

# KIC 009226387

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
009226387-01	OBS	No	603.632585	135.291057	376.5	5.163	12.0	6.4	0.73	4920	1.73	0.17

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009226387-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_MEAS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

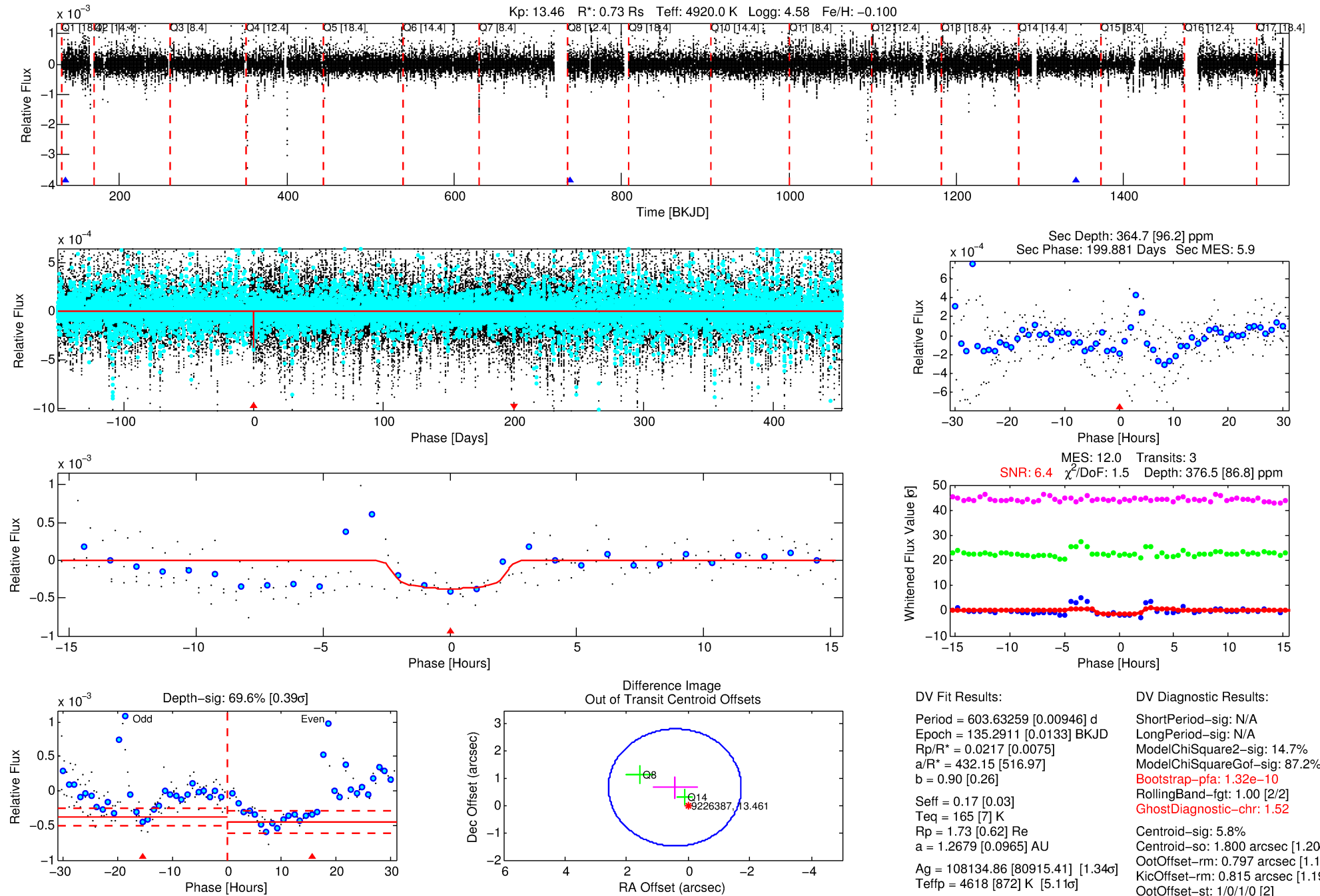
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 009226387-01

No Significant Match Found

# DV One-Page Summary

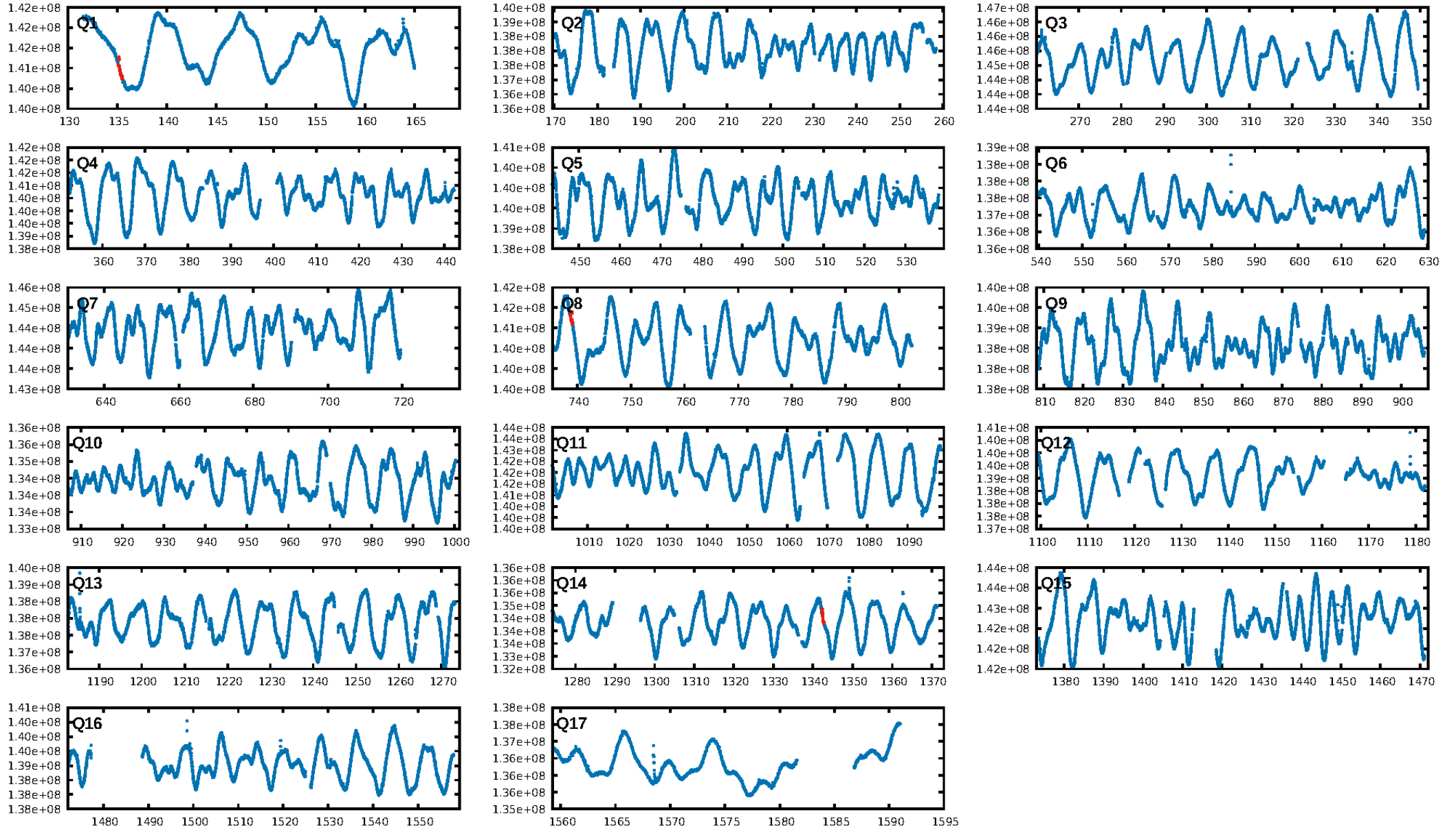
KIC: 9226387 Candidate: 1 of 1 Period: 603.633 d



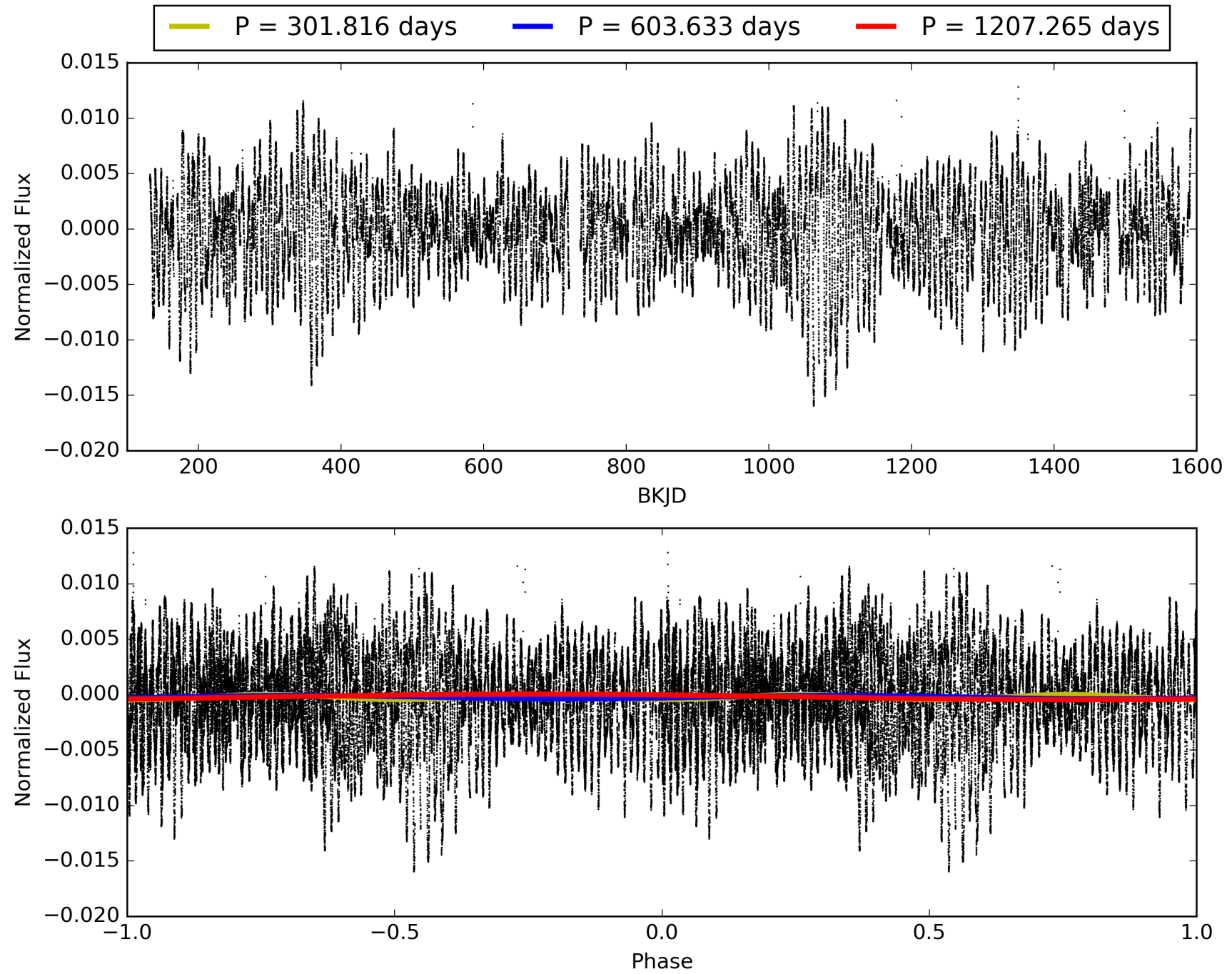
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 04:23:43 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 009226387-01, PDC Light Curves

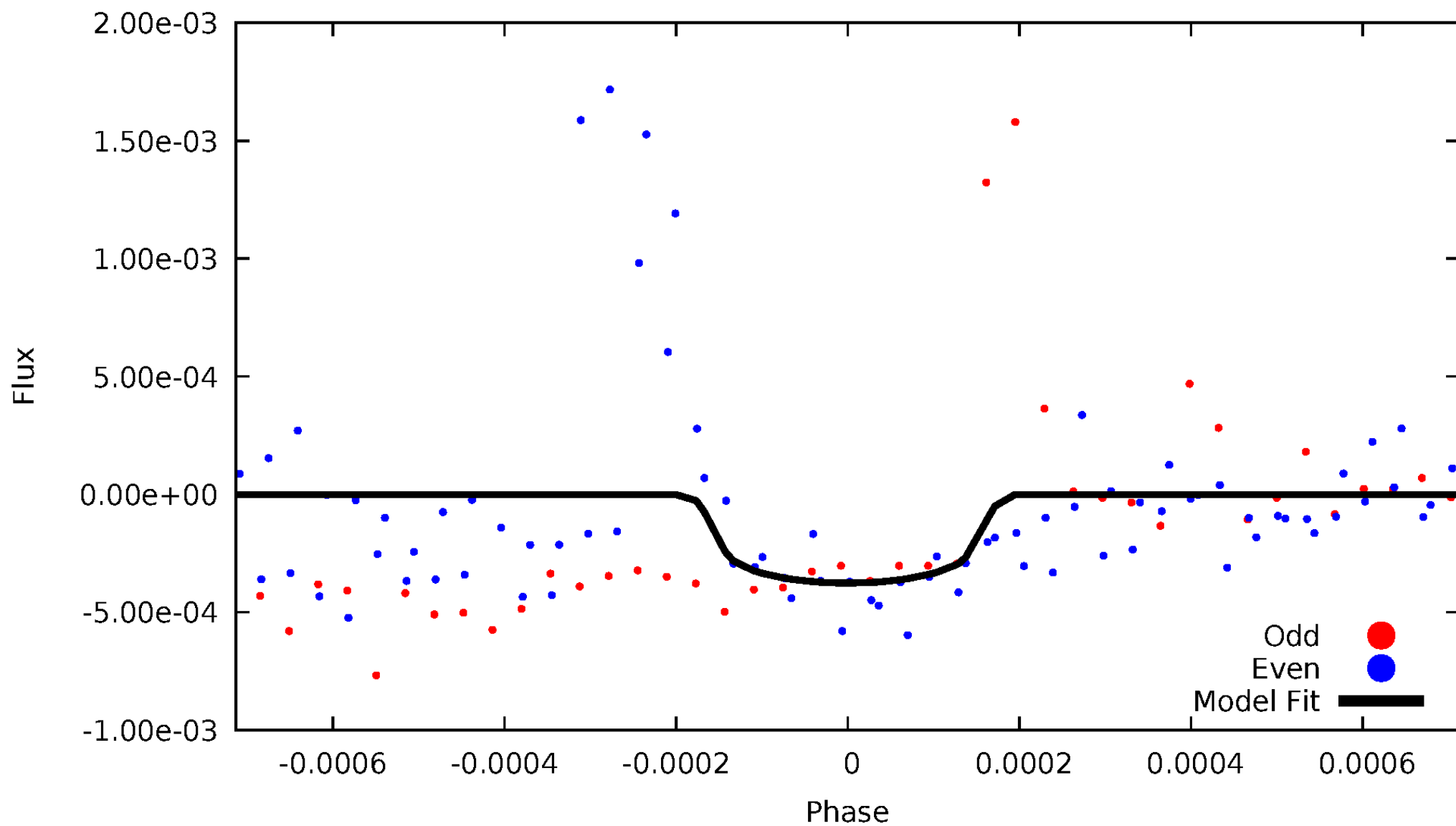


TCE 009226387-01



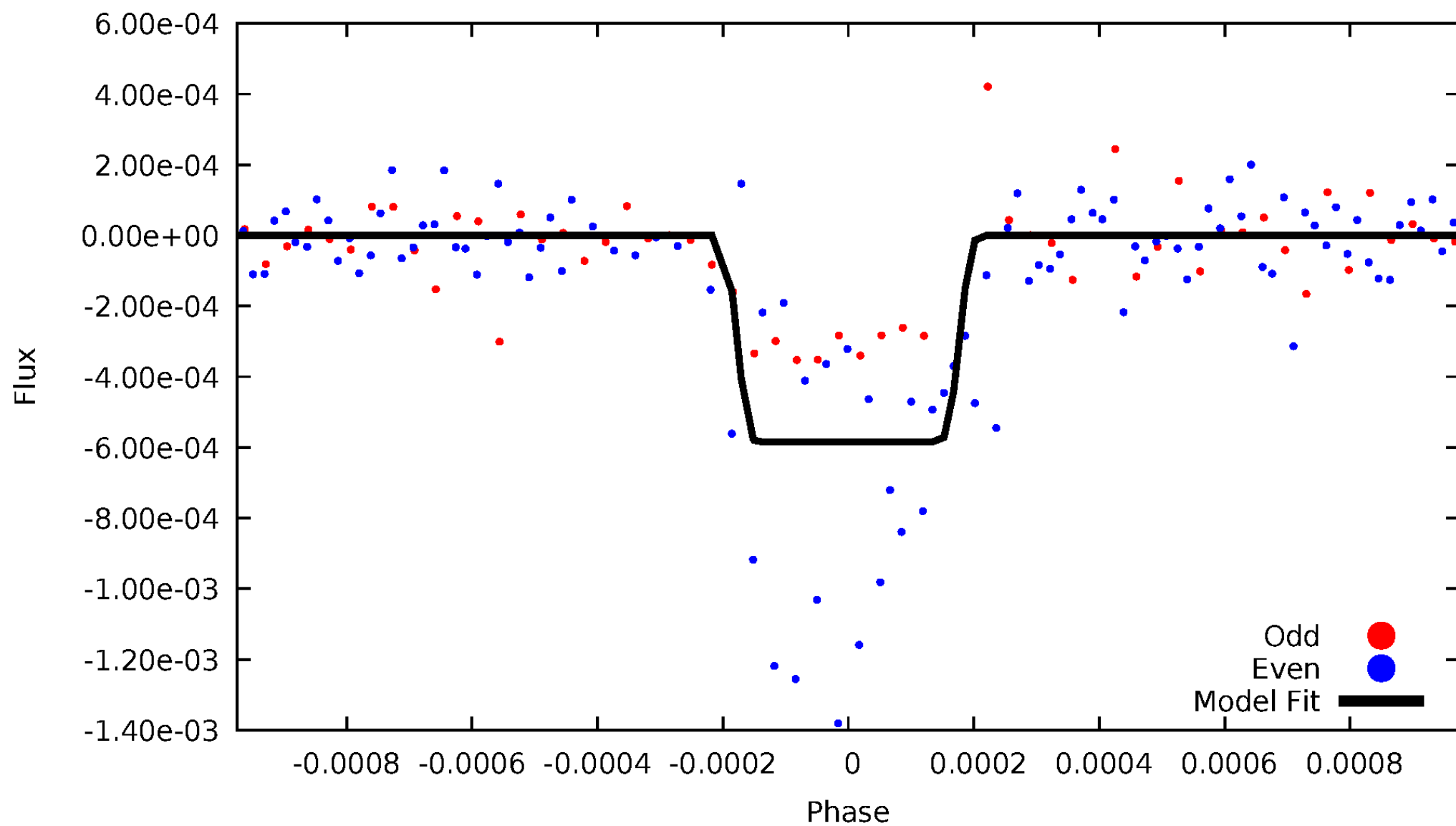
# DV Odd/Even

TCE 009226387-01



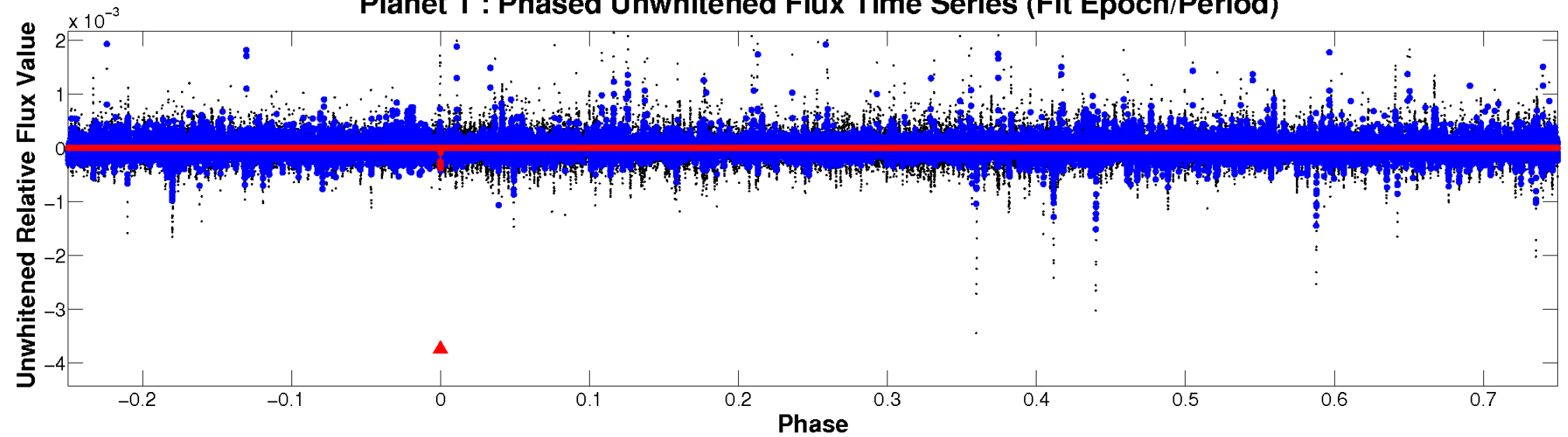
# ALT Odd/Even

TCE 009226387-01

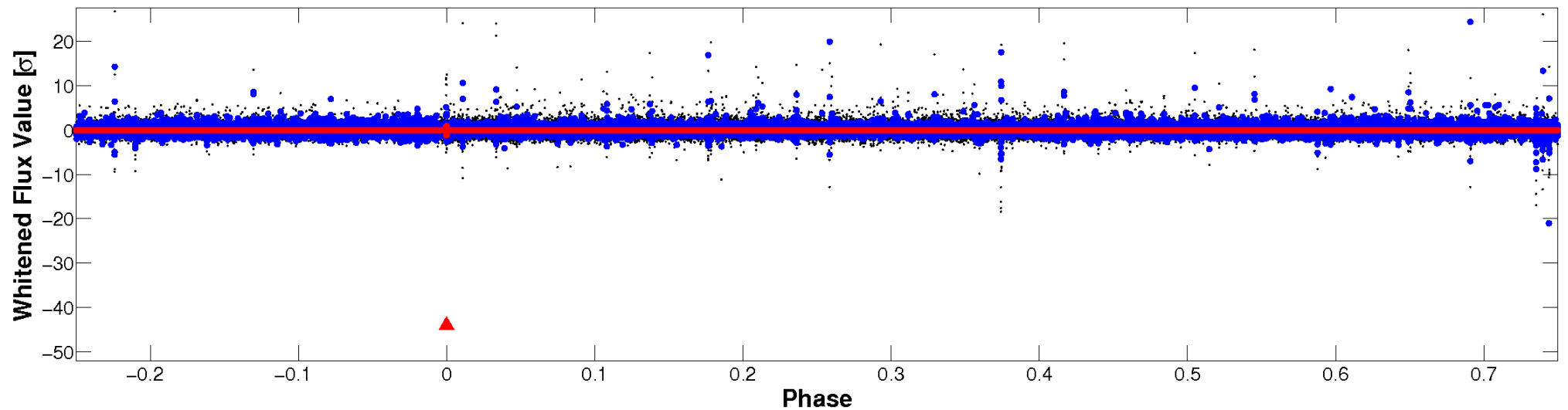


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

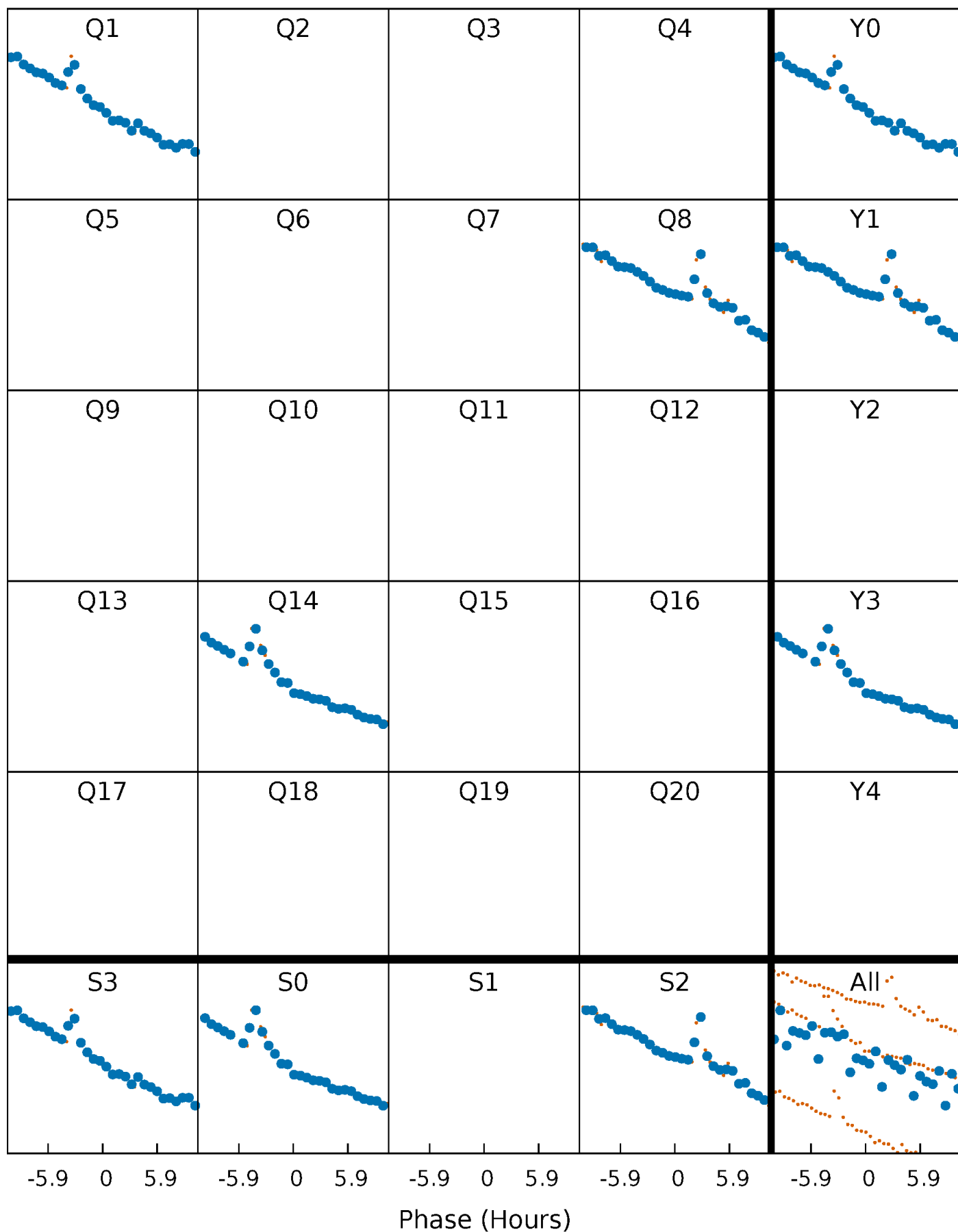


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



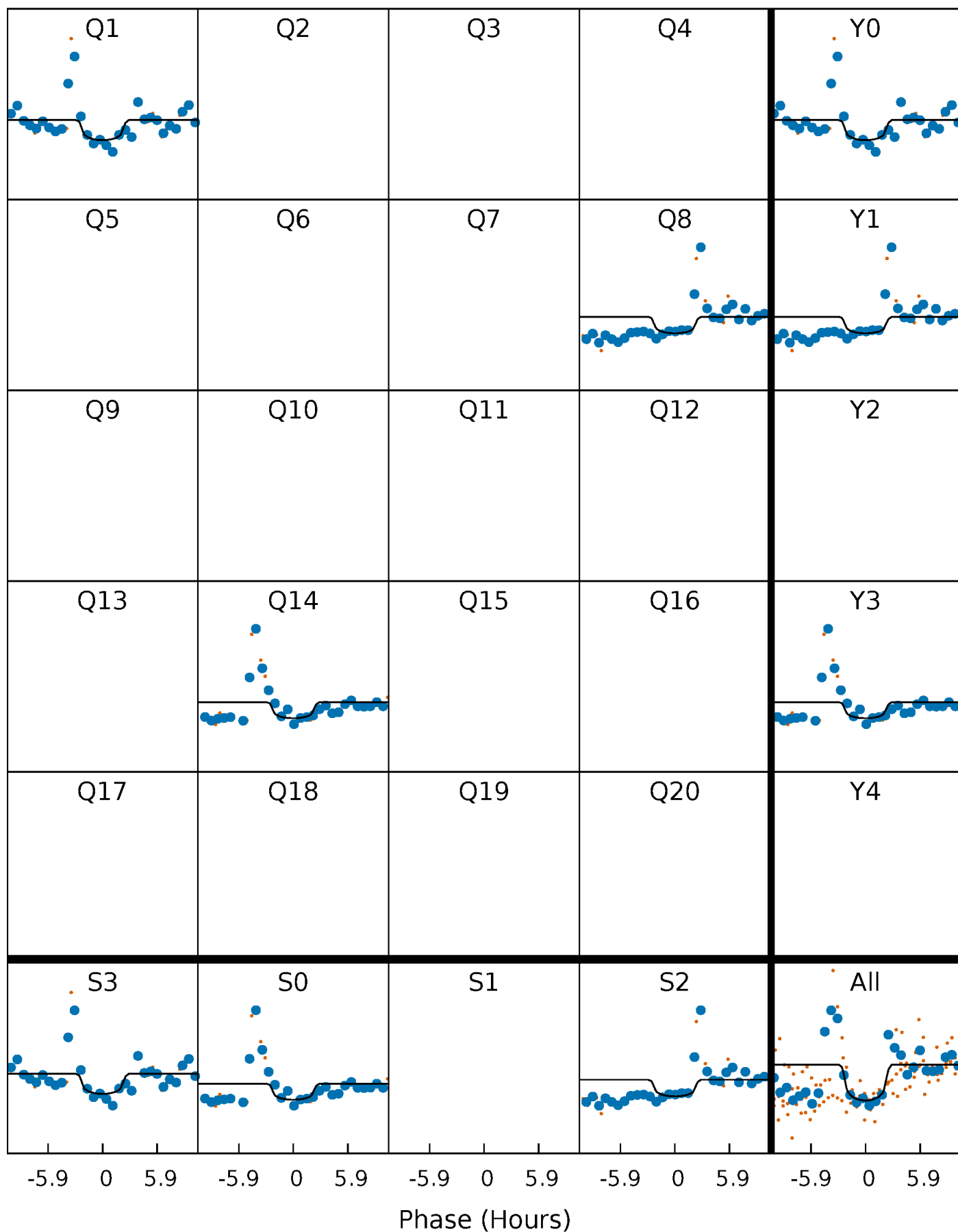
# PDC Quarter-Phased Transit Curves

TCE 009226387-01     $P=603.632585$  Days     $T_0=135.291057$  (BKJD)



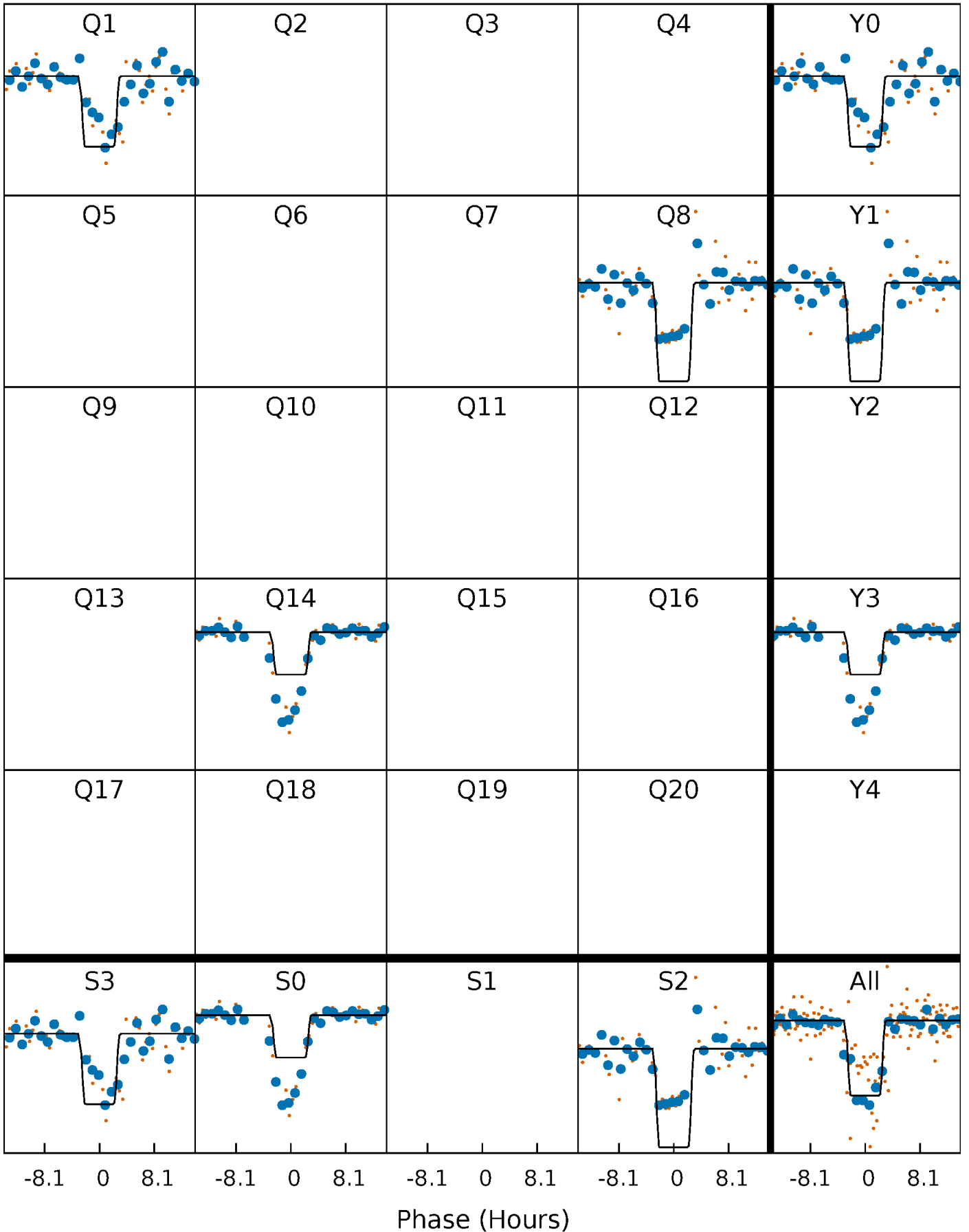
# DV Quarter-Phased Transit Curves

TCE 009226387-01     $P=603.632585$  Days     $T_0=135.291057$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

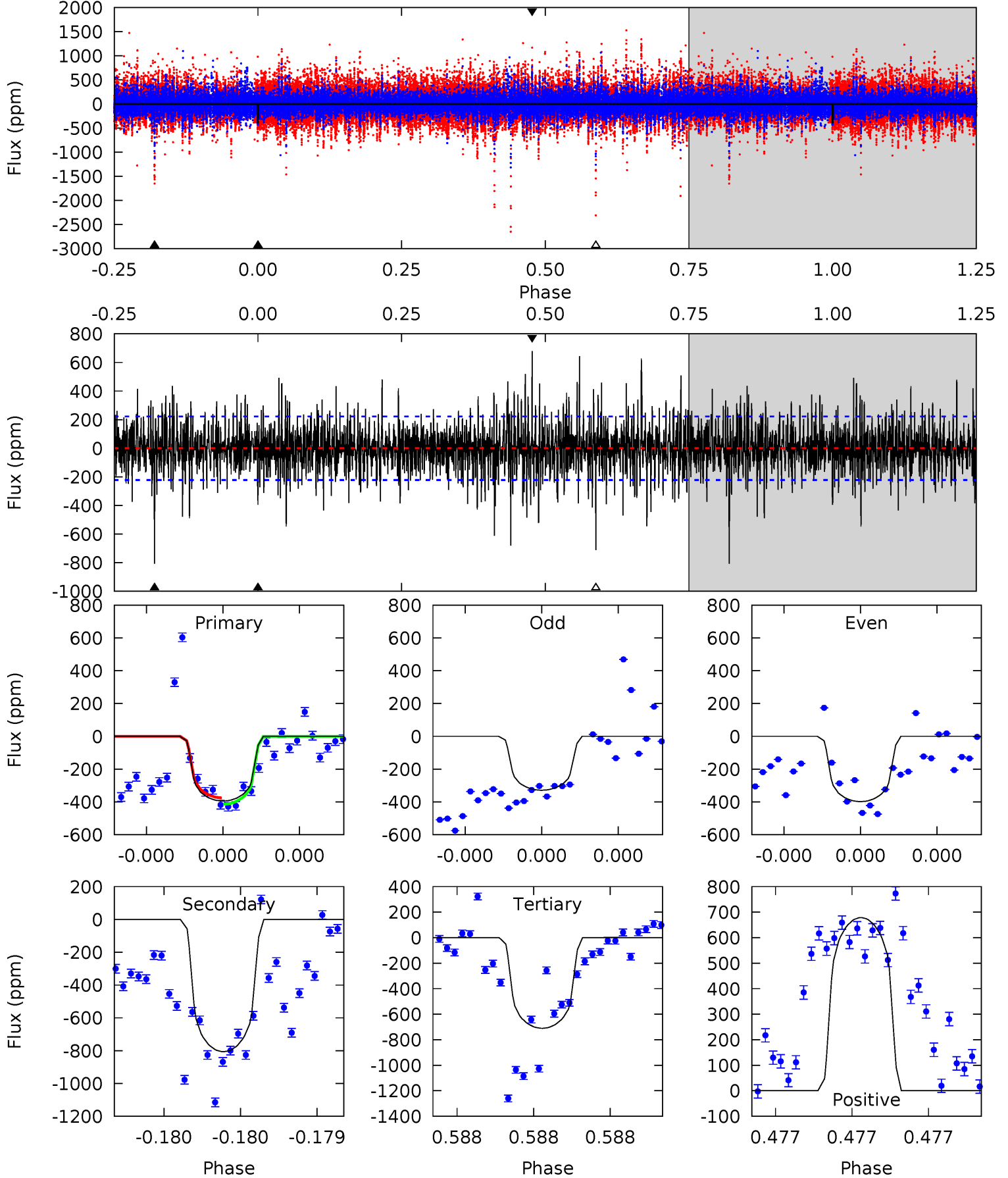
TCE 009226387-01 P=603.634607 Days  $T_0=135.293140$  (BKJD)



# DV Model-Shift Uniqueness Test

009226387-01, P = 603.632585 Days, E = 135.291057 Days

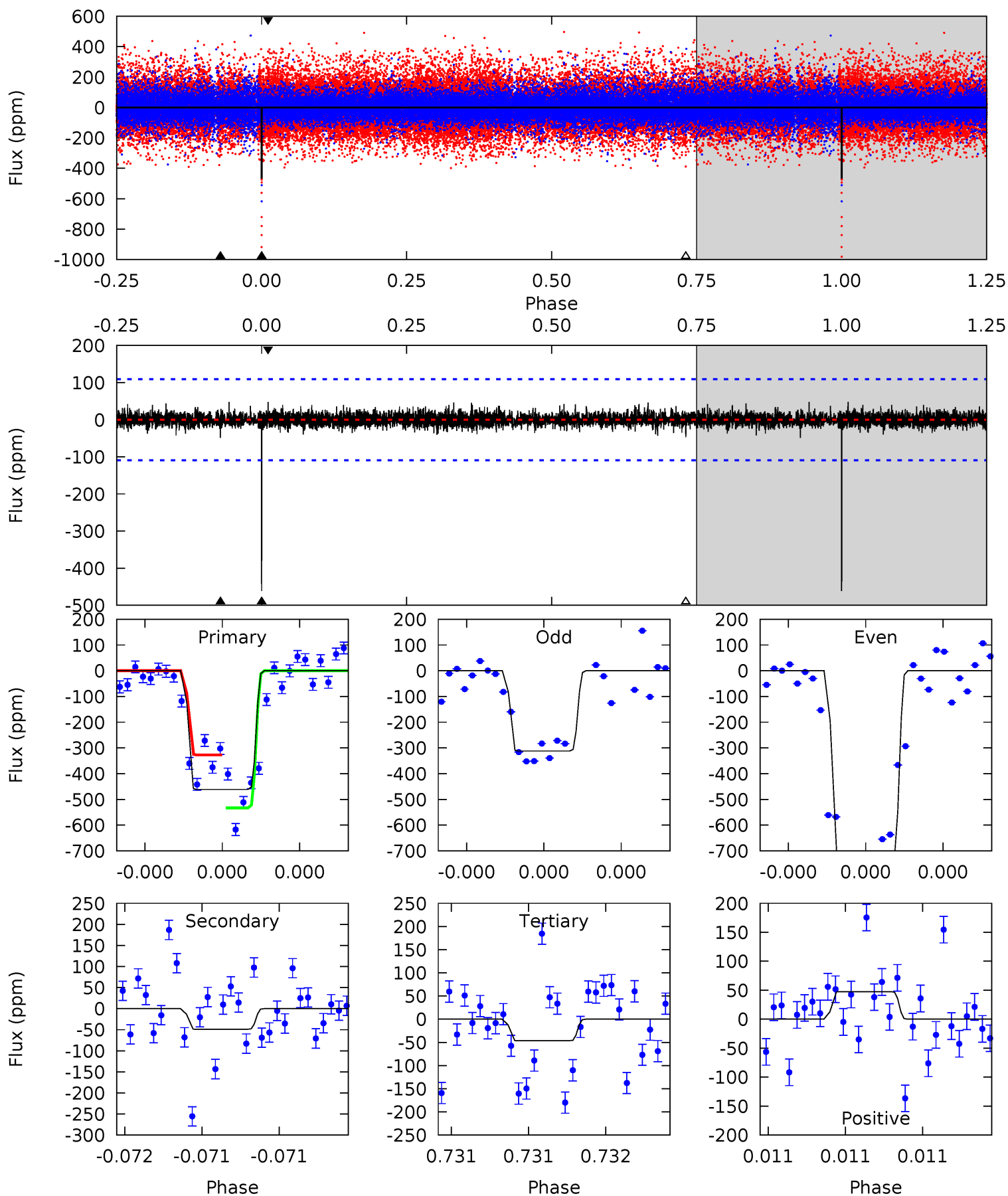
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.0	20.5	18.0	17.2	5.62	3.56	3.19	-8.01	-7.20	2.43	3.24	0.78	0.98	0.46	0.50



# Alt Model-Shift Uniqueness Test

009226387-01, P = 603.634607 Days, E = 135.293140 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	2.51	2.39	2.44	5.61	3.54	0.50	21.3	21.2	0.12	0.07	10.3	1.49	0.09	5.06



### Stellar Parameters For KIC 009226387

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4920^{+176}_{-176}$	$4.584^{+0.045}_{-0.050}$	$-0.100^{+0.300}_{-0.300}$	$0.730^{+0.072}_{-0.065}$	$0.747^{+0.078}_{-0.064}$	$2.701^{+0.620}_{-0.504}$
	+4%/-4%	+1%/-1%	+300%/-300%	+10%/-9%	+10%/-9%	+23%/-19%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 009226387-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-806 \pm 39$	$1.73^{+0.61}_{-0.60}$	$230^{+9}_{-9}$	$5558^{+1329}_{-705}$	$237673^{+330219}_{-107093}$
Alt.	$-49 \pm 19$	$1.95^{+0.64}_{-0.63}$	$230^{+9}_{-10}$	$3185^{+421}_{-331}$	$11187^{+15500}_{-5679}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

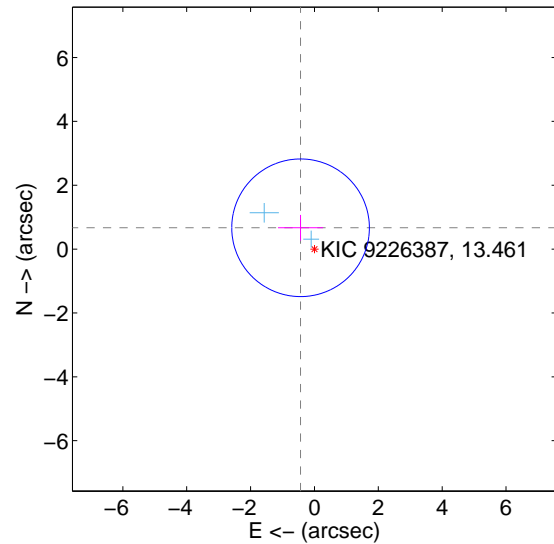
Supplemental centroid analysis for 009226387-01. Kepler magnitude: 13.46. Transit SNR 6.44

There are 2 quarters with good PRF difference image offsets

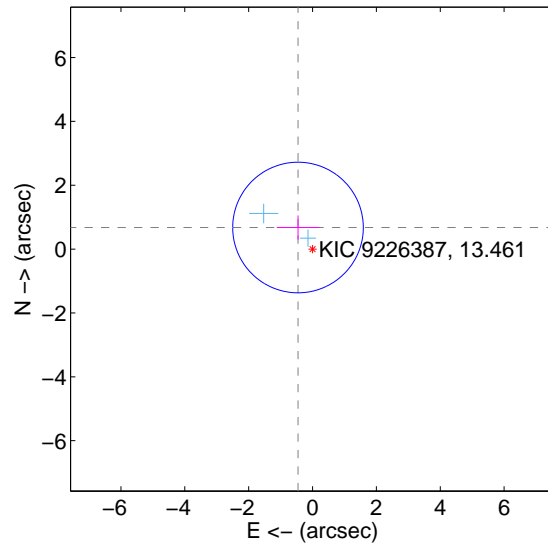
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.797 \pm 0.718$	1.11	$0.435 \pm 0.707$	$0.668 \pm 0.401$
PRF-fit source offset from KIC position	$0.815 \pm 0.682$	1.19	$0.455 \pm 0.668$	$0.676 \pm 0.377$
photometric centroid source offset	$1.80 \pm 1.51$	1.20	$-0.34 \pm 1.08$	$-1.77 \pm 1.52$

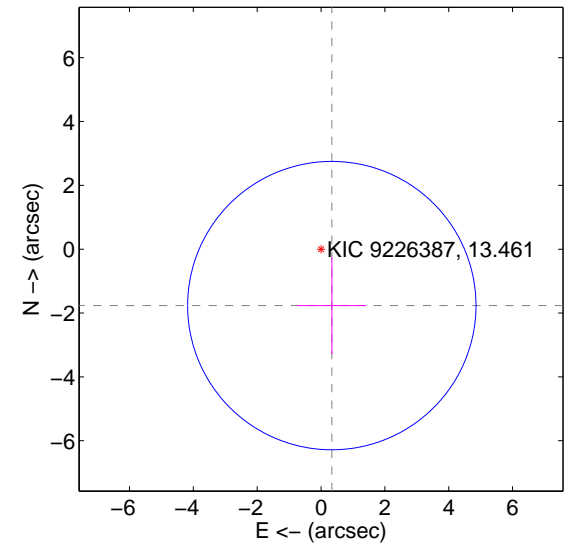
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

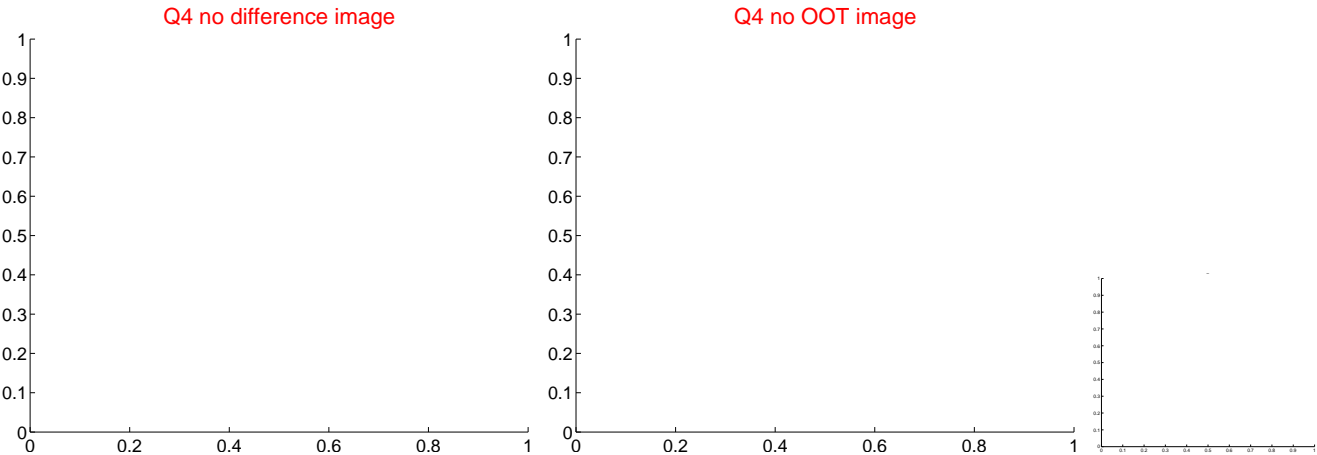
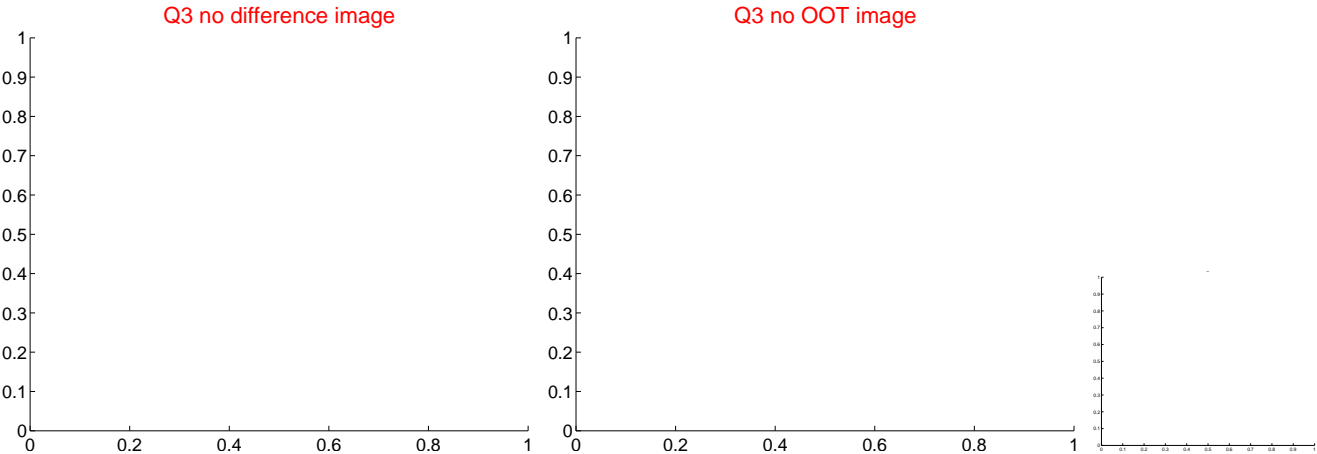
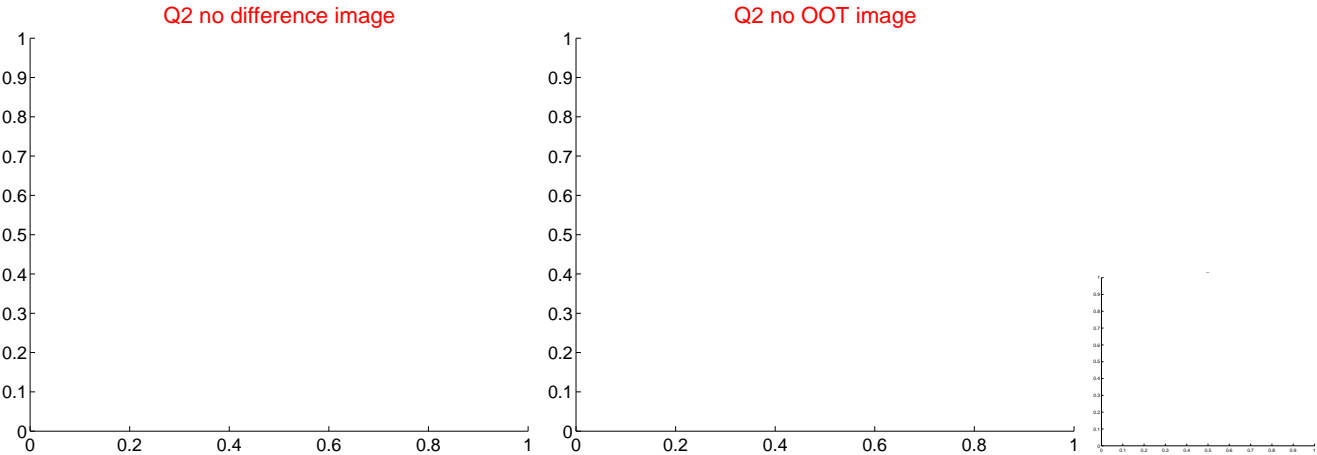
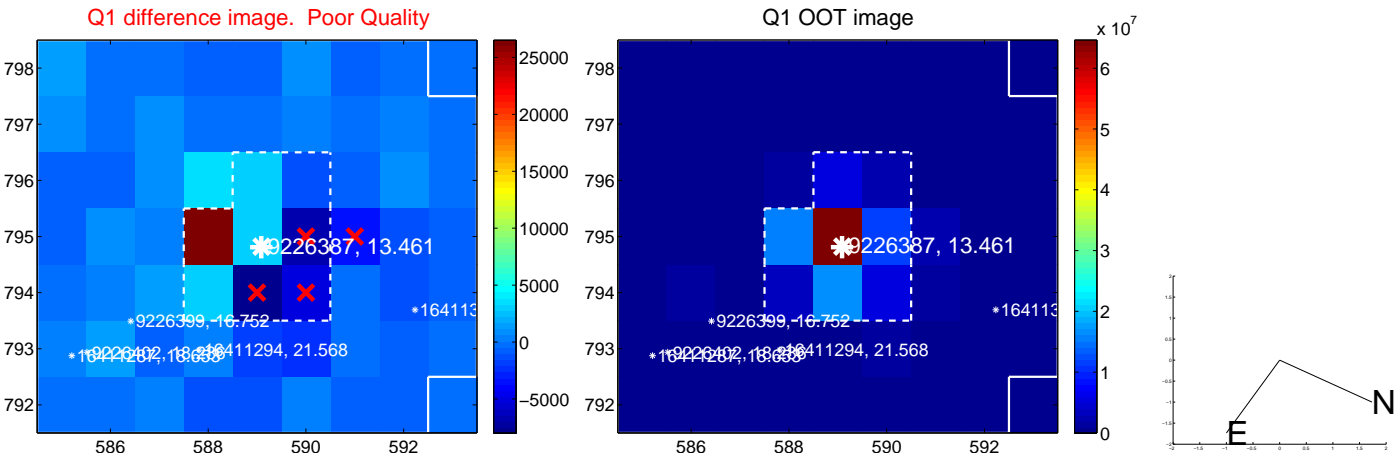


offset from photometric centroids



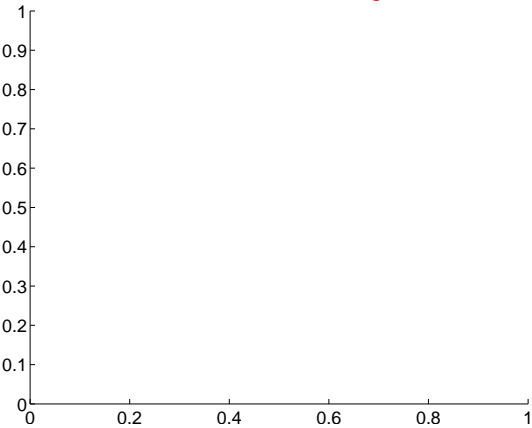
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

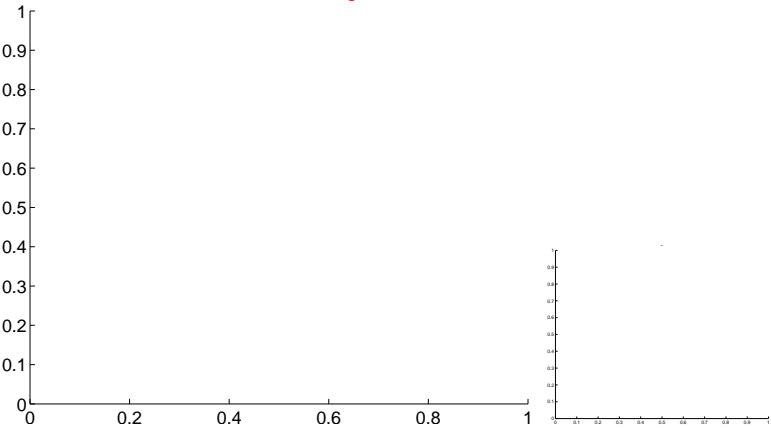


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

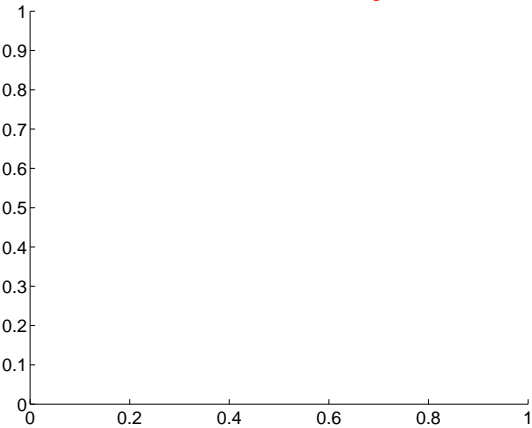
Q5 no difference image



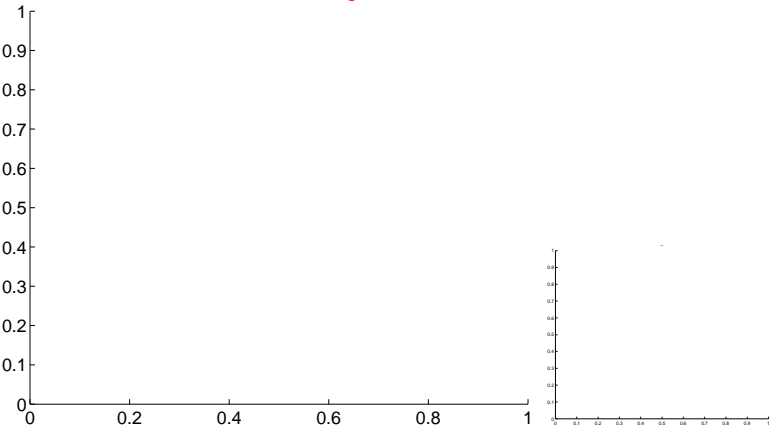
Q5 no OOT image



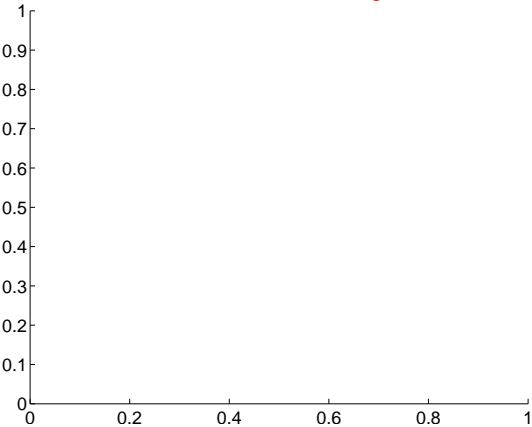
Q6 no difference image



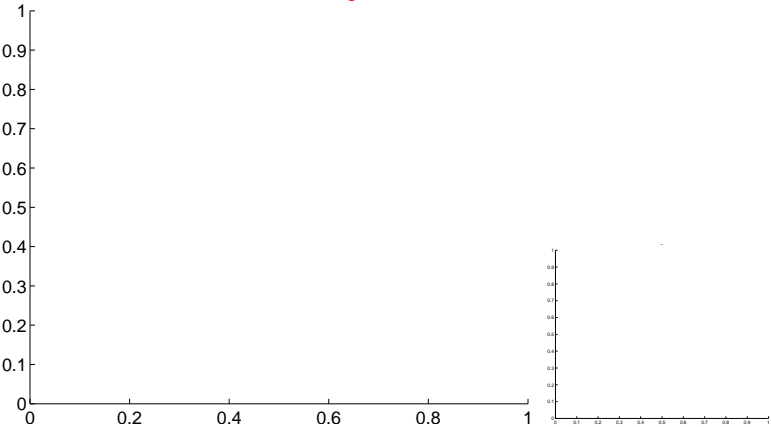
Q6 no OOT image



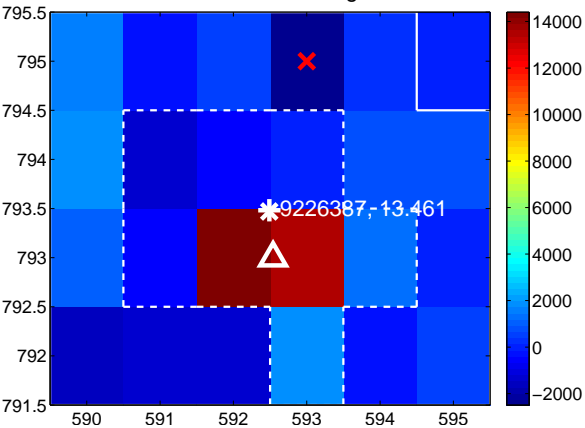
Q7 no difference image



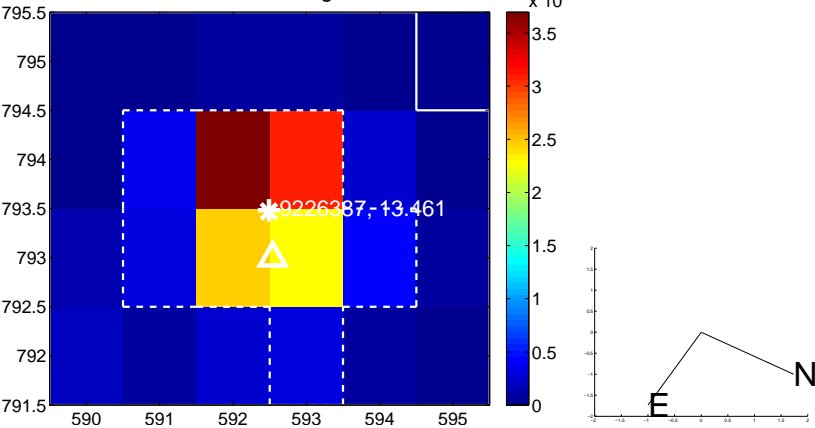
Q7 no OOT image



Q8 difference image



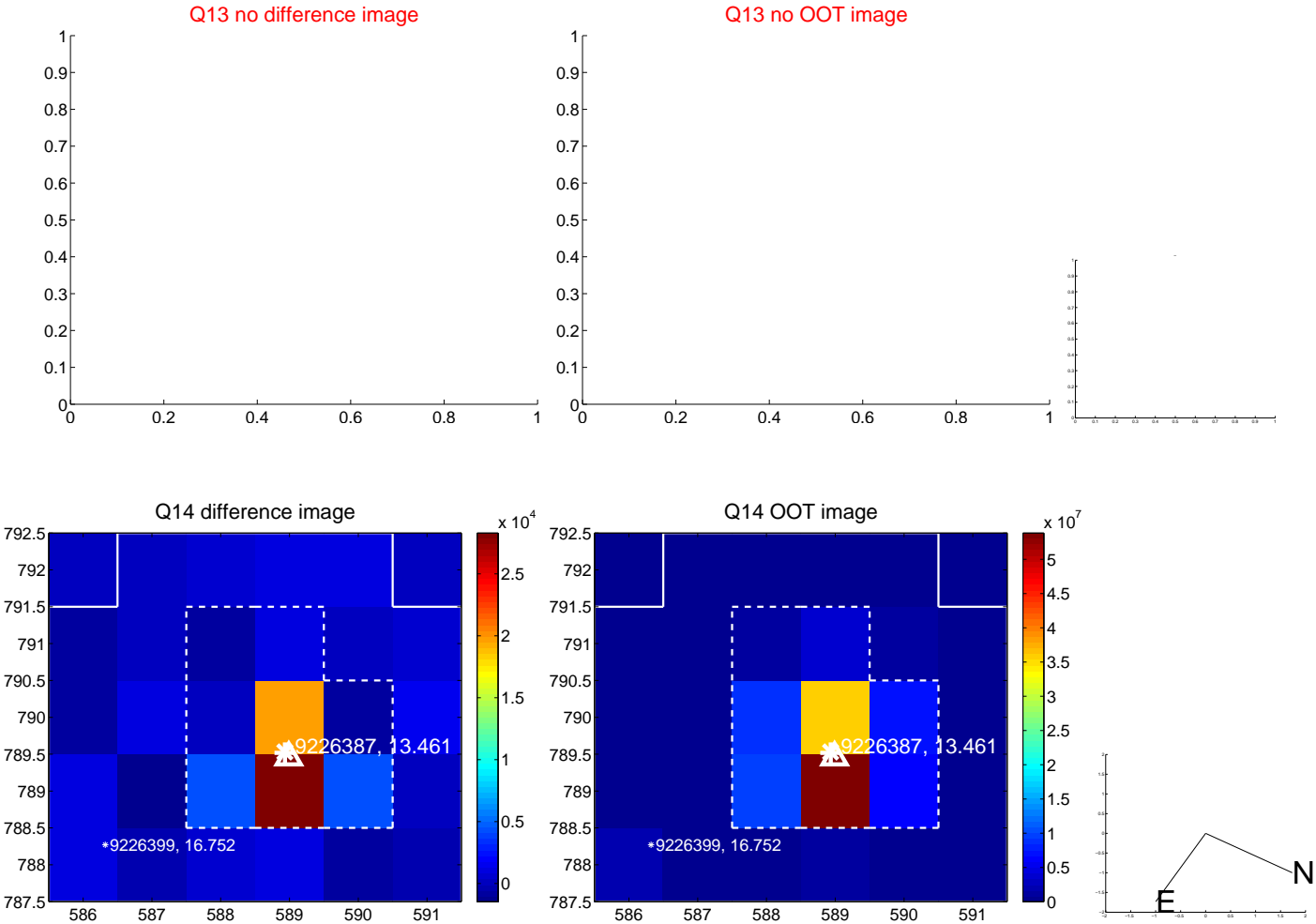
Q8 OOT image



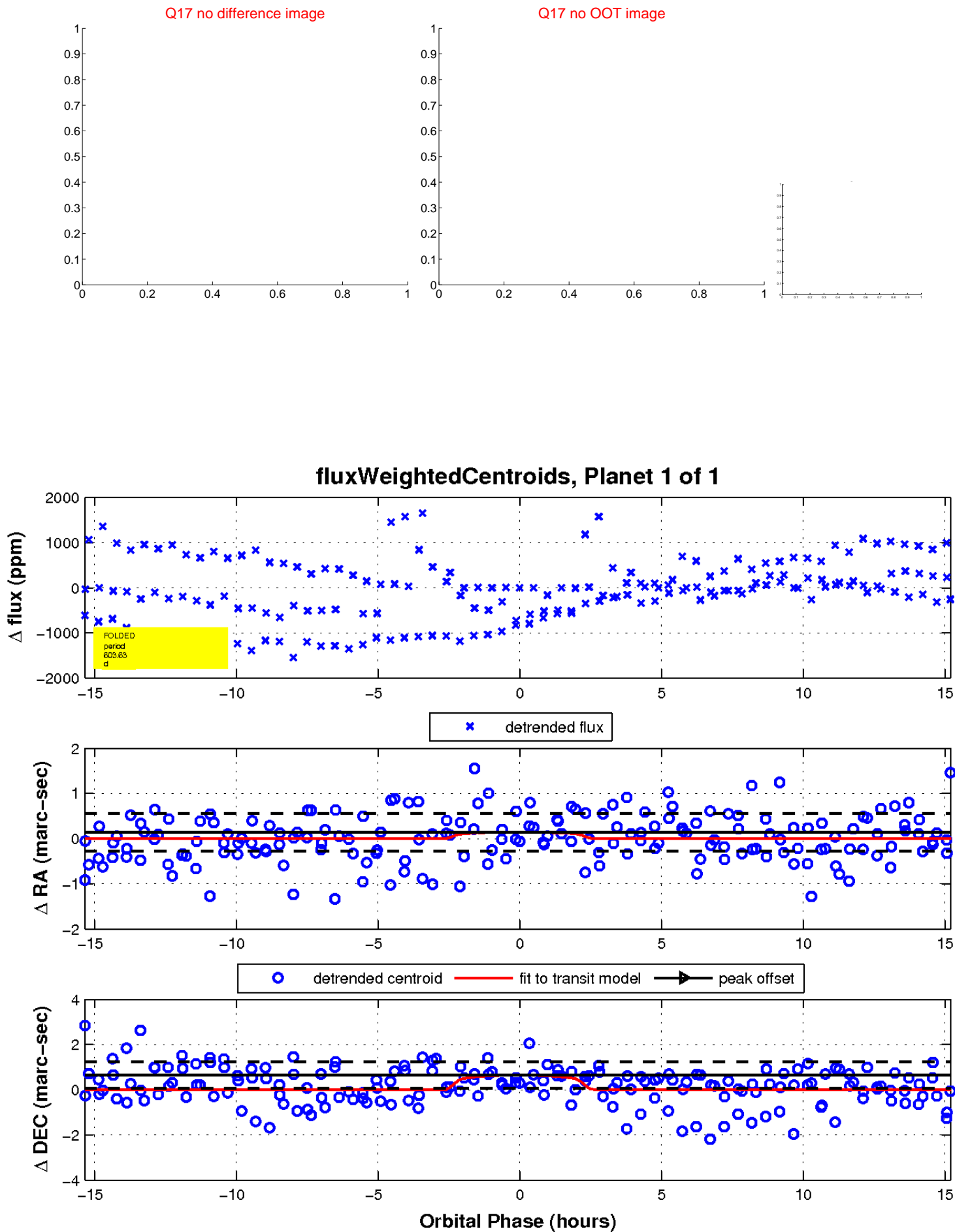
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

