OMNILINK TX - 2GHz
Service & User Manual

External Document

Index

REVISION HISTORY

REVISION (DATE)	AUTHOR	REASON FOR CHANGE
01 (May 12, 2011)	Skylinks	Preliminary release
02 (November 4, 2011)	Skylinks	Update ASI interface appendix
03 (October 16, 2012)	Skylinks	New release
04 (November 29, 2012)	Skylinks	New release

1 CABLING DETAILS

1.1 IDU-ODU INTERCONNECTION

Low-loss coaxial cable with a specified impedance of 50 Ohm which ends on both sides with the N connector serves for IDU and ODU unit's interconnection. One example could be the coaxial cable marked LMR400. An Automatic Gain Control allows the compensation of up to 35 dB cable loss. This means up to 200m of LMR400 or 100m of RG214 cables.

2 ODU Description

2.1 Product Overview

The Outdoor Unit is the Frequency specific part of the system, it contains the RF/Microwave section, interfacing the MODEM with the Antenna System at given frequency.

The ODUs belong to a family of High capacity ODUs covering the entire range from 2.5 to 8 GHz. The family offers a variety of features and options to address any type of Point to Point Microwave Network implementation.

The TX ODU unit performs the up-conversion from IF frequency of IDU (996MHz) to the desired transmission band.

RX ODU performs the down-conversion from received frequency band to IF frequency (422MHz) for the receiving part of the IDU. A single coaxial cable connects the ODU to the IDU, it carries DC Power supply, Tx or Rx IF as well as Telemetry channel for ODU Microcontroller management and configuration. ODU settings and readings are possible only from the IDU. The management of outdoor unit is integrated directly in the command set of the indoor unit and it is an integral part of the IDU software.

The conversions are obtained through fully synthesized independent sources allowing Frequency agility across the full band. Linear power amplifier and Low noise amplifier ensures optimal performances in the full Tx and Rx ranges.

The ODU Output Power setting and Receive Signal Level indications are processed by proprietary algorithms in order to ensure Power stability and RSL reading accuracy in the specified Frequency band and operating temperature range. The above mentioned parameters are guaranteed within the full range of output power settings and from –30 to –80 dBm on the Rx dynamic range.

For an easy Antenna alignment and optimized received signal level, on the ODU is available a BNC connector where the measured DC voltage [mV] is directly proportional to the level of Received Signal Strength (RSSI) as shown in the figure below.

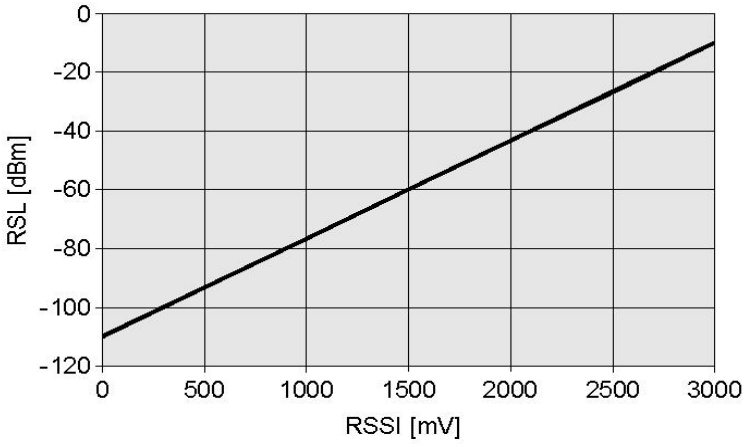


Figure 1. – RSSI vs RSL diagram.
RSL (dBm) = 33,33*VRSSI-110

3 OUTDOOR UNIT Block diagram

Figure 2. ODU TX Block Diagram

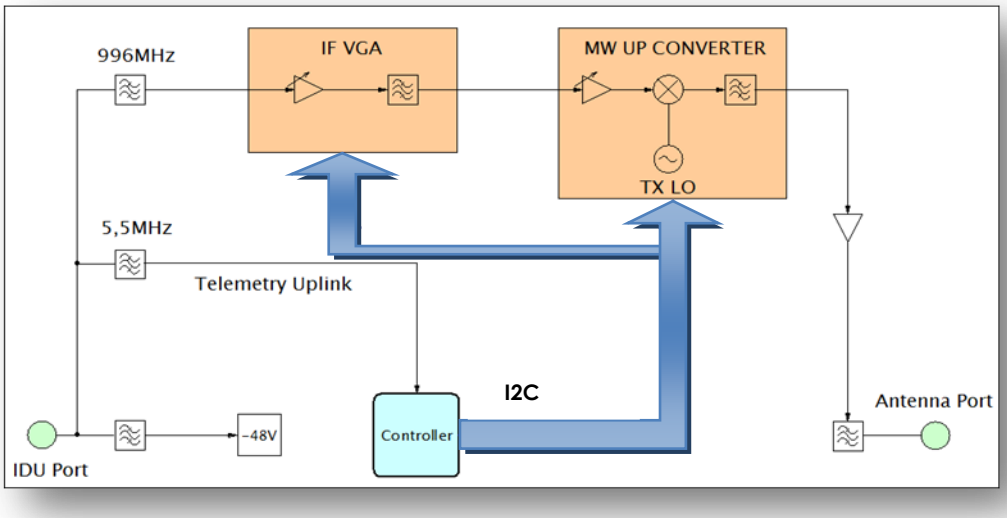
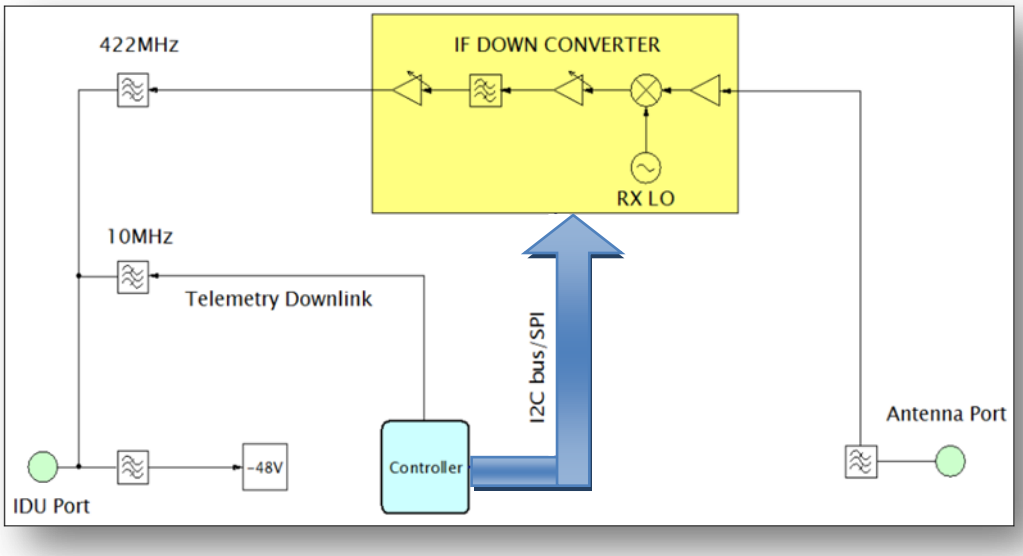


Figure 3. ODU RX Block Diagram



3.1 ODU Connectors description

On the ODU are located the following functions/connectors:

1. ***ANTENNA Port*** : Tx Output/Rx Input WG Interface
2. ***IDU Port*** : Tx or Rx IF, Tx or Rx Telemetry, DC Power
3. ***RSSI Voltage*** : Dc Voltage output for Antenna alignment
4. ***Grounding screw***

Figure 4. ODU with Standard Rectangular Waveguide Antenna port

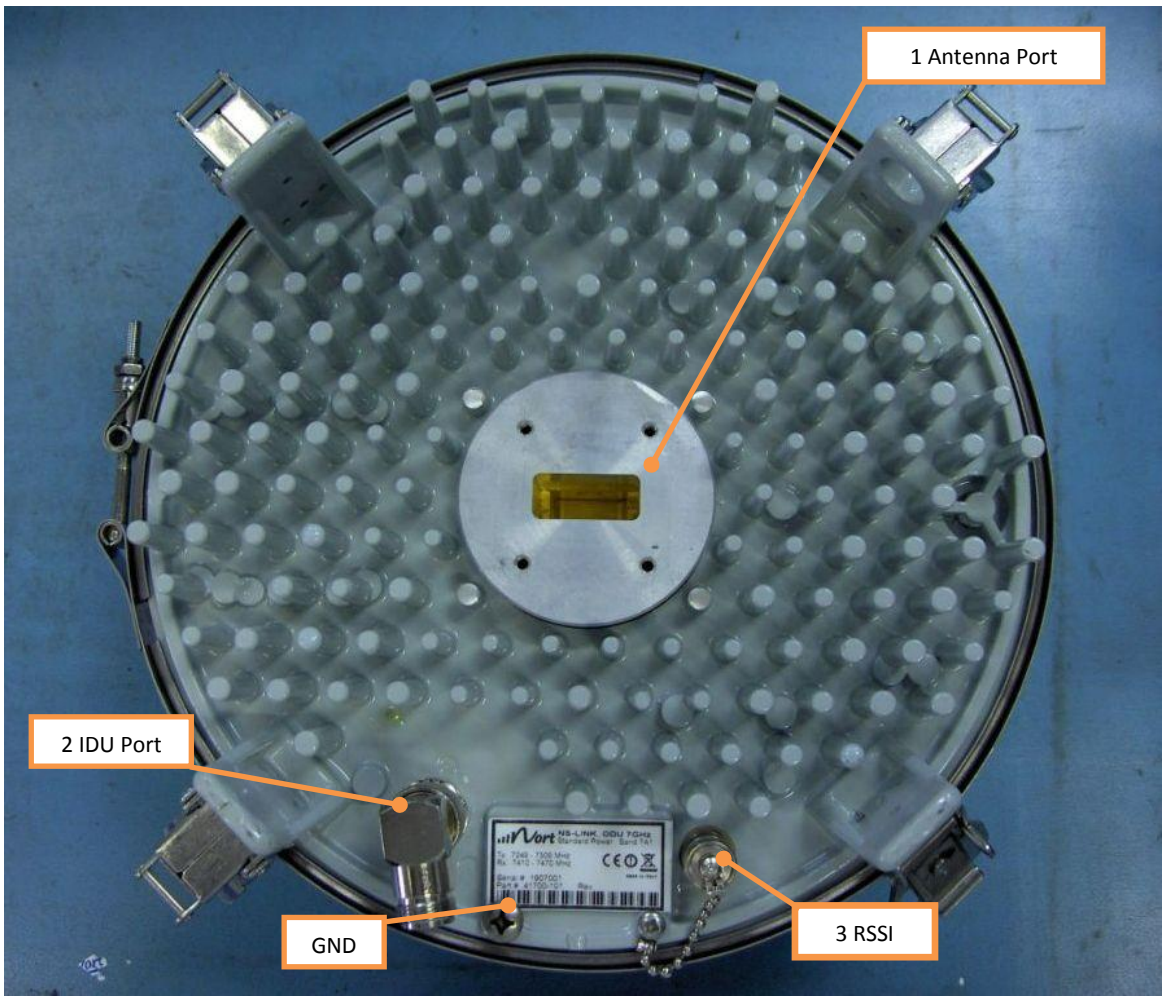
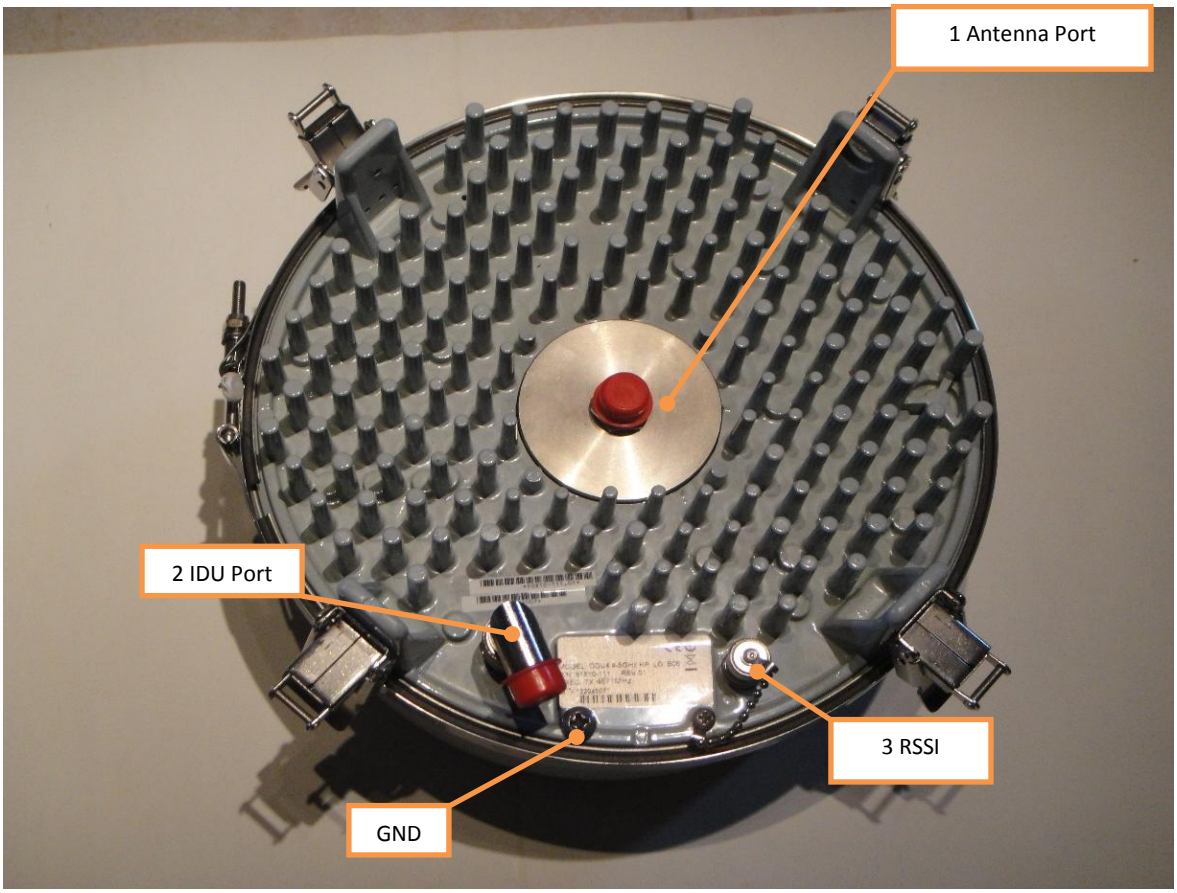


Figure 5. ODU with Standard N Connector Antenna port



4 Technical Specifications

The ODUs are available in the band from 2.5 to 8.5 GHz

Frequency band	2 GHz	3.8 GHz	7GHz	8 GHz
Operating Frequency (GHz)	2.3-2.47	3.73-3.8	6.65-7.41	8.0-8.5
Output Power	25	25	25	25
Rx Threshold QPSK	-86/-83	-86/-83	-85/-82	-85/-82
Antenna Port Interface	N-Type	N-Type	UDR70	UDR70

Mechanical / Environmental Specifications	
Dimensions	D 240mm x 240mm x 70mm
Weight	5.0 Kg
Operating Temperature	-33° to +55°C
Altitude	Up to 4500 meters
Humidity	100% all-weather
Power Input	24 DC (18V to 30V DC)
Power Consumption	<35W
Cooling	Natural convection
Coaxial Interfaces	N-type female
Standards Compliance	ETSI ETS 300 019

Composition of the equipment:

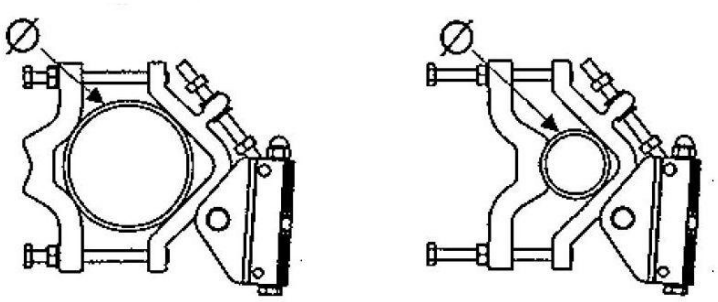
ODU TX HP 2.5 GHz SL-STL
ODU RX HP 2.5 GHz SL-STL
IDU TX
IDU RX

5 Antenna installation

List of tools and torque Table

TORQUE VALUE	
Dimension thread	Torque (Nm)
M4	2.7
M8	22.0
M10	44.0

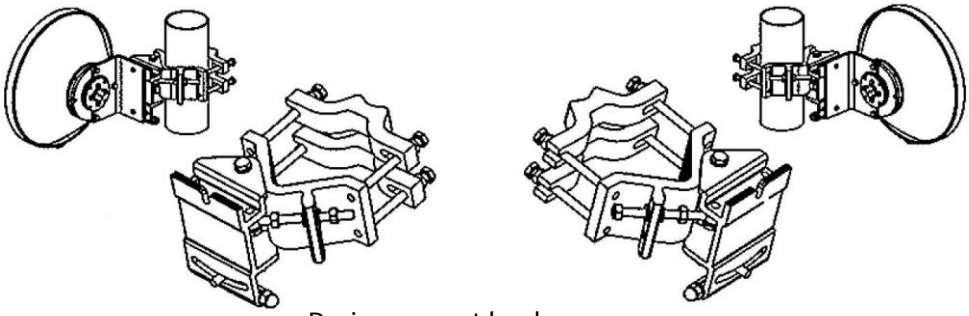
Figure 6. Mast Mount and different poles



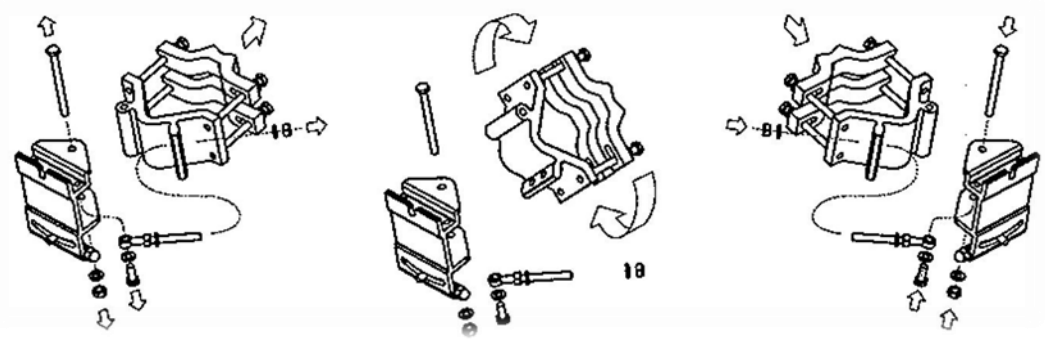
Position A Position B

Diameter ø	Position
40-75	B
76-95	A / B
96-130	A

Standard for left side mounting Reassembly for right side mounting

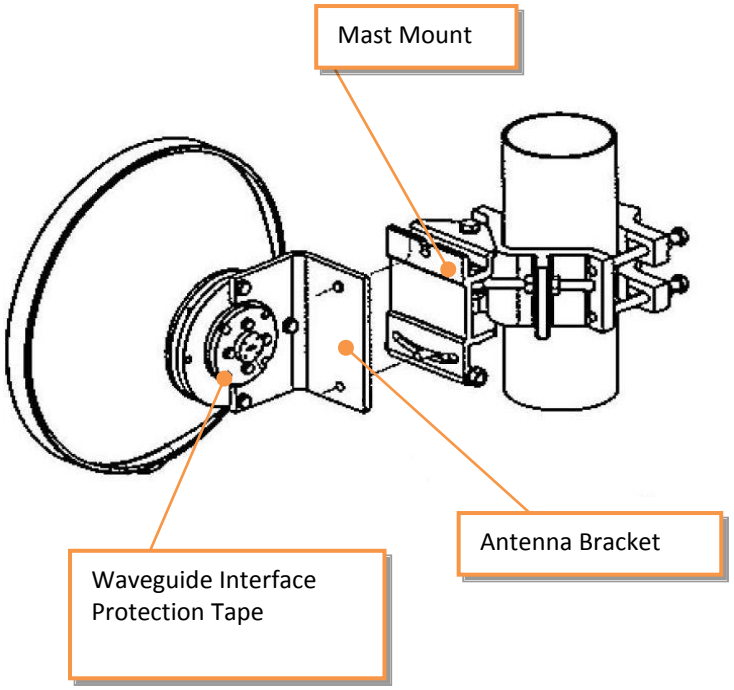


Drainage must be down



For a correct coupling between antenna bracket and mast mount must tighten completely all screws. The screws for assembly the pole mount are inside the box of the antenna.

Figure 7. Antenna bracket and mast mount coupling

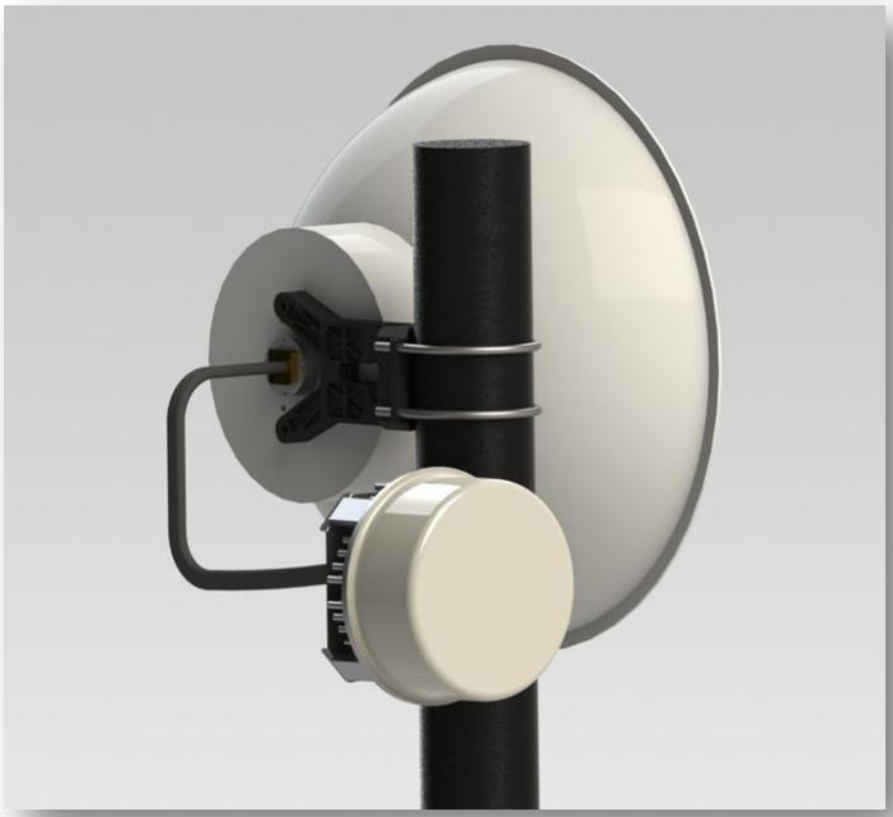


6 ODU Installation

6.1 Remote Mount

After Antenna Installation, the Remote Mount Kit with its pole mount U-bolts must be placed close to the Antenna. A suitable Flexible Waveguide/N RF Coaxial Cable should be then connected between Remote Mount Standard Flange and Antenna Standard Flange/ N Coaxial Connector

Figure 8. ODU with Standard N Connector Antenna port



7 ODU Problem Solving

If on ODU DISPLAY the ODU Alarm is RED (ODU Dialog Alarm) please ensure that the connection between IDU and ODU is OK.