These Installation Instructions are valid for antennas in the following version:

- Reflector Ø2.4 m (8 ft)
- Waveguide feed system Single or Dual polarized
- Pipe mount for installation on pipe Ø115 mm (or Ø219 mm on request at the order)
- Antenna offset to the left or the right
- Safety collar for easy installation
- 2 spindles for fine adjustment of Azimuth & Elevation of ±5°
- 1 sway bar Ø60 mm x 3 m
- Reflector with shroud, the aperture covered by a flexible planar radome, or without shroud (see sketch above)

Note: The assembly of the reflector and backring for antennas with “split” reflector is described in the dedicated Installation Instructions.
1 - Tools required for installation (Tools are not included)

- Hoisting device for 400 daN
- Torque wrench from 0.5 to 25 daNm
- Wrenches for hexagon bolts : M5(8), M6(10), M10(16/17), M12(18/19), M14(21/22), M16(24), M20(30)
- Carabiner, shackle, steel eye, square, mallet
- 2 strong ropes (tower height), 3 lifting straps, 1 short rope
- Water balance and compass
- Hand or electric winch

(values in brackets = openings of spanners)

2 - Assembly of the mount (For an installation offset right)

For easy operation of the bolted joints, and correct torque tightening, « Anti Seize » Installation Paste must be applied to all threads of bolts and fine adjustment spindles. After this, keep the lubricated threads free of dust and dirt! (a torque table is attached for specifications)
3 - Antenna with “split” reflector (otherwise skip this step)

If you have ordered an antenna with a “split” reflector, refer carefully to specific installation instructions joined, for half-reflector parts & backring assembly.

4 - Brackets installation on backring (valid for an antenna installation offset left or right)

Before starting the installation of the brackets on the backring, install the antenna reflector on a thick cardboard or wooden planks to protect the antenna during the assembly (or the antenna top packing case for e.g.).
5 - Pre-assembly of the T-Mount & antenna offset

T-Mount Pre-assembly

Offset left
- 2 washers 13
- 2 SL nuts M12

Offset right
- 2 screws M12x40
- 2 washers 13

Horizontal bracket 8/114 STD
or Horizontal bracket 8/219 STD

Bracket elevation adjust
8-10/114 STD (L100x100x330)
or Bracket elevation adjust
8/219 STD (L100x100x423)

Vertical bracket 8/114 STD
or Vertical bracket 8/219 STD

Perpendicularity
(Rear view)
for an offset right

After perpendicularity check, torque tighten the M12 bolts to lock the assembly. (Without square, you can help you with a sheet of paper).

T-Mount install on backring

Install the 3 plastic caps to close the Ø100 mm holes on the backring

Offset left
- Screw M20x50
- 2 washers 21
- SL washer 20
- Nut M20
- 2 screws M12x45
- 2 washers 13 Ø37
- 2 SL nuts M12

Offset right
- Screw M20x50
- 2 washers 21
- SL washer 20
- Nut M20
- Sway bar attachment
- Elevation spindle M16x300
- Brass nut M16
- Spherical washer C17
- Conical seat D19
- Washer 17 Ø50
- Washer 17 Ø50
- Conical seat

It is mandatory to tighten all bolted joints of the mount according to the torque table joined, before lifting the antenna.
6 - Installation of the shroud panels (for antennas with shroud)

Shroud panels identification

Shroud panels positioning on reflector

RF braid preparation

Keep clearance between shroud panels and reflector rim until complete RF braid, bolted joints, and stiffening plates installation around the shroud.
Hardware detail for shroud panels assembly (for antennas with shroud)

For the 3 shroud panels junctions

Long shroud
(Short panel length)
9 screws M6x16
18 washers 6.4 Ø18
9 sl nuts M6

Short shroud
(Short panel length)
7 screws M6x16
14 washers 6.4 Ø18
7 sl nuts M6

(Short panel length)
10 screws M6x16
20 washers 6.4 Ø18
10 sl nuts M6

For the 3 shroud panels junctions

Short shroud
(Long panel length)
8 screws M6x16
16 washers 6.4 Ø18
8 sl nuts M6

(Long panel length)
10 screws M6x16
20 washers 6.4 Ø18
10 sl nuts M6

Stiffening plates installation

IN

OUT

1 stiffening plate
4 screws M6x25
8 washers 6.4 Ø18
4 sl nuts M6

8 ft equipped with 250 km/h windkit

Standard assembly

30 screws M6x25
60 washers 6.4 Ø18
30 sl nuts M6

For the 2 holes 90° from the top

Add 2 serrated washers 6.4

For antennas provided with 250 km/h windkit

For the 6 holes receiving the stiffening pipes

1 screws M12x40
1 washer 13 Ø37
1 washer 13 x6
1 sl washer 12
1 nut M12

TOP

Rear view

Stiffening pipe (x6)
7 – Hoisting eye and radome protection installation (for antennas with shroud)

Re-install the hoisting eye at the TOP, torque tighten all bolted joints of the shroud panels, then clip the edge protector around the shroud rim.

8 - Feed Installation (for customized antennas, see specific feed installation instructions joined)

The feed is a precision component which should be handled with special care during installation. For instance, always carry the feed, supporting casting plate side. Any damage may degrade the antenna’s performance. Repair of feeds is not possible in the field.

8.1 - Polarization choice

Single polarization

<table>
<thead>
<tr>
<th>9&quot; Feed System (rear view)</th>
<th>14.5&quot; Feed System (rear view)</th>
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<tbody>
<tr>
<td><strong>Vertical polarization</strong></td>
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<td>antenna vertical axis</td>
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<tr>
<td>4 clamps</td>
<td>8 clamps</td>
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<tr>
<td>4 sl washer 6.4</td>
<td>8 sl washer 6.4</td>
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<tr>
<td>4 screw M6</td>
<td>8 screw M6</td>
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Dual polarization

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</tbody>
</table>
8.2 - Guy wires assembly

- Insert the 3 guy wires in the mounting holes from the rear of the reflector.
- Move the feed assembly partway through the connecting ring.
- Hook the guy wires into rotatable ring.
- Move the feed and fix it, with the M6 screws in the connecting ring.

8.3 - Polarization fine adjustment

The final adjustment will be made after the antenna installation on tower

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8/15
9 - Installation of the planar radome (for antennas with shroud)

- Unpack the radome and carefully stretch it over the shroud aperture
- Center it over the shroud aperture
- For radome with RFS logo, align it with the vertical axis of the antenna
- For radome without RFS logo, the central air vent mosquito net aperture must be oriented towards the antenna top
- Attach J-bolt with springs and smooth radome down as the springs are attached, but do not displace the edge protector on the shroud rim.
- Align the length of the springs to approximately 135 mm at each J-bolt, this will provide proper radome tension.

! Take care to not kink radome during installation. Kinking will destroy the radomes, which are non-repairable

10 - Sway bar assembly (principle for an offset right)

U-Bracket sway bar installation

For an easier sway bar orientation, keep the U-bracket sway bar free in rotation without gap until sway bar final attachment to the tower. (After sway bar final orientation, torque tighten all bolted joints)

Sway bar pipe installation

Before antenna hoisting on the tower, attach the sway bar in vertical position at the elevation spindle with a small rope, to avoid possible shock during the hoisting.
11 - Azimuth fine adjustment spindle pre-assembly (handtighten)

Sway bar installation on tower without sway bar kit option

Sway bar installation on tower with sway bar kit options

For more details refer to install. Instruction provided with this sway bar option kit

Sway bar fixing clamp (L100x100)

Washer 21
SL washer 20
Nut M20
(Installed at sway bar attachment time on the tower structure)

Plate Azimuth Adjust Support 60 (5 holes)

Nut M20
Washer 21

Washer 21
Screw M20x50

Nut M20
SL washer 20
Washer 21

8 Nuts M12
4 washers 13

2 U-bolts M12
(keep Ø60 mm space for sway bar pipe insertion)

Nut M20
Washer 21

Nut M20
Washer 21

U-bolt M12
(keep Ø60 mm space for sway bar pipe insertion)

Pipe or L-profil tower structure

Pipe tower structure

Plate Azimuth Adjust Support 60 (6 holes)

SMA-SKO-60, 89 or 114

SMA-SKO-60 (pipe Ø60)
SMA-SKO-89 (pipe Ø89)
SMA-SKO-114 (pipe Ø114)

SMA-SKO-UNIVERSAL (pipe Ø48 up to 114 and L-profil 40x40 up to 110x110)

SMA-SKO-UNIVERSAL kit

Pipe or L-profil extremity

Screw M20x60

M20x300
Azimuth spindle

Nut M20
Washer 21

Nut M20
SL washer 20
Washer 21

4 Nuts M12
2 washers 13

Angle Az. Adjust. 60 (L100x75)

Nut M20
Washer 21

Nut M20
Washer 21

M20x300
Azimuth spindle

Nut M20
Washer 21

Nut M20
Washer 21

U-bolt M12
(keep Ø60 mm space for sway bar pipe insertion)

Nut M20
Washer 21

Washer 21
Screw M20x50

Nut M20
Washer 21

Washer 21
Screw M20x50

Nut M20
Washer 21

Nut M20
Washer 21

2 U-bolts M12
(keep Ø60 mm space for sway bar pipe insertion)

Nut M20
Washer 21

Nut M20
Washer 21

U-bolt M12
(keep Ø60 mm space for sway bar pipe insertion)

Pipe or L-profil extremity

Sway bar pipe extremity

Pipe tower structure

Plate Azimuth Adjust Support 60 (5 holes)

SMA-SKO-60, 89 or 114

SMA-SKO-60 (pipe Ø60)
SMA-SKO-89 (pipe Ø89)
SMA-SKO-114 (pipe Ø114)

SMA-SKO-UNIVERSAL (pipe Ø48 up to 114 and L-profil 40x40 up to 110x110)

SMA-SKO-UNIVERSAL kit

Pipe or L-profil extremity

Sway bar pipe extremity

For more details refer to install. Instruction provided with this sway bar option kit

For more details refer to install. Instruction provided with this sway bar option kit

HTT 81.221-12 (e) 10/15
12 - WindKit 250 km/h installation

If you have ordered a 250 km/h WindKit separately, refer to specific installation instructions joined with the kit, otherwise skip this step.

13 - Safety collar installation on tower pipe support

14 - Hoisting on Tower

Before antenna hoisting on the pylon, verify that all the bolted joint of the T-Mount structure on the antenna have been torque tightened, otherwise the installation on the pipe support could be problematic.
Strong rope or cable fixed to antenna steel mount to avoid collision with the tower structure during hoisting.

Strong rope fixed at the tower top. The rope is slipping through a steel roll or a shackle, which is fixed on the steel mount of the antenna (to avoid any tunings of the antenna e.g. due to wind).
15 - Antenna installation on tower pipe (lifting accessories are not shown)

- Angle the sway bar
- Install the pre-assembled fine adjustment azimuth spindle on the sway bar pipe
- Choose the optimal place on the tower, to fix the fine adjustment azimuth spindle system (respect the ±25° sway bar orientation)
- After sway bar positioning, do not torque tighten nuts until elevation & azimuth adjustments.

16 - Sway bar positioning

Adjust nut and bolts tightening to have a free rotation & orientation in any direction without gap between parts

Max ±25°
After Elevation fine adjustment, lock each M20 and M12 nuts on the pivots at the specific torque value specified on the torque table joined (the threads must have been greased before torque tightening). Then torque tighten the 2 M16 brass nuts of the Elevation spindle.

A
If the 2 M20 bolts (left and right of the horizontal bracket) are torque tighten, loosen ¾ of turn the M20 nut of the right & left pivots.

B
If the M12 bolts is torque tighten, loosen ¾ of turn the M12.

C
Loosen or tighten the M16 brass nuts to adjust Elevation.
18 - Azimuth adjustment

After azimuth adjustment, lock each first nut on the M14 or M16 U-bolts at the specific torque value specified on the torque table joined (the U-bolt threads must have been greased before torque tightening), then tighten the second nut against the first one using usual wrench (counter-nut function). Then torque tighten all bolted joints of the Azimuth spindle.

19 - Final Check

When the installation of the antenna has been completed, it is necessary to make sure that the installation instructions have been followed in all aspects. It is especially important to check that all bolted joints are torque tightly locked.