



EUROPEAN UNION
European Structural and Investing Funds
Operational Programme Research,
Development and Education



MINISTRY OF EDUCATION,
YOUTH AND SPORTS

PURCHASE CONTRACT

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

- (1) **Institute of Physics of the Academy of Sciences of the Czech Republic, a public research institution,**

with its registered office at: Na Slovance 2, Praha 8, 182 21, Czech Republic

registration no.: 68378271

represented by: RNDr. Michael Prouza, Ph.D. – director

(„**Buyer**”); and

- (2) **Rigaku Innovative Technologies Europe s.r.o.**

with its registered office at: Praha 4 - Braník, Novodvorská 994, PSČ 14221

registration no.: 284 000 20

represented by: Doc. Ing. Ladislav Pína, DrSc.

enrolled in the commercial registered kept by Městský soud v Praze, C138806

(„**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 a grant of the Ministry of Education, Youth and Sports of the Czech Republic within the Operational Programme Research, Development and Education. The Buyer carries out a project financed by the grant specified herein in this provision („**Project**”).
- (B) For the successful realization of the Project it is necessary to purchase the Object of Purchase (as defined below) in accordance with the 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 part one* of the public procurement entitled „**XRD measurement device and X-Ray stress analyzer**”, whose purpose was to procure the Object of Purchase („**Public Procurement**”), was selected by the Buyer as the most suitable.
- (E) The Seller acknowledges that the Buyer is not, in connection to the subject matter of this Contract, an entrepreneur, and also that the subject matter of this Contract is not related to any business activities of the Buyer.
- (F) The documentation necessary for the execution of the Contract is
- Technical Specification, which forms an integral part hereof as its Annex 1 (hereinafter the “TS”); this TS also formed a part of the tender documentation for the Public Procurement in the form of Annex No.1 of the tender documentation,
 - The Seller's bid submitted for the Public Procurement, (hereinafter the “Sellers' Bid”); the Sellers' Bid forms form Annex 2 to this Contract and an integral part hereof.

IT WAS AGREED AS FOLLOWS:

1. BASIC PROVISIONS

- 1.1 Under this Contract the Seller shall deliver and install to the Buyer XRD measurement device as defined in Annex 1 (Technical Specification) to this Contract in the required quality, and with the properties and related performance 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 carry out the following activities („**Related Activities**”):
- a) Transport and delivery the Object of Purchase to the place of delivery (Art. 2.2 of the Contract);
 - b) Setup and installation of the Object of Purchase;
 - c) Provide training to the Buyer as specified in Annex 1 (Technical Specification) to this Contract. A timetable regarding delivery and training, approved by the Contracting Authority must be provided before the Object of Purchase delivery; and



- d) Cooperate with the Buyer during the performance of this Contract.

2. THE TIME AND PLACE OF DELIVERY

- 2.1 The Seller shall deliver the whole Object of Purchase and shall carry out Related Activities within **five (5) months** from the effectiveness of this Contract, unless stipulated otherwise in this Contract. The time of delivery is stipulated herein in favour of the Buyer. The Buyer is entitled to prolong the time for delivery Object of Purchase and for carrying out Related Activities for one (1) more month, should there be important reasons for that on the side of the Buyer, such as, but not only, impossibility to take over the Object of Purchase at the Buyer's premises due to reconstruction works taking place there. The Seller is entitled to deliver the Object of Purchase and/or carry out Related Activities even earlier, provided the Buyer explicitly agree with the earlier delivery of the Object of Purchase and/or carrying out the Related Activities. The Object of Purchase shall be delivered by 30th November 2018 at the latest.
- 2.2 The place of delivery shall be Fyzikální ústav AV ČR, v.v.i - HiLASE Centrum, Za Radnicí 828, 252 41 Dolní Břežany, Czech Republic or any other address in Dolní Břežany, Czech Republic, which the Buyer communicated to the Seller prior to the delivery of the Object of Purchase.
- 2.3 The Object of Purchase setup and installation under Art. 1.2.b.) of this Contract shall not take longer than 14 calendar days from the day of delivery, unless Buyer and Seller agree otherwise. The training under Art. 1.2.c.) of this Contract shall take place on last day of of Object of Purchase setup and installation, unless Buyer and Seller agree otherwise.
- 2.4 The Seller acknowledges that the deadlines stated in this Article are of essential importance to the Buyer with respect to the timeline of the Project with respect to the deadline by which the Project are to be implemented, and that the Buyer could incur damage as a result of failure to meet the above stipulated deadlines.

3. THE OWNERSHIP RIGHT

The ownership right to the Object of Purchase shall be transferred to the Buyer upon the signature of the Hand – over protocol (delivery note).



4. PRICE AND PAYMENT TERMS

- 4.1 The purchase price for the Object of Purchase is **274.016,00 EUR** („Purchase Price”) **excluding VAT**. In case of delivery from abroad, the customs duties shall be paid by the Buyer.
- 4.2 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 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.
- 4.3 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 only after the Hand – over protocol is signed.
- 4.4 The Buyer shall realize payments on the basis of duly issued invoice within thirty (30) calendar days from their receipt. If the Seller stipulates any shorter due period of the invoiced amount in the invoice, such different due period shall not be deemed relevant and the due period stipulated herein prevails. The invoice shall be issued only after the Hand – over protocol signature. .
- 4.5 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 under this Contract (including the reference to this Contract),
 - g) Date of the issue of the tax document,
 - h) 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 before the issuance of the invoice,
- k) Declaration that the performance of the Contract is for the purposes of the Project; the exact details of the Project including name and reg. number will be communicated to the Seller based on Seller's request which shall be sent to the Buyer to following e-mails: _____ and _____ before an invoice is issued,

and must also comply with any double taxation treaties applicable to the given case.

4.6 The last invoice in each calendar year must be delivered by the Seller to the Buyer's no later than by December 15 of the given calendar year. In case that the invoice shall not contain the above mentioned information or the invoice does not comply with the requirements stipulated by law or the invoice is delivered to the Buyer later than by December 15 of the given calendar year, 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.

4.7 The Buyer's invoicing details are set out in provision (1) hereof.

5. **SELLER'S RIGHTS AND DUTIES**

5.1 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.

5.2 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, while exercising due professional care, finds out or should have found out that the instructions are for any reason inappropriate or illegal or in contradiction to this Contract, then the Seller must notify the Buyer.

5.3 All things necessary for the performance of this Contract shall be procured by the Seller, unless this Contract stipulates otherwise.

6. **HANDOVER OF THE OBJECT OF PURCHASE**

6.1 Handover and takeover of the Object of Purchase shall be realized on the basis of hand-over protocol ("**Hand – over protocol**") / delivery note which



shall be signed during Object of Purchase setup and installation and which shall contain following information:

- identification of the Seller, the Buyer and all subcontractors, if there are any,
- description of the Object of Purchase,
- the list of defects and deficiencies of the Object of Purchase, if there are any, and the deadlines for their removal,
- the signature and the date of the hand-over.

6.2 Instructions and manuals shall be attached to the Hand-over protocol.

6.3 If the Seller fails to duly carry out all Related Activities or if the Object of Purchase does not fully meet requirements of this Contract, the Buyer is entitled to refuse the takeover of the Object of Purchase. In such a case, the Seller shall remedy the deficiencies within thirty (30) calendar days, unless Parties agree otherwise. The Buyer is entitled (but not obliged) take over 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 Hand-over protocol, including the manner and the date of their removal (remedy). If the Parties do not reach agreement in the Hand-over protocol regarding the date of the removal, the Seller shall remove the deficiencies within fourteen (14) calendar days.

6.4 Parties hereby exclude application of section 2126 of the Civil Code.

7. **WARRANTY**

7.1 The Seller hereby provides a warranty of quality of the Object of Purchase for the period of twenty-four (24) months.

7.2 The warranty period shall commence on the day of the signature of the Hand-over protocol by both Parties. However, if the Object of Purchase is taken over with defects or deficiencies, the warranty period shall commence on the date of the removal of the last defect or deficiency by the Seller.

7.3 The Seller shall remove defects that occur during the warranty period free of charge.



- 7.4 If the Buyer ascertains a defect of the Object of Purchase during the warranty period, the Buyer shall notify such defect without undue delay to the Seller (“**Warranty Claim**”). Defects may be notified on the last day of warranty period, at the latest; an e-mail is considered an adequate way to initiate a Warranty Claim. Warranty Claim sent by the Buyer on the last day of the warranty period shall be deemed to be made in time.
- 7.5 The Buyer notifies defects in writing via e-mail. The Seller shall accept notifications of defects on the following e-mail address:
- 7.6 In the Warranty Claim the Buyer shall describe the defect and the manner of removal of the defect. The Parties shall agree on the manner of defect’s/defects’ removal. If the Parties do not reach the agreement, the Buyer has the right to:
- a) request removal of the defect/defects by the delivery of Object of Purchase or its individual parts, or
 - b) request removal of the defect/defects by repair, or
 - c) request adequate discount from the Purchase Price.

The choice among the above mentioned rights shall be made by the Buyer. However, in case of a removable defect/defects that occur/occurs for the first time the Buyer shall not request removal of the defect by delivery of new Object of Purchase or its individual parts.

- 7.7 The Seller shall remove the defect within thirty (30) calendar days from the date on which the Warranty Claim was notified to the Seller, at the latest, unless the Buyer and the Seller agree otherwise.
- 7.8 The Seller shall remove defect/defects of the Object of Purchase within periods stated in the Contract also in the instances when the Seller is of the opinion that he is not liable for such defects. In cases when the Seller will not recognize the defect and the Buyer will not agree with such conclusion, the validity of the Warranty Claim shall be ascertained by an expert, which is to be commissioned by the Buyer but with whom the Supplier also must agree. In the event the expert declares the Warranty Claim as justified, the Seller shall bear the costs of the expert’s assessment. If the Warranty Claim is raised unjustly according to expert’s assessment, the Buyer shall reimburse the Seller all reasonably incurred costs associated with removing the defect/defects.
- 7.9 Parties shall execute a protocol on the removal of the defect, which shall contain the description of the defect/defects and the confirmation that the



defect/defects was/were removed. The warranty period shall be extended by the time that expires from the date of exercising the Warranty Claim until the defect/defects is/are removed in cases where the Buyer was prevented from using the Object of Purchase for its intended purpose.

- 7.10 In case that the Seller fails to remove the defect/defects within time stipulated in this Contract or if the Seller refuses to remove the defect/defects, then the Buyer is entitled to remove the defect/defects at his own costs and the Seller shall reimburse these costs within thirty (30) calendar days after the Buyer's request to do so.
- 7.11 The warranty does not cover defects caused by unprofessional handling or by the failure to follow Seller's instructions for the operation and maintenance of the Object of Purchase.
- 7.12 Parties exclude application of the section 1925 (the sentence behind semi-colon) of the Civil Code.
- 7.13 The Seller shall provide to the Buyer technical support (consultation of operational, maintenance and other issues regarding the Object of Purchase) free of charge on the phone no.: _____

8. **TERMINATION, RIGHT OF WITHDRAWAL, CONTRACTUAL PENALTIES**

- 8.1 This Contract may be terminated by completing the performance required hereunder, by agreement of the Parties or by withdrawal from the Contract on the grounds stipulated by law or in the Contract.
- 8.2 The Buyer is entitled to withdraw from this Contract, if any of the following circumstances occur:
- (a) the Seller has materially breached obligations imposed by the Contract, specifically by being in delay with the fulfilment of this Contract and such delay lasts more than 4 weeks; or
 - (b) the Seller has materially breached obligations imposed by the Contract, specifically Object of Purchase fails to meet technical parameters and qualities or other requirements defined in the Annex 1 (Technical Specification);
 - (c) the insolvency proceeding is initiated against the Seller's assets;



- (d) the funding body providing finances for the Project (“Financial subsidy”) or any other control body determines that the expenditures or part of the expenditures incurred on the basis of this Contract are ineligible;
 - (e) the Financial subsidy for implementation of the Project is withdrawn from the Buyer; or
 - (f) should it become apparent that the Seller provided information or documents in the Seller’s bid, which were not true and which could, therefore, influence the outcome of the Procurement Procedure leading to the conclusion of this Contract (Section 223(2)(b) of the Act No. 134/2016 Coll., on public procurement).
- 8.3 The Seller is entitled to withdraw from the Contract in the event of material breach of the Contract by the Buyer and in case of events outside the control of the Seller (e.g. natural disasters, etc.).
- 8.4 In the event the Seller is in delay with term of delivery as stipulated in Art. 2 herein, the Seller shall pay to the Buyer the contractual penalty in the amount of 0.1% of the Purchase Price for each, even commenced calendar day of delay.
- 8.5 In the case where the Seller fails to remove defects within the periods stipulated in the Contract, the Seller shall pay to the Buyer a contractual penalty in the amount of 100,- EUR for each defect and for each calendar day of delay.
- 8.6 If the Buyer fails to pay the Purchase Price vices within the deadlines set out in this Contract, the Buyer shall pay the Seller interest on delay in the amount set forth by the law for each day of delay unless the Buyer proves that the delay with the payment of the Purchase Price was caused by late release of the Financial subsidy for the Project by the funding body.
- 8.7 The obliged Party must pay any contractual penalty/penalties to the entitled Party not later than within fifteen (15) calendar days of the date of receipt of the relevant claim from the other party.
- 8.8 Payment of the contractual penalties pursuant to this Article shall in no way prejudice the Buyer’s right to claim compensation for damage incurred by the Buyer as a result of the Seller’s breach of obligations to which the penalty applies.
- 8.9 The Parties have agreed that the maximal amount of contractual penalties shall be limited to 10% of the Purchase Price.



8.10 The Buyer is entitled to set off by unilateral declaration any of its receivable or part of its receivable resulting from contractual penalty/contractual penalties against Seller's claim to pay Purchase Price.

9. SPECIAL PROVISIONS

By signing this Contract, the Seller becomes a person that must cooperate during the finance control within the Act no. 320/2001 Coll., on finance control in the public administration, as amended, and shall provide to the Directing Body of the Operational Programme Research, Development and Education or other control bodies (such as, but not only, European Commission, European Court of Auditors) 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 Seller shall secure that all its subcontractors are also obliged to cooperate with control bodies in the above stipulated extent. The Seller is obliged to duly archive all written material prepared in connection with the execution of this Contract and to provide access to the Buyer to these archived documents until 2027; any finance control may also be carried out until year 2027.

10. FINAL PROVISIONS

- 10.1 This Contract is governed by the laws of the Czech Republic, especially by the Civil Code.
- 10.2 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) calendar days, such dispute shall be decided by courts of the Czech Republic in the procedure initiated by one of the Parties.
- 10.3 All modifications and supplements of this Contract must be carried out in writing as numbered amendment/amendments.
- 10.4 In the event that any of the provisions of this contract shall later be shown or determined to be invalid, putative, ineffective or unenforceable, then such invalidity, putativeness, ineffectiveness or unenforceability shall not cause invalidity, putativeness, ineffectiveness or unenforceability of the Contract as a whole. In such event the Parties undertake without undue delay to subsequently clarify any such provision using Sec 553(2) of the Civil Code, or to replace after mutual agreement such invalid, putative, ineffective or unenforceable provision of the Contract by a new provision, that in the extent



permitted by the laws and regulations of the Czech Republic, relates as closely as possible to the intentions of the Parties to the Contract at the time of creation hereof.

- 10.5 The Parties agree that the Seller shall not be entitled to set off any part of its receivable, or receivable of its sub-debtor against the Buyer or any of his receivables, unless this Contract stipulates otherwise. The Seller shall not be entitled to assign any receivable arising in connection herewith to a third party. The Seller shall not be entitled to assign any rights or obligations arising to him hereunder or any of its parts to third parties.
- 10.6 The Parties declare that they accept the “risk of changed circumstances” within the meaning of Sec 1765(2) of the Civil Code.
- 10.7 The Parties declare that they shall maintain confidentiality with respect to all facts and information they learned in connection with the Contract or during the performance of the Contract, and the disclosure of such facts or information could cause damage to the other Party. This confidentiality provision does not affect duties of Parties with respect to applicable legislation.
- 10.8 This Contract shall constitute complete agreement of the Parties on the Contract subject matter including the Object of Purchase and shall substitute any and all possible previous discussions, negotiations and agreements of the Parties related to the Contract subject matter including the Object of Purchase.
- 10.9 This Contract is executed in four (4) counterparts and every Party shall receive two (2) counterparts.
- 10.10 The following Annexes form an integral part of the Contract:
- **Annex No. 1:** Technical Specification Document (if Annex 1 uses the term “Contracting Authority” or “contracting authority” it means Buyer. If Annex 1 uses the term “Supplier” or “supplier”, it means Seller);
 - **Annex No. 2:** The Seller’s Bid.

In case of any discrepancies between this Contract and its annexes, the provisions of this Contract shall prevail. In case of any discrepancies between Annex No. 1 and the other annexes of this Contract, the provisions of Annex No. 1 shall prevail.



- 10.11 The Parties agree to publish the full text of this Contract, including its annexes, in the Register of Contracts pursuant to Act No. 340/2015 Coll., on Special Conditions for the Effectiveness of Certain Contracts, the Disclosure of These Contracts and the Register of Contracts, as amended (Act on the Register of Contracts).
- 10.12 This Contract shall become valid on the date of the signature of both Parties. The Contract shall become effective on the date of its publication at Register of Contracts.

11. **Representatives of the Parties**

- 11.1 The Seller has appointed the following authorised representatives for communication with the Buyer in relation to the subject of performance hereunder:

In technical matters: _____

- 11.2 The Buyer has appointed the following authorised representatives for communication with the Seller in relation to the subject of performance hereunder:

In technical matters: _____

IN WITNESS WHEREOF attach Parties their handwritten signatures:

Buyer

Signature: _____

Name: RNDr. Michael Prouza, Ph.D.

Position: director

Date:

Seller

Signature:

Name: Doc. Ing. Ladislav Pína, DrSc.

Position:

Date:



ANNEX 1

TECHNICAL SPECIFICATION

	The subject of the procurement	X-Ray Diffraction measurement system and stress analyzer system. The bid has to satisfied requirements below. The warranty has to be at least 24 months.
	Following measurements to be realized with a X-Ray Diffraction measurements system	<ul style="list-style-type: none"> - Qualitative and quantitative phase analysis, including the Rietveld analysis, of powders, bulk and liquid samples in Bragg – Brentano and parallel beam geometry - SAXS measurements of powders and liquids - Grazing incidence measurements - X-Ray reflectivity measurements of films with the thickness up to 300 nm - Reciprocal space mapping - Rocking curve measurements - Texture measurements - Stress measurements - Small area measurements (mapping)
Part 1: Delivery of XRD measurement device		
Technical features of the universal X-Ray diffraction measurement system		
Automatic component recognition	Must be available	
Automatic optics and sample alignment	Must be available	
Power of X-Ray generator	Not less than 3 kW	
X-Ray tube	With Cu anode	
Goniometer	Vertical, Theta-Theta	
Goniometer radius	Not less than 300 mm for all types of measurements	
Goniometer in-plane arm	Must be available to realize the following types of measurements <ul style="list-style-type: none"> - In-plane measurements on horizontal sample without need for fixing the sample - In-plane measurements with controlled penetration depth (depth profiling) - Phase analysis of ultra-thin films - Pole figure measurements (coated preferred orientation) in complete 0 – 90 degrees alfa range 	
Incident, 1st and 2nd receiving slits	Automatic	
Parabolic X-Ray mirror	Must be provided	
Incident monochromator	Ge (220) 2-bounce monochromator	
Collimator optics	All provided components must be provided to create incident beam with the diameter of 0.2 mm	
Incident slit collimators	5 deg; 2.5 deg; 0.5 deg and 0.25 deg or less	
Receiving slit collimators	5 deg; 2.5 deg; 0.5 deg and 0.25 deg or less	
Detectors	Scintillation counter and 1-D semiconductor strip detector	
1-D detector active area	Not less than 20 mm X 19 mm	
1-D detector strip width	Not less than 75 µm	
1-D detector number of channels	Not less than 250	
Sample stage (Chi cradle)	Sample stage must provide simultaneously:	



	Sample tilt in the range - 5÷95 degrees (Chi axis) Sample rotation to any specific angle (Phi axis) Sample translation along X, Y, and Z All mentioned movements must be motorized
Sample stage	Sample stage (Chi cradle) must be able to hold the sample with the diameter up to 200 mm and the thickness up to 24 mm
Capillary attachment	Must provide transmission and SAXS measurements of fibers, the liquid powder samples in capillaries with diameter 0.3 mm ÷ 1 mm. Also, capillary rotation function must be included.
SAXS attachment	Must include vacuum path, all slits and sample holders for general SAXS measurements
Sample observation camera	Must give possibility to specify points of small area measurements
Software	The software has to support all above-mentioned types of measurements. The software has to provide data analysis for Qualitative and Quantitative (RIR) phase analysis, Rietveld analysis, analysis of crystallinity, crystallite size and lattice stress, lattice parameter refinement, X-Ray reflectivity and SAXS.
Crystallography database	ISCD crystallography database with unlimited time license
Installation and on-site training	Must be provided



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ANNEX 2

SELLER'S BID

**Technická specifikace části „XRD measurement device“ veřejné zakázky
XRD measurement device and X-ray stress analyzer**

Technical specification (Annex No.1):

a)

	Zadavatel	Rigaku (dodavatel)
The subject of the procurement	X-ray diffraction measurement system and stress analyzer system. The bid has to satisfied requirements bellow. The warranty has to be at least 24 months	Warranty of the instrument is 24 months
Following measurements to be realized with a X-ray Diffraction measurement system	Qualitative and quantitative phase analysis, including the Rietveld analyses, of powders, bulk and liquid samples in Bragg – Brentano and parallel beam geometry	Yes, SW is able to do: qualitative and quantitative analyses, Rietveld of powders, bulk and liquid, in BB and parallel geometry
	SAXS measurements of powders and liquids	Yes, possible
	Grazing incidence measurements	Yes, possible
	X-ray reflectivity measurements of films with the thickness up to 300 nm	Yes, possible
	Reciprocal space mapping	Yes, possible
	Rocking curve measurements	Yes, possible
	Texture measurements	Yes, possible
	Stress measurements	Yes, possible
	Small area measurements (mapping)	Yes, possible

b) Požadované minimální parametry:

Part 1: Delivery of XRD measurement device		
Zadavatel		Rigaku (dodavatel)
Automatic component recognition	Must be available	Is available
Automatic optics and sample alignment	Must be available	Is available
Power of X-ray generator	Not less than 3 kW	Is 3kW
X-ray tube	With Cu anode	Has a Cu source
Goniometer	Vertical, Theta – Theta	Yes
Goniometer radius	Not less than 300 mm for all types of measurements	300 mm goniometer
Goniometer in-plane arm	Must be available to realize the following types of measurements: <ul style="list-style-type: none"> - In-plane measurements on horizontal sample without need for fixing thr sample - In-plane measurements with controlled penetration depth (depth profiling) - Phase analyses of ultra-thin films - Pole figure measurements (coated preferred orientation) in coupled 0 – 90 degrees alpha range 	Yes, in-plane arm measurement possible
Incident, 1st and 2nd receiving	Automatic	Yes, are automatic

slits		
Parabolic X-ray mirror	Must be provided	Is included
Incident monochromátor	Ge(220) 2-bounce monochromátor	Is included
Collimator optics	All provided components must be provided to create incident beam with the diameter of 0.2 mm	Yes
Incident slit collimators	5 deg; 2.5deg; 0.5deg and 0.25 deg or less	Is included
Receiving slit collimators	5 deg; 2.5deg; 0.5deg and 0.25 deg or less	Is included
Detectors	Scintillation counter and 1-D semiconductor strip detector	Is included
1-D detector area	Not less than 20mm X 19 mm	20mm x 19.2 mm
1-D detector strip width	Not less than 75 μ m	Yes, has 75 μ m strip
1-D detector number of channels	Not less than 250	Has 256 channels
Sample stage (Chi cradle)	<p>Sample stage must provide simultaneously:</p> <ul style="list-style-type: none"> - Sample tilt in range 5-95° (Chi axis) - Sample rotation to any specific angle (Phi axis) - Sample translation along X, Y and Z <p>All mentioned movements must be motorized.</p>	Ch cradle is included
Sample stage	Sample stage (Chi cradle) must be able to hold the sample with the diameter up to 200 mm and the thickness up to 24 mm	Yes, can hold samples of diameter 200mm and thickness up to 24mm
Capillary attachment	Must provide transmission and SAXS measurements of fibers, the liquid powder samples in capillaries with diameter 0.3 mm – 1 mm. Also, capillary	Is included

	rotation function must be included	
SAXS attachment	Must include vacuum path, all slits and sample holders for general SAXS measurements	Are included
Sample observation camera	Must give possibility to specify points of small area measurements	Is included
Software	The software has to support all above-mentioned types of measurements. The software has to provide data analyses for Qualitative and Quantitative (RIR) phase analyses, Rietveld analyses, analyses of crystallinity, crystallite size and lattice stress, lattice parameter refinement, X-ray reflectivity and SAXS	Is included
Crystallographic database	ICSD crystallography database with unlimited time license	Is included
Installation and on-site training	Must be provided.	Is included

V Praze 07.05.2018