x6000-04

S E R V I C E N O T E

Supersedes:
NONE

Medalist x6000 Systems

Serial Numbers: N7280A = ALL

Motion Scope Instructions for potential Camera Trigger Phase Lock Loop Problems

Parts Required:

P/N	Description	Qty.
NONE		

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION: **INFORMATION ONLY**	
AUTHOR: JPP	PRODUCT LINE: 80
ADDITIONAL INFORMATION:	

Agilent Technologies

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Situation:
During startup or board inspection some systems may exhibit a camera-trigger related error message such as “Fewer trigger signals were received by the camera than expected”. Abnormal friction in the stage Y-axis can cause the motion control circuit to become unstable. This causes the Phase Lock Loop (PLL) circuit of the camera triggering control to “Jump” in and out of lock because the circuit cannot keep up with the instability. This “Jump” in the PLL circuit results in the received error message about camera triggering.

Solution/Action:
The following are instructions on how to set up the MEI software Motion Scope to display the PLL lock indicator and the Motion position data.

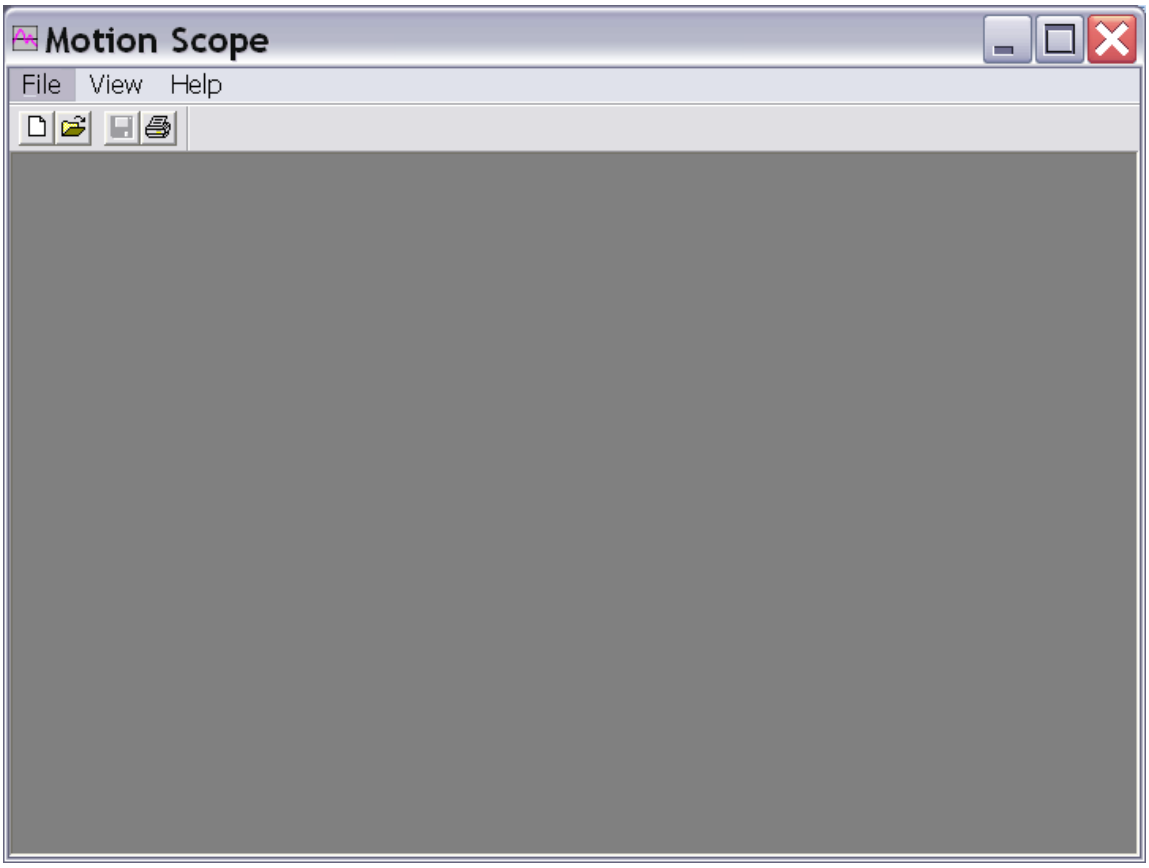
Note: Customers can perform the following procedure **only** under the supervision of Qualified Agilent Personnel. Improper use of the Motion Scope can damage the X-Y stage components.

1. Minimize or Exit out of the X6000 GUI software.

2. To start Motion Scope, navigate to the C:\Program files\Agilent\X6000\1.1\bin directory and double click on the **MS_XMP_NT.EXE** program. Note: MC_XMP_NT.EXE program is Motion Console, make sure that you do not launch the incorrect software.

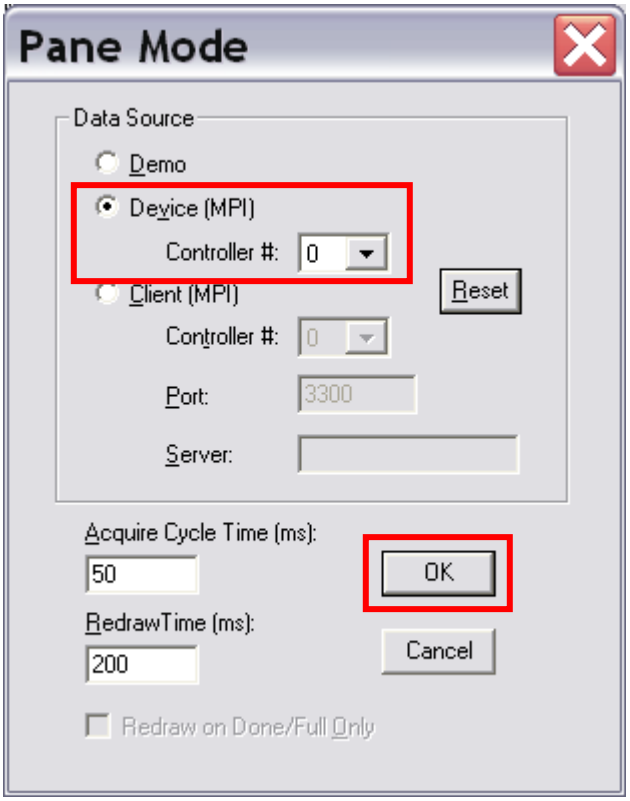
3. Click on the “File” button and select NEW.

Figure 1



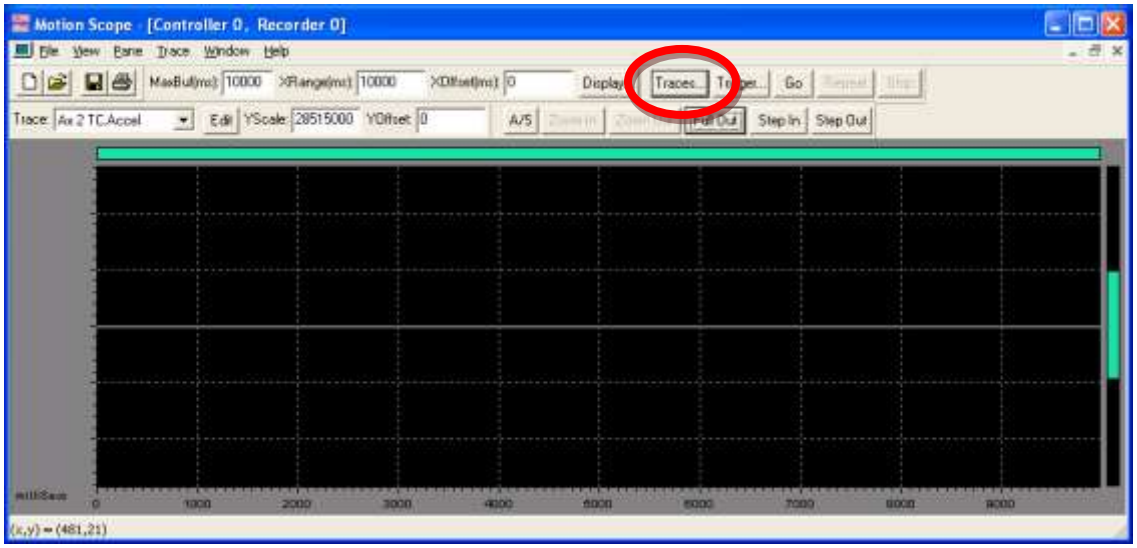
4. Select Device (MPI) radio button and Controller #0. Click OK.

Figure 2



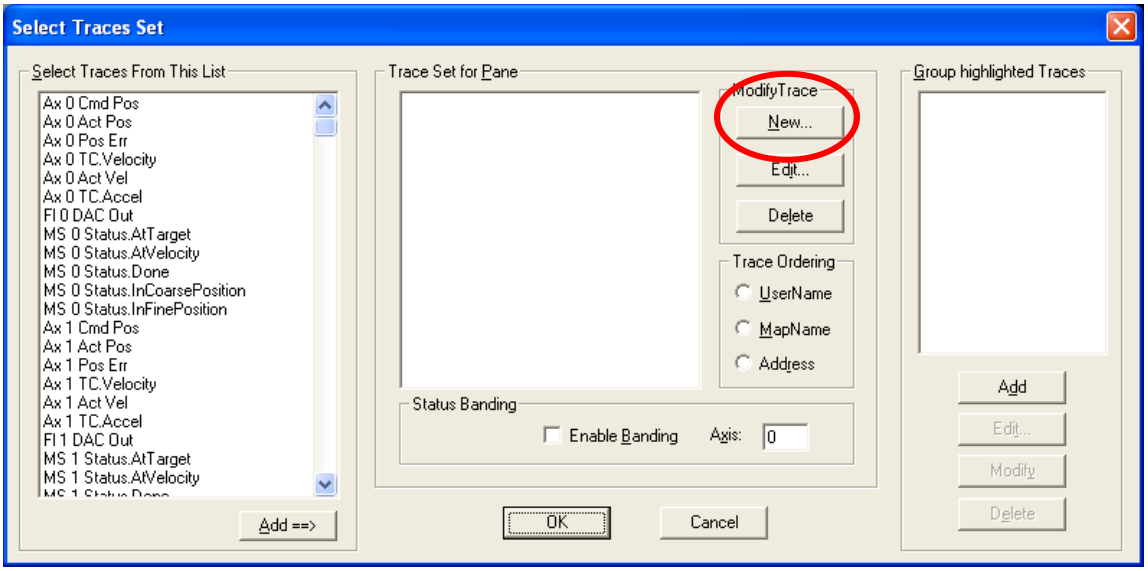
5. Click on the Traces button in the Motion Scope toolbar to configure the traces (see figure #3)

Figure 3



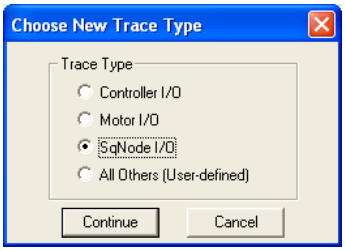
6. Click on the New button

Figure 4



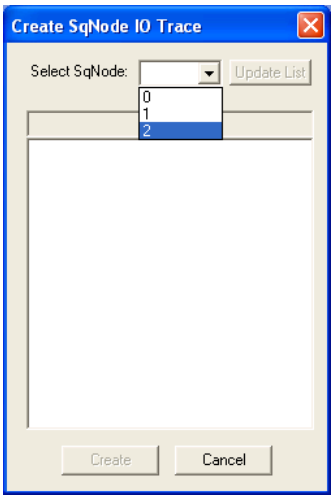
7. Select SqNode I/O (see figure #5)

Figure 5



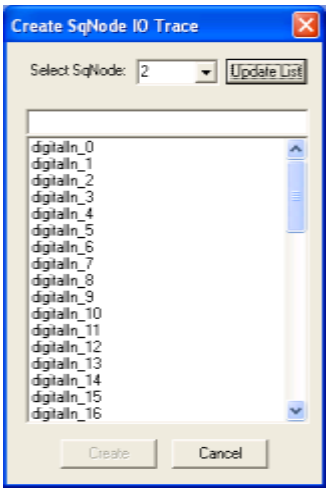
8. Select node 2

Figure 6



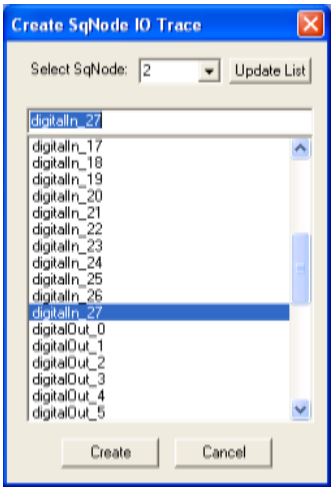
9. Click on Update List

Figure 7



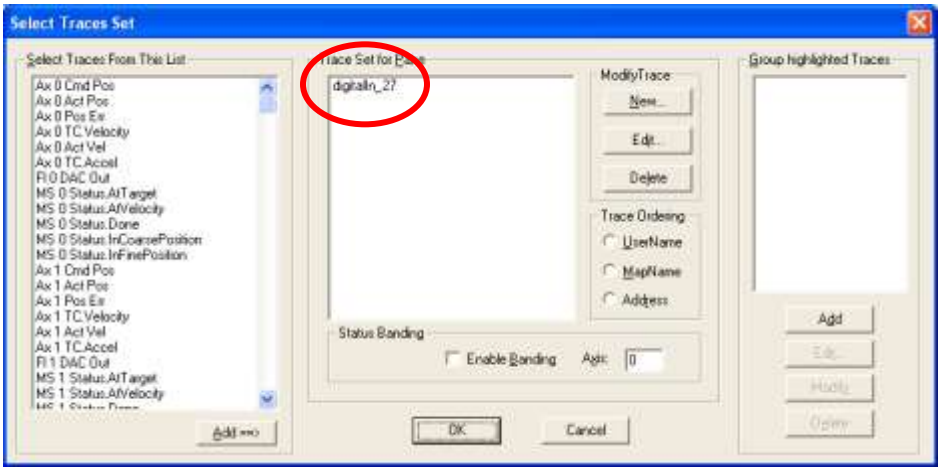
10. Select digitalIn 27 (PLL Lock) Click on Create.

Figure 8



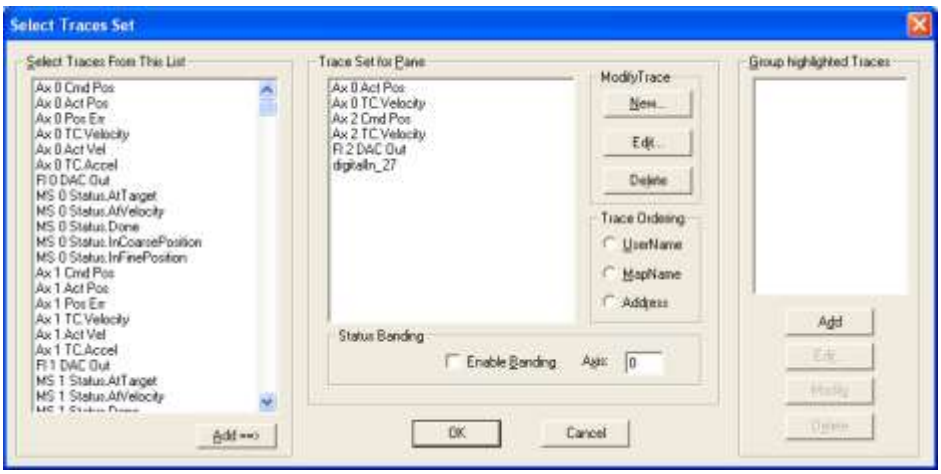
11. The digital input appears in the Select Trace for Pane box.

Figure 9



12. Add other traces as desired for position and velocity. If you want to see the torque command, that is called "DAC Out". For example, "Fl 2 DAC Out" means, "Filter 2 DAC Output", the torque command sent to the drive, full scale is 32767.

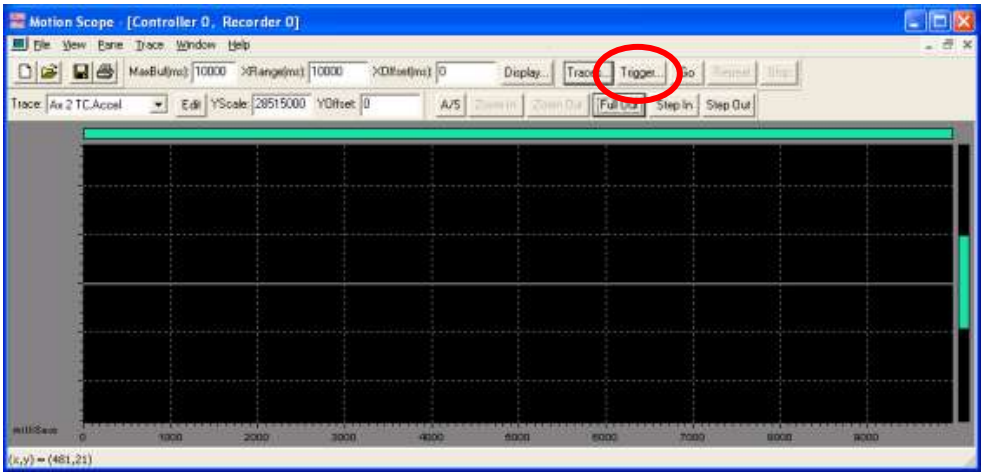
Figure 10



13. Back at the main Motion Scope window, set the MaxBuffer and Xrange to 10000.

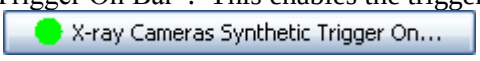
14. Click on the Trigger button on the Motion Scope toolbar and configure the trigger.

Figure 11



15. Select the following trigger conditions.

Figure 12

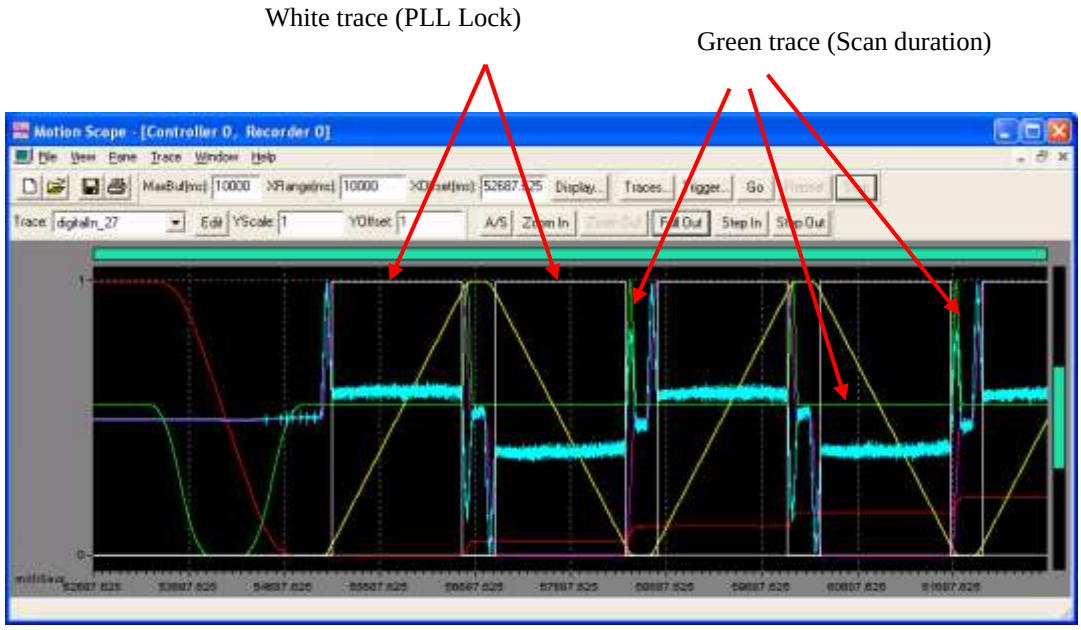
16. Next you will need to go to the X6000 GUI service menu, Digital I/O and enable "X-ray Cameras Synthetic Trigger On Bar". This enables the triggering based on Y-axis stage position and not synthetic. 

Forgetting to turn feature this ON will cause a flat signal in the traces plot.

17. Go to the Panel Positioner tab and select Long Scans profiles. Once selected click on the loop box and then the "Run All" button to start moving the stage.

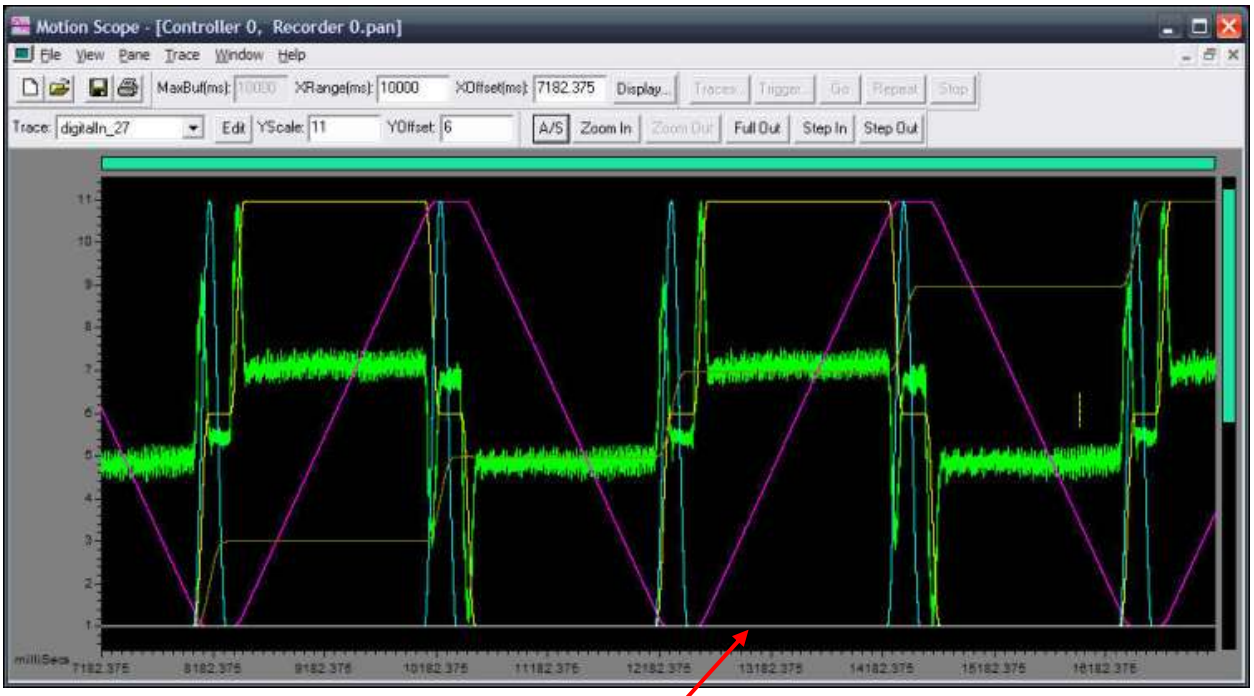
18. Once the Scan starts, minimize the x6000 GUI and view the Motion Scope window. Click on the "GO" button. It should start displaying traces of the selected data.

Figure 13



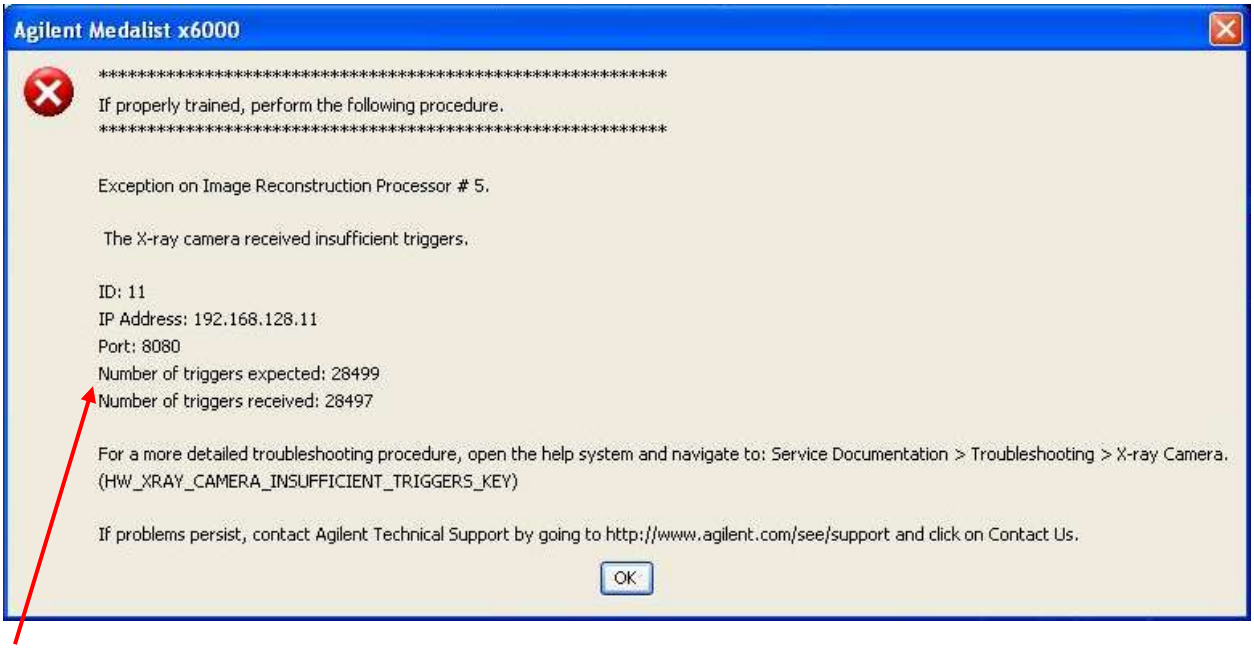
19. Figure #13 is a typical trace on properly operating system while running AgilentLongScans from the service window. The White trace is PLL lock. As you can see, the PLL stays in LOCK the whole duration of the scan (Green Trace). If the system is "Jumping" out of PLL, you will see more than one transition during the scan.

Figure 14



The trace is flat because the triggers were not enabled.

Figure 15



Sample insufficient triggers error. The triggers expected and received are not the same.

Figure 16

The PLL Lock is lost many times during the scan in Figure 16. The problem is at one end of the scale, see that the forward motion started without any problems but coming close to the end it started losing the lock, then in the reverse direction it started losing the lock and stopped the motion without any loss of the lock.

Note: If you use Panel Positioner scan motion in the service window to check the PLL lock operation, you **must** disable synthetic triggers in the Digital I/O tab.

Note: If you have problems with the PLL not staying locked then check the read head cleanliness, it is also possible that the lead screw may require re-alignment. If you do replace parts it is a good idea to mark with a color pen a line first on the original end-bearing, coupler, X or Y motor mount bracket position, etc., then disassemble everything before installing the new parts. If you have to take apart the Y stage end-bearing then you will require tool E7200-00070 to make your job easier (but it is not necessary to have this tool). The X axis does not require this tool for disassembly.