



hispasat

Una empresa de Redeia

# HISPASAT Challenge 2022

## **Addendum A – Challenge Description**

June 2022

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## 1 Challenge Title

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Design of a system to assist in pointing a VSAT satellite antenna.

## 2 Requirement

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Hispasat provides satellite communication services through geostationary satellites. A fixed VSAT satellite antenna that is precisely pointed to the particular satellite that will deliver the connectivity is required to access these services. The person in charge of pointing the antenna must have some technical expertise in order to accomplish an accurate pointing since the installation procedure of a VSAT antenna has certain criteria.

Solutions are being incorporated into Hispasat's service offering that are targeted at tasks where simple and quick satellite connectivity is required. This enables the implementation of the solution in situ without the need for anchors and with the requirement to do it as quickly as possible. These events frequently occur in emergency situations when agility is required and no one around has even rudimentary antenna pointing skills.

In order to provide connectivity to people, professionals, and IoT devices, Hispasat is actively conducting R&D&I processes in pursuit of advances related to the deployment of connectivity bubbles in distant or inaccessible locations. The use of this technology may be made more widespread and effective by streamlining the antenna pointing procedure. This will also speed up the deployment times for specialized operators.

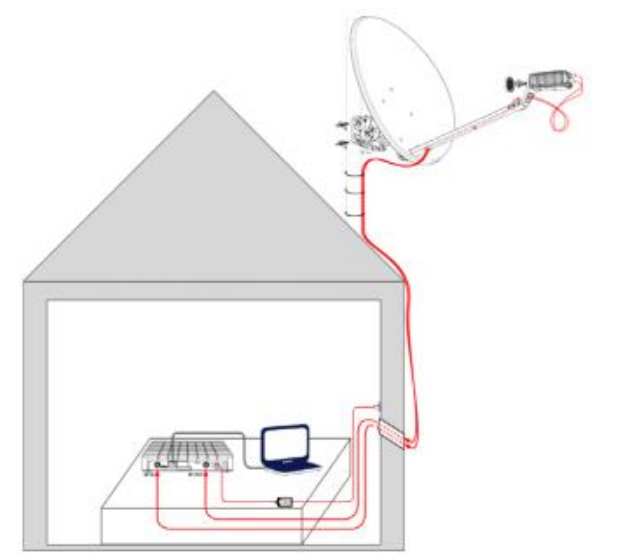


Figura 1. Overview of an installation (on a rooftop)

## 3 Challenge Description

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To provide aided pointing system designs that enable a VSAT antenna to be set up at any place quickly and easily by a non-technical person.

The system must achieve precise aiming with minimal intervention from the person setting up the antenna. The aided pointing system must be reliable both during installation, when the antenna must be anchored to a wall or roof, and during deployment in situ, where the antenna cannot be anchored or there is not enough time to do so.

The system must be able to achieve the coarse pointing of the antenna (in azimuth and elevation) with accuracy and simplicity, using latitude and longitude in relation to the antenna's position. It will be appreciated that the system has the most precise information about this relative position (latitude and longitude). Designs that are relevant to all or any of the above VSATs may be submitted (Ka-band, Ku-band, Gilat technology, and

Hughes). The ideal place to install and point the VSAT must be sought out and indicated in the proposed design. Additionally, the designs must include a guide or similar to make installing the antenna easier, whether in Ka or Ku, and configuring the modem in accordance with the modem's technology and model.

Furthermore, legitimate designs are sought for use in a variety of geographical contexts, particularly designs that are applicable across the whole Spanish and Latin American region where the HISPASAT company offers its services.

## 4 Evaluation Criteria

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The following criteria will be used to evaluate the submitted proposals.

### **SIMPLICITY & USABILITY**

- The quantity and kind of tasks the antenna deployer must do.
- Clarity and simplicity of the user's instructions or information.
- The level of automation throughout the different stages of the operation.

### **COMPATIBILITY**

- Any model of VSAT antenna, regardless of technology, band, size, or weight, may use the solution.
- The solution's capacity to function in deployments with or without anchors for antennas.

### **SCALABILITY**

- The price and characteristics of production and assembly.
- Simplicity of integration into the present deployment procedures for connection.

### **INNOVATIVE NATURE**

- Suit the demands of the end user.
- Performance, materials, and design.
- Originality and differentiation.
- Innovation and creativity in the technological proposal.

## 5 Content of the Proposal

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The following sections must be present in the proposal, and the total number of pages in the PDF solution should not exceed 15.

1. Technical outline of the proposed design (including all the details for its correct evaluation).
2. Timeframe for completion.
3. Tech-wise, the proposed concept is feasible.
4. Tasks needed to put the new design into practice.
5. Benefits and value that the proposed design offers.
6. Sedimentation surveys.
7. The team's prior experience.

## 6 General Details about the Selecting Procedure

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The current Design Contest will be judged in accordance with the criteria established by the Retos Hispasat 2022 call's Rules. The preliminary results of the Contest will be made public on the [Elewit Challenges website](#) and on the company profiles the firm has on social media.

Participants must submit their proposals by email to [innovacion@hispasat.es](mailto:innovacion@hispasat.es) and fill in the form, the link to which can be found on the challenge publishing website. Spanish will be the contest's preferred language, although English-language submissions will also be accepted. The potential of arranging a session for the finalists to present their concept to HISPASAT specialists will be taken into consideration after the three (3) finalist ideas for the challenge have been chosen. The goal of this session is to provide a more thorough explanation of the technical proposal and any conceptual clarifications that are required. The finalists will have a maximum of fifteen (15) minutes to defend their Proposals.

The successful Proposal will have the opportunity to execute an innovation pilot that will develop the suggested design, with HISPASAT covering a portion of the costs (up to €5,000). If the solution is both technically and commercially feasible, both parties will create a business agreement. In the event that no proposal satisfies the minimal quality and practicality standards, the organization has the right to end the challenge.

# ANNEX

When selecting the location for an antenna installation, the following factors should be considered:

- To be able to see the HISPASAT satellites clearly and without any obstructions interfering.
- Establish a boundary to guarantee that no one enters the radiation zone of a certain area (min. 3 m).

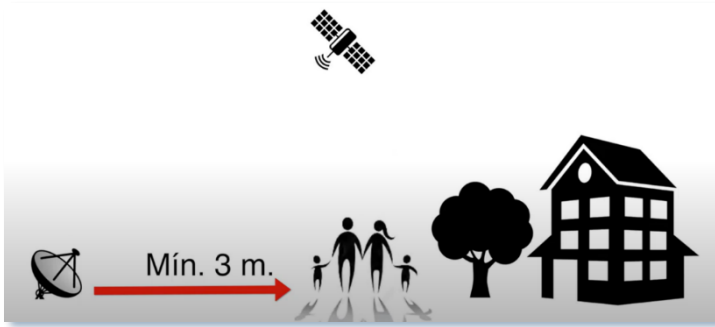


Figura 2. Minimum distance between a person and the antenna

Normally, the procedure to follow when installing a VSAT antenna is as specified below:

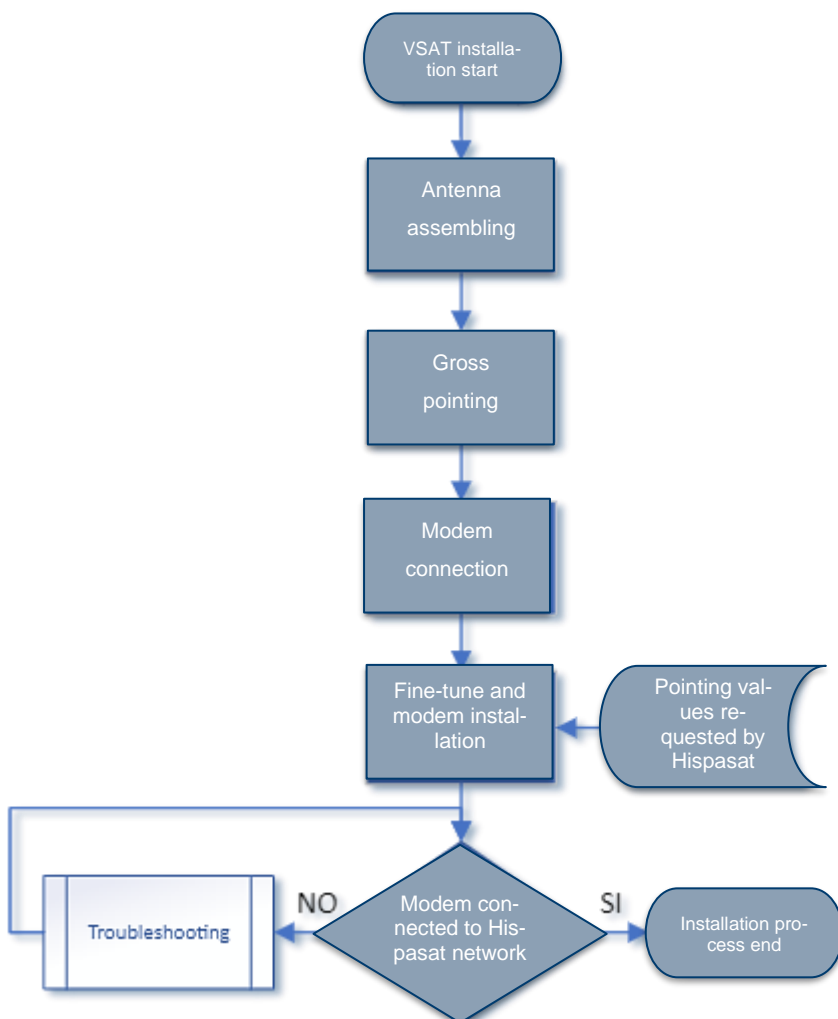


Figura 3. VSAT Installation Flowchart

Actions to take:

### 1. Antenna Assembly

The first stage in installing a VSAT is assembling the antenna and all the other parts associated (power supply, BUC, LNB, wiring, mast, etc.). A specialized manual for HISPASAT describes how to assemble an antenna in basic steps.

### 2. Coarse pointing

The next stage is to do a coarse pointing of the antenna to the desired satellite once it has been completely assembled.

Here, the latitude and longitude of the site where the antenna will be erected must be taken into consideration in order to acquire the azimuth and elevation values of the position where the VSAT is to be mounted.

Once the azimuth and elevation values have been determined, the antenna itself may be set using the supplied metrics. It's crucial to correctly configure the polarization at this stage as well (take into account if it is a Ka-band or Ku-band antenna, since the polarization is different).

The coarse pointing must enable the HISPASAT satellite signal to be seen.

### 3. Modem Connection

The reception and transmission wires from the transceiver or LNB/BUC to the modem must be linked to the VSAT, and the modem must be connected to the mains through the appropriate power supply in order to connect the antenna to the modem.

Finally, depending on the model being utilized, we must configure the modem for the satellite connection.

### 4. Fine Adjustment and Modem Installation

Accessing the modem's web interface is required to complete the antenna's fine pointing and accomplish a fine adjustment. To complete the installation, the modem interface functions as a Wizard.

From the graphical user interface, you may gauge the reception signal's intensity and maximize it (fine adjustment) to achieve the Hispasat-required nominal signal levels. The elevation and azimuth fine adjustment screws on the antenna itself must be used to tune the VSAT.

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