Portable MEDLL®

Features
Multipath measurements in real-time and post-processed

Saves on site survey time

Portable multipath meter

Benefits
Helps site selection for reference antennas

Visual MAT graphics present and manage data

NovAtel® multipath elimination technology approaches the theoretical limits of multipath-free GPS signal reception. This patented technology, known as "Multipath Estimation Delay-Lock-Loop" (MEDLL®), uses a combination of hardware and software techniques.

Using MEDLL Technology

NovAtel MEDLL receivers have been providing multipath reduced reference signals at many fixed sites around the world since 1996, for the US Wide Area Augmentation System, the Japanese MSAS network, Chinese SNAS network, Europe's EGNOS network and recently India's GAGAN network. MEDLL is the GPS reference receiver multipath reduction technology, that is fielded, proven & used in the world's wide area networks. The portable version of MEDLL, can be used to optimize antenna siting at fixed reference sites - whenever it is essential that the cleanest possible GPS signal corrections be available.

Multipath Meter

MEDLL consists of several receivers working in parallel using a proprietary coupled correlator sampling method, combined with 'maximum likelihood estimation' techniques to break down the received signal into direct path and reflected components.

A Multipath Meter (MPM) capability has also been built into MEDLL to output data which describes the multipath environment that the antenna is experiencing. MPM calculates multipath residuals and outputs them in standard NovAtel log format, along with amplitude, delay and phase for each satellite signal being tracked.

Multipath Assessment Tool

The portable MEDLL receiver may be used at remote sites, along with the NovAtel Multipath Assessment Tool (MAT), to quickly gather data and assess the suitability of an antenna location. MAT is PC software that allows you to view the multipath environment in a graphical manner using a unique representation multipath, histograms and time series plots. The capability to playback MPM data is also available during post processing for more detailed analysis.

Together these tools now make it possible for you to view the multipath environment as satellites are passing overhead in real-time, and with post-processing, to ensure selection of the optimal location for the reference site antenna.

NovAtel

Precise thinking

Portable MEDLL®

Performance[1]

Frequency
L1   (1575.42 MHz)

Codes Tracked
- GPS L1 C/A code for GPS SVN (PRN 1-32)

Position Accuracy (Stand Alone) 11m CEP[2]

Time Accuracy (Relative)   173 nanoseconds[2]

Satellite Tracking Channels
- Up to 12 GPS L1 C/A

Pseudorange Measurement Accuracy
GPS L1   10 cm RMS,
    $C/N_o > 44$ dB-Hz, DLL BW = 0.05 Hz

Single Channel Phase Accuracy
GPS L1 C/A Code   3 mm RMS,
    $C/N_o > 44$ dB-Hz, Loop BW = 15 Hz

Data Rate
Raw Measurements   5 Hz

Time to First Fix[3]   **100 s (95%)**

Signal Reacquisition
$C/N_o = 44$ dB-Hz   5 s (typical)
$C/N_o = 38$ dB-Hz   10 s (typical)

Physical & Electrical

Size (H x W x D) 257.4 x 312.6 x 147.1 mm
                            (without tip up handle)

Weight   **8.5 kg**

Power
Voltage   10-35 V DC
Power Consumption   25 W (continuous)
                                                 35 W (peak)
Connector   2.1 mm plug center positive

Antenna LNA Power Output
Output Voltage   +4.5 V DC
Maximum Current   32 mA

Communication Ports
- 2 RS-232 capable of 300 to 115,200 bps

Environmental
Temperature
    Operating   -25°C to +50°C
    Storage   -40°C to +85°C
Humidity   10-80%

Altitude[4]   **3,000 m**

1   Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference sources.
2   Official SA off figures are not available. Specification based on PPS (Ref. 1999 Federal Radionavigation Plan). Performance of NovAtel receivers with SA off exceeds official PPS accuracy. Typical position accuracy 1.8m CEP. Typical timing accuracy 20 ns RMS.
3   With stabilized internal oscillator. 15 minutes maximum from start of cold receiver. No initial time, almanac or position required.
4   May operate above 3000 m in a controlled environment, however is not certified as such.

Accessories

Portable MEDLL® Carrying Case (Included)

MAT
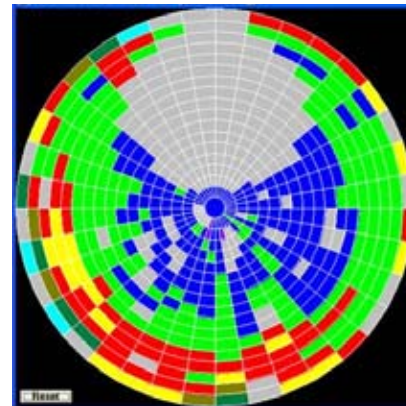
NovAtel's Multipath Assessment Tool (MAT) is a graphical user interface (GUI) program designed to assess multipath effects at reference sites. Ideal for WAAS and LAAS reference site assessment. Please refer to NovAtel's MAT product sheet for additional information.

Precise thinking