AMTA Technical Tour

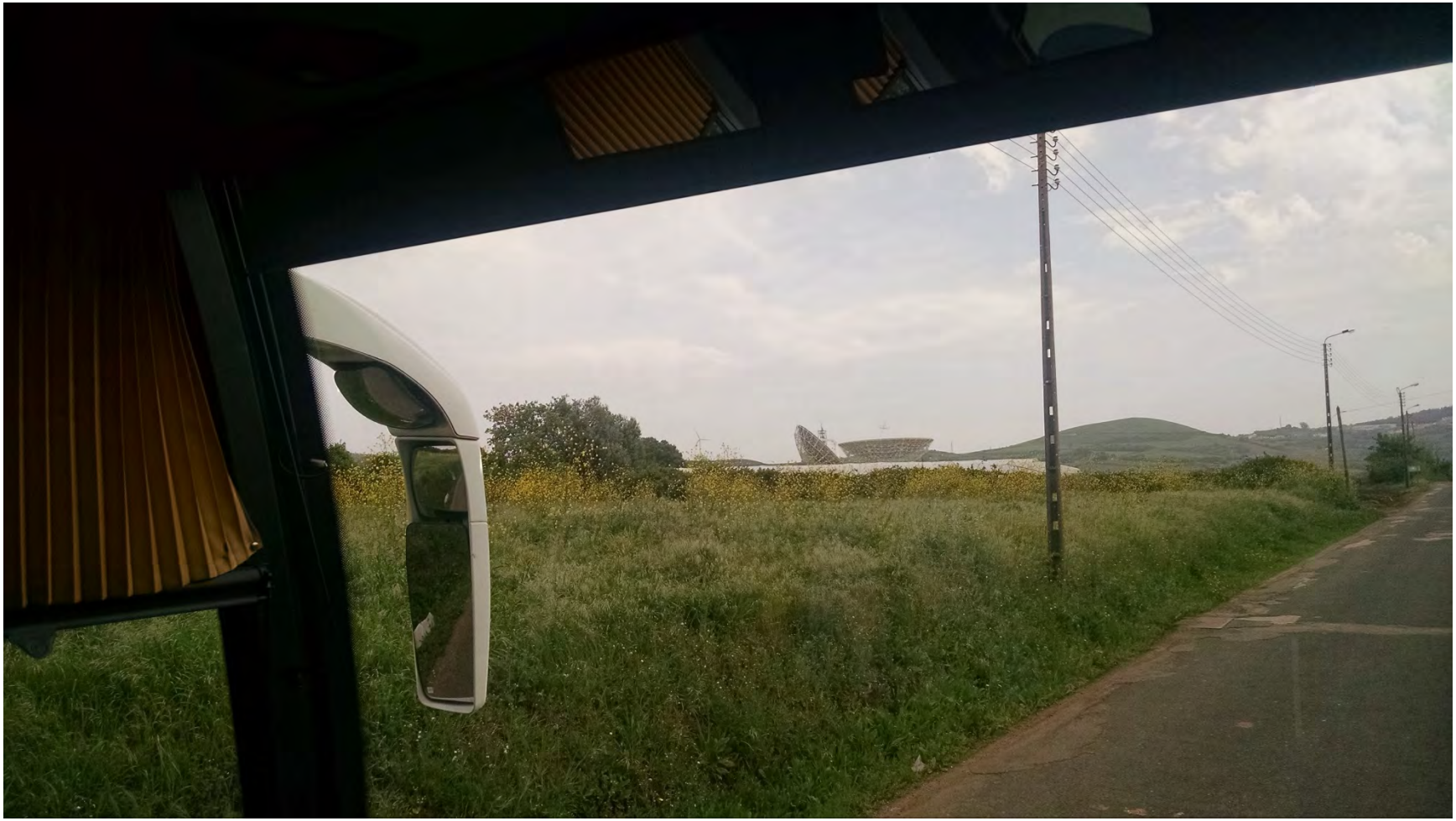
The Alfouvar Station for Satellite Operations

The Portugal Telecom Foundation (Fundação Portugal Telecom) is a private, non-profit, public service institution whose goal is to realize Portugal Telecom's commitment to social intervention and developmental support, within the purview of their responsibilities as a major social agent.

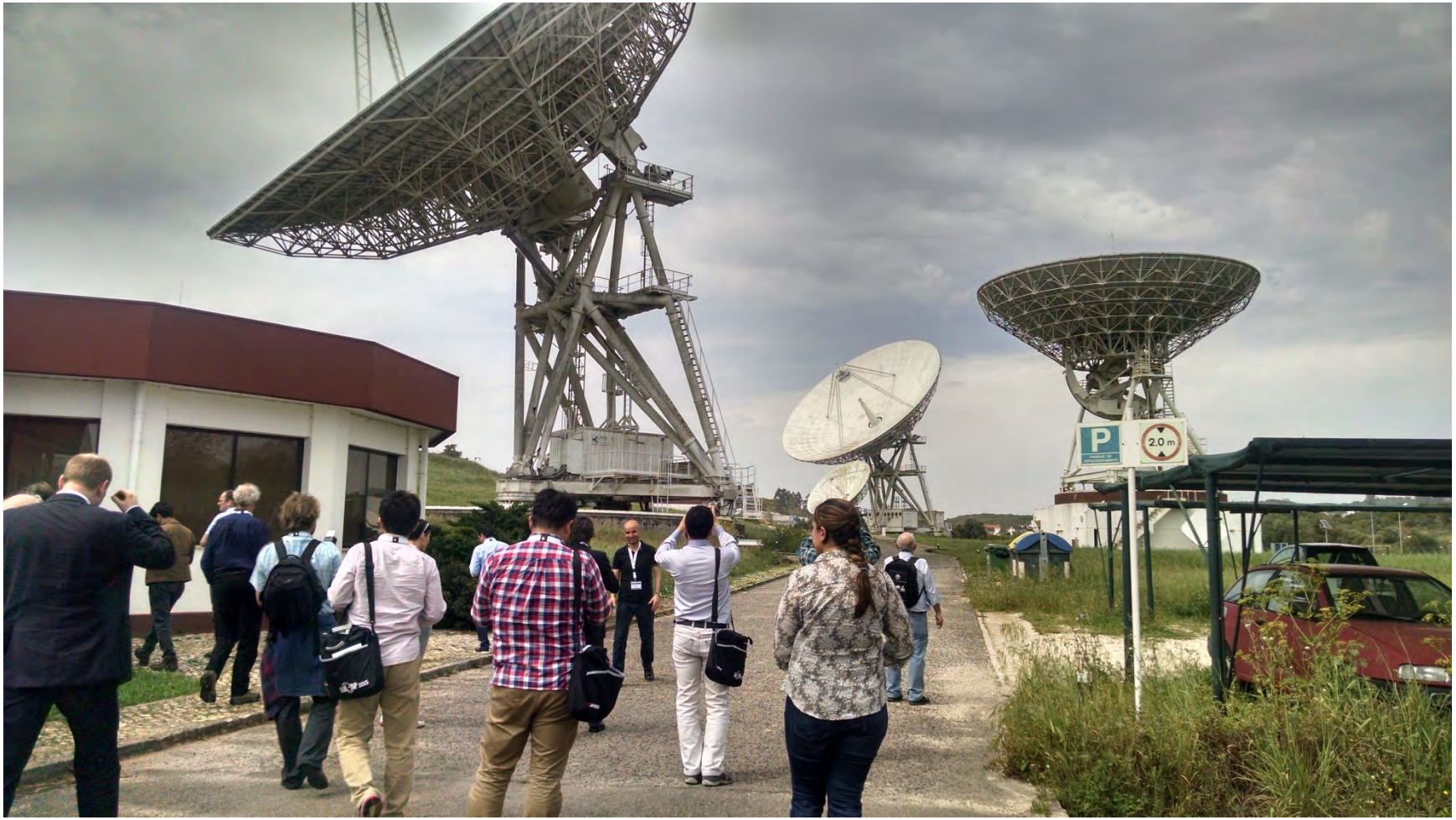
MAINLAND'S SATELLITE OPERATIONAL CENTER

In Telecommunications, the satellites are used as bridges for radio, telephone or television communications. Each antenna in the Alfouvar station has specific dimensions and characteristics, communicating with a single satellite. There are roughly ten different antennas/antenna farms on the site.

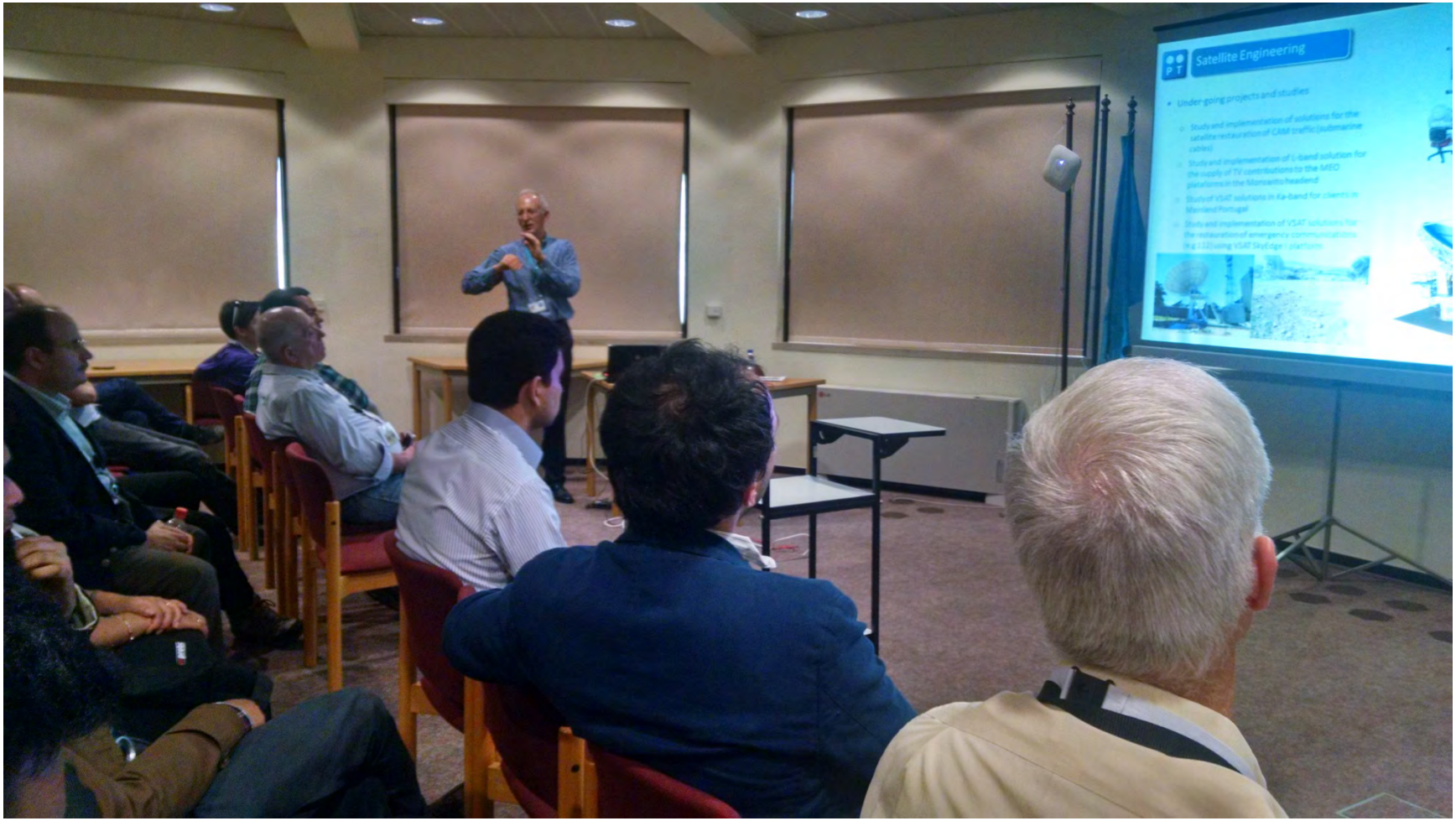
All textual descriptions taken from the PT website: http://www.fundacao.telecom.pt/Home/HistoryandHeritage/PTsHistory/HistoricalEquipment/Detail/tabid/350/itemId/551/parId/346/Default.aspx



First glimpse of Sintra 1, one of the largest and oldest antennas at the site.

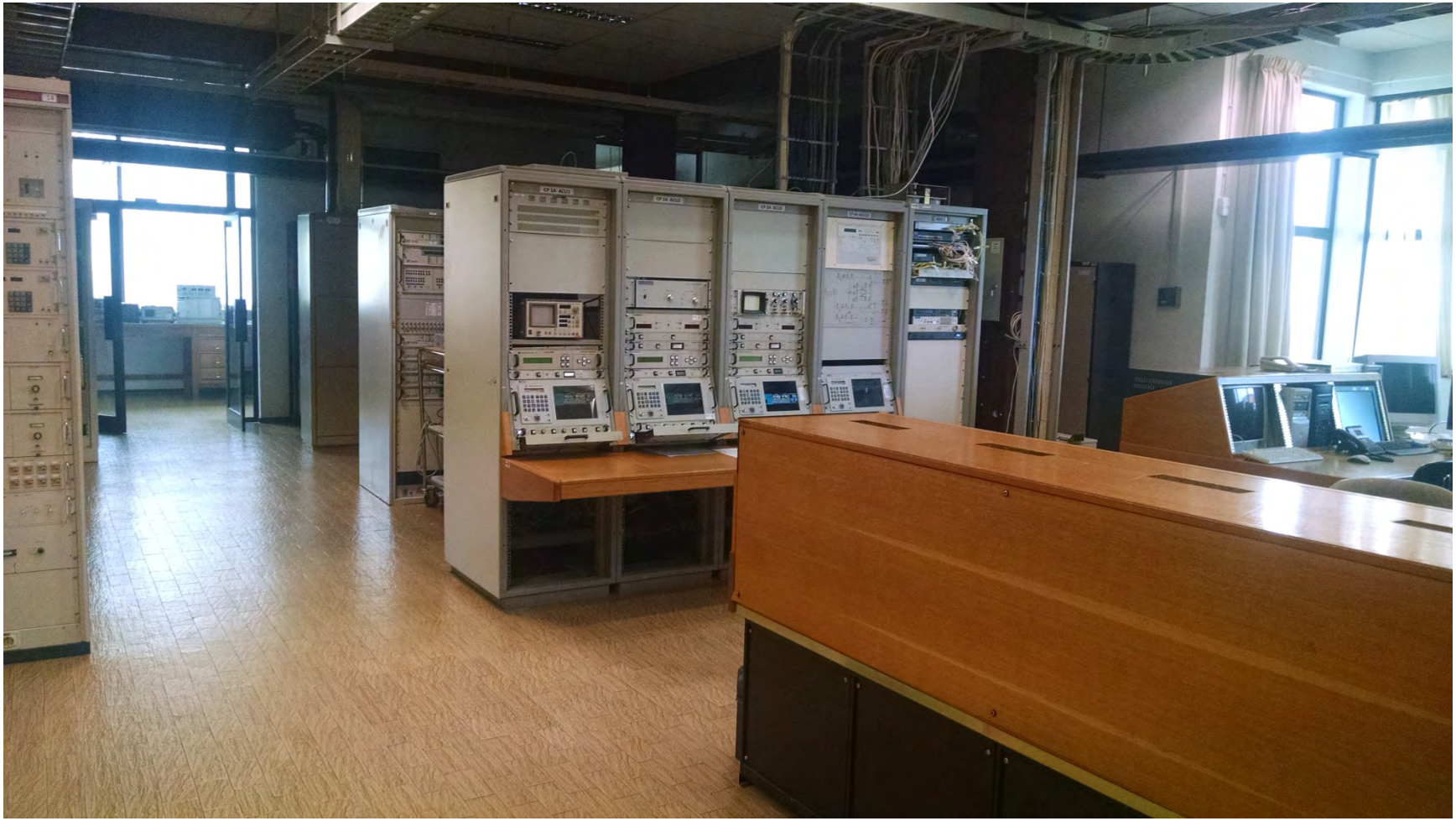


Off the bus and into the reception center for an overview briefing.



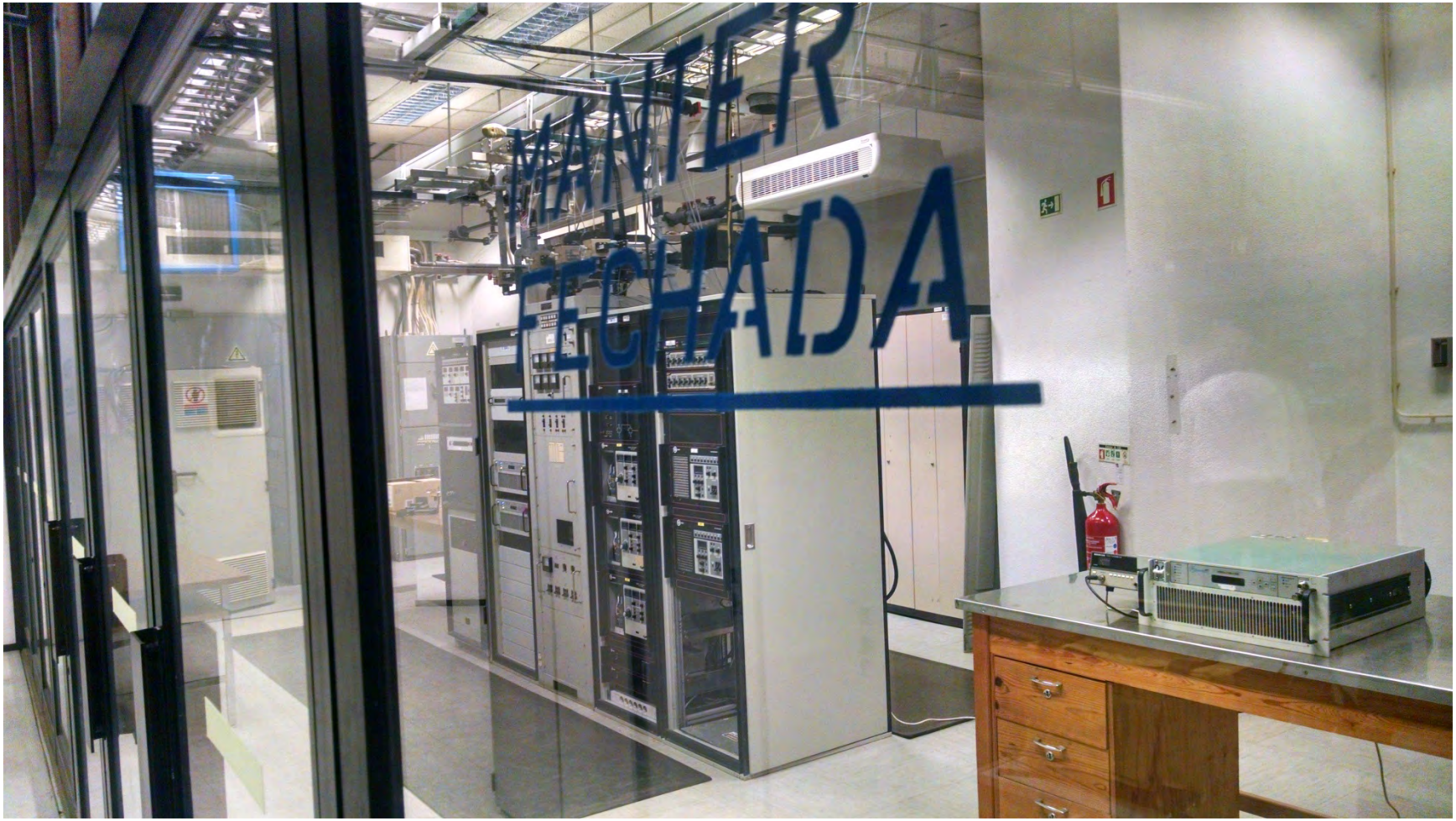
The tour began with a very informative overview briefing. The main mission of the site is to provide satellite based communication and broadcast services to the larger Portuguese speaking community.

First stop after the briefing was the control center for monitoring and controlling telephone, radio, and television communications. Contact is maintained with the satellites, adjusting for link degradation due to heavy rain and other effects.

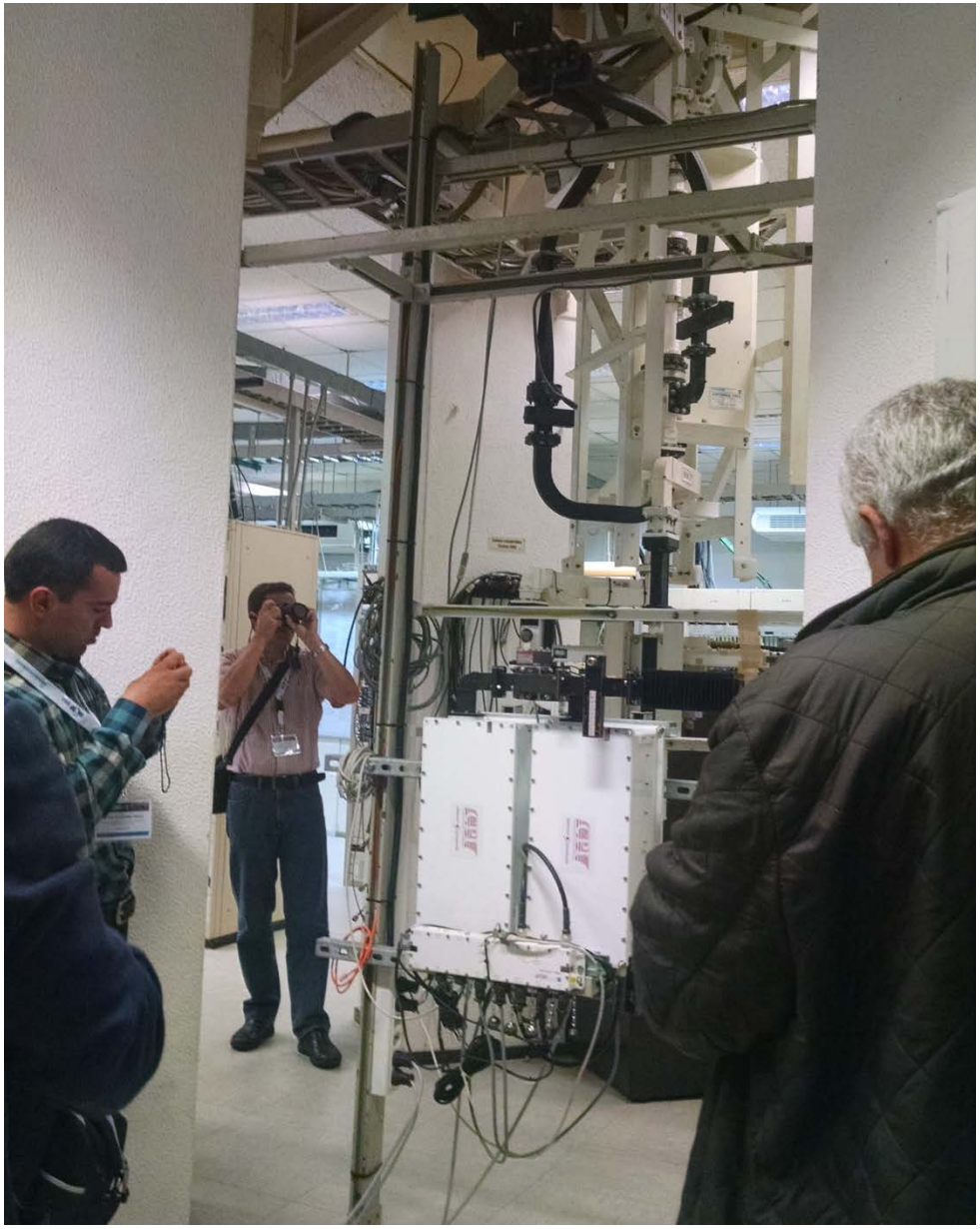


Most satellite orbits maintain a fixed ground footprint minimizing the need for antenna pointing adjustments. Small tweaks are done automatically, but there are still terminals for manual pointing adjustment.

An attentive crowd listens to a description of the network switches and server farms that support the large quantities of digital data ubiquitous in modern communication/broadcast signals.

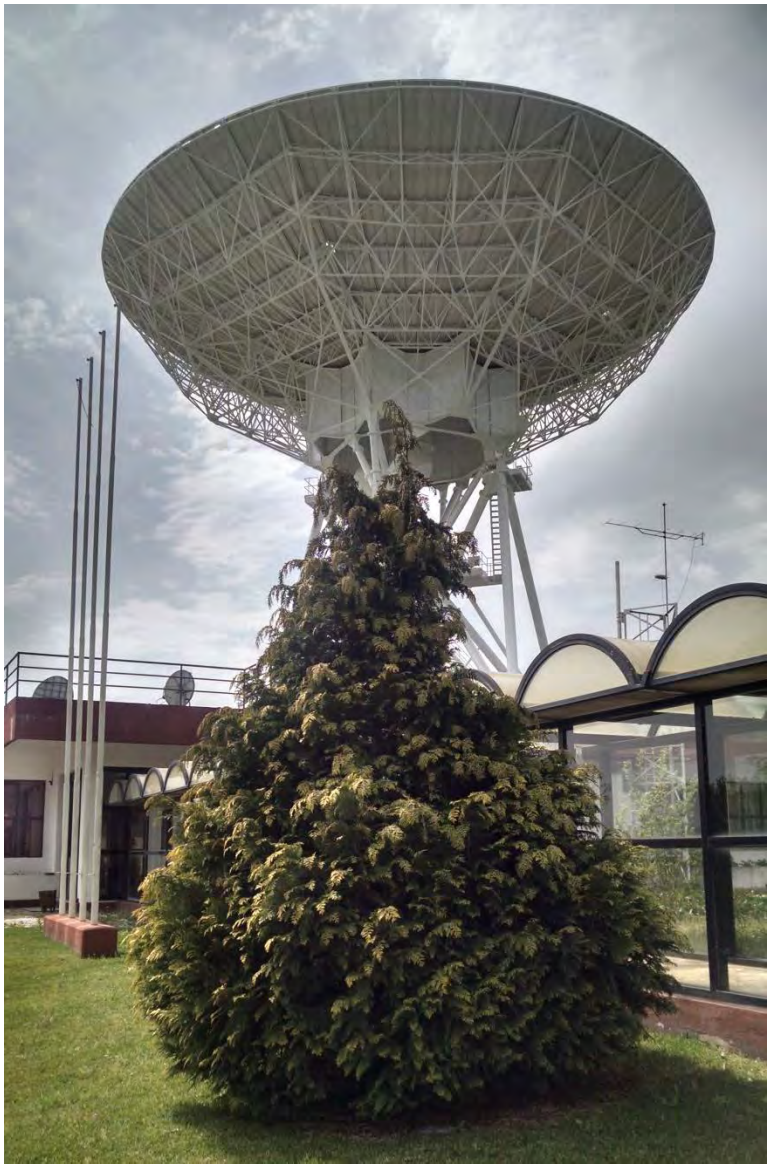


The last klystron on the site used for SIntra 1. Everything else has gone solid state.

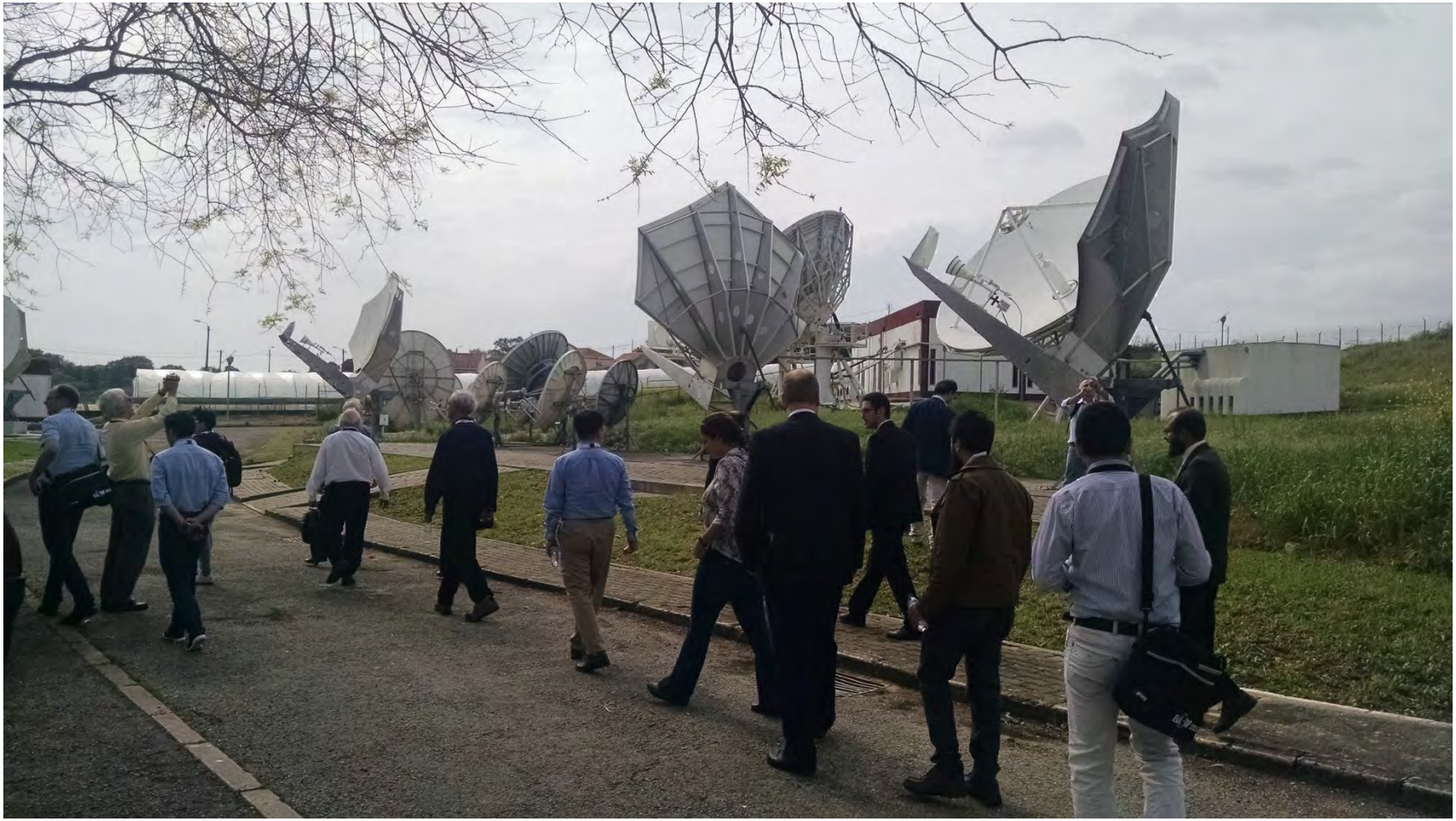


Waveguide feed for Sintra 1 coming from the transmitter.

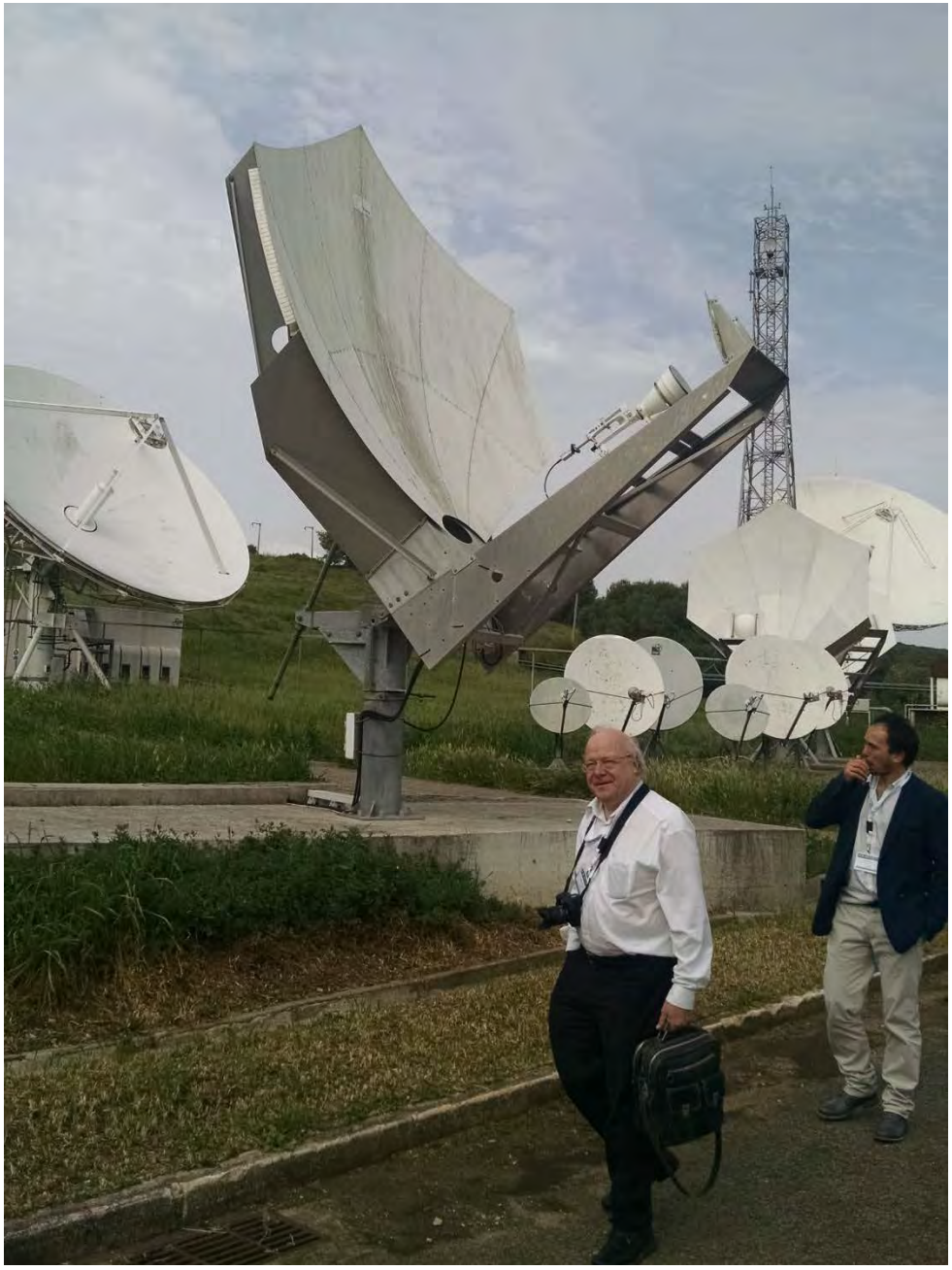
Like all good engineers, we're impressed with a large antenna.



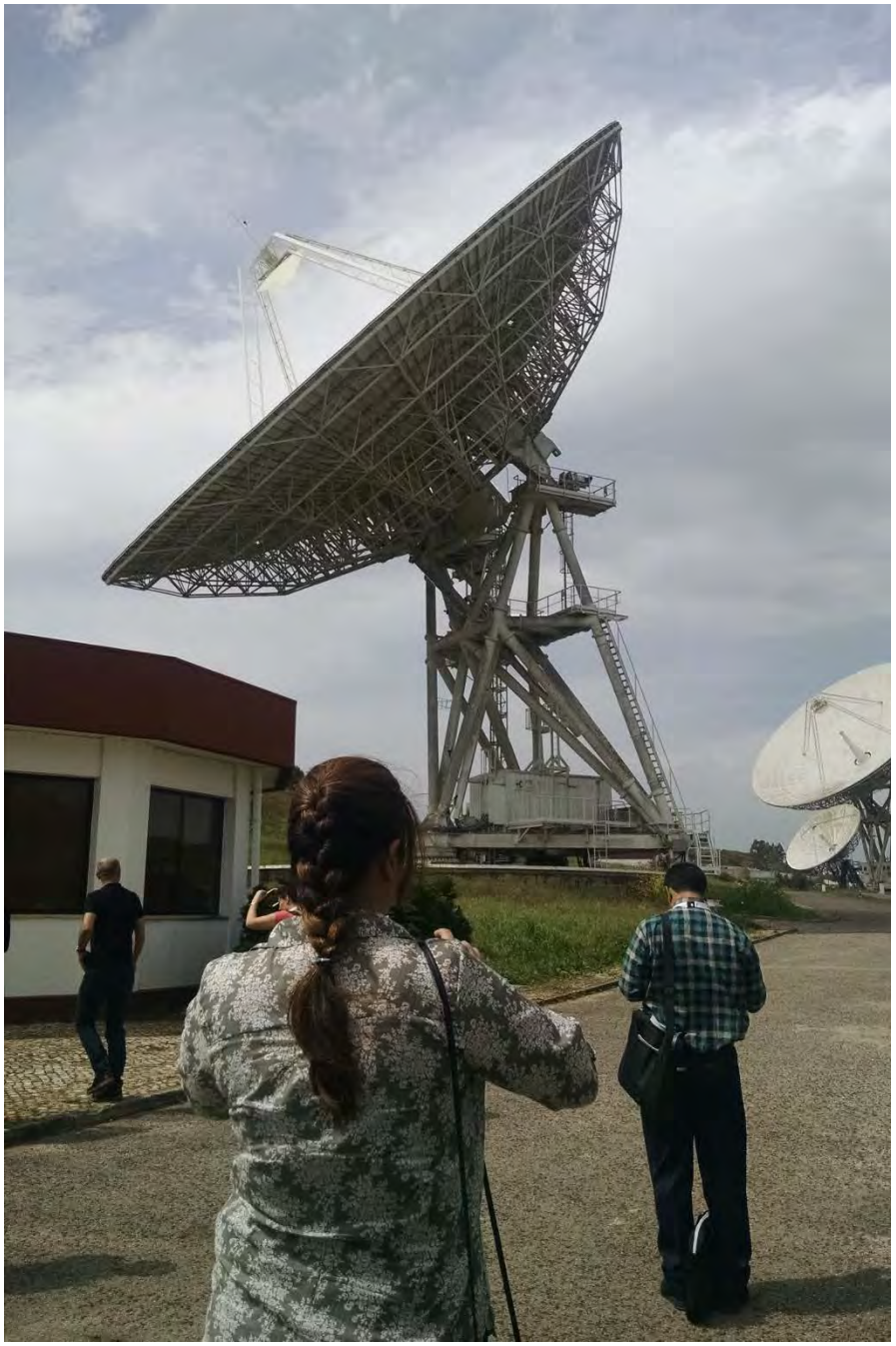
Sintra 1, the first antenna in use at the Alfouvar Station, became operational in 1974. Initially used for telephone communications, it was later employed in television broadcasts. In 1991, with the creation of SINTRA 6, it began providing occasional television services, as well as repair of submarine cables and other antennas, both belonging to Sintra and to other Centres.



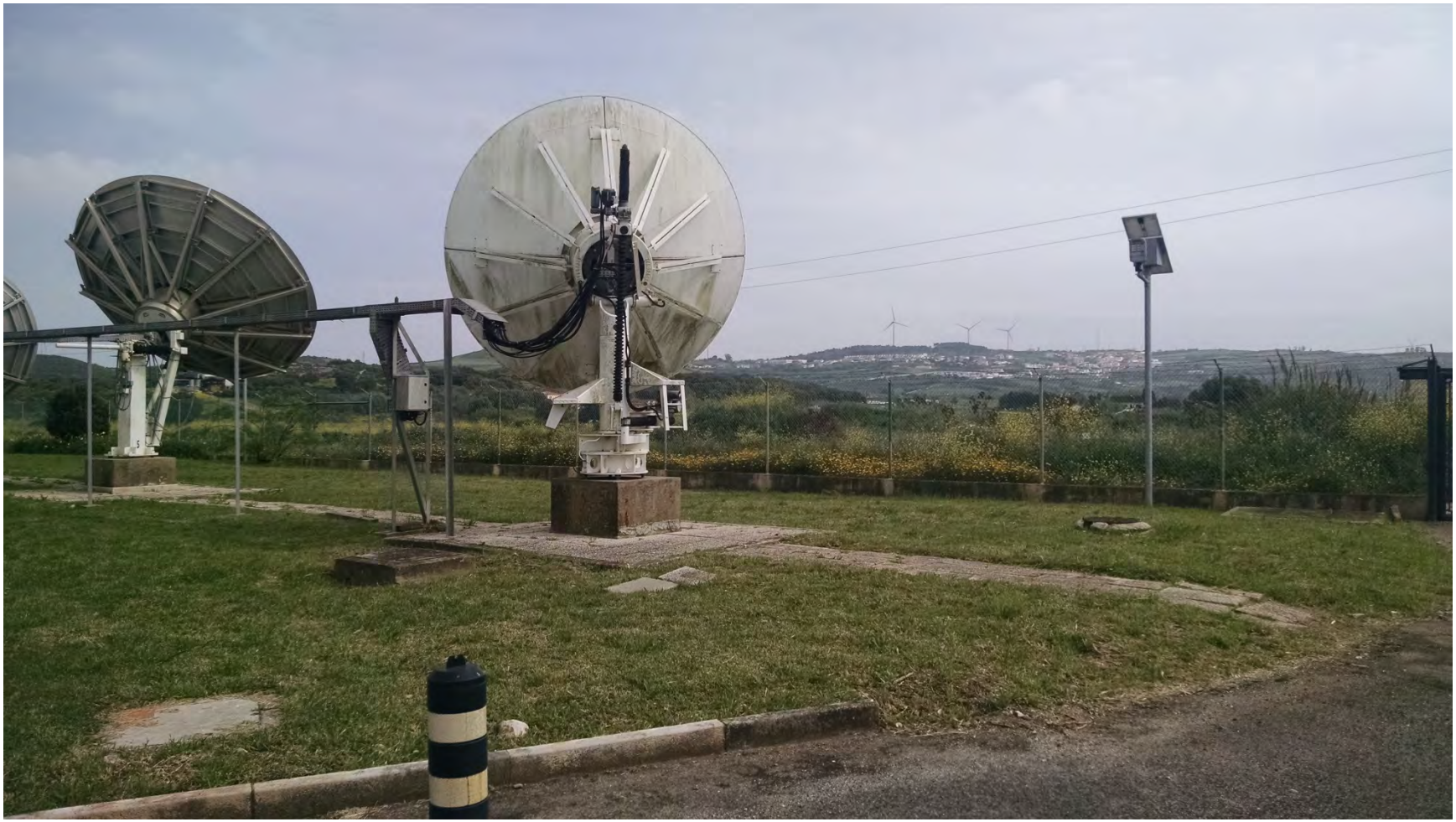
We begin our walking tour of the site.



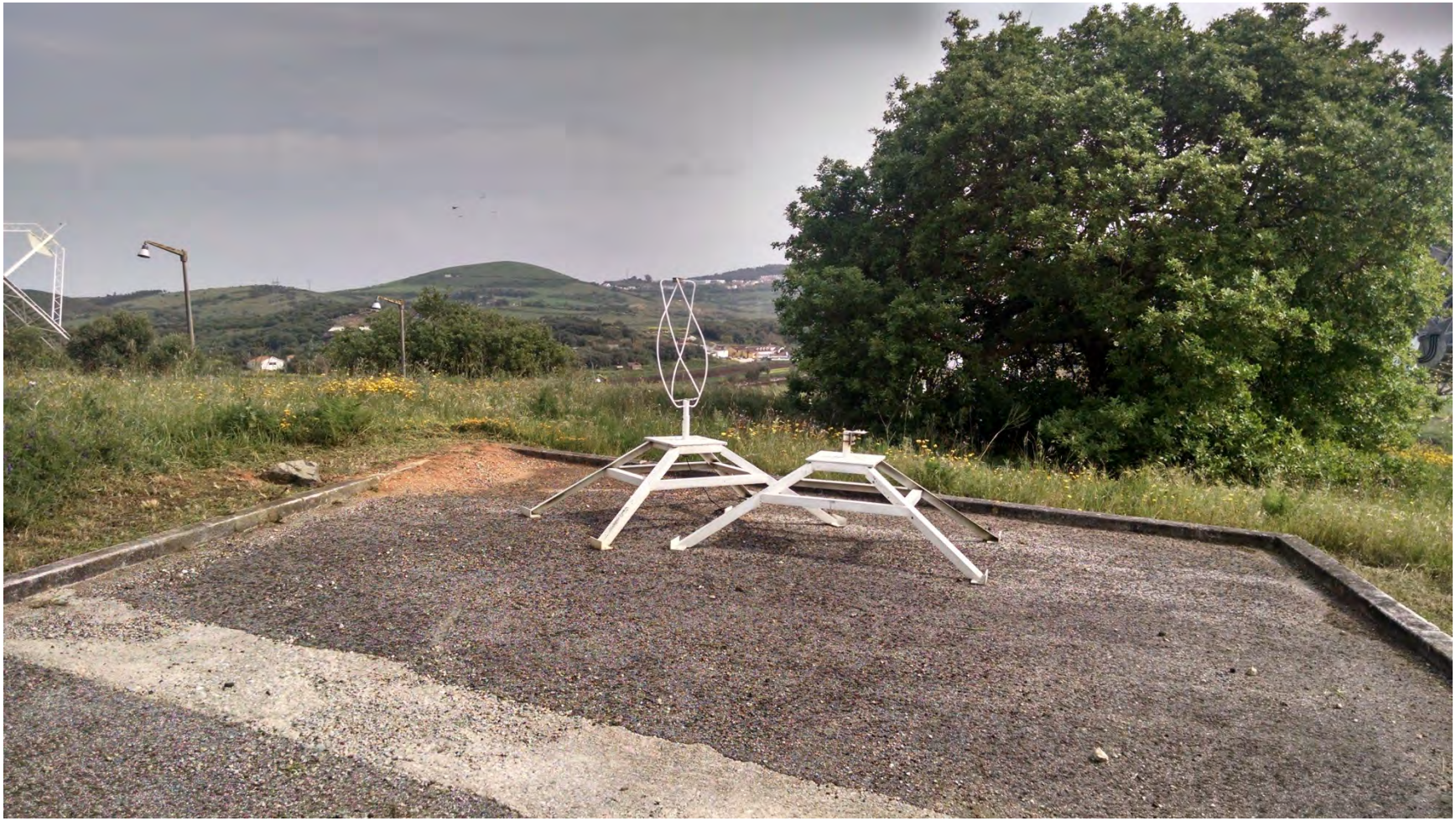
A fairly unusual offset fed parabola design. This is part of the Sintra 9 complex. Sintra 9 began operating in 1993, ensuring thereafter interconnection between mobile communications and the data and messaging network. It handles maritime, aeronautical and land mobile communications, and is particularly relevant with regard to the service it provides in emergency situations.



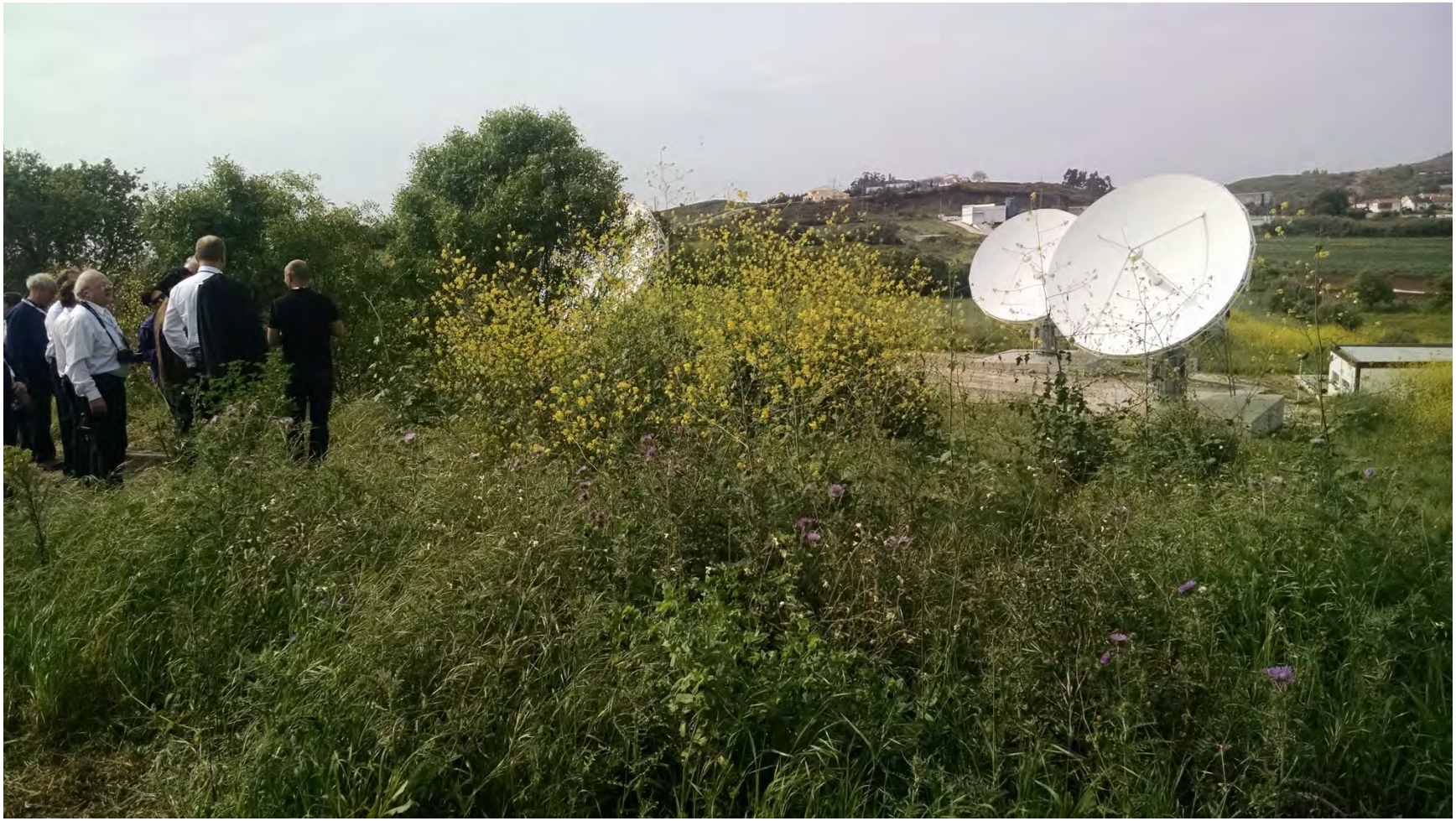
In use since 1982, Sintra 2 ensured thereafter all satellite communications with the Autonomous Regions of the Azores and Madeira. In 2001 it continued to relay domestic communications with the Ponta Delgada and Flores stations.



Sintra 7 provides corporate international communication services (Vsat and videoconferencing) in SMS services (Multi-service Satellite System) and IBS (Intelsat Business Service), this antenna became operational in 1991. Sintra 8 complements its services. It is also intended for reception and broadcast of television programs in K-band.



Antenna engineer geek test: Name this antenna and primary use.



I believe this is Sintra 11 through 13, Global coverage antenna which began operating in 1996. Designed for broadcast and reception of radio and television in K-band.
A good end to a fascinating tour.