

แบบ บก.06 เลขที่ 51/64
ลงวันที่ 2 กันยายน 2564

ตารางแสดงวงเงินงบประมาณที่ได้รับจัดสรรและรายละเอียดค่าใช้จ่าย
การจัดซื้อจัดจ้างที่มีไขงานก่อสร้าง

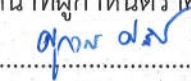


1. ชื่อโครงการ...ซื้อชุดกระจกรวมแสง (Collimating mirror) และ กระจกโฟกัสแสง (Focusing mirror) จำนวน 1 ชุด
(รายละเอียดตามเอกสารแนบท้าย)
2. หน่วยงานเจ้าของโครงการ...สังกัดฝ่ายสถานีวิจัย
สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)
วิธีจัดซื้อจัดจ้าง ☐ วิธีประกาศเชิญชวน ☐ วิธีคัดเลือก ☒ วิธีเฉพาะเจาะจง
3. วงเงินงบประมาณที่ได้รับจัดสรร 5,636,000.00 บาท (ตามใบขอซื้อ/จ้าง พส 091/2564 ลว. 10 ก.ย. 2564)
4. วันที่กำหนดราคากลาง (ราคาอ้างอิง) ณ วันที่ 2 กันยายน 2564 เป็นเงิน EUR 140,900.00
ราคา/หน่วย (ถ้ามี)...ตามตารางแนบท้าย
คิดเป็นเงินไทยตามอัตราแลกเปลี่ยน ไทยพาณิชย์ ลว. 2 ก.ย. 2021 (1 EUR = 38.80 บาท)
ประมาณ 5,466,920.00 บาท
5. แหล่งที่มาของราคากลาง (ราคาอ้างอิง)
5.1 ใบเสนอราคา บริษัท Thales SESO จำกัด สาธารณรัฐฝรั่งเศส
6. รายชื่อเจ้าหน้าที่ผู้กำหนดราคากลาง (ราคาอ้างอิง) ทุกคน

6.1 นางสาวศุภวรรณ ศรีจันทร์	เจ้าหน้าที่ผู้กำหนดราคากลาง
6.2 นายณัฏฐกฤต สุวรรณทา	เจ้าหน้าที่ผู้กำหนดราคากลาง
6.3 นายมงคล ผานาค	เจ้าหน้าที่ผู้กำหนดราคากลาง

หมายเหตุ :

พิจารณาราคากลาง ตามหลักเกณฑ์ข้อ (4) ราคาที่ได้มาจากการสืบราคาจากท้องตลาด โดยพิจารณาจากใบเสนอราคาตามท้องตลาดซึ่งมีผู้เสนอราคาเพียงรายเดียว

เจ้าหน้าที่ผู้กำหนดราคากลาง (ลงนาม)

1. 
2. 
3. 

ประกาศ ณ วันที่ 10 ก.ย. 2564

ตารางราคากลาง

No	Product Description	Quantity	Price per Unit [EUR]	Total Price [EUR]	ราคากลางรวม [EUR]
1	Collimating Mirror		64,400.00	64,400.00	64,400.00
2	Focusing Mirror		75,600.00	75,600.00	75,600.00
	Freight in CIP Bangkok Airport		900.00	900.00	900.00
	Total [EUR]		ราคากลางรวม		140,900.00 (5,466,920.00 บาท)

**คิดเป็นเงินไทย ตามอัตราแลกเปลี่ยน บมจ.ไทยพาณิชย์ ลว.2 ก.ย. 64 (1 EUR = 38.80 บาท)



Terms of Reference : TOR

Collimating mirror 1 item and focusing mirror 1 item

1. Background

The instrument development project using the microbeam at the beamline BL5.1 ASEAN was established to extend the availability of synchrotron-based microbeam techniques such as micro X-ray absorption near edge structure (μ -XANES) and micro X-ray fluorescence spectroscopy and imaging (μ -XRF). This project also aims to extend the synchrotron beam service for a wide range of researchers from many fields, for examples archaeology, plant science, agriculture and material science. In addition, the availability of μ -XANES and μ -XRF techniques at BL5.1 ASEAN will allow the SLRI users to study their materials in more fine details and also benefit to the SLRI internal researches and other cooperative researches between SLRI and other institutions. It will also enhance the learning activity for the undergraduates, postgraduates and academic staffs who are interested in synchrotron-based techniques.

2. Purchasing reason

A collimating mirror and a focusing mirror are optical elements which are essential for producing X-ray microbeam. A collimating mirror and a focusing mirror are used to collimate and focus the synchrotron X-ray beam to achieve the highly collimated and focused beam at the X-ray lens, which is the last focusing optic of the beamline. Then, the X-ray lens will focus the beam even smaller to achieve the micro X-ray beam at the sample position.

3. Objective

To be used as the focusing optics of the beamline.

4. Technical specifications

(1) Collimating mirror (CM) 1 item

Shape: Meridional cylindrical

Dimension (L x W x H): 1090 mm x 55 mm x 100 mm

Useful area (L x W): 1050 x 25 sq. mm.

Grazing angle: 2.5 mrad

Substrate material: Si single crystal

Optical coating: Pt

Coating thickness: 300 Å

Cooling: Yes

Radius of curvature:

tangential radius: $7,760,008.08 \pm 2\%$ mm

Sagittal radius: Infinite (> 1 km)

Slope error (Arcs.)

Tangential < 0.4 arc sec

Sagittal < 2.0 arc sec

Roughness (RMS) < 3 Å

Operating environment:

- compatible with UHV use ($< 1.0\text{e-}9$ torr)
- Able to be bake at 120 C

(2) Focusing mirror (FM) 1 item

Shape: Toroidal

Dimension (L x W x H): 1290 x 70 x 100 mm.

Useful area (L x W): 1250 x 50 sq. mm.

Grazing angle: 2.5 mrad

Substrate material: Si single crystal or ultra low expansion glass (ULE)

Optical coating: Pt

Coating thickness: 300 Å

Cooling: No

Radius of curvature:

tangential radius: $6,540,006.81 \pm 2\%$ mm

Sagittal radius: $28.109 \pm 1\%$ mm

Slope error (Arcs.)

Tangential < 0.4 arc sec

Sagittal < 8.0 arc sec

Roughness (RMS) < 3 Å

Operating environment:

- compatible with UHV use (< 1.0e-9 torr)

- Able to be bake at 120 C

5. Lead time

1 year

6. Delivery time

Within October 2022

7. Budget

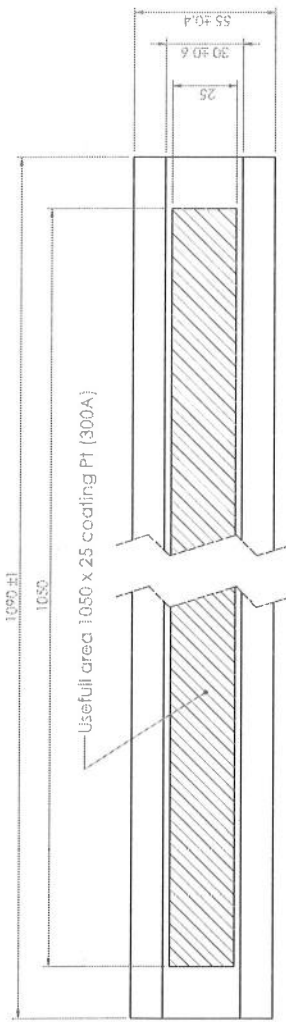
5,550,000 Thai baht

8. Warranty

1 year

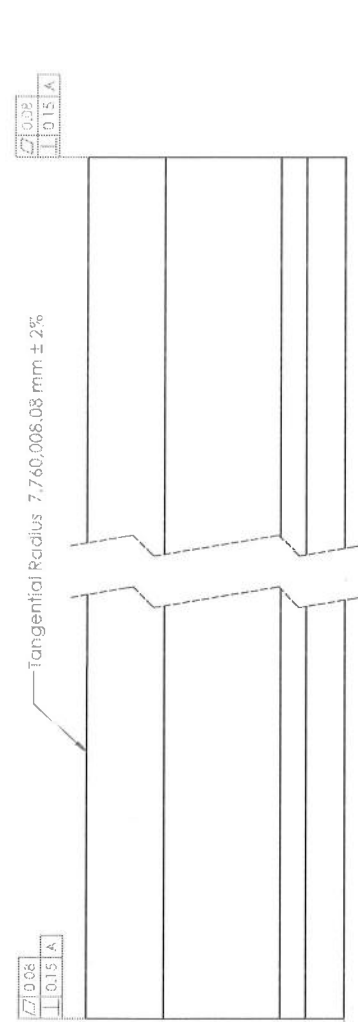
Signature.....*Jitrin Chaiprapa*.....

(Dr. Jitrin Chaiprapa)

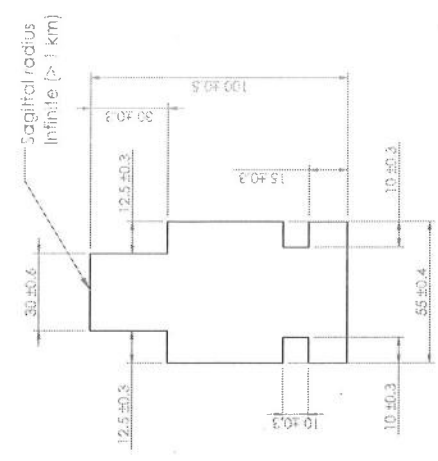


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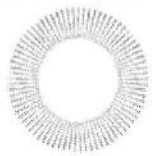
Shape: Meridional cylindrical
 Dimension (L x W x H): 1090 mm x 55 mm x 100 mm
 Useful area (L x W): 1050 x 25 sq. mm.
 Grazing angle: 2.5 mrad
 Substrate material: Si single crystal
 Optical coating: Pt
 Coating thickness: 300 Å
 Cooling: Yes
 Radius of curvature:
 Tangential radius: 7,760,008.08 mm ± 2%
 Sagittal radius: Infinite (> 1 km)
 Slope error
 -Tangential < 0.4 arc sec
 -Sagittal < 2.0 arc sec
 Roughness (RMS) < 3 Å
 Operating environment:
 - compatible with UHV use (< 1.0e-9 torr)
 - Able to be bake at 120 C

Handwritten signature

Chamfer 0.5x0.5 all edges

APPROVAL	DATE	TITLE: Collimating mirror 7.1 (CM 7.1)			SCALE	1:2
DRAWN	06-05-2021	Siam Photonics			MATERIAL	Si single crystal
CHECKED		สถาบันวิจัยแสงซินโครตรอน (องค์การมหาชน)			DRAWING NO.	51RLBL71_Fm_640110_P
RELEASED		Synchrotron Light Research Institute (Republuc Organization)			SHEET	Sheet 1 of 1
APPROVED		SHEET			3D CAD No.	
GENERAL TOLERANCES		PROJECTION		SIZE		
ISO 2768-mK		FIRST ANGLE		A3		
STANDARD DRAWING		UNIT: mm		3		
				4		

Thales SESO offer to Synchrotron Light Research Institute (SLRI)



THAI
SYNCHROTRON
NATIONAL LAB

2 mirrors for SLRI

DEV-11445-B
June 28th, 2021

THALES
Together • Safer • Everywhere

**Thales SESO SAS**

530 rue Frédéric Joliot Curie
13290 AIX-EN-PROVENCE
FRANCE

SIRET Number 399 064 963 00024

VAT Number : FR46 399 064 963

www.seso.com

www.thalesgroup.com

Tel +33 (0)4 42 16 85 00

Fax +33 (0)4 42 16 85 85

Attention :

SLRI Thailand

111 University Avenue,
Muang District,
Nakhon Ratchasima 30000
THAILAND

E-mail : jitrin@slri.or.th

Aix-en-Provence, June 28th, 2021

Subject : 2 mirrors

Our Ref : DEV-11445-B

Dear Jitrin Chaiprapa,

We are pleased to present you our updated offer for:

**1 collimating mirror (CM) and 1 focusing mirror (FM) for
SLRI**

Mr. Luca PEVERINI, X-ray Product Line Manager, luca.peverini@fr.thalesgroup.com,
+33 7 85 90 69 02, will be glad to answer any of your questions related to this offer.

Yours faithfully,

Luca PEVERINI

X-ray product line Manager

Christine QUEVAL

QUEVAL
Christine

Signature numérique de
QUEVAL Christine
DN : o=Thales, cn=QUEVAL
Christine,
email=christine.queval@fr.thales
group.com,
0.9.2342.19200300.100.1.1=T003
1770
Date : 2021.06.28 09:57:43
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President

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A. Introduction

A.1 Context

This offer addresses SLRI request for the manufacturing of 2 mirrors : 1 collimating mirror (CM) and 1 focusing mirror (FM).

A.2 Customer's request

A.2.1 Description and Applicable documents

SLRI asked for the manufacturing of 1 CM and 1 FM, following the technical specifications provided in the document below

- SLRI CM and FM specification.doc

A.2.2 Customer's goods

Not applicable

A.2.3 Deliverables (hardware & documentation)

We will deliver 2 mirrors.

We will provide the following documentation together with each mirror:

- Interface drawings and overall dimensions drawings.
- Copy of the material certificate,
- Test report
- Unpacking and user manual
- Mirror is packed in PEHD container sealed with double bag filled with nitrogen

Note: All detailed drawings are Thales SESO ownership and will not be delivered.

A.3 Thales SESO's experience

To reach the high level of performance required Thales SESO will combine its high expertise in X-ray mirrors, Space instruments and Laser optics manufacturing and metrology, using the best available technologies, equipment and processes.

A.3.1 Experience related to this specific project

Thales SESO has manufactured more than 1100 X-ray mirrors for Synchrotrons and XFELs, including more than 270 mirrors with length greater than 1m and more than 80 bimorph mirrors (adaptive with piezo-electric components).

Shapes are flat, cylindrical, elliptical and toroidal with fixed curvature, adjustable and variable focus. All such mirrors required a high level of quality in terms of slopes and roughness.

A.3.2 Relevant achievements on low figure error polishing

The metrology used at Thales SESO is based on interferometry allowing to access directly the shape in 2D fashion on a reflecting surface of an X-ray mirrors. This data are essential to realize polishing and to improve the surface quality on a 2D topography.

In order to extract the information on the slope errors typically measured along 1D line section it is necessary either introduce a specific analysis protocol to process topography data or to employ an instrument accessing the slope errors information directly.

In the table hereafter, a selection of mirrors delivered with profile errors near and below 1nm over different lengths is given (see table at A.3.3). As one can see the examples present shape errors in a range varying between 0.4 and 1.2 nm r.ms. depending on the mirror shape (flat, cylindrical and elliptical) and size.

For those example in most cases, the original specification was often given in terms of slope errors associated to larger values of the shape errors (typically ~2 nm rms). As a consequence, the values obtained on those examples have to be considered as a best effort for this specific cases. The other example are given as purpose of illustration of our metrology/fabrication capabilities and concerns either shorter mirror lengths or deformable one (bimorphs).

A key-point of our proposal is our possibility to process the mirror with our state-of-art polishing Ion Beam Figuring 3D machine installed in a clean-room at Thales SESO in November 2017 and qualified in January 2018 (see figure below left).

The securing of each polishing action will be achieved by employing our interferometer (24 Inches diameter (see figure below right) which was cross-checked with one external laboratory.



Figure 1

Left : BF1500R machine for Ion Beam Figuring polishing installed in Nov. 2017. Allows full surface polishing of mirrors with size up to 1500x500x200 mm.

Right : 24" interferometer for single pass metrology.



A.3.3 Relevant experience on superpolishing with low slope errors

A summary of the X-ray mirrors manufactured in recent years and with surface specification similar to the present request is presented below.

Customer	Shape	Specification		Measured performances	Delivery
SHANGHAI INSTITUTE	Elliptical Cylinder mirror	Tangential slope error	$\leq 0.8 \mu\text{rad rms}$ on 600mm	0.7 μrad	2015
		P_q_θ	213m, 11.08m, 26.16mrd°	21.3m, 11.08, 26.62mrd	
		Sagittal slope error	$\leq 5 \mu\text{rad rms}$	4.8 μrad	
		r	r>500m	>500 m	
		roughness Rh	$\leq 3 \text{ \AA Rms}$	1.03 \AA Rms	
NSRRC –IPE	Toroidal	Tangential slope error	0.25 μrad on 280	0.24 μrad	2020
		R	R=2127mm	2162mm	
		Sagittal slope error	<1 $\mu\text{rad rms}$ on 10mm	0.87 μrad	
		r	r=753.2mm	751.97mm	
		roughness Rh	2 \AA rms	1.3 \AA Rms	
ESRF	Toroidal	Tangential slope error	<0.5 $\mu\text{rad rms}$ on 600mm <0.3 $\mu\text{rad rms}$ on 200mm	0.5 $\mu\text{rad rms}$ 0.22 $\mu\text{rad rms}$	2017
		Sagittal slope error	<6 μrad on 10mm r=46.34mm	4.13 $\mu\text{rad rms}$ r= 46.38 on 10mm	
		r			
		roughness Rh	< 3 \AA Rms	2.12 \AA Rms	
Cinel for CNR	Double Cylindrical	Tangential slope error	<1 $\mu\text{rad rms}$ on 600mm <1 $\mu\text{rad rms}$ on 200mm	0.5 $\mu\text{rad rms}$ 0.22 $\mu\text{rad rms}$	2017
		Sagittal slope error	<25 μrad on 25mm <25 μrad on 25mm	5.89 $\mu\text{rad rms}$ 5.89 $\mu\text{rad rms}$	
		r			
		roughness Rh	< 3 \AA Rms	2.5 \AA Rms	



B. Activities & management

B.1 Project activities, reviews, meetings

Start of the contract:

This milestone is used to launch the procurements at Thales SESO, at the beginning of the contract.

Detail Design Review

The design review will be held after the contract signature. Its role it's to ensure that a common understanding is in place regarding the design and the interfaces

This review will be held by telephone or by exchange of emails.

Completion of the grinding and purchase of main supplies

This milestone is positioned at the end of the grinding phase. A quality certificate will be delivered to the customer assessing the purchases of main supplies has been executed.

Delivery

This milestone is at the delivery of the products manufactured.

NSRRC must acknowledge the well-receiving of the products within 15 days after reception, otherwise they will be considered accepted.

Acceptance

NSRRC will perform tests of the products, their acceptance shall occur within 1 month after Delivery

B.2 T0 and Planning

B.2.1 Definition of the effective date of the Contract T0

The Contract shall enter into force at T0 upon occurrence of the following events:

- (a) Signature of the contract by both parties or acknowledgment of receipt of the order by Thales SESO
- (b) Credit of advance payment on Thales SESO's bank account

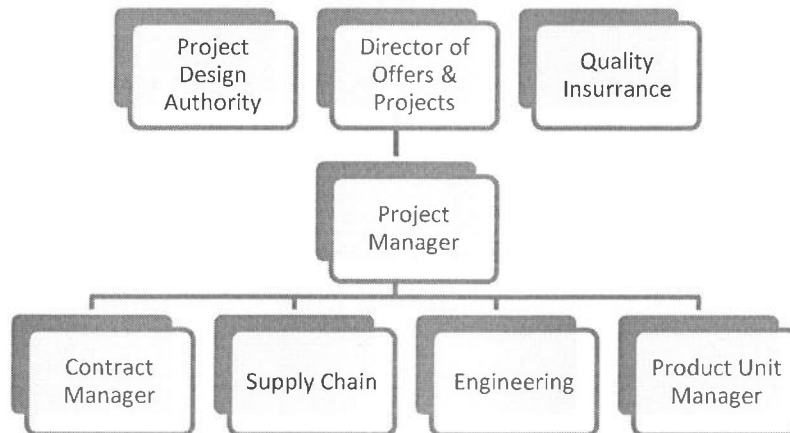
B.2.2 Planning

The planning for the production of the 2 mirrors is given in the table below :

Date	Milestone
T0	Start of the contract
T0 + 1 month	Detail Design Review
T0 + 4 months	Completion of the mirror's grinding
T0 + 17 months	Delivery

B.3 Organization

The manufacturing and delivery of the optical parts will be taken in charge by a multidisciplinary project team, led by an experienced project manager.



The Project Manager will mainly be responsible of the following tasks:

- Main interface for the relationship between Customer and Thales SESO: progress reports, organization of the reviews, ...
- Internal coordination of the project, relations with the engineering department and the manufacturing workshops of Thales SESO.

The project manager will be assisted by a Project Design Authority who will be in charge of:

- the technical interface between Customer and Thales SESO
- the technical lead for the project team
- ensuring the solution compliance with contractual requirements
- reviewing the technical risks and opportunities and to establish the related mitigation plans

The project manager will also be assisted by a Quality Assurance Manager who will in particular be in charge of:

- the follow-up of the different inspection procedures and inspection reports
- the management of the deliverable documentation, including deviation and derogation, if any
- the management of the configuration of the delivered products

The project manager will also work in tight collaboration with the following key-persons of Thales SESO workshops and design departments:

- an optical engineer of the engineer group of Thales SESO, who will lead the task of test set-up optical design and related testing procedures;
- the product unit manager who will organize and follow up the progress of the different manufacturing and control activities.



B.4 Quality assurance

Thales is a global group of 80 000 people established in 68 countries, involved in Aerospace, Space, Ground Transportation, Defense & Security, and Digital Identity & Security.

At Thales, we have a very strong engineering DNA and we pay a lot of attention to our processes and procedures, to increase our customer's satisfaction.

Thales SESO SAS is certified by AFAQ AFNOR:

- ✓ EN 9100:2018
- ✓ ISO 9001:2015
- ✓ AQAP 2110:2016
- ✓ AQAP 2310:2017
- ✓ ISO 14001:2015
- ✓ ISO 45001:2018



Our certificates can be downloaded at www.seso.com/downloads/

Thales SESO SAS Quality System is integrated in Thales Alenia Space QHSE system (Chorus TAS). Thales Alenia Space is Thales space global business unit, a joint venture between Thales and the Italian group Leonardo (former Finmeccanica).



C. Technical

In this offer, Thales SESO realizes the manufacturing of 2 mirrors (1 CM + 1 FM) according to the specifications described below.

C.1 Design

- Slope errors are understood after removal of the best local sphere
- Roughness measurements are understood after removal of the best local sphere and cylindrical terms
- Our devices have been qualified for UHV (10⁻⁹ Torr) at ESRF

C.2 Manufacturing

- Adaptation of design of support to withstand customer specifications
- Purchasing of raw material
- Grinding, polishing
- Coating
- Test of the performance
- Packing in double sealed bag of plastic filled with nitrogen

C.3 Metrology

C.3.1 Measurement Layout

The final metrology and acceptance tests are made on mirrors placed on the side to remove gravity effect. For integrated mirrors designed by Thales SESO the final tests and acceptance tests are made on integrated mirrors placed in operational working position.

These tests are realized in Thales SESO's laboratories at the atmospheric pressure.

C.3.2 Shape/slope error characterization

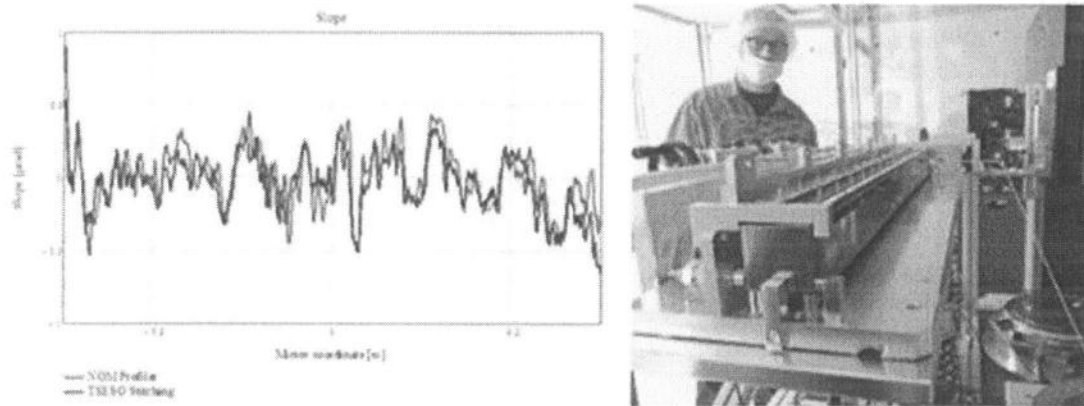
Thales SESO has developed and validated a set of customized interferometry techniques to qualify super-polished and integrated mirror systems. These methods are summarized below:

1. Grazing incidence interferometry (double-pass) allowing testing the entire mirror surface in a single unitary image; typical spatial resolution is in the order of 1-5 mm depending on the grazing angle of incidence used.
2. Sub-aperture stitching (single-pass geometry): the objective diameters that can be used are 100 mm and 150 mm leading to typical spatial resolution of 150 and 300 μm respectively.
3. Large area stitching (single-pass geometry): objective diameter $\phi = 600$ mm allowing to ensure the metrology on large area mirrors with a spatial resolution below 600 μm .
These methods are combined to ensure our metrology through cross-comparison and statistical methods to infer the high spatial frequency features.
Thales SESO demonstrates a metrology with sub-nm sensitivity.



C.3.3 Thales SESO metrology validation

A cross-comparison between our interferometry methods and a NOM profiler is finally presented in figure below and is given in slope units for another flat mirror with a curvature radius exceeding 100 km.



Left: Cross-comparison between different metrologies realized on a flat 2nd generation bimorph mirror without voltage applied. NOM profiles (blue curve) are compared with interferometry measurements realized at Thales SESO using classical interferometry (red curve); Right: Bimorph mirror system equipped with slot cooling during NOM testing at HZB.

C.4 Roughness measurement

Roughness measurements can be realized with a OPTOSURF or NPFLEX 3D metrology system (Brucker) equipped with a 1X, 5X, 10X or 50X objective, motorized head motion, tip-tilt in the head design and zoom options.

Roughness values are intended after removing the spherical and cylindrical terms. Roughness values below 0.1 nm rms can be inferred with 0.015 nm repeatability.

C.5 Aspect

0.5 scratches or points defect per cm² over 99% of the useful area, where visible scratches are classified as more than 5μm wide by 2mm long and point defects are classified as diameter more than 50μm.

C.6 Tests

- Visual inspection
- Radius and longitudinal slope errors will be measured with ZYGO interferometer
- Roughness will be measured for more than 10 areas uniformly distributed in the useful area with an OPTOSURF microscope and an x10 Mirau Microscope lens
- Dimensions of components and interface measurement will be mentioned in a test report
- Coating inspection



C.7 Technical compliance matrix

C.7.1 Compliance to CM specifications

Collimating Mirror (CM) Parameters		Compliance
Shape	Collimating mirror	Y
Dimension (L x W x H)	1090 mm x 55 mm x 100 mm	Y
Useful area (L x W)	1050 x 25 sq. mm.	Y
Grazing angle	2.5 mrad	Y
Substrate material	Si single crystal*	Y
Optical coating	Pt	
Coating thickness	300 Å	Y
Cooling	Yes	Y Fine grinding on the side of the substract
Radius of curvature		
Tangential radius	7,760,008.08 ± 2% mm	Y
Sagittal radius	infinite (>1 km)	Y
Slope error (Arcs.)		
Tangential	< 0.4 arc sec	Y
Sagittal	< 2.0 arc sec	Y
Roughness (RMS)	< 3 Å	Y
Operating environment		
- compatible with UHV use (< 1.0e-9 torr)		Y
- able to be bake at 120 C		
Quantity	1	Y

*the lowest price



C.7.2 Compliance to FM specifications

Focusing Mirror (FM) Parameters		Compliance
Shape	Toroidal	Y
Dimension (L x W x H)	1290 x 70 x 100 mm	Y
Useful area (L x W)	1250 x 50sq. mm.	Y
Grazing angle	2.5 mrad	Y
Substrate material	Si single crystal*	Y
Optical coating	Pt	Y
Coating thickness	300 Å	Y
Cooling	No	Y
Radius of curvature		
Tangential radius	6,540,006.81 ± 2% mm	Y
Sagittal radius	28.109 ± 1% mm	Y
Slope error (Arcs.)		
Tangential	< 0.4 arc sec	Y
Sagittal	< 8.0 arc sec	Y
Roughness (RMS)	< 3 Å	Y
Operating environment		
- compatible with UHV use (< 1.0e-9 torr)		Y
- able to be bake at 120 C		
Quantity	1	Y

*the lowest price



D. Financial and contractual

D.1 Validity of the offer

This offer is valid for 90 days.

D.2 Price

Item #	Identification	Unit price	Quantity	Price
1	Collimating mirror	64 400 €	1	64 400 €
2	Focusing mirror	75 600 €	1	75 600 €
3	Shipping charges	900 €	1	900 €
			TOTAL	140 900 €

Our prices are fix and firm prices (FFP), in Euros, excluding VAT.

EUR 140 900
x 38.80 UTM

D.3 Delivery conditions

The delivery is CIP Bangkok airport, Thailand (Incoterms ICC 2020).

≈ 5,466,720.00 UTM

D.4 Invoicing plan

Our invoicing plan is the following :

Date	Milestone	% Invoicing	Means of payment
T0	Signature of the contract or P.O and Advance payment done	40%	T/T
T0 + 4 months	Completion of the mirror's grinding	30%	T/T
T0 + 17 months	Delivery	30%	Letter of Credit

SLRI shall open an irrevocable Letter of Credit in favor of the Seller, through the French bank, Société Générale, for the Total Contract Price upon signature of the contract. All banking charges in France will be borne by the beneficiary and all banking charges in Thailand will be borne by the SLRI.



D.5 Payment conditions

The advance payment is due with the signature of the contract, the other payments are due 30 days nets after invoice date.

All the payments must be made by wire transfer in Euros on Thales SESO's bank account :

HOLDER: STE THALES SESO

BANK: SOCIETE GENERALE AIX EN PROVENCE (00050)

BANK ADDRESS: 1 rue Mahatma Gandhi, 13626 Aix-en-Provence, France

IBAN: FR76 3000 3000 5000 0200 0007 570

SWIFT (BIC): SOGEFRPP

VAT Number : FR46 399 064 963

D.6 General Terms & Conditions of Sales

Thales SESO General Terms and Conditions of Sales apply to this offer.

They are delivered in a separate document together with this offer.

They can also be downloaded at www.seso.com/downloads

D.7 Covid-19

This offer has been established independently of COVID-19 pandemic's potential impacts on Thales SESO activities and/or on its supply chain (subcontractors and/or suppliers) which cannot reasonably be assessed and taken into account at the time of the offer is prepared and issued.

Therefore, should this sanitary crisis affect the assumptions on which this offer is based, then Thales SESO reserves the right to revise its terms and conditions accordingly (schedule and/or price in particular) or even to revoke its offer.



ณ.ย. 02, 2021 09:21

Unit: Thai Baht

FOREIGN CURRENCIES		BANK SELLS		BANK BUYS			
		D/D & T/T	NOTES	TT	EXPORT SIGHT BILL	T/CHQS. & CHQS.	NOTES
ดอลลาร์สหรัฐ	USD	32.61	32.76	32.31	32.21	32.11	32.06
ดอลลาร์สหรัฐ	USD1	32.61	32.69	32.31	32.21	32.11	31.58
ดอลลาร์สหรัฐ	USD2	32.61	32.67	32.31	32.21	32.11	31.22
ยูโร	EUR	38.80875	38.88	38.0675	37.9775	37.8475	37.785
ปอนด์สเตอร์ลิง	GBP	45.14625	45.46875	44.28125	44.03125	43.88125	43.80625
เยน (ต่อ 100 เยน)	JPY	29.93	29.955	29.15	29.03	28.93	28.89
ดอลลาร์สิงคโปร์	SGD	24.46125	24.5725	23.84625	23.75625	23.68625	23.645
ดอลลาร์ฮ่องกง	HKD	4.2325	4.30375	4.1275	4.0975	4.0675	4.03875
วอนเกาหลี	KRW	-	0.028	-	-	-	0.023
ฟรังก์สวิสเซอร์แลนด์	CHF	35.8325	35.9075	35.095	34.995	34.905	34.53375
ดอลลาร์ออสเตรเลีย	AUD	24.375	24.57375	23.4125	23.3125	23.2425	23.225
ริงกิต	MYR	7.92	7.95125	7.70625	7.65625	7.60625	7.135
แรนด์แอฟริกา	ZAR	-	2.33	-	-	-	-
โครนสวีเดน	SEK	3.80125	3.83625	3.73125	3.68125	3.66125	3.5825
ดอลลาร์แคนาดา	CAD	26.04	26.10375	25.38875	25.25875	25.17875	24.8375
โครนเดนมาร์ก	DKK	5.21125	5.25	5.125	5.095	5.07	4.91
โครนนอร์ว	NOK	3.76625	3.80375	3.685	3.665	3.645	3.505

Asian, Beijing, size, Indian, Thai, SE, SO