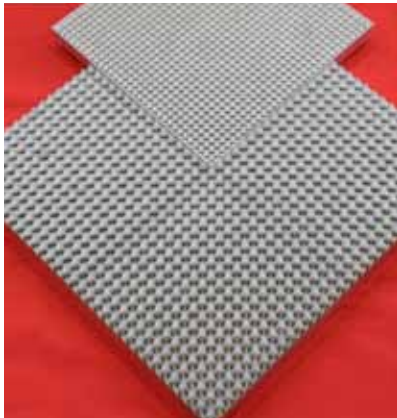


# KASANOVA

## NOMADIC TERMINAL FOR KA-BAND SATCOM



Close-up



Antenna prototype

### OVERVIEW

The project KASANOVA aims at a hybrid solution for nomadic terminals for satellite services in Ka-band. A typical application is providing SatCom services for disaster relief units. The KASANOVA consortium is composed of IMST GmbH (antenna frontend design) and Astrium Services (overall system definition and services). The project was funded by the German Ministry of Economy and Technology (BMWi/DLR) under contract number 50YB1024.

The antenna frontend is divided into separate Tx (30 GHz) and Rx (20 GHz) antenna apertures, combined in one single planar antenna. The frequency bands and the circular polarisation are selected to match upcoming satellite multimedia services. The antenna aperture is formed by innovative circular horn antenna elements, fed through a stacked distribution network realised in waveguide technology.

This topology results in extremely low losses, hence in very high antenna efficiency.

The antenna terminal features combined mechanical/electronic beam steering:

- a coarse mechanically pointing with an accuracy of  $\pm 1^\circ$
- an electronically fine positioning between  $-1^\circ$  and  $+1^\circ$  from boresight, using true time delays

The combination of these pointing techniques considerably reduces the requirements on the mechanical system at the cost of only a small increase in the number of RF-components. This will have a positive impact on the production costs. Moreover, waveguide constructions are also very well suited for fabrication using plastic injected molding technologies, delivering cost-effective buildups.

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