

Remote

- Azimuth & Tilt adjustment  
R.A.S & R.E.T
- Internet Remote Control
- Full AISG compliant

Coriantel  
Antenna Steering

c3em.com

C3EM developed over nearly 20 years of innovative systems around the wireless technologie, machine to machine technologie and mobile telephony. The headquarters and R & D are located in the south of France, Montauban, and marketing and logistics services are located in Rouen.

Since 2005, C3EM developed a product line called CORIANTEL. These mechatronic systems that can adjust the tilt and azimuth of an antenna GSM / UMTS (2G, 3G, 4G), remotely, without having to climb the pylon. Installed between the tower and antenna, the system CORIANTEL has an electronic control unit in AISG standard.

C3EM has developed strong partnerships with manufacturers of antennas that have adopted the expertise HW and embedded software C3EM for RET, and have validated interoperability of their products from major operators as Orange.

**CORIANTEL, allows for adjustment operations or optimization in real time and reducing to zero the costs of intervention.**

## Wireless network trends

- ❑ Around the world, the number of subscribers growing daily.
- ❑ More and more services are offered to users of mobile telephony.
- ❑ the traffic becomes bigger and bigger.
- ❑ To deal with this traffic issue, operators should increase the number of base stations, increase the frequency (GSM, UMTS, 2G, 3G, 4G, etc. ..), change antennas, towers pool use etc. ...
- ❑ The public, sensitized by non-scientific arguments disclosed by advocacy groups, is reluctant to install new towers and stress at the sight of a lesser technician performing maintenance.

To deal with this situation, the mobile networks are evolving in a sensitive environment.

Antenna tilt or azimuth tuning requires in most cases :

- highly qualified and trained staff ;
- very expensive means of handlings (such as nacelle) ;
- Administrative permits long and tedious
- The extinction of the base station causing traffic disruption.



The adjustment of an antenna is very expensive and long, with a major impact on quality of service, and operating accounts.

## Why change the settings facility antenna

- Evolution of the surrounding infrastructure
- Network optimization.
- Some countries have no land registry, and the location of pylon is done empirically. Very often these same countries are to cope with the movement of people.
- Facilities located in areas event could be occasionally shifted to denser traffic.
- For some operators, the settings of 10% of the antenna farm located in major cities are changed each year.

## The adjustment of an antenna

The adjustment of an antenna system is a sensitive and specific, sometimes very difficult to do from the top of the pylon. To facilitate this implementation, there are two systems:

- ❑ RET (Remote Electrical Tilt vertical adjustment), usually integrated into the antenna.
- ❑ RAS (remote steering azimuth adjustment horizontal): mechatronic system settling between the antenna and the tower.

**RET and RAS systems must comply with the AISG (Antenna Interface Standard Group) Standard 1.1 & 2.0**

Equipped with RET and RAS, adjustment of an antenna system can be done:

- From the bottom of the pylon
- From the OMC through the intranet radio.
- From anywhere through an Internet network structure.

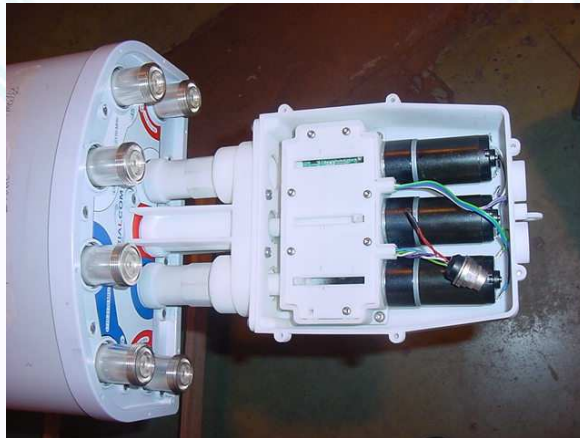
## Benefits of remote control

- ❑ Changing the tilt and azimuth without service interruption.
- ❑ Reduced costs of intervention:
  - Only one technician needed
  - No movement of heavy equipment.
  - No paperwork.
  - Reducing human risks.
- ❑ Network optimization in real time.
- ❑ Ability to adjust timely adjustments of an antenna (event).
- ❑ Ability to adjust settings in real time antenna to adapt to changing daily traffic.

## Description RET & RAS

The RET and RAS are mechatronic systems consisting of :

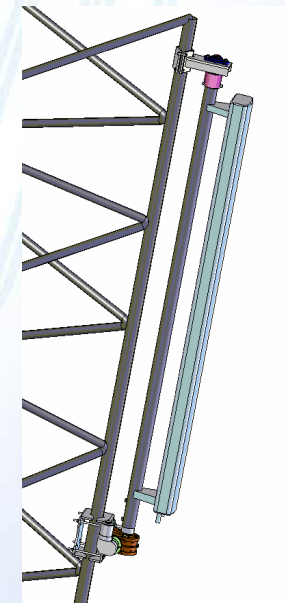
- ❑ An electronic board AISG compatible.
- ❑ gearmotor with sensors



**RET**



**RAS**



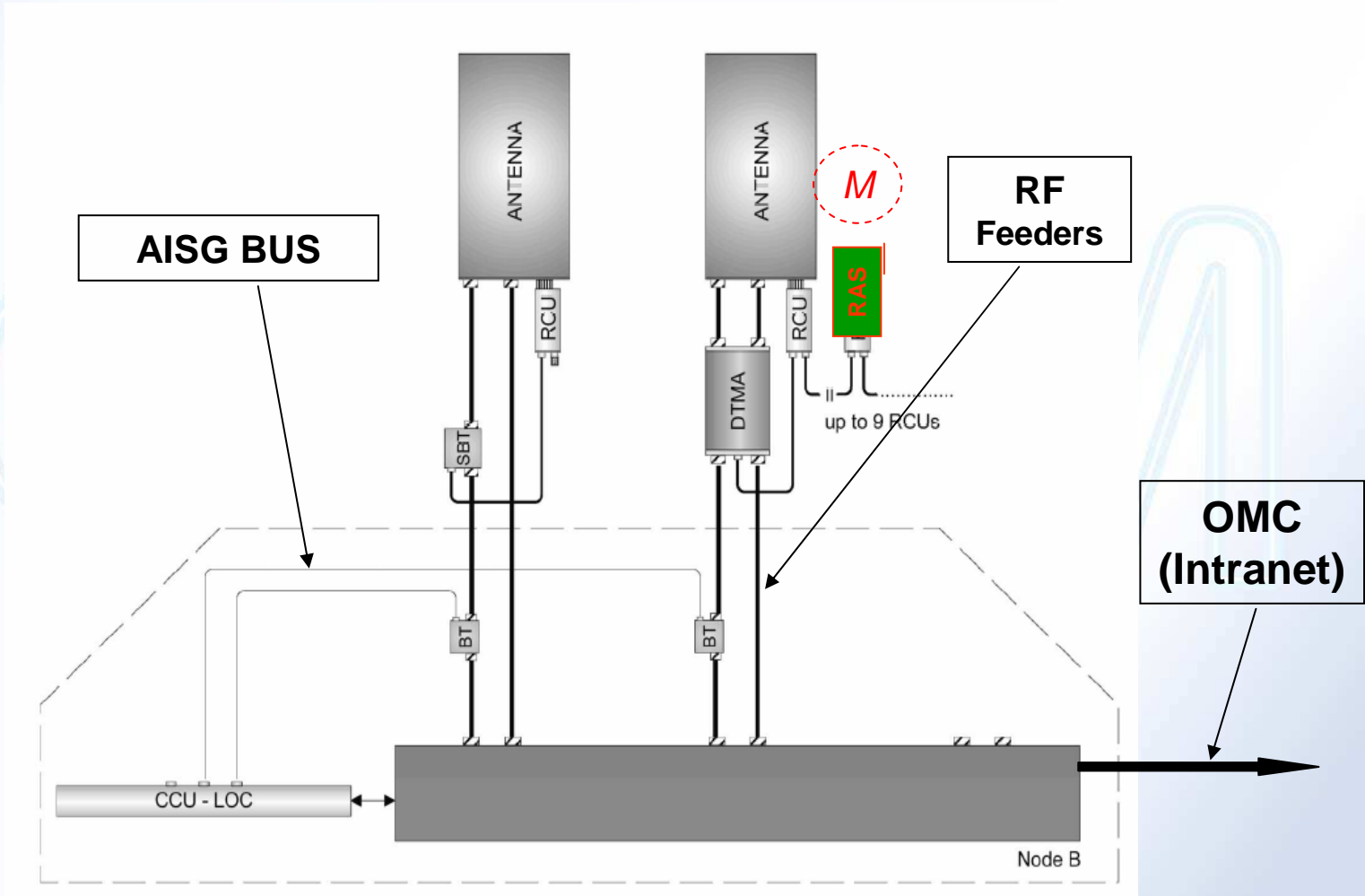
❑ On site in the base station

- a laptop with a standard Internet browser and a "Tilt Azimut Control Device" (ATCD), AISG portable controller with embedded web interface.
- Equipment market (ie Kathrein CCU).
- BTS AISG equipement.

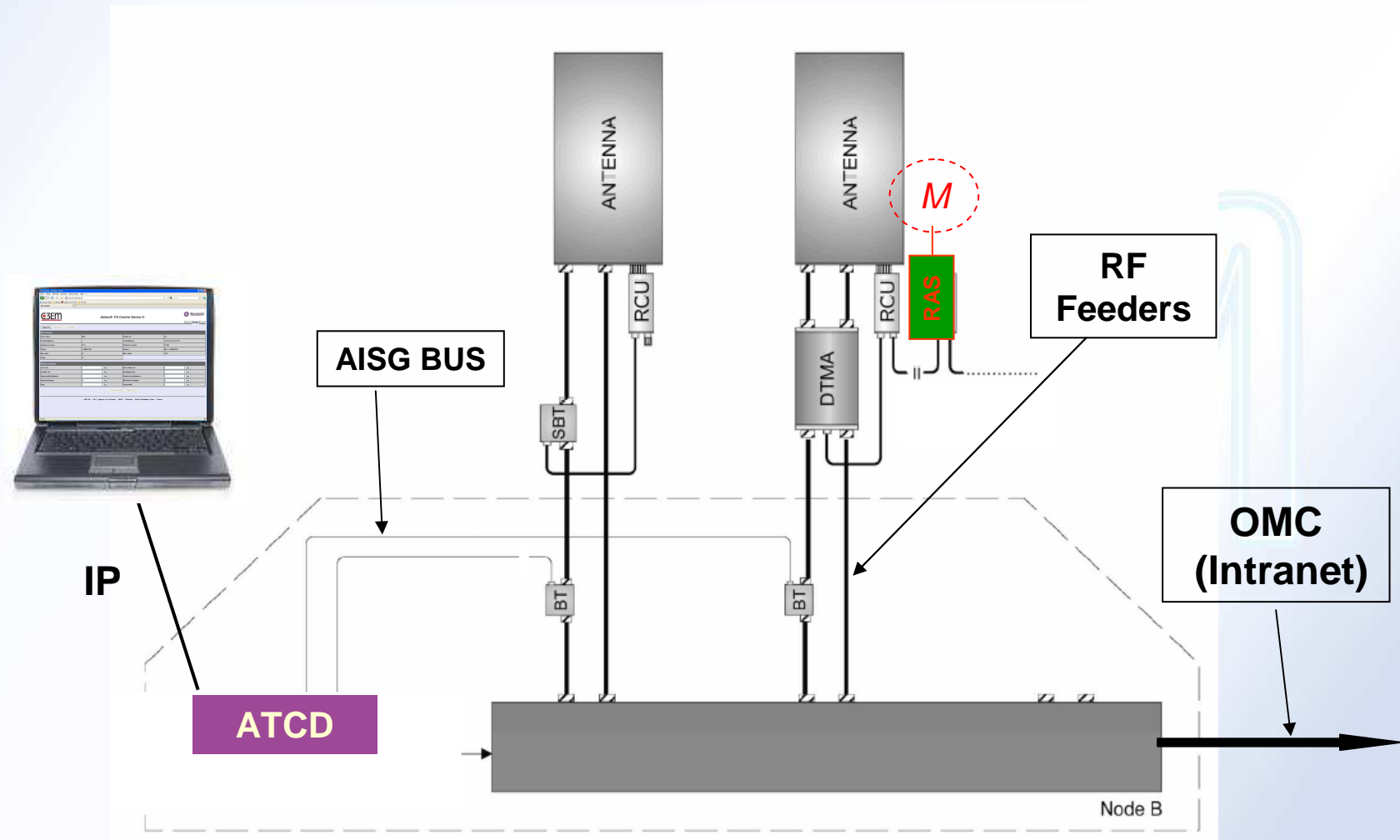
❑ From the OMC :

- Via le lien intranet de l'ordinateur OMC.

# Example : through a CCU



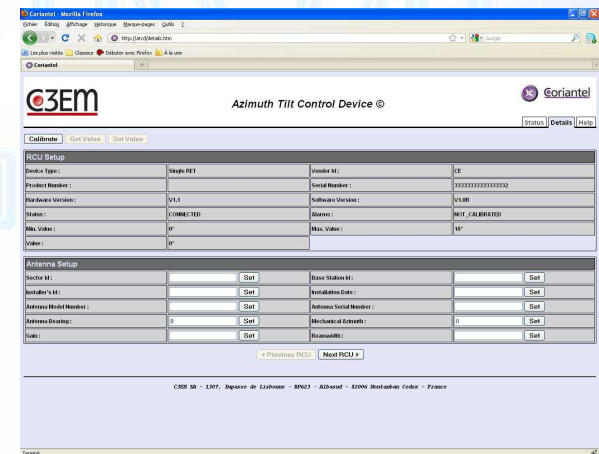
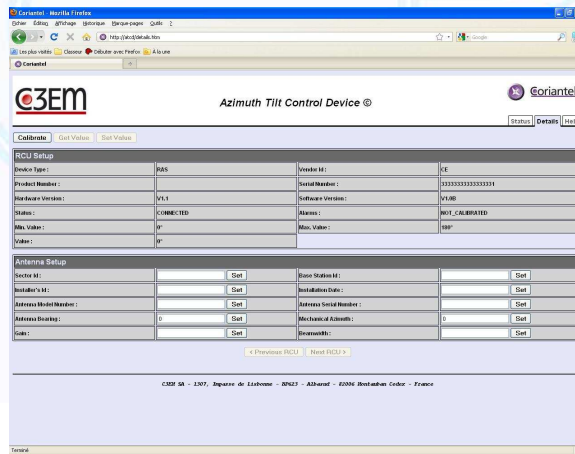
# Example : trough an ATCD



# ATCD: Azimuth Tilt Control Device



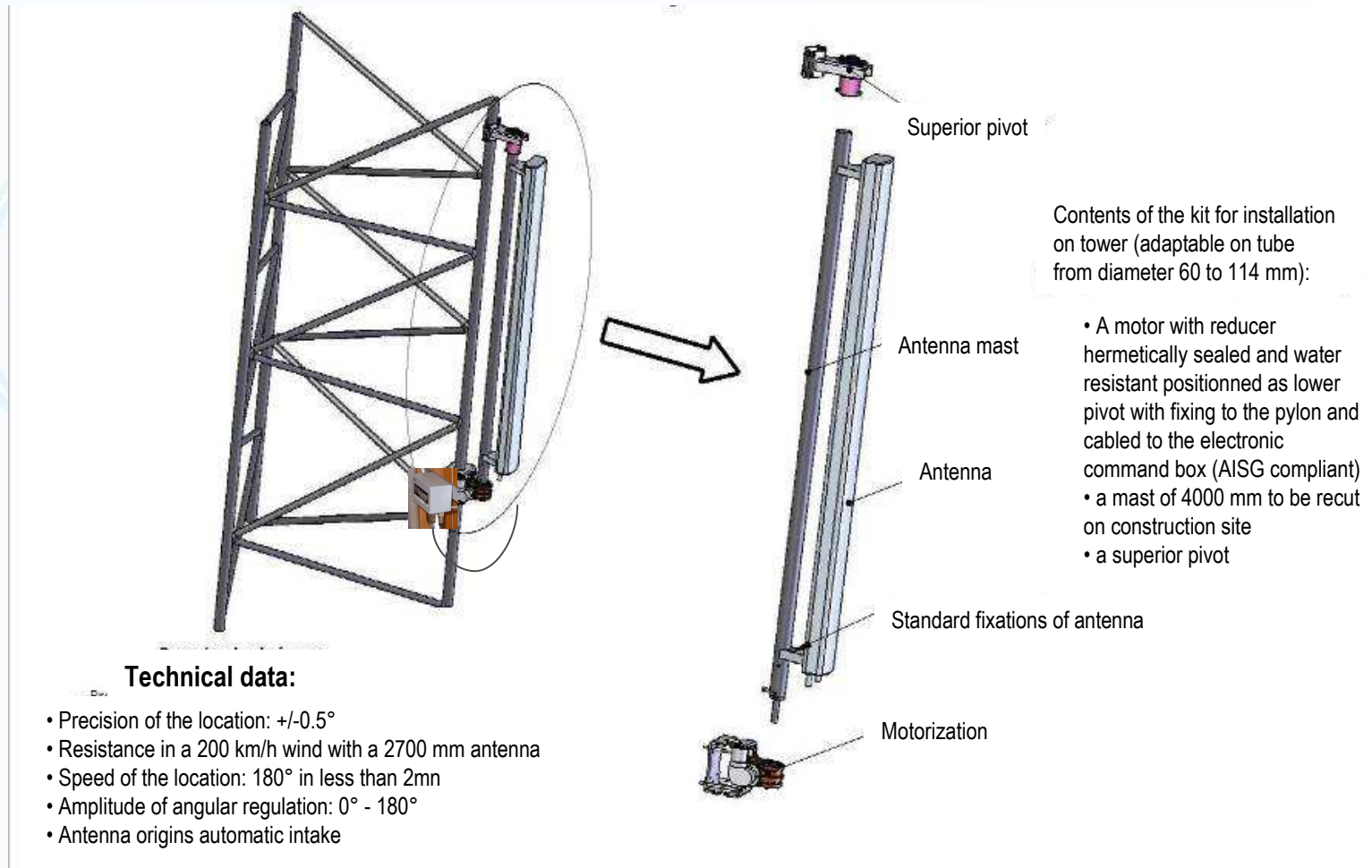
The ATCD is an electronic system that allows a device to communicate to the standard AISG through a network to IP. A WEB allows the steering of embedded devices ISGF. The version available ATCD 1U, or as portable power with 230 & 12 Volt.



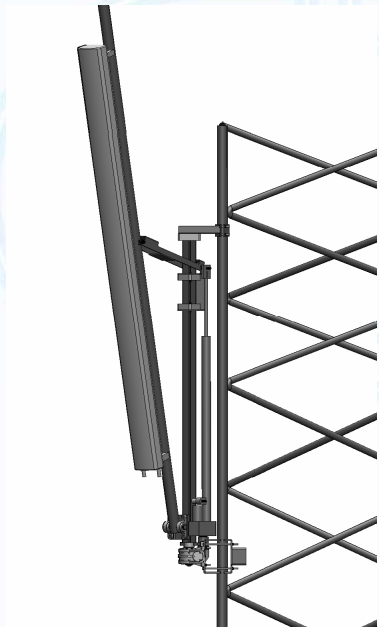
**The ATCD requires no software installation on the PC**

## Kit for antenna azimuth steering

The antenna is fixed to a mobile arm equipped with two single pipe rings. It is adaptable to all the configurations. Rotation is ensured by an electric motor with reducer. The antenna position is ensured by a coder. The system is piloted by an electronic control box. The position can be controlled at the bottom of the tower, or remotely. The means of communication with the electronic control box is AISG through a "Primary" or the portable C3EM "ATCD"



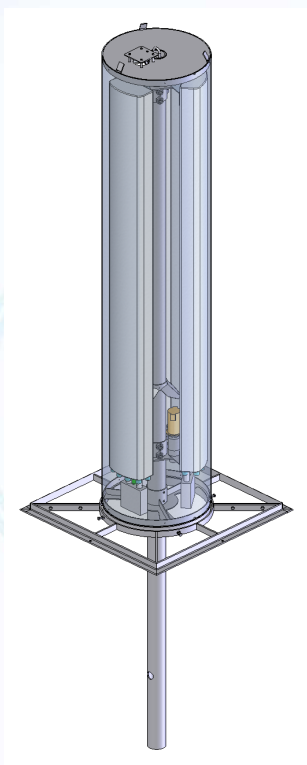
This solution is recommended for upgrading a facility where the antennas are devoid of RET.



Kit includes:

- waterproof gearmotor and matte medium.
- Guidance system in rotation.
- Electric actuator for controlling the tilt
- Electronic control unit in AISG standard.

# Application trisector antenna



**Installation in a 63 KV high voltage pylon EDF**

**COR-RAS1**: Complete equipment for controlling the azimuth of an antenna including the electronic control unit.

**COR-RAS3**: Complete equipment for controlling the azimuth of three separate antennas including the electronic control unit.

**COR-RET1** : Complete equipment for controlling the tilt of an antenna including the electronic control unit.

**COR-RET3**: Complete equipment for controlling the tilt of 3 separate antennas including the electronic control unit.

**COR-RASRET1**: Complete equipment for controlling the tilt and azimuth of an antenna including the electronic control unit.

**COR-RASRET3**: Complete equipment for controlling the tilt and azimuth of 3 antennas including the electronic control unit .

**COR-PILOT-ATCD**: Electronic unit allowing remote control via an IP network.

**COR-PILOT-TERM**: Electronic unit allowing the control tower at the foot of the software from hyper terminal.

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