

PPC-1000-LL LOW LATENCY RADIO



FOR FREQUENCY BANDS
71–76/81–86 GHz
40.5–43.5 GHz
37.0–40.0 GHz



PRODUCT DATASHEET 1 Gigabit Ethernet Wireless Link

All information from this document is protected by the related copyright, patent, or intellectual property right.

ELVA-1 has the exclusive right to change this information in order to improve performance or usability of the described products.

PPC-1000 is a trademark of ELVA-1. All other trademarks or product names are the property of their respective owners.

Copyright © 2023, ELVA-1

For any request, please contact us by E-mail: sales@elva-1.com

PRODUCT DATASHEET

Tx / Rx Specs

Model	PPC-1000-E/LL	PPC-1000-Q/LL	PPC-1000-Ka/LL
Frequency range	71-76/81-86 GHz (E-band) 74-76/84-86 GHz for Czech Republic	40.5-43.5 GHz (Q-band)	37.0-40.0 GHz (Ka-band)
Throughput	1000 Mbps Full duplex	1000 Mbps Full duplex	1000 Mbps Full duplex
Latency	45 ns from SFP socket to antenna port (on one ODU)		
Channel Bandwidth	1250 MHz		
Modulation	QPSK		
MTBF	150 000 hours		
Max Distance *	up to 80.0 km (49.7 miles) with 2ft antennas at clear sky	up to 65.0 km (40.3 miles) with 2ft antennas at clear sky	up to 72.0 km (44.7 miles) with 2ft antennas at clear sky
Max output power	+27 dBm (500 mW)	+27 dBm (500 mW)	+27 dBm (500 mW)
Rx Sensitivity @ 10 ⁻⁹ BER	-64 dBm	-65 dBm	-65 dBm
System Gain	91 dB	92 dB	92 dB
Management	SNMP v.2; MIB-II and Enterprise MIB; WEB; CLI; Telnet		
Ethernet Interface	1 × SFP slot (1000Base-X)		
Management Port	100 Base-Tx (RJ - 45)		
Forward Error Correction	n/a		
Polarization	Vertical / Horizontal		

* The line-of-sight is required, installation on high towers is recommended for such long distances

Antenna

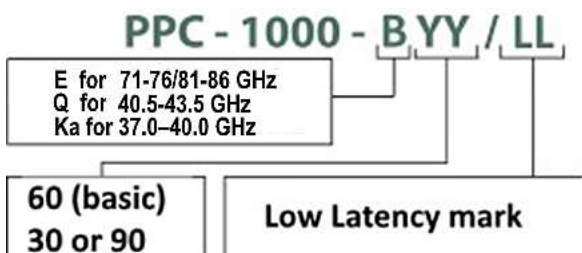
Antenna Type	Cassegrain type antenna with radio-transparent radome		
Antenna Gain/Beamwidth for frequency band:	71-76/81-86 GHz (E-band)	40.5-43.5 GHz (Q-band)	37.0-40.0 GHz (Ka-band)
1ft antenna	45 dB/0.7°	38 dB/1.5°	38 dB/1.5°
2ft antenna	51 dB/0.35°	44 dB/0.7°	44 dB/0.7°
3ft antenna	n/a	47 dB/0.5°	47 dB/0.5°

Power / Environment

Power Supply AC	Input 88-132 / 176-264 Volts, 50/60 Hz
Power Consumption (for one radio)	45 W (+60 W when heater is switched ON) (E-band) 90 W (+120 W when heaters are switched ON) (Q-band, Ka-band) *
DC Power	36 to 60 Volts DC
Power Connection	IP-67
Operational Temperature	-50°C to +60°C / -58°F to 140°F
Humidity	Up to 100%

* Power consumption for Q-band, Ka-band radio is doubled compare to E-band because of separated transmitter and receiver units.

How to order: use the following encoding schema.



For example, basic PPC-1000-LL link with 2ft antennas for 71-76/81-86 GHz band has the following product code: PPC-1000-E60/LL.

1.1 PPC-1000-LL APPLICATIONS

45 ns Ultra Low Latency PPC-1000-LL 1.25 Gbps link is intended for High-Frequency Trading (HFT), telecom and other application within millimeter-wave/microwave network infrastructure.



In response to demands from the Ultra Low Latency networking market for High-Frequency Trading (HFT) applications and 5G/6G telecommunications, ELVA-1 has produced the PPC-1000-LL (Low Latency version), a 1.25 Gbps Gigabit Ethernet link for FCC-permitted 71-76 / 81-86 GHz (70/80 GHz E-band), 40.5-43.5 GHz (Q-band), and 37.0-40.0 GHz (Ka-band). In terms of network infrastructure, this link is designed for Low Latency / Ultra Low Latency wireless networking.

- 45 ns (nanoseconds) latency at zero wireless path distance which is 1,000 times lower than typical Ethernet radios
- High gain with longest distances within 70/80 GHz, 40.5-43.5 GHz and 37.0-40.0 frequency spectrum
- 1 Gigabit Ethernet full duplex by RFC 2544
- Nordic design available — works well for regions like Alaska, Canada, Northern Europe.
- Intended for High-Frequency Trading Networks (also known as High-Speed Trading), last mile solutions for networks where transmission speed is crucial.

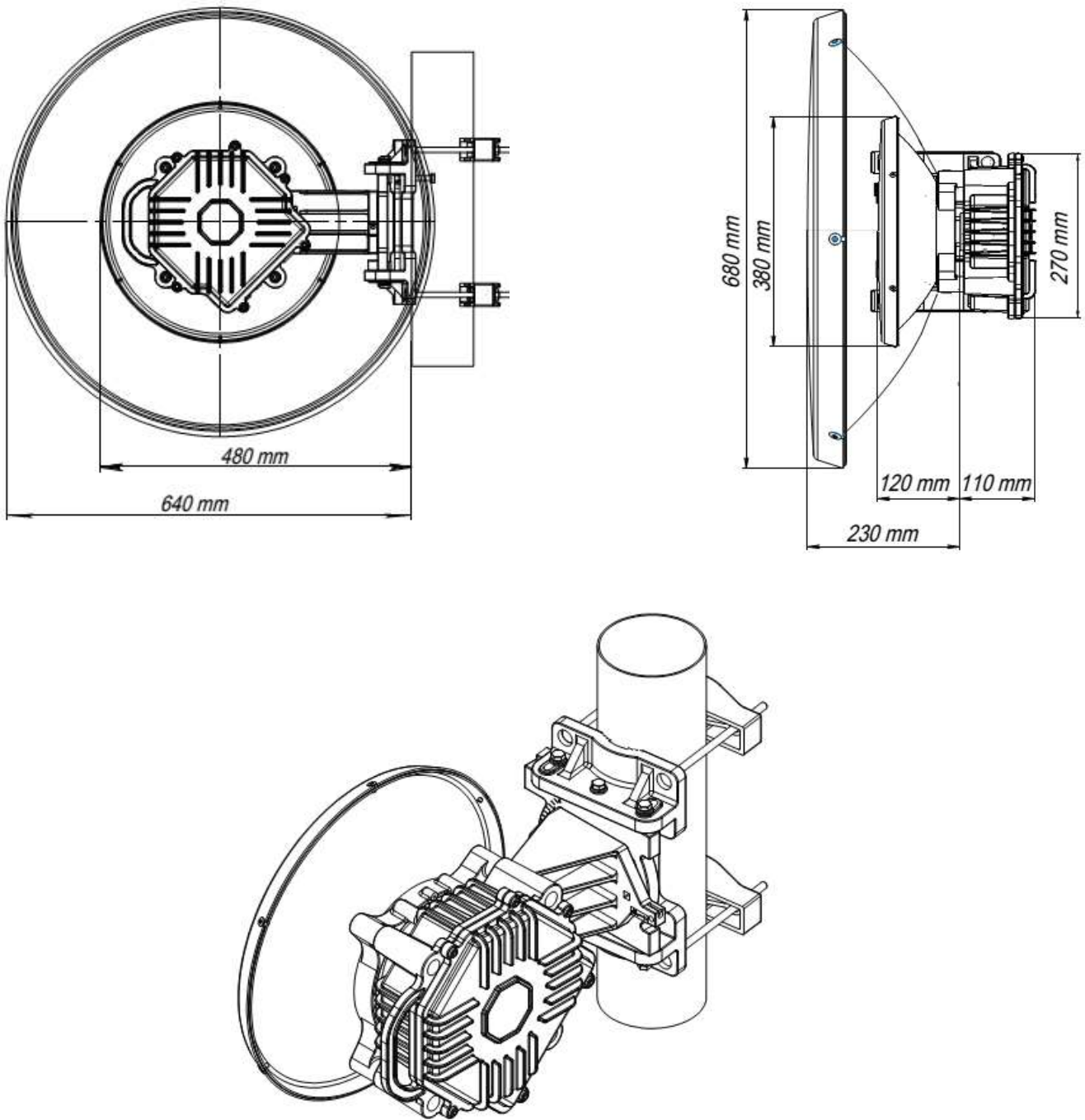
[See independent report: RFC2544 for PPC-1000-LL by TWS Technologies](#)

Use the [Online link budget calculator](#) to determine actual distances considering frequency band, antenna size and % of connection availability.

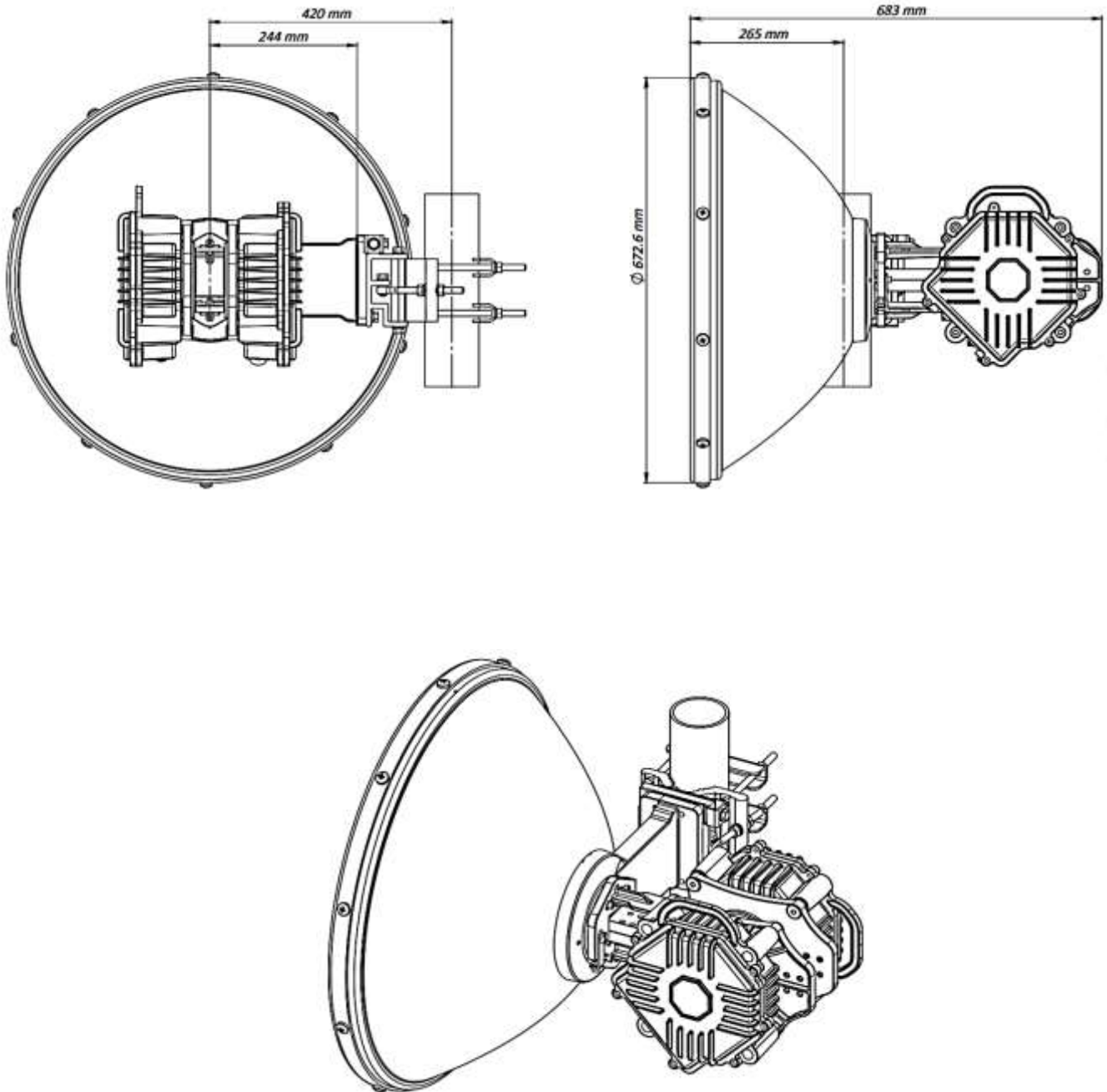


In High-Frequency Trading (HFT) applications shaving even a single millisecond from trading times can equate to a distinct infrastructure advantage and generate significant profits. According to Information Week Magazine: "A one (1) millisecond advantage in trading applications can be worth \$100 million a year to a major brokerage firm".

1.2 E-BAND PPC-1000-LL DRAWING



1.3 KA-BAND AND Q-BAND PPC-1000-LL DRAWING



End of document

For any request, please contact us by E-mail: sales@elva-1.com