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Practical Software

PSSPC User Guide

Version 1.0.0

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www.practical-software.com

Table of Contents

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Features

Practical Software Statistical Process Control (PSSPC) Lite version is a ***FREEWARE*** and provides the most necessary functions as following:

- Plot both control charts X-Bar/Range and Individual/Moving Range
- Plot Histogram chart
- Chart picture export
- Rich of statistical calculated parameters such Standard Distribution, UCL, LCL, CL, Est. Sigma, CpU, CpL, Cp and CpK
- Chart zoom and scroll
- View the raw data
- Support Microsoft® Access database formats since 97, 2000 and 2002

Hardware Requirement

- PC Pentium III 500 MHz or faster
- Memory 128 MB or more
- XGA (1024x768) Display card with 16 bits color quality or higher
- XGA (1024x768) Monitor CRT 15" (CRT 17" or LCD 15" is preferable)
- HDD 4 GB or greater
- Keyboard and PS/2 mouse

Software Requirement

- Microsoft® Windows® 98, ME, NT4 Prof. SP6, 2000 Prof. or XP Prof.
- Microsoft® Data Access Components (MDAC) Version 2.5 or later

Software Installation

Assuming your system is already installed either Windows OS as above. In addition, you may need to update the MDAC to latest version (this software is available and free download from Microsoft web site at URL http://www.microsoft.com/data)

Unzip file PSSPC.ZIP then run the SETUP.EXE program so you will see the screen like Figure 1 then follow the setup instruction.

After finished software installation then copy the sample database and supporting files that enclosed in ZIP file \Sample_TestSPC_Access to C:\ drive.
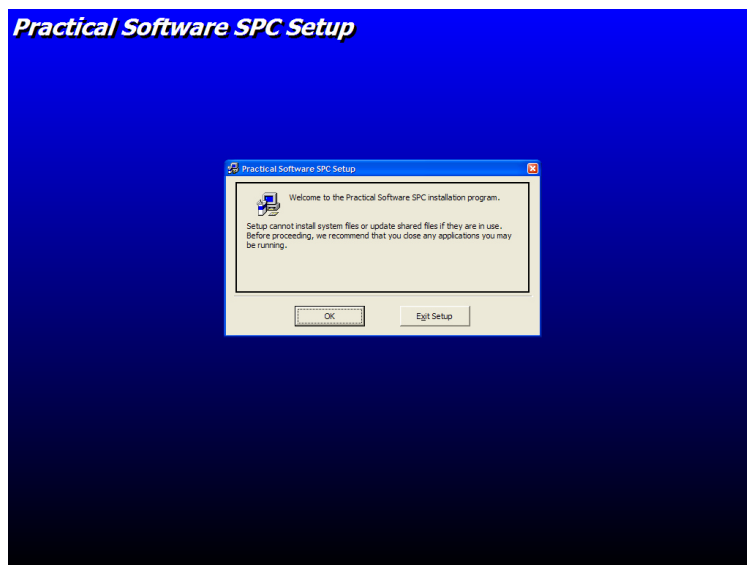
Figure 1 PSSPC Setup Screen

Uninstall Software

Click *Start→ Control Panel→ Add or Remove Programs*and select *Practical Software SPC* then click button Change/Remove.

Getting Start

Prepare your Access database

The data to be chart plotting may come from many sources. There are whether on-line or off-line direct entry from another computer, machine, tester and so on. However, the data (parameters) type must be variable or number not attribute or text.
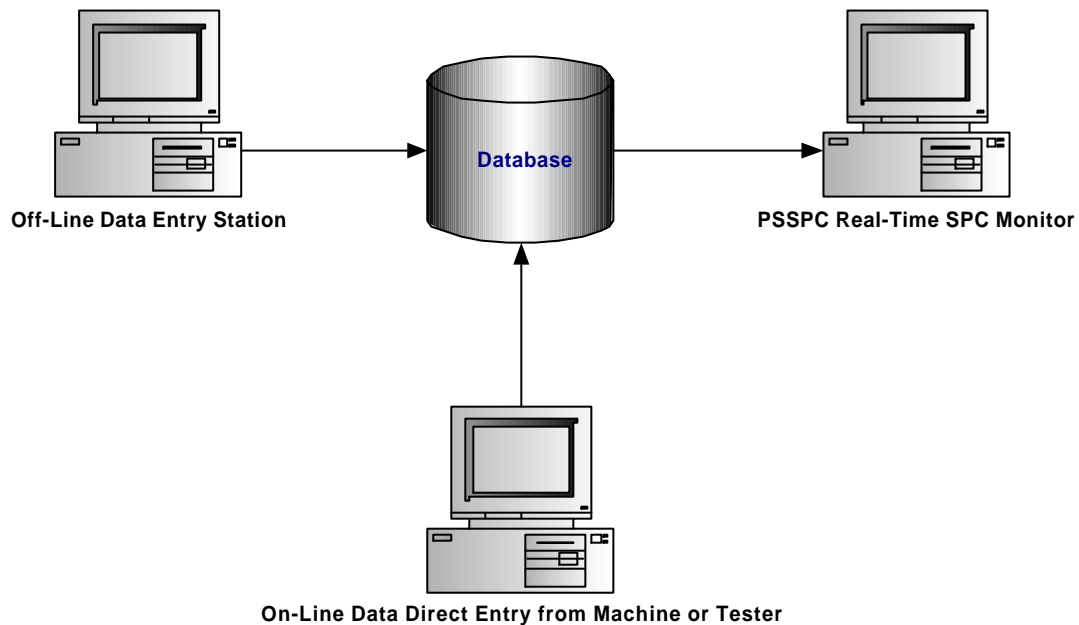

Off-Line Data Entry Station   **Database**   **PSSPC Real-Time SPC Monitor**

On-Line Data Direct Entry from Machine or Tester

Figure 2 SPC Data Sources

The database must contain the header fields as Figure 3 except parameter fields, you can assign any name you like (below sample is assigned name Parameter1, 2, 3, 4, 5 and 6) also these parameter fields should define the default value as 999 or -999 (Figure 4) so that if any error occur such as missing or incompletes during insert new data record from any sources then PSSPC program will ignore these numbers. Please see the sample database is enclosed in ZIP file for more details.

Figure 3 Database Structure

Figure 4 Define Default Value

For improve speed of plotting, you may need to set the index to each key fields as Figure 5.
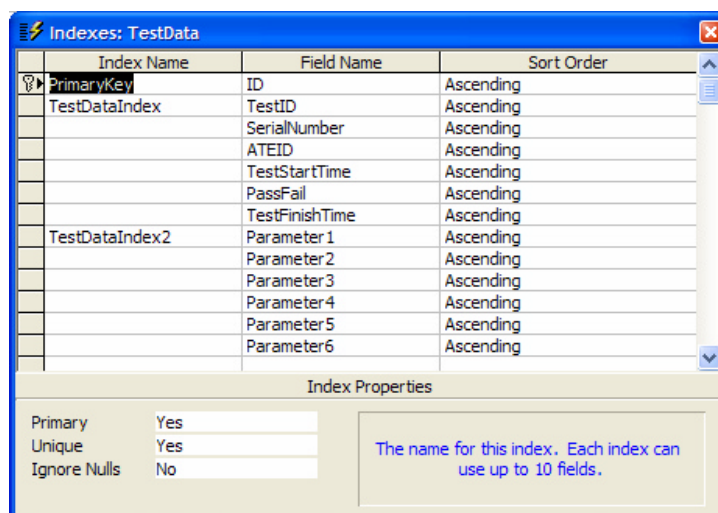

Figure 5 Define Index

Create supporting files

There are only two INI files, which required for PSSPC program, ATE.INI and PRODUCTS.INI, which may place into any location in your hard drive. Both INI is simple text file mean you can create them from many editor program such Notepad, Edit and others also the sample INI files are enclosed in ZIP file as well.

Sample ATE.INI

```
[ATE Configuration]
TestID=Production,Reference,Retest,Rework,Evaluation,Repair
TestProduct=Sample Product

[Database]
DatabaseName=c:\_TestSPC_Access\TestData2002.mdb
```

TestID that available for selection (see Figure 6), each item will separate by comma. This is a filter key, for instance, if you choose **Production** PSSPC will select only records that present the word **Production** in field TestID of database.
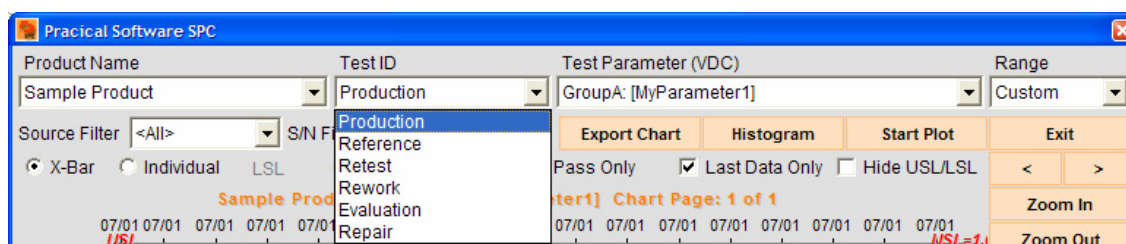

Figure 6 Test ID List Box

TestProduct that available for selection (see Figure 7), each item will separate by comma. You can define any your preferable name. However, the product name in ATE.INI must conform to product name in PRODUCTS.INI.

For instance, if you prefer to define product name as **MyProduct1** and **MyProduct2** then ATE.INI and PRODUCTS.INI will be following:

```
;For ATE.INI
[ATE Configuration]
TestID=Production,Reference,Retest,Rework,Evaluation,Repair
TestProduct=MyProduct1,MyProduct2

;For PRODUCTS.INI
[MyProduct1]
TableName=MyTable1

[MyProduct2]
TableName=MyTable2

[MyProduct1 Spec]
1=Parameter1,0,1,,VDC,GroupA,MyParameter1
2=Parameter2,1,10,,mADC,GroupA,MyParameter2
3=Parameter3,1,100,,dB,GroupA,MyParameter3
4=<EOT>

[MyProduct2 Spec]
1=Parameter1,-1,0,,,GroupA,MyParameter1
2=Parameter2,-10,1,,Ohms,GroupA,MyParameter2
3=Parameter3,-100,1,,dBm,GroupA,MyParameter3
4=<EOT>
```

In addition, if you wish to open another INI, select <Open INI> then the open file (INI) dialog box will show as Figure 8.
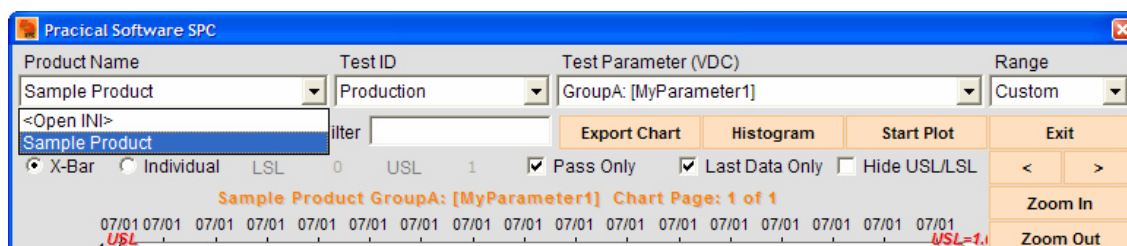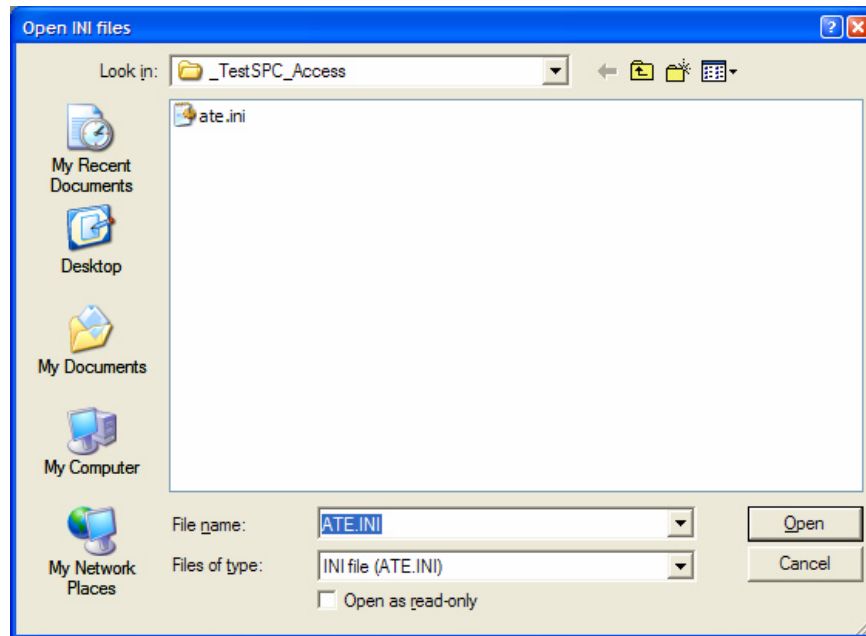

Figure 7 Product Name List Box

Figure 8 Open INI Dialog Box

TestParameter vary by when you select the Product Name, PSSPC will get the test parameters from PRODUCTS.INI. For instance, if you select product name *Sample Product* PSSPC will look at PRODUCTS.INI in section name [*Sample Product* Spec] then extract and put the available test parameter into list box.

Furthermore, PSSPC will keep the Min, Max values so that become to LSL, USL for calculation the relevant statistical parameters also the table name will pick from section [*Sample Product*]/TableName as well.
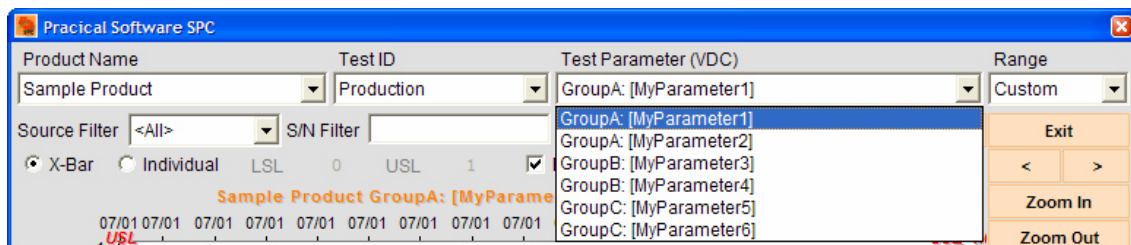

Figure 9 Test Parameter List Box

DatabaseName specific where is database location.

Sample PRODUCTS.INI

The following information will create Test Parameter list as Figure 9

```
[Sample Product]
TableName=TestData

[Sample Product Spec]
;#num=<DBFieldName>,<Min>,<Max>,<Target>,<Unit>,GroupName,ParameterName
1=Parameter1,0,1,,VDC,GroupA,MyParameter1
2=Parameter2,1,10,,mADC,GroupA,MyParameter2
3=Parameter3,1,100,,dB,GroupB,MyParameter3
4=Parameter4,-1,0,,,GroupB,MyParameter4
```

```
5=Parameter5,-10,1,,Ohms,GroupC,MyParameter5
6=Parameter6,-100,1,,dBm,GroupC,MyParameter6
7=<EOT>
```

Where the format for specification will be:

Num=DBFieldName,[MinSpec],[MaxSpec],[Target],[Unit],GroupName,ParameterName

Note: [is an optional]

And must finish by;
Num=<EOT>

- **Num**   is sequence number 1, 2, 3, 4, 5 and so on
- **DBFieldName**   is a unique field name that defined in table of database
- **MinSpec**   is lowest value for acceptation
- **MaxSpec**   is highest value for acceptation
- **Target**   is expect value for result
- **Unit**   such Amps, Volts, Ohms, Hz, dB etc.
- **GroupName**   is group name
- **ParaName**   is parameter name
- **<EOT>**   is End Of Test flag (must be in last Num)

Note: If you not specify MinSpec and MaxSpec values, then some statistical parameter such CpK will be unavailable.

Using PSSPC

Run PSSPC program by click at **Start→ Programs→ Practical Software→ PSSPC**. If the first time run, PSSPC will looking for location of INI files by show dialog box as Figure 8 so please select the location to **C:_TestSPC_Access** then PSSPC Main Form will show as Figure 10.

Next, however, the sample data is available on July 1, 2002 so please select **Custom** in **Range** list box then select plot range as Figure 11.

Other options for Main Form

- *Source Filter List Box*

  PSSPC will grouping the data in field ATEID of database then put into Source Filter list box for user selection in order to filter (select) only records that data in field ATEID is match with Source Filter. To select all sources, select **<All>**

- *S/N Filter*

  Select records only any part of data in field SerialNumber match with S/N Filter. To ignore this filter, just leave it blank

- *Export Chart Button*

  Export chart to JPEG format

- *Histogram Button*

  Plot a histogram chart. You must finish plot either X-Bar or Individual chart before plot a histogram chart

- *X-Bar or Individual*

  Select either chart type to X-Bar/Range or Individual/Moving Range

- *Pass Only*

  Select records only data in field PassFail is **PASS**

- *Last Data Only*

  Select record only last data in same day and same serial number

- *Hide USL/LSL*

  Enable/Disable plot USL/LSL lines

- *< >*

  Move chart to previous page (<) and next page (>) also you can scroll chart by click the right button and drag left or right side over the chart

- *Zoom In*

  Enlarge chart also, you can zoom by drawing a rectangle around the chart area that want to see in detail

  Note: Dragging should be done from top / left to bottom down. Dragging in the opposite direction will be initial position (reset chart)

- *Zoom Out*

  Compress chart

- **Reset Chart**

  Let chart back to initial position.

- **Print Chart**

Print out chart

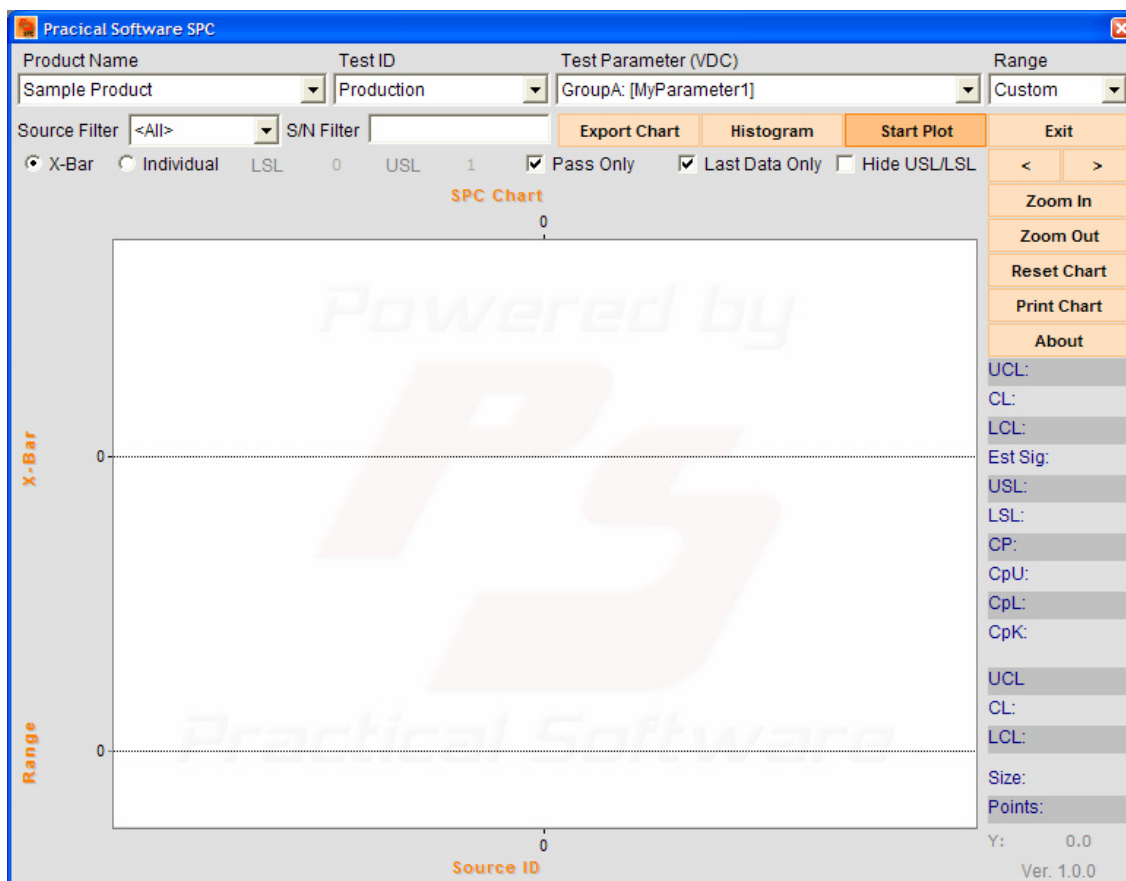- **About**

  Show Practical Software About Form

Figure 10 PSSPC Main Form

Figure 11 Custom Plot Range

Click Start Plot Button then you should see the SPC chart plot as Figure 12.
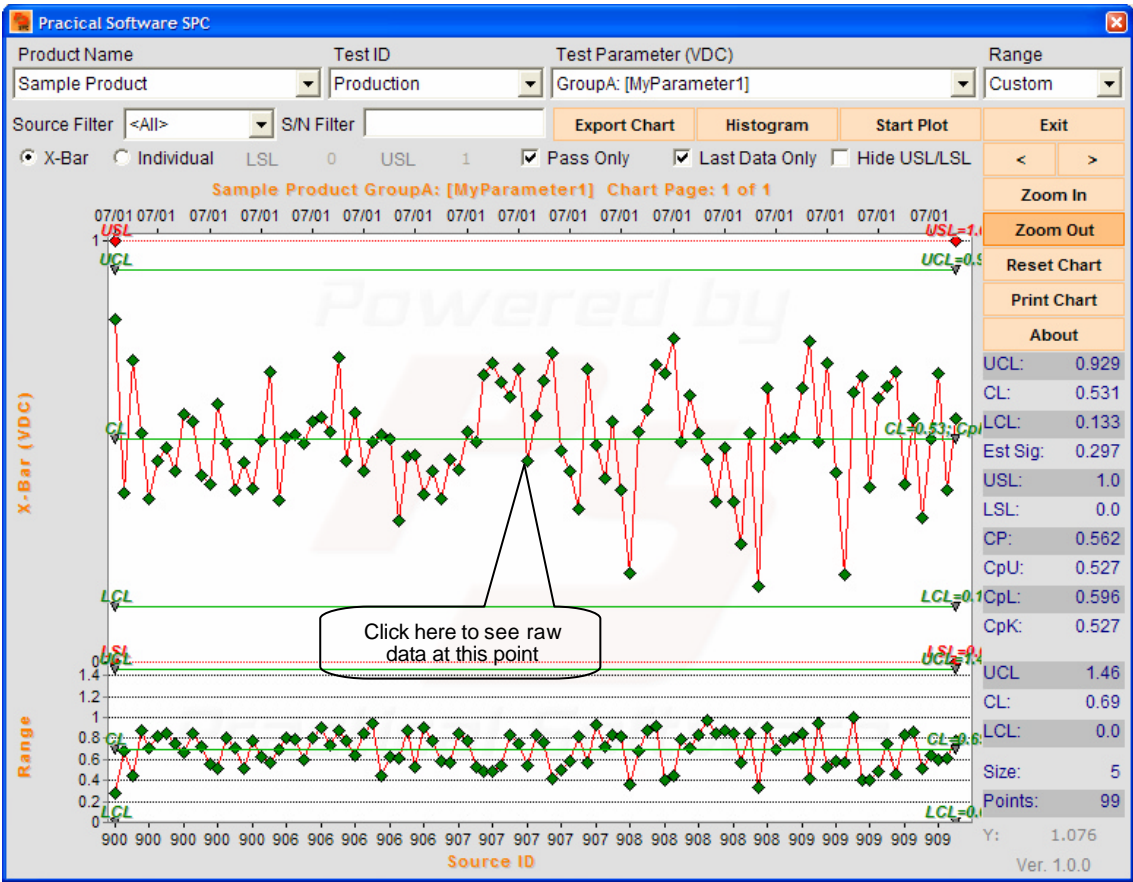
Figure 12 SPC X-Bar/Range Plot

To see raw data for each point, click at Green Diamond over X-Bar chart then you will see screen like Figure 13

Figure 13 Raw Data Viewer

To see a histogram char, click Histogram button at main form then you will see screen like Figure 14.

Other options for Histogram Chart Form

- ***Interval***

  Set number of strips between LSL and USL

- ***Print Chart***

  Print out chart

- ***Reset Chart***

  Let chart back to initial position.

- ***Export Chart Button***
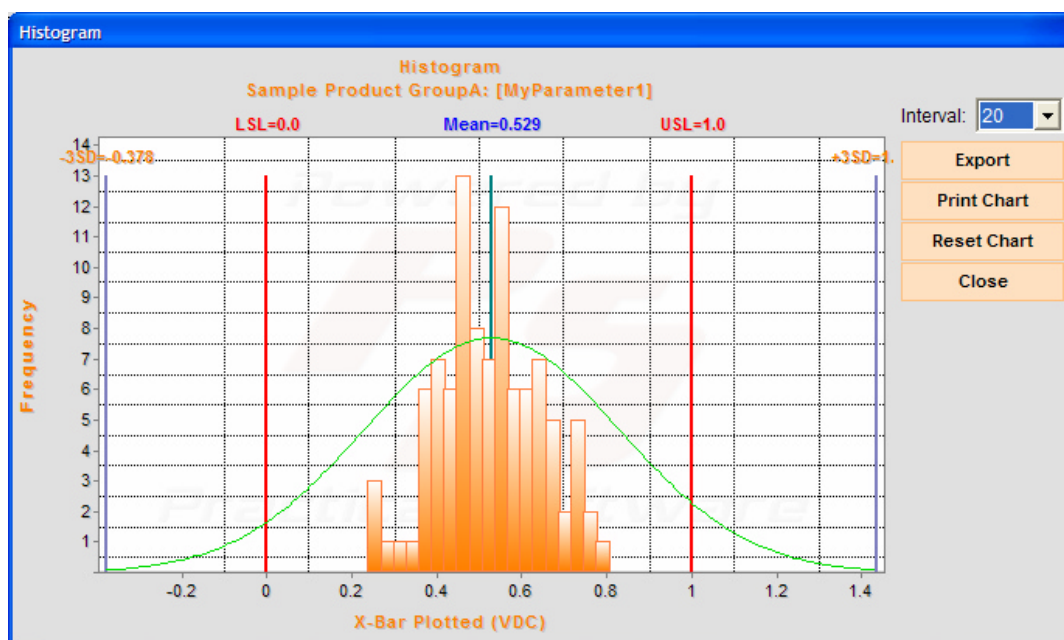
  Export chart to JPEG format

Figure 14 Histogram

Table of Figures