



## INVITATION TO SUBMIT A BID

for the small size public procurement

**„DUHA Spare pump laser crystal set SP22\_004”**

(**“Public Procurement”**) that is to be concluded in the procedure according to the Rules for applicants and beneficiaries (**“Rules”**) under the Research, Development and Education Operational Programme.

Name of the contracting authority:	Institute of Physics of Academy of Sciences of the Czech Republic, public research institution
Registered office:	Na Slovance 2, Praha 8, PSČ: 182 21
Identification No.:	68378271
Tax Identification No.:	CZ68378271
Person authorized to act on behalf of the contracting authority:	RNDr. Michael Prouza, Ph.D., director
Contact person:	Michal Razým
Telephone:	+420 608 467 163
E-mail:	Michal.Razym@eli-beams.eu

(**“Contracting Authority”**)

### 1. GENERAL INFORMATION

The subject matter of the Public Contract shall be funded from Research, Development and Education Operational Programme.

- 1.1 The Contracting Authority does not follow the rules for public procurements set out in the act no. 134/2016 Coll., on public contracts awarding (**“Act”**), because the Public procurement is considered a small size public procurement within the meaning of Section 27 of the Act.
- 1.2 However, the award procedure is subject to Rules due to the fact that the Public Procurement is financed from the Research, Development and Education Operational Programme.
- 1.3 If the Contracting Authority uses references to the Act, it means that the Contracting Authority shall proceed analogically in relation to the Act. However, these links to the Act do not imply that the Public Procurement is awarded in accordance with the Act.



## 2. PUBLIC PROCUREMENT SPECIFICATION

- 2.1 The subject matter of this Public Procurement for supplies is the supply of a set of four crystals with accessories in accordance with the technical specification, which forms annex No. 3 hereto and under the contract, which forms annex No. 2 hereto (“**Product**”).

## 3. THE TIME AND PLACE OF DELIVERY

- 3.1 The time of delivery is stipulated in the contract, which forms annex No. 2 hereto.
- 3.2 The place of delivery is: ELI Beamlines research centre, Průmyslová 836, post code 252 41, Dolní Břežany, Czech Republic.

## 4. BUSINESS AND PAYMENT TERMS

- 4.1 Business and payments terms and conditions for performing the Public Procurement are contained in the binding draft of the contract that forms Annex 2 hereto. After the most suitable bid placed within the Public Procurement is selected, the Contracting Authority will conclude with the selected bidder the contract attached hereto as the binding draft contract with only missing parts completed in accordance with the selected bid (identification data of the selected bidder, price, etc.).
- 4.2 The bidder does not have to include the completed contract in its bid. By submitting its bid the bidder expresses its unconditional consent with wording of the contract, which will be concluded after this procedure is completed.
- 4.3 If the bidder includes in its bid any additional business or legal terms or any reference thereto or the draft contract is by the bidder modified in any way, such additional or contrary terms shall be deemed irrelevant and the Contracting Authority will request that the bidder concludes the contract in line with article 4.1 hereof.
- 4.4 If the selected bidder refuses to conclude the contract pursuant to article 4.1 hereof the Contract Authority will conclude the contract with a bidder on the second, third or other places always under the condition that all the bidders with higher ranking refused to conclude the contract.

## 5. THE DATE AND PLACE OF THE SUBMISSION OF BIDS

- 5.1 Bids must be submitted to the address: Fyzikální ústav AV ČR, v. v. i. - ELI, DEP. 95 – Michal Razým, Za Radnicí 835, Dolní Břežany, post code: 252 41, Czech Republic, on 26. 9. 2022 until 13:00 at the latest.
- 5.2 Bids may be supplied by post, courier, or personally to the above mentioned address in working days between 8-15 hours. On the last day of the period for the submission for bids the bids may be submitted until 13:00 o'clock.



## **6. ADDITIONAL INFORMATION**

- 6.1 The supplier is entitled to require in written form explanations regarding the tender conditions from the Contracting Authority. The written request must be received by the Contracting Authority no later than 4 working days before the deadline for submission of bids.
- 6.2 The Contracting Authority sends explanations regarding the tender condition and possibly related documents no later than 2 working days after receiving written request from the supplier. If the request from the supplier is not delivered in time and despite this fact the Contracting Authority decides to provide explanations regarding the tender conditions, then the time limit in the preceding sentence does not need to be observed by the Contracting Authority.
- 6.3 The explanations regarding the tender conditions (including the exact wording of the request of the supplier) shall be provided to all suppliers at the same time and sent in the same manner as this invitation.
- 6.4 The Contracting Authority is entitled to provide explanations regarding the tender conditions without prior request. In such cases the Contracting Authority proceeds analogically according to the preceding paragraphs.
- 6.5 The Contracting Authority may modify the tender conditions before the deadline for submission of bids elapses. The modification has to be notified to the suppliers in the same manner as the tender conditions that was the subject of modification. If the Contracting Authority through explanations of the tender conditions makes modification of the tender conditions and the nature of the such modification requires it, the Contracting Authority shall adequately extend the deadline for the submission of bids. In the event such a modifications, which may extend the range of potential bidders, the Contracting Authority will extend the deadline so that the potential bidders have the entire length of the original deadline for the submission of bid.

## **7. EVALUATION CRITERIA**

- 7.1 Bids shall be evaluated on the basis of the lowest bid price criterion.
- 7.2 In the case that two or more bids contain the same lowest bid price, the time of the submission of the bid shall be a decisive element, i.e. the bid that was submitted earlier shall have priority over the bid that was submitted later.

## **8. BID PRICE**

- 8.1 The Bidder shall stipulate the total bid price in the bid cover sheet in the structure requested therein.
- 8.2 The total bid price is the maximum price that cannot be exceeded and shall include all costs that the bidder shall incur during the performance of the Public Procurement.



## 9. FORMAL BID REQUIREMENTS

- 9.1 All bids must be submitted in writing in duly sealed envelope designated by the identification data of the bidder. The envelope must be designated by inscription “**DO NOT OPEN**” and by title of the Public Procurement „***DUHA Spare pump laser crystal set SP22\_004***”. On the envelope shall be address to which the Contracting Authority may send information regarding the Public Procurement.
- 9.2 The bid shall contain identification data of the bidder. This requirement is fulfilled by filling the cover sheet of the bid, which forms Annex 1 hereto.
- 9.3 The bid must be submitted in Czech, Slovak or English language. This requirement is fulfilled if documents that by its nature cannot be in the required language are at least translated into one of the required languages.
- 9.4 The Contracting Authority recommends that all parts of the bid are secured against unauthorized manipulation (e.g. bound by string and sealed), so that additional documents cannot be inserted nor any pages removed. The bid must be clearly readable, without any crossed words or other discrepancies.
- 9.5 The bidder must submit a bid in its original (paper) form.
- 9.6 If the bid is submitted jointly by more bidders (joint bid), a contact person authorized to represent all such bidders must be designated in the bid.
- 9.7 The bids must be structured in the following manner:

a) **Cover sheet (Bid sheet)**

Bidders shall fill in cover sheet (Annex 1)

*Recommendation*

- b) *Bidders may (despite the fact that the signed contract is not a mandatory part of the bid – see art. 4.2 hereof) include into their bids 4 counterparts of signed and completed contract to speed up the process of its conclusion for the case the bidder is selected*

## 10. FINAL PROVISIONS

- 10.1 The Contracting Authority is entitled to cancel the award procedure anytime prior to the signature of the contract.
- 10.2 The Contracting Authority does not allow alternative bids.
- 10.3 The Contracting Authority is entitled to change or supplement the provisions of this invitation.
- 10.4 The bidders shall bear all their costs connected with their participation in the award procedure initiated by this invitation.



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10.5 The Contracting Authority reserves the right to publish/ distribute a notice on Public Procurement awarding conclusions in the same way as this Invitation to bid.

11. **LIST OF ANNEXES**

- a) Annex 1 (Cover sheet)
- b) Annex 2 (Draft of the contract)
- c) Annex 3 (Technical specification)

.....  
RNDr. Michael Prouza, Ph.D., director



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## ANNEX 1

### COVER SHEET OF THE BID (BID SHEET)

Public procurement title: ***DUHA Spare pump laser crystal set SP22\_004***

Contracting Authority: Fyzikální ústav AV ČR, v.v.i.  
Registered office: Na Slovance 2, 182 21 Praha 8  
Registration No.: 68378271  
Person authorized to act  
on behalf of the bidder: RNDr. Michael Prouza, Ph.D., director  
Contact person: Michal Razým  
Telephone: +420 608 67 163  
E-mail: Michal.razym@eli-beams.eu

**Bidder:** .....  
**Registered office:** .....  
**Identification No.:** .....  
**Person authorized to act  
on behalf of the bidder:** .....  
**Contact person:** .....  
**Contact address:** .....  
**Telephone:** .....  
**E-mail:** .....

**Bid price and information needed for contract completion:**

**Total bid price:** \_\_\_\_\_ CZK excl. VAT

**Defects notification email address:** \_\_\_\_\_

By submitting this bid the bidder expresses its consent with binding draft contract of the Contracting Authority annexed to Invitation to bid for this Public Procurement and commits to conclude the contract with the Contracting Authority, if this bid is selected as the most suitable one.

In \_\_\_\_\_ on \_\_\_\_\_

\_\_\_\_\_  
Company name  
Authorised representative signature



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## **ANNEX 2**

### **DRAFT OF THE CONTRACT**



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## ANNEX 3

### TECHNICAL SPECIFICATION

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## PURCHASE CONTRACT

This purchase contract ("Contract") was concluded pursuant to section 2079 *et seq.* of the act no. 89/2012 Coll., Civil Code ("Civil Code"), on the day, month and year stated below by and between:

- (1) **Institute of Physics of the Czech Academy of Sciences, a public research institution,**  
with its registered office at: Na Slovance 2, Praha 8, PSČ: 182 21,  
registration no.: 68378271,  
represented by: RNDr. Michael Prouza, Ph.D., director  
(**"Buyer"**); and
- (2) **[to be filled in by economic operator],**  
with its registered office at: **[to be filled in by economic operator],**  
registration no.: **[to be filled in by economic operator],**  
represented by: **[to be filled in by economic operator]**  
(**"Seller"**).

(The Buyer and the Seller are hereinafter jointly referred to as "**Parties**" and individually as "**Party**".)

### WHEREAS

- (A) The Buyer is a public contracting authority and the beneficiary of public grants for projects within the Operational Programme Research, Development and Education.
- (B) For the successful realization of projects it is necessary to purchase the Object of Purchase (as defined below) in accordance with the act no. 134/2016 Coll., on public procurement, and Rules for the Selection of Suppliers within the Operational Programme Research, Development and Education.
- (C) The Seller wishes to provide the Object of Purchase to the Buyer for consideration.
- (D) The Seller's bid for the public procurement entitled "***DUHA Spare pump laser crystal set SP22\_004***", whose purpose was to procure the Object of Purchase ("**Public Procurement**"), was selected by the Buyer as the most suitable.

### IT WAS AGREED AS FOLLOWS:



## 1. BASIC PROVISIONS

- 1.1 Under this Contract the Seller shall hand over to the Buyer a crystal set (including all accessories) that is described in Annex 1 (*Technical Specification*) to this Contract in the quality described therein (“**Object of Purchase**”) and shall transfer to the Buyer ownership right to the Object of Purchase, and the Buyer shall take over the Object of Purchase and shall pay the Seller the Purchase Price (as defined below), all under the terms and conditions stipulated in this Contract.
- 1.2 Under this Contract the Seller shall also:
- a) transport the Object of Purchase to the place of delivery;
  - b) to elaborate and hand over to the Buyer operational and maintenance manuals of the Object of Purchase in the extent specified in Annex 1 (*Technical Specification*) or other documents which are necessary for the proper takeover and use of the Object of Purchase in Czech or English language;
  - c) carry out other activities specified in Annex 1 (*Technical Specification*); and
  - d) cooperate with the Buyer during the performance of this Contract (“**Related Activities**”).

## 2. THE PLACE OF DELIVERY

The place of delivery is at the address: Fyzikální ústav AV ČR v.v.i/ELI beamlines, Průmyslová 836, 252 41 Dolní Břežany, Czech Republic.

## 3. THE TIME OF DELIVERY

- 3.1 The Seller shall deliver the Object of Purchase within 6 months from the effectiveness of this Contract.
- 3.2 The Buyer shall extend the time of delivery at the request of the Seller, if the Seller is not able to fulfill this Contract due to circumstances that the Seller had no control over and such circumstances were hard to anticipate and are hard to overcome (e.g. covid-19 measures and/or impacts). In order for the Buyer to extend the time of delivery, the Seller must prove to the Buyer that such circumstances happened. The Buyer shall extend the time of delivery by the period corresponding to the time that is necessary for obstacles to disappear or to be overcome by the Seller. However, this does not affect the right of the Buyer to withdraw from this Contract in accordance with the Article 10.

## 4. THE OWNERSHIP RIGHT

The ownership right to the Object of Purchase shall be transferred to the Buyer upon the signature of the acceptance protocol by both Parties.



## 5. PRICE AND PAYMENT TERMS

- 5.1 The purchase price for the Object of Purchase is **[to be filled in by economic operator]**, - CZK (“**Purchase Price**”) without value added tax (“VAT”). VAT will be paid in accordance with the applicable legal regulations.
- 5.2 The Purchase Price cannot be exceeded and includes all costs and expenses of the Seller related to the performance of this Contract. The Purchase Price includes, among others, all expenses related to the handover and acceptance of the Object of Purchase and execution of Related Activities, costs of copyright, insurance, customs, warranty service and any other costs and expenses connected with the performance of this Contract.
- 5.3 The Purchase Price for the Object of Purchase shall be paid on the basis of a tax document – invoice, to the account of the Seller designated in the invoice. The Purchase Price shall be paid after the signature of the acceptance protocol. The copy of the acceptance protocol must be attached to the invoice.
- 5.4 The Buyer shall realize payments on the basis of duly issued invoices within 30 days from their receipt (maturity period). The invoice shall be considered to be paid for on the day when the invoiced amount is deducted from the Buyer’s account on behalf of the Seller’s account. To avoid any doubts Parties declare that if on the invoice is stated a maturity period that is shorter than 30 days, then such maturity period may be disregarded by the Buyer.
- 5.5 The invoice issued by the Seller as a tax document must contain all information required by the applicable laws of the Czech Republic. Invoices issued by the Seller in accordance with this Contract shall contain in particular following information:
- a) name and registered office of the Buyer,
  - b) tax identification number of the Buyer,
  - c) name and registered office of the Seller,
  - d) tax identification number of the Seller,
  - e) registration number of the tax document,
  - f) scope of the performance (including the reference to this Contract),
  - g) the date of the issue of the tax document,
  - h) the date of the fulfilment of the Contract,
  - i) Purchase Price,
  - j) registration number of this Contract, which the Buyer shall communicate to the Seller based on Seller’s request prior to the issuance of the invoice,



- k) declaration that the performance of the Contract is for the purposes of a specific project (the number and the title of the project shall be communicated to the Seller based on Seller's request prior to the issuance of the invoice).

5.6 In case that the invoice shall not contain the above mentioned information, the Buyer is entitled to return it to the Seller during its maturity period and this shall not be considered as a default. The new maturity period shall begin from the receipt of the supplemented or corrected invoice to the Buyer.

5.7 The Buyer prefers electronic invoicing on the following email address: [efaktury@fzu.cz](mailto:efaktury@fzu.cz)

## 6. SELLER'S DUTIES

6.1 The Seller shall ensure that the Object of Purchase and Related Activities are in compliance with this Contract including all its annexes and applicable legal (e.g. safety), technical and quality norms.

6.2 During the performance of this Contract the Seller proceeds independently. If the Seller receives instructions from the Buyer, the Seller shall follow such instructions unless these are against the law or in contradiction to this Contract. If the Seller finds out or should have found out if professional care was exercised that the instructions are for any reason inappropriate or illegal or in contradiction to this Contract, then the Seller must notify the Buyer.

6.3 All things necessary for the performance of this Contract shall procure the Seller, unless this Contract stipulates otherwise.

6.4 The Seller is aware that the Buyer does not have at its disposal premises for the storage of packaging and, therefore, shall not store packaging of the Object of Purchase. The absence of original packaging cannot be an excuse for refusal of elimination of defects of the Object of Purchase.

## 7. HANDOVER AND ACCEPTANCE OF THE OBJECT OF PURCHASE

7.1 The Object of Purchase shall be delivered to the place of delivery and handed over to the Buyer within the time stipulated in Annex 1 (Technical Specification) to this Contract. The Object of Purchase shall be handed over to the Buyer along with delivery note or other similar document confirming the delivery. By delivering the Object of Purchase to the place of delivery the Buyer only takes custody of the Object of Purchase (i.e. the Buyer does not accept the Object of Purchase).

7.2 The acceptance of the Object of Purchase shall be realized on the basis of a acceptance protocol in accordance with Annex 1. The acceptance protocol must at least contain:

- a) identification of the Parties;
- b) the description of the Object of Purchase;



- c) list of defects, if there are any.

7.3 If the Seller fails to duly carry out all Related Activities or if the Object of Purchase does not meet requirements of this Contract, the Buyer is entitled to refuse the acceptance of the Object of Purchase. In such a case the Seller shall remedy the deficiencies within ten (10) working days, unless Parties agree otherwise. The Buyer is entitled (but not obliged) to accept the Object of Purchase despite the above mentioned deficiencies, in particular if such deficiencies do not prevent the Buyer in the proper operation of the Object of Purchase. In such a case the Seller and the Buyer shall list the deficiencies in the acceptance protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the acceptance protocol regarding the date of the removal, the Seller shall remove the deficiencies within ten (10) working days.

## 8. WARRANTY

- 8.1 The Seller shall provide a warranty of quality of the Object of Purchase for the period of 3 months. If on the warranty list or other document is the warranty period of longer duration, then this longer warranty period shall have priority over the period stated in this Contract.
- 8.2 The warranty period shall begin on the day of the signature of the acceptance protocol by both Parties. If the acceptance protocol lists any deficiencies, the warranty period shall be extended by the period, during which the Seller remedied the last deficiency.
- 8.3 The Seller shall remove defects and deficiencies that occur during the warranty period free of charge and in the terms stipulated in this Contract.
- 8.4 If the Buyer ascertains a defect or deficiency of the Object of Purchase during the warranty period, the Buyer shall notify such defect or deficiency without undue delay to the Seller. Defects and deficiencies may be notified on the last day of warranty period, at the latest.
- 8.5 The Buyer notifies defects and deficiencies in writing via e-mail. The Seller shall accept notifications of defects on the following e-mail address: **[to be filled in by economic operator]**. The Seller shall confirm within 24 hours from the receipt of the notification.
- 8.6 In the notification the Buyer shall describe the defect or deficiency and the manner of removal of the defect. The Buyer has the right to:
  - a) ask for the removal of the defect by the delivery of new Object of Purchase or its individual parts, or
  - b) ask for the removal of the defect by repair, or
  - c) ask for the reasonable reduction of the Purchase Price.

The choice among the above mentioned rights belongs to the Seller.



- 8.7 The Seller shall remove the defect within 6 weeks from its notification, unless Parties agree otherwise.
- 8.8 Parties shall execute a protocol on the removal of the defect, which shall contain the description of the defect and the confirmation that the defect was removed. The warranty period shall be extended by a period of time that elapses between the notification of the defect until its removal.
- 8.9 In case that the Seller does not remove the defect within stipulated time or if the Seller refuses to remove the defect, then the Buyer is entitled to remove the defect at his own costs and the Seller shall reimburse these costs within 10 days after the Buyer's request to do so.
- 8.10 The warranty does not cover defects caused by unprofessional manipulation or by the failure to follow Seller's instructions for the operation and maintenance of the Object of Purchase.

## 9. PENALTIES

- 9.1 If the Seller is in delay with the removal of the defect, the Seller shall pay to the Buyer a contractual penalty in the amount of 0,05% of the Purchase Price for every (even commenced) day of delay.
- 9.2 The Seller shall pay contractual penalties within fifteen (15) days from the day, on which the Buyer enumerated its claims. The payment of contractual penalties shall not affect the right of the Buyer to damages even to the extent to which such damages exceeds the contractual penalty.
- 9.3 The total amount that the Seller shall be obliged to pay on contractual penalties shall not exceed 10% of the Purchase Price.
- 9.4 The Buyer is entitled to unilaterally set off claims arising from the contractual penalties against the claim of the Seller for the payment of the Purchase Price.

## 10. RIGHT OF WITHDRAWAL

- 10.1 The Buyer is entitled to withdraw from this Contract without any penalties, if any of the following circumstances occur:
- d) the Seller shall be in delay with the fulfilment of this Contract and such delay lasts more than 3 weeks;
  - e) The Object of Purchase shall not fulfil the requirements stipulated in this Contract, in particular in Annex 1 (*Technical Specification*) and such defects or deficiencies cannot be remedied;
  - f) the insolvency proceeding is initiated against the Seller; or





- g) the Buyer ascertains that the Seller provided in its bid for the Public Procurement information or documents that do not correspond to the reality and that had or could have had impact on the result of the tendering procedure, which preceded the conclusion of this Contract.

## **11. SPECIAL PROVISIONS**

By signing this Contract, the Seller becomes a person that must cooperate during the finance control within the meaning of Section 2 letter e) of the act no. 320/2001 Coll., on finance control in the public administration, and shall provide to the Directing Body of the Operational Programme Research, Development and Education or other control bodies access to all parts of the bid, Contract or other documents that are related to the legal relationship formed by this Contract. This duty also covers documents that are subject to the protection in accordance with other acts (business secrets, secret information, etc.) provided that control bodies fulfil requirements stipulated by these acts. The Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The possibility of effective control must be preserved until the year 2033.

## **12. SOCIAL, ECOLOGICAL AND INNOVATIVE ASPECTS**

- 12.1 The Buyer aims to conclude contracts with the suppliers that take into account and implement the principles of social responsibility, ecological sustainability and innovation. Therefore, the Seller shall ensure that
- 12.1.1 this Contract shall be fulfilled only by persons that are employed in accordance with the applicable legal regulations (no illegal or child workers);
  - 12.1.2 while performing this Contract, all applicable health and safety regulations and rules at work place are observed;
  - 12.1.3 all persons performing this Contract are employed under fair and non-discriminatory working conditions;
  - 12.1.4 if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is in accordance with the principles governing nature conservation and nature protection, ecological sustainability and ecological waste management; and
  - 12.1.5 if presented with different manners of fulfilling this Contract, the Seller shall select the solution/process that is the most innovative.

## **13. FINAL PROVISIONS**

- 13.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.



- 13.2 The terms and conditions of this Contract represent the whole agreement between the Parties regarding the subject matter of this Contract and any prior or oral agreements have been either consolidated into this Contract or are disregarded by the Parties.
- 13.3 Parties acknowledge that this Contract shall be published in the Register of Contracts in accordance with the Act no. 340/2015 Coll., on the Register of Contracts.
- 13.4 All disputes arising out of this Contract or out of legal relations connected with this Contract shall be preferable settled by a mutual negotiation. In case that the dispute is not settled within sixty (60) days, such dispute shall be decided by courts of the Czech Republic in the procedure initiated by one of the Parties.
- 13.5 The Seller is not entitled to set off any of its claims or his debtor's claims against the Buyer's claims. The Seller is not entitled to transfer its claims against Buyer that arose on the basis or in connection with this Contract on third parties. The Seller is not entitled to transfer rights and duties from this Contract or its part on third parties.
- 13.6 All modifications and supplements of this Contract must be in writing.
- 13.7 If any of provisions of this Contract are invalid or ineffective, the Parties are bound to change this Contract in such a way that the invalid or ineffective provision is replaced by a new provision that is valid and effective and to the maximum possible extent correspond to the original invalid or ineffective provision.
- 13.8 This Contract is executed in four (4) counterparts and every Party shall receive two (2) counterparts.
- 13.9 An integral part of this Contract is Annex 1 (Technical Specification) including all its annexes. If Annex 1 (Technical Specification) uses the term "Contracting Authority", it means Buyer and if it uses the term "Supplier", it means Seller.
- 13.10 This Contract shall be valid on the date of the signature of both Parties and effective on the day, on which it is published in the Register of Contracts.

**IN WITNESS WHEREOF** attach Parties their signatures:

**Buyer**

Signature: \_\_\_\_\_

Name: RNDr. Michael Prouza, Ph.D.,

Position: director

Date:

**Seller**





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Signature: \_\_\_\_\_

Name:

Position:

Date:



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## ANNEX 1

### TECHNICAL SPECIFICATION

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<b>Confidentiality Level</b>	<i>BL - Restricted for internal use</i>	<b>TC ID / Revision</b>	00333332/C
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*[RSD product category B]*

## ***DUHA Spare pump laser crystal set***

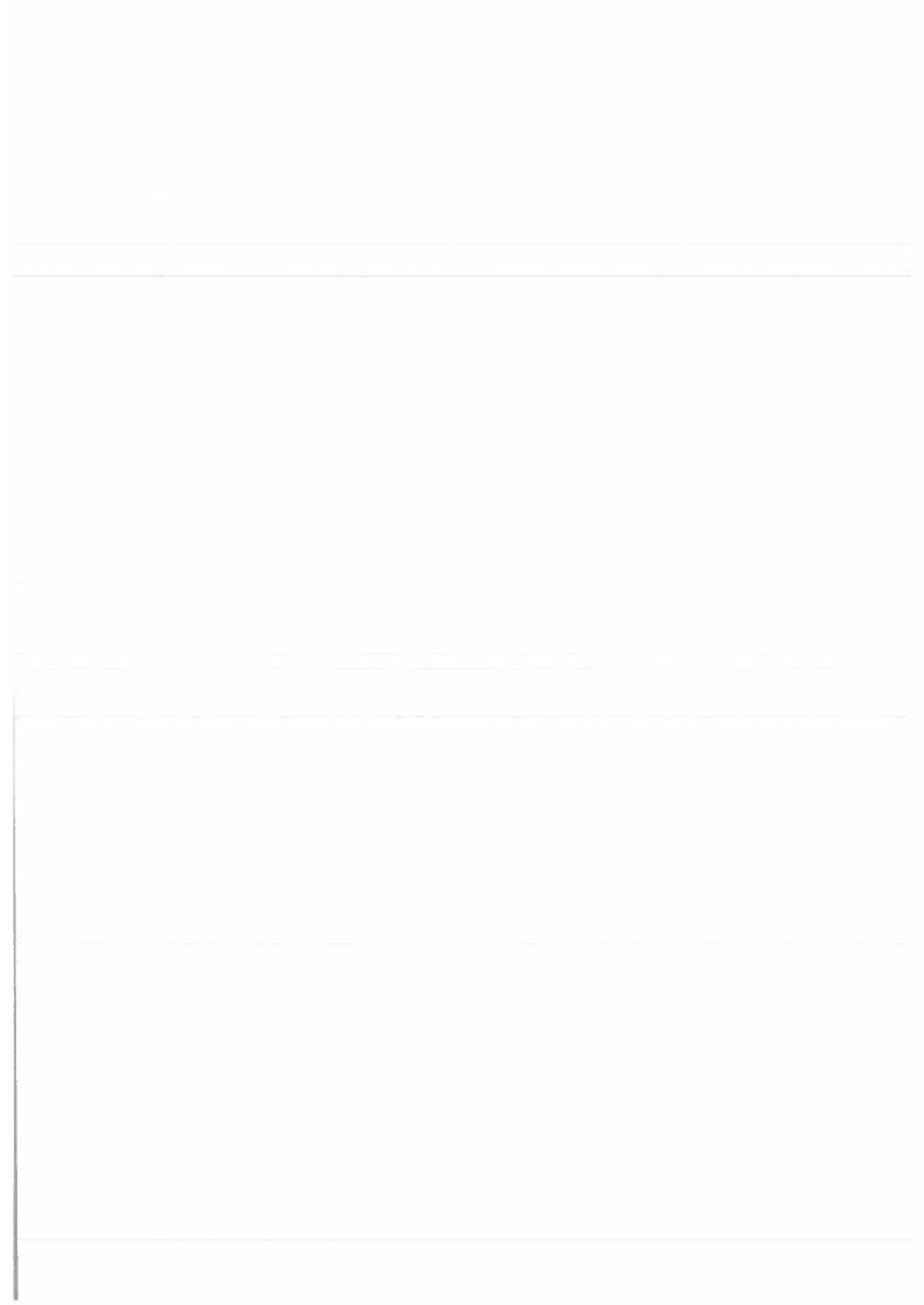
***SP22\_004***



### **Keywords**

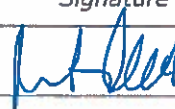
N/A

	<b>Position</b>	<b>Name</b>
<b>Responsible person</b>	Senior Researcher L2 DUHA	Martin Fibrich
<b>Prepared by</b>	Group leader of L2 DUHA	Jonathan Tyler Green



RSS TC ID/revision	RSS - Date of Creation	RSS - Date of Last Modification	Systems Engineer
024218/A.001	29.06.2022	29.06.2022	A. Kuzmenko
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Reviewed By			
Name (Reviewer)	Position	Date	Signature
Daniel Kramer	Group leader of Optical Materials Development	<b>Noticed (category B)</b>	
Radek Toman	Legal Group leader		
Martin Fibrich	Senior Researcher L2 DUHA		
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Roman Kuřátko	Head of Department of Building Infrastructure and IT		
Veronika Olšovcová	Group Leader of Safety		
Viktor Fedosov	Group Leader of Quality and Planning		

Approved by			
Name (Approver)	Position	Date	Signature
Bedřich Rus	Head of department of Laser Systems	7/7/2022	

Revision History / Change Log				
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1	J.T. Green	28.06.2022	Draft	A
2	J.T. Green, A. Kuzmenko	30.06.2022	Update of the RSD, version for internal review	B
3	A. Kuzmenko	04.07.2022	RSD update, final version	C



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## 1. Introduction

### 1.1. Purpose

This Requirements Specification Document (RSD) lists the technical requirements and constraints for the selection of a set of Cr-cladded Yb:YAG slabs to serve as a spare set for the current cryogenically cooled multi-pass pump laser in the DUHA project.

### 1.2. Scope

This RSD contains all of the technical requirements: functional, performance and design, delivery, safety and quality requirements for the following product (tender number: SP22\_004): **DUHA Spare cladded Yb:YAG slabs** (further "Crystal set").

The **Crystal Set** will be in the L2 laser hall and will serve as a spare set of crystals for the main, cryogenically cooled, high-energy pump laser amplifier. The products are registered in the PBS database under the following PBS codes:

RA1.L2.L2\_1.PL.PL1.MPA.LH.SPAR.3.9, RA1.L2.L2\_1.PL.PL1.MPA.LH.SPAR.3.10, RA1.L2.L2\_1.PL.PL1.MPA.LH.SPAR.3.11, RA1.L2.L2\_1.PL.PL1.MPA.LH.SPAR.3.12

These products are Category B products according to the ELI Beamlines RSD categories. The category B is an Off-the-shelf Product with customization (e.g., product performance, dimensions, etc.) that does not require any design modifications of the product. All verification activities performed by a supplier shall be executed in accordance with the supplier's plan of outgoing inspection and tests. The verification of all specified parameters listed in this RSD shall be undertaken by the supplier before delivery to the ELI Beamlines facility and all items shall be furnished with a verification protocol and a declaration of conformity, to reflect their proper characteristics. Furthermore, all items may be subject to testing and verification upon delivery to the ELI Beamlines facility by qualified personnel. All non-conformances (if any) must be addressed by the supplier in a timely manner.

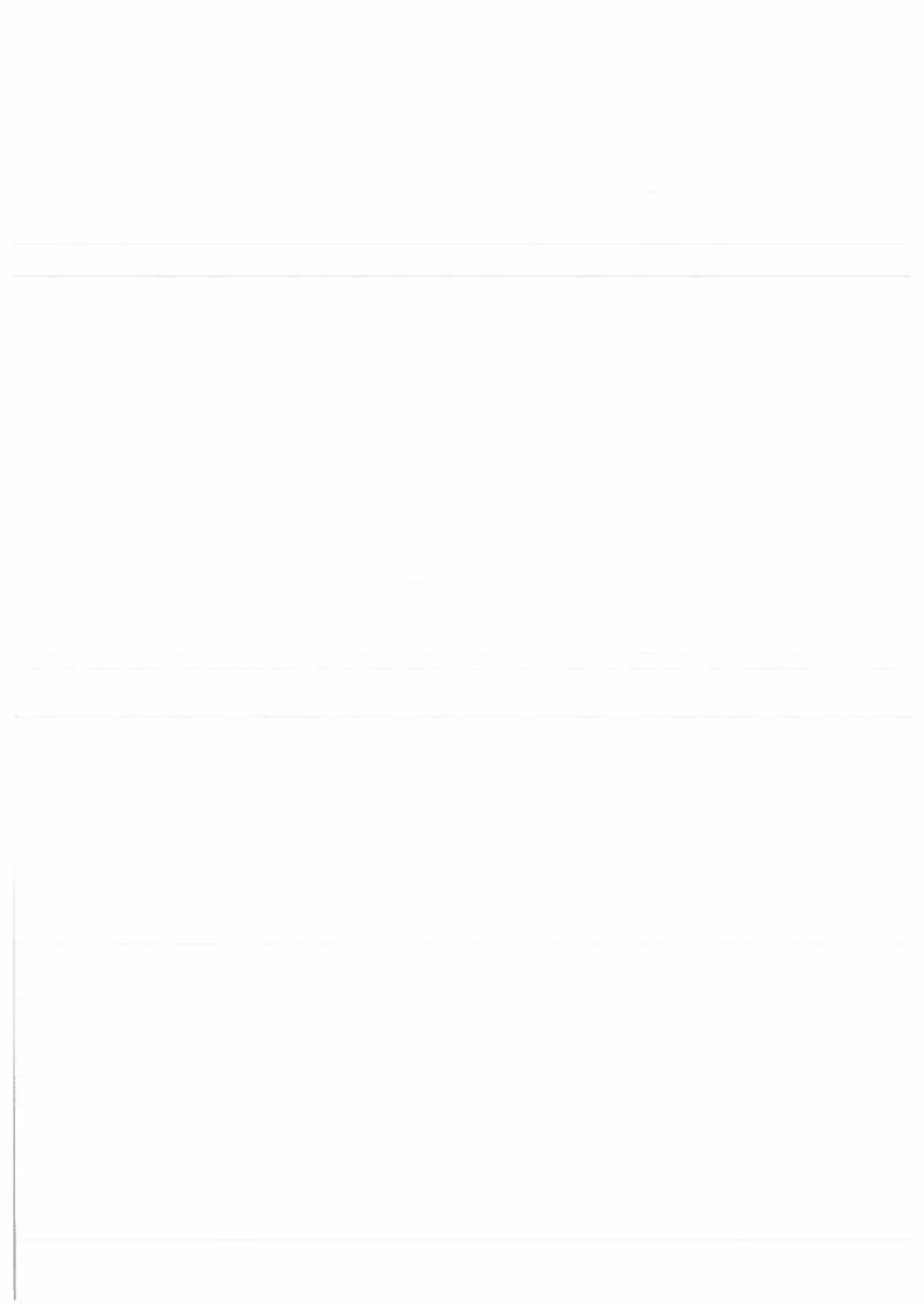
### 1.3. Terms, Definitions and Abbreviations

For the purpose of this document, the following abbreviated terms are applied:

Abbreviation	Meaning
ELI	Extreme Light Infrastructure
RSD	Requirements Specification Document
CA	Contracting Authority (Institute of Physics CAS)
CAP	Clear Aperture
PV	Peak to Valley
ASE	Amplified Spontaneous Emission

### 1.4. Reference documents

Ref. No	TC ID	Title of document / File
<b>RD-01</b>	00333332	YAG_cladded slab.pdf



## 1.5. References to standards

If this document or RD-01 include references to standards or standardized/standardizing technical documents the CA allows/permits also another equivalent solution to be offered.

## 2. General requirements for the Crystal Set

REQ-034774/A

The laser slabs shall each consist of 2 sections: a central Yb:YAG monocrystalline section (Yb:YAG ceramic is not permitted) in the central portion of the slab through which the pump light and amplified beam will propagate, and a Cr:YAG cladding border which is used for the absorption of ASE. The doping levels of Yb in the Yb:YAG section are specified and the level of Cr-doping must be consistent with the required absorption specified in *YAG\_cladded\_slab.pdf* (see **RD-01** in chapter 1.4).

REQ-034775/A

The Cr:YAG cladding shall be optically bonded to the Yb:YAG section.

REQ-034776/A

The **Crystal Set** shall meet the general requirements and dimensions defined in the drawing *YAG\_cladded\_slab.pdf* (see **RD-01**).

REQ-034777/A

The **Crystal Set** shall consist of 4 crystals with different levels of Yb-doping as summarized in Table 1 below.

Type #	Doping (at. %)	Quantity
1	$1.1 \pm 0.1$	2
2	$2.0 \pm 0.2$	2

**Table 1:** Levels of the crystals Yb-doping

REQ-034778/A

The coating technology used for the anti-reflective coating on the crystals must be electron beam deposition.

REQ-034779/A

Metrology shall be performed by the Supplier and results shall be supplied to the CA giving values of measured parameters from *YAG\_cladded\_slab.pdf* excluding damage threshold (see **RD-01**).



### 3. Delivery requirements

REQ-034781/A

The transportation to the final destination shall be conducted by the Supplier.

*NOTE: The bid price will be considered by the CA as the final price, including transportation cost.*

### 4. Safety Requirements

REQ-034780/A

The Supplier shall supply a **Declaration of Conformity** (DoC) for each product type. The DoC shall declare compliance in part with EU Directive 2001/95/EC on general product safety and the other relevant EU/EC regulation.

*NOTE: The compliance with these obligations will be demonstrated by the (EU) Declaration of conformity, other relevant documents and the CE marking if required by the relevant regulations.*

### 5. Quality requirements

#### 5.1. General quality requirements

REQ-034782/A

The Supplier shall provide information on **outgoing check** of the Product. At least this information shall comprise a report about the execution of outgoing check and fulfilment of the technical requirements defined by the product RSD, and completeness of the product.

*NOTE: Alternatively, the Supplier might provide the CA with the information detailed enough to prove meeting all requirements stipulated herein (e.g. catalogue/technical data sheets, product manuals or other similar documentation).*

REQ-034783/A

When delivering the **Crystal Set**, the Supplier shall provide verification reports outlining the results of all the tests executed on these Crystals to confirm specification conformity (see chapter 2).

*NOTE: The content of the verification reports shall be agreed with the CA.*

REQ-034784/A

The Supplier shall establish and maintain a nonconformity control system compatible with ČSN EN ISO 9001 (equivalent to EN ISO 9001).



## 5.2. Acceptance

Acceptance will be carried out by the CA upon delivery and final verification of the **Crystal Set** at ELI Beamlines premises. The basis for acceptance will be verification reports (see REQ-034783/A) summarizing the overall verification results together with relevant documentation supporting the verification.

In case of successful acceptance phase, the CA will provide the Supplier signed acceptance protocol. In case of unsuccessful acceptance stage, the CA will provide the Supplier Nonconformity Report (NCR) and process in accordance with REQ-034784/A will be applied.

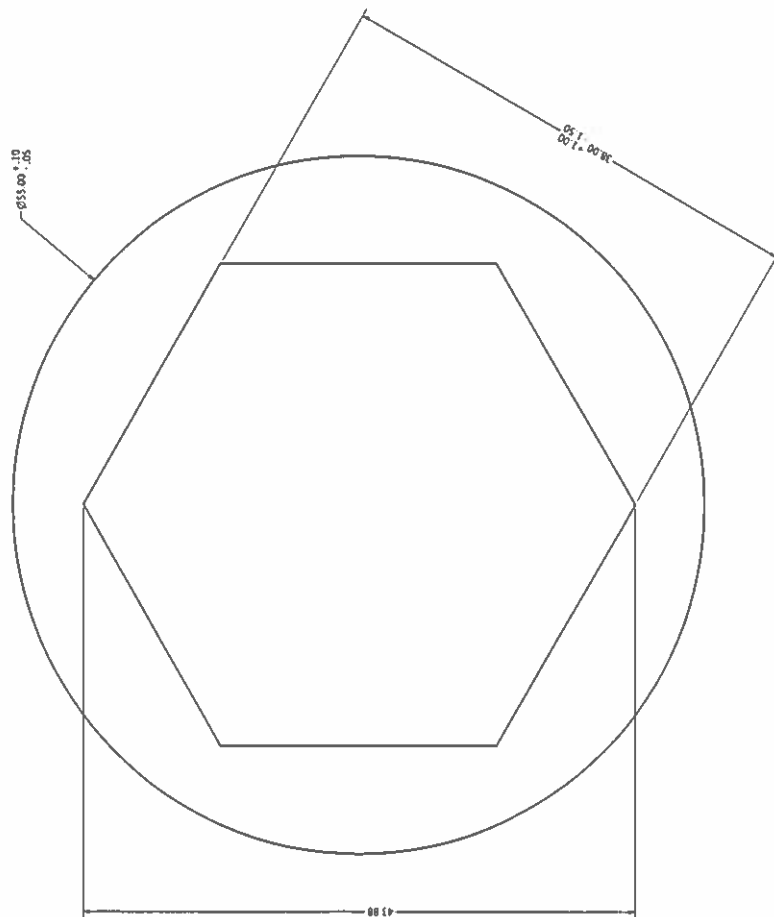
REQ-034785/A

The Acceptance phase shall demonstrate the following:

- The **Crystal Set** has been successfully verified by the Supplier and the results of this process have been documented in an appropriate way through verification reports (see REQ-034783/A)
- All detected nonconformities have been solved following REQ-034784/A;
- The **Crystal Set** is free of fabrication errors and is ready for the intended operational use.







**Material:**

- Outer border: Cr:YAG  $3,5 \pm 0,5$  cm<sup>-1</sup> @1030 nm
- Interior for type #1:  $1,1 \pm 0,1$  at.% Yb:YAG
- Interior type #2:  $2,0 \pm 0,2$  at.% Yb:YAG
- Orientation of YAG crystal: <100>

**Surface requirements:**

- diameter CAP  $\geq 36.5$  mm
- Surface quality  $5D = 10/5$  for each side to diameter 55 mm
- wedge  $< 10^\circ$  arcsec
- Requirements within CAP (minimum 0-18.25 mm from the center)
  - flatness -  $\lambda/10$  PV @ 633nm
  - transmitted wavefront deformation -  $\lambda/10$  PV @ 633nm

**Serial number shall be engraved on the outer edge of the crystal**

Maximum size of bubbles or defects within CAP volume: 0.5 microns

Coating reflectivity:  $R < 0.3\%$  @ 1030nm 0° incidence

**Laser Induced damage threshold: 10 J/cm<sup>2</sup> @ 1064nm, 10ns, 50Hz**

[illegible]

