```
========================================================================== 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
```

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                            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
                           *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
                           *Changed default Y range from 10^10          Evalplot
                            to 10^8 (Based on experience).              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
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EUROPE

ORIGINALLY WRITTEN BY

Dermott E. Cullen

PRESENT CONTACT INFORMATION

Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Telephone 925-443-1911
E. Mail   RedCullen1@Comcast.net
Website   RedCullen1.net/HOMEPAGE.NEW

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

2015 PLOTTER DIMENSIONS
===
PLOTTER DIMENSIONS ARE IN INCHES - NOT CM, MM, OR CUBITS. THIS IS DONE FOR HISTORICAL REASONS AND HOPEFULLY THIS WILL NOT INCONVENIENCE ANYONE - IN PRACTICE I HAVE USED EXACTLY THE SAME DIMENSION = X = 0 to 12.5 and Y = 0 to 10 FOR DECADES TO PRODUCE BOTH ON-SCREEN AND HARDCOPY POSTSCRIPT PLOTS.

I STRONGLY SUGGEST THAT YOU NOT CHANGE THESE DIMENSIONS UNLESS

YOU MUST = BASED ON THE PLOT SIZE YOU OBTAIN WHEN YOU FIRST RUN THIS CODE.

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

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 Evalplot
---------- Evalplot
DATA TO BE PLOTTED IS SPECIFIED BY INPUTTING UP TO 100 MAT/MF/MT Evalplot
RANGES OR UP TO 100 ZA/MF/MT RANGES. IN ADDITION FOR EACH RANGE Evalplot
THE USER MAY SPECIFY AN X RANGE (USUALLY ENERGY) AND THE TYPE OF Evalplot
DATA TO BE PLOTTED (SEE: THE DESCRIPTION OF TYPES, BELOW). Evalplot
Evalplot
THE X RANGE FOR MF = 1, 3, 23 AND 27 AND MF = 4 LEGENDRE Evalplot
COEFFICIENTS WILL BE USED AS THE X LIMITS OF THE PLOTS, E.G., Evalplot
PLOT ENERGY DEPENDENT CROSS SECTIONS BETWEEN 1 AND 20 MEV. Evalplot
Evalplot
THE X RANGE FOR MF = 4 AND 5 WILL BE USED TO ONLY SELECT ANGULAR Evalplot
AND ENERGY DISTRIBUTION FOR WHICH THE INCIDENT NEUTRON ENERGY Evalplot
IS IN THE X RANGE. E.G., ONLY PLOT ANGULAR DISTRIBUTIONS WHERE Evalplot
THE INCIDENT NEUTRON ENERGY IS 1 TO 20 MEV. Evalplot
Evalplot
INTERACTIVE VS. BATCH MODE Evalplot
-------------------------- Evalplot
VERSION 92-1 AND LATER VERSIONS OF THIS CODE ONLY USE A BATCH Evalplot
MODE WHERE ALL REQUESTS ARE READ AND PROCESSED. EARLIER VERSIONS Evalplot
OF THIS CODE HAD BOTH AN INTERACTIVE MODE (WHERE REQUESTS WHERE Evalplot
READ AND EXECUTED ONE AT A TIME) AND A BATCH MODE. INTERACTIVE Evalplot
MODE HAS BEEN DROPPED AND WILL NOT TO REINTRODUCED UNLESS THE Evalplot
AUTHOR IS INFORMED BY USERS THAT THEY WERE USING THE INTERACTIVE Evalplot
MODE. Evalplot
Evalplot
PLOT LAYOUT Evalplot
----------- Evalplot
VERSION 92-1 AND LATER VERSIONS OF THIS CODE WILL PLOT ALL Evalplot
CURVES ON A SINGLE PLOT. EARLIER VERSIONS OF THIS CODE ALLOWED Evalplot
THE OPTION TO HAVE, Evalplot
MULTIPLE PLOTS - INDIVIDUAL SCALING Evalplot
MULTIPLE PLOTS - COMMON SCALING Evalplot
SINGLE PLOT Evalplot
MULTILE PLOTS PER PLOT HAVE BEEN DROPPED AND WILL NOT BE Evalplot
REINTRODUCED UNLESS IT IS DEMONSTRATED TO THE AUTHOR THAT THEY Evalplot
ARE OF PRACTICAL USE IN SOME APPLICATION. Evalplot
Evalplot
PROCESSING OF DATA Evalplot
------------------ Evalplot
IN THE CASE OF NEUTRON AND PHOTON CROSS SECTIONS (MF=3 OR 23) Evalplot
AND PARAMETERS (MF=1 OR 27) ALL DATA IN A FILE (MF) IS READ Evalplot
GROUPED TOGETHER BY TYPE (AS EXPLAINED BELOW) AND PLOTTED. Evalplot
Evalplot
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

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

LINE	COLUMNS	FORMAT	DESCRIPTION

```
---- ------- ------  -----------                                        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
```

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)
RETURN
END
```

Evalplot

SIMILAR BOXCOLOR CAN BE A DUMMY Evalplot

Evalplot

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

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
```