



Point-to-Point Wireless TDM/IP Multiplexer

WinLink™ 1000

ACCEPTANCE
&
COMMISSIONING PROCEDURE

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1. Purpose

The following document is RADWIN's recommended Acceptance and Commissioning procedure for the WinLink 1000 products.

This procedure is to be carried out after the installation of the WinLink 1000 radio link.

The purpose of this procedure is to verify correct installation and operation of the installed link and the interoperability with the customer's end-equipment.

The installation of the WinLink 1000 product should be according to Chapter 3 and Chapter 4 of the Installation and Operation User Manual and according to the requirements described in RADWIN's Site Survey and Installation Requirements procedure.

2. Scope

RADWIN's Acceptance and Commissioning procedure is divided into three categories:

1. Site Acceptance Procedure

- A checklist that summarizes the installation requirements of the site where the products installed

2. Commissioning of WinLink1000 radio link in 1+0 configuration

- Covers the required configuration information that should be recorded and the tests that should be performed on the radio link

3. Site Acceptance Procedure

3.1 Purpose

The purpose of the following procedure is to verify that all installation requirements were noticed and checked.

Following this procedure will assure the proper, long-lasting and safe operation of RADWIN's product.

3.2 Site Acceptance Checklist

The following checklist summarizes the installation requirements of the site where the products are installed and should be verified and completed for each site.

SITE ACCEPTANCE CHECKLIST	
SITE INFORMATION	
Customer:	
Radio model:	
Site name:	
Site code:	
Radio link code:	
Site address:	
1. ANTENNA MOUNTING	
1.1 Antenna mount type:	
1.2 Mount is of sufficient height to clear local obstructions	<input type="checkbox"/> OK
1.3 Mount is safely positioned to not cause a safety hazard	<input type="checkbox"/> OK
1.4 Mount is secure and perpendicular	<input type="checkbox"/> OK
1.5 Mount is grounded as per site specifications	<input type="checkbox"/> OK
1.6 All steelwork is Galvanized or Stainless Steel as appropriate	<input type="checkbox"/> OK
2. ANTENNA (External)	
2.1 Antenna type (model and size):	
2.2 Antenna is securely fixed to mount	<input type="checkbox"/> OK
2.3 Antenna is grounded as per site specifications	<input type="checkbox"/> OK
2.4 Antenna sway braces are installed correctly (where applicable)	<input type="checkbox"/> OK
2.5 Antenna radome is securely fitted (where applicable)	<input type="checkbox"/> OK
2.6 Antenna's sealing O-Ring is properly fitted and not damaged	<input type="checkbox"/> OK
2.7 Antenna / Launch unit polarization is as per link requirements	<input type="checkbox"/> OK
3. OUTDOOR UNIT	
3.1 Type of ODU mount:	(Direct or Remote mount)
3.2 ODU is securely mounted on to the antenna or pole	<input type="checkbox"/> OK
3.3 ODU is grounded as per installation instructions	<input type="checkbox"/> OK
3.4 ODU's polarization is as per link requirements	<input type="checkbox"/> OK
3.5 ODU is installed properly and has no physical damage	<input type="checkbox"/> OK

For Remote Mount Only	
3.6 Remote mount kit is securely mounted to the pole	<input type="checkbox"/> OK
3.7 Wave guide has no physical damage and connectors are sealed	<input type="checkbox"/> OK
3.8 All wave guide bolts are secured using washers and lock-washers as appropriate	<input type="checkbox"/> OK
4. COAX CABLE	
4.1 Overall cable's length:	
4.2 Cable's type:	
4.3 "N"-Type connectors assembled properly to the cable	<input type="checkbox"/> OK
4.4 Cable connected securely to ODU and IDU	<input type="checkbox"/> OK
4.5 Cable's connector is weather proofed (sealed) at the ODU	<input type="checkbox"/> OK
4.6 At the ODU the cable has a service/drip loop to prevent moisture from entering the connector	<input type="checkbox"/> OK
4.7 Cable is secured using suitable restraints to fixed points at regular intervals (recommended 0.5m)	<input type="checkbox"/> OK
4.8 Cable has no sharp bends, kinks or crushed areas. All bends are within manufacturer's specification	<input type="checkbox"/> OK
4.9 Grounding is as per site specifications	<input type="checkbox"/> OK
4.10 Cable's point-of-entry to the building/shelter is weather-proof	<input type="checkbox"/> OK
4.11 Cable's ends are properly labeled	<input type="checkbox"/> OK
5. INDOOR UNIT	
5.1 IDU is securely mounted to the rack	<input type="checkbox"/> OK
5.2 IDU is located in a properly ventilated environment	<input type="checkbox"/> OK
5.3 IDU and rack are grounded as per site specifications	<input type="checkbox"/> OK
5.4 Traffic cables and connections are properly terminated as per manufacturer's/cable's instructions	<input type="checkbox"/> OK
5.5 All cabling is secured, tidy and visibly labeled	<input type="checkbox"/> OK
6. DC POWER SUPPLY	
6.1 Measured DC voltage input to the IDU:	(-48 to -72VDC)
6.2 Power Supply is properly grounded	<input type="checkbox"/> OK

6.3 IDU's DC connector is secure and the DC input leads are correctly terminated (no bare wires are visible)	<input type="checkbox"/> OK
6.4 IDU's DC connector (+) and (GND) leads are shorted and the (GND) is grounded	<input type="checkbox"/> OK
7. NOTES	
8. GENERAL INFORMATION	
8.1 Site accepted by	Name:
	Title:
	Company:
	Signature:
	Date:
8.2 Site approved by	Name:
	Title:
	Company:
	Signature:
	Date:

3.3 Site Acceptance Checklist Notes

The following notes will explain in greater details the above-mentioned sections of the Site Acceptance Checklist.

Antenna Mounting

- Sec. 1.2 – Mounting Pole/wall is of sufficient height to clear local obstructions such as parapets, window cleaning gantries and lift housings
- Sec. 1.3 – Mounting Pole/wall is of sufficient height and safely positioned to not cause a safety hazard.
No person should be able to walk in front of, or look directly into the path of the microwave radio beam.
Where possible the pole should be away from the edge of the building.
- Sec. 1.4 – Mounting Pole/wall is secure and perpendicular. A pole that is not perpendicular can cause problems during antenna alignment.
- Sec. 1.5 – Mounting Pole/wall is grounded as per site specifications. All operators and site owners have specific requirements regarding the grounding of installations. Minimum requirements are that any metal structure must be connected to the existing lightning protection ground of the building and that where it extends beyond the 45-degree cone of protection of existing lightning conductors then additional lightning protections should be installed.
- Sec. 1.6 – All steelwork is Galvanized or Stainless Steel as appropriate to prevent corrosion.

Antenna

- Sec. 2. 4 – Antenna sway braces are fitted and installed correctly, where applicable. Typically on antenna of 1.2m or greater an extra sway brace is fitted to the mounting frame of the antenna. This sway brace should not be mounted to the same pole as the antenna but should be installed directly back to the tower or an alternative point.

Outdoor Unit

- Sec. 3.3 – Outdoor Unit is grounded as per installation instructions. See 1.4 above.

-
- Sec. 3.4 – Outdoor Unit Polarization is as per link requirements and matches the polarization of the antenna.

Indoor Unit

- Sec. 5.5 – The main traffic connections, e.g. TRUNK tributaries, are correctly terminated and crimped as per the cable and connector manufacturers instructions.
- All other user terminations are secure and correctly terminated.

4. Commissioning Procedure

4.1 Purpose

This chapter will describe the recommended commissioning tests for WinLink 1000 radio link.

The purpose of the commissioning tests is to verify correct and proper operation of the WinLink 1000 product.

4.2 Commissioning Tests

The following tests must be performed on each installed link.

Link Verification

- Ability to buzz from both sides of the link using the “Wizard Installation procedure”
- All leds on IDU’s front panel are green (verify “service” is provided and connected to BERT)
- Received signal level (RSS) is as expected according to “WinLink Budget Calculator”
- Radio Bit Error Rate (BER) is $10E-11$ or lower
- After connecting test-equipment or end-equipment to the Line Interfaces, all leds on the front panel of the IDU are green

Line Interfaces Test

- Connect TRUNK test equipment to the Main Channel interface and verify error free operation for at least 1 hour
- When working with a Fast Ethernet interface, connect the appropriate test equipment to verify error free operation (Packet Analyzer for Fast Ethernet)

Interoperability Verification

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- Connect the customer's end-equipment to the Line Interfaces and verify correct operation
 - Further interoperability tests should be performed according to specific requirements of the connected end-equipment

Management Verification

- Load RADWIN's management software on to PC and launch the software
- Verify that you can manage the link and that using the software you are able to perform changes to the link's configuration (i.e. channel frequency, etc...)
- Verify that the software reports the correct parameters when performing the above
- Verify that there are no active alarms on the link
- In case the management station is remotely located (Network Operation Center), verify that the management station can manage the link and receive traps

Loop-backs Operation

- Perform line loop-backs, local to remote (Line/Reverse) loop-back, verifying that the system is operating accordingly

4.3 Commissioning Log

The Commissioning Log is an integral part of the commissioning procedure and should be filled for each installed link. The Commissioning Log gathers all relevant information regarding the installed link and contains a checklist of all recommended commissioning tests.

Keeping the Commissioning Logs is significant for tracking your installations and to provide essential data when contacting RADWIN. Upon completing the Commissioning Log, send it to RADWIN's support center at support@RADWIN.com

COMMISSIONING LOG - WinLink™ 1000		
GENERAL INFORMATION		
Customer:		
Distributor:		
Radio model:		
Radio link code:		
Configuration:		
Site Name:		
Site Code:		
Site Address:		
1. INDOOR UNIT		
1.1 Part Number:		
1.2 Serial Number:		
1.3 Main Ch:		
1.4 Wayside Ch:		
1.5 User Ch:		
1.6 IDC Software:		
1.7 MUX Software:		
2. OUTDOOR UNIT		
2.1 Part Number:		
2.2 Serial Number:		
2.3 ODC Software:		
2.4 Frequency:		
Acc. to link planning	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2.5 Link ID:		
2.6 Tx Power (dBm):		
Acc. to link planning	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2.10 Polarization:		
3. ANTENNA (external)		

3.1 Type:	<input type="checkbox"/> Pole	<input type="checkbox"/> Wall
3.2 Size:		
3.3 Gain:		
3.4 Manufacturer:		
3.5 Mounting Type:		
3.6 Mounting and wave-guide losses:		
4. LINK PARAMETERS		
4.1 Distance:		
4.2 Rain Zone:		
4.2 Expected Rx Level (dBm):		
4.4 Expected Availability (%):		
5. COMMISSIONING TESTS		
5.1 Front Panel leds:	<input type="checkbox"/> All Green	
5.2 Line Ch. Loop:	<input type="checkbox"/> pass	
5.3 Local-Remote Loop:	<input type="checkbox"/> pass	
5.4 installation buzzer Test:	<input type="checkbox"/> pass	
5.5 E1/T1 BER Test:	<input type="checkbox"/> pass	Test Duration:
5.6 Fast Ethernet Test:	<input type="checkbox"/> pass	Test Duration:
6. MANAGEMENT INFO		
6.1 Ethernet IP Address:		
6.2 Ethernet IP Mask:		
6.3 Serial IP Address:		
6.4 Serial IP Mask:		
6.5 Default Gateway:		
7. NMS TESTS		
7.1 Local management test:	<input type="checkbox"/> pass	
7.2 Remote management test:	<input type="checkbox"/> pass	
7.3 Remote management test of all elements in network:	<input type="checkbox"/> pass	

7.4 Alarms, Traps and LOG File: <input type="checkbox"/> pass	
8. NOTES	
9. GENERAL INFORMATION	
9.1 Link installed by	Name:
	Title:
	Company:
	Signature:
	Date:
9.2 Commissioned by	Name:
	Title:
	Company:
	Signature:
	Date: