



**INNOWACYJNA  
GOSPODARKA**  
NARODOWA STRATEGIA SPÓJNOŚCI



**UNIA EUROPEJSKA**  
EUROPEJSKI FUNDUSZ  
ROZWOJU REGIONALNEGO



**DKZ/31/2010**

**Date: Warsaw, 01.06.2010**

**Legal Grounds**

This public tender is conducted according to Public Procurement Law of January 29, 2004 (position 1655 in Polish Journal of Acts No 223 of 2007 with later changes).

**INSTYTUT TECHNOLOGII ELEKTRONOWEJ  
Al. Lotników 32/46, 02-668 Warsaw, Poland**

**TERMS OF REFERENCE  
for:**

**DELIVERY OF THE ELLIPSOMETER FOR MEASUREMENTS OF OPTICAL PROPERTIES  
AND THICKNESS OF THIN FILMS**

**CPV 38500000-0**

**Proceedings are conducted according to open procedure for assessed value below  
EUR 193 000,00**

**1. Name (company name) and address of the Awarding Entity.**

This proceedings are conducted by Tender Committee of Instytut Technologii Elektronowej,  
Al. Lotników 32/46, 02-668 Warsaw, Poland.  
Web page: <http://www.ite.waw.pl>

**2. Procedure for awarding the Contract.**

These proceedings are conducted in mode of open procedure according to Article 39 of Public Procurement Law of January 29, 2004.

The tenders submitted will be opened and evaluated by the Tender Committee according to the evaluation criteria.

From all tenders which have not been rejected, the one will be selected which receives the highest number of points calculated according to the evaluation criteria.

**3. Description of the object of the Contract.**

The object of the order is a delivery, installation, start up and testing of the brand new **ellipsometer for measurements of optical properties and thickness of thin films**, hereinafter called "device".

Requirements and technical parameters of the object of the order are indicated in Appendix No. 1 of this Terms of Reference.

**4. Partial and variant tenders are not allowed.**

**5. Time limit for the Contract performance.**

Deadline for completion of the tender – maximally to 18 weeks after signing the Contract.

**6. Conditions for participation in the procedure and description of the method used for the evaluation of the fulfilment of those conditions:**

**Eligible to compete for the Contract shall be economic operators who fulfil conditions defined in Article 22 paragraph 1 of Public Procurement Law of January 29, 2004 (with later changes):**

- 1) authorizations to perform specific activities or actions, if such authorizations are required by the law;
- 2) knowledge and experience;
- 3) appropriate technical potential and personnel capable of performing a contract;
- 4) economic and financial standing.

The Contractor may rely on knowledge and experience, technical potential, personnel capable of performing the Contract or financial abilities of other entities, regardless of the legal nature of its relations with such entities. In such case, the Contractor is required to prove to the Awarding Entity that it will have at its disposal the resources necessary to performing the Contract, in particular by presenting to this end a written commitment of those entities whereby they undertake to put the necessary resources at the Contractor's disposal for the time of their use in performance of the Contract.

**Evaluation of the above requirements will be performed according to the rule: "fulfil - not fulfil", on the basis of documents mentioned in point 7 of this Terms of Reference.**

**7. Information concerning declarations and documents to be provided by the Contractor to confirm the fulfilment of the conditions for participation in the procedure:**

- 7.1. Signed statement confirming fulfilment of the conditions defined in Article 22 paragraph 1 "Public Procurement Law" – in form of "STATEMENT" [Appendix No. 2].
- 7.2. The list of the completed deliveries – prove, that within the period of the last three years before deadline of tender submission or if being active in the business for shorter period – in this period, have completed at least 3 deliveries of the ellipsometer for measurements of optical properties and thickness of thin films, with the indication of the buyers.

**The lack of any of the above documents will cause the tender being rejected from further proceedings.**

**8. Information on the manner of communication between the Awarding Entity and the Contractor as well as of delivery of declarations and documents, indication of persons authorised to communicate with the Contractor.**

All the statements, notifications and information the Awarding Entity and the Contractor provide in writing form or by fax.

The contact person in matters concerning the tender are:  
Michał Urbanski MSc., e-mail: [urbanski@ite.waw.pl](mailto:urbanski@ite.waw.pl)

Please address all written correspondence, related to this tended proceedings, to:

Instytut Technologii Elektronowej  
Al. Lotników 32/46  
02-668 Warsaw, Poland.  
building No VI, room 216

Fax: + 48 22 548 78 46.

**9. Deposit requirements: we do not require.**

**10. Tender validation time – 30 days from the date of submission of the tenders.**

**11. Description of the manner of the tender preparation.**

The tender should be presented in writing form.

The tender should include:

- a) Name and address of the Contractor,
- b) Date of preparation of the tender,
- c) Filled in Appendix No. 1 to this Terms of Reference,
- d) Net price in PLN (The price presented in EUR, GBP or USD is allowed. In the case of submission of the tenders in EUR, GBP or USD, the price will be exchanged to Polish zlotys PLN according to selling exchange rate of the National Bank of Poland dated on the day before of opening of the tenders).
- e) Indication of the component tasks of the order that will be assigned to subcontractors [Appendix No. 3].

**The tender has to be signed by the Contractor or his Authorised Representative.**

**Together with the offer the Contractor is allowed to submit required documents defined at point 7 of this Terms of Reference, to confirm the fulfilment of the conditions for participation in the procedure.**

**In the case the Contractor company is located outside Poland, it is approved to submit the tender as well as the documents required from the Contractor as specified under point 7 of this Terms of Reference either in Polish or in English language.**

The Contractor is allowed to submit only one offer.

All costs of preparation of the tender, regardless of the results of the tender, shall be covered by the Contractor.

**12. Date and place of submission and opening of tenders.**

The tenders should be submitted at the site of the Awarding Entity in Warsaw at Al. Lotników 32/46, building No. VI, room 216, by 12<sup>00</sup> pm, on 23<sup>th</sup> June 2010 (in working days from 9 am till 2 pm). The tenders submitted after this deadline will not be considered.

Opening of the tenders will take place on 23<sup>th</sup> June 2010 at 12<sup>15</sup> pm. at the site of the Awarding Entity: Warsaw, Al. Lotników 32/46 in the building No. VI, room 120.

The Awarding Entity will open the tenders in accordance with its internal procedures but on occasion may hold a public opening which your representatives may attend.

The offers must be submitted in non-transparent and closed envelopes or packages. The envelope or package must be addressed as follows:

**Instytut Technologii Elektronowej  
Al. Lotników 32/46  
02-668 Warsaw  
Building No VI, room 216  
Do not open before 12<sup>15</sup> pm, on 23<sup>th</sup> June 2010.**

**OFFER FOR:  
DELIVERY OF THE ELLIPSOMETER FOR MEASUREMENTS OF OPTICAL PROPERTIES  
AND THICKNESS OF THIN FILMS**

The envelope or package must include full name and address of the Contractor.

The Awarding Entity does not accept responsibility for consequence of contractors failure to keep the above requirements.

**13. Description of the method of the price calculation.**

**The net price in PLN (EUR, GBP or USD) must include:**

- a) the device according to the requirements indicated in Appendix No. 1 of this Terms of Reference,
- b) installation,
- c) start up,
- d) testing of the device,
- e) transport, unloading and positioning,
- f) delivery conditions: DDP Warsaw
- g) insurance,
- h) training of persons according to Appendix No. 1 point 14 of this Terms of Reference.

**14. Description of the criteria which the Awarding Entity will apply in selecting a tender, specifying also the importance of particular criteria and method of evaluation of tenders.**

The Awarding Entity will evaluate whether the tender meets requirements introduced in this Terms of Reference. If the tender is valid (meets requirements introduced in this Terms of Reference), it will be taken into consideration in choice of the best one.

**Offer evaluation criteria:**

- Price                      Weight:                      - 100%

Number of points in the price criteria will be calculated according to the following formula:

$$P_n = C_{\min} / C_n * 100 * W$$

- where:  $P_n$  – points in price criteria  
 $C_{\min}$  – the lowest price from all the offers  
 $C_n$  – the price from the offer of n-th bidder  
 $W$  – weight of the "Price" criteria"

Maximum number of points to be gained within the price criteria is 100.

**15. Information concerning formalities which should be met following the selection of a tender in order to conclude a public procurement contract.**

The Contract with the winning Contractor will be signed pursuant to Article 94 "Public Procurement Law".

The Contract is concluded under procedure according to Title IV of Public Procurement Law of January 29, 2004.

**16. Other important statements which will be included in the Contract.**

The following statements will be included in the Contract:

**16.1. Indemnity**

- 1) In case of delay, caused by negligence, or poor performance of the Seller, the Seller will pay to the Buyer an indemnity of 0,1% of the value of the equipment delayed for each working day of delay up to 10% of it's value.
- 2) In case of delay in payment, the Buyer will pay to the Seller indemnity of 0,1% of the value of delayed payment for each day of delay up to 10% of it's value.
- 3) In case the Seller will cancel the Contract without reason caused by the Buyer, the Seller will pay to the Buyer penalty of the 10% of the total Contract value and the Seller will transfer back all the received payments for the subject of this contract to the Buyer account.

- 4) In case the Buyer will cancel the Contract without reason caused by the Seller, the Buyer will pay to the Seller penalty of the 10% of the total Contract value plus documentary evidence costs of materials and labour based on the following schedule:
  - a) in period shorter than 30 days from order placement - 20% of the Contract value
  - b) in period shorter than 30 days before delivery and acceptance – 100% of the Contract value
  - c) in period between mentioned in points a and b – percentage approximated by linear function.
- 5) In case of delay, caused by the Seller, in delivery longer than 3 months, the Buyer can cancel the Contract and the Seller will pay to the Buyer penalty of the 10% of the total Contract value and the Seller will transfer back all the received payments for the subject of this contract to the Buyer account.

## **16.2. Warranty**

- 1) The Seller undertakes a warranty of correct operation and technical quality of the delivered equipment for “warranty period included in the offer” months, calculated from the date of the final acceptance protocol, but no longer than “warranty period included in the offer + 3 months from the date of delivery”.
- 2) The Seller within warranty period covers costs of the repair or replacement of the defective goods and costs of their transport to the Buyer site after repair.
- 3) During the warranty period, in case of the necessity of the repair outside the Buyer site, the Seller has the obligation to make the repair or replacement within not longer than 12 weeks after the date of the written claim.
- 4) The warranty period will be increased by the time needed for the repair.
- 5) The replaced or repaired parts of equipment will be included a warranty of the Seller or the Producer.
- 6) During the warranty period, the Seller undertakes a maximal service response time within 3 working days after the date of the written claim.

## **16.3. Delivery instruction**

- 1) Subject of the Contract is to be shipped to the address below and placed at the disposal of the Buyer.  
Shipping address:           Instytut Technologii Elektronowej  
  Al. Lotników 32/46  
  02-668 Warsaw, Poland
- 2) The Seller advises to the Buyer about the dispatch by fax (No.+48 22 54-87-803).
- 3) The Seller will deliver CE certificate together with subject of the Contract.

## **16.4. Terms of payments**

Payment will be effected in the following way:

1. 60% of the contract value – (the value from the offer) – payable at delivery by the bank transfer to the Seller’s account on the basis of an original invoice and shipment documents within 7 days after shipment of the subject of the Contract to the Buyer’s site.
2. 40% of the contract value – (the value from the offer) – payable by the bank transfer to the Seller’s account on the basis of an original invoice within 21 days after performing the acceptance test at Buyer’s site and signing the acceptance test protocol of the microscope by both parties of the Contract.

The Buyer shall pay to the Seller due amount for the subject of this Contract by transfer to the Seller's account in:

.....  
.....

All bank charges in Poland are at the Buyer's account and bank charges outside Poland are at the Seller's account.

#### **16.5. Acceptance of the subject of the Contract**

The acceptance test will be performed after installation and start up of the subject of the Contract at the Awarding Entity site. The acceptance procedure will be assessment of the results of the tests mentioned in Appendix No. 1 point 13 of this Terms of Reference.

The results of the acceptance test must be accepted by signing by the Seller and the Buyer the acceptance test protocol of the ellipsometer.

#### **16.6. Force Majeure**

1. The parties shall be free of responsibilities for non-fulfilment of their obligations due to Force Majeure or these obligations will be change according to the point 4. Force Majeure shall be considered as an event, unforeseeable by either of the parties at the date of signature of this Contract, arisen after such date and being unavoidable and beyond the control of both parties.
2. Cases of Force Majeure are e.g. accidents, flood, earthquake, fire, explosion, war, mobilisation, strikes, blockades, general shortage of transport, materials or labour.
3. The party wishing to claim Force Majeure shall notify the other party in writing without delay on the intervention and on the cessation therefore.
4. Such party must certify the case of Force Majeure to the other party by documentation issued by the competent official authority of this country. The dates and periods for fulfilment of these obligations will be postponed or extended by the period of existence of the state of Force Majeure.

#### **16.7. Modifications of the Contract**

Due to organizational or technical reasons caused by the Buyer, the Buyer reserves himself the right to modificate the time limit for the Contract performance. In this case the Buyer must certify to the Seller in writing form the events that make delivery, installation or start up of the subject of the Contract impossible. The time limit for the Contract performance can be extend up to 3 months, unless the parties of the Contract decide in a different manner.

#### **16.8. Setting of disputes**

All disputes arising from the present Contract, failing amicable settlement shall be resolved by the Arbitration Court of the Polish Chamber of Commerce in Warsaw in accordance with the rules of this Court.

#### **17. Requirements concerning the security on due performance of the Contract: we do not require.**

#### **18. Procedure for additional explanations.**

Contractor is authorized to address the Awarding Entity only in written form, fax or e-mail is also allowed with request for additional information regarding the content of Terms of Reference - in this proceeding till 12<sup>th</sup> of June 2010. The Awarding Entity will respond all the inquiries according to the article 38 of the Act – "Public Procurement Law".

The questions and the answers will be published on web site of the Awarding Entity.

**19. Information on legal protection measures available to an the Contractor during the contract award procedure.**

Contractor's legal protection laws are included in Chapter VI of the Public Procurement Law of January 29, 2004 which is available on the Public Procurement Office (PPO) web site: [www.uzp.gov.pl](http://www.uzp.gov.pl)

**20. Other matters.**

For all matters not regulated in this Terms of Reference, the provisions of Public Procurement Law of January 29, 2004 will apply.

Michał Urbański

Vice-Director for Administrative and Technical Affairs

*This order has been founded by the EU: Project No. POIG.01.03.01-00-159/08-01 pt. Innowacyjne technologie wielofunkcyjnych materiałów I struktur dla nanoelektroniki, fotoniki, spintroniki I technik sensorowych (InTechFun) Innovative technologies of multifunctional materials and structures for nanoelectronics, photonics, spintronics and sensor techniques (InTechFun.)*

**Requirements and technical specification for the ellipsometer for measurements of optical properties and thickness of thin films**

<b>No</b>	<b>Parametr</b>	<b>Requirement</b>	<b>The column to the fulfilment by the Tender*</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1.	Type		specify
2.	Manufacturer		specify
3.	Country of origin		specify
4.	Manufacture year	2010, a brand new device	confirm
5.	Wavelength range	1. minimum: 250 nm or less 2. maximum: 850 nm or more	specify specify
6.	Goniometer	1. computer controlled; 2. angle range 40-90° or wider with a step of max. 5° and precision of 0,05° or better.	specify specify
7.	Sample holder	1. vertical; 2. holding the sample at the backside by vacuum; 3. with position adjustment at least in the X and Y axes as well as tilt angle adjustment; 4. ensuring ellipsometric measurements of samples with a minimal surface of 5 mm x 5 mm; 5. ensuring transmission measurements; 6. equipped with an additional stage for ellipsometric measurements of samples in a temperature range from room temperature to 550°C, or higher.	confirm confirm confirm confirm confirm confirm and specify
8.	Light source and beam	1. monochromatic beam incident to the sample. 2. incident beam area on sample surface is such, that ellipsometric measurements of samples with the minimum area of 5 mm x 5 mm is feasible for all wavelengths given in point 5.	confirm confirm
9.	Detector	1. ensuring the measurement of $\Psi$ and $\Delta$ ellipsometric parameters, with $\Delta$ in the range of at least 0-180°; 2. ensuring depolarization and anisotropy measurements; 3. equipped with a system for control of the axially of the beam incoming into the detector.	confirm confirm confirm
10.	Enhancement of the ellipsometer	Assuring the possibility of reducing the beam spot size to a size $\leq 500\mu\text{m}$ .	confirm
11.	Software	1. equipped with tools for creating and saving models of thin film structures created from given	confirm

		<p>materials;</p> <ol style="list-style-type: none"> <li>2. ensuring the simulation and measurement of: <ul style="list-style-type: none"> <li>- <math>\Psi</math> and <math>\Delta</math> ellipsometric parameters</li> <li>- real and imaginary part of the dielectric function, <math>\epsilon_1</math> and <math>\epsilon_2</math></li> <li>- index of refraction, <math>n</math> and absorption coefficient, <math>\kappa</math> for all the layers of the thin film structure defined in the model, in the full wavelength range given in point 5.;</li> </ul> </li> <li>3. ensuring thickness measurements of all the thin films in the structure defined in the model, including the determination of the measurement error;</li> <li>4. ensuring the measurement of transmission and reflection coefficients, <math>T</math> and <math>R</math>, for the same sample position;</li> <li>5. containing a database of semiconductor, dielectric and metallic materials in the extent needed to perform the above mentioned operations for structures defined in point 13;</li> <li>6. ensuring taking into account physical imperfections (e.g. roughness) of the interfilm interfaces in the simulated structure;</li> <li>7. ensuring ellipsometer control after the enhancement given in point 10.</li> </ol>	<p>confirm</p> <p>confirm</p> <p>confirm</p> <p>confirm</p> <p>confirm</p> <p>confirm</p>
12.	PC with an LCD for ellipsometer control	<ul style="list-style-type: none"> <li>• CPU: Intel Core 2 Duo, min. 2.33GHz, 4 MB cache, or equivalent</li> <li>• RAM: min. 2 GB;</li> <li>• graphics card: min 256 MB;</li> <li>• HDD: min 160 GB (SATA);</li> <li>• DVD drive: DVD <math>\pm</math> RW (SATA);</li> <li>• min. 2 USB ports</li> <li>• Windows operating system;</li> <li>• LCD monitor min. 20";</li> <li>• keyboard;</li> <li>• mouse;</li> <li>• LAN card.</li> </ul>	specify
13.	Acceptance test after the installation and start up of the ellipsometer at the Awarding Entity's site	<p>The samples for the acceptance test will be delivered by the Awarding Entity. The structures of the samples will be as follows:</p> <ol style="list-style-type: none"> <li>1. 200 nm ZnO/Al<sub>2</sub>O<sub>3</sub>;</li> <li>2. 200 nm ZnO/5 nm MgO/Al<sub>2</sub>O<sub>3</sub>;</li> <li>3. 100 nm SiO<sub>2</sub>/5 nm HfO<sub>2</sub>/500 nm ZnO/Al<sub>2</sub>O<sub>3</sub>;</li> <li>4. 5 nm HfO<sub>2</sub>/SiC;</li> <li>5. 100 nm Si<sub>3</sub>N<sub>4</sub>/4 <math>\mu</math>m GaN/Al<sub>2</sub>O<sub>3</sub></li> </ol>	confirm

		<p>The acceptance test will cover the measurement of the following:</p> <ul style="list-style-type: none"> <li>- <math>\Psi</math> and <math>\Delta</math> parameters,</li> <li>- real and imaginary parts of the dielectric function, <math>\epsilon_1</math> i <math>\epsilon_2</math></li> <li>- index of refraction, <math>n</math> and absorption coefficient, <math>\kappa</math></li> <li>- thickness</li> </ul> <p>of each of the films in the structures at room temperature and a measurement of the above mentioned for one chosen structure at 550°C.</p>	
14.	Training for minimum 2 persons on the usage of the ellipsometer at the Awarding Entity's site	ensured	confirm
15.	Manual for the ellipsometer and software and technical documentation in Polish or in English	ensured	confirm and specify
16.	Deadline for completion of the tender including installation, start up and testing	maximum to 18 weeks after signing the Contract	specify
17.	Spare part availability – minimum 10 years form the installation date	ensured	confirm
18.	Free of charge software updates for minimum 5 years from the installation date	ensured	confirm
19.	Post warranty services for 10 years from the installation date	ensured	confirm
20.	Technical support for minimum 10 years from the installation date	ensured	confirm
21.	Warranty period	minimum 12 months from the date of the signing of the acceptance protocol	specify and confirm
22.	Installation requirements for the ellipsometer	attach installation requirements	specify installation requirements

**\* Imprecise or inaccurate fulfilment of the table in the column 4 will result in rejection of the offer.**

.....  
/address stamp of the Contractor/

.....  
/date/

### STATEMENT

Acting in accordance with the contract award procedure, we certify that we fulfil the requirements specified in Article 22 paragraph 1 of Public Procurement Law, which states that eligible to compete for a Contract are economic operators who fulfil the requirements concerning:

1. authorisation to perform specific activities or actions, if such authorisations are required by the law;
2. knowledge and experience;
3. appropriate technical potential and personnel capable of performing a contract;
4. economic and financial standing.

.....  
/signature of the Contractor or his Authorised Representative/

**List of the component tasks of the order that the Tenderer intends to assign to subcontractors**

(in case no such tasks please fill in with dashes)

No.	The scope of contract, which the Tenderer intends to assign to subcontractors.
1.	
2.	
3.	
4.	
5.	

.....  
/signature of the Contractor or his Authorised Representative/