



InfiNet InfiLINK XG 1000 vs. Cambium Networks PTP 550 Series

A Competitive Analysis for Choosing the Most Valuable Wireless Solution Vendor

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SUMMARY:

- ITEM 1: Carrier grade competitor
- ITEM 2: Side-by-side comparison
- ITEM 3: Weigh the benefits
- ITEM 4: Economic value



About Cambium Networks

General overview

- Privately Held since 2011 when the private-equity firm Vector Capital purchased the wireless broadband networks businesses from Motorola Solutions
- Produces sub-6 GHz wireless broadband point-to-point (PTP) and point-to-multipoint (PMP) platforms (radios)
- Operates from U.S. with R&D centers in the U.S. (outside Chicago), U.K. (Ashburton) and India (Bangalore)
- Sells through a range of global distributors

Vertical Markets & Solutions

- *Wireless Service Providers (WISPs)*: rural, municipal, remote office & primary or redundant connectivity
- *Government Public Safety Sector*: data and video surveillance, disaster recovery, data network for public works
- *Enterprises*: video surveillance backhaul, device/site monitoring, LAN extension, leased line replacement

Competing products overview

InfiLINK XG 1000

Net aggregate throughput in **80 MHz (2 x 40 MHz)** up to **1000 Mbps**

PTP 550

Net aggregate throughput in **160 MHz (2 x 80 MHz)** up to **1360 Mbps**

InfiLINK XG 1000

Net aggregate throughput in **80 MHz (2 x 40 MHz)** up to **1000 Mbps**

PTP 550

Net aggregate throughput in **80 MHz (2 x 40 MHz)** up to **650 Mbps**

Important note:

- InfiLINK XG has more efficient radio protocol and processing power which translates to a much better spectral efficiency: 14 bps/Hz spectral efficiency compared with 8.5 bps/Hz for PTP550

ITEM 2: SIDE-BY-SIDE COMPARISON

InfiLINK XG 1000 vs. PTP 550 Series

	<i>InfiLINK XG 1000</i>	<i>PTP 550</i>	 <i>XG 1000 wins with</i>
Supported frequencies	<ul style="list-style-type: none">• 4.9-6.0 GHz	<ul style="list-style-type: none">• 5.17 to 5.98 GHz	<ul style="list-style-type: none">• Flexibility - higher range of available operating frequencies
Antenna options	<ul style="list-style-type: none">• 23/26/28 dBi• 2 N-type connectors	<ul style="list-style-type: none">• Integrated: flat panel 23 dBi• Connectorized: can operate with a selection of separately-purchased single- and dual-polarity antennas through 2 x N-type female connectors	<ul style="list-style-type: none">• Flexibility – multiple integrated antenna options, for addressing wider range of applications
TX power	<ul style="list-style-type: none">• Up to 22 dBm (average, per Tx chain) @ QPSK to QAM64• Up to 20 dBm @ QAM256• Up to 18 dBm @ QAM1024	<ul style="list-style-type: none">• Up to 26 dBm per chain (up to 29 dBm combined)	

ITEM 2: SIDE-BY-SIDE COMPARISON

InfiLINK XG 1000 vs. PTP 550 Series

	<i>InfiLINK XG 1000</i>	<i>PTP 550</i>	 <i>XG 1000 wins with</i>
Wired connections	<ul style="list-style-type: none">• 2 x Gigabit Eth: Gigabit Port 1: Data + PoE power input & Gigabit Port 2: Data only• SFP port: various 3rd party single & multi mode fiber modules are supported	<ul style="list-style-type: none">• 1 x Gigabit Eth: Data + PoE power input• SFP port: single & multi mode fiber and Gigabit Eth options available	<ul style="list-style-type: none">• 1 x extra Gigabit Eth port• Either of the ports can be configured independently for management, user data or for a hybrid mode• 3rd party SFP modules supported while PTP 550 supports Cambium-branded SFP modules only
Modulation levels	<ul style="list-style-type: none">• 10 modulation/ coding schemes from QPSK to QAM256, as well as QAM1024	<ul style="list-style-type: none">• 9 steps of adaptive modulation (max QAM256)	<ul style="list-style-type: none">• Availability of QAM1024 level
Power consumption	<ul style="list-style-type: none">• Up to a max of 55 W	<ul style="list-style-type: none">• 30 W maximum	

ITEM 2: SIDE-BY-SIDE COMPARISON

InfiLINK XG 1000 vs. PTP 550 Series

	<i>InfiLINK XG 1000</i>	<i>PTP 550</i>	 <i>XG 1000 wins with</i>
Packet Performance	<ul style="list-style-type: none">• > 1 600 000	<ul style="list-style-type: none">• > 150 000	<ul style="list-style-type: none">• Much higher processing power• Ability to provide full capacity at any packets sizes and for any type of traffic
One way delay	<ul style="list-style-type: none">• 1.5 - 5 ms one-way, typical (depending on air frame period)	<ul style="list-style-type: none">• 1-3 milliseconds one direction	
IP Rating	<ul style="list-style-type: none">• IP66 and IP67	<ul style="list-style-type: none">• IP66 and IP67	
Operating temperatures	<ul style="list-style-type: none">• -40 to +60 °C	<ul style="list-style-type: none">• -40°C to +55°C	<ul style="list-style-type: none">• Slightly wider temperature range

ITEM 3: WEIGH THE BENEFITS

Air protocol

- MIMO 2x2, cyclic single carrier modulation
- TDD, Hybrid-FDD (split-frequency operation) duplexing scheme
- Configurable air frame from 1 to 10 ms
- Fully supported automatic ranging and Automatic Modulation Control
- Dual channels: 2x10, 2x20 & 2x40 MHz

- MIMO 2x2
- Time Division Duplex (TDD)
- Fixed frequency or Dynamic Channel Selection (DCS)*
- Asymmetric Channel Aggregation
- Dual independent channels, each channel configurable as 20, 40 & 80 MHz

* Available in future release

ITEM 3: WEIGH THE BENEFITS

TDD synchronization

- Fully supported for co-located radio deployments, via built-in GLONASS/GPS receiver or IEEE1588 PTP
- No need to buy an external synchronization unit
- Timing transport - IEEE 1588 v2, L2/L4 datagrams, transparent clock

- No support for IEEE 1588
- TDD sync is not supported at the moment. I will be added in the future, using Cambium Sync from the external CMM5 device



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ITEM 3: WEIGH THE BENEFITS

Management & installation

- LED indication - power status, wireless and wired link status, RSSI indication, TDD sync status
- Management protocols - Web access via browser using HTTP or HTTPS, Telnet, SNMP v1/2/3 (MIB-II and proprietary MIBs)
- NMS - InfiMONITOR
- Installation tools - antenna alignment tool

- LED indication - power status, Eth link status and activity on Extended Range PoE supply
- Web access via browser using HTTPS
- SNMP v2c
- Online spectrum analyzer (no impact on payload traffic)
- NMS - cnMaestro
- Built-in e-alignment using GUI on radio to assist in installation



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ITEM 3: WEIGH THE BENEFITS

QoS, security & network protocols

- QoS - 4 queues
- Prioritization - “Strict” and “weighted” modes
- Packet classification - 802.1p, IP ToS, DiffServ, custom L2/L3-based rules
- Full-fledged L2 switching, VLAN, IGMP, STP

- 3 QoS queues*
- Packet classification - L2 and L3 IEEE 802.1p, Ethernet priority
- FIPS-197 compliant 128-bit AES Encryption (optional)
- Simple Ethernet bridging

* Available in future release

Choosing InfiLINK XG 1000 gears

- Much valuable backhauling solution (**lower OPEX, higher ARPU & faster ROI**) by:
 - Best-in-class spectral efficiency (up to 12.5 b/Hz/s vs. max 10 b/Hz/s)
 - More than 1.6 million processed packets per second (line rate)
 - High gain integrated antenna - 28 dBi
 - Higher MCS (up to QAM1024)
 - Built-in GLONASS/GPS receiver

Choosing InfiLINK XG 1000 units

- Benefit of the price advantage (**lower CAPEX & better TCO**) and NO hidden price/complex BOM
- At Cambium:
 - IDUs are not included in BOM
 - TDD-SYNC unit is not included in BOM
 - SFP modules supported are Cambium-branded only

Note: the technical data provided in this presentation are based on specification sheets of the two products:

<https://infinetwireless.com/products/infilink-xg-1000/specifications#tabs>

<https://www.cambiumnetworks.com/products/backhaul/ptp-550/>



THANK YOU!

