

# Efficient Wireless Gigabit To The Home (GTTH) for Residential Access

## Summary

### Network Area

- Wireless residential broadband access and backhaul

### Architecture

- Millimeter-wave (E-Band / V-Band)
- Point-to-Point, rings (ITU-T G.8032v2)

### Solution

- StreetNode™ V60-PTP
- UltraLink™-FX80

### Synergies

- uni|MS™



StreetNode™ V60-PTP  
(V-Band)



UltraLink™-FX80  
(E-Band)

## Need for Faster Internet Drives Technology Race!

Demands for fiber-like Internet speeds has brought Gigabit To The Home (GTTH), the latest development in residential access networking service. In order to deliver such high bandwidths to their end customers, Internet Service Providers (ISPs) choose among various technology approaches, ranging from fixed networking access (i.e. fiber), to G.fast and DOCSIS 3.1, all the way to wireless access. However, the complexity of expanding the fixed network infrastructure in every direction and the need for rapid deployments, have forced ISPs to consider wireless as the alternative technology.

## Challenges of Wireless Residential Access

ISPs planning to offer wireless Gigabit Internet to remote, non-urban areas are faced with multiple challenges:

- **Spectrum of Operation (Licensed vs. Unlicensed)**  
Unlicensed frequencies have lower cost of operation but they trade off interference, which is higher. To overcome this hurdle, additional network design criteria need to be implemented.
- **Network Resiliency**  
Networks must be inherently fault-tolerant to assure the uninterrupted service to subscribers in case of failures. Traffic path redundancy on the other hand will increase CapEx significantly.
- **Installation & Commissioning**  
Ease of installation is critical for the OpEx of large deployments. Ideally, such onsite tasks should be carried out quickly, safely and, if possible, by non-telecom personnel.
- **Equipment Form Factor**  
Service terminals should have small dimensions and discreet aesthetics to match the living environment special characteristics.

## Innovation Brings Success!

Backed up by a multi-decade experience in the design and manufacturing of leading-edge telecommunications products, Intracom Telecom now offers an innovative all-wireless GTTH solution, through V-/E-Band technologies, that overcomes the aforementioned limitations and more.

The proposed solution aims to provide the highest quality of end-user experience by operating entirely in the millimeter wave spectrum and by achieving leading reliability, capacity and performance.

ISPs can efficiently extend their access network down to remote residences through the:

- establishment of UltraLink™-FX80 radio links, between their Point-of-Presence (PoP) site and the served areas, and through the
- installation of StreetNode™ V60-PTP wireless service terminals on the rooftops of served subscribers.

ISPs get peace-of-mind regarding any future change that may be required in their network when subscribers – and associated terminals – need to be added or removed.

Furthermore, Access Points can later be attached to terminals at served home premises for reaching even more subscribers easily and quickly.

## Solution Highlights

### OpEx Savings



Network operates only in unlicensed or light-licensed spectrum

### Flexible Powering



3 x powering options (direct DC, AC PoE, DC PoE) to adapt to the power source available locally

### Unified Management



One management suite, uniIMS™, manages everything, from radio equipment to wireless services

## Innovative Network Build-up with StreetNode™ V60-PTP Service Terminals!

### Fast Installation



Terminal is installed and run in less than 30 minutes by non-specialized personnel using an Android tablet and Bluetooth

### Unique Auto-alignment



Network is configured automatically when terminals are added or removed

### Advanced Features

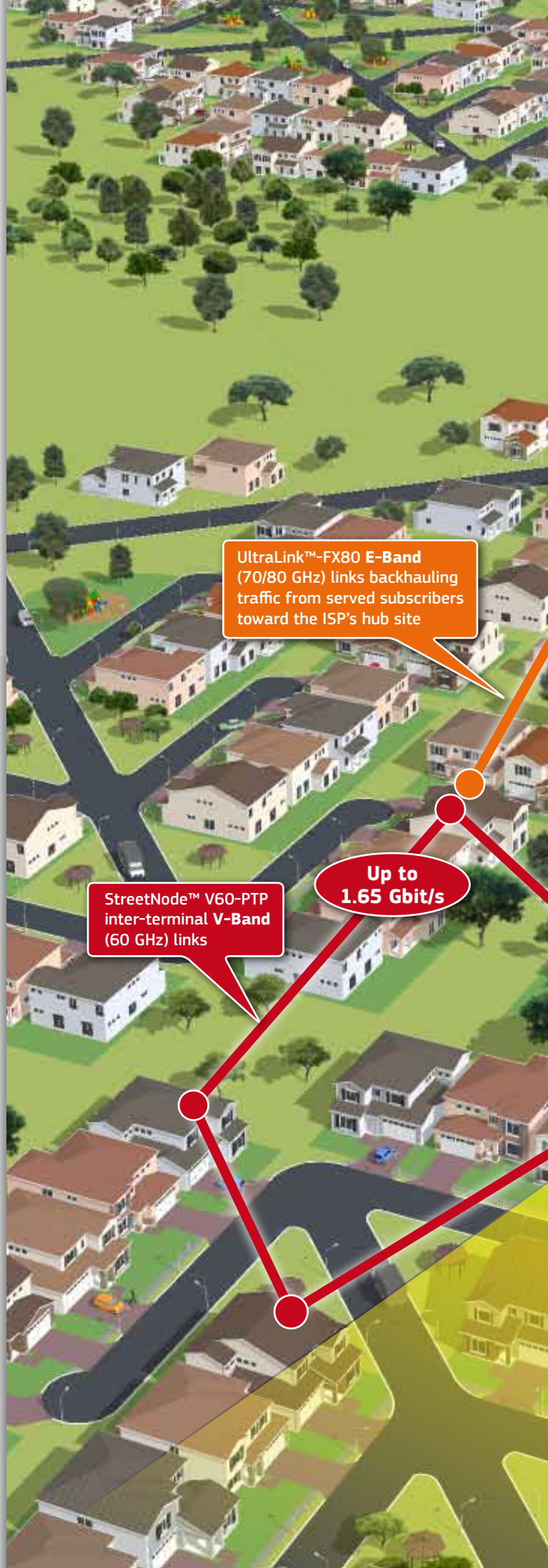


3 x Gigabit interfaces and an embedded switch make additional external Ethernet switches unnecessary

### All-in-one



Compact and aesthetically-pleasing box with embedded antenna; custom finishes on demand





ISP's PoP Site

Up to 3 Gbit/s

Up to 3 Km

Access Point, interfacing to a neighboring StreetNode™ V60-PTP, extends ISP coverage to include additional subscribers





Formation of protected rings (as per G.8032v2) with linked terminals, provide fault-tolerant operation and additional design flexibility (per-VLAN switching)



Dense 60 GHz network comprising narrow-beamwidth antennas yield less interference among adjacent links



Served Residential Area

-  **StreetNode™ V60-PTP**  
V-Band (60 GHz) wireless service terminal.  
A pair is installed on every subscriber's rooftop.
-  **UltraLink™-FX80**  
E-Band (70/80 GHz) radio  
Connecting the edge of the access network with the ISPs' PoP

## Why this Solution is for You

- All-outdoor, compact and lightweight units
- Automations for fast, error-free and cost-efficient deployment in the served areas:
  - Link **auto-alignment**
  - **Zero-touch** configuration through Bluetooth
- **Highest capacity** in their class
- **Carrier Ethernet** networking features
- Multiple **packet synchronization** options
- **Gigabit** and **CPRI** (UltraLink™-FX80 only) interfaces
- Powering type flexibility – **direct DC, DC PoE** and **AC PoE**
- Mounting-friendly units for **hassle-free** installation in street-level environments

The StreetNode™ V60-PTP and UltraLink™-FX80 products, which participate in this solution, can be combined with other Point-to-Point and Point-to-MultiPoint offerings from Intracom Telecom for a complete wireless backhaul toolkit.

## Participating Products Specifications Summary

### StreetNode™ V60-PTP (V-Band)

- Radio
  - Up to 1.65 Gbit/s throughput
  - Integrated auto-aligning antenna with  $\pm 15^\circ / \pm 10^\circ$  (azimuth / elevation) adjustment range
  - Up to 128-QAM hitless adaptive modulation
- Mechanical & Electrical
  - Dimensions (H x W x D), mm: 298 x 151 x 176
  - Weight: 3 kg (excluding the mounting kit)
  - Power Consumption: 38 W

### UltraLink™-FX80 (E-Band)

- Radio
  - Up to 3 Gbit/s throughput
  - Channel Sizes, MHz: 250, 500
  - Up to 256-QAM hitless adaptive modulation
- Mechanical & Electrical
  - Dimensions (H x W x D), mm: 290 x 290 x 108
  - Weight: 4 kg (excluding the mounting kit)
  - Power Consumption: 50 W

### uniIMS™

- Unified multi-vendor and multi-technology management
- Unprecedented network visualization through Web-based user interface
- Out-of-the-box dashboards & reports with network bandwidth & performance analysis
- Highly-automated network rollout through self-organized networks
- Network and RF planning tools closing the loop between “as-planned” and “as-built”

## Why Intracom Telecom

- **One-stop Shop**
  - Comprehensive portfolio of end-to-end radio access & backhaul solutions
  - Proven integration & interoperability
  - State-of-the-art end-to-end management suite
- **Established Wireless Vendor**
  - Growing and continuous presence for a variety of access and transmission solutions
  - Growing brand name recognition for PtP and PtMP solutions
- **Recognized for Service Excellence**
  - Extensive implementation track record
  - Specialized & highly experienced personnel
  - Consulting, design, implementation & support
  - Commitment to adding customer value
- **Continuous Innovation**
  - Innovating in the wireless access and transmission field for over one and a half decade
  - Successful development and deployment of PtP and PtMP systems with numerous operators in Europe, the Middle East, the CIS, Asia and Africa
  - Investing heavily on the continuous evolution of its wireless product lines

### About Intracom Telecom

Intracom Telecom is a global telecommunication systems and solutions vendor operating for 40 years in the market. The company innovates in the areas of small-cell backhaul, wireless transmission and broadband wireless access and has successfully deployed its industry leading point-to-point and point-to-multipoint packet radio systems worldwide. Moreover, Intracom Telecom offers a competitive portfolio of revenue-generating telco software solutions and a complete range of ICT services, focusing on big data analytics, converged networking and cloud computing for operators and private, public and government clouds. The company invests significantly in R&D developing cutting-edge products and integrated solutions that ensure customer satisfaction. Over 100 customers in more than 70 countries choose Intracom Telecom for its state-of-the-art technology. The company operates subsidiaries in Europe, Russia and the CIS, the Middle East and Africa, Asia and North America.