

# KIC 004815612

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
004815612-01	OBS	5090.01	1.928470	131.552661	70486.4	2.500	1577.2	-1.0	1.33	6615	35.65	2972.30

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004815612-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—CENT_NOFITS

**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.

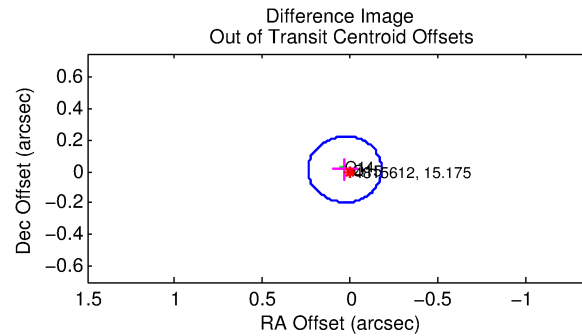
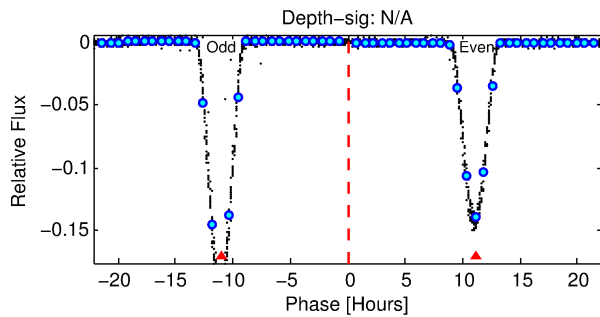
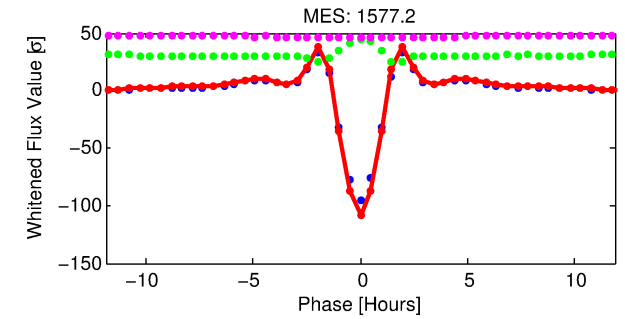
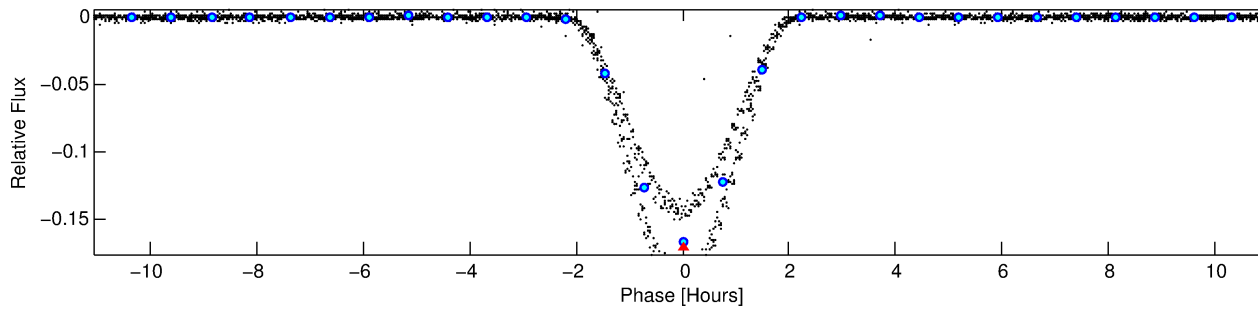
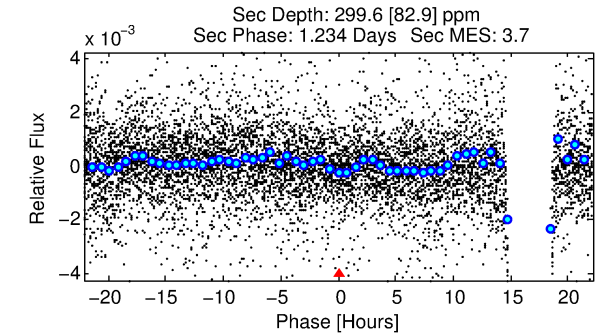
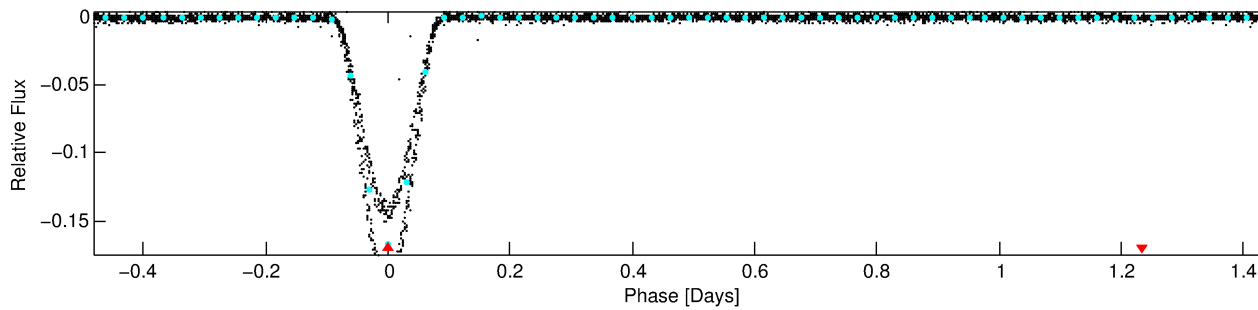
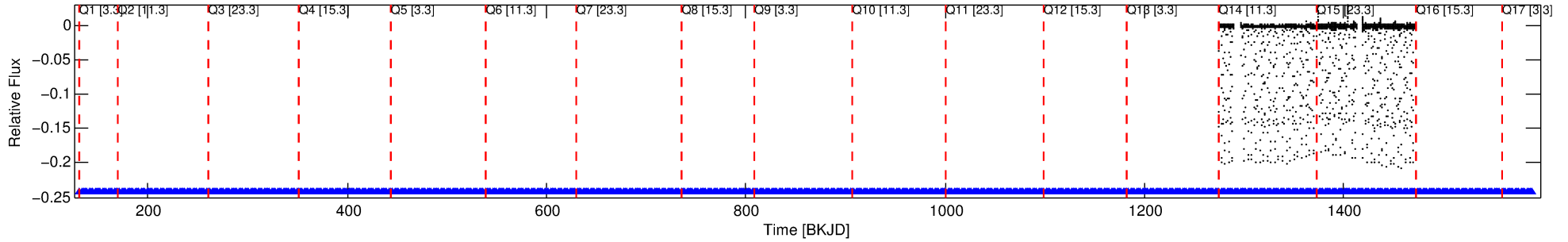
## Ephemeris Match Information For 004815612-01

No Significant Match Found

# DV One-Page Summary

KIC: 4815612 Candidate: 1 of 1 Period: 1.928 d  
KOI: K05090.01 Corr: 0.788

Kp: 15.18 R\*: 1.33 Rs Teff: 6615.0 K Logg: 4.26 Fe/H: -0.320



## TPS TCE Results:

Period = 1.92847 d  
Epoch = 131.5527 BKJD

DV fit results are unavailable

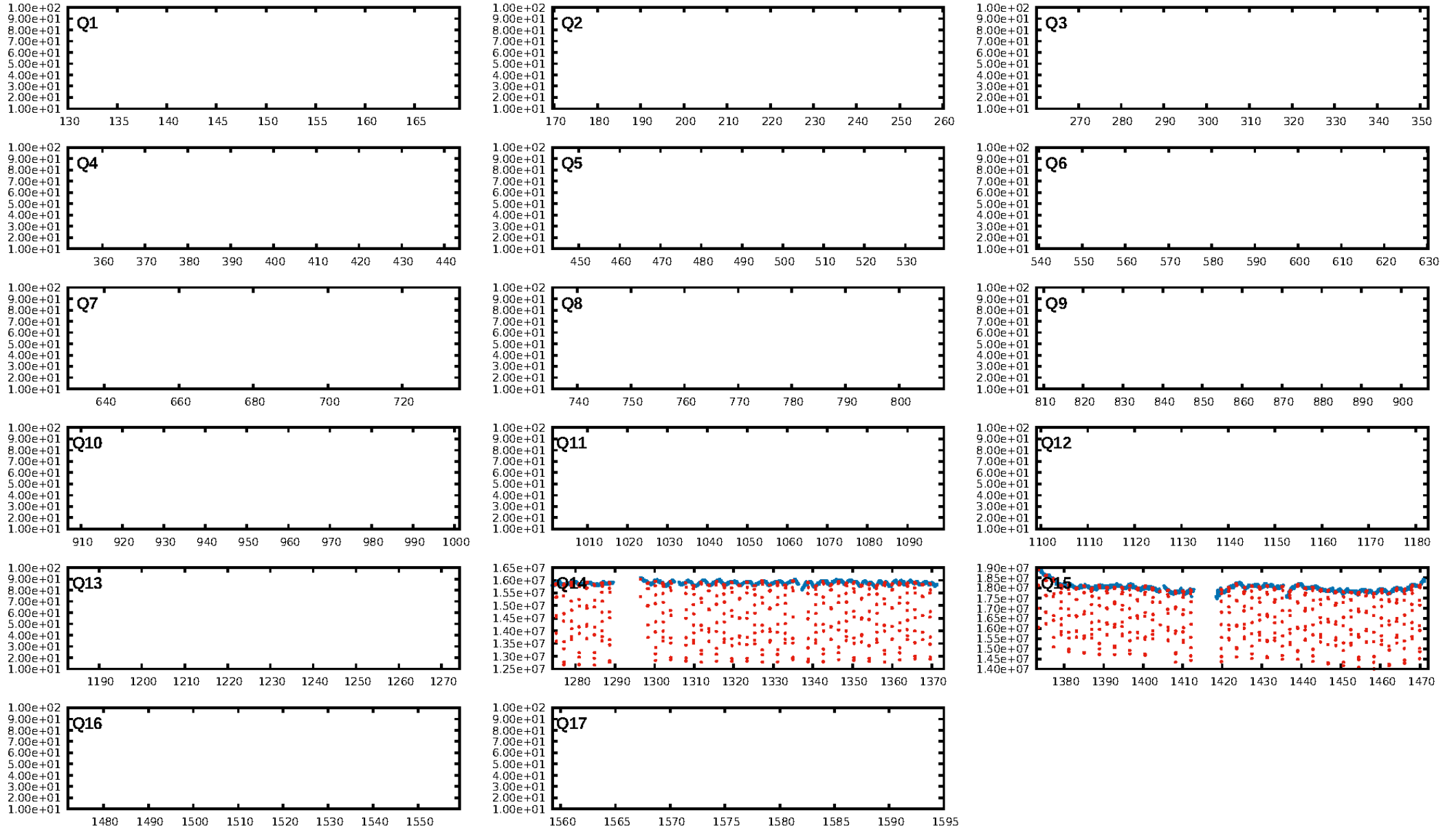
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [93/93]  
GhostDiagnostic-chr: 0.9866  
Centroid-sig: 0.0%  
Centroid-so: 0.043 arcsec [16.65σ]  
OotOffset-rm: 0.034 arcsec [0.49σ]  
KicOffset-rm: 0.100 arcsec [0.96σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 1.00 [2/2]

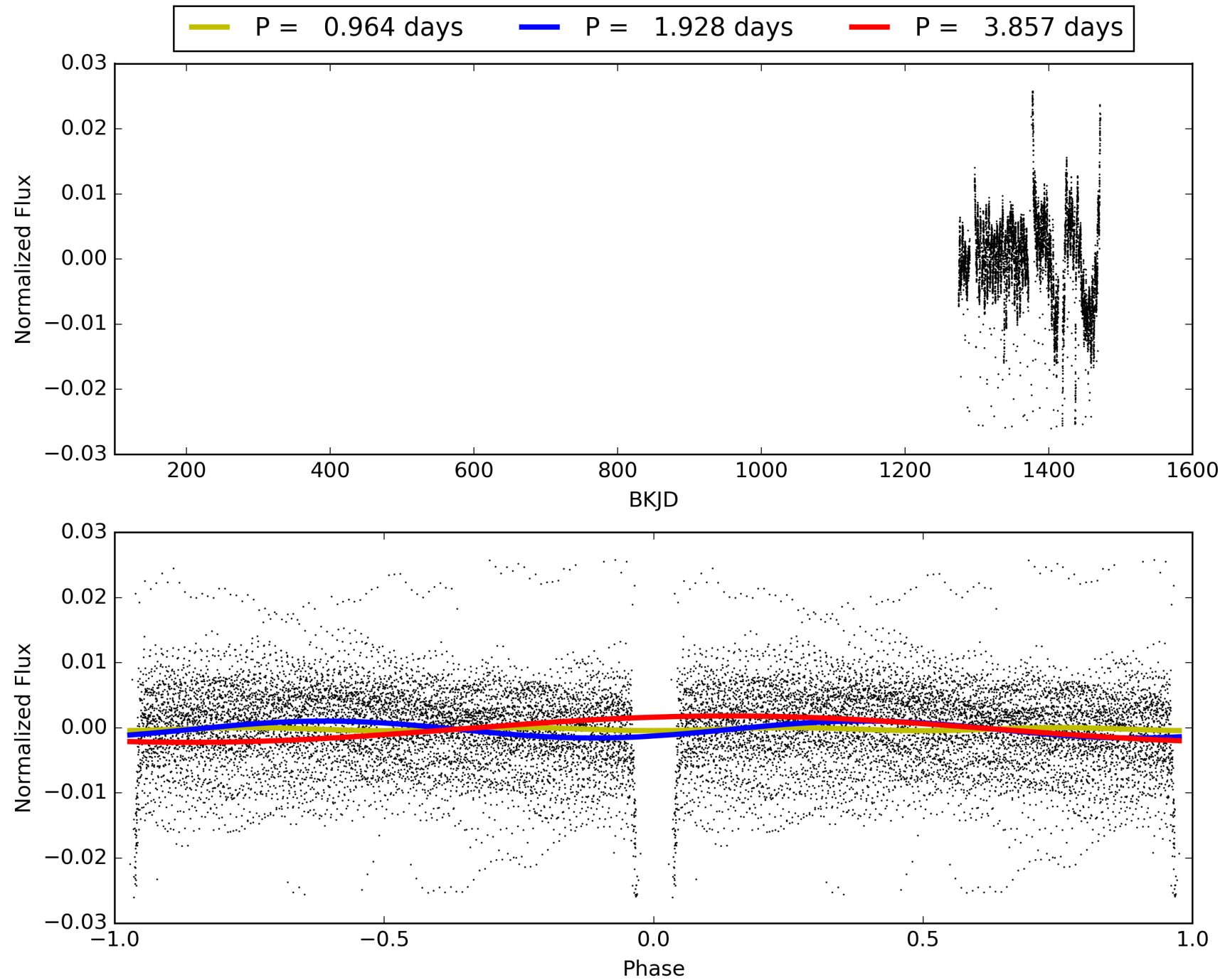
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 06:44:54 Z

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

# TCE 004815612-01, PDC Light Curves

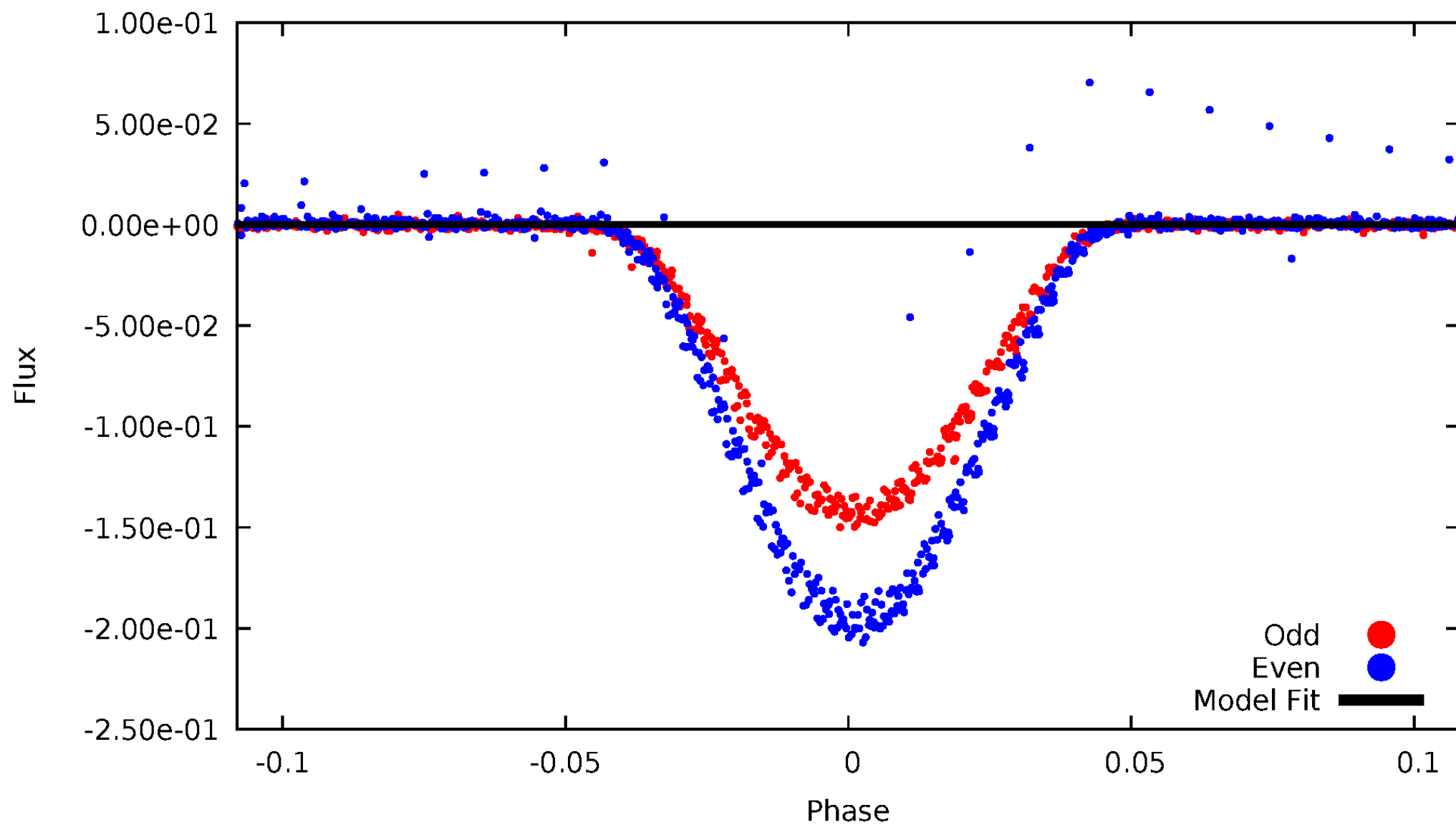


# TCE 004815612-01



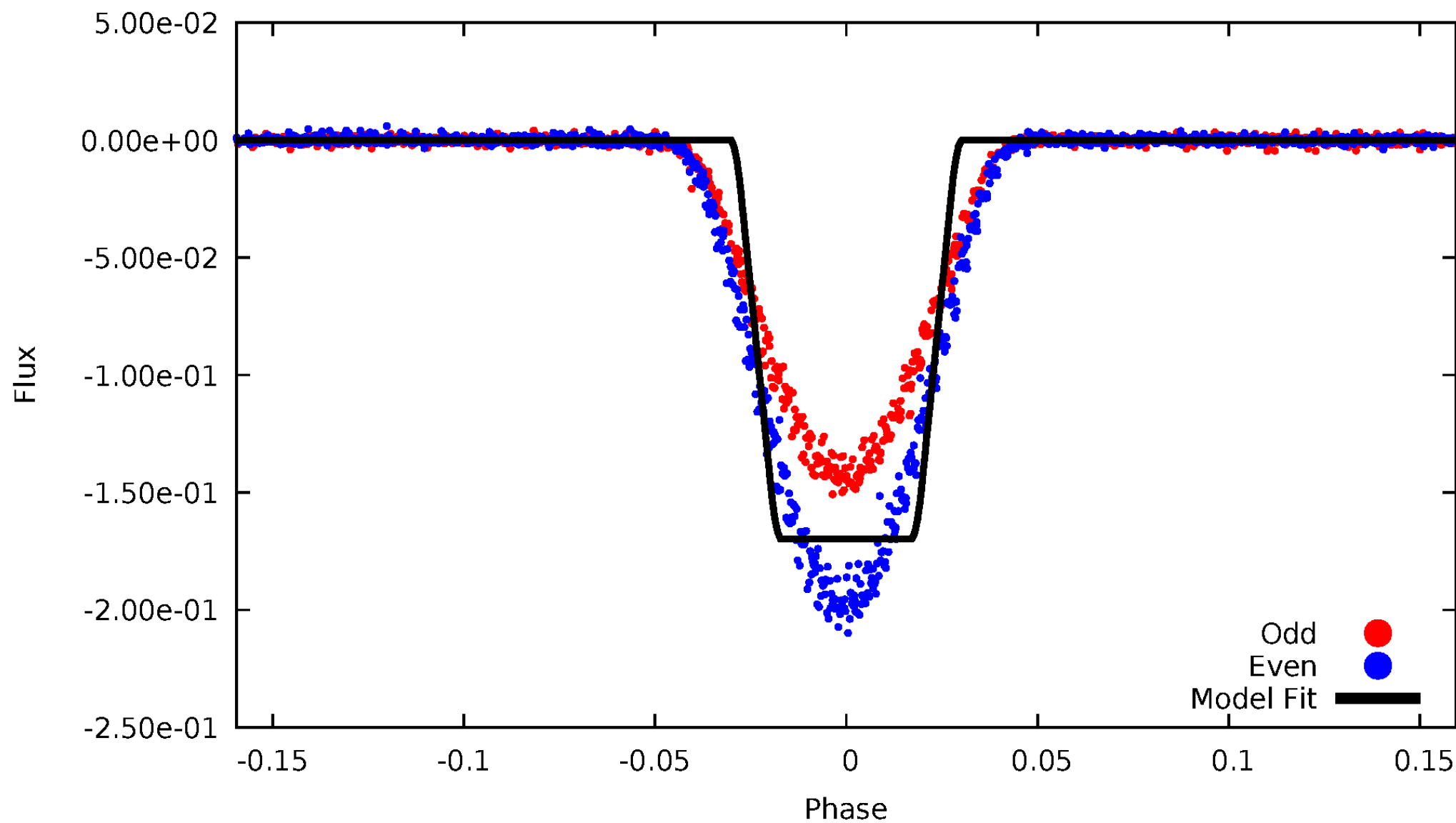
# DV Odd/Even

TCE 004815612-01



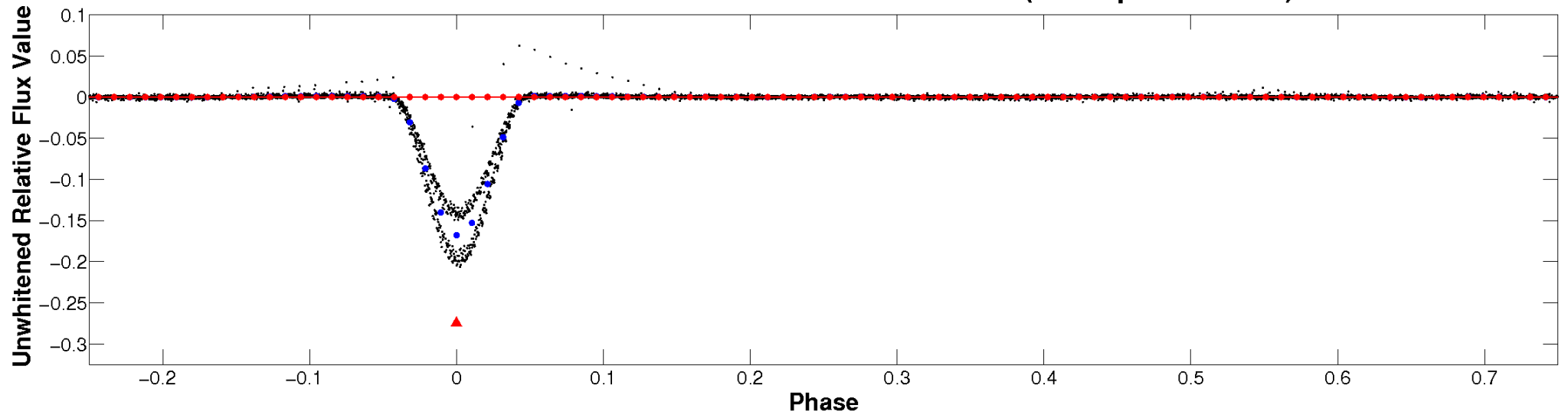
# ALT Odd/Even

TCE 004815612-01

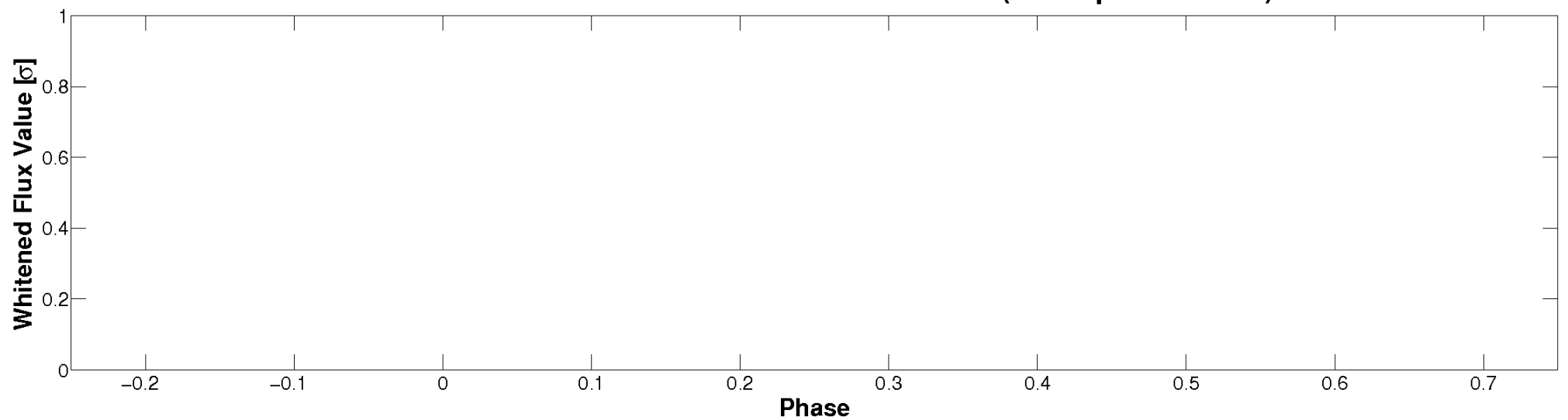


# Non-Whitened Vs. Whitened Light Curve

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

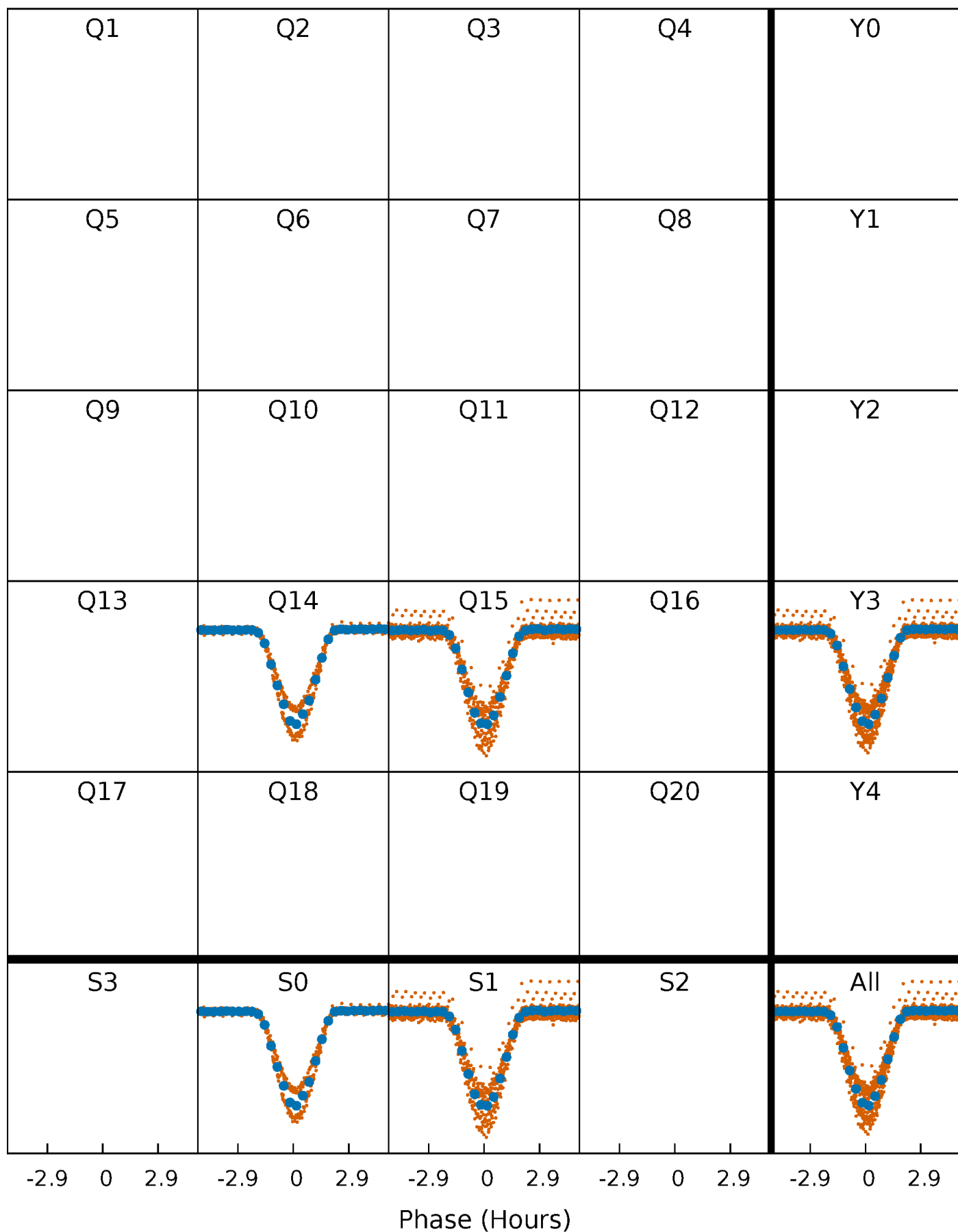


**Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

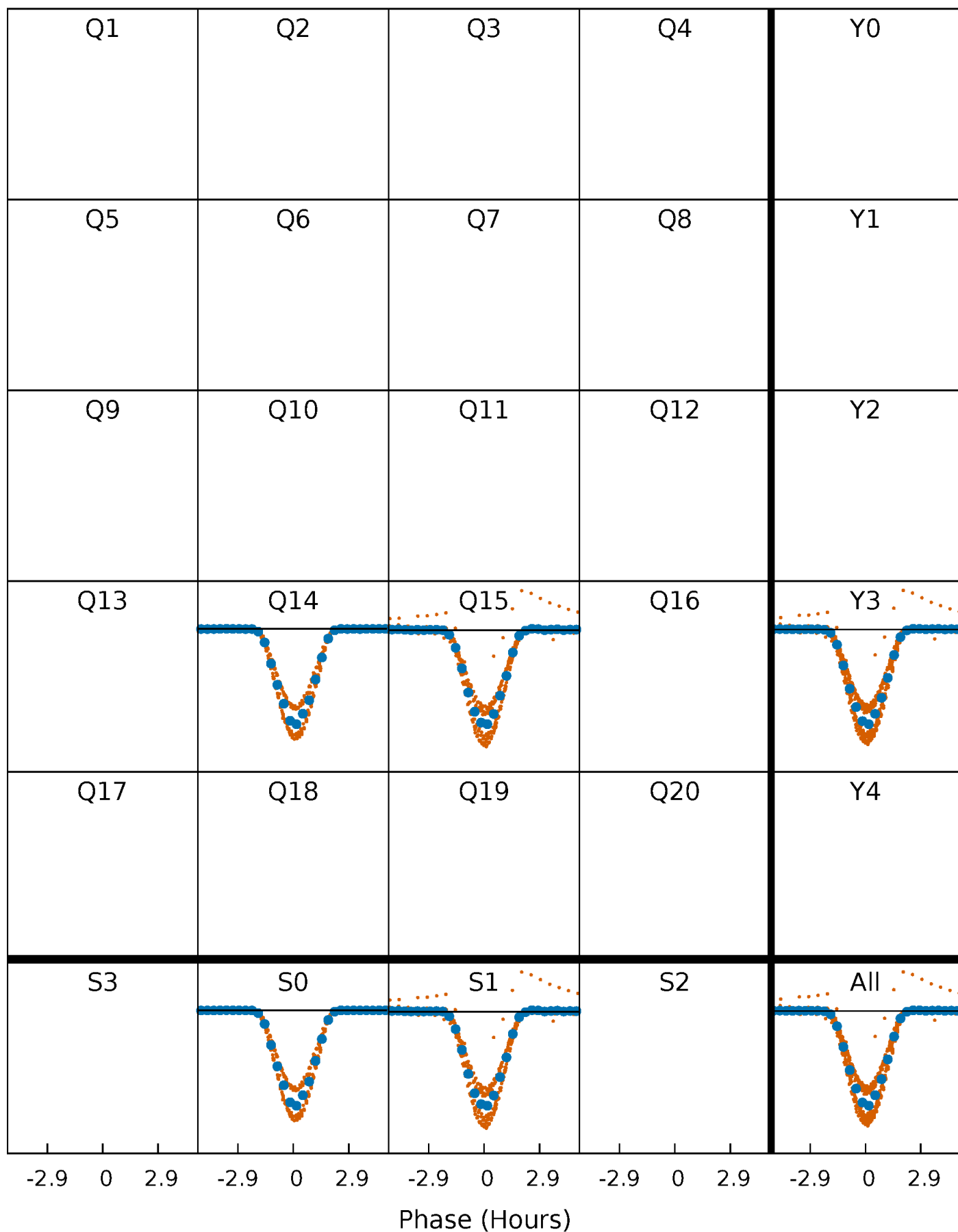
TCE 004815612-01 P= 1.928470 Days  $T_0=131.552661$  (BKJD)





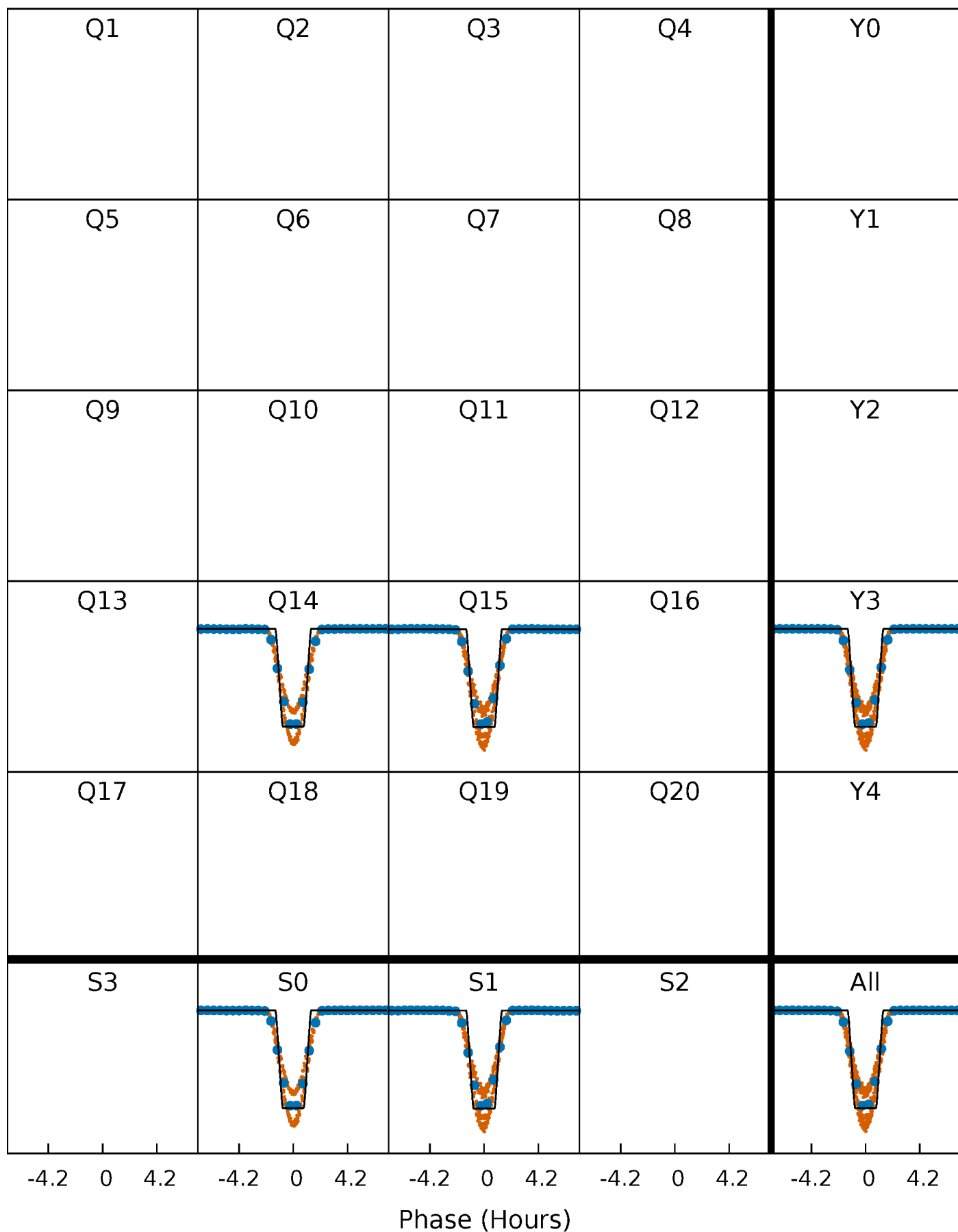
# DV Quarter-Phased Transit Curves

TCE 004815612-01 P= 1.928470 Days  $T_0=131.552661$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

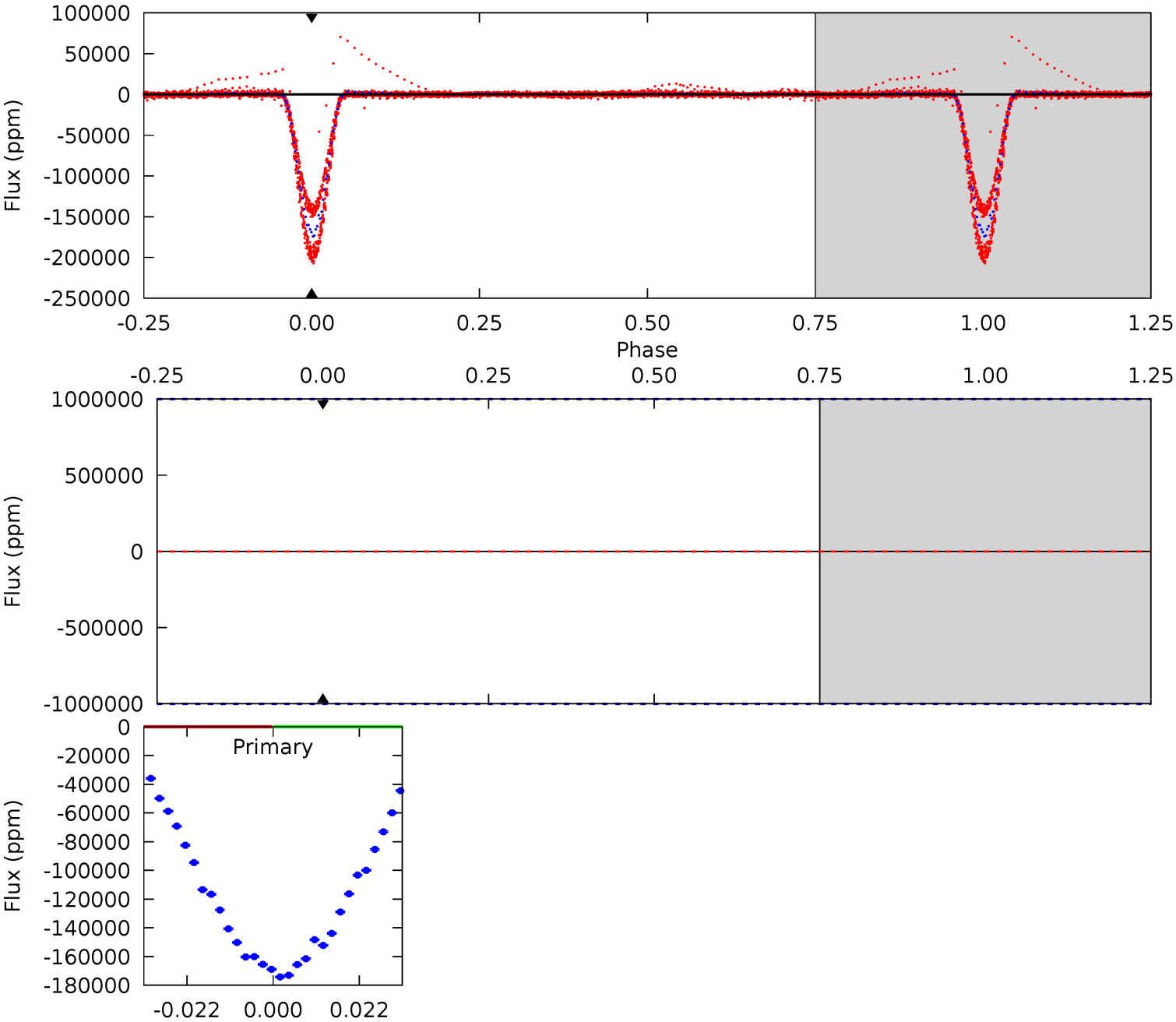
TCE 004815612-01 P= 1.928470 Days  $T_0=131.556793$  (BKJD)



# DV Model-Shift Uniqueness Test

004815612-01, P = 1.928470 Days, E = 131.552661 Days

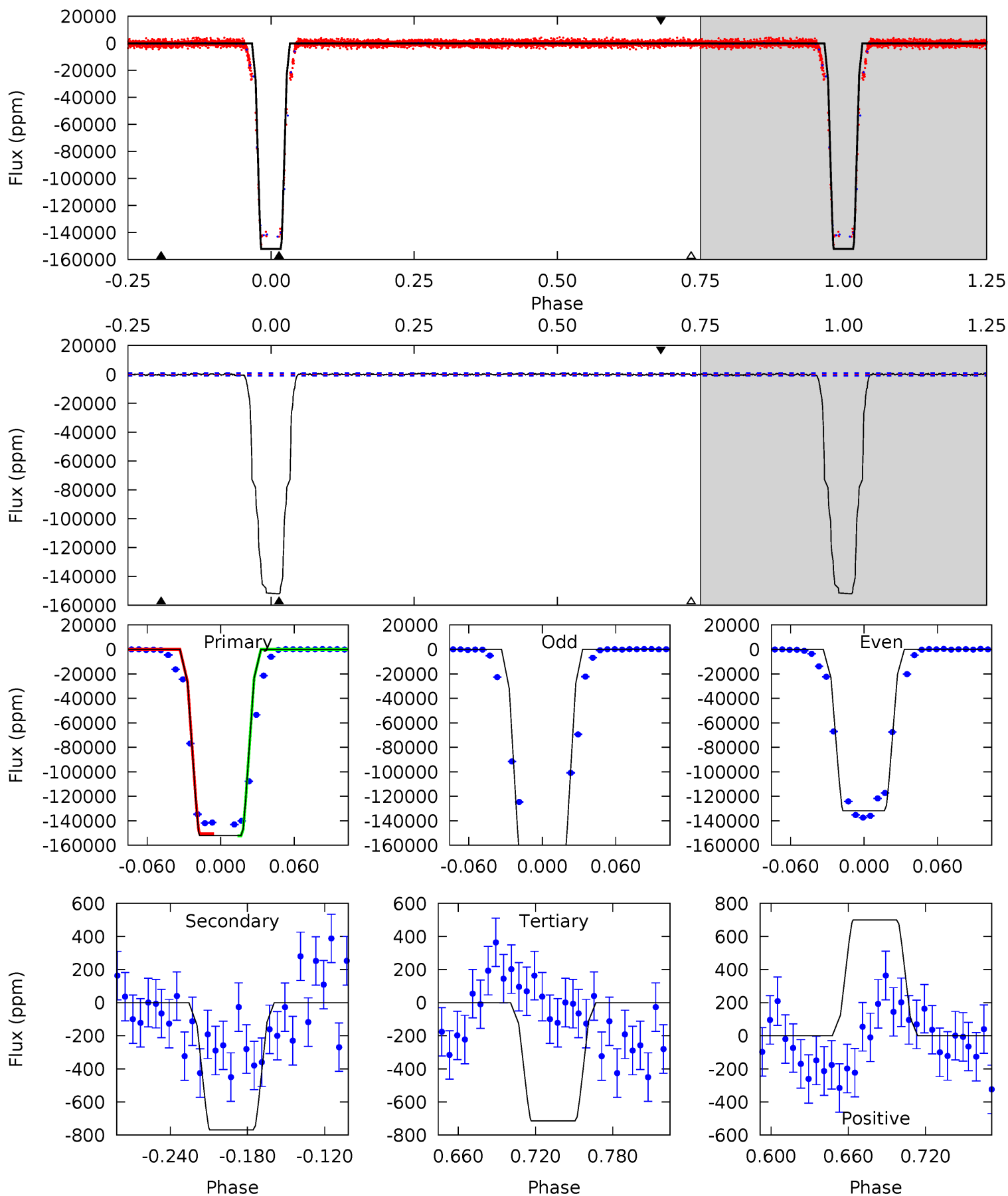
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

004815612-01, P = 1.928470 Days, E = 131.556793 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
784.6	3.96	3.69	3.61	4.67	1.88	1.33	780.9	781.0	0.27	0.36	249.6	0.94	0.00	0



### Stellar Parameters For KIC 004815612

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6615^{+185}_{-254}$	$4.257^{+0.144}_{-0.192}$	$-0.320^{+0.250}_{-0.300}$	$1.326^{+0.402}_{-0.248}$	$1.165^{+0.173}_{-0.173}$	$0.703^{+0.441}_{-0.346}$
	+3%/-4%	+3%/-5%	+78%/-94%	+30%/-19%	+15%/-15%	+63%/-49%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 004815612-01 / KOI 5090.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$35.82^{+15.28}_{-14.74}$	$2642^{+208}_{-176}$	$-3734^{+12113}_{-4252}$	$-1.230^{+54.697}_{-50.271}$
Alt.	$-768 \pm 194$	$61.45^{+17.10}_{-15.96}$	$2634^{+226}_{-170}$	$-2692^{+304}_{-180}$	$0.113^{+0.107}_{-0.051}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

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

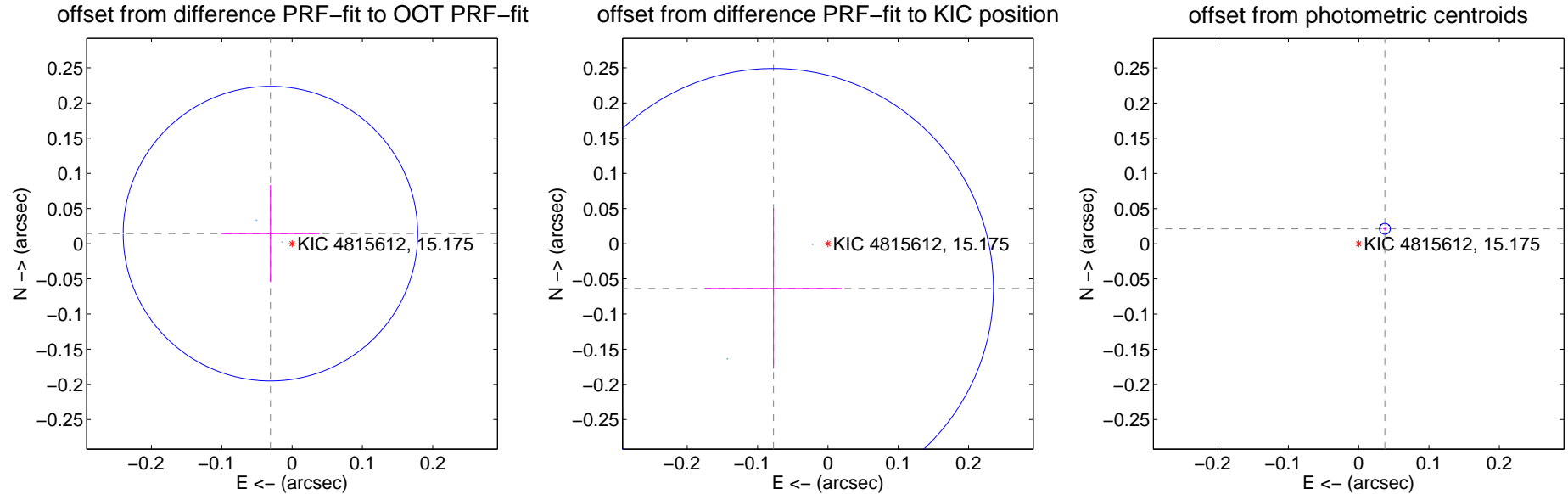
## DV Centroid Data

Supplemental centroid analysis for 004815612-01. Kepler magnitude: 15.18. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.01 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.034 \pm 0.070$	0.49	$0.031 \pm 0.070$	$0.014 \pm 0.069$
PRF-fit source offset from KIC position	$0.100 \pm 0.104$	0.96	$0.077 \pm 0.097$	$-0.064 \pm 0.114$
photometric centroid source offset	$0.04 \pm 0.00$	16.65	$-0.04 \pm 0.00$	$0.02 \pm 0.00$



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.



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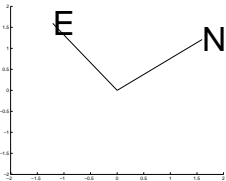
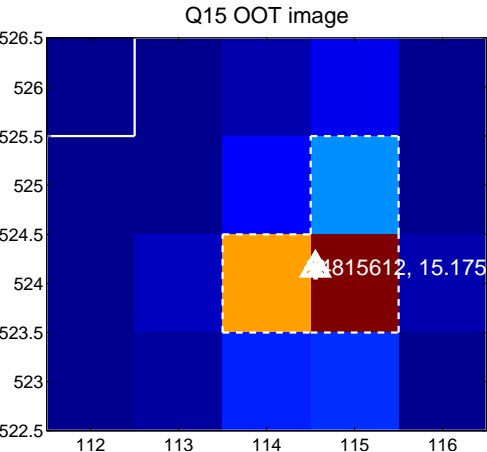
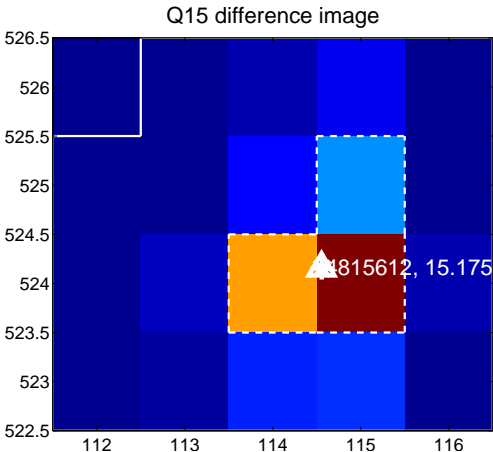
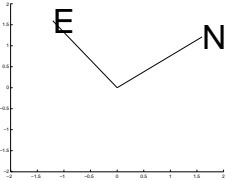
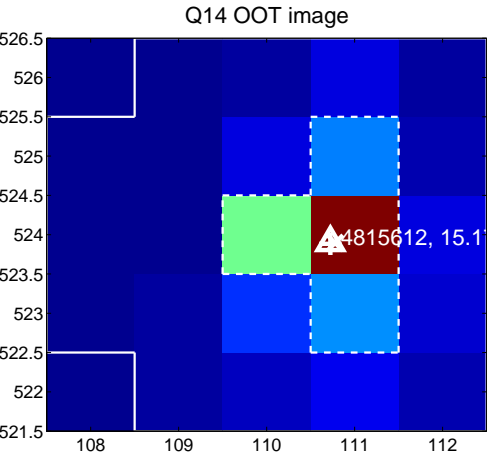
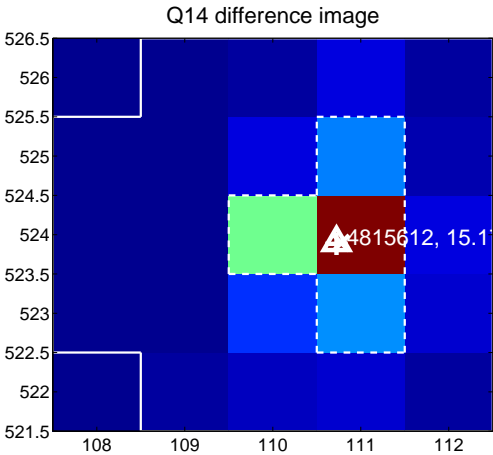


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

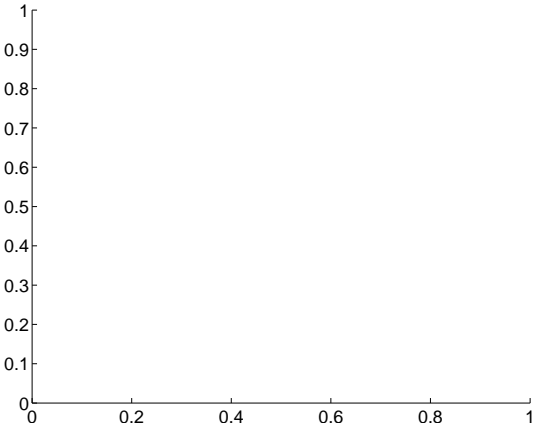
Q13 no difference image



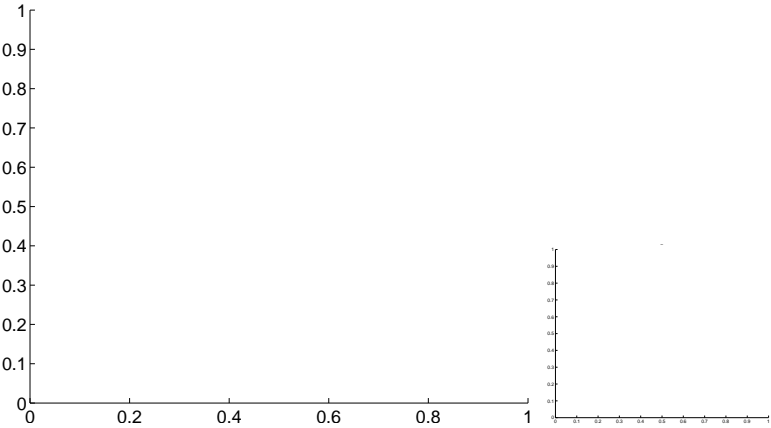
Q13 no OOT image



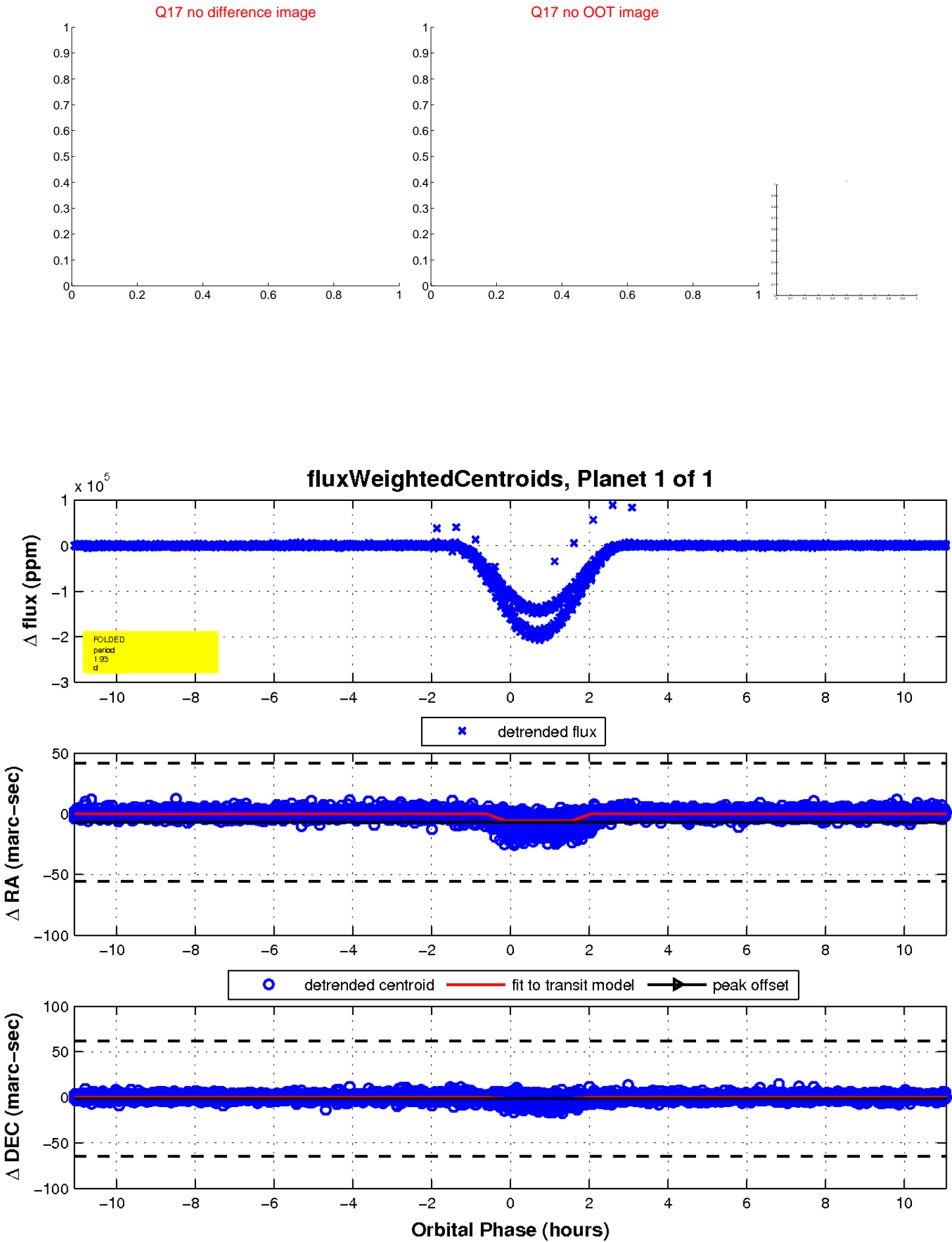
Q16 no difference image



Q16 no OOT image



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



# UKIRT Image

Declination

