BASE STATION INSTALLATION

Installation Guidance for Base Station WVT-BS2X0B
INTRODUCTION

This guidance provides a description of minimal correct steps that are required for the proper installation of WAVIoT Base Station.

SPECIFICATION

Your set of equipment contains:

- WAVIoT Base Station with fasteners
- External SDR receiver / transceiver
- GSM-modem
- Antenna (whip or sector)
- Coaxial cable for connection between of external transceiver and antenna
- Binding kit
- FTP cable 10 meters for connection between external transceiver and base station (optional)

Additional components for base station installation

- FTP cable 10 meters for connection between external transceiver and base station (if not supplied)
- Antenna-tower with anchors
- Wiring clamps

INSTALLATION

Base station spotting

The best place for base station installation is mechanical room usually the top floor of a high-rise, where HVAC installations, elevator motors, etc. are located.

The length of FTP-cable between base station and external transceiver shall not be more than 70 meters.
Antenna spotting

Generally, the best place for antenna installation is a roof of the highest building available in the area. Antenna should be installed on a tower as high as practically possible.

Main criteria for antenna installation:

- Place of installation: on top of the highest building in the vicinity
- Antenna shall be mounted on the tower with height not less than 3 meters
- Antenna shall be mounted at least 3 meters higher than other objects in the surrounding area such as walls, eyebrows, parapets, rails, other equipment or antennas.
- To ensure 360° coverage antenna must have clear 360° horizontal line of sight not shadowed by even small objects, especially other antennas or top wires.
- Antenna must also have clear down to earth view at the angle to horizon not less than 15° in any direction. E.g. placement on a short pole at roof edge puts antenna in a shadow created by opposite edge of the roof.
- Whip antenna shall be installed vertically without deviation from vertical orientation. Sector antenna shall be mounted with 7 deg. tilt to plumb line.
Most frequent antenna installation mistakes

Incorrect antenna position. Surrounding buildings are shadowed by antenna.

Superstructure on top of the building are shadowing antenna.

Whip antenna installed with trim...
Equipment Installation

Base station computing block

- Base station mounts to the wall in upright position.
- Base station must be grounded with copper wire connected to any metal part of base station body frame.

External transceiver

- External transceiver shall be grappled to the antenna tower by brackets.
- Transceiver and antenna are connected by coaxial cable.
- Transceiver and base station are connected by FTP-cable (shielded Ethernet Cat 5). The length of cable shall not be more than 70 meters.

Antenna

- Antenna cable shall be grappled to the antenna tower by weather proof wiring braces. Braces should not be degrading cable integrity and geometry, though it should be fixed tightly.
Antenna shall be grounded with copper wire connected to any metal part of antenna. It’s highly recommended to cover the connections by shrink tubing or isolating tape to protect them from external environment. Whip antenna shall be mounted vertically with deviation not more than 0.5 degree. Sector antenna shall be mounted with 7 deg. tilt ± 0.5 deg.

Sector antenna tilt — 7º ± 0.5º.

Technical support

Once antenna and gateway are properly installed, you may contact our technical support for any assistance required to turn it on and perform testing exercise.

Please use the following contact details:

- Technical support and troubleshooting - techsupport@waviot.com
- General and business inquiries - info@waviot.com
Examples of tower and wall anchoring

Examples of best case location for antenna
Examples of wrong installations

Whip antenna is shadowed by TV-antenna

Antenna deviated from vertical axis

Top edge of the roof is shadowing whip antennas.
Whip antenna is shadowed by tower and top wire.

Sector antenna installed into protective housing with metal frames.

Antenna test while located inside of the apartments.

Sector antenna installed close to parapet and height of installation is insufficient.