EISCAT AB

Enquiry
Thermal cabinets for 19-inch racks, EISCAT_3D

EISCAT AB

Closing Date for Bids:	**2025-03-21**
Earliest Bid Expiration Date:	2025-05-30

EISCAT AB

1 INTRODUCTION

This enquiry concerns the purchase of 194 thermally controlled and thermally insulated cabinets fitted inside existing 19-inch racks.

This document outlines the requirements for the cabinet of the Receiver Unit inside an existing 20-foot container. EISCAT_3D is based on 228 20-feet containers in total, whereas only 37 of those are fully populated with both Receivers and Transmitters – the remaining containers are only populated with the Receiver that fits in parts of one 19-inch rack.

The electronics in the containers require a thermally controlled environment, and the current design only allows the entire container to be controlled. For cost saving reasons, we want to limit the heating requirements in the receive-only containers by introducing a temperature-controlled cabinet for the receivers – and leaving the rest of the volume in the container unregulated.

There is a 3D model available for the Receiver but is a company confidential property of the vendor and cannot be published. This document is assumed to be sufficient for describing the scope of the purchase and detailed enough for an overall design idea and for the pricing. The 3D model will be available for the detailed design once an agreement is signed.

2 TECHNICAL DESCRIPTION

Below is an illustration of how a container looks like. As shown, there are seven 19-inch racks inside – but for the Receive-only containers, only Rack 4 will be populated (with the Receiver).

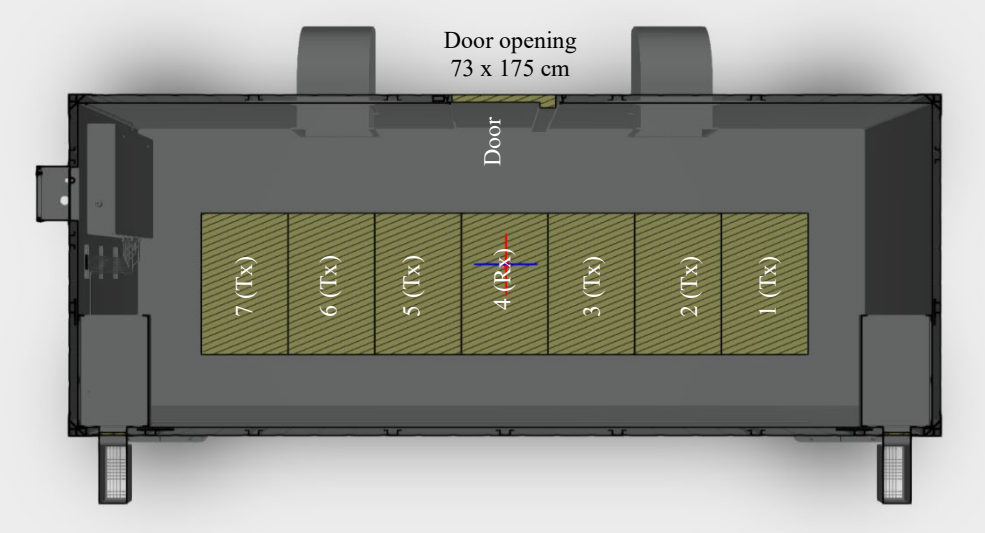

Figure 1. Illustration of the container and a cross-section of the container seen from above

This is how the receiver installation currently looks like in Rack 4. As seen, most of the front panel is occupied with bulky coaxial cables (182cp) which is why the front panel is left in the open for the cabinet description – it simply becomes too complicated and costly to have a receiver cabinet that accommodates all cables. Also, tests shows that the heat leakage from the front panel is not substantial – the thermal coupling between the front panel and the internal electronics is weak.

2.1 Thermal tests using a test-cabinet

30mm thick cellular plastic (XPS) https://www.xlbygg.se/produkt/cellplast-xps-jackofoam-250-jackofoam-250-600x1200x30mm/ was used to build a tight cabinet around the receiver, part from the front panel that was left open. A 150m^3/h fan and a 200W heater were included to maintain the temperature inside the cabinet and showed to be sufficient for the container temperatures during the test. The heater was set to approximately +12°C and the fan at approximately +25°C. The container temperature varied between +6°C and -6°C throughout the test, that lasted for 330 hours.

The results show that it was possible to maintain the +12°C while not operating the receiver (no internal heating inside the unit) and +25°C while dissipating approximately 550W during receiver operations.

Figure 2. Test cabinet front and rear views (with the rear wall removed)

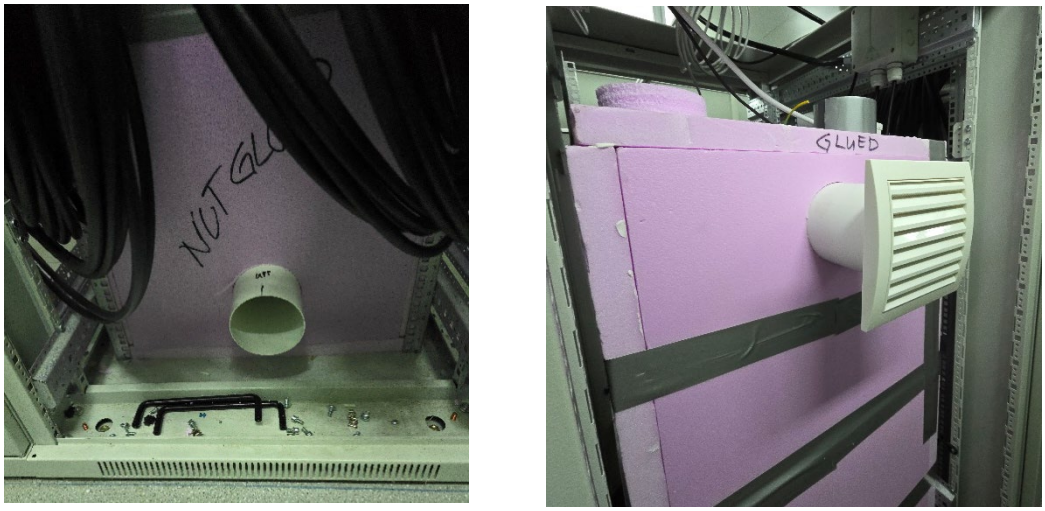

Figure 3. Left: Test cabinet lower front and air inlet. Right: Test cabinet rear and air outlet

Note: the final dimensioning of the fan(s) and heater(s) is up to the vendor to decide.

3 CABINET REQUIREMENTS

The final design details need to be agreed in the design phase, but the minimum cabinet requirements for the bid are:

Requirement	Description	Note
Req.1.	Receiver physical dimensions: See appendix. Weight: 28 kg.	
Req.2.	Cabinet external dimensions: ▪ Height: 1600 ±30mm ▪ Width: 520 +0 -10mm ▪ Depth: 600 ±10mm	See illustration in the appendix
Req.3.	The cabinet needs to be tight enough such that any air-leakage only has a very minor impact on the cabinet inside environment.	
Req.4.	Power connections to the cabinet internal fan(s) and heater(s): The cabinet needs to have an electrical connection box in the upper rear or top area with the fan(s) and heater(s) cables available for connection to the local container thermal control system. The wires must be 1,5mm^2 and marked with fan1, fan2, heater1, heater2 etc.	We are open to a standardized connector solution if that would be more beneficial.
Req.5.	Cable feedthroughs: ▪ The cabinet must have a 12x20mm cable-slit in the front for the Receiver power cable*. ▪ The cabinet must have two 12mm auxiliar cables feedthrough. The extra feedthroughs need to be placed in the center of the top panel and 150mm inwards seen from the rear panel. * The extra feedthroughs must be able to be plugged if not populated.	*See the illustration in the appendix
Req.6.	The cabinet needs to be designed in such a way that replacements of its fan(s), heater(s), louver(s) can be done without the need to remove the Receiver.	
Req.7.	The cabinet needs to be freestanding on the existing rack floor and allow for the mounting of the receiver and ODF (see Req.8). 10x10 +5-0 mm beams acting as feets alongside the depth of the cabinet. The reason is to accommodate for a small air inlet in the base of the rack. The cabinet cannot have a flat lower surface - it must have a distance as shown in the illustration in the appendix.	The receiver front panel is left exposed (not inside the cabinet). It needs to have vertical mounting rails standard to 19-inch rack mounting. See the appendix.
Req.8.	The cabinet needs to support the mechanical mounting of a 1U heigh, 290mm deep optical distribution frame (ODF – see appendix). It can be mounted either at the top but included in the cabinet, or just above the cabinet (see appendix).	See the left image in figure 2, where the ODF is mounted just above the test-cabinet. The exact design can be decided in the detailed design discussions.
Req.9.	Cooling and heating: ▪ Internal power consumption modes: 0W, 60W and 550W. ▪ The cooling airflow from bottom front to rear-top by suction fan(s). ▪ 1-phase, 230V standardized fan(s). ▪ Gravity louvers on the air in- and outlets. ▪ 1-phase, 230V Heater(s) placed on the lower cabinet part (e.g. the floor). The heater(s) must have built-in overheating protection.	The dimensioning of the fan(s) and heater(s) is defined by the vendor. See illustration in the appendix.

Requirement	Description	Note
Req.10.	▪ Non-operational temperature: -30°C to +60°C ▪ External operational temperature: -30°C to +60°C ▪ Internal operational temperature: +5°C to +25°C *	The cabinet needs to allow for cold storage, and to be operational down to -30°C outside the cabinet while maintaining the *Internal operational temperature* inside. * *Set-temp* will be set by the container thermal control system. The cabinet needs to maintain the *Set-temp* with 3°C accuracy if the container air temperature allows for it. Note: Cooling is obtained by using air from outside the cabinet (from the container), meaning that the cabinet cannot cool below that.
Req.11.	The cabinet needs to have a Receiver sliding support – e.g. L-shaped structures that allow for sliding in the Receiver during installation. See the illustration in the appendix.	
Req.12.	Lifespan: ≥ 30 years	The cabinet is placed inside a container and will not be exposed to precipitation or wind.
Req.13.	The *Procurement object* 2-4 cabinet packings need to allow for outdoor storage and to allow for being handled by a pallet jack or fork lifter.	We do not have indoor storage capabilities at the sites, so the packing needs to withstand snow and rain.

4 PROCUREMENT OBJECTS

There are four *procurement objects* related to this purchase, in prior order:

Procurement object 1 – One (1) cabinet delivered to HQ in Kiruna (for verification)
Procurement object 2 – Fifty-five (55) cabinets delivered to the Swedish site in Kaiseniemi
Procurement object 3 – Fifty-five (55) cabinets delivered to the Finnish site in Karesuvanto
Procurement object 4 – Eighty-three (83) cabinets delivered to the Norwegian site in Skibotn

In total, 194 cabinets delivered to four different locations in three different countries.

5 TENDERING INFORMATION

5.1 General instructions

To qualify as Tenderer and have tenders evaluated, a Tenderer must reply to and/or comment on all the requirements (req.1-13) stipulated in this enquiry. The tender must be received by EISCAT AB at the closing date with an affirmation that the submitted tender is valid until the bid expiration date stated above.

5.2 Subcontractors

The Tenderer has full responsibility to any subcontractors.

5.3 Time of delivery

EISCAT foresees deliveries of all *Procurement objects* during 2025 and *Procurement object 1* as soon as possible. We would like to install Procurement *object 2* already by this summer. The Tenderer shall indicate planned *Procurement objects* lead times based on EISCAT ABs acceptance of *Procurement object 1*.

5.4 Price

The prices of all offered items and any options must be quoted in one of SEK, EUR, NOK, exclusive of VAT.

5.5 Fixed price

Fixed price means that the price shall not be adjusted for foreign exchange and/or index, or in any other way. The fixed price in the bid shall include all costs related to the purchase and the completeness of the deliveries.

5.6 Envisaged payment schedule

At *Procurement object 1* acceptance	20%
At *Procurement object 2* delivery	20%
At *Procurement object 3* delivery	20%
At *Procurement object 4* delivery	30%
Final Acceptance	10%

Final acceptance occurs when all *Procurement objects* are delivered correctly to each site and when EISCAT AB has verified that there is no damage or loss of items in the deliveries. If EISCAT AB fails to do the verification within 1 month from the last delivery of *Procurement object 4*, the vendor has the right to invoice for the *Final acceptance*.

5.7 Verification of qualification of Tenderers

EISCAT AB's requirements for Tenderers are stipulated below. EISCAT AB will examine if the Tenderer fulfils these requirements before a tender is further evaluated.

5.7.1 Exclusion of Tenderer/tender

Candidates or tenderers are excluded from participation in procurement procedures if:

- A tender received after the closing date will not be considered. Submissions lacking requested supporting material will not be considered.
- they are bankrupt or are having their affairs administered by the courts, have entered an arrangement with creditors, have suspended business activities, are the subject of proceedings concerning those matters, or are in any analogous situation arising from a similar procedure provided for in national legislation or regulations.
- they have been convicted of an offence concerning applicable laws and regulations of the environment, human rights, working conditions, anti-corruption, gender equality and diversity.
- they are banned or restricted from doing business in the European Union.

5.8 Submission of the enquiry

5.8.1 Language

All documentation in this procurement including all correspondence shall be in Swedish or English.

5.8.2 Requirement for registration

The company's registration from the Register of companies, commercial enterprises, or associations, whichever is applicable, shall be attached to the reply.

5.8.3 Tenderer data

The reply shall show the Tenderer's:
Name
Address
Registration number
Telephone number
E-mail address

5.8.4 Submission

Tenders are accepted via email (PDF format).

The tender shall be addressed to the following postal address:
EISCAT AB
Bengt Hultqvists väg 1
SE-981 92 Kiruna
Sweden

Tenders shall be sent to the following email addresses:
johan@eiscat.se and registrar@eiscat.se

EISCAT must receive the enquiry, at the latest, by 18.00 Central European Time (CET) on the closing date.

5.9 Information regarding the enquiry

Questions regarding this tender shall be submitted in writing and may be addressed to Johan@eiscat.se.

5.10 Applicable law

Swedish law applies.

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5.11 Delivery and Invoice addresses

All invoices must be sent electronically to faktura@eiscat.se and be addressed to the below addresses respectively.

The *Procurement Objects* 1 to 4 shall be delivered to the following addresses:

Procurement Object 1:
EISCAT AB
Bengt Hultqvists väg 1
SE-981 92 Kiruna
Sweden

Procurement Object 2:
EISCAT AB
EISCAT 3D Kaiseniemi (68°16'1.6"N 19°26'52.9"E)
Kaiseniemi 2
SE-981 95 Kiruna
Sweden

Procurement Object 3:
EISCAT AB
EISCAT 3D Karesuvanto (68°28'48.9"N 22°31'24.8"E)
Syväjärventie 430
FIN-99470 Karesuvanto
Finland

Procurement Object 4:
EISCAT AB
EISCAT 3D Skibotn (69°20'23.9"N 20°18'51.3"E)
Bulldosarveien 160
N-9143 Skibotn
Norway

5.12 Award of contract

EISCAT AB will accept the tender that meets the requirements or has given reasonable justifications for the requirements that are not met and is the most economically and technically advantageous. A further criterion for this procurement will be indicated delivery times.

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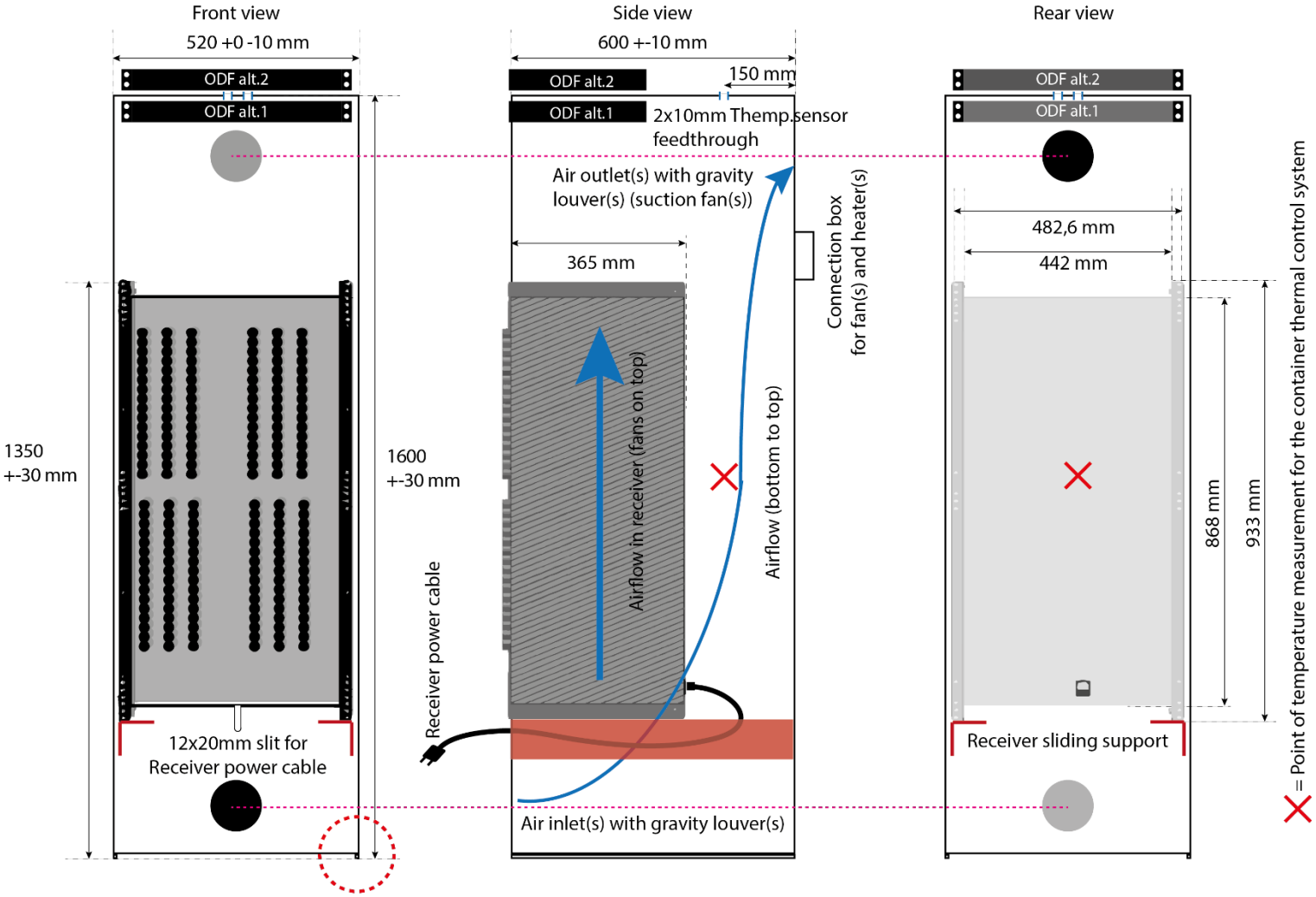
APPENDIX



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