

=====		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 ZA/MT/ENERGY RANGE (EV).	Complot
	*ADDED VARIABLE AXIS UNITS (PROGRAM CONTROLLED..X=MILLI-EV, EV, KEV, MEV...Y=MILLI-BARNS, BARNS).	Complot
VERSION 84-1 (APRIL, 1984)	*ADDED SELECTION BY REACTION/ENERGY RANGE.	Complot
	*ADDED IDENTIFY DATA POINTS OPTION (SMALL BOX DRAWN AROUND EACH CROSS SECTION AND RATIO POINT).	Complot
	*IMPROVED NON-IBM GRAPHICS INTERFACE (ALL CHARACTER POSITIONING NOW BASED ON CHARACTER, NOT RASTER, SIZE).	Complot
VERSION 85-1 (APRIL, 1985)	*SPECIAL I/O ROUTINES TO GUARANTEE ACCURACY OF ENERGY.	Complot
	*DOUBLE PRECISION TREATMENT OF ENERGY (REQUIRED FOR NARROW 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 (REQUIRED FOR NARROW ENERGY RANGES)	Complot
VERSION 88-1 (JULY 1988)	*MAJOR REVISION TO MAKE CODE EASILY INTERFACEABLE TO ALMOST ANY PLOTTER	Complot
	*WARNING..INPUT PARAMETERS FROM BEEN CHANGED (SEE, DESCRIPTION BELOW)	Complot
	*COMPUTER INDEPENDENT SOFTWARE CHARACTERS.	Complot
	*COLOR PLOTS.	Complot
	*MT NUMBER DEFINITIONS FROM DATA FILE READ BY PROGRAM	Complot
	*FORTRAN-77 REQUIRED (FORTRAN-H NO SUPPORTED BY THIS PROGRAM).	Complot
	*OPTION...INTERNALLY DEFINE ALL I/O FILE NAMES (SEE, SUBROUTINE FILEIO FOR DETAILS).	Complot
	*IMPROVED BASED ON USER COMMENTS.	Complot
VERSION 88-2 (OCTOBER 1988)	*IMPROVED BASED ON USER COMMENTS.	Complot
	*ADDED LIVERMORE CIVIC COMPILER CONVENTIONS.	Complot
	*UPDATED TO USE NEW PROGRAM CONVERT KEYWORDS.	Complot
VERSION 89-1 (JANUARY 1989)	*PSYCHOANALYZED BY PROGRAM FREUD TO INSURE PROGRAM WILL NOT DO ANYTHING CRAZY.	Complot
	*FORTRAN-77/FORTRAN-H COMPATIBLE	Complot
	*SPECIAL ENDF/B MATERIAL DEFINITIONS (ZA.LT.1000) FROM DATA FILE READ BY PROGRAM.	Complot
VERSION 89-2 (MARCH 1989)	*ADDED ENDF/B-V AND VI MT DEFINITIONS. PROGRAM WILL DETERMINE ENDF/B FORMAT BASED ON MF=1, 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 PLOTTING RATIOS.	Complot
	*ADDED GRID TYPES	Complot
	*ADDED VARIABLE LINE THICKNESS	Complot
	*WARNING...INPUT PARAMETER FORMAT HAS BEEN CHANGED...SEE DESCRIPTION BELOW.	Complot
VERSION 92-1 (JANUARY 1992)	*ADDED INCIDENT CHARGED PARTICLES (IDENTIFIED IN PLOT TITLES)	Complot
	*ADDED COMPLETELY COMPATIBLE I/O FOR READING FLOATING POINT NUMBERS.	Complot
VERSION 92-2 (MAY 1992)	*CORRECTED DESCRIPTION OF INPUT PARAMETERS AND EXAMPLE PROBLEMS.	Complot
	*ADDED VARIABLE CHARACTER SIZE INPUT	Complot
VERSION 93-1 (MARCH 1993)	*UPDATE FOR ON SCREEN GRAPHIC OUTPUT USING THE LAHEY COMPILER	Complot
	*ADDED NU-BAR (TOTAL, DELAYED, PROMPT).	Complot
VERSION 94-1 (JANUARY 1994)	*VARIABLE ENDF/B DATA FILENAMES TO ALLOW ACCESS TO FILE STRUCTURES (WARNING - INPUT PARAMETER FORMAT HAS BEEN CHANGED)	Complot
	*CLOSE ALL FILES BEFORE TERMINATING (SEE, SUBROUTINE ENDIT)	Complot
VERSION 95-1 (MARCH 1995)	*CORRECTED CROSS SECTION MULTIPLIER FOR EQUIVALENCES	Complot
	*CORRECTED RATIO SCALING, FOR 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 TO 48000 POINTS	Complot
VERSION 97-1 (APRIL 1997)	*INCREASED PAGE SIZE FROM 48000 TO 480000 POINTS	Complot
VERSION 99-1 (MARCH 1999)	*CORRECTED CHARACTER TO FLOATING POINT READ FOR MORE DIGITS	Complot
	*UPDATED TEST FOR ENDF/B FORMAT VERSION BASED ON RECENT FORMAT CHANGE	Complot
	*GENERAL IMPROVEMENTS BASED ON USER FEEDBACK	Complot
VERS. 2000-1 (FEBRUARY 2000)	*GENERAL IMPROVEMENTS BASED ON 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 TO 600000 POINTS	Complot
	*ADDED NEW REICH-MOORE TO FILE2 TO ALLOW IDENTIFICATION OF RESOLVED AND 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 12,000	Complot Complot
VERS. 2009-1 (JAN. 2009)	*IGNORED DIFFERENCES NEAR RESONANCE REGION BOUNDARIES (RESOLVED AND UNRESOLVED).	Complot Complot Complot
VERS. 2010-1 (July 2010)	*Allow comparison plot even if there is no difference (just see data).	Complot Complot
	*ONLY plot linearly interpoolable data	Complot
	*Include threshold energy points to show cross sections, but NOT ratios near threshold.	Complot Complot Complot
VERS. 2011-1 (Jan. 2011)	*Increased MT.DAT from 200 to 1,000 entries, to accommodate new MTs.	Complot Complot
VERS. 2012-1 (Aug. 2012)	*Increased incident particle list to include photon (ZA = 0).	Complot 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 whether or not to plot - non-positive cross sections are no longer used.	Complot Complot Complot
	*Limited per-cent differences to fit output format = -9999 to +9999 %.	Complot
	*OUT9 replaced NORMX	Complot
VERS. 2015-1 (Jan. 2015)	*Added MF=10 Radionuclide Production which requires longer plot titles.	Complot Complot
	*Restricted character size multiplier to 0.5 to 1.5 to accommodate longer plot titles.	Complot Complot Complot
	*Replaced ALL 3 way if statements.	Complot
VERS. 2015-2 (Mar. 2015)	*Corrected tables for X and Y axis labels = see change search for 2015-2	Complot Complot
VERS. 2015-3 (Oct. 2015)	*Allow multiple LRF=7 regions plus unresolved region - earlier assumed LRF=7 never used unrsolved.	Complot Complot Complot
VERS. 2017-1 (May 2017)	*For MF=2 use MT=151 to define Unresolved Resonance Region (URR). Ignore NJOY MT=152 and 153.	Complot Complot Complot
	*All floating input parameters changed to character input + IN9 conversion.	Complot Complot
	*Added MF=4 Legendre Coefficient Comparison: f1 through f6	Complot Complot
	*Doubled in core storage to 1,200,000.	Complot
	*Replaced Q MeV by MT= at top of plots (Q value in ENDF is now only defined in MF=3, making it difficult for all other MF now treated by this code)	Complot Complot Complot Complot
	*Initial Linear X scaling for MF=1 (nu-bar) and MF=4 (Legendre) = this can be turned OFF by ZOOM	Complot Complot Complot
	+ Unless energy range is requested = allows MF=1 and 4 default Linear X scaling to be turned off by input parameters, i.e., by COMHARD	Complot Complot Complot Complot
	*Zoom lower energy limit restricted 1.0d-5 eV - to lower zoom of linear energy plots (otherwise cannot find actual lower limit on plot).	Complot Complot Complot Complot
		Complot
		Complot

2015-2 Acknowledgment

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I thank Chuck Whitmer (TerraPower,WA) for reporting the errors that led to the 2015-2 Improvements in this code.	Complot
	Complot
I thank Jean-Christophe Sublet (UKAEA) for contributing MAC executables and Bojan Zefran (IJS, Slovenia) for contributing LINUX (32 or 63 bit) executables. And most of all I must thank Andrej Trkov (NDS, IAEA) for overseeing the entire PREPRO project at IAEA, Vienna. This was a truly International team who worked together to produce PREPRO 2015-2.	Complot
	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
U.S.A.	Complot
Telephone 925-443-1911	Complot
E. Mail RedCullen1@Comcast.net	Complot
Website RedCullen1.net/HOMEPAGE.NEW	Complot
	Complot
AUTHORS MESSAGE	Complot
-----	Complot
THE COMMENTS BELOW SHOULD BE CONSIDERED THE LATEST DOCUMENTATION ALL RECENT IMPROVEMENTS. PLEASE READ ALL OF THESE COMMENTS BEFORE, PARTICULARLY THE COMMENTS CONCERNING MACHINE DEPENDENT CODING.	Complot
	Complot
AT THE PRESENT TIME WE ARE ATTEMPTING TO DEVELOP A SET OF COMPUTER INDEPENDENT PROGRAMS THAT CAN EASILY BE IMPLEMENTED ON ANY ONE OF A WIDE VARIETY OF COMPUTERS. IN ORDER TO ASSIST IN THIS PROJECT IT WOULD BE APPECIATED IF YOU WOULD NOTIFY THE AUTHOR OF ANY COMPILER DIAGNOSTICS, OPERATING PROBLEMS OR SUGGESTIONS ON HOW TO IMPROVE THIS PROGRAM. HOPEFULLY, IN THIS WAY FUTURE VERSIONS OF THIS PROGRAM WILL BE COMPLETELY COMPATIBLE FOR USE ON YOUR COMPUTER.	Complot
	Complot
	Complot
PURPOSE	Complot
-----	Complot
COMPARE ENDF/B FORMATTED DATA FROM TWO SEPARATE INPUT TAPES. REACTIONS ARE CONSIDERED TO BE COMPARABLE IF THEY HAVE THE SAME (ZA,MF,MT). RESULTS ARE PRESENTED IN GRAPHICAL FORM.	Complot
	Complot
IN THE FOLLOWING FOR SIMPLICITY THE ENDF/B TERMINOLOGY--ENDF/B TAPE--WILL BE USED. IN FACT THE ACTUAL MEDIUM MAY BE TAPE, CARDS, DISK OR ANY OTHER MEDIUM.	Complot
	Complot
	Complot
ON WHAT COMPUTERS WILL THE PROGRAM RUN	Complot
-----	Complot
THE PROGRAM HAS BEEN IMPLEMENTED ON A VARIETY OF COMPUTERS FROM CRAY AND IBM MAINFRAME TO SUN WORKSTATIONS TO AN IBM-AT PC. THE PROGRAM IS SMALL ENOUGH TO RUN ON VIRTUALLY ANY COMPUTER.	Complot
	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
FOR SPECIAL CONSIDERATIONS SEE THE SECTIONS BELOW ON,	Complot
(1) COMPUTER DEPENDENT CODING	Complot
(2) PLOTTER/GRAPHICS TERMINAL INTERFACE	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
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
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
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
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
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
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

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

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

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

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

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

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

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

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

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 AND IN ADDITION THE USER MAY SPECIFY THAT EACH PLOT ALSO CONTAIN THE SECOND CROSS SECTION AND/OR THE RATIO OF THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION.

THE USER MAY SELECT ONE OF THE FOLLOWING FIVE PLOT FORMATS (THE NUMBER PRECEDING THE OPTION IS THE VALUE OF THE PLOT MODE SELECTOR THAT THE USER SHOULD SPECIFY AS INPUT ON THE FIRST LINE).

- (0) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE RATIO OF THE SECOND EVALUATION TO THE FIRST EVALUATION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD CROSS SECTION IN THE UPPER HALF OF THE PLOT AND THE RATIO IN THE LOWER HALF OF THE PLOT.
- (1) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE SECOND EVALUATION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD CROSS SECTION ON THE UPPER HALF OF THE PLOT AND THE SECOND CROSS SECTION IN THE LOWER HALF OF THE PLOT.
- (2) THE STANDARD CROSS SECTION (I.E. FIRST EVALUATION) AND THE SECOND EVALUATION. THE DATA WILL BE PRESENTED AS ONE PLOT CONTAINING BOTH THE STANDARD AND SECOND CROSS SECTION. THE STANDARD CROSS SECTION WILL BE PRESENTED AS A SOLID LINE AND THE SECOND CROSS SECTION WILL BE PRESENTED AS A DASHED LINE.
- (3) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA WILL BE PRESENTED AS THREE SUB-PLOTS PER PLOT WITH THE STANDARD CROSS SECTION IN THE UPPER THIRD OF THE PLOT, THE SECOND CROSS SECTION IN THE MIDDLE THIRD AND THE RATIO OF THE TWO IN THE LOWER THIRD OF THE PLOT (RECOMMENDED OPTION).
- (4) THE STANDARD CROSS SECTION, SECOND CROSS SECTION AND RATIO OF THE SECOND CROSS SECTION TO THE FIRST CROSS SECTION. THE DATA WILL BE PRESENTED AS TWO SUB-PLOTS PER PLOT WITH THE STANDARD AND SECOND CROSS SECTION ON THE SAME SUB-PLOT IN THE UPPER TWO THIRDS OF THE PLOT AND THE RATIO OF THE TWO IN THE LOWER THIRD OF THE PLOT. THE STANDARD CROSS SECTION WILL BE PRESENTED AS A SOLID LINE AND THE SECOND CROSS SECTION WILL BE PRESENTED AS A DASHED LINE.

ADDITIONAL PLOT FEATURES

IN ADDITION TO THE CROSS SECTIONS AND/OR RATIO THE FOLLOWING INFORMATION WILL BE INCLUDED ON EACH PLOT.

- (1) AN IDENTIFICATION FOR EACH SET OF CROSS SECTIONS (UP TO 30 CHARACTERS FOR EACH SET).
- (2) THE MAXIMUM NEGATIVE AND POSITIVE PER-CENT DIFFERENCE BETWEEN THE TWO CROSS SECTIONS.
- (3) ARROWS INDICATING THE ENERGY AT WHICH THE MAXIMUM DIFFERENCES (MINIMUM AND MAXIMUM RATIO) OCCUR.
- (4) THE ENERGY LIMITS OF THE RESOLVED AND UNRESOLVED RESONANCE REGION (IF THEY FALL WITHIN THE ENERGY LIMITS OF THE PLOT).

RATIO DATA

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

ENERGY THAT APPEARS IN EITHER EVALUATION. BETWEEN THESE ENERGIES THE RATIO WILL BE PLOTTED ASSUMING LINEAR DEPENDENCE BETWEEN TABULATED VALUES. FOR HISTOGRAM OR LINEARLY INTERPOLABLE CROSS SECTIONS THIS REPRESENTATION WILL POINT OUT ALL EXTREMA OF THE RATIO, BUT NOT NECESSARILY THE ENERGY DEPENDENCE BETWEEN TABULATED VALUES.

IF THE EVALUATED DATA IS NOT IN EITHER HISTOGRAM OR LINEARLY INTERPOLABLE FORM THE RATIO MAY NOT EVEN FIND ALL EXTREMA. FOR EXAMPLE, IF ONE EVALUATION IS LINEARLY INTERPOLABLE AND THE OTHER NON-LINEAR, BUT BOTH AGREE AT ALL TABULATED ENERGIES THE RATIO WILL APPEAR TO BE EQUAL TO UNITY AT ALL ENERGIES, BUT IN FACT THE CROSS SECTION BETWEEN TABULATED ENERGIES MAY BE QUITE DIFFERENT USING LINEAR VS. NON-LINEAR INTERPOLATION. FOR THIS REASON ONLY LINEARLY INTERPOLABLE OR HISTOGRAM DATA IS ALLOWED AS INPUT TO THIS PROGRAM.

LINEAR INTERPOLABLE

ALL CROSS SECTIONS MAY BE CONVERTED TO LINEARLY INTERPOLABLE FORM BE USING PROGRAM LINEAR (UCRL-50400, VOL. 17, PART A).

HISTOGRAM

ALL LINEARLY INTERPOLABLE CROSS SECTION MAY BE CONVERTED TO HISTOGRAM (I.E. MULTIGROUP) FORM BY USING PROGRAM GROUPIE (UCRL-50400, VOL. 17, PART D).

INPUT UNITS

UNIT	DESCRIPTION
2	INPUT LINE
9	MT DEFINITIONS.
10	FIRST ENDF/B FORMATTED EVALUATION (STANDARD).
11	SECOND ENDF/B FORMATTED EVALUATION.
17	SOFTWARE CHARACTERS.
18	SOFTWARE SYMBOLS AND LINE TYPES

OUTPUT UNITS

UNIT	DESCRIPTION
3	NORMAL OUTPUT REPORT.
16	PLOTTER UNIT

SCRATCH UNITS

UNIT	DESCRIPTION
12	SCRATCH UNIT FOR FIRST EVALUATION
13	SCRATCH UNIT FOR SECOND EVALUATION
14	SCRATCH UNIT FOR RATIO (ONLY USED IF RATIOS REQUESTED).

OPTIONAL STANDARD FILE NAMES (SEE SUBROUTINE FILIO1 AND FILIO2)

UNIT	FILE NAME
2	COMPLOT.INP
3	COMPLOT.LST
9	MT.DAT
10	ENDFB.IN1 (OR AS READ FROM INPUT)
11	ENDFB.IN2 (OR AS READ FROM INPUT)

12-14	(SCRATCH)	Complot
15	PLOT.CHR	Complot
16	(PLOTTER UNIT...USUALLY A DUMMY)	Complot

INPUT PARAMETERS

LINE	COLUMNS	FORMAT	DESCRIPTION	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 FACTOR	Complot
			PLOT ORIENTATION IS BASED ON THE UPPER X LIMIT	Complot
			= .GT.0 - X HORIZONTAL/Y VERTICAL	Complot
			= .LT.0 - Y HORIZONTAL/X VERTICAL	Complot
			AFTER TESTING THE UPPER X LIMIT WILL BE SET TO ITS ABSOLUTE VALUE.	Complot
2	1-72	A72	FILENAME FOR FIRST ENDF/B DATA FILE (LEAVE BLANK FOR ENDFB.IN1)	Complot
3	1-72	A72	FILENAME FOR SECOND ENDF/B DATA FILE (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 RATIO.	Complot
			= 4 - TWO CROSS SECTIONS ON SAME PLOT OVER RATIO.	Complot
	56-66	I11	STARTING PLOT NUMBER	Complot
			= 0 - DO NOT NUMBER PLOTS	Complot
			= .GT.0 - NUMBER PLOTS IN LOWER LEFT HAND 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 PLOTTING RATIOS. ANY REACTION WHERE THE TWO EVALUATIONS DIFFER BY MORE THAN THE ALLOWABLE DIFFERENCE WILL BE PLOTTED. IF	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, 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 IDENTIFY 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
		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
		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

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. FILERNAME

Complot

ARE STANDARD (THESE CAN EITHER BE EXPLICITLY INCLUDED, OR SIMPLY

Complot

LEFT BLANK).

Complot

THE FOLLOWING 12 INPUT LINES ARE REQUIRED.

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

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

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

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
                                Complot
EXAMPLE INPUT 6
-----
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
                                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
                                Complot
EXAMPLE INPUT 7
-----
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
                                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
                                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

```

```

IF THERE IS NO INTERACTIVE INPUT THE PROGRAM WILL PROCEED TO THE NEXT PLOT REQUESTED BY NON-INTERACTIVE INPUT.
Complot
Complot

```

```

IF THERE IS INTERACTIVE INPUT THE PROGRAM WILL USE XACT1 AND XACT2 TO DEFINE THE ENERGY LIMITS OF THE NEXT PLOT USING THE SAME DATA AS APPEARED ON THE LAST PLOT. AS WITH NON-INTERACTIVE INPUT, IF YOU SELECT AN ENERGY RANGE WHERE THE MAXIMUM DIFFERENCE IS LESS THAN THAT SPECIFIED BY INPUT NO PLOT WILL BE PRODUCED AND THE CODE WILL PROCEED TO THE NEXT PLOT REQUESTED BY NON-INTERACTIVE INPUT.
Complot
Complot
Complot
Complot
Complot
Complot
Complot

```

```

YOU CAN REPLACE SUBROUTINE ACTION FOLLOWING THE ABOVE CONVENTIONS TO ALLOW INTERACTION VIA DIRECT READ OF X LIMITS, LIGHTPEN OR WHATEVER FACILITIES YOU HAVE AVAILABLE.
Complot
Complot
Complot
Complot

```

INTERFACING

```

-----
IN ORDER TO INTERFACE THIS PROGRAM FOR USE ON ANY PLOTTER WHICH DOES NOT USE THE ABOVE CONVENTIONS IT IS MERELY NECESSARY FOR THE USER TO WRITE 5 SUBROUTINES DESCRIBED ABOVE AND TO THEN CALL THE LOCAL EQUIVALENT ROUTINES.
Complot
Complot
Complot
Complot
Complot

```

COLOR PLOTS

```

-----
TO SELECT PLOTTING COLORS SUBROUTINE PEN (DESCRIBED ABOVE) IS USED TO SELECT ONE OF THE AVAILABLE COLORS. WHEN RUNNING ON A MAINFRAME USING AN IBM GRAPHICS TERMINAL OR ON AN IBM-PC USING A HEWLETT-PACKARD PLOTTER THE GRAPHICS INTERFACE (DESCRIBED ABOVE) WILL PRODUCE COLOR PLOTS.
Complot
Complot
Complot
Complot
Complot

```

BLACK AND WHITE PLOTS

```

-----
WHEN PRODUCING BLACK AND WHITE HARDCOPY ON A MAINFRAME THE USER SHOULD ADD A DUMMY SUBROUTINE PEN TO THE END OF THE PROGRAM TO IGNORE ATTEMPTS TO CHANGE COLOR. ADD THE FOLLOWING SUBROUTINE,
Complot
Complot
Complot
Complot

```

```

SUBROUTINE PEN(IPEN)
RETURN
END
Complot
Complot

```

CHARACTER SET

```

-----
THIS PROGRAM USES COMPUTER AND PLOTTER DEVICE INDEPENDENT SOFTWARE CHARACTERS. THIS PROGRAM COMES WITH A FILE THAT DEFINES THE PEN STROKES REQUIRED TO DRAW ALL CHARACTERS ON AN IBM KEYBOARD (UPPER AND LOWER CASE CHARACTERS, NUMBERS, ETC.) PLUS AN ALTERNATE SET OF ALL UPPER AND LOWER CASE GREEK CHARACTERS AND ADDITIONAL SPECIAL SYMBOLS.
Complot
Complot
Complot
Complot
Complot
Complot

```

```

THE SOFTWARE CHARACTER TABLE CONTAINS X AND Y AND PEN POSITIONS TO DRAW EACH CHARACTER. IF YOU WISH TO DRAW ANY ADDITIONAL CHARACTERS OR TO MODIFY THE FONT OF THE EXISTING CHARACTERS YOU NEED ONLY MODIFY THIS TABLE.
Complot
Complot
Complot
Complot

```

CONTROL CHARACTERS

```

-----
IN THE SOFTWARE CHARACTER TABLE ALL CHARACTERS TO BE PLOTTED WILL HAVE PEN POSITION = 2 (DRAW) OR = 3 (MOVE). IN ADDITION THE TABLE CURRENTLY CONTAINS 4 CONTROL CHARACTERS,
Complot
Complot
Complot
Complot

```


PEN POSITION = 0	Complot
-----	Complot
SHIFT THE NEXT PRINTED CHARACTER BY X AND Y. 3 CONTROL CHARACTERS ARE PRESENTLY INCLUDED IN THE SOFTWARE CHARACTER TABLE TO ALLOW 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 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 PEN POSITION IN THE SOFTWARE CHARACTER TABLE (I.E., THEY ARE NOT HARD WIRED INTO THIS PROGRAM). AS SUCH BY MODIFYING THE SOFTWARE CHARACTER TABLE THE USER HAS THE OPTION OF DEFINING ANY CONTROL CHARACTERS TO MEET SPECIFIC NEEDS.	Complot
	Complot
THESE CHARACTERS MAY BE USED IN CHARACTER STRINGS TO PRODUCE SPECIAL EFFECTS. FOR EXAMPLE, TO PLOT SUBSCRIPT 5, B, SUPERSCRIP	Complot
10 USE THE STRING,	Complot
	Complot
}5B{1{0	Complot
	Complot
TO PLOT B, SUBSCRIPT 5 AND SUPERSCRIP 10 WITH THE 5 DIRECTLY BELOW THE 1 OF THE 10 WE CAN USE THE BACKSPACE CHARACTER TO 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., RESONANCE TOTAL WIDTH) USE THE STRING.	Complot
	Complot
]G TOTAL	Complot
	Complot
NOTE, WHEN THESE CONTROL CHARACTERS ARE USED THEY ONLY EFFECT THE NEXT 1 PRINTED CHARACTER (SEE, ABOVE EXAMPLE OF PLOTTING SUPER-SCRIPT 10 WHERE THE SHIFT UP CONTROL CHARACTER WAS USED BEFORE THE 1 AND THEN AGAIN BEFORE THE 0 AND THE BACKSPACE AND SHIFT UP CONTROL CHARACTERS WERE USED IN COMBINATION).	Complot
	Complot
IF THESE 4 CONTROL CHARACTERS ARE NOT AVAILABLE ON YOUR COMPUTER YOU CAN MODIFY THE SOFTWARE CHARACTER TABLE TO USE ANY OTHER 4 CHARACTERS THAT YOU DO NOT NORMALLY USE IN CHARACTER STRINGS (FOR DETAILS SEE THE SOFTWARE CHARACTER TABLE).	Complot
	Complot
STANDARD/ALTERNATE CHARACTER SETS	Complot
-----	Complot
THE SOFTWARE CHARACTER TABLE CONTAINS 2 SETS OF CHARACTERS WHICH ARE A STANDARD SET (ALL CHARACTERS ON AN IBM KEYBOARD) AND AN ALTERNATE SET (UPPER AND LOWER CASE GREEK CHARACTERS AND SPECIAL CHARACTERS). TO DRAW A CHARACTER FROM THE ALTERNATE CHARACTER SET PUT A RIGHT BRACKET CHARACTER (]) BEFORE A CHARACTER (SEE THE ABOVE EXAMPLE AND THE SOFTWARE CHARACTER TABLE FOR DETAILS). THIS 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

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

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

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

```