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Consistency Tests on JEF2.2 Decay Data File

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Abstract:

We review a lot of problems or questions about JEF2-2 and we produce a study about internal consistency tests on all nuclides of JEF2.2 (from H3 to Fm257). These tests are made on gamma, X, alpha spectra, on gamma-ray of 511 kev, and total energy.

We use data format and conventions of procedure ENDFB-6 . [ENDF 102 - BNL-NCS-44945(P.F.Rose-Cl.Dundford)]

1. *Consistency of gamma and X spectra*

For decay heat calculations it is necessary to know $E_{"\gamma"}$ for total γ decay heat calculation and spectra γ and X calculations by energy groups.
In JEF2-2 we can get three different types of photonic decay energies.

- $\overline{E}_{"\gamma"} = \overline{E}_{photonic} = \overline{E}_{\gamma} + \overline{E}_{X} + \overline{E}_{ann.rad.} + \ldots$

- ER(0) average decay heat for γ spectrum

  ER(9) average decay heat for X spectrum

- Spectrum γ and X (STYP=0 and STYP=9)

$$SOMG = FD_\gamma * \sum_{i=1}^{NG} \left(I_{\gamma_i} * E_{\gamma_i} \right)$$

$$SOMX = FD_X * \sum_{i=1}^{NX} \left(I_{X_i} * E_{X_i} \right)$$

FD_k is the discrete spectrum normalization factor.

We test consistencies between these three types of values and the values calculated with spectra data.
In annexes are given all tests about this study.

1.1. gamma spectrum (annexe"spectre.gamma" - table 1)

Internal consistency of γ spectrum

$$ECARG = \frac{ER(0) - SOMG}{ER(0)} * 100$$

We list nuclides with |ECARG| >5%

We find 85 nuclides with |ECARG| > 10%

1.2. X spectrum (annexe "spectre.X" - table 2)

Internal consistency of X spectrum

$$ECARX = \frac{ER(9) - SOMX}{ER(9)} * 100$$

only nuclides with |ECARX| > 5% are given. 16 nuclides have a X spectrum but ER(9) = 0. and 45 nuclides have |ECARX| > 10%

1.3. gamma and X spectra (annexe"spectre.gamma+X" - table 3)

Consistency between $\overline{E_{"\gamma"}}$ and ER(0) + ER(9)

$\overline{E_{"\gamma"}}$ and SOMG + SOMX

We calculate

$$ECAR1 = \frac{\overline{E_{"\gamma"}} - (ER(0) + ER(9))}{\overline{E_{"\gamma"}}} * 100$$

$$ECAR2 = \frac{\overline{E_{"\gamma"}} - (SOMG + SOMX)}{\overline{E_{"\gamma"}}} * 100$$

We list nuclides for which |ECAR1| or |ECAR2| > 5 %.

We find 282 nuclides with |ECAR2| >10 % (inconsistency between $\overline{E_{"\gamma"}}$ and SOMG + SOMX) and 362 nuclides with |ECAR1| >10 % (inconsistency between $\overline{E_{"\gamma"}}$ and ER(0) + ER(9))

For calculation of decay gamma heat we normalize gamma rays to ($\overline{E_{"\gamma"}}$ - ER(9))

Is it correct ?

2. *Consistency of α spectrum (annexe "spectre.alpha" -table 4)*

$\overline{E_{"\alpha"}}$ is the average energy of all heavy charged particles and delayed neutrons.

FDα is the normalization factor for α spectrum.

ER(4) is average energy for α spectrum

We compare ER(4) including recoil energy to SOMAL with -

$$SOMAL = FD\alpha * \left(1 + \frac{4}{A}\right) * \sum_{i=1}^{N\alpha} I\alpha_i * E\alpha_i$$

In annexe "spectre.alpha" we list 13 nuclides with $\frac{ER(4)}{SOMAL} > 1.05$ and < 0.95

For normalization of α spectrum we cannot take $\overline{E_{"\alpha"}}$ which is average energy of <u>all</u> heavy charged particles and delayed neutrons.

This is the reason why we use ER(4) and not $\overline{E_{"\alpha"}}$ for comparisons

It is clear that ENDF format is not well adapted to describe all phenomena independantly: we need the true value of each average energy related to each physical phenomena.

3. gamma-ray of 511 kev (annexe "raie.511 Kev" - table 5)

The intensity of 511kev γ-ray is generally given in X spectrum : I^{X}_{511}
For 70 nuclides there is a good agreement between these types of values.
This intensity can be known from β^+ spectrum when the positrons are present: E > 1022kev

RIS is the positron intensity (β^+ spectrum STYP=2)
RIS $\neq 0 \rightarrow I^{\beta+}_{511}$

$$I^{\beta+}_{511} = FD_{\beta^+} * \sum_{i=1}^{N_\beta} 2 * RIS_i$$

Generally there is a good agreement between I^{X}_{511} and $I^{\beta+}_{511}$ but there is redundance of informations.

For 12 nuclides $I^{X}_{511} \neq I^{\beta+}_{511}$

For 3 nuclides $I^{X}_{511} \neq 0$

$I^{\beta+}_{511} = 0 \,(RIS = 0)$

For10 nuclides $I^{\beta+}_{511} \neq 0$ no I^{X}_{511}

Morever the intensity of 511kev γ-ray is given with γ spectrum: I^{γ}_{511}

For 3 nuclides $I^{\gamma}_{511} \neq 0$ no I^{X}_{511} and no $I^{\beta+}_{511}$

For 8 nuclides $I^{\gamma}_{511} \neq 0$ $I^{X}_{511} \neq 0$ and $I^{\beta+}_{511} \neq 0$

in this case what to do?

For 4 nuclides $I^{\beta+}_{511} = I^{\gamma}_{511}$ no I^{X}_{511}

For 5 nuclides $I^{\beta+}_{511} \neq I^{\gamma}_{511}$ no I^{X}_{511}

The results about this study are detailed in annexe "raic.511kev"

4. Consistency between total energies (annexe "q.etot" - table 6)

Q_i is total energy available in the corresponding decay process and Br_i is the fraction of the decay for the corresponding decay mode.

$$Q = \sum_{i=1}^{NDK} Br_i * Q_i$$

To take into account the neutrino energy which is not in JEF2 (not included in ENDFB6 format), we calculate only for nuclides without β+ decay (RTYP=2)

$$ETOT = \overline{E_{"\beta"}} * 2.25 + \overline{E_{"\gamma"}} + \overline{E_{"\alpha"}}$$

We have done the approximation $E_\nu = \overline{E_{"\beta"}} * 1.25$

and we compare ETOT to Q. In annexe "q.etot" we give the list of nuclides for which

$\frac{Q}{ETOT} > 1.2$ and $\frac{Q}{ETOT} < 0.8$

5. Conclusion

The ENDFB-6 format seems not quite adapted for decay heat calculation. We don't have the neutrino energy and we must know the average energy for β spectrum. For α energy we don't know the repartition between each physical phenomena.

Perhaps it is necessary to define a procedure for knowledge of energy we must use in decay heat calculations.

Morever this paper shows anomalies found with consistency tests.

TABLE 1 spectre.gamma

NG number of gamma rays

ER(0) average decay heat for γ spectrum

FD_γ normalization for gamma spectrum

$$SOMG = FD_\gamma * \sum_{i=1}^{NG} \left(I_{\gamma_i} * E_{\gamma_i} \right)$$

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
N 12F	1.100E-02	S	4	1.0820E+03	9.0450E+01	9.1641E+01
K 46F	1.583E+00	M	16	2.8700E+03	2.0717E+03	2.7816E+01
V 45F	5.390E-01	S	1	1.0000E+00	1.4035E+00	-4.0350E+01
CR 47F	5.080E-01	S	1	3.0000E+00	3.2375E+00	-7.9167E+00
MN 49F	3.840E-01	S	1	2.0000E+01	1.6338E+01	1.8310E+01
CO 53F	2.400E-01	S	1	7.0000E+01	7.4368E+01	-6.2400E+00
NI 59F	7.500E+04	A	1	0.0000E+00	0.0000E+00	
GA 77F	1.320E+01	S	2	6.8950E+02	3.4296E-06	1.0000E+02
SE 87F	5.800E+00	S	11	2.2300E+03	2.6557E+03	-1.9091E+01
KR 94F	2.000E-01	S	18	1.7000E+03	1.8930E+03	-1.1351E+01
RB 81M	3.048E+01	M	8	1.4000E+01	6.3036E+00	5.4974E+01
SR 83F	1.350E+00	J	137	5.0000E+02	5.3798E+02	-7.5963E+00
Y 81F	1.207E+00	M	3	4.0000E+00	3.6517E+00	8.7070E+00
ZR 89M	4.180E+00	M	2	6.3201E+02	5.4157E+02	1.4310E+01
ZR 97F	1.690E+01	H	40	8.9700E+02	1.9234E+02	7.8558E+01
ZR101F	2.000E+00	S	6	4.0000E+01	1.8473E+03	-4.5182E+03
ZR102F	2.900E+00	S	25	8.6000E+02	1.7836E+03	-1.0740E+02
NB101F	7.100E+00	S	14	3.0000E+02	1.2642E+03	-3.2140E+02
NB104M	4.800E+00	S	4	3.1500E+03	1.3715E+03	5.6460E+01
NB106F	1.020E+00	S	12	4.0900E+03	1.1121E+03	7.2809E+01
MO103F	1.125E+00	M	3	1.3900E+03	5.3626E+02	6.1420E+01
MO105F	3.670E+01	S	20	1.7400E+03	3.9898E+02	7.7070E+01
MO106F	8.400E+00	S	4	5.9000E+02	1.0150E+03	-7.2040E+01
MO108F	1.500E+00	S	3	1.1400E+03	3.7694E+02	6.6935E+01
RH100M	4.600E+00	M	11	4.1600E+01	3.7990E+01	8.6772E+00
PD112F	2.105E+01	H	1	5.0546E+00	1.8500E+01	-2.6600E+02
AG105M	7.233E+00	M	1	9.8000E-01	1.0597E-03	9.9892E+01
AG121F	8.000E-01	S	53	2.0300E+03	2.8967E+03	-4.2696E+01
CD113M	1.410E+01	A	1	6.0545E-01	6.0546E-02	9.0000E+01
IN106F	6.200E+00	M	28	2.7800E+03	1.3230E+02	9.5241E+01
IN106M	5.200E+00	M	31	2.0400E+03	1.2268E+03	3.9861E+01
SN131F	3.900E+01	S	38	1.1900E+03	4.6602E+03	-2.9161E+02
SB124N	2.020E+01	M	1	1.0000E-03	8.0538E-04	1.9462E+01
TE121M	1.539E+02	J	6	2.0300E+02	1.7456E+02	1.4010E+01
TE137F	2.490E+00	S	13	1.8200E+03	1.1093E+04	-5.0951E+02
I140F	8.600E-01	S	1	1.6100E+03	2.2341E+02	8.6124E+01
I141F	4.800E-01	S	4	4.0190E+04	9.7327E+02	9.7578E+01
XE142F	1.220E+00	S	165	1.0800E+03	8.4094E+03	-6.7864E+02
XE143F	3.000E-01	S	1	2.4200E+03	1.7250E+02	9.2872E+01

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
CS147F	2.200E-01	S	44	1.0631E+02	8.1778E+02	-6.6924E+02
BA142F	1.060E+01	M	90	1.0690E+03	1.0690E+04	-9.0003E+02
LA133F	3.911E+00	H	128	6.0000E+01	6.4906E+01	-8.1774E+00
LA135F	1.950E+01	H	12	1.0100E+01	8.2633E+00	1.8185E+01
CE149F	5.200E+00	S	22	1.5300E+03	4.7903E+02	6.8691E+01
CE150F	4.000E+00	S	27	6.3000E+02	1.2899E+03	-1.0474E+02
PR144F	1.728E+01	M	8	2.8900E+01	9.5180E+00	6.7066E+01
PR144M	7.200E+00	M	1	9.0000E-01	4.6852E-02	9.4794E+01
PR150F	6.100E+00	S	4	2.3400E+03	1.5138E+02	9.3531E+01
EU146F	4.595E+00	J	155	2.0900E+03	1.8202E+03	1.2910E+01
EU150M	1.262E+01	H	15	8.6600E+01	8.1125E+01	6.3221E+00
TB146M	2.300E+01	S	10	2.8700E+03	2.5068E+03	1.2655E+01
TB157F	9.830E+01	A	1	0.0000E+00	4.5780E-03	
DY149F	4.233E+00	M	52	2.1300E+03	1.8104E+03	1.5002E+01
HO158N	2.133E+01	M	11	2.6966E+03	2.3771E+03	1.1849E+01
HO161F	2.481E+00	H	9	1.5500E+01	7.3219E+00	5.2762E+01
HO170M	4.300E+01	S	31	1.3333E+03	4.8769E+03	-2.6578E+02
ER163F	1.250E+00	H	11	1.0000E+00	8.0173E-01	1.9827E+01
ER172F	2.054E+00	J	37	4.8600E+02	2.1441E+02	5.5883E+01
TM162M	2.430E+01	S	18	1.0000E+02	2.3731E+02	-1.3731E+02
LU169M	2.667E+00	M	1	0.0000E+00	2.9754E-04	
LU172M	3.667E+00	M	1	0.0000E+00	1.5857E-03	
HF169F	3.240E+00	M	5	5.0000E+02	4.5980E+02	8.0393E+00
HF177M	1.080E+00	S	32	9.8000E+02	8.2978E+02	1.5328E+01
HF178N	3.100E+01	A	14	1.3059E+03	2.3919E+03	-8.3160E+01
HF180M	5.500E+00	H	6	9.3332E+01	1.1467E+03	-1.1286E+03
TA173F	3.139E+00	H	198	3.9400E+02	3.6022E+02	8.5744E+00
W179M	6.400E+00	M	2	2.0500E+01	1.9050E+01	7.0741E+00
RE184M	1.655E+02	J	32	3.3700E+02	3.1587E+02	6.2712E+00
OS180F	2.150E+01	M	1	3.5000E+00	1.2196E-07	1.0000E+02
OS185F	9.363E+01	J	13	6.6600E+02	1.3428E+02	7.9839E+01
OS191M	1.310E+01	H	1	1.0000E-01	5.4818E-02	4.5182E+01
IR190N	3.194E+00	H	5	1.4850E+03	9.1124E+02	3.8637E+01
IR192M	1.440E+00	M	3	1.5793E-01	5.8158E+01	-3.6725E+04
IR193M	1.060E+01	J	1	0.0000E+00	3.6651E-03	
IR194N	3.185E-02	S	2	1.6500E+02	1.1220E+02	3.2000E+01
PT193M	4.329E+00	J	3	2.0000E-01	2.3311E-01	-1.6556E+01
AU182F	2.100E+01	S	35	9.4000E+02	8.6832E+02	7.6255E+00
AU192M	2.900E-02	S	10	0.0000E+00	7.8990E-07	
AU196M	8.100E+00	S	1	3.0000E-01	2.5398E-01	1.5340E+01
HG182F	1.130E+01	S	3	4.3000E+02	1.4657E-06	1.0000E+02
HG188F	3.250E+00	M	19	7.3000E+02	5.4403E+02	2.5475E+01
HG191F	4.833E+01	M	7	4.6000E+02	3.9239E+02	1.4698E+01
HG191M	5.083E+01	M	80	1.3600E+03	1.4373E+03	-5.6848E+00

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
PB199M	1.220E+01	M	2	1.0300E+02	7.6762E+01	2.5474E+01
PO209F	1.021E+02	A	11	4.8669E+00	3.0029E+00	3.8299E+01
RN210F	2.389E+00	H	40	5.6000E+01	5.3115E+01	5.1511E+00
RA213F	2.733E+00	M	3	9.0000E+00	9.4590E+00	-5.0997E+00
RA213M	2.100E-03	S	3	1.6200E+03	7.0783E+01	9.5631E+01
U238F	4.471E+09	A	2	6.7392E-02	6.3612E-02	5.6090E+00
PU242F	3.738E+05	A	3	5.8371E-02	1.9871E-02	6.5958E+01
PU244F	8.005E+07	A	1	8.7657E+00	1.5730E-02	9.9821E+01
CM244F	1.811E+01	A	12	2.4436E-02	1.5007E-02	3.8587E+01
CM246F	4.733E+03	A	1	1.8421E+00	1.2291E-02	9.9333E+01
CM248F	3.402E+05	A	1	5.7821E+02	7.0871E-03	9.9999E+01
CF247F	3.111E+00	H	13	0.0000E+00	7.6126E+00	
CF250F	1.309E+01	A	3	5.4165E+00	2.6454E-02	9.9512E+01
CF252F	2.647E+00	A	3	2.1646E+02	2.0364E-02	9.9991E+01
ES254F	2.755E+02	J	23	3.7776E-01	9.2952E-01	-1.4606E+02
ES256M	7.600E+00	H	3	4.8100E+01	3.3210E+02	-5.9044E+02

TABLE 2 spectre.X

NX number of X rays

ER(9) average decay heat for X spectrum

FD_X normalization for X spectrum

$$SOMX = FD_X * \sum_{i=1}^{NX} \left(I_{X_i} * E_{X_i} \right)$$

$$ECARX = \frac{ER(9) - SOMX}{ER(9)} * 100$$

	PERIODE		NX	ER(9)	SOMX	ECARX =(ER(9)-SOMX)*100./ER(9)
C 11F	2.039E+01	M	1	0.0000E+00	1.0195E+03	
O 13F	8.900E-03	S	1	0.0000E+00	1.0220E+03	
O 15F	2.037E+00	M	1	0.0000E+00	1.0210E+03	
SI 25F	2.200E-01	S	2	0.0000E+00	1.0220E+03	
TI 43F	4.900E-01	S	4	0.0000E+00	1.0220E+03	
V 46F	4.224E-01	S	1	2.6290E-01	1.0210E+03	-3.8825E+05
CR 45F	5.000E-02	S	1	0.0000E+00	2.7594E+02	
CR 46F	2.600E-01	S	4	2.6290E-01	1.0220E+03	-3.8864E+05
MN 50F	2.830E-01	S	1	6.2490E-01	1.0220E+03	-1.6345E+05
FE 49F	7.500E-02	S	1	1.0220E+03	3.0660E+02	7.0000E+01
CO 53M	2.470E-01	S	4	0.0000E+00	1.0210E+03	
CO 54F	1.932E-01	S	1	1.3760E+00	1.0210E+03	-7.4099E+04
NI 53F	4.500E-02	S	4	1.0070E+03	4.5990E+02	5.4330E+01
NI 55F	1.890E-01	S	4	7.7620E+02	1.0210E+03	-3.1536E+01
GA 62F	1.161E-01	S	4	8.9320E+01	1.0220E+03	-1.0442E+03
GE 68F	2.708E+02	J	4	0.0000E+00	4.1457E+00	
GE 69F	1.627E+00	J	5	2.4400E+02	2.5874E+02	-6.0410E+00
GE 71F	1.144E+01	J	4	1.6740E-02	4.1900E+00	-2.4930E+04
AS 74F	1.778E+01	J	4	2.1655E+00	1.3662E-01	9.3691E+01
KR 71F	9.700E-02	S	5	6.1410E+02	1.0220E+03	-6.6424E+01
RB 74F	6.490E-02	S	5	8.8280E+02	1.0200E+03	-1.5538E+01
RB 81M	3.048E+01	M	9	2.0130E+01	2.1303E+01	-5.8254E+00
SR 82F	2.556E+01	J	4	2.3539E+02	7.8825E+00	9.6651E+01
SR 83F	1.350E+00	J	5	2.4360E+02	2.6615E+02	-9.2570E+00
Y 96F	6.200E+00	S	4	0.0000E+00	2.6317E+00	
NB 90M	1.882E+01	S	3	1.7000E+01	3.6279E+00	7.8660E+01
RH106M	2.167E+00	H	4	2.4405E-01	2.2694E-01	7.0112E+00
AG103F	1.094E+00	H	5	2.8780E+02	2.6675E+02	7.3156E+00
AG112F	3.140E+00	H	4	2.4505E-03	6.0251E-04	7.5413E+01
AG115F	2.000E+01	M	4	4.8215E-01	3.5437E-01	2.6503E+01
CD105F	5.550E+01	M	5	3.0760E+02	2.8180E+02	8.3876E+00
IN119M	1.800E+01	M	4	5.1512E-01	2.4939E-01	5.1587E+01
SN113M	2.140E+01	M	4	0.0000E+00	1.6507E+00	
SN130F	3.720E+00	M	4	1.5313E+01	1.2715E+01	1.6966E+01
SB126F	1.240E+01	J	4	5.3148E-01	1.5989E-01	6.9915E+01
SB130F	4.000E+01	M	4	3.0929E+00	2.6709E+00	1.3644E+01
TE118F	6.000E+00	J	4	3.3260E+01	1.9912E+01	4.0132E+01
TE131M	1.250E+00	J	4	8.9336E+00	2.9750E+00	6.6698E+01

	PERIODE		NX	ER(9)	SOMX	ECARX =(ER(9)-SOMX)*100./ER(9)
XE118F	6.000E+00	M	1	6.1970E+02	5.7232E+02	7.6456E+00
CS138F	3.220E+01	M	4	4.6587E-01	2.1491E-01	5.3869E+01
ND140F	3.370E+00	J	4	0.0000E+00	2.7469E+01	
ND152F	1.140E+01	M	4	1.3134E+00	1.2044E+00	8.3024E+00
PM138F	1.000E+01	S	5	5.3600E-01	9.5755E+02	-1.7855E+05
PM149F	2.212E+00	J	4	4.4657E-02	2.7669E-03	9.3804E+01
SM145F	3.400E+02	J	4	6.4557E+01	3.1016E+01	5.1956E+01
GD142F	1.500E+00	M	5	8.3300E+02	6.5402E+02	2.1487E+01
TB152F	1.750E+01	H	5	2.1910E+02	2.3364E+02	-6.6382E+00
HO146F	3.900E+00	S	1	1.7880E+02	2.0440E+02	-1.4318E+01
ER165F	1.036E+01	H	4	4.6730E+00	3.7828E+01	-7.0951E+02
YB163F	1.105E+01	M	5	2.6230E+02	2.4239E+02	7.5906E+00
YB169F	3.201E+01	J	4	1.1582E+02	5.7867E+01	5.0037E+01
TA179F	1.776E+00	A	4	0.0000E+00	2.7847E+01	
TA185F	4.900E+01	M	4	3.9925E+01	2.0222E+01	4.9349E+01
W178F	2.164E+01	J	4	0.0000E+00	1.6354E+01	
RR178F	1.320E+01	M	5	3.7020E+02	3.9193E+02	-5.8710E+00
OS189M	4.806E+00	H	1	3.9490E+00	2.0048E+00	4.9234E+01
IR190M	1.200E+00	H	1	0.0000E+00	2.1298E+00	
HG194F	5.200E+02	A	1	0.0000E+00	2.1362E+00	
TL190F	2.600E+00	M	5	3.4230E+02	3.2334E+02	5.5396E+00
TL201M	2.035E-03	S	4	7.2880E+00	7.6612E+00	-5.1212E+00
PB201M	1.020E+00	M	5	7.0000E+01	2.2981E+01	6.7171E+01
PB202F	5.264E+04	A	1	6.0075E+01	2.4720E+00	9.5885E+01
PB205F	1.521E+07	A	2	5.4601E+01	3.3259E+00	9.3909E+01
PO208F	2.900E+00	A	1	0.0000E+00	9.4261E-04	
AT201F	1.483E+00	M	5	0.0000E+00	2.3442E+02	
RN221F	2.500E+01	M	4	2.7171E+01	1.8309E+01	3.2617E+01
PA236F	9.100E+00	M	4	8.7761E+00	9.7549E-01	8.8885E+01
U231F	4.200E+00	J	4	8.2779E+01	5.4679E+01	3.3946E+01
PU235F	2.530E+01	M	4	8.6833E+01	8.1683E+01	5.9311E+00
AM237F	1.217E+00	H	4	1.3697E+02	8.4769E+01	3.8111E+01
AM238F	1.633E+00	H	4	8.5932E+01	7.7386E+01	9.9446E+00
AM239F	1.190E+01	H	4	1.8089E+02	7.7050E+01	5.7405E+01
ES254F	2.755E+02	J	4	1.5212E+03	8.2019E-04	1.0000E+02
FM253F	3.000E+00	J	4	8.5049E+01	6.5958E+01	2.2447E+01

TABLE 3 spectre.gamma+X

NG number of gamma rays

ER(0) average decay heat for γ spectrum

NX number of X rays

ER(9) average decay heat for X spectrum

$$ERGX = ER(0) + ER(9)$$

EGM $= \overline{E_{"\gamma"}}$.

$$ECAR1 = \frac{\overline{E_{"\gamma"}} - (ER(0) + ER(9))}{\overline{E_{"\gamma"}}} * 100$$

$$SOMGX = SOMG + SOMX$$

$$= FD_{\gamma} * \sum_{i=1}^{NG}\left(I_{\gamma_i} * E_{\gamma_i}\right) + FD_X * \sum_{i=1}^{NX}\left(I_{X_i} * E_{X_i}\right)$$

$$ECAR2 = \frac{\overline{E_{"\gamma"}} - (SOMG + SOMX)}{\overline{E_{"\gamma"}}} * 100$$

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
B 12F	2.020E-02	S	90.56	1	0	5.6818E+01	3.7262E+01	5.6818E+01	3.7262E+01
C 11F	2.039E+01	M	1019.54	0	1	0.0000E+00	1.0000E+02	1.0195E+03	-7.1240E-04
N 12F	1.100E-02	S	1085.00	4	1	1.0850E+03	3.3190E-03	9.3414E+01	9.1390E+01
O 13F	8.900E-03	S	1020.00	0	1	0.0000E+00	1.0000E+02	1.0220E+03	-1.9608E-01
O 15F	2.037E+00	M	1020.84	0	1	0.0000E+00	1.0000E+02	1.0210E+03	-1.3524E-02
NA 33F	8.200E-03	S	312.11	6	0	3.3000E+02	-5.7333E+00	3.2970E+02	-5.6386E+00
SI 25F	2.200E-01	S	1020.00	0	2	0.0000E+00	1.0000E+02	1.0220E+03	-1.9608E-01
P 36F	5.600E+00	S	6282.02	21	0	5.9000E+03	6.0812E+00	5.8845E+03	6.3276E+00
S 29F	1.870E-01	S	4611.62	24	2	2.4321E+04	-4.2739E+02	2.4308E+04	-4.2710E+02
CL 36F	3.022E+05	A	0.02	0	4	1.9990E-02	1.5716E+01	1.9990E-02	1.5715E+01
AR 37F	3.504E+01	J	0.32	0	3	2.2419E-01	3.0705E+01	2.2419E-01	3.0705E+01
K 46F	1.583E+00	M	2870.00	16	0	2.8700E+03	0.0000E+00	2.0717E+03	2.7816E+01
K 50F	4.720E-01	S	12529.10	8	0	1.4270E+04	-1.3895E+01	1.4273E+04	-1.3917E+01
CA 41F	1.031E+05	A	0.44	0	3	4.1049E-01	6.0908E+00	4.1049E-01	6.0908E+00
CA 45F	1.630E+02	J	77.00	1	3	1.1788E-05	1.0000E+02	1.1788E-05	1.0000E+02
CA 51F	1.000E+01	S	3033.15	22	0	2.6909E+03	1.1284E+01	2.6909E+03	1.1284E+01
TI 43F	4.900E-01	S	1022.00	0	4	0.0000E+00	1.0000E+02	1.0220E+03	-6.5693E-05
V 46F	4.224E-01	S	1020.99	0	1	2.6290E-01	9.9974E+01	1.0210E+03	1.1717E-03
V 49F	3.300E+02	J	0.95	0	3	8.9259E-01	5.7406E+00	8.9259E-01	5.7405E+00
CR 45F	5.000E-02	S	275.90	0	1	0.0000E+00	1.0000E+02	2.7594E+02	-1.4490E-02
CR 46F	2.600E-01	S	1022.00	0	4	2.6290E-01	9.9974E+01	1.0220E+03	-9.5554E-05
MN 50F	2.830E-01	S	1022.00	0	1	6.2490E-01	9.9939E+01	1.0220E+03	0.0000E+00
MN 58F	1.088E+00	M	2543.87	38	0	2.3908E+03	6.0172E+00	2.3908E+03	6.0160E+00
FE 49F	7.500E-02	S	300.00	0	1	1.0220E+03	-2.4067E+02	3.0660E+02	-2.2000E+00
FE 63F	6.100E+00	S	246.61	19	0	2.8000E+02	-1.3539E+01	2.7670E+02	-1.2199E+01
CO 53M	2.470E-01	S	1006.00	0	4	0.0000E+00	1.0000E+02	1.0210E+03	-1.4891E+00
CO 54F	1.932E-01	S	1020.91	0	1	1.3760E+00	9.9865E+01	1.0210E+03	-6.6660E-03
NI 53F	4.500E-02	S	459.90	0	4	1.0070E+03	-1.1896E+02	4.5990E+02	-2.2561E-04
NI 55F	1.890E-01	S	1021.00	0	4	7.7620E+02	2.3976E+01	1.0210E+03	1.9130E-03
NI 67F	1.800E+01	S	1186.32	16	0	8.9964E+03	-6.5835E+02	8.9964E+03	-6.5835E+02
CU 72F	6.600E+00	S	1942.48	25	0	1.8400E+03	5.2757E+00	1.8432E+03	5.1128E+00
CU 73F	3.900E+00	S	729.32	5	0	6.3518E+02	1.2908E+01	6.3518E+02	1.2908E+01
ZN 78F	1.470E+00	S	1537.78	56	0	1.4351E+03	6.6772E+00	1.4351E+03	6.6754E+00
GA 62F	1.161E-01	S	1022.00	0	4	8.9320E+01	9.1260E+01	1.0220E+03	-4.7180E-04
GA 75F	2.170E+00	M	67.09	37	0	6.2076E+01	7.4730E+00	6.2076E+01	7.4727E+00
GA 77F	1.320E+01	S	959.00	2	0	6.8950E+02	2.8102E+01	3.4296E-06	1.0000E+02
GA 79F	3.000E+00	S	1840.00	114	0	2.0800E+03	-1.3043E+01	2.0814E+03	-1.3121E+01
GA 80F	1.697E+00	S	5000.00	75	0	2.5800E+03	4.8400E+01	2.5754E+03	4.8493E+01
GA 81F	1.230E+00	S	2700.00	110	4	2.2900E+03	1.5185E+01	2.2834E+03	1.5428E+01
GA 82F	6.000E-01	S	4723.64	8	0	2.3185E+03	5.0917E+01	2.3185E+03	5.0916E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
GE 68F	2.708E+02	J	4.14	0	4	0.0000E+00	1.0000E+02	4.1457E+00	-1.3865E-01
GE 71F	1.144E+01	J	4.20	0	4	1.6740E-02	9.9601E+01	4.1900E+00	2.3895E-01
GE 80F	2.950E+01	S	430.00	17	0	6.0000E+02	-3.9535E+01	6.0001E+02	-3.9536E+01
GE 82F	4.600E+00	S	880.00	5	0	1.0800E+03	-2.2727E+01	1.0800E+03	-2.2730E+01
AS 79F	9.010E+00	M	22.00	10	0	1.9316E+01	1.2200E+01	1.9316E+01	1.2200E+01
AS 80F	1.650E+01	S	810.00	21	0	5.5804E+02	3.1107E+01	5.5804E+02	3.1106E+01
AS 82F	1.910E+01	S	4220.00	8	0	3.3000E+02	9.2180E+01	3.2511E+02	9.2296E+01
AS 82M	1.360E+01	S	3360.00	12	0	2.7900E+03	1.6964E+01	2.7891E+03	1.6992E+01
AS 84F	5.500E+00	S	5340.00	18	0	1.5800E+03	7.0412E+01	1.5750E+03	7.0506E+01
AS 85F	2.028E+00	S	920.00	10	0	1.3800E+03	-5.0000E+01	1.3848E+03	-5.0527E+01
SE 70F	4.110E+01	M	945.46	36	5	9.9560E+02	-5.3038E+00	9.9989E+02	-5.7572E+00
SE 79M	3.910E+00	M	15.87	1	0	9.0438E+00	4.3028E+01	9.0439E+00	4.3027E+01
SE 81F	1.850E+01	M	10.72	8	0	9.2680E+00	1.3525E+01	9.2680E+00	1.3524E+01
SE 83F	2.233E+01	M	2410.00	98	0	2.6000E+03	-7.8838E+00	2.6056E+03	-8.1143E+00
SE 85F	3.170E+01	S	2380.00	47	0	2.2100E+03	7.1429E+00	2.2146E+03	6.9509E+00
SE 87F	5.800E+00	S	1313.00	11	0	2.2300E+03	-6.9840E+01	2.6557E+03	-1.0226E+02
SE 88F	1.530E+00	S	1351.00	13	4	5.6612E+03	-3.1904E+02	5.6650E+03	-3.1932E+02
BR 88F	1.650E+01	S	4290.00	166	0	3.2600E+03	2.4009E+01	3.2622E+03	2.3957E+01
BR 89F	4.380E+00	S	3220.00	92	0	1.5202E+03	5.2790E+01	1.5202E+03	5.2789E+01
BR 90F	1.710E+00	S	3080.00	8	0	1.2370E+03	5.9838E+01	1.2370E+03	5.9837E+01
KR 71F	9.700E-02	S	1022.00	0	5	6.1410E+02	3.9912E+01	1.0220E+03	-1.1347E-03
KR 75F	4.300E+00	M	1470.30	42	5	1.3210E+03	1.0154E+01	1.3290E+03	9.6088E+00
KR 79M	5.000E+01	S	42.06	1	0	3.5324E+01	1.6019E+01	3.5324E+01	1.6020E+01
KR 89F	3.170E+00	M	3130.00	261	0	1.7805E+03	4.3116E+01	1.7805E+03	4.3115E+01
KR 94F	2.000E-01	S	2176.57	18	0	1.7000E+03	2.1395E+01	1.8930E+03	1.3030E+01
RB 74F	6.490E-02	S	1019.97	0	5	8.8280E+02	1.3448E+01	1.0200E+03	6.5824E-05
RB 81M	3.048E+01	M	34.00	8	9	3.4130E+01	-3.8236E-01	2.7606E+01	1.8805E+01
RB 89F	1.515E+01	M	1740.00	62	0	2.0700E+03	-1.8966E+01	2.0683E+03	-1.8868E+01
RB 90M	4.300E+00	M	3690.00	96	6	3.2067E+03	1.3098E+01	3.2067E+03	1.3097E+01
RB 92F	4.510E+00	S	393.00	53	0	2.1500E+03	-4.4707E+02	2.1466E+03	-4.4621E+02
RB 93F	5.700E+00	S	1920.00	251	4	1.3800E+03	2.8124E+01	1.3743E+03	2.8421E+01
RB 94F	2.702E+00	S	4120.00	149	3	3.6600E+03	1.1165E+01	3.6601E+03	1.1163E+01
RB 95F	3.840E-01	S	3370.00	20	4	6.7015E+02	8.0114E+01	6.8227E+02	7.9755E+01
RB 96F	1.990E-01	S	4880.00	108	4	1.9400E+03	6.0245E+01	1.9349E+03	6.0351E+01
RB 97F	1.718E-01	S	4800.00	79	4	6.1343E+02	8.7220E+01	6.1458E+02	8.7196E+01
RB 98F	1.140E-01	S	1827.00	8	0	1.1300E+03	3.8148E+01	1.1300E+03	3.8148E+01
RB 99F	5.900E-02	S	1464.00	31	0	2.0474E+03	-3.9850E+01	2.0474E+03	-3.9852E+01
RB100F	5.100E-02	S	1948.00	2	0	2.3300E+02	8.8039E+01	2.3302E+02	8.8038E+01
SR 79F	2.250E+00	M	1283.58	14	5	1.2020E+03	6.3557E+00	1.1984E+03	6.6399E+00
SR 82F	2.556E+01	J	7.88	0	4	2.3539E+02	-2.8872E+03	7.8825E+00	-3.2120E-02
SR 83F	1.350E+00	J	800.00	137	5	7.4360E+02	7.0500E+00	8.0413E+02	-5.1646E-01
SR 87M	2.810E+00	H	51.01	1	8	3.2107E+02	-5.2946E+02	3.2107E+02	-5.2946E+02
SR 92F	2.710E+00	H	1130.00	10	0	1.3392E+03	-1.8513E+01	1.3392E+03	-1.8510E+01
SR 93F	7.320E+00	M	1760.00	136	6	1.9376E+03	-1.0091E+01	1.9376E+03	-1.0091E+01
SR 94F	1.268E+00	M	1450.00	5	0	1.2096E+03	1.6579E+01	1.2096E+03	1.6576E+01
SR 97F	4.200E-01	S	2500.00	66	4	2.2500E+03	9.9994E+00	2.2572E+03	9.7101E+00
SR 98F	6.500E-01	S	300.00	11	6	1.5998E+02	4.6672E+01	1.5998E+02	4.6672E+01
SR 99F	2.700E-01	S	3030.00	79	4	1.2603E+03	5.8407E+01	1.2604E+03	5.8403E+01
SR100F	2.020E-01	S	1375.00	67	0	5.1600E+02	6.2473E+01	5.1561E+02	6.2501E+01
SR101F	1.210E-01	S	1476.00	8	0	1.8074E+02	8.7755E+01	1.8074E+02	8.7755E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
Y 80F	3.380E+01	S	1415.94	9	0	1.0934E+03	2.2778E+01	1.0934E+03	2.2778E+01
Y 90F	2.667E+00	J	0.00	1	0	2.8171E-01	-9.0775E+04	2.8171E-01	-9.0775E+04
Y 94F	1.910E+01	M	900.00	42	0	7.6426E+02	1.5082E+01	7.6426E+02	1.5082E+01
Y 95F	1.030E+01	M	1060.00	44	0	1.2867E+03	-2.1389E+01	1.2867E+03	-2.1389E+01
Y 96F	6.200E+00	S	15.00	0	4	0.0000E+00	1.0000E+02	2.6317E+00	8.2455E+01
Y 96M	1.000E+01	S	3581.30	21	0	4.0310E+03	-1.2557E+01	4.0310E+03	-1.2557E+01
Y 97F	3.700E+00	S	1650.00	19	0	1.8137E+03	-9.9218E+00	1.8137E+03	-9.9222E+00
Y 97M	1.210E+00	S	1760.00	21	4	3.3614E+03	-9.0988E+01	3.3493E+03	-9.0303E+01
Y 98F	6.500E-01	S	3589.44	27	6	8.3226E+02	7.6814E+01	8.3226E+02	7.6814E+01
Y 98M	2.000E+00	S	3426.76	12	0	3.0931E+03	9.7381E+00	3.0931E+03	9.7379E+00
Y 99F	1.500E+00	S	1591.64	16	0	6.1360E+02	6.1449E+01	6.1360E+02	6.1448E+01
Y100F	7.350E-01	S	1840.00	73	0	1.9800E+03	-7.6087E+00	1.9833E+03	-7.7878E+00
Y102F	2.700E-01	S	3590.00	1	0	1.5190E+02	9.5769E+01	1.5190E+02	9.5769E+01
ZR 89M	4.180E+00	M	632.88	2	8	6.3288E+02	-6.6544E-04	5.4244E+02	1.4290E+01
ZR 97F	1.690E+01	H	193.20	40	4	8.9724E+02	-3.6441E+02	1.9257E+02	3.2581E-01
ZR 99F	2.100E+00	S	930.00	13	6	8.0784E+02	1.3136E+01	8.0784E+02	1.3136E+01
ZR100F	7.100E+00	S	774.00	8	0	2.4100E+02	6.8863E+01	2.4132E+02	6.8822E+01
ZR101F	2.000E+00	S	2765.00	6	0	4.0000E+01	9.8553E+01	1.8473E+03	3.3191E+01
ZR102F	2.900E+00	S	870.00	25	0	8.6000E+02	1.1494E+00	1.7836E+03	-1.0501E+02
ZR103F	1.300E+00	S	3108.00	20	0	1.8323E+03	4.1046E+01	1.8323E+03	4.1045E+01
ZR104F	1.200E+00	S	1107.00	8	0	1.4559E+03	-3.1518E+01	1.4559E+03	-3.1515E+01
NB 90M	1.882E+01	S	82.40	1	3	9.9400E+01	-2.0631E+01	8.2285E+01	1.3938E-01
NB 98F	2.800E+00	S	84.00	11	0	1.1649E+02	-3.8683E+01	1.1649E+02	-3.8683E+01
NB100F	1.500E+00	S	2942.00	39	0	7.1000E+02	7.5867E+01	7.0802E+02	7.5934E+01
NB101F	7.100E+00	S	649.00	14	0	3.0000E+02	5.3775E+01	1.2642E+03	-9.4791E+01
NB103F	1.500E+00	S	766.00	39	0	1.2200E+03	-5.9269E+01	1.2212E+03	-5.9426E+01
NB104M	4.800E+00	S	2903.37	4	0	3.1500E+03	-8.4946E+00	1.3715E+03	5.2762E+01
NB105F	*2.950E+00*	*S*	*746.00*	*36*	0	2.8800E+03	-2.8606E+02	2.8813E+03	-2.8623E+02
NB106F	1.020E+00	S	3390.00	12	0	4.0900E+03	-2.0649E+01	1.1121E+03	6.7194E+01
MO103F	1.125E+00	M	1058.00	3	0	1.3900E+03	-3.1380E+01	5.3626E+02	4.9314E+01
MO105F	3.670E+01	S	2393.00	20	0	1.7400E+03	2.7288E+01	3.9898E+02	8.3327E+01
MO106F	8.400E+00	S	611.00	4	0	5.9000E+02	3.4370E+00	1.0150E+03	-6.6127E+01
MO108F	1.500E+00	S	1067.88	3	0	1.1400E+03	-6.7536E+00	3.7694E+02	6.4702E+01
TC 97M	8.900E+01	J	16.67	1	0	3.1266E-01	9.8125E+01	3.1266E-01	9.8125E+01
TC103F	5.000E+01	S	263.51	53	6	2.3034E+02	1.2590E+01	2.3034E+02	1.2590E+01
TC105F	7.600E+00	M	491.47	77	6	4.5455E+02	7.5133E+00	4.5455E+02	7.5127E+00
TC106F	3.600E+01	S	2104.64	51	6	2.2257E+03	-5.7521E+00	2.2257E+03	-5.7524E+00
TC107F	2.100E+01	S	597.52	128	6	5.1461E+02	1.3875E+01	5.1462E+02	1.3874E+01
RU 92F	3.650E+00	M	2123.65	54	5	1.9612E+03	7.6496E+00	1.9598E+03	7.7168E+00
RU 97F	2.900E+00	J	243.75	18	0	2.2678E+02	6.9621E+00	2.2678E+02	6.9624E+00
RU105F	4.439E+00	H	711.70	81	4	7.4757E+02	-5.0396E+00	7.3997E+02	-3.9717E+00
RH100M	4.600E+00	M	46.30	11	5	4.6292E+01	1.7277E-02	4.2682E+01	7.8145E+00
RH105M	4.500E+01	S	40.91	1	0	2.5914E+01	3.6648E+01	2.5914E+01	3.6648E+01
RH110F	3.000E+00	S	66.35	1	0	5.6070E+01	1.5498E+01	5.6070E+01	1.5498E+01
RH111F	1.100E+01	S	208.00	38	0	5.3200E+02	-1.5577E+02	5.3164E+02	-1.5559E+02
RH114F	1.850E+00	S	473.08	5	0	4.1000E+02	1.3333E+01	4.0660E+02	1.4051E+01
RH114M	1.850E+00	S	2515.72	28	0	2.1800E+03	1.3345E+01	2.1806E+03	1.3320E+01
RH116F	6.800E-01	S	333.75	3	0	3.0000E+02	1.0112E+01	3.0407E+02	8.8914E+00
RH116M	9.000E-01	S	2392.14	12	0	2.1500E+03	1.0122E+01	2.1463E+03	1.0276E+01
PD100F	3.634E+00	J	104.62	16	4	1.1106E+02	-6.1516E+00	1.1154E+02	-6.6093E+00
PD109F	1.343E+01	H	1.08	35	6	6.4664E-01	4.0140E+01	6.4664E-01	4.0140E+01
PD109M	4.690E+00	M	100.36	1	0	8.9916E+01	1.0407E+01	8.9916E+01	1.0406E+01
PD111M	5.500E+00	H	382.93	79	12	3.5670E+02	6.8491E+00	3.5671E+02	6.8481E+00
PD112F	2.105E+01	H	5.17	1	1	5.1696E+00	9.6851E-04	1.8615E+01	-2.6008E+02
PD113F	1.550E+00	M	68.71	30	4	6.1873E+01	9.9505E+00	6.1890E+01	9.9259E+00

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
AG103M	5.700E+00	S	37.70	0	4	3.7674E+01	6.8958E-02	9.1697E+00	7.5677E+01
AG105M	7.233E+00	M	1.18	1	5	1.1778E+00	1.8642E-01	1.9917E-01	8.3121E+01
AG107M	4.430E+01	S	24.52	1	0	4.3489E+00	8.2266E+01	4.3489E+00	8.2266E+01
AG109M	3.960E+01	S	23.68	1	0	3.2748E+00	8.6169E+01	3.2748E+00	8.6169E+01
AG110F	2.460E+01	S	34.77	13	6	3.0635E+01	1.1899E+01	3.0635E+01	1.1899E+01
AG116M	1.050E+01	S	1306.15	7	0	1.1882E+03	9.0319E+00	1.1882E+03	9.0320E+00
AG118F	3.700E+00	S	892.72	8	6	8.0963E+02	9.3072E+00	8.0963E+02	9.3071E+00
AG120F	1.170E+00	S	1076.60	4	0	7.7749E+02	2.7783E+01	7.7749E+02	2.7783E+01
AG120M	3.200E-01	S	1696.44	5	6	1.2465E+03	2.6525E+01	1.2465E+03	2.6525E+01
AG121F	8.000E-01	S	844.00	53	0	2.0300E+03	-1.4052E+02	2.8967E+03	-2.4321E+02
CD102F	5.500E+00	M	780.43	17	5	9.5900E+02	-2.2881E+01	9.5926E+02	-2.2914E+01
CD104F	5.767E+01	M	186.38	7	5	2.5959E+02	-3.9278E+01	2.5839E+02	-3.8632E+01
CD107F	6.500E+00	H	50.21	36	0	8.8911E+00	8.2291E+01	8.8912E+00	8.2291E+01
CD113M	1.410E+01	A	0.71	1	4	7.0704E-01	-8.4302E-06	1.6214E-01	7.7068E+01
CD115M	4.460E+01	J	23.50	18	6	2.1990E+01	6.4082E+00	2.1990E+01	6.4079E+00
CD119F	2.690E+00	M	1674.49	30	6	1.4554E+03	1.3082E+01	1.4554E+03	1.3082E+01
CD119M	2.200E+00	M	2354.67	43	0	2.2047E+03	6.3699E+00	2.2047E+03	6.3696E+00
CD123F	2.200E+00	S	2849.00	116	0	2.1650E+03	2.4008E+01	2.1655E+03	2.3992E+01
CD126F	5.060E-01	S	769.11	11	0	6.3890E+02	1.6930E+01	6.3890E+02	1.6930E+01
CD127F	4.300E-01	S	3560.00	15	0	5.0540E+03	-4.1966E+01	5.0545E+03	-4.1979E+01
IN104F	1.700E+00	M	3570.33	19	5	3.2097E+03	1.0101E+01	3.2332E+03	9.4430E+00
IN106F	6.200E+00	M	3560.00	28	5	3.5529E+03	1.9943E-01	9.0746E+02	7.4509E+01
IN106M	5.200E+00	M	2950.00	31	5	2.9476E+03	8.1361E-02	2.1333E+03	2.7684E+01
IN112F	1.440E+01	M	30.90	10	4	1.5273E+02	-3.9426E+02	1.5273E+02	-3.9427E+02
IN118F	5.000E+00	S	347.11	5	0	3.2966E+02	5.0267E+00	3.2966E+02	5.0264E+00
IN121M	3.880E+00	M	69.16	11	12	6.3382E+01	8.3513E+00	6.3382E+01	8.3512E+00
IN131F	2.700E-01	S	2894.85	4	0	2.5200E+03	1.2949E+01	2.5200E+03	1.2948E+01
IN131N	3.200E-01	S	4663.16	6	0	6.0000E+03	-2.8668E+01	6.0368E+03	-2.9458E+01
SN107F	2.900E+00	M	1699.98	76	0	7.3900E+03	-3.3471E+02	7.3868E+03	-3.3452E+02
SN110F	4.111E+00	H	337.83	1	4	3.0088E+02	1.0937E+01	3.0089E+02	1.0933E+01
SN113M	2.140E+01	M	1.60	0	4	0.0000E+00	1.0000E+02	1.6507E+00	-3.1698E+00
SN123F	1.292E+02	J	8.00	9	6	6.8921E+00	1.3801E+01	6.8921E+00	1.3801E+01
SN129F	2.400E+00	M	2480.00	56	0	1.4667E+03	4.0859E+01	1.4667E+03	4.0858E+01
SN130F	3.720E+00	M	160.00	12	4	9.3627E+02	-4.8517E+02	9.3368E+02	-4.8355E+02
SN130M	1.700E+00	M	2352.00	8	4	3.2628E+02	8.6127E+01	3.2628E+02	8.6127E+01
SN131F	3.900E+01	S	2360.00	38	0	1.1900E+03	4.9576E+01	4.6602E+03	-9.7465E+01
SN131M	1.020E+00	M	2391.00	3	0	1.5951E+03	3.3287E+01	1.6326E+03	3.1721E+01
SN132F	4.000E+01	S	1660.00	10	4	1.2922E+03	2.2158E+01	1.2922E+03	2.2156E+01
SN133F	1.500E+00	S	2030.00	31	0	2.7252E+02	8.6575E+01	2.7252E+02	8.6575E+01
SB129M	1.770E+01	M	1365.00	29	0	2.2339E+03	-6.3656E+01	2.2339E+03	-6.3658E+01
TE113F	1.700E+00	M	2323.42	39	5	2.1729E+03	6.4784E+00	2.1681E+03	6.6828E+00
TE114F	1.517E+01	M	973.32	48	0	4.3200E+03	-3.4384E+02	4.3218E+03	-3.4402E+02
TE118F	6.000E+00	J	19.90	0	4	3.3260E+01	-6.7136E+01	1.9912E+01	-6.1399E-02
TE121M	1.539E+02	J	217.00	6	9	2.1733E+02	-1.5207E-01	1.8889E+02	1.2955E+01
TE135F	1.900E+01	S	480.00	41	0	5.1000E+02	-6.2500E+00	5.0968E+02	-6.1843E+00
TE136F	1.750E+01	S	1740.00	23	4	2.0434E+03	-1.7438E+01	2.0426E+03	-1.7393E+01
TE137F	2.490E+00	S	182.20	13	0	1.8200E+03	-8.9891E+02	1.1093E+04	-5.9884E+03
I136M	4.500E+01	S	2510.00	28	0	2.1322E+03	1.5052E+01	2.1321E+03	1.5054E+01
I137F	2.450E+01	S	1230.00	244	0	1.1319E+03	7.9789E+00	1.1319E+03	7.9781E+00
I138F	6.410E+00	S	1560.00	100	0	1.3600E+03	1.2821E+01	1.3594E+03	1.2861E+01
I139F	2.290E+00	S	1400.00	103	4	7.5033E+03	-4.3595E+02	7.5073E+03	-4.3623E+02
I140F	8.600E-01	S	4120.00	1	0	1.6100E+03	6.0922E+01	2.2341E+02	9.4577E+01
I141F	4.800E-01	S	1787.00	4	0	4.0190E+04	-2.1490E+03	9.7327E+02	4.5536E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
XE114F	1.000E+01	S	178.56	3	0	1.9000E+02	-6.4056E+00	1.9382E+02	-8.5460E+00
XE118F	6.000E+00	M	570.00	0	1	6.1970E+02	-8.7193E+00	5.7232E+02	-4.0702E-01
XE121F	4.010E+01	M	1644.23	250	5	1.8128E+03	-1.0252E+01	1.8414E+03	-1.1992E+01
XE122F	2.011E+01	H	148.61	22	4	6.8790E+01	5.3710E+01	6.8982E+01	5.3581E+01
XE125F	1.700E+01	H	254.80	39	4	2.6797E+02	-5.1680E+00	2.6796E+02	-5.1651E+00
XE125M	5.700E+01	S	133.22	2	0	9.6870E+01	2.7286E+01	9.6870E+01	2.7286E+01
XE137F	3.818E+00	M	235.00	79	0	1.9070E+02	1.8851E+01	1.9009E+02	1.9112E+01
XE139F	3.968E+01	S	920.00	266	4	1.0155E+03	-1.0383E+01	1.0157E+03	-1.0405E+01
XE142F	1.220E+00	S	1013.00	165	0	1.0800E+03	-6.6140E+00	8.4094E+03	-7.3014E+02
XE143F	3.000E-01	S	2016.00	1	0	2.4200E+03	-2.0040E+01	1.7250E+02	9.1443E+01
CS114F	5.700E-01	S	709.75	7	0	6.6800E+02	5.8824E+00	6.6761E+02	5.9368E+00
CS120F	1.010E+00	M	2766.64	116	4	1.9810E+04	-6.1603E+02	1.9805E+04	-6.1586E+02
CS122F	2.100E+01	S	1234.74	44	5	1.3246E+03	-7.2776E+00	1.3284E+03	-7.5876E+00
CS122M	4.500E+00	M	3129.09	61	5	3.3695E+03	-7.6831E+00	3.3772E+03	-7.9282E+00
CS123M	1.600E+00	S	159.00	2	0	3.4000E+02	-1.1384E+02	3.3995E+02	-1.1381E+02
CS139F	9.267E+00	M	299.00	179	0	3.5000E+02	-1.7057E+01	3.5422E+02	-1.8470E+01
CS140F	1.062E+00	M	1590.00	157	6	2.0980E+03	-3.1948E+01	2.0980E+03	-3.1949E+01
CS141F	2.494E+01	S	1140.00	193	4	7.8102E+02	3.1489E+01	7.8175E+02	3.1425E+01
CS142F	1.800E+00	S	1351.15	57	6	8.8062E+02	3.4824E+01	8.8063E+02	3.4824E+01
CS143F	1.770E+00	S	1450.00	84	4	4.1043E+02	7.1694E+01	4.1088E+02	7.1663E+01
CS144F	1.010E+00	S	2660.00	31	4	1.3152E+03	5.0557E+01	1.3149E+03	5.0567E+01
CS145F	5.940E-01	S	3920.00	129	4	6.5889E+02	8.3192E+01	6.5833E+02	8.3206E+01
CS146F	3.430E-01	S	2220.00	52	4	8.1720E+02	6.3189E+01	8.1718E+02	6.3190E+01
CS147F	2.200E-01	S	1388.60	44	4	1.1515E+02	9.1708E+01	8.2662E+02	4.0471E+01
BA124F	1.183E+01	M	325.23	11	0	3.4775E+02	-6.9230E+00	3.4775E+02	-6.9245E+00
BA126F	1.667E+00	H	519.66	87	5	5.8407E+02	-1.2394E+01	5.8815E+02	-1.3180E+01
BA129F	2.222E+00	H	815.66	180	4	3.9631E+04	-4.7588E+03	3.9628E+04	-4.7585E+03
BA131F	1.180E+01	J	470.80	48	0	4.2756E+02	9.1844E+00	4.2757E+02	9.1829E+00
BA141F	1.827E+01	M	965.64	110	6	8.3621E+02	1.3404E+01	8.3622E+02	1.3403E+01
BA142F	1.060E+01	M	760.00	90	4	1.0794E+03	-4.2032E+01	1.0701E+04	-1.3080E+03
BA143F	1.450E+01	S	870.00	71	2	3.4713E+02	6.0100E+01	3.4713E+02	6.0100E+01
BA146F	2.220E+00	S	880.00	247	0	8.3300E+02	5.3409E+00	8.3288E+02	5.3541E+00
BA147F	7.200E-01	S	1440.00	115	0	2.5817E+04	-1.6928E+03	2.5817E+04	-1.6928E+03
BA148F	6.100E-01	S	1291.00	66	4	2.0066E+02	8.4457E+01	2.0063E+02	8.4459E+01
LA135F	1.950E+01	H	35.70	12	4	3.5690E+01	2.8007E-02	3.3839E+01	5.2140E+00
LA137F	6.000E+04	A	30.36	0	4	2.5262E+01	1.6805E+01	2.5262E+01	1.6805E+01
LA141F	3.930E+00	H	46.06	28	0	4.2946E+01	6.7562E+00	4.2946E+01	6.7560E+00
LA143F	1.413E+01	M	130.00	76	0	2.6600E+02	-1.0462E+02	2.6603E+02	-1.0464E+02
LA145F	2.420E+01	S	1480.00	70	6	6.5039E+02	5.6055E+01	6.5039E+02	5.6055E+01
LA146F	6.270E+00	S	2280.00	186	4	1.2623E+03	4.4634E+01	1.2623E+03	4.4635E+01
LA147F	4.000E+00	S	1260.00	46	4	2.8168E+02	7.7645E+01	2.8168E+02	7.7645E+01
CE127F	3.200E+01	S	4.09	1	0	4.3000E+00	-5.2632E+00	4.2632E+00	-4.3623E+00
CE131F	1.000E+01	M	738.56	79	4	7.9073E+02	-7.0640E+00	7.9048E+02	-7.0300E+00
CE131M	5.000E+00	M	184.22	3	0	1.9700E+02	-6.9385E+00	1.9698E+02	-6.9250E+00
CE145F	3.017E+00	M	770.00	53	4	8.5946E+02	-1.1618E+01	8.6297E+02	-1.2074E+01
CE147F	5.500E+01	S	620.00	34	4	1.3757E+02	7.7811E+01	1.3757E+02	7.7811E+01
CE149F	5.200E+00	S	2637.00	22	0	1.5300E+03	4.1980E+01	4.7903E+02	8.1834E+01
CE150F	4.000E+00	S	821.00	27	0	6.3000E+02	2.3264E+01	1.2899E+03	-5.7109E+01
PR134F	1.700E+01	M	2033.31	29	0	1.4400E+04	-6.0820E+02	1.4377E+04	-6.0706E+02
PR134M	1.100E+01	M	2033.65	33	0	9.6000E+03	-3.7206E+02	9.5690E+03	-3.7053E+02
PR143F	1.358E+01	J	0.31	1	0	8.9040E-06	9.9997E+01	8.9040E-06	9.9997E+01
PR144F	1.728E+01	M	28.90	8	0	2.8900E+01	0.0000E+00	9.5180E+00	6.7066E+01
PR144M	7.200E+00	M	12.70	1	4	1.2710E+01	-7.8742E-02	1.1861E+01	6.6090E+00
PR145F	5.960E+00	H	27.71	58	6	2.5842E+01	6.7422E+00	2.5842E+01	6.7415E+00
PR147F	1.360E+01	M	840.00	64	6	7.3731E+02	1.2225E+01	7.3732E+02	1.2224E+01
PR149F	2.267E+00	M	417.83	87	4	3.6928E+02	1.1620E+01	3.6943E+02	1.1584E+01
PR150F	6.100E+00	S	2315.00	4	0	2.3400E+03	-1.0799E+00	1.5138E+02	9.3461E+01
PR151F	1.890E+01	S	655.00	27	0	4.5000E+02	3.1298E+01	4.4667E+02	3.1607E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
ND137F	3.850E+01	M	1166.38	174	5	1.1011E+03	5.5968E+00	1.1026E+03	5.4724E+00
ND138F	5.028E+00	H	47.50	13	4	4.3320E+01	8.8002E+00	4.3092E+01	9.2803E+00
ND140F	3.370E+00	J	27.44	0	4	0.0000E+00	1.0000E+02	2.7469E+01	-1.0540E-01
ND154F	2.590E+01	S	396.00	51	0	4.2000E+02	-6.0606E+00	4.2471E+02	-7.2504E+00
PM135F	4.900E+01	S	2658.46	32	0	2.8800E+03	-8.3334E+00	2.8833E+03	-8.4573E+00
PM136F	1.783E+00	M	2629.97	27	4	1.6409E+04	-5.2394E+02	1.6414E+04	-5.2413E+02
PM137F	2.400E+00	M	1725.85	96	5	1.5799E+03	8.4567E+00	1.5825E+03	8.3082E+00
PM138F	1.000E+01	S	957.54	0	5	5.3600E-01	9.9944E+01	9.5755E+02	-5.6093E-04
PM149F	2.212E+00	J	0.41	28	4	4.0830E-01	7.2991E-04	3.6641E-01	1.0260E+01
PM153F	5.400E+00	M	53.67	9	0	4.8659E+01	9.3304E+00	4.8659E+01	9.3311E+00
PM155F	4.800E+01	S	296.00	5	0	1.1226E+02	6.2074E+01	1.1226E+02	6.2075E+01
SM136F	4.270E+01	S	308.27	22	4	3.5062E+02	-1.3738E+01	3.5100E+02	-1.3861E+01
SM145F	3.400E+02	J	72.14	2	4	7.2143E+01	4.1244E-04	3.8602E+01	4.6493E+01
SM151F	8.879E+01	A	0.01	1	0	6.8000E-03	4.8092E+01	6.7636E-03	4.8370E+01
SM155F	2.210E+01	M	104.48	52	0	9.4197E+01	9.8421E+00	9.4197E+01	9.8417E+00
SM156F	9.400E+00	H	124.73	11	0	1.1751E+02	5.7885E+00	1.1751E+02	5.7854E+00
EU138F	1.210E+01	S	3066.64	23	0	2.2060E+04	-6.1935E+02	2.2062E+04	-6.1942E+02
EU142F	2.400E+00	S	1136.36	8	5	1.2290E+03	-8.1523E+00	1.2292E+03	-8.1736E+00
EU142M	1.220E+00	M	3150.92	32	5	3.4130E+03	-8.3176E+00	3.4130E+03	-8.3181E+00
EU146F	4.595E+00	J	2170.00	155	5	2.1694E+03	2.9027E-02	1.8996E+03	1.2463E+01
EU150M	1.262E+01	H	89.50	15	0	8.6600E+01	3.2348E+00	8.1125E+01	9.3524E+00
GD142F	1.500E+00	M	654.00	0	5	8.3300E+02	-2.7370E+01	6.5402E+02	-2.5198E-03
GD144F	4.500E+00	M	1233.32	62	0	7.1360E+03	-4.7860E+02	7.1367E+03	-4.7866E+02
GD147F	1.588E+00	J	1250.02	167	5	1.3220E+03	-5.7615E+00	1.3263E+03	-6.1020E+00
GD163F	1.133E+00	M	1988.00	11	0	5.8000E+02	7.0825E+01	5.8373E+02	7.0637E+01
TB146M	2.300E+01	S	3530.00	10	5	3.5328E+03	-7.9321E-02	3.1696E+03	1.0210E+01
TB156N	1.019E+00	J	36.83	0	1	3.6836E+01	-1.6292E-02	2.5707E-01	9.9302E+01
TB157F	9.830E+01	A	20.93	1	4	1.1300E+02	-4.3983E+02	1.1295E+02	-4.3958E+02
DY146F	2.900E+01	S	157.41	2	0	1.7000E+02	-8.0003E+00	1.6534E+02	-5.0417E+00
DY146M	1.500E-01	S	2935.60	9	4	3.1042E+03	-5.7435E+00	3.1042E+03	-5.7431E+00
DY149F	4.233E+00	M	2250.00	52	1	2.2450E+03	2.2222E-01	1.9280E+03	1.4312E+01
DY152F	2.369E+00	H	250.14	1	4	2.8711E+02	-1.4778E+01	2.8714E+02	-1.4790E+01
HO158F	1.100E+01	M	1406.65	243	0	5.0100E+04	-3.4617E+03	5.0175E+04	-3.4670E+03
HO158N	2.133E+01	M	2735.70	11	5	2.7357E+03	7.3179E-04	2.4162E+03	1.1678E+01
HO160M	5.019E+00	H	13220.00	347	0	1.3220E+05	-9.0000E+02	1.3226E+05	-9.0048E+02
HO161F	2.481E+00	H	15.50	9	0	1.5500E+01	0.0000E+00	7.3219E+00	5.2762E+01
HO164F	2.900E+01	M	26.95	2	8	2.9930E+01	-1.1039E+01	2.9956E+01	-1.1136E+01
HO170M	4.300E+01	S	2028.70	31	0	1.3333E+03	3.4278E+01	4.8769E+03	-1.4040E+02
ER148F	4.500E+00	S	858.63	2	5	9.4211E+02	-9.7225E+00	9.4207E+02	-9.7178E+00
ER150F	1.850E+01	S	791.47	1	1	8.4370E+02	-6.5990E+00	8.4372E+02	-6.6015E+00
ER156F	1.950E+01	M	15.06	6	4	1.3774E+01	8.5556E+00	1.3742E+01	8.7671E+00
ER158F	2.250E+00	H	129.60	36	4	1.4462E+02	-1.1590E+01	1.4428E+02	-1.1331E+01
ER165F	1.036E+01	H	37.80	0	4	4.6730E+00	8.7638E+01	3.7828E+01	-7.5022E-02
ER167M	2.280E+00	S	118.28	1	0	8.6590E+01	2.6792E+01	8.6590E+01	2.6792E+01
ER169F	9.300E+00	J	0.02	3	0	1.8347E-02	9.8029E+00	1.8347E-02	9.8020E+00
ER172F	2.054E+00	J	504.00	37	4	5.0370E+02	5.9521E-02	2.3210E+02	5.3949E+01
TM151F	5.200E+00	S	1185.53	1	0	9.8440E+02	1.6965E+01	9.8440E+02	1.6965E+01
TM151M	4.130E+00	S	1698.32	9	0	1.4100E+03	1.6977E+01	1.4114E+03	1.6895E+01
TM157F	3.500E+00	M	1543.32	144	4	9.1599E+03	-4.9352E+02	9.1636E+03	-4.9376E+02
TM159F	9.150E+00	M	1333.32	130	5	7.2907E+03	-4.4681E+02	7.3001E+03	-4.4751E+02
TM161F	3.800E+01	M	899.17	232	0	1.0200E+03	-1.3439E+01	1.0235E+03	-1.3832E+01
TM162M	2.430E+01	S	300.00	18	5	3.0490E+02	-1.6333E+00	4.4054E+02	-4.6847E+01
TM176F	1.900E+00	M	1706.03	86	0	1.9300E+03	-1.3128E+01	1.9278E+03	-1.3002E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
YB151F	1.600E+00	S	1202.50	3	4	1.0384E+03	1.3644E+01	1.0390E+03	1.3599E+01
YB158F	1.650E+00	M	61.25	1	4	5.6600E+01	7.5974E+00	5.6654E+01	7.5085E+00
YB160F	4.800E+00	M	279.29	29	5	3.4140E+02	-2.2240E+01	3.3611E+02	-2.0346E+01
YB162F	1.887E+01	M	233.35	45	5	2.4665E+02	-5.6978E+00	2.4702E+02	-5.8583E+00
YB164F	1.264E+00	H	13.44	37	4	1.4717E+01	-9.4933E+00	1.4338E+01	-6.6722E+00
YB169F	3.201E+01	J	326.84	36	4	3.2683E+02	3.0626E-03	2.6888E+02	1.7733E+01
LU160F	3.550E+01	S	2566.64	22	0	8.8900E+03	-2.4637E+02	8.8882E+03	-2.4630E+02
LU165F	1.073E+01	M	1305.32	136	4	5.2340E+03	-3.0097E+02	5.2334E+03	-3.0093E+02
LU169F	1.419E+00	J	1214.00	316	5	1.3133E+03	-8.1813E+00	1.3131E+03	-8.1614E+00
HF162F	3.760E+01	S	308.28	3	0	2.9200E+02	5.2803E+00	2.9187E+02	5.3232E+00
HF167F	2.050E+00	M	682.79	3	5	7.3400E+02	-7.5000E+00	7.3405E+02	-7.5074E+00
HF170F	1.600E+01	H	495.45	93	4	5.4555E+02	-1.0113E+01	5.4261E+02	-9.5182E+00
HF171F	1.211E+01	H	799.99	187	4	1.9892E+04	-2.3865E+03	1.9935E+04	-2.3919E+03
HF175F	7.000E+01	J	398.36	8	6	3.6054E+02	9.4921E+00	3.6054E+02	9.4921E+00
HF177M	1.080E+00	S	1070.00	32	4	1.0671E+03	2.7171E-01	9.1669E+02	1.4328E+01
HF178M	4.000E+00	S	1147.40	14	0	2.4222E+03	-1.1110E+02	2.4222E+03	-1.1110E+02
HF178N	3.100E+01	A	1595.50	14	0	1.3059E+03	1.8151E+01	2.3919E+03	-4.9915E+01
HF180M	5.500E+00	H	93.33	6	0	9.3332E+01	0.0000E+00	1.1467E+03	-1.1286E+03
HF182F	9.000E+06	A	212.22	5	0	2.3064E+02	-8.6802E+00	2.3064E+02	-8.6813E+00
HF182M	1.025E+00	H	980.45	28	0	8.9127E+02	9.0958E+00	8.9127E+02	9.0953E+00
TA169F	4.900E+00	M	1499.98	19	1	8.2086E+03	-4.4725E+02	8.1681E+03	-4.4455E+02
TA173F	3.139E+00	H	536.00	198	5	5.3637E+02	-6.9598E-02	5.0194E+02	6.3551E+00
TA175F	1.050E+01	H	841.89	137	5	9.2732E+02	-1.0148E+01	9.2534E+02	-9.9128E+00
TA179F	1.776E+00	A	28.00	0	4	0.0000E+00	1.0000E+02	2.7847E+01	5.4633E-01
TA183F	5.100E+00	J	328.49	32	0	2.3651E+02	2.8001E+01	2.3651E+02	2.8001E+01
TA185F	4.900E+01	M	164.59	27	4	1.6460E+02	-3.0315E-03	1.4510E+02	1.1843E+01
W174F	2.933E+01	M	566.66	30	0	2.6000E+03	-3.5883E+02	2.5995E+03	-3.5874E+02
W176F	2.306E+00	H	155.72	6	4	1.7734E+02	-1.3888E+01	1.7737E+02	-1.3903E+01
W178F	2.164E+01	J	18.31	0	4	0.0000E+00	1.0000E+02	1.6354E+01	1.0704E+01
W179M	6.400E+00	M	20.90	2	8	2.0946E+01	-2.2058E-01	1.9492E+01	6.7362E+00
W185F	7.510E+01	J	0.05	1	0	2.3317E-02	5.3366E+01	2.3317E-02	5.3366E+01
RE177F	1.400E+01	M	572.33	22	5	6.0620E+02	-5.9174E+00	6.0645E+02	-5.9618E+00
RE184M	1.655E+02	J	389.00	32	8	3.8965E+02	-1.6709E-01	3.6859E+02	5.2468E+00
RE186M	1.998E+05	A	60.00	7	4	6.4035E+01	-6.7250E+00	6.1646E+01	-2.7439E+00
OS174F	4.400E+01	S	465.30	7	0	5.0760E+02	-9.0909E+00	5.0762E+02	-9.0952E+00
OS176F	3.000E+00	M	966.66	5	0	3.5310E+03	-2.6528E+02	3.5305E+03	-2.6523E+02
OS179F	6.500E+00	M	1203.32	60	0	1.0600E+04	-7.8090E+02	1.0668E+04	-7.8651E+02
OS180F	2.150E+01	M	5.60	1	1	5.5970E+00	5.3576E-02	2.0760E+00	6.2929E+01
OS182F	2.211E+01	H	461.48	32	4	4.3248E+02	6.2837E+00	4.3196E+02	6.3971E+00
OS185F	9.363E+01	J	713.00	13	4	7.1349E+02	-6.8722E-02	1.8188E+02	7.4491E+01
OS189M	4.806E+00	H	2.01	0	1	3.9490E+00	-9.6468E+01	2.0048E+00	2.6119E-01
OS196F	3.490E+01	M	96.11	10	0	6.9600E+01	2.7586E+01	6.9586E+01	2.7601E+01
IR181F	4.900E+00	M	1333.32	31	4	4.1695E+03	-2.1271E+02	4.1745E+03	-2.1309E+02
IR183F	5.500E+01	M	2739.19	34	4	2.5695E+03	6.1941E+00	2.5673E+03	6.2755E+00
IR184F	3.019E+00	H	1722.47	188	5	1.8958E+03	-1.0063E+01	1.8958E+03	-1.0065E+01
IR185F	1.389E+01	H	833.33	179	0	1.0710E+04	-1.1852E+03	1.0699E+04	-1.1839E+03
IR187F	1.050E+01	H	500.00	113	4	5.5764E+04	-1.1053E+04	5.5836E+04	-1.1067E+04
IR189F	1.319E+01	J	82.84	29	4	7.8213E+01	5.5810E+00	7.7976E+01	5.8673E+00
IR190M	1.200E+00	H	2.13	0	1	0.0000E+00	1.0000E+02	2.1298E+00	1.1261E-02
IR190N	3.194E+00	H	1548.00	5	8	1.5485E+03	-3.1046E-02	9.7467E+02	3.7037E+01
IR192M	1.440E+00	M	0.16	3	0	1.5793E-01	0.0000E+00	5.8158E+01	-3.6725E+04
IR194N	3.185E-02	S	112.20	2	0	1.6500E+02	-4.7059E+01	1.1220E+02	0.0000E+00
IR197F	5.800E+00	M	718.33	41	0	3.7100E+04	-5.0648E+03	3.7100E+04	-5.0648E+03

	PERIODE	EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
					ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
PT182F	2.600E+00 M	182.55	4	0	1.9700E+02	-7.9139E+00	1.9670E+02	-7.7517E+00
PT184F	1.730E+01 M	1815.65	33	0	1.6000E+03	1.1877E+01	1.6023E+03	1.1749E+01
PT187F	2.350E+00 H	966.66	64	0	5.1200E+03	-4.2966E+02	5.1201E+03	-4.2967E+02
PT188F	1.019E+01 J	194.83	16	4	2.0665E+02	-6.0646E+00	2.0645E+02	-5.9623E+00
PT200F	1.250E+01 H	57.06	36	4	6.0220E+01	-5.5397E+00	6.0224E+01	-5.5461E+00
AU182F	2.100E+01 S	970.00	35	4	9.6580E+02	4.3344E-01	8.9409E+02	7.8257E+00
AU187F	8.400E+00 M	1576.76	275	5	1.4435E+03	8.4515E+00	1.4420E+03	8.5473E+00
AU189M	4.590E+00 M	207.70	2	0	2.2800E+02	-9.7732E+00	2.2771E+02	-9.6331E+00
AU192M	2.900E-02 S	431.70	10	0	0.0000E+00	1.0000E+02	7.8990E-07	1.0000E+02
AU193F	1.764E+01 H	137.15	65	4	1.7421E+02	-2.7023E+01	1.7326E+02	-2.6335E+01
AU193M	3.900E+00 S	163.48	4	4	1.9778E+02	-2.0981E+01	1.9747E+02	-2.0789E+01
AU198M	2.300E+00 J	812.00	6	0	5.8742E+02	2.7658E+01	5.8742E+02	2.7657E+01
AU199F	3.139E+00 J	108.37	3	0	7.6043E+01	2.9830E+01	7.6045E+01	2.9828E+01
AU202F	2.880E+01 S	151.92	13	0	1.7000E+02	-1.1902E+01	1.6970E+02	-1.1704E+01
AU204F	3.980E+01 S	1902.50	25	0	2.0000E+03	-5.1248E+00	1.9997E+03	-5.1095E+00
HG182F	1.130E+01 S	430.00	3	0	4.3000E+02	0.0000E+00	1.4657E-06	1.0000E+02
HG184F	3.060E+01 S	472.47	13	0	5.1700E+02	-9.4240E+00	5.1740E+02	-9.5092E+00
HG188F	3.250E+00 M	645.77	19	0	7.3000E+02	-1.3044E+01	5.4403E+02	1.5755E+01
HG189F	7.600E+00 M	3112.98	36	4	3.3187E+03	-6.6097E+00	3.3144E+03	-6.4700E+00
HG189M	8.700E+00 M	1316.99	254	4	1.7368E+04	-1.2188E+03	1.7349E+04	-1.2173E+03
HG190F	2.000E+01 M	120.72	21	4	1.5562E+02	-2.8915E+01	1.5639E+02	-2.9548E+01
HG191F	4.833E+01 M	437.96	7	0	4.6000E+02	-5.0315E+00	3.9239E+02	1.0406E+01
HG191M	5.083E+01 M	1450.00	80	5	1.4429E+03	4.8645E-01	1.5227E+03	-5.0164E+00
HG192F	4.861E+00 H	253.75	24	4	2.7932E+02	-1.0079E+01	2.7942E+02	-1.0115E+01
HG193M	1.181E+01 H	1117.65	126	9	1.2040E+03	-7.7233E+00	1.2051E+03	-7.8208E+00
HG194F	5.200E+02 A	2.10	0	1	0.0000E+00	1.0000E+02	2.1362E+00	-1.7238E+00
HG197F	2.671E+00 J	140.84	3	0	1.5189E+01	8.9216E+01	1.5189E+01	8.9216E+01
HG197M	2.380E+01 H	118.80	7	12	9.4464E+01	2.0482E+01	9.4464E+01	2.0482E+01
HG199M	4.260E+01 M	244.42	3	0	1.3620E+02	4.4276E+01	1.3620E+02	4.4276E+01
HG205F	5.200E+00 M	5.60	12	0	4.7953E+00	1.4334E+01	4.7953E+00	1.4335E+01
TL188F	1.183E+00 M	55.14	1	0	4.1000E+01	2.5641E+01	4.1280E+01	2.5133E+01
TL191M	5.217E+00 M	1532.98	158	4	6.6736E+03	-3.3534E+02	6.7189E+03	-3.3829E+02
TL193F	2.167E+01 M	1212.65	48	4	4.7948E+03	-2.9540E+02	4.7987E+03	-2.9572E+02
TL193M	2.117E+00 M	234.77	2	0	2.5600E+02	-9.0434E+00	2.5649E+02	-9.2521E+00
TL197F	2.839E+00 H	415.86	76	5	4.6144E+02	-1.0962E+01	4.5913E+02	-1.0404E+01
TL202F	1.223E+01 J	490.72	3	0	4.0765E+02	1.6928E+01	4.0765E+02	1.6928E+01
TL206F	4.200E+00 M	1.41	1	0	4.4182E-02	9.6872E+01	4.4182E-02	9.6872E+01
TL207F	4.770E+00 M	3.34	2	7	2.1868E+00	3.4551E+01	2.1868E+00	3.4551E+01
PB196F	3.700E+01 M	813.09	12	0	8.6000E+02	-5.7692E+00	8.5738E+02	-5.4473E+00
PB199F	1.500E+00 H	1148.00	119	5	1.0592E+03	7.7310E+00	1.0559E+03	8.0191E+00
PB199M	1.220E+01 M	148.30	2	4	1.3827E+02	6.7621E+00	1.1197E+02	2.4495E+01
PB201M	1.020E+00 M	366.00	0	5	4.3600E+02	-1.9126E+01	2.2981E+01	9.3721E+01
PB202F	5.264E+04 A	2.56	0	1	6.0075E+01	-2.2499E+03	2.4720E+00	3.3061E+00
PB203F	2.169E+00 J	340.87	3	0	2.4220E+02	2.8947E+01	2.4220E+02	2.8948E+01
PB205F	1.521E+07 A	54.60	0	2	5.4601E+01	9.1522E-04	3.3259E+00	9.3909E+01
BI207F	3.800E+01 A	1568.60	7	0	1.4787E+03	5.7312E+00	1.4787E+03	5.7328E+00
BI210F	5.013E+00 J	0.68	2	6	3.0648E-04	9.9955E+01	3.0648E-04	9.9955E+01
PO208F	2.900E+00 A	0.02	0	1	0.0000E+00	1.0000E+02	9.4261E-04	9.5039E+01
PO209F	1.021E+02 A	5.15	11	14	5.1495E+00	7.6017E-03	3.2855E+00	3.6202E+01
PO218F	3.050E+00 M	0.01	1	7	9.2116E-03	5.1852E+00	9.2116E-03	5.1852E+00
AT201F	1.483E+00 M	80.00	0	5	0.0000E+00	1.0000E+02	2.3442E+02	-1.9302E+02
AT203F	7.370E+00 M	2957.14	20	0	3.1500E+03	-6.5218E+00	3.1563E+03	-6.7343E+00
AT212M	1.190E-01 S	8.84	1	0	4.8510E+00	4.5102E+01	4.8510E+00	4.5102E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
RN206F	5.667E+00	M	974.20	31	0	1.1000E+03	-1.2913E+01	1.0935E+03	-1.2249E+01
RN210F	2.389E+00	H	61.00	40	4	6.0349E+01	1.0674E+00	5.7450E+01	5.8194E+00
RN221F	2.500E+01	M	106.78	48	4	1.0678E+02	-9.3599E-04	9.7918E+01	8.2989E+00
FR211F	3.100E+00	M	407.53	7	0	4.4500E+02	-9.1942E+00	4.4492E+02	-9.1755E+00
RA213M	2.100E-03	S	1630.00	3	8	1.6345E+03	-2.7897E-01	8.5429E+01	9.4759E+01
RA227F	4.220E+01	M	162.33	56	0	1.4689E+02	9.5115E+00	1.4689E+02	9.5140E+00
RA230F	1.550E+00	H	300.00	48	0	9.2100E+02	-2.0700E+02	9.2135E+02	-2.0712E+02
AC224F	2.900E+00	H	266.17	46	0	1.5617E+02	4.1327E+01	1.5617E+02	4.1328E+01
AC226F	1.208E+00	J	212.79	6	0	1.9540E+02	8.1724E+00	1.9540E+02	8.1735E+00
AC229F	1.045E+00	H	439.66	36	0	1.8505E+03	-3.2089E+02	1.8505E+03	-3.2088E+02
TH224F	1.040E+00	S	33.62	4	0	2.3839E+01	2.9093E+01	2.3839E+01	2.9091E+01
TH226F	3.090E+01	M	27.78	10	0	6.7179E+00	7.5819E+01	6.7179E+00	7.5819E+01
PA227F	3.830E+01	M	14.03	4	0	8.0340E+00	4.2725E+01	8.0340E+00	4.2725E+01
PA228F	2.200E+01	H	1176.20	176	0	1.0464E+03	1.1036E+01	1.0464E+03	1.1034E+01
PA230F	1.740E+01	J	698.75	57	0	5.8972E+02	1.5604E+01	5.8973E+02	1.5603E+01
PA234M	1.170E+00	M	14.43	125	9	1.1591E+01	1.9688E+01	1.1591E+01	1.9688E+01
PA235F	2.420E+01	M	9.87	10	7	8.7576E+00	1.1248E+01	8.7577E+00	1.1248E+01
PA236F	9.100E+00	M	482.92	23	4	5.1654E+02	-6.9621E+00	5.0874E+02	-5.3480E+00
PA238F	2.300E+00	M	1989.44	75	0	2.2743E+03	-1.4319E+01	2.2743E+03	-1.4318E+01
U228F	9.100E+00	M	6.45	4	0	3.2850E+00	4.9089E+01	3.2850E+00	4.9089E+01
U230F	2.080E+01	J	4.74	11	0	1.0472E+00	7.7889E+01	1.0472E+00	7.7888E+01
U231F	4.200E+00	J	94.84	11	4	9.4841E+01	0.0000E+00	6.6742E+01	2.9628E+01
U235M	2.600E+01	M	0.08	1	0	7.6000E-19	1.0000E+02	7.6000E-19	1.0000E+02
NP231F	4.880E+01	M	1196.76	16	0	1.1057E+03	7.6089E+00	1.1057E+03	7.6091E+00
NP233F	3.620E+01	M	124.06	27	0	9.3194E+00	9.2488E+01	9.3194E+00	9.2488E+01
NP236M	2.250E+01	H	42.29	6	9	4.9064E+01	-1.6013E+01	4.9064E+01	-1.6013E+01
PU235F	2.530E+01	M	96.85	16	4	9.6844E+01	1.0241E-03	9.1694E+01	5.3185E+00
PU244F	8.005E+07	A	9.76	1	2	9.7558E+00	-6.8429E-05	1.0058E+00	8.9691E+01
AM237F	1.217E+00	H	403.21	39	4	4.0321E+02	0.0000E+00	3.5101E+02	1.2946E+01
AM239F	1.190E+01	H	267.92	32	4	2.6792E+02	-7.5178E-04	1.6408E+02	3.8757E+01
AM244M	2.600E+01	M	12.44	3	9	1.1168E+01	1.0227E+01	1.1168E+01	1.0227E+01
AM247F	2.200E+01	M	178.08	2	0	7.8545E+01	5.5894E+01	7.8545E+01	5.5894E+01
CM246F	4.733E+03	A	3.00	1	2	3.0021E+00	0.0000E+00	1.1723E+00	6.0950E+01
CM248F	3.402E+05	A	579.13	1	2	5.7913E+02	5.2695E-05	9.3175E-01	9.9839E+01
BK245F	4.940E+00	J	303.65	14	0	8.8018E+01	7.1013E+01	8.8018E+01	7.1013E+01
BK246F	1.800E+00	J	952.01	19	4	8.5910E+02	9.7595E+00	8.6295E+02	9.3551E+00
CF246F	1.487E+00	J	2.70	3	0	2.2510E-02	9.9166E+01	2.2510E-02	9.9166E+01
CF250F	1.309E+01	A	6.34	3	7	6.3430E+00	1.1276E-04	9.5301E-01	8.4975E+01
CF252F	2.647E+00	A	217.38	3	7	2.1738E+02	1.2635E-04	9.4109E-01	9.9567E+01
ES254F	2.755E+02	J	1521.60	23	4	1.5216E+03	1.4601E-03	9.3034E-01	9.9939E+01
ES256M	7.600E+00	H	42.73	3	0	4.8100E+01	-1.2575E+01	3.3210E+02	-6.7726E+02
FM253F	3.000E+00	J	92.84	3	4	9.2843E+01	-7.5602E-04	7.3752E+01	2.0562E+01
FM255F	2.004E+01	H	23.78	49	0	1.7129E+00	9.2798E+01	1.7130E+00	9.2798E+01
FM257F	1.005E+02	J	141.44	4	0	3.1281E+01	7.7884E+01	3.1281E+01	7.7884E+01

TABLE 4 spectre.alpha

NAL number of alpha rays

ER(4) average decay heat for α spectrum

FD_{α} normalization factor

EAM $= \overline{E_{"\alpha"}}$.

$$SOMAL = FD\alpha * \left(1 + \frac{4}{A}\right) * \sum_{i=1}^{N\alpha} I\alpha_i * E\alpha_i$$

SPECTRE ALPHA - SOMAL = FD*(E1*I1+E2*I2+...)*(1.+4./A)

ER(4)/SOMAL > 1.05 OU < 0.95

	EAM	ER(4)	NAL	FD	SOMAL	ER(4)/SOMAL
BE 11F	3.6273E+01	3.6273E+01	1	1.0000E+00	3.1500E+01	1.1515E+00
B 12F	6.6417E+00	6.6417E+00	2	1.0000E+00	5.9053E+00	1.1247E+00
TM156F	3.8100E+00	3.8100E+00	1	1.0000E-02	4.3415E+03	8.7757E-04
YB156F	4.8060E+02	4.6860E+02	1	1.0000E-02	4.3255E+03	1.0833E-01
YB158F	1.2210E-01	1.2210E-01	1	1.0000E-02	4.1720E+03	2.9266E-05
W165F	7.3500E+00	7.3500E+00	1	9.8500E-03	4.9455E+03	1.4862E-03
RE165F	7.3300E+02	7.1580E+02	1	8.7000E-03	4.9063E+03	1.4589E-01
OS165F	6.3100E+03	6.1640E+03	1	4.0000E-03	2.5254E+03	2.4408E+00
HG181F	2.1570E+03	2.1570E+03	3	9.0000E-10	5.5116E-04	3.9136E+06
HG187F	1.6071E+03	9.9300E+03	1	1.0000E-02	8.4561E+07	1.1743E-04
PB189F	2.3400E+03	2.2920E+03	1	1.0000E-03	5.8513E+02	3.9171E+00
BI194M	3.5000E+01	2.3709E+01	2	1.0000E-02	5.7555E+03	4.1193E-03
PO212N	8.9534E+03	1.1783E+04	1	1.0000E+00	1.7781E+02	6.6265E+01

TABLE 5 raie.511 Kev

RIS positron intensity (β^+ spectrum STYP=2)

STUDY ABOUT 511 KEV RAY

511 KEV RAY COMES FROM BETA+ SPECTRUM AND X SPECTRUM
INTENSITIES ARE NOT EGAL
12 NUCLIDES

SE 70F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.8600E+03KEV	RIS=	3.0000E-01	2.*RIS(IR)*FD= 6.0000E-03
SP. BETA+	E=	2.1700E+03KEV	RIS=	3.2000E+00	2.*RIS(IR)*FD= 6.4000E-02
SP. BETA+	E=	2.2900E+03KEV	RIS=	2.9000E+01	2.*RIS(IR)*FD= 5.8000E-01
SP. BETA+	E=	2.4100E+03KEV	RIS=	7.0000E-01	2.*RIS(IR)*FD= 1.4000E-02
SP. BETA+	E=	2.4200E+03KEV	RIS=	6.0000E-01	2.*RIS(IR)*FD= 1.2000E-02
SP. BETA+	E=	2.5200E+03KEV	RIS=	3.5000E+00	2.*RIS(IR)*FD= 7.0000E-02
SP. BETA+					SOMME= 7.4600E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.4100E+00	

BR 76M branch. beta + = 3.0000E-03

SP. BETA+	E=	3.7270E+03KEV	RIS=	3.0000E-01	2.*RIS(IR)*FD= 6.0000E-03
SP. BETA+					SOMME= 6.0000E-03
SP. X	E=	5.1100E+02KEV	I*FD =	5.0000E-03	

CD102F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5310E+03KEV	RIS=	7.8000E-02	2.*RIS(IR)*FD= 1.5600E-03
SP. BETA+	E=	1.8544E+03KEV	RIS=	2.1700E+00	2.*RIS(IR)*FD= 4.3400E-02
SP. BETA+	E=	2.2694E+03KEV	RIS=	9.0000E-01	2.*RIS(IR)*FD= 1.8000E-02
SP. BETA+	E=	2.3598E+03KEV	RIS=	4.2000E-01	2.*RIS(IR)*FD= 8.4000E-03
SP. BETA+					SOMME= 7.1360E-02
SP. X	E=	5.1100E+02KEV	I*FD =	5.5300E-01	

XE121F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.3300E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3400E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3500E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3600E+03KEV	RIS=	1.0000E-02	2.*RIS(IR)*FD= 2.0040E-04
SP. BETA+	E=	1.3800E+03KEV	RIS=	2.0000E-03	2.*RIS(IR)*FD= 4.0080E-05
SP. BETA+	E=	1.4200E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	1.4700E+03KEV	RIS=	5.0000E-03	2.*RIS(IR)*FD= 1.0020E-04
SP. BETA+	E=	1.5700E+03KEV	RIS=	3.0000E-02	2.*RIS(IR)*FD= 6.0120E-04
SP. BETA+	E=	1.6900E+03KEV	RIS=	1.2000E-02	2.*RIS(IR)*FD= 2.4048E-04
SP. BETA+	E=	1.9400E+03KEV	RIS=	1.0000E-01	2.*RIS(IR)*FD= 2.0040E-03
SP. BETA+	E=	1.9400E+03KEV	RIS=	1.2000E-01	2.*RIS(IR)*FD= 2.4048E-03
SP. BETA+	E=	1.9700E+03KEV	RIS=	5.0000E-02	2.*RIS(IR)*FD= 1.0020E-03
SP. BETA+	E=	2.0800E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0080E-03
SP. BETA+	E=	2.1400E+03KEV	RIS=	8.0000E-02	2.*RIS(IR)*FD= 1.6032E-03
SP. BETA+	E=	2.2000E+03KEV	RIS=	1.7000E-01	2.*RIS(IR)*FD= 3.4068E-03
SP. BETA+	E=	2.2500E+03KEV	RIS=	1.4000E-01	2.*RIS(IR)*FD= 2.8056E-03
SP. BETA+	E=	2.3700E+03KEV	RIS=	2.4000E-01	2.*RIS(IR)*FD= 4.8096E-03
SP. BETA+	E=	2.4800E+03KEV	RIS=	1.5000E-01	2.*RIS(IR)*FD= 3.0060E-03
SP. BETA+	E=	2.6000E+03KEV	RIS=	1.6000E-01	2.*RIS(IR)*FD= 3.2064E-03
SP. BETA+	E=	2.8200E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	2.8600E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	2.8800E+03KEV	RIS=	1.0700E+00	2.*RIS(IR)*FD= 2.1443E-02
SP. BETA+	E=	2.9100E+03KEV	RIS=	4.2000E-01	2.*RIS(IR)*FD= 8.4168E-03
SP. BETA+	E=	2.9700E+03KEV	RIS=	2.3000E-01	2.*RIS(IR)*FD= 4.6092E-03
SP. BETA+	E=	3.0300E+03KEV	RIS=	1.5000E-02	2.*RIS(IR)*FD= 3.0060E-04
SP. BETA+	E=	3.0700E+03KEV	RIS=	4.8000E-01	2.*RIS(IR)*FD= 9.6192E-03
SP. BETA+	E=	3.0800E+03KEV	RIS=	4.0000E-02	2.*RIS(IR)*FD= 8.0160E-04
SP. BETA+	E=	3.1100E+03KEV	RIS=	5.4000E-01	2.*RIS(IR)*FD= 1.0822E-02
SP. BETA+	E=	3.1200E+03KEV	RIS=	1.3000E+00	2.*RIS(IR)*FD= 2.6052E-02
SP. BETA+	E=	3.1500E+03KEV	RIS=	5.0000E-02	2.*RIS(IR)*FD= 1.0020E-03
SP. BETA+	E=	3.2000E+03KEV	RIS=	7.0000E-02	2.*RIS(IR)*FD= 1.4028E-03
SP. BETA+	E=	3.2200E+03KEV	RIS=	5.7000E-01	2.*RIS(IR)*FD= 1.1423E-02
SP. BETA+	E=	3.2300E+03KEV	RIS=	9.7000E-01	2.*RIS(IR)*FD= 1.9439E-02
SP. BETA+	E=	3.2500E+03KEV	RIS=	1.5000E-02	2.*RIS(IR)*FD= 3.0060E-04
SP. BETA+	E=	3.5100E+03KEV	RIS=	7.9000E-01	2.*RIS(IR)*FD= 1.5832E-02
SP. BETA+	E=	3.6300E+03KEV	RIS=	1.4000E+00	2.*RIS(IR)*FD= 2.8056E-02

SP. BETA+	E=	3.7100E+03KEV	RIS=	4.0000E+00	2.*RIS(IR)*FD= 8.0160E-02
SP. BETA+	E=	3.7300E+03KEV	RIS=	2.6000E+00	2.*RIS(IR)*FD= 5.2104E-02
SP. BETA+					SOMME= 3.2248E-01
SP. X	E=	5.1100E+02KEV	I*FD =	8.7000E-01	

CS122F branch. beta + = 1.0000E+00

SP. BETA+	E=	4.7000E+03KEV	RIS=	4.9000E-01	2.*RIS(IR)*FD= 9.8000E-03
SP. BETA+	E=	4.8000E+03KEV	RIS=	1.2000E+00	2.*RIS(IR)*FD= 2.4000E-02
SP. BETA+	E=	5.0000E+03KEV	RIS=	4.6000E-01	2.*RIS(IR)*FD= 9.2000E-03
SP. BETA+	E=	5.1000E+03KEV	RIS=	4.5000E-01	2.*RIS(IR)*FD= 9.0000E-03
SP. BETA+	E=	5.3000E+03KEV	RIS=	8.4000E-01	2.*RIS(IR)*FD= 1.6800E-02
SP. BETA+	E=	5.7000E+03KEV	RIS=	8.0000E-01	2.*RIS(IR)*FD= 1.6000E-02
SP. BETA+	E=	5.9000E+03KEV	RIS=	6.6000E-01	2.*RIS(IR)*FD= 1.3200E-02
SP. BETA+	E=	6.2000E+03KEV	RIS=	9.5000E-01	2.*RIS(IR)*FD= 1.9000E-02
SP. BETA+	E=	6.2000E+03KEV	RIS=	3.0000E+00	2.*RIS(IR)*FD= 6.0000E-02
SP. BETA+	E=	6.5000E+03KEV	RIS=	4.1000E+00	2.*RIS(IR)*FD= 8.2000E-02
SP. BETA+	E=	6.6000E+03KEV	RIS=	2.8000E-01	2.*RIS(IR)*FD= 5.6000E-03
SP. BETA+					SOMME= 2.6460E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.9000E+00	

BA126F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5364E+03KEV	RIS=	1.2500E-01	2.*RIS(IR)*FD= 2.5250E-03
SP. BETA+					SOMME= 2.5250E-03
SP. X	E=	5.1100E+02KEV	I*FD =	2.1000E-02	

EU142F branch. beta + = 1.0000E+00

SP. BETA+	E=	5.8000E+03KEV	RIS=	9.5000E-01	2.*RIS(IR)*FD= 1.9000E-02
SP. BETA+	E=	5.9000E+03KEV	RIS=	2.4300E+00	2.*RIS(IR)*FD= 4.8600E-02
SP. BETA+	E=	6.3000E+03KEV	RIS=	3.5700E+00	2.*RIS(IR)*FD= 7.1400E-02
SP. BETA+	E=	6.5000E+03KEV	RIS=	7.2000E-01	2.*RIS(IR)*FD= 1.4400E-02
SP. BETA+	E=	7.2000E+03KEV	RIS=	8.6400E+00	2.*RIS(IR)*FD= 1.7280E-01
SP. BETA+					SOMME= 3.2620E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.8810E+00	

YB160F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.0020E+03KEV	RIS=	2.3000E-02	2.*RIS(IR)*FD= 4.6000E-04
SP. BETA+	E=	2.1946E+03KEV	RIS=	8.1000E-02	2.*RIS(IR)*FD= 1.6200E-03
SP. BETA+	E=	2.2526E+03KEV	RIS=	1.7000E-01	2.*RIS(IR)*FD= 3.4000E-03
SP. BETA+	E=	2.2567E+03KEV	RIS=	8.6000E-02	2.*RIS(IR)*FD= 1.7200E-03
SP. BETA+					SOMME= 7.2000E-03
SP. X	E=	5.1100E+02KEV	I*FD =	2.0000E-01	

YB162F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.6467E+03KEV	RIS=	3.3100E-01	2.*RIS(IR)*FD= 6.6200E-03
SP. BETA+					SOMME= 6.6200E-03
SP. X	E=	5.1100E+02KEV	I*FD =	9.8000E-03	

TA175F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5558E+03KEV	RIS=	1.1400E-03	2.*RIS(IR)*FD= 2.2800E-05
SP. BETA+	E=	1.7250E+03KEV	RIS=	3.6000E-02	2.*RIS(IR)*FD= 7.2000E-04
SP. BETA+	E=	1.7939E+03KEV	RIS=	3.1000E-03	2.*RIS(IR)*FD= 6.2000E-05
SP. BETA+	E=	1.8244E+03KEV	RIS=	2.1900E-02	2.*RIS(IR)*FD= 4.3800E-04
SP. BETA+	E=	1.8517E+03KEV	RIS=	2.8000E-01	2.*RIS(IR)*FD= 5.6000E-03
SP. BETA+					SOMME= 6.8428E-03
SP. X	E=	5.1100E+02KEV	I*FD =	1.2620E-02	

RE177F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.7970E+03KEV	RIS=	5.3000E-01	2.*RIS(IR)*FD= 1.0600E-02
SP. BETA+	E=	3.3240E+03KEV	RIS=	2.7000E+00	2.*RIS(IR)*FD= 5.4000E-02
SP. BETA+	E=	3.3850E+03KEV	RIS=	3.3000E+00	2.*RIS(IR)*FD= 6.6000E-02
SP. BETA+					SOMME= 1.3060E-01
SP. X	E=	5.1100E+02KEV	I*FD =	4.4460E-01	

IR184F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.3000E+03KEV	RIS=	1.0000E-01	2.*RIS(IR)*FD= 2.0000E-03
SP. BETA+	E=	2.9000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03
SP. BETA+	E=	2.9000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03
SP. BETA+	E=	3.0000E+03KEV	RIS=	6.0000E-01	2.*RIS(IR)*FD= 1.2000E-02
SP. BETA+	E=	3.0000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03

```
 SP. BETA+  E=  3.1000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.1000E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.1000E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.2000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.3000E+03KEV  RIS=  5.0000E-01  2.*RIS(IR)*FD=  1.0000E-02
 SP. BETA+  E=  3.3000E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+  E=  3.5000E+03KEV  RIS=  8.0000E-01  2.*RIS(IR)*FD=  1.6000E-02
 SP. BETA+  E=  3.6000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.9000E+03KEV  RIS=  3.2000E+00  2.*RIS(IR)*FD=  6.4000E-02
 SP. BETA+                                              SOMME=  1.5000E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  2.4400E-01
-------------------------------------------------------------------------------

 511 KEV  RAY COMES FROM  X SPECTRUM ONLY
IN BETA+ SPECTRUM  RIS=0.
                         3  NUCLIDES

CD104F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.5000E-02

ER148F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.7640E+00

LU170F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  4.0000E-03

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 511 KEV  RAY COMES FROM  GAMMA SPECTRUM ONLY
NO BETA+  SPECTRUM

                         3 NUCLIDES

CS121F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  7.2648E+00

YB161F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  3.4587E-01

TA169F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  2.3030E+00

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 511 KEV  RAY COMES FROM  BETA+ SPECTRUM ONLY
                        10 NUCLIDES

NI 59F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.0734E+03KEV  RIS=  1.0071E-05  2.*RIS(IR)*FD=  2.0142E-05
 SP. BETA+
                                                SOMME=  2.0142E-05

SR 85M  branch. beta + =   1.2700E-01
 SP. BETA+  E=  1.1514E+03KEV  RIS=  3.0574E-05  2.*RIS(IR)*FD=  6.1148E-05
 SP. BETA+                                              SOMME=  6.1148E-05

RH102F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2166E+03KEV  RIS=  1.8005E-05  2.*RIS(IR)*FD=  3.3705E-05
 SP. BETA+
                                                SOMME=  3.3705E-05
IN114F  branch. beta + =   5.0000E-03
 SP. BETA+  E=  1.4440E+03KEV  RIS=  2.1353E-05  2.*RIS(IR)*FD=  4.2706E-05
 SP. BETA+                                              SOMME=  4.2706E-05

SB122F  branch. beta + =   2.3800E-02
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 SP. BETA+  E=  1.6227E+03KEV  RIS=  6.3962E-05  2.*RIS(IR)*FD=  1.2792E-04
 SP. BETA+                                              SOMME=  1.2792E-04

TB154F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.8800E+03KEV  RIS=  5.0000E-01  2.*RIS(IR)*FD=  1.0000E-02
 SP. BETA+  E=  3.5600E+03KEV  RIS=  1.5000E+00  2.*RIS(IR)*FD=  3.0000E-02
 SP. BETA+                                              SOMME=  4.0000E-02


 W179F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.0600E+03KEV  RIS=  9.0000E-10  2.*RIS(IR)*FD=  1.8000E-11
 SP. BETA+                                              SOMME=  1.8000E-11

PU235F  branch. beta + =   9.9997E-01
 SP. BETA+  E=  1.0807E+03KEV  RIS=  6.1035E-09  2.*RIS(IR)*FD=  1.2207E-08
 SP. BETA+  E=  1.0958E+03KEV  RIS=  5.3406E-08  2.*RIS(IR)*FD=  1.0681E-07
 SP. BETA+                                              SOMME=  1.1902E-07

AM237F  branch. beta + =   9.9975E-01
 SP. BETA+  E=  1.0968E+03KEV  RIS=  7.9956E-07  2.*RIS(IR)*FD=  1.5991E-06
 SP. BETA+  E=  1.1422E+03KEV  RIS=  2.9984E-06  2.*RIS(IR)*FD=  5.9968E-06
 SP. BETA+  E=  1.1458E+03KEV  RIS=  5.0972E-06  2.*RIS(IR)*FD=  1.0194E-05
 SP. BETA+  E=  1.1796E+03KEV  RIS=  5.7114E-07  2.*RIS(IR)*FD=  1.1423E-06
 SP. BETA+  E=  1.2290E+03KEV  RIS=  3.9307E-06  2.*RIS(IR)*FD=  7.8614E-06
 SP. BETA+  E=  1.2698E+03KEV  RIS=  5.0052E-06  2.*RIS(IR)*FD=  1.0010E-05
 SP. BETA+  E=  1.3258E+03KEV  RIS=  1.6052E-07  2.*RIS(IR)*FD=  3.2104E-07
 SP. BETA+  E=  1.3488E+03KEV  RIS=  1.2268E-08  2.*RIS(IR)*FD=  2.4536E-08
 SP. BETA+  E=  1.3946E+03KEV  RIS=  1.2488E-06  2.*RIS(IR)*FD=  2.4976E-06
 SP. BETA+  E=  1.4045E+03KEV  RIS=  2.4414E-09  2.*RIS(IR)*FD=  4.8828E-09
 SP. BETA+  E=  1.5500E+03KEV  RIS=  4.0814E-06  2.*RIS(IR)*FD=  8.1628E-06
 SP. BETA+                                              SOMME=  4.7815E-05


BK246F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2080E+03KEV  RIS=  4.2009E-06  2.*RIS(IR)*FD=  8.4018E-06
 SP. BETA+  E=  1.3071E+03KEV  RIS=  1.5259E-08  2.*RIS(IR)*FD=  3.0518E-08
 SP. BETA+                                              SOMME=  8.4323E-06

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511 KEV RAY CAN BE KNOWN  WITH  BETA+, X AND GAMMA SPECTRA
SHALL WE COUNT IT TWICE ?
                         8 NUCLIDES


RB 77F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.2200E+03KEV  RIS=  1.6000E-01  2.*RIS(IR)*FD=  3.2000E-03
 SP. BETA+  E=  2.2700E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+  E=  2.4600E+03KEV  RIS=  3.6000E-01  2.*RIS(IR)*FD=  7.2000E-03
 SP. BETA+  E=  3.2500E+03KEV  RIS=  3.7000E+00  2.*RIS(IR)*FD=  7.4000E-02
 SP. BETA+  E=  3.3700E+03KEV  RIS=  5.8000E-01  2.*RIS(IR)*FD=  1.1600E-02
 SP. BETA+  E=  3.3700E+03KEV  RIS=  3.1000E-01  2.*RIS(IR)*FD=  6.2000E-03
 SP. BETA+  E=  3.4100E+03KEV  RIS=  1.5000E-01  2.*RIS(IR)*FD=  3.0000E-03
 SP. BETA+  E=  3.4400E+03KEV  RIS=  1.8000E+00  2.*RIS(IR)*FD=  3.6000E-02
 SP. BETA+  E=  3.5000E+03KEV  RIS=  9.7000E-01  2.*RIS(IR)*FD=  1.9400E-02
 SP. BETA+  E=  3.6100E+03KEV  RIS=  1.2100E+00  2.*RIS(IR)*FD=  2.4200E-02
 SP. BETA+  E=  3.7700E+03KEV  RIS=  9.6000E-01  2.*RIS(IR)*FD=  1.9200E-02
 SP. BETA+  E=  3.8300E+03KEV  RIS=  8.0000E-01  2.*RIS(IR)*FD=  1.6000E-02
 SP. BETA+  E=  3.9700E+03KEV  RIS=  8.1000E-01  2.*RIS(IR)*FD=  1.6200E-02
 SP. BETA+  E=  4.0400E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  4.1200E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  4.1700E+03KEV  RIS=  2.7000E+00  2.*RIS(IR)*FD=  5.4000E-02
 SP. BETA+  E=  4.2400E+03KEV  RIS=  1.2000E+00  2.*RIS(IR)*FD=  2.4000E-02
 SP. BETA+  E=  4.2500E+03KEV  RIS=  1.4000E+00  2.*RIS(IR)*FD=  2.8000E-02
 SP. BETA+  E=  4.2700E+03KEV  RIS=  1.6000E+00  2.*RIS(IR)*FD=  3.2000E-02
 SP. BETA+  E=  4.3200E+03KEV  RIS=  5.5000E-01  2.*RIS(IR)*FD=  1.1000E-02
 SP. BETA+  E=  4.4100E+03KEV  RIS=  2.1000E+00  2.*RIS(IR)*FD=  4.2000E-02
 SP. BETA+  E=  4.4900E+03KEV  RIS=  1.3000E+00  2.*RIS(IR)*FD=  2.6000E-02
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 SP. BETA+  E=  4.5300E+03KEV  RIS=  5.4000E-01  2.*RIS(IR)*FD=  1.0800E-02
 SP. BETA+  E=  4.5500E+03KEV  RIS=  9.0000E-01  2.*RIS(IR)*FD=  1.8000E-02
 SP. BETA+  E=  4.5600E+03KEV  RIS=  2.8000E+00  2.*RIS(IR)*FD=  5.6000E-02
 SP. BETA+  E=  4.6000E+03KEV  RIS=  2.3000E+00  2.*RIS(IR)*FD=  4.6000E-02
 SP. BETA+  E=  4.7000E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  4.7800E+03KEV  RIS=  1.6000E+00  2.*RIS(IR)*FD=  3.2000E-02
 SP. BETA+  E=  4.8200E+03KEV  RIS=  7.1000E+00  2.*RIS(IR)*FD=  1.4200E-01
 SP. BETA+  E=  5.0300E+03KEV  RIS=  1.2700E+01  2.*RIS(IR)*FD=  2.5400E-01
 SP. BETA+  E=  5.1300E+03KEV  RIS=  1.5000E+00  2.*RIS(IR)*FD=  3.0000E-02
 SP. BETA+  E=  5.2100E+03KEV  RIS=  2.7000E+01  2.*RIS(IR)*FD=  5.4000E-01
 SP. BETA+  E=  5.2790E+03KEV  RIS=  1.5000E+01  2.*RIS(IR)*FD=  3.0000E-01
 SP. BETA+                                              SOMME=  1.9348E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.9000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  7.9576E-03

GD147F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.0990E+03KEV  RIS=  1.3000E-01  2.*RIS(IR)*FD=  2.6000E-03
 SP. BETA+                                              SOMME=  2.6000E-03
 SP. X  E=  5.1100E+02KEV  I*FD =  3.2000E-03
 SP. G  E=  5.1100E+02KEV  I*FD =  4.8913E-03

TB152F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.5520E+03KEV  RIS=  3.5000E-03  2.*RIS(IR)*FD=  7.0000E-05
 SP. BETA+  E=  1.5870E+03KEV  RIS=  1.8000E-03  2.*RIS(IR)*FD=  3.6000E-05
 SP. BETA+  E=  1.6050E+03KEV  RIS=  1.8000E-02  2.*RIS(IR)*FD=  3.6000E-04
 SP. BETA+  E=  1.6500E+03KEV  RIS=  1.6000E-03  2.*RIS(IR)*FD=  3.2000E-05
 SP. BETA+  E=  1.8400E+03KEV  RIS=  1.4000E-02  2.*RIS(IR)*FD=  2.8000E-04
 SP. BETA+  E=  1.8770E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.9110E+03KEV  RIS=  9.7000E-02  2.*RIS(IR)*FD=  1.9400E-03
 SP. BETA+  E=  1.9370E+03KEV  RIS=  8.2000E-03  2.*RIS(IR)*FD=  1.6400E-04
 SP. BETA+  E=  1.9900E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+  E=  2.0120E+03KEV  RIS=  1.0000E-02  2.*RIS(IR)*FD=  2.0000E-04
 SP. BETA+  E=  2.0440E+03KEV  RIS=  4.4000E-03  2.*RIS(IR)*FD=  8.8000E-05
 SP. BETA+  E=  2.0800E+03KEV  RIS=  1.3000E-02  2.*RIS(IR)*FD=  2.6000E-04
 SP. BETA+  E=  2.1600E+03KEV  RIS=  4.1000E-02  2.*RIS(IR)*FD=  8.2000E-04
 SP. BETA+  E=  2.2090E+03KEV  RIS=  1.2000E-01  2.*RIS(IR)*FD=  2.4000E-03
 SP. BETA+  E=  2.2460E+03KEV  RIS=  1.6000E-01  2.*RIS(IR)*FD=  3.2000E-03
 SP. BETA+  E=  2.3020E+03KEV  RIS=  2.4000E-02  2.*RIS(IR)*FD=  4.8000E-04
 SP. BETA+  E=  2.4180E+03KEV  RIS=  7.6000E-02  2.*RIS(IR)*FD=  1.5200E-03
 SP. BETA+  E=  2.5340E+03KEV  RIS=  3.5000E-01  2.*RIS(IR)*FD=  7.0000E-03
 SP. BETA+  E=  2.5370E+03KEV  RIS=  1.4000E-01  2.*RIS(IR)*FD=  2.8000E-03
 SP. BETA+  E=  2.5700E+03KEV  RIS=  1.1000E-02  2.*RIS(IR)*FD=  2.2000E-04
 SP. BETA+  E=  2.7290E+03KEV  RIS=  3.7000E-01  2.*RIS(IR)*FD=  7.4000E-03
 SP. BETA+  E=  2.7430E+03KEV  RIS=  5.1000E-01  2.*RIS(IR)*FD=  1.0200E-02
 SP. BETA+  E=  2.8040E+03KEV  RIS=  7.0000E-02  2.*RIS(IR)*FD=  1.4000E-03
 SP. BETA+  E=  2.9210E+03KEV  RIS=  1.7000E+00  2.*RIS(IR)*FD=  3.4000E-02
 SP. BETA+  E=  3.0970E+03KEV  RIS=  1.1000E-01  2.*RIS(IR)*FD=  2.2000E-03
 SP. BETA+  E=  3.2370E+03KEV  RIS=  7.5000E-01  2.*RIS(IR)*FD=  1.5000E-02
 SP. BETA+  E=  3.5080E+03KEV  RIS=  4.9000E+00  2.*RIS(IR)*FD=  9.8000E-02
 SP. BETA+  E=  3.8520E+03KEV  RIS=  9.0000E+00  2.*RIS(IR)*FD=  1.8000E-01
 SP. BETA+                                              SOMME=  3.7133E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  4.0000E-01
 SP. G  E=  5.1100E+02KEV  I*FD =  1.1512E-01


TB153F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.3670E+03KEV  RIS=  3.2000E-02  2.*RIS(IR)*FD=  6.4000E-04
 SP. BETA+  E=  1.4690E+03KEV  RIS=  6.1000E-03  2.*RIS(IR)*FD=  1.2200E-04
 SP. BETA+  E=  1.5370E+03KEV  RIS=  4.4500E-02  2.*RIS(IR)*FD=  8.9000E-04
 SP. BETA+  E=  1.5790E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+                                              SOMME=  1.7920E-03
 SP. X  E=  5.1100E+02KEV  I*FD =  1.8000E-03
 SP. G  E=  5.1100E+02KEV  I*FD =  6.0082E-04


TA176F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.6400E+03KEV  RIS=  3.0000E-04  2.*RIS(IR)*FD=  6.0000E-06
 SP. BETA+  E=  1.6500E+03KEV  RIS=  3.0000E-04  2.*RIS(IR)*FD=  6.0000E-06
 SP. BETA+  E=  1.6700E+03KEV  RIS=  2.3000E-03  2.*RIS(IR)*FD=  4.6000E-05
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 SP. BETA+  E=  1.7100E+03KEV  RIS=  8.0000E-04  2.*RIS(IR)*FD=  1.6000E-05
 SP. BETA+  E=  1.7600E+03KEV  RIS=  1.3000E-03  2.*RIS(IR)*FD=  2.6000E-05
 SP. BETA+  E=  1.8000E+03KEV  RIS=  9.0000E-02  2.*RIS(IR)*FD=  1.8000E-03
 SP. BETA+  E=  1.8200E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+  E=  1.9000E+03KEV  RIS=  4.1000E-03  2.*RIS(IR)*FD=  8.2000E-05
 SP. BETA+  E=  2.9600E+03KEV  RIS=  6.9000E-01  2.*RIS(IR)*FD=  1.3800E-02
 SP. BETA+  E=  3.0500E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+                                              SOMME=  1.7122E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  1.7120E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  1.3542E-02

TL198F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.5600E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.5600E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.6000E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+  E=  1.6100E+03KEV  RIS=  9.0000E-03  2.*RIS(IR)*FD=  1.8000E-04
 SP. BETA+  E=  1.6300E+03KEV  RIS=  2.0000E-02  2.*RIS(IR)*FD=  4.0000E-04
 SP. BETA+  E=  1.8200E+03KEV  RIS=  1.0000E-03  2.*RIS(IR)*FD=  2.0000E-05
 SP. BETA+  E=  1.8500E+03KEV  RIS=  5.1000E-02  2.*RIS(IR)*FD=  1.0200E-03
 SP. BETA+  E=  1.9100E+03KEV  RIS=  2.9000E-03  2.*RIS(IR)*FD=  5.8000E-05
 SP. BETA+  E=  2.0400E+03KEV  RIS=  8.0000E-03  2.*RIS(IR)*FD=  1.6000E-04
 SP. BETA+  E=  2.0600E+03KEV  RIS=  1.3000E-03  2.*RIS(IR)*FD=  2.6000E-05
 SP. BETA+  E=  2.3700E+03KEV  RIS=  2.2000E-01  2.*RIS(IR)*FD=  4.4000E-03
 SP. BETA+  E=  2.4100E+03KEV  RIS=  6.8000E-03  2.*RIS(IR)*FD=  1.3600E-04
 SP. BETA+  E=  3.0500E+03KEV  RIS=  2.6000E-01  2.*RIS(IR)*FD=  5.2000E-03
 SP. BETA+  E=  3.4600E+03KEV  RIS=  1.8000E-01  2.*RIS(IR)*FD=  3.6000E-03
 SP. BETA+                                              SOMME=  1.5460E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  1.5460E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  1.0455E-02

DY149F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.7200E+03KEV  RIS=  5.0000E-02  2.*RIS(IR)*FD=  1.0000E-03
 SP. BETA+  E=  1.7200E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  1.7500E+03KEV  RIS=  7.0000E-02  2.*RIS(IR)*FD=  1.4000E-03
 SP. BETA+  E=  1.7600E+03KEV  RIS=  5.0000E-02  2.*RIS(IR)*FD=  1.0000E-03
 SP. BETA+  E=  1.8200E+03KEV  RIS=  2.0000E-02  2.*RIS(IR)*FD=  4.0000E-04
 SP. BETA+  E=  1.8700E+03KEV  RIS=  8.0000E-02  2.*RIS(IR)*FD=  1.6000E-03
 SP. BETA+  E=  1.8700E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  2.0900E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  2.2200E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+  E=  2.4800E+03KEV  RIS=  1.8000E-01  2.*RIS(IR)*FD=  3.6000E-03
 SP. BETA+  E=  2.6200E+03KEV  RIS=  7.0000E-01  2.*RIS(IR)*FD=  1.4000E-02
 SP. BETA+  E=  2.6300E+03KEV  RIS=  7.0000E-01  2.*RIS(IR)*FD=  1.4000E-02
 SP. BETA+  E=  2.7600E+03KEV  RIS=  6.0000E-01  2.*RIS(IR)*FD=  1.2000E-02
 SP. BETA+  E=  2.7600E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  2.7600E+03KEV  RIS=  3.7000E-01  2.*RIS(IR)*FD=  7.4000E-03
 SP. BETA+  E=  2.8100E+03KEV  RIS=  2.4000E+00  2.*RIS(IR)*FD=  4.8000E-02
 SP. BETA+  E=  2.8500E+03KEV  RIS=  3.1000E+00  2.*RIS(IR)*FD=  6.2000E-02
 SP. BETA+  E=  2.8600E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  3.1400E+03KEV  RIS=  6.0000E-01  2.*RIS(IR)*FD=  1.2000E-02
 SP. BETA+  E=  3.3900E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.5000E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+                                              SOMME=  2.2520E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  2.3000E-01
 SP. G  E=  5.1100E+02KEV  I*FD =  1.6274E-01

HG191M  branch. beta + =   1.0000E+00
 SP. BETA+  E=  3.2100E+03KEV  RIS=  1.3000E+00  2.*RIS(IR)*FD=  2.6000E-02
 SP. BETA+                                              SOMME=  2.6000E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  3.0000E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  2.2827E-02
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511 KEV RAY COMES FROM BETA+ SPECTRUM AND GAMMA SPECTRUM
INTENSITIES ARE EGAL - IS IT THE SAME ?
4 NUCLIDES

NB 91F branch. beta + = 1.0000E+00
SP. BETA+ E= 1.2557E+03KEV RIS= 1.6800E-03 2.*RIS(IR)*FD= 3.3600E-03
SP. BETA+ SOMME= 3.3600E-03
SP. G E= 5.1101E+02KEV I*FD = 3.1995E-03

NB 92M branch. beta + = 1.0000E+00
SP. BETA+ E= 1.2095E+03KEV RIS= 6.1342E-04 2.*RIS(IR)*FD= 1.2268E-03
SP. BETA+ SOMME= 1.2268E-03
SP. G E= 5.1101E+02KEV I*FD = 1.1680E-03

EU152F branch. beta + = 7.2080E-01
SP. BETA+ E= 1.5104E+03KEV RIS= 1.7930E-05 2.*RIS(IR)*FD= 4.9738E-05
SP. BETA+ E= 1.7551E+03KEV RIS= 1.7331E-04 2.*RIS(IR)*FD= 4.8076E-04
SP. BETA+ SOMME= 5.3050E-04
SP. G E= 5.1101E+02KEV I*FD = 5.5239E-04

BI207F branch. beta + = 1.0000E+00
SP. BETA+ E= 1.8350E+03KEV RIS= 1.1778E-04 2.*RIS(IR)*FD= 2.3556E-04
SP. BETA+ SOMME= 2.3556E-04
SP. G E= 5.1101E+02KEV I*FD = 2.4989E-04

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511 KEV RAY COMES FROM BETA+ SPECTRUM AND GAMMA SPECTRUM
INTENSITIES ARE NOT EGAL - WHAT DO WE TAKE ?
5 NUCLIDES

CO 56F branch. beta + = 1.0000E+00
SP. BETA+ E= 1.1230E+03KEV RIS= 9.3766E-05 2.*RIS(IR)*FD= 1.8753E-04
SP. BETA+ E= 1.4454E+03KEV RIS= 1.0761E-02 2.*RIS(IR)*FD= 2.1522E-02
SP. BETA+ E= 2.4833E+03KEV RIS= 1.8634E-01 2.*RIS(IR)*FD= 3.7268E-01
SP. BETA+ SOMME= 3.9439E-01
SP. G E= 5.1101E+02KEV I*FD = 4.2200E-02

ZR 89M branch. beta + = 6.2400E-02
SP. BETA+ E= 1.9120E+03KEV RIS= 1.3407E-02 2.*RIS(IR)*FD= 2.6814E-02
SP. BETA+ E= 3.4192E+03KEV RIS= 1.7455E-03 2.*RIS(IR)*FD= 3.4910E-03
SP. BETA+ SOMME= 3.0305E-02
SP. G E= 5.1101E+02KEV I*FD = 3.5366E-02

CD107F branch. beta + = 1.0000E+00
SP. BETA+ E= 1.3239E+03KEV RIS= 1.9940E-03 2.*RIS(IR)*FD= 3.9880E-03
SP. BETA+ SOMME= 3.9880E-03
SP. G E= 5.1101E+02KEV I*FD = 2.2519E-02

IN112F branch. beta + = 5.6000E-01
SP. BETA+ E= 1.1092E+03KEV RIS= 6.4463E-08 2.*RIS(IR)*FD= 1.2893E-07
SP. BETA+ E= 1.2658E+03KEV RIS= 9.1858E-08 2.*RIS(IR)*FD= 1.8372E-07
SP. BETA+ E= 1.3545E+03KEV RIS= 2.0491E-05 2.*RIS(IR)*FD= 4.0982E-05
SP. BETA+ E= 1.9609E+03KEV RIS= 2.1642E-03 2.*RIS(IR)*FD= 4.3284E-03
SP. BETA+ E= 2.5780E+03KEV RIS= 1.1975E-01 2.*RIS(IR)*FD= 2.3950E-01
SP. BETA+ SOMME= 2.4387E-01
SP. G E= 5.1101E+02KEV I*FD = 4.5019E-02

NP232F branch. beta + = 1.0000E+00
SP. BETA+ E= 1.4961E+03KEV RIS= 1.8910E-04 2.*RIS(IR)*FD= 3.7820E-04
SP. BETA+ E= 1.5174E+03KEV RIS= 4.7997E-06 2.*RIS(IR)*FD= 9.5994E-06

SP. BETA+ E= 1.5570E+03KEV RIS= 7.9814E-06 2.*RIS(IR)*FD= 1.5963E-05
SP. BETA+ E= 1.5918E+03KEV RIS= 7.6807E-06 2.*RIS(IR)*FD= 1.5361E-05
SP. BETA+ E= 1.7185E+03KEV RIS= 1.9403E-05 2.*RIS(IR)*FD= 3.8806E-05
SP. BETA+ E= 2.5334E+03KEV RIS= 1.8026E-04 2.*RIS(IR)*FD= 3.6052E-04
SP. BETA+ E= 2.6424E+03KEV RIS= 2.2748E-04 2.*RIS(IR)*FD= 4.5496E-04
SP. BETA+ E= 2.6900E+03KEV RIS= 2.4904E-04 2.*RIS(IR)*FD= 4.9808E-04
SP. BETA+ SOMME= 1.7715E-03
SP. G E= 5.1101E+02KEV I*FD = 1.3438E-03

TABLE 6 q.etot

$$Q = \sum_{i=1}^{NDK} Br_i * Q_i$$

$$ETOT = \overline{E_{"\beta"}} * 2.25 + \overline{E_{"\gamma"}} + \overline{E_{"\alpha"}}$$

	PERIODE		Q	ETOT	Q/ETOT
_H__3F	1.234E+01	A	1.8571E+01	1.2840E+01	1.446
BE_12F	2.400E-02	S	1.1707E+04	1.6486E+04	0.710
_C_14F	5.734E+03	A	1.5650E+02	1.1132E+02	1.406
_C_16F	7.470E-01	S	5.5708E+03	4.6140E+03	1.207
_N_17F	4.169E+00	S	8.6800E+03	3.8840E+03	2.235
_F_23F	2.230E+00	S	8.5100E+03	2.0123E+04	0.423
NA_33F	8.200E-03	S	1.5446E+04	3.1211E+02	49.490
NA_34F	5.500E-03	S	1.6335E+04	0.0000E+00	Inf
NA_35F	1.500E-03	S	1.9498E+04	0.0000E+00	Inf
MG_33F	9.000E-02	S	1.2333E+04	0.0000E+00	Inf
AL_29F	6.567E+00	M	3.6796E+03	5.5983E+03	0.657
SI_32F	1.721E+02	A	2.2500E+02	1.5480E+02	1.453
SI_34F	2.770E+00	S	4.7000E+03	3.1650E+03	1.485
_P_33F	2.540E+01	J	2.4900E+02	1.7229E+02	1.445
_S_35F	8.750E+01	J	1.6750E+02	1.0987E+02	1.525
_K_49F	1.260E+00	S	6.4758E+03	8.5870E+03	0.754
_K_50F	4.720E-01	S	1.2206E+04	1.5663E+04	0.779
_K_51F	3.650E-01	S	1.2600E+04	8.8160E+03	1.429
CA_45F	1.630E+02	J	2.5610E+02	7.7047E+01	3.324
SC_45M	3.160E-01	S	1.2397E+01	1.9960E+01	0.621
SC_46M	1.870E+01	S	1.4253E+02	2.0955E+02	0.680
SC_47F	3.400E+00	J	6.0000E+02	4.7428E+02	1.265
SC_50F	1.708E+00	M	6.8920E+03	4.2566E+03	1.619
MN_58M	3.000E+00	S	6.1000E+03	8.3108E+03	0.734
MN_59F	4.600E+00	S	5.1800E+03	2.9340E+03	1.766
CO_58M	9.150E+00	H	2.4889E+01	5.3161E+01	0.468
CO_60M	1.047E+01	M	6.5944E+01	1.3444E+02	0.491
NI_63F	1.001E+02	A	6.5870E+01	3.8475E+01	1.712
NI_66F	2.275E+00	J	2.3300E+02	1.4625E+02	1.593
CU_67F	2.578E+00	J	5.7500E+02	4.6557E+02	1.235
CU_78F	2.500E-01	S	1.1938E+04	0.0000E+00	Inf
ZN_69F	5.700E+01	M	9.0450E+02	7.2226E+02	1.252
ZN_73M	5.800E+00	S	2.3428E+03	0.0000E+00	Inf
GA_74M	9.500E+00	S	5.9700E+01	8.0913E+01	0.738
GA_83F	3.100E-01	S	9.8998E+03	6.8540E+03	1.444
GA_84F	2.480E-01	S	9.0028E+03	3.9815E+03	2.261
GE_73M	5.000E-01	S	6.6730E+01	1.3674E+02	0.488
GE_75M	4.770E+01	S	1.4003E+02	2.4260E+02	0.577
GE_78F	1.450E+00	H	9.8000E+02	8.1077E+02	1.209
GE_84F	9.700E-01	S	7.4687E+03	5.2521E+03	1.422
GE_85F	4.160E-01	S	5.0456E+03	2.7708E+03	1.821
GE_86F	1.280E-01	S	5.7671E+03	3.5490E+03	1.625

	PERIODE		Q	ETOT	Q/ETOT
AS_75M	1.679E-02	S	3.0400E+02	5.9241E+02	0.513
AS_77F	1.618E+00	J	6.8275E+02	5.1645E+02	1.322
AS_87F	7.500E-01	S	9.8450E+03	6.0602E+03	1.625
AS_88F	5.590E-01	S	8.0051E+03	5.4495E+03	1.469
SE_73M	3.983E+01	M	7.7655E+02	6.3075E+02	1.231
SE_77M	1.736E+01	S	1.6200E+02	2.4700E+02	0.656
SE_79M	3.910E+00	M	9.5500E+01	1.9504E+02	0.490
SE_81M	5.725E+01	M	1.0392E+02	2.1014E+02	0.495
SE_92F	3.800E-02	S	8.5625E+03	1.1491E+04	0.745
BR_76M	1.310E+00	S	1.1746E+02	3.4000E+01	3.455
BR_77M	4.283E+00	M	1.0587E+02	1.4400E+01	7.352
BR_79M	4.864E+00	S	2.0720E+02	2.6556E+02	0.780
BR_80M	4.420E+00	H	8.5950E+01	1.6359E+02	0.525
BR_82M	6.100E+00	M	1.2177E+02	1.6686E+02	0.730
BR_83F	2.390E+00	H	9.1851E+02	7.2725E+02	1.263
BR_93F	1.020E-01	S	1.1272E+04	0.0000E+00	Inf
BR_94F	7.000E-02	S	1.1730E+04	0.0000E+00	Inf
KR_79M	5.000E+01	S	1.3001E+02	2.3990E+02	0.542
KR_81M	1.300E+01	S	1.9032E+02	2.7053E+02	0.704
KR_83M	1.830E+00	H	4.1560E+01	9.0284E+01	0.460
KR_85F	1.073E+01	A	6.8700E+02	5.6581E+02	1.214
KR_94F	2.000E-01	S	8.1768E+03	6.8116E+03	1.200
RB_81M	3.048E+01	M	1.3770E+02	2.1850E+02	0.630
RB_87F	4.800E+10	A	2.7330E+02	1.7730E+02	1.541
RB_98F	1.140E-01	S	1.1249E+04	8.0833E+03	1.392
RB_99F	5.900E-02	S	1.0706E+04	8.8288E+03	1.213
RB100F	5.100E-02	S	1.2646E+04	8.0118E+03	1.578
RB101F	1.180E-01	S	9.1892E+03	0.0000E+00	Inf
RB102F	6.900E-02	S	8.8512E+03	0.0000E+00	Inf
SR_85M	1.128E+00	H	3.7374E+02	2.4500E+02	1.525
SR_87M	2.810E+00	H	3.8757E+02	2.0427E+02	1.897
SR_90F	2.914E+01	A	5.4600E+02	4.4018E+02	1.240
SR_92F	2.710E+00	H	1.9300E+03	1.5598E+03	1.237
_Y100M	9.400E-01	S	9.3000E+03	7.6549E+03	1.215
ZR_87M	1.400E+01	S	3.3630E+02	4.4400E+02	0.757
ZR102F	2.900E+00	S	4.6100E+03	6.5536E+03	0.703
ZR104F	1.200E+00	S	5.9955E+03	9.4807E+03	0.632
NB_90M	1.882E+01	S	1.2630E+02	1.7105E+02	0.738
NB_91M	6.200E+01	J	1.6729E+02	3.0537E+02	0.548
NB_93M	1.640E+01	A	3.0400E+01	6.4984E+01	0.468
NB_94M	6.260E+00	M	5.1166E+01	8.8650E+01	0.577
NB_95M	3.608E+00	J	2.8657E+02	4.4380E+02	0.646
MO102F	1.120E+01	M	1.0400E+03	8.3042E+02	1.252
TC_96M	5.150E+01	M	9.3200E+01	4.5328E+01	2.056
TC_97M	8.900E+01	J	9.6500E+01	1.9654E+02	0.491
TC_99F	2.130E+05	A	2.9350E+02	1.9185E+02	1.530
TC103F	5.000E+01	S	2.6592E+03	2.1705E+03	1.225
TC111F	3.000E-01	S	6.9668E+03	0.0000E+00	Inf
RU106F	1.009E+00	A	3.9400E+01	2.2581E+01	1.745
RU108F	4.500E+00	M	1.3200E+03	1.0967E+03	1.204

	PERIODE		Q	ETOT	Q/ETOT
RH100M	4.600E+00	M	1.6927E+02	5.2825E+01	3.204
RH103M	5.612E+01	M	3.9755E+01	7.2648E+01	0.547
RH104M	4.340E+00	M	1.3223E+02	2.2981E+02	0.575
RH105F	1.473E+00	J	5.6700E+02	4.2345E+02	1.339
RH105M	4.500E+01	S	1.2957E+02	2.4040E+02	0.539
RH117F	3.960E-01	S	6.7746E+03	4.6818E+03	1.447
PD107F	6.500E+06	A	3.3100E+01	2.0925E+01	1.582
PD107M	2.130E+01	S	2.1490E+02	2.9226E+02	0.735
PD109F	1.343E+01	H	1.0279E+03	8.1087E+02	1.268
PD109M	4.690E+00	M	1.8890E+02	2.9941E+02	0.631
PD112F	2.105E+01	H	2.9300E+02	2.0886E+02	1.403
AG101M	3.100E+00	S	2.7430E+02	2.1108E+02	1.300
AG103M	5.700E+00	S	1.3440E+02	2.5145E+02	0.534
AG105M	7.233E+00	M	3.0063E+01	5.2480E+01	0.573
AG107M	4.430E+01	S	9.3124E+01	1.7874E+02	0.521
AG109M	3.960E+01	S	8.8032E+01	1.6861E+02	0.522
AG111F	7.450E+00	J	1.0280E+03	8.1603E+02	1.260
AG111M	1.080E+00	M	6.6997E+01	1.3194E+02	0.508
AG120F	1.170E+00	S	8.2028E+03	6.2152E+03	1.320
AG120M	3.200E-01	S	5.3709E+03	4.3774E+03	1.227
CD111M	4.860E+01	M	3.9622E+02	5.3084E+02	0.746
CD113F	9.196E+15	A	3.1600E+02	2.0993E+02	1.505
CD113M	1.410E+01	A	5.8525E+02	4.2389E+02	1.381
CD115F	2.228E+00	J	1.1114E+03	9.1079E+02	1.220
CD126F	5.060E-01	S	5.4800E+03	4.5493E+03	1.205
CD128F	9.400E-01	S	7.0039E+03	8.9451E+03	0.783
CD130F	2.000E-01	S	7.3998E+03	0.0000E+00	Inf
IN112M	2.057E+01	M	1.5640E+02	3.1655E+02	0.494
IN113M	1.658E+00	H	3.9169E+02	5.5606E+02	0.704
IN114M	4.951E+01	J	2.5236E+02	4.1715E+02	0.605
IN114N	4.310E-02	S	5.0198E+02	3.6550E+02	1.373
IN115M	4.486E+00	H	3.6122E+02	5.4689E+02	0.660
IN116N	2.160E+00	S	1.6239E+02	2.8274E+02	0.574
IN118N	8.500E+00	S	2.0243E+02	3.2397E+02	0.625
IN128M	9.000E-01	S	7.4671E+03	9.6146E+03	0.777
IN131F	2.700E-01	S	9.0483E+03	2.8949E+03	3.126
IN133F	1.800E-01	S	8.4892E+03	0.0000E+00	Inf
SN113M	2.140E+01	M	1.6992E+02	2.6125E+00	65.043
SN117M	1.400E+01	J	3.1458E+02	5.0767E+02	0.620
SN119M	2.930E+02	J	8.9530E+01	1.8174E+02	0.493
SN121F	1.127E+00	J	3.8300E+02	2.5469E+02	1.504
SN121M	5.003E+01	A	9.3361E+01	3.3120E+02	0.282
SN134F	1.040E+00	S	6.2662E+03	5.2216E+03	1.200
SN135F	8.500E-01	S	3.4404E+03	2.5170E+03	1.367
SB122M	4.210E+00	M	1.6356E+02	2.6375E+02	0.620
SB124N	2.020E+01	M	3.6850E+01	5.2211E+01	0.706
SB126N	1.100E+01	S	2.2702E+01	5.0777E+01	0.447
SB137F	3.600E-01	S	4.1686E+03	7.2265E+03	0.577
TE107F	3.600E-03	S	5.8346E+03	2.8000E+03	2.084
TE108F	2.100E+00	S	4.5334E+03	2.3000E+03	1.971
TE123M	1.197E+02	J	2.4746E+02	3.7473E+02	0.660
TE125M	5.800E+01	J	1.4473E+02	2.7418E+02	0.528
TE127F	9.350E+00	H	6.9400E+02	5.0688E+02	1.369
TE127M	1.090E+02	J	1.0492E+02	1.9322E+02	0.543
_I129F	1.570E+07	A	1.9000E+02	1.4705E+02	1.292

	PERIODE		Q	ETOT	Q/ETOT
XE125M	5.700E+01	S	2.5200E+02	4.0077E+02	0.629
XE127M	1.167E+00	M	2.9720E+02	4.3212E+02	0.688
XE129M	8.890E+00	J	2.3614E+02	4.6381E+02	0.509
XE131M	1.190E+01	J	1.6393E+02	3.4052E+02	0.481
XE133M	2.188E+00	J	2.3318E+02	4.6970E+02	0.496
XE135F	9.090E+00	H	1.1580E+03	9.6081E+02	1.205
XE147F	2.600E-01	S	7.9054E+03	0.0000E+00	Inf
CS122N	3.600E-01	S	8.1200E+01	1.2300E+01	6.602
CS134M	2.900E+00	H	1.3875E+02	2.7563E+02	0.503
CS135F	2.300E+06	A	2.0500E+02	1.2668E+02	1.618
CS137F	3.002E+01	A	5.4728E+02	4.1859E+02	1.307
CS147F	2.200E-01	S	7.8928E+03	6.4636E+03	1.221
CS148F	1.700E-01	S	9.6246E+03	7.5300E+03	1.278
BA131M	1.460E+01	M	1.8750E+02	3.2450E+02	0.578
BA133M	1.621E+00	J	2.8844E+02	5.6639E+02	0.509
BA135M	1.196E+00	J	2.6824E+02	5.2705E+02	0.509
BA142F	1.060E+01	M	2.2000E+03	1.8175E+03	1.210
BA143F	1.450E+01	S	4.3000E+03	3.5700E+03	1.204
BA149F	3.460E-01	S	7.3679E+03	0.0000E+00	Inf
LA129M	5.600E-01	S	1.7200E+02	2.9815E+02	0.577
LA132M	2.430E+01	M	1.2731E+03	4.9100E+02	2.593
LA145F	2.420E+01	S	4.1100E+03	3.3925E+03	1.211
CE135M	2.000E+01	S	4.4580E+02	7.0800E+02	0.630
CE137M	1.433E+00	J	2.6382E+02	5.1215E+02	0.515
CE141F	3.250E+01	J	5.8000E+02	4.6099E+02	1.258
CE144F	2.849E+02	J	3.1732E+02	2.2550E+02	1.407
CE146F	1.420E+01	M	1.0800E+03	7.6500E+02	1.412
PR143F	1.358E+01	J	9.3530E+02	7.0906E+02	1.319
PR144M	7.200E+00	M	6.1127E+01	1.1395E+02	0.536
ND152F	1.140E+01	M	1.1500E+03	9.5424E+02	1.205
PM139M	1.800E-01	S	1.8870E+02	3.1435E+02	0.600
PM147F	2.625E+00	A	2.2470E+02	1.3950E+02	1.611
PM149F	2.212E+00	J	1.0724E+03	8.2488E+02	1.300
SM139M	1.070E+01	S	7.9964E+02	6.0950E+02	1.312
SM143N	3.000E-02	S	2.7950E+03	2.0093E+03	1.391
SM151F	8.879E+01	A	7.6300E+01	5.7238E+01	1.333
SM153F	1.946E+00	J	8.1700E+02	6.6799E+02	1.223
SM153M	1.060E-02	S	9.8400E+01	3.3400E+01	2.946
SM156F	9.400E+00	H	7.3500E+02	5.7732E+02	1.273
SM157F	8.067E+00	M	2.6000E+03	5.5900E+02	4.651
SM158F	5.517E+00	M	1.8100E+03	1.4087E+03	1.285
EU150M	1.262E+01	H	1.1504E+03	8.9414E+02	1.287
EU152M	9.320E+00	H	1.8839E+03	1.4293E+03	1.318
EU152N	1.600E+00	H	1.4780E+02	2.3687E+02	0.624
EU154M	4.630E+01	M	1.5700E+02	2.6317E+02	0.597
EU155F	4.960E+00	A	2.4660E+02	2.0167E+02	1.223
EU157F	1.518E+01	H	1.3630E+03	3.3205E+02	4.105
GD159F	1.856E+01	H	9.7470E+02	7.5320E+02	1.294
GD164F	3.180E+01	S	2.5100E+03	3.4848E+03	0.720
TB144M	4.250E+00	S	3.4569E+03	6.6230E+02	5.220
TB151M	2.500E+01	S	2.6892E+02	8.0700E+01	3.332
TB152M	4.300E+00	M	1.3141E+03	1.0425E+03	1.261
TB156N	1.019E+00	J	4.9600E+01	6.2255E+01	0.797
TB158M	1.050E+01	S	1.1000E+02	2.0950E+02	0.525
TB161F	6.910E+00	J	5.9050E+02	4.7187E+02	1.251
TB164F	3.000E+00	M	3.8600E+03	2.4975E+03	1.546

	PERIODE		Q	ETOT	Q/ETOT
DY157M	2.020E-02	S	1.9950E+02	3.1025E+02	0.643
DY165F	2.334E+00	H	1.2851E+03	1.0302E+03	1.247
DY165M	1.258E+00	M	1.3900E+02	2.5635E+02	0.542
DY166F	3.400E+00	J	4.8100E+02	3.9043E+02	1.232
DY168F	8.500E+00	M	1.7600E+03	1.2766E+03	1.379
HO158M	2.700E+01	M	6.7300E+01	1.2500E-01	538.400
HO159M	8.300E+00	S	2.0590E+02	3.3310E+02	0.618
HO160M	5.019E+00	H	1.2101E+03	1.3220E+04	0.092
HO161M	6.730E+00	S	2.1115E+02	9.6100E+01	2.197
HO162M	1.117E+00	H	8.9743E+02	5.9350E+02	1.512
HO164M	3.750E+01	M	1.4000E+02	2.2405E+02	0.625
HO170M	4.300E+01	S	4.0000E+03	5.7426E+03	0.697
ER153F	3.710E+01	S	4.5904E+03	2.5410E+03	1.807
ER167M	2.280E+00	S	2.0780E+02	3.1973E+02	0.650
ER169F	9.300E+00	J	3.5220E+02	2.3143E+02	1.522
TM162M	2.430E+01	S	1.0538E+03	4.8000E+02	2.196
TM170F	1.286E+02	J	9.6705E+02	7.4548E+02	1.297
TM171F	1.922E+00	A	9.6500E+01	5.7774E+01	1.670
YB155F	1.710E+00	S	5.4424E+03	4.4800E+03	1.215
YB169M	4.600E+01	S	2.4200E+01	5.4450E+01	0.444
YB175F	4.190E+00	J	4.6770E+02	3.3318E+02	1.404
YB177F	1.889E+00	H	1.3930E+03	1.1310E+03	1.232
YB177M	6.410E+00	S	3.3150E+02	5.4990E+02	0.603
YB178F	1.233E+00	H	6.3000E+02	1.0891E+03	0.578
YB179F	8.167E+00	M	2.3100E+03	3.3225E+03	0.695
LU155F	7.000E-02	S	6.2111E+03	4.5800E+03	1.356
LU156F	5.000E-01	S	6.7870E+03	4.8710E+03	1.393
LU169M	2.667E+00	M	2.9000E+01	5.0470E+01	0.575
LU170M	6.700E-01	S	9.3000E+01	1.7505E+02	0.531
LU171M	1.317E+00	M	7.1300E+01	1.4918E+02	0.478
LU172M	3.667E+00	M	4.1860E+01	7.7480E+01	0.540
LU174M	1.420E+02	J	1.7982E+02	3.0435E+02	0.591
LU176M	3.681E+00	H	1.3125E+03	1.0831E+03	1.212
LU177F	6.709E+00	J	4.9710E+02	3.6563E+02	1.360
LU179F	4.589E+00	H	1.3500E+03	1.0650E+03	1.268
LU181F	3.500E+00	M	1.9700E+03	7.6025E+02	2.591
LU182F	2.000E+00	M	4.0300E+03	2.4178E+03	1.667
HF177N	5.133E+01	M	2.7400E+03	1.7090E+03	1.603
HF179M	1.867E+01	S	3.7507E+02	5.0925E+02	0.737
HF180M	5.500E+00	H	1.1416E+03	2.4633E+03	0.463
TA157F	5.300E-03	S	6.9780E+03	4.9100E+03	1.421
TA182M	2.830E-01	S	1.6500E+01	3.5218E+01	0.469
TA182N	1.584E+01	M	5.0320E+02	8.0454E+02	0.625
_W161F	4.100E-01	S	6.4000E+03	4.8600E+03	1.317
_W179M	6.400E+00	M	2.2449E+02	3.7640E+02	0.596
_W183M	5.200E+00	S	3.0949E+02	5.0535E+02	0.612
_W185F	7.510E+01	J	4.3240E+02	2.8580E+02	1.513
_W185M	1.670E+00	M	1.9740E+02	4.0873E+02	0.483
_W188F	6.944E+01	J	3.4900E+02	2.2599E+02	1.544
RE163F	2.600E-01	S	7.0492E+03	4.9396E+03	1.427
RE186F	3.777E+00	J	1.0407E+03	7.7868E+02	1.336
RE186M	1.998E+05	A	1.5000E+02	2.1345E+02	0.703
RE187F	5.000E+10	A	2.0000E+00	1.4850E+00	1.347
RE188M	1.860E+01	M	1.7200E+02	2.5850E+02	0.665
RE189F	1.013E+00	J	1.0080E+03	7.8000E+02	1.292
RE190M	3.194E+00	H	1.9045E+03	1.5858E+03	1.201

	PERIODE		Q	ETOT	Q/ETOT
OS166F	1.800E-01	S	6.1587E+03	4.4100E+03	1.397
OS167F	8.300E-01	S	6.6829E+03	3.9118E+03	1.708
OS189M	4.806E+00	H	3.0810E+01	5.6595E+01	0.544
OS191F	1.541E+01	J	3.1270E+02	2.3125E+02	1.352
OS191M	1.310E+01	H	7.4381E+01	1.4790E+02	0.503
OS193F	1.271E+00	J	1.1320E+03	9.1310E+02	1.240
OS194F	5.993E+00	A	9.7000E+01	7.5049E+01	1.292
OS196F	3.490E+01	M	1.1600E+03	6.4736E+02	1.792
IR190M	1.200E+00	H	2.6300E+01	4.1730E+01	0.630
IR191M	4.940E+00	S	1.7128E+02	2.3125E+02	0.741
IR192M	1.440E+00	M	5.8248E+01	1.3084E+02	0.445
IR193M	1.060E+01	J	8.0270E+01	1.6734E+02	0.480
IR195F	2.500E+00	H	1.1180E+03	9.1300E+02	1.225
PT173F	3.420E-01	S	6.6336E+03	5.3400E+03	1.242
PT175F	2.520E+00	S	6.6605E+03	2.5150E+03	2.648
PT193M	4.329E+00	J	1.4978E+02	2.9255E+02	0.512
PT195M	4.020E+00	J	2.5929E+02	4.5625E+02	0.568
PT197F	1.831E+01	H	7.1900E+02	5.9005E+02	1.219
PT197M	1.572E+00	H	4.2333E+02	7.9175E+02	0.535
AU178F	2.600E+00	S	7.1130E+03	4.2420E+02	16.768
AU194M	6.000E-01	S	1.0740E+02	3.2000E+00	33.562
AU194N	4.200E-01	S	4.7580E+02	1.2100E+02	3.932
AU195M	3.050E+01	S	3.1859E+02	4.5050E+02	0.707
AU196M	8.100E+00	S	8.4660E+01	1.7615E+02	0.481
AU196N	9.694E+00	H	5.9566E+02	1.0725E+03	0.555
AU197M	7.800E+00	S	4.0920E+02	6.1680E+02	0.663
AU198M	2.300E+00	J	8.1200E+02	1.2787E+03	0.635
AU201F	2.600E+01	M	1.2750E+03	9.8800E+02	1.290
AU203F	5.300E+01	S	2.1400E+03	1.6740E+03	1.278
HG179F	1.090E+00	S	7.1079E+03	3.4070E+03	2.086
HG195M	1.736E+00	J	8.7403E+02	5.0325E+02	1.737
HG197M	2.380E+01	H	3.4083E+02	6.0494E+02	0.563
HG199M	4.260E+01	M	5.3250E+02	9.0079E+02	0.591
HG205F	5.200E+00	M	1.5380E+03	1.2112E+03	1.270
HG206F	8.150E+00	M	1.3070E+03	1.0589E+03	1.234
HG207F	2.900E+00	M	4.7800E+03	6.3050E+03	0.758
TL187M	1.560E+01	S	3.4031E+02	8.2820E+00	41.090
TL193M	2.117E+00	M	1.2745E+03	2.3477E+02	5.429
TL195M	3.600E+00	S	4.8260E+02	6.2325E+02	0.774
TL197M	5.400E-01	S	6.0830E+02	8.1525E+02	0.746
TL204F	3.780E+00	A	7.5283E+02	1.3942E+00	539.984
TL206F	4.200E+00	M	1.5335E+03	1.2096E+03	1.268
TL207F	4.770E+00	M	1.4220E+03	1.1089E+03	1.282
TL210F	1.300E+00	M	5.4866E+03	4.5016E+03	1.219
PB201M	1.020E+00	M	6.2810E+02	9.5775E+02	0.656
PB203N	4.800E-01	S	2.9501E+03	2.3249E+03	1.269
PB209F	3.253E+00	H	6.4460E+02	4.4402E+02	1.452
PB210F	2.232E+01	A	6.3000E+01	9.4682E+01	0.665
PB211F	3.610E+01	M	1.3730E+03	1.0789E+03	1.273
BI198M	7.700E+00	S	2.4850E+02	4.1750E+02	0.595
BI210F	5.013E+00	J	1.1615E+03	8.7315E+02	1.330
BI213F	4.559E+01	M	1.5303E+03	1.2577E+03	1.217

	PERIODE	Q	ETOT	Q/ETOT
PO195F	4.500E+00 S	6.7628E+03	5.6278E+03	1.202
PO197M	2.600E+01 S	6.5821E+03	5.4710E+03	1.203
PO198F	1.760E+00 M	5.6267E+03	4.4150E+03	1.274
PO203M	1.200E+00 M	8.3166E+02	2.1310E+03	0.390
PO207M	2.790E+00 S	1.3830E+03	1.7360E+03	0.797
AT201F	1.483E+00 M	6.2785E+03	4.8992E+03	1.282
RN201F	7.000E+00 S	6.8016E+03	5.4500E+03	1.248
RN203F	4.500E+01 S	6.4355E+03	4.3550E+03	1.478
RN203M	2.800E+01 S	6.8762E+03	5.3420E+03	1.287
RN204F	1.240E+00 M	5.6865E+03	4.4490E+03	1.278
FR204F	2.100E+00 S	7.4724E+03	5.7180E+03	1.307
FR223F	2.180E+01 M	1.1479E+03	9.1229E+02	1.258
RA225F	1.480E+01 J	3.6200E+02	2.5638E+02	1.412
RA227F	4.220E+01 M	1.3350E+03	1.0946E+03	1.220
TH233F	2.230E+01 M	1.2450E+03	9.6490E+02	1.290
TH234F	2.410E+01 J	1.9850E+02	1.5025E+02	1.321
TH236F	3.710E+01 M	1.0000E+03	8.1345E+02	1.229
PA234M	1.170E+00 M	2.2791E+03	1.8589E+03	1.226
PA235F	2.420E+01 M	1.4150E+03	1.0542E+03	1.342
PA236F	9.100E+00 M	2.8982E+03	2.1614E+03	1.341
PA237F	8.700E+00 M	2.2500E+03	1.8700E+03	1.203
_U235M	2.600E+01 M	7.6000E-02	2.4700E-01	0.308
_U239F	2.347E+01 M	1.2629E+03	9.7386E+02	1.297
NP241F	1.390E+01 M	1.3080E+03	1.0198E+03	1.283
PU241F	1.441E+01 A	2.0935E+01	1.1907E+01	1.758
PU243F	4.956E+00 H	5.8200E+02	4.1579E+02	1.400
AM242F	1.602E+01 H	6.7616E+02	4.2384E+02	1.595
AM242M	1.411E+02 A	7.3763E+01	1.2485E+02	0.591
AM244M	2.600E+01 M	1.4974E+03	1.1462E+03	1.306
AM245F	2.050E+00 H	8.9600E+02	6.6839E+02	1.341
CM249F	1.069E+00 H	9.0300E+02	6.5804E+02	1.372
CM251F	1.680E+01 M	1.4200E+03	1.1203E+03	1.268
BK248M	2.370E+01 H	8.1500E+02	4.6164E+02	1.765
BK249F	3.200E+02 J	1.2508E+02	7.4447E+01	1.680
CF239F	4.000E+01 S	7.8000E+03	5.8000E+03	1.345
CF253F	1.781E+01 J	3.0709E+02	1.9994E+02	1.536
ES254F	2.755E+02 J	6.6175E+03	1.1894E+04	0.556
ES256F	2.200E+01 M	1.6690E+03	2.1293E+03	0.784
ES256M	7.600E+00 H	1.6700E+03	9.9551E+02	1.678

Preliminary

Draft-Report

JEF/DOC- 676

Consistency Tests on JEF2.2 Decay Data File

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Abstract:

We review a lot of problems or questions about JEF2-2 and we produce a study about internal consistency tests on all nuclides of JEF2.2 (from H3 to Fm257). These tests are made on gamma, X, alpha spectra, on gamma-ray of 511 kev, and total energy.

We use data format and conventions of procedure ENDFB-6 . [ENDF 102 - BNL-NCS-44945(P.F.Rose-Cl.Dundford)]

1. *Consistency of gamma and X spectra*

For decay heat calculations it is necessary to know $E_{"\gamma"}$ for total γ decay heat calculation and spectra γ and X calculations by energy groups.
In JEF2-2 we can get three different types of photonic decay energies.

- $\overline{E}_{"\gamma"} = \overline{E}_{photonic} = \overline{E}_{\gamma} + \overline{E}_{X} + \overline{E}_{ann.rad.} + \ldots$
- ER(0) average decay heat for γ spectrum

  ER(9) average decay heat for X spectrum
- Spectrum γ and X (STYP=0 and STYP=9)

$$SOMG = FD_{\gamma} * \sum_{i=1}^{NG} \left(I_{\gamma_i} * E_{\gamma_i} \right)$$

$$SOMX = FD_{X} * \sum_{i=1}^{NX} \left(I_{X_i} * E_{X_i} \right)$$

FD_k is the discrete spectrum normalization factor.

We test consistencies between these three types of values and the values calculated with spectra data.
In annexes are given all tests about this study.

1.1. gamma spectrum (annexe"spectre.gamma" - table 1)

Internal consistency of γ spectrum

$$ECARG = \frac{ER(0) - SOMG}{ER(0)} * 100$$

We list nuclides with |ECARG| >5%

We find 85 nuclides with |ECARG| > 10%

1.2. X spectrum (annexe "spectre.X" - table 2)

Internal consistency of X spectrum

$$ECARX = \frac{ER(9) - SOMX}{ER(9)} * 100$$

only nuclides with |ECARX| > 5% are given. 16 nuclides have a X spectrum but ER(9) = 0. and 45 nuclides have |ECARX| > 10%

1.3. gamma and X spectra (annexe"spectre.gamma+X" - table 3)

Consistency between $\overline{E_{"\gamma"}}$ and ER(0) + ER(9)

$\overline{E_{"\gamma"}}$ and SOMG + SOMX

We calculate

$$ECAR1 = \frac{\overline{E_{"\gamma"}} - (ER(0) + ER(9))}{\overline{E_{"\gamma"}}} * 100$$

$$ECAR2 = \frac{\overline{E_{"\gamma"}} - (SOMG + SOMX)}{\overline{E_{"\gamma"}}} * 100$$

We list nuclides for which |ECAR1| or |ECAR2| > 5 %.

We find 282 nuclides with |ECAR2| >10 % (inconsistency between $\overline{E_{"\gamma"}}$ and SOMG + SOMX) and 362 nuclides with |ECAR1| >10 % (inconsistency between $\overline{E_{"\gamma"}}$ and ER(0) + ER(9))

For calculation of decay gamma heat we normalize gamma rays to ($\overline{E_{"\gamma"}}$ - ER(9))

Is it correct ?

2. *Consistency of α spectrum (annexe "spectre.alpha" -table 4)*

$\overline{E_{"\alpha"}}$ is the average energy of all heavy charged particles and delayed neutrons.
FDα is the normalization factor for α spectrum.
ER(4) is average energy for α spectrum

We compare ER(4) including recoil energy to SOMAL with -

$$SOMAL = FD\alpha * \left(1 + \frac{4}{A}\right) * \sum_{i=1}^{N\alpha} I\alpha_i * E\alpha_i$$

In annexe "spectre.alpha" we list 13 nuclides with $\frac{ER(4)}{SOMAL} > 1.05$ and < 0.95

For normalization of α spectrum we cannot take $\overline{E_{"\alpha"}}$ which is average energy of <u>all</u> heavy charged particles and delayed neutrons.

This is the reason why we use ER(4) and not $\overline{E_{"\alpha"}}$ for comparisons

It is clear that ENDF format is not well adapted to describe all phenomena independantly: we need the true value of each average energy related to each physical phenomena.

3. *gamma-ray of 511 kev (annexe "raie.511 Kev" - table 5)*

The intensity of 511kev γ-ray is generally given in X spectrum : I^{X}_{511}
For 70 nuclides there is a good agreement between these types of values.
This intensity can be known from β^+ spectrum when the positrons are present: E > 1022kev

RIS is the positron intensity (β^+ spectrum STYP=2)
RIS ≠ 0 → $I^{\beta+}_{511}$

$$I^{\beta+}{}_{511} = FD_{\beta^+} * \sum_{i=1}^{N_\beta} 2 * RIS_i$$

Generally there is a good agreement between $I^{X}{}_{511}$ and $I^{\beta+}{}_{511}$ but there is redundance of informations.

For 12 nuclides $I^{X}{}_{511} \neq I^{\beta+}{}_{511}$

For 3 nuclides $I^{X}{}_{511} \neq 0$

$I^{\beta+}{}_{511} = 0 \,(RIS = 0)$

For10 nuclides $I^{\beta+}{}_{511} \neq 0$ no $I^{X}{}_{511}$

Morever the intensity of 511kev γ-ray is given with γ spectrum: $I^{\gamma}{}_{511}$

For 3 nuclides $I^{\gamma}{}_{511} \neq 0$ no $I^{X}{}_{511}$ and no $I^{\beta+}{}_{511}$

For 8 nuclides $I^{\gamma}{}_{511} \neq 0$ $I^{X}{}_{511} \neq 0$ and $I^{\beta+}{}_{511} \neq 0$

in this case what to do?

For 4 nuclides $I^{\beta+}{}_{511} = I^{\gamma}{}_{511}$ no $I^{X}{}_{511}$

For 5 nuclides $I^{\beta+}{}_{511} \neq I^{\gamma}{}_{511}$ no $I^{X}{}_{511}$

The results about this study are detailed in annexe "raie.511kev"

4. Consistency between total energies (annexe "q.etot" - table 6)

Q_i is total energy available in the corresponding decay process and Br_i is the fraction of the decay for the corresponding decay mode.

$$Q = \sum_{i=1}^{NDK} Br_i * Q_i$$

To take into account the neutrino energy which is not in JEF2 (not included in ENDFB6 format), we calculate only for nuclides without β+ decay (RTYP=2)

$$ETOT = \overline{E_{"\beta"}} * 2.25 + \overline{E_{"\gamma"}} + \overline{E_{"\alpha"}}$$

We have done the approximation $E_\nu = \overline{E_{"\beta"}} * 1.25$

and we compare ETOT to Q. In annexe "q.etot" we give the list of nuclides for which

$\frac{Q}{ETOT} > 1.2$ and $\frac{Q}{ETOT} < 0.8$

5. Conclusion

The ENDFB-6 format seems not quite adapted for decay heat calculation. We don't have the neutrino energy and we must know the average energy for β spectrum. For α energy we don't know the repartition between each physical phenomena.

Perhaps it is necessary to define a procedure for knowledge of energy we must use in decay heat calculations.

Morever this paper shows anomalies found with consistency tests.

TABLE 1 spectre.gamma

NG number of gamma rays

ER(0) average decay heat for γ spectrum

FD_γ normalization for gamma spectrum

$$SOMG = FD_\gamma * \sum_{i=1}^{NG} \left(I_{\gamma_i} * E_{\gamma_i} \right)$$

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
N 12F	1.100E-02	S	4	1.0820E+03	9.0450E+01	9.1641E+01
K 46F	1.583E+00	M	16	2.8700E+03	2.0717E+03	2.7816E+01
V 45F	5.390E-01	S	1	1.0000E+00	1.4035E+00	-4.0350E+01
CR 47F	5.080E-01	S	1	3.0000E+00	3.2375E+00	-7.9167E+00
MN 49F	3.840E-01	S	1	2.0000E+01	1.6338E+01	1.8310E+01
CO 53F	2.400E-01	S	1	7.0000E+01	7.4368E+01	-6.2400E+00
NI 59F	7.500E+04	A	1	0.0000E+00	0.0000E+00	
GA 77F	1.320E+01	S	2	6.8950E+02	3.4296E-06	1.0000E+02
SE 87F	5.800E+00	S	11	2.2300E+03	2.6557E+03	-1.9091E+01
KR 94F	2.000E-01	S	18	1.7000E+03	1.8930E+03	-1.1351E+01
RB 81M	3.048E+01	M	8	1.4000E+01	6.3036E+00	5.4974E+01
SR 83F	1.350E+00	J	137	5.0000E+02	5.3798E+02	-7.5963E+00
Y 81F	1.207E+00	M	3	4.0000E+00	3.6517E+00	8.7070E+00
ZR 89M	4.180E+00	M	2	6.3201E+02	5.4157E+02	1.4310E+01
ZR 97F	1.690E+01	H	40	8.9700E+02	1.9234E+02	7.8558E+01
ZR101F	2.000E+00	S	6	4.0000E+01	1.8473E+03	-4.5182E+03
ZR102F	2.900E+00	S	25	8.6000E+02	1.7836E+03	-1.0740E+02
NB101F	7.100E+00	S	14	3.0000E+02	1.2642E+03	-3.2140E+02
NB104M	4.800E+00	S	4	3.1500E+03	1.3715E+03	5.6460E+01
NB106F	1.020E+00	S	12	4.0900E+03	1.1121E+03	7.2809E+01
MO103F	1.125E+00	M	3	1.3900E+03	5.3626E+02	6.1420E+01
MO105F	3.670E+01	S	20	1.7400E+03	3.9898E+02	7.7070E+01
MO106F	8.400E+00	S	4	5.9000E+02	1.0150E+03	-7.2040E+01
MO108F	1.500E+00	S	3	1.1400E+03	3.7694E+02	6.6935E+01
RH100M	4.600E+00	M	11	4.1600E+01	3.7990E+01	8.6772E+00
PD112F	2.105E+01	H	1	5.0546E+00	1.8500E+01	-2.6600E+02
AG105M	7.233E+00	M	1	9.8000E-01	1.0597E-03	9.9892E+01
AG121F	8.000E-01	S	53	2.0300E+03	2.8967E+03	-4.2696E+01
CD113M	1.410E+01	A	1	6.0545E-01	6.0546E-02	9.0000E+01
IN106F	6.200E+00	M	28	2.7800E+03	1.3230E+02	9.5241E+01
IN106M	5.200E+00	M	31	2.0400E+03	1.2268E+03	3.9861E+01
SN131F	3.900E+01	S	38	1.1900E+03	4.6602E+03	-2.9161E+02
SB124N	2.020E+01	M	1	1.0000E-03	8.0538E-04	1.9462E+01
TE121M	1.539E+02	J	6	2.0300E+02	1.7456E+02	1.4010E+01
TE137F	2.490E+00	S	13	1.8200E+03	1.1093E+04	-5.0951E+02
I140F	8.600E-01	S	1	1.6100E+03	2.2341E+02	8.6124E+01
I141F	4.800E-01	S	4	4.0190E+04	9.7327E+02	9.7578E+01
XE142F	1.220E+00	S	165	1.0800E+03	8.4094E+03	-6.7864E+02
XE143F	3.000E-01	S	1	2.4200E+03	1.7250E+02	9.2872E+01

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
CS147F	2.200E-01	S	44	1.0631E+02	8.1778E+02	-6.6924E+02
BA142F	1.060E+01	M	90	1.0690E+03	1.0690E+04	-9.0003E+02
LA133F	3.911E+00	H	128	6.0000E+01	6.4906E+01	-8.1774E+00
LA135F	1.950E+01	H	12	1.0100E+01	8.2633E+00	1.8185E+01
CE149F	5.200E+00	S	22	1.5300E+03	4.7903E+02	6.8691E+01
CE150F	4.000E+00	S	27	6.3000E+02	1.2899E+03	-1.0474E+02
PR144F	1.728E+01	M	8	2.8900E+01	9.5180E+00	6.7066E+01
PR144M	7.200E+00	M	1	9.0000E-01	4.6852E-02	9.4794E+01
PR150F	6.100E+00	S	4	2.3400E+03	1.5138E+02	9.3531E+01
EU146F	4.595E+00	J	155	2.0900E+03	1.8202E+03	1.2910E+01
EU150M	1.262E+01	H	15	8.6600E+01	8.1125E+01	6.3221E+00
TB146M	2.300E+01	S	10	2.8700E+03	2.5068E+03	1.2655E+01
TB157F	9.830E+01	A	1	0.0000E+00	4.5780E-03	
DY149F	4.233E+00	M	52	2.1300E+03	1.8104E+03	1.5002E+01
HO158N	2.133E+01	M	11	2.6966E+03	2.3771E+03	1.1849E+01
HO161F	2.481E+00	H	9	1.5500E+01	7.3219E+00	5.2762E+01
HO170M	4.300E+01	S	31	1.3333E+03	4.8769E+03	-2.6578E+02
ER163F	1.250E+00	H	11	1.0000E+00	8.0173E-01	1.9827E+01
ER172F	2.054E+00	J	37	4.8600E+02	2.1441E+02	5.5883E+01
TM162M	2.430E+01	S	18	1.0000E+02	2.3731E+02	-1.3731E+02
LU169M	2.667E+00	M	1	0.0000E+00	2.9754E-04	
LU172M	3.667E+00	M	1	0.0000E+00	1.5857E-03	
HF169F	3.240E+00	M	5	5.0000E+02	4.5980E+02	8.0393E+00
HF177M	1.080E+00	S	32	9.8000E+02	8.2978E+02	1.5328E+01
HF178N	3.100E+01	A	14	1.3059E+03	2.3919E+03	-8.3160E+01
HF180M	5.500E+00	H	6	9.3332E+01	1.1467E+03	-1.1286E+03
TA173F	3.139E+00	H	198	3.9400E+02	3.6022E+02	8.5744E+00
W179M	6.400E+00	M	2	2.0500E+01	1.9050E+01	7.0741E+00
RE184M	1.655E+02	J	32	3.3700E+02	3.1587E+02	6.2712E+00
OS180F	2.150E+01	M	1	3.5000E+00	1.2196E-07	1.0000E+02
OS185F	9.363E+01	J	13	6.6600E+02	1.3428E+02	7.9839E+01
OS191M	1.310E+01	H	1	1.0000E-01	5.4818E-02	4.5182E+01
IR190N	3.194E+00	H	5	1.4850E+03	9.1124E+02	3.8637E+01
IR192M	1.440E+00	M	3	1.5793E-01	5.8158E+01	-3.6725E+04
IR193M	1.060E+01	J	1	0.0000E+00	3.6651E-03	
IR194N	3.185E-02	S	2	1.6500E+02	1.1220E+02	3.2000E+01
PT193M	4.329E+00	J	3	2.0000E-01	2.3311E-01	-1.6556E+01
AU182F	2.100E+01	S	35	9.4000E+02	8.6832E+02	7.6255E+00
AU192M	2.900E-02	S	10	0.0000E+00	7.8990E-07	
AU196M	8.100E+00	S	1	3.0000E-01	2.5398E-01	1.5340E+01
HG182F	1.130E+01	S	3	4.3000E+02	1.4657E-06	1.0000E+02
HG188F	3.250E+00	M	19	7.3000E+02	5.4403E+02	2.5475E+01
HG191F	4.833E+01	M	7	4.6000E+02	3.9239E+02	1.4698E+01
HG191M	5.083E+01	M	80	1.3600E+03	1.4373E+03	-5.6848E+00

	PERIODE		NG	ER(0)	SOMG	ECARG =(ER(0)-SOMG)*100./ER(0)
PB199M	1.220E+01	M	2	1.0300E+02	7.6762E+01	2.5474E+01
PO209F	1.021E+02	A	11	4.8669E+00	3.0029E+00	3.8299E+01
RN210F	2.389E+00	H	40	5.6000E+01	5.3115E+01	5.1511E+00
RA213F	2.733E+00	M	3	9.0000E+00	9.4590E+00	-5.0997E+00
RA213M	2.100E-03	S	3	1.6200E+03	7.0783E+01	9.5631E+01
U238F	4.471E+09	A	2	6.7392E-02	6.3612E-02	5.6090E+00
PU242F	3.738E+05	A	3	5.8371E-02	1.9871E-02	6.5958E+01
PU244F	8.005E+07	A	1	8.7657E+00	1.5730E-02	9.9821E+01
CM244F	1.811E+01	A	12	2.4436E-02	1.5007E-02	3.8587E+01
CM246F	4.733E+03	A	1	1.8421E+00	1.2291E-02	9.9333E+01
CM248F	3.402E+05	A	1	5.7821E+02	7.0871E-03	9.9999E+01
CF247F	3.111E+00	H	13	0.0000E+00	7.6126E+00	
CF250F	1.309E+01	A	3	5.4165E+00	2.6454E-02	9.9512E+01
CF252F	2.647E+00	A	3	2.1646E+02	2.0364E-02	9.9991E+01
ES254F	2.755E+02	J	23	3.7776E-01	9.2952E-01	-1.4606E+02
ES256M	7.600E+00	H	3	4.8100E+01	3.3210E+02	-5.9044E+02

TABLE 2 spectre.X

NX	number of X rays
ER(9)	average decay heat for X spectrum
FD_X	normalization for X spectrum

$$SOMX = FD_X * \sum_{i=1}^{NX} \left(I_{X_i} * E_{X_i} \right)$$

$$ECARX = \frac{ER(9) - SOMX}{ER(9)} * 100$$

	PERIODE		NX	ER(9)	SOMX	ECARX =(ER(9)-SOMX)*100./ER(9)
C 11F	2.039E+01	M	1	0.0000E+00	1.0195E+03	
O 13F	8.900E-03	S	1	0.0000E+00	1.0220E+03	
O 15F	2.037E+00	M	1	0.0000E+00	1.0210E+03	
SI 25F	2.200E-01	S	2	0.0000E+00	1.0220E+03	
TI 43F	4.900E-01	S	4	0.0000E+00	1.0220E+03	
V 46F	4.224E-01	S	1	2.6290E-01	1.0210E+03	-3.8825E+05
CR 45F	5.000E-02	S	1	0.0000E+00	2.7594E+02	
CR 46F	2.600E-01	S	4	2.6290E-01	1.0220E+03	-3.8864E+05
MN 50F	2.830E-01	S	1	6.2490E-01	1.0220E+03	-1.6345E+05
FE 49F	7.500E-02	S	1	1.0220E+03	3.0660E+02	7.0000E+01
CO 53M	2.470E-01	S	4	0.0000E+00	1.0210E+03	
CO 54F	1.932E-01	S	1	1.3760E+00	1.0210E+03	-7.4099E+04
NI 53F	4.500E-02	S	4	1.0070E+03	4.5990E+02	5.4330E+01
NI 55F	1.890E-01	S	4	7.7620E+02	1.0210E+03	-3.1536E+01
GA 62F	1.161E-01	S	4	8.9320E+01	1.0220E+03	-1.0442E+03
GE 68F	2.708E+02	J	4	0.0000E+00	4.1457E+00	
GE 69F	1.627E+00	J	5	2.4400E+02	2.5874E+02	-6.0410E+00
GE 71F	1.144E+01	J	4	1.6740E-02	4.1900E+00	-2.4930E+04
AS 74F	1.778E+01	J	4	2.1655E+00	1.3662E-01	9.3691E+01
KR 71F	9.700E-02	S	5	6.1410E+02	1.0220E+03	-6.6424E+01
RB 74F	6.490E-02	S	5	8.8280E+02	1.0200E+03	-1.5538E+01
RB 81M	3.048E+01	M	9	2.0130E+01	2.1303E+01	-5.8254E+00
SR 82F	2.556E+01	J	4	2.3539E+02	7.8825E+00	9.6651E+01
SR 83F	1.350E+00	J	5	2.4360E+02	2.6615E+02	-9.2570E+00
Y 96F	6.200E+00	S	4	0.0000E+00	2.6317E+00	
NB 90M	1.882E+01	S	3	1.7000E+01	3.6279E+00	7.8660E+01
RH106M	2.167E+00	H	4	2.4405E-01	2.2694E-01	7.0112E+00
AG103F	1.094E+00	H	5	2.8780E+02	2.6675E+02	7.3156E+00
AG112F	3.140E+00	H	4	2.4505E-03	6.0251E-04	7.5413E+01
AG115F	2.000E+01	M	4	4.8215E-01	3.5437E-01	2.6503E+01
CD105F	5.550E+01	M	5	3.0760E+02	2.8180E+02	8.3876E+00
IN119M	1.800E+01	M	4	5.1512E-01	2.4939E-01	5.1587E+01
SN113M	2.140E+01	M	4	0.0000E+00	1.6507E+00	
SN130F	3.720E+00	M	4	1.5313E+01	1.2715E+01	1.6966E+01
SB126F	1.240E+01	J	4	5.3148E-01	1.5989E-01	6.9915E+01
SB130F	4.000E+01	M	4	3.0929E+00	2.6709E+00	1.3644E+01
TE118F	6.000E+00	J	4	3.3260E+01	1.9912E+01	4.0132E+01
TE131M	1.250E+00	J	4	8.9336E+00	2.9750E+00	6.6698E+01

	PERIODE		NX	ER(9)	SOMX	ECARX =(ER(9)-SOMX)*100./ER(9)
XE118F	6.000E+00	M	1	6.1970E+02	5.7232E+02	7.6456E+00
CS138F	3.220E+01	M	4	4.6587E-01	2.1491E-01	5.3869E+01
ND140F	3.370E+00	J	4	0.0000E+00	2.7469E+01	
ND152F	1.140E+01	M	4	1.3134E+00	1.2044E+00	8.3024E+00
PM138F	1.000E+01	S	5	5.3600E-01	9.5755E+02	-1.7855E+05
PM149F	2.212E+00	J	4	4.4657E-02	2.7669E-03	9.3804E+01
SM145F	3.400E+02	J	4	6.4557E+01	3.1016E+01	5.1956E+01
GD142F	1.500E+00	M	5	8.3300E+02	6.5402E+02	2.1487E+01
TB152F	1.750E+01	H	5	2.1910E+02	2.3364E+02	-6.6382E+00
HO146F	3.900E+00	S	1	1.7880E+02	2.0440E+02	-1.4318E+01
ER165F	1.036E+01	H	4	4.6730E+00	3.7828E+01	-7.0951E+02
YB163F	1.105E+01	M	5	2.6230E+02	2.4239E+02	7.5906E+00
YB169F	3.201E+01	J	4	1.1582E+02	5.7867E+01	5.0037E+01
TA179F	1.776E+00	A	4	0.0000E+00	2.7847E+01	
TA185F	4.900E+01	M	4	3.9925E+01	2.0222E+01	4.9349E+01
W178F	2.164E+01	J	4	0.0000E+00	1.6354E+01	
RE178F	1.320E+01	M	5	3.7020E+02	3.9193E+02	-5.8710E+00
OS189M	4.806E+00	H	1	3.9490E+00	2.0048E+00	4.9234E+01
IR190M	1.200E+00	H	1	0.0000E+00	2.1298E+00	
HG194F	5.200E+02	A	1	0.0000E+00	2.1362E+00	
TL190F	2.600E+00	M	5	3.4230E+02	3.2334E+02	5.5396E+00
TL201M	2.035E-03	S	4	7.2880E+00	7.6612E+00	-5.1212E+00
PB201M	1.020E+00	M	5	7.0000E+01	2.2981E+01	6.7171E+01
PB202F	5.264E+04	A	1	6.0075E+01	2.4720E+00	9.5885E+01
PB205F	1.521E+07	A	2	5.4601E+01	3.3259E+00	9.3909E+01
PO208F	2.900E+00	A	1	0.0000E+00	9.4261E-04	
AT201F	1.483E+00	M	5	0.0000E+00	2.3442E+02	
RN221F	2.500E+01	M	4	2.7171E+01	1.8309E+01	3.2617E+01
PA236F	9.100E+00	M	4	8.7761E+00	9.7549E-01	8.8885E+01
U231F	4.200E+00	J	4	8.2779E+01	5.4679E+01	3.3946E+01
PU235F	2.530E+01	M	4	8.6833E+01	8.1683E+01	5.9311E+00
AM237F	1.217E+00	H	4	1.3697E+02	8.4769E+01	3.8111E+01
AM238F	1.633E+00	H	4	8.5932E+01	7.7386E+01	9.9446E+00
AM239F	1.190E+01	H	4	1.8089E+02	7.7050E+01	5.7405E+01
ES254F	2.755E+02	J	4	1.5212E+03	8.2019E-04	1.0000E+02
FM253F	3.000E+00	J	4	8.5049E+01	6.5958E+01	2.2447E+01

TABLE 3 spectre.gamma+X

NG number of gamma rays

ER(0) average decay heat for γ spectrum

NX number of X rays

ER(9) average decay heat for X spectrum

$$ERGX = ER(0) + ER(9)$$

EGM $= \overline{E_{"\gamma"}}$.

$$ECAR1 = \frac{\overline{E_{"\gamma"}} - (ER(0) + ER(9))}{\overline{E_{"\gamma"}}} * 100$$

$$SOMGX = SOMG + SOMX$$

$$= FD_{\gamma} * \sum_{i=1}^{NG} \left(I_{\gamma_i} * E_{\gamma_i} \right) + FD_X * \sum_{i=1}^{NX} \left(I_{X_i} * E_{X_i} \right)$$

$$ECAR2 = \frac{\overline{E_{"\gamma"}} - (SOMG + SOMX)}{\overline{E_{"\gamma"}}} * 100$$

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
B 12F	2.020E-02	S	90.56	1	0	5.6818E+01	3.7262E+01	5.6818E+01	3.7262E+01
C 11F	2.039E+01	M	1019.54	0	1	0.0000E+00	1.0000E+02	1.0195E+03	-7.1240E-04
N 12F	1.100E-02	S	1085.00	4	1	1.0850E+03	3.3190E-03	9.3414E+01	9.1390E+01
O 13F	8.900E-03	S	1020.00	0	1	0.0000E+00	1.0000E+02	1.0220E+03	-1.9608E-01
O 15F	2.037E+00	M	1020.84	0	1	0.0000E+00	1.0000E+02	1.0210E+03	-1.3524E-02
NA 33F	8.200E-03	S	312.11	6	0	3.3000E+02	-5.7333E+00	3.2970E+02	-5.6386E+00
SI 25F	2.200E-01	S	1020.00	0	2	0.0000E+00	1.0000E+02	1.0220E+03	-1.9608E-01
P 36F	5.600E+00	S	6282.02	21	0	5.9000E+03	6.0812E+00	5.8845E+03	6.3276E+00
S 29F	1.870E-01	S	4611.62	24	2	2.4321E+04	-4.2739E+02	2.4308E+04	-4.2710E+02
CL 36F	3.022E+05	A	0.02	0	4	1.9990E-02	1.5716E+01	1.9990E-02	1.5715E+01
AR 37F	3.504E+01	J	0.32	0	3	2.2419E-01	3.0705E+01	2.2419E-01	3.0705E+01
K 46F	1.583E+00	M	2870.00	16	0	2.8700E+03	0.0000E+00	2.0717E+03	2.7816E+01
K 50F	4.720E-01	S	12529.10	8	0	1.4270E+04	-1.3895E+01	1.4273E+04	-1.3917E+01
CA 41F	1.031E+05	A	0.44	0	3	4.1049E-01	6.0908E+00	4.1049E-01	6.0908E+00
CA 45F	1.630E+02	J	77.00	1	3	1.1788E-05	1.0000E+02	1.1788E-05	1.0000E+02
CA 51F	1.000E+01	S	3033.15	22	0	2.6909E+03	1.1284E+01	2.6909E+03	1.1284E+01
TI 43F	4.900E-01	S	1022.00	0	4	0.0000E+00	1.0000E+02	1.0220E+03	-6.5693E-05
V 46F	4.224E-01	S	1020.99	0	1	2.6290E-01	9.9974E+01	1.0210E+03	1.1717E-03
V 49F	3.300E+02	J	0.95	0	3	8.9259E-01	5.7406E+00	8.9259E-01	5.7405E+00
CR 45F	5.000E-02	S	275.90	0	1	0.0000E+00	1.0000E+02	2.7594E+02	-1.4490E-02
CR 46F	2.600E-01	S	1022.00	0	4	2.6290E-01	9.9974E+01	1.0220E+03	-9.5554E-05
MN 50F	2.830E-01	S	1022.00	0	1	6.2490E-01	9.9939E+01	1.0220E+03	0.0000E+00
MN 58F	1.088E+00	M	2543.87	38	0	2.3908E+03	6.0172E+00	2.3908E+03	6.0160E+00
FE 49F	7.500E-02	S	300.00	0	1	1.0220E+03	-2.4067E+02	3.0660E+02	-2.2000E+00
FE 63F	6.100E+00	S	246.61	19	0	2.8000E+02	-1.3539E+01	2.7670E+02	-1.2199E+01
CO 53M	2.470E-01	S	1006.00	0	4	0.0000E+00	1.0000E+02	1.0210E+03	-1.4891E+00
CO 54F	1.932E-01	S	1020.91	0	1	1.3760E+00	9.9865E+01	1.0210E+03	-6.6660E-03
NI 53F	4.500E-02	S	459.90	0	4	1.0070E+03	-1.1896E+02	4.5990E+02	-2.2561E-04
NI 55F	1.890E-01	S	1021.00	0	4	7.7620E+02	2.3976E+01	1.0210E+03	1.9130E-03
NI 67F	1.800E+01	S	1186.32	16	0	8.9964E+03	-6.5835E+02	8.9964E+03	-6.5835E+02
CU 72F	6.600E+00	S	1942.48	25	0	1.8400E+03	5.2757E+00	1.8432E+03	5.1128E+00
CU 73F	3.900E+00	S	729.32	5	0	6.3518E+02	1.2908E+01	6.3518E+02	1.2908E+01
ZN 78F	1.470E+00	S	1537.78	56	0	1.4351E+03	6.6772E+00	1.4351E+03	6.6754E+00
GA 62F	1.161E-01	S	1022.00	0	4	8.9320E+01	9.1260E+01	1.0220E+03	-4.7180E-04
GA 75F	2.170E+00	M	67.09	37	0	6.2076E+01	7.4730E+00	6.2076E+01	7.4727E+00
GA 77F	1.320E+01	S	959.00	2	0	6.8950E+02	2.8102E+01	3.4296E-06	1.0000E+02
GA 79F	3.000E+00	S	1840.00	114	0	2.0800E+03	-1.3043E+01	2.0814E+03	-1.3121E+01
GA 80F	1.697E+00	S	5000.00	75	0	2.5800E+03	4.8400E+01	2.5754E+03	4.8493E+01
GA 81F	1.230E+00	S	2700.00	110	4	2.2900E+03	1.5185E+01	2.2834E+03	1.5428E+01
GA 82F	6.000E-01	S	4723.64	8	0	2.3185E+03	5.0917E+01	2.3185E+03	5.0916E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
GE 68F	2.708E+02	J	4.14	0	4	0.0000E+00	1.0000E+02	4.1457E+00	-1.3865E-01
GE 71F	1.144E+01	J	4.20	0	4	1.6740E-02	9.9601E+01	4.1900E+00	-2.3895E-01
GE 80F	2.950E+01	S	430.00	17	0	6.0000E+02	-3.9535E+01	6.0001E+02	-3.9536E+01
GE 82F	4.600E+00	S	880.00	5	0	1.0800E+03	-2.2727E+01	1.0800E+03	-2.2730E+01
AS 79F	9.010E+00	M	22.00	10	0	1.9316E+01	1.2200E+01	1.9316E+01	1.2200E+01
AS 80F	1.650E+01	S	810.00	21	0	5.5804E+02	3.1107E+01	5.5804E+02	3.1106E+01
AS 82F	1.910E+01	S	4220.00	8	0	3.3000E+02	9.2180E+01	3.2511E+02	9.2296E+01
AS 82M	1.360E+01	S	3360.00	12	0	2.7900E+03	1.6964E+01	2.7891E+03	1.6992E+01
AS 84F	5.500E+00	S	5340.00	18	0	1.5800E+03	7.0412E+01	1.5750E+03	7.0506E+01
AS 85F	2.028E+00	S	920.00	10	0	1.3800E+03	-5.0000E+01	1.3848E+03	-5.0527E+01
SE 70F	4.110E+01	M	945.46	36	5	9.9560E+02	-5.3038E+00	9.9989E+02	-5.7572E+00
SE 79M	3.910E+00	M	15.87	1	0	9.0438E+00	4.3028E+01	9.0439E+00	4.3027E+01
SE 81F	1.850E+01	M	10.72	8	0	9.2680E+00	1.3525E+01	9.2680E+00	1.3524E+01
SE 83F	2.233E+01	M	2410.00	98	0	2.6000E+03	-7.8838E+00	2.6056E+03	-8.1143E+00
SE 85F	3.170E+01	S	2380.00	47	0	2.2100E+03	7.1429E+00	2.2146E+03	6.9509E+00
SE 87F	5.800E+00	S	1313.00	11	0	2.2300E+03	-6.9840E+01	2.6557E+03	-1.0226E+02
SE 88F	1.530E+00	S	1351.00	13	4	5.6612E+03	-3.1904E+02	5.6650E+03	-3.1932E+02
BR 88F	1.650E+01	S	4290.00	166	0	3.2600E+03	2.4009E+01	3.2622E+03	2.3957E+01
BR 89F	4.380E+00	S	3220.00	92	0	1.5202E+03	5.2790E+01	1.5202E+03	5.2789E+01
BR 90F	1.710E+00	S	3080.00	8	0	1.2370E+03	5.9838E+01	1.2370E+03	5.9837E+01
KR 71F	9.700E-02	S	1022.00	0	5	6.1410E+02	3.9912E+01	1.0220E+03	-1.1347E-03
KR 75F	4.300E+00	M	1470.30	42	5	1.3210E+03	1.0154E+01	1.3290E+03	9.6088E+00
KR 79M	5.000E+01	S	42.06	1	0	3.5324E+01	1.6019E+01	3.5324E+01	1.6020E+01
KR 89F	3.170E+00	M	3130.00	261	0	1.7805E+03	4.3116E+01	1.7805E+03	4.3115E+01
KR 94F	2.000E-01	S	2176.57	18	0	1.7000E+03	2.1895E+01	1.8930E+03	1.3030E+01
RB 74F	6.490E-02	S	1019.97	0	5	8.8280E+02	1.3448E+01	1.0200E+03	6.5824E-05
RB 81M	3.048E+01	M	34.00	8	9	3.4130E+01	-3.8236E-01	2.7606E+01	1.8805E+01
RB 89F	1.515E+01	M	1740.00	62	0	2.0700E+03	-1.8966E+01	2.0683E+03	-1.8868E+01
RB 90M	4.300E+00	M	3690.00	96	6	3.2067E+03	1.3098E+01	3.2067E+03	1.3097E+01
RB 92F	4.510E+00	S	393.00	53	0	2.1500E+03	-4.4707E+02	2.1466E+03	-4.4621E+02
RB 93F	5.700E+00	S	1920.00	251	4	1.3800E+03	2.8124E+01	1.3743E+03	2.8421E+01
RB 94F	2.702E+00	S	4120.00	149	3	3.6600E+03	1.1165E+01	3.6601E+03	1.1163E+01
RB 95F	3.840E-01	S	3370.00	20	4	6.7015E+02	8.0114E+01	6.8227E+02	7.9755E+01
RB 96F	1.990E-01	S	4880.00	108	4	1.9400E+03	6.0245E+01	1.9349E+03	6.0351E+01
RB 97F	1.718E-01	S	4800.00	79	4	6.1343E+02	8.7220E+01	6.1458E+02	8.7196E+01
RB 98F	1.140E-01	S	1827.00	8	0	1.1300E+03	3.8148E+01	1.1300E+03	3.8148E+01
RB 99F	5.900E-02	S	1464.00	31	0	2.0474E+03	-3.9850E+01	2.0474E+03	-3.9852E+01
RB100F	5.100E-02	S	1948.00	2	0	2.3300E+02	8.8039E+01	2.3302E+02	8.8036E+01
SR 79F	2.250E+00	M	1283.58	14	5	1.2020E+03	6.3557E+00	1.1984E+03	6.6399E+00
SR 82F	2.556E+01	J	7.88	0	4	2.3539E+02	-2.8872E+03	7.8825E+00	-3.2120E-02
SR 83F	1.350E+00	J	800.00	137	5	7.4360E+02	7.0500E+00	8.0413E+02	-5.1646E-01
SR 87M	2.810E+00	H	51.01	1	8	3.2107E+02	-5.2946E+02	3.2107E+02	-5.2946E+02
SR 92F	2.710E+00	H	1130.00	10	0	1.3392E+03	-1.8513E+01	1.3392E+03	-1.8510E+01
SR 93F	7.320E+00	M	1760.00	136	6	1.9376E+03	-1.0091E+01	1.9376E+03	-1.0091E+01
SR 94F	1.268E+00	M	1450.00	5	0	1.2096E+03	1.6579E+01	1.2096E+03	1.6576E+01
SR 97F	4.200E-01	S	2500.00	66	4	2.2500E+03	9.9994E+00	2.2572E+03	9.7101E+00
SR 98F	6.500E-01	S	300.00	11	6	1.5998E+02	4.6672E+01	1.5998E+02	4.6672E+01
SR 99F	2.700E-01	S	3030.00	79	4	1.2603E+03	5.8407E+01	1.2604E+03	5.8403E+01
SR100F	2.020E-01	S	1375.00	67	0	5.1600E+02	6.2473E+01	5.1561E+02	6.2501E+01
SR101F	1.210E-01	S	1476.00	8	0	1.8074E+02	8.7755E+01	1.8074E+02	8.7755E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
Y 80F	3.380E+01	S	1415.94	9	0	1.0934E+03	2.2778E+01	1.0934E+03	2.2778E+01
Y 90F	2.667E+00	J	0.00	1	0	2.8171E-01	-9.0775E+04	2.8171E-01	-9.0775E+04
Y 94F	1.910E+01	M	900.00	42	0	7.6426E+02	1.5082E+01	7.6426E+02	1.5082E+01
Y 95F	1.030E+01	M	1060.00	44	0	1.2867E+03	-2.1389E+01	1.2867E+03	-2.1389E+01
Y 96F	6.200E+00	S	15.00	0	4	0.0000E+00	1.0000E+02	2.6317E+00	8.2455E+01
Y 96M	1.000E+01	S	3581.30	21	0	4.0310E+03	-1.2557E+01	4.0310E+03	-1.2557E+01
Y 97F	3.700E+00	S	1650.00	19	0	1.8137E+03	-9.9218E+00	1.8137E+03	-9.9222E+00
Y 97M	1.210E+00	S	1760.00	21	4	3.3614E+03	-9.0988E+01	3.3493E+03	-9.0303E+01
Y 98F	6.500E-01	S	3589.44	27	6	8.3226E+02	7.6814E+01	8.3226E+02	7.6814E+01
Y 98M	2.000E+00	S	3426.76	12	0	3.0931E+03	9.7381E+00	3.0931E+03	9.7379E+00
Y 99F	1.500E+00	S	1591.64	16	0	6.1360E+02	6.1449E+01	6.1360E+02	6.1448E+01
Y100F	7.350E-01	S	1840.00	73	0	1.9800E+03	-7.6087E+00	1.9833E+03	-7.7878E+00
Y102F	2.700E-01	S	3590.00	1	0	1.5190E+02	9.5769E+01	1.5190E+02	9.5769E+01
ZR 89M	4.180E+00	M	632.88	2	8	6.3288E+02	-6.6544E-04	5.4244E+02	1.4290E+01
ZR 97F	1.690E+01	H	193.20	40	4	8.9724E+02	-3.6441E+02	1.9257E+02	3.2581E-01
ZR 99F	2.100E+00	S	930.00	13	6	8.0784E+02	1.3136E+01	8.0784E+02	1.3136E+01
ZR100F	7.100E+00	S	774.00	8	0	2.4100E+02	6.8863E+01	2.4132E+02	6.8822E+01
ZR101F	2.000E+00	S	2765.00	6	0	4.0000E+01	9.8553E+01	1.8473E+03	3.3191E+01
ZR102F	2.900E+00	S	870.00	25	0	8.6000E+02	1.1494E+00	1.7836E+03	-1.0501E+02
ZR103F	1.300E+00	S	3108.00	20	0	1.8323E+03	4.1046E+01	1.8323E+03	4.1045E+01
ZR104F	1.200E+00	S	1107.00	8	0	1.4559E+03	-3.1518E+01	1.4559E+03	-3.1515E+01
NB 90M	1.882E+01	S	82.40	1	3	9.9400E+01	-2.0631E+01	8.2285E+01	1.3938E-01
NB 98F	2.800E+00	S	84.00	11	0	1.1649E+02	-3.8683E+01	1.1649E+02	-3.8683E+01
NB100F	1.500E+00	S	2942.00	39	0	7.1000E+02	7.5867E+01	7.0802E+02	7.5934E+01
NB101F	7.100E+00	S	649.00	14	0	3.0000E+02	5.3775E+01	1.2642E+03	-9.4791E+01
NB103F	1.500E+00	S	766.00	39	0	1.2200E+03	-5.9269E+01	1.2212E+03	-5.9426E+01
NB104M	4.800E+00	S	2903.37	4	0	3.1500E+03	-8.4946E+00	1.3715E+03	5.2762E+01
NB105F	2.950E+00	S	746.00	36	0	2.8800E+03	-2.8606E+02	2.8813E+03	-2.8623E+02
NB106F	1.020E+00	S	3390.00	12	0	4.0900E+03	-2.0649E+01	1.1121E+03	6.7194E+01
MO103F	1.125E+00	M	1058.00	3	0	1.3900E+03	-3.1380E+01	5.3626E+02	4.9314E+01
MO105F	3.670E+01	S	2393.00	20	0	1.7400E+03	2.7288E+01	3.9898E+02	8.3327E+01
MO106F	8.400E+00	S	611.00	4	0	5.9000E+02	3.4370E+00	1.0150E+03	-6.6127E+01
MO108F	1.500E+00	S	1067.88	3	0	1.1400E+03	-6.7536E+00	3.7694E+02	6.4702E+01
TC 97M	8.900E+01	J	16.67	1	0	3.1266E-01	9.8125E+01	3.1266E-01	9.8125E+01
TC103F	5.000E+01	S	263.51	53	6	2.3034E+02	1.2590E+01	2.3034E+02	1.2590E+01
TC105F	7.600E+00	M	491.47	77	6	4.5455E+02	7.5133E+00	4.5455E+02	7.5127E+00
TC106F	3.600E+01	S	2104.64	51	6	2.2257E+03	-5.7521E+00	2.2257E+03	-5.7524E+00
TC107F	2.100E+01	S	597.52	128	6	5.1461E+02	1.3875E+01	5.1462E+02	1.3874E+01
RU 92F	3.650E+00	M	2123.65	54	5	1.9612E+03	7.6496E+00	1.9598E+03	7.7168E+00
RU 97F	2.900E+00	J	243.75	18	0	2.2678E+02	6.9621E+00	2.2678E+02	6.9624E+00
RU105F	4.439E+00	H	711.70	81	4	7.4757E+02	-5.0396E+00	7.3997E+02	-3.9717E+00
RH100M	4.600E+00	M	46.30	11	5	4.6292E+01	1.7277E-02	4.2682E+01	7.8145E+00
RH105M	4.500E+01	S	40.91	1	0	2.5914E+01	3.6648E+01	2.5914E+01	3.6648E+01
RH110F	3.000E+00	S	66.35	1	0	5.6070E+01	1.5498E+01	5.6070E+01	1.5498E+01
RH111F	1.100E+01	S	208.00	38	0	5.3200E+02	-1.5577E+02	5.3164E+02	-1.5559E+02
RH114F	1.850E+00	S	473.08	5	0	4.1000E+02	1.3333E+01	4.0660E+02	1.4051E+01
RH114M	1.850E+00	S	2515.72	28	0	2.1800E+03	1.3345E+01	2.1806E+03	1.3320E+01
RH116F	6.800E-01	S	333.75	3	0	3.0000E+02	1.0112E+01	3.0407E+02	8.8914E+00
RH116M	9.000E-01	S	2392.14	12	0	2.1500E+03	1.0122E+01	2.1463E+03	1.0276E+01
PD100F	3.634E+00	J	104.62	16	4	1.1106E+02	-6.1516E+00	1.1154E+02	-6.6093E+00
PD109F	1.343E+01	H	1.08	35	6	6.4664E-01	4.0140E+01	6.4664E-01	4.0140E+01
PD109M	4.690E+00	M	100.36	1	0	8.9916E+01	1.0407E+01	8.9916E+01	1.0406E+01
PD111M	5.500E+00	H	382.93	79	12	3.5670E+02	6.8491E+00	3.5671E+02	6.8481E+00
PD112F	2.105E+01	H	5.17	1	1	5.1696E+00	9.6851E-04	1.8615E+01	-2.6008E+02
PD113F	1.550E+00	M	68.71	30	4	6.1873E+01	9.9505E+00	6.1890E+01	9.9259E+00

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
AG103M	5.700E+00	S	37.70	0	4	3.7674E+01	6.8958E-02	9.1697E+00	7.5677E+01
AG105M	7.233E+00	M	1.18	1	5	1.1778E+00	1.8642E-01	1.9917E-01	8.3121E+01
AG107M	4.430E+01	S	24.52	1	0	4.3489E+00	8.2266E+01	4.3489E+00	8.2266E+01
AG109M	3.960E+01	S	23.68	1	0	3.2748E+00	8.6169E+01	3.2748E+00	8.6169E+01
AG110F	2.460E+01	S	34.77	13	6	3.0635E+01	1.1899E+01	3.0635E+01	1.1899E+01
AG116M	1.050E+01	S	1306.15	7	0	1.1882E+03	9.0319E+00	1.1882E+03	9.0320E+00
AG118F	3.700E+00	S	892.72	8	6	8.0963E+02	9.3072E+00	8.0963E+02	9.3071E+00
AG120F	1.170E+00	S	1076.60	4	0	7.7749E+02	2.7783E+01	7.7749E+02	2.7783E+01
AG120M	3.200E-01	S	1696.44	5	6	1.2465E+03	2.6525E+01	1.2465E+03	2.6525E+01
AG121F	8.000E-01	S	844.00	53	0	2.0300E+03	-1.4052E+02	2.8967E+03	-2.4321E+02
CD102F	5.500E+00	M	780.43	17	5	9.5900E+02	-2.2881E+01	9.5926E+02	-2.2914E+01
CD104F	5.767E+01	M	186.38	7	5	2.5959E+02	-3.9278E+01	2.5839E+02	-3.8632E+01
CD107F	6.500E+00	H	50.21	36	0	8.8911E+00	8.2291E+01	8.8912E+00	8.2291E+01
CD113M	1.410E+01	A	0.71	1	4	7.0704E-01	-8.4302E-06	1.6214E-01	7.7068E+01
CD115M	4.460E+01	J	23.50	18	6	2.1990E+01	6.4082E+00	2.1990E+01	6.4079E+00
CD119F	2.690E+00	M	1674.49	30	6	1.4554E+03	1.3082E+01	1.4554E+03	1.3082E+01
CD119M	2.200E+00	M	2354.67	43	0	2.2047E+03	6.3699E+00	2.2047E+03	6.3696E+00
CD123F	2.200E+00	S	2849.00	116	0	2.1650E+03	2.4008E+01	2.1655E+03	2.3992E+01
CD126F	5.060E-01	S	769.11	11	0	6.3890E+02	1.6930E+01	6.3890E+02	1.6930E+01
CD127F	4.300E-01	S	3560.00	15	0	5.0540E+03	-4.1966E+01	5.0545E+03	-4.1979E+01
IN104F	1.700E+00	M	3570.33	19	5	3.2097E+03	1.0101E+01	3.2332E+03	9.4430E+00
IN106F	6.200E+00	M	3560.00	28	5	3.5529E+03	1.9943E-01	9.0746E+02	7.4509E+01
IN106M	5.200E+00	M	2950.00	31	5	2.9476E+03	8.1361E-02	2.1333E+03	2.7684E+01
IN112F	1.440E+01	M	30.90	10	4	1.5273E+02	-3.9426E+02	1.5273E+02	-3.9427E+02
IN118F	5.000E+00	S	347.11	5	0	3.2966E+02	5.0267E+00	3.2966E+02	5.0264E+00
IN121M	3.880E+00	M	69.16	11	12	6.3382E+01	8.3513E+00	6.3382E+01	8.3512E+00
IN131F	2.700E-01	S	2894.85	4	0	2.5200E+03	1.2949E+01	2.5200E+03	1.2948E+01
IN131N	3.200E-01	S	4663.16	6	0	6.0000E+03	-2.8668E+01	6.0368E+03	-2.9458E+01
SN107F	2.900E+00	M	1699.98	76	0	7.3900E+03	-3.3471E+02	7.3868E+03	-3.3452E+02
SN110F	4.111E+00	H	337.83	1	4	3.0088E+02	1.0937E+01	3.0089E+02	1.0933E+01
SN113M	2.140E+01	M	1.60	0	4	0.0000E+00	1.0000E+02	1.6507E+00	-3.1698E+00
SN123F	1.292E+02	J	8.00	9	6	6.8921E+00	1.3801E+01	6.8921E+00	1.3801E+01
SN129F	2.400E+00	M	2480.00	56	0	1.4667E+03	4.0859E+01	1.4667E+03	4.0858E+01
SN130F	3.720E+00	M	160.00	12	4	9.3627E+02	-4.8517E+02	9.3368E+02	-4.8355E+02
SN130M	1.700E+00	M	2352.00	8	4	3.2628E+02	8.6127E+01	3.2628E+02	8.6127E+01
SN131F	3.900E+01	S	2360.00	38	0	1.1900E+03	4.9576E+01	4.6602E+03	-9.7465E+01
SN131M	1.020E+00	M	2391.00	3	0	1.5951E+03	3.3287E+01	1.6326E+03	3.1721E+01
SN132F	4.000E+01	S	1660.00	10	4	1.2922E+03	2.2158E+01	1.2922E+03	2.2156E+01
SN133F	1.500E+00	S	2030.00	31	0	2.7252E+02	8.6575E+01	2.7252E+02	8.6575E+01
SB129M	1.770E+01	M	1365.00	29	0	2.2339E+03	-6.3656E+01	2.2339E+03	-6.3658E+01
TE113F	1.700E+00	M	2323.42	39	5	2.1729E+03	6.4784E+00	2.1681E+03	6.6828E+00
TE114F	1.517E+01	M	973.32	48	0	4.3200E+03	-3.4384E+02	4.3218E+03	-3.4402E+02
TE118F	6.000E+00	J	19.90	0	4	3.3260E+01	-6.7136E+01	1.9912E+01	-6.1399E-02
TE121M	1.539E+02	J	217.00	6	9	2.1733E+02	-1.5207E-01	1.8889E+02	1.2955E+01
TE135F	1.900E+01	S	480.00	41	0	5.1000E+02	-6.2500E+00	5.0968E+02	-6.1843E+00
TE136F	1.750E+01	S	1740.00	23	4	2.0434E+03	-1.7438E+01	2.0426E+03	-1.7393E+01
TE137F	2.490E+00	S	182.20	13	0	1.8200E+03	-8.9891E+02	1.1093E+04	-5.9884E+03
I136M	4.500E+01	S	2510.00	28	0	2.1322E+03	1.5052E+01	2.1321E+03	1.5054E+01
I137F	2.450E+01	S	1230.00	244	0	1.1319E+03	7.9789E+00	1.1319E+03	7.9781E+00
I138F	6.410E+00	S	1560.00	100	0	1.3600E+03	1.2821E+01	1.3594E+03	1.2861E+01
I139F	2.290E+00	S	1400.00	103	4	7.5033E+03	-4.3595E+02	7.5073E+03	-4.3623E+02
I140F	8.600E-01	S	4120.00	1	0	1.6100E+03	6.0922E+01	2.2341E+02	9.4577E+01
I141F	4.800E-01	S	1787.00	4	0	4.0190E+04	-2.1490E+03	9.7327E+02	4.5536E+01

	PERIODE	EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
					ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
XE114F	1.000E+01 S	178.56	3	0	1.9000E+02	-6.4056E+00	1.9382E+02	-8.5460E+00
XE118F	6.000E+00 M	570.00	0	1	6.1970E+02	-8.7193E+00	5.7232E+02	-4.0702E-01
XE121F	4.010E+01 M	1644.23	250	5	1.8128E+03	-1.0252E+01	1.8414E+03	-1.1992E+01
XE122F	2.011E+01 H	148.61	22	4	6.8790E+01	5.3710E+01	6.8982E+01	5.3581E+01
XE125F	1.700E+01 H	254.80	39	4	2.6797E+02	-5.1680E+00	2.6796E+02	-5.1651E+00
XE125M	5.700E+01 S	133.22	2	0	9.6870E+01	2.7286E+01	9.6870E+01	2.7286E+01
XE137F	3.818E+00 M	235.00	79	0	1.9070E+02	1.8851E+01	1.9009E+02	1.9112E+01
XE139F	3.968E+01 S	920.00	266	4	1.0155E+03	-1.0383E+01	1.0157E+03	-1.0405E+01
XE142F	1.220E+00 S	1013.00	165	0	1.0800E+03	-6.6140E+00	8.4094E+03	-7.3014E+02
XE143F	3.000E-01 S	2016.00	1	0	2.4200E+03	-2.0040E+01	1.7250E+02	9.1443E+01
CS114F	5.700E-01 S	709.75	7	0	6.6800E+02	5.8824E+00	6.6761E+02	5.9368E+00
CS120F	1.010E+00 M	2766.64	116	4	1.9810E+04	-6.1603E+02	1.9805E+04	-6.1586E+02
CS122F	2.100E+01 S	1234.74	44	5	1.3246E+03	-7.2776E+00	1.3284E+03	-7.5876E+00
CS122M	4.500E+00 M	3129.09	61	5	3.3695E+03	-7.6831E+00	3.3772E+03	-7.9282E+00
CS123M	1.600E+00 S	159.00	2	0	3.4000E+02	-1.1384E+02	3.3995E+02	-1.1381E+02
CS139F	9.267E+00 M	299.00	179	0	3.5000E+02	-1.7057E+01	3.5422E+02	-1.8470E+01
CS140F	1.062E+00 M	1590.00	157	6	2.0980E+03	-3.1948E+01	2.0980E+03	-3.1949E+01
CS141F	2.494E+01 S	1140.00	193	4	7.8102E+02	3.1489E+01	7.8175E+02	3.1425E+01
CS142F	1.800E+00 S	1351.15	57	6	8.8062E+02	3.4824E+01	8.8063E+02	3.4824E+01
CS143F	1.770E+00 S	1450.00	84	4	4.1043E+02	7.1694E+01	4.1088E+02	7.1663E+01
CS144F	1.010E+00 S	2660.00	31	4	1.3152E+03	5.0557E+01	1.3149E+03	5.0567E+01
CS145F	5.940E-01 S	3920.00	129	4	6.5889E+02	8.3192E+01	6.5833E+02	8.3206E+01
CS146F	3.430E-01 S	2220.00	52	4	8.1720E+02	6.3189E+01	8.1718E+02	6.3190E+01
CS147F	2.200E-01 S	1388.60	44	4	1.1515E+02	9.1708E+01	8.2662E+02	4.0471E+01
BA124F	1.183E+01 M	325.23	11	0	3.4775E+02	-6.9230E+00	3.4775E+02	-6.9245E+00
BA126F	1.667E+00 H	519.66	87	5	5.8407E+02	-1.2394E+01	5.8815E+02	-1.3180E+01
BA129F	2.222E+00 H	815.66	180	4	3.9631E+04	-4.7588E+03	3.9628E+04	-4.7585E+03
BA131F	1.180E+01 J	470.80	48	0	4.2756E+02	9.1844E+00	4.2757E+02	9.1829E+00
BA141F	1.827E+01 M	965.64	110	6	8.3621E+02	1.3404E+01	8.3622E+02	1.3403E+01
BA142F	1.060E+01 M	760.00	90	4	1.0794E+03	-4.2032E+01	1.0701E+04	-1.3080E+03
BA143F	1.450E+01 S	870.00	71	2	3.4713E+02	6.0100E+01	3.4713E+02	6.0100E+01
BA146F	2.220E+00 S	880.00	247	0	8.3300E+02	5.3409E+00	8.3288E+02	5.3541E+00
BA147F	7.200E-01 S	1440.00	115	0	2.5817E+04	-1.6928E+03	2.5817E+04	-1.6928E+03
BA148F	6.100E-01 S	1291.00	66	4	2.0066E+02	8.4457E+01	2.0063E+02	8.4459E+01
LA135F	1.950E+01 H	35.70	12	4	3.5690E+01	2.8007E-02	3.3839E+01	5.2140E+00
LA137F	6.000E+04 A	30.36	0	4	2.5262E+01	1.6805E+01	2.5262E+01	1.6805E+01
LA141F	3.930E+00 H	46.06	28	0	4.2946E+01	6.7562E+00	4.2946E+01	6.7560E+00
LA143F	1.413E+01 M	130.00	76	0	2.6600E+02	-1.0462E+02	2.6603E+02	-1.0464E+02
LA145F	2.420E+01 S	1480.00	70	6	6.5038E+02	5.6055E+01	6.5039E+02	5.6055E+01
LA146F	6.270E+00 S	2280.00	186	4	1.2623E+03	4.4634E+01	1.2623E+03	4.4635E+01
LA147F	4.000E+00 S	1260.00	46	4	2.8168E+02	7.7645E+01	2.8168E+02	7.7645E+01
CE127F	3.200E+01 S	4.09	1	0	4.3000E+00	-5.2632E+00	4.2632E+00	-4.3623E+00
CE131F	1.000E+01 M	738.56	79	4	7.9073E+02	-7.0640E+00	7.9048E+02	-7.0300E+00
CE131M	5.000E+00 M	184.22	3	0	1.9700E+02	-6.9385E+00	1.9698E+02	-6.9250E+00
CE145F	3.017E+00 M	770.00	53	4	8.5946E+02	-1.1618E+01	8.6297E+02	-1.2074E+01
CE147F	5.500E+01 S	620.00	34	4	1.3757E+02	7.7811E+01	1.3757E+02	7.7811E+01
CE149F	5.200E+00 S	2637.00	22	0	1.5300E+03	4.1980E+01	4.7903E+02	8.1834E+01
CE150F	4.000E+00 S	821.00	27	0	6.3000E+02	2.3264E+01	1.2899E+03	-5.7109E+01
PR134F	1.700E+01 M	2033.31	29	0	1.4400E+04	-6.0820E+02	1.4377E+04	-6.0706E+02
PR134M	1.100E+01 M	2033.65	33	0	9.6000E+03	-3.7206E+02	9.5690E+03	-3.7053E+02
PR143F	1.358E+01 J	0.31	1	0	8.9040E-06	9.9997E+01	8.9040E-06	9.9997E+01
PR144F	1.728E+01 M	28.90	8	0	2.8900E+01	0.0000E+00	9.5180E+00	6.7066E+01
PR144M	7.200E+00 M	12.70	1	4	1.2710E+01	-7.8742E-02	1.1861E+01	6.6090E+00
PR145F	5.980E+00 H	27.71	58	6	2.5842E+01	6.7422E+00	2.5842E+01	6.7415E+00
PR147F	1.360E+01 M	840.00	64	6	7.3731E+02	1.2225E+01	7.3732E+02	1.2224E+01
PR149F	2.267E+00 M	417.83	87	4	3.6928E+02	1.1620E+01	3.6943E+02	1.1584E+01
PR150F	6.100E+00 S	2315.00	4	0	2.3400E+03	-1.0799E+00	1.5138E+02	9.3461E+01
PR151F	1.890E+01 S	655.00	27	0	4.5000E+02	3.1298E+01	4.4667E+02	3.1807E+01

	PERIODE		EGM	NG	NX	ERGX ER(0)+ER(9)	ECAR1 (EGM-ERGX)*100./EGM	SOMGX SOMG+SOMX	ECAR2 (EGM-SOMGX)*100./EGM
ND137F	3.850E+01	M	1166.38	174	5	1.1011E+03	5.5968E+00	1.1026E+03	5.4724E+00
ND138F	5.028E+00	H	47.50	13	4	4.3320E+01	8.8002E+00	4.3092E+01	9.2803E+00
ND140F	3.370E+00	J	27.44	0	4	0.0000E+00	1.0000E+02	2.7469E+01	-1.0540E-01
ND154F	2.590E+01	S	396.00	51	0	4.2000E+02	-6.0606E+00	4.2471E+02	-7.2504E+00
PM135F	4.900E+01	S	2658.46	32	0	2.8800E+03	-8.3334E+00	2.8833E+03	-8.4573E+00
PM136F	1.783E+00	M	2629.97	27	4	1.6409E+04	-5.2394E+02	1.6414E+04	-5.2413E+02
PM137F	2.400E+00	M	1725.85	96	5	1.5799E+03	8.4567E+00	1.5825E+03	8.3082E+00
PM138F	1.000E+01	S	957.54	0	5	5.3600E-01	9.9944E+01	9.5755E+02	-5.6093E-04
PM149F	2.212E+00	J	0.41	28	4	4.0830E-01	7.2991E-04	3.6641E-01	1.0260E+01
PM153F	5.400E+00	M	53.67	9	0	4.8659E+01	9.3304E+00	4.8659E+01	9.3311E+00
PM155F	4.800E+01	S	296.00	5	0	1.1226E+02	6.2074E+01	1.1226E+02	6.2075E+01
SM136F	4.270E+01	S	308.27	22	4	3.5062E+02	-1.3738E+01	3.5100E+02	-1.3861E+01
SM145F	3.400E+02	J	72.14	2	4	7.2143E+01	4.1244E-04	3.8602E+01	4.6493E+01
SM151F	8.879E+01	A	0.01	1	0	6.8000E-03	4.8092E+01	6.7636E-03	4.8370E+01
SM155F	2.210E+01	M	104.48	52	0	9.4197E+01	9.8421E+00	9.4197E+01	9.8417E+00
SM156F	9.400E+00	H	124.73	11	0	1.1751E+02	5.7885E+00	1.1751E+02	5.7854E+00
EU138F	1.210E+01	S	3066.64	23	0	2.2060E+04	-6.1935E+02	2.2062E+04	-6.1942E+02
EU142F	2.400E+00	S	1136.36	8	5	1.2290E+03	-8.1523E+00	1.2292E+03	-8.1736E+00
EU142M	1.220E+00	M	3150.92	32	5	3.4130E+03	-8.3176E+00	3.4130E+03	-8.3181E+00
EU146F	4.595E+00	J	2170.00	155	5	2.1694E+03	2.9027E-02	1.8996E+03	1.2463E+01
EU150M	1.262E+01	H	89.50	15	0	8.6600E+01	3.2348E+00	8.1125E+01	9.3524E+00
GD142F	1.500E+00	M	654.00	0	5	8.3300E+02	-2.7370E+01	6.5402E+02	-2.5198E-03
GD144F	4.500E+00	M	1233.32	62	0	7.1360E+03	-4.7860E+02	7.1367E+03	-4.7866E+02
GD147F	1.588E+00	J	1250.02	167	5	1.3220E+03	-5.7615E+00	1.3263E+03	-6.1020E+00
GD163F	1.133E+00	M	1988.00	11	0	5.8000E+02	7.0825E+01	5.8373E+02	7.0637E+01
TB146M	2.300E+01	S	3530.00	10	5	3.5328E+03	-7.9321E-02	3.1696E+03	1.0210E+01
TB156N	1.019E+00	J	36.83	0	1	3.6836E+01	-1.6292E-02	2.5707E-01	9.9302E+01
TB157F	9.830E+01	A	20.93	1	4	1.1300E+02	-4.3983E+02	1.1295E+02	-4.3958E+02
DY146F	2.900E+01	S	157.41	2	0	1.7000E+02	-8.0003E+00	1.6534E+02	-5.0417E+00
DY146M	1.500E-01	S	2935.60	9	4	3.1042E+03	-5.7435E+00	3.1042E+03	-5.7431E+00
DY149F	4.233E+00	M	2250.00	52	1	2.2450E+03	2.2222E-01	1.9280E+03	1.4312E+01
DY152F	2.369E+00	H	250.14	1	4	2.8711E+02	-1.4778E+01	2.8714E+02	-1.4790E+01
HO158F	1.100E+01	M	1406.65	243	0	5.0100E+04	-3.4617E+03	5.0175E+04	-3.4670E+03
HO158N	2.133E+01	M	2735.70	11	5	2.7357E+03	7.3179E-04	2.4162E+03	1.1678E+01
HO160M	5.019E+00	H	13220.00	347	0	1.3220E+05	-9.0000E+02	1.3226E+05	-9.0048E+02
HO161F	2.481E+00	H	15.50	9	0	1.5500E+01	0.0000E+00	7.3219E+00	5.2762E+01
HO164F	2.900E+01	M	26.95	2	8	2.9930E+01	-1.1039E+01	2.9956E+01	-1.1136E+01
HO170M	4.300E+01	S	2028.70	31	0	1.3333E+03	3.4278E+01	4.8769E+03	-1.4040E+02
ER148F	4.500E+00	S	858.63	2	5	9.4211E+02	-9.7225E+00	9.4207E+02	-9.7178E+00
ER150F	1.850E+01	S	791.47	1	1	8.4370E+02	-6.5990E+00	8.4372E+02	-6.6015E+00
ER156F	1.950E+01	M	15.06	6	4	1.3774E+01	8.5556E+00	1.3742E+01	8.7671E+00
ER158F	2.250E+00	H	129.60	36	4	1.4462E+02	-1.1590E+01	1.4428E+02	-1.1331E+01
ER165F	1.036E+01	H	37.80	0	4	4.6730E+00	8.7638E+01	3.7828E+01	-7.5022E-02
ER167M	2.280E+00	S	118.28	1	0	8.6590E+01	2.6792E+01	8.6590E+01	2.6792E+01
ER169F	9.300E+00	J	0.02	3	0	1.8347E-02	9.8029E+00	1.8347E-02	9.8020E+00
ER172F	2.054E+00	J	504.00	37	4	5.0370E+02	5.9521E-02	2.3210E+02	5.3949E+01
TM151F	5.200E+00	S	1185.53	1	0	9.8440E+02	1.6965E+01	9.8440E+02	1.6965E+01
TM151M	4.130E+00	S	1698.32	9	0	1.4100E+03	1.6977E+01	1.4114E+03	1.6895E+01
TM157F	3.500E+00	M	1543.32	144	4	9.1599E+03	-4.9352E+02	9.1636E+03	-4.9376E+02
TM159F	9.150E+00	M	1333.32	130	5	7.2907E+03	-4.4681E+02	7.3001E+03	-4.4751E+02
TM161F	3.800E+01	M	899.17	232	0	1.0200E+03	-1.3439E+01	1.0235E+03	-1.3832E+01
TM162M	2.430E+01	S	300.00	18	5	3.0490E+02	-1.6333E+00	4.4054E+02	-4.6847E+01
TM176F	1.900E+00	M	1706.03	86	0	1.9300E+03	-1.3128E+01	1.9278E+03	-1.3002E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
YB151F	1.600E+00	S	1202.50	3	4	1.0384E+03	1.3644E+01	1.0390E+03	1.3599E+01
YB158F	1.650E+00	M	61.25	1	4	5.6600E+01	7.5974E+00	5.6654E+01	7.5085E+00
YB160F	4.800E+00	M	279.29	29	5	3.4140E+02	-2.2240E+01	3.3611E+02	-2.0346E+01
YB162F	1.887E+01	M	233.35	45	5	2.4665E+02	-5.6978E+00	2.4702E+02	-5.8583E+00
YB164F	1.264E+00	H	13.44	37	4	1.4717E+01	-9.4933E+00	1.4338E+01	-6.6722E+00
YB169F	3.201E+01	J	326.84	36	4	3.2683E+02	3.0626E-03	2.6888E+02	1.7733E+01
LU160F	3.550E+01	S	2566.64	22	0	8.8900E+03	-2.4637E+02	8.8882E+03	-2.4630E+02
LU165F	1.073E+01	M	1305.32	136	4	5.2340E+03	-3.0097E+02	5.2334E+03	-3.0093E+02
LU169F	1.419E+00	J	1214.00	316	5	1.3133E+03	-8.1813E+00	1.3131E+03	-8.1614E+00
HF162F	3.760E+01	S	308.28	3	0	2.9200E+02	5.2803E+00	2.9187E+02	5.3232E+00
HF167F	2.050E+00	M	682.79	3	5	7.3400E+02	-7.5000E+00	7.3405E+02	-7.5074E+00
HF170F	1.600E+01	H	495.45	93	4	5.4555E+02	-1.0113E+01	5.4261E+02	-9.5182E+00
HF171F	1.211E+01	H	799.99	187	4	1.9892E+04	-2.3865E+03	1.9935E+04	-2.3919E+03
HF175F	7.000E+01	J	398.36	8	6	3.6054E+02	9.4921E+00	3.6054E+02	9.4921E+00
HF177M	1.080E+00	S	1070.00	32	4	1.0671E+03	2.7171E-01	9.1669E+02	1.4328E+01
HF178M	4.000E+00	S	1147.40	14	0	2.4222E+03	-1.1110E+02	2.4222E+03	-1.1110E+02
HF178N	3.100E+01	A	1595.50	14	0	1.3059E+03	1.8151E+01	2.3919E+03	-4.9915E+01
HF180M	5.500E+00	H	93.33	6	0	9.3332E+01	0.0000E+00	1.1467E+03	-1.1286E+03
HF182F	9.000E+06	A	212.22	5	0	2.3064E+02	-8.6802E+00	2.3064E+02	-8.6813E+00
HF182M	1.025E+00	H	980.45	28	0	8.9127E+02	9.0958E+00	8.9127E+02	9.0953E+00
TA169F	4.900E+00	M	1499.98	19	1	8.2086E+03	-4.4725E+02	8.1681E+03	-4.4455E+02
TA173F	3.139E+00	H	536.00	198	5	5.3637E+02	-6.9598E-02	5.0194E+02	6.3551E+00
TA175F	1.050E+01	H	841.89	137	5	9.2732E+02	-1.0148E+01	9.2534E+02	-9.9128E+00
TA179F	1.776E+00	A	28.00	0	4	0.0000E+00	1.0000E+02	2.7847E+01	5.4633E-01
TA183F	5.100E+00	J	328.49	32	0	2.3651E+02	2.8001E+01	2.3651E+02	2.8001E+01
TA185F	4.900E+01	M	164.59	27	4	1.6460E+02	-3.0315E-03	1.4510E+02	1.1843E+01
W174F	2.933E+01	M	566.66	30	0	2.6000E+03	-3.5883E+02	2.5995E+03	-3.5874E+02
W176F	2.306E+00	H	155.72	6	4	1.7734E+02	-1.3888E+01	1.7737E+02	-1.3903E+01
W178F	2.164E+01	J	18.31	0	4	0.0000E+00	1.0000E+02	1.6354E+01	1.0704E+01
W179M	6.400E+00	M	20.90	2	8	2.0946E+01	-2.2058E-01	1.9492E+01	6.7362E+00
W185F	7.510E+01	J	0.05	1	0	2.3317E-02	5.3366E+01	2.3317E-02	5.3366E+01
RE177F	1.400E+01	M	572.33	22	5	6.0620E+02	-5.9174E+00	6.0645E+02	-5.9618E+00
RE184M	1.655E+02	J	389.00	32	8	3.8965E+02	-1.6709E-01	3.6859E+02	5.2468E+00
RE186M	1.998E+05	A	60.00	7	4	6.4035E+01	-6.7250E+00	6.1646E+01	-2.7439E+00
OS174F	4.400E+01	S	465.30	7	0	5.0760E+02	-9.0909E+00	5.0762E+02	-9.0952E+00
OS176F	3.000E+00	M	966.66	5	0	3.5310E+03	-2.6528E+02	3.5305E+03	-2.6523E+02
OS179F	6.500E+00	M	1203.32	60	0	1.0600E+04	-7.8090E+02	1.0668E+04	-7.8651E+02
OS180F	2.150E+01	M	5.60	1	1	5.5970E+00	5.3576E-02	2.0760E+00	6.2929E+01
OS182F	2.211E+01	H	461.48	32	4	4.3248E+02	6.2837E+00	4.3196E+02	6.3971E+00
OS185F	9.363E+01	J	713.00	13	4	7.1349E+02	-6.8722E-02	1.8188E+02	7.4491E+01
OS189M	4.806E+00	H	2.01	0	1	3.9490E+00	-9.6468E+01	2.0048E+00	2.6119E-01
OS196F	3.490E+01	M	96.11	10	0	6.9600E+01	2.7586E+01	6.9586E+01	2.7601E+01
IR181F	4.900E+00	M	1333.32	31	4	4.1695E+03	-2.1271E+02	4.1745E+03	-2.1309E+02
IR183F	5.500E+01	M	2739.19	34	4	2.5695E+03	6.1941E+00	2.5673E+03	6.2755E+00
IR184F	3.019E+00	H	1722.47	188	5	1.8958E+03	-1.0063E+01	1.8958E+03	-1.0065E+01
IR185F	1.389E+01	H	833.33	179	0	1.0710E+04	-1.1852E+03	1.0699E+04	-1.1839E+03
IR187F	1.050E+01	H	500.00	113	4	5.5764E+04	-1.1053E+04	5.5836E+04	-1.1067E+04
IR189F	1.319E+01	J	82.84	29	4	7.8213E+01	5.5810E+00	7.7976E+01	5.8673E+00
IR190M	1.200E+00	H	2.13	0	1	0.0000E+00	1.0000E+02	2.1298E+00	1.1261E-02
IR190N	3.194E+00	H	1548.00	5	8	1.5485E+03	-3.1046E-02	9.7467E+02	3.7037E+01
IR192M	1.440E+00	M	0.16	3	0	1.5793E-01	0.0000E+00	5.8158E+01	-3.6725E+04
IR194N	3.185E-02	S	112.20	2	0	1.6500E+02	-4.7059E+01	1.1220E+02	0.0000E+00
IR197F	5.800E+00	M	718.33	41	0	3.7100E+04	-5.0648E+03	3.7100E+04	-5.0648E+03

PERIODE	EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
				ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
PT182F	2.600E+00 M	182.55	4	0	1.9700E+02	-7.9139E+00	1.9670E+02	-7.7517E+00
PT184F	1.730E+01 M	1815.65	33	0	1.6000E+03	1.1877E+01	1.6023E+03	1.1749E+01
PT187F	2.350E+00 H	966.66	64	0	5.1200E+03	-4.2966E+02	5.1201E+03	-4.2967E+02
PT188F	1.019E+01 J	194.83	16	4	2.0665E+02	-6.0646E+00	2.0645E+02	-5.9623E+00
PT200F	1.250E+01 H	57.06	36	4	6.0220E+01	-5.5397E+00	6.0224E+01	-5.5461E+00
AU182F	2.100E+01 S	970.00	35	4	9.6580E+02	4.3344E-01	8.9409E+02	7.8257E+00
AU187F	8.400E+00 M	1576.76	275	5	1.4435E+03	8.4515E+00	1.4420E+03	8.5473E+00
AU189M	4.590E+00 M	207.70	2	0	2.2800E+02	-9.7732E+00	2.2771E+02	-9.6331E+00
AU192M	2.900E-02 S	431.70	10	0	0.0000E+00	1.0000E+02	7.8990E-07	1.0000E+02
AU193F	1.764E+01 H	137.15	65	4	1.7421E+02	-2.7023E+01	1.7326E+02	-2.6335E+01
AU193M	3.900E+00 S	163.48	4	4	1.9778E+02	-2.0981E+01	1.9747E+02	-2.0789E+01
AU198M	2.300E+00 J	812.00	6	0	5.8742E+02	2.7658E+01	5.8742E+02	2.7657E+01
AU199F	3.139E+00 J	108.37	3	0	7.6043E+01	2.9830E+01	7.6045E+01	2.9828E+01
AU202F	2.880E+01 S	151.92	13	0	1.7000E+02	-1.1902E+01	1.6970E+02	-1.1704E+01
AU204F	3.980E+01 S	1902.50	25	0	2.0000E+03	-5.1248E+00	1.9997E+03	-5.1095E+00
HG182F	1.130E+01 S	430.00	3	0	4.3000E+02	0.0000E+00	1.4657E-06	1.0000E+02
HG184F	3.060E+01 S	472.47	13	0	5.1700E+02	-9.4240E+00	5.1740E+02	-9.5092E+00
HG188F	3.250E+00 M	645.77	19	0	7.3000E+02	-1.3044E+01	5.4403E+02	1.5755E+01
HG189F	7.600E+00 M	3112.98	36	4	3.3187E+03	-6.6097E+00	3.3144E+03	-6.4700E+00
HG189M	8.700E+00 M	1316.99	254	4	1.7368E+04	-1.2188E+03	1.7349E+04	-1.2173E+03
HG190F	2.000E+01 M	120.72	21	4	1.5562E+02	-2.8915E+01	1.5639E+02	-2.9548E+01
HG191F	4.833E+01 M	437.96	7	0	4.6000E+02	-5.0315E+00	3.9239E+02	1.0406E+01
HG191M	5.083E+01 M	1450.00	80	5	1.4429E+03	4.8645E-01	1.5227E+03	-5.0164E+00
HG192F	4.861E+00 H	253.75	24	4	2.7932E+02	-1.0079E+01	2.7942E+02	-1.0115E+01
HG193M	1.181E+01 H	1117.65	126	9	1.2040E+03	-7.7233E+00	1.2051E+03	-7.8208E+00
HG194F	5.200E+02 A	2.10	0	1	0.0000E+00	1.0000E+02	2.1362E+00	-1.7238E+00
HG197F	2.671E+00 J	140.84	3	0	1.5189E+01	8.9216E+01	1.5189E+01	8.9216E+01
HG197M	2.380E+01 H	118.80	7	12	9.4464E+01	2.0482E+01	9.4464E+01	2.0482E+01
HG199M	4.260E+01 M	244.42	3	0	1.3620E+02	4.4276E+01	1.3620E+02	4.4276E+01
HG205F	5.200E+00 M	5.60	12	0	4.7953E+00	1.4334E+01	4.7953E+00	1.4335E+01
TL188F	1.183E+00 M	55.14	1	0	4.1000E+01	2.5641E+01	4.1280E+01	2.5133E+01
TL191M	5.217E+00 M	1532.98	158	4	6.6736E+03	-3.3534E+02	6.7189E+03	-3.3829E+02
TL193F	2.167E+01 M	1212.65	48	4	4.7948E+03	-2.9540E+02	4.7987E+03	-2.9572E+02
TL193M	2.117E+00 M	234.77	2	0	2.5600E+02	-9.0434E+00	2.5649E+02	-9.2521E+00
TL197F	2.839E+00 H	415.86	76	5	4.6144E+02	-1.0962E+01	4.5913E+02	-1.0404E+01
TL202F	1.223E+01 J	490.72	3	0	4.0765E+02	1.6928E+01	4.0765E+02	1.6928E+01
TL206F	4.200E+00 M	1.41	1	0	4.4182E-02	9.6872E+01	4.4182E-02	9.6872E+01
TL207F	4.770E+00 M	3.34	2	7	2.1868E+00	3.4551E+01	2.1868E+00	3.4551E+01
PB196F	3.700E+01 M	813.09	12	0	8.6000E+02	-5.7692E+00	8.5738E+02	-5.4473E+00
PB199F	1.500E+00 H	1148.00	119	5	1.0592E+03	7.7310E+00	1.0559E+03	8.0191E+00
PB199M	1.220E+01 M	148.30	2	4	1.3827E+02	6.7621E+00	1.1197E+02	2.4495E+01
PB201M	1.020E+00 M	366.00	0	5	4.3600E+02	-1.9126E+01	2.2981E+01	9.3721E+01
PB202F	5.264E+04 A	2.56	0	1	6.0075E+01	-2.2499E+03	2.4720E+00	3.3061E+00
PB203F	2.169E+00 J	340.87	3	0	2.4220E+02	2.8947E+01	2.4220E+02	2.8948E+01
PB205F	1.521E+07 A	54.60	0	2	5.4601E+01	9.1522E-04	3.3259E+00	9.3909E+01
BI207F	3.800E+01 A	1568.60	7	0	1.4787E+03	5.7312E+00	1.4787E+03	5.7328E+00
BI210F	5.013E+00 J	0.68	2	6	3.0648E-04	9.9955E+01	3.0648E-04	9.9955E+01
PO208F	2.900E+00 A	0.02	0	1	0.0000E+00	1.0000E+02	9.4261E-04	9.5039E+01
PO209F	1.021E+02 A	5.15	11	14	5.1495E+00	7.6017E-03	3.2855E+00	3.6202E+01
PO218F	3.050E+00 M	0.01	1	7	9.2116E-03	5.1852E+00	9.2116E-03	5.1852E+00
AT201F	1.483E+00 M	80.00	0	5	0.0000E+00	1.0000E+02	2.3442E+02	-1.9302E+02
AT203F	7.370E+00 M	2957.14	20	0	3.1500E+03	-6.5218E+00	3.1563E+03	-6.7343E+00
AT212M	1.190E-01 S	8.84	1	0	4.8510E+00	4.5102E+01	4.8510E+00	4.5102E+01

	PERIODE		EGM	NG	NX	ERGX	ECAR1	SOMGX	ECAR2
						ER(0)+ER(9)	(EGM-ERGX)*100./EGM	SOMG+SOMX	(EGM-SOMGX)*100./EGM
RN206F	5.667E+00	M	974.20	31	0	1.1000E+03	-1.2913E+01	1.0935E+03	-1.2249E+01
RN210F	2.389E+00	H	61.00	40	4	6.0349E+01	1.0674E+00	5.7450E+01	5.8194E+00
RN221F	2.500E+01	M	106.78	48	4	1.0678E+02	-9.3599E-04	9.7918E+01	8.2989E+00
FR211F	3.100E+00	M	407.53	7	0	4.4500E+02	-9.1942E+00	4.4492E+02	-9.1755E+00
RA213M	2.100E-03	S	1630.00	3	8	1.6345E+03	-2.7897E-01	8.5429E+01	9.4759E+01
RA227F	4.220E+01	M	162.33	56	0	1.4689E+02	9.5115E+00	1.4689E+02	9.5140E+00
RA230F	1.550E+00	H	300.00	48	0	9.2100E+02	-2.0700E+02	9.2135E+02	-2.0712E+02
AC224F	2.900E+00	H	266.17	46	0	1.5617E+02	4.1327E+01	1.5617E+02	4.1328E+01
AC226F	1.208E+00	J	212.79	6	0	1.9540E+02	8.1724E+00	1.9540E+02	8.1735E+00
AC229F	1.045E+00	H	439.66	36	0	1.8505E+03	-3.2089E+02	1.8505E+03	-3.2088E+02
TH224F	1.040E+00	S	33.62	4	0	2.3839E+01	2.9093E+01	2.3839E+01	2.9091E+01
TH226F	3.090E+01	M	27.78	10	0	6.7179E+00	7.5819E+01	6.7179E+00	7.5819E+01
PA227F	3.830E+01	M	14.03	4	0	8.0340E+00	4.2725E+01	8.0340E+00	4.2725E+01
PA228F	2.200E+01	H	1176.20	176	0	1.0464E+03	1.1036E+01	1.0464E+03	1.1034E+01
PA230F	1.740E+01	J	698.75	57	0	5.8972E+02	1.5604E+01	5.8973E+02	1.5603E+01
PA234M	1.170E+00	M	14.43	125	9	1.1591E+01	1.9688E+01	1.1591E+01	1.9688E+01
PA235F	2.420E+01	M	9.87	10	7	8.7576E+00	1.1248E+01	8.7577E+00	1.1248E+01
PA236F	9.100E+00	M	482.92	23	4	5.1654E+02	-6.9621E+00	5.0874E+02	-5.3480E+00
PA238F	2.300E+00	M	1989.44	75	0	2.2743E+03	-1.4319E+01	2.2743E+03	-1.4318E+01
U228F	9.100E+00	M	6.45	4	0	3.2850E+00	4.9089E+01	3.2850E+00	4.9089E+01
U230F	2.080E+01	J	4.74	11	0	1.0472E+00	7.7889E+01	1.0472E+00	7.7888E+01
U231F	4.200E+00	J	94.84	11	4	9.4841E+01	0.0000E+00	6.6742E+01	2.9628E+01
U235M	2.600E+01	M	0.08	1	0	7.6000E-19	1.0000E+02	7.6000E-19	1.0000E+02
NP231F	4.880E+01	M	1196.76	16	0	1.1057E+03	7.6089E+00	1.1057E+03	7.6091E+00
NP233F	3.620E+01	M	124.06	27	0	9.3194E+00	9.2488E+01	9.3194E+00	9.2488E+01
NP236M	2.250E+01	H	42.29	6	9	4.9064E+01	-1.6013E+01	4.9064E+01	-1.6013E+01
PU235F	2.530E+01	M	96.85	16	4	9.6844E+01	1.0241E-03	9.1694E+01	5.3185E+00
PU244F	8.005E+07	A	9.76	1	2	9.7558E+00	-6.8429E-05	1.0058E+00	8.9691E+01
AM237F	1.217E+00	H	403.21	39	4	4.0321E+02	0.0000E+00	3.5101E+02	1.2946E+01
AM239F	1.190E+01	H	267.92	32	4	2.6792E+02	-7.5178E-04	1.6408E+02	3.8757E+01
AM244M	2.600E+01	M	12.44	3	9	1.1168E+01	1.0227E+01	1.1168E+01	1.0227E+01
AM247F	2.200E+01	M	178.08	2	0	7.8545E+01	5.5894E+01	7.8545E+01	5.5894E+01
CM246F	4.733E+03	A	3.00	1	2	3.0021E+00	0.0000E+00	1.1723E+00	6.0950E+01
CM248F	3.402E+05	A	579.13	1	2	5.7913E+02	5.2695E-05	9.3175E-01	9.9839E+01
BK245F	4.940E+00	J	303.65	14	0	8.8018E+01	7.1013E+01	8.8018E+01	7.1013E+01
BK246F	1.800E+00	J	952.01	19	4	8.5910E+02	9.7595E+00	8.6295E+02	9.3551E+00
CF246F	1.487E+00	J	2.70	3	0	2.2510E-02	9.9166E+01	2.2510E-02	9.9166E+01
CF250F	1.309E+01	A	6.34	3	7	6.3430E+00	1.1276E-04	9.5301E-01	8.4975E+01
CF252F	2.647E+00	A	217.38	3	7	2.1738E+02	1.2635E-04	9.4109E-01	9.9567E+01
ES254F	2.755E+02	J	1521.60	23	4	1.5216E+03	1.4601E-03	9.3034E-01	9.9939E+01
ES256M	7.600E+00	H	42.73	3	0	4.8100E+01	-1.2575E+01	3.3210E+02	-6.7726E+02
FM253F	3.000E+00	J	92.84	3	4	9.2843E+01	-7.5602E-04	7.3752E+01	2.0562E+01
FM255F	2.004E+01	H	23.78	49	0	1.7129E+00	9.2798E+01	1.7130E+00	9.2798E+01
FM257F	1.005E+02	J	141.44	4	0	3.1281E+01	7.7884E+01	3.1281E+01	7.7884E+01

TABLE 4 spectre.alpha

NAL number of alpha rays

ER(4) average decay heat for α spectrum

FD_{α} normalization factor

EAM $= \overline{E_{"\alpha"}}$.

$$SOMAL = FD\alpha * \left(1 + \frac{4}{A}\right) * \sum_{i=1}^{N\alpha} I\alpha i * E\alpha i$$

SPECTRE ALPHA - SOMAL = FD*(E1*I1+E2*I2+...)*(1.+4./A)

ER(4)/SOMAL > 1.05 OU < 0.95

	EAM	ER(4)	NAL	FD	SOMAL	ER(4)/SOMAL
BE 11F	3.6273E+01	3.6273E+01	1	1.0000E+00	3.1500E+01	1.1515E+00
B 12F	6.6417E+00	6.6417E+00	2	1.0000E+00	5.9053E+00	1.1247E+00
TM156F	3.8100E+00	3.8100E+00	1	1.0000E-02	4.3415E+03	8.7757E-04
YB156F	4.8060E+02	4.6860E+02	1	1.0000E-02	4.3255E+03	1.0833E-01
YB158F	1.2210E-01	1.2210E-01	1	1.0000E-02	4.1720E+03	2.9266E-05
W165F	7.3500E+00	7.3500E+00	1	9.8500E-03	4.9455E+03	1.4862E-03
RE165F	7.3300E+02	7.1580E+02	1	8.7000E-03	4.9063E+03	1.4589E-01
OS165F	6.3100E+03	6.1640E+03	1	4.0000E-03	2.5254E+03	2.4408E+00
HG181F	2.1570E+03	2.1570E+03	3	9.0000E-10	5.5116E-04	3.9136E+06
HG187F	1.6071E+03	9.9300E+03	1	1.0000E-02	8.4561E+07	1.1743E-04
PB189F	2.3400E+03	2.2920E+03	1	1.0000E-03	5.8513E+02	3.9171E+00
BI194M	3.5000E+01	2.3709E+01	2	1.0000E-02	5.7555E+03	4.1193E-03
PO212N	8.9534E+03	1.1783E+04	1	1.0000E+00	1.7781E+02	6.6265E+01

TABLE 5 raie.511 Kev

RIS positron intensity (β^+ spectrum STYP=2)

STUDY ABOUT 511 KEV RAY

511 KEV RAY COMES FROM BETA+ SPECTRUM AND X SPECTRUM
INTENSITIES ARE NOT EGAL
12 NUCLIDES

SE 70F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.8600E+03KEV	RIS=	3.0000E-01	2.*RIS(IR)*FD= 6.0000E-03
SP. BETA+	E=	2.1700E+03KEV	RIS=	3.2000E+00	2.*RIS(IR)*FD= 6.4000E-02
SP. BETA+	E=	2.2900E+03KEV	RIS=	2.9000E+01	2.*RIS(IR)*FD= 5.8000E-01
SP. BETA+	E=	2.4100E+03KEV	RIS=	7.0000E-01	2.*RIS(IR)*FD= 1.4000E-02
SP. BETA+	E=	2.4200E+03KEV	RIS=	6.0000E-01	2.*RIS(IR)*FD= 1.2000E-02
SP. BETA+	E=	2.5200E+03KEV	RIS=	3.5000E+00	2.*RIS(IR)*FD= 7.0000E-02
SP. BETA+					SOMME= 7.4600E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.4100E+00	

BR 76M branch. beta + = 3.0000E-03

SP. BETA+	E=	3.7270E+03KEV	RIS=	3.0000E-01	2.*RIS(IR)*FD= 6.0000E-03
SP. BETA+					SOMME= 6.0000E-03
SP. X	E=	5.1100E+02KEV	I*FD =	5.0000E-03	

CD102F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5310E+03KEV	RIS=	7.8000E-02	2.*RIS(IR)*FD= 1.5600E-03
SP. BETA+	E=	1.8544E+03KEV	RIS=	2.1700E+00	2.*RIS(IR)*FD= 4.3400E-02
SP. BETA+	E=	2.2694E+03KEV	RIS=	9.0000E-01	2.*RIS(IR)*FD= 1.8000E-02
SP. BETA+	E=	2.3598E+03KEV	RIS=	4.2000E-01	2.*RIS(IR)*FD= 8.4000E-03
SP. BETA+					SOMME= 7.1360E-02
SP. X	E=	5.1100E+02KEV	I*FD =	5.5300E-01	

XE121F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.3300E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3400E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3500E+03KEV	RIS=	1.0000E-03	2.*RIS(IR)*FD= 2.0040E-05
SP. BETA+	E=	1.3600E+03KEV	RIS=	1.0000E-02	2.*RIS(IR)*FD= 2.0040E-04
SP. BETA+	E=	1.3800E+03KEV	RIS=	2.0000E-03	2.*RIS(IR)*FD= 4.0080E-05
SP. BETA+	E=	1.4200E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	1.4700E+03KEV	RIS=	5.0000E-03	2.*RIS(IR)*FD= 1.0020E-04
SP. BETA+	E=	1.5700E+03KEV	RIS=	3.0000E-02	2.*RIS(IR)*FD= 6.0120E-04
SP. BETA+	E=	1.6900E+03KEV	RIS=	1.2000E-02	2.*RIS(IR)*FD= 2.4048E-04
SP. BETA+	E=	1.9400E+03KEV	RIS=	1.0000E-01	2.*RIS(IR)*FD= 2.0040E-03
SP. BETA+	E=	1.9400E+03KEV	RIS=	1.2000E-01	2.*RIS(IR)*FD= 2.4048E-03
SP. BETA+	E=	1.9700E+03KEV	RIS=	5.0000E-02	2.*RIS(IR)*FD= 1.0020E-03
SP. BETA+	E=	2.0800E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0080E-03
SP. BETA+	E=	2.1400E+03KEV	RIS=	8.0000E-02	2.*RIS(IR)*FD= 1.6032E-03
SP. BETA+	E=	2.2000E+03KEV	RIS=	1.7000E-01	2.*RIS(IR)*FD= 3.4068E-03
SP. BETA+	E=	2.2500E+03KEV	RIS=	1.4000E-01	2.*RIS(IR)*FD= 2.8056E-03
SP. BETA+	E=	2.3700E+03KEV	RIS=	2.4000E-01	2.*RIS(IR)*FD= 4.8096E-03
SP. BETA+	E=	2.4800E+03KEV	RIS=	1.5000E-01	2.*RIS(IR)*FD= 3.0060E-03
SP. BETA+	E=	2.6000E+03KEV	RIS=	1.6000E-01	2.*RIS(IR)*FD= 3.2064E-03
SP. BETA+	E=	2.8200E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	2.8600E+03KEV	RIS=	2.0000E-02	2.*RIS(IR)*FD= 4.0080E-04
SP. BETA+	E=	2.8800E+03KEV	RIS=	1.0700E+00	2.*RIS(IR)*FD= 2.1443E-02
SP. BETA+	E=	2.9100E+03KEV	RIS=	4.2000E-01	2.*RIS(IR)*FD= 8.4168E-03
SP. BETA+	E=	2.9700E+03KEV	RIS=	2.3000E-01	2.*RIS(IR)*FD= 4.6092E-03
SP. BETA+	E=	3.0300E+03KEV	RIS=	1.5000E-02	2.*RIS(IR)*FD= 3.0060E-04
SP. BETA+	E=	3.0700E+03KEV	RIS=	4.8000E-01	2.*RIS(IR)*FD= 9.6192E-03
SP. BETA+	E=	3.0800E+03KEV	RIS=	4.0000E-02	2.*RIS(IR)*FD= 8.0160E-04
SP. BETA+	E=	3.1100E+03KEV	RIS=	5.4000E-01	2.*RIS(IR)*FD= 1.0822E-02
SP. BETA+	E=	3.1200E+03KEV	RIS=	1.3000E+00	2.*RIS(IR)*FD= 2.6052E-02
SP. BETA+	E=	3.1500E+03KEV	RIS=	5.0000E-02	2.*RIS(IR)*FD= 1.0020E-03
SP. BETA+	E=	3.2000E+03KEV	RIS=	7.0000E-02	2.*RIS(IR)*FD= 1.4028E-03
SP. BETA+	E=	3.2200E+03KEV	RIS=	5.7000E-01	2.*RIS(IR)*FD= 1.1423E-02
SP. BETA+	E=	3.2300E+03KEV	RIS=	9.7000E-01	2.*RIS(IR)*FD= 1.9439E-02
SP. BETA+	E=	3.2500E+03KEV	RIS=	1.5000E-02	2.*RIS(IR)*FD= 3.0060E-04
SP. BETA+	E=	3.5100E+03KEV	RIS=	7.9000E-01	2.*RIS(IR)*FD= 1.5832E-02
SP. BETA+	E=	3.6300E+03KEV	RIS=	1.4000E+00	2.*RIS(IR)*FD= 2.8056E-02

SP. BETA+	E=	3.7100E+03KEV	RIS=	4.0000E+00	2.*RIS(IR)*FD= 8.0160E-02
SP. BETA+	E=	3.7300E+03KEV	RIS=	2.6000E+00	2.*RIS(IR)*FD= 5.2104E-02
SP. BETA+					SOMME= 3.2248E-01
SP. X	E=	5.1100E+02KEV	I*FD =	8.7000E-01	

CS122F branch. beta + = 1.0000E+00

SP. BETA+	E=	4.7000E+03KEV	RIS=	4.9000E-01	2.*RIS(IR)*FD= 9.8000E-03
SP. BETA+	E=	4.8000E+03KEV	RIS=	1.2000E+00	2.*RIS(IR)*FD= 2.4000E-02
SP. BETA+	E=	5.0000E+03KEV	RIS=	4.6000E-01	2.*RIS(IR)*FD= 9.2000E-03
SP. BETA+	E=	5.1000E+03KEV	RIS=	4.5000E-01	2.*RIS(IR)*FD= 9.0000E-03
SP. BETA+	E=	5.3000E+03KEV	RIS=	8.4000E-01	2.*RIS(IR)*FD= 1.6800E-02
SP. BETA+	E=	5.7000E+03KEV	RIS=	8.0000E-01	2.*RIS(IR)*FD= 1.6000E-02
SP. BETA+	E=	5.9000E+03KEV	RIS=	6.6000E-01	2.*RIS(IR)*FD= 1.3200E-02
SP. BETA+	E=	6.2000E+03KEV	RIS=	9.5000E-01	2.*RIS(IR)*FD= 1.9000E-02
SP. BETA+	E=	6.2000E+03KEV	RIS=	3.0000E+00	2.*RIS(IR)*FD= 6.0000E-02
SP. BETA+	E=	6.5000E+03KEV	RIS=	4.1000E+00	2.*RIS(IR)*FD= 8.2000E-02
SP. BETA+	E=	6.6000E+03KEV	RIS=	2.8000E-01	2.*RIS(IR)*FD= 5.6000E-03
SP. BETA+					SOMME= 2.6460E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.9000E+00	

BA126F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5364E+03KEV	RIS=	1.2500E-01	2.*RIS(IR)*FD= 2.5250E-03
SP. BETA+					SOMME= 2.5250E-03
SP. X	E=	5.1100E+02KEV	I*FD =	2.1000E-02	

EU142F branch. beta + = 1.0000E+00

SP. BETA+	E=	5.8000E+03KEV	RIS=	9.5000E-01	2.*RIS(IR)*FD= 1.9000E-02
SP. BETA+	E=	5.9000E+03KEV	RIS=	2.4300E+00	2.*RIS(IR)*FD= 4.8600E-02
SP. BETA+	E=	6.3000E+03KEV	RIS=	3.5700E+00	2.*RIS(IR)*FD= 7.1400E-02
SP. BETA+	E=	6.5000E+03KEV	RIS=	7.2000E-01	2.*RIS(IR)*FD= 1.4400E-02
SP. BETA+	E=	7.2000E+03KEV	RIS=	8.6400E+00	2.*RIS(IR)*FD= 1.7280E-01
SP. BETA+					SOMME= 3.2620E-01
SP. X	E=	5.1100E+02KEV	I*FD =	1.8810E+00	

YB160F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.0020E+03KEV	RIS=	2.3000E-02	2.*RIS(IR)*FD= 4.6000E-04
SP. BETA+	E=	2.1946E+03KEV	RIS=	8.1000E-02	2.*RIS(IR)*FD= 1.6200E-03
SP. BETA+	E=	2.2526E+03KEV	RIS=	1.7000E-01	2.*RIS(IR)*FD= 3.4000E-03
SP. BETA+	E=	2.2567E+03KEV	RIS=	8.6000E-02	2.*RIS(IR)*FD= 1.7200E-03
SP. BETA+					SOMME= 7.2000E-03
SP. X	E=	5.1100E+02KEV	I*FD =	2.0000E-01	

YB162F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.6467E+03KEV	RIS=	3.3100E-01	2.*RIS(IR)*FD= 6.6200E-03
SP. BETA+					SOMME= 6.6200E-03
SP. X	E=	5.1100E+02KEV	I*FD =	9.8000E-03	

TA175F branch. beta + = 1.0000E+00

SP. BETA+	E=	1.5558E+03KEV	RIS=	1.1400E-03	2.*RIS(IR)*FD= 2.2800E-05
SP. BETA+	E=	1.7250E+03KEV	RIS=	3.6000E-02	2.*RIS(IR)*FD= 7.2000E-04
SP. BETA+	E=	1.7939E+03KEV	RIS=	3.1000E-03	2.*RIS(IR)*FD= 6.2000E-05
SP. BETA+	E=	1.8244E+03KEV	RIS=	2.1900E-02	2.*RIS(IR)*FD= 4.3800E-04
SP. BETA+	E=	1.8517E+03KEV	RIS=	2.8000E-01	2.*RIS(IR)*FD= 5.6000E-03
SP. BETA+					SOMME= 6.8428E-03
SP. X	E=	5.1100E+02KEV	I*FD =	1.2620E-02	

RE177F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.7970E+03KEV	RIS=	5.3000E-01	2.*RIS(IR)*FD= 1.0600E-02
SP. BETA+	E=	3.3240E+03KEV	RIS=	2.7000E+00	2.*RIS(IR)*FD= 5.4000E-02
SP. BETA+	E=	3.3850E+03KEV	RIS=	3.3000E+00	2.*RIS(IR)*FD= 6.6000E-02
SP. BETA+					SOMME= 1.3060E-01
SP. X	E=	5.1100E+02KEV	I*FD =	4.4460E-01	

IR184F branch. beta + = 1.0000E+00

SP. BETA+	E=	2.3000E+03KEV	RIS=	1.0000E-01	2.*RIS(IR)*FD= 2.0000E-03
SP. BETA+	E=	2.9000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03
SP. BETA+	E=	2.9000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03
SP. BETA+	E=	3.0000E+03KEV	RIS=	6.0000E-01	2.*RIS(IR)*FD= 1.2000E-02
SP. BETA+	E=	3.0000E+03KEV	RIS=	2.0000E-01	2.*RIS(IR)*FD= 4.0000E-03

```
 SP. BETA+  E=  3.1000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.1000E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.1000E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.2000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.3000E+03KEV  RIS=  5.0000E-01  2.*RIS(IR)*FD=  1.0000E-02
 SP. BETA+  E=  3.3000E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+  E=  3.5000E+03KEV  RIS=  8.0000E-01  2.*RIS(IR)*FD=  1.6000E-02
 SP. BETA+  E=  3.6000E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  3.9000E+03KEV  RIS=  3.2000E+00  2.*RIS(IR)*FD=  6.4000E-02
 SP. BETA+                                              SOMME=  1.5000E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  2.4400E-01
-------------------------------------------------------------------------------


 511 KEV  RAY COMES FROM  X SPECTRUM ONLY
IN BETA+ SPECTRUM  RIS=0.
                          3  NUCLIDES

CD104F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.5000E-02

ER148F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.7640E+00

LU170F  branch. beta + =   1.0000E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  4.0000E-03

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 511 KEV  RAY COMES FROM  GAMMA SPECTRUM ONLY
NO BETA+  SPECTRUM

                          3 NUCLIDES

CS121F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  7.2648E+00


YB161F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  3.4587E-01

TA169F  branch. beta + =   1.0000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  2.3030E+00

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 511 KEV  RAY COMES FROM  BETA+ SPECTRUM ONLY
                           10 NUCLIDES

NI 59F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.0734E+03KEV  RIS=  1.0071E-05  2.*RIS(IR)*FD=  2.0142E-05
 SP. BETA+
                                                 SOMME=  2.0142E-05

SR 85M  branch. beta + =   1.2700E-01
 SP. BETA+  E=  1.1514E+03KEV  RIS=  3.0574E-05  2.*RIS(IR)*FD=  6.1148E-05
 SP. BETA+                                              SOMME=  6.1148E-05


RH102F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2166E+03KEV  RIS=  1.8005E-05  2.*RIS(IR)*FD=  3.3705E-05
 SP. BETA+
                                                        SOMME=  3.3705E-05
IN114F  branch. beta + =   5.0000E-03
 SP. BETA+  E=  1.4440E+03KEV  RIS=  2.1353E-05  2.*RIS(IR)*FD=  4.2706E-05
 SP. BETA+                                              SOMME=  4.2706E-05

SB122F  branch. beta + =   2.3800E-02
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 SP. BETA+  E=  1.6227E+03KEV  RIS=  6.3962E-05  2.*RIS(IR)*FD=  1.2792E-04
 SP. BETA+                                              SOMME=  1.2792E-04

TB154F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.8800E+03KEV  RIS=  5.0000E-01  2.*RIS(IR)*FD=  1.0000E-02
 SP. BETA+  E=  3.5600E+03KEV  RIS=  1.5000E+00  2.*RIS(IR)*FD=  3.0000E-02
 SP. BETA+                                              SOMME=  4.0000E-02


 W179F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.0600E+03KEV  RIS=  9.0000E-10  2.*RIS(IR)*FD=  1.8000E-11
 SP. BETA+                                              SOMME=  1.8000E-11

PU235F  branch. beta + =   9.9997E-01
 SP. BETA+  E=  1.0807E+03KEV  RIS=  6.1035E-09  2.*RIS(IR)*FD=  1.2207E-08
 SP. BETA+  E=  1.0958E+03KEV  RIS=  5.3406E-08  2.*RIS(IR)*FD=  1.0681E-07
 SP. BETA+                                              SOMME=  1.1902E-07

AM237F  branch. beta + =   9.9975E-01
 SP. BETA+  E=  1.0968E+03KEV  RIS=  7.9956E-07  2.*RIS(IR)*FD=  1.5991E-06
 SP. BETA+  E=  1.1422E+03KEV  RIS=  2.9984E-06  2.*RIS(IR)*FD=  5.9968E-06
 SP. BETA+  E=  1.1458E+03KEV  RIS=  5.0972E-06  2.*RIS(IR)*FD=  1.0194E-05
 SP. BETA+  E=  1.1796E+03KEV  RIS=  5.7114E-07  2.*RIS(IR)*FD=  1.1423E-06
 SP. BETA+  E=  1.2290E+03KEV  RIS=  3.9307E-06  2.*RIS(IR)*FD=  7.8614E-06
 SP. BETA+  E=  1.2698E+03KEV  RIS=  5.0052E-06  2.*RIS(IR)*FD=  1.0010E-05
 SP. BETA+  E=  1.3258E+03KEV  RIS=  1.6052E-07  2.*RIS(IR)*FD=  3.2104E-07
 SP. BETA+  E=  1.3488E+03KEV  RIS=  1.2268E-08  2.*RIS(IR)*FD=  2.4536E-08
 SP. BETA+  E=  1.3946E+03KEV  RIS=  1.2488E-06  2.*RIS(IR)*FD=  2.4976E-06
 SP. BETA+  E=  1.4045E+03KEV  RIS=  2.4414E-09  2.*RIS(IR)*FD=  4.8828E-09
 SP. BETA+  E=  1.5500E+03KEV  RIS=  4.0814E-06  2.*RIS(IR)*FD=  8.1628E-06
 SP. BETA+                                              SOMME=  4.7815E-05


BK246F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2080E+03KEV  RIS=  4.2009E-06  2.*RIS(IR)*FD=  8.4018E-06
 SP. BETA+  E=  1.3071E+03KEV  RIS=  1.5259E-08  2.*RIS(IR)*FD=  3.0518E-08
 SP. BETA+                                              SOMME=  8.4323E-06

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511 KEV RAY CAN BE KNOWN  WITH  BETA+,X AND GAMMA SPECTRA
SHALL WE COUNT IT TWICE ?
                          8 NUCLIDES


RB 77F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.2200E+03KEV  RIS=  1.6000E-01  2.*RIS(IR)*FD=  3.2000E-03
 SP. BETA+  E=  2.2700E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+  E=  2.4600E+03KEV  RIS=  3.6000E-01  2.*RIS(IR)*FD=  7.2000E-03
 SP. BETA+  E=  3.2500E+03KEV  RIS=  3.7000E+00  2.*RIS(IR)*FD=  7.4000E-02
 SP. BETA+  E=  3.3700E+03KEV  RIS=  5.8000E-01  2.*RIS(IR)*FD=  1.1600E-02
 SP. BETA+  E=  3.3700E+03KEV  RIS=  3.1000E-01  2.*RIS(IR)*FD=  6.2000E-03
 SP. BETA+  E=  3.4100E+03KEV  RIS=  1.5000E-01  2.*RIS(IR)*FD=  3.0000E-03
 SP. BETA+  E=  3.4400E+03KEV  RIS=  1.8000E+00  2.*RIS(IR)*FD=  3.6000E-02
 SP. BETA+  E=  3.5000E+03KEV  RIS=  9.7000E-01  2.*RIS(IR)*FD=  1.9400E-02
 SP. BETA+  E=  3.6100E+03KEV  RIS=  1.2100E+00  2.*RIS(IR)*FD=  2.4200E-02
 SP. BETA+  E=  3.7700E+03KEV  RIS=  9.6000E-01  2.*RIS(IR)*FD=  1.9200E-02
 SP. BETA+  E=  3.8300E+03KEV  RIS=  8.0000E-01  2.*RIS(IR)*FD=  1.6000E-02
 SP. BETA+  E=  3.9700E+03KEV  RIS=  8.1000E-01  2.*RIS(IR)*FD=  1.6200E-02
 SP. BETA+  E=  4.0400E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  4.1200E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  4.1700E+03KEV  RIS=  2.7000E+00  2.*RIS(IR)*FD=  5.4000E-02
 SP. BETA+  E=  4.2400E+03KEV  RIS=  1.2000E+00  2.*RIS(IR)*FD=  2.4000E-02
 SP. BETA+  E=  4.2500E+03KEV  RIS=  1.4000E+00  2.*RIS(IR)*FD=  2.8000E-02
 SP. BETA+  E=  4.2700E+03KEV  RIS=  1.6000E+00  2.*RIS(IR)*FD=  3.2000E-02
 SP. BETA+  E=  4.3200E+03KEV  RIS=  5.5000E-01  2.*RIS(IR)*FD=  1.1000E-02
 SP. BETA+  E=  4.4100E+03KEV  RIS=  2.1000E+00  2.*RIS(IR)*FD=  4.2000E-02
 SP. BETA+  E=  4.4900E+03KEV  RIS=  1.3000E+00  2.*RIS(IR)*FD=  2.6000E-02
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 SP. BETA+  E=  4.5300E+03KEV  RIS=  5.4000E-01  2.*RIS(IR)*FD=  1.0800E-02
 SP. BETA+  E=  4.5500E+03KEV  RIS=  9.0000E-01  2.*RIS(IR)*FD=  1.8000E-02
 SP. BETA+  E=  4.5600E+03KEV  RIS=  2.8000E+00  2.*RIS(IR)*FD=  5.6000E-02
 SP. BETA+  E=  4.6000E+03KEV  RIS=  2.3000E+00  2.*RIS(IR)*FD=  4.6000E-02
 SP. BETA+  E=  4.7000E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  4.7800E+03KEV  RIS=  1.6000E+00  2.*RIS(IR)*FD=  3.2000E-02
 SP. BETA+  E=  4.8200E+03KEV  RIS=  7.1000E+00  2.*RIS(IR)*FD=  1.4200E-01
 SP. BETA+  E=  5.0300E+03KEV  RIS=  1.2700E+01  2.*RIS(IR)*FD=  2.5400E-01
 SP. BETA+  E=  5.1300E+03KEV  RIS=  1.5000E+00  2.*RIS(IR)*FD=  3.0000E-02
 SP. BETA+  E=  5.2100E+03KEV  RIS=  2.7000E+01  2.*RIS(IR)*FD=  5.4000E-01
 SP. BETA+  E=  5.2790E+03KEV  RIS=  1.5000E+01  2.*RIS(IR)*FD=  3.0000E-01
 SP. BETA+                                              SOMME=  1.9348E+00
 SP. X  E=  5.1100E+02KEV  I*FD =  1.9000E+00
 SP. G  E=  5.1100E+02KEV  I*FD =  7.9576E-03

GD147F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  2.0990E+03KEV  RIS=  1.3000E-01  2.*RIS(IR)*FD=  2.6000E-03
 SP. BETA+                                              SOMME=  2.6000E-03
 SP. X  E=  5.1100E+02KEV  I*FD =  3.2000E-03
 SP. G  E=  5.1100E+02KEV  I*FD =  4.8913E-03

TB152F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.5520E+03KEV  RIS=  3.5000E-03  2.*RIS(IR)*FD=  7.0000E-05
 SP. BETA+  E=  1.5870E+03KEV  RIS=  1.8000E-03  2.*RIS(IR)*FD=  3.6000E-05
 SP. BETA+  E=  1.6050E+03KEV  RIS=  1.8000E-02  2.*RIS(IR)*FD=  3.6000E-04
 SP. BETA+  E=  1.6500E+03KEV  RIS=  1.6000E-03  2.*RIS(IR)*FD=  3.2000E-05
 SP. BETA+  E=  1.8400E+03KEV  RIS=  1.4000E-02  2.*RIS(IR)*FD=  2.8000E-04
 SP. BETA+  E=  1.8770E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.9110E+03KEV  RIS=  9.7000E-02  2.*RIS(IR)*FD=  1.9400E-03
 SP. BETA+  E=  1.9370E+03KEV  RIS=  8.2000E-03  2.*RIS(IR)*FD=  1.6400E-04
 SP. BETA+  E=  1.9900E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+  E=  2.0120E+03KEV  RIS=  1.0000E-02  2.*RIS(IR)*FD=  2.0000E-04
 SP. BETA+  E=  2.0440E+03KEV  RIS=  4.4000E-03  2.*RIS(IR)*FD=  8.8000E-05
 SP. BETA+  E=  2.0800E+03KEV  RIS=  1.3000E-02  2.*RIS(IR)*FD=  2.6000E-04
 SP. BETA+  E=  2.1600E+03KEV  RIS=  4.1000E-02  2.*RIS(IR)*FD=  8.2000E-04
 SP. BETA+  E=  2.2090E+03KEV  RIS=  1.2000E-01  2.*RIS(IR)*FD=  2.4000E-03
 SP. BETA+  E=  2.2460E+03KEV  RIS=  1.6000E-01  2.*RIS(IR)*FD=  3.2000E-03
 SP. BETA+  E=  2.3020E+03KEV  RIS=  2.4000E-02  2.*RIS(IR)*FD=  4.8000E-04
 SP. BETA+  E=  2.4180E+03KEV  RIS=  7.6000E-02  2.*RIS(IR)*FD=  1.5200E-03
 SP. BETA+  E=  2.5340E+03KEV  RIS=  3.5000E-01  2.*RIS(IR)*FD=  7.0000E-03
 SP. BETA+  E=  2.5370E+03KEV  RIS=  1.4000E-01  2.*RIS(IR)*FD=  2.8000E-03
 SP. BETA+  E=  2.5700E+03KEV  RIS=  1.1000E-02  2.*RIS(IR)*FD=  2.2000E-04
 SP. BETA+  E=  2.7290E+03KEV  RIS=  3.7000E-01  2.*RIS(IR)*FD=  7.4000E-03
 SP. BETA+  E=  2.7430E+03KEV  RIS=  5.1000E-01  2.*RIS(IR)*FD=  1.0200E-02
 SP. BETA+  E=  2.8040E+03KEV  RIS=  7.0000E-02  2.*RIS(IR)*FD=  1.4000E-03
 SP. BETA+  E=  2.9210E+03KEV  RIS=  1.7000E+00  2.*RIS(IR)*FD=  3.4000E-02
 SP. BETA+  E=  3.0970E+03KEV  RIS=  1.1000E-01  2.*RIS(IR)*FD=  2.2000E-03
 SP. BETA+  E=  3.2370E+03KEV  RIS=  7.5000E-01  2.*RIS(IR)*FD=  1.5000E-02
 SP. BETA+  E=  3.5080E+03KEV  RIS=  4.9000E+00  2.*RIS(IR)*FD=  9.8000E-02
 SP. BETA+  E=  3.8520E+03KEV  RIS=  9.0000E+00  2.*RIS(IR)*FD=  1.8000E-01
 SP. BETA+                                              SOMME=  3.7133E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  4.0000E-01
 SP. G  E=  5.1100E+02KEV  I*FD =  1.1512E-01


TB153F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.3670E+03KEV  RIS=  3.2000E-02  2.*RIS(IR)*FD=  6.4000E-04
 SP. BETA+  E=  1.4690E+03KEV  RIS=  6.1000E-03  2.*RIS(IR)*FD=  1.2200E-04
 SP. BETA+  E=  1.5370E+03KEV  RIS=  4.4500E-02  2.*RIS(IR)*FD=  8.9000E-04
 SP. BETA+  E=  1.5790E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+                                              SOMME=  1.7920E-03
 SP. X  E=  5.1100E+02KEV  I*FD =  1.8000E-03
 SP. G  E=  5.1100E+02KEV  I*FD =  6.0082E-04


TA176F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.6400E+03KEV  RIS=  3.0000E-04  2.*RIS(IR)*FD=  6.0000E-06
 SP. BETA+  E=  1.6500E+03KEV  RIS=  3.0000E-04  2.*RIS(IR)*FD=  6.0000E-06
 SP. BETA+  E=  1.6700E+03KEV  RIS=  2.3000E-03  2.*RIS(IR)*FD=  4.6000E-05
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 SP. BETA+  E=  1.7100E+03KEV  RIS=  8.0000E-04  2.*RIS(IR)*FD=  1.6000E-05
 SP. BETA+  E=  1.7600E+03KEV  RIS=  1.3000E-03  2.*RIS(IR)*FD=  2.6000E-05
 SP. BETA+  E=  1.8000E+03KEV  RIS=  9.0000E-02  2.*RIS(IR)*FD=  1.8000E-03
 SP. BETA+  E=  1.8200E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+  E=  1.9000E+03KEV  RIS=  4.1000E-03  2.*RIS(IR)*FD=  8.2000E-05
 SP. BETA+  E=  2.9600E+03KEV  RIS=  6.9000E-01  2.*RIS(IR)*FD=  1.3800E-02
 SP. BETA+  E=  3.0500E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+                                              SOMME=  1.7122E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  1.7120E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  1.3542E-02

TL198F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.5600E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.5600E+03KEV  RIS=  3.0000E-03  2.*RIS(IR)*FD=  6.0000E-05
 SP. BETA+  E=  1.6000E+03KEV  RIS=  7.0000E-03  2.*RIS(IR)*FD=  1.4000E-04
 SP. BETA+  E=  1.6100E+03KEV  RIS=  9.0000E-03  2.*RIS(IR)*FD=  1.8000E-04
 SP. BETA+  E=  1.6300E+03KEV  RIS=  2.0000E-02  2.*RIS(IR)*FD=  4.0000E-04
 SP. BETA+  E=  1.8200E+03KEV  RIS=  1.0000E-03  2.*RIS(IR)*FD=  2.0000E-05
 SP. BETA+  E=  1.8500E+03KEV  RIS=  5.1000E-02  2.*RIS(IR)*FD=  1.0200E-03
 SP. BETA+  E=  1.9100E+03KEV  RIS=  2.9000E-03  2.*RIS(IR)*FD=  5.8000E-05
 SP. BETA+  E=  2.0400E+03KEV  RIS=  8.0000E-03  2.*RIS(IR)*FD=  1.6000E-04
 SP. BETA+  E=  2.0600E+03KEV  RIS=  1.3000E-03  2.*RIS(IR)*FD=  2.6000E-05
 SP. BETA+  E=  2.3700E+03KEV  RIS=  2.2000E-01  2.*RIS(IR)*FD=  4.4000E-03
 SP. BETA+  E=  2.4100E+03KEV  RIS=  6.8000E-03  2.*RIS(IR)*FD=  1.3600E-04
 SP. BETA+  E=  3.0500E+03KEV  RIS=  2.6000E-01  2.*RIS(IR)*FD=  5.2000E-03
 SP. BETA+  E=  3.4600E+03KEV  RIS=  1.8000E-01  2.*RIS(IR)*FD=  3.6000E-03
 SP. BETA+                                              SOMME=  1.5460E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  1.5460E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  1.0455E-02

DY149F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.7200E+03KEV  RIS=  5.0000E-02  2.*RIS(IR)*FD=  1.0000E-03
 SP. BETA+  E=  1.7200E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  1.7500E+03KEV  RIS=  7.0000E-02  2.*RIS(IR)*FD=  1.4000E-03
 SP. BETA+  E=  1.7600E+03KEV  RIS=  5.0000E-02  2.*RIS(IR)*FD=  1.0000E-03
 SP. BETA+  E=  1.8200E+03KEV  RIS=  2.0000E-02  2.*RIS(IR)*FD=  4.0000E-04
 SP. BETA+  E=  1.8700E+03KEV  RIS=  8.0000E-02  2.*RIS(IR)*FD=  1.6000E-03
 SP. BETA+  E=  1.8700E+03KEV  RIS=  3.0000E-01  2.*RIS(IR)*FD=  6.0000E-03
 SP. BETA+  E=  2.0900E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  2.2200E+03KEV  RIS=  6.0000E-02  2.*RIS(IR)*FD=  1.2000E-03
 SP. BETA+  E=  2.4800E+03KEV  RIS=  1.8000E-01  2.*RIS(IR)*FD=  3.6000E-03
 SP. BETA+  E=  2.6200E+03KEV  RIS=  7.0000E-01  2.*RIS(IR)*FD=  1.4000E-02
 SP. BETA+  E=  2.6300E+03KEV  RIS=  7.0000E-01  2.*RIS(IR)*FD=  1.4000E-02
 SP. BETA+  E=  2.7600E+03KEV  RIS=  6.0000E-01  2.*RIS(IR)*FD=  1.2000E-02
 SP. BETA+  E=  2.7600E+03KEV  RIS=  4.0000E-02  2.*RIS(IR)*FD=  8.0000E-04
 SP. BETA+  E=  2.7600E+03KEV  RIS=  3.7000E-01  2.*RIS(IR)*FD=  7.4000E-03
 SP. BETA+  E=  2.8100E+03KEV  RIS=  2.4000E+00  2.*RIS(IR)*FD=  4.8000E-02
 SP. BETA+  E=  2.8500E+03KEV  RIS=  3.1000E+00  2.*RIS(IR)*FD=  6.2000E-02
 SP. BETA+  E=  2.8600E+03KEV  RIS=  1.1000E+00  2.*RIS(IR)*FD=  2.2000E-02
 SP. BETA+  E=  3.1400E+03KEV  RIS=  6.0000E-01  2.*RIS(IR)*FD=  1.2000E-02
 SP. BETA+  E=  3.3900E+03KEV  RIS=  2.0000E-01  2.*RIS(IR)*FD=  4.0000E-03
 SP. BETA+  E=  3.5000E+03KEV  RIS=  4.0000E-01  2.*RIS(IR)*FD=  8.0000E-03
 SP. BETA+                                              SOMME=  2.2520E-01
 SP. X  E=  5.1100E+02KEV  I*FD =  2.3000E-01
 SP. G  E=  5.1100E+02KEV  I*FD =  1.6274E-01

HG191M  branch. beta + =   1.0000E+00
 SP. BETA+  E=  3.2100E+03KEV  RIS=  1.3000E+00  2.*RIS(IR)*FD=  2.6000E-02
 SP. BETA+                                              SOMME=  2.6000E-02
 SP. X  E=  5.1100E+02KEV  I*FD =  3.0000E-02
 SP. G  E=  5.1100E+02KEV  I*FD =  2.2827E-02
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 511 KEV  RAY COMES FROM  BETA+ SPECTRUM AND GAMMA SPECTRUM
INTENSITIES ARE EGAL - IS IT THE SAME ?
                          4 NUCLIDES


NB 91F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2557E+03KEV  RIS=  1.6800E-03  2.*RIS(IR)*FD=  3.3600E-03
 SP. BETA+                                       SOMME=  3.3600E-03
 SP. G  E=  5.1101E+02KEV  I*FD =  3.1995E-03

NB 92M  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.2095E+03KEV  RIS=  6.1342E-04  2.*RIS(IR)*FD=  1.2268E-03
 SP. BETA+                                       SOMME=  1.2268E-03
 SP. G  E=  5.1101E+02KEV  I*FD =  1.1680E-03

EU152F  branch. beta + =   7.2080E-01
 SP. BETA+  E=  1.5104E+03KEV  RIS=  1.7930E-05  2.*RIS(IR)*FD=  4.9738E-05
 SP. BETA+  E=  1.7551E+03KEV  RIS=  1.7331E-04  2.*RIS(IR)*FD=  4.8076E-04
 SP. BETA+                                       SOMME=  5.3050E-04
 SP. G  E=  5.1101E+02KEV  I*FD =  5.5239E-04

BI207F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.8350E+03KEV  RIS=  1.1778E-04  2.*RIS(IR)*FD=  2.3556E-04
 SP. BETA+                                       SOMME=  2.3556E-04
 SP. G  E=  5.1101E+02KEV  I*FD =  2.4989E-04
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 511 KEV  RAY COMES FROM  BETA+ SPECTRUM AND GAMMA SPECTRUM
INTENSITIES ARE NOT EGAL - WHAT DO WE TAKE ?
                          5 NUCLIDES


CO 56F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.1230E+03KEV  RIS=  9.3766E-05  2.*RIS(IR)*FD=  1.8753E-04
 SP. BETA+  E=  1.4454E+03KEV  RIS=  1.0761E-02  2.*RIS(IR)*FD=  2.1522E-02
 SP. BETA+  E=  2.4833E+03KEV  RIS=  1.8634E-01  2.*RIS(IR)*FD=  3.7268E-01
 SP. BETA+                                       SOMME=  3.9439E-01
 SP. G  E=  5.1101E+02KEV  I*FD =  4.2200E-02


ZR 89M  branch. beta + =   6.2400E-02
 SP. BETA+  E=  1.9120E+03KEV  RIS=  1.3407E-02  2.*RIS(IR)*FD=  2.6814E-02
 SP. BETA+  E=  3.4192E+03KEV  RIS=  1.7455E-03  2.*RIS(IR)*FD=  3.4910E-03
 SP. BETA+                                       SOMME=  3.0305E-02
 SP. G  E=  5.1101E+02KEV  I*FD =  3.5366E-02


CD107F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.3239E+03KEV  RIS=  1.9940E-03  2.*RIS(IR)*FD=  3.9880E-03
 SP. BETA+                                       SOMME=  3.9880E-03
 SP. G  E=  5.1101E+02KEV  I*FD =  2.2519E-02


IN112F  branch. beta + =   5.6000E-01
 SP. BETA+  E=  1.1092E+03KEV  RIS=  6.4463E-08  2.*RIS(IR)*FD=  1.2893E-07
 SP. BETA+  E=  1.2658E+03KEV  RIS=  9.1858E-08  2.*RIS(IR)*FD=  1.8372E-07
 SP. BETA+  E=  1.3545E+03KEV  RIS=  2.0491E-05  2.*RIS(IR)*FD=  4.0982E-05
 SP. BETA+  E=  1.9609E+03KEV  RIS=  2.1642E-03  2.*RIS(IR)*FD=  4.3284E-03
 SP. BETA+  E=  2.5780E+03KEV  RIS=  1.1975E-01  2.*RIS(IR)*FD=  2.3950E-01
 SP. BETA+                                       SOMME=  2.4387E-01
 SP. G  E=  5.1101E+02KEV  I*FD =  4.5019E-02


NP232F  branch. beta + =   1.0000E+00
 SP. BETA+  E=  1.4961E+03KEV  RIS=  1.8910E-04  2.*RIS(IR)*FD=  3.7820E-04
 SP. BETA+  E=  1.5174E+03KEV  RIS=  4.7997E-06  2.*RIS(IR)*FD=  9.5994E-06
```



```
 SP. BETA+  E=  1.5570E+03KEV  RIS=  7.9814E-06  2.*RIS(IR)*FD=  1.5963E-05
 SP. BETA+  E=  1.5918E+03KEV  RIS=  7.6807E-06  2.*RIS(IR)*FD=  1.5361E-05
 SP. BETA+  E=  1.7185E+03KEV  RIS=  1.9403E-05  2.*RIS(IR)*FD=  3.8806E-05
 SP. BETA+  E=  2.5334E+03KEV  RIS=  1.8026E-04  2.*RIS(IR)*FD=  3.6052E-04
 SP. BETA+  E=  2.6424E+03KEV  RIS=  2.2748E-04  2.*RIS(IR)*FD=  4.5496E-04
 SP. BETA+  E=  2.6900E+03KEV  RIS=  2.4904E-04  2.*RIS(IR)*FD=  4.9808E-04
 SP. BETA+                                       SOMME=  1.7715E-03
 SP. G  E=  5.1101E+02KEV  I*FD =  1.3438E-03
```

TABLE 6 q.etot

$$Q = \sum_{i=1}^{NDK} Br_i * Q_i$$

$$ETOT = \overline{E_{"\beta"}} * 2.25 + \overline{E_{"\gamma"}} + \overline{E_{"\alpha"}}$$

	PERIODE		Q	ETOT	Q/ETOT
_H__3F	1.234E+01	A	1.8571E+01	1.2840E+01	1.446
BE_12F	2.400E-02	S	1.1707E+04	1.6486E+04	0.710
_C_14F	5.734E+03	A	1.5650E+02	1.1132E+02	1.406
_C_16F	7.470E-01	S	5.5708E+03	4.6140E+03	1.207
_N_17F	4.169E+00	S	8.6800E+03	3.8840E+03	2.235
_F_23F	2.230E+00	S	8.5100E+03	2.0123E+04	0.423
NA_33F	8.200E-03	S	1.5446E+04	3.1211E+02	49.490
NA_34F	5.500E-03	S	1.6335E+04	0.0000E+00	Inf
NA_35F	1.500E-03	S	1.9498E+04	0.0000E+00	Inf
MG_33F	9.000E-02	S	1.2333E+04	0.0000E+00	Inf
AL_29F	6.567E+00	M	3.6796E+03	5.5983E+03	0.657
SI_32F	1.721E+02	A	2.2500E+02	1.5480E+02	1.453
SI_34F	2.770E+00	S	4.7000E+03	3.1650E+03	1.485
_P_33F	2.540E+01	J	2.4900E+02	1.7229E+02	1.445
_S_35F	8.750E+01	J	1.6750E+02	1.0987E+02	1.525
_K_49F	1.260E+00	S	6.4758E+03	8.5870E+03	0.754
_K_50F	4.720E-01	S	1.2206E+04	1.5663E+04	0.779
_K_51F	3.650E-01	S	1.2600E+04	8.8160E+03	1.429
CA_45F	1.630E+02	J	2.5610E+02	7.7047E+01	3.324
SC_45M	3.160E-01	S	1.2397E+01	1.9960E+01	0.621
SC_46M	1.870E+01	S	1.4253E+02	2.0955E+02	0.680
SC_47F	3.400E+00	J	6.0000E+02	4.7428E+02	1.265
SC_50F	1.708E+00	M	6.8920E+03	4.2566E+03	1.619
MN_58M	3.000E+00	S	6.1000E+03	8.3108E+03	0.734
MN_59F	4.600E+00	S	5.1800E+03	2.9340E+03	1.766
CO_58M	9.150E+00	H	2.4889E+01	5.3161E+01	0.468
CO_60M	1.047E+01	M	6.5944E+01	1.3444E+02	0.491
NI_63F	1.001E+02	A	6.5870E+01	3.8475E+01	1.712
NI_66F	2.275E+00	J	2.3300E+02	1.4625E+02	1.593
CU_67F	2.578E+00	J	5.7500E+02	4.6557E+02	1.235
CU_78F	2.500E-01	S	1.1938E+04	0.0000E+00	Inf
ZN_69F	5.700E+01	M	9.0450E+02	7.2226E+02	1.252
ZN_73M	5.800E+00	S	2.3428E+03	0.0000E+00	Inf
GA_74M	9.500E+00	S	5.9700E+01	8.0913E+01	0.738
GA_83F	3.100E-01	S	9.8998E+03	6.8540E+03	1.444
GA_84F	2.480E-01	S	9.0028E+03	3.9815E+03	2.261
GE_73M	5.000E-01	S	6.6730E+01	1.3674E+02	0.488
GE_75M	4.770E+01	S	1.4003E+02	2.4260E+02	0.577
GE_78F	1.450E+00	H	9.8000E+02	8.1077E+02	1.209
GE_84F	9.700E-01	S	7.4687E+03	5.2521E+03	1.422
GE_85F	4.160E-01	S	5.0456E+03	2.7708E+03	1.821
GE_86F	1.280E-01	S	5.7671E+03	3.5490E+03	1.625

	PERIODE		Q	ETOT	Q/ETOT
AS_75M	1.679E-02	S	3.0400E+02	5.9241E+02	0.513
AS_77F	1.618E+00	J	6.8275E+02	5.1645E+02	1.322
AS_87F	7.500E-01	S	9.8450E+03	6.0602E+03	1.625
AS_88F	5.590E-01	S	8.0051E+03	5.4495E+03	1.469
SE_73M	3.983E+01	M	7.7655E+02	6.3075E+02	1.231
SE_77M	1.736E+01	S	1.6200E+02	2.4700E+02	0.656
SE_79M	3.910E+00	M	9.5500E+01	1.9504E+02	0.490
SE_81M	5.725E+01	M	1.0392E+02	2.1014E+02	0.495
SE_92F	3.800E-02	S	8.5625E+03	1.1491E+04	0.745
BR_76M	1.310E+00	S	1.1746E+02	3.4000E+01	3.455
BR_77M	4.283E+00	M	1.0587E+02	1.4400E+01	7.352
BR_79M	4.864E+00	S	2.0720E+02	2.6556E+02	0.780
BR_80M	4.420E+00	H	8.5950E+01	1.6359E+02	0.525
BR_82M	6.100E+00	M	1.2177E+02	1.6686E+02	0.730
BR_83F	2.390E+00	H	9.1851E+02	7.2725E+02	1.263
BR_93F	1.020E-01	S	1.1272E+04	0.0000E+00	Inf
BR_94F	7.000E-02	S	1.1730E+04	0.0000E+00	Inf
KR_79M	5.000E+01	S	1.3001E+02	2.3990E+02	0.542
KR_81M	1.300E+01	S	1.9032E+02	2.7053E+02	0.704
KR_83M	1.830E+00	H	4.1560E+01	9.0284E+01	0.460
KR_85F	1.073E+01	A	6.8700E+02	5.6581E+02	1.214
KR_94F	2.000E-01	S	8.1768E+03	6.8116E+03	1.200
RB_81M	3.048E+01	M	1.3770E+02	2.1850E+02	0.630
RB_87F	4.800E+10	A	2.7330E+02	1.7730E+02	1.541
RB_98F	1.140E-01	S	1.1249E+04	8.0833E+03	1.392
RB_99F	5.900E-02	S	1.0706E+04	8.8288E+03	1.213
RB100F	5.100E-02	S	1.2646E+04	8.0118E+03	1.578
RB101F	1.180E-01	S	9.1892E+03	0.0000E+00	Inf
RB102F	6.900E-02	S	8.8512E+03	0.0000E+00	Inf
SR_85M	1.128E+00	H	3.7374E+02	2.4500E+02	1.525
SR_87M	2.810E+00	H	3.8757E+02	2.0427E+02	1.897
SR_90F	2.914E+01	A	5.4600E+02	4.4018E+02	1.240
SR_92F	2.710E+00	H	1.9300E+03	1.5598E+03	1.237
_Y100M	9.400E-01	S	9.3000E+03	7.6549E+03	1.215
ZR_87M	1.400E+01	S	3.3630E+02	4.4400E+02	0.757
ZR102F	2.900E+00	S	4.6100E+03	6.5536E+03	0.703
ZR104F	1.200E+00	S	5.9955E+03	9.4807E+03	0.632
NB_90M	1.882E+01	S	1.2630E+02	1.7105E+02	0.738
NB_91M	6.200E+01	J	1.6729E+02	3.0537E+02	0.548
NB_93M	1.640E+01	A	3.0400E+01	6.4984E+01	0.468
NB_94M	6.260E+00	M	5.1166E+01	8.8650E+01	0.577
NB_95M	3.608E+00	J	2.8657E+02	4.4380E+02	0.646
MO102F	1.120E+01	M	1.0400E+03	8.3042E+02	1.252
TC_96M	5.150E+01	M	9.3200E+01	4.5328E+01	2.056
TC_97M	8.900E+01	J	9.6500E+01	1.9654E+02	0.491
TC_99F	2.130E+05	A	2.9350E+02	1.9185E+02	1.530
TC103F	5.000E+01	S	2.6592E+03	2.1705E+03	1.225
TC111F	3.000E-01	S	6.9668E+03	0.0000E+00	Inf
RU106F	1.009E+00	A	3.9400E+01	2.2581E+01	1.745
RU108F	4.500E+00	M	1.3200E+03	1.0967E+03	1.204

	PERIODE		Q	ETOT	Q/ETOT
RH100M	4.600E+00	M	1.6927E+02	5.2825E+01	3.204
RH103M	5.612E+01	M	3.9755E+01	7.2648E+01	0.547
RH104M	4.340E+00	M	1.3223E+02	2.2981E+02	0.575
RH105F	1.473E+00	J	5.6700E+02	4.2345E+02	1.339
RH105M	4.500E+01	S	1.2957E+02	2.4040E+02	0.539
RH117F	3.960E-01	S	6.7746E+03	4.6818E+03	1.447
PD107F	6.500E+06	A	3.3100E+01	2.0925E+01	1.582
PD107M	2.130E+01	S	2.1490E+02	2.9226E+02	0.735
PD109F	1.343E+01	H	1.0279E+03	8.1087E+02	1.268
PD109M	4.690E+00	M	1.8890E+02	2.9941E+02	0.631
PD112F	2.105E+01	H	2.9300E+02	2.0886E+02	1.403
AG101M	3.100E+00	S	2.7430E+02	2.1108E+02	1.300
AG103M	5.700E+00	S	1.3440E+02	2.5145E+02	0.534
AG105M	7.233E+00	M	3.0063E+01	5.2480E+01	0.573
AG107M	4.430E+01	S	9.3124E+01	1.7874E+02	0.521
AG109M	3.960E+01	S	8.8032E+01	1.6861E+02	0.522
AG111F	7.450E+00	J	1.0280E+03	8.1603E+02	1.260
AG111M	1.080E+00	M	6.6997E+01	1.3194E+02	0.508
AG120F	1.170E+00	S	8.2028E+03	6.2152E+03	1.320
AG120M	3.200E-01	S	5.3709E+03	4.3774E+03	1.227
CD111M	4.860E+01	M	3.9622E+02	5.3084E+02	0.746
CD113F	9.196E+15	A	3.1600E+02	2.0993E+02	1.505
CD113M	1.410E+01	A	5.8525E+02	4.2389E+02	1.381
CD115F	2.228E+00	J	1.1114E+03	9.1079E+02	1.220
CD126F	5.060E-01	S	5.4800E+03	4.5493E+03	1.205
CD128F	9.400E-01	S	7.0039E+03	8.9451E+03	0.783
CD130F	2.000E-01	S	7.3998E+03	0.0000E+00	Inf
IN112M	2.057E+01	M	1.5640E+02	3.1655E+02	0.494
IN113M	1.658E+00	H	3.9169E+02	5.5606E+02	0.704
IN114M	4.951E+01	J	2.5236E+02	4.1715E+02	0.605
IN114N	4.310E-02	S	5.0198E+02	3.6550E+02	1.373
IN115M	4.486E+00	H	3.6122E+02	5.4689E+02	0.660
IN116N	2.160E+00	S	1.6239E+02	2.8274E+02	0.574
IN118N	8.500E+00	S	2.0243E+02	3.2397E+02	0.625
IN128M	9.000E-01	S	7.4671E+03	9.6146E+03	0.777
IN131F	2.700E-01	S	9.0483E+03	2.8949E+03	3.126
IN133F	1.800E-01	S	8.4892E+03	0.0000E+00	Inf
SN113M	2.140E+01	M	1.6992E+02	2.6125E+00	65.043
SN117M	1.400E+01	J	3.1458E+02	5.0767E+02	0.620
SN119M	2.930E+02	J	8.9530E+01	1.8174E+02	0.493
SN121F	1.127E+00	J	3.8300E+02	2.5469E+02	1.504
SN121M	5.003E+01	A	9.3361E+01	3.3120E+02	0.282
SN134F	1.040E+00	S	6.2662E+03	5.2216E+03	1.200
SN135F	8.500E-01	S	3.4404E+03	2.5170E+03	1.367
SB122M	4.210E+00	M	1.6356E+02	2.6375E+02	0.620
SB124N	2.020E+01	M	3.6850E+01	5.2211E+01	0.706
SB126N	1.100E+01	S	2.2702E+01	5.0777E+01	0.447
SB137F	3.600E-01	S	4.1686E+03	7.2265E+03	0.577
TE107F	3.600E-03	S	5.8346E+03	2.8000E+03	2.084
TE108F	2.100E+00	S	4.5334E+03	2.3000E+03	1.971
TE123M	1.197E+02	J	2.4746E+02	3.7473E+02	0.660
TE125M	5.800E+01	J	1.4473E+02	2.7418E+02	0.528
TE127F	9.350E+00	H	6.9400E+02	5.0688E+02	1.369
TE127M	1.090E+02	J	1.0492E+02	1.9322E+02	0.543
_I129F	1.570E+07	A	1.9000E+02	1.4705E+02	1.292

	PERIODE		Q	ETOT	Q/ETOT
XE125M	5.700E+01	S	2.5200E+02	4.0077E+02	0.629
XE127M	1.167E+00	M	2.9720E+02	4.3212E+02	0.688
XE129M	8.890E+00	J	2.3614E+02	4.6381E+02	0.509
XE131M	1.190E+01	J	1.6393E+02	3.4052E+02	0.481
XE133M	2.188E+00	J	2.3318E+02	4.6970E+02	0.496
XE135F	9.090E+00	H	1.1580E+03	9.6081E+02	1.205
XE147F	2.600E-01	S	7.9054E+03	0.0000E+00	Inf
CS122N	3.600E-01	S	8.1200E+01	1.2300E+01	6.602
CS134M	2.900E+00	H	1.3875E+02	2.7563E+02	0.503
CS135F	2.300E+06	A	2.0500E+02	1.2668E+02	1.618
CS137F	3.002E+01	A	5.4728E+02	4.1859E+02	1.307
CS147F	2.200E-01	S	7.8928E+03	6.4636E+03	1.221
CS148F	1.700E-01	S	9.6246E+03	7.5300E+03	1.278
BA131M	1.460E+01	M	1.8750E+02	3.2450E+02	0.578
BA133M	1.621E+00	J	2.8844E+02	5.6639E+02	0.509
BA135M	1.196E+00	J	2.6824E+02	5.2705E+02	0.509
BA142F	1.060E+01	M	2.2000E+03	1.8175E+03	1.210
BA143F	1.450E+01	S	4.3000E+03	3.5700E+03	1.204
BA149F	3.460E-01	S	7.3679E+03	0.0000E+00	Inf
LA129M	5.600E-01	S	1.7200E+02	2.9815E+02	0.577
LA132M	2.430E+01	M	1.2731E+03	4.9100E+02	2.593
LA145F	2.420E+01	S	4.1100E+03	3.3925E+03	1.211
CE135M	2.000E+01	S	4.4580E+02	7.0800E+02	0.630
CE137M	1.433E+00	J	2.6382E+02	5.1215E+02	0.515
CE141F	3.250E+01	J	5.8000E+02	4.6099E+02	1.258
CE144F	2.849E+02	J	3.1732E+02	2.2550E+02	1.407
CE146F	1.420E+01	M	1.0800E+03	7.6500E+02	1.412
PR143F	1.358E+01	J	9.3530E+02	7.0906E+02	1.319
PR144M	7.200E+00	M	6.1127E+01	1.1395E+02	0.536
ND152F	1.140E+01	M	1.1500E+03	9.5424E+02	1.205
PM139M	1.800E-01	S	1.8870E+02	3.1435E+02	0.600
PM147F	2.625E+00	A	2.2470E+02	1.3950E+02	1.611
PM149F	2.212E+00	J	1.0724E+03	8.2488E+02	1.300
SM139M	1.070E+01	S	7.9964E+02	6.0950E+02	1.312
SM143N	3.000E-02	S	2.7950E+03	2.0093E+03	1.391
SM151F	8.879E+01	A	7.6300E+01	5.7238E+01	1.333
SM153F	1.946E+00	J	8.1700E+02	6.6799E+02	1.223
SM153M	1.060E-02	S	9.8400E+01	3.3400E+01	2.946
SM156F	9.400E+00	H	7.3500E+02	5.7732E+02	1.273
SM157F	8.067E+00	M	2.6000E+03	5.5900E+02	4.651
SM158F	5.517E+00	M	1.8100E+03	1.4087E+03	1.285
EU150M	1.262E+01	H	1.1504E+03	8.9414E+02	1.287
EU152M	9.320E+00	H	1.8839E+03	1.4293E+03	1.318
EU152N	1.600E+00	H	1.4780E+02	2.3687E+02	0.624
EU154M	4.630E+01	M	1.5700E+02	2.6317E+02	0.597
EU155F	4.960E+00	A	2.4660E+02	2.0167E+02	1.223
EU157F	1.518E+01	H	1.3630E+03	3.3205E+02	4.105
GD159F	1.856E+01	H	9.7470E+02	7.5320E+02	1.294
GD164F	3.180E+01	S	2.5100E+03	3.4848E+03	0.720
TB144M	4.250E+00	S	3.4569E+03	6.6230E+02	5.220
TB151M	2.500E+01	S	2.6892E+02	8.0700E+01	3.332
TB152M	4.300E+00	M	1.3141E+03	1.0425E+03	1.261
TB156N	1.019E+00	J	4.9600E+01	6.2255E+01	0.797
TB158M	1.050E+01	S	1.1000E+02	2.0950E+02	0.525
TB161F	6.910E+00	J	5.9050E+02	4.7187E+02	1.251
TB164F	3.000E+00	M	3.8600E+03	2.4975E+03	1.546

	PERIODE		Q	ETOT	Q/ETOT
DY157M	2.020E-02	S	1.9950E+02	3.1025E+02	0.643
DY165F	2.334E+00	H	1.2851E+03	1.0302E+03	1.247
DY165M	1.258E+00	M	1.3900E+02	2.5635E+02	0.542
DY166F	3.400E+00	J	4.8100E+02	3.9043E+02	1.232
DY168F	8.500E+00	M	1.7600E+03	1.2766E+03	1.379
HO158M	2.700E+01	M	6.7300E+01	1.2500E-01	538.400
HO159M	8.300E+00	S	2.0590E+02	3.3310E+02	0.618
HO160M	5.019E+00	H	1.2101E+03	1.3220E+04	0.092
HO161M	6.730E+00	S	2.1115E+02	9.6100E+01	2.197
HO162M	1.117E+00	H	8.9743E+02	5.9350E+02	1.512
HO164M	3.750E+01	M	1.4000E+02	2.2405E+02	0.625
HO170M	4.300E+01	S	4.0000E+03	5.7426E+03	0.697
ER153F	3.710E+01	S	4.5904E+03	2.5410E+03	1.807
ER167M	2.280E+00	S	2.0780E+02	3.1973E+02	0.650
ER169F	9.300E+00	J	3.5220E+02	2.3143E+02	1.522
TM162M	2.430E+01	S	1.0538E+03	4.8000E+02	2.196
TM170F	1.286E+02	J	9.6705E+02	7.4548E+02	1.297
TM171F	1.922E+00	A	9.6500E+01	5.7774E+01	1.670
YB155F	1.710E+00	S	5.4424E+03	4.4800E+03	1.215
YB169M	4.600E+01	S	2.4200E+01	5.4450E+01	0.444
YB175F	4.190E+00	J	4.6770E+02	3.3318E+02	1.404
YB177F	1.889E+00	H	1.3930E+03	1.1310E+03	1.232
YB177M	6.410E+00	S	3.3150E+02	5.4990E+02	0.603
YB178F	1.233E+00	H	6.3000E+02	1.0891E+03	0.578
YB179F	8.167E+00	M	2.3100E+03	3.3225E+03	0.695
LU155F	7.000E-02	S	6.2111E+03	4.5800E+03	1.356
LU156F	5.000E-01	S	6.7870E+03	4.8710E+03	1.393
LU169M	2.667E+00	M	2.9000E+01	5.0470E+01	0.575
LU170M	6.700E-01	S	9.3000E+01	1.7505E+02	0.531
LU171M	1.317E+00	M	7.1300E+01	1.4918E+02	0.478
LU172M	3.667E+00	M	4.1860E+01	7.7480E+01	0.540
LU174M	1.420E+02	J	1.7982E+02	3.0435E+02	0.591
LU176M	3.681E+00	H	1.3125E+03	1.0831E+03	1.212
LU177F	6.709E+00	J	4.9710E+02	3.6563E+02	1.360
LU179F	4.589E+00	H	1.3500E+03	1.0650E+03	1.268
LU181F	3.500E+00	M	1.9700E+03	7.6025E+02	2.591
LU182F	2.000E+00	M	4.0300E+03	2.4178E+03	1.667
HF177N	5.133E+01	M	2.7400E+03	1.7090E+03	1.603
HF179M	1.867E+01	S	3.7507E+02	5.0925E+02	0.737
HF180M	5.500E+00	H	1.1416E+03	2.4633E+03	0.463
TA157F	5.300E-03	S	6.9780E+03	4.9100E+03	1.421
TA182M	2.830E-01	S	1.6500E+01	3.5218E+01	0.469
TA182N	1.584E+01	M	5.0320E+02	8.0454E+02	0.625
_W161F	4.100E-01	S	6.4000E+03	4.8600E+03	1.317
_W179M	6.400E+00	M	2.2449E+02	3.7640E+02	0.596
_W183M	5.200E+00	S	3.0949E+02	5.0535E+02	0.612
_W185F	7.510E+01	J	4.3240E+02	2.8580E+02	1.513
_W185M	1.670E+00	M	1.9740E+02	4.0873E+02	0.483
_W188F	6.944E+01	J	3.4900E+02	2.2599E+02	1.544
RE163F	2.600E-01	S	7.0492E+03	4.9396E+03	1.427
RE186F	3.777E+00	J	1.0407E+03	7.7868E+02	1.336
RE186M	1.998E+05	A	1.5000E+02	2.1345E+02	0.703
RE187F	5.000E+10	A	2.0000E+00	1.4850E+00	1.347
RE188M	1.860E+01	M	1.7200E+02	2.5850E+02	0.665
RE189F	1.013E+00	J	1.0080E+03	7.8000E+02	1.292
RE190M	3.194E+00	H	1.9045E+03	1.5858E+03	1.201

	PERIODE		Q	ETOT	Q/ETOT
OS166F	1.800E-01	S	6.1587E+03	4.4100E+03	1.397
OS167F	8.300E-01	S	6.6829E+03	3.9118E+03	1.708
OS189M	4.806E+00	H	3.0810E+01	5.6595E+01	0.544
OS191F	1.541E+01	J	3.1270E+02	2.3125E+02	1.352
OS191M	1.310E+01	H	7.4381E+01	1.4790E+02	0.503
OS193F	1.271E+00	J	1.1320E+03	9.1310E+02	1.240
OS194F	5.993E+00	A	9.7000E+01	7.5049E+01	1.292
OS196F	3.490E+01	M	1.1600E+03	6.4736E+02	1.792
IR190M	1.200E+00	H	2.6300E+01	4.1730E+01	0.630
IR191M	4.940E+00	S	1.7128E+02	2.3125E+02	0.741
IR192M	1.440E+00	M	5.8248E+01	1.3084E+02	0.445
IR193M	1.060E+01	J	8.0270E+01	1.6734E+02	0.480
IR195F	2.500E+00	H	1.1180E+03	9.1300E+02	1.225
PT173F	3.420E-01	S	6.6336E+03	5.3400E+03	1.242
PT175F	2.520E+00	S	6.6605E+03	2.5150E+03	2.648
PT193M	4.329E+00	J	1.4978E+02	2.9255E+02	0.512
PT195M	4.020E+00	J	2.5929E+02	4.5625E+02	0.568
PT197F	1.831E+01	H	7.1900E+02	5.9005E+02	1.219
PT197M	1.572E+00	H	4.2333E+02	7.9175E+02	0.535
AU178F	2.600E+00	S	7.1130E+03	4.2420E+02	16.768
AU194M	6.000E-01	S	1.0740E+02	3.2000E+00	33.562
AU194N	4.200E-01	S	4.7580E+02	1.2100E+02	3.932
AU195M	3.050E+01	S	3.1859E+02	4.5050E+02	0.707
AU196M	8.100E+00	S	8.4660E+01	1.7615E+02	0.481
AU196N	9.694E+00	H	5.9566E+02	1.0725E+03	0.555
AU197M	7.800E+00	S	4.0920E+02	6.1680E+02	0.663
AU198M	2.300E+00	J	8.1200E+02	1.2787E+03	0.635
AU201F	2.600E+01	M	1.2750E+03	9.8800E+02	1.290
AU203F	5.300E+01	S	2.1400E+03	1.6740E+03	1.278
HG179F	1.090E+00	S	7.1079E+03	3.4070E+03	2.086
HG195M	1.736E+00	J	8.7403E+02	5.0325E+02	1.737
HG197M	2.380E+01	H	3.4083E+02	6.0494E+02	0.563
HG199M	4.260E+01	M	5.3250E+02	9.0079E+02	0.591
HG205F	5.200E+00	M	1.5380E+03	1.2112E+03	1.270
HG206F	8.150E+00	M	1.3070E+03	1.0589E+03	1.234
HG207F	2.900E+00	M	4.7800E+03	6.3050E+03	0.758
TL187M	1.560E+01	S	3.4031E+02	8.2820E+00	41.090
TL193M	2.117E+00	M	1.2745E+03	2.3477E+02	5.429
TL195M	3.600E+00	S	4.8260E+02	6.2325E+02	0.774
TL197M	5.400E-01	S	6.0830E+02	8.1525E+02	0.746
TL204F	3.780E+00	A	7.5283E+02	1.3942E+00	539.984
TL206F	4.200E+00	M	1.5335E+03	1.2096E+03	1.268
TL207F	4.770E+00	M	1.4220E+03	1.1089E+03	1.282
TL210F	1.300E+00	M	5.4866E+03	4.5016E+03	1.219
PB201M	1.020E+00	M	6.2810E+02	9.5775E+02	0.656
PB203N	4.800E-01	S	2.9501E+03	2.3249E+03	1.269
PB209F	3.253E+00	H	6.4460E+02	4.4402E+02	1.452
PB210F	2.232E+01	A	6.3000E+01	9.4682E+01	0.665
PB211F	3.610E+01	M	1.3730E+03	1.0789E+03	1.273
BI198M	7.700E+00	S	2.4850E+02	4.1750E+02	0.595
BI210F	5.013E+00	J	1.1615E+03	8.7315E+02	1.330
BI213F	4.559E+01	M	1.5303E+03	1.2577E+03	1.217

	PERIODE		Q	ETOT	Q/ETOT
PO195F	4.500E+00	S	6.7628E+03	5.6278E+03	1.202
PO197M	2.600E+01	S	6.5821E+03	5.4710E+03	1.203
PO198F	1.760E+00	M	5.6267E+03	4.4150E+03	1.274
PO203M	1.200E+00	M	8.3166E+02	2.1310E+03	0.390
PO207M	2.790E+00	S	1.3830E+03	1.7360E+03	0.797
AT201F	1.483E+00	M	6.2785E+03	4.8992E+03	1.282
RN201F	7.000E+00	S	6.8016E+03	5.4500E+03	1.248
RN203F	4.500E+01	S	6.4355E+03	4.3550E+03	1.478
RN203M	2.800E+01	S	6.8762E+03	5.3420E+03	1.287
RN204F	1.240E+00	M	5.6865E+03	4.4490E+03	1.278
FR204F	2.100E+00	S	7.4724E+03	5.7180E+03	1.307
FR223F	2.180E+01	M	1.1479E+03	9.1229E+02	1.258
RA225F	1.480E+01	J	3.6200E+02	2.5638E+02	1.412
RA227F	4.220E+01	M	1.3350E+03	1.0946E+03	1.220
TH233F	2.230E+01	M	1.2450E+03	9.6490E+02	1.290
TH234F	2.410E+01	J	1.9850E+02	1.5025E+02	1.321
TH236F	3.710E+01	M	1.0000E+03	8.1345E+02	1.229
PA234M	1.170E+00	M	2.2791E+03	1.8589E+03	1.226
PA235F	2.420E+01	M	1.4150E+03	1.0542E+03	1.342
PA236F	9.100E+00	M	2.8982E+03	2.1614E+03	1.341
PA237F	8.700E+00	M	2.2500E+03	1.8700E+03	1.203
_U235M	2.600E+01	M	7.6000E-02	2.4700E-01	0.308
_U239F	2.347E+01	M	1.2629E+03	9.7386E+02	1.297
NP241F	1.390E+01	M	1.3080E+03	1.0198E+03	1.283
PU241F	1.441E+01	A	2.0935E+01	1.1907E+01	1.758
PU243F	4.956E+00	H	5.8200E+02	4.1579E+02	1.400
AM242F	1.602E+01	H	6.7616E+02	4.2384E+02	1.595
AM242M	1.411E+02	A	7.3763E+01	1.2485E+02	0.591
AM244M	2.600E+01	M	1.4974E+03	1.1462E+03	1.306
AM245F	2.050E+00	H	8.9600E+02	6.6839E+02	1.341
CM249F	1.069E+00	H	9.0300E+02	6.5804E+02	1.372
CM251F	1.680E+01	M	1.4200E+03	1.1203E+03	1.268
BK248M	2.370E+01	H	8.1500E+02	4.6164E+02	1.765
BK249F	3.200E+02	J	1.2508E+02	7.4447E+01	1.680
CF239F	4.000E+01	S	7.8000E+03	5.8000E+03	1.345
CF253F	1.781E+01	J	3.0709E+02	1.9994E+02	1.536
ES254F	2.755E+02	J	6.6175E+03	1.1894E+04	0.556
ES256F	2.200E+01	M	1.6690E+03	2.1293E+03	0.784
ES256M	7.600E+00	H	1.6700E+03	9.9551E+02	1.678