

## CAPABILITY ANALYSIS

### PURPOSE

Generates a table of capability analysis statistics.

### DESCRIPTION

The  $C_p$ ,  $C_{pk}$ , percent defective, and expected loss statistics are printed in a table. These statistics are computed for the full sample. See the documentation for CP, CPK, PERCENT DEFECTIVE, and EXPECTED LOSS in chapter 2 of Volume II of the reference manual for the definitions of these statistics and the details on how they are calculated.

### SYNTAX

CAPABILITY ANALYSIS <y> <SUBSET/EXCEPT/FOR qualification>  
 where <y> is a response variable;  
 and where the <SUBSET/EXCEPT/FOR qualification> is optional.

### EXAMPLES

```
CAPABILITY ANALYSIS Y
CAPABILITY ANALYSIS Y SUBSET GROUP = 1 TO 6
```

### NOTE

The upper and lower specification limits, the target value, and the cost value must be specified by the user as follows:

```
LET LSL = <value>
LET USL = <value>
LET TARGET = <value>
LET USLCOST = <value>
```

### DEFAULT

None

### SYNONYMS

None

### RELATED COMMANDS

CP	=	Computes the $C_p$ statistic for a variable.
CPK	=	Computes the $C_{pk}$ statistic for a variable.
PERCENT DEFECTIVE	=	Computes the percent defective statistic for a variable.
EXPECTED LOSS	=	Computes the expected loss statistic for a variable.
CP PLOT	=	Generates a $C_p$ versus subset plot.
CPK PLOT	=	Generates a $C_{pk}$ versus subset plot.
EXPECTED LOSS PLOT	=	Generates an expected loss versus subset plot.
PERCENT DEFECTIVE PLOT	=	Generates a percent defective versus subset plot.
BOX PLOT	=	Generates a box plot.
XBAR CHART	=	Generates an xbar control chart.
PLOT	=	Generates a data or function plot.

### APPLICATIONS

Quality Control

### IMPLEMENTATION DATE

94/2

## PROGRAM

```
SKIP 25
READ GEAR.DAT DIAMETER BATCH
.
LET LSL = 0.99
LET USL = 1.01
LET TARGET = 1.00
LET USLCOST = 10
.
CAPABILITY ANALYSIS DIAMETER
```

```
*****
*                CAPABILITY ANALYSIS                *
*   NUMBER OF OBSERVATIONS =           100           *
*****
* LOWER SPEC LIMIT (LSL) =           0.99000        *
* UPPER SPEC LIMIT (USL) =           1.01000        *
* TARGET           (TARGET) =           1.00000      *
* USL COST         (USLCOST) =           10.00000     *
*****
* CP                =           0.53088            *
* CPK               =           0.40559            *
* ACTUAL            % DEFECTIVE =           10.00000  *
* THEORETICAL      % DEFECTIVE =           13.63513  *
* EXPECTED LOSS    =           4.49944            *
*****
```