

# LONGITUDE BY THE ALTITUDE OF STARS NEAR THE PRIME VERTICAL

For use of this form, see FM 3-34.331; the proponent agency is TRADOC.

PROJECT		STATION	
LOCATION		ORGANIZATION	DATE (YYYYMMDD)
INSTRUMENT (Type and number)	CHRONOMETER	APPROXIMATE ANGLE BETWEEN STAR AND POLARIS	
OBSERVER		CHRONOMETER TIME OF ANGLE READING	

## COMPUTATION OF TIME

	Star $\left\{ \begin{matrix} \text{East} \\ \text{West} \end{matrix} \right\}$	Star $\left\{ \begin{matrix} \text{East} \\ \text{West} \end{matrix} \right\}$	
	<i>h.</i> <i>m.</i> <i>s.</i>	<i>h.</i> <i>m.</i> <i>s.</i>	°   '   "
Chron. Reading,      Zenith Dist.			
Refraction			+
Corrected Z. D. = $\zeta$			
$\log \cos \phi$ , $\phi$			
$\log \cos \delta$ , $\delta$			
$\log \cos \phi + \log \cos \delta = \log D, \phi - \delta$			
$\log \sin \frac{1}{2} [\zeta + (\phi - \delta)], \frac{1}{2} [\zeta + (\phi - \delta)]$			
$\log \sin \frac{1}{2} [\zeta - (\phi - \delta)], \frac{1}{2} [\zeta - (\phi - \delta)]$			
Sum two log sines = log N			
$\log N - \log D = \log \sin^2 \frac{1}{2} t$			
$\log \sin \frac{1}{2} t$ , $\frac{1}{2} t$ (arc)			
t (time)      ,      t (arc)	<i>h.</i> <i>m.</i> <i>s.</i>	<i>h.</i> <i>m.</i> <i>s.</i>	
Right ascension of star			
Sidereal time			
Chronometer reading			
Chronometer correction			

The chronometer correction is plus if the chronometer is slow, and minus if fast. Carry all angles to seconds only, all time to tenths of seconds, and all logarithms to seven decimal places.

## COMPUTATION OF LONGITUDE

TIME OF RADIO SIGNAL		TRANSMITTING STATION	
	<i>h.</i> <i>m.</i> <i>s.</i>		<i>h.</i> <i>m.</i> <i>s.</i>
Chronometer reading (Sid.T.)		Std. time _____ mer.	
Chronometer correction		TZC	
LST		UT	
TZC = time zone correction Longitude ( $\lambda$ ) = GST - LST		Sid. T. at 0 <sup>h</sup> UT	
		Corr. (table III)	
		GST	
		LST	—
Longitude ( $\lambda$ ) (arc)	°   '   "	Longitude ( $\lambda$ )	
COMPUTED BY	DATE (YYYYMMDD)	CHECKED BY	DATE (YYYYMMDD)