

Photometry of Algol Type (EA) Eclipsing Binaries with Delta Scuti Pulsating Components-Part 2

Abstract:

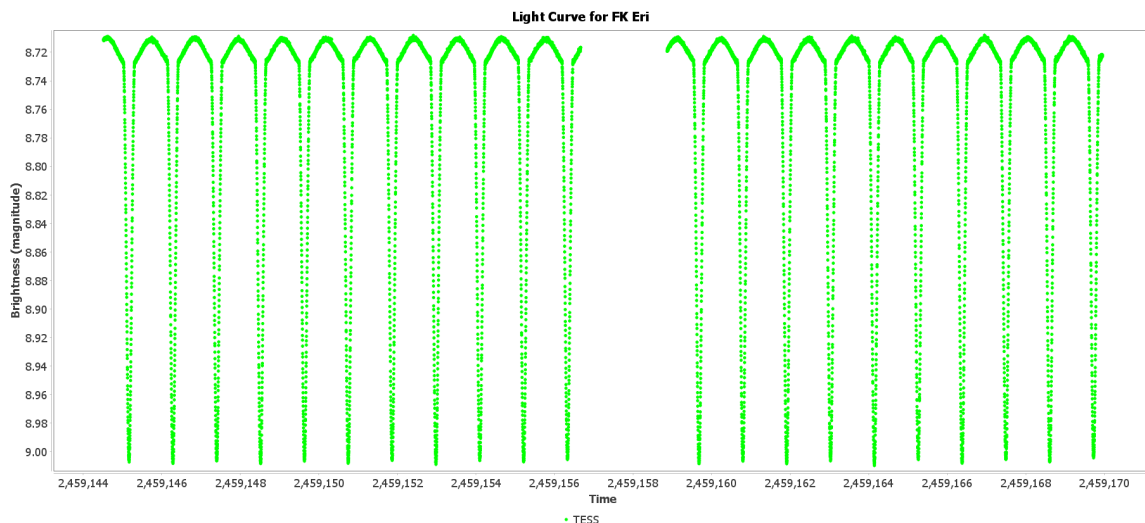
Thirty six Algol-type (EA) binaries were discovered by Hipparcos in 1997. According to their (B-V) color and spectral types, these systems are approximately located in the instability strip of the Hertzsprung-Russell diagram. Other than the Hipparcos photometry, these binaries have not been routinely observed. In this study, the thirty six Algol-type eclipsing binaries discovered by Hipparcos will be studied incorporating photometry from the Transiting Exoplanet Survey Satellite (TESS). Of the thirty six binaries, thirty one have complete TESS photometry files, while the remaining five have only FFI (Full Frame Images) with no corresponding photometry files. These five binaries utilize photometry from ASAS-SN to produce light curves. From these light curves, periodograms are produced, yielding the pulsation spectrum frequency structure of the binary system. This pulsation spectra clearly shows the behavior of the Delta Scuti component of the binary systems. Additionally, the period analysis and resulting orbital phase plot for the eclipsing binaries are presented.

Update:

This study began with six of the thirty six Algol-type (EA) binary systems, presenting light curves, pulsation spectra, period analyses, and orbital phase plots for each. The five binaries utilizing photometry from ASAS-SN yielded little or no usable data, therefore have been excluded from this analysis. These are KP Vir, V1149 Tau, V363 And, V1002 Her, and CG Cir. The remaining twenty five will be presented herein.

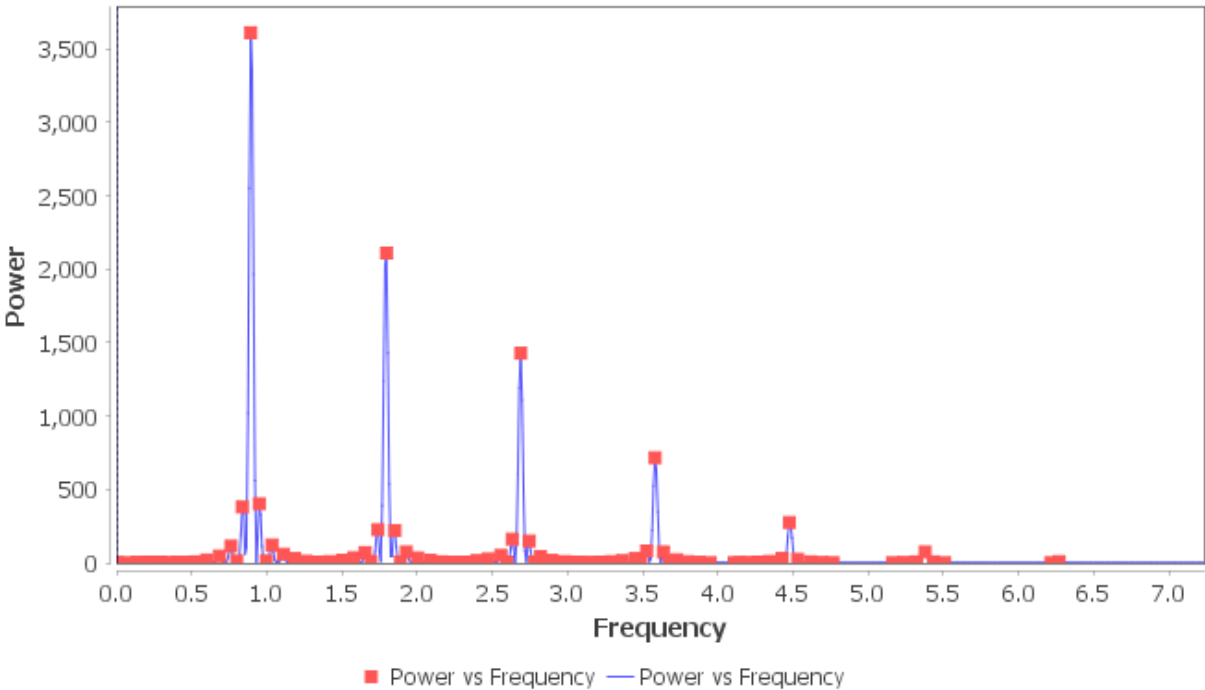
Analysis and Results

FK Eri (TIC 425077106)



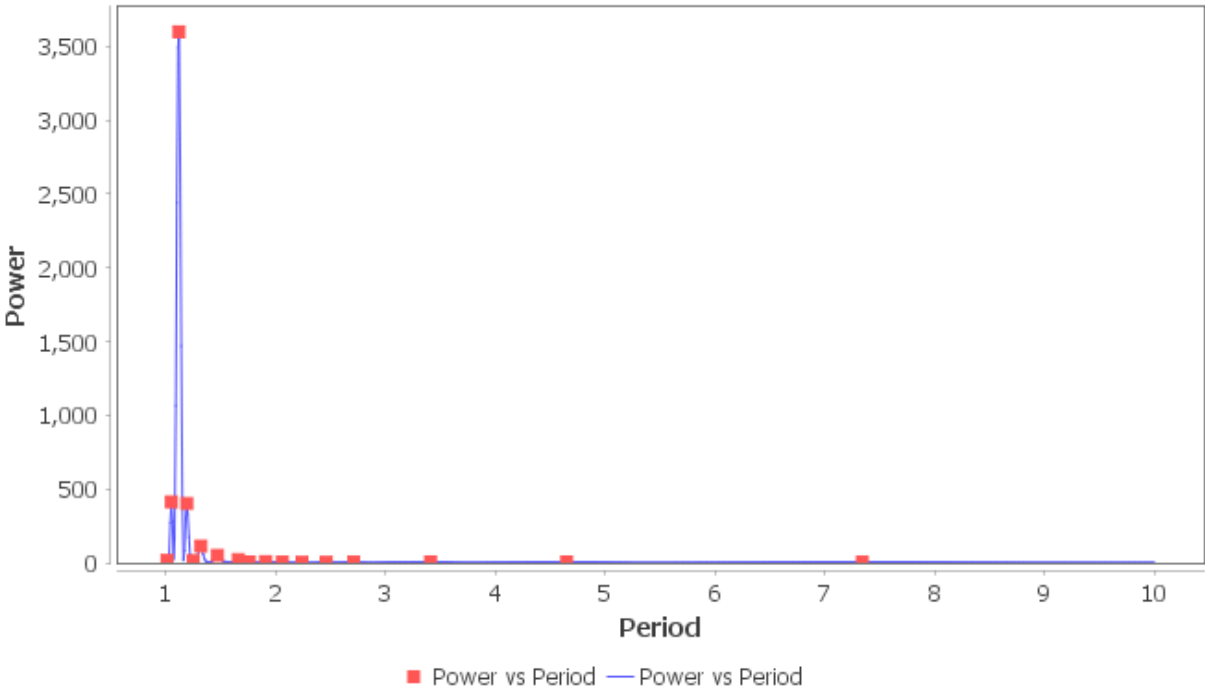
Pulsation Spectrum for FK Eri

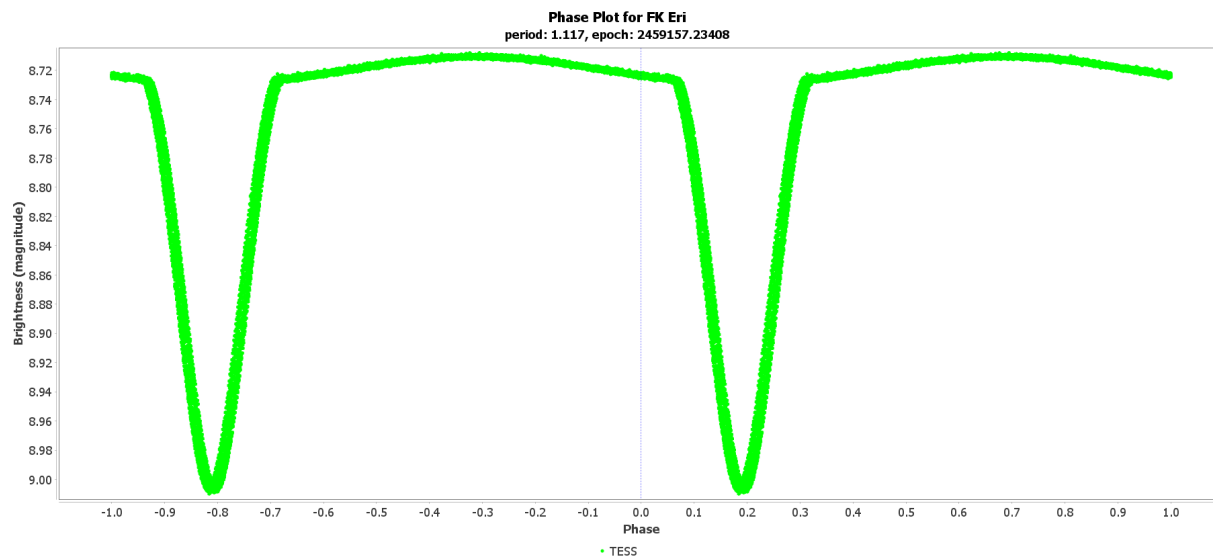
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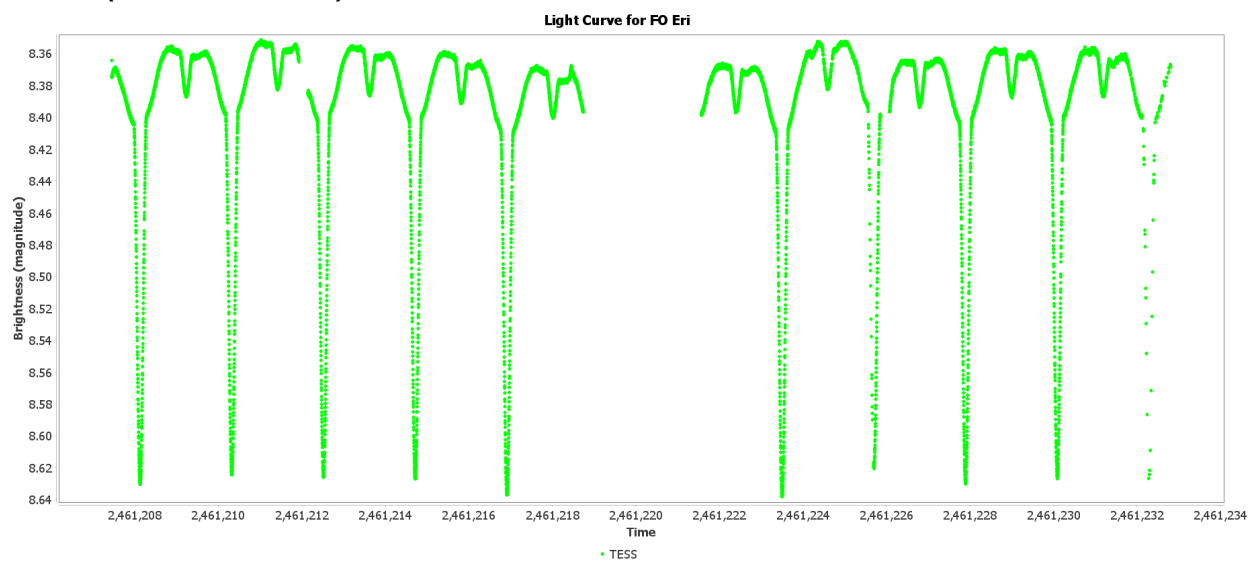
Period Analysis (DC DFT) for FK Eri

(series: TESS)



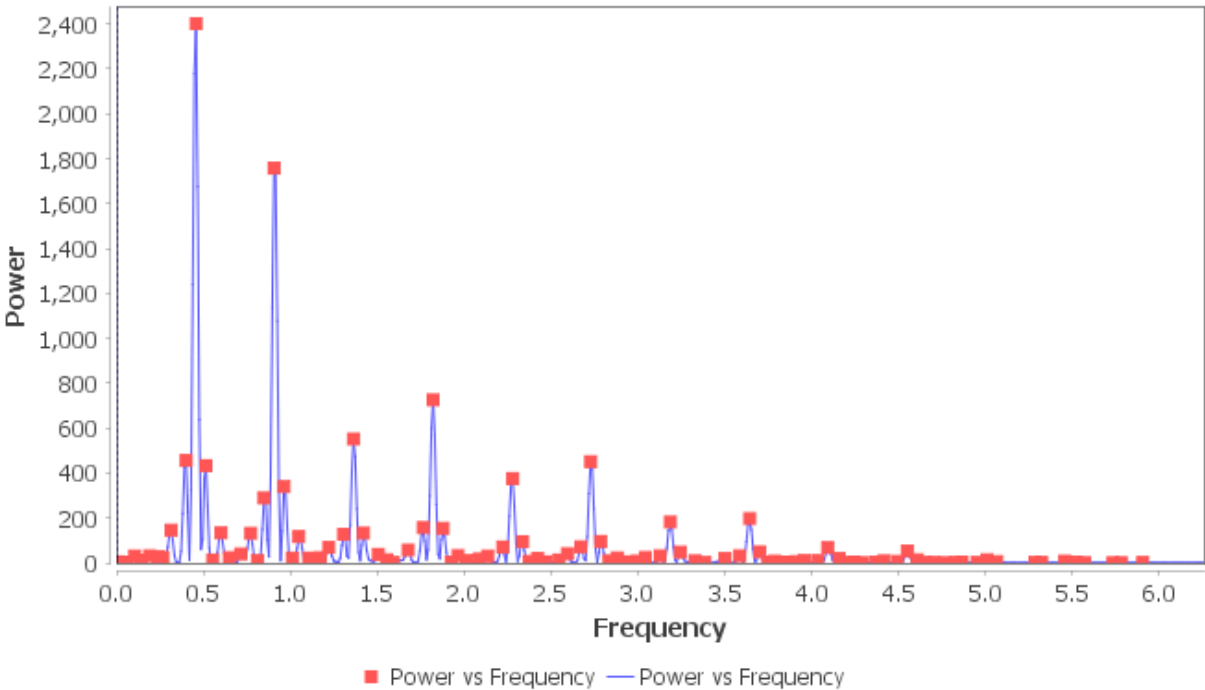


FO Eri (TIC 215403644)



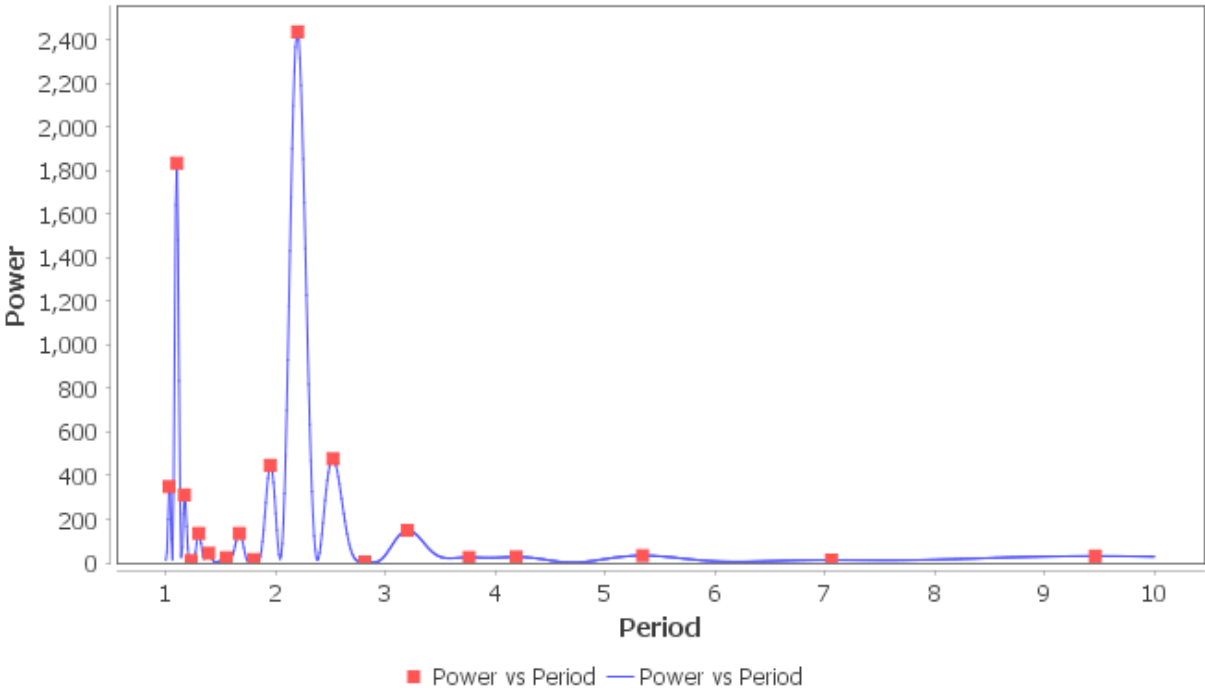
Pulsation Spectrum for FO Eri

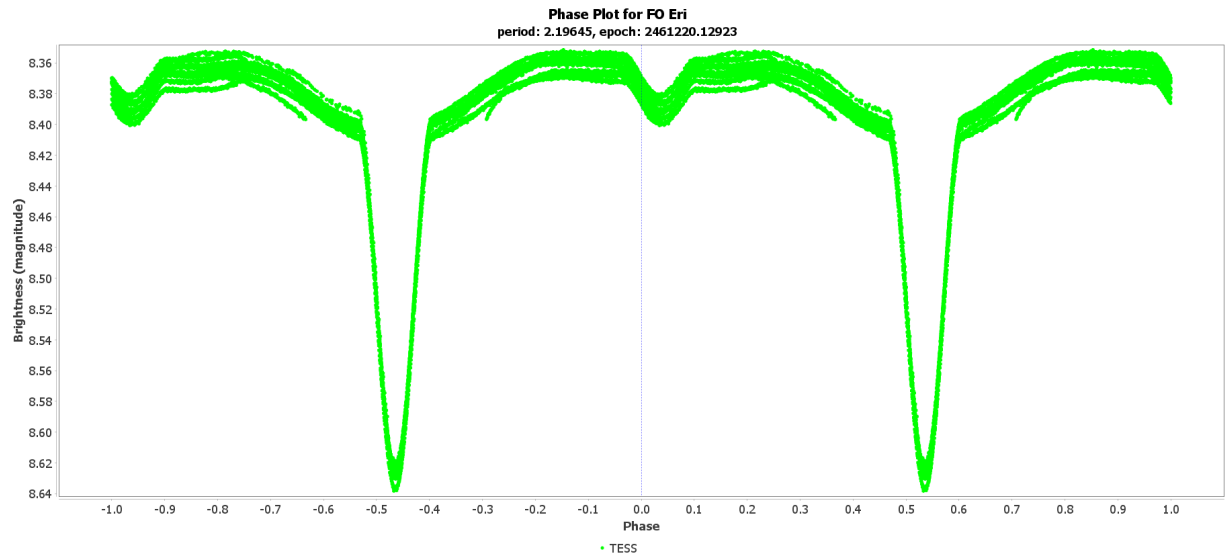
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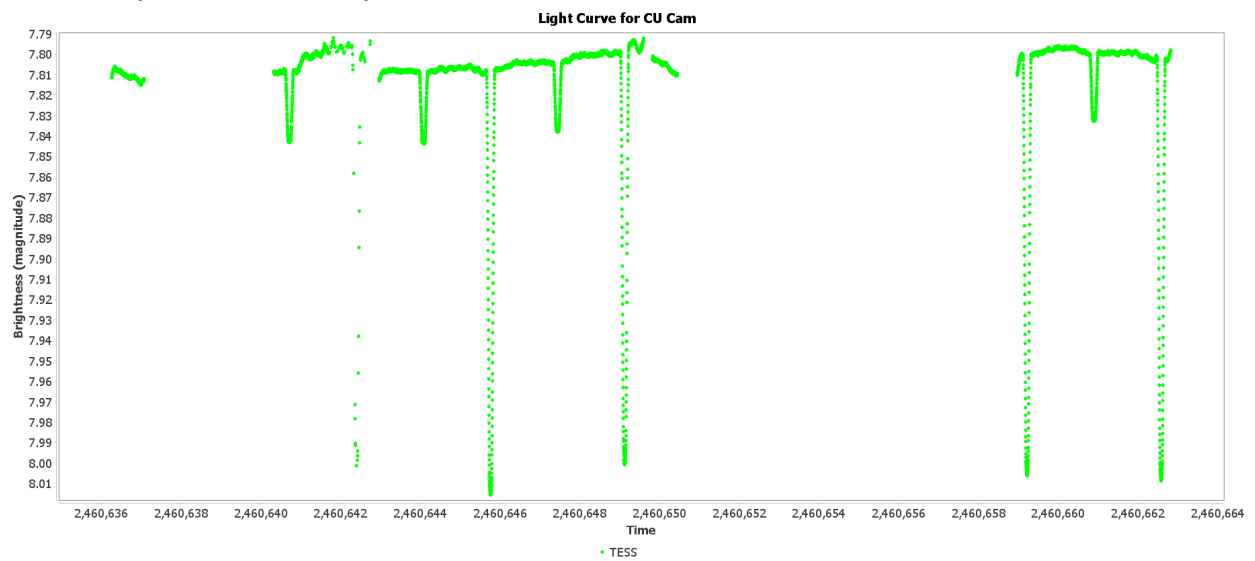
Period Analysis (DC DFT) for FO Eri

(series: TESS)



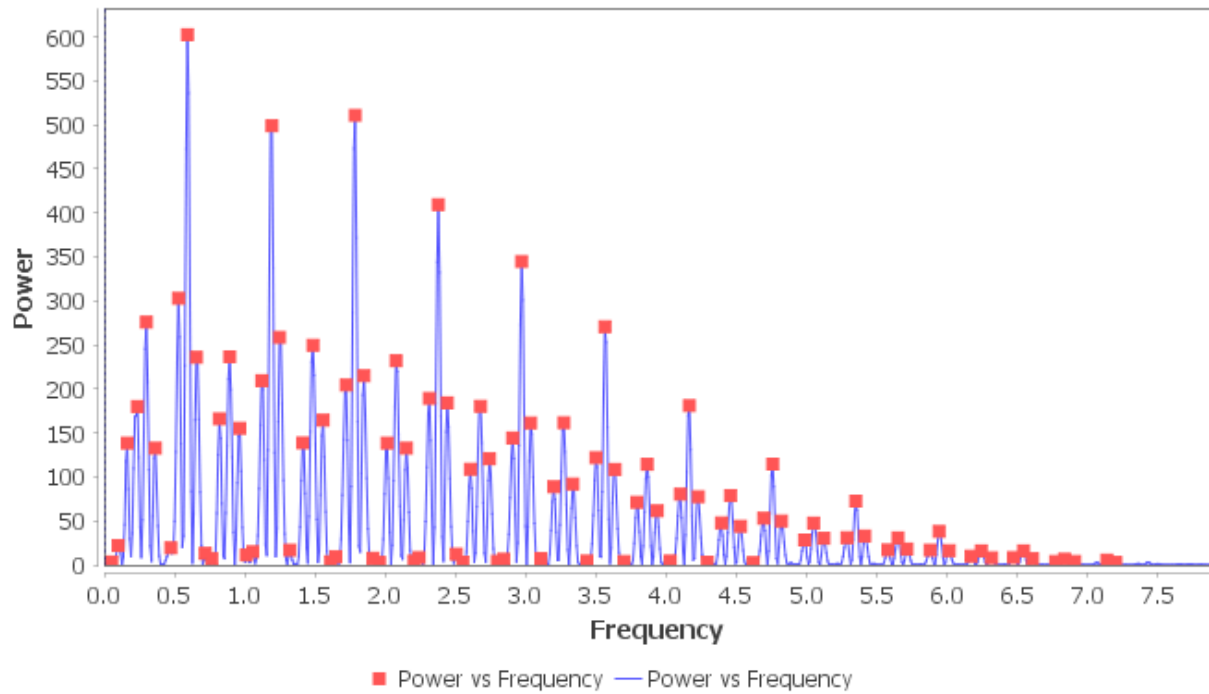


CU Cam (TIC 418292424)



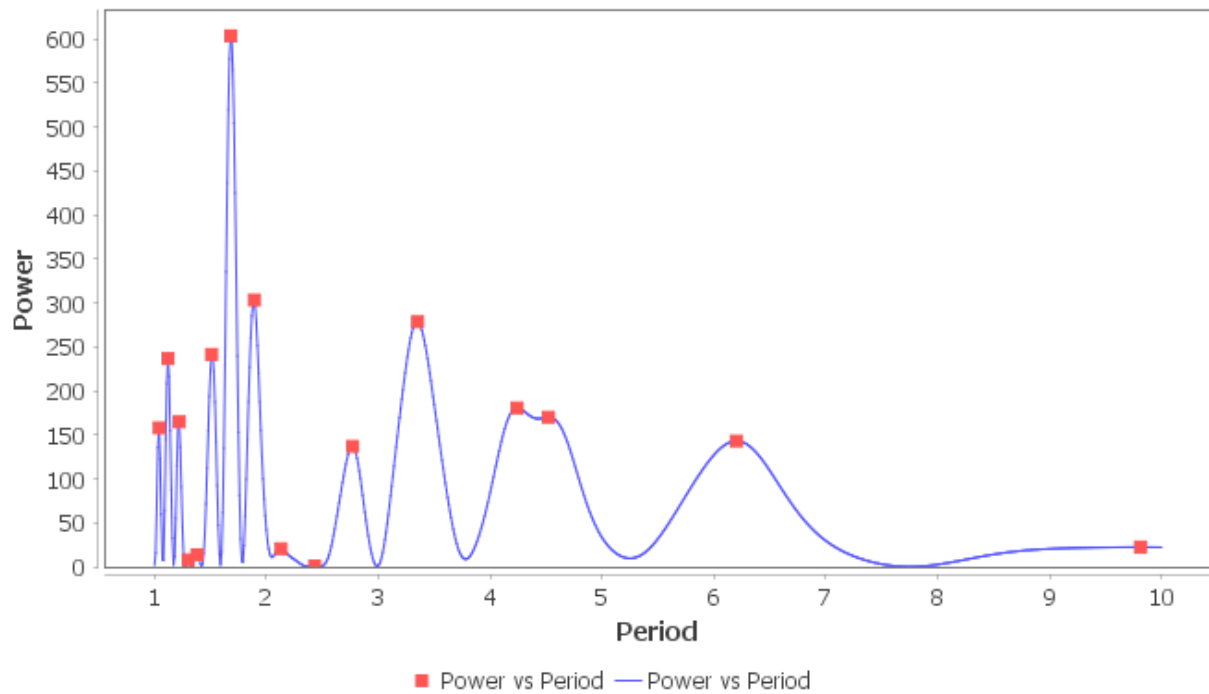
Pulsation Spectrum for CU Cam

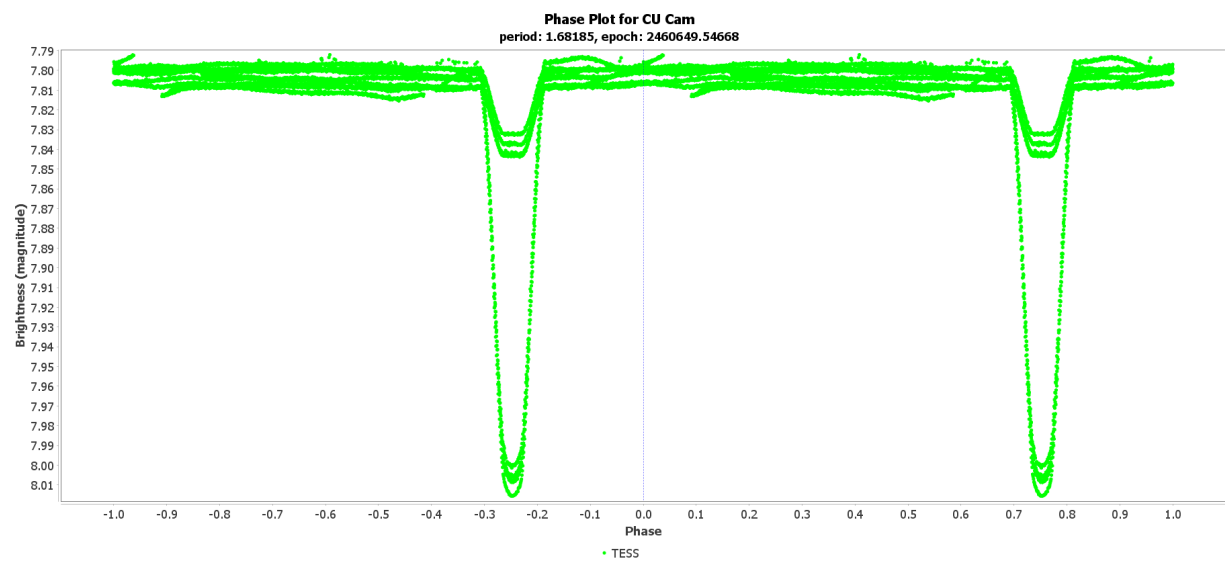
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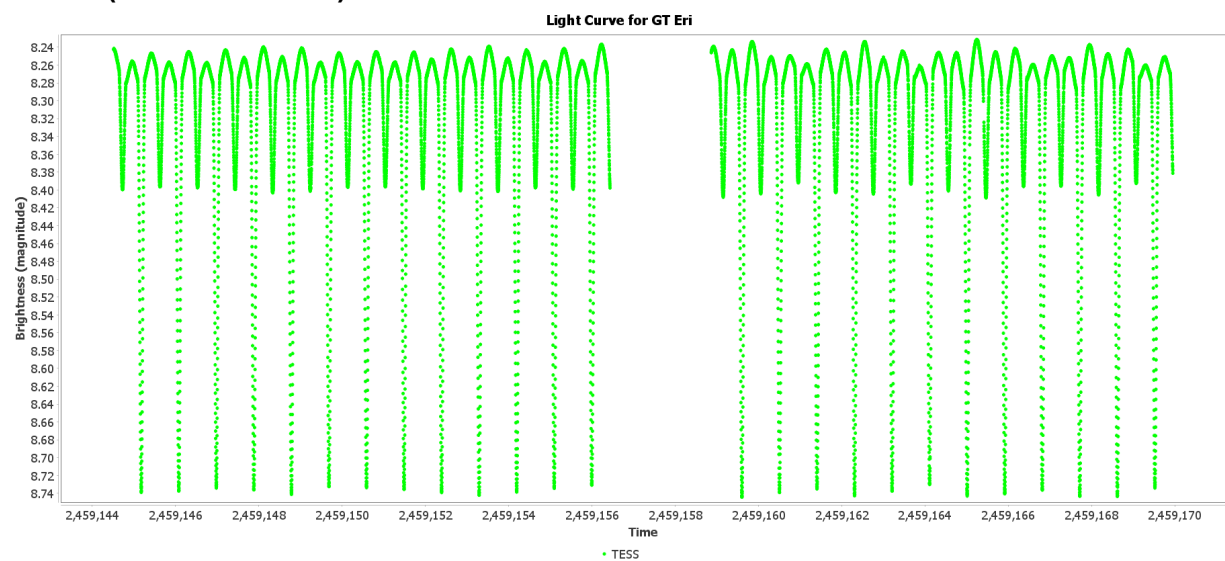
Period Analysis (DC DFT) for CU Cam

(series: TESS)



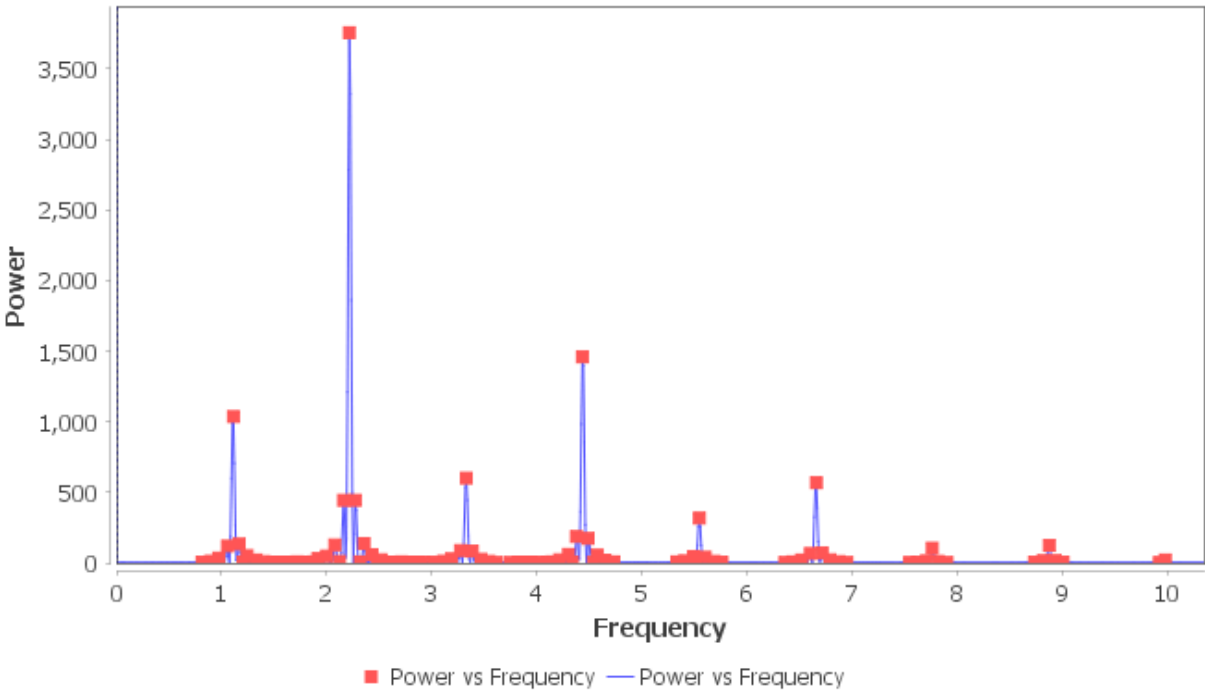


GT Eri (TIC 168674931)



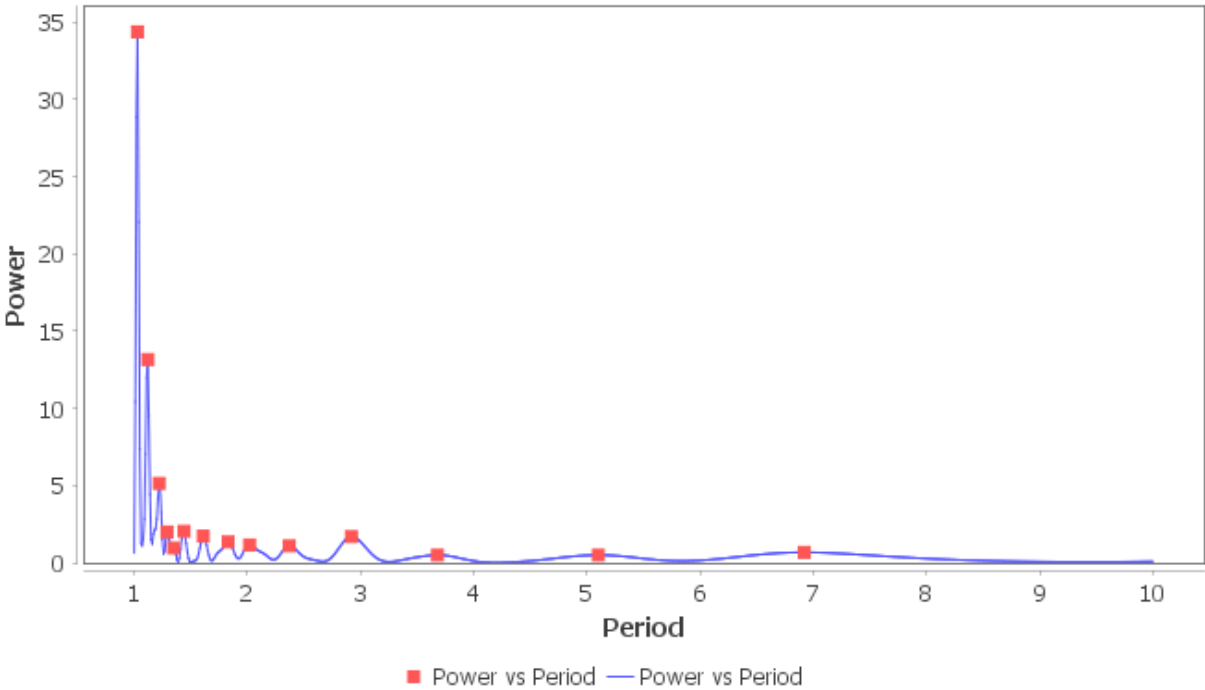
Pulsation Spectrum for GT Eri

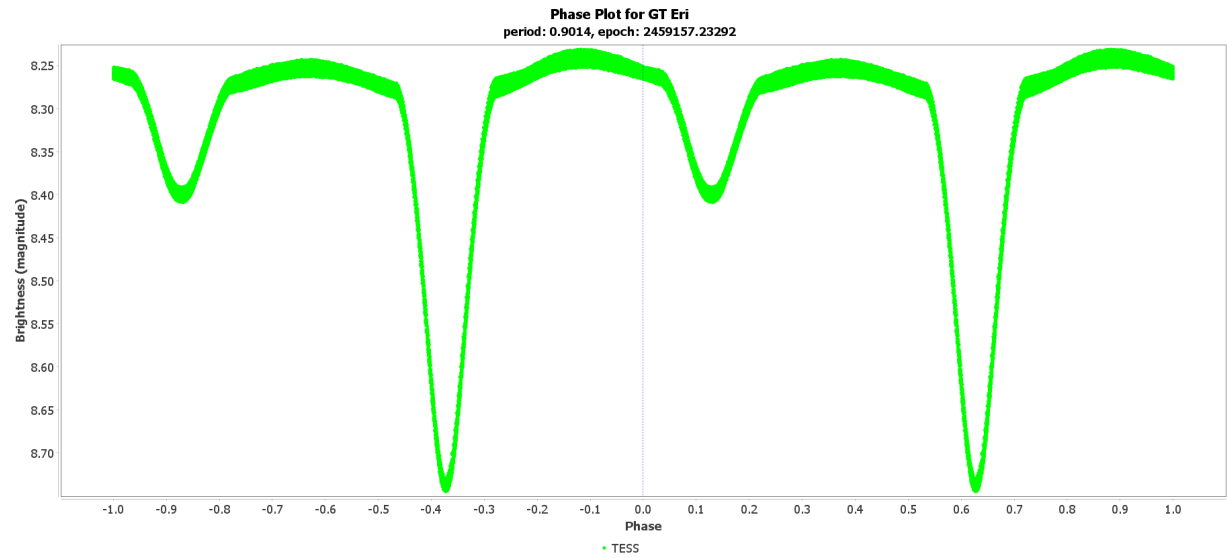
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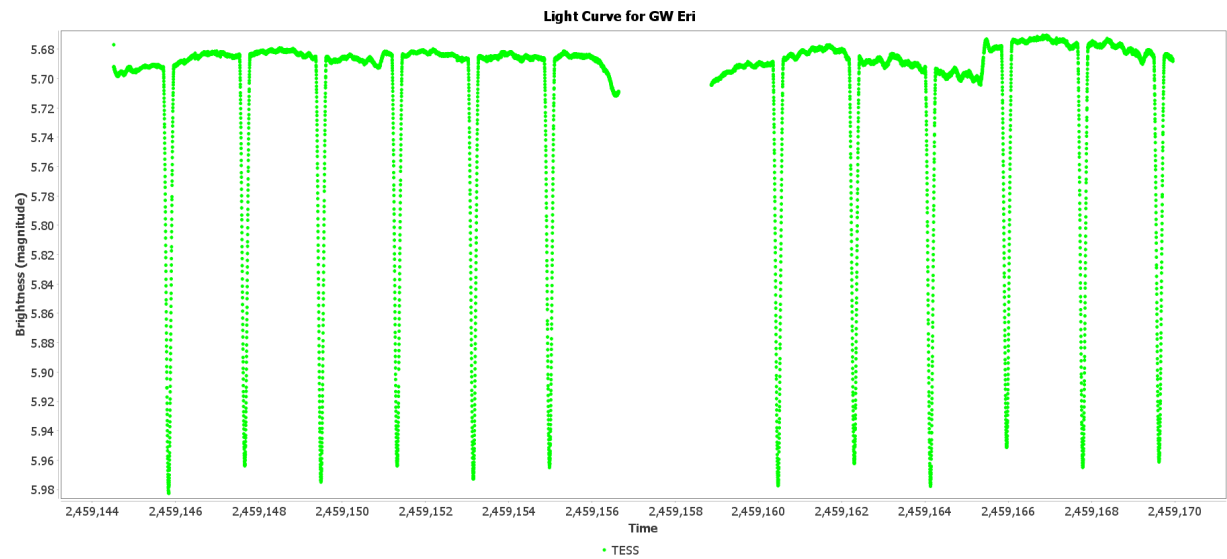
Period Analysis (DC DFT) for GT Eri

(series: TESS)



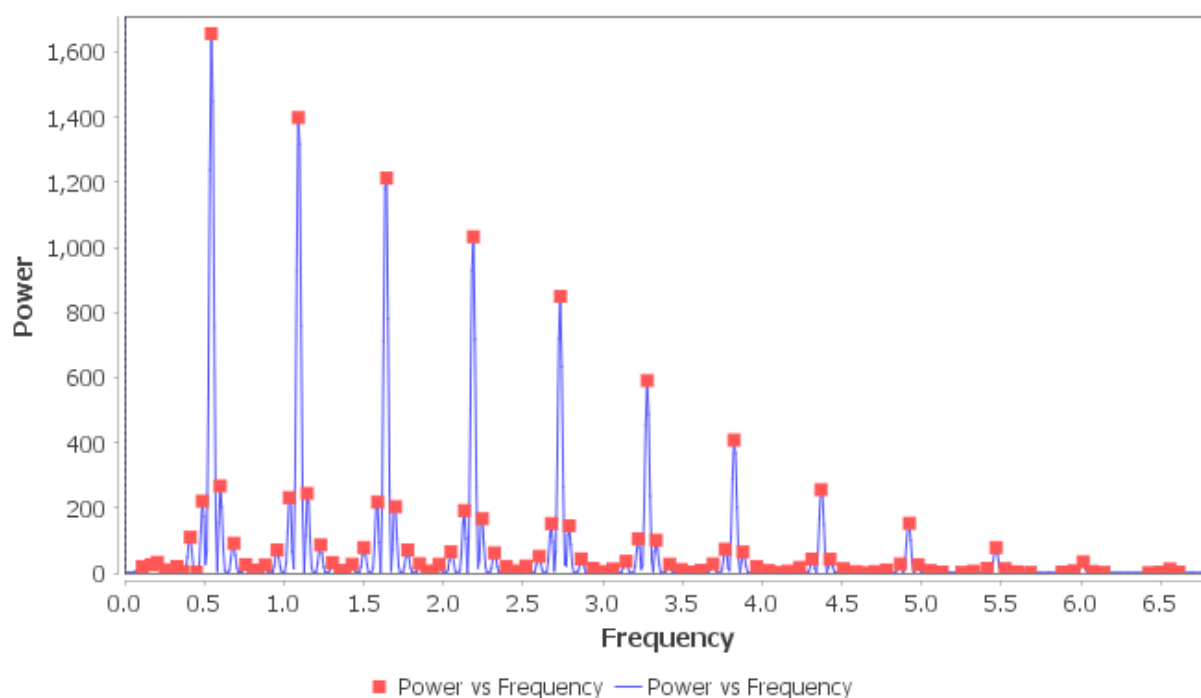


GW Eri (TIC 149861542)



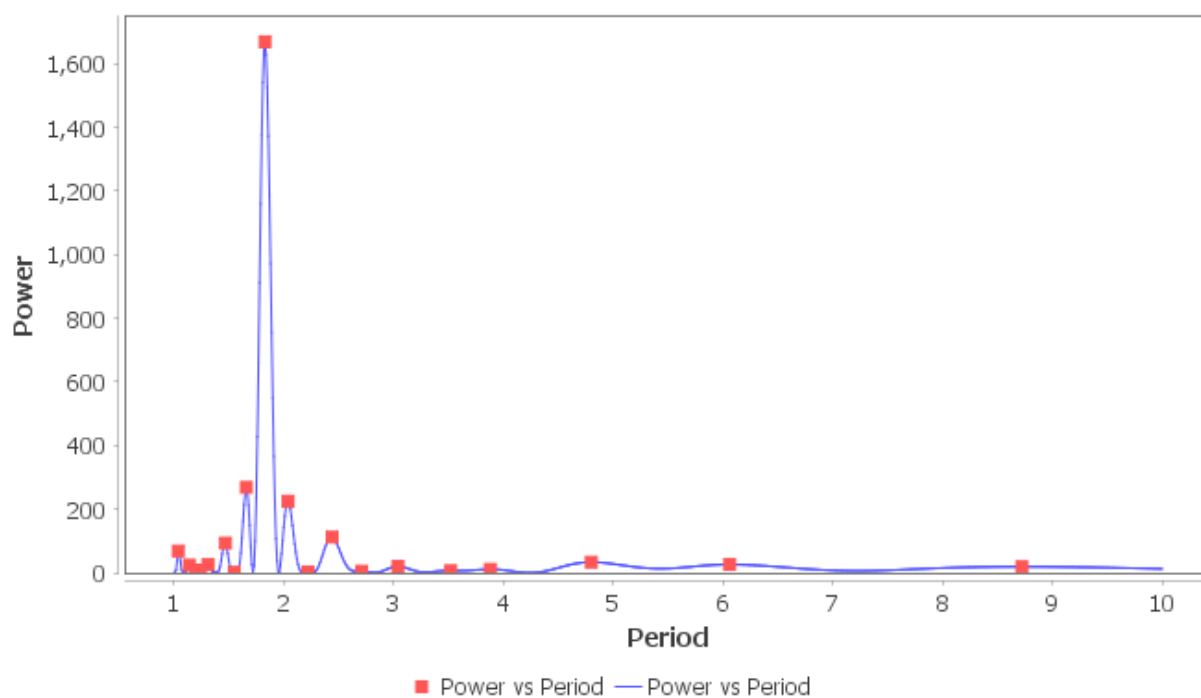
Pulsation Spectrum for GW Eri

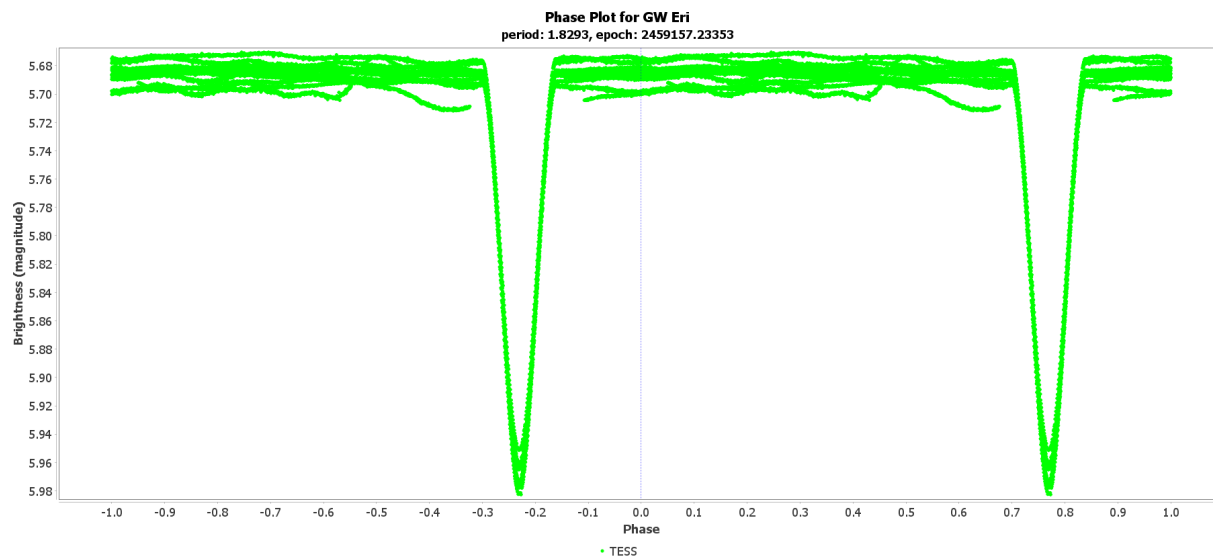
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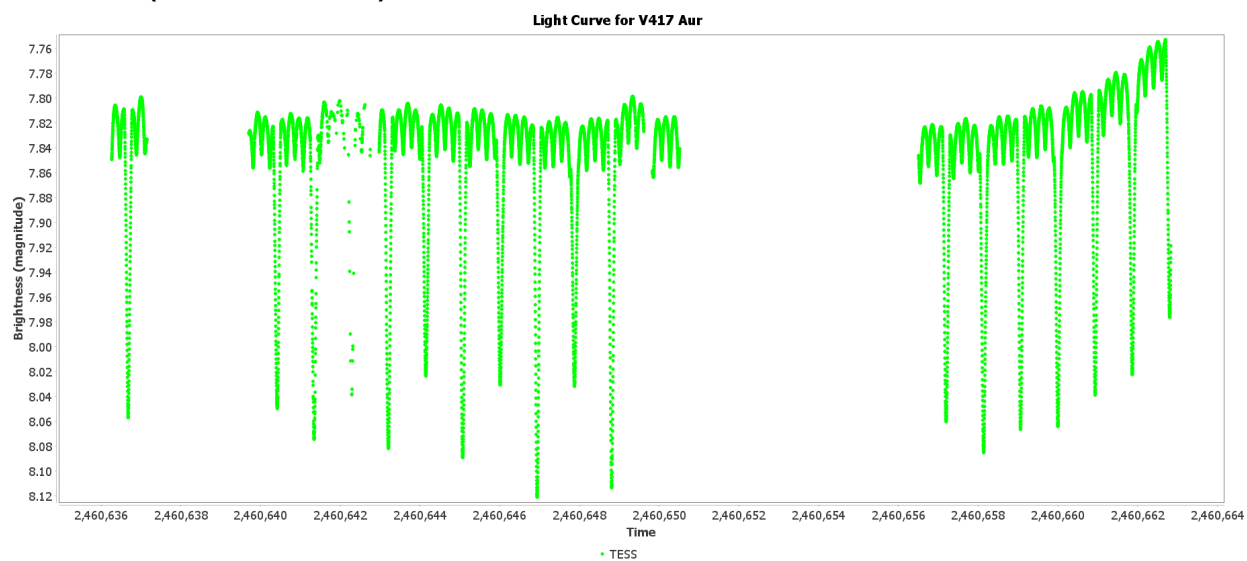
Period Analysis (DC DFT) for GW Eri

(series: TESS)



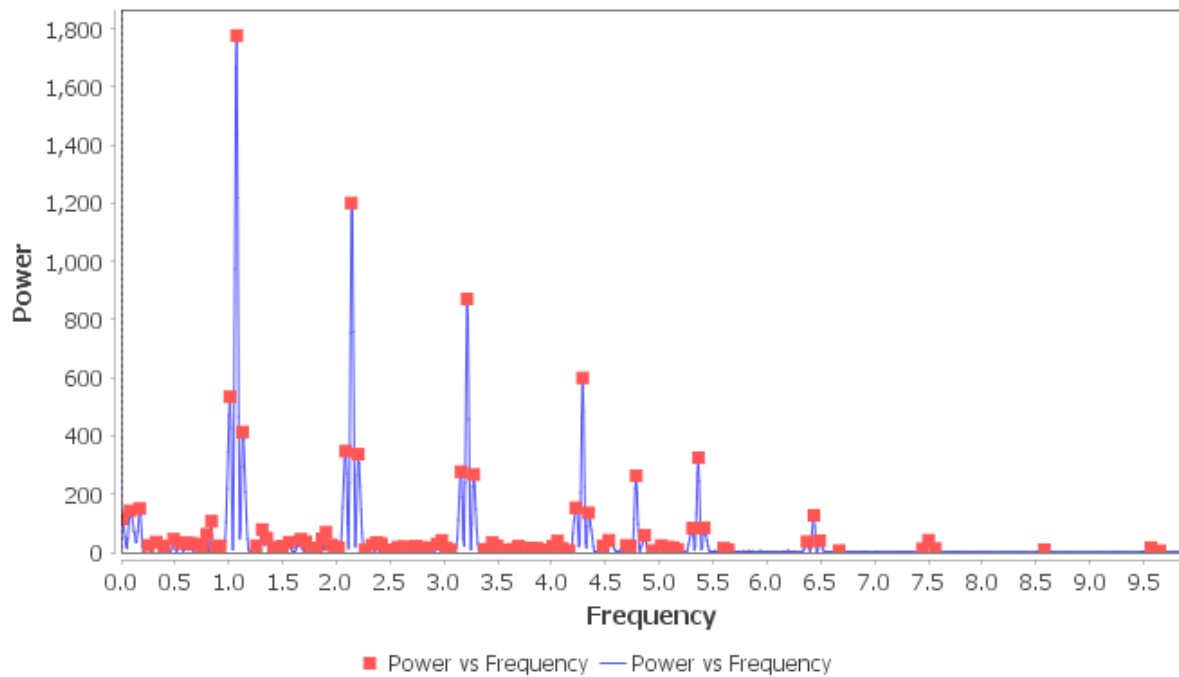


V417 Aur (TIC 367448265)



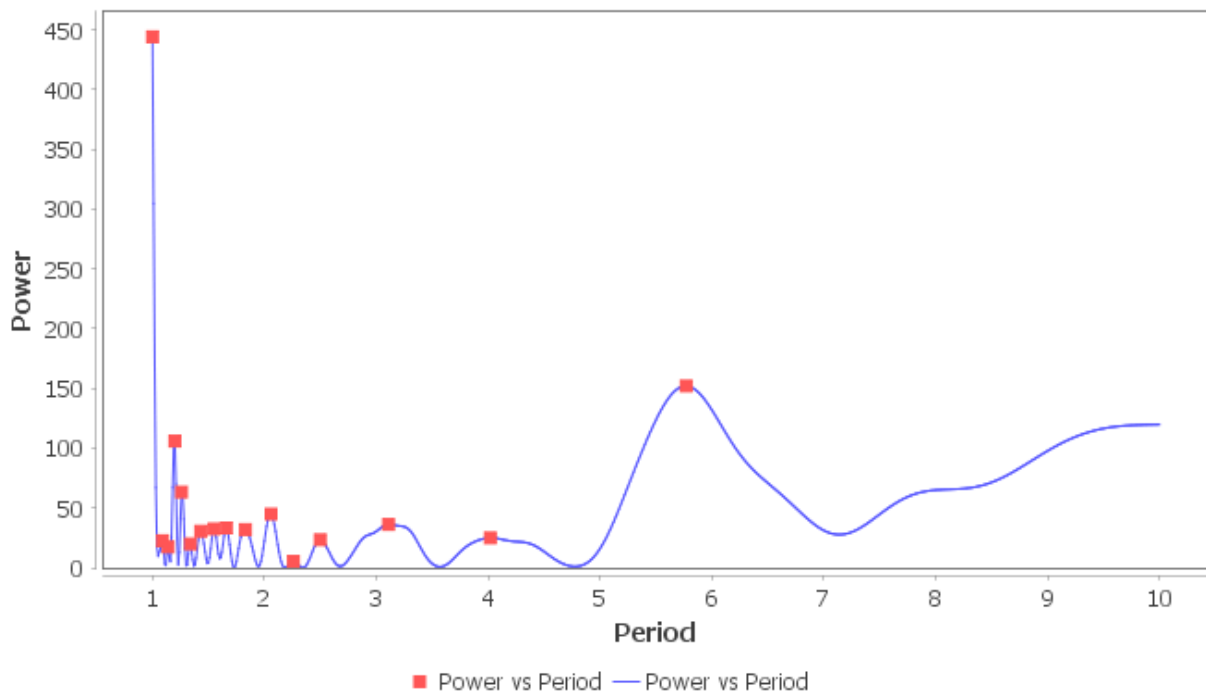
Pulsation Spectrum for V417 Aur

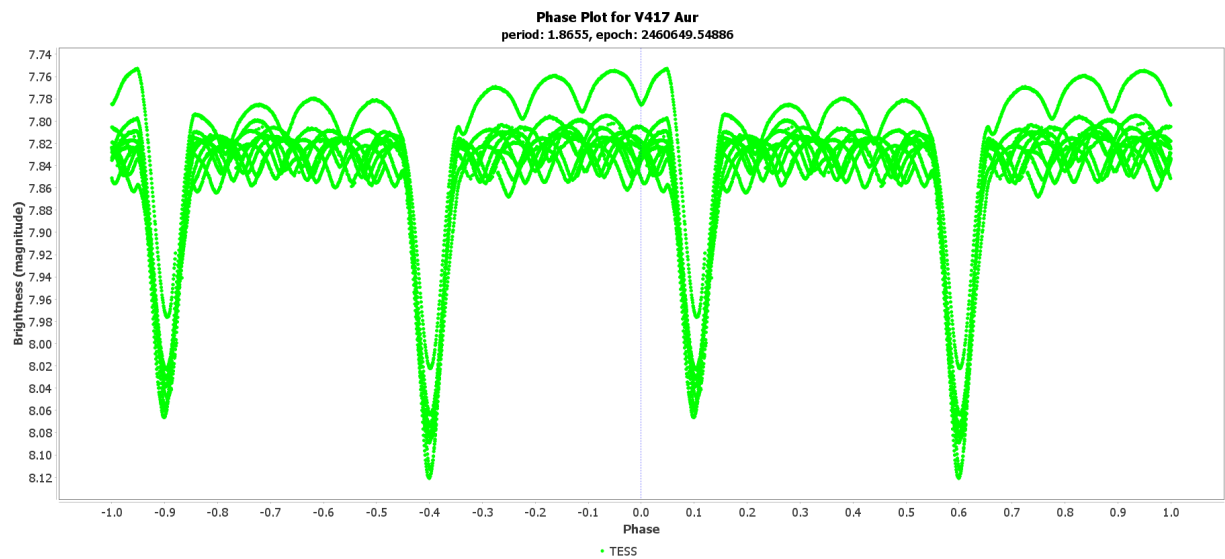
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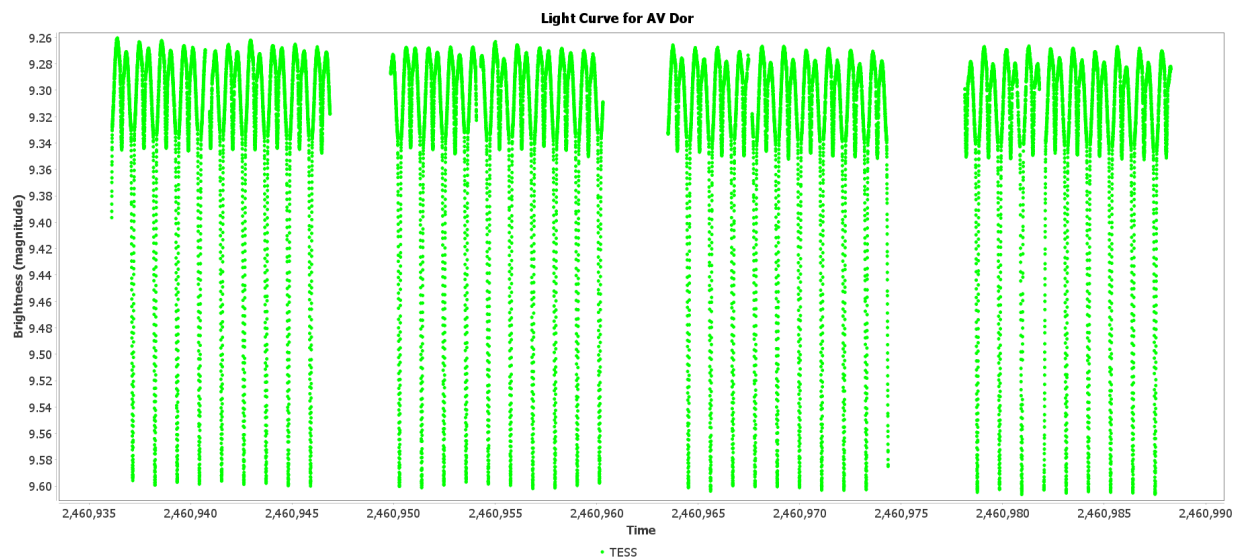
Period Analysis (DC DFT) for V417 Aur

(series: TESS)



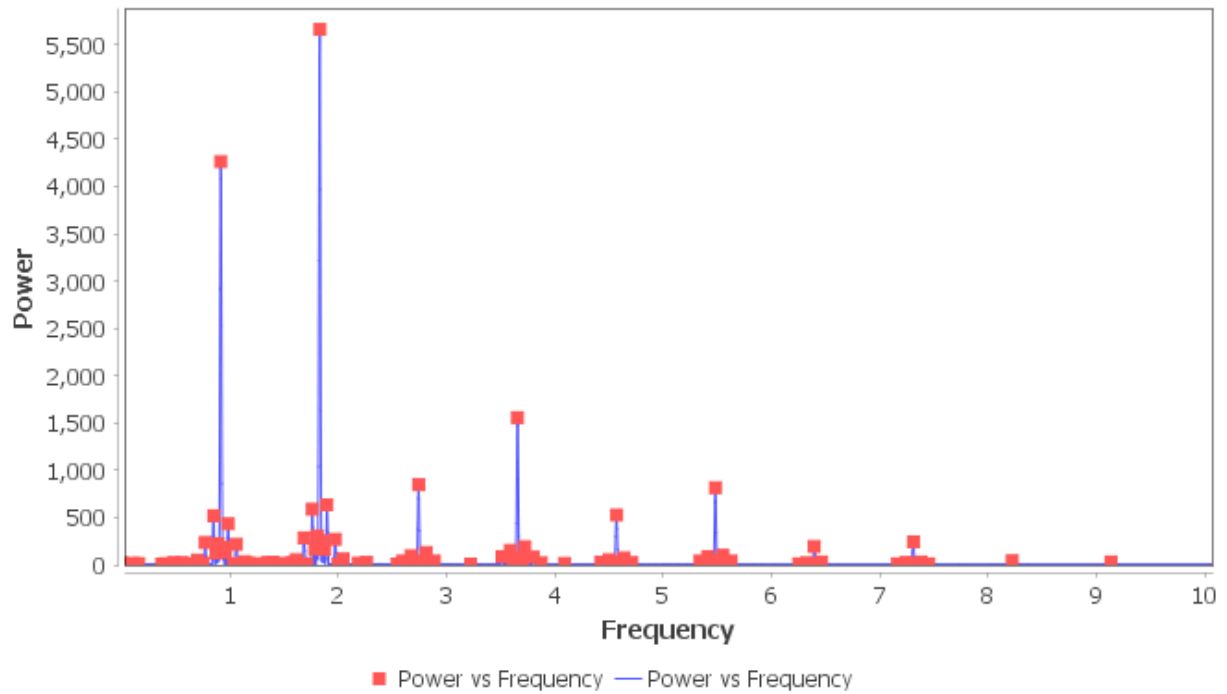


AV Dor (TIC 149473467)



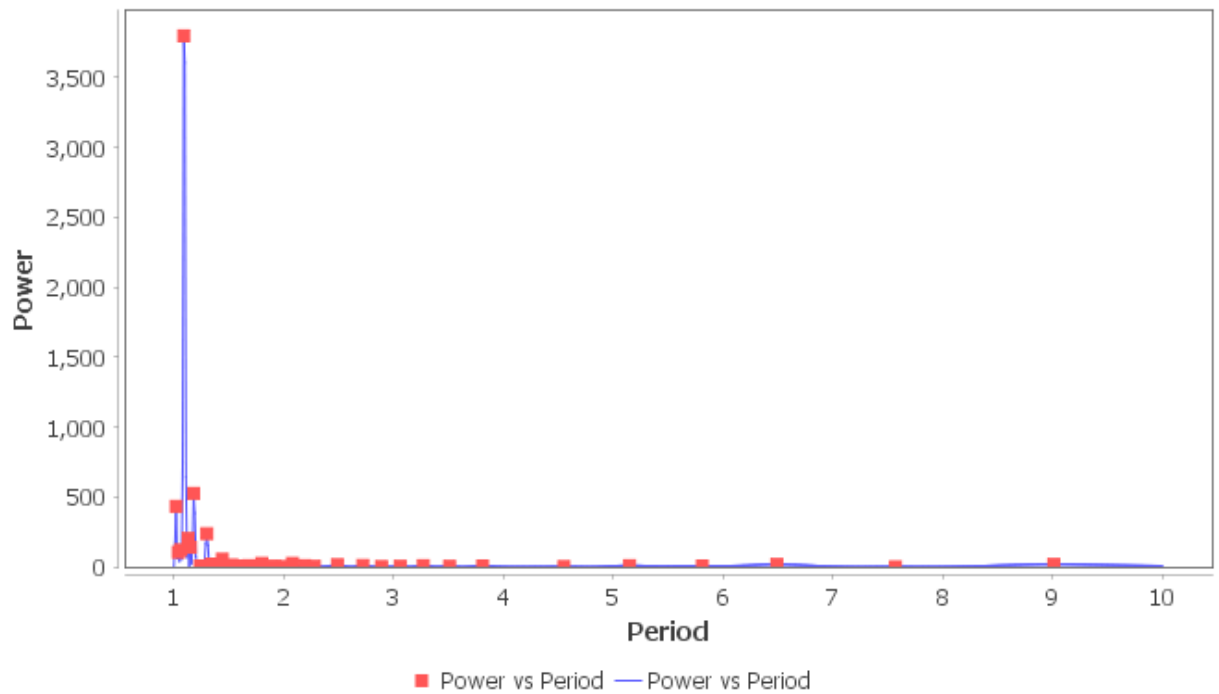
Pulsation Spectrum for AV Dor

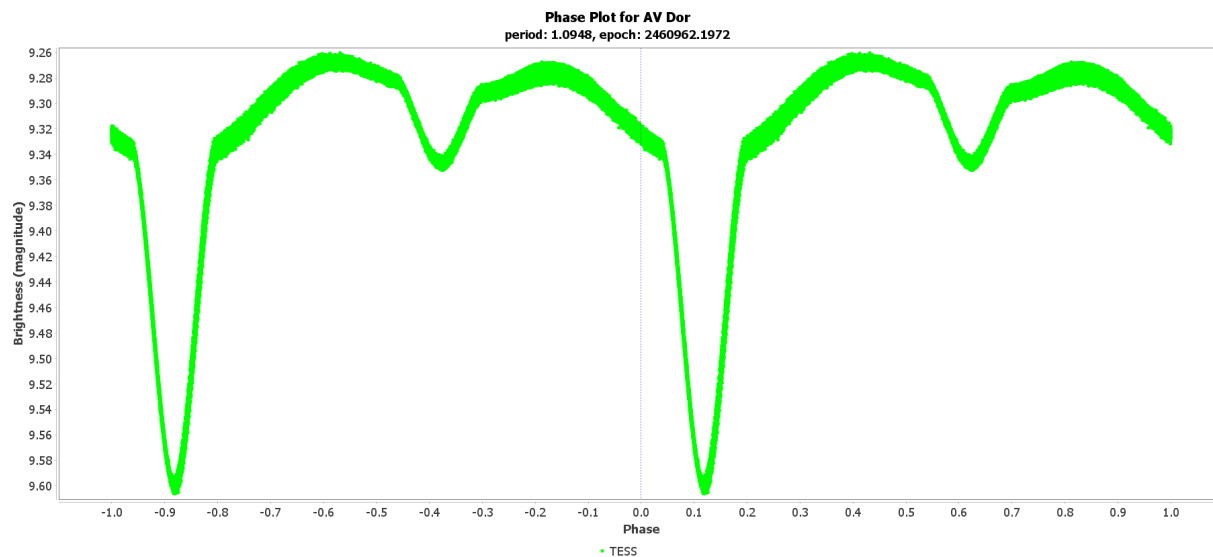
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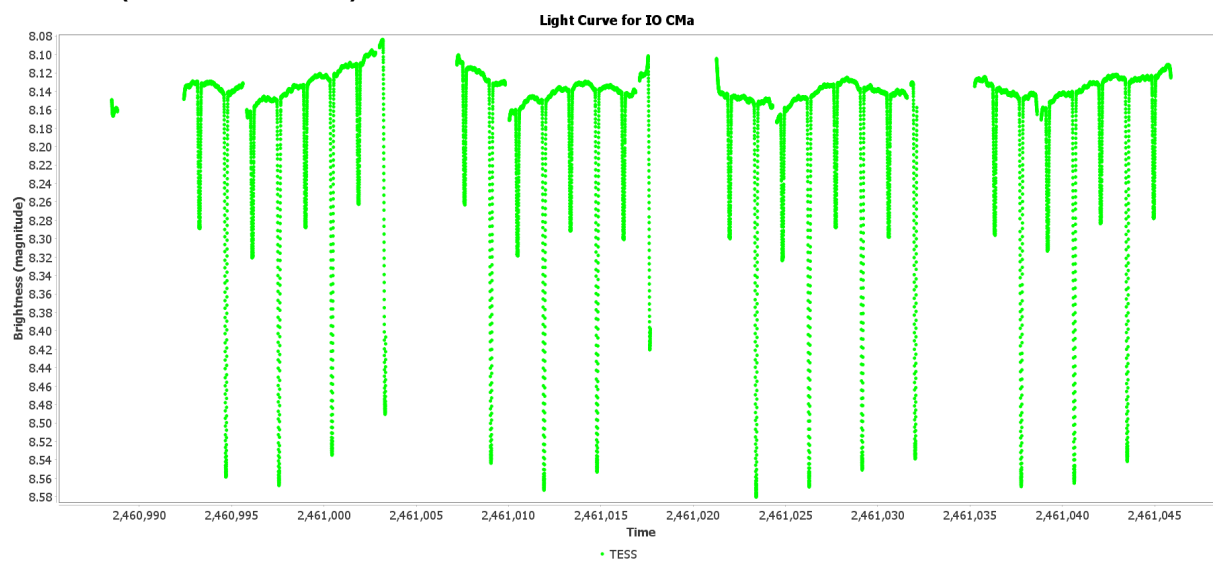
Period Analysis (DC DFT) for AV Dor

(series: TESS)



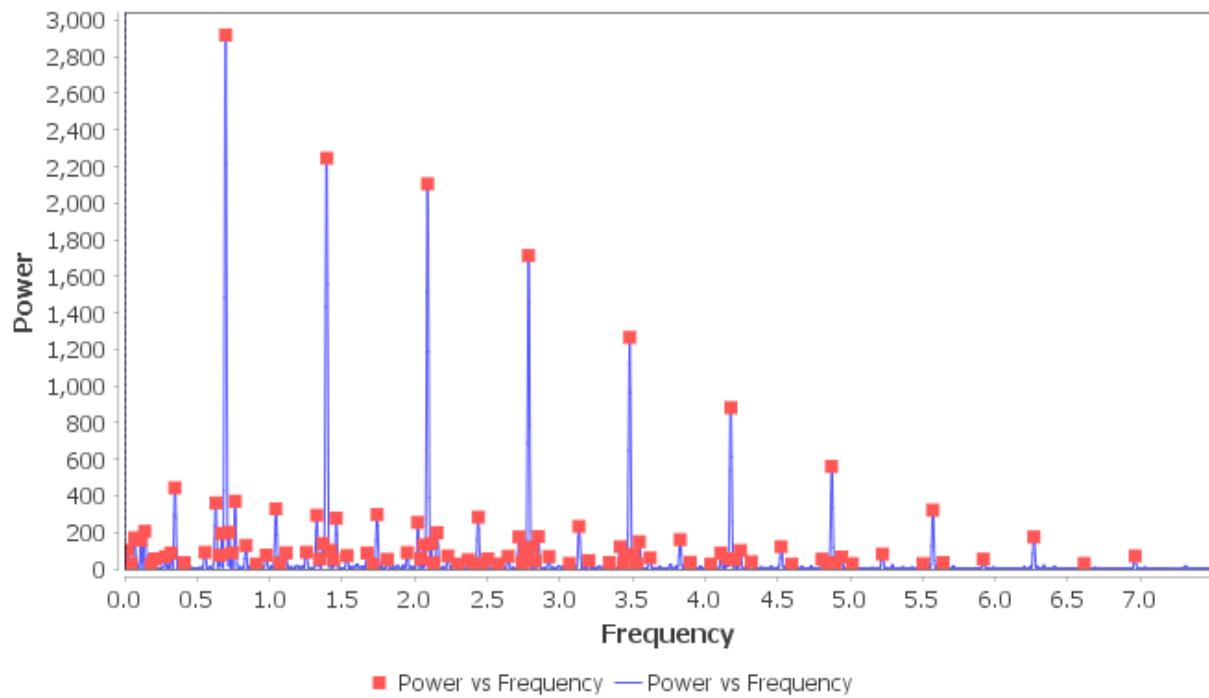


IO CMa (TIC 201497357)



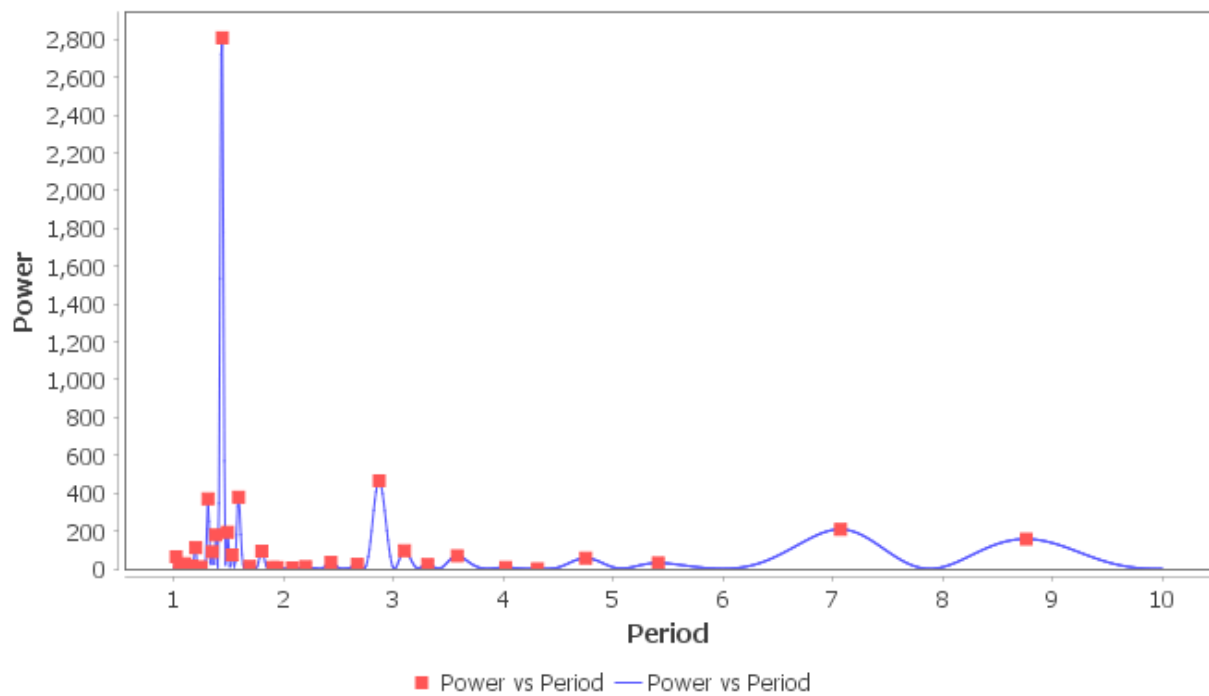
Pulsation Spectrum for IO CMa

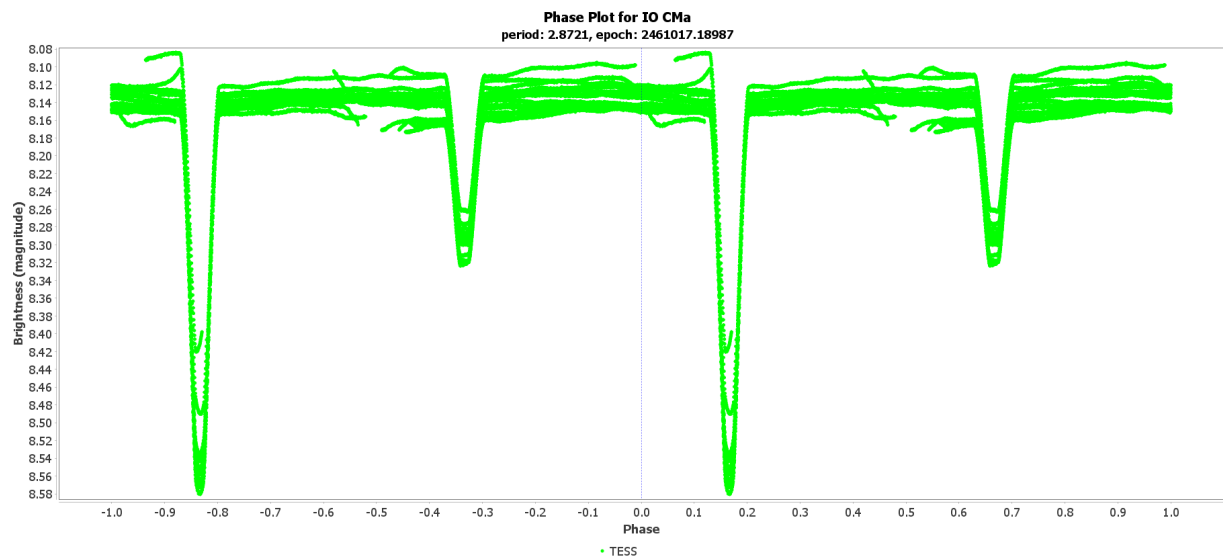
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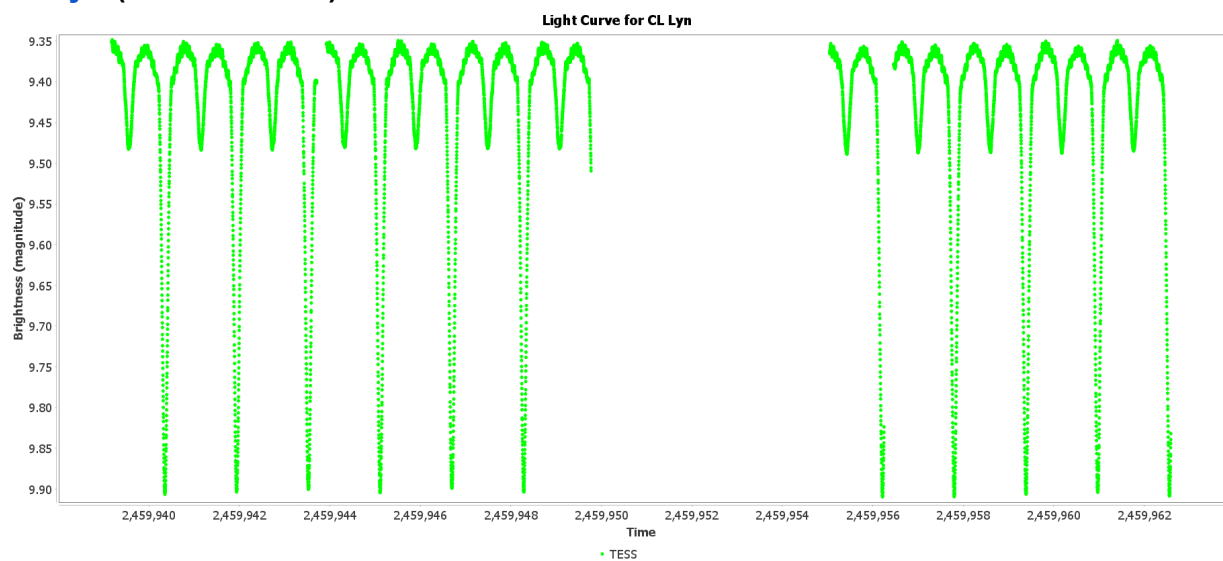
Period Analysis (DC DFT) for IO CMa

(series: TESS)



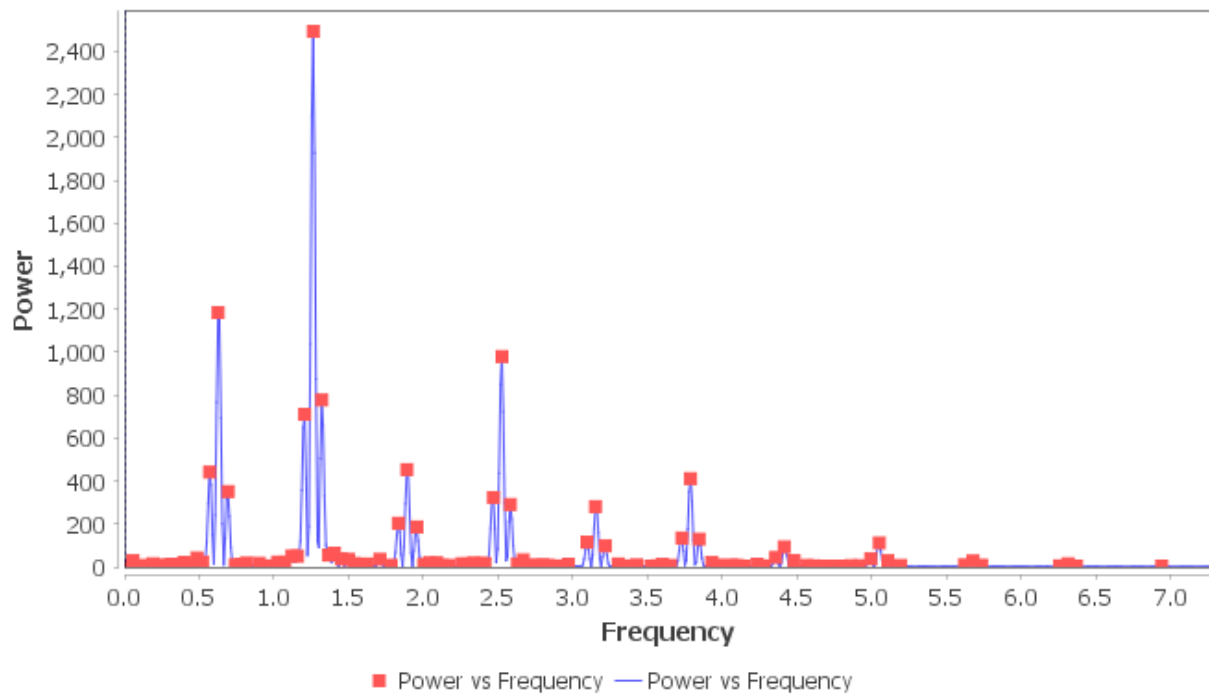


CL Lyn (TIC 53423741)



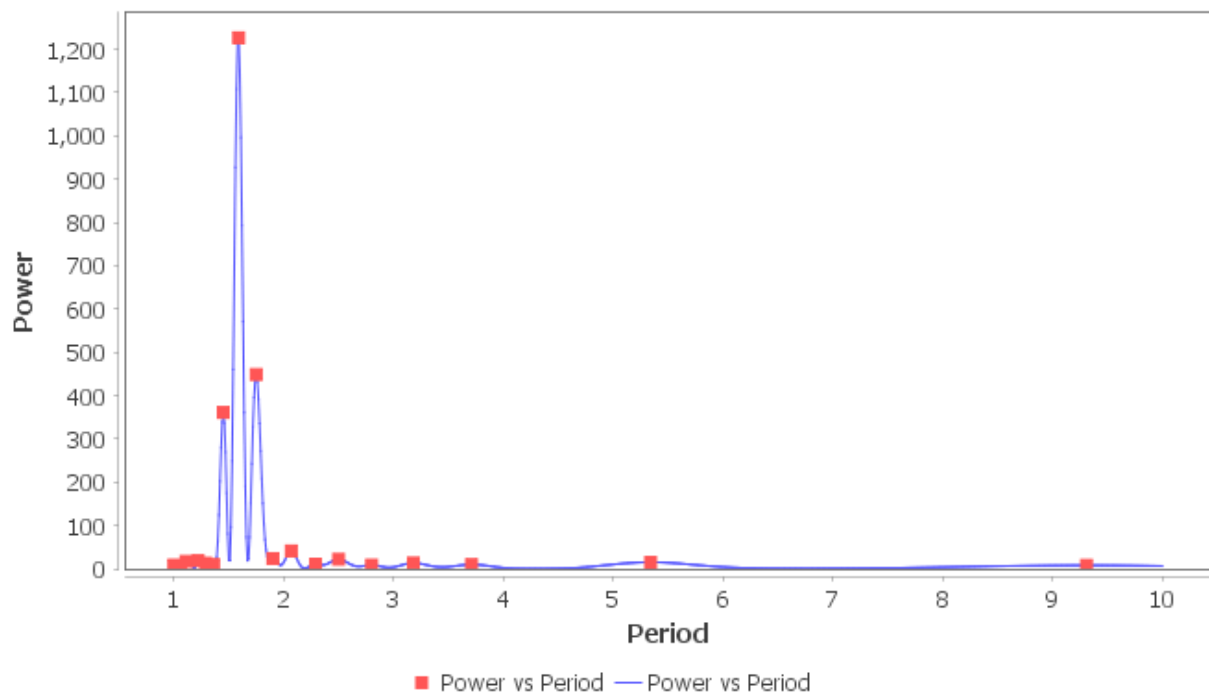
Pulsation Spectrum for CL Lyn

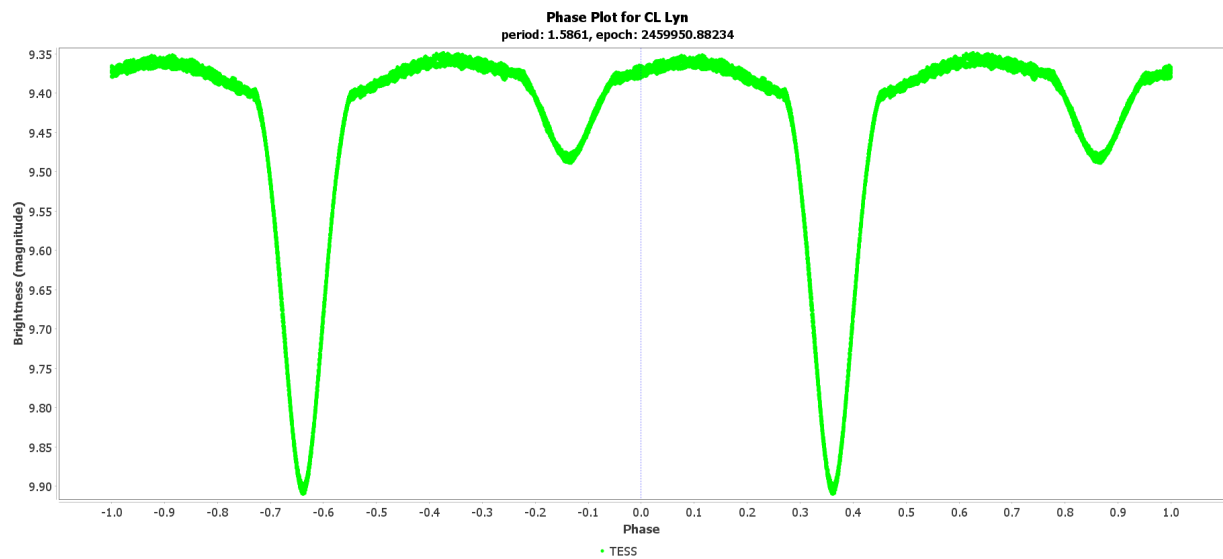
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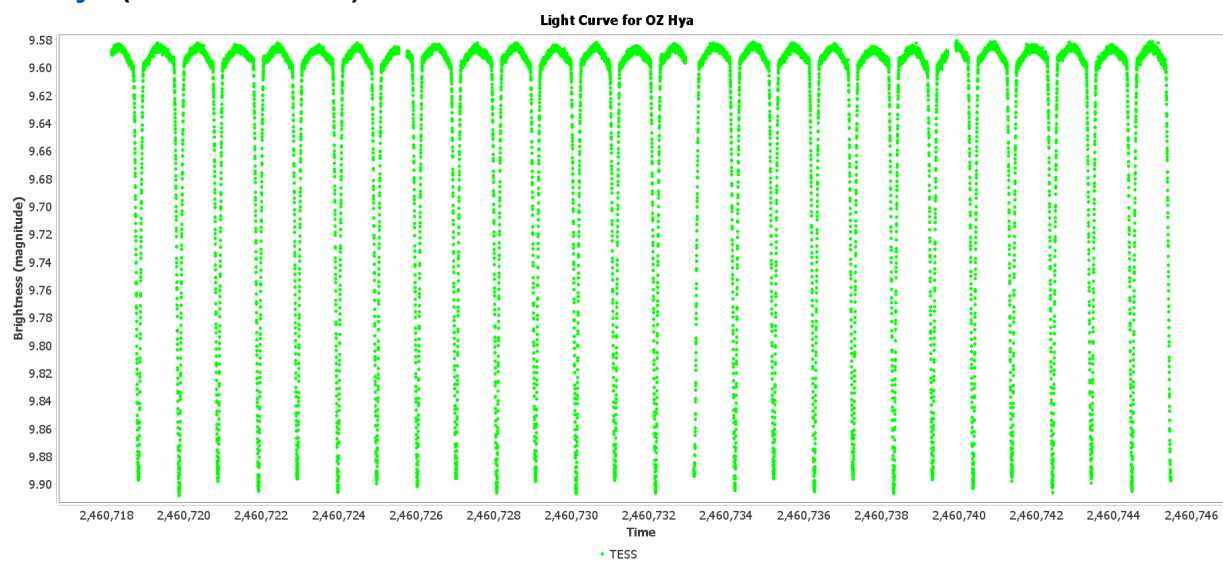
Period Analysis (DC DFT) for CL Lyn

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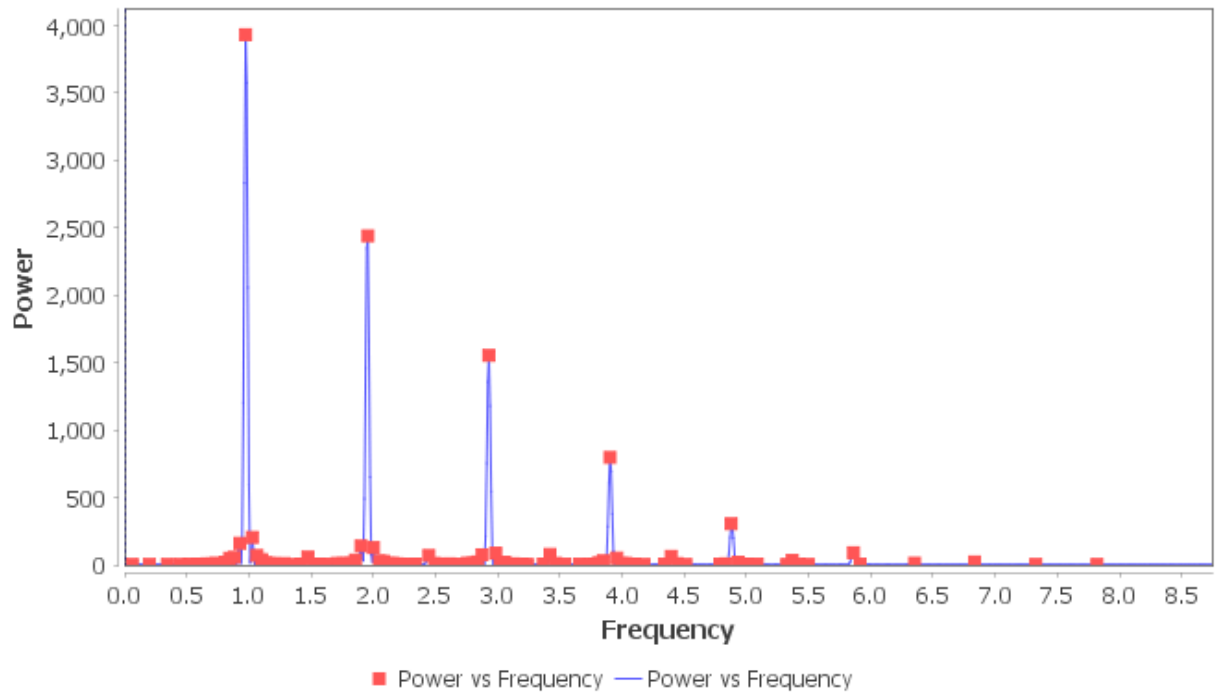


OZ Hya (TIC 410359381)



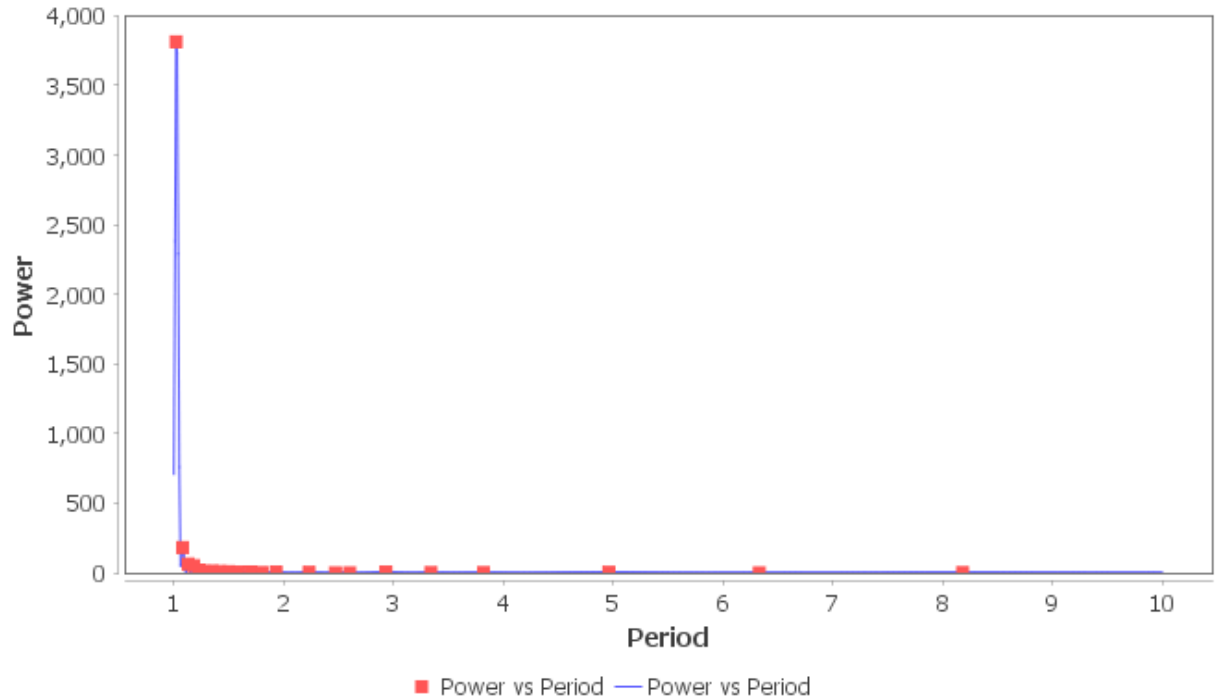
Pulsation Spectrum for OZ Hya

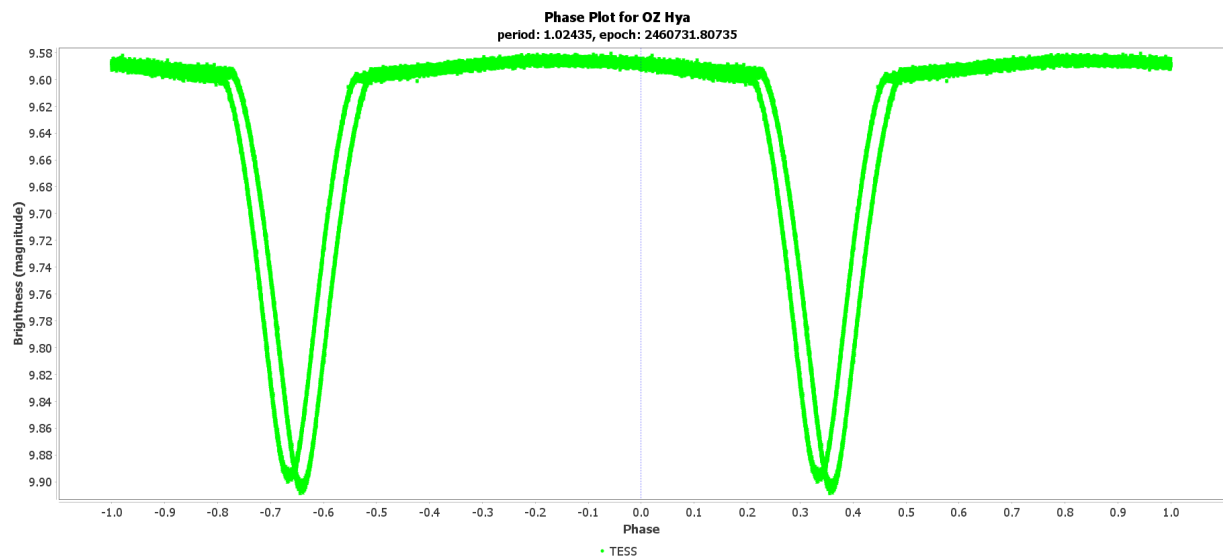
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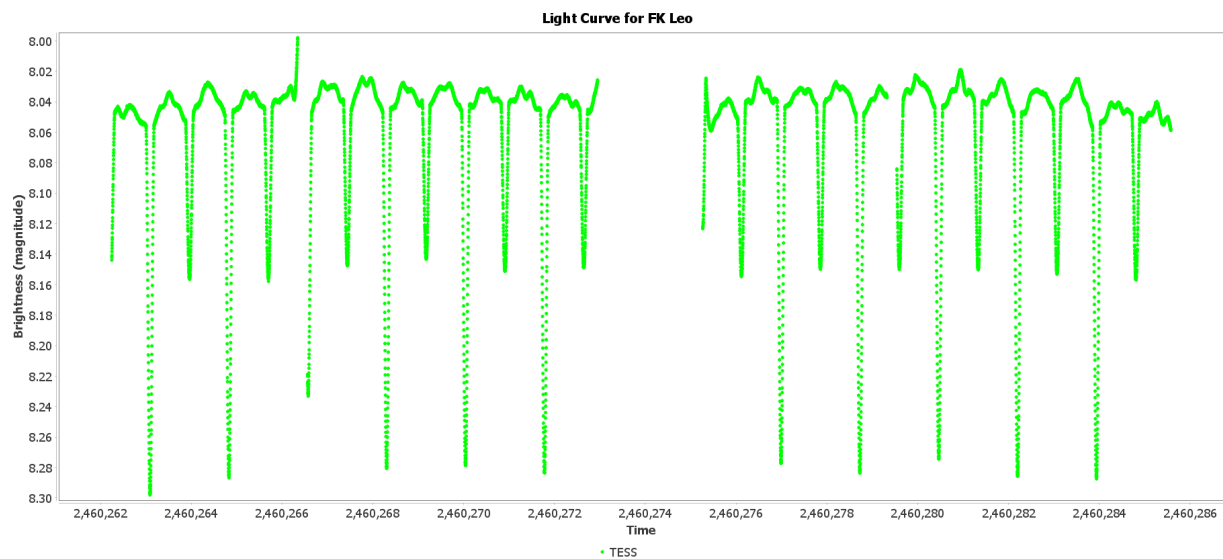
Period Analysis (DC DFT) for OZ Hya

(series: TESS)



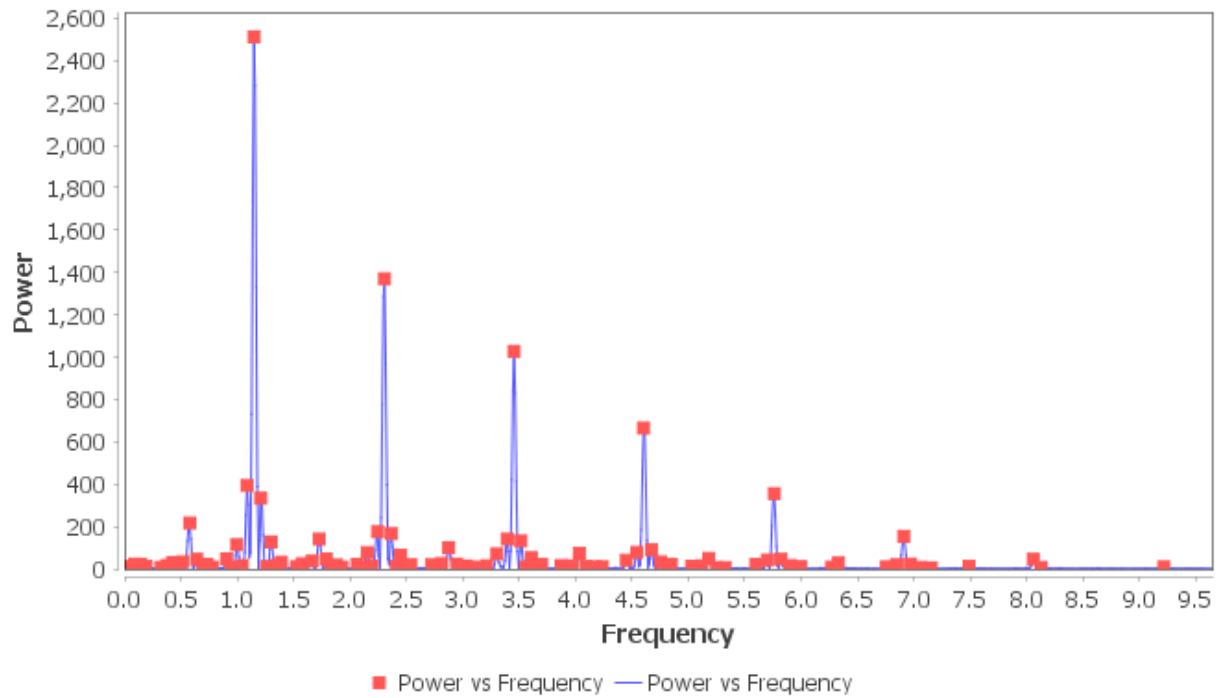


FK Leo (TIC 77139245)



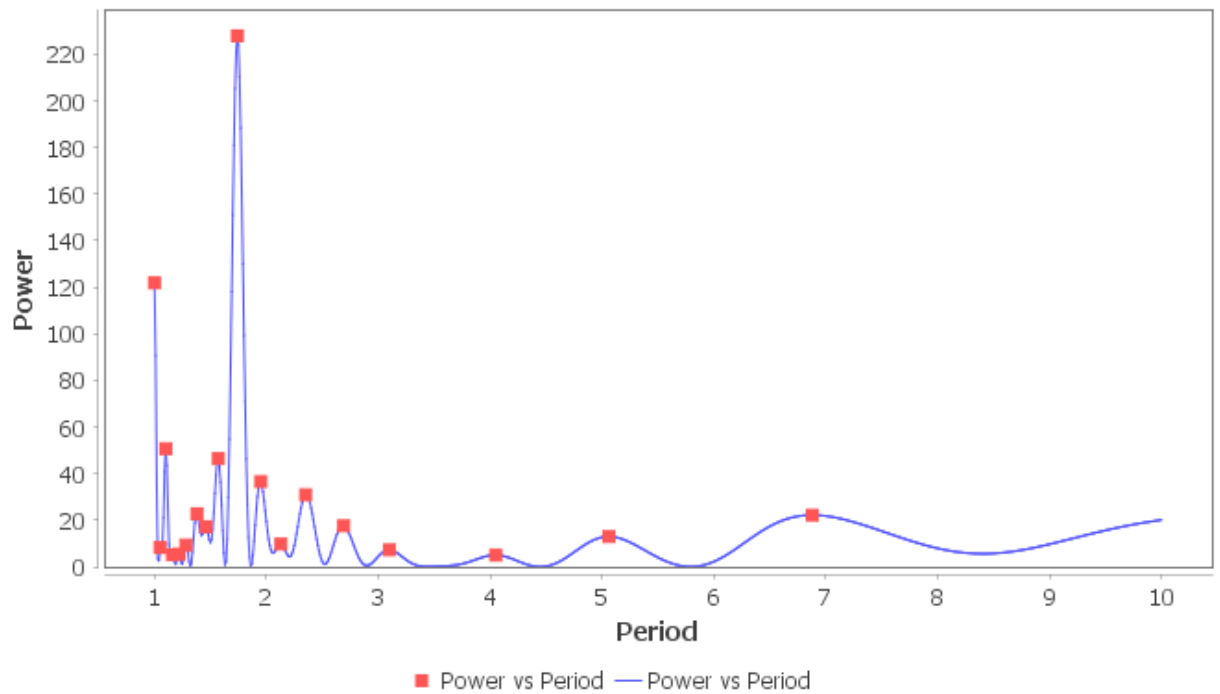
Pulsation Spectrum for FK Leo

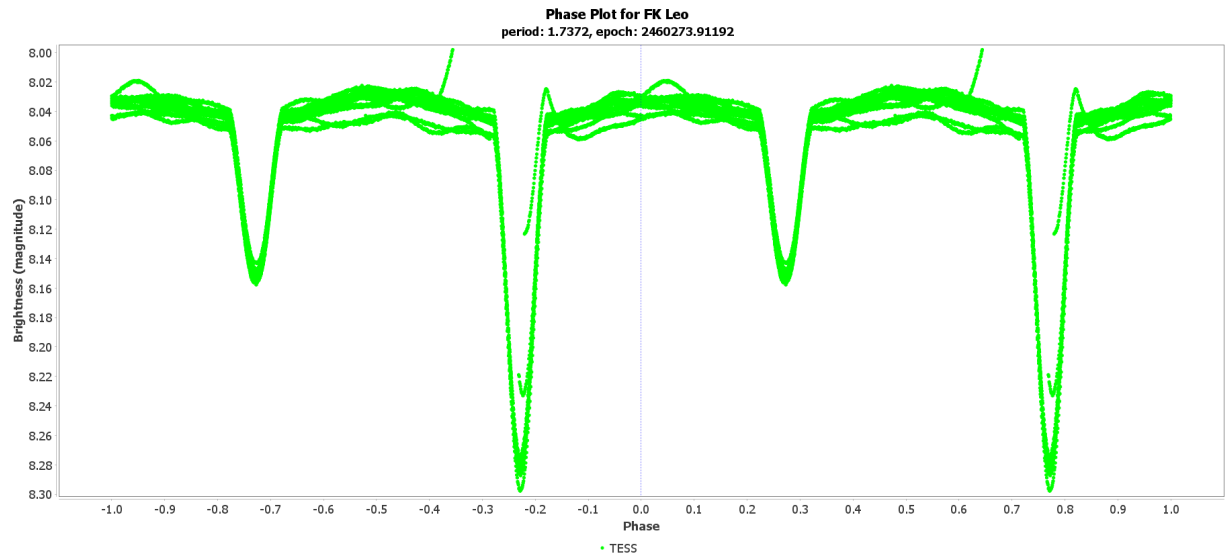
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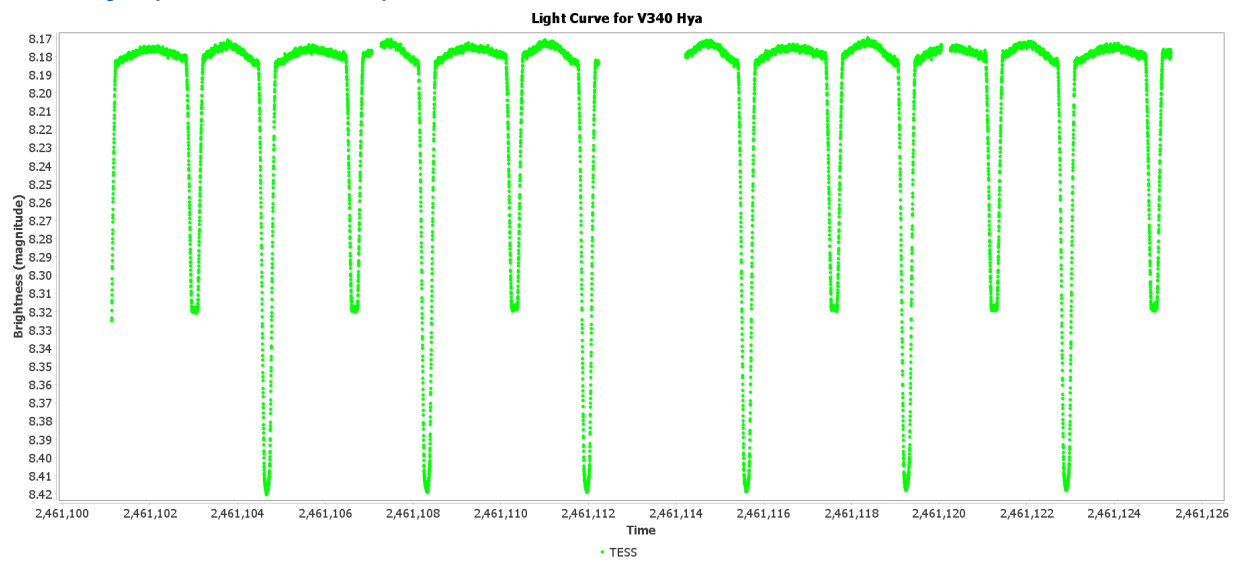
Period Analysis (DC DFT) for FK Leo

(series: TESS)



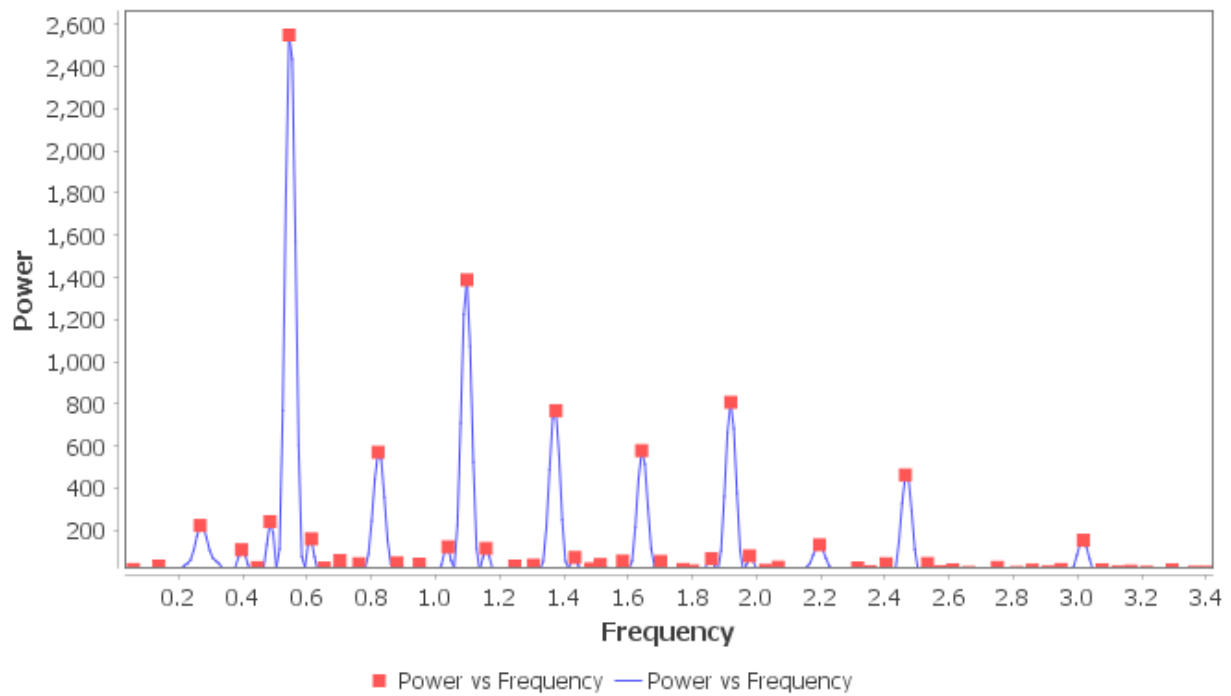


V340 Hya (TIC 390554357)



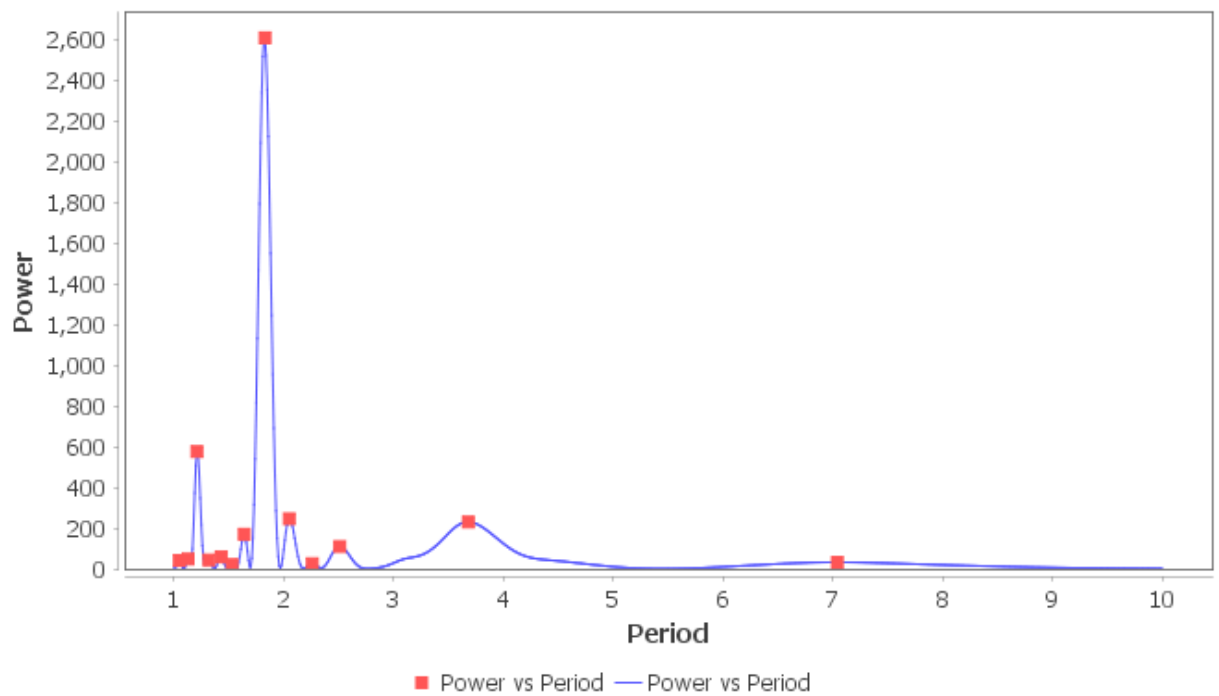
Pulsation Spectrum for V340 Hya

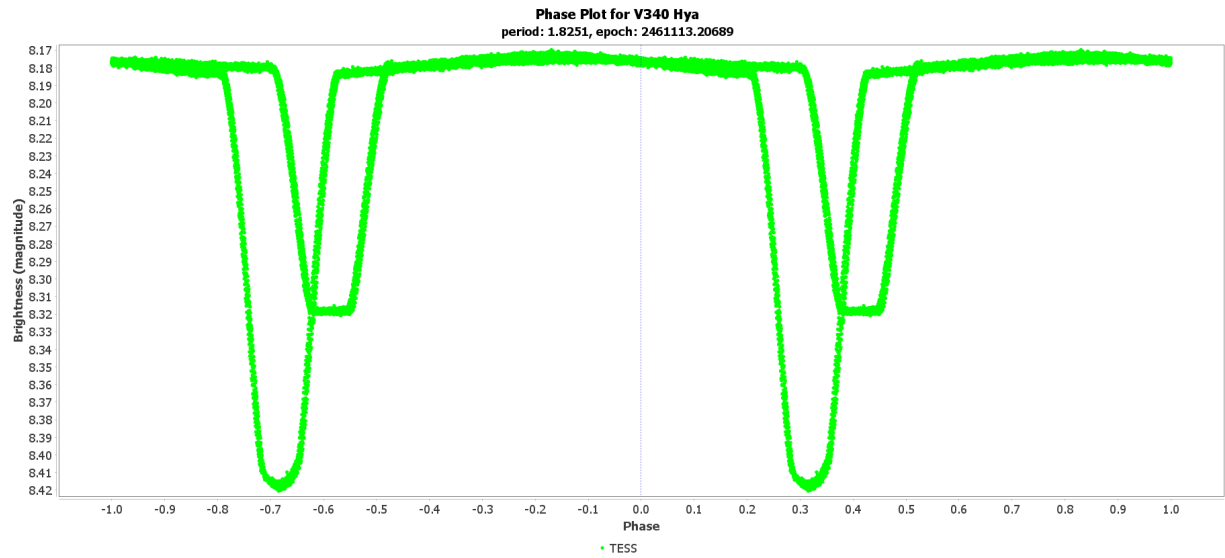
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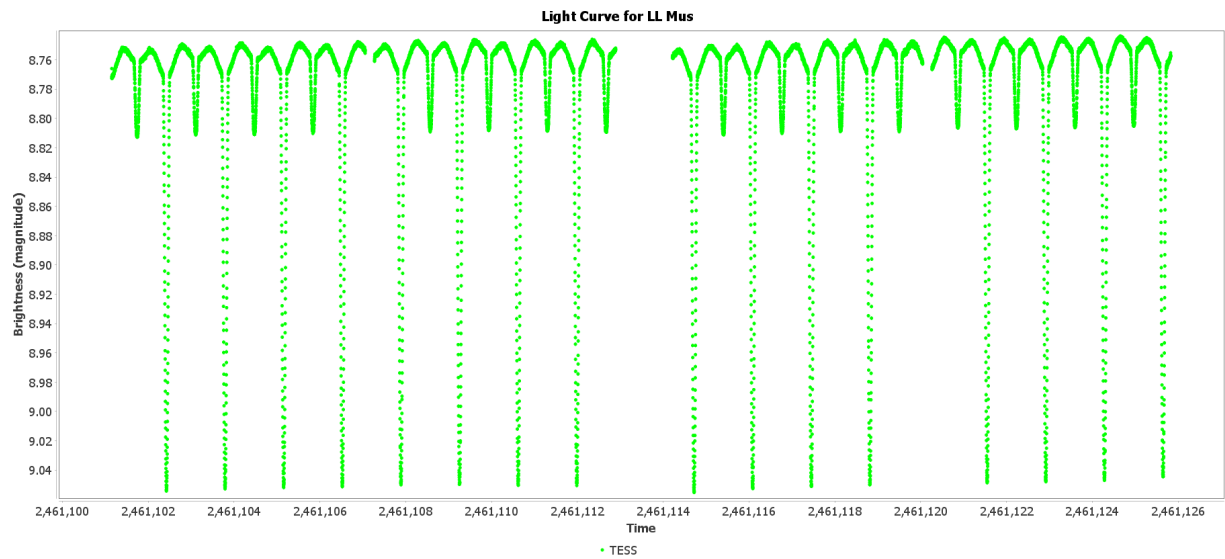
Period Analysis (DC DFT) for V340 Hya

(series: TESS)



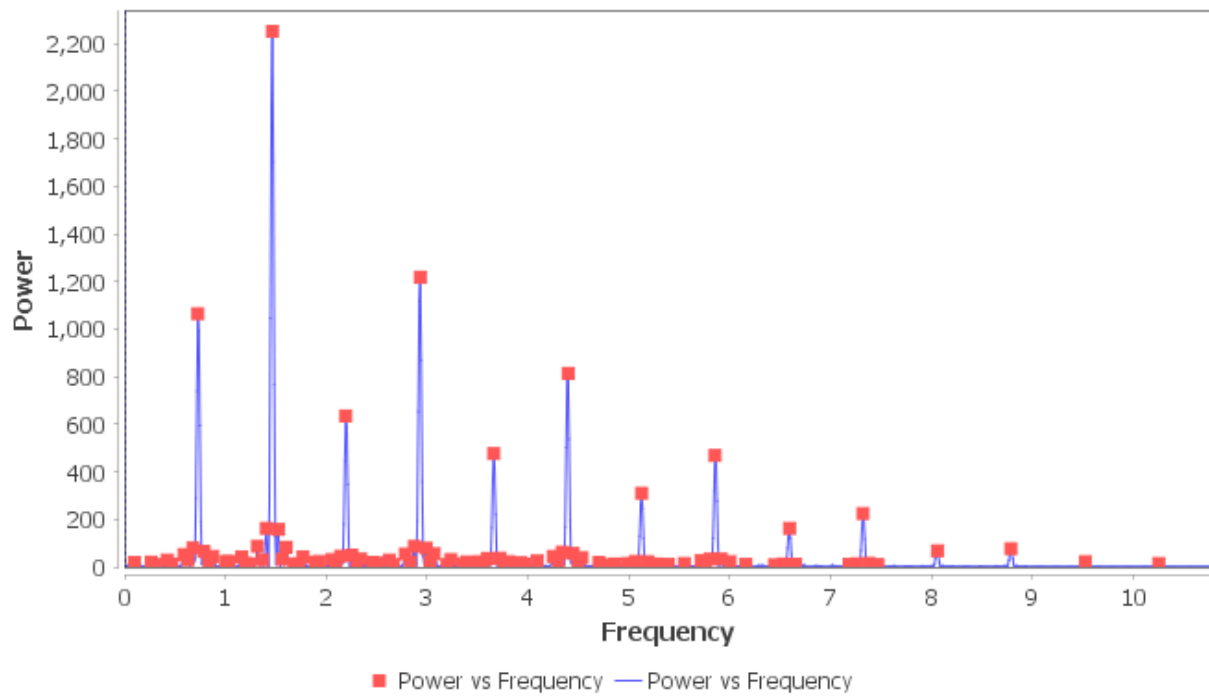


LL Mus (TIC 328241331)



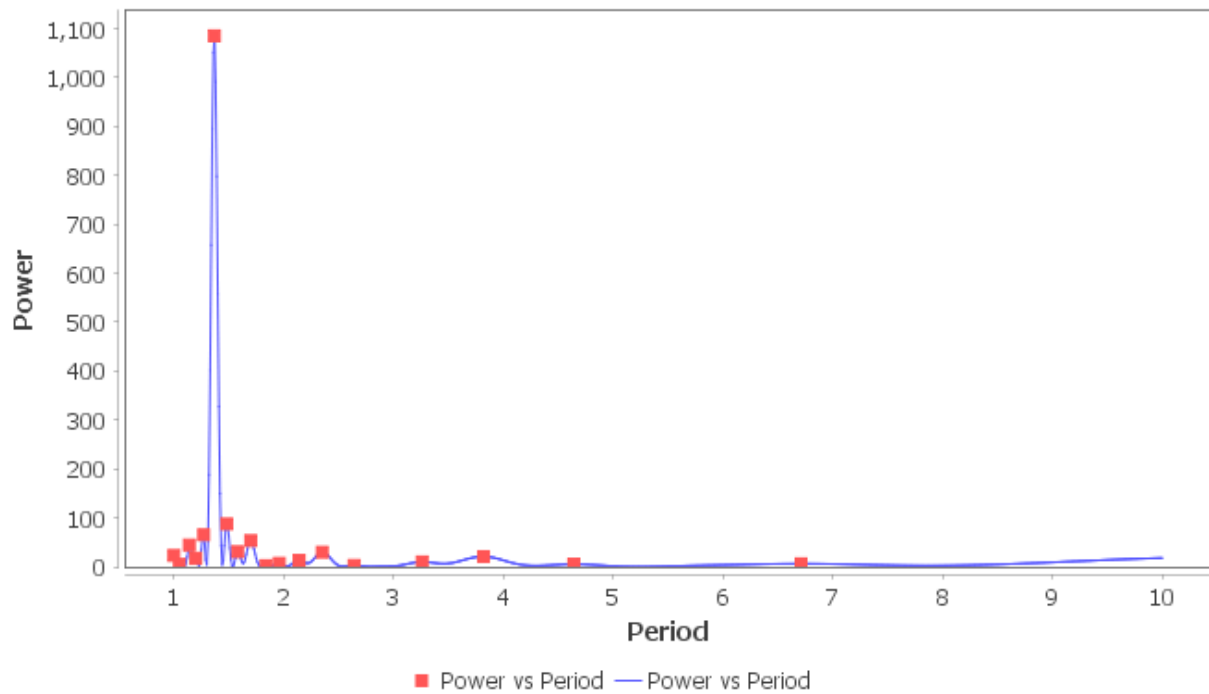
Pulsation Spectrum for LL Mus

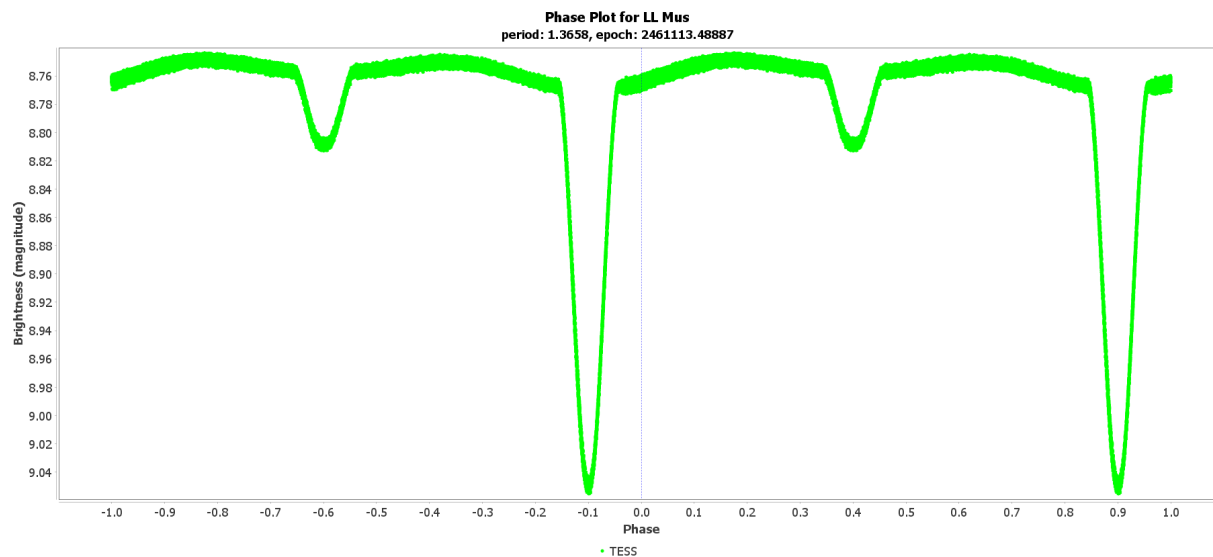
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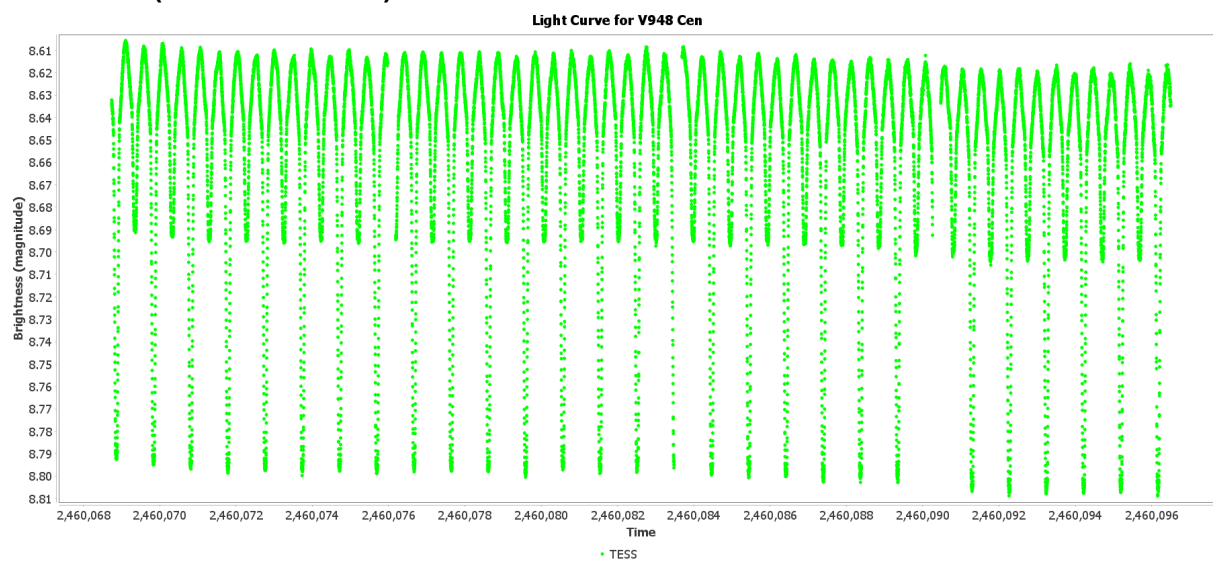
Period Analysis (DC DFT) for LL Mus

(series: TESS)



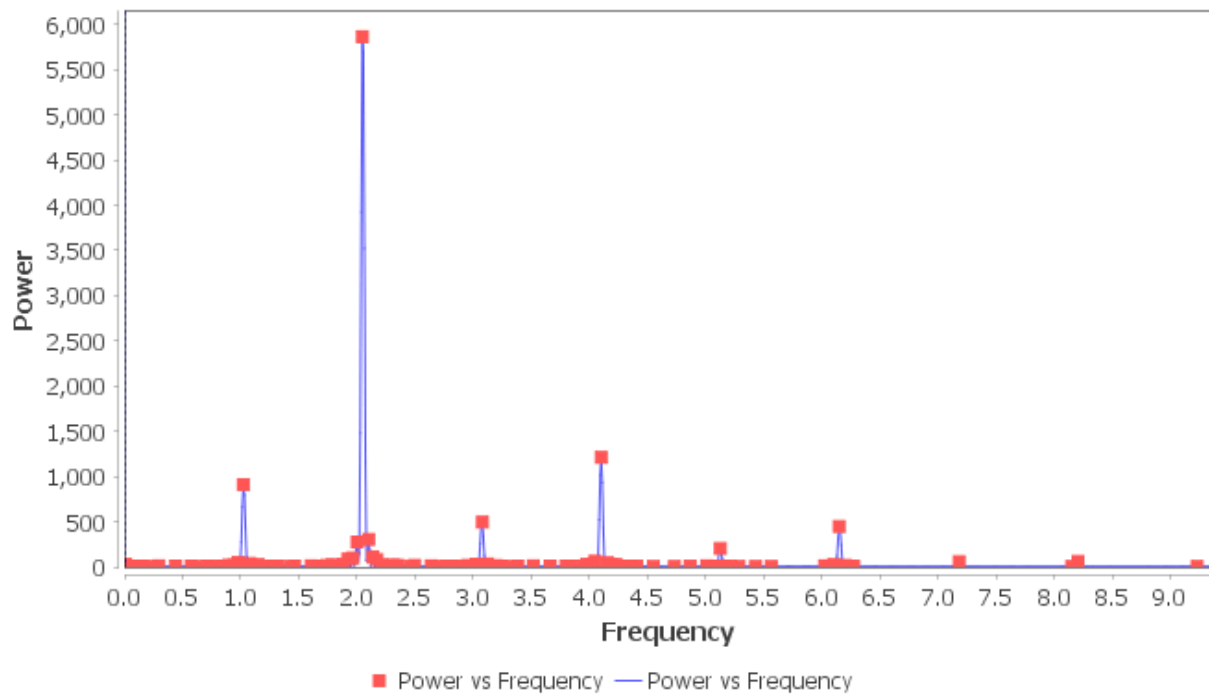


V948 Cen (TIC 440497672)



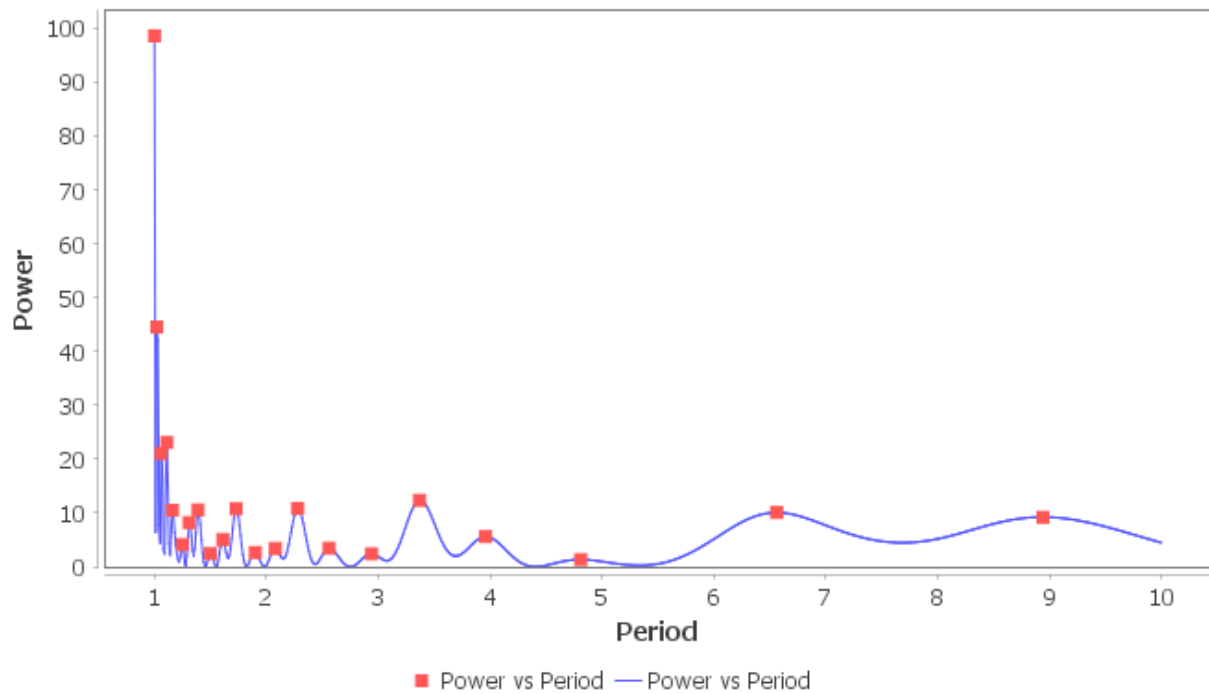
Pulsation Spectrum for V948 Cen

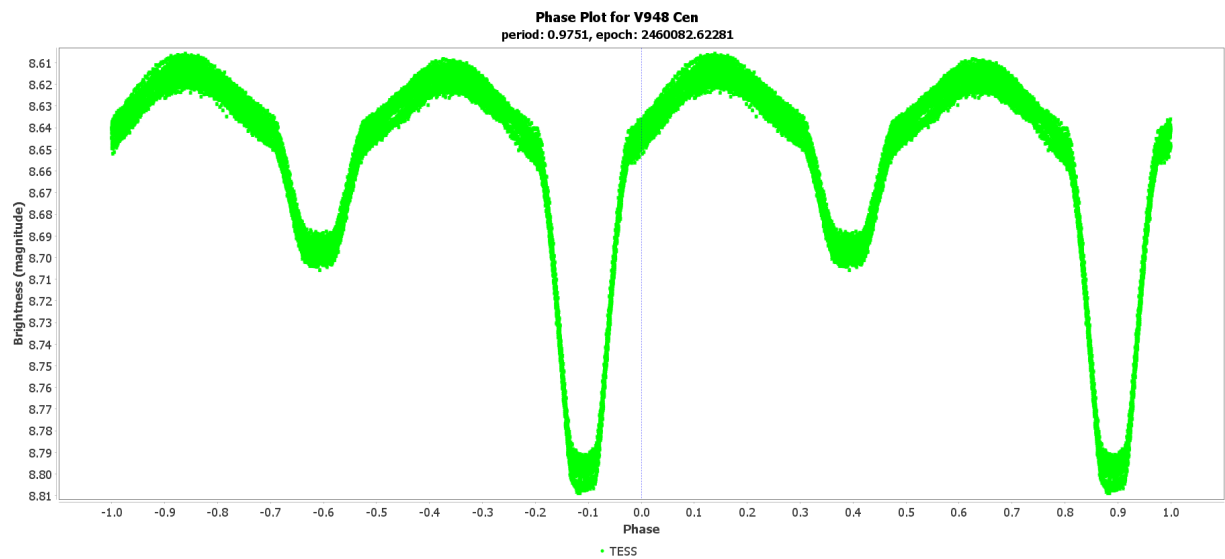
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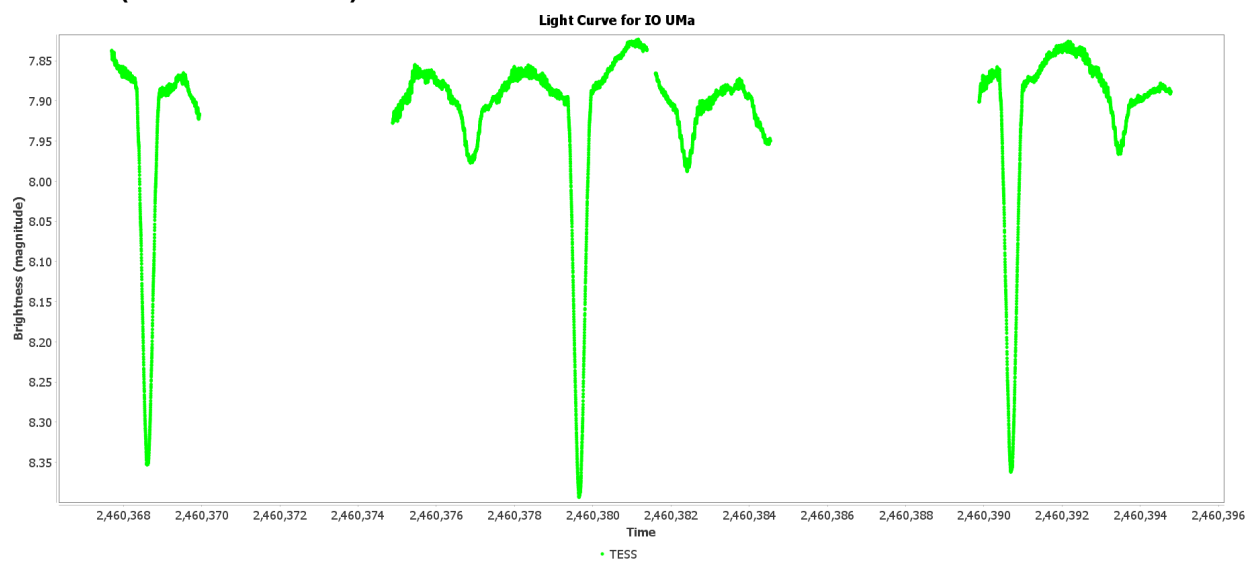
Period Analysis (DC DFT) for V948 Cen

(series: TESS)



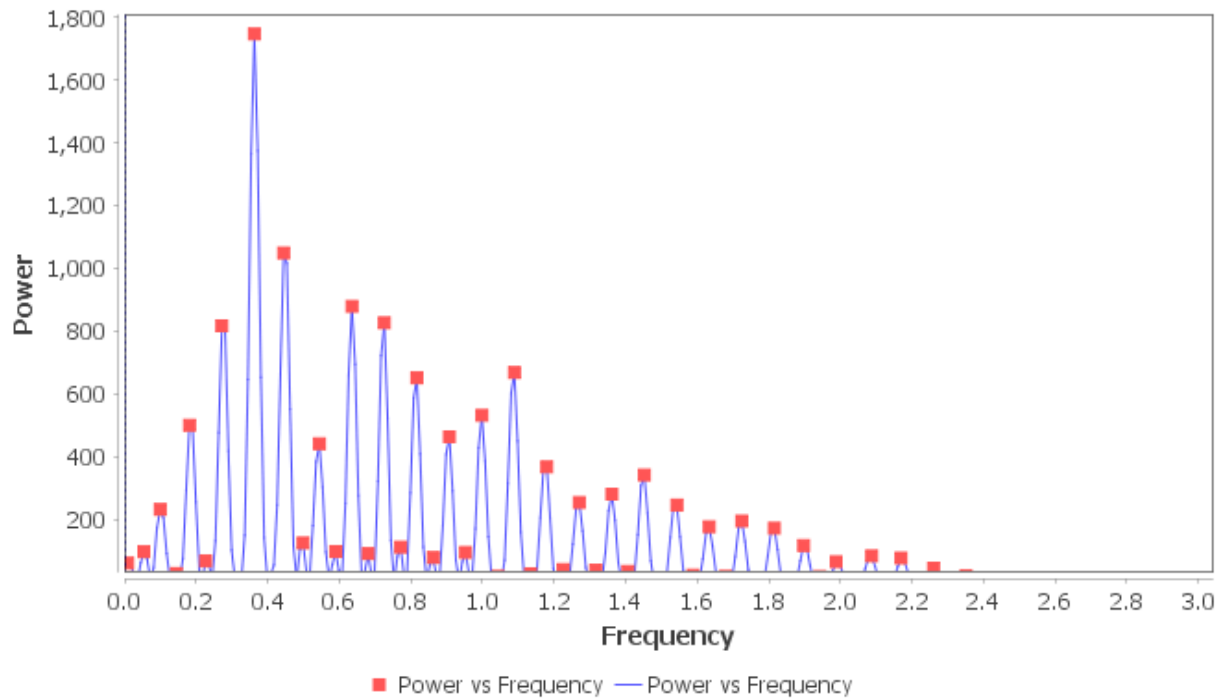


IO UMa (TIC 157273321)



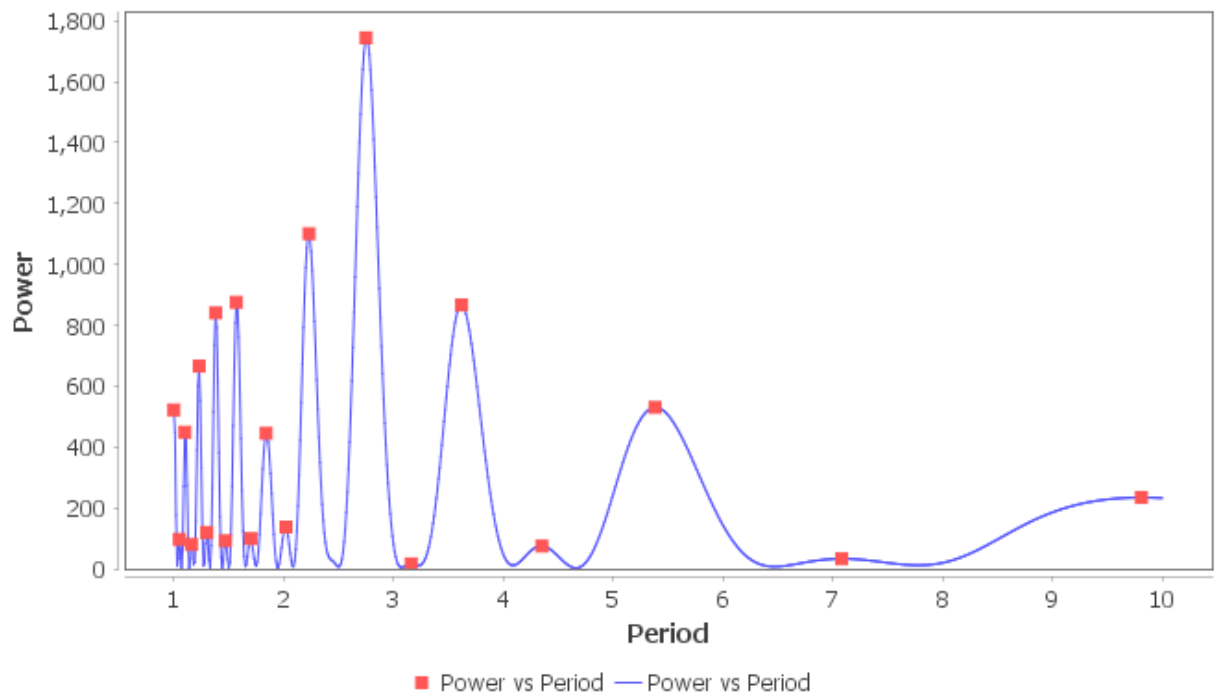
Pulsation Spectrum for IO UMa

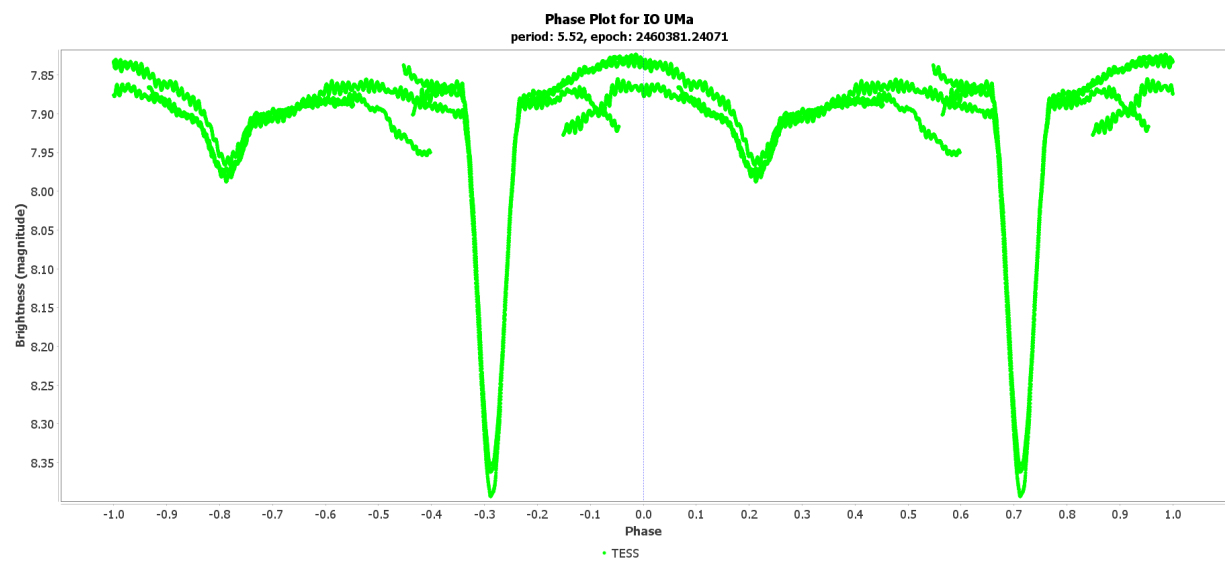
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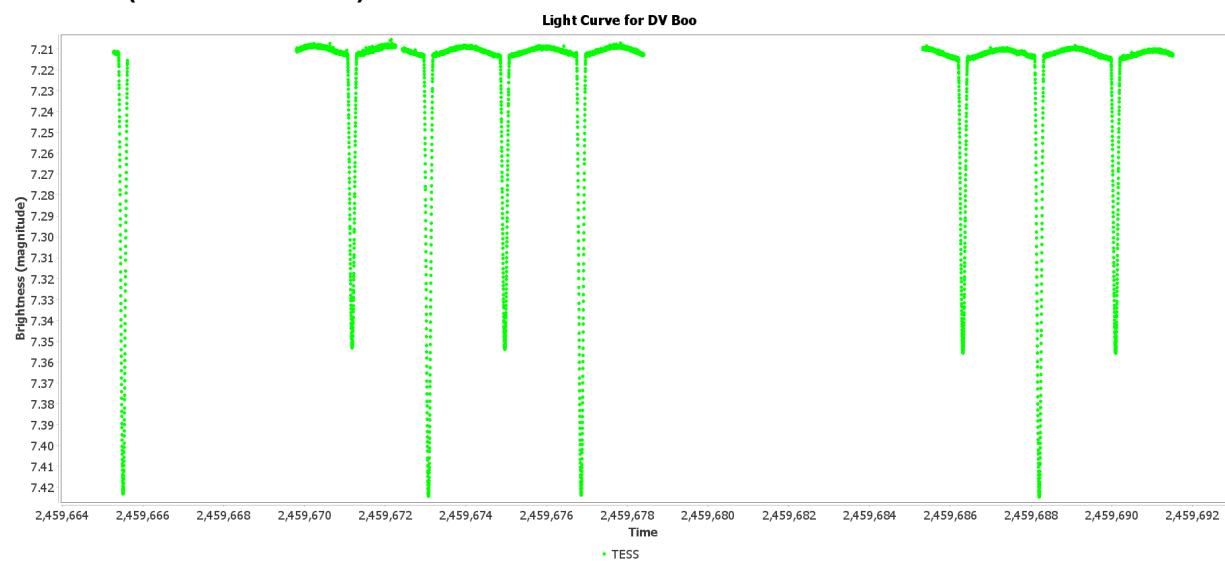
Period Analysis (DC DFT) for IO UMa

(series: TESS)



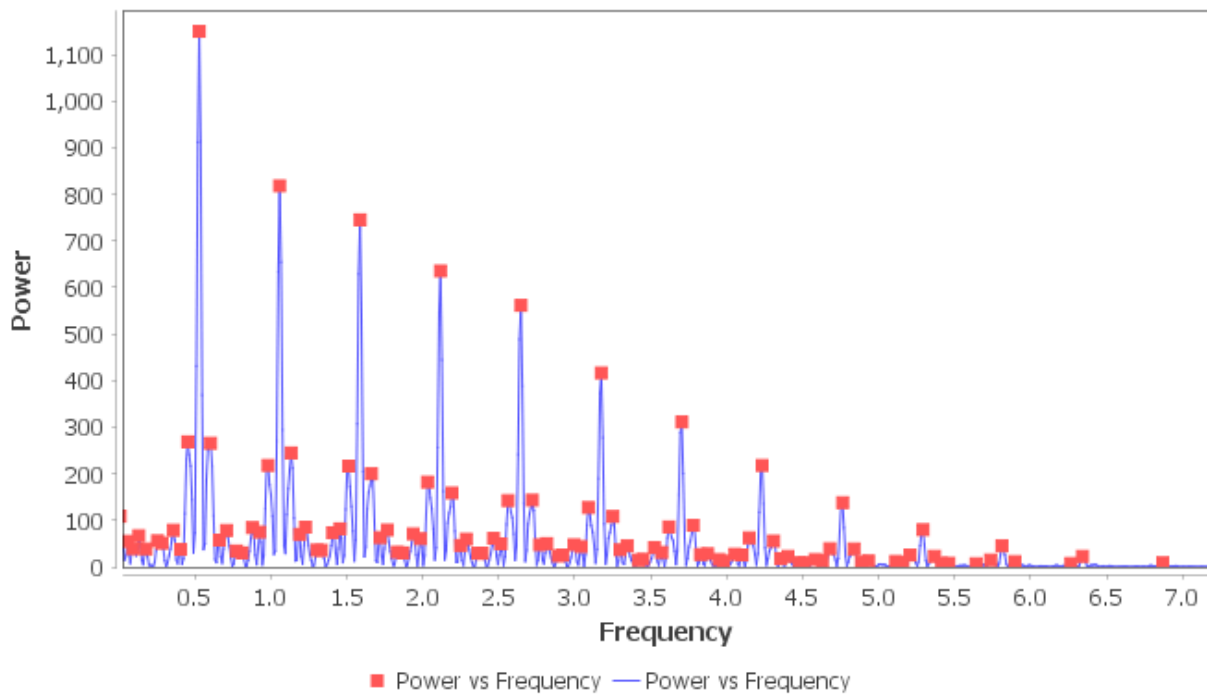


DV Boo (TIC 450349567)



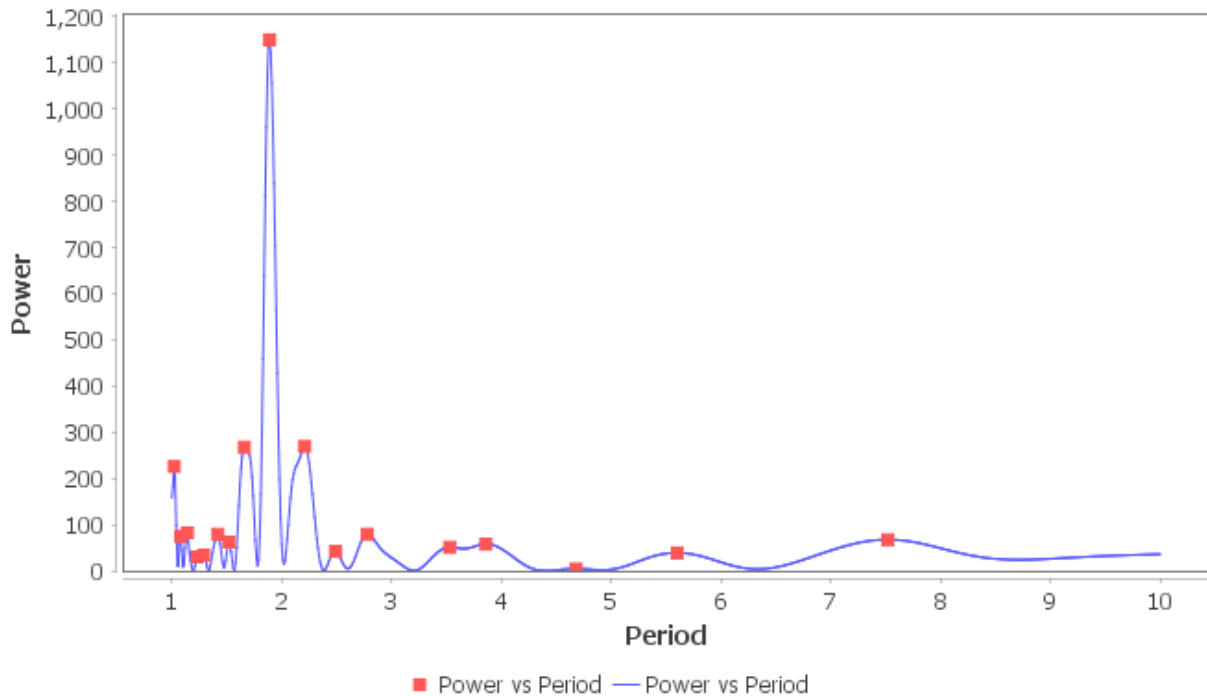
Pulsation Spectrum for DV Boo

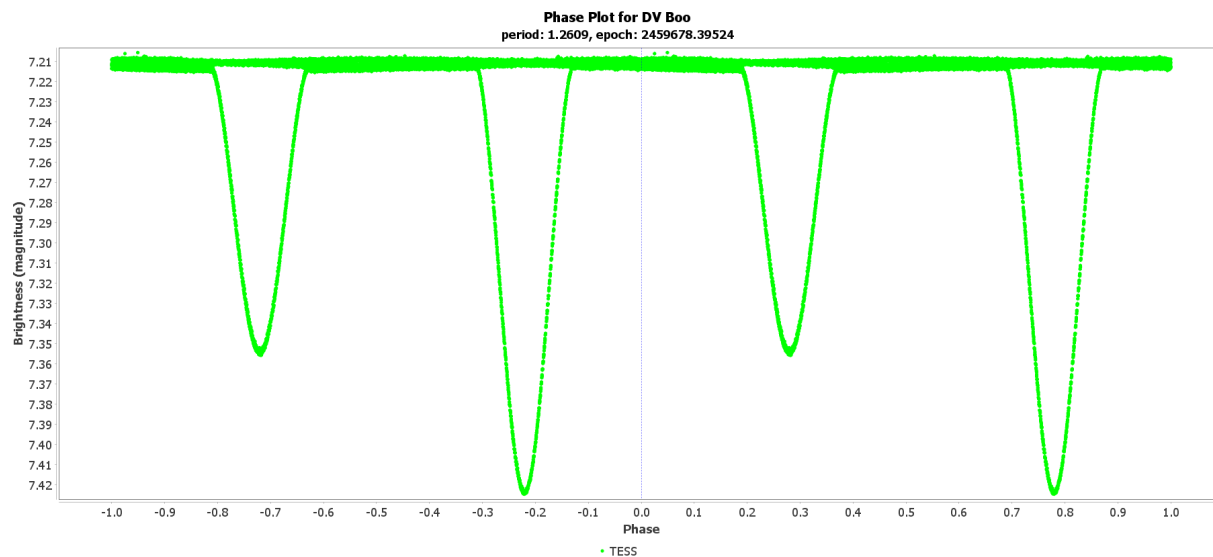
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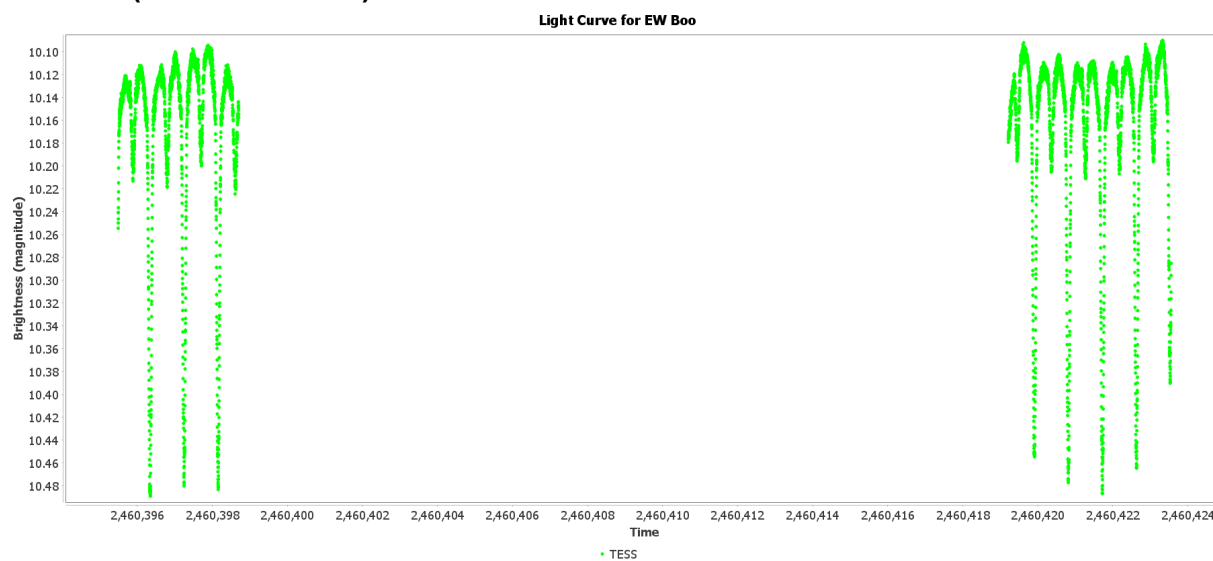
Period Analysis (DC DFT) for DV Boo

(series: TESS)



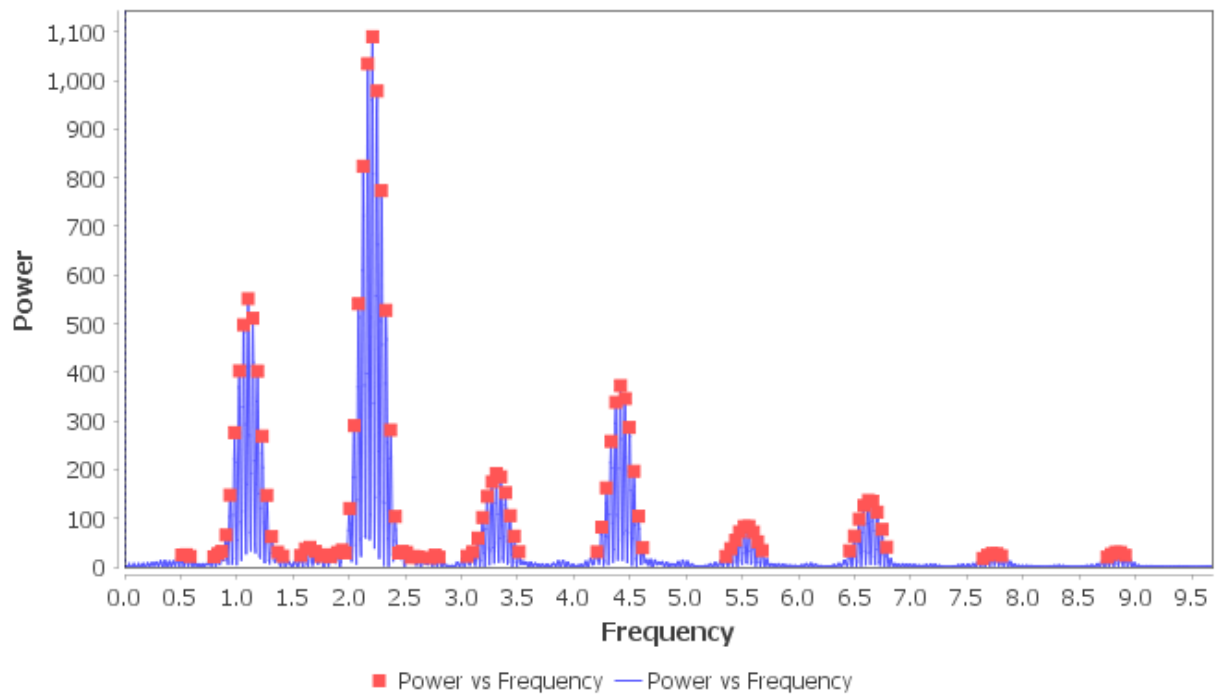


EW Boo (TIC 406798603)



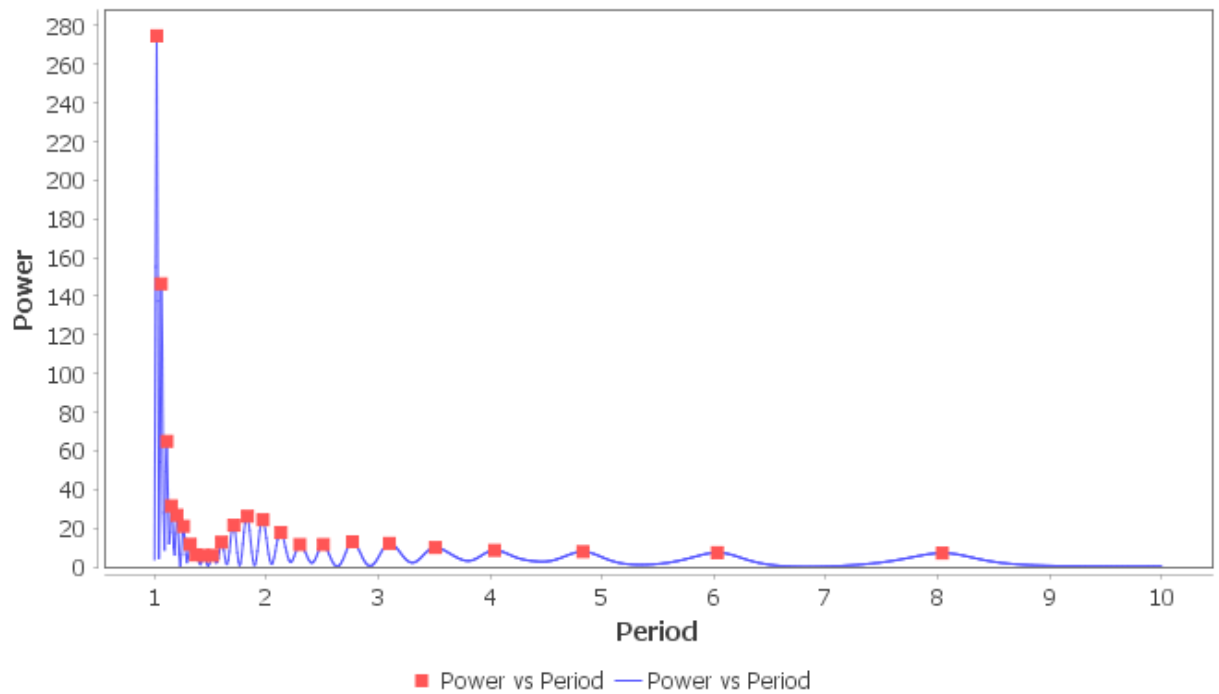
Pulsation Spectrum for EW Boo

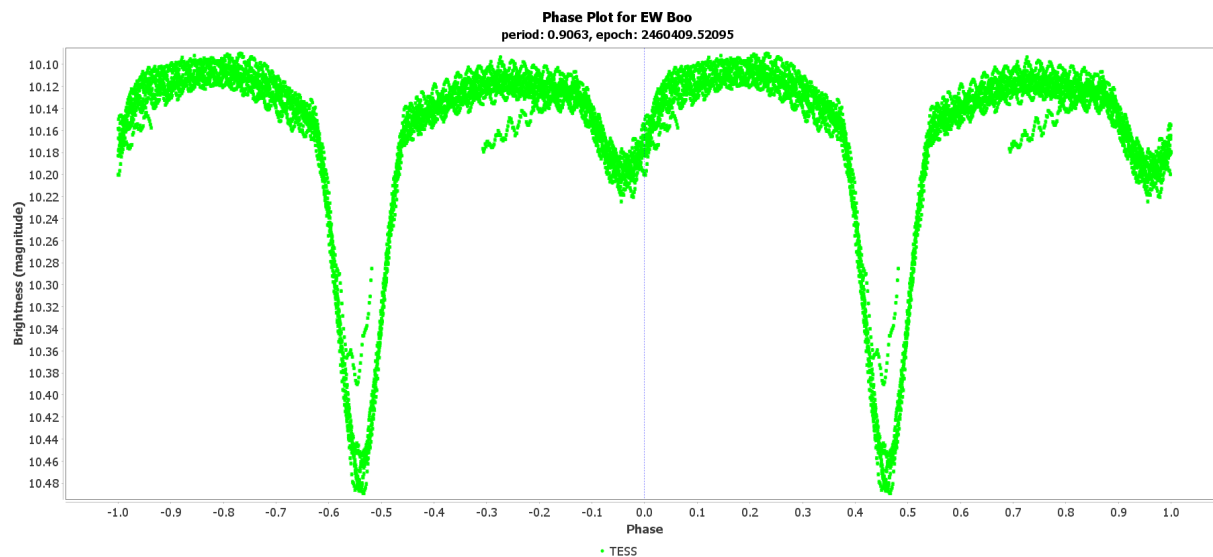
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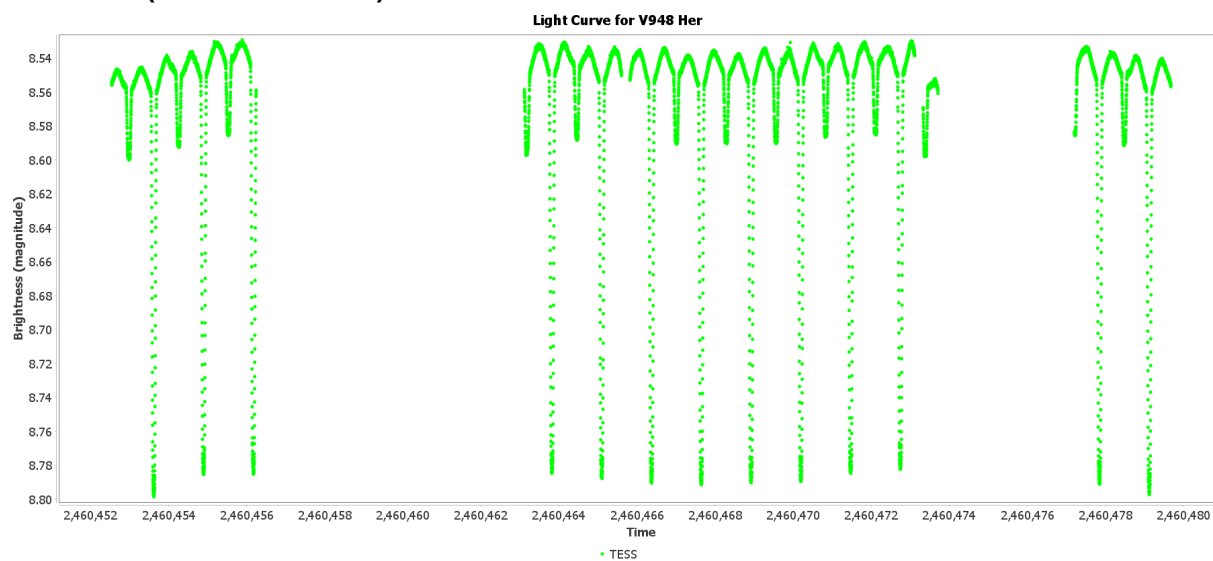
Period Analysis (DC DFT) for EW Boo

(series: TESS)



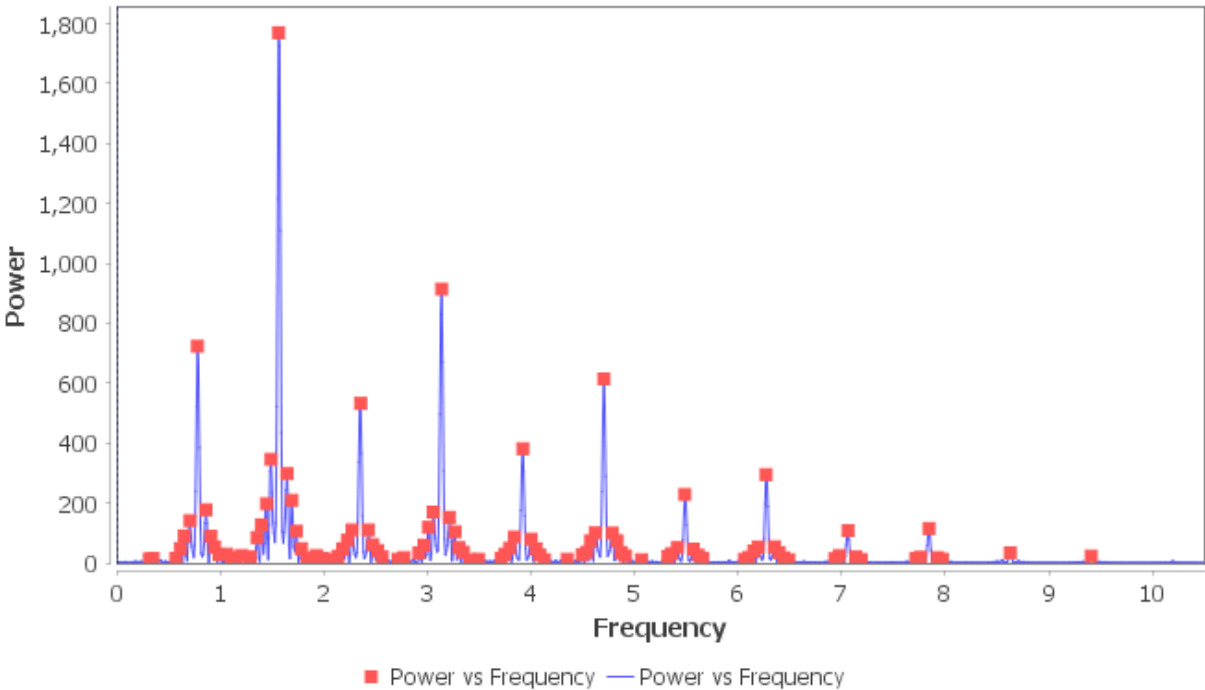


V948 Her (TIC 286380389)



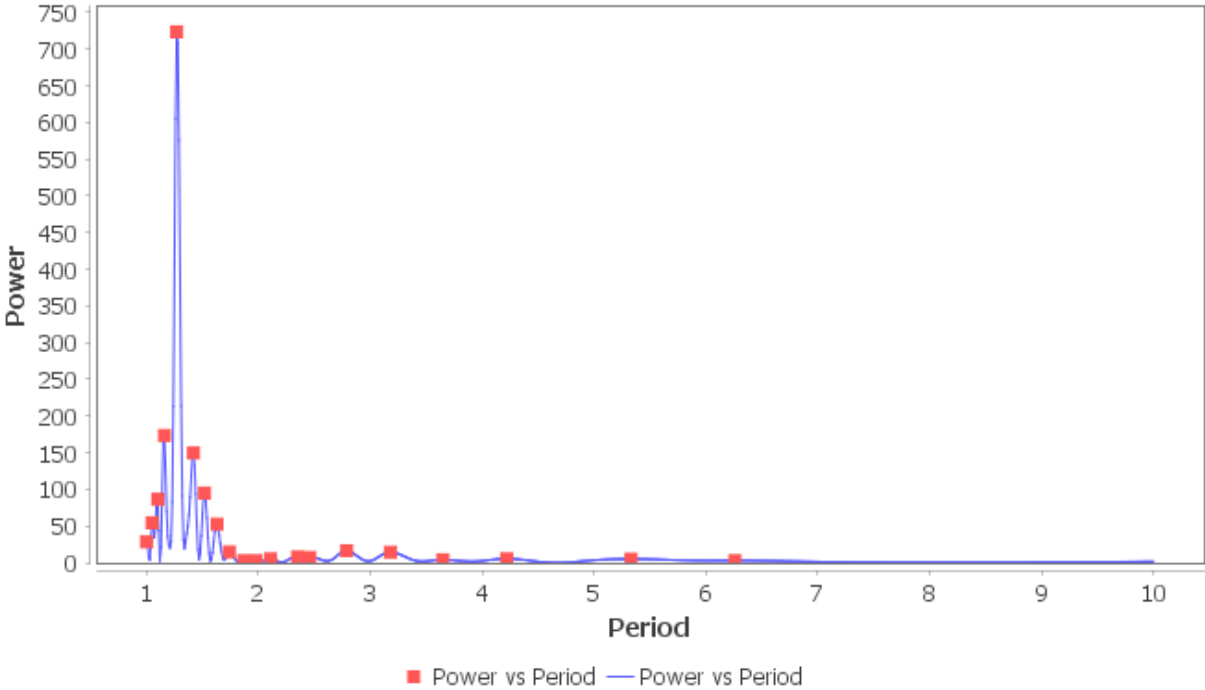
Pulsation Spectrum for V948 Her

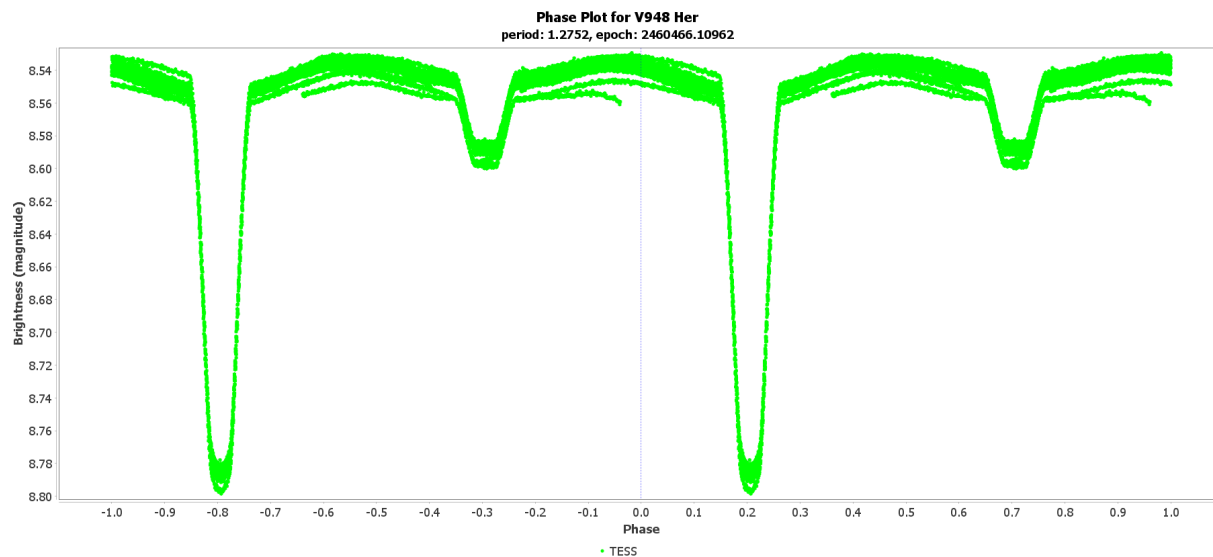
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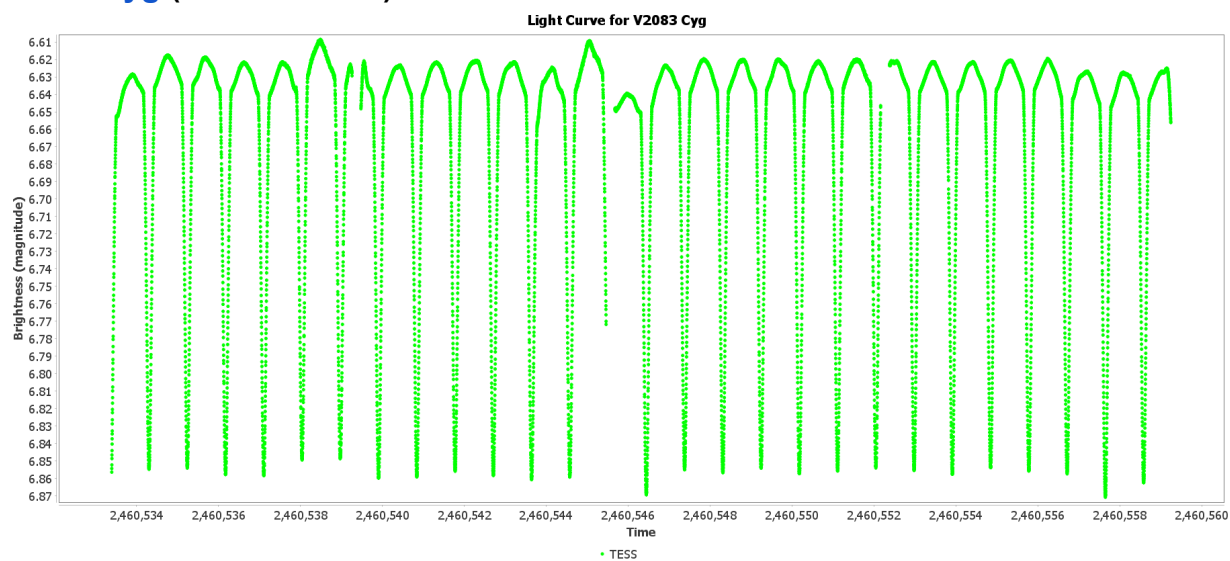
Period Analysis (DC DFT) for V948 Her

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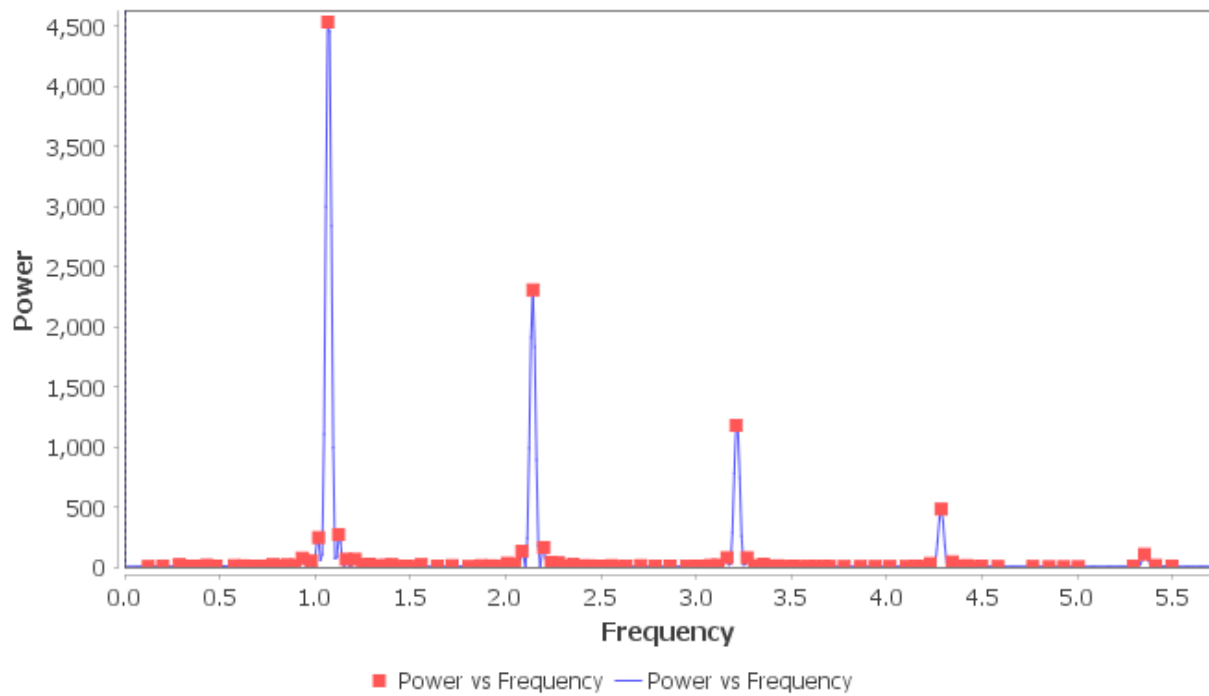


V2083 Cyg (TIC 63454475)



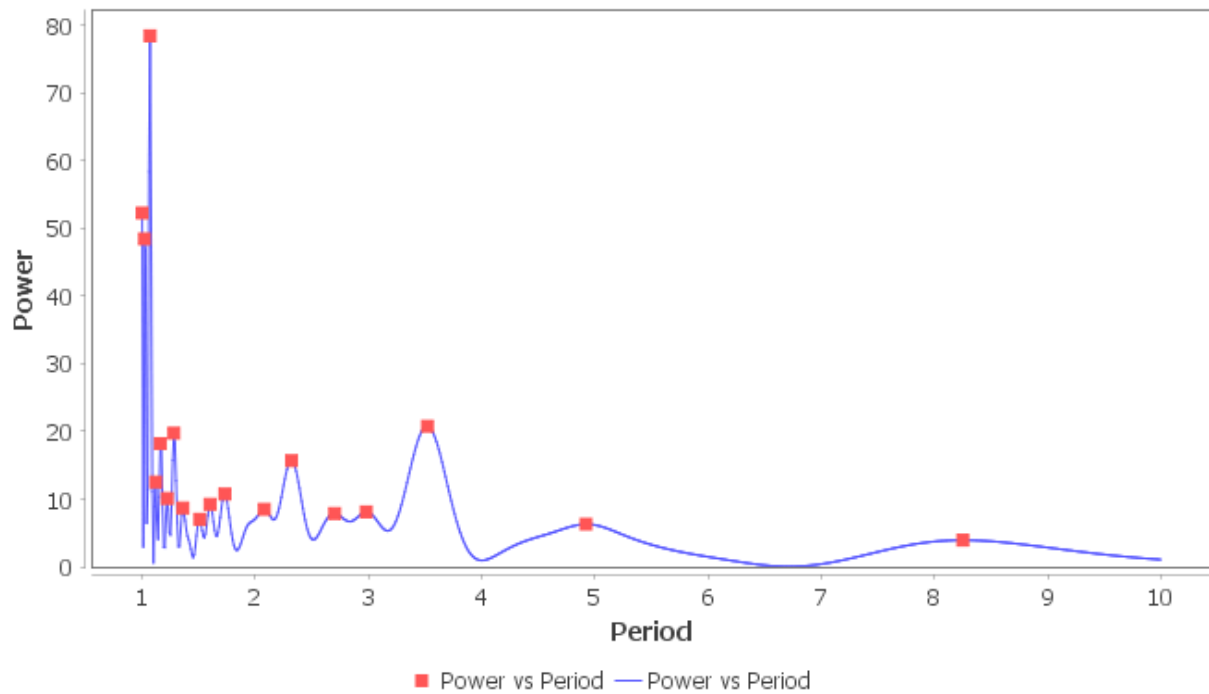
Pulsation Spectrum for V2083 Cyg

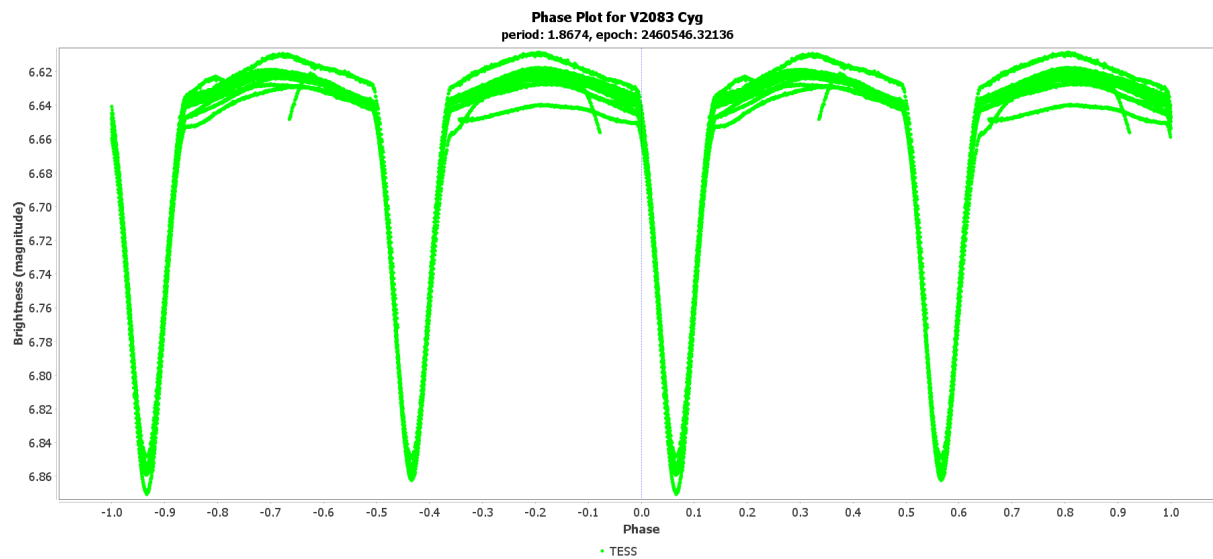
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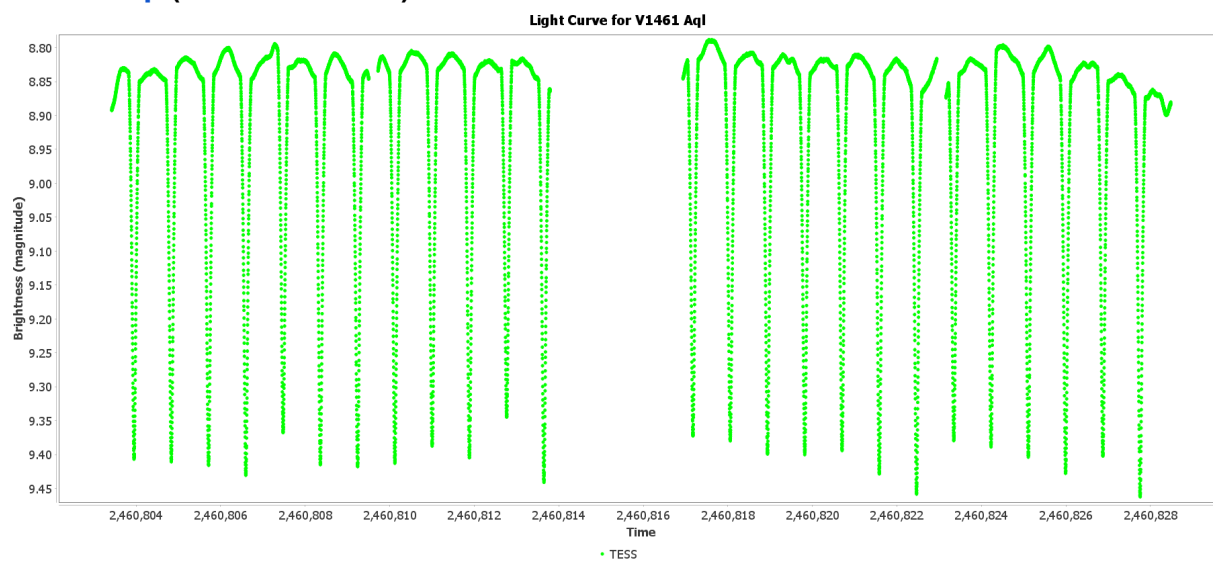
Period Analysis (DC DFT) for V2083 Cyg

(series: TESS)



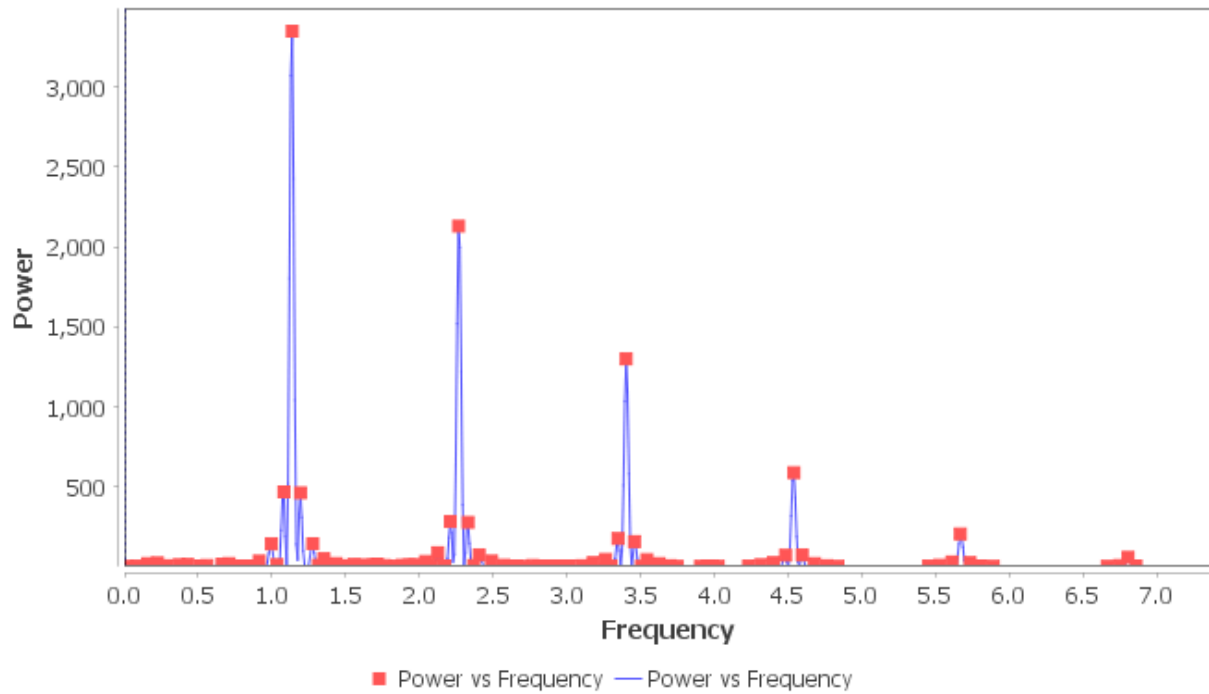


V 1461 Aql (TIC 242915654)



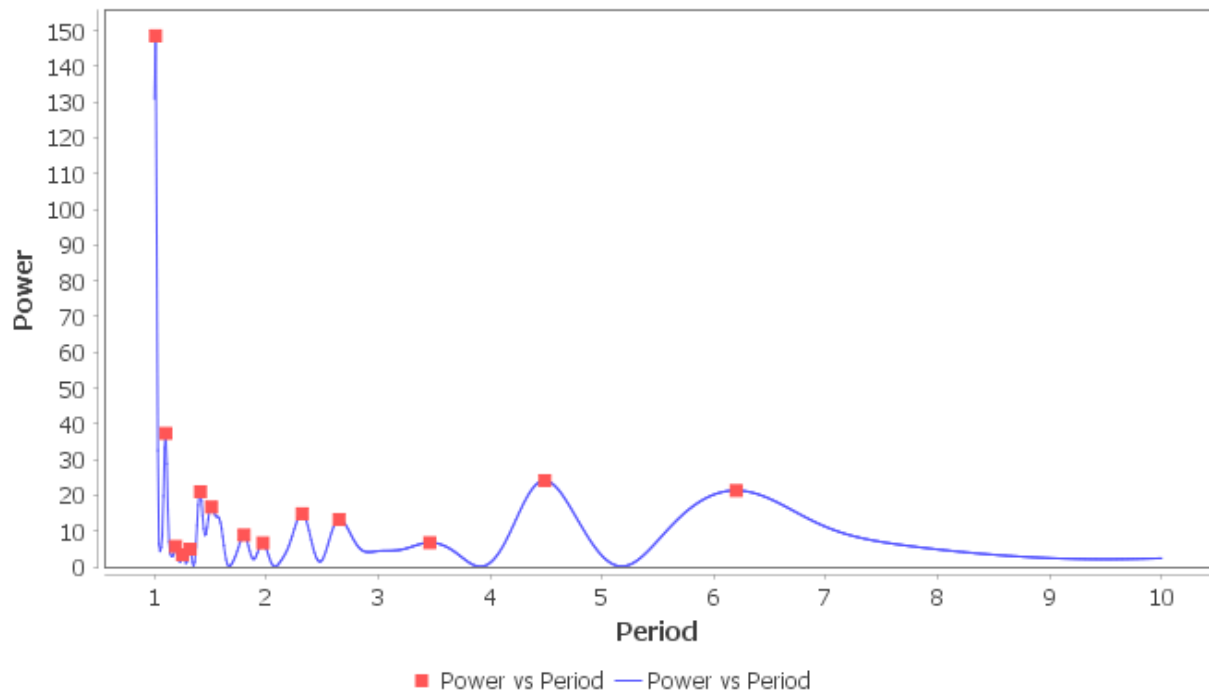
Pulsation Spectrum for V1461 Aql

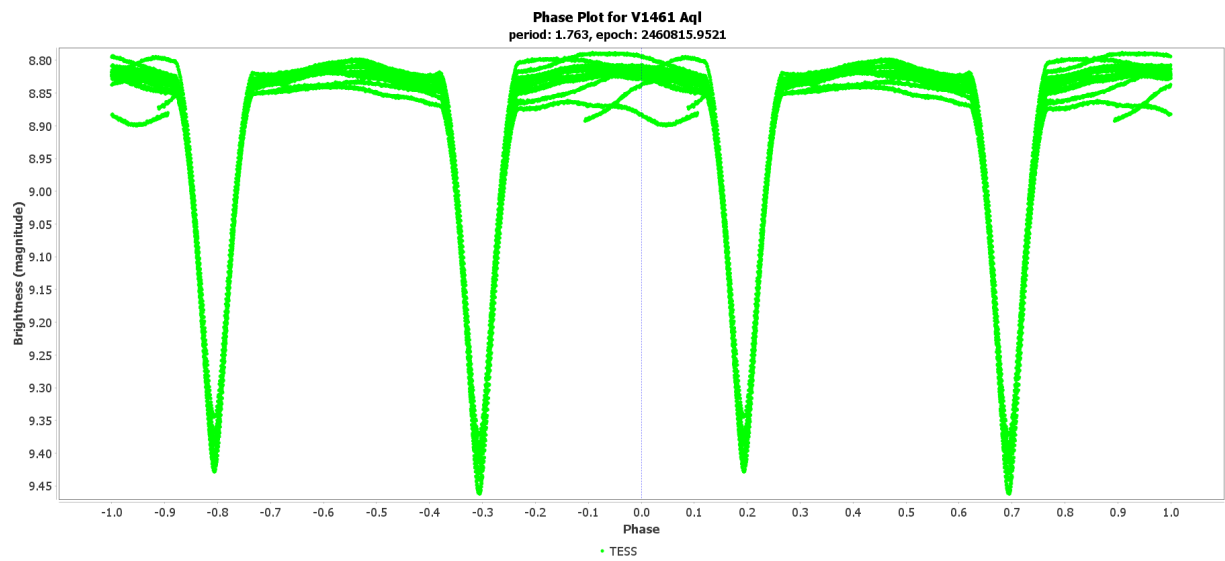
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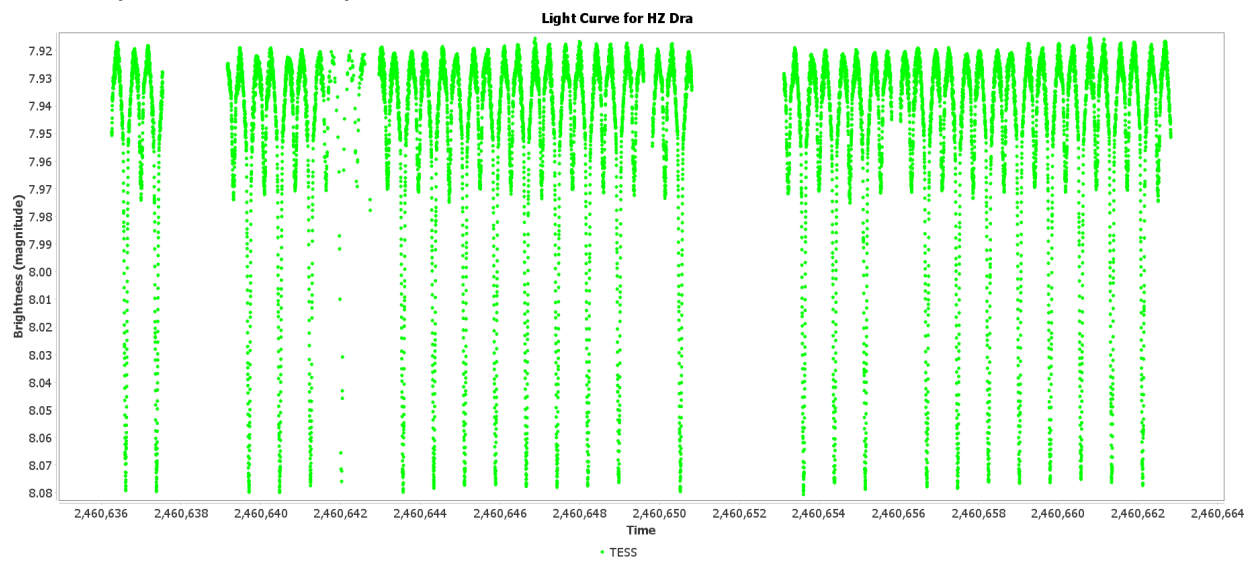
Period Analysis (DC DFT) for V1461 Aql

(series: TESS)



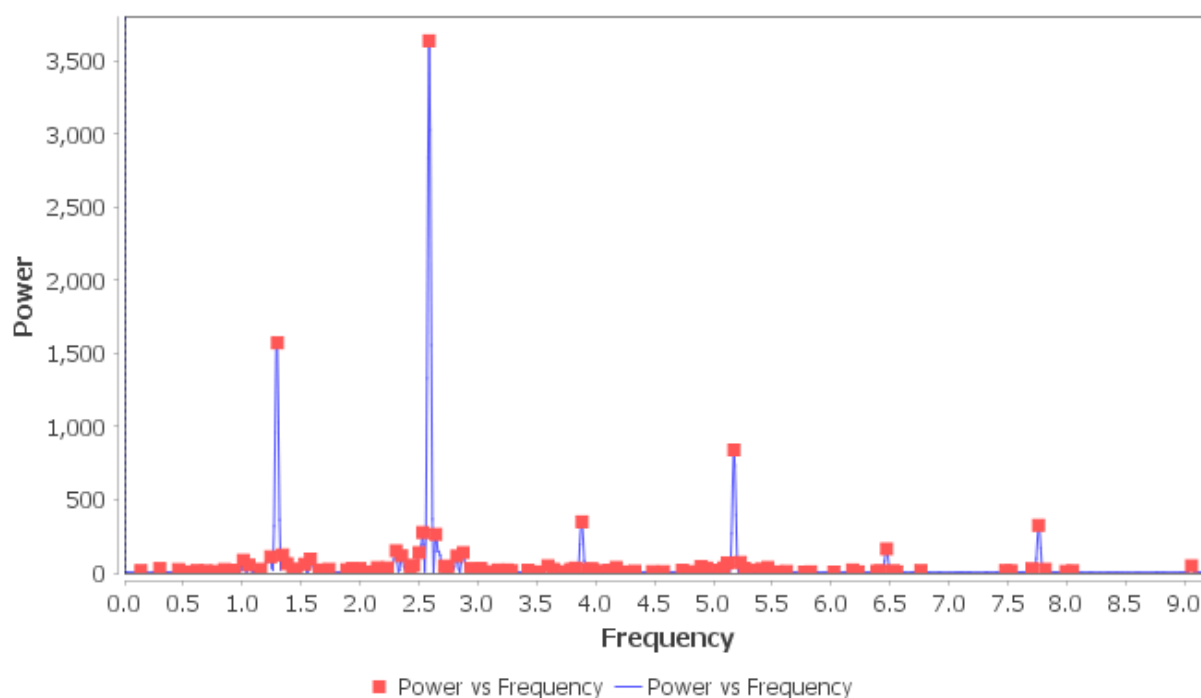


HZ Dra (TIC 258351350)



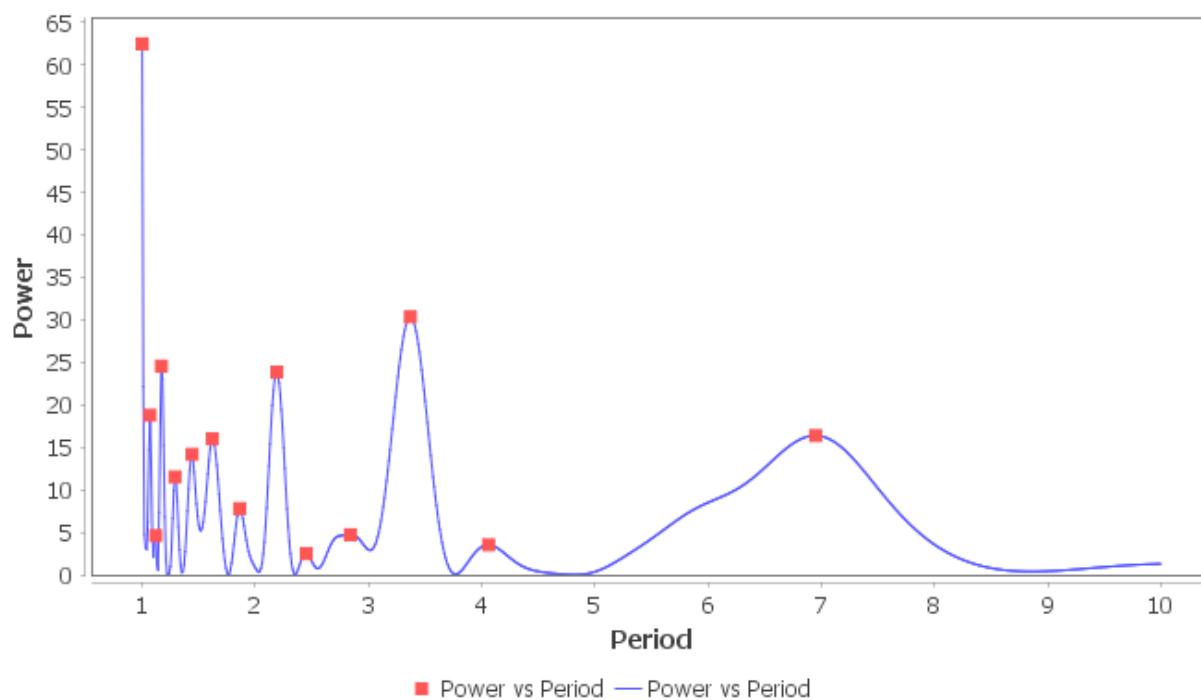
Pulsation Spectrum for HZ Dra

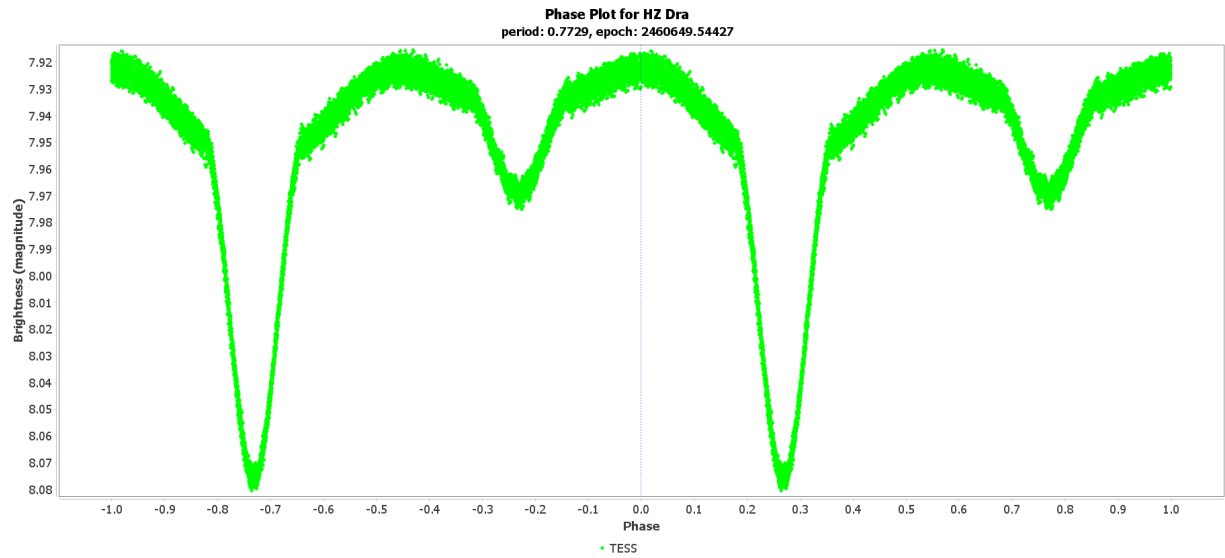
(series: TESS)



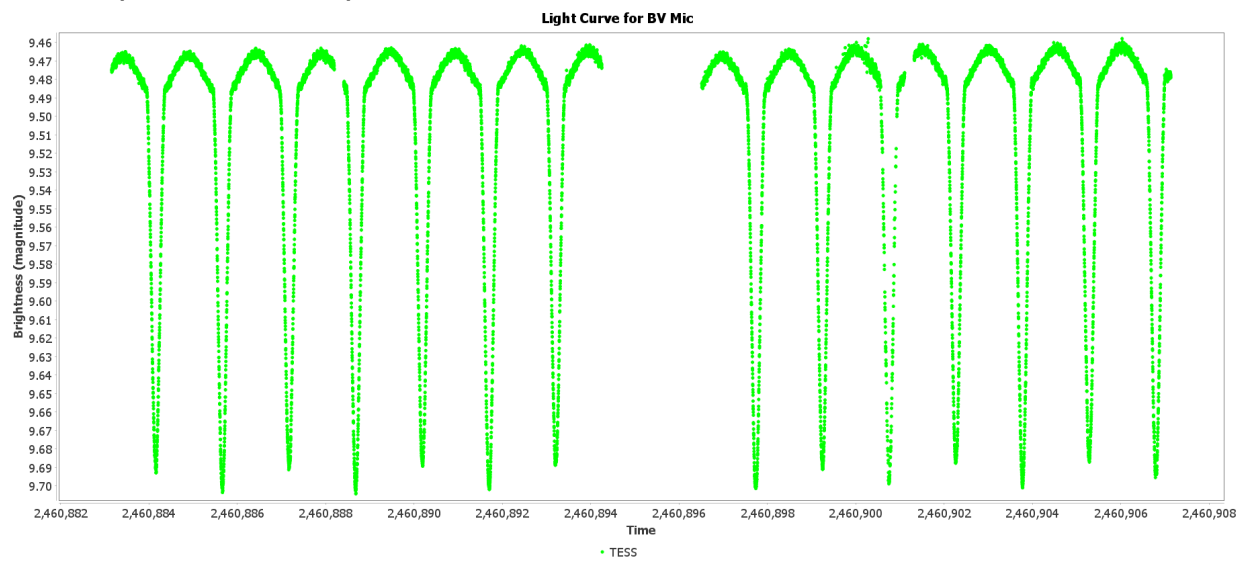
Period Analysis (DC DFT) for HZ Dra

(series: TESS)



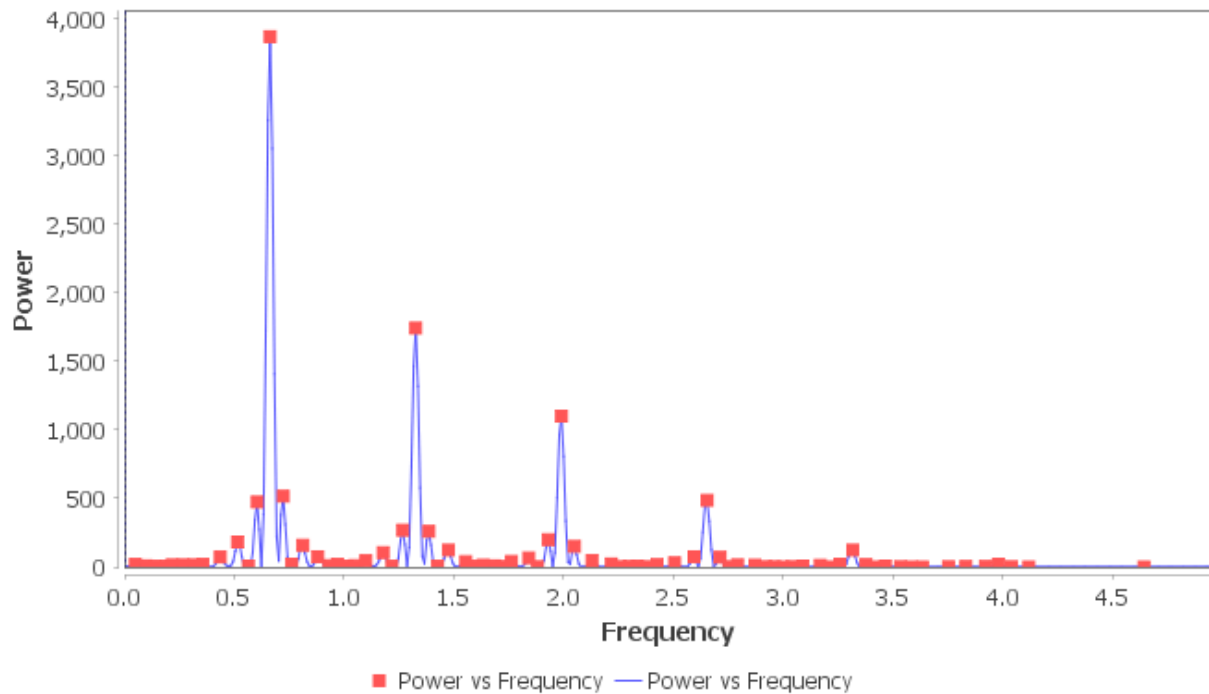


BV Mic (TIC 441406061)



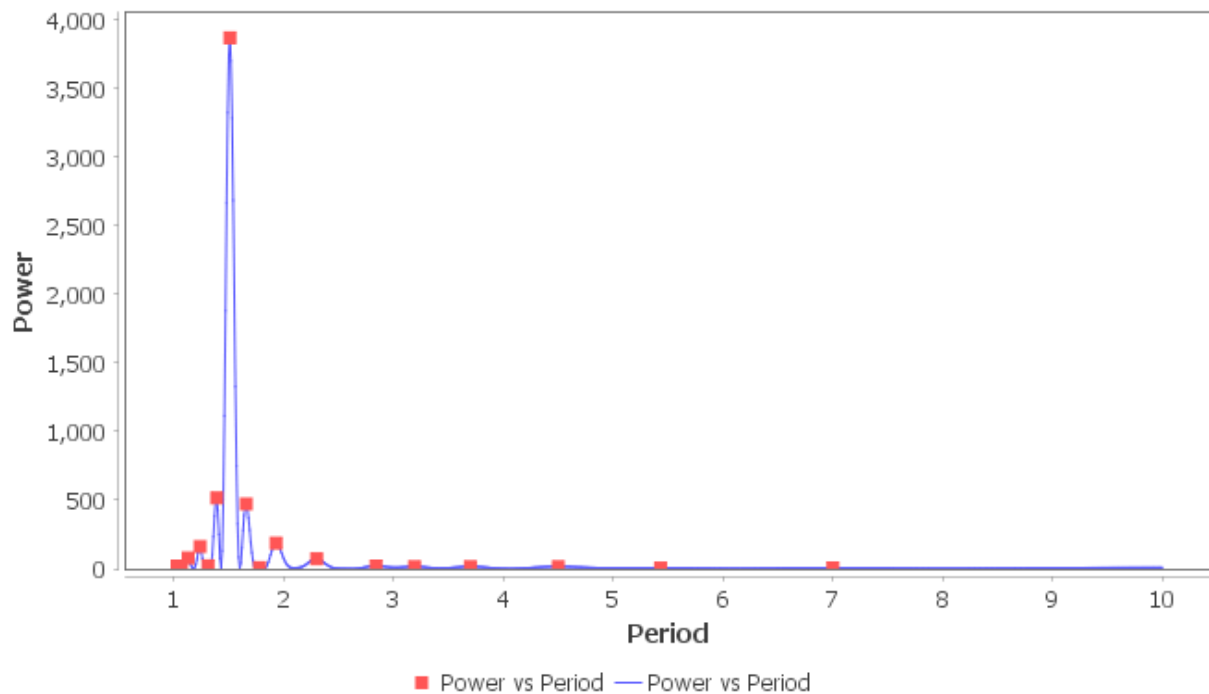
Pulsation Spectrum for BV Mic

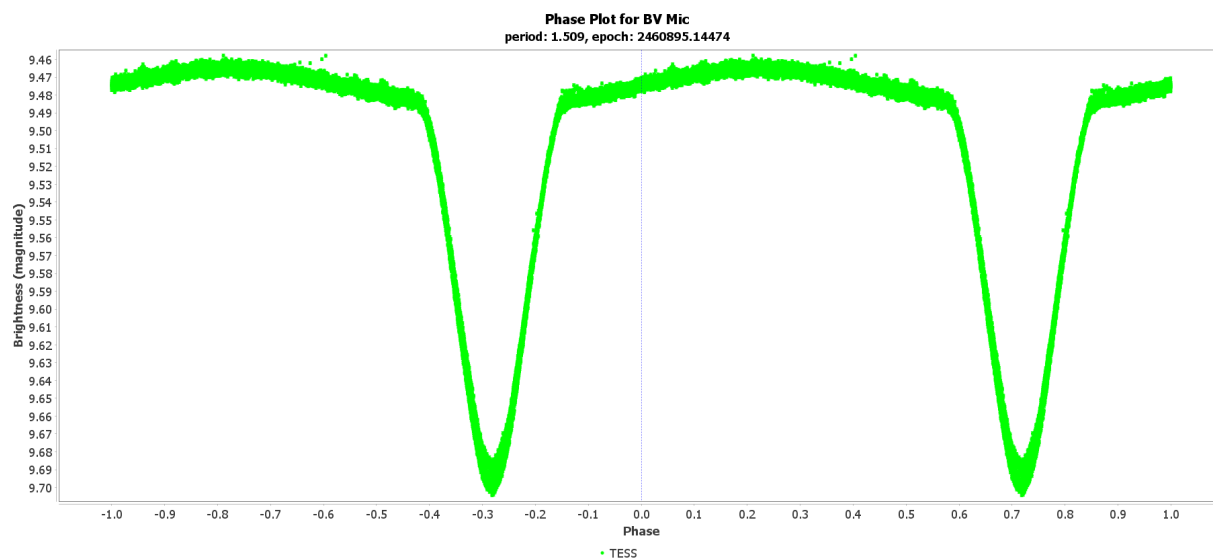
(series: TESS)



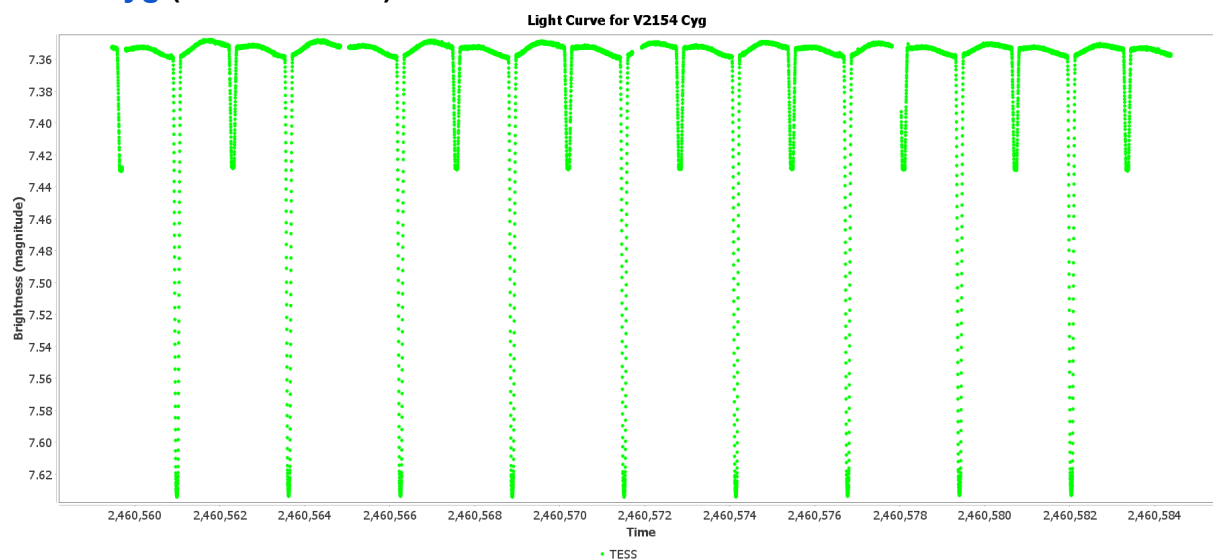
Period Analysis (DC DFT) for BV Mic

(series: TESS)



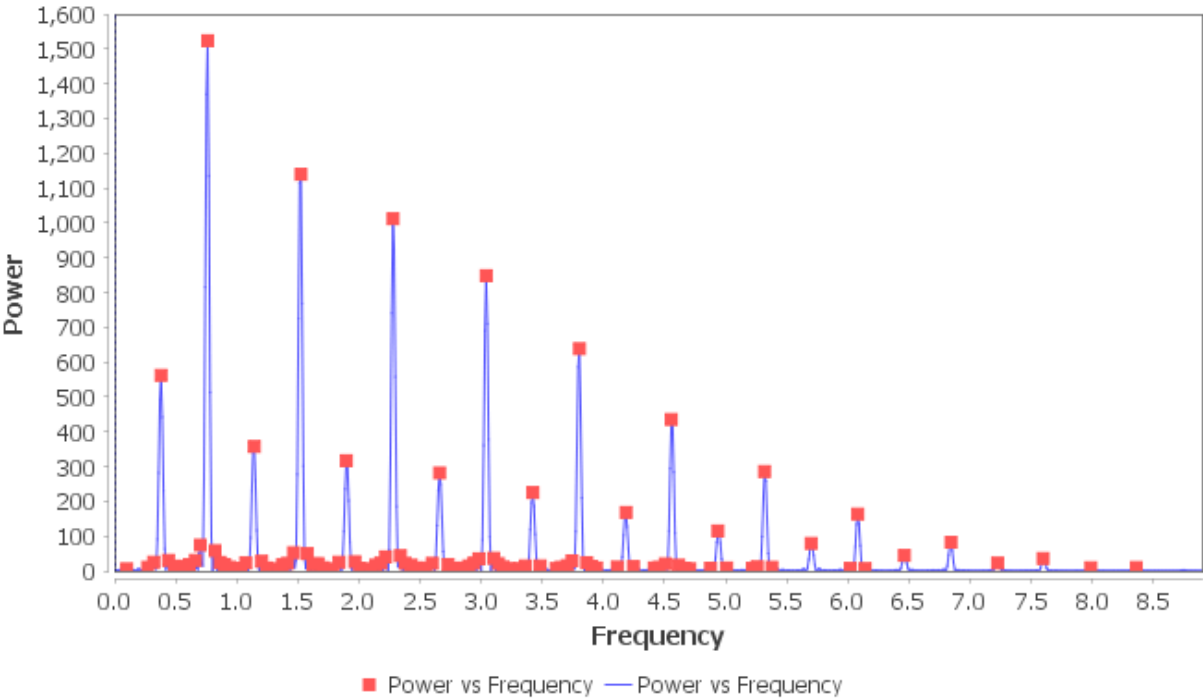


V2154 Cyg (TIC 63916460)



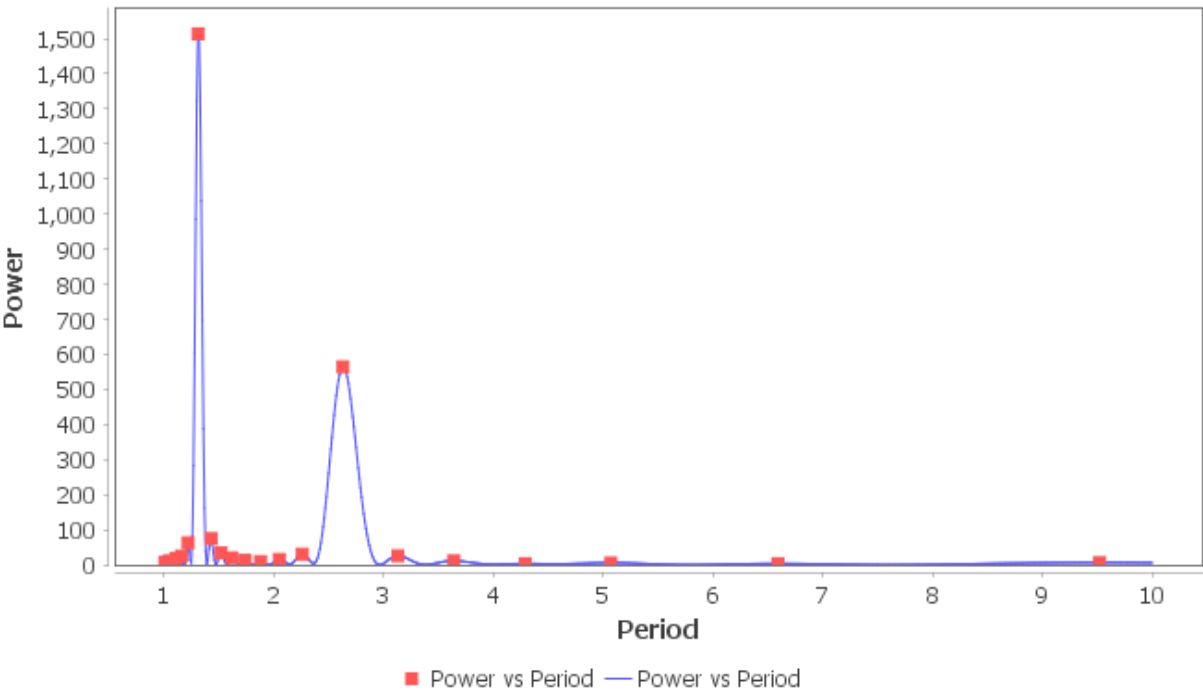
Pulsation Spectrum for V2154 Cyg

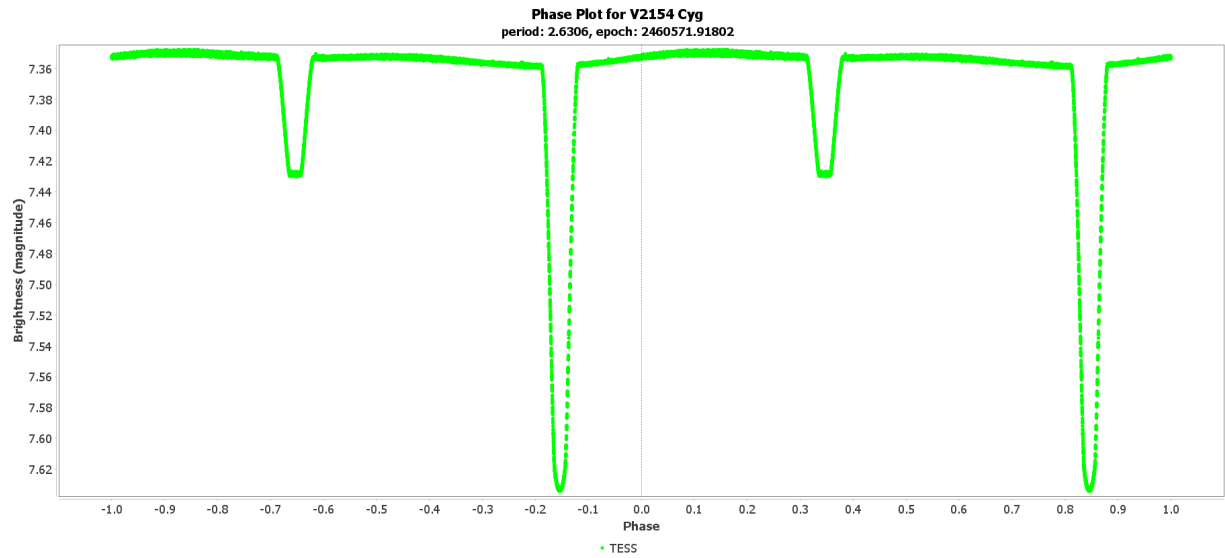
(series: TESS)



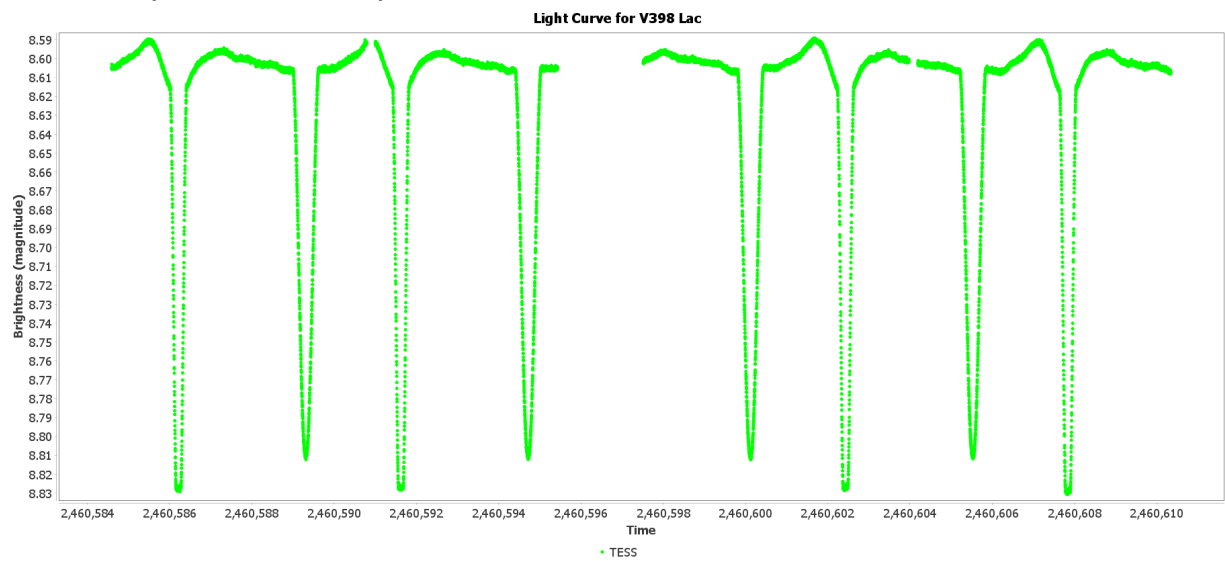
Period Analysis (DC DFT) for V2154 Cyg

(series: TESS)



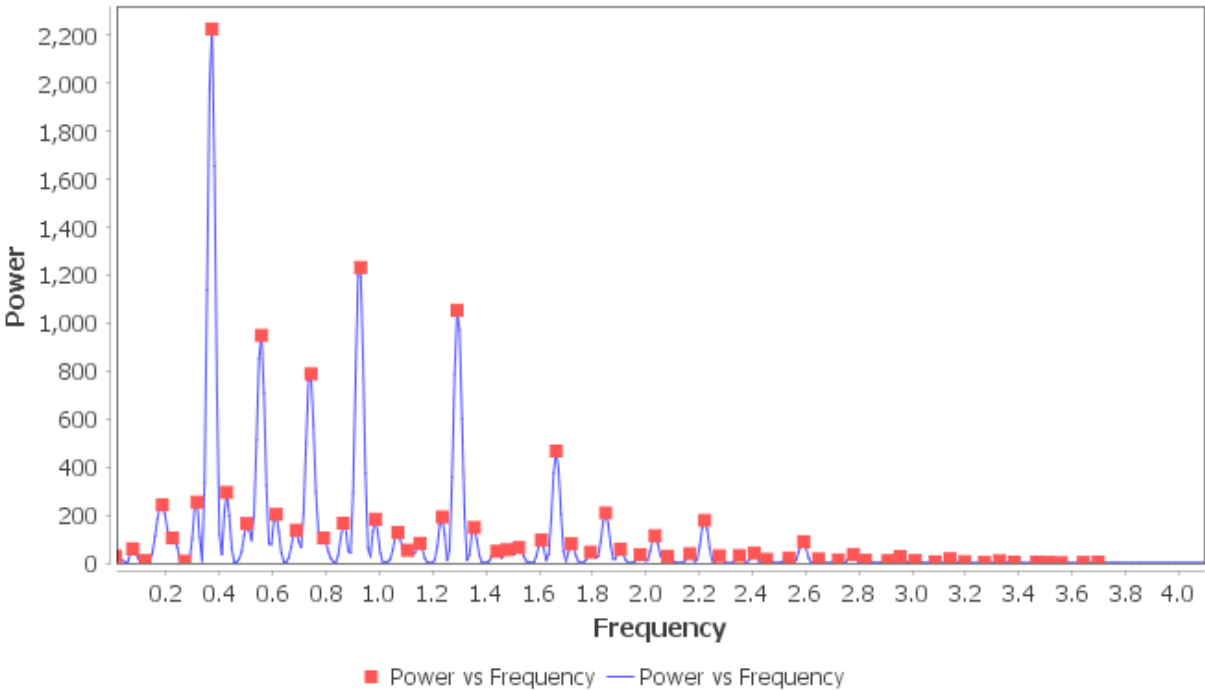


V398 Lac (TIC 326374705)



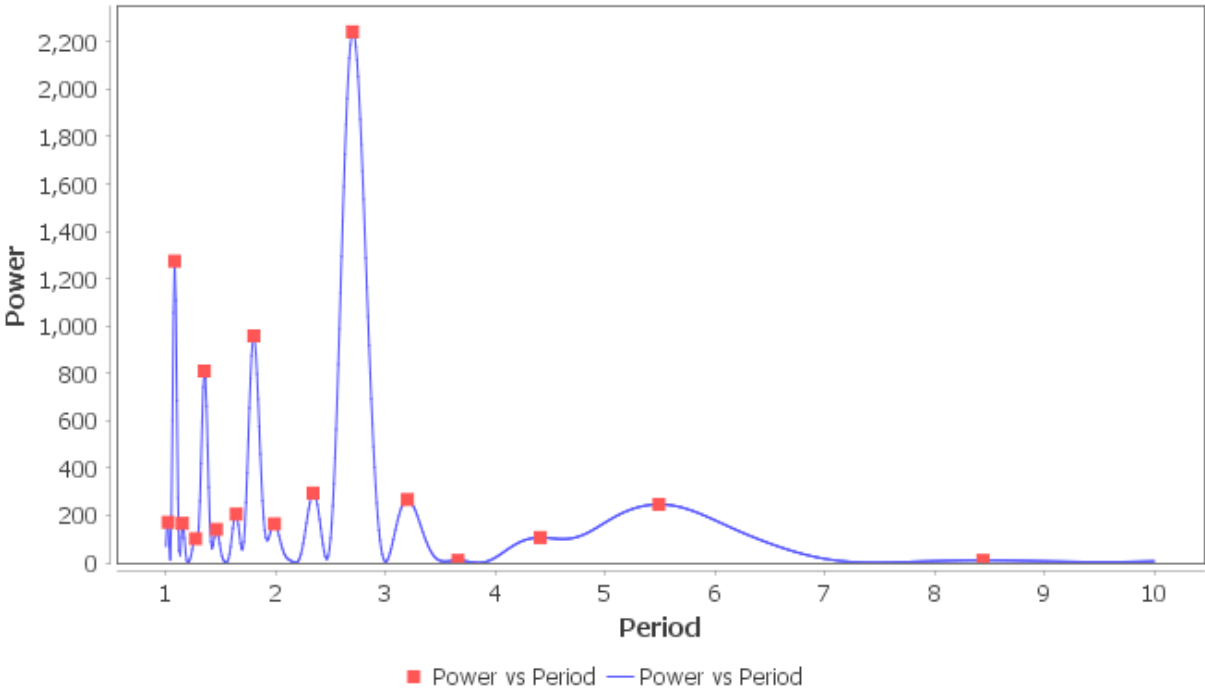
Pulsation Spectrum for V398 Lac

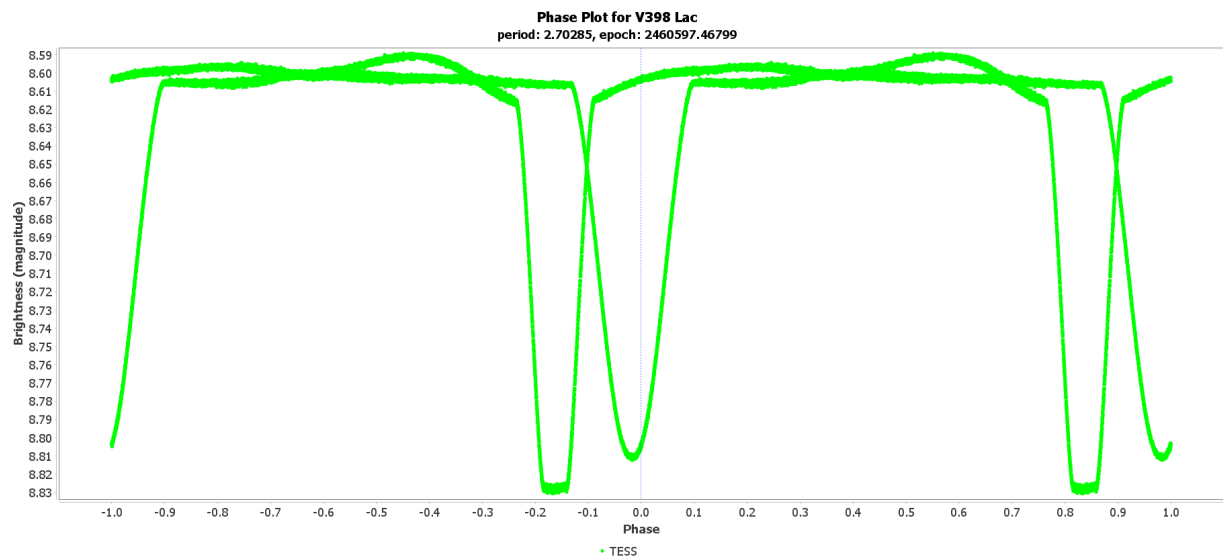
(series: TESS)



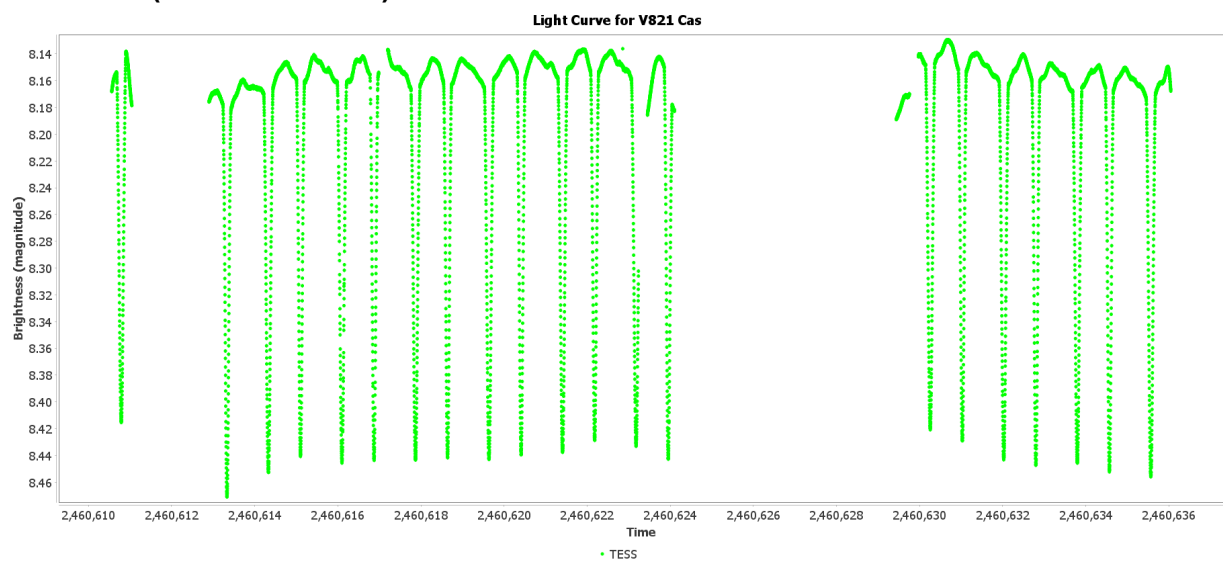
Period Analysis (DC DFT) for V398 Lac

(series: TESS)



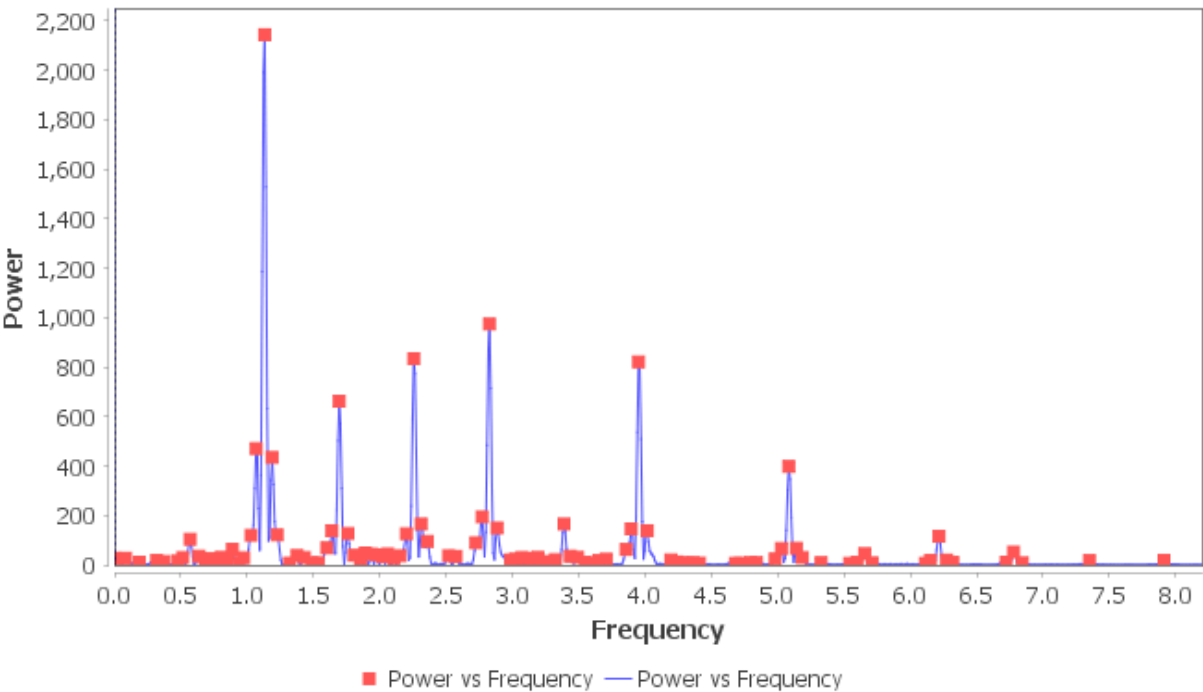


V821 Cas (TIC 346602586)



Pulsation Spectrum for V821 Cas

(series: TESS)



Period Analysis (DC DFT) for V821 Cas

(series: TESS)

