

Request for Proposal



Request for Proposal (RFP) on behalf of **Science and Technology
Facilities Council (STFC)**

Subject **TDC Klystron Modulators for CLARA**

Sourcing reference number **UK SBS PR16173**

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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 Innovation and Skills (BIS) 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.

Section 3 – Contact details		
3.1	Customer Name and address	Science and Technology Facilities Council Darlesbury Warrington WA4 4AD U.K
3.2	Buyer	Hannah McNeill
3.3	Buyer contact details	Hannah.mcneill@uksbs.co.uk
3.4	Estimated value of the Opportunity	£600,000 - £900,000k
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 <u>will</u> result in the Bid <u>not</u> being considered.

Section 3 - Timescales		
3.6	Date of posting of Contract advert to OJEU.	10/11/2016
3.7	Date RFP available to Bidders	14/11/2016
3.8	Bidder conference (if relevant)	Not Applicable
3.9	Latest date / time RFP clarifications should be sent be received through Emptoris	07/12/2016 11:00am
3.10	Latest date / time RFP clarification answers should be sent to all potential Bidders through Emptoris	13/12/2016 14:00pm

3.11	Closing date and time for Bidder to request RFP documents	27/12/2016 11:00am
3.12	Closing date and time for Bidder to submit their response ('the deadline').	28/12/2016 11:00am
3.13	Clarifications and / or site visits (if required)	Not Applicable
3.14	Notification of proposed Contract award to unsuccessful bidders	13/01/2017
3.15	Anticipated Contract Award Date	24/01/2017
3.16	Commencement of Contract	27/01/2017
3.17	Bid Validity Period	120 Days

Section 4 – Specification and about this procurement

STFC requires 2 klystron modulators to deliver RF power to 2 normal conducting S-band TDC cavities.

1. INTRODUCTION

1.1. Compact Linear Accelerator for Research and Applications

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.

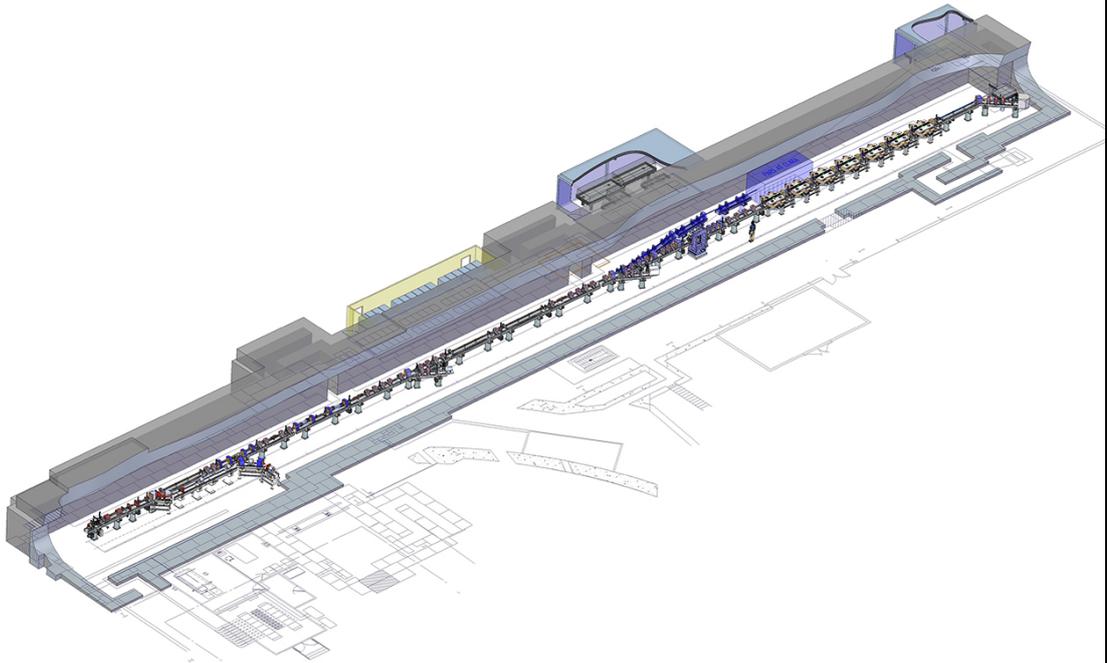


Figure 1: CLARA layout.

Presently at Daresbury Laboratory the Versatile Electron Linear Accelerator (VELA), a 6 MeV machine, is being operated. As part of a complimentary programme of work the CLARA facility is being developed to provide 250 MeV electron beam. The CLARA facility is to be situated in the 'Electron Hall' located at Daresbury Laboratory and a schematic for CLARA is shown in Figure 2.

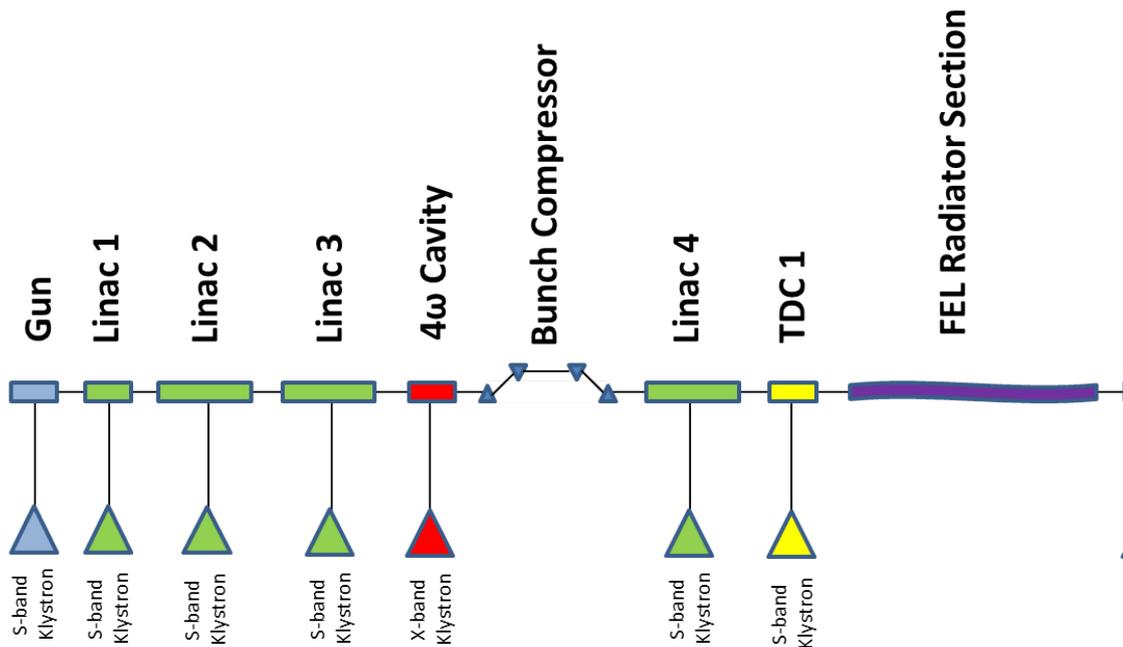


Figure 2: CLARA schematic.

1.2. Operation

The CLARA facility will be operated daily and run for long periods of time. It is planned to operate the electron test accelerator for approximately 4000 hours per year. During operational running of CLARA the Transverse Deflecting Cavity (TDC) klystron modulators will often be run at full peak power for long periods, but will also be required to operate at various peak RF power levels with different pulse duration and repetition rates, so as to provide the various operating schemes for the accelerator science to be performed. Table 1 details the frequencies and power levels of the RF systems on CLARA.

Table 1: CLARA RF System Parameters

System	Frequency	Peak Power	Average Power
Gun	2.9985 GHz	10 MW	12 kW
Linac 1	2.9985 GHz	45 MW	20 kW
Linac 2	2.9985 GHz	80 MW	30 kW
Linac 3	2.9985 GHz	80 MW	30 kW
4 ω Cavity	11.994 GHz	50 MW	5 kW
Linac 4	2.9985 GHz	80 MW	30 kW
<i>TDC 1</i>	<i>2.9985 GHz</i>	<i>20 MW</i>	<i>6 kW</i>
<i>TDC 2</i>	<i>2.9985 GHz</i>	<i>20 MW</i>	<i>6 kW</i>

1.3. Klystron Modulator Requirements

STFC requires 2 klystron modulators to deliver RF power to 2 normal conducting S-band TDC cavities. These modulators must be able to deliver at least 20 MW of RF peak power and have the capability of providing RF pulse widths of up to 3 μ s and be capable of operating at a repetition rate of up to 100 Hz. However, it should be noted that these conditions may not all

be required at the same time. The bidder must clearly state what is included within the bid and must clearly state any items that STFC are required to supply, which includes an estimate of STFC electrical/mechanical/technical support staff effort required by the supplier during the installation.

1.4. Specification Abstract

This specification concerns the design, manufacture, testing, delivery, to Daresbury Laboratory, installation and documentation of 2 klystron modulators. For each of the klystron modulators the bid must comprise of:-

1. A klystron modulator with filament supply to power a klystron heater, an ion pump power supply and focus power supplies to power the magnet solenoids.
2. A solid state amplifier capable of supplying the peak RF drive power required to deliver 20 MW peak output power and 6 kW average power from the klystron
3. A control system interface for the klystron modulator, and klystron, which is capable of interfacing with a top level EPICS control system.
4. A factory acceptance test (FAT) to be conducted at the bidder's factory.
5. Installation, commissioning and a site acceptance test (SAT) to be performed at Daresbury Laboratory.

In addition to these essential items it is desirable to have included within the bid a level of service cover provided after the warranty period and the cost of the service cover.

2. GENERAL CONDITIONS

2.1 Scope of Contract

2.1.1. The contract will cover the design, manufacture, delivery, installation and commissioning at STFC Daresbury Laboratory (hereinafter referred to as STFC), Warrington and all the documentation for 2 klystron modulator systems for the CLARA TDCs.

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 provision of RF power to the RF cavity has been determined by STFC and is fully described within this document.

2.2. Sub-Contracts

2.2.1. Any scope of supply which the bidder intends to subcontract should be detailed in their bid. This should include full details of the supply to be subcontracted and the name of the proposed subcontractor.

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.

2.4. Timescales and Delivery

2.4.1. Timescales for the project are very important. It is envisaged that the contract will be

placed around the late January 2017 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 first modulator would be by the end of February 2018, and the second would be by the end of November 2018.

2.4.2. A draft project schedule/programme of work 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 Alan Wheelhouse (Alan.Wheelhouse@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.

2.5. Standards

2.5.1. Where British Standards are quoted, these are for guidance. Alternative equivalent standards are acceptable and should be clearly stated in the bid with supporting documentation.

3. RF SYSTEM

3.1. Overall RF System Description

3.1.1. For reference the performance of the overall RF system is defined in this section.

3.1.2. The klystron needs to provide, as a minimum, a total peak RF output power of 20 MW at a frequency of 2998.5 MHz.

3.1.3. The RF will be pulsed with a pulse length of up to 3.0 μ s, with a repetition rate varying between 1 Hz and 100 Hz.

3.1.4. Tight amplitude and phase control of the RF power into the TDC cavity is required to ensure that accelerating voltage is maintained at a constant level and is synchronised with the electron beam. It should be noted that the amplitude and phase stability provided by the klystron modulator will be a key component in providing stability for the electron beam.

3.1.5. During operation the output power to the TDC RF cavity may be varied. This variation may be done hourly or daily. Thus the RF system and klystron modulator needs to have the capability to adjust the peak RF output power from 500 kW to the maximum peak RF output power, and must be able to maintain the HV flat top at various beam voltage operating parameters.

3.1.6. During operation the RF pulse width may be varied. This variation may be done hourly. Thus the RF system and klystron modulator needs to have the capability to adjust the RF pulse width from 0.25 μ s up to at least 3.0 μ s. However, it is noted that the pulse width may be limited by the repetition rate and average power of the klystron capability of the klystron.

3.1.7. During operation the repetition rate may be varied. This variation may be done hourly. Thus the RF system and klystron modulator needs to have the capability to adjust repetition rate from 1 Hz to 100 Hz. However, it is noted that the repetition rate may be limited by the pulse width and average power capability of the klystron.

3.1.8. The overall efficiency of the klystron modulator RF system is to be defined by the

bidder.

3.1.9. Space for the RF system is limited and it may be necessary for the RF system to be lifted into place. Thus certified lifting points must be provided for all heavy items. Drawings can be made available on request and possible layouts can be discussed as part of the bid process.

3.2. TDC RF Cavity Performance

The TDC RF cavities will be a normal conducting, S-band (2998.5 MHz) cavities, which are required to streak the CLARA beam (up to a maximum energy of 250 MeV) vertically with a 10 MV voltage in the cavity to meet required resolution on bunch length measurements.

3.2.1. The following performance from the TDC RF cavity is required:-

Table 2: Specification for the RF Cavity (For Reference)

Parameter	Value
Frequency	2998.5 MHz
Bandwidth	~ 5 MHz
Voltage	10 MV
Peak RF input power at the cavity flange (for 10 MV)	11 MW
Operational temperature range	25 - 45°C
Input	WR284

3.3. RF Performance

3.3.1. The procurement of a klystron and magnetic circuit are to be part of a separate procurement exercise. Where possible the klystron will be made available for the factory acceptance tests (FAT).

3.3.2. The klystron when operated with the klystron modulator must be capable of delivering a minimum peak RF output power of 20 MW (to allow for waveguide losses), and must be capable of operating with an RF pulse width of up to 3.0 μ s, at a pulse repetition rate between 1 Hz and 100 Hz, meeting the performance defined below.

The klystron will be required to conform to the following, when working into a load voltage standing wave ratio (VSWR) \leq 1.2:1.

Table 3: Specification for the klystron RF Performance (For Reference)

Parameter	Value	Notes
Frequency	2998.5 MHz	
Nominal Bandwidth	5 MHz	At saturation (-1dB points)
Total peak output power	20 MW	Allows for waveguide losses so that 11 MW can be delivered to the input flange of the TDC cavity.
Power gain	> 45 dB	
Efficiency	> 40 %	
Pulse Repetition Rate Range	1 – 100 Hz	
RF Pulse Width Range	0.25 - 3.0 μ s	At the maximum RF output power.

Amplitude stability	0.0001	The klystron modulator peak voltage flatness, stability and reproducibility will be a key component in meeting this requirement.
Phase Stability	0.1°	As above.
Maximum RF noise power within the bandwidth	< -60 dB	With respect to instantaneous output power
Maximum spurious RF noise power outside the bandwidth	< -27 dB	With respect to instantaneous output power (after filtering if required)
Maximum RF harmonic power	< -27 dB	With respect to instantaneous output power at the operating frequency
Stray RF field	< 1 mW/cm ²	Measured at a distance of 1 m from the klystron modulator at the maximum RF power output
Maximum permitted X-ray emission	< 2.5 µSv/hr	Measured at a distance of 1 m from the klystron modulator at maximum RF power output. Shielding may be required and a statement should define how this level is to be met. (See section 4.17)

Note: All the parameters in the above table are mandatory unless stated.

3.3.3. The klystron must be able to operate into a VSWR of 1.3:1 under fault conditions for the RF cavity.

3.3.4. The bidder must clearly define how the maximum peak output power is to be achieved.

4. KLYSTRON MODULATOR SYSTEM

4.1. Services to the HV Power Supply

Daresbury Laboratory will provide all necessary mechanical and electrical services for the operation of the device. The tender document must clearly state what mechanical and electrical services need to be provided by STFC.

4.2. Klystron Modulator Performance

The guaranteed modulator specification will be:-

Table 4: Specification for the Klystron Modulator Performance

Parameter	Specification	Notes
Modulator Peak Power	> 60 MW	Based on available klystrons.
Modulator Average Power	> 42 kW	Based on available klystrons as well as fall and rise times
Operational Voltage Range	26 – 260 kV	Negative voltage. Dependent on tube option.
Operational Current Range	23 – 230 A	Dependent on tube option.
Pulse Repetition Rate Range	1 – 100 Hz	
RF Pulse Width Range	0.25 - 3.0 µs	At maximum RF output power.
HV Pulse Width Range	1.0 to 6.0 µs	At peak voltage
Klystron Peak Voltage Top Flatness	± 0.1 % at 100 Hz	Flatness of peak voltage over at least 1 µS of the flat top (See 4.4.2). Defined in 4.21.1.
Nominal Voltage Rate of Rise	> 300 kV/µs	The high voltage pulse should be

and Fall		optimized in order to achieve the required top flatness with the lowest total pulse energy. The rate of rise is a secondary priority, but should be as high as practicably possible.
Pulse width at 95% of the maximum operational voltage for the nominal voltage rate of rise and fall.	< 4.0 μ s	Pulse width for a flat top pulse width of 1.0 μ s at 100 Hz with a stability of ± 0.1 %
Voltage stability (10% to 100%)	± 0.1 %	With respect to full scale. (See 4.4.2). Defined in 4.21.2.
Voltage reproducibility	± 0.2 %	of Vmax. (See 4.4.3). Defined in 4.21.4.
Voltage accuracy	± 1 %	Defined in 4.21.3.
Settling time	< 1 μ s	For any 10% voltage change. Defined in 4.21.5.
Voltage overshoot	< 5 %	Defined in 4.21.6.
Pulse to pulse timing jitter	< ± 4 ns	See 4.4.4.
Pulse width timing jitter	< ± 8 ns	
Nominal Filament Voltage	30 V	See 4.10
Nominal Filament Current	30 A	See 4.10
Filament Current Stability	< 1%	
Nominal input voltage	400 V	3-phase 50 Hz
Acoustic noise	<75 dBA	At 1m with the doors closed.
Power Factor	>0.9	
Resolution	Minimum 100 V step changes	A 16 bit resolution measurement system is to be used for the set and read back.
Energy into klystron arc	<20 J	
Stray RF field	< 1 mW/cm ²	Measured at a distance of 1 m from the klystron modulator at the maximum RF power output
Maximum permitted X-ray emission	< 2.5 μ Sv/hr	Measured at a distance of 1 m from the klystron modulator at maximum RF power output.
Warranty	12 months 18 months	Warranty 12 months from the end of commissioning or 18 months from delivery, whichever is later. More would be advantageous.
Housing	Full metal enclosure	Rack or cubicle. The transformer oil tank should be fully banded or adequately protected against oil leakage.
Modulator tank height (Klystron circuit location)	< 1.7m	See 4.16.2
Modulator weight including oil (without klystron)	<11,00 kg	See 4.16.2

Note: All the parameters in the above table are mandatory unless stated.

The high voltage power supply technology may be chosen by the bidder as long as it conforms to the specifications listed above.

4.3. Regulation

The above stability and control parameters shall be maintained against the following variations:

- | | | |
|------------------------------------|------------|------------|
| a) Input (mains) voltage variation | - gradual: | ± 10 % |
| | - step: | ± 3 % |

- b) Input (mains) frequency variation: $\pm 1\%$ ($\cong 0.5\text{ Hz}$)
(from the Electricity Safety, Quality and Continuity Regulations 2002)
- c) Ambient temperature variation (external to cubicles): 10° to 35°C

4.4. Output Voltage and Current

4.4.1. Absolute Rating

The high voltage power supply regulation will be voltage controlled. Operation at zero current must be possible (without oscillations in the regulation, etc.) in order to make HV tests without a connected klystron. The operating voltage range required is from 10 to 100% (except when switched off).

4.4.2. Voltage Flatness and Stability

A statement should be made on how the voltage flatness and stability (defined in 4.21.1 and 4.21.2) is to be achieved. It would be preferable if voltage flatness and stability is better than $\pm 0.1\%$. Statements should be made on what the best levels that can be achieved for both flatness and stability. Note that guaranteed better levels on the voltage flatness and stability will be advantageous in the tender assessment.

Additionally, as the klystron will be operated at different beam voltage and current conditions depending on the repetition rate and pulse width, it should be stated how the voltage flatness is to be maintained and how any adjustments are to be performed. A means of remotely flattening the voltage top should be provided; ideally this should be automatic.

4.4.3. Voltage Reproducibility

A statement should be made on how the voltage reproducibility (defined in 4.21.4) is to be achieved. Additionally it would be preferable if voltage reproducibility is better than $\pm 0.2\%$. Statements should be made on what the best levels that can be achieved for both flatness and stability.

4.4.4. Pulse to Pulse Timing Jitter

A statement should be made on how the pulse to pulse timing jitter is to be achieved. Additionally it would be preferable if pulse to pulse timing jitter is better than $\pm 4\text{ ns}$. Statements should be made on what the best levels that can be achieved for the pulse to pulse timing jitter.

4.5. Klystron Protection System

4.5.1. Klystron Arc Protection

In the event of an internal arc within the klystron, the klystron modulator must remove the HV from the klystron ensuring that it is fully protected and that the energy dissipated within the klystron is minimised. The bidder should indicate within his bid how this is to be achieved and also outline how this will be proven. The reliability of the protection circuit must be continuously monitored and interlocked.

4.5.2. Trip Description

A description should be provided for both fast and slow trips defining the methods and parameters included within the klystron modulator.

4.6. Interlocks

The klystron modulator is to be integrated into the electron accelerator facility so provision should be made by the bidder for the klystron modulator system to have external interlocks,

such as the:-

- Personnel safety system which should prevent the application of HV to the klystron when the area is not searched and locked up
- Waveguide pressure interlock
- Cavity water flow interlock
- Waveguide arc interlock
- RF window temperature interlock

Provision should be made for 'Test Mode' operation which allows the modulator to be operated with the klystron powered into a high power RF load.

Provision should be made on the synoptic for these interlocks to be displayed.

4.7. Input Supply

The nominal European voltage required for this klystron modulator is 400 V, 3-phase, though it should be noted that the voltage on site at Daresbury is typically about 415 V.

The proposed supply is from a 1.5 MVA 11 kV/415 V transformer with an impedance of ~5.6 %. If this is not acceptable to the proposed design, the reason for its unsuitability must be given.

Any oil filled transformers in the proposed design must be suitably banded or adequately protected against oil leakage (details should be provided in the bid how this is to be done and described what checks will be made to ensure that there will be no leaks during the life of the modulator). Details of oil and tank volume are to be provided in the bid.

4.8. Proposed Supply Arrangement

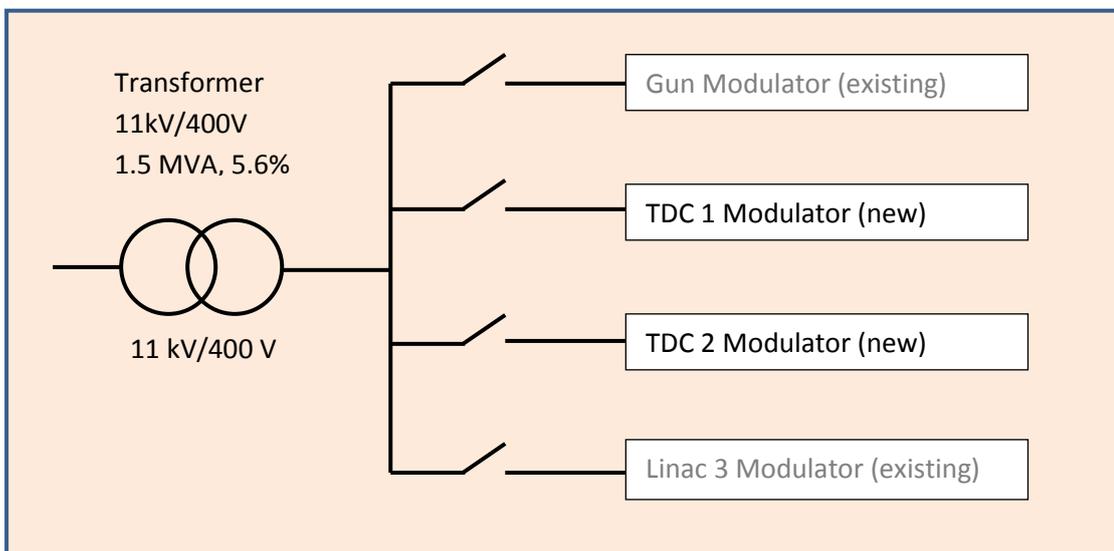


Figure 3: Proposed supply arrangement for the CLARA TDC modulators

4.9. Harmonic and Transient Loading on the Supply

Under all operating conditions and load variations, compliance with the supply authority's limits on harmonics must be achieved. The following documentation summarises the regulations according to which the supply authority checks and governs the suitability of industrial loads. The point of common coupling to other users can be considered in this study as 11 kV, but localised consideration to the effects on the other power converters and

associated controls must be addressed.

Energy Networks Association documents:

- G5/4-1: Limits for harmonics in the United Kingdom Electricity supply system:
- P28: (1989) Planning limits for voltage fluctuations caused by industrial, commercial and domestic equipment in the United Kingdom;
- P29: (1990) Planning limits for voltage unbalance in the UK for 132 kV and below.

The bidder shall supply all necessary equipment to ensure the modulator meets these limits, irrespective of the output power being delivered. The aggregate load for all 2 systems must be considered at the point of common coupling. In order to comply with the limits for harmonic distortion a 12 pulse converter must be used, however a 24 pulse converter should be considered.

The bidder should also provide details of the demands on the input supply including voltage and current on each phase and particularly the current waveforms at various loads and at repetition rates of 10, 50, and 100 Hz. The predicted harmonic current emissions should be stated in amperes RMS per phase at the highest power and repetition rate, up to the 50th harmonic.

The demands on the input supply at repetition rates of 10, 50, and 100 Hz must be considered and proven at the design stages at the highest load, inclusion of a 24 pulse rectifier must be considered at this stage.

In-rush current is a significant issue when operating high power equipment and an in-rush current of less than 10 times the nominal current is required to prevent interference with other equipment.

4.10. Filament Supply

The only scheme for the filament supply is a current controlled DC source. Its advantages are:

- no surge current on filament during warm up (as in voltage control scheme)
- no residual beam current modulation (as with an AC voltage heating)

The nominal specification for the filament power supply is shown in the table below. This will be confirmed with the successful bidder once details of the klystron are fully known.

Table 5: Specification for the Klystron Filaments.

<i>Parameter</i>	<i>Specification</i>	<i>Notes</i>
Nominal filament current	0 to 30 A	Operation as current source.
Maximum filament current	0 to 60 A	Operation as current source. Heater current surge.
Nominal filament voltage	0 to 30 V	
Maximum filament voltage	0 to 40 V	
Current stability	± 1 %	
Voltage stability	± 1 %	
Output current accuracy	1%	
Output current ripple	<1% pp	

Note: All the parameters in the above table are mandatory unless stated.

4.11. Solenoid Power Supplies

The number of solenoid power supplies required may vary depending upon the klystron chosen. The requirement will be defined with the successful vendor once the contract for the klystron has been finalised.

Each solenoid must be supplied from a low ripple DC power supply with a current control mode facility.

4.12. Ion Pump Power Supply

The ion pump power supply and the high voltage cable between the power supply and the klystron will be responsibility of the vendor. The vendor must install the power supply into the modulator racks and must integrate it into the modulator control system as well as provisioning necessary interlocks to protect the klystron.

4.13. Protection System

4.13.1. Earthing and HV protection must be ensured first by using a comprehensive earth circuit to which all metal components must be joined. This includes transformer tanks, waveguides, klystron bodies and collectors, water-cooling pipes, etc. Secondly, an effective, automatic earthing system must be provided to ensure that no access to the HV parts is possible unless they are de-energised and locked off and all HV elements have been effectively earthed prior to the access. A system using personnel safety keys is envisaged.

4.13.2. If manual earthing sticks are to be provided a risk assessment must be supplied provided with the bid to justify the use of such a device, taking into account possible failure modes of the HV components

4.13.3. The klystron modulator shall be fitted with an emergency switch off button, which will isolate the output supply by opening the main incoming circuit breaker.

4.14. Monitoring

4.14.1. Monitoring is to be provided for the filament and HV operational hours of the klystron.

4.15. Engineering and Manufacturing Standards

4.15.1. European CE mark

It is preferred that the modulator has full CE certification and displays the CE mark. However modulators designed and built in accordance with the standards specified under the EU Directives for Safety and EMC will be considered on their merits. A Technical Construction File detailing past experience, test results and design philosophy should be provided to enable a proper assessment to be made.

4.15.2. International Electro-technical Commission Standards

The equipment and drawings must in all respects comply with the relevant I.E.C. standards, recommendations and reports.

4.15.3. Control Of Substances Hazardous to Health (COSHH) Requirements

Materials defined as Hazardous to Health in the COSHH Regulations 1994 and the HSE publication EH40/95 Occupational Exposure Limits 1995 shall not be used without written permission from STFC.

4.15.4. Asbestos and Poly-Chlorinated Bi-Phenyls (PCBs)

Asbestos or asbestos-type insulation, insulating or dielectric fluids containing PCBs shall not be used. Where a choice of materials is available (e.g. cables, support hardware), preference shall be given to materials or equipment exhibiting a higher level of fire resistance.

4.15.5. Quality Assurance

The supplier shall maintain and apply a quality assurance program compliant with ISO-9001 or

equivalent for the design, manufacture and testing of all components.

4.15.6. Enclosures

Each power converter will be contained within an enclosure to IP2X (IEC Standard 529 Classification of degrees of protection provided by enclosures). Enclosure covers shall only be removable with the use of tools. Following the removal of covers to allow access to the internal components, any high voltage conductor (greater than 25 V ac or 60 V dc) should be shielded against contact to IP2X.

4.16. General Design Considerations

4.16.1. Safe Access

It must be possible to carry out diagnosis on the control electronics of the power systems safely with the whole power supply energised. This may be achieved by having part of the front panel able to be opened by the use of tools, together with extenders to make the control electronics accessible and barriers to prevent contact with the power components.

All doors that provide access to parts of the apparatus that contain conductors operating above 60 V dc and 25 V ac or 60 A (ac/dc) shall be secured with handle locks. Such doors will have a door interlock switch that will operate the main breaker in the event of the door being opened. These interlock switches will not require a manual over-ride facility.

4.16.2. Equipment Layout

The tender must consider the location, space available, safety issues and operating environment when proposing their solution. The preferred location for the klystron modulator is in a specially built room, located near the RF cavities on top of the accelerator hall (see Figure 4). In particular there are height restrictions due to the lifting crane and weight restrictions due to the concrete roof. The height of the tank should be less than 1.7m and the weight of the modulator including oil should be less than 11,000kg. If bidders require more detailed information on the proposed location then a clarification should be raised.

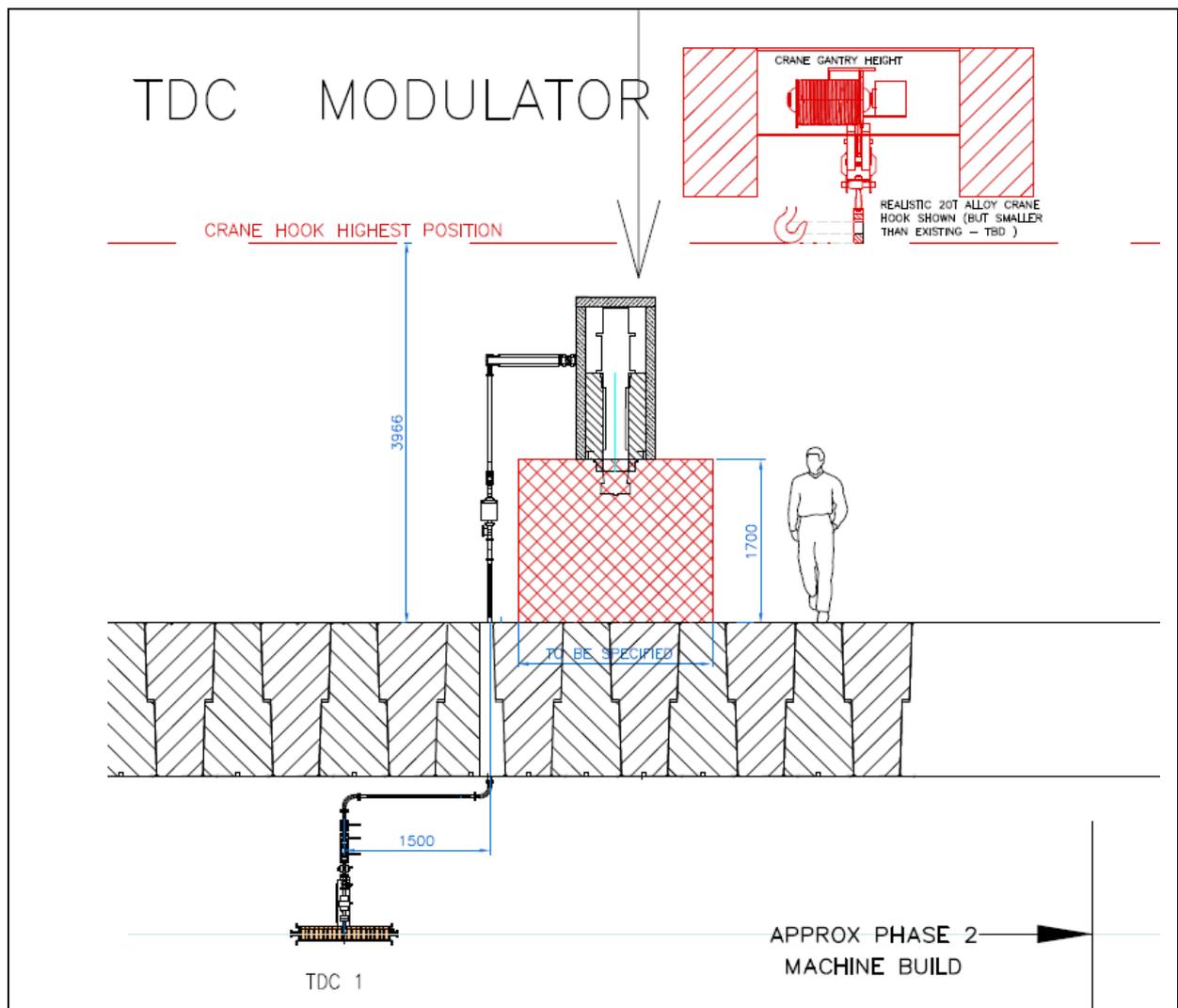


Figure 4: Proposed TDC Modulator Layout

4.17. Additional Equipment

4.17.1. STFC are to provide the klystron and magnetic circuit. The complete RF system requires a solid state amplifier and additional power supplies such as solenoid focus supplies, and a ion pump supply, which all need to be integrated within the klystron modulator system. It is anticipated that the klystron will be supplied with suitable lead shielding to meet the X-ray level requirements. A fully integrated system is the preferred option. The bidder should state whether the additional supplies and equipment are included within the bid, and if necessary, may provide options as part of the bid. Additionally a statement should be provided by the bidder on how this additional equipment is to be integrated into the klystron modulator system.

4.17.2. The tender must identify any additional equipment that STFC is to provide, which is not listed in the proposal. This includes safety fencing, environmental requirements, air conditioned rooms, services and detailed technical requirements where appropriate. (See earlier comment on STFC staff requirements during install in Section 1.4).

4.18. MTBF

The mean time between failures (MTBF) for the klystron modulator must be defined along with the predicted life expectancy. Potential failure mechanisms should also be defined.

4.19. Acceptance Tests

4.19.1. Factory and site acceptance tests will be performed on the klystron modulator RF system.

4.19.2. STFC or its authorised agent shall witness where possible all tests that are necessary under the terms of this specification at the manufacturer's premises. If this is not possible for STFC to attend these acceptance tests then it will be necessary for the manufacturer to send test results to STFC for written approval prior to shipment.

4.19.3. A minimum of 2 weeks notification must be given before the acceptance tests.

4.19.4. All equipment required for these tests will be the responsibility of the manufacturer.

4.19.5. The final tests will include at least the following:-

- a) Operation at full peak RF output power at various pulse widths and pulse repetition rates meeting the specification shown in Table 2 and 3 for:-
 - i) Efficiency
 - ii) Gain
 - iii) Amplitude stability
 - iv) Phase stability
 - v) In-band noise level
 - vi) Harmonic
 - vii) Spurious noise
 - viii) X-ray level
 - ix) RF emission level
- b) Operation at full output power at various pulse widths and pulse repetition rates meeting the specification shown in Table 2 and 3 for:-
 - i) Peak voltage stability
 - ii) Voltage reproducibility
 - iii) Voltage accuracy
 - iv) Voltage ripple
 - v) Voltage overshoot
 - vi) Filament current stability
 - vii) Acoustic noise
- c) A stability/reliability run at the full peak RF output power, into a matched load of SWR of 1.2:1 or better. During this run there must be no trips. The peak output voltage stability over 1 μ s of the pulse must be better than $\pm 0.1\%$.
- d) Protection systems must be demonstrated and meet the defined requirements:-
 - i) Arc energy in the klystron
 - ii) Interlocks and trips

4.19.6. The tests at the factory and at Daresbury Laboratory together must establish that all items of the klystron modulator and auxiliary power supplies completely meet the performance requirements and other details defined in this document. The full acceptance tests are not defined in this document and will be agreed before the contract is awarded and depend on the time scales and the technology used.

4.20. Protection and Transportation

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

4.21. Definition of Terms

In this section the terms used in the specifications are described precisely to avoid misunderstandings.

4.21.1. Voltage Flatness

Voltage flatness is defined as the variation in voltage across the flat top region of the pulse. Flatness percentages are defined with respect to full scale.

4.21.2. Voltage Stability

The maximum deviation of output voltage over a period of 1 hour with no changes in operating conditions including temperature, line regulation and a warm up time <30 minutes.

4.21.3. Voltage Accuracy

The long term setting or measuring uncertainty taking into consideration the full range of permissible changes in operating and environmental conditions over one year without any recalibration. It is accepted that some re-calibration may be required in normal operation to maintain the required accuracy.

4.21.4. Voltage Reproducibility

Uncertainty in returning to a set of previous working values with the same reference following an interruption of up to 24 hours with all electronics turned off.

4.21.5. Voltage Settling Time

Settling time is defined as the delay from the time a new setting value is initiated until this value remains within a tolerance band given by its specified accuracy.

Example for clarification: A power supply has a 100 V range and its tolerance is defined to be 1%, i.e. ± 1 V. It is now set to 80 V, but due to some inaccuracies, it will converge to 80.5 V. Settling time is now defined as the time taken until the voltage output remains within 79.5 V and 81.5 V "forever", i.e. for at least ten seconds.

4.21.6. Voltage Overshoot

The overshoot percentage is defined as the ratio between the overshoot and the maximum specified value. The overshoot specification shall be valid for all possible steps.

Example: If a fast change from 20 kV to 30 kV in output voltage, of a 52 kV HVPS is requested. A transient peak of 32 kV could be reached before stabilisation at 30 kV, the overshoot is then $2 \text{ kV} / 52 \text{ kV} = 3.85 \%$. Of course, "undershoots" resulting from negative voltage steps are also included in this.

4.21.7. Resolution

The number of bits used for the digital control signal and the number of bits used in converting the analogue feedback signal.

4.21.8. Suppression of input supply voltage changes

The maximum increase or reduction of output voltage or current following a gradual change in mains supply voltage of 10% or a step change in mains supply voltage of 1%.

4.22. Cooling Requirements

The cooling requirements are to be specified for the klystron modulator.

4.23. Documentation

4.23.1. The klystron modulator should be delivered with a full set of mechanical drawings and circuit diagrams.

4.23.2. A description of the klystron modulator, which includes operating instructions, a complete parts list, and instructions on fault finding, must be supplied.

4.23.3. A copy of all test results must be provided. Information to be included within the test results sheet is to be agreed with STFC 2 weeks prior to the acceptance tests at the manufacturer's facility.

4.24. Spares

4.24.1. A recommended spares provision is to be defined by the bidder along with costs and delivery timescales.

4.24.2. Spares will be considered critical where the delivery timescales are greater than 1 month. These items should be highlighted and the bidder should state how the risk is to be minimised.

4.24.3. Where possible spares should be modular, with the capability of installation by a suitably qualified member of STFC staff.

4.25. Warranty

4.25.1. 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 twelve months from the end of commissioning or eighteen months from the delivery of the equipment, whichever is the later. This should be confirmed in your bid. Note that a longer warranty will be advantageous in the tender assessment.

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

4.26. Support

4.26.1. A statement should also be provided on the support provided after the commissioning period.

4.26.2. Additionally as part of the bid a statement should be made on the level of service cover that may be provided after the warranty period. Included in this statement should be the call out times provided and the costs.

4.27. Potential to Upgrade

Potential future plans for the CLARA facility will incorporate an improved RF TDC design, which means that future requirements for the RF system and the klystron modulator will expand, with increased requirements for the peak and average power level. A statement should be provided on the ease and the ability to upgrade / modify the klystron modulator under such circumstances. The statement should clearly define the upper limits and any limiting factors.

5. CONTROL SYSTEMS

5.1. Control System Requirements

The control system for the electron test accelerator has to interface with the control system for the klystron modulator.

It is proposed that the control system for the electron test accelerator will be an EPICS (Reference:-. <http://www.aps.anl.gov/epics>) based system and the klystron modulator control system should be EPICS compatible to allow the 2 systems to be integrated together.

All equipment used on electron test accelerator will be remotely controlled by operators through the control system located in a control room. The control and monitoring interface to and from the klystron modulator must be comprehensive in, providing all necessary information to remotely monitor and control the equipment during normal operation and under fault conditions. The control system should be capable of clearly defining the status of the klystron modulator and the klystron, and also allow the data to be logged.

5.1.1. The bidder should clearly define how the klystron modulator control system will integrate and interface with the top level EPICS control system. Although several different communications interfaces are compatible with EPICS an Ethernet connection is the preferred solution. The information provided by the bidder should include:

- a) Hardware details of the proposed communication interface.
- b) Specification of the proposed communication protocol
- c) Examples, if available, of previous systems that have been successfully interfaced to EPICS.

5.1.2. All measurement and control channels that are relevant to the klystron modulator control system must be available remotely system and locally.

5.1.3. Every relevant parameter of the klystron modulator and klystron shall be measured, monitored and interlocked to provide a history profile of the RF system. A list of the proposed parameters should be defined.

5.2. Functionality of the Control System

5.2.1. Operating sequence

Before providing RF power to the gun RF cavity, the system must move through various states of readiness (from "warm-up" to "full RF power"). During this process the control system should provide command activation and co-ordination as well as the interlock checking. In the bid description, the bidder shall describe how this will be implemented taking into account the following features:-

- a) Performing an "orderly" start-up sequence for the klystron (i.e. ramping of the heater, turning on the focus supply, high voltage (HV), RF drive, etc.) and ensuring a safe operation of the klystron (handling of detected arcs, breakdowns, over/under currents, over/under voltages, failures related to the water and air cooling, etc).
- b) Tracing back of fault sequences, or at least finding out which fault came first. This applies also to faults occurring in the "mechanical" part of the protection system.
- c) Providing the flexibility to run the klystron modulator in "non-normal" mode, i.e. for running HV tests with the klystron disconnected etc.

The Contract duration shall be for a period of 48 months from commencement of the Contract.

Section 5 – Evaluation model

5.1 Introduction

- 5.1.1 The evaluation process will be conducted to ensure that Bids are evaluated fairly to ascertain the bidders who can demonstrate the required skills qualities, technical ability and capacity, commercial stability and experience to ensure successful performance of the Contract.
- 5.1.2 The evaluation team may comprise staff from UK SBS, the Customer and any specific external stakeholders UK SBS deem required

5.2 Evaluation of Bids

- 5.2.1 Evaluation of Bids shall be based on a Selection questionnaire defined in the e-sourcing tool.

5.3. SELECTION questionnaire

- 5.3.1 The Selection questionnaire shall be marked against the following Selection pass / fail and scoring criteria.
- 5.3.2 The selection questionnaire shall be marked against the following Mandatory or discretionary pass / fail criteria.

Selection Pass/fail criteria		
Questionnaire	Q No.	Question subject
Selection Part A	SEL1.13	Contact details and declaration
Selection Part B	SEL2.2	Participation in a criminal organisation
Selection Part B	SEL2.3	Corruption
Selection Part B	SEL2.4	Fraud
Selection Part B	SEL2.5	Terrorist Offences or offences link to terrorist activities
Selection Part B	SEL2.6	Money laundering or Terrorist financing
Selection Part B	SEL2.7	Child Labour and other forms of trafficking in human beings
Selection Part B	SEL 2.8	Payment of tax or social security
Selection Part B	SEL 2.9	Self cleaning
Selection Part C	SEL3.2	Breach of environmental obligations
Selection Part C	SEL3.3	Breach of social obligations
Selection Part C	SEL3.4	Breach of labour law obligations
Selection Part C	SEL3.5	Bankruptcy

Selection Part C	SEL3.6	Guilty of grave professional misconduct
Selection Part C	SEL3.7	Distorting competition
Selection Part C	SEL3.8	Conflict of Interest
Selection Part C	SEL3.9	Prior involvement in procurement process
Selection Part C	SEL3.10	Prior performance of contract
Selection Part C	SEL3.11	Serious Misrepresentation
Selection Part C	SEL3.12	Withholding information
Selection Part C	SEL3.13	Unable to provide supporting documentation for ESPD
Selection Part C	SEL3.14	Influenced the decision making process
Selection Part D	SEL4.1	Audited accounts
Selection Part D	SEL4.2	Minimum financial threshold
Selection Part D	SEL4.3	Wider group / guarantee
Selection Part D	SEL4.4	Insurance
Selection Part E	SEL5.1	References
Selection Part E	SEL5.4	Compliance under Modern Slavery Act 2015
Selection Part E	SEL5.5	Health and Safety Policy
Selection Part E	SEL5.6	Enforcement/remedial orders in relation to the Health and Safety Executive
Selection Part E	SEL5.7	Breaching environmental legislation
Selection Part E	SEL5.8	Checking sub-contractors for infringement of environmental legislation
Selection Part E	SEL5.9	Unlawful discrimination
Selection Part E	SEL5.10	Checking sub-contractors for unlawful discrimination
Selection Part E	FOI1.1	Freedom of information
Selection Part E	FOI1.2	Freedom of information
		In the event of a Bidder failing to meet the requirements of a Mandatory pass / fail criteria, UK SBS reserves the right to disqualify the Bidder and not consider evaluation of the any of the selection stage scoring methodology, nor the Award stage scoring methodology or Mandatory pass / fail criteria.

5.3.3 Each Mandatory pass / fail question includes a clear definition of the requirements of a successful response to the question.

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

5.3.5 Questions marked 'for information only' do not contribute to the scoring model.

5.4. AWARD questionnaire

5.4.1 The award questionnaire shall be marked against the following Mandatory or discretionary pass / fail criteria. Each Mandatory pass / fail question includes a clear definition of the requirements of a successful response to the question.

Award Pass/fail criteria		
Questionnaire	Q No.	Question subject
Commercial	AW1.1	Form of Bid
Commercial	AW1.2	Bid validity period
Commercial	AW1.3	Certificate of bona fide Bid
Commercial	AW4.1	Compliance to the Contract Terms
Commercial	AW4.2	Changes to the Contract Terms
Price	AW5.1	Firm and fixed price
Price	AW5.4	Retrospective discount
Commercial	AW5.5	E Invoice
Commercial	AW5.6	E Invoice implementation
Quality	AW6.1	Mandatory Requirements
Quality	PROJ1.3	Standards
-	-	Request for Quotation response – received on time within the e-sourcing tool
<p>In the event of a Bidder failing to meet the requirements of a Mandatory pass / fail criteria, UK SBS reserves the right to disqualify the Bidder and not consider evaluation of the any of the selection stage scoring methodology, nor the Award stage scoring methodology or Mandatory pass / fail criteria.</p>		

5.4.2 The Award questionnaire shall be marked against the following Award scoring criteria.

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

5.4.4 Questions marked 'for information only' do not contribute to the scoring model.

Award 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 RFP. 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	30.00%
Price	AW5.7	Prompt Payment	1.00%
Quality	PROJ1.1	Delivery – First Klystron Modulator	8.50%
Quality	PROJ1.2	Delivery – Final Klystron Modulator	8.50%
Quality	PROJ1.4	Rate of Rise	5.00%
Quality	PROJ1.5	Voltage Flatness and operating conditions	10.00%
Quality	PROJ1.6	Voltage Flatness at pulse width of 1 μ s	10.00%
Quality	PROJ1.7	Voltage Stability	5.00%
Quality	PROJ1.8	Voltage Reproducibility	10.00%
Quality	PROJ1.9	Pulse-to-Pulse timing jitter	2.00%
Quality	PROJ1.10	Spares – Critical items	1.00%
Quality	PROJ1.11	Spares – Discount	2.00%
Quality	PROJ1.11	Warranty	3.00%
Quality	PROJ1.12	Product Support	For information only
Quality	PROJ1.13	Potential Upgrade	2.00%
Quality	PROJ1.14	Risk Management	2.00%

Award 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 ($60/100 \times 20 = 12$)

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 ($60/100 \times 10 = 6$)

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):

Score	Evaluation response
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 acceptable. Requires major revision to the proposal to make it acceptable. Only partially answers the requirement, with major deficiencies and little relevant detail proposed.
40	Poor response with deficiencies apparent. Some useful evidence provided. Low probability of success, sufficient obstacles but correctable.
60	Response is acceptable but remains basic and could have been expanded upon. Response is sufficient but does not inspire. Good probability of success, weaknesses can be readily corrected.
80	Response exceeds minimum expectations including as level of detail, which adds value to the bid. Great probability of success, no significant weaknesses noted.
100	Excellent response – comprehensive and useful. High probability of success, no weaknesses noted. The response is innovative and includes a full description of techniques and measurements to be employed.

All questions will be scored based on the above mechanism. Please be aware that there may be multiple evaluators. If so, their individual scores will be averaged (mean) to determine your final score as follows:

Example

Evaluator 1 scored your bid as 60

Evaluator 2 scored your bid as 40

Evaluator 3 scored your bid as 80

Evaluator 4 scored your bid as 60

Your final score will $(60+40+80+60) \div 4 = 60$

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.

Once the evaluation process and due diligence is complete, should the result of the process result in a tied place(s) then the supplier(s) who scored the highest total in the following quality (criteria) shall be considered the successful supplier and shall be awarded the opportunity.

Proj 1.5 Voltage flatness adjustability = 10.00%

Proj 1.6 Voltage flatness (1uS) = 10.00%

Proj 1.8 Voltage reproducibility = 10.00%

Total = 30.00%

5.5. Evaluation process

5.5.1 The evaluation process will feature some, if not all, the following phases

Stage	Summary of activity
Receipt and Opening	<ul style="list-style-type: none"> RFP logged upon opening in alignment with UK SBS's procurement procedures. Any RFP Bid received after the closing date will be rejected unless circumstances attributed to UK SBS or the e-sourcing tool beyond the bidder control are responsible for late submission.
Compliance check	<ul style="list-style-type: none"> Check all Mandatory requirements are acceptable to UK SBS. Unacceptable Bids maybe subject to clarification by UK SBS or rejection of the Bid.
Scoring of the Bid	<ul style="list-style-type: none"> Evaluation team will independently score the Bid and provide a commentary of their scoring justification against the Selection criteria.
Clarifications	<ul style="list-style-type: none"> The Evaluation team may require written clarification to Bids

Re - scoring of the Bid and Clarifications	<ul style="list-style-type: none"> Following Clarification responses, the Evaluation team reserve the right to independently re-score the Bid and Clarifications and provide a commentary of their re-scoring justification against the Selection criteria.
Shortlisting of Bidders	<ul style="list-style-type: none"> UK SBS will shortlist the Bidders based on the Responses received and the Evaluation Model detailed in Section 5 of the RFP.
Validation of unsuccessful Bidders	<ul style="list-style-type: none"> To confirm contents of the letters to provide details of scoring and relative feedback on the unsuccessful Bidders Bid in comparison with the successful Bidders Bid.

Section 6 – Selection and award questionnaires

Section 6 – Selection questionnaire

6.1 Introduction

The Selection questionnaires are located in the within the e-sourcing tool.

Guidance on completion of the questions are is available at
<http://www.ukpbs.co.uk/services/procure/Pages/supplier.aspx>

PLEASE NOTE THE QUESTIONS ARE NOT NUMBERED SEQUENTIALLY

Section 6 – Award questionnaire

6.2 The Award questionnaires are located within the e-sourcing tool.

6.3 Guidance on completion of the questions is available at
<http://www.ukpbs.co.uk/services/procure/Pages/supplier.aspx>

PLEASE NOTE THE QUESTIONS ARE NOT NUMBERED SEQUENTIALLY

Section 7 – General information

7.1. Introduction

- 7.1.1 UK SBS wishes to establish a Contract for the provision of TDC Klystron Modulators for CLARA. UK SBS is managing this procurement process in accordance with the Public Contracts Regulations 2015 (as may be amended from time to time) (the “Regulations”). This is a goods and services Contract being procured under the OJEU Open Procedure
- 7.1.2 UK SBS is procuring the Contract for add for its exclusive use or cross reference the list of customers provided in the [OJEU Notice](#) or [Contracts Finder](#) Notice supported if relevant by the statement on the UK SBS website currently located [here](#). (OPB)
- 7.1.3 UK SBS logo, trademarks and other identifying marks are proprietary and may not be incorporated in the Companies response without UK SBS’s written permission.
- 7.1.4 The Bidder shall indemnify and keep indemnified UK SBS against all actions, claims, demands, proceedings, damages, costs, losses, charges and expenses whatsoever in respect of any breach by the Bidder of this document.
- 7.1.5 If there is any doubt with regard to the ambiguity of any question or content contained in this questionnaire then PLEASE ASK a clarification question, but please ensure that your question is via the formal clarification process in writing to the UK SBS representative nominated. No approach of any kind in connection with this opportunity should be made to any other person within, or associated with UK SBS. All information secured outside of this named contact shall have no legal standing or worth and should not be relied upon.
- 7.1.6 It remains the responsibility of the Bidder to keep UK SBS informed of any matter that may affect continued qualification
- 7.1.7 Prior to commencing formal evaluation, Submitted Responses will be checked to ensure they are fully compliant with the Pass / Fail criteria within the Evaluation model. Non-compliant Submitted Responses may be rejected by UK SBS. Submitted Responses which are deemed by UK SBS to be fully compliant will proceed to evaluation. These will be evaluated using the criteria and scores detailed in the matrix set out in [Section 5](#).
- 7.1.8 Following evaluation of the submitted Responses and approval of the outcome UK SBS intends to select a short list of Bidders to proceed to Award stage of this Procurement.
- 7.1.9 Whilst it is UK SBS’s [and any relevant Other Public Bodies] intention to purchase the majority of its goods and services under this Contract Arrangement from the Supplier(s) appointed this does not confer any exclusivity on the appointed Suppliers. UK SBS and any relevant Other Public Bodies reserve the right to purchase any goods and services and services (including those similar to the goods and services covered by this procurement) from any Supplier outside of this Contract.

- 7.1.10 UK SBS reserves the right not to conclude a Contract as a result of the current procurement process. Bidders should review the contents of Section 7 paragraph 7.8.1 when considering submitting their Response.
- 7.1.11 The goods and services covered by this procurement exercise have NOT been subdivided into Lots.
- 7.1.12 UK SBS shall utilise the Crown Commercial Service (CCS – previously Government Procurement Service) Emptoris e-sourcing tool url <https://gpsesourcing.cabinetoffice.gov.uk/sso/jsp/login.jsp> to conduct this procurement. There will be no electronic auction following the conclusion of the evaluation of the Request for Proposal (RFP) responses. Bidders will be specifically advised where attachments are permissible to support a question response within the e-sourcing tool. 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, Telephone 0345 010 3503.
- 7.1.13 Please utilise the messaging system within the e-sourcing tool located at <https://gpsesourcing.cabinetoffice.gov.uk/sso/jsp/login.jsp> within the timescales detailed in Section 3. if you have any doubt as to what is required or will have difficulty in providing the information requested. Bidders should note that any requests for clarifications may not be considered by UK SBS if they are not articulated by the Bidder within the discussion forum within the e-sourcing tool.
- 7.1.14 Bidders should read this document, RFx attachments, messages and the evaluation questionnaires carefully before completing the Response submission. Failure to comply with any of these instructions for completion and submission of the Submitted Response may result in the rejection of the Response. Bidders are advised therefore to acquaint themselves fully with the extent and nature of the goods/services/goods and services and contractual obligations. These instructions constitute the Conditions of Response. Participation in the RFP process automatically signals that the Bidder accepts these Conditions.
- 7.1.15 All material issued in connection with this RFP shall remain the property of UK SBS and/or as applicable relevant OPB and shall be used only for the purpose of this procurement. All Due Diligence Information shall be either returned to UK SBS or securely destroyed by the Bidder (at UK SBS's option) at the conclusion of the procurement
- 7.1.16 The Bidder shall ensure that each and every sub-contractor, consortium member and adviser abides by the terms of these instructions and the Conditions of Response.
- 7.1.17 The Bidder shall not make contact with any other employee, agent or consultant of UK SBS or any relevant OPB or Customer who are in any way connected with this procurement during the period of this procurement, unless instructed otherwise by UK SBS.
- 7.1.18 UK SBS shall not be committed to any course of action as a result of:
- 7.1.18.1 issuing this RFP or any invitation to participate in this procurement ;
 - 7.1.18.2 an invitation to submit any Response in respect of this procurement;
 - 7.1.18.3 communicating with a Bidder or a Bidder's representatives or agents in respect of this procurement; or

- 7.1.18.4 any other communication between UK SBS and/or any relevant OPB (whether directly or by its agents or representatives) and any other party.
- 7.1.19 Bidders shall accept and acknowledge that by issuing this RFP UK SBS shall not be bound to accept any Response and reserves the right not to conclude a Contract for some or all of the goods and services for which Responses are invited.
- 7.1.20 UK SBS reserves the right to amend, add to or withdraw all or any part of this RFP at any time during the procurement.
- 7.1.21 Bidders should not include in the Response any extraneous information which has not been specifically requested in the RFP including, for example, any sales literature, standard terms of trading etc. Any such information not requested but provided by the Bidder shall not be considered by UK SBS.
- 7.1.22 If the Bidder is a consortium, the following information must be provided: full details of the consortium; and the information sought in this RFP in respect of each of the consortium's constituent members as part of a single composite response. Potential Providers should provide details of the actual or proposed percentage shareholding of the constituent members within the consortium as indicated in the relevant section of the selection questionnaire SEL1.9 specifically refers. If a consortium is not proposing to form a corporate entity, full details of alternative proposed arrangements should be provided as indicated in the relevant section of the RFP. However, please note UK SBS reserves the right to require a successful consortium to form a single legal entity in accordance with regulation 19(6) of the Regulations. UK SBS recognises that arrangements in relation to consortia may (within limits) be subject to future change. Potential Providers should therefore respond in the light of the arrangements as currently envisaged. Potential Providers are reminded that any future proposed change in relation to consortia must be notified to UK SBS so that it can make a further assessment by applying the selection criteria to the new information provided and consider rejection of the Response if UK SBS reasonably consider the change to have a material impact of the delivery of the viability of the Response.

7.2. Bidder conference

- 7.2.1 A Bidders' Conference will not be held in conjunction with this procurement.

7.3. Confidentiality

- 7.3.1 Subject to the exceptions referred to in paragraph 7.3.2, the contents of this RFP are being made available by UK SBS on condition that:
- 7.3.1.1 Bidders shall at all times treat the contents of the RFP and any related documents (together called the 'Information') as confidential, save in so far as they are already in the public domain;
- 7.3.1.2 Bidders shall not disclose, copy, reproduce, distribute or pass any of the Information to any other person at any time or allow any of these things to happen;
- 7.3.1.3 Bidders shall not use any of the Information for any purpose other than for the purposes of submitting (or deciding whether to submit) a Response; and

- 7.3.1.4 Bidders shall not undertake any publicity activity within any section of the media in relation to this procurement
- 7.3.2 Bidders may disclose, distribute or pass any of the Information to the Bidder's advisers, sub-contractors or to another person provided that either:
- 7.3.2.1 This is done for the sole purpose of enabling a Response to be submitted and the person receiving the Information undertakes in writing to keep the Information confidential on the same terms as if that person were the Bidder; or
- 7.3.2.2 The disclosure is made for the sole purpose of obtaining legal advice from external lawyers in relation to the procurement or to any Contract arising from it; or
- 7.3.2.3 The Bidder is legally required to make such a disclosure
- 7.3.3 In paragraphs 7.3.1 and 7.3.2 above the term 'person' includes but is not limited to any person, firm, body or association, corporate or incorporate.
- 7.3.4 UK SBS may disclose detailed information relating to Responses to its employees, agents or advisers and UK SBS may make any of the Contract documents available for private inspection by its officers, employees, agents or advisers. UK SBS also reserves the right to disseminate information that is materially relevant to the procurement to all Bidders, even if the information has only been requested by one Bidder, subject to the duty to protect each Bidder's commercial confidentiality in relation to its Response (unless there is a requirement for disclosure as explained in paragraphs 7.4.1 to 7.4.3 below).
- 7.3.5 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. Subject to section 7.4 below, the information will not be disclosed outside Government. Bidders taking part in this RFP consent to these terms as part of the competition process.
- 7.3.6 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>

7.3.7 UK SBS reserves the right to amend any security related term or condition of the draft contract accompanying this RFP to reflect any changes introduced by the GSC. In particular where this RFP 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.

7.4 Freedom of information

7.4.1 In accordance with the obligations and duties placed upon public authorities by the Freedom of Information Act 2000 (the 'FoIA') and the Environmental Information Regulations 2004 (the 'EIR') (each as amended from time to time), UK SBS may be required to disclose information submitted by the Bidder to the to UK SBS.

7.4.2 In respect of any information submitted by a Bidder that it considers to be commercially sensitive the Bidder should complete the Freedom of Information declaration question defined in the Question FOI1.2.

7.4.3 Where a Bidder identifies information as commercially sensitive, UK SBS will endeavour to maintain confidentiality. Bidders should note, however, that, even where information is identified as commercially sensitive, UK SBS may be required to disclose such information in accordance with the FoIA or the Environmental Information Regulations. In particular, UK SBS is required to form an independent judgment concerning whether the information is exempt from disclosure under the FoIA or the EIR and whether the public interest favours disclosure or not. Accordingly, UK SBS cannot guarantee that any information marked 'confidential' or "commercially sensitive" will not be disclosed.

7.4.4 Where a Bidder receives a request for information under the FoIA or the EIR during the procurement, this should be immediately passed on to UK SBS and the Bidder should not attempt to answer the request without first consulting with UK SBS.

7.4.5 Bidders are reminded that the Government's transparency agenda requires that sourcing documents, including RFP templates such as this, are published on a designated, publicly searchable web site, and, that the same applies to other sourcing documents issued by UK SBS, and any contract entered into by UK SBS with its preferred supplier once the procurement is complete. By submitting a response to this RFP Bidders are agreeing that their participation and contents of their Response may be made public.

7.5. Response Validity

7.5.1 Your Response should remain open for consideration for a period of 120 days. A Response valid for a shorter period may be rejected.

7.6. Timescales

7.6.1 [Section 3](#) of the RFP sets out the proposed procurement timetable. UK SBS reserves the right to extend the dates and will advise potential Bidders of any change to the dates.

7.7. UK SBS's Contact Details

- 7.7.1 Unless stated otherwise in these Instructions or in writing from UK SBS, all communications from Bidders (including their sub-contractors, consortium members, consultants and advisers) during the period of this procurement must be directed through the e-sourcing tool to the designated UK SBS contact.
- 7.7.2 All enquiries with respect to access to the e-sourcing tool may be submitted to Crown Commercial Service, Telephone 0345 010 3503.
- 7.7.3 Bidders should be mindful that the designated Contact should not under any circumstances be sent a copy of their Response outside of the e-sourcing tool. Failure to follow this requirement will result in disqualification of the Response.

7.8. Preparation of a Response

- 7.8.1 Bidders must obtain for themselves at their own responsibility and expense all information necessary for the preparation of Responses. Bidders are solely responsible for all costs, expenses and other liabilities arising in connection with the preparation and submission of their Response and all other stages of the selection and evaluation process. Under no circumstances will UK SBS, or any of their advisers, be liable for any such costs, expenses or liabilities borne by Bidders or their sub-contractors, suppliers or advisers in this process.
- 7.8.2 Bidders are required to complete and provide all information required by UK SBS in accordance with the Conditions of Response and the Request for Proposal. Failure to comply with the Conditions and the Request for Proposal may lead UK SBS to reject a Response.
- 7.8.3 UK SBS relies on Bidders' own analysis and review of information provided. Consequently, Bidders are solely responsible for obtaining the information which they consider is necessary in order to make decisions regarding the content of their Responses and to undertake any investigations they consider necessary in order to verify any information provided to them during the procurement.
- 7.8.4 Bidders must form their own opinions, making such investigations and taking such advice (including professional advice) as is appropriate, regarding their Responses, without reliance upon any opinion or other information provided by UK SBS or their advisers and representatives. Bidders should notify UK SBS promptly of any perceived ambiguity, inconsistency or omission in this RFP, any of its associated documents and/or any other information issued to them during the procurement.
- 7.8.5 Bidders must ensure that each response to a question is within any specified word count. Any responses with words in excess of the word count will only be considered up to the point where they meet the word count, any additional words beyond the volume defined in the word count will not be considered by the evaluation panel.
- 7.8.6 Bidders must ensure that each response to a question is not cross referenced to a response to another question. In the event of a Bidder adding a cross reference it will not be considered in evaluation.

7.9. Submission of Responses

- 7.9.1 The Response must be submitted as instructed in this document through the e-sourcing tool. Failure to follow the instruction within each Section of this document, to omit responses to any of the questions or to present your response in alignment with any guidance notes provided may render the Response non-compliant and it may be rejected.

- 7.9.2 UK SBS may at its own absolute discretion extend the closing date and the time for receipt of Responses specified [Section 3](#).
- 7.9.3 Any extension to the RFP response period will apply to all Bidders.
- 7.9.4 Any financial data provided must be submitted in or converted into pounds sterling. Where official documents include financial data in a foreign currency, a sterling equivalent must be provided. Failure to adhere to this requirement will result in the Response not being considered.
- 7.9.5 UK SBS does not accept responsibility for the premature opening or mishandling of Responses that are not submitted in accordance with the instructions of this document.
- 7.9.6 The Response and any documents accompanying it must be in the English language
- 7.9.7 Bidders must submit their response through the e-sourcing tool:
- 7.9.8 Responses will be submitted any time up to the date indicated in [Section 3](#). Responses received before this deadline will be retained in a secure environment, unopened until this deadline has passed.
- 7.9.9 Responses received after the date indicated in [Section 3](#) shall not be considered by UK SBS unless the Bidder can justify the reason for the delay.
- 7.9.9.1 The Bidder must demonstrate irrefutable evidence in writing they have made best endeavours to ensure the Response was received on time and that the issue was beyond their control.
- 7.9.9.2 Any request for a late Response to be considered must be emailed to bids@uksbs.co.uk in advance of 'the deadline' if a bidder believes their Response will be received late.
- 7.9.9.3 UK SBS reserves the right to accept or reject any late Response without justification to the affected Bidder and make no guarantee it will consider any request for a late Response to be considered.

7.10. Canvassing

- 7.10.1 Any Bidder who directly or indirectly canvasses any employee, or agent of UK SBS or its members or any relevant OPB or any of its employees concerning the establishment of the Contract or who directly or indirectly obtains or attempts to obtain information from any such officer, member, employee or agent or concerning any other Bidder, Response or proposed Response will be disqualified.

7.11. Disclaimers

- 7.11.1 Whilst the information in this RFP, Due Diligence Information and supporting documents has been prepared in good faith, it does not purport to be comprehensive nor has it been independently verified.
- 7.11.2 Neither UK SBS, nor any relevant OPB's nor their advisors, nor their respective directors, officers, members, partners, employees, other staff or agents:
- 7.11.2.1 makes any representation or warranty (express or implied) as to the accuracy, reasonableness or completeness of the RFP; or

7.11.2.2 accepts any responsibility for the information contained in the RFP or for their fairness, accuracy or completeness of that information nor shall any of them be liable for any loss or damage (other than in respect of fraudulent misrepresentation) arising as a result of reliance on such information or any subsequent communication.

7.11.3 Any persons considering making a decision to enter into contractual relationships with UK SBS and/or, as applicable, relevant OPB following receipt of the RFP should make their own investigations and their own independent assessment of UK SBS and/or, as applicable, relevant OPB and its requirements for the goods/services/goods and services and should seek their own professional financial and legal advice. For the avoidance of doubt the provision of clarification or further information in relation to the RFP or any other associated documents (including the Schedules) is only authorised to be provided following a query made in accordance with Paragraph 7.15 of this RFP.

7.12. Collusive behaviour

7.12.1 Any Bidder who:

7.12.1.1 fixes or adjusts the amount of its Response by or in accordance with any agreement or arrangement with any other party; or

7.12.1.2 communicates to any party other than UK SBS or, as applicable, relevant OPB the amount or approximate amount of its proposed Response or information which would enable the amount or approximate amount to be calculated (except where such disclosure is made in confidence in order to obtain quotations necessary for the preparation of the Response or insurance or any necessary security); or

7.12.1.3 enters into any agreement or arrangement with any other party that such other party shall refrain from submitting a Response; or

7.12.1.4 enters into any agreement or arrangement with any other party as to the amount of any Response submitted; or

7.12.1.5 offers or agrees to pay or give or does pay or give any sum or sums of money, inducement or valuable consideration directly or indirectly to any party for doing or having done or causing or having caused to be done in relation to any other Response or proposed Response, any act or omission,

shall (without prejudice to any other civil remedies available to UK SBS and without prejudice to any criminal liability which such conduct by a Bidder may attract) be disqualified.

7.13. No inducement or incentive

7.13.1 The RFP is issued on the basis that nothing contained in it shall constitute an inducement or incentive nor shall have in any other way persuaded a Bidder to submit a Response or enter into the Contract or any other contractual agreement.

7.14. Acceptance of the Contract

7.14.1 The Bidder in submitting the Response undertakes that in the event of the Response being accepted by UK SBS and UK SBS confirming in writing such acceptance to the

Bidder, the Bidder will within 30 days of being called upon to do so by UK SBS execute the Contract in the form set out in the Contract Terms or in such amended form as may subsequently be agreed.

7.14.2 UK SBS shall be under no obligation to accept the lowest priced or any Response.

7.15. Queries relating to the Response

7.15.1 All requests for clarification about the requirements or the process of this procurement shall be made in through the e-sourcing tool unless where the e-sourcing tool is unavailable due to Emptoris or Crown Commercial Service system maintenance or failure when a clarification by email to the contact defined in [Section 3](#).

7.15.2 UK SBS will endeavour to answer all questions as quickly as possible, but cannot guarantee a minimum response time.

7.15.3 In the event of a Bidder requiring assistance uploading a clarification to the e-sourcing portal they should use the contact details defined in [Section 3](#).

7.15.4 No further requests for clarifications will be accepted after 5 days prior to the date for submission of Responses.

7.15.5 In order to ensure equality of treatment of Bidders, UK SBS intends to publish the questions and clarifications raised by Bidders together with UK SBS's responses (but not the source of the questions) to all participants on a regular basis.

7.15.6 Bidders should indicate if a query is of a commercially sensitive nature – where disclosure of such query and the answer would or would be likely to prejudice its commercial interests. However, if UK SBS at its sole discretion does not either; consider the query to be of a commercially confidential nature or one which all Bidders would potentially benefit from seeing both the query and UK SBS's response, UK SBS will:

7.15.6.1 invite the Bidder submitting the query to either declassify the query and allow the query along with UK SBS's response to be circulated to all Bidders; or

7.15.6.2 request the Bidder, if it still considers the query to be of a commercially confidential nature, to withdraw the query prior to the end of the closing date and time for Bidder clarifications.

7.15.7 UK SBS reserves the right not to respond to a request for clarification or to circulate such a request where it considers that the answer to that request would or would be likely to prejudice its commercial interests.

7.16. Amendments to Response Documents

7.16.1 At any time prior to the deadline for the receipt of Responses, UK SBS may modify the RFP by amendment. Any such amendment will be numbered and dated and issued by UK SBS to all prospective Bidders. In order to give prospective Bidders reasonable time in which to take the amendment into account in preparing their Responses, UK SBS may, at its discretion, extend the time and/or date for receipt of Responses.

7.17. Modification and withdrawal

7.17.1 Bidders may modify their Response where allowable within the e-sourcing tool. No Response may be modified after the deadline for submission of Responses.

7.17.2 Bidders may withdraw their Response at any time prior the deadline for submission of Responses [or any other time prior to accepting the offer of a Contract]. The notice to withdraw the Response must be in writing and sent to UK SBS by recorded delivery or equivalent service and delivered to UK SBS at UK Shared Business Services Ltd, Procurement Policy Manager, Polaris House, North Star Avenue, Swindon, Wiltshire, SN2 1ET

7.18. Right to disqualify or reject

7.18.1 UK SBS reserves the right to reject or disqualify a Bidder where

7.18.1.1 the Bidder fails to comply fully with the requirements of this Request for Proposal or presents the response in a format contrary to the requirements of this document; and/or

7.18.1.2 the Bidder is guilty of serious misrepresentation in relation to its Response; expression of interest; or the Response process; and/or

7.18.1.3 there is a change in identity, control, financial standing or other factor impacting on the selection and/or evaluation process affecting the Bidder.

7.19. Right to cancel, clarify or vary the process

7.19.1 UK SBS reserves the right to:

7.19.1.1 cancel the evaluation process at any stage; and/or

7.19.1.2 require the Bidder to clarify its Response in writing and/or provide additional information. (Failure to respond adequately may result in the Bidder not being selected),

7.20.. Notification of award

7.20.1 UK SBS will notify the successful Bidder of the Contract award in writing and will publish an Award Notice in the Official Journal of the European Union in accordance with the Regulations within 30 days of the award of the contract.

7.20.2 As required by the Regulations all unsuccessful Bidders will be provided with an email advising the outcome of the submission of their RFP response.

Appendix ‘A’ Glossary of Terms

TERM	MEANING
“UK SBS”	means UK Shared Business Services Ltd herein after referred to as UK SBS.
“Bid”, “Response”, “Submitted Bid”, or “RFP Response”	means the Bidders formal offer in response to this Request for Proposal
“Bidders”	means the organisations being invited to respond to this Request for Proposal
“Central Purchasing Body”	means a duly constituted public sector organisation which procures goods/services for and on behalf of contracting authorities
“Conditions of Bid”	means the terms and conditions set out in this RFP relating to the submission of a Bid
“Contract”	means the agreement to be entered by UK SBS and the Supplier following any award under the procurement
“Contracting Bodies”	means UK SBS and any other contracting authorities described in the OJEU Contract Notice
“Customer”	means the legal entity (or entities) for which any Contract agreed will be made accessible to.
“Due Diligence Information”	means the background and supporting documents and information provided by UK SBS for the purpose of better informing the Bidders responses to this Request for Proposal
"EIR"	mean the Environmental Information Regulations 2004 together with any guidance and/or codes of practice issued by the Information Commissioner or relevant Government department in relation to such regulations
FoIA	means the Freedom of Information Act 2000 and any subordinate legislation made under such Act from time to time together with any guidance and/or codes of practice issued by the Information Commissioner or relevant Government department in relation to such legislation
“Lot”	means a discrete sub-division of the requirements
“Mandatory”	Means a pass / fail criteria which must be met in order for a Bid to be considered, unless otherwise specified.
“OJEU Contract Notice”	means the advertisement issued in the Official Journal of the European Union
“Order”	means an order for served by any Contracting Body on the Supplier
“Other Public Bodies”	means all Contracting Bodies except UK SBS
“Request for Proposal” or “RFP”	means this Request for Proposal documentation and all related documents published by UK SBS and made available to Bidders and includes the Due Diligence Information. NOTE: This document is often referred to as an Invitation to Tender within other organisations
“Supplier”	means the organisation awarded the Contract
“Standard Goods /Services”	means any goods/services set out at within Section 4 Specification

Appendix B List of Abbreviations

ASTeC	Accelerator Science and Technology Centre
EPICS	Experimental Physics and Industrial Control System
FAT	Factory Acceptance Tests
HV	High voltage
HVPS	High Voltage Power Supply
LLRF	Low Level RF
PCB	Poly-Chlorinated Bi-Phenyls
PLC	Programmable Logic Controller
SAT	Site Acceptance Tests
STFC	Science and Technology Facilities Council
SW	Standing Wave
VSWR	Voltage Standing Wave Ratio