======================================================================= 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**

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 **executables and Bojan Zefran (IJS, Slovenia) for contributing Evalplot**

 **LINUX (32 or 63 bit) executables. And most of all I must thank Evalplot**

 **Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project Evalplot**

 **at IAEA, Vienna. This was a truly International team who worked Evalplot**

 **together to produce PREPRO 2015-2. Evalplot**

 Evalplot

 OWNED, MAINTAINED AND DISTRIBUTED BY Evalplot

 ------------------------------------ Evalplot

 THE NUCLEAR DATA SECTION Evalplot

 INTERNATIONAL ATOMIC ENERGY AGENCY Evalplot

 P.O. BOX 100 Evalplot

 A-1400, VIENNA, AUSTRIA Evalplot

 EUROPE Evalplot

 Evalplot

 ORIGINALLY WRITTEN BY Evalplot

 ------------------------------------ Evalplot

 Dermott E. Cullen Evalplot

 Evalplot

 PRESENT CONTACT INFORMATION Evalplot

 --------------------------- Evalplot

 Dermott E. Cullen Evalplot

 1466 Hudson Way Evalplot

 Livermore, CA 94550 Evalplot

 U.S.A. Evalplot

 Telephone 925-443-1911 Evalplot

 E. Mail RedCullen1@Comcast.net Evalplot

 Website http://home.comcast.net/~redcullen1 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 Evalplot

 = 2 - DASHED AT COARSE INTERVALS Evalplot

 = 3 - SOLID AT FINE INTERVALS Evalplot

 = 4 - DASHED AT FINE INTERVALS Evalplot

 = 5 - SOLID COARSE/DASHED FINE GRID Evalplot

 23-33 I11 SHOULD BORDER BE PLOTTED ON EACH PLOT Evalplot

 = 0 - NO Evalplot

 = 1 - YES Evalplot

 34-44 I11 LINE THICKNESS Evalplot

 = 0 - 5 = BORDER/CURVES/CHARACTERS Evalplot

 =-1 - -5 = BORDER/CURVES (NOT CHARACTERS) Evalplot

 NOTE, THE GRID IS NEVER THICK. Evalplot

 45-55 I11 SHOULD TEMPERATURE BE PLOTTED. Evalplot

 = 0 - YES Evalplot

 = 1 - NO Evalplot

 56-66 E11.4 ALLOWABLE RATIO OF PLOT Y RANGE MAXIMUM TO Evalplot

 MINIMUM - IF THIS RATIO IS EXCEEDED THE Y Evalplot

 RANGE MINIMUM WILL BE CHANGED TO THE Y RANGE Evalplot

 MAXIMUM TIMES THIS RATIO. Evalplot

 IF THIS RATIO IS NOT POSITIVE, IT IS Evalplot

 INTERPRETED TO MEAN NO LIMIT ON Y RANGE. Evalplot

 67-70 I4 BACKGROUND COLOR Evalplot

 = 0 = BLACK Evalplot

 = OTHERWISE = WHITE Evalplot

 4-N 1- 6 I6 LOWER MAT OR ZA LIMIT Evalplot

 7- 8 I2 LOWER MF LIMIT Evalplot

 9-11 I3 LOWER MT LIMIT Evalplot

 11-22 E11.4 LOWER X LIMIT (USUALLY ENERGY) - EV Evalplot

 23-28 I6 UPPER MAT OR ZA LIMIT Evalplot

 29-30 I2 UPPER MF LIMIT Evalplot

 31-33 I3 UPPER MT LIMIT Evalplot

 34-44 E11.4 UPPER X LIMIT (USUALLY ENERGY) - EV Evalplot

 45-55 I11 TYPE OF DATA TO RETRIEVE AND PLOT Evalplot

 = -1 - CHAIN THIS REQUEST TO THE NEXT ONE Evalplot

 = 0 - ALL Evalplot

 = 1-20 - TYPE AS SPECIFIED ABOVE Evalplot

 Evalplot

 THERE MAY BE UP 100 MAT/MF/MT OR ZA/MF/MT REQUEST RANGES. INPUT Evalplot

 MUST BE TERMINATED BY A BLANK LINE. Evalplot

 Evalplot

 IF X LIMITS ARE NOT SPECIFIED (I.E., LOWER AND UPPER X LIMIT = 0) Evalplot

 THIS WILL BE INTERPRETED TO MEAN NO LIMIT AND ALL DATA WILL BE Evalplot

 PLOTTED OVER THEIR ENTIRE ENERGY RANGE, I.E., YOU NEED NOT Evalplot

 KNOW AND SPECIFY THE ACTUAL ENERGY LIMITS OF THE DATA. Evalplot

 Evalplot

 EXAMPLE DEFINITION OF PLOTTER Evalplot

 ----------------------------- Evalplot

 2015 - WARNING - THE FOLLOWING DESCRIPTION IS OUT-OF-DATE. Evalplot

 TODAY THE DIMENSIONS OF THE PLOTTER ARE IN INCHES. Evalplot

 Evalplot

 THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING Evalplot

 USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING) Evalplot

 WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES Evalplot

 HOW MANY PLOTS SHOULD APPEAR ON EACH FRAME. THE PLOTTING AREA Evalplot

 DEFINED ON THE FIRST INPUT LINE MAY BE SUBDIVIDED INTO ANY NUMBER Evalplot

 OF PLOTS IN THE X AND Y DIRECTION. FOR EXAMPLE, TO PRODUCE A Evalplot

 SERIES OF FRAMES EACH CONTAINING 3 PLOTS IN THE X DIRECTION AND Evalplot

 2 PLOTS IN THE Y DIRECTION (6 PLOTS PER FRAME) COLUMN 45-55 OF Evalplot

 THE FIRST INPUT LINE SHOULD BE 3 AND COLUMNS 56-66 SHOULD BE 2. Evalplot

 Evalplot

 IF THE LOCAL PLOTTER USES DIMENSIONS OF INCHES IN ORDER TO OBTAIN Evalplot

 10 X 10 INCH FRAMES WITH 3 X 2 PLOTS PER FRAME THE FIRST INPUT Evalplot

 LINE SHOULD BE, Evalplot

 Evalplot

 0.0 10.0 0.0 10.0 3 2 Evalplot

 Evalplot

 IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME Evalplot

 PHYSICAL SIZE PLOT MAY BE OBTAINED IF THE FIRST INPUT LINE IS, Evalplot

 Evalplot

 0.0 254.0 0.0 254.0 3 2 Evalplot

 Evalplot

 FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE Evalplot

 PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL Evalplot

 IN ALL CASES INDICATE 10 X 10 INCH PLOTS WITH ONLY 1 PLOT PER Evalplot

 FRAME. Evalplot

 Evalplot

 ALL OF THE FOLLOWING EXAMPLE WILL USE, Evalplot

 1) A DASHED GRID (SECOND LINE, COLS. 12-22 = 2) Evalplot

 2) NO BORDER (SECOND LINE, COLS. 23-33 = 0) Evalplot

 3) LINE THICKNESS -2 (SECOND LINE, COLS. 34-44 =-2) Evalplot

 4) TEMPERATURE ON PLOTS (SECOND LINE, COLS. 45-55 = 0) Evalplot

 5) NO Y RANGE LIMIT (SECOND LINE, COLS. 56-66 = 0.0) Evalplot

 Evalplot

 EXAMPLE INPUT NO. 1 Evalplot

 ------------------- Evalplot

 FOR ALL THORIUM AND URANIUM ISOTOPES PLOT NEUTRON CROSS SECTIONS Evalplot

 ENTIRE ENERGY RANGE. IN ADDITION PLOT TYPE 1 DATA, MAJOR NEUTRON Evalplot

 CROSS SECTIONS OVER THE ENERGY RANGE 1 EV TO 1 KEV. USE THE Evalplot

 STANDARD FILENAME (ENDFB.IN) FOR THE ENDF/B DATA. THE FOLLOWING Evalplot

 6 INPUT LINES ARE REQUIRED, Evalplot

 Evalplot

 0.0 10.0 0.0 10.0 3 2 Evalplot

 ENDFB.IN Evalplot

 1 2 0 -2 0 0.0 Evalplot

 90000 3 0 90999 3999 0 Evalplot

 90000 3 0 1.00000+ 090999 3999 1.00000+ 3 1 Evalplot

 (BLANK LINE MUSE FOLLOW LAST REQUEST) Evalplot

 Evalplot

 EXAMPLE INPUT NO. 2 Evalplot

 ------------------- Evalplot

 PLOT FE-56 ELASTIC AND INELASTIC ANGULAR DISTRIBUTIONS BETWEEN Evalplot

 1 AND 20 MEV. THE FOLLOWING 6 INPUT LINES ARE REQUIRED, Evalplot

 Evalplot

 0.0 10.0 0.0 10.0 3 2 Evalplot

 ENDFB.IN Evalplot

 1 2 0 -2 0 0.0 Evalplot

 26056 4 2 1.00000+ 626056 4 2 2.00000+ 7 0 Evalplot

 26056 4 4 1.00000+ 626056 4 4 2.00000+ 7 0 Evalplot

 (BLANK LINE MUSE FOLLOW LAST REQUEST) Evalplot

 Evalplot

 EXAMPLE INPUT NO. 3 (CHAINED INPUT) Evalplot

 ----------------------------------- Evalplot

 FOR ALL THORIUM AND URANIUM ISOTOPES PLOT TOTAL, ELASTIC ,CAPTURE Evalplot

 AND FISSION, BUT NOT INELASTIC CROSS SECTIONS OVER THERE ENTIRE Evalplot

 ENERGY RANGE AND FROM 1 KEV TO 1 MEV. THE FOLLOWING 8 INPUT Evalplot

 LINES ARE REQUIRED, Evalplot

 Evalplot

 0.0 10.0 0.0 10.0 3 2 Evalplot

 ENDFB.IN Evalplot

 1 2 0 -2 0 0.0 Evalplot

 90000 3 1 90999 3 2 -1 Evalplot

 90000 3 18 90999 3102 1 Evalplot

 90000 3 1 1.00000+ 390999 3 2 1.00000+ 6 -1 Evalplot

 90000 3 18 1.00000+ 390999 3102 1.00000+ 6 1 Evalplot

 (BLANK LINE MUSE FOLLOW LAST REQUEST) Evalplot

 Evalplot

 NOTE, THIS EXAMPLE INCLUDES 2 CHAINED REQUESTED - INPUT LINES 3 Evalplot

 AND 4 SELECTING DATA AND PRODUCING A PLOT OVER THE ENTIRE ENERGY Evalplot

 RANGE AND INPUT LINES 5 AND 6 SELECTING THE SAME DATA AND Evalplot

 PRODUCING A PLOT FROM 1 KEV TO 1 MEV. Evalplot

 Evalplot

 ANY NUMBER OF REQUEST LINES MAY TO CHAINED TOGETHER TO SELECT Evalplot

 DATA. THE CHAIN ENDS WHERE THE TYPE OF DATA (COLS. 45-55) IS NOT Evalplot

 NEGATIVE AND THEN THE SELECTED DATA WILL BE PLOTTED. Evalplot

 Evalplot

 EXAMPLE INPUT NO. 4 Evalplot

 ------------------- Evalplot

 FOR THE SAME EXAMPLE AS ABOVE, EXCEPT USE A DIFFERENT FILENAME Evalplot

 FOR THE ENDF/B DATA TO READ FROM A FILE TREE STRUCTURE. THE Evalplot

 FOLLOWING 8 INPUT LINES ARE REQUIRED, Evalplot

 Evalplot

 0.0 10.0 0.0 10.0 3 2 Evalplot

 EVALUATION/ENDFB6/THORIUM Evalplot

 1 2 0 -2 0 0.0 Evalplot

 90000 3 1 90999 3 2 -1 Evalplot

 90000 3 18 90999 3102 1 Evalplot

 90000 3 1 1.00000+ 390999 3 2 1.00000+ 6 -1 Evalplot

 90000 3 18 1.00000+ 390999 3102 1.00000+ 6 1 Evalplot

 (BLANK LINE MUST FOLLOW LAST REQUEST) Evalplot

 Evalplot

 ===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Evalplot

 Evalplot

 THIS PROGRAM USES A SIMPLE CALCOMP LIKE INTERFACE INVOLVING Evalplot

 ONLY 6 SUBROUTINES, Evalplot

 Evalplot

 STARPLOT - INITIALIZE PLOTTER Evalplot

 NEXTPLOT - CLEAR THE SCREEN FOR THE NEXT PLOT Evalplot

 ENDPLOTS - TERMINATE PLOTTING Evalplot

 Evalplot

 PLOT(X,Y,IPEN) - DRAW OR MOVE FROM LAST LOCATION TO (X,Y), Evalplot

 END OF CURRENT PLOT OR END OF PLOTTING. Evalplot

 IPEN = 2 - DRAW Evalplot

 = 3 - MOVE Evalplot

 Evalplot

 PEN(IPEN) - SELECT COLOR. Evalplot

 IPEN- COLOR = 1 TO N (N = ANY POSITIVE INTEGER) Evalplot

 Evalplot

 BOXCOLOR(X,Y,IFILL,IBORDER) - FILL A RECTANGULAR BOX DEFINED Evalplot

 BY THE X AND Y CORNERS - X(1), Evalplot

 X(2), Y(1),Y(2) Evalplot

 IFILL - COLOR TO FILL BOX WITH Evalplot

 IBORDER - COLOR OF BOX BORDER Evalplot

 Evalplot

 IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH Evalplot

 DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE Evalplot

 THE USER TO WRITE 6 SUBROUTINES WITH THE NAMES PLOTS, PLOT AND PEN Evalplot

 WITH THE SUBROUTINE ARGUMENTS DESCRIBED ABOVE AND TO THEN CALL THE Evalplot

 LOCAL EQUIVALENT ROUTINES. Evalplot

 Evalplot

 COLOR PLOTS Evalplot

 ------------------------------------------------------------------ Evalplot

 TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED Evalplot

 TO SELECT ONE OF THE AVAILABLE COLORS. IF YOU HAVE COLOR ON YOUR Evalplot

 PLOTTER YOU SHOULD PROVIDE A SUBROUTINE PEN TO SELECT COLORS. Evalplot

 Evalplot

 BLACK AND WHITE PLOTS Evalplot

 ------------------------------------------------------------------ Evalplot

 WHEN PRODUCING BLACK AND WHITE PLOTS SUBROUTINE PEN NEED MERELY Evalplot

 BE A DUMMY SUBROUTINE TO IGNORE ANY ATTEMPT TO CHANGE COLORS, Evalplot

 Evalplot

 SUBROUTINE PEN(IPEN) Evalplot

 RETURN Evalplot

 END Evalplot

 Evalplot

 SIMILAR BOXCOLOR CAN BE A DUMMY Evalplot

 Evalplot

 SUBROUTINE BOXCOLOR(X,Y,IFILL,IBORDER) Evalplot

 RETURN Evalplot

 END Evalplot

 Evalplot

 CHARACTER SET Evalplot

 ------------------------------------------------------------------ Evalplot

 THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE Evalplot

 CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN Evalplot

 STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER Evalplot

 AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF Evalplot

 ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL Evalplot

 SYMBOLS. Evalplot

 Evalplot

 THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO Evalplot

 DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS Evalplot

 OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY Evalplot

 MODIFY THIS TABLE. Evalplot

 Evalplot

 ADDITIONAL FONTS Evalplot

 ---------------- Evalplot

 THIS PROGRAM COMES WITH 3 COMPLETE SETS OF THE SAME CHARACTERS Evalplot

 USING DIFFERENT FONTS. FOR SPEED IN PLOTTING IT IS RECOMMENDED Evalplot

 THAT YOU USE THE SIMPLEX FONT. FOR FINISHED PLOTS SUITABLE FOR Evalplot

 PUBLICATION, BUT REQUIRING MORE TIME TO GENERATE A PLOT, IT IS Evalplot

 RECOMMENDED THAT YOU USE THE DUPLEX OR COMPLEX FONT - YOU CAN Evalplot

 EXPERIMENT WITH ANY OF THE 3 FONTS TO DETERMINE WHICH BEST MEETS Evalplot

 YOUR NEEDS. Evalplot

 Evalplot

 TO USE ANY ONE OF THE FONTS MERELY BY SURE THAT IT IS DEFINED AS Evalplot

 UNIT 12 FOR INPUT (IF USING STANDARD FILENAMES IT SHOULD BE Evalplot

 NAMED PLOT.CHR). SO THAT SWITCHING FONTS CAN BE SIMPLY DONE Evalplot

 MERELY BY COPYING THE FONT THAT YOU WANT TO THE UNIT 12 THAT Evalplot

 YOU ARE USING FOR INPUT. Evalplot

 Evalplot

 CONTROL CHARACTERS Evalplot

 ------------------------------------------------------------------ Evalplot

 IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL Evalplot

 HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE Evalplot

 CURRENTLY CONTAINS 4 CONTROL CHARACTERS, Evalplot

 Evalplot

 PEN POSITION = 0 Evalplot

 ---------------- Evalplot

 SHIFT THE NEXT PRINTED CHARACTER BY X AND Y. 3 CONTROL CHARACTERS Evalplot

 ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW Evalplot

 SHIFTING. Evalplot

 Evalplot

 { = SHIFT UP (FOR SUPERSCRIPTS..............X= 0.0, Y= 0.5) Evalplot

 } = SHIFT DOWN (FOR SUBSCRIPTS..............X= 0.0, Y=-0.5) Evalplot

 \ = SHIFT LEFT 1 CHARACTER (FOR BACKSPACE...X=-1.0, Y= 0.0) Evalplot

 Evalplot

 PEN POSITION =-1 Evalplot

 ---------------- Evalplot

 SELECT THE NEXT PRINTED CHARACTER FROM THE ALTERNATE CHARACTER Evalplot

 SET. AT PRESENT THIS CONTROL CHARACTER IS, Evalplot

 Evalplot

 | = SWITCH TO ALTERNATE CHARACTER SET Evalplot

 Evalplot

 THESE 4 CONTROL CHARACTERS ARE ONLY DEFINED BY THE VALUE OF THE Evalplot

 PEN POSITION IN THE SOFTWARE CHARACTER TABLE (I.E., THEY ARE NOT Evalplot

 HARD WIRED INTO THIS PROGRAM). AS SUCH BY MODIFYING THE SOFTWARE Evalplot

 CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL Evalplot

 CHARACTERS TO MEET SPECIFIC NEEDS. Evalplot

 Evalplot

 THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE Evalplot

 SPECIAL EFFECTS. FOR EXAMPLE, TO PLOT SUBSCRIPT 5, B, SUPERSCRIPT Evalplot

 10 USE THE STRING, Evalplot

 Evalplot

 }5B{1{0 Evalplot

 Evalplot

 TO PLOT B, SUBSCRIPT 5 AND SUPERSCRIPT 10 WITH THE 5 DIRECTLY Evalplot

 BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO Evalplot

 POSITION THE 1 DIRECTLY ABOVE THE 5 USING THE STRING, Evalplot

 Evalplot

 B}5\{1{0 Evalplot

 Evalplot

 TO PLOT UPPER CASE GREEK GAMMA FOLLOWED BY THE WORD TOTAL (I.E., Evalplot

 RESONANCE TOTAL WIDTH) USE THE STRING. Evalplot

 Evalplot

 |G TOTAL Evalplot

 Evalplot

 NOTE, WHEN THESE CONTROL CHARACTERS ARE USED THEY ONLY EFFECT THE Evalplot

 NEXT 1 PRINTED CHARACTER (SEE, ABOVE EXAMPLE OF PLOTTING SUPER- Evalplot

 SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE Evalplot

 1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP Evalplot

 CONTROL CHARACTERS WERE USED IN COMBINATION). Evalplot

 Evalplot

 IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER Evalplot

 YOU CAN MODIFY THE SOFTWARE CHARACTER TABLE TO USE ANY OTHER 4 Evalplot

 CHARACTERS THAT YOU DO NOT NORMALLY USE IN CHARACTER STRINGS (FOR Evalplot

 DETAILS SEE THE SOFTWARE CHARACTER TABLE). Evalplot

 Evalplot

 STANDARD/ALTERNATE CHARACTER SETS Evalplot

 ------------------------------------------------------------------ Evalplot

 THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH Evalplot

 ARE A STANDARD SET (ALL CHARACTERS ON AN IBM KEYBOARD) AND AN Evalplot

 ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL Evalplot

 CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET Evalplot

 PUT A RIGHT BRACKET CHARACTER (|) BEFORE A CHARACTER (SEE THE Evalplot

 ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS Evalplot

 CONTROL CHARACTER WILL ONLY EFFECT THE NEXT 1 PLOTTED CHARACTER. Evalplot

 Evalplot

 SUB AND SUPER SCRIPTS Evalplot

 ------------------------------------------------------------------ Evalplot

 TO DRAW SUBSCRIPT PRECEED A CHARACTER BY }. TO DRAW SUPERSCRIPT Evalplot

 PRECEED A CHARACTER BY { (SEE THE ABOVE EXAMPLE AND THE SOFTWARE Evalplot

 CHARACTER TABLE FOR DETAILS). THESE CONTROL CHARACTER WILL ONLY Evalplot

 EFFECT THE NEXT 1 PLOTTED CHARACTER. Evalplot

 Evalplot

 BACKSPACING Evalplot

 ------------------------------------------------------------------ Evalplot

 TO BACKSPACE ONE CHARACTER PRECEED A CHARACTER BY \ (SEE, THE Evalplot

 ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS Evalplot

 CONTROL CHARACTER WILL PERFORM A TRUE BACKSPACE AND WILL EFFECT Evalplot

 ALL FOLLOWING CHARACTERS IN THE SAME CHARACTER STRING. Evalplot

 Evalplot

 PLOT DIMENSIONS Evalplot

 --------------- Evalplot

 ARE DEFINED BY USER INPUT. INTERNALLY THE PROGRAM WILL CREATE A Evalplot

 PLOT IN APPROXIMATELY A4 OR 8-1/2 BY 11 INCH FORMAT. DURING Evalplot

 OUTPUT THE PLOT IS TRANSFORMED TO THE UNITS (INCHES, CENTIMETERS, Evalplot

 MILLIMETERS, WHATEVER) OF THE PLOTTER BEING USED AND OUTPUT. Evalplot

 Evalplot

 ===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Evalplot

 ======================================================================= Evalplot