



ENDF-6 Manual & Checking Codes

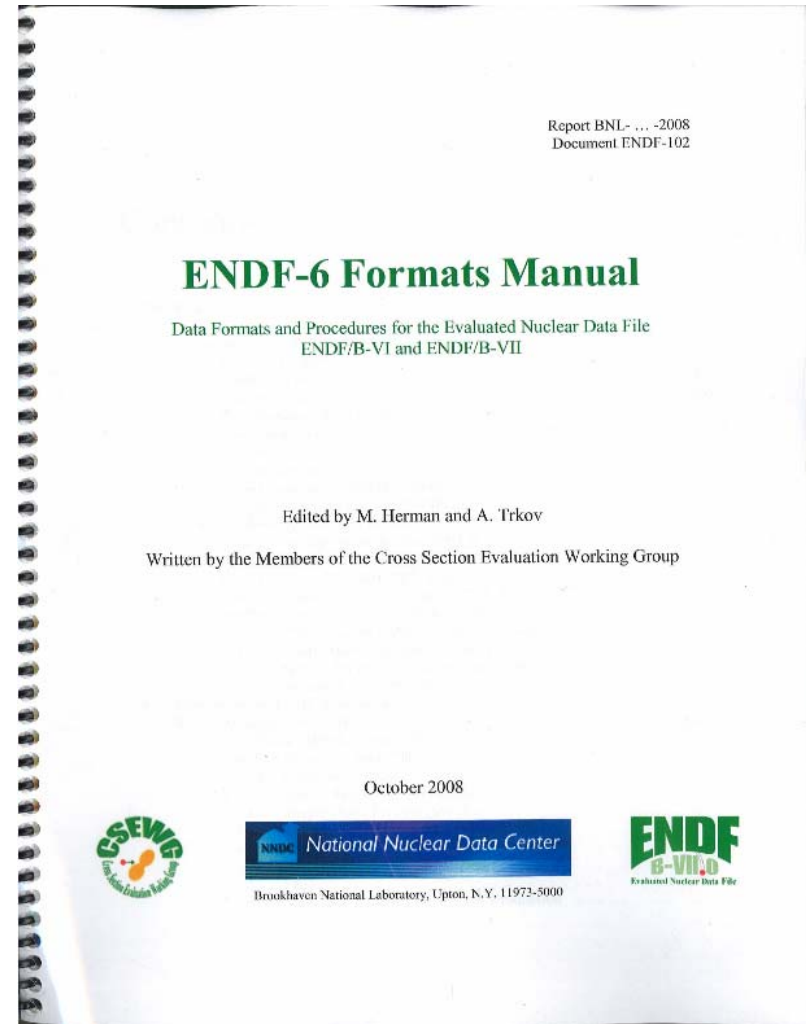
M. Herman & A. Trkov

Email: mwherman@bnl.gov

ENDF-6 Formats Manual

Completed (2007, 2008)

- Translation from Word to LaTeX completed
- Numerous corrections (see CSEWG 2007)
- **All** CSWEG endorsed format changes implemented
- Changes lost between 2003-5 recovered
- Proof reading of the whole document
- Preliminary version of the historical perspective by N. Holden added as Appendix I
- Eq. 7.8 corrected (C. Lubitz)



ENDF-6 Formats Manual

CHAPTER 0. ENDF-6 PREFACE

HEAD Records

The HEAD record is the first in a section and has the same form as CONT, except that the C1 and C2 fields always contain ZA and AWR, respectively.

END Records

The SEND, FEND, MEND, and TEND records use only the three control integers, which signal the end of a section, file, material, or tape, respectively. In binary mode, the six standard fields are all zero. In character mode, the six are all zero as follows

```
[MAT,MF, 0/ 0.0, 0.0, 0, 0, 0, 0] SEND
[MAT, 0, 0/ 0.0, 0.0, 0, 0, 0, 0] FEND
[ 0, 0, 0/ 0.0, 0.0, 0, 0, 0, 0] MEND
[-1, 0, 0/ 0.0, 0.0, 0, 0, 0, 0] TEND
```

hyperlink

DIR Records

The DIR records are described in more detail in Section 1.1.1. The only difference between a DIR record and a standard CONT record is that the first two fields in the DIR record are blank in character mode.

0.7.6 LIST Records

This type of record is used to list a series of numbers B1, B2, B3, *etc.* The values are given in an array B(n), and there are NPL of them. The shorthand notation for the LIST record is

```
[MAT,MF,MT/ C1, C2, L1, L2, NPL, N2/ Bn] LIST
```

The LIST record can be read with the following FORTRAN statements

```
READ(LIB,10)C1,C2,L1,L2,NPL,N2,MAT,MF,MT,NS
10 FORMAT(2E11.0,4I11,I4,I2,I3,I5)
READ(LIB,20)(B(N),N=1,NPL)
20 FORMAT(6E11.0)
```

hyperlink

The maximum for NPL varies with use (see Appendix G).

0.7.7 TAB1 Records

These records are used for one-dimensional tabulated functions such as $y(x)$. The data needed to specify a one-dimensional tabulated function are the interpolation tables NBT(N) and INT(N) for each of the NR ranges, and the NP tabulated pairs of $x(n)$ and $y(n)$. The shorthand representation is:

```
[MAT,MF,MT/ C1, C2, L1, L2, NR, NP/xint/y(x)]TAB1
```

The TAB1 record can be read with the following FORTRAN statements

Improvements

- LaTeX quality (layout, equations)
- Automatic structuring and referencing
- Use of color
- Hyperlinks
- Many typos/errors corrected (comparison with ENDF-5 was helpful)

ENDF-6 manual review status

ENDF-6 Manual Review Status: 10/31/08

Chapter	Reviewer	Review status
Fmts-00.tex	NNDC	progressing
Fmts-01.tex	NNDC	progressing
Fmts-02.tex	N. Larson	completed
Fmts-03.tex	NNDC	progressing
Fmts-04.tex	M. Zerkle	progressing
Fmts-05.tex	M. Zerkle	progressing
Fmts-06.tex	M. Zerkle	progressing
Fmts-07.tex		
Fmts-08.tex		
Fmts-09.tex		
Fmts-10.tex		
Fmts-11.tex		
Fmts-12.tex		
Fmts-13.tex		
Fmts-14.tex		
Fmts-15.tex		

ENDF-6 Manual Review Status: 10/31/08

Chapter	Reviewer	Review status
Fmts-23.tex		
Fmts-26.tex		
Fmts-27.tex		
Fmts-28.tex		
Fmts-30.tex	D. Muir	completed
Fmts-31.tex	D. Muir	completed
Fmts-32.tex	N. Larson	completed
Fmts-33.tex	T. Kawano	completed
Fmts-34.tex	P. Talou	completed
Fmts-35.tex	D. Smith	completed
Fmts-40.tex	D. Smith	completed
Fmts-acknowldg.tex		
Fmts-A.tex		
Fmts-B.tex		
Fmts-C.tex		
Fmts-D.tex	N. Larson	completed
Fmts-E.tex		
Fmts-F.tex		
Fmts-G.tex		
Fmts-H.tex		



ENDF-6 manual: to do

Mandatory

- Complete transfer of figures
- Finalize reviews of the major chapters

Optional

- Annotated examples
- More figures
- Hyperlinks to real files in the electronic version (?)

LaTeX source will be managed under GForge

ENDF-6 checking codes (version 8.0)

update by Trkov (contribution by Capote & Koning)

Changes in version 8.0	STANEF	CHECKR	FIZCON	PSYCHE
Recent ENDF-6 format updates				
Major update of the code				
Removal of false error messages				
Removal of non-essential output				
Minor bug fixes				
Undefined variables set				
Reading real variables as REAL*8				

ENDF-6 checking codes (version 8.0)

update by Trkov (contribution by Capote & Koning)

Code	Status
STANEF-8.0	OK
CHECKER-8.0	OK
FIZCON-8.0	OK
PSYCHE-8.0	bug in RR

FORTRAN 95 compilers:

- **g95** (GNU; Linux, Mac)
- **ifort** (Intel; Linux, Mac, Windows)
- **If95** (Lahey/Fujitsu, Linux, Windows) (?)

Availability

- Currently: EMPIRE cvs repository (e-mail MH for instructions)
- Future: cvs repository accessible through GForge

Web to be phased out...

(well, only used for major versions)