

SAC Frequencies Explained

Software Analog Channels for: C:\Wavewin32\ITC\Faults\Frequency\TAL3073E.X01

Station: TAL3 Device ID: 250

Use the Operators Drop Down List to Select the Fast SACs. Once Selected the SAC equation will be Displayed.
The Channel Numbers will be Populated with the first 3 Marked Channels in the Data Display.

Chan	Titles	Operators
49	Time Frequency	+39t/u=Hz/
50	Cyclic Frequency	+39f/u=Hz/
51	Inst Frequency	+39q/u=Hz/
52	{Software Channel}	
53	{Software Channel}	
54	{Software Channel}	
55	{Software Channel}	
56	{Software Channel}	
57	{Software Channel}	
58	{Software Channel}	

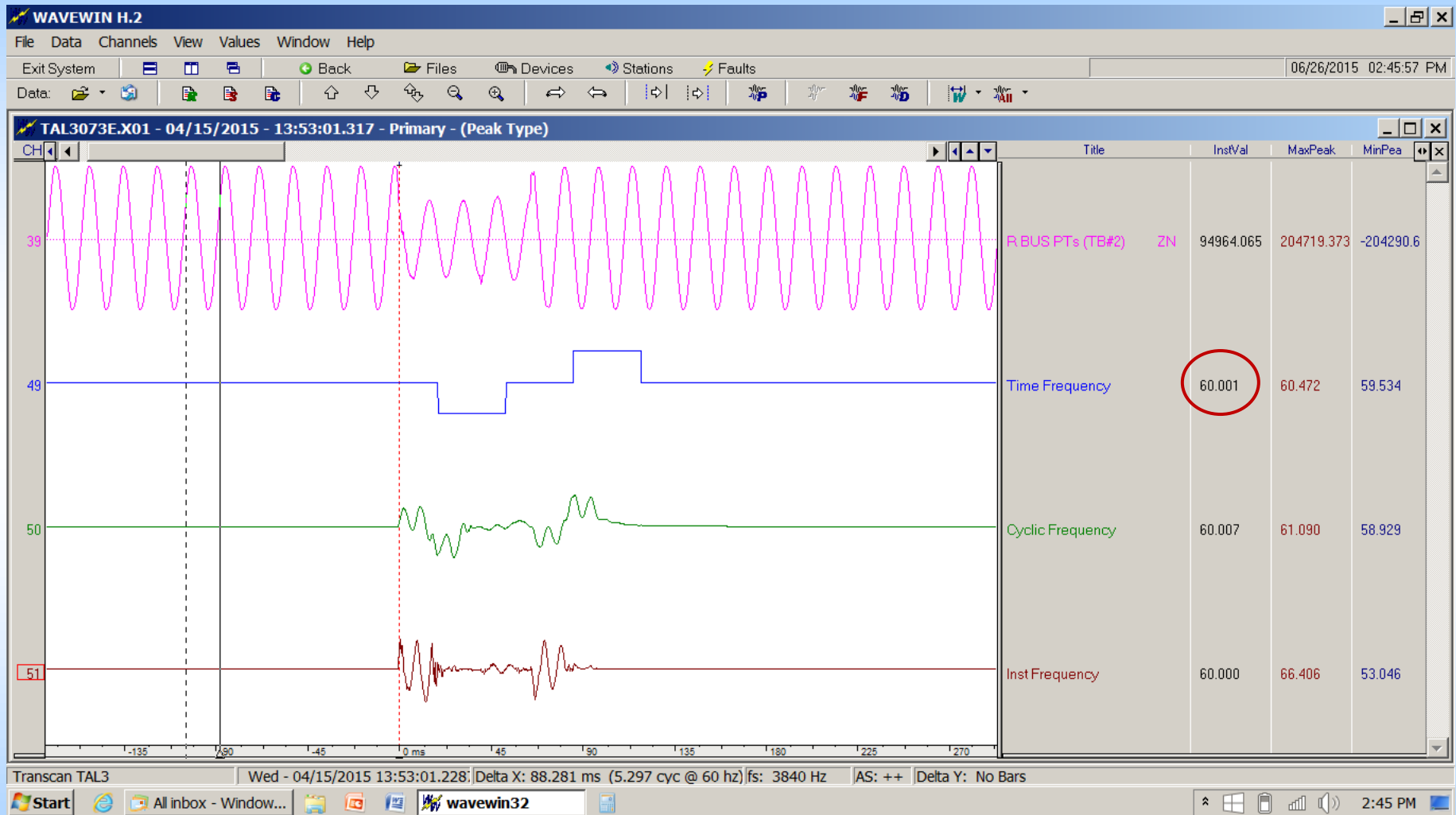
File: Untitled Modified

Buttons: OK, Cancel, Apply, Open, New, Save, Save As, Clear All, Show Help

Wavewin Software Channels



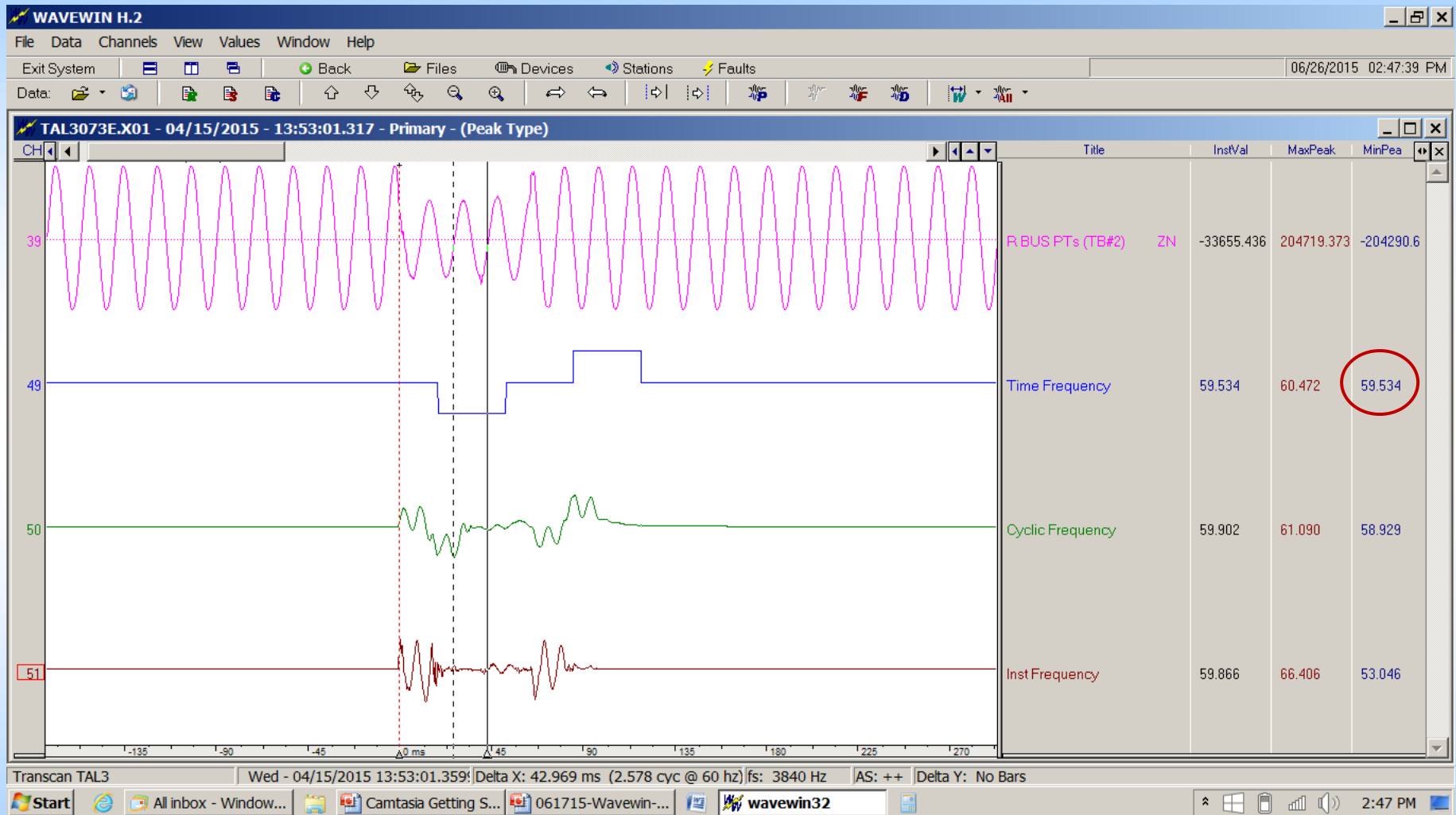
Pre-fault Frequencies



Frequency is solid at 60 Hz



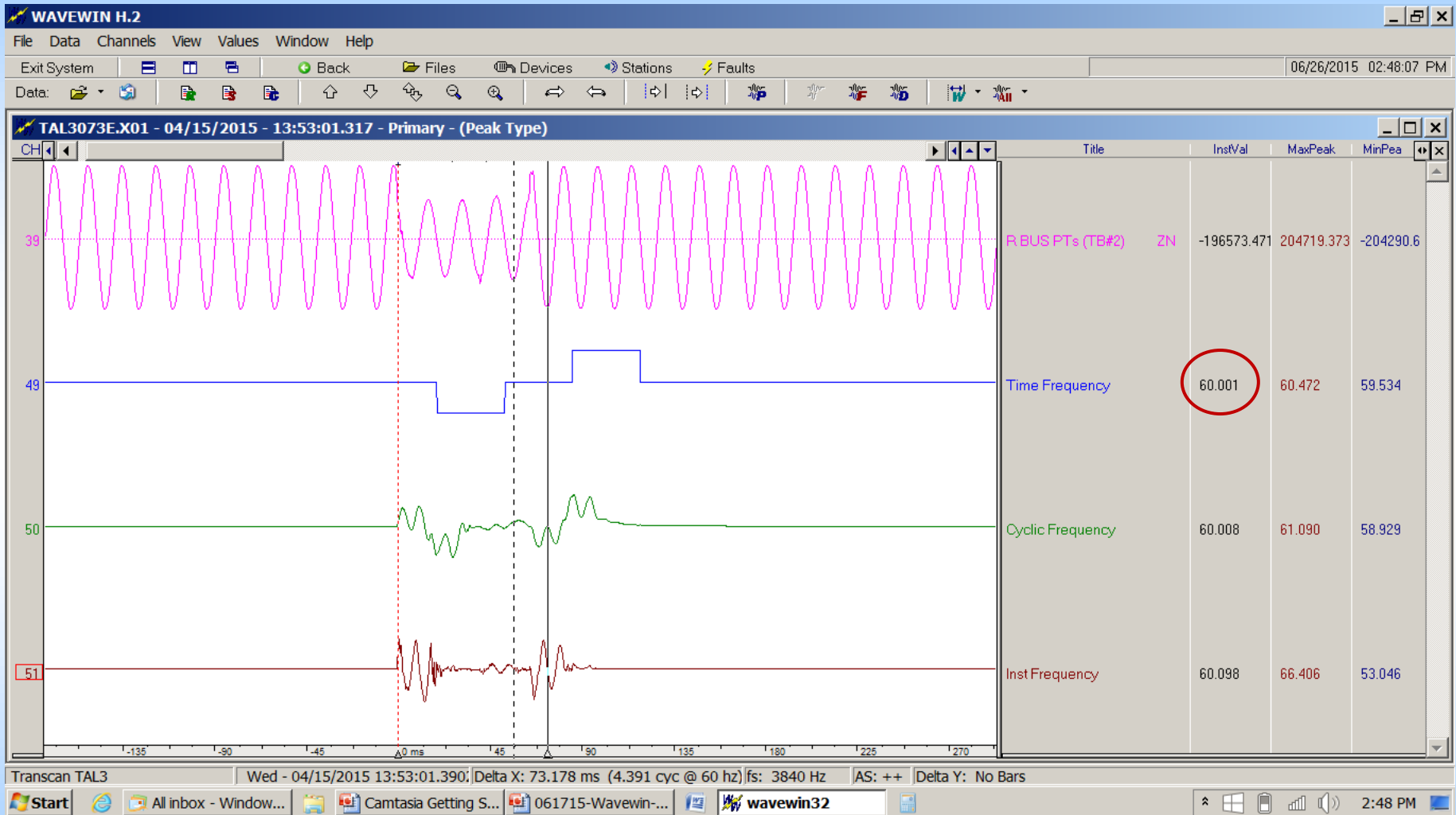
Start of Fault Frequencies



Frequency dips by 0.5 Hz



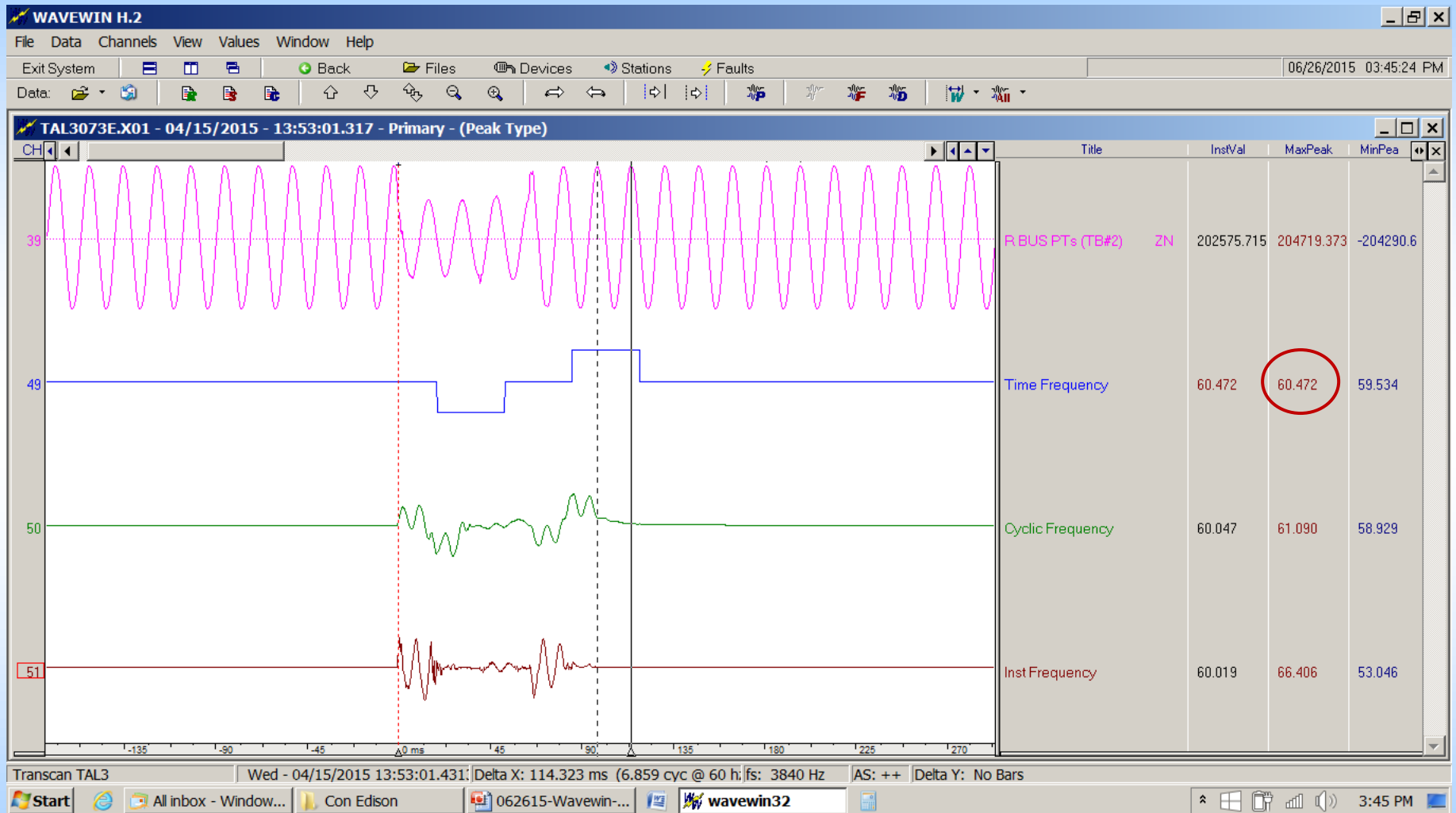
Fault Frequencies



Frequency back to 60 Hz



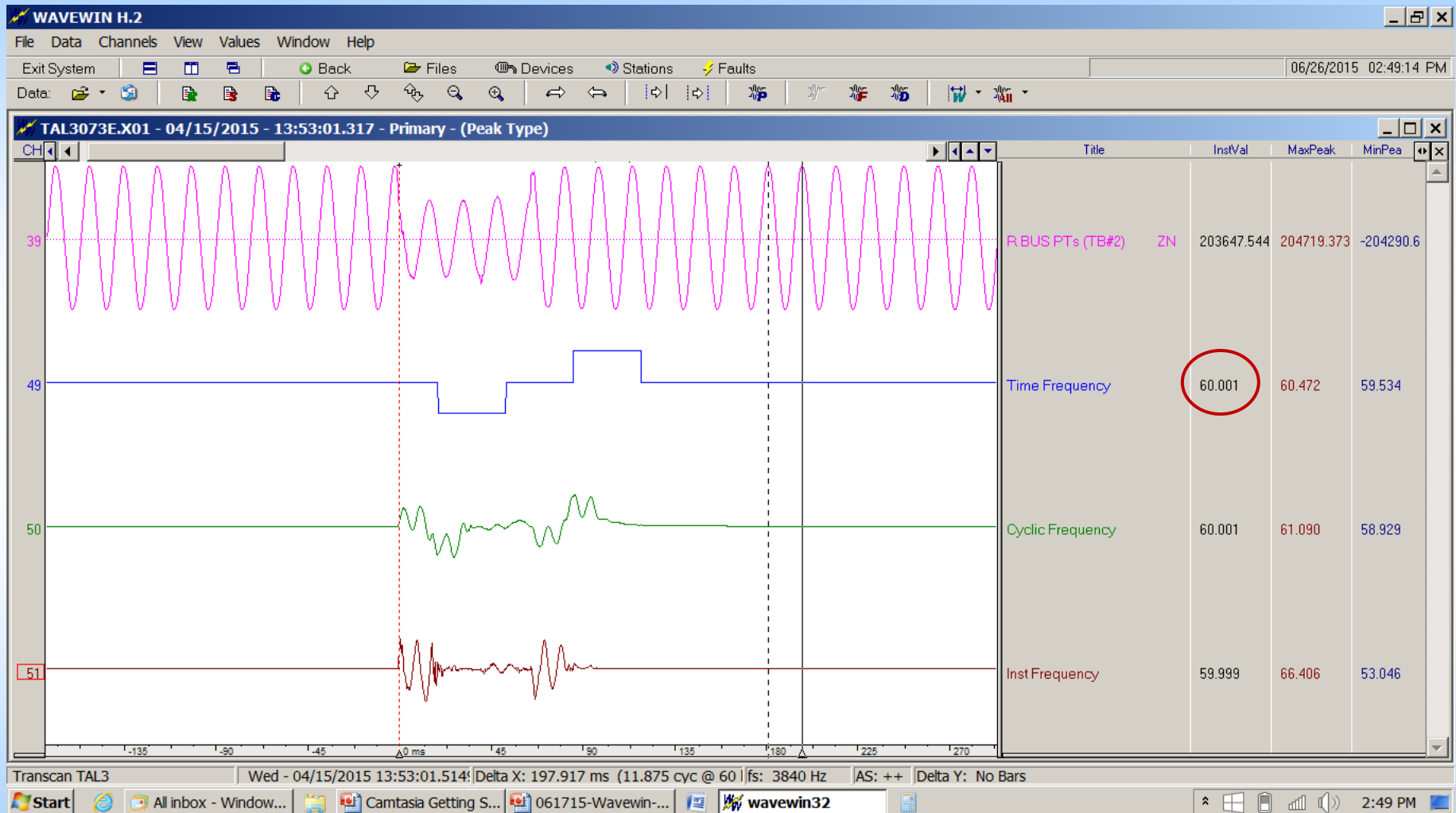
End of fault Frequencies



Frequency increases by 0.5 Hz



Post-fault Frequencies



Frequency back to 60 Hz



Time Frequency Explained

2,000,000/(μs at zero cross – μs 4 crossings ago)

- 1. Time based calculation*
- 2. Updates every 2 cycles*
- 3. Shows frequency 2 cycles back*
- 4. Is zero crossing based*

*Not accurate if harmonics or noise cause
additional zero crossings*

Cyclic Frequency Explained

Line Freq * (((angle – angle 1 cycle ago)/360) + 1)

- 1. Fourier based calculation***
- 2. Updates every sample***
- 3. Shows frequency 1 sample back***
- 4. Used for load conditions (C37.118)***

***Not accurate for non-periodic signals such as
at start and end of fault areas***



Instantaneous Frequency Explained

Sampling Freq * ((angle – angle 1 sample ago)/360)

- 1. Fourier based calculation***
- 2. Updates every sample***
- 3. Shows frequency 1 sample back***
- 4. Detects stable point in fault area***

***Not accurate for non-periodic signals such as
at start and end of fault areas***



End of Presentation

