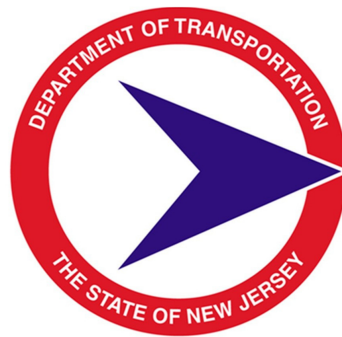


**Pathrunner Startup and Data Collection
Procedure Training
for
Operator**

**By
Haidy Abdu**

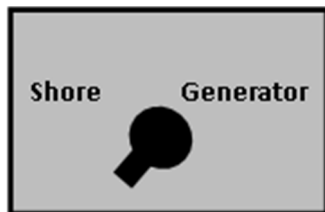
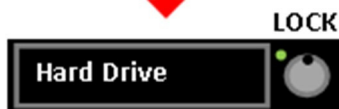
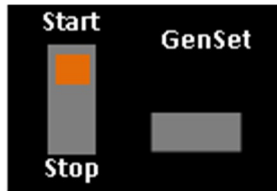
New Jersey Department of Transportation

Pavement & Drainage Management Unit



1. Start the Pathrunner Power Supply System:

- a. Make sure the Pathrunner has more than 1/4 tank of fuel.
- b. Start Vehicle Engine
- c. Prime an Start Generator (Allow to run for 1 minute to warm)



- d. Move power selector switch to "Generator" position
- e. When generator power is supplied to the UPS units, the UPSs will automatically power on and perform a self test.

2. Power Pathrunner Subsystems On:

- f. Verify all roadway computers and 3D computer have a removable hard drive installed and the keyed switch is in the "LOCK" position.
- g. Push UPS 1 and 2 power buttons. You may then turn on all computers and subsystems.
- h. If applicable, switch Gyro power switches to "On" position in ascending sequence Upper left, lower left, middle). Allow Gyro to spin up (Approximately 3 minutes)



The **DMI** Control Box must be set on RUN while the vehicle is collecting data

- Check air in tires
- Make sure all the cables in the DMI and Hi-5 are secure
- See if the ABS light is lit on the dash
- The collection screen indicates that the van isn't moving when it is moving.
 - a. Make sure DMI is on.
- The collection software indicates the DMI box is set to test and it is actually set to Run.

3. Launch Profiler Data Collection Software:



- i. Navigate to the Profiler Computer. Double click on the “PathRunnerRT” icon. Allow RT to launch and close the RT window as prompted on the screen.
- j. Double click on the “PathRunnerXP” icon. The data collection software should open after a few moments

Verify Profiler Data Collection Software has launched successfully:

- Is desired database/road section file loaded?
- Is desired set number loaded?
- Is Latitude and Longitude data populated?
 - o Make sure vehicle is outdoors and free of aerial obstructions
 - o Lat/Long text should be BLACK. (Lat/Long fields will turn RED if vehicle remains stationary for 2-3 minutes)
- Verify IP Address and sensor data for Gyro unit is accurate
- Verify time code is accurate (This value should be 00:00:00:00 if a new set number is issued)

Database/road section file and set number

Time code

1 Path: **C:\test\1** File: **10runs.SEC** Set: **42** Mode: **M/D** DMI Cal.: **1.4847** Cam: **NA** IDcode: **00:04:51:21** #/ft: **0** Down: **NA** Road: **2**

2 **TEST: 42** mi/ft Distance: **1731.2 ft 0.328 mi** **MP:-0.328** **LogMi:-0.328** 360: **NA** Down#: **0** Road#:

3 Latitude: **+36.07804970** Longitude: **-95.82052672** Altitude: **751 ft** DOP: **--/--/--** Sta: **120.4mi** **ATL 169.254.225.104** COIRI (in/mi): **1.5** **0.9**

4 D: **D** L: **1** FR: **Start** TO: **End**

5 PhotoCell: **Disarmed** LaserLights: **OFF** Motion: **OFF** Gyro H: **270.6** P: **0.020** R: **0.060**

6 **GPS Lat/Long**

7 **Gyro Data**

8 **0.1Min Ago: CHECK MACRO TEXTURE COMPUTER**

9 **0.1Min Ago: CHECK LEFT SHOULDER COMPUTER**

10 **0.2Min Ago: CHECK RIGHT SHOULDER COMPUTER**

Num	To	FRIPost	TRIPost	FDIPost	TDIPost	DD	Comments	Start-Lat	Start-Lon	End-Lat	End-Lon	Len(ft)	Svy(ft)	Dff(ft)	LN	CD
5	End	0.000	0.000	0.000	0.000	D		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.5	0	1	N
6	End	0.000	0.000	0.000	0.000	I		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.5	0	1	N
7	End	0.000	0.000	0.000	0.000	D		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.2	0	1	N
8	End	0.000	0.000	0.000	0.000	I		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.2	0	1	N
9	End	0.000	0.000	0.000	0.000	D		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.5	0	1	N
10	End	0.000	0.000	0.000	0.000	I		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1056.7	1	1	N
11	End	0.000	0.000	0.000	0.000	D		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	1055.0	-1	1	N
12	End	0.000	0.000	0.000	0.000	I		35.79539874	-97.94654081	35.78851	-97.9492	1056.3	4993.2	3937	1	N



4. Launch Roadway Cameras Collection Software:

- k. Navigate to each roadway computer:
- l. Double click on the “JAI Control Tool” icon and allow the camera control tool to launch. Wait for the camera icon to show on the left side of the screen. Close the control tool window (click the RED X).
- m. Double click on the maroon Pathway Icon. The roadway image software will launch.
- n. Verify settings on the “Status” window for each roadway camera.
- o. Connection status should read (in all CAPS): “CONNECTED TO PROFILER:”
- p. If connection status reads: “Connecting...” in lower case font, the camera computer is not communicating with the Profiler computer software properly.
- q. Verify the data collection software is storing data to the removable hard drive (usually disk“e:\”). Verify removable hard drive has adequate capacity for data collection.
- r. NOTE: The computer must be shut down if the removable hard drive needs to be changed. Do not attempt to exchange hard drives while the computer is powered on.

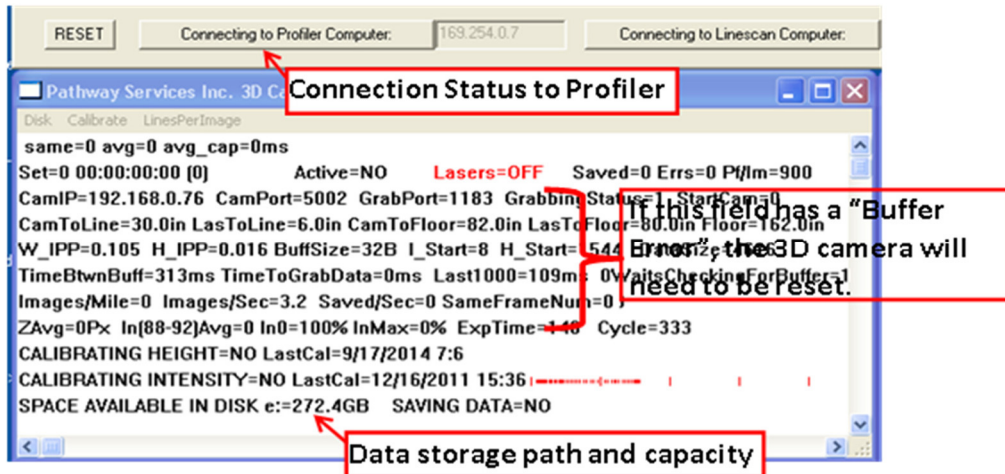


5. Launch 3D Camera Collection Software:



- s. Navigate to the Pathway 3D Computer
- t. 14. Before launching the 3D data collection software, turn power to the 3D camera off for 10 seconds, and then turn camera power back on. This will reset the camera for data collection.
- u. 15. Double click on the maroon Pathway icon. The 3D data collection software will launch.
- v. 16. Verify settings on the 3D dashboard.
 - i. Connection status should read (in all CAPS): “CONNECTED TO PROFILER:”
 - ii. If connection status reads: “Connecting...” in lower case font, the camera computer is not communicating with the Profiler computer software properly.
 - iii. Connection to the Linescan Computer is not applicable.
 - iv. Verify the data collection software is storing data to the removable hard drive (usually disk “d:\” or “e:\”). Verify removable hard drive has adequate capacity for data collection.

NOTE: The computer must be shut down if the removable hard drive needs to be changed. Do not attempt to exchange hard drives

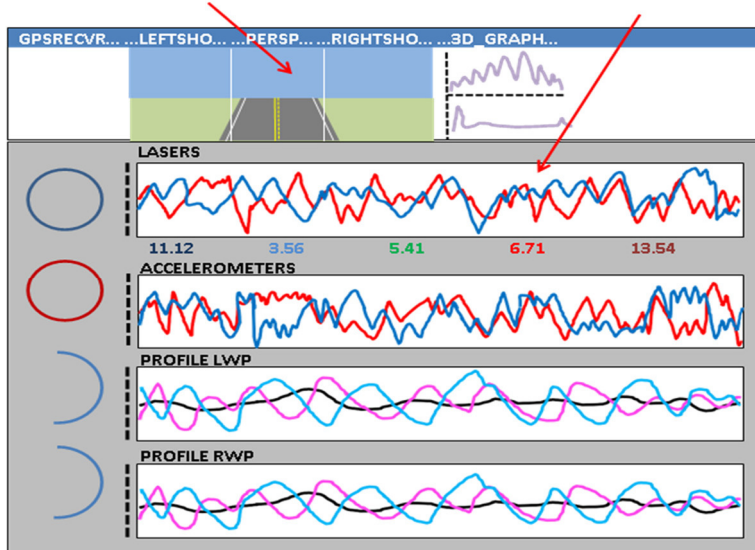


6. Prepare to collect data:

- w. Navigate to the Profiler computer after all subsystem computers are active and ready for data collection.
- x. 18. Verify all subsystem computers are sending a thumbnail image to the Profiler computer.
- y. If a Shape file is to be used for mapping during data collection, open the *.shp file at this time:
- z. From the Profiler collection software, choose "GPS" D "Open Shape File". Locate the desired shape file and open. The map window should show a map and will automatically center the vehicle icon in the center of the map.

THUMBNAIL IMAGES

SENSOR DATA ACTIVITY GRAPHS

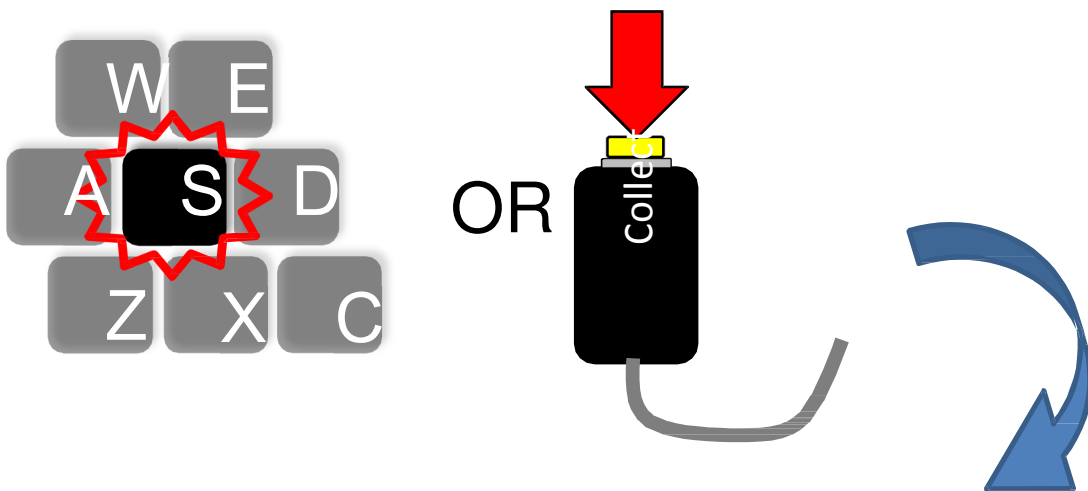


Once the operator is ready to collect data and all systems are ready, the system is activated by pressing "Ctrl + A" while using the Profiler computer screen. The Profiler will confirm proper subsystem communication and function with several prompts to the operator. Verify information is correct and proceed as prompted by the data collection software. The background of the dashboard will turn from gray to white. The timecode and distance should start counting. It is normal to have a small number of error values (in **RED**) under the accelerometers and lasers. (If these error values exceed 10,000 in less than 1/4 mile, the lasers or accelerometers may be experiencing problems.)



1. Path: D:/Data File: RoadCollection.sec Set: 21 Mode: M/D DMI Cal: 1.48 Timecode: 00:00:12:09
2. Speed: 45 mph Dist: 120 ft .06 mi MP: 2.25 LogMi: .12 360: N/A Count: 0 Road: 0
3. Lat: +36.22241 Long: -95.6541 Alt: 521 ft DOP: 1.0/1.6/1.1 GPS: 169.125.225.109
4. D: I LN:1 FR: Hwy1 TO: CL
5. Photocell: Disarmed LaserLights: OFF Gyro: H: 254 P: 1.2 R: .19
6. ACCHz: 2000 DMI Hz: 238 155678 ACCEL Lasers 1.0 Min Ago: Activated
7. ACCSk: 0 DMI Sk: 0 LWP RWP LWP CEN RWP SL: 3
8. OV: 0 LPF: 43Hz DRS 26 32 18 22 SR: 5
9.

Start data collection by pressing the “S” key on the keyboard while on the Profiler screen, or press the “Start Button” one time. The Profiler dashboard should turn GREEN.

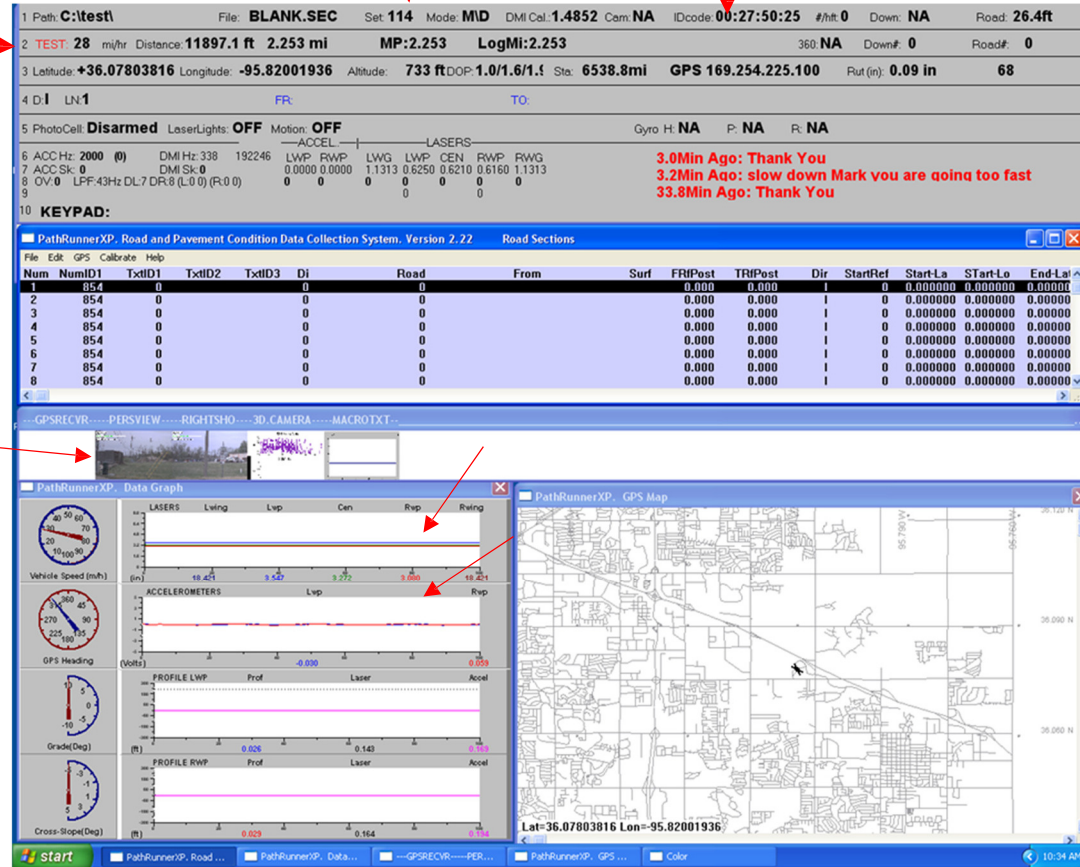


1. Path: D:/Data File: RoadCollection.sec Set: 21 Mode: M/D DMI Cal: 1.48 Timecode: 00:00:18:05
2. Speed: 45 mph Dist: 120 ft .06 mi MP: 2.25 LogMi: .12 360: N/A Count: 0 Road: 0
3. Lat: +36.22241 Long: -95.6541 Alt: 521 ft DOP: 1.0/1.6/1.1 GPS: 169.125.225.109
4. D: I LN:1 FR: Hwy1 TO: CL
5. Photocell: Disarmed LaserLights: ON Gyro: H: 254 P: 1.2 R: .19
6. ACCHz: 2000 DMI Hz: 238 155678 ACCEL Lasers 1.5 Min Ago: Activated
8. OV: 0 LPF: 43Hz DRS 29 38 23 36 SR: 5
9.

7. Systems to check during data collection:

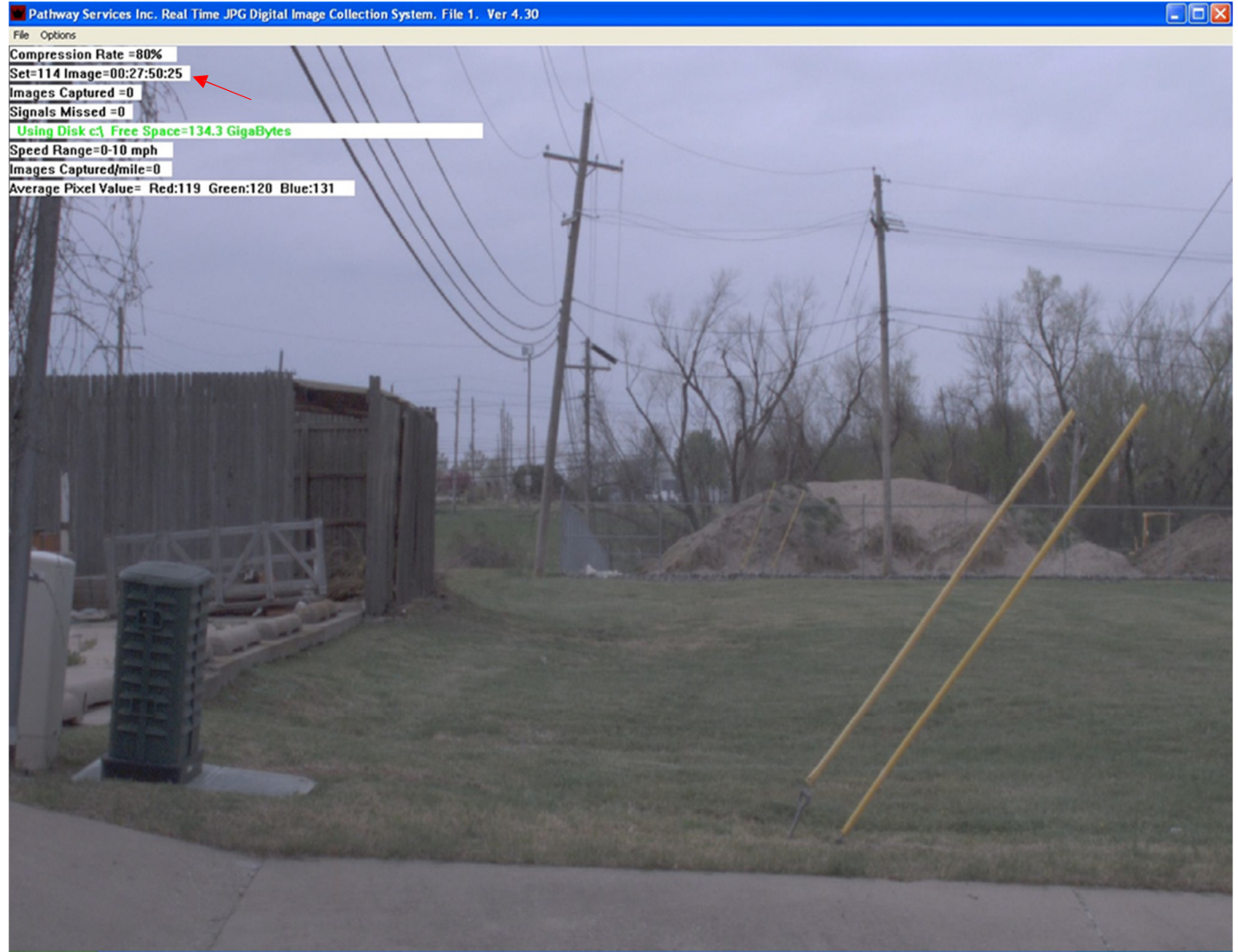
During data collection, the operator should toggle through all subsystem computers to verify proper equipment function and data storage:

Profiler Computer:



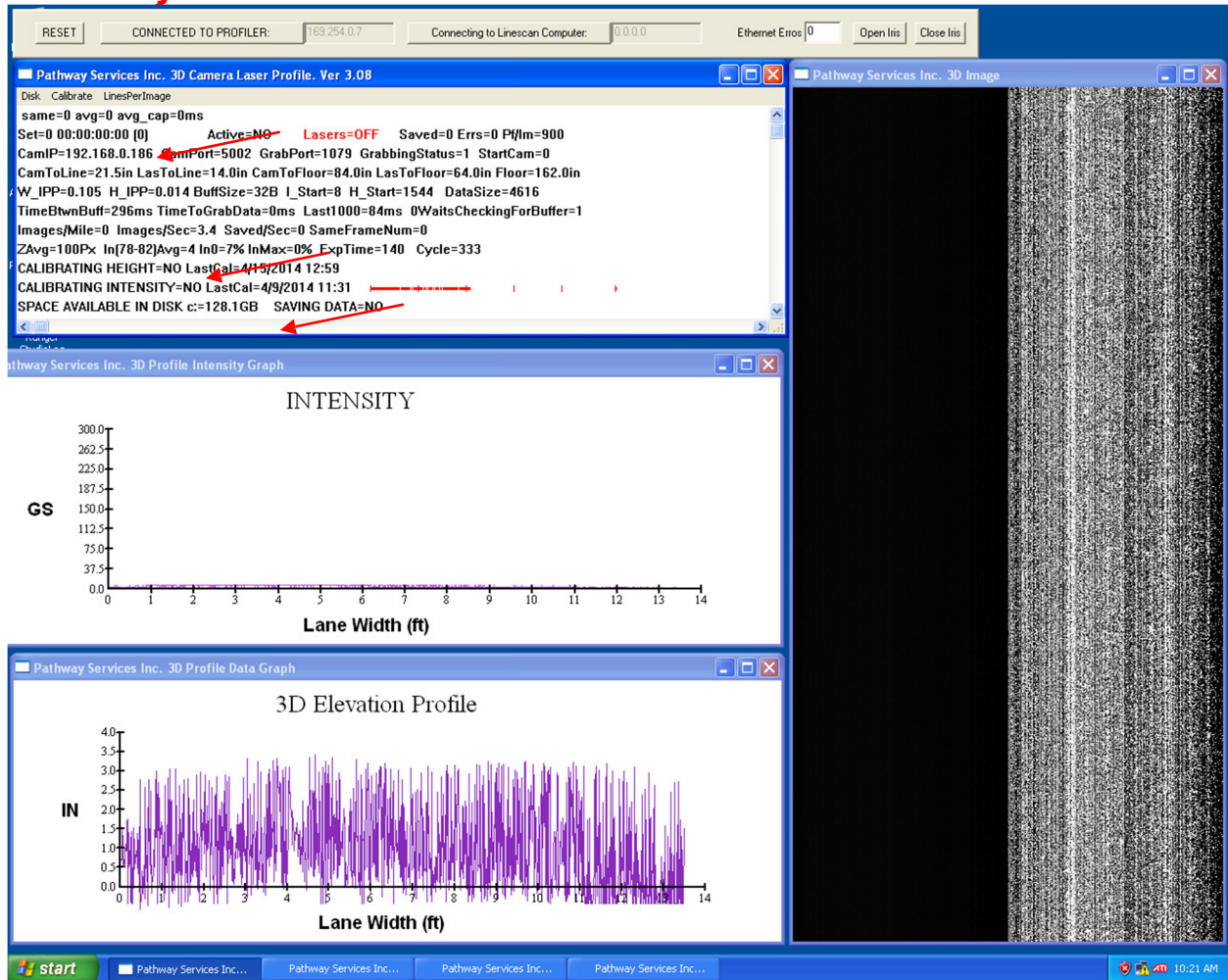
1. Set number and timecode should match all computers and the timecode should be scrolling.
2. Should say RUN in black letters (not test in red letters) and speed should roughly match the odometer.
3. Distance should be scrolling up smoothly.
4. Laser and accelerometer Red numbers should be low and not scrolling up fast.
5. Laser graph and accelerometer graphs should be moving and not flat lines.
6. Thumbnails of all computers and GPS should be shown.
7. Pay attention to anything that turns RED.
8. Color of roadway images should match.

Perspective:



1. Set number and timecode should match all computers and the timecode should be scrolling.
2. Image captured should scroll up and match the other roadway computer
3. Signals Missed should be very low and not scrolling.
4. Images Captured/mile should be about 200.
5. Image should be at a good brightness level with no bright white spots.

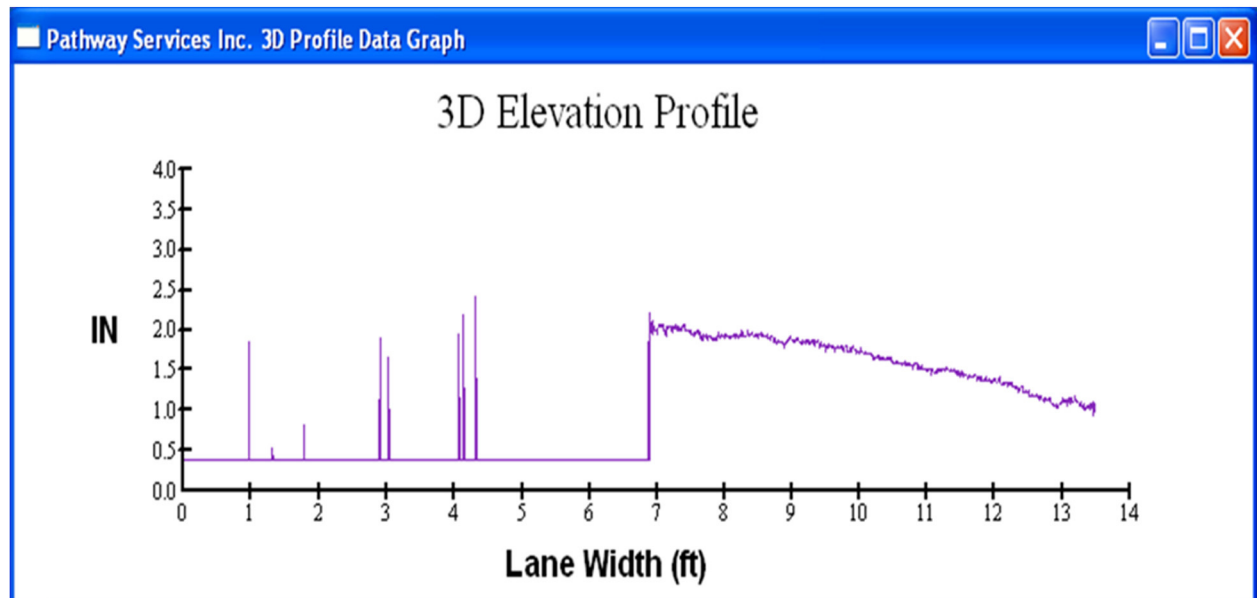
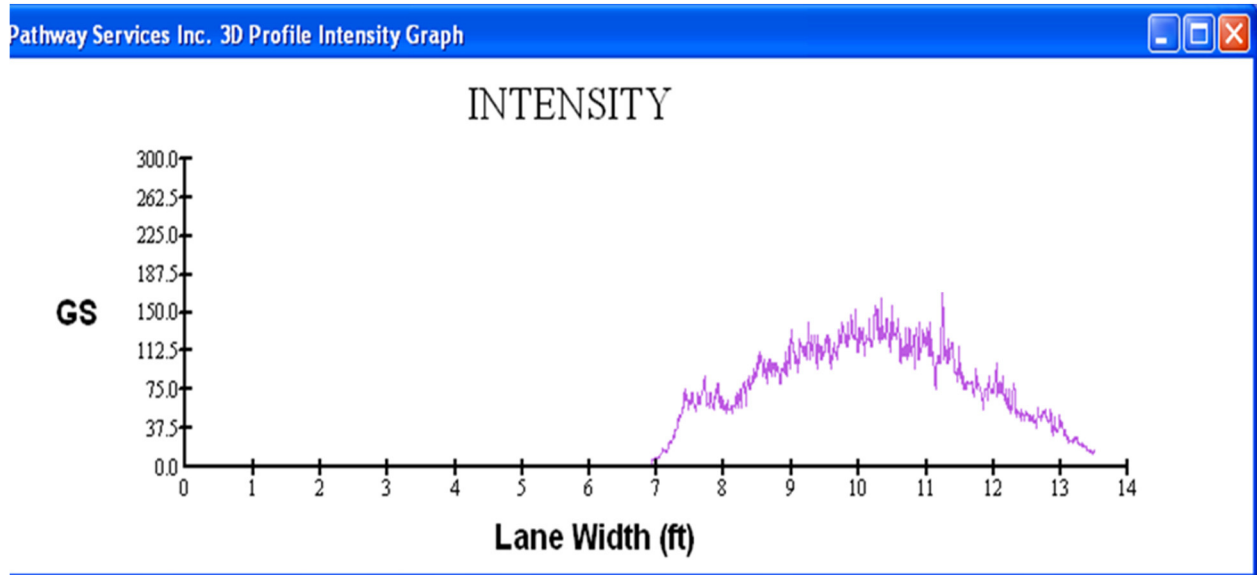
Pathway 3D:



a. For reference the lights are off in the picture above.

1. Set number and timecode should match all computers and the timecode should be scrolling. (this will not update until you activate)
2. IN Avg should be within the range that is set. (this will not update until you activate)
3. Space is available on the disk.
4. Data is saving (this will not update until you activate)
5. Intensity and 3D elevation graphs look good: (the intensity and 3D profile images on the right side of the screen will not update while the system is activated)

b. Only one laser light is on in the pictures below.



c. The pictures below show what the graphs should look like.

