3.3.6.5 Alignment adjustment procedure

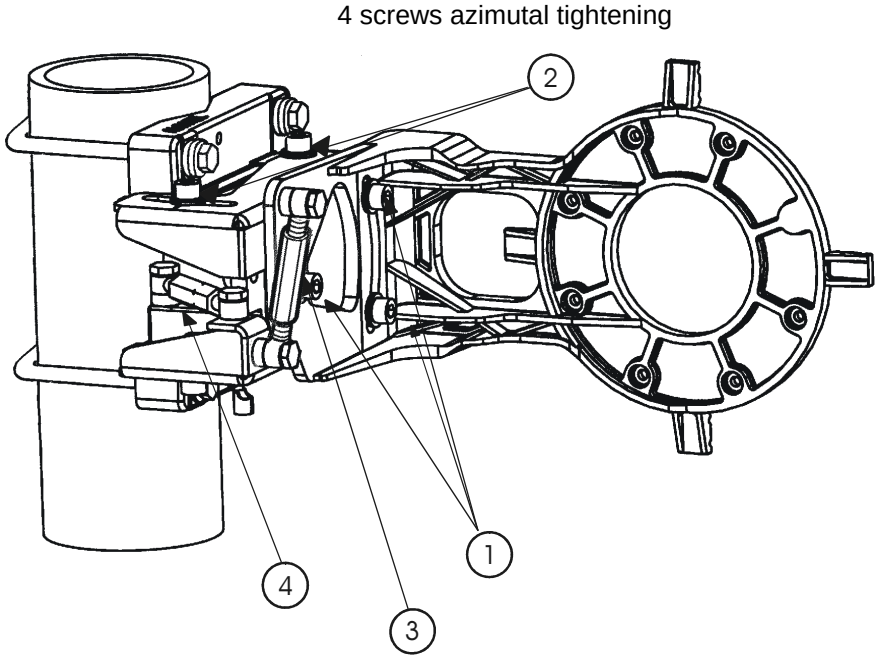

Figure 32 – Pole mounting 9900UXI102

Stages

1. Horizontal position: using a control system (graduated level or inclinometer, *Figure 33 – Checking antenna positioning*) positioned on the straight part of the antenna, ensure that it is perfectly horizontal (tilt 0°).
2. Coarse alignement around the pipe: make a bearing alignment in the direction intended by the radio planners (compass, "TopoChaix", etc.) see *Figure 30 – Azimutal alignement of antenn a*.
3. Fine alignement (see *Figure 32 – Pole mounting 9900UXI102*): using the 8 mm Allen key. Slightly loosen the 3 screws ref. **1** and the 4 screws ref. **2**, just enough to allow movements of the different parts of the pole mounting and to ensure the precision of the fine alignement. Then, fine tune the elevation and azimuthal settings with the 2 turnbuckles ref. **3** & **4** and the 16 mm flat wrench.
4. End of alignement: tighten the 3 screws ref. **1** and the **4** screws ref. **2**, to lock the assembly in position, with a torque 3 mdaN ± 10%.

3.3.6.6 Checking the alignement of antenna

Check the bearing and elevation of the antenna once the assembly has been firmly secured. If a shift is noted, repeat the adjustement(s) in question.

Refer to the documentation "Installation and Pointing Procedure for an RBS with a Built-in 15 dBi Sectoral Antenna" - Ref. 3CC12087Axxx .

Note: *Checking must be done with both inclinometer and compass.*

Figure 33 – Checking antenna positioning

3.3.7 Grounding of the outdoor equipment

Grounding of the outdoor equipment consists of:

- connecting the grounding of the RBS Unit with the pole-mounting grounding
- connecting the coupled RBS unit and pole-mounting grounding to the earthing system.

Considerations

- For grounding the RBS unit, a green/yellow cable with insulating sheath must be used. The minimum cross-section of the conducting wire is 16 mm^2 .
- On the pole-mounting assembly (9900UXI102), the ground terminal comprises a screw, two washers and two nuts which fix the two crimp terminals. **It must be installed at the bottom of the pole mounting**.

Stages

1. Crimp a terminal lug (ref. 16-6 CT) at each end of the cable linking the RBS unit ground and pole-mounting ground connections.
2. Screw one of the grounding cable lug into the tapped hole on the front of the RBS unit (see *Figure 34 – Grounding the outdoor equipment with the 9900UXI102 pole mounting*). Use an M6 screw.
3. Crimp a lug (ref. 16-6 CT) on to the grounding cable of the pole-mounting and RBS assembly.
4. Connect both grounding cables to the pole mounting grounding screw (already set).

Figure 34 – Grounding the outdoor equipment with the 9900UXI102 pole mounting

3.4 Installation of the link between RBS and DBS

Considerations

– The electrical link between RBS unit and DBS rack of the Base Station is made of **one single coaxial cable per T/R** (*Figure 35 – : RBS / DBS connection*). This cable, using double-shielding, is the ET 390998 type or coaxial cable LD F4-50A (see *Appendix 5 – Correspondence between commercial codes and industrial codes relating to the BS*).

	**USE THE ET 390998 OR LDF4-50A CABLE, IF YOU USE OTHER CABLE, PLEASE CONTACT ALCATEL.**

– Physical cable characteristics are:

	ET 390998	LDF4-50A
Diameter	11 mm	16 mm
Maximum installed cable length	140 meters	300 meters
Minimum bend radius	60 mm	125 mm

Elbow connector
DBS side connector

Elbow connector
RBS side connector

Figure 35 – : RBS / DBS connection

– It is essential to measure and record the length of cable actually deployed.

Stages

1. Fit the cable(s) with male "N" type elbow connectors, supplied with the equipment. To assemble the coaxial plugs, refer to the manufacturer's Assembly handbook. The packaging of each plug also contains assembly instructions and tools to be used.

Note: *Crimping on to the cable can be carried out using the Daniels M 22520/5-01 tool and Y215P clamping jaws.*

Note: *If soldering is used, do not overheat for fear of damage to the cable dielectric.*

2. Attach the cable at the RBS side to the pole-mounting via the rectangular clamp attachment windows, dedicated to this purpose.

Note: *The cable should be attached as rigidly as possible to avoid all repetitive movements related to mechanical or atmospheric vibrations, which could eventually lead to damage of the cable or connector.*

3. Plug in the RBS / DBS connection cable to the radio.
4. Carry out the wiring between RBS and DBS.

Note: *Make a drip groove where the cable enters the buildings, respecting the cables radius, in order to prevent water infiltration.*

Note: *Lock the cable every meter using adapted clamps for the type of cable running.*

Note: *avoid an over long parallel run between RBS/DBS coaxial link and electrical cables.*

	**DO NOT OVERTIGHTEN THE CABLE TIE ON THE CABLE; THIS COULD CAUSE DEFORMATION OF THE DIELECTRIC AND SUBSEQUENT LOSS OF PERFORMANCE.**

5. Note the length of the cable installed. This information will be entered into the database when the equipment is commissioned using the configuration software (cf. § 4.5.7 RBS).

Note: *the accuracy required by the configuration software is ± 10%.*

Grounding the RBS/DBS connection

- Cable grounding kits (reference 1AB128500002) may be supplied as an option.
- These kits are used for sites with high radioelectric interference, such as radio broadcasting stations, television transmitters, etc.
- The grounding diagram for these kits is illustrated in *Figure 36 – Grounding the RBS/DBS connection in option*.
- For the cable preparation and grounding operations, refer to the technical documentation of the cable supplier.

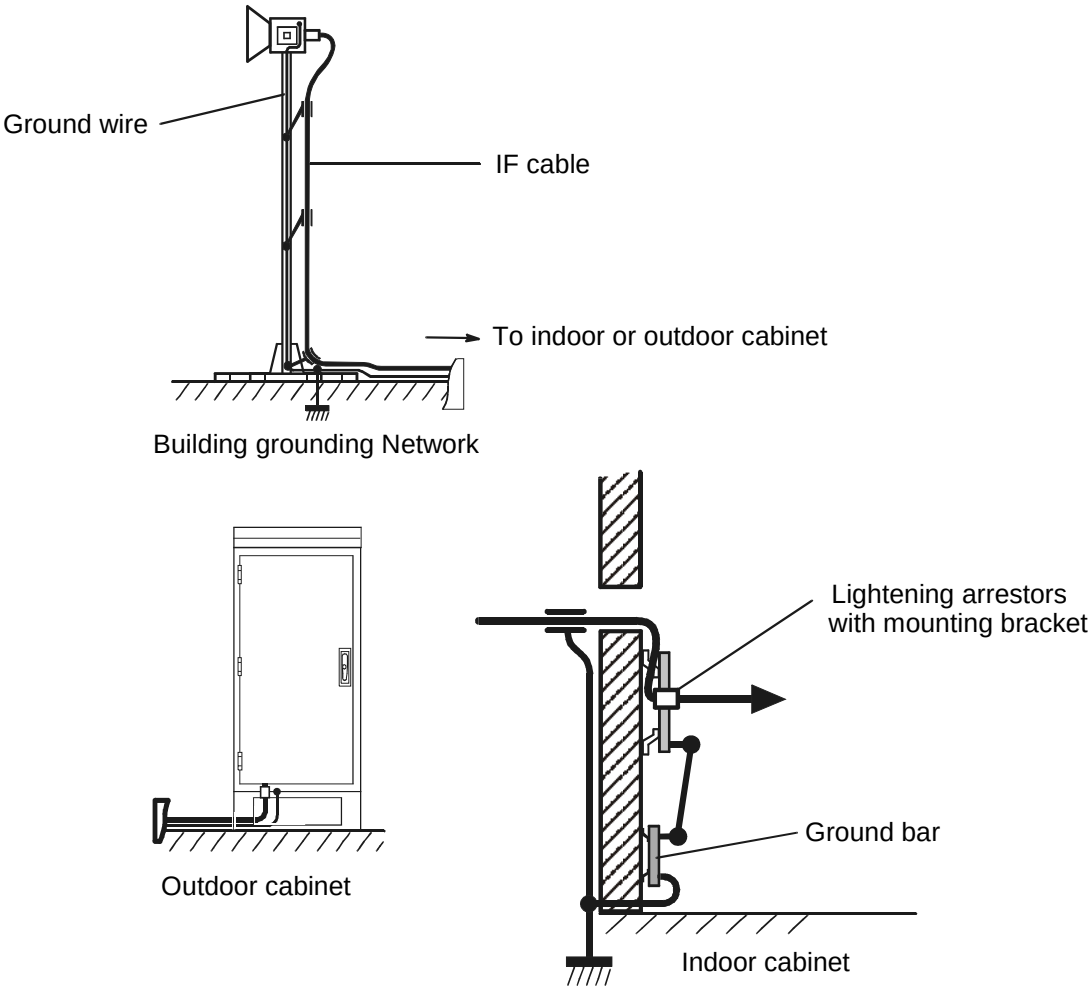

Figure 36 – Grounding the RBS/DBS connection in option

3.5 Base Station equipment installation

Considerations

- The rack containing the DBS sub-rack assembly and DC/DC PSUs is for indoor installation.
- The 7390BS indoor rack will be positioned according to user needs and technical constraints (e.g., respect of minimum distances, connections layout, RBS/DBS connection accessibility, power supply).
- The power supply is to be connected after installation of the 7390BS indoor rack, at the time of its commissioning (cf. *Chapter 5 Commissioning the Base Station (7390BS)*).

Definition of racks

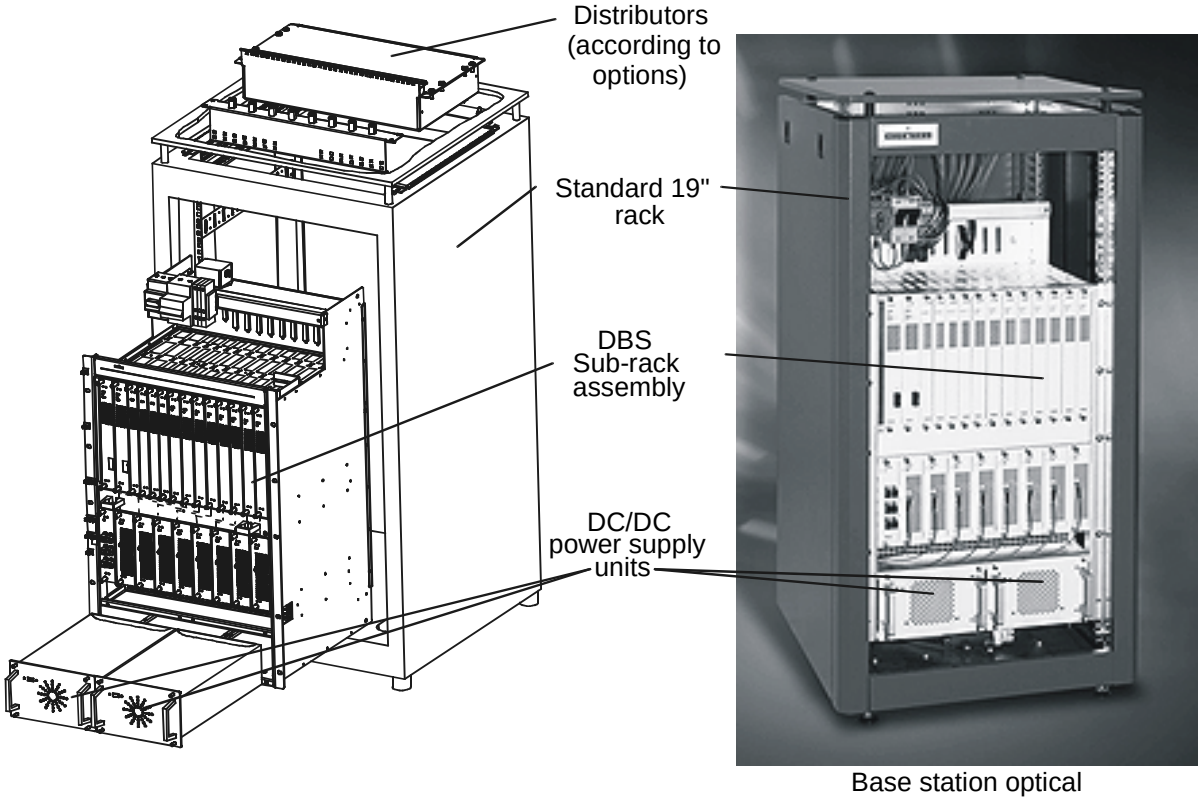

Figure 37 – Example of configuration of a 7390BS station in a standard rack