PROGRAM SCATTER – FIELD TEST DATA REDUCTION
– SHORT DESCRIPTION –

Purpose

1. Calculation of estimates of statistics of two-dimensional coordinates of impact points obtained from field test of group of projectiles.

2. Graphical presentation of the data.

Program can be applied on any type of projectile.

Description

By using well known formulas from theory of statistics program calculates: mean values, standard deviations, probable errors and minimal and maximal values of both coordinates as well as correlation coefficient. Impact points are shown in two-dimension in parallel with ellipse of dispersion. Optionally principal ellipse can also be shown on the same diagram.

Limitations

Main limitations of the program are:

– Two-dimensional coordinates,

– Maximal number of points 256,

Input data

Input data are supplied through one text input file or through user manual.

Uncertainty in calculation: None.

Origin: Own development based on published literature and own experience. It has been used for years in design of various types of projectile.

Machine: Personal computer with operating system: Windows XP, Windows Vista, Windows 7.

Language: Delphi with Object Pascal.

Contents of package: Executable code, theoretical and user manual.

Example

Input data file

```
Mortar 82mm
Acceptance Field Test
    xi      yi
  4824.0  136.0
  4858.0  149.0
  4881.0  130.0
  4876.0  118.0
  4885.0  136.0
  4864.0  134.0
  4892.0   84.0
  4852.0  109.0
  4891.0  130.0
  4847.0   82.0
```


Figure – Main Window.

Data Reduction

Mortar 82mm

Acceptance Field Test

Number of data   10   Read data from file   Read data from menu

Nr	xi	yi
1	4824.00	136.00
2	4858.00	149.00
3	4881.00	130.00
4	4876.00	118.00
5	4885.00	136.00
6	4864.00	134.00
7	4892.00	84.00
8	4852.00	109.00
9	4891.00	130.00
10	4847.00	82.00
Mean	4867.00	120.80
StdDev	22.03	22.63
ProbEr	14.86	15.26
Min	4824.00	82.00
Max	4892.00	149.00
Span	68.00	67.00

Calculate   SaveAs

yi [m] **Impact points - Two probable errors ellipse**

xi [m]

Same scale of axis   To clipboard

Enumerate points

Draw principal ellipse   Print

✔ OK
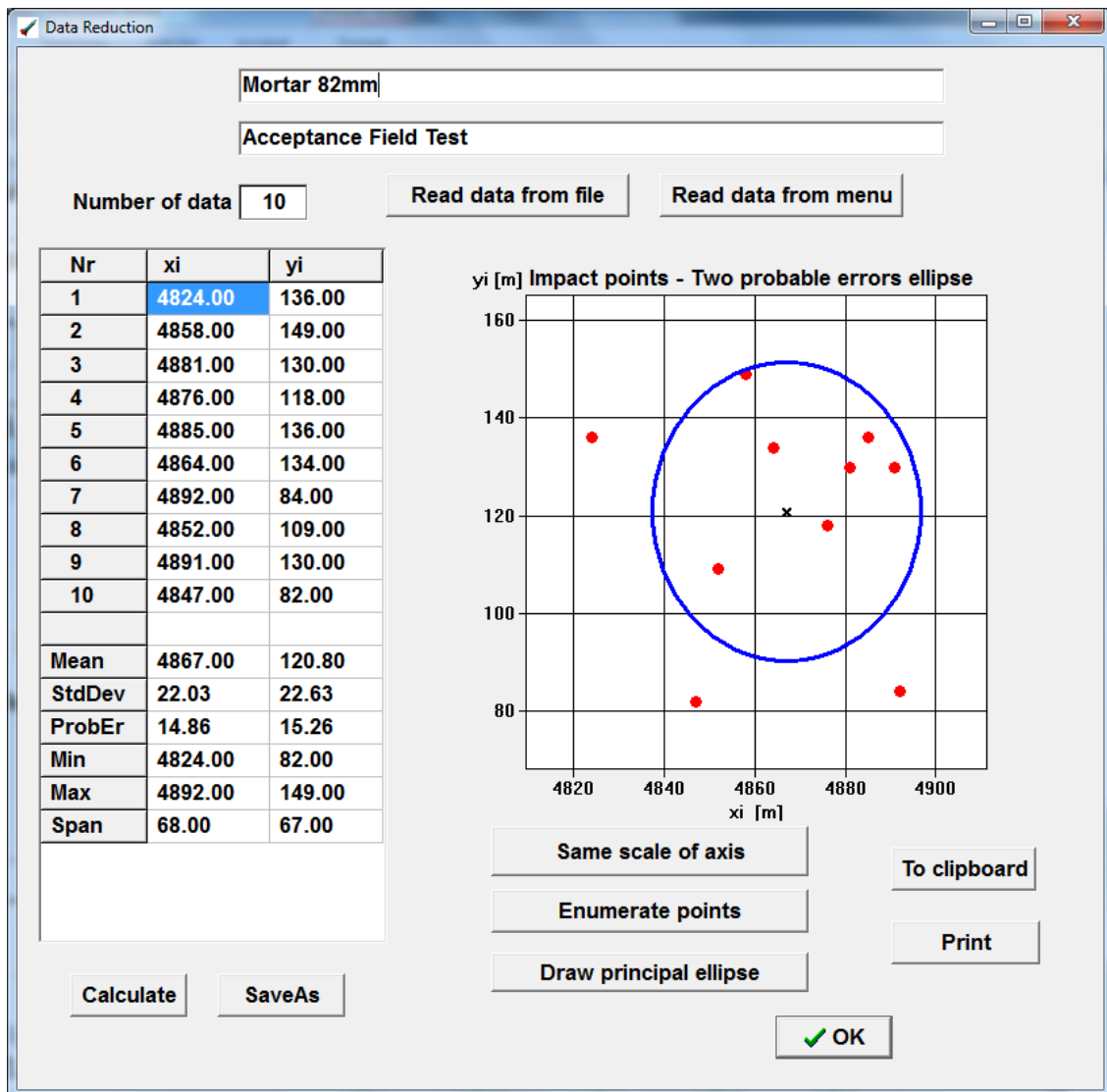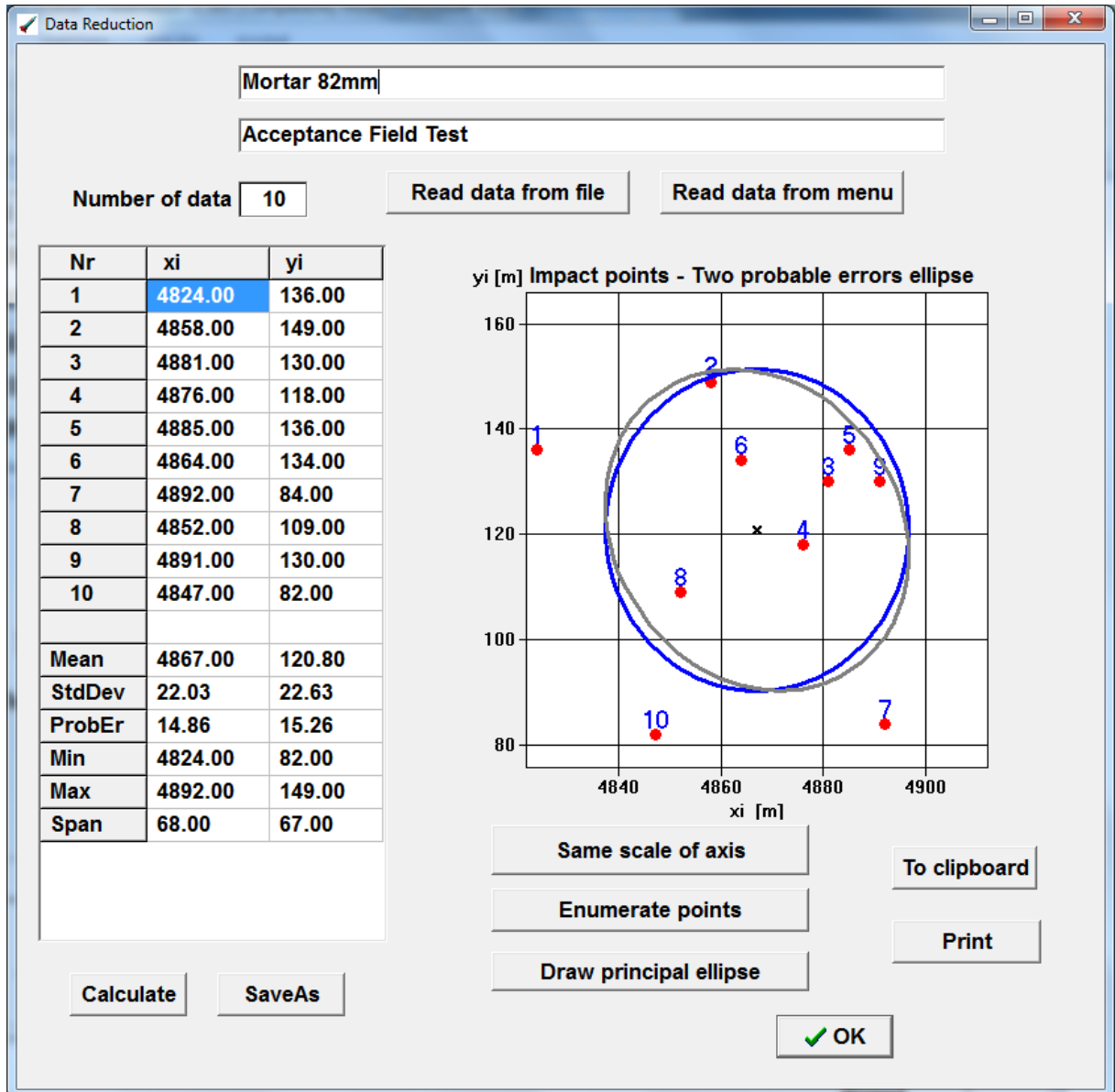
Figure – Main Window (Enumerated points, principal ellipse).