```
 ======================================================================
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
                                  *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

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
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Evalplot
      P.O. BOX 100
Evalplot
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Evalplot
      EUROPE
Evalplot

Evalplot
      ORIGINALLY WRITTEN BY
Evalplot

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Evalplot

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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
Evalplot
      SPECIFY THE REQUIRED SIZE OF THE PLOT IN CENTIMETERS (E.G., TO
Evalplot
      OBTAIN A 13.50 BY 10.24 INCH PLOT, THE USER NEED ONLY SPECIFY
Evalplot
      34.3 BY 26 ON THE FIRST INPUT LINE...ASSUMING 2.54 CENTIMETERS PER
Evalplot
      INCH, OR 343 BY 260 FOR MILLIMETERS..ASSUMING 25.4 MILLIMETERS
Evalplot
      PER INCH).
Evalplot

Evalplot
      CHARACTER SIZE
Evalplot
```

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

Evalplot
      PLOT PER FRAME
Evalplot
      --------------
Evalplot
      BY INPUT THE USER CAN SPECIFY NOT ONLY THE ACTUAL SIZE OF THE
Evalplot
      LOCAL PLOTTER, BUT ALSO HOW MANY PLOTS SHOULD APPEAR ON EACH
Evalplot
      FRAME. THIS IS DONE BY SPECIFYING THE LAYOUT OF A FRAME IN TERMS
Evalplot
      OF THE NUMBER OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE BY
Evalplot
      SPECIFYING THAT EACH FRAME BE DIVIDED INTO 3 PLOTS IN THE X
Evalplot
      DIRECTION AND 2 PLOTS IN THE Y DIRECTION, EACH FRAME WILL CONTAIN
Evalplot
      UP TO 6 PLOTS (3 X 2). INTERNALLY EACH PLOT WILL BE GENERATED TO
Evalplot
      STANDARD A4 SIZE, AS DESCRIBED ABOVE, AND THEN ON OUTPUT SCALED
Evalplot
      TO THE NUMBER OF PLOTS PER FRAME SPECIFIED BY THE USER INPUT.
Evalplot

Evalplot
      ENDF/B FORMAT
Evalplot
      -------------
Evalplot
```

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

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

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

Evalplot
      REACTION INDEX
Evalplot

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

Evalplot
      PAGE SIZE
Evalplot

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

Evalplot
      TO CHANGE THE PAGE SIZE,
Evalplot

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

Evalplot
      SECTION SIZE
Evalplot

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

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

A SINGLE TABLE (E.G. REACTION).
Evalplot

Evalplot
WHAT DATA CAN BE PLOTTED
Evalplot

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

Evalplot
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
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
			= 2 - DASHED AT COARSE INTERVALS
			= 3 - SOLID AT FINE INTERVALS
			= 4 - DASHED AT FINE INTERVALS
			= 5 - SOLID COARSE/DASHED FINE GRID
	23-33	I11	SHOULD BORDER BE PLOTTED ON EACH PLOT
			= 0 - NO
			= 1 - YES
	34-44	I11	LINE THICKNESS
			= 0 - 5 = BORDER/CURVES/CHARACTERS
			=-1 - -5 = BORDER/CURVES (NOT CHARACTERS)
			NOTE, THE GRID IS NEVER THICK.
	45-55	I11	SHOULD TEMPERATURE BE PLOTTED.
			= 0 - YES
			= 1 - NO
	56-66	E11.4	ALLOWABLE RATIO OF PLOT Y RANGE MAXIMUM TO
			MINIMUM - IF THIS RATIO IS EXCEEDED THE Y
			RANGE MINIMUM WILL BE CHANGED TO THE Y RANGE
			MAXIMUM TIMES THIS RATIO.
			IF THIS RATIO IS NOT POSITIVE, IT IS
			INTERPRETED TO MEAN NO LIMIT ON Y RANGE.
	67-70	I4	BACKGROUND COLOR
			= 0 = BLACK
			= OTHERWISE = WHITE
4-N	1- 6	I6	LOWER MAT OR ZA LIMIT
	7- 8	I2	LOWER MF LIMIT
	9-11	I3	LOWER MT LIMIT

```
            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
```