Invitation to Quote

Invitation to Quote (ITQ) on behalf of Science & Technology Facilities Council (STFC)

Subject UK SBS PS17080 S4 and S5 Calibration & Characterisation Mechanical Work Package

Sourcing reference number PS17080

UK Shared Business Services Ltd (UK SBS)
www.uksbs.co.uk

Registered in England and Wales as a limited company. Company Number 6330639.
Registered Office Polarisr House, North Star Avenue, Swindon, Wiltshire SN2 1FF
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UKSBS
Shared Business Services

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Section 1 – About UK Shared Business Services

Putting the business into shared services

UK Shared Business Services Ltd (UK SBS) brings a commercial attitude to the public sector; helping our customers improve efficiency, generate savings and modernise.

It is our vision to become the leading provider for our customers of shared business services in the UK public sector, continuously reducing cost and improving quality of business services for Government and the public sector.

Our broad range of expert services is shared by our customers. This allows our customers the freedom to focus resources on core activities; innovating and transforming their own organisations.

Core services include Procurement, Finance, Grants Admissions, Human Resources, Payroll, ISS, and Property Asset Management all underpinned by our Service Delivery and Contact Centre teams.

UK SBS is a people rather than task focused business. It's what makes us different to the traditional transactional shared services centre. What is more, being a not-for-profit organisation owned by its customers, UK SBS' goals are aligned with the public sector and delivering best value for the UK taxpayer.

UK Shared Business Services Ltd changed its name from RCUK Shared Services Centre Ltd in March 2013.

Our Customers

Growing from a foundation of supporting the Research Councils, 2012/13 saw Business, Energy and Industrial Strategy (BEIS) transition their procurement to UK SBS and Crown Commercial Services (CCS – previously Government Procurement Service) agree a Memorandum of Understanding with UK SBS to deliver two major procurement categories (construction and research) across Government.

UK SBS currently manages £700m expenditure for its Customers.

Our Customers who have access to our services and Contracts are detailed here.

Section 2 – About Our Customer

Science and Technology Facilities Council (STFC)

STFC is a world-leading multi-disciplinary science organisation, whose goal is to deliver economic, societal, scientific and international benefits to the UK and its people – and more broadly to the world.

STFC support an academic community of around 1,700 in particle physics, nuclear physics, and astronomy including space science, who work at more than 50 universities and research institutes in the UK, Europe, Japan and the United States, including a rolling cohort of more than 900 PhD students.

The organisation's large-scale scientific facilities in the UK and Europe are used by more than 3,500 users each year, carrying out more than 2,000 experiments and generating around 900 publications.

The combination of access to world-class research facilities and scientists, office and laboratory space, business support, and an environment which encourages innovation has proven a compelling combination, attracting start-ups, SMEs and large blue chips such as IBM and Unilever.

Examples of funded research

- STFC is providing the design infrastructure for the £23bn UK microelectronics sector that underpins strategically important industries worth £78bn to the UK economy
- STFC's ISIS facility and its users, working in partnership with the NHS, developed a novel material to improve the treatment of cleft lip and palate, speeding up healing times and reducing operating costs
- STFC's Synchrotron Radiation Source was used to understand how conventional anti-malarial drugs work, allowing the development of more effective treatment to reduce the devastating global impact of malaria
- STFC's ISIS facility is identifying new materials that can safely and conveniently store hydrogen, enabling the development of hydrogen-fuelled cars reducing reliance on fossil fuels and cutting carbon emissions

www.stfc.ac.uk

Section 3 - Working with UK Shared Business Services Ltd.

In this section you will find details of your Procurement contact point and the timescales relating to this opportunity.

Section 3 – Contact details		
3.1	Customer Name and address	Science and Technology Facilities Council, Polaris House, North Star Avenue, Swindon, SN2 1SZ
3.2	Buyer name	Ben Oborne
3.3	Buyer contact details	Professionalservices@uksbs.co.uk
3.4	Estimated value of the Opportunity	The maximum contract value is £100,000.00 excluding VAT
3.5	Process for the submission of clarifications and Bids	**All correspondence shall be submitted within the Emptoris e-sourcing tool. Guidance Notes to support the use of Emptoris is available here. Please note submission of a Bid to any email address including the Buyer will result in the Bid not being considered.**

Section 3 - Timescales		
3.6	Date of Issue of Contract Advert and location of original Advert	26/04/2017 Contracts Finder
3.7	Latest date/time ITQ clarification questions should be received through Emptoris messaging system	03/05/2017 14:00pm
3.8	Latest date/time ITQ clarification answers should be sent to all potential Bidders by the Buyer through Emptoris	04/05/2017 14:00pm
3.9	Latest date/time ITQ Bid shall be submitted through Emptoris	10/05/2017 14:00pm
3.10	Anticipated Date/time Bidders should be available if face to face or telephone clarifications are required	17/04/2017-18/04/2017
3.11	Anticipated rejection of unsuccessful Bids date	22/05/2017
3.12	Anticipated Award date	22/05/2017

3.13	Anticipated Contract Start date	25/05/2017
3.14	Anticipated Contract End date	11/12/2017
3.15	Bid Validity Period	60 Days

Section 4 – Specification

Introduction

RAL Space is the Space department within STFC, located at Harwell campus. RAL Space has extensive heritage in calibration testing of space instruments, as well as instrument and mission design. A number of space test facilities are on site, including two new Space Testing Chambers in R100 (called Space Testing Chamber-2 and Space Testing Chamber-3 respectively), used for the characterisation and calibration of space instruments. Large contracts are awarded from both industry and commercial customers, due to the cutting edge facilities provided at RAL.

Background to the Requirement

RAL Space are responsible for the characterisation and calibration for two Sentinel instruments from the European Space Agency Copernicus programme. For the Sentinel 4 program, we are required to provide the Space Testing Chamber-2 (2nd Thermal Vacuum Chamber in R100) facility suitably modified in line with the Sentinel 4 requirements to include some Mechanical Ground Support Equipment to support instrument during calibration testing.

For the Sentinel 5 program we are required to provide the Space Testing Chamber -3 facility (identical to Space Testing Chamber -2 at same location on site) suitably modified in line with the Sentinel 5 requirements. The changes required are in line with those required for Sentinel 4 and so the designs can be directly applied from Sentinel 4. Like Sentinel 4, we are required to provide Mechanical Ground Support Equipment, which is being provided by our sub-contractor APCO (Switzerland). Therefore, we will have to review their design and data packages for compliance with requirements.

Space Testing Chamber -2 and Space Testing Chamber -3 (Thermal Vacuum Chamber in R100) are currently being manufactured as a blank facility. Before arrival of the two instruments, Space Testing Chamber -2 and Space Testing Chamber -3 (Please see Appendix A – STC-2 and STC-3) needs to be modified in order to meet the customer requirements. This involves design and manufacture of chamber rails, windows, trolley to move the instrument within the cleanroom etc. All subsystems need to be mechanically compliant before any orders and manufacturing can take place.

Sentinel 4 have successfully completed an Interface Consolidation Review, and are in the Mechanical Ground Support Equipment design and manufacturing stage working towards a Facility Acceptance Review in the summer.

For the Ground Support Equipment, Sentinel 5 have held a Mechanical Ground Support Equipment Critical Design Review, and working towards successfully completing this milestone to move forward with design and manufacture of the Ground Support Equipment. For the Testing Facility at RAL, Sentinel 5 are working towards an Industrial Capability Review, therefore still at the facility design stage of the project. Manufacture of the Mechanical Ground Support Equipment and Test Facility needs to be mechanically compliant before orders can be placed.

Aims and Objectives

The aim of this exercise is to obtain mechanical support for the completion of mechanical design and analysis required to support Sentinel 4 and Sentinel 5 test campaigns. Furthermore, for Sentinel 5 who has a subcontractor (APCO) for the Mechanical Ground Support Equipment (MGSE), completion of mechanical design and analysis is required for

APCO Mechanical Ground Support Equipment delivery 1. The tasks remaining for both Sentinel 4 and Sentinel 5 are standalone, and thus we are seeking a fixed schedule and price for this work package.

The winning bidder will be responsible for the list of detailed design activities as stated below. They will be responsible for successfully completing mechanical design work for a number of subsystems, as well as delivering a number of mechanical models. They will be active mechanical support and participate in the facility test readiness review. Note: All mechanical design work to be carried out using Solid Edge ST8. Mechanical design drawings to be delivered in PDF format.

Listed are a set of specific objectives expected from the bidder for both Sentinel 4 and Sentinel 5 in order of priority.

- Completion of modifications to STC-2 facility required to support S4 UVN test campaigns
- Completion of modifications to STC-3 facility required to support S5 UVN test campaigns
- APCO MGSE delivery 1 compliant with requirements.
- FEA analysis of the APCO MGSE on the STC-3 noisy and quiet rails

The Requirement

All requirements are mandatory in order to assist in successfully completing the mechanical design for Sentinel 4 and Sentinel 5. The list of requirements are based on the schedule for Sentinel 4 and Sentinel 5, therefore are prioritised based on schedule.

Meetings

1) Attendance at weekly meeting via web-ex for Sentinel 4 and Sentinel 5
2) Attendance at RAL for monthly meetings for Sentinel 4 and Sentinel 5
3) Attendance at RAL in support of all project reviews for Sentinel 4 and Sentinel 5
4) Attendance at APCO for Factory Acceptance Testing of Sentinel 5 APCO Mechanical Ground Support Equipment delivery 1

Assembly, Integration and Testing

5) Support at RAL for Sentinel 4 Test Facility and cart Assembly, Integration and Testing
6) Support at RAL for Sentinel 5 Test Facility Assembly, Integration and Testing
7) Support at RAL for Sentinel 5 APCO Mechanical Ground Support Equipment delivery 1 incoming inspection
8) Support at RAL for Sentinel 5 APCO Mechanical Ground Support Equipment delivery 1 Assembly, Integration and Testing

Sentinel 4 Shroud panels

9) Successful completion of Sentinel 4 shroud panels inspection report showing compliance with requirements

Sentinel 5 Shroud panels

10) Successful completion of Sentinel 5 shroud panels inspection report showing compliance with requirements

Sentinel 4 Cart

11) Successful completion of Inspection report demonstrating flatness requirement is met

Sentinel 5 Trolleys

12) Successful completion of Sentinel 5 trolleys incoming inspection report showing compliance with requirements

Seismic block floor rails

13) Extension rails system in place that allows trolleys to be in place and Space Test Chamber-3 door to be opened.

Pipework

14) Sentinel 4 and Sentinel 5 pipework in place (LN2 and Galden)

Multi-Layer Insulation

15) 2D drawings from which Multi-Layer Insulation can be fabricated

Calrods

16) Successful completion of Inspection report showing calrod support structure meets requirements

Sentinel 4 windows and baffles

17) Sentinel 4 windows and baffles that meet requirements.

Sentinel 5 Windows and baffles

18) Sentinel 5 windows and baffles that meet requirements.

Cable harness

19) Cable harness definition that meets requirements for length and Mechanical Ground Support Equipment rotation for Sentinel 4

Scope

The scope of the work package is to describe the activities to be executed and the deliverables required by RAL Space in relation to mechanical support in order to finalise the design, analysis and support of the manufacture for hardware for Sentinel 4 and Sentinel 5. Support also needs to be provided for the reviews stated, as well as upon delivery of the APCO Mechanical Ground Support Equipment.

Anticipated Timetable

Each milestone has a set of activities which need to be successfully completed in order to proceed to the next milestone. The delivery in weeks with respect to T0 is shown (where T0 is start of contract) as well as the payment percentage due for the successful completion of the milestone. Each milestone can only be successfully completed once RAL have agreed that the deliverable is satisfactory. The completion date is fundamental to the success of the project, as we unable to proceed with the project without mechanical support.

Milestone	Description	Duration (weeks)	Due T0+ (weeks)	Delivery Date	Amount (%)
1	Attendance at RAL for 2 day Kick off meeting	0	0	04/04/2017	0
	Successful completion of Procurement packs for the following:- 1. S4 and S5 Shroud panels 2. S5 Trolleys 3. S4 windows 4. S5 windows 5. S4 baffles 6. S5 baffles 7. S4 Harness 8. S5 Harness	8	8	29/05/2017	20

	Successful delivery of S4 cart inspection report demonstrating flatness requirement is met.				
2	Successful delivery of S5 Trolley incoming inspection report compliant with requirements Successful delivery of Seismic block rail extension system inspection report compliant with requirements Successful completion of S4 & S5 MLI 2D drawing	9	17	31/07/2017	25
3	Successful delivery of Inspection report demonstrating Calrod support structure compliant with requirements Attendance for Mechanical support at RAL for S4 Test Facility	3	20	14/08/2017	10

	and cart AIT				
4	Successful completion of detailed definition S4 pipework Successful completion of detailed definition S5 pipework	5	25	18/09/2017	15
5	Attendance for Mechanical Support at RAL for S5 Test Facility AIT Attendance at APCO for Factory Acceptance Testing of S5 APCO MGSE delivery 1 Attendance for Mechanical Support at RAL for S5 APCO MGSE delivery 1 incoming inspection Attendance for Mechanical Support at RAL for S5 APCO MGSE delivery 1 AIT	11	36	11/12/2017	30
				Total	100

Terms and Conditions

Bidders are to note that any requested modifications to UK SBS Terms and Conditions on the grounds of statutory and legal matters only, shall be raised as a formal clarification during

the permitted clarification period.

Section 5 – Evaluation model

The evaluation model below shall be used for this ITQ, which will be determined to two decimal places.

Where a question is 'for information only' it will not be scored.

The evaluation team may comprise staff from UK SBS, the Customer and any specific external stakeholders UK SBS deem required. After evaluation the scores will be finalised by performing a calculation to identify (at question level) the mean average of all evaluators (Example – a question is scored by three evaluators and judged as scoring 5, 5 and 6. These scores will be added together and divided by the number of evaluators to produce the final score of 5.33 (5+5+6 =16÷3 = 5.33)

Pass / fail criteria

Questionnaire	Q No.	Question subject
Commercial	SEL1.2	Employment breaches/ Equality
Commercial	FOI1.1	Freedom of Information Exemptions
Commercial	AW1.1	Form of Bid
Commercial	AW1.3	Certificate of Bona Fide Bid
Commercial	AW3.1	Validation check
Commercial	AW4.1	Contract Terms
Price	AW5.5	E Invoicing
Price	AW5.6	Implementation of E-Invoicing
Quality	AW6.1	Compliance to the Specification
Selection	SEL1.5	Confirmation to attend meeting on site at RAL
Selection	SEL1.6	Confirmation to support the factory acceptance review at APCO premises
Selection	SEL1.7	Confirmation of computer interface with RAL Space network
Selection	SEL1.8	Confirmation all mechanical design work will be carried out using Solid Edge ST8 and delivered in PDF format
Selection	SEL1.9	Confirmation that full detailed structural analysis of solid edge assemblies use ANSYS V15
Selection	SEL1.10	Agreement to RAL Space health and safety regulations
Selection	SEL1.11	Confirmation you will undertake any mandatory training which may assist in the successful delivery of the work package.

Scoring criteria

Evaluation Justification Statement
In consideration of this particular requirement UK SBS has decided to evaluate Potential Providers by adopting the weightings/scoring mechanism detailed within this ITQ. UK SBS considers these weightings to be in line with existing best practice for a requirement of this type.

Questionnaire	Q No.	Question subject	Maximum Marks

Price	AW5.2	Price	20%
Quality	PROJ1.1	Methodology	35%
Quality	PROJ1.2	Project Plan and Timeline	35%
Quality	PROJ1.3	Quality Monitoring	10%

Evaluation of criteria

Non-Price elements

Each question will be judged on a score from 0 to 100, which shall be subjected to a multiplier to reflect the percentage of the evaluation criteria allocated to that question.

Where an evaluation criterion is worth 20% then the 0-100 score achieved will be multiplied by 20.

Example if a Bidder scores 60 from the available 100 points this will equate to 12% by using the following calculation: Score/Total Points available multiplied by 20 (60/100 x 20 = 12)

Where an evaluation criterion is worth 10% then the 0-100 score achieved will be multiplied by 10.

Example if a Bidder scores 60 from the available 100 points this will equate to 6% by using the following calculation: Score/Total Points available multiplied by 10 (60/100 x 10 = 6)

The same logic will be applied to groups of questions which equate to a single evaluation criterion.

The 0-100 score shall be based on (unless otherwise stated within the question):

0	The Question is not answered or the response is completely unacceptable.
10	Extremely poor response – they have completely missed the point of the question.
20	Very poor response and not wholly acceptable. Requires major revision to the response to make it acceptable. Only partially answers the requirement, with major deficiencies and little relevant detail proposed.
40	Poor response only partially satisfying the selection question requirements with deficiencies apparent. Some useful evidence provided but response falls well short of expectations. Low probability of being a capable supplier.
60	Response is acceptable but remains basic and could have been expanded upon. Response is sufficient but does not inspire.
80	Good response which describes their capabilities in detail which provides high levels of assurance consistent with a quality provider. The response includes a full description of techniques and measurements currently employed.
100	Response is exceptional and clearly demonstrates they are capable of meeting the requirement. No significant weaknesses noted. The response is compelling in its description of techniques and measurements currently employed, providing full assurance consistent with a quality provider.

All questions will be scored based on the above mechanism. Please be aware that the final score returned may be different as there may be multiple evaluators and their individual scores will be averaged (mean) to determine your final score.

Example
Evaluator 1 scored your bid as 60
Evaluator 2 scored your bid as 60
Evaluator 3 scored your bid as 40
Evaluator 4 scored your bid as 40

Your final score will (60+60+40+40) ÷ 4 = 50
Price elements will be judged on the following criteria.
The lowest price for a response which meets the pass criteria shall score 100. All other bids shall be scored on a pro rata basis in relation to the lowest price. The score is then subject to a multiplier to reflect the percentage value of the price criterion. For example - Bid 1 £100,000 scores 100. Bid 2 £120,000 differential of £20,000 or 20% remove 20% from price scores 80 Bid 3 £150,000 differential £50,000 remove 50% from price scores 50. Bid 4 £175,000 differential £75,000 remove 75% from price scores 25. Bid 5 £200,000 differential £100,000 remove 100% from price scores 0. Bid 6 £300,000 differential £200,000 remove 100% from price scores 0. Where the scoring criterion is worth 50% then the 0-100 score achieved will be multiplied by 50. In the example if a supplier scores 80 from the available 100 points this will equate to 40% by using the following calculation: Score/Total Points multiplied by 50 (80/100 x 50 = 40) The lowest score possible is 0 even if the price submitted is more than 100% greater than the lowest price.

Section 6 – Evaluation questionnaire

Bidders should note that the evaluation questionnaire is located within the **e-sourcing questionnaire.**

Guidance on completion of the questionnaire is available at http://www.uksbs.co.uk/services/procure/Pages/supplier.aspx

PLEASE NOTE THE QUESTIONS ARE NOT NUMBERED SEQUENTIALLY

Section 7 – General Information

What makes a good bid – some simple do's ☺

DO:

7.1 Do comply with Procurement document instructions. Failure to do so may lead to disqualification.

7.2 Do provide the Bid on time, and in the required format. Remember that the date/time given for a response is the last date that it can be accepted; we are legally bound to disqualify late submissions.

7.3 Do ensure you have read all the training materials to utilise e-sourcing tool prior to responding to this Bid. If you send your Bid by email or post it will be rejected.

7.4 Do use Microsoft Word, PowerPoint Excel 97-03 or compatible formats, or PDF unless agreed in writing by the Buyer. If you use another file format without our written permission we may reject your Bid.

7.5 Do ensure you utilise the Emptoris messaging system to raise any clarifications to our ITQ. You should note that typically we will release the answer to the question to all bidders and where we suspect the question contains confidential information we may modify the content of the question to protect the anonymity of the Bidder or their proposed solution

7.6 Do answer the question, it is not enough simply to cross-reference to a 'policy', web page or another part of your Bid, the evaluation team have limited time to assess bids and if they can't find the answer, they can't score it.

7.7 Do consider who your customer is and what they want – a generic answer does not necessarily meet every customer's needs.

7.8 Do reference your documents correctly, specifically where supporting documentation is requested e.g. referencing the question/s they apply to.

7.9 Do provide clear and concise contact details; telephone numbers, e-mails and fax details.

7.10 Do complete all questions in the questionnaire or we may reject your Bid.

7.11 Do check and recheck your Bid before dispatch.

What makes a good bid – some simple do not's ☹

DO NOT

7.12 Do not cut and paste from a previous document and forget to change the previous details such as the previous buyer's name.

7.13 Do not attach 'glossy' brochures that have not been requested, they will not be read unless we have asked for them. Only send what has been requested and only send supplementary information if we have offered the opportunity so to do.

7.14 Do not share the Procurement documents, they are confidential and should not be shared with anyone without the Buyers written permission.

7.15 Do not seek to influence the procurement process by requesting meetings or contacting UK SBS or the Customer to discuss your Bid. If your Bid requires clarification the Buyer will contact you.

7.16 Do not contact any UK SBS staff or Customer staff without the Buyers written permission or we may reject your Bid.

7.17 Do not collude to fix or adjust the price or withdraw your Bid with another Party as we will reject your Bid.

7.18 Do not offer UK SBS or Customer staff any inducement or we will reject your Bid.

7.19 Do not seek changes to the Bid after responses have been submitted and the deadline for Bids to be submitted has passed.

7.20 Do not cross reference answers to external websites or other parts of your Bid, the cross references and website links will not be considered.

7.21 Do not exceed word counts, the additional words will not be considered.

7.22 Do not make your Bid conditional on acceptance of your own Terms of Contract, as your Bid will be rejected.

Some additional guidance notes

7.23 All enquiries with respect to access to the e-sourcing tool and problems with functionality within the tool may be submitted to Crown Commercial Service (previously Government Procurement Service), Telephone 0345 010 3503.

7.24 Bidders will be specifically advised where attachments are permissible to support a question response within the e-sourcing tool. Where they are not permissible any attachments submitted will not be considered.

7.25 Question numbering is not sequential and all questions which require submission are included in the Section 6 Evaluation Questionnaire.

7.26 Any Contract offered may not guarantee any volume of work or any exclusivity of supply.

7.27 We do not guarantee to award any Contract as a result of this procurement

7.28 All documents issued or received in relation to this procurement shall be the property of UK SBS.

7.29 We can amend any part of the procurement documents at any time prior to the latest date / time Bids shall be submitted through Emptoris.

7.30 If you are a Consortium you must provide details of the Consortiums structure.

7.31 Bidders will be expected to comply with the Freedom of Information Act 2000 or your Bid will be rejected.

7.32 Bidders should note the Government's transparency agenda requires your Bid and any Contract entered into to be published on a designated, publicly searchable web site. By submitting a response to this ITQ Bidders are agreeing that their Bid and Contract may be made public

7.33 Your bid will be valid for 60 days or your Bid will be rejected.

7.34 Bidders may only amend the Contract terms if you can demonstrate there is a legal or statutory reason why you cannot accept them. If you request changes to the Contract and UK SBS fail to accept your legal or statutory reason is reasonably justified we may reject your Bid.

7.35 We will let you know the outcome of your Bid evaluation and where requested will provide a written debrief of the relative strengths and weaknesses of your Bid.

7.36 If you fail mandatory pass / fail criteria we will reject your Bid.

7.37 Bidders are required to use IE8, IE9, Chrome or Firefox in order to access the functionality of the Emptoris e-sourcing tool.

7.38 Bidders should note that if they are successful with their proposal UK SBS reserves the right to ask additional compliancy checks prior to the award of any Contract. In

the event of a Bidder failing to meet one of the compliancy checks UK SBS may decline to proceed with the award of the Contract to the successful Bidder.

7.39 All timescales are set using a 24 hour clock and are based on British Summer Time or Greenwich Mean Time, depending on which applies at the point when Date and Time Bids shall be submitted through Emptoris.

7.40 All Central Government Departments and their Executive Agencies and Non Departmental Public Bodies are subject to control and reporting within Government. In particular, they report to the Cabinet Office and HM Treasury for all expenditure. Further, the Cabinet Office has a cross-Government role delivering overall Government policy on public procurement - including ensuring value for money and related aspects of good procurement practice.

For these purposes, UK SBS may disclose within Government any of the Bidders documentation/information (including any that the Bidder considers to be confidential and/or commercially sensitive such as specific bid information) submitted by the Bidder to UK SBS during this Procurement. The information will not be disclosed outside Government. Bidders taking part in this ITQ consent to these terms as part of the competition process.

7.41 From 2nd April 2014 the Government is introducing its new Government Security Classifications (GSC) classification scheme to replace the current Government Protective Marking System (GPMS). A key aspect of this is the reduction in the number of security classifications used. All Bidders are encouraged to make themselves aware of the changes and identify any potential impacts in their Bid, as the protective marking and applicable protection of any material passed to, or generated by, you during the procurement process or pursuant to any Contract awarded to you as a result of this tender process will be subject to the new GSC from 2nd April 2014. The link below to the Gov.uk website provides information on the new GSC:

https://www.gov.uk/government/publications/government-security-classifications

UK SBS reserves the right to amend any security related term or condition of the draft contract accompanying this ITQ to reflect any changes introduced by the GSC. In particular where this ITQ is accompanied by any instructions on safeguarding classified information (e.g. a Security Aspects Letter) as a result of any changes stemming from the new GSC, whether in respect of the applicable protective marking scheme, specific protective markings given, the aspects to which any protective marking applies or otherwise. This may relate to the instructions on safeguarding classified information (e.g. a Security Aspects Letter) as they apply to the procurement as they apply to the procurement process and/or any contracts awarded to you as a result of the procurement process.

USEFUL INFORMATION LINKS

- Emptoris Training Guide
- Emptoris e-sourcing tool
- Contracts Finder
- Tenders Electronic Daily
- Equalities Act introduction
- Bribery Act introduction
- Freedom of information Act

Appendix A – STC-2 and STC-3

1 Background

1.1 STC-2 and STC-3

STFC's RAL Space will perform the Calibration and Characterisation (C&C) within the new R100 building.

The C&C will be performed in one of the two new 5m Space Test Chambers (STC-2 or STC-3) which are currently being commissioned (STC-2) and installed (STC-3) in the R100 complex. STC-2 commissioning will be completed by April 2017 whereas STC-3 commissioning is scheduled for completion December 2017.

The STC-2 and STC-3 vessels have a 5m diameter and 6m length with a shroud envelope exceeding 4.7m diameter (see Figure 1). They both have similar vacuum performance characteristics to RAL's existing 3.5m chamber which is located in R25.

Figure 1: STC-2 vacuum chamber during installation

Both STC-2 and STC-3 are situated within an ISO Class 6 cleanroom complex with local ISO Class 5 areas, designed with the calibration of optical instruments in mind. This includes: provision of a dedicated 'Black' OGSE space, separate from the main cleanroom; dedicated

EGSE space adjacent to the chamber to minimise harness lengths; and a spacious cleanroom with dedicated cranage and change facilities for the sole use of the STC-2 and STC-3 facility occupants (see Figure 2).

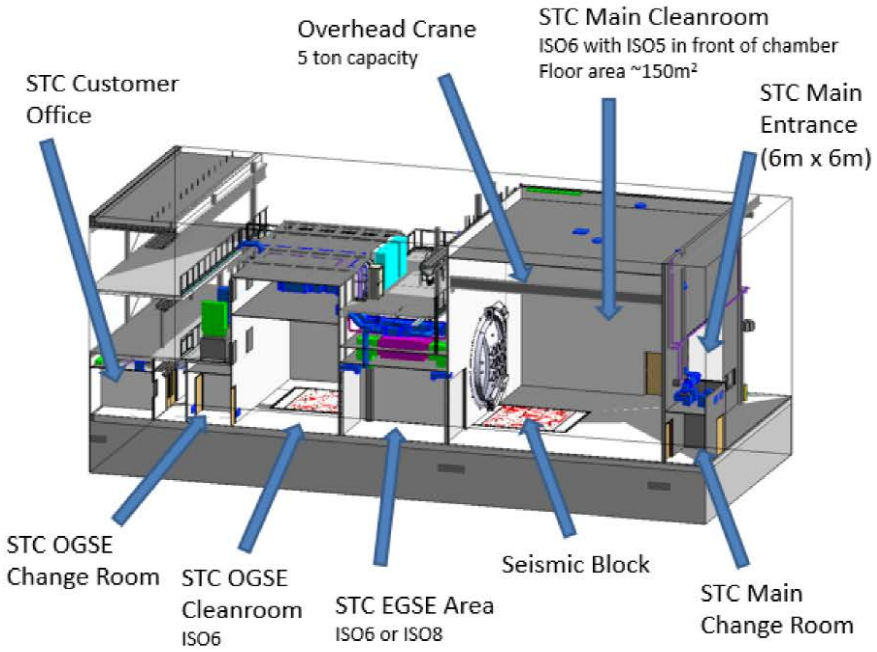

Figure 2: Section through STC Test Suite indicating key features

1.2 TVAC Chamber rails

The STC chambers use a rail-based system for payload support (see Figure 3). The C&C Test MGSE will interface with the test facility via Quiet Rails and Noisy Rails. The quiet rails are stainless steel I Beam Sections which interface with the test facility seismic block. For thermal reasons, the Quiet Rails will be enclosed in MLI and have heaters attached. The noisy rails are stainless steel C Sections which interface with the test facility.

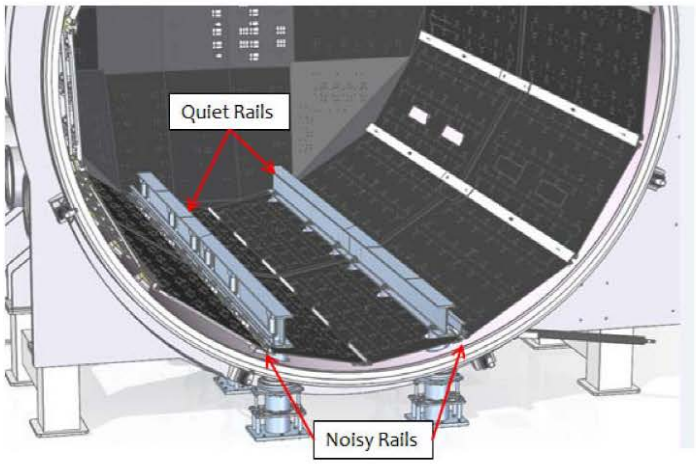

Figure 3: TVAC Chamber Quiet and Noisy Rails

The quiet rails are mounted on a vibration isolation system in the form of an air isolated 300T seismic block that connects OGSE stations at either end of the chamber with the rails inside the chamber itself. This minimises the impact of any chamber-borne or building-generated vibration sources on the item-under-test or its associated test equipment. There are very stringent requirements with regard to micro-vibration. This has led to the MGSE for both S4 and S5 being split into two components; one mounted on the quiet rails and one mounted on the noisy rails. This will ensure that micro-vibration will be kept to a minimum.

1.3 Cleanroom Trolleys

Dedicated cleanroom trolleys will be used in order to load the C&C test MGSE into the TVAC Chamber (see Figure 4). The rails on the Cleanroom trolleys are designed to be the same as those within the TVAC Chamber.

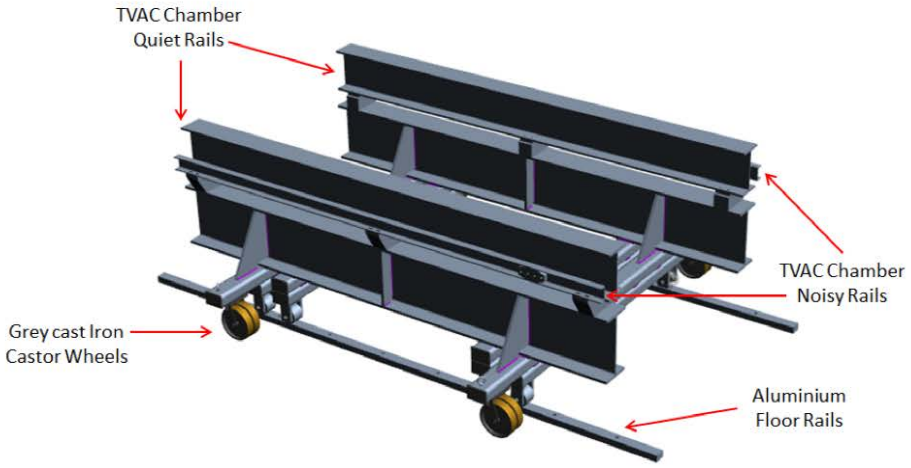

Figure 4: Cleanroom Trolley

In order to load the Instrument under test and its associated MGSE into STC-2 or STC-3, a trolley with the same rails is used to align with the chamber rails. This will ensure that equipment can be integrated on the trolley outside the cleanroom and then easily moved inside the chamber.

1.4 S4 MGSE on STC-2 /3 rails

For S4 UVN we only have to provide a cart onto which the customer installs the instrument and its associated MGSE.

1.5 S5 MGSE on STC-2 /3 rails

For S5 UVNS we are required to provide the entire MGSE onto which the instrument is mounted (see Figure 5).

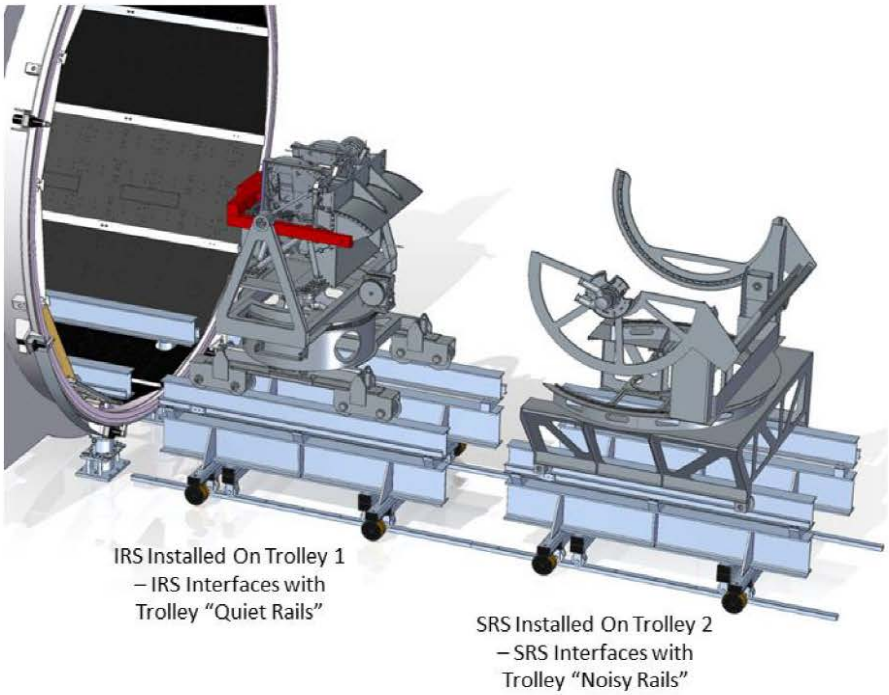

Figure 5: S5 IRS and SRS Installed on Cleanroom Trolleys

The above diagram shows the S5 MGSE mounted on the cleanroom trolleys. This MGSE is the responsibility of our subcontractor APCO.

1.6 Windows, Flange, Baffles and Shutters

Figure 6 provides an overview of the window flange design. The designs for the S4 and S5 windows are essentially the same. However, the size and positioning of the window within the flanges varies from flange to flange. The outline shown is for the Optical window positioning, but the concept is true for the Alignment windows also.

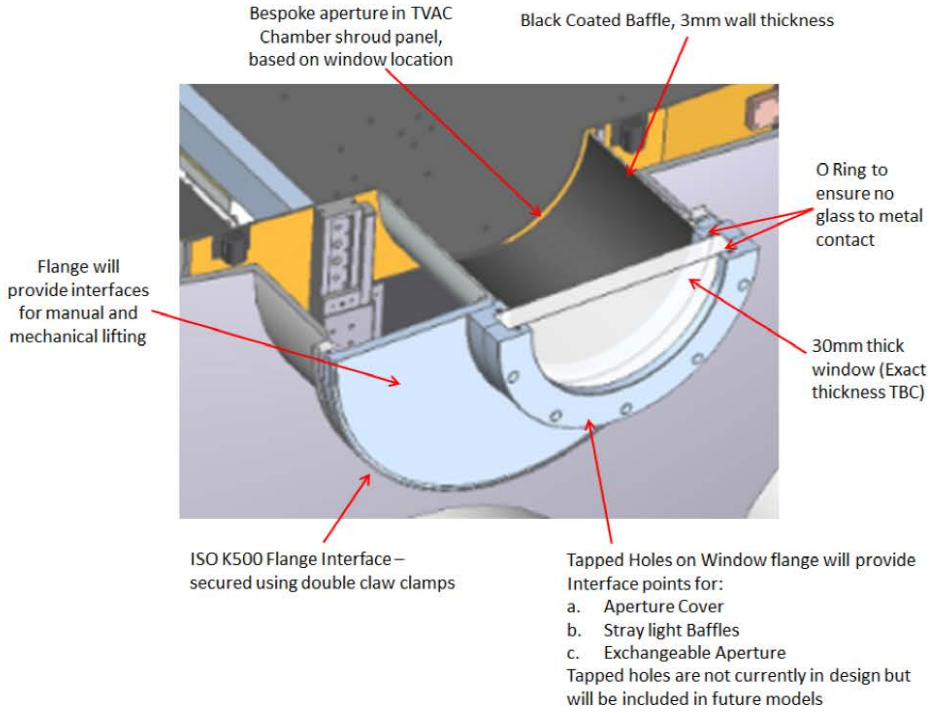

Figure 6: overview of the window flange design

1.6.1 S5 Window Flange Design

All Optical and Alignment windows will be 30mm thick in order to provide a Safety Factor of 10. Both optical windows will be manufactured from Infrasil 302, and both alignment windows manufactured from BBAR Coated DUV Grade Fused Silica. Apart from a change in material, and a difference in the positioning of the window within the flange, the design philosophy is the same for all windows.

1.6.2 Window Flanges

The Optical and Alignment window flanges will be manufactured from stainless steel and will interface with the TVAC Chamber via a standard ISO500 interface. The non-optical surfaces of the flange will be black coated.

All flanges will be individually part marked with handles for manual lifting and "eyes" for hoisting. The flanges will interface with the TVAC Chamber via double claw clamps. O Rings will be used to ensure that there is no metal to glass contact at the window to flange

interface. The window flange will provide an interface for an exchangeable aperture and external baffles.

1.6.3 Baffles

These are internal, black painted, baffles with 3mm wall thickness and will provide a thermal coupling between the window and the TVAC chamber. Whilst the baffle design philosophy is common, each baffle will be unique due to unique angles in the TVAC chamber door and side.

External, black painted, stray light baffles will be installed. These baffles will interface with the window aperture and will be removable.

1.7 Electrical feedthroughs

The cabling presents a number of challenges. Firstly, there are length restrictions for some of the cables requiring them to be <7m in length, these are primarily associated with communications. Given the size of the chamber, this will not easily be achieved. Secondly, the MGSE systems for both S4 and S5 rotate in both azimuth and elevation over wide ranges. This presents a serious challenge for the routing and layout of these cables.

1.8 Bespoke Shroud Panels

The door shroud is more complex than usual due to the requirement to minimise the spacing between the instrument and the optical windows of the chamber (~250mm). This requirement results in a multi-faceted shroud design.

Both S4 and S5 have bespoke door shroud panels and observation side shroud panels. Due to the fact that S4 and S5 utilise different apertures, the shroud panels are different. Aside from the apertures, they are generically the same.

1.8.1 S5 door shroud panels

Figure 7 provides an outline of the S5 shroud panel design.
The S5 test set up requires the use of three apertures on the OGSE facing TVAC Chamber door. Therefore, the shroud panel will be bespoke for S5 both in terms of mechanical and thermal design. The diagram below provides an overview of the STC3 OGSE room shroud design.

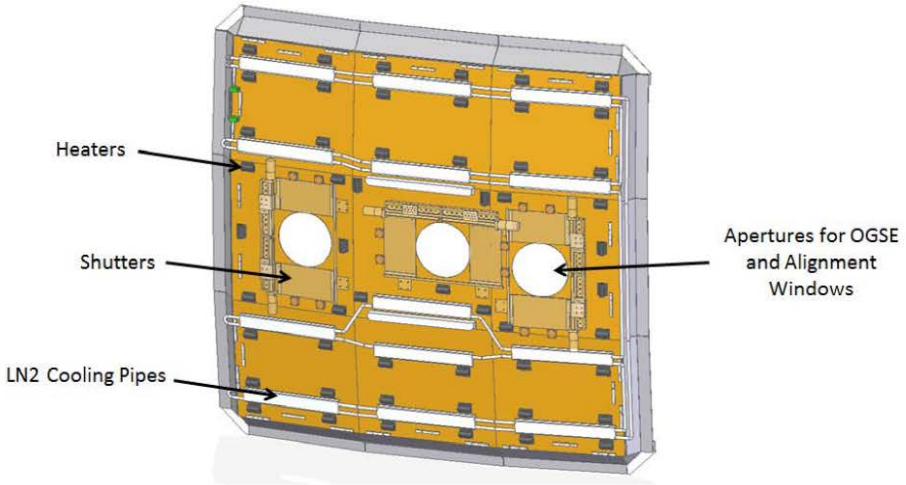

Figure 7: S5 OGSE Room Door Shroud Design

Thermal straps will provide a conductive coupling from the shutters to the shroud panel. Heater and LN2 layout has been optimised in order to provide the best possible control in the space available. However, due to the position of the apertures there will be regions of the shroud where no heaters or LN2 are locally applied.

1.8.2 Alignment Window Shrouds

S4 and S5 require the use of apertures on the Service side of the TVAC Chamber for alignment purposes. As such these shroud panels will also be bespoke both in terms of mechanical and thermal design.

Figure 8 shows the S5 observation window shroud design in the service area. Heater and LN2 layout has been optimised in order to provide the best possible control in the space available. Thermal straps will provide a conductive coupling from the shutters to the shroud panel.

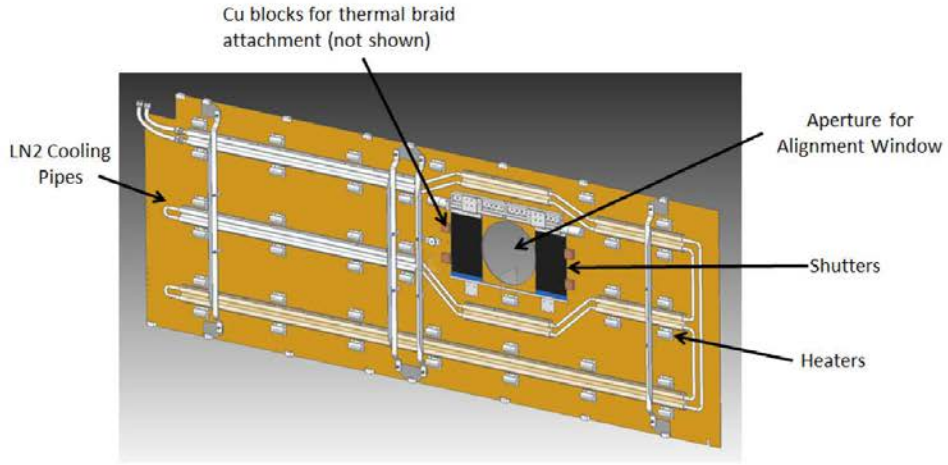

Figure 8: Service Area Alignment Window Shroud Panel Design

1.9 S5 Warm Stage Heat Pipe (HPC) Cooling

For S5 we are required to provide HPC Cooling via Galden cooled plate, mechanically fastened to the S5 Instrument Heat Pipe Clamp (see Figure 9). The thermal concept is based on a copper tube press fitted into a slot machined in an Aluminium Alloy base plate.

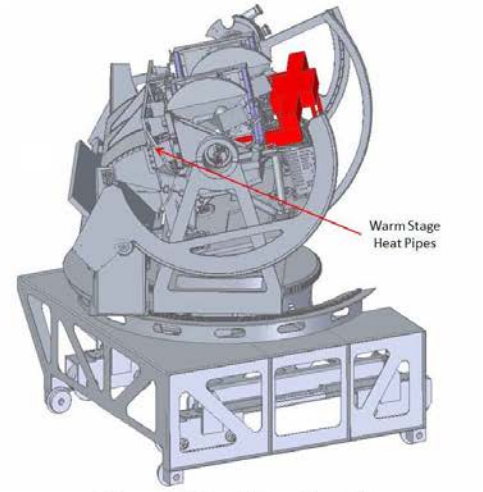

Figure 9: Warm Stage Heat Pipe

It is foreseen that 8 fasteners will be removed from the Instrument Heat Pipe Clamp and used as an interface to the RAL HPC Cooling MGSE (as shown in Figure 10).

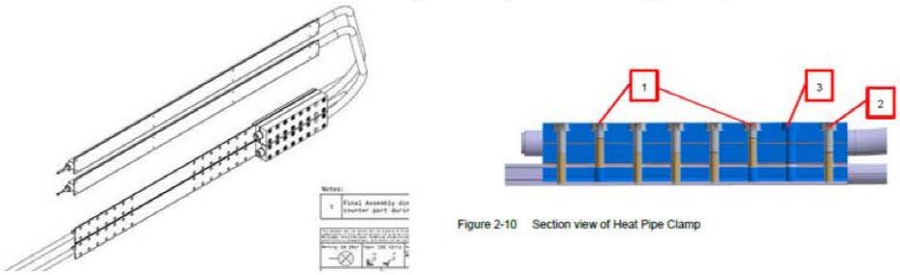

Figure 10: Foreseen Interface for RAL HPC MGSE

The micro vibrations induced due to the HPC cooling will be monitored and assessed during the first S5 testing; STM test.