FMTCHK
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This program analyzes the format of an ENSDF formatted file to verify that it conforms to "EVALUATED NUCLEAR STRUCTURE DATA FILE. A Manual for Preparation of Data Sets" by J.K. Tuli, Brookhaven National Laboratory Report BNL-NCS-51655-01/02-Rev (February 2001) and subsequent memos.

Input file:
(Sample input file: fmtchk.inp)

An ENSDF-formatted file.

Output file:
(Sample output file: fmtchk.rpt)

A report file indicating possible errors or warnings is generated Brief explanations of the fatal error (prefix <F>), error (prefix <E>), warning (prefix <W>), and informational (prefix <I>) messages are listed below.

Terminal Dialog:

The user will be asked to supply the input and output file names, whether errors only should be reported or the complete file reported (Default: errors only), whether or not continuation records should be checked (Default: check continuation records), if only fatal errors should be reported (Default: no), if warning messages should be suppressed (Default: no suppression. This query will be suppressed if only fatal errors are to be reported), and whether the XREF versus DSID check should be suppressed (Default: no).

As the datasets in the input file are processed, this will be indicated on the terminal. After each dataset is processed, the total number of fatal error, error, and warning messages will be reported. If both adopted datasets and "source" datasets are in the file, the X record and IDENTICATION records will be compared and any discrepancies listed.

Command line mode:

The program may also invoked *via* the command line by entering fmtchk followed by a string with a leading per cent sign ("%") and the input parameters in the same order as in the terminal dialog separated by "%". A blank (" ") or "#" specifies that the program default be used. For output files, "null" (case insensitive) will direct the output to the null device (/dev/null under Linux). A simple example is:

`fmtchk <ENSDF filename>`

This will process the specified ENSDF file with the program defaults.

Compilation and loading instructions:

This program requires subroutines from the NSDFLIB95 package.

Additional documentation: None

Fatal Error Messages

Fatal errors are those errors, which may cause output to be lost or severely misinterpreted by the processing codes and could in some cases cause abnormal termination of a program. These errors must be corrected to ensure proper loading into databases and proper processing.

<F> A CARD ILLEGAL FOR THIS DATASET – An ALPHA record has been found in a dataset other than "A DECAY."

<F> B CARD ILLEGAL FOR THIS DATASET – A BETA record has been found in a dataset other than "B- DECAY."

<F> BLANK DSID – Columns 10 through 39 of the ID record are blank.

<F> BR MUST BE GIVEN FOR PN OPTIONS 2-4 – An absolute intensity has been specified in column 78 of the PN record but no branching ratio has been given on the N record for a decay dataset other than SF DECAY.

<F> CARD ILLEGAL FOR THIS DATASET – A record has been included which is illegal for the type of dataset. For example, an R record in other than a REFERENCE dataset.

<F> COMMENT/PRIMARY CARD TYPE CONFLICT – The characters in columns 8-9 of a COMMENT record do not agree with that of the preceding data record.

<F> Com'nt type illegal in body – An N, P, or Q comment has been found within the body of a dataset.

<F> CONTIN/PRIMARY CARD TYPE CONFLICT – The characters in columns 8-9 of a CONTINUATION record do not agree with that of the preceding data record.

<F> DA CARD ILLEGAL FOR THIS DATASET – A (delayed-) particle record with A in column 9 has be found in other than a "B-A DECAY", "B+A DECAY", or "ECA DECAY" dataset

<F> DATA SET MUST HAVE Z – The chemical symbol or last two digits of the atomic number are missing from the NUCID of the ID record. Only COMMENTS and REFERENCES may have only the mass given.

<F> DN CARD ILLEGAL FOR THIS DATASET – A (delayed-) particle record with N in column 9 has been found in other than a "B-N DECAY" or "B-2N" dataset.

<F> DP CARD ILLEGAL FOR THIS DATASET – A (delayed-) particle record with P in column 9 has been found in other than a "B-P DECAY", "B+P DECAY", "ECP DECAY", "B+2P DECAY", or "B+P DECAY" dataset.

<F> DSID CARD NOT YET SEEN – A valid ENSDF record type has been found without a valid preceding IDENTIFICATION record.

<F> DSID CONT CARD NOT FOUND – The DSID field on the IDENTIFICATION record terminates with a "," but no continuation record follows.

<F> E CARD ILLEGAL FOR THIS DATASET – An EC record has been found in a dataset other than "EC DECAY" or "B+ DECAY."

<F> E < PRECEDING LEVEL ENERGY – Level records should be given in ascending order of energy.

<F> EMPTY DSID – Columns 10-39 of the IDENTIFICATION record cannot be blank.

<F> FLAGS ILLEGAL IN BODY OF DATA SET – A footnote COMMENT record has been found after a data record has been encountered

<F> GEN'L COMMENT ILLEGAL HERE – A general COMMENT record has been found after a data record has been encountered.

<F> H CARD COMMENT ILLEGAL – HISTORY records may only have continuation records.

<F> H CARD ILLEGAL FOR THIS DATASET – History records are not allowed for COMMENT or REFERENCES datasets.

<F> H CARD ILLEGAL IN BODY OF DATA SET – History records must precede the first LEVEL, GAMMA, BETA, ELECTRON, ALPHA, or (DELAYED)-PARTICLE record.

<F> INVALID COMMENT TYPE – Only "C", "c", "T", "t", "D", "U", or "P" are allowed in column 7.

<F> INVALID DATA SET ID FOR X CARD – ADOPTED…, COMMENTS, and REFERENCES DSID's are not valid for an X card.

<F> INVALID NUCID – Either the mass or chemical symbol has not been given for the NUCID or the chemical symbol is incorrect.

<F> INVALID PARENT ID – See "<F> INVALID NUCID".

<F> INVALID RECORD TYPE – The characters in columns 8-9 of the record do not conform to the defined record types.

<F> INVALID RECORD TYPE FOR DATASET – A record comment refers to a record type, which is not valid for the dataset.

<F> INVALID RECORD TYPE FOR SYMBOL – A symbol on a CONTINUATION record has been encountered for a record type where symbols are invalid.

<F> INVALID REFERENCES DATA SET ID – Non-blank characters follow REFERENCES.

<F> JUNK AT BEGINING OF FIELD – The program has been unable to parse the beginning of a DSID field.

<F> "LABEL=" ILLEGAL IN BODY OF DATA SET – Comment records with "LABEL=" must occur before the first level, gamma, or radiation record.

<F> "LABEL=" ILLEGAL WITH FLAGGED COMMENTS – The "LABEL=" formalism may not be used with flagged comments.

<F> MISSING COMMA – The comma delimiting the incident and outgoing fields of a reaction is missing.

<F> Multiple parents only for SF – Spontaneous Fission is the only decay mode where different parent nuclei may populate the same daughter.

<F> NEED BLANK CARD – An IDENTIFICATION record has been found without an END record for the preceding dataset.

<F> NO CONTINUATIONS FOR THIS CARD TYPE – No continuation records are allowed for some record types. Please check the manual.

<F> NO END CARD BEFORE END OF FILE – The last dataset in the file has not been properly terminated with a blank record.

<F> NO STARTING COMMENT FOUND – A continuation of a COMMENT record has been found with no starting COMMENT record (blank in column 6).

<F> NON-BLANK END CARD – Columns 1 through 8 are blank but there are non-blank characters in columns 9 through 80.

<F> NR MUST BE GIVEN FOR PN OPTIONS 2-4 – Column 78 of the PN record indicates an absolute intensity and RI is given on the GAMMA records but NR is missing on the N record.

<F> NT MUST BE GIVEN FOR PN OPTIONS 2-4 – Column 78 of the PN record indicates an absolute intensity and TI is given on the GAMMA records but NT is missing on the N record.

<F> NUCID DOESN'T MATCH DSID – Columns 1 through 5 of the record are discrepant with Columns 1 through 5 of the IDENTIFICATION record.

<F> NUCID MISMATCH WITH DSID PARENT – The NUCID of the PARENT record does not agree with the parent nucleus given in the DSID.

<F> NUCID, PARENT, MODE DISCREPANT – There is a discrepancy between the mass and charge of the NUCIDE with that calculated from the parent and decay mode given in the DSID of a decay dataset.

<F> P CARD ILLEGAL FOR THIS DATASET – PARENT records may only occur in decay datasets

<F> P CARD ILLEGAL IN BODY OF DATA SET – A PARENT record has been found after a data record has been encountered.

<F> PN CARD ILLEGAL IN BODY OF DATA SET – A PN record has been found after a data record has been encountered.

<F> PN CARD SHOULD FOLLOW N CARD – The PN record must immediately follow the N record and its comments. The following problems are indicated by this message:

1. An N record has been encountered and there are other record types between the N and PN records.
2. Column 78 of the PN record indicates absolute gamma intensities and no N record has been seen.

<F> Q CARD ILLEGAL IN BODY OF DATA SET – A Q record has been found after a data record has been encountered.

<F> S CARD ILLEGAL IN BODY OF DATA SET – An S record has been found after a data record has been encountered.

<F> Shell out of order – The LEVEL is not in the proper order for bound state beta– decay. See also "<F> E < PRECEDING LEVEL ENERGY".

<F> Two level energies – Two numeric values separated by a "+" have been found in the Level Energy field. Only one numeric value is allowed.

<F> X CARD ILLEGAL IN BODY OF DATA SET – An X record has been found after a data record has been encountered.

<F> "xxxxx" must be followed by " " – A code, which is automatically backspaced, is followed by "(" or ")". This may cause a fatal error in the PostScript output generated by ENSDAT or NDSPUB. See also <E> "xxxxx" must be followed by " ". Currently, the relevant codes are SUMOF and DELTA.

Error Messages

Processing codes may misinterpret data flagged as errors but the severity of the misinterpretation is expected to be less than for fatal errors and there is little likelihood of abnormal termination. These errors should be corrected to ensure proper loading into databases and proper processing.

<E> "," FOUND WHERE "+" REQUIRED – A mixing ratio has been found but the multipolarity is of the form "A,B" instead of "A+B".

<E> ", GAMMAS" IN ADOPTED DSID – The DSID is "ADOPTED LEVELS, GAMMAS" but there are no GAMMA records in the dataset.

<E> ", GAMMAS" MISSING IN ADOPTED DSID – The DSID is "ADOPTED LEVELS" but GAMMA records have been included in the dataset.

<E> AMBIGUOUS FINAL LVL. USE "FL=" – More than one level has been found that a gamma could feed. The "FL=" formalism should be used to specify the correct level fed. The parent level energy, J^{π}, and band symbol, the calculated final level energy, and the energies, J^{π}s, and band symbols, of possible levels fed are listed below this message. XREF's, if available, are checked and levels excluded by a comparison of the XREF's are indicated.

For gamma or level energies with no uncertainty, an uncertainty of "1" is assumed if there are no trailing digits after decimal; "2" if, one trailing digit; and "15" if more than one.

<E> BAND SYMBOL ALREADY ASSIGNED – The symbol flagged has already been assigned to another band.

<E> BLANK REQUIRED BETW'N VALUE & UNIT – There must be one blank separating the half –life value and unit.[1]

<E> BR .NE. NP – Branching ratio and particle normalization should be equal.

<E> BR > 1.0 – A branching ratio greater than one has been found on the N record. Two common causes of this are:

1. Mispunching the uncertainty on NT.
2. Not converting from percent branching to fractional branching.

<E> Capt. fract. incons. – An inconsistency has been found between the total capture fraction obtained from IE and TI on the E record and the sum of the capture fractions obtained from the "2 E" record. This will be reported either as an error or a warning dependent on the amount of the discrepancy. See also <W> Capt. fract. incons. This may occur if

1. If the "S E" record has not been updated with the latest results from LOGFT
2. If there are multiple "S E" containing the same capture fractions

<E> Capt.fract.>1 – Capture fractions must be a decimal fraction between 0 and 1.

<E> CHARACTER ALREADY ASSIGNED – A LEVEL record has been found with "X", "Y", "Z", "U", "V", "W", etc. in the E field and a previous LEVEL record has the same assignment.

[1] This message is changed to a warning if a valid "LABEL=" has been found for the field.

<E> CHECK A/B/E INTENSITIES – The sum of the α, β-, or ε/β+ intensities is greater than 100 by more than 2 standard deviations. See also <W>CHECKA/B/E INTENSITIES.

<E> Check missing RI – A TI is present on a GAMMA record but no CC or RI is given. This may result in programs assuming RI=TI. Please check to see if the transition may be highly converted and, if so, at least provide an estimate of the upper limit on RI.

<E> COINCIDENCE IN WRONG FIELD – A "C" or "?" has been found in column 79 of a GAMMA record. It should be in column 78.

<E> COLUMN 9 MUST BE N, P, OR A – A (delayed-) particle record has been found with other than an N, P, or A in column 9.

<E> DATE FIELD MUST BE BLANK OR NUMERIC – Column 75-80 of the IDENTIFICATION record must be either blank or numeric (YYMMDD).

<E> DBR .NE. DNP – See <E> BR .NE. NP.

<E> DEFAULT OPTION(=3) NOT ALLOWED – Column 78 of the PN record is blank. This defaults to option 3. See <E> OPTIONS 2,3,4 NOT ALLOWED FOR ADOPTED.

<E> DISAGREES WITH DSID – Information found on the PARENT record does not match information given within parentheses in the DSID field of the IDENTIFICATION record.

<E> DQP should be blank for IT – See <E> QP should be blank or 0 for IT.

<E> DSID already encountered – A previous dataset has the same NUCID and DSID on the ID record.

<E> Duplicate X record – A previous X record in the Adopted dataset has the same DSID.

<E> Duplicates previous "S E" record – This record is identical to a previous "S E" record for the same E record. This may cause the associated capture fractions to be overestimated.

<E> E MUST BE FOLLOWED BY DIGIT – E or M in the multipolarity field of the GAMMA record or L field of the LEVEL record must be followed by a digit.[1]

<E> EMBEDDED BLANKS – A blank has been encountered within a numerical values.[1]

<E> Embedded "-" illegal in outgoing – A minus sign has been found in the outgoing field of a reaction and the preceding characters are not recognized as a particle which should have a minus sign

<E> Embedded "plus" illegal in outgoing – A plus sign has been found in the outgoing field of a reaction and the preceding characters are not recognized as a particle which should have a plus sign

<E> EMBEDDED BLANK INVALID – No blanks are allowed.

<E> EMPTY FIELD – Two "$"'s in a row have been found on a CONTINUATION record.

<E> END CARD NOT IN ANY DATASET – A blank record has been found without a valid preceding IDENTIFICATION record.

<E> ENERGY FIELD CAN NOT BE BLANK – LEVEL and GAMMA energy fields cannot be blank.

<E> EVEN A, HALF-INTEGER ISPIN – The NUCID for the dataset has an even mass but the isospin is a half-integer; see also <E> ODD A, INTEGER ISPIN.

<E> EVEN A, HALF-INTEGER J – The NUCID for the dataset or P record has an even mass but the spin is a half-integer (If the parent NUCID cannot be decoded the parent from the DSID is used); see also <E> ODD A, INTEGER J.[1]

<E> EXPONENT TOO LARGE – An exponent greater than 30 has been found.

<E> EXPONENT TOO SMALL – An exponent less than -30 has been found.

<E> FIELD MUST BE BLANK OR 1-7 – Column 78 of a PN record is restricted to blank or 1 through 7.

<E> FIELD(S) MUST BE BLANK – The fields indicated should be blank based on the type of record specified in column 8 or, in the case of the N record based on the N record specifications and the type of dataset. An example of the latter would be the N record within an "A DECAY" dataset: columns 42-49 (NB), 50-55 (DNB), 56-62 (NP), and 63-64 (DNP) should be blank

<E> FL= already encountered – Only one final level is allowed per gamma record.

<E> FL= is same as current E(level) – The level energy specified in the FL= is identically equal to the energy of the level being deexcited.

<E> FLAG RESERVED – A flag has been specified on a footnote COMMENT record that has a special meaning for the data record type. These include "*", "&", "@", and "%" for the GAMMA record and "C" and "?" for the ALPHA, B-, and B+ or EC record.

<E> GAMMA OUT OF ORDER – Gammas should be given in ascending order of energy.

<E> GS Parent in IT decay – A zero energy level has been encountered on the Parent record of an IT decay dataset.

<E> H CARD COMMENT ILLEGAL – HISTORY records may only have continuation records.

<E> IB>0 but no EAV – A non-zero value has been found in the IB field of the B or E record but the average beta energy is missing.

<E> IB .NE. TI – Only IB and TI are given on an E record and either the values or uncertainties are not equal.

<E> IB+IE .NE. TI – The difference between IB+IE and TI is greater than the quadratic sum of their uncertainties.

<E> IE .NE. TI – Only IE and TI are given on an E record and either the values or uncertainties are not equal.

<E> IDENTICAL GAMMA ENERGIES – Two or more GAMMA records with the same energy have been found deexciting a level and valid "FL=" information is missing.

<E> IF VALUE BLANK THEN UNCERT. BLANK – The uncertainty field for a value is not blank but the value field is.

<E> IF VALUE UNKNOWN THEN UNCERT. BLANK – A value such as “X” is given but the uncertainty is not blank.

<E> Inconst. ionization – The ionization state on the PARENT record or LEVEL continuation record disagrees with that specified in the DSID.

<E> Inconsistent uncert. – A non-numeric uncertainty has been found for DIB, DIE, DLOGFT, or DTI on a B or E record and related fields are not consistent with this uncertainty.

<E> Incorrect electron shell – The electron subshell for bound state β- decay has not been correctly specified.

<E> INCORRECT ORDER FOR SP OR SN – SP or SN must precede the "+" or "-."

<E> Ionization>Z – The ionization state in the DSID is greater than the atomic number of the parent.

<E> INVALID "DECAY" – A decay DSID has been found without "DECAY."

<E> INVALID ADOPTED DATA SET ID – An adopted dataset has been found which does not contain "ADOPTED GAMMAS", "ADOPTED LEVELS" or "ADOPTED LEVELS, GAMMAS" in the DSID field.

<E> INVALID AUTHOR CODE – Keynumbers should be of the form YYAABB where YY (year) is a two-digit integer, AA (author) consists of two alphabetic characters, and BB (uniqueness) is either a two-digit integer or consists of a two alphabetic characters.

<E> INVALID BLANK – A blank has been found in the wrong place on a reaction DSID.

<E> INVALID CHARACTER

1. A character has been found in the outgoing field of a reaction which is not a digit, an upper case letter, "+", "-", " ", or "'".
2. An invalid punctuation character has been found within the field.
3. Publication information in the PUB field of the IDENTIFICATION record is not followed by a "+" or ",".

<E> INVALID CITATION – Either an undefined journal (NDS=Nuclear Data Sheets, NP=Nuclear Physics currently defined, and ENSDF) was encountered or the program was unable to parse the citation field on the HISTORY record. The form should either be NDS vv, ppp (yyyy), NP Avvv, ppp (yyyy), or ENSDF.

<E> INVALID COIN FIELD – Only "C" and "?" are allowed in the coincidence field.

<E> INVALID COMMENT TYPE – Only "C", "c", "T", "t", "D", "U", or "P" are allowed in column 7.

<E> INVALID COMMENTS DATA SET ID – A COMMENTS DSID has been found which has illegal punctuation following "COMMENTS."

<E> INVALID DATE – The program was unable to parse the cutoff date on the HISTORY record. The date should be of the form DD-MMM-YYYY. See also <E> INVALID DAY, <E> INVALID MONTH, and <E> INVALID YEAR.

<E> INVALID DAY – The DATE field of the IDENTIFICATION record should be of the form YYMMDD with YY between 00 and 99, MM between 01 and 12, and DD between 01 and 31, inclusive.

The CUToff date on the HISTORY record should be of the form DD-MMM-YYYY with a day (DD) between 1 and 31, depending on the month (MMM) and year (YYYY). See also <E> INVALID DATE.

<E> INVALID DECAY DATA SET ID – "MUONIC ATOM" has been found in the DSID field but there are other characters also in the field.

<E> INVALID DECAY TYPE – A mode of decay has been found in the DSID, which has not been defined in the manual or subsequent memos. Please check these for possible equivalences.

<E> INVALID E FIELD – A LEVEL record has been found with "X", "Y", "Z", "U", "V","W", *etc.* in the E field and additional characters have been found without a preceding or trailing "+" to the non-numeric character.[1]

<E> INVALID EVALUATION TYPE – An undefined evaluation type has been found on the HISTORY record. Valid types are: FUL, ERR, UPD, HIS, SDB, and DEC.

<E> INVALID FIELD – A CONTINUATION record field does not have a blank, "<", "=", or ">" following the field name.

<E> INVALID FIELD NAME – The field name on a CONTINUATION, COMMENT, or HISTORY record. Has not been defined in the manual or subsequent memos. Please check these for possible equivalences.

<E> INVALID FLAG CHARACTER – A character has been found in the C field or in a FLAG field of a CONTINUATION record which has not been defined in a footnote comment on that record type.

<E> INVALID HALF-LIFE – An entry following the format for half-lives is expected but the entry does not follow the format of Number-blank-Units.[1]

<E> INVALID INITIALS – Entry following a comma in the PUB field of the IDENTIFICATION record should be the initials of the person who modified the dataset.

<E> INVALID ISPIN FIELD – An entry following the format for isospin is expected but the entry does not follow the proper format.

<E> INVALID J FIELD – An entry following the format for spin-parity is expected but the entry does not follow the proper format.[1]

<E> INVALID L FIELD – An entry following the format for the L field is expected but the entry does not follow the proper format. A common occurrence of this is the use of the LABEL= formalism; note that this formalism is only recommended for the S field.[1]

In many instances evaluators have used this field to give the incident proton or parent level energy for isobaric analog states. The preferred representation for incident proton energies is the "SP+..." formalism in the energy field. Parent level information should be given on a comment record.

<E> INVALID "LABEL=" FOUND – The symbol specified is not a valid field name for the record.

<E> INVALID M FIELD – An entry following the format for the multipolarity field is expected but the entry does not follow the proper format.[1]

<E> INVALID MONTH – See INVALID DAY for IDENTIFICATION record. For the HISTORY record the CUToff date should be of the from DD-MMM-YYYY where the allowed months (MMM) are: JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, and DEC. See also <E>INVALID DATE.

<E> INVALID MS FIELD – Columns 78-79 of the LEVEL record must either be blank or contain "M" in column 78 and blank or "1" to "9" in column 79.

<E> INVALID NDS PUBLICATION – Information on the NDS publication in the field of the IDENTIFICATION record must be a two-digit integer representing the year of publication followed by "NDS", "NP', or "TOI".

<E> INVALID NUMERIC VALUE – A numeric field has trailing non-numeric data.[1]

<E> INVALID PAGE – the page number in the citation field of the HISTORY record should be numeric. See also <E> INVALID CITATION.

<E> INVALID PUB FIELD – The PUB field of the IDENTIFICATION record does not contain all the required information.

<E> INVALID Q FIELD – Column 80 of the record has a character other than "S" or "?".

<E> INVALID RATIO COUNT – The number of colons (":") on either side of the equals operator are not equal.

<E> INVALID REACTION TARGET – No chemical symbol has been given for the target.

<E> INVALID RECORD TYPE – The characters in columns 8-9 of the record do not conform to the defined record types.

<E> INVALID REFERENCE FIELD – Less than six characters were given in the field. See INVALID AUTHOR CODE

<E> INVALID RELATION – Valid operators are: "<", "=", ">", " EQ ", " AP ", " LT ", " LE ", " GT ", and " GE ".

<E> INVALID S FIELD – An entry following the format for the S field is expected but the entry does not follow the proper format.[1]

<E> INVALID SYMBOL – A "$" has been found as the symbol of an X record. This cannot be used since "$" is a delimiter on continuation records.

<E> INVALID UN FIELD – Columns 78 and 79 of the BETA and EC records must be blank or contain a digit in column 78 and a blank or "U" in column 79.

<E> INVALID UNCERTAINTY – The uncertainty must either be:

1. A literal: "LT", "GT", "LE", "GE", "AP", "CA", or "SY",
2. An unsigned integer, or
3. An asymmetric uncertainty consisting of +<integer>-<integer> or -<integer>+<integer>.

<E> INVALID UNIQUENESS CODE – See INVALID AUTHOR CODE. Note that for the uniqueness field of a reference which does not have a keynumber assigned in the NSR system it is recommended that a two-character uniqueness code be used starting with "AA". If no uniqueness code is given or integers and characters are mixed, the production codes will not recognize the entry as a keynumber. If a two-digit integer or a two-character code near the end of the alphabet (*e.g.*, "ZZ") is given, the production codes may mistake the entry for a reference in NSR.

<E> INVALID UNITS – The units given for a half-life have not been recognized. The valid units are: KEV, MEV, MS, US, NS, PS, FS, AS, EV, Y, D, H, M, and S.[1]

<E> INVALID VALUE FOR THIS FIELD TYPE – "?" is only allowed following branching ratios or half-lives on CONTINUATION records.

<E> INVALID VOLUME – The volume given in the citation field of the HISTORY record is incorrect. For Nuclear Data Sheets publications it should be a number and for Nuclear Physics, "A" followed by a number. See also <E> INVALID CITATION.

<E> INVALID XREF CHARACTER – An alphanumeric character has been found following "XREF=" which has not been defined on an X card.

<E> INVALID XREF FIELD – An invalid character has been found in the XREF field.

<E> INVALID YEAR – See INVALID AUTHOR CODE. For the citation field on the HISTORY record, the year should be a four-digit number enclosed in parentheses. See also <E> INVALID CITATION.

<E> JUNK AFTER CLOSE BRACKET – Illegal information found before the last bracket in the J field

<E> JUNK AFTER CLOSE PAREN – Illegal information found before the last parentheses in the J field

<E> JUNK BEFORE OPEN BRACKET – Illegal information found before the first bracket in the J field

<E> JUNK BEFORE OPEN PAREN – Illegal information found before the first parentheses in the J field

<E> JUNK AT END OF FIELD – The program has been unable to parse the rest of the record. The problem is usually within the leading characters indicated.[1]

<E> Jx PREVIOUSLY ASSIGNED – A J value of the form J or Jx has been found on a LEVEL record that duplicates a previous assignment.

<E> LEADING BLANKS INVALID – Entry must be left justified within the field.

<E> LONGER THAN 80 CHAR – The record has non-blank characters past column 80.

<E> M CAN'T BE FOLLOWED BY ZERO – Magnetic monopole multipolarities are not allowed.[1]

<E> M MUST BE FOLLOWED BY DIGIT – See E MUST BE FOLLOWED BY DIGIT.[1]

<E> MATCHING LEVEL NOT FOUND – An FL= has been found on a GAMMA CONTINUATION record and none of the preceding level energies match exactly the characters given in the field.

<E> MISMATCH WITH COL. 9 OF N CARD – A symbol has been found in column 9 of the PARENT record which does not correspond to the symbols on the N records. See also <E> MISMATCH WITH COL. 9 OF P CARD.

<E> MISMATCH WITH COL. 9 OF P CARD – A symbol has been found in column 9 of the NORMALIZATION record which does not correspond to the symbols on the P records. See also <E> MISMATCH WITH COL. 9 OF N CARD.

<E> MISSING VALUE – A field has been given on a History record but there is no value.

<E> MISSING VOLUME – The volume number is missing in the Citation on a History record.

<E> MISSING "$" AT END OF PRIOR H RECORD – A HISTORY continuation record was found and the previous record did not terminate with a "$". Note: only the COMment field is allowed to span records.

<E> MISSING "=" sign – A valid field has been found on the HISTORY record but the equal sign is missing after it.

<E> MISSING "(" – Parentheses are required but the leading parentheses is missing.

<E> MISSING ")" – Parentheses are required but the trailing parentheses is missing.[1]

<E> MISSING "]" – A leading square bracket has been found in the PUB field but the trailing square bracket is missing.

<E> MISSING + – The structure of the energy field indicates that there should be a "+" but it is missing.[1]

<E> MISSING "AAA" FIELD – The field indicated is required for the evaluation TYPe on the HISTORY record. See also <W> MISSING "AAA" FIELD.

<E> MISSING COMMA BETWEEN REFERENCES – Keynumbers in a reference list must be separated by commas.

<E> MISSING EXPECTED "2PN" – Column 77 of the "PN" record as a "C" in it but no "PN" continuation records were found.

<E> MISSING FLAG VALUE – "FLAG=" has been found with no characters following it.

<E> MISSING MULT – A mixing ratio has been given but there is no multipolarity.

<E> MISSING MULT ADMIXTURE – A mixing ratio has been given but there is a pure multipolarity.

<E> MISSING QP FIELD – The parent Q value must be given if known.

<E> MISSING T FIELD – The parent half-life must be given if known.

<E> MISSING UNIT SUB-FIELD – A half-life is expected in the field but there are no units given. See <E> INVALID UNITS for valid units.[1]

<E> MISSING XREF VALUE – "XREF=" has been found with no characters following it.

<E> MORE G'S(#) THAN LVL(#) TO FEED – More GAMMA records have been found deexciting a level than there are levels to feed. The number of gammas and levels are given in parentheses.

<E> MORE THAN 1 BLANK BEFORE UNIT INVALID – Only one blank is allowed between the number and the unit for a half-life.[1]

<E> MORE THAN ONE BLANK INVALID – Only one blank is allowed between the segments of a decay dataset DSID.

<E> MS identical to that for record *iii* – Columns 78-79 of a Level record are not blank and are identical to columns 78-79 of a previous Level record

<E> MS<*aa* for record *iii* – *aa* in columns 78-79 of a Level record is less than that in columns 78-79 of a previous Level record.

<E> MUST BE DIGIT – See <E> INVALID UN FIELD.

<E> MUST BE DIGIT OR BLANK – See INVALID MS FIELD.

<E> N CARD ALREADY SEEN – Only one N record is allowed within a dataset unless there are multiple PARENT RECORDS.

<E> N CARD ILLEGAL FOR DATASET – N records are not allowed for COMMENTS and REFERENCE datasets.

<E> N CARD ILLEGAL IN BODY OF DATA SET – A N record has been found after a data record has been encountered.

<E> N CARD MUST PRECEDE PN – An N record has been found after a PN record. See <E> PN CARD SHOULD FOLLOW N CARD.

<E> N HAS BLANK IN COL. 9 – A PARENT record has been found with a symbol in column 9 but the N record has a blank column 9. See also <E> P HAS BLANK IN COL. 9.

<E> Negative energy found – A negative energy has been found on a gamma or radiation record. See also <W> Negative energy found.

<E> NO ")" TO END LIST – A reference list on a CONTINUATION record has been encountered but is missing the terminating parentheses.

<E> No CC for total ionization – The parent is totally ionized so there are no electrons to convert

<E> No EC for total ionization – The parent is totally ionized so there are no electrons to capture.

<E> NO END CARD BEFORE END OF FILE – The last dataset in the file has not been properly terminated with a blank record.

<E> NO FINAL LVL WITHIN xx keV – No final level has been found for the GAMMA to feed within five standard deviations (xx is the range searched). The parent level energy, J^{π}, and band symbol, the calculated final level energy, and the energies, J^{π}'s, and band symbols, of the closest levels are listed below this message. This may indicate a typographical error, that GTOL or GAMUT has not been run, or the need for an "FL=" on a continuation record. See also <W> NO FINAL LVL WITHIN xx keV.

For gamma or level energies with no uncertainty, an uncertainty of "1" is assumed if there are no trailing digits after decimal; "2" if, one trailing digit; and "15" if more than one.

<E> NO "LABEL=" ALLOWED FOR SYMBOL – The field specified may not be relabeled.

<E> NO STARTING COMMENT FOUND – A continuation of a COMMENT record has been found with no starting COMMENT record (blank in column 6).

<E> No "*a*" or "*xxx*" level assigned – A Level record energy of the form X+number has been encountered and the character *a* and the energy *xxx* have not been previously assigned. Either the character *a* must have occurred in a level energy alone or as "0.0+*a*", "0+*a*", *etc*. or a level with exactly the same energy *xxx* must have been encountered. This is sometimes degraded to a warning if it is possible that "E+X+Y" may be meant and "E+X+Y" is currently not allowed; see <W> No "*a*" or "*xxx*" level assigned

<E> NONPRINTABLE CHAR: – The non-printable character indicated has been found between columns 1 and 80. With the exception of the <NUL> character this terminates parsing of the record. See also <W> NONPRINTABLE CHAR:.

<E> NOT CONS. WITH EL-EG=x dx – The final level value falls outside the value calculated from E(level) and E_{γ} by more than 7.5×dx. See also <W> NOT CONS. WITH EL-EG=x dx.

<E> NP > 1.0 – A particle normalization greater than one has been found on the N or PN records.

<E> NUCID MISMATCH WITH DSID PARENT – The NUCID of the PARENT record does not agree with the parent nucleus given in the DSID.

<E> NUL CHARACTER FOUND – A null character (ASCII decimal code 0) had been found.

<E> ODD A, INTEGER ISPIN – The NUCID for the dataset has an odd mass but the isospin is an integer. See also <E> EVEN A, HALF-INTEGER ISPIN.

<E> ODD A, INTEGER J – The NUCID for the dataset or P record has an odd mass but the spin is an integer (If the parent NUCID cannot be decoded the parent from the DSID is used); see also <E> EVEN A, HALF-INTEGER J.[1]

<E> Only ?? electrons – Bound state beta- decay. Conversion may only occur from the electron subshell specified on the preceding LEVEL record.

<E> OPTIONS 2,3,4 NOT ALLOWED FOR ADOPTED – Column 78 of the PN record contains "2", "3", or "4". These specify absolute intensities, which are not allowed for adopted datasets.

<E> P HAS BLANK IN COL. 9 – A NORMALIZATION record has been found with a symbol in column 9 but the P record has a blank column 9. See also <E> N HAS BLANK IN COL. 9.

<E> P CARD REQUIRED FOR DECAY DATASETS – PARENT records are required for all decay datasets.

<E> PARENT LEVEL NOT BAND MEMBER – A "%" has been found in column 77 of a GAMMA record but the parent LEVEL record is not a member of a band.

<E> PN CARD ALREADY SEEN – Only one PN record is allowed in a dataset.

<E> PN RECORD NOT ALLOWED FOR DATASET – PN records are not allowed in COMMENTS or REFERENCES datasets.

<E> PREV DSID SHOULD END WITH COMMA – An IDENTIFICATION CONTINUATION record has been encountered but the DSID field on the IDENTIFICATION record does not terminate with a ",".

<E> PROBABLE TYPING ERROR – A numeric field has been encountered with a leading zero followed by a character other than period (".").[1] If this is on a formatted record, check the preceding uncertainty field position. If it occurs on a continuation, check for a possible missing or misplaced decimal point.

<E> PUB COMNT ALLOWED FOR LGAEB ONLY – The PUBLICATION comment is allowed only for LEVEL, GAMMA, ALPHA, EC, and BETA record types.

<E> PUB COMNT REQUIRES PUB= – Only the symbol PUB and the "=" operator are allowed.

<E> Q CARD ALREADY SEEN – Only one Q record is allowed in a dataset.

<E> Q CARD REQUIRED FOR ADOPTED DATASETS – An adopted dataset must have a Q record even if no values are known.

<E> QP should be blank or 0 for IT – Since the parent is an excited state of the daughter, the g.s. to g.s. Q-value is identically equal to zero.

<E> QUOTE EXPECTED – Unmatched single quotes (“`”) have been found in a PUBLICATION comment field.

<E> REFERENCES MUST HAVE BLANK Z – REFERENCE datasets refer to the complete A-chain evaluation and, therefore, cannot have a chemical symbol.

<E> RELATION MUST BE "=" – Limits are not allowed for the symbol.

<E> S RECORD ALREADY ENCOUNTERED – An X record has been found and there are already S records given. See also <E> X RECORD ALREADY ENCOUNTERED; X and S records are mutually exclusive within a dataset.

<E> SHOULD BE BLANK OR C – Column 77 of the PN record must be blank or "C".

<E> SQUARE BRACKETS NOT ALLOWED – Square brackets are not defined for the field.

<E> START DSID ON COLUMN 10 – There are leading blanks in the DSID field of the IDENTIFICATION record.

<E> SYMBOL CODE ALREADY USED – An S record has been encountered with a symbol, which has already appeared on a previous S record.

<E> SYM MAY NOT BE REPEATED – The same SYMBOL has been repeated on a record or flagged comment.

<E> SYMBOL INVALID FOR CONTINUATIONS – The symbols "TITLE", "BAND", "MS", "COIN", and "UN" are not valid for CONTINUATION records and may only be used for footnote or record COMMENTS.

<E> Target, reaction, & NUCID mismatch – The mass or atomic number of the residual calculated from those of the target, incident, and outgoing on an Identification or X record does not agree with the NUCID.

**<E> TERMINATE WITH "$"** – A record or footnote comment has a SYM field which does not terminate which does not terminate with "$" and column 19 is not blank.

<E> TOO MANY CHARACTERS ASSIGNED – Only the 26 upper-case Roman characters are allowed in the energy field

<E> TRAILING BLANKS INVALID – Trailing blanks are not allowed within the field.

<E> U COMMENT MUST BE GENERAL – An update comment must be a general comment. It cannot be a record or flagged comment.

<E> U COMMENT NOT ALLOWED IN ADOPTED – Update comments may only appear in source datasets which have a corresponding X card in the adopted dataset.

<E> U COMMENT NOT ALLOWED IN COMMENTS – See <E> U COMMENT NOT ALLOWED IN ADOPTED.

<E> U COMMENT NOT ALLOWED IN REFER'S – See <E> U COMMENT NOT ALLOWED IN ADOPTED.

<E> UNASSIGNED CHARACTER FOUND – A LEVEL record has an energy of the form "num+X" and the character has not been previously assigned or the value is not consistent with the value on the previous LEVEL record.

<E> UNBALANCED PARENTHESES – The field has a set of unbalanced open and close parentheses.[1]

<E> UNBALANCED SQUARE BRACKETS – The field has a set of unbalanced open and close brackets ("[","]").[1]

<E> UNCERTAINTY OF ZERO – An uncertainty of zero has been encountered. One possible cause may be the misplacement of the preceding value.

<E> UNDEFINED SYM CHAR. – A GAMMA record has a symbol in column 9, which was not defined on an S record.

<E> UNDEFINED XREF CHAR. – A character has been found within the XREF field, which has not been defined by an X card.

<E> UNEXPECTED "2PN" FOUND – A PN continuation record has been found but column 77 of the PN record does not contain "C"

<E> UNSIGNED NUMBER EXPECTED – The number contained in the field cannot be signed.

<E> Unexpected uncertainty found – An uncertainty for a Level record energy of the type SP+X or SN+X has been encountered.

<E> Use "," instead of "." – A period has been encountered between two values.

<E> X RECORD ALREADY ENCOUNTERED – An S record has been found and there are already X records given. See also <E> S RECORD ALREADY ENCOUNTERED; X and S records are mutually exclusive within a dataset.

<E> XREF CODE ALREADY USED – The same character has been assigned to more than one X card.

<E> xxx FEEDS yyy – A previous gamma connecting the same two levels as the current gamma has been found.

<E> "xxxxx" must be followed by " " – A code that is automatically backspaced is followed by a non-blank character. This will cause an overprint in PostScript output generated by ENSDAT or NDSPUB. See also <F> "xxxxx" must be followed by " ". Currently, the relevant codes are SUMOF and DELTA.

<E> ZERO ENERGY GAMMA FOUND – A blank or zero is given in the GAMMA E field.

Warning Messages

<W> Assigned to Band x – The level has already been assigned to a Band and another Band symbol has been found in "FLAG=".

<W> BLANK CONTINUATION CARD – A continuation record, which is blank in columns 10 through 80, has been found.

<W> Band info not retained – A band symbol found in a "FLAG=" on a LEVEL continuation record has not been saved since there is a continuation and primary record cord conflict.

<W> BLANK FIELD AFTER ":" – A colon has been found in the DSID field of the IDENTIFICATION record with nothing following it.

<W> BLANK REQUIRED BETW'N VALUE & UNIT – See <E> BLANK REQUIRED BETW'N VALUE & UNIT.[2]

<W> BR SHOULD BE GIVEN IF KNOWN – The branching ratio should be given on the N record if known for any type of decay except SF.

<W> Capt. fract. incons. – An inconsistency has been found between the total capture fraction obtained from IE and TI on the E record and the sum of the capture fractions obtained from the "2 E" record. This will be reported either as an error or a warning dependent on the amount of the discrepancy. See also <E> Capt. fract. incons. This may occur if

1. If the "S E" record has not been updated with the latest results from LOGFT
2. If there are multiple "S E" containing the same capture fractions

<W> CHARACTER ASSIGNED OUT OF ORDER – Non-numeric characters in the energy field should be assigned in the order: "X", "Y", "Z", "U", "V", "W", "S", "T", and "A" through "R".

NOTE: This check is only made for the adopted datasets.

<W> CHECK A/B/E INTENSITIES – The sum of the α, β-, or ε/β+ intensities is either less than 100 by more than 1 standard deviations or more than 100 by 1 or 2 standard deviations. See also <E> CHECK A/B/E INTENSITIES.

<W> CHECK CONSISTENCY BETWEEN P AND DSID – The number of PARENT records and the optional data within parentheses in the DSID of the IDENTIFICATION record seem to disagree.

<W> Check dataset for Y2K compl. – From the ID record, FMTCHK could not determine if this dataset has been converted to the Y2K-compliant ENSDF format.

<W> CHECK FIELD – A non-numeric LEVEL energy field has been found which does not appear to follow the formats.

<W> CHECK FOR MISSING DECAY MODES – A level has been found in the adopted dataset with T1/2>=0.1 ms or which is indicated as metastable in columns 78-79 and no decay modes have been found on the continuation records.

<W> CHECK FOR POSSIBLE TYPING ERROR – A field with value of zero has been found on an N or PN record with a period in the first column of the field.

[2] This message appears instead of an error if a valid "LABEL=" has been found for the field.

<W> CHECK FOR POSSIBLE MISALIGNMENT – The LEVEL E and J fields may be misaligned.

<W> CHECK OPTION - MULTIPLE N RECORDS – A "PN" record has been found with column 77 indicating absolute intensities but there are multiple NORMALIZATION records.

<W> CHECK REACTION – "HI" has been given as the incident in a reaction but the outgoing is not "XNG".

<W> CHECK USE OF "(...)" IN E FIELD – Parentheses are allowed in the energy field. However, there is some confusion in their use:

1. (...) should not be used in the BETA or EC energy fields when the value given is E(parent)+QP-E(level). All relevant programs calculate this value. In the case of the publication code the calculated value will be output with parentheses if the energy field is blank but not otherwise.
2. For other energy fields, the use of "S" in column 80 may be more appropriate. For NDS this will result in the energy being enclosed in parentheses and a dotted line on the drawing.

If (...) are employed, this must be explained with a comment.

<W> CHECK USE OF "*" – Use of "@" or "&" is probably better since RI or TI has been given.

<W> Check use of "?" - A question mark has been found following the value for a BEλW or BMλW on a LEVEL continuation record. Check to see if usage is appropriate.

<W> CHECK USE OF "@" OR "&" – Use of "*" is probably better since RI and TI have not been given.

<W> Check use of AA before open paren – An operator (*e.g.*, GE) has been found outside the parentheses in the J field of the LEVEL record. This should probably be inside the parentheses.

<W> E MUST BE FOLLOWED BY DIGIT – See <E> E MUST BE FOLLOWED BY DIGIT.[2]

<W> E = PRECEDING LEVEL ENERGY – Two levels with the same energy, J^{π}, and $T_{1/2}$ have been found.

<W> EMBEDDED BLANKS – A blank has been encountered within a numerical values.[2]

<W> EVEN A, HALF-INTEGER J – See <E> EVEN A, HALF-INTEGER J.[2]

<W> EXPONENT TOO LARGE – An exponent greater 10 and less than 30 has been found.

<W> EXPONENT TOO SMALL – An exponent less than -10 and greater than -30 has been found.

<W> FIELD NOT BLANK BUT NB IS – NBBR is given on the PN record but NB is not given on the N record.

<W> FIELD NOT BLANK BUT NP IS – NP is given on the PN record but NP is not given on the N record.

<W> FIELD NOT BLANK BUT NR IS – NRBR is given on the PN record but NR is not given on the N record.

<W> FIELD NOT BLANK BUT NT IS – NTBR is given on the PN record but NT is not given on the N record.

<W> FL info not retained – Final level information on a GAMMA continuation record has not been saved since there is a continuation and primary record conflict.

<W> FLAG NOT REFERENCED: *a* R TYPE: *b* – The flag *a* on a flagged comment for record type *b* was not used as a flag for any of the records of type *b* in the dataset.

<W> H RECORD OUT OF GROUP – HISTORY records should be group together with no other records mixed in.

<W> HEAD Jx MISSING – A J value of the form Jx+...has been found on a LEVEL record with no preceding LEVEL with Jx or Jx AP encountered.

<W> IB=" " but EAV given – The IB field of the B or E record is blank but an average beta energy has been found on a following "S B" or "S E" record.

<W> IB=0 but EAV given – The value of the IB field of the B or E record is 0 but an average beta energy has been found on a following "S B" or "S E" record.

<W> IE=" " but CK,... given – The IE field of the E record is blank but partial capture fractions have been found on a following "S E" record.

<W> IE>0 but no capt. fract. – A non-zero value for IE on an E record has been found but no partial capture fractions have been found on the following "S E" records.

<W> INCONSISTENT USE OF "*", "@", "&" – In comparing GAMMA records, a possible inconsistency in the use of the multiple-placement flags has been noted. The text following the sequence number explains the inconsistency.

<W> INVALID E FIELD – See <E> INVALID E FIELD.[2]

<W> INVALID HALF-LIFE – See <E> INVALID HALF-LIFE.[2]

<W> INVALID J FIELD – See <E> INVALID J FIELD.[2]

<W> INVALID L FIELD – See <E> INVALID L FIELD.[2]

<W> INVALID M FIELD – See <E> INVALID M FIELD.[2]

<W> INVALID NUMERIC VALUE – See <E> INVALID NUMERIC VALUE.[2]

<W> INVALID S FIELD – See <E> INVALID S FIELD.[2]

<W> INVALID UNITS – <E> INVALID UNITS.[2]

<W> JUNK AT END OF FIELD – See <E> JUNK AT END OF FIELD.[2]

<W> M CAN'T BE FOLLOWED BY ZERO – See <E> M CAN'T BE FOLLOWED BY ZERO.[2]

<W> M MUST BE FOLLOWED BY DIGIT – See <E> M MUST BE FOLLOWED BY DIGIT.[2]

<W> MISSING ")" – See <E> MISSING ")".[2]

<W> MISSING + – See <E> MISSING +.[2]

<W> MISSING "AAA" FIELD – The field indicated may be useful to include for the evaluation TYPe on the HISTORY record. See also <E> MISSING "AAA" FIELD.

<W> Missing MS. T1/2>=0.1 ms – A metastable state, as defined as having T1/2≥0.1 ms should be flagged as such.

<W> MISSING MR – A mixed multipolarity has been found in the MULT field of the GAMMA record but no mixing ratio has been given.

<W> MISSING MULTIPLE-PLACEMENT SYMBOL – A preceding GAMMA record of the same energy has "*", "@", or "&" in column 77.

<W> MISSING SYMBOL – The "$" delimiter on a COMMENT, DOCUMENTATION, or TABLE record is not in column 10 and the preceding columns are blank.

<W> MISSING UNIT SUB-FIELD – See <E> MISSING UNIT SUB-FIELD.[2]

<W> Missing XREF= for level(s): – A dataset contains X records but the levels listed following this message are missing an XREF= on a continuation record.

<W> MORE THAN 1 BLANK BEFORE UNIT INVALID – See <E> MORE THAN 1 BLANK BEFORE UNIT INVALID.[2]

<W> N CARD SHOULD BE GIVEN IF BR KNOWN – No N card has been found in a decay dataset other than SF DECAY. At least the branching ratio for these decays should be given.

<W> NB SHOULD BE GIVEN IF KNOWN – IB, IE, or TI fields have been found on a BETA or EC record but NB has not been given on the N record. This value should be given if known.

<W> Negative energy found – A negative energy has been found on a Level record. See also <E> Negative energy found.

<W> No "*a*" or "*xxx*" level assigned – See <E> No "*a*" or "*xxx*" level assigned.

<W> NO FINAL LVL WITHIN xx keV – No final level has been found for the GAMMA to feed within three to five standard deviations (xx is the range searched). The parent level energy, J^{π}, and band symbol, the calculated final level energy, and the energies, J^{π}'s, and band symbols, of the closest levels are listed below this message. This may indicate a typographical error, that GTOL or GAMUT has not been run, or the need for an "FL=" on a continuation record. See also <E> NO FINAL LVL WITHIN xx keV.

For gamma or level energies with no uncertainty, an uncertainty of "1" is assumed if there are no trailing digits after decimal; "2" if, one trailing digit; and "15" if more than one.

<W> NO RI=100 FOR G''s FROM LVL – Either an adopted dataset has been encountered with no PN record or a PN record has been encountered with option 6 and there is no gamma record with RI=100 deexciting the level shown.

<W> NONPRINTABLE CHAR: – The non-printable character indicated has been found past column 80. See also <E> NONPRINTABLE CHAR:.

<W> NOT CONS. WITH EL-EG=x dx – The final level value falls outside the value calculated from E(level) and E_{γ} by more than five dx and less than 7.5 dx. See also <E> NOT CONS.WITH EL-EG=x dx.

<W> NP SHOULD BE GIVEN IF KNOWN – IP has been found on a (delayed-) particle record but NP has not been given on the N record. This value should be given if known.

<W> NR SHOULD BE GIVEN IF KNOWN – RI has been found on a GAMMA record but NR has not been given on the N record. This value should be given if known.

<W> NT SHOULD BE GIVEN IF KNOWN – TI has been found on a GAMMA record but NT has not been given on the N record. This value should be given if known.

<W> Obsolete Evaluation Type – This type is no longer recommended for use.

<W> OBSOLETE FORMALISM – SEE MANUAL - A "K", "L", *etc*. has been found on an EC continuation record. These should be "CK", 'CL", *etc.*

<W> Obsolete formalism – The DSID INELASTIC SCATTERING or HIGH-SPIN LEVELS, GAMMAS was encountered on the Identification record.

<W> OBSOLESCENT FORMALISM - USE [...] – "IF" has been found in the multipolarity field. Square brackets are preferred.

<W> OBSOLESCENT FORMALISM - USE " “ – A "1" has been found in column 6 of a COMMENT record; blank (" ") is preferred.

<W> Obsol. form. - Use XX – XX is the IUPAC chemical symbol of the element or NN for the neutron chemical symbol

<W> Obsol. form. - Use YYYYAASS – NSR Keynumbers should have a four digit year.

<W> Obsol. form. - Use YYYYMM. – The DATE field should be given in the form of a four-digit year and a two-month for Y2K compliance

<W> ODD A, INTEGER J – See <E> ODD A, INTEGER J.[2]

<W> OPTION 6 RECOMMENDED FOR ADOPTED – A relative intensity has been specified in column 78 of the PN record other than "RELATIVE PHOTON BRANCHING RATIO FROM EACH LEVEL" which is the preferred representation (See NDS introductory material).

Note that option 1 (RELATIVE TI) and option 5 (RELATIVE RI) are logical only if all intensities in the adopted dataset are from one source dataset.

<W> P CARD ALREADY SEEN – Check to see if this is a dataset with multiple parents.

<W> PN GIVEN BUT NO GAMMA INTENSITIES – A PN record has been found in a dataset but not RI's or TI's are given on the GAMMA records. This may result in an inappropriate subtitle on the NDS drawings.

<W> PN NOT GIVEN-WILL USE OPTION 3 – No PN record has been found for the DECAY dataset but RI or TI has been given on the GAMMA records.

<W> PN NOT GIVEN-WILL USE OPTION 5 – No PN record has been found for the dataset but RI or TI has been given on the GAMMA records. Most programs will assume "RELATIVE IG" for the intensities in this dataset.

<W> PN NOT GIVEN-WILL USE OPTION 6 – No PN record has been found for the dataset but RI or TI has been given on the GAMMA records. Most programs will assume "RELATIVE PHOTON BRANCHING RATIO FROM EACH LEVEL" for the intensities in this dataset.

<W> Possible duplication of "S E" – Another "S E" record containing capture fractions has already been encountered. This may cause an overestimate in one or more of the capture fractions.

<W> Possible target, reac. & NUCID mismatch – The mass or atomic number of the residual calculated from those of the target, incident, and outgoing on an Identification or X record does not agree with the NUCID.

<W> Possible typing error – A leading character of zero followed by a blank has been encountered. This may indicate a possible typing error.

<W> Proposed Evaluation Type – This type has been proposed and discussed but not officially adopted.

<w> PROBABLE TYPING ERROR – A numeric field has been encountered with a leading zero followed by a character other than period (".").[2]

<W> Proposed Quantity – This quantity has been proposed and discussed but not officially adopted.

<W> PUB COMNT SYM FIELD MISSING – No symbol has been specified.

<W> QP should be blank for SF – Generally the g.s. to g.s. Q-value for Spontaneous Fission cannot be determined.

<W> QUALIFIER FOUND AFTER ":" – A defined DSID qualifier (RES, IAR, IAS, E=TH, E=RES, E=THERMAL E=RESONANCE) has been found after the colon in the DSID field. The information following the colon is sometimes ignored for indexing purposes and this will result in an incomplete indexing of the dataset.

<W> SYMBOL MAY BE MISINTERPETED – One of the following symbols has been found in column 9 of the X record: "(", ")", "*", ",", ".", or the numbers 0 through 9. Since these either indicate a qualifier for the symbol in the XREF field of the LEVEL continuation record or are part of the qualifier, there may be problems in the processing codes. It would be better to use the lower-case alphabet (a through z) after exhausting the upper-case (A through Z) before using the other ASCII characters.

<W> TI field missing – Non-blank IB and IE fields have been found on an E record but the TI field is empty.

<W> TWO COLUMNS WITH SAME "LABEL=" – Two fields have been labeled identically.

<W> UNBALANCED BRACKETS – Unbalanced brackets ("{","}") have been found on a COMMENT record.

<W> UNBALANCED PARENTHESES – See <E> UNBALANCED PARENTHESES.[2]

<W> UNBALANCED SQUARE BRACKETS – See <E> UNBALANCED SQUARE BRACKETS.[2]

<W> UNDEFINED CHARACTER ASSIGNED – An entry of the form "num+X" has been found and a character other than the 26 capital Roman characters was used.

<W> UNSIGNED NUMBER EXPECTED – See<E>UNSIGNEDNUMBER EXPECTED.[2]

<W> XREF's inconsistent – An FL has been found on a GAMMA continuation record connecting two levels which have no XREF symbols in common.

<W> XREF overlap not checked – An "FL=" has been found on a GAMMA continuation record was found but the check for consistency in XREF's between the parent and daughter levels could not be performed due to a continuation and primary record conflict.

Informational Messages

<I> Assuming x=# – Value of nonnumeric energy assumed by the program for checking level order and gamma final levels.

<I> "LABEL=". FLD CHCKD AS <W> NOT <E> – A valid "LABEL=" has been found for a field on a formatted record; any problems found with this field will be reported as a warning instead of an error.

<I> MAX COUNT FOR DSID EXCEEDED – The internal storage of DSID information has been exceeded.

<I> MAX COUNT FOR X CARD EXCEEDED – The internal storage of X-record information has been exceeded.

<I> MAX GAMMA FOR CHECKING EXCEEDED – The internal storage of gamma information for gammas deexciting a level has been exceeded.

<I> MAX JX FOR CHECKING EXCEEDED – The internal storage for checking Jx values has been exceeded.

<I> MAX LEVEL FOR FL= CHECKING EXCEEDED – The internal storage of level energies for comparison to data following FL= has been exceeded.

Version History

For the version history prior to January 27, 1999, see the source code.

8.7f	27-Jan-1999	Corrected substring range errors in Chkdex
8.7g	09-Apr-1999	1. Corrected substring range error in Chkh 2. Allow lower case D comments 3. Corrected initialization problem in Chkcmp 4. Allow angular distributions and DCO
8.8	08-Jun-1999	Added coding for formats adopted at 1998 Vienna NSDD meeting a. Change in ID record b. Addition of Ionized Atom datasets c. Neutron symbol changed from "N" to "NN" d. P records required for IT and SF datasets
8.8a	10-Jun-1999	Corrected errors in 8.8 noted by J. Blachot and J. Katakura
8.8b	16-Jun-1999	Corrected: a. Error in checking PUB field for new Y2K b. Problems in Ckref in handling both old 6- and new 8-byte keynumbers c. Erroneous report of unmatched brackets when table Comments
8.8c	21-Jun-1999	1. Check for and report blank H record - These caused an infinite loop in ChkH 2. Cleaned up coding in ChkP to properly handle QP for IT and SF decay 3. Corrected problem in Nucid when a blank string was passed to it 4. Added check on validity of parents in DSID 5. Allow multiple parents if SF decay (As per JKT. 6/18/1999) 6. Updated H record checks to include proposed revisions discussed but not adopted at 1999 USNDP meeting 7. Cleaned up logic for handling H records
8.8d	25-Jun-1999	Allow COMMENTS datasets for Nuclides (As per JKT. 6/25/1999)
8.8e	28-Jun-1999	1. Not catching some types of comments which should not be in the body of a dataset - Corrected 2. Was not checking non-general comments for valid fields - Corrected
8.8f	13-Jul-1999	1. Missing "=" for XREF and FLAG not being flagged - Corrected 2. Comment/Primary conflicts were being overlooked - Corrected
8.9	23-Jul-1999	1. Split errors (<E>) into errors (<E>) and fatal errors (<F>) and added option to only report fatal errors 2. Corrected logic introduced in 8.8f 3. Added check for two numeric level energies 4. Added check for a blank PN record 5. Corrected logic problems in CKCFLD 6. CRDTYP was not recognizing prompt decay - Fixed
8.9a	30-Jul-1999	Modified CKPUNC to handle a "?" associated with a half-life.
8.9b	04-Aug-1999	Added check for duplicate X records.

8.9c	31-Aug-1999	Corrected compiler-dependent typos in Finh
8.9d	14-Sep-1999	In Chkdex, give non-numeric calculated final levels if parent is non-numeric
8.9e	26-Oct-1999	1. Corrected erroneous error message for %xx=? 2. Corrected error in checking col. 77 of level *versus* band symbols 3. Added warning if level member of more than one band
8.9h	21-Apr-2000	Call to Repchr instead of Repstr in Dowidths caused an infinite loop - Fixed
8.9i	22-May-2000	Implemented format changes approved at USNDP2000 1. Allow FL=? 2. Allow lowercase second letter for Author code 3. %xx=? was allowed in version 8.9e 4. Allow ENSDF as a citation on H record 5. Remove warning for H record changes proposed at USNDP1999 and adopted in 2000
8.9j	31-May-2000	1. Overlooked difference in format for ENSDF citation compared to NDS and NP - Fixed 2. Corrected substring error in Chkh
8.9k	13-Oct-2000	Implementation of angular distributions and DCO in version 8.7g never worked correctly - fixed
8.9l	1-Mar-2001	Added UNX MDC coding. (RRK)
8.9m	11-Jul-2001	Allow non-unique forbidden UN for B and E records
8.9n	24-Jul-2001	Corrected error on checking for duplicate DSID's when first DSID was shorter than second
8.9o	16-Aug-2001	Added check for trailing "," if reference list was not closed by ")" in CHKCNT.
8.9p	22-Aug-2001	Added more checks on the N record for possible mistypes
8.9q	17-Sep-2001	Corrected erroneous warning on A/B/E intensities when uncertainty was very small.
8.9r	13-Nov-2001	Variable adptnuc needed to be added to COMMON XC2DSID
9.0	15-Nov-2001	1. Corrected error in checking op code when followed by a "(". 2. Added check to see if value for "FL=" consistent with E(level)-Egamma.
9.0a	28-Nov-2001	1. Allow "E AP " for reaction DSID. 2. Expand allowed characters in JPI field of LEVEL record
9.0b	30-Nov-2001	1. Add check for blank field preceding "$" on COMMENT record 2. Corrected error in checking HISTORY record when comment was not the last entry on a continuation

9.0c	12-Feb-2002	1. Added check for SUMOF or DELTA on Comment record not followed by " ". 2. Added consistency checks: a. Non-numeric uncertainties in IB, IE, LOGFT, and TI fields of B and E records. b. IB on B and E records vs. EAV on continuation records. c. IE/TI from E record versus sum of capture fractions on continuation record d. Existence of TI on E record if IB and IE are given 3. Flag where first "{" occurs when unbalanced. 4. Added checks for possible duplicate "S E" records. 5. Added check for capture fractions to be <= 1. 6. Added checks for IB+IE=TI.
9.0d	13-May-2002	Removed expansion of allowed characters added in 9.0a and replaced with check on new formalism of J, J1, etc. for JPI of level record.
9.0e	14-Aug-2002	1. Changed from <E> to <W> "TI field missing" 2. Fixed erroneous report for IB+IE .NE. TI when uncertainties non-numeric 3. Added warning on missing RI if absolute normalization, EG<=400 keV, and no CC but TI given on G record.
9.0f	23-Jun-2003	1. Allow "J GE" and "J LE" in J field 2. Added checks for possible junk before first parentheses or square bracket and after last parentheses or square bracket in J field 3. Added check for "/2" without preceding numeric character in J field
9.0g	04-Aug-2003	1. IB and EAV check for BETA records not being initialized - Corrected. 2. For EL-EG message, changed to non-numeric format if E(level) had a "+X..."
9.0h	05-Dec-2003	1. Modified logic in CHKE in attempt to handle IB, IE, and TI with no uncertainties. 2. Corrected problems in CHKI when validating PUB field. 3. Changed ZERO ENERGY GAMMA FOUND from <W> to <E>. 4. Added checks for blank Egamma in Chkdex to avoid fatal error. 5. Modified logic in Ckflval to be more tolerant of inconsistencies between FL and EL-EG.
10.0	19-Feb-2004	1. Converted to FORTRAN 95 2. Command line input added (CLD)

10.1	05-May-2006	1. Added coding to recognize new quantities output by BrIcc 2. Corrected errors in checking decay modes 3. Corrected problems caused by different ways of ordering multiple PARENT and NORMALIZATION records 4. Corrected error in calculating position* for ID continuation 5. Changed following from error to warning message: UNBALANCED BRACKETS 6. Changed following from fatal to error message: NUCID MISMATCH WITH DSID PARENT 7. Relaxed criteria for comparing final level to calculated final level 8. Left blank suppress input file name Implemented the following based on an error report from PNPI in May 2005 9. Check residual calculated from target 10. Report uncertainties identical to "0" 11. Error if parent level energy is zero and IT decay dataset 12. Report error if level of form A+X where A not zero and no preceding X level or A level 13. More checks on asymmetric uncertainties catch cases like "+-4" 14. Error if multiple "PN" records 15. Corrected problem in checking prompt particle comment 16. Implemented checking of "D" comment records 17. Check to ensure "PN" record precedes first data record 18. Check for multiple unplaced gammas of the same energy 19. Check for non-blank DE if energy completely non-numeric 20. Check for negative energies. Warning if level; error, otherwise
10.1a	12-May-2006	Corrected some parsing problems in GetOut
10.1b	18-May-2006	Corrected bug in GETOUT which caused a segmentation fault under LF 95
10.1c	23-May-2006	1. Removed extraneous STOP in Getout left from debugging 2. Corrected parsing problems in Getout which resulted in confusion between particle admixtures and nuclides 3. Relaxed test of residual *vs.* nuclide when IAR 4. Increased estimate of gamma uncertainty from 2 to 5 if one significant digit past decimal point given 5. Corrected problem in assigning numeric value for current level introduced in the conversion from F77 to F95 6. Corrected erroneous error messages for DSID's with continuations 7. Added check to see if FL= was identical to current level energy
10.1d	21-Jun-2006	Increased array size for gamma final level check
10.1e	01-Aug-2006	Added check for KAPPA's as incident and outgoing
10.1f	21-Oct-2006	Attempted to handle cases where other types of resonances might have been studied. If so, issue a warning instead of an error message for target, reaction, NUCID mismatches.

10.1g	05-Ma2-2007	1. Corrected problem in GetOut which caused an infinite loop 2. Corrected problem in checking Parent Comment records when multiple SF parents on DSID
10.1h	16-Apr-2007	Corrected problem in GetOut which caused an infinite loop
10.2	03-May-2007	1. Changed from error to warning trailing "?" for BEλW and BMλW on level continuation records 2. Added check for embedded "+" or "-" on outgoing reactions. This solved an infinite loop in GetOut 3. Cleaned up coding on checking reactions to reduce extraneous error messages and improve checks for compound nucleus as nuclide being studied 4. Allow "%CEK*" on gamma continuation records 5. Allow "XREF=A(123?)" and "XREF=A(?)" on level continuation records 6. Corrected erroneous "NO FINAL LVL" messages when non-numeric gamma energy given 7. Corrected erroneous "EL-EG" messages when parent level had "SP" or "SN" in energy field
10.3	30-Jul-2007	1. Added a check for multiple "FL="'s 2. Corrected logic problem which was causing the Level record S field not to be checked when it was relabeled 3. Added check for possible typo error if a period is in the last field of a value and a number is in first field of the uncertainty 4. Attempt to handle cases where level energy should probably be "E+X+Y" which is not currently allowed 5. Added check for extraneous characters (usually uncertainties) following a final level energy 6. Added various additional checks for embedded blanks 7. Added check for possible misuse of an operator before parentheses in the J field 8. Added various additional checks for junk before open parentheses. Usually misalignment of the E and DE fields on a level record 9. Check for use of period instead of comma 10. Added check for missing MS field if $T_{1/2} \leq 0.1$ ms and not g.s. 11. Cleared up problems in getting closest levels if "X+E" were used instead of "E+X"
10.3a	28-Sep-2007	1. Corrected error in version 10.3 which caused an erroneous "EMBEDDED BLANK INVALID" when an operator was preceded by a "(" for a J^{π} value. 2. Changed metastable limit check from 0.1 ms to 1 ms.

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