

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

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

1.	Statement of Requirements
1.1	Summary and Background Information
	<p>Redacted under FOI Exemption</p> <p>Redacted under FOI Exemption</p> <p>Redacted under FOI Exemption</p> <p>Redacted under FOI Exemption</p> <p>Redacted under FOI Exemption</p> <p>Redacted under FOI Exemption</p>
1.2	Requirement
	<p>Spaceborne distributed SAR offer a number of potential benefits, such as very-high azimuth resolution exploiting PRF/waveform diversity, single pass interferometry and tomography, 3D target point cloud generation, advanced clutter removal for GMTI, etc.</p> <p>However, several challenges need to be addressed in order to make possible the integration of the multistatic return in the formation of a coherently integrated product.</p> <p>Assuming a sufficiently accurate synchronization between the local oscillators on board of the platforms, the coherent integration challenge translates in a phase centre estimation problem, meaning that it is fundamental to have accurate knowledge of the instantaneous baseline. This is not always possible and advanced signal processing are required to compensate in uncertainties in the 3D baseline between a Tx/Rx pairs.</p> <p>This PhD will investigate state of the art techniques in radar signal processing to develop accurate multi-static SAR imaging. The techniques investigated will be applied in different domains, raw, range compressed and range-Doppler in order to identify the best solution to estimate baseline errors to be compensated in order to make the imaging coherent. Example of techniques</p>

considered will be Digital Beamforming, Generalized MIMO ambiguity function [1] , sub-sample registration techniques in the range-time domain [2], fine bistatic Doppler estimation using Fractional Fourier transform and Chebyshev based bistatic phase history [3]. The output of this PhD will be a framework able to integrate a number of solutions applicable to different of imaging modes of the multi-static Redacted under FOI Exemption

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1.3	Options or follow on work (if none, write 'Not applicable')
	Redacted under FOI Exemption [Redacted] d Redacted under FOI Exemption <small>Redacted under P.O.</small>
1.4	Contract Management Activities
	Redacted under FOI Exemption
1.5	Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement
	To be the responsibility of the contractor to identify and action appropriately as required.

1.6	Deliverables & Intellectual Property Rights (IPR)				
Ref.	Title	Due by	Format	Expected classification (subject to change)	What information is required for deliverables
D – 1	Customer presentations	T0+6 Months and every 3 months thereafter	Presentation (.pptx)	Redacted under FOI Exemption	Presentation pack to include <ul style="list-style-type: none"> • Update on technical progress
D - 2	Technical reports (Reports at end of years 1 and 2, PhD thesis)	T0+12 T0+24 T0+36	Report	Redacted under FOI Exemption	Technical details sufficient to support the project as appropriate for academic publication
D - 3	Redacted under FOI Exemption	T0+36	s/w	Redacted under FOI Exemption	Prototype s/w

1.7	Deliverable Acceptance Criteria
	<ul style="list-style-type: none"> Redacted under FOI Exemption

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
2.3	Commercial Evaluation Criteria
	<p>The commercial evaluation shall be based on the following Pass / Fail questions:</p> <p>Tenderer has submitted a commercially compliant bid.</p> <p>Has the bidder submitted one (1) completed copy of RCloud Form Part C – Task Response Form (Firm priced proposal within a budget of Redacted under FOI Exemption) Pass/Fail</p> <p>Labour rates and price as per single source rates uploaded to R Cloud Pass/Fail</p> <p>Completion of Research Workers Forms Pass/Fail</p> <p>Completion of Statement Relating to Good Standing Pass/Fail</p> <p>Confirm acceptance of R Cloud Version 4 Terms and Conditions Pass/Fail</p> <p>Completion of DEFFORM 711 Pass/Fail</p> <p>A fail on any of the above questions will result in your proposal being excluded from further evaluation and consideration.</p>