

To Be Determined (TBD)
TBD

Attn: TBD

By email to: TBD

Date: TBD

Your ref: TBD

Our ref: RE19221

Dear Sirs,

Award of contract for the supply of CLARA Transverse Deflecting Cavity

Following your tender/ proposal for the supply of CLARA Transverse Deflecting Cavity to UKRI, we are pleased to award this contract to you.

This letter (Award Letter) and its Schedule(s) set out the terms of the Contract between:

- (1) **United Kingdom Research and Innovation**, a statutory corporation whose registered office is at Polaris House, North Star Avenue, Swindon, England, SN2 1FL ("**UKRI**"); and
- (2) TBD, a company incorporated and registered in TBD with company number TBD and registered VAT number TBD whose registered office is at TBD (the "**Supplier**").

Unless the context otherwise requires, capitalised expressions used in this Award Letter have the same meanings as in the terms and conditions of contract set out in Schedule 1 to this Award Letter (the "**Conditions**"). In the event of any conflict between this Award Letter and the Conditions, this Award Letter shall prevail. Please do not attach any Supplier terms and conditions to this Award Letter as they will not be accepted by UKRI and may delay conclusion of the Contract.

For the purposes of the Contract, UKRI and the Supplier agree as follows:

Term

- 1 Commencement Date: Friday 27th September 2019
- 2 Expiry Date: Tuesday 30st June 2022

Description of Goods and/or Services

- 3 The Specification of the Goods and/or Services to be delivered is as set out in Schedule 2
- 4 The Goods shall be Delivered in accordance with the following instructions:

Delivery Address

STFC - Daresbury Laboratory
Keckwick Lane
Daresbury
Warrington
WA4 4AD

Date of Delivery

Friday 27th September 2019

Until

Monday 20th June 2022

Packaging Instructions:

The supplier shall insure that the Goods are properly packed and secured in such a manner as to enable them to reach their destination in good condition.

Charges & Payment

- 5 The Charges for the Goods and/or Services shall be as set out in Schedule 3
- 6 All invoices should be sent, quoting a valid purchase order number (PO Number) provided by UKRI, to: finance@uksbs.co.uk
- 7 To avoid delay in payment it is important that the invoice is compliant and that it includes a valid PO Number, PO Number item number (if applicable) and the details (name and telephone number) of your UKRI contact (i.e. Contract Manager). Non-compliant invoices will be sent back to you, which may lead to a delay in payment. If you have a query regarding an outstanding payment please contact our Accounts Payable section either by email to finance@uksbs.co.uk or by telephone 01793 867004 between 09:00-17:00 Monday to Friday.

Supplier's Limit of Liability

- 8 The Limit of Liability of the Supplier under this Contract shall be: 125% of the total Charges paid and payable to the Supplier under this Contract.

Notices

- 9 The address for notices of the Parties are:

UKRI	Supplier
Polaris House, North Star Avenue, Swindon, England, SN2 1FL	TBD
Attention: STFC Procurement	Attention: TBD
Email: procurement@stfc.ac.uk	Email: TBD

Liaison

For general liaison your contact will continue to be **Louise Cowie <louise.cowie@stfc.ac.uk>** or, in their absence, **Alan Wheelhouse <alan.wheelhouse@stfc.ac.uk>**

We thank you for your co-operation to date, and look forward to forging a successful working relationship resulting in a smooth and successful supply of the Goods and/or Services. Please confirm your acceptance of the award of this contract by signing and returning the enclosed copy of this letter to Ella Clarke <ella.clarke@uksbs.co.uk> at the above address. No other form of acknowledgement will be accepted. Please remember to quote the reference number above in any future communications relating to this contract.

Yours faithfully,

Signed for and on behalf of **United Kingdom Research and Innovation**

Signature:

.....

Name:

.....

Position:

.....

Date:

.....

We accept the terms set out in this Award Letter and the Schedule(s).

Signed for and on behalf of TBD

Signature:

.....

Name:

.....

Position:

.....

Date:

.....

Terms and Conditions of Contract for Goods and/or Services

1 INTERPRETATION

1.1 In these terms and conditions:

- "Award Letter" means the letter from UKRI to the Supplier printed above these terms and conditions;
- "Central Government Body" means a body listed in one of the following sub-categories of the Central Government classification of the Public Sector Classification Guide, as published and amended from time to time by the Office for National Statistics:
- (a) Government Department;
 - (b) Non-Departmental Public Body or Assembly Sponsored Public Body (advisory, executive, or tribunal);
 - (c) Non-Ministerial Department; or
 - (d) Executive Agency;
- "Charges" means the charges for the Goods and/or Services as specified in the Award Letter;
- "Commencement Date" means the date for the start of the Contract as set out in the Award Letter;
- "Confidential Information" means:
- (a) all confidential information and data which is acquired from or made available (directly or indirectly) by the Disclosing Party or the Disclosing Party's representatives however conveyed or presented, including but not limited to any information or document relating to the Disclosing Party's business, affairs, operations, budgets, policies, processes, initiatives, plans, product information, pricing information, technical or commercial know-how, trade secrets, specifications, strategies, inventions, designs, software, market opportunities, personnel, customers or suppliers (whether relating to this Contract or otherwise) either orally, in writing, or in whatever form obtained or maintained;
 - (b) any information or analysis derived from the Confidential Information;
 - (c) anything marked as confidential and any other information notified by or on behalf of the Disclosing Party to the Receiving Party as being confidential;
 - (d) the existence and terms of this Contract and of any subsequent agreement entered into in relation to this Contract;
 - (e) the fact that discussions and negotiations are taking place concerning this Contract and the status of those discussions and negotiations; and
 - (f) any copy of any of the information described in (a), (b), (c), (d) or (e) above, which shall be deemed to become Confidential Information when it is made. For the purposes of this definition, a copy shall include, without limitation, any notes or recordings of the information described in (a), (b), (c), (d) or (e) above (howsoever made);
- "Contract" means the contract between (i) UKRI and (ii) the Supplier constituted by the Supplier's

countersignature of the Award Letter and includes the Award Letter and Schedules;

"Data Protection Legislation"	means, for the periods for which they are in force, all laws giving effect or purporting to give effect to the GDPR, the Data Protection Act 2018, or otherwise relating to data protection, including the Regulation of Investigatory Powers Act 2000, the Telecommunications (Lawful Business Practice) (Interception of Communications) Regulations 2000 (SI 2000/2699), the Electronic Communications Data Protection Directive (2002/58/EC), the Privacy and Electronic Communications (EC Directive) Regulations 2003 (SI 2426/2003) and all applicable laws and regulations relating to the processing of personal data and privacy, including where applicable the guidance and codes of practice issued by the Information Commissioner, in each case as amended or substituted from time to time;
"Data Subject"	shall have the same meaning as in the Data Protection Legislation;
"Date of Delivery"	means that date by which the Goods must be Delivered to UKRI, as specified in the Award Letter.
"Deliver"	means hand over the Goods to UKRI at the address and on the date specified in the Award Letter, which shall include unloading and any other specific arrangements agreed in accordance with Clause 6. Delivered and Delivery shall be construed accordingly.
"Disclosing Party"	means a Party that makes a disclosure of Confidential Information to another Party;
"EIR"	means the Environmental Information Regulations 2004 (or if applicable the Environmental Information Regulations (Scotland) 2004);
"Expiry Date"	means the date for expiry of the Contract as set out in the Award Letter;
"FOIA"	means the Freedom of Information Act 2000 (or if applicable the Freedom of Information (Scotland) Act 2002);
"GDPR"	means: <ul style="list-style-type: none">(a) the General Data Protection Regulations (Regulation (EU) 2016/679); or(b) any equivalent legislation amending or replacing the General Data Protection Regulations (Regulation (EU) 2016/679);
"Good Industry Practice"	means all relevant practices and professional standards that would be expected of a well-managed, expert service provider performing services substantially similar to the Services or substantially similar to the Goods provided to customers of a substantially similar size and nature as UKRI;
"Goods"	means the goods to be supplied by the Supplier to UKRI under the Contract;
"Information"	has the meaning given under section 84 of the FOIA;
"Intellectual Property Rights"	means: <ul style="list-style-type: none">(a) copyright, rights related to or affording protection similar to copyright, rights in databases, patents and rights in inventions, semi-conductor topography rights, trade marks, rights in Internet domain names and website addresses and other rights in trade names, designs, know-how, trade secrets and other rights in Confidential Information;

- (b) applications for registration, and the right to apply for registration, for any of the rights listed at (a) that are capable of being registered in any country or jurisdiction; and
- (c) all other rights having equivalent or similar effect in any country or jurisdiction;

"Limit of Liability"	means the limit of liability identified in the Award Letter;
"Party"	the Supplier or UKRI (as appropriate) and "Parties" shall mean both of them;
"Personal Data"	means the personal data (as defined in the Data Protection Legislation) which relates to or originates from UKRI, or any of UKRI's employees, contractors or customers and which is processed by or on behalf of the Supplier under this Contract;
"Personal Data Breach"	shall have the meaning given in the Data Protection Legislation;
"Purchase Order Number"	means UKRI's unique number relating to the order for Goods and/or Services to be supplied by the Supplier to UKRI in accordance with the terms of the Contract;
"Receiving Party"	means a Party to which a disclosure of Confidential Information is made by another Party;
"Request for Information"	has the meaning set out in the FOIA or the EIR as relevant (where the meaning set out for the term "request" shall apply);
"Services"	means the services to be supplied by the Supplier to UKRI under the Contract;
"Specification"	means the specification for the Goods and/or Services to be supplied by the Supplier to UKRI (including as to quantity, description and quality) as specified in the Award Letter;
"Staff"	means all directors, officers, employees, agents, consultants and contractors of the Supplier and/or of any sub-contractor of the Supplier engaged in the performance of the Supplier's obligations under the Contract;
"Staff Vetting Procedures"	means vetting procedures that accord with good industry practice or, where requested by UKRI, UKRI's procedures for the vetting of personnel as provided to the Supplier from time to time;
"Term"	means the period from the Commencement Date to the Expiry Date as such period may be extended or terminated in accordance with the terms and conditions of the Contract;
"TUPE"	means the Transfer of Undertakings (Protection of Employment) Regulations 2006 as amended or replaced from time to time;
"VAT"	means value added tax in accordance with the provisions of the Value Added Tax Act 1994; and
"Working Day"	means a day (other than a Saturday, Sunday, public holiday or 27, 28, 29, 30 and 31 December) when banks in London are open for business.

1.2 In these terms and conditions, unless the context otherwise requires:

- (a) references to numbered clauses are references to the relevant clause in these terms and conditions;

- (b) any obligation on any Party not to do or omit to do anything shall include an obligation not to allow that thing to be done or omitted to be done;
- (c) the headings to the clauses of these terms and conditions are for information only and do not affect the interpretation of the Contract;
- (d) any reference to an enactment includes reference to that enactment as amended or replaced from time to time and to any subordinate legislation or byelaw made under that enactment; and
- (e) the word 'including' shall be understood as meaning 'including without limitation'.

2 **BASIS OF CONTRACT**

- 2.1 The Award Letter constitutes an offer by UKRI to purchase the Goods and/or Services subject to and in accordance with the terms and conditions of the Contract.
- 2.2 The offer comprised in the Award Letter shall be deemed to be accepted by the Supplier on receipt by UKRI of a copy of the Award Letter countersigned by the Supplier.

3 **SUPPLY OF GOODS AND SERVICES**

- 3.1 In consideration of UKRI's agreement to pay the Charges, the Supplier shall supply the Goods and/or Services to UKRI subject to and in accordance with the terms and conditions of the Contract.
- 3.2 In supplying the Goods and/or Services, the Supplier shall:
 - (a) co-operate with UKRI in all matters relating to the supply of Goods and/or Services and comply with all UKRI's instructions; and
 - (b) comply with all applicable laws.
- 3.3 The Supplier shall supply the Goods in accordance with the Specification. The Supplier warrants, represents, undertakes and guarantees that the Goods supplied under the Contract shall:
 - (a) be free from defects (manifest or latent), in materials and workmanship and remain so for 12 months after Delivery;
 - (b) be of satisfactory quality (within the meaning of the Sale of Goods Act 1979) and comply with any applicable statutory and regulatory requirements relating to the manufacture, labelling, packaging, storage, handling and delivery of the Goods;
 - (c) conform with the specifications (including the Specification), drawings, descriptions given in quotations, estimates, brochures, sales, marketing and technical literature or material (in whatever format made available by the Supplier) supplied by, or on behalf of, the Supplier;
 - (d) be free from design defects; and
 - (e) be fit for any purpose held out by the Supplier or made known to the Supplier by UKRI expressly or by implication, and in this respect UKRI relies on the Supplier's skill and judgement. The Supplier acknowledges and agrees that the approval by UKRI of any designs provided by the Supplier shall not relieve the Supplier of any of its obligations under this clause 3.3.
- 3.4 In supplying the Services, the Supplier shall:

- (a) perform the Services with all reasonable care, skill and diligence in accordance with good industry practice in the Supplier's industry, profession or trade;
- (b) use Staff who are suitably skilled and experienced to perform tasks assigned to them, and in sufficient number to ensure that the Supplier's obligations are fulfilled in accordance with the Contract;
- (c) ensure that the Services shall conform with all descriptions and specifications set out in the Specification;
- (d) not do or allow anything to be done that would, or would be likely to, bring UKRI into disrepute or adversely affect its reputation in any way; and
- (e) provide all equipment, tools and vehicles and other items as are required to provide the Services.

4 TERM

- 4.1 The Contract shall take effect on the date specified in the Award Letter and shall expire on the Expiry Date, unless it is otherwise extended in accordance with the provisions of the Award Letter or terminated early in accordance with the terms and conditions of the Contract.

5 CHARGES, PAYMENT AND RECOVERY OF SUMS DUE

- 5.1 The Charges for the Goods and/or Services shall be as set out in the Award Letter and shall be the full and exclusive remuneration of the Supplier in respect of the supply of the Goods and/or Services. Unless otherwise agreed in writing by UKRI, the Charges shall include every cost and expense of the Supplier directly or indirectly incurred in connection with the supply of the Goods and/or performance of the Service.
- 5.2 All amounts stated are exclusive of VAT which shall be charged at the prevailing rate. UKRI shall, following the receipt of a valid VAT invoice, pay to the Supplier a sum equal to the VAT chargeable in respect of the Goods and/or Services.
- 5.3 The Supplier shall invoice UKRI as specified in the Contract. Each invoice shall include such supporting information required by UKRI to verify the accuracy of the invoice, including the relevant Purchase Order Number and a breakdown of the Goods and/or Services supplied in the invoice period.
- 5.4 In consideration of the supply of the Goods and/or Services by the Supplier, UKRI shall pay the Supplier the invoiced amounts no later than 30 days after verifying that the invoice is valid and undisputed and includes a valid Purchase Order Number. UKRI may, without prejudice to any other rights and remedies under the Contract, withhold or reduce payments in the event of unsatisfactory performance.
- 5.5 If UKRI fails to consider and verify an invoice in a timely fashion the invoice shall be regarded as valid and undisputed for the purpose of clause 5.4 after a reasonable time has passed (which shall be no less than 14 calendar days).
- 5.6 If there is a dispute between the Parties as to the amount invoiced, UKRI may reject the invoice in its entirety. The Supplier shall not suspend the supply of the Goods and/or Services unless the Supplier is entitled to terminate the Contract for a failure to pay undisputed sums in accordance with clause 18.5. Any disputed amounts shall be resolved through the dispute resolution procedure detailed in clause 21.
- 5.7 Where the Supplier enters into a sub-contract, the Supplier shall include in that sub-contract:

- (a) provisions having the same effects as clauses 5.3 to 5.6 (inclusive) of this Contract; and
 - (b) a provision requiring the counterparty to that sub-contract to include in any sub-contract which it awards provisions having the same effects as clauses 5.3 to 5.7 (inclusive) of this Contract.
 - (c) In this clause 5.7, "sub-contract" means a contract between two or more suppliers, at any stage of remoteness from UKRI in a subcontracting chain, made wholly or substantially for the purpose of performing (or contributing to the performance of) the whole or any part of this Contract.
- 5.8 If any sum of money is recoverable from or payable by the Supplier under the Contract (including any sum which the Supplier is liable to pay to UKRI in respect of any breach of the Contract), that sum may be deducted unilaterally by UKRI from any sum then due, or which may come due, to the Supplier under the Contract or under any other agreement or contract with UKRI. The Supplier shall not be entitled to assert any credit, set-off or counterclaim against UKRI in order to justify withholding payment of any such amount in whole or in part.

6 DELIVERY

- 6.1 The Supplier shall Deliver the Goods to UKRI on or by the Date of Delivery. Unless otherwise agreed in writing by UKRI, Delivery shall be on the date and to the address specified in the Award Letter. Delivery of the Goods shall be completed once the completion of unloading the Goods from the transporting vehicle at the Delivery address has taken place and UKRI has signed for the Delivery.
- 6.2 Any access to UKRI's premises and any labour and equipment that may be provided by UKRI in connection with Delivery of the Goods shall be provided without acceptance by UKRI of any liability in respect of any actions, claims, costs and expenses incurred by third parties for any loss of damages to the extent that such loss or damage is not attributable to the negligence or other wrongful act of UKRI or its servant or agent. The Supplier shall indemnify UKRI in respect of any actions, suits, claims, demands, losses, charges, costs and expenses, which UKRI may suffer or incur as a result of or in connection with any damage or injury (whether fatal or otherwise) occurring in the course of Delivery or installation to the extent that any such damage or injury is attributable to any act or omission of the Supplier or any of his sub-Suppliers.
- 6.3 Delivery of the Goods shall be accompanied by a delivery note which shows the Purchase Order Number and the type and quantity of the Goods and, in the case of part Delivery, the outstanding balance remaining to be Delivered.
- 6.4 Unless otherwise stipulated by UKRI in the Award Letter, Deliveries shall only be accepted by UKRI on Working Days and during normal business hours.
- 6.5 Where (i) the Supplier fails to Deliver the Goods or part of the Goods or (ii) the Goods or part of the Goods do not comply with the provisions of clause 3, then without limiting any of its other rights or remedies implied by statute or common law, UKRI shall be entitled:
- (a) to terminate the Contract;
 - (b) to require the Supplier, free of charge, to deliver substitute Goods within the timescales specified by UKRI;
 - (c) to require the Supplier, free of charge, to repair or replace the rejected Goods, or to provide a full refund of the Charges of the rejected Goods (if paid);

- (d) to reject the Goods (in whole or part) and return them to the Supplier at the Supplier's own risk and expense and UKRI shall be entitled to a full refund on those Goods or part of Goods duly returned;
- (e) to buy the same or similar Goods from another supplier; and
- (f) to recover any expenses incurred in respect of buying the goods from another supplier which shall include but not be limited to administration costs, chargeable staff time and extra delivery costs.

7 PROPERTY AND GUARANTEE OF TITLE

7.1 Without prejudice to any other rights or remedies of UKRI, title and risk in the Goods shall pass to UKRI when Delivery of the Goods is complete (including off-loading and stacking).

7.2 The Supplier warrants that:

- (a) it has full clear and unencumbered title to all the Goods;
- (b) at the date of Delivery of any of the Goods it shall have full and unrestricted right, power and authority to sell, transfer and deliver all of the Goods to UKRI; and
- (c) on Delivery UKRI shall acquire a valid and unencumbered title to the Goods.

8 STAFF

8.1 If UKRI reasonably believes that any of the Staff are unsuitable to undertake work in respect of the Contract, it may, by giving written notice to the Supplier:

- (a) refuse admission to the relevant person(s) to UKRI's premises;
- (b) direct the Supplier to end the involvement in the provision of the Goods and/or Services of the relevant person(s); and/or
- (c) require that the Supplier replace any person removed under this clause with another suitably qualified person and procure that any security pass issued by UKRI to the person removed is surrendered,

and the Supplier shall comply with any such notice.

8.2 The Supplier shall:

- (a) ensure that all Staff are vetted in accordance with the Staff Vetting Procedures and if requested, comply with UKRI's Staff Vetting Procedures as supplied from time to time;
- (b) ensure that no person who discloses that he/she has a conviction that is relevant to the nature of the Contract, relevant to the work of UKRI, or is of a type otherwise advised by UKRI (each such conviction a "**Relevant Conviction**"), or is found by the Supplier to have a Relevant Conviction (whether as a result of a police check, the Staff Vetting Procedures or otherwise) is employed or engaged in the provision of any part of the supply of the Goods and/or Services;
- (c) if requested, provide UKRI with a list of the names and addresses (and any other relevant information) of all persons who may require admission to UKRI's premises in connection with the Contract; and

- (d) procure that all Staff comply with any rules, regulations and requirements reasonably specified by UKRI.

9 TUPE

- 9.1 The Supplier warrants that the provision of the Goods and/or Services shall not give rise to a transfer of any employees of the Supplier or any third party to UKRI pursuant to TUPE.

10 ASSIGNMENT AND SUB-CONTRACTING

- 10.1 The Supplier shall not without the written consent of UKRI assign, sub-contract, novate or in any way dispose of the benefit and/ or the burden of the Contract or any part of the Contract. UKRI may, in the granting of such consent, provide for additional terms and conditions relating to such assignment, sub-contract, novation or disposal. The Supplier shall be responsible for the acts and omissions of its sub-contractors as though those acts and omissions were its own.
- 10.2 Where UKRI has consented to the placing of sub-contracts, the Supplier shall, at the request of UKRI, send copies of each sub-contract, to UKRI as soon as is reasonably practicable.
- 10.3 UKRI may assign, novate, or otherwise dispose of its rights and obligations under the Contract without the consent of the Supplier provided that such assignment, novation or disposal shall not increase the burden of the Supplier's obligations under the Contract.

11 INTELLECTUAL PROPERTY AND INDEMNITY

- 11.1 All Intellectual Property Rights in any materials provided by UKRI to the Supplier for the purposes of this Contract shall remain the property of UKRI but UKRI hereby grants the Supplier a royalty-free, non-exclusive and non-transferable licence to use such materials as required until termination or expiry of the Contract for the sole purpose of enabling the Supplier to perform its obligations under the Contract.
- 11.2 The ownership of all Intellectual Property Rights in any materials created or developed by the Supplier pursuant to the Contract or arising as a result of the provision of the Goods and/or Services shall vest in UKRI. If, and to the extent, that the ownership of any Intellectual Property Rights in such materials vest in the Supplier by operation of law, the Supplier hereby assigns ownership of such Intellectual Property Rights to UKRI by way of a present assignment of future rights that shall take place immediately on the coming into existence of any such Intellectual Property Rights all its Intellectual Property Rights in such materials (with full title guarantee and free from all third party rights).
- 11.3 UKRI hereby grants the Supplier a royalty-free, non-exclusive and non-transferable licence to use any Intellectual Property Rights in the materials created or developed by the Supplier pursuant to the Contract and any Intellectual Property Rights arising as a result of the provision of the Goods and/or Services as required until termination or expiry of this Contract for the sole purpose of enabling the Supplier to perform its obligations under the Contract
- 11.4 Without prejudice to clause 11.2, the Supplier hereby grants UKRI a perpetual, royalty-free, irrevocable and non-exclusive licence (with a right to sub-license) to use any Intellectual Property Rights vested in or licensed to the Supplier on the date of the Contract or during the Term to the extent not falling within clause 11.2 including any modifications to or derivative versions of any such Intellectual Property Rights, which UKRI reasonably requires in order to exercise its rights and take the benefit of the Contract including the Goods and/or Services provided.

- 11.5 The Supplier shall indemnify, and keep indemnified, UKRI in full against all cost, expenses, damages and losses (whether direct or indirect), including any interest, penalties, and reasonable legal and other professional fees awarded against or incurred or paid by UKRI as a result of or in connection with any claim made against UKRI for actual or alleged infringement of a third party's intellectual property arising out of, or in connection with, the supply or use of the Goods and/or Services, to the extent that the claim is attributable to the acts or omission of the Supplier or any Staff.
- 11.6 UKRI shall promptly notify the Supplier of any infringement claim made against it relating to any Goods and, subject to any statutory obligation requiring UKRI to respond, shall permit the Supplier to have the right, at its sole discretion to assume, defend, settle or otherwise dispose of such claim. UKRI shall give the Supplier such assistance as it may reasonably require to dispose of the claim and shall not make any statement which might be prejudicial to the settlement or defence of the claim.

12 RECORDS

- 12.1 If required by UKRI, the Supplier shall:
- (a) attend progress meetings with UKRI at the frequency and times specified by UKRI and shall ensure that its representatives are suitably qualified to attend such meetings; and
 - (b) submit progress reports to UKRI at the times and in the format specified by UKRI.
- 12.2 The Supplier shall keep and maintain until 6 years after the end of the Contract, or as long a period as may be agreed between the Parties, full and accurate records of the Contract including the Goods and/or Services supplied under it, and all payments made by UKRI. The Supplier shall on request afford UKRI or UKRI's representatives such access to those records as may be reasonably requested by UKRI in connection with the Contract.

13 CONFIDENTIALITY, TRANSPARENCY AND PUBLICITY

- 13.1 Subject to clause 13.2, each Party shall:
- (a) treat all Confidential Information it receives as confidential, safeguard it accordingly and not disclose it to any other person without the prior written permission of the disclosing Party; and
 - (b) not use or exploit the Disclosing Party's Confidential Information in any way except for the purposes anticipated under the Contract.
- 13.2 Notwithstanding clause 13.1, a Party may disclose Confidential Information which it receives from the other Party:
- (a) where disclosure is required by applicable law or by a court of competent jurisdiction;
 - (b) to its auditors or for the purposes of regulatory requirements;
 - (c) on a confidential basis, to its professional advisers;
 - (d) to the Serious Fraud Office where the Party has reasonable grounds to believe that the other Party is involved in activity that may constitute a criminal offence under the Bribery Act 2010;

- (e) where the Receiving Party is the Supplier, to the Staff on a need to know basis to enable performance of the Supplier's obligations under the Contract provided that the Supplier shall procure that any Staff to whom it discloses Confidential Information pursuant to this clause 13.2(e) shall observe the Supplier's confidentiality obligations under the Contract; and
- (f) where the Receiving Party is UKRI:
 - (i) on a confidential basis to the employees, agents, consultants and contractors of UKRI;
 - (ii) on a confidential basis to any Central Government Body, any successor body to a Central Government Body or any company to which UKRI transfers or proposes to transfer all or any part of its business;
 - (iii) to the extent that UKRI (acting reasonably) deems disclosure necessary or appropriate in the course of carrying out its public functions; or
 - (iv) in accordance with clause 14.

and for the purposes of the foregoing, references to disclosure on a confidential basis shall mean disclosure subject to a confidentiality agreement or arrangement containing terms no less stringent than those placed on UKRI under this clause 13.

13.3 The Parties acknowledge that, except for any Information which is exempt from disclosure in accordance with the provisions of the FOIA, the content of the Contract is not Confidential Information and the Supplier hereby gives its consent for UKRI to publish the Contract in its entirety to the general public (but with any Information that is exempt from disclosure in accordance with the FOIA redacted) including any changes to the Contract agreed from time to time. UKRI may consult with the Supplier to inform its decision regarding any redactions but shall have the final decision in its absolute discretion whether any of the content of the Contract is exempt from disclosure in accordance with the provisions of the FOIA.

13.4 The Supplier shall not, and shall take reasonable steps to ensure that the Staff shall not, make any press announcement or publicise the Contract or any part of the Contract in any way, except with the prior written consent of UKRI.

14 FREEDOM OF INFORMATION

14.1 The Supplier acknowledges that UKRI is subject to the requirements of the FOIA and the EIR and shall:

- (a) provide all necessary assistance and cooperation as reasonably requested by UKRI to enable UKRI to comply with its obligations under the FOIA and the EIR;
- (b) transfer to UKRI all Requests for Information relating to the Contract that it receives as soon as practicable and in any event within 2 Working Days of receipt;
- (c) provide UKRI with a copy of all Information belonging to UKRI requested in the Request for Information which is in its possession or control in the form that UKRI requires within 5 Working Days (or such other period as UKRI may reasonably specify) of UKRI's request for such Information; and
- (d) not respond directly to a Request for Information unless authorised in writing to do so by UKRI.

14.2 The Supplier acknowledges that UKRI may be required under the FOIA and the EIR to disclose Information concerning the Supplier or the Goods and/or Services (including commercially sensitive information) without consulting or obtaining consent from the Supplier.

14.3 Notwithstanding any other provision in the Contract, UKRI shall be responsible for determining in its absolute discretion whether any Information relating to the Supplier or the Goods is exempt from disclosure in accordance with the FOIA and/or the EIR.

15 PROTECTION OF PERSONAL DATA AND SECURITY OF DATA

15.1 In this Clause 15, the terms, "processes", "data controller" and "data processor" shall have the same meanings given to them under Data Protection Legislation.

15.2 The Parties acknowledge that for the purposes of Data Protection Legislation, UKRI is the data controller and the Supplier is the data processor of any Personal Data.

15.3 The Supplier shall and shall procure that its staff and sub-contractors shall comply with all Data Protection Legislation in relation to any Personal Data processed.

15.4 Without limiting Clauses 15.2 and 15.3, the Supplier shall at all times (and shall ensure that at all times its staff):

- (a) process Personal Data only in accordance with the documented instructions received from UKRI and during the Term of this Contract. The Supplier shall immediately inform UKRI if, in the Supplier's opinion, an instruction from UKRI infringes the Data Protection Legislation or any other applicable law;
- (b) ensure that any person to whom it provides the Personal Data is subject to appropriate confidentiality obligations;
- (c) disclose any Personal Data only on a need to know basis to staff directly concerned with the provision of the Goods and/or Services;
- (d) not transfer or direct the transfer of any Personal Data to any third party or process or direct the processing of Personal Data outside of the European Economic Area in each case without UKRI's prior written consent (which consent may be subject to conditions as directed by UKRI);
- (e) keep all Personal Data confidential, and have in place now and shall on a continuing basis take all reasonable appropriate technical and organisational measures to keep all Personal Data confidential and secure and to protect against unauthorised or unlawful processing, accidental loss, destruction, damage, alteration, disclosure or access;
- (f) upon request by UKRI, promptly do such other acts in relation to the Personal Data, or any part thereof, as UKRI shall request to enable UKRI to comply with its obligations under the Data Protection Legislation;
- (g) notify UKRI promptly (and at least within 24 hours) if it receives a request from a Data Subject or a complaint relating to a Data Subject and promptly provide UKRI with all such data, information, cooperation and assistance as is required by UKRI in order to respond to and resolve the request or complaint within any applicable time frames;
- (h) provide such information and allow for and contribute to audits, including inspections, conducted by UKRI or an auditor mandated by UKRI, as is reasonably necessary to enable UKRI to satisfy itself of the Supplier's compliance with this Clause 15 and the Data Protection Legislation

- (i) on termination or expiry of this Contract, and at any other time on UKRI's request, either return or destroy (as elected by UKRI) the Personal Data (including all copies of it) and confirm in writing that it has complied with this obligation; and
- (j) notify UKRI without undue delay on becoming aware of any Personal Data Breach and promptly following notification, provide such data, information and assistance as is required by UKRI in order for UKRI to notify the Personal Data Breach to the Information Commissioner and/or Data Subject(s) and otherwise fulfil its obligations under Data Protection Legislation.

16 LIABILITY

- 16.1 UKRI shall not be responsible for any injury, loss, damage, cost or expense suffered by the Supplier if and to the extent that it is caused by the negligence or wilful misconduct of the Supplier or the Staff or breach by the Supplier of its obligations under the Contract. The Supplier shall not be responsible for any injury, loss, damage, cost or expense suffered by UKRI if and to the extent that it is caused by the negligence or wilful misconduct of UKRI or by breach by UKRI of its obligations under the Contract.
- 16.2 Subject always to clause 16.5 and 16.6 in no event shall either Party be liable to the other Party for any:
- (a) loss of profits;
 - (b) loss of business;
 - (c) loss of revenue;
 - (d) loss of or damage to goodwill;
 - (e) loss of savings (whether anticipated or otherwise); and/or
 - (f) any indirect, special or consequential loss or damage.
- 16.3 Subject always to clause 16.5 and 16.6, the aggregate liability of the Supplier in respect of all defaults, claims, losses or damages howsoever caused, whether arising from breach of the Contract, the supply or failure to supply of the Goods and/or perform the Services, misrepresentation (whether tortious or statutory), tort (including negligence), breach of statutory duty or otherwise shall in no event exceed the Limit of Liability.
- 16.4 Subject to clause 16.5, the aggregate liability of UKRI in respect of all defaults, claims, losses or damages howsoever caused, whether arising from breach of the Contract, misrepresentation (whether tortious or statutory), tort (including negligence), breach of statutory duty or otherwise shall in no event exceed a sum equal to the Charges.
- 16.5 Nothing in the Contract shall be construed to limit or exclude either Party's liability for:
- (a) death or personal injury caused by its negligence or that of its Staff;
 - (b) fraud or fraudulent misrepresentation by it or that of its Staff;
 - (c) breach of any obligation as to title implied by section 12 of the Sale of Goods Act 1979 or section 2 of the Supply of Goods and Services Act 1982; or
 - (d) any other matter which, by law, may not be excluded or limited.
- 16.6 The Supplier's liability under the indemnities in clauses 11.5, 15 and 20.3 shall be unlimited.

- 16.7 The Supplier shall effect and maintain an adequate level of insurance cover in respect of all risks that may be incurred by it in the performance of this Contract. On request from UKRI, the Supplier shall provide UKRI with copies of the insurance policy certificates and details of the cover provided.

17 FORCE MAJEURE

Neither Party shall have any liability under or be deemed to be in breach of the Contract for any delays or failures in performance of the Contract which result from circumstances beyond the reasonable control of the Party affected. Each Party shall promptly notify the other Party in writing when such circumstances cause a delay or failure in performance and when they cease to do so. If such circumstances continue for a continuous period of more than 30 days, either Party may terminate the Contract by written notice to the other Party.

18 TERMINATION

- 18.1 UKRI may terminate the Contract in whole or in part at any time before the Goods and/or Services are provided with immediate effect by giving the Supplier written notice, whereupon the Supplier shall discontinue the provision of the Goods and/or Services (in whole or in part as applicable). UKRI shall pay to the Supplier:

- (a) such Charges or that part of the Charges for Goods which have been Delivered to UKRI or, on the deemed date of service of the notice of cancellation, are already in transit and the costs of materials which the Supplier has purchased to fulfil the order for the Goods and which cannot be used for other orders or be returned to the supplier of those materials for a refund; and/or
- (b) such Charges or that part of the Charges for Services provided and a fair and reasonable portion of the Charges for work-in-progress in performing the Services at the time of termination,

but UKRI shall not be liable for any loss of anticipated profits or any consequential loss and the Supplier shall have a duty to mitigate its costs and shall on request provide proof of work-in-progress claimed.

- 18.2 UKRI may terminate the Contract at any time by notice in writing to the Supplier to take effect on any date falling at least 1 month (or, if the Contract is less than 3 months in duration, at least 10 Working Days) later than the date of service of the relevant notice.

- 18.3 Without prejudice to any other right or remedy it might have, UKRI may terminate the Contract by written notice to the Supplier with immediate effect if the Supplier:

- (a) (without prejudice to clause 18.3(e)), is in material breach of any obligation under the Contract which is not capable of remedy;
- (b) repeatedly breaches any of the terms and conditions of the Contract in such a manner as to reasonably justify the opinion that its conduct is inconsistent with it having the intention or ability to give effect to the terms and conditions of the Contract;
- (c) is in material breach of any obligation which is capable of remedy, and that breach is not remedied within 30 days of the Supplier receiving notice specifying the breach and requiring it to be remedied;
- (d) undergoes a change of control within the meaning of section 1124 of the Corporation Tax 2010, unless UKRI has given its prior written consent to the change of control or does not raise an objection within 6 months of the Supplier's written notice to UKRI that a change of control has occurred;

- (e) breaches the provisions of clauses 8.2, 13, 14, 15 and 19;
 - (f) becomes insolvent, or if an order is made or a resolution is passed for the winding up of the Supplier (other than voluntarily for the purpose of solvent amalgamation or reconstruction), or if an administrator or administrative receiver is appointed in respect of the whole or any part of the Supplier's assets or business, or if the Supplier makes any composition with its creditors or takes or suffers any similar or analogous action (to any of the actions detailed in this clause 18.3) in consequence of debt in any jurisdiction; or
 - (g) fails to comply with legal obligations in the fields of environmental, social or labour law.
- 18.4 The Supplier shall notify UKRI as soon as practicable of any change of control as referred to in clause 18.3(d) or any potential such change of control.
- 18.5 In addition to the Supplier's statutory rights, the Supplier may terminate the Contract by written notice to UKRI if UKRI has not paid any undisputed invoice within 90 days of it falling due.
- 18.6 Termination or expiry of the Contract shall be without prejudice to the rights of either Party accrued prior to termination or expiry and shall not affect the continuing rights of the Parties under clauses 2, 3.2, 3.3, 8, 11, 12.1, 13, 14, 15, 16, 18.7, 19.4, 20.3, 21 and 22.9 and any other term or condition of the Contract that either expressly or by implication has effect after termination.
- 18.7 Upon termination or expiry of the Contract, the Supplier shall:
- (a) give all reasonable assistance to UKRI and any incoming supplier of Goods and/or Services; and
 - (b) return all requested documents, information and data to UKRI as soon as reasonably practicable.

19 **COMPLIANCE**

- 19.1 The Supplier shall promptly notify UKRI of any health and safety hazards which may arise in connection with the performance of its obligations under the Contract. UKRI shall promptly notify the Supplier of any health and safety hazards which may exist or arise at UKRI's premises and which may affect the Supplier in the performance of its obligations under the Contract.
- 19.2 The Supplier shall:
- (a) comply with the reasonable requirements of UKRI's security arrangements;
 - (b) comply with all UKRI's health and safety measures;
 - (c) notify UKRI immediately in the event of any incident occurring in the performance of its obligations under the Contract on UKRI's premises where that incident causes any personal injury or damage to property which could give rise to personal injury;
 - (d) perform its obligations under the Contract in accordance with all applicable equality law and UKRI's equality and diversity policy as provided to the Supplier from time to time;
 - (e) take all reasonable steps to secure the observance of clause 19.2(d) by all Staff; and

- (f) supply the Goods and any packaging in accordance with UKRI's environmental policy as provided from time to time.
- 19.3 The Goods shall be packed and marked in a proper manner and in accordance with any instructions specified in the Award Letter, any statutory requirements and any requirements of the carriers. All packaging materials shall be considered non-returnable. The Supplier shall indemnify UKRI against all actions, suits, claims, demands, losses, charges, costs and expenses which UKRI may suffer or incur as a result of, or in connection with, any breach of this clause 19.3.
- 19.4 If notified by UKRI, the Supplier shall comply with, and shall ensure that its Staff shall comply with, the provisions of:
- (a) the Official Secrets Acts 1911 to 1989; and
 - (b) section 182 of the Finance Act 1989.

20 PREVENTION OF FRAUD AND CORRUPTION

- 20.1 The Supplier shall not offer, give, or agree to give anything, to any person an inducement or reward for doing, refraining from doing, or for having done or refrained from doing, any act in relation to the obtaining or execution of the Contract or for showing or refraining from showing favour or disfavour to any person in relation to the Contract.
- 20.2 The Supplier shall take all reasonable steps, in accordance with Good Industry Practice, to prevent fraud by the Staff and the Supplier (including its shareholders, members and directors) in connection with the Contract and shall notify UKRI immediately if it has reason to suspect that any fraud has occurred or is occurring or is likely to occur.
- 20.3 If the Supplier or the Staff engages in conduct prohibited by clause 20.1 or commits fraud in relation to the Contract or any other contract with the Crown (including UKRI) UKRI may:
- (a) terminate the Contract and recover from the Supplier the amount of any loss suffered by UKRI resulting from the termination, including the cost reasonably incurred by UKRI of making other arrangements for the supply of the Goods and/or Services and any additional expenditure incurred by UKRI throughout the remainder of the Contract; or
 - (b) recover in full from the Supplier any other loss sustained by UKRI in consequence of any breach of this clause.

21 DISPUTE RESOLUTION

- 21.1 The Parties shall attempt in good faith to negotiate a settlement to any dispute between them arising out of or in connection with the Contract and such efforts shall involve the escalation of the dispute to an appropriately senior representative of each Party.
- 21.2 If the dispute cannot be resolved by the Parties within one month of being escalated as referred to in clause 21.1, the dispute may by agreement between the Parties be referred to a neutral adviser or mediator (the "**Mediator**") chosen by agreement between the Parties. All negotiations connected with the dispute shall be conducted in confidence and without prejudice to the rights of the Parties in any further proceedings.
- 21.3 If the Parties fail to appoint a Mediator within one month, or fail to enter into a written agreement resolving the dispute within one month of the Mediator being appointed, either Party may exercise any remedy it has under applicable law.

22 GENERAL

- 22.1 Each of the Parties represents and warrants to the other that it has full capacity and authority, and all necessary consents, licences and permissions to enter into and perform its obligations under the Contract, and that the Contract is executed by its duly authorised representative.
- 22.2 The Supplier warrants and represents that during the Term it shall not accept work from other sources that will in any way impair or affect its ability to provide the Goods and/or Services and comply with the terms of this Contract.
- 22.3 The Supplier must make sure that neither it nor any of its Staff or sub-contractors are placed in a position where there is or may be an actual conflict, or a potential conflict, between their interests or the interests of its Staff or sub-contractors and the Supplier's obligations under this Contract. You must disclose to us the particulars of any conflict of interest that arises.
- 22.4 A person who is not a party to the Contract shall have no right to enforce any of its provisions which, expressly or by implication, confer a benefit on him or her, without the prior written agreement of the Parties.
- 22.5 The Contract cannot be varied except in writing signed by a duly authorised representative of both the Parties.
- 22.6 The Contract contains the whole agreement between the Parties and supersedes and replaces any prior written or oral agreements, representations or understandings between them. The Parties confirm that they have not entered into the Contract on the basis of any representation that is not expressly incorporated into the Contract. Nothing in this clause 22.6 shall exclude liability for fraud or fraudulent misrepresentation.
- 22.7 Any waiver or relaxation either partly, or wholly of any of the terms and conditions of the Contract shall be valid only if it is communicated to the other Party in writing and expressly stated to be a waiver. A waiver of any right or remedy arising from a breach of contract shall not constitute a waiver of any right or remedy arising from any other breach of the Contract.
- 22.8 The Contract shall not constitute or imply any partnership, joint venture, agency, fiduciary relationship or other relationship between the Parties other than the contractual relationship expressly provided for in the Contract. Neither Party shall have, nor represent that it has, any authority to make any commitments on the other Party's behalf.
- 22.9 Except as otherwise expressly provided by the Contract, all remedies available to either Party for breach of the Contract (whether under the Contract, statute or common law) are cumulative and may be exercised concurrently or separately, and the exercise of one remedy shall not be deemed an election of such remedy to the exclusion of other remedies.
- 22.10 If any provision of the Contract is prohibited by law or judged by a court to be unlawful, void or unenforceable, the provision shall, to the extent required, be severed from the Contract and rendered ineffective as far as possible without modifying the remaining provisions of the Contract, and shall not in any way affect any other circumstances of or the validity or enforcement of the Contract.

23 NOTICES

- 23.1 Any notice to be given under the Contract shall be in writing and may be served by personal delivery, first class recorded or, subject to clause 23.3, e-mail to the address of

the relevant Party set out in the Award Letter, or such other address as that Party may from time to time notify to the other Party in accordance with this clause.

23.2 Notices served as above shall be deemed served on the Working Day of delivery provided delivery is before 5.00pm on a Working Day. Otherwise delivery shall be deemed to occur on the next Working Day. An email shall be deemed delivered when sent unless an error message is received.

23.3 Notices under clauses 17 and 18 may be served by email only if the original notice is then sent to the recipient by personal delivery or recorded delivery in the manner set out in clause 23.1.

24 **GOVERNING LAW AND JURISDICTION**

24.1 The validity, construction and performance of the Contract, and all contractual and non-contractual matters arising out of it, shall be governed by English law and shall be subject to the exclusive jurisdiction of the English courts to which the Parties submit.

Specification

- 1 The Suppliers shall provide the Goods and/or Services in accordance with this Schedule
- 2.

1. Introduction

1.1. STFC

1.1.1. Contracts will be awarded by UK Research and Innovation, Science and Technology Facilities Council (UKRI STFC). All contractual issues will be managed by the relevant authority (UK Shared Business Services Limited; UKSBS or STFC) with technical issues being the responsibility of the Accelerator Science and Technology Centre (ASTeC) and the Technology Department at Daresbury Laboratory.

1.2. Compact Linear Accelerator for Research and Applications

1.2.1. A next-generation light source test facility is to be constructed at the Daresbury Laboratory which will be known as CLARA (Compact Linear Accelerator for Research and Applications), shown in Figure 1. The aim of the CLARA project is to develop a normal conducting test accelerator capable of generating longitudinally and transversely bright electron bunches and to use these bunches in the experimental production of stable, synchronised, ultra-short photon pulses of coherent light from a single pass FEL (Free Electron Laser) with techniques directly applicable to the future generation of light source facilities.



Figure 1: CLARA layout.

1.2.2. Presently at Daresbury the CLARA facility is being developed to provide 250 MeV electron beam. The facility is currently in Phase 1 and operates at 50 MeV in the 'Electron Hall' located at Daresbury Laboratory; a schematic for Phase 2, currently under construction, is shown in Figure 2.

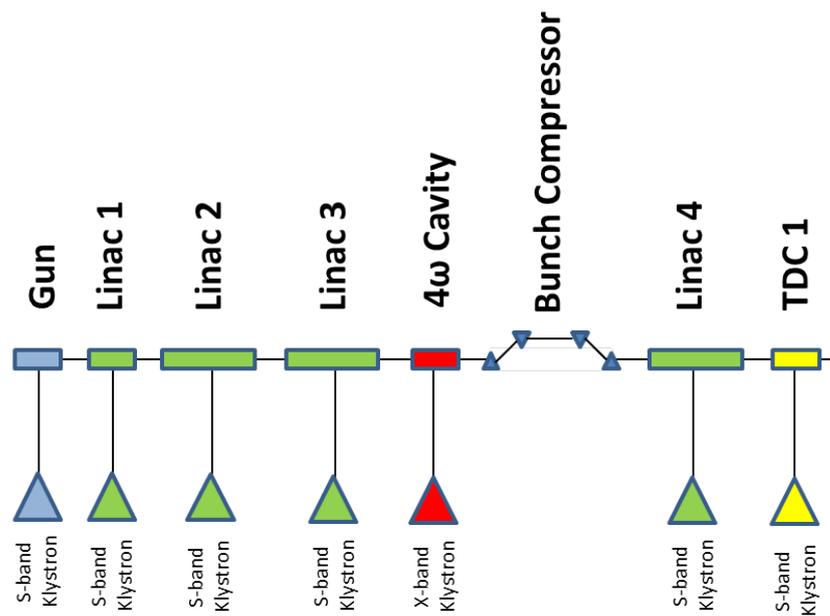


Figure 1: CLARA schematic.

1.3. Cavity Requirement

1.3.1. STFC requires a single (1-off) 9- cell, normal conducting RF transverse deflecting cavity (TDC), made to the drawings provided, to be manufactured and delivered to STFC Daresbury Laboratory (hereinafter referred to as STFC), Warrington. Detailed requirements are defined in this document

1.3.2. The parameters for the klystron driving the cavity are defined in the table below and are **for information only**.

Table 1: TDC klystron RF parameters (for information only)

Parameter	Value	Notes
Frequency	2998.5 MHz	
Nominal bandwidth of klystron	5 MHz	At saturation (-1dB points)
Total peak output power	Up to 20 MW	Up to 12 MW at the input flange of the cavity
Average peak output power	Up to 3.6 kW	
Pulse repetition rate range	1 – 100 Hz	
RF Pulse Width	Up to 3.0 μ s	
Amplitude stability	0.0001	
Phase Stability	0.1°	

1.4. Specification Abstract

1.4.1. This specification concerns the manufacture and delivery to Daresbury Laboratory, and documentation of 1 TDC. The cavity bid must comprise of:

- 1 cavity (with suitable blanking flanges installed)
- 1 support structure for cavity
- Documentation to include, dimensional verification checks, RF measurements, RGA scans prior to dispatch.

2. General Conditions

2.1. Scope of Contract

2.1.1. The contract will cover the supply of materials, manufacture, vacuum brazing, inspection, assembly, RF testing, vacuum testing, packing and subsequent delivery of 1 TDC to STFC Daresbury Laboratory (hereinafter referred to as STFC), Warrington, 1 support structure for the TDC, and all the required documentation of the TDC.

2.1.2. The Contractor will be required to co-operate closely with STFC and its authorised representative at all stages of the contract. Technical issues will be resolved after adequate discussion.

2.1.3. The Contractor will be required to produce a full set of technical/manufacturing drawings based upon the functional specification drawing and CAD files provided. Drawings will be supplied to STFC upon completion of the project and will adhere to the STFC numbering system with drawing numbers issued upon successful tender. Drawings will be given in .pdf format and CAD in .stp format. 3D CAD is also required in Pro Engineer, Creo or neutral format (.stp or .iges). All CAD and drawings to be versioned as per STFC procedures.

2.1.4. The delivery to STFC of metrology reports of components, sub-assemblies and the final assemblies to an agreed manufacturing plan as outlined in section 2.4.

2.1.5. Any detailed assembly drawings and calculations, tooling, fixtures and manufactured components constructed or otherwise procured under the terms of the contract will become the property of STFC to dispose of as it sees fit.

2.1.6. The parameters of all detailed components and assemblies have been determined by STFC and are fully described in the accompanying drawings. The designs are the property of STFC and must not be disclosed to third parties without its express permission.

2.1.7. The manufacturer will be responsible for any departure from anticipated performance due to the failure to adhere to any part of this specification.

2.1.8. No change to the specified requirements is permitted without the written permission of STFC. However, if at any stage of the contract it is clear that advantage could be gained by such modification then the contractor is encouraged to bring it to the attention of STFC.

2.1.9. The contractor will be responsible for any departure from anticipated material requirements or performance due to the failure to adhere to any part of this specification where STFC has not approved deviation in writing beforehand.

2.2. Sub-Contracts

2.2.1. Full details of all sub-contracts must be available to STFC, and written permission shall be obtained from STFC before placement of such sub-contracts.

2.2.2. STFC will require written evidence of a formal contract between the manufacturer and any sub-contractor, together with the legal and contractual obligations that have been established. Information on delivery time scales will be essential.

2.2.3. STFC shall have the right of access to the premises of any such sub-contractor for inspection purposes, including witnessing of tests.

2.3. Price and Payment Schedule

2.3.1. Payment terms defined in clause B5 of the Terms and Conditions located in the RFx attachments. STFC observes the Confederation of British Industries' Code of Practice regarding prompt payment and, in accordance with the Government direction, is committed to paying its suppliers within five days of the receipt of a valid invoice.

2.3.2. The price for major items is to be clearly defined within the bid.

2.3.3. STFC urge tenderers to indicate acceptance of STFC payment terms. However, STFC are prepared to consider alternative payment terms, which should be clearly proposed in the tender documents for possible negotiation in the event of a successful bid.

2.3.4. The payment schedule should also be clearly defined within the bid. Stage payments are expected.

2.4. Timescales and Delivery

2.4.1. Timescales for the project are very important. It is envisaged that the contract will be placed before end of September 2019 and the bidder should provide the best indication of delivery, installation and commissioning based on this date. It should be noted that a preferred delivery date for the cavity would be March 2020.

2.4.2. A draft manufacturing programme is required with the tender bid and a detailed programme including all necessary acceptance tests shall be issued by the contractor within one week of contract placement and must be approved by STFC. This programme must contain sufficient detail to enable progress of the contract to be monitored accurately.

2.4.3. Written progress reports must be submitted to STFC at intervals of one month during the contract by e-mail addressed to Louise Cowie (Louise.Cowie@stfc.ac.uk)

2.4.4. No change may be made to the agreed programme without the written approval of UK SBS. UK SBS must be contacted immediately of any circumstances which might prevent the contract delivery date from being met.

3. Drawings and Specification

3.1. Mechanical Specification

3.1.1. Manufacture of the components will be in accordance with relevant specifications supplied by STFC in addition to this document, these include;

- Knife Edge Vacuum Flange Details to drawing 48/037 Issue M.
- ASTEC-VAC-QCD-spc-002, General Specification for the Design, Construction and Handling of Ultra High Vacuum Vessels, Components and Assemblies for ASTeC Vacuum Projects.
- ASTEC-VAC-QCD-spc-0003, Procedures for the cleaning of Vacuum Items.
- ASTEC- VAC-QCD-spc-0004, Leak Testing of Vacuum Vessels and Assemblies for ASTeC
- ASTEC- VAC-QCD-spc-0005, Acceptance Tests for Vacuum Vessels, Components and Assemblies for ASTeC

3.1.2. The Contractor may propose alternative methods of construction. If any such modifications are agreed between the Contractor and STFC the relevant drawings will be modified by STFC and the agreement incorporated into the contract.

3.1.3. Except as agreed under 3.1.2, no departure from the drawings may be made without the express permission in writing of STFC.

3.1.4. Certain critical dimensions have been scaled from the TDC expected operating temperature (40°C) to the anticipated machining and measurement temperature of 20°C, and are marked as such on the attached drawing 256-14830. Exact machining temperature should be discussed with STFC upon successful order.

3.2 Mechanical Drawings

The mechanical drawing numbers are given in Table 2. Drawings are available in pdf format.

Table 2: Mechanical drawings

Drawing number and issue	Description
256-14830 sht 1 iss B	RF Cavity Functional Specification Drawing –Sheet 1

256-14830 sht 2 iss B	RF Cavity Functional Specification Drawing –Sheet 2
256-14830 sht 3 iss B	RF Cavity Functional Specification Drawing –Sheet 3
256-15129 sht 1 iss A	CLARA Phase 2 WR284 DESY Flange
256-14900 sht 1 iss A	TDC and support structure assembly
256-14896 sht 1 iss A	TDC baseplate
256-14894 sht 1 iss A	TDC support stand vee and cone
256-14897 sht 1 iss A	TDC support stand flat
256-10293 sht 1 iss A	Mount-flat
256-10291 sht 1 iss A	Mount-cone
256-10292 sht 1 iss A	Mount-vee
256-10116 sht 1 iss A	Kinematic Adjuster
256-10118 sht 1 iss A	M24 Fine pitch notch nut
256-10289 sht 1 iss A	Clamp washer OD 34 x 9 hole x 4 thk
256-13947 sht 1 iss A	Kinematic adjuster
277-10310 sht 1 iss A	Threaded bush

Full set of 3D parts available in CREO, .STEP or .IGES formats

3.3. RF specification

3.3.1. The TDC must meet the RF parameters defined in Table 3.

Parameter	Design Value	Acceptance range
Frequency of operating mode (π mode)	2998.5 MHz	2.9985 ± 0.25 MHz
Operational temperature	40°C	$40 \pm 5^\circ\text{C}$
Q_0 of operating mode	16000	> 13500
Q_{Ext} of operating mode	16000	$Q_0 \pm 500$
Field flatness of operating mode	100%	> 85%
Coupling factor β of operating mode	1	1 ± 0.04
Input	WR284 – DESY TYPE	For information
Accelerating Voltage	10 MV	For information
Peak RF input power	Up to 12 MW	For information
Frequency of $7\pi/9$ mode	3.0061	1 MHz
Frequency of $5\pi/9$ mode	3.0282	1 MHz
Frequency of $3\pi/9$ mode	3.0591	1 MHz
Frequency of $\pi/9$ mode	3.0821	1 MHz

4. Materials of Construction

4.1. General

4.1.1. Knife edge flange and outer cavity jacket material shall be austenitic stainless steel grade EN 1.4429 (316LN). Blanking flange material shall be to austenitic stainless steel grade EN 1.4301 (304).

4.1.2. Cavity body material is to be pure electrical/vacuum OFHC copper to specification BS EN 13601/BS EN 13604-CW008A-HO65.

4.1.3. All knife edge flange fasteners shall be Stainless Steel to BS.970 Pt 1 Grade 316S31 Class 70 to ISO

3506 (A4).

4.1.4. All material shall be as specified on the individual component detail drawings. Any request by the manufacturer to use alternative materials must be submitted in writing and must receive written approval by STFC.

4.1.5. All materials unless otherwise stated are to be supplied by the Contractor.

4.1.6. The Contractor shall supply all vacuum vessel blanking flanges, gaskets and fasteners as required.

4.1.7. Delivery of materials or components to be supplied by STFC on contract loan will be according to an agreed schedule determined on acceptance of the manufacturing schedule. The Contractor is required to inspect the materials or components on delivery and agree in writing within 7 days of receipt of the material that it is suitable for the purpose of the contract.

4.1.8. For any material not supplied by Daresbury Laboratory, material certificates are required. These should state the material specification, ladle analysis, room temperature mechanical properties and finishing process used.

4.1.9. Following cleaning of each vessel assembly and components as detailed in 5.6, the final assembly should be assembled using only silver plated copper gaskets.

4.1.10. Springs for the mounting system will be purchased and provided to the Contractor by STFC.

5. Construction

5.1. General

5.1.1. All manufacturing techniques shall be in accordance with specification ASTEC-VAC-QCD-spc-0002. Particular attention is drawn to Sections 4 (Conditions and Handling) and 7 (Machining and Fabrication) of that specification.

5.1.2. Vacuum brazing is envisaged for the cavity components, however, alternative joining methods can be proposed by the Contractor subject to approval by STFC. Diffusion bonding would be desirable and will be scored more highly in the tender exercise. However, this will be balanced against cost as per the weightings outlined in the 'Invitation to Quote'. Any alternative methods will need to be discussed in detail after awarding the order to ensure final performance.

5.1.3. Should a manufacturer have a capability to perform diffusion bonding, they are encouraged to submit both a brazed option bid and a diffusion bonded bid.

5.1.4. The frequency of the cavities must remain the same by ± 0.25 MHz after joining. Field flatness must be better than 90%. Q must be greater than 13500.

5.2. Welding

5.2.1. All welding shall be to BS 7475 part 2, and must be executed by the TIG process unless specified otherwise.

5.2.2. All parts to be welded must be degreased as described in Section 7 of ASTEC-VAC-QCD-spc-0002 prior to welding.

5.2.3. To prevent undue oxidation of the vacuum surfaces all welds are to be backed by an inert gas purge.

5.2.4. Vacuum sealing welds made externally must have full penetration leaving a smooth surface on the vacuum side.

5.2.5. Under no circumstances must dye penetrant be used to check weld integrity.

5.2.6. Since the welding procedure is of great importance in determining the vacuum performance of the vessel, STFC reserves the right at any time during the production period to call upon the Contractor to demonstrate that the agreed procedures are being carried out.

5.3. Brazing

5.3.1. All vacuum brazing shall be to BS 1723 Pt 2 Section 5.

5.3.2. All vacuum brazing to be finished flush and shall be free from any defects such as blow holes, cavities and any sign of inclusion.

5.3.3. The Contractor shall specify filler material and procedure for any vacuum brazing with the tender. The written agreement of STFC will be given prior to brazing.

5.3.4. Should Nickel Plating be required to ensure an adequate braze, the nickel plating should be blister tested in vacuum to 900°C for good adhesion. There must be no peeling or blistering of the nickel plated surfaces.

5.3.5. If at any stage of manufacture a weld or braze is shown to be defective, no rectification shall be done without the prior written approval of STFC.

5.3.6. The brazing process must have some amount of Hydrogen present, (4%) Hydrogen and 96% Argon is acceptable. 100% Hydrogen is preferred.

5.3.7. After brazing, the cavity must be stored in dry Nitrogen in a sealed container.

5.4. Vacuum Cleanliness

5.4.1. For the vacuum components to be completely compatible with the ultra-high vacuum environment of the RF cavity a high degree of cleanliness will be necessary at all stages of production to guarantee an acceptably low outgassing rate and weld integrity.

5.4.2. All mechanical cold working operations must exclude the use of heavy organic lubricants since these can be retained to some extent in the surface after the process.

5.4.3. The plate material is to be cleaned before any cutting or forming operation commences. It will be sufficient to swab with acetone, isopropyl alcohol or similar solvent. If a guillotine or press is to be used the blades should be cleaned. Care must be taken that any particulates are removed from the surface of the metal sheet before such operations to ensure that they are not pressed into the surface during cutting or forming.

5.4.4. When the plate material or any other component forming part of or within the vacuum envelope has been cut, formed and finally machined, the vacuum surface must never be in contact with oily or greasy objects (including bare hands leaving finger prints) unless a thorough cleaning operation is scheduled to follow immediately after.

5.5. Stress Relieving

5.5.1. Stress relieving of Individual OFHC components must be carried out after machining of component parts. Components are to be baked at 150°C (±10°C) and shall remain at temperature for 1/2 hour.

5.6. Cleaning

5.6.1. All components and assemblies shall be cleaned in accordance with specification ASTEC-VAC-QCD-spc-0003. The manufacturer shall supply details to STFC of the exact cleaning processes to be used. Certificate Vac/Certconf/001 shall be used for this purpose.

5.7. Degreasing

5.7.1. For the purposes of this specification, the term “degreasing” shall be taken to mean “carry out stages 6.1, 6.2.2 and 6.2.3 (if 6.2.2 is applied) of the specification ASTEC-VAC-QCD-spc-0003, followed by swabbing or washing with a solvent such as isopropyl alcohol, a thorough wash in water and drying in clean, dry, warm air”.

5.8. Preparation to achieve high Q0 and gradient

5.8.1. Please refer to Appendix 2 for example surface preparation method of the cavity inner surfaces. This or a similar method is envisaged, however, alternative preparation methods can be proposed by the contractor subject to approval by STFC.

6. Inspection and Testing

6.1. General

6.1.1. The STFC or its authorised representative shall have reasonable access to the contractor's premises and the premises of any sub-contractors for the purposes of inspection and the witnessing of tests.

6.1.2. All tests must be undertaken with equipment and procedures approved by STFC.

6.1.3. All tests shall be properly recorded on test certificates and results submitted to STFC.

6.2. Tests at Contractors Premises before brazing

6.2.1. With the components suitably supported in a temperature stabilised environment (Stability +/- 1°C/hr), check all relevant dimensions, ensuring temperature is recorded with each measurement. Critical dimensions are those shown on all 3 sheets of the RF Cavity Functional Specification Drawings 256-14830. Measured values for these critical dimensions should be submitted to STFC prior to any brazing. If any of the specified dimensions are not achieved, no rectification is to be made without the prior approval of STFC. Tolerances are shown on the attached drawings. Note that Coordinate Measuring Machine (CMM) probe force should be low enough to avoid surface damage, and probe should not be dragged across cavity surface.

6.2.2. With the components suitably supported in a temperature stabilised environment (Stability +/- 1°C/hr), the cavity should be clamped together and RF measurements described in Appendix 1, Section 1 should be performed. Once scaled for measurement conditions, the frequency of the operating mode is expected to be within 1 MHz of the design frequency, and the 4 other modes should be within 2 MHz of their design frequencies, as defined in Section 3.3 Table 3. The polarisation measurement should show a factor of 10 higher electric field off-axis in the vertical direction than in the horizontal. If these criteria are not met, more RF measurements may be required.

6.2.3. Check that vacuum sealing faces are flat and free from distortion. Clamping rings of rotatable flanges should be free to rotate and should not rock on the inner part. New correctly sized copper gaskets should fit the flanges without interference.

6.2.4. Brazing should not go ahead until STFC has approved the results of these tests.

6.3. Tests at Contractors Premises after brazing

6.3.1. Check that vacuum sealing faces are flat and free from distortion. Clamping rings of rotatable flanges should be free to rotate and should not rock on the inner part. New correctly sized copper gaskets should fit the flanges without interference.

6.3.2. Following cleaning of the vessel assembly as detailed in 5.6 above, leak test to ASTEC-VAC-QCD-spc-0004 using only silver plated copper gaskets. It is essential to use metal seals between the leak detector system and the vessel to eliminate helium permeability associated with elastomer seals. The proposed system should be in accord with those specified in section 5.4.2 or 5.4.3 of ASTEC-VAC-QCD-spc-0004 and must be agreed in advance between the manufacturer and STFC. Method 3 as described in Section 5.4.4 may not be used in this case. The measured leak rate is to be $< 1.10^{-9}$ mbar litre sec⁻¹.

6.3.3. The frequency, Q₀, Q_{Ext}, and field flatness of the cavity should be measured as described in Appendix 1, Section 3. The measurements must be within tolerance as described in Section 3.3 Table 3.

6.3.4. The Contractor will be responsible for the supply of all vacuum test equipment and the connections to the leak detector, plus appropriate calibration and certification documentation

6.3.5. Vacuum component assemblies or individual vessels are to be uniformly vacuum baked (see 6.3.8) at a specified rate (see 6.3.9). The system is to be pumped either with an ion-pump or clean turbo-molecular pumping set, as noted in section 5 of specification ASTEC-VAC-QCD-spc-0004.

6.3.6. Bake-out temperature is 250°C for 24 hours. There is also the possibility of a required 650°C bake, which will be discussed upon successful placement of the order.

6.3.7. The bake-out temperature rise is to be no greater than 30°C per hour in systems with a temperature controlled enclosure. For systems with poor temperature control such as heater tapes, a rate of no greater than 10°C per hour is required.

6.3.8. Cool to 50°C at a rate no greater than 30°C per hour in a temperature controlled enclosure system, otherwise at a rate of 10°C per hour. Thereafter cool naturally to ambient.

6.3.9. Carry out leak test to ASTEC-VAC-QCD-spc-0004.

6.3.10. Carry out vacuum acceptance tests as specification ASTEC-VAC-QCD-spc-005 section 9.

6.3.11. To be acceptable, the measured leak rate shall be less than 1.10⁻⁹ mbar l sec⁻¹; the assessed outgassing rate shall be less than 1.10⁻¹¹ mbar 1 sec⁻¹cm⁻²; the cleanliness limits shall be those listed for UHV in Appendix 2 of the above specification.

6.4. Tests at Contractors Premises by STFC Staff

6.4.1. Before acceptance the cavities will be required to satisfy the following tests.

6.4.2. Leak test to ASTEC-VAC-QCD-spc-0004.

6.4.3. Cleanliness tests to section 9 of ASTEC-VAC-QCD-spc-0005

6.4.4. Prior to shipping cavity RF test results must be approved by STFC.

6.5. DL Site acceptance tests

6.5.1. RF and vacuum acceptance tests will be carried out at STFC Daresbury to establish that the equipment meets the specification and that no damage or changes have occurred during transport. These tests will be performed within 1-2 months of arrival. Any equipment shown to be non-compliant may be shipped back to the Contractor for remedial action or rejected outright.

7. Warranty and Quality Assurance

7.1. General

7.1.1. The terms of the warranty, which the manufacturer proposes to apply should be stated in the tender. The manufacturer must guarantee the equipment against failure due to either faulty components or manufacture. The minimum expected warranty will be 24 months from the delivery of the equipment. Please confirm in your bid, but note that a longer warranty would be advantageous.

7.1.2. Any other warranty statements that apply as part of the tender should be clearly defined within the tender documentation.

7.1.3. The Contractor shall maintain and apply a quality assurance program compliant with ISO-9001 or equivalent for the design, manufacture and testing of all systems and equipment provided by them. CE or equivalent marking of equipment should be applied wherever required.

7.1.4. QC documentation required:

- A Quality Assurance plan
- List of key inspection points
- Non conformity reports
- Change requests

7.1.5. Change control:

7.1.5.1. In the event of a change to the agreed design of any component being required for any reason, STFC must be notified in writing immediately, with documentation describing the change and reasons for the change. STFC will respond in 5 days. Only if STFC agrees to the change request may the change be implemented.

7.1.5.2. Any deviation or modification to the design, leading to better performance, particularly with respect to peak power handling is welcome, but must undergo an approval process by STFC. Within this process, the changes must be disclosed in written documentation with any supporting evidence. Only after approval by STFC will the contractor be allowed to implement changes.

7.1.6. Non-Conformity Reports

7.1.6.1. In the event of a failure to meet specifications (RF, dimensional tolerance etc.) during inspection, a written Non-conformity report must be prepared immediately, in which a correction / mitigation procedure can be proposed by the contractor, to which STFC will respond within 5 working days. Only if STFC agrees to this proposal may the corrective action be performed and the component may be processed further. By accepting a proposed corrective action or mitigation process, STFC assumes no responsibility for the correctness of the component.

7.1.7. Site visits

7.1.7.1. STFC reserve the right to conduct site visits at pre-arranged stages in production. The schedule for these site visits is to be defined during the kick off meeting.

8. Protection and Transport

8.1. General

8.1.1. Following the final vacuum test at the contractor's premises, all blanking flanges must remain on the vessel. The vessel is to be let up from vacuum with dry nitrogen (dew point < -70°C) and the port used for connection to the leak detector and/or pumps is to be blanked off with a stainless steel flange and gasket.

8.1.2. Components and assemblies must be protected during storage and carriage in such a way as to prevent movement/damage due to any shock or vibration during transit. All components and assemblies are to be transported in such a way as to allow adequate access of handling equipment. Details of packing and required handling equipment are to be approved by STFC before delivery. All packaging will be retained by STFC unless agreed otherwise.

Appendix 1: RF measurement procedures

1. Measurement conditions

All RF measurements to be performed under temperature stable conditions.

For measurements in air take note of:

- air temperature
- cavity bulk temperature
- relative humidity
- air pressure

at the time of each measurement.

For measurements under vacuum take note of:

- cavity bulk temperature
- vacuum pressure

at the time of each measurement.

2. Clamped measurement

The cavity should be securely clamped together, including the input coupler and compensating dummy coupler, and beam pipes. Apparatus for clamping is to be provided by the contractor.

Measure S11 of the cavity using a calibrated vector network analyser, connected to the cavity input port via a coaxial line and a coax-to-waveguide adaptor. A coax to waveguide adaptor can be provided by STFC if required.

The operating mode is the first mode in the pass-band. The frequency of the operating mode should be within 1 MHz of the design frequency. There should be 4 other modes in the passband, with frequencies within 2 MHz of their design frequencies. The design frequencies can be found in Section 3.3 Table 3.

Check the polarisation of the operating mode. Using a probe down one of the beam pipes, make a measurement of the electric field in the end cell in two locations- one off axis in the horizontal plane and one in the vertical plane. The electric field should be 1 order of magnitude larger in the vertical off axis measurement. Repeat for the second beam pipe. See Figure 1 for measurement locations.

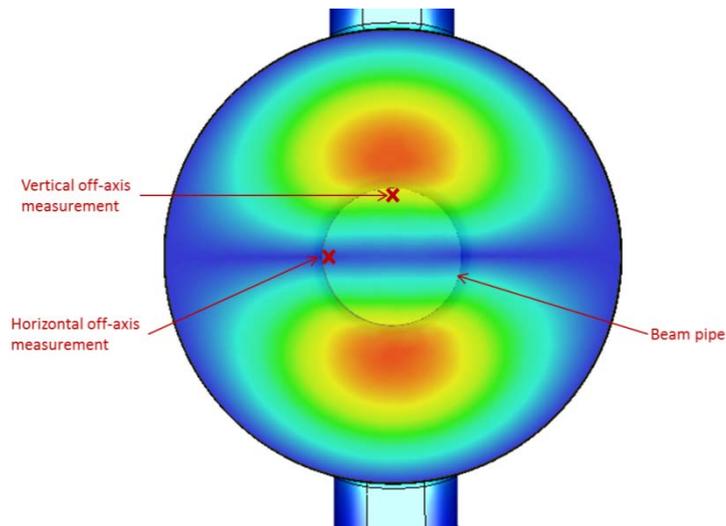


Figure A1: Measurement locations for superposed on electric field profile.

Measurement polarisation check,

If either of these measurements do not meet the test criteria more measurements may be required.

3. Brazed measurement

3.1 In vacuum measurements

The cavity should be suitably supported. Measurements must be performed under vacuum, with pressure less than 1×10^{-3} mBar. The cavity should be heated to the operating temperature (40°C) using the water cooling channels.

Measure S11 of the cavity using a calibrated vector network analyser, connected to the cavity input port via a coaxial line and a coax-to-waveguide adaptor. A coax to waveguide adaptor can be provided by STFC if required.

The operating mode is the first mode in the pass-band. The frequency of the operating mode should be within 0.25 MHz of the design frequency. There should be 4 other modes in the passband, with frequencies within 2 MHz of their design frequencies. Design frequencies can be found in Section 3.3 Table 3.

Determine from the Smith chart if the cavity is over or under-coupled. Then calculate the coupling factor β from the maximum and minimum values of the linear magnitude of the S11 reflection coefficient Γ_{max} and Γ_{min} :

$$\begin{cases} \frac{\Gamma_{max} - \Gamma_{min}}{\Gamma_{max} + \Gamma_{min}}, & \text{if under-coupled} \\ \frac{\Gamma_{max} + \Gamma_{min}}{\Gamma_{max} - \Gamma_{min}}, & \text{if over-coupled} \end{cases}$$

QL can be determined from the frequencies at the 3dB bandwidth of the operating mode, f_1 and f_2 . Then

$$Q_L = \frac{f_0}{f_1 - f_2}, Q_0 \text{ and } Q_E \text{ can then be determined from } Q_0 = (1 + \beta)Q_L \text{ and } Q_E = \frac{Q_0}{\beta}.$$

The acceptance ranges for the coupling and Q values can be found in Section 3.3 Table 3.

3.2. Field flatness measurement

The field flatness measurement can be performed in air.

The field should be perturbed by a spherical metal bead along the longitudinal cavity axis and the phase change of S11 measured. The bead must be small enough that the phase variation caused by the bead is linear with frequency.

The H-field in the centre of each cell is proportional to the square of the maximum deviation in phase in the direction corresponding to an increase in frequency.

The field flatness is the ratio of the lowest H-field cell to the highest. It must be higher than 85%.

3.3. Polarisation check

The polarisation check can be performed in air.

The field should be perturbed by a spherical dielectric bead longitudinally along the cavity, 1 cm off axis vertically and the phase change of S11 measured. The bead must be small enough that the phase variation caused by the bead is linear with frequency.

The same measurement should then be performed off-axis horizontally. The phase variation seen in the vertically off axis case should be at least an order of magnitude higher than the horizontally off axis case.

Appendix 2: Example surface preparation method

1. Vapor degrease in 1,1,1 trichloroethane or equivalent degreaser for 5 minutes.
2. Alkaline soak clean in Enbond Q527 for 5 minutes at 180°F.
3. Cold tap water rinse for 2 minutes.
4. Immense in 50% hydrochloric acid at room temperature for 1 minutes.
5. Cold tap water rinse for 1 minute.
6. Immerse in acid etch solution for a short period

For a single diamond point machined component this time is less than 5 seconds depending on the surface finish required.

For a component manufactured by regular machining techniques this time is typically less than 30 seconds and never more than 60

Recipe for bulk mix

Phosphoric Acid, 75%	21 gallons
Nitric Acid, 42° Baume	7 gallons
Acetic Acid, Glacial	2 gallons
Hydrochloric Acid	12.6 fluid ounces
Temperature	Room

7. Cold tap water rinse for minimum of 2 minutes until the film on part disappears
8. Ultrasonic in DI Water for 1 minute.
9. Ultrasonic in new, clean alcohol for 1 minute.
10. Final Rinse to be done in new, clean alcohol.

11. Hold in clean alcohol in stainless steel containers.

12. Dry in a clean room using filtered N2.

Once components have been cleaned they can only be handled with gloves. Clean components should be stored in air tight containers back filled with dry filtered Nitrogen.

Schedule 3

Charges

- 1 The Charges for the Goods and/or Services shall be as set out in this Schedule 3.