

Document Revision History

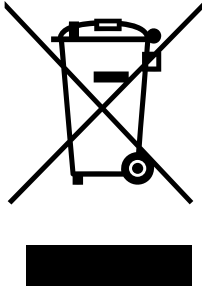
- Revisions**
- Previous Edition: 1.0
 - Current Edition: 1.1
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Reasons of change

The table below shows the reasons of the document change:

Change	A (added) M (modified) R (removed)
Radiation Safety & FCC Statements	A

Equipment Disposal



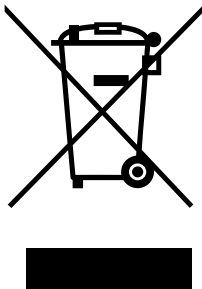
Disposal of old electrical and electronic equipment (applicable through the European Union and other European countries with separate waste collection systems).

This symbol, found on this product and any of its parts or on its operating instructions or on its packaging, indicates that electrical and electronic equipment may not be disposed of as unsorted municipal waste. Instead, this product should be handed over to applicable collection points for the recycling of electrical and electronic equipment.

By ensuring the correct disposal of this product, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product.

By recycling, reusing and other forms of recovery of old electrical and electronic equipment you are making an important contribution to the conservation of natural resources and to the protection of the environment.

For more information about the recycling of this product, please contact your local municipal authorities, municipal waste disposal service or the store where you purchased this product.



Απόρριψη παλαιών ηλεκτρικών και ηλεκτρονικών συσκευών (ισχύει στην Ευρωπαϊκή Ένωση και άλλες Ευρωπαϊκές χώρες με συστήματα χωριστής συλλογής απορριμμάτων).

Το σύμβολο αυτό, που απεικονίζεται πάνω στο προϊόν και σε τυχόν εξαρτήματα του ή στο εγχειρίδιο οδηγιών του ή στη συσκευασία του, δείχνει ότι οι ηλεκτρικές και ηλεκτρονικές συσκευές, μετά το πέρας της λειτουργίας τους, δεν θα πρέπει να απορρίπτονται μαζί με τα αστικά απόβλητα. Αντίθετα θα πρέπει να παραδίδονται σε κατάλληλα σημεία συλλογής για την ανακύκλωση των ηλεκτρικών και ηλεκτρονικών συσκευών.

Διασφαλίζοντας τη σωστή απόρριψη αυτού του προϊόντος, συνεισφέρετε στην πρόληψη πιθανών αρνητικών συνεπειών στο περιβάλλον και την ανθρώπινη υγεία, οι οποίες θα μπορούσαν να προκληθούν από την μη ενδεδειγμένη απόρριψη του προϊόντος.

Η ανακύκλωση, επαναχρησιμοποίηση και άλλες μορφές αξιοποίησης των παλαιών ηλεκτρικών και ηλεκτρονικών συσκευών βοηθούν στη διαφύλαξη των φυσικών πόρων και στην προστασία του περιβάλλοντος.

Για περισσότερες πληροφορίες σχετικά την ανακύκλωση αυτού του προϊόντος, παρακαλούμε επικοινωνήστε με τις τοπικές δημοτικές αρχές, την υπηρεσία αποκομιδής αστικών αποβλήτων ή το κατάστημα από το οποίο αγοράσατε το συγκεκριμένο προϊόν.

Για περισσότερες πληροφορίες, μπορείτε να επικοινωνείτε με το Συλλογικό Σύστημα Εναλλακτικής Διαχείρισης Αποβλήτων Ηλεκτρικού και Ηλεκτρονικού Εξοπλισμού "Ανακύκλωση Συσκευών Α.Ε." (www.electrocycle.gr).

Declaration of Conformity

Hereby, Intracom S.A. Telecom Solutions declares that the product **StreetNode™ 6250 PTP** is CE marked, complying with the requirements of the R&TTE Directive 1999/5/EC , EMC Directive 2004/108/EC, LVD Directive 2006/95/EC, ECO Design Directive 2009/125/EU & with the requirements of the RoHS Directive 2011/65/EU.

The product complies to all relevant FCC regulations.

For further information, please refer to [Appendix A: Standards of Compliance](#) on page [12](#).

Δήλωση Συμμόρφωσης

Με την παρούσα, η Intracom A.E. Τηλεπικοινωνιακών Λύσεων δηλώνει ότι το προϊόν **StreetNode™ 6250 PTP** φέρει την σήμανση CE συμμορφούμενο προς τις απαιτήσεις και τις λοιπές διατάξεις των οδηγιών R&TTE 1999/5/EC, EMC 2004/108/EC, LVD 2006/95/EC, ECO Design 2009/125/EU καθώς και με τις απαιτήσεις της οδηγίας RoHS 2011/65/EU.

Το προϊόν συμμορφώνεται σε όλους τους σχετικούς κανονισμούς της Ομοσπονδιακής Επιτροπής Τηλεπικοινωνιών της Ηνωμένων Πολιτειών Αμερικής (FCC).

Για περισσότερες πληροφορίες παρακαλώ δείτε το παράρτημα [Appendix A: Standards of Compliance](#) στην σελίδα [12](#).

Radiation Safety

Introduction

Any radio equipment is emitting Radio Frequency (RF) radiation through its antenna.

In the StreetNode™ 6250 PTP radio, the antenna is integrated and located inside the unit's enclosure.

It is important to follow any local, national or international regulation during installation and operation of the radio equipment to minimize radiation hazards.

Regulations

Many countries have issued and follow their own RF safety regulations, while many others have adopted international regulations, standards or guidelines.

In Europe, some countries follow the recommendations included in the 1999/519/EC directive, which is based on the guidelines document published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP).

The above mentioned European directive provides the reference levels (limits) for assessment of the human exposure to electromagnetic fields based on health effects. Other regulators may define different reference levels.

The European Union and U.S. regulator (FCC) Reference Levels for the microwave frequencies are given below:

Regulation	Frequency, GHz	Electric Field Strength	Power Flux density	Notes
1999/519/EC	2.0 – 300	61 V/m	10 W/m ²	General Public
FCC OET 65	1.5 – 100	-	1 mW/cm ² (10 W/m ²)	General Public
FCC OET 65	1.5 – 100	-	5 mW/cm ² (50 W/m ²)	Occu-pational

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Radiation Safety, Continued

**General
installation
guidelines
(RF exposure)**

As a general rule, it is expected that the highest level of emission would be at the antenna emission lobe maximum, in direct line-of-sight condition and in the close vicinity of the antenna.

Additional requirements for the installation of the StreetNode™ 6250 PTP radio shall be as follows:

- The radio should be located in such a way to prevent the public from accessing the area where the RF radiation exceeds the regulation limits. For this, a compliance boundary is determined, based on its radio characteristics. Outside this area, the RF radiation levels are below the reference levels (limits).
- Operation and maintenance personnel, which have to work within the RF radiation compliance boundary area, should be informed about the source of radiation and should have the capability to power off the radio equipment before entering the compliance boundary area.
- The compliance boundary area should be defined by a relevant warning sign or physical barrier.

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Radiation Safety, Continued

Compliance
boundary
definition

The Compliance Boundary Definition for StreetNode™ 6250 PTP is shown to the following table below:

Parameter	Value			
Max EIRP	40,0	<i>dBm</i>	10,0	<i>W</i>
Max EIRP (worst case conditions)	~47,0	<i>dBm</i>	~50,00	<i>W</i>
Power Flux Density Limit (General Public)	10,0	<i>W/m²</i>		
Compliance Boundary (General Public)	0,64	<i>m</i>		
Power Flux Density Limit (Occupational)	50,0	<i>W/m²</i>		
Compliance Boundary (Occupational)	0,29	<i>m</i>		



The above calculations are based on information available at the time of issue of the current document.



RF exposure compliance boundary studies / reports are available upon request.

References

- 1999/519/EC, COUNCIL RECOMMENDATION of 12 July 1999 *on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)*.
- OET Bulletin 65, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, Edition 97-01, August 1997.
- *GUIDELINES FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC, MAGNETIC, AND ELECTROMAGNETIC FIELDS (UP TO 300 GHz)*, International Commission on Non-Ionizing Radiation Protection (ICNIRP), 1998

FCC Part 15.19 Statement: Information to the User

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
 - (2) this device must accept any interference received, including interference that may cause undesired operation.
-

FCC Part 15.21 Statement: Information to the User

Changes or modifications made to this equipment, not expressly approved by the party responsible for compliance, could void the user's authority to operate the equipment.

FCC Part 15.105 Statement: Information to the User

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own.

Integrated Bluetooth Module FCC ID

The unit contains a certified Bluetooth Module.

The end user has no access to this module.

The FCC ID of the internal Bluetooth module can be found after the phrase "Contains FCC ID" on the label displaying the FCC IDs related to the unit.

This label is visible on the side of the unit.

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1. Introduction

Scope

This document provides detailed startup, commissioning and operation instructions for the following equipment:

- StreetNode™ 6250 PTP with embedded Node Manager (NM) software.
-

Target audience

The procedures described in this manual can be carried out by any technician with basic skills in computer-aided commissioning of outdoor electrical equipment.

Reference manuals

Other necessary information about product features and set-up can be found in the related product documents :

Item	Product Documents Description
1	StreetNode™ 6250 PTP System Description.
2	StreetNode™ 6250 PTP Installation & Cabling Manual.
3	StreetNode™ 6250 PTP Node Manager - Reference Manual.
4	StreetNode™ 6250 Release Notes.

2. Startup & Commissioning

Topics



- [Safety Precautions](#)
-
- Before starting any commissioning works please refer to [Reference manuals](#) item 2 on page [2](#).

-
- Hardware & Software Requirements
 - [Connecting the Laptop](#)
 - [Assumptions](#)
 - [Startup & Commissioning Procedure](#)
 - [System LED Indications](#)
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Safety Precautions

Before starting any commissioning works please refer to [Reference manuals](#) item 2 on page 2.

Hardware & Software Requirements

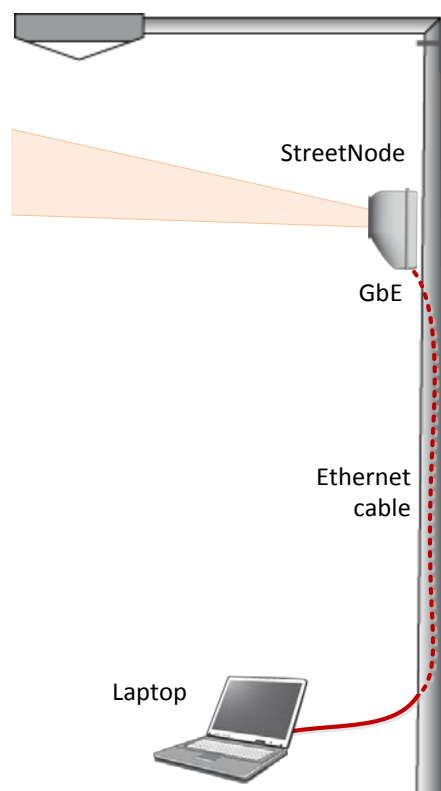
Hardware / Software	Description
	Laptop with the following minimum requirements: <ul style="list-style-type: none">• CPU x86, 9th generation (Intel Core 2 or AMD ATHLON II Neo).• 250 MB HDD.• 512 MB RAM.• Network interface card.• Windows XP or later version.
	Ethernet cable (CAT5e, straight-through).

Connecting the Laptop

Where to connect

The laptop can be connected directly to the StreetNode™ 6250 PTP node, in any of its available traffic interfaces located underside:

- Gigabit Ethernet 1 (electrical, RJ-45).
- Gigabit Ethernet 2 (electrical, RJ-45).
- Gigabit Ethernet 3 (SFP).



(Power supply cabling is not shown for simplicity).

Procedure

By using an appropriate equipment lifter vehicle (for elevating to the installation position) and an Ethernet cable, connect the laptop to one of the Ethernet / SFP ports at the bottom of the StreetNode™ 6250 PTP box.

If an Ethernet cable is already pre-installed, unplug it and connect the laptop with another Ethernet cable. Restore everything as found after finishing with the startup and commissioning.

Assumptions

For reader's convenience, we make the following assumptions regarding the startup and commissioning procedure:

- **Site A** – the location of the StreetNode™ 6250 PTP node that is closest to customer's PoP (Point of Presence) and is the node that will be installed first.
- **Site B** – the location of the StreetNode™ 6250 PTP node that is farther away from customer's PoP (with respect to **Site A**) and is the node that will be installed second.
- **“Local”** is meant the StreetNode™ 6250 PTP unit that the commissioner is directly connected to (using a laptop).
- **“Remote”** is meant the StreetNode™ 6250 unit that the commissioner is connected to remotely and by using a laptop connected to **“local”** unit.

The StreetNode™ 6250 PTP **“Local”** node, located closest to network synchronization source, will retrieve synchronization from its Gigabit Ethernet ports and will transport it to the next terminating StreetNode™ 6250 PTP node over the air medium.

The StreetNode™ 6250 PTP **“Remote”** node will retrieve network synchronization from its modem port and will transport it (to the next terminating StreetNode™ 6250 PTP node) through its Gigabit Ethernet ports.

Startup & Commissioning Procedure

Introduction

On the following pages, an overview of the startup and commissioning procedure is provided. For detailed instructions on the included steps, the reader is prompted to the respective section of the Reference Manual of the Node Manager for StreetNode™ 6250 PTP.

Precautions



You must configure the modem operation of all StreetNode™ 6250 PTP nodes (participating in the link) so that:

- Both nodes are configured to have the same channel bandwidth / size and adaptive mode.
- If MAC header suppression is enabled for one node, the same must be done for the other node(s) of the link.

Continued on next page

Startup & Commissioning Procedure, Continued

Overview The commissioning of a StreetNode™ 6250 PTP unit will be carried as follows:

Step	Action	Details	Refer to
1	Visit site A.	Install StreetNode™ 6250 PTP, point it coarsely toward site B and power it up.	StreetNode™ 6250 PTP Installation & Cabling Manual.
2	Configure management.	In case the (default) VLAN with id=1 is to be used, then set: Acceptable Frame Type = Tagged and Untagged (modem configuration). If a different VLAN is to be used, no such action is required.	Node Manager for StreetNode™ 6250 PTP Reference Manual, Chapters 4 & 5: § Configuring the Inband Management. § Adding VLANs / VLAN Ports. § Configuring Bridge.
3	Configure StreetNode operation.	a. Set site information.	§ Adding Site Information.
		b. Configure the modem operation. Set the following: Min Auto PHY Mode = 4QAM Max Auto PHY Mode = 4QAM Adaptive Mode = Auto-Manual Power	§ Configuring the Modem.
		c. Configure the radio parameters. Set the Tx frequency and Tx power as provided by the radio planning. Ensure that Mute = OFF .	§ Configuring the Radio.
		d. Configure bridge. Use the input provided by the responsible network operation team.	§ Configuring Bridge.
		e. Save node configuration.	§ Saving Configuration.

Continued on next page

Startup & Commissioning Procedure, Continued







Overview, continued

Step	Action	Details	Refer to
4	Visit site B.	a. Repeat steps 1 to 3 for site B.	-
		b. Perform antenna alignment at site B.	§ Configuring Antenna Alignment.
		c. Save node B configuration.	§ Saving Configuration.
5	Connect to site A (from site B) to carry out alignment.	a. Use your web browser and the IP address of StreetNode node at site A.	§ Log in (Chapter 2).
		b. Perform antenna alignment at site A.	§ Configuring Antenna Alignment.
		c. Save node A configuration.	§ Saving Configuration.
6	Link verification & completion of tasks.	a. At site B, ensure that: Link Status (local/remote) = Locked Radio Communication Status = Connected	§ Summary Information (Section 8.1).
		b. Verify that no active alarms exist for radio, modem & traffic ports.	Chapter 7 (Status).
		c. Dispatch the IP addresses of all nodes to the NMS team. The NMS team will then be able to take control and proceed to Ethernet QoS configuration and Ethernet provisioning.	Section 5.3 (Ethernet QoS Configuration). § Adding VLANs / VLAN Ports.

End of commissioning procedure.

System LED Indications

The LED at the bottom of StreetNode™ 6250 PTP unit provides visual indications of the system status:

LED Status	Description
 Stable ON, green	Ready
 Stable ON, orange	Modem alarm is active.
 Stable ON, red	Active alarm (internal or communication).
 Blinking green	Link operational.
 Blinking orange	Waiting for link id.
 Blinking red	Antenna alignment in progress.

Appendix A: Standards of Compliance

This product is in full compliance with the following standards:

Radio/Use of Spectrum:

ETSI EN 302217-3 v2.2.1 : 2014
ETSI EN 302217-4-2 v1.5.1 : 2010 (antenna)
FCC Part 15.255

EMC / EMI :

ETSI EN 301 489-1 v1.9.2: 2011
ETSI EN 301 489-4 v2.1.1 : 2012
EN 55022:2010
EN 61000.3-2:2006 +A1:2009 +A2:2009
EN 61000-3-3:2008
FCC Part 15 Subpart B

Health and Safety:

EN 60950-1:2006 +A11:2009 +A1:2010 +A12: 2011
EN 60950-22: 2006
EN 50385 : 2002
EN 60215:1989 +A1:1992 +A2:1994
IEC/UL/CSA 60950-1
IEC/UL/CSA 60950-22

RoHS : EN 50581 :2012

Eco Design: CR (EC) No. 278/2009

Environmental:

ETSI EN 300019-2-4 V2.2.2, Class 4.1 / (Mechanical 4M5)
(Operation)
(Within Spec Operating temperatures: -33°C to +55°C,
Operational at -50°C).
IEC 60529, Class IP67 (Protection against dust and water)
ETSI EN 300 019-2-2 v2.1.2, Class 2.3 (Transportation)
ETSI EN 300 019-2-1 v2.1.2, Class 1.2 (Storage)

Glossary

BW	Bandwidth
CBS	Committed Burst Size
CIR	Committed Information Rate
CLI	Command Line Interface
CoS	Class of Service
CRC	Cyclic Redundancy Check
DCN	Data Communication Network
DSCP	Differentiated Services Code Point
FDB	Forwarding Database
IP	Internet Protocol
L2CP	Layer 2 Control Processing
LDPC	Low-Density Parity Check
LED	Light Emitting Diode
PDU	Protocol Data Unit
PoP	Point of Presence
PtP (PTP)	Point-to-Point
QAM	Quadrature Amplitude Modulation
QL	Quality Level
QoS	Quality of Service
RAI	Remote Alarm Indication
RMON	Remote network MONitoring
RRC	Radio Resource Control
RSSI	Received Signal Strength Indicator
RSTP	Rapid Spanning Tree Protocol
SNMP	Simple Network Management Protocol
SNR	Signal-to-Noise Ratio
SP	Strict Priority
S-VLAN	Service VLAN
TCM	Three Color Marking
VLAN	Virtual Local Area Network
