```
======================================================================== Evalplot
                                                                         Evalplot
     PROGRAM EVALPLOT                                                    Evalplot
     VERSION 75-1 (AUGUST 1975)                                          Evalplot
     VERSION 76-1 (JULY 1976)                                            Evalplot
     VERSION 77-1 (APRIL 1977)                                           Evalplot
     VERSION 78-1 (JULY 1978)                                            Evalplot
     VERSION 79-1 (FEBRUARY 1979)                                        Evalplot
     VERSION 80-1 (JULY 1980)    *IBM VERSION                            Evalplot
     VERSION 80-2 (DECEMBER 1980)                                        Evalplot
     VERSION 81-1 (MARCH 1981)                                           Evalplot
     VERSION 81-2 (AUGUST 1981)  *IMPROVED ZOOM CAPABILITY               Evalplot
     VERSION 82-1 (JANUARY 1982) *IMPROVED COMPUTER COMPATIBILITY        Evalplot
     VERSION 83-1 (JANUARY 1983) *ELIMINATED COMPUTER DEPENDENT CODING.  Evalplot
     VERSION 83-2 (OCTOBER 1983) *ADDED PLOTTING OF HISTOGRAM DATA.      Evalplot
     VERSION 84-1 (DECEMBER 1984)*ADDED PLOTS OF LEGENDRE COEFFICENTS    Evalplot
                                  AS A FUNCTION OF ENERGY.               Evalplot
                                 *ADDED SMALL PLOTTING MODE.             Evalplot
     VERSION 85-1 (AUGUST 1985)  *FORTRAN-77/H VERSION                   Evalplot
     VERSION 86-1 (JANUARY 1986) *ENDF/B-VI FORMAT                       Evalplot
     VERSION 88-1 (JULY 1988)    *MAJOR REVISION TO MAKE CODE EASILY     Evalplot
                                  INTERFACEABLE TO ALMOST ANY PLOTTER.   Evalplot
                                 *WARNING...INPUT PARAMETERS FROM BEEN   Evalplot
                                  CHANGED (SEE, DESCRIPTION BELOW)       Evalplot
                                 *COMPUTER INDEPENDENT SOFTWARE          Evalplot
                                  CHARACTERS.                            Evalplot
                                 *COLOR PLOTS.                           Evalplot
                                 *MT NUMBER DEFINITIONS FROM DATA FILE   Evalplot
                                  READ BY PROGRAM                        Evalplot
                                 *FORTRAN-77 REQUIRED (FORTRAN-H NO      Evalplot
                                  SUPPORTED BY THIS PROGRAM).            Evalplot
                                 *OPTION...INTERNALLY DEFINE ALL I/O     Evalplot
                                  FILE NAMES (SEE, SUBROUTINE FILEIO     Evalplot
                                  FOR DETAILS).                          Evalplot
                                 *IMPROVED BASED ON USER COMMENTS.       Evalplot
     VERSION 89-1 (JANUARY 1989) *PSYCHOANALYZED BY PROGRAM FREUD TO     Evalplot
                                  INSURE PROGRAM WILL NOT DO ANYTHING    Evalplot
                                  CRAZY.                                 Evalplot
                                 *UPDATED TO USE NEW PROGRAM CONVERT     Evalplot
                                  KEYWORDS.                              Evalplot
                                 *ADDED LIVERMORE CIVIC COMPILER         Evalplot
                                  CONVENTIONS.                           Evalplot
                                 *FORTRAN-77/FORTRAN-H COMPATIBLE        Evalplot
                                 *SPECIAL ENDF/B MATERIAL DEFINITIONS    Evalplot
                                  (ZA.LT.1000) FROM DATA FILE READ       Evalplot
                                  BY PROGRAM.                            Evalplot
     VERSION 89-2 (MARCH 1989)   *ADDED ENDF/B-V AND VI MT              Evalplot
                                  DEFINITIONS. PROGRAM WILL DETERMINE    Evalplot
                                  ENDF/B FORMAT BASED ON MF=1,           Evalplot
                                  MT=451 AND USE ASPPROPRIATE MT         Evalplot
                                  DEFINITIONS. IF NO MF=1, MT=451        Evalplot
                                  PROGRAM WILL USE ENDF/B-V              Evalplot
                                  MT DEFINITIONS.                        Evalplot
     VERSION 89-3 (JUNE 1989)    *3 CHARACTER FONTS                      Evalplot
     VERSION 92-1 (JANUARY 1992) *COMPLETE REWRITE OF CODE               Evalplot
                                 *ADDED PHOTON DATA, MF=23 AND 27        Evalplot
                                 *ADDED INCIDENT CHARGED PARTICLES       Evalplot
                                  (IDENTIFIED IN PLOT TITLES)            Evalplot
                                 *ADDED FORTRAN SAVE OPTION.             Evalplot
                                 *UPDATED BASED ON USER COMMENTS         Evalplot
                                 *ADDED RETRIEVAL BY UP TO 100           Evalplot
                                  MAT/MF/MT OR ZA/MF/MT RANGES           Evalplot
                                 *WARNING...INPUT PARAMETER FORMAT       Evalplot
```

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                            HAS BEEN CHANGED...SEE DESCRIPTION    Evalplot
                            BELOW.                                Evalplot
VERSION 92-2 (FEBRUARY 1992)*ADDED PHOTON SPECTRA, MF=15.         Evalplot
                           *ADDED MULTIPLICATION OF DISTRIBUTIONS Evalplot
                            IN MF=5 AND 15 BY PROBABILITY=YIELD.  Evalplot
                           *INCREASED PAGE SIZE TO 12000 POINTS   Evalplot
VERSION 92-3 (MAY 1992)     *CORRECTED DESCRIPTION OF INPUT       Evalplot
                            PARAMETERS AND EXAMPLE PROBLEMS.      Evalplot
                           *CORRECTED FOR ENDF/B-VI DEFINITION OF Evalplot
                            TEMPERATURE FROM MF=1/MT=451.         Evalplot
                           *CORRECTED LOGIC SO THAT EACH REQUEST  Evalplot
                            IS TREATED SEPARATELY TO CREATE A     Evalplot
                            PLOT, UNLESS REQUESTS ARE CHAINED     Evalplot
                            TOGETHER.                             Evalplot
                           *ADDED VARIABLE CHARACTER SIZE INPUT.  Evalplot
VERSION 93-1 (MARCH 1993)   *INCREASED PAGE SIZE FROM 12000       Evalplot
                            TO 210000                             Evalplot
                           *INCREASED THE NUMBER OF ENERGIES      Evalplot
                            VS. LEGENDRE COEFFICIENTS FROM        Evalplot
                            167 TO 7000                           Evalplot
                           *UPDATED FOR ON SCREEN GRAPHICS        Evalplot
                            USING THE LAHEY FORTRAN COMPILER.     Evalplot
VERSION 94-1 (JANUARY 1994) *VARIABLE ENDF/B DATA FILENAMES       Evalplot
                            TO ALLOW ACCESS TO FILE STRUCTURES    Evalplot
                            (WARNING - INPUT PARAMETER FORMAT     Evalplot
                            HAS BEEN CHANGED)                     Evalplot
                           *CLOSE ALL FILES BEFORE TERMINATING    Evalplot
                            (SEE, SUBROUTINE ENDIT)               Evalplot
VERSION 96-1 (JANUARY 1996) *COMPLETE RE-WRITE                    Evalplot
                           *IMPROVED COMPUTER INDEPENDENCE        Evalplot
                           *ALL DOUBLE PRECISION                  Evalplot
                           *UNIFORM TREATMENT OF ENDF/B I/O       Evalplot
                           *IMPROVED OUTPUT PRECISION             Evalplot
                           *DEFINED SCRATCH FILE NAMES            Evalplot
                           *ALL DOUBLE PRECISION                  Evalplot
VERSION 97-1 (APRIL 1997)   *INCREASED PAGE SIZE FROM 210000      Evalplot
                            TO 480,000                            Evalplot
VERSION 99-1 (MARCH 1999)   *CORRECTED CHARACTER TO FLOATING      Evalplot
                            POINT READ FOR MORE DIGITS            Evalplot
                           *UPDATED TEST FOR ENDF/B FORMAT        Evalplot
                            VERSION BASED ON RECENT FORMAT CHANGE Evalplot
                           *GENERAL IMPROVEMENTS BASED ON         Evalplot
                            USER FEEDBACK                         Evalplot
VERS. 2000-1 (FEBRUARY 2000)*ADDED MF=10, ACTIVATION CROSS        Evalplot
                            SECTION PLOTS.                        Evalplot
                           *INCREASED DIMENSIONS TO HANDLE MORE   Evalplot
                            SECTIONS - UP TO 1,000                Evalplot
                           *GENERAL IMPROVEMENTS BASED ON         Evalplot
                            USER FEEDBACK                         Evalplot
VERS. 2002-1 (Nov. 2002)    *OPTIONAL INPUT PARAMETERTS           Evalplot
                           *OPTIONAL BLACK OR WHITE BACKGROUND    Evalplot
                           *COLOR POSTSCRIPT FILES                Evalplot
VERS. 2004-1 (MARCH 2004)   *ADDED INCLUDE FOR COMMON             Evalplot
                           *INCREASED PAGE SIZE TO 600,000        Evalplot
                           *INCREASED THE NUMBER OF ENERGIES      Evalplot
                            VS. LEGENDRE COEFFICIENTS FROM        Evalplot
                            7000 TO 20000                         Evalplot
VERS. 2007-1 (JAN.  2007)   *CHECKED AGAINST ALL ENDF/B-VII.      Evalplot
                           *INCREASED PAGE SIZE TO 2,400,000      Evalplot
                            FROM 600,000.                         Evalplot
                            VS. LEGENDRE COEFFICIENTS TO          Evalplot
                            80,000 FROM 20,000 (MUST BE 1/30      Evalplot
                            PAGE SIZE).                           Evalplot
```

*ADDEED (N,REMAINDER) TO FIRST PLOT.

OWNED, MAINTAINED AND DISTRIBUTED BY

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AUTHORS MESSAGE

THE REPORT DESCRIBED ABOVE IS THE LATEST PUBLISHED DOCUMENTATION FOR THIS PROGRAM. HOWEVER, THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION INCLUDING ALL RECENT IMPROVEMENTS. PLEASE READ ALL OF THESE COMMENTS BEFORE IMPLEMENTATION, PARTICULARLY THE COMMENTS CONCERNING MACHINE DEPENDENT CODING.

AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR COMPUTER.

PURPOSE

THIS PROGRAM IS DESIGNED TO READ EVALUATED DATA FROM THE ENDF/B FORMAT AND TO PLOT THE DATA. THE USER MAY SELECT CROSS SECTIONS, PARAMETERS (E.G. NU-BAR, MU-BAR, ETC.), ANGULAR DISTRIBUTIONS AND/OR ENERGY DISTRIBUTIONS TO BE PLOTTED.

IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS, DISK OR ANY OTHER MEDIUM.

ON WHAT COMPUTERS WILL THE PROGRAM RUN

THE PROGRAM HAS BEEN IMPLEMENTED ON A WIDE VARIETY OF COMPUTERS FROM THE ONE EXTREME OF LARGE MAINFRAME CRAY AND IBM COMPUTERS TO THE OTHER EXTREME OF SUN TERMINALS AND IBM PERSONAL COMPUTERS. THE PROGRAM IS DESIGNED TO RUN ON VIRTUALLY ANY COMPUTER. FOR SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON,
(1) COMPUTER DEPENDENT CODING
(2) PLOTTER/GRAPHICS TERMINAL INTERFACE

ON WHAT PLOTTERS WILL THE PROGRAM RUN

THE PLOTTER MAY USE UNITS OF INCHES, CENTIMETERS, MILLIMETERS, VIRTUALLY ANYTHING. INTERNALLY THE PROGRAM WILL DEFINE PLOTS IN APPROXIMATELY A4 OR 8-1/2 BY 11 INCH FORMAT. AS PART OF THE INPUT THE USER DEFINES THE ACTUAL SIZE OF THE PLOT IN THE UNITS (I.E., INCHES, CENTIMETERS, MILLIMETERS, WHATEVER) OF THE REAL PLOT. THE PLOT IS TRANSFORMED TO THE SIZE OF THE LOCAL PLOTTER AND OUTPUT. USING THIS CONVENTION THIS PROGRAM SHOULD BE EASY TO INTERFACE TO VIRTUALLY ANY PLOTTER OR GRAPHICS TERMINAL.

GRAPHICS INTERFACE

THIS PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE WHICH REQUIRES ONLY 3 SUBROUTINES...PLOTS, PLOT AND PEN (DESCRIBED IN DETAIL BELOW). ALL CHARACTERS AND SYMBOLS ARE DRAWN USING TABLES OF PEN STROKES (SUPPLIED WITH THIS PROGRAM). USING THIS METHOD THE PROGRAM SHOULD BE SIMPLE TO INTERFACE TO VIRTUALLY ANY PLOTTER OR GRAPHICS TERMINAL AND THE APPEARANCE AND LAYOUT OF THE PLOTS SHOULD BE INDEPENDENT OF WHICH PLOTTER IS USED.

PROGRAM IDENTIFICATION

AS DISTRIBUTED THE FIRST FRAME OF PLOTTED OUTPUT WILL DOCUMENT THE PROGRAM NAME, VERSION AND INSTALLATION. THIS INFORMATION IS STORED AS DATA IN THE ARRAY VERSES NEAR THE BEGINNING OF SUBROUTINE FRAME1. IF YOU WISH TO CUSTOMIZE THE OUTPUT TO IDENTIFY YOUR INSTALLATION CHANGE THE LAST TWO LINES OF THE ARRAY VERSES.

SIZE OF PLOTS

THE PROGRAM HAS A BUILT-IN DEFAULT SIZE TO MAKE EACH PLOT 13.50 BY 10.24 INCHES. THIS SIZE WAS SELECTED ASSUMING THAT THE RESOLUTION OF THE PLOTTER IS 1024 RASTER POINTS PER INCH. THE USER MAY CHANGE THE SIZE OF THE PLOT BY SPECIFYING ANY REQUIRED SIZE ON THE FIRST INPUT LINE. IN PARTICULAR FOR USE ON ANY PLOTTER THAT USES CENTIMETERS INSTEAD OF INCHES THE USER MAY MERELY SPECIFY THE REQUIRED SIZE OF THE PLOT IN CENTIMETERS (E.G., TO OBTAIN A 13.50 BY 10.24 INCH PLOT, THE USER NEED ONLY SPECIFY 34.3 BY 26 ON THE FIRST INPUT LINE...ASSUMING 2.54 CENTIMETERS PER INCH, OR 343 BY 260 FOR MILLIMETERS..ASSUMING 25.4 MILLIMETERS PER INCH).

CHARACTER SIZE

THE PLOT HAS A BUILT-IN CHARACTER SIZE WHICH HAS BEEN DEFINED FOR COMPATIBILITY WITH THE BUILT-IN PLOT SIZE. IF THE USER SPECIFIES BY INPUT A DIFFERENT PLOT SIZE, THE PROGRAM WILL AUOTMATICALLY SCALE THE SIZE OF ALL CHARACTERS BY THE RATIO OF THE Y SIZE OF THE PLOT SPECIFIED BY THE USER TO THE BUILT-IN Y SIZE OF PLOTS (E.G., FOR PLOTS WHICH ARE ONLY 5.12 HIGH (Y DIRECTION) ALL CHARACTERS WILL BE SCALED TO BE ONLY 1/2 THE CHARACTER SIZE ON PLOTS WHICH ARE 10.24 HIGH (10.24 = THE BUILT-IN SIZE). NOTE, CHANGES IN THE X SIZE OF THE PLOT WILL NOT HAVE ANY EFFECT ON THE CHARACTER SIZE (E.G., FOR A LONG PLOT, 30 BY 10.24 THE CHARACTER SIZE WILL BE THE THE SAME AS ON A 13.50 BY 10.24 PLOT).

PLOT PER FRAME

BY INPUT THE USER CAN SPECIFY NOT ONLY THE ACTUAL SIZE OF THE LOCAL PLOTTER, BUT ALSO HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THIS IS DONE BY SPECIFYING THE LAYOUT OF A FRAME IN TERMS OF THE NUMBER OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE BY SPECIFYING THAT EACH FRAME BE DIVIDED INTO 3 PLOTS IN THE X

DIRECTION AND 2 PLOTS IN THE Y DIRECTION, EACH FRAME WILL CONTAIN UP TO 6 PLOTS (3 X 2). INTERNALLY EACH PLOT WILL BE GENERATED TO STANDARD A4 SIZE, AS DESCRIBED ABOVE, AND THEN ON OUTPUT SCALED TO THE NUMBER OF PLOTS PER FRAME SPECIFIED BY THE USER INPUT.

ENDF/B FORMAT

THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV, V OR VI FORMAT).

IT IS ASSUMED THAT THE DATA IS CORRECTLY CODED IN THE ENDF/B FORMAT AND NO ERROR CHECKING IS PERFORMED. IN PARTICULAR IT IS ASSUMED THAT THE MAT, MF AND MT ON EACH LINE IS CORRECT. SEQUENCE NUMBERS (COLUMNS 76-80) ARE IGNORED. FORMAT OF SECTION MT=452, 455 OF MF=1, AND ALL SECTIONS OF MF=3, 4 AND 5 MUST BE CORRECT. ALL OTHER SECTION OF DATA ARE SKIPPED AND AS SUCH THE OPERATION OF THIS PROGRAM IS INSENSITIVE TO THE CORRECTNESS OR INCORRECTNESS OF ALL OTHER SECTIONS.

INTERPOLATION LAW

EACH TABLE OF DATA MAY USE EITHER COMPLETELY HISTOGRAM OR COMPLETELY LINEAR INTERPOLATION LAW (THE TWO INTERPOLATION LAWS CANNOT BE MIXED TOGETHER IN ONE TABLE). EITHER OF THESE TWO REPRESENTATIONS WILL BE STORED IN CORE IN LINEARLY INTERPOLABLE FORM. IF THIS PROGRAM FINDS ANY DATA THAT USES ANY OTHER INTERPOLATION LAW IT WILL PRINT AN ERROR MESSAGE AND PLOT THE TABLE AS IF IT WERE LINEARLY INTERPOLABLE. THE ONLY ERROR THAT WILL RESULT IN THE PLOT WILL BE IN THE CURVE FOLLOWED BETWEEN TABULATED POINTS. PROGRAM LINEAR (UCRL-50400, VOL. 17, PART A) MAY BE USED TO CONVERT CROSS SECTIONS TO LINEARLY INTERPOLABLE FORM. PROGRAM LEGEND CAN BE USED FOR ANGULAR DISTRIBUTIONS AND PROGRAM ENERGY CAN BE USED FOR SECONDARY ENERGY DISTRIBUTIONS.

REACTION INDEX

THIS PROGRAM DOES NOT USE THE REACTION INDEX WHICH IS GIVEN IN SECTION MF=1, MT=451 OF EACH EVALUATION.

PAGE SIZE

ONLY ONE PAGE OF DATA = 600000 DATA POINTS - IS KEPT IN CORE AT ANY GIVEN TIME. IF THERE IS MORE THAN THIS MANY POINTS THEY WILL BE KEPT ON A SCRATCH FILE AND LOADED INTO CORE AS NEEDED.

TO CHANGE THE PAGE SIZE,

1) CHANGE 600000 TO THE NEW PAGE SIZE
2) CHANGE 1200000 TO TWO TIMES THE NEW PAGE SIZE

SECTION SIZE

SINCE THIS PROGRAM USES A LOGICAL PAGING SYSTEM THERE IS NO LIMIT TO THE NUMBER OF POINTS IN ANY SECTION, E.G., THE TOTAL CROSS SECTION MAY BE REPRESENTED BY 200,000 DATA POINTS.

THE ONLY EXCEPTION TO THIS RULE IS THAT EACH TABLE OF DATA WHICH USES A HISTOGRAM INTERPOLATION LAW CANNOT EXCEED HALF THE SIZE OF THE IN CORE PAGE (PRESENTLY 600000/2=300000) WHICH IS ADEQUATE FOR ALMOST ALL HISTOGRAM (E.G. MULTIGROUP) REPRESENTATIONS OF A SINGLE TABLE (E.G. REACTION).

WHAT DATA CAN BE PLOTTED Evalplot

THIS CODE CAN PLOT VIRTUALLY ANY NEUTRON OR PHOTON CROSS SECTIONS (MF=3 OR 23) AND ANY TABULATED ANGULAR OR ENERGY DISTRIBUTIONS OR LEGENDRE COEFFICIENTS. WHAT IS ACTUALLY PLOTTED DEPENDS ON WHAT DATA IS SELECTED BY THE USER.

SELECTION OF DATA

DATA TO BE PLOTTED IS SPECIFIED BY INPUTTING UP TO 100 MAT/MF/MT RANGES OR UP TO 100 ZA/MF/MT RANGES. IN ADDITION FOR EACH RANGE THE USER MAY SPECIFY AN X RANGE (USUALLY ENERGY) AND THE TYPE OF DATA TO BE PLOTTED (SEE: THE DESCRIPTION OF TYPES, BELOW).

THE X RANGE FOR MF = 1, 3, 23 AND 27 AND MF = 4 LEGENDRE COEFFICIENTS WILL BE USED AS THE X LIMITS OF THE PLOTS, E.G., PLOT ENERGY DEPENDENT CROSS SECTIONS BETWEEN 1 AND 20 MEV.

THE X RANGE FOR MF = 4 AND 5 WILL BE USED TO ONLY SELECT ANGULAR AND ENERGY DISTRIBUTION FOR WHICH THE INCIDENT NEUTRON ENERGY IS IN THE X RANGE. E.G., ONLY PLOT ANGULAR DISTRIBUTIONS WHERE THE INCIDENT NEUTRON ENERGY IS 1 TO 20 MEV.

INTERACTIVE VS. BATCH MODE

VERSION 92-1 AND LATER VERSIONS OF THIS CODE ONLY USE A BATCH MODE WHERE ALL REQUESTS ARE READ AND PROCESSED. EARLIER VERSIONS OF THIS CODE HAD BOTH AN INTERACTIVE MODE (WHERE REQUESTS WHERE READ AND EXECUTED ONE AT A TIME) AND A BATCH MODE. INTERACTIVE MODE HAS BEEN DROPPED AND WILL NOT TO REINTRODUCED UNLESS THE AUTHOR IS INFORMED BY USERS THAT THEY WERE USING THE INTERACTIVE MODE.

PLOT LAYOUT

VERSION 92-1 AND LATER VERSIONS OF THIS CODE WILL PLOT ALL CURVES ON A SINGLE PLOT. EARLIER VERSIONS OF THIS CODE ALLOWED THE OPTION TO HAVE,
MULTIPLE PLOTS - INDIVIDUAL SCALING
MULTIPLE PLOTS - COMMON SCALING
SINGLE PLOT
MULTILE PLOTS PER PLOT HAVE BEEN DROPPED AND WILL NOT BE REINTRODUCED UNLESS IT IS DEMONSTRATED TO THE AUTHOR THAT THEY ARE OF PRACTICAL USE IN SOME APPLICATION.

PROCESSING OF DATA

IN THE CASE OF NEUTRON AND PHOTON CROSS SECTIONS (MF=3 OR 23) AND PARAMETERS (MF=1 OR 27) ALL DATA IN A FILE (MF) IS READ GROUPED TOGETHER BY TYPE (AS EXPLAINED BELOW) AND PLOTTED.

IN THE CASE OF ANGULAR AND ENERGY DISTRIBUTIONS (MF=4 OR 5) ONLY ONE SECTION OF DATA AT A TIME IS READ AND PLOTTED.

TYPES OF DATA (MF=1, 3, 23 AND 27 ONLY)

THESE DATA ARE DIVIDED INTO UP TO 18 TYPES AND EACH TYPE OF DATA IS GROUPED TOGETHER AND PLOTTED (IF THE DATA IS ACTUALLY PRESENT).

WHAT TYPE OF DATA IS ACTUALLY PLOTTED CAN BE CONTROLLED BY USER INPUT EITHER BASED ON SELECTED MAT/MF/MT OR ZA/MF/MT RANGES OR BY EXPLICITLY SELECTING ONLY ONE TYPE OF DATA IS TO BE PLOTTED

```
(SEE THE DESCRIPTION OF INPUT BELOW).                                  Evalplot
                                                                       Evalplot
SIMPLE REQUESTS                                                        Evalplot
---------------                                                        Evalplot
GENERALLY EACH MAT/MF/MT OR ZA/MF/MT REQUESTED IS TREATED              Evalplot
SEPERATELY AND THE SPECIFIED DATA IS GROUPED BY TYPE AND PLOTTED.      Evalplot
FOR EXAMPLE, THE USER MAY SPECIFY USING ONE REQUEST THAT ALL           Evalplot
TYPES OF DATA BE PLOTTED OVER THE ENTIRE ENERGY RANGE AND USE          Evalplot
A SECOND REQUEST TO SPECIFY THAT ONE PARTICULAR TYPE OF DATA           Evalplot
BE PLOTTED OVER A SPECIFIC ENERGY RANGE.                               Evalplot
                                                                       Evalplot
CHAINED REQUESTS                                                       Evalplot
----------------                                                       Evalplot
REQUESTS MAY ALSO BE CHAINED TOGETHER (SEE, THE DESCRIPTION OF         Evalplot
INPUT BELOW), WHERE A NUMBER OF REQUESTS MAY BE USED TO SELECT         Evalplot
DATA, BUT ONLY THE LAST REQUEST IN A CHAIN WILL CAUSE ALL SELECTED     Evalplot
DATA TO BE PLOTTED. CHAINED REQUESTED ARE INDICATED ON INPUT BY        Evalplot
A SERIES OF REQUESTS FOR DATA TYPE = -1, EXCEPT FOR THE LAST           Evalplot
REQUEST OF THE CHAIN, WHICH MUST SPECIFY A TYPE DATA = 0 (ALL)         Evalplot
OR A POSITIVE NUMBER. UNLIKE SIMPLE REQUESTS, WHERE EACH WILL          Evalplot
PRODUCE ONE OR MORE PLOTS, WITH CHAINED REQUESTS THE ENTIRE            Evalplot
SERIES OF CHAINED REQUESTS WILL BE TREATED AS A SINGLE REQUEST         Evalplot
AND WILL PRODUCE ONE OR MORE PLOTS.                                    Evalplot
                                                                       Evalplot
FOR EXAMPLE, DATA TYPE = 1 WILL NORMALLY INCLUDE,                      Evalplot
MT =   1 - TOTAL                                                      Evalplot
   =   2 - ELASTIC                                                    Evalplot
   =   4 - TOTAL INELASTIC                                            Evalplot
   =   5 - (N,REMAINDER)                                              Evalplot
   =  18 - FISSION                                                    Evalplot
   = 102 - CAPTURE                                                    Evalplot
IF YOU WISH TO EXCLUDE TOTAL INELASTIC FROM A PLOT YOU NEED ONLY       Evalplot
SPECIFY TWO CHAINED REQUESTS THE FIRST TO SELECT MT = 1 THROUGH        Evalplot
2 (TO INCLUDE TOTAL AND ELASTIC) AND A SECOND TO INCLUDE MT = 18       Evalplot
THROUGH 102. THE FIRST REQUEST SHOULD SPECIFY DATA TYPE = -1 AND       Evalplot
SECOND 1 (THIS WILL CHAIN THE 2 REQUESTS TOGETHER, SO THAT MT =1       Evalplot
THROUGH 2, AND MT = 18 THROUGH 102 ALL APPEAR ON THE SAME PLOT).       Evalplot
SINCE MT = 4 (TOTAL INELASTIC) IS NOT REQUESTED IT WILL NOT BE         Evalplot
PLOTTED.                                                               Evalplot
                                                                       Evalplot
DEFINITION OF 18 DATA TYPES                                            Evalplot
---------------------------------------------------------------------- Evalplot
NEUTRONS (MF = 3)                                                      Evalplot
-----------------                                                      Evalplot
(1) TOTAL, ELASTIC, CAPTURE, FISSION, TOTAL INELASTIC, REMAINDER       Evalplot
(2) (N,2N), (N,3N) AND (N,N' CHARGED PARTICLE)                         Evalplot
(3) (N,CHARGED PARTICLE)                                               Evalplot
(4) PARTICLE PRODUCTION (PROTON, DEUTERON, ETC.) AND DAMAGE            Evalplot
(5) TOTAL, FIRST, SECOND, ETC. CHANCE FISSION.                         Evalplot
(6) TOTAL INELASTIC, INELASTIC DISCRETE LEVELS AND CONTINUUM           Evalplot
(7) (N,P) TOTAL AND LEVELS (ONLY IF LEVELS ARE GIVEN)                  Evalplot
(8) (N,D) TOTAL AND LEVELS (ONLY IF LEVELS ARE GIVEN)                  Evalplot
(9) (N,T) TOTAL AND LEVELS (ONLY IF LEVELS ARE GIVEN)                  Evalplot
(10) (N,HE-3) TOTAL AND LEVELS (ONLY IF LEVELS ARE GIVEN)              Evalplot
(11) (N,ALPHA) TOTAL AND LEVELS (ONLY IF LEVELS ARE GIVEN)             Evalplot
(12) PARAMETERS MU-BAR, XI AND GAMMA                                   Evalplot
(13) NU-BAR - TOTAL, PROMPT AND DELAYED                                Evalplot
                                                                       Evalplot
PHOTONS  (MF=23 AND 27)                                                Evalplot
-----------------------                                                Evalplot
(14) TOTAL, COHERENT, INCOHERENT, TOTAL PHOTOELECTRIC, TOTAL           Evalplot
     PAIR PRODUCTION                                                   Evalplot
(15) TOTAL AND SUBSHELL PHOTOELECTRIC                                  Evalplot
```

(16) TOTAL, NUCLEAR AND ELECTRON PAIR PRODUCTION
(17) COHERENT FORM FACTOR AND INCOHERENT SCATTERING FUNCTION
(18) REAL AND IMAGINARY SCATTERING FACTORS

IDENTIFICATION OF DATA

ALL PLOTS IDENTIFY THE TARGET, E.G., U-238 AND UNITS OF THE X AND Y AXIS, E.G., X = ENERGY (MEV) OR COSINE (LAB), ETC., Y = CROSS SECTION (BARNS) OR PROBABILITY/COSINE, ETC.

FOR TYPES OF DATA (MF=1, 3, 23 AND 27) DIFFERENT REACTIONS (MT) ARE GROUPED TOGETHER TO APPEAR ON THE SAME PLOT. THE TITLE AT THE TOP OF THE PLOT WILL IDENTIFY THE TYPE OF DATA BEING PLOTTED AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY EACH REACTION.

FOR ANGULAR AND ENERGY DISTRIBUTIONS (MF=4 OR 5) EACH PLOT WILL CONTAIN DATA FOR A SINGLE REACTION (MT) AND DIFFERENT INCIDENT NEUTRON ENERGIES. THE TITLE AT THE TOP OF THE PLOT WILL IDENTIFY THE REACTION AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY THE INCIDENT ENERGY.

FOR LEGENDRE COEFFICIENT THE DATA IN ENDF/B FORMAT WILL BE INVERTED IN ORDER TO PRESENT EACH LEGENDRE COEFFICIENT VERSUS INCIDENT ENERGY. THE TITLE AT THE TOP OF THE PLOT WILL IDENTIFY THE REACTION AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY THE LEGENDRE ORDER.

INPUT FILES

UNIT	DESCRIPTION
2	INPUT LINES (BCD - 80 CHARACTERS/RECORD)
9	MT DEFINITIONS (BCD - 80 CHARACTERS/RECORD)
10	ENDF/B DATA (BCD - 80 CHARACTERS/RECORD)
12	SOFTWARE CHARACTERS (BCD - 80 CHARACTERS/RECORD)

OUTPUT FILES

UNIT	DESCRIPTION
3	OUTPUT REPORT (BCD - 120 CHARACTERS/RECORD)
16	PLOTTING UNIT

SCRATCH FILES

UNIT	DESCRIPTION
11	SCRATCH FILE (BINARY - 960000 WORDS/RECORD = 2*PAGE SIZE)

OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)

UNIT	FILE NAME
2	EVALPLOT.INP
3	EVALPLOT.LST
9	MT.DAT
10	ENDFB.IN (OR AS INPUT PARAMETER)
11	(SCRATCH)
12	PLOT.CHR
16	(PLOTTING UNIT...USUALLY A DUMMY)

INPUT PARAMETERS

```
----------------                                                    Evalplot
LINE COLUMNS FORMAT  DESCRIPTION                                    Evalplot
---- ------- ------  -----------                                    Evalplot
   1   1-11   E11.4  LOWER X LIMIT OF PLOTTER                       Evalplot
      12-22   E11.4  UPPER X LIMIT OF PLOTTER                       Evalplot
      23-33   E11.4  LOWER Y LIMIT OF PLOTTER                       Evalplot
      34-44   E11.4  UPPER Y LIMIT OF PLOTTER                       Evalplot
      45-55    I11   NUMBER OF PLOTS PER FRAME IN X DIRECTION       Evalplot
      56-66    I11   NUMBER OF PLOTS PER FRAME IN Y DIRECTION       Evalplot
      67-70    F4.1  CHARACTER SIZE MULTIPLIER                      Evalplot
                     = 0 OR 1    - NORMAL CHARACTER SIZE           Evalplot
                     = OTHERWISE - CHARACTERS SCALED BY THIS       Evalplot
                                   FACTOR.                         Evalplot
   2   1-60    A60   ENDF/B DATA FILENAME                          Evalplot
                     (LEAVE BLANK FOR STANDARD = ENDFB.IN)         Evalplot
   3   1-11    I11   RETRIEVAL CRITERIA                            Evalplot
                     = 0 - MAT                                     Evalplot
                     = 1 - ZA                                      Evalplot
      12-22    I11   TYPE OF GRID                                  Evalplot
                     = 0 - TICK MARKS ON BORDER                    Evalplot
                     = 1 - SOLID AT COARSE INTERVALS               Evalplot
                     = 2 - DASHED AT COARSE INTERVALS              Evalplot
                     = 3 - SOLID AT FINE INTERVALS                 Evalplot
                     = 4 - DASHED AT FINE INTERVALS                Evalplot
                     = 5 - SOLID COARSE/DASHED FINE GRID           Evalplot
      23-33    I11   SHOULD BORDER BE PLOTTED ON EACH PLOT         Evalplot
                     = 0 - NO                                      Evalplot
                     = 1 - YES                                     Evalplot
      34-44    I11   LINE THICKNESS                                Evalplot
                     = 0 -  5 = BORDER/CURVES/CHARACTERS           Evalplot
                     =-1 - -5 = BORDER/CURVES (NOT CHARACTERS)     Evalplot
                                NOTE, THE GRID IS NEVER THICK.     Evalplot
      45-55    I11   SHOULD TEMPERATURE BE PLOTTED.                Evalplot
                     = 0 - YES                                     Evalplot
                     = 1 - NO                                      Evalplot
      56-66   E11.4  ALLOWABLE RATIO OF PLOT Y RANGE MAXIMUM TO    Evalplot
                     MINIMUM - IF THIS RATIO IS EXCEEDED THE Y     Evalplot
                     RANGE MINIMUM WILL BE CHANGED TO THE Y RANGE  Evalplot
                     MAXIMUM TIMES THIS RATIO.                     Evalplot
                     IF THIS RATIO IS NOT POSITIVE, IT IS          Evalplot
                     INTERPRETED TO MEAN NO LIMIT ON Y RANGE.      Evalplot
      67-70    I4    BACKGROUND COLOR                              Evalplot
                     = 0         = BLACK                           Evalplot
                     = OTHERWISE = WHITE                           Evalplot
 4-N   1- 6    I6    LOWER MAT OR ZA LIMIT                         Evalplot
       7- 8    I2    LOWER MF LIMIT                                Evalplot
       9-11    I3    LOWER MT LIMIT                                Evalplot
      11-22   E11.4  LOWER X LIMIT (USUALLY ENERGY) - EV           Evalplot
      23-28    I6    UPPER MAT OR ZA LIMIT                         Evalplot
      29-30    I2    UPPER MF LIMIT                                Evalplot
      31-33    I3    UPPER MT LIMIT                                Evalplot
      34-44   E11.4  UPPER X LIMIT (USUALLY ENERGY) - EV           Evalplot
      45-55   I11    TYPE OF DATA TO RETRIEVE AND PLOT             Evalplot
                     =  -1  - CHAIN THIS REQUEST TO THE NEXT ONE   Evalplot
                     =   0  - ALL                                  Evalplot
                     = 1-18 - TYPE AS SPECIFIED ABOVE              Evalplot
                                                                   Evalplot
THERE MAY BE UP 100 MAT/MF/MT OR ZA/MF/MT REQUEST RANGES. INPUT    Evalplot
MUST BE TERMINATED BY A BLANK LINE.                                Evalplot
                                                                   Evalplot
IF X LIMITS ARE NOT SPECIFIED (I.E., LOWER AND UPPER X LIMIT = 0)  Evalplot
THIS WILL BE INTERPRETED TO MEAN NO LIMIT AND ALL DATA WILL BE     Evalplot
PLOTTED OVER THEIR ENTIRE ENERGY RANGE, I.E., YOU NEED NOT         Evalplot
```

KNOW AND SPECIFY THE ACTUAL ENERGY LIMITS OF THE DATA.

EXAMPLE DEFINITION OF PLOTTER

THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING) WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THE PLOTTING AREA DEFINED ON THE FIRST INPUT LINE MAY BE SUBDIVIDED INTO ANY NUMBER OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE, TO PRODUCE A SERIES OF FRAMES EACH CONTAINING 3 PLOTS IN THE X DIRECTION AND 2 PLOTS IN THE Y DIRECTION (6 PLOTS PER FRAME) COLUMN 45-55 OF THE FIRST INPUT LINE SHOULD BE 3 AND COLUMNS 56-66 SHOULD BE 2.

IF THE LOCAL PLOTTER USES DIMENSIONS OF INCHES IN ORDER TO OBTAIN 10 X 10 INCH FRAMES WITH 3 X 2 PLOTS PER FRAME THE FIRST INPUT LINE SHOULD BE,

```
  0.0       10.0      0.0     10.0              3          2
```

IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME PHYSICAL SIZE PLOT MAY BE OBTAINED IF THE FIRST INPUT LINE IS,

```
  0.0      254.0      0.0    254.0              3          2
```

FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL IN ALL CASES INDICATE 10 X 10 INCH PLOTS WITH ONLY 1 PLOT PER FRAME.

ALL OF THE FOLLOWING EXAMPLE WILL USE,

1) A DASHED GRID (SECOND LINE, COLS. 12-22 = 2)
2) NO BORDER (SECOND LINE, COLS. 23-33 = 0)
3) LINE THICKNESS -2 (SECOND LINE, COLS. 34-44 =-2)
4) TEMPERATURE ON PLOTS (SECOND LINE, COLS. 45-55 = 0)
5) NO Y RANGE LIMIT (SECOND LINE, COLS. 56-66 = 0.0)

EXAMPLE INPUT NO. 1

FOR ALL THORIUM AND URANIUM ISOTOPES PLOT NEUTRON CROSS SECTIONS ENTIRE ENERGY RANGE. IN ADDITION PLOT TYPE 1 DATA, MAJOR NEUTRON CROSS SECTIONS OVER THE ENERGY RANGE 1 EV TO 1 KEV. USE THE STANDARD FILENAME (ENDFB.IN) FOR THE ENDF/B DATA. THE FOLLOWING 6 INPUT LINES ARE REQUIRED,

```
   0.0       10.0       0.0       10.0               3          2
ENDFB.IN
          1          2         0         -2          0 0.0
 90000 3  0           90999 3999                     0
 90000 3  0 1.00000+ 090999 3999 1.00000+ 3          1
(BLANK LINE MUSE FOLLOW LAST REQUEST)
```

EXAMPLE INPUT NO. 2

PLOT FE-56 ELASTIC AND INELASTIC ANGULAR DISTRIBUTIONS BETWEEN 1 AND 20 MEV. THE FOLLOWING 6 INPUT LINES ARE REQUIRED,

```
   0.0       10.0       0.0       10.0               3          2
ENDFB.IN
          1          2         0         -2          0 0.0
 26056 4  2 1.00000+ 626056 4  2 2.00000+ 7          0
 26056 4  4 1.00000+ 626056 4  4 2.00000+ 7          0
(BLANK LINE MUSE FOLLOW LAST REQUEST)
```

```
                                                                      Evalplot
    EXAMPLE INPUT NO. 3 (CHAINED INPUT)                               Evalplot
    -----------------------------------                               Evalplot
    FOR ALL THORIUM AND URANIUM ISOTOPES PLOT TOTAL, ELASTIC ,CAPTURE Evalplot
    AND FISSION, BUT NOT INELASTIC CROSS SECTIONS OVER THERE ENTIRE   Evalplot
    ENERGY RANGE AND FROM 1 KEV TO 1 MEV. THE FOLLOWING 8 INPUT       Evalplot
    LINES ARE REQUIRED,                                               Evalplot
                                                                      Evalplot
   0.0       10.0       0.0       10.0               3          2     Evalplot
ENDFB.IN                                                              Evalplot
          1          2         0         -2          0 0.0            Evalplot
 90000 3  1           90999 3  2                    -1                Evalplot
 90000 3 18           90999 3102                     1                Evalplot
 90000 3  1 1.00000+ 390999 3  2 1.00000+ 6         -1                Evalplot
 90000 3 18 1.00000+ 390999 3102 1.00000+ 6          1                Evalplot
(BLANK LINE MUSE FOLLOW LAST REQUEST)                                 Evalplot
                                                                      Evalplot
    NOTE, THIS EXAMPLE INCLUDES 2 CHAINED REQUESTED - INPUT LINES 3   Evalplot
    AND 4 SELECTING DATA AND PRODUCING A PLOT OVER THE ENTIRE ENERGY   Evalplot
    RANGE AND INPUT LINES 5 AND 6 SELECTING THE SAME DATA AND         Evalplot
    PRODUCING A PLOT FROM 1 KEV TO 1 MEV.                             Evalplot
                                                                      Evalplot
    ANY NUMBER OF REQUEST LINES MAY TO CHAINED TOGETHER TO SELECT     Evalplot
    DATA. THE CHAIN ENDS WHERE THE TYPE OF DATA (COLS. 45-55) IS NOT   Evalplot
    NEGATIVE AND THEN THE SELECTED DATA WILL BE PLOTTED.              Evalplot
                                                                      Evalplot
    EXAMPLE INPUT NO. 4                                               Evalplot
    -------------------                                               Evalplot
    FOR THE SAME EXAMPLE AS ABOVE, EXCEPT USE A DIFFERENT FILENAME    Evalplot
    FOR THE ENDF/B DATA TO READ FROM A FILE TREE STRUCTURE. THE       Evalplot
    FOLLOWING 8 INPUT LINES ARE REQUIRED,                             Evalplot
                                                                      Evalplot
   0.0       10.0       0.0       10.0               3          2     Evalplot
EVALUATION/ENDFB6/THORIUM                                             Evalplot
          1          2         0         -2          0 0.0            Evalplot
 90000 3  1           90999 3  2                    -1                Evalplot
 90000 3 18           90999 3102                     1                Evalplot
 90000 3  1 1.00000+ 390999 3  2 1.00000+ 6         -1                Evalplot
 90000 3 18 1.00000+ 390999 3102 1.00000+ 6          1                Evalplot
(BLANK LINE MUST FOLLOW LAST REQUEST)                                 Evalplot
                                                                      Evalplot
===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================ Evalplot
                                                                      Evalplot
      THIS PROGRAM USES A SIMPLE CALCOMP LIKE INTERFACE INVOLVING     Evalplot
      ONLY 6 SUBROUTINES,                                             Evalplot
                                                                      Evalplot
      STARPLOT  - INITIALIZE PLOTTER                                  Evalplot
      NEXTPLOT  - CLEAR THE SCREEN FOR THE NEXT PLOT                  Evalplot
      ENDPLOTS  - TERMINATE PLOTTING                                  Evalplot
                                                                      Evalplot
      PLOT(X,Y,IPEN)        - DRAW OR MOVE FROM LAST LOCATION TO (X,Y), Evalplot
                              END OF CURRENT PLOT OR END OF PLOTTING.  Evalplot
            IPEN =   2 - DRAW                                         Evalplot
                 =   3 - MOVE                                         Evalplot
                                                                      Evalplot
      PEN(IPEN)             - SELECT COLOR.                           Evalplot
           IPEN- COLOR = 1 TO N (N = ANY POSITIVE INTEGER)            Evalplot
                                                                      Evalplot
      BOXCOLOR(X,Y,IFILL,IBORDER) - FILL A RECTANGULAR BOX DEFINED    Evalplot
                                    BY THE X AND Y CORNERS - X(1),    Evalplot
                                    X(2), Y(1),Y(2)                   Evalplot
                  IFILL           - COLOR TO FILL BOX WITH            Evalplot
                        IBORDER   - COLOR OF BOX BORDER               Evalplot
```

IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE THE USER TO WRITE 6 SUBROUTINES WITH THE NAMES PLOTS, PLOT AND PEN WITH THE SUBROUTINE ARGUMENTS DESCRIBED ABOVE AND TO THEN CALL THE LOCAL EQUIVALENT ROUTINES.

COLOR PLOTS

TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED TO SELECT ONE OF THE AVAILABLE COLORS. IF YOU HAVE COLOR ON YOUR PLOTTER YOU SHOULD PROVIDE A SUBROUTINE PEN TO SELECT COLORS.

BLACK AND WHITE PLOTS

WHEN PRODUCING BLACK AND WHITE PLOTS SUBROUTINE PEN NEED MERELY BE A DUMMY SUBROUTINE TO IGNORE ANY ATTEMPT TO CHANGE COLORS,

```
SUBROUTINE PEN(IPEN)
RETURN
END
```

SIMILAR BOXCOLOR CAN BE A DUMMY

```
SUBROUTINE BOXCOLOR(X,Y,IFILL,IBORDER)
RETURN
END
```

CHARACTER SET

THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL SYMBOLS.

THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY MODIFY THIS TABLE.

ADDITIONAL FONTS

THIS PROGRAM COMES WITH 3 COMPLETE SETS OF THE SAME CHARACTERS USING DIFFERENT FONTS. FOR SPEED IN PLOTTING IT IS RECOMMENDED THAT YOU USE THE SIMPLEX FONT. FOR FINISHED PLOTS SUITABLE FOR PUBLICATION, BUT REQUIRING MORE TIME TO GENERATE A PLOT, IT IS RECOMMENDED THAT YOU USE THE DUPLEX OR COMPLEX FONT - YOU CAN EXPERIMENT WITH ANY OF THE 3 FONTS TO DETERMINE WHICH BEST MEETS YOUR NEEDS.

TO USE ANY ONE OF THE FONTS MERELY BY SURE THAT IT IS DEFINED AS UNIT 12 FOR INPUT (IF USING STANDARD FILENAMES IT SHOULD BE NAMED PLOT.CHR). SO THAT SWITCHING FONTS CAN BE SIMPLY DONE MERELY BY COPYING THE FONT THAT YOU WANT TO THE UNIT 12 THAT YOU ARE USING FOR INPUT.

CONTROL CHARACTERS

IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE

```
CURRENTLY CONTAINS 4 CONTROL CHARACTERS,                                Evalplot
                                                                        Evalplot
PEN POSITION = 0                                                        Evalplot
----------------                                                        Evalplot
SHIFT THE NEXT PRINTED CHARACTER BY X AND Y. 3 CONTROL CHARACTERS       Evalplot
ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW         Evalplot
SHIFTING.                                                               Evalplot
                                                                        Evalplot
{   = SHIFT UP (FOR SUPERSCRIPTS.............X= 0.0, Y= 0.5)            Evalplot
}   = SHIFT DOWN (FOR SUBSCRIPTS.............X= 0.0, Y=-0.5)            Evalplot
\   = SHIFT LEFT 1 CHARACTER (FOR BACKSPACE...X=-1.0, Y= 0.0)           Evalplot
                                                                        Evalplot
PEN POSITION =-1                                                        Evalplot
----------------                                                        Evalplot
SELECT THE NEXT PRINTED CHARACTER FROM THE ALTERNATE CHARACTER          Evalplot
SET. AT PRESENT THIS CONTROL CHARACTER IS,                              Evalplot
                                                                        Evalplot
|   = SWITCH TO ALTERNATE CHARACTER SET                                 Evalplot
                                                                        Evalplot
THESE 4 CONTROL CHARACTERS ARE ONLY DEFINED BY THE VALUE OF THE         Evalplot
PEN POSITION IN THE SOFTWARE CHARACTER TABLE (I.E., THEY ARE NOT        Evalplot
HARD WIRED INTO THIS PROGRAM). AS SUCH BY MODIFYING THE SOFTWARE        Evalplot
CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL         Evalplot
CHARACTERS TO MEET SPECIFIC NEEDS.                                      Evalplot
                                                                        Evalplot
THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE            Evalplot
SPECIAL EFFECTS. FOR EXAMPLE, TO PLOT SUBSCRIPT 5, B, SUPERSCRIPT       Evalplot
10 USE THE STRING,                                                      Evalplot
                                                                        Evalplot
}5B{1{0                                                                 Evalplot
                                                                        Evalplot
TO PLOT B, SUBSCRIPT 5 AND SUPERSCRIPT 10 WITH THE 5 DIRECTLY           Evalplot
BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO             Evalplot
POSITION THE 1 DIRECTLY ABOVE THE 5 USING THE STRING,                   Evalplot
                                                                        Evalplot
B}5\{1{0                                                                Evalplot
                                                                        Evalplot
TO PLOT UPPER CASE GREEK GAMMA FOLLOWED BY THE WORD TOTAL (I.E.,        Evalplot
RESONANCE TOTAL WIDTH) USE THE STRING.                                  Evalplot
                                                                        Evalplot
|G TOTAL                                                               Evalplot
                                                                        Evalplot
NOTE, WHEN THESE CONTROL CHARACTERS ARE USED THEY ONLY EFFECT THE       Evalplot
NEXT 1 PRINTED CHARACTER (SEE, ABOVE EXAMPLE OF PLOTTING SUPER-         Evalplot
SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE      Evalplot
1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP            Evalplot
CONTROL CHARACTERS WERE USED IN COMBINATION).                           Evalplot
                                                                        Evalplot
IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER        Evalplot
YOU CAN MODIFY THE SOFTWARE CHARACTER TABLE TO USE ANY OTHER 4          Evalplot
CHARACTERS THAT YOU DO NOT NORMALLY USE IN CHARACTER STRINGS (FOR       Evalplot
DETAILS SEE THE SOFTWARE CHARACTER TABLE).                              Evalplot
                                                                        Evalplot
STANDARD/ALTERNATE CHARACTER SETS                                       Evalplot
---------------------------------------------------------------------- Evalplot
THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH        Evalplot
ARE A STANDARD SET (ALL CHARACTERS ON AN IBM KEYBOARD) AND AN           Evalplot
ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL        Evalplot
CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET       Evalplot
PUT A RIGHT BRACKET CHARACTER (|) BEFORE A CHARACTER (SEE THE           Evalplot
ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS       Evalplot
CONTROL CHARACTER WILL ONLY EFFECT THE NEXT 1 PLOTTED CHARACTER.        Evalplot
                                                                        Evalplot
```

SUB AND SUPER SCRIPTS Evalplot
---------- Evalplot
TO DRAW SUBSCRIPT PRECEED A CHARACTER BY }. TO DRAW SUPERSCRIPT Evalplot
PRECEED A CHARACTER BY { (SEE THE ABOVE EXAMPLE AND THE SOFTWARE Evalplot
CHARACTER TABLE FOR DETAILS). THESE CONTROL CHARACTER WILL ONLY Evalplot
EFFECT THE NEXT 1 PLOTTED CHARACTER. Evalplot
Evalplot
BACKSPACING Evalplot
---------- Evalplot
TO BACKSPACE ONE CHARACTER PRECEED A CHARACTER BY \ (SEE, THE Evalplot
ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS Evalplot
CONTROL CHARACTER WILL PERFORM A TRUE BACKSPACE AND WILL EFFECT Evalplot
ALL FOLLOWING CHARACTERS IN THE SAME CHARACTER STRING. Evalplot
Evalplot
PLOT DIMENSIONS Evalplot
--------------- Evalplot
ARE DEFINED BY USER INPUT. INTERNALLY THE PROGRAM WILL CREATE A Evalplot
PLOT IN APPROXIMATELY A4 OR 8-1/2 BY 11 INCH FORMAT. DURING Evalplot
OUTPUT THE PLOT IS TRANSFORMED TO THE UNITS (INCHES, CENTIMETERS, Evalplot
MILLIMETERS, WHATEVER) OF THE PLOTTER BEING USED AND OUTPUT. Evalplot
Evalplot
===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================== Evalplot
== Evalplot