

# KIC 008024282

## 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) | $R_p$ ( $R_{\oplus}$ ) | $S_p$ ( $S_{\oplus}$ ) |
|--------------|----------|------|---------------|--------------|-------------|------------------|-----|-----|-----------------------------|-----------------|------------------------|------------------------|
| 008024282-01 | OBS      | No   | 511.760354    | 339.390753   | 97.2        | 12.234           | 7.2 | 6.0 | 1.01                        | 5774            | 1.14                   | 0.72                   |

## Robovetter Results

| TCE          | Run Type | Disp | Score | N | S | C | E | Comments   |
|--------------|----------|------|-------|---|---|---|---|--|
| 008024282-01 | OBS      | FP   | 0.00  | 1 | 0 | 1 | 0 | INDIV_TRANS_MARSHALL_SKYE—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST |

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

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

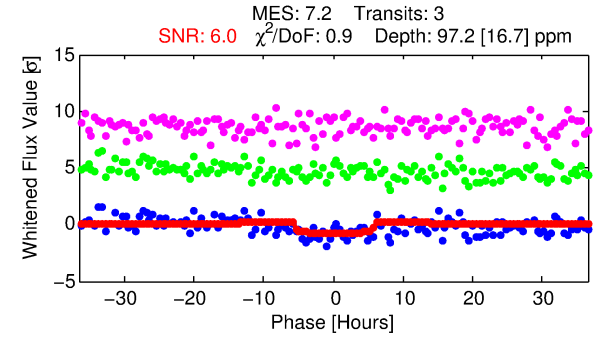
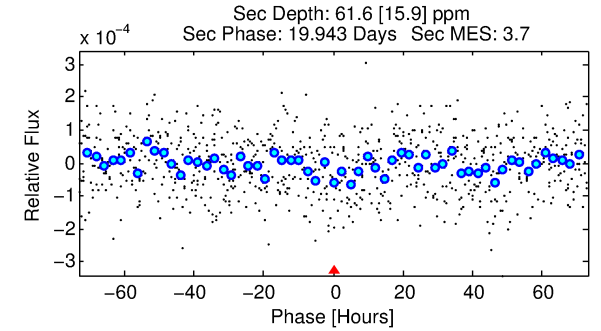
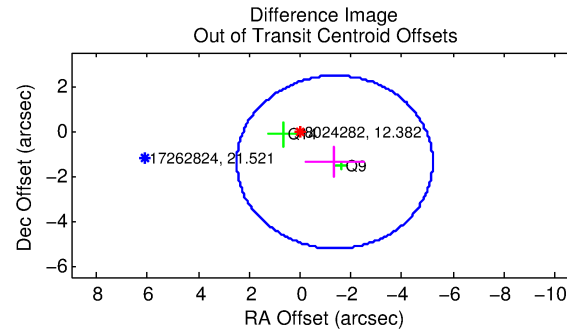
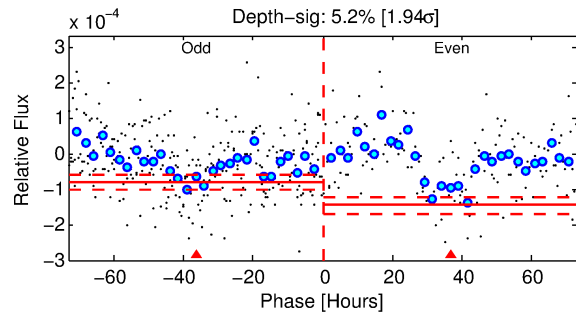
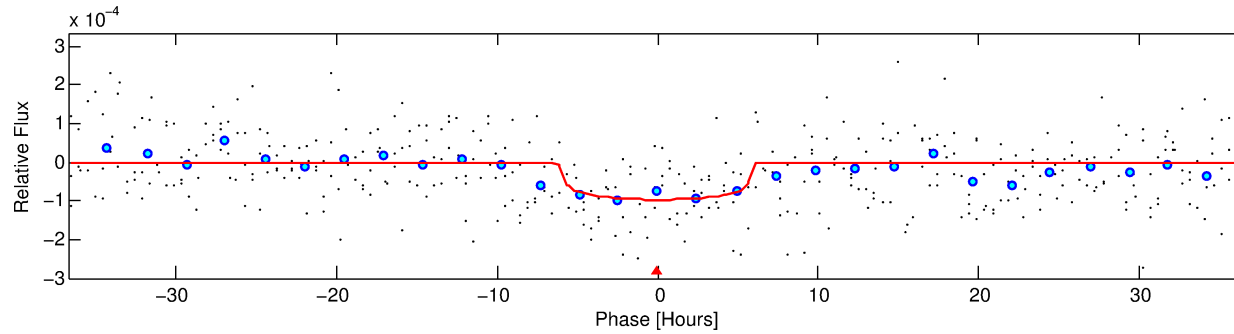
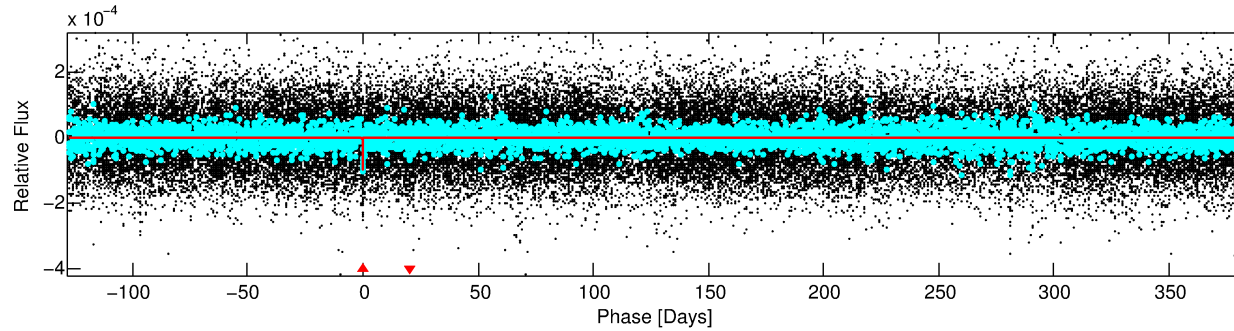
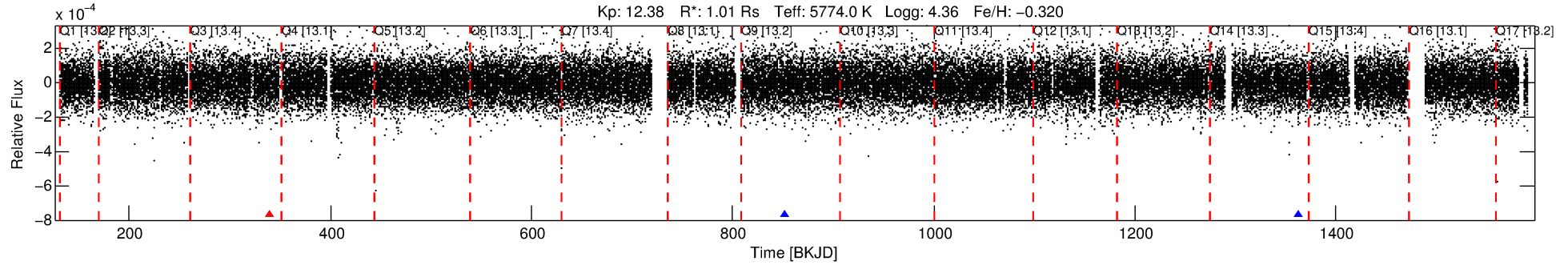
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008024282-01

No Significant Match Found

# DV One-Page Summary

KIC: 8024282 Candidate: 1 of 1 Period: 511.760 d



## DV Fit Results:

Period = 511.76035 [0.01762] d  
Epoch = 339.3908 [0.0253] BKJD  
Rp/R\* = 0.0103 [0.0029]  
a/R\* = 169.92 [217.45]  
b = 0.86 [0.39]  
Seff = 0.72 [0.22]  
Teq = 235 [18] K  
Rp = 1.14 [0.39] Re  
a = 1.1851 [0.2146] AU  
Ag = 36843.32 [25008.45] [1.47 $\sigma$ ]  
Teffp = 5030 [790] K [6.07 $\sigma$ ]

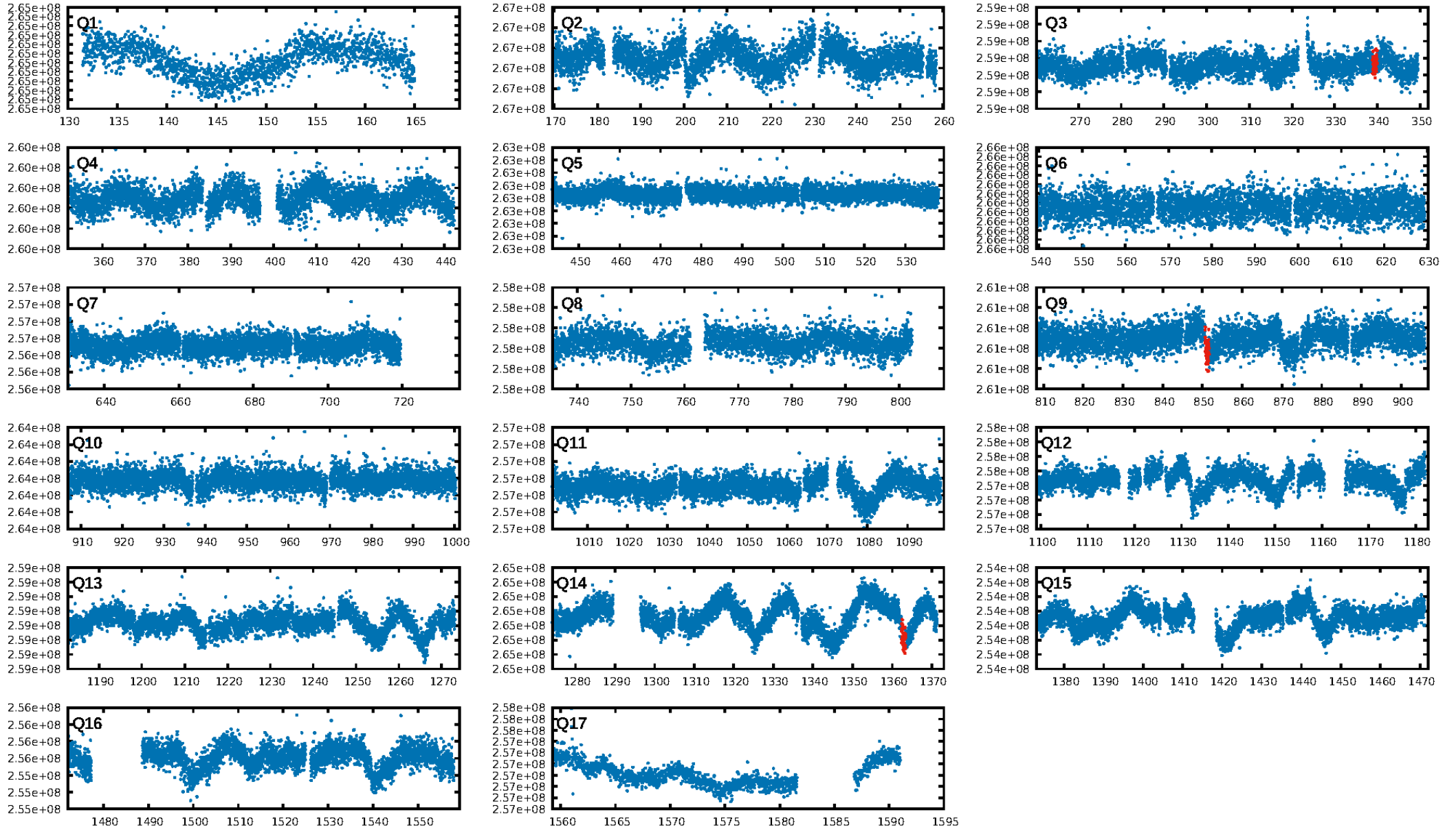
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 9.5%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: 1.37e-12  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: -0.163  
Centroid-sig: 41.5%  
Centroid-so: 2.075 arcsec [0.89 $\sigma$ ]  
OotOffset-rm: 1.946 arcsec [1.52 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 1.916 arcsec [2.62 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 1.00 [3/3]

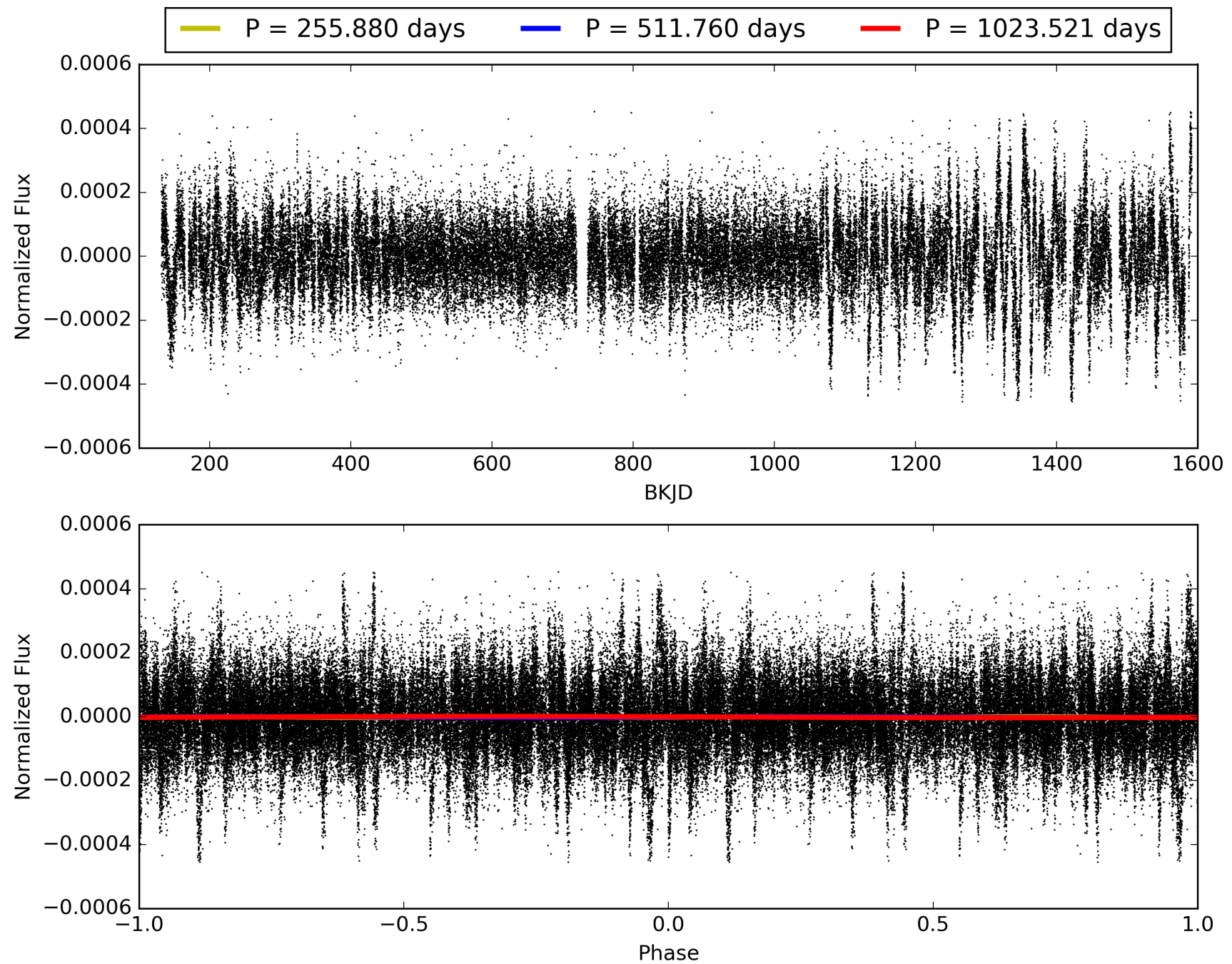
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:06:49 Z

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

# TCE 008024282-01, PDC Light Curves

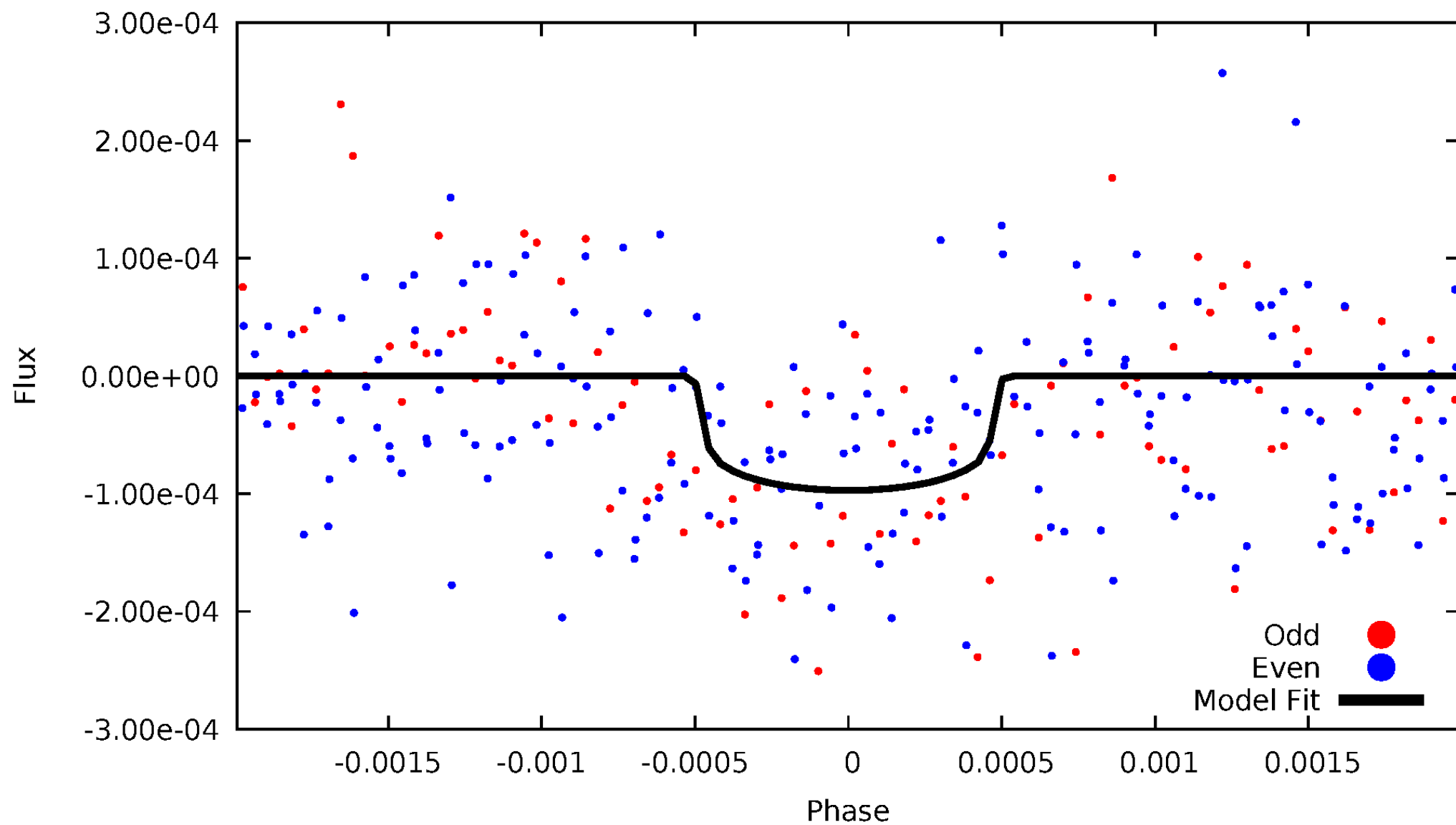


TCE 008024282-01



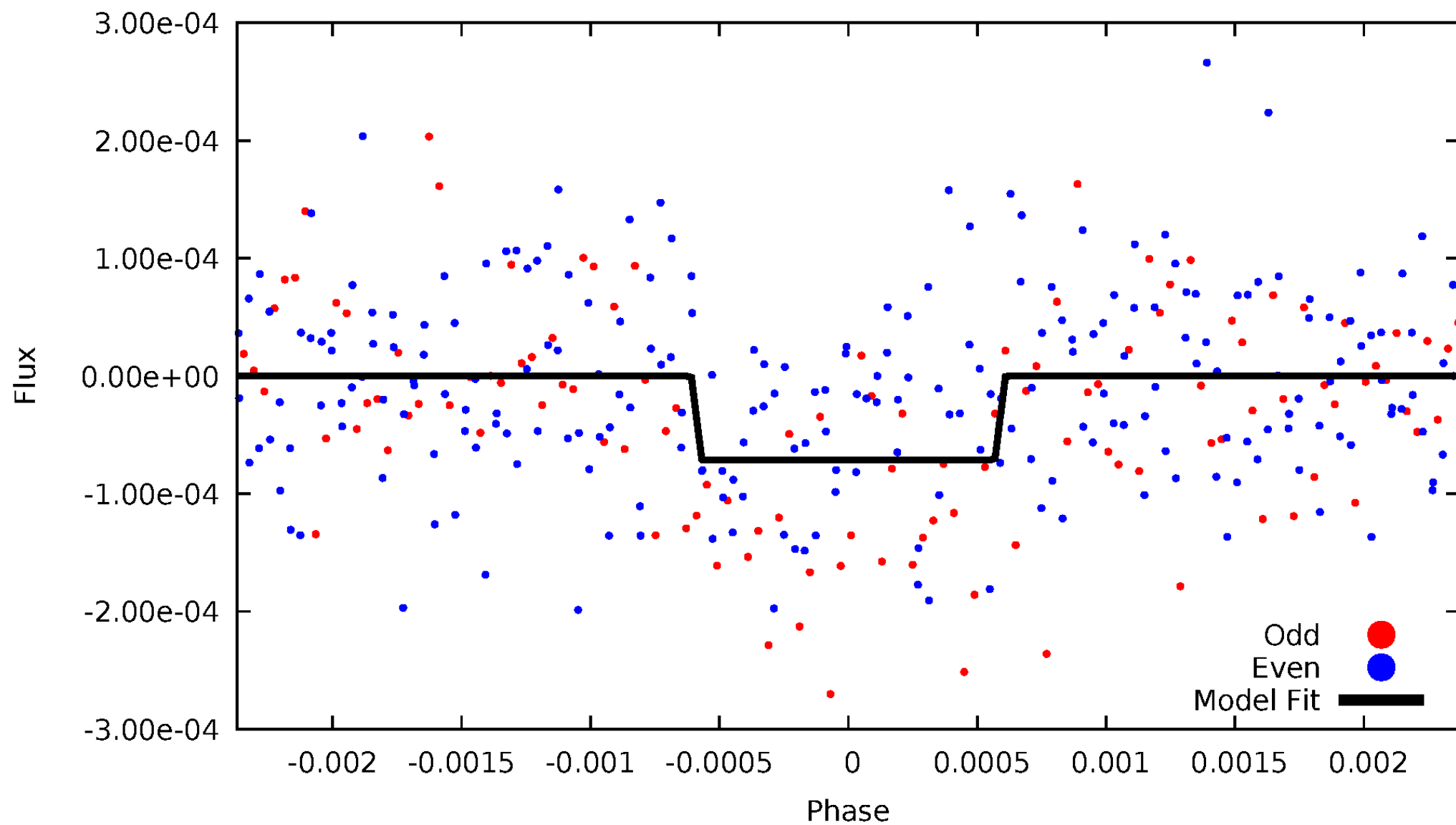
# DV Odd/Even

TCE 008024282-01



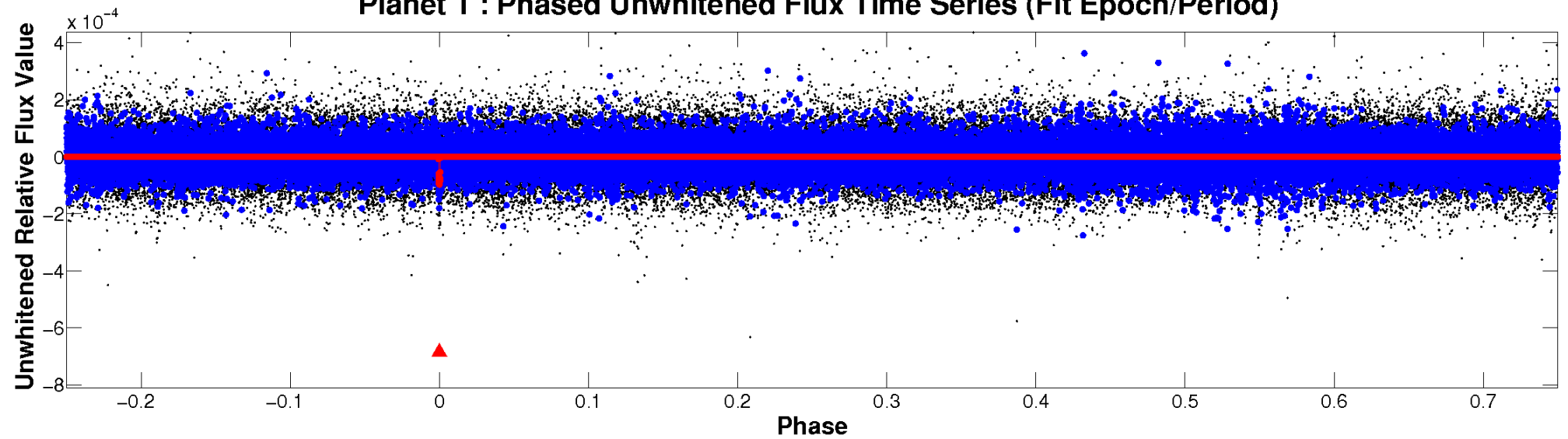
# ALT Odd/Even

TCE 008024282-01

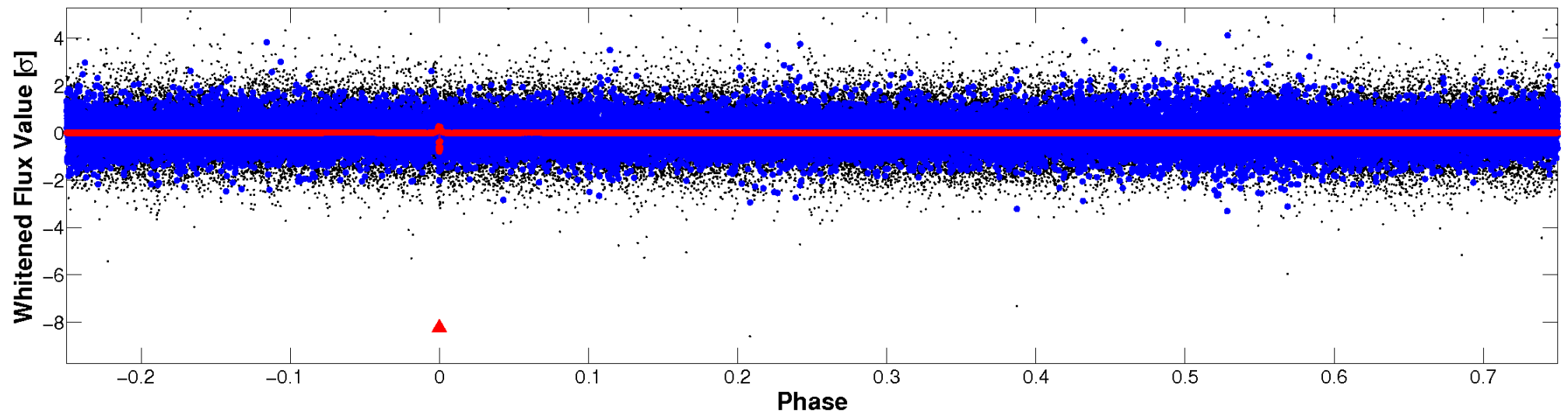


# Non-Whitened Vs. Whitened Light Curve

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 008024282-01     $P=511.760354$  Days     $T_0=339.390753$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008024282-01 P=511.760354 Days  $T_0=339.390753$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

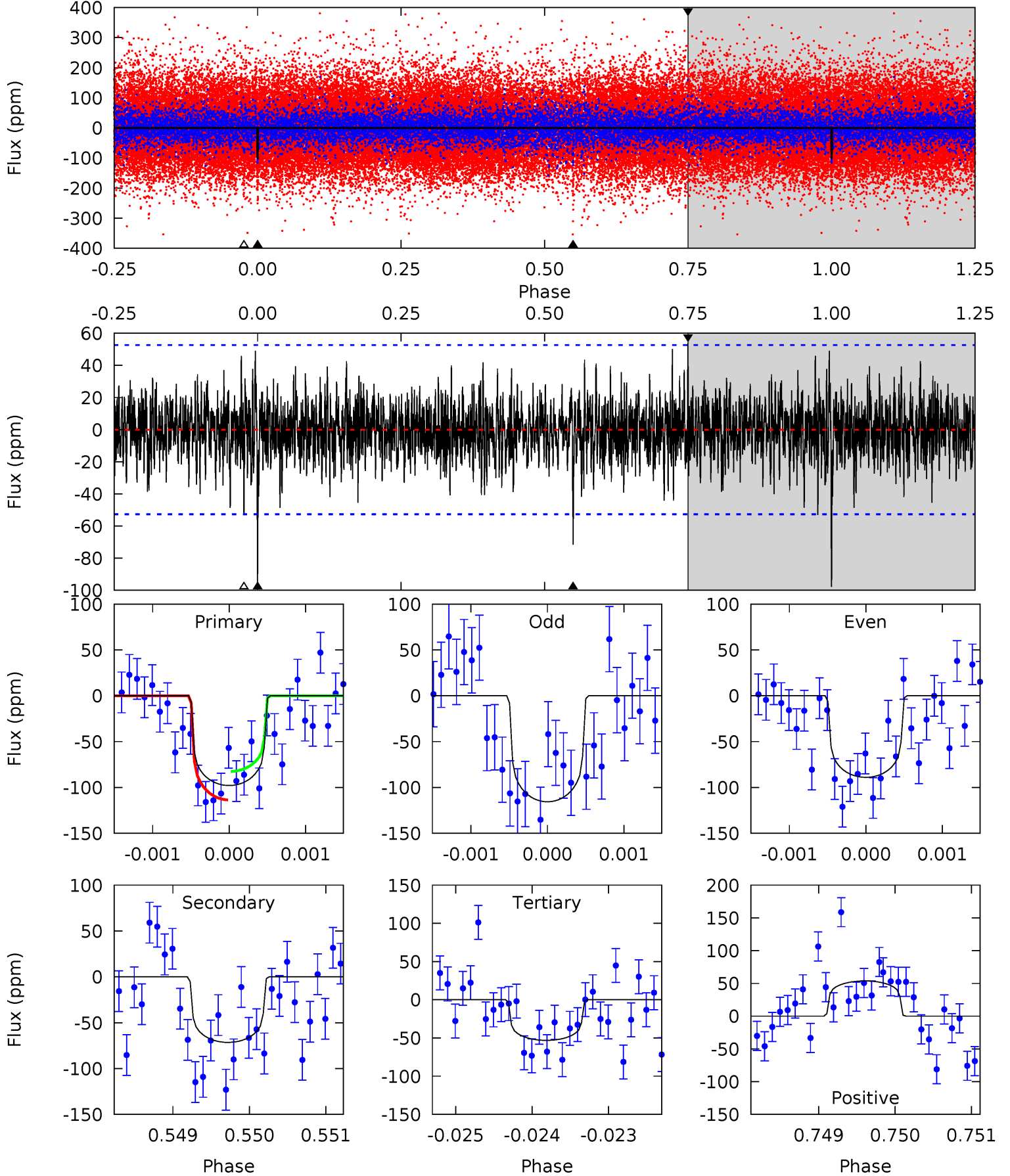
TCE 008024282-01 P=511.833433 Days  $T_0=339.303223$  (BKJD)



# DV Model-Shift Uniqueness Test

008024282-01, P = 511.760354 Days, E = 339.390753 Days

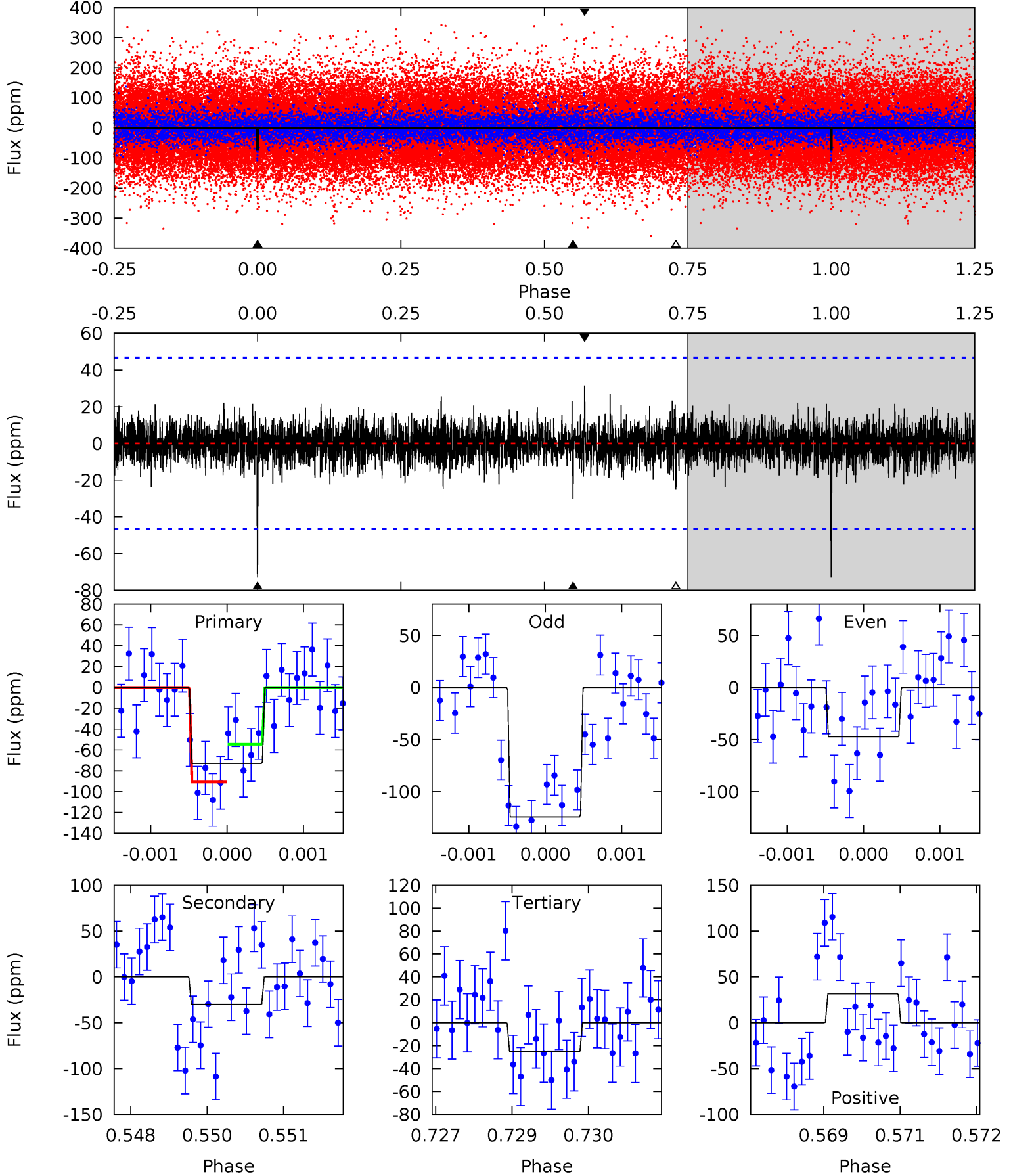
| Pri  | Sec  | Ter  | Pos  | FA <sub>1</sub> | FA <sub>2</sub> | F <sub>Red</sub> | Pri-Ter | Pri-Pos | Sec-Ter | Sec-Pos | Odd-Evn | DMM  | Shape | TAT  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 10.1 | 7.39 | 5.49 | 5.55 | 5.45            | 3.29            | 1.42             | 4.63    | 4.57    | 1.90    | 1.84    | 1.31    | 0.85 | 0.35  | 1.60 |



# Alt Model-Shift Uniqueness Test

008024282-01, P = 511.833433 Days, E = 339.303223 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  |
|------|------|------|------|-----------------|-----------------|------------------|---------|---------|---------|---------|---------|------|-------|------|
| 8.47 | 3.48 | 2.93 | 3.65 | 5.41            | 3.23            | 0.76             | 5.54    | 4.82    | 0.55    | -0.16   | 4.24    | 1.52 | 0.30  | 2.10 |



### Stellar Parameters For KIC 008024282

|        | $T_{\text{eff}}(K)$  | $\log(g)$                 | [Fe/H]                     | $R$ ( $R_{\odot}$ )       | $M(M_{\odot})$            | $p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ ) |
|--------|----------------------|---------------------------|----------------------------|---------------------------|---------------------------|---|
|        | $5774^{+155}_{-155}$ | $4.360^{+0.160}_{-0.131}$ | $-0.320^{+0.300}_{-0.250}$ | $1.007^{+0.201}_{-0.183}$ | $0.846^{+0.118}_{-0.073}$ | $1.168^{+0.794}_{-0.436}$                     |
|        | +3%/-3%              | +4%/-3%                   | +94%/-78%                  | +20%/-18%                 | +14%/-9%                  | +68%/-37%                                     |
| Source | PHO1                 | FLK73                     | 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 008024282-01 / KOI

| Detrend | Depth (ppm)  | $R_p$ ( $R_{\oplus}$ ) | $T_{\text{max}}$ (K) | $T_{\text{obs}}$ (K)  | $A_{\text{obs}}$          |
|---------|--------------|------------------------|----------------------|-----------------------|---------------------------|
| DV      | $-71 \pm 10$ | $1.11^{+0.39}_{-0.30}$ | $328^{+19}_{-17}$    | $5287^{+859}_{-580}$  | $43113^{+42554}_{-18979}$ |
| Alt.    | $-30 \pm 9$  | $0.91^{+0.35}_{-0.33}$ | $327^{+19}_{-19}$    | $4752^{+1032}_{-603}$ | $27859^{+36713}_{-14726}$ |

$T_{\text{max}}$  = 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

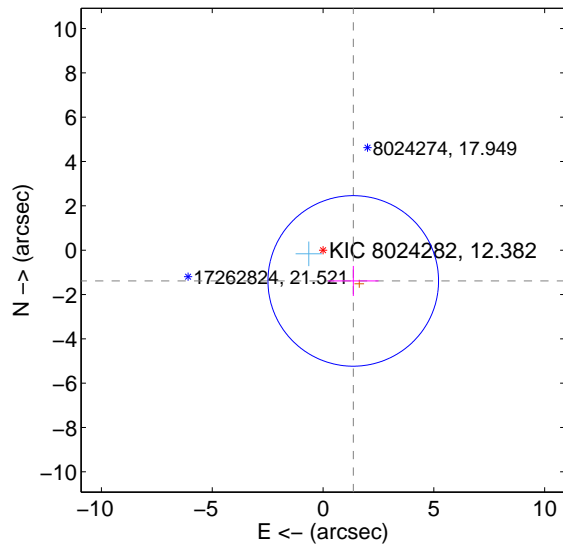
Supplemental centroid analysis for 008024282-01. Kepler magnitude: 12.38. Transit SNR 6.04

There are 1 quarters with good PRF difference image offsets

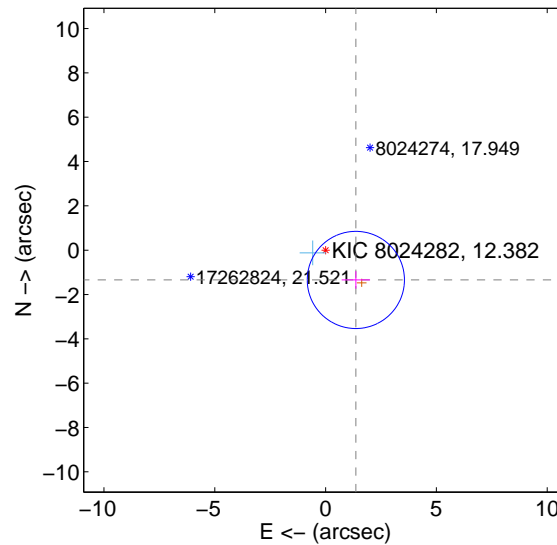
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

|   | Distance in arcsec | Distance / $\sigma$ | $\Delta$ RA        | $\Delta$ Dec       |
|---|--------------------|---------------------|--------------------|--------------------|
| PRF-fit source offset from OOT          | $1.946 \pm 1.283$  | 1.52                | $-1.364 \pm 1.141$ | $-1.388 \pm 0.680$ |
| PRF-fit source offset from KIC position | $1.916 \pm 0.731$  | 2.62                | $-1.366 \pm 0.641$ | $-1.343 \pm 0.395$ |
| photometric centroid source offset      | $2.07 \pm 2.34$    | 0.89                | $-1.97 \pm 2.35$   | $0.66 \pm 2.26$    |

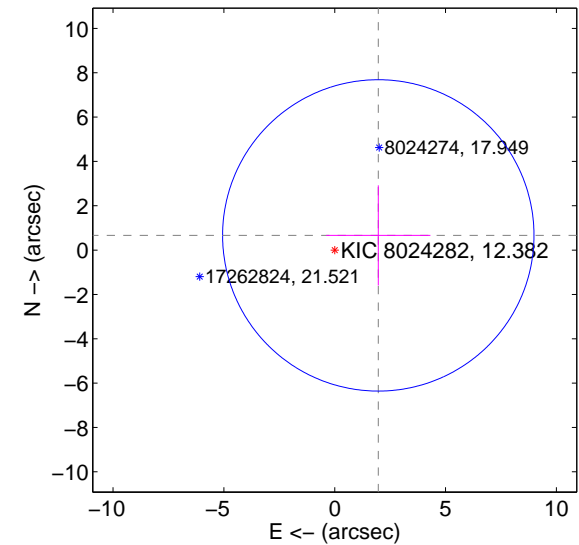
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

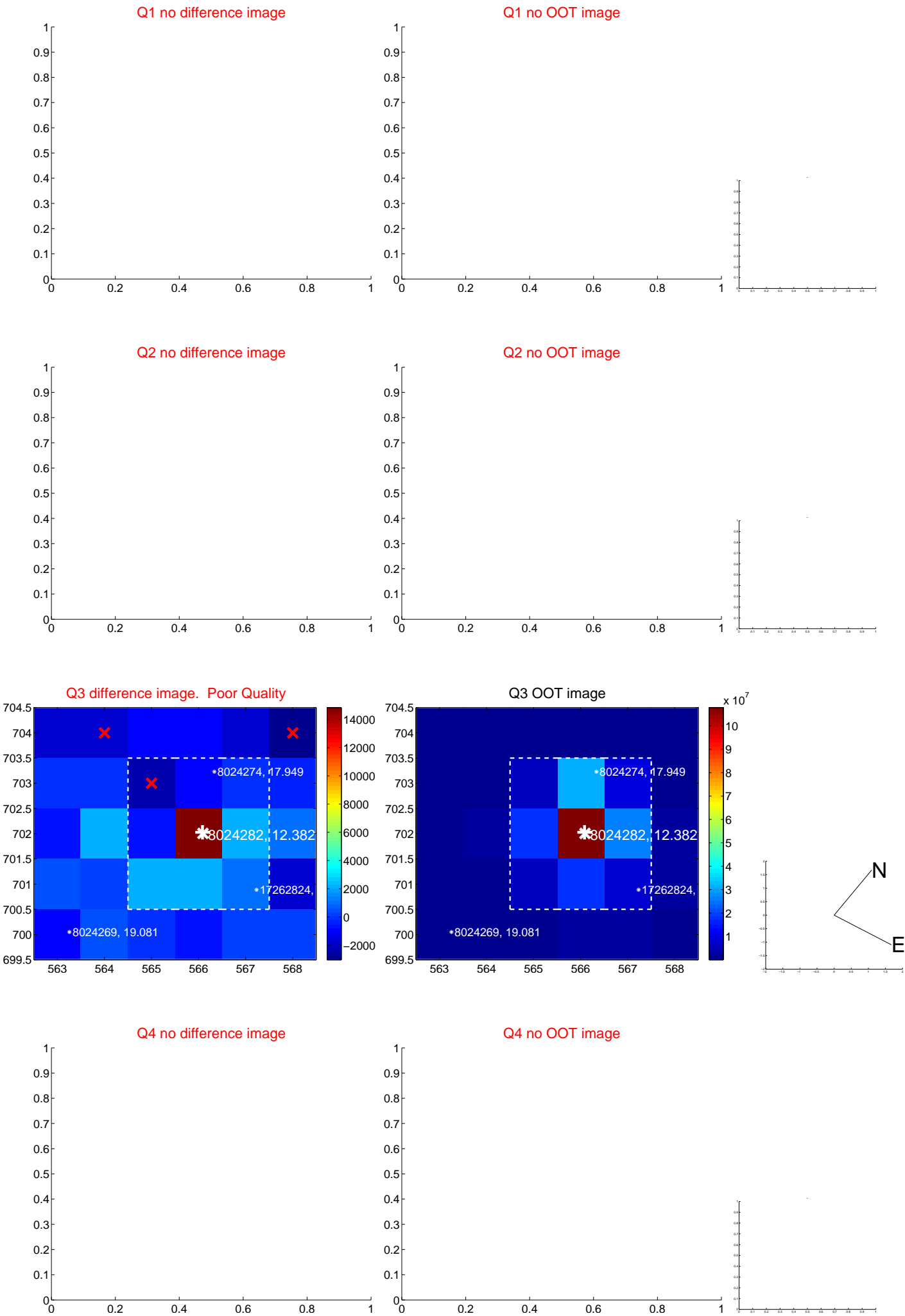


offset from photometric centroids



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.

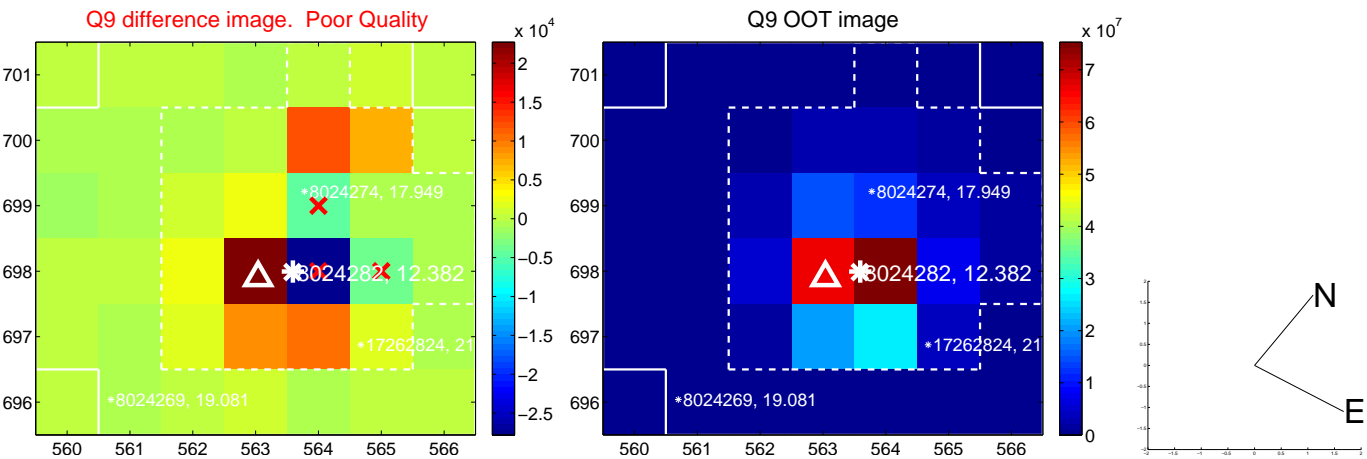




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

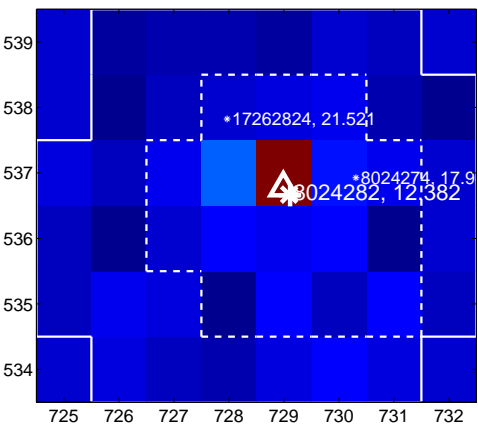
Q13 no difference image



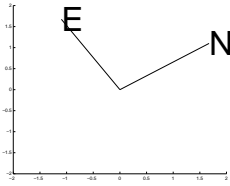
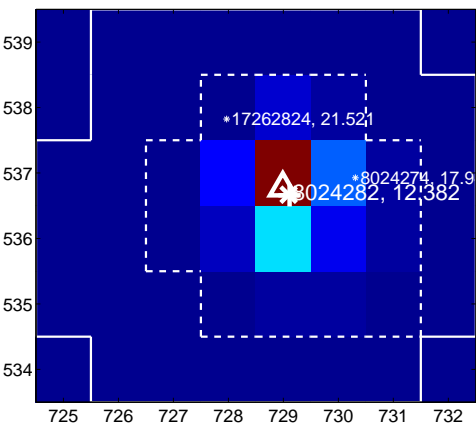
Q13 no OOT image



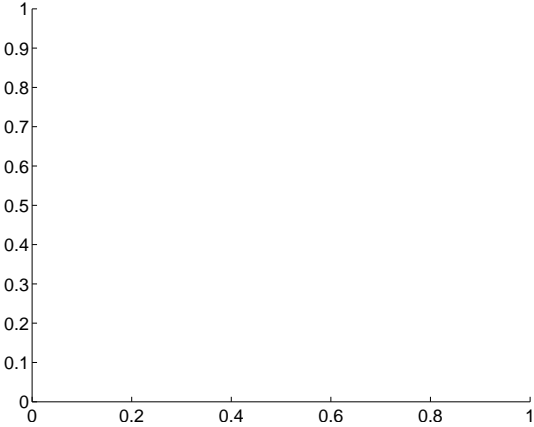
Q14 difference image



Q14 OOT image



Q15 no difference image



Q15 no OOT image



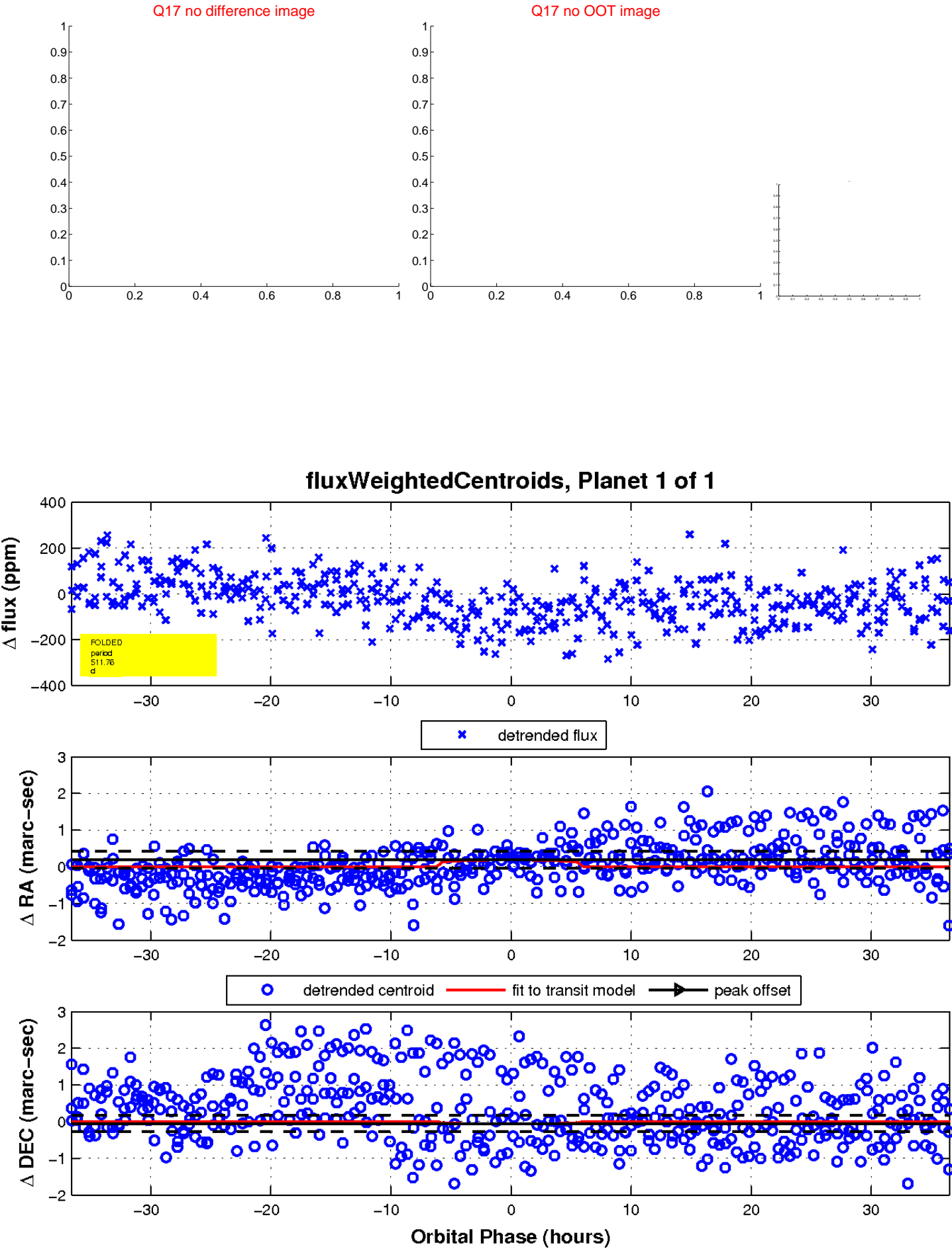
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

