TABLE E.5 Ionospheric Correction Variable Definitions

Symbol	Units	Description
α_n		Coefficients of cubic fit to the amplitude of vertical delay
β_n		Coefficients of cubit fit to the period of the model
E	semicircles	User-to-SV elevation angle
A	semicircles	User-to-SV azimuth (clockwise from true north)
λ	semicircles	User geodetic WGS-84 latitude
ϕ	semicircles	User geodetic WGS-84 longitude
t_{gps}	s	GPS system time
ψ	semicircles	Earth central angle between the user position and the earth projection of the ionospheric intersection point
λ_i	semicircles	Geodetic latitude of the earth projection of the ionospheric intersection point
ϕ_i	semicircles	Geodetic longitude of the earth projection of the ionospheric intersection point
t	s	Local time, range = [0,86400)
λ_m	semicircles	Geomagnetic latitude of the earth projection of the ionospheric intersection point
PER	s	Period
x	rad	Phase
F		Slant factor
$t1_{\text{ion}}$	s	L1 ionospheric correction
$t2_{\text{ion}}$	s	L2 ionospheric correction

2. From the user location and the satellite azimuth, calculate the geodetic latitude and longitude of the earth projection of the ionospheric intersection point:

$$\lambda_i = \begin{cases} \lambda_u + \psi\cos(A) & \text{if } |\lambda_i| \le 0.416 \\ 0.416 & \text{if } \lambda_i > 0.416 \\ -0.416 & \text{if } \lambda_i < -0.416 \end{cases} \tag{E.8}$$

$$\phi_i = \phi_u + \frac{\psi\sin(A)}{\cos(\lambda_i)} \tag{E.9}$$

3. Calculate the local time at the earth projection of the ionospheric intersection point:

$$t = 4.32 \times 10^4 \phi_i + t_{\text{gps}} \tag{E.10}$$

The variable t in the model is assumed to lie in the stated range. If the computation results in an out-of-range value, the user is responsible for reflecting it back in to the specified range by adding or subtracting 86,400.