

ABT7100 Track Geometry Trolley

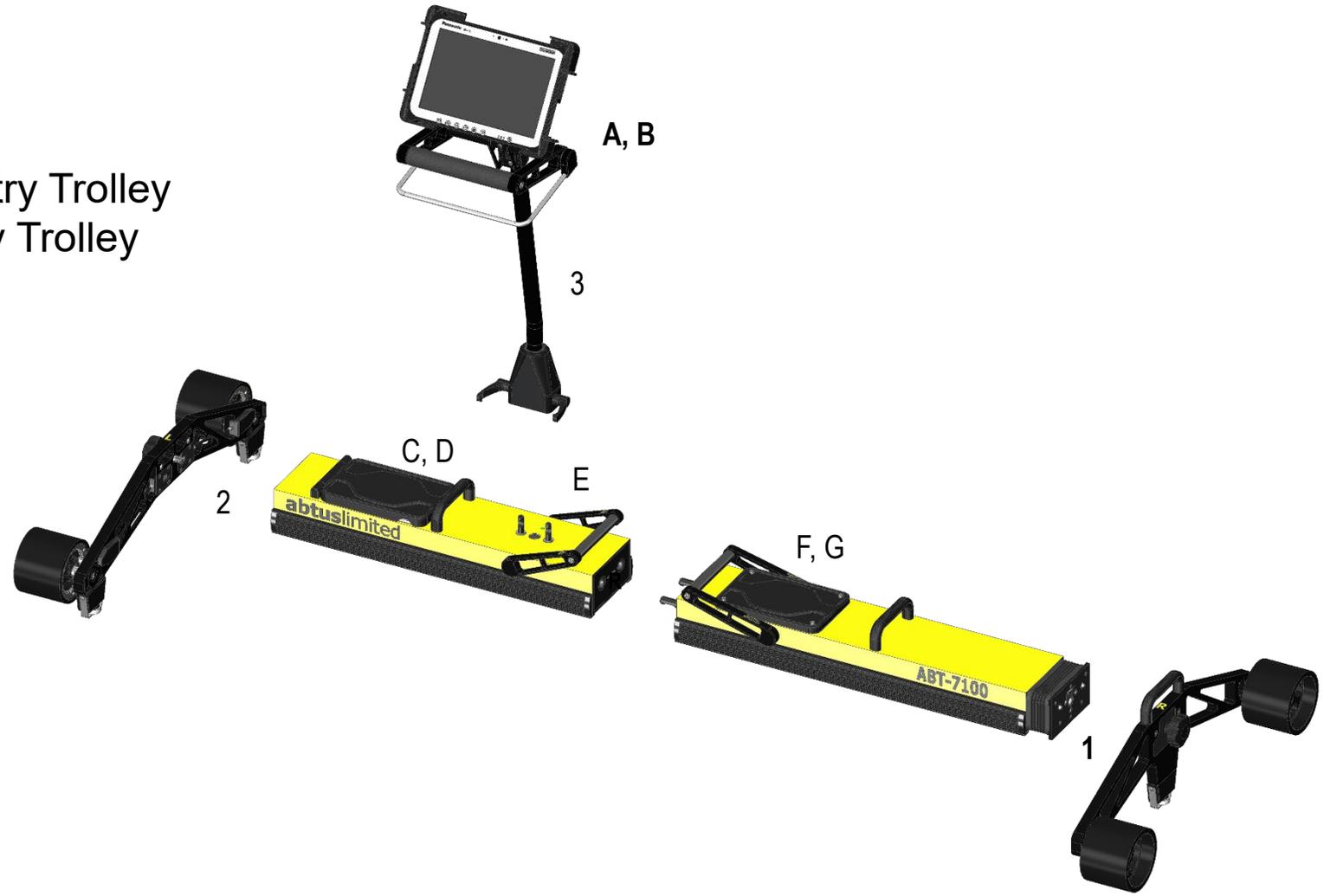
Step by Step Guide



Parts of the Track Geometry Trolley

1. Sprung half of Track Geometry Trolley
2. Fixed half of Track Geometry Trolley
3. Handle

- A. Panasonic Tablet
- B. Tablet Holder
- C. Batteries
- D. On Button
- E. Lock Handle
- F. Gauge retraction Handle
- G. Sensor Compartment



STEP 1:

Charge the Panasonic ToughPad and the Tracer batteries of the Track Geometry Trolley

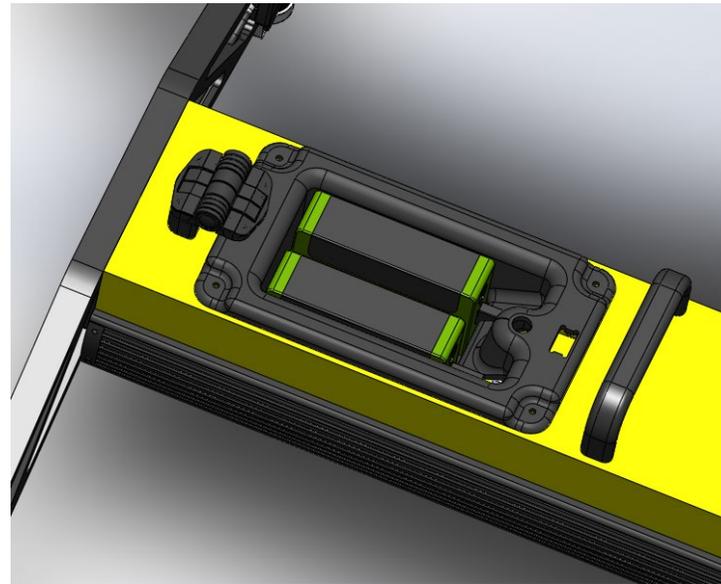


12V Charger

12V Output

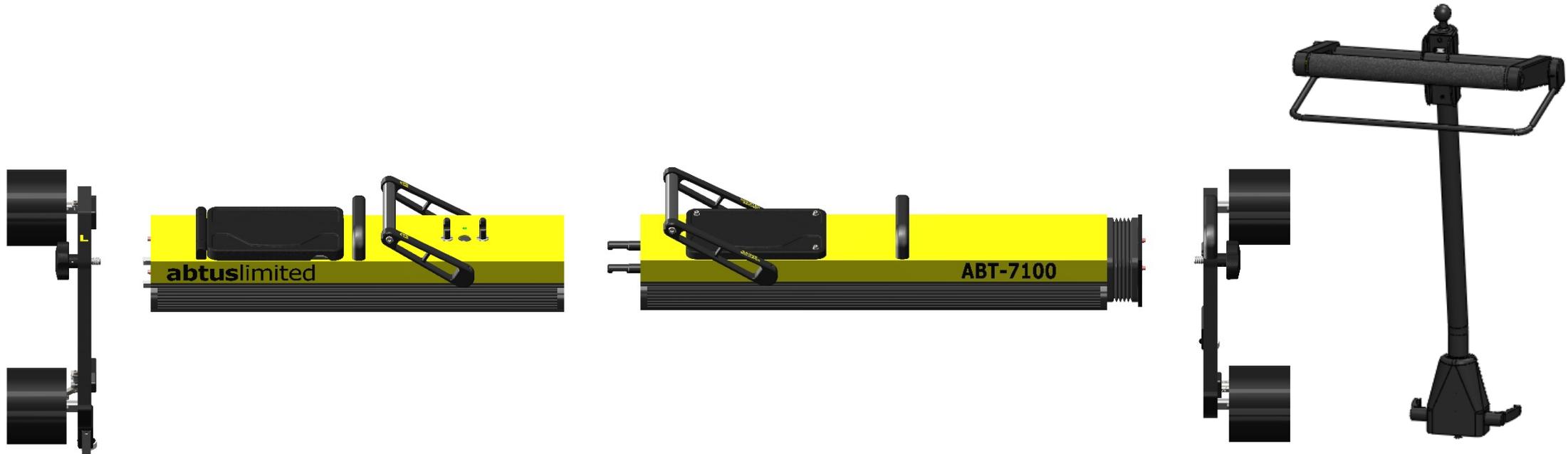
Battery Indicator

Battery Indicator Button



STEP 2:

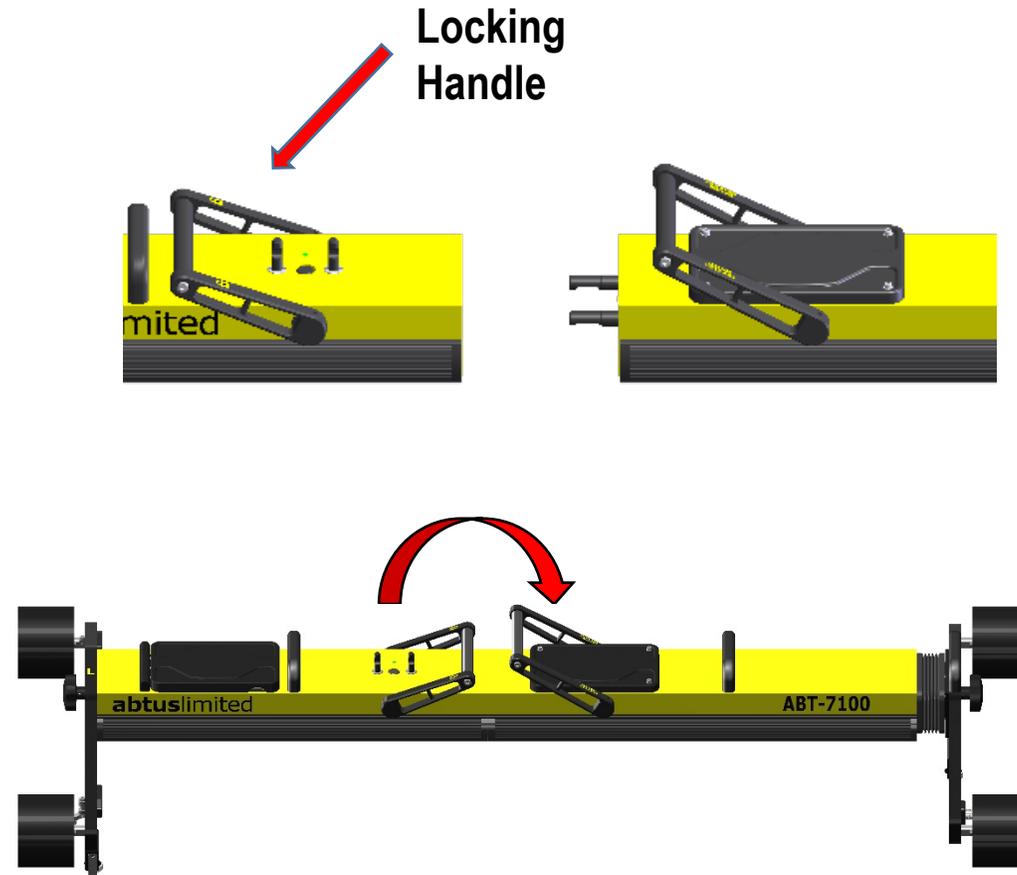
Transport the Track Geometry Trolley in its protective bags to the work site. Remove from the case, attach the wheel arms to the corresponding side and carry the three parts to the track.



Hazards: Instability during transportation
Sprung end pivots when carried.
Contact with 3rd rail.
Slips, trips or falls

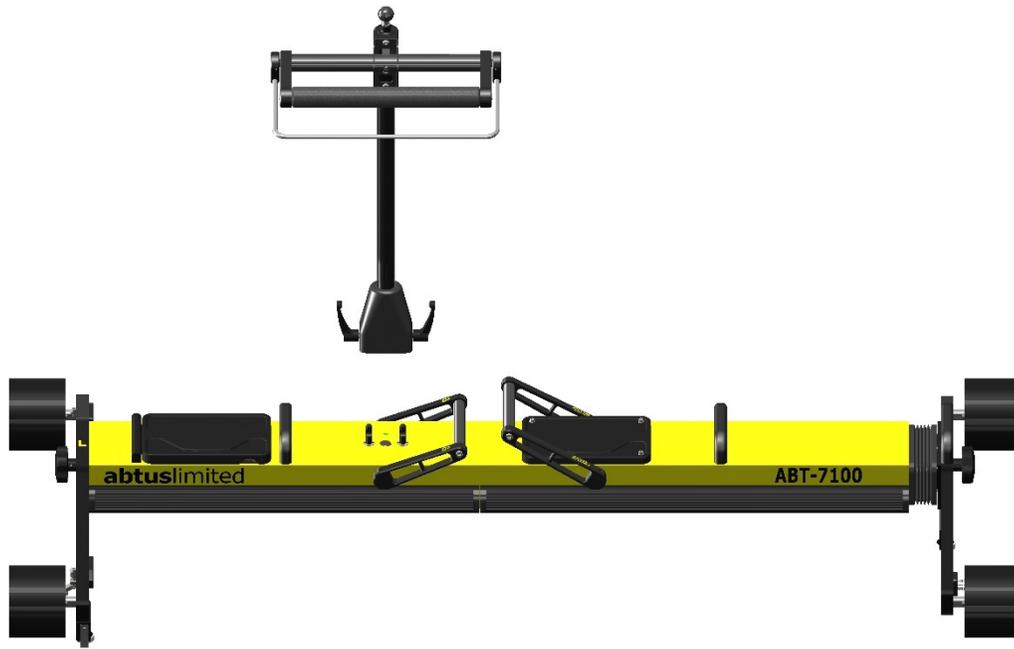
STEP 3:

Lock the two parts together using the locking handle.



Hazards: Trapped Fingers

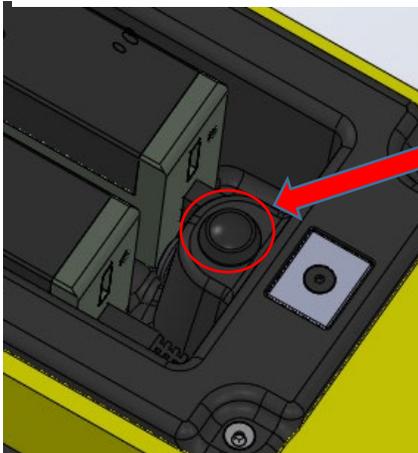
STEP 4: Lock the handle in place using the handle locking knobs.



Hazards: Trapped Fingers

STEP 5:

On the track. Turn on the Track Geometry Trolley, double click the ABT7100.exe application icon.

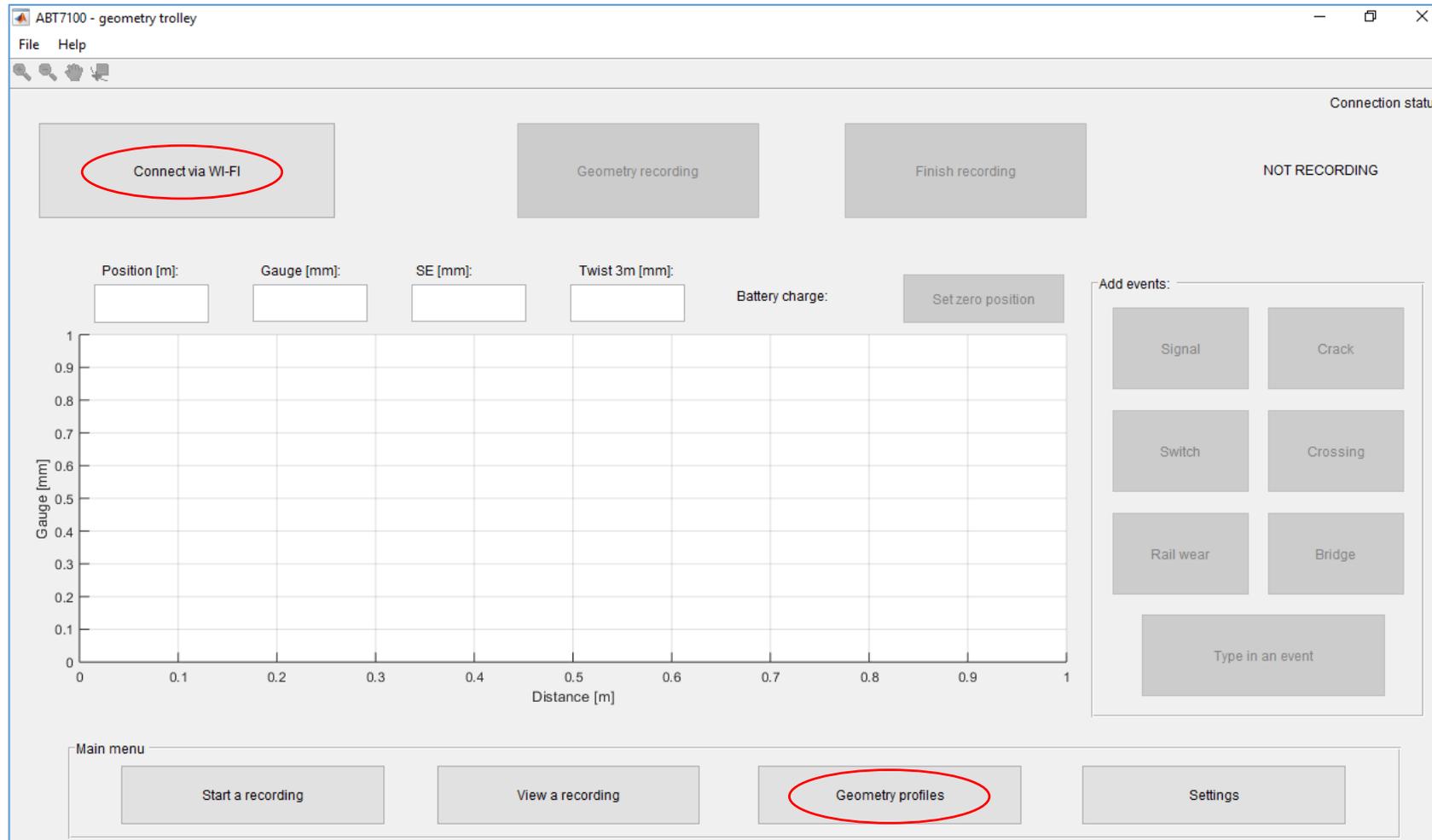


On Button
LED Goes
Green
When On



Hazards: Lack of alertness due to using software

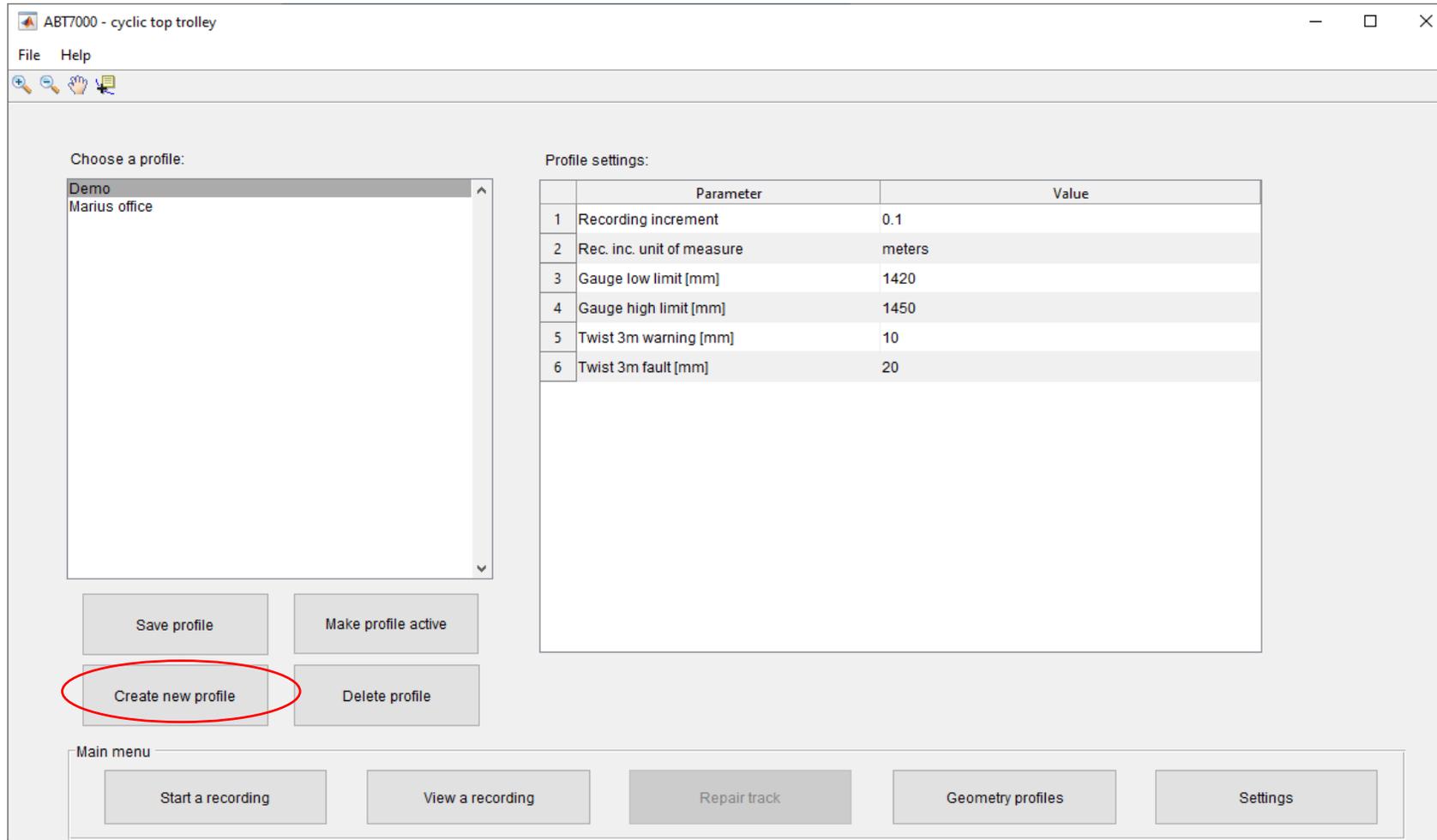
STEP 6: Click 'Connect via Wi-Fi' then click 'Geometry profiles'.



Hazards: Lack of alertness due to using software

STEP 7:

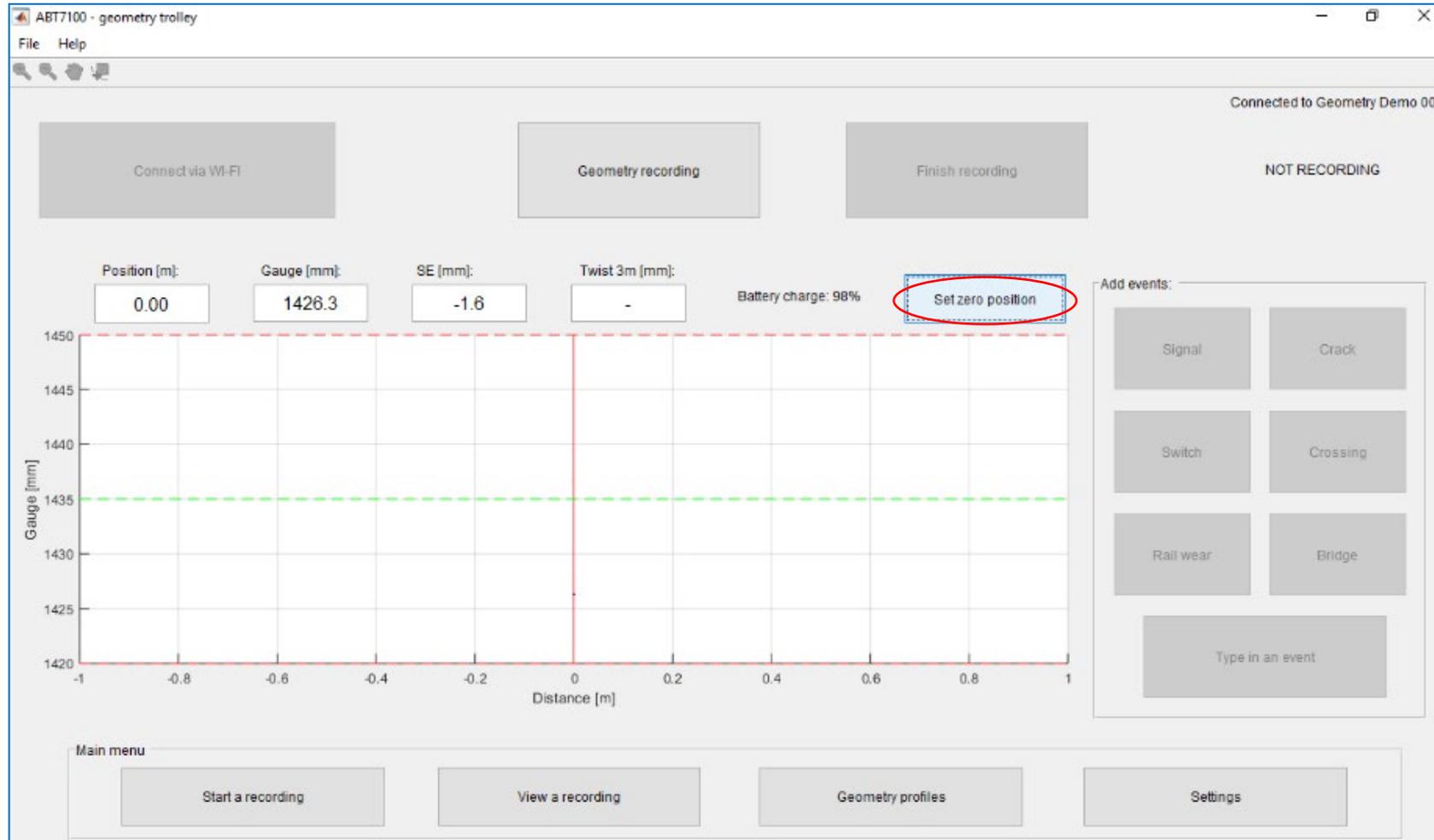
Click 'Create a new profile' to add a new profile with different parameters for the trolley such as recording increment, unit of measurement etc.



Hazards: Lack of alertness due to using software

STEP 8:

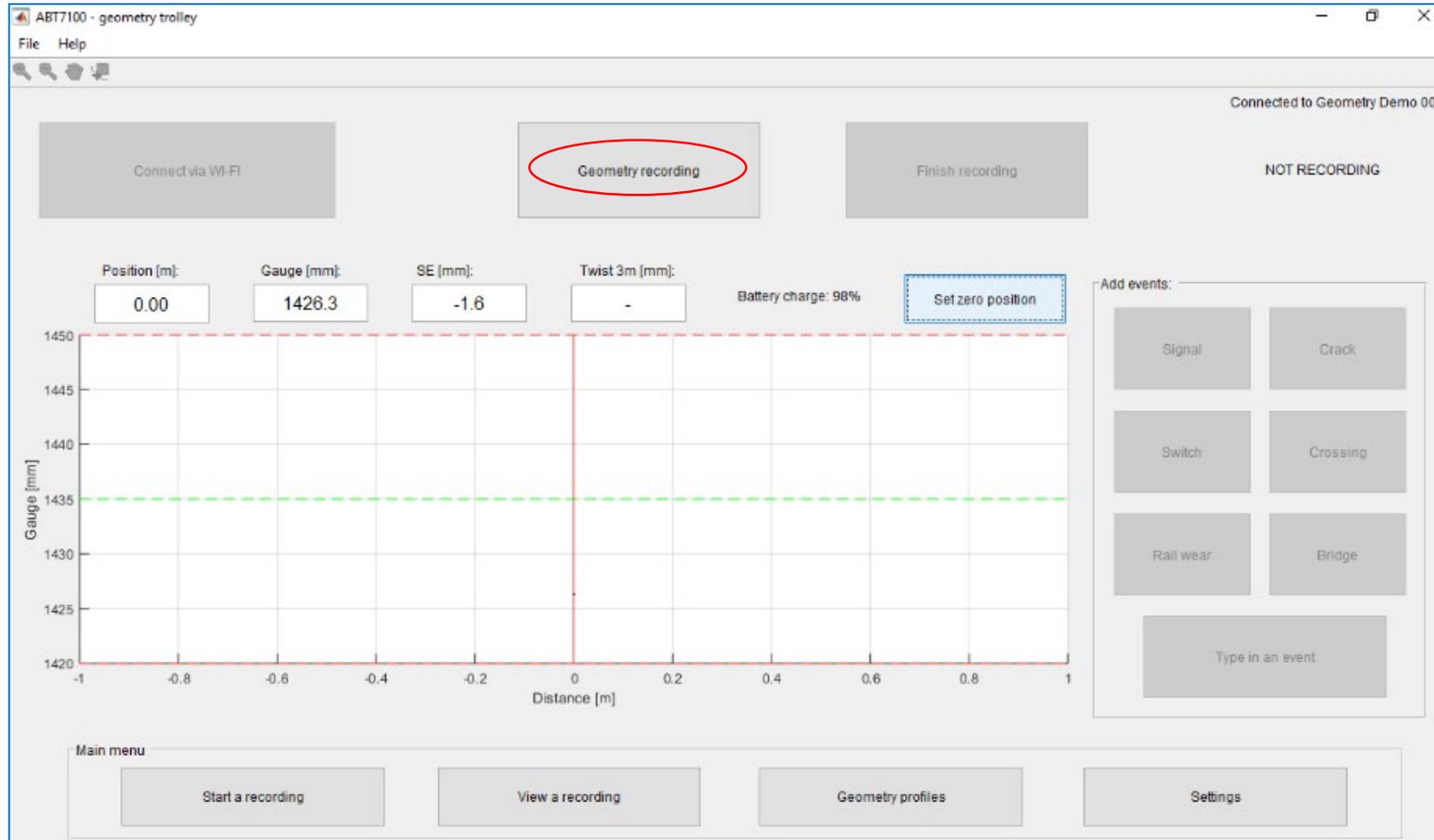
Click 'Start a recording' to return to the home page. Move the trolley to the starting position and click "Set zero position".



Hazards: Lack of alertness due to using software

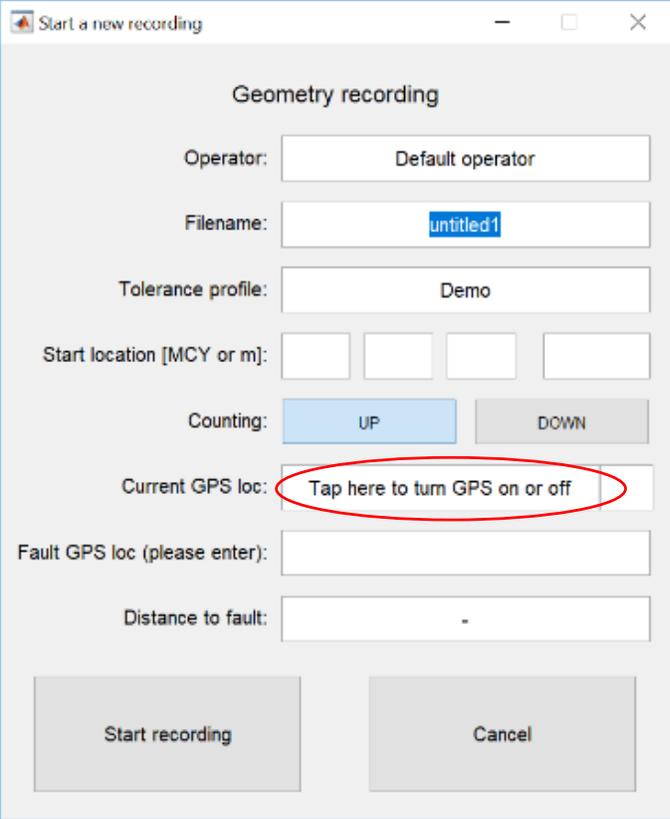
STEP 9:

On the home screen click 'Geometry recording' to start a new recording.



STEP 10:

In the pop-up window, tap next to the “Current GPS loc” to turn on the GPS device.



The image shows a screenshot of a software window titled "Start a new recording". The window contains a "Geometry recording" section with several input fields and buttons. A red circle highlights the "Current GPS loc" field, which contains the text "Tap here to turn GPS on or off".

Start a new recording

Geometry recording

Operator: Default operator

Filename: untitled1

Tolerance profile: Demo

Start location [MCY or m]:

Counting: UP DOWN

Current GPS loc: Tap here to turn GPS on or off

Fault GPS loc (please enter):

Distance to fault: -

Start recording Cancel

STEP 11:

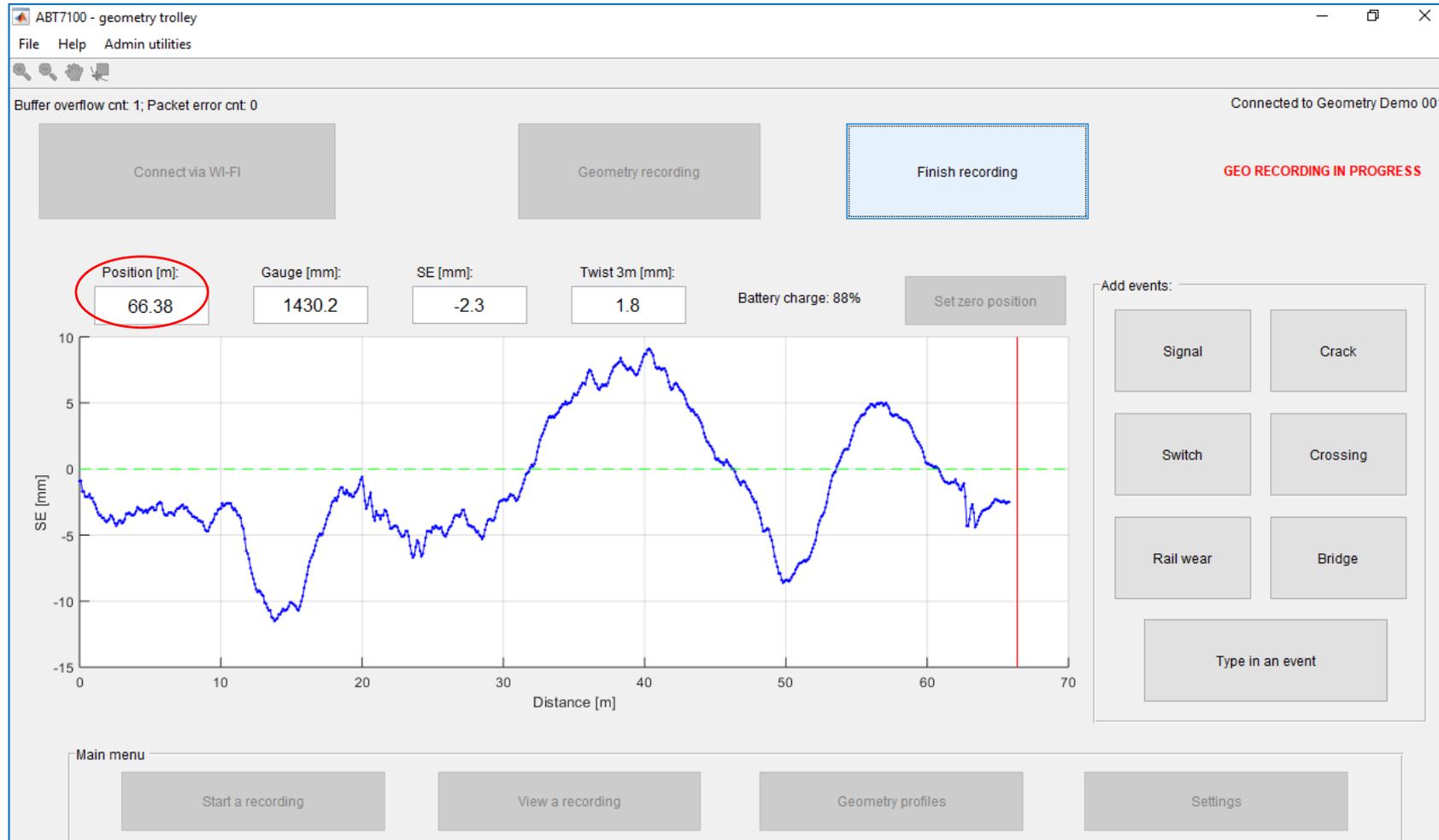
Input the Filename (operator name is optional) and Start Location (in miles/chains/yards or meterage). Click 'Start recording' and start moving the trolley forwards.

The screenshot shows a dialog box titled "Start a new recording" with a "Geometry recording" section. The fields and buttons are as follows:

- Operator:** A text field containing "Default operator".
- Filename:** A text field containing "untitled1".
- Tolerance profile:** A text field containing "Demo".
- Start location [MCY or m]:** Four empty input boxes.
- Counting:** Two buttons, "UP" (highlighted in blue) and "DOWN" (greyed out).
- Current GPS loc:** A text field containing "Tap here to turn GPS on or off".
- Fault GPS loc (please enter):** An empty text field.
- Distance to fault:** A text field containing "-".
- Start recording:** A button at the bottom left, circled in red.
- Cancel:** A button at the bottom right.

STEP 12:

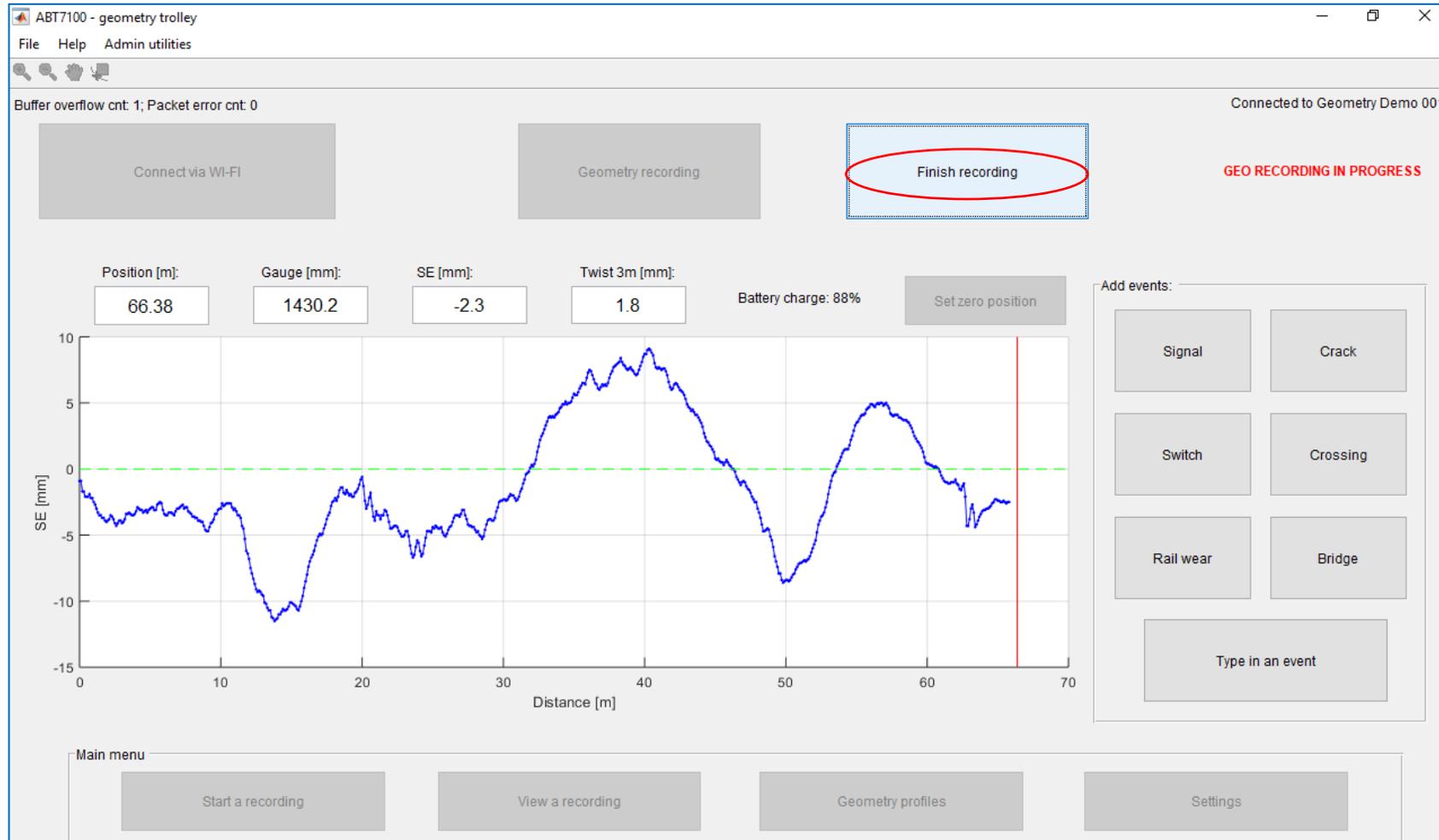
Push the Track Geometry at a walking pace for as long as necessary. The position of the trolley from the starting point is shown as 'Position (m)'.



Hazards: Equipment being trapped when trailing a switch
Train on live track

STEP 12:

Gradually bring the trolley to a stop and press the 'Finish recording' button to end the recording and save the results.



Hazards: Equipment being trapped when trailing a switch
Train on live track

STEP 13:

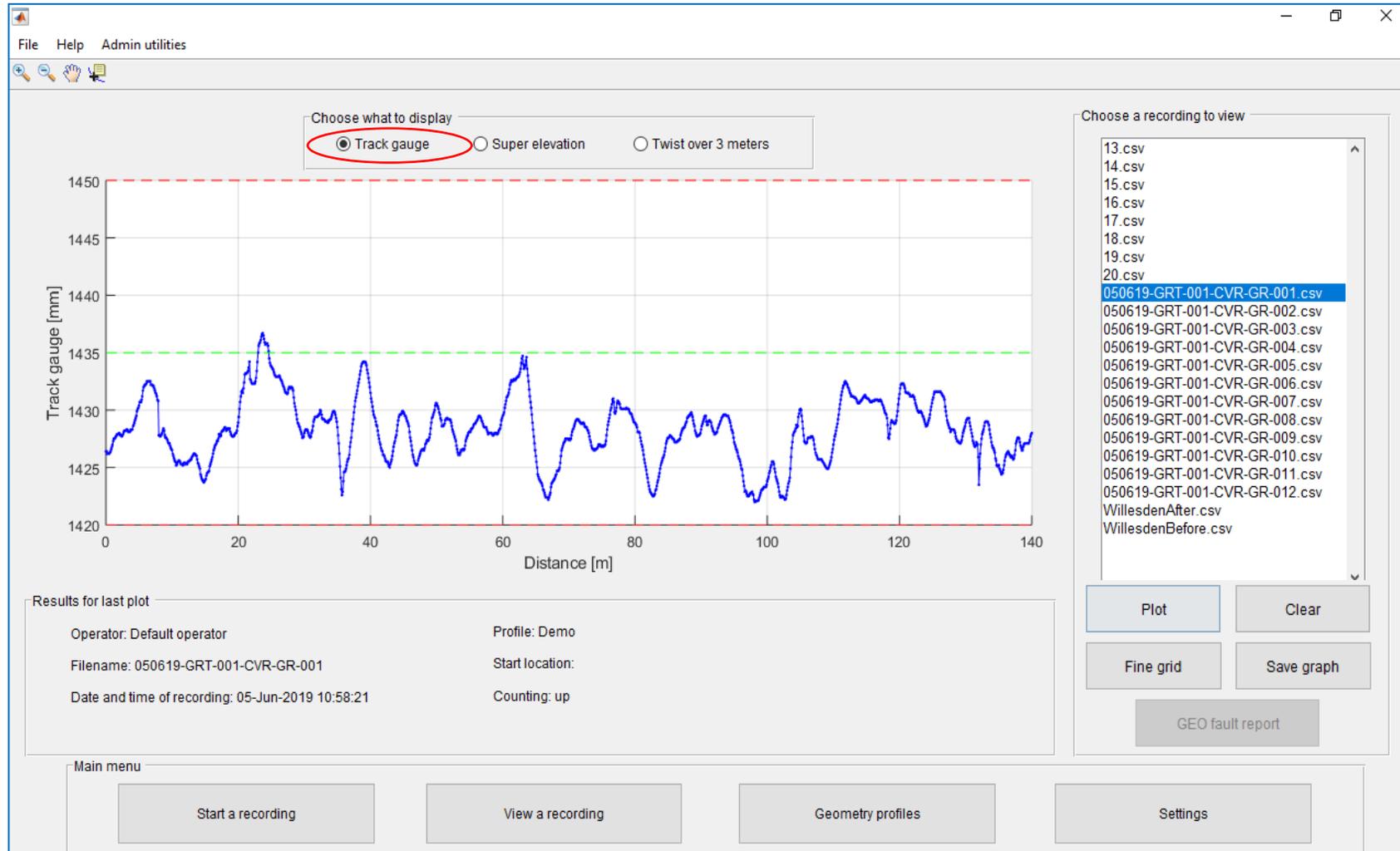
Click the 'View a recording' button at the bottom of the screen. Tap the file name on the right hand side box and click 'Plot'. Click 'Clear' to clear the screen off all the recordings plotted.

The screenshot shows a software application window with a menu bar (File, Help, Admin utilities) and a toolbar. The main area is divided into several sections:

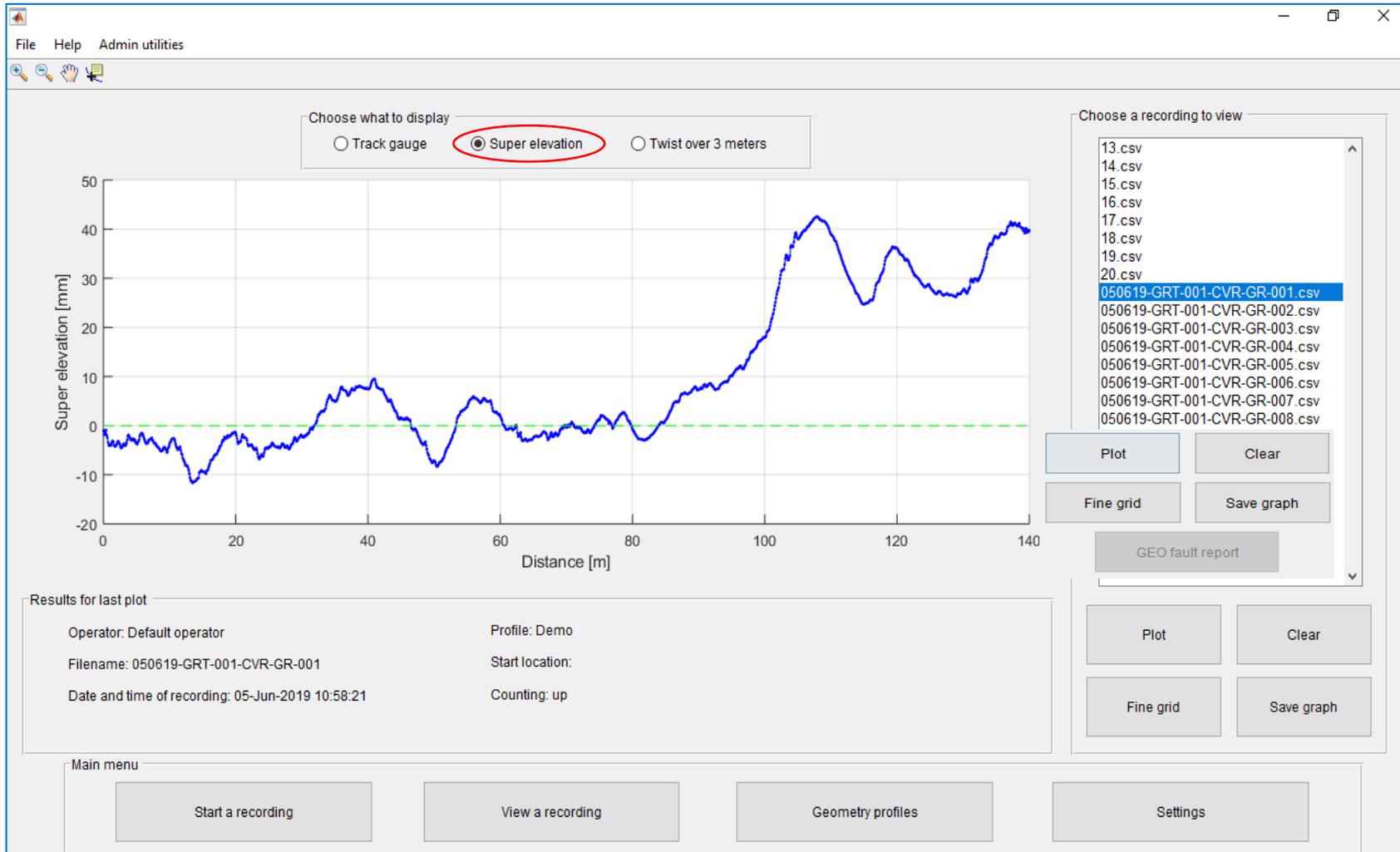
- Choose what to display:** A group box containing three radio buttons: Track gauge, Super elevation, and Twist over 3 meters.
- Plot Area:** A graph with 'Track gauge [mm]' on the y-axis (ranging from 1420 to 1450) and 'Distance [m]' on the x-axis (ranging from 0 to 140). A red dashed box highlights the plot area.
- Choose a recording to view:** A list box containing various CSV files. The file '050619-GRT-001-CVR-GR-001.csv' is selected and highlighted in blue.
- Buttons:** Below the list box are buttons for 'Plot', 'Clear', 'Fine grid', 'Save graph', and 'GEO fault report'.
- Results for last plot:** A section displaying recording details: Operator: Default operator, Profile: Demo, Filename: 050619-GRT-001-CVR-GR-001, Start location: , Date and time of recording: 05-Jun-2019 10:58:21, Counting: up.
- Main menu:** A row of buttons at the bottom: 'Start a recording', 'View a recording' (circled in red), 'Geometry profiles', and 'Settings'.

STEP 14:

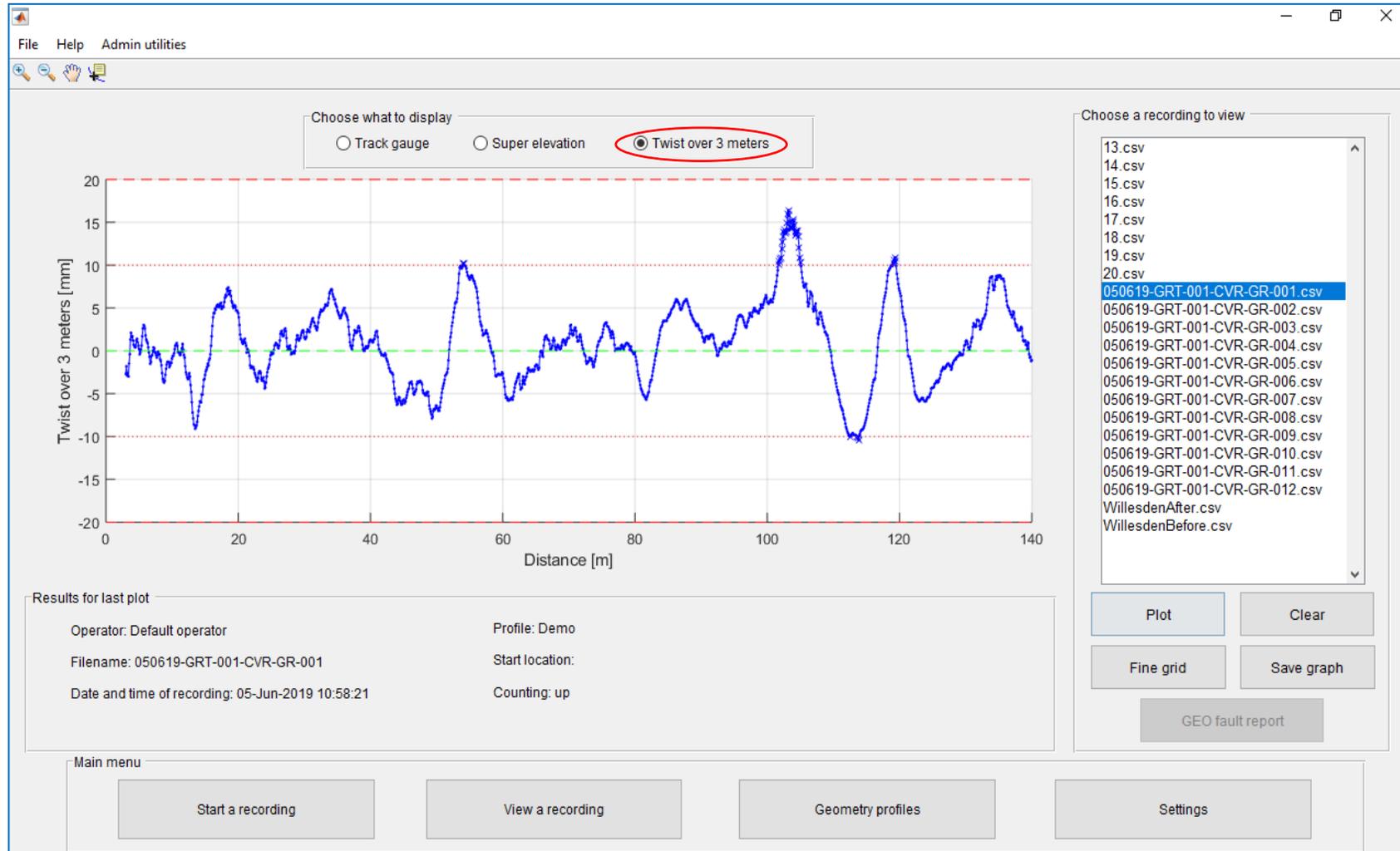
In the 'Choose what to display' options at the top of the screen select 'Track gauge'.



STEP 15: Click 'Super elevation' to show the SE chart.

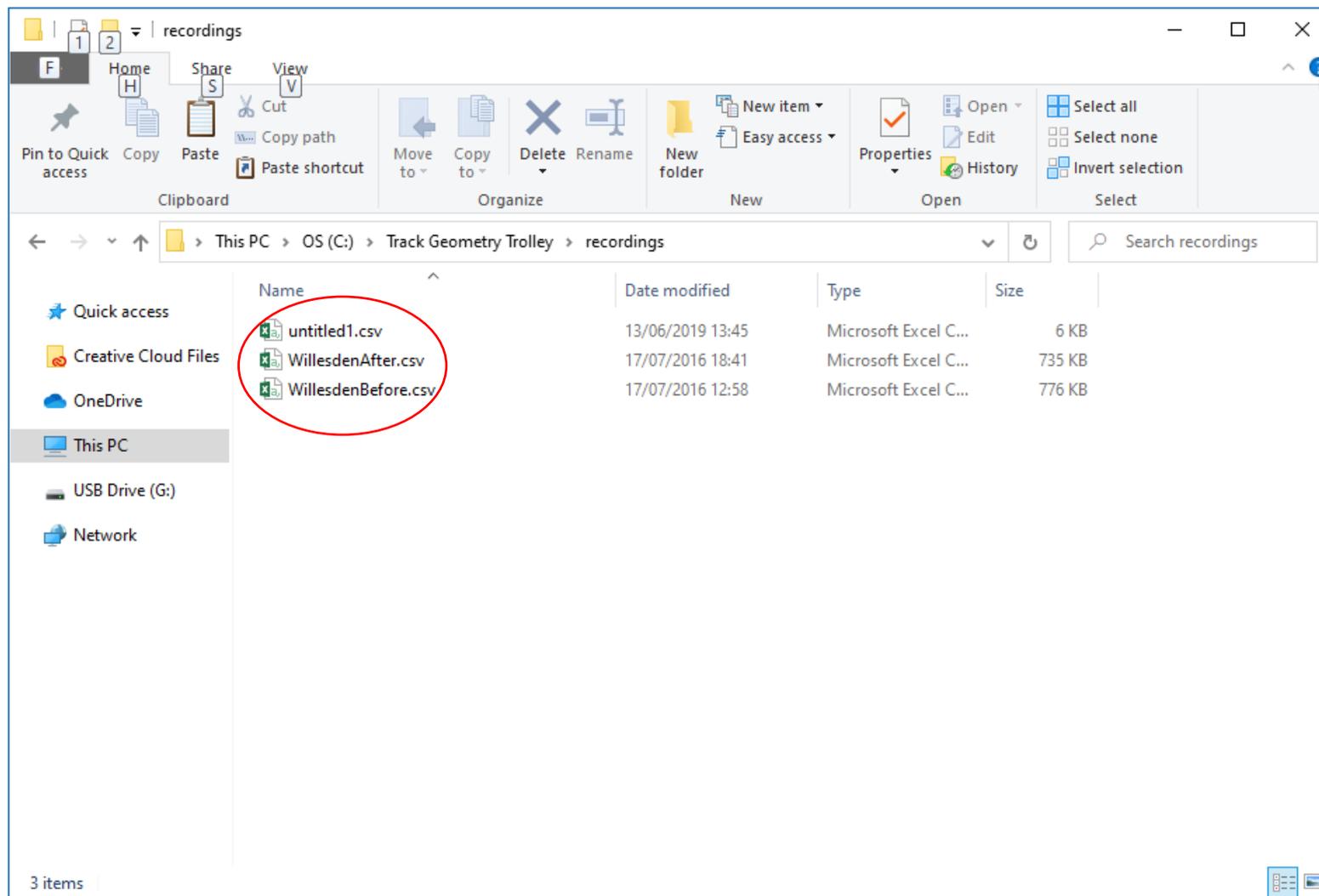


STEP 16: Click 'Twist over 3 meters' to show the Twist. The dotted lines show allowable limits.



STEP 17:

The saved graphs and .csv files are stored in the location:
“C:\Track Geometry Trolley\recordings”.



STEP 18:

Geometry measurement files show the entire range of results measured.

ABT7000 geometry measurement file								
File version: 4								
Operator: Default operator								
Filename: 050419-GT-001-CVR-GR1-003								
Profile: Demo								
Gauge low limit [mm]: 1420								
Gauge high limit [mm]: 1450								
Twist 3m warning limit [mm]: 10								
Twist 3m fault limit [mm]: 20								
Distance unit of measure: m								
Start location:								
Counting: up								
Date and time of recording: 05-Apr-2019 14:18:21								
GPS of start position: -								
Length of measured track [m]: 140								
Battery charge at end of recording [%]: 82								
Trolley ssid: Geometry Demo 001								
Software version: 2.0.4								
Firmware version: 2.0								
End of header								
Distance [m]	Gauge [mm]	SE [mm]	Twist 3m [mm]	Gauge fault [mm]	Twist 3m warning [mm]	Twist 3m fault [mm]	Event	
2.5	1433.1	-4.7	NaN					
2.6	1433.1	-4.7	NaN					
2.7	1433.2	-4.2	NaN					
2.8	1433.3	-3.4	NaN					
2.9	1433.5	-2.9	NaN					
3	1433.6	-2.7	-1.8					
3.1	1433.8	-2.7	-1					
3.2	1433.8	-2.9	-0.9					
3.3	1433.8	-2.8	-0.4					
3.4	1433.8	-4.2	-1.7					
3.5	1433.7	-4.9	-2.3					
3.6	1433.5	-5	-2.5					
3.7	1433.4	-4.8	-3.1					
3.8	1433.4	-4.6	-2.9					
3.9	1433.3	-4.8	-2.2					
4	1433.4	-4.7	-1.4					

STEP 18:

Geometry fault reports are automatically produced and saved under location 'C:\ABT7100\faultReports' when a geometry recording is saved.

ABT7100 geometry fault file							
File version: 4							
Operator: Default operator							
Filename: track_geo_test							
Profile: 51-75mph							
Gauge low limit [mm]: 1427							
Gauge high limit [mm]: 1450							
Twist 3m warning limit [mm]: 12							
Twist 3m fault limit [mm]: 12							
Distance unit of measure: m							
Start location:							
Counting: up							
Date and time of recording: 20-Aug-2020 12:08:02							
GPS of start position: -							
Length of measured track [m]: 21.88							
Battery charge at end of recording [%]: 98							
Software version: 3.0.2							
Firmware version: 2.0							
End of header							
Distance [m]	Gauge [mm]	SE [mm]	Twist 3m [mm]	Gauge fault [mm]	Twist 3m warning [mm]	Twist 3m fault [mm]	Event
2.5	1496	98.4	NaN	46			
2.63	1496	127.6	NaN	46			
2.75	1496	162.9	NaN	46			
2.88	1496	154.3	NaN	46			
3	1496	127.9	133.3	46	121.3	121.3	
3.13	1496	85.5	64.8	46	52.8	52.8	
3.25	1496	72.7	41.4	46	29.4	29.4	
3.38	1496	97.9	55.6	46	43.6	43.6	
3.5	1496	141.4	93.6	46	81.6	81.6	
3.63	1496	170.9	120.6	46	108.6	108.6	
3.75	1496	169.5	116.9	46	104.9	104.9	
3.88	1496	166.1	111.1	46	99.1	99.1	
4	1496	163.2	107.3	46	95.3	95.3	

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