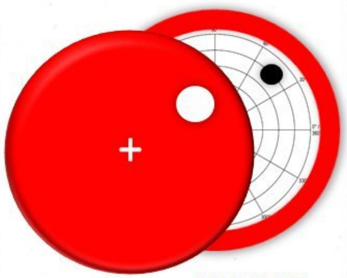
CONFIDENTIAL

ROTOR BALANCER

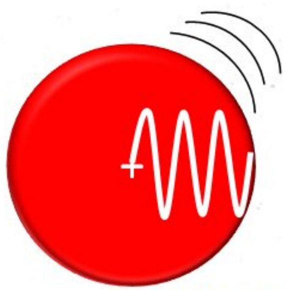
ABSOLUTE ROTATION™

ROTOR BALANCER

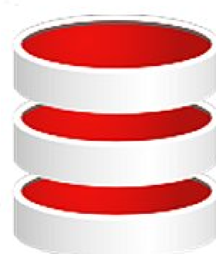
SINGLE PLANE



DUAL PLANE



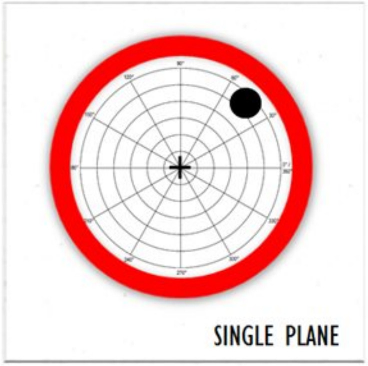
CASING VIBRATION



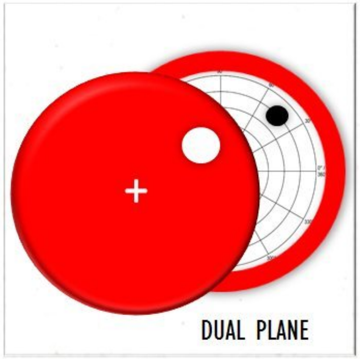
DATA VIEWER

ABSOLUTE ROTATION™

Know more !



SINGLE PLANE BALANCING
Influence coefficient method
Comply ISO 1940/1 for Rigid Rotor



DUAL PLANE BALANCING
Influence coefficient method

Utilities
Resolve Static / Couple imbalance
Vector addition / separation

ROTOR SETUP | FOUR RUNS | SINGLE BALANCING | SINGLE PLANE | DUAL PLANE

RIGID ROTOR BALANCING
RESIDUAL IMBALANCE CALCULATOR

RoToR BALANCER

Single plane ○ Dual plane ●

ISO 1940-1 QUALITY GRADE
G 2.5

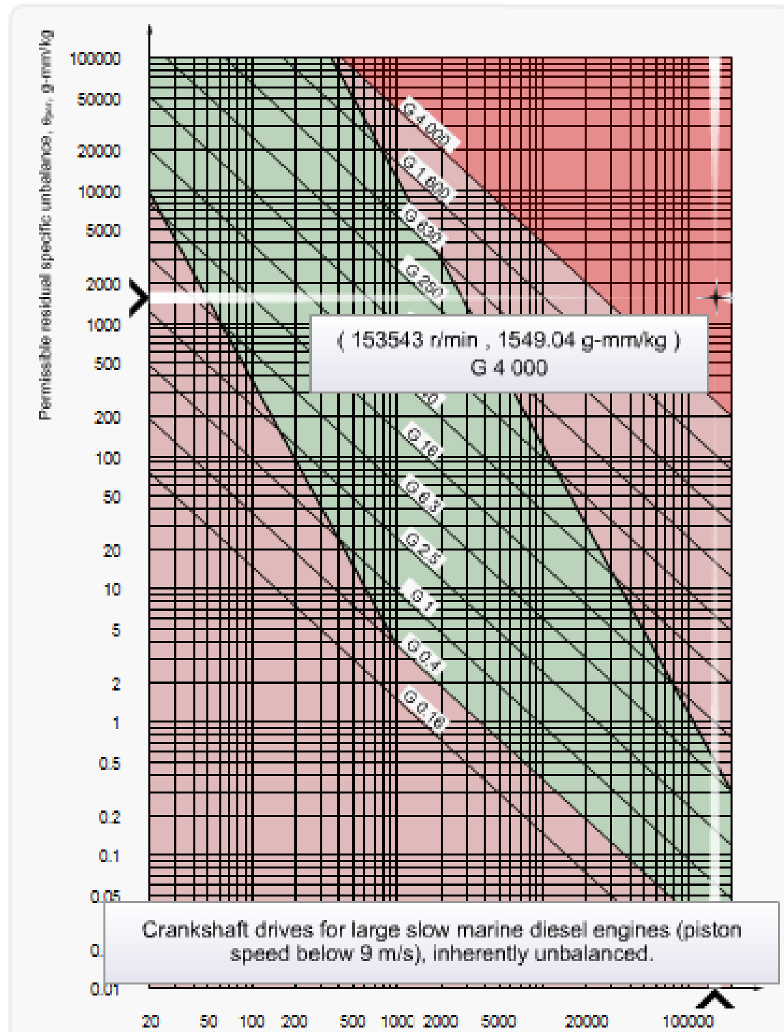
WEIGHT OF THE ROTOR in Kg
100

ROTOR RATED SPEED in RPM
1500

ANGULAR FREQ in rad/s
157.08

ROTOR ECCENTRICITY in µm
15.9155

RESIDUAL IMBALANCE in g.mm
1591.55



LEFT PLANE
Radius of correction in mm
200

RIGHT PLANE
Radius of correction in mm
100

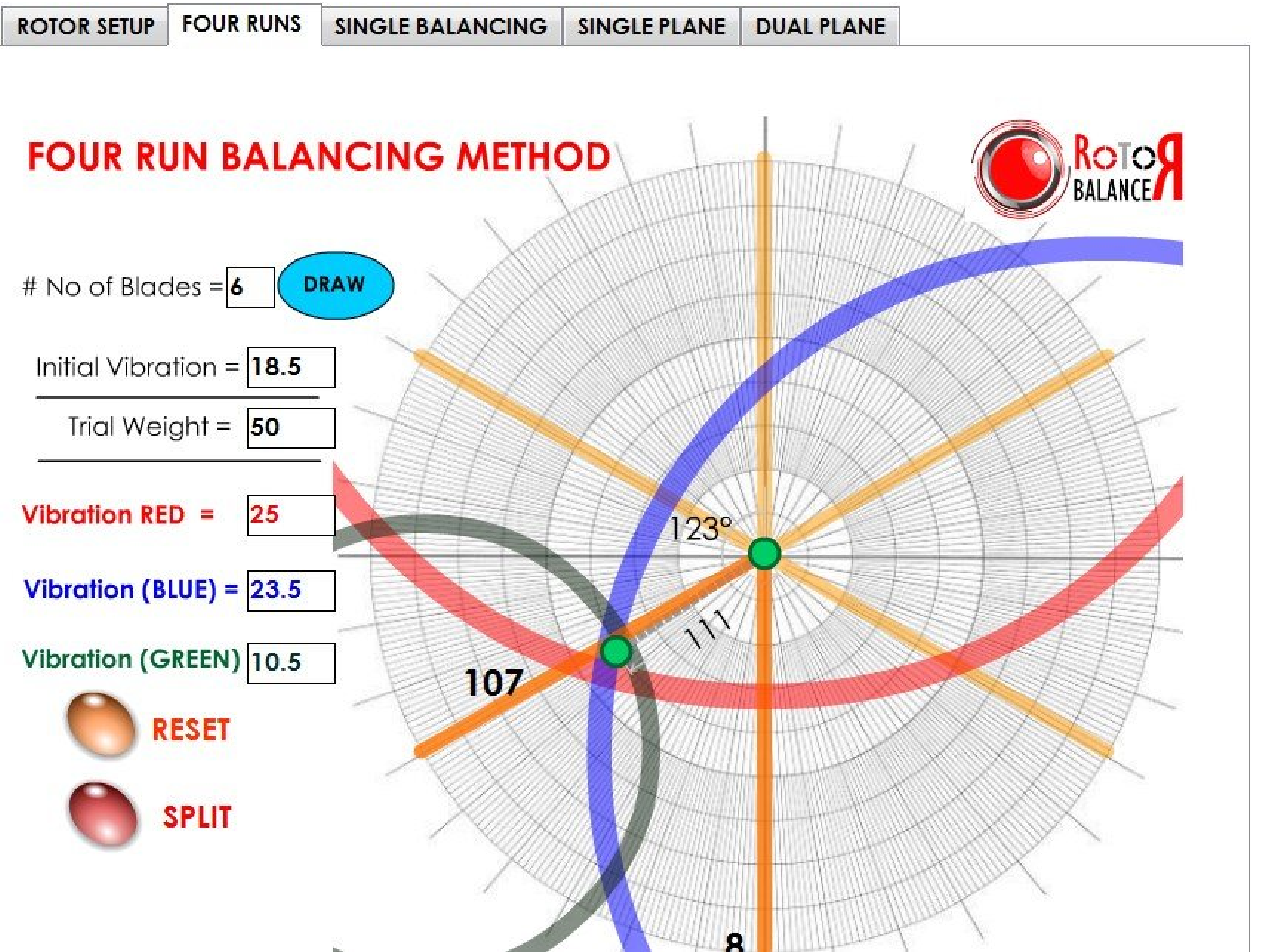
LEFT PLANE
Residual Imbalance in gram
3.97887

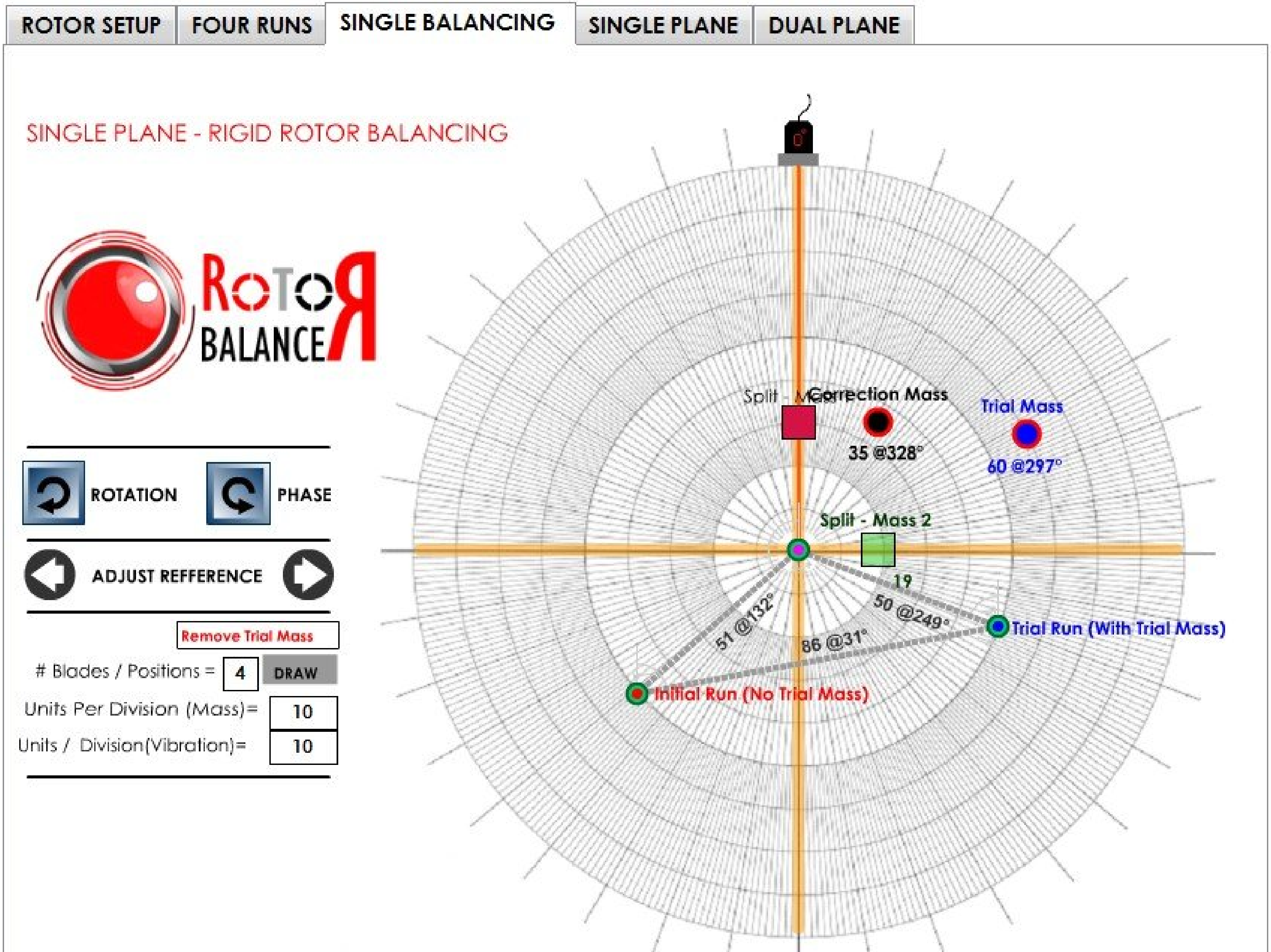
RIGHT PLANE
Residual Imbalance in gram
7.95775

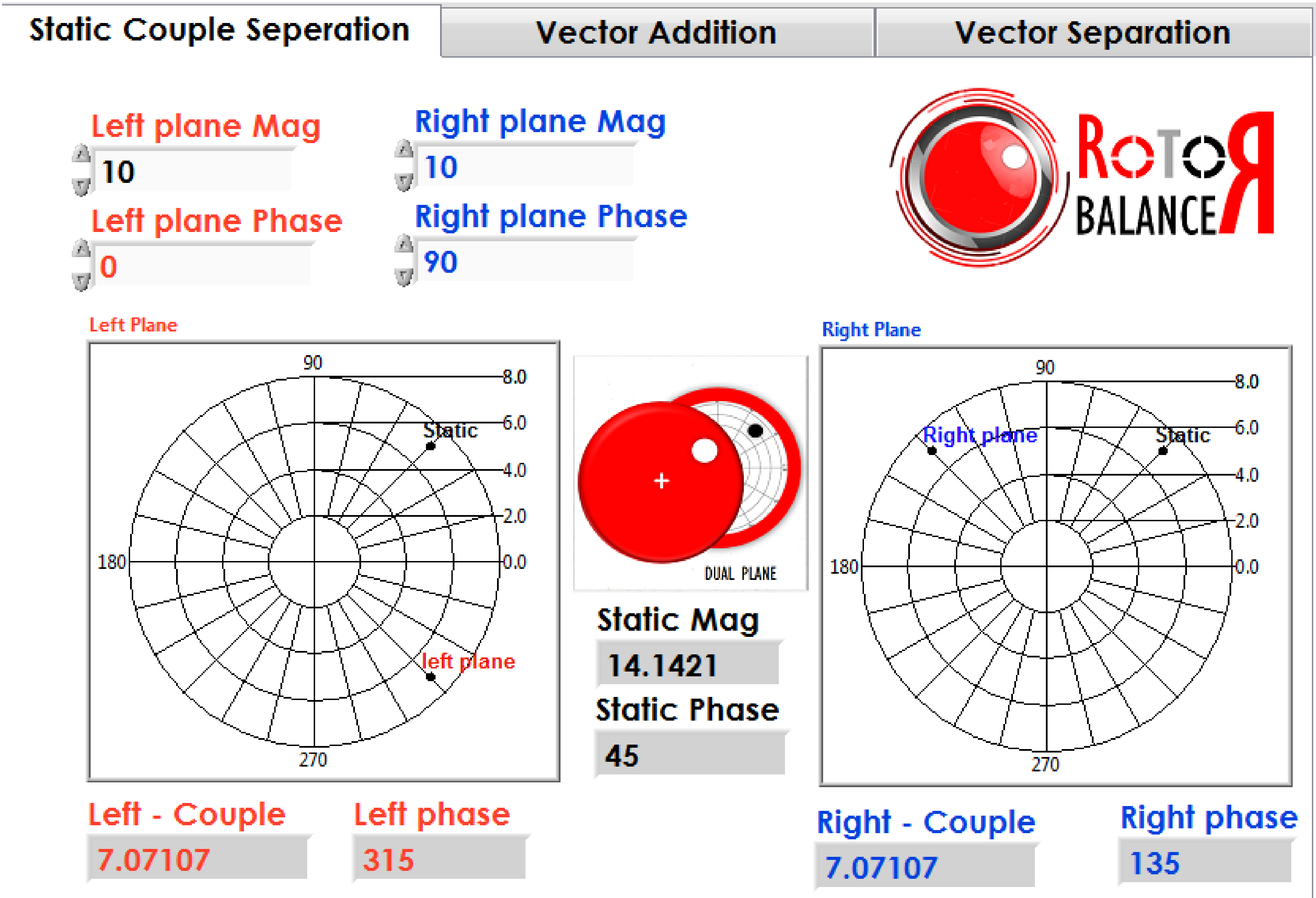
CALCULATE | PROCEED

ABSOLUTE ROTATION™

Tuesday, 29 December, 2015 12:43 AM


ROTOR SETUP
FOUR RUNS
SINGLE BALANCING
SINGLE PLANE
DUAL PLANE
FOUR RUN BALANCING METHOD
RoToR BALANCER
No of Blades = 6
DRAW
Initial Vibration = 18.5
Trial Weight = 50
Vibration RED = 25
Vibration (BLUE) = 23.5
Vibration (GREEN) 10.5
RESET
SPLIT
123°
111
107
8

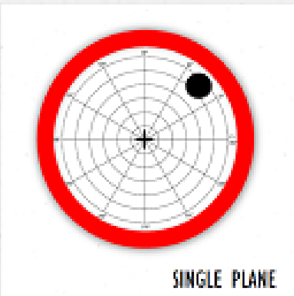

ROTOR SETUP
FOUR RUNS
SINGLE BALANCING
SINGLE PLANE
DUAL PLANE
SINGLE PLANE - RIGID ROTOR BALANCING
RoToR BALANCER
ROTATION
PHASE
ADJUST REFFERENCE
Remove Trial Mass
Blades / Positions =
4
DRAW
Units Per Division (Mass)=
10
Units / Division(Vibration)=
10
Correction Mass
35 @328°
Trial Mass
60 @297°
Split - Mass 2
19
50 @249°
51 @132°
86 @31°
Trial Run (With Trial Mass)
Initial Run (No Trial Mass)


Static Couple Seperation
Vector Addition
Vector Separation
Left plane Mag
10
Left plane Phase
0
Right plane Mag
10
Right plane Phase
90
Left Plane
90
180
270
8.0
6.0
4.0
2.0
0.0
Static
left plane
DUAL PLANE
Static Mag
14.1421
Static Phase
45
Right Plane
90
180
270
8.0
6.0
4.0
2.0
0.0
Right plane
Static
Left - Couple
7.07107
Left phase
315
Right - Couple
7.07107
Right phase
135

Static Couple Seperation

Vector Addition

Vector Separation



No.	Angle	Weight
1	0.0	48
2	20.0	67
3	40.0	120
4	60.0	89
5	80.0	
6	100.0	
7	120.0	22
8	140.0	
9	160.0	56
10	180.0	
11	200.0	90
12	220.0	
13	240.0	
14	260.0	78
15	280.0	
16	300.0	
17	320.0	5
18	340.0	

Any Location

Fixed Locations

Locations

18

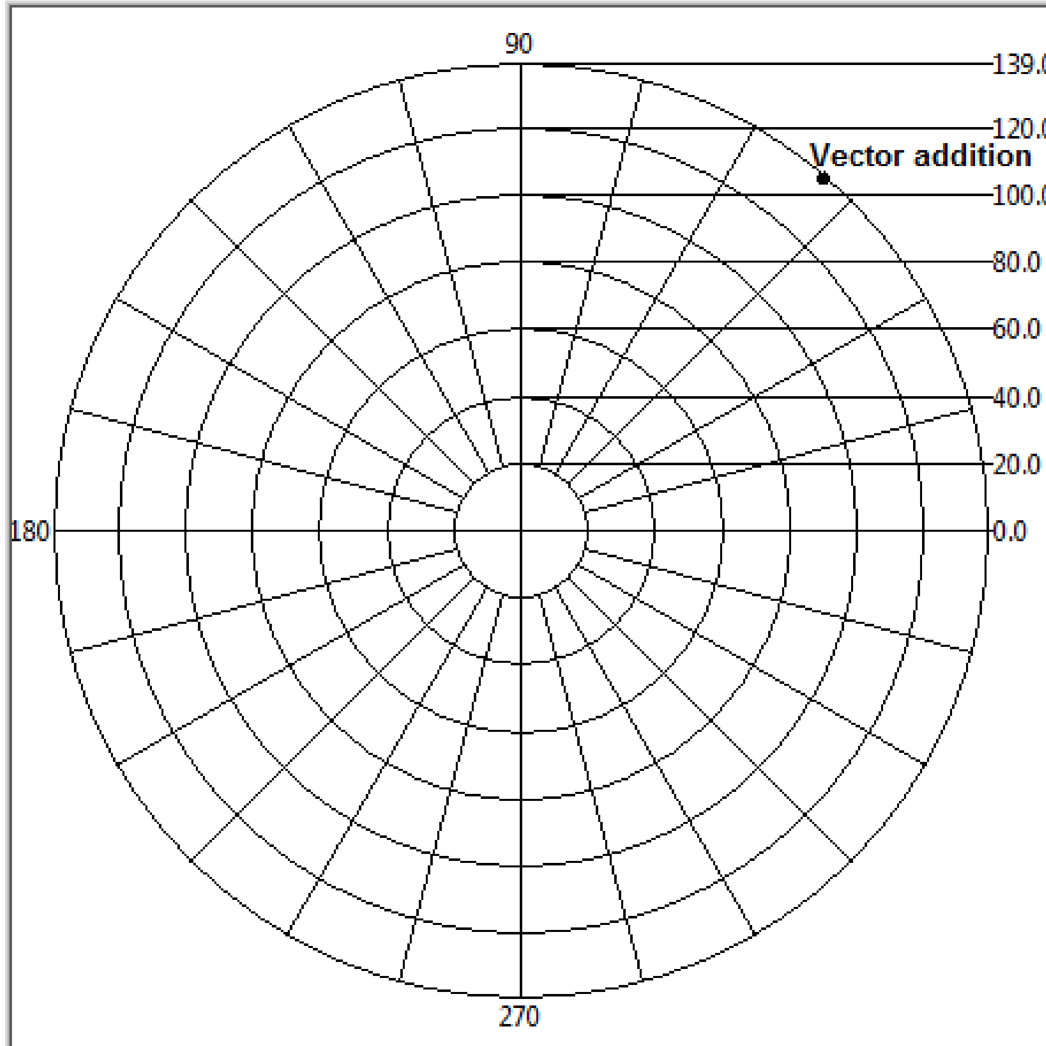
Weight

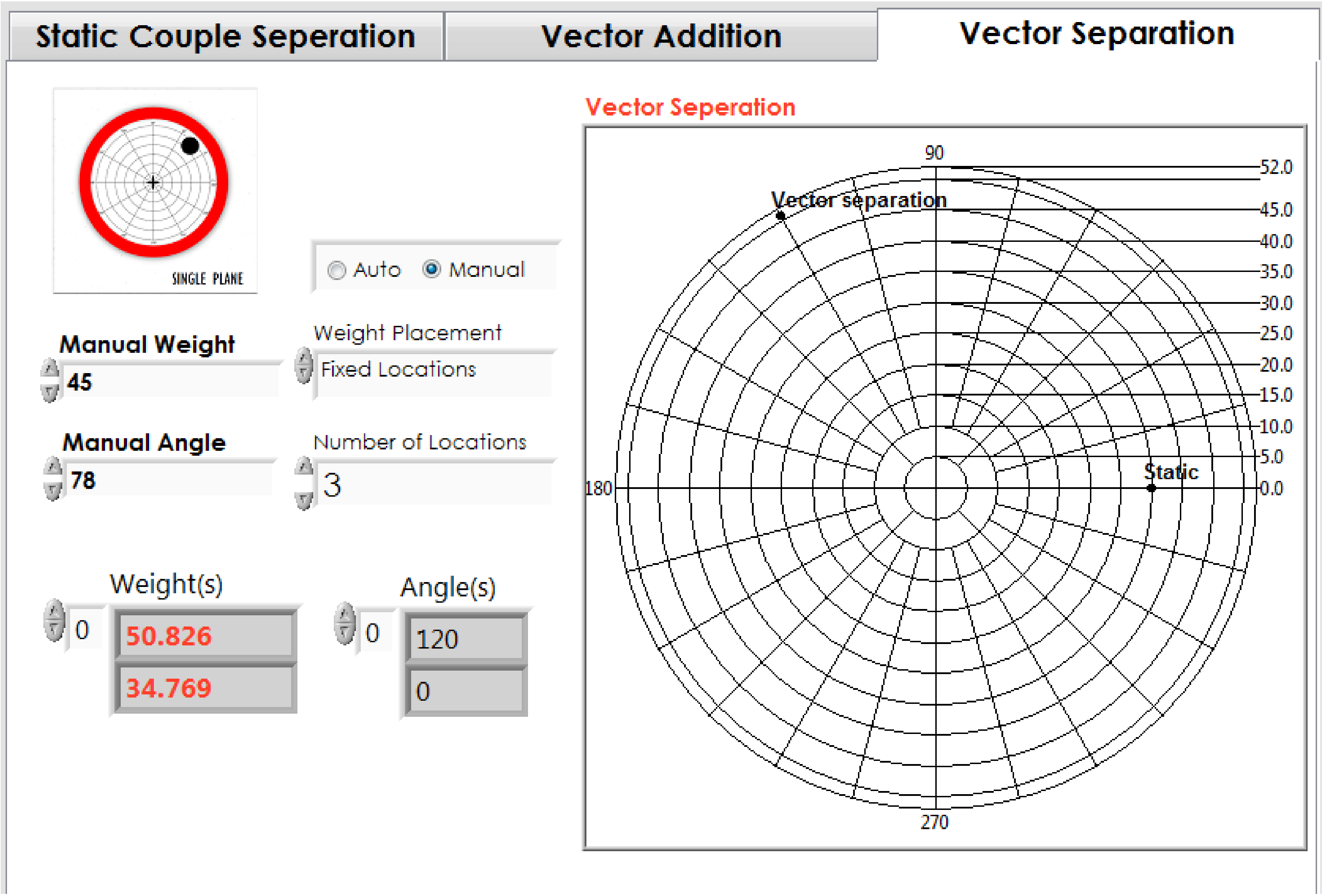
137.588

Angle

49.4348

Vector Addition

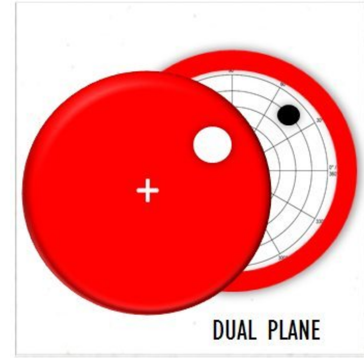


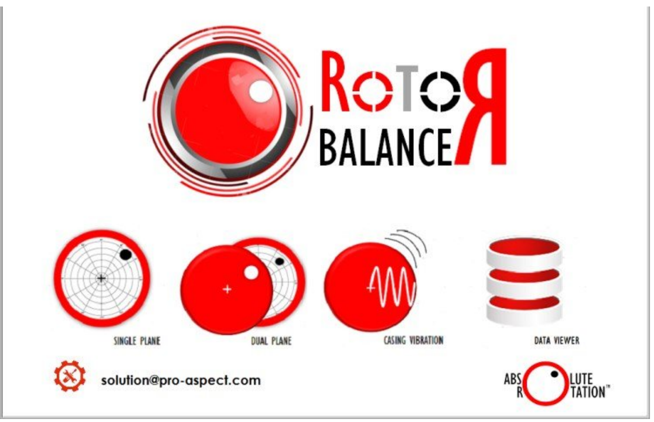


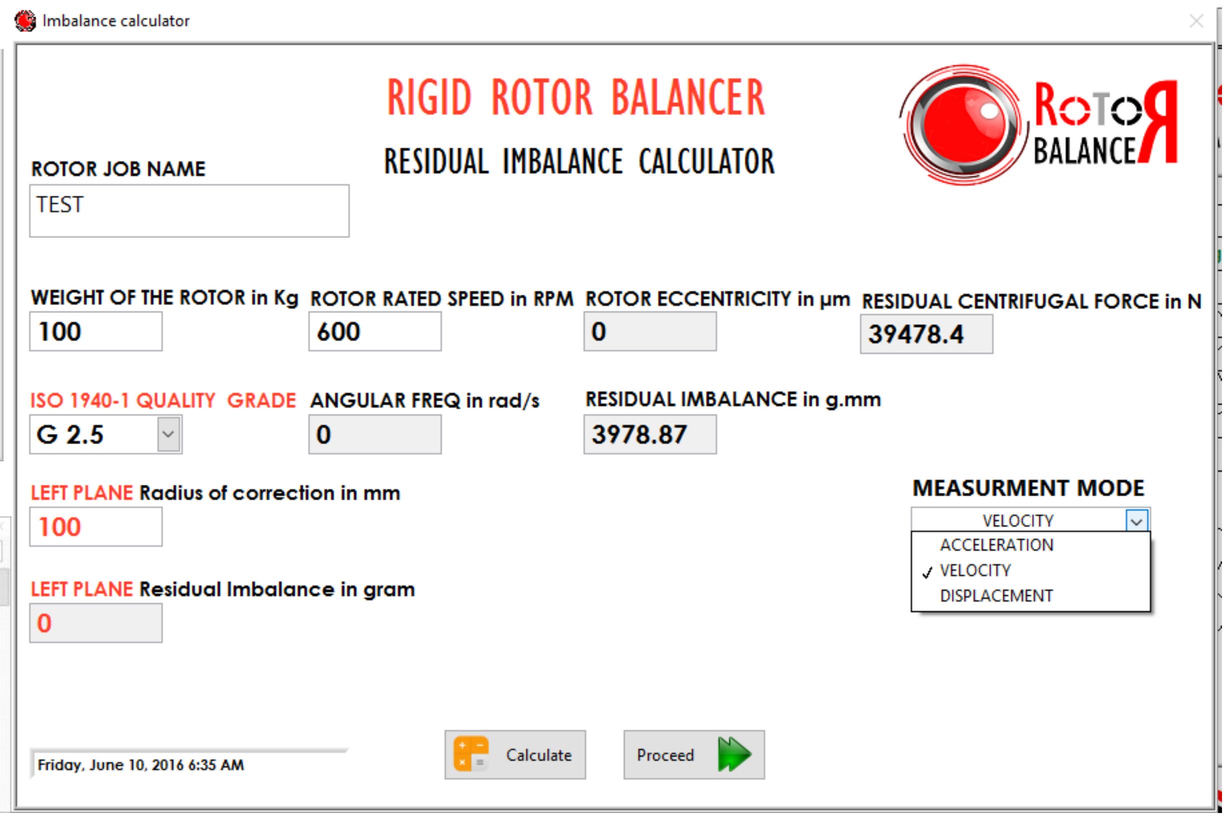
Static Couple Seperation
Vector Addition
Vector Separation
SINGLE PLANE
Auto
Manual
Manual Weight
45
Weight Placement
Fixed Locations
Manual Angle
78
Number of Locations
3
Weight(s)
0
50.826
34.769
Angle(s)
0
120
0
Vector Seperation
90
180
270
52.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
Vector separation
Static

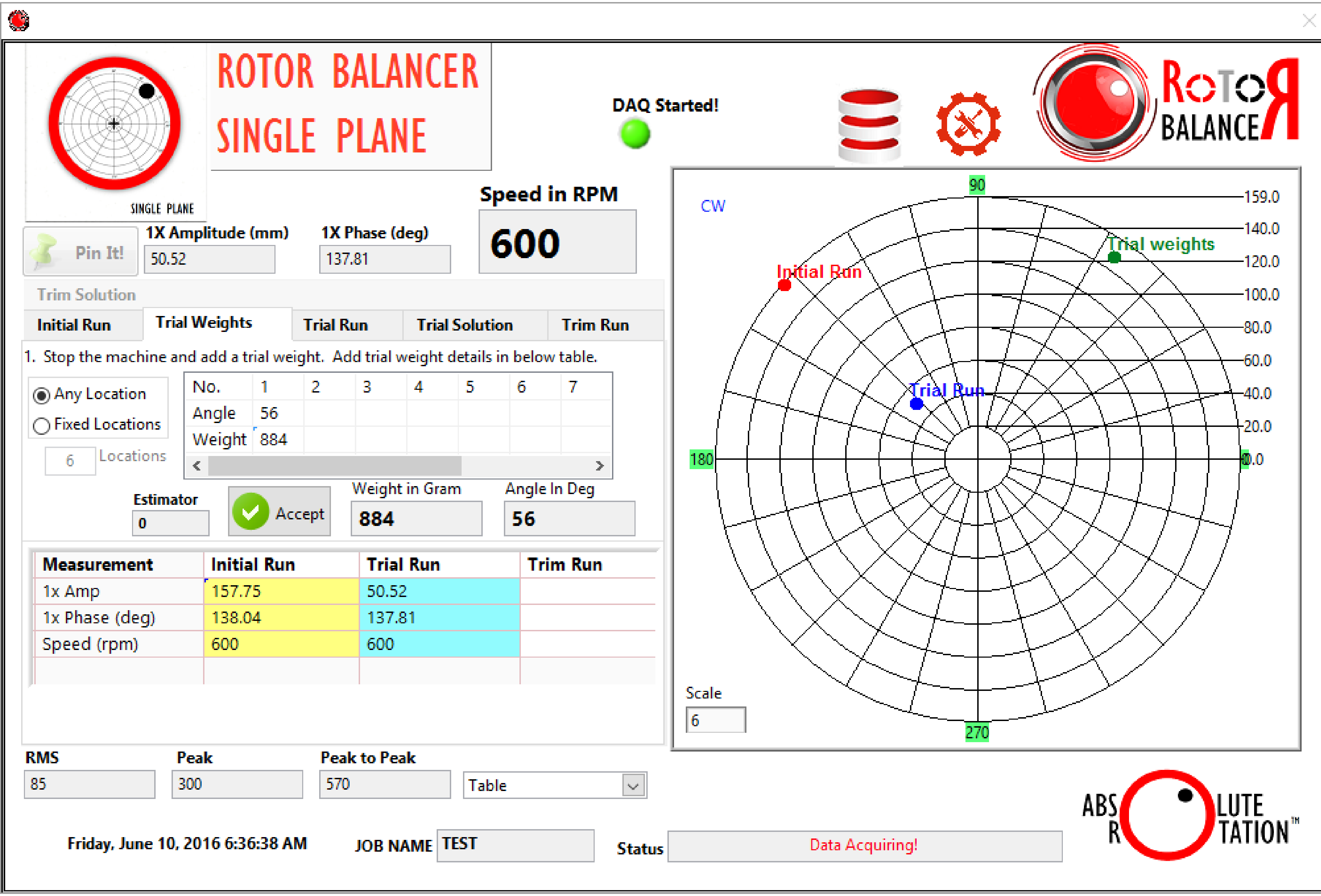
Know more !

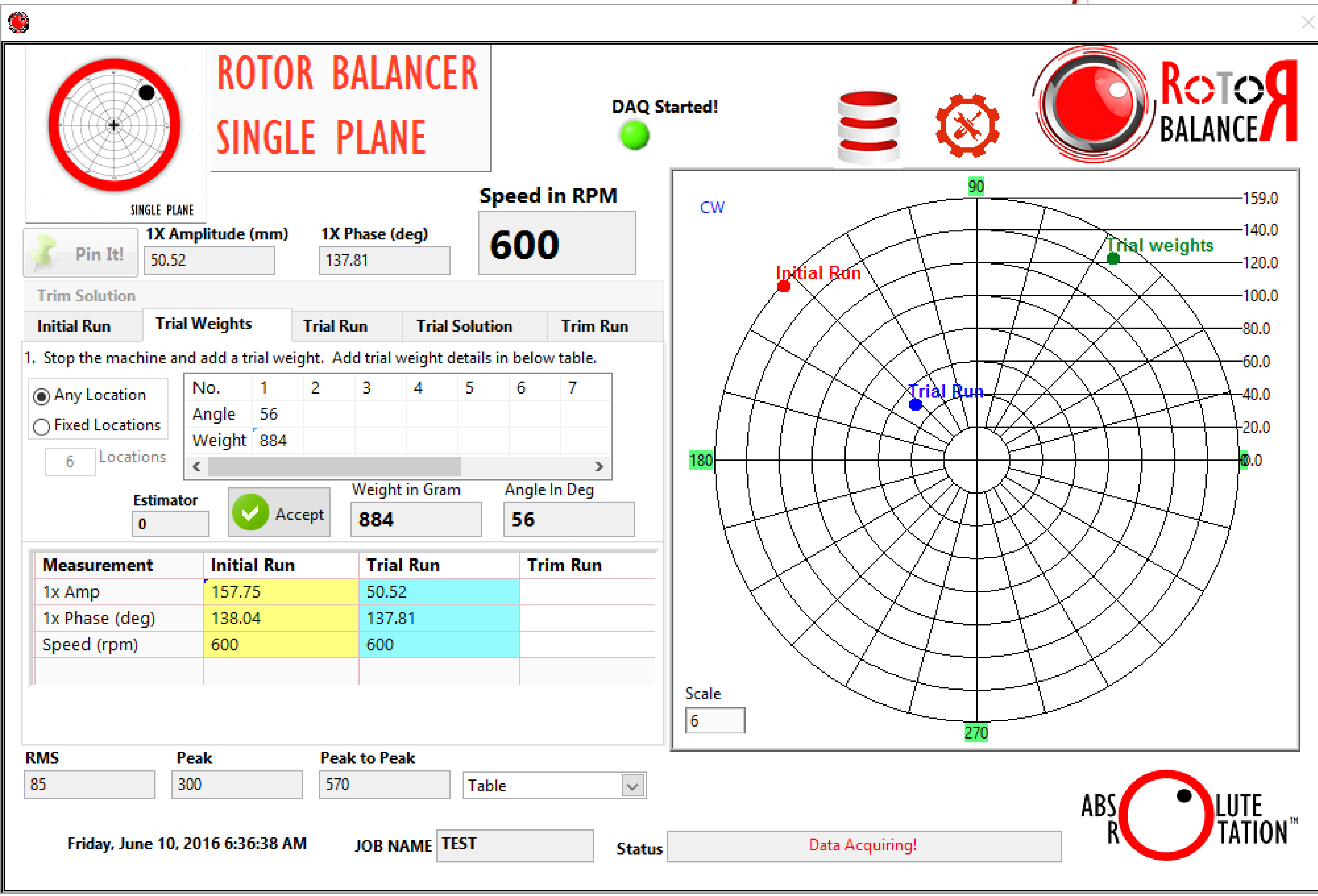
SINGLE PLANE BALANCING

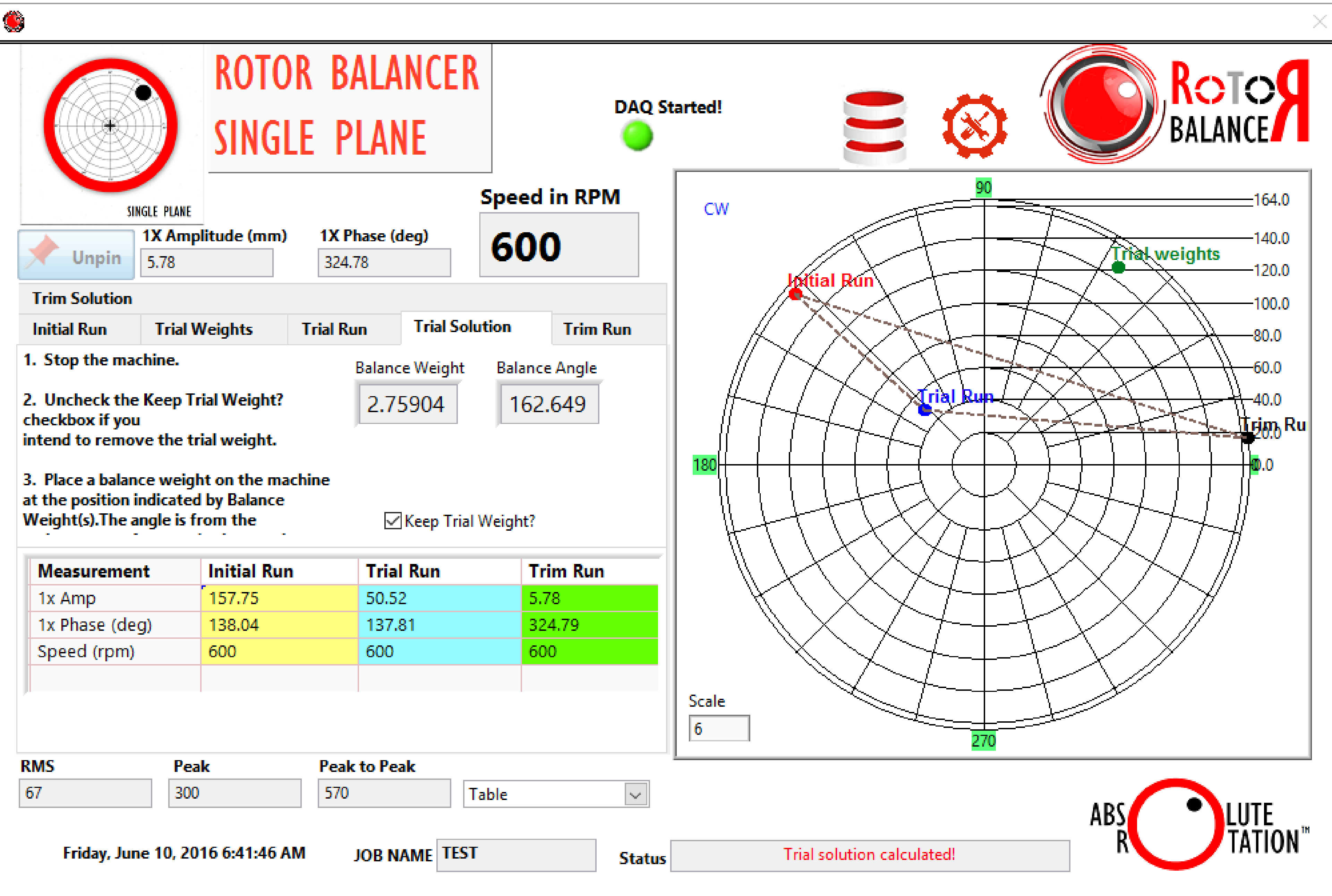







ROTOR BALANCER
SINGLE PLANE
SINGLE PLANE
DAQ Started!
RoToR BALANCER
Speed in RPM
600
Pin It!
1X Amplitude (mm)
50.52
1X Phase (deg)
137.81
Trim Solution
Initial Run
Trial Weights
Trial Run
Trial Solution
Trim Run
1. Stop the machine and add a trial weight. Add trial weight details in below table.
Any Location
Fixed Locations
6
Locations
No. 1 2 3 4 5 6 7
Angle 56
Weight 884
Estimator
0
Accept
Weight in Gram
884
Angle In Deg
56
Measurement | Initial Run | Trial Run | Trim Run
1x Amp | 157.75 | 50.52 |
1x Phase (deg) | 138.04 | 137.81 |
Speed (rpm) | 600 | 600 |
CW
90
180
270
0.0
159.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
Trial weights
Initial Run
Trial Run
Scale
6
RMS
85
Peak
300
Peak to Peak
570
Table
Friday, June 10, 2016 6:36:38 AM
JOB NAME
TEST
Status
Data Acquiring!
ABSOLUTE ROTATION™

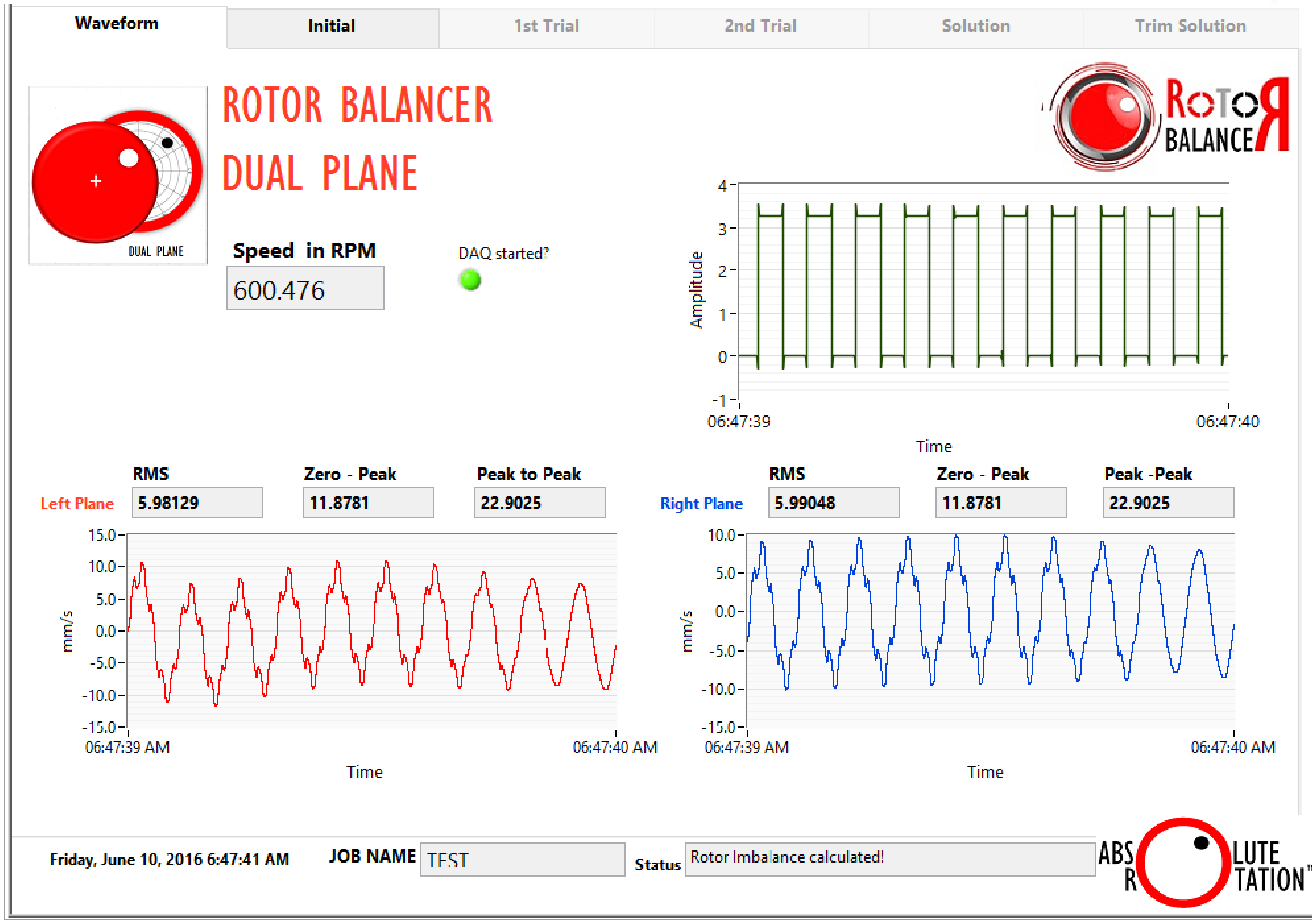

ROTOR BALANCER
SINGLE PLANE
SINGLE PLANE
DAQ Started!
RoToR BALANCER
Speed in RPM
600
Pin It!
1X Amplitude (mm)
50.52
1X Phase (deg)
137.81
Trim Solution
Initial Run
Trial Weights
Trial Run
Trial Solution
Trim Run
1. Stop the machine and add a trial weight. Add trial weight details in below table.
Any Location
Fixed Locations
6 Locations
No. 1 2 3 4 5 6 7
Angle 56
Weight 884
Estimator
0
Accept
Weight in Gram
884
Angle In Deg
56
Measurement | Initial Run | Trial Run | Trim Run
1x Amp | 157.75 | 50.52 |
1x Phase (deg) | 138.04 | 137.81 |
Speed (rpm) | 600 | 600 |
CW
90
180
270
0.0
20.0
40.0
60.0
80.0
100.0
120.0
140.0
159.0
Initial Run
Trial Run
Trial weights
Scale
6
RMS
85
Peak
300
Peak to Peak
570
Table
Friday, June 10, 2016 6:36:38 AM
JOB NAME TEST
Status
Data Acquiring!
ABSOLUTE ROTATION™

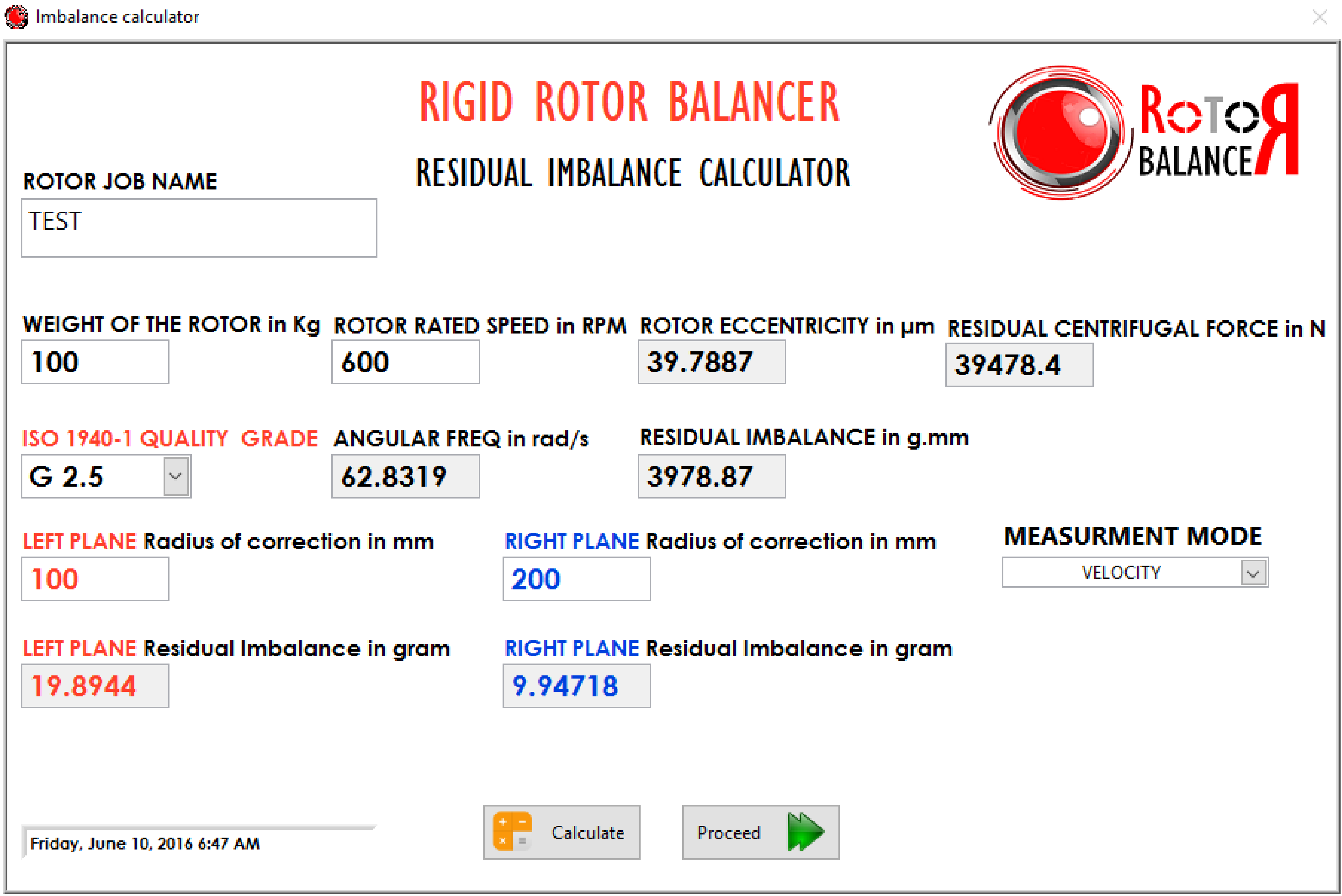


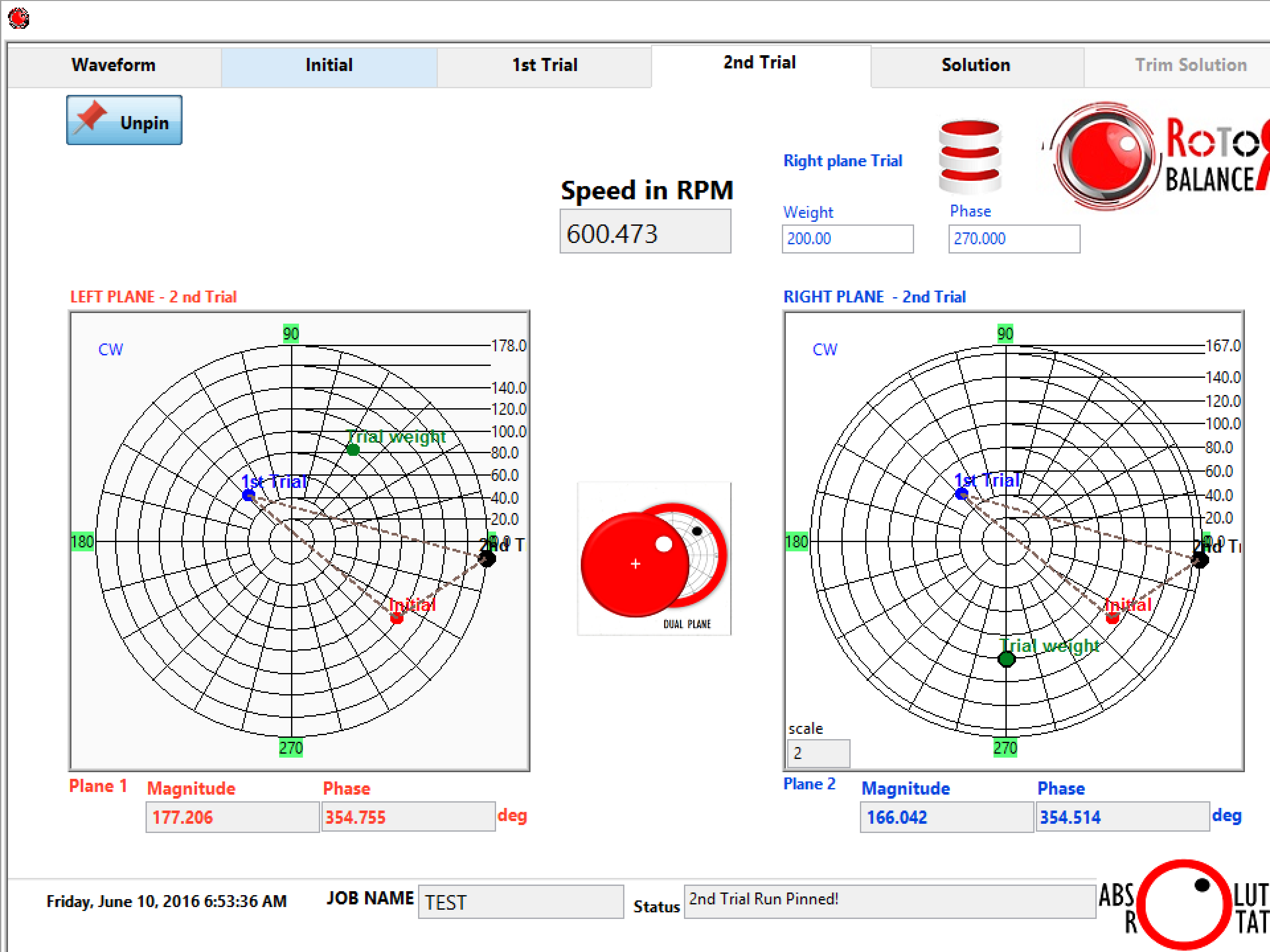
SINGLE PLANE
ROTOR BALANCER
SINGLE PLANE
DAQ Started!
RoToR BALANCER
Unpin
1X Amplitude (mm)
5.78
1X Phase (deg)
324.78
Speed in RPM
600
Trim Solution
Initial Run
Trial Weights
Trial Run
Trial Solution
Trim Run
1. Stop the machine.
2. Uncheck the Keep Trial Weight? checkbox if you intend to remove the trial weight.
3. Place a balance weight on the machine at the position indicated by Balance Weight(s).The angle is from the
Balance Weight
2.75904
Balance Angle
162.649
Keep Trial Weight?
Measurement
Initial Run
Trial Run
Trim Run
1x Amp
157.75
50.52
5.78
1x Phase (deg)
138.04
137.81
324.79
Speed (rpm)
600
600
600
CW
90
180
270
164.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Trial weights
Initial Run
Trial Run
Trim Ru
Scale
6
RMS
67
Peak
300
Peak to Peak
570
Table
Friday, June 10, 2016 6:41:46 AM
JOB NAME
TEST
Status
Trial solution calculated!
ABSOLUTE ROTATION™

Know more !

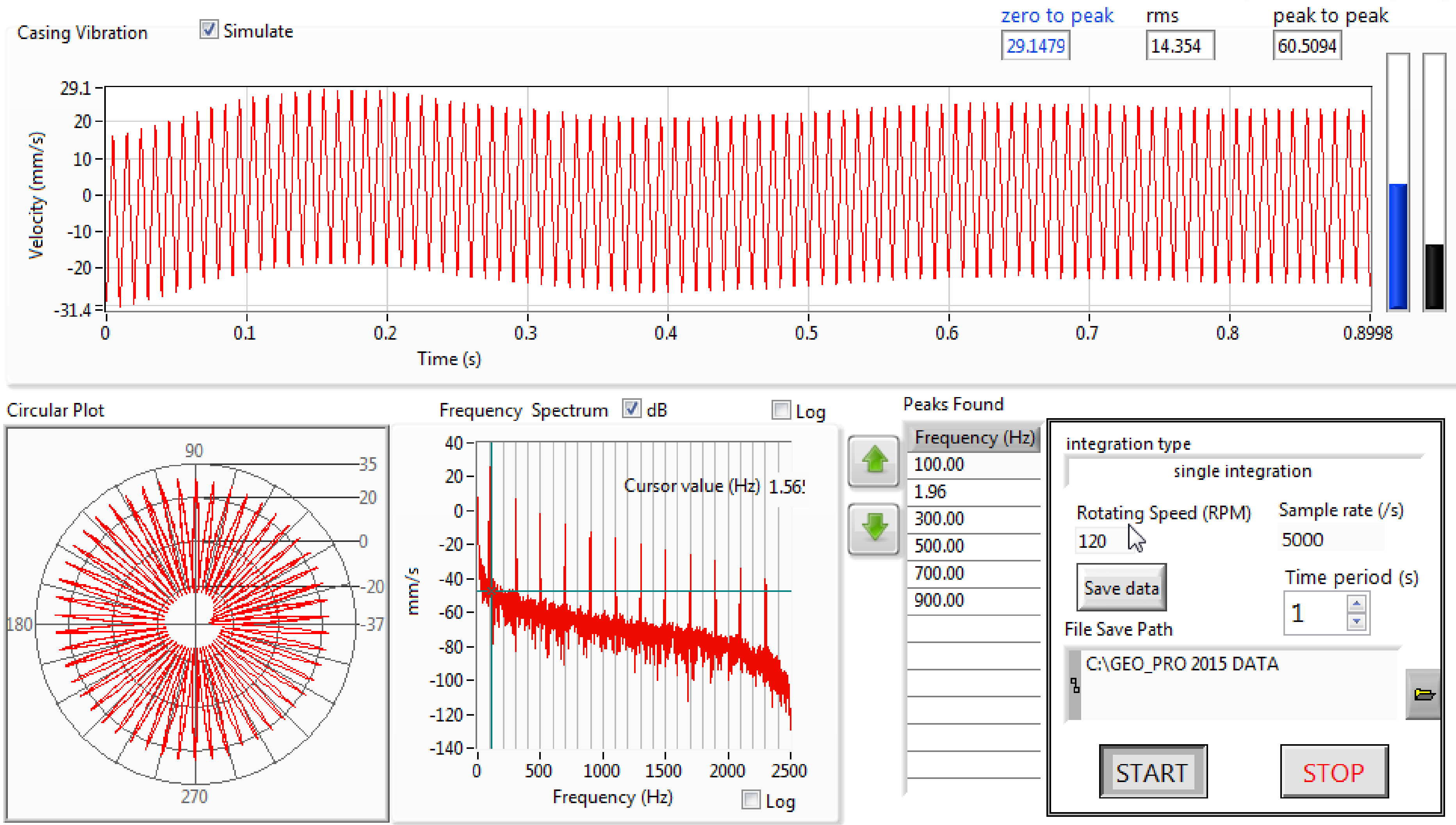
DUAL PLANE BALANCING




Imbalance calculator
RIGID ROTOR BALANCER
RESIDUAL IMBALANCE CALCULATOR
RoToR BALANCER
ROTOR JOB NAME
TEST
WEIGHT OF THE ROTOR in Kg
100
ROTOR RATED SPEED in RPM
600
ROTOR ECCENTRICITY in µm
39.7887
RESIDUAL CENTRIFUGAL FORCE in N
39478.4
ISO 1940-1 QUALITY GRADE
G 2.5
ANGULAR FREQ in rad/s
62.8319
RESIDUAL IMBALANCE in g.mm
3978.87
LEFT PLANE Radius of correction in mm
100
RIGHT PLANE Radius of correction in mm
200
MEASURMENT MODE
VELOCITY
LEFT PLANE Residual Imbalance in gram
19.8944
RIGHT PLANE Residual Imbalance in gram
9.94718
Friday, June 10, 2016 6:47 AM
Calculate
Proceed

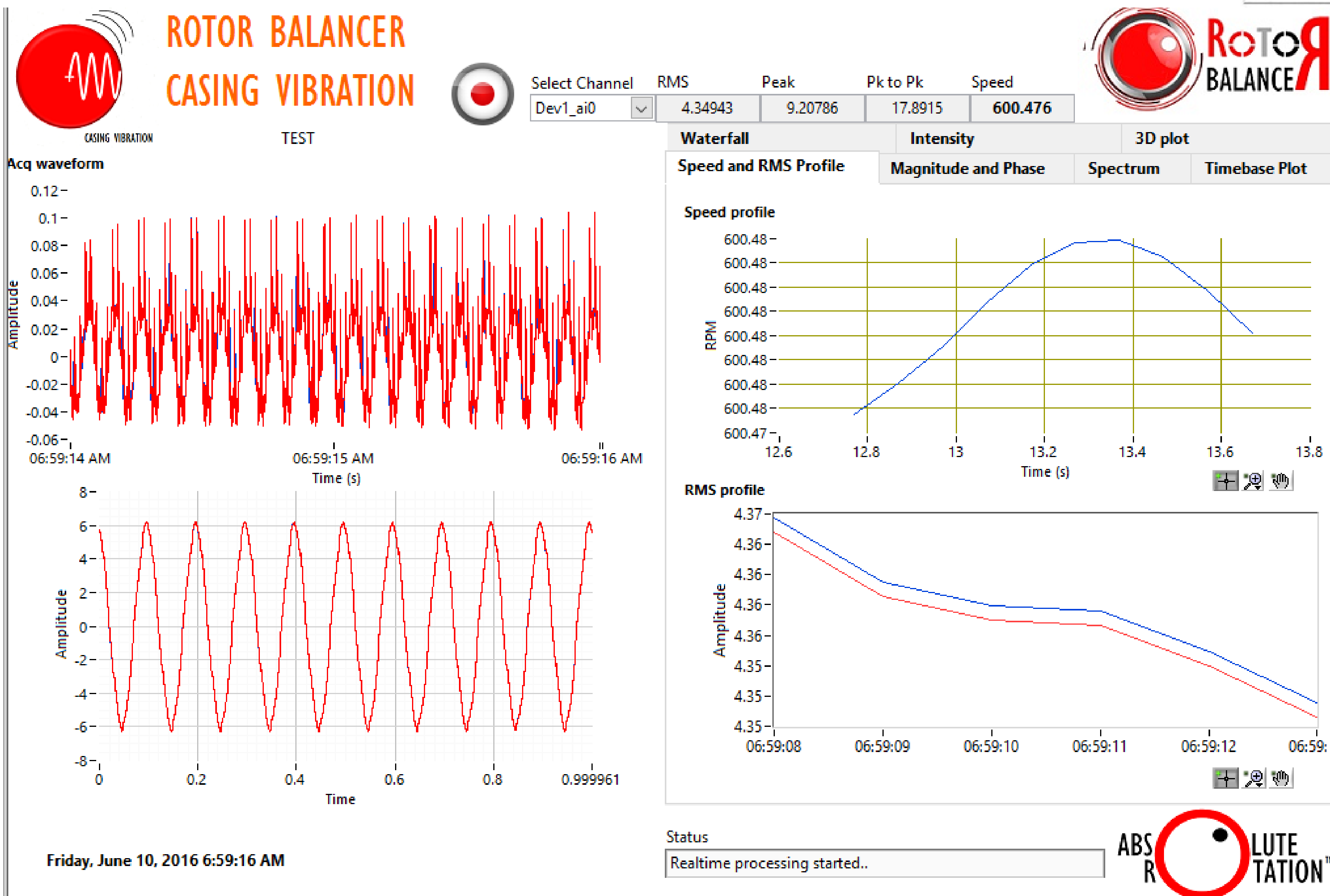

Waveform
Initial
1st Trial
2nd Trial
Solution
Trim Solution
Unpin
Speed in RPM
600.473
Right plane Trial
Weight
200.00
Phase
270.000
RoTo BALANCE
LEFT PLANE - 2 nd Trial
CW
90
180
270
178.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
Trial weight
1st Trial
Initial
DUAL PLANE
RIGHT PLANE - 2nd Trial
167.0
scale
2
Plane 1
Magnitude
177.206
Phase
354.755
deg
Plane 2
166.042
354.514
Friday, June 10, 2016 6:53:36 AM
JOB NAME
TEST
Status
2nd Trial Run Pinned!

Know more !



Casing Vibration
Simulate
zero to peak
29.1479
rms
14.354
peak to peak
60.5094
Velocity (mm/s)
29.1
20
10
0
-10
-20
-31.4
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.8998
Time (s)
Circular Plot
90
180
270
35
20
0
-20
-37
Frequency Spectrum
dB
Log
Cursor value (Hz) 1.56
mm/s
40
20
0
-20
-40
-60
-80
-100
-120
-140
0
500
1000
1500
2000
2500
Frequency (Hz)
Log
Peaks Found
Frequency (Hz)
100.00
1.96
300.00
500.00
700.00
900.00
integration type
single integration
Rotating Speed (RPM)
120
Sample rate (/s)
5000
Save data
Time period (s)
1
File Save Path
C:\GEO_PRO 2015 DATA
START
STOP

Know more !


ROTOR BALANCER
CASING VIBRATION
TEST
Select Channel
Dev1_ai0
RMS
4.34943
Peak
9.20786
Pk to Pk
17.8915
Speed
600.476
ROTOR BALANCER
Waterfall
Intensity
3D plot
Speed and RMS Profile
Magnitude and Phase
Spectrum
Timebase Plot
Acq waveform
Amplitude
Time (s)
06:59:14 AM
06:59:15 AM
06:59:16 AM
Time
Speed profile
RPM
RMS profile
Status
Realtime processing started..
Friday, June 10, 2016 6:59:16 AM
ABSOLUTE ROTATION

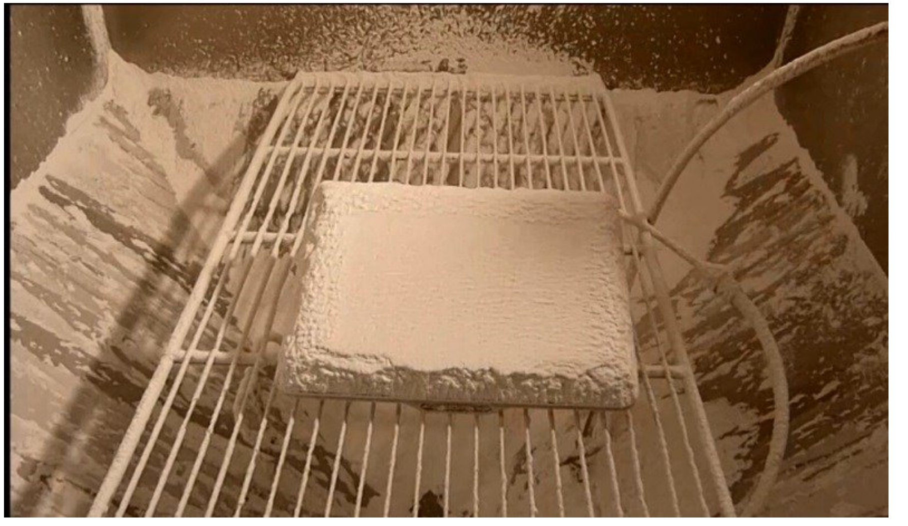
What is it all about?

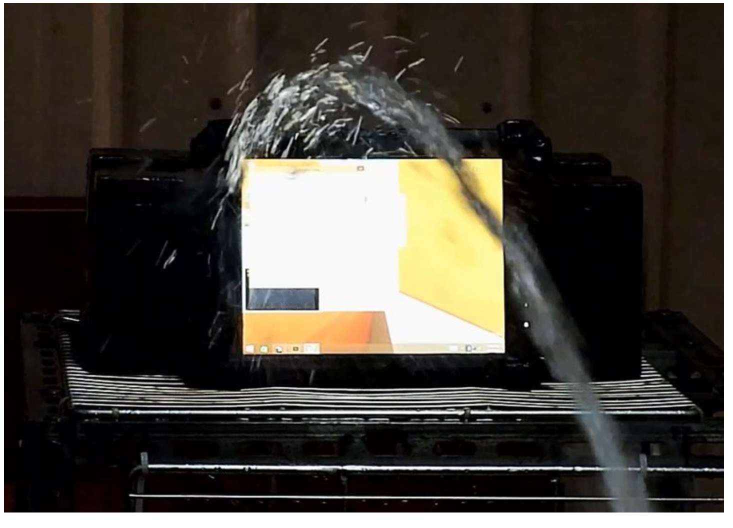
- The rugged, scalable, sustainable & sophisticated technology, but user friendly intuitive application / flexible to customise / remote data access & deployment gadget.

IP 65, MIL-Military Specification, Color / Sun Light Readable, <u>Touch Screen</u>, WiFi, Wireless, Blue Tooth etc

Modular 4 channel SIMULTANEOUS USB powered Ultra Portable DAQ Gadget.

How Rugged?





Know more !

Send us your application requirements

solution@pro-aspect.com

Advance Diagnostic Features

- **Full Spectrum, Long Time Waveforms**
- **Orbit plots with Filtered Order Analysis**
- **Transient Study – Bode, Waterfall, Campbell diagram etc**