



Enabling
Virtual
Access to
Latin-American
Southern
Observatories

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Abstract

This document reports on the tender results of the SA1 EVALSO Communication Infrastructure. Accordingly to the adopted procurement strategy, the report is structured in two documents, namely:

- Optical Infrastructure, by ESO and OCA (This document)
- DWDM Equipment, by REUNA (see Part II)

¹ nature of the deliverable: **R** = Report, **P** = Prototype, **D** = Demonstrator, **O** = Other

² Dissemination level **PU** = Public
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CO = Confidential, only for members of the consortium (including the Commission Services).

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LIST OF ABBREVIATIONS

ADSS	All Dielectric Self Supported (fibre cable)
CfT	Call for Tender
IRU	Indefeasible Right of Use
ITT	Interest to Tender
MOP	Ministerio de Obras Publicas (Chilean Ministry for Public Works)
N/A	Not Applicable
OCA	Observatorio Cerro Armazones
PoP	Point of Presence
SLA	Service Level Agreement
TELCO	Telecommunication Company/Provider that will provide, at the very minimum, the Fixed Wavelengths (one Lambda) between Antofagasta and the Santiago areas

1 PURPOSE AND SCOPE

This document reports the results of the tendering process of the EVALSO Optical Infrastructure. The content of this document is identical to the preliminary status report (2009/12/31) with the only difference that the DWDM preliminary status has been removed.

1.1 Applicable documents

The following applicable documents form part of the present document to the extent specified herein. In the event of conflict between applicable documents and the content of the present document, the content of the present document shall be taken as superseding.

- AD1 EVALSO-SA1-1.1 Technical Specification for the procurement of the EVALSO optical infrastructure
- AD2 EVALSO-SA1-1.2 Area Survey
- AD3 Invitation to Tender for the EVALSO Equipment
- AD4 EVALSO-SA1-1.4 Statement of Work for the PAO-Ruta5 fibre (Item 1a)
- AD5 EVALSO-SA1-1.5 Statement of Work for the optical infrastructure between Ruta5 and Santiago area (Items 1a, 2, 3, 5a, 5b)

2 OVERALL PROCUREMENT STRATEGY

The procurement of the overall EVALSO Communication Infrastructure has been structured in two separate procurement processes:

- The procurement of optical paths making up the EVALSO optical infrastructure intended to serve:
 - the Observatories: ESO/Paranal and RUB/OCA
 - REUNA Antofagasta,
 - The end points: ESO/Santiago and REUNA/Santiago.

Execution of this procurement is assigned to ESO and OCA.
The scope of procurement is defined in AD1. A description of the involved locations is available in AD2.

- The procurement of the EVALSO DWDM Equipment covers the active equipment for all locations served by the Optical Infrastructure.

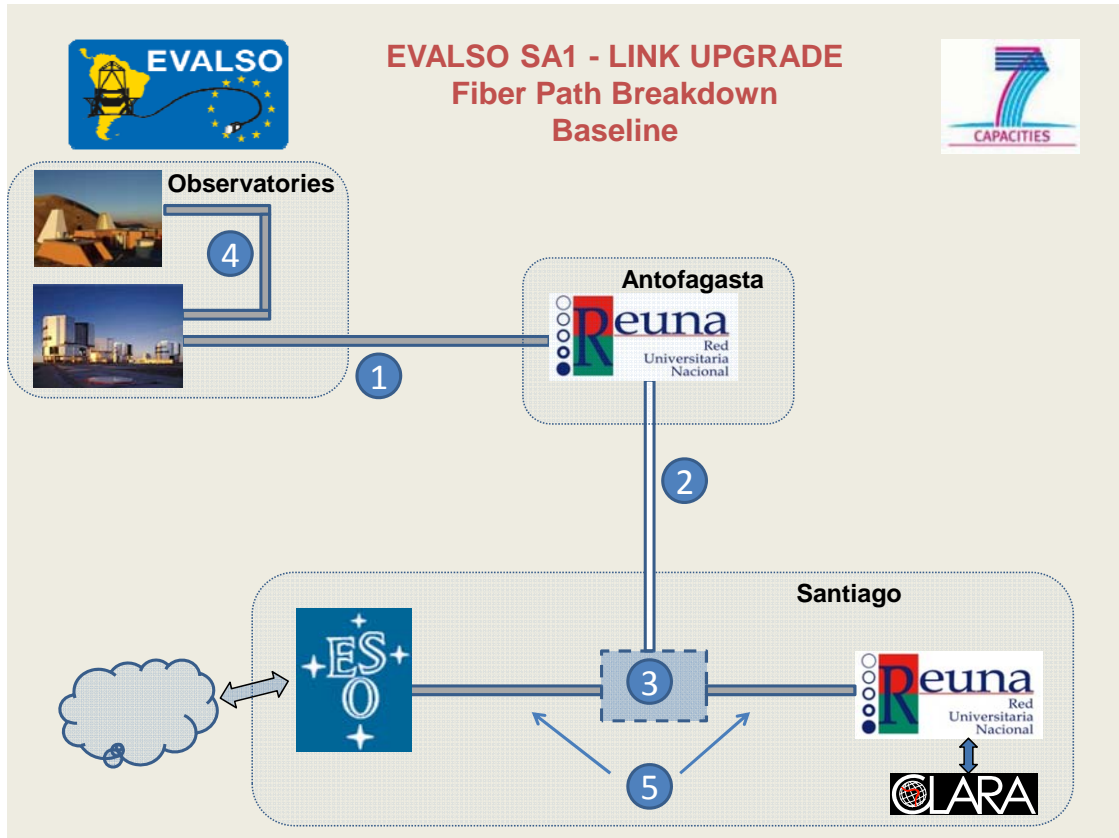
The Execution of this procurement is assigned to REUNA.
The scope of procurement is defined in AD3.

As the procurement of the equipment depends on the optical parameters defined by the infrastructure, the equipment procurement was started after that the optical reached a consolidated status, both in technical and planning terms.

The present document covers the Optical Infrastructure. Please refer to Part II for the DWDM Equipment.

3 OPTICAL INFRASTRUCTURE BREAKDOWN

The whole system is defined in has been divided in items according to the following schema:



The identified items are:

- Item 1: Dark Fibers between ESO Paranal and REUNA Antofagasta, divided into two sub items:
 - Item 1a: from the start of the road to Paranal Observatory to the “Panamericana road” (La Varilla)
 - Item 1b: from the “Panamericana Road” to REUNA/Antofagasta
- Item 2: Fixed Wavelengths (one Lambda) between REUNA Antofagasta and the Santiago area (TELCO PoP)
- Item 3: Housing space for EVALSO equipment at the TELCO PoP (Santiago)
- Item 4: Dark Fibres between OCA and ESO Paranal
- Item 5: Dark fibre between TELCO PoP and the end points in Santiago, namely ESO/Vitacura (5a) and REUNA/Providencia (5b)

4 CALL FOR TENDER OPTICAL INFRASTRUCTURE

4.1 Call for Tender

The Call for Tender (CfT) was formally started on April 1st and the deadline for Bid submission was May 22nd. During this time, potential bidders submitted questions that were receiving clarifications notified to all interested parties.

The following table provides a summary of the Companies invited to submit an offer and their responses.

Companies	Country	Invited	Offer Received	Regret	No Reply
Country:	Chile	10	6		4
	Czech Republic	1			1
	Finland	2			2
	France	2			2
	Germany	4			4
	Italy	2			2
	Spain	1			1
	The Netherlands	1		1	
	United Kingdom	3			3
	Total	26	6	1	19

Six offers, all from Chilean Companies have been received.

- Axys S.A. (Axys) Items 1a, 4;
- CLAS Ingeniería Eléctrica S.A. Items 1a, 4;
- Empresa Nacional de Telecomunicaciones S.A. all Items;
- Gtd. Teleductos S.A. Items 1a, 4, 5a, 5b;
- SICE Agencia Chile S.A. Items 1a, 1b, 4;
- Telefónica Empresas Chile S.A. (Telefónica) all Items.

4.2 Evaluation Process

A Contract Award Committee (ESO) was appointed and the tenders were analyzed from a technical, managerial, contractual, schedule and financial point of view.

The technical evaluation was assigned to the Technical Board formed by representatives from ESO, REUNA, RUB-OCA, GARR, CLARA.

An initial screening of the six tenders received concluded that they were all compliant with the requirements of the CfT; however because of significant differences in price, a decision was made to only analyze in details the most competitive offers, namely:

- Axys for the connectivity between Paranal and Route 5 (Item 1a), and between OCA and Route 5 (Item 4, to be procured by RUB/OCA);
- Telefónica for all Items of the CFT.

4.3 Clarification with Tenderers

Several rounds of questions were required with both bidders, of both technical and commercial nature, and were answered satisfactorily.

4.4 Brief Details of the Final Evaluation of the Tenders

4.4.1 Technical Evaluation

Axys (Item 1a) -This tender is technically compliant

The tender of Axys fulfils all technical requirements set in the Technical Specification. The company has extensive experience in designing, installing, commissioning and maintaining fibre optic infrastructures for data communications in Chile. The proposed solution of an underground line is a serious plus for ESO in terms of lower visual impact and higher protection of the cable.

Telefónica (all Items)- This tender is technically compliant

The tender of Telefónica fulfils all technical requirements set in the Technical Specification. Telefónica is one of the few telecommunication providers that can offer this type of system in Chile. For the new fibre, Telefónica proposes an overhead line using concrete poles. The solution is compliant with the requirements.

For Item 2 (fixed wavelengths between Antofagasta and Santiago), Telefónica, in addition to offering a baseline which is compliant with the requirements of the CfT, includes the possibility for a major technical upgrade (10 Gpbs instead of 2.5 Gpbs, at a comparatively modest price increase. In consideration of the synergies that the increased capacity would allow with the other partners, mainly very favourable condition for the data transport from Chile to Europe, the higher capacity is selected.

4.4.2 Managerial Evaluation

Axys (Item 1a) - This tender is managerially compliant

Axys provided a well structured proposal, including a Company Product Assurance Manual. Axys is a contractor known to ESO as it has already worked successfully on several projects with both ESO Observatories and for the ALMA project. From the references, Axys did many projects for Telefónica.

Telefónica (all Items) - This tender is managerially compliant

Telefónica is a major worldwide telecommunication operator. Presence in Chile is well established since decades. The proposal is well structured and adequately covers the key aspects of maintenance and operation.

4.4.3 Schedule Evaluation

Both tenders comply with the overall schedule

In particular, for the construction of the new fibre, both bidders have submitted credible planning with project duration of 10 to 11 months.

4.5 Final Recommendation

Based on the above evaluations, the ESO Contract Award Committee unanimously recommended that two contracts be negotiated with:

- **AXYS** for the construction of a new fibre cable between Paranal and Route 5, namely item 1a, including 10 years of maintenance;
- **TELEFONICA** for the connectivity in 10-year IRU modality between Route 5 and Santiago, namely items 1a, 2 (10Gbps), 3, 5a/b, also including 10 years maintenance.

According to the ESO process, the complete final recommendation was delivered to the ESO Director General and posted to the next possible date for formal approval by ESO Governing Bodies (Finance Committee and Council), planned for Nov 04th.

At the same time, the results of the analysis were provided to RUB-OCA for the processing of the item4 part (OCA to road B710).

5 CONTRACTS FOR THE OPTICAL INFRASTRUCTURE

The EVALSO Optical Infrastructure is fully completely covered by three contracts, currently in place.

5.1 ESO Contract No.29446/ESO/09/27821/YWE, dated Dec 18th to AXYS S.A. for the Construction and Maintenance of the EVALSO Fiber Link between the Paranal Observatory and Rota 5 (La Varilla cross road)

The Scope of Work is covered by AD4.

Because the internal timing for formal approval by ESO Finance Committee (planned for November and mandatory for investment of this size) would have introduced a delay in the start, the ESO Director General allowed to put in place an initial Contract with AXYS for the detailed design and preparation of the documentation needed to obtain the official permits. This was done at the end of September.

This contract was later replaced by the final version, covering the construction of the new line along road B710, after the FC authorized the placement of Contracts in their full scope (Nov 4th).

The first phase, deposit at the ‘Ministerio de Obras Publicas’ (MOP, Ministry for Public Works) of the documentation set needed for the formal approval of the construction permits needed for installation along public roads, was completed on Dec 10th. The permit was granted on 2010/01/07. Construction started on Feb 16th in Paranal. Completion is planned for June 2010.

5.2 ESO Contract No.30957/ESO/09/27821/YWE, dated Dec22nd, to TELEFONICA Chile for the EVALSO Optical Infrastructure between La Varilla and Santiago

The Scope of Work is covered by AD5.

The Contract identifies 3 main milestones:

- Delivery of the infrastructure in Santiago: two dark fibres (5a and 5b) and the housing space (3). Planned end of February 2010.
- The 10Gbps LAMBDA (2) Planned end of April 2010.
- The dark fibber (1a) from Antofagasta to La Varilla. Planned end of May 2010.

**5.3 RUB-OCA Contract dated Dec 14th to AXYS S.A.
for the Construction and Maintenance of the EVALSO Fibre
Link between the Cerro Armazones Observatory and Ruta
B-710**

As this is the extension of the new fibre cable up to the Cerro Armazones Observatory, it uses the same technical documents as the item 1a (see AD1, AD4).

Delivery is planned to be completed after item 1a, (end June 2010)