

Tasking Form – Part B: Statement of Requirement (SoR)

Title of Requirement	Redacted Under FOI Exemption
Requisition No.	RQ0000010973
SoR Version	0.1

1.	Statement of Requirements
1.1	Summary and Background Information
	<p>Redacted Under FOI Exemption is charged, under the Redacted Under FOI Exemption with identifying and assessing novel, affordable, next generation crewed and un-crewed rotorcraft concepts. These concepts will be expected to operate in future contested environments described by the Redacted Under FOI Exemption an important aspect of which is predicting and managing the acoustic signature of blue platforms.</p> <p>As a rotorcraft design matures beyond the preliminary design phase, any significant modification of in-flight acoustic characteristics becomes increasingly expensive and difficult to implement. It is therefore essential to be able to understand the impact of early design decisions on the acoustic signature. A particular danger in the conceptual design process is that acoustic signature control and aircraft performance are often in direct conflict, with the latter aspect often prioritised due to a higher profile and more mature understanding.</p> <p>Further to informing conceptual design trade-offs, an acoustics Redacted Under FOI Exemption of the type proposed by Redacted Under FOI Exemption would also find use in wider Redacted Under FOI Exemption studies, particularly mission-level modelling. A capability of this type would be particularly useful for assessing the acoustics of aircraft that either do not exist (pre-manufacture) or are not owned / Redacted Under FOI Exemption</p> <p>Depending on the scope of the Redacted Under FOI Exemption and the quality of validation that can be demonstrated, this approach may be able to improve upon current acoustic hemisphere generation techniques. Experimental acoustic data gathering is expensive, time consuming and typically limited to only a subset of flight conditions of interest (e.g. combinations of mass, airspeed, manoeuvre etc.).</p> <p>At the preliminary design stage, the framework would be used to confidently inform the noise signature characteristics. As airframe designs mature, the modelling framework would be used to</p>

support the development of evidence towards performance and survivability Key User Requirements (KURs).

1.2	Requirement
-----	-------------

Current methods for the aero-acoustic characterisation of rotary-wing vehicles are based on the generation of acoustic hemispheres using either experimental means, or high-fidelity numerical methods. Both of these approaches are inherently unsuitable for preliminary design as the platform is not mature enough to populate high-fidelity methods or to develop physical models for testing. The analysis required to generate the acoustic hemispheres at vehicle level is further complicated by the any aerodynamic interactions between the rotors. With regards to helicopters, which this work focuses on, these aerodynamic interactions are due to the main rotor wake impinging on the tail rotor for certain operating conditions that depend on vehicle design characteristics. These interactions are usually neglected during aero-acoustic testing where the rotors are typically tested in isolation. This situation creates additional risk and inefficiency, as the aircraft developer must go through lengthy concept development phases which may, ultimately, prove to be incompatible with detectability requirements. Redacted Under FOI Exemption

Redacted Under FOI Exemption

Redacted Under FOI Exemption

[REDACTED]

1.3 Options or follow on work (if none, write 'Not applicable')

Not Applicable

1.4 Contract Management Activities

- Redacted Under FOI Exemption

1.5	Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement
-----	---

Redacted Under FOI Exemption

	None identified.
--	------------------

Redacted Under FOI Exemption

1.6	Deliverables & Intellectual Property Rights (IPR)				
Ref.	Title	Due by	Format	Expected classification (subject to change)	What information is r deliverab
Redacted Under	Redacted Under FOI Exemption	Redacted Under Redacted Under	Redacted Under	Redacted Under	Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under
Redacted Under	Redacted Under Redacted Under Redacted Under	Redacted Under	Redacted Under	Redacted Under	Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under Redacted Under

Redacted Under FOI Exemption					
------------------------------	--	--	--	--	--

1.7	Deliverable Acceptance Criteria
	<p>All Reports included as Deliverables under the Contract e.g. Progress and/or Final Reports etc. must comply with the Redacted Under FOI Exemption which defines the requirements for the presentation, format and production of scientific and technical reports prepared for Redacted Under Interim or Progress Reports: The report should detail, document, and summarise the results of work done during the period covered and shall be in sufficient detail to comprehensively explain the results achieved; a description of current substantive performance and any problems encountered and/or which may exist along with proposed corrective action. An explanation of any difference between planned progress and actual progress, why the differences have occurred, and if behind planned progress what corrective steps are planned. Final Reports: shall describe the entire work performed under the Contract in sufficient detail to explain comprehensively the work undertaken and results achieved including all relevant technical details of any hardware, software, process or system developed there under. The technical detail shall be sufficient to permit independent reproduction of any such process or system. All Reports shall be free from spelling and grammatical errors and shall be set out in accordance with the Statement Of Requirement (1) above. The Report shall summarise the results of work performed during the period covered in sufficient detail to comprehensively explain the results achieved, provide a description of current substantive performance and details of any problems encountered and/or which may exist along with proposed corrective action. The Report must contain sufficient detail to explain the work undertaken in that period, this could include supporting information such as raw data in an Redacted Under FOI Exemption relevant scientific graphs and diagrams. If upon review of the progress reports and/or the final Redacted Under FOI Exemption, the Redacted Under FOI Exemption does not accept the deliverables, the Contractor shall provide acceptable replacements at no additional cost to the Authority.</p>

2	Evaluation Criteria
2.1	Method Explanation
	Evaluating this based on technical compliance and affordability
2.2	Technical Evaluation Criteria
	Confirmation that the proposal fully meets the Authority's Statement of Requirement. Pass/Fail Within budget Pass/Fail

2.3	Commercial Evaluation Criteria
	<div>Redacted Under FOI Exemption</div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>