

# Twilight Magnitude Limits

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Stars associated with some occultations are bright enough to be visible during twilight and even in broad daylight on occasion. Under such circumstances, the visibility of a star depends on three major factors; solar altitude, star magnitude and elongation. Stars were imaged by a Watec 120N+ video camera through a 10" f/6.8 SCT. A red filter aided observations during daylight and civil twilight. Progressively fainter stars were targeted until a limit was reached. The camera was adjusted to maximise star visibility without saturating the background. All sightings were made above 20 degrees elevation where atmospheric extinction is inconsequential. Results are set half a magnitude brighter than the faintest star visible on screen. Columns in the table represent different solar altitudes and rows signify elongation in 30-deg increments. Some extrapolation was required to fill gaps in the data and minor adjustments made to conform to fitted magnitude curves.

		Daylight			Civil Twilight						Nautical Twilight					
		Sun +45	Sun +5	Sun 0	Sun -1	Sun -2	Sun -3	Sun -4	Sun -5	Sun -6	Sun -7	Sun -8	Sun -9	Sun -10	Sun -11	Sun -12
E L O N G	30	3.5	4.5	5	5.7	6.4	7.1	7.8	8.4	9	9.6	10.2	10.8	11.3	11.8	12.2
	60	4.5	5.5	6	6.7	7.4	8.1	8.8	9.4	10	10.6	11.2	11.7	12.2	12.6	13
	90	4.5	5.9	6.5	7.3	8.1	8.8	9.5	10.1	10.7	11.2	11.6	12.1	12.5	12.9	13.3
	120	-	5.7	6.3	7.1	7.9	8.7	9.5	10.1	10.7	11.2	11.7	12.2	12.7	13.1	13.5

