Table XIII C .1. Segments of the code SAMMY

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
ACS VIII		Calculate cross sections, etc., for unresolved resonance region	MPW	FFF, FIT
AMR X.C		Reorganize covariance file when changing data-reduction parameters	(Stand-alone code SAMAMR)	
AMX X.D		Reorganize final covariance file to modify a single non-relevant parameter	(Stand-alone code SAMAMX)	
ANF X.A		Interchange energy and angle in ODF file for plotting purposes	(Stand-alone code ANGODF)	
ANG II.B.1.b		Generate angular distribution	INT, ORR, RPI, or RSL	INT, DBD, DOP, FGM, or XCT
AVG V.C	GRP	Generate “multigroup cross sections” (averages of theoretical and experimental cross sections)	DAT or END	SQU
BIN	PLT	(Renamed to PLT because BIN is a reserved name on some systems)		
BLK		(Subdirectory stores common blocks)		
CCM		Generate covariance matrix for point-wise cross sections	(quit)	SQU
CLM III.B.4	FGM, DOP, DBD	Crystal-lattice model of Doppler broadening	ANG, INT, ORR, RPI, RSL, or SSM	CRO, INT, MLB, or XCT
CLQ V.E	CRO, MLB, XCT	Generate pseudo cross sections for use in testing Doppler- and resolution-broadening techniques	DBD, DOP, FGM, INT, MXW, NTG, ORR, RPI, RSL, or SQU	THE
COU	XXX	Subdirectory contains routines used to generate Coulomb penetrabilities, shift factors, and hard-sphere phase shifts		

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
CONVRT X.B		Main program for converting from REFIT format to SAMMY or v.v. Stored in subdirectory /ref/	INP, refsam	
CPR X.E		Read binary file SAM53.DAT (which was generated by samnpv or samipq) and create plot file	(Stand-alone program SAMCPR)	
CRO II.A	MLB, XCT	Generate theoretical cross sections using Reich-Moore approximation to multilevel R-matrix theory (obsolete)	DBD, DOP, FGM, INT, MXW, NTG, ORR, RPI, RSL, or SQU	THE
DAT		Read the DATa file; generate the auxiliary energy grid used for broadening	IDC, REF, or THE	AVG, FIN, NEW, or OLD
DBD III.B.3	DOP, FGM, CLM	Doppler broaden the theoretical cross section using the high-energy Gaussian approximation	ANG, DEX, INT, ORR, RPI, RSL, SSM, or UDR	CLQ, CRO, INT, MLB, or XCT
DEX III.C.4	ORR, RPI, RSL, UDR	Resolution broaden the cross sections using square function in energy	INT, ORR, RPI, or UDR	ANG, CLM, CLQ, CRO, DBD, DOP, FGM, RSL, or SSM
DIS X.F		Calculate statistical properties	(Stand-alone program SAMDIS)	
DOP III.B.2	DBD, FGM, CLM	Doppler broaden theoretical cross section using Leal-Hwang method	ANG, DEX, INT, ORR, RPI, RSL, SSM, or UDR	CLQ, CRO, INT, MLB, or XCT
END		Reorganize files for another pass, or delete temporary files at end of run. Subdirectory also contains files with output subroutines	INP or quit	AVG, FIN, GRP, MAS, MXW, NDF, ODF, or REC, RST, YWY

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
FDC VI.C.3.c		Update data file with implicit data covariance information	(quit)	INP
FFF VIII		Read input for analysis of unresolved resonance region	ACS	MAS
FGM III.B.1	CLM, DBD, DOP	Doppler-broaden via the free-gas model	ANG, DEX, INT, NTG, ORR, RPI, RSL, SQU, SSM, or UDR	CLQ, CRO, MLB, or XCT
FIN		Convert results from *u*-parameters to physical parameters; print results	DAT, END, or THE	IPQ, MPW, or NPV
FIT VIII		Print results for unresolved resonance region	ACS	MPW
FNC		(Subdirectory contains coding for frequently used mathematical functions)		
FTZ X.G		Modify data by adjusting t_zero and L_zero	(Stand-alone code SAMFTZ)	
GRP V.C.2 V.C.3	AVG	Generate multigroup cross sections using Bondarenko narrow-resonance weighting scheme, also for unweighted average	END	SQU
IDC VI.C.3. c		Read and sort implicit data covariance information	REF, RST, THE	DAT
INP		Read INPut file for control commands and for information about the data set; read through PARameter file to set array sizes	FDC, PAR	END or MAS

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
INT		Print theoretical cross sections and/or partial derivatives; put values into parts of plot file	ANG, CLM, DBD, DOP, FGM, MXW, NPV, NTG, ORR, RPI, RSL, SQU, SSM, WYW, or YWY	ANG, CRO, CLM, CLQ, DBD, DOP, FGM, MLB, ORR, RPI, RSL, SSM, or XCT
IPQ IV.B.2	MPW, NPV	Solve I+Q form of Bayes' equations	FIN	SQU
LRU VIII		Write ENDF File2 for Unresolved Resonance Region	(end)	FFF
MAS		Read input commands and file names; read portions of INPut and other files; organize the manner in which SAMMY runs	END, FFF, INP, or ODF	SAMMY
MLB II.B.3	CLQ, CRO, XCT	Generate theoretical cross sections using the single or multilevel Breit-Wigner theory	CLM, DBD, DEX, DOP, FGM, INT, MXW, NTG, ORR, RPI, RSL, SQU, or UDR	THE
MPW IV.B.3	IPQ, NPV	Solve Bayes' equations via the M+W method	FIN, FIT	ACS, SQU, WYW
MXW V.D		Generate stellar (Maxwellian) average capture cross section	END	CLQ, CRO, MLB, REC, SQU, XCT
NDF VI.F.2		Write resolved resonance parameters into ENDF-6 file 2 format	END	NEW or OLD
NEW	OLD	Generate the initial covariance matrix for the parameters	DAT, NDF, REC, REF, WYW	PAR
NPV IV.B.1	IPQ, MPW	Solve N+V form of Bayes' equations	FIN	INT, NTG, or SQU
NTG V.B		Calculate integral quantities	NPV	CRO, FGM, MLB, REC, SQU, XCT

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
ODF VII.C		Initialize the plot (ODF) output file by writing energies into section 1, data into sections 2 and 6, and uncertainties into sections 3 and 7. See Section VII.C of this document for a description of ODF "sections."	END	MAS
OLD VII.B	NEW	Read the initial parameter covariance matrix from binary file generated by an earlier SAMMY run	DAT, NDF, or REC, WYW	PAR
ORR III.C.2	DEX, RPI, RSL, UDR	Resolution broaden the theoretical cross section using Oak Ridge resolution function	INT	ANG, CLM, CRO, DBD, DEX, DOP, FGM, INT, MLB, RSL, SSM, or XCT
ORT X.H		Study ORR resolution function	(Stand-alone code SAMORT)	
PAR VI.B		Read parameters from PARameter file	NEW or OLD	INP
PLT X.I		Convert from binary plot file to another option	(Stand-alone code SAMPLT)	
QUA X.J		Generate spin group information for given particle-pair quantum numbers and orbital angular momenta	(Stand-alone program SAMQUA)	
REC V.A		Reconstruct point-wise cross section from resonance parameters	END, MXW, or NTG	NEW or OLD
REF X.B		Convert resonance parameters from SAMMY to REFIT format; a part of program CONVRT, not program SAMMY		DAT, IDC

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
REFSAM X.B		Convert resonance parameters from REFIT to SAMMY format; a part of program convrt; files in subdirectory /ref/		CONVRT
RML X.Q		Calculate R-matrix cross sections and derivatives	(Stand-alone code SAMRML)	
RPI III.C.3	DEX,ORR, RSL,UDR	Resolution-broaden the theoretical cross section using the RPI resolution function	INT	ANG, CLM, CLQ, CRO, DBD, DOP, FGM, INT, MLB, SSM, or XCT
RPT X.K		Study RPI resolution function	(Stand-alone code SAMRPT)	
RSL III.C.1	DEX,ORR, RPI, UDR	Resolution-broaden theoretical cross section using the original method	INT	ANG, CLM, CLQ, CRO, DBD, DOP, FGM, INT, MLB, SSM, or XCT
RST X.L		Study RSL resolution function	(Stand-alone code SAMRST)	
SAMMY		Begin, get organized	MAS	
SMC III.D, X.M		Generate multiple-scattering correction to capture or fission yields via Monte Carlo method	(Stand-alone program SAMSMC)	
SQU		Expand the triangular storage of the covariance matrix to full square form	AVG, IPQ, MPW, MXW, NTG, or NPV	CLM, CLQ, CRO, INT, MLB, or XCT
SSM III.D		Perform self-shielding and multiple-scattering calculation for capture yields	INT, ORR, RPI, or RSL	CLM, CLQ, DBD, DOP, FGM, INT, or XCT
STA X.N		Generate staircase plots	(Stand-alone code SAMSTA)	
THE		Perform bookkeeping related to cross-section calculations	CLQ, CRO, MLB, or XCT	DAT, FIN, IDC

Table XIII C .1 (continued)

Segment; Site	Alter-native	Primary functions	Control passes to which segment?	Control comes from which segment?
THN X.O		Thin dense data	(Stand-alone code SAMTHN)	
UDR III.C.5	DEX, ORR, RPI, RSL	User-defined numerical resolution function	INT	ANG, CLM, CLQ, CRO, DBD, DOP, FGM, INT, MLB, SSM, or XCT
WYW IV.B.3		Read Y_i and W_i and add, for use in segment MPW	MPW	NEW, OLD
XCT II.B.1	CLQ, CRO, MLB	Generate theoretical cross sections using accurate formulation of Reich-Moore	ANG, DBD, DOP, FGM, INT, MXW, NTG, ORR, RPI, RSL, SQU, or SSM	THE
XXX II.A	COU	Generate penetrabilities, shift factors, and hard-sphere phase shifts for non-Coulomb interactions (subroutines only, not complete segment)		
YWY IV.B.3		Generate Y_i and W_i, for use in segment MPW	END	INT, NTG, SQU