PHOTOELECTRIC TIMINGS OF PRIMARY MINIMUM OF TV Cas AND THE

METHOD

   In this paper 4 new timings of primary minimum of the eclips-
ing binary TV Cas are presented. Essentially the same procedure
was used as in De Landtsheer (1981), i.e. the timings are mean
values of 4 separate determinations made in 4 different color-
bands. However, a small improvement in the method of determination
was implemented, which led to a slightly different value
(+0.0003 day) for the time of primary minimum published in that
paper. This calls for an explanation of our "folding-method".
   In principle the folding-method is a midpoint-method. The
observations of the one side of the minimum are folded on a
trial time of minimum upon the other side. The time, which yields
the   narrowest band of points is the timing we look for.
   To measure the width of the band we formerly calculated the
distances of the individual points to a second order polynomial
through the whole set of observations. But since the exact shape
of the minimum is not known it is better to assume as little as
possible in its representation. To this purpose an approximating
cubic spline function gives preference to a polynomial.
   So at present we draw a spline through the branch with ·the
largest number of observations, fold the other on the trial time
and compute the distances of the folded points to the spline. The
time which yields the least sum of absolute values of the devia-
tions, in the time direction, from the spline, is the one.
   This procedure is similar to the approach of Kwee and Van
Woerden (1956). But since the observations are folded in the time
direction, we look for deviations in the time direction rather
than in the magnitude direction. Since we are in search of the

narrowest band, we sum absolute values rather than squares.
Not every observation can be used. Points in the bottom and
the shoulders of the minimum when folded, do not add meaningful
information about the time of minimum. In the case of TV Cas
only points in the phase intervals 0.925-0.990 and 0.010-0.075
were used.

The folding-method may be applied to all selected points in
one go. But of course they may be first divided into several
subsets. Thus information may be gained about a possible
asymmetry of the minimum, or, if no systematic trend is found,
about the accuracy of the determination. In the case of TV Cas
no asymmetry was found.

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Table I

Heliocentric times of minimum of TV Cas

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Hel. J.D. - 2,444,000.0	E	O-C	Number of Obs.
602.4537± .0003	1659	+.0014	109
843.5296± .0003	1792	+.0022	63
910.5965± .0003	1829	+.0031	118
912.4089± .0003	1830	+.0029	174
990.3503± .0005	1873	+.0028	48

The 4 new timings and the earlier published, but revised one
are shown in Table I. The ephemeris 2441595.3582 + 1.8124944 E
of Margrave (1980) was used to calculate the O-C values.

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References:

De Landtsheer, A.C., 1981, IBVS No. 1985.
Kwee, K.K. and Van Woerden, H., 1956, B.A.N., 12, 327.
Margrave, T.E., 1980, IBVS 1869.