**======================================================================= Complot**

 **Complot**

 **PROGRAM COMPLOT Complot**

 **=============== Complot**

 **VERSION 83-1 (FEBRUARY, 1983) Complot**

 **VERSION 83-2 (MAY, 1983) Complot**

 **VERSION 83-3 (DECEMBER, 1983) \*MAJOR MODIFICATION. Complot**

 **\*ADDED SELECTION OF PLOTS BY MAT OR Complot**

 **ZA/MT/ENERGY RANGE (EV). Complot**

 **\*ADDED VARIABLE AXIS UNITS (PROGRAM Complot**

 **CONTROLLED..X=MILLI-EV, EV, KEV, Complot**

 **MEV...Y=MILLI-BARNS, BARNS). Complot**

 **VERSION 84-1 (APRIL, 1984) \*ADDED SELECTION BY REACTION/ENERGY Complot**

 **RANGE. Complot**

 **\*ADDED IDENTIFY DATA POINTS OPTION Complot**

 **(SMALL BOX DRAWN AROUND EACH CROSS Complot**

 **SECTION AND RATIO POINT). Complot**

 **\*IMPROVED NON-IBM GRAPHICS INTERFACE Complot**

 **(ALL CHARACTER POSITIONING NOW Complot**

 **BASED ON CHARACTER, NOT RASTER, Complot**

 **SIZE). Complot**

 **VERSION 85-1 (APRIL, 1985) \*SPECIAL I/O ROUTINES TO GUARANTEE Complot**

 **ACCURACY OF ENERGY. Complot**

 **\*DOUBLE PRECISION TREATMENT OF Complot**

 **ENERGY (REQUIRED FOR NARROW Complot**

 **RESONANCES). Complot**

 **\*ADDED (ZA,MT) EQUIVALENCE OPTION. Complot**

 **\*ADDED SMALL PLOT OPTION. Complot**

 **VERSION 85-2 (AUGUST, 1985) \*FORTRAN-77/H VERSION Complot**

 **VERSION 86-1 (JANUARY, 1986) \*ENERGY DEPENDENT SCATTERING RADIUS Complot**

 **VERSION 86-2 (DECEMBER, 1986) \*DOUBLE PRECISION PLOT SCALING Complot**

 **(REQUIRED FOR NARROW ENERGY RANGES) Complot**

 **VERSION 88-1 (JULY 1988) \*MAJOR REVISION TO MAKE CODE EASILY Complot**

 **INTERFACEABLE TO ALMOST ANY PLOTTER Complot**

 **\*WARNING..INPUT PARAMETERS FROM BEEN Complot**

 **CHANGED (SEE, DESCRIPTION BELOW) Complot**

 **\*COMPUTER INDEPENDENT SOFTWARE Complot**

 **CHARACTERS. Complot**

 **\*COLOR PLOTS. Complot**

 **\*MT NUMBER DEFINITIONS FROM DATA Complot**

 **FILE READ BY PROGRAM Complot**

 **\*FORTRAN-77 REQUIRED (FORTRAN-H NO Complot**

 **SUPPORTED BY THIS PROGRAM). Complot**

 **\*OPTION...INTERNALLY DEFINE ALL I/O Complot**

 **FILE NAMES (SEE, SUBROUTINE FILEIO Complot**

 **FOR DETAILS). Complot**

 **\*IMPROVED BASED ON USER COMMENTS. Complot**

 **VERSION 88-2 (OCTOBER 1988) \*IMPROVED BASED ON USER COMMENTS. Complot**

 **\*ADDED LIVERMORE CIVIC COMPILER Complot**

 **CONVENTIONS. Complot**

 **\*UPDATED TO USE NEW PROGRAM CONVERT Complot**

 **KEYWORDS. Complot**

 **VERSION 89-1 (JANUARY 1989) \*PSYCHOANALYZED BY PROGRAM FREUD TO Complot**

 **INSURE PROGRAM WILL NOT DO ANYTHING Complot**

 **CRAZY. Complot**

 **\*FORTRAN-77/FORTRAN-H COMPATIBLE Complot**

 **\*SPECIAL ENDF/B MATERIAL DEFINITIONS Complot**

 **(ZA.LT.1000) FROM DATA FILE READ Complot**

 **BY PROGRAM. Complot**

 **VERSION 89-2 (MARCH 1989) \*ADDED ENDF/B-V AND VI MT Complot**

 **DEFINITIONS. PROGRAM WILL DETERMINE Complot**

 **ENDF/B FORMAT BASED ON MF=1, Complot**

 **MT=451 AND USE AS PPROPRIATE MT Complot**

 **DEFINITIONS. IF NO MF=1, MT=451 Complot**

 **PROGRAM WILL USE ENDF/B-VI Complot**

 **MT DEFINITIONS. Complot**

 **VERSION 90-1 (AUGUST 1990) \*A NEW PROGRAM Complot**

 **\*ADDED INTERACTIVE MOUSE INPUT Complot**

 **\*ADDED 3 CHARACTER FONTS Complot**

 **\*ADDED PHOTON DATA, MF=23 AND 27 Complot**

 **\*ADDED FORTRAN SAVE OPTION. Complot**

 **\*ADDED MAXIMUM RATIO RANGE WHEN Complot**

 **PLOTTING RATIOS. Complot**

 **\*ADDED GRID TYPES Complot**

 **\*ADDED VARIABLE LINE THICKNESS Complot**

 **\*WARNING...INPUT PARAMETER FORMAT Complot**

 **HAS BEEN CHANGED...SEE DESCRIPTION Complot**

 **BELOW. Complot**

 **VERSION 92-1 (JANUARY 1992) \*ADDED INCIDENT CHARGED PARTICLES Complot**

 **(IDENTIFIED IN PLOT TITLES) Complot**

 **\*ADDED COMPLETELY COMPATIBLE I/O Complot**

 **FOR READING FLOATING POINT NUMBERS. Complot**

 **VERSION 92-2 (MAY 1992) \*CORRECTED DESCRIPTION OF INPUT Complot**

 **PARAMETERS AND EXAMPLE PROBLEMS. Complot**

 **\*ADDED VARIABLE CHARACTER SIZE INPUT Complot**

 **VERSION 93-1 (MARCH 1993) \*UPDATE FOR ON SCREEN GRAPHIC Complot**

 **OUTPUT USING THE LAHEY COMPILER Complot**

 **\*ADDED NU-BAR (TOTAL, DELAYED, Complot**

 **PROMPT). Complot**

 **VERSION 94-1 (JANUARY 1994) \*VARIABLE ENDF/B DATA FILENAMES Complot**

 **TO ALLOW ACCESS TO FILE STRUCTURES Complot**

 **(WARNING - INPUT PARAMETER FORMAT Complot**

 **HAS BEEN CHANGED) Complot**

 **\*CLOSE ALL FILES BEFORE TERMINATING Complot**

 **(SEE, SUBROUTINE ENDIT) Complot**

 **VERSION 95-1 (MARCH 1995) \*CORRECTED CROSS SECTION Complot**

 **MULTIPLIER FOR EQUIVALENCES Complot**

 **\*CORRECTED RATIO SCALING, FOR Complot**

 **MAXIMUM RATIO LESS THAN 1.0 Complot**

 **VERSION 96-1 (JANUARY 1996) \*COMPLETE RE-WRITE Complot**

 **\*IMPROVED COMPUTER INDEPENDENCE Complot**

 **\*ALL DOUBLE PRECISION Complot**

 **\*UNIFORM TREATMENT OF ENDF/B I/O Complot**

 **\*IMPROVED OUTPUT PRECISION Complot**

 **\*DEFINED SCRATCH FILE NAMES Complot**

 **\*INCREASED PAGE SIZE FROM 24000 Complot**

 **TO 48000 POINTS Complot**

 **VERSION 97-1 (APRIL 1997) \*INCREASED PAGE SIZE FROM 48000 Complot**

 **TO 480000 POINTS Complot**

 **VERSION 99-1 (MARCH 1999) \*CORRECTED CHARACTER TO FLOATING Complot**

 **POINT READ FOR MORE DIGITS Complot**

 **\*UPDATED TEST FOR ENDF/B FORMAT Complot**

 **VERSION BASED ON RECENT FORMAT CHANGE Complot**

 **\*GENERAL IMPROVEMENTS BASED ON Complot**

 **USER FEEDBACK Complot**

 **VERS. 2000-1 (FEBRUARY 2000)\*GENERAL IMPROVEMENTS BASED ON Complot**

 **USER FEEDBACK Complot**

 **VERS. 2002-1 (MAY 2002) \*INPUT PARAMETERS OPTIONAL Complot**

 **\*CONTROL MINIMUM RATIO RANGE BY INPUT Complot**

 **\*OPTIONAL BLACK OR WHITE BACKGROUND Complot**

 **VERS. 2004-1 (SEPT. 2004) \*ADDED INCLUDE FOR COMMON Complot**

 **\*INCREASED PAGE SIZE FROM 480000 Complot**

 **TO 600000 POINTS Complot**

 **\*ADDED NEW REICH-MOORE TO FILE2 TO Complot**

 **ALLOW IDENTIFICATION OF RESOLVED AND Complot**

 **ANY FOLLOWING UNRESOLVED RESONANCE Complot**

 **REGIONS. Complot**

 **VERS. 2007-1 (JAN. 2007) \*CHECKED AGAINST ALL ENDF/B-VII. Complot**

 **\*INCREASED MAXLOAD TO 600,000 FROM Complot**

 **12,000 Complot**

 **VERS. 2009-1 (JAN. 2009) \*IGNORED DIFFERENCES NEAR RESONANCE Complot**

 **REGION BOUNDARIES (RESOLVED AND Complot**

 **UNRESOLVED). Complot**

 **VERS. 2010-1 (July 2010) \*Allow comparison plot even if there Complot**

 **is no difference (just see data). Complot**

 **\*ONLY plot linearly interpoolable data Complot**

 **\*Include threshold energy points to Complot**

 **show cross sections, but NOT ratios Complot**

 **near threshold. Complot**

 **VERS. 2011-1 (Jan. 2011) \*Increased MT.DAT from 200 to 1,000 Complot**

 **entries, to accommodate new MTs. Complot**

 **VERS. 2012-1 (Aug. 2012) \*Increased incident particle list to Complot**

 **include photon (ZA = 0). Complot**

 **\*Added CODENAME Complot**

 **\*32 and 64 bit Compatible Complot**

 **\*Added ERROR stop Complot**

 **VERS. 2013-1 (Nov. 2013) \*ONLY use min/max ratios to decide Complot**

 **whether or not to plot - non-positive Complot**

 **cross sections are no longer used. Complot**

 **\*Limited per-cent differences to fit Complot**

 **output format = -9999 to +9999 %. Complot**

 **\*OUT9 replaced NORMX Complot**

 **VERS. 2015-1 (Jan. 2015) \*Added MF=10 Radionuclide Production Complot**

 **which requires longer plot titles. Complot**

 **\*Restricted character size multiplier Complot**

 **to 0.5 to 1.5 to accommodate longer Complot**

 **plot titles. Complot**

 **\*Replaced ALL 3 way if statements. Complot**

 **VERS. 2015-2 (Mar. 2015) \*Corrected tables for X and Y axis Complot**

 **labels = see change search for 2015-2 Complot**

 **VERS. 2015-3 (Oct. 2015) \*Allow multiple LRF=7 regions plus Complot**

 **unreslved region - earlier assumed Complot**

 **LRF=7 never used unrsesolved. Complot**

 **VERS. 2017-1 (May 2017) \*For MF=2 use MT=151 to define Complot**

 **Unresolved Resonance Region (URR). Complot**

 **Ignore NJOY MT=152 and 153. Complot**

 **\*All floating input parameters changed Complot**

 **to character input + IN9 conversion. Complot**

 **\*Added MF=4 Legendre Coefficient Complot**

 **Comparison: f1 through f6 Complot**

 **Vers. 2018-1 (Jan. 2018) \*Doubled in core storage to 1,200,000. Complot**

 **\*Replaced Q MeV by MT= at top of plots Complot**

 **(Q value in ENDF is now only defined Complot**

 **in MF=3, making it difficult for all Complot**

 **other MF now treated by this code) Complot**

 **\*Initial Linear X scaling for MF=1 Complot**

 **(nu-bar) and MF=4 (Legendre) = Complot**

 **this can be turned OFF by ZOOM Complot**

 **+ Unless energy range is requested = Complot**

 **allows MF=1 and 4 default Linear X Complot**

 **scaling to be turned off by input Complot**

 **parameters, i.e., by COMHARD Complot**

 **\*Zoom lower energy limit restricted Complot**

 **1.0d-5 eV - to lower zoom of linear Complot**

 **energy plots (otherwise cannot find Complot**

 **actual lower limit on plot). Complot**

 **\*Added NRO = energy dependent scatter Complot**

 **radius to reading FILE2 parameters Complot**

 **to define unresolved energy range. Complot**

 **\*Corrected energy dependent scatter Complot**

 **for all resonance types (see, above Complot**

 **remarks). Complot**

 **Complot**

 **2015-2 Acknowledgment Complot**

 **===================== Complot**

 **I thank Chuck Whitmer (TerraPower,WA) for reporting the errors Complot**

 **that led to the 2015-2 Improvements in this code. Complot**

 **Complot**

 **I thank Jean-Christophe Sublet (UKAEA) for contributing MAC Complot**

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

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

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

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

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

 **Complot**

 **OWNED, MAINTAINED AND DISTRIBUTED BY Complot**

 **------------------------------------ Complot**

 **THE NUCLEAR DATA SECTION Complot**

 **INTERNATIONAL ATOMIC ENERGY AGENCY Complot**

 **P.O. BOX 100 Complot**

 **A-1400, VIENNA, AUSTRIA Complot**

 **EUROPE Complot**

 **Complot**

 **ORIGINALLY WRITTEN BY Complot**

 **------------------------------------ Complot**

 **Dermott E. Cullen Complot**

 **Complot**

 **PRESENT CONTACT INFORMATION Complot**

 **--------------------------- Complot**

 **Dermott E. Cullen Complot**

 **1466 Hudson Way Complot**

 **Livermore, CA 94550 Complot**

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 **Complot**

 **AUTHORS MESSAGE Complot**

 **--------------- Complot**

 **THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION Complot**

 **ALL RECENT IMPROVEMENTS. PLEASE READ ALL OF THESE COMMENTS BEFORE, Complot**

 **PARTICULARLY THE COMMENTS CONCERNING MACHINE DEPENDENT CODING. Complot**

 **Complot**

 **AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER Complot**

 **INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE Complot**

 **OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT Complot**

 **IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY Complot**

 **COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO Complot**

 **IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF Complot**

 **THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR Complot**

 **COMPUTER. Complot**

 **Complot**

 **PURPOSE Complot**

 **------- Complot**

 **COMPARE ENDF/B FORMATTED DATA FROM TWO SEPARATE INPUT TAPES. Complot**

 **REACTIONS ARE CONSIDERED TO BE COMPARABLE IF THEY HAVE THE SAME Complot**

 **(ZA,MF,MT). RESULTS ARE PRESENTED IN GRAPHICAL FORM. Complot**

 **Complot**

 **IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B Complot**

 **TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS, Complot**

 **DISK OR ANY OTHER MEDIUM. Complot**

 **Complot**

 **ON WHAT COMPUTERS WILL THE PROGRAM RUN Complot**

 **------------------------------------------------------------------ Complot**

 **THE PROGRAM HAS BEEN IMPLEMENTED ON A VARIETY OF COMPUTERS FROM Complot**

 **CRAY AND IBM MAINFRAME TO SUN WORKSTATIONS TO AN IBM-AT PC. THE Complot**

 **PROGRAM IS SMALL ENOUGH TO RUN ON VIRTUALLY ANY COMPUTER. Complot**

 **Complot**

 **THE PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE Complot**

 **(DESCRIBED BELOW) AND ALLOWS THE USER SPECIFY THE PHYSICAL SIZE Complot**

 **OF THE PLOTTER BEING USED, BY INPUT PARAMETERS. USING THESE Complot**

 **CONVENTIONS THIS PROGRAM CAN BE EASILY INTERFACED TO VIRTUALLY Complot**

 **ANY PLOTTER. Complot**

 **Complot**

 **FOR SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON, Complot**

 **(1) COMPUTER DEPENDENT CODING Complot**

 **(2) PLOTTER/GRAPHICS TERMINAL INTERFACE Complot**

 **Complot**

 **GRAPHICS INTERFACE Complot**

 **------------------------------------------------------------------ Complot**

 **THIS PROGRAM USES A SIMPLE CALCOMP LIKE GRAPHICS INTERFACE WHICH Complot**

 **REQUIRES ONLY 3 SUBROUTINES...PLOTS, PLOT AND PEN (DESCRIBED IN Complot**

 **DETAIL BELOW). ALL CHARACTERS AND SYMBOLS ARE DRAWN USING TABLES Complot**

 **OF PEN STROKES (SUPPLIED WITH THIS PROGRAM). USING THIS METHOD Complot**

 **THE PROGRAM SHOULD BE SIMPLE TO INTERFACE TO VIRTUALLY ANY PLOTTER Complot**

 **OR GRAPHICS TERMINAL AND THE APPEARANCE AND LAYOUT OF THE PLOTS Complot**

 **SHOULD BE INDEPENDENT OF WHICH PLOTTER IS USED. Complot**

 **Complot**

 **2015 PLOTTER DIMENSIONS Complot**

 **================================================================== Complot**

 **PLOTTER DIMENSIONS ARE IN INCHES - NOT CM, MM, OR CUBITS. Complot**

 **THIS IS DONE FOR HISTORICAL REASONS AND HOPEFULLY THIS WILL Complot**

 **NOT INCONVENIENCE ANYONE - IN PRACTICE I HAVE USED EXACTLY THE Complot**

 **SAME DIMENSION = X = 0 to 12.5 and Y = 0 to 10 FOR DECADES Complot**

 **TO PRODUCE BOTH ON-SCREEN AND HARDCOPY POSTSCRIPT PLOTS. Complot**

 **Complot**

 **I STRONGLY SUGGEST THAT YOU NOT CHANGE THESE DIMENSIONS UNLESS Complot**

 **YOU MUST = BASED ON THE PLOT SIZE YOU OBTAIN WHEN YOU FIRST RUN Complot**

 **THIS CODE. Complot**

 **Complot**

 **PROGRAM IDENTIFICATION Complot**

 **---------------------- Complot**

 **AS DISTRIBUTED THE FIRST FRAME OF PLOTTED OUTPUT WILL DOCUMENT Complot**

 **THE PROGRAM NAME, VERSION AND INSTALLATION. THIS INFORMATION IS Complot**

 **STORED AS DATA IN THE ARRAY VERSES NEAR THE BEGINNING OF Complot**

 **SUBROUTINE FRAME1. IF YOU WISH TO CUSTOMIZE THE OUTPUT TO IDENTIFY Complot**

 **YOUR INSTALLATION CHANGE THE LAST TWO LINES OF THE ARRAY (VERSES). Complot**

 **Complot**

 **ENDF/B FORMAT Complot**

 **------------- Complot**

 **THIS PROGRAM ONLY USES THE ENDF/B BCD OR CARD IMAGE FORMAT (AS Complot**

 **OPPOSED TO THE BINARY FORMAT) AND CAN HANDLE DATA IN ANY VERSION Complot**

 **OF THE ENDF/B FORMAT (I.E., ENDF/B-I, II,III, IV, V OR VI FORMAT). Complot**

 **Complot**

 **BOTH SETS OF EVALUATED DATA MUST BE IN THE ENDF/B FORMAT. ONLY Complot**

 **SECTIONS OF FILE 2 (RESONANCE PARAMETERS) AND FILES 3, 23 AND 27 Complot**

 **(TABULATED DATA) WILL BE READ AND ALL OTHER SECTIONS WILL BE Complot**

 **SKIPPED. IN FILE 2 THE ONLY IMPORTANT INFORMATION IS THE ENERGY Complot**

 **LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE REGION WHICH IS Complot**

 **LOCATED IN THE SAME FIELDS IN ALL VERSIONS OF THE ENDF/B FORMAT. Complot**

 **SIMILARLY THE FORMAT OF FILES 3, 23 AND 27 IS THE SAME IN ALL Complot**

 **VERSIONS OF ENDF/B. THEREFORE THIS PROGRAM CAN BE USED WITH DATA Complot**

 **IN ANY ENDF/B FORMAT (I.E. ENDF/B-I, II, III, IV, V OR VI). Complot**

 **Complot**

 **CROSS SECTION INTERPOLATION Complot**

 **--------------------------- Complot**

 **CROSS SECTIONS MUST BE IN EITHER HISTOGRAM (I.E., INTERPOLATION Complot**

 **LAW 1) OR LINEARLY INTERPOLABLE (I.E. INTERPOLATION LAW 2) FORM. Complot**

 **IF THEY ARE NOT A WARNING MESSAGE WILL BE PRINTED AND EXECUTION Complot**

 **WILL BE TERMINATED. SEE INSTRUCTIONS BELOW ON HOW TO CONVERT Complot**

 **DATA TO HISTOGRAM OR LINEARLY INTERPOLABLE FORM. Complot**

 **Complot**

 **REACTION INDEX Complot**

 **-------------- Complot**

 **THIS PROGRAM DOES NOT USE THE REACTION INDEX WHICH IS GIVEN IN Complot**

 **SECTION MF=1, MT=451 OF EACH EVALUATION. Complot**

 **Complot**

 **SECTION SIZE Complot**

 **------------ Complot**

 **SINCE THIS PROGRAM USES A LOGICAL PAGING SYSTEM THERE IS NO LIMIT Complot**

 **TO THE NUMBER OF POINTS IN ANY SECTION, E.G., THE TOTAL CROSS Complot**

 **SECTION MAY BE REPRESENTED BY 200,000 DATA POINTS. Complot**

 **Complot**

 **DATA SELECTION Complot**

 **-------------- Complot**

 **THE USER MAY SPECIFYING THE DATA TO BE COMPARED BY INPUTTING UP Complot**

 **TO 100 MAT/MT/ENERGY OR ZA/MT/ENERGY RANGES. IF THE UPPER LIMIT Complot**

 **OF THE MAT OR ZA RANGE IS LESS THAN THE LOWER LIMIT IT WILL BE SET Complot**

 **EQUAL TO THE LOWER LIMIT (I.E. THIS INDICATE ONLY COMPARE ONE Complot**

 **MAT OR ZA). IF THE UPPER LIMIT IS STILL ZERO IT WILL BE SET TO Complot**

 **9999 (NO LIMIT). IF THE UPPER MF OR MT LIMIT IS ZERO IT WILL BE Complot**

 **SET TO 99 OR 999, RESPECTIVELY (NO LIMIT). IF THE UPPER ENERGY Complot**

 **LIMIT IS ZERO IT WILL BE SET TO A LARGE NUMBER (NO LIMIT). Complot**

 **Complot**

 **THE LIST OF RANGES MUST BE TERMINATED BY A BLANK LINE (I.E. ZERO Complot**

 **LOWER AND UPPER MAT/MF/MT OR ZA/MF/MT LIMITS). Complot**

 **Complot**

 **IF THE FIRST RANGE LINE IS BLANK THIS LINE WILL TERMINATE THE Complot**

 **LIST OF REQUESTS (I.E. A SECOND BLANK LINE NEED NOT BE INPUT) Complot**

 **AND ALL PHYSICALLY COMPARABLE DATA WILL BE PLOTTED. Complot**

 **Complot**

 **WHICH REACTIONS WILL BE PLOTTED Complot**

 **------------------------------- Complot**

 **THOSE REACTIONS WITH THE SAME (ZA, MF, MT) WILL BE COMPARED, BUT Complot**

 **ONLY THOSE DATA WHICH DIFFER BY A USER SPECIFIED ALLOWABLE Complot**

 **DIFFERENCE WILL BE PLOTTED. IN ORDER TO FORCE ALL COMPARABLE Complot**

 **REACTIONS TO BE PLOTTED THE USER NEED ONLY SPECIFY AN ALLOWABLE Complot**

 **DIFFERENCE OF ZERO. Complot**

 **Complot**

 **EQUIVALENT REACTIONS Complot**

 **-------------------- Complot**

 **IN ORDER TO COMPARE REACTIONS WHICH HAVE DIFFERENT ZA, MF OR MT Complot**

 **THE USER IS ALLOWED TO SPECIFY AN EQUIVALENCE LIST OF UP TO Complot**

 **100 (ZA,MF,MT) COMBINATIONS ON THE MASTER FILE WHICH ARE TO BE Complot**

 **EQUATED TO DIFFERENT (ZA,MF,MT) ON THE SECOND FILE. THIS OPTION Complot**

 **MAY BE USED TO COMPARE SIMILAR REACTIONS FROM DIFFERENT MATERIALS Complot**

 **(E.G. IRON AND NICKEL INELASTIC SCATTERING) OR DIFFERENT REACTIONS Complot**

 **FROM THE SAME OR DIFFERENT MATERIALS (E.G. U-235 CAPTURE AND Complot**

 **FISSION - IN WHICH CASE THE RATIO WILL BE THE CAPTURE TO FISSION Complot**

 **RATIO) OR THE SAME REACTION IN DIFFERENT VERSIONS OF THE ENDF/B Complot**

 **FORMAT WHICH MAY BE ASSIGNED DIFFERENT MT NUMBERS, E.G., THE Complot**

 **PHOTOELECTRIC CROSS SECTION IS MT=602 IN ENDF/B-V AND EARLIER Complot**

 **VERSIONS OF ENDF/B, BUT IS MT=522 IN ENDF/B-VI. Complot**

 **Complot**

 **IN THESE EQUIVALENCE LISTS A ZERO FIELD IMPLIES ALL. FOR EXAMPLE, Complot**

 **TO EQUATE MT=522 FROM ONE FILE TO MT=602 ON THE OTHER, FOR ALL Complot**

 **MATERIALS, ONE NEED ONLY SPECIFY ZA=0, MF=23, MT=522 EQUIVALENT Complot**

 **TO ZA=0, MF=23 AND MT=602. Complot**

 **Complot**

 **PLOT FORMATS Complot**

 **------------ Complot**

 **THE TWO CROSS SECTIONS ARE CONSIDERED TO BE A STANDARD (THE FIRST Complot**

 **CROSS SECTION) AND A CROSS SECTION TO BE COMPARED TO THE STANDARD Complot**

 **(THE SECOND CROSS SECTION). THE OUTPUT FROM THIS PROGRAM IS A Complot**

 **SERIES OF PLOTS. EACH PLOT WILL CONTAIN THE STANDARD CROSS SECTION Complot**

 **AND IN ADDITION THE USER MAY SPECIFY THAT EACH PLOT ALSO CONTAIN Complot**

 **THE SECOND CROSS SECTION AND/OR THE RATIO OF THE SECOND CROSS Complot**

 **SECTION TO THE FIRST CROSS SECTION. Complot**

 **Complot**

 **THE USER MAY SELECT ONE OF THE FOLLOWING FIVE PLOT FORMATS (THE Complot**

 **NUMBER PRECEDING THE OPTION IS THE VALUE OF THE PLOT MODE SELECTOR Complot**

 **THAT THE USER SHOULD SPECIFY AS INPUT ON THE FIRST LINE). Complot**

 **Complot**

 **(0) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot**

 **RATIO OF THE SECOND EVALUATION TO THE FIRST EVALUATION. THE Complot**

 **DATA WILL BE PRESENETED AS TWO SUB-PLOTS PER PLOT WITH THE Complot**

 **STANDARD CROSS SECTION IN THE UPPER HALF OF THE PLOT AND THE Complot**

 **RATIO IN THE LOWER HALF OF THE PLOT. Complot**

 **Complot**

 **(1) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot**

 **SECOND EVALUATION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS Complot**

 **PER PLOT WITH THE STANDARD CROSS SECTION ON THE UPPER HALF Complot**

 **OF THE PLOT AND THE SECOND CROSS SECTION IN THE LOWER HALF OF Complot**

 **THE PLOT. Complot**

 **Complot**

 **(2) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE Complot**

 **SECOND EVALUATION. THE DATA WILL BE PRESENTED AS ONE PLOT Complot**

 **CONTAINING BOTH THE STANDARD AND SECOND CROSS SECTION. THE Complot**

 **STANDARD CROSS SECTION WILL BE PRESENTED AS A SOLID LINE AND Complot**

 **THE SECOND CROSS SECTION WILL BE PRESENTED AS A DASHED LINE. Complot**

 **Complot**

 **(3) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF Complot**

 **THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA Complot**

 **WILL BE PRESENTED AS THREE SUB-PLOTS PER PLOT WITH THE Complot**

 **STANDARD CROSS SECTION IN THE UPPER THIRD OF THE PLOT, THE Complot**

 **SECOND CROSS SECTION IN THE MIDDLE THIRD AND THE RATIO OF THE Complot**

 **TWO IN THE LOWER THIRD OF THE PLOT (RECOMMENDED OPTION). Complot**

 **Complot**

 **(4) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF Complot**

 **THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA Complot**

 **WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD Complot**

 **AND SECOND CROSS SECTION ON THE SAME SUB-PLOT IN THE UPPER Complot**

 **TWO THIRDS OF THE PLOT AND THE RATIO OF THE TWO IN THE LOWER Complot**

 **THIRD OF THE PLOT. THE STANDARD CROSS SECTION WILL BE Complot**

 **PRESENTED AS A SOLID LINE AND THE SECOND CROSS SECTION WILL BE Complot**

 **PRESENTED AS A DASHED LINE. Complot**

 **Complot**

 **ADDITIONAL PLOT FEATURES Complot**

 **------------------------ Complot**

 **IN ADDITION TO THE CROSS SECTIONS AND/OR RATIO THE FOLLOWING Complot**

 **INFORMATIONS WILL BE INCLUDED ON EACH PLOT. Complot**

 **Complot**

 **(1) AN IDENTIFICATION FOR EACH SET OF CROSS SECTIONS (UP TO 30 Complot**

 **CHARACTERS FOR EACH SET). Complot**

 **Complot**

 **(2) THE MAXIMUM NEGATIVE AND POSITIVE PER-CENT DIFFERENCE BETWEEN Complot**

 **THE TWO CROSS SECTIONS. Complot**

 **Complot**

 **(3) ARROWS INDICATING THE ENERGY AT WHICH THE MAXIMUM DIFFERENCES Complot**

 **(MINIMUM AND MAXIMUM RATIO) OCCUR. Complot**

 **Complot**

 **(4) THE ENERGY LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE Complot**

 **REGION (IF THEY FALL WITHIN THE ENERGY LIMITS OF THE PLOT). Complot**

 **Complot**

 **RATIO DATA Complot**

 **---------- Complot**

 **IF RATIO OUTPUT IS REQUESTED THE RATIO WILL BE DEFINED AT EACH Complot**

 **ENERGY THAT APPEARS IN EITHER EVALUATION. BETWEEN THESE ENERGIES Complot**

 **THE RATIO WILL BE PLOTTED ASSUMING LINEAR DEPENDENCE BETWEEN Complot**

 **TABULATED VALUES. FOR HISTOGRAM OR LINEARLY INTERPOLABLE CROSS Complot**

 **SECTIONS THIS REPRESENTATION WILL POINT OUT ALL EXTREMA OF THE Complot**

 **RATIO, BUT NOT NECESSARILY THE ENERGY DEPENDENCE BETWEEN TABULATED Complot**

 **VALUES. Complot**

 **Complot**

 **IF THE EVALUATED DATA IS NOT IN EITHER HISTOGRAM OR LINRARLY Complot**

 **INTERPOLABLE FORM THE RATIO MAY NOT EVEN FIND ALL EXTREMA. FOR Complot**

 **EXAMPLE, IF ONE EVALUATION IS LINEARLY INTERPOLABLE AND THE Complot**

 **OTHER NON-LINEAR, BUT BOTH AGREE AT ALL TABULATED ENERGIES THE Complot**

 **RATIO WILL APPEAR TO BE EQUAL TO UNITY AT ALL ENERGIES, BUT IN Complot**

 **FACT THE CROSS SECTION BETWEEN TABULATED ENERGIES MAY BE QUITE Complot**

 **DIFFERENT USING LINEAR VS. NON-LINEAR INTERPOLATION. FOR THIS Complot**

 **REASON ONLY LINEARLY INTERPOLABLE OR HISTOGRAM DATA IS ALLOWED Complot**

 **AS INPUT TO THIS PROGRAM. Complot**

 **Complot**

 **LINEAR INTERPOLABLE Complot**

 **------------------- Complot**

 **ALL CROSS SECTIONS MAY BE CONVERTED TO LINEARLY INTERPOLABLE FORM Complot**

 **BE USING PROGRAM LINEAR (UCRL-50400, VOL. 17, PART A). Complot**

 **Complot**

 **HISTOGRAM Complot**

 **--------- Complot**

 **ALL LINEARLY INTERPOLABLE CROSS SECTION MAY BE CONVERTED TO Complot**

 **HISTOGRAM (I.E. MULTIGROUP) FORM BY USING PROGRAM GROUPIE Complot**

 **(UCRL-50400, VOL. 17, PART D). Complot**

 **Complot**

 **INPUT UNITS Complot**

 **----------- Complot**

 **UNIT DESCRIPTION Complot**

 **---- ----------- Complot**

 **2 INPUT LINE Complot**

 **9 MT DEFINITIONS. Complot**

 **10 FIRST ENDF/B FORMATTED EVALUATION (STANDARD). Complot**

 **11 SECOND ENDF/B FORMATTED EVALUATION. Complot**

 **17 SOFTWARE CHARACTERS. Complot**

 **18 SOFTWARE SYMBOLS AND LINE TYPES Complot**

 **Complot**

 **OUTPUT UNITS Complot**

 **------------ Complot**

 **UNIT DESCRIPTION Complot**

 **---- ----------- Complot**

 **3 NORMAL OUTPUT REPORT. Complot**

 **16 PLOTTER UNIT Complot**

 **Complot**

 **SCRATCH UNITS Complot**

 **------------- Complot**

 **UNIT DESCRIPTION Complot**

 **---- ----------- Complot**

 **12 SCRATCH UNIT FOR FIRST EVALUATION Complot**

 **13 SCRATCH UNIT FOR SECOND EVALUATION Complot**

 **14 SCRATCH UNIT FOR RATIO (ONLY USED IF RATIOS REQUESTED). Complot**

 **Complot**

 **OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2) Complot**

 **--------------------------------------------------------------- Complot**

 **UNIT FILE NAME Complot**

 **---- ---------- Complot**

 **2 COMPLOT.INP Complot**

 **3 COMPLOT.LST Complot**

 **9 MT.DAT Complot**

 **10 ENDFB.IN1 (OR AS READ FROM INPUT) Complot**

 **11 ENDFB.IN2 (OR AS READ FROM INPUT) Complot**

 **12-14 (SCRATCH) Complot**

 **15 PLOT.CHR Complot**

 **16 (PLOTTER UNIT...USUALLY A DUMMY) Complot**

 **Complot**

 **INPUT PARAMETERS Complot**

 **------------------------------------------------------------------ Complot**

 **LINE COLUMNS FORMAT DESCRIPTION Complot**

 **---- ------- ------ ----------- Complot**

 **1 1-11 E11.4 LOWER X LIMIT OF PLOTTER Complot**

 **12-22 E11.4 UPPER X LIMIT OF PLOTTER Complot**

 **23-33 E11.4 LOWER Y LIMIT OF PLOTTER Complot**

 **34-44 E11.4 UPPER Y LIMIT OF PLOTTER Complot**

 **45-55 I11 NUMBER OF PLOTS PER FRAME IN X DIRECTION Complot**

 **56-66 I11 NUMBER OF PLOTS PER FRAME IN Y DIRECTION Complot**

 **67-70 F4.1 CHARACTER SIZE MULTIPLIER Complot**

 **= 0 TO 1 - NORMAL CHARACTER SIZE Complot**

 **= OTHERWISE - CHARACTERS SCALED BY THIS Complot**

 **FACTOR Complot**

 **Complot**

 **PLOT ORIENTATION IS BASED ON THE UPPER X Complot**

 **LIMIT Complot**

 **= .GT.0 - X HORIZONTAL/Y VERTICAL Complot**

 **= .LT.0 - Y HORIZONTAL/X VERTICAL Complot**

 **AFTER TESTING THE UPPER X LIMIT WILL BE Complot**

 **SET TO ITS ABSOLUTE VALUE. Complot**

 **2 1-72 A72 FILENAME FOR FIRST ENDF/B DATA FILE Complot**

 **(LEAVE BLANK FOR ENDFB.IN1) Complot**

 **3 1-72 A72 FILENAME FOR SECOND ENDF/B DATA FILE Complot**

 **(LEAVE BLANK FOR ENDFB.IN2) Complot**

 **4 1-11 I11 RETRIEVAL MODE (0=MAT, 1=ZA) Complot**

 **12-22 I11 GRID (SPEED) OPTION. Complot**

 **= 0 - TICK MARKS ON BORDER Complot**

 **= 1 - SOLID AT COARSE INTERVALS Complot**

 **= 2 - DASHED AT COARSE INTERVALS Complot**

 **= 3 - SOLID AT COARSE AND FINE INTERVALS Complot**

 **= 4 - DASHED AT COARSE AND FINE INTERVALS Complot**

 **= 5 - SOLID COARSE/DASHED FINE INTERVALS Complot**

 **23-33 I11 SHOULD BORDER BE PLOTTED AROUND EACH PLOT Complot**

 **= 0 - NO Complot**

 **= 1 - YES Complot**

 **34-44 I11 LINE THICKNESS Complot**

 **= 0 TO 5 - LINES AND CHARACTERS Complot**

 **=-1 TO -5 - ONLY LINES Complot**

 **45-55 I11 OUTPUT MODE Complot**

 **=-1 - ONLY COMPARISON LISTING. NO PLOTS. Complot**

 **= 0 - CROSS SECTION OVER RATIO. Complot**

 **= 1 - CROSS SECTION OVER CROSS SECTION. Complot**

 **= 2 - TWO CROSS SECTIONS ON SAME PLOT. Complot**

 **= 3 - CROSS SECTION OVER CROSS SECTION OVER Complot**

 **RATIO. Complot**

 **= 4 - TWO CROSS SECTIONS ON SAME PLOT OVER Complot**

 **RATIO. Complot**

 **56-66 I11 STARTING PLOT NUMBER Complot**

 **= 0 - DO NOT NUMBER PLOTS Complot**

 **= .GT.0 - NUMBER PLOTS IN LOWER LEFT HAND Complot**

 **CORNER STARTING WITH INPUT NUMBER Complot**

 **67-70 I41 BACKGROUND COLOR Complot**

 **= 0 = BLACK Complot**

 **= OTHERWISE = WHITE Complot**

 **5 1-11 E11.4 ALLOWABLE FRACTIONAL DIFFERENCE. USED WHEN Complot**

 **PLOTTING RATIOS. ANY REACTION WHERE THE Complot**

 **TWO EVALUATIONS DIFFER BY MORE THAN THE Complot**

 **ALLOWABLE DIFFERENCE WILL BE PLOTTED. IF Complot**

 **ZERO IS INPUT THE STANDARD ALLOWABLE Complot**

 **DIFFERENCE OF 0.001 (0.1 PER-CENT) WILL BE Complot**

 **USED. Complot**

 **12-22 E11.4 MAXIMUM ALLOWABLE RATIO. IF RATIOS ARE Complot**

 **PLOTTED THEY WILL BE IN THE RANGE RATMAX Complot**

 **TO 1/RATMAX. IF 0.0 IS INPUT THERE WILL Complot**

 **BE NO LIMIT ON THE RANGE OF THE RATIOS. Complot**

 **THIS OPTION MAY BE USED TO IGNORE LARGE Complot**

 **DIFFERENCES OVER VERY NARROW ENERGY RANGES Complot**

 **(WHICH MAY BE UNIMPORTANT) AND ALLOW ONE Complot**

 **TO SEE IMPORTANT, BUT SMALLER DIFFERENCES, Complot**

 **OVER EXTENDED ENERGY RANGES. Complot**

 **6 1-40 40A1 IDENTIFICATION FOR UPPER EVALUATIONS Complot**

 **7 1-40 40A1 IDENTIFICATION FOR LOWER EVALUATIONS Complot**

 **(IDENTIFICATIONS SHOULD BE LEFT ADJUSTED Complot**

 **TO START IN COLUMN 1). Complot**

 **8-N 1- 6 I6 LOWER MAT OR ZA LIMIT (SEE SELECTION MODE, Complot**

 **INPUT LINE 1, COLUMNS 1-11). Complot**

 **7- 8 I2 LOWER MF LIMIT Complot**

 **9-11 I3 LOWER MT LIMIT Complot**

 **12-22 E11.4 LOWER ENERGY LIMIT Complot**

 **23-28 I6 UPPER MAT OR ZA LIMIT (SEE SELECTION MODE, Complot**

 **INPUT LINE 1, COLUMNS 1-11). Complot**

 **29-30 I2 UPPER MF LIMIT Complot**

 **31-33 I3 UPPER MT LIMIT Complot**

 **34-44 E11.4 UPPER ENERGY LIMIT Complot**

 **45-55 I11 IDENTIFY EVALUATED DATA POINTS OPTION. Complot**

 **= 0 - DO NOT IDENTIFY DATA POINTS. Complot**

 **= 1 - IDENTIFY DATA POINTS (BY DRAWING A Complot**

 **SMALL BOX AROUND EACH POINT). Complot**

 **56-66 I11 INTERACTIVE INPUT FLAG Complot**

 **= 0 - NO INTERACTIVE INPUT ALLOWED Complot**

 **= 1 - INTERACTIVE INPUT ALLOWED Complot**

 **\*SETTING THIS OPTION =1 WILL TURN ON THE Complot**

 **MOUSE AFTER EACH PLOT AND ALLOW YOU TO Complot**

 **INTERACTIVELY SPECIFY PLOT LIMITS. Complot**

 **\*IF YOU DO NOT WISH TO INTERACT WITH A PLOT Complot**

 **OR IF YOU HAVE NO INTERACTIVE CAPABILITY Complot**

 **THIS OPTION SHOULD BE SET = 0. Complot**

 **Complot**

 **\*WARNING...DATA POINTS IDENTIFIED OPTION IS Complot**

 **NOT RECOMMENDED FOR PLOTS CONTAINING MANY Complot**

 **(I.E. THOUSANDS) OF DATA POINTS SINCE IT Complot**

 **WILL MERELY INCREASE THE RUNNING TIME OF Complot**

 **THE PROGRAM AND STILL NOT ALLOW ONE TO Complot**

 **ACCURATELY SEE DATA POINTS. Complot**

 **Complot**

 **\*UP TO 100 MAT OR ZA RANGES ARE ALLOWED. Complot**

 **THE LIST IS TERMINATED BY A BLANK LINE. Complot**

 **IF THE UPPER LIMIT IS LESS THAN THE LOWER Complot**

 **LIMIT IT WILL BE SET EQUAL TO THE LOWER Complot**

 **LIMIT. IF THE FIRST RANGE LINE IS BLANK Complot**

 **ALL DATA WILL BE RETRIEVED. IF THE UPPER Complot**

 **MT LIMIT IS ZERO IT WILL BE SET EQUAL TO Complot**

 **999 (NO LIMIT). IF THE UPPER ENERGY LIMIT Complot**

 **IS ZERO IT WILL BE INTREPRETED TO MEAN NO Complot**

 **LIMIT. IF THE FIRST RANGE LINE SPECIFIES Complot**

 **ZERO LOWER AND UPPER MAT OR ZA RANGE IT Complot**

 **WILL TERMINATE THE LIST BE RANGE LINES Complot**

 **(A SECOND BLANK LINE NEED NOT BE INPUT) Complot**

 **AND THE ENTIRE RANGE OF MATS WILL BE Complot**

 **COMPARED FOR THE SPECIFIED MT AND ENERGY Complot**

 **RANGES. Complot**

 **Complot**

 **N+1-M EQUIVALENCES Complot**

 **1- 6 I6 MASTER ZA. Complot**

 **7- 8 I2 MASTER MF. Complot**

 **9-11 I3 MASTER MT. Complot**

 **12-17 I6 EQUIVALENT ZA FROM SECOND FILE. Complot**

 **18-19 I2 EQUIVALENT MF FROM SECOND FILE. Complot**

 **20-22 I3 EQUIVALENT MT FROM SECOND FILE. Complot**

 **23-33 E11.4 MULTIPLICATION FACTOR. ANY EQUATED ZA,MF, Complot**

 **MT DATA WILL BE MULTIPLIED BY THIS FACTOR. Complot**

 **\*THIS OPTION MAY BE USED TO RE-NORMALIZE Complot**

 **THE SECOND CROSS SECTION OR IF COMPARING Complot**

 **ONE CONSTITUENT OF A MIXTURE TO THE MIXED Complot**

 **CROSS SECTION THIS MAY BE USED TO CONVERT Complot**

 **THE SECOND CROSS SECTION TO BARNS PER MIXED Complot**

 **ATOM BY USING A MULTIPLICATION FACTOR WHICH Complot**

 **IS EQUAL TO THE NUMBER OF ATOMS OF THE ONE Complot**

 **CONSTITUENT PER ATOM OF THE MIXTURE. Complot**

 **= 0.0 - ON INPUT WILL BE INTERPRETED AS 1.0 Complot**

 **(WITH THIS CONVENTION THE USER NEED ONLY Complot**

 **INPUT MULTIPLICATION FACTORS IF THEY ARE Complot**

 **NOT 1.0). Complot**

 **\*UP TO 100 MAT OR ZA EQUIVALENCES ARE Complot**

 **ALLOWED. Complot**

 **\*THE LIST IS TERMINATED BY A BLANK LINE. Complot**

 **\*A ZERO INPUT FIELD IMPLIES ALL. TO EQUATE Complot**

 **A GIVEN MT NUMBER TO ANOTHER MT NUMBER YOU Complot**

 **NEED MERELY SPECIFY ZA=0 ON INPUT. Complot**

 **\*NOTE, IN ALL CASES THE TITLE AT TOP OF PLOT Complot**

 **WILL ONLY INDENTIFY MASTER (ZA,MF,MT). THE Complot**

 **USER INPUT TITLES MUST BE USED TO IDENTIFY Complot**

 **THE SECOND REACTION (SEE, EXAMPLE INPUT 4 Complot**

 **BELOW). Complot**

 **Complot**

 **EXAMPLE DEFINITION OF PLOTTER Complot**

 **----------------------------- Complot**

 **2015 - WARNING - THE FOLLOWING DESCRIPTION IS OUT-OF-DATE. Complot**

 **TODAY THE DIMENSIONS OF THE PLOTTER ARE IN INCHES. Complot**

 **Complot**

 **THE FIRST INPUT LINE DEFINES THE DIMENSIONS OF THE PLOTTER BEING Complot**

 **USED IN ANY UNITS (INCHES, CENTIMETERS, MILLIMETERS, ANYTHING) Complot**

 **WHICH APPLY TO THE PLOTTER. IN ADDITION THE FIRST LINE DEFINES Complot**

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

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

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

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

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

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

 **Complot**

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

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

 **LINE SHOULD BE, Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **Complot**

 **IF THE LOCAL PLOTTER USES DIMENSION OF MILLIMETERS THE SAME Complot**

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

 **Complot**

 **0.0 254.0 0.0 254.0 3 2 Complot**

 **Complot**

 **FOR SIMPLICITY THE FOLLOWING EXAMPLE INPUTS WILL NOT DISCUSS THE Complot**

 **PHYSICAL DIMENSIONS OF THE PLOTTER AND THE FIRST INPUT LINE WILL Complot**

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

 **FRAME. Complot**

 **Complot**

 **IN THE FOLLOWING EXAMPLES IN ALL CASES THESE OPTIONS WILL BE USED, Complot**

 **1) DASHED GRID - COLUMNS 12-22 OF SECOND INPUT LINE = 1 Complot**

 **2) NO BORDER - COLUMNS 23-33 OF SECOND INPUT LINE = 0 Complot**

 **3) LINE THICKNESS - COLUMNS 34-44 OF SECOND INPUT LINE = -2 Complot**

 **4) OUTPUT MODE - COLUMNS 45-55 OF SECOND INPUT LINE = 3 Complot**

 **5) FIRST PLOT NUMBER - COLUMNS 56-66 OF SECOND INPUT LINE = 1 Complot**

 **Complot**

 **EXAMPLE INPUT 1 Complot**

 **--------------- Complot**

 **RETRIEVE MATS 1023, 1056 AND 1065 THROUGH 1072, MT = 1 AND 2 Complot**

 **(TOTAL AND ELASTIC) FROM THE FIRST INPUT FILE AND COMPARE TO Complot**

 **ANY SECTION FROM THE SECOND FILE THAT HAS THE SAME ZA/MF/MT. ONLY Complot**

 **COMPARE DATA OVER THE ENERGY RANGE 0.1 EV TO 1 KEV. IDENTIFY Complot**

 **THE TWO SETS OF DATA AS ENDF/B-V AND ENDF/B-IV, RESPECTIVELY. Complot**

 **ONLY PLOT THOSE REACTIONS WHICH DIFFER AT ONE OR MORE ENERGIES Complot**

 **BY MORE THAN 1 PER-CENT (NOTE, 1 PER-CENT = 0.01 AS INPUT Complot**

 **FRACTION). NO EQUIVALENT REACTIONS ARE SPECIFIED. FILERNAMES Complot**

 **ARE STANDARD (THSE CAN EITHER BE EXPLICITLY INCLUDED, OR SIMPLY Complot**

 **LEFT BLANK). Complot**

 **Complot**

 **THE FOLLOWING 12 INPUT LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **ENDFB.IN1 Complot**

 **ENDFB.IN2 Complot**

 **0 1 0 -2 3 1 Complot**

 **0.01 0.0 Complot**

 **ENDF/B-V DATA (STANDARD) Complot**

 **ENDF/B-IV DATA Complot**

 **1023 3 1 0.1 3 2 1000.0 0 Complot**

 **1056 3 1 0.1 3 2 1000.0 0 Complot**

 **1065 3 1 0.1 1072 3 2 1000.0 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **Complot**

 **EXAMPLE INPUT 2 Complot**

 **--------------- Complot**

 **TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1, Complot**

 **EXCEPT TO RETRIEVE U-235, U-238 AND PU-239 THROUGH PU-242 THE Complot**

 **FOLLOWING 12 INPUT LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **ENDFB.IN1 Complot**

 **ENDFB.IN2 Complot**

 **1 1 0 -2 3 1 Complot**

 **0.01 0.0 Complot**

 **ENDF/B-V DATA (STANDARD) Complot**

 **ENDF/B-IV DATA Complot**

 **92235 3 1 0.1 3 2 1000.0 0 Complot**

 **92238 3 1 0.1 3 2 1000.0 0 Complot**

 **94239 3 1 0.1 94242 3 2 1000.0 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **EXAMPLE INPUT 3 Complot**

 **--------------- Complot**

 **TO USE ALL OF THE SAME OPTIONS AS SPECIFIED IN EXAMPLE INPUT 1, Complot**

 **EXCEPT TO RETRIEVE AND COMPARE ALL MATS THE FOLLOWING 10 INPUT Complot**

 **LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **ENDFB.IN1 Complot**

 **ENDFB.IN2 Complot**

 **0 1 0 -2 3 1 Complot**

 **0.01 0.0 Complot**

 **ENDF/B-V DATA (STANDARD) Complot**

 **ENDF/B-IV DATA Complot**

 **1 1 1 0.0 999999999 0.0 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **NOTE, ZERO LOWER AND UPPER Complot**

 **MAT LIMITS INDICATES NO LIMIT. Complot**

 **Complot**

 **EXAMPLE INPUT 4 Complot**

 **--------------- Complot**

 **RETRIEVE U-235 AND EQUATE THE FISSION CROSS SECTION (MT=18) ON Complot**

 **THE MASTER FILE TO CAPTURE (MT=102) ON THE SECOND FILE. PLOT Complot**

 **THE CAPTURE, FISSION AND CAPTURE TO FISSION RATIO OVER THE ENERGY Complot**

 **RANGE 0.0253 EV TO 1 KEV. THE FOLLOWING 11 INPUT LINES ARE Complot**

 **REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **ENDFB.IN1 Complot**

 **ENDFB.IN2 Complot**

 **1 1 0 -2 3 1 Complot**

 **0.01 0.0 Complot**

 **FISSION Complot**

 **CAPTURE Complot**

 **92235 3 18 0.0253 92235 3 18 1000.0 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **92235 3 18 92235 3102 (MULTIPLICATION OF 1.0 INFERRED) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **Complot**

 **EXAMPLE INPUT 5 Complot**

 **--------------- Complot**

 **IN DIFFERENT VERSIONS OF THE ENDF/B FORMAT DIFFERENT MT NUMBERS Complot**

 **ARE ASSIGNED TO THE SAME REACTION. FOR EXAMPLE, IN ENDF/B-V AND Complot**

 **EARLIER VERSIONS OF ENDF/B THE PHOTOELECTRIC CROSS SECTION IS Complot**

 **MT=602, WHILE IN ENDF/B-VI IT IS MT=522. IN ORDER TO COMPARE Complot**

 **ASSUMING THAT THE MASTER IS ENDF/B-VI AND THE OTHER ENDF/B FILE Complot**

 **IS ENDF/B-V (OR EARLIER) YOU MAY EQUATE MT=522 TO 602. Complot**

 **Complot**

 **WHEN COMPARING PHOTOELECTRIC CROSS SECTIONS WE EXPECT THERE TO BE Complot**

 **LARGE DIFFERENCES NEAR EDGES, SINCE IT IS UNLIKELY THAT TWO Complot**

 **INDEPENDENT EVALUATIONS USE EXACTLY THE SAME EDGE ENERGIES. FROM Complot**

 **A PRACTICAL VIEWPOINT THESE DIFFERENCES ARE NOT IMPORTANT IF THEY Complot**

 **ONLY OCCUR OVER NARROW ENERGY RANGES NEAR ENERGIES. HOWEVER THESE Complot**

 **LARGE DIFFERENCES MAY MAKE IT DIFFICULT TO SEE DIFFERENCES OVER Complot**

 **OTHER ENERGY RANGES, WHICH MAY BE IMPORTANT. IN ORDER TO BE ABLE Complot**

 **TO SEE IMPORTANT DIFFERENCES IN THE FOLLOWING COMPARISON WE WILL Complot**

 **CONSTRAIN THE PLOTTED RATIO TO THE RANGE ABOUT 0.9 TO 1.1 IN Complot**

 **ORDER TO BE ABLE TO SEE DIFFERENCES OF UP TO 10 PER-CENT. WE WILL Complot**

 **DO THIS BY SPECIFYING A MAXIMUM RATIO OF 1.1, WHICH WILL IN TURN Complot**

 **DEFINE A MINIMUM RATIO OF 1/1.1, OR ABOUT 0.9. Complot**

 **Complot**

 **IN ORDER TO COMPARE THE PHOTOELECTRIC CROSS SECTION FOR ALL Complot**

 **MATERIALS THE FOLLOWING 11 INPUT LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **ENDFB.IN1 Complot**

 **ENDFB.IN2 Complot**

 **0 1 0 -2 3 1 Complot**

 **0.01 1.1 Complot**

 **ENDF/B-VI Complot**

 **ENDF/B-V Complot**

 **023522 999923522 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **Complot**

 **EXAMPLE INPUT 6 Complot**

 **--------------- Complot**

 **THE SAME EXAMPLE AS ABOVE, EXCEPT THAT DIFFERENT FILENAMES WILL Complot**

 **BE USED TO READ THE DATA FROM A FILE TREE STRUCTURE. THE FOLLOWING Complot**

 **11 INPUT LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 10.0 0.0 10.0 3 2 Complot**

 **/Evaluated/ENDFB6/PHOTON.IN Complot**

 **/Evaluated/ENDFB5/PHOTON.IN Complot**

 **0 1 0 -2 3 1 Complot**

 **0.01 1.1 Complot**

 **ENDF/B-VI Complot**

 **ENDF/B-V Complot**

 **023522 999923522 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **Complot**

 **EXAMPLE INPUT 7 Complot**

 **--------------- Complot**

 **THE OUTPUT FOR ALL OF THE ABOVE EXAMPLES ARE ORIENTED WITH X Complot**

 **HORIZONTAL AND Y VERTICAL. TO CHANGE THE ORIENTATION OF THE PLOTS Complot**

 **YOU NEED MERELY SPECIFY A NEGATIVE UPPER X LIMIT OF THE SIZE OF Complot**

 **THE PLOTS ON THE FIRST INPUT LINE. Complot**

 **Complot**

 **THE FOLLOWING EXAMPLE IS EXACTLY THE SAME AS THE ABOVE EXAMPLE, Complot**

 **EXCEPT THAT THE ORIENTATION OF THE PLOTS HAS BEEN CHANGED. THE Complot**

 **FOLLOWING 11 INPUT LINES ARE REQUIRED. Complot**

 **Complot**

 **0.0 -10.0 0.0 10.0 3 2 Complot**

 **/Evaluated/ENDFB6/PHOTON.IN Complot**

 **/Evaluated/ENDFB5/PHOTON.IN Complot**

 **0 1 0 -2 3 1 Complot**

 **0.01 1.1 Complot**

 **ENDF/B-VI Complot**

 **ENDF/B-V Complot**

 **023522 999923522 0 Complot**

 **(TERMINATES REQUEST LIST) Complot**

 **023522 023602 (MULTIPLICATION OF 1.0 INFERRED) Complot**

 **(TERMINATES EQUIVALENCE LIST) Complot**

 **Complot**

 **===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Complot**

 **Complot**

 **NON-INTERACTIVE Complot**

 **------------------------------------------------------------------ Complot**

 **THIS PROGRAM USES A SIMPLE CALCOMP LIKE INTERFACE INVOLVING Complot**

 **ONLY 5 SUBROUTINES, Complot**

 **Complot**

 **STARPLOT - INITIALIZE PLOTTER Complot**

 **NEXTPLOT - CLEAR SCREEN FOR NEXT PLOT Complot**

 **ENDPLOTS - TERMINATE PLOTTING Complot**

 **Complot**

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

 **END OF CURRENT PLOT OR END OF PLOTTING. Complot**

 **IPEN = 2 - DRAW Complot**

 **= 3 - MOVE Complot**

 **Complot**

 **PEN(IPEN) - SELECT COLOR. Complot**

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

 **Complot**

 **BOXCOLOR(X,Y,IFILL,IBORDER) - FILL A RECTANGLE WITH COLOR Complot**

 **X,Y = DEFINE THE CORNERS OF THE BOX Complot**

 **IFILL = COLOR TO FILL BOX WITH Complot**

 **IBORDER = COLOR OF BORDER OF BOX Complot**

 **Complot**

 **INTERACTIVE Complot**

 **------------------------------------------------------------------ Complot**

 **THIS PROGRAM INCLUDES AN INTERACTIVE INTERFACE FOR USE WITH A Complot**

 **MOUSE. THE INTERFACE INVOLVES 2 SUBROUTINE, Complot**

 **Complot**

 **INTERACT(MYACTION) - WHETHER OR NOT INTERACTION Complot**

 **MYACTION = 0 - NO (RETURNED BY INTERACT) Complot**

 **= 1 - YES (RETURNED BY INTERACT) Complot**

 **Complot**

 **MOUSEY(IWAY,XI,YI,IWAY1,IWAY2) - READ POSITION OF MOUSE Complot**

 **IWAY = 0 - NO INPUT Complot**

 **= 1 - LEFT BUTTON Complot**

 **= 2 - MIDDLE BUTTON Complot**

 **= 3 - RIGHT BUTTON Complot**

 **= 4 - KEYBOARD INPUT Complot**

 **XI = X POSITION IN LOCAL UNITS Complot**

 **YI = Y POSITION IN LOCAL UNITS Complot**

 **IWAY1 = MINIMUM ALLOWABLE IWAY Complot**

 **IWAY2 = MAXIMUM ALLOWABLE IWAY Complot**

 **Complot**

 **AS USED BY THIS PROGRAM IWAY1 = 1 Complot**

 **IWAY2 = 4 Complot**

 **KEYBOARD INPUT (IWAY=4) MEANS NO ZOOMED PLOT REQUESTED. Complot**

 **MOUSE INPUT (IWAY=1 TO 3) MEANS A ZOOMED PLOT IS REQUESTED. Complot**

 **MOUSEY WILL BE CALLED ONCE TO SEE IF A ZOOMED PLOT IS REQUESTED. Complot**

 **IF IT IS XI WILL BE USED TO DEFINE ONE X (E.G., ENERGY) LIMIT OF Complot**

 **THE ZOOMED PLOT. MOUSEY WILL THEN BE CALLED A SECOND TIME TO Complot**

 **DEFINE A SECOND XI TO DEFINE THE OTHER X LIMIT OF THE ZOOMED Complot**

 **PLOT. Complot**

 **Complot**

 **IF YOU DO NOT WANT INTERACTION YOU SHOULD INCLUDE THE FOLLOWING Complot**

 **SUBROUTINES IN YOUR GRAPHIC INTERFACE, Complot**

 **Complot**

 **SUBROUTINE INTERACT(MYACTION) Complot**

 **MYACTION=0 Complot**

 **RETURN Complot**

 **END Complot**

 **SUBROUTINE MOUSEY(IWAY,XI,YI,IWAY1,IWAY2) Complot**

 **IWAY=4 Complot**

 **XI=0.0 Complot**

 **YI=0.0 Complot**

 **RETURN Complot**

 **END Complot**

 **Complot**

 **ALTERNATIVE INTERACTIVE Complot**

 **------------------------------------------------------------------ Complot**

 **IF YOU DO NOT HAVE A MOUSE BUT WOULD STILL LIKE TO INTERACTIVE Complot**

 **INPUT YOU CAN REPLACE SUBROUTINE ACTION IN THIS PROGRAM. Complot**

 **Complot**

 **AS DISTRIBUTED SUBROUTINE ACTION USES A MOUSE TO DEFINE LOWER Complot**

 **AND UPPER ENERGY (OR X) LIMITS WHICH ARE USED TO PRODUCE THE Complot**

 **NEXT PLOT. A CALL TO ACTION IS OF THE FORM, Complot**

 **Complot**

 **CALL ACTION(KACTV,XACT1,XACT2) Complot**

 **Complot**

 **KACTV = 0 - NO INTERACTIVE INPUT Complot**

 **= 1 - INTERACTIVE INPUT Complot**

 **XACT1 = LOWER ENERGY LIMIT Complot**

 **XACT2 = UPPER ENERGY LIMIT Complot**

 **Complot**

 **IF THERE IS NO INTERACTIVE INPUT THE PROGRAM WILL PROCEED TO THE Complot**

 **NEXT PLOT REQUESTED BY NON-INTERACTIVE INPUT. Complot**

 **Complot**

 **IF THERE IS INTERACTIVE INPUT THE PROGRAM WILL USE XACT1 AND Complot**

 **XACT2 TO DEFINE THE ENERGY LIMITS OF THE NEXT PLOT USING THE Complot**

 **SAME DATA AS APPEARED ON THE LAST PLOT. AS WITH NON-INTERACTIVE Complot**

 **INPUT, IF YOU SELECT AN ENERGY RANGE WHERE THE MAXIMUM DIFFERENCE Complot**

 **IS LESS THAN THAT SPECIFIED BY INPUT NO PLOT WILL BE PRODUCED Complot**

 **AND THE CODE WILL PROCEED TO THE NEXT PLOT REQUESTED BY Complot**

 **NON-INTERACTIVE INPUT. Complot**

 **Complot**

 **YOU CAN REPLACE SUBROUTINE ACTION FOLLOWING THE ABOVE CONVENTIONS Complot**

 **TO ALLOW INTERACTION VIA DIRECT READ OF X LIMITS, LIGHTPEN OR Complot**

 **WHATEVER FACILITIES YOU HAVE AVAILABLE. Complot**

 **Complot**

 **INTERFACING Complot**

 **------------------------------------------------------------------ Complot**

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

 **DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE Complot**

 **THE USER TO WRITE 5 SUBROUTINES DESCRIBED ABOVE AND TO THEN CALL Complot**

 **THE LOCAL EQUIVALENT ROUTINES. Complot**

 **Complot**

 **COLOR PLOTS Complot**

 **------------------------------------------------------------------ Complot**

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

 **TO SELECT ONE OF THE AVAILABLE COLORS. WHEN RUNNING ON A MAINFRAME Complot**

 **USING AN IBM GRAPHICS TERMINAL OR ON AN IBM-PC USING A HEWLETT- Complot**

 **PACKARD PLOTTER THE GRAPHICS INTERFACE (DESCRIBED ABOVE) WILL Complot**

 **PRODUCE COLOR PLOTS. Complot**

 **Complot**

 **BLACK AND WHITE PLOTS Complot**

 **------------------------------------------------------------------ Complot**

 **WHEN PRODUCING BLACK AND WHITE HARDCOPY ON A MAINFRAME THE USER Complot**

 **SHOULD ADD A DUMMY SUBROUTINE PEN TO THE END OF THE PROGRAM TO Complot**

 **IGNORE ATTEMPTS TO CHANGE COLOR. ADD THE FOLLOWING SUBROUTINE, Complot**

 **Complot**

 **SUBROUTINE PEN(IPEN) Complot**

 **RETURN Complot**

 **END Complot**

 **Complot**

 **CHARACTER SET Complot**

 **------------------------------------------------------------------ Complot**

 **THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE Complot**

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

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

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

 **ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL Complot**

 **SYMBOLS. Complot**

 **Complot**

 **THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO Complot**

 **DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS Complot**

 **OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY Complot**

 **MODIFY THIS TABLE. Complot**

 **Complot**

 **CONTROL CHARACTERS Complot**

 **------------------------------------------------------------------ Complot**

 **IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL Complot**

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

 **CURRENTLY CONTAINS 4 CONTROL CHARACTERS, Complot**

 **Complot**

 **PEN POSITION = 0 Complot**

 **---------------- Complot**

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

 **ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW Complot**

 **SHIFTING. Complot**

 **Complot**

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

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

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

 **Complot**

 **PEN POSITION =-1 Complot**

 **---------------- Complot**

 **SELECT THE NEXT PRINTED CHARACTER FROM THE ALTERNATE CHARACTER Complot**

 **SET. AT PRESENT THIS CONTROL CHARACTER IS, Complot**

 **Complot**

 **] = SWITCH TO ALTERNATE CHARACTER SET Complot**

 **Complot**

 **THESE 4 CONTROL CHARACTERS ARE ONLY DEFINED BY THE VALUE OF THE Complot**

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

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

 **CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL Complot**

 **CHARACTERS TO MEET SPECIFIC NEEDS. Complot**

 **Complot**

 **THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE Complot**

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

 **10 USE THE STRING, Complot**

 **Complot**

 **}5B{1{0 Complot**

 **Complot**

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

 **BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO Complot**

 **POSITION THE 1 DIRECTLY ABOVE THE 5 USING THE STRING, Complot**

 **Complot**

 **B}5\{1{0 Complot**

 **Complot**

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

 **RESONANCE TOTAL WIDTH) USE THE STRING. Complot**

 **Complot**

 **]G TOTAL Complot**

 **Complot**

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

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

 **SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE Complot**

 **1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP Complot**

 **CONTROL CHARACTERS WERE USED IN COMBINATION). Complot**

 **Complot**

 **IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER Complot**

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

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

 **DETAILS SEE THE SOFTWARE CHARACTER TABLE). Complot**

 **Complot**

 **STANDARD/ALTERNATE CHARACTER SETS Complot**

 **------------------------------------------------------------------ Complot**

 **THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH Complot**

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

 **ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL Complot**

 **CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET Complot**

 **PUT A RIGHT BRACKET CHARACTER (]) BEFORE A CHARACTER (SEE THE Complot**

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

 **CONTROL CHARACTER WILL ONLY EFFECT THE NEXT 1 PLOTTED CHARACTER. Complot**

 **Complot**

 **SUB AND SUPER SCRIPTS Complot**

 **------------------------------------------------------------------ Complot**

 **TO DRAW SUBSCRIPT PRECEED A CHARACTER BY }. TO DRAW SUPERSCRIPT Complot**

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

 **CHARACTER TABLE FOR DETAILS). THESE CONTROL CHARACTER WILL ONLY Complot**

 **EFFECT THE NEXT 1 PLOTTED CHARACTER. Complot**

 **Complot**

 **BACKSPACING Complot**

 **------------------------------------------------------------------ Complot**

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

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

 **CONTROL CHARACTER WILL PERFORM A TRUE BACKSPACE AND WILL EFFECT Complot**

 **ALL FOLLOWING CHARACTERS IN THE SAME CHARACTER STRING. Complot**

 **Complot**

 **PLOT DIMENSIONS Complot**

 **--------------- Complot**

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

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

 **OUTPUT THE PLOT IS TRANSFORMED TO THE UNITS (INCHES, CENTIMETERS, Complot**

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

 **Complot**

 **===== PLOTTER/GRAPHICS TERMINAL INTERFACE ============================= Complot**

 **======================================================================= Complot**