TAGUCHI SN00 PLOT

PURPOSE

Generates a Taguchi signal-to-noise plot for the "target is better" (= "nominal is better") case with a "variance is independent of the mean" subcase.

DESCRIPTION

This Taguchi SN plot answers the question: "What level of the independent variable yields the "best" value of the response as measured by the largest value of the signal-to-noise (S/N) ratio?" For this "target is better" case, the S/N ratio is defined as:

$$SN = -20 \times \log 10(|s|) \tag{EQ 2-33}$$

where s is the subsample standard deviation. The Taguchi SN plot consists of the following:

Vertical   axis =   the Taguchi S/N value for each sub-group;
Horizontal axis =   sub-group designation.

A reference line is drawn at the full sample S/N ratio.

SYNTAX

TAGUCHI SN00 PLOT \<y> \<x>   \<SUBSET/EXCEPT/FOR qualification>
where \<y> is the response (= dependent) variable that contains the raw data values;
    \<x> is an independent variable that contains the sub-group identifications;
and where the \<SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

TAGUCHI SN00 PLOT YIELD CATALYST
TAGUCHI SN00 PLOT Y X SUBSET MATERIAL 4

DEFAULT

None

SYNONYMS

The word TAGUCHI is optional (i.e., SN00 PLOT is a synonym for TAGUCHI SN00 PLOT).

SNT2, S/N2, and SN2 are synonyms for SN00.

RELATED COMMANDS

TAGUCHI SN00 (LET)	=	Computes the Taguchi SN00 statistic for a variable.
TAGUCHI SN+ PLOT	=	Generates a (larger is better) signal-to- noise plot.
TAGUCHI SN- PLOT	=	Generates a (smaller is better) signal-to- noise plot.
TAGUCHI SN PLOT	=	Generates a (target variable is dependent on the mean) signal-to-noise plot.
MEAN PLOT	=	Generates a mean plot.
SD PLOT	=	Generates a standard deviation plot.
CONTROL CHART	=	Generates a mean, range, standard deviation, P, NP, C, or U control chart.
Q CONTROL CHART	=	Generates a Quesenberry control chart.
CHARACTERS	=	Sets the types for plot characters.
LINES	=	Sets the types for plot lines.
SPIKES	=	Sets the on/off switch for plot spikes.

REFERENCE

"Statistical Methods and Applications," Jack Elliot, Allied Signal, 1987 (pp. 4-3, 4-4).

APPLICATIONS

Experiment Design and Quality Control

IMPLEMENTATION DATE

88/8

PROGRAM

        SKIP 25
        READ GEAR.DAT DIAMETER BATCH
        CHARACTERS X ALL
        CHARACTER SIZE 3 ALL
        TITLE AUTOMATIC
        X1LABEL BATCH
        Y1LABEL DIAMETER
        XTIC OFFSET 0.5 0.5
        TIC LABEL SIZE 3
        MULTIPLOT 2 1; MULTIPLOT CORNER COORDINATES 0 0 100 100
        PLOT DIAMETER BATCH BATCH
        CHARACTER X BLANK
        LINE BLANK SOLID
        Y1LABEL SN RATIO
        TAGUCHI SN00 PLOT DIAMETER BATCH
        END OF MULTIPLOT