Apex[5] Services

GNSS Positioning Services

The VERIPOS Apex[5] is a global, high-accuracy, GNSS positioning service designed to meet all offshore positioning and navigation applications. Apex[5] is an extension to the VERIPOS Apex services using GNSS observations from five available GNSS systems; GPS, GLONASS, BeiDou, Galileo and QZSS.

Precise Point Positioning

Apex[5] operates using Precise Point Positioning (PPP) – an absolute positioning technique which corrects or models all GNSS error sources, i.e. GNSS satellite orbit and clocks, tropospheric, ionospheric and multipath errors. The PPP technique consists of a single set of 'globally applicable' corrections to the satellite orbits and clocks, so position accuracy is maintained regardless of user location.

Orbit and Clocks

VERIPOS operates its own Orbit and Clock Determination System (OCDS) which derives real-time corrections for all available satellites in the GNSS constellations using proprietary algorithms. The OCDS uses data from the VERIPOS reference station network with multiple and redundant OCDSs running in VERIPOS-operated Network Control Centres in Aberdeen and Singapore.

Constellations

The Apex[5] service uses satellites from the GPS, GLONASS, BeiDou, Galileo and QZSS constellations. New constellations mean that VERIPOS now has access to new civilian signals, higher power levels on signals and constellations that are interoperable. This all combines to provide the multi-constellation Apex[5] service which will provide users with the following benefits:

- More satellites, more observations, more redundancy;
- Faster convergence of Apex[5] PPP service;
- Improved satellite count and position availability in masked and scintillated environments; and
- Delivering more robust and reliable positioning.

As more satellites are added to the BeiDou, Galileo and QZSS constellations, these will automatically become available within the Apex[5] service once the satellite is healthy.

All services are broadcast via seven geostationary communications satellites to ensure availability and service redundancy.

Technical Specifications

GNSS Satellite Constellations

GPS, GLONASS, Galileo, BeiDou, QZSS

Observations Used

GPS L1/L2

GLONASS L1/L2

BeiDou B1 & B2

Galileo E1 & E5b

QZSS L1C & L2L

Positioning Technique

Precise Point Positioning

Reference Station Network

VERIPOS

Availability

Global

Geostationary Satellites

25E, 98W, 143.5E, AORE, AORW, IOR, POR

Horizontal Accuracy*

<4 cm at 2 σ (95%)

Vertical Accuracy*

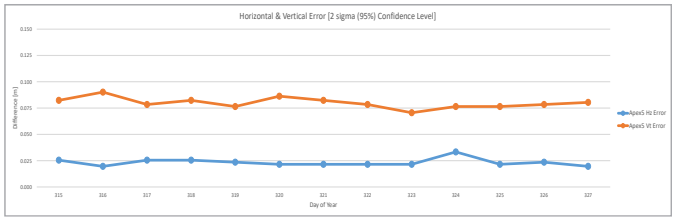
<9 cm at 2 σ (95%)

Coordinate Reference Frame

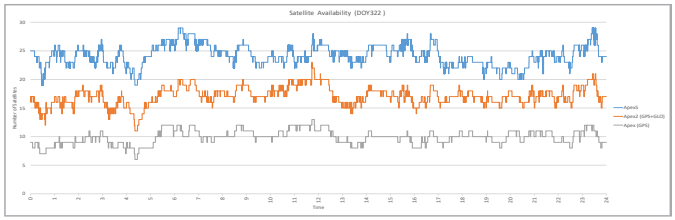
ITRF2014

**Based on static data logged in Aberdeen, Houston and Singapore over a 7-day period. Accuracy will vary with observing conditions.*

**Specifications subject to change without notice.*



The above graph displays Apex[5] positioning performance over a 13 day period.



The above graph is a comparison of satellite tracking between all Apex solutions demonstrating the increased number of satellites used in a Apex[5] solution.

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For the most recent details of this product visit veripos.com

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