```
====================================================================== Evalplot
                                                                       Evalplot
     PROGRAM EVALPLOT                                                  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
                                  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
                         *ADDED (N,REMAINDER) TO FIRST PLOT.    Evalplot
VERS. 2007-2 (DEC.  2007) *72 CHARACTER FILE NAMES.            Evalplot
VERS. 2008-1 (JULY  2008) *UPDATED FOR MF=4/LTT = 3 = LEGENDRE Evalplot
                          PLUS TABULATED                        Evalplot
VERS. 2010-1 (Aug.  2010) *Extended to plots up to 100 Legendre Evalplot
                          Coefficients versus incident energy.  Evalplot
VERS. 2011-1 (July  2011) *Increased MT.DAT from 200 to 1,000  Evalplot
                          entries, to acommodate new MTs.       Evalplot
                         *Updated MF=10 plots to identify ZAP   Evalplot
                          and state for Neutron Activation.     Evalplot
                         *Updated for energy release parameters Evalplot
                          MF=3, MT=301 to 450.                  Evalplot
VERS. 2012-1 (Aug.  2012) *Updated incident particle list to   Evalplot
                          include photon (ZA = 0).              Evalplot
                         *Added CODENAME                        Evalplot
```

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                          *32 and 64 bit Compatible             Evalplot
                          *Added ERROR stops                    Evalplot
VERS. 2013-1 (Nov.  2013) *OUT9 replaced NORMX                  Evalplot
VERS. 2015-1 (Jan.  2015) *Updated MF=10 Labels, which requires Evalplot
                           longer plot titles.                  Evalplot
                          *Restricted character size multiplier Evalplot
                           to 0.5 to 1.5 to accommodate longer  Evalplot
                           plot titles.                         Evalplot
                          *Replaced ALL 3 way if statements.    Evalplot
VERS. 2015-2 (Mar.  2015) *Minor changes based on user feedback Evalplot
VERS. 2017-1 (May   2017) *Expanded storage to handle new       Evalplot
                           R-M (LRF=7) angular distributions.   Evalplot
                          *All floating input parameters changed Evalplot
                           tp character input + IN9 conversion. Evalplot
                          *Replaced Q Mev by MT= at top of plots Evalplot
                           (Q value in ENDF is now only defined Evalplot
                            in MF=3, making it difficult for all Evalplot
                            other MF now treated by this code)  Evalplot
                          *Initial Linear X scaling for MF=1    Evalplot
                          *(nu-bar) and MF=4 (Legendre).        Evalplot
                          * Unless energy range is requested =  Evalplot
                            allows MF=1 and MF=4 default X      Evalplot
                            scaling to be turned off by input  Evalplot
                            parameters, i.e., by EVALPLOT or   Evalplot
                            EVALHARD.                          Evalplot
Vers. 2018-1 (Jan. 2018)  *Changed default Y range from 10^10  Evalplot
                           to 10^8 (Based on experience).       Evalplot
                          *Extended to plot Electron cross      Evalplot
                           sections (MT=525 through 528)        Evalplot
                          *Extended to plot Electron Large      Evalplot
                           Angle angular ditibutiond.           Evalplot
                                                                Evalplot
                                                                Evalplot
2015-2 Acknowledgment                                           Evalplot
======================                                          Evalplot
I thank Chuck Whitmer (TerraPower,WA) for reporting the errors  Evalplot
that led to the 2015-2 Improvements in this code.               Evalplot
                                                                Evalplot
I thank Jean-Christophe Sublet (UKAEA) for contributing MAC     Evalplot
executables and Bojan Zefran (IJS, Slovenia) for contributing   Evalplot
LINUX (32 or 63 bit) executables. And most of all I must thank  Evalplot
Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project Evalplot
at IAEA, Vienna. This was a truly International team who worked Evalplot
together to produce PREPRO 2015-2.                              Evalplot
                                                                Evalplot
OWNED, MAINTAINED AND DISTRIBUTED BY                            Evalplot
-----------------------------------                             Evalplot
THE NUCLEAR DATA SECTION                                        Evalplot
INTERNATIONAL ATOMIC ENERGY AGENCY                              Evalplot
P.O. BOX 100                                                    Evalplot
A-1400, VIENNA, AUSTRIA                                         Evalplot
EUROPE                                                          Evalplot
                                                                Evalplot
ORIGINALLY WRITTEN BY                                           Evalplot
-----------------------------------                             Evalplot
Dermott E. Cullen                                               Evalplot
                                                                Evalplot
PRESENT CONTACT INFORMATION                                     Evalplot
---------------------------                                     Evalplot
Dermott E. Cullen                                               Evalplot
1466 Hudson Way                                                 Evalplot
Livermore, CA 94550                                             Evalplot
U.S.A.                                                          Evalplot
Telephone  925-443-1911                                         Evalplot
E. Mail    RedCullen1@Comcast.net                               Evalplot
Website    RedCullen1.net/HOMEPAGE.NEW                          Evalplot
                                                                Evalplot
AUTHORS MESSAGE                                                 Evalplot
---------------                                                 Evalplot
THE REPORT DESCRIBED ABOVE IS THE LATEST PUBLISHED DOCUMENTATION Evalplot
FOR THIS PROGRAM. HOWEVER, THE COMMENTS BELOW SHOULD BE CONSIDERED Evalplot
```

```
THE LATEST DOCUMENTATION INCLUDING ALL RECENT IMPROVEMENTS. PLEASE Evalplot
READ ALL OF THESE COMMENTS BEFORE IMPLEMENTATION, PARTICULARLY     Evalplot
THE COMMENTS CONCERNING MACHINE DEPENDENT CODING.                  Evalplot
                                                                   Evalplot
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Evalplot
INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE     Evalplot
OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Evalplot
IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY       Evalplot
COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO  Evalplot
IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF    Evalplot
THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR         Evalplot
COMPUTER.                                                          Evalplot
                                                                   Evalplot
PURPOSE                                                            Evalplot
-------                                                            Evalplot
THIS PROGRAM IS DESIGNED TO READ EVALUATED DATA FROM THE ENDF/B    Evalplot
FORMAT AND TO PLOT THE DATA. THE USER MAY SELECT CROSS SECTIONS,   Evalplot
PARAMETERS (E.G. NU-BAR, MU-BAR, ETC.), ANGULAR DISTRIBUTIONS      Evalplot
AND/OR ENERGY DISTRIBUTIONS TO BE PLOTTED.                         Evalplot
                                                                   Evalplot
IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B     Evalplot
TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS,  Evalplot
DISK OR ANY OTHER MEDIUM.                                          Evalplot
                                                                   Evalplot
ON WHAT COMPUTERS WILL THE PROGRAM RUN                             Evalplot
------------------------------------------------------------------ Evalplot
THE PROGRAM HAS BEEN IMPLEMENTED ON A WIDE VARIETY OF COMPUTERS    Evalplot
FROM THE ONE EXTREME OF LARGE MAINFRAME CRAY AND IBM COMPUTERS     Evalplot
TO THE OTHER EXTREME OF SUN TERMINALS AND IBM PERSONAL COMPUTERS.  Evalplot
THE PROGRAM IS DESIGNED TO RUN ON VIRTUALLY ANY COMPUTER. FOR      Evalplot
SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON,                  Evalplot
(1) COMPUTER DEPENDENT CODING                                      Evalplot
(2) PLOTTER/GRAPHICS TERMINAL INTERFACE                            Evalplot
                                                                   Evalplot
2015 PLOTTER DIMENSIONS                                            Evalplot
================================================================== Evalplot
PLOTTER DIMENSIONS ARE IN INCHES - NOT CM, MM, OR CUBITS.          Evalplot
THIS IS DONE FOR HISTORICAL REASONS AND HOPEFULLY THIS WILL        Evalplot
NOT INCONVENIENCE ANYONE - IN PRACTICE I HAVE USED EXACTLY THE     Evalplot
SAME DIMENSION = X = 0 to 12.5 and Y = 0 to 10 FOR DECADES         Evalplot
TO PRODUCE BOTH ON-SCREEN AND HARDCOPY POSTSCRIPT PLOTS.           Evalplot
                                                                   Evalplot
I STRONGLY SUGGEST THAT YOU NOT CHANGE THESE DIMENSIONS UNLESS     Evalplot
YOU MUST = BASED ON THE PLOT SIZE YOU OBTAIN WHEN YOU FIRST RUN    Evalplot
THIS CODE.                                                         Evalplot
                                                                   Evalplot
GRAPHICS INTERFACE                                                 Evalplot
------------------------------------------------------------------ Evalplot
THIS PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE WHICH   Evalplot
REQUIRES ONLY 3 SUBROUTINES...PLOTS, PLOT AND PEN (DESCRIBED IN    Evalplot
DETAIL BELOW). ALL CHARACTERS AND SYMBOLS ARE DRAWN USING TABLES   Evalplot
OF PEN STROKES (SUPPLIED WITH THIS PROGRAM). USING THIS METHOD     Evalplot
THE PROGRAM SHOULD BE SIMPLE TO INTERFACE TO VIRTUALLY ANY PLOTTER Evalplot
OR GRAPHICS TERMINAL AND THE APPEARANCE AND LAYOUT OF THE PLOTS    Evalplot
SHOULD BE INDEPENDENT OF WHICH PLOTTER IS USED.                    Evalplot
                                                                   Evalplot
PROGRAM IDENTIFICATION                                             Evalplot
----------------------                                             Evalplot
AS DISTRIBUTED THE FIRST FRAME OF PLOTTED OUTPUT WILL DOCUMENT     Evalplot
THE PROGRAM NAME, VERSION AND INSTALLATION. THIS INFORMATION IS    Evalplot
STORED AS DATA IN THE ARRAY VERSES NEAR THE BEGINNING OF           Evalplot
SUBROUTINE FRAME1. IF YOU WISH TO CUSTOMIZE THE OUTPUT TO IDENTIFY Evalplot
YOUR INSTALLATION CHANGE THE LAST TWO LINES OF THE ARRAY VERSES.   Evalplot
                                                                   Evalplot
SIZE OF PLOTS                                                      Evalplot
-------------                                                      Evalplot
THE PROGRAM HAS A BUILT-IN DEFAULT SIZE TO MAKE EACH PLOT 13.50    Evalplot
BY 10.24 INCHES. THIS SIZE WAS SELECTED ASSUMING THAT THE          Evalplot
RESOLUTION OF THE PLOTTER IS 1024 RASTER POINTS PER INCH. THE      Evalplot
USER MAY CHANGE THE SIZE OF THE PLOT BY SPECIFYING ANY REQUIRED    Evalplot
SIZE ON THE FIRST INPUT LINE. IN PARTICULAR FOR USE ON ANY PLOTTER Evalplot
```

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

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   Evalplot
ONE SECTION OF DATA AT A TIME IS READ AND PLOTTED.                 Evalplot
                                                                   Evalplot
TYPES OF DATA (MF=1, 3, 23 AND 27 ONLY)                            Evalplot
---------------------------------------                            Evalplot
THESE DATA ARE DIVIDED INTO UP TO 20 TYPES AND EACH TYPE OF        Evalplot
DATA IS GROUPED TOGETHER AND PLOTTED (IF THE DATA IS ACTUALLY      Evalplot
PRESENT).                                                          Evalplot
                                                                   Evalplot
WHAT TYPE OF DATA IS ACTUALLY PLOTTED CAN BE CONTROLLED BY USER    Evalplot
INPUT EITHER BASED ON SELECTED MAT/MF/MT OR ZA/MF/MT RANGES OR     Evalplot
BY EXPLICITLY SELECTING ONLY ONE TYPE OF DATA IS TO BE PLOTTED     Evalplot
(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 20 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
(19) ENERGY RELEASE PARAMETERS, MF=3, MT=301-450                   Evalplot
                                                                   Evalplot
```

```
ACTIVATION (MF=10)                                                    Evalplot
------------------                                                    Evalplot
(20) ALL mt=1 TO 999.                                                 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                      Evalplot
(17) COHERENT FORM FACTOR AND INCOHERENT SCATTERING FUNCTION          Evalplot
(18) REAL AND IMAGINARY SCATTERING FACTORS                            Evalplot
                                                                      Evalplot
                                                                      Evalplot
IDENTIFICATION OF DATA                                                Evalplot
----------------------                                                Evalplot
ALL PLOTS IDENTIFY THE TARGET, E.G., U-238 AND UNITS OF THE X AND     Evalplot
Y AXIS, E.G., X = ENERGY (MEV) OR COSINE (LAB), ETC., Y = CROSS       Evalplot
SECTION (BARNS) OR PROBABILITY/COSINE, ETC.                           Evalplot
                                                                      Evalplot
FOR TYPES OF DATA (MF=1, 3, 23 AND 27) DIFFERENT REACTIONS (MT)       Evalplot
ARE GROUPED TOGETHER TO APPEAR ON THE SAME PLOT. THE TITLE AT         Evalplot
THE TOP OF THE PLOT WILL IDENTIFY THE TYPE OF DATA BEING PLOTTED      Evalplot
AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY EACH REACTION.       Evalplot
                                                                      Evalplot
FOR ANGULAR AND ENERGY DISTRIBUTIONS (MF=4 OR 5) EACH PLOT WILL       Evalplot
CONTAIN DATA FOR A SINGLE REACTION (MT) AND DIFFERENT INCIDENT        Evalplot
NEUTRON ENERGIES. THE TITLE AT THE TOP OF THE PLOT WILL IDENTIFY      Evalplot
THE REACTION AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY         Evalplot
THE INCIDENT ENERGY.                                                  Evalplot
                                                                      Evalplot
FOR LEGENDRE COEFFICIENT THE DATA IN ENDF/B FORMAT WILL BE            Evalplot
INVERTED IN ORDER TO PRESENT EACH LEGENDRE COEFFICIENT VERSUS         Evalplot
INCIDENT ENERGY. THE TITLE AT THE TOP OF THE PLOT WILL IDENTIFY       Evalplot
THE REACTION AND THE LEGEND BOX WITHIN THE PLOT WILL IDENTIFY         Evalplot
THE LEGENDRE ORDER.                                                   Evalplot
                                                                      Evalplot
INPUT FILES                                                           Evalplot
-----------                                                           Evalplot
UNIT  DESCRIPTION                                                     Evalplot
----  -----------                                                     Evalplot
   2   INPUT LINES (BCD - 80 CHARACTERS/RECORD)                       Evalplot
   9   MT DEFINITIONS (BCD - 80 CHARACTERS/RECORD)                    Evalplot
  10   ENDF/B DATA (BCD - 80 CHARACTERS/RECORD)                       Evalplot
  12   SOFTWARE CHARACTERS (BCD - 80 CHARACTERS/RECORD)               Evalplot
                                                                      Evalplot
OUTPUT FILES                                                          Evalplot
------------                                                          Evalplot
UNIT  DESCRIPTION                                                     Evalplot
----  -----------                                                     Evalplot
   3   OUTPUT REPORT (BCD - 120 CHARACTERS/RECORD)                    Evalplot
  16   PLOTTING UNIT                                                  Evalplot
                                                                      Evalplot
SCRATCH FILES                                                         Evalplot
-------------                                                         Evalplot
UNIT  DESCRIPTION                                                     Evalplot
----  -----------                                                     Evalplot
  11  SCRATCH FILE (BINARY - 960000 WORDS/RECORD = 2*PAGE SIZE)       Evalplot
                                                                      Evalplot
OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)       Evalplot
--------------------------------------------------------------------  Evalplot
UNIT  FILE NAME                                                       Evalplot
----  ----------                                                      Evalplot
  2   EVALPLOT.INP                                                   Evalplot
  3   EVALPLOT.LST                                                   Evalplot
  9   MT.DAT                                                         Evalplot
 10   ENDFB.IN    (OR AS INPUT PARAMETER)                            Evalplot
 11   (SCRATCH)                                                      Evalplot
 12   PLOT.CHR                                                       Evalplot
 16   (PLOTTING UNIT...USUALLY A DUMMY)                              Evalplot
                                                                      Evalplot
```

```
INPUT PARAMETERS                                                    Evalplot
---------------                                                     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   1-72    A72   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
                     = 1-20 - 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.             Evalplot
                                                                   Evalplot
EXAMPLE DEFINITION OF PLOTTER                                      Evalplot
----------------------------                                       Evalplot
2015 - WARNING - THE FOLLOWING DESCRIPTION IS OUT-OF-DATE.         Evalplot
TODAY THE DIMENSIONS OF THE PLOTTER ARE IN INCHES.                 Evalplot
                                                                   Evalplot
```

```
    THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING   Evalplot
    USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING)     Evalplot
    WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES     Evalplot
    HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THE PLOTTING AREA      Evalplot
    DEFINED ON THE FIRST INPUT LINE MAY BE SUBDIVIDED INTO ANY NUMBER  Evalplot
    OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE, TO PRODUCE A       Evalplot
    SERIES OF FRAMES EACH CONTAINING 3 PLOTS IN THE X DIRECTION AND    Evalplot
    2 PLOTS IN THE Y DIRECTION (6 PLOTS PER FRAME) COLUMN 45-55 OF     Evalplot
    THE FIRST INPUT LINE SHOULD BE 3 AND COLUMNS 56-66 SHOULD BE 2.    Evalplot
                                                                       Evalplot
    IF THE LOCAL PLOTTER USES DIMENSIONS OF INCHES IN ORDER TO OBTAIN  Evalplot
    10 X 10 INCH FRAMES WITH 3 X 2 PLOTS PER FRAME THE FIRST INPUT     Evalplot
    LINE SHOULD BE,                                                    Evalplot
                                                                       Evalplot
      0.0       10.0      0.0     10.0              3          2       Evalplot
                                                                       Evalplot
    IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME        Evalplot
    PHYSICAL SIZE PLOT MAY BE OBTAINED IF THE FIRST INPUT LINE IS,     Evalplot
                                                                       Evalplot
      0.0      254.0      0.0    254.0              3          2       Evalplot
                                                                       Evalplot
    FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE   Evalplot
    PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL   Evalplot
    IN ALL CASES INDICATE 10 X 10 INCH PLOTS WITH ONLY 1 PLOT PER      Evalplot
    FRAME.                                                             Evalplot
                                                                       Evalplot
    ALL OF THE FOLLOWING EXAMPLE WILL USE,                             Evalplot
    1) A DASHED GRID          (SECOND LINE, COLS. 12-22 = 2)           Evalplot
    2) NO BORDER              (SECOND LINE, COLS. 23-33 = 0)           Evalplot
    3) LINE THICKNESS -2      (SECOND LINE, COLS. 34-44 =-2)           Evalplot
    4) TEMPERATURE ON PLOTS   (SECOND LINE, COLS. 45-55 = 0)           Evalplot
    5) NO Y RANGE LIMIT       (SECOND LINE, COLS. 56-66 = 0.0)         Evalplot
                                                                       Evalplot
    EXAMPLE INPUT NO. 1                                                Evalplot
    -------------------                                                Evalplot
    FOR ALL THORIUM AND URANIUM ISOTOPES PLOT NEUTRON CROSS SECTIONS   Evalplot
    ENTIRE ENERGY RANGE. IN ADDITION PLOT TYPE 1 DATA, MAJOR NEUTRON   Evalplot
    CROSS SECTIONS OVER THE ENERGY RANGE 1 EV TO 1 KEV. USE THE        Evalplot
    STANDARD FILENAME (ENDFB.IN) FOR THE ENDF/B DATA. THE FOLLOWING    Evalplot
    6 INPUT 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  0           90999 3999                    0                 Evalplot
 90000 3  0 1.00000+ 090999 3999 1.00000+ 3         1                 Evalplot
(BLANK LINE MUSE FOLLOW LAST REQUEST)                                  Evalplot
                                                                       Evalplot
    EXAMPLE INPUT NO. 2                                                Evalplot
    -------------------                                                Evalplot
    PLOT FE-56 ELASTIC AND INELASTIC ANGULAR DISTRIBUTIONS BETWEEN     Evalplot
    1 AND 20 MEV. THE FOLLOWING 6 INPUT 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
 26056 4  2 1.00000+ 626056 4  2 2.00000+ 7         0                 Evalplot
 26056 4  4 1.00000+ 626056 4  4 2.00000+ 7         0                 Evalplot
(BLANK LINE MUSE FOLLOW LAST REQUEST)                                  Evalplot
                                                                       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
                                                                      Evalplot
    IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH   Evalplot
    DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE  Evalplot
    THE USER TO WRITE 6 SUBROUTINES WITH THE NAMES PLOTS, PLOT AND PEN Evalplot
    WITH THE SUBROUTINE ARGUMENTS DESCRIBED ABOVE AND TO THEN CALL THE Evalplot
    LOCAL EQUIVALENT ROUTINES.                                        Evalplot
                                                                      Evalplot
    COLOR PLOTS                                                       Evalplot
    ------------------------------------------------------------------ Evalplot
    TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED Evalplot
    TO SELECT ONE OF THE AVAILABLE COLORS. IF YOU HAVE COLOR ON YOUR   Evalplot
    PLOTTER YOU SHOULD PROVIDE A SUBROUTINE PEN TO SELECT COLORS.     Evalplot
                                                                      Evalplot
    BLACK AND WHITE PLOTS                                             Evalplot
    ------------------------------------------------------------------ Evalplot
    WHEN PRODUCING BLACK AND WHITE PLOTS SUBROUTINE PEN NEED MERELY   Evalplot
    BE A DUMMY SUBROUTINE TO IGNORE ANY ATTEMPT TO CHANGE COLORS,     Evalplot
                                                                      Evalplot
    SUBROUTINE PEN(IPEN)                                              Evalplot
    RETURN                                                            Evalplot
```

```
END                                                                  Evalplot
                                                                     Evalplot
SIMILAR BOXCOLOR CAN BE A DUMMY                                      Evalplot
                                                                     Evalplot
SUBROUTINE BOXCOLOR(X,Y,IFILL,IBORDER)                               Evalplot
RETURN                                                               Evalplot
END                                                                  Evalplot
                                                                     Evalplot
CHARACTER SET                                                        Evalplot
-------------------------------------------------------------------- Evalplot
THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE Evalplot
CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN    Evalplot
STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER  Evalplot
AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF Evalplot
ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL   Evalplot
SYMBOLS.                                                           Evalplot
                                                                   Evalplot
THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO Evalplot
DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS Evalplot
OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY     Evalplot
MODIFY THIS TABLE.                                                 Evalplot
                                                                   Evalplot
ADDITIONAL FONTS                                                   Evalplot
----------------                                                   Evalplot
THIS PROGRAM COMES WITH 3 COMPLETE SETS OF THE SAME CHARACTERS     Evalplot
USING DIFFERENT FONTS. FOR SPEED IN PLOTTING IT IS RECOMMENDED     Evalplot
THAT YOU USE THE SIMPLEX FONT. FOR FINISHED PLOTS SUITABLE FOR     Evalplot
PUBLICATION, BUT REQUIRING MORE TIME TO GENERATE A PLOT, IT IS     Evalplot
RECOMMENDED THAT YOU USE THE DUPLEX OR COMPLEX FONT - YOU CAN      Evalplot
EXPERIMENT WITH ANY OF THE 3 FONTS TO DETERMINE WHICH BEST MEETS   Evalplot
YOUR NEEDS.                                                        Evalplot
                                                                   Evalplot
TO USE ANY ONE OF THE FONTS MERELY BY SURE THAT IT IS DEFINED AS   Evalplot
UNIT 12 FOR INPUT (IF USING STANDARD FILENAMES IT SHOULD BE        Evalplot
NAMED PLOT.CHR). SO THAT SWITCHING FONTS CAN BE SIMPLY DONE        Evalplot
MERELY BY COPYING THE FONT THAT YOU WANT TO THE UNIT 12 THAT       Evalplot
YOU ARE USING FOR INPUT.                                           Evalplot
                                                                   Evalplot
CONTROL CHARACTERS                                                 Evalplot
-------------------------------------------------------------------- Evalplot
IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL  Evalplot
HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE  Evalplot
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
```