

PACKAGE ID - 000760IBMPC00 ASENT

KWIC TITLE - Analysis of Sensitivity Experiment Data

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LIMITATION CODE -UNL **AUDIENCE CODE** - USSO

COMPLETION DATE - 09/01/1990 **PUBLICATION DATE** - 12/01/1987

DESCRIPTION - ASENT is designed to provide analysis for several experimental designs, including Probit, Bruceton, and Langlie One-Shot. The program is used for analysis of data from skid, friction, gap, drop hammer, Henkin, and flyer sensitivity tests. ASENT determines the population mean and standard deviation along with their estimated variance and covariance from the stimulus levels used and the number of failures and successes at each level. The population percentiles are also given to any desired confidence level.

PACKAGE CONTENTS - Software Abstract; NESC Note 90-119; MHSMP-87-51;
Media Includes Source Code, Executable, Sample Problem Input and Output, Machine Readable Documentation;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 5.25 Diskette

METHOD OF SOLUTION - ASENT is based on the Golub and Grubbs method of reducing data for which the stimulus levels can be measured, but cannot be well controlled. This method employs an iterative procedure to determine the apparent mean and standard deviation from estimated values by maximizing the logarithm of the likelihood function. An option is included to transform the stimulus level via either the logarithm or the square root in order to treat the data assuming the response to be normally distributed with respect to the log or the square root of the stimulus level.

COMPUTER - IBM PC

OPERATING SYSTEMS - DOS 3.3

PROGRAMMING LANGUAGES - Microsoft QuickBASIC 4.0

SOFTWARE LIMITATIONS - Maximum of 40 testing levels. In some cases, the Newton-Raphson method used may not result in a beginning estimate of the mean and standard deviation; in these cases it is advantageous to specify the initial guesses for the mean and standard deviation.

SOURCE CODE AVAILABLE (Y/N) - Y

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RELATED SOFTWARE - ASENT is an IBM PC version of the mainframe ASENT program originally developed by D.L. Smith at Sandia National Laboratories, Albuquerque, and later modified for use at Sandia National Laboratories, Livermore.

OTHER PROG/OPER SYS INFO - Output produced by ASENT can be sent to a disk file or a printer; the plotting routine is written for a high-resolution (CGA) graphics screen. The DOS GRAPHICS.COM is used to print the plots on Epson and IBM compatible printers; this program is not included.

HARDWARE REQS - ASENT requires an IBM PC, or PC-compatible machine, equipped with a color graphics card; a parallel printer is optional. 80 Kbytes of memory are needed for execution.

TIME REQUIREMENTS - NESC executed the sample problem in 17 seconds on an IBM PC/AT with an 80287 math coprocessor.

REFERENCES - R.W. Ashcraft, An IBM PC Version of ASENT, MHSMP-87-51, December 1987.

ABSTRACT STATUS - Released AS-IS January 11, 1995.

SUBJECT CLASS CODE - 0

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
A CODES
SENSITIVITY ANALYSIS
DATA ANALYSIS
STATISTICS
EXPERIMENTAL DATA

EDB SUBJECT CATEGORIES -
990200

SPONSOR - DOE/DP

PACKAGE TYPE - AS - IS