation in the area of: “Deployed Communications Evolving Against the Threat” (DCEAT).

These experiments will support research into:

[1] MOD Science and Technology Strategy 2020 v1.2 October 2020

1. Materials S&T
2. Advanced waveform development:
3. Advanced Antennas and Transceivers
4. New and novel bearers
5. Operational agility

The fundamental S&T experimentation will drive the development of Resilient Deployed Communications Systems to stay ahead of the threat, respond rapidly to new threats and exploit new technologies into MoD spiral development approaches. The ultimate research outcomes from experimentation will enable MOD to rapidly develop and field technologies to sustain effective C2 and Communications in the Denied, Degraded, Intermittent and Low-Bandwidth environments, ideally from deep ocean to Space, that characterise the contemporary and future battlespace.

Requirement

The outline requirements include but are not limited to:

Year 1

QinetiQ to Set-up and chair a technical leadership team ideally comprising Dstl, MoD, [REDACTED] industry, Serapis and QinetiQ to provide technical strategic direction to the NSC proposition and drive/prioritise the NSC activity-backlog. This activity -backlog may include but is not restricted to:

1. Hold a Serapis "Innovation experimentation call" for proposals targeted towards SME's, non-traditional defence suppliers and academia to experiment/demonstrate RF research such as: novel spectrum sharing and avoidance, spectrum monitoring, RF system performance, novel antennas, propagation measurements or novel spectrum applications at NSC sites.
2. Identify locations/facilities to support the above experimentation requirements. This may include specifying radio environments such as a static outdoor "spectrum range" for spectrum cyber experimentation; a terrestrial "benign" and "challenging" reference location/route and the facilities needed to conduct reference/repeatable mobile experiments, site for maritime and air/fast air environments; and beyond line of sight experiments (multiple site working across the UK).
3. Investigate if existing range and facilities such as the Pendine Long/Short Test Track can be used for fast mobile communications experiments and what additional facilities may be required to conduct RF experimentation.
4. Develop a system architecture diagram for a capability that can record spectrum information in one physical location (e.g. a busy city) and replay it in a different location (e.g. a quiet range) to create synthetic replay-environments.
5. Re-performing upto two BATCIS AII28 mobile experiments in a new NSC environment, to develop the process and procedures needed and compare the results to the previous baseline data.
6. Investigate the facilities and procedures needed to create a spectrum measurement data centre to make experimental measurement data available widely to the community to maximise data re-use.
7. Plan backlog activities for year 2

Year 2

Set-up and chair a technical leadership team ideally comprising Dstl, MoD, [REDACTED] Industry, Serapis and QinetiQ to provide technical strategic direction to the NSC proposition and drive/prioritise the NSC activity-backlog. This activity -backlog may include but is not restricted to:

1. Hold a Serapis "Innovation experimentation call" for proposals targeted towards SME's, non-traditional defence suppliers and academia to experiment/demonstrate RF research such as:

novel spectrum sharing and avoidance, spectrum monitoring, RF system performance, novel antennas, propagation measurements or novel spectrum applications at NSC sites

2. Facilitate experimentation with MoD, Dstl and the commercial sector
3. Identify new facilities/infrastructure needed
4. Plan year 3 activities

Year 3

Set-up and chair a technical leadership team ideally comprising Dstl, MoD, [REDACTED] industry, Serapis and QinetiQ to provide technical strategic direction to the NSC proposition and drive/prioritise the NSC activity-backlog. This activity -backlog may include but is not restricted to:

1. Hold a Serapis "Innovation experimentation call" for proposals targeted towards SME's, non-traditional defence suppliers and academia to experiment/demonstrate RF research such as: novel spectrum sharing and avoidance, spectrum monitoring, RF system performance, novel antennas, propagation measurements or novel spectrum applications at NSC sites
2. Facilitate experimentation with MoD, Dstl and the commercial sector
3. Identify new facilities/infrastructure needed
4. Identify the way forward.

Innovation Benefits and Exploitation Plan (IBEP)

By conducting the work the following are anticipated.

1. Innovation – (i.e. what are we building on?)
    a. Experimentation experience
    b. S&T trends
    c. Cyber spectrum challenges
    d. NSC proposition
    e. Previous BATCIS experiments and platforms

2. Benefits (i.e. what will the contracted stakeholders get from this?)
    a. Development of new capabilities
    b. Closer SME/NTDS sector collaboration
    c. Increased collaboration between industry, academia and government.

3. Exploitation (what are the artifacts that Dstl will get that can be more widely exploited)
    a. Experimentation sites
    b. Facility specifications
    c. Process and procedures for novel experiments
    d. Experimentation results

4. Plan (what's the plan for exploitation)
    a. BATCIS experimentation
    b. Enhanced UK reputation in defense S&T
    c. Academic cross collaborations generate new research opportunities
    d. Exploitation internationally [REDACTED]

Outputs.

Outputs (or artefacts) of the activities that may be exploited more widely include:

- Experimentation plans
- System design architectural plans
- Experimentation results
- Experimentation site catalogue
- Concept system design documents
- Descriptions of potential experimental sites and their capabilities

Deliverables.

Deliverables of the project are highlighted in the Deliverables section.

An end of FY 22 consolidated report will be required in February/March 2022 highlighting:

- Aims
- Technical Progress
- Achievements
- Exploitable outputs
- Recommendations

Procurement Strategy

☐ Lot Lead to recommend ☒Single Source / Direct Award

Pricing:

☐ Firm Pricing ☐ Ascertained Costs* ☐ Other*

Firm Pricing shall be in accordance with DEFCON 127 and DEFCON 643

Ascertained Costs shall be in accordance with DEFCON 653 or DEFCON 802.

*only at Authority's discretion

Task IP Conditions

Task IP Conditions (Follow the NIPPY guide to identify your information and IP requirements for each deliverable)	**Summary of the Authority's rights in foreground IP (IP generated by the supplier in performance of the contract)**
DEFCON 703 ☐	Vests ownership with the Authority
DEFCON 705 Full Rights ☒	Enables MOD to share in confidence as GFI or IRC under certain types of agreements. Can be shared in confidence within UK Government.
OTHER IP DEFCONS: 14* ☐, 15* ☐, 16* ☐, 90* ☐, 91* ☐, 126* ☐	Generally only suitable for deliverables at TRL 6 and above.
BESPOKE IP Clause ☐ *	Details to be added and agreed by IP Group
* Do not use without IPG advice and approval	
Please state in this text box if MOD or the customer has a requirement a) that one or more Other Government Departments is able to share confidentially with their own suppliers, b) to publish but you do not think there is a requirement to own or control the deliverable, or c) to share under a procurement Memorandum of Understanding (MOU).*	

*If any of these three issues applies, please contact IPG for advice before completing this form. *Listing research MOUs is not required, but can be a helpful courtesy to the supplier.*

DELIVERABLES

Ref	Title	Due by	Format	TRL	Expected classification (subject to change)	Information required in deliverable	IPR DEFCON
D-1	Monthly progress reports (MPR)	T0+1 month	Presentation		Official	PORT (progress, opportunities, Risks, Timelines) quad chart presentation pack	705
D-2	*Quarterly Progress and Technical Review (QPTR)*	*T0+3 Months*	*Presentation (.pptx)*		*Official-*	Presentation pack to include but not limited to: • Update on technical progress • Progress report against project schedule. • Review of risk management plan. • Commercial aspects. • Review of deliverables. • Risks/issues. • GFA and supplier performance	*705*
D-3	*First year report*	*T0+6*	*Report (Word)*		*Official*	Report to include: • Aims • Technical Progress • Achievements • Exploitable outputs • Recommendations	
D-4	Annual progress report (APR)	T0-12	Report		Official	Report to include: • Aims • Technical Progress • Achievements • Exploitable outputs • Recommendations	
D-5	Annual conference presentation (ACP)	T0+12	Presentation		Official	Presentation to an annual meeting (or conference) attended by a range of stakeholders.	

DELIVERABLE: ACCEPTANCE / REJECTION CRITERIA

Unless otherwise stated below, Standard Deliverable Acceptance / Rejection applies. This is 30 business days, in accordance with DEFCON 524 Rejection, and DEFCON 525 Acceptance.

Standard Deliverable Acceptance / Rejection:-

Yes ☐ (DEFCON 524 Rejection, and DEFCON 525 Acceptance)

No ☐ (if no, please state details of applicable criteria below)

Deliverable Acceptance / Rejection Criteria:-

If there are any other specific acceptance/rejection criteria you would like to apply to any of the deliverables, please state them here.

Government Furnished Assets (GFA)

ISSUE OF EQUIPMENT/RESOURCES/INFORMATION/FACILITIES (*if not applicable, delete table and insert "None" in this text box)*

Unique Identifier/ Serial No	Description	Classification	Type	Available Date	Issued by	Return or Disposal Date	Any restrictions?
Serial no	*Description*	*Official-Sensitive*	*Equipment*	*00/00/0000*	*Issuer*	*00/00/0000*	*Include details here*
N/A	N/A						

QUALITY STANDARDS

☐ **ISO9001** (Quality Management Systems)

☐ **ISO14001** (Environment Management Systems)

☐ **ISO12207** (Systems and software engineering — software life cycle)

☐ **TickITPlus** (Integrated approach to software and IT development)

☐ **Other:** (Please specify in free text below)

SECURITY CLASSIFICATION OF THE WORK

The highest classification of this SOR

OFFICIAL ☐ OFFICIAL-SENSITIVE ☐ SECRET ☐ TOP SECRET ☐ STRAP ☐ SAP ☐

The highest expected classification of the work carried out by the contractor

OFFICIAL ☐ OFFICIAL-SENSITIVE ☐ SECRET ☐ TOP SECRET ☐ STRAP ☐ SAP ☐

The highest expected classification of Deliverables/Output

OFFICIAL ☐ OFFICIAL-SENSITIVE ☐ SECRET ☐ TOP SECRET ☐ STRAP ☐ SAP ☐

Is a Security Aspects Letter (SAL) required? *(A Security Aspects Letter (SAL) will be required for each Task above Official-Sensitive and above)*

Yes ☐ No ☐

TASK CYBER RISK ASSESSMENT. *(In accordance with DEF STAN 05-138 and the* Risk Assessment Workflow)

Cyber Risk Level	[REDACTED]
Risk Assessment Reference	[REDACTED]

ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO THIS CONTRACT

Please ensure all completed forms are copied to DSTLSERAPIS@dstl.gov.uk when sending to the Lot Lead.

Tasking Form Part 2: *(To be completed by the Lot Lead)*

To: The Authority	From: The Lot Lead

Proposal Reference **Serapis Task AII74: DCEAT WP5 Test & Experimentation:** **(attached)**

Delivery of the requirement:

The proposal shall include, but not be limited to:

- A full technical proposal that meets the individual activities that are detailed in Statement of Requirements (Part 1 to Tasking Form).
- Breakdown of individual Deliverables, with corresponding Intellectual Property rights applied.
- Breakdown of Interim Milestone Payments, with corresponding due dates.
- A work breakdown structure/project plan with key dates and deliverables identified.
- A list of required Government Furnished Assets from the Authority, including required delivery dates.
- A clear identification of Dependencies, Assumptions, Risks and Exclusions which underpin your Technical Proposal.
- Sub-Contractors Personnel Particulars Research Worker Form and security clearances (if applicable)

COMMERCIAL

[REDACTED]

At the Authority's request we have included a Limit of Liability for years 2 - 4. Each Firm Price created (that draws on the Limit of Liability) shall be undertaken via a mutually agreed Contract Amendment Form. Whilst these individual Contract Amendment Forms detail a separate package of work, it is linked to (and shall reference) this Tasking Form. It is understood that the scope of the work being undertaken using the LOL is not yet defined, and will be done so at the time of each Contract Amendment Form.

[REDACTED]

It should be noted that the following effort associated with this task will be charged against AII102 DCEAT/ARA Management and Enablers:

- Associate Technical Partner support.

Offer of Contract: *(to be completed and signed by the Contractor's Commercial or Contract Manager)*

	£519,442.03 Firm Price including Work Packages carried out by Aberystwyth University **£2,894,630.00 Limit of Liability for optional years 2-4 broken down below:** Year 2 option total £1,032,368.00 Year 3 option total £1,184,223.00 Year 4 option total £678,039	(ex VAT)

Start Date:	04/01/2022	**End Date:**	12/04/2022

Lot Leads Representative	Name	[REDACTED]
	Tel	[REDACTED]
	Email	[REDACTED]
	Date	27th January 2022

Position in Company	Assistant Commercial Manager
Signature	[REDACTED]

Core Work – Breakdown

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Core Work – Milestone breakdown costs

Proposed Milestones Payments

Your TMS bid costs shall be included in milestone 1.

The final Milestone must reflect the actual cost of the deliverable, and be greater than 20% of the Task value, unless otherwise agreed with your Commercial POC

Please duplicate the template per milestone table format below as necessary, and rename milestone number accordingly.

[REDACTED]

Total Cost	£519,442.03

Future Tasks – Summary
[REDACTED]

Tasking Form Part 3:

To be completed by the Authority's Commercial Officer and copied to the Authority's Project Manager.

1. **Acceptance of Contract:**		
Authority's Commercial Officer	Name	[REDACTED]
	Tel	[REDACTED]
	Email	[REDACTED]
	Date	02/02/2022
Requisition Number		RQ0000001635
Contractor's Proposal Number		Serapis Task AII74
Purchase Order Number		DSTL0000000825
Signature		[REDACTED]
Please Note: Task authorisation to be issued by the Authority's Commercial Officer or Contract Manager. Any work carried out prior to authorisation is at the Contractor's own risk.		