



Multi-band GNSS line card

Nanosecond time accuracy

Today, timing based on Global Navigation Satellite Systems (GNSS) is widely used but, with existing single-band GNSS receivers, its accuracy is limited. Delay variations caused by ionospheric disturbances may cause inaccurate time information in the order of several tens of nanoseconds, exceeding the stringent PRTC-B specifications. Our multi-band GNSS is a highly efficient and cost-effective solution that enable PRTC-B compliant GNSS-based solutions.

Our new multi-band GNSS receiver line card provides nanosecond level timing accuracy and enables field upgrades of our OSA 5430 and OSA 5440 to the new ITU-T PRTC-B and ePRTC specification targeted at 5G requirements for timing accuracy. Multi-band GNSS receivers benefit from the fact that GNSS satellites transmit time information in several frequency bands. By measuring the delay difference between signals at different frequencies, the multi-band GNSS receiver is able to compensate for delay variations of radio signals transmitted from the satellite to the receiver automatically and in real time. There's no need for investment in expensive filters and high-quality oscillators, which add considerable cost and might not even be effective when these variations happen at a very low frequency or if the environmental temperature changes significantly. What's more, multi-band GNSS technology offers better resilience to jamming and spoofing. Our multi-band GNSS line card is the ideal solution for ensuring the timing accuracy required by the most stringent specifications in a highly efficient and cost-effective way.



Your benefits

- ✔ **ITU-T PRTC-B accuracy**
Automatic ionospheric delay variation correction to comply with the most stringent specifications
- ✔ **Highest resilience**
Built-in security for highest robustness against malicious attacks, including jamming and spoofing detection
- ✔ **Enhanced GNSS availability**
Up to 4 concurrent GNSS constellations can be used in parallel (GPS, Galileo, GLONASS, Beidou)
- ✔ **First ePRTC with multi-band receiver**
Improves ePRTC accuracy with advanced multi-band technology
- ✔ **Field upgradable**
Can be equipped in any free line card slot of our OSA 5440 and OSA 5430 devices, enabling them for PRTC-B
- ✔ **Efficient and cost-effective**
No need for additional filters or high-quality rubidium clocks

High-level specifications

General information

- 184-channel GNSS receiver with dual frequency support
- 4 concurrent GNSS constellations
- Jamming and spoofing detection
- Low footprint (1-slot card)
- Supported by OSA 5430/40

Supported GNSS frequencies

- GPS (L1C/A L2C)
- Galileo (E1B/C E5b)
- GLONASS (L1OF, L2OF)
- Beidou (B1I, B2I)
- QZSS (L1C/A L2C) and SBAS (L1C/A: WAAS, EGNOS, MSAS, GAGAN)

Supported standards

- Compliant to ITU-T G.8272 PRTC-B; time accuracy within +/-40nsec from UTC
- Compliant to ITU-T G.8272.1 ePRC; time accuracy within +/-30nsec from UTC when combined with ePRC cesium clock

Supported GNSS modes

- Survey fixed location (single satellite timing mode)
- Configurable fixed location
- Navigation (mobile) mode
- Configurable satellites C/No, elevation masks

GNSS antenna connectivity

- Configurable antenna cable delay
- Voltage to antenna +5VDC
- Antenna connector SMA-F (50 ohms)
- Antenna open/short detection

High-accuracy antenna kits

- Multi-band, multi-constellation
- Superior multipath signal rejection
- Excellent signal-to-noise ratio
- Tight phase center variation
- Consistent response in all operating temperatures
- From 10 to 150 meters (longer distances upon request)

Applications in your network

High-accuracy primary reference time clocks

- Improved accuracy of PRTC (PRTC-B) for 5G mobile networks
- Enhanced primary reference time clocks (ePRTC)
- Data centers and enterprise networks synchronization

Upgrade your OSA 5430 or OSA 5440 to the most stringent ITU-T PRTC-B and ePRTC specifications



OSA 5440



OSA 5430



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