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LINE AND CONTINUUM GAMMA-RAY YIELDS FROM THERMAL-NEUTRON CAPTURE IN 75 ELEMENTS

FINAL REPORT

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FINAL REPORT

This effort supported by Defense Atomic Support Agency under:
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ABSTRACT

Presented are the results of an analysis of thermal capture gamma-ray spectral data obtained at the MIT Thermal Capture Gamma-Ray Facility using a Ge(Li)-NaI spectrometer. This data has been previously analyzed to obtain the energies and intensities of the resolved lines from radiative neutron capture in 75 natural elements. In the present work, the spectral data was unfolded to remove the effect of the spectrometer response, and the total gamma-ray yield for both discrete lines and continuum, was determined. The method of analysis, described previously by Harper and Rasmussen, is briefly summarized. Also discussed are the binding energy check and normalization of the data to the known binding energies producing a consistent set of values. A comparison of some of the present results with previous data is given. The capture gamma-ray energies and intensities are tabulated and the original gamma-ray spectra are shown for each element. The total gamma-ray yield data for each element has been written onto magnetic tape in the ENDF format to facilitate the use of this data by radiation transport codes. A description of the tape preparation procedure and the data formats employed are given.

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1. INTRODUCTION

In many neutron shielding studies, an accurate knowledge of the yield of gamma rays resulting from the radiative capture of thermal neutrons is essential. A number of compilations of thermal capture γ-ray energies and yields have been published. Some of these compilations, such as those by Bartholomew and Higgs[1] and Groshev et al.,[2] were primarily designed to meet the needs of the nuclear physicist concerned with the study of nuclear structure. On the other hand, the compilation of Troubetskoy and Goldstein,[3] which made extensive use of the data of Bartholomew and Higgs[1] and Groshev et al.,[2] presented the available capture γ-ray yield data in a form more suitable for use in shielding studies. Troubetskoy and Goldstein point out several shortcomings of the data available at the time of their compilation (1961); namely, disagreement in the energy region of overlap between the two principal data sets measured in Russia[1] and at Chalk River,[2] the dearth of data below 3 MeV, and the complete lack of data for some elements. Nevertheless, this compilation has been widely used as a source of capture γ-ray data for shielding calculations. A more recent compilation by Greenwood and Reed,[4] which included their thermal capture γ-ray spectra measured with NaI detectors, was primarily intended to provide data necessary for the development of prompt activation analysis techniques. This data is of limited usefulness in shielding calculations since for most elements the lines observed with the NaI detector represented only a small fraction of the total γ-ray energy radiated. Maerker and Muckenthaler,[5] using a "folding" technique to assess the contribution of the response of a NaI detector to a measured spectrum, have recently obtained thermal capture γ-ray intensities which account for most of the radiated energy for 13 natural elements.

The advent of lithium-drifted germanium (Ge(Li)) detectors revolutionized the measurement of thermal capture γ-ray data. Many investigators were quick to use Ge(Li) detectors to measure thermal capture γ-ray energies and intensities with greatly improved precision. A compendium[6] of thermal capture γ-ray data by Bartholomew et al., and Groshev et al., contains most of this new Ge(Li) data (up to July 1967) as well as the older data. This compendium contains data only for discrete γ-ray lines; consequently for many elements, a large fraction of the energy radiated is not accounted for since even with high-resolution Ge(Li) detectors the spectra of many elements still have an appreciable continuum contribution. Furthermore, even for elements with a negligible continuum, in some cases the thermal capture yield data from different measurements tend to disagree and the total radiated energy is not consistent with the known binding energy. The need for thermal capture γ-ray yields suitable for use in shielding calculations was the principal motivation for the work described here.

This final report presents the results of an analysis of thermal capture γ-ray spectral data obtained at the MIT thermal capture γ-ray facility[7] using a Ge(Li)-NaI spectrometer. This data has been previously analyzed[8, 9] to obtain the energies and intensities of the resolved lines from radiative neutron capture in 75 natural elements. In the present work, the spectral data was unfolded to remove the effect of the spectrometer response, and the total γ-ray yield, both discrete lines and continuum, was determined. A brief summary of the method of analysis, described previously by Harper and Rasmussen,[10] is given in Section 2. The binding energy check and normalization of the data to the known binding energies producing a consistent set of values are also discussed in Section 2. A comparison of some of the present results with previous data is given in Section 3. In Section 4 the capture γ-ray energies and intensities are tabulated and the original γ-ray spectra are shown for each element. The total

γ-ray yield data for each element has been written onto magnetic tape in the ENDF format to facilitate the use of this data by radiation transport codes. A description of the tape preparation procedure and the data formats employed are given in Section 5.

2. DETERMINATION OF γ-RAY YIELDS

2.1 ANALYSIS OF RESOLVED LINES

As noted above, the spectra of 75 natural elements obtained on the MIT triple coincidence pair spectrometer have been analyzed for their discrete lines using the computer code GAMANL.[11,12] The results of this analysis have been previously reported.[9] This data included gamma-ray energies and their intensities per 100 captures. The energy accuracy for all but the very weakest lines was reported as ±1 keV and the intensities for all but the weak peaks were reported as ±20%. The reported intensity value depends upon not only the measured area of the peak but also on detector efficiency, capture cross section, and integrated neutron flux during the measurements. Errors in any of these parameters contributed to errors in the final intensity values reported. Background effects were important when the capture cross section was small (<100 mb). Furthermore, in all spectra the strong hydrogen line in the background at 2223 keV sometimes interfered with the measurement of weak lines nearby.

The results tabulated in Section 4 are obtained from the same data that was used in the preparation of Ref. 9, except as noted below. However, in the time since that report was issued, the GAMANL code has been improved especially in regard to the way peak areas are calculated so most of the data was recalculated using the new version of the code.[12] This has led to some small changes in peak energy (usually <0.5 keV) and some changes in peak intensity. Thus, the lines tabulated here may show some small differences when compared to Ref. 9.

As a check on the Ref. 9 (MITNE-85) data and the method developed for the analysis of unresolved data, six elements were reanalyzed in a different facility at the MIT reactor.[10] This facility had the advantage of a much smaller hydrogen background line. In the results in Section 4 this MITNE-104 data is used for the following five elements: Nd, Sm, Eu, Gd, and Er. In the sixth case, Fe, the MITNE-85 data and the MITNE-104 data agreed to within 10% but the MITNE-85 data was in slightly better agreement with other workers so it is the one reported. Table 1 shows the percentage of the total binding energy observed in resolved lines in the two different measurements for the six cases. The agreement is good except for Eu. A large part of this discrepancy resulted from the inclusion in the MITNE-85 data of two lines, 329 keV and 379 keV, which were absent in the MITNE-104 data. These two lines, which accounted for ~12% of the average binding energy of Eu, were probably unidentified background lines and should have been excluded. It should be noted that Eu has many very weak lines (the strongest line observed in the pair spectrum has an intensity of only 0.13 γ-rays/100 captures), whose intensities are difficult to extract with precision. This fact probably accounts for the remaining discrepancy between the fractions of the binding energy observed as discrete lines in the MITNE-85 and MITNE-104 data.

Table 1

PERCENTAGE OF THE BINDING ENERGY OBSERVED IN RESOLVED LINES IN TWO DIFFERENT MEASUREMENTS

Element	MITNE-85[9]	MITNE-104[10]
Fe	92.7%	82.6%
Nd	36.5%	41.6%
Sm	19.3%	17.6%
Eu	16.0%	1.3%
Gd	11.7%	20.0%
Er	21.3%	16.2%

In 27 cases 70% or more of the expected γ-ray energy was observed in the resolved lines. Since, as noted below, the continuum is calculated by taking the difference between two large numbers, it was felt in these cases that the continuum was too small to be meaningful so the bin yields in these cases are determined solely from the resolved lines. They have a zero in the continuum column in Table 17.

2.2 CONTINUUM ANALYSIS

The continuum analysis used here is based on the method developed by Harper and Rasmussen[10] and uses the code GAMABC developed in that work. A brief description of that method is given here.

2.2.1 Continuum Effects

To obtain quantitative results for the continuum in the spectrum due to unresolved or weak capture gamma lines, it is necessary to subtract from the measured spectrum all other effects which contribute to the continuum. For this analysis, the continuum is assumed to be caused by four processes, which are:

1. Counts due to the weak unresolved capture lines
2. Counts in the continuum due to gamma rays either scattered or produced in the shielding material
3. Low energy counts in the continuum caused by the Ge(Li) detecting system response to higher energy resolved gamma rays
4. Low energy counts in the continuum caused by the Ge(Li) detecting system response to higher energy unresolved gamma lines.

The amount of continuum due to the weak unresolved capture lines, listed as the first effect, is the quantity of interest. The last three contributions to the continuum are those effects for which corrections must be made to the total measured continuum.

2.2.2 Background Continuum Correction

The background continuum resulting from the shielding material, the second effect, is accounted for by measuring a separate background spectrum with the sample removed. The continuum obtained from such data is due only to background gamma rays from the shielding material. It is subtracted from the measured data continuum, after normalizing the background data to the same time as the data run, and after aligning the two runs with respect to gamma energy. If a sample has a large neutron scattering cross section, the increased scattering can cause the spectrometer shielding material near the sample to experience more neutron captures, and as a result, the Ge(Li) detector will record more background because of the increased capture gamma production in the shielding material. In such cases the background run is normalized to the magnitudes of the well-resolved background gamma lines from the shielding material that are seen in the sample spectrum.

2.2.3 System Response

Effects three and four are accounted for by determining the peak response function of the Ge(Li)-NaI pair spectrometer over the gamma energy range of interest. The peak response function at a gamma energy E is defined as the perturbation in counts/channel for each channel in the spectrum, caused by a monoenergetic gamma ray of energy E striking the surface of the Ge(Li) detector. It is expressed in units of area (counts) in the double escape peak at energy E - 1.022 MeV. Once this peak response function is known, the effects that the well-resolved and unresolved peaks have on the continuum portion of the spectrum can be determined and subtracted. The remaining continuum is that which is due to only the unresolved lines.

Figure 1 shows the general shape of the peak response function determined from an empirical study of spectra taken with the pair spectrometer. It is quite similar in shape to the peak response functions reported

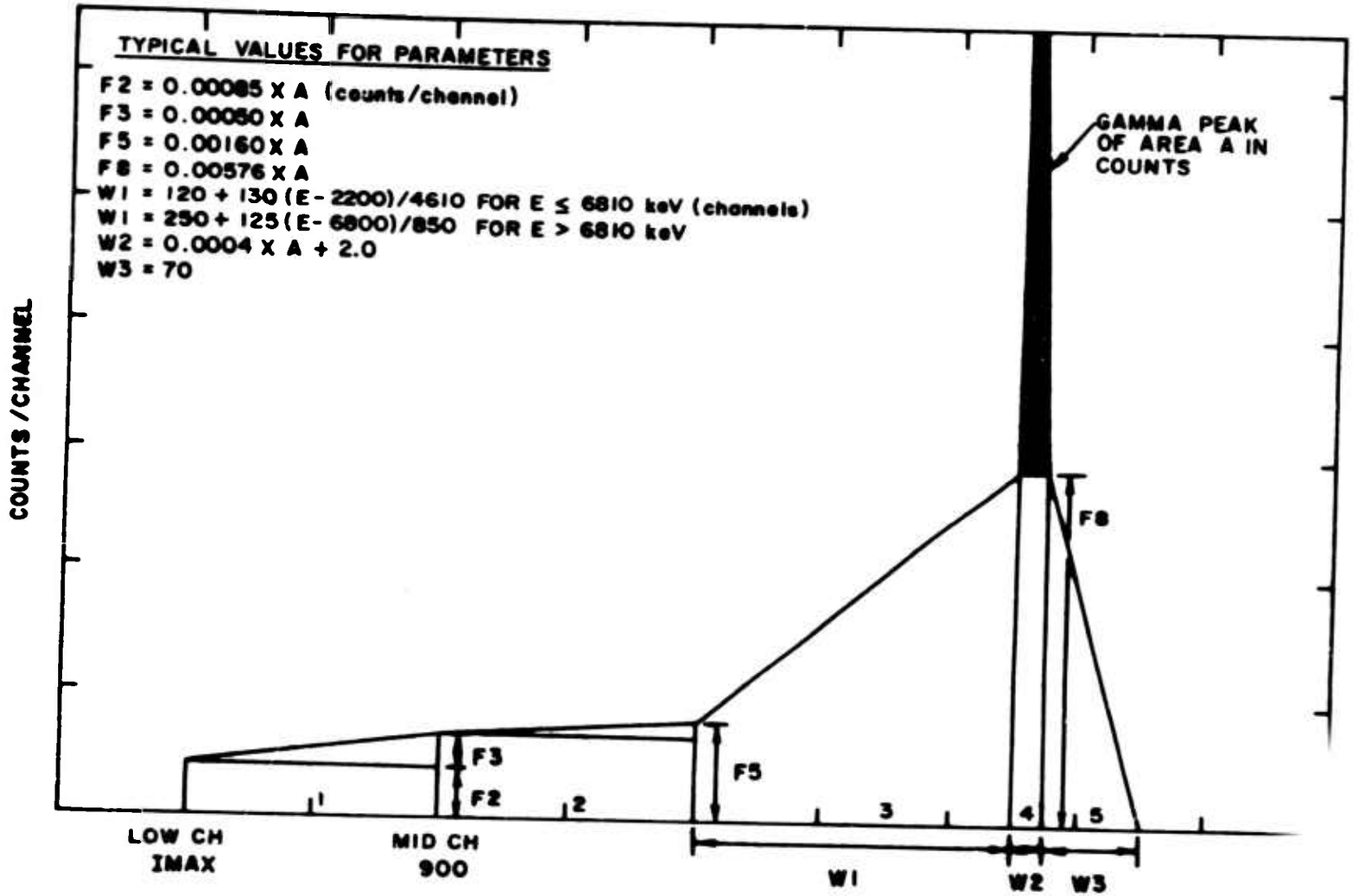


Fig. 1. Shape of peak response function for Ge(Li) pair spectrometer.

elsewhere for Ge(Li) detectors.[13, 14] The values of the response function parameters, which are shown in the figure, are given in terms of the double-escape pair peak area. Figure 2 shows one of the studies used to obtain the values of the peak response parameters. The response shown, is for the iron doublet at 7631-7645 keV. This enlarged portion of the iron spectrum shows the response function obtained by using the shape of the response, as in Fig. 1, with the listed parameters.

The data of Fig. 2 also indicate some of the problems encountered in trying to determine the response of the detector to monoenergetic gamma rays. Since the values of the parameters being measured are small in terms of the peak areas, it is desirable to have a large number of counts in the peak area, and as small a background level as possible. Ideally, the peak should contain at least 10,000 counts, and preferably about 100,000 counts. Unfortunately, strong monoenergetic gamma sources in the energy range desired (1.5 MeV to 10.0 MeV) are scarce and use must be made of spectra which may have interfering gamma rays in the part of the spectrum being studied. Nevertheless, a reasonable approximation to the response function, which proved to be accurate enough to permit continuum analysis on the capture spectra, was obtained.

2.2.4 Response Correction for Resolved Peaks

The peak response function at a peak energy E determines the correction in counts/channel to be applied for a resolved peak of energy E observed in the recorded spectrum. The peak area (in counts) and energy (in keV) as found by the computer code GAMANL are used to determine the magnitude and shape of the response.

The peak response correction for each channel of the spectrum is subtracted from the remaining continuum (the continuum after background subtraction). Each peak as found by the GAMANL code is so corrected. Thus, the continuum after applying these corrections is due only to unresolved gamma lines and their response contribution to it.

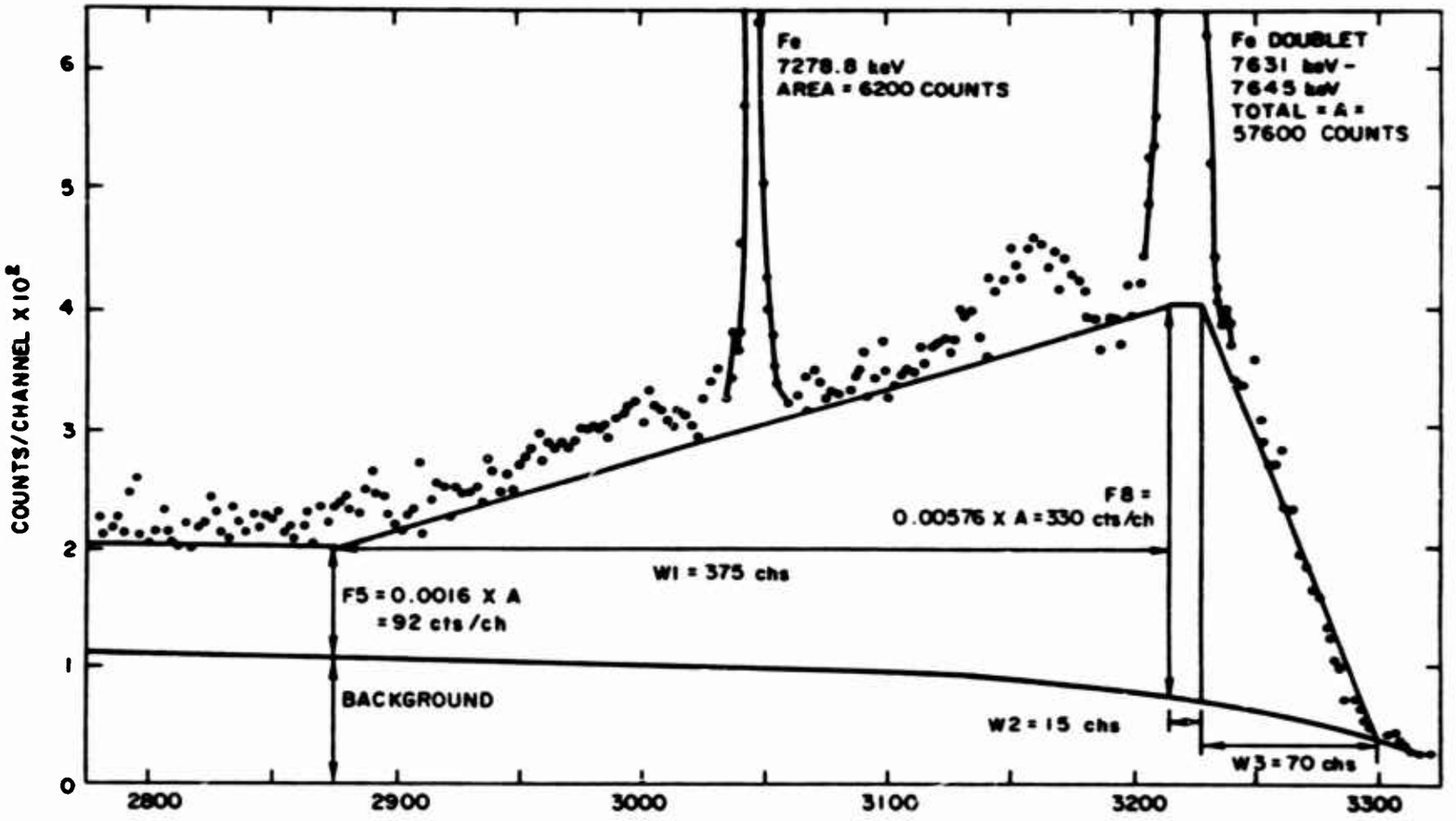


Fig. 2. Ge(Li) pair spectrometer response to the iron 7631-7645 keV doublet.

2.2.5 Response Correction for Unresolved Lines

The system response due to unresolved gamma lines, the fourth effect contributing to the measured continuum, is corrected for by using energy bins of width about equal to the base of the resolved peaks in the spectrum, and by using the same response function used for the peaks. The total area of the bin is calculated and reduced slightly to account for the pedestal effect of the response function.

The analysis starts at the high energy side of the spectrum, and calculates the correction using the average bin energy, the reduced bin area, and the appropriate response function which corresponds to the average energy of the bin being studied. The correction values are then subtracted from the remaining continuum for all channels below the energy bin being studied.

After the first (highest energy) bin is so corrected, the next lower energy bin is studied and corrected in the same manner. This process is continued until the entire spectrum has been corrected for the detector response to unresolved lines.

2.2.6 Energy Bin Analysis

After correcting the continuum for the three effects as described above, the remaining continuum is broken into energy bins 250 keV wide and the area in counts per bin determined. This area is then converted to gamma intensity (yield) in number of photons emitted with energy within the bin per 100 captures in the sample.

It should be noted that the intensities of unresolved γ-rays for energies less than 1500 keV have been estimated. The unfolding procedure produces relatively large uncertainties in the intensities below 1500 keV because of the propagation of errors resulting from the removal of the response in this energy region to higher energy γ-rays. The sharp decrease in the efficiency of the pair spectrometer below 1500 keV further complicates the

determination of unresolved intensities in this energy range. No attempt was made in this work to unfold the Compton-suppression spectra to obtain the continuum at the lower γ-ray energies. The continuum intensities below 1500 keV were obtained by extrapolating the measured values to zero in a rather arbitrary fashion. In most cases, the continuum below 1500 keV contributes no more than 5 to 10% of the observed binding energy. Furthermore, since in most shielding applications these γ-rays are much less important than the higher energy γ-rays, the lack of measurements of the continuum below 1500 keV does not seriously affect the usefulness of the data.

2.2.7 Code Development

To perform the above analysis, a computer code, GAMABC, was written. GAMABC makes use of GAMANL to analyze the well-resolved peaks in the spectrum. Figure 3 gives a general flow diagram for the major sections of the GAMABC code that pertain to the continuum analysis.

The value and shape of the peak response function are controlled by subroutine PCB and by input data to the code. PCB uses the peak energy and area in its calculation of the response function. The code is written in general terms so as to enable other spectral data with different peak response functions to be analyzed.

2.2.8 Typical Results

To show the magnitude of the peak counts, bin corrections, background, etc., Table 2 shows these parameters for six typical cases. They range from over 80% of the observed binding energy in resolved lines to just greater than 1% in resolved lines. The magnitudes of the parameters are typical of most runs. The percentage of the total binding energy observed was within 100 ±20% in about 70% of the cases. The reason that the other 30% of the cases lie outside this range is not known but is presumably due to an error in the value of the cross section used, the value of the average binding energy used, or an error in the neutron flux determination.

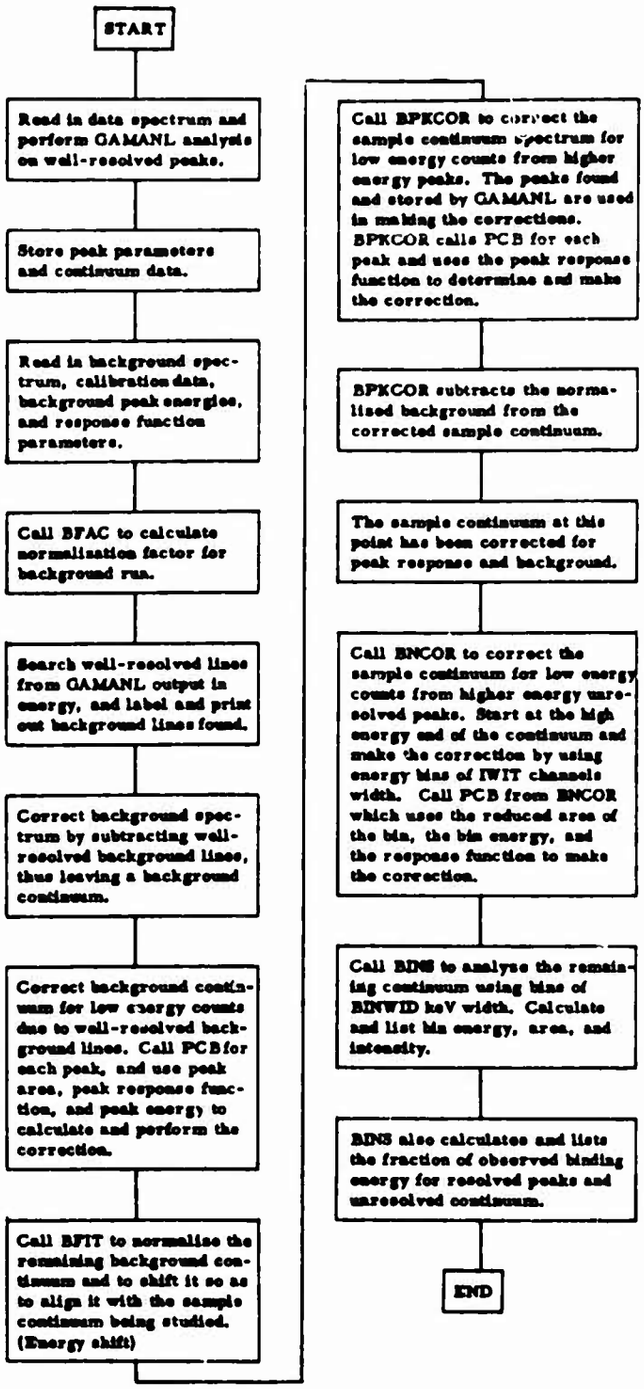


Fig. 3. Flow diagram showing major sections of GAMABC computer program.

Table 2

SUMMARY OF CONTINUUM DETERMINATION USING GAMABC CODE FOR SIX TYPICAL CASES[a]

	Fe[b]	Nd	Sm	Eu	Gd	Er
Total counts in spectrum	10.89	12.34	8.94	8.80	12.91	15.14
Total counts in background	1.95	1.74	1.72	1.42	1.73	1.66
Total counts in resolved peaks	1.63	1.51	0.52	0.34	0.68	0.68
Counts in peak response correction	5.48	3.14	0.62	0.37	1.20	1.06
Counts in bin response correction	1.67	4.03	3.96	4.55	6.43	8.02
Net continuum counts	0.37	2.16	2.41	2.33	3.12	4.05
% of binding energy in resolved lines	82.2	41.6	15.2	1.2	20.0	16.2
% of binding energy in continuum	18.5	49.3	71.2	84.6	87.8	83.2
Total % of binding energy observed	100.7	91.0	86.4	86.3	107.6	99.2

[a]All numbers of counts are multiplied by 10^5.

[b]Note that the iron data quoted here are from reference 10 and differ from the iron data of reference 9 (quoted in Table 17) as explained in the text.

2.3 NORMALIZATION TO THE BINDING ENERGY

A measure of the fraction of the total γ-ray yield observed was obtained by calculating the ratio of the observed binding energy to the known actual binding energy for each element, given by

$$\frac{(BE)_{obs}}{(BE)_{actual}} = \frac{\sum_{i=1}^{n} \frac{E_i I_i}{100}}{\frac{1}{\sigma_c} \sum_{j=1}^{m} a_j \sigma_j (BE)_j} \qquad (1)$$

where E_i = energy of capture gamma ray

I_j = intensity of capture gamma ray (gamma rays per 100 captures in the element)

n = total number of capture gamma rays

σ_c = average capture cross section for the element

a_j = percent abundance of the jth isotope

σ_j = capture cross section of the jth isotope

$(BE)_j$ = binding energy for the jth isotope

m = number of isotopes contributing to the capture cross section of the element

As mentioned above, experimental errors in the absolute gamma-ray intensities result in deviations of the observed binding energy from the actual binding energy. If nearly all of the gamma-ray yield has been accounted for and if the relative intensity errors are smaller than the absolute errors, then the accuracy of the absolute gamma-ray intensities may be improved by normalizing to the binding energy. This is done by setting the left hand side of Eq. 1 to unity and calculating a new set of I_i's. Nearly all of the gamma-ray yield is accounted for by the resolved lines in the

spectra for most low Z elements. Furthermore, the relative errors are certainly smaller than the absolute errors, since the absolute intensity values are subject to additional errors such as the uncertainty in the calculation of the number of captures in the sample (reflects errors in the absolute neutron flux and the thermal capture cross section) and the absolute gamma-ray detection efficiency of the spectrometer. Thus, the intensity values for each element were normalized to the binding energy in order to produce a more accurate and consistent set of absolute intensities. It should be noted that total bin yields and average bin energies were used in the normalization. Consequently, the normalized binding energy in some cases is not exactly 100% of the actual binding energy. However, in most cases the binding energies agree within 1%.

3. COMPARISONS WITH PREVIOUS DATA

In this section the results of the present work are compared with some previous data. No attempt is made to present a comprehensive comparison, instead representative data are shown which indicate how the present data compare with earlier data.

The efficacy of the binding energy normalization procedure may be demonstrated by comparing for several elements the resulting absolute gamma-ray intensities of the stronger lines with previous absolute measurements. This comparison has been made for three elements (N, Na, and Si) whose spectra showed no continuum contribution and one element (Al) with a small continuum contribution. The ratio of the observed to the actual binding energy for these elements is as follows:

N — 1.01
Na — 1.16
Al — 0.84
Si — 1.14

Table 3 shows the comparison of gamma-ray intensities from the present measurements (normalized to the binding energy) with several previous measurements.[6] Although there are some disagreements among the previous measurements, in those cases where there is a consensus, the agreement with the present data is quite good.

In Tables 4 - 16 the binned capture gamma-ray yields from the present work (normalized to the binding energy) are compared to previous results for 14 common elements. Our data have been grouped into 0.5-MeV wide energy bins to facilitate a comparison with the data of Maerker and Muckenthaler.[5] The binned data from other previous measurements were

obtained from Ref. 5. Note that the percent binding energy quoted for the present results includes a contribution from energies below the lower energy bound, usually 1 MeV.

The agreement between the present results and the data of Maerker and Muckenthaler is, in general, quite good. Most of the significant discrepancies occur in the lower-energy bins where the uncertainties in the data are greatest. In the majority of cases the present data are consistently lower in the 1.0 to 1.5 MeV bin than the data of Maerker and Muckenthaler. For example, in the case of chlorine (Table 7) the 1.0 - 1.5 MeV bin yield from the present work is only about one-third of the value obtained by Maerker and Muckenthaler. Nevertheless, as may be seen in Table 7, the agreement is quite good for all higher energy bins. The agreement with other previous measurements is reasonably good for all of the elements compared.

It is of interest to compare the "Reactor Handbook values" (essentially the same as in Ref. 3) which are often used in shielding calculations with the present results. An examination of Tables 4 - 16 reveals many discrepancies. For instance, the yield from neutron capture in nickel for the 3-5 MeV bin is listed in the handbook as 23 γ-rays/100 captures compared to the present value of only 7.4 γ-rays/100 captures.

Table 3

COMPARISON OF CAPTURE GAMMA YIELDS NORMALIZED TO THE BINDING ENERGY WITH PREVIOUS MEASUREMENTS

Element	E_γ (MeV)	Intensities of Strong Lines (γ-rays/100 captures)				
		Present Work	Previous Measurements[6]			
			Groshev	Bartholomew	Motz	Greenwood
Nitrogen	10.828	14.9	15	11	14	
	6.321	16.5	16	17	18	
	5.532	17.7		18	21	
	5.297	18.4	} 60	35	21	
	5.267	25.2		22	32	
	4.508	15.7	16	16	16	
	3.675	15.4	17	17	< 23	
Sodium	6.395	22.2	22		17.5	20
	5.617	5.2	6		4.4	4.6
	3.982	18.6	17.2		12.3	13.8
	3.588	15.0			9.1	11.6
	2.863	10.2	7		4.2	7.3
	2.518	14.8	21		10.6	13.4
	2.027	17.1	11.5		10	10.2
	.871	21.9			> 7	33.7
	.472	60.0				~ 100
Aluminum	7.724	25.9	24	20		
	4.734	4.1	8	4.3		
	4.133	5.9	6	3		
	3.465	5.1	5.2			
	3.034	6.2	5.1	10		
	2.960	7.2	8			
Silicon	7.199	6.30	6.1	8		
	6.380	11.1	9.2	11		
	4.934	62.1	37.4	75		
	3.539	70.0	36.5	60		
	2.093	23.6	12.8			

Table 4

COMPARISON OF SODIUM YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)											%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	
Present Work	2.8	17.7	34.7	38.0	20.8	44.5	2.7	0.5	1.2	5.2	22.4	100[a]
Greenwood 1967	15.0	9.9	21.4	43.6	16.2	36.4	5.25	2.55	1.1	4.9	20.5	98
Barfield 1967	>1.9	15.1	18.7	>26.1	11.0	≤32.3	4.2	1.8	1.2	4.4	17.8	67[b]
Grosshev 1958	6.5	17.0	29.5	36.5	14.5	42.4	4.7	2.1	0.8	6.0	22.0	100
Maerker and Muckenthaler 1969	14.8	11.9	26.9	47.6	14.2	34.0	6.4	2.65	2.2	5.9	21.5	89[b]
Reactor Handbook 1962	27		87		70				31			113

[a]Normalized value, including contribution from energies below 1 MeV. Observed %BE = 115.8.

[b]Does not include ~13% contribution from energies below 1 MeV.

Table 5

COMPARISON OF ALUMINUM YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)														%BE[a]
	0.90-1.5	1.5-2[a]	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	
Present Work	6.3	7.8	15.3	15.9	12.8	13.2	17.9	19.2	6.6	1.5	5.4	4.9	3.2	35.5	100[b]
Bostrom and Draper 1963	7.7	5.4	13.0	10.0	17.0	7.0	15.0	16.0						32.0	72
Groshev 1958			8.1	15.0	10.9	11.8	13.1	15.4	5.5	0.8	5.3	1.7		24.0	71
Bartholomew 1958				4.6	13.5	6.9	10.7	7.6	3.3	2.5	3.4	1.5	0.5	20.0	52
Greenwood 1965	14.1	4.3	8.8											37.0	43
Maerker and Muckenthaler 1969	18.6	10.4	13.1	20.5	15.9	14.3	16.1	17.6	6.8	2.8	6.0	2.2	0.7	32.4	95[d]
Reactor Handbook 1962	95		89		62				19				19		122

[a] Does not include the 100% 1.78-MeV decay gamma ray.

[b] Normalized value, includes contribution from energies below 0.98 MeV. Observed %BE = 83.7%.

[c] Lower energy of first group is 1.0 MeV.

[d] Does not include ~2% contribution from energies less than 0.98 MeV.

Table 6

COMPARISON OF SILICON YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)															%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	
Present Work	13.3	0.0	29.4	2.5	4.3	78.4	0.2	63.6	4.5	0.0	12.0	1.6	7.0	0.0	2.0	100[a]
Kennett 1966	20.0	0.0	24.4	3.0	0.0	70.9	0.0	61.0	4.5	0.0	15.2	1.5	10.0	0.0	2.7	97
Maerker and Muckenthaler 1969	15.3	0.0	23.0	4.6	5.4	76.6	0.8	70.3	6.4	0.2	12.2	0.8	9.7	0.0	2.2	104[b]
Reactor Handbook 1962	63		30		89				11				4.1			76

[a]Normalized value, includes contribution from energies below 1.0 MeV. Observed %BE = 113.7.

[b]Does not include ~1% contribution from energies below 1 MeV.

Table 7

COMPARISON OF SULFUR YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	8.5-9	
Present Work	0.0	0.0	47.2	30.0	33.6	2.8	4.4	13.5	62.2	1.3	0.0	0.0	0.0	3.9	0.0	2.7	100[a]
Kennett 1967	0.0	2.4	47.4	19.2	27.1	3.2	4.7	12.9	60.3	2.5	0.0	0.7	1.6	3.8	0.0	2.3	94
Van Middelkoop 1966	1.3	2.0	38.4	19.9	27.6	1.6	3.9	12.6	53.4	2.8	0.0	0.4	0.6	3.0	0.0	2.0	84
Maerker and Muckenthaler 1969	1.7	3.1	43.9	22.8	29.4	3.0	7.0	15.3	61.9	3.9	0.4	1.0	1.0	3.5	0.5	2.0	94[b]
Reactor Handbook 1962	32		72		70				44				6.5				99

[a] Normalized value, includes contribution from energies below 1 MeV.

[b] Does not include ~ 6% contribution from energies below 1 MeV.

Table 8

COMPARISON OF CHLORINE YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	8.5-9	
Present Work	16.3	57.2	9.0	21.1	12.5	8.4	4.9	8.8	2.2	11.2	22.0	15.7	11.6	8.7	0.0	3.0	100[a]
Grochev 1960	28.8	32.8	3.5	12.1	9.0	6.2	3.9	7.5	1.2	10.0	26.4	16.3	12.7	8.2	0.0	3.1	92
Draper 1963	<26.0	<35.0	<2.5	<14.5	<7.3	<2.0	<5.0	9.4	1.2	9.8	21.0	15.7	9.9	8.4	0.0	2.3	<84
Maerker and Muckenthaler 1969	45.2	45.4	14.3	19.3	12.3	9.1	6.5	9.0	3.4	11.7	26.2	18.3	12.4	10.0	0.0	3.2	108[b]
Reactor Handbook 1962	85		41		47				55				24				113

[a] Normalized value, including contribution from energies below 1 MeV. Observed %BE = 77.0.

[b] Does not include ~3% contribution from energies below 1 MeV.

Table 9

COMPARISON OF POTASSIUM YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)														%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	
Present Work	20.4	26.2	39.9	19.3	15.8	22.7	20.7	5.5	19.5	17.9	0.4	3.1	0.0	6.1	100[a]
Groshev 1958	11.0	28.0	24.0	12.0	8.5	17.0	9.0	3.5	13.4	16.0	0.0	1.6	0.2	4.4	67
Kennett 1966							13.3	5.2	14.7	17.0	0.0	2.8	0.0	7.1	42
Rudolph 1965							6.5	1.9	13.7	16.3	0.0	2.4	0.0	6.1	34
Maerker and Muckenthaler 1969	35.0	25.6	37.2	23.5	16.7	23.2	20.2	7.7	16.2	17.3	0.95	2.15	0.45	5.65	96[b]
Reactor Handbook 1962	81		57		106				37				4.7		128

[a] Normalized values, including contribution from energies below 1 MeV. Observed %BE = 74.4.

[b] Does not include ~4% contribution from energies below 1 MeV.

Table 10

COMPARISON OF CALCIUM YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)											%BE
	1.06-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	
Present Work	4.9	88.6	41.9	10.0	3.2	14.0	15.9	7.1	3.0	9.6	42.0	100[a]
Gruppelaar 1967	6.0	83.0	29.5	8.6	1.7	9.6	15.7	6.0	0.7	9.7	40.2	86
Bartholomew 1958						10.0	18.0	9.0	0.0	13.0	40.0	59
Maerker and Muckenthaler 1969	20.9	79.6	41.5	14.3	7.9	13.5	19.4	6.6	2.5	12.1	40.0	100[b]
Reactor Handbook 1962	191		77	85					64			145

[a] Normalized value includes contribution from energies below 1.06 MeV. Observed %BE = 72.2.

[b] Does not include ~2% contribution from energies below 1.06 MeV.

Table 11

COMPARISON OF TITANIUM YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																	%BE
	1.25-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	8.5-9	>9	
Present Work	59.4	20.6	3.8	3.1	7.3	5.2	0.8	10.3	1.0	1.4	32.5	52.5	0.3	0.0	0.19	0.0	0.0	100[b]
Knowles 1959	87.6	14.8	0.6	1.4	3.6	3.9	0.6	9.7	0.4	0.8	29.2	47.4	1.0	0.18	0.30	0.0	0.19	93
Draper 1963	88.6	23.6	3.3	6.0	8.7			10.2		1.7	90.6		1.1	0.5	0.4			110
Groshev 1958	85.0	25.7	5.2	3.0	6.7	5.7	0.6	9.9	0.0	0.8	27.5	42.0	0.6	0.3	0.2	0.0	0.23	93
Maerker and Muckenthaler 1969	83.8	25.7	3.6	5.0	6.2	4.6	0.7	9.5	0.4	1.0	33.1	56.0	0.9	0.18	0.32	0.0	0.21	106
Reactor Handbook 1962	160		16		24				78				1.3				0.2	112

[a] Upper energy limit of each group not included in summation; lower energy of first group in Reactor Handbook is 1.0 MeV.

[b] Normalized value, includes contribution below 1.25 MeV. Observed %BE = 116.7.

Table 12

COMPARISON OF IRON YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1.15-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-9	≥9	
Present Work	7.2	17.5	4.2	5.3	6.9	3.1	7.9	3.3	1.2	10.7	9.7	0.4	5.4	53.5	0.8	4.3	100[a]
Groshev 1964	4.0	21.0	2.0	5.7	11.8	2.3	6.0	3.2	0.6	8.7	9.3	0.2	5.3	43.0	0.8	3.3	89
Maerker and Muckenthaler 1969	5.0	15.0	3.9	6.0	9.2	3.5	7.2	3.3	1.0	9.9	10.1	0.5	5.5	50.6	0.8	3.3	95[b]
Reactor Handbook 1962	60[c]		27		23				25				38			2.1	96

[a]Normalized value, including contribution from energies below 1 MeV. Observed %BE = 92.7.

[b]Does not include ~3% contribution from energies less than 1.15 MeV.

[c]Lower energy of group is 1.0 MeV.

Table 13

COMPARISON OF NICKEL YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	8.5≤9.01	
Present Work	2.8	3.7	2.0	4.0	1.9	1.8	1.2	2.5	2.8	4.6	3.4	13.7	0.2	13.9	3.7	55.3	100[a]
Groshev 1966	3.1	1.4	1.8	3.4	1.9	1.1	1.3	0.9	1.6	4.3	2.1	9.9	0.2	10.3	2.5	39.0	78
Maerker and Muckenthaler 1969	6.3	2.2	2.2	3.1	2.0	1.6	1.1	1.3	3.4	4.3	4.2	11.2	2.9	10.4	7.6	48.0	92[b]
Reactor Handbook 1962	40		23		23				34				62				116

[a] Normalized value, including contribution from energies below 1 MeV. Observed %BE = 110.3.

[b] Does not include ~2% contribution from energies below 1 MeV.

Table 14

COMPARISON OF COPPER YIELDS WITH PREVIOUS RESULTS
PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)														%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	
Present Work	2.1	3.9	1.9	2.7	2.3	2.6	5.2	4.9	8.3	1.9	4.9	11.3	15.2	49.7	100[a]
Groshev 1958				1.5	1.2		1.5	2.1	6.4	0.9	1.9	7.0	12.0	33.0	61
Shera 1967									>4.4	>1.6	7.9	11.1	14.5	37.0	>71
Maerker and Muckenthaler 1969	11.3	11.6	6.4	9.3	8.8	8.2	10.5	4.6	9.2	2.3	5.2	9.0	16.0	40.5	101[b]
Reactor Handbook 1962	47		26		30				27				43		102

[a] Normalized value, including contribution from energies below 1 MeV. Observed %BE = 92.1.

[b] Does not include ~4% contribution from energies less than 1 MeV.

Table 15

COMPARISON OF ZINC YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-7.5	7.5-8	8-8.5	8.5-9	9-9.5	
Present Work	32.4	31.5	32.8	18.2	17.1	11.3	10.7	10.5	10.4	9.2	5.3	12.9	6.4	12.3	1.0	0.25	1.1	100[a]
Groshev 1966									3.1	5.7	3.5	9.6	3.6	8.7	0.6	0.0	0.9	28
Maerker and Muckenthaler 1969	52.1	30.5	25.4	18.2	22.8	13.8	14.4	13.9	12.4	10.4	7.4	13.1	5.4	14.1	1.0	0.1	1.2	105[b]
Reactor Handbook 1962	93		67		48				29				16				1	104

[a] Normalized value, includes contribution from energies below 1.0 MeV. Observed %BE = 106.4.

[b] Does not include ~2% contribution from energies below 1.06 MeV.

Table 16

COMPARISON OF BARIUM YIELDS WITH PREVIOUS RESULTS PHOTONS/100 CAPTURES

Experimenter Year	Gamma-Ray Energy Range (MeV)																%BE
	1-1.5	1.5-2	2-2.5	2.5-3	3-3.5	3.5-4	4-4.5	4.5-5	5-5.5	5.5-6	6-6.5	6.5-7	7-8	8-8.5	8.5-9	9-9.5	
Present Work	17.6	31.4	38.3	39.6	20.9	23.2	36.2	19.1	8.6	9.8	1.6	0.7	0.5	0.2	0.1	0.3	100[a]
Maerker and Muckenthaler 1969	63.4	34.6	34.3	24.3	17.6	16.0	28.1	12.6	7.6	9.5	4.0	1.0	2.0	0.3	0.2	0.4	91[b]
Reactor Handbook 1962					75				14				1.4				50

[a] Normalized value, includes contribution from energies below 1 MeV. Observed %BE = 101.4%.

[b] Does not include ~ 6% contribution from energies below 1 MeV.

4. RESULTS

This section presents the results for each element in order of increasing atomic number. Table 17 summarizes the results and gives the value of the capture cross section, σ_c, the value of the average binding energy $\overline{BE}$ used, the fraction of the yield in resolved and continuum observed prior to normalization to 100%, the multiplicity (photons/capture) for the normalized data, and the number of the page on which the data tables start for each element.

Listed under each element are the observed lines and their intensities. Following this list are the same lines with their intensities normalized to the binding energy and then a table presenting the normalized bin yields for the resolved lines, the continuum, and the sum of these two. It should be noted that the lines listed may differ slightly from the MITNE-85 listing in energy and intensity because of the use of the improved version of the GAMANL code. Furthermore, very weak lines whose intensity was poorly known were dropped from the list and included in the continuum. Thus, MITNE-85 will show a number of weak lines not included here. It should also be noted that occasionally an unresolved bin will appear with a minus sign. This is clearly not physical but is due to the large error that occurs in bins with low yields. These have been left in because they give an idea of the magnitude of errors in the bin calculations and also to remove them would bias the data in favor of positive errors.

Two plots have been included for all but a few elements. The Compton-suppression plots cover the range up to about 2.5 MeV while the pair spectrometer plots cover from 1 to about 9 MeV. The low energy plots are semilog, the high energy plots linear. In some cases a scale adjustment was made in the high energy plots to accommodate a very intense peak.

These plots are of the analyzer output data before any processing was done and include all background lines. The hydrogen line at 2.223 MeV is prominent in both high and low energy plots Also prominent in all high energy plots is the Pb line at 7367 keV which was used for a high energy calibration line.

Table 17

PERCENTAGE OF BINDING ENERGY OBSERVED

Z	Element	σ_c	$\overline{BE}$ (keV)	Percentage of Binding Energy Observed			Multiplicity	Page
				Discrete	Continuum	Total		
1	hydrogen	--	--	100	0	100	1.00	42
2	helium	--	--	--	--	--	--	--
3	lithium	33 mb	2340.0	100[a]	0	100	1.09	45
4	beryllium	9.5 mb	6815.0	99.4	0	99.4	1.60	50
5	boron	102 mb	11007.0	100[a]	0	100	1.99	55
6	carbon	3.4 mb	4945.2	98.1	0	98.1	1.31	60
7	nitrogen	75 mb	10834.8	100.8	0	100.8	2.44	64
8	oxygen	--	--	--	--	--	--	--
9	fluorine	10 mb	6597.3	109.2	0	109.2	1.78	70
10	neon	--	--	--	--	--	--	--
11	sodium	534 mb	6956.6	115.8	0	115.8	2.85	75
12	magnesium	63 mb	9092.0	84.0	0	84.0	3.25	82
13	aluminum	235 mb	7723.8	61.5	22.2	83.7	1.89	91
14	silicon	160 mb	8767.6	113.7	0	113.7	2.30	98
15	phosphorus	190 mb	7936.8	110.2	0	110.2	2.67	105

Table 17 (Continued)

Z	Element	σ_c	$\overline{BE}$ (keV)	Percentage of Binding Energy Observed			Multiplicity	Page
				Discrete	Continuum	Total		
16	sulfur	512 mb	8641.3	71.8	0	71.8	2.78	114
17	chlorine	33.2 b	8576.5	77.0	0	77.0	2.45	119
18	argon	--	--	--	--	--	--	--
19	potassium	2.10 b	7750.0	74.4	0	74.4	2.70	130
20	calcium	430 mb	8400.0	72.2	0	72.2	2.69	141
21	scandium	24.0 b	8766.6	75.3	0	75.3	3.14	150
22	titanium	6.09 b	8240.0	116.7	0	116.7	2.29	165
23	vanadium	5.00 b	7308.8	105.9	0	105.9	1.81	172
24	chromium	3.10 b	9253.0	89.5	0	89.5	1.87	181
25	manganese	13.3 b	7270.4	86.2	0	86.2	1.67	188
26	iron	2.62 b	7845.0	92.7	0	92.7	1.70	197
27	cobalt	38.0 b	7491.0	75.8	18.2	94.0	2.45	208
28	nickel	4.6 b	8520.0	110.4	0	110.4	1.44	217
29	copper	3.85 b	7750.0	92.1	0	92.1	1.98	226
30	zinc	1.10 b	8120.0[b]	50.6	55.7	106.4	2.39	235
31	gallium	3.0 b	6970.0	94.6	0	94.6	2.01	245

Table 17 (Continued)

Z	Element	σ_c	$\overline{BE}$ (keV)	Percentage of Binding Energy Observed			Multiplicity	Page
				Discrete	Continuum	Total		
32	germanium	2.45 b	8490.8	36.3	82.5	118.8	3.50	256
33	arsenic	4.5 b	7326.0	22.1	90.6	112.7	2.93	265
34	selenium	12.3 b	8201.0	36.3	111.4	147.7	3.00	272
35	bromine	6.7 b	7835.8	17.2	138.6	155.8	3.30	283
36	krpton	--	--	--	--	--	--	--
37	rubidium	0.73 b	8386.9	20.9	109.0	129.9	3.31	292
38	strontium	1.21 b	10800.0	62.2	96.2	158.4	3.74	305
39	yttrium	1.31 b	6869.0	87.5	0	87.5	2.08	316
40	zirconium	185 mb	8680.0	46.8	53.8	100.6	3.37	323
41	niobium	1.16 b	7213.0	26.7	76.3	103.0	2.85	330
42	molybdenum	2.7 b	8752.0	27.2	76.7	103.9	3.57	341
43	technetium	--	--	--	--	--	--	--
44	ruthenium	2.56 b	8277.0	18.4	95.4	113.8	2.94	352
45	rhodium	156 b	7001.8	13.2	82.0	95.2	2.61	359
46	palladium	8.0 b	6260.0[b]	23.9	118.3	142.2	2.44	366
47	silver	63.0 b	6959.3	19.8	100.9	120.7	2.86	375
48	cadmium	3620 b	9043.4	31.2	78.4	109.6	3.61	384

Table 17 (Continued)

Z	Element	σ_c	BE (keV)	Percentage of Binding Energy Observed			Multiplicity	Page
				Discrete	Continuum	Total		
49	indium	198 b	6722.8	20.5	81.7	102.2	3.04	395
50	tin	625 mb	9300.0[b]	17.4	85.0	102.4	3.09	406
51	antimony	5.5 b	6685.0	9.9	99.3	109.2	2.73	419
52	tellurium	4.85 b	8594.0	23.6	133.1	156.7	2.97	426
53	iodine	6.6 b	6799.0	18.8	113.1	132.0	2.80	435
54	xenon	--	--	--	--	--	--	--
55	cesium	29.0 b	6715.3	12.0	87.1	99.1	2.52	444
56	barium	1.2 b	7922.0	41.2	56.8	98.0	2.81	451
57	lanthanum	8.9 b	5097.6	55.3	43.7	98.9	2.79	458
58	cerium	730 mb	5432.7	77.1	23.9[c]	101.0	4.61	469
59	praseodymium	11.3 b	5842.9	25.8	44.4	70.2	2.23	476
60	neodymium	52 b	7480.0	41.6	49.8	91.4	3.64	487
61	promethium	--	--	--	--	--	--	--
62	samarium	5840 b	7981.9	17.6	71.2	88.8	4.91	496
63	europium	4360 b	6294.8	1.3	84.6	85.9	2.46	503
64	gadolinium	39100 b	8038.1	20.0	88.3	108.3	3.37	508
65	terbium	46 b	6400.0	7.6	127.9	135.5	3.42	517
66	dysprosium	929 b	6036.0	29.5	65.3	94.8	3.20	526

Table 17 (Continued)

Z	Element	σ_c	$\overline{BE}$ (keV)	Percentage of Binding Energy Observed			Multiplicity	Page
				Discrete	Continuum	Total		
67	holmium	65 b	6243.0	7.6	84.3	91.9	2.65	537
68	erbium	199 b	7770.0	16.2	83.5	99.8	3.35	544
69	thulium	126 b	6594.0	12.6	108.4	121.1	2.50	551
70	ytterbium	39 b	6250.5	25.3	58.8	84.0	2.61	558
71	lutetium	133 b	6715.0	8.0	144.3	152.3	2.76	569
72	hafnium	105 b	7204.4	21.6	81.6	103.2	3.91	576
73	tantalum	19.1 b	6062.5	11.5	72.9	84.4	2.61	585
74	tungsten	19.1 b	5828.0	34.9	55.6	90.5	2.56	592
75	rhenium	86 b	5972.2[b]	8.3	125.5	133.8	2.77	601
76	osmium	15.3 b	7000.0[b]	12.5	48.2	60.7	3.39	608
77	iridium	460 b	6030.0	18.6	89.6	108.2	2.20	619
78	platinum	9.6 b	7716.4	32.3	90.1	122.5	2.51	626
79	gold	99.6 b	6512.1	55.0	51.7	106.7	2.29	637
80	mercury	372 b	8028.3	66.6	34.5	101.0	3.11	646
81	thallium	3.3 b	6644.8[b]	37.3	99.7	137.0	2.25	653
82	lead	170 mb	7270.0	100.7	0.0	100.7	1.00	662
83	bismuth	34 mb	4599.7[b]	72.6	0.0	72.6	1.12	665

Table 17 (Continued)

[a]Only relative intensities could be obtained. These were normalized to the known binding energy.

[b]Not well known.

[c]Reliable absolute values for unresolved intensities could not be obtained. Relative unresolved intensities were normalized to that fraction of the binding energy which is not observed as discrete lines, about 24%.

4.1 LIST OF TABLES AND FIGURES FOR EACH ELEMENT

Three tables and two figures are provided for each element in this listing. The tables are titled as below:

Observed capture gamma-ray energies and intensities of resolved lines

Capture gamma-ray energies and normalized intensities of resolved lines

Normalized yields of capture gamma rays grouped into 250-keV wide bins. Listed are the yields of resolved lines, continuum, and the sum of resolved and continuum.

The figure titles are:

Compton suppression spectrum, no background subtracted

Pair spectrometer spectrum, no background subtracted.

HYDROGEN Z=1 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	2223.3	100.00

BINDING ENERGY = 2223.3 %BE = 100.00

HYDROGEN Z=1 MITNF-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	2223.3	100.00

BE(KEV) 2223.3 OBSERVED %BE 100.00 NORMALIZED %BE 100.00

HYDROGEN Z=1 MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	0.0
5	1000.0	1250.0	0.0
6	1250.0	1500.0	0.0
7	1500.0	1750.0	0.0
8	1750.0	2000.0	0.0
9	2000.0	2250.0	100.00
10	2250.0	2500.0	0.0

BE(KEV) 2223.3 BIN NORMALIZED %BE 95.58

LITHIUM Z=3 MITNE-85 DATA (RELATIVE) OBSERVED YIELDS*

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	477.6	2.90
2	980.7	11.00
3	1052.7	5.50
4	2032.5	100.00
5	6771.0	1.20
6	7246.7	4.50

BINDING ENERGY = 2340.0 %BE = 111.94 + .00 = 111.94

*Relative yields normalized to 100 photons/capture for the 2032.5-keV line.

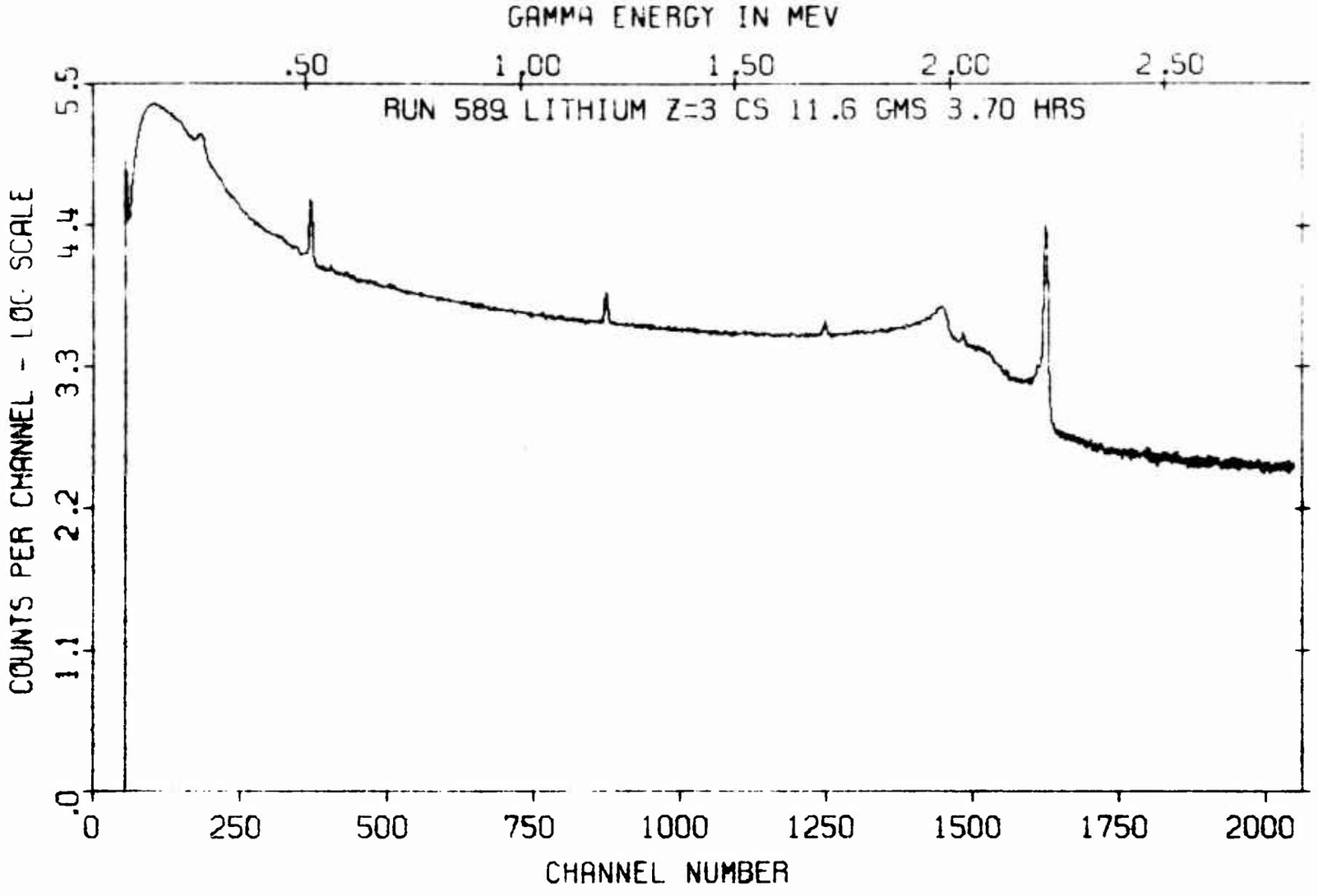
LITHIUM Z=3 MITNE-85 DATA (RELATIVE) NORMALIZED YIELDS

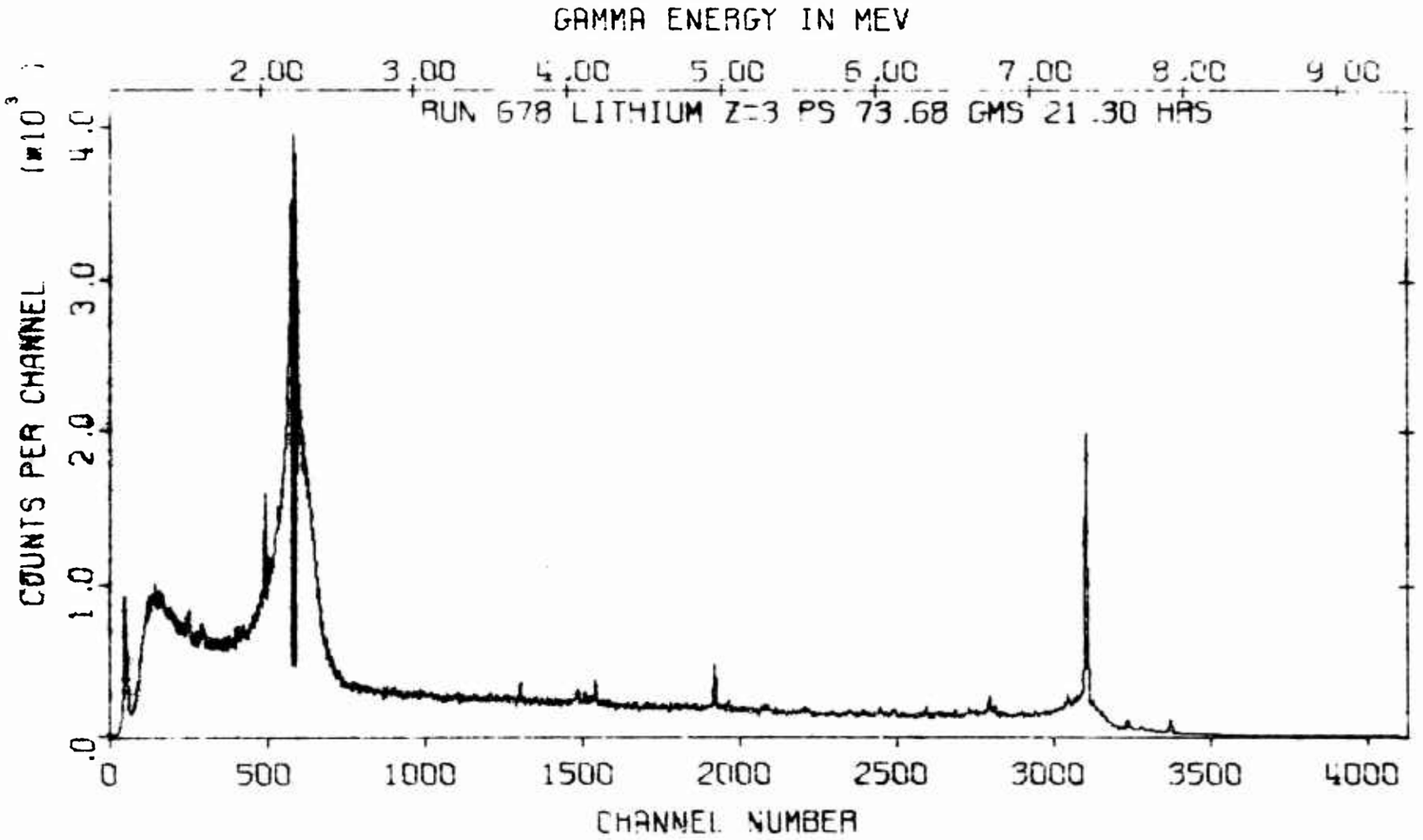
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	477.6	2.59
2	980.7	9.83
3	1052.7	4.91
4	2032.5	89.33
5	6771.0	1.07
6	7246.7	4.02

BE(KEV) 2340.0 OBSERVED %BE 111.94 NORMALIZED %BE 100.00

LITHIUM Z=3 MITNE-85 DATA (RELATIVE) NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	2.59	.00	2.59
3	500.0	750.0	.00	.00	.00
4	750.0	1000.0	9.83	.00	9.83
5	1000.0	1250.0	4.91	.00	4.91
6	1250.0	1500.0	.00	.00	.00
7	1500.0	1750.0	.00	.00	.00
8	1750.0	2000.0	.00	.00	.00
9	2000.0	2250.0	89.33	.00	89.33
10	2250.0	2500.0	.00	.00	.00
11	2500.0	2750.0	.00	.00	.00
12	2750.0	3000.0	.00	.00	.00
13	3000.0	3250.0	.00	.00	.00
14	3250.0	3500.0	.00	.00	.00
15	3500.0	3750.0	.00	.00	.00
16	3750.0	4000.0	.00	.00	.00
17	4000.0	4250.0	.00	.00	.00
18	4250.0	4500.0	.00	.00	.00
19	4500.0	4750.0	.00	.00	.00
20	4750.0	5000.0	.00	.00	.00
21	5000.0	5250.0	.00	.00	.00
22	5250.0	5500.0	.00	.00	.00
23	5500.0	5750.0	.00	.00	.00
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.00	.00	.00
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	1.07	.00	1.07
29	7000.0	7250.0	4.02	.00	4.02
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
BE(KEV)	2340.0	%BE	102.96	.00	102.96


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 589 LITHIUM Z=3 CS 11.6 GMS 3.70 HRS
COUNTS PER CHANNEL - LOG SCALE
.0
1.1
2.2
3.3
4.4
5.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 678 LITHIUM Z=3 PS 73.68 GMS 21.30 HRS
COUNTS PER CHANNEL (*10^3)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

BERYLLIUM Z = 4 MITNF-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	853.5	25.36
2	2589.9	24.00
3	3368.2	34.20
4	3444.4	11.80
5	5958.1	2.00
6	6810.0	62.50

BINDING ENERGY = 6815.0 %BE = 99.37

BERYLLIUM Z = 4		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	853.5	25.52
2	2589.9	24.15
3	3368.2	34.42
4	3444.4	11.88
5	5958.1	2.01
6	6810.0	62.90

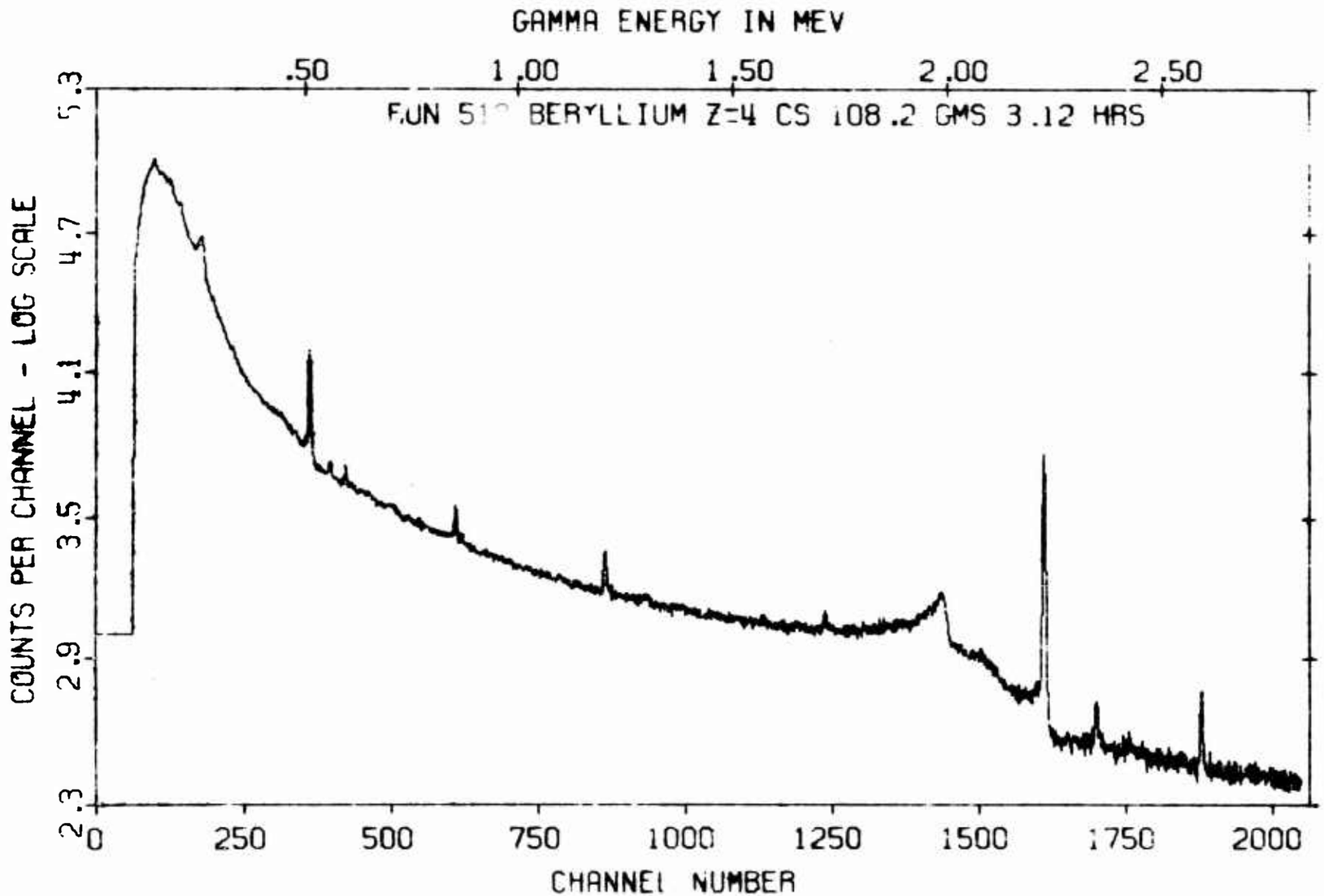
BE(KEV) 6815.0 OBSERVED %BE 99.37 NORMALIZED %BE 100.00

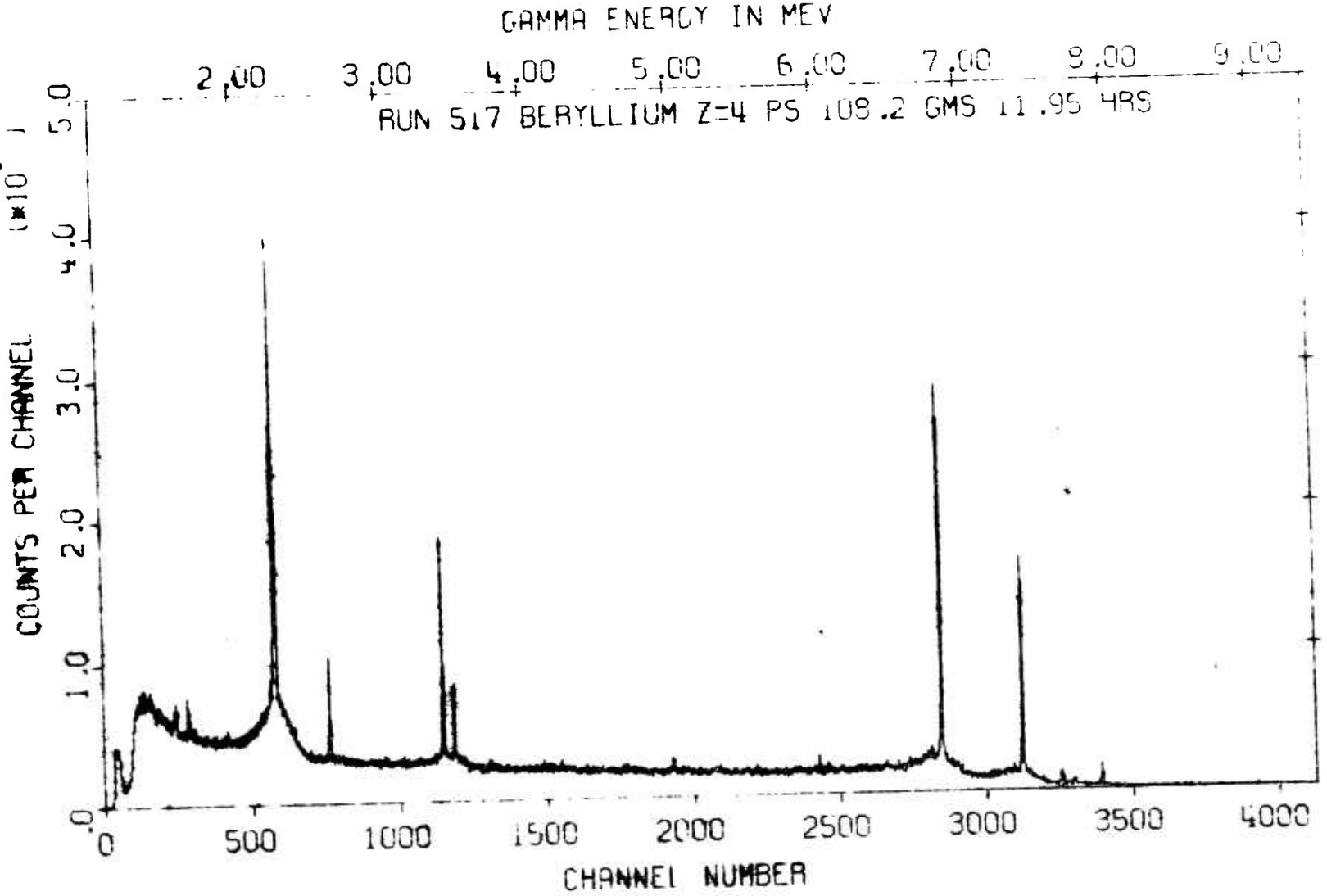
BERYLLIUM 7 = 4 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	25.52
5	1000.0	1250.0	0.0
6	1250.0	1500.0	0.0
7	1500.0	1750.0	0.0
8	1750.0	2000.0	0.0
9	2000.0	2250.0	0.0
10	2250.0	2500.0	0.0
11	2500.0	2750.0	24.15
12	2750.0	3000.0	0.0
13	3000.0	3250.0	0.0
14	3250.0	3500.0	46.29
15	3500.0	3750.0	0.0
16	3750.0	4000.0	0.0
17	4000.0	4250.0	0.0
18	4250.0	4500.0	0.0
19	4500.0	4750.0	0.0
20	4750.0	5000.0	0.0
21	5000.0	5250.0	0.0
22	5250.0	5500.0	0.0
23	5500.0	5750.0	0.0
24	5750.0	6000.0	2.01
25	6000.0	6250.0	0.0
26	6250.0	6500.0	0.0
27	6500.0	6750.0	0.0
28	6750.0	7000.0	62.90
29	7000.0	7250.0	0.0

BF(KEV) 6815.0 BIN NORMALIZED %BF 100.69


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 51? BERYLLIUM Z=4 CS 108.2 GMS 3.12 HRS
COUNTS PER CHANNEL - LOG SCALE
5.3
4.7
4.1
3.5
2.9
2.3
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 517 BERYLLIUM Z=4 PS 108.2 GMS 11.95 HRS
COUNTS PER CHANNEL (×10⁴)
5.0
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

BORON Z=5 MITNE-85 DATA OBSERVED YIELDS*

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	4443.0	100.00
2	4710.2	45.00
3	6759.3	52.00
4	7005.1	63.00

BINDING ENERGY = 11007.0 %BE = 131.65 + .00 = 131.65

*Relative yields normalized to 100 photons/capture for the 4443.0-keV line

BORON Z=5 MITNE-85 DATA NORMALIZED YIELDS

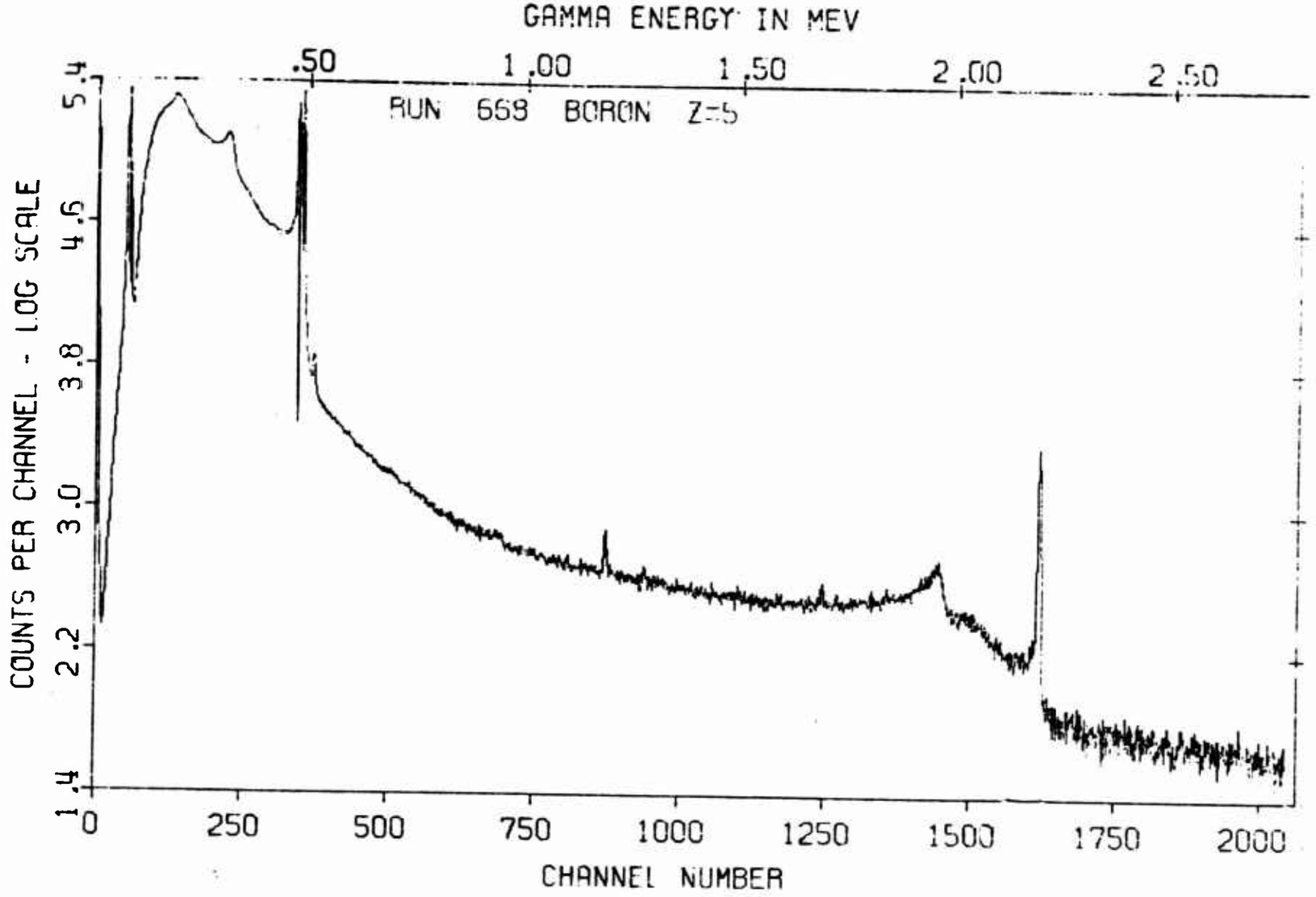
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	4443.0	75.96
2	4710.2	34.18
3	6759.3	39.50
4	7005.1	47.85

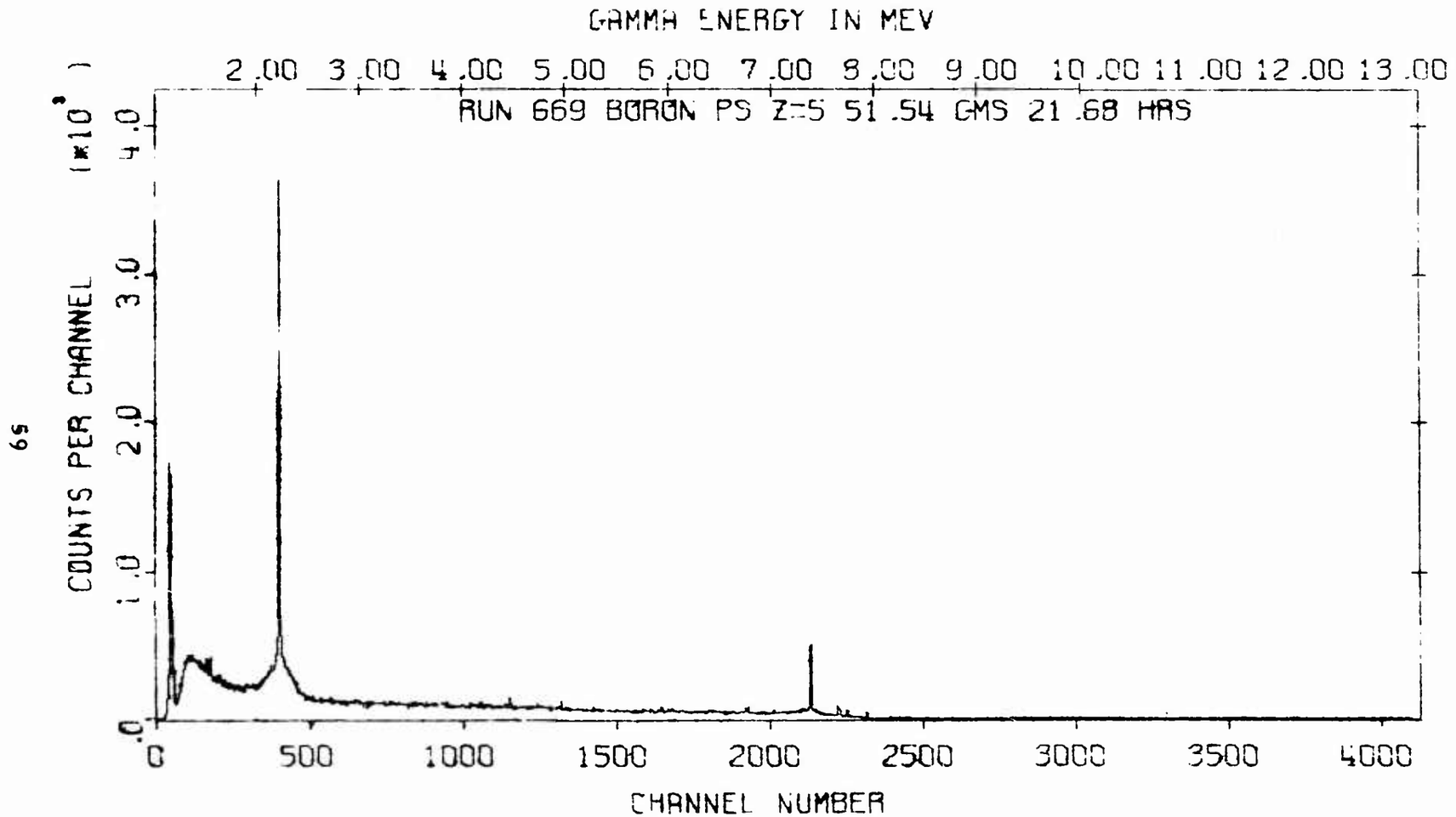
BE(KEV) 11007.0 OBSERVED %BE 131.65 NORMALIZED %BE 100.00

BORON Z=5 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	.00	.00	.00
3	500.0	750.0	.00	.00	.00
4	750.0	1000.0	.00	.00	.00
5	1000.0	1250.0	.00	.00	.00
6	1250.0	1500.0	.00	.00	.00
7	1500.0	1750.0	.00	.00	.00
8	1750.0	2000.0	.00	.00	.00
9	2000.0	2250.0	.00	.00	.00
10	2250.0	2500.0	.00	.00	.00
11	2500.0	2750.0	.00	.00	.00
12	2750.0	3000.0	.00	.00	.00
13	3000.0	3250.0	.00	.00	.00
14	3250.0	3500.0	.00	.00	.00
15	3500.0	3750.0	.00	.00	.00
16	3750.0	4000.0	.00	.00	.00
17	4000.0	4250.0	.00	.00	.00
18	4250.0	4500.0	75.96	.00	75.96
19	4500.0	4750.0	34.18	.00	34.18
20	4750.0	5000.0	.00	.00	.00
21	5000.0	5250.0	.00	.00	.00
22	5250.0	5500.0	.00	.00	.00
23	5500.0	5750.0	.00	.00	.00
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.00	.00	.00
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	39.50	.00	39.50
29	7000.0	7250.0	47.85	.00	47.85
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
BE(KEV)	11007.0	%BE	100.20	.00	100.20


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 668 BORON Z=5
COUNTS PER CHANNEL - LOG SCALE
5.4
4.6
3.8
3.0
2.2
1.4
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00
RUN 669 BORON PS Z=5 51.54 GMS 21.68 HRS
COUNTS PER CHANNEL (*10³)
4.0
3.0
2.0
1.0
.0
0 500 1000 1500 2000 2500 3000 3500 4000
CHANNEL NUMBER

CARBON Z = 6 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	1261.2	29.20
2	3683.9	31.80
3	4945.2	67.00

BINDING ENERGY = 4945.2 %BE = 98.14

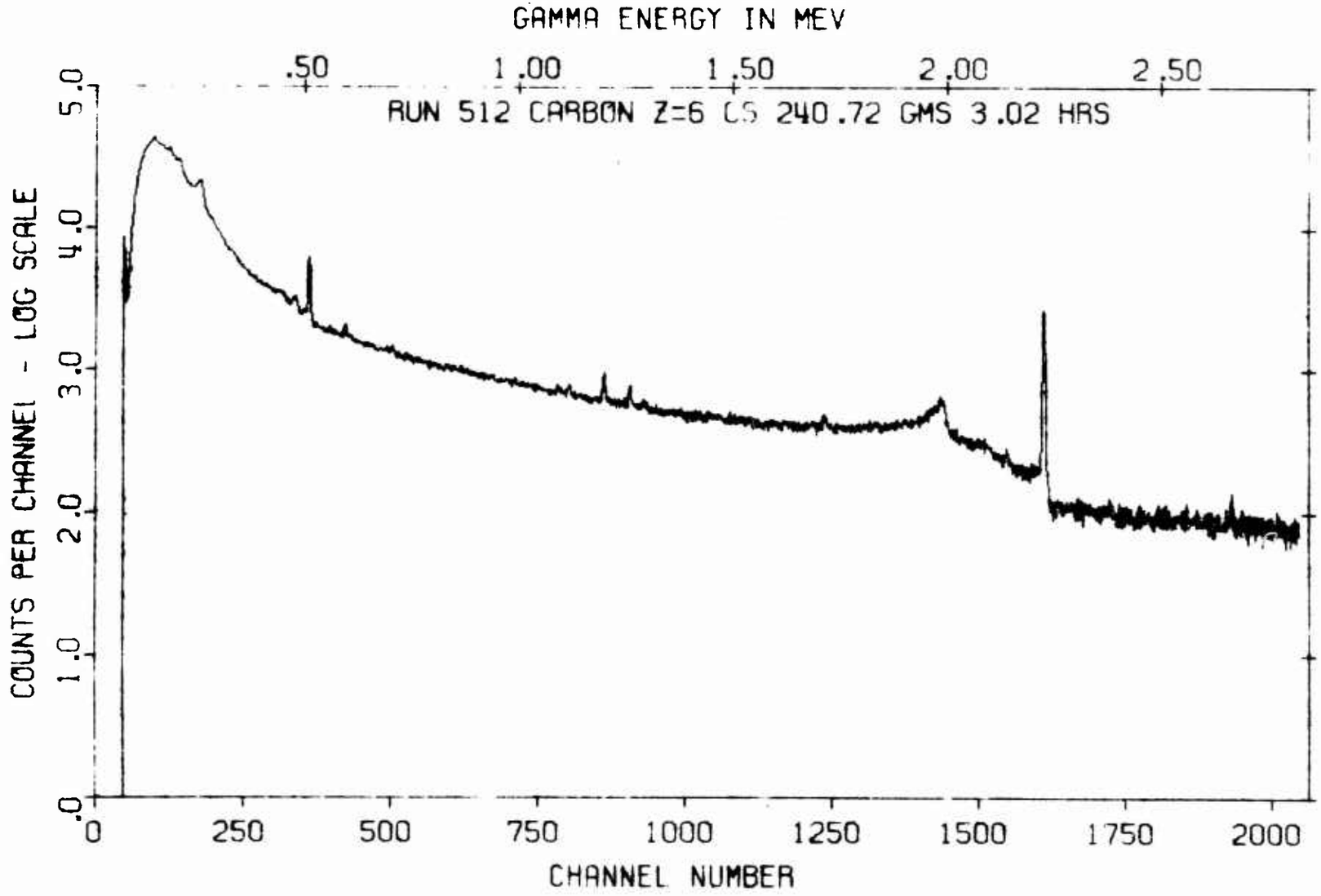
CARBON Z = 6		MITNE-95 DATA NORMALIZED YIELDS	
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT	
1	1261.2	29.75	
2	3683.9	32.40	
3	4945.2	68.27	
BE(KEV)	4945.2 OBSERVED %BE	98.14 NORMALIZED %BE	100.00

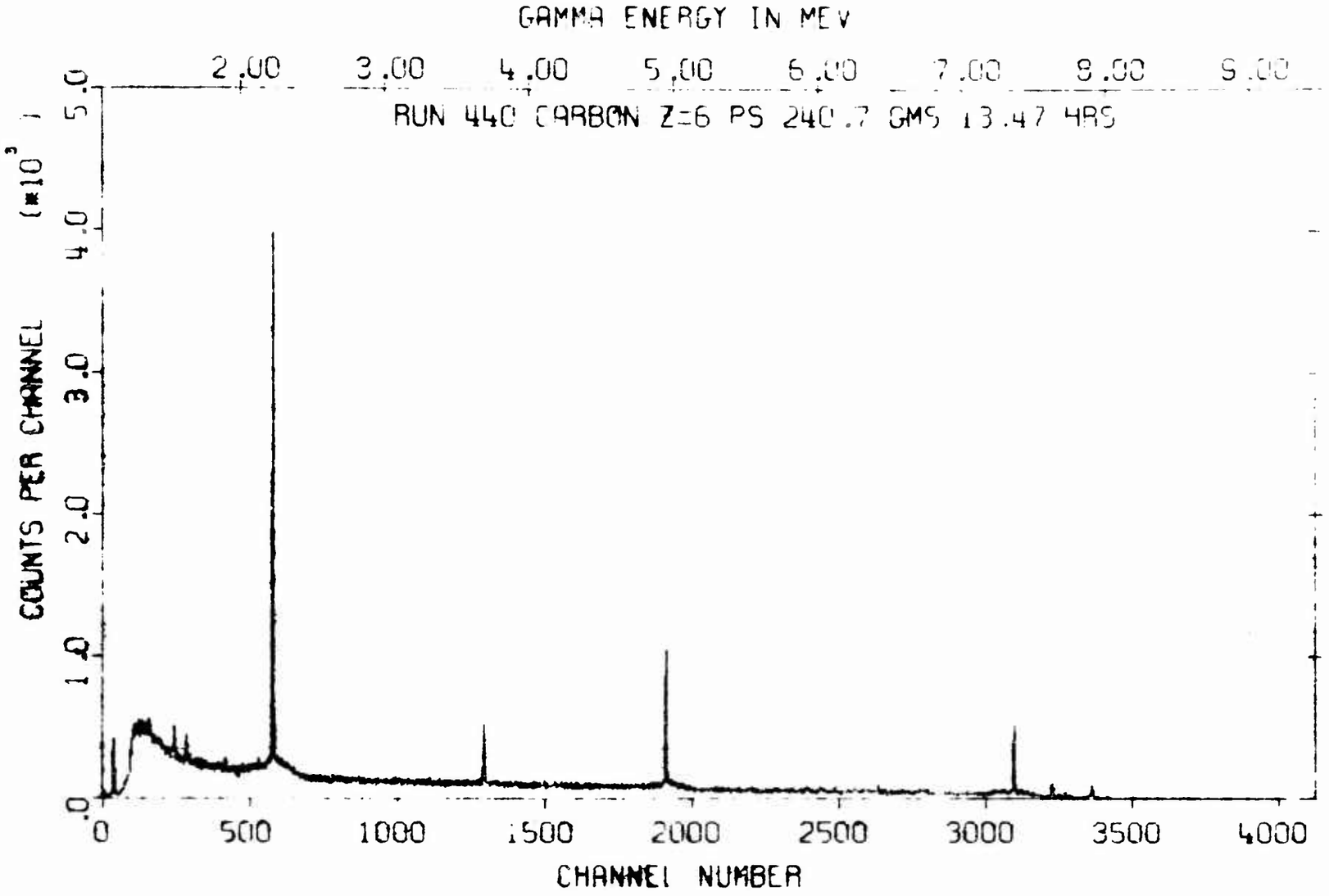
CARBON Z = 6 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	0.0
5	1000.0	1250.0	0.0
6	1250.0	1500.0	29.75
7	1500.0	1750.0	0.0
8	1750.0	2000.0	0.0
9	2000.0	2250.0	0.0
10	2250.0	2500.0	0.0
11	2500.0	2750.0	0.0
12	2750.0	3000.0	0.0
13	3000.0	3250.0	0.0
14	3250.0	3500.0	0.0
15	3500.0	3750.0	32.40
16	3750.0	4000.0	0.0
17	4000.0	4250.0	0.0
18	4250.0	4500.0	0.0
19	4500.0	4750.0	0.0
20	4750.0	5000.0	68.27
21	5000.0	5250.0	0.0

BE(KEV) 4945.2 BIN NORMALIZED %BE 99.33


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 512 CARBON Z=6 CS 240.72 GMS 3.02 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 440 CARBON Z=6 PS 240.7 GMS 13.47 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

NITROGEN Z = 7 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	244.3	0.93
2	253.1	4.64
3	277.9	2.17
4	326.0	2.98
5	336.9	0.96
6	369.1	1.15
7	473.3	2.23
8	479.7	2.07
9	596.8	4.38
10	695.6	2.73
11	865.8	2.30
12	1678.6	6.04
13	1887.9	27.45
14	2062.3	3.74
15	2157.4	3.65
16	2174.7	2.65
17	2356.7	4.45
18	2519.0	9.43
19	3530.5	9.58
20	3675.4	15.52
21	3855.8	1.39
22	4507.6	15.81
23	5267.1	25.41
24	5296.7	18.58
25	5532.0	17.79
26	5560.3	9.05
27	5619.1	1.09
28	6321.4	16.65
29	6419.4	1.11
30	6505.4	0.86
31	6759.4	0.92
32	7299.5	8.36
33	7413.6	1.20
34	8308.7	4.22
35	9151.4	1.76
36	10827.7	15.00

BINDING ENERGY = 10834.8 %BE = 100.80

NITROGEN Z = 7 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	244.3	0.92
2	253.1	4.60
3	277.9	2.15
4	326.0	2.96
5	336.9	0.95
6	369.1	1.14
7	473.3	2.21
8	479.7	2.05
9	596.8	4.35
10	695.6	2.71
11	865.8	2.28
12	1678.6	5.99
13	1887.9	27.23
14	2062.3	3.71
15	2157.4	3.62
16	2174.7	2.63
17	2356.7	4.41
18	2519.0	9.36
19	3530.5	9.50
20	3675.4	15.40
21	3855.8	1.38
22	4507.6	15.68
23	5267.1	25.21
24	5296.7	18.43
25	5532.0	17.65
26	5560.3	8.98
27	5619.1	1.08
28	6321.4	16.52
29	6419.4	1.10
30	6505.4	0.85
31	6759.4	0.91
32	7299.5	8.29
33	7413.6	1.19
34	8308.7	4.19
35	9151.4	1.75
36	10827.7	14.88

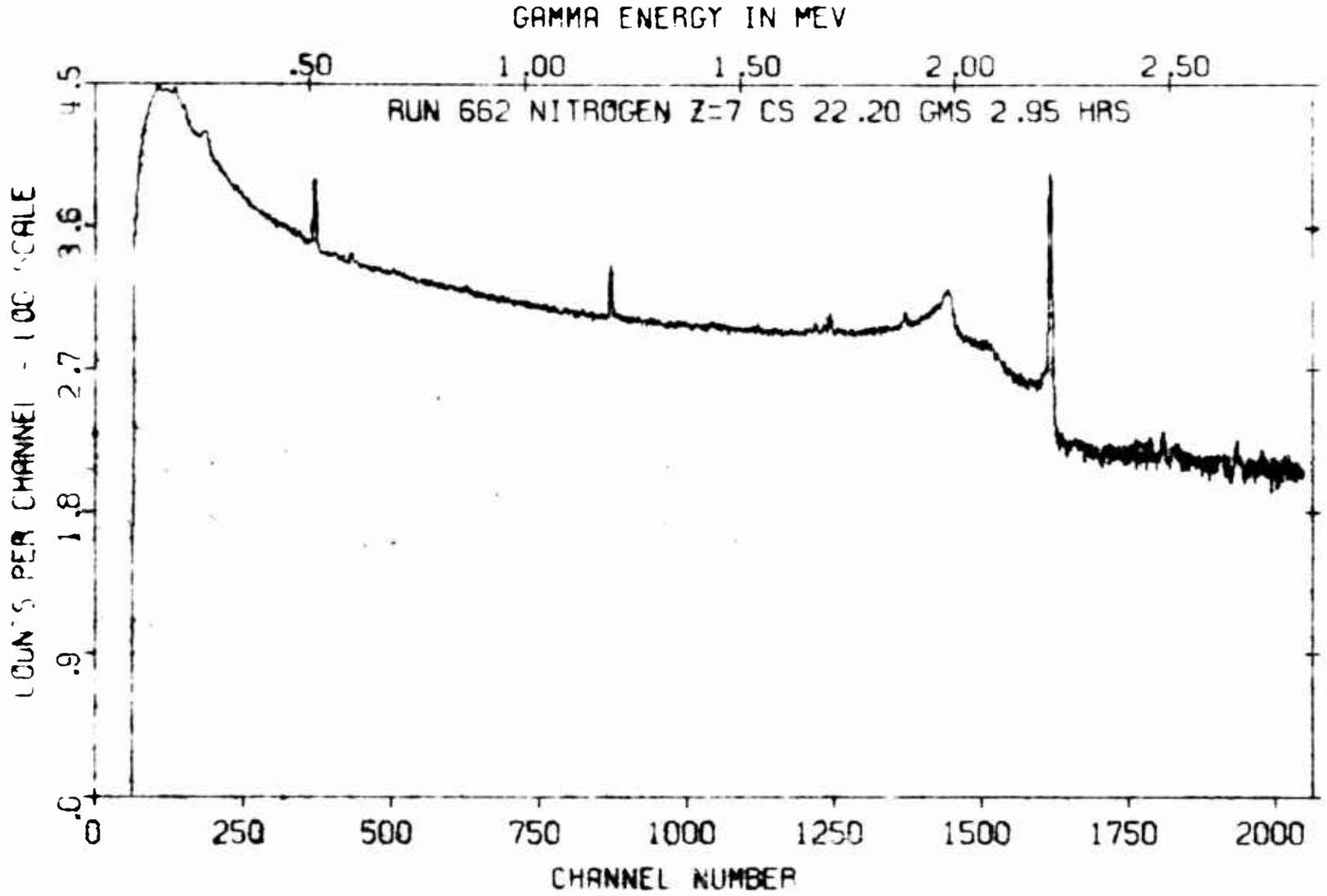
BE(KEV) 10834.8 OBSERVED %BE 100.80 NORMALIZED %BE 100.00

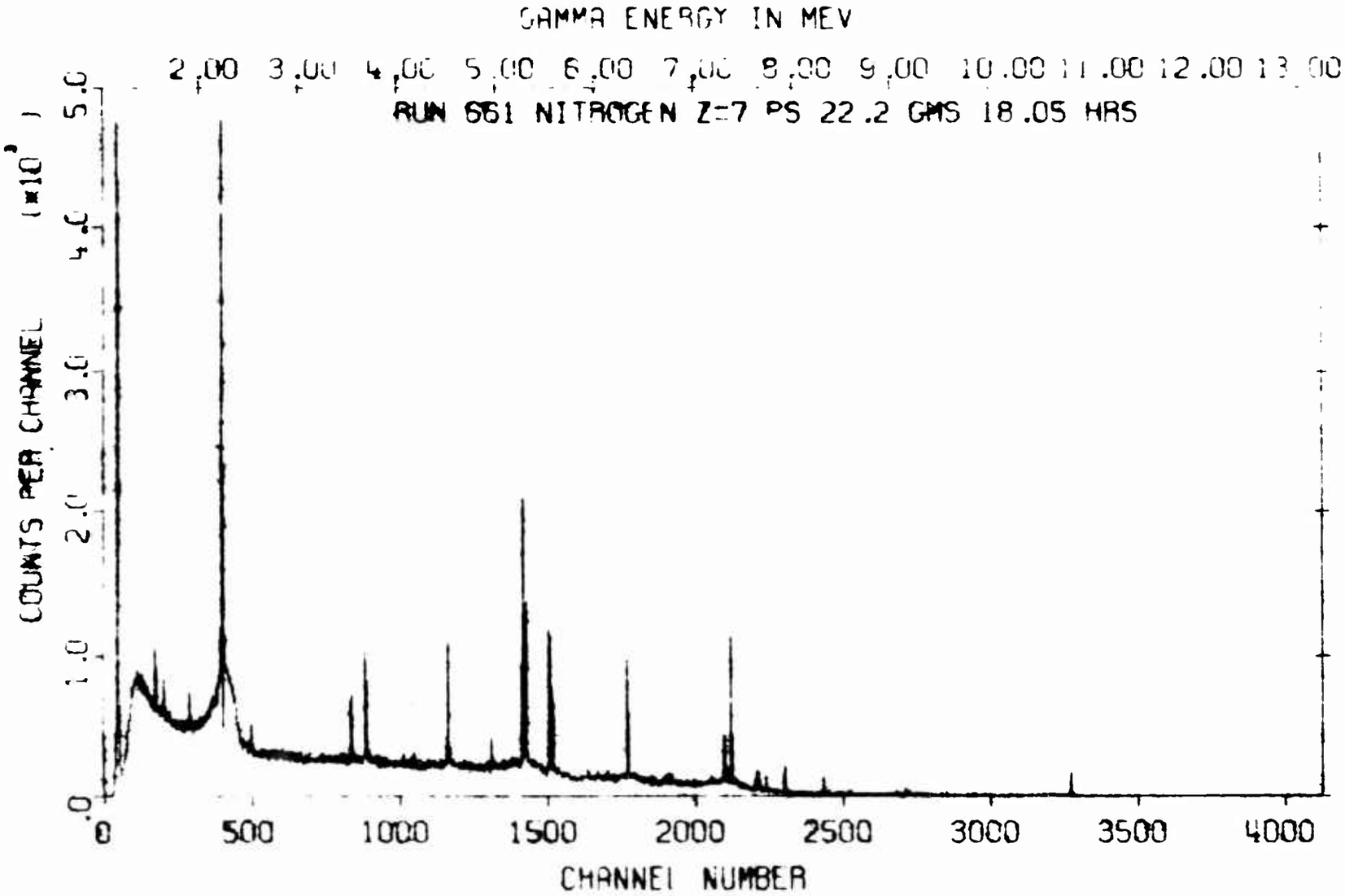
NITROGEN Z = 7 MITNF-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.92
2	250.0	500.0	16.07
3	500.0	750.0	7.05
4	750.0	1000.0	2.28
5	1000.0	1250.0	0.0
6	1250.0	1500.0	0.0
7	1500.0	1750.0	5.99
8	1750.0	2000.0	27.23
9	2000.0	2250.0	9.96
10	2250.0	2500.0	4.41
11	2500.0	2750.0	9.36
12	2750.0	3000.0	0.0
13	3000.0	3250.0	0.0
14	3250.0	3500.0	0.0
15	3500.0	3750.0	24.90
16	3750.0	4000.0	1.38
17	4000.0	4250.0	0.0
18	4250.0	4500.0	0.0
19	4500.0	4750.0	15.68
20	4750.0	5000.0	0.0
21	5000.0	5250.0	0.0
22	5250.0	5500.0	43.64
23	5500.0	5750.0	27.71
24	5750.0	6000.0	0.0
25	6000.0	6250.0	0.0
26	6250.0	6500.0	17.62
27	6500.0	6750.0	0.85
28	6750.0	7000.0	0.91
29	7000.0	7250.0	0.0
30	7250.0	7500.0	9.48
31	7500.0	7750.0	0.0
32	7750.0	8000.0	0.0
33	8000.0	8250.0	0.0
34	8250.0	8500.0	4.19
35	8500.0	8750.0	0.0
36	8750.0	9000.0	0.0
37	9000.0	9250.0	1.75
38	9250.0	9500.0	0.0
39	9500.0	9750.0	0.0
40	9750.0	10000.0	0.0
41	10000.0	10250.0	0.0
42	10250.0	10500.0	0.0
43	10500.0	10750.0	0.0
44	10750.0	11000.0	14.88
45	11000.0	11250.0	0.0

BE(KEV) 10834.8 BIN NORMALIZED %BE 101.08


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 662 NITROGEN Z=7 CS 22.20 GMS 2.95 HRS
COUNTS PER CHANNEL - LOG SCALE
4.5
3.6
2.7
1.8
.9
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00
RUN 661 NITROGEN Z=7 PS 22.2 GMS 18.05 HRS
COUNTS PER CHANNEL (×10³)
0.0 1.0 2.0 3.0 4.0 5.0
0 500 1000 1500 2000 2500 3000 3500 4000
CHANNEL NUMBER

FLUORINE Z = 9 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	582.2	14.22
2	2452.8	11.17
3	2528.1	9.23
4	2601.9	9.81
5	2632.1	5.87
6	2661.7	6.95
7	2682.8	8.48
8	2699.3	4.93
9	3016.8	4.38
10	3051.9	5.73
11	3074.4	10.06
12	3262.6	3.76
13	3488.7	8.00
14	3522.3	2.86
15	3589.3	12.13
16	3630.3	4.22
17	4127.2	3.40
18	4199.9	2.51
19	4260.4	2.60
20	4293.7	2.66
21	4416.1	3.20
22	4555.3	4.49
23	4612.5	3.47
24	4986.6	2.61
25	5005.6	2.06
26	5031.4	4.47
27	5060.9	2.04
28	5519.4	3.33
29	5616.6	3.40
30	5667.9	3.77
31	5688.0	2.43
32	6017.1	10.54
33	6174.8	4.54
34	6320.9	3.02
35	6600.7	8.81

BINDING ENERGY = 6597.3 %BE = 109.20 + .00 = 109.20

FLUORINE Z = 9 MITNE-85 DATA NORMALIZED YIELDS

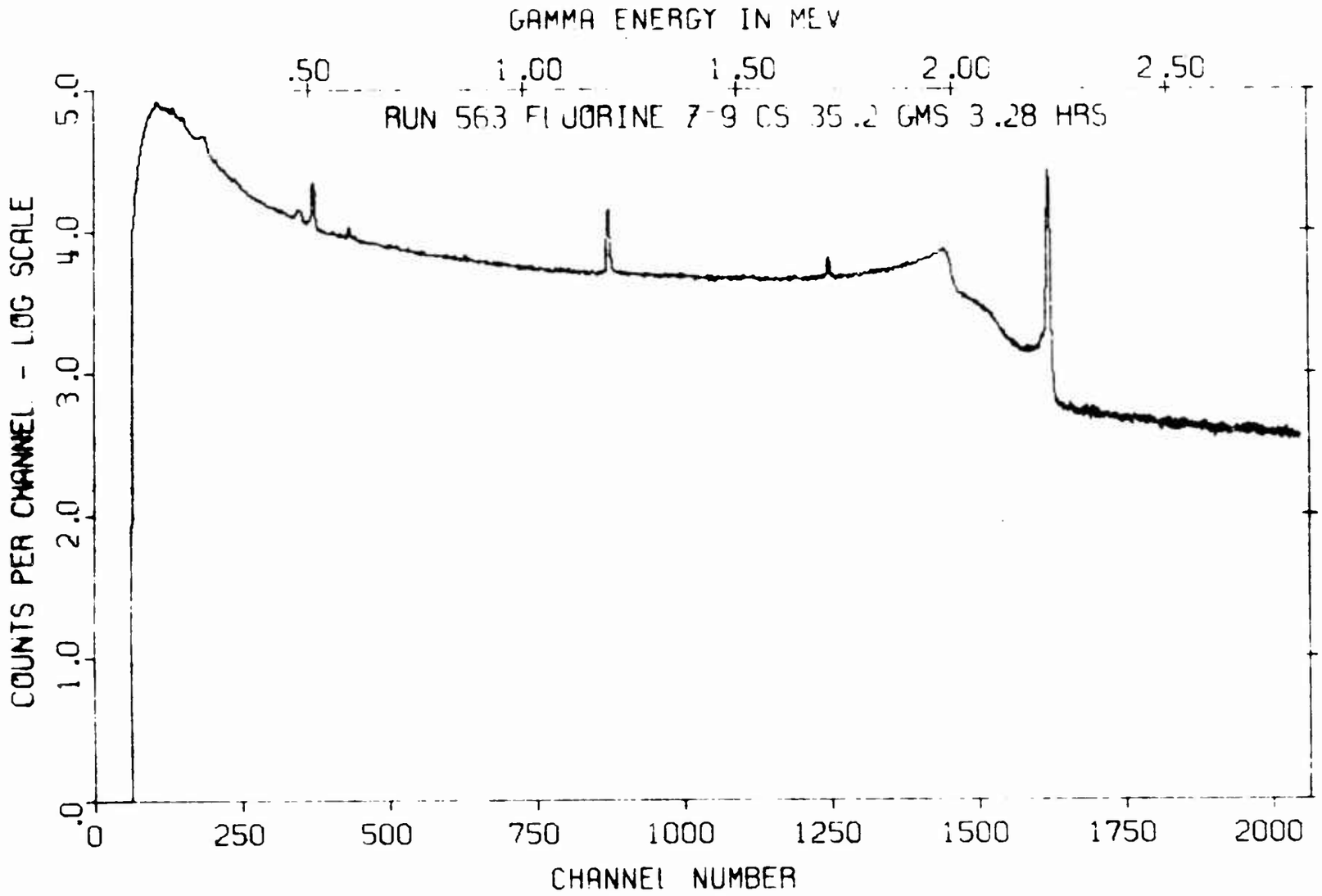
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	582.2	13.02
2	2452.8	10.23
3	2528.1	8.45
4	2601.9	8.98
5	2632.1	5.38
6	2661.7	6.36
7	2682.8	7.77
8	2699.3	4.51
9	3016.8	4.01
10	3051.9	5.25
11	3074.4	9.21
12	3262.6	3.44
13	3488.7	7.33
14	3522.3	2.62
15	3589.3	11.11
16	3630.3	3.86
17	4127.2	3.11
18	4199.9	2.30
19	4260.4	2.38
20	4293.7	2.44
21	4416.1	2.93
22	4555.3	4.11
23	4612.5	3.18
24	4986.6	2.39
25	5005.6	1.89
26	5031.4	4.09
27	5060.9	1.87
28	5519.4	3.05
29	5616.6	3.11
30	5667.9	3.45
31	5688.0	2.23
32	6017.1	3.65
33	6174.8	4.16
34	6320.9	2.77
35	6600.7	8.07

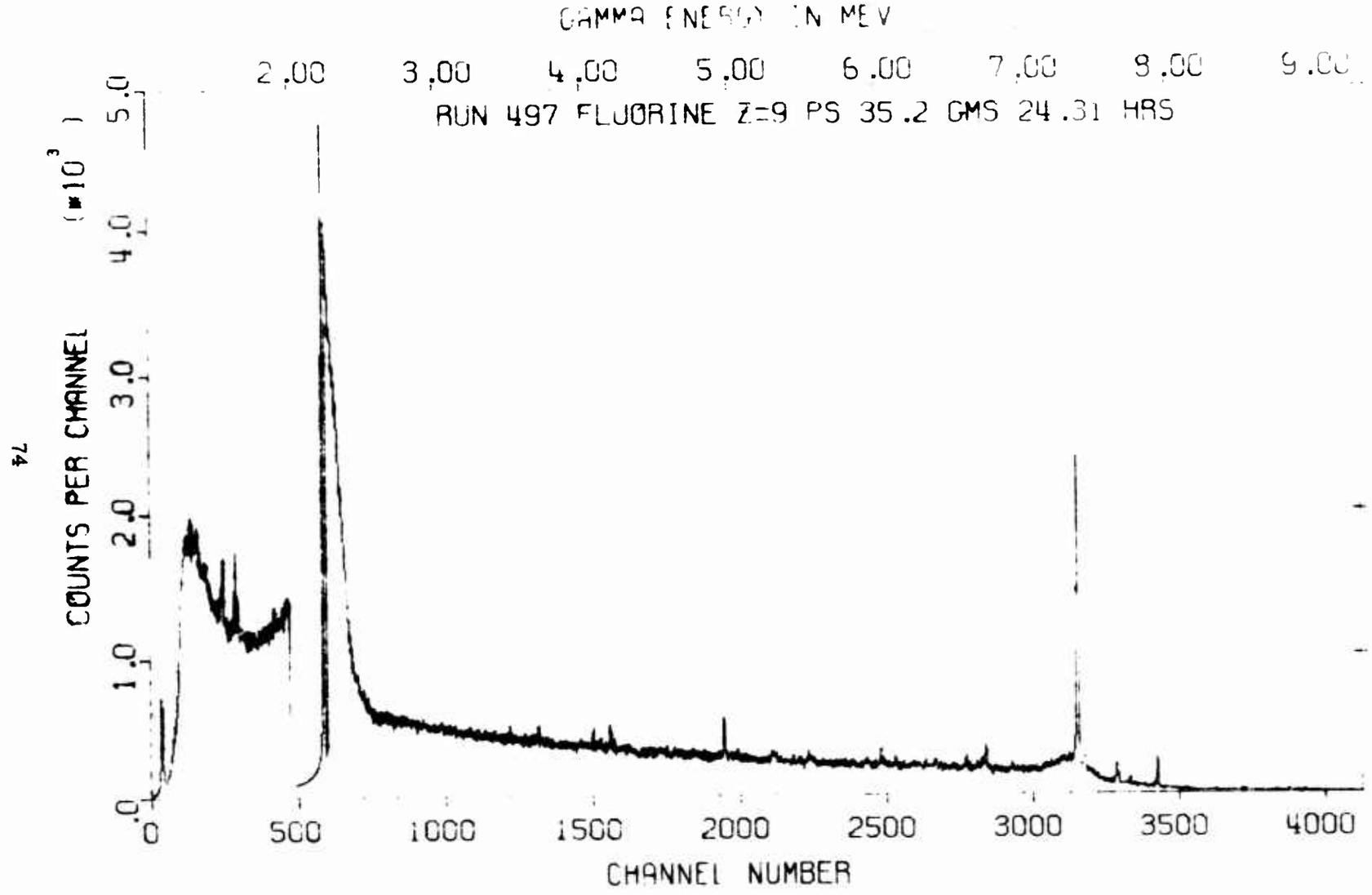
BE(KEV) 6597.3 OBSERVED %BE 109.20 NORMALIZED %BE 100.00

FLUORINE Z = 9 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	.00	.00	.00
3	500.0	750.0	13.02	.00	13.02
4	750.0	1000.0	.00	.00	.00
5	1000.0	1250.0	.00	.00	.00
6	1250.0	1500.0	.00	.00	.00
7	1500.0	1750.0	.00	.00	.00
8	1750.0	2000.0	.00	.00	.00
9	2000.0	2250.0	.00	.00	.00
10	2250.0	2500.0	10.23	.00	10.23
11	2500.0	2750.0	41.45	.00	41.45
12	2750.0	3000.0	.00	.00	.00
13	3000.0	3250.0	18.47	.00	18.47
14	3250.0	3500.0	10.77	.00	10.77
15	3500.0	3750.0	17.59	.00	17.59
16	3750.0	4000.0	.00	.00	.00
17	4000.0	4250.0	5.41	.00	5.41
18	4250.0	4500.0	7.75	.00	7.75
19	4500.0	4750.0	7.29	.00	7.29
20	4750.0	5000.0	2.39	.00	2.39
21	5000.0	5250.0	7.85	.00	7.85
22	5250.0	5500.0	.00	.00	.00
23	5500.0	5750.0	11.84	.00	11.84
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	13.81	.00	13.81
26	6250.0	6500.0	2.77	.00	2.77
27	6500.0	6750.0	8.07	.00	8.07
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
BE(KEV)	6597.3	%E	100.52	.00	100.52


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 563 FLUORINE 7-9 CS 35.2 GMS 3.28 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 497 FLUORINE Z=9 PS 35.2 GMS 24.31 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SODIUM Z = 11		MITNE-85 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	472.4	69.29
2	499.1	0.80
3	560.2	2.55
4	596.8	1.25
5	668.3	0.49
6	781.1	3.06
7	799.9	2.54
8	834.7	1.03
9	836.1	0.93
10	870.6	25.39
11	1003.8	0.99
12	1345.5	2.20
13	1634.4	8.63
14	1748.9	2.43
15	1889.6	2.63
16	1932.2	1.38
17	1949.0	2.32
18	1965.4	1.22
19	1983.7	1.91
20	2027.2	19.81
21	2057.0	1.45
	2123.8	2.69
	2137.5	1.50
	2197.7	2.54
25	2250.8	1.15
26	2361.3	2.42
27	2397.7	2.18
28	2414.9	6.43
29	2504.6	0.89
30	2517.6	17.12
31	2594.1	2.14
32	2716.0	1.00
33	2808.9	4.46
34	2862.7	11.75
35	2903.1	2.93
36	2982.4	3.68
37	3026.2	4.01
38	3098.1	9.67
39	3117.0	0.98
40	3213.5	1.53
41	3279.6	1.16
42	3370.5	4.03
43	3411.6	1.72
44	3453.9	0.41
45	3468.7	0.64
46	3504.7	2.28
47	3546.6	0.98
48	3588.0	17.31

SODIUM Z = 11 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3644.4	2.02
50	3723.6	0.59
51	3865.3	0.57
52	3878.5	6.23
53	3982.0	21.58
54	4091.0	0.35
55	4187.8	1.68
56	4220.1	0.32
57	4445.1	0.82
58	4729.9	0.57
59	5116.1	0.52
60	5270.4	0.40
61	5297.9	0.42
62	5616.7	5.99
63	6091.0	0.30
64	6395.4	25.69

BINDING ENERGY = 6956.6 %BE = 115.82

SODIUM Z = 11 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
1	472.4	59.83
2	499.1	0.69
3	560.2	2.20
4	596.8	1.08
5	668.3	0.42
6	781.1	2.64
7	799.9	2.19
8	834.7	0.89
9	836.1	0.80
10	870.6	21.92
11	1003.8	0.85
12	1345.5	1.90
13	1634.4	7.45
14	1748.9	2.10
15	1889.6	2.27
16	1932.2	1.19
17	1949.0	2.00
18	1965.4	1.05
19	1983.7	1.65
20	2027.2	17.10
21	2057.0	1.25
22	2123.8	2.32
23	2137.5	1.30
24	2197.7	2.19
25	2250.8	0.99
26	2361.3	2.09
27	2397.7	1.88
28	2414.9	5.55
29	2504.6	0.77
30	2517.6	14.78
31	2594.1	1.85
32	2716.0	0.86
33	2808.9	3.85
34	2862.7	10.15
35	2903.1	2.53
36	2982.4	3.18
37	3026.2	3.46
38	3098.1	8.35
39	3117.0	0.85
40	3213.5	1.32
41	3279.6	1.00
42	3370.5	3.48
43	3411.6	1.49
44	3453.9	0.35
45	3468.7	0.55
46	3504.7	1.97
47	3546.6	0.85
48	3588.0	14.95

SODIUM Z = 11 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3644.4	1.74
50	3723.6	0.51
51	3865.3	0.49
52	3878.5	5.38
53	3982.0	18.63
54	4091.0	0.30
55	4187.8	1.45
56	4220.1	0.28
57	4445.1	0.71
58	4729.9	0.45
59	5116.1	0.45
60	5270.4	0.35
61	5297.9	0.36
62	5616.7	5.17
63	6091.0	0.26
64	6395.4	22.18

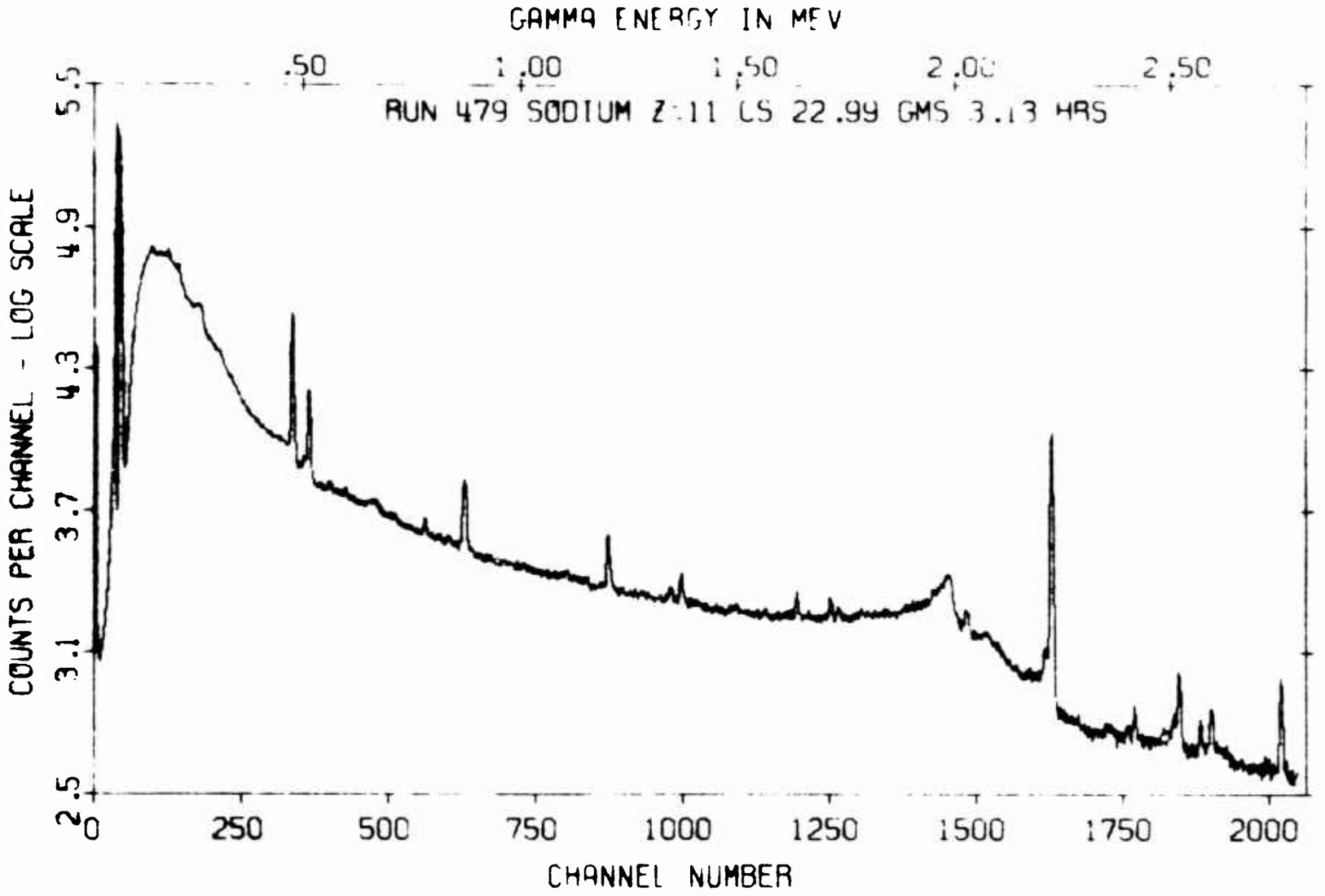
BE(KEV) 6956.6 OBSERVED %BE 115.82 NORMALIZED %BE 100.00

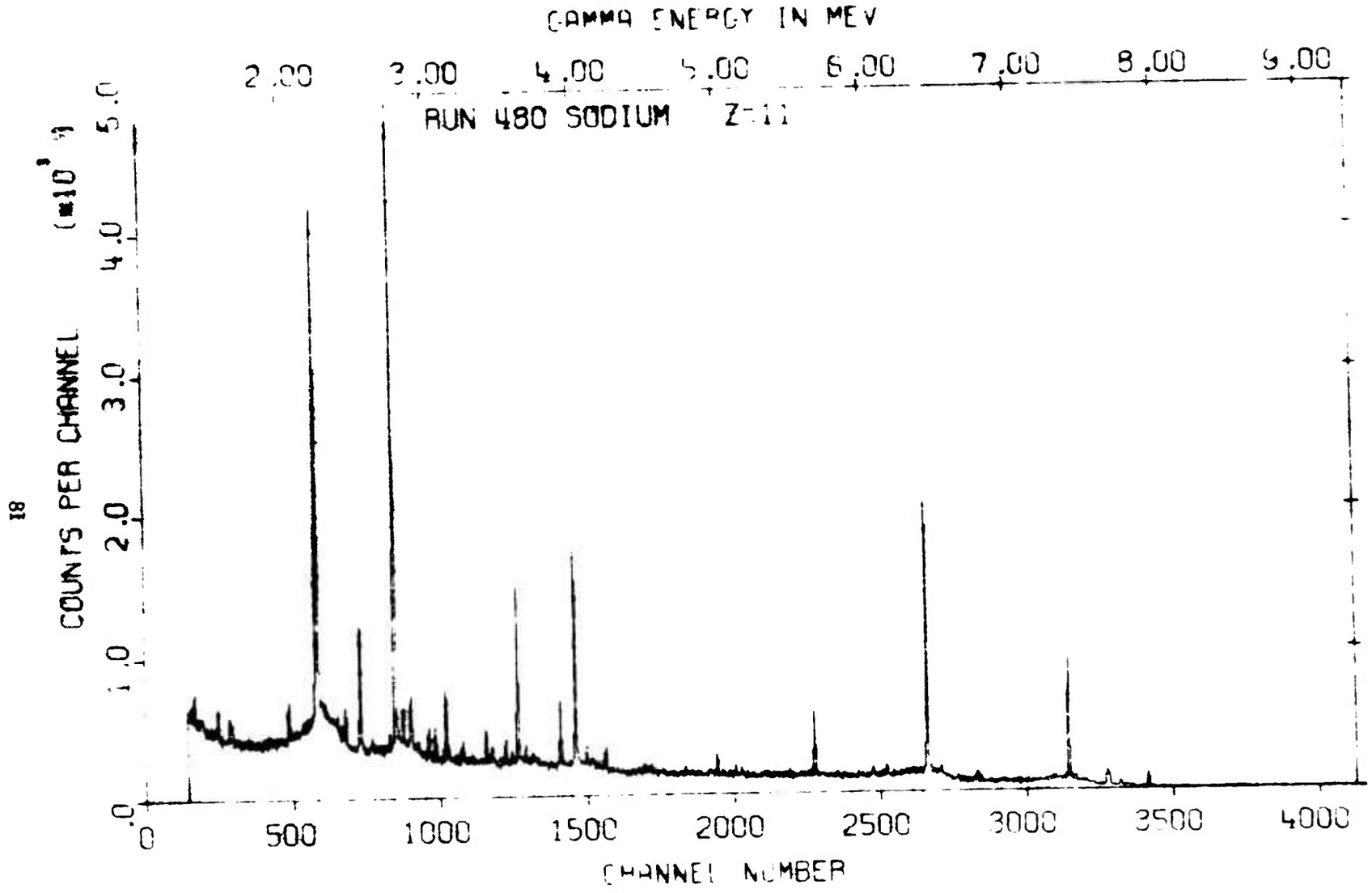
SODIUM Z = 11 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	60.52
3	500.0	750.0	3.70
4	750.0	1000.0	28.45
5	1000.0	1250.0	0.85
6	1250.0	1500.0	1.90
7	1500.0	1750.0	9.55
8	1750.0	2000.0	8.17
9	2000.0	2250.0	24.17
10	2250.0	2500.0	10.52
11	2500.0	2750.0	18.26
12	2750.0	3000.0	19.70
13	3000.0	3250.0	13.98
14	3250.0	3500.0	6.87
15	3500.0	3750.0	20.01
16	3750.0	4000.0	24.50
17	4000.0	4250.0	2.03
18	4250.0	4500.0	0.71
19	4500.0	4750.0	0.49
20	4750.0	5000.0	0.0
21	5000.0	5250.0	0.45
22	5250.0	5500.0	0.71
23	5500.0	5750.0	5.17
24	5750.0	6000.0	0.0
25	6000.0	6250.0	0.26
26	6250.0	6500.0	22.18
27	6500.0	6750.0	0.0

BE(KEV) 6956.6 BIN NORMALIZED %BE 99.41


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 479 SODIUM Z=11 LS 22.99 GMS 3.13 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.9
4.3
3.7
3.1
2.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 480 SODIUM Z=11
COUNTS PER CHANNEL (*10³)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

MAGNESIUM Z = 12		MITNE-95 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	277.7	2.56
2	326.6	1.85
3	390.0	5.61
4	436.3	1.84
5	479.6	1.68
6	559.6	5.06
7	585.2	21.45
8	608.4	2.18
9	693.0	3.40
10	976.2	4.43
11	1129.4	7.10
12	1632.8	4.62
13	1690.1	6.52
14	1714.0	2.96
15	1750.0	2.53
16	1808.9	25.16
17	1890.2	7.26
18	1982.4	1.57
19	2043.4	3.52
20	2048.4	3.26
21	2541.0	1.88
22	2581.5	0.80
23	2607.7	0.76
24	2623.8	0.62
25	2642.6	0.57
26	2658.6	0.90
27	2709.1	0.57
28	2828.1	35.69
29	2880.3	3.17
30	2938.9	0.71
31	2963.6	1.31
32	3054.1	10.83
33	3139.5	0.95
34	3160.4	0.64
35	3184.7	0.45
36	3209.4	0.94
37	3301.1	7.46
38	3319.8	0.77
39	3360.3	0.62
40	3413.6	5.43
41	3478.4	0.75
42	3498.7	0.55
43	3515.2	0.52
44	3549.6	0.34
45	3562.0	0.51
46	3598.2	0.29
47	3631.0	0.45
48	3743.7	1.14

MAGNESIUM Z = 12		MITNE-85 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3808.4	0.81
50	3830.7	5.64
51	3870.1	0.54
52	3916.7	40.82
53	4078.4	0.28
54	4136.9	0.35
55	4216.5	1.29
56	4257.6	0.66
57	4285.3	0.33
58	4411.5	0.44
59	4509.8	0.58
60	4602.3	0.47
61	4966.6	1.16
62	5157.0	0.49
63	5196.6	0.77
64	5224.1	0.44
65	5295.9	1.07
66	5451.8	2.77
67	5526.9	1.17
68	5545.2	0.46
69	5560.3	0.50
70	5587.9	0.30
71	5611.5	0.51
72	5822.7	0.28
73	5890.0	0.29
74	6037.8	0.37
75	6111.4	1.91
76	6175.8	0.32
77	6253.3	0.51
78	6273.9	0.56
79	6319.1	0.49
80	6354.8	1.28
81	6419.5	0.39
82	6442.2	0.48
83	6471.2	0.28
84	6490.6	0.30
85	6508.3	0.46
86	6570.0	0.67
87	6600.0	0.31
88	6619.2	0.29
89	6709.3	0.45
90	6914.2	0.64
91	7160.5	0.41
92	7180.3	0.56
93	7252.4	0.63
94	7304.1	0.32
95	7569.9	0.46
96	7599.8	0.40

MAGNESIUM Z = 12 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	7676.9	0.34
98	8154.4	3.96
99	9282.3	0.63

BINDING ENERGY = 9092.0 %BE = 83.96

MAGNESIUM Z = 12 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
1	277.7	3.05
2	326.6	2.20
3	390.0	6.68
4	436.3	2.19
5	479.6	2.00
6	559.6	6.03
7	585.2	25.55
8	608.4	2.60
9	693.0	4.05
10	976.2	5.28
11	1129.4	8.46
12	1632.8	5.50
13	1690.1	7.77
14	1714.0	3.53
15	1750.0	3.01
16	1808.9	29.97
17	1890.2	8.65
18	1982.4	1.87
19	2043.4	4.19
20	2048.4	3.88
21	2541.0	2.24
22	2581.5	0.95
23	2607.7	0.91
24	2623.8	0.74
25	2642.6	0.68
26	2658.6	1.07
27	2709.1	0.68
28	2828.1	42.51
29	2880.3	3.78
30	2938.9	0.85
31	2963.6	1.56
32	3054.1	12.90
33	3139.5	1.13
34	3160.4	0.76
35	3184.7	0.54
36	3209.4	1.12
37	3301.1	8.89
38	3319.8	0.92
39	3360.3	0.74
40	3413.6	6.47
41	3478.4	0.89
42	3498.7	0.66
43	3515.2	0.62
44	3549.6	0.40
45	3562.0	0.61
46	3598.2	0.35
47	3631.0	0.54
48	3743.7	1.36

MAGNESIUM Z = 12 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3808.4	0.96
50	3830.7	6.72
51	3870.1	0.64
52	3916.7	48.62
53	4078.4	0.33
54	4136.9	0.42
55	4216.5	1.54
56	4257.6	0.79
57	4285.3	0.39
58	4411.5	0.52
59	4509.8	0.69
60	4602.3	0.56
61	4966.6	1.38
62	5157.0	0.58
63	5196.6	0.92
64	5224.1	0.52
65	5295.9	1.27
66	5451.8	3.30
67	5526.9	1.39
68	5545.2	0.55
69	5560.3	0.60
70	5587.9	0.36
71	5611.5	0.61
72	5822.7	0.33
73	5890.0	0.35
74	6037.8	0.44
75	6111.4	2.27
76	6175.8	0.38
77	6253.3	0.61
78	6273.9	0.67
79	6319.1	0.58
80	6354.8	1.52
81	6419.5	0.46
82	6442.2	0.57
83	6471.2	0.33
84	6490.6	0.36
85	6508.3	0.55
86	6570.0	0.80
87	6600.0	0.37
88	6619.2	0.35
89	6709.3	0.54
90	6914.2	0.76
91	7160.5	0.49
92	7180.3	0.67
93	7252.4	0.75
94	7304.1	0.38
95	7569.9	0.55
96	7599.8	0.48

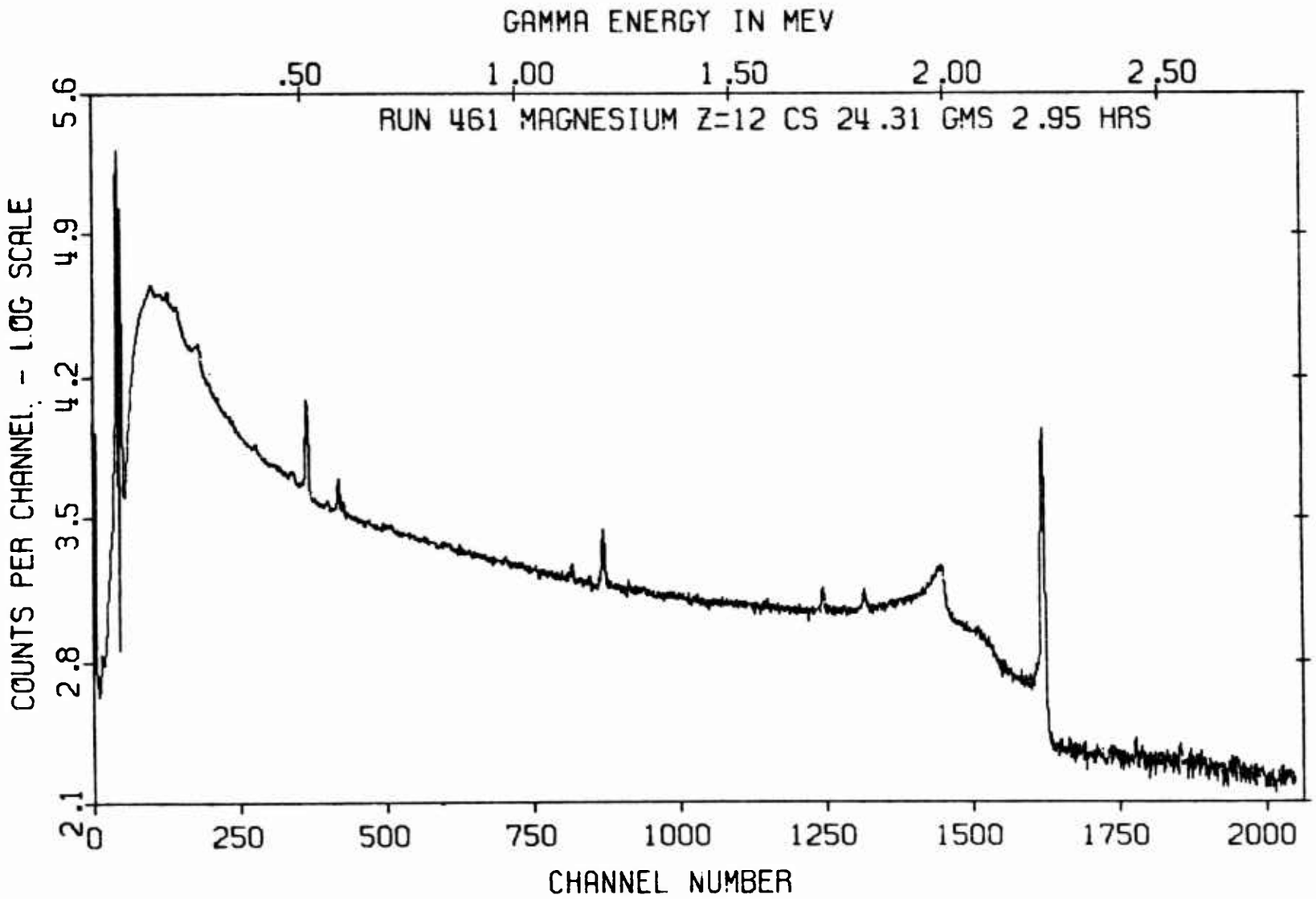
MAGNESIUM Z = 12		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	7676.9	0.40
98	8154.4	4.74
99	9282.3	0.75
BE(KEV)	9092.0 OBSERVED %BE	83.96 NORMALIZED %BE 100.00

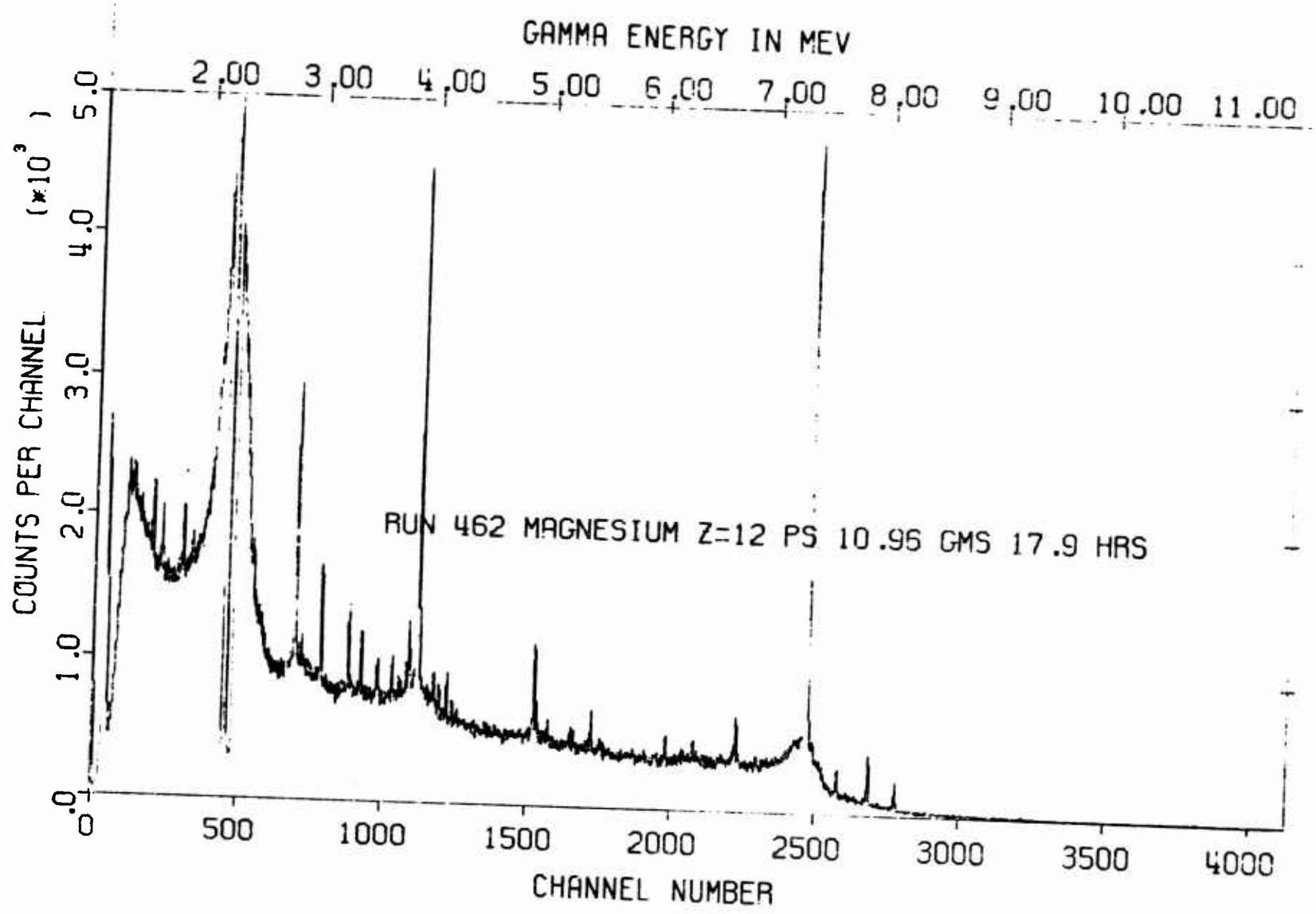
MAGNESIUM Z = 12 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	16.13
3	500.0	750.0	38.22
4	750.0	1000.0	5.28
5	1000.0	1250.0	8.46
6	1250.0	1500.0	0.0
7	1500.0	1750.0	16.79
8	1750.0	2000.0	43.50
9	2000.0	2250.0	8.08
10	2250.0	2500.0	0.0
11	2500.0	2750.0	7.27
12	2750.0	3000.0	48.69
13	3000.0	3250.0	16.45
14	3250.0	3500.0	18.56
15	3500.0	3750.0	3.87
16	3750.0	4000.0	56.95
17	4000.0	4250.0	2.29
18	4250.0	4500.0	1.70
19	4500.0	4750.0	1.25
20	4750.0	5000.0	1.38
21	5000.0	5250.0	2.02
22	5250.0	5500.0	4.57
23	5500.0	5750.0	3.50
24	5750.0	6000.0	0.68
25	6000.0	6250.0	3.10
26	6250.0	6500.0	5.11
27	6500.0	6750.0	2.60
28	6750.0	7000.0	0.76
29	7000.0	7250.0	1.16
30	7250.0	7500.0	1.13
31	7500.0	7750.0	1.43
32	7750.0	8000.0	0.0
33	8000.0	8250.0	4.74
34	8250.0	8500.0	0.0
35	8500.0	8750.0	0.0
36	8750.0	9000.0	0.0
37	9000.0	9250.0	0.0
38	9250.0	9500.0	0.75
39	9500.0	9750.0	0.0

BE(KEV) 9092.0 BIN NORMALIZED %BE 100.41


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 461 MAGNESIUM Z=12 CS 24.31 GMS 2.95 HRS
COUNTS PER CHANNEL - LOG SCALE
5.6
4.9
4.2
3.5
2.8
2.1
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
0.0
RUN 462 MAGNESIUM Z=12 PS 10.96 GMS 17.9 HRS
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ALUMINUM Z=13 GAMAEC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	248.9	5.73
2	252.1	4.73
3	259.3	2.16
4	550.7	.77
5	559.0	.77
6	597.1	1.35
7	758.0	1.50
8	830.4	1.44
9	984.0	4.58
10	1410.4	.81
11	1620.4	2.85
12	1658.7	.69
13	2107.3	1.02
14	2140.9	1.61
15	2240.7	2.55
16	2256.0	.47
17	2283.8	1.41
18	2298.0	.54
19	2453.6	.49
20	2577.9	.70
21	2590.5	1.17
22	2625.8	.70
23	2709.0	.34
24	2727.9	.19
25	2737.8	.16
26	2821.6	2.08
27	2959.8	5.99
28	3034.2	5.15
29	3143.4	.24
30	3267.1	.18
31	3304.3	.98
32	3347.4	.22
33	3392.4	.24
34	3464.9	4.26
35	3561.2	.46
36	3591.3	2.73
37	3681.7	.58
38	3789.9	.78
39	3825.1	.11
40	3849.0	1.42
41	3875.4	.99
42	3934.6	.15
43	3985.7	.09
44	4016.9	.29
45	4054.6	.36
46	4102.8	.52
47	4132.9	4.95
48	4167.5	.37

ALUMINUM Z=13 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4259.2	4.04
50	4426.4	.39
51	4483.3	.09
52	4659.9	1.20
53	4690.1	2.50
54	4733.6	3.47
55	4765.8	.12
56	4902.5	1.89
57	4945.0	.61
58	5104.4	.20
59	5133.8	1.60
60	5302.0	.24
61	5410.5	1.21
62	5585.5	.49
63	5708.6	.24
64	5765.4	.31
65	6101.1	1.44
66	6198.6	.32
67	6315.9	1.15
68	6440.5	.39
69	6710.1	.31
70	6952.9	.13
71	6978.0	.08
72	7119.8	.07
73	7453.9	.13
74	7656.7	.14
75	7694.9	4.27
76	7723.9	21.67

BINDING ENERGY = 7723.8 %BE = 61.51 + 22.22 = 83.73

ALUMINUM Z=13 GAMARC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	248.9	6.84
2	252.1	5.65
3	259.3	2.58
4	550.7	.92
5	559.0	.92
6	597.1	1.62
7	758.0	1.79
8	830.4	1.72
9	984.0	5.47
10	1410.4	.96
11	1620.4	3.40
12	1658.7	.82
13	2107.3	1.22
14	2140.8	1.92
15	2240.7	3.04
16	2256.0	.56
17	2283.8	1.68
18	2298.0	.64
19	2453.6	.58
20	2577.9	.84
21	2590.5	1.40
22	2625.8	.83
23	2709.0	.41
24	2727.9	.23
25	2737.8	.19
26	2821.6	2.49
27	2959.8	7.15
28	3034.2	6.15
29	3143.4	.29
30	3267.1	.22
31	3304.3	1.17
32	3347.4	.27
33	3392.4	.28
34	3464.9	5.09
35	3561.2	.56
36	3591.3	3.26
37	3681.7	.69
38	3789.9	.93
39	3825.1	.13
40	3849.0	1.69
41	3875.4	1.19
42	3934.6	.18
43	3985.7	.10
44	4016.9	.35
45	4054.6	.43
46	4102.8	.63
47	4132.9	5.91
48	4167.5	.45

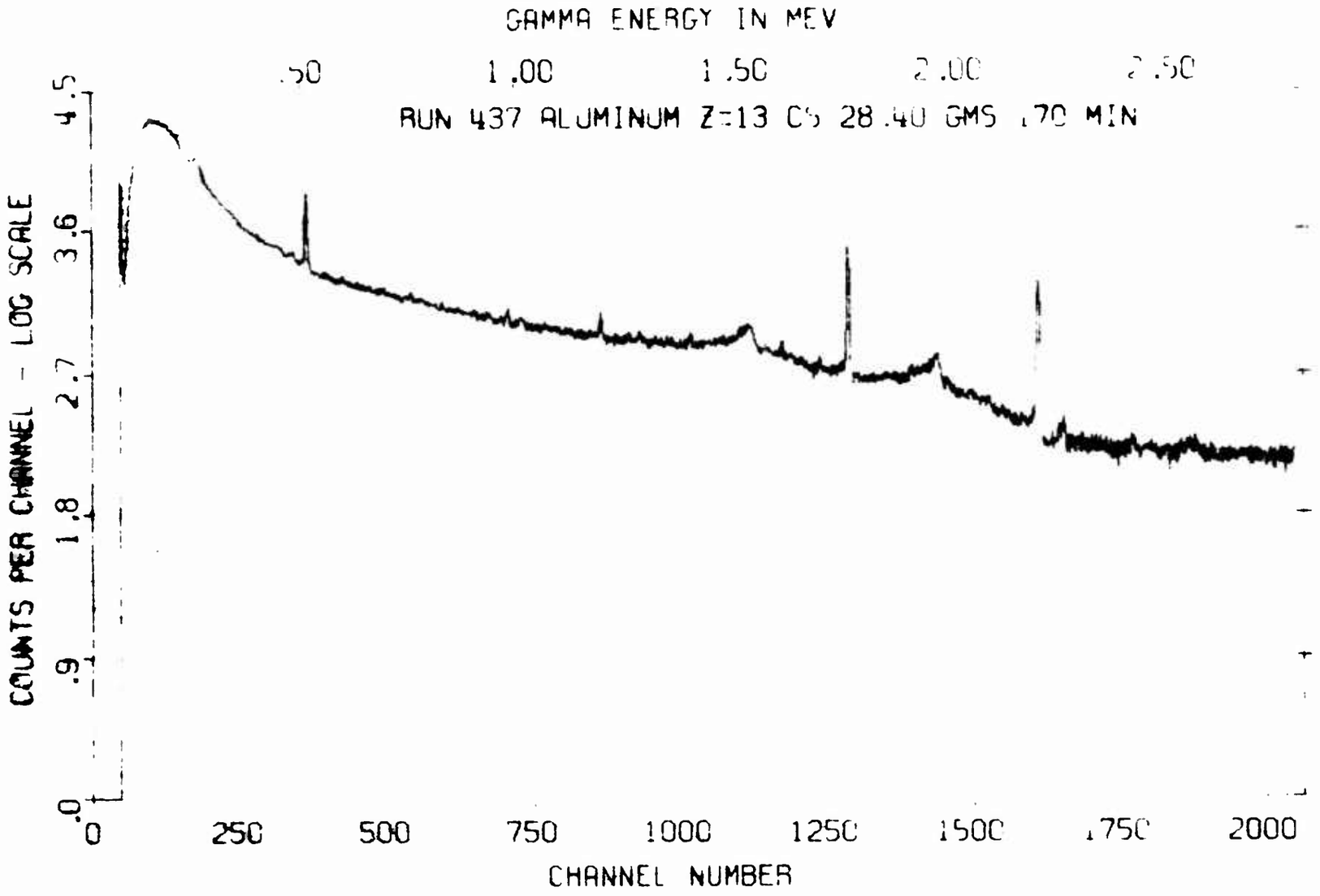
ALUMINUM 7-13 GAMAPL CODE MITNE-P5 DATA NORMALIZED YIELDS

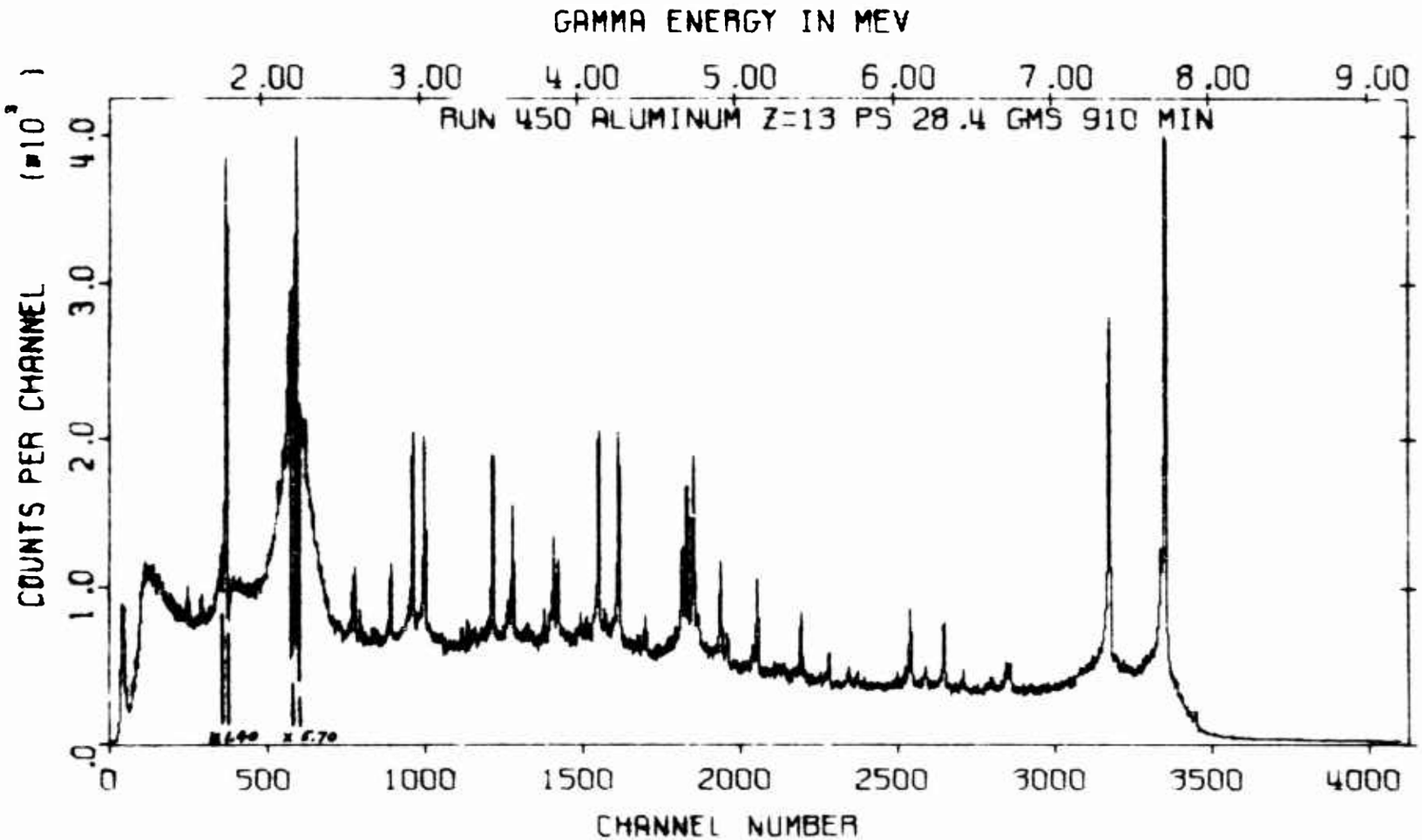
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4259.2	4.82
50	4426.4	.47
51	4483.3	.10
52	4659.9	1.43
53	4690.1	2.99
54	4733.6	4.14
55	4765.8	.15
56	4902.5	2.26
57	4945.0	.72
58	5104.4	.24
59	5133.8	1.92
60	5302.0	.29
61	5410.5	1.45
62	5585.5	.58
63	5708.6	.28
64	5765.4	.38
65	6101.1	1.72
66	6198.6	.39
67	6315.9	1.37
68	6440.5	.47
69	6710.1	.37
70	6952.9	.15
71	6978.0	.09
72	7118.8	.08
73	7453.9	.16
74	7656.7	.17
75	7694.9	5.10
76	7723.9	25.89

BE(KEV) 7723.8 OBSERVED %BE 83.73 NORMALIZED %BE 100.00

ALUMINUM Z=13 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	6.84	.00	6.84
2	250.0	500.0	8.23	.00	8.23
3	500.0	750.0	3.46	.00	3.46
4	750.0	1000.0	8.98	.00	8.98
5	1000.0	1250.0	.00	.00	.00
6	1250.0	1500.0	.96	.00	.96
7	1500.0	1750.0	4.23	1.19	5.42
8	1750.0	2000.0	.00	2.39	2.39
9	2000.0	2250.0	6.18	3.58	9.76
10	2250.0	2500.0	3.47	2.10	5.57
11	2500.0	2750.0	3.90	-.84	3.06
12	2750.0	3000.0	9.64	3.22	12.86
13	3000.0	3250.0	6.44	-.26	6.18
14	3250.0	3500.0	7.02	-.38	6.64
15	3500.0	3750.0	4.51	1.31	5.82
16	3750.0	4000.0	4.23	3.15	7.38
17	4000.0	4250.0	7.75	2.71	10.47
18	4250.0	4500.0	5.40	2.02	7.42
19	4500.0	4750.0	8.56	5.45	14.01
20	4750.0	5000.0	3.13	2.07	5.19
21	5000.0	5250.0	2.15	1.70	3.85
22	5250.0	5500.0	1.74	1.00	2.74
23	5500.0	5750.0	.87	.43	1.30
24	5750.0	6000.0	.38	-.14	.23
25	6000.0	6250.0	2.10	-.11	2.00
26	6250.0	6500.0	1.84	1.58	3.42
27	6500.0	6750.0	.37	2.97	3.34
28	6750.0	7000.0	.24	1.29	1.53
29	7000.0	7250.0	.08	.31	.40
30	7250.0	7500.0	.16	2.65	2.81
31	7500.0	7750.0	31.16	4.37	35.53
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.00	.00	.00
BE(KEV)	7723.8	%BE	73.02	26.54	99.56


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 437 ALUMINUM Z=13 C5 28.40 GMS .70 MIN
COUNTS PER CHANNEL - LOG SCALE
4.5
3.6
2.7
1.8
.9
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 450 ALUMINUM Z=13 PS 28.4 GMS 910 MIN
COUNTS PER CHANNEL (*10³)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SILICON Z = 14 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	246.9	4.27
2	250.5	4.13
3	383.0	.43
4	449.9	.42
5	559.5	.80
6	596.2	.99
7	656.0	.53
8	693.2	.76
9	752.4	.99
10	1151.3	.81
11	1273.2	12.25
12	1294.0	.91
13	1332.2	1.13
14	2092.9	26.78
15	2157.5	.98
16	2336.5	1.13
17	2425.9	3.93
18	2447.5	.63
19	2509.6	.91
20	2780.4	1.93
21	3054.6	1.60
22	3086.5	.54
23	3101.4	1.26
24	3116.4	.35
25	3278.8	.26
26	3306.3	.34
27	3432.4	.26
28	3499.3	.24
29	3539.3	79.58
30	3632.7	.39
31	3661.3	4.61
32	3770.0	.40
33	3865.3	1.08
34	3954.9	3.06
35	4323.3	.25
36	4508.8	.28
37	4528.8	.44
38	4733.3	.26
39	4811.2	.35
40	4837.5	.38
41	4934.3	70.55
42	5070.6	.23
43	5107.3	3.68
44	5271.9	1.01
45	5297.9	.20
46	6046.8	.30
47	6244.1	.19
48	6287.0	.31

SILICON Z = 14 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	6380.1	12.62
50	6420.0	.21
51	6742.3	1.84
52	7055.4	.42
53	7199.3	7.16
54	7277.5	.42
55	8471.5	2.31

BINDING ENERGY = 8767.6 %BE = 113.68 + .00 = 113.68

SILICON Z = 14 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	246.9	3.76
2	250.5	3.63
3	383.0	.38
4	449.9	.37
5	559.5	.70
6	596.2	.87
7	656.0	.47
8	693.2	.67
9	752.4	.87
10	1151.3	.71
11	1273.2	10.78
12	1294.0	.80
13	1332.2	.99
14	2092.9	23.56
15	2157.5	.86
16	2336.5	.99
17	2425.9	3.46
18	2447.5	.55
19	2509.6	.80
20	2780.4	1.70
21	3054.6	1.41
22	3086.5	.47
23	3101.4	1.11
24	3116.4	.31
25	3278.8	.23
26	3306.3	.30
27	3432.4	.23
28	3499.3	.21
29	3539.3	70.00
30	3632.7	.34
31	3661.3	4.06
32	3770.0	.35
33	3865.3	.95
34	3954.9	2.69
35	4323.3	.22
36	4508.8	.25
37	4528.8	.39
38	4733.3	.23
39	4811.2	.31
40	4837.5	.33
41	4934.3	62.06
42	5070.6	.20
43	5107.3	3.24
44	5271.9	.89
45	5297.3	.18
46	6046.8	.26
47	6244.1	.17
48	6287.0	.27

SILICON Z = 14 MITNE-85 DATA NORMALIZED YIELDS

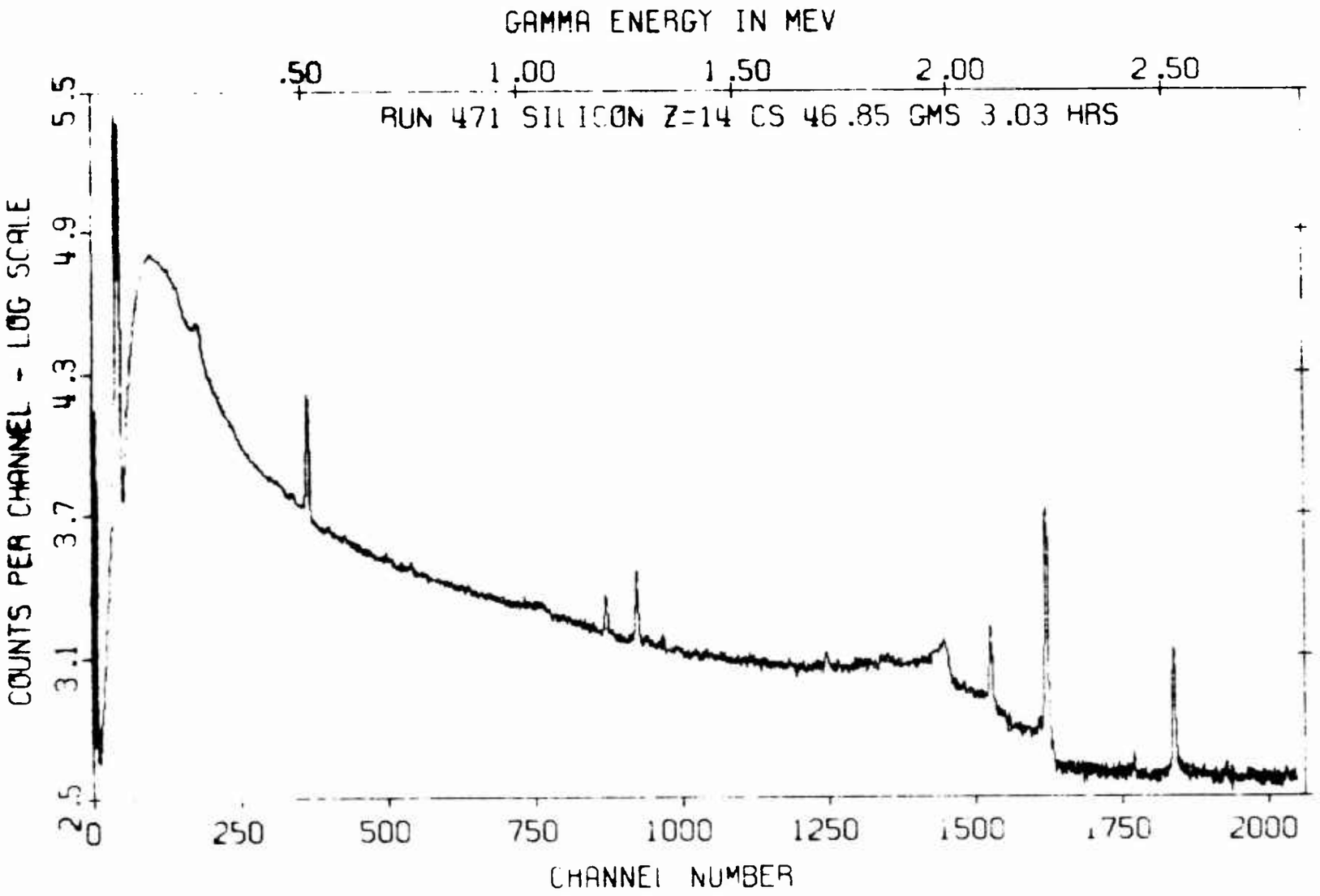
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	6380.1	11.10
50	6420.0	.18
51	6742.3	1.62
52	7055.4	.37
53	7199.3	6.30
54	7277.5	.37
55	8471.5	2.03

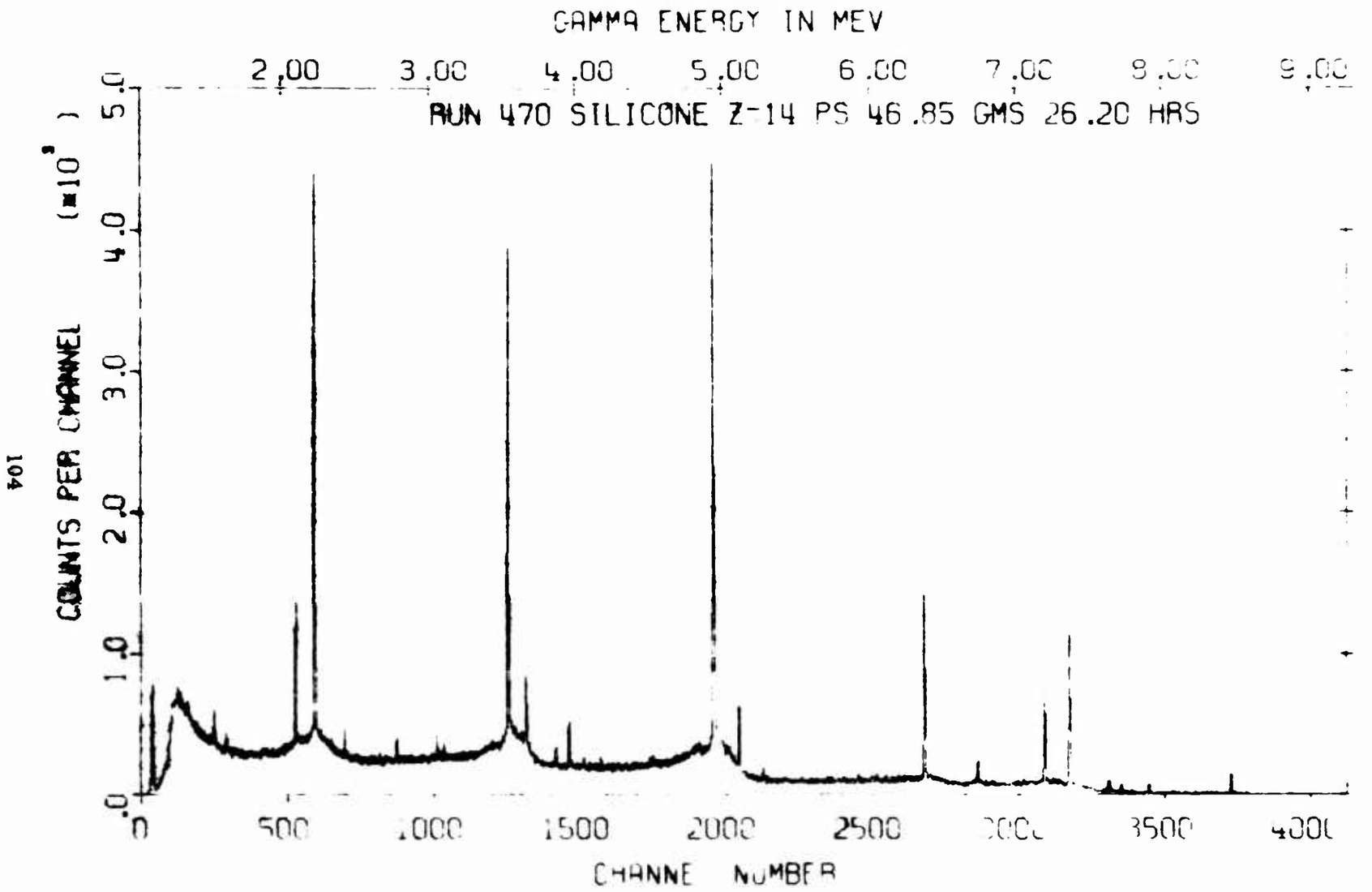
BE(KEV) 8767.6 OBSERVED %SE 113.68 NORMALIZED %SE 100.00

SILICON Z = 14 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	3.76	.00	3.76
2	250.0	500.0	4.38	.00	4.38
3	500.0	750.0	2.71	.00	2.71
4	750.0	1000.0	.87	.00	.87
5	1000.0	1250.0	.71	.00	.71
6	1250.0	1500.0	12.57	.00	12.57
7	1500.0	1750.0	.00	.00	.00
8	1750.0	2000.0	.00	.00	.00
9	2000.0	2250.0	24.42	.00	24.42
10	2250.0	2500.0	5.01	.00	5.01
11	2500.0	2750.0	.80	.00	.80
12	2750.0	3000.0	1.70	.00	1.70
13	3000.0	3250.0	3.30	.00	3.30
14	3250.0	3500.0	.97	.00	.97
15	3500.0	3750.0	74.40	.00	74.40
16	3750.0	4000.0	3.99	.00	3.99
17	4000.0	4250.0	.00	.00	.00
18	4250.0	4500.0	.22	.00	.22
19	4500.0	4750.0	.86	.00	.86
20	4750.0	5000.0	62.70	.00	62.70
21	5000.0	5250.0	3.44	.00	3.44
22	5250.0	5500.0	1.06	.00	1.06
23	5500.0	5750.0	.00	.00	.00
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.43	.00	.43
26	6250.0	6500.0	11.56	.00	11.56
27	6500.0	6750.0	1.62	.00	1.62
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	6.67	.00	6.67
30	7250.0	7500.0	.37	.00	.37
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	2.03	.00	2.03
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
BE(KEV)	8767.6	%BE	100.42	.00	100.42


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 471 SILICON Z=14 CS 46.85 GMS 3.03 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.9
4.3
3.7
3.1
2.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 470 SILICONE Z-14 PS 46.85 GMS 26.20 HRS
COUNTS PER CHANNEL (×10³)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3500
4000
CHANNE NUMBER

PHOSPHORUS Z = 15 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	227.3	0.72
2	233.0	0.49
3	243.6	2.40
4	250.9	2.98
5	325.3	1.56
6	336.5	0.85
7	371.5	0.64
8	427.7	0.59
9	436.1	1.20
10	449.3	0.96
11	472.4	2.19
12	479.3	2.05
13	557.6	3.77
14	595.2	4.32
15	636.2	13.42
16	706.5	1.87
17	869.0	2.23
18	915.3	1.30
19	944.6	1.25
20	1032.4	1.51
21	1170.6	9.42
22	1321.4	1.72
23	1380.6	2.18
24	1413.1	15.47
25	1629.9	3.09
26	1674.1	3.91
27	1688.2	2.60
28	1734.2	4.29
29	1760.1	1.73
30	1890.0	6.66
31	1941.9	5.84
32	1995.8	1.19
33	2021.8	1.82
34	2034.1	1.47
35	2114.3	7.65
36	2154.2	16.78
37	2172.6	2.85
38	2244.6	1.60
39	2250.6	1.25
40	2262.7	1.11
41	2276.0	0.98
42	2285.1	0.59
43	2295.4	1.75
44	2309.1	0.64
45	2424.7	1.83
46	2460.7	0.74
47	2553.9	0.57
48	2586.1	5.28

PHOSPHOROUS Z = 15 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2603.1	0.81
50	2657.0	1.88
51	2705.1	0.72
52	2774.2	0.44
53	2803.1	2.36
54	2886.2	3.37
55	2958.8	0.28
56	2992.1	0.36
57	3058.3	6.47
58	3087.8	0.43
59	3121.9	1.06
60	3152.1	0.41
61	3188.0	0.38
62	3185.4	1.89
63	3220.6	0.31
64	3274.8	5.85
65	3302.4	0.31
66	3314.1	0.44
67	3336.7	0.36
68	3339.6	0.32
69	3368.3	0.62
70	3444.1	0.99
71	3482.1	0.41
72	3522.8	14.49
73	3551.6	0.98
74	3594.1	0.56
75	3610.6	0.40
76	3634.4	0.27
77	3741.9	0.27
78	3768.2	0.49
79	3810.3	17.58
80	3924.9	3.99
81	3960.3	0.43
82	3971.3	0.30
83	4125.6	0.42
84	4146.8	0.35
85	4201.0	2.90
86	4261.0	0.34
87	4324.3	0.21
88	4364.3	5.05
89	4408.3	0.40
90	4451.5	1.73
91	4568.3	0.23
92	4592.7	0.32
93	4613.7	0.50
94	4629.2	0.45
95	4671.3	15.20
96	4877.1	0.77

PHOSPHORUS Z = 15 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4911.9	0.66
98	5088.3	0.63
99	5155.2	0.27
100	5194.8	1.21
101	5266.2	4.80
102	5298.8	0.32
103	5349.3	0.28
104	5427.7	0.24
105	5532.4	0.44
106	5619.4	0.27
107	5704.8	3.51
108	5730.7	0.23
109	5778.3	0.99
110	5816.5	0.44
111	5860.1	0.29
112	5929.6	0.27
113	6036.3	0.30
114	6061.9	0.36
115	6194.6	0.72
116	6226.1	0.26
117	6275.7	0.48
118	6319.5	0.63
119	6392.0	0.43
120	6418.9	0.62
121	6504.7	0.50
122	6707.8	0.56
123	6785.3	14.30
124	6915.3	0.77
125	7179.2	0.45
126	7306.2	0.61
127	7421.2	5.85
128	7788.6	0.38
129	7856.2	1.10
130	7938.1	0.30

BINDING ENERGY = 7936.8 %BE = 110.15

PHOSPHOROUS Z = 15 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
1	227.3	0.65
2	233.0	0.44
3	243.6	2.18
4	250.9	2.71
5	325.3	1.42
6	336.5	0.77
7	371.5	0.58
8	427.7	0.54
9	436.1	1.09
10	449.3	0.87
11	472.4	1.99
12	479.[illegible]	1.86
13	557.6	3.42
14	595.2	3.92
15	636.2	12.18
16	706.5	1.70
17	869.0	2.02
18	915.3	1.18
19	944.6	1.13
20	1032.4	1.37
21	1070.6	8.55
22	1321.4	1.56
23	1380.6	1.98
24	1413.1	14.04
25	1629.9	2.81
26	1674.1	3.55
27	1688.2	2.36
28	1734.2	3.89
29	1760.1	1.57
30	1890.0	6.05
31	1941.9	5.30
32	1999.8	1.08
33	2021.8	1.65
34	2034.1	1.33
35	2114.3	6.94
36	2154.2	15.23
37	2172.6	2.59
38	224[illegible].6	1.45
39	2[illegible]	1.13
40	2[illegible]	1.01
41	2[illegible]0	0.89
42	2285.1	0.81
43	2295.4	1.59
44	2309.1	0.58
45	2424.7	1.66
46	2460.7	0.67
47	2553.9	0.52
48	2596.1	4.79

PHOSPHORUS Z = 15 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
49	2603.1	0.74
50	2657.0	1.71
51	2705.1	0.65
52	2774.2	0.40
53	2863.1	2.14
54	2886.2	3.06
55	2958.8	0.25
56	2992.1	0.33
57	3058.3	5.87
58	3087.8	0.39
59	3121.9	0.96
60	3152.0	0.37
61	3168.0	0.34
62	3185.4	1.72
63	3220.6	0.28
64	3273.8	5.31
65	3303.4	0.28
66	3318.1	0.40
67	3336.7	0.33
68	3339.6	0.29
69	3368.3	0.56
70	3444.1	0.90
71	3482.1	0.37
72	3522.8	13.15
73	3551.0	0.89
74	3594.0	0.51
75	3610.6	0.36
76	3634.4	0.25
77	3741.5	0.25
78	3768.2	0.44
79	3900.3	15.96
80	3924.9	2.62
81	3960.3	0.39
82	3971.3	0.27
83	4129.6	0.38
84	4146.8	0.32
85	4200.0	2.63
86	4261.0	0.31
87	4324.2	0.28
88	4364.3	4.58
89	4408.3	0.36
90	4490.5	1.57
91	4568.3	0.21
92	4592.7	0.29
93	4613.7	0.45
94	4629.2	0.41
95	4671.3	13.80
96	4877.1	0.70

PHOSPHORUS Z = 15 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4911.5	0.60
98	5098.3	0.57
99	5155.2	0.25
100	5194.8	1.10
101	5266.2	4.36
102	5298.8	0.29
103	5349.3	0.25
104	5427.7	0.22
105	5532.4	0.40
106	5619.4	0.25
107	5704.8	3.19
108	5730.7	0.21
109	5778.3	0.90
110	5816.5	0.40
111	5860.1	0.26
112	5939.6	0.25
113	6036.3	0.27
114	6061.9	0.33
115	6194.6	0.65
116	6226.1	0.24
117	6275.7	0.44
118	6319.5	0.57
119	6392.0	0.39
120	6418.9	0.56
121	6504.7	0.45
122	6707.8	0.51
123	6785.3	12.98
124	6915.3	0.70
125	7179.2	0.41
126	7306.2	0.56
127	7421.2	5.31
128	7788.6	0.34
129	7956.2	1.00
130	7938.1	0.27

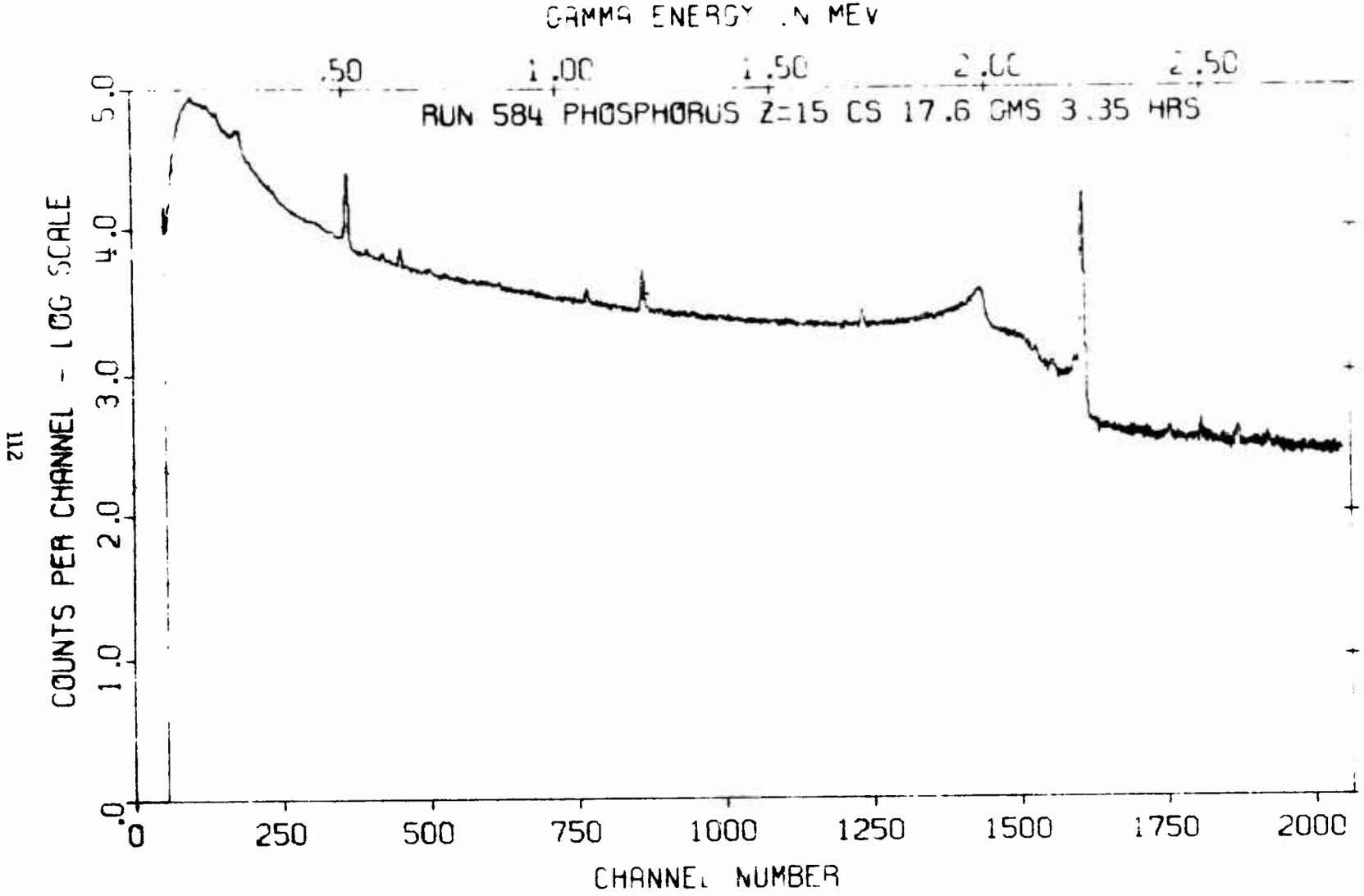
BE(KEV) 7936.8 OBSERVED %BE 110.15 NORMALIZED %BE 100.00

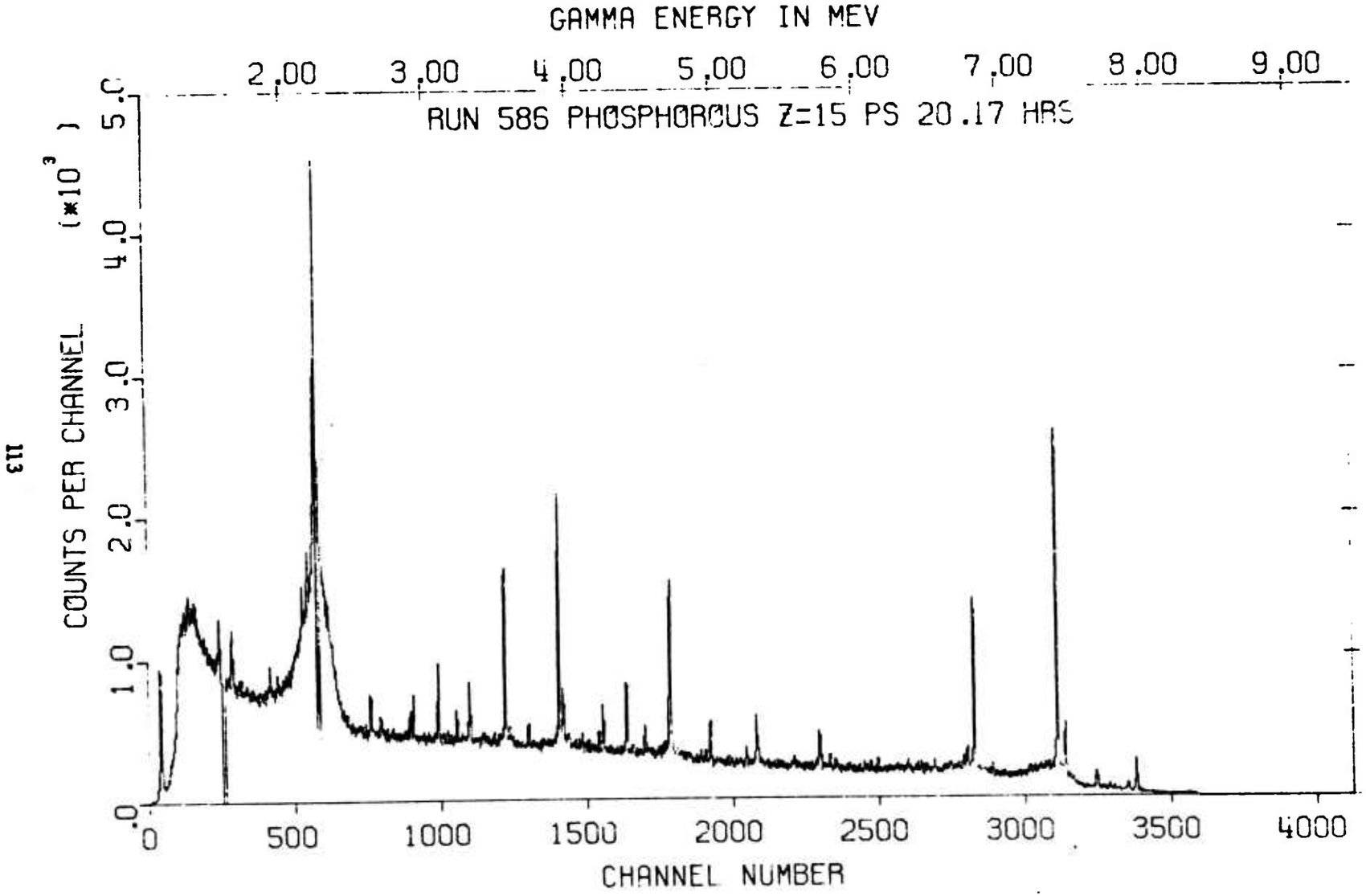
PHOSPHOROUS Z = 15 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	3.28
2	250.0	500.0	11.82
3	500.0	750.0	21.22
4	750.0	1000.0	4.34
5	1000.0	1250.0	9.92
6	1250.0	1500.0	17.58
7	1500.0	1750.0	12.61
8	1750.0	2000.0	14.00
9	2000.0	2250.0	29.20
10	2250.0	2500.0	8.34
11	2500.0	2750.0	8.41
12	2750.0	3000.0	6.18
13	3000.0	3250.0	9.94
14	3250.0	3500.0	8.44
15	3500.0	3750.0	15.41
16	3750.0	4000.0	20.69
17	4000.0	4250.0	3.33
18	4250.0	4500.0	7.11
19	4500.0	4750.0	15.16
20	4750.0	5000.0	1.30
21	5000.0	5250.0	1.97
22	5250.0	5500.0	5.12
23	5500.0	5750.0	4.04
24	5750.0	6000.0	1.81
25	6000.0	6250.0	1.49
26	6250.0	6500.0	1.96
27	6500.0	6750.0	0.96
28	6750.0	7000.0	13.68
29	7000.0	7250.0	0.41
30	7250.0	7500.0	5.86
31	7500.0	7750.0	0.0
32	7750.0	8000.0	1.62
33	8000.0	8250.0	0.0

BE(KEV) 7936.8 BIN NORMALIZED %BE 100.06


GAMMA ENERGY .N MEV
.50
1.00
1.50
2.00
2.50
RUN 584 PHOSPHORUS Z=15 CS 17.6 GMS 3.35 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 586 PHOSPHORCUS Z=15 PS 20.17 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SULFUR Z=16 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	841.1	54.27
2	2379.7	31.97
3	2490.8	1.95
4	2753.2	4.19
5	2864.7	1.28
6	2931.1	16.05
7	3220.8	19.46
8	3370.4	3.78
9	3398.7	.89
10	3723.1	2.03
11	4430.8	3.16
12	4639.1	1.49
13	4869.8	8.24
14	5047.2	2.26
15	5420.5	42.44
16	5583.5	.90
17	7800.0	2.81
18	8640.9	1.91

BINDING ENERGY = 8641.3 %BE = 71.84 + .00 = 71.84

SULFUR Z=16 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

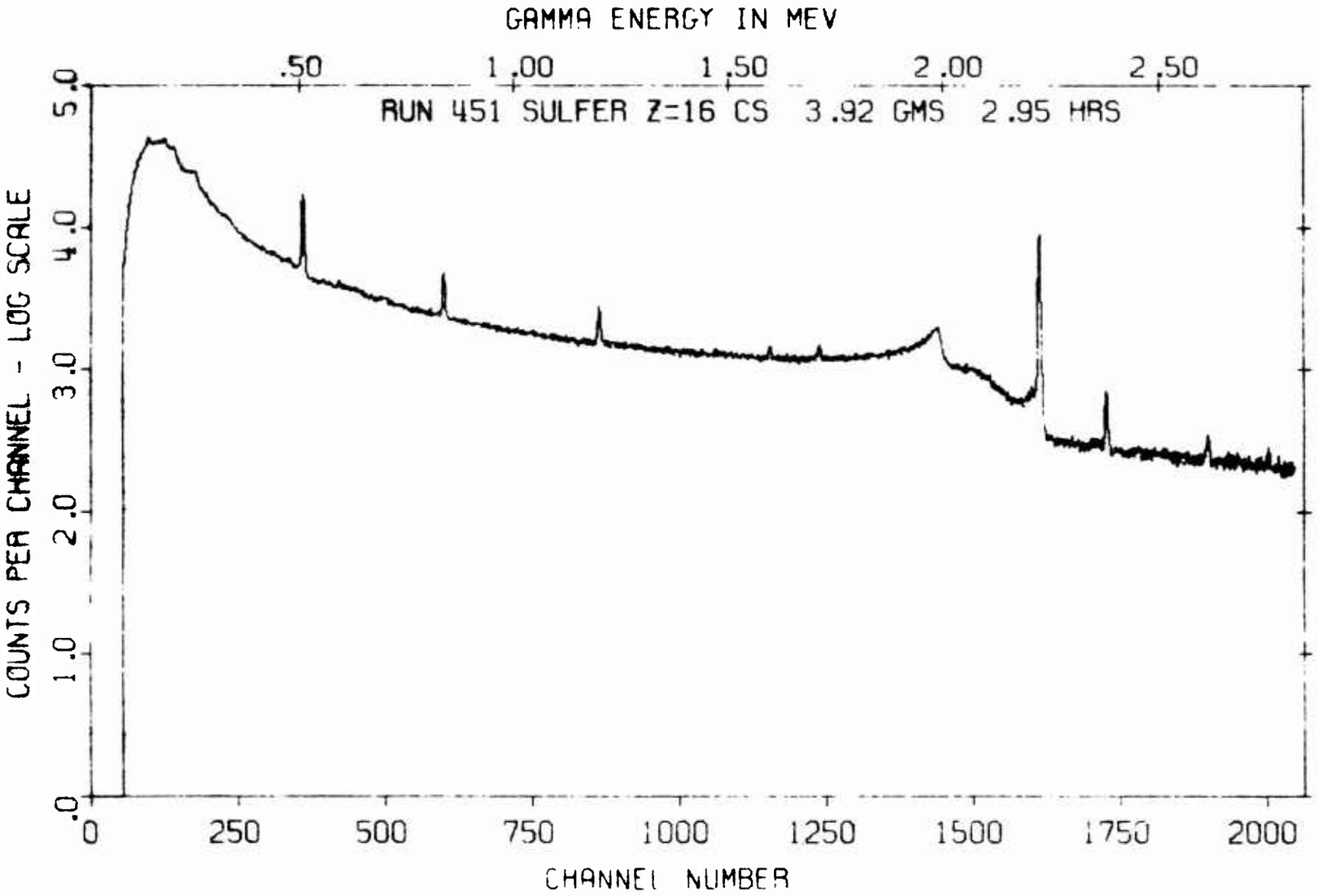
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	841.1	75.55
2	2379.7	44.50
3	2490.8	2.71
4	2753.2	5.83
5	2864.7	1.78
6	2931.1	22.34
7	3220.8	27.09
8	3370.4	5.26
9	3398.7	1.24
10	3723.1	2.83
11	4430.8	4.40
12	4639.1	2.07
13	4869.8	11.47
14	5047.2	3.15
15	5420.5	59.08
16	5583.5	1.25
17	7800.0	3.91
18	8640.9	2.66

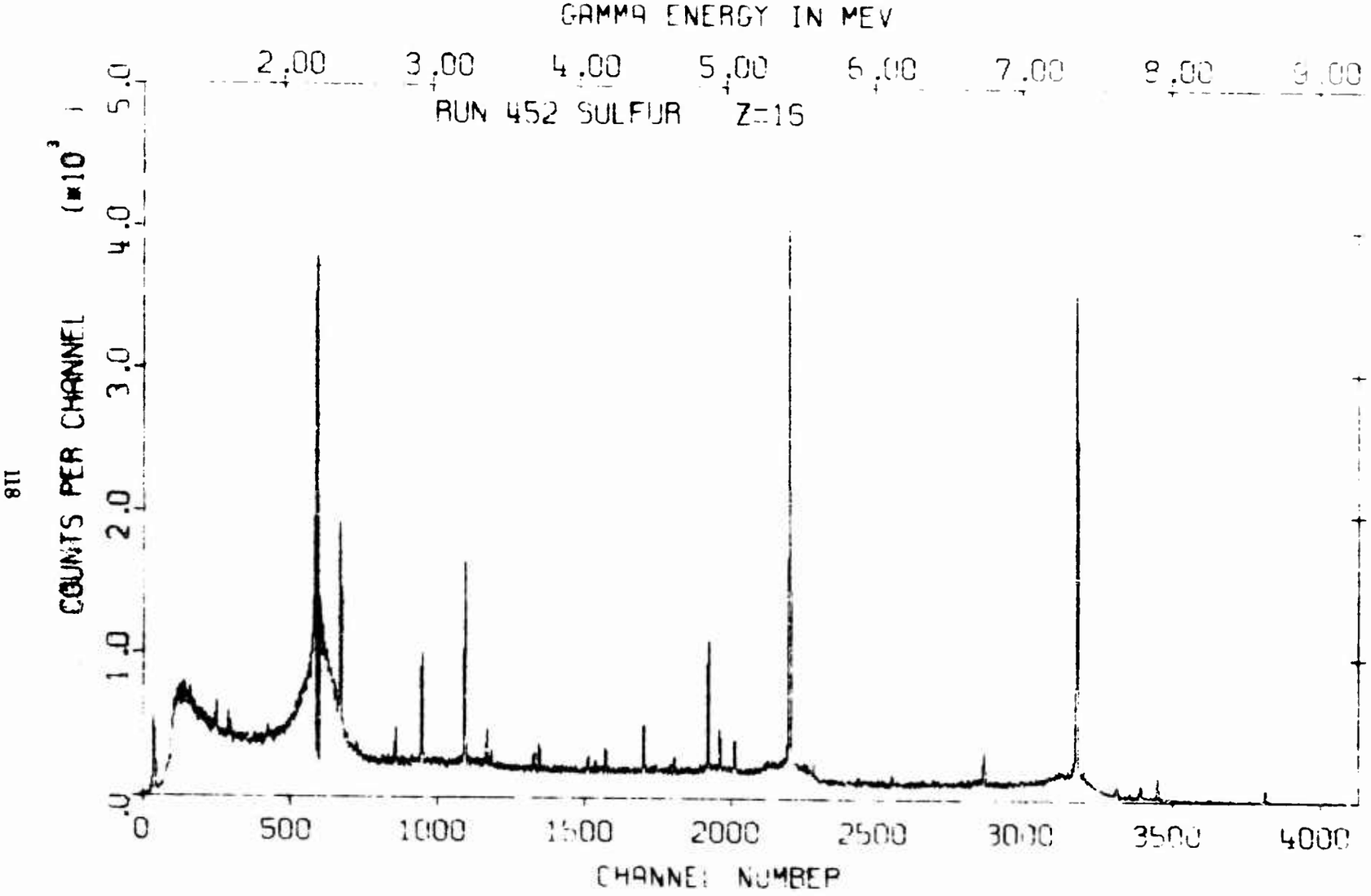
BE(KEV) 8641.3 OBSERVED %BE 71.84 NORMALIZED %BE 100.00

SULFUR Z=16 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	.00	.00	.00
3	500.0	750.0	.00	.00	.00
4	750.0	1000.0	75.55	.00	75.55
5	1000.0	1250.0	.00	.00	.00
6	1250.0	1500.0	.00	.00	.00
7	1500.0	1750.0	.00	.00	.00
8	1750.0	2000.0	.00	.00	.00
9	2000.0	2250.0	.00	.00	.00
10	2250.0	2500.0	47.22	.00	47.22
11	2500.0	2750.0	.00	.00	.00
12	2750.0	3000.0	29.96	.00	29.96
13	3000.0	3250.0	27.09	.00	27.09
14	3250.0	3500.0	6.50	.00	6.50
15	3500.0	3750.0	2.83	.00	2.83
16	3750.0	4000.0	.00	.00	.00
17	4000.0	4250.0	.00	.00	.00
18	4250.0	4500.0	4.40	.00	4.40
19	4500.0	4750.0	2.07	.00	2.07
20	4750.0	5000.0	11.47	.00	11.47
21	5000.0	5250.0	3.15	.00	3.15
22	5250.0	5500.0	59.08	.00	59.08
23	5500.0	5750.0	1.25	.00	1.25
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.00	.00	.00
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	3.91	.00	3.91
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	2.66	.00	2.66
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
BE(KEV)	8641.3	%BE	99.57	.00	99.57


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 451 SULFER Z=16 CS 3.92 GMS 2.95 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 452 SULFUR Z=16
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

811

CHLORINE Z=17 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	294.6	0.25
2	305.1	0.16
3	360.0	0.10
4	395.7	0.11
5	437.4	0.38
6	477.9	0.17
7	518.3	11.00
8	541.0	0.15
9	575.8	0.15
10	589.9	0.50
11	594.6	0.56
12	788.6	10.36
13	830.8	0.20
14	1020.4	0.29
15	1132.3	0.73
16	1165.4	10.90
17	1327.5	0.61
18	1600.6	4.33
19	1675.8	0.68
20	1784.9	0.73
21	1830.2	0.73
22	1896.9	0.67
23	1951.3	21.37
24	1957.5	15.13
25	1984.5	0.42
26	2004.1	0.52
27	2034.1	0.39
28	2074.3	0.74
29	2092.1	0.45
30	2106.5	0.59
31	2129.5	0.28
32	2157.1	0.28
33	2176.9	0.30
34	2268.7	0.26
35	2289.4	0.47
36	2311.8	0.71
37	2364.3	0.23
38	2468.5	0.85
39	2492.5	0.87
40	2539.5	0.26
41	2624.2	0.66
42	2649.2	0.39
43	2676.3	3.27
44	2733.1	0.15
45	2746.0	0.29
46	2763.2	0.19
47	2800.2	0.55
48	2811.8	0.20

CHLORINE Z=17 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
49	2845.5	0.68
50	2864.4	6.77
51	2895.9	0.57
52	2975.3	1.14
53	2997.7	1.15
54	3015.8	0.82
55	3062.2	3.73
56	3087.9	0.31
57	3116.0	1.42
58	3200.8	0.28
59	3253.2	0.26
60	3269.1	0.11
61	3293.3	0.18
62	3316.1	0.28
63	3333.0	0.70
64	3374.3	0.48
65	3429.1	0.90
66	3476.9	0.10
67	3481.4	0.10
68	3502.2	0.73
69	3531.7	0.11
70	3561.8	1.08
71	3587.4	0.15
72	3601.4	0.40
73	3660.5	0.32
74	3710.3	0.22
75	3735.2	0.09
76	3749.7	0.34
77	3775.9	0.17
78	3824.3	1.78
79	3963.7	0.27
80	3981.1	0.83
81	4012.3	0.09
82	4028.2	0.35
83	4055.1	0.83
84	4082.6	0.55
85	4111.6	0.12
86	4138.4	0.39
87	4208.1	0.30
88	4273.7	0.09
89	4298.6	0.30
90	4329.0	0.10
91	4358.2	0.28
92	4376.7	0.13
93	4414.4	0.21
94	4458.2	0.06
95	4523.7	0.50
96	4548.6	0.36

CHLORINE Z=17 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
97	4587.0	0.26
98	4616.5	0.58
99	4682.7	0.12
100	4729.4	0.59
101	4754.3	0.15
102	4794.3	0.08
103	4829.9	0.12
104	4883.3	0.23
105	4980.0	3.82
106	5017.0	0.53
107	5079.5	0.23
108	5151.8	0.12
109	5206.4	0.27
110	5246.4	0.41
111	5460.2	0.09
112	5473.4	0.08
113	5516.9	1.50
114	5584.9	0.41
115	5604.2	0.24
116	5637.0	0.09
117	5715.2	4.62
118	5733.5	0.23
119	5752.9	0.17
120	5777.7	0.16
121	5902.9	0.94
122	5956.2	0.27
123	6007.9	0.08
124	6086.8	0.21
125	6111.1	15.78
126	6267.7	0.28
127	6340.2	0.12
128	6358.1	0.08
129	6375.8	0.13
130	6422.5	0.17
131	6487.5	0.10
132	6620.1	10.00
133	6681.6	0.12
134	6755.9	0.09
135	6787.3	0.08
136	6875.6	0.08
137	6977.6	1.72
138	7004.5	0.09
139	7281.7	0.14
140	7413.8	8.52
141	7475.8	0.20
142	7582.4	0.10
143	7790.0	6.63
144	8578.7	2.30

CHLORINE Z=17 MITNE-85 DATA OBSERVED YIELDS
PEAK NO ENERGY(KEV) NO OF PHOTONS/100CAPT
BINDING ENERGY = 8576.5 %BE = 76.96

CHLORINE Z=17 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
1	294.6	0.32
2	305.1	0.21
3	360.0	0.13
4	395.7	0.14
5	437.4	0.49
6	477.9	0.22
7	518.3	14.29
8	541.0	0.19
9	575.8	0.19
10	589.9	0.65
11	594.6	0.73
12	788.6	13.46
13	830.8	0.26
14	1020.4	0.38
15	1132.3	0.95
16	1165.4	14.16
17	1327.5	0.79
18	1600.6	5.63
19	1675.8	0.88
20	1784.9	0.95
[illegible]	1830.2	0.95
	1896.9	0.87
23	1951.3	27.77
24	1957.5	19.66
25	1984.5	0.55
26	2004.1	0.68
27	2034.1	0.51
28	2074.3	0.96
29	2092.1	0.58
30	2106.5	0.77
31	2129.5	0.36
32	2157.1	0.36
33	2176.9	0.39
34	2268.7	0.34
35	2289.4	0.61
36	2311.8	0.92
37	2364.3	0.30
38	2468.5	1.10
39	2492.5	1.13
40	2539.5	0.34
41	2624.2	0.86
42	2649.2	0.51
43	2676.3	4.25
44	2733.1	0.19
45	2746.0	0.38
46	2763.2	0.25
47	2800.2	0.71
48	2811.8	0.26

CHLORINE Z=17 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2845.5	0.88
50	2864.4	8.80
51	2895.9	0.74
52	2975.3	1.48
53	2997.7	1.49
54	3015.8	1.07
55	3062.2	4.85
56	3087.9	0.40
57	3116.0	1.85
58	3200.8	0.36
59	3253.2	0.34
60	3269.1	0.14
61	3293.3	0.23
62	3316.1	0.36
63	3333.0	0.91
64	3374.3	0.62
65	3429.1	1.17
66	3476.9	0.13
67	3481.4	0.13
68	3502.2	0.95
69	3531.7	0.14
70	3561.8	1.40
71	3587.4	0.19
72	3601.4	0.52
73	3660.5	0.42
74	3710.3	0.29
75	3735.2	0.12
76	3749.7	0.44
77	3775.9	0.22
78	3824.3	2.31
79	3963.7	0.35
80	3981.1	1.08
81	4012.3	0.12
82	4028.2	0.45
83	4055.1	1.08
84	4082.6	0.71
85	4111.6	0.16
86	4138.4	0.51
87	4208.1	0.39
88	4273.7	0.12
89	4298.6	0.39
90	4329.0	0.13
91	4358.2	0.36
92	4376.7	0.17
93	4414.4	0.27
94	4458.2	0.08
95	4523.7	0.65
96	4548.6	0.47

CHLORINE Z=17 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
97	4587.0	0.34
98	4616.5	0.75
99	4682.7	0.16
100	4729.4	0.77
101	4754.3	0.19
102	4794.3	0.10
103	4829.9	0.16
104	4883.3	0.30
105	4980.0	4.96
106	5017.0	0.69
107	5079.5	0.30
108	5151.8	0.16
109	5206.4	0.35
110	5246.4	0.53
111	5460.2	0.12
112	5473.4	0.10
113	5516.9	1.95
114	5584.9	0.53
115	5604.2	0.31
116	5637.0	0.12
117	5715.2	6.00
118	5733.5	0.30
119	5752.9	0.22
120	5777.7	0.21
121	5902.9	1.22
122	5956.2	0.35
123	6007.9	0.10
124	6086.8	0.27
125	6111.1	20.50
126	6267.7	0.36
127	6340.2	0.16
128	6358.1	0.10
129	6375.8	0.17
130	6422.5	0.22
131	6487.5	0.13
132	6620.1	12.99
133	6681.6	0.16
134	6755.9	0.12
135	6787.3	0.10
136	6875.6	0.10
137	6977.6	2.23
138	7004.5	0.12
139	7281.7	0.18
140	7413.8	11.07
141	7475.8	0.26
142	7562.4	0.13
143	7790.0	8.61
144	8578.7	2.99

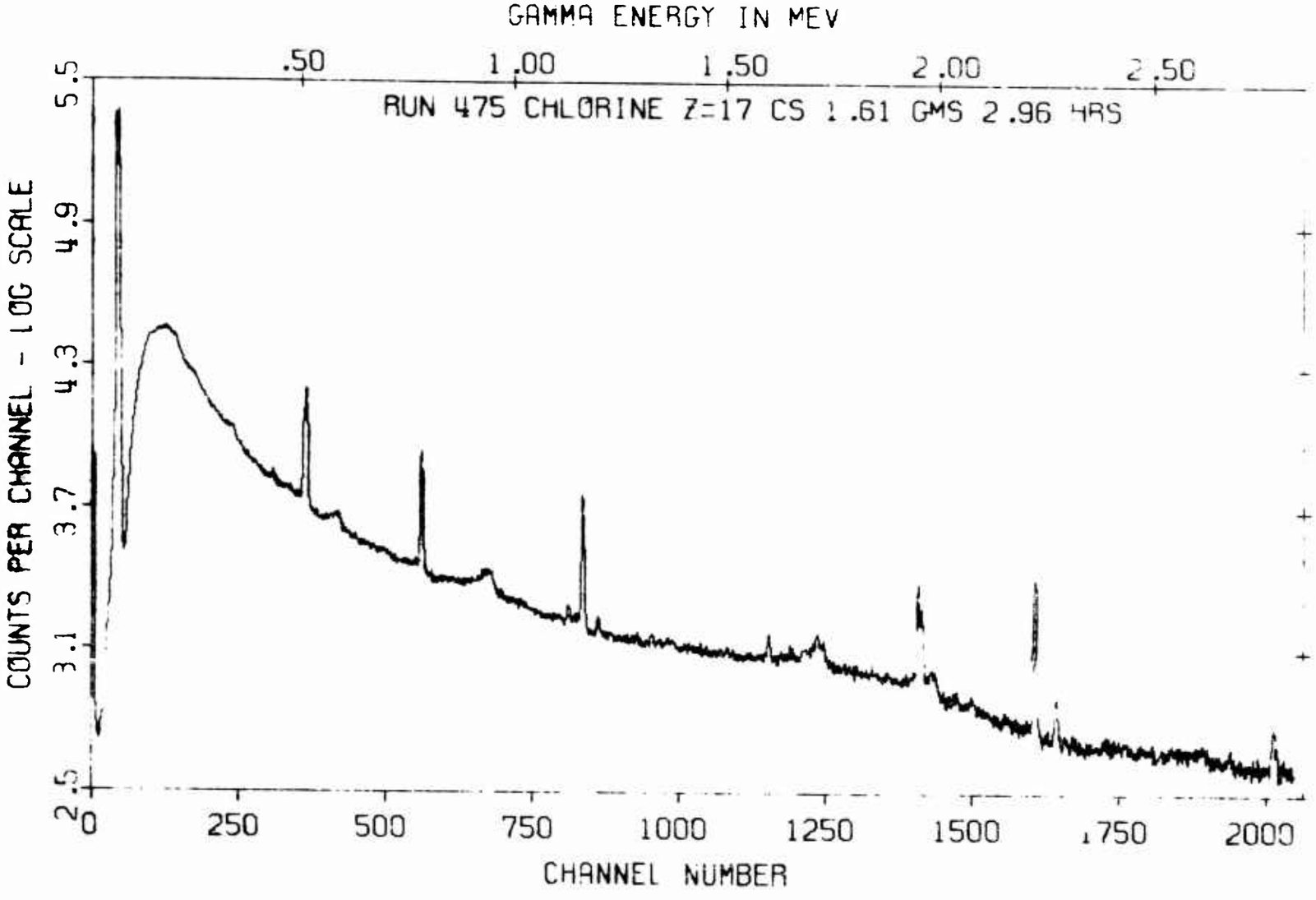
CHLORINE Z=17 MITNE-85 DATA NORMALIZED YIELDS
PEAK NO ENERGY(KEV) NO OF PHOTONS/100CAPT
BE(KEV) 8576.5 OBSERVED %BE 76.96 NORMALIZED %BE 100.00

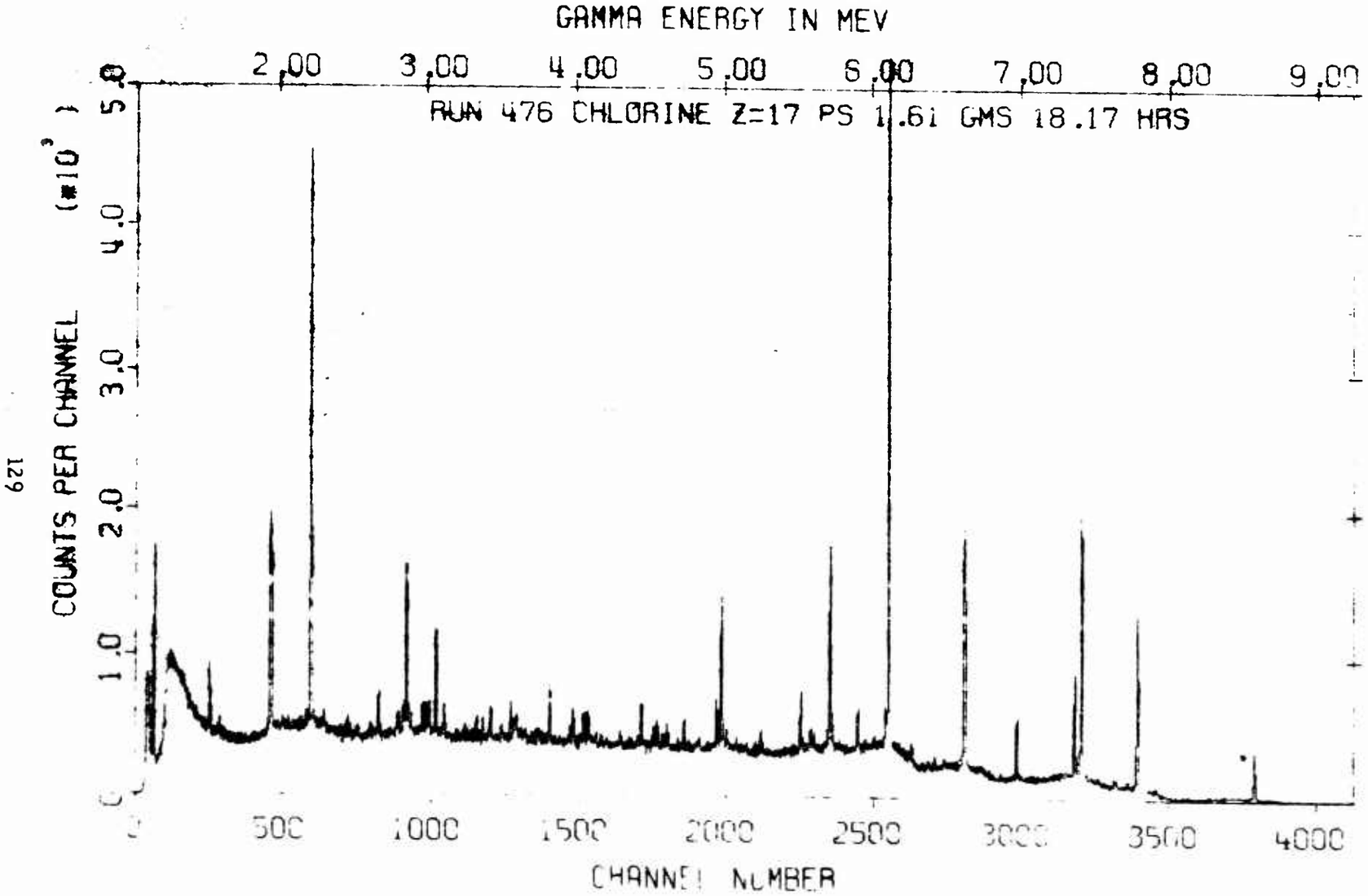
CHLORINE Z=17 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	1.52
3	500.0	750.0	16.06
4	750.0	1000.0	13.72
5	1000.0	1250.0	15.49
6	1250.0	1500.0	0.79
7	1500.0	1750.0	6.51
8	1750.0	2000.0	50.74
9	2000.0	2250.0	4.61
10	2250.0	2500.0	4.40
11	2500.0	2750.0	6.52
12	2750.0	3000.0	14.62
13	3000.0	3250.0	8.52
14	3250.0	3500.0	4.04
15	3500.0	3750.0	4.47
16	3750.0	4000.0	3.96
17	4000.0	4250.0	3.42
18	4250.0	4500.0	1.52
19	4500.0	4750.0	3.13
20	4750.0	5000.0	5.72
21	5000.0	5250.0	2.03
22	5250.0	5500.0	0.22
23	5500.0	5750.0	9.21
24	5750.0	6000.0	2.00
25	6000.0	6250.0	20.88
26	6250.0	6500.0	1.14
27	6500.0	6750.0	13.15
28	6750.0	7000.0	2.56
29	7000.0	7250.0	0.12
30	7250.0	7500.0	11.51
31	7500.0	7750.0	0.13
32	7750.0	8000.0	8.61
33	8000.0	8250.0	0.0
34	8250.0	8500.0	0.0
35	8500.0	8750.0	2.99
36	8750.0	9000.0	0.0

BE(KEV) 8576.5 BIN NORMALIZED %BE 99.87


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 475 CHLORINE Z=17 CS 1.61 GMS 2.96 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.9
4.3
3.7
3.1
2.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 476 CHLORINE Z=17 PS 1.61 GMS 18.17 HRS
COUNTS PER CHANNEL (*10³)
5.0
4.0
3.0
2.0
1.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

POTASSIUM Z=19 MITNF-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	245.3	0.13
2	251.4	0.22
3	359.5	0.18
4	381.8	0.17
5	461.2	0.11
6	522.5	0.34
7	559.5	0.35
8	572.2	1.26
9	575.3	0.85
10	594.8	0.25
11	626.6	0.17
12	647.1	1.35
13	682.1	0.44
14	721.9	0.27
15	770.6	31.23
16	791.5	0.32
17	827.7	0.36
18	843.3	1.18
19	891.1	0.71
20	923.0	0.28
21	983.7	0.29
22	1086.3	0.95
23	1159.0	5.89
24	1247.1	2.29
25	1268.7	1.03
26	1303.4	1.48
27	1356.0	0.43
28	1373.4	1.44
29	1464.7	0.35
30	1478.8	0.92
31	1489.3	0.40
32	1564.1	1.95
33	1617.5	7.91
34	1660.9	0.50
35	1703.4	1.89
36	1794.5	1.43
37	1825.8	0.69
38	1859.8	0.53
39	1929.3	2.53
40	1956.7	2.15
41	2007.6	0.99
42	2018.4	1.16
43	2041.4	2.67
44	2045.7	2.61
45	2073.2	10.26
46	2121.7	0.27
47	2152.6	1.16
48	2170.1	0.23

POTASSIUM Z=19 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2184.6	0.66
50	2291.2	3.44
51	2309.7	0.68
52	2325.4	0.22
53	2345.9	0.88
54	2367.8	0.76
55	2389.9	1.96
56	2422.0	1.49
57	2460.4	0.27
58	2545.9	3.64
59	2575.8	0.16
60	2611.8	1.70
61	2640.0	1.01
62	2665.1	0.21
63	2687.1	0.14
64	2703.4	0.11
65	2725.7	0.88
66	2757.0	1.54
67	2785.4	0.21
68	2805.7	1.90
69	2840.2	1.49
70	2858.0	0.18
71	2892.4	0.37
72	2917.4	0.13
73	2925.8	0.16
74	2993.0	0.57
75	3010.7	0.25
76	3026.7	0.13
77	3039.9	0.43
78	3055.7	2.03
79	3071.0	0.09
80	3099.4	0.68
81	3130.4	0.51
82	3157.3	0.08
83	3199.4	0.12
84	3262.7	2.24
85	3304.4	0.78
86	3327.7	0.48
87	3336.8	0.45
88	3349.7	0.39
89	3364.5	0.10
90	3382.6	0.45
91	3404.3	0.70
92	3428.3	0.09
93	3452.3	1.66
94	3478.8	0.14
95	3521.2	0.84
96	3526.4	0.85

POTASSIUM Z=19 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3546.6	4.26
98	3568.8	0.31
99	3589.7	0.17
100	3604.4	0.09
101	3620.0	0.28
102	3633.6	0.38
103	3650.9	1.29
104	3692.6	2.28
105	3738.3	1.02
106	3765.6	0.10
107	3779.2	0.63
108	3822.8	0.19
109	3839.8	0.44
110	3853.6	0.07
111	3859.5	0.07
112	3876.5	0.25
113	3897.1	0.23
114	3911.7	0.54
115	3931.2	0.83
116	3945.2	0.24
117	3960.1	0.79
118	3978.6	0.75
119	4002.7	1.23
120	4062.1	1.17
121	4085.6	0.57
122	4112.1	0.35
123	4136.4	2.61
124	4170.6	0.64
125	4201.1	1.69
126	4224.8	0.58
127	4243.6	0.45
128	4281.3	0.17
129	4314.2	0.26
130	4328.1	0.06
131	4346.9	0.13
132	4361.1	3.41
133	4386.6	1.26
134	4406.9	0.21
135	4432.5	0.23
136	4473.2	0.37
137	4507.9	0.69
138	4559.7	0.10
139	4654.0	0.29
140	4671.1	0.47
141	4705.5	0.09
142	4771.6	0.27
143	4874.9	0.26
144	4903.9	0.12

POTASSIUM Z=19 MI TNE-85 DATA CBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4928.6	0.10
146	4992.1	1.70
147	5013.7	0.81
148	5043.1	1.67
149	5069.7	1.16
150	5112.8	0.10
151	5132.6	0.16
152	5173.6	2.49
153	5224.1	0.39
154	5295.3	0.21
155	5380.3	7.30
156	5460.7	0.19
157	5509.7	2.48
158	5562.8	0.08
159	5672.5	0.11
160	5695.6	4.64
161	5729.6	1.62
162	5752.0	4.39
163	6387.6	0.15
164	6420.7	0.14
165	6851.6	0.18
166	6898.3	0.10
167	6998.6	2.05
168	7769.0	4.54

RINDING ENERGY = 7750.0 %BE = 74.42

POTASSIUM Z=19 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	245.3	0.17
2	251.4	0.30
3	359.5	0.24
4	381.8	0.23
5	461.2	0.15
6	522.5	0.46
7	559.5	0.47
8	572.2	1.69
9	575.3	1.14
10	594.8	0.34
11	626.6	0.23
12	647.1	1.81
13	682.1	0.59
14	721.9	0.36
15	770.6	41.96
16	791.5	0.43
17	827.7	0.48
18	843.3	1.59
19	891.1	0.95
20	923.0	0.38
21	983.7	0.39
22	1086.3	1.28
23	1159.0	7.91
24	1247.1	3.08
25	1268.7	1.38
26	1303.4	1.99
27	1356.0	0.58
28	1373.4	1.93
29	1464.7	0.47
30	1478.8	1.24
31	1489.3	0.54
32	1564.1	2.62
33	1617.5	10.63
34	1660.9	0.67
35	1703.4	2.54
36	1794.5	1.92
37	1825.8	0.93
38	1859.8	0.71
39	1929.3	3.40
40	1956.7	2.89
41	2007.6	1.33
42	2018.4	1.56
43	2041.4	3.59
44	2045.7	3.51
45	2073.2	13.79
46	2121.7	0.36
47	2152.6	1.56
48	2170.1	0.31

POTASSIUM Z=19 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2184.6	0.89
50	2291.2	4.62
51	2309..	0.91
52	2325.4	0.30
53	2345.9	1.18
54	2367.8	1.02
55	2389.9	2.63
56	2422.0	2.00
57	2460.4	0.36
58	2545.9	4.89
59	2575.8	0.21
60	2611.8	2.28
61	2640.0	1.36
62	2665.1	0.28
63	2687.1	0.19
64	2703.4	0.15
65	2725.7	1.18
66	2757.0	2.07
67	2785.4	0.28
68	2805.7	2.55
69	2840.2	2.00
70	2858.0	0.24
71	2892.4	0.50
72	2917.4	0.17
73	2925.8	0.21
74	2993.0	0.77
75	3010.7	0.34
76	3026.7	0.17
77	3039.9	0.58
78	3055.7	2.73
79	3071.0	0.12
80	3099.4	0.91
81	3130.4	0.69
82	3157.3	0.11
83	3199.4	0.16
84	3262.7	3.01
85	3304.4	1.05
86	3327.7	0.64
87	3336.8	0.60
88	3349.7	0.52
89	3364.5	0.13
90	3382.6	0.60
91	3404.3	0.94
92	3428.3	0.12
93	3452.3	2.23
94	3478.8	0.19
95	3521.2	1.13
96	3526.4	1.14

POTASSIUM Z=19		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3546.6	5.72
98	3569.8	0.42
99	3589.7	0.23
100	3604.4	0.12
101	3620.0	0.38
102	3633.6	0.51
103	3650.9	1.73
104	3692.6	3.06
105	3738.3	1.37
106	3765.6	0.13
107	3779.2	0.85
108	3822.8	0.26
109	3839.8	0.59
110	3853.6	0.09
111	3859.5	0.09
112	3876.5	0.34
113	3897.1	0.31
114	3911.7	0.73
115	3931.2	1.12
116	3945.2	0.32
117	3960.1	1.06
118	3978.6	1.01
119	4002.7	1.65
120	4062.1	1.57
121	4085.6	0.77
122	4112.1	0.47
123	4136.4	3.51
124	4170.6	0.86
125	4201.1	2.27
126	4224.8	0.78
127	4243.6	0.60
128	4281.3	0.23
129	4314.2	0.35
130	4328.1	0.08
131	4346.9	0.17
132	4361.1	4.58
133	4386.6	1.69
134	4406.9	0.28
135	4432.5	0.31
136	4473.2	0.50
137	4507.9	0.93
138	4559.7	0.13
139	4654.0	0.39
140	4671.1	0.63
141	4705.5	0.12
142	4771.6	0.36
143	4874.9	0.35
144	4903.9	0.16

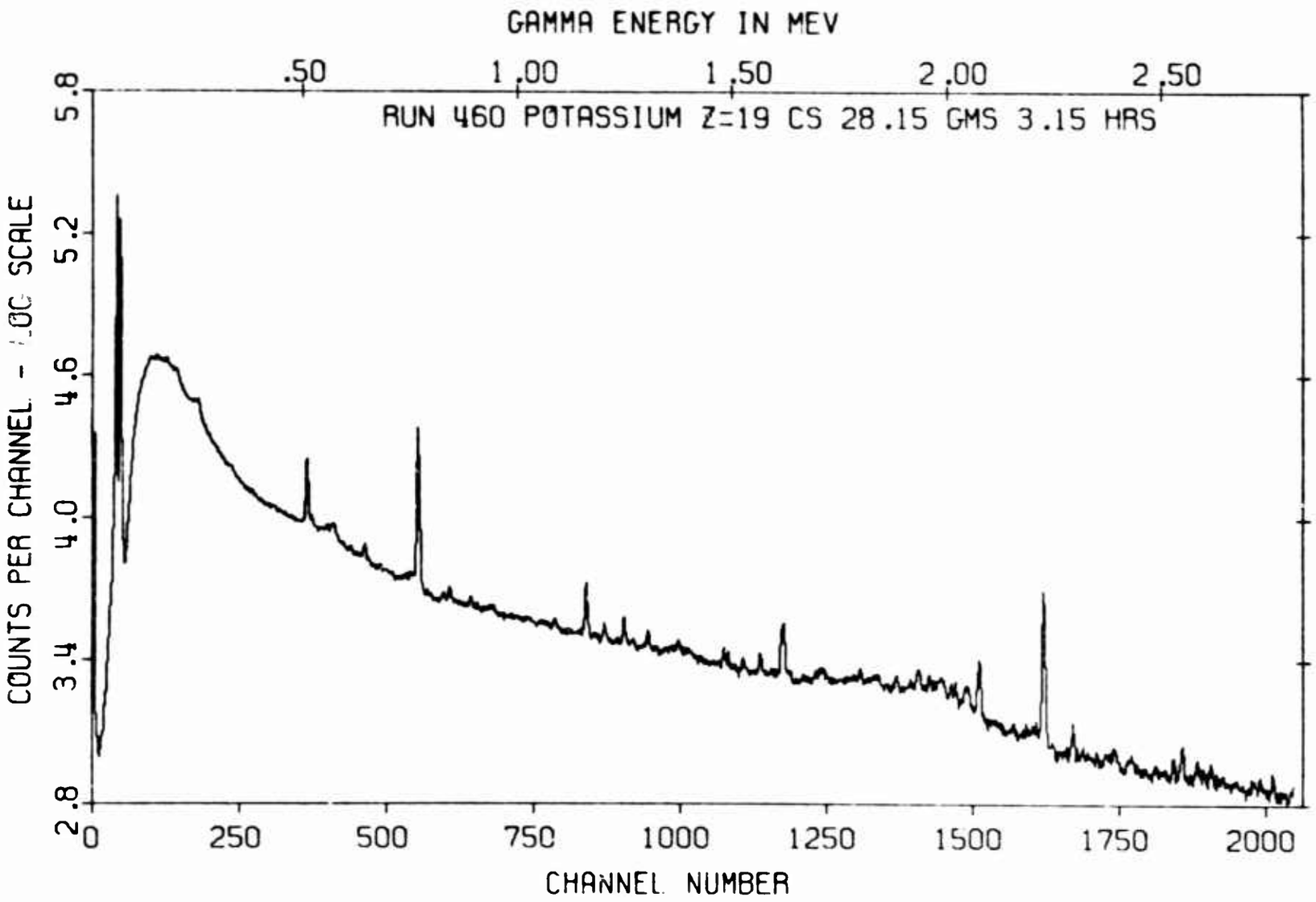
POTASSIUM Z=19		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4928.6	0.13
146	4992.1	2.28
147	5013.7	1.09
148	5043.1	2.24
149	5069.7	1.56
150	5112.8	0.13
151	5132.6	0.21
152	5173.6	3.35
153	5224.1	0.52
154	5295.3	0.28
155	5380.3	9.81
156	5460.7	0.26
157	5509.7	3.33
158	5562.8	0.11
159	5672.5	0.15
160	5695.6	6.23
161	5729.6	2.18
162	5752.0	5.90
163	6397.6	0.20
164	6420.7	0.19
165	6851.6	0.24
166	6898.3	0.13
167	6998.6	2.75
168	7769.0	6.10
BE(KEV)	7750.0 OBSERVED %BE	74.42 NORMALIZED %BE 100.00

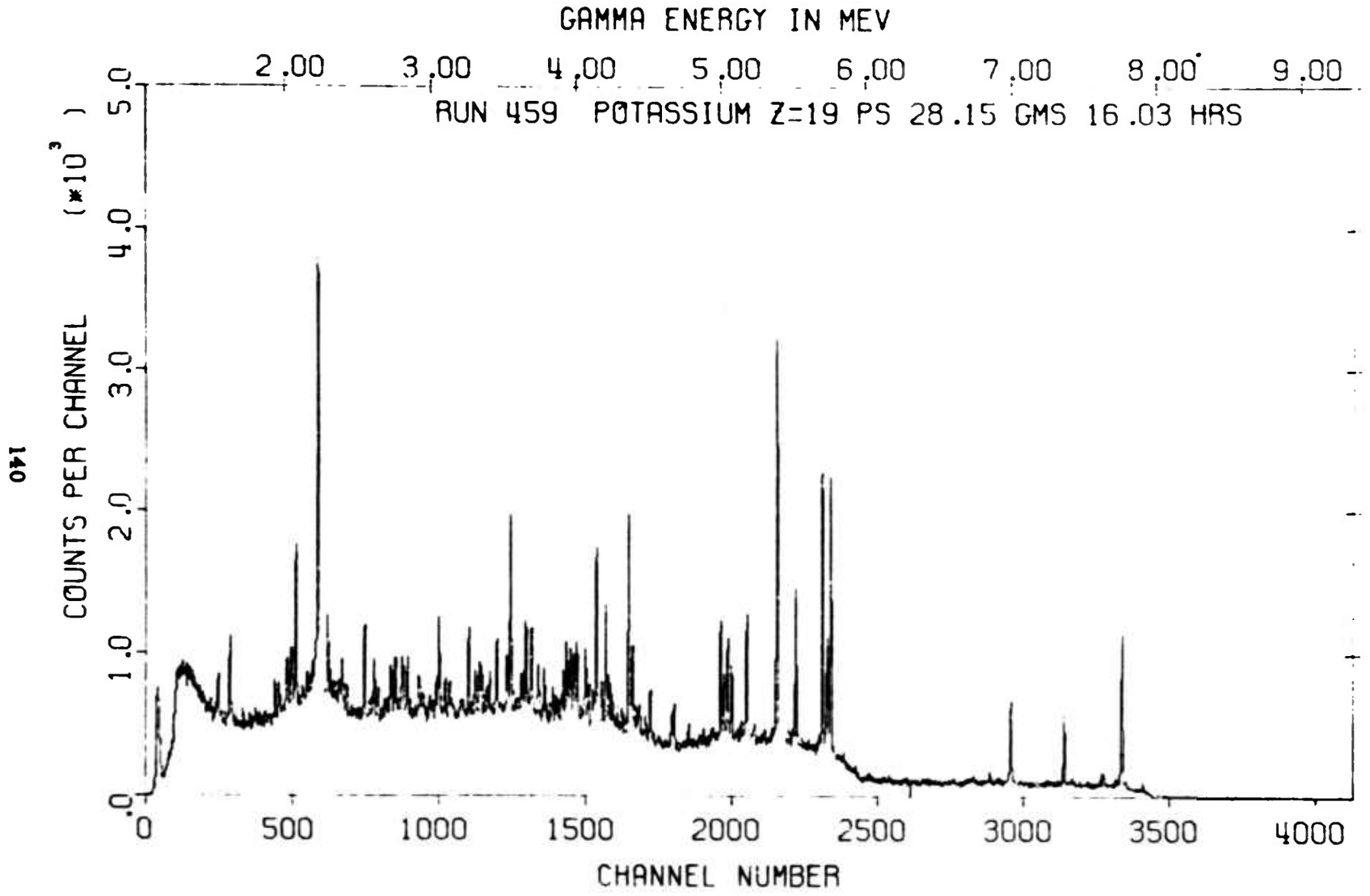
POTASSIUM Z=19 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.17
2	250.0	500.0	0.91
3	500.0	750.0	7.09
4	750.0	1000.0	46.18
5	1000.0	1250.0	12.27
6	1250.0	1500.0	8.13
7	1500.0	1750.0	16.46
8	1750.0	2000.0	9.85
9	2000.0	2250.0	26.89
10	2250.0	2500.0	13.03
11	2500.0	2750.0	10.55
12	2750.0	3000.0	8.80
13	3000.0	3250.0	5.80
14	3250.0	3500.0	10.05
15	3500.0	3750.0	15.81
16	3750.0	4000.0	6.89
17	4000.0	4250.0	12.48
18	4250.0	4500.0	8.20
19	4500.0	4750.0	2.20
20	4750.0	5000.0	3.29
21	5000.0	5250.0	9.11
22	5250.0	5500.0	10.35
23	5500.0	5750.0	12.00
24	5750.0	6000.0	5.90
25	6000.0	6250.0	0.0
26	6250.0	6500.0	0.39
27	6500.0	6750.0	0.0
28	6750.0	7000.0	3.13
29	7000.0	7250.0	0.0
30	7250.0	7500.0	0.0
31	7500.0	7750.0	0.0
32	7750.0	8000.0	6.10
33	8000.0	8250.0	0.0

BE(KEV) 7750.0 BIN NORMALIZED %BE 100.99


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 460 POTASSIUM Z=19 CS 28.15 GMS 3.15 HRS
COUNTS PER CHANNEL - LOG SCALE
5.8
5.2
4.6
4.0
3.4
2.8
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 459 POTASSIUM Z=19 PS 28.15 GMS 16.03 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

CALCIUM Z=20 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	277.0	0.49
2	341.0	0.60
3	363.2	0.57
4	520.0	5.94
5	660.9	0.91
6	696.3	1.17
7	707.7	1.41
8	726.9	2.13
9	836.6	1.19
10	867.2	1.57
11	980.1	1.36
12	1155.6	1.35
13	1388.3	2.20
14	1649.2	1.41
15	1671.7	1.93
16	1691.3	1.42
17	1703.7	1.38
18	1724.0	2.10
19	1825.8	1.54
20	1855.6	0.77
21	1880.2	1.02
22	1942.0	52.40
23	2000.9	7.20
24	2009.2	5.40
25	2035.9	0.61
26	2077.6	1.40
27	2094.2	1.60
28	2118.4	1.67
29	2121.5	1.01
30	2129.8	2.53
31	2145.3	0.67
32	2149.4	1.14
33	2258.3	0.63
34	2264.3	0.75
35	2294.6	1.80
36	2308.6	0.80
37	2328.7	0.90
38	2341.5	0.41
39	2350.4	0.52
40	2376.5	0.42
41	2382.0	0.40
42	2474.0	0.41
43	2576.4	0.41
44	2607.4	0.80
45	2660.2	1.10
46	2692.5	0.32
47	2709.8	0.28
48	2767.7	0.53

CALCIUM Z=20 MITNF-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2811.0	2.39
50	2862.8	0.32
51	2893.7	0.38
52	2956.1	0.66
53	3003.4	0.37
54	3086.3	0.46
55	3237.5	0.36
56	3240.9	0.31
57	3289.4	0.22
58	3353.0	0.38
59	3436.5	0.18
60	3585.7	1.65
61	3610.2	4.58
62	3638.2	0.44
63	3652.8	0.18
64	3759.7	1.90
65	3802.7	0.28
66	3915.9	0.45
67	3947.0	0.43
68	3981.9	0.17
69	4218.9	0.18
70	4293.2	0.34
71	4418.9	10.79
72	4468.0	0.15
73	4515.8	0.75
74	4547.0	0.26
75	4572.5	0.25
76	4615.4	0.24
77	4643.1	0.20
78	4686.8	0.14
79	4749.7	1.98
80	4775.0	0.28
81	4838.7	0.41
82	4963.6	0.66
83	5146.5	0.20
84	5165.2	0.33
85	5240.7	0.14
86	5270.5	0.82
87	5297.5	0.23
88	5314.2	0.41
89	5515.0	1.74
90	5533.8	0.36
91	5562.8	0.25
92	5692.1	0.86
93	5821.3	0.15
94	5900.6	3.07
95	5980.6	0.50
96	6037.9	0.42

CALCIUM Z=20 MITNF-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6202.1	0.12
98	6322.6	0.39
99	6352.7	0.62
100	6389.9	0.53
101	6419.9	28.09
102	6469.9	0.14
103	6504.1	0.38
104	6597.4	0.18
105	6675.5	0.35
106	6915.8	0.30
107	6985.4	0.14
108	7106.2	0.15
109	7140.6	0.15
110	7173.2	0.16
111	7213.9	0.14
112	7253.3	0.30
113	7306.3	0.66

BINDING ENERGY = 8400.0 %BE = 72.22

CALCIUM Z=20 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	277.0	0.68
2	341.0	0.83
3	363.2	0.79
4	520.0	8.22
5	660.9	1.26
6	696.3	1.62
7	707.7	1.95
8	726.9	2.95
9	836.6	1.65
10	867.2	2.17
11	980.1	1.88
12	1155.6	1.87
13	1388.3	3.05
14	1649.2	1.95
15	1671.7	2.67
16	1691.3	1.97
17	1703.7	1.91
18	1724.0	2.91
19	1825.8	2.13
20	1855.6	1.07
21	1880.2	1.41
22	1942.0	72.55
23	2000.8	9.97
24	2009.2	7.48
25	2035.9	0.84
26	2077.6	1.94
27	2094.2	2.22
28	2118.4	2.31
29	2121.5	1.40
30	2129.8	3.50
31	2145.3	0.93
32	2149.4	1.58
33	2258.3	0.87
34	2264.3	1.04
35	2294.6	2.49
36	2308.6	1.11
37	2329.7	1.25
38	2341.5	0.57
39	2350.4	0.72
40	2376.5	0.58
41	2382.0	0.55
42	2474.0	0.57
43	2576.4	0.57
44	2607.4	1.11
45	2660.2	1.52
46	2692.5	0.44
47	2709.8	0.39
48	2767.7	0.73

CALCIUM Z=20 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
49	2811.0	3.31
50	2862.8	0.44
51	2893.7	0.53
52	2956.1	0.91
53	3003.4	0.51
54	3086.3	0.64
55	3237.5	0.50
56	3240.9	0.43
57	3289.4	0.30
58	3353.0	0.53
59	3436.5	0.25
60	3585.7	2.28
61	3610.2	6.34
62	3638.2	0.61
63	3652.8	0.25
64	3759.7	2.63
65	3802.7	0.39
66	3915.9	0.62
67	3947.0	0.60
68	3981.9	0.24
69	4218.9	0.25
70	4293.2	0.47
71	4418.9	14.94
72	4468.0	0.21
73	4515.8	1.04
74	4547.0	0.36
75	4572.5	0.35
76	4615.4	0.33
77	4643.1	0.28
78	4686.8	0.19
79	4749.7	2.74
80	4775.0	0.39
81	4838.7	0.57
82	4963.6	0.91
83	5146.5	0.28
84	5165.2	0.46
85	5240.7	0.19
86	5270.5	1.14
87	5297.5	0.32
88	5314.2	0.57
89	5515.0	2.41
90	5533.8	0.50
91	5562.8	0.35
92	5692.1	1.19
93	5821.3	0.21
94	5900.6	4.25
95	5980.6	0.69
96	6037.9	0.58

CALCIUM Z=20 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6202.1	0.17
98	6322.6	0.54
99	6352.7	0.86
100	6389.9	0.73
101	6419.9	38.89
102	6469.9	0.19
103	6504.1	0.53
104	6597.4	0.25
105	6675.5	0.48
106	6915.8	0.42
107	6985.4	0.19
108	7106.2	0.21
109	7140.6	0.21
110	7173.2	0.22
111	7213.9	0.19
112	7253.3	0.42
113	7306.3	0.91

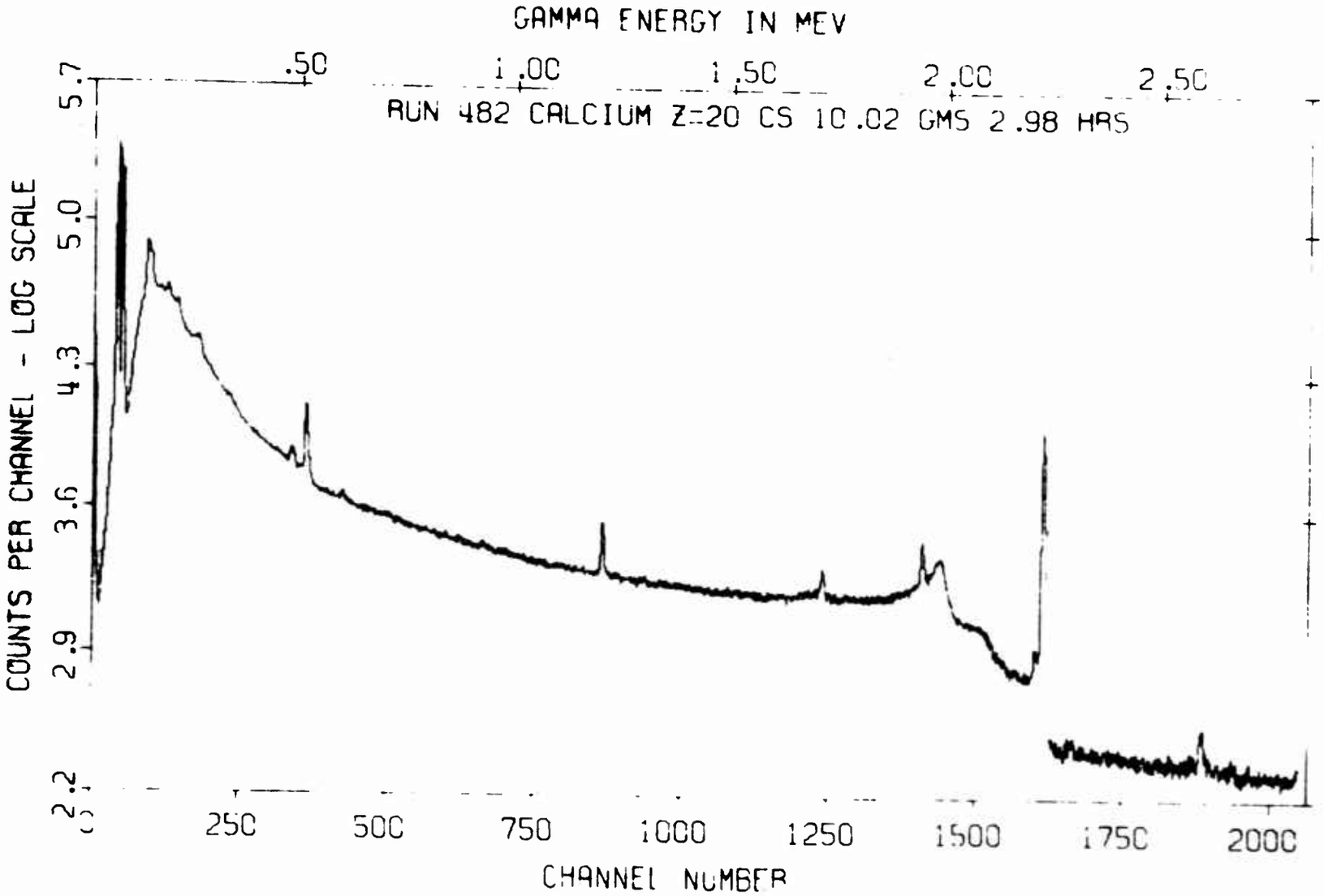
BE(KEV) 8400.0 OBSERVED %RF 72.22 NORMALIZED %RF 100.00

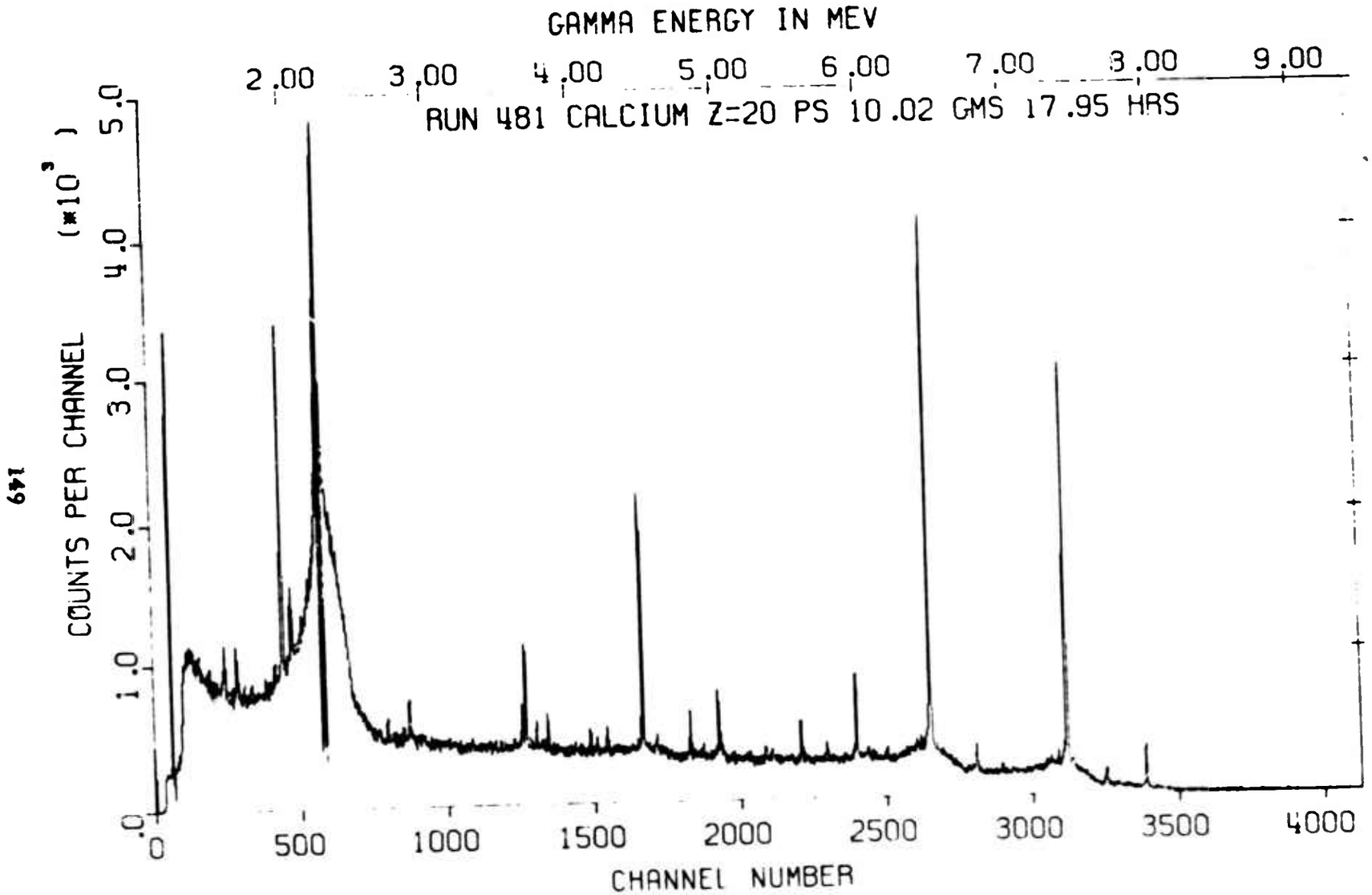
CALCIUM Z=20 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	2.30
3	500.0	750.0	16.01
4	750.0	1000.0	5.70
5	1000.0	1250.0	1.87
6	1250.0	1500.0	3.05
7	1500.0	1750.0	11.41
8	1750.0	2000.0	77.16
9	2000.0	2250.0	32.16
10	2250.0	2500.0	9.75
11	2500.0	2750.0	4.03
12	2750.0	3000.0	5.93
13	3000.0	3250.0	2.08
14	3250.0	3500.0	1.08
15	3500.0	3750.0	9.48
16	3750.0	4000.0	4.47
17	4000.0	4250.0	0.25
18	4250.0	4500.0	15.62
19	4500.0	4750.0	5.29
20	4750.0	5000.0	1.87
21	5000.0	5250.0	0.93
22	5250.0	5500.0	2.02
23	5500.0	5750.0	4.44
24	5750.0	6000.0	5.15
25	6000.0	6250.0	0.75
26	6250.0	6500.0	41.22
27	6500.0	6750.0	1.26
28	6750.0	7000.0	0.61
29	7000.0	7250.0	0.83
30	7250.0	7500.0	1.33
31	7500.0	7750.0	0.0

BE(KEV) 8400.0 BIN NORMALIZED %BF 99.49


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 482 CALCIUM Z=20 CS 10.02 GMS 2.98 HRS
COUNTS PER CHANNEL - LOG SCALE
5.7
5.0
4.3
3.6
2.9
2.2
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 481 CALCIUM Z=20 PS 10.02 GMS 17.95 HRS
COUNTS PER CHANNEL (*10³)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	217.0	6.89
2	228.6	39.36
3	250.0	.33
4	280.8	.82
5	295.6	15.74
6	400.1	1.15
7	408.9	.33
8	440.5	.66
9	474.4	.33
10	486.2	1.80
11	539.6	1.64
12	554.8	5.25
13	585.2	5.08
14	627.9	7.05
15	643.0	.66
16	722.2	1.64
17	774.1	1.64
18	808.1	1.64
19	835.4	.49
20	860.3	.82
21	888.6	1.31
22	899.9	.49
23	946.4	.49
24	1014.5	.66
25	1058.4	.98
26	1084.4	1.15
27	1089.5	1.15
28	1122.4	2.13
29	1135.6	.66
30	1165.2	1.31
31	1228.0	.98
32	1271.4	.82
33	1322.8	.82
34	1334.7	2.13
35	1549.5	2.38
36	1572.7	2.53
37	1648.4	.62
38	1668.9	.63
39	1692.0	3.50
40	1706.7	.72
41	1754.5	.62
42	1812.8	1.14
43	1830.4	.61
44	1857.3	2.28
45	1871.7	.49
46	1887.0	.62
47	1900.4	1.12
48	1975.7	.62

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2006.1	1.83
50	2050.1	.31
51	2058.7	.87
52	2080.0	.53
53	2111.4	2.04
54	2128.5	.45
55	2155.0	.29
56	2168.9	.23
57	2244.0	.47
58	2262.3	.14
59	2288.7	.41
60	2330.8	.86
61	2341.4	.16
62	2350.2	.34
63	2363.2	.26
64	2374.5	.53
65	2406.3	2.07
66	2445.0	.18
67	2477.4	.94
68	2500.8	.60
69	2551.1	.37
70	2564.6	.17
71	2583.3	.18
72	2635.6	3.04
73	2665.5	.68
74	2680.6	.19
75	2696.4	1.18
76	2715.3	.67
77	2739.5	.14
78	2754.2	.14
79	2773.7	.15
80	2794.6	.56
81	2817.2	.17
82	2837.0	.25
83	2871.5	.23
84	2907.2	.20
85	2929.5	.31
86	2949.8	.51
87	2964.0	.13
88	2994.7	.64
89	3012.3	1.08
90	3031.7	.41
91	3051.0	.68
92	3085.5	.29
93	3106.0	.18
94	3117.5	.17
95	3158.9	.16
96	3168.0	.10

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3222.0	.18
98	3246.5	.30
99	3265.8	.78
100	3281.2	.27
101	3309.3	.27
102	3358.5	.10
103	3377.4	.14
104	3396.3	.30
105	3415.5	.19
106	3458.4	.61
107	3478.9	.18
108	3499.6	.33
109	3523.7	.08
110	3556.3	.27
111	3569.9	.08
112	3596.3	.32
113	3623.1	.46
114	3635.4	.16
115	3642.2	.09
116	3711.5	.19
117	3722.9	.13
118	3736.2	.20
119	3800.0	.19
120	3822.8	.22
121	3840.7	.19
122	3865.4	.08
123	3879.0	.39
124	3923.4	.07
125	3974.6	.32
126	4000.7	.70
127	4021.8	.26
128	4038.9	.14
129	4059.7	1.30
130	4083.6	.11
131	4111.1	.15
132	4131.9	.33
133	4154.0	.44
134	4173.0	.93
135	4202.9	.08
136	4236.4	1.02
137	4269.5	.09
138	4292.4	.34
139	4314.0	.28
140	4327.7	.17
141	4341.3	.07
142	4355.0	.21
143	4377.6	.45
144	4402.0	.07

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4422.9	.23
146	4439.5	.36
147	4464.7	.36
148	4498.9	.52
149	4535.4	.07
150	4564.9	.11
151	4597.2	.30
152	4616.6	.33
153	4628.9	.13
154	4656.5	.11
155	4680.0	.54
156	4721.2	.55
157	4744.4	.06
158	4777.7	.07
159	4823.2	.13
160	4883.7	.50
161	4891.3	.41
162	4918.3	.40
163	4946.2	.41
164	4975.1	2.09
165	4993.3	.71
166	5037.5	.20
167	5054.0	.18
168	5085.4	.33
169	5128.6	.29
170	5163.5	.29
171	5209.9	.55
172	5226.0	.07
173	5267.2	1.83
174	5285.9	.40
175	5316.5	.06
176	5335.6	.48
177	5346.3	.11
178	5361.1	.32
179	5379.7	.32
180	5407.0	.09
181	5445.6	1.00
182	5481.5	.78
183	5499.5	.27
184	5531.3	.29
185	5554.9	.24
186	5567.8	.12
187	5584.5	.38
188	5623.5	.84
189	5665.6	.33
190	5679.9	.10
191	5703.2	.16
192	5743.7	.84

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
193	5781.1	.44
194	5803.8	.07
195	5818.6	.18
196	5834.3	.06
197	5897.3	2.08
198	5926.0	.19
199	5978.9	.34
200	6054.9	2.28
201	6097.1	.26
202	6170.3	2.23
203	6192.4	.21
204	6203.5	.12
205	6259.0	.09
206	6274.7	.09
207	6300.2	.36
208	6318.1	1.71
209	6349.8	1.64
210	6364.1	.09
211	6429.8	.12
212	6457.8	.46
213	6506.4	.44
214	6536.9	.08
215	6556.8	1.76
216	6575.3	.14
217	6644.2	.81
218	6688.4	.08
219	6716.7	1.49
220	6839.5	4.84
221	6874.4	.52
222	6960.8	.29
223	7052.1	.36
224	7117.1	1.51
225	7232.5	.42
226	7331.0	.21
227	7411.5	.12
228	7437.6	.21
229	7488.7	.38
230	7568.9	.09
231	7635.9	2.58
232	7673.0	.36
233	7691.0	.09
234	7889.5	.09
235	7924.8	.22
236	8033.5	.12
237	8116.2	.15
238	8132.4	1.93
239	8174.7	8.91
240	8315.4	1.71

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
241	8470.1	.61
242	8531.6	4.60
243	8615.7	.16
244	8759.7	.83

BINDING ENERGY = 8766.6 %BE = 75.30 + .00 = 75.30

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	217.0	9.15
2	228.6	52.27
3	250.0	.44
4	280.8	1.09
5	295.6	20.90
6	400.1	1.53
7	408.9	.44
8	440.5	.88
9	474.4	.44
10	486.2	2.39
11	539.6	2.18
12	554.8	6.97
13	585.2	6.75
14	627.9	9.36
15	643.0	.88
16	722.2	2.18
17	774.1	2.18
18	808.1	2.18
19	835.4	.65
20	860.3	1.09
21	888.6	1.74
22	899.9	.65
23	946.4	.65
24	1014.5	.88
25	1058.4	1.30
26	1084.4	1.53
27	1089.5	1.53
28	1122.4	2.83
29	1135.6	.88
30	1165.2	1.74
31	1228.0	1.30
32	1271.4	1.09
33	1322.8	1.09
34	1334.7	2.83
35	1549.5	3.16
36	1572.7	3.36
37	1648.4	.82
38	1668.9	.84
39	1692.0	4.65
40	1706.7	.96
41	1754.5	.82
42	1812.8	1.51
43	1830.4	.81
44	1857.3	3.03
45	1871.7	.65
46	1887.0	.82
47	1900.4	1.49
48	1975.7	.82

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2006.1	2.43
50	2050.1	.41
51	2058.7	1.16
52	2080.0	.70
53	2111.4	2.71
54	2128.5	.60
55	2155.0	.39
56	2168.9	.31
57	2244.0	.62
58	2262.3	.19
59	2288.7	.54
60	2330.8	1.14
61	2341.4	.21
62	2350.2	.45
63	2363.2	.35
64	2374.5	.70
65	2406.3	2.75
66	2445.0	.24
67	2477.4	1.25
68	2500.8	.80
69	2551.1	.49
70	2564.6	.23
71	2583.3	.24
72	2635.6	4.04
73	2665.5	.90
74	2680.6	.25
75	2696.4	1.57
76	2715.3	.89
77	2739.5	.19
78	2754.2	.19
79	2773.7	.20
80	2794.6	.74
81	2817.2	.23
82	2837.0	.33
83	2871.5	.31
84	2907.2	.27
85	2929.5	.41
86	2949.8	.68
87	2964.0	.17
88	2994.7	.85
89	3012.3	1.43
90	3031.7	.54
91	3051.0	.90
92	3085.5	.39
93	3106.0	.24
94	3117.5	.23
95	3158.9	.21
96	3168.0	.13

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3222.0	.24
98	3246.5	.40
99	3265.8	1.04
100	3281.2	.36
101	3309.3	.36
102	3358.5	.13
103	3377.4	.19
104	3396.3	.40
105	3415.5	.25
106	3458.4	.81
107	3478.9	.24
108	3499.6	.44
109	3523.7	.11
110	3556.3	.36
111	3569.9	.11
112	3596.3	.42
113	3623.1	.61
114	3635.4	.21
115	3642.2	.12
116	3711.5	.25
117	3722.9	.17
118	3736.2	.27
119	3800.0	.25
120	3822.8	.29
121	3840.7	.25
122	3865.4	.11
123	3879.0	.52
124	3923.4	.09
125	3974.6	.42
126	4000.7	.93
127	4021.8	.35
128	4038.9	.19
129	4059.7	1.73
130	4083.6	.15
131	4111.1	.20
132	4131.9	.44
133	4154.0	.58
134	4173.0	1.24
135	4202.9	.11
136	4236.4	1.35
137	4269.5	.12
138	4292.4	.45
139	4314.0	.37
140	4327.7	.23
141	4341.3	.09
142	4355.0	.28
143	4377.6	.60
144	4402.0	.09

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4422.9	.31
146	4439.5	.48
147	4464.7	.48
148	4498.9	.69
149	4535.4	.09
150	4564.9	.15
151	4597.2	.40
152	4616.6	.44
153	4628.9	.17
154	4656.5	.15
155	4680.0	.72
156	4721.2	.73
157	4744.4	.08
158	4777.7	.09
159	4823.2	.17
160	4883.7	.66
161	4891.3	.54
162	4918.3	.53
163	4946.2	.54
164	4975.1	2.78
165	4993.9	.94
166	5037.5	.27
167	5054.0	.24
168	5085.4	.44
169	5128.6	.39
170	5163.5	.39
171	5209.9	.73
172	5226.0	.09
173	5267.2	2.43
174	5285.9	.53
175	5316.5	.08
176	5335.6	.64
177	5346.3	.15
178	5361.1	.42
179	5378.7	.42
180	5407.0	.12
181	5445.6	1.33
182	5481.5	1.04
183	5499.5	.36
184	5531.3	.39
185	5554.9	.32
186	5567.8	.16
187	5584.5	.50
188	5623.5	1.12
189	5665.6	.44
190	5679.9	.13
191	5703.2	.21
192	5743.7	1.12

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
193	5781.1	.58
194	5803.8	.09
195	5818.6	.24
196	5834.3	.08
197	5897.3	2.76
198	5926.0	.25
199	5978.9	.45
200	6054.9	3.03
201	6097.1	.35
202	6170.3	2.96
203	6192.4	.28
204	6203.5	.16
205	6259.0	.12
206	6274.7	.12
207	6300.2	.48
208	6318.1	2.27
209	6349.8	2.18
210	6364.1	.12
211	6429.8	.16
212	6457.8	.61
213	6506.4	.58
214	6536.9	.11
215	6556.8	2.34
216	6575.3	.19
217	6644.2	1.08
218	6688.4	.11
219	6716.7	1.98
220	6839.5	6.43
221	6874.4	.69
222	6960.8	.39
223	7052.1	.48
224	7117.1	2.01
225	7232.5	.56
226	7331.0	.28
227	7411.5	.16
228	7437.6	.28
229	7488.7	.50
230	7568.9	.12
231	7635.9	3.43
232	7673.0	.48
233	7691.0	.12
234	7889.5	.12
235	7924.8	.29
236	8033.5	.16
237	8116.2	.20
238	8132.4	2.56
239	8174.7	11.83
240	8315.4	2.27

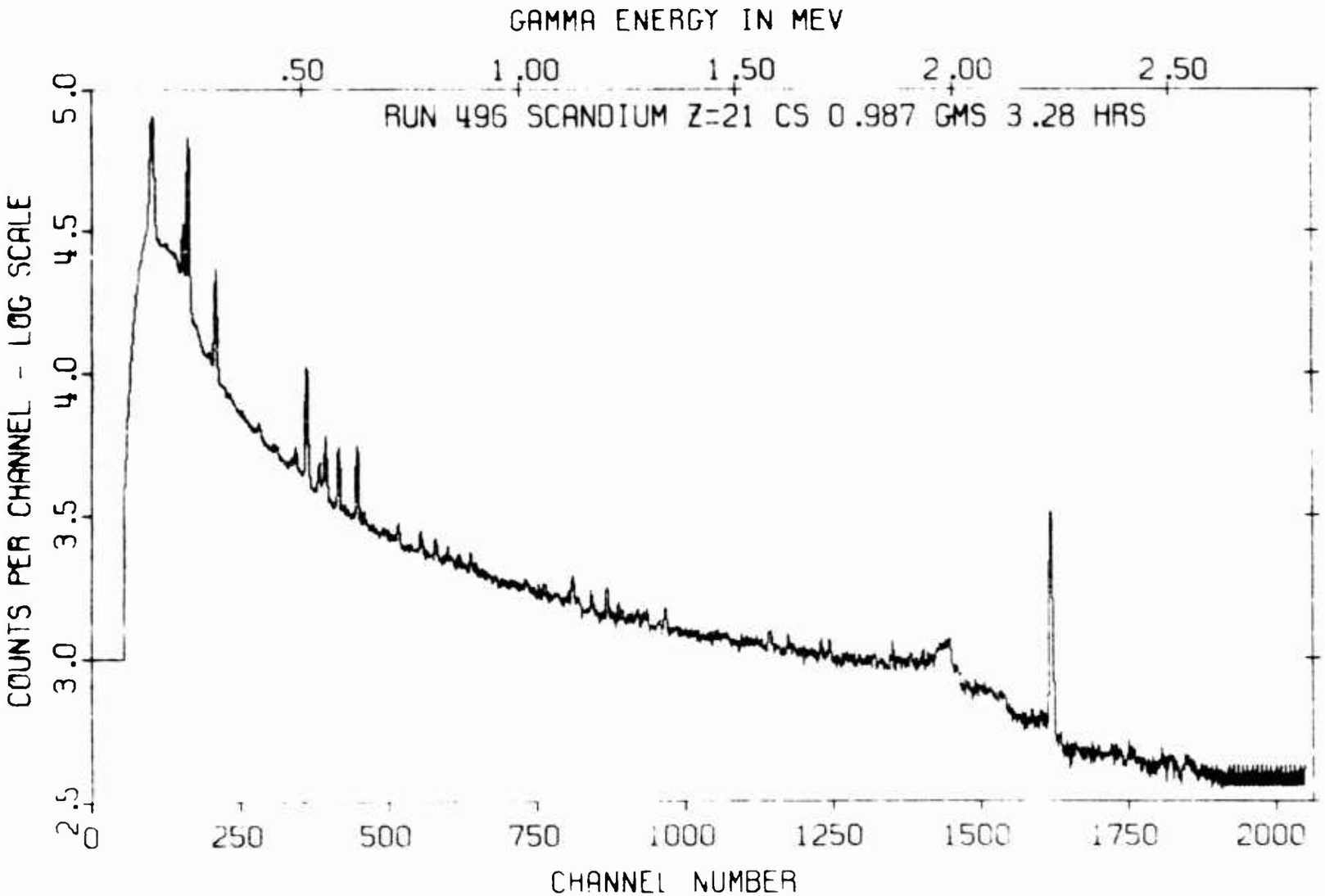
SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

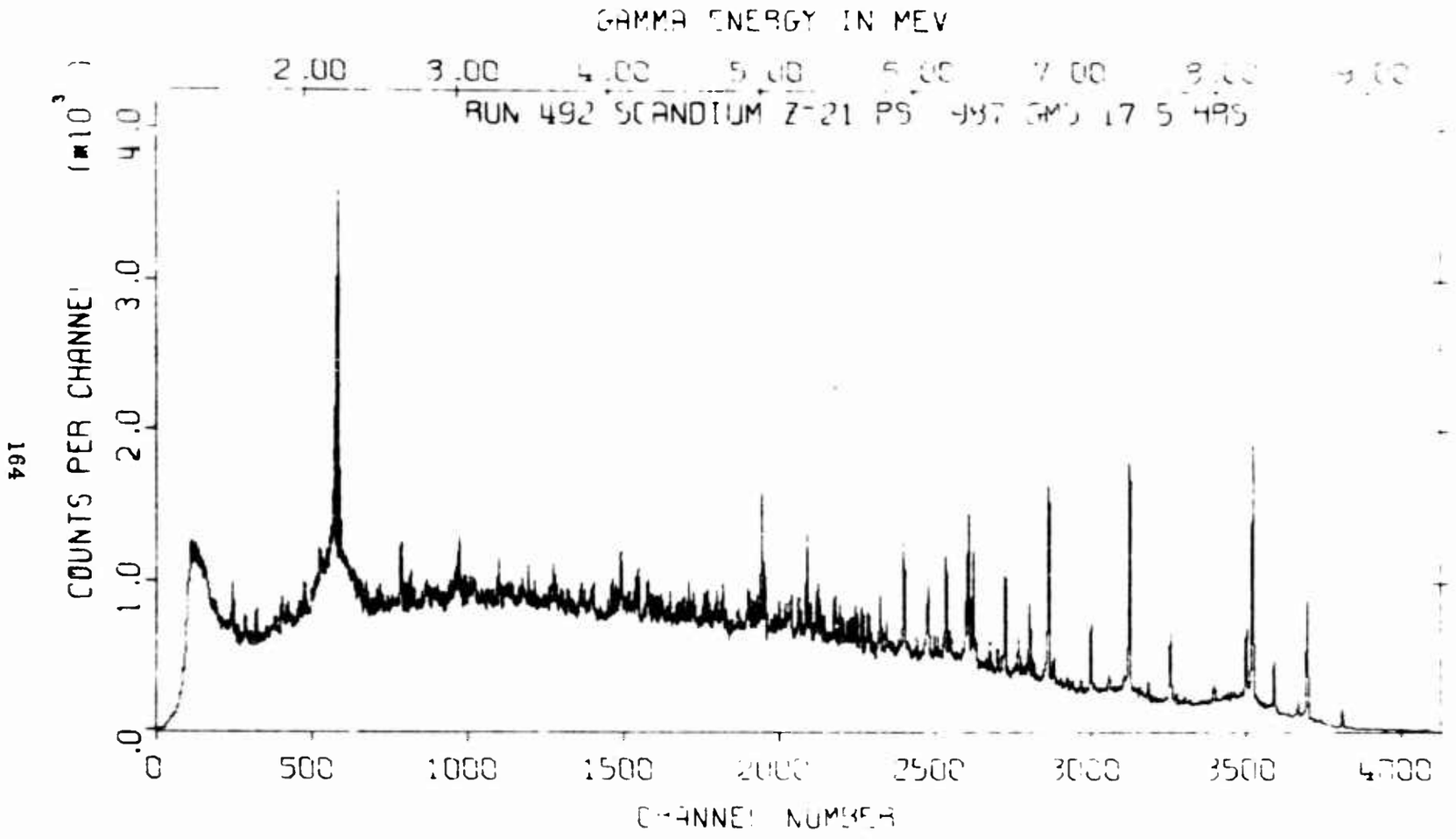
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
241	8470.1	.81
242	8531.6	6.11
243	8615.7	.21
244	8759.7	1.10

BE(KEV) 8766.6 OBSERVED %BE 75.30 NORMALIZED %BE 100.00

SCANDIUM Z=21 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	61.42	.00	61.42
2	250.0	500.0	28.10	.00	28.10
3	500.0	750.0	28.31	.00	28.31
4	750.0	1000.0	9.14	.00	9.14
5	1000.0	1250.0	11.98	.00	11.98
6	1250.0	1500.0	5.01	.00	5.01
7	1500.0	1750.0	13.79	.00	13.79
8	1750.0	2000.0	9.96	.00	9.96
9	2000.0	2250.0	9.32	.00	9.32
10	2250.0	2500.0	7.82	.00	7.82
11	2500.0	2750.0	9.59	.00	9.59
12	2750.0	3000.0	4.37	.00	4.37
13	3000.0	3250.0	4.71	.00	4.71
14	3250.0	3500.0	4.21	.00	4.21
15	3500.0	3750.0	2.63	.00	2.63
16	3750.0	4000.0	1.94	.00	1.94
17	4000.0	4250.0	7.25	.00	7.25
18	4250.0	4500.0	4.18	.00	4.18
19	4500.0	4750.0	2.92	.00	2.92
20	4750.0	5000.0	6.27	.00	6.27
21	5000.0	5250.0	2.54	.00	2.54
22	5250.0	5500.0	7.52	.00	7.52
23	5500.0	5750.0	4.38	.00	4.38
24	5750.0	6000.0	4.46	.00	4.46
25	6000.0	6250.0	6.77	.00	6.77
26	6250.0	6500.0	6.06	.00	6.06
27	6500.0	6750.0	6.37	.00	6.37
28	6750.0	7000.0	7.50	.00	7.50
29	7000.0	7250.0	3.04	.00	3.04
30	7250.0	7500.0	1.22	.00	1.22
31	7500.0	7750.0	4.14	.00	4.14
32	7750.0	8000.0	.41	.00	.41
33	8000.0	8250.0	14.75	.00	14.75
34	8250.0	8500.0	3.08	.00	3.08
35	8500.0	8750.0	6.32	.00	6.32
36	8750.0	9000.0	1.10	.00	1.10
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
BE(KEV)	8766.6	%BE	99.63	.00	99.63


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 496 SCANDIUM Z=21 CS 0.987 GMS 3.28 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.5
4.0
3.5
3.0
2.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
RUN 492 SCANDIUM Z=21 PS
COUNTS PER CHANNEL
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2500
3500
CHANNEL NUMBER

TITANIUM Z = 22 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	252.1	.30
2	304.9	.16
3	327.5	.21
4	341.7	30.64
5	471.7	.30
6	480.7	.25
7	559.4	.32
8	596.6	.35
9	649.5	.35
10	870.0	.67
11	983.2	2.59
12	1121.6	.98
13	1381.4	65.51
14	1498.3	3.74
15	1554.2	.99
16	1586.0	8.56
17	1761.6	7.91
18	1792.4	3.57
19	1841.8	1.42
20	1883.0	1.67
21	2048.0	1.47
22	2086.8	1.04
23	2277.7	1.02
24	2371.3	.51
25	2496.0	.43
26	2511.8	.44
27	2616.0	.85
28	2840.5	.98
29	2943.0	1.47
30	3026.8	3.47
31	3083.5	.66
32	3116.3	.22
33	3131.0	.23
34	3231.1	.84
35	3270.6	.25
36	3307.1	.22
37	3329.1	.25
38	3475.5	2.35
39	3554.2	1.41
40	3709.6	.81
41	3734.0	1.61
42	3870.3	.17
43	3903.6	.18
44	3920.4	1.74
45	3997.5	.16
46	4031.8	.23
47	4133.7	.18
48	4222.4	.20

TITANIUM Z = 22

PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
49	4355.2	.36
50	4673.0	1.02
51	4713.9	1.24
52	4812.7	.22
53	4881.3	5.67
54	4920.1	.13
55	4966.6	3.74
56	5092.0	.18
57	5267.7	.22
58	5394.5	.16
59	5445.2	.21
60	5476.6	.18
61	5498.5	.20
62	5541.3	.21
63	5561.2	.24
64	5637.2	.52
65	5687.3	.20
66	5755.1	.19
67	5801.8	.14
68	5967.4	.15
69	6109.1	.39
70	6150.0	.22
71	6169.8	.21
72	6199.7	.16
73	6287.8	.15
74	6333.4	.15
75	6418.0	36.47
76	6481.6	.16
77	6521.1	.16
78	6555.6	6.49
79	6759.7	54.07
80	6882.0	.31
81	6908.0	.20
82	7168.0	.35
83	8009.6	.12
84	8262.4	.10

BINDING ENERGY = 8240.0 %BE = 116.65 + .00 = 116.65

TITANIUM Z = 22		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	252.1	.26
2	304.9	.14
3	327.5	.18
4	341.7	26.27
5	471.7	.26
6	480.7	.21
7	559.4	.27
8	596.6	.30
9	649.5	.30
10	870.0	.57
11	983.2	2.22
12	1121.6	.84
13	1381.4	56.16
14	1498.3	3.21
15	1554.2	.85
16	1586.0	7.34
17	1761.6	6.78
18	1792.4	3.06
19	1841.8	1.22
20	1883.0	1.43
21	2048.0	1.26
22	2086.8	.89
23	2277.7	.87
24	2371.3	.44
25	2496.0	.37
26	2511.8	.38
27	2616.0	.73
28	2840.5	.75
29	2943.0	1.26
30	3026.8	2.97
31	3083.5	.57
32	3116.3	.19
33	3131.0	.20
34	3231.1	.72
35	3270.6	.21
36	3307.1	.19
37	3329.1	.21
38	3475.5	2.01
39	3554.2	1.21
40	3709.6	.69
41	3734.0	.38
42	3870.3	.15
43	3903.6	.15
44	3920.4	1.49
45	3997.5	.14
46	4031.8	.20
47	4133.7	.15
48	4222.4	.17

TITANIUM Z = 22 MITNE-85 DATA NORMALIZED YIELDS

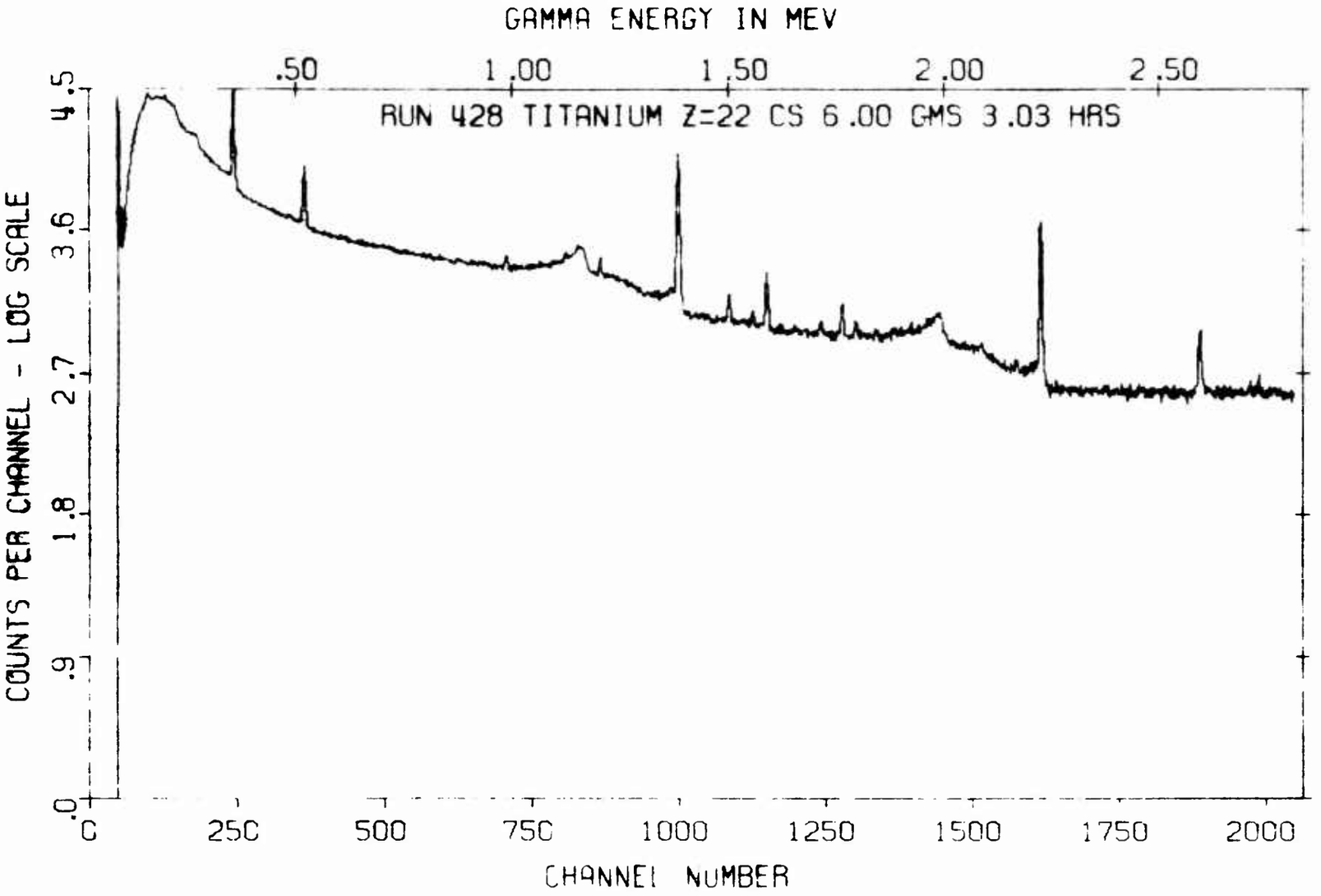
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4355.2	.31
50	4673.0	.87
51	4713.9	1.06
52	4812.7	.19
53	4881.3	4.86
54	4920.1	.11
55	4966.6	3.21
56	5092.0	.15
57	5267.7	.19
58	5394.5	.14
59	5445.2	.18
60	5476.6	.15
61	5498.5	.17
62	5541.3	.18
63	5561.2	.21
64	5637.2	.45
65	5687.3	.17
66	5755.1	.16
67	5801.8	.12
68	5967.4	.13
69	6109.1	.33
70	6150.0	.19
71	6169.8	.18
72	6199.7	.14
73	6287.8	.13
74	6333.4	.13
75	6418.0	31.27
76	6481.6	.14
77	6521.1	.14
78	6555.6	5.56
79	6759.7	46.35
00	6882.0	.27
81	6908.0	.17
82	7168.0	.30
83	8009.6	.10
84	8262.4	.09

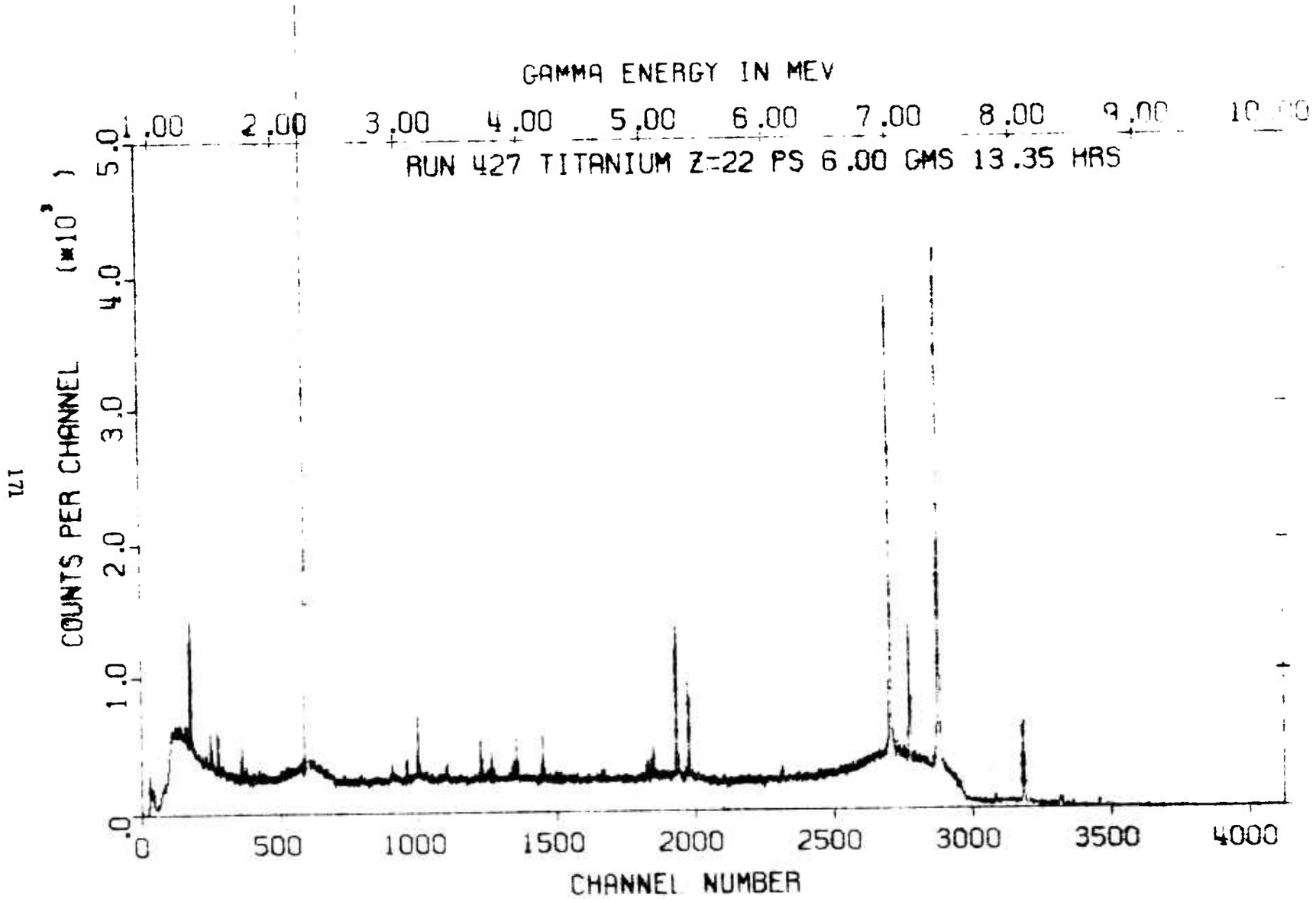
BE(KEV) 8240.0 OBSERVED %BE 116.65 NORMALIZED %BE 100.00

TITANIUM Z = 22 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	27.31	.00	27.31
3	500.0	750.0	.87	.00	.87
4	750.0	1000.0	2.79	.00	2.79
5	1000.0	1250.0	.84	.00	.84
6	1250.0	1500.0	59.37	.00	59.37
7	1500.0	1750.0	8.19	.00	8.19
8	1750.0	2000.0	12.49	.00	12.49
9	2000.0	2250.0	2.15	.00	2.15
10	2250.0	2500.0	1.68	.00	1.68
11	2500.0	2750.0	1.11	.00	1.11
12	2750.0	3000.0	2.01	.00	2.01
13	3000.0	3250.0	4.65	.00	4.65
14	3250.0	3500.0	2.63	.00	2.63
15	3500.0	3750.0	3.28	.00	3.28
16	3750.0	4000.0	1.93	.00	1.93
17	4000.0	4250.0	.52	.00	.52
18	4250.0	4500.0	.31	.00	.31
19	4500.0	4750.0	1.94	.00	1.94
20	4750.0	5000.0	8.37	.00	8.37
21	5000.0	5250.0	.15	.00	.15
22	5250.0	5500.0	.83	.00	.83
23	5500.0	5750.0	1.00	.00	1.00
24	5750.0	6000.0	.41	.00	.41
25	6000.0	6250.0	.84	.00	.84
26	6250.0	6500.0	31.66	.00	31.66
27	6500.0	6750.0	5.70	.00	5.70
28	6750.0	7000.0	46.79	.00	46.79
29	7000.0	7250.0	.30	.00	.30
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.10	.00	.10
34	8250.0	8500.0	.09	.00	.09
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
BE(KEV)	8240.0	%BE	100.64	.00	100.64


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 428 TITANIUM Z=22 CS 6.00 GMS 3.03 HRS
COUNTS PER CHANNEL - LOG SCALE
4.5
3.6
2.7
1.8
.9
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
RUN 427 TITANIUM Z=22 PS 6.00 GMS 13.35 HRS
COUNTS PER CHANNEL (*10³)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

VANADIUM Z = 23		MITNE-85 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	294.8	3.32
2	419.5	4.30
3	436.6	6.92
4	482.3	0.32
5	560.6	0.34
6	596.2	0.66
7	645.9	11.78
8	698.4	0.91
9	712.4	0.79
10	793.9	3.04
11	823.5	4.51
12	846.1	3.72
13	1002.2	0.83
14	1097.2	0.58
15	1255.7	1.05
16	1272.9	0.78
17	1358.7	2.30
18	1400.2	1.12
19	1558.4	4.55
20	1617.0	3.35
21	1664.2	2.03
22	1693.9	1.08
23	1777.8	5.37
24	1793.8	0.66
25	1953.2	1.87
26	1960.1	0.75
27	2002.0	0.82
28	2021.2	0.80
29	2051.0	0.54
30	2082.7	0.60
31	2100.5	1.11
32	2146.0	4.32
33	2169.2	0.50
34	2271.1	0.45
35	2350.0	0.54
36	2410.9	0.65
37	2428.2	0.31
38	2515.5	0.26
39	2622.7	0.29
40	2681.9	0.17
41	2762.8	0.35
42	2792.7	0.27
43	2827.3	0.30
44	2841.5	0.59
45	2888.9	0.65
46	2962.5	0.21
47	3034.0	0.35
48	3101.7	0.17

VANADIUM Z = 23		MITNE-85 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3265.7	0.28
50	3333.6	0.34
51	3419.6	0.15
52	3503.5	0.87
53	3534.5	0.59
54	3556.8	0.37
55	3579.0	1.33
56	3649.2	0.25
57	3717.2	0.36
58	3733.8	0.24
59	3837.2	0.14
60	3863.5	0.32
61	3915.0	0.17
62	3978.0	0.38
63	4076.9	0.16
64	4117.3	2.53
65	4193.4	0.11
66	4254.3	0.26
67	4282.3	0.18
68	4452.5	1.25
69	4486.9	0.39
70	4503.0	0.15
71	4534.3	0.49
72	4568.3	0.34
73	4693.1	0.22
74	4750.3	0.20
75	4772.3	0.44
76	4883.7	1.63
77	4993.2	0.93
78	5142.2	4.95
79	5209.9	5.61
80	5267.8	0.22
81	5297.6	0.16
82	5445.7	0.11
83	5515.5	5.71
84	5551.4	0.52
85	5577.6	0.41
86	5751.9	8.86
87	5891.7	2.78
88	5944.5	0.05
89	6037.1	0.09
90	6084.7	0.13
91	6253.9	0.05
92	6278.4	0.16
93	6315.7	0.25
94	6342.5	0.15
95	6372.6	0.12
96	6464.8	5.56

VANADIUM Z = 23	MITNE-85 DATA OBSERVED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6517.2	18.88
98	6555.6	0.12
99	6599.7	0.17
100	6625.9	0.16
101	6642.1	0.12
102	6676.0	0.12
103	6706.2	0.16
104	6873.9	11.36
105	6965.6	0.16
106	7069.1	0.27
107	7162.7	13.91
108	7291.5	2.44
109	7310.5	4.26

BINDING ENERGY = 7308.8 %BE = 105.86

VANADIUM Z = 23		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	294.8	3.14
2	419.5	4.06
3	436.6	6.54
4	482.3	0.30
5	560.6	0.32
6	596.2	0.62
7	645.5	11.13
8	698.4	0.86
9	712.4	0.75
10	793.5	2.87
11	823.5	4.26
12	846.1	3.52
13	1002.2	0.78
14	1097.2	0.55
15	1255.7	0.99
16	1272.9	0.74
17	1358.7	2.17
18	1400.2	1.06
19	1558.4	4.30
20	1617.0	3.16
21	1664.2	1.92
22	1693.9	1.02
23	1777.8	5.07
24	1793.8	0.62
25	1953.2	1.77
26	1960.1	0.71
27	2002.0	0.77
28	2021.2	0.76
29	2051.0	0.51
30	2082.7	0.57
31	2100.5	1.05
32	2146.0	4.08
33	2165.2	0.47
34	2271.1	0.43
35	2350.0	0.51
36	2410.9	0.61
37	2428.2	0.29
38	2515.5	0.25
39	2622.7	0.27
40	2681.9	0.16
41	2762.8	0.33
42	2792.7	0.26
43	2827.3	0.28
44	2841.5	0.54
45	2888.9	0.61
46	2962.5	0.20
47	3034.0	0.33
48	3101.7	0.16

VANADIUM Z = 23 PEAK NO	ENERGY(KEV)	MINE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/10**4 CAPT
49	3265.7	0.26
50	3333.6	0.32
51	3419.6	0.14
52	3503.5	0.77
53	3534.5	0.56
54	3556.8	0.35
55	3579.0	1.26
56	3665.2	0.24
57	3717.2	0.34
58	3733.8	0.23
59	3837.2	0.13
60	3863.5	0.30
61	3915.0	0.16
62	3978.3	0.36
63	4076.9	0.15
64	4117.3	2.39
65	4193.4	0.10
66	4254.3	0.25
67	4282.3	0.17
68	4452.5	1.18
69	4486.9	0.37
70	4503.3	0.14
71	4534.3	0.46
72	4568.3	0.22
73	4653.1	0.21
74	4750.3	0.15
75	4772.3	0.42
76	4883.7	1.54
77	4993.2	0.68
78	5142.2	4.68
79	5209.9	5.30
80	5267.8	0.21
81	5297.6	0.15
82	5445.7	0.10
83	5515.5	0.17
84	5551.4	0.49
85	5577.6	0.39
86	5751.9	8.37
87	5851.7	2.63
88	5944.5	0.09
89	6037.1	0.09
90	6084.7	0.12
91	6253.9	0.09
92	6278.4	0.15
93	6319.7	0.24
94	6342.5	0.14
95	6372.6	0.11
96	6464.8	0.03

VANADIUM Z = 23 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6517.2	17.83
98	6555.6	0.11
99	6599.7	0.16
100	6625.5	0.15
101	6642.1	0.11
102	6676.0	0.11
103	6706.2	0.15
104	6873.9	10.73
105	6965.6	0.15
106	7069.1	0.26
107	7162.7	13.14
108	7291.5	2.30
109	7310.5	4.02

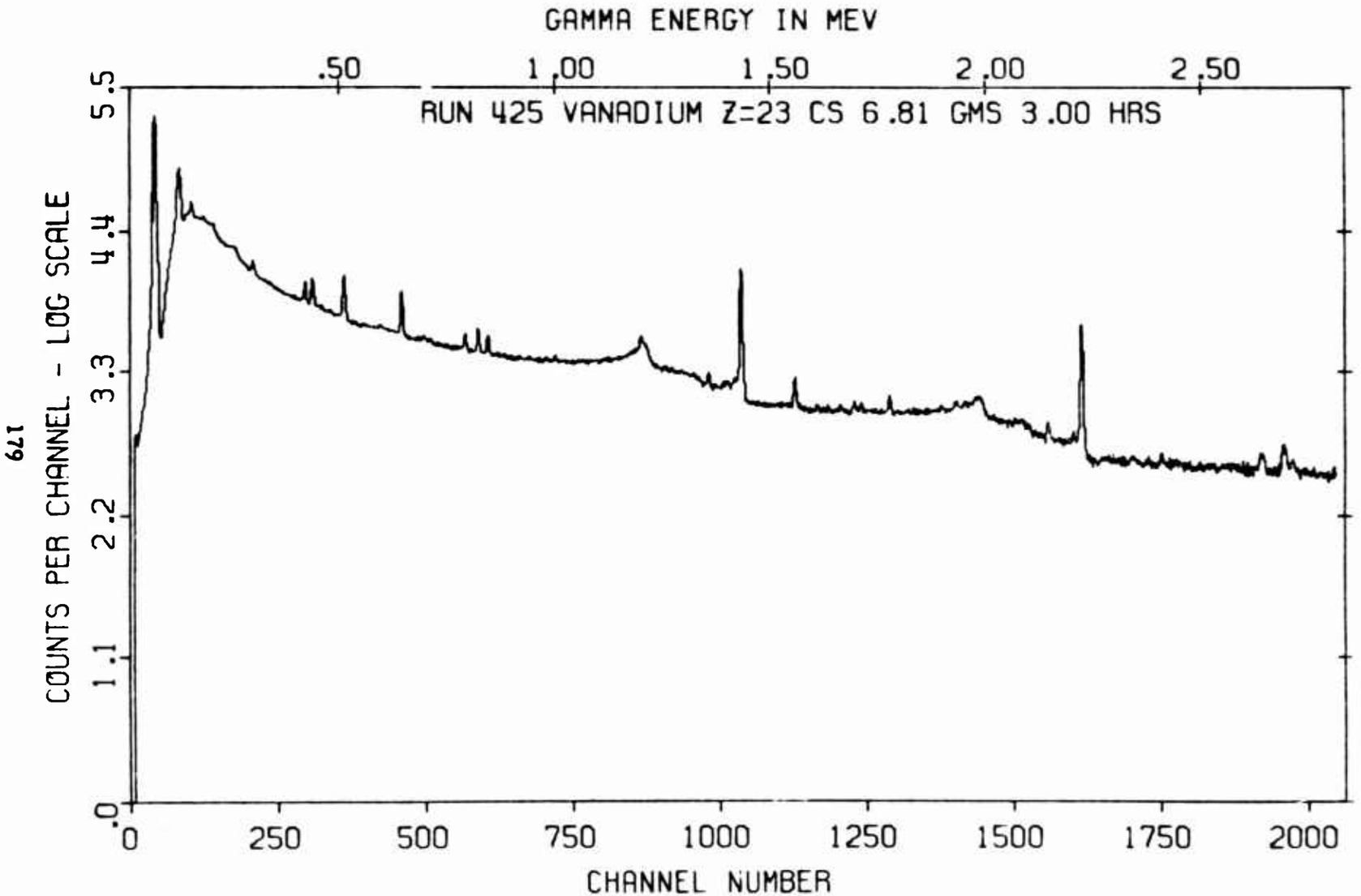
BE(KEV) 7308.8 OBSERVED %BE 105.86 NORMALIZED %BE 100.00

VANADIUM Z = 23 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	14.04
3	500.0	750.0	13.68
4	750.0	1000.0	10.66
5	1000.0	1250.0	1.33
6	1250.0	1500.0	4.96
7	1500.0	1750.0	10.40
8	1750.0	2000.0	8.17
9	2000.0	2250.0	8.21
10	2250.0	2500.0	1.84
11	2500.0	2750.0	0.68
12	2750.0	3000.0	2.62
13	3000.0	3250.0	0.49
14	3250.0	3500.0	0.73
15	3500.0	3750.0	3.74
16	3750.0	4000.0	0.95
17	4000.0	4250.0	2.64
18	4250.0	4500.0	1.96
19	4500.0	4750.0	1.13
20	4750.0	5000.0	3.02
21	5000.0	5250.0	9.98
22	5250.0	5500.0	0.46
23	5500.0	5750.0	10.05
24	5750.0	6000.0	11.08
25	6000.0	6250.0	0.21
26	6250.0	6500.0	9.76
27	6500.0	6750.0	18.64
28	6750.0	7000.0	10.88
29	7000.0	7250.0	13.39
30	7250.0	7500.0	6.33
31	7500.0	7750.0	0.0

PE(KEV) 7308.8 BIN NORMALIZED %PE 100.52


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 425 VANADIUM Z=23 CS 6.81 GMS 3.00 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER

GAMMA ENERGY IN MEV
RUN 424 VANADIUM Z=23 PS
COUNTS PER CHANNEL (*10³)
CHANNEL NUMBER
0
500
1000
1500
2000
2500
3000
3500
4000
1.0
2.0
3.0
4.0
5.0
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00

CHROMIUM Z = 24 PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	564.2	1.93
2	749.2	9.88
3	835.1	24.04
4	888.6	0.40
5	1151.2	0.40
6	1585.2	1.33
7	1694.8	1.12
8	1783.8	5.43
9	1898.5	3.82
10	1994.7	2.28
11	2238.9	7.45
12	2321.0	5.43
13	2349.0	0.67
14	2377.0	1.28
15	2558.2	0.82
16	2601.9	1.39
17	2621.3	0.31
18	2670.4	1.15
19	3022.3	1.42
20	3091.6	0.23
21	3178.6	0.79
22	3263.5	0.46
23	3393.6	0.32
24	3468.9	0.13
25	3488.2	0.17
26	3513.0	0.46
27	3596.7	0.36
28	3617.7	0.79
29	3720.7	2.16
30	3785.2	0.16
31	3862.7	0.44
32	3928.1	0.36
33	4022.3	0.14
34	4133.9	0.38
35	4323.3	0.70
36	4425.6	0.49
37	4455.4	0.42
38	4529.7	0.19
39	4626.4	0.16
40	4847.2	0.94
41	4872.8	0.35
42	5222.9	0.61
43	5269.5	1.13
44	5493.7	0.64
45	5618.8	3.46
46	5706.6	0.72
47	5793.6	0.34
48	5857.9	0.70

CHROMIUM Z = 24 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5999.6	2.27
50	6136.3	1.66
51	6245.7	0.26
52	6282.4	1.18
53	6326.4	0.49
54	6372.1	0.73
55	6645.5	5.29
56	6890.1	1.93
57	7099.7	2.88
58	7366.2	6.73
59	7538.3	11.41
60	8484.3	4.06
61	8512.3	5.50
62	8884.1	24.14
63	9720.3	9.82

BINDING ENERGY = 9253.0 %BE = 89.50

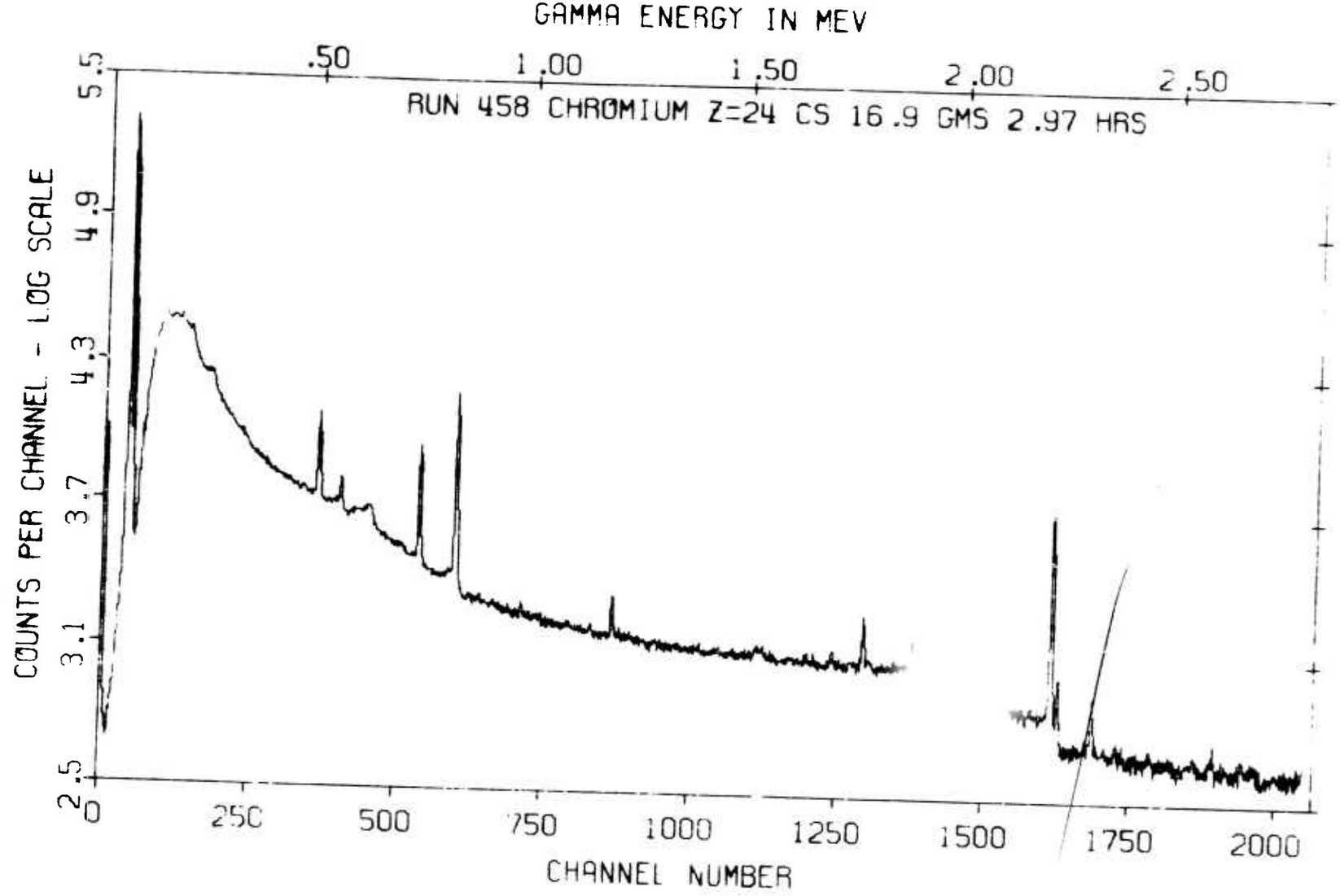
CHROMIUM Z = 24		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	564.2	2.16
2	749.2	11.04
3	835.1	26.86
4	988.6	0.45
5	1151.2	0.45
6	1585.2	1.49
7	1694.8	1.25
8	1793.8	6.07
9	1898.5	4.27
10	1994.7	2.55
11	2238.9	8.32
12	2321.9	6.07
13	2349.7	0.75
14	2377.0	1.43
15	2558.2	0.92
16	2601.9	1.55
17	2621.3	0.35
18	2670.4	1.28
19	3022.3	1.59
20	3091.6	0.26
21	3178.6	0.88
22	3263.5	0.51
23	3393.6	0.36
24	3468.9	0.15
25	3488.2	0.19
26	3513.0	0.51
27	3596.7	0.40
28	3617.7	0.88
29	3727.7	2.41
30	3785.2	0.18
31	3862.7	0.49
32	3928.1	0.40
33	4022.3	0.16
34	4133.9	0.42
35	4323.3	0.78
36	4425.6	0.55
37	4455.4	0.47
38	4529.7	0.21
39	4626.4	0.18
40	4847.2	1.05
41	4872.8	0.39
42	5222.9	0.68
43	5269.5	1.26
44	5493.7	0.72
45	5618.8	3.87
46	5706.6	0.80
47	5793.6	0.38
48	5857.9	0.78

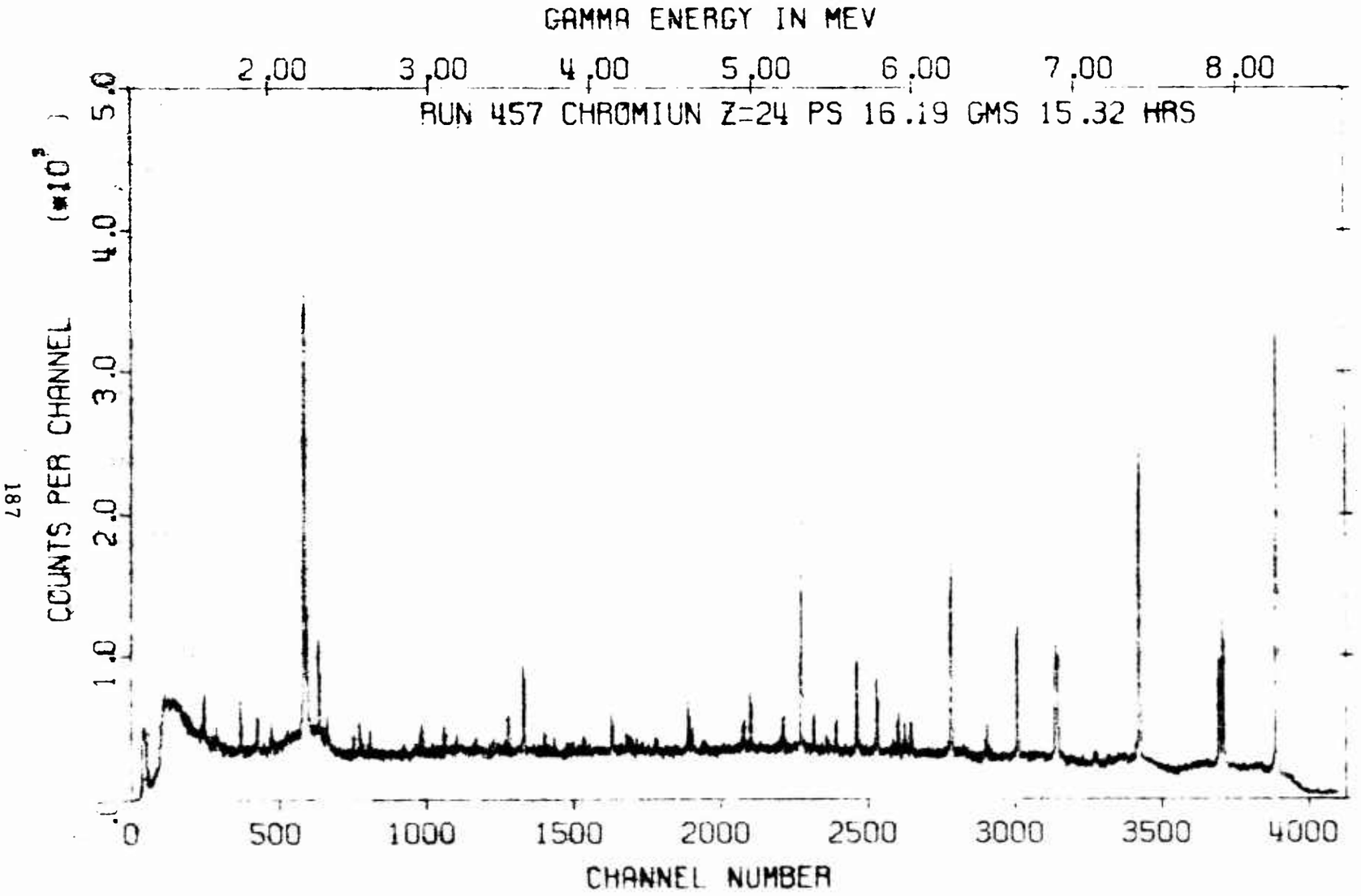
CHROMIUM Z = 24	MITNE-85 DATA NORMALIZED YIELDS
PEAK NO ENERGY(KEV)	NO OF PHOTONS/100CAPT
49 5999.6	2.54
50 6136.3	1.85
51 6245.7	0.29
52 6282.4	1.32
53 6326.4	0.55
54 6372.1	0.82
55 6645.5	5.91
56 6890.1	1.15
57 7099.7	4.34
58 7366.2	7.52
59 7939.3	12.75
60 8484.3	4.54
61 8512.3	6.15
62 8884.1	26.97
63 9720.3	10.97
BE(KEV) 6253.0 OBSERVED %BE	89.50 NORMALIZED %BE 100.00

CHROMIUM Z = 24 MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	13.20
4	750.0	1000.0	27.31
5	1000.0	1250.0	0.45
6	1250.0	1500.0	0.0
7	1500.0	1750.0	2.74
8	1750.0	2000.0	12.88
9	2000.0	2250.0	8.32
10	2250.0	2500.0	8.25
11	2500.0	2750.0	4.10
12	2750.0	3000.0	0.0
13	3000.0	3250.0	2.73
14	3250.0	3500.0	1.21
15	3500.0	3750.0	4.21
16	3750.0	4000.0	1.07
17	4000.0	4250.0	0.58
18	4250.0	4500.0	1.80
19	4500.0	4750.0	0.39
20	4750.0	5000.0	1.44
21	5000.0	5250.0	0.68
22	5250.0	5500.0	1.98
23	5500.0	5750.0	4.67
24	5750.0	6000.0	3.70
25	6000.0	6250.0	2.15
26	6250.0	6500.0	2.68
27	6500.0	6750.0	5.91
28	6750.0	7000.0	1.15
29	7000.0	7250.0	4.34
30	7250.0	7500.0	7.52
31	7500.0	7750.0	0.0
32	7750.0	8000.0	12.75
33	8000.0	8250.0	0.0
34	8250.0	8500.0	4.54
35	8500.0	8750.0	6.15
36	8750.0	9000.0	26.97
37	9000.0	9250.0	0.0
38	9250.0	9500.0	0.0
39	9500.0	9750.0	10.97
40	9750.0	10000.0	0.0

BE(KEV) 9253.0 BIN NORMALIZED %BE 99.70


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 458 CHROMIUM Z=24 CS 16.9 GMS 2.97 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.9
4.3
3.7
3.1
2.5
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
RUN 457 CHROMIUN Z=24 PS 16.19 GMS 15.32 HRS
COUNTS PER CHANNEL (*10³)
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

MANGANESE Z = 25 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100 CAPT
1	212.5	6.02
2	271.2	2.81
3	314.3	3.55
4	334.9	0.13
5	375.5	0.30
6	454.-	1.33
7	542.9	0.19
8	558.7	0.45
9	646.4	0.29
10	1149.0	0.57
11	1401.7	0.76
12	1705.4	1.20
13	1747.0	2.85
14	1876.2	0.81
15	1915.2	2.15
16	1987.6	2.36
17	2044.3	2.43
18	2062.6	1.89
19	2090.5	0.58
20	2175.2	2.29
21	2258.2	0.41
22	2294.1	1.36
23	2330.9	3.13
24	2369.5	0.56
-	2437.1	1.13
26	2453.8	0.31
27	2471.5	0.58
28	2508.8	0.32
29	2521.8	0.94
30	2593.7	0.75
31	2610.1	0.28
32	2621.3	0.84
33	2676.9	0.97
34	2696.9	0.36
35	2856.4	0.41
36	2863.5	0.29
37	2925.6	0.37
38	2969.8	0.30
39	3003.2	0.70
40	3060.2	0.27
41	3144.4	0.24
42	3203.6	0.28
43	3267.5	0.83
44	3321.1	0.19
45	3347.0	0.61
46	3372.9	0.56
47	3408.5	3.38
48	3457.4	0.23

MANGANESE Z = 25 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3488.9	0.67
50	3555.5	0.28
51	3580.8	0.21
52	3626.6	0.51
53	3642.1	0.45
54	3667.8	0.19
55	3751.4	0.33
56	3783.1	0.22
57	3815.0	1.51
58	3858.4	0.57
59	3929.1	0.76
60	3979.7	0.30
61	4030.1	0.22
62	4101.3	0.13
63	4199.6	0.13
64	4222.7	0.88
65	4267.7	0.51
66	4348.1	0.35
67	4380.3	0.44
68	4413.1	0.24
69	4446.2	1.10
70	4545.8	0.33
71	4566.9	1.54
72	4587.8	0.33
73	4613.8	0.14
74	4644.6	0.77
75	4690.0	0.85
76	4724.7	2.33
77	4781.3	0.22
78	4792.8	0.23
79	4829.1	0.57
80	4875.6	0.84
81	4907.5	0.58
82	4932.7	0.17
83	4949.7	1.47
84	4970.3	0.32
85	5014.7	5.54
86	5034.7	0.90
87	5067.4	3.18
88	5111.4	0.31
89	5135.1	0.13
90	5181.2	3.20
91	5199.0	0.38
92	5253.5	1.29
93	5405.2	0.28
94	5435.7	2.09
95	5527.2	6.94
96	5586.3	0.14

MANGANESE Z = 25 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5761.1	1.61
98	5921.3	1.01
99	6032.6	0.44
100	6164.5	1.90
101	6430.1	0.75
102	6556.0	0.15
103	6783.7	3.46
104	6929.0	2.57
105	7038.7	0.18
106	7057.9	11.35
107	7159.9	6.06
108	7243.5	12.05
109	7270.6	3.08

BINDING ENERGY = 7270.4 %BE = 86.15

MANGANESE Z = 25		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	212.5	6.99
2	271.2	3.26
3	314.3	4.12
4	334.9	0.15
5	375.5	0.35
6	454.0	1.54
7	542.9	0.22
8	558.7	0.52
9	646.4	0.34
10	1140.0	0.66
11	1401.7	0.88
12	1705.4	1.39
13	1747.0	3.31
14	1876.2	0.94
15	1915.2	2.50
16	1987.6	2.74
17	2044.3	2.82
18	2062.6	2.19
19	2090.5	1.14
20	2175.2	2.61
21	2258.2	0.48
22	2294.1	1.58
23	2330.9	3.63
24	2369.5	0.65
25	2437.1	1.31
26	2453.8	0.36
27	2471.5	0.67
28	2508.8	0.37
29	2521.8	1.09
30	2593.7	0.87
31	2610.1	0.33
32	2621.3	0.98
33	2676.9	1.13
34	2696.9	0.42
35	2856.4	0.48
36	2863.5	0.34
37	2925.6	0.43
38	2969.8	0.35
39	3003.2	0.81
40	3060.2	0.31
41	3144.4	0.28
42	3203.6	0.33
43	3267.5	0.96
44	3321.1	0.22
45	3347.0	0.71
46	3372.9	0.65
47	3408.5	3.92
48	3457.4	0.27

MANGANESE Z = 25 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3498.5	0.78
50	3555.5	0.33
51	3580.8	0.24
52	3626.6	0.55
53	3642.1	0.52
54	3667.8	0.22
55	3751.4	0.38
56	3783.1	0.26
57	3815.0	1.75
58	3858.4	0.66
59	3929.1	0.88
60	3979.7	0.35
61	4030.1	0.26
62	4101.3	0.15
63	4199.6	0.15
64	4222.7	1.02
65	4267.7	0.59
66	4348.1	0.41
67	4380.3	0.51
68	4413.1	0.28
69	4446.2	1.28
70	4549.8	0.38
71	4566.9	1.79
72	4587.8	0.38
73	4613.8	0.16
74	4644.6	0.89
75	4690.0	0.99
76	4724.7	2.70
77	4780.3	0.26
78	4792.8	0.27
79	4829.1	0.66
80	4875.6	0.98
81	4907.5	0.67
82	4932.7	0.20
83	4949.7	1.71
84	4970.3	0.37
85	5014.7	6.43
86	5034.7	1.04
87	5067.4	3.69
88	5111.4	0.36
89	5135.1	0.15
90	5181.2	3.71
91	5199.0	0.44
92	5253.9	1.50
93	5405.2	0.33
94	5435.7	2.43
95	5527.2	8.06
96	5586.3	0.16

MANGANESE Z = 25 MITNE-85 DATA NORMALIZED YIELDS

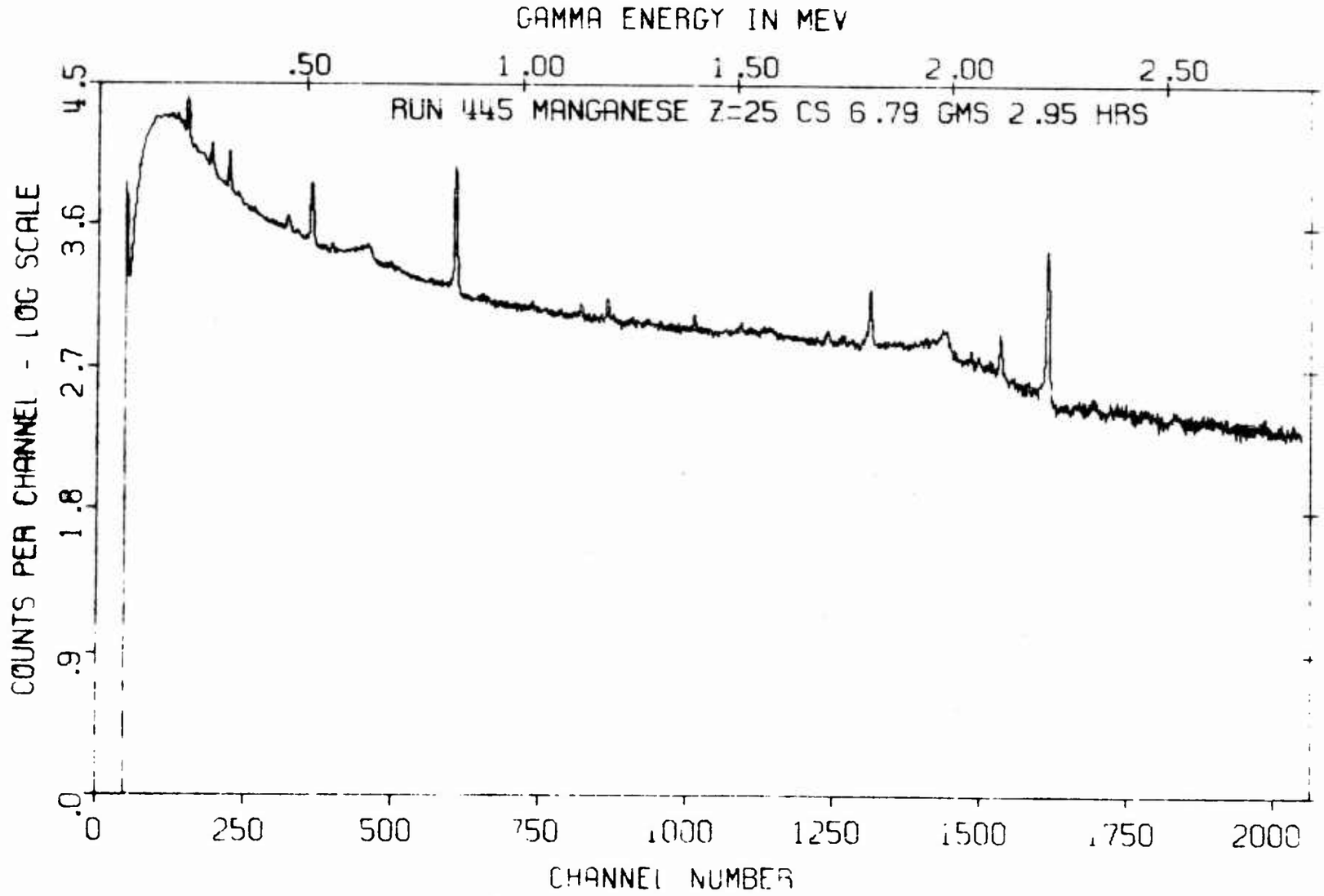
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5761.1	1.87
98	5921.3	1.17
99	6032.6	0.51
100	6104.5	2.21
101	6430.1	0.87
102	6556.0	0.17
103	6783.7	4.02
104	6929.0	2.98
105	7038.7	0.21
106	7057.9	13.17
107	7159.9	7.03
108	7243.5	13.99
109	7270.6	3.98

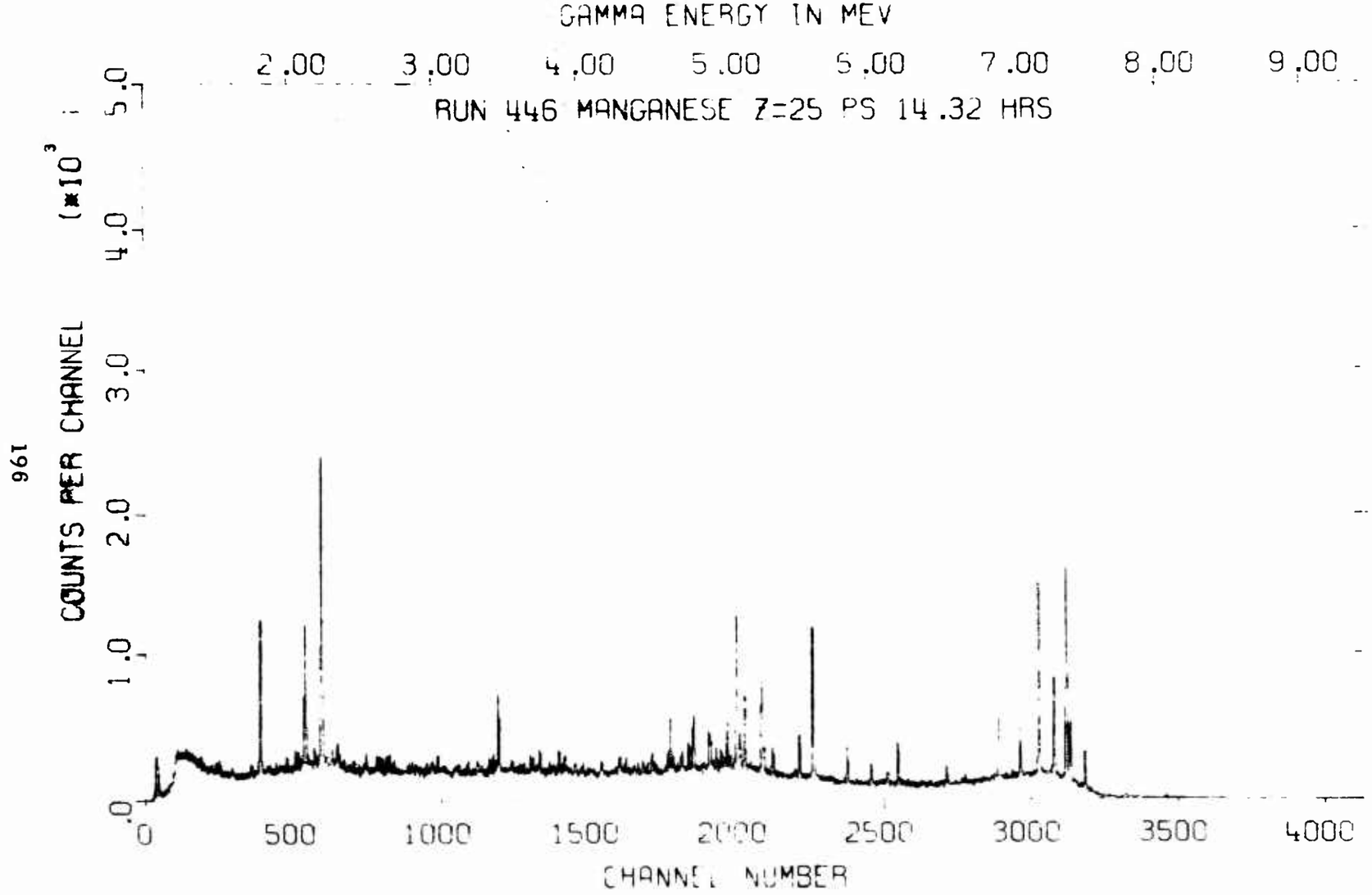
BE(KEV) 7270.4 OBSERVED %BE 86.15 NORMALIZED %BE 100.00

MANGANESE 7 = 25 MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	6.99
2	250.0	500.0	9.43
3	500.0	750.0	1.08
4	750.0	1000.0	0.0
5	1000.0	1250.0	0.66
6	1250.0	1500.0	0.88
7	1500.0	1750.0	4.70
8	1750.0	2000.0	6.18
9	2000.0	2250.0	8.76
10	2250.0	2500.0	8.68
11	2500.0	2750.0	5.18
12	2750.0	3000.0	1.59
13	3000.0	3250.0	1.73
14	3250.0	3500.0	7.51
15	3500.0	3750.0	1.90
16	3750.0	4000.0	4.28
17	4000.0	4250.0	1.58
18	4250.0	4500.0	3.06
19	4500.0	4750.0	7.30
20	4750.0	5000.0	5.11
21	5000.0	5250.0	15.83
22	5250.0	5500.0	4.25
23	5500.0	5750.0	8.22
24	5750.0	6000.0	3.04
25	6000.0	6250.0	2.72
26	6250.0	6500.0	0.87
27	6500.0	6750.0	0.17
28	6750.0	7000.0	7.00
29	7000.0	7250.0	34.41
30	7250.0	7500.0	3.58
31	7500.0	7750.0	0.0

PE(KEV) 7270.4 BIN NORMALIZED %BE 100.07


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 445 MANGANESE Z=25 CS 6.79 GMS 2.95 HRS
COUNTS PER CHANNEL - LOG SCALE
4.5
3.6
2.7
1.8
.9
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 446 MANGANESE Z=25 PS 14.32 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

961

IRON Z = 26

PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	230.4	1.53
2	277.3	0.13
3	314.2	0.15
4	352.5	10.85
5	366.5	1.47
6	411.3	0.69
7	479.1	1.77
8	570.3	0.44
9	597.1	0.47
10	692.1	4.91
11	810.6	0.88
12	898.2	1.72
13	921.1	0.79
14	1018.5	2.29
15	1043.7	0.40
16	1139.9	0.61
17	1260.5	2.38
18	1358.0	1.03
19	1613.0	5.85
20	1668.8	0.17
21	1724.8	8.03
22	1759.0	0.39
23	1776.5	0.46
24	1842.9	0.15
25	1859.7	0.23
26	1891.3	0.42
27	1912.8	0.32
28	1972.3	0.23
29	2000.0	0.44
30	2021.6	0.20
31	2067.1	0.62
32	2091.4	0.21
33	2109.9	0.33
34	2129.6	0.43
35	2153.4	0.13
36	2165.9	0.10
37	2191.4	0.10
38	2250.9	0.09
39	2273.8	0.10
40	2293.4	0.11
41	2305.2	0.12
42	2366.9	0.13
43	2412.1	0.10
44	2425.7	0.19
45	2470.1	0.43
46	2497.5	0.08
47	2527.7	0.42
48	2576.3	0.24

IRON Z = 26 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2617.7	0.09
50	2655.9	0.13
51	2682.3	0.41
52	2698.2	0.21
53	2721.5	1.43
54	2751.1	0.16
55	2801.3	0.10
56	2813.7	0.05
57	2835.5	0.58
58	2873.8	0.42
59	2922.5	0.13
60	2955.6	0.36
61	2973.4	0.20
62	3033.5	0.05
63	3062.1	0.11
64	3103.9	0.66
65	3121.1	0.05
66	3169.3	0.31
67	3186.2	0.66
68	3225.8	0.16
69	3240.4	0.21
70	3267.8	1.19
71	3292.5	0.31
72	3305.8	0.04
73	3326.0	0.07
74	3356.9	0.29
75	3379.7	0.04
76	3397.0	0.14
77	3413.8	1.50
78	3437.4	1.35
79	3456.2	0.04
80	3470.1	0.04
81	3487.4	0.38
82	3507.3	0.29
83	3540.1	0.10
84	3564.3	0.05
85	3582.4	0.04
86	3597.5	0.05
87	3614.3	0.08
88	3644.3	0.07
89	3665.8	0.13
90	3717.9	0.04
91	3729.5	0.06
92	3745.6	0.05
93	3777.7	0.18
94	3791.7	0.16
95	3845.1	0.27
96	3854.9	0.97

IRON Z = 26 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3900.0	0.04
98	3918.8	0.07
99	3932.3	0.05
100	3957.3	0.04
101	3982.6	0.16
102	4012.5	0.39
103	4035.8	0.03
104	4074.3	0.12
105	4117.1	0.04
106	4142.7	0.04
107	4157.0	0.11
108	4218.8	4.02
109	4275.9	0.37
110	4295.7	0.04
111	4324.7	0.04
112	4367.6	0.03
113	4380.1	0.12
114	4406.8	1.31
115	4462.4	0.61
116	4493.4	0.04
117	4532.4	0.05
118	4552.5	0.04
119	4563.4	0.03
120	4598.0	0.08
121	4640.9	0.04
122	4675.8	0.27
123	4743.3	0.06
124	4810.3	1.66
125	4874.0	0.07
126	4949.0	0.80
127	5002.2	0.06
128	5044.2	0.05
129	5108.9	0.04
130	5141.5	0.14
131	5203.6	0.06
132	5221.5	0.08
133	5250.6	0.09
134	5271.9	0.03
135	5287.9	0.05
136	5298.8	0.05
137	5318.6	0.06
138	5340.9	0.03
139	5357.4	0.12
140	5386.7	0.03
141	5420.6	0.04
142	5452.9	0.06
143	5493.4	0.14
144	5511.7	0.07

IRON Z = 26 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5564.0	0.05
146	5580.3	0.04
147	5597.8	0.05
148	5612.6	0.04
149	5693.1	0.05
150	5746.0	0.14
151	5770.7	0.07
152	5786.6	0.11
153	5826.5	0.05
154	5855.5	0.06
155	5920.5	8.29
156	6018.5	8.08
157	6061.4	0.05
158	6163.8	0.06
159	6267.5	0.10
160	6380.7	0.64
161	6455.2	0.05
162	6507.1	0.06
163	6573.3	0.07
164	6598.7	0.04
165	6685.8	0.07
166	6762.3	0.04
167	6813.7	0.10
168	6988.0	0.03
169	7032.7	0.05
170	7049.3	0.06
171	7091.7	0.04
172	7143.3	0.09
173	7197.9	0.04
174	7278.9	4.60
175	7391.4	0.04
176	7430.9	0.04
177	7517.1	0.04
178	7528.7	0.04
179	7550.7	0.14
180	7568.2	0.07
181	7631.6	27.19
182	7645.6	22.14
183	8116.0	0.05
184	8369.8	0.07
185	8886.0	0.64
186	9298.4	3.85
187	10046.0	0.10

BINDING ENERGY = 7845.0 %BE = 92.74

IRON Z = 26 PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100 CAPT
1	230.4	1.65
2	277.3	0.14
3	314.2	0.16
4	352.5	11.70
5	366.9	1.59
6	411.3	0.74
7	479.1	1.91
8	570.3	0.47
9	597.1	0.51
10	692.1	5.29
11	810.6	0.95
12	898.2	1.85
13	921.1	0.85
14	1018.9	2.47
15	1043.7	0.43
16	1139.9	0.66
17	1260.5	2.57
18	1358.0	1.11
19	1613.0	6.31
20	1668.8	0.18
21	1724.8	8.66
22	1759.0	0.42
23	1776.5	0.50
24	1842.9	0.16
25	1859.7	0.25
26	1891.3	0.45
27	1912.8	0.35
28	1972.3	0.25
29	2000.0	0.47
30	2021.6	0.22
31	2067.1	0.67
32	2091.4	0.23
33	2109.9	0.36
34	2129.6	0.46
35	2153.4	0.14
36	2165.9	0.11
37	2191.4	0.11
38	2250.9	0.10
39	2273.8	0.11
40	2293.4	0.12
41	2305.2	0.13
42	2366.9	0.14
43	2412.1	0.11
44	2425.7	0.20
45	2470.1	0.46
46	2497.5	0.09
47	2527.7	0.45
48	2576.3	0.26

IRON Z = 26 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2617.7	0.10
50	2655.9	0.14
51	2682.3	0.44
52	2698.2	0.23
53	2721.5	1.54
54	2751.1	0.17
55	2801.3	0.11
56	2813.7	0.05
57	2835.5	0.63
58	2873.8	0.45
59	2922.5	0.14
60	2955.6	0.39
61	2973.4	0.22
62	3033.5	0.05
63	3062.1	0.12
64	3103.9	0.71
65	3121.1	0.05
66	3169.3	0.33
67	3186.2	0.71
68	3225.8	0.17
69	3240.4	0.23
70	3267.8	1.28
71	3292.5	0.33
72	3309.8	0.04
73	3326.0	0.08
74	3356.9	0.31
75	3379.7	0.04
76	3397.0	0.15
77	3413.8	1.62
78	3437.4	1.46
79	3456.2	0.04
80	3470.1	0.04
81	3487.4	0.41
82	3507.3	0.31
83	3540.1	0.11
84	3564.3	0.05
85	3582.4	0.04
86	3597.5	0.05
87	3614.3	0.09
88	3644.3	0.08
89	3665.8	0.14
90	3717.9	0.04
91	3729.5	0.06
92	3745.6	0.05
93	3777.7	0.19
94	3791.7	0.17
95	3845.1	0.29
96	3854.9	1.05

IRON Z = 26 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3901.9	0.04
98	3918.8	0.08
99	3932.3	0.05
100	3957.3	0.04
101	3982.6	0.17
102	4012.5	0.42
103	4035.8	0.03
104	4074.3	0.13
105	4117.1	0.04
106	4142.7	0.04
107	4157.0	0.12
108	4218.8	4.33
109	4275.9	0.40
110	4295.7	0.04
111	4324.7	0.04
112	4367.6	0.03
113	4380.1	0.13
114	4406.8	1.41
115	4462.4	0.66
116	4493.4	0.04
117	4532.4	0.05
118	4552.5	0.04
119	4563.4	0.03
120	4588.0	0.09
121	4640.9	0.04
122	4675.8	0.29
123	4743.3	0.06
124	4810.3	1.79
125	4874.0	0.08
126	4949.0	0.86
127	5002.2	0.06
128	5044.2	0.05
129	5108.9	0.04
130	5141.5	0.15
131	5203.6	0.06
132	5221.5	0.09
133	5250.6	0.10
134	5271.9	0.03
135	5287.9	0.05
136	5298.8	0.05
137	5318.6	0.06
138	5340.9	0.03
139	5357.4	0.13
140	5386.7	0.03
141	5420.6	0.04
142	5452.9	0.06
143	5493.4	0.15
144	5511.7	0.08

IRUN 7 = 26 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5564.0	0.05
146	5580.3	0.04
147	5597.8	0.05
148	5612.6	0.04
149	5693.1	0.05
150	5746.0	0.15
151	5770.7	0.08
152	5786.6	0.12
153	5826.5	0.05
154	5855.5	0.06
155	5920.5	8.54
156	6018.5	8.71
157	6061.4	0.05
158	6163.8	0.06
159	6267.5	0.11
160	6380.7	0.69
161	6455.2	0.05
162	6507.1	0.06
163	6573.3	0.08
164	6598.7	0.04
165	6685.8	0.08
166	6762.3	0.04
167	6813.7	0.11
168	6988.0	0.03
169	7032.7	0.05
170	7049.3	0.06
171	7091.7	0.04
172	7143.3	0.10
173	7197.9	0.04
174	7278.9	4.96
175	7391.4	0.04
176	7430.9	0.04
177	7517.1	0.04
178	7528.7	0.04
179	7550.7	0.15
180	7568.2	0.08
181	7631.6	29.32
182	7645.6	23.87
183	8116.0	0.05
184	8369.8	0.08
185	8886.0	0.65
186	9298.4	4.15
187	10046.0	0.11

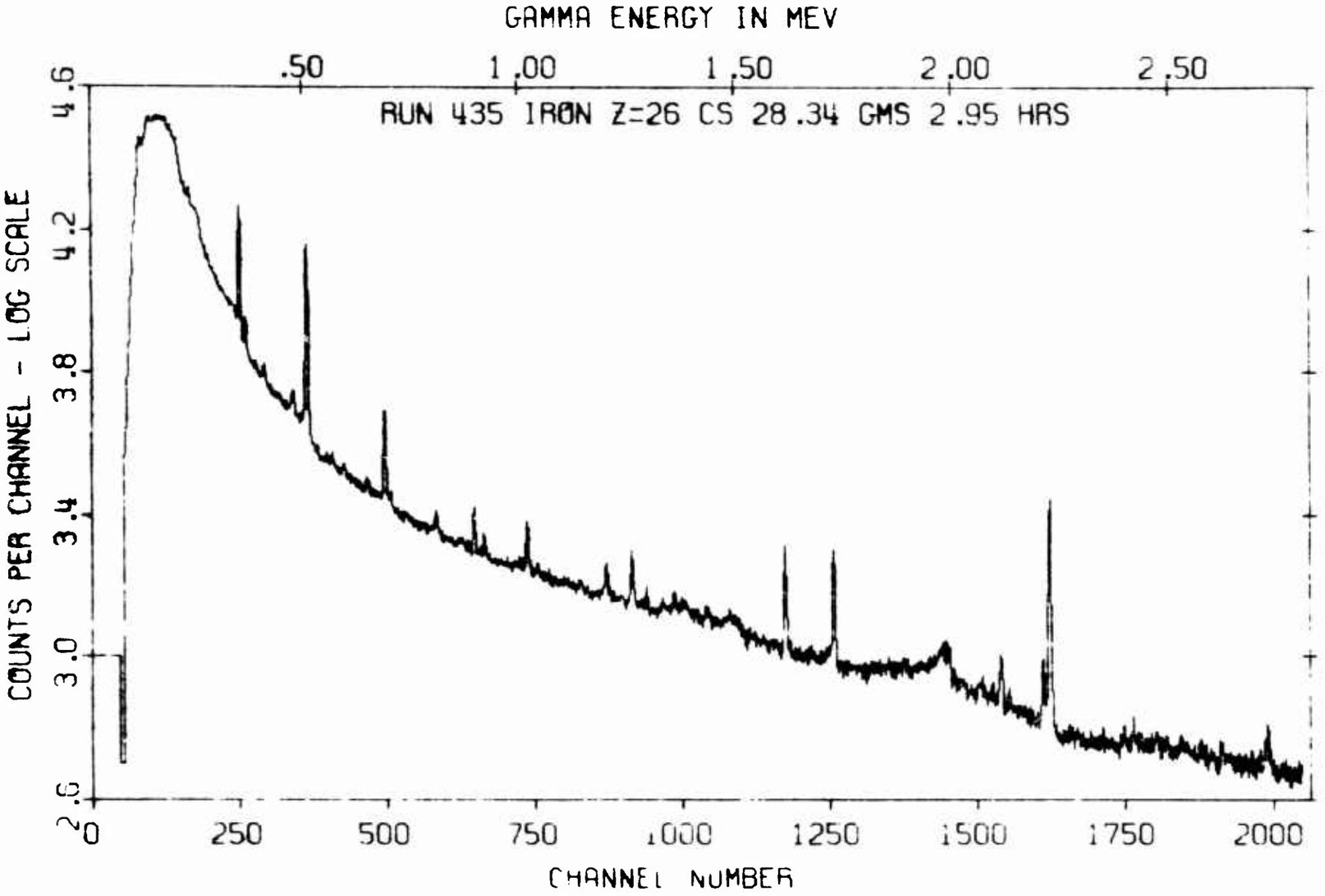
PE(KEV) 7845.0 OBSERVED %BE 92.74 NORMALIZED %BE 100.00

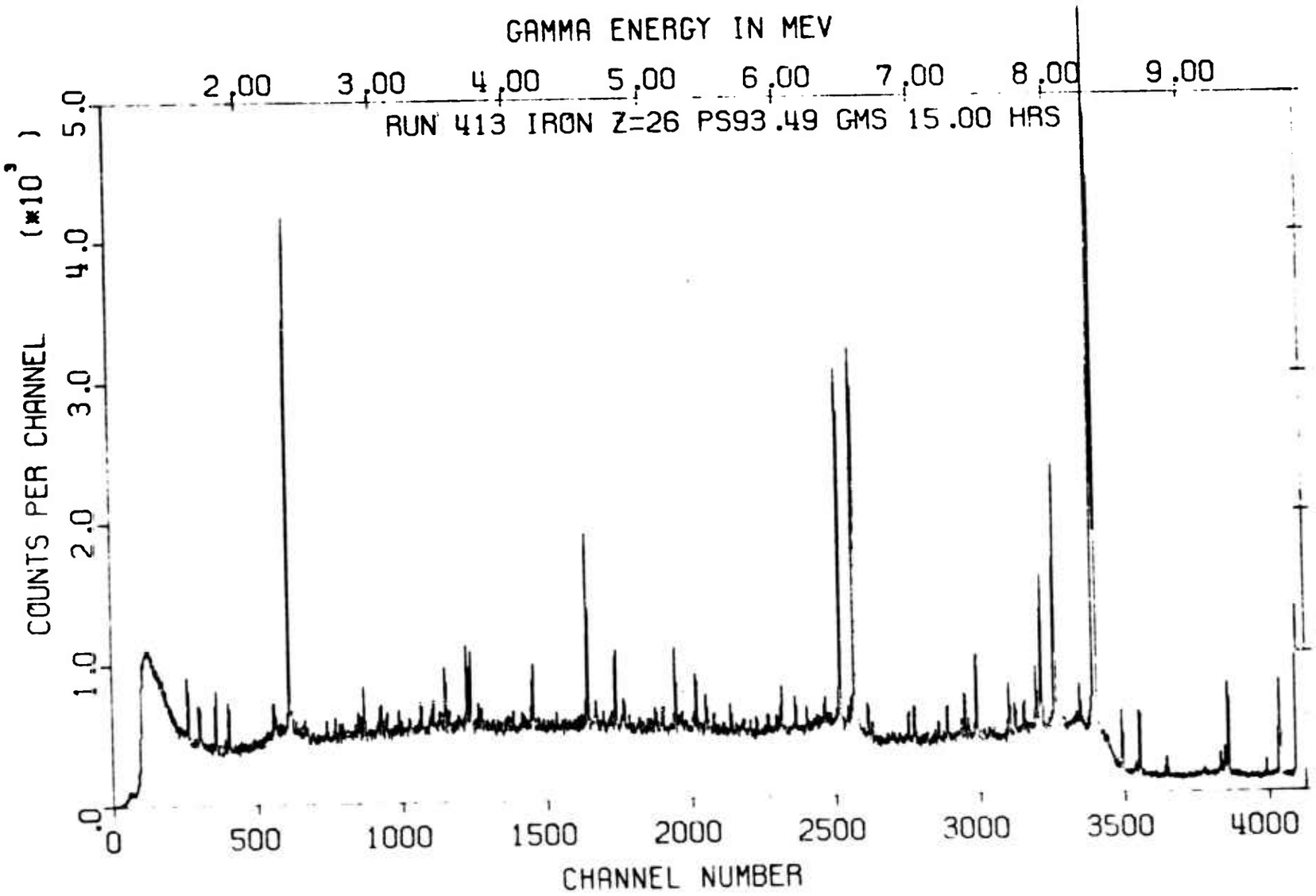
IRON Z = 26 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	1.65
2	250.0	500.0	16.24
3	500.0	750.0	6.28
4	750.0	1000.0	3.66
5	1000.0	1250.0	3.56
6	1250.0	1500.0	3.68
7	1500.0	1750.0	15.15
8	1750.0	2000.0	2.37
9	2000.0	2250.0	2.76
10	2250.0	2500.0	1.46
11	2500.0	2750.0	3.16
12	2750.0	3000.0	2.16
13	3000.0	3250.0	2.38
14	3250.0	3500.0	5.81
15	3500.0	3750.0	1.04
16	3750.0	4000.0	2.09
17	4000.0	4250.0	5.12
18	4250.0	4500.0	2.76
19	4500.0	4750.0	0.61
20	4750.0	5000.0	2.73
21	5000.0	5250.0	0.46
22	5250.0	5500.0	0.75
23	5500.0	5750.0	0.47
24	5750.0	6000.0	9.25
25	6000.0	6250.0	8.83
26	6250.0	6500.0	0.85
27	6500.0	6750.0	0.26
28	6750.0	7000.0	0.18
29	7000.0	7250.0	0.30
30	7250.0	7500.0	5.05
31	7500.0	7750.0	53.51
32	7750.0	8000.0	0.0
33	8000.0	8250.0	0.05
34	8250.0	8500.0	0.08
35	8500.0	8750.0	0.0
36	8750.0	9000.0	0.69
37	9000.0	9250.0	0.0
38	9250.0	9500.0	4.15
39	9500.0	9750.0	0.0
40	9750.0	10000.0	0.0
41	10000.0	10250.0	0.11
42	10250.0	10500.0	0.0

BE(KEV) 7845.0 BIN NORMALIZED %BE 99.96


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 435 IRØN Z=26 CS 28.34 GMS 2.95 HRS
COUNTS PER CHANNEL - LOG SCALE
4.6
4.2
3.8
3.4
3.0
2.6
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 413 IRON Z=26 PS93 .49 GMS 15.00 HRS
COUNTS PER CHANNEL (*10³)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

COBALT Z=27 GAMASC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	230.2	24.37
2	254.5	4.11
3	277.4	18.73
4	317.8	.34
5	391.8	2.43
6	435.4	1.14
7	447.3	6.40
8	460.8	.57
9	463.0	.40
10	473.5	.76
11	477.0	.95
12	483.8	1.93
13	497.2	4.16
14	556.4	12.26
15	710.5	.79
16	717.7	.81
17	785.7	4.87
18	928.2	.94
19	944.0	2.08
20	1215.6	.73
21	1291.5	.70
22	1294.7	.56
23	1516.1	2.75
24	1690.6	.76
25	1802.1	1.86
26	1818.7	.79
27	1831.0	5.83
28	1853.3	1.23
29	1890.0	1.09
30	2033.6	1.02
31	2204.7	.55
32	2241.4	.47
33	2279.8	.53
34	2308.1	.36
35	2352.9	.36
36	2370.6	.28
37	2526.5	.25
38	2569.1	.38
39	2606.5	.32
40	2726.8	.27
41	2740.4	.31
42	2802.7	.14
43	2867.0	.42
44	2883.1	.33
45	2926.6	.46
46	2953.5	.36
47	2978.5	.34
48	2995.0	.29

COBALT Z=27 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3049.6	.24
50	3097.7	.24
51	3125.8	.23
52	3194.4	.49
53	3217.0	.50
54	3282.8	.37
55	3334.0	.32
56	3379.4	.75
57	3446.5	.15
58	3561.2	.18
59	3609.0	.19
60	3613.9	.33
61	3663.7	.15
62	3680.9	.36
63	3701.9	.13
64	3749.0	1.25
65	3814.9	.32
66	3842.9	.20
67	3899.5	.55
68	3929.4	.75
69	3966.3	.71
70	3975.7	.23
71	4029.4	1.56
72	4129.2	.10
73	4151.8	.59
74	4207.9	.94
75	4276.1	.19
76	4329.1	.44
77	4348.8	.18
78	4376.8	.24
79	4394.4	.21
80	4471.0	.10
81	4527.2	.18
82	4546.5	.34
83	4607.1	.79
84	4622.9	.19
85	4645.8	.32
86	4666.8	.14
87	4705.9	.18
88	4731.5	.16
89	4781.4	.24
90	4884.3	.75
91	4905.4	1.75
92	4921.5	.95
93	5002.4	.52
94	5038.7	.21
95	5069.0	.25
96	5128.1	.33

COBALT Z=27 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5148.3	.12
98	5166.5	.36
99	5181.2	2.49
100	5212.6	.37
101	5269.6	1.15
102	5357.9	.41
103	5370.5	.40
104	5509.7	.50
105	5567.2	.24
106	5602.3	1.10
107	5613.6	.93
108	5638.5	1.03
109	5659.7	6.77
110	5702.9	.48
111	5742.2	1.97
112	5849.5	.31
113	5925.1	1.72
114	5975.1	6.42
115	6039.9	.52
116	6109.7	.59
117	6148.9	.26
118	6275.2	.64
119	6282.8	.51
120	6485.9	6.03
121	6537.5	.10
122	6636.7	.10
123	6705.8	6.98
124	6731.6	.18
125	6757.1	.09
126	6876.8	7.71
127	6948.1	.69
128	6984.9	2.79
129	7055.6	1.70
130	7213.7	4.43
131	7433.6	.27
132	7490.8	2.81

BINDING ENERGY = 7491.0 %BE = 75.77 + 18.15 = 93.92

COBALT Z=27 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	230.2	25.95
2	254.5	4.38
3	277.4	19.94
4	317.8	.36
5	391.8	2.59
6	435.4	1.22
7	447.3	6.81
8	460.6	.61
9	463.0	.42
10	473.5	.81
11	477.0	1.01
12	483.8	2.06
13	497.2	4.43
14	556.4	13.05
15	710.5	.84
16	717.7	.86
17	785.7	5.19
18	928.2	1.01
19	944.0	2.21
20	1215.6	.78
21	1291.5	.75
22	1294.7	.60
23	1516.1	2.93
24	1690.6	.81
25	1802.1	1.98
26	1818.7	.84
27	1831.0	6.21
28	1853.3	1.31
29	1890.0	1.16
30	2033.6	1.09
31	2204.7	.59
32	2241.4	.50
33	2279.8	.57
34	2308.1	.38
35	2352.9	.38
36	2370.6	.30
37	2526.5	.27
38	2569.1	.41
39	2606.5	.34
40	2726.8	.29
41	2740.4	.33
42	2802.7	.15
43	2867.0	.45
44	2883.1	.35
45	2926.6	.49
46	2953.5	.38
47	2978.5	.36
48	2995.0	.31

COBALT Z=27 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3049.6	.25
50	3097.7	.26
51	3125.8	.24
52	3194.4	.52
53	3217.0	.53
54	3282.8	.40
55	3334.0	.35
56	3379.4	.80
57	3446.5	.16
58	3561.2	.19
59	3609.0	.20
60	3613.9	.35
61	3663.7	.16
62	3680.9	.39
63	3701.9	.13
64	3749.0	1.34
65	3814.9	.34
66	3842.9	.21
67	3899.5	.59
68	3929.4	.80
69	3966.3	.75
70	3975.7	.24
71	4028.4	1.66
72	4128.2	.11
73	4151.8	.62
74	4207.9	1.00
75	4276.1	.20
76	4329.1	.46
77	4348.8	.20
78	4376.8	.25
79	4394.4	.23
80	4471.0	.11
81	4527.2	.19
82	4546.5	.36
83	4607.1	.85
84	4622.9	.20
85	4645.8	.35
86	4666.8	.14
87	4705.9	.19
88	4731.5	.17
89	4781.4	.25
90	4884.3	.80
91	4905.4	1.86
92	4921.5	1.01
93	5002.4	.55
94	5038.7	.22
95	5069.0	.27
96	5128.1	.35

COBALT Z=27 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

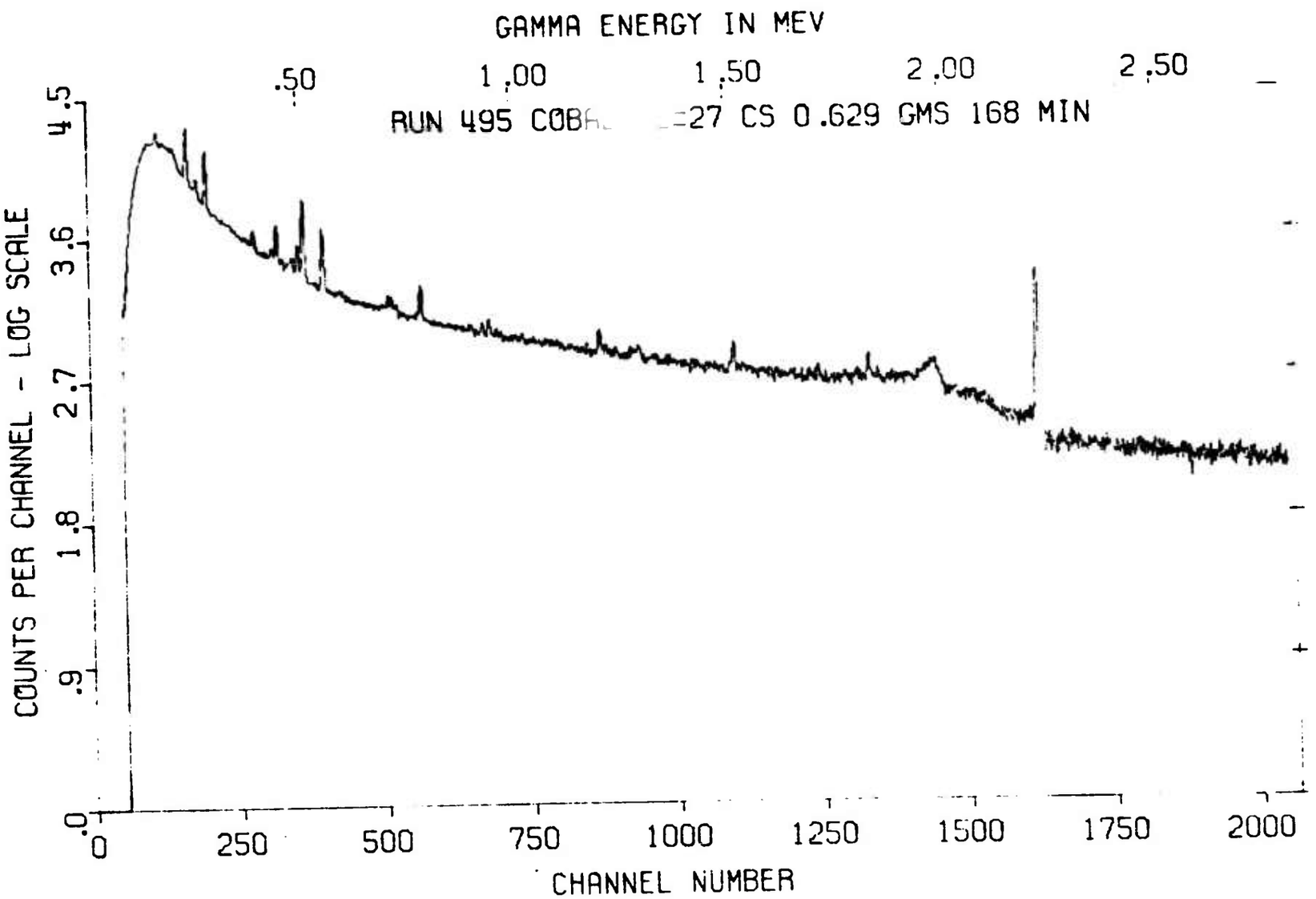
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5148.3	.13
98	5166.5	.38
99	5181.2	2.65
100	5212.6	.40
101	5269.6	1.23
102	5357.9	.44
103	5370.5	.42
104	5509.7	.54
105	5567.2	.26
106	5602.3	1.17
107	5613.6	.99
108	5638.5	1.10
109	5659.7	7.20
110	5702.9	.51
111	5742.2	2.10
112	5849.5	.33
113	5925.1	1.84
114	5975.1	6.83
115	6033.9	.56
116	6109.7	.62
117	6148.9	.28
118	6275.2	.68
119	6282.8	.54
120	6485.9	6.42
121	6537.5	.10
122	6633.7	.11
123	6705.8	7.43
124	6731.6	.19
125	6757.1	.09
126	6875.8	8.21
127	6948.1	.73
128	6984.9	2.97
129	7055.6	1.81
130	7213.7	4.72
131	7433.6	.28
132	7490.8	2.99

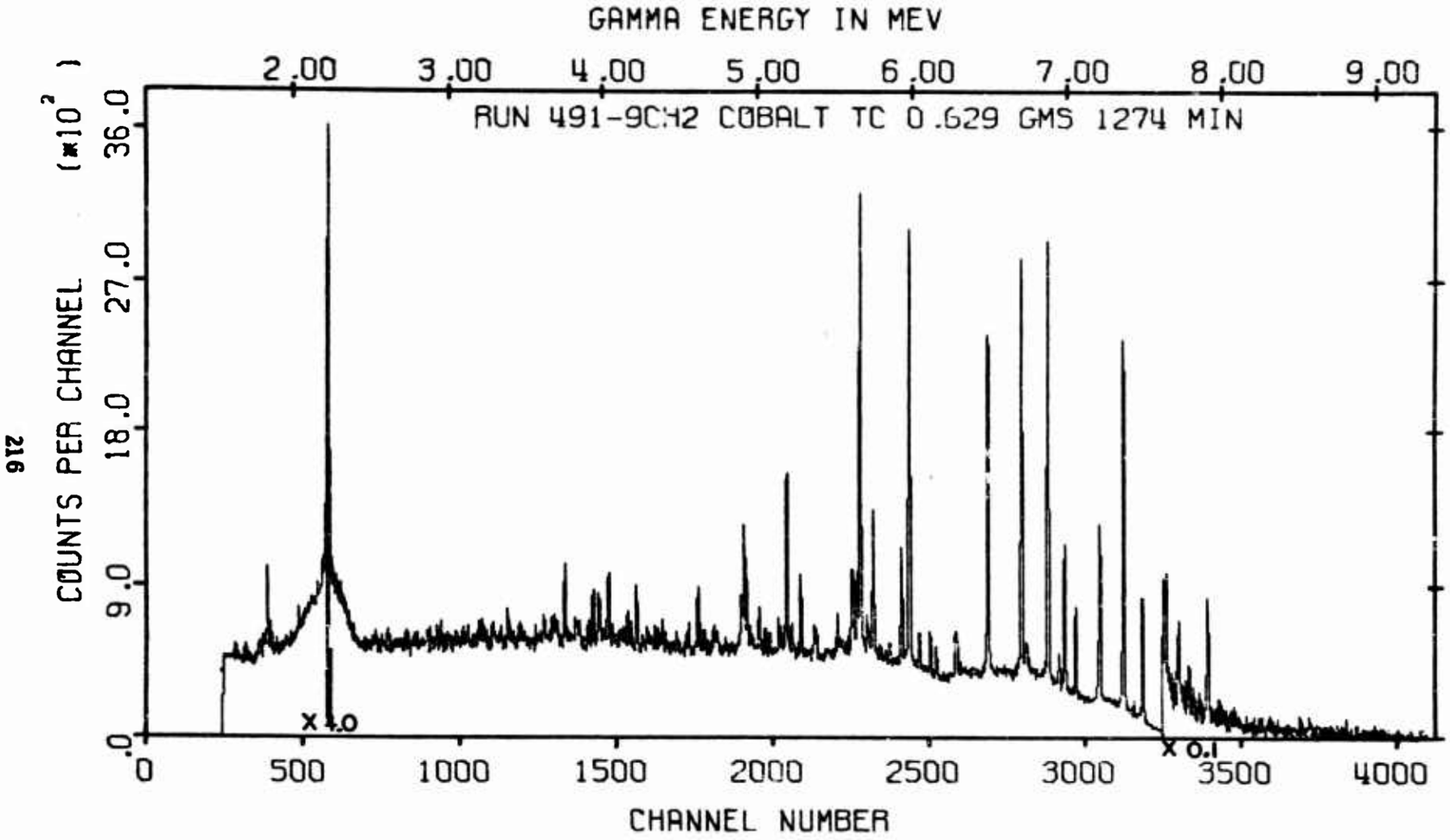
BE(KEV) 7491.0 OBSERVED %BE 93.92 NORMALIZED %BE 100.00

COBALT Z=27 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	25.95	.00	25.95
2	250.0	500.0	44.64	.00	44.64
3	500.0	750.0	14.75	.00	14.75
4	750.0	1000.0	8.40	.00	8.40
5	1000.0	1250.0	.78	.00	.78
6	1250.0	1500.0	1.34	.00	1.34
7	1500.0	1750.0	3.74	1.06	4.80
8	1750.0	2000.0	11.49	2.13	13.62
9	2000.0	2250.0	2.18	3.19	5.37
10	2250.0	2500.0	1.63	1.21	2.85
11	2500.0	2750.0	1.63	1.94	3.57
12	2750.0	3000.0	2.49	1.66	4.15
13	3000.0	3250.0	1.80	2.50	4.31
14	3250.0	3500.0	1.70	2.56	4.25
15	3500.0	3750.0	2.76	1.88	4.64
16	3750.0	4000.0	2.94	1.70	4.64
17	4000.0	4250.0	3.40	1.11	4.51
18	4250.0	4500.0	1.45	1.27	2.72
19	4500.0	4750.0	2.45	1.17	3.62
20	4750.0	5000.0	3.92	.89	4.81
21	5000.0	5250.0	4.94	.89	5.84
22	5250.0	5500.0	2.08	1.27	3.35
23	5500.0	5750.0	13.87	.75	14.61
24	5750.0	6000.0	9.00	.82	9.82
25	6000.0	6250.0	1.46	.73	2.19
26	6250.0	6500.0	7.64	1.47	9.11
27	6500.0	6750.0	7.83	1.42	9.25
28	6750.0	7000.0	12.00	2.12	14.12
29	7000.0	7250.0	6.52	.70	7.23
30	7250.0	7500.0	3.27	.88	4.16
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
BE(KEV)	7491.0	%BE	80.16	19.33	99.49


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 495 COBA
=27 CS 0.629 GMS 168 MIN
COUNTS PER CHANNEL - LOG SCALE
4.5
3.6
2.7
1.8
.9
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 491-9CH2 COBALT TC 0.629 GMS 1274 MIN
COUNTS PER CHANNEL (*10²)
36.0
27.0
18.0
9.0
0.0
X 1.0
X 0.1
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

NICKEL Z = 28 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	252.3	0.78
2	270.1	0.29
3	283.1	3.69
4	294.8	0.10
5	339.5	3.07
6	363.0	0.62
7	465.1	14.32
8	481.0	0.57
9	846.9	1.17
10	877.9	4.26
11	1189.0	1.16
12	1226.8	0.45
13	1301.6	1.52
14	1726.9	0.78
15	1816.6	0.71
16	1841.8	0.44
17	1851.8	0.71
18	1950.3	1.49
19	2093.4	0.29
20	2123.4	0.89
21	2148.1	0.48
22	2255.3	0.28
23	2497.1	0.31
24	2554.1	1.44
25	2577.8	0.24
26	2685.6	0.51
27	2766.3	0.24
28	2842.0	1.25
29	2856.5	0.16
30	2893.6	0.39
31	2967.8	0.21
32	3026.5	0.18
33	3042.1	0.18
34	3133.7	0.15
35	3151.5	0.13
36	3182.4	0.28
37	3221.0	0.21
38	3265.9	0.17
39	3296.0	0.11
40	3349.0	0.21
41	3367.3	0.11
42	3383.0	0.37
43	3504.8	0.24
44	3561.9	0.19
45	3638.2	0.12
46	3675.5	0.41
47	3711.8	0.19
48	3779.3	0.17

NICKEL Z = 28

MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3863.2	0.10
50	3930.0	0.35
51	3972.7	0.09
52	3988.0	0.07
53	4030.3	0.26
54	4050.1	0.33
55	4141.2	0.13
56	4283.6	0.40
57	4405.1	0.14
58	4419.8	0.08
59	4507.7	0.19
60	4588.8	0.20
61	4649.4	0.19
62	4674.6	0.18
63	4713.6	0.12
64	4746.3	0.15
65	4824.5	0.20
66	4858.6	1.17
67	4975.1	0.35
68	5008.2	0.11
69	5067.5	0.11
70	5087.2	0.13
71	5110.8	0.13
72	5145.5	0.23
73	5178.4	0.12
74	5227.0	0.08
75	5267.7	0.49
76	5312.3	1.11
77	5395.5	0.08
78	5436.0	0.55
79	5546.8	0.10
80	5695.4	1.02
81	5780.1	0.08
82	5816.8	2.34
83	5836.7	0.68
84	5924.1	0.10
85	5973.6	0.77
86	6034.1	0.19
87	6061.9	0.09
88	6105.0	2.08
89	6144.0	0.08
90	6156.5	0.15
91	6178.1	0.19
92	6318.7	0.75
93	6368.3	0.10
94	6470.7	0.10
95	6536.6	0.10
96	6555.7	0.13

NICKEL Z = 28

PEAK NO	ENERGY(KEV)	MITNE-85 DATA OBSERVED YIELDS NO OF PHOTONS/100CAPT
97	6583.6	1.95
98	6633.2	0.11
99	6683.6	0.18
100	6716.8	0.24
101	6837.0	11.91
102	6888.4	0.11
103	6901.8	0.11
104	6947.4	0.11
105	6983.1	0.12
106	7438.7	0.17
107	7537.0	4.93
108	7696.8	1.36
109	7818.9	9.04
110	8006.1	0.15
111	8069.2	0.15
112	8120.5	3.47
113	8330.1	0.14
114	8343.6	0.17
115	8533.4	18.74
116	8790.7	0.14
117	8807.2	0.16
118	8820.6	0.14
119	8855.6	0.18
120	8998.8	41.65

BINDING ENERGY = 8520.0 %BE = 110.35

NICKEL Z = 28

MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	252.3	0.71
2	270.1	0.26
3	283.1	3.34
4	294.8	0.09
5	339.5	2.78
6	363.0	0.56
7	465.1	12.98
8	481.0	0.52
9	846.9	1.06
10	877.9	3.86
11	1189.0	1.05
12	1226.8	0.41
13	1301.6	1.38
14	1726.9	0.71
15	1816.6	0.64
16	1841.8	0.40
17	1851.8	0.64
18	1950.3	1.35
19	2093.4	0.26
20	2123.4	0.81
21	2148.1	0.43
22	2255.3	0.25
23	2497.1	0.28
24	2554.1	1.30
25	2577.8	0.22
26	2685.6	0.46
27	2766.3	0.22
28	2842.0	1.13
29	2856.5	0.14
30	2893.6	0.35
31	2967.8	0.19
32	3026.5	0.16
33	3042.1	0.16
34	3133.7	0.14
35	3151.5	0.12
36	3182.4	0.25
37	3221.0	0.19
38	3265.9	0.15
39	3296.0	0.10
40	3349.0	0.19
41	3367.3	0.10
42	3383.0	0.34
43	3504.8	0.22
44	3561.9	0.17
45	3638.2	0.11
46	3675.5	0.37
47	3711.8	0.17
48	3779.3	0.15

NICKEL Z = 28

PEAK NO	ENERGY(KEV)	MITNE-85 DATA NORMALIZED YIELDS NO OF PHOTONS/100CAPT
49	3863.2	0.09
50	3930.0	0.32
51	3972.7	0.08
52	3988.0	0.06
53	4030.3	0.24
54	4050.1	0.30
55	4141.2	0.12
56	4283.6	0.36
57	4405.1	0.13
58	4419.8	0.07
59	4507.7	0.17
60	4588.8	0.18
61	4649.4	0.17
62	4674.6	0.16
63	4713.6	0.11
64	4746.3	0.14
65	4824.5	0.18
66	4858.6	1.06
67	4975.1	0.32
68	5008.2	0.10
69	5067.5	0.10
70	5087.2	0.12
71	5110.8	0.12
72	5145.5	0.21
73	5178.4	0.11
74	5227.0	0.07
75	5267.7	0.44
76	5312.3	1.01
77	5395.5	0.07
78	5436.0	0.50
79	5546.8	0.09
80	5695.4	0.92
81	5780.1	0.07
82	5816.8	2.12
83	5836.7	0.62
84	5924.1	0.09
85	5973.6	0.70
86	6034.1	0.17
87	6061.9	0.08
88	6105.0	1.88
89	6144.0	0.07
90	6156.5	0.14
91	6178.1	0.17
92	6318.7	0.68
93	6368.3	0.09
94	6470.7	0.09
95	6536.6	0.09
96	6555.7	0.12

NICKEL Z = 28 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6583.6	1.77
98	6633.2	0.10
99	6683.6	0.16
100	6716.8	0.22
101	6837.0	10.79
102	6888.4	0.10
103	6901.8	0.10
104	6947.4	0.10
105	6983.1	0.11
106	7438.7	0.15
107	7537.0	4.47
108	7696.8	1.23
109	7818.9	8.19
110	8006.1	0.14
111	8069.2	0.14
112	8120.5	3.14
113	8330.1	0.13
114	8343.6	0.15
115	8533.4	16.98
116	8790.7	0.13
117	8807.2	0.14
118	8820.6	0.13
119	8855.6	0.16
120	8998.8	37.74

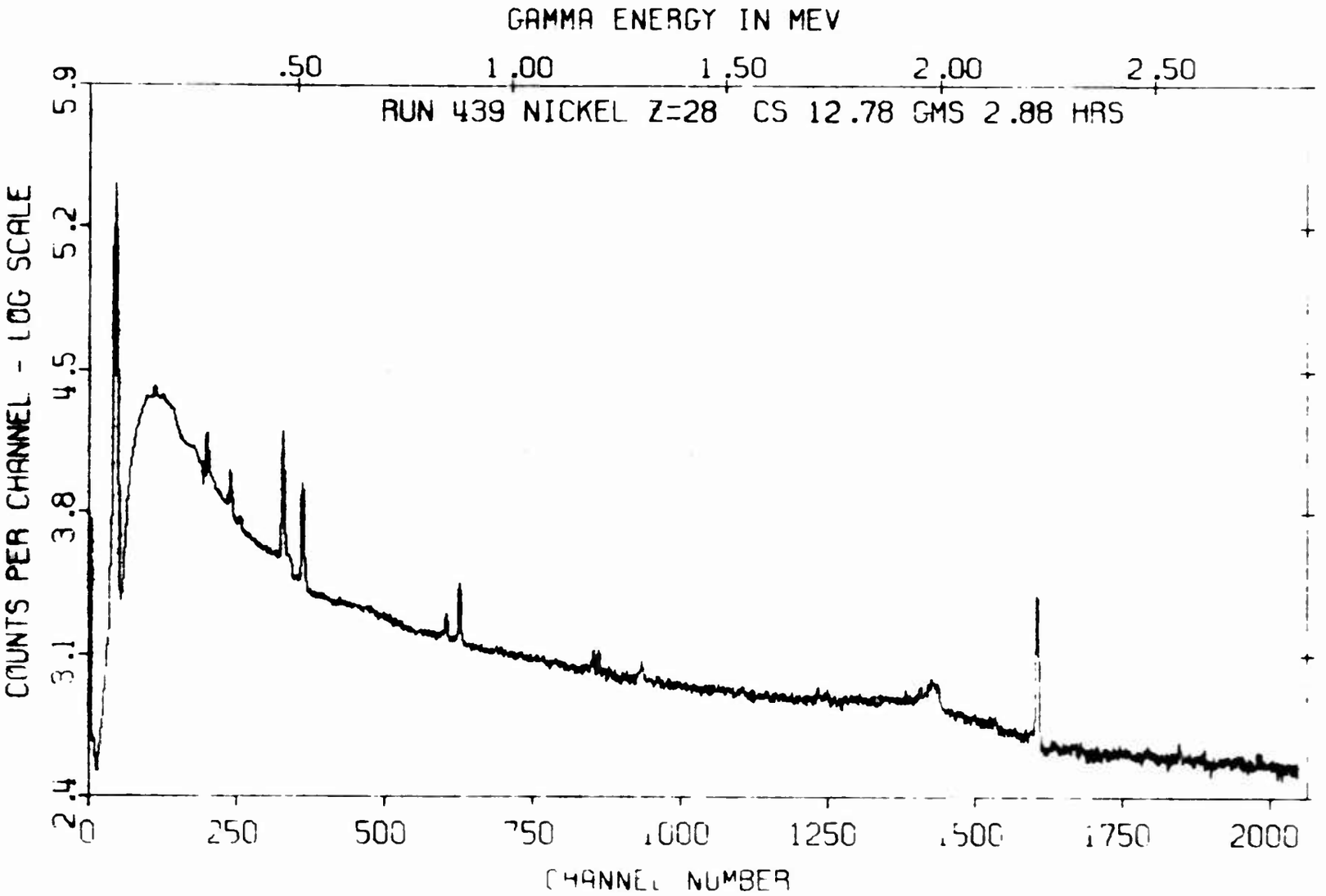
BE(KEV) 8520.0 OBSERVED %BE 110.35 NORMALIZED %BE 100.00

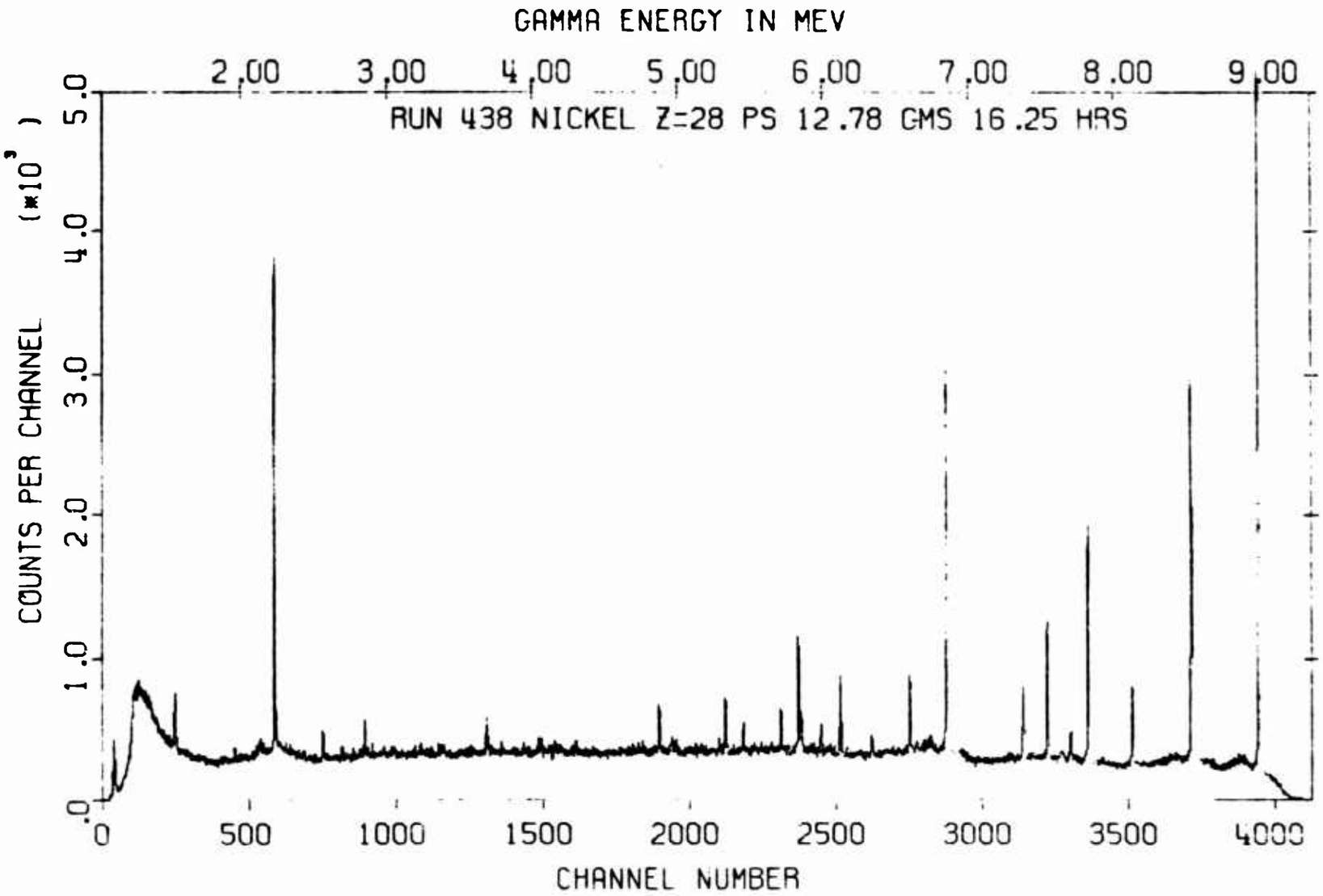
NICKEL Z = 28 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	21.24
3	500.0	750.0	0.0
4	750.0	1000.0	4.92
5	1000.0	1250.0	1.46
6	1250.0	1500.0	1.38
7	1500.0	1750.0	0.71
8	1750.0	2000.0	3.04
9	2000.0	2250.0	1.50
10	2250.0	2500.0	0.53
11	2500.0	2750.0	1.98
12	2750.0	3000.0	2.04
13	3000.0	3250.0	1.02
14	3250.0	3500.0	0.88
15	3500.0	3750.0	1.04
16	3750.0	4000.0	0.71
17	4000.0	4250.0	0.65
18	4250.0	4500.0	0.56
19	4500.0	4750.0	0.93
20	4750.0	5000.0	1.56
21	5000.0	5250.0	0.82
22	5250.0	5500.0	2.02
23	5500.0	5750.0	1.01
24	5750.0	6000.0	3.60
25	6000.0	6250.0	2.52
26	6250.0	6500.0	0.86
27	6500.0	6750.0	2.46
28	6750.0	7000.0	11.20
29	7000.0	7250.0	0.0
30	7250.0	7500.0	0.15
31	7500.0	7750.0	5.70
32	7750.0	8000.0	8.19
33	8000.0	8250.0	3.42
34	8250.0	8500.0	0.28
35	8500.0	8750.0	16.98
36	8750.0	9000.0	38.31
37	9000.0	9250.0	0.0

BE(KEV) 8520.0 BIN NORMALIZED %BE 99.73


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 439 NICKEL Z=28 CS 12.78 GMS 2.88 HRS
COUNTS PER CHANNEL - LOG SCALE
5.9
5.2
4.5
3.8
3.1
2.4
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 438 NICKEL Z=28 PS 12.78 GMS 16.25 HRS
COUNTS PER CHANNEL (*10³)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

COPPER Z = 29 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.1	6.64
2	278.3	30.12
3	316.2	0.76
4	343.9	5.03
5	385.2	6.98
6	394.9	0.33
7	423.2	0.39
8	449.4	1.02
9	466.2	5.50
10	494.2	0.36
11	579.8	2.68
12	608.9	7.94
13	619.1	0.77
14	648.4	2.40
15	662.9	1.73
16	768.1	0.87
17	878.1	1.14
18	961.4	0.66
19	1138.6	1.07
20	1159.6	0.90
21	1672.4	1.16
22	1744.8	1.02
23	1834.3	0.62
24	1853.3	0.77
25	2136.1	0.42
26	2439.8	0.28
27	2465.5	0.36
28	2497.6	0.70
29	2572.2	0.37
30	2656.9	0.39
31	2699.9	0.32
32	2731.0	0.45
33	2797.7	0.18
34	2859.8	0.19
35	2932.4	0.30
36	2950.2	0.25
37	3053.7	0.41
38	3140.2	0.24
39	3174.7	0.21
40	3279.8	0.20
41	3317.2	0.53
42	3413.7	0.13
43	3435.0	0.31
44	3483.8	0.13
45	3509.8	0.16
46	3561.2	0.17
47	3591.0	0.55
48	3616.7	0.12

COPPER Z = 29 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3728.7	0.16
50	3755.5	0.23
51	3777.7	0.19
52	3818.7	0.12
53	3844.4	0.46
54	3885.5	0.14
55	3900.7	0.11
56	4032.8	0.14
57	4020.3	0.13
58	3920.8	0.59
59	3937.4	0.14
60	3983.4	0.12
61	4089.0	0.13
62	4114.6	0.22
63	4144.8	0.22
64	4201.5	0.34
65	4285.8	0.20
66	4297.3	0.10
67	4320.8	1.42
68	4385.6	0.48
69	4477.4	0.58
70	4502.9	0.83
71	4562.1	0.40
72	4585.9	0.10
73	4604.9	0.71
74	4658.2	0.64
75	4690.0	0.09
76	4705.5	0.09
77	4733.0	0.49
78	4781.0	0.34
79	4804.3	0.12
80	4841.8	0.14
81	4868.4	0.09
82	4902.8	0.32
83	4982.8	0.13
84	5018.4	0.37
85	5043.8	1.33
86	5084.0	0.41
87	5139.8	0.11
88	5151.9	0.14
89	5188.0	1.09
90	5244.9	0.50
91	5258.6	0.43
92	5319.4	1.00
93	5417.7	2.02
94	5449.2	0.21
95	5527.7	0.15
96	5556.0	0.29

COPPER Z = 29 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5614.6	0.28
98	5835.2	0.30
99	5771.6	0.54
100	5849.6	0.10
101	5893.9	0.12
102	6010.4	1.49
103	6048.8	0.14
104	6063.0	0.41
105	6133.6	0.23
106	6167.1	0.11
107	6224.6	0.16
108	6244.1	0.18
109	6320.2	0.28
110	6349.4	0.10
111	6393.4	1.09
112	6471.2	0.31
113	6575.6	0.14
114	6599.5	2.21
115	6617.5	0.71
116	6678.0	3.91
117	6790.3	0.37
118	6832.8	0.11
119	6987.8	2.99
120	7037.0	0.18
121	7063.6	0.46
122	7176.1	2.33
123	7251.9	3.41
124	7277.6	0.16
125	7306.2	7.45
126	7571.3	1.42
127	7636.6	14.47
128	7755.3	1.29
129	7766.0	0.20
130	7914.5	28.40

BINDING ENERGY = 7750.0 %BE = 92.14

COPPER Z = 29		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.1	7.21
2	278.3	32.69
3	316.2	0.82
4	343.9	5.46
5	385.2	7.58
6	394.9	0.36
7	423.2	0.42
8	449.4	1.11
9	466.2	5.97
10	494.2	0.39
11	579.8	2.91
12	608.9	8.62
13	619.1	0.84
14	648.4	2.60
15	662.9	1.88
16	768.1	0.94
17	878.1	1.24
18	961.4	0.72
19	1138.6	1.16
20	1159.6	0.98
21	1672.4	1.26
22	1744.8	1.11
23	1834.3	0.67
24	1853.3	0.84
25	2136.1	0.46
26	2439.8	0.30
27	2465.5	0.39
28	2497.6	0.76
29	2572.2	0.40
30	2656.9	0.42
31	2699.9	0.35
32	2731.0	0.49
33	2797.7	0.20
34	2859.8	0.21
35	2932.4	0.33
36	2950.2	0.27
37	3053.7	0.44
38	3140.2	0.26
39	3174.7	0.23
40	3279.8	0.22
41	3317.2	0.58
42	3413.7	0.14
43	3435.0	0.34
44	3483.8	0.14
45	3509.8	0.17
46	3561.2	0.18
47	3591.0	0.60
48	3616.7	0.13

COPPER Z = 29 NITNE-05 DATA [redacted]SEC YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3728.7	0.17
50	3755.5	0.25
51	3777.7	0.21
52	3818.7	0.13
53	3844.4	0.50
54	3885.5	0.15
55	3900.7	0.12
56	4032.8	0.15
57	4020.3	0.14
58	3920.8	0.64
59	3937.4	0.15
60	3983.4	0.13
61	4089.0	0.14
62	4114.6	0.24
63	4144.8	0.24
64	4201.5	0.37
65	4285.8	0.22
66	4297.3	0.11
67	4320.8	1.54
68	4385.6	0.52
69	4477.4	0.63
70	4502.9	0.90
71	4562.1	0.43
72	4585.9	0.11
73	4604.9	0.77
74	4658.2	0.69
75	4690.0	0.10
76	4705.5	0.10
77	4733.0	0.53
78	4781.0	0.37
79	4804.3	0.13
80	4841.8	0.15
81	4868.4	0.10
82	4902.8	0.35
83	4982.8	0.14
84	5018.4	0.40
85	5043.8	1.44
86	5084.0	0.44
87	5139.8	0.12
88	5151.9	0.15
89	5188.0	1.18
90	5244.9	0.54
91	5258.6	0.47
92	5319.4	1.09
93	5417.7	2.19
94	5449.2	0.23
95	5527.7	0.16
96	5556.0	0.31

COPPER Z = 29 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5614.6	0.30
98	5635.2	0.33
99	5771.6	0.59
100	5849.6	0.11
101	5893.9	0.13
102	6010.4	1.62
103	6048.8	0.15
104	6063.0	0.44
105	6133.6	0.25
106	6167.1	0.12
107	6224.6	0.17
108	6244.1	0.20
109	6320.2	0.30
110	6349.4	0.11
111	6393.4	1.18
112	6471.2	0.34
113	6575.6	0.15
114	6599.5	2.40
115	6617.5	0.77
116	6678.0	4.24
117	6790.3	0.40
118	6832.8	0.12
119	6987.8	3.25
120	7037.0	0.20
121	7063.6	0.50
122	7176.1	2.53
123	7251.9	3.70
124	7277.6	0.17
125	7306.2	8.09
126	7571.3	1.54
127	7636.6	15.71
128	7755.3	1.40
129	7766.0	0.22
130	7914.5	30.82

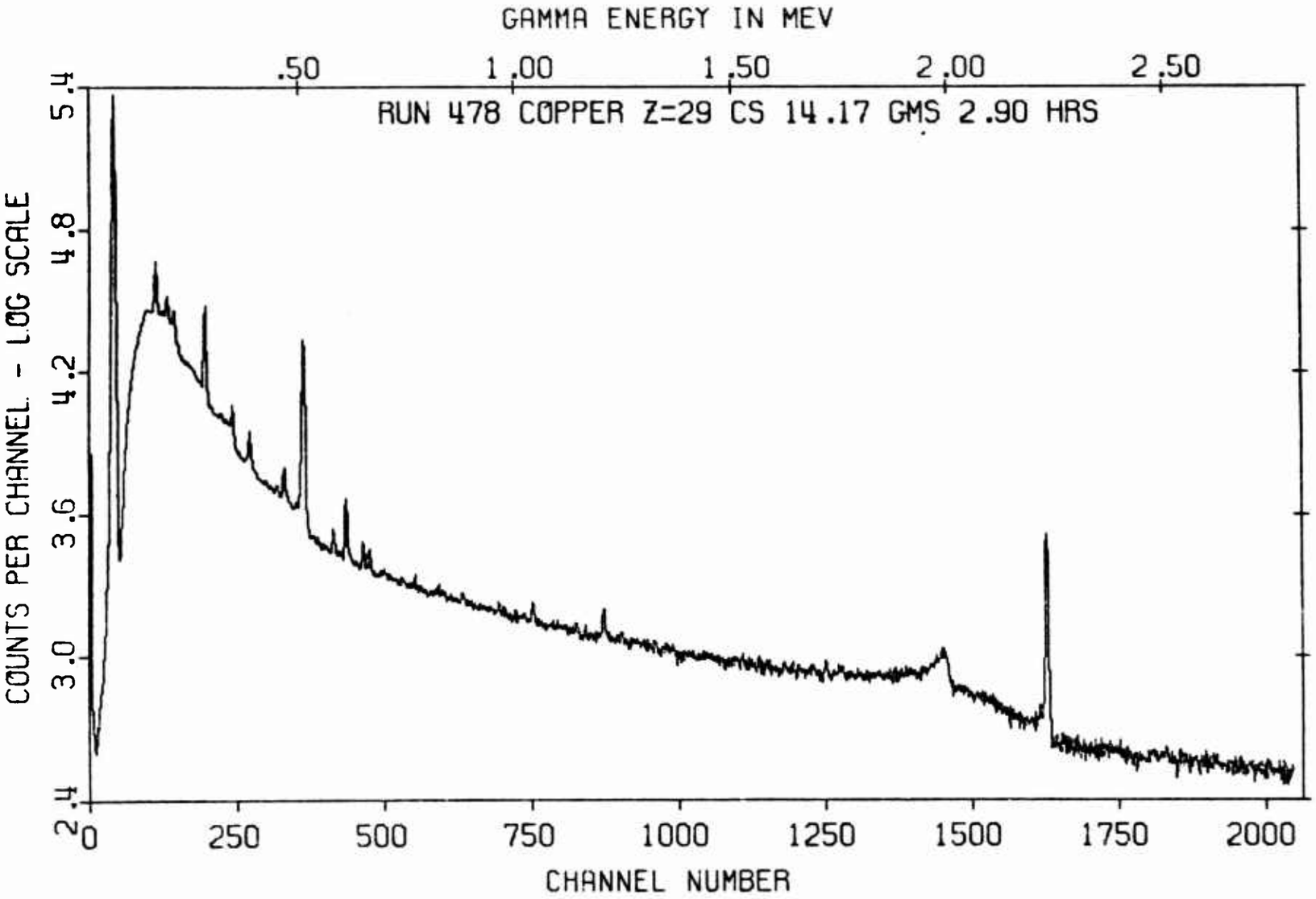
BE(KEV) 7750.0 OBSERVED %BE 92.14 NORMALIZED %BE 100.00

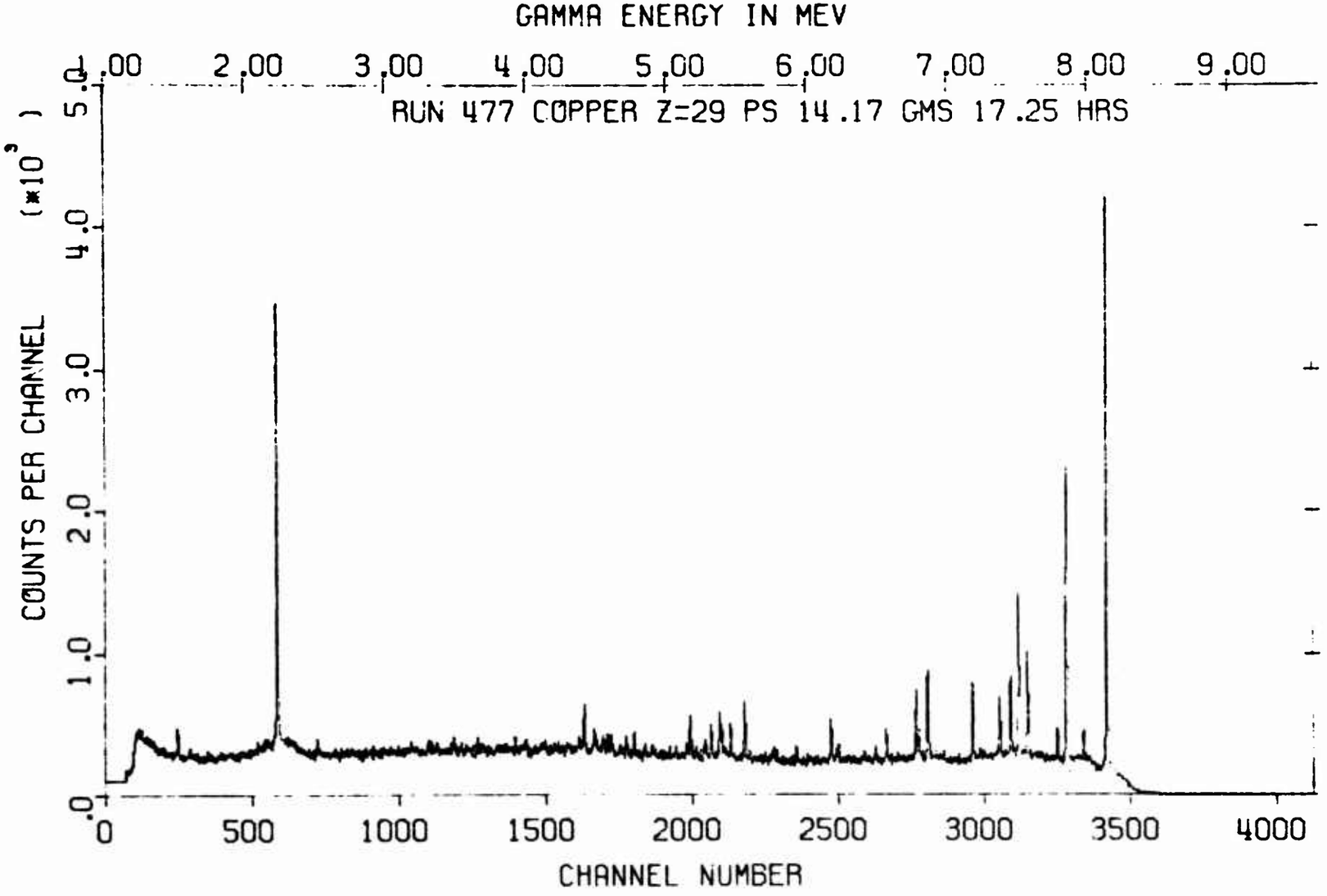
COPPER Z = 29 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	7.21
2	250.0	500.0	54.80
3	500.0	750.0	16.84
4	750.0	1000.0	2.90
5	1000.0	1250.0	2.14
6	1250.0	1500.0	0.0
7	1500.0	1750.0	2.37
8	1750.0	2000.0	1.51
9	2000.0	2250.0	0.46
10	2250.0	2500.0	1.45
11	2500.0	2750.0	1.66
12	2750.0	3000.0	1.00
13	3000.0	3250.0	0.93
14	3250.0	3500.0	1.41
15	3500.0	3750.0	1.26
16	3750.0	4000.0	1.36
17	4000.0	4250.0	2.20
18	4250.0	4500.0	3.02
19	4500.0	4750.0	3.64
20	4750.0	5000.0	1.24
21	5000.0	5250.0	4.29
22	5250.0	5500.0	3.97
23	5500.0	5750.0	1.11
24	5750.0	6000.0	0.82
25	6000.0	6250.0	2.95
26	6250.0	6500.0	1.93
27	6500.0	6750.0	7.56
28	6750.0	7000.0	3.77
29	7000.0	7250.0	3.22
30	7250.0	7500.0	11.96
31	7500.0	7750.0	17.25
32	7750.0	8000.0	32.44
33	8000.0	8250.0	0.0

BE(KEV) 7750.0 BIN NORMALIZED %BE 100.24


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 478 COPPER Z=29 CS 14.17 GMS 2.90 HRS
COUNTS PER CHANNEL - LOG SCALE
5.4
4.8
4.2
3.6
3.0
2.4
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 477 COPPER Z=29 PS 14.17 GMS 17.25 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ZINC Z=30 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.9	0.66
2	208.2	0.30
3	221.9	0.22
4	226.7	0.30
5	251.2	0.53
6	270.2	0.72
7	299.9	1.48
8	308.9	0.59
9	434.7	0.47
10	457.0	0.17
11	530.8	1.24
12	578.4	0.49
13	580.0	0.43
14	596.4	0.78
15	752.1	1.69
16	806.6	2.18
17	834.6	2.91
18	909.5	1.13
19	932.8	0.74
20	1007.4	2.98
21	1077.4	20.14
22	1126.7	0.99
23	1262.1	2.07
24	1340.5	2.55
25	1354.5	0.74
26	1618.3	2.13
27	1674.2	2.05
28	1746.3	1.14
29	1883.9	7.22
30	2212.9	3.77
31	2286.8	1.07
32	2345.9	1.27
33	2403.9	0.63
34	2419.4	1.38
35	2650.0	0.36
36	2736.2	0.37
37	2769.2	0.25
38	2858.1	0.75
39	2921.3	0.18
40	3093.5	0.34
41	3136.5	0.17
42	3281.6	0.28
43	3287.5	0.50
44	3331.7	0.36
45	3340.1	0.31
46	3361.1	0.46
47	3398.7	0.25
48	3458.2	0.35

ZINC Z=30 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3586.7	0.37
50	3717.9	0.15
51	3774.8	0.38
52	3833.5	0.24
53	3874.5	0.17
54	3957.3	0.16
55	4028.2	0.30
56	4137.0	1.70
57	4164.1	0.39
58	4390.6	0.19
59	4425.4	0.34
60	4446.8	0.18
61	4582.9	0.45
62	4653.2	0.50
63	4750.9	0.15
64	4756.5	0.16
65	4783.9	0.43
66	4795.0	0.23
67	4828.0	0.72
68	4869.7	0.18
69	4888.3	0.42
70	5035.3	0.18
71	5162.0	0.18
72	5206.4	0.20
73	5246.9	0.42
74	5287.8	0.27
75	5340.8	0.27
76	5404.1	0.14
77	5473.6	3.56
78	5520.2	0.40
79	5559.6	0.99
80	5647.2	0.42
81	5661.7	0.18
82	5685.4	0.13
83	5762.2	0.38
84	5776.6	1.21
85	5786.6	0.43
86	5909.4	0.94
87	5982.6	0.19
88	6037.4	1.13
89	6262.7	0.50
90	6421.2	0.30
91	6481.6	0.97
92	6509.1	0.89
93	6658.2	1.18
94	6703.4	0.40
95	6769.8	1.07
96	6867.5	1.72

ZINC Z=30 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6910.5	1.46
98	6958.5	3.15
99	7069.2	1.37
100	7112.0	1.59
101	7188.7	0.99
102	7963.3	11.26
103	8313.9	0.76
104	9118.2	1.16

BINDING ENERGY = 8120.0 %BE = 50.63 + 55.74 = 106.37

ZINC Z=30 GAMARC CODE MITNE-85 DATA OBSERVED BIN
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		UNRESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	0.0
5	1000.0	1250.0	1.00
6	1250.0	1500.0	4.00
7	1500.0	1750.0	9.00
8	1750.0	2000.0	11.91
9	2000.0	2250.0	14.87
10	2250.0	2500.0	11.91
11	2500.0	2750.0	9.24
12	2750.0	3000.0	8.23
13	3000.0	3250.0	8.72
14	3250.0	3500.0	6.42
15	3500.0	3750.0	5.74
16	3750.0	4000.0	4.81
17	4000.0	4250.0	4.16
18	4250.0	4500.0	4.10
19	4500.0	4750.0	3.98
20	4750.0	5000.0	3.92
21	5000.0	5250.0	2.89
22	5250.0	5500.0	2.97
23	5500.0	5750.0	2.79
24	5750.0	6000.0	1.74
25	6000.0	6250.0	1.25
26	6250.0	6500.0	1.50
27	6500.0	6750.0	2.20
28	6750.0	7000.0	1.66
29	7000.0	7250.0	1.76
30	7250.0	7500.0	1.06
31	7500.0	7750.0	0.71
32	7750.0	8000.0	1.15
33	8000.0	8250.0	0.26
34	8250.0	8500.0	0.10
35	8500.0	8750.0	0.10
36	8750.0	9000.0	0.17
37	9000.0	9250.0	0.02
38	9250.0	9500.0	0.0

BINDING ENERGY = 8120.0 %BE = 50.63 + 55.74 = 106.37

ZINC Z=30 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.9	0.62
2	208.2	0.28
3	221.9	0.20
4	226.7	0.28
5	251.2	0.50
6	270.2	0.67
7	299.9	1.39
8	308.9	0.55
9	434.7	0.44
10	457.0	0.16
11	530.8	1.16
12	578.4	0.46
13	580.0	0.40
14	596.4	0.73
15	752.1	1.59
16	806.6	2.05
17	834.6	2.73
18	909.5	1.07
19	932.8	0.70
20	1007.4	2.80
21	1077.4	18.93
22	1126.7	0.93
23	1262.1	1.95
24	1340.5	2.39
25	1354.5	0.69
26	1618.3	2.01
27	1674.2	1.93
28	1746.3	1.07
29	1883.9	6.79
30	2212.9	3.54
31	2286.8	1.00
32	2345.9	1.20
33	2403.9	0.59
34	2419.4	1.30
35	2650.0	0.34
36	2736.2	0.35
37	2769.2	0.23
38	2858.1	0.71
39	2921.3	0.17
40	3093.5	0.32
41	3136.5	0.16
42	3281.6	0.26
43	3287.5	0.47
44	3331.7	0.34
45	3340.1	0.29
46	3361.1	0.43
47	3398.7	0.23
48	3458.2	0.33

ZINC Z=30 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3596.7	0.35
50	3717.9	0.14
51	3774.8	0.35
52	3833.5	0.22
53	3874.5	0.16
54	3957.3	0.15
55	4028.2	0.28
56	4137.0	1.60
57	4164.1	0.37
58	4390.6	0.17
59	4425.4	0.32
60	4446.8	0.17
61	4582.9	0.42
62	4653.2	0.47
63	4750.9	0.14
64	4756.5	0.15
65	4783.9	0.41
66	4795.0	0.22
67	4828.0	0.68
68	4869.7	0.17
69	4888.3	0.39
70	5035.3	0.17
71	5162.0	0.17
72	5206.4	0.19
73	5246.9	0.39
74	5287.8	0.25
75	5340.8	0.25
76	5404.1	0.13
77	5473.6	3.35
78	5520.2	0.37
79	5559.6	0.93
80	5647.2	0.39
81	5661.7	0.17
82	5685.4	0.12
83	5762.2	0.36
84	5776.6	1.14
85	5786.6	0.41
86	5909.4	0.88
87	5982.6	0.18
88	6037.4	1.07
89	6262.7	0.47
90	6421.2	0.28
91	6481.6	0.91
92	6509.1	0.83
93	6658.2	1.11
94	6703.4	0.38
95	6769.8	1.00
96	6867.5	1.62

ZINC Z=30 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

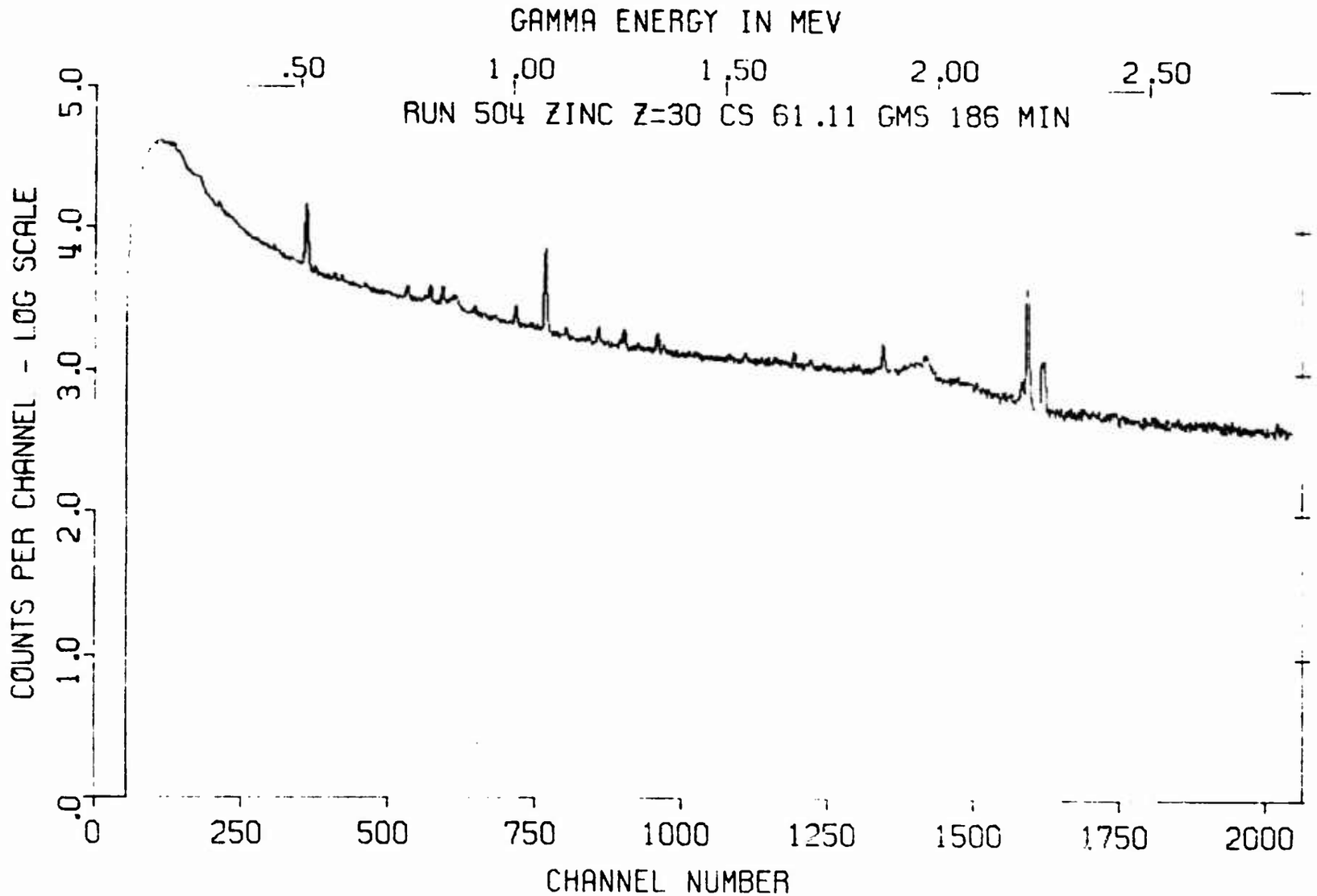
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6910.5	1.37
98	6958.5	2.96
99	7069.2	1.29
100	7112.0	1.49
101	7188.7	0.93
102	7863.3	10.58
103	8313.9	0.71
104	9118.2	1.09

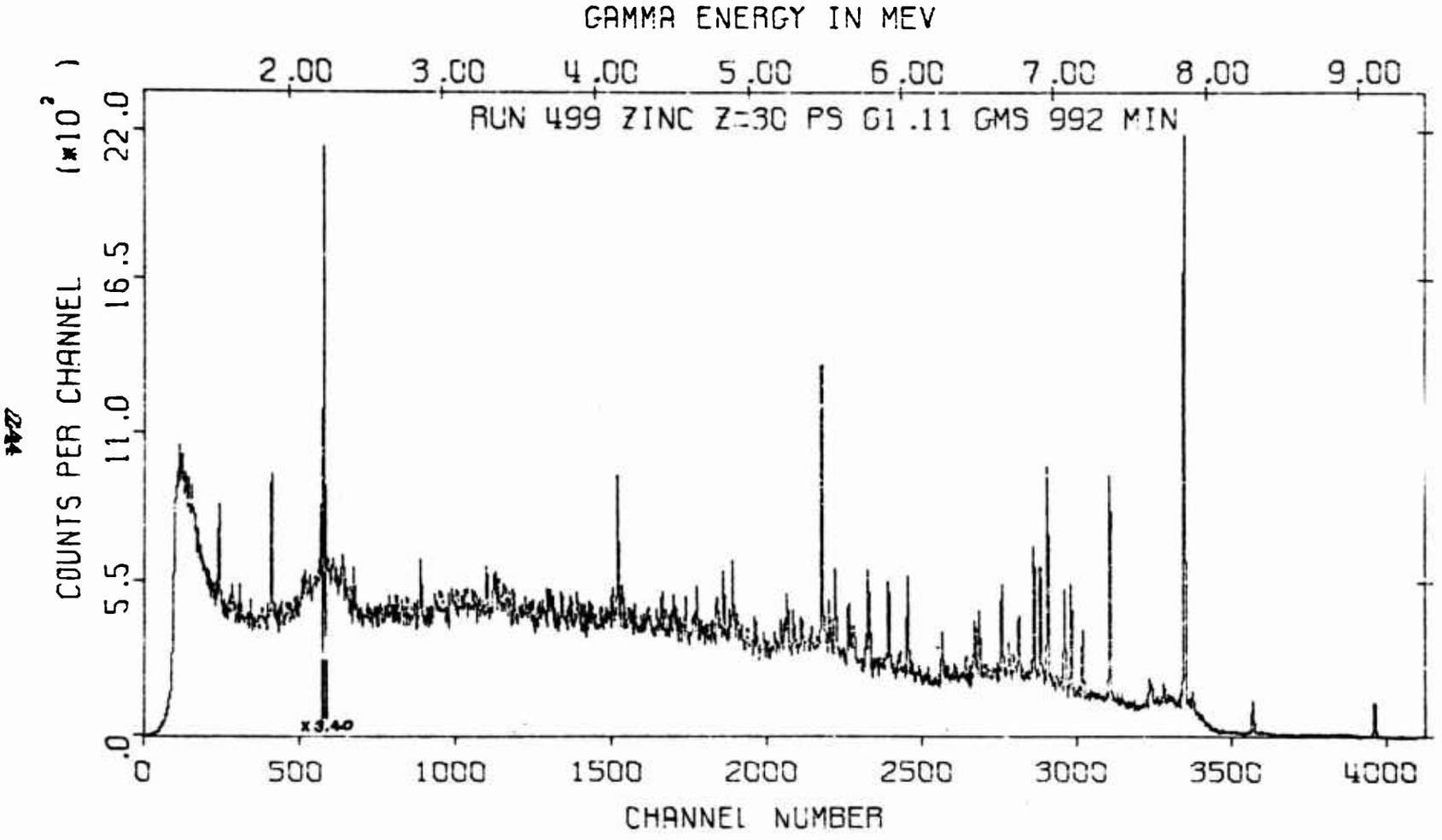
BE(KEV) 8120.0 OBSERVED %BE 106.37 NORMALIZED %BE 100.00

ZINC Z=30 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	1.38	0.0	1.38
2	250.0	500.0	3.72	0.0	3.72
3	500.0	750.0	2.76	0.0	2.76
4	750.0	1000.0	8.14	0.0	8.14
5	1000.0	1250.0	22.67	0.94	23.61
6	1250.0	1500.0	5.04	3.76	8.80
7	1500.0	1750.0	5.01	8.46	13.47
8	1750.0	2000.0	6.79	11.20	17.98
9	2000.0	2250.0	3.54	13.98	17.52
10	2250.0	2500.0	4.09	11.20	15.29
11	2500.0	2750.0	0.69	8.69	9.37
12	2750.0	3000.0	1.11	7.74	8.84
13	3000.0	3250.0	0.48	8.20	8.67
14	3250.0	3500.0	2.36	6.04	8.40
15	3500.0	3750.0	0.49	5.40	5.89
16	3750.0	4000.0	0.89	4.52	5.41
17	4000.0	4250.0	2.25	3.91	6.16
18	4250.0	4500.0	0.66	3.85	4.51
19	4500.0	4750.0	0.89	3.74	4.63
20	4750.0	5000.0	2.17	3.69	5.86
21	5000.0	5250.0	0.92	2.72	3.64
22	5250.0	5500.0	3.99	2.79	6.78
23	5500.0	5750.0	1.99	2.62	4.61
24	5750.0	6000.0	2.98	1.64	4.61
25	6000.0	6250.0	1.07	1.18	2.24
26	6250.0	6500.0	1.66	1.41	3.07
27	6500.0	6750.0	2.32	2.07	4.38
28	6750.0	7000.0	6.95	1.56	8.51
29	7000.0	7250.0	3.72	1.65	5.37
30	7250.0	7500.0	0.0	1.00	1.00
31	7500.0	7750.0	0.0	0.67	0.67
32	7750.0	8000.0	10.58	1.08	11.66
33	8000.0	8250.0	0.0	0.24	0.24
34	8250.0	8500.0	0.71	0.09	0.81
35	8500.0	8750.0	0.0	0.09	0.09
36	8750.0	9000.0	0.0	0.16	0.16
37	9000.0	9250.0	1.09	0.02	1.11
38	9250.0	9500.0	0.0	0.0	0.0
39	9500.0	9750.0	0.0	0.0	0.0
40	9750.0	10000.0	0.0	0.0	0.0
41	10000.0	10250.0	0.0	0.0	0.0
BE(KEV)	8120.0	%BE	47.82	52.40	100.22


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 504 ZINC Z=30 CS 61.11 GMS 186 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 499 ZINC Z=30 PS G1 .11 GMS 992 MIN
COUNTS PER CHANNEL (*10²)
22.0
16.5
11.0
5.5
0.0
x3.40
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

GALLIUM Z = 31 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	213.6	1.85
2	230.9	2.05
3	250.9	8.95
4	267.6	0.65
5	277.5	0.87
6	303.6	2.02
7	319.0	3.31
8	376.6	1.67
9	393.7	6.09
10	411.4	0.87
11	489.1	0.55
12	549.7	0.25
13	560.4	1.48
14	588.1	0.31
15	651.0	3.96
16	659.9	1.18
17	671.3	0.31
18	691.7	10.66
19	710.3	1.03
20	758.3	1.23
21	869.3	0.77
22	903.8	0.30
23	999.3	0.36
24	1140.6	1.45
25	1173.6	0.61
26	1552.1	3.56
27	1839.7	2.07
28	1888.8	2.35
29	1931.7	1.31
30	1949.9	1.00
31	2015.2	1.58
32	2062.5	0.97
33	2116.2	0.81
34	2126.1	0.95
35	2257.0	0.74
36	2269.6	0.95
37	2323.6	0.66
38	2342.5	0.60
39	2351.9	0.65
40	2396.2	0.60
41	2407.4	0.59
42	2453.6	0.53
43	2474.6	0.96
44	2552.0	0.71
45	2576.4	0.85
46	2603.9	0.81
47	2626.5	0.59
48	2640.2	0.79

GALLIUM Z = 31 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2676.0	0.65
50	2692.1	0.66
51	2755.4	0.52
52	2789.2	0.66
53	2852.0	0.45
54	2899.8	0.61
55	2919.4	0.57
56	3038.8	0.49
57	3111.2	0.95
58	3130.9	2.13
59	3158.1	0.45
60	3169.0	0.54
61	3236.7	0.58
62	3270.0	0.37
63	3300.6	0.37
64	3373.4	1.69
65	3420.7	0.62
66	3477.8	0.53
67	3500.7	0.66
68	3524.4	0.84
69	3566.0	0.74
70	3661.7	0.72
71	3687.2	0.97
72	3746.3	0.62
73	3764.3	0.29
74	3777.5	0.41
75	3794.1	0.27
76	3805.2	0.24
77	3842.9	0.28
78	3860.0	1.37
79	3894.8	0.49
80	3944.8	0.91
81	3975.9	0.39
82	3991.6	0.87
83	4013.5	0.37
84	4032.3	0.36
85	4071.0	0.33
86	4085.6	0.32
87	4136.3	0.39
88	4196.0	1.16
89	4311.8	0.66
90	4337.7	0.56
91	4358.1	1.85
92	4431.8	1.51
93	4479.0	0.22
94	4541.8	1.84
95	4575.2	0.41
96	4595.7	1.07

GALLIUM Z = 31 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4627.5	0.72
98	4652.2	0.28
99	4698.9	0.90
100	4723.0	0.36
101	4748.5	0.28
102	4757.4	0.58
103	4792.5	1.15
104	4840.5	3.22
105	4869.7	2.29
106	4890.7	1.21
107	5002.9	0.46
108	5018.5	0.23
109	5055.2	0.63
110	5159.1	1.60
111	5195.0	3.29
112	5221.3	0.46
113	5234.4	1.38
114	5270.0	0.35
115	5301.0	0.31
116	5339.1	6.66
117	5370.4	0.40
118	5408.6	0.29
119	5464.4	0.27
120	5488.2	2.66
121	5541.4	1.67
122	5577.8	0.44
123	5601.5	4.68
124	5625.7	0.43
125	5651.3	0.66
126	5692.4	1.92
127	5718.7	0.59
128	5745.0	0.59
129	5779.6	1.78
130	5806.0	1.02
131	5886.2	0.57
132	5901.4	0.61
133	5920.0	1.90
134	6008.0	5.76
135	6111.4	4.56
136	6129.9	0.79
137	6193.1	1.43
138	6293.2	0.29
139	6318.4	2.41
140	6360.0	12.09
141	6391.5	3.03
142	6512.6	0.27
143	6521.6	0.29
144	7002.7	1.84

GALLIUM Z = 31 MITNE-85 DATA OBSERVED YIELDS
PEAK NO ENERGY(KEV) NO OF PHOTONS/100CAPT
BINDING ENERGY = 6970.0 %BE = 94.60

GALLIUM Z = 31 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	213.6	1.96
2	230.9	2.17
3	250.9	5.46
4	267.6	0.69
5	277.5	0.92
6	303.6	2.14
7	319.0	3.50
8	376.6	1.77
9	393.7	6.44
10	411.4	0.92
11	489.1	0.58
12	549.7	0.26
13	560.4	1.56
14	588.1	0.33
15	651.0	4.19
16	659.9	1.25
17	671.3	0.33
18	691.7	11.27
19	710.3	1.09
20	758.3	1.30
21	869.3	0.81
22	903.8	0.32
23	999.3	0.38
24	1140.6	1.53
25	1173.6	0.64
26	1552.1	3.76
27	1839.7	2.19
28	1888.8	2.48
29	1931.7	1.38
30	1949.9	1.06
31	2015.2	1.67
32	2062.5	1.03
33	2116.2	0.86
34	2126.1	1.00
35	2257.0	0.78
36	2269.6	1.00
37	2323.6	0.70
38	2342.5	0.63
39	2351.9	0.69
40	2396.2	0.63
41	2407.4	0.62
42	2453.6	0.56
43	2474.6	1.01
44	2552.0	0.75
45	2576.4	0.90
46	2603.9	0.86
47	2626.5	0.62
48	2640.2	0.84

GALLIUM Z = 31 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2676.0	0.69
50	2692.1	0.70
51	2755.4	0.55
52	2789.2	0.70
53	2852.0	0.48
54	2899.8	0.64
55	2919.4	0.60
56	3038.8	0.52
57	3111.2	1.00
58	3130.9	2.25
59	3158.1	0.48
60	3169.0	0.57
61	3236.7	0.61
62	3270.0	0.39
63	3300.6	0.39
64	3373.4	1.79
65	3420.7	0.66
66	3477.8	0.56
67	3500.7	0.70
68	3524.4	0.89
69	3566.0	0.78
70	3661.7	0.76
71	3687.2	1.03
72	3746.3	0.66
73	3764.3	0.31
74	3777.5	0.43
75	3794.1	0.29
76	3805.2	0.25
77	3842.9	0.30
78	3860.0	1.45
79	3894.8	0.52
80	3944.8	0.96
81	3975.9	0.41
82	3991.6	0.92
83	4013.5	0.39
84	4032.3	0.38
85	4071.0	0.35
86	4085.6	0.34
87	4136.3	0.41
88	4196.0	1.23
89	4311.8	0.70
90	4337.7	0.59
91	4358.1	1.96
92	4431.8	1.60
93	4479.0	0.23
94	4541.8	1.95
95	4575.2	0.43
96	4595.7	1.13

GALLIUM Z = 31 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4627.5	0.76
98	4652.2	0.30
99	4698.9	0.95
100	4723.0	0.38
101	4748.5	0.30
102	4757.4	0.61
103	4792.5	1.22
104	4840.5	3.40
105	4869.7	2.42
106	4890.7	1.28
107	5002.9	0.49
108	5018.5	0.24
109	5055.2	0.67
110	5159.1	1.69
111	5195.0	3.48
112	5221.3	0.49
113	5234.4	1.46
114	5270.0	0.37
115	5301.0	0.33
116	5339.1	7.04
117	5370.4	0.42
118	5408.6	0.31
119	5464.4	0.29
120	5488.2	2.81
121	5541.4	1.77
122	5577.8	0.47
123	5601.5	4.95
124	5625.7	0.45
125	5651.3	0.70
126	5692.4	2.03
127	5718.7	0.62
128	5745.0	0.62
129	5779.6	1.88
130	5806.0	1.08
131	5886.2	0.60
132	5901.4	0.64
133	5920.0	2.01
134	6008.0	6.09
135	6111.4	4.82
136	6129.9	0.84
137	6193.1	1.51
138	6293.2	0.31
139	6318.4	2.55
140	6360.0	12.78
141	6391.5	3.20
142	6512.6	0.29
143	6521.6	0.31
144	7002.7	1.95

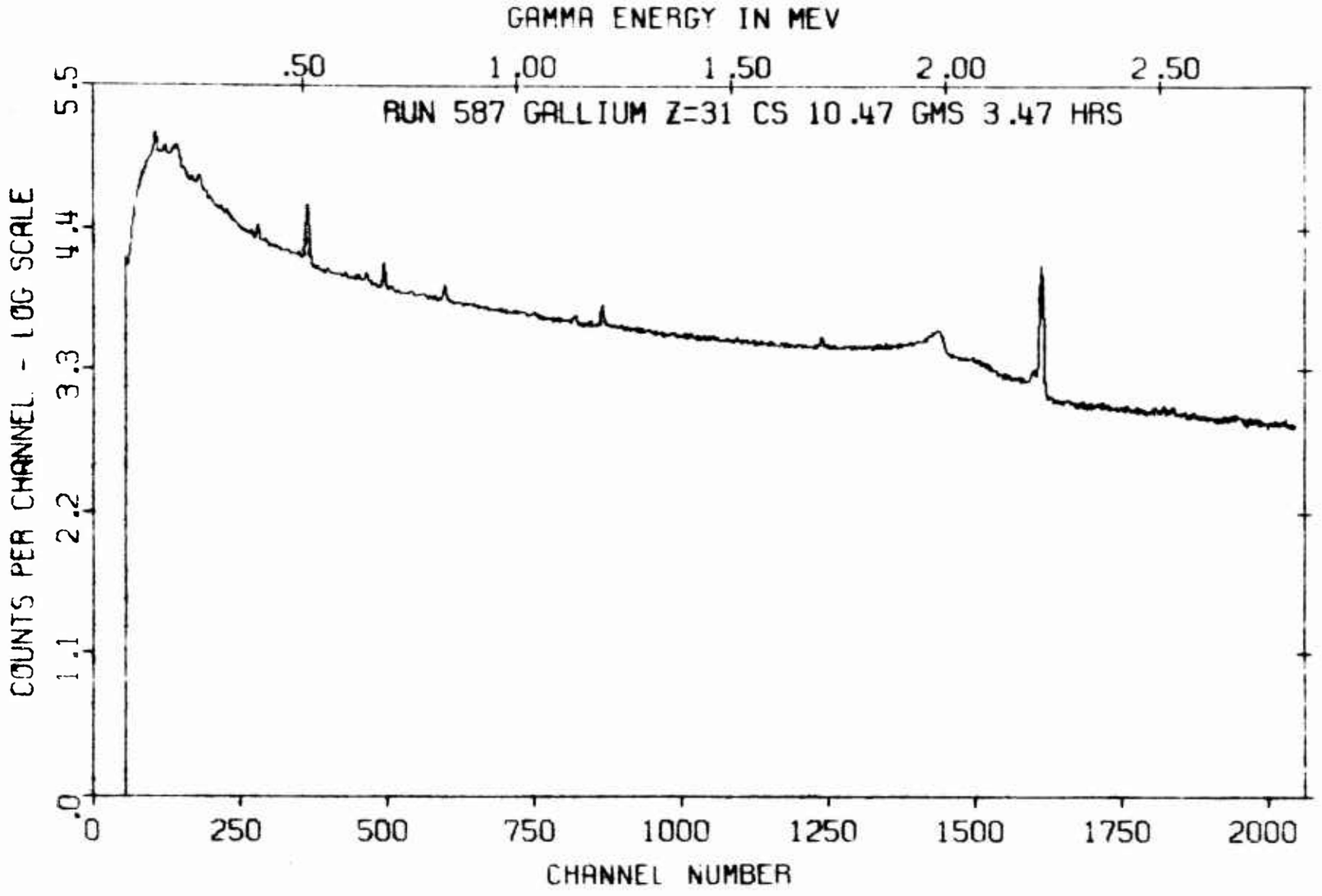
GALLIUM Z = 31 MITNE-85 DATA NORMALIZED YIELDS
PEAK NO ENERGY(KEV) NO OF PHCTCNS/100CAPT
PE(KEV) 6970.0 OBSERVED %BE 94.60 NORMALIZED %BE 100.00

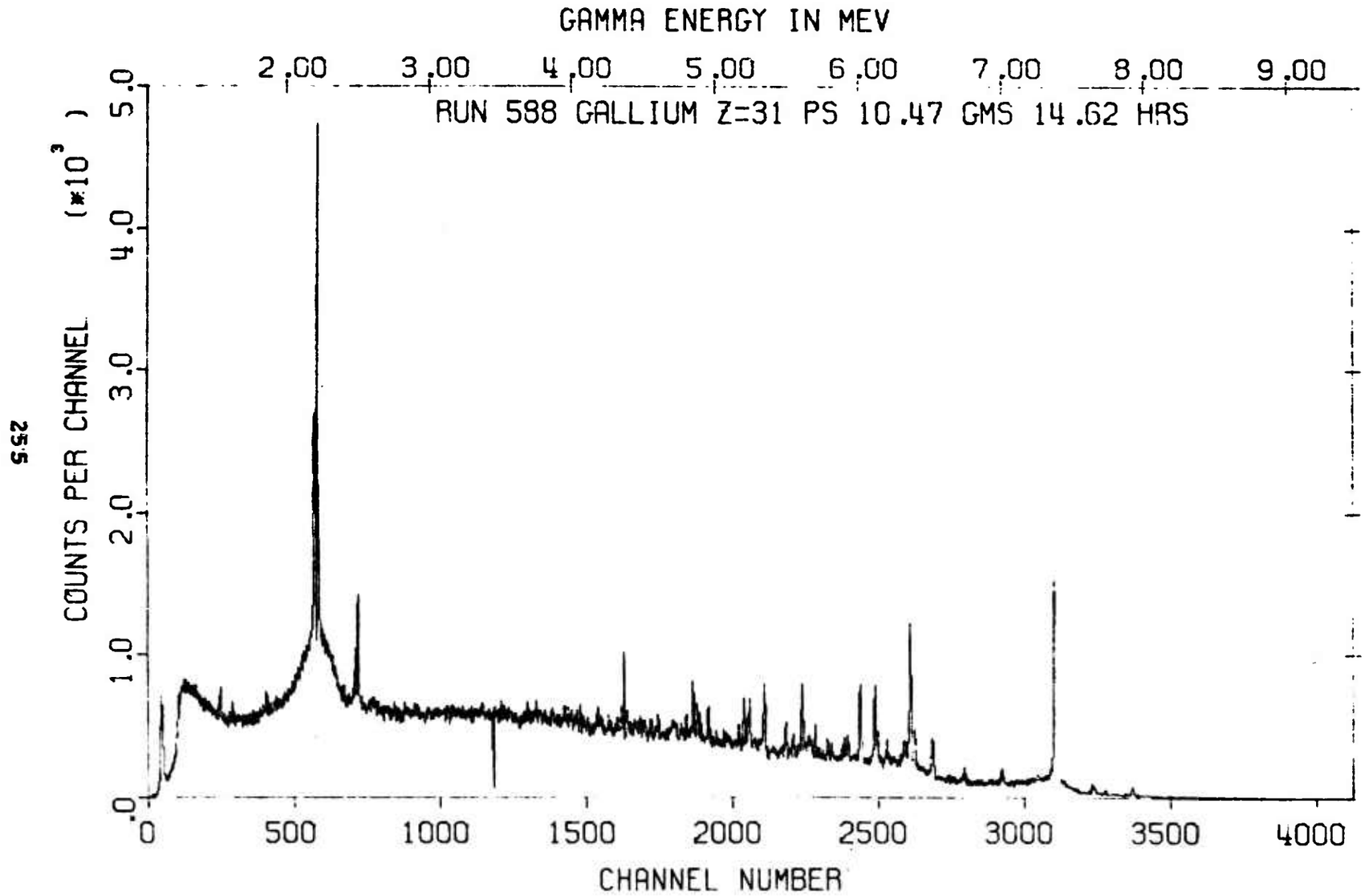
GALLIUM Z = 31 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	4.12
2	250.0	500.0	26.41
3	500.0	750.0	20.28
4	750.0	1000.0	2.81
5	1000.0	1250.0	2.18
6	1250.0	1500.0	0.0
7	1500.0	1750.0	3.76
8	1750.0	2000.0	7.11
9	2000.0	2250.0	4.56
10	2250.0	2500.0	6.64
11	2500.0	2750.0	5.35
12	2750.0	3000.0	2.97
13	3000.0	3250.0	5.43
14	3250.0	3500.0	3.78
15	3500.0	3750.0	4.81
16	3750.0	4000.0	5.84
17	4000.0	4250.0	3.10
18	4250.0	4500.0	5.07
19	4500.0	4750.0	6.19
20	4750.0	5000.0	8.93
21	5000.0	5250.0	8.51
22	5250.0	5500.0	11.56
23	5500.0	5750.0	11.61
24	5750.0	6000.0	6.22
25	6000.0	6250.0	13.26
26	6250.0	6500.0	18.84
27	6500.0	6750.0	0.59
28	6750.0	7000.0	0.0
29	7000.0	7250.0	1.95
30	7250.0	7500.0	0.0

BE(KEV) 6970.0 BIN NORMALIZED %BE 100.30


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 587 GALLIUM Z=31 CS 10.47 GMS 3.47 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
0.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 588 GALLIUM Z=31 PS 10.47 GMS 14.62 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

GERMANIUM Z=32 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	175.1	13.53
2	185.9	.83
3	253.5	5.41
4	262.9	.73
5	283.5	1.15
6	297.4	1.47
7	326.3	5.92
8	492.9	3.37
9	500.2	4.24
10	575.3	4.58
11	596.4	39.33
12	608.9	8.79
13	702.0	1.07
14	704.0	1.07
15	709.1	2.37
16	868.4	17.57
17	960.8	5.46
18	1100.7	7.36
19	1471.4	1.52
20	1470.0	2.45
21	1511.6	1.49
22	1619.5	1.67
23	1940.5	2.40
24	1965.6	.44
25	2013.4	.99
26	2030.7	.31
27	2074.4	.95
28	2292.2	.21
29	2312.0	.29
30	2532.7	.41
31	2563.9	.23
32	2643.0	.17
33	2784.8	.48
34	2953.0	.22
35	3028.0	.47
36	3106.4	.28
37	3210.8	.15
38	3276.3	.18
39	3336.2	.34
40	3373.7	.20
41	3378.8	.17
42	3478.7	.10
43	3551.9	.28
44	3583.3	.31
45	3709.1	.26
46	3830.4	.13
47	3847.9	.38
48	3859.8	.35

GERMANIUM Z=32 GAMA8C CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3895.2	.49
50	3995.4	.18
51	4009.2	.10
52	4035.5	.22
53	4077.4	.13
54	4189.9	.12
55	4220.6	.10
56	4262.6	.18
57	4307.6	.31
58	4338.3	.46
59	4367.7	.12
60	4389.2	.45
61	4438.1	.34
62	4463.4	.23
63	4495.4	.10
64	4513.1	.26
65	4573.6	.09
66	4641.2	.43
67	4685.6	.26
68	4706.7	.56
69	4770.5	.16
70	4811.9	.22
71	4838.9	.09
72	4881.4	.68
73	4951.8	.48
74	4972.6	.24
75	4988.5	.50
76	5002.7	.31
77	5063.6	.42
78	5088.5	.32
79	5161.1	.50
80	5191.5	.10
81	5235.5	.12
82	5266.4	.13
83	5347.7	.28
84	5367.5	.21
85	5383.2	.31
86	5449.8	1.26
87	5518.0	1.32
88	5560.8	.49
89	5620.0	.16
90	5649.6	.27
91	5668.4	.18
92	5739.6	.51
93	5782.7	.24
94	5816.8	1.13
95	6036.3	1.63
96	6092.0	.09

GERMANIUM Z=32 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6115.8	1.77
98	6172.0	.33
99	6199.5	.43
100	6225.5	.14
101	6251.0	.62
102	6279.1	.90
103	6319.0	.58
104	6361.2	.29
105	6389.0	.96
106	6418.2	.51
107	6488.4	.12
108	6505.5	.16
109	6542.4	.12
110	6584.9	.30
111	6680.6	.25
112	6707.8	1.80
113	6785.9	.27
114	6814.3	.29
115	6915.5	1.45
116	7018.3	.17
117	7090.4	.58
118	7221.6	.25
119	7260.0	1.13
120	7415.5	.55
121	7500.3	.24
122	762 .3	.17
123	7725.3	.10
124	8030.9	.52
125	8499.9	.39
126	8733.2	.44

BINDING ENERGY = 8490.8 %BE = 36.27 + 82.53 = 118.80

GERMANIUM Z=32 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	175.1	11.39
2	185.9	.70
3	253.5	4.55
4	262.9	.62
5	283.5	.97
6	297.4	1.24
7	326.3	4.98
8	492.9	2.83
9	500.2	3.57
10	575.3	1.33
11	596.4	33.10
12	608.9	7.40
13	702.0	.90
14	704.0	.90
15	709.1	2.00
16	868.4	14.79
17	960.8	4.60
18	1100.7	6.19
19	1471.4	1.28
20	1470.0	2.06
21	1511.6	1.26
22	1619.5	1.41
23	1940.5	2.02
24	1965.6	.37
25	2013.4	.84
26	2030.7	.26
27	2074.4	.80
28	2292.2	.18
29	2312.0	.25
30	2532.7	.35
31	2563.9	.19
32	2643.0	.14
33	2784.8	.41
34	2953.0	.18
35	3028.0	.39
36	3106.4	.24
37	3210.8	.12
38	3276.3	.15
39	3336.2	.29
40	3373.7	.16
41	3378.8	.14
42	3478.7	.09
43	3551.9	.24
44	3583.3	.26
45	3709.1	.22
46	3830.4	.11
47	3847.9	.32
48	3859.8	.29

GERMANIUM Z=32 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3895.2	.41
50	3995.4	.15
51	4009.2	.09
52	4035.5	.19
53	4077.4	.11
54	4189.9	.10
55	4220.6	.09
56	4262.6	.15
57	4307.6	.26
58	4338.3	.39
59	4367.7	.10
60	4389.2	.38
61	4438.1	.28
62	4463.4	.19
63	4495.4	.08
64	4513.1	.22
65	4573.6	.08
66	4641.2	.36
67	4685.6	.22
68	4706.7	.47
69	4770.5	.13
70	4811.9	.18
71	4838.9	.08
72	4881.4	.58
73	4951.8	.41
74	4972.6	.20
75	4988.5	.42
76	5002.7	.26
77	5063.6	.35
78	5088.5	.27
79	5161.1	.42
80	5191.5	.08
81	5235.5	.10
82	5266.4	.11
83	5347.7	.24
84	5367.5	.18
85	5383.2	.26
86	5449.8	1.06
87	5518.0	1.12
88	5560.8	.42
89	5620.0	.13
90	5649.6	.23
91	5668.4	.15
92	5739.6	.43
93	5782.7	.21
94	5816.8	.95
95	6036.3	1.37
96	6092.0	.08

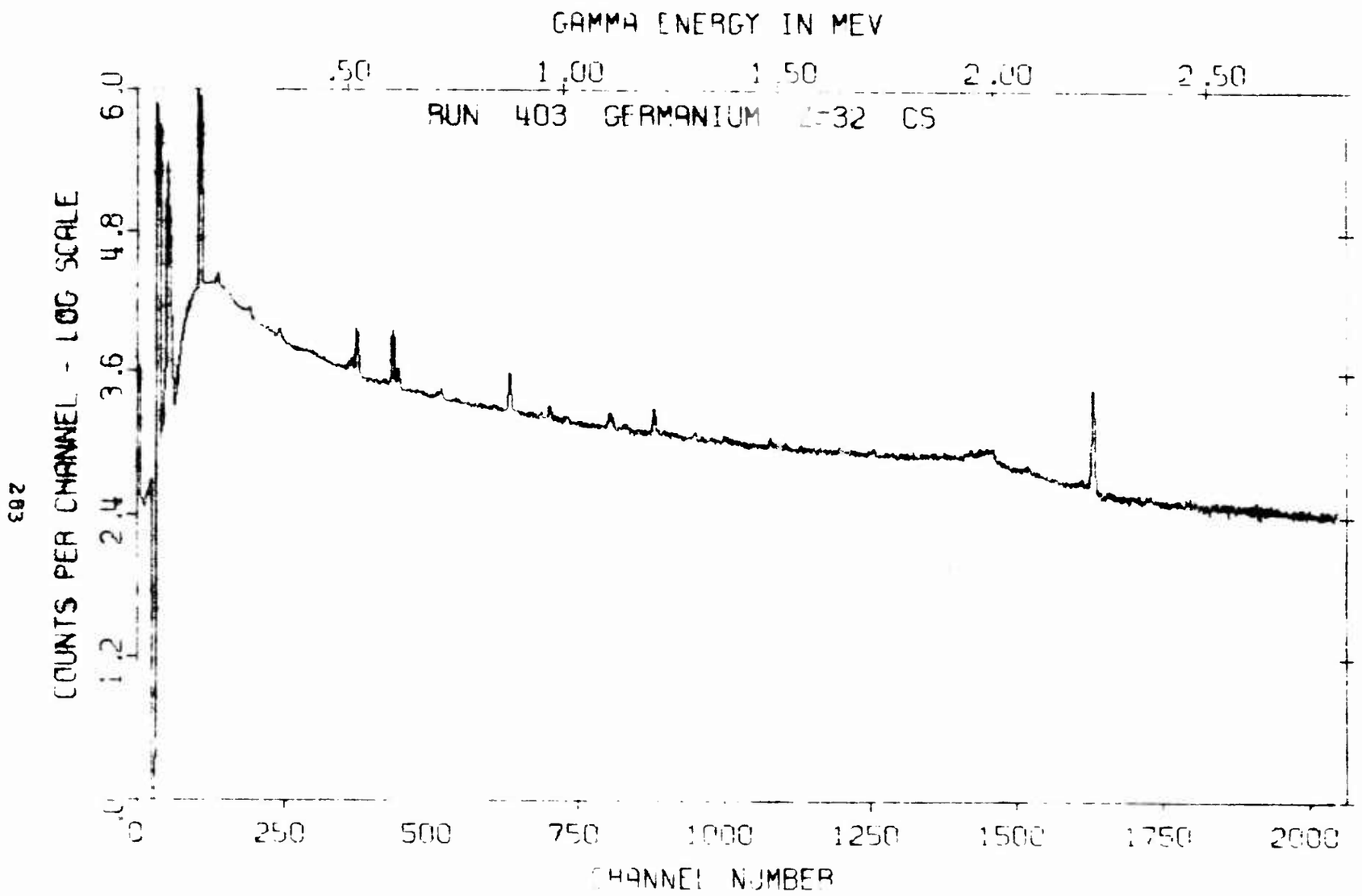
GERMANIUM Z=32 GAMARC CODE MITNE-85 DA NORMALIZED YIELDS

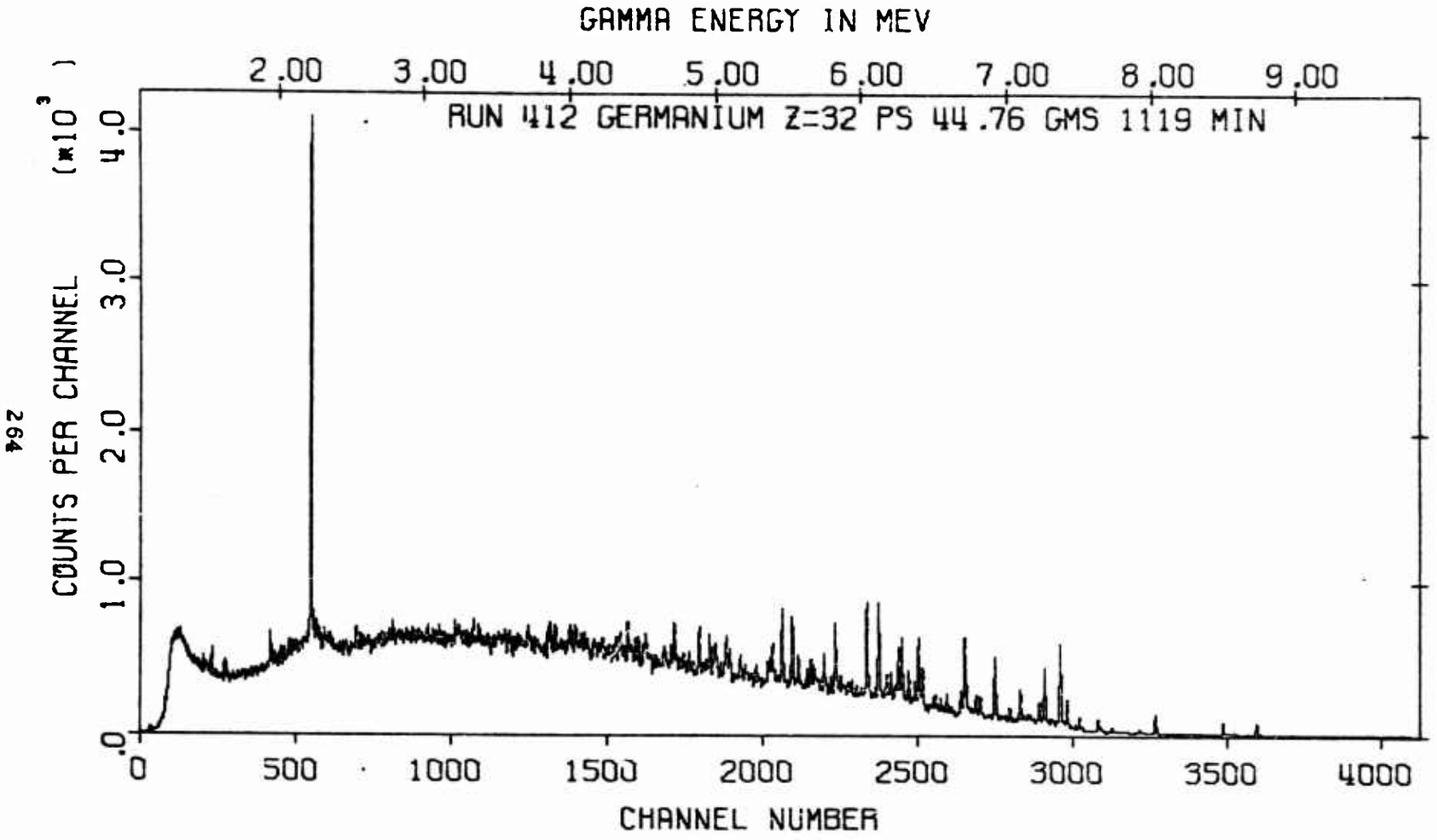
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6115.8	1.49
98	6172.0	.28
99	6199.5	.36
100	6225.5	.12
101	6251.0	.52
102	6274.1	.76
103	6319.0	.49
104	6361.2	.25
105	6389.0	.81
106	6418.2	.43
107	6488.4	.10
108	6505.5	.13
109	6542.4	.10
110	6584.9	.25
111	6680.6	.21
112	6707.8	1.51
113	6785.9	.23
114	6814.3	.25
115	6915.5	1.22
116	7018.3	.17
117	7090.4	.43
118	7221.6	.21
119	7260.0	.95
120	7415.5	.46
121	7500.5	.20
122	7628.3	.14
123	7725.3	.08
124	8030.9	.44
125	8499.9	.32
126	8733.2	.37

BE(KEV) 8490.8 OBSERVED %BE 118.80 NORMALIZED %BE 100.00

GERMANIUM Z=32 GAMABC CODE MITNE-85 DA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	12.09	.00	12.09
2	250.0	500.0	15.19	.00	15.19
3	500.0	750.0	49.20	5.89	55.09
4	750.0	1000.0	19.39	8.42	27.81
5	1000.0	1250.0	6.19	10.10	16.30
6	1250.0	1500.0	3.34	11.78	15.12
7	1500.0	1750.0	2.66	16.34	19.00
8	1750.0	2000.0	2.39	11.36	13.75
9	2000.0	2250.0	1.90	18.64	20.55
10	2250.0	2500.0	.43	15.98	16.40
11	2500.0	2750.0	.68	14.27	14.95
12	2750.0	3000.0	.59	14.28	14.87
13	3000.0	3250.0	.76	11.13	11.88
14	3250.0	3500.0	.83	8.72	9.55
15	3500.0	3750.0	.72	8.08	8.80
16	3750.0	4000.0	1.28	6.74	8.03
17	4000.0	4250.0	.57	6.90	7.48
18	4250.0	4500.0	1.83	5.24	7.07
19	4500.0	4750.0	1.34	4.94	6.28
20	4750.0	5000.0	2.00	3.79	5.79
21	5000.0	5250.0	1.49	3.66	5.15
22	5250.0	5500.0	1.85	3.11	4.96
23	5500.0	5750.0	2.47	3.06	5.53
24	5750.0	6000.0	1.16	2.77	3.93
25	6000.0	6250.0	3.70	2.18	5.88
26	6250.0	6500.0	3.36	2.40	5.75
27	6500.0	6750.0	2.21	1.54	3.75
28	6750.0	7000.0	1.70	.98	2.68
29	7000.0	7250.0	.84	1.07	1.91
30	7250.0	7500.0	1.41	.61	2.03
31	7500.0	7750.0	.42	.53	.96
32	7750.0	8000.0	.00	.18	.18
33	8000.0	8250.0	.44	.07	.51
34	8250.0	8500.0	.32	.07	.39
35	8500.0	8750.0	.37	.18	.54
36	8750.0	9000.0	.00	.02	.02
37	9000.0	9250.0	.00	.01	.01
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
BE(KEV)	8490.8	%BE	30.70	69.47	100.17


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 403 GERMANIUM Z=32 CS
COUNTS PER CHANNEL - LOG SCALE
6.0
4.8
3.6
2.4
1.2
0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 412 GERMANIUM Z=32 PS 44.76 GMS 1119 MIN
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ARSENIC Z=33 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	157.7	2.67
2	164.6	18.95
3	177.9	1.40
4	187.9	1.34
5	199.4	1.24
6	212.0	1.05
7	224.4	1.77
8	236.3	2.69
9	246.2	.53
10	254.6	.56
11	264.6	1.52
12	282.0	1.06
13	340.0	.35
14	352.8	.48
15	356.0	.43
16	379.8	.54
17	402.0	.93
18	427.0	1.21
19	471.9	4.05
20	550.7	.87
21	559.9	1.76
22	596.5	.40
23	820.9	.27
24	1201.4	1.63
25	1273.6	.21
26	1340.5	.29
27	1498.5	.20
28	1534.3	8.09
29	1584.0	1.04
30	1619.6	1.95
31	2205.4	.96
32	2743.0	.18
33	2960.0	.13
34	3275.9	.14
35	3417.0	.15
36	3626.4	.15
37	4156.0	.28
38	4345.9	.25
39	4424.3	.19
40	4499.5	.36
41	4564.5	.15
42	4567.2	.15
43	4693.8	.14
44	4730.4	.27
45	4760.0	.12
46	4782.7	.55
47	4826.3	.13
48	4843.3	.16

ARSENIC Z=33 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CART
49	4893.4	.10
50	4917.6	.13
51	4943.0	.26
52	4959.1	.17
53	4995.7	.38
54	5055.8	.12
55	5080.5	.42
56	5155.8	.45
57	5374.1	.47
58	5416.0	.54
59	5466.7	.17
60	5579.9	.23
61	5613.6	.11
62	5629.6	.08
63	5661.8	.15
64	5674.0	.25
65	5688.2	.08
66	5756.9	.24
67	5778.2	.23
68	5784.9	.28
69	5866.8	.21
70	5985.0	.10
71	6025.8	.31
72	6057.5	.46
73	6096.0	.13
74	6142.6	.23
75	6200.9	.38
76	6222.0	.22
77	6228.4	.32
78	6294.1	1.27
79	6391.9	.47
80	6401.3	.32
81	6418.8	.31
82	6464.2	.20
83	6585.2	.42
84	6782.3	.17
85	6809.4	2.75
86	6926.1	.89
87	6976.3	.14
88	7019.2	2.30
89	7063.1	.61
90	7240.8	.22
91	7282.6	.60

BINDING ENERGY = 7326.0 %BE = 22.12 + 90.55 = 112.67

ARSENIC Z=33 CAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	157.7	2.37
2	164.6	16.82
3	177.9	1.24
4	187.9	1.19
5	199.4	1.10
6	212.0	.93
7	224.4	1.57
8	236.3	2.39
9	246.2	.47
10	254.6	.50
11	264.6	1.35
12	282.0	.94
13	340.0	.31
14	352.8	.42
15	356.0	.39
16	379.8	.48
17	402.0	.82
18	427.0	1.07
19	471.9	3.59
20	550.7	.77
21	559.9	1.56
22	596.5	.36
23	820.9	.24
24	1201.4	1.45
25	1273.6	.19
26	1345.5	.25
27	1498.5	.18
28	1534.3	7.18
29	1584.0	.92
30	1619.6	1.73
31	2205.4	.85
32	2743.0	.16
33	2860.0	.11
34	3275.9	.13
35	3417.0	.13
36	3626.4	.14
37	4156.0	.24
38	4345.9	.22
39	4424.3	.17
40	4499.5	.32
41	4564.5	.13
42	4567.2	.13
43	4693.8	.12
44	4730.4	.24
45	4760.0	.11
46	4782.7	.49
47	4826.3	.12
48	4843.3	.14

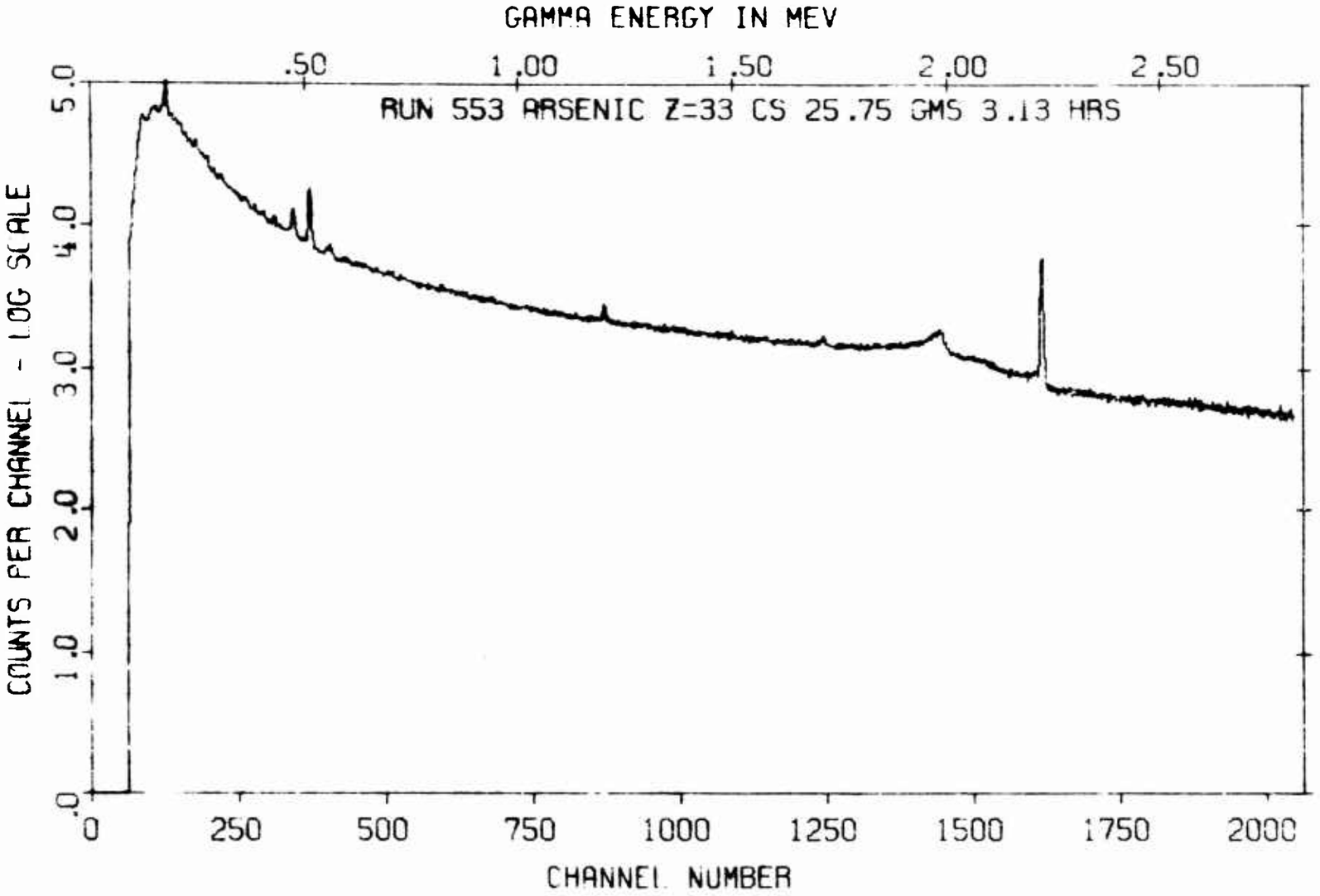
ARSENIC Z=33 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

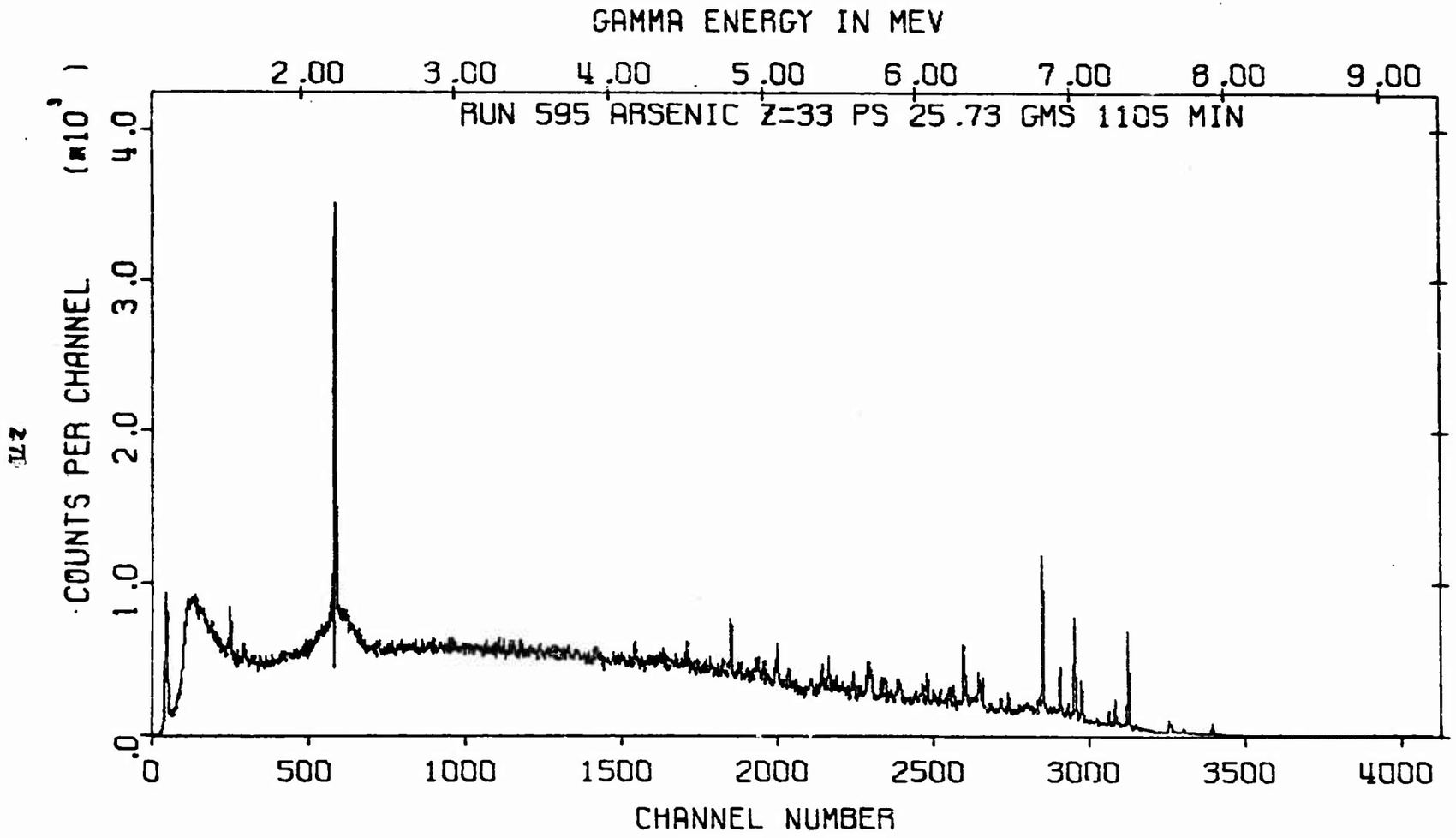
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4893.4	.09
50	4917.6	.11
51	4943.0	.23
52	4959.1	.15
53	4995.7	.33
54	5065.8	.11
55	5080.5	.37
56	5156.8	.40
57	5374.1	.41
58	5415.0	.48
59	5466.7	.15
60	5579.9	.20
61	5613.6	.10
62	5629.6	.07
63	5661.6	.13
64	5674.0	.22
65	5688.2	.07
66	5756.9	.21
67	5778.2	.20
68	5794.9	.25
69	5866.8	.18
70	5905.0	.09
71	6025.6	.27
72	6057.5	.41
73	6096.0	.12
74	6142.6	.21
75	6200.9	.34
76	6222.0	.20
77	6228.4	.29
78	6294.1	1.12
79	6391.9	.42
80	6401.3	.28
81	6418.6	.27
82	6464.2	.18
83	6585.2	.38
84	6782.3	.15
85	6809.4	2.44
86	6926.1	.79
87	6976.3	.12
88	7019.2	2.04
89	7063.1	.54
90	7240.8	.20
91	7282.6	.53

BE(KEV) 7326.0 OBSERVED %BE 112.67 NORMALIZED %BE 100.00

ARSENIC Z=33 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	28.09	.00	28.09
2	250.0	500.0	9.87	.00	9.87
3	500.0	750.0	2.70	.00	2.70
4	750.0	1000.0	.24	4.44	4.68
5	1000.0	1250.0	1.45	15.98	17.43
6	1250.0	1500.0	.62	22.19	22.81
7	1500.0	1750.0	9.83	25.97	35.80
8	1750.0	2000.0	.00	18.61	18.61
9	2000.0	2250.0	.85	21.11	21.96
10	2250.0	2500.0	.00	18.59	18.59
11	2500.0	2750.0	.16	14.06	14.22
12	2750.0	3000.0	.11	12.69	12.81
13	3000.0	3250.0	.00	9.37	9.37
14	3250.0	3500.0	.26	7.80	8.06
15	3500.0	3750.0	.14	6.65	6.78
16	3750.0	4000.0	.00	5.87	5.87
17	4000.0	4250.0	.24	5.17	5.41
18	4250.0	4500.0	.71	5.15	5.86
19	4500.0	4750.0	.62	4.20	4.82
20	4750.0	5000.0	1.78	3.84	5.63
21	5000.0	5250.0	.88	2.79	3.67
22	5250.0	5500.0	1.04	2.76	3.80
23	5500.0	5750.0	.80	2.63	3.42
24	5750.0	6000.0	.94	2.18	3.12
25	6000.0	6250.0	1.83	1.43	3.25
26	6250.0	6500.0	2.28	2.11	4.39
27	6500.0	6750.0	.38	1.54	1.92
28	6750.0	7000.0	3.50	1.57	5.07
29	7000.0	7250.0	2.77	.99	3.77
30	7250.0	7500.0	.53	.74	1.27
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
BE(KEV)	7325.0	%BE	19.56	80.37	99.93


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 553 ARSENIC Z=33 CS 25.75 GMS 3.13 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 595 ARSENIC Z=33 PS 25.73 GMS 1105 MIN
COUNTS PER CHANNEL (*10³)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	175.9	.14
2	182.6	.15
3	187.6	.12
4	199.4	2.21
5	238.9	11.90
6	249.8	1.59
7	281.0	.38
8	286.1	.89
9	297.4	.99
10	332.7	.17
11	367.0	.16
12	439.7	.81
13	467.8	.32
14	484.3	1.22
15	520.0	8.68
16	568.6	.53
17	574.0	.35
18	578.9	1.01
19	595.6	.18
20	613.9	11.31
21	645.4	.40
22	661.7	.12
23	695.7	1.54
24	756.0	.50
25	817.5	.89
26	886.5	2.21
27	947.2	.39
28	991.7	.25
29	1003.8	.53
30	1080.0	.16
31	1142.9	.17
32	1146.2	.20
33	1162.7	.57
34	1187.1	.37
35	1196.3	.23
36	1239.9	.47
37	1296.5	.88
38	1308.9	1.36
39	1383.6	.46
40	1714.4	.67
41	2394.4	.55
42	2764.1	.45
43	1715.0	1.33
44	1772.4	.29
45	1922.7	.43
46	1995.7	1.29
47	2283.3	.35
48	2392.3	.28

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2520.8	.21
50	2613.3	.41
51	2674.2	.31
52	2721.0	.37
53	2749.2	.24
54	2770.9	.36
55	2810.8	.18
56	2873.4	.61
57	2941.9	.13
58	2982.3	.24
59	3041.3	.16
60	3072.3	.39
61	3175.8	.12
62	3186.5	.38
63	3215.1	.16
64	3242.6	.09
65	3331.8	.08
66	3386.1	.26
67	3413.1	.16
68	3440.6	.24
69	3448.2	.13
70	3467.4	.16
71	3482.1	.45
72	3517.3	.16
73	3536.8	.13
74	3551.7	.26
75	3588.9	.27
76	3601.4	.08
77	3624.2	.34
78	3635.5	.23
79	3646.9	.09
80	3681.6	.17
81	3688.7	.28
82	3702.2	.25
83	3749.7	.13
84	3775.5	.21
85	3858.4	.43
86	3872.0	.25
87	3880.8	.28
88	3902.0	.44
89	3909.9	.19
90	3946.8	.41
91	3969.9	.56
92	4005.0	.29
93	4022.2	.12
94	4034.0	.10
95	4108.1	.14
96	4174.9	.35

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4186.0	.25
98	4227.1	.11
99	4243.6	.08
100	4333.8	.14
101	4354.2	.16
102	4378.8	.29
103	4412.7	.09
104	4435.5	.18
105	4504.5	.10
106	4526.6	.76
107	4545.7	.22
108	4565.2	1.37
109	4608.9	.51
110	4641.6	.20
111	4701.9	.17
112	4778.4	.12
113	4926.6	.28
114	4961.9	.15
115	4975.7	.07
116	5026.3	1.04
117	5079.7	.14
118	5099.7	.20
119	5154.4	.31
120	5169.8	.10
121	5205.3	.23
122	5243.7	.07
123	5276.9	.09
124	5371.3	.08
125	5404.0	.04
126	5502.4	.19
127	5574.7	.09
128	5601.1	2.19
129	5704.2	.26
130	5775.5	.06
131	5795.5	.80
132	5807.5	.16
133	5812.9	.15
134	5905.8	.15
135	5968.5	.10
136	5987.5	.16
137	6007.3	2.80
138	6049.7	.25
139	6155.9	.09
140	6232.3	1.14
141	6244.1	.22
142	6315.3	.22
143	6342.6	.12
144	6413.8	1.20

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6438.2	.07
146	6499.7	.34
147	6601.0	4.31
148	6762.9	.08
149	6811.3	.16
150	6867.0	.12
151	6869.5	.13
152	6905.6	.07
153	6973.9	.07
154	7113.7	.27
155	7179.3	1.66
156	7208.4	.34
157	7254.7	.08
158	7327.3	.12
159	7418.7	4.61
160	7491.9	.59
161	7597.8	.06
162	7660.1	.04
163	7734.1	.82
164	7960.4	.10
165	8166.1	.72
166	8501.1	.32
167	9181.6	1.04

BINDING ENERGY = 8201.0 %BE = 36.34 + 111.35 = 147.69

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	175.9	.09
2	182.6	.10
3	187.6	.08
4	199.4	1.50
5	238.9	8.06
6	249.8	1.08
7	281.0	.25
8	286.1	.60
9	297.4	.67
10	332.7	.11
11	367.0	.11
12	439.7	.55
13	467.8	.22
14	484.3	.83
15	520.0	5.88
16	568.6	.36
17	574.0	.24
18	578.9	.68
19	595.6	.12
20	613.9	7.66
21	645.4	.27
22	661.7	.08
23	695.7	1.04
24	756.0	.34
25	817.5	.60
26	886.5	1.50
27	947.2	.27
28	991.7	.17
29	1003.8	.36
30	1080.0	.11
31	1142.9	.11
32	1146.2	.14
33	1162.7	.39
34	1187.1	.25
35	1196.3	.16
36	1239.9	.32
37	1296.5	.59
38	1308.9	.92
39	1383.6	.31
40	1714.4	.45
41	2394.4	.37
42	2764.1	.30
43	1715.0	.90
44	1772.4	.20
45	1922.7	.29
46	1995.7	.87
47	2283.3	.23
48	2392.3	.19

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2520.8	.14
50	2613.3	.28
51	2674.2	.21
52	2721.0	.25
53	2749.2	.17
54	2770.9	.24
55	2810.8	.13
56	2873.4	.42
57	2941.9	.09
58	2982.3	.17
59	3041.3	.11
60	3072.3	.27
61	3175.8	.08
62	3186.5	.26
63	3215.1	.11
64	3242.6	.06
65	3331.8	.06
66	3386.1	.18
67	3413.1	.11
68	3440.6	.16
69	3448.2	.09
70	3467.4	.11
71	3482.1	.31
72	3517.3	.11
73	3536.8	.09
74	3551.7	.18
75	3588.9	.18
76	3601.4	.06
77	3624.2	.23
78	3635.5	.16
79	3646.9	.06
80	3681.6	.12
81	3688.7	.19
82	3702.2	.17
83	3749.7	.09
84	3775.5	.14
85	3858.4	.29
86	3872.0	.17
87	3880.8	.19
88	3902.0	.30
89	3909.9	.13
90	3946.8	.28
91	3969.9	.38
92	4005.0	.19
93	4022.2	.08
94	4034.0	.07
95	4108.1	.10
96	4174.9	.24

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4186.0	.17
98	4227.1	.08
99	4243.6	.06
100	4338.8	.10
101	4354.2	.11
102	4378.8	.20
103	4412.7	.06
104	4435.5	.12
105	4504.5	.07
106	4526.6	.51
107	4545.7	.15
108	4565.2	.93
109	4608.9	.35
110	4641.6	.13
111	4701.9	.11
112	4778.4	.08
113	4926.6	.19
114	4961.9	.10
115	4975.7	.05
116	5026.3	.71
117	5079.7	.10
118	5099.7	.14
119	5154.4	.21
120	5169.8	.07
121	5205.3	.16
122	5243.7	.05
123	5276.9	.06
124	5371.3	.05
125	5404.0	.02
126	5502.4	.13
127	5574.7	.06
128	5601.1	1.49
129	5704.2	.18
130	5775.5	.04
131	5795.5	.54
132	5807.5	.11
133	5812.9	.10
134	5905.8	.10
135	5968.5	.07
136	5987.5	.11
137	6007.3	1.90
138	6049.7	.17
139	6155.9	.06
140	6232.3	.77
141	6244.1	.15
142	6315.3	.15
143	6342.6	.08
144	6413.8	.81

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

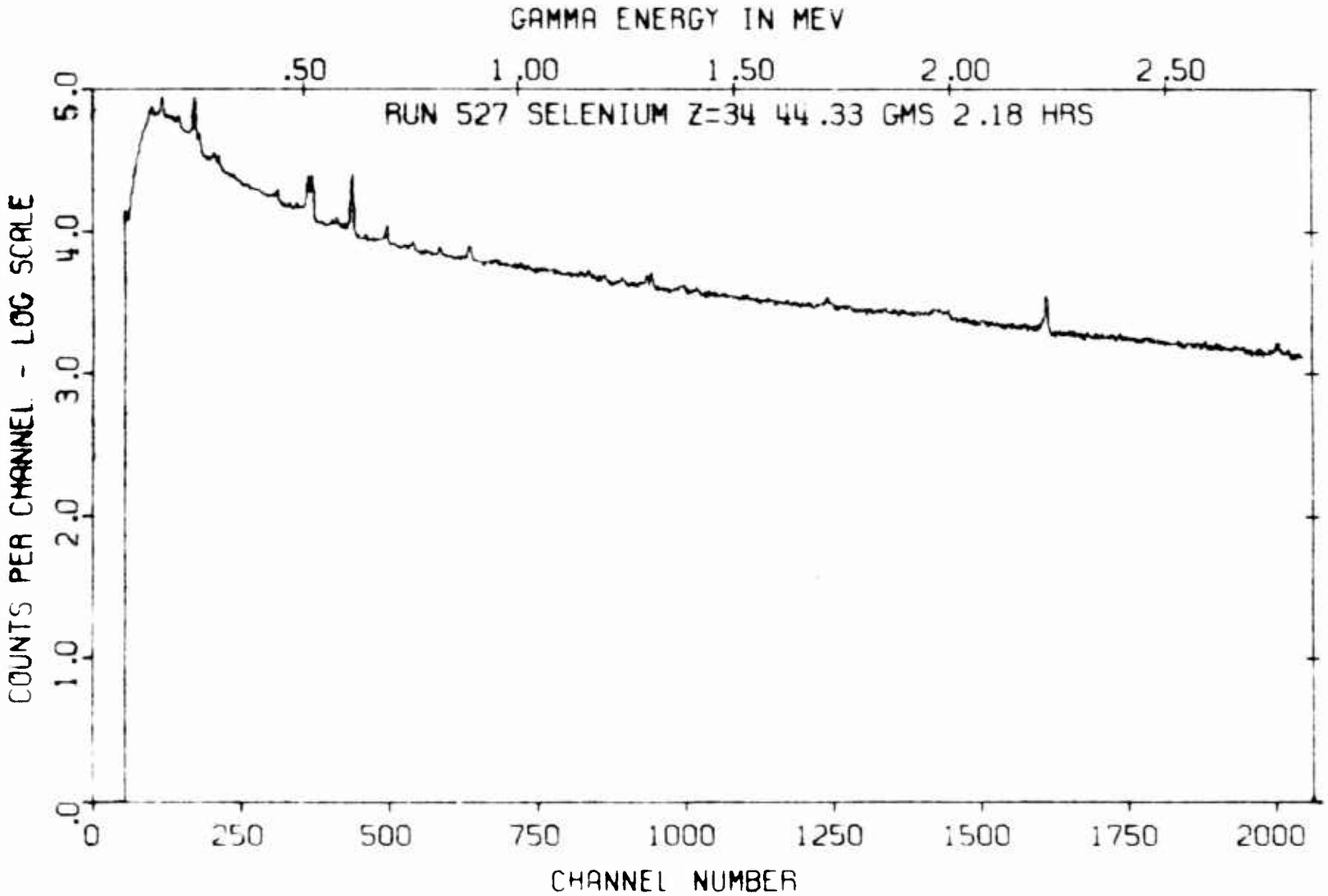
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6438.2	.05
146	6499.7	.23
147	6601.0	2.92
148	6762.9	.06
149	6811.3	.11
150	6867.0	.08
151	6869.5	.09
152	6905.6	.05
153	6973.9	.05
154	7113.7	.18
155	7179.3	1.12
156	7208.4	.23
157	7254.7	.05
158	7327.3	.08
159	7418.7	3.12
160	7491.9	.40
161	7597.8	.04
162	7660.1	.03
163	7734.1	.56
164	7960.4	.07
165	8165.1	.49
166	8501.1	.22
167	9181.6	.71

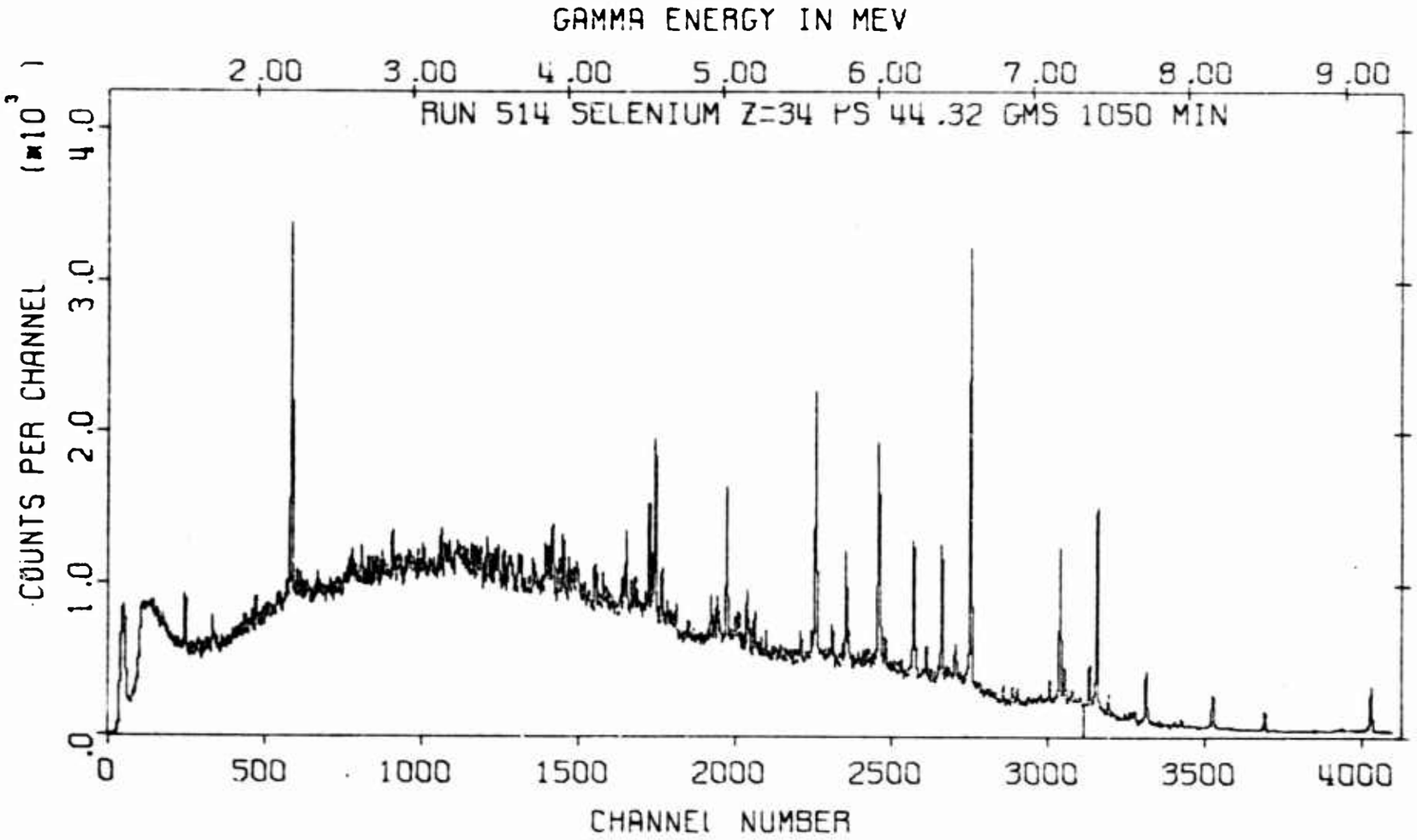
BE(KEV) 8201.0 OBSERVED %BE 147.69 NORMALIZED %BE 100.00

SELENIUM Z=34 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	10.92	.00	10.92
2	250.0	500.0	3.35	.00	3.35
3	500.0	750.0	16.33	.00	16.33
4	750.0	1000.0	2.88	8.46	11.34
5	1000.0	1250.0	1.83	16.93	18.76
6	1250.0	1500.0	1.83	22.34	24.18
7	1500.0	1750.0	.45	26.59	27.04
8	1750.0	2000.0	.00	17.62	17.62
9	2000.0	2250.0	.00	18.09	18.09
10	2250.0	2500.0	.37	16.36	16.73
11	2500.0	2750.0	.00	14.89	14.89
12	2750.0	3000.0	5.07	13.43	18.50
13	3000.0	3250.0	.89	11.14	12.02
14	3250.0	3500.0	1.02	9.82	10.84
15	3500.0	3750.0	1.61	7.23	8.84
16	3750.0	4000.0	1.87	6.47	8.35
17	4000.0	4250.0	.98	5.84	6.82
18	4250.0	4500.0	.58	5.16	5.74
19	4500.0	4750.0	2.25	4.30	6.55
20	4750.0	5000.0	.42	3.39	3.82
21	5000.0	5250.0	1.42	3.17	4.59
22	5250.0	5500.0	.14	2.25	2.39
23	5500.0	5750.0	1.85	2.48	4.34
24	5750.0	6000.0	1.07	2.33	3.40
25	6000.0	6250.0	3.05	2.32	5.37
26	6250.0	6500.0	1.32	2.19	3.51
27	6500.0	6750.0	2.92	2.02	4.94
28	6750.0	7000.0	.43	1.04	1.47
29	7000.0	7250.0	1.53	1.57	3.10
30	7250.0	7500.0	3.65	-.85	2.80
31	7500.0	7750.0	.63	-.04	.59
32	7750.0	8000.0	.07	.53	.59
33	8000.0	8250.0	.49	.42	.91
34	8250.0	8500.0	.00	.33	.33
35	8500.0	8750.0	.22	.34	.56
36	8750.0	9000.0	.00	.69	.69
37	9000.0	9250.0	.71	-.12	.58
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
41	10000.0	10250.0	.00	.00	.00
	BE(KEV)	8201.0	%E 24.88	75.39	100.28


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 527 SELENIUM Z=34 44.33 GMS 2.18 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 514 SELENIUM Z=34 PS 44.32 GMS 1050 MIN
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

BROMINE Z=35 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	155.3	.29
2	160.1	.66
3	165.4	.46
4	176.1	1.94
5	188.0	2.17
6	195.6	9.90
7	211.1	.25
8	220.9	6.50
9	235.1	3.09
10	245.7	17.78
11	256.8	.37
12	263.5	.16
13	273.0	6.89
14	288.7	3.87
15	298.1	2.55
16	326.4	.13
17	332.0	.24
18	345.0	2.60
19	367.4	2.36
20	389.1	.28
21	393.3	.17
22	415.7	.19
23	421.1	.16
24	432.9	.76
25	449.3	.19
26	453.3	.59
27	460.6	.15
28	482.9	.38
29	493.5	.19
30	538.8	.34
31	543.4	1.39
32	555.2	6.66
33	571.2	.23
34	582.2	.17
35	593.4	.52
36	618.6	7.19
37	643.4	.25
38	660.2	.73
39	665.9	.72
40	688.2	.37
41	691.6	.47
42	699.1	2.75
43	720.5	.72
44	731.9	.47
45	768.7	.71
46	776.5	6.43
47	786.6	.20
48	828.4	2.54

TRIMINE Z=35 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	910.7	.55
50	914.1	.28
51	1025.6	.24
52	1043.5	1.82
53	1081.5	.48
54	1199.2	3.37
55	1248.6	.33
56	1318.4	2.43
57	1474.3	1.25
58	1690.6	.48
59	2786.1	.58
60	2066.8	.29
61	2266.5	.28
62	2321.0	.27
63	2460.5	.17
64	3253.3	.07
65	3343.3	.10
66	3490.8	.07
67	3520.8	.14
68	3598.1	.09
69	4160.3	.14
70	4165.6	.12
71	4426.1	.07
72	4436.8	.04
73	4485.5	.09
74	4851.8	.11
75	4942.1	.09
76	5010.9	.05
77	5052.3	.18
78	5133.1	.08
79	5207.0	.05
80	5250.9	.19
81	5287.6	.10
82	5315.7	.13
83	5393.6	.05
84	5506.8	.45
85	5533.7	.18
86	5568.4	.17
87	5650.4	.07
88	5674.1	.11
89	5713.8	.08
90	5866.7	.21
91	5898.2	.15
92	5913.3	.53
93	5951.8	.17
94	6044.5	.17
95	6053.6	.19
96	6078.2	.19

BROMINE Z=35 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6094.0	.44
98	6108.7	.95
99	6146.9	.15
100	6170.4	.08
101	6175.1	.07
102	6222.5	.11
103	6246.4	.09
104	6312.1	.15
105	6355.1	.46
106	6438.8	.18
107	6499.7	.09
108	6532.2	.30
109	6569.3	.17
110	6619.4	.12
111	6642.4	.22
112	6667.1	.17
113	6689.5	.14
114	6745.6	.20
115	6869.9	.06
116	6950.2	.04
117	6976.6	.20
118	7030.2	.37
119	7076.4	.48
120	7124.4	.16
121	7156.2	.13
122	7171.7	.34
123	7229.9	.19
124	7341.5	.08
125	7421.5	.53
126	7512.1	.12
127	7575.8	.99
128	7790.5	.14
129	7893.9	.03

BINDING ENERGY = 7835.8 %BE = 17.19 + 138.64 = 155.83

BROMINE Z=35 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	155.3	.19
2	160.1	.42
3	165.4	.29
4	176.1	1.24
5	188.0	1.39
6	195.6	6.35
7	211.1	.16
8	220.9	4.17
9	235.1	1.99
10	245.7	11.41
11	256.8	.24
12	263.5	.10
13	273.0	4.42
14	288.7	2.48
15	298.1	1.64
16	326.4	.08
17	332.0	.15
18	345.0	1.67
19	367.4	1.51
20	389.1	.18
21	393.3	.11
22	415.7	.12
23	421.1	.10
24	432.9	.49
25	449.3	.12
26	453.3	.38
27	460.6	.10
28	482.9	.24
29	493.5	.12
30	538.8	.22
31	543.4	.89
32	555.2	4.27
33	571.2	.15
34	582.2	.11
35	593.4	.33
36	618.6	4.61
37	643.4	.16
38	660.2	.47
39	665.9	.46
40	688.2	.24
41	691.6	.30
42	699.1	1.76
43	720.5	.46
44	731.9	.30
45	768.7	.46
46	776.9	4.13
47	786.6	.13
48	828.4	1.63

BROMINE Z=35 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	910.7	.35
50	914.1	.18
51	1025.6	.15
52	1043.5	1.17
53	1081.5	.30
54	1199.2	2.16
55	1248.6	.21
56	1319.4	1.56
57	1474.3	.80
58	1690.6	.31
59	2786.1	.37
60	2066.8	.18
61	2266.5	.18
62	2321.0	.17
63	2460.5	.11
64	3253.3	.05
65	3343.3	.06
66	3490.8	.04
67	3520.8	.09
68	3598.1	.06
69	4160.3	.09
70	4165.6	.08
71	4426.1	.05
72	4436.8	.03
73	4485.5	.06
74	4851.8	.07
75	4942.1	.06
76	5010.9	.03
77	5052.3	.11
78	5133.1	.05
79	5207.0	.03
80	5250.9	.12
81	5287.6	.06
82	5315.7	.08
83	5393.6	.03
84	5506.8	.29
85	5533.7	.11
86	5568.4	.11
87	5650.4	.05
88	5674.1	.07
89	5713.8	.05
90	5866.7	.13
91	5898.2	.10
92	5913.3	.34
93	5951.8	.11
94	6044.5	.11
95	6053.6	.12
96	6078.2	.12

BROMINE Z=35 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

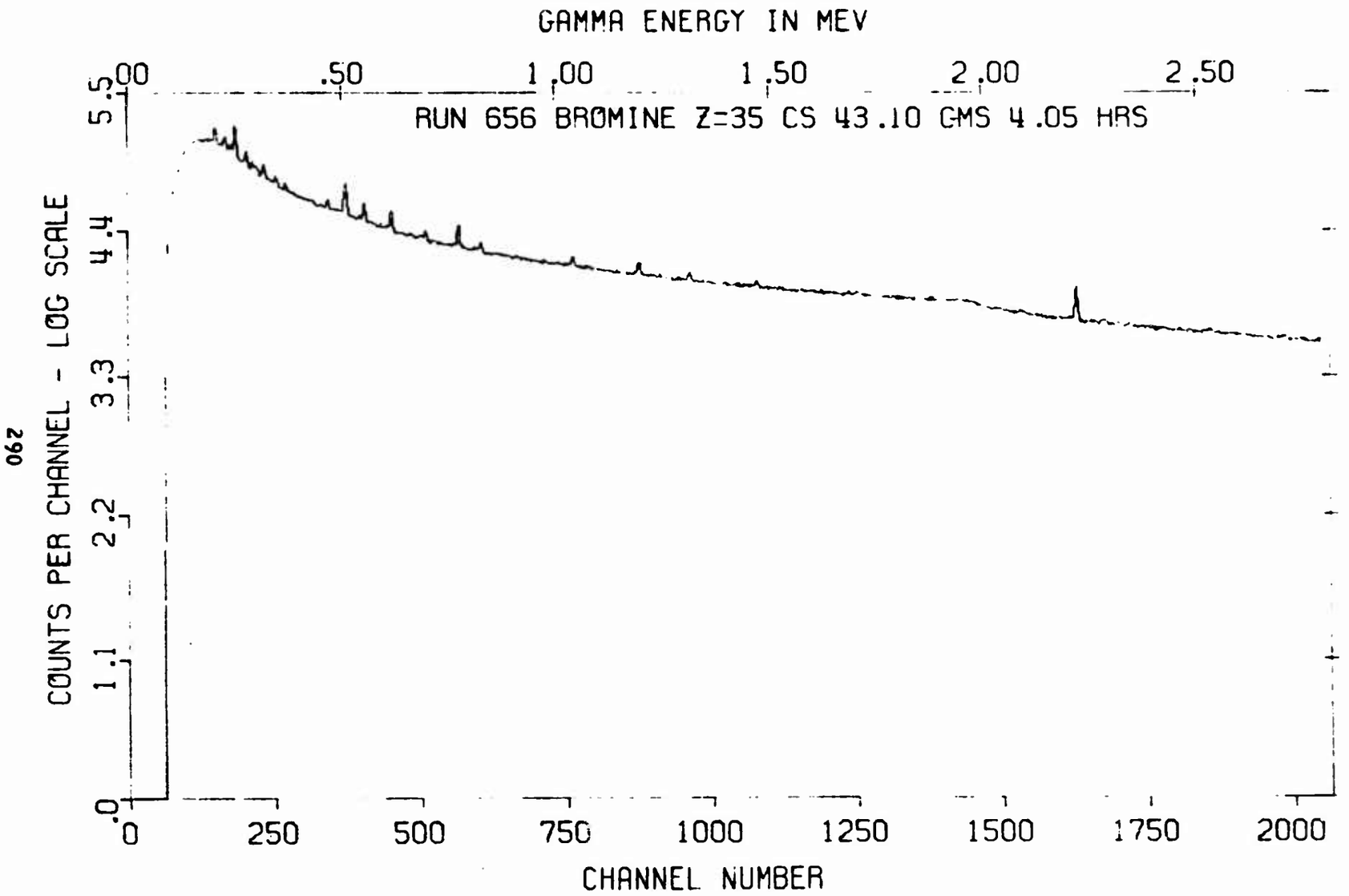
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6094.0	.28
98	6108.7	.61
99	6146.9	.10
100	6170.4	.05
101	6175.1	.05
102	6222.5	.07
103	6246.4	.06
104	6312.1	.10
105	6355.1	.30
106	6433.8	.12
107	6499.7	.06
108	6532.2	.19
109	6569.3	.11
110	6619.4	.07
111	6642.4	.14
112	6667.1	.11
113	6689.5	.09
114	6745.6	.13
115	6869.9	.0
116	6950.2	.02
117	6976.6	.13
118	7030.2	.24
119	7076.4	.31
120	7124.4	.10
121	7156.2	.08
122	7171.7	.22
123	7229.9	.12
124	7341.5	.05
125	7421.5	.34
126	7512.1	.07
127	7575.8	.63
128	7790.5	.09
129	7893.9	.02

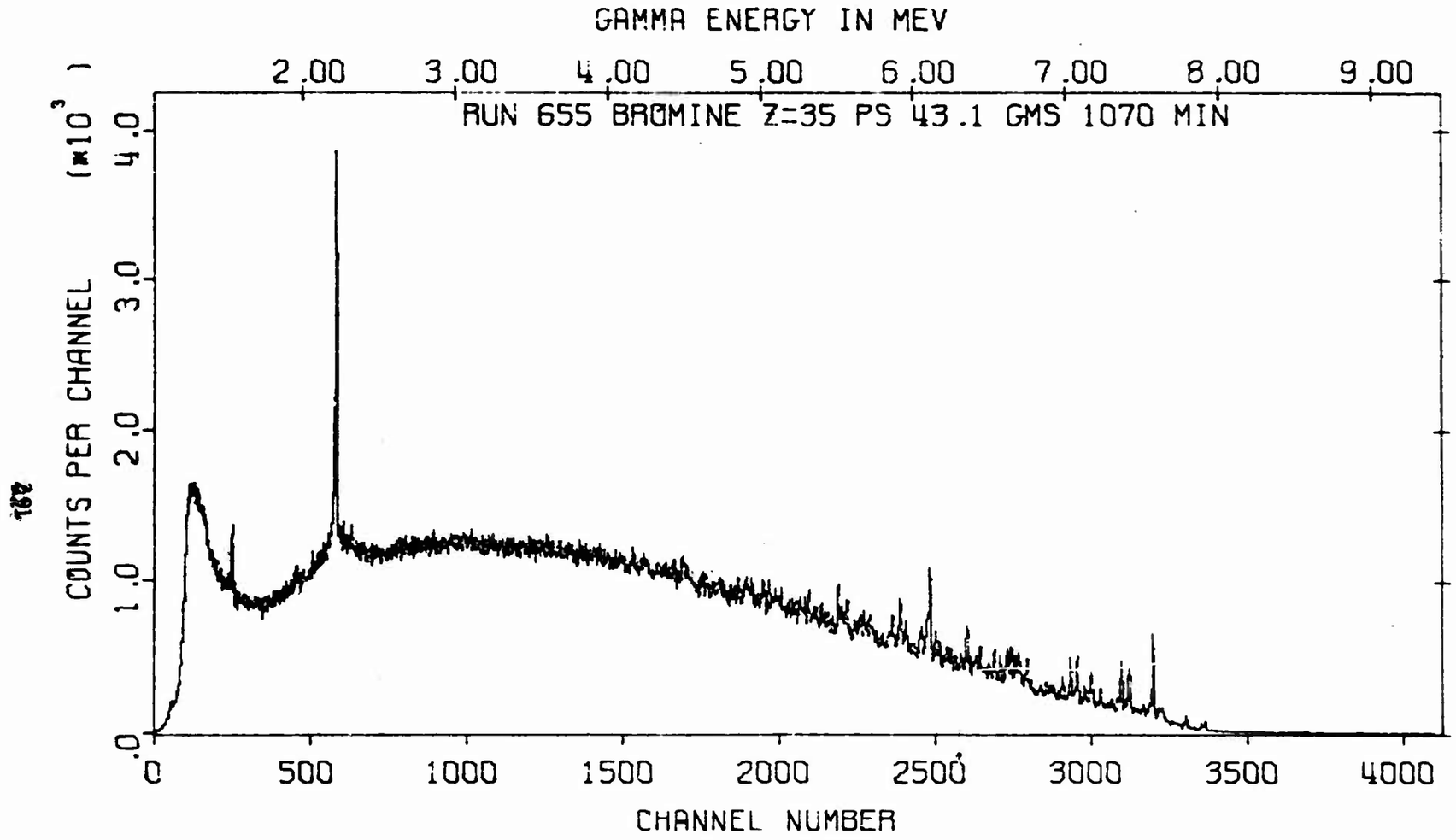
BE(KEV) 7835.8 OBSERVED %BE 155.83 NORMALIZED %BE 100.00

BROMINE Z=35 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	27.62	.00	27.62
2	250.0	500.0	14.27	.00	14.27
3	500.0	750.0	14.76	.00	14.76
4	750.0	1000.0	6.88	5.13	12.02
5	1000.0	1250.0	4.00	10.27	14.27
6	1250.0	1500.0	2.36	20.54	22.90
7	1500.0	1750.0	.31	40.92	41.23
8	1750.0	2000.0	.00	23.45	23.45
9	2000.0	2250.0	.00	22.60	22.60
10	2250.0	2500.0	.00	17.67	17.67
11	2500.0	2750.0	.00	14.66	14.66
12	2750.0	3000.0	1.02	12.90	13.92
13	3000.0	3250.0	.00	10.42	10.42
14	3250.0	3500.0	.16	8.46	8.61
15	3500.0	3750.0	.15	7.66	7.80
16	3750.0	4000.0	.00	6.99	6.99
17	4000.0	4250.0	.16	6.10	6.26
18	4250.0	4500.0	.14	5.51	5.64
19	4500.0	4750.0	.00	5.13	5.13
20	4750.0	5000.0	.13	4.70	4.83
21	5000.0	5250.0	.23	4.35	4.58
22	5250.0	5500.0	.30	3.89	4.19
23	5500.0	5750.0	.68	3.63	4.31
24	5750.0	6000.0	.67	2.91	3.59
25	6000.0	6250.0	1.57	2.45	4.02
26	6250.0	6500.0	.57	2.43	3.00
27	6500.0	6750.0	.84	2.50	3.33
28	6750.0	7000.0	.19	1.42	1.61
29	7000.0	7250.0	1.07	1.18	2.25
30	7250.0	7500.0	.39	1.17	1.56
31	7500.0	7750.0	.71	1.08	1.79
32	7750.0	8000.0	.11	.28	.40
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
BE(KEV)	7835.8	%BE	10.94	88.97	99.91


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 656 BROMINE Z=35 CS 43.10 GMS 4.05 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 655 BROMINE Z=35 PS 43.1 GMS 1070 MIN
COUNTS PER CHANNEL (*10^3)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	421.9	2.20
2	436.6	.19
3	444.6	.15
4	448.5	.19
5	453.9	.11
6	476.0	4.37
7	488.2	1.40
8	537.7	3.06
9	556.8	12.80
10	570.3	.13
11	639.7	.86
12	666.5	.26
13	709.2	.58
14	724.0	.93
15	746.1	.25
16	856.4	.29
17	872.7	3.10
18	899.2	.35
19	912.0	.27
20	943.8	.27
21	964.1	.28
22	981.9	.24
23	1030.8	3.93
24	1104.9	1.19
25	1139.5	.28
26	1162.1	.26
27	1183.7	.30
28	1304.6	1.65
29	1388.6	1.07
30	1404.2	1.44
31	1486.4	1.26
32	1575.5	1.06
33	1587.2	.71
34	1631.7	1.12
35	1660.4	.65
36	1714.6	.41)
37	1781.8	.60
38	1806.1	.49
39	1857.0	.55
40	1871.9	.26
41	1889.3	2.56
42	1973.0	.27
43	1984.6	.29
44	2006.9	.39
45	2037.5	.33
46	2082.0	.18
47	2130.0	.44
48	2149.7	.46

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2170.2	.17
50	2176.8	1.14
51	2303.1	.16
52	2310.2	.18
53	2320.8	.19
54	2346.5	.13
55	2352.5	.17
56	2364.0	.17
57	2387.0	.21
58	2475.7	.22
59	2500.0	.21
60	2532.0	.16
61	2548.1	.22
62	2570.4	.24
63	2585.7	.32
64	2598.1	.13
65	2615.6	.09
66	2642.3	.10
67	2661.8	.10
68	2688.0	.12
69	2708.2	.24
70	2728.4	.07
71	2759.2	.08
72	2784.0	.12
73	2797.0	.07
74	2858.9	.18
75	2877.4	.26
76	2924.8	.06
77	2977.6	.14
78	3054.5	.07
79	3067.5	.13
80	3106.0	.22
81	3130.2	.11
82	3136.2	.07
83	3157.3	.12
84	3198.2	.06
85	3222.3	.23
86	3245.7	.16
87	3284.3	.12
88	3310.7	.07
89	3332.8	.05
90	3354.5	.08
91	3391.0	.15
92	3413.7	.06
93	3431.1	.09
94	3485.6	.11
95	3542.4	.05
96	3602.1	.05

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3620.7	.07
98	3644.2	.09
99	3659.1	.08
100	3708.0	.06
101	3733.3	.07
102	3762.7	.07
103	3796.9	.04
104	3808.1	.05
105	3824.4	.08
106	3877.3	.04
107	3932.7	.07
108	3980.0	.09
109	3992.6	.04
110	4027.3	.11
111	4150.3	.09
112	4248.6	.04
113	4287.8	.06
114	4319.0	.04
115	4360.7	.23
116	4386.0	.18
117	4403.2	.06
118	4450.7	.19
119	4497.2	.24
120	4515.3	.04
121	4532.0	.13
122	4551.3	.07
123	4570.9	.04
124	4586.4	.05
125	4598.6	.18
126	4620.9	.21
127	4641.6	.27
128	4656.0	.06
129	4690.5	.09
130	4735.5	.18
131	4759.6	.06
132	4784.2	.05
133	4844.0	.11
134	4875.3	.05
135	4966.0	.07
136	4985.3	.26
137	5012.7	.24
138	5029.5	.23
139	5049.3	.04
140	5130.0	.24
141	5159.2	.21
142	5222.1	.37
143	5255.8	.08
144	5309.4	.13

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5353.1	.11
146	5384.3	.37
147	5401.5	.10
148	5424.7	.10
149	5473.1	.22
150	5517.5	.05
151	5617.1	.15
152	5637.5	.06
153	5678.0	.05
154	5697.3	.12
155	5702.4	.17
156	5728.2	.08
157	5760.6	.61
158	5800.2	.16
159	5818.1	.04
160	5841.0	.13
161	5885.9	.32
162	5932.6	.09
163	5980.7	.40
164	6032.2	.04
165	6064.5	.34
166	6086.1	.06
167	6143.7	.06
168	6187.9	.37
169	6234.7	.05
170	6253.5	.12
171	6274.1	.08
172	6292.8	.08
173	6352.4	.15
174	6385.4	.20
175	6418.4	.15
176	6470.7	.51
177	6503.1	.14
178	6520.2	.57
179	6550.4	.08
180	6567.4	.07
181	6601.3	.06
182	6619.9	.15
183	6706.9	.05
184	6831.4	.60
185	6915.8	.17
186	6943.5	.21
187	7151.0	.06
188	7176.1	.17
189	7211.6	.10
190	7261.5	.06
191	7278.2	.09
192	7306.8	.14

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
193	7345.8	.32
194	7415.3	.31
195	7438.5	.05
196	7544.2	.12
197	7624.1	1.92
198	7672.5	.07
199	7790.3	.07
200	8091.6	.21
201	8650.9	.24

BINDING ENERGY = 8386.9 %BE = 20.92 + 109.03 = 129.96

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	421.9	1.69
2	436.6	.15
3	444.6	.12
4	448.5	.15
5	453.9	.08
6	476.0	3.36
7	488.2	1.08
8	537.7	2.35
9	556.8	9.85
10	570.3	.10
11	639.7	.66
12	666.5	.20
13	709.2	.45
14	724.0	.72
15	746.1	.19
16	856.4	.22
17	872.7	2.39
18	899.2	.27
19	912.0	.21
20	943.8	.21
21	964.1	.22
22	981.9	.18
23	1030.8	3.02
24	1104.9	.92
25	1139.5	.22
26	1162.1	.20
27	1183.7	.23
28	1304.6	1.27
29	1388.6	.82
30	1404.2	1.11
31	1486.4	.97
32	1575.5	.82
33	1587.2	.55
34	1631.7	.86
35	1660.4	.50
36	1714.6	.31
37	1781.8	.46
38	1806.1	.38
39	1857.0	.42
40	1871.9	.20
41	1889.3	1.97
42	1973.0	.21
43	1984.6	.22
44	2006.9	.30
45	2037.5	.25
46	2082.0	.14
47	2130.0	.34
48	2149.7	.35

RUBIDIUM Z=37 GAMABS CODE MITNE-35 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2170.2	.13
50	2176.8	.88
51	2303.1	.12
52	2310.2	.14
53	2320.8	.15
54	2346.5	.10
55	2352.5	.13
56	2364.0	.13
57	2387.0	.16
58	2475.7	.17
59	2500.0	.16
60	2532.0	.12
61	2548.1	.17
62	2570.4	.13
63	2585.7	.25
64	2598.1	.10
65	2615.6	.07
66	2642.3	.08
67	2661.8	.08
68	2688.0	.09
69	2708.2	.18
70	2728.4	.05
71	2759.2	.06
72	2784.0	.09
73	2797.0	.05
74	2858.9	.14
75	2877.4	.20
76	2924.8	.05
77	2977.6	.11
78	3054.5	.05
79	3067.5	.10
80	3106.0	.17
81	3130.2	.08
82	3136.2	.05
83	3157.3	.09
84	3198.2	.05
85	3222.3	.18
86	3245.7	.12
87	3284.3	.09
88	3310.7	.05
89	3332.8	.04
90	3354.5	.06
91	3391.0	.12
92	3413.7	.05
93	3431.1	.07
94	3485.6	.08
95	3542.4	.04
96	3602.1	.04

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3620.7	.05
98	3644.2	.07
99	3659.1	.06
100	3708.0	.05
101	3733.3	.05
102	3762.7	.05
103	3796.9	.03
104	3808.1	.04
105	3824.4	.06
106	3877.3	.03
107	3932.7	.05
108	3980.0	.07
109	3992.6	.03
110	4027.3	.08
111	4150.3	.07
112	4248.6	.03
113	4287.8	.05
114	4319.0	.03
115	4360.7	.18
116	4386.0	.14
117	4403.2	.05
118	4450.7	.15
119	4497.2	.18
120	4515.3	.03
121	4532.0	.10
122	4551.3	.05
123	4570.9	.03
124	4586.4	.04
125	4598.6	.14
126	4620.9	.16
127	4641.6	.21
128	4656.0	.05
129	4690.5	.07
130	4735.5	.14
131	4759.6	.05
132	4784.2	.04
133	4844.0	.08
134	4875.3	.04
135	4966.0	.05
136	4985.3	.20
137	5012.7	.18
138	5029.5	.18
139	5049.3	.03
140	5130.0	.18
141	5159.2	.16
142	5222.1	.28
143	5255.8	.06
144	5309.4	.10

RU-IDIUM Z=37 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5353.1	.08
146	5384.3	.28
147	5401.5	.08
148	5424.7	.08
149	5473.1	.17
150	5517.5	.04
151	5617.1	.12
152	5637.5	.05
153	5678.0	.04
154	5697.3	.09
155	5702.4	.13
156	5728.2	.06
157	5760.6	.47
158	5800.2	.12
159	5818.1	.03
160	5841.0	.10
161	5885.9	.25
162	5932.6	.07
163	5980.7	.31
164	6032.2	.03
165	6064.5	.26
166	6086.1	.05
167	6143.7	.05
168	6187.9	.28
169	6234.7	.04
170	6253.5	.09
171	6274.1	.06
172	6292.8	.06
173	6352.4	.12
174	6385.4	.15
175	6418.4	.12
176	6470.7	.39
177	6503.1	.11
178	6520.2	.44
179	6550.4	.06
180	6567.4	.05
181	6601.3	.05
182	6619.9	.12
183	6706.9	.04
184	6831.4	.46
185	6915.8	.13
186	6943.5	.16
187	7151.0	.05
188	7176.1	.13
189	7211.6	.08
190	7261.5	.05
191	7278.2	.07
192	7306.8	.11

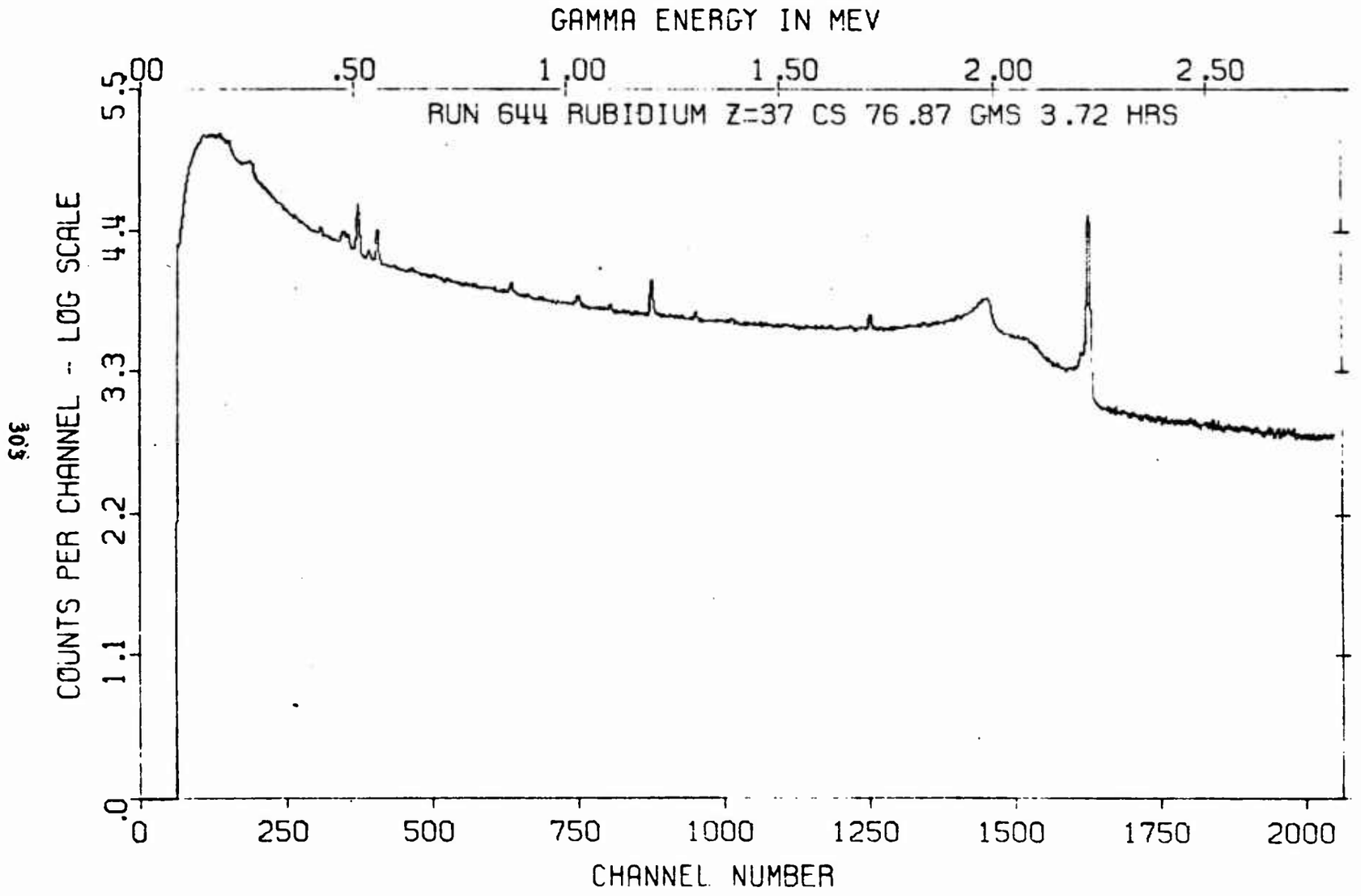
RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

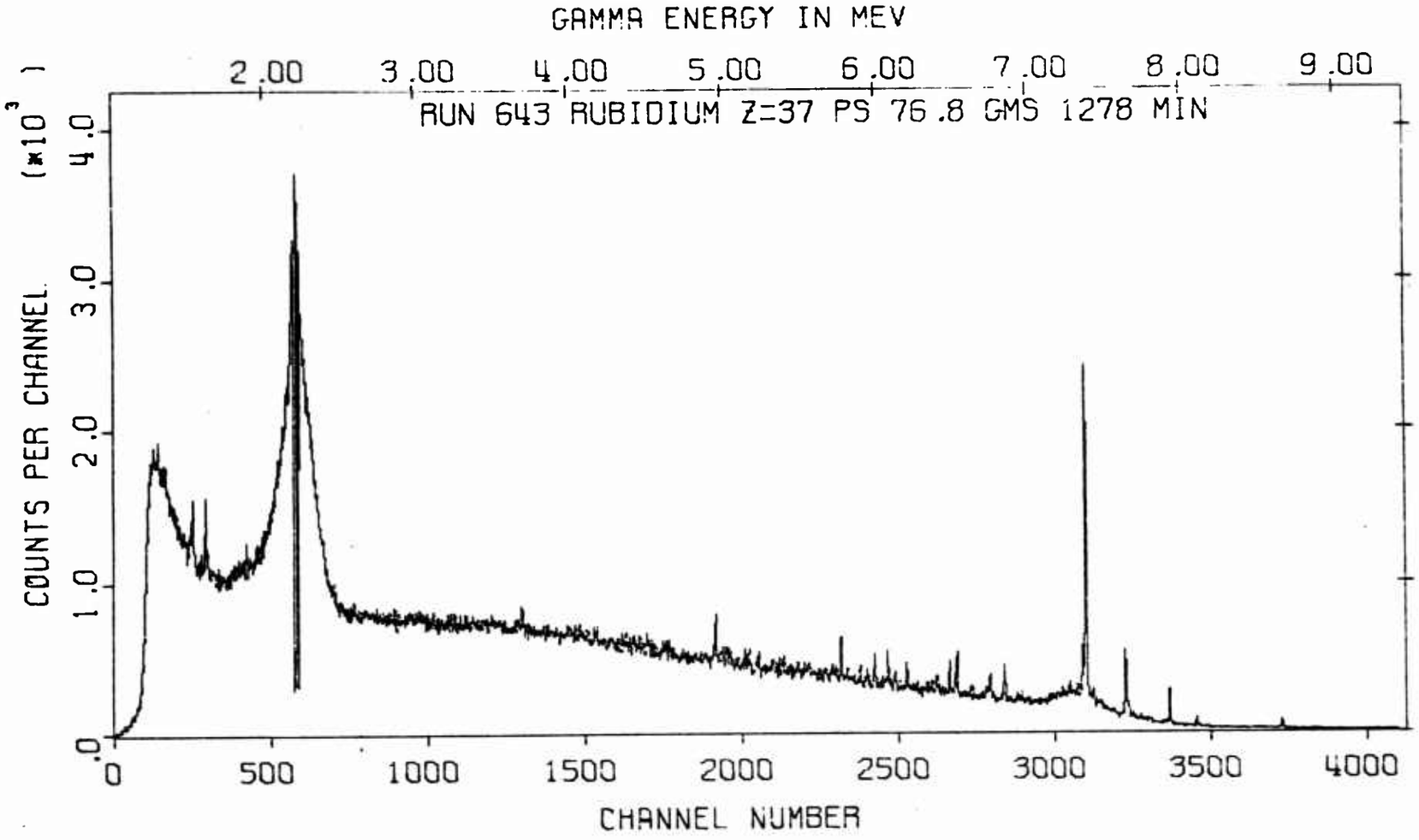
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
193	7345.8	.25
194	7415.3	.24
195	7438.5	.04
196	7544.2	.09
197	7624.1	1.48
198	7672.5	.05
199	7790.3	.05
200	8091.6	.16
201	8650.9	.18

BE(KEV) 8386.9 OBSERVED %BE 129.96 NORMALIZED %BE 100.00

RUBIDIUM Z=37 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	6.63	.00	6.63
3	500.0	750.0	14.52	.00	14.52
4	750.0	1000.0	3.69	.00	3.69
5	1000.0	1250.0	4.59	5.39	9.97
6	1250.0	1500.0	4.17	15.39	19.56
7	1500.0	1750.0	3.03	24.62	27.66
8	1750.0	2000.0	3.86	30.16	34.02
9	2000.0	2250.0	2.39	43.09	45.48
10	2250.0	2500.0	1.10	48.64	49.74
11	2500.0	2750.0	1.54	17.61	19.14
12	2750.0	3000.0	.70	15.00	15.70
13	3000.0	3250.0	.90	12.75	13.65
14	3250.0	3500.0	.56	10.21	10.77
15	3500.0	3750.0	.36	8.93	9.30
16	3750.0	4000.0	.37	7.89	8.26
17	4000.0	4250.0	.18	6.81	6.99
18	4250.0	4500.0	.77	5.17	5.94
19	4500.0	4750.0	1.02	3.76	4.77
20	4750.0	5000.0	.46	4.12	4.59
21	5000.0	5250.0	1.02	2.87	3.89
22	5250.0	5500.0	.85	3.45	4.30
23	5500.0	5750.0	.52	2.46	2.99
24	5750.0	6000.0	1.35	1.85	3.20
25	6000.0	6250.0	.71	.00	.71
26	6250.0	6500.0	.99	.00	.99
27	6500.0	6750.0	.86	.00	.86
28	6750.0	7000.0	.75	.00	.75
29	7000.0	7250.0	.25	.00	.25
30	7250.0	7500.0	.75	.00	.75
31	7500.0	7750.0	1.62	.00	1.62
32	7750.0	8000.0	.05	.00	.05
33	8000.0	8250.0	.16	.00	.16
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.18	.00	.18
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
BE(KEV)	8386.9	%BE	16.15	83.90	100.04


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 644 RUBIDIUM Z=37 CS 76.87 GMS 3.72 HRS
COUNTS PER CHANNEL -- LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 643 RUBIDIUM Z=37 PS 76.8 GMS 1278 MIN
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	387.7	.82
2	401.1	.28
3	410.4	.17
4	418.2	.29
5	423.2	.21
6	434.9	1.97
7	484.9	.35
8	558.5	14.52
9	576.4	.39
10	585.7	1.96
11	596.0	.95
12	650.9	4.72
13	666.5	.25
14	695.5	.63
15	723.5	.72
16	731.6	.47
17	850.4	12.76
18	868.9	.36
19	897.9	29.59
20	960.7	.39
21	1218.6	2.25
22	1365.7	1.20
23	1382.4	.85
24	1535.1	1.71
25	1564.3	.72
26	1661.9	.95
27	1676.9	.74
28	1687.6	.58
29	1718.4	3.53
30	1738.2	.58
31	1774.4	.65
32	1786.6	.44
33	1799.8	1.52
34	1835.9	91.54
35	1891.6	.96
36	1910.2	.56
37	1922.8	.33
38	1969.3	.56
39	1982.2	.35
40	2053.5	.27
41	2081.2	.36
42	2111.0	1.34
43	2142.6	.44
44	2168.9	2.27
45	2251.2	.21
46	2276.8	3.21
47	2290.8	.22
48	2314.9	.21

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2336.9	.38
50	2363.2	.32
51	2391.5	4.61
52	2457.9	2.65
53	2489.3	.23
54	2542.0	.18
55	2550.6	.37
56	2578.1	2.91
57	2659.9	.77
58	2678.2	.41
59	2736.9	1.02
60	2766.6	.60
61	2785.9	.20
62	2802.3	.24
63	2828.2	.17
64	2902.6	.21
65	2957.3	.68
66	3009.5	5.39
67	3032.3	.29
68	3044.5	.30
69	3057.1	.13
70	3090.8	.13
71	3111.5	.40
72	3135.4	.11
73	3189.8	.25
74	3219.1	.91
75	3277.1	.26
76	3302.1	.15
77	3318.1	.28
78	3337.4	.35
79	3356.7	.18
80	3371.7	.24
81	3385.8	.11
82	3397.6	.20
83	3424.7	.56
84	3452.4	.20
85	3465.5	.13
86	3488.8	.47
87	3524.0	.24
88	3542.0	.47
89	3589.3	.09
90	3620.5	.15
91	3638.8	.25
92	3704.5	.27
93	3745.5	.19
94	3756.9	.08
95	3770.9	.26
96	3887.9	.11

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3905.3	.10
98	3975.8	.30
99	4020.4	.20
100	4036.2	.35
101	4079.4	.26
102	4127.8	.19
103	4157.7	.23
104	4259.6	.17
105	4276.6	.07
106	4297.2	.05
107	4306.0	.28
108	4324.7	.16
109	4350.2	.07
110	4371.9	.12
111	4392.2	.17
112	4416.7	.52
113	4500.2	.35
114	4517.6	.07
115	4529.6	.22
116	4553.9	.11
117	4583.7	.31
118	4605.4	1.30
119	4635.8	.24
120	4671.8	.07
121	4700.5	.14
122	4743.6	.09
123	4748.6	.07
124	4771.9	.10
125	4795.0	.14
126	4810.5	.29
127	4852.5	.23
128	4912.2	.07
129	4945.2	.78
130	4988.0	.49
131	5007.3	.26
132	5056.1	.10
133	5075.6	.30
134	5102.9	.13
135	5115.2	.17
136	5162.0	1.50
137	5200.2	.17
138	5244.0	.25
139	5276.9	.38
140	5301.0	.49
141	5322.5	.20
142	5361.6	.35
143	5386.3	.28
144	5397.5	.08

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5409.9	.12
146	5424.1	.90
147	5559.2	.08
148	5579.5	.09
149	5593.1	.22
150	5611.1	.09
151	5686.1	.70
152	5706.7	.13
153	5751.7	.08
154	5790.4	1.57
155	5823.7	.68
156	5906.5	.13
157	5999.5	.43
158	6012.9	.14
159	6061.9	3.55
160	6136.6	.08
161	6230.4	.2[illegible]
162	6267.3	5.57
163	6322.2	.19
164	6343.7	.12
165	6390.3	.24
166	6417.0	.16
167	6463.5	.22
168	6487.0	.09
169	6507.8	.12
170	6544.7	.08
171	6585.5	.07
172	6660.6	5.54
173	6698.9	.85
174	6844.3	.60
175	6885.1	3.03
176	6941.9	3.40
177	6963.8	.11
178	7117.6	.09
179	7160.8	.12
180	7219.9	.13
181	7235.5	.13
182	7308.1	.22
183	7384.9	.13
184	7476.5	.42
185	7498.0	.11
186	7527.7	4.65
187	8039.0	1.20
188	8378.4	1.44

BINDING ENERGY = 10800.0 %BE = 62.24 + 96.15 = 158.39

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	387.7	.52
2	401.1	.18
3	410.4	.11
4	418.2	.18
5	423.2	.13
6	434.9	1.24
7	484.9	.22
8	558.5	9.17
9	576.4	.25
10	585.7	1.24
11	596.0	.60
12	650.9	2.98
13	666.5	.16
14	695.5	.40
15	723.5	.45
16	731.6	.30
17	850.4	8.06
18	868.9	.23
19	897.9	18.68
20	960.7	.25
21	1218.6	1.42
22	1365.7	.76
23	1382.4	.54
24	1535.1	1.08
25	1564.3	.45
26	1661.9	.60
27	1676.9	.47
28	1687.6	.37
29	1718.4	2.23
30	1738.2	.37
31	1774.4	.41
32	1786.6	.28
33	1799.8	.96
34	1835.9	57.79
35	1891.6	.61
36	1910.2	.35
37	1922.8	.21
38	1969.3	.35
39	1982.2	.22
40	2053.5	.17
41	2081.2	.23
42	2111.0	.85
43	2142.6	.28
44	2168.9	1.43
45	2251.2	.13
46	2276.8	2.03
47	2290.8	.14
48	2314.9	.13

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2336.9	.24
50	2363.2	.20
51	2391.5	2.91
52	2457.9	1.67
53	2489.3	.15
54	2542.0	.11
55	2550.6	.23
56	2578.1	1.84
57	2659.9	.49
58	2678.2	.26
59	2736.9	.64
60	2766.6	.38
61	2785.9	.13
62	2802.3	.15
63	2828.2	.11
64	2902.6	.13
65	2957.3	.43
66	3009.5	3.40
67	3032.3	.18
68	3044.5	.19
69	3057.1	.08
70	3090.8	.08
71	3111.5	.25
72	3135.4	.07
73	3189.8	.16
74	3219.1	.57
75	3277.1	.16
76	3302.1	.09
77	3318.1	.18
78	3337.4	.22
79	3356.7	.11
80	3371.7	.15
81	3385.8	.07
82	3397.6	.13
83	3424.7	.35
84	3452.4	.13
85	3465.5	.08
86	3488.8	.30
87	3524.0	.15
88	3542.0	.30
89	3589.3	.06
90	3620.5	.09
91	3638.8	.16
92	3704.5	.17
93	3745.5	.12
94	3756.9	.05
95	3770.9	.16
96	3887.9	.07

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3905.3	.06
98	3975.8	.19
99	4020.4	.13
100	4036.2	.22
101	4079.4	.16
102	4127.8	.12
103	4157.7	.15
104	4259.6	.11
105	4276.6	.04
106	4297.2	.03
107	4306.0	.18
108	4324.7	.10
109	4350.2	.04
110	4371.9	.08
111	4392.2	.11
112	4416.7	.33
113	4500.2	.22
114	4517.6	.04
115	4529.6	.14
116	4553.9	.07
117	4583.7	.20
118	4605.4	.82
119	4635.8	.15
120	4671.8	.04
121	4700.5	.09
122	4743.6	.06
123	4748.6	.04
124	4771.9	.06
125	4795.0	.09
126	4810.5	.18
127	4852.5	.15
128	4912.2	.04
129	4945.2	.49
130	4988.0	.31
131	5007.3	.16
132	5056.1	.06
133	5075.6	.19
134	5102.9	.08
135	5115.2	.11
136	5162.0	.95
137	5200.2	.11
138	5244.0	.16
139	5276.9	.24
140	5301.0	.31
141	5322.5	.13
142	5361.6	.22
143	5386.3	.18
144	5397.5	.05

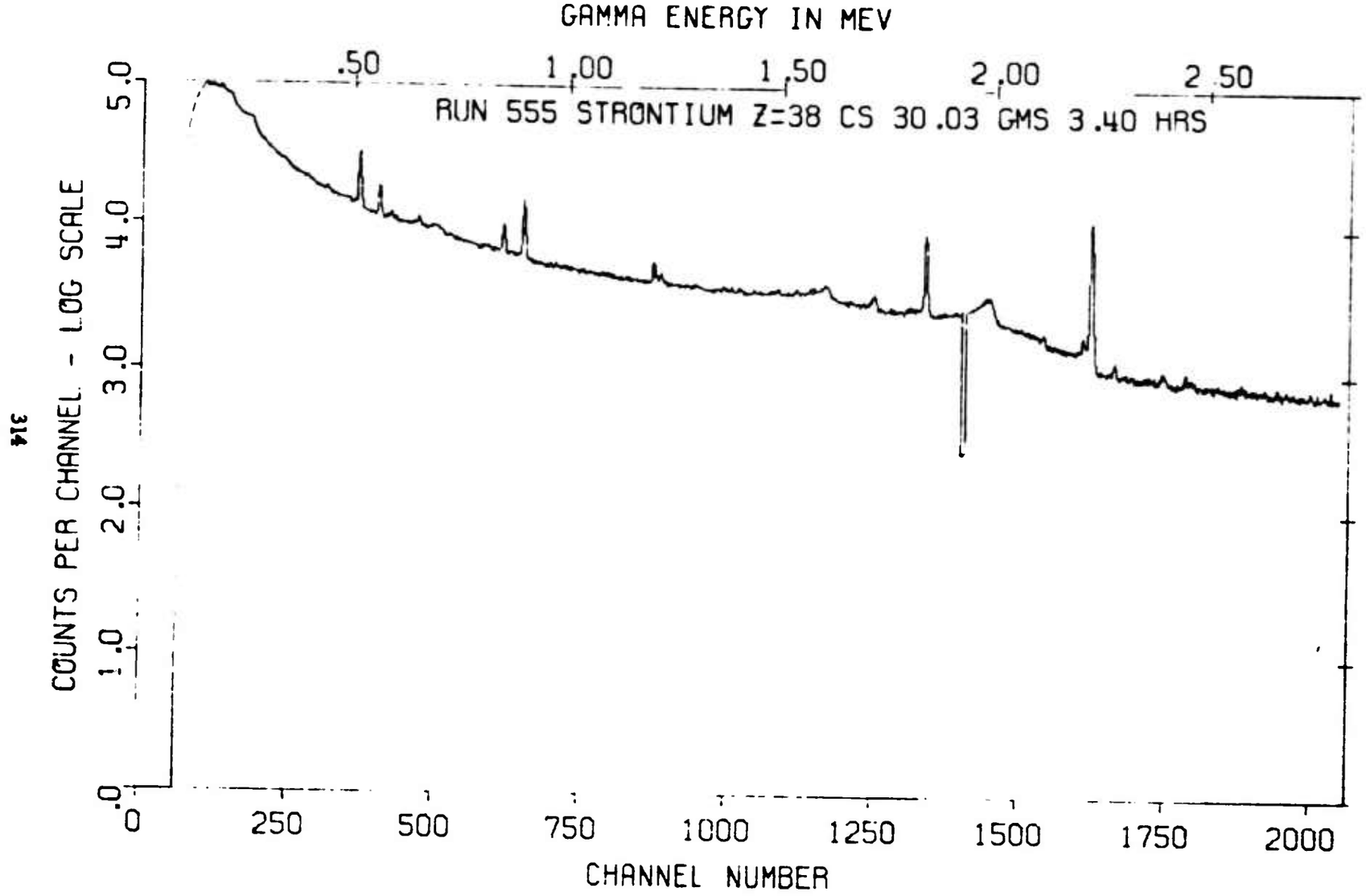
STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

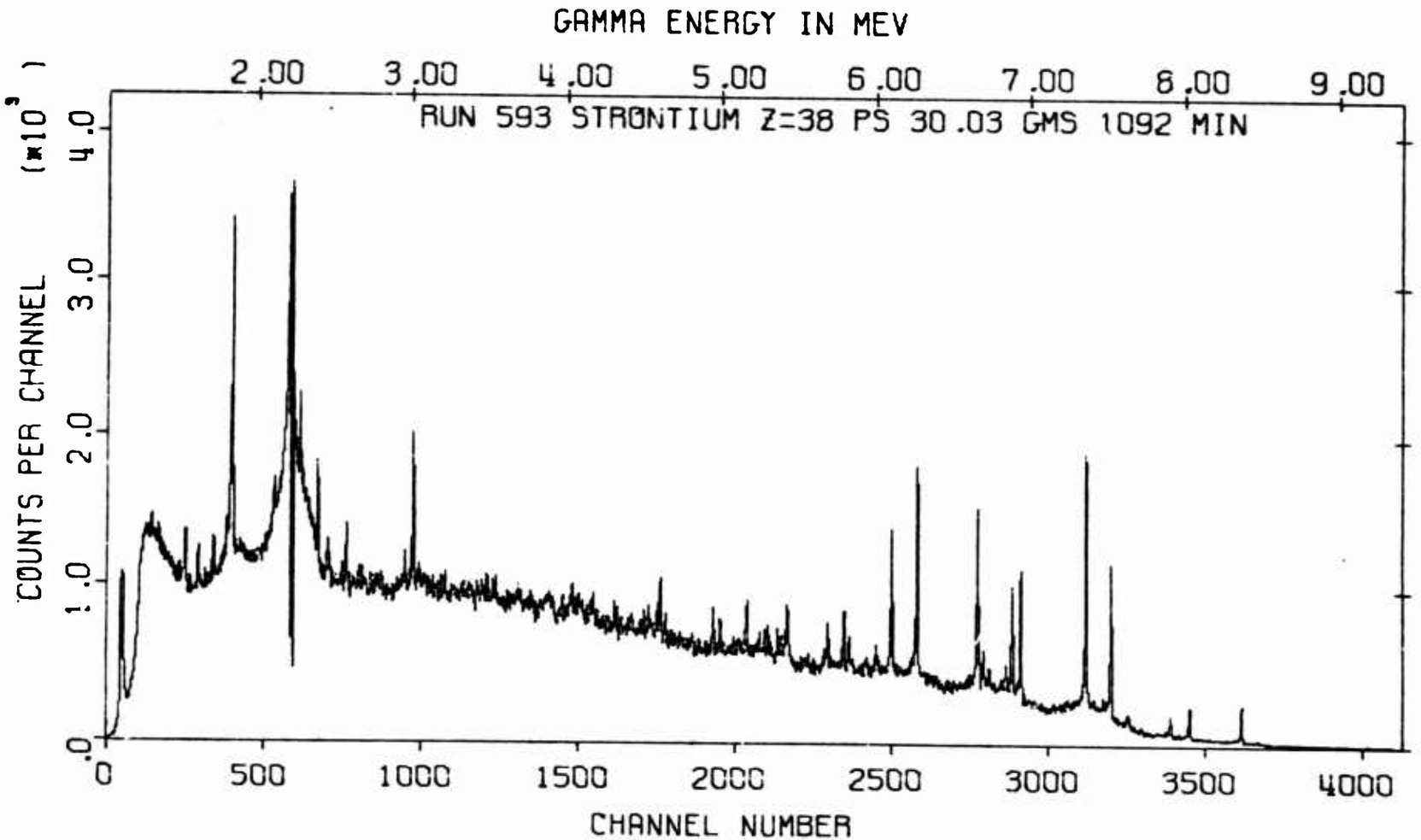
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5409.9	.08
146	5424.1	.57
147	5559.2	.05
148	5579.5	.06
149	5593.1	.14
150	5611.1	.06
151	5686.1	.44
152	5706.7	.08
153	5751.7	.05
154	5790.4	.99
155	5823.7	.43
156	5906.5	.08
157	5999.5	.27
158	6012.9	.09
159	6101.9	2.24
160	6136.6	.05
161	6230.4	.13
162	6267.3	3.52
163	6322.2	.12
164	6343.7	.08
165	6390.3	.15
166	6417.0	.10
167	6463.5	.14
168	6487.0	.06
169	6507.8	.08
170	6544.7	.05
171	6585.5	.04
172	6660.6	3.50
173	6698.9	.54
174	6844.3	.38
175	6885.1	1.91
176	6941.9	2.15
177	6963.8	.07
178	7117.6	.06
179	7160.8	.08
180	7219.9	.08
181	7235.5	.08
182	7308.1	.14
183	7384.9	.08
184	7476.5	.27
185	7498.0	.07
186	7527.7	2.94
187	8039.0	.76
188	8378.4	.91

BE(KEV) 10800.0 OBSERVED %BE 158.39 NORMALIZED %BE 100.00

STRONTIUM Z=38 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	2.58	.00	2.58
3	500.0	750.0	15.54	.00	15.54
4	750.0	1000.0	27.21	.00	27.21
5	1000.0	1250.0	1.42	9.47	10.89
6	1250.0	1500.0	1.29	12.63	13.92
7	1500.0	1750.0	5.56	13.81	19.38
8	1750.0	2000.0	61.18	16.41	77.60
9	2000.0	2250.0	2.95	17.05	20.00
10	2250.0	2500.0	7.60	10.26	17.86
11	2500.0	2750.0	3.57	18.26	21.83
12	2750.0	3000.0	1.33	16.35	17.67
13	3000.0	3250.0	4.99	11.92	16.91
14	3250.0	3500.0	1.98	10.56	12.54
15	3500.0	3750.0	1.05	8.68	9.73
16	3750.0	4000.0	.54	7.75	8.28
17	4000.0	4250.0	.78	6.94	7.71
18	4250.0	4500.0	1.02	4.82	5.84
19	4500.0	4750.0	1.88	4.63	6.50
20	4750.0	5000.0	1.33	3.14	4.47
21	5000.0	5250.0	1.82	3.13	4.95
22	5250.0	5500.0	1.77	3.92	5.69
23	5500.0	5750.0	.83	2.45	3.28
24	5750.0	6000.0	1.82	2.59	4.42
25	6000.0	6250.0	2.51	2.92	5.43
26	6250.0	6500.0	4.16	2.15	6.31
27	6500.0	6750.0	4.20	2.66	6.86
28	6750.0	7000.0	4.51	3.10	7.61
29	7000.0	7250.0	.30	1.22	1.52
30	7250.0	7500.0	.56	2.99	3.55
31	7500.0	7750.0	2.94	1.74	4.67
32	7750.0	8000.0	.00	.73	.73
33	8000.0	8250.0	.76	.44	1.19
34	8250.0	8500.0	.91	.47	1.38
35	8500.0	8750.0	.00	.13	.13
36	8750.0	9000.0	.00	.32	.32
37	9000.0	9250.0	.00	.02	.02
38	9250.0	9500.0	.00	.00	.00
BE(KEV)	10800.0	%E	39.57	60.71	100.28


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 555 STRONTIUM Z=38 CS 30.03 GMS 3.40 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 593 STRONTIUM Z=38 PS 30.03 GMS 1092 MIN
COUNTS PER CHANNEL (*10³)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

YTTRIUM Z=39 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	202.5	16.23
2	245.3	.36
3	253.3	2.10
4	268.9	.32
5	280.1	.31
6	320.2	.25
7	335.1	1.05
8	386.5	.63
9	439.3	1.42
10	574.6	11.02
11	595.9	1.28
12	606.4	.55
13	778.8	26.28
14	896.7	1.43
15	944.4	1.57
16	961.7	.74
17	978.3	.71
18	1106.9	.47
18	1106.9	.47
19	1186.7	1.84
20	1212.7	1.38
21	1369.5	1.03
22	1372.8	.61
23	1417.2	.71
24	1559.5	.76
25	1711.6	.76
26	1714.4	.59
27	1914.6	.74
28	1818.6	.80
29	2254.5	10.99
30	2329.3	.92
31	2340.1	.67
32	2363.4	.56
33	2405.7	.58
34	2473.1	.48
35	2503.1	.85
36	2546.5	1.71
37	2565.6	.48
38	2749.9	1.64
39	2818.3	.31
40	2882.2	.69
41	2923.8	.74
42	3015.1	.28
43	3097.2	.26
44	3107.9	.33
45	3162.7	1.14
46	3230.5	.20
47	3254.8	.25
48	3283.0	.64

YTTRIUM Z=39 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3300.9	1.27
50	3380.8	.39
51	3544.0	.42
52	3697.4	.37
53	3713.0	.30
54	3869.9	.50
55	4009.2	.36
56	4106.7	5.05
57	4263.2	.24
58	4351.8	1.38
59	4490.8	.30
60	4613.1	.25
61	4659.3	.35
62	4724.0	.16
63	4734.1	.10
64	4875.7	.16
65	5044.9	.23
66	5096.1	.17
67	5179.0	.15
68	5558.0	.16
69	5607.3	.42
70	5645.0	1.33
71	5902.8	.41
72	6030.1	.73
73	6079.8	67.81
74	6111.1	.31
75	6623.1	.18
76	6751.4	1.13

BINDING ENERGY = 6866.0 SEE = 87.50 + .00 = 87.50

YTTRIUM Z=39 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	202.5	18.55
2	245.3	.41
3	253.3	2.40
4	268.9	.37
5	280.1	.36
6	320.2	.28
7	335.1	1.20
8	386.5	.72
9	439.3	1.62
10	574.6	12.60
11	595.9	1.47
12	606.4	.63
13	776.8	30.03
14	895.7	1.64
15	944.4	1.80
16	961.7	.85
17	978.3	.81
18	1106.9	.54
19	1186.7	2.11
20	1212.7	1.58
21	1369.5	1.17
22	1372.8	.70
23	1417.2	.81
24	1559.5	.87
25	1711.6	.87
26	1714.4	.68
27	1814.6	.84
28	1818.6	.92
29	2254.5	12.56
30	2329.3	1.05
31	2340.1	.77
32	2363.4	.64
33	2405.7	.66
34	2473.1	.55
35	2503.1	.97
36	2546.5	1.95
37	2565.6	.55
[illegible]	2748.9	1.87
[illegible]	2818.3	.36
39	2818.3	.36
40	2882.2	.79
41	2923.8	.85
42	3015.1	.32
43	3097.2	.30
44	3107.9	.38
45	3162.7	1.31
46	3230.5	.23
47	3254.8	.28
48	3283.0	.73

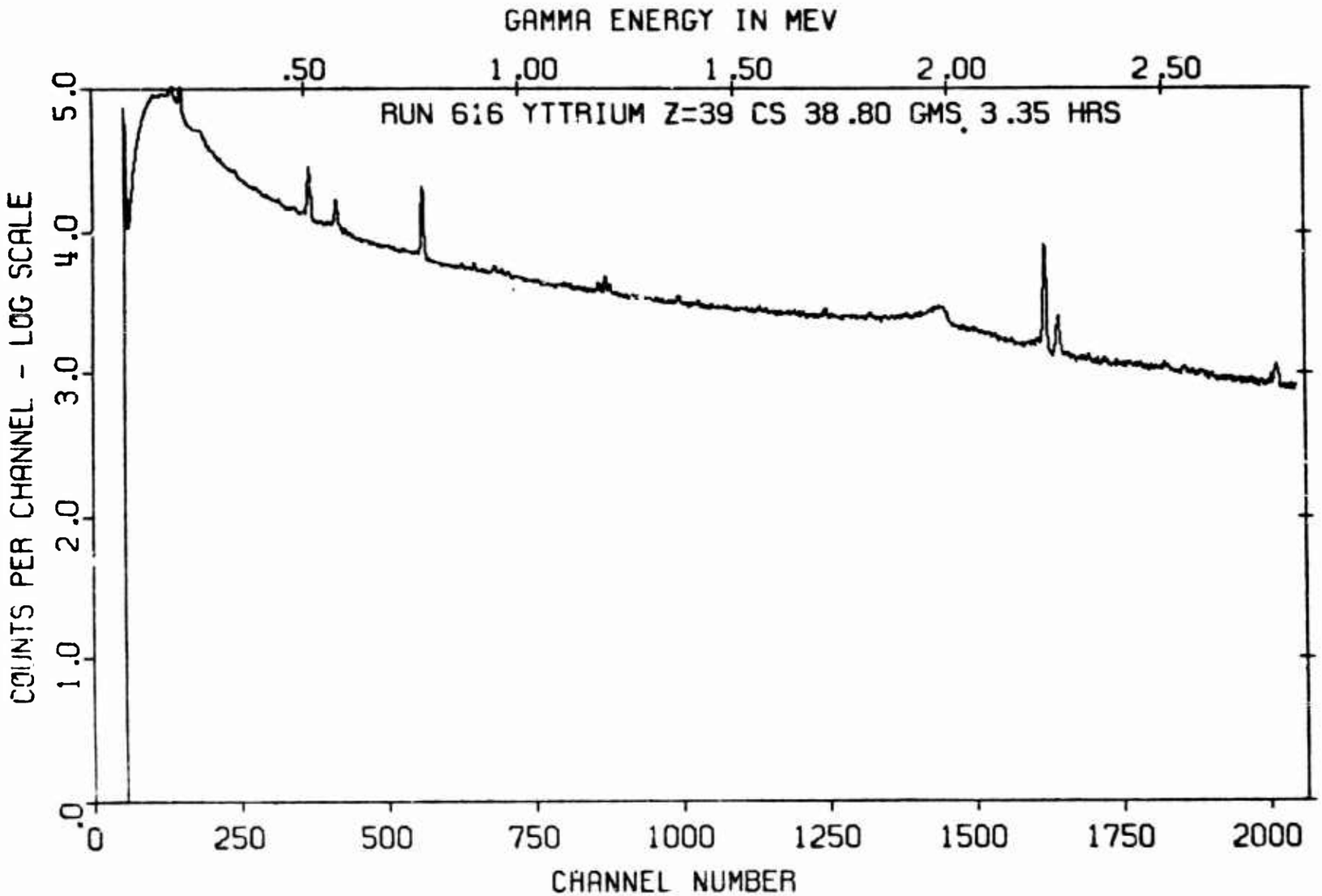
YTTRIUM Z=39 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

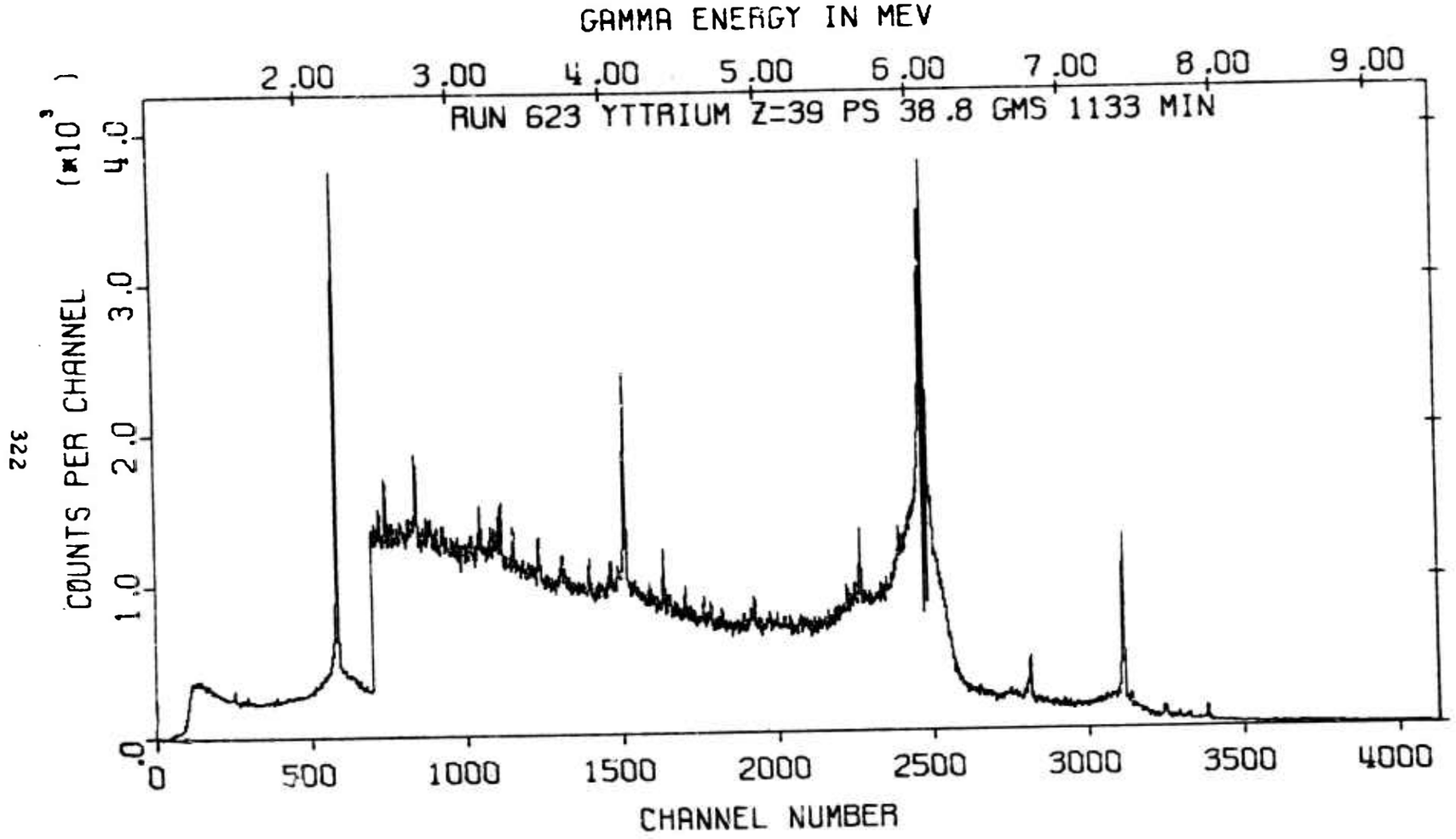
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3300.9	1.45
50	3380.8	.45
51	3544.0	.48
52	3697.4	.42
53	3713.0	.34
54	3869.9	.57
55	4009.2	.42
56	4106.7	5.77
57	4263.2	.27
58	4351.8	1.58
59	4490.8	.35
60	4613.1	.29
61	4659.3	.40
62	4724.0	.18
63	4734.1	.11
64	4875.7	.18
65	5044.9	.27
66	5096.1	.19
67	5179.0	.17
68	5558.0	.18
69	5607.3	.49
70	5645.0	1.52
71	5902.8	.47
72	6030.1	.84
73	6079.8	7.49
74	6111.1	.36
75	6623.1	.20
76	6751.4	1.30

BE(KEV) 6869.0 OBSERVED %BE 87.50 NORMALIZED %BE 100.00

YTTRIUM Z=39 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	18.96	.00	18.96
2	250.0	500.0	6.95	.00	6.95
3	500.0	750.0	14.69	.00	14.69
4	750.0	1000.0	35.12	.00	35.12
5	1000.0	1250.0	4.23	.00	4.23
6	1250.0	1500.0	2.68	.00	2.68
7	1500.0	1750.0	2.42	.00	2.42
8	1750.0	2000.0	1.76	.00	1.76
9	2000.0	2250.0	.00	.00	.00
10	2250.0	2500.0	16.22	.00	16.22
11	2500.0	2750.0	5.34	.00	5.34
12	2750.0	3000.0	2.00	.00	2.00
13	3000.0	3250.0	2.54	.00	2.54
14	3250.0	3500.0	2.92	.00	2.92
15	3500.0	3750.0	1.24	.00	1.24
16	3750.0	4000.0	.57	.00	.57
17	4000.0	4250.0	6.19	.00	6.19
18	4250.0	4500.0	2.20	.00	2.20
19	4500.0	4750.0	.98	.00	.98
20	4750.0	5000.0	.18	.00	.18
21	5000.0	5250.0	.63	.00	.63
22	5250.0	5500.0	.00	.00	.00
23	5500.0	5750.0	2.19	.00	2.19
24	5750.0	6000.0	.47	.00	.47
25	6000.0	6250.0	78.69	.00	78.69
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.20	.00	.20
28	6750.0	7000.0	1.30	.00	1.30
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
BE(KEV)	6869.0	%BE	101.09	.00	101.09


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 616 YTTRIUM Z=39 CS 38.80 GMS 3.35 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 623 YTTRIUM Z=39 PS 38.8 GMS 1133 MIN
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ZIRCONIUM Z=40 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	232.4	0.31
2	244.3	7.68
3	250.4	9.51
4	266.3	0.96
5	312.3	0.46
6	332.8	0.87
7	336.1	0.57
8	342.0	0.86
9	380.5	0.45
10	386.2	0.48
11	447.5	1.81
12	491.7	0.72
13	540.9	0.31
14	561.4	8.61
15	596.7	0.87
16	602.5	0.26
17	623.8	0.37
18	668.4	0.88
19	844.0	2.31
20	903.0	0.82
21	912.7	3.22
22	933.7	37.50
23	990.5	1.48
24	1060.6	0.41
25	1132.5	3.78
26	1404.6	8.00
27	1425.4	0.60
28	1617.9	6.06
29	1632.3	2.33
30	1642.8	1.89
31	1847.7	3.40
32	1890.4	1.84
33	1988.0	2.35
34	2041.5	1.13
35	2105.8	1.29
36	2191.4	2.09
37	2213.3	1.34
38	2329.0	1.11
39	2354.8	0.60
40	2437.0	1.29
41	2475.2	1.00
42	2519.0	1.03
43	2531.5	0.88
44	2535.2	0.79
45	2693.8	4.78
46	2709.7	1.84
47	2873.1	0.62
48	2932.7	0.82

ZIRCONIUM Z=40 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2937.3	0.74
50	3045.9	0.50
51	3109.5	0.47
52	3146.8	0.51
53	3176.5	0.37
54	3268.8	1.00
55	3296.5	0.36
56	3342.1	0.93
57	3371.5	1.06
58	3437.6	1.31
59	3474.2	1.33
60	3501.4	1.04
61	3531.9	1.06
62	3579.3	0.62
63	3607.7	0.69
64	3637.3	0.85
65	3695.0	0.33
66	3857.8	0.58
67	3962.1	0.37
68	3998.3	0.33
69	4026.9	0.61
70	4090.8	0.73
71	4120.0	0.45
72	4225.1	0.48
73	4261.3	0.67
74	4277.0	0.57
75	4507.2	0.28
76	4529.6	1.78
77	4654.0	0.99
78	4738.1	0.21
79	4803.5	0.34
80	4986.0	0.41
81	4995.1	1.00
82	5006.0	1.98
83	5134.5	0.83
84	5162.4	0.43
85	5181.5	0.75
86	5263.2	2.91
87	5309.9	0.79
88	5371.2	0.27
89	5724.3	0.29
90	6294.4	16.71
91	6734.4	0.60
92	6760.4	0.25
93	7700.9	0.42
94	8634.7	0.82

BINDING ENERGY = 8680.0 %BE = 46.85 + 53.79 = 100.64

ZIRCONIUM Z=40 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	232.4	0.31
2	244.3	7.63
3	250.4	9.45
4	266.3	0.95
5	312.3	0.45
6	332.8	0.87
7	336.1	0.57
8	342.0	0.85
9	380.5	0.45
10	386.2	0.48
11	447.5	1.80
12	491.7	0.72
13	540.9	0.31
14	561.4	8.55
15	596.7	0.87
16	602.5	0.26
17	623.8	0.37
18	668.4	0.87
19	844.0	2.30
20	903.0	0.82
21	912.7	3.20
22	933.7	37.26
23	990.5	1.47
24	1060.6	0.41
25	1132.5	3.76
26	1404.6	7.95
27	1425.4	0.60
28	1617.9	6.02
29	1632.3	2.31
30	1642.8	1.88
31	1847.7	3.38
32	1890.4	1.83
33	1988.0	2.34
34	2041.5	1.12
35	2105.8	1.28
36	2191.4	2.07
37	2213.3	1.33
38	2329.0	1.10
39	2354.8	0.60
40	2437.0	1.28
41	2475.2	0.99
42	2519.0	1.02
43	2531.5	0.88
44	2535.2	0.78
45	2693.8	4.75
46	2709.7	1.83
47	2873.7	0.62
48	2932.7	0.81

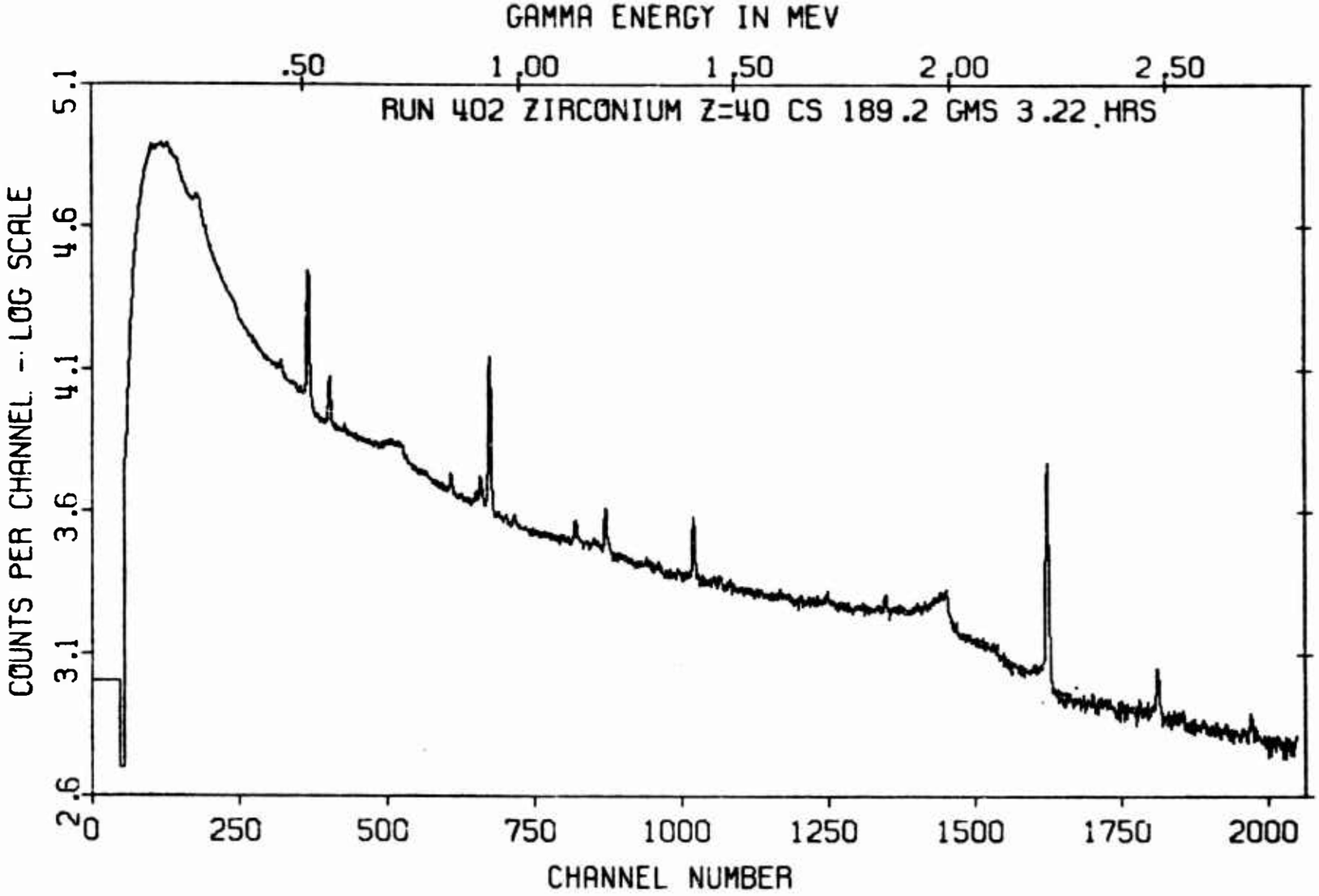
ZIRCONIUM Z=40 GAMARC CODE MITNE-85 DATA NORMALIZED YIELDS

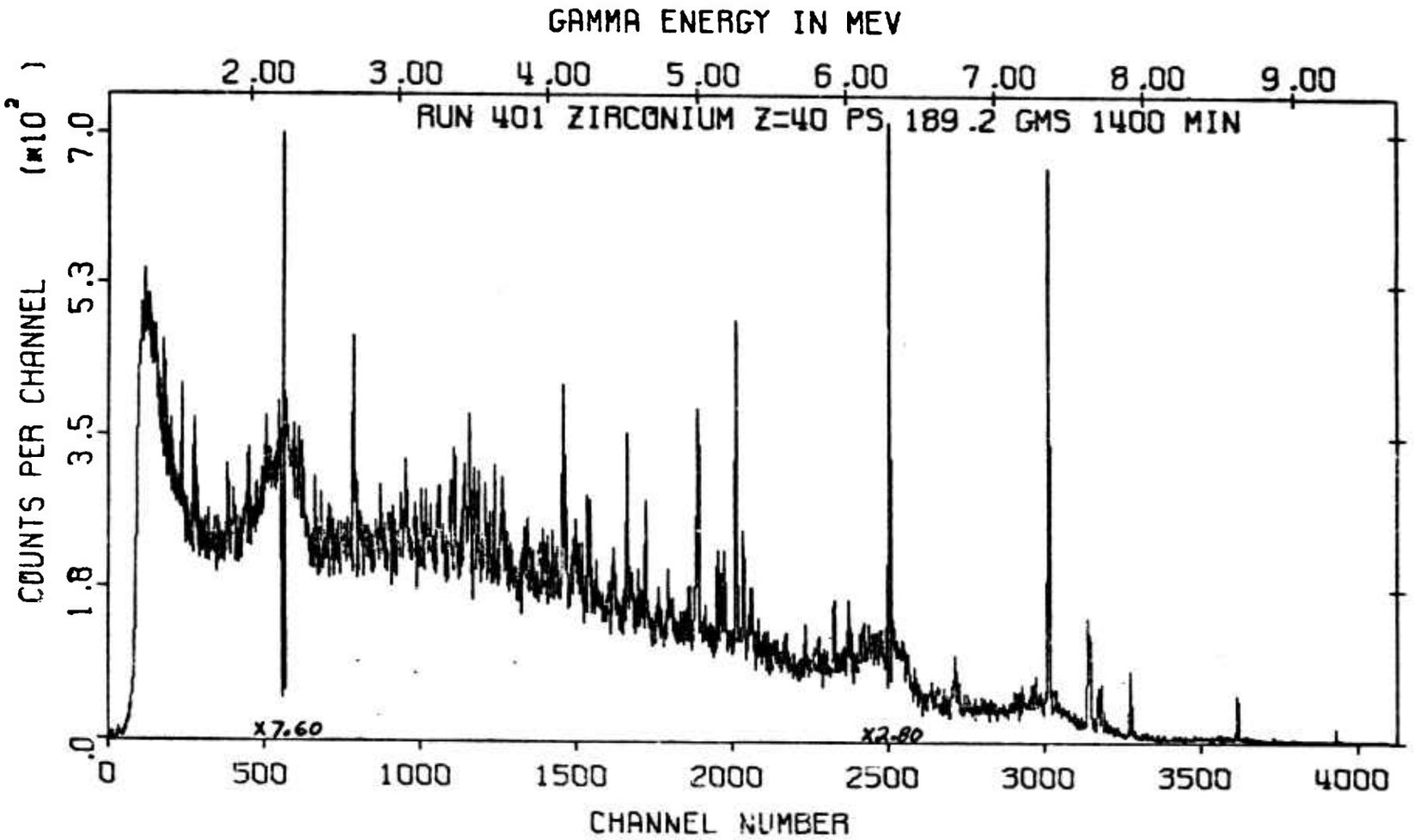
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2937.3	0.73
50	3045.9	0.49
51	3109.5	0.47
52	3146.8	0.50
53	3176.5	0.37
54	3268.9	0.99
55	3296.5	0.36
56	3342.1	0.93
57	3371.5	1.05
58	3437.6	1.31
59	3474.2	1.32
60	3501.4	1.03
61	3531.9	1.05
62	3579.3	0.61
63	3607.7	0.69
64	3637.3	0.84
65	3695.0	0.33
66	3857.8	0.57
67	3952.1	0.37
68	3998.3	0.33
69	4026.9	0.60
70	4090.8	0.73
71	4120.0	0.45
72	4225.1	0.47
73	4261.3	0.67
74	4277.0	0.56
75	4507.2	0.28
76	4529.6	1.77
77	4654.0	0.99
78	4738.1	0.21
79	4803.5	0.34
80	4986.0	0.41
81	4995.1	0.99
82	5006.0	1.96
83	5134.5	0.83
84	5162.4	0.43
85	5181.5	0.75
86	5263.2	2.89
87	5309.9	0.78
88	5371.2	0.27
89	5724.3	0.29
90	6294.4	16.60
91	6734.4	0.60
92	6760.4	0.25
93	7700.9	0.42
94	8634.7	0.82

BE(KEV) 8680.0 OBSERVED %BE 100.64 NORMALIZED %BE 100.00

ZIRCONIUM Z=40 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	7.94	0.0	7.94
2	250.0	500.0	16.58	0.0	16.58
3	500.0	750.0	11.23	0.0	11.23
4	750.0	1000.0	45.03	0.0	45.03
5	1000.0	1250.0	4.17	0.99	5.16
6	1250.0	1500.0	8.55	3.97	12.52
7	1500.0	1750.0	10.22	9.94	20.15
8	1750.0	2000.0	7.55	15.48	23.03
9	2000.0	2250.0	5.81	26.70	32.51
10	2250.0	2500.0	3.97	14.40	18.37
11	2500.0	2750.0	9.26	10.17	19.44
12	2750.0	3000.0	2.16	11.59	13.75
13	3000.0	3250.0	1.84	11.87	13.71
14	3250.0	3500.0	5.96	7.90	13.86
15	3500.0	3750.0	4.55	7.65	12.20
16	3750.0	4000.0	1.27	6.14	7.41
17	4000.0	4250.0	2.25	6.42	8.67
18	4250.0	4500.0	1.23	4.48	5.71
19	4500.0	4750.0	3.24	3.46	6.70
20	4750.0	5000.0	1.74	2.25	3.99
21	5000.0	5250.0	3.97	1.66	5.63
22	5250.0	5500.0	3.94	2.64	6.58
23	5500.0	5750.0	0.29	1.75	2.03
24	5750.0	6000.0	0.0	1.26	1.26
25	6000.0	6250.0	0.0	1.50	1.50
26	6250.0	6500.0	16.60	1.60	18.20
27	6500.0	6750.0	0.60	0.93	1.53
28	6750.0	7000.0	0.25	0.52	0.77
29	7000.0	7250.0	0.0	-0.36	-0.36
30	7250.0	7500.0	0.0	0.76	0.76
31	7500.0	7750.0	0.42	-0.03	0.39
32	7750.0	8000.0	0.0	0.41	0.41
33	8000.0	8250.0	0.0	-0.02	-0.02
34	8250.0	8500.0	0.0	-0.07	-0.07
35	8500.0	8750.0	0.82	0.08	0.90
BE(KEV)	8680.0	%BE	46.48	53.45	99.93


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 402 ZIRCONIUM Z=40 CS 189.2 GMS 3.22 HRS
COUNTS PER CHANNEL - LOG SCALE
5.1
4.6
4.1
3.6
3.1
2.6
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 401 ZIRCONIUM Z=40 PS 189.2 GMS 1400 MIN
COUNTS PER CHANNEL (*10²)
7.0
5.3
3.5
1.8
0.0
x7.60
x2.80
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	200.3	1.65
2	206.4	.95
3	217.5	.50
4	224.7	.34
5	229.2	.47
6	236.3	.33
7	254.7	25.46
8	271.0	.35
9	276.1	.45
10	282.2	.33
11	293.5	4.80
12	310.2	4.23
13	328.3	.36
14	338.1	3.79
15	350.5	.24
16	357.9	.29
17	362.9	.25
18	368.2	.35
19	373.6	.24
20	385.3	.17
21	396.0	.38
22	413.3	.25
23	419.2	.14
24	457.9	1.16
25	482.6	.67
26	499.0	3.46
27	526.2	.45
28	540.5	.19
29	562.9	1.69
30	640.0	.17
31	696.3	.16
32	735.6	.23
33	746.3	.17
34	750.9	.29
35	775.9	.50
36	835.9	1.54
37	878.8	.85
38	882.4	.88
39	896.1	1.38
40	911.2	.77
41	936.7	.16
42	945.2	1.94
43	955.0	.32
44	958.1	.41
45	1025.9	.22
46	1079.5	.16
47	1119.1	.53
48	1130.0	.64

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1150.6	.22
50	1238.1	.20
51	1242.4	.12
52	1265.1	.20
53	1353.0	.22
54	1358.1	.20
55	1392.4	.44
56	1404.1	.21
57	1417.9	.30
58	1447.0	.44
59	1618.3	1.98
60	1725.5	1.40
61	1879.4	.45
62	2121.3	.37
63	2292.4	.44
64	2494.9	.42
65	2672.1	.27
66	2734.5	.15
67	2965.8	.16
68	3114.6	.25
69	3387.6	.47
70	3430.8	.14
71	3479.8	.19
72	3506.7	.22
73	3544.1	.14
74	3650.7	.20
75	3678.2	.27
76	3720.1	.11
77	3774.3	.09
78	3811.1	.18
79	3889.8	.26
80	3920.4	.17
81	3978.9	.25
82	3999.1	.19
83	4004.3	.18
84	4014.8	.66
85	4089.6	.11
86	4130.5	.33
87	4155.6	.13
88	4196.4	.15
89	4207.5	.07
90	4239.5	.18
91	4260.2	.16
92	4304.4	.16
93	4329.4	.28
94	4349.0	.09
95	4361.9	.17
96	4396.9	.07

NEODYMIUM Z=41 GAMMA CODE MITNF-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4456.2	.06
98	4483.1	.31
99	4496.9	.30
100	4507.6	.29
101	4520.5	.44
102	4525.7	.12
103	4540.1	.26
104	4557.2	.24
105	4595.1	.22
106	4607.4	.27
107	4631.5	.53
108	4660.6	.14
109	4672.6	.40
110	4681.2	.26
111	4712.0	.27
112	4739.2	.68
113	4772.5	.28
114	4791.9	.38
115	4828.3	.46
116	4913.7	.44
117	4927.4	.10
118	4962.3	.29
119	4997.2	.12
120	5012.6	.36
121	5052.4	.21
122	5069.7	.72
123	5087.0	.08
124	5103.9	1.36
125	5128.9	.22
126	5180.4	.54
127	5193.6	.85
128	5208.8	.45
129	5253.2	.67
130	5282.5	.28
131	5307.2	.43
132	5348.3	.41
133	5365.3	.59
134	5399.8	.50
135	5424.0	.06
136	5450.3	.38
137	5496.4	1.37
138	5509.1	.41
139	5533.3	.14
140	5571.9	.13
141	5591.5	.44
142	5610.4	.28
143	5645.4	.10
144	5708.1	.08

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5726.7	.11
146	5770.4	.34
147	5833.0	.08
148	5880.0	.26
149	5894.4	1.18
150	5945.9	.25
151	5964.9	.19
152	5979.5	.15
153	5996.4	.13
154	6058.2	.16
155	6068.9	.21
156	6165.2	.06
157	6292.8	.24
158	6331.7	.08
159	6435.2	.18
160	6597.4	.17
161	6830.4	1.19
162	6914.9	.21
163	7110.7	.09
164	7167.5	.07
165	7185.8	.57

BINDING ENERGY = 7213.0 %BE = 26.70 + 76.29 = 102.99

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	200.3	1.60
2	206.4	.92
3	217.5	.49
4	224.7	.33
5	229.2	.45
6	236.3	.32
7	254.7	24.72
8	271.0	.34
9	276.1	.43
10	282.2	.32
11	293.5	4.66
12	310.2	4.11
13	328.3	.35
14	338.1	3.68
15	350.5	.24
16	357.9	.28
17	362.9	.24
18	368.2	.34
19	373.6	.23
20	385.3	.17
21	396.0	.37
22	413.3	.24
23	419.2	.14
24	457.9	1.12
25	482.6	.65
26	499.0	3.36
27	526.2	.44
28	540.5	.18
29	562.9	1.64
30	640.0	.17
31	696.3	.16
32	735.6	.22
33	746.3	.16
34	750.9	.29
35	775.9	.49
36	835.9	1.50
37	878.8	.83
38	882.4	.85
39	896.1	1.34
40	911.2	.75
41	936.7	.16
42	945.2	1.88
43	955.0	.31
44	958.1	.40
45	1025.9	.21
46	1079.5	.15
47	1119.1	.52
48	1130.0	.63

NIOBIUM Z=41 GAMA8C CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1150.6	.21
50	1238.1	.19
51	1242.4	.12
52	1265.1	.19
53	1353.0	.22
54	1358.1	.19
55	1392.4	.43
56	1404.1	.20
57	1417.9	.29
58	1447.0	.43
59	1618.3	1.92
60	1725.5	1.36
61	1879.4	.44
62	2121.3	.36
63	2292.4	.43
64	2494.9	.41
65	2672.1	.27
66	2734.5	.15
67	2965.8	.15
68	3114.6	.24
69	3387.6	.46
70	3430.8	.13
71	3479.8	.18
72	3506.7	.22
73	3544.1	.14
74	3650.7	.20
75	3678.2	.26
76	3720.1	.11
77	3774.3	.09
78	3911.1	.17
79	3889.8	.25
80	3920.4	.16
81	3978.9	.24
82	3999.1	.19
83	4004.3	.17
84	4014.8	.64
85	4089.6	.11
86	4130.5	.32
87	4155.6	.13
88	4196.4	.14
89	4207.5	.07
90	4239.5	.18
91	4260.2	.16
92	4304.4	.16
93	4329.4	.27
94	4349.0	.08
95	4361.9	.16
96	4396.9	.07

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4406.2	.06
98	4433.1	.30
99	4456.9	.29
100	4467.6	.28
101	4502.5	.42
102	4525.7	.11
103	4540.1	.25
104	4557.2	.23
105	4595.1	.22
106	4607.4	.27
107	4631.5	.52
108	4660.6	.13
109	4672.6	.39
110	4681.2	.26
111	4712.0	.27
112	4739.2	.66
113	4772.5	.27
114	4791.9	.37
115	4828.3	.45
116	4913.7	.43
117	4927.4	.09
118	4982.3	.29
119	4997.2	.11
120	5032.6	.35
121	5052.4	.21
122	5069.7	.70
123	5087.0	.08
124	5103.9	1.32
125	5128.9	.21
126	5180.4	.53
127	5193.6	.83
128	5208.8	.44
129	5253.2	.65
130	5283.5	.27
131	5307.2	.41
132	5348.3	.40
133	5365.3	.58
134	5399.8	.48
135	5424.0	.06
136	5450.3	.36
137	5496.4	1.33
138	5509.1	.40
139	5533.3	.14
140	5571.9	.13
141	5591.5	.43
142	5610.4	.27
143	5645.4	.10
144	5708.1	.08

NIOBIUM Z=41 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

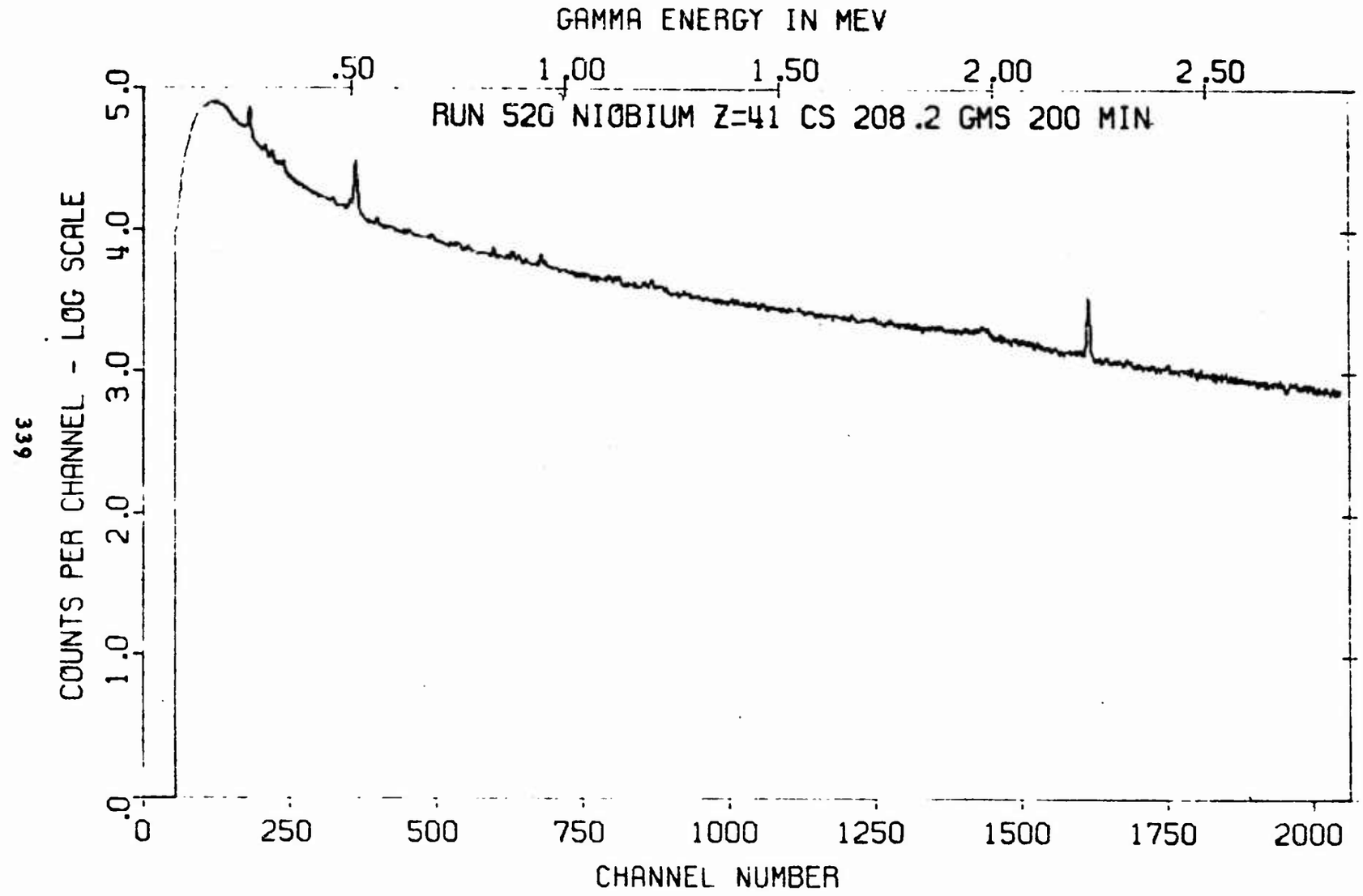
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5726.7	.10
146	5770.4	.33
147	5833.0	.08
148	5880.0	.25
149	5894.4	1.15
150	5945.9	.24
151	5964.9	.19
152	5979.5	.15
153	5996.4	.12
154	6058.2	.15
155	6068.9	.21
156	6165.2	.06
157	6292.8	.24
158	6331.7	.08
159	6435.2	.18
160	6597.4	.17
161	6830.4	1.16
162	6914.9	.20
163	7110.7	.09
164	7167.5	.07
165	7185.8	.55

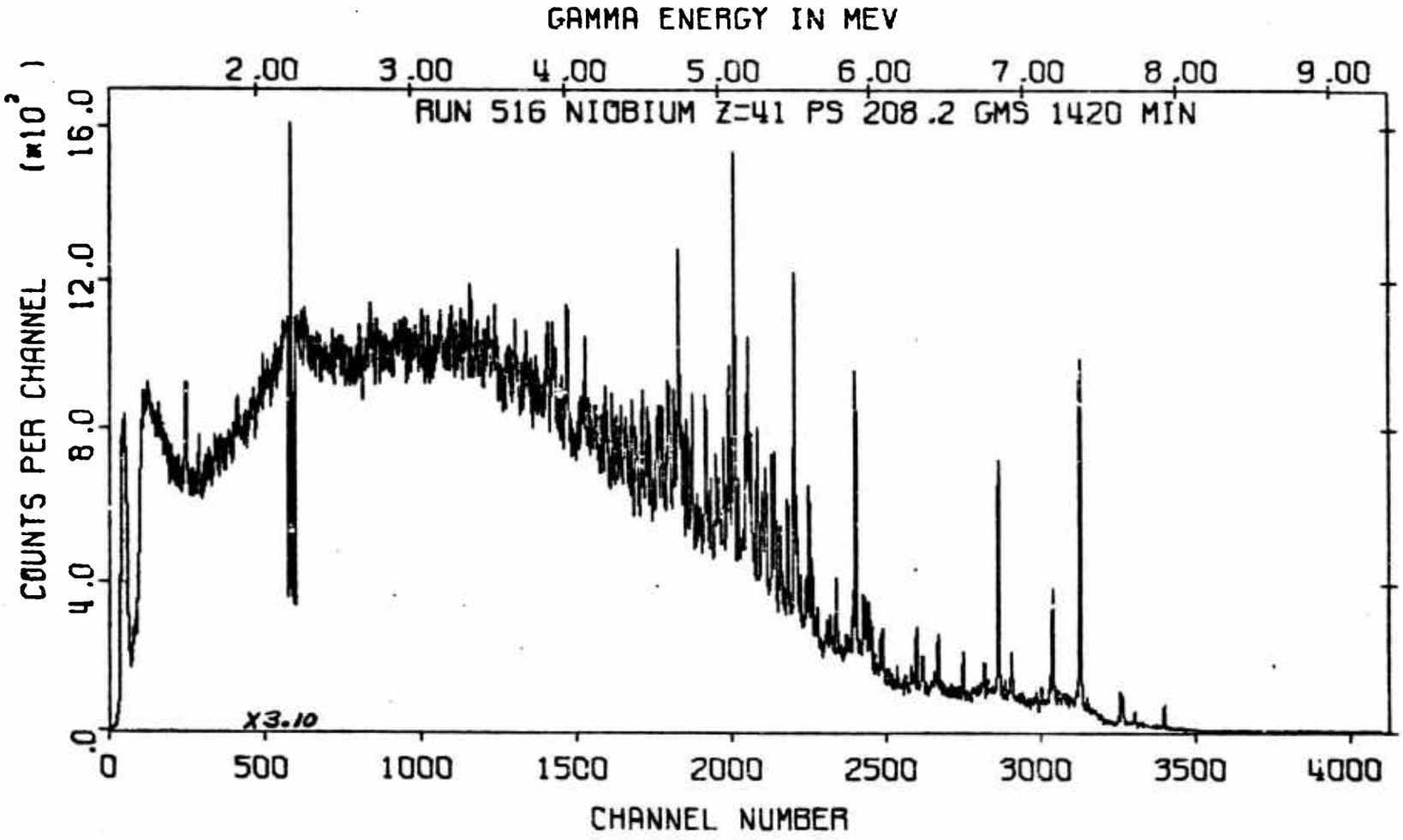
BE(KEV) 7213.0 OBSERVED %BE 102.99 NORMALIZED %BE 100.00

NIOBIUM Z=41 GAMA8C CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	4.11	.00	4.11
2	250.0	500.0	45.99	.00	45.99
3	500.0	750.0	2.97	.00	2.97
4	750.0	1000.0	8.80	.97	9.77
5	1000.0	1250.0	2.03	3.88	5.91
6	1250.0	1500.0	1.94	7.77	9.71
7	1500.0	1750.0	3.27	11.65	14.93
8	1750.0	2000.0	.44	19.59	20.03
9	2000.0	2250.0	.36	22.37	22.73
10	2250.0	2500.0	.84	18.66	19.50
11	2500.0	2750.0	.42	15.72	16.14
12	2750.0	3000.0	.15	14.33	14.48
13	3000.0	3250.0	.24	11.90	12.14
14	3250.0	3500.0	.77	10.89	11.67
15	3500.0	3750.0	.93	9.20	10.13
16	3750.0	4000.0	1.10	8.16	9.26
17	4000.0	4250.0	1.76	5.83	7.59
18	4250.0	4500.0	1.84	4.54	6.38
19	4500.0	4750.0	3.73	4.48	8.20
20	4750.0	5000.0	2.01	3.63	5.64
21	5000.0	5250.0	4.66	3.51	8.18
22	5250.0	5500.0	4.55	2.42	6.96
23	5500.0	5750.0	1.65	1.62	3.27
24	5750.0	6000.0	2.51	1.33	3.84
25	6000.0	6250.0	.42	.59	1.01
26	6250.0	6500.0	.49	.84	1.33
27	6500.0	6750.0	.17	.50	.66
28	6750.0	7000.0	1.36	.57	1.93
29	7000.0	7250.0	.71	.43	1.14
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
BE(KEV)	7213.0	%BE	26.29	74.08	100.37


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 520 NIOBIUM Z=41 CS 208.2 GMS 200 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 516 NIOBIUM Z=41 PS 208.2 GMS 1420 MIN
COUNTS PER CHANNEL (*10³)
16.0
12.0
8.0
4.0
0.0
X3.10
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

MOLY Z=42 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	187.5	.16
2	193.1	.20
3	222.2	.18
4	228.0	.23
5	244.7	1.27
6	252.4	1.48
7	264.1	.61
8	268.7	.21
9	279.8	.21
10	297.9	.18
11	304.6	.31
12	308.6	.25
13	350.1	.68
14	370.8	1.06
15	405.6	.18
16	450.4	.11
17	480.1	1.31
18	550.8	.18
19	569.7	1.18
20	573.7	1.30
21	580.2	1.64
22	592.1	.67
23	609.2	2.50
24	678.8	.32
25	720.3	7.63
26	737.4	1.99
27	759.8	.48
28	778.3	38.35
29	786.8	3.33
30	811.7	.32
31	848.8	15.08
32	968.2	.45
33	1091.2	3.95
34	1107.3	.59
35	1188.8	.73
36	1200.9	3.83
37	1229.3	.38
38	1318.1	1.33
39	1458.8	.60
40	1497.8	2.13
41	1563.1	.43
42	1566.6	1.40
43	1569.4	.52
44	1594.	.56
45	1618.1	.53
46	1702.5	.82
47	1762.8	.62
48	1775.0	.37

MOLY Z=42 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1923.3	1.52
50	1958.6	.47
51	2009.9	1.58
52	2111.6	.48
53	2375.7	.58
54	2400.8	.91
55	2423.4	.30
56	2451.5	.20
57	2506.8	.38
58	2586.3	.26
59	2645.1	.33
60	2653.0	.36
61	2663.9	1.74
62	2750.4	.13
63	2792.7	.21
64	2795.4	.23
65	2812.5	.20
66	2846.7	.23
67	2958.6	.37
68	3009.2	.21
69	3058.2	.17
70	3132.7	.30
71	3213.3	.14
72	3236.4	.11
73	3260.0	.11
74	3300.3	.26
75	3329.1	.17
76	3473.5	.09
77	3490.1	.12
78	3606.2	.37
79	3645.9	.25
80	3672.3	.09
81	3692.5	.43
82	3736.6	.28
83	3750.9	.08
84	3831.4	.25
85	3896.9	.15
86	3915.2	.13
87	3932.3	.25
88	3953.4	.14
89	3971.1	.09
90	3996.3	.12
91	4018.5	.10
92	4049.8	.27
93	4071.4	.06
94	4179.2	.08
95	4205.6	.12
96	4228.1	.09

MOLY Z=42 GAMABC CODE MITNE-05 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4268.2	.07
98	4294.4	.15
99	4308.9	.06
100	4325.4	.21
101	4356.2	.14
102	4380.8	.12
103	4442.9	.48
104	4493.4	.47
105	4503.2	.49
106	4529.8	.07
107	4542.8	.24
108	4613.7	.25
109	4649.6	.06
110	4660.2	.10
111	4681.7	.39
112	4741.2	.42
113	4757.7	.07
114	4767.6	.26
115	4789.1	.15
116	4806.6	.07
117	4840.4	.14
118	4880.1	.28
119	4925.0	.27
120	4933.8	.35
121	4957.2	.09
122	5031.1	.05
123	5043.6	.15
124	5078.0	.04
125	5107.2	.10
126	5117.4	.06
127	5218.5	.24
128	5247.3	.49
129	5285.1	.20
130	5404.9	.12
131	5427.4	.13
132	5531.1	.48
133	5543.9	.41
134	5602.0	.62
135	5649.6	.13
136	5712.5	1.37
137	5738.2	.28
138	5818.7	.24
139	5869.2	.13
140	5951.5	.42
141	6020.4	.20
142	6066.5	.22
143	6128.5	.45
144	6180.2	.09

MOLY Z=42 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6364.4	.75
146	6455.0	.16
147	6559.5	.09
148	6625.1	.65
149	6673.8	.35
150	6919.3	3.36
151	7414.7	.06
152	7526.9	.61
153	7642.1	.10
154	8373.7	.56

BINDING ENERGY = 8752.0 %BE = 27.19 + 76.67 = 103.85

MOLY Z=42 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	187.5	.16
2	193.1	.19
3	222.2	.18
4	228.0	.22
5	244.7	1.22
6	252.4	1.43
7	264.1	.59
8	268.7	.21
9	279.8	.21
10	297.9	.17
11	304.6	.30
12	308.6	.24
13	350.1	.66
14	370.8	1.02
15	405.6	.17
16	450.4	.11
17	480.1	1.26
18	550.8	.18
19	569.7	1.13
20	573.7	1.25
21	580.2	1.58
22	592.1	.65
23	609.2	2.41
24	678.8	.31
25	720.3	7.35
26	737.4	1.91
27	759.8	.46
28	778.3	36.92
29	786.8	3.21
30	811.7	.31
31	848.8	14.52
32	968.2	.44
33	1091.2	3.80
34	1107.3	.57
35	1188.8	.70
36	1200.9	3.69
37	1229.3	.37
38	1318.1	1.28
39	1458.8	.58
40	1497.8	2.05
41	1563.1	.41
42	1566.6	1.34
43	1569.4	.50
44	1594.6	.54
45	1618.1	.51
46	1702.5	.79
47	1762.8	.60
48	1775.0	.36

MOLY Z=42 GAMABC CODE MITNE-8 TA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHO /100CAPT
49	1923.3	.46
50	1958.6	.45
51	2009.9	1.52
52	2111.6	.46
53	2375.7	.55
54	2400.8	.87
55	2423.4	.29
56	2451.5	.19
57	2506.8	.37
58	2586.3	.25
59	2645.1	.32
60	2653.0	.35
61	2663.9	1.68
62	2750.4	.12
63	2792.7	.20
64	2795.4	.23
65	2812.5	.19
66	2846.7	.22
67	2858.6	.35
68	3009.2	.20
69	3058.2	.16
70	3132.7	.29
71	3213.3	.13
72	3236.4	.11
73	3260.0	.11
74	3300.3	.25
75	3329.1	.16
76	3473.5	.09
77	3490.1	.12
78	3606.2	.36
79	3645.9	.24
80	3672.3	.09
81	3692.5	.41
82	3736.6	.27
83	3750.9	.08
84	3831.4	.24
85	3896.9	.15
86	3915.2	.13
87	3932.3	.24
88	3953.4	.13
89	3971.1	.09
90	3996.3	.11
91	4018.5	.10
92	4049.8	.26
93	4071.4	.06
94	4179.2	.07
95	4205.6	.12
96	4228.1	.08

MOLY Z=42 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4268.2	.07
98	4294.4	.15
99	4308.9	.06
100	4325.4	.20
101	4356.2	.13
102	4380.8	.12
103	4442.9	.46
104	4493.4	.46
105	4503.2	.47
106	4529.8	.07
107	4542.8	.23
108	4613.7	.24
109	4649.6	.06
110	4660.2	.09
111	4681.7	.38
112	4741.2	.40
113	4757.7	.07
114	4767.6	.25
115	4789.1	.14
116	4806.6	.07
117	4840.4	.13
118	4880.1	.27
119	4925.0	.26
120	4933.8	.34
121	4957.2	.09
122	5031.1	.04
123	5043.6	.15
124	5078.0	.04
125	5107.2	.10
126	5117.4	.05
127	5218.5	.23
128	5247.3	.47
129	5285.1	.19
130	5404.9	.12
131	5427.4	.13
132	5531.1	.46
133	5543.9	.39
134	5602.0	.59
135	5649.6	.12
136	5712.5	1.32
137	5738.2	.27
138	5818.7	.23
139	5869.2	.12
140	5951.5	.40
141	6020.4	.19
142	6066.5	.22
143	6128.5	.44
144	6180.2	.09

MOLY Z=42 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

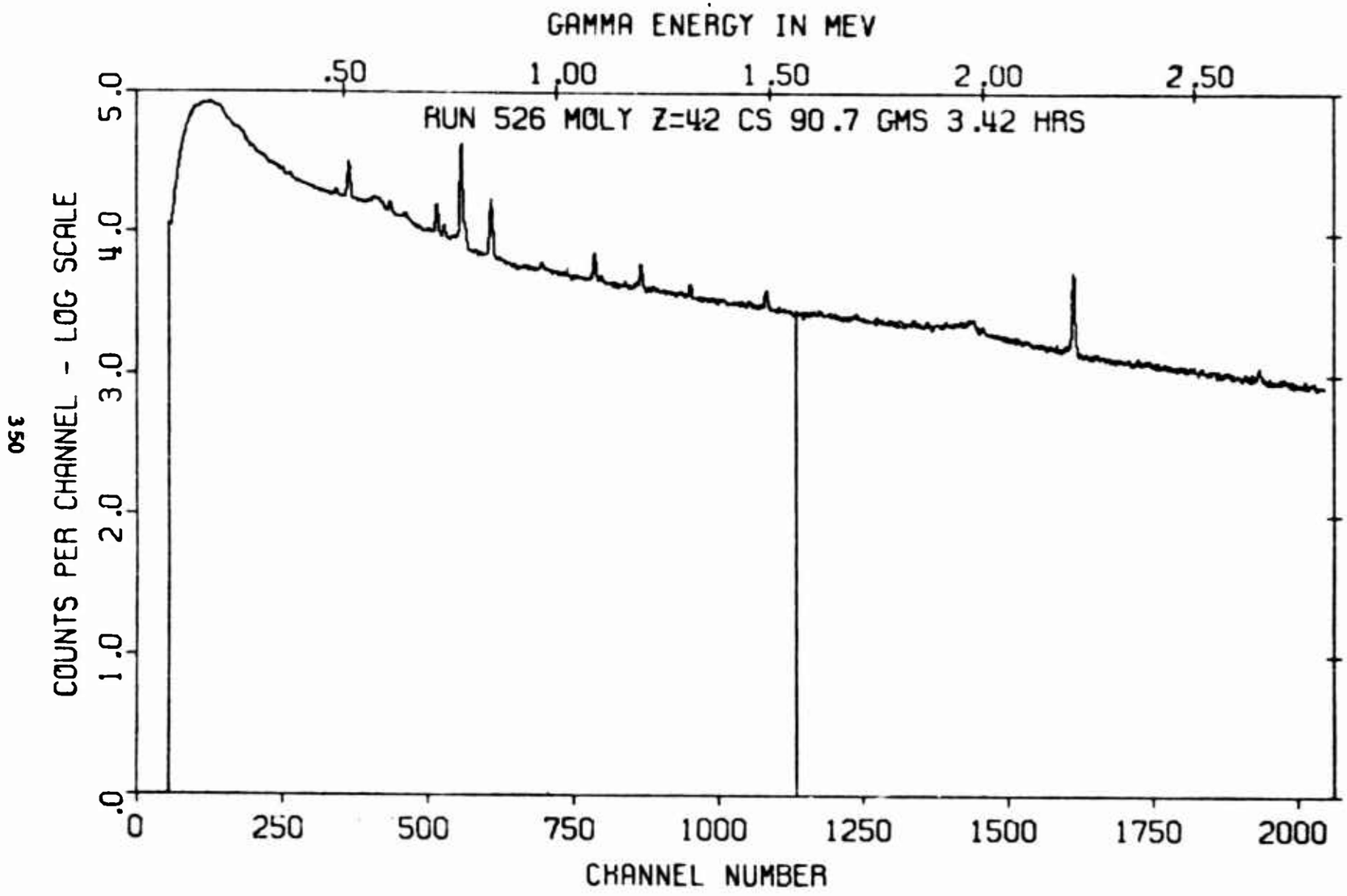
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6364.4	.73
146	6455.0	.15
147	6559.5	.08
148	6625.1	.63
149	6673.8	.34
150	6919.3	3.24
151	7414.7	.05
152	7526.9	.59
153	7642.1	.10
154	8373.7	.54

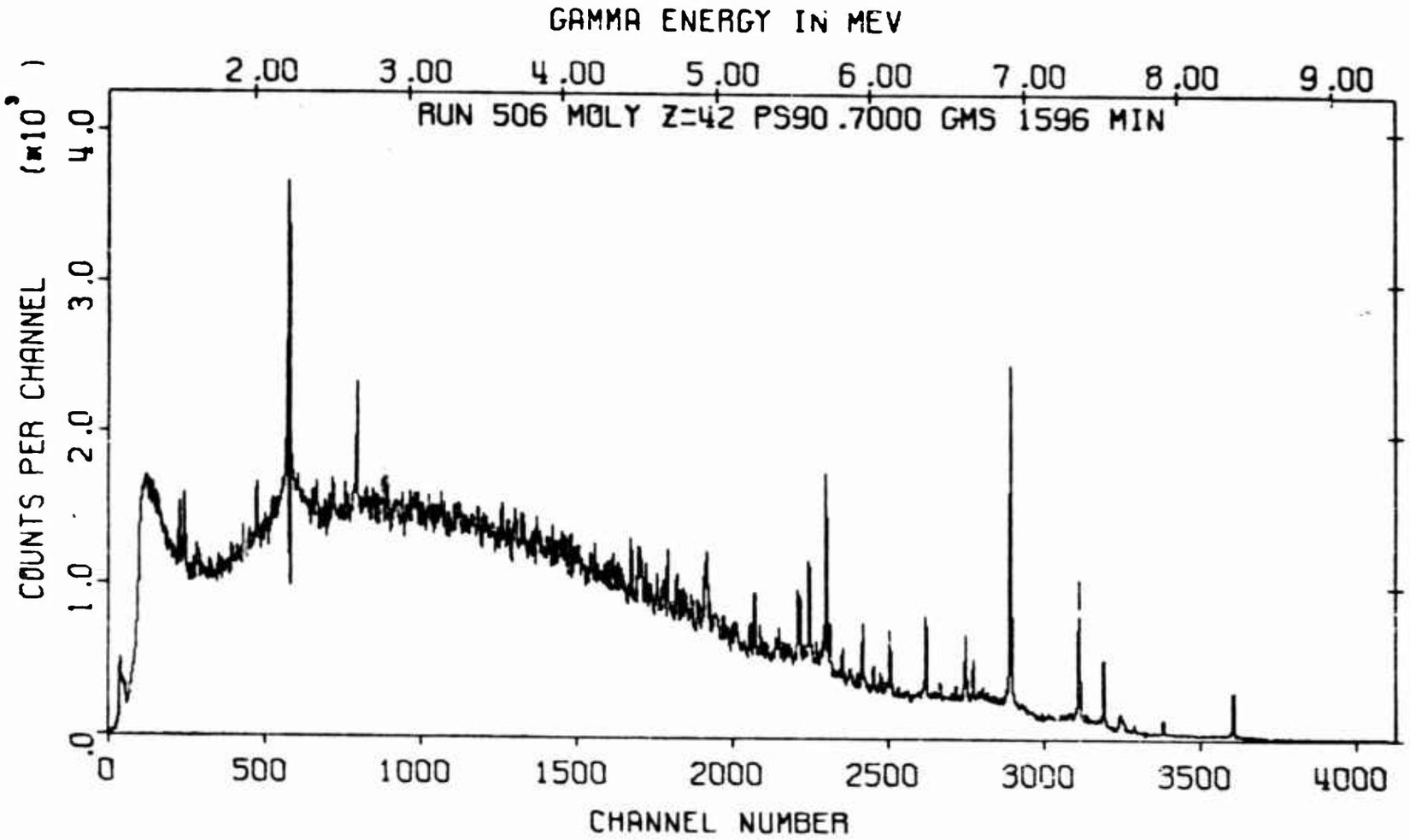
BE(KEV) 8752.0 OBSERVED %BE 103.85 NORMALIZED %BE 100.00

MOLY Z=42 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	1.97	.00	1.97
2	250.0	500.0	6.36	.00	6.36
3	500.0	750.0	16.77	.00	16.77
4	750.0	1000.0	55.87	1.93	57.79
5	1000.0	1250.0	9.13	5.78	14.90
6	1250.0	1500.0	3.92	11.55	15.47
7	1500.0	1750.0	4.10	26.21	30.31
8	1750.0	2000.0	2.87	19.75	22.62
9	2000.0	2250.0	1.99	25.33	27.32
10	2250.0	2500.0	1.91	19.60	21.52
11	2500.0	2750.0	2.96	18.53	21.49
12	2750.0	3000.0	1.32	15.65	16.96
13	3000.0	3250.0	.89	13.42	14.31
14	3250.0	3500.0	.72	11.13	11.86
15	3500.0	3750.0	1.36	9.17	10.52
16	3750.0	4000.0	1.16	8.50	9.66
17	4000.0	4250.0	.68	7.32	8.00
18	4250.0	4500.0	1.64	5.41	7.05
19	4500.0	4750.0	1.94	4.73	6.67
20	4750.0	5000.0	1.61	4.41	6.02
21	5000.0	5250.0	1.08	3.15	4.23
22	5250.0	5500.0	.44	2.77	3.21
23	5500.0	5750.0	3.15	2.76	5.91
24	5750.0	6000.0	.75	1.54	2.29
25	6000.0	6250.0	.93	1.05	1.98
26	6250.0	6500.0	.88	1.01	1.89
27	6500.0	6750.0	1.05	1.19	2.24
28	6750.0	7000.0	3.24	1.30	4.54
29	7000.0	7250.0	.00	.56	.56
30	7250.0	7500.0	.05	.73	.79
31	7500.0	7750.0	.69	.66	1.35
32	7750.0	8000.0	.00	.19	.19
33	8000.0	8250.0	.00	.11	.11
34	8250.0	8500.0	.54	.22	.76
35	8500.0	8750.0	.00	.06	.06
36	8750.0	9000.0	.00	.11	.11
37	9000.0	9250.0	.00	.00	.00
38	9250.0	9500.0	.00	.00	.00
BE(KEV)	8752.0	%BE	26.53	73.82	100.35


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 526 MOLY Z=42 CS 90.7 GMS 3.42 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 506 MOLY Z=42 PS90 .7000 GMS 1596 MIN
COUNTS PER CHANNEL (x10³)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

RUTHENIUM Z=44 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	160.3	2.54
2	174.8	6.23
3	211.2	.19
4	250.8	.47
5	271.2	.28
6	359.0	.25
7	362.6	.17
8	403.8	.55
9	418.1	.14
10	475.1	7.78
11	540.0	12.16
12	591.9	.22
13	630.8	4.10
14	664.5	.12
15	687.4	4.57
16	711.6	.34
17	737.4	.54
18	823.1	1.17
19	850.2	.32
20	1046.5	.71
21	1103.7	1.53
22	1302.4	.36
23	1342.1	1.06
24	1362.2	1.01
25	1627.4	.86
26	1620.0	4.14
27	1628.5	6.69
28	1701.5	2.07
29	1827.3	1.77
30	2459.7	.47
31	3321.3	.31
32	3656.1	.25
33	3787.8	.24
34	3947.1	.39
35	4007.8	.28
36	4024.4	.36
37	4216.8	.36
38	4269.8	.43
39	4325.8	.39
40	4350.5	.68
41	4394.7	.49
42	4477.3	.32
43	4586.2	.18
44	4627.0	.81
45	4653.1	.21
46	4828.2	.15
47	4881.4	.17
48	4886.2	.12

RUTHENIUM Z=44 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5022.1	1.12
50	5091.4	.17
51	5151.8	.34
52	5300.7	.30
53	5333.0	.31
54	5567.7	.14
55	5586.3	.17
56	5670.5	.13
57	5750.4	.24
58	5770.9	.11
59	5853.5	.15
60	5871.1	.15
61	5893.9	.31
62	5910.5	.12
63	5941.6	.13
64	6113.8	.53
65	6184.3	.17
66	6208.3	.35
67	6273.5	.94
68	6298.6	.14
69	6325.8	.24
70	6342.0	.91
71	6371.4	.22
72	6416.2	.09
73	6507.5	.17
74	6561.8	.21
75	6626.5	.49
76	6689.6	.25
77	6753.6	.19
78	6957.2	.34
79	7102.8	.54
80	7177.0	.60
81	7306.7	.20
82	7506.3	.41
83	7610.1	.21
84	7694.7	.16
85	8113.2	.13
86	8309.8	.10
87	9135.2	.16

BINDING ENERGY = 8277.0 *BE = 18.44 + 95.40 = 113.84

RUTHENIUM Z=44 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	160.3	2.23
2	174.8	5.47
3	211.2	.17
4	250.8	.42
5	271.2	.24
6	359.0	.22
7	362.6	.15
8	403.8	.49
9	418.1	.12
10	475.1	6.84
11	540.0	10.69
12	591.9	.19
13	630.8	3.60
14	664.5	.11
15	687.4	4.01
16	711.6	.30
17	737.4	.48
18	823.1	1.03
19	850.2	.26
20	1046.5	.62
21	1103.7	1.34
22	1302.4	.31
23	1342.1	.93
24	1362.2	.89
25	1627.4	.75
26	1620.0	3.64
27	1628.5	5.88
28	1701.5	1.82
29	1827.3	1.55
30	2459.7	.42
31	3321.3	.28
32	3656.1	.22
33	3787.8	.21
34	3947.1	.34
35	4007.8	.25
36	4024.4	.32
37	4216.8	.32
38	4269.8	.38
39	4325.8	.34
40	4350.5	.60
41	4394.7	.43
42	4477.3	.26
43	4586.2	.15
44	4627.0	.72
45	4653.1	.19
46	4828.2	.13
47	4881.4	.15
48	4886.2	.10

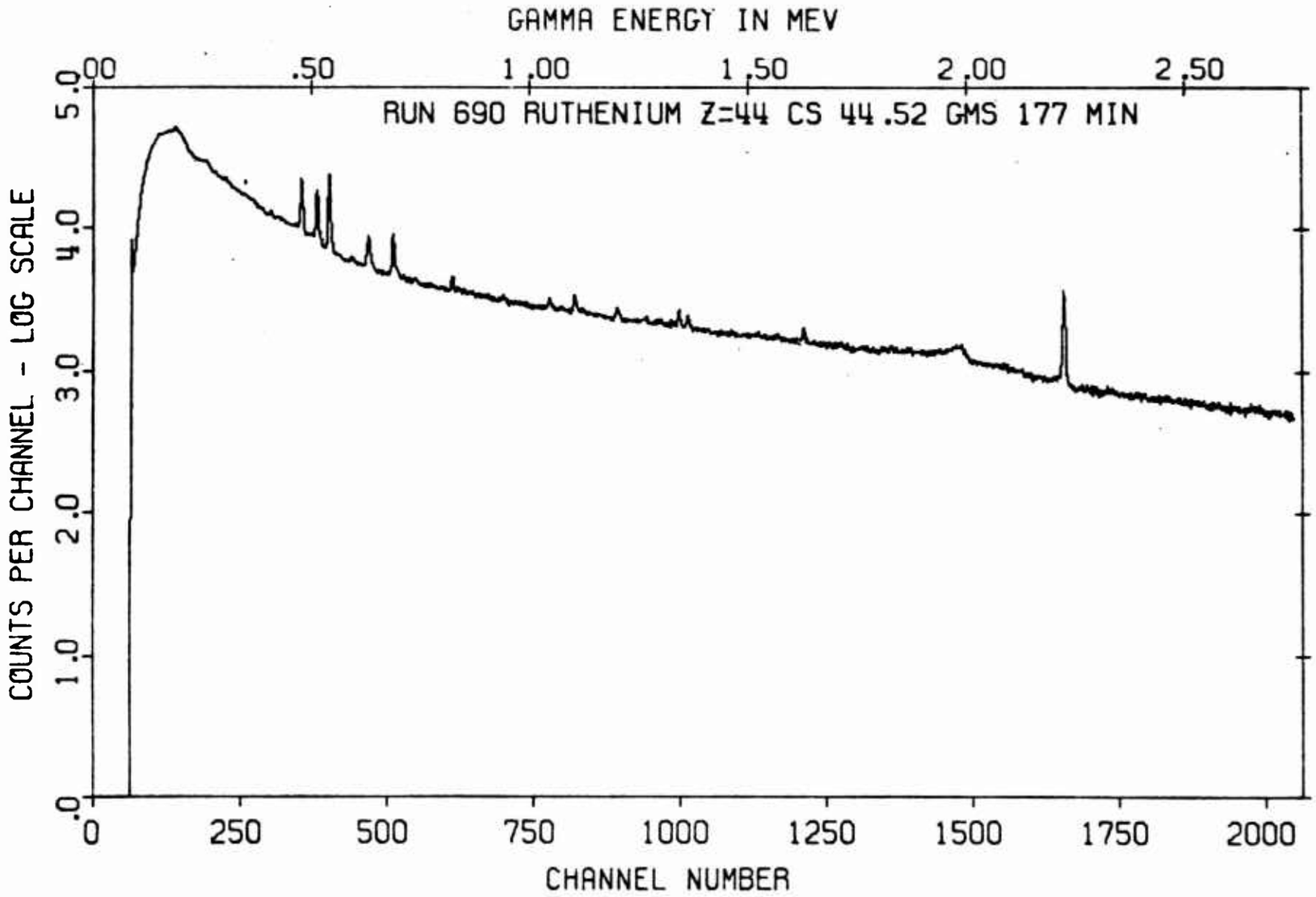
RUTHENIUM Z=44 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

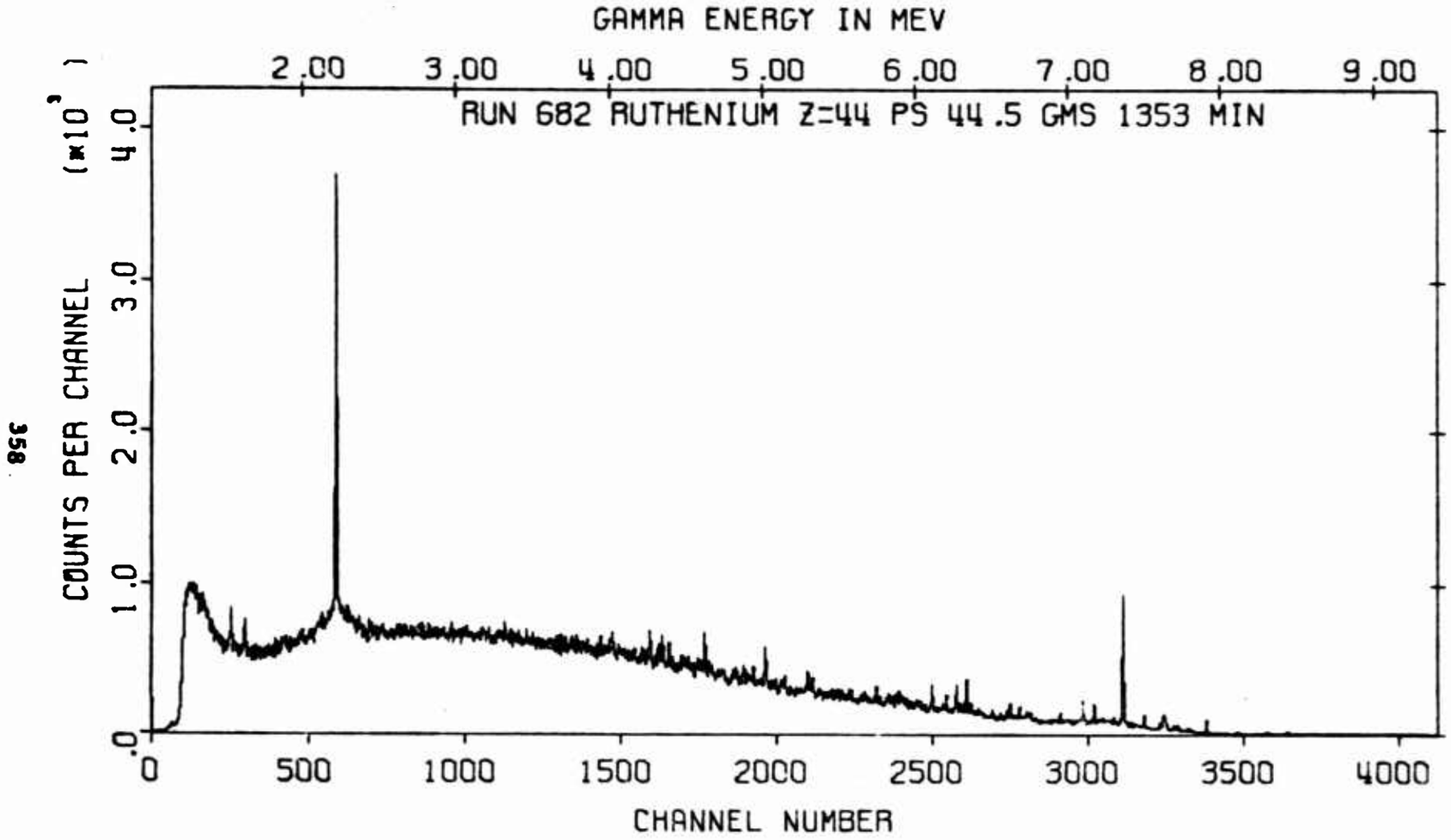
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5022.1	.98
50	5091.4	.15
51	5151.8	.30
52	5300.7	.27
53	5333.0	.27
54	5567.7	.12
55	5586.3	.15
56	5670.5	.12
57	5750.4	.21
58	5770.9	.10
59	5853.5	.13
60	5871.1	.13
61	5893.9	.27
62	5910.5	.10
63	5941.6	.11
64	6113.8	.47
65	6184.3	.15
66	6208.3	.31
67	6273.5	.82
68	6298.6	.13
69	6325.8	.21
70	6342.0	.80
71	6371.4	.19
72	6416.2	.08
73	6507.5	.15
74	6561.8	.18
75	6626.5	.43
76	6689.6	.22
77	6753.6	.17
78	6957.2	.30
79	7102.8	.47
80	7177.0	.53
81	7306.7	.18
82	7506.3	.36
83	7610.1	.18
84	7694.7	.14
85	8113.2	.11
86	8309.8	.09
87	9135.2	.14

BE(KEV) 8277.0 OBSERVED %BE 113.84 NORMALIZED %BE 100.00

RUTHENIUM Z=44 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	7.87	.00	7.87
2	250.0	500.0	8.48	.00	8.48
3	500.0	750.0	19.37	.00	19.37
4	750.0	1000.0	1.31	.88	2.19
5	1000.0	1250.0	1.96	1.76	3.72
6	1250.0	1500.0	2.13	5.27	7.40
7	1500.0	1750.0	12.09	14.37	26.46
8	1750.0	2000.0	1.55	19.81	21.36
9	2000.0	2250.0	.00	25.15	25.15
10	2250.0	2500.0	.42	22.93	23.35
11	2500.0	2750.0	.00	19.63	19.63
12	2750.0	3000.0	.00	17.83	17.83
13	3000.0	3250.0	.00	14.70	14.70
14	3250.0	3500.0	.28	12.63	12.91
15	3500.0	3750.0	.22	10.20	10.42
16	3750.0	4000.0	.56	9.37	9.93
17	4000.0	4250.0	.88	8.44	9.32
18	4250.0	4500.0	2.02	6.89	8.91
19	4500.0	4750.0	1.06	6.62	7.68
20	4750.0	5000.0	.39	5.30	5.68
21	5000.0	5250.0	1.43	3.89	5.32
22	5250.0	5500.0	.54	4.14	4.67
23	5500.0	5750.0	.38	3.05	3.43
24	5750.0	6000.0	1.05	2.75	3.80
25	6000.0	6250.0	.93	1.89	2.82
26	6250.0	6500.0	2.24	1.31	3.54
27	6500.0	6750.0	.98	1.37	2.35
28	6750.0	7000.0	.47	.93	1.40
29	7000.0	7250.0	1.00	.90	1.90
30	7250.0	7500.0	.18	.56	.74
31	7500.0	7750.0	.69	.38	1.06
32	7750.0	8000.0	.00	.31	.31
33	8000.0	8250.0	.11	.07	.18
34	8250.0	8500.0	.09	.11	.20
35	8500.0	8750.0	.00	.06	.06
36	8750.0	9000.0	.00	.06	.06
37	9000.0	9250.0	.14	-.02	.13
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
41	10000.0	10250.0	.00	.00	.00
BE(KEV)	8277.0	%BE	16.21	83.80	100.01


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 690 RUTHENIUM Z=44 CS 44.52 GMS 177 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 682 RUTHENIUM Z=44 PS 44.5 GMS 1353 MIN
COUNTS PER CHANNEL (*10³)
0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

RHODIUM Z=45 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.9	.66
2	217.2	8.29
3	232.0	.08
4	237.2	.21
5	249.3	.37
6	254.2	.11
7	262.8	.55
8	267.8	2.56
9	287.0	.17
10	289.2	.15
11	306.3	.92
12	324.9	1.82
13	334.7	2.27
14	342.0	.21
15	358.2	.15
16	375.2	.45
17	387.0	.22
18	421.1	.41
19	440.9	.71
20	469.9	.73
21	482.0	.71
22	537.7	.77
23	556.4	1.42
24	597.5	.42
25	645.4	1.62
26	752.6	.21
27	789.9	1.06
28	816.1	.17
29	818.4	.29
30	833.9	.22
31	950.8	.46
32	1007.7	.17
33	1052.2	.15
34	1620.9	1.56
35	2214.3	.86
36	2722.3	.40
37	3483.2	.25
38	3591.1	.13
39	3642.8	.26
40	3727.9	.16
41	3968.6	.25
42	4022.4	.13
43	4220.9	.19
44	4305.0	.19
45	4327.5	.08
46	4359.6	.16
47	4447.8	.15
48	4482.8	.27

RHODIUM Z=45 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4509.7	.40
50	4541.5	.20
51	4547.9	.24
52	4632.8	.32
53	4690.0	.10
54	4696.9	.09
55	4726.4	.18
56	4833.7	.15
57	4861.2	.10
58	4900.4	.09
59	4914.9	.14
60	4972.4	.13
61	5006.3	.15
62	5021.7	.11
63	5110.2	.12
64	5134.5	.09
65	5154.4	.47
66	5203.9	.41
67	5266.2	.89
68	5323.1	.10
69	5346.9	1.23
70	5433.2	.19
71	5461.7	.12
72	5522.9	.49
73	5547.8	.17
74	5601.9	.10
75	5617.5	.15
76	5673.8	.17
77	5796.5	.28
78	5812.1	.19
79	5916.8	.92
80	6045.9	.65
81	6082.5	.54
82	6108.3	.23
83	6171.5	.48
84	6211.2	.62
85	6303.0	.14
86	6353.9	.35
87	6419.4	.13
88	6785.8	.34
89	6997.9	.07

BINDING ENERGY = 7001.8 %BE = 13.21 + 81.97 = 95.18

RHODIUM Z=45 GAMARC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.9	.70
2	217.2	8.71
3	232.0	.09
4	237.2	.22
5	249.3	.39
6	254.2	.12
7	262.8	.58
8	267.8	2.69
9	287.0	.18
10	289.2	.16
11	306.3	.97
12	324.9	1.92
13	334.7	2.38
14	342.0	.22
15	358.2	.16
16	375.2	.47
17	387.0	.23
18	421.1	.43
19	440.9	.75
20	469.9	.77
21	482.0	.74
22	537.7	.81
23	556.4	1.49
24	597.5	.44
25	645.4	1.70
26	752.6	.22
27	789.9	1.11
28	816.1	.18
29	818.4	.31
30	833.9	.23
31	950.8	.48
32	1007.7	.18
33	1052.2	.16
34	1620.9	1.64
35	2214.3	.90
36	2722.3	.42
37	3483.2	.26
38	3591.1	.13
39	3642.8	.28
40	3727.9	.17
41	3968.6	.26
42	4022.4	.14
43	4220.9	.20
44	4305.0	.20
45	4327.5	.09
46	4359.6	.17
47	4447.8	.16
48	4482.8	.29

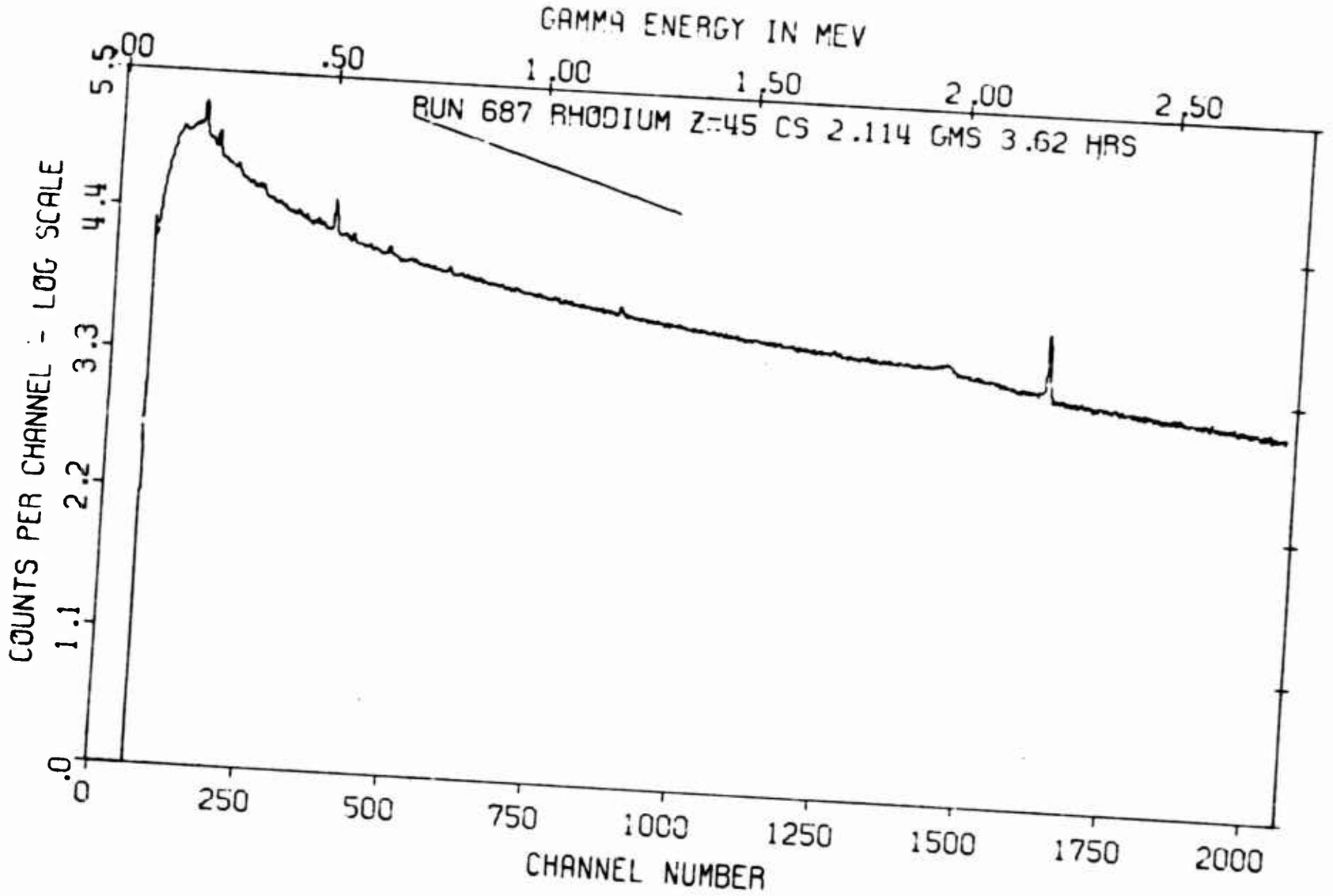
RHODIUM Z=45 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

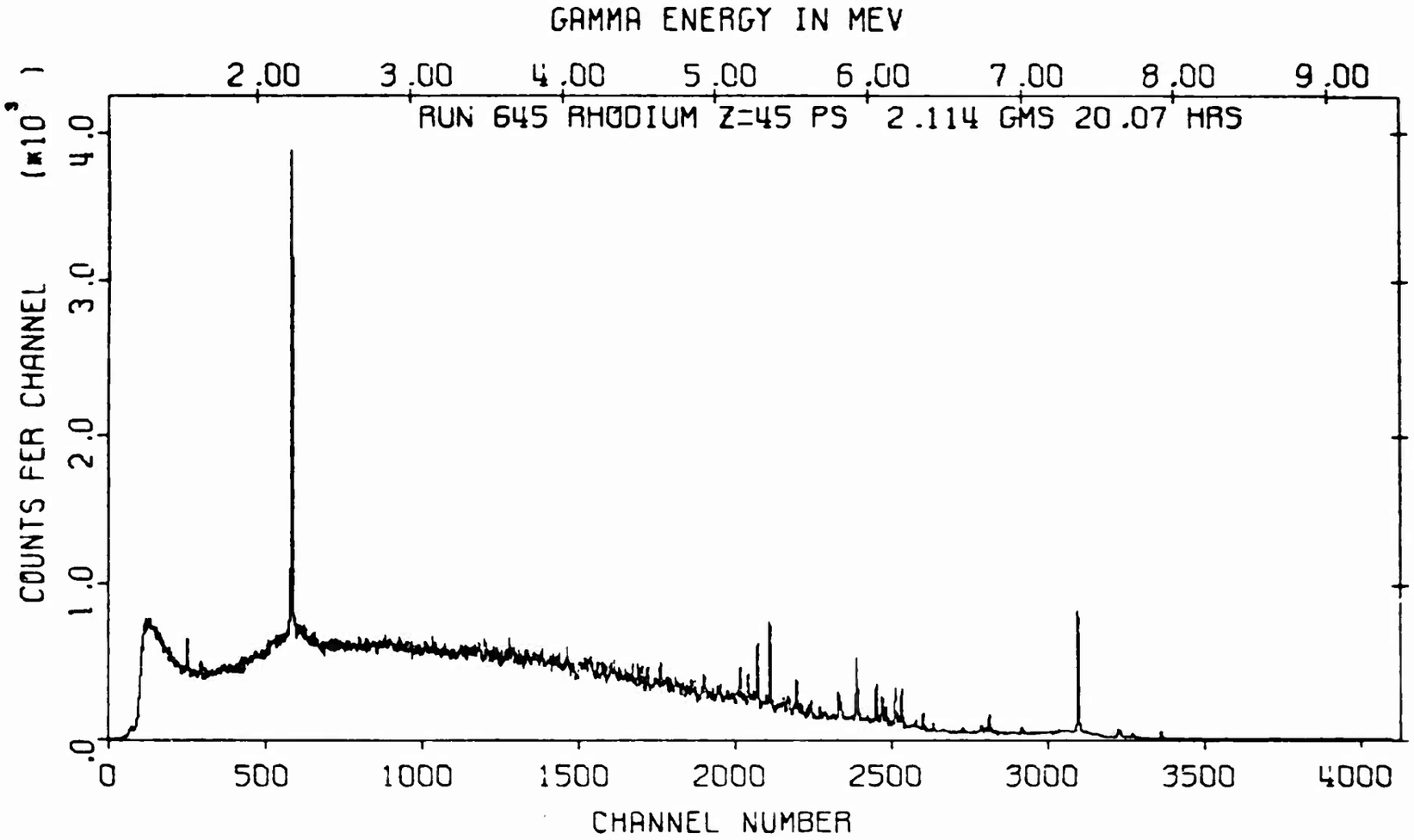
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4509.7	.42
50	4541.5	.21
51	4547.9	.26
52	4632.8	.34
53	4690.0	.11
54	4696.9	.09
55	4726.4	.19
56	4833.7	.16
57	4861.2	.11
58	4900.4	.10
59	4914.9	.14
60	4972.4	.14
61	5006.3	.16
62	5021.7	.11
63	5110.2	.13
64	5134.5	.10
65	5154.4	.49
66	5203.9	.43
67	5266.2	.93
68	5323.1	.10
69	5346.9	1.29
70	5433.2	.20
71	5461.7	.12
72	5522.9	.52
73	5547.8	.18
74	5601.9	.11
75	5617.5	.16
76	5673.8	.18
77	5796.5	.29
78	5812.1	.20
79	5916.2	.97
80	6045.9	.68
81	6082.5	.57
82	6108.3	.24
83	6171.5	.51
84	6211.2	.66
85	6303.0	.15
86	6353.9	.37
87	6419.4	.14
88	6785.8	.36
89	6997.9	.07

BE(KEV) 7001.8 OBSERVED %BE 95.18 NORMALIZED %BE 100.00

RHODIUM Z=45 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	10.10	.00	10.10
2	250.0	500.0	12.79	.00	12.79
3	500.0	750.0	4.43	.00	4.43
4	750.0	1000.0	2.54	.00	2.54
5	1000.0	1250.0	.33	5.78	6.11
6	1250.0	1500.0	.00	11.56	11.56
7	1500.0	1750.0	1.64	16.72	18.36
8	1750.0	2000.0	.00	19.54	19.54
9	2000.0	2250.0	.90	26.38	27.28
10	2250.0	2500.0	.00	22.07	22.07
11	2500.0	2750.0	.42	17.82	18.24
12	2750.0	3000.0	.00	16.40	16.40
13	3000.0	3250.0	.00	12.48	12.48
14	3250.0	3500.0	.26	10.70	10.96
15	3500.0	3750.0	.58	9.22	9.80
16	3750.0	4000.0	.26	8.87	9.13
17	4000.0	4250.0	.34	7.39	7.72
18	4250.0	4500.0	.91	6.14	7.05
19	4500.0	4750.0	1.60	4.87	6.48
20	4750.0	5000.0	.65	4.35	5.00
21	5000.0	5250.0	1.42	3.69	5.10
22	5250.0	5500.0	2.64	2.75	5.39
23	5500.0	5750.0	1.14	1.94	3.08
24	5750.0	6000.0	1.46	1.80	3.26
25	6000.0	6250.0	2.65	1.21	3.86
26	6250.0	6500.0	.66	.36	1.02
27	6500.0	6750.0	.00	.45	.45
28	6750.0	7000.0	.43	.38	.81
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
BE(KEV)	7001.8	%BE	13.85	86.12	99.98


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 687 RHODIUM Z=45 CS 2.114 GMS 3.62 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 645 RHODIUM Z=45 PS 2.114 GMS 20.07 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

PALLADIUM Z=46 GAMARC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	245.0	7.44
2	265.9	0.63
3	277.7	0.74
4	291.0	2.12
5	301.8	0.58
6	325.6	10.42
7	338.0	9.54
8	358.9	1.86
9	396.7	0.30
10	414.9	0.39
11	430.4	5.33
12	463.6	0.27
13	475.8	2.91
14	479.8	2.04
15	492.0	0.89
16	559.4	0.34
17	591.8	0.47
18	601.8	0.64
19	615.9	11.94
20	657.6	0.29
21	717.3	11.75
22	748.5	1.31
23	754.0	0.54
24	804.7	0.89
25	848.4	1.33
26	1048.1	9.62
27	1127.8	4.02
28	1200.6	3.33
29	1348.7	0.66
30	1396.3	1.29
31	1422.9	0.47
32	1526.2	0.27
33	1572.6	2.43
34	1573.5	2.47
35	1618.6	2.12
36	1908.6	0.39
37	1926.8	0.93
38	1988.4	0.74
39	2457.5	0.94
40	2484.5	0.91
41	2514.5	0.20
42	2558.1	0.50
43	2706.9	0.18
44	2741.3	0.37
45	2815.7	0.27
46	3030.0	0.20
47	3148.7	0.18
48	3227.6	0.19

PALLADIUM Z=46 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3335.9	0.38
50	3522.9	0.12
51	3634.1	0.18
52	3739.3	0.43
53	3776.0	0.27
54	3909.3	0.19
55	3958.8	0.17
56	4033.9	0.26
57	4064.7	0.13
58	4233.4	0.30
59	4312.2	0.27
60	4410.1	0.21
61	4423.3	0.25
62	4443.9	0.20
63	4509.7	0.22
64	4617.5	0.15
65	4674.5	0.17
66	4752.5	0.27
67	4794.2	1.02
68	4920.0	0.36
69	4999.9	0.07
70	5018.0	0.11
71	5099.6	0.09
72	5179.0	0.18
73	5198.4	0.09
74	5212.6	0.50
75	5273.7	0.11
76	5310.7	0.10
77	5394.6	0.06
78	5404.3	0.06
79	5431.3	0.22
80	5464.3	0.21
81	5479.4	0.25
82	5518.5	0.12
83	5697.3	0.13
84	5709.6	0.32
85	5719.4	0.39
86	5741.9	0.17
87	5828.0	0.55
88	5886.6	0.11
89	5917.2	0.18
90	6017.6	0.25
91	6049.8	0.10
92	6168.3	0.07
93	6234.1	0.06
94	6254.1	0.17
95	6294.4	0.08
96	6330.7	0.10

PALLADIUM Z=46 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6434.2	0.17
98	6489.1	0.11
99	6591.1	0.13
100	6624.8	0.25
101	6652.2	0.23
102	6735.4	0.34
103	6812.0	0.16
104	6986.1	0.04
105	7061.7	0.11
106	7075.1	0.07
107	7122.2	0.13
108	7476.0	0.12
109	7996.3	0.06
110	8002.6	0.07
111	8331.2	0.15

BINDING ENERGY = 6260.0 %BE = 23.89 + 118.25 = 142.14

PALLADIUM Z=46 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	245.0	5.24
2	265.9	0.45
3	277.7	0.52
4	291.0	1.49
5	301.8	0.41
6	325.6	7.33
7	338.0	6.71
8	358.9	1.31
9	396.7	0.21
10	414.9	0.28
11	430.4	3.75
12	463.6	0.19
13	475.8	2.05
14	479.8	1.43
15	492.0	0.63
16	559.4	0.24
17	591.8	0.33
18	601.8	0.45
19	615.9	8.40
20	657.6	0.20
21	717.3	8.27
22	748.5	0.92
23	754.0	0.38
24	804.7	0.62
25	848.4	0.94
26	1048.1	6.77
27	1127.8	2.83
28	1200.6	2.34
29	1348.7	0.46
30	1396.3	0.91
31	1422.9	0.33
32	1526.2	0.19
33	1572.6	1.71
34	1573.5	1.74
35	1618.6	1.49
36	1908.6	0.27
37	1926.8	0.65
38	1988.4	0.52
39	2457.5	0.66
40	2484.5	0.64
41	2514.5	0.14
42	2558.1	0.35
43	2706.9	0.13
44	2741.3	0.26
45	2815.7	0.19
46	3030.0	0.14
47	3148.7	0.13
48	3227.6	0.13

PALLADIUM Z=46 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3335.9	0.27
50	3522.9	0.08
51	3634.1	0.12
52	3739.3	0.30
53	3776.0	0.19
54	3909.3	0.14
55	3958.8	0.12
56	4033.9	0.18
57	4064.7	0.09
58	4233.4	0.21
59	4312.2	0.19
60	4410.1	0.15
61	4423.3	0.18
62	4443.9	0.14
63	4509.7	0.16
64	4617.5	0.10
65	4674.5	0.12
66	4752.5	0.19
67	4794.2	0.72
68	4920.0	0.25
69	4999.9	0.05
70	5018.0	0.07
71	5099.6	0.06
72	5179.0	0.13
73	5198.4	0.06
74	5212.6	0.35
75	5273.7	0.07
76	5310.7	0.07
77	5394.6	0.04
78	5404.3	0.04
79	5431.3	0.15
80	5464.3	0.14
81	5479.4	0.18
82	5518.5	0.09
83	5697.3	0.09
84	5709.6	0.22
85	5719.4	0.28
86	5741.9	0.12
87	5828.0	0.39
88	5885.6	0.08
89	5917.2	0.12
90	6017.6	0.18
91	6049.8	0.07
92	6168.3	0.15
93	6234.1	0.04
94	6254.1	0.12
95	6294.4	0.05
96	6330.7	0.07

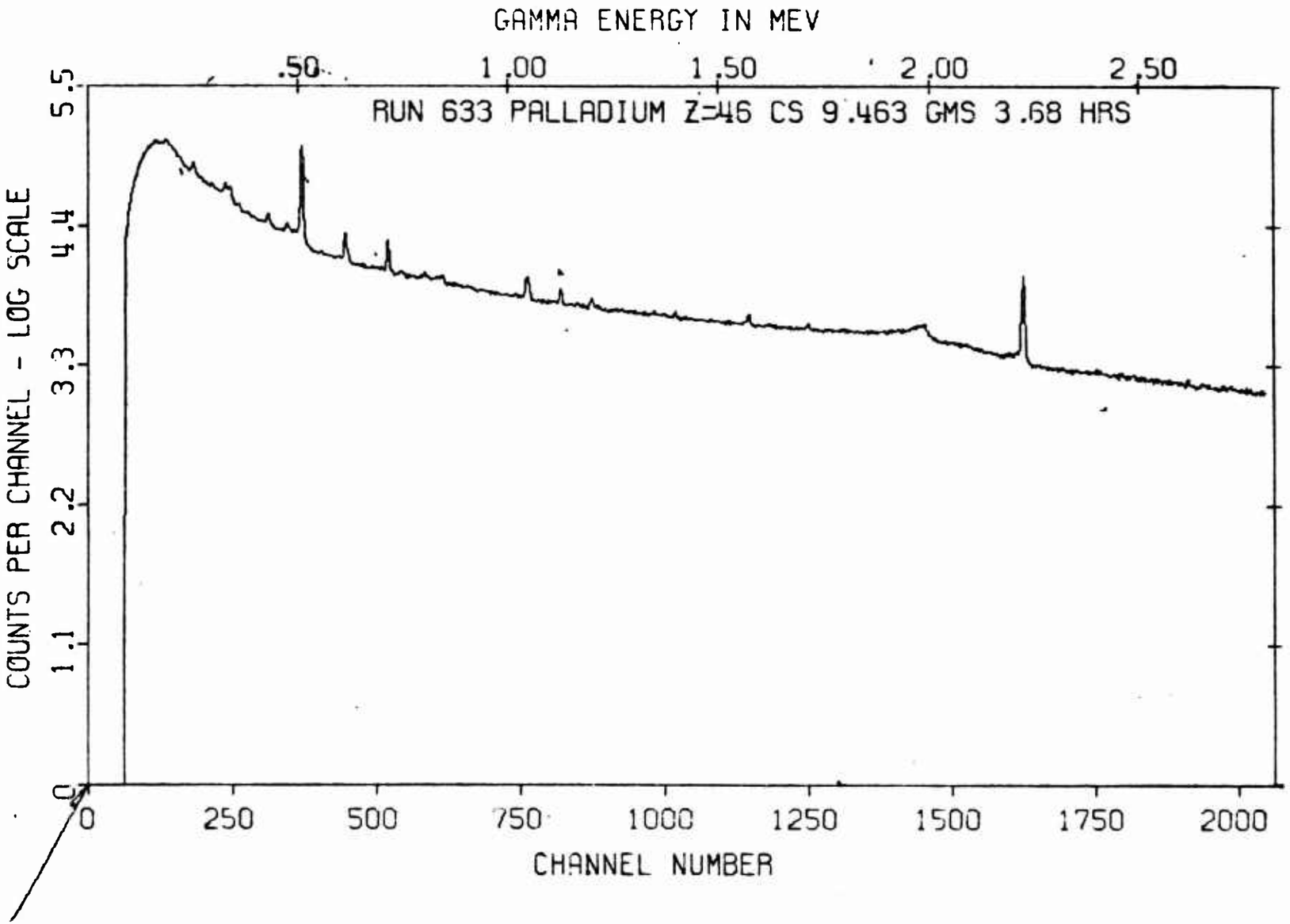
PALLADIUM Z=46 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

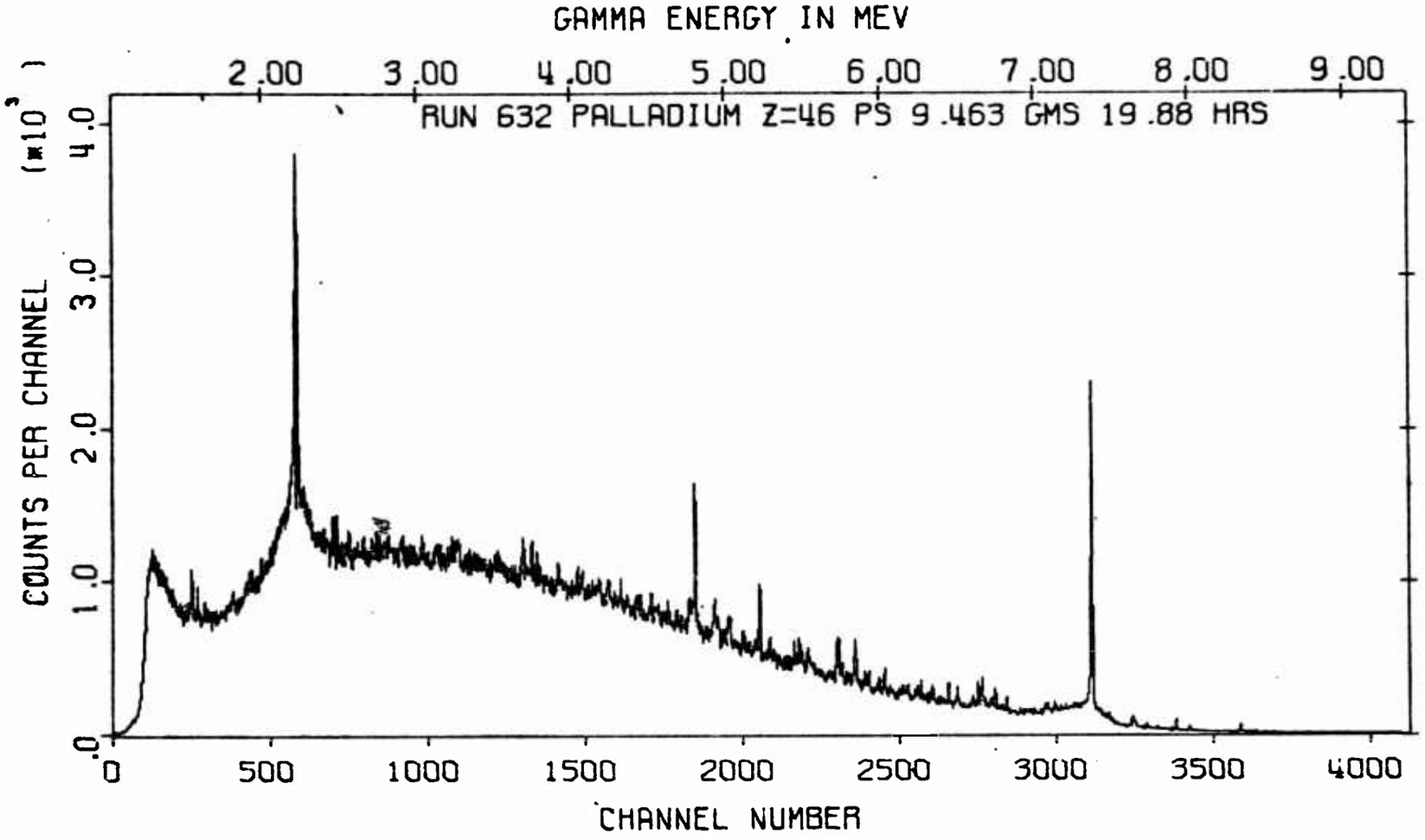
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6434.2	0.12
98	6489.1	0.08
99	6590.1	0.09
100	6624.8	0.18
101	6652.2	0.16
102	6735.4	0.24
103	6812.0	0.12
104	6986.1	0.03
105	7061.7	0.08
106	7075.1	0.05
107	7122.2	0.09
108	7476.0	0.08
109	7996.3	0.05
110	8002.6	0.05
111	8331.2	0.11

BE(KEV) 6260.0 OBSERVED %BE 142.14 NORMALIZED %BE 100.00

PALLADIUM Z=46 GAMABC CODE MITNE-85 DA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NC OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	5.24	0.0	5.24
2	250.0	500.0	26.76	0.0	26.76
3	500.0	750.0	18.81	0.0	18.81
4	750.0	1000.0	1.94	0.0	1.94
5	1000.0	1250.0	11.94	0.70	12.64
6	1250.0	1500.0	1.70	1.41	3.11
7	1500.0	1750.0	5.13	2.81	7.94
8	1750.0	2000.0	1.45	7.71	9.16
9	2000.0	2250.0	0.0	24.86	24.86
10	2250.0	2500.0	1.30	17.98	19.28
11	2500.0	2750.0	0.89	14.81	15.70
12	2750.0	3000.0	0.19	14.12	14.31
13	3000.0	3250.0	0.41	11.27	11.68
14	3250.0	3500.0	0.27	9.46	9.72
15	3500.0	3750.0	0.51	8.26	8.76
16	3750.0	4000.0	0.44	7.03	7.47
17	4000.0	4250.0	0.49	6.66	7.14
18	4250.0	4500.0	0.66	5.00	5.66
19	4500.0	4750.0	0.38	4.72	5.10
20	4750.0	5000.0	1.20	4.98	6.18
21	5000.0	5250.0	0.68	3.65	4.33
22	5250.0	5500.0	0.70	2.84	3.53
23	5500.0	5750.0	0.80	2.19	2.99
24	5750.0	6000.0	0.59	1.93	2.52
25	6000.0	6250.0	0.33	1.27	1.61
26	6250.0	6500.0	0.44	0.96	1.40
27	6500.0	6750.0	0.67	1.13	1.80
28	6750.0	7000.0	0.14	0.48	0.62
29	7000.0	7250.0	0.22	0.61	0.82
30	7250.0	7500.0	0.08	1.37	1.46
31	7500.0	7750.0	0.0	0.41	0.41
32	7750.0	8000.0	0.05	0.22	0.26
33	8000.0	8250.0	0.05	0.10	0.15
34	8250.0	8500.0	0.11	0.11	0.22
35	8500.0	8750.0	0.0	0.02	0.02
36	8750.0	9000.0	0.0	0.08	0.08
37	9000.0	9250.0	0.0	0.01	0.01
38	9250.0	9500.0	0.0	0.0	0.0
BE(KEV)	6260.0	%BE	16.68	83.19	99.87


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 633 PALLADIUM Z=46 CS 9.463 GMS 3.68 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 632 PALLADIUM Z=46 PS 9.463 GMS 19.88 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SILVER 2=47 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.4	28.83
2	205.9	10.47
3	215.0	1.03
4	236.7	14.75
5	259.8	.92
6	267.6	4.13
7	295.5	2.63
8	300.3	1.82
9	330.2	.61
10	350.9	.48
11	360.6	2.19
12	369.2	.49
13	380.8	3.97
14	397.5	.36
15	409.3	.32
16	464.9	.61
17	495.8	1.32
18	525.5	1.19
19	537.3	1.53
20	549.8	1.24
21	588.6	1.00
22	664.8	.45
23	748.4	.49
24	751.5	.52
25	852.4	.30
26	897.1	.32
27	929.1	.24
28	934.5	.27
29	1011.7	.70
30	1029.4	.56
31	1106.9	.42
32	1111.2	.32
33	2206.7	.99
34	2336.6	.28
35	3003.3	.18
36	3310.5	.16
37	3643.6	.21
38	3760.3	.09
39	3838.9	.21
40	3993.3	.38
41	4077.4	.22
42	4117.6	.14
43	4139.3	.29
44	4154.6	.08
45	4250.5	.27
46	4347.4	.22
47	4366.0	.22
48	4447.5	.12

SILVER 7=47 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4621.5	.41
50	4652.2	.13
51	4718.3	.28
52	4724.3	.26
53	4812.9	.51
54	4860.0	.49
55	4929.7	.13
56	5001.2	.21
57	5054.1	.34
58	5074.5	.37
59	5092.6	.43
60	5111.9	.32
61	5138.8	.13
62	5155.2	.25
63	5195.9	.14
64	5205.1	.44
65	5224.2	.15
66	5240.0	.74
67	5351.9	.09
68	5356.8	.17
69	5385.6	.29
70	5496.8	.16
71	5514.3	.46
72	5549.1	.64
73	5577.6	.57
74	5611.8	.33
75	5638.6	.23
76	5699.4	1.39
77	5740.0	.10
78	5771.0	.51
79	5792.9	1.22
80	5810.8	.40
81	5893.5	.10
82	5910.1	.15
83	5964.7	.07
84	5995.1	.14
85	6019.1	.37
86	6055.5	1.20
87	6080.2	.10
88	6100.3	.15
89	6157.8	.24
90	6265.9	.10
91	6445.9	.12
92	6538.3	.54
93	6705.6	.16
94	6974.2	.22
95	7063.5	.23
96	7075.8	.54

SILVER Z=47 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	7268.4	.58

BINDING ENERGY = 6950.0 %BE = 19.79 + 100.94 = 120.74

SILVER Z=47 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.4	23.88
2	205.9	8.67
3	215.0	.85
4	236.7	12.22
5	259.8	.77
6	267.0	3.42
7	295.5	2.18
8	300.3	1.51
9	330.2	.51
10	350.9	.40
11	360.6	1.81
12	369.2	.40
13	380.8	3.29
14	397.5	.30
15	409.3	.26
16	464.9	.51
17	495.8	1.09
18	525.5	.98
19	537.3	1.27
20	549.8	1.03
21	588.6	.83
22	664.8	.37
23	748.4	.40
24	751.5	.43
25	852.4	.25
26	897.1	.26
27	929.1	.20
28	934.5	.22
29	1011.7	.58
30	1029.4	.46
31	1106.9	.35
32	1111.2	.27
33	2206.7	.82
34	2336.6	.23
35	3003.3	.15
36	3310.5	.13
37	3643.6	.17
38	3760.3	.08
39	3838.9	.18
40	3993.3	.31
41	4077.4	.18
42	4117.5	.12
43	4139.3	.24
44	4154.6	.07
45	4250.5	.22
46	4347.4	.19
47	4366.0	.18
48	4447.5	.10

SILVER Z=47 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4621.5	.34
50	4652.2	.11
51	4719.3	.23
52	4724.3	.21
53	4812.9	.42
54	4860.0	.40
55	4929.7	.11
56	5001.2	.18
57	5054.1	.28
58	5074.5	.31
59	5092.6	.36
60	5111.9	.27
61	5138.8	.11
62	5155.2	.21
63	5195.9	.12
64	5205.1	.36
65	5224.2	.13
66	5240.0	.62
67	5351.9	.07
68	5356.8	.14
69	5385.6	.24
70	5496.8	.14
71	5514.3	.38
72	5543.1	.53
73	5577.6	.47
74	5611.8	.27
75	5638.6	.19
76	5693.4	1.16
77	5740.0	.08
78	5771.0	.42
79	5792.9	1.01
80	5810.8	.33
81	5893.5	.08
82	5910.1	.13
83	5984.7	.06
84	5995.1	.12
85	6019.1	.31
86	6055.5	1.00
87	6080.2	.08
88	6100.3	.12
89	6157.8	.20
90	6265.9	.08
91	6445.9	.10
92	6538.3	.45
93	6705.6	.14
94	6974.2	.18
95	7063.5	.19
96	7075.8	.45

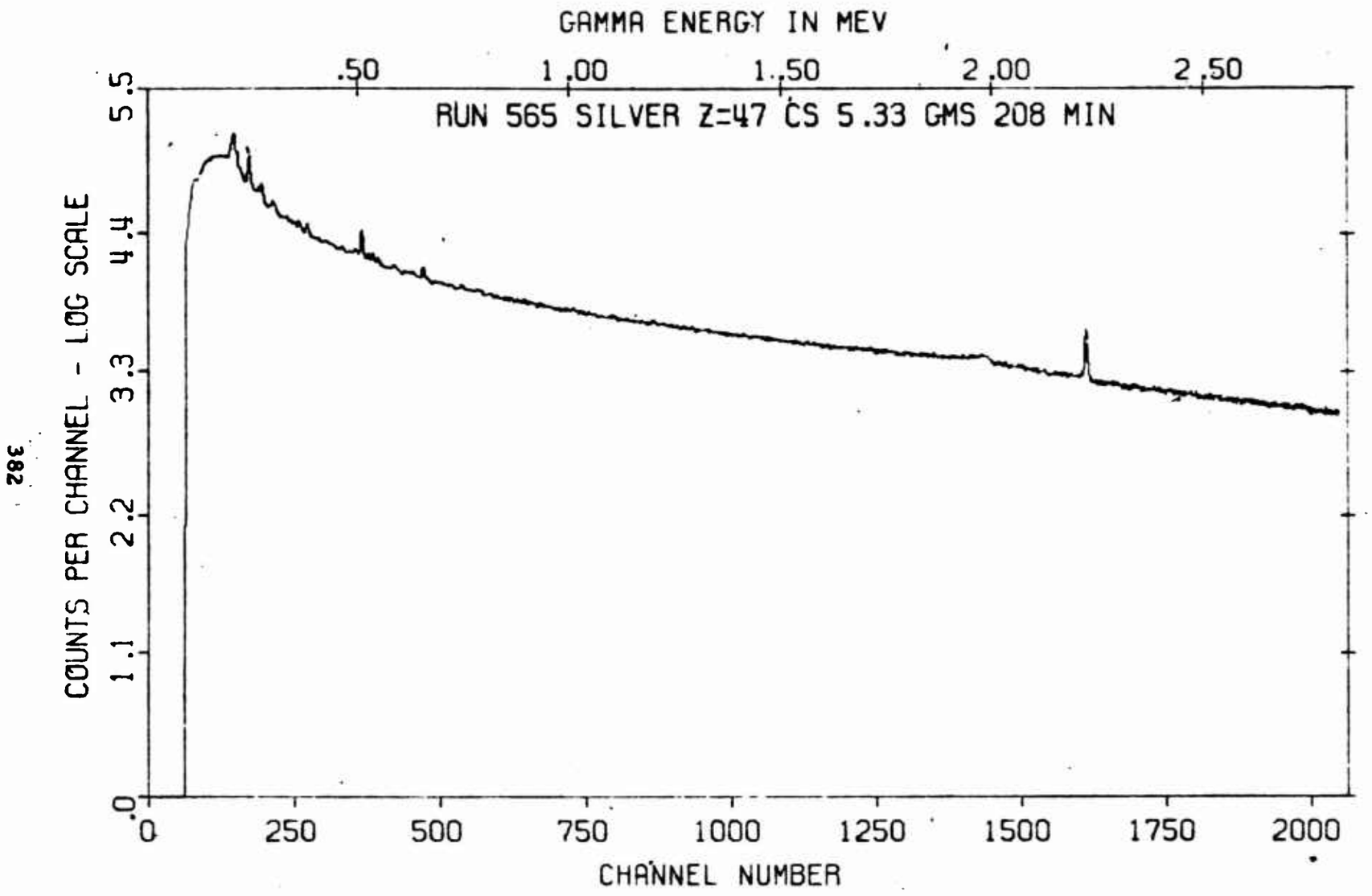
SILVER Z=47 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

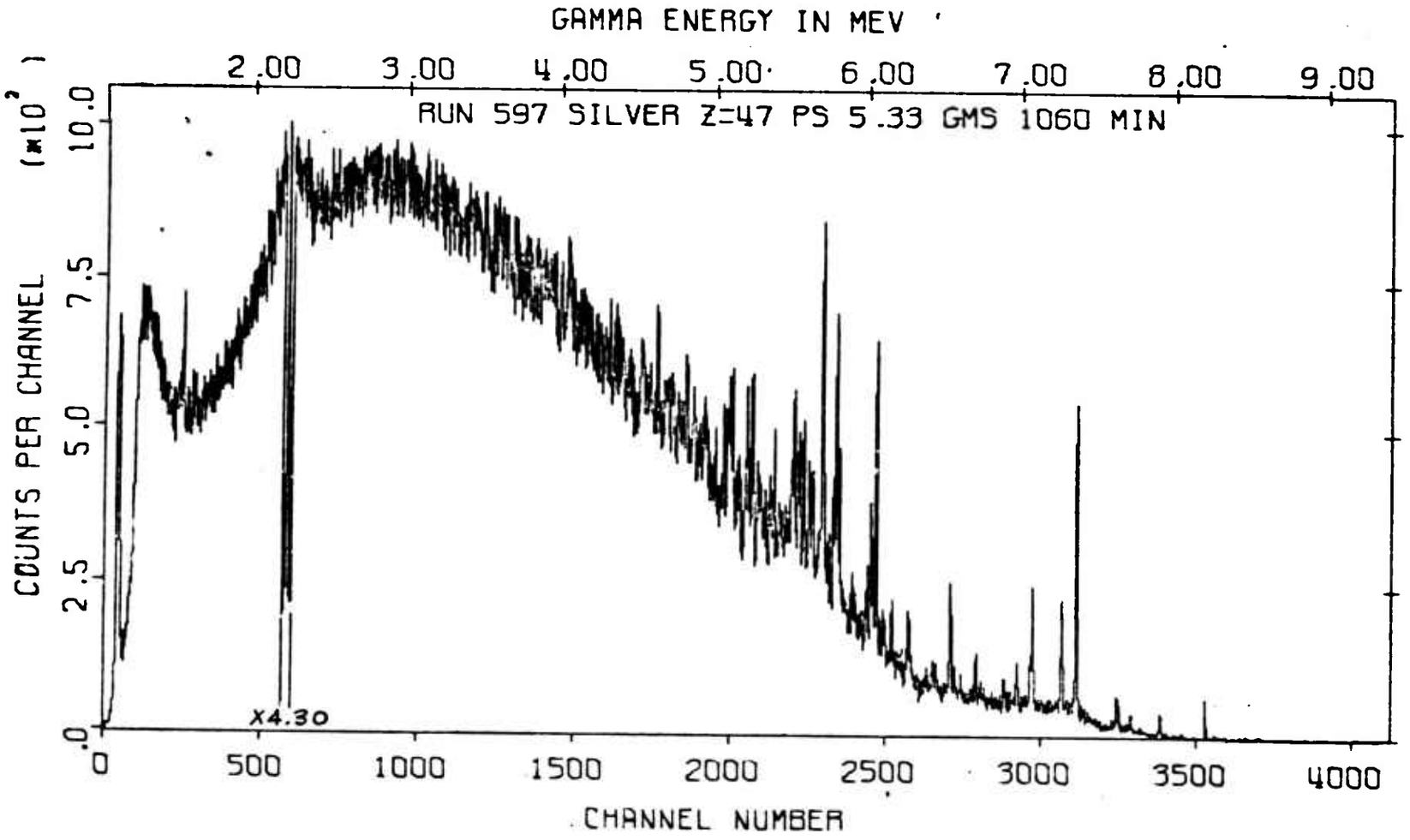
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	7268.4	.48

BE(KEV) 6950.0 OBSERVED %BE 120.74 NORMALIZED %BE 100.00

SILVER Z=47 GAMARC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	45.62	.00	45.62
2	250.0	500.0	16.44	.00	16.44
3	500.0	750.0	4.88	.00	4.88
4	750.0	1000.0	1.37	.00	1.37
5	1000.0	1250.0	1.66	4.14	5.80
6	1250.0	1500.0	.00	9.94	9.94
7	1500.0	1750.0	.00	14.08	14.08
8	1750.0	2000.0	.00	14.30	14.30
9	2000.0	2250.0	.82	21.87	22.70
10	2250.0	2500.0	.23	20.31	20.54
11	2500.0	2750.0	.00	18.37	18.37
12	2750.0	3000.0	.00	16.47	16.47
13	3000.0	3250.0	.15	13.04	13.19
14	3250.0	3500.0	.13	10.87	11.01
15	3500.0	3750.0	.17	9.33	9.50
16	3750.0	4000.0	.56	8.14	8.71
17	4000.0	4250.0	.62	6.82	7.44
18	4250.0	4500.0	.69	5.47	6.16
19	4500.0	4750.0	.89	5.23	6.13
20	4750.0	5000.0	.94	4.46	5.39
21	5000.0	5250.0	2.93	2.65	5.58
22	5250.0	5500.0	.59	3.20	3.78
23	5500.0	5750.0	3.09	2.83	5.92
24	5750.0	6000.0	2.15	1.65	3.80
25	6000.0	6250.0	1.71	1.35	3.06
26	6250.0	6500.0	.18	.75	.94
27	6500.0	6750.0	.58	.67	1.25
28	6750.0	7000.0	.18	.50	.68
29	7000.0	7250.0	.64	.22	.86
30	7250.0	7500.0	.48	.41	.88
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
BE(KEV)	6950.0	%BE	16.01	83.61	99.61


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 565 SILVER Z=47 CS 5.33 GMS 208 MIN
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
0.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 597 SILVER Z=47 PS 5.33 GMS 1060 MIN
COUNTS PER CHANNEL (*10²)
10.0
7.5
5.0
2.5
0.0
X4.30
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	368.3	.12
2	427.2	.19
3	462.7	.24
4	477.0	.29
5	539.2	.97
6	558.6	79.71
7	575.8	2.53
8	651.3	15.23
9	707.5	1.50
10	724.9	4.30
11	747.3	1.50
12	806.0	5.10
13	826.6	.73
14	838.9	.49
15	923.5	.32
16	994.4	.75
17	1209.4	3.96
18	1283.5	1.94
19	1302.6	.61
20	1364.2	5.42
21	1399.3	3.47
22	1433.3	.59
23	1489.4	2.04
24	1660.7	1.63
25	1686.3	.32
26	1746.4	.37
27	1761.0	.49
28	1803.5	.45
29	1826.0	.77
30	1879.4	.84
31	1948.1	.37
32	1995.0	.25
33	2022.3	.28
34	2067.7	.14
35	2083.4	.33
36	2102.5	.91
37	2124.3	.48
38	2147.7	.22
39	2190.8	.45
40	2252.3	.56
41	2314.7	.27
42	2353.4	.68
43	2366.1	.13
44	2380.5	.10
45	2397.7	1.09
46	2427.3	.13
47	2455.8	4.52
48	2501.8	.13

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2530.9	.20
50	2550.1	1.60
51	2582.3	.28
52	2598.2	.19
53	2610.4	.14
54	2659.8	3.11
55	2675.2	.14
56	2700.8	1.22
57	2739.5	.34
58	2753.2	.17
59	2767.3	1.44
60	2799.9	.68
61	2811.9	.20
62	2822.1	.09
63	2948.5	.24
64	2951.5	.24
65	2973.5	.07
66	3000.0	1.60
67	3030.5	.21
68	3052.6	.45
69	3068.9	.11
70	3108.9	1.12
71	3150.4	.10
72	3182.7	.06
73	3218.2	.49
74	3234.7	.10
75	3257.3	.10
76	3273.4	.05
77	3331.0	.54
78	3377.9	.06
79	3428.4	.06
80	3441.8	.05
81	3459.4	.06
82	3489.7	.20
83	3501.1	.06
84	3546.2	.36
85	3581.4	.04
86	3612.9	.31
87	3637.5	.07
88	3653.9	.13
89	3660.0	.06
90	3728.1	.11
91	3751.2	.15
92	3779.7	.22
93	3811.3	.05
94	3825.1	.19
95	3845.9	.04
96	3855.6	.07

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3876.8	.10
98	3912.1	.32
99	3927.7	.06
100	3973.1	.15
101	3994.2	.25
102	4070.9	.14
103	4097.7	.39
104	4124.8	.29
105	4140.5	.06
106	4189.0	.08
107	4202.3	.07
108	4222.4	.04
109	4235.3	.13
110	4286.2	.04
111	4309.4	.11
112	4331.2	.06
113	4344.5	.12
114	4362.7	.10
115	4391.0	.12
116	4403.6	.08
117	4483.1	.04
118	4499.6	.09
119	4514.0	.06
120	4543.4	.29
121	4556.7	.07
122	4596.1	.13
123	4612.4	.04
124	4626.7	.22
125	4646.1	.07
126	4683.7	.07
127	4695.4	.04
128	4728.6	.04
129	4745.2	.19
130	4772.6	.04
131	4782.5	.08
132	4810.0	.63
133	4834.3	.09
134	4873.6	.04
135	4899.9	.15
136	4936.5	.19
137	4983.6	.12
138	5005.4	.37
139	5033.7	.42
140	5070.4	.20
141	5109.2	.29
142	5152.9	.83
143	5183.7	.04
144	5198.9	.16

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5221.5	.52
146	5244.7	.44
147	5281.2	.09
148	5300.9	.12
149	5324.6	.62
150	5384.2	.20
151	5431.4	1.08
152	5457.5	.18
153	5491.1	.11
154	5536.2	.04
155	5554.8	.18
156	5598.0	.10
157	5633.1	.04
158	5672.0	.20
159	5708.0	.22
160	5721.5	.14
161	5782.8	.66
162	5823.9	2.33
163	5878.3	.05
164	5934.3	.79
165	5989.6	.07
166	6042.4	.16
167	6215.0	.04
168	6230.4	.08
169	6254.7	.05
170	6292.5	.04
171	6403.6	.06
172	6461.8	.17
173	6517.2	.12
174	6587.3	.14
175	6605.1	.18
176	6823.3	.36
177	7677.7	.36
178	7734.7	.27
179	7832.1	.16
180	8482.4	.39
181	9043.4	.27

BINDING ENERGY = 9043.4 %BE = 31.18 + 78.42 = 109.60

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	368.3	.11
2	427.2	.17
3	462.7	.22
4	477.0	.26
5	539.2	.89
6	558.6	72.73
7	575.8	2.31
8	651.3	13.90
9	707.5	1.37
10	724.9	3.92
11	747.3	1.37
12	806.0	4.65
13	826.6	.67
14	838.9	.45
15	923.5	.29
16	994.4	.68
17	1209.4	3.61
18	1283.5	1.77
19	1302.6	1.47
20	1364.2	4.95
21	1399.3	3.17
22	1433.3	.54
23	1489.4	1.86
24	1660.7	1.49
25	1686.3	.29
26	1746.4	.34
27	1761.0	.45
28	1803.5	.41
29	1826.0	.70
30	1879.4	.77
31	1948.1	.34
32	1995.0	.23
33	2022.3	.26
34	2067.7	.13
35	2083.4	.30
36	2102.5	.83
37	2124.3	.44
38	2147.7	.20
39	2190.8	.41
40	2252.3	.51
41	2314.7	.25
42	2353.4	.62
43	2366.1	.12
44	2380.5	.09
45	2397.7	.99
46	2427.3	.12
47	2455.8	4.12
48	2501.8	.12

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2530.9	.18
50	2550.1	1.46
51	2582.3	.26
52	2598.2	.17
53	2610.4	.13
54	2659.8	2.84
55	2675.2	.13
56	2700.8	1.11
57	2739.5	.31
58	2753.2	.16
59	2767.3	1.31
60	2799.9	.62
61	2811.9	.18
62	2822.1	.08
63	2948.5	.22
64	2951.5	.22
65	2973.5	.06
66	3000.0	1.46
67	3030.5	.19
68	3052.6	.41
69	3068.9	.10
70	3108.9	1.02
71	3150.4	.09
72	3182.7	.05
73	3218.2	.45
74	3234.7	.09
75	3257.3	.09
76	3273.4	.05
77	3331.0	.49
78	3377.9	.05
79	3428.4	.05
80	3441.8	.05
81	3459.4	.05
82	3489.7	.18
83	3501.1	.05
84	3546.2	.33
85	3581.4	.04
86	3612.9	.28
87	3637.5	.06
88	3653.9	.12
89	3660.0	.05
90	3728.1	.10
91	3751.2	.14
92	3779.7	.20
93	3811.3	.05
94	3825.1	.17
95	3845.9	.04
96	3855.6	.06

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3876.8	.09
98	3912.1	.29
99	3927.7	.05
100	3973.1	.14
101	3994.2	.23
102	4070.9	.13
103	4097.7	.36
104	4124.8	.26
105	4140.5	.05
106	4189.0	.07
107	4202.3	.06
108	4222.4	.04
109	4235.3	.12
110	4286.2	.04
111	4309.4	.10
112	4331.2	.05
113	4344.5	.11
114	4362.7	.09
115	4391.0	.11
116	4403.6	.07
117	4483.1	.04
118	4499.6	.08
119	4514.0	.05
120	4543.4	.26
121	4556.7	.06
122	4596.1	.12
123	4612.4	.04
124	4626.7	.20
125	4646.1	.06
126	4683.7	.06
127	4695.4	.04
128	4728.6	.04
129	4745.2	.17
130	4772.6	.04
131	4782.5	.07
132	4810.0	.57
133	4834.3	.08
134	4873.6	.04
135	4899.9	.14
136	4936.5	.17
137	4983.6	.11
138	5005.4	.34
139	5033.7	.38
140	5070.4	.18
141	5109.2	.26
142	5152.9	.76
143	5183.7	.04
144	5198.9	.15

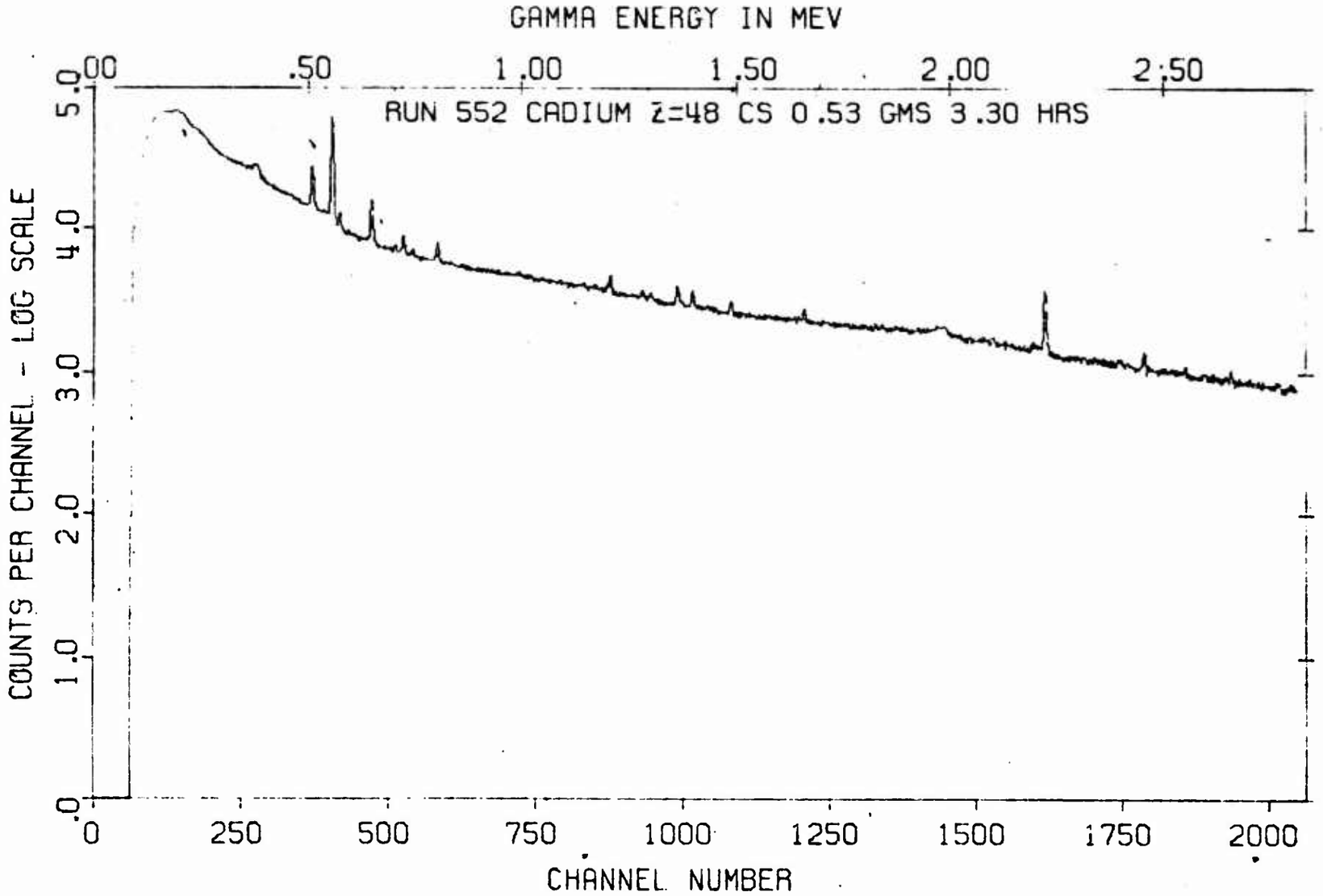
CADMIUM Z=48 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

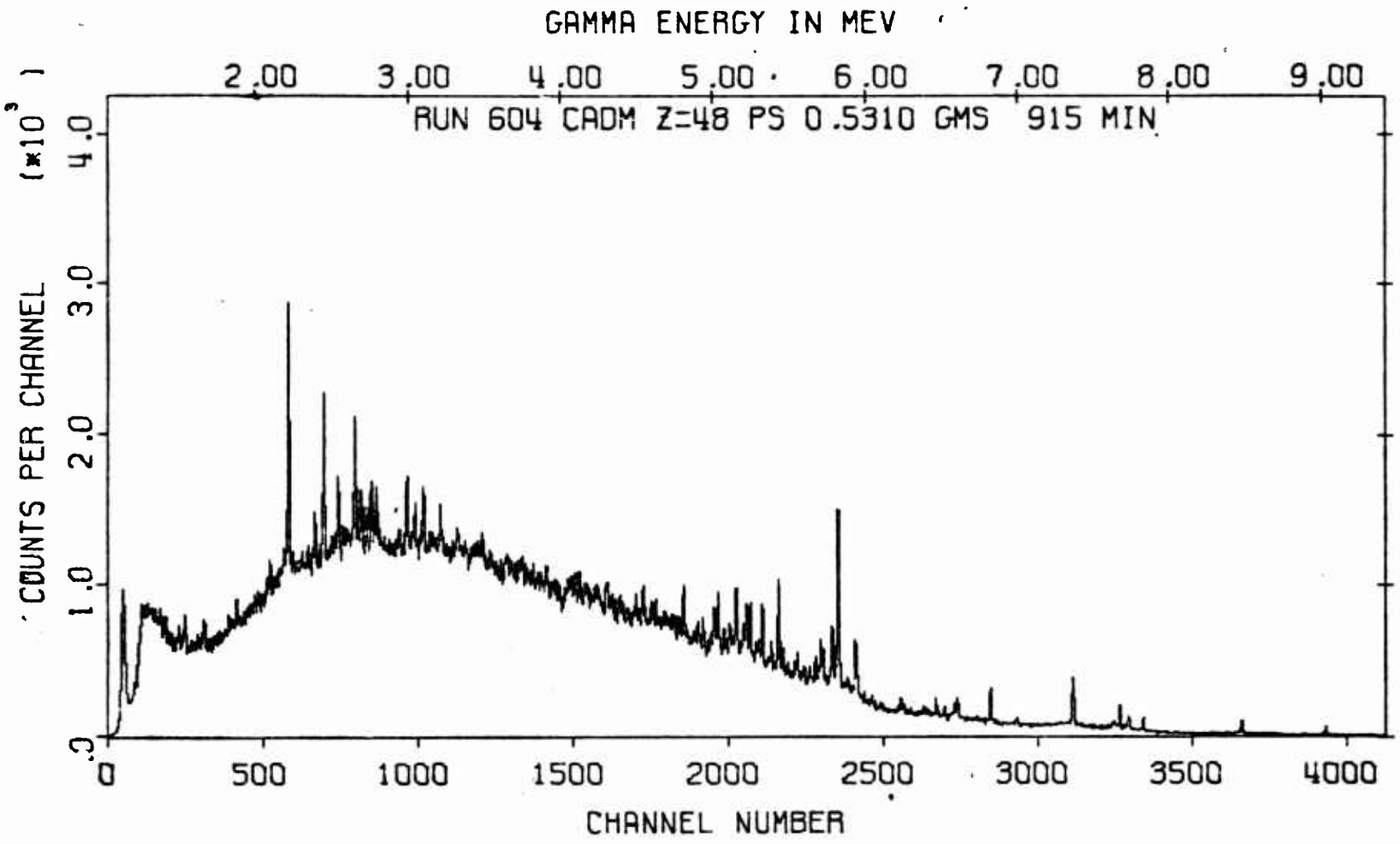
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5221.5	.47
146	5244.7	.40
147	5281.2	.08
148	5300.9	.11
149	5324.6	.57
150	5384.2	.18
151	5431.4	.99
152	5457.5	.16
153	5491.1	.10
154	5536.2	.04
155	5554.8	.16
156	5598.0	.09
157	5633.1	.04
158	5672.0	.18
159	5708.0	.20
160	5721.5	.13
161	5782.8	.60
162	5823.9	2.13
163	5878.3	.05
164	5934.3	.72
165	5989.6	.06
166	6042.4	.15
167	6215.0	.04
168	6230.4	.07
169	6254.7	.05
170	6292.5	.04
171	6403.6	.05
172	6461.8	.16
173	6517.2	.11
174	6587.3	.13
175	6605.1	.16
176	6823.3	.33
177	7677.7	.33
178	7734.7	.25
179	7832.1	.15
180	8482.4	.36
181	9043.4	.25

BE(KEV) 9043.4 OBSERVED %BE 109.60 NORMALIZED %BE 100.00

CADMIUM Z=48 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	.77	.00	.77
3	500.0	750.0	96.48	.00	96.48
4	750.0	1000.0	6.74	.00	6.74
5	1000.0	1250.0	3.61	.91	4.53
6	1250.0	1500.0	13.75	1.82	15.58
7	1500.0	1750.0	2.12	3.65	5.77
8	1750.0	2000.0	2.89	8.49	11.39
9	2000.0	2250.0	2.56	19.41	21.97
10	2250.0	2500.0	6.83	18.92	25.75
11	2500.0	2750.0	6.71	22.25	28.95
12	2750.0	3000.0	2.86	18.55	21.41
13	3000.0	3250.0	3.87	16.62	20.48
14	3250.0	3500.0	1.02	14.29	15.31
15	3500.0	3750.0	1.04	11.46	12.50
16	3750.0	4000.0	1.46	9.65	11.11
17	4000.0	4250.0	1.09	8.43	9.53
18	4250.0	4500.0	.69	6.78	7.47
19	4500.0	4750.0	1.11	6.78	7.89
20	4750.0	5000.0	1.22	4.61	5.83
21	5000.0	5250.0	2.98	4.93	7.91
22	5250.0	5500.0	2.19	3.86	6.05
23	5500.0	5750.0	.84	3.15	3.99
24	5750.0	6000.0	3.56	2.81	6.37
25	6000.0	6250.0	.26	1.41	1.67
26	6250.0	6500.0	.29	1.15	1.44
27	6500.0	6750.0	.40	1.02	1.42
28	6750.0	7000.0	.33	.72	1.05
29	7000.0	7250.0	.00	.40	.40
30	7250.0	7500.0	.00	.53	.53
31	7500.0	7750.0	.57	.71	1.29
32	7750.0	8000.0	.15	.26	.40
33	8000.0	8250.0	.00	.07	.07
34	8250.0	8500.0	.36	.26	.62
35	8500.0	8750.0	.00	.01	.01
36	8750.0	9000.0	.00	.11	.11
37	9000.0	9250.0	.25	.05	.29
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
41	10000.0	10250.0	.00	.00	.00
BE(KEV)	9043.4	%BE	28.88	71.55	100.44


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 552 CADIUM Z=48 CS 0.53 GMS 3.30 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 604 CADM Z=48 PS 0.5310 GMS 915 MIN
COUNTS PER CHANNEL (*10^3)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

INDIUM Z=49 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.9	.48
2	214.4	.25
3	219.1	.28
4	232.3	.05
5	236.3	.15
6	273.3	7.07
7	285.8	.22
8	298.4	1.85
9	320.4	.16
10	335.6	2.30
11	356.9	.11
12	368.2	.11
13	374.3	.16
14	385.3	1.94
15	401.8	.06
16	417.2	7.37
17	434.0	1.03
18	445.6	.09
19	473.5	1.53
20	491.3	.62
21	547.2	.34
22	557.5	1.41
23	578.5	.21
24	608.3	.98
25	622.8	.20
26	634.2	.56
27	645.6	.25
28	717.8	.23
29	727.7	.13
30	761.6	.12
31	819.3	2.77
32	848.0	.17
33	875.6	.12
34	886.0	.59
35	915.2	.26
36	973.6	.14
37	1007.9	.14
38	1067.8	.16
39	1077.2	.54
40	1097.0	12.20
41	1245.8	.15
42	1293.4	17.97
43	1311.6	.22
44	1438.8	.20
45	1507.5	1.82
46	1583.4	.29
47	1595.5	.23
48	1669.3	.23

INDIUM Z=49 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1752.8	1.41
50	1848.3	.27
51	1981.8	.26
52	2004.0	.16
53	2016.7	.18
54	2056.5	.27
55	2112.1	10.94
56	2160.0	.17
57	2187.6	.25
58	2337.4	.25
59	2378.9	.09
60	2405.2	.16
61	2486.6	.11
62	2524.5	.12
63	2548.7	.09
64	2563.4	.10
65	2579.9	.15
66	2630.8	.08
67	2647.1	.17
68	2662.4	.15
69	2703.9	.08
70	2743.4	.06
71	2772.6	.06
72	2824.7	.06
73	2878.7	.05
74	2891.9	.06
75	2927.9	.05
76	2969.1	.05
77	3053.5	.08
78	3081.4	.06
79	3115.4	.08
80	3161.0	.15
81	3198.2	.10
82	3267.6	.06
83	3282.0	.06
84	3331.4	.14
85	3351.0	.18
86	3353.3	.18
87	3374.5	.08
88	3400.0	.06
89	3426.0	.07
90	3436.2	.05
91	3495.2	.05
92	3544.9	.15
93	3554.8	.07
94	3596.9	.04
95	3610.6	.05
96	3703.2	.05

INDIUM Z=49 GAMABC CODE HITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3716.2	.06
98	3740.8	.04
99	3773.8	.11
100	3792.0	.10
101	3811.0	.06
102	3876.6	.20
103	3928.1	.10
104	3955.5	.03
105	3978.3	.11
106	4006.9	.15
107	4045.0	.08
108	4058.7	.08
109	4074.6	.15
110	4121.7	.04
111	4134.3	.04
112	4150.4	.03
113	4227.5	.25
114	4261.9	.04
115	4309.3	.08
116	4323.8	.18
117	4372.7	.09
118	4420.8	.06
119	4441.6	.06
120	4555.2	.04
121	4580.1	.20
122	4613.1	.04
123	4651.4	.08
124	4684.6	.03
125	4700.5	.16
126	4743.0	.16
127	4774.9	.45
128	4807.8	.09
129	4823.7	.07
130	4849.7	.06
131	4869.7	.28
132	4913.2	.42
133	4969.4	.45
134	5005.2	.18
135	5032.4	.09
136	5103.4	.43
137	5118.9	.05
138	5141.1	.41
139	5172.2	.38
140	5246.0	.14
141	5319.1	.06
142	5333.2	.16
143	5358.9	.09
144	5384.0	.03

INDIUM Z=49 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5409.7	.22
146	5481.5	.04
147	5499.1	.11
148	5526.2	.05
149	5580.9	.06
150	5712.5	.03
151	5773.0	.14
152	5812.6	.04
153	5891.9	.61
154	6047.4	.04
155	6135.2	.03
156	6231.1	.04
157	6323.2	.07
158	6411.4	.11

BINDING ENERGY = 6722.8 %BE = 20.48 + 81.71 = 102.19

INDIUM Z=49 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.9	.47
2	214.4	.24
3	219.1	.27
4	232.3	.05
5	236.3	.15
6	273.3	6.92
7	285.8	.22
8	298.4	1.81
9	320.4	.16
10	335.6	2.25
11	356.9	.11
12	368.2	.11
13	374.3	.16
14	385.3	1.90
15	401.8	.06
16	417.2	7.21
17	434.0	1.01
18	445.6	.09
19	473.5	1.50
20	491.3	.61
21	547.2	.33
22	557.5	1.38
23	576.5	.21
24	608.3	.96
25	622.8	.20
26	634.2	.55
27	645.6	.24
28	717.8	.23
29	727.7	.13
30	761.6	.12
31	819.3	2.71
32	848.0	.17
33	875.6	.12
34	886.0	.58
35	915.2	.25
36	973.6	.14
37	1007.9	.14
38	1067.8	.16
39	1077.2	.53
40	1097.0	11.94
41	1245.8	.15
42	1293.4	17.59
43	1311.6	.22
44	1438.8	.20
45	1507.5	1.78
46	1583.4	.28
47	1595.5	.23
48	1669.3	.23

INDIUM Z=49 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY (KEV)	NO OF PHOTONS/100CAPT
49	1752.8	1.38
50	1848.3	.26
51	1981.8	.25
52	2004.0	.16
53	2016.7	.18
54	2056.5	.26
55	2112.1	10.71
56	2160.0	.17
57	2187.6	.24
58	2337.4	.24
59	2378.9	.09
60	2405.2	.16
61	2486.6	.11
62	2524.5	.12
63	2548.7	.09
64	2563.4	.10
65	2579.9	.15
66	2630.8	.08
67	2647.1	.17
68	2662.4	.15
69	2703.9	.08
70	2743.4	.06
71	2772.6	.06
72	2824.7	.06
73	2878.7	.05
74	2891.9	.06
75	2927.9	.05
76	2969.1	.05
77	3053.5	.08
78	3081.4	.06
79	3115.4	.08
80	3161.0	.15
81	3198.2	.10
82	3267.6	.06
83	3282.0	.06
84	3331.4	.14
85	3351.0	.18
86	3353.3	.18
87	3374.5	.08
88	3400.0	.06
89	3426.0	.07
90	3436.2	.05
91	3495.2	.05
92	3544.9	.15
93	3554.8	.07
94	3596.9	.04
95	3610.6	.05
96	3703.2	.05

INDIUM Z=49 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3716.2	.06
98	3740.8	.04
99	3773.8	.11
100	3792.0	.10
101	3811.0	.06
102	3876.6	.20
103	3928.1	.10
104	3955.5	.03
105	3978.3	.11
106	4006.9	.15
107	4045.0	.08
108	4058.7	.08
109	4074.6	.15
110	4121.7	.04
111	4134.3	.04
112	4150.4	.03
113	4227.5	.24
114	4261.9	.04
115	4309.3	.08
116	4323.8	.18
117	4372.7	.09
118	4420.8	.06
119	4441.6	.06
120	4555.2	.04
121	4580.1	.20
122	4613.1	.04
123	4651.4	.08
124	4684.6	.03
125	4700.5	.16
126	4743.0	.16
127	4774.9	.44
128	4807.8	.09
129	4823.7	.07
130	4849.7	.06
131	4869.7	.27
132	4913.2	.41
133	4969.4	.44
134	5005.2	.18
135	5032.4	.09
136	5103.4	.42
137	5118.9	.05
138	5141.1	.40
139	5172.2	.37
140	5246.0	.14
141	5319.1	.06
142	5333.2	.16
143	5358.9	.09
144	5384.0	.03

INDIUM Z=49 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

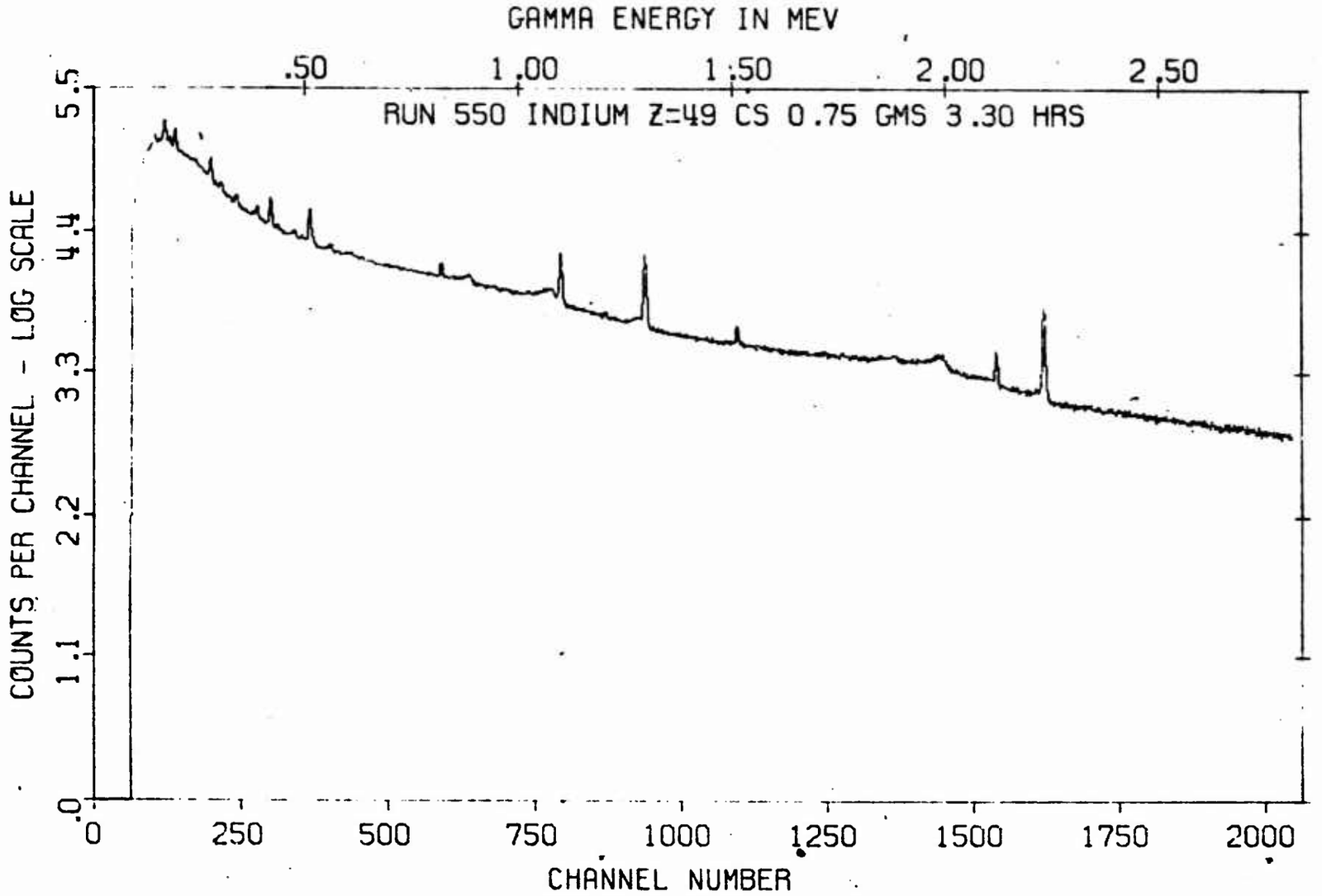
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5409.7	.22
146	5481.5	.04
147	5499.1	.11
148	5526.2	.05
149	5580.9	.06
150	5712.5	.03
151	5773.0	.14
152	5812.6	.04
153	5891.9	.60
154	6047.4	.04
155	6135.2	.03
156	6231.1	.04
157	6323.2	.07
158	6411.4	.11

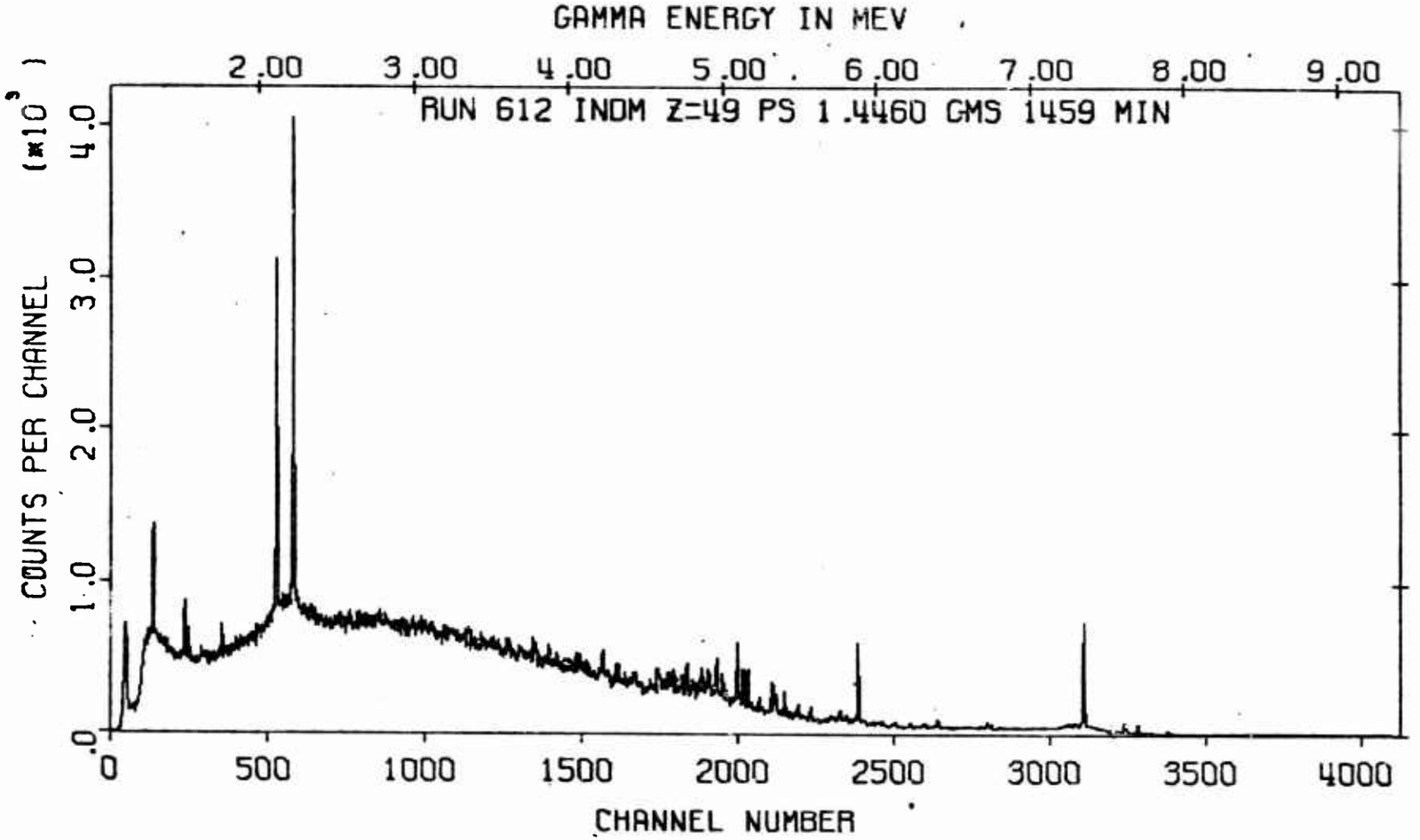
BE(KEV) 6722.8 OBSERVED %BE 102.19 NORMALIZED %BE 100.00

INDIUM Z=49 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	1.18	.00	1.18
2	250.0	500.0	24.09	.00	24.09
3	500.0	750.0	4.22	.00	4.22
4	750.0	1000.0	4.08	.00	4.08
5	1000.0	1250.0	12.91	9.79	22.69
6	1250.0	1500.0	18.00	15.66	33.65
7	1500.0	1750.0	2.51	20.55	23.07
8	1750.0	2000.0	1.90	25.65	27.55
9	2000.0	2250.0	11.71	29.41	41.12
10	2250.0	2500.0	.60	22.43	23.03
11	2500.0	2750.0	.98	19.04	20.02
12	2750.0	3000.0	.32	16.18	16.50
13	3000.0	3250.0	.46	12.21	12.67
14	3250.0	3500.0	.91	9.19	10.10
15	3500.0	3750.0	.45	7.72	8.17
16	3750.0	4000.0	.69	5.95	6.64
17	4000.0	4250.0	.80	4.94	5.74
18	4250.0	4500.0	.50	3.45	3.95
19	4500.0	4750.0	.69	3.20	3.89
20	4750.0	5000.0	1.78	2.91	4.69
21	5000.0	5250.0	1.64	1.60	3.25
22	5250.0	5500.0	.69	1.26	1.96
23	5500.0	5750.0	.14	.64	.77
24	5750.0	6000.0	.77	.65	1.42
25	6000.0	6250.0	.11	.26	.37
26	6250.0	6500.0	.18	.13	.30
27	6500.0	6750.0	.00	.26	.26
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
BE(KEV)	67	.8 %BE	20.47	79.96	100.42


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 550 INDIUM Z=49 CS 0.75 GMS 3.30 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
0.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 612 INDM Z=49 PS 1 .4460 GMS 1459 MIN
COUNTS PER CHANNEL (*10³)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

TIN Z=50 PEAK NO	GAMABC CODE MITNE-85 DATA ENERGY(KEV)	OBSERVED YIELDS NO OF PHOTONS/100CAPT
1	222.3	.26
2	229.5	.18
3	240.2	.34
4	251.9	1.88
5	326.3	.13
6	332.1	.98
7	336.8	.22
8	355.2	.30
9	359.6	.15
10	366.5	.28
11	377.3	.44
12	385.3	.16
13	388.9	.34
14	399.8	.23
15	411.7	.14
16	417.2	.32
17	431.4	.22
18	433.3	.17
19	444.4	.15
20	464.3	1.17
21	475.0	.28
22	478.4	.35
23	533.6	.18
24	544.9	.17
25	556.4	.58
26	567.0	.26
27	608.3	.21
28	626.8	.20
29	652.7	.41
30	666.0	.21
31	710.0	.21
32	732.8	.46
33	760.8	.34
34	819.9	.28
35	869.4	.32
36	930.6	.32
37	959.9	.38
38	973.2	1.22
39	1004.2	.44
40	1040.2	.45
41	1048.6	.36
42	1069.5	.30
43	1171.3	8.04
44	1229.5	7.00
45	1250.8	.35
46	1278.5	.44
47	1293.3	13.06
48	1506.3	.64

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	OBSERVED YIELDS
49	1631.7	.55	
50	1648.3	.42	
51	1666.9	.33	
52	1726.9	.92	
53	1747.4	.50	
54	1781.8	.30	
55	1811.8	.47	
56	1826.9	.31	
57	1863.7	.37	
58	1888.5	.82	
59	1922.5	.22	
60	1944.5	.30	
61	1960.3	.17	
62	1985.8	.22	
63	2022.6	.26	
64	2042.0	.87	
65	2075.2	.24	
66	2096.9	.30	
67	2112.7	1.54	
68	2125.8	.14	
69	2150.0	.19	
70	2171.0	.14	
71	2179.0	1.17	
72	2245.1	.14	
73	2270.0	.26	
74	2280.2	.11	
75	2292.1	.19	
76	2307.0	.12	
77	2326.8	.41	
78	2333.4	.13	
79	2356.2	.34	
80	2367.6	.22	
81	2400.4	.11	
82	2417.5	.19	
83	2438.7	.24	
84	2460.6	.22	
85	2473.5	.09	
86	2487.8	.42	
87	2499.8	.40	
88	2559.6	.21	
89	2585.7	.43	
90	2636.1	.11	
91	2651.7	.58	
92	2674.8	.46	
93	2709.4	.40	
94	2722.0	.10	
95	2738.0	.14	
96	2774.5	.20	

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	OBSERVED YIELDS
97	2789.4	.14	
98	2818.0	.09	
99	2843.9	.52	
100	2886.0	.09	
101	2905.0	.11	
102	2930.0	.22	
103	2961.0	.40	
104	2986.3	.09	
105	3000.0	.33	
106	3018.0	.33	
107	3032.9	.10	
108	3057.6	.21	
109	3076.8	.17	
110	3088.5	.17	
111	3121.9	.08	
112	3155.1	.16	
113	3169.5	.13	
114	3196.0	.16	
115	3230.2	.10	
116	3249.2	.06	
117	3269.1	.07	
118	3281.2	.13	
119	3292.2	.05	
120	3334.3	1.01	
121	3355.0	.06	
122	3372.2	.06	
123	3389.2	.06	
124	3403.3	.09	
125	3421.1	.06	
126	3436.9	.06	
127	3459.2	.56	
128	3474.7	.06	
129	3484.7	.09	
130	3503.1	.19	
131	3527.3	.07	
132	3546.2	.09	
133	3566.9	.06	
134	3587.5	.30	
135	3611.1	.13	
136	3631.1	.08	
137	3648.2	.06	
138	3658.9	.13	
139	3673.5	.08	
140	3696.0	.07	
141	3711.7	.43	
142	3728.7	.05	
143	3778.7	.16	
144	3793.1	.04	

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	OBSERVED YIELDS
145	3809.5	.23	
146	3835.4	.05	
147	3848.6	.06	
148	3870.1	.08	
149	3891.7	.14	
150	3902.6	.05	
151	3927.1	.07	
152	3954.0	.11	
153	3981.5	.14	
154	4012.5	.04	
155	4127.8	.06	
156	4139.6	.05	
157	4199.0	.08	
158	4218.8	.04	
159	4253.2	.06	
160	4294.0	.07	
161	4319.8	.32	
162	4354.8	.04	
163	4366.1	.04	
164	4389.2	.03	
165	4393.0	.07	
166	4410.4	.06	
167	4432.3	.06	
168	4442.5	.06	
169	4457.2	.05	
170	4483.5	.04	
171	4513.7	.07	
172	4548.2	.04	
173	4600.8	.05	
174	4612.4	.04	
175	4649.3	.06	
176	4674.3	.04	
177	4696.5	.37	
178	4764.1	.06	
179	4784.2	.42	
180	4810.5	.13	
181	4828.0	.04	
182	4867.3	.10	
183	4892.8	.05	
184	4913.9	.24	
185	4936.5	.08	
186	4959.9	.06	
187	4975.2	.09	
188	5007.7	.41	
189	5043.7	.09	
190	5082.5	.15	
191	5114.5	.14	
192	5134.9	.04	

TIN Z=50 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
193	5150.9	.05
194	5171.2	.16
195	5219.3	.08
196	5298.5	.07
197	5323.6	.12
198	5362.1	.34
199	5392.5	.43
200	5423.7	.19
201	5448.6	.22
202	5467.2	.05
203	5517.5	.04
204	5562.5	.07
205	5707.0	.05
206	5741.4	.05
207	5822.4	.18
208	5852.6	.03
209	5905.2	.22
210	5932.4	.06
211	5972.8	.07
212	5992.4	.09
213	6056.6	.13
214	6094.5	.06
215	6158.9	.03
216	6230.3	.06
217	6250.4	.03
218	6268.0	.44
219	6335.6	.16
220	6421.3	.08
221	6443.3	.09
222	6460.8	.09
223	6601.9	.23
224	6647.6	.12
225	6785.8	.05
226	6916.5	.06
227	6978.9	.07
228	7015.8	.15
229	7114.4	.05
230	7450.3	.15
231	9326.1	.35

BINDING ENERGY = 9300.0 %BE = 17.35 + 85.02 = 102.38

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	NORMALIZED YIELDS
1	222.3	.25	
2	229.5	.18	
3	240.2	.33	
4	251.9	1.84	
5	326.3	.13	
6	332.1	.96	
7	336.8	.21	
8	355.2	.29	
9	359.6	.15	
10	366.5	.27	
11	377.3	.43	
12	385.3	.16	
13	388.9	.33	
14	399.8	.22	
15	411.7	.14	
16	417.2	.31	
17	431.4	.21	
18	433.3	.17	
19	444.4	.15	
20	464.3	1.14	
21	475.0	.27	
22	478.4	.34	
23	533.6	.18	
24	544.9	.17	
25	556.4	.57	
26	567.0	.25	
27	608.3	.21	
28	626.8	.20	
29	652.7	.40	
30	666.0	.21	
31	710.0	.21	
32	732.8	.45	
33	760.8	.33	
34	819.9	.27	
35	869.4	.31	
36	930.6	.31	
37	959.9	.37	
38	973.2	1.19	
39	1004.2	.43	
40	1040.2	.44	
41	1048.6	.35	
42	1069.5	.29	
43	1171.3	7.85	
44	1229.5	6.84	
45	1250.8	.34	
46	1278.5	.43	
47	1293.3	12.76	
48	1506.3	.63	

TIN Z=50 PEAK NO	GAMABC CODE MITNE-85 DATA ENERGY(KEV)	NORMALIZED YIELDS NO OF PHOTONS/100CAPT
49	1631.7	.54
50	1648.3	.41
51	1666.9	.32
52	1726.9	.90
53	1747.4	.49
54	1781.8	.29
55	1811.8	.46
56	1826.9	.30
57	1863.7	.36
58	1888.5	.80
59	1922.5	.21
60	1944.5	.29
61	1960.3	.17
62	1985.8	.21
63	2022.6	.25
64	2042.0	.85
65	2075.2	.23
66	2096.9	.29
67	2112.7	1.50
68	2125.8	.14
69	2150.0	.19
70	2171.0	.14
71	2179.0	1.14
72	2245.1	.14
73	2270.0	.25
74	2280.2	.11
75	2292.1	.19
76	2307.0	.12
77	2326.8	.40
78	2333.4	.13
79	2356.2	.33
80	2367.6	.21
81	2400.4	.11
82	2417.5	.19
83	2438.7	.23
84	2460.6	.21
85	2473.5	.09
86	2487.8	.41
87	2499.8	.39
88	2559.6	.21
89	2585.7	.42
90	2636.1	.11
91	2651.7	.57
92	2674.8	.45
93	2709.4	.39
94	2722.0	.10
95	2738.0	.14
96	2774.5	.20

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	NORMALIZED YIELDS
97	2789.4	.14	
98	2818.0	.09	
99	2843.9	.51	
100	2886.0	.09	
101	2905.0	.11	
102	2930.0	.21	
103	2961.0	.39	
104	2986.3	.09	
105	3000.0	.32	
106	3018.0	.32	
107	3032.9	.10	
108	3057.6	.21	
109	3076.8	.17	
110	3088.5	.17	
111	3121.9	.08	
112	3155.1	.16	
113	3169.5	.13	
114	3196.0	.16	
115	3230.2	.10	
116	3249.2	.06	
117	3269.1	.07	
118	3281.2	.13	
119	3292.2	.05	
120	3334.3	.99	
121	3355.0	.06	
122	3372.2	.06	
123	3389.2	.06	
124	3403.3	.09	
125	3421.1	.06	
126	3436.9	.06	
127	3459.2	.55	
128	3474.7	.06	
129	3484.7	.09	
130	3503.1	.19	
131	3527.3	.07	
132	3546.2	.05	
133	3566.9	.06	
134	3587.5	.29	
135	3611.1	.13	
136	3631.1	.08	
137	3648.2	.06	
138	3658.9	.13	
139	3673.5	.08	
140	3696.0	.07	
141	3711.7	.42	
142	3728.7	.05	
143	3778.7	.16	
144	3793.1	.04	

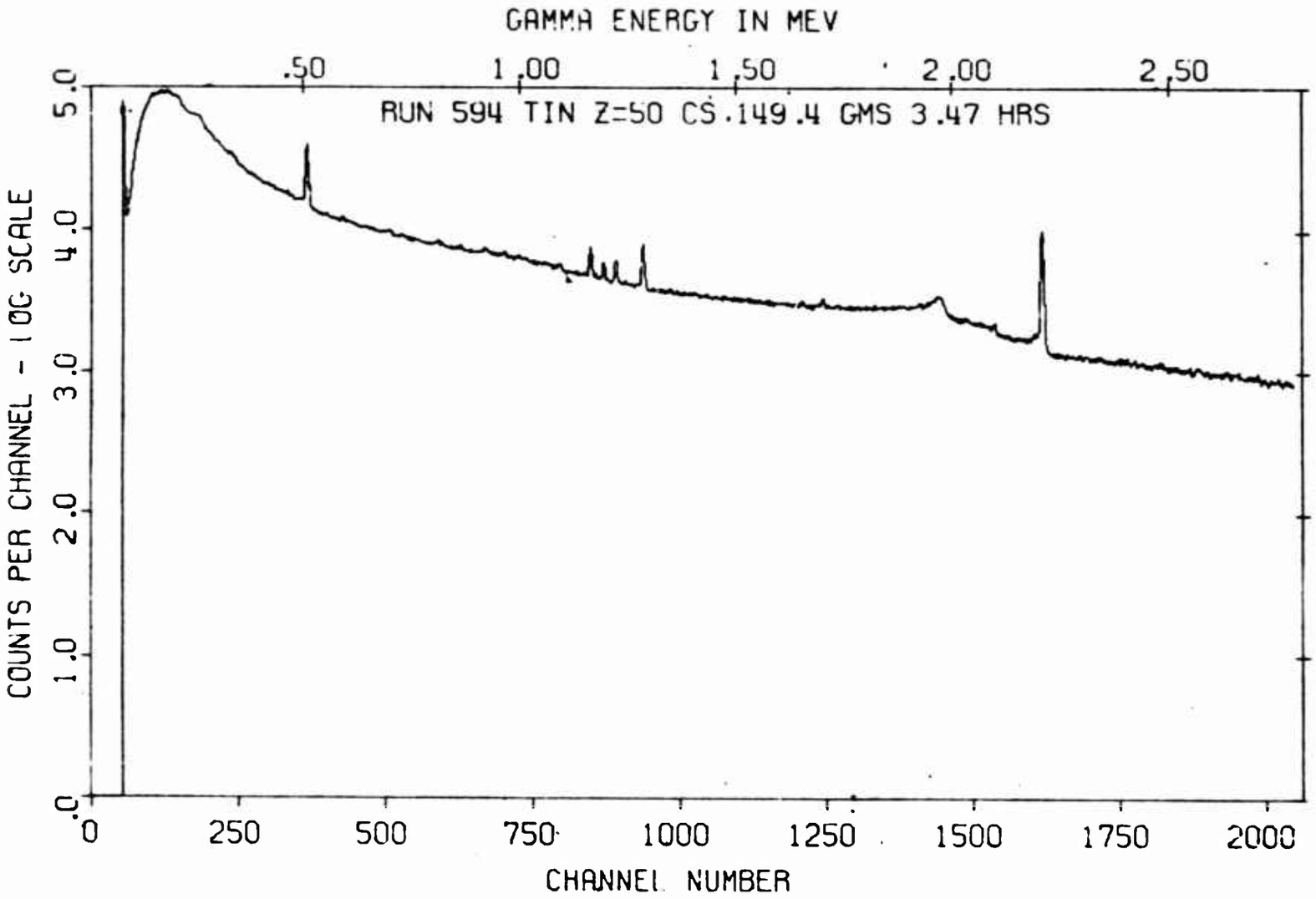
TIN Z=50 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

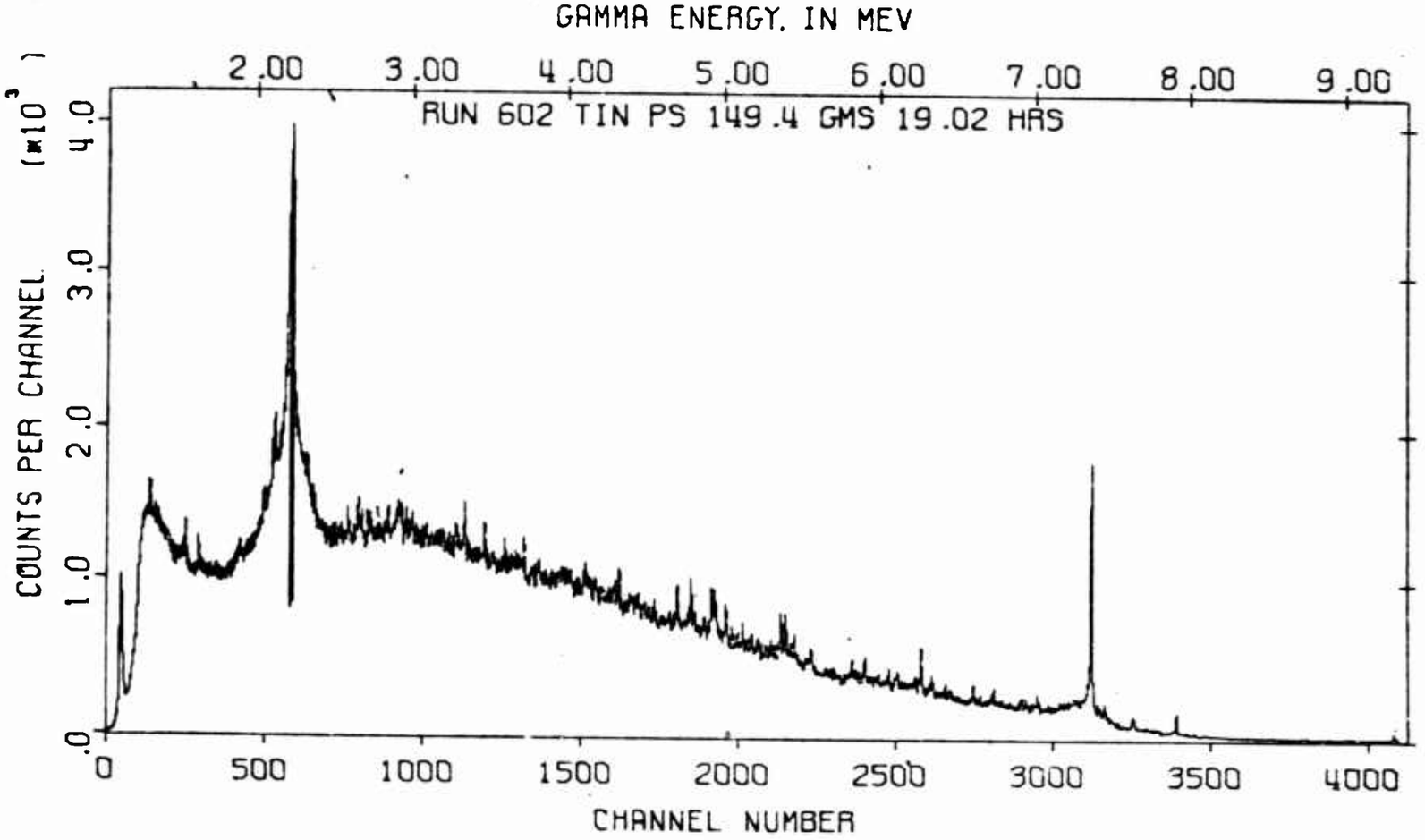
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	3809.5	.22
146	3835.4	.05
147	3848.6	.06
148	3870.1	.08
149	3891.7	.14
150	3902.6	.05
151	3927.1	.07
152	3954.0	.11
153	3981.5	.14
154	4032.5	.04
155	4127.8	.06
156	4139.6	.05
157	4199.0	.08
158	4218.8	.04
159	4253.2	.06
160	4294.0	.07
161	4319.8	.31
162	4354.8	.04
163	4366.1	.04
164	4389.2	.03
165	4393.0	.07
166	4410.4	.06
167	4432.3	.06
168	4442.5	.06
169	4457.2	.05
170	4483.5	.04
171	4513.7	.07
172	4548.2	.04
173	4600.8	.05
174	4612.4	.04
175	4649.3	.06
176	4674.3	.04
177	4696.5	.36
178	4764.1	.06
179	4784.2	.41
180	4810.5	.13
181	4828.0	.04
182	4867.3	.10
183	4892.8	.05
184	4913.9	.23
185	4936.5	.08
186	4959.9	.06
187	4975.2	.09
188	5007.7	.40
189	5043.7	.09
190	5082.5	.15
191	5114.5	.14
192	5134.9	.04

TIN Z=50 PEAK NO	GAMABC CODE ENERGY(KEV)	MITNE-85 DATA NO OF PHOTONS/100CAPT	NORMALIZED YIELDS
193	5150.9	.05	
194	5171.2	.16	
195	5219.3	.08	
196	5298.5	.07	
197	5323.6	.12	
198	5362.1	.33	
199	5392.5	.42	
200	5423.7	.19	
201	5448.6	.21	
202	5467.2	.05	
203	5517.5	.04	
204	5562.5	.07	
205	5707.0	.05	
206	5741.4	.05	
207	5822.4	.18	
208	5852.6	.03	
209	5905.2	.21	
210	5932.4	.06	
211	5972.8	.07	
212	5992.4	.09	
213	6056.6	.13	
214	6094.5	.06	
215	6158.9	.03	
216	6230.3	.06	
217	6250.4	.03	
218	6268.0	.43	
219	6335.6	.16	
220	6421.3	.08	
221	6443.3	.09	
222	6460.8	.09	
223	6601.9	.22	
224	6647.6	.12	
225	6785.8	.05	
226	6916.5	.06	
227	6978.9	.07	
228	7015.8	.15	
229	7114.4	.05	
230	7450.3	.15	
231	9326.1	.34	
BE(KEV)	9300.0 OBSERVED %BE 102.38		NORMALIZED %BE 100.00

TIN Z=50 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.76	.00	.76
2	250.0	500.0	7.73	.00	7.73
3	500.0	750.0	2.82	.00	2.82
4	750.0	1000.0	2.79	.00	2.79
5	1000.0	1250.0	16.20	.98	17.18
6	1250.0	1500.0	13.53	1.95	15.48
7	1500.0	1750.0	3.28	5.86	9.14
8	1750.0	2000.0	3.11	16.56	19.66
9	2000.0	2250.0	4.87	33.18	38.06
10	2250.0	2500.0	3.37	12.06	15.43
11	2500.0	2750.0	2.37	24.13	26.50
12	2750.0	3000.0	1.82	23.61	25.43
13	3000.0	3250.0	1.95	17.40	19.35
14	3250.0	3500.0	2.31	13.54	15.84
15	3500.0	3750.0	1.70	11.15	12.85
16	3750.0	4000.0	1.10	10.60	11.70
17	4000.0	4250.0	.26	8.97	9.23
18	4250.0	4500.0	.88	7.77	8.64
19	4500.0	4750.0	.65	6.07	6.72
20	4750.0	5000.0	1.24	6.45	7.69
21	5000.0	5250.0	1.09	4.40	5.49
22	5250.0	5500.0	1.39	4.84	6.22
23	5500.0	5750.0	.21	2.60	2.80
24	5750.0	6000.0	.63	2.86	3.50
25	6000.0	6250.0	.27	2.56	2.83
26	6250.0	6500.0	.87	2.18	3.05
27	6500.0	6750.0	.34	1.84	2.18
28	6750.0	7000.0	.18	1.70	1.88
29	7000.0	7250.0	.20	1.46	1.65
30	7250.0	7500.0	.15	2.70	2.84
31	7500.0	7750.0	.00	.92	.92
32	7750.0	8000.0	.00	.77	.77
33	8000.0	8250.0	.00	.32	.32
34	8250.0	8500.0	.00	.24	.24
35	8500.0	8750.0	.00	.18	.18
36	8750.0	9000.0	.00	.36	.36
37	9000.0	9250.0	.00	-.05	-.05
38	9250.0	9500.0	.34	.00	.34
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
41	10000.0	10250.0	.00	.00	.00
42	10250.0	10500.0	.00	.00	.00
BE(KEV)	9300.0	%BE	16.95	83.05	100.00


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 594 TIN Z=50 CS.149.4 GMS 3.47 HRS
COUNTS PER CHANNEL - 10C SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY, IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 602 TIN PS 149.4 GMS 19.02 HRS
COUNTS PER CHANNEL (×10³)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ANTIMONY Z=51 CAMABS CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.6	1.48
2	213.0	.18
3	218.0	.32
4	224.1	.18
5	231.6	1.07
6	233.8	1.12
7	247.6	.50
8	253.6	.94
9	263.9	.20
10	275.4	.19
11	283.2	3.54
12	310.9	.13
13	316.3	.21
14	322.0	.19
15	332.8	2.76
16	351.6	.33
17	356.2	.22
18	373.1	.45
19	385.7	.47
20	390.8	.12
21	402.3	.17
22	420.3	1.17
23	452.0	.19
24	491.4	.27
25	546.8	.23
26	558.4	3.55
27	598.1	.64
28	602.4	.49
29	613.9	.21
30	631.4	.87
31	646.6	.31
32	650.6	.27
33	724.3	.15
34	746.1	.16
35	773.7	.18
36	905.3	.18
37	921.1	1.07
38	1019.5	.76
39	1206.8	.40
40	1247.0	.35
41	1355.6	.21
42	1569.3	.22
43	1688.4	.27
44	1697.7	.40
45	1703.4	.29
46	1722.3	.23
47	1949.5	.46
48	2378.4	.52

ANTIMONY Z=51 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3235.8	.18
50	4304.0	.10
51	4567.7	.13
52	4602.6	.10
53	4689.6	.19
54	4818.1	.15
55	4929.4	.13
56	5004.9	.10
57	5126.7	.17
58	5159.3	.09
59	5245.5	.11
60	5336.6	.10
61	5407.3	.25
62	5467.4	.05
63	5518.9	.04
64	5562.6	.57
65	5600.5	.28
66	5619.1	.17
67	5675.9	.11
68	5693.9	.20
69	5800.4	.05
70	5868.3	.41
71	5885.4	.77
72	6008.7	.21
73	6048.1	.19
74	6082.2	.22
75	6164.6	.08
76	6335.0	.20
77	6363.9	.37
78	6379.5	.66
79	6467.9	.36
80	6523.4	1.03
81	6727.8	.48
82	6804.8	.19

BINDING ENERGY = 6685.0 %BE = 9.92 + 99.31 = 109.24

ANTIMONY Z=51 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.6	1.35
2	213.0	.16
3	218.0	.29
4	224.1	.17
5	231.6	.98
6	233.8	1.03
7	247.6	.46
8	253.6	.86
9	263.9	.19
10	275.4	.17
11	283.2	3.24
12	310.9	.12
13	315.3	.19
14	322.0	.18
15	332.8	2.53
16	351.6	.30
17	356.2	.20
18	379.1	.41
19	385.7	.43
20	390.8	.11
21	402.3	.15
22	420.3	1.07
23	452.0	.17
24	491.4	.25
25	548.8	.21
26	558.4	3.25
27	598.1	.58
28	602.4	.45
29	613.9	.19
30	631.4	.80
31	646.6	.29
32	650.6	.25
33	724.3	.14
34	746.1	.15
35	773.7	.17
36	905.3	.16
37	921.1	.98
38	1019.5	.70
39	1206.8	.36
40	1247.0	.32
41	1355.6	.19
42	1569.3	.20
43	1688.4	.24
44	1697.7	.37
45	1703.4	.26
46	1722.3	.22
47	1949.5	.42
48	2378.4	.48

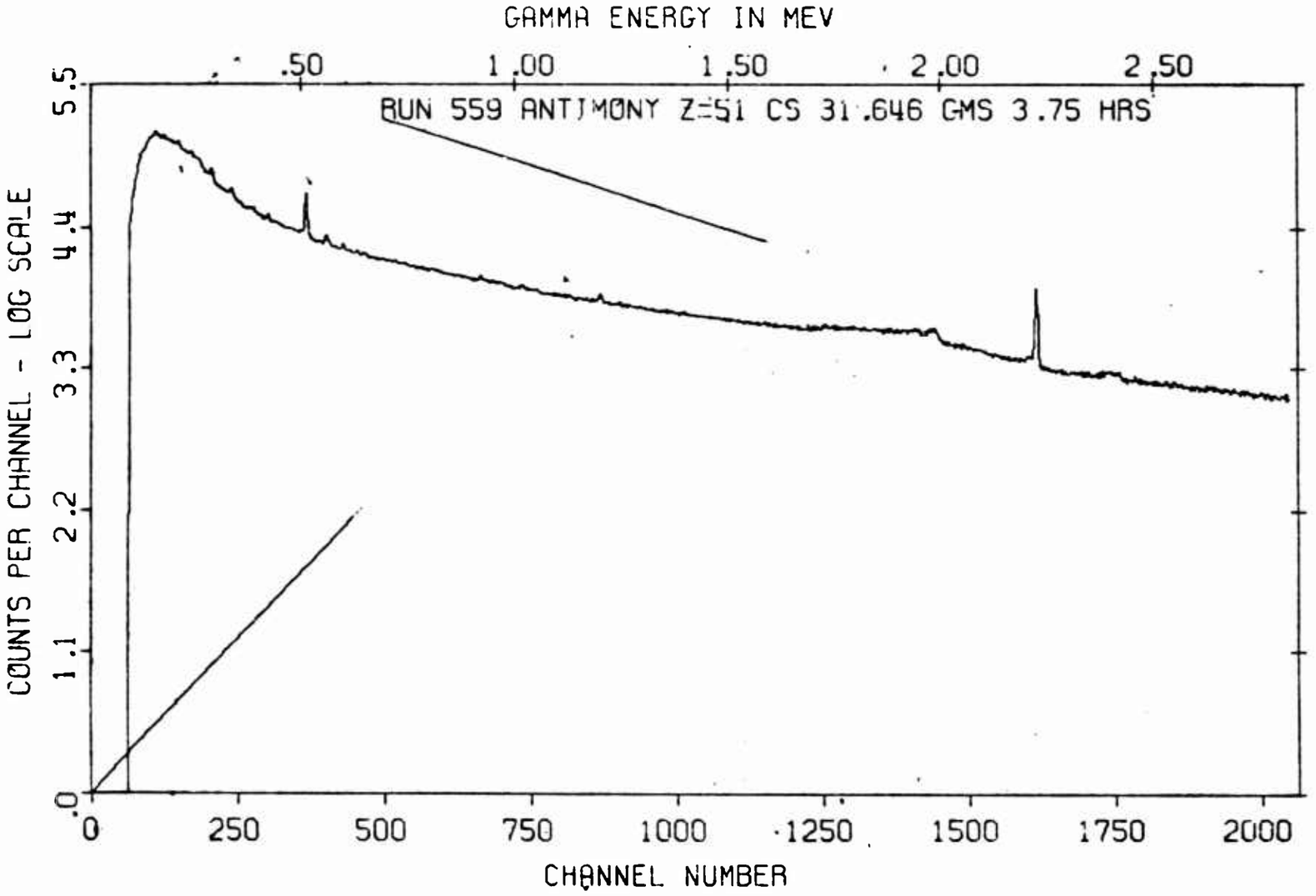
ANTIMONY Z=51 GAMABS CODE MITNE-85 DAT NORMALIZED YIELDS

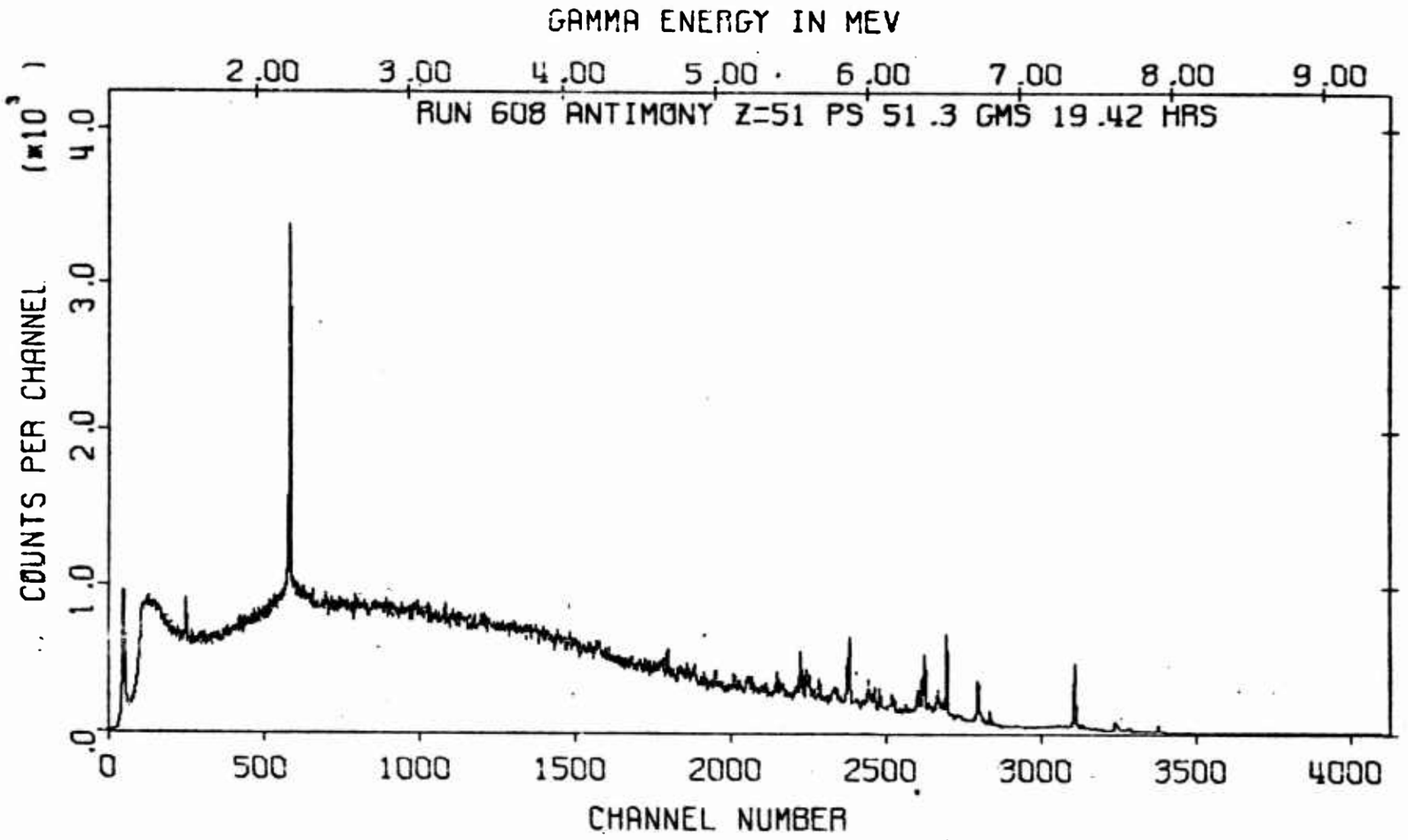
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3235.8	.16
50	4304.0	.09
51	4567.7	.12
52	4602.6	.09
53	4689.6	.17
54	4818.1	.14
55	4929.4	.12
56	5004.9	.09
57	5126.7	.15
58	5158.7	.08
59	5245.5	.10
60	5336.6	.09
61	5407.3	.23
62	5467.4	.05
63	5518.9	.04
64	5562.6	.52
65	5600.5	.26
66	5619.1	.16
67	5675.9	.11
68	5683.9	.18
69	5800.4	.05
70	5868.3	.38
71	5885.4	.70
72	6008.7	.19
73	6049.1	.17
74	6082.2	.20
75	6164.6	.08
76	6335.0	.19
77	6363.9	.34
78	6379.5	.60
79	6467.9	.33
80	6523.4	.95
81	6727.8	.44
82	6804.8	.17

BE(KEV) 6685.0 OBSERVED %BE 109.24 NORMALIZED %BE 100.00

ANTIMONY Z=51 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF % OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	4.44	.00	4.44
2	250.0	500.0	10.57	.00	10.57
3	500.0	750.0	6.31	.00	6.31
4	750.0	1000.0	1.32	4.58	5.89
5	1000.0	1250.0	1.38	16.94	18.32
6	1250.0	1500.0	.19	22.89	23.08
7	1500.0	1750.0	1.29	25.90	27.18
8	1750.0	2000.0	.42	23.49	23.91
9	2000.0	2250.0	.00	25.45	25.45
10	2250.0	2500.0	.48	21.45	21.93
11	2500.0	2750.0	.00	17.42	17.42
12	2750.0	3000.0	.00	14.93	14.93
13	3000.0	3250.0	.16	11.54	11.71
14	3250.0	3500.0	.00	9.73	9.73
15	3500.0	3750.0	.00	8.43	8.43
16	3750.0	4000.0	.00	7.44	7.44
17	4000.0	4250.0	.00	6.13	6.13
18	4250.0	4500.0	.09	4.34	4.43
19	4500.0	4750.0	.38	3.68	4.06
20	4750.0	5000.0	.26	3.05	3.31
21	5000.0	5250.0	.42	2.41	2.83
22	5250.0	5500.0	.37	1.97	2.34
23	5500.0	5750.0	1.26	1.72	2.98
24	5750.0	6000.0	1.13	1.62	2.75
25	6000.0	6250.0	.65	1.35	1.99
26	6250.0	6500.0	1.46	1.42	2.88
27	6500.0	6750.0	1.39	1.12	2.51
28	6750.0	7000.0	.17	.31	.48
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
BE(KEV)	6685.0	%E	9.12	90.92	100.03


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 559 ANTIMONY Z=51 CS 31.646 GMS 3.75 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 608 ANTIMONY Z=51 PS 51.3 GMS 19.42 HRS
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.7	0.17
2	215.0	0.09
3	244.8	0.17
4	251.7	0.24
5	297.2	0.23
6	354.3	0.81
7	415.7	0.44
8	419.6	0.18
9	422.5	0.37
10	557.0	0.46
11	594.0	0.34
12	603.1	14.62
13	646.0	1.52
14	665.2	0.37
15	693.5	0.21
16	713.5	0.19
17	723.2	2.69
18	828.5	0.20
19	1053.7	0.27
20	1200.8	0.45
21	1325.9	0.25
22	1437.3	0.45
23	1488.8	0.66
24	1580.8	2.19
25	1619.4	2.13
26	1692.4	1.49
27	1721.6	2.50
28	1918.2	2.00
29	1998.3	1.21
30	2039.2	1.85
31	2181.3	1.20
32	2286.4	0.90
33	2386.2	1.13
34	2443.3	0.48
35	2490.7	0.44
36	2602.5	0.59
37	2609.5	1.10
38	2615.1	0.79
39	2635.8	0.72
40	2704.9	0.34
41	2746.9	4.07
42	2783.7	1.02
43	2797.3	0.20
44	2809.0	0.41
45	2927.0	0.59
46	2942.2	0.37
47	2973.5	0.42
48	2987.6	0.21

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3025.2	0.24
50	3092.0	0.50
51	3104.8	0.30
52	3153.9	0.67
53	3222.5	0.41
54	3237.0	0.31
55	3346.3	0.71
56	3488.6	0.13
57	3543.5	1.11
58	3588.1	0.17
59	3673.9	0.12
60	3722.0	0.57
61	3776.8	0.37
62	3815.1	0.20
63	3884.0	0.21
64	3921.2	0.15
65	3964.0	0.19
66	4043.2	0.14
67	4079.8	0.34
68	4103.4	0.17
69	4134.9	0.22
70	4153.4	0.20
71	4228.9	0.16
72	4253.7	0.14
73	4344.9	0.20
74	4388.6	0.12
75	4433.0	0.34
76	4491.3	0.17
77	4509.7	0.19
78	4531.9	0.17
79	4611.7	0.22
80	4658.7	0.13
81	4673.1	0.11
82	4684.2	0.34
83	4781.2	0.08
84	4854.1	0.13
85	4981.9	0.31
86	4989.0	0.15
87	5045.3	0.40
88	5100.7	0.09
89	5180.1	0.23
90	5194.9	0.24
91	5206.1	0.15
92	5227.2	0.30
93	5250.3	0.37
94	5278.1	0.37
95	5373.4	0.21
96	5457.6	0.52

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA OBSE LDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100C
97	5560.5	0.09
98	5618.4	0.09
99	5667.4	0.85
100	5712.6	0.48
101	5839.1	0.14
102	5879.9	0.95
103	5893.8	0.33
104	5971.6	0.27
105	6025.7	0.28
106	6030.6	0.26
107	6185.4	0.23
108	6210.4	0.84
109	6322.8	2.51
110	6376.8	0.13
111	6480.0	0.08
112	6533.6	0.27
113	6614.1	0.17
114	6734.0	0.26
115	7100.3	0.21
116	7331.5	0.57
117	7633.0	0.36
118	7643.5	0.26
119	7722.9	0.11
120	7791.0	0.09
121	8097.8	0.43
122	8817.1	0.24

BINDING ENERGY = 8594.0 %BE = [illegible].56 + 133.05 = 156.61

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	203.7	0.11
2	215.0	0.06
3	244.8	0.11
4	251.7	0.15
5	297.2	0.15
6	354.3	0.52
7	415.7	0.28
8	418.6	0.12
9	422.5	0.24
10	557.0	0.29
11	594.0	0.22
12	603.1	9.34
13	646.0	0.97
14	666.2	0.23
15	693.5	0.14
16	713.5	0.12
17	723.2	1.72
18	828.5	0.13
19	1053.7	0.17
20	1200.8	0.29
21	1325.9	0.16
22	1437.3	0.29
23	1488.8	0.42
24	1580.9	1.40
25	1619.4	1.36
26	1692.4	0.95
27	1721.6	1.59
28	1918.2	1.27
29	1998.3	0.77
30	2039.2	1.18
31	2181.3	0.77
32	2286.4	0.57
33	2386.2	0.72
34	2443.3	0.31
35	2490.7	0.28
36	2602.5	0.38
37	2609.5	0.70
38	2615.1	0.50
39	2635.8	0.46
40	2704.9	0.22
41	2746.9	2.60
42	2783.7	0.65
43	2797.3	0.12
44	2809.0	0.26
45	2927.0	0.38
46	2942.2	0.23
47	2973.5	0.27
48	2987.6	0.14

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3025.2	0.15
50	3092.0	0.32
51	3104.8	0.19
52	3153.9	0.43
53	3222.5	0.26
54	3237.0	0.20
55	3346.3	0.45
56	3488.6	0.08
57	3543.5	0.71
58	3588.1	0.11
59	3673.9	0.08
60	3722.0	0.36
61	3776.8	0.23
62	3815.1	0.13
63	3884.0	0.14
64	3921.2	0.10
65	3964.0	0.12
66	4043.2	0.09
67	4079.8	0.22
68	4103.4	0.11
69	4134.9	0.14
70	4153.4	0.13
71	4228.9	0.10
72	4253.7	0.09
73	4344.9	0.13
74	4388.6	0.08
75	4433.0	0.22
76	4491.3	0.11
77	4509.7	0.12
78	4531.9	0.11
79	4611.7	0.14
80	4658.7	0.08
81	4673.1	0.07
82	4684.2	0.22
83	4781.2	0.05
84	4854.1	0.08
85	4981.9	0.20
86	4989.0	0.10
87	5045.3	0.26
88	5100.7	0.06
89	5180.1	0.15
90	5194.9	0.15
91	5206.1	0.09
92	5227.2	0.19
93	5250.3	0.24
94	5278.1	0.23
95	5373.4	0.14
96	5457.6	0.33

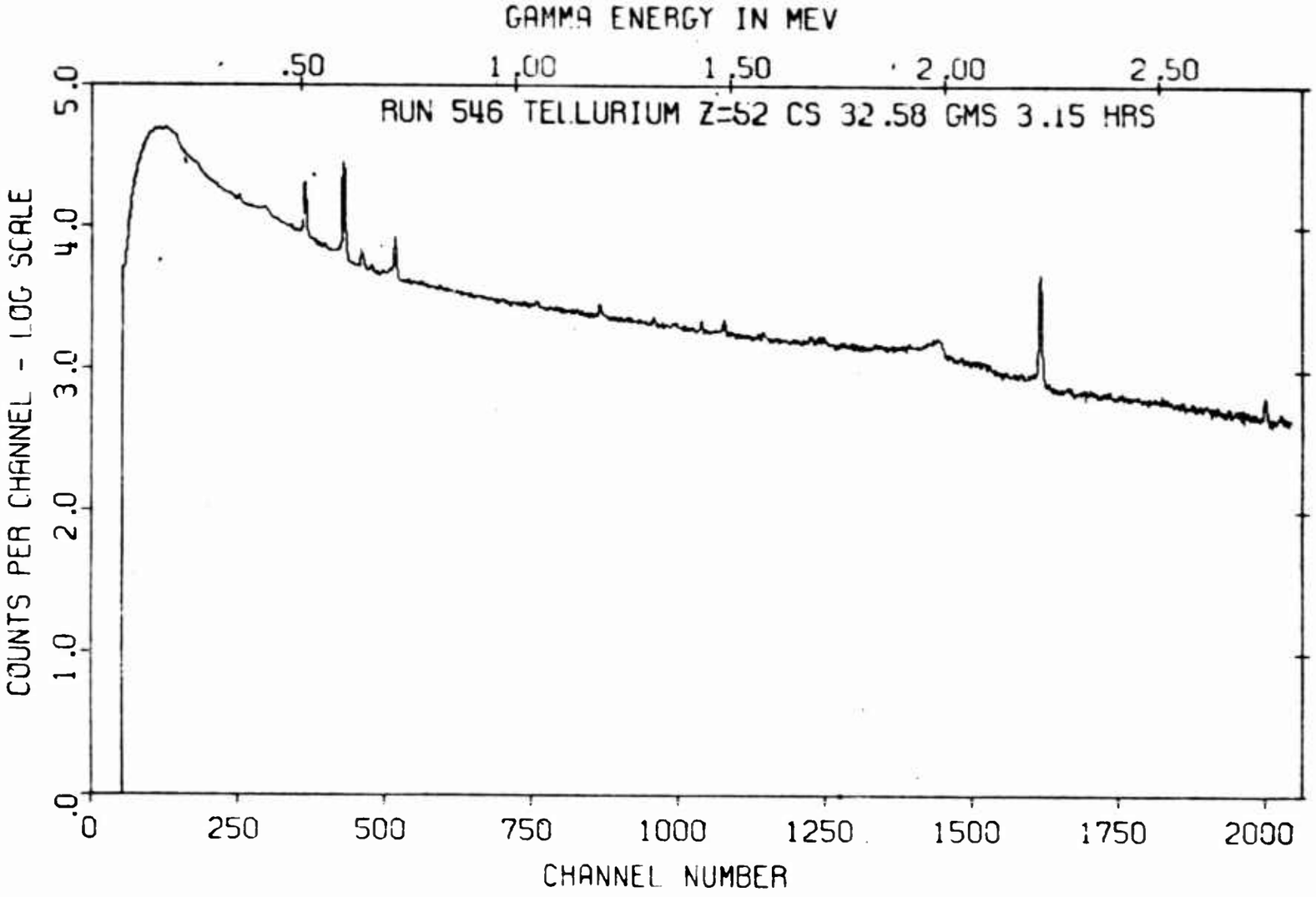
TELLURIUM Z=52 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

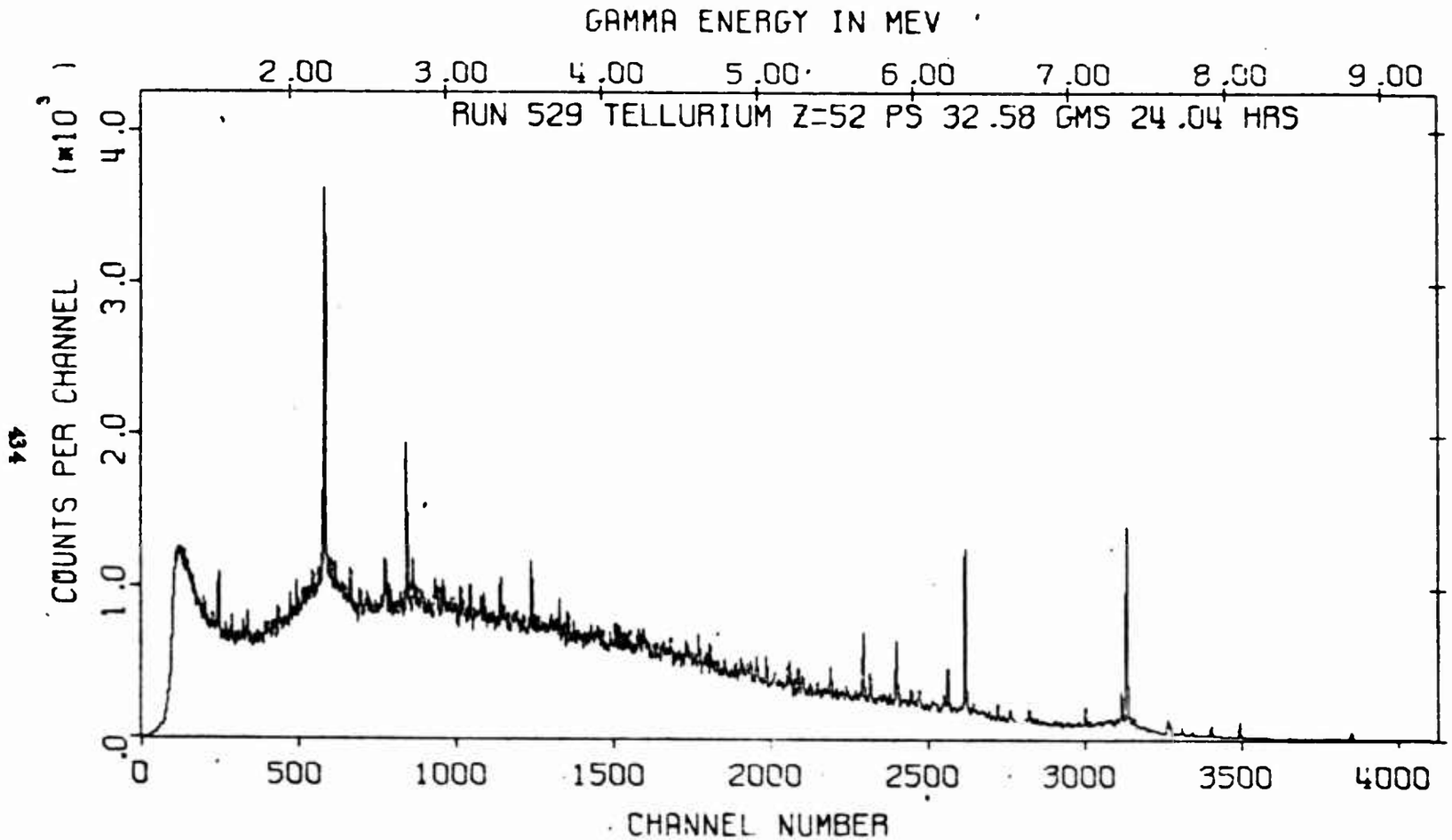
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5560.5	0.06
98	5618.4	0.05
99	5667.4	0.55
100	5712.6	0.31
101	5839.1	0.09
102	5879.9	0.61
103	5893.8	0.21
104	5971.6	0.17
105	6025.7	0.18
106	6030.6	0.17
107	6185.4	0.14
108	6210.4	0.53
109	6322.8	1.60
110	6376.9	0.08
111	6480.0	0.05
112	6533.6	0.17
113	6614.1	0.11
114	6734.0	0.17
115	7100.3	0.13
116	7331.5	0.36
117	7633.0	0.23
118	7643.5	0.17
119	7722.9	0.07
120	7791.0	0.06
121	8097.8	0.27
122	8817.1	0.15

BE(KEV) 8594.0 OBSERVED %BE 156.61 NORMALIZED %BE 100.00

TELLURIUM Z=52 GAMABC CODE MITNE-85 DA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	0.27	0.0	0.27
2	250.0	500.0	1.45	0.0	1.45
3	500.0	750.0	13.03	0.0	13.03
4	750.0	1000.0	0.13	0.64	0.77
5	1000.0	1250.0	0.46	1.28	1.73
6	1250.0	1500.0	0.87	3.83	4.70
7	1500.0	1750.0	5.31	26.74	32.05
8	1750.0	2000.0	2.05	24.44	26.49
9	2000.0	2250.0	1.95	33.13	35.08
10	2250.0	2500.0	1.89	26.83	28.72
11	2500.0	2750.0	4.85	20.91	25.76
12	2750.0	3000.0	2.06	20.10	22.16
13	3000.0	3250.0	1.55	14.75	16.30
14	3250.0	3500.0	0.53	12.08	12.61
15	3500.0	3750.0	1.26	9.99	11.25
16	3750.0	4000.0	0.71	8.43	9.14
17	4000.0	4250.0	0.79	7.16	7.95
18	4250.0	4500.0	0.62	6.54	7.16
19	4500.0	4750.0	0.74	5.73	6.47
20	4750.0	5000.0	0.43	4.86	5.29
21	5000.0	5250.0	0.90	3.44	4.34
22	5250.0	5500.0	0.94	2.87	3.81
23	5500.0	5750.0	0.97	2.38	3.34
24	5750.0	6000.0	1.09	2.27	3.36
25	6000.0	6250.0	1.02	1.76	2.78
26	6250.0	6500.0	1.73	1.85	3.58
27	6500.0	6750.0	0.44	0.95	1.39
28	6750.0	7000.0	0.0	0.86	0.86
29	7000.0	7250.0	0.13	0.82	0.95
30	7250.0	7500.0	0.36	1.56	1.93
31	7500.0	7750.0	0.47	0.53	1.00
32	7750.0	8000.0	0.06	0.36	0.42
33	8000.0	8250.0	0.27	0.15	0.43
34	8250.0	8500.0	0.0	0.05	0.05
35	8500.0	8750.0	0.0	0.11	0.11
36	8750.0	9000.0	0.15	0.16	0.31
37	9000.0	9250.0	0.0	-0.02	-0.02
38	9250.0	9500.0	0.0	0.0	0.0
39	9500.0	9750.0	0.0	0.0	0.0
40	9750.0	10000.0	0.0	0.0	0.0
BE(KEV)	8594.0	%BE	14.97	84.96	99.93


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 546 TELLURIUM Z=52 CS 32.58 GMS 3.15 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 529 TELLURIUM Z=52 PS 32.58 GMS 24.04 HRS
COUNTS PER CHANNEL (×10³)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

IODINE Z=53 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	223.1	.60
2	234.0	.10
3	250.5	1.92
4	256.3	.72
5	269.5	.34
6	280.6	.20
7	286.1	.19
8	291.9	.12
9	302.6	1.98
10	314.9	.40
11	326.1	.40
12	332.4	.22
13	345.1	.99
14	354.7	.32
15	375.6	.68
16	387.9	.69
17	392.8	.90
18	399.8	.26
19	413.3	.65
20	421.6	2.10
21	442.[illegible]	6.66
22	460.[illegible]	.22
23	469.4	.19
24	492.7	.25
25	529.9	1.13
26	556.5	.20
27	558.6	.22
28	570.6	.13
29	589.7	.90
30	614.9	.14
31	635.7	.88
32	697.8	.40
33	696.9	.42
34	702.6	.62
35	888.9	.21
36	898.9	.43
37	932.0	.21
38	981.4	.20
39	1049.3	.46
40	1063.6	.15
41	1069.5	.39
42	1196.5	.39
43	1618.7	1.56
44	1984.9	.55
45	2207.0	.80
46	2937.6	.25
47	3397.4	.15
48	3417.9	.09

IODINE Z=53 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3510.8	.10
50	3656.4	.14
51	3978.9	.15
52	4048.4	.34
53	4073.6	.24
54	4102.2	.41
55	4152.8	.15
56	4256.8	.12
57	4288.6	.24
58	4306.4	.07
59	4342.5	.20
60	4392.9	.20
61	4407.7	.09
62	4425.7	.14
63	4504.3	.20
64	4515.7	.13
65	4543.7	.22
66	4587.3	.15
67	4601.7	.25
68	4619.9	.16
69	4623.7	.16
70	4638.2	.07
71	4710.5	.21
72	4757.1	.18
73	4804.3	.17
74	4851.1	.08
75	4877.3	.22
76	4893.3	.16
77	4939.2	.26
78	4949.7	.90
79	5000.0	.32
80	5017.2	.40
81	5044.0	.17
82	5093.1	1.06
83	5136.6	.09
84	5156.5	.05
85	5197.5	1.28
86	5207.2	.31
87	5272.0	.17
88	5297.7	.39
89	5339.1	.28
90	5361.4	.11
91	5383.8	.20
92	5462.8	.59
93	5481.8	.46
94	5495.7	.07
95	5522.9	.27
96	5559.4	1.72

IODINE Z=53 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5575.2	.99
98	5599.7	.06
99	5725.2	.67
100	5741.0	.39
101	5794.1	.22
102	5891.5	.25
103	5910.6	.11
104	5918.5	.18
105	5942.6	.05
106	5984.0	.19
107	6015.5	.07
108	6213.9	.12
109	6270.8	.25
110	6307.0	.73
111	6390.5	.37
112	6449.4	.25
113	6481.3	.06
114	6645.4	.23
115	6692.9	.88
116	6738.0	.20

BINDING ENERGY = 6799.0 %BE = 18.87 + 113.12 = 131.98

IODINE Z=53 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	223.1	.46
2	234.0	.08
3	250.5	1.45
4	256.3	.54
5	268.5	.26
6	280.6	.15
7	286.1	.14
8	291.9	.09
9	302.6	1.50
10	314.9	.30
11	326.1	.31
12	332.4	.17
13	345.1	.68
14	354.7	.24
15	375.6	.52
16	387.9	.52
17	392.8	.68
18	399.8	.20
19	413.3	.49
20	421.6	1.59
21	442.9	5.05
22	460.3	.17
23	465.4	.15
24	492.7	.19
25	526.9	.85
26	556.5	.15
27	558.6	.17
28	570.6	.10
29	589.7	.68
30	614.9	.11
31	635.7	.67
32	693.8	.30
33	696.9	.32
34	702.6	.47
35	888.9	.16
36	898.9	.33
37	932.0	.16
38	981.4	.15
39	1049.3	.35
40	1063.6	.12
41	1069.5	.30
42	1196.5	.29
43	1618.7	1.18
44	1984.9	.42
45	2207.0	.61
46	2937.6	.19
47	3397.4	.12
48	3417.9	.07

IODINE Z=53 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3510.8	.07
50	3656.4	.11
51	3978.9	.11
52	4048.4	.26
53	4073.6	.18
54	4102.2	.31
55	4152.8	.11
56	4256.8	.09
57	4288.6	.19
58	4306.4	.05
59	4342.5	.15
60	4392.9	.15
61	4407.7	.07
62	4425.7	.11
63	4504.3	.15
64	4515.7	.10
65	4543.7	.17
66	4587.3	.12
67	4601.7	.19
68	4619.9	.12
69	4623.7	.12
70	4638.2	.06
71	4710.5	.16
72	4757.1	.14
73	4804.3	.13
74	4851.1	.06
75	4877.3	.17
76	4893.3	.12
77	4939.2	.20
78	4949.7	.68
79	5000.0	.24
80	5017.2	.30
81	5044.0	.13
82	5093.1	.80
83	5136.6	.07
84	5156.5	.04
85	5197.5	.97
86	5207.2	.24
87	5272.0	.13
88	5297.7	.30
89	5339.1	.21
90	5361.4	.08
91	5383.8	.15
92	5462.8	.45
93	5481.8	.35
94	5495.7	.06
95	5522.9	.21
96	5559.4	1.30

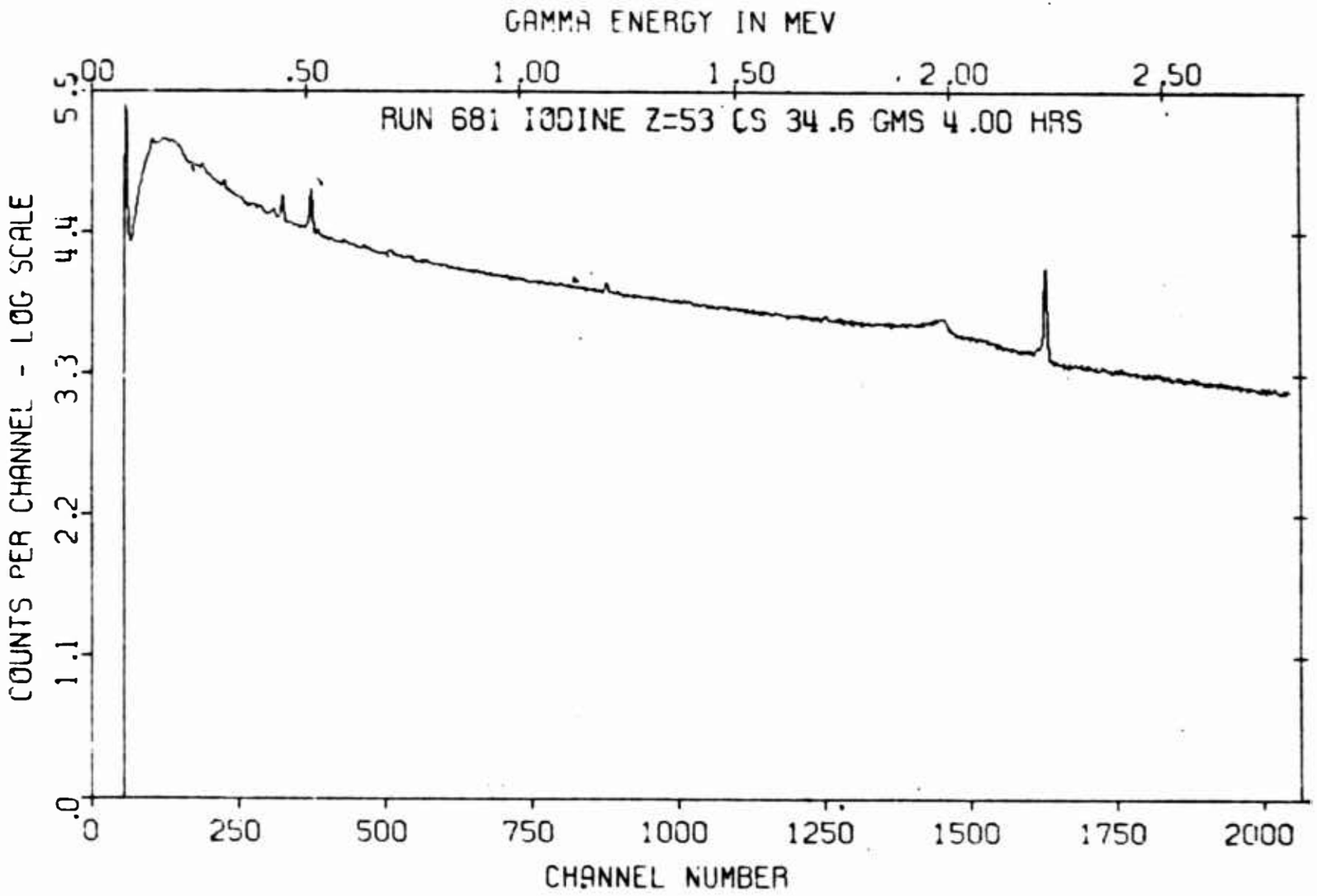
IODINE Z=53 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

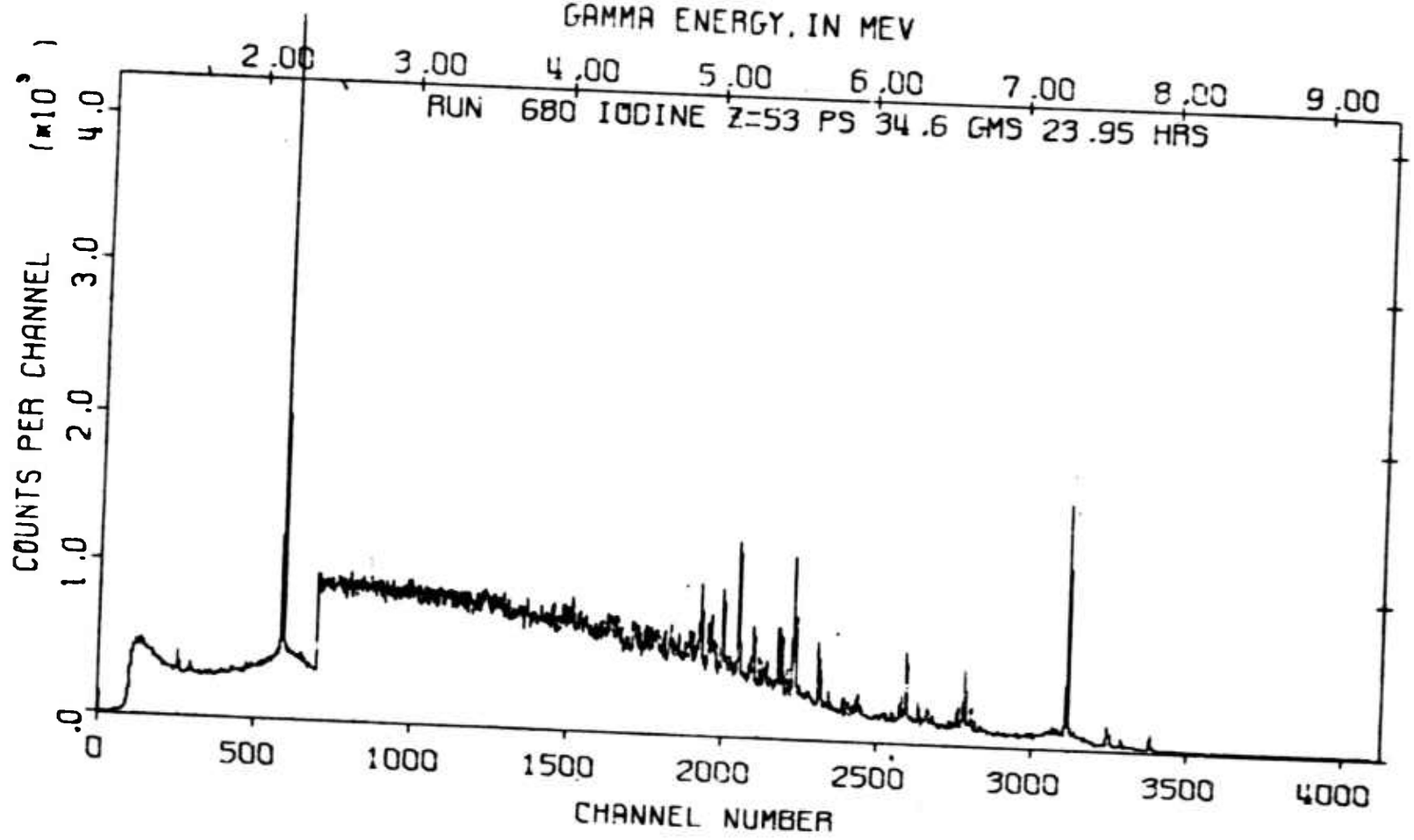
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5575.2	.75
98	5599.7	.04
99	5725.2	.51
100	5741.0	.30
101	5794.1	.16
102	5891.5	.19
103	5910.6	.08
104	5918.5	.14
105	5942.6	.04
106	5984.0	.14
107	6015.5	.05
108	6213.9	.09
109	6270.8	.19
110	6307.0	.55
111	6390.5	.28
112	6449.4	.19
113	6481.3	.04
114	6645.4	.18
115	6692.9	.67
116	6738.0	.15

BE(KEV) 6799.0 OBSERVED %BE 131.98 NORMALIZED %BE 100.00

IODINE Z=53 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.54	.00	.54
2	250.0	500.0	15.40	.00	15.40
3	500.0	750.0	3.82	.00	3.82
4	750.0	1000.0	.80	7.58	8.38
5	1000.0	1250.0	1.05	22.73	23.79
6	1250.0	1500.0	.00	27.28	27.28
7	1500.0	1750.0	1.18	30.70	31.88
8	1750.0	2000.0	.42	22.13	22.55
9	2000.0	2250.0	.61	23.26	23.87
10	2250.0	2500.0	.00	18.87	18.87
11	2500.0	2750.0	.00	14.61	14.61
12	2750.0	3000.0	.19	12.08	12.27
13	3000.0	3250.0	.00	9.76	9.76
14	3250.0	3500.0	.18	8.31	8.50
15	3500.0	3750.0	.18	7.46	7.64
16	3750.0	4000.0	.11	6.33	6.45
17	4000.0	4250.0	.86	5.55	6.41
18	4250.0	4500.0	.81	4.51	5.31
19	4500.0	4750.0	1.19	4.10	5.29
20	4750.0	5000.0	1.73	3.92	5.64
21	5000.0	5250.0	2.54	3.28	5.83
22	5250.0	5500.0	1.72	2.77	4.49
23	5500.0	5750.0	3.11	1.34	4.45
24	5750.0	6000.0	.75	1.00	1.75
25	6000.0	6250.0	.14	.70	.85
26	6250.0	6500.0	1.26	.87	2.13
27	6500.0	6750.0	.99	.91	1.90
28	6750.0	7000.0	.00	.36	.36
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
BE(KEV)	6799.0	%BE	14.27	85.71	99.97


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 681 IODINE Z=53 CS 34.6 GMS 4.00 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY, IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 680 IODINE Z=53 PS 34.6 GMS 23.95 HRS
COUNTS PER CHANNEL (×10³)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

CESIUM Z=55 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	1618.9	1.48
2	1808.8	.67
3	2214.6	.82
4	3597.6	.26
5	3933.9	.10
6	4068.4	.16
7	4297.4	.21
8	4522.3	.11
9	4540.3	.23
10	4563.0	.19
11	4589.8	.14
12	4620.9	.12
13	4656.6	.12
14	4667.0	.10
15	4686.4	.12
16	4720.0	.27
17	4753.1	.23
18	4770.2	.09
19	4896.0	.10
20	4922.5	.29
21	4931.5	.19
22	4946.4	.11
23	4967.2	.22
24	5020.1	.76
25	5224.0	.37
26	5252.3	1.02
27	5269.1	.33
28	5313.2	.17
29	5376.8	.52
30	5435.6	.15
31	5493.1	.48
32	5504.5	.81
33	5570.3	.83
34	5623.8	.13
35	5637.0	.48
36	5729.0	.18
37	5748.1	.20
38	5790.1	.23
39	5802.0	.15
40	5898.1	.21
41	5949.0	.16
42	5976.0	.13
43	6018.0	.13
44	6051.3	.61
45	6110.6	.13
46	6175.0	.73
47	6188.3	.43
48	6319.9	.09

CESIUM Z=55 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	6388.3	.14
50	6419.3	.11
51	6439.5	.26
52	6696.8	.38
53	6715.6	.18

BINDING ENERGY = 6715.3 %BE = 12.01 + 87.13 = 99.14

CESIUM Z=55 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	1618.9	1.50
2	1808.8	.68
3	2214.6	.83
4	3597.6	.26
5	3933.9	.10
6	4068.4	.16
7	4297.4	.21
8	4522.3	.11
9	4540.3	.23
10	4563.0	.20
11	4589.8	.14
12	4620.9	.12
13	4656.6	.12
14	4667.0	.10
15	4686.4	.12
16	4720.0	.27
17	4753.1	.23
18	4770.2	.09
19	4896.0	.10
20	4922.5	.29
21	4931.5	.19
22	4946.4	.11
23	4967.2	.22
24	5020.1	.77
25	5224.0	.37
26	5252.3	1.02
27	5269.1	.33
28	5313.2	.18
29	5376.8	.52
30	5435.6	.15
31	5493.1	.49
32	5504.5	.81
33	5570.3	.83
34	5623.8	.13
35	5637.0	.49
36	5729.0	.18
37	5748.1	.20
38	5790.1	.23
39	5802.0	.15
40	5898.1	.22
41	5949.0	.16
42	5976.0	.13
43	6018.0	.13
44	6051.3	.52
45	6110.6	.13
46	6175.0	.73
47	6188.3	.43
48	6319.9	.09

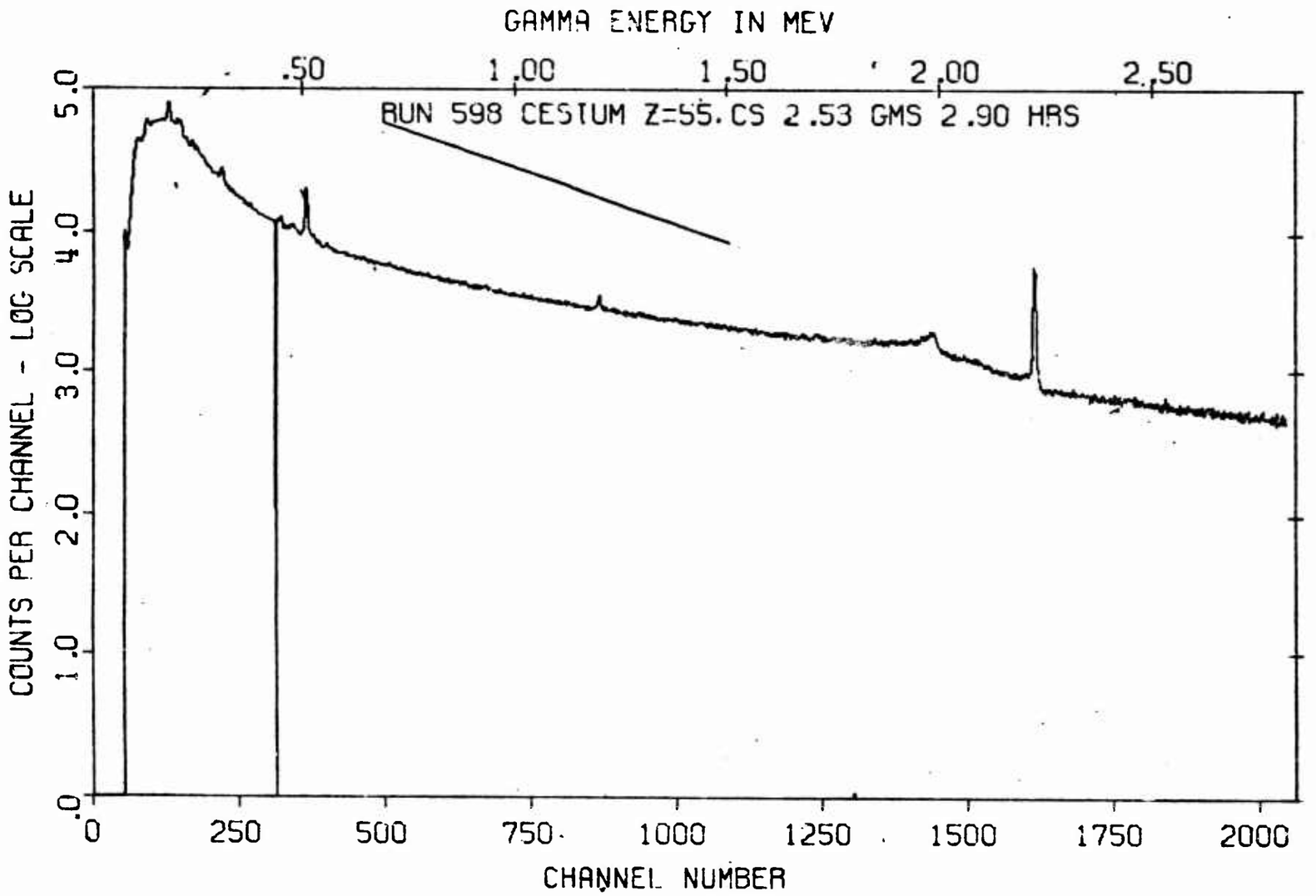
CESIUM Z=55 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

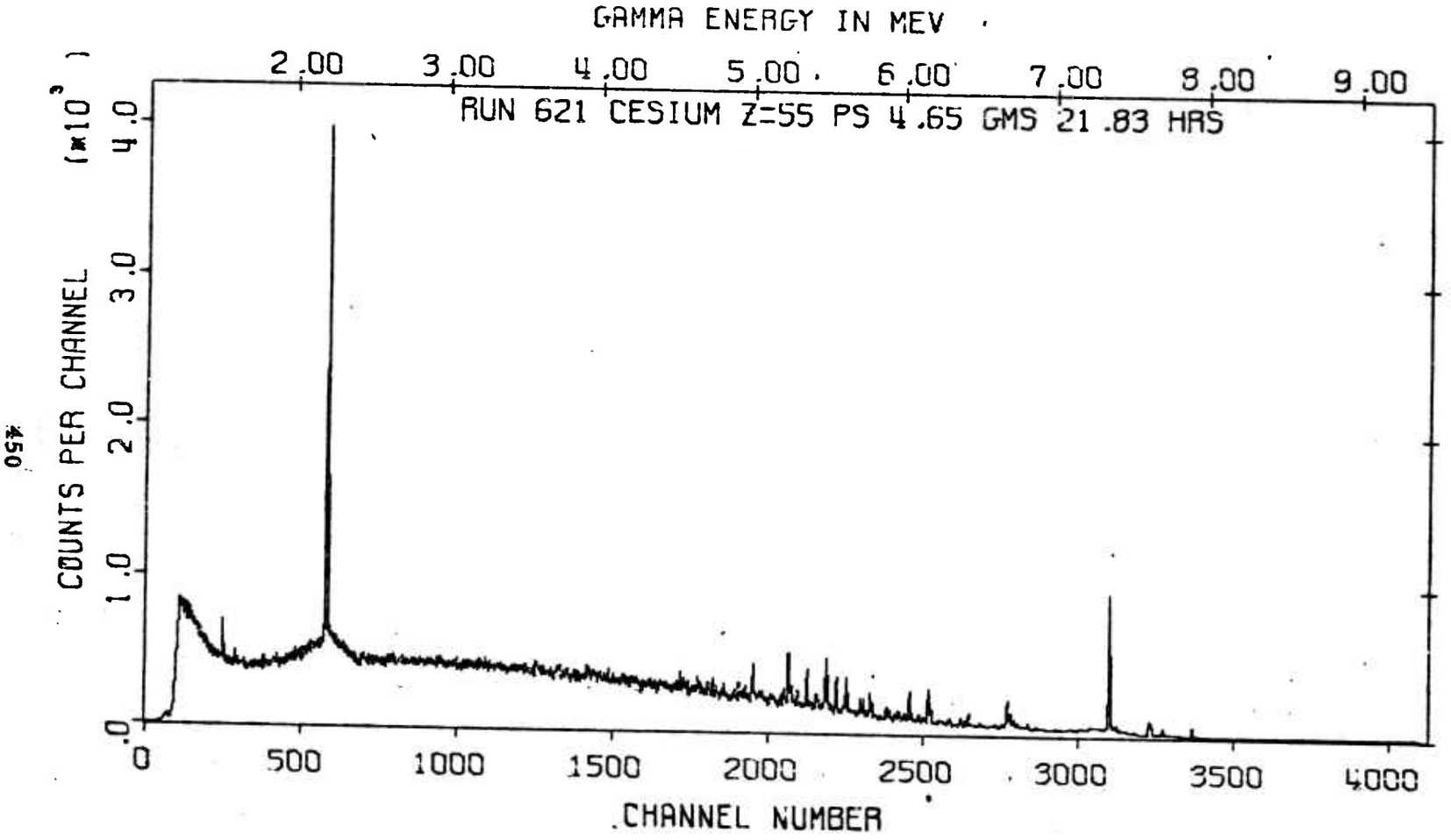
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	6388.3	.14
50	6419.3	.11
51	6439.5	.26
52	6696.8	.39
53	6715.6	.18

BE(KEV) 6715.3 OBSERVED %BE 99.14 NORMALIZED %BE 100.00

CESIUM Z=55 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	.00	.00	.00
3	500.0	750.0	.00	.00	.00
4	750.0	1000.0	.00	.00	.00
5	1000.0	1250.0	.00	19.67	19.67
6	1250.0	1500.0	.00	25.22	25.22
7	1500.0	1750.0	1.50	29.54	31.04
8	1750.0	2000.0	.68	21.88	22.56
9	2000.0	2250.0	.83	27.33	28.16
10	2250.0	2500.0	.00	19.64	19.64
11	2500.0	2750.0	.00	15.31	15.31
12	2750.0	3000.0	.00	13.35	13.35
13	3000.0	3250.0	.00	10.42	10.42
14	3250.0	3500.0	.00	8.83	8.83
15	3500.0	3750.0	.26	7.50	7.77
16	3750.0	4000.0	.10	6.82	6.92
17	4000.0	4250.0	.16	5.83	5.99
18	4250.0	4500.0	.21	4.83	5.05
19	4500.0	4750.0	1.41	4.00	5.42
20	4750.0	5000.0	1.24	3.39	4.63
21	5000.0	5250.0	1.14	3.27	4.41
22	5250.0	5500.0	2.70	2.74	5.44
23	5500.0	5750.0	2.64	1.82	4.46
24	5750.0	6000.0	.89	1.47	2.36
25	6000.0	6250.0	2.04	.59	2.63
26	6250.0	6500.0	.59	.39	.99
27	6500.0	6750.0	.57	1.27	1.84
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
BE(KEV)	6715.3	%BE	12.14	87.89	100.03


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 598 CESIUM Z=55. CS 2.53 GMS 2.90 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 621 CESIUM Z=55 PS 4.65 GMS 21.83 HRS
COUNTS PER CHANNEL (x10^3)
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

BARIUM Z=56 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	197.7	2.25
2	219.6	.37
3	231.4	.31
4	253.5	2.89
5	284.0	1.22
6	300.2	.77
7	340.6	.70
8	352.0	.29
9	357.3	.47
10	453.8	2.31
11	463.0	1.16
12	490.9	.37
13	558.2	.88
14	596.1	1.70
15	627.5	12.03
16	684.3	.42
17	818.6	8.60
18	1047.3	.87
19	1435.9	10.47
20	1444.8	2.88
21	1618.6	7.84
22	1633.3	2.43
23	1891.3	1.63
24	1898.7	2.44
25	2024.0	1.29
26	2241.1	8.73
27	2254.1	5.23
28	2536.9	1.25
29	2564.6	.41
30	2593.7	1.50
31	2639.2	1.48
32	2663.1	.52
33	2805.2	.48
34	2828.3	.39
35	2975.8	1.18
36	3179.3	.25
37	3338.4	.50
38	3435.3	.28
39	3503.4	.64
40	3525.0	.13
41	3641.2	4.92
42	3678.8	.31
43	3715.8	.76
44	3738.7	.15
45	3761.3	.34
46	3800.3	.21
47	3922.0	.17
48	3963.7	.27

BARIUM Z=56 GAMABC CODE MITNE 85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4057.8	.35
50	4095.5	15.06
51	4113.0	.32
52	4167.8	.71
53	4200.2	.39
54	4242.8	.82
55	4250.4	.31
56	4288.3	.12
57	4323.2	.53
58	4331.8	.64
59	4369.0	.55
60	4446.1	.16
61	4535.7	.36
62	4598.2	.15
63	4689.1	1.00
64	4723.1	1.88
65	4772.0	.36
66	4880.4	.08
67	4897.3	.13
68	4924.0	.18
69	4967.2	.67
70	5107.3	.36
71	5177.4	.15
72	5271.2	.68
73	5312.3	.61
74	5383.3	.09
75	5416.6	.52
76	5448.1	.51
77	5559.2	.24
78	5713.6	.21
79	5730.2	4.65
80	5971.7	.29
81	6027.1	.72
82	6058.8	.13
83	6061.4	.13
84	6111.6	.11
85	6419.0	.44
86	6615.5	.16
87	6622.9	.27
88	6738.8	.13
89	6913.9	.15
90	7173.7	.20
91	7414.1	.32
92	7722.1	.19
93	8290.8	.11
94	9108.9	.34

BINDING ENERGY = 7922.0 %BE = 41.18 + 56.81 = 97.99

BARIUM Z=56 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	197.7	2.30
2	219.6	.38
3	231.4	.32
4	253.5	2.95
5	284.0	1.25
6	300.2	.79
7	340.6	.71
8	352.0	.29
9	357.3	.48
10	453.8	2.36
11	463.0	1.19
12	490.9	.38
13	558.2	.90
14	596.1	1.73
15	627.5	12.28
16	684.3	.42
17	818.6	8.78
18	1047.3	.89
19	1435.9	10.69
20	1444.8	2.94
21	1618.6	8.00
22	1633.3	2.48
23	1891.3	1.67
24	1898.7	2.49
25	2024.0	1.31
26	2241.1	8.91
27	2254.1	5.33
28	2536.9	1.28
29	2564.6	.42
30	2593.7	1.53
31	2639.2	1.51
32	2663.1	.53
33	2805.2	.49
34	2828.3	.40
35	2975.8	1.20
36	3179.3	.26
37	3338.4	.52
38	3435.3	.29
39	3503.4	.65
40	3525.0	.14
41	3641.2	5.03
42	3678.8	.32
43	3715.8	.78
44	3738.7	.16
45	3761.3	.34
46	3800.3	.22
47	3922.0	.18
48	3963.7	.28

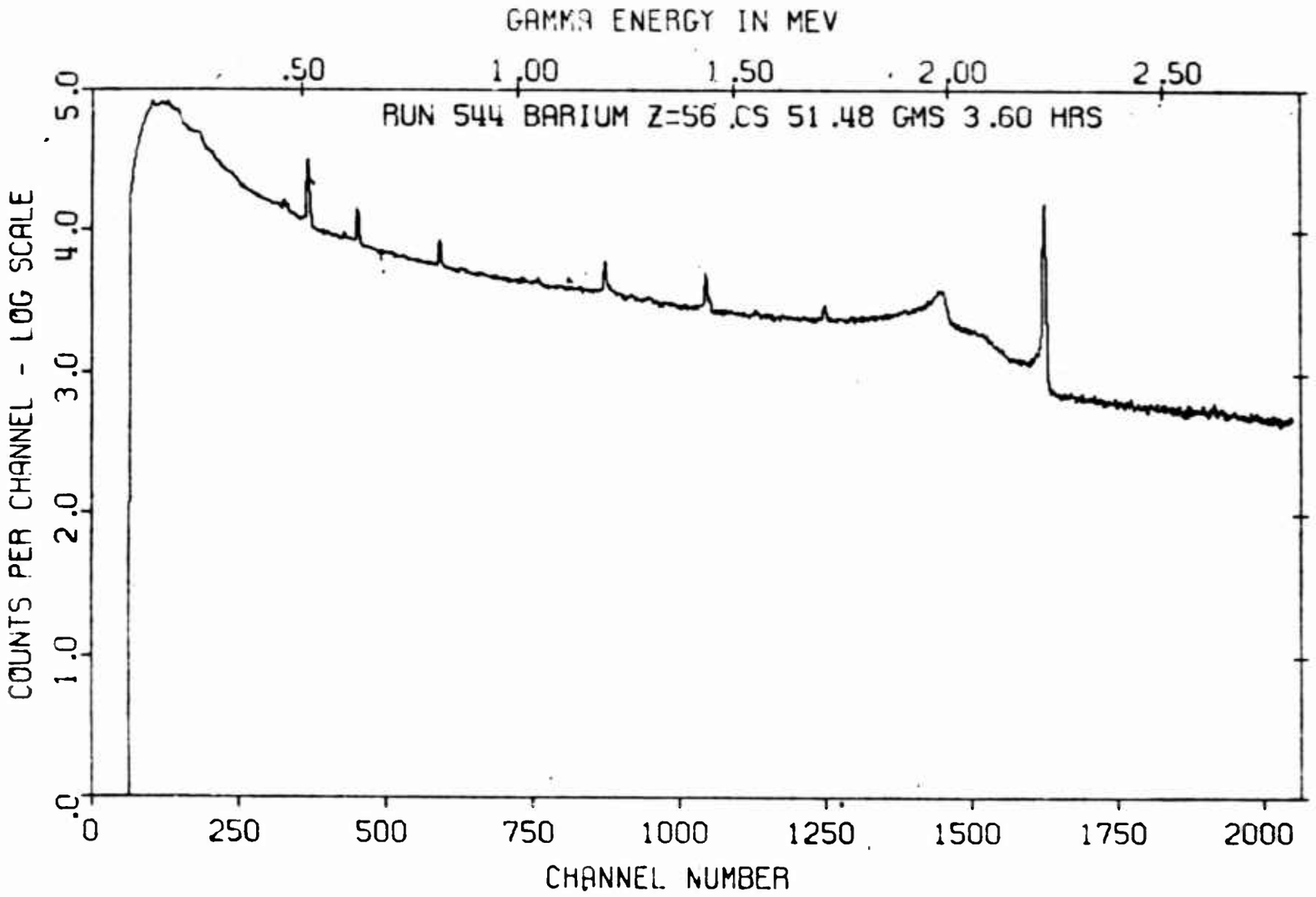
BARIUM Z=56 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

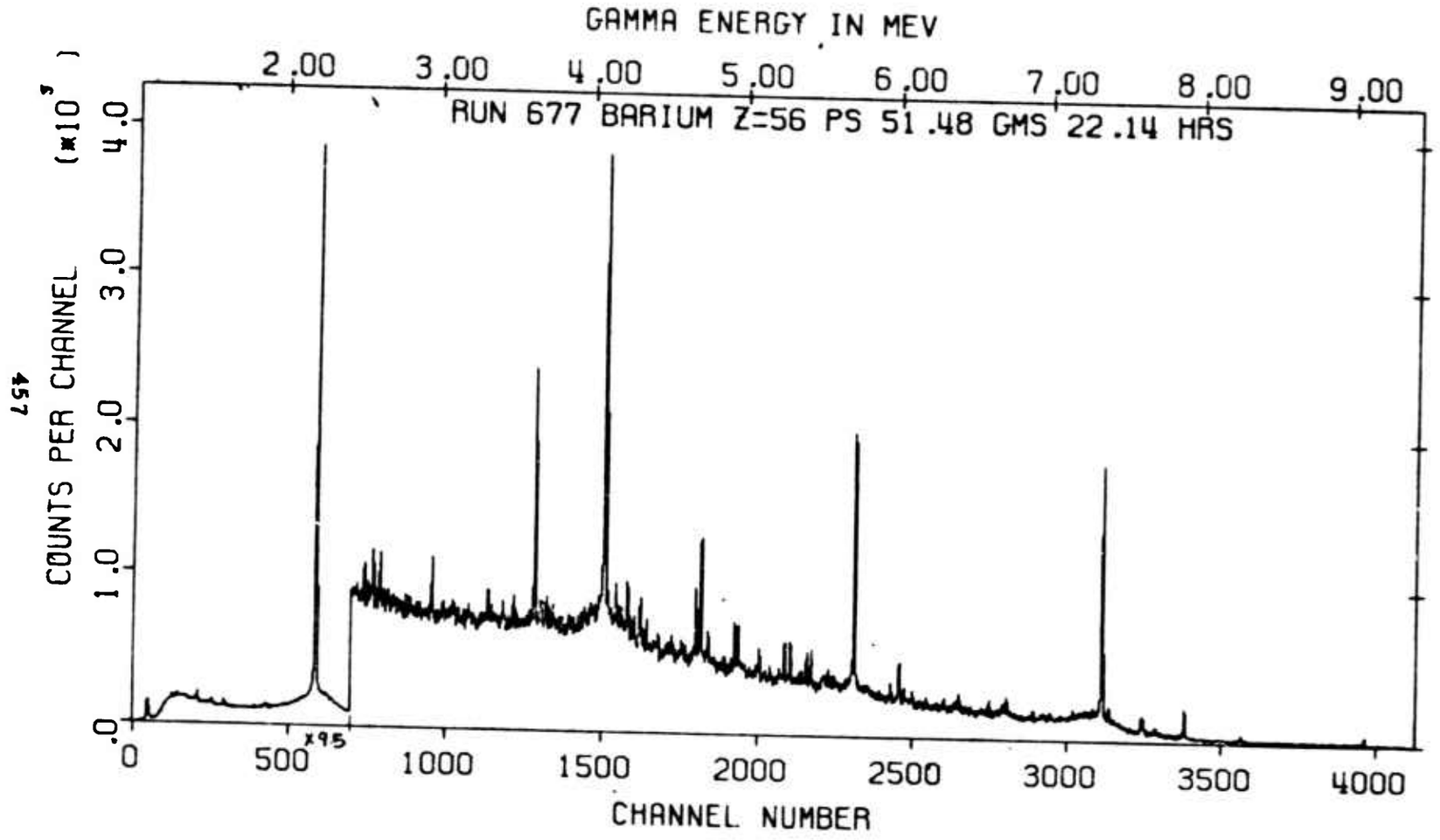
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4057.8	.36
50	4095.5	15.36
51	4113.0	.32
52	4167.8	.72
53	4200.2	.40
54	4242.8	.84
55	4250.4	.32
56	4288.3	.13
57	4323.2	.54
58	4331.8	.65
59	4369.0	.56
60	4446.1	.16
61	4535.7	.37
62	4598.2	.16
63	4689.1	1.02
64	4723.1	1.92
65	4772.0	.37
66	4880.4	.09
67	4897.3	.13
68	4924.0	.18
69	4967.2	.68
70	5107.3	.37
71	5177.4	.15
72	5271.2	.69
73	5312.3	.62
74	5383.3	.10
75	5416.6	.53
76	5448.1	.53
77	5559.2	.24
78	5713.6	.22
79	5730.2	4.75
80	5971.7	.29
81	6027.1	.74
82	6058.8	.13
83	6061.4	.13
84	6111.6	.12
85	6419.0	.45
86	6615.5	.17
87	6622.9	.28
88	6738.8	.14
89	6913.9	.16
90	7173.7	.20
91	7414.1	.33
92	7722.1	.20
93	8290.8	.11
94	9108.9	.34

BE(KEV) 7922.0 OBSERVED %BE 97.99 NORMALIZED %BE 100.00

BARIUM Z=56 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	2.99	.00	2.99
2	250.0	500.0	10.39	.00	10.39
3	500.0	750.0	15.33	.00	15.33
4	750.0	1000.0	8.78	.00	8.78
5	1000.0	1250.0	.89	1.02	1.91
6	1250.0	1500.0	13.63	2.04	15.67
7	1500.0	1750.0	10.48	6.12	16.61
8	1750.0	2000.0	4.16	10.60	14.76
9	2000.0	2250.0	10.22	11.35	21.57
10	2250.0	2500.0	5.33	11.36	16.69
11	2500.0	2750.0	5.27	18.35	23.62
12	2750.0	3000.0	2.09	13.86	15.95
13	3000.0	3250.0	.26	11.83	12.08
14	3250.0	3500.0	.80	8.04	8.84
15	3500.0	3750.0	7.06	6.85	13.91
16	3750.0	4000.0	1.02	8.25	9.27
17	4000.0	4250.0	18.01	9.82	27.83
18	4250.0	4500.0	2.36	6.04	8.40
19	4500.0	4750.0	3.46	5.37	8.83
20	4750.0	5000.0	1.45	3.87	5.32
21	5000.0	5250.0	.52	2.57	3.09
22	5250.0	5500.0	2.46	3.11	5.57
23	5500.0	5750.0	5.21	2.37	7.58
24	5750.0	6000.0	.29	1.99	2.28
25	6000.0	6250.0	1.12	.00	1.12
26	6250.0	6500.0	.45	.00	.45
27	6500.0	6750.0	.58	.00	.58
28	6750.0	7000.0	.16	.00	.16
29	7000.0	7250.0	.20	.00	.20
30	7250.0	7500.0	.33	.00	.33
31	7500.0	7750.0	.20	.00	.20
32	7750.0	8000.0	.00	.00	.00
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.11	.00	.11
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.34	.00	.34
38	9250.0	9500.0	.00	.00	.00
39	9500.0	9750.0	.00	.00	.00
40	9750.0	10000.0	.00	.00	.00
41	10000.0	10250.0	.00	.00	.00
BE(KEV)	7922.0	%BE	41.92	57.98	99.89


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 544 BARIUM Z=56 CS 51.48 GMS 3.60 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 677 BARIUM Z=56 PS 51.48 GMS 22.14 HRS
COUNTS PER CHANNEL (*10³)
4.0
3.0
2.0
1.0
.0
0
500
x95
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	142.3	8.16
2	189.9	.38
3	219.6	11.77
4	238.5	9.04
5	273.2	7.46
6	289.1	9.99
7	328.2	.93
8	335.8	.16
9	389.4	.18
10	395.8	.39
11	407.2	.19
12	423.2	6.92
13	446.9	.23
14	485.9	.81
15	496.2	.31
16	550.6	2.46
17	567.5	4.80
18	625.1	1.02
19	657.2	1.23
20	668.1	.38
21	694.2	.33
22	708.9	2.73
23	722.2	3.14
24	735.9	.45
25	749.4	.55
26	796.7	.64
27	803.2	.59
28	815.2	.40
29	867.5	1.65
30	880.9	.56
31	977.6	.74
32	990.4	.78
33	1021.4	2.03
34	1051.4	.86
35	1100.2	2.23
36	1252.0	.63
37	1259.9	.62
38	1276.6	2.12
39	1308.3	1.22
40	1328.6	1.25
	1552.0	.80
	1596.2	15.20
43	1630.7	.69
44	1676.5	.72
45	1735.1	.92
46	1778.4	.67
47	1806.8	.28
48	1822.4	.62

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1848.1	.42
50	1867.5	.76
51	1891.1	.29
52	1914.0	.25
53	1974.6	1.08
54	2045.0	.42
55	2057.4	.18
56	2086.7	.34
57	2126.0	.20
58	2149.4	.14
59	2174.1	.13
60	2195.1	.15
61	2277.2	.13
62	2290.2	.17
63	2304.9	.15
64	2317.0	.15
65	2346.7	.21
66	2399.3	.43
67	2423.8	.23
68	2439.1	.53
69	2457.0	.13
70	2482.8	.10
71	2519.9	.86
72	2547.3	.11
73	2563.4	.32
74	2583.9	.10
75	2608.7	.20
76	2620.5	.13
77	2639.6	.53
78	2668.5	.09
79	2686.4	.12
80	2700.0	.10
81	2713.9	.11
82	2736.6	.36
83	2765.3	1.13
84	2805.1	.38
85	2838.3	.16
86	2863.2	.61
87	2885.5	.09
88	2897.9	.11
89	2925.3	.23
90	2961.4	.11
91	2969.9	.08
92	2988.4	.33
93	3016.5	.54
94	3036.4	.92
95	3054.1	.20
96	3082.6	1.30

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3113.1	.59
98	3142.9	.43
99	3162.2	.23
100	3176.2	.07
101	3189.4	.68
102	3218.3	.32
103	3265.3	.48
104	3281.7	.40
105	3319.1	.29
106	3342.8	.08
107	3358.3	.17
108	3372.5	.08
109	3384.4	.15
110	3425.0	.62
111	3440.5	.38
112	3460.3	.15
113	3477.9	.54
114	3508.6	.06
115	3564.0	.14
116	3581.8	.13
117	3608.6	1.43
118	3665.5	.80
119	3680.0	.77
120	3727.6	.26
121	3740.2	.17
122	3820.0	.22
123	3847.0	.08
124	3901.1	.57
125	3951.8	.15
126	3974.1	.13
127	4044.8	.22
128	4061.6	.25
129	4106.3	.26
130	4125.1	.14
131	4216.6	.04
132	4239.2	.10
133	4259.3	.05
134	4368.7	.03
135	4389.4	2.52
136	4416.3	2.45
137	4450.0	.07
138	4468.1	.03
139	4502.8	1.71
140	4559.2	.52
141	4618.5	.06
142	4635.3	.05
143	4648.9	.04
144	4677.8	.03

LANTHANUM Z=57 GAMARC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4709.5	.03
146	4747.2	.06
147	4762.1	.04
148	4797.0	.03
149	4815.9	.04
150	4842.7	7.16
151	4888.6	1.49
152	4903.7	.04
153	4996.9	.06
154	5046.8	.04
155	5097.6	7.11
156	5126.4	1.25
157	5160.8	.94

BINDING ENERGY = 5097.6 %BE = 55.28 + 43.66 = 98.94

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	142.3	8.25
2	189.9	.38
3	219.6	11.90
4	238.5	9.14
5	273.2	7.54
6	289.1	10.10
7	328.2	.94
8	335.8	.16
9	389.4	.18
10	395.8	.39
11	407.2	.19
12	423.2	6.99
13	446.9	.23
14	485.9	.82
15	496.2	.31
16	550.6	2.49
17	567.5	4.85
18	625.1	1.03
19	657.2	1.24
20	668.1	.38
21	694.2	.33
22	708.9	2.76
23	722.2	3.17
24	735.9	.45
25	749.4	.56
26	796.7	.65
27	803.2	.60
28	815.2	.40
29	867.5	1.67
30	880.9	.57
31	977.6	.75
32	990.4	.79
33	1021.4	2.05
34	1051.4	.87
35	1100.2	2.25
36	1252.0	.64
37	1259.9	.63
38	1276.6	2.14
39	1308.3	1.23
40	1328.6	1.26
41	1552.0	.81
42	1596.2	15.36
43	1630.7	.70
44	1676.5	.73
45	1735.1	.93
46	1778.4	.60
47	1806.8	.28
48	1822.4	.63

LANTHANUM Z=57 GAMA3C CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1848.1	.42
50	1867.5	.77
51	1891.1	.29
52	1914.0	.25
53	1974.6	1.09
54	2045.0	.42
55	2057.4	.18
56	2086.7	.34
57	2126.0	.20
58	2149.4	.14
59	2174.1	.13
60	2195.1	.15
61	2277.2	.13
62	2290.2	.17
63	2304.9	.15
64	2317.0	.15
65	2346.7	.21
66	2399.3	.43
67	2423.8	.23
68	2439.1	.54
69	2457.0	.13
70	2482.8	.10
71	2519.9	.87
72	2547.3	.11
73	2563.4	.32
74	2583.9	.10
75	2608.7	.20
76	2620.5	.13
77	2639.6	.54
78	2668.5	.09
79	2686.4	.12
80	2700.0	.10
81	2713.9	.11
82	2736.6	.36
83	2765.3	1.14
84	2805.1	.38
85	2838.3	.16
86	2863.2	.62
87	2885.5	.09
88	2897.9	.11
89	2925.3	.23
90	2961.4	.11
91	2969.9	.08
92	2988.4	.33
93	3016.5	.55
94	3036.4	.93
95	3054.1	.20
96	3082.6	1.31

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3113.1	.60
98	3142.9	.43
99	3162.2	.23
100	3176.2	.07
101	3189.4	.69
102	3218.3	.32
103	3265.3	.49
104	3281.7	.40
105	3319.1	.29
106	3342.8	.08
107	3358.3	.17
108	3372.5	.08
109	3384.4	.15
110	3425.0	.63
111	3440.5	.38
112	3460.3	.15
113	3477.9	.55
114	3508.6	.06
115	3564.0	.14
116	3581.8	.13
117	3608.6	1.45
118	3665.5	.81
119	3680.0	.78
120	3727.6	.26
121	3740.2	.17
122	3820.0	.22
123	3847.0	.08
124	3901.1	.58
125	3951.8	.15
126	3974.1	.13
127	4044.8	.22
128	4061.6	.25
129	4106.3	.26
130	4125.1	.14
131	4216.6	.04
132	4239.2	.10
133	4259.3	.05
134	4368.7	.03
135	4389.4	2.55
136	4416.3	2.48
137	4450.0	.07
138	4468.1	.03
139	4502.8	1.73
140	4559.2	.53
141	4618.5	.06
142	4635.3	.05
143	4648.9	.04
144	4677.8	.03

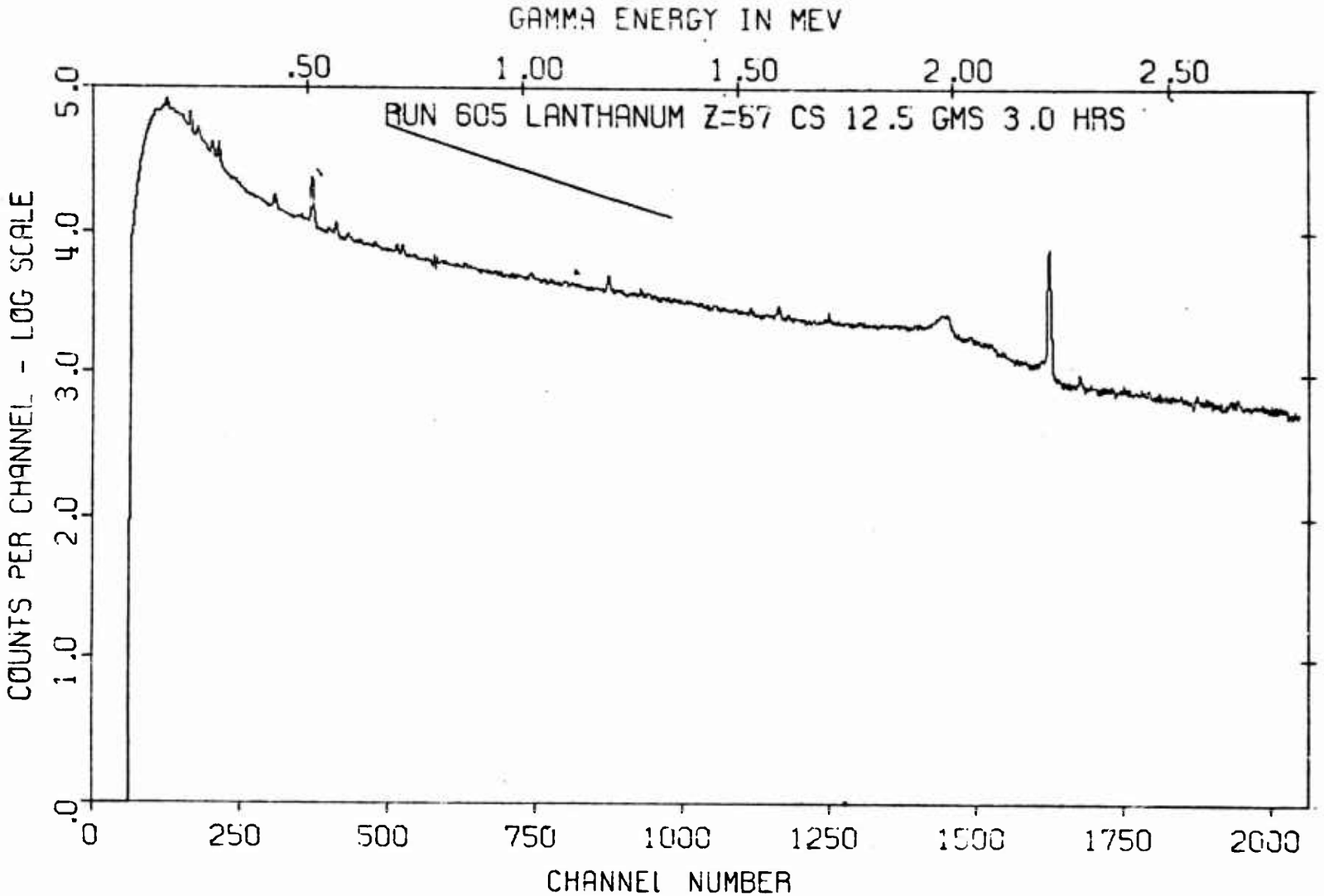
LANTHANUM Z=57 GAMA3C CODE MITNE-85 DA NORMALIZED YIELDS

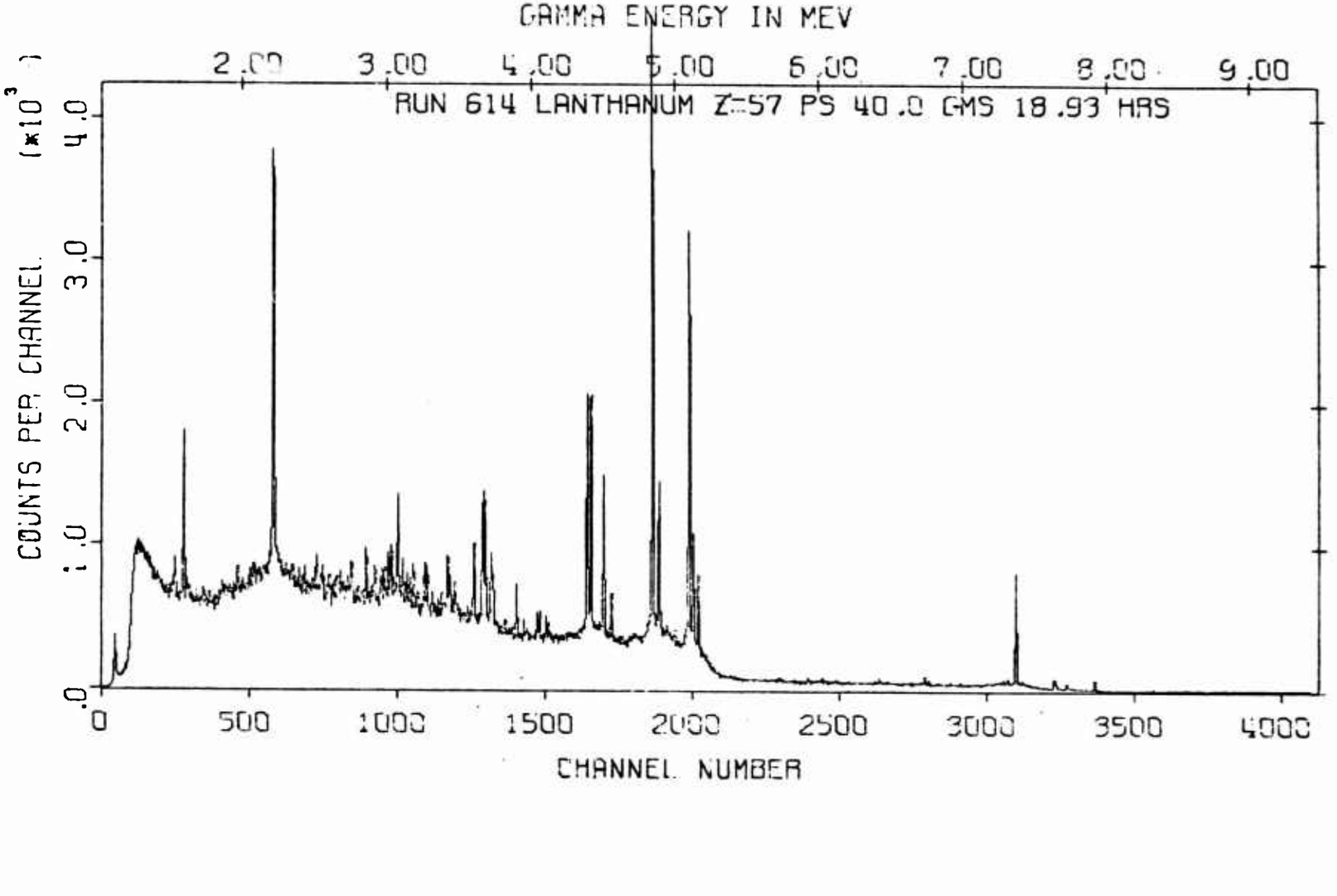
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4709.5	.03
146	4747.2	.06
147	4762.1	.04
148	4797.0	.03
149	4815.9	.04
150	4842.7	7.24
151	4888.6	1.51
152	4903.7	.04
153	4996.9	.06
154	5046.8	.04
155	5097.6	7.19
156	5126.4	1.26
157	5160.8	.95

BE(KEV) 5097.6 OBSERVED %BE 98.94 NORMALIZED %BE 100.00

LANTHANUM Z=57 GAMABC CODE MITNE-85 DA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	29.66	.00	29.66
2	250.0	500.0	27.87	.00	27.87
3	500.0	750.0	17.27	2.53	19.80
4	750.0	1000.0	5.42	10.11	15.52
5	1000.0	1250.0	5.17	13.14	18.31
6	1250.0	1500.0	5.90	14.66	20.56
7	1500.0	1750.0	18.53	15.82	34.34
8	1750.0	2000.0	4.42	10.40	14.82
9	2000.0	2250.0	1.58	12.47	14.05
10	2250.0	2500.0	2.25	8.52	10.77
11	2500.0	2750.0	3.06	6.45	9
12	2750.0	3000.0	3.26	4.94	8
13	3000.0	3250.0	5.34	3.84	9
14	3250.0	3500.0	3.38	2.96	6
15	3500.0	3750.0	3.80	1.56	5.36
16	3750.0	4000.0	1.16	1.03	2.19
17	4000.0	4250.0	1.02	.95	1.97
18	4250.0	4500.0	5.21	1.14	6.35
19	4500.0	4750.0	2.53	1.01	3.54
20	4750.0	5000.0	8.95	1.40	10.36
21	5000.0	5250.0	9.44	.87	10.31
22	5250.0	5500.0	.00	.00	.00
23	5500.0	5750.0	.00	.00	.00
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.00	.00	.00
BE(KEV)	5097.6	%BE	55.95	44.13	100.08


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 605 LANTHANUM Z=57 CS 12.5 GMS 3.0 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 614 LANTHANUM Z=57 PS 40.0 GMS 18.93 HRS
COUNTS PER CHANNEL (*10^3)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

CERIUM Z=58 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	225.0	1.00
2	235.9	2.92
3	242.6	2.39
4	255.5	4.97
5	265.3	1.51
6	271.5	.80
7	278.0	5.03
8	313.4	1.18
9	317.4	1.23
10	334.8	96.90
11	404.0	1.65
12	439.7	54.89
13	447.5	1.89
14	453.2	1.18
15	460.2	1.24
16	465.1	.98
17	475.4	14.53
18	482.4	2.30
19	584.6	9.46
20	595.2	1.18
21	662.4	26.65
22	676.6	2.24
23	712.3	4.61
24	738.2	12.96
25	765.5	1.84
26	780.9	4.78
27	871.9	2.74
28	898.0	10.75
29	902.8	2.67
30	943.3	18.61
31	961.8	10.36
32	977.3	5.12
33	997.0	1.36
34	1049.5	3.68
35	1107.7	6.22
36	1118.9	4.08
37	1122.4	1.05
38	1141.0	1.43
39	1169.8	3.47
40	1186.4	19.85
41	1262.6	4.13
42	1326.2	6.04
43	1371.4	1.81
44	1712.6	3.88
45	1957.4	3.28
46	2563.7	1.20
47	2802.4	1.03
48	3017.6	1.79

CERIUM Z=58 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3090.8	1.13
50	3238.8	.76
51	3619.6	1.43
52	3990.2	.94
53	4290.5	9.20
54	4336.1	4.25
55	4481.0	.44
56	4486.4	.47
57	4765.7	16.21
58	4875.5	.49
59	4924.8	.98
60	5180.1	.50
61	5403.5	.72

BINDING ENERGY = 5432.7 %BE = 77.07 + 23.88 = 100.95

CERIUM Z=58 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	225.0	.99
2	235.9	2.89
3	242.6	2.37
4	255.5	4.93
5	265.3	1.50
6	271.5	.79
7	278.0	4.98
8	313.4	1.17
9	317.4	1.22
10	334.8	95.98
11	404.0	1.63
12	439.7	54.38
13	447.5	1.87
14	453.2	1.16
15	460.2	1.23
16	465.1	.97
17	475.4	14.40
18	482.4	2.27
19	584.6	9.37
20	595.2	1.17
21	662.4	26.40
22	676.6	2.22
23	712.9	4.57
24	738.2	12.83
25	765.5	1.83
26	780.9	4.74
27	871.9	2.71
28	898.0	10.65
29	902.8	2.64
30	943.3	18.43
31	961.8	10.26
32	977.3	5.08
33	997.0	1.34
34	1049.5	3.65
35	1107.7	6.16
36	1118.9	4.04
37	1122.4	1.04
38	1141.0	1.42
39	1169.8	3.44
40	1186.4	19.67
41	1262.6	4.09
42	1326.2	5.99
43	1371.4	1.79
44	1712.6	3.84
45	1957.4	3.25
46	2563.7	1.19
47	2802.4	1.02
48	3017.6	1.77

CERIUM Z=58 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

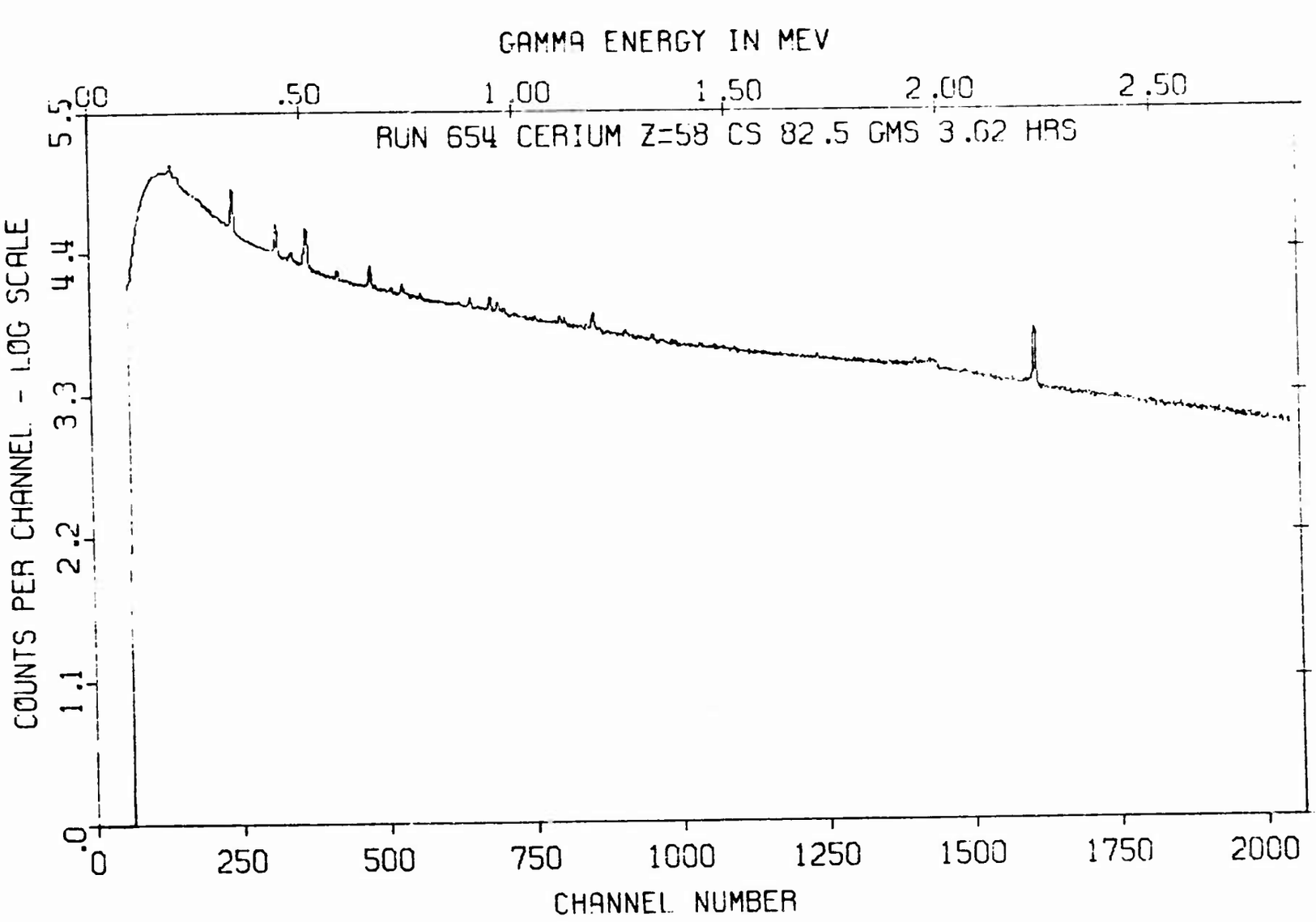
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3090.8	1.12
50	3238.8	.76
51	3619.6	1.42
52	3990.2	.94
53	4290.5	9.11
54	4336.1	4.21
55	4481.0	.43
56	4486.4	.47
57	4765.7	16.06
58	4875.5	.48
59	4924.8	.97
60	5180.1	.50
61	5403.5	.71

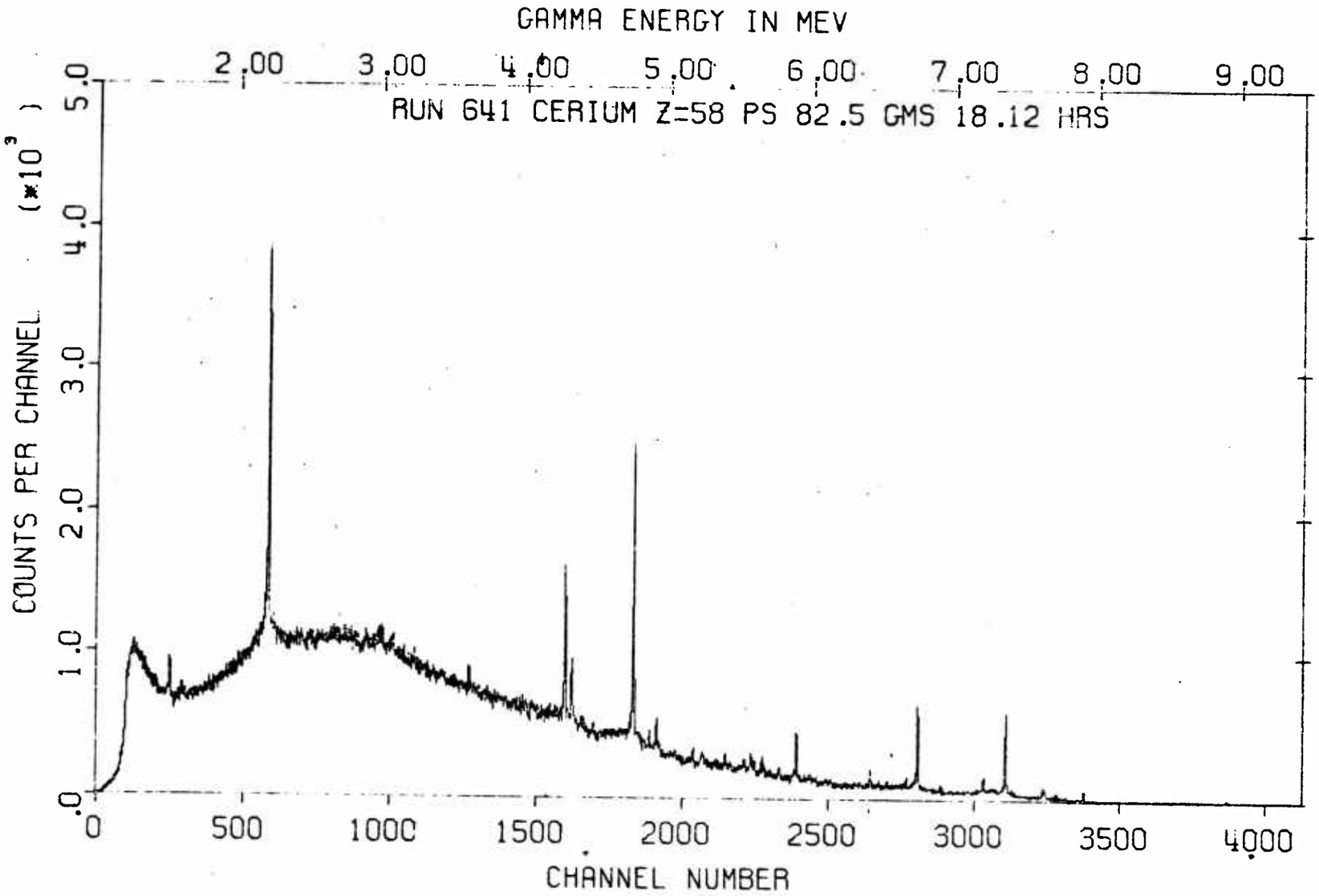
BE(KEV) 5432.7 OBSERVED %BE 100.95 NORMALIZED %BE 100.00

CERIUM Z=58 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED *	TOTAL
1	.0	250.0	6.25	.00	6.25
2	250.0	500.0	188.50	.00	188.50
3	500.0	750.0	56.56	.00	56.56
4	750.0	1000.0	57.68	.00	57.68
5	1000.0	1250.0	39.41	.00	39.41
6	1250.0	1500.0	11.87	.00	11.87
7	1500.0	1750.0	3.84	2.94	6.78
8	1750.0	2000.0	3.25	5.01	8.27
9	2000.0	2250.0	.00	8.86	8.86
10	2250.0	2500.0	.00	6.99	6.99
11	2500.0	2750.0	1.19	6.65	7.84
12	2750.0	3000.0	1.02	5.72	6.74
13	3000.0	3250.0	3.65	4.01	7.66
14	3250.0	3500.0	.00	2.67	2.67
15	3500.0	3750.0	1.42	1.93	3.35
16	3750.0	4000.0	.94	1.40	2.33
17	4000.0	4250.0	.00	1.07	1.07
18	4250.0	4500.0	14.23	.63	14.86
19	4500.0	4750.0	.00	.57	.57
20	4750.0	5000.0	17.51	.25	17.76
21	5000.0	5250.0	.50	.00	.50
22	5250.0	5500.0	.71	.00	.71
23	5500.0	5750.0	.00	.00	.00
24	5750.0	6000.0	.00	.00	.00
25	6000.0	6250.0	.00	.00	.00
26	6250.0	6500.0	.00	.00	.00
BE(KEV)	5432.7	%BE	75.57	23.66	99.22

*Relative absolute values of the unresolved intensities could not be extracted from the cerium data because of background subtraction problems. The relative unresolved intensities have been arbitrarily normalized to that fraction of the binding energy which is not observed as discrete lines, about 24%.


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 654 CERIUM Z=58 CS 82.5 GMS 3.02 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 641 CERIUM Z=58 PS 82.5 GMS 18.12 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	178.4	8.23
2	230.2	.08
3	244.5	.07
4	281.6	.05
5	294.3	.10
6	327.5	.11
7	336.0	.19
8	338.6	.13
9	350.5	.09
10	361.3	.20
11	377.8	.07
12	384.4	.12
13	403.9	.14
14	417.8	.08
15	430.5	.10
16	439.9	.13
17	461.3	.56
18	528.6	.32
19	546.5	.84
20	559.7	1.16
21	573.1	1.02
22	612.0	.20
23	619.6	.44
24	632.0	.91
25	645.8	1.56
26	661.7	.12
27	686.2	.38
28	699.8	1.46
29	716.9	.17
30	747.3	.81
31	790.9	.26
32	803.0	.60
33	848.6	.15
34	865.6	.22
35	920.0	.15
36	942.1	.17
37	956.4	.65
38	991.4	.68
39	1006.6	.99
40	1024.2	.39
41	1067.3	.24
42	1149.5	.21
43	1177.9	.40
44	1218.1	.27
45	1231.2	.41
46	1248.5	.22
47	1273.5	.33
48	1318.3	.49

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1328.2	.21
50	1463.3	.30
51	1577.7	.99
52	1683.8	.67
53	1702.8	.27
54	1796.6	.68
55	1889.8	.41
56	1943.3	.20
57	2244.6	.17
58	2257.6	.09
59	2285.0	.15
60	2288.5	.13
61	2350.8	.17
62	2355.2	.14
63	2407.5	.61
64	2436.1	.38
65	2449.4	.17
66	2468.3	.11
67	2479.1	.12
68	2530.8	.10
69	2562.3	.51
70	2582.0	.08
71	2597.7	.40
72	2619.4	.15
73	2661.3	.10
74	2688.5	.14
75	2713.7	.11
76	2727.1	.17
77	2743.5	.07
78	2839.8	.63
79	2905.5	.09
80	2946.3	.38
81	2963.4	.05
82	2977.0	.10
83	2998.6	.37
84	3029.7	.07
85	3053.0	.08
86	3064.9	.08
87	3134.8	.12
88	3149.6	.14
89	3167.4	.14
90	3192.3	.21
91	3221.4	.12
92	3227.8	.18
93	3259.2	.05
94	3268.5	.10
95	3285.2	.06
96	3313.9	.50

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3352.1	.09
98	3366.1	.27
99	3386.1	.10
100	3402.6	.18
101	3427.1	.10
102	3451.0	.08
103	3466.7	.15
104	3502.7	.05
105	3534.1	.33
106	3550.5	.19
107	3601.6	.41
108	3630.3	.18
109	3652.0	1.15
110	3712.9	.47
111	3742.9	.17
112	3773.5	.09
113	3791.0	1.09
114	3811.7	.08
115	3826.6	.08
116	3859.9	.13
117	3892.5	.23
118	3910.5	.18
119	3923.8	.12
120	3946.9	.17
121	3985.6	.04
122	4005.5	.14
123	4013.4	.25
124	4036.9	.04
125	4072.9	.05
126	4091.7	.12
127	4134.8	.27
128	4163.6	.09
129	4220.5	.07
130	4251.8	.25
131	4277.3	.31
132	4306.9	.03
133	4326.6	.03
134	4348.6	.16
135	4373.2	.28
136	4440.4	.06
137	4465.7	.04
138	4496.8	.71
139	4577.3	.04
140	4592.4	.12
141	4625.1	.04
142	4661.4	.06
143	4692.2	2.30
144	4723.1	.90

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4801.4	1.19
146	4832.9	.04
147	4865.3	.14
148	4920.1	.03
149	5005.0	.04
150	5021.0	.15
151	5052.4	.21
152	5095.9	1.52
153	5140.2	2.77
154	5205.3	.29
155	5298.5	.04
156	5480.2	.06
157	5665.7	2.79
158	5770.2	.28
159	5825.2	.21
160	5842.9	.97

BINDING ENERGY = 5842.9 %BE = 25.79 + 44.44 = 70.23

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	178.4	11.72
2	230.2	.11
3	244.5	.10
4	281.6	.07
5	294.8	.14
6	327.5	.16
7	336.0	.27
8	338.6	.19
9	350.5	.13
10	361.3	.28
11	377.8	.10
12	384.4	.17
13	403.9	.20
14	417.8	.11
15	430.5	.14
16	439.9	.19
17	461.3	.80
18	528.6	.46
19	546.5	1.20
20	559.7	1.65
21	573.1	1.45
22	612.0	.28
23	619.6	.63
24	632.0	1.30
25	645.8	2.22
26	661.7	.17
27	686.2	.54
28	699.8	2.08
29	716.9	.24
30	747.3	1.15
31	790.9	.37
32	803.0	.85
33	848.6	.21
34	865.6	.31
35	920.0	.21
36	942.1	.24
37	956.4	.93
38	991.4	.97
39	1006.6	1.41
40	1024.2	.56
41	1067.3	.34
42	1149.5	.30
43	1177.9	.57
44	1218.1	.38
45	1231.2	.58
46	1248.5	.31
47	1273.5	.47
48	1318.3	.70

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1328.2	.30
50	1463.3	.43
51	1577.7	1.41
52	1683.8	.95
53	1702.8	.38
54	1796.6	.97
55	1889.8	.58
56	1943.3	.28
57	2244.6	.24
58	2257.6	.13
59	2285.0	.21
60	2288.5	.19
61	2350.8	.24
62	2355.2	.20
63	2407.5	.87
64	2436.1	.54
65	2449.4	.24
66	2468.3	.16
67	2479.1	.17
68	2530.8	.14
69	2562.3	.73
70	2582.0	.11
71	2597.7	.57
72	2619.4	.21
73	2661.3	.14
74	2688.5	.20
75	2713.7	.16
76	2727.1	.24
77	2743.5	.10
78	2839.8	.90
79	2905.5	.13
80	2946.3	.54
81	2963.4	.07
82	2977.0	.14
83	2998.6	.53
84	3029.7	.10
85	3053.0	.11
86	3064.9	.11
87	3134.8	.17
88	3149.6	.20
89	3167.4	.20
90	3192.3	.30
91	3221.4	.17
92	3227.8	.26
93	3259.2	.07
94	3268.5	.14
95	3285.2	.09
96	3313.9	.71

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3352.1	.13
98	3366.1	.38
99	3386.1	.14
100	3402.6	.26
101	3427.1	.14
102	3451.0	.11
103	3466.7	.21
104	3502.7	.07
105	3534.1	.47
106	3550.5	.27
107	3601.6	.58
108	3630.3	.26
109	3652.0	1.64
110	3712.9	.67
111	3742.9	.24
112	3773.5	.13
113	3791.0	1.55
114	3811.7	.11
115	3826.6	.11
116	3859.9	.19
117	3892.5	.33
118	3910.5	.26
119	3923.8	.17
120	3946.9	.24
121	3985.6	.06
122	4005.5	.20
123	4013.4	.36
124	4036.9	.06
125	4072.9	.07
126	4091.7	.17
127	4134.8	.38
128	4163.6	.13
129	4220.5	.10
130	4251.8	.36
131	4277.3	.44
132	4306.9	.04
133	4326.6	.04
134	4348.6	.23
135	4373.2	.40
136	4440.4	.09
137	4465.7	.06
138	4496.8	1.01
139	4577.3	.06
140	4592.4	.17
141	4625.1	.06
142	4661.4	.09
143	4692.2	3.27
144	4723.1	1.28

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 NORMALIZED YIELDS

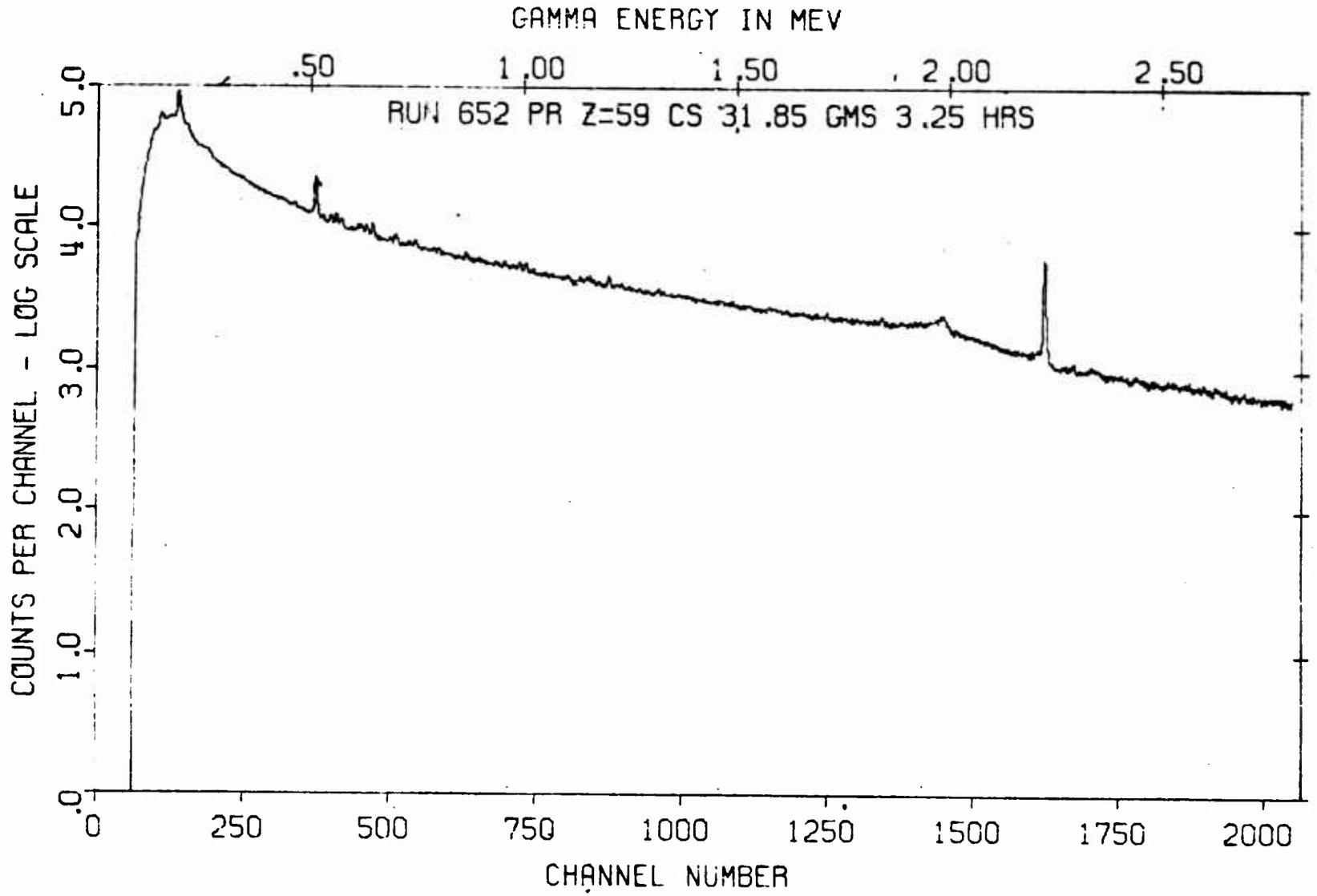
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4801.4	1.69
146	4832.9	.06
147	4865.3	.20
148	4920.1	.04
149	5005.0	.06
150	5021.0	.21
151	5052.4	.30
152	5095.9	2.16
153	5140.2	3.94
154	5205.3	.41
155	5298.5	.06
156	5480.2	.09
157	5665.7	3.97
158	5770.2	.40
159	5825.2	.30
160	5842.9	1.38

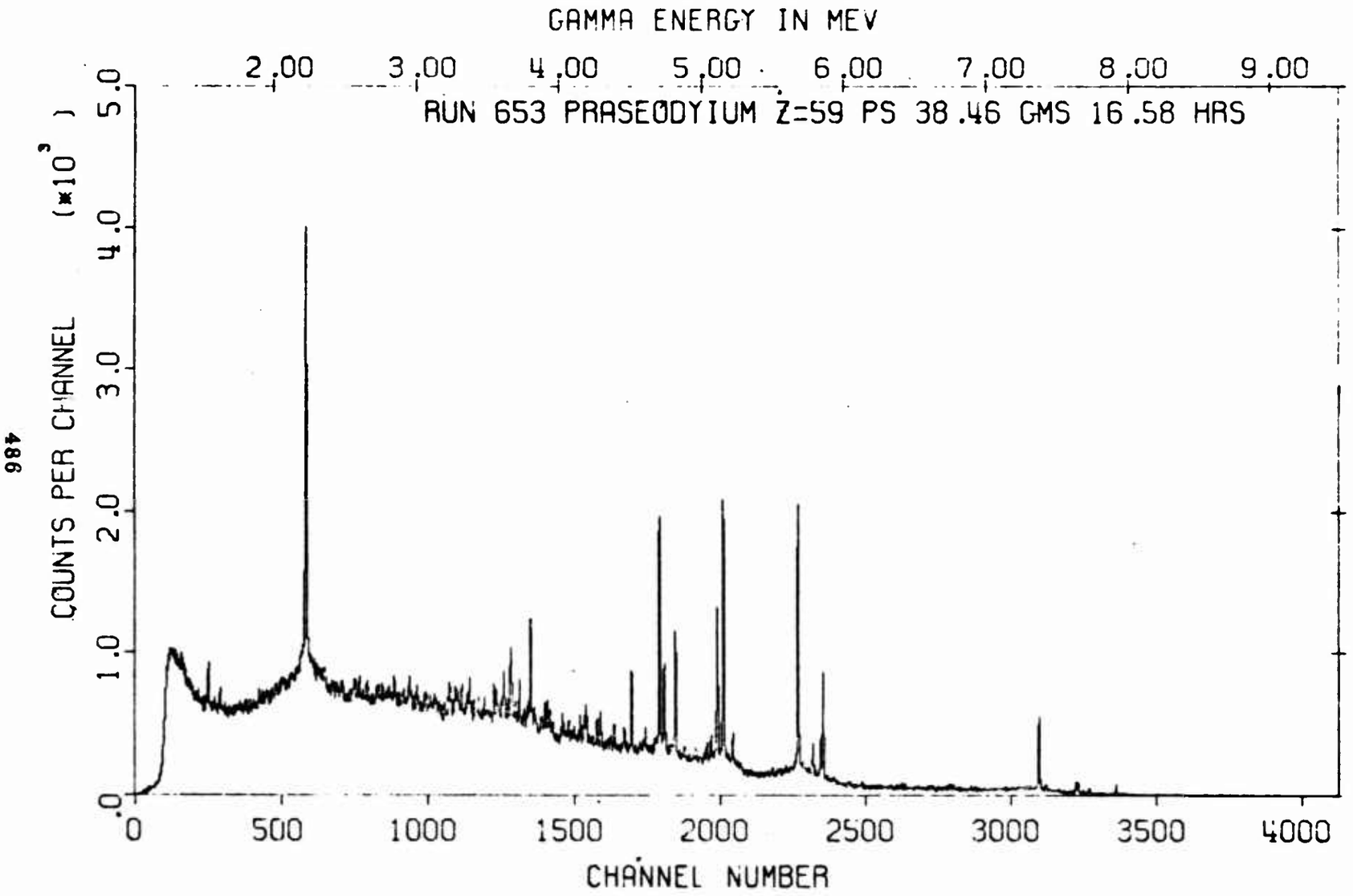
BE(KEV) 5842.9 OBSERVED %BE 70.23 NORMALIZED %BE 100.00

PRASEODYMIUM Z=59 GAMABC CODE MITNE 85 NORMALIZED BTN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	11.93	.00	11.93
2	250.0	500.0	2.95	.00	2.95
3	500.0	750.0	13.37	.00	13.37
4	750.0	1000.0	4.10	.00	4.10
5	1000.0	1250.0	4.46	2.85	7.30
6	1250.0	1500.0	1.89	5.70	7.59
7	1500.0	1750.0	2.75	8.54	11.29
8	1750.0	2000.0	1.84	11.29	13.13
9	2000.0	2250.0	.24	17.94	18.18
10	2250.0	2500.0	2.95	19.41	22.36
11	2500.0	2750.0	2.61	14.81	17.41
12	2750.0	3000.0	2.31	13.47	15.78
13	3000.0	3250.0	1.62	8.47	10.10
14	3250.0	3500.0	2.39	8.29	10.68
15	3500.0	3750.0	4.20	6.52	10.72
16	3750.0	4000.0	3.15	4.96	8.10
17	4000.0	4250.0	1.47	3.30	4.77
18	4250.0	4500.0	2.66	2.28	4.94
19	4500.0	4750.0	4.93	2.22	7.15
20	4750.0	5000.0	1.99	1.69	3.69
21	5000.0	5250.0	7.09	1.52	8.61
22	5250.0	5500.0	.14	.94	1.08
23	5500.0	5750.0	3.97	1.04	5.01
24	5750.0	6000.0	2.08	.63	2.71
25	6000.0	6250.0	.00	.00	.00
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	.00	.00	.00
BE(KEV)	5842.9	%BE	36.54	63.27	99.81


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 652 PR Z=59 CS 31.85 GMS 3.25 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 653 PRASEODYIUM Z=59 PS 38.46 GMS 16.58 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.0	0.65
2	209.3	0.25
3	217.1	0.18
4	234.6	0.17
5	243.0	0.18
6	310.9	0.35
7	426.6	1.77
8	454.5	5.70
9	477.1	5.25
10	502.5	4.78
11	564.5	1.30
12	576.5	0.18
13	590.3	1.63
14	618.9	26.52
15	671.1	0.25
16	697.3	66.99
17	742.7	6.83
18	755.2	0.48
19	779.3	1.71
20	795.6	0.25
21	814.7	9.28
22	864.9	11.15
23	981.2	2.14
24	1015.9	0.28
25	1034.5	0.27
26	1049.0	0.38
27	1109.9	0.28
28	1138.0	1.05
29	1221.0	0.23
30	1341.3	0.55
31	1356.4	0.35
32	1377.1	0.94
33	1414.1	3.58
34	1453.3	0.27
35	1481.9	1.45
36	1672.3	1.21
37	1910.0	0.25
38	2072.1	0.29
39	2130.6	0.23
40	2185.8	0.46
41	2188.4	0.47
42	2323.1	0.36
43	2347.7	0.18
44	2372.4	0.70
45	2404.9	0.47
46	2428.5	0.81
47	2504.4	0.34
48	2527.2	0.41

NEODYMIUM Z=60 GAMARC CODE MITNE104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2558.5	0.25
50	2654.0	0.23
51	2685.3	0.28
52	2695.9	0.28
53	2711.4	0.24
54	2904.0	0.21
55	2936.1	0.38
56	2989.1	0.16
57	3100.9	0.29
58	3125.4	0.20
59	3177.7	0.26
60	3195.1	0.19
61	3200.1	0.18
62	3269.0	0.19
63	3312.1	0.27
64	3333.5	0.31
65	3343.4	0.19
66	3363.0	0.14
67	3410.9	0.31
68	3417.3	0.12
69	3438.6	0.28
70	3456.3	0.21
71	3462.3	0.20
72	3546.8	0.15
73	3733.2	0.14
74	3774.2	0.14
75	3788.9	0.11
76	3803.9	0.32
77	3833.7	0.19
78	3843.4	0.22
79	3852.2	0.16
80	3892.1	0.42
81	3942.2	0.19
82	4002.5	0.34
83	4008.8	0.30
84	4077.5	0.25
85	4113.1	0.28
86	4122.3	0.30
87	4130.2	0.27
88	4214.4	0.19
89	4257.1	0.37
90	4270.4	0.23
91	4323.4	0.19
92	4351.2	0.30
93	4356.3	0.43
94	4407.1	0.76
95	4421.0	0.47
96	4436.6	0.49

NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4501.2	0.36
98	4515.2	0.13
99	4534.8	0.41
100	4563.5	0.50
101	4594.9	0.17
102	4615.0	0.35
103	4669.8	0.68
104	4690.3	0.75
105	4747.1	0.40
106	4774.4	0.43
107	4790.6	1.04
108	4817.4	0.22
109	4836.0	0.51
110	4915.8	0.25
111	4949.3	0.98
112	4980.7	0.16
113	5100.3	0.05
114	5211.3	0.16
115	5222.7	0.17
116	5380.8	0.90
117	5448.4	1.66
118	5522.0	1.23
119	5638.6	0.38
120	5706.8	0.45
121	5723.5	0.10
122	5744.2	0.12
123	5787.5	0.15
124	5822.3	0.11
125	6093.8	0.33
126	6255.3	3.19
127	6501.7	7.45
128	6581.3	0.05
129	6758.8	0.07
130	7111.0	0.35

BINDING ENERGY = 7480.0 %BE = 41.65 + 49.75 = 91.39

NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	201.0	0.71
2	209.3	0.28
3	217.1	0.20
4	234.6	0.19
5	243.0	0.20
6	310.9	0.39
7	426.6	1.94
8	454.5	6.24
9	477.1	5.75
10	502.5	5.23
11	564.5	1.42
12	576.5	0.20
13	590.3	1.78
14	618.9	29.01
15	671.1	0.27
16	697.3	73.29
17	742.7	7.48
18	755.2	0.53
19	779.3	1.87
20	795.6	0.27
21	814.7	10.15
22	864.9	12.20
23	981.2	2.34
24	1015.9	0.30
25	1034.5	0.30
26	1049.0	0.42
27	1109.9	0.30
28	1138.0	1.15
29	1221.0	0.25
30	1341.3	0.60
31	1356.4	0.38
32	1377.1	1.03
33	1414.1	3.92
34	1453.3	0.29
35	1481.9	1.58
36	1672.3	1.32
37	1910.0	0.27
38	2072.1	0.32
39	2130.6	0.25
40	2185.8	0.51
41	2188.4	0.51
42	2323.1	0.39
43	2347.7	0.20
44	2372.4	0.76
45	2404.9	0.52
46	2428.5	0.89
47	2504.4	0.37
48	2527.2	0.45

NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2558.5	0.27
50	2654.0	0.25
51	2685.3	0.31
52	2695.9	0.30
53	2711.4	0.27
54	2904.0	0.23
55	2936.1	0.41
56	2989.1	0.18
57	3100.9	0.31
58	3125.4	0.22
59	3177.7	0.29
60	3195.1	0.21
61	3200.1	0.20
62	3269.0	0.21
63	3312.1	0.30
64	3333.5	0.34
65	3343.4	0.21
66	3363.0	0.16
67	3410.3	0.34
68	3417.3	0.13
69	3438.6	0.31
70	3456.3	0.23
71	3462.3	0.22
72	3546.8	0.16
73	3733.2	0.16
74	3774.2	0.15
75	3788.9	0.12
76	3803.9	0.35
77	3833.7	0.21
78	3843.4	0.24
79	3852.2	0.18
80	3892.1	0.46
81	3942.2	0.21
82	4002.5	0.37
83	4008.8	0.33
84	4077.5	0.28
85	4113.1	0.31
86	4122.3	0.32
87	4130.2	0.29
88	4214.4	0.20
89	4257.1	0.40
90	4270.4	0.26
91	4323.4	0.21
92	4351.2	0.33
93	4356.3	0.47
94	4407.1	0.83
95	4421.0	0.51
96	4436.6	0.53

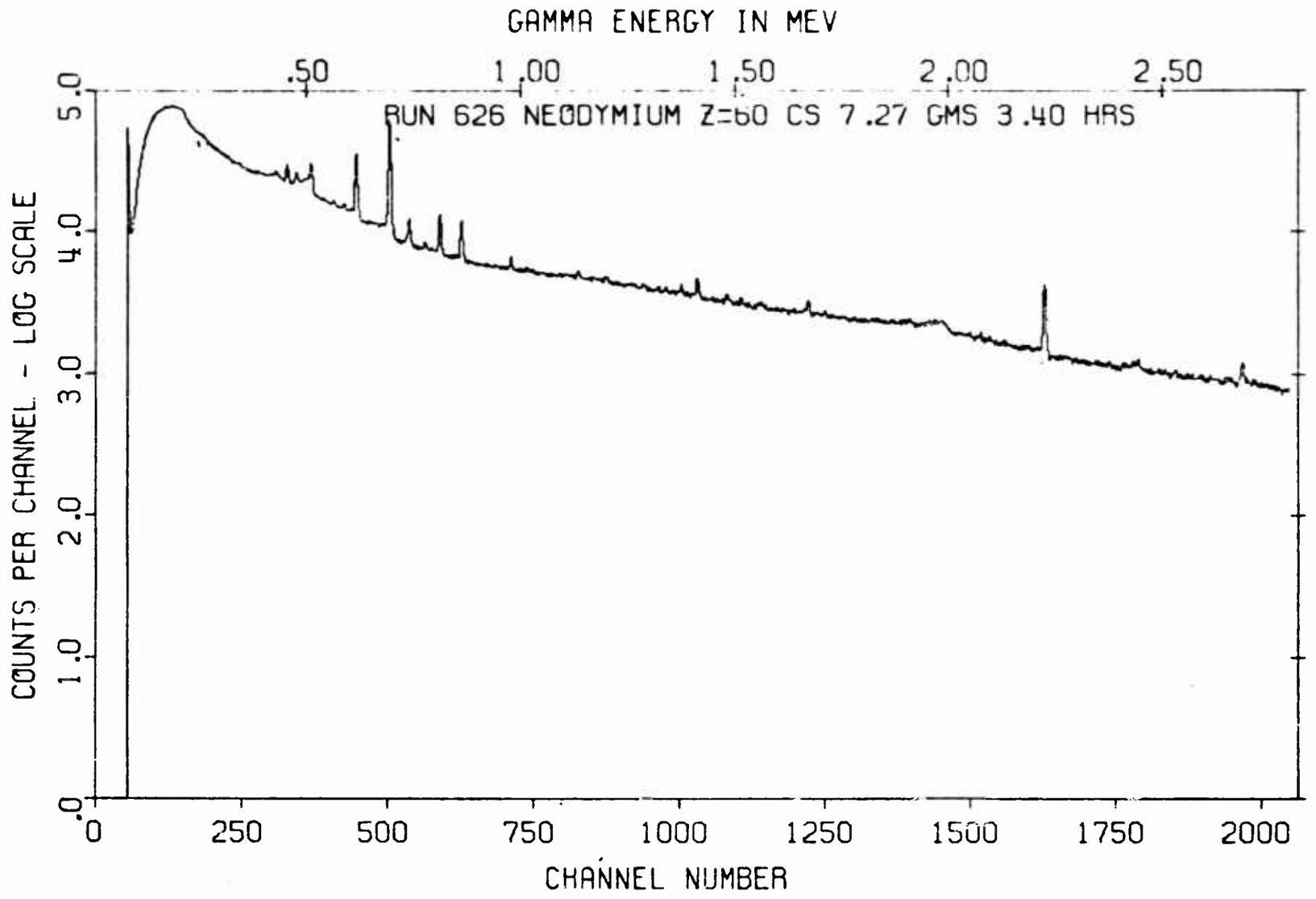
NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA NORMALIZED YIELDS

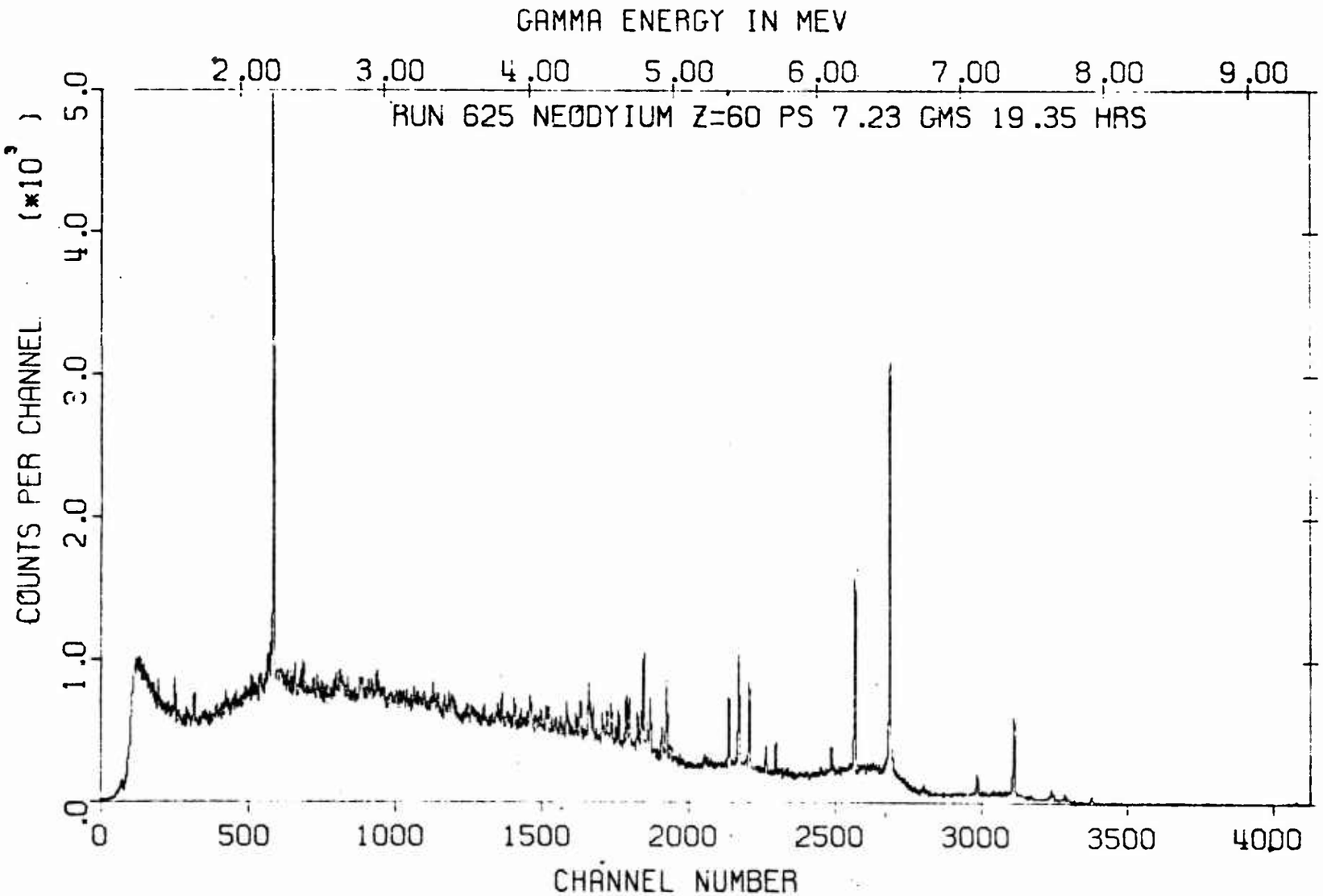
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4501.2	0.40
98	4515.2	0.14
99	4534.8	0.45
100	4563.5	0.55
101	4594.9	0.19
102	4615.0	0.38
103	4669.8	0.75
104	4690.3	0.82
105	4747.1	0.43
106	4774.4	0.47
107	4790.6	1.14
108	4817.4	0.24
109	4836.0	0.56
110	4915.9	0.28
111	4949.3	1.07
112	4980.7	0.18
113	5100.3	0.06
114	5211.3	0.17
115	5222.7	0.18
116	5380.8	0.99
117	5448.4	1.81
118	5522.0	1.34
119	5638.6	0.42
120	5706.9	0.49
121	5723.5	0.11
122	5744.2	0.13
123	5787.5	0.16
124	5822.3	0.12
125	6093.8	0.36
126	6255.3	3.49
127	6501.7	8.15
128	6581.3	0.05
129	6758.8	0.07
130	7111.0	0.38

BE(KEV) 7480.0 OBSERVED %BE 91.39 NORMALIZED %BE 100.00

NEODYMIUM Z=60 GAMABC CODE MITNE104 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NC OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	1.57	0.0	1.57
2	250.0	500.0	14.31	0.0	14.31
3	500.0	750.0	118.69	0.0	118.69
4	750.0	1000.0	27.35	1.64	28.99
5	1000.0	1250.0	2.73	3.83	6.56
6	1250.0	1500.0	7.80	6.02	13.81
7	1500.0	1750.0	1.32	8.21	9.53
8	1750.0	2000.0	0.27	12.23	12.50
9	2000.0	2250.0	1.59	16.24	17.82
10	2250.0	2500.0	2.76	15.91	18.67
11	2500.0	2750.0	2.22	13.41	15.64
12	2750.0	3000.0	0.82	12.09	12.91
13	3000.0	3250.0	1.23	9.18	10.41
14	3250.0	3500.0	2.45	7.19	9.64
15	3500.0	3750.0	0.32	5.79	6.11
16	3750.0	4000.0	1.92	4.45	6.37
17	4000.0	4250.0	2.10	4.61	6.71
18	4250.0	4500.0	3.54	3.61	7.15
19	4500.0	4750.0	4.11	2.87	6.97
20	4750.0	5000.0	3.92	3.21	7.13
21	5000.0	5250.0	0.42	1.16	1.58
22	5250.0	5500.0	2.80	1.46	4.25
23	5500.0	5750.0	2.50	1.18	3.68
24	5750.0	6000.0	0.28	0.88	1.16
25	6000.0	6250.0	0.36	1.36	1.72
26	6250.0	6500.0	3.49	2.25	5.74
27	6500.0	6750.0	8.20	0.85	9.05
28	6750.0	7000.0	0.07	0.13	0.21
29	7000.0	7250.0	0.38	0.31	0.69
30	7250.0	7500.0	0.0	0.20	0.20
31	7500.0	7750.0	0.0	0.44	0.44
BE(KEV)	7480.0	%BE	44.95	54.43	99.38


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 626 NEODYMIUM Z=60 CS 7.27 GMS 3.40 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 625 NEODYIUM Z=60 PS 7.23 GMS 19.35 HRS
COUNTS PER CHANNEL (*10³)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

SAMARIUM Z=62 GAMARC CODE MITNE-104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	184.8	0.12
2	209.6	0.11
3	217.3	0.10
4	226.5	0.23
5	235.0	0.18
6	243.6	0.14
7	252.1	0.41
8	261.3	0.21
9	271.6	0.75
10	277.4	0.43
11	285.8	0.20
12	296.6	0.56
13	305.4	0.12
14	313.5	0.13
15	320.8	1.07
16	333.4	87.74
17	364.4	0.10
18	372.5	0.40
19	381.7	0.15
20	403.4	2.08
21	425.8	0.14
22	439.4	49.25
23	459.4	0.15
24	485.5	0.87
25	505.9	15.90
26	525.4	0.40
27	536.4	0.35
28	541.7	0.30
29	570.1	0.24
30	584.5	8.94
31	603.1	0.14
32	629.1	0.29
33	637.8	0.14
34	676.1	2.45
35	712.4	4.04
36	737.6	9.79
37	748.1	1.86
38	762.9	0.33
39	772.2	0.20
40	831.2	1.45
41	838.8	0.61
42	859.0	1.29
43	868.3	1.75
44	898.8	0.25
45	909.1	0.26
46	941.3	1.26
47	1016.1	0.32
48	1048.0	2.28

SAMARIUM Z=62 GAMABC CODE MITNE-104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1120.9	0.57
50	1170.5	4.16
51	1194.2	1.61
52	1247.2	0.38
53	1262.1	0.36
54	1293.7	6.56
55	1323.6	0.79
56	1348.9	1.48
57	1447.3	0.20
58	1700.9	0.21
59	2120.8	0.29
60	3691.5	0.23
61	4216.8	0.33
62	4676.8	0.09
63	4810.8	0.59
64	4869.8	0.09
65	4913.0	0.10
66	5078.0	0.11
67	5093.5	0.10
68	5281.9	0.15
69	5491.8	0.11
70	5521.8	0.11
71	5533.4	0.56
72	5617.0	0.09
73	5725.3	0.06
74	5921.8	0.41
75	5963.5	0.12
76	6019.4	0.48
77	6034.4	0.09
78	6419.4	0.08
79	6538.3	0.22
80	6760.6	0.12
81	7214.2	0.81

BINDING ENERGY = 7981.9 %BE = 17.55 + 71.15 = 88.71

SAMARIUM Z=62 GAMARC CODE MITNE-104 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	184.8	0.13
2	209.6	0.13
3	217.3	0.11
4	226.5	0.26
5	235.0	0.21
6	243.6	0.16
7	252.1	0.46
8	261.3	0.24
9	271.6	0.85
10	277.4	0.49
11	285.8	0.23
12	296.6	0.63
13	305.4	0.13
14	313.5	0.15
15	320.8	1.20
16	333.4	98.90
17	364.4	0.11
18	372.5	0.45
19	381.7	0.17
20	403.4	2.35
21	425.8	0.15
22	439.4	55.51
23	459.4	0.17
24	485.5	0.98
25	505.9	17.92
26	525.4	0.45
27	536.4	0.39
28	541.7	0.34
29	570.1	0.27
30	584.5	10.08
31	603.1	0.16
32	629.1	0.32
33	637.8	0.16
34	676.1	2.76
35	712.4	4.55
36	737.6	11.04
37	748.1	2.09
38	762.9	0.37
39	772.2	0.22
40	831.2	1.63
41	838.8	0.69
42	859.0	1.46
43	868.3	1.97
44	898.8	0.29
45	909.1	0.29
46	941.3	1.42
47	1016.1	0.36
48	1048.0	2.57

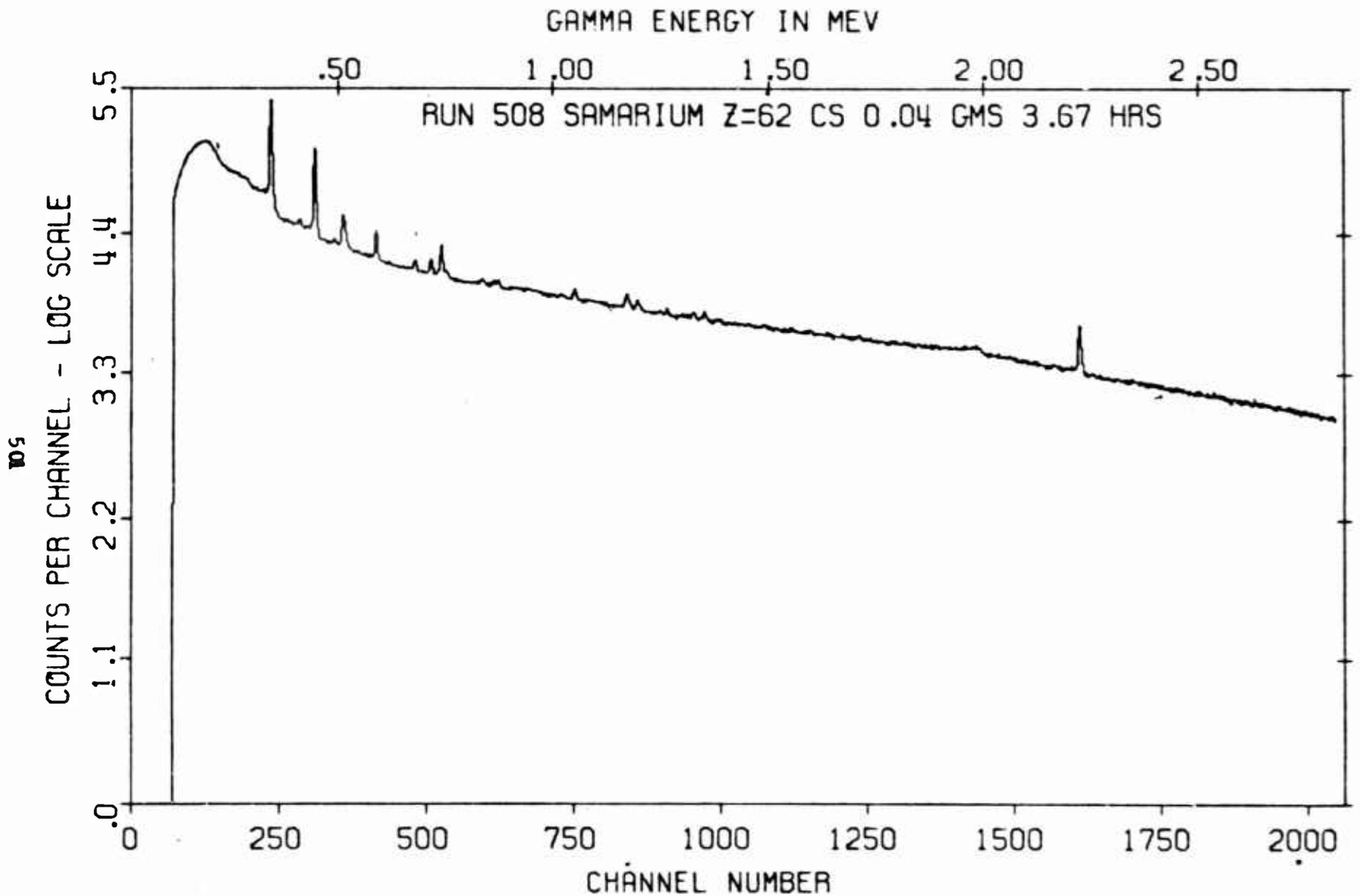
SAMARIUM Z=62 GAMABC CODE MITNE-104 DATA NORMALIZED YIELDS

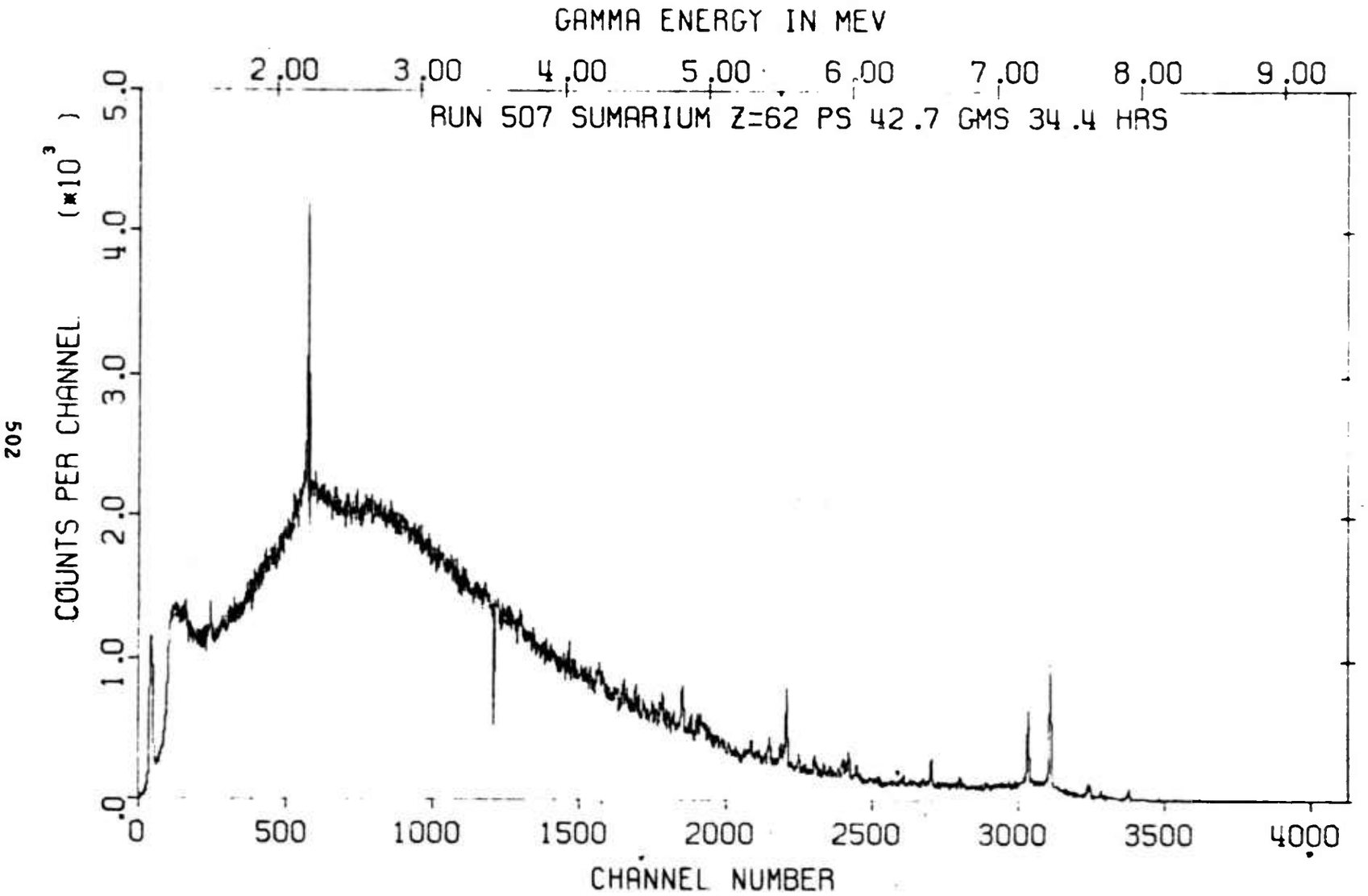
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1120.9	0.65
50	1170.5	4.69
51	1194.2	1.81
52	1247.2	0.43
53	1262.1	0.41
54	1293.7	7.40
55	1323.6	0.89
56	1348.9	1.67
57	1447.3	0.23
58	1700.9	0.23
59	2120.8	0.33
60	3691.5	0.26
61	4216.8	0.38
62	4676.8	0.10
63	4810.8	0.67
64	4869.8	0.10
65	4913.0	0.11
66	5078.0	0.12
67	5093.5	0.12
68	5281.9	0.17
69	5491.8	0.12
70	5521.8	0.12
71	5533.4	0.63
72	5617.0	0.11
73	5725.3	0.06
74	5921.8	0.46
75	5963.5	0.13
76	6019.4	0.54
77	6034.4	0.10
78	6419.4	0.09
79	6538.3	0.25
80	6760.6	0.13
81	7214.2	0.91

BE(KEV) 7981.9 OBSERVED %BE 88.71 NORMALIZED %BE 100.00

SAMARIUM Z=62 GAMABC CODE MITNE-104 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	1.00	0.0	1.00
2	250.0	500.0	163.17	0.0	163.17
3	500.0	750.0	50.52	1.13	51.65
4	750.0	1000.0	8.35	4.51	12.85
5	1000.0	1250.0	10.50	7.89	18.39
6	1250.0	1500.0	10.60	12.40	23.00
7	1500.0	1750.0	0.23	18.04	18.27
8	1750.0	2000.0	0.0	22.48	22.48
9	2000.0	2250.0	0.33	28.51	28.84
10	2250.0	2500.0	0.0	29.61	29.61
11	2500.0	2750.0	0.0	24.82	24.82
12	2750.0	3000.0	0.0	20.55	20.55
13	3000.0	3250.0	0.0	15.36	15.36
14	3250.0	3500.0	0.0	12.56	12.56
15	3500.0	3750.0	0.26	9.36	9.61
16	3750.0	4000.0	0.0	7.05	7.05
17	4000.0	4250.0	0.38	5.88	6.26
18	4250.0	4500.0	0.0	4.97	4.97
19	4500.0	4750.0	0.10	3.95	4.05
20	4750.0	5000.0	0.88	3.20	4.08
21	5000.0	5250.0	0.24	1.88	2.12
22	5250.0	5500.0	0.29	1.69	1.98
23	5500.0	5750.0	0.92	1.07	1.99
24	5750.0	6000.0	0.59	1.23	1.82
25	6000.0	6250.0	0.64	0.34	0.98
26	6250.0	6500.0	0.09	0.42	0.50
27	6500.0	6750.0	0.25	0.27	0.52
28	6750.0	7000.0	0.13	0.19	0.32
29	7000.0	7250.0	0.91	0.42	1.33
30	7250.0	7500.0	0.0	0.41	0.41
31	7500.0	7750.0	0.0	0.50	0.50
32	7750.0	8000.0	0.0	0.03	0.03
33	8000.0	8250.0	0.0	0.02	0.02
BE(KEV)	7981.9	%BE	20.03	80.21	100.24


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 508 SAMARIUM Z=62 CS 0.04 GMS 3.67 HRS
COUNTS PER CHANNEL - LOG SCALE
10^5
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 507 SUMARIUM Z=62 PS 42.7 GMS 34.4 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

EUROPIUM Z=63 GAMABC CODE MITNE-104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	181.3	0.24
2	191.9	0.47
3	198.5	0.45
4	206.6	2.09
5	221.6	1.84
6	233.5	0.21
7	244.1	0.99
8	262.1	0.22
9	286.2	0.30
10	296.1	0.58
11	302.1	0.41
12	320.3	0.42
13	355.2	0.23
14	389.5	0.18
15	424.0	0.24
16	440.5	0.20
17	458.4	0.18
18	610.1	0.19
19	644.4	0.25
20	779.8	0.23
21	1564.4	0.34
22	3067.7	0.15
23	3857.9	0.10
24	3873.3	0.07
25	4286.0	0.05
26	5503.4	0.09
27	5597.7	0.04
28	6069.7	0.13
29	6229.8	0.09
30	6311.3	0.07
31	6418.7	0.04

BINDING ENERGY = 6294.8 %BE = 1.28 + 84.62 = 85.90

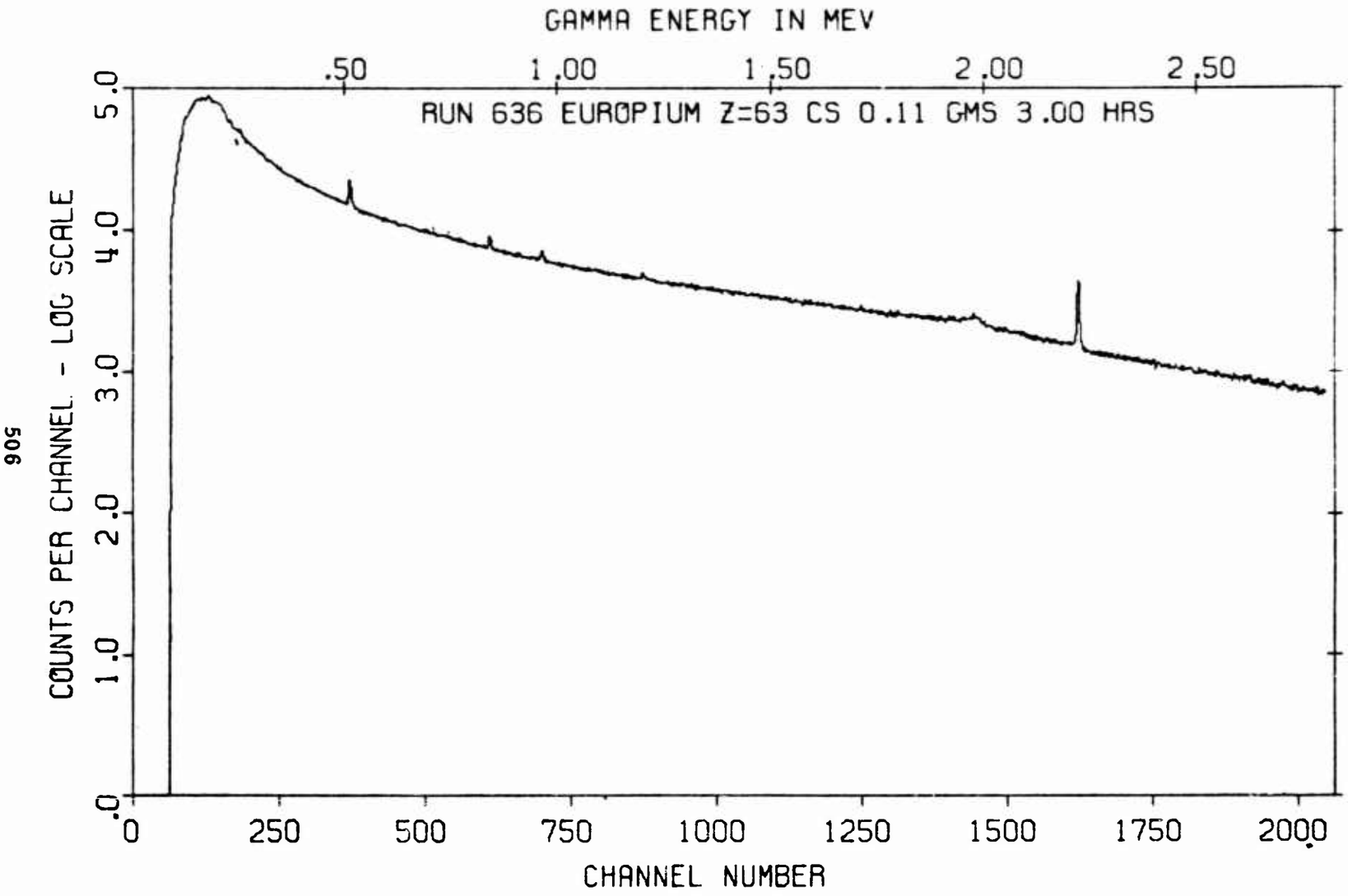
EUROPIUM Z=63 GAMABC CODE MITNE-104 DATA NORMALIZED YIELDS

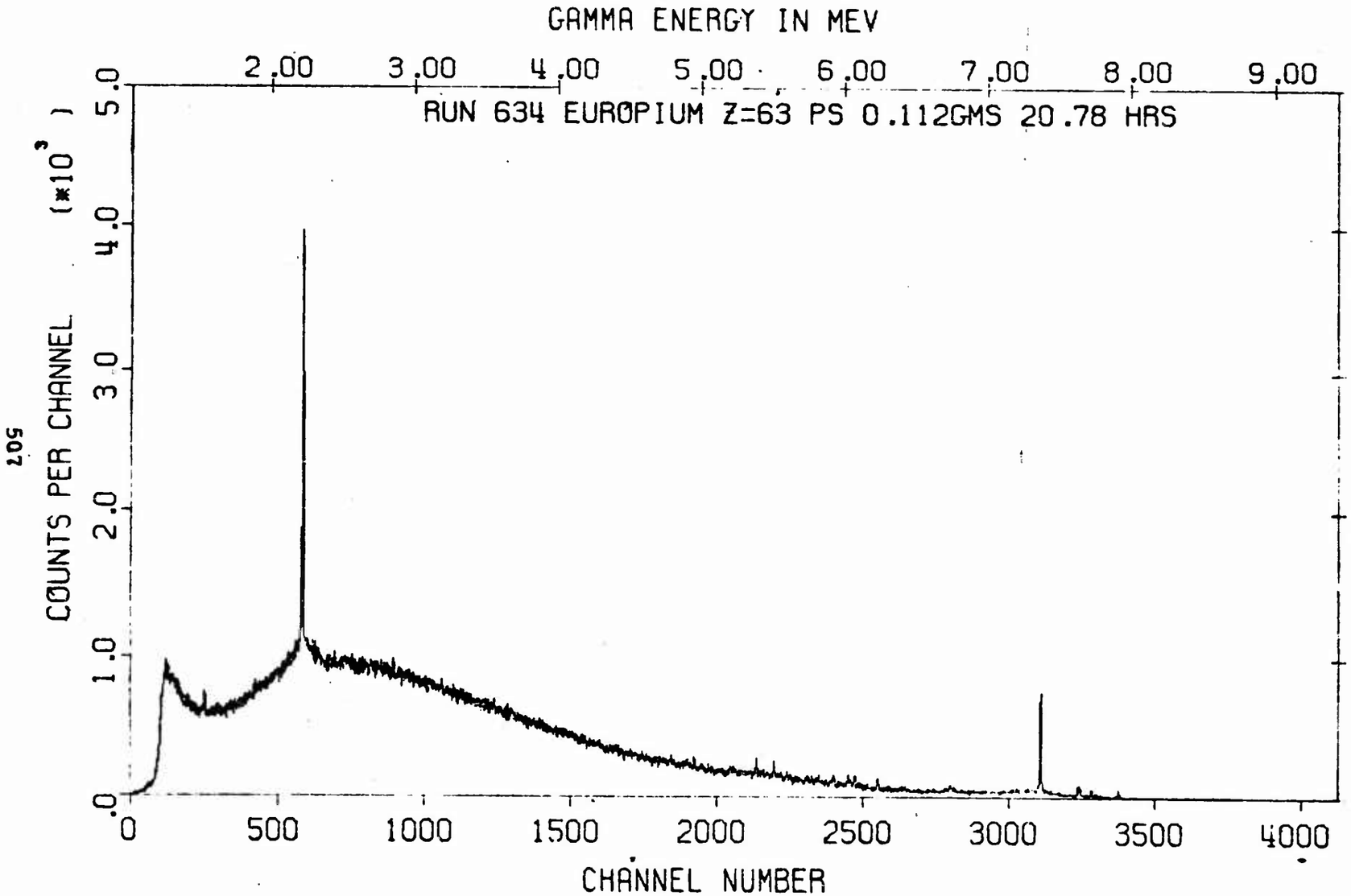
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	181.3	0.28
2	191.9	0.54
3	198.5	0.52
4	206.6	2.44
5	221.6	2.14
6	233.5	0.25
7	244.1	1.15
8	262.1	0.25
9	286.2	0.35
10	296.1	0.67
11	302.1	0.48
12	320.3	0.49
13	355.2	0.26
14	389.5	0.21
15	424.0	0.28
16	440.5	0.23
17	458.4	0.21
18	610.1	0.22
19	644.4	0.29
20	779.8	0.27
21	1564.4	0.40
22	3067.7	0.18
23	3857.9	0.12
24	3873.3	0.09
25	4286.0	0.06
26	5503.4	0.11
27	5597.7	0.05
28	6069.7	0.15
29	6229.8	0.10
30	6311.3	0.08
31	6418.7	0.05

BE(KEV) 6294.8 OBSERVED %BE 85.90 NORMALIZED %BE 100.00

EUROPIUM Z=63 GAMABC CODE MITNE-104 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	7.32	0.0	7.32
2	250.0	500.0	3.44	0.0	3.44
3	500.0	750.0	0.51	2.91	3.42
4	750.0	1000.0	0.27	5.47	5.74
5	1000.0	1250.0	0.0	8.38	8.38
6	1250.0	1500.0	0.0	11.18	11.18
7	1500.0	1750.0	0.40	13.19	13.59
8	1750.0	2000.0	0.0	19.24	19.24
9	2000.0	2250.0	0.0	26.40	26.40
10	2250.0	2500.0	0.0	28.11	28.11
11	2500.0	2750.0	0.0	23.94	23.94
12	2750.0	3000.0	0.0	19.38	19.38
13	3000.0	3250.0	0.18	15.91	16.09
14	3250.0	3500.0	0.0	13.04	13.04
15	3500.0	3750.0	0.0	10.22	10.22
16	3750.0	4000.0	0.21	7.60	7.81
17	4000.0	4250.0	0.0	6.30	6.30
18	4250.0	4500.0	0.06	4.70	4.76
19	4500.0	4750.0	0.0	3.77	3.77
20	4750.0	5000.0	0.0	3.09	3.09
21	5000.0	5250.0	0.0	2.31	2.31
22	5250.0	5500.0	0.0	2.37	2.37
23	5500.0	5750.0	0.15	1.77	1.92
24	5750.0	6000.0	0.0	1.43	1.43
25	6000.0	6250.0	0.25	0.73	0.99
26	6250.0	6500.0	0.12	0.15	0.27
27	6500.0	6750.0	0.0	0.0	0.0
BE(KEV)	6294.8	%BE	1.42	98.51	99.93


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 636 EUROPIUM Z=63 CS 0.11 GMS 3.00 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 634 EUROPIUM Z=63 PS 0.112GMS 20.78 HRS
COUNTS PER CHANNEL (*10^3)
205
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

GADOLINIUM Z=64 GAMABC CODE MITNE-104 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.4	10.28
2	230.7	0.32
3	239.3	0.22
4	255.6	1.32
5	276.9	2.53
6	294.9	0.96
7	363.6	0.20
8	381.0	0.23
9	538.7	0.46
10	580.5	0.36
11	607.4	0.78
12	625.6	0.29
13	780.7	3.64
14	816.6	0.66
15	822.8	0.75
16	851.4	0.53
17	868.8	1.10
18	876.6	0.87
19	897.3	7.05
20	916.6	1.56
21	944.0	11.43
22	961.8	8.03
23	977.2	4.48
24	988.5	0.34
25	999.1	1.75
26	1004.9	1.88
27	1040.1	0.41
28	1065.2	1.07
29	1096.4	1.99
30	1107.3	4.84
31	1118.4	3.52
32	1142.4	1.63
33	1154.2	1.90
34	1186.5	11.73
35	1220.3	0.53
36	1263.6	2.16
37	1324.4	2.94
38	1438.5	0.47
39	1777.2	0.73
40	2135.6	0.52
41	2291.1	0.50
42	2344.6	0.33
43	2515.3	0.28
44	2534.1	0.18
45	2577.3	0.27
46	2597.1	0.31
47	2700.9	0.54
48	2750.7	0.29

GADOLINIUM Z=64 GAMABC CODE MITNE-104 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2799.1	0.39
50	2901.3	0.17
51	3001.9	0.27
52	3451.1	0.19
53	3549.9	0.15
54	3849.4	0.11
55	3871.8	0.17
56	3972.7	0.08
57	3988.9	0.22
58	4058.4	0.16
59	4089.1	0.24
60	4220.4	0.28
61	4276.0	0.09
62	4292.7	0.10
63	4346.5	0.22
64	4426.4	0.09
65	4482.0	0.10
66	4490.7	0.10
67	4500.2	0.14
68	4526.4	0.17
69	4600.6	0.09
70	4737.6	0.12
71	4875.9	0.26
72	4924.3	0.35
73	4939.4	0.10
74	5025.8	0.06
75	5057.1	0.24
76	5110.1	0.07
77	5155.7	0.15
78	5178.6	0.35
79	5237.7	0.15
80	5248.2	0.22
81	5305.2	0.07
82	5402.6	0.28
83	5431.7	0.24
84	5543.3	0.21
85	5582.3	0.33
86	5591.6	0.20
87	5609.1	0.15
88	5661.0	0.34
89	5676.1	0.35
90	5784.4	0.25
91	5902.8	1.03
92	5994.6	0.04
93	6142.7	0.10
94	6319.6	0.03
95	6347.3	0.06
96	6418.8	0.36

GADOLINIUM Z=64 GAMABC CODE MITNE-104 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6428.9	0.11
98	6671.3	0.13
99	6748.7	2.43
100	6911.0	0.14
101	7139.9	0.02
102	7286.7	0.10

BINDING ENERGY = 8038.1 %BE = 20.01 + 88.25 = 108.26

GADOLINIUM Z=64 GAMABC CODE MITNE-104 NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.4	9.50
2	230.7	0.29
3	239.3	0.20
4	255.6	1.22
5	276.9	2.34
6	294.9	0.88
7	363.6	0.18
8	381.0	0.21
9	538.7	0.42
10	580.5	0.33
11	607.4	0.72
12	625.6	0.27
13	780.7	3.36
14	816.6	0.61
15	822.8	0.70
16	851.4	0.49
17	868.8	1.02
18	876.6	0.80
19	897.3	6.51
20	916.6	1.45
21	944.0	10.56
22	961.8	7.42
23	977.2	4.13
24	988.5	0.31
25	999.1	1.61
26	1004.9	1.74
27	1040.1	0.38
28	1065.2	0.99
29	1096.4	1.84
30	1107.3	4.47
31	1118.4	3.25
32	1142.4	1.51
33	1154.2	1.76
34	1186.5	10.83
35	1220.3	0.49
36	1263.6	1.99
37	1324.4	2.71
38	1438.5	0.44
39	1777.2	0.68
40	2135.6	0.48
41	2291.1	0.47
42	2344.6	0.31
43	2515.3	0.26
44	2534.1	0.17
45	2577.3	0.25
46	2597.1	0.29
47	2700.9	0.50
48	2750.7	0.27

GADOLINIUM Z=64 GAMABC CODE MITNE-104 NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2799.1	0.36
50	2901.3	0.15
51	3001.9	0.25
52	3451.1	0.18
53	3549.9	0.14
54	3849.4	0.10
55	3871.8	0.15
56	3972.7	0.07
57	3988.9	0.20
58	4058.4	0.15
59	4089.1	0.22
60	4220.4	0.26
61	4276.0	0.08
62	4292.7	0.09
63	4346.5	0.20
64	4426.4	0.08
65	4482.0	0.09
66	4490.7	0.09
67	4500.2	0.13
68	4526.4	0.15
69	4600.6	0.08
70	4737.6	0.11
71	4875.9	0.24
72	4924.3	0.32
73	4939.4	0.09
74	5025.8	0.05
75	5057.1	0.22
76	5110.1	0.06
77	5155.7	0.14
78	5178.6	0.33
79	5237.7	0.14
80	5248.2	0.20
81	5305.2	0.06
82	5402.6	0.26
83	5431.7	0.22
84	5543.3	0.20
85	5582.3	0.31
86	5591.6	0.18
87	5609.1	0.14
88	5661.0	0.31
89	5676.1	0.33
90	5784.4	0.23
91	5902.8	0.95
92	5994.6	0.04
93	6142.7	0.09
94	6319.6	0.03
95	6347.3	0.06
96	6418.8	0.33

GADOLINIUM Z=64 GAMABC CODE MITNE-104 NORMALIZED YIELDS

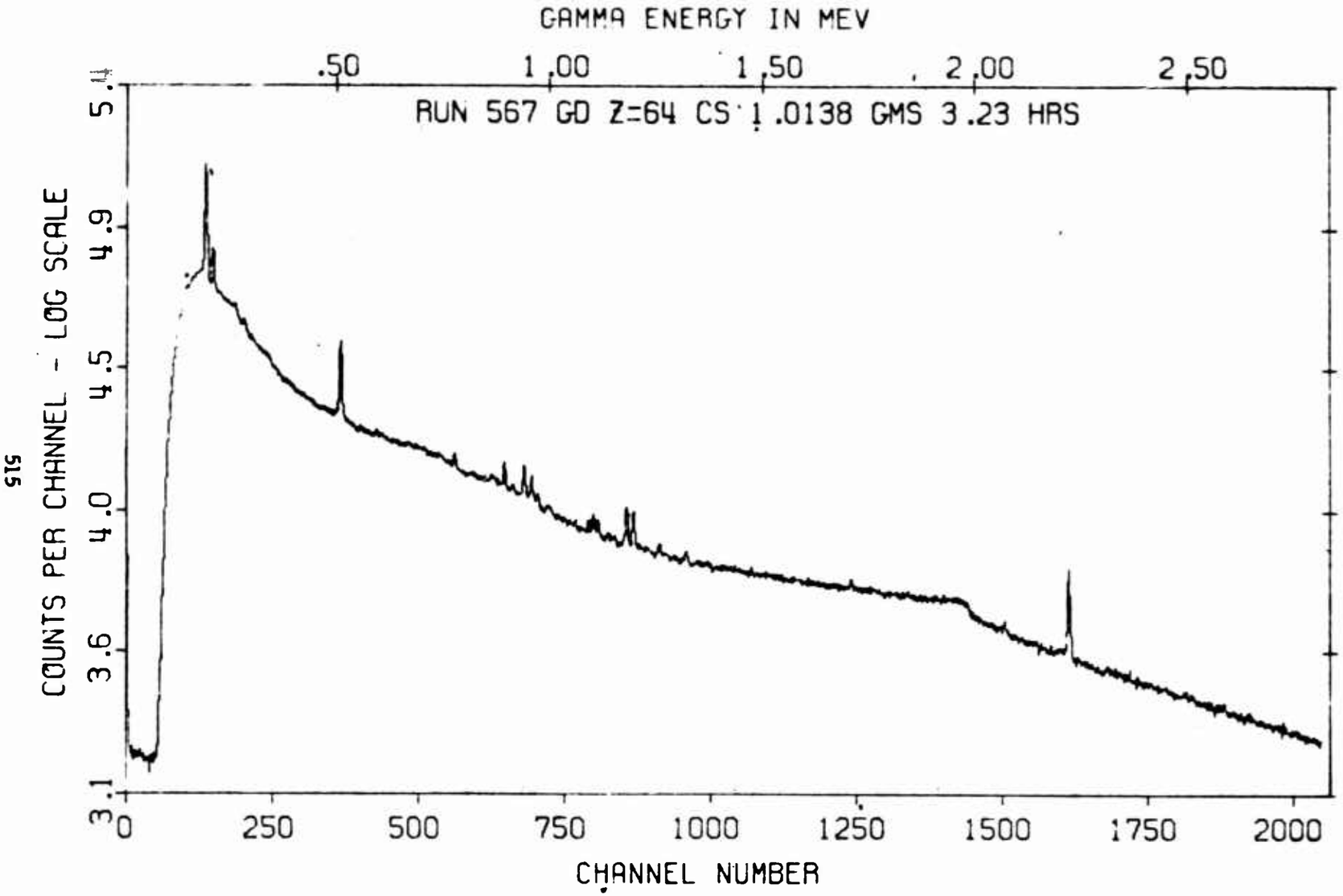
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6428.9	0.10
98	6671.3	0.12
99	6748.7	2.25
100	6911.0	0.13
101	7139.9	0.02
102	7286.7	0.09

BE(KEV) 8038.1 OBSERVED %BE 108.26 NORMALIZED %BE 100.00

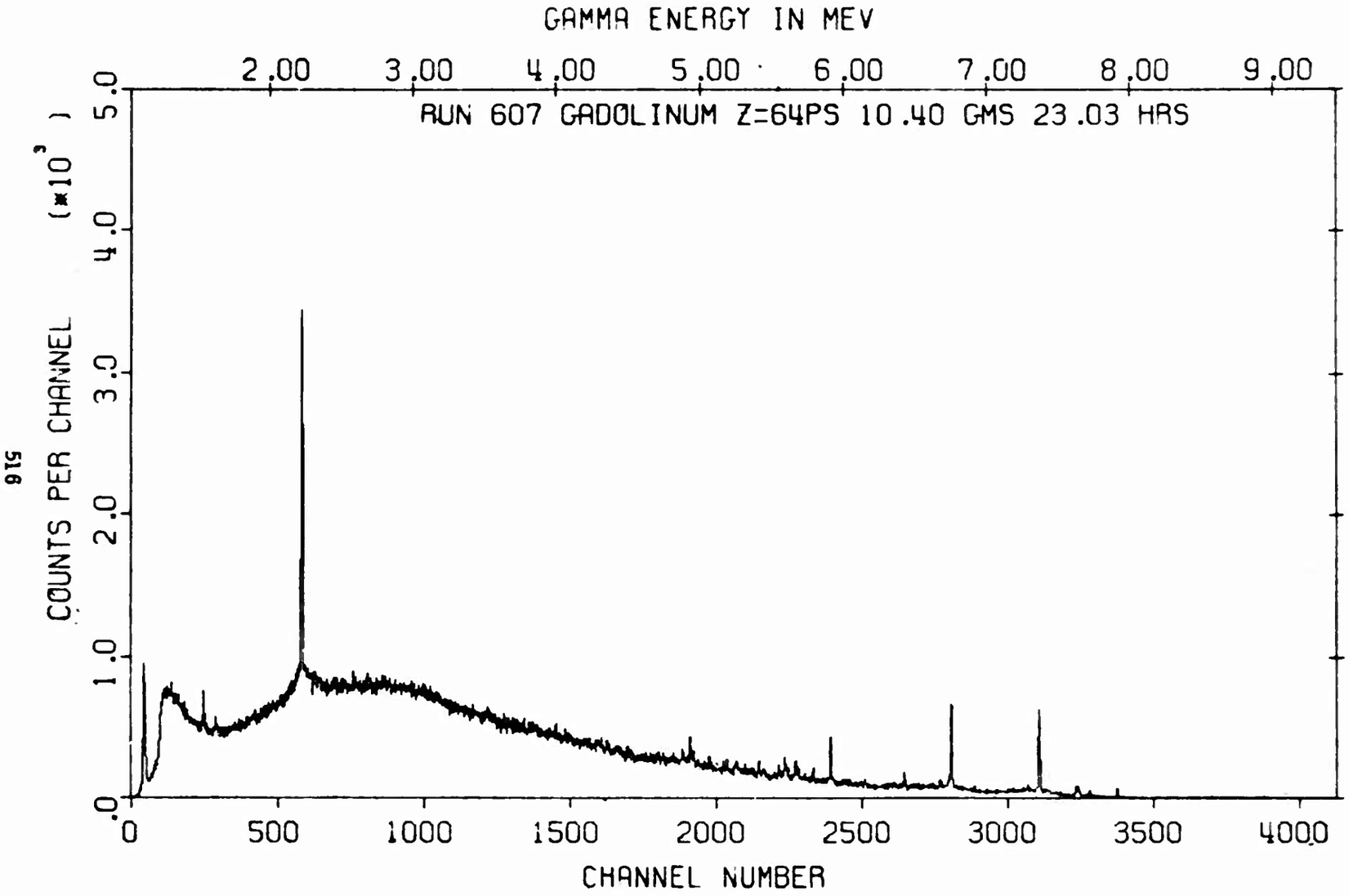
GADOLINIUM Z=64 GAMABC CODE MITNE-104 NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	9.99	0.0	9.99
2	250.0	500.0	4.84	0.0	4.84
3	500.0	750.0	1.74	0.0	1.74
4	750.0	1000.0	38.98	1.85	40.83
5	1000.0	1250.0	27.25	6.00	33.25
6	1250.0	1500.0	5.14	10.72	15.86
7	1500.0	1750.0	0.0	15.33	15.33
8	1750.0	2000.0	0.68	19.12	19.80
9	2000.0	2250.0	0.48	23.24	23.72
10	2250.0	2500.0	0.77	26.23	27.01
11	2500.0	2750.0	1.46	25.08	26.54
12	2750.0	3000.0	0.78	22.80	23.58
13	3000.0	3250.0	0.25	18.80	19.05
14	3250.0	3500.0	0.18	13.61	13.78
15	3500.0	3750.0	0.14	10.67	10.81
16	3750.0	4000.0	0.53	8.23	8.76
17	4000.0	4250.0	0.62	6.62	7.24
18	4250.0	4500.0	0.64	5.48	6.12
19	4500.0	4750.0	0.48	4.23	4.71
20	4750.0	5000.0	0.65	4.25	4.90
21	5000.0	5250.0	1.14	2.57	3.71
22	5250.0	5500.0	0.54	2.10	2.64
23	5500.0	5750.0	1.47	1.92	3.39
24	5750.0	6000.0	1.22	1.39	2.60
25	6000.0	6250.0	0.09	0.99	1.08
26	6250.0	6500.0	0.51	0.62	1.13
27	6500.0	6750.0	2.37	0.64	3.01
28	6750.0	7000.0	0.13	0.38	0.51
29	7000.0	7250.0	0.02	0.07	0.09
30	7250.0	7500.0	0.09	0.23	0.32
31	7500.0	7750.0	0.0	0.41	0.41
32	7750.0	8000.0	0.0	-0.39	-0.39
33	8000.0	8250.0	0.0	-0.08	-0.08
34	8250.0	8500.0	0.0	0.05	0.05
BE(KEV)	8038.1	%BE	18.20	81.52	99.72


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 567 GD Z=64 CS 1.0138 GMS 3.23 HRS
COUNTS PER CHANNEL - LOG SCALE
5.4
4.9
4.5
4.0
3.6
3.1
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER

515


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 607 GADOLINUM Z=64PS 10.40 GMS 23.03 HRS
COUNTS PER CHANNEL (*10^3)
.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

TERBIUM Z=65 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	249.8	.14
2	277.6	.07
3	289.2	.02
4	300.2	.03
5	311.8	.02
6	318.1	.10
7	340.2	.26
8	351.1	.05
9	357.2	.11
10	378.9	.06
11	405.8	.04
12	413.2	.05
13	417.1	.04
14	428.0	.05
15	451.2	.14
16	480.7	.10
17	482.1	.11
18	526.8	.06
19	544.2	.04
20	559.0	.09
21	593.0	.26
22	596.6	.34
23	609.4	.13
24	628.3	.05
25	666.9	.06
26	708.5	.15
27	817.5	.07
28	834.7	.05
29	850.7	.14
30	903.6	.06
31	945.5	.15
32	989.7	.05
33	997.3	.08
34	1062.2	.07
35	1106.6	.07
36	1117.3	.14
37	1159.3	.11
38	1290.6	.08
39	1442.6	1.06
40	1656.1	.38
41	1689.0	.38
42	1745.8	.47
43	1778.0	.32
44	1810.0	.33
45	1906.5	.27
46	2051.3	.21
47	2075.1	.19
48	2120.2	.20

TERBIUM Z=65 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2170.5	.16
50	2387.0	.14
51	2405.5	.17
52	2455.0	.22
53	2514.2	.15
54	2535.8	.12
55	2731.5	.13
56	2744.8	.19
57	2843.4	.11
58	2878.1	.08
59	2895.9	.09
60	2911.6	.11
61	3011.0	.17
62	3037.2	.12
63	3076.1	.07
64	3169.9	.08
65	3195.3	.09
66	3248.1	.09
67	3369.7	.07
68	3374.0	.09
69	3651.3	.09
70	3665.1	.06
71	3759.7	.11
72	3788.8	.05
73	3856.3	.08
74	3912.0	.08
75	4014.2	.08
76	4104.2	.07
77	4145.3	.07
78	4169.5	.04
79	4217.5	.09
80	4256.4	.08
81	4504.0	.06
82	4529.3	.05
83	4567.6	.04
84	4580.2	.08
85	4616.6	.05
86	4657.1	.05
87	4682.9	.10
88	4756.9	.07
89	4793.3	.07
90	4811.8	.07
91	4989.7	.11
92	5011.9	.11
93	5030.2	.12
94	5049.3	.07
95	5067.1	.14
96	5099.6	.27

TERBIUM Z=65 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5134.6	.12
98	5203.0	.08
99	5226.3	.11
100	5248.6	.19
101	5286.5	.08
102	5321.5	.04
103	5462.4	.06
104	5518.0	.08
105	5522.5	.09
106	5608.1	.15
107	5711.8	.05
108	5754.2	.06
109	5777.2	.39
110	5841.7	.16
111	5860.0	.06
112	5891.5	.53
113	5953.7	.22
114	5994.7	.26
115	6138.8	.27
116	6218.2	.40
117	6242.7	.11
118	6271.7	.15
119	6316.9	.18

BINDING ENERGY = 6400.0 %BE = 7.62 + 127.87 = 135.49

TERBIUM Z=65 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	249.8	.10
2	277.6	.05
3	289.2	.01
4	300.2	.02
5	311.8	.01
6	318.1	.07
7	340.2	.19
8	351.1	.04
9	357.2	.08
10	378.9	.04
11	405.8	.03
12	413.2	.04
13	417.1	.03
14	428.0	.04
15	451.2	.10
16	480.7	.07
17	482.1	.08
18	526.8	.04
19	544.2	.03
20	559.0	.07
21	593.0	.19
22	596.6	.25
23	609.4	.10
24	628.3	.04
25	666.9	.04
26	708.5	.11
27	817.5	.05
28	834.7	.04
29	850.7	.10
30	903.6	.04
31	945.5	.11
32	989.7	.04
33	997.3	.06
34	1062.2	.05
35	1106.6	.05
36	1117.3	.10
37	1159.3	.08
38	1290.6	.06
39	1442.6	.78
40	1656.1	.28
41	1689.0	.28
42	1745.8	.35
43	1778.0	.24
44	1810.0	.24
45	1906.5	.20
46	2051.3	.15
47	2075.1	.14
48	2120.2	.15

TERBIUM Z=65 MIT NE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2170.5	.12
50	2387.0	.10
51	2405.5	.13
52	2455.0	.16
53	2514.2	.11
54	2535.8	.09
55	2731.5	.10
56	2744.8	.14
57	2843.4	.08
58	2878.1	.06
59	2895.9	.07
60	2911.6	.08
61	3011.0	.13
62	3037.2	.09
63	3076.1	.05
64	3169.9	.06
65	3195.3	.07
66	3248.1	.07
67	3369.7	.05
68	3374.0	.07
69	3651.3	.07
70	3665.1	.04
71	3759.7	.08
72	3788.8	.04
73	3856.3	.06
74	3912.0	.06
75	4014.2	.06
76	4104.2	.05
77	4145.3	.05
78	4169.5	.03
79	4217.5	.07
80	4256.4	.06
81	4504.0	.04
82	4529.3	.04
83	4567.6	.03
84	4580.2	.06
85	4616.6	.04
86	4657.1	.04
87	4682.9	.07
88	4756.9	.05
89	4793.3	.05
90	4811.8	.05
91	4989.7	.08
92	5011.9	.08
93	5030.2	.09
94	5049.3	.05
95	5067.1	.10
96	5099.6	.20

TERBIUM Z=65 MITNE-85 DATA NORMALIZED YIELDS

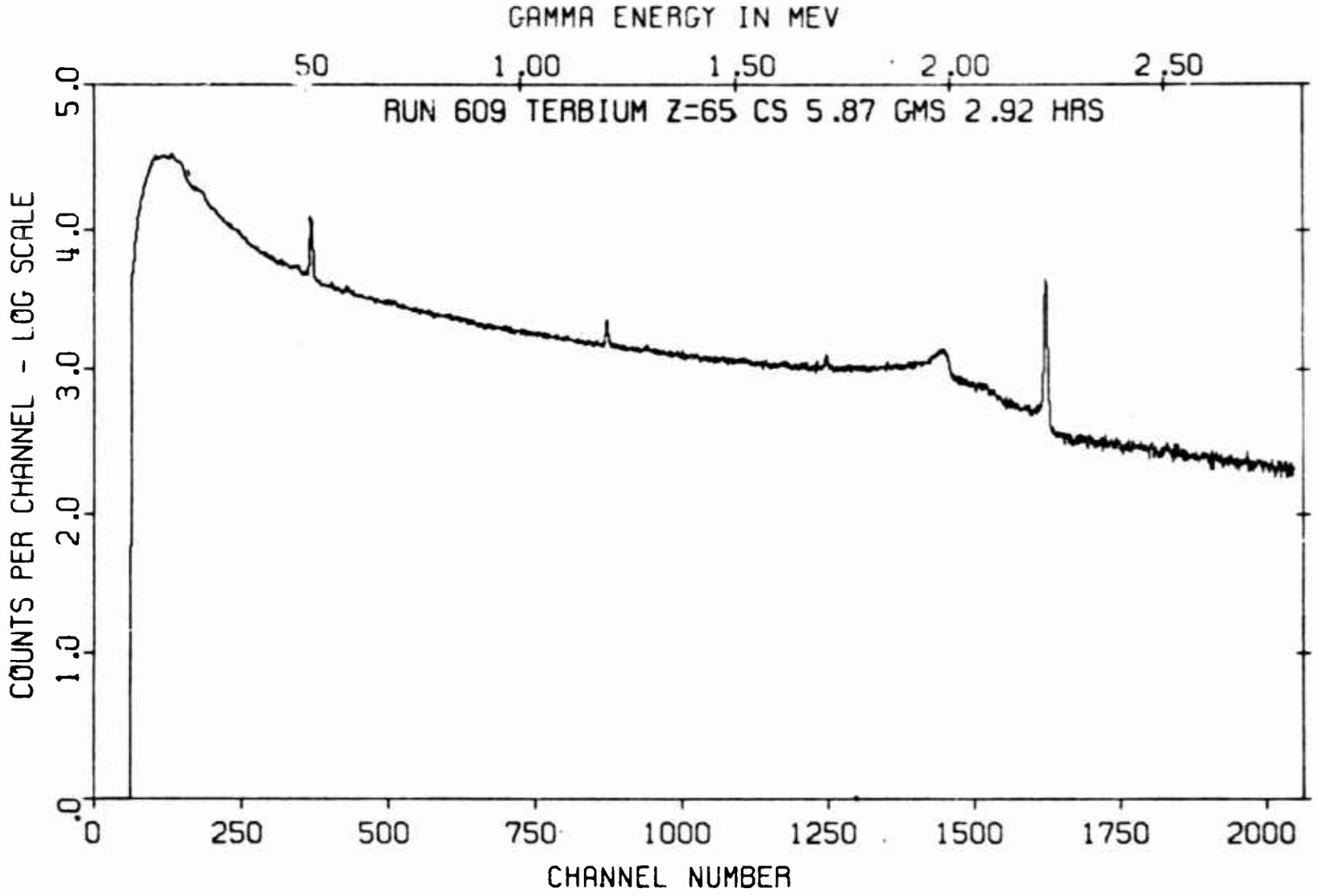
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5134.6	.09
98	5203.0	.06
99	5226.3	.08
100	5248.6	.14
101	5286.5	.06
102	5321.5	.03
103	5462.4	.04
104	5518.0	.06
105	5522.5	.07
106	5608.1	.11
107	5711.8	.04
108	5754.2	.04
109	5777.2	.29
110	5841.7	.12
111	5860.0	.04
112	5891.5	.39
113	5953.7	.16
114	5994.7	.19
115	6138.8	.20
116	6218.2	.30
117	6242.7	.08
118	6271.7	.11
119	6316.9	.13

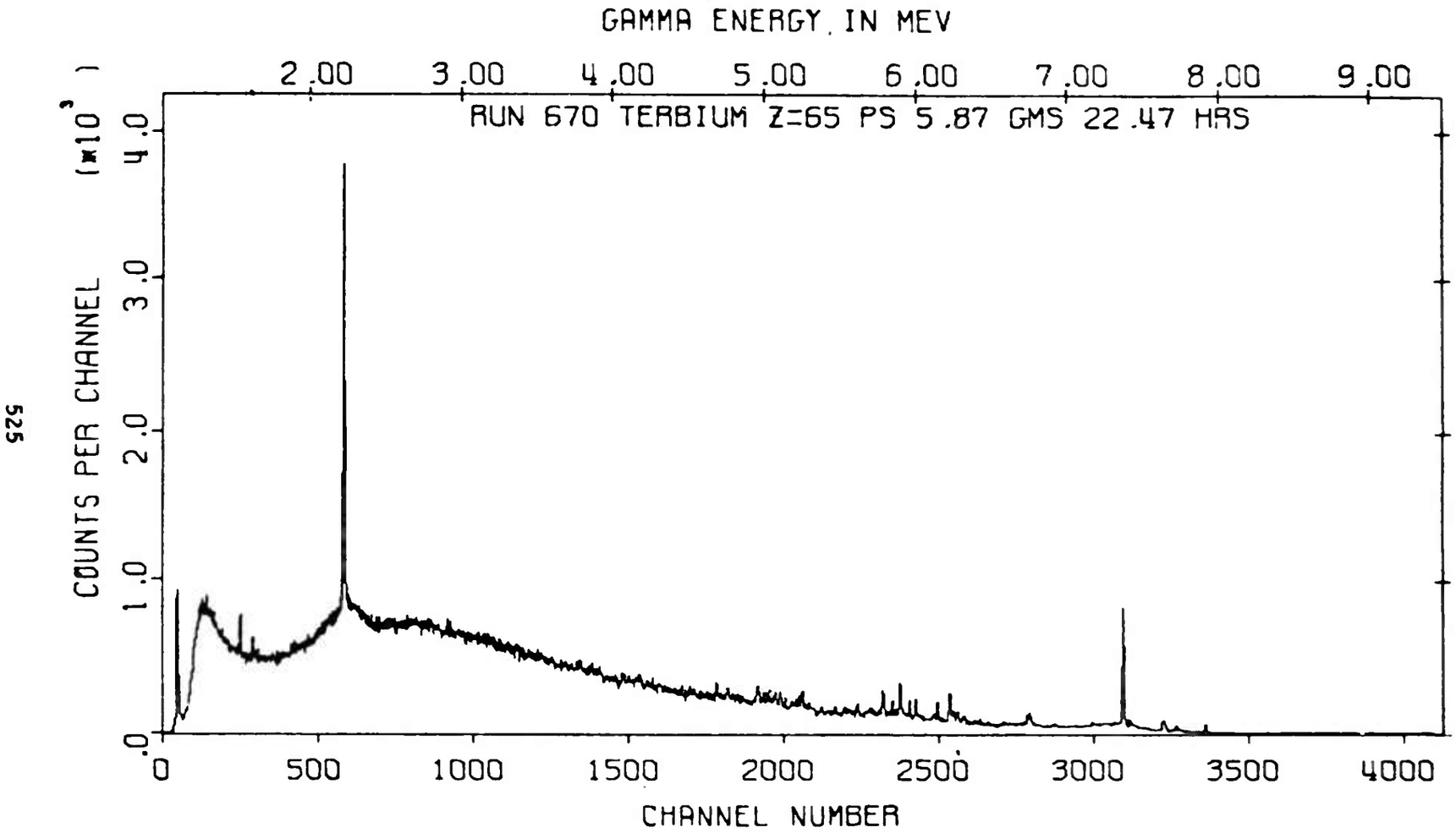
BE(KEV) 6400.0 OBSERVED %BE 135.49 NORMALIZED %BE 100.00

TERBIUM Z=65 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.10	.00	.10
2	250.0	500.0	.92	22.14	23.06
3	500.0	750.0	.87	27.31	28.18
4	750.0	1000.0	.44	31.00	31.44
5	1000.0	1250.0	.29	33.21	33.50
6	1250.0	1500.0	.84	33.58	34.42
7	1500.0	1750.0	.91	33.92	34.83
8	1750.0	2000.0	.68	23.56	24.24
9	2000.0	2250.0	.56	25.03	25.59
10	2250.0	2500.0	.39	22.40	22.79
11	2500.0	2750.0	.44	18.97	19.40
12	2750.0	3000.0	.29	15.00	15.29
13	3000.0	3250.0	.46	10.88	11.34
14	3250.0	3500.0	.12	7.89	8.01
15	3500.0	3750.0	.11	5.80	5.91
16	3750.0	4000.0	.24	4.67	4.91
17	4000.0	4250.0	.26	3.56	3.82
18	4250.0	4500.0	.06	2.44	2.50
19	4500.0	4750.0	.32	2.13	2.45
20	4750.0	5000.0	.24	1.98	2.21
21	5000.0	5250.0	.89	1.33	2.22
22	5250.0	5500.0	.13	1.03	1.17
23	5500.0	5750.0	.27	.73	1.00
24	5750.0	6000.0	1.24	.67	1.91
25	6000.0	6250.0	.58	.56	1.14
26	6250.0	6500.0	.24	.14	.38
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
BE(KEV)	6400.0	%BE	5.61	94.38	99.99


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 609 TERBIUM Z=65 CS 5.87 GMS 2.92 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 670 TERBIUM Z=65 PS 5.87 GMS 22.47 HRS
COUNTS PER CHANNEL (×10³)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

525

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	185.7	19.48
2	200.3	.42
3	208.1	.09
4	215.8	.15
5	251.9	.55
6	259.5	.12
7	282.3	.36
8	296.3	.13
9	310.6	.12
10	316.6	.19
11	333.4	.16
12	350.7	2.80
13	360.4	.58
14	367.2	.16
15	386.8	3.94
16	413.2	6.88
17	430.3	.61
18	447.3	1.91
19	465.8	2.58
20	477.1	.89
21	497.6	4.36
22	538.4	7.08
23	556.7	.24
24	569.0	.98
25	584.1	1.44
26	596.6	.57
27	611.8	.26
28	622.4	.27
29	634.0	.19
30	648.8	.99
31	659.9	.18
32	671.7	.17
33	688.9	.28
34	697.1	.16
35	754.6	.64
36	762.0	.32
37	787.4	.18
38	795.5	.52
39	807.6	.99
40	863.1	.37
41	883.3	2.53
42	912.1	2.81
43	930.6	.56
44	979.2	1.44
45	1017.1	.24
46	1024.0	.25
47	1059.9	.85
48	1071.5	.60

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1093.8	.44
50	1109.8	.33
51	1127.4	.64
52	1221.4	.78
53	1257.7	.47
54	1274.7	.69
55	1291.6	.39
56	1722.1	.53
57	1735.4	.88
58	1760.2	.95
59	1806.1	.40
60	1976.5	.55
61	2019.8	.40
62	2067.4	.87
63	2088.6	.26
64	2114.0	.73
65	2140.8	.22
66	2190.2	.30
67	2268.5	.40
68	2314.0	.57
69	2368.3	.25
70	2387.3	.51
71	2410.7	.18
72	2427.6	.15
73	2444.6	.34
74	2451.3	.15
75	2506.8	.25
76	2521.9	.26
77	2536.1	.17
78	2554.7	.75
79	2592.6	.44
80	2609.2	.35
81	2660.2	.60
82	2703.4	2.35
83	2733.6	1.19
84	2747.4	.09
85	2755.3	.21
86	2783.2	.47
87	2804.6	.13
88	2810.5	.23
89	2827.9	.22
90	2842.7	.49
91	2865.7	.27
92	2870.7	.22
93	2901.1	.11
94	2931.3	.09
95	2948.5	1.29
96	2968.6	.30

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3013.6	.76
98	3035.7	.63
99	3051.6	.10
100	3071.3	.37
101	3114.8	.27
102	3148.7	.14
103	3159.0	.07
104	3170.5	.10
105	3176.5	.05
106	3198.6	.12
107	3215.5	.07
108	3239.5	.36
109	3275.8	1.16
110	3316.5	.25
111	3349.5	.25
112	3376.9	.06
113	3406.7	.07
114	3419.0	.36
115	3444.7	1.26
116	3469.1	.05
117	3477.9	.21
118	3492.1	.12
119	3527.7	.07
120	3536.0	.09
121	3556.6	.24
122	3574.4	.07
123	3608.4	.32
124	3627.7	.26
125	3648.7	.08
126	3709.2	.45
127	3732.0	.08
128	3748.3	.43
129	3772.8	.32
130	3820.9	.22
131	3841.4	.33
	3885.4	.48
	3901.7	.05
	3924.7	.04
135	3945.2	.14
136	3961.0	.25
137	4068.2	.13
138	4083.4	.22
139	4124.2	1.06
140	4155.8	.13
141	4200.8	.04
142	4251.1	.04
143	4275.4	.07
144	4316.6	.18

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4338.2	.18
146	4407.3	.04
147	4427.8	.06
148	4460.0	.15
149	4498.2	.04
150	4548.6	.07
151	4581.5	.03
152	4612.4	.61
153	4635.2	.09
154	4677.7	.05
155	4782.8	.04
156	4800.6	.04
157	4981.4	.03
158	5110.3	.49
159	5143.8	1.36
160	5177.3	.54
161	5264.7	.04
162	5335.8	.04
163	5373.8	.05
164	5415.6	.04
165	5449.3	.15
166	5556.9	2.23
167	5607.3	2.78
168	5848.4	.04
169	5879.9	.07

BINDING ENERGY = 6035.0 %BE = 29.50 + 65.34 = 94.84

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	185.7	20.54
2	200.3	.44
3	208.1	.09
4	215.8	.16
5	251.9	.58
6	259.5	.13
7	282.3	.38
8	296.3	.14
9	310.6	.13
10	316.6	.20
11	333.4	.17
12	350.7	2.95
13	360.4	.61
14	367.2	.17
15	386.8	4.15
16	413.2	7.25
17	430.3	.64
18	447.3	2.01
19	465.8	2.72
20	477.1	.94
21	497.6	4.60
22	538.4	7.47
23	556.7	.25
24	569.0	1.03
25	584.1	1.52
26	596.6	.60
27	611.8	.27
28	622.4	.28
29	634.0	.20
30	648.8	1.04
31	659.9	.19
32	671.7	.18
33	688.9	.30
34	697.1	.17
35	754.6	.67
36	762.0	.34
37	787.4	.19
38	795.5	.55
39	807.6	1.04
40	863.1	.39
41	883.3	2.67
42	912.1	2.96
43	930.6	.59
44	979.2	1.52
45	1017.1	.25
46	1024.0	.26
47	1059.9	.90
48	1071.5	.63

DYSPROSIUM Z=66 GAMABC CODE MIT NE-85 D NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1093.8	.46
50	1109.8	.35
51	1127.4	.67
52	1221.4	.82
53	1257.7	.50
54	1274.7	.73
55	1291.6	.41
56	1722.1	.56
57	1735.4	.93
58	1760.2	1.00
59	1806.1	.42
60	1976.5	.58
61	2019.8	.42
62	2067.4	.32
63	2088.6	.27
64	2114.0	.77
65	2140.8	.23
66	2190.2	.32
67	2268.5	.42
68	2314.0	.60
69	2368.3	.26
70	2387.3	.54
71	2410.7	.19
72	2427.6	.16
73	2444.6	.36
74	2451.3	.16
75	2506.8	.26
76	2521.9	.27
77	2536.1	.18
78	2554.7	.79
79	2592.6	.46
80	2609.2	.37
81	2660.2	.63
82	2703.4	2.48
83	2733.6	1.25
84	2747.4	.09
85	2755.3	.22
86	2783.2	.50
87	2804.6	.14
88	2810.5	.24
89	2827.9	.23
90	2842.7	.52
91	2865.7	.28
92	2870.7	.23
93	2901.1	.12
94	2931.3	.09
95	2948.5	1.36
96	2968.6	.32

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3013.6	.80
98	3035.7	.66
99	3051.6	.11
100	3071.3	.39
101	3114.8	.28
102	3148.7	.15
103	3159.0	.07
104	3170.5	.11
105	3176.5	.05
106	3198.6	.13
107	3215.5	.07
108	3239.5	.38
109	3275.8	1.22
110	3316.5	.26
111	3349.5	.26
112	3376.9	.06
113	3406.7	.07
114	3419.0	.38
115	3444.7	1.33
116	3469.1	.05
117	3477.9	.22
118	3492.1	.13
119	3527.7	.07
120	3536.0	.09
121	3556.6	.25
122	3574.4	.07
123	3608.4	.34
124	3627.7	.27
125	3648.7	.08
126	3709.2	.47
127	3732.0	.08
128	3748.3	.45
129	3772.8	.34
130	3820.9	.23
131	3841.4	.35
132	3885.4	.51
133	3901.7	.05
134	3924.7	.04
135	3945.2	.15
136	3961.0	.26
137	4068.2	.14
138	4083.4	.23
139	4124.2	1.12
140	4155.8	.14
141	4200.8	.04
142	4251.1	.04
143	4275.4	.07
144	4316.6	.19

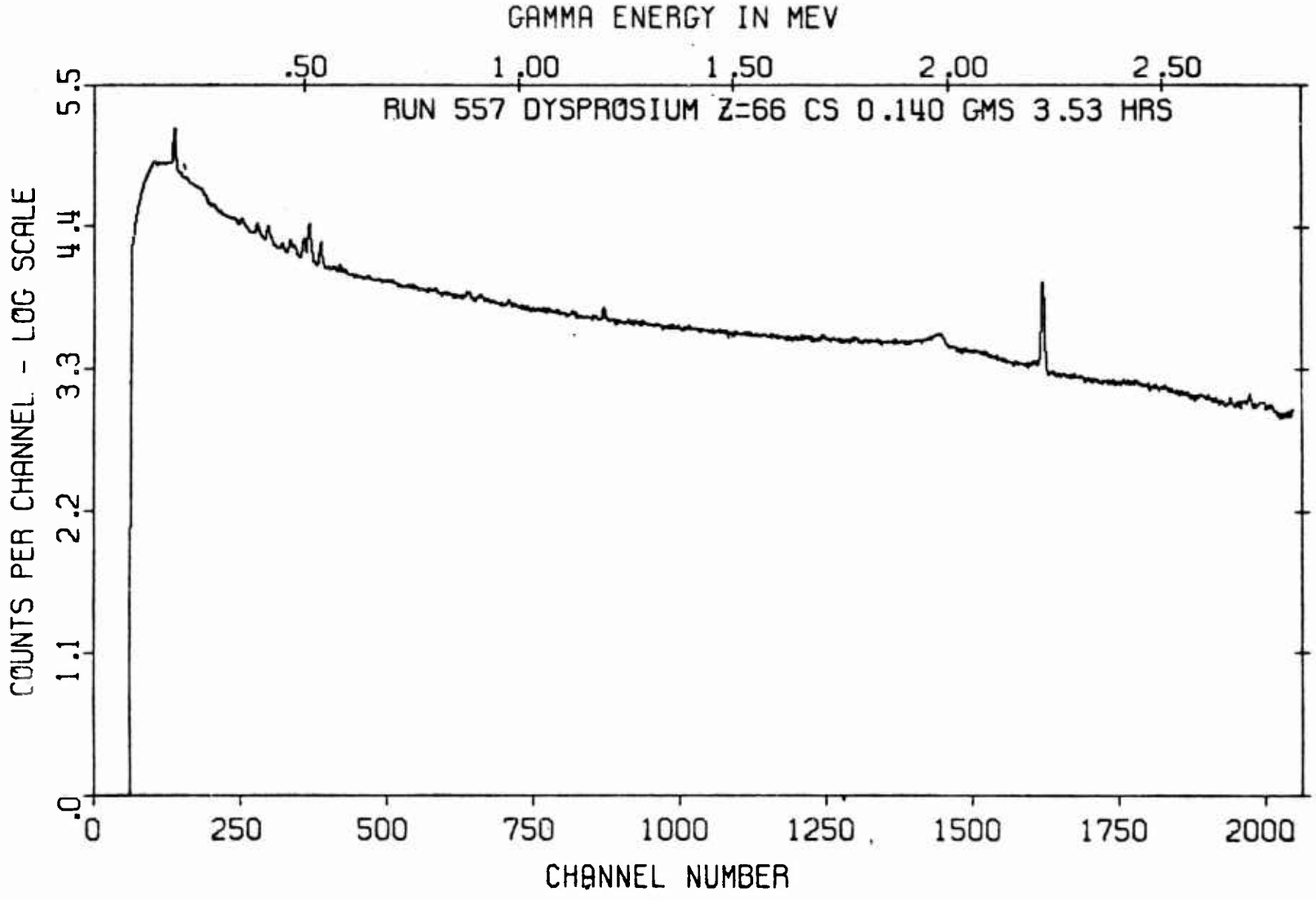
DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D NORMALIZED YIELDS

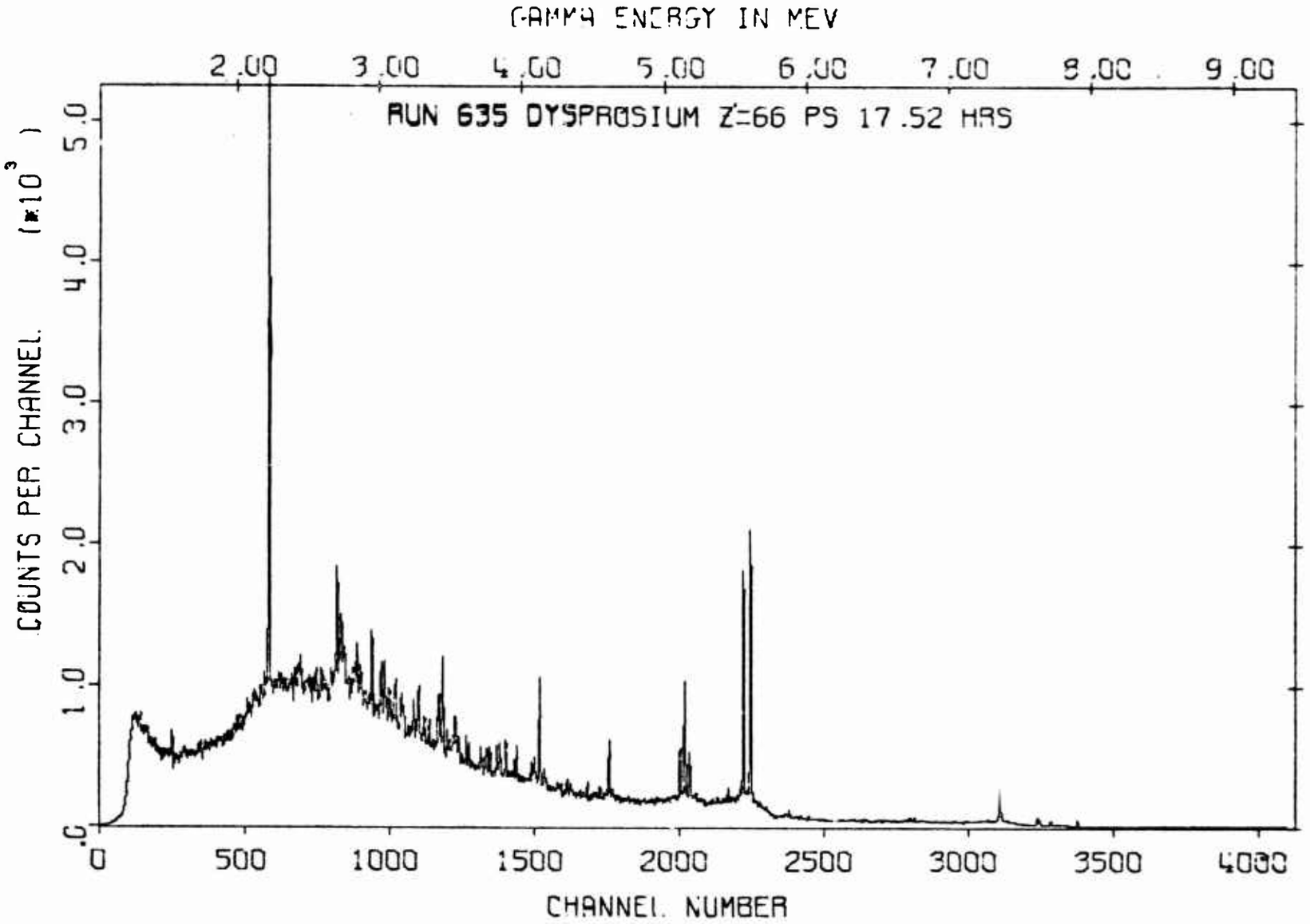
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4338.2	.19
146	4407.3	.04
147	4427.8	.06
148	4460.0	.16
149	4498.2	.04
150	4548.6	.07
151	4581.5	.03
152	4612.4	.64
153	4635.2	.09
154	4677.7	.05
155	4782.8	.04
156	4800.6	.04
157	4981.4	.03
158	5110.3	.52
159	5143.8	1.43
160	5177.3	.57
161	5264.7	.04
162	5335.8	.04
163	5373.8	.05
164	5415.6	.04
165	5449.3	.16
166	5556.9	2.35
167	5607.3	2.93
168	5848.4	.04
169	5879.9	.07

BE(KEV) 6036.0 OBSERVED %BE 94.84 NORMALIZED %BE 100.00

DYSPROSIUM Z=66 GAMABC CODE MITNE-85 D NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	21.24	.00	21.24
2	250.0	500.0	27.77	.00	27.77
3	500.0	750.0	13.51	3.16	16.67
4	750.0	1000.0	10.92	13.71	24.63
5	1000.0	1250.0	4.35	20.03	24.39
6	1250.0	1500.0	1.63	22.14	23.78
7	1500.0	1750.0	1.49	22.14	23.63
8	1750.0	2000.0	2.00	17.23	19.23
9	2000.0	2250.0	2.93	18.75	21.68
10	2250.0	2500.0	2.69	19.06	21.75
11	2500.0	2750.0	6.80	16.42	23.22
12	2750.0	3000.0	4.25	12.71	16.95
13	3000.0	3250.0	3.21	8.11	11.31
14	3250.0	3500.0	4.00	5.19	9.18
15	3500.0	3750.0	2.20	3.50	5.70
16	3750.0	4000.0	1.93	2.50	4.43
17	4000.0	4250.0	1.67	1.88	3.54
18	4250.0	4500.0	.80	1.12	1.92
19	4500.0	4750.0	.90	.95	1.85
20	4750.0	5000.0	.12	.78	.90
21	5000.0	5250.0	2.52	1.09	3.61
22	5250.0	5500.0	.34	.89	1.22
23	5500.0	5750.0	5.28	1.13	6.41
24	5750.0	6000.0	.12	.39	.51
25	6000.0	6250.0	.00	.22	.22
26	6250.0	6500.0	.00	.21	.21
27	6500.0	6750.0	.00	.25	.25
28	6750.0	7000.0	.00	.16	.16
BE(KEV)	6036.0	%BE	30.86	68.89	99.75


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 557 DYSPROSIUM Z=66 CS 0.140 GMS 3.53 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 635 DYSPROSIUM Z=66 PS 17.52 HRS
COUNTS PER CHANNEL (*10^3)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

HOLMIUM Z=67 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	221.7	2.77
2	239.8	5.74
3	255.0	0.95
4	263.4	0.17
5	267.8	0.30
6	290.3	3.08
7	305.5	1.56
8	333.9	1.90
9	372.4	1.86
10	392.5	0.65
11	402.4	0.82
12	411.3	1.19
13	426.7	3.43
14	442.6	0.29
15	455.6	0.97
16	464.6	0.21
17	488.7	0.97
18	543.5	2.74
19	613.8	0.29
20	615.4	0.25
21	634.7	0.59
22	658.7	0.56
23	1326.9	0.36
24	1379.8	0.28
25	1619.6	0.58
26	2206.9	0.46
27	2957.6	0.09
28	2994.8	0.26
29	3152.3	0.10
30	3309.9	0.19
31	3381.8	0.08
32	3453.9	0.06
33	3505.8	0.11
34	3779.9	0.06
35	3896.4	0.15
36	3999.3	0.09
37	4074.6	0.06
38	4208.7	0.11
39	4215.1	0.08
40	4239.1	0.06
41	4290.9	0.11
42	4349.5	0.09
43	4386.6	0.05
44	4465.8	0.08
45	4607.5	0.13
46	4628.0	0.03
47	4639.8	0.06
48	4674.1	0.05

HOLMIUM Z=67 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4709.6	0.05
50	4712.8	0.05
51	4780.3	0.09
52	4796.1	0.10
53	4811.5	0.08
54	4827.8	0.15
55	4854.6	0.14
56	4866.0	0.06
57	4904.1	0.08
58	4981.3	0.05
59	5000.6	0.04
60	5013.2	0.05
61	5052.6	0.05
62	5082.2	0.27
63	5106.5	0.08
64	5128.8	0.19
65	5157.4	0.05
66	5181.6	0.35
67	5212.3	0.30
68	5238.7	0.03
69	5299.4	0.03
70	5338.3	0.11
71	5362.2	0.03
72	5428.0	0.26
73	5474.0	0.05
74	5523.5	0.17
75	5580.8	0.04
76	5645.9	0.05
77	5651.3	0.06
78	5684.2	0.12
79	5762.7	0.34
80	5813.1	0.70
81	5870.6	0.27
82	5981.8	0.09
83	6051.5	0.22

BINDING ENERGY = 6243.0 %BE = 7.62 + 84.34 = 91.96

HOLMIUM Z=67 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	221.7	3.01
2	239.8	6.24
3	255.0	1.04
4	263.4	0.18
5	267.8	0.33
6	290.3	3.35
7	305.5	1.69
8	333.9	2.07
9	372.4	2.02
10	392.5	0.70
11	402.4	0.89
12	411.3	1.29
13	426.7	3.73
14	442.6	0.32
15	455.6	1.05
16	464.6	0.23
17	488.7	1.05
18	543.5	2.97
19	613.8	0.32
20	615.4	0.27
21	634.7	0.64
22	658.7	0.61
23	1326.9	0.39
24	1379.8	0.30
25	1619.6	0.63
26	2206.9	0.50
27	2957.6	0.10
28	2994.8	0.28
29	3152.3	0.11
30	3309.9	0.21
31	3381.8	0.09
32	3453.9	0.06
33	3505.8	0.12
34	3779.9	0.06
35	3896.4	0.17
36	3999.3	0.09
37	4074.6	0.06
38	4208.7	0.12
39	4215.1	0.09
40	4239.1	0.07
41	4290.9	0.13
42	4349.5	0.10
43	4386.6	0.05
44	4465.8	0.09
45	4607.5	0.14
46	4628.0	0.04
47	4639.8	0.07
48	4674.1	0.05

HOLMIUM Z=67 GAMARC CODE MITNE-85 DATA NORMALIZED YIELDS

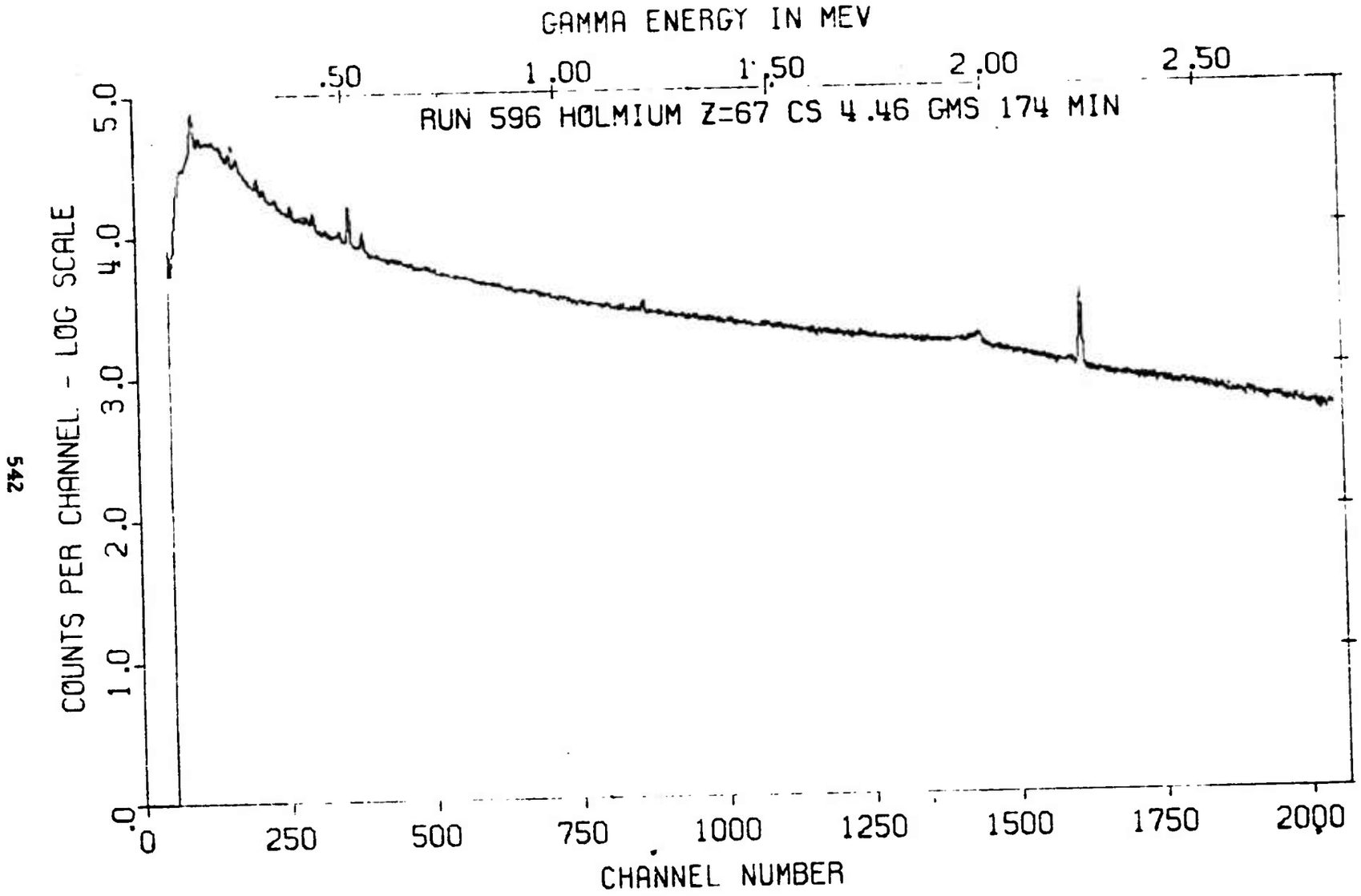
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4709.6	0.06
50	4712.8	0.05
51	4780.3	0.09
52	4796.1	0.11
53	4811.5	0.08
54	4827.8	0.17
55	4854.6	0.15
56	4866.0	0.07
57	4904.1	0.09
58	4981.3	0.05
59	5000.6	0.05
60	5013.2	0.05
61	5052.6	0.05
62	5082.2	0.29
63	5106.5	0.09
64	5128.8	0.20
65	5157.4	0.06
66	5181.6	0.38
67	5212.3	0.32
68	5238.7	0.03
69	5299.4	0.03
70	5338.3	0.12
71	5362.2	0.03
72	5428.0	0.28
73	5474.0	0.05
74	5523.5	0.18
75	5580.8	0.05
76	5645.9	0.06
77	5651.3	0.07
78	5684.2	0.13
79	5762.7	0.37
80	5813.1	0.76
81	5870.6	0.29
82	5981.8	0.09
83	6051.5	0.24

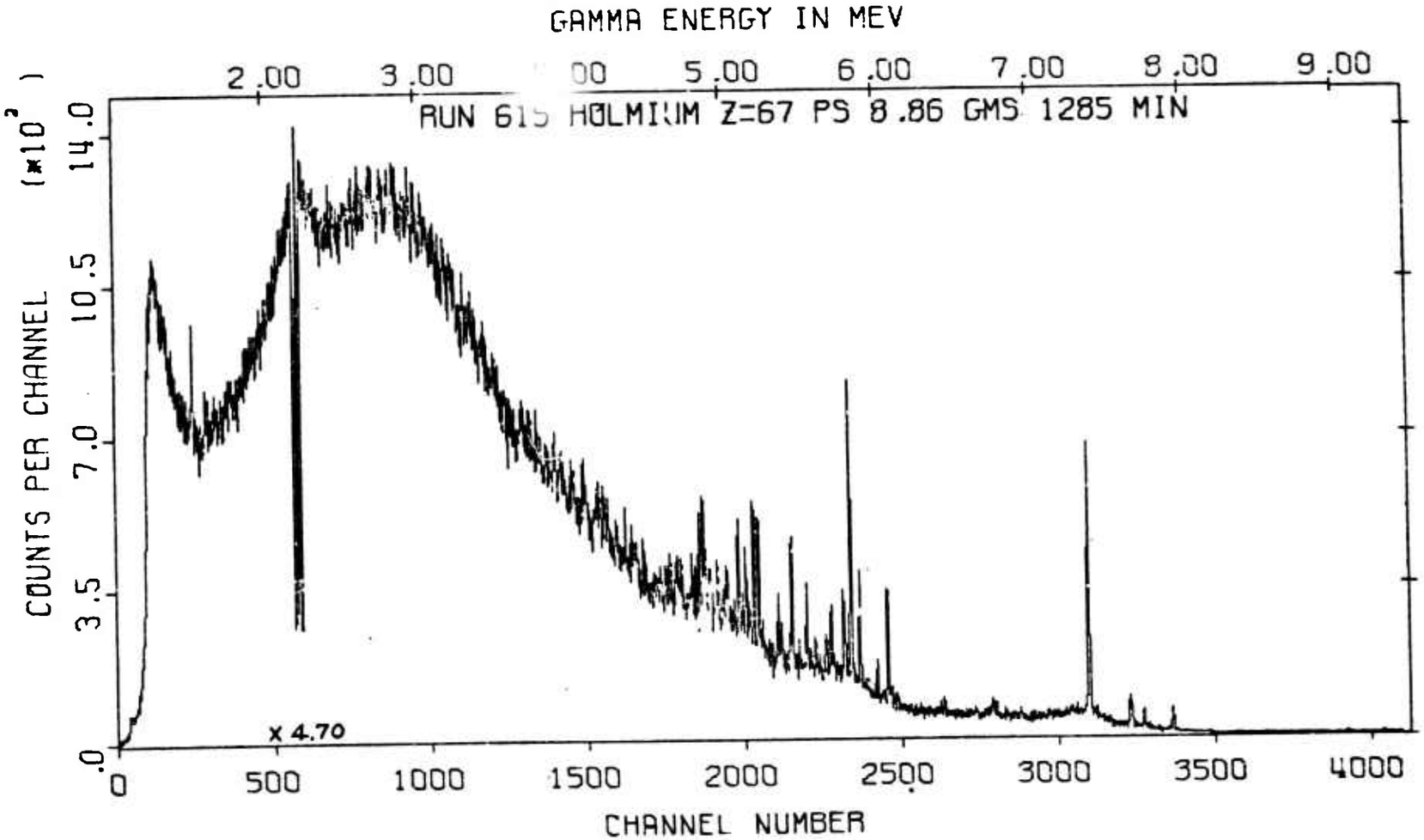
BE(KEV) 6243.0 OBSERVED %BE 91.96 NORMALIZED %BE 100.00

HOLMIUM Z=67 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	9.26	0.0	9.26
2	250.0	500.0	19.93	0.0	19.93
3	500.0	750.0	4.83	0.0	4.83
4	750.0	1000.0	0.0	2.17	2.17
5	1000.0	1250.0	0.0	6.52	6.52
6	1250.0	1500.0	0.69	10.87	11.57
7	1500.0	1750.0	0.63	16.62	17.25
8	1750.0	2000.0	0.0	20.92	20.92
9	2000.0	2250.0	0.50	28.25	28.75
10	2250.0	2500.0	0.0	26.85	26.85
11	2500.0	2750.0	0.0	25.46	25.46
12	2750.0	3000.0	0.38	22.62	23.00
13	3000.0	3250.0	0.11	17.20	17.32
14	3250.0	3500.0	0.36	11.73	12.10
15	3500.0	3750.0	0.12	7.94	8.06
16	3750.0	4000.0	0.32	5.97	6.29
17	4000.0	4250.0	0.34	4.65	4.99
18	4250.0	4500.0	0.37	2.83	3.19
19	4500.0	4750.0	0.41	2.14	2.55
20	4750.0	5000.0	0.81	2.17	2.98
21	5000.0	5250.0	1.53	1.50	3.03
22	5250.0	5500.0	0.51	1.12	1.63
23	5500.0	5750.0	0.49	0.94	1.42
24	5750.0	6000.0	1.51	0.61	2.12
25	6000.0	6250.0	0.24	0.37	0.61
BF(KEV)	6243.0	%BE	8.18	91.72	99.90


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 596 HOLMIUM Z=67 CS 4.46 GMS 174 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
5.00
6.00
7.00
8.00
9.00
RUN 615 HOLMIUM Z=67 PS 8.86 GMS 1285 MIN
COUNTS PER CHANNEL (×10²)
14.0
10.5
7.0
3.5
0
x 4.70
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

ERBIUM Z=68 GAMABC CODE MITNE-104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.0	14.86
2	217.5	1.35
3	254.3	0.39
4	269.8	0.33
5	284.1	11.78
6	329.5	0.19
7	346.7	0.29
8	397.0	0.58
9	422.0	0.95
10	431.5	0.22
11	447.3	1.54
12	458.3	0.23
13	472.4	0.46
14	482.8	0.23
15	498.3	0.46
16	532.2	0.40
17	542.7	1.18
18	558.1	0.66
19	583.0	0.43
20	615.5	0.43
21	632.1	3.72
22	639.9	0.56
23	676.1	0.48
24	699.6	0.36
25	718.0	1.70
26	730.8	4.35
27	741.3	2.28
28	766.2	0.28
29	798.9	0.84
30	816.0	40.87
31	853.4	4.90
32	864.3	1.20
33	898.1	0.30
34	914.9	3.54
35	930.5	1.01
36	965.6	0.51
37	999.4	0.34
38	1024.8	0.36
39	1166.6	0.58
40	1199.4	0.40
41	1278.2	2.50
42	1308.7	0.44
43	1324.0	0.45
44	1332.3	0.35
45	1352.9	1.45
46	1599.2	0.29
47	1835.9	0.95
48	1834.8	0.84

ERBIUM Z=68 GAMABC CODE MITNE-104 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1863.6	0.43
50	1979.4	0.30
51	2031.7	0.29
52	2647.3	0.25
53	3244.9	0.28
54	3674.1	0.23
55	4162.2	0.14
56	4390.9	0.13
57	4643.4	0.18
58	4742.9	0.18
59	4800.6	0.10
60	4921.6	0.36
61	5037.3	0.24
62	5071.2	0.09
63	5113.2	0.32
64	5170.1	0.22
65	5212.4	0.15
66	5257.9	0.07
67	5292.8	0.33
68	5360.0	0.36
69	5370.5	0.27
70	5433.6	0.14
71	5469.8	0.10
72	5506.4	0.15
73	5570.5	0.07
74	5620.2	0.08
75	5638.3	0.09
76	5673.1	0.31
77	5711.9	0.15
78	5771.0	0.27
79	5858.1	0.19
80	5878.1	0.49
81	5942.6	0.05
82	6050.8	0.30
83	6136.9	0.33
84	6170.2	0.07
85	6198.2	0.16
86	6228.6	0.89
87	6366.3	0.12
88	6492.2	0.07
89	6577.6	0.19
90	6676.6	0.56
91	6951.4	0.03

BINDING ENERGY = 7770.0 %BE = 16.23 + 83.53 = 99.76

ERBIUM Z=68 GAMABC CODE MITNE-104 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.0	14.89
2	217.5	1.35
3	254.3	0.39
4	269.8	0.33
5	284.1	11.80
6	329.5	0.19
7	346.7	0.29
8	397.0	0.58
9	422.0	0.95
10	431.5	0.22
11	447.3	1.54
12	458.3	0.23
13	472.4	0.46
14	482.8	0.23
15	498.3	0.46
16	532.2	0.40
17	542.7	1.18
18	558.1	0.66
19	583.0	0.43
20	615.5	0.43
21	632.1	3.73
22	639.9	0.56
23	676.1	0.48
24	699.6	0.36
25	718.0	1.71
26	730.8	4.36
27	741.3	2.29
28	766.2	0.28
29	798.9	0.84
30	816.0	40.96
31	853.4	4.91
32	864.3	1.20
33	898.1	0.30
34	914.9	3.55
35	930.5	1.01
36	965.6	0.51
37	999.4	0.34
38	1024.8	0.36
39	1166.6	0.58
40	1199.4	0.40
41	1278.2	2.51
42	1308.7	0.44
43	1324.0	0.46
44	1332.3	0.35
45	1352.9	1.46
46	1599.2	0.29
47	1835.9	0.96
48	1834.8	0.84

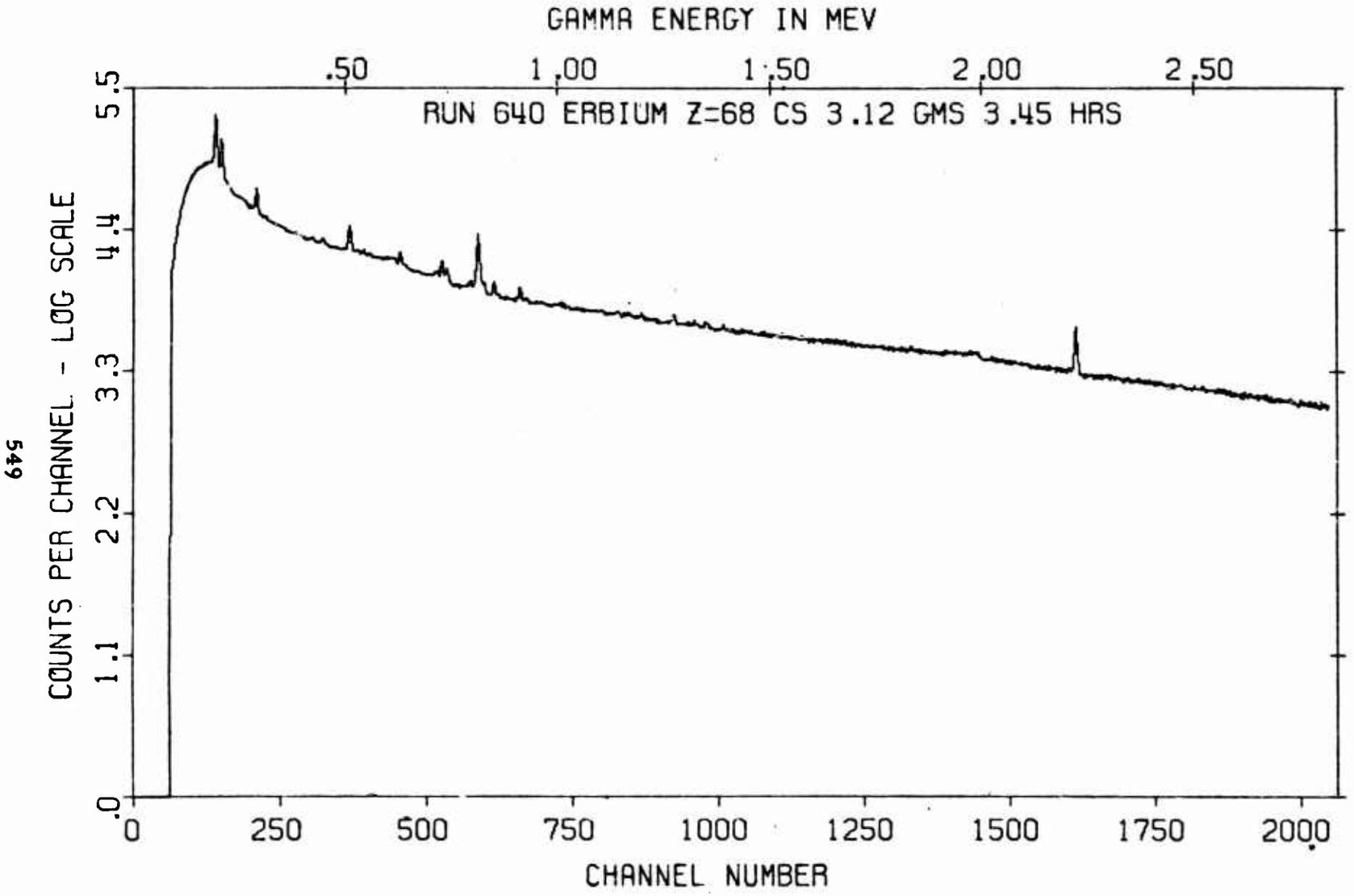
ERBIUM Z=68 GAMABC CODE MITNE-104 DATA NORMALIZED YIELDS

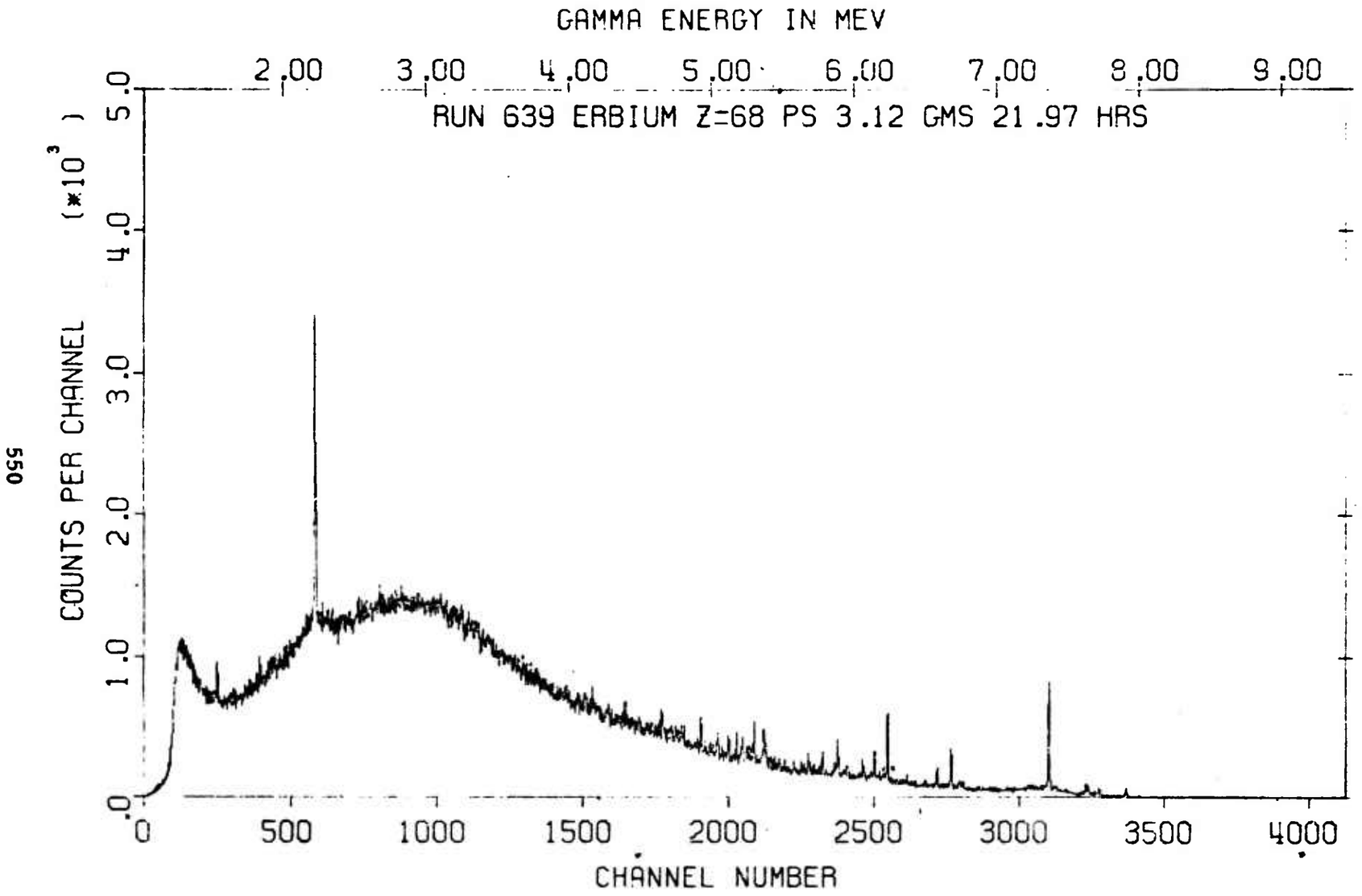
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1863.6	0.43
50	1979.4	0.30
51	2031.7	0.29
52	2647.3	0.25
53	3244.9	0.29
54	3674.1	0.24
55	4162.2	0.14
56	4390.9	0.13
57	4643.4	0.18
58	4742.9	0.19
59	4800.6	0.10
60	4921.6	0.36
61	5037.3	0.24
62	5071.2	0.09
63	5113.2	0.32
64	5170.1	0.22
65	5212.4	0.15
66	5257.9	0.07
67	5292.8	0.33
68	5360.0	0.36
69	5370.5	0.27
70	5433.6	0.14
71	5469.8	0.10
72	5506.4	0.15
73	5570.5	0.07
74	5620.2	0.08
75	5638.3	0.09
76	5673.1	0.31
77	5711.9	0.15
78	5771.0	0.27
79	5858.1	0.19
80	5878.1	0.49
81	5942.6	0.05
82	6050.8	0.30
83	6136.9	0.33
84	6170.2	0.07
85	6198.2	0.16
86	6228.6	0.89
87	6366.3	0.12
88	6492.2	0.07
89	6577.6	0.19
90	6676.6	0.57
91	6951.4	0.03

BE(KEV) 7770.0 OBSERVED %BE 99.76 NORMALIZED %BE 100.00

ERBIUM Z=68 GAMABC CODE MITNE-104 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	16.24	0.0	16.24
2	250.0	500.0	17.69	0.0	17.69
3	500.0	750.0	16.60	0.0	16.60
4	750.0	1000.0	53.89	0.0	53.89
5	1000.0	1250.0	1.34	0.42	1.76
6	1250.0	1500.0	5.20	3.41	8.61
7	1500.0	1750.0	0.29	7.32	7.61
8	1750.0	2000.0	2.52	13.28	15.81
9	2000.0	2250.0	0.29	17.87	18.16
10	2250.0	2500.0	0.0	23.78	23.78
11	2500.0	2750.0	0.25	25.21	25.46
12	2750.0	3000.0	0.0	25.26	25.26
13	3000.0	3250.0	0.29	22.96	23.25
14	3250.0	3500.0	0.0	18.08	18.08
15	3500.0	3750.0	0.24	13.01	13.25
16	3750.0	4000.0	0.0	9.63	9.63
17	4000.0	4250.0	0.14	7.41	7.54
18	4250.0	4500.0	0.13	6.28	6.42
19	4500.0	4750.0	0.36	5.41	5.78
20	4750.0	5000.0	0.45	4.00	4.45
21	5000.0	5250.0	1.01	2.62	3.63
22	5250.0	5500.0	1.28	2.24	3.51
23	5500.0	5750.0	0.84	1.14	1.99
24	5750.0	6000.0	1.00	1.19	2.19
25	6000.0	6250.0	1.75	1.19	2.94
26	6250.0	6500.0	0.19	0.37	0.56
27	6500.0	6750.0	0.76	0.39	1.15
28	6750.0	7000.0	0.03	0.16	0.19
29	7000.0	7250.0	0.0	0.04	0.04
30	7250.0	7500.0	0.0	0.10	0.10
31	7500.0	7750.0	0.0	0.17	0.17
32	7750.0	8000.0	0.0	0.03	0.03
BE(KEV)	7770.0	%BE	16.45	83.73	100.19


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 640 ERBIUM Z=68 CS 3.12 GMS 3.45 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 639 ERBIUM Z=68 PS 3.12 GMS 21.97 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
5.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

THULIUM Z=69 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	211.2	.19
2	250.8	.47
3	271.2	.28
4	295.6	.43
5	359.0	.25
6	362.6	.17
7	403.8	.55
8	418.1	.14
9	475.1	7.78
10	540.0	12.16
11	591.9	.22
12	630.8	4.10
13	664.5	.12
14	687.4	4.57
15	711.6	.34
16	737.4	.54
17	823.1	1.17
18	850.2	.32
19	1046.5	.71
20	1103.7	1.53
21	1302.4	.36
22	1342.1	1.06
23	1362.2	1.01
24	1627.4	.86
25	1736.5	.21
26	2176.6	.56
27	2187.5	1.07
28	2363.7	.13
29	2833.2	.16
30	2845.1	.12
31	3048.0	.06
32	3198.6	.18
33	3222.5	.15
34	3277.4	.06
35	3337.4	.13
36	3425.4	.19
37	3589.3	.06
38	3680.7	.08
39	3735.0	.03
40	3779.3	.17
41	3915.4	.11
42	3966.0	.14
43	3988.0	.05
44	4020.6	.08
45	4133.0	.08
46	4153.1	.13
47	4287.4	.03
48	4358.3	.09

THULIUM Z=69 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4396.9	.16
50	4424.8	.17
51	4461.2	.04
52	4490.4	.03
53	4549.1	.03
54	4575.8	.05
55	4613.5	.04
56	4641.8	.11
57	4658.2	.04
58	4670.5	.05
59	4732.7	.35
60	4773.5	.03
61	4802.9	.03
62	4834.5	.04
63	4920.7	.13
64	4987.1	.08
65	5066.5	.05
66	5075.7	.13
67	5124.3	.09
68	5151.0	.20
69	5156.5	.20
70	5238.0	.05
71	5276.6	.03
72	5292.0	.05
73	5310.8	.03
74	5326.1	.06
75	5354.2	.06
76	5379.8	.04
77	5404.3	.08
78	5413.4	.16
79	5423.4	.09
80	5449.7	.03
81	5518.8	.12
82	5737.0	.94
83	5809.5	.03
84	5857.3	.22
85	5899.5	.23
86	5907.2	.23
87	5941.8	.79
88	6000.9	.65
89	6111.9	.03
90	6355.6	.29
91	6387.3	1.04
92	6442.3	.20
93	6552.6	.55

BINDING ENERGY = 6594.0 %BE = 12.64 + 108.44 = 121.09

THULIUM Z=69 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	211.2	.16
2	250.8	.39
3	271.2	.23
4	295.6	.35
5	359.0	.21
6	362.6	.14
7	403.8	.46
8	418.1	.11
9	475.1	6.43
10	540.0	10.05
11	591.9	.18
12	630.8	3.39
13	664.5	.10
14	687.4	3.77
15	711.6	.28
16	737.4	.45
17	823.1	.97
18	850.2	.26
19	1046.5	.59
20	1103.7	1.26
21	1302.4	.30
22	1342.1	.87
23	1362.2	.84
24	1627.4	.71
25	1736.5	.17
26	2176.6	.46
27	2187.5	.89
28	2363.7	.11
29	2833.2	.14
30	2845.1	.10
31	3048.0	.05
32	3198.6	.15
33	3222.5	.12
34	3277.4	.05
35	3337.4	.11
36	3425.4	.15
37	3589.3	.05
38	3680.7	.07
39	3735.0	.03
40	3779.3	.14
41	3915.4	.09
42	3966.0	.11
43	3988.0	.04
44	4020.6	.06
45	4133.0	.07
46	4153.1	.11
47	4287.4	.02
48	4358.3	.08

THULIUM Z=69 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

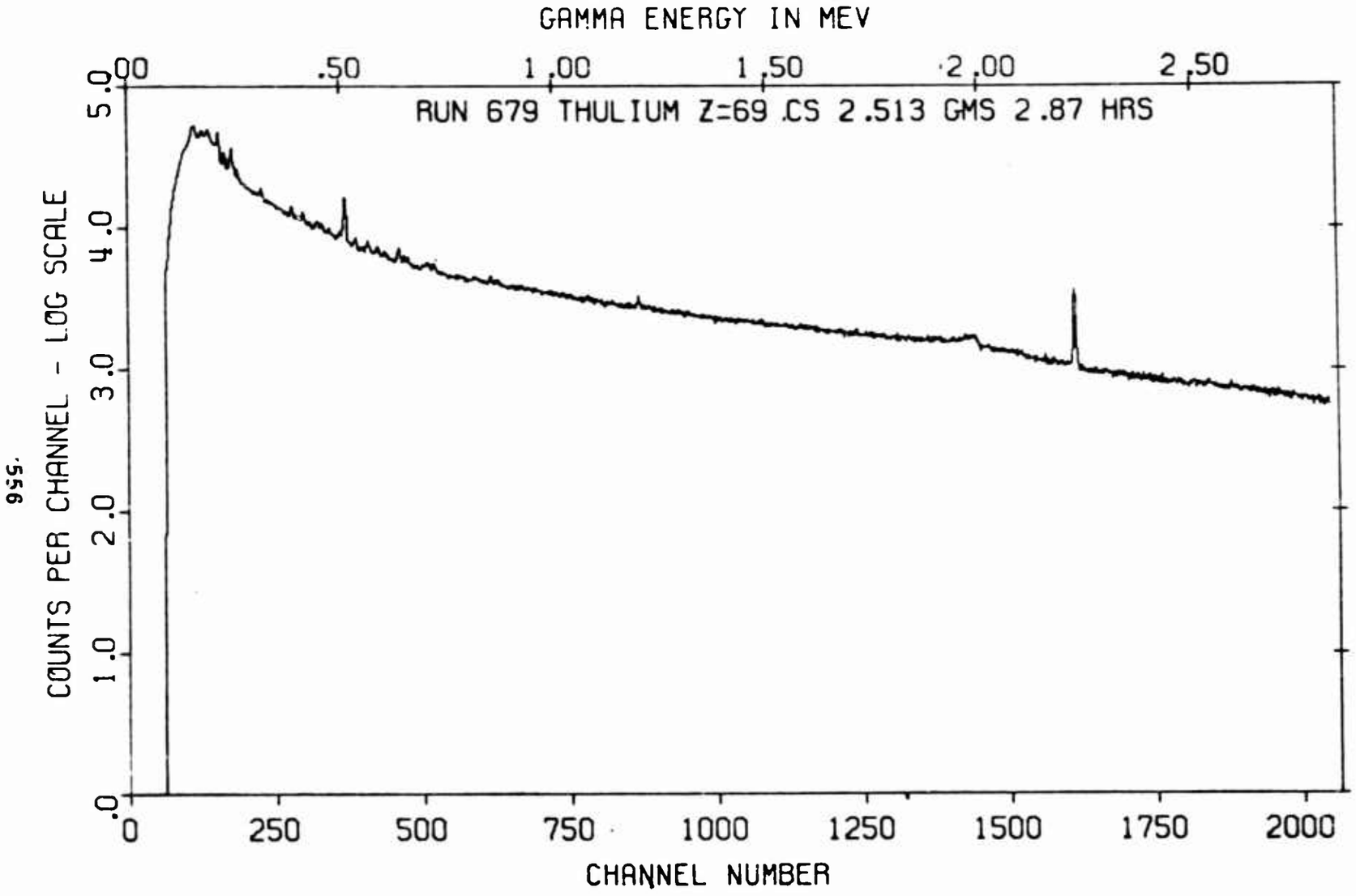
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4396.9	.13
50	4424.8	.14
51	4461.2	.03
52	4490.4	.02
53	4548.1	.02
54	4575.8	.04
55	4613.5	.03
56	4641.8	.09
57	4658.2	.03
58	4670.5	.04
59	4732.7	.29
60	4773.5	.03
61	4802.9	.02
62	4834.5	.03
63	4920.7	.10
64	4987.1	.06
65	5066.5	.04
66	5075.7	.10
67	5124.3	.08
68	5151.0	.16
69	5156.5	.16
70	5238.0	.04
71	5276.6	.02
72	5292.0	.04
73	5310.8	.03
74	5326.1	.05
75	5354.2	.05
76	5379.8	.04
77	5404.3	.07
78	5413.4	.13
79	5423.4	.08
80	5449.7	.03
81	5518.8	.10
82	5737.0	.78
83	5809.5	.03
84	5857.3	.18
85	5899.5	.19
86	5907.2	.19
87	5941.8	.65
88	6000.9	.54
89	6111.9	.02
90	6355.6	.24
91	6387.3	.86
92	6442.3	.17
93	6552.6	.46

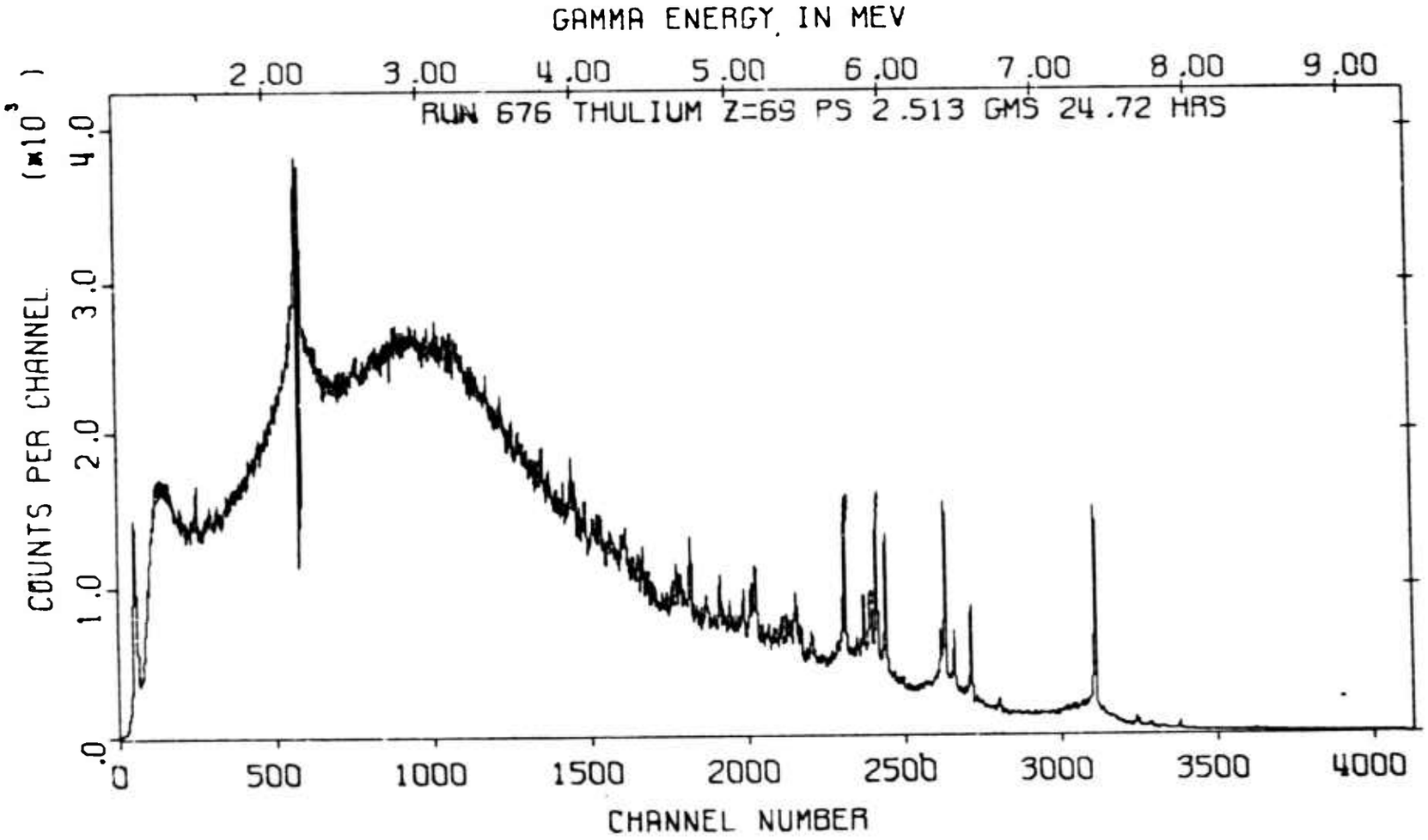
BE(KEV) 6594.0 OBSERVED %BE 121.09 NORMALIZED %BE 100.00

THULIUM Z=69 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.16	.00	.16
2	250.0	500.0	8.32	.00	8.32
3	500.0	750.0	18.21	.00	18.21
4	750.0	1000.0	1.23	.83	2.06
5	1000.0	1250.0	1.85	3.30	5.15
6	1250.0	1500.0	2.00	6.61	8.61
7	1500.0	1750.0	.88	7.51	8.38
8	1750.0	2000.0	.00	18.76	18.76
9	2000.0	2250.0	1.35	27.35	28.70
10	2250.0	2500.0	.11	23.36	23.47
11	2500.0	2750.0	.00	22.71	22.71
12	2750.0	3000.0	.23	22.44	22.67
13	3000.0	3250.0	.32	18.26	18.58
14	3250.0	3500.0	.31	14.03	14.34
15	3500.0	3750.0	.15	10.08	10.23
16	3750.0	4000.0	.39	7.54	7.93
17	4000.0	4250.0	.24	5.21	5.45
18	4250.0	4500.0	.42	3.96	4.39
19	4500.0	4750.0	.54	2.83	3.37
20	4750.0	5000.0	.25	2.37	2.62
21	5000.0	5250.0	.59	2.20	2.79
22	5250.0	5500.0	.53	2.01	2.53
23	5500.0	5750.0	.87	1.39	2.26
24	5750.0	6000.0	1.24	1.97	3.21
25	6000.0	6250.0	.56	.74	1.29
26	6250.0	6500.0	1.26	1.21	2.46
27	6500.0	6750.0	.46	.69	1.15
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
BE(KEV)	6594.0	%BE	10.43	89.56	99.99


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 679 THULIUM Z=69 CS 2.513 GMS 2.87 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 676 THULIUM Z=69 PS 2.513 GMS 24.72 HRS
COUNTS PER CHANNEL (×10³)
.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	228.5	.17
2	233.7	.40
3	241.8	18.42
4	245.2	.80
5	251.2	.19
6	264.8	.18
7	285.3	.31
8	308.2	.56
9	325.7	.58
10	334.8	.45
11	336.6	.58
12	341.9	6.04
13	360.7	1.78
14	392.8	.21
15	404.2	.20
16	425.6	.67
17	433.1	.50
18	475.4	2.28
19	531.6	.77
20	569.6	.57
21	589.4	.34
22	636.2	3.30
23	691.6	.22
24	724.1	.27
25	762.8	.20
26	809.3	2.20
27	822.9	.25
28	855.2	.38
29	866.9	.58
30	941.8	.33
31	1037.7	.29
32	1073.7	.99
33	1093.1	.28
34	1095.4	.29
35	1116.8	.74
36	1129.9	.47
37	1167.2	.37
38	1216.3	.46
39	1239.0	.52
40	1378.5	.38
41	1455.3	.67
42	1588.4	.61
43	1633.5	.41
44	1675.1	.91
45	1716.6	.35
46	1793.2	.23
47	1812.3	.30
48	1853.3	.31

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1890.1	.47
50	1909.6	.28
51	1914.7	.48
52	1934.2	.27
53	1961.7	.17
54	1985.2	.14
55	2023.7	.57
56	2071.2	.13
57	2110.4	.23
58	2129.3	.31
59	2166.7	.43
60	2259.3	.18
61	2289.6	.17
62	2302.3	.15
63	2318.0	.24
64	2331.8	.26
65	2349.7	.21
66	2400.8	.81
67	2439.8	.14
68	2466.7	.10
69	2482.6	.07
70	2498.3	.14
71	2516.0	.12
72	2554.5	.34
73	2585.0	1.06
74	2628.5	.17
75	2663.2	.45
76	2685.4	.29
77	2700.6	.20
78	2729.8	.16
79	2734.8	.20
80	2769.6	.51
81	2787.1	.29
82	2813.5	.17
83	2873.8	.10
84	2895.3	.26
85	2908.5	.20
86	2923.2	.07
87	2942.3	.34
88	2961.2	.32
89	2976.7	.15
90	3001.8	.25
91	3019.9	.32
92	3051.7	.64
93	3087.5	1.10
94	3117.1	.06
95	3143.0	.32
96	3164.9	.21

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAP.
97	3174.0	.12
98	3189.0	.06
99	3224.5	.05
100	3248.2	.15
101	3262.7	.09
102	3286.8	.15
103	3305.9	.28
104	3329.0	.50
105	3356.6	.59
106	3370.9	.08
107	3387.3	.69
108	3424.9	.49
109	3463.4	.11
110	3493.7	.07
111	3504.3	.05
112	3510.1	.04
113	3568.2	.17
114	3590.0	.33
115	3632.8	1.41
116	3659.3	.06
117	3713.6	.77
118	3741.1	.07
119	3754.8	.04
120	3768.5	.04
121	3782.6	.09
122	3805.4	.04
123	3824.1	.08
124	3841.1	.08
125	3854.3	.16
126	3884.9	2.28
127	3929.6	1.09
128	3949.1	.04
129	3979.6	.06
130	3993.3	.06
131	4035.2	.15
132	4194.0	.18
133	4223.6	.03
134	4247.7	.17
135	4273.1	.03
136	4302.0	.08
137	4467.6	.10
138	4523.6	.07
139	4656.1	.04
140	4672.8	.04
141	4699.6	.03
142	4757.5	.24
143	4829.6	.84
144	4878.3	.05

YTTERBIUM Z=70 GAMABC CODE MIT NE-85 DA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4926.0	.04
146	5010.4	.63
147	5028.6	.03
148	5062.5	.05
149	5080.4	.04
150	5265.7	4.86
151	5291.6	.03
152	5305.6	.03
153	5392.9	.07
154	5515.5	.05
155	5539.5	.54
156	5640.8	.05
157	5690.1	.09
158	5826.8	.27
159	5857.9	.06
160	5901.1	.07
161	5921.0	.03
162	5966.0	.03
163	6009.3	.14
164	6054.2	.08
165	6168.4	.05
166	6208.5	.06
167	6228.7	.03
168	6277.4	.03
169	6418.5	.03
170	6542.3	.03
171	6615.0	.15
172	6780.1	.36
173	6822.9	.03
174	6840.9	.08
175	6977.6	.05
176	7211.3	.06
177	7654.6	.04
178	7790.4	.04
179	8017.6	.05

BINDING ENERGY = 6253.5 %BE = 25.30 + 58.75 = 84.04

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	228.5	.20
2	233.7	.48
3	241.8	21.92
4	245.2	.95
5	251.2	.23
6	264.8	.21
7	285.3	.37
8	308.2	.67
9	325.7	.69
10	334.8	.54
11	336.6	.69
12	341.9	7.19
13	360.7	2.12
14	392.8	.25
15	404.2	.24
16	425.6	.80
17	433.1	.59
18	475.4	2.71
19	531.6	.92
20	569.6	.68
21	589.4	.40
22	636.2	3.93
23	691.6	.26
24	724.1	.32
25	762.8	.24
26	809.3	2.62
27	822.9	.30
28	855.2	.45
29	866.9	.69
30	941.8	.39
31	1037.7	.35
32	1073.7	1.18
33	1093.1	.33
34	1095.4	.35
35	1116.8	.88
36	1129.9	.56
37	1167.2	.44
38	1216.3	.55
39	1239.0	.62
40	1378.5	.45
41	1455.3	.80
42	1588.4	.73
43	1633.5	.49
44	1675.1	1.08
45	1716.6	.42
46	1793.2	.27
47	1812.3	.36
48	1853.3	.37

YTTERBIUM Z=70 GAMA3C CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY (KEV)	NO OF PHOTONS/100CAPT
49	1890.1	.56
50	1909.6	.33
51	1914.7	.57
52	1934.2	.32
53	1961.7	.20
54	1985.2	.17
55	2023.7	.68
56	2071.2	.15
57	2110.4	.27
58	2129.3	.37
59	2166.7	.51
60	2259.3	.21
61	2289.6	.20
62	2302.3	.18
63	2318.0	.29
64	2331.8	.31
65	2349.7	.25
66	2400.8	.96
67	2439.8	.17
68	2466.7	.12
69	2482.6	.08
70	2498.3	.17
71	2516.0	.14
72	2554.5	.40
73	2585.0	1.26
74	2628.5	.20
75	2663.2	.54
76	2685.4	.35
77	2700.6	.24
78	2729.8	.19
79	2734.8	.24
80	2769.6	.61
81	2787.1	.35
82	2813.5	.20
83	2873.8	.12
84	2895.3	.31
85	2908.5	.24
86	2923.2	.08
87	2942.3	.40
88	2961.2	.38
89	2976.7	.18
90	3001.8	.30
91	3019.9	.38
92	3051.7	.76
93	3087.5	1.31
94	3117.1	.07
95	3143.0	.38
96	3164.9	.25

YTTERBIUM Z=70 GAMA3C CODE MITNE-85 DA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3174.0	.14
98	3189.0	.07
99	3224.5	.06
100	3248.2	.18
101	3262.7	.11
102	3286.8	.18
103	3305.9	.33
104	3329.0	.59
105	3356.5	.70
106	3370.9	.10
107	3387.3	.82
108	3424.9	.58
109	3463.4	.13
110	3493.7	.08
111	3504.3	.06
112	3510.1	.05
113	3568.2	.20
114	3590.0	.39
115	3632.8	1.68
116	3659.3	.07
117	3713.6	.92
118	3741.1	.08
119	3754.8	.05
120	3768.5	.05
121	3782.6	.11
122	3805.4	.05
123	3824.1	.10
124	3841.1	.10
125	3854.3	.19
126	3884.9	2.71
127	3929.6	1.30
128	3949.1	.05
129	3979.6	.07
130	3993.3	.07
131	4035.2	.18
132	4194.0	.21
133	4223.6	.04
134	4247.7	.20
135	4273.1	.04
136	4302.0	.10
137	4467.6	.12
138	4523.6	.08
139	4656.1	.05
140	4672.8	.05
141	4699.6	.04
142	4757.5	.29
143	4829.6	1.00
144	4878.3	.06

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA NORMALIZED YIELDS

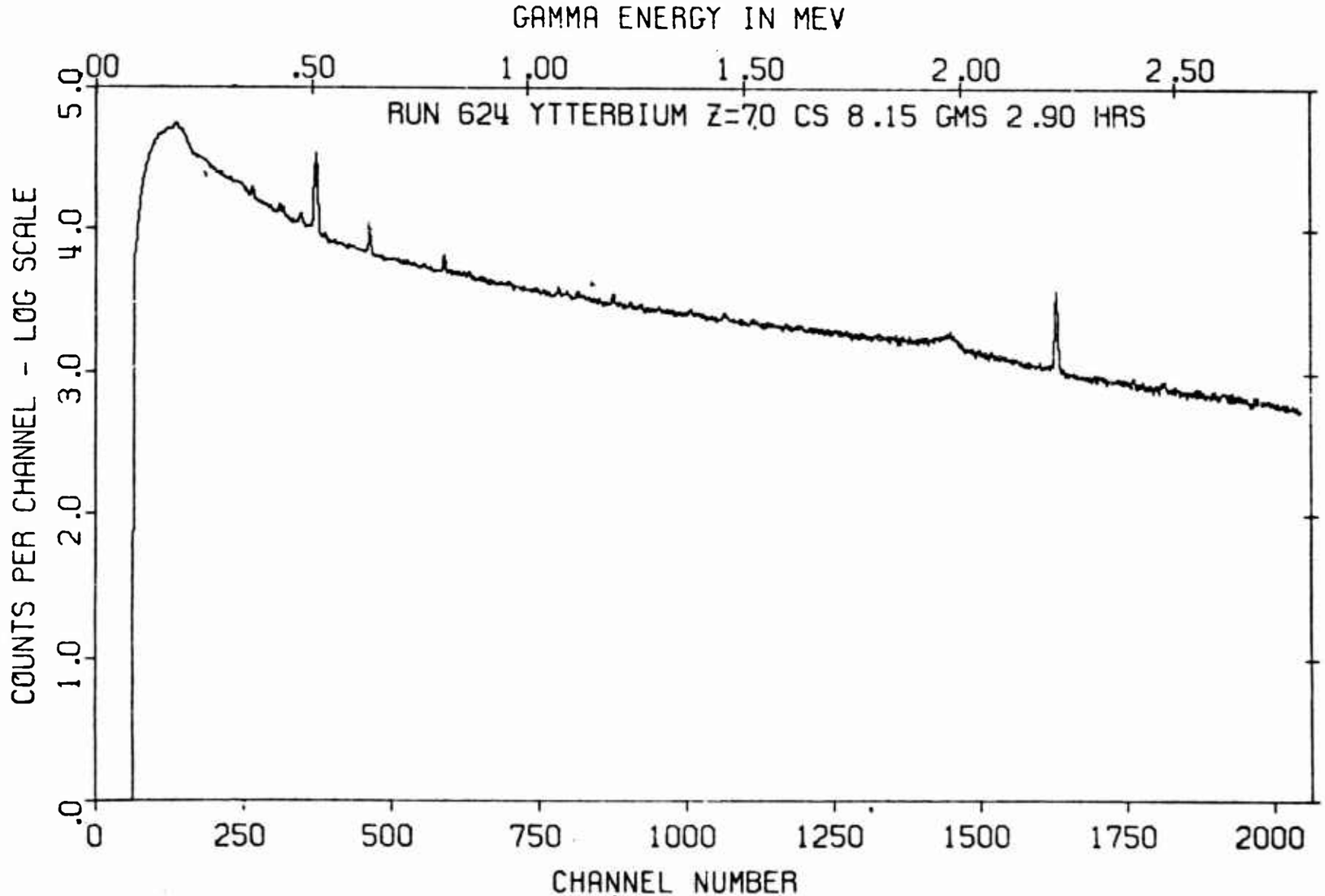
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	4926.0	.05
146	5010.4	.75
147	5028.6	.04
148	5062.5	.06
149	5080.4	.05
150	5265.7	5.78
151	5291.6	.04
152	5305.6	.04
153	5392.9	.08
154	5515.5	.06
155	5539.5	.64
156	5640.8	.06
157	5690.1	.11
158	5826.8	.32
159	5857.9	.07
160	5901.1	.08
161	5921.0	.04
162	5966.0	.04
163	6009.3	.17
164	6054.2	.10
165	6168.4	.06
166	6208.5	.07
167	6228.7	.04
168	6277.4	.04
169	6418.5	.04
170	6542.3	.04
171	6615.0	.18
172	6780.1	.43
173	6822.9	.04
174	6840.9	.10
175	6977.6	.06
176	7211.3	.07
177	7654.6	.05
178	7790.4	.05
179	8017.6	.06

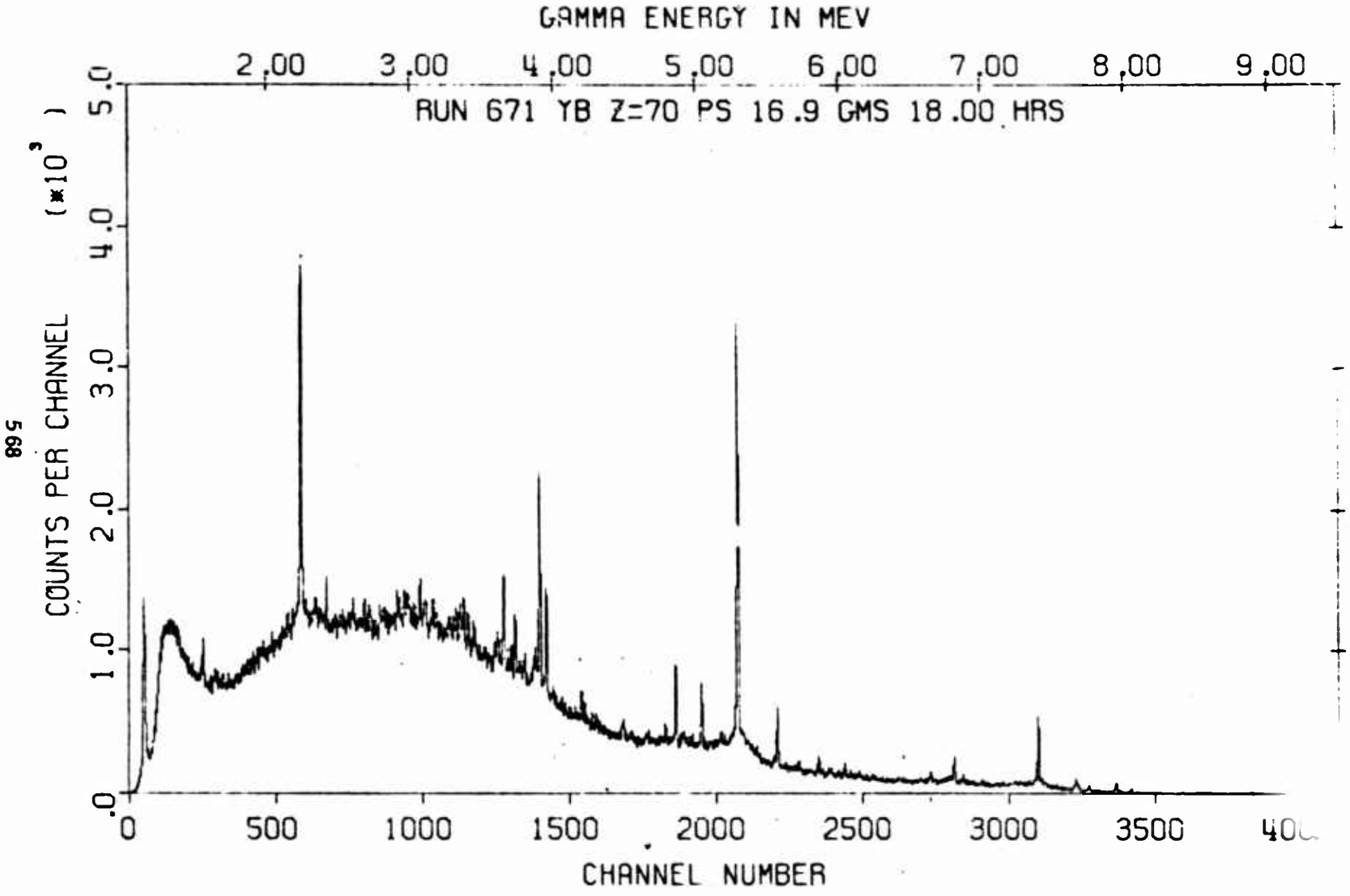
BE(KEV) 6250.5 OBSERVED %BE 84.04 NORMALIZED %BE 100.00

YTTERBIUM Z=70 GAMABC CODE MITNE-85 DA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	23.55	.00	23.55
2	250.0	500.0	17.29	.00	17.29
3	500.0	750.0	6.51	.00	6.51
4	750.0	1000.0	4.69	.00	4.69
5	1000.0	1250.0	5.25	1.19	6.44
6	1250.0	1500.0	1.25	2.38	3.63
7	1500.0	1750.0	2.71	12.48	15.19
8	1750.0	2000.0	3.15	17.17	20.32
9	2000.0	2250.0	1.99	21.02	23.01
10	2250.0	2500.0	2.94	18.73	21.67
11	2500.0	2750.0	3.56	16.09	19.64
12	2750.0	3000.0	2.87	15.99	18.86
13	3000.0	3250.0	3.90	12.09	15.99
14	3250.0	3500.0	3.63	9.97	13.60
15	3500.0	3750.0	3.45	7.35	10.80
16	3750.0	4000.0	4.83	5.57	10.40
17	4000.0	4250.0	.63	3.43	4.06
18	4250.0	4500.0	.25	2.44	2.69
19	4500.0	4750.0	.21	1.88	2.09
20	4750.0	5000.0	1.39	1.64	3.03
21	5000.0	5250.0	.89	1.38	2.27
22	5250.0	5500.0	5.94	1.61	7.54
23	5500.0	5750.0	.87	.77	1.64
24	5750.0	6000.0	.55	.56	1.11
25	6000.0	6250.0	.43	.61	1.04
26	6250.0	6500.0	.07	.20	.27
27	6500.0	6750.0	.21	.39	.61
28	6750.0	7000.0	.62	.52	1.14
29	7000.0	7250.0	.07	.18	.25
30	7250.0	7500.0	.00	.42	.42
31	7500.0	7750.0	.05	.18	.23
32	7750.0	8000.0	.05	.06	.11
33	8000.0	8250.0	.06	.07	.13
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
37	9000.0	9250.0	.00	.00	.00
BE(KEV)	6250.5	%BE	29.84	69.90	99.74


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 624 YTTERBIUM Z=70 CS 8.15 GMS 2.90 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 671 YB Z=70 PS 16.9 GMS 18.00 HRS
COUNTS PER CHANNEL (*10³)
5.0
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
CHANNEL NUMBER

LUTETIUM Z=71 GAMABS CODE HITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.4	2.04
2	208.9	1.60
3	227.7	.69
4	234.4	.82
5	245.4	.45
6	260.8	2.72
7	269.2	5.93
8	285.8	.63
9	302.1	.99
10	310.4	1.14
11	319.8	5.31
12	336.6	.54
13	348.4	1.10
14	367.4	4.44
15	393.6	.46
16	414.0	1.05
17	457.7	10.57
18	550.3	2.04
19	762.0	3.22
20	877.0	.45
21	899.0	1.11
22	1063.2	.28
23	1167.1	.39
24	1366.6	.80
25	1619.0	.64
26	2292.4	.29
27	3538.6	.07
28	3852.5	.10
29	3875.6	.09
30	3922.0	.07
31	4000.2	.06
32	4271.8	.19
33	4308.1	.12
34	4363.3	.10
35	4393.2	.09
36	4413.8	.10
37	4457.6	.14
38	4524.7	.07
39	4570.5	.08
40	4605.9	.08
41	4655.3	.07
42	4689.7	.04
43	4707.7	.09
44	4799.8	.06
45	4869.3	.16
46	4902.3	.07
47	4941.2	.10
48	4983.2	.19

LUTETIUM Z=71 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5017.0	.23
50	5021.9	.21
51	5111.1	.10
52	5165.9	.25
53	5191.1	.09
54	5214.0	.14
55	5267.6	.06
56	5319.8	.32
57	5344.1	.21
58	5365.7	.07
59	5395.4	.05
60	5442.0	.05
61	5465.1	.18
62	5569.5	.42
63	5601.6	.38
64	5728.6	.19
65	5769.1	.18
66	5896.4	.05
67	5983.3	.07
68	6255.9	.07
69	6437.5	.13
70	6621.8	.05
71	6803.6	.41

BINDING ENERGY = 6715.0 %BE = 8.01 + 144.26 = 152.27

LUTETIUM Z=71 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	198.4	1.34
2	208.9	1.05
3	227.7	.45
4	234.4	.54
5	245.4	.29
6	260.8	1.79
7	269.2	3.90
8	285.8	.41
9	302.1	.65
10	310.4	.75
11	319.8	3.49
12	336.6	.35
13	348.4	.73
14	367.4	2.92
15	393.6	.30
16	414.0	.69
17	457.7	6.95
18	550.3	1.34
19	762.0	2.11
20	877.0	.30
21	899.0	.73
22	1063.2	.19
23	1167.1	.26
24	1366.6	.53
25	1619.0	.42
26	2292.4	.19
27	3538.6	.04
28	3852.5	.07
29	3875.6	.06
30	3922.0	.05
31	4000.2	.04
32	4271.8	.12
33	4308.1	.08
34	4363.3	.06
35	4393.2	.06
36	4413.8	.07
37	4457.6	.09
38	4524.7	.05
39	4570.5	.05
40	4605.9	.05
41	4655.3	.04
42	4689.7	.03
43	4707.7	.06
44	4799.8	.04
45	4869.3	.11
46	4902.3	.05
47	4941.2	.06
48	4983.2	.12

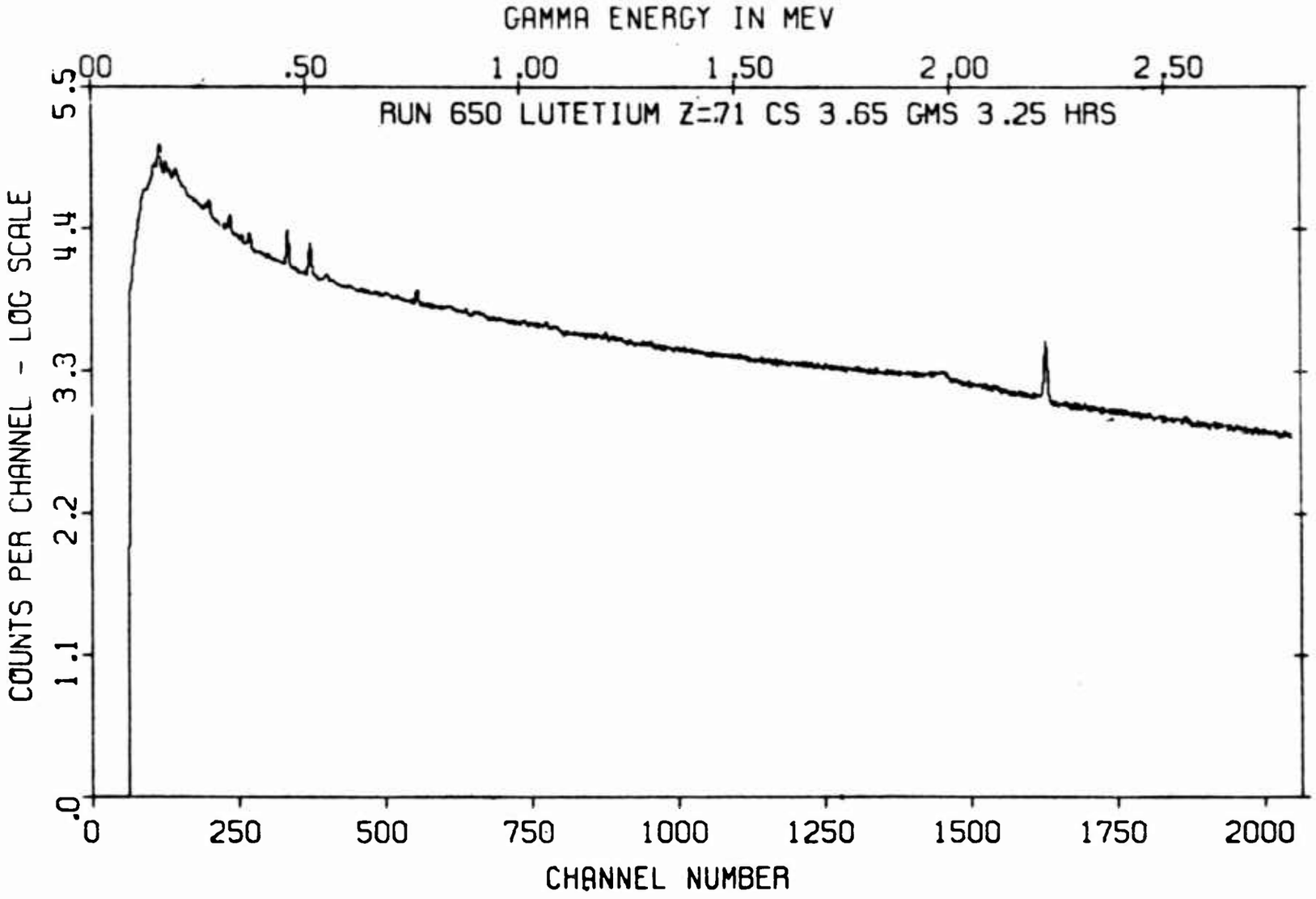
LUTETIUM Z=71 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

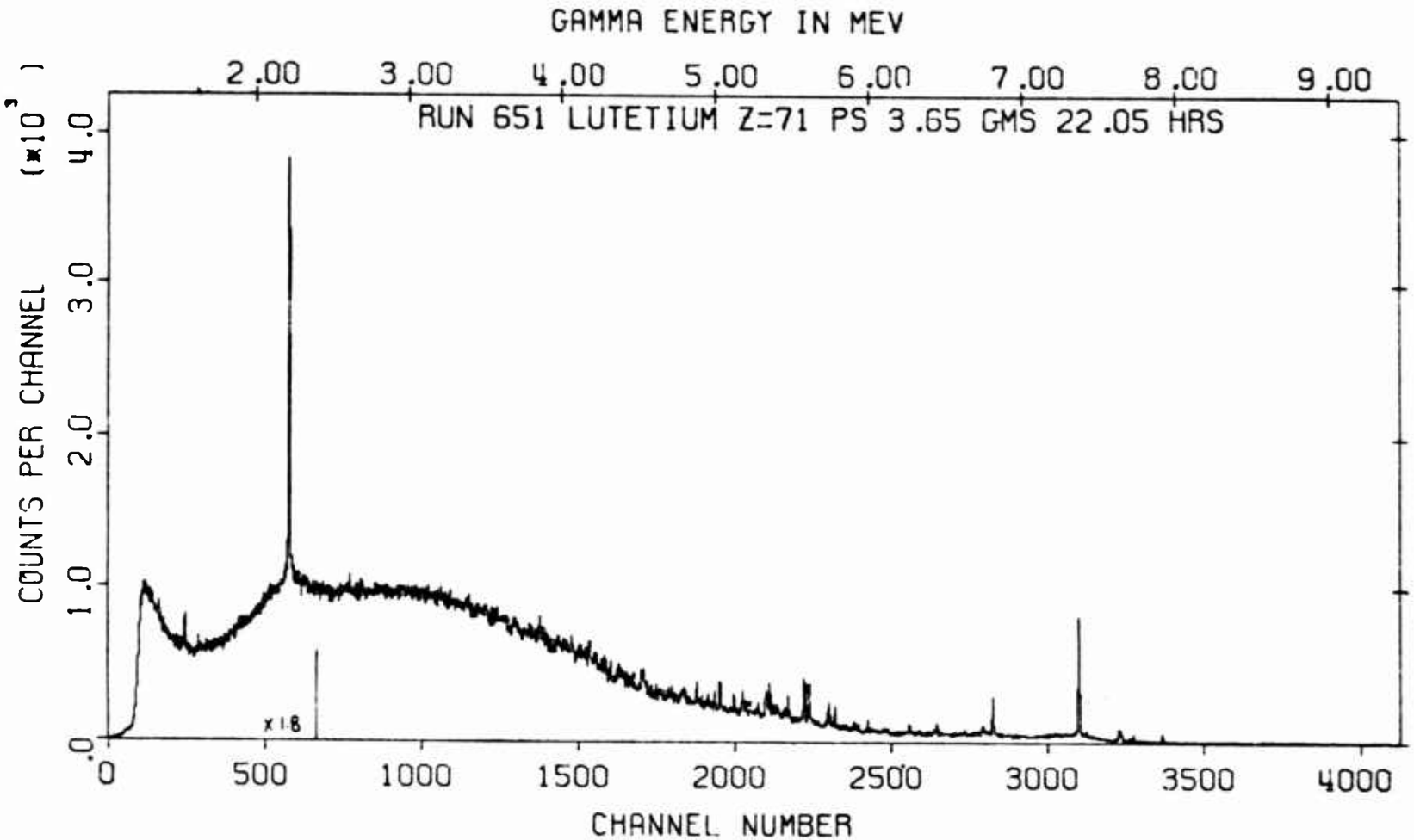
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5017.0	.15
50	5021.9	.14
51	5111.1	.07
52	5165.9	.16
53	5191.1	.06
54	5214.0	.09
55	5267.6	.04
56	5319.8	.21
57	5344.1	.14
58	5365.7	.04
59	5395.4	.03
60	5442.0	.03
61	5485.1	.12
62	5569.5	.28
63	5601.6	.25
64	5728.6	.13
65	5769.1	.12
66	5896.4	.03
67	5983.3	.05
68	6255.9	.05
69	6437.5	.09
70	6621.8	.03
71	6803.6	.27

BE(KEV) 6715.0 OBSERVED %BE 152.27 NORMALIZED %BE 100.00

LUTETIUM Z=71 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	3.67	.00	3.67
2	250.0	500.0	22.92	.00	22.92
3	500.0	750.0	1.34	.00	1.34
4	750.0	1000.0	3.14	.66	3.80
5	1000.0	1250.0	.44	2.63	3.07
6	1250.0	1500.0	.53	5.25	5.78
7	1500.0	1750.0	.42	25.76	26.18
8	1750.0	2000.0	.00	27.62	27.62
9	2000.0	2250.0	.00	33.91	33.91
10	2250.0	2500.0	.19	28.13	28.32
11	2500.0	2750.0	.00	23.69	23.69
12	2750.0	3000.0	.00	21.10	21.10
13	3000.0	3250.0	.00	16.93	16.93
14	3250.0	3500.0	.00	13.63	13.63
15	3500.0	3750.0	.04	10.69	10.74
16	3750.0	4000.0	.18	8.54	8.72
17	4000.0	4250.0	.04	6.82	6.86
18	4250.0	4500.0	.48	4.04	4.52
19	4500.0	4750.0	.29	2.95	3.24
20	4750.0	5000.0	.37	2.32	2.70
21	5000.0	5250.0	.67	1.42	2.09
22	5250.0	5500.0	.61	1.58	2.20
23	5500.0	5750.0	.66	.97	1.62
24	5750.0	6000.0	.20	.54	.74
25	6000.0	6250.0	.00	.24	.24
26	6250.0	6500.0	.14	.17	.31
27	6500.0	6750.0	.03	.21	.24
28	6750.0	7000.0	.27	.03	.30
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
32	7750.0	8000.0	.00	.00	.00
BE(KEV)	6715.0	%BE	5.33	94.74	100.07


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 650 LUTETIUM Z=71 CS 3.65 GMS 3.25 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 651 LUTETIUM Z=71 PS 3.65 GMS 22.05 HRS
COUNTS PER CHANNEL (×10³)
4.0
3.0
2.0
1.0
0.0
x 1.8
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

575

HAFNIUM Z=72 GAMABS CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	214.0	56.66
2	227.5	.23
3	234.8	.16
4	245.2	.23
5	257.6	.33
6	268.2	.46
7	276.2	.46
8	279.4	.23
9	290.9	.33
10	303.9	3.83
11	325.8	6.30
12	337.3	.89
13	348.5	.43
14	359.2	.16
15	371.6	.20
16	382.2	.43
17	393.3	.20
18	404.6	.30
19	408.8	.16
20	426.8	.92
21	482.8	.26
22	559.9	.43
23	566.8	.20
24	581.1	.20
25	655.3	.26
26	691.7	.26
27	743.0	.49
28	812.8	.26
29	832.4	.40
30	967.0	.69
31	971.3	.59
32	976.3	.69
33	986.8	.76
34	1020.4	.33
35	1064.5	.66
36	1080.3	2.90
37	1102.8	2.44
38	1142.1	.73
39	1150.8	.40
40	1166.9	.40
41	1175.4	2.01
42	1184.2	.49
43	1206.4	4.75
44	1215.7	.40
45	1228.9	3.99
46	1268.8	.86
47	1291.9	.59
48	1309.6	1.52

HAFNIUM Z=72 GAM4BC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	1330.7	.92
50	1421.3	1.19
51	1542.7	.82
52	1720.6	1.43
53	1795.4	1.53
54	1863.6	.48
55	1893.6	.81
56	2064.9	.65
57	2153.8	.51
58	2325.9	.38
59	2341.2	.33
60	2378.8	.36
61	2412.5	.33
62	2428.5	.32
63	2468.5	.82
64	2537.9	.38
65	2748.4	.57
66	2924.4	.26
67	2947.5	.30
68	3059.3	.23
69	3080.7	.24
70	3173.2	.35
71	3208.9	.31
72	3332.9	.30
73	3446.3	.17
74	3538.2	.19
75	3625.5	.22
76	3651.9	.19
77	3709.4	.15
78	3730.3	.39
79	3790.5	.16
80	3850.2	.17
81	3895.2	.13
82	3912.5	.22
83	3971.8	.12
84	3979.2	.25
85	4009.6	.38
86	4098.6	.14
87	4282.3	.11
88	4290.1	.20
89	4343.5	.89
90	4372.9	.45
91	4392.8	.13
92	4487.7	.13
93	4507.8	.13
94	4730.5	.13
95	4752.0	.56
96	4851.5	.16

HAFNIUM Z=72 GAMABC CODE MINE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4887.3	.12
98	4916.1	.34
99	4975.5	.11
100	4993.8	.13
101	5207.8	.14
102	5224.1	.19
103	5262.2	.22
104	5311.9	.13
105	5353.7	.33
106	5418.4	.59
107	5471.6	.15
108	5505.6	.88
109	5574.3	.32
110	5609.3	.23
111	5628.2	.11
112	5649.6	.22
113	5679.3	.29
114	5694.4	.65
115	5723.5	2.25
116	5762.7	.17
117	5808.1	.40
118	5989.1	.16
119	6062.1	.15
120	6112.3	.74
121	6303.0	.15
122	6356.9	.38

BINDING ENERGY = 7204.4 %BE = 21.56 + 81.62 = 103.18

HAFNIUM Z=72 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	214.0	54.91
2	227.5	.22
3	234.8	.16
4	245.2	.22
5	257.6	.32
6	268.2	.45
7	276.2	.45
8	279.4	.22
9	290.9	.32
10	303.9	3.71
11	325.8	6.11
12	337.3	.86
13	348.5	.42
14	359.2	.16
15	371.6	.19
16	382.2	.42
17	393.3	.19
18	404.6	.29
19	408.6	.16
20	426.8	.89
21	482.8	.25
22	559.9	.42
23	566.8	.19
24	581.1	.19
25	655.3	.25
26	691.7	.25
27	743.0	.47
28	812.8	.25
29	832.4	.39
30	967.0	.67
31	971.3	.57
32	976.3	.67
33	986.8	.74
34	1020.4	.32
35	1064.5	.64
36	1080.3	2.81
37	1102.8	2.36
38	1142.1	.71
39	1150.8	.39
40	1166.9	.39
41	1175.4	1.95
42	1184.2	.47
43	1206.4	4.60
44	1215.7	.39
45	1228.9	3.87
46	1268.8	.83
47	1291.9	.57
48	1309.6	1.47

HAFNIUM Z=72 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	13[illegible].7	.99
50	14[illegible].3	1.15
51	1542.7	.79
52	17[illegible].[illegible]	1.39
53	179[illegible].4	1.48
54	1[illegible]3.[illegible]	.47
55	1893.[illegible]	.79
56	2064.9	.53
57	2153.[illegible]	.49
58	2325.[illegible]	.37
59	2341.2	.32
60	2378.[illegible]	.35
61	2412.[illegible]	.32
62	2428.[illegible]	.31
63	2468.[illegible]	.79
64	2537.9	.37
65	2748.4	.55
66	2924.4	.25
67	2947.5	.29
68	3059.3	.22
69	3080.7	.23
70	3173.2	.34
71	3208.9	.30
72	3332.9	.29
73	3446.3	.16
74	3538.2	.18
75	3625.5	.21
76	3651.9	.18
77	3709.4	.15
78	3730.3	.38
79	3790.5	.16
80	3850.2	.16
81	3895.2	.13
82	3912.5	.21
83	3971.[illegible]	.12
84	3979.2	.24
85	4009.[illegible]	.37
86	4098.[illegible]	.14
87	4282.3	.11
88	4290.1	.19
89	4343.[illegible]	.86
90	4372.[illegible]	.44
91	4392.8	.13
92	4487.7	.13
93	4507.8	.13
94	4730.5	.13
95	4752.0	.54
96	4851.5	.16

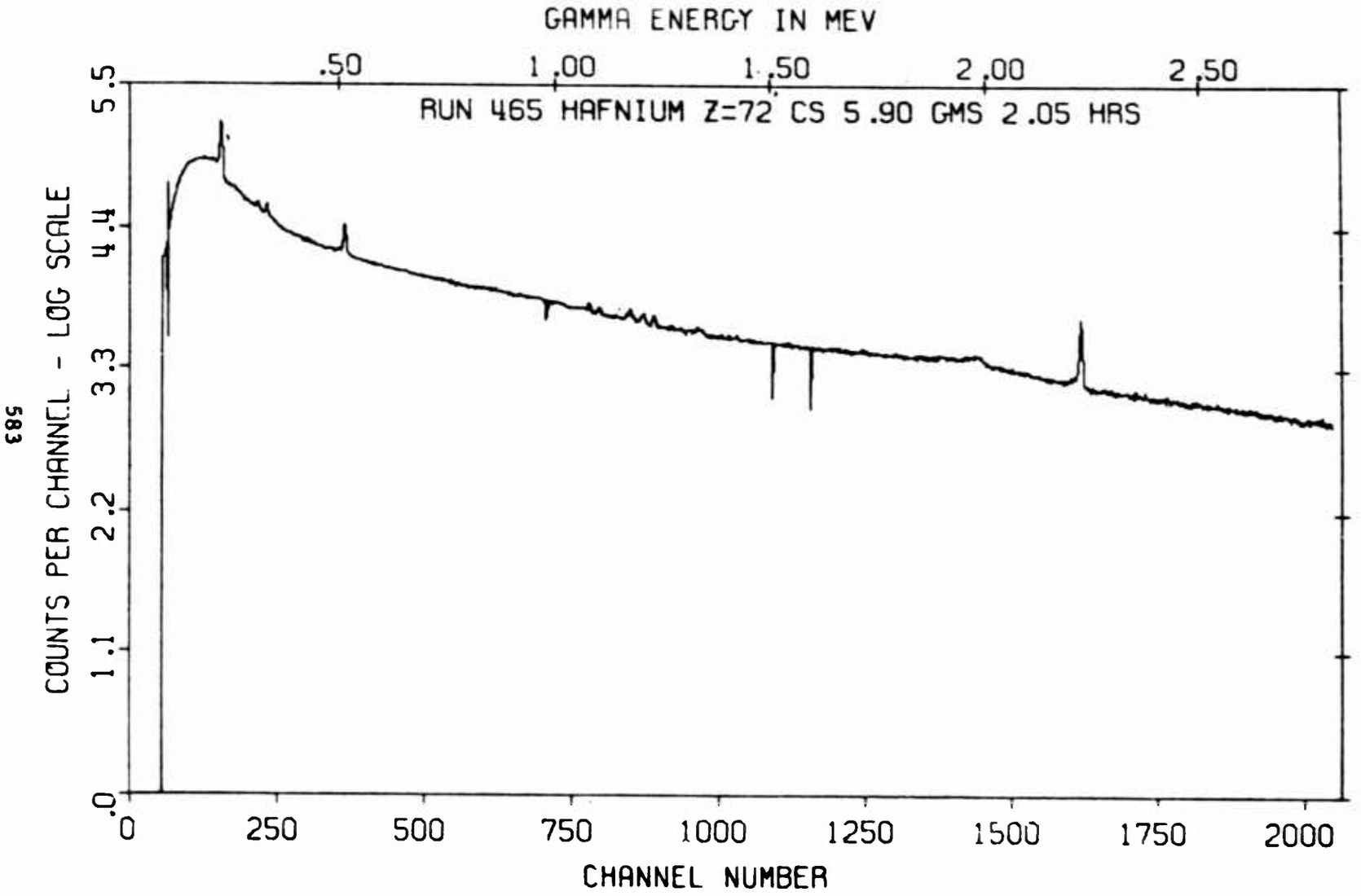
HAFNIUM Z=72 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

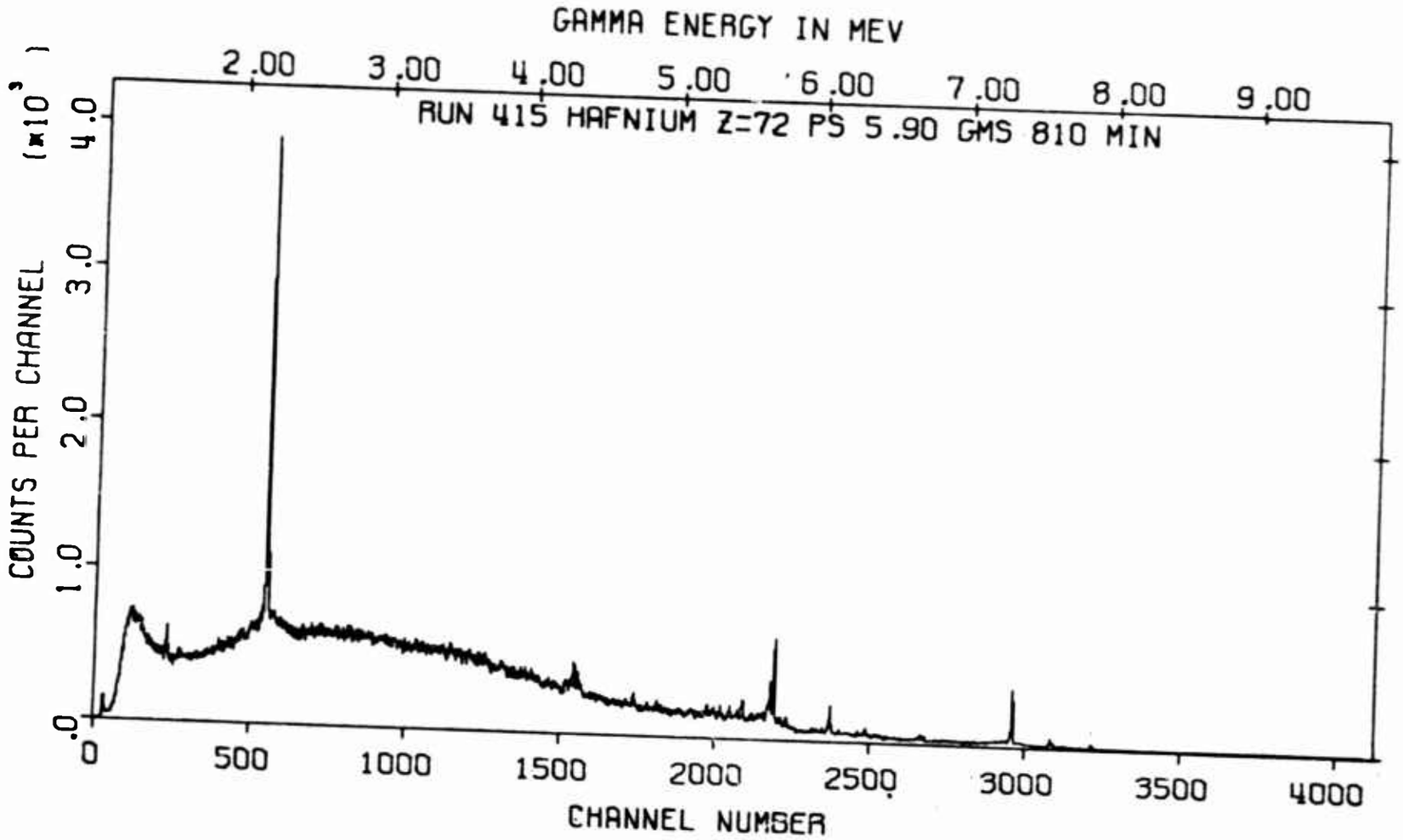
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4887.3	.12
98	4916.1	.33
99	4975.5	.11
100	4993.8	.13
101	5207.8	.14
102	5224.1	.18
103	5262.2	.21
104	5311.9	.13
105	5353.7	.32
106	5418.4	.57
107	5471.6	.15
108	5505.6	.85
109	5574.3	.31
110	5609.3	.22
111	5628.2	.11
112	5649.6	.21
113	5679.3	.28
114	5694.4	.63
115	5723.5	2.18
116	5762.7	.16
117	5808.1	.39
118	5989.1	.16
119	6062.1	.15
120	6112.3	.72
121	6303.0	.15
122	6356.9	.37

BE(KEV) 7204.4 OBSERVED %BE 103.18 NORMALIZED %BE 100.00

HAFNIUM Z=72 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	55.51	.00	55.51
2	250.0	500.0	15.40	.00	15.40
3	500.0	750.0	1.78	.00	1.78
4	750.0	1000.0	3.29	11.63	14.92
5	1000.0	1250.0	18.90	29.07	47.97
6	1250.0	1500.0	4.92	35.86	40.78
7	1500.0	1750.0	2.18	36.44	38.62
8	1750.0	2000.0	2.73	24.70	27.44
9	2000.0	2250.0	1.12	24.45	25.58
10	2250.0	2500.0	2.46	20.05	22.51
11	2500.0	2750.0	.92	17.22	18.14
12	2750.0	3000.0	.54	14.35	14.90
13	3000.0	3250.0	1.10	10.29	11.39
14	3250.0	3500.0	.46	8.49	8.95
15	3500.0	3750.0	1.10	6.82	7.93
16	3750.0	4000.0	1.02	5.19	6.21
17	4000.0	4250.0	.50	4.05	4.56
18	4250.0	4500.0	1.85	3.20	5.05
19	4500.0	4750.0	.25	2.03	2.28
20	4750.0	5000.0	1.38	1.66	3.03
21	5000.0	5250.0	.32	1.45	1.77
22	5250.0	5500.0	1.38	1.37	2.74
23	5500.0	5750.0	4.80	1.18	5.98
24	5750.0	6000.0	.71	.47	1.17
25	6000.0	6250.0	.86	.52	1.38
26	6250.0	6500.0	.51	.29	.80
27	6500.0	6750.0	.00	.15	.15
28	6750.0	7000.0	.00	-.01	-.01
29	7000.0	7250.0	.00	-.05	-.05
30	7250.0	7500.0	.00	.15	.15
BE(KEV)	7209.4	%BE	20.17	79.11	99.28


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 465 HAFNIUM Z=72 CS 5.90 GMS 2.05 HRS
COUNTS PER CHANNEL - LOG SCALE
5.5
4.4
3.3
2.2
1.1
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 415 HAFNIUM Z=72 PS 5.90 GMS 810 MIN
COUNTS PER CHANNEL (×10³)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

TANTALUM Z=73 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	346.8	1.82
2	360.6	3.66
3	377.8	2.01
4	380.7	1.77
5	402.9	22.95
6	415.2	0.44
7	443.0	0.98
8	477.6	1.84
9	549.4	0.44
10	631.3	0.41
11	910.1	0.78
12	1087.8	0.25
13	1844.8	0.51
14	2927.1	0.09
15	3292.0	0.15
16	3327.1	0.12
17	3348.6	0.07
18	3400.4	0.07
19	3526.3	0.14
20	3594.4	0.18
21	3644.6	0.10
22	3677.2	0.12
23	3717.7	0.07
24	3738.3	0.12
25	3800.8	0.08
26	3814.8	0.07
27	3827.2	0.09
28	3854.8	0.20
29	3882.5	0.18
30	3899.6	0.13
31	3972.4	0.09
32	3980.4	0.32
33	3989.6	0.13
34	4045.8	0.15
35	4086.9	0.07
36	4118.2	0.08
37	4138.9	0.10
38	4158.0	0.06
39	4220.2	0.54
40	4279.6	0.07
41	4315.0	0.48
42	4364.2	0.11
43	4382.0	0.08
44	4443.5	0.13
45	4456.4	0.06
46	4482.4	0.31
47	4508.9	0.06
48	4535.6	0.18

TANTALUM Z=73 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4547.2	0.09
50	4565.3	0.08
51	4579.4	0.16
52	4617.3	0.26
53	4667.0	0.07
54	4674.2	0.09
55	4691.0	0.24
56	4738.3	0.17
57	4756.4	0.03
58	4781.7	0.62
59	4792.6	0.31
60	4802.4	0.26
61	4832.0	0.11
62	4890.8	0.05
63	4912.7	0.17
64	4939.4	0.09
65	4979.3	0.16
66	5005.6	0.25
67	5034.1	0.11
68	5101.5	0.09
69	5123.6	0.06
70	5151.0	0.12
71	5181.9	0.04
72	5206.1	0.20
73	5245.2	0.25
74	5280.3	0.04
75	5323.3	0.03
76	5342.5	0.29
77	5398.4	0.03
78	5411.6	0.03
79	5433.5	0.04
80	5496.1	0.08
81	5514.8	0.10
82	5555.7	0.05
83	5583.7	0.06
84	5703.7	0.06
85	5770.4	0.09
86	5791.1	0.16
87	5946.6	0.05
88	5964.0	0.74
89	6062.0	0.44

BINDING ENERGY = 6062.5 %BE = 11.53 + 72.91 = 84.44

TANTALUM Z=73 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	346.8	2.16
2	360.6	4.34
3	377.8	2.38
4	380.7	2.10
5	402.9	27.18
6	415.2	0.52
7	443.0	1.16
8	477.6	2.18
9	548.4	0.53
10	631.3	0.48
11	910.1	0.93
12	1087.8	0.29
13	1844.8	0.61
14	2927.1	0.10
15	3292.0	0.18
16	3327.1	0.14
17	3348.6	0.09
18	3400.4	0.09
19	3526.3	0.17
20	3594.4	0.21
21	3644.6	0.12
22	3677.2	0.15
23	3717.7	0.09
24	3738.3	0.15
25	3800.8	0.10
26	3814.8	0.08
27	3827.2	0.11
28	3854.8	0.24
29	3882.5	0.21
30	3899.6	0.16
31	3972.4	0.10
32	3980.4	0.38
33	3989.6	0.16
34	4045.8	0.18
35	4086.9	0.08
36	4118.2	0.10
37	4138.9	0.11
38	4159.0	0.07
39	4220.2	0.63
40	4279.6	0.09
41	4315.0	0.57
42	4364.2	0.13
43	4382.0	0.10
44	4443.5	0.15
45	4456.4	0.07
46	4482.4	0.37
47	4508.9	0.07
48	4535.6	0.21

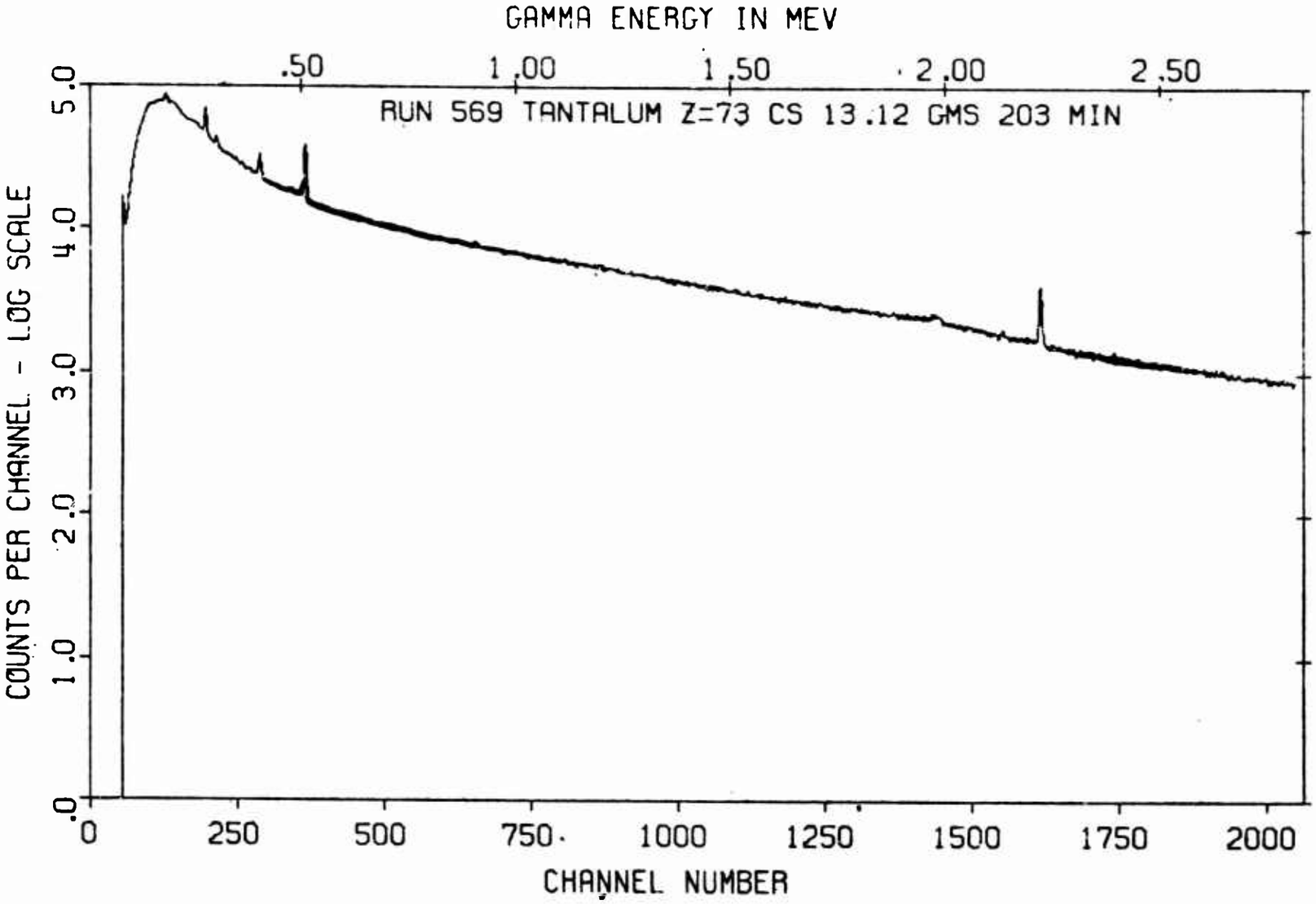
TANTALUM Z=73 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

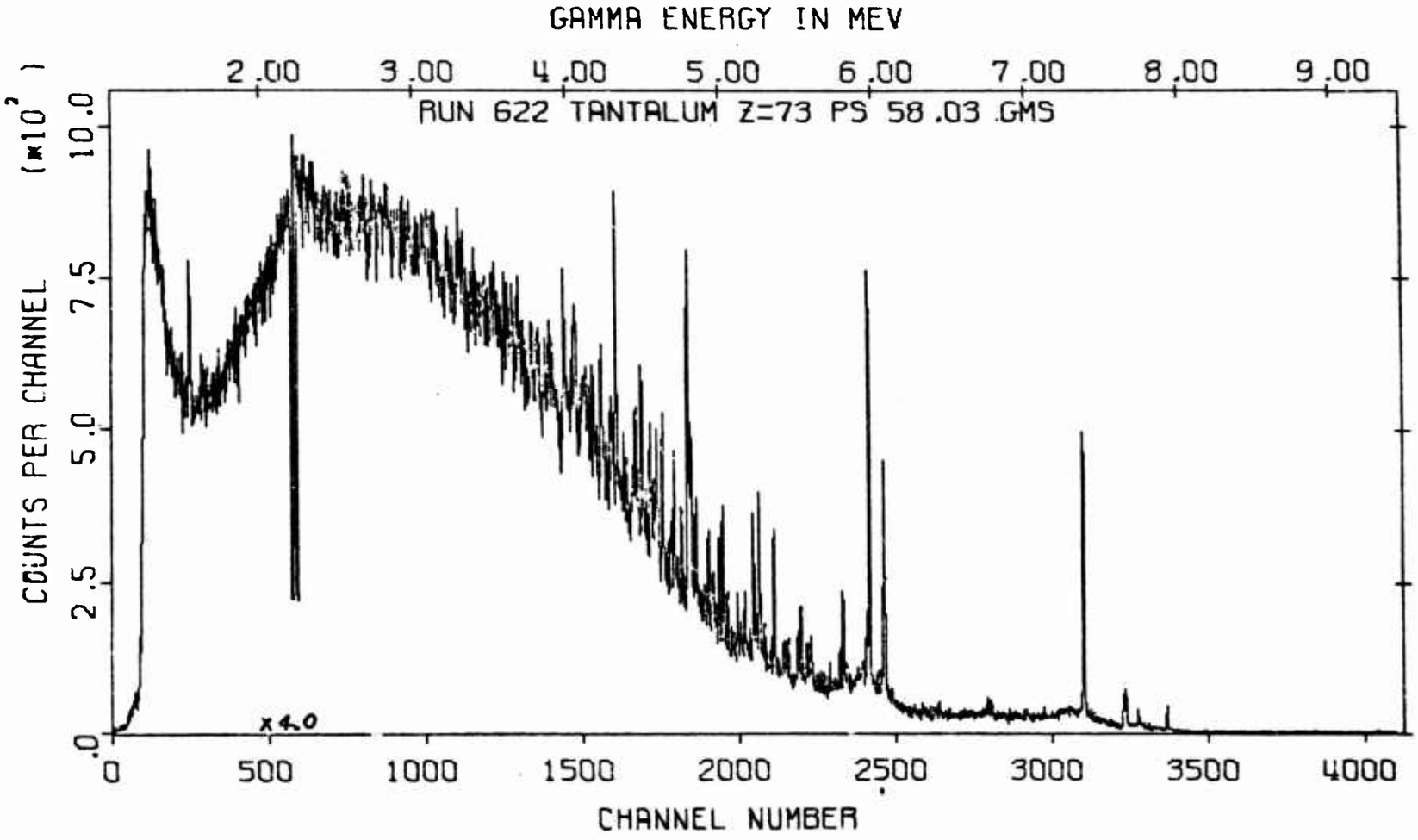
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4547.2	0.11
50	4565.3	0.10
51	4579.4	0.18
52	4617.3	0.31
53	4667.0	0.08
54	4674.2	0.11
55	4691.0	0.28
56	4738.3	0.20
57	4756.4	0.04
58	4781.7	0.73
59	4792.6	0.37
60	4802.4	0.31
61	4832.0	0.13
62	4890.8	0.06
63	4912.7	0.20
64	4939.4	0.11
65	4979.3	0.19
66	5005.6	0.30
67	5034.1	0.13
68	5101.5	0.11
69	5123.6	0.07
70	5151.0	0.15
71	5181.9	0.05
72	5206.1	0.24
73	5245.2	0.30
74	5280.3	0.05
75	5323.3	0.04
76	5342.5	0.34
77	5398.4	0.04
78	5411.6	0.04
79	5433.5	0.05
80	5496.1	0.09
81	5514.8	0.12
82	5555.7	0.06
83	5583.7	0.07
84	5703.7	0.07
85	5770.4	0.10
86	5791.1	0.19
87	5946.6	0.06
88	5964.0	0.87
89	6062.0	0.52

BE(KEV) 6062.5 OBSERVED %BE 84.44 NORMALIZED %BE 100.00

TANTALUM Z=73 GAMABC CODE MITNF-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	0.0	0.0	0.0
2	250.0	500.0	42.01	0.0	42.01
3	500.0	750.0	1.01	0.0	1.01
4	750.0	1000.0	0.93	1.18	2.11
5	1000.0	1250.0	0.29	4.74	5.03
6	1250.0	1500.0	0.0	9.47	9.47
7	1500.0	1750.0	0.0	18.95	18.95
8	1750.0	2000.0	0.61	24.35	24.96
9	2000.0	2250.0	0.0	26.06	26.06
10	2250.0	2500.0	0.0	23.82	23.82
11	2500.0	2750.0	0.0	19.60	19.60
12	2750.0	3000.0	0.10	17.03	17.13
13	3000.0	3250.0	0.0	13.09	13.09
14	3250.0	3500.0	0.49	10.28	10.77
15	3500.0	3750.0	0.87	8.33	9.20
16	3750.0	4000.0	1.55	6.36	7.91
17	4000.0	4250.0	1.18	5.74	6.92
18	4250.0	4500.0	1.48	4.29	5.76
19	4500.0	4750.0	1.66	2.39	4.05
20	4750.0	5000.0	2.14	1.52	3.66
21	5000.0	5250.0	1.34	0.89	2.23
22	5250.0	5500.0	0.66	0.62	1.27
23	5500.0	5750.0	0.32	0.45	0.77
24	5750.0	6000.0	1.22	0.72	1.94
25	6000.0	6250.0	0.52	0.31	0.83
26	6250.0	6500.0	0.0	0.0	0.0
27	6500.0	6750.0	0.0	0.0	0.0
28	6750.0	7000.0	0.0	0.0	0.0
29	7000.0	7250.0	0.0	0.0	0.0
BE(KEV)	6062.5	%BE	13.49	86.35	99.84


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 569 TANTALUM Z=73 CS 13.12 GMS 203 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 622 TANTALUM Z=73 PS 58.03 GMS
COUNTS PER CHANNEL (×10²)
10.0
7.5
5.0
2.5
0
x4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

TUNGSTEN Z=74 GAMABC CODE MITNE-95 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.3	51.09
2	228.1	2.44
3	253.1	1.14
4	273.2	3.24
5	291.6	1.29
6	304.2	0.22
7	314.1	0.53
8	355.7	0.21
9	424.2	0.25
10	430.0	0.24
11	435.6	0.18
12	551.6	3.66
13	577.9	1.20
14	656.8	0.48
15	660.6	0.27
16	727.4	0.16
17	772.5	1.33
18	792.8	0.25
19	815.7	0.65
20	840.0	0.59
21	865.7	0.27
22	891.8	1.52
23	902.3	0.38
24	908.2	0.39
25	979.5	0.29
26	1027.1	3.81
27	1067.5	0.34
28	1081.2	0.35
29	1215.6	0.15
30	1386.2	0.29
31	1438.7	0.35
32	1472.4	0.16
33	1618.6	1.58
34	1633.9	1.00
35	2060.7	0.36
36	2324.2	0.51
37	2346.6	0.48
38	2452.7	0.20
39	2510.4	0.24
40	2585.8	0.23
41	2707.7	0.33
42	2740.3	0.57
43	2760.1	0.18
44	2843.5	0.63
45	2880.3	0.29
46	2900.5	0.31
47	2908.5	0.37
48	3054.0	0.37

TUNGSTEN Z=74 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3095.1	0.16
50	3118.8	0.10
51	3190.1	0.32
52	3206.4	0.30
53	3223.9	0.14
54	3310.5	0.24
55	3327.9	0.08
56	3348.2	0.09
57	3359.1	0.11
58	3376.1	0.23
59	3422.4	0.24
60	3470.4	0.37
61	3494.1	0.21
62	3510.3	0.10
63	3534.4	0.71
64	3561.5	0.40
65	3577.7	0.25
66	3596.7	0.11
67	3651.5	0.11
68	3668.1	0.13
69	3686.3	0.09
70	3739.0	0.60
71	3760.0	0.19
72	3775.2	0.14
73	3801.0	0.33
74	3817.4	0.17
75	3846.9	0.40
76	3865.5	0.10
77	3885.4	0.06
78	3902.0	0.16
79	3963.6	0.19
80	4014.6	0.47
81	4025.0	0.15
82	4063.7	0.19
83	4081.1	0.30
84	4117.9	0.40
85	4136.4	0.06
86	4159.4	0.33
87	4202.0	0.07
88	4221.6	0.13
89	4248.7	1.31
90	4303.4	0.21
91	4330.4	0.28
92	4369.4	0.19
93	4383.3	0.64
94	4446.3	0.32
95	4489.7	0.13
96	4518.0	0.33

TUNGSTEN Z=74 GAMARC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4558.1	0.25
98	4562.5	0.28
99	4572.3	0.81
100	4626.2	0.99
101	4649.2	0.34
102	4684.3	1.28
103	4719.0	0.16
104	4746.5	0.07
105	5016.1	0.10
106	5163.9	1.82
107	5237.9	0.11
108	5247.5	0.17
109	5261.3	3.99
110	5319.9	2.62
111	5795.8	0.10
112	5938.3	0.04
113	6021.2	0.27
114	6143.9	1.57
115	6190.2	4.33
116	6291.0	0.12
117	6407.5	0.27
118	7297.7	0.11
119	7410.7	0.50

BINDING ENERGY = 5828.0 %BF = 34.93 + 55.56 = 90.50

TUNGSTEN Z=74 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.3	56.45
2	228.1	2.70
3	253.1	1.26
4	273.2	3.58
5	291.6	1.42
6	304.2	0.25
7	314.1	0.58
8	355.7	0.23
9	424.2	0.27
10	430.0	0.27
11	435.6	0.20
12	551.6	4.04
13	577.9	1.32
14	656.8	0.54
15	660.6	0.30
16	727.4	0.18
17	772.5	1.47
18	792.8	0.28
19	815.7	0.71
20	840.0	0.66
21	865.7	0.30
22	891.8	1.68
23	902.3	0.42
24	908.2	0.43
25	979.5	0.32
26	1027.1	0.90
27	1067.5	0.38
28	1081.2	0.39
29	1215.6	0.16
30	1386.2	0.32
31	1438.7	0.39
32	1472.4	0.18
33	1618.6	1.75
34	1633.9	1.10
35	2060.7	0.40
36	2324.2	0.57
37	2346.6	0.53
38	2452.7	0.22
39	2510.4	0.26
40	2585.8	0.26
41	2707.7	0.37
42	2740.3	0.63
43	2760.1	0.20
44	2843.5	0.69
45	2880.3	0.32
46	2900.5	0.34
47	2908.5	0.41
48	3054.0	0.40

TUNGSTEN Z=74 GAMARC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3095.1	0.18
50	3118.8	0.11
51	3190.1	0.35
52	3206.4	0.33
53	3223.9	0.15
54	3310.5	0.29
55	3327.9	0.09
56	3348.2	0.09
57	3359.1	0.12
58	3376.1	0.33
59	3422.4	0.26
60	3470.4	1.07
61	3494.1	0.23
62	3510.3	0.21
63	3534.4	0.78
64	3561.5	0.44
65	3577.7	0.28
66	3596.7	0.12
67	3651.5	0.12
68	3668.1	0.14
69	3686.3	0.10
70	3739.0	0.77
71	3760.0	0.21
72	3775.2	0.15
73	3801.0	0.37
74	3817.4	0.18
75	3846.9	0.44
76	3865.5	0.11
77	3885.4	0.06
78	3902.0	0.18
79	3963.6	0.21
80	4014.6	0.52
81	4025.0	0.17
82	4063.7	0.21
83	4081.1	0.33
84	4117.9	0.45
85	4136.4	0.07
86	4159.4	0.36
87	4202.0	0.07
88	4221.6	0.15
89	4248.7	1.45
90	4303.4	0.23
91	4330.4	0.31
92	4369.4	0.22
93	4383.3	0.71
94	4446.3	0.35
95	4489.7	0.14
96	4518.0	0.36

TUNGSTEN Z=74 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

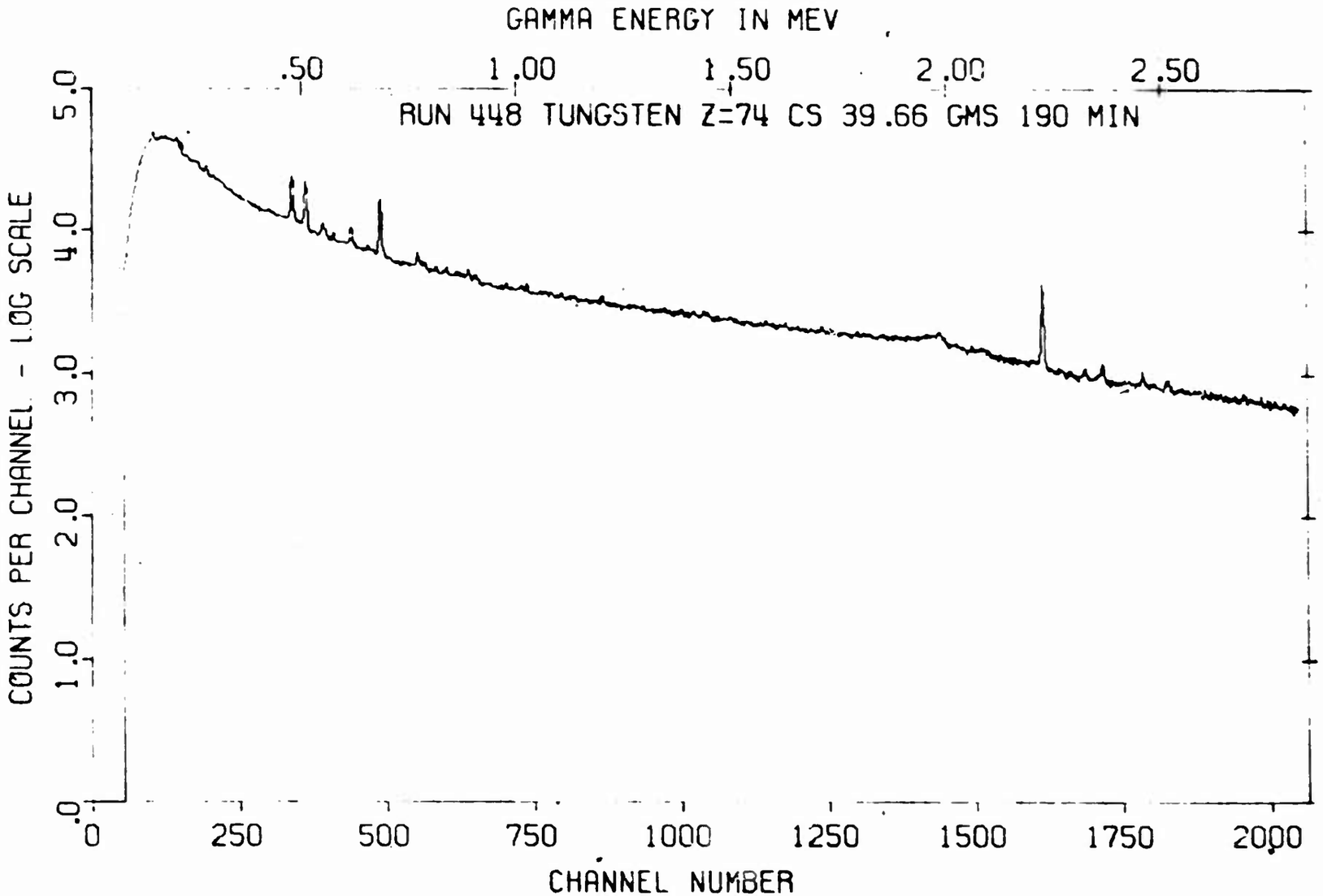
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4558.1	0.28
98	4562.5	0.30
99	4572.9	0.90
100	4626.2	1.09
101	4649.2	0.38
102	4684.3	1.41
103	4719.0	0.18
104	4746.5	0.08
105	5016.1	0.11
106	5163.9	2.01
107	5237.9	0.12
108	5247.5	0.18
109	5261.3	4.41
110	5319.9	2.89
111	5795.8	0.11
112	5938.3	0.04
113	6021.2	0.30
114	6143.9	1.73
115	6190.2	4.78
116	6291.0	0.14
117	6407.5	0.30
118	7297.7	0.12
119	7410.7	0.55

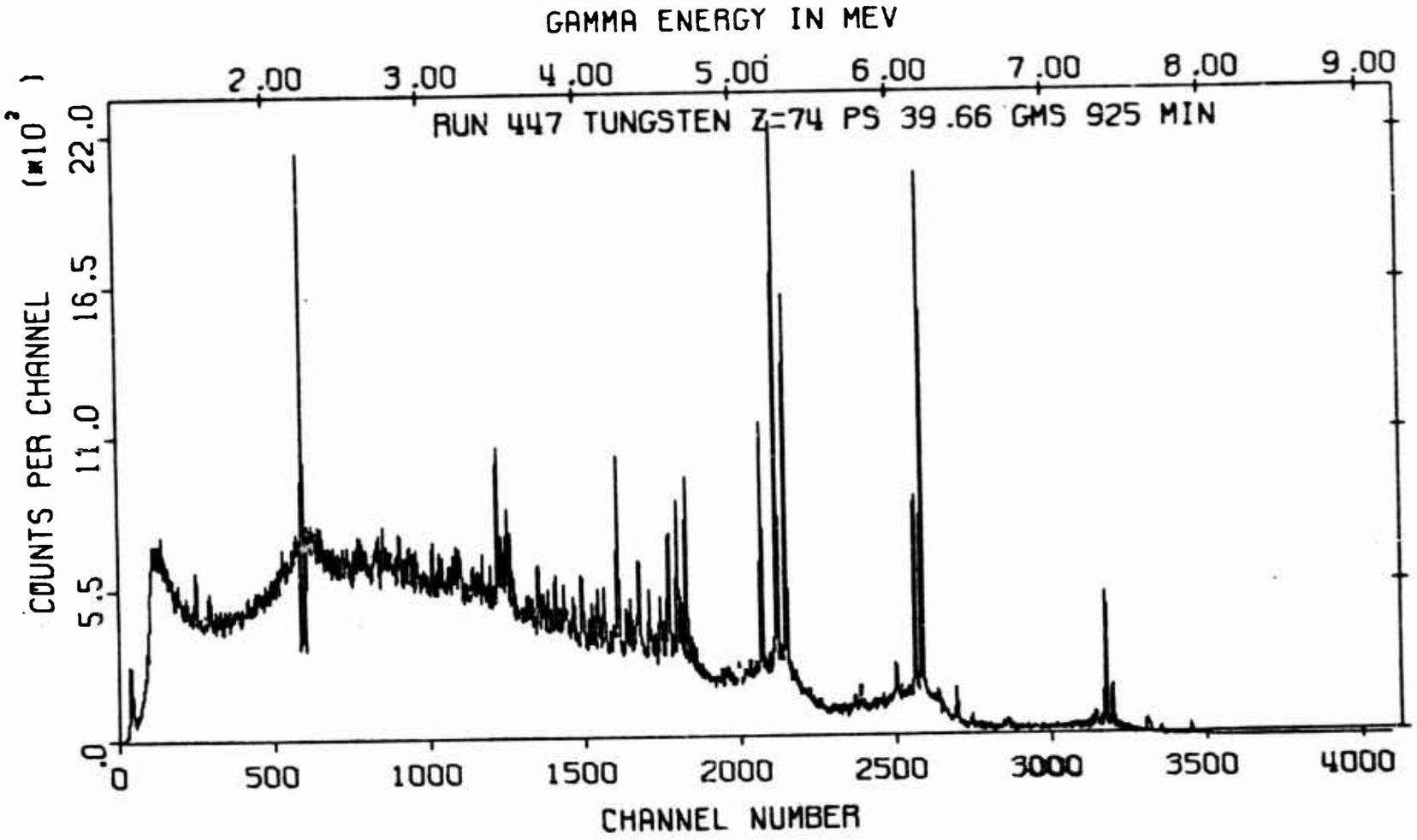
BE(KEV) 5828.0 OBSERVED %BE 90.50 NORMALIZED %BE 100.00

TUNGSTEN Z=74 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	59.15	0.0	59.15
2	250.0	500.0	8.08	0.0	8.08
3	500.0	750.0	6.37	0.0	6.37
4	750.0	1000.0	6.27	0.0	6.27
5	1000.0	1250.0	1.83	1.11	2.93
6	1250.0	1500.0	0.88	3.32	4.20
7	1500.0	1750.0	2.85	5.53	8.37
8	1750.0	2000.0	0.0	12.10	12.10
9	2000.0	2250.0	0.40	19.82	20.22
10	2250.0	2500.0	1.31	17.49	18.80
11	2500.0	2750.0	1.51	14.59	16.10
12	2750.0	3000.0	1.96	10.96	12.92
13	3000.0	3250.0	1.53	9.04	10.56
14	3250.0	3500.0	2.48	6.64	9.12
15	3500.0	3750.0	2.95	5.29	8.24
16	3750.0	4000.0	1.91	4.12	6.04
17	4000.0	4250.0	3.78	2.49	6.26
18	4250.0	4500.0	1.95	2.59	4.54
19	4500.0	4750.0	4.99	2.27	7.26
20	4750.0	5000.0	0.0	1.24	1.24
21	5000.0	5250.0	2.43	1.09	3.53
22	5250.0	5500.0	7.30	1.68	8.98
23	5500.0	5750.0	0.0	0.29	0.29
24	5750.0	6000.0	0.16	0.59	0.74
25	6000.0	6250.0	6.81	0.91	7.71
26	6250.0	6500.0	0.44	0.83	1.26
27	6500.0	6750.0	0.0	0.39	0.39
28	6750.0	7000.0	0.0	0.32	0.32
29	7000.0	7250.0	0.0	0.13	0.13
30	7250.0	7500.0	0.66	0.40	1.06

BE(KEV)	5[illegible]	%BE	38.05	61.40	99.45


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 448 TUNGSTEN Z=74 CS 39.66 GMS 190 MIN
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 447 TUNGSTEN Z=74 PS 39.66 GMS 925 MIN
COUNTS PER CHANNEL (*10²)
22.0
16.5
11.0
5.5
0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

584-607
x2.30

RHENIUM Z=75 GAMABC CODE MIYNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.6	.54
2	209.3	10.84
3	228.0	1.45
4	237.3	1.58
5	256.0	10.63
6	274.9	1.96
7	291.3	6.85
8	301.2	.48
9	307.4	.24
10	317.6	4.90
11	340.5	.34
12	359.1	1.31
13	362.7	1.34
14	378.1	1.10
15	391.5	2.06
16	407.3	.31
17	413.7	.68
18	478.5	.67
19	495.0	1.10
20	499.7	1.51
21	608.0	.62
22	715.0	.66
23	795.0	.73
24	957.1	.32
25	1202.1	1.30
26	1620.7	.45
27	1806.2	.26
28	3308.8	.06
29	4100.1	.07
30	4282.8	.14
31	4299.0	.05
32	4391.2	.04
33	4408.2	.15
34	4420.2	.10
35	4501.7	.13
36	4635.3	.10
37	4648.1	.04
38	4662.4	.16
39	4704.8	.05
40	4714.5	.05
41	4772.9	.12
42	4790.1	.06
43	4859.9	.27
44	4888.4	.09
45	4915.4	.06
46	4936.4	.08
47	4946.3	.09
48	5007.4	.30

RHENIUM Z=75 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5027.5	.19
50	5048.9	.06
51	5073.7	.44
52	5136.8	.33
53	5176.6	.08
54	5205.5	.08
55	5224.1	.06
56	5256.5	.05
57	5277.0	.22
58	5350.2	.31
59	5491.6	.10
60	5600.3	.08
61	5643.8	.09
62	5665.9	.03
63	5687.7	.10
64	5703.6	.18
65	5856.3	.13
66	5871.5	.25
67	5909.5	.61
68	6004.5	.05
69	6032.3	.06
70	6078.9	.09
71	6119.2	.08

BINDING ENERGY = 5972.2 &BE = 8.30 + 125.45 = 133.75

RHENIUM Z=75 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	199.6	.41
2	209.3	8.10
3	228.0	1.09
4	237.3	1.19
5	256.0	7.95
6	274.9	1.46
7	291.3	5.12
8	301.2	.36
9	307.4	.18
10	317.6	3.66
11	340.5	.25
12	359.1	.98
13	362.7	1.00
14	378.1	.82
15	391.5	1.54
16	407.3	.23
17	413.7	.51
18	478.5	.50
19	495.0	.82
20	499.7	1.13
21	608.0	.47
22	715.0	.49
23	795.0	.55
24	957.1	.24
25	1202.1	.97
26	1620.7	.34
27	1806.2	.19
28	3308.8	.04
29	4100.1	.05
30	4282.8	.10
31	4299.0	.04
32	4391.2	.03
33	4408.2	.11
34	4420.2	.07
35	4501.7	.10
36	4635.3	.08
37	4648.1	.03
38	4662.4	.12
39	4704.8	.03
40	4714.5	.04
41	4772.9	.09
42	4790.1	.05
43	4859.9	.20
44	4888.4	.07
45	4915.4	.05
46	4936.4	.06
47	4946.3	.07
48	5007.4	.22

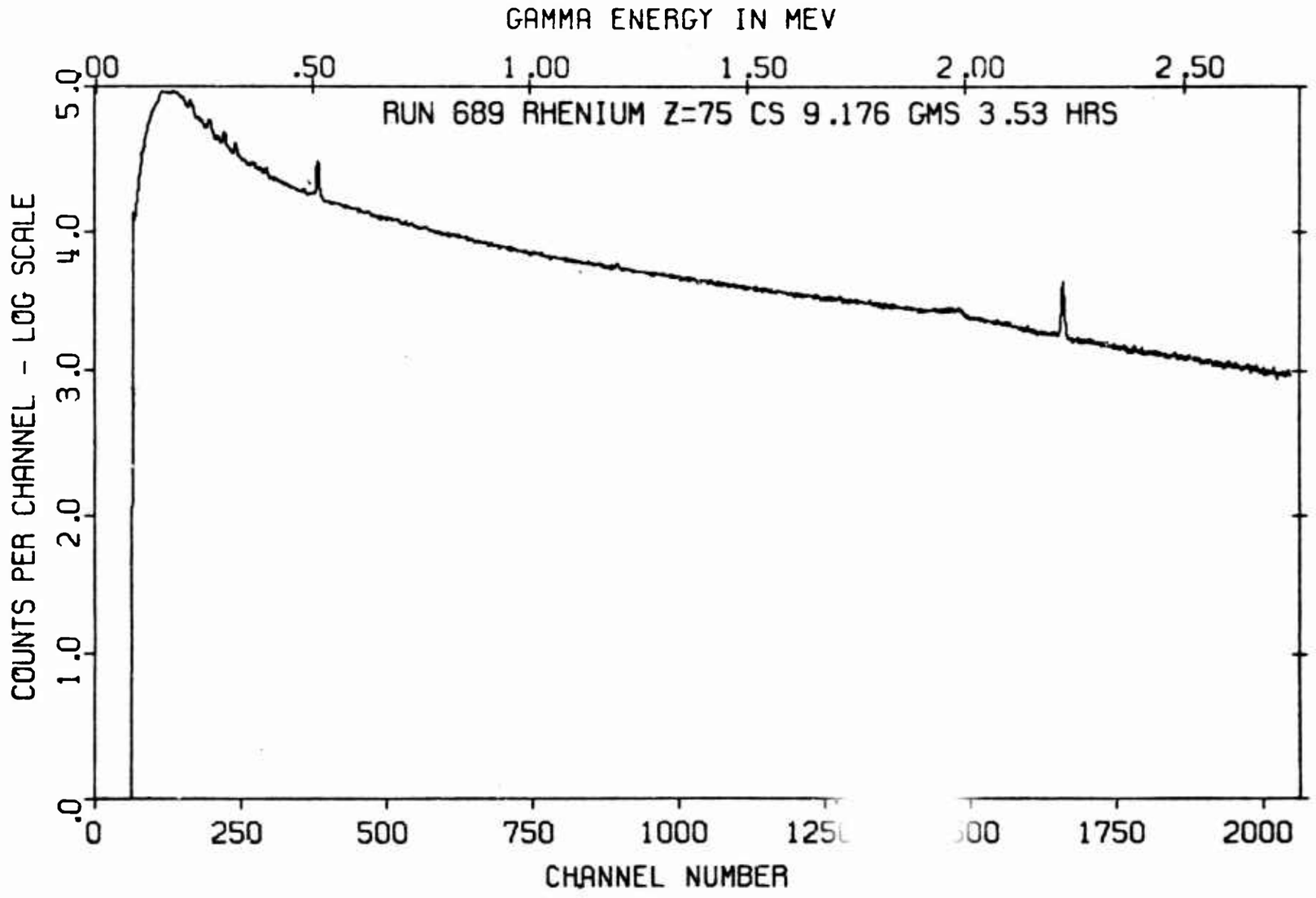
RHENIUM Z=75 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

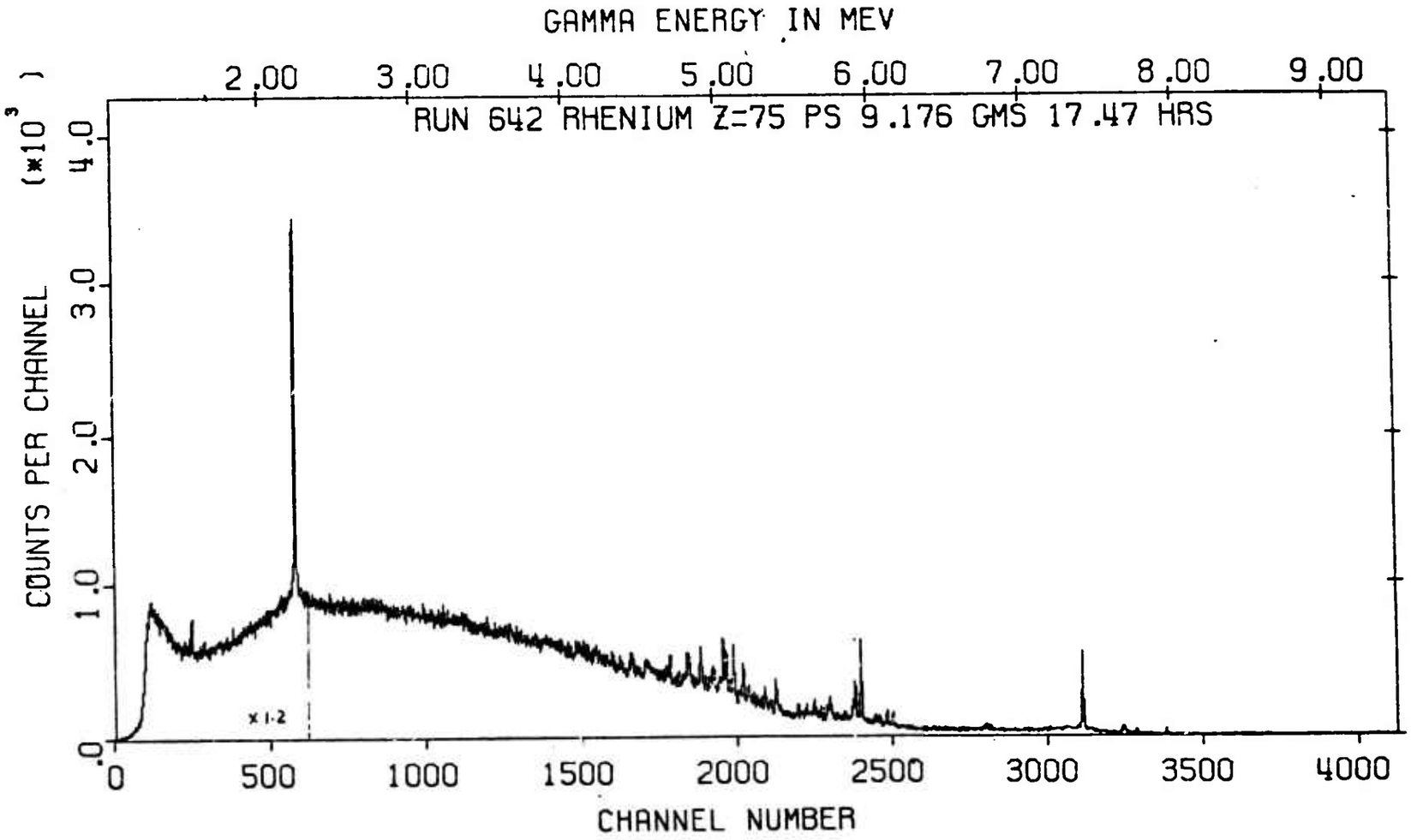
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5027.5	.14
50	5048.9	.04
51	5073.7	.33
52	5136.8	.25
53	5176.6	.06
54	5205.5	.06
55	5224.1	.05
56	5256.5	.04
57	5277.0	.17
58	5350.2	.23
59	5491.6	.07
60	5600.3	.06
61	5643.8	.07
62	5665.9	.03
63	5687.7	.07
64	5703.6	.13
65	5856.3	.10
66	5871.5	.19
67	5909.5	.46
68	6004.5	.04
69	6032.3	.04
70	6078.9	.07
71	6119.2	.06

BE(KEV) 5972.2 OBSERVED %BE 133.75 NORMALIZED %BE 100.00

RHENIUM Z=75 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	10.78	.00	10.78
2	250.0	500.0	26.52	.00	26.52
3	500.0	750.0	.96	.00	.96
4	750.0	1000.0	.79	.00	.79
5	1000.0	1250.0	.97	16.45	17.42
6	1250.0	1500.0	.00	23.93	23.93
7	1500.0	1750.0	.34	29.66	30.00
8	1750.0	2000.0	.19	25.97	26.16
9	2000.0	2250.0	.00	26.85	26.85
10	2250.0	2500.0	.00	21.64	21.64
11	2500.0	2750.0	.00	18.03	18.03
12	2750.0	3000.0	.00	14.84	14.84
13	3000.0	3250.0	.00	11.21	11.21
14	3250.0	3500.0	.04	8.94	8.99
15	3500.0	3750.0	.00	7.42	7.42
16	3750.0	4000.0	.00	6.24	6.24
17	4000.0	4250.0	.05	5.20	5.26
18	4250.0	4500.0	.36	3.73	4.09
19	4500.0	4750.0	.39	3.44	3.83
20	4750.0	5000.0	.58	3.23	3.81
21	5000.0	5250.0	1.16	2.27	3.42
22	5250.0	5500.0	.51	1.13	1.64
23	5500.0	5750.0	.36	.97	1.33
24	5750.0	6000.0	.74	.78	1.52
25	6000.0	6250.0	.21	.00	.21
26	6250.0	6500.0	.00	.00	.00
27	6500.0	6750.0	.00	.00	.00
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
BE(KEV)	5972.2	%BE	6.29	93.80	100.08


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 689 RHENIUM Z=75 CS 9.176 GMS 3.53 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 642 RHENIUM Z=75 PS 9.176 GMS 17.47 HRS
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
.0
x1.2
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	187.3	9.25
2	232.3	.19
3	253.8	.76
4	275.2	1.58
5	295.5	.13
6	306.3	.17
7	323.6	2.84
8	330.9	.26
9	335.4	.56
10	362.0	1.41
11	371.7	2.11
12	386.6	.17
13	397.0	.30
14	409.5	.29
15	412.7	.35
16	431.9	.32
17	434.9	.29
18	478.3	6.78
19	492.3	.60
20	526.2	.92
21	558.4	6.80
22	569.3	5.17
23	607.5	.37
24	634.0	10.25
25	646.7	.25
26	669.1	.39
27	689.9	.46
28	725.0	.69
29	775.9	.29
30	828.7	1.80
31	845.5	.32
32	886.9	.67
33	899.9	.54
34	930.2	1.10
35	987.7	1.03
36	1053.1	.44
37	1175.7	.73
38	1267.4	.63
39	1324.1	.81
40	1436.0	.23
41	1803.7	.09
42	1887.5	.11
43	2082.2	.04
44	2130.0	.08
45	2160.4	.05
46	2223.3	15.19
47	2261.3	.24
48	2285.5	.13

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2330.4	.06
50	2436.7	.03
51	2458.8	.10
52	2505.2	.08
53	2574.4	.03
54	2588.0	.03
55	2605.7	.04
56	2620.9	.04
57	2666.5	.04
58	2677.6	.02
59	2730.9	.02
60	2778.6	.02
61	2791.2	.01
62	2815.8	.04
63	2852.9	.01
64	2861.4	.02
65	2877.4	.02
66	2888.0	.01
67	2903.7	.02
68	2929.9	.01
69	2938.5	.03
70	2957.9	.02
71	3021.9	.03
72	3052.5	.03
73	3095.7	.01
74	3140.9	.01
75	3156.4	.03
76	3176.8	.04
77	3225.2	.02
78	3239.3	.02
79	3274.1	.02
80	3334.1	.04
81	3361.4	.02
82	3386.5	.02
83	3402.3	.02
84	3465.9	.04
85	3516.2	.02
86	3571.3	.01
87	3677.0	.02
88	3748.9	.02
89	3767.4	.01
90	3816.1	.04
91	3831.3	.01
92	3900.7	.01
93	3956.7	.02
94	3979.5	.02
95	4072.4	.01
96	4222.5	.05

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4253.3	.02
98	4295.7	.07
99	4344.0	.02
100	4355.9	.01
101	4407.1	.06
102	4460.7	.03
103	4508.0	.01
104	4530.7	.10
105	4555.7	.05
106	4594.1	.02
107	4615.7	.02
108	4675.2	.07
109	4716.3	.04
110	4751.1	.04
111	4800.9	.02
112	4812.8	.14
113	4845.4	.03
114	4920.7	.02
115	4962.2	.02
116	4977.8	.02
117	5011.8	.06
118	5036.9	.02
119	5079.5	.01
120	5097.3	.03
121	5146.9	.35
122	5170.9	.06
123	5229.6	.01
124	5249.1	.03
125	5274.0	.23
126	5342.1	.06
127	5367.8	.05
128	5395.0	.01
129	5414.9	.07
130	5447.0	.01
131	5483.5	.04
132	5505.7	.01
133	5530.6	.05
134	5571.5	.03
135	5583.3	.03
136	5640.4	.02
137	5684.0	.16
138	5702.6	.02
139	5723.1	.01
140	5884.2	.05
141	5919.3	.01
142	5933.0	.05
143	5969.5	.02
144	6059.9	.03

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6081.6	.01
146	6157.0	.01
147	6181.6	.02
148	6217.0	.04
149	6247.2	.03
150	6321.2	.01
151	6357.6	.01
152	6411.2	.04
153	6558.5	.01
154	6587.2	.09
155	6620.4	.02
156	6785.7	.01
157	6987.4	.01
158	7234.2	.05
159	7605.2	.01
160	7792.6	.04
161	7834.4	.04
162	7990.5	.03

BINDING ENERGY = 7000.0 %BE = 12.51 + 48.20 = 60.72

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	187.3	15.23
2	232.3	.31
3	253.8	1.25
4	275.2	2.60
5	295.5	.21
6	306.3	.28
7	323.6	4.68
8	330.9	.43
9	335.4	.92
10	362.0	2.32
11	371.7	3.48
12	386.6	.28
13	397.0	.49
14	409.5	.48
15	412.7	.58
16	431.9	.53
17	434.9	.48
18	478.3	11.17
19	492.3	.99
20	526.2	1.52
21	558.4	11.20
22	569.3	8.52
23	607.5	.61
24	634.0	16.88
25	646.7	.41
26	669.1	.64
27	689.9	.76
28	725.0	1.14
29	775.9	.48
30	828.7	2.96
31	845.5	.53
32	886.9	1.10
33	899.9	.89
34	930.2	1.81
35	987.7	1.70
36	1053.1	.72
37	1175.7	1.20
38	1267.4	1.04
39	1324.1	1.33
40	1436.0	.36
41	1803.7	.15
42	1887.5	.18
43	2082.2	.07
44	2130.0	.13
45	2160.4	.08
46	2223.3	25.02
47	2261.3	.40
48	2285.5	.21

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2330.4	.10
50	2436.7	.05
51	2458.8	.16
52	2505.2	.13
53	2574.4	.05
54	2588.0	.05
55	2605.7	.07
56	2620.9	.07
57	2666.5	.07
58	2677.6	.03
59	2730.9	.03
60	2778.6	.03
61	2791.2	.02
62	2815.8	.07
63	2852.9	.02
64	2861.4	.03
65	2877.4	.03
66	2888.0	.02
67	2903.7	.03
68	2929.9	.02
69	2938.5	.05
70	2957.9	.03
71	3021.9	.05
72	3052.5	.05
73	3095.7	.02
74	3140.9	.02
75	3156.4	.05
76	3176.8	.07
77	3225.2	.03
78	3239.3	.03
79	3274.1	.03
80	3334.1	.07
81	3361.4	.03
82	3386.5	.03
83	3402.3	.03
84	3465.9	.07
85	3516.2	.03
86	3571.3	.02
87	3677.0	.03
88	3748.9	.03
89	3767.4	.02
90	3816.1	.07
91	3831.3	.02
92	3900.7	.02
93	3956.7	.03
94	3979.5	.03
95	4072.4	.02
96	4222.5	.08

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	4253.3	.03
98	4295.7	.12
99	4344.0	.03
100	4355.9	.02
101	4407.1	.10
102	4460.7	.05
103	4508.0	.02
104	4530.7	.16
105	4555.7	.08
106	4594.1	.03
107	4615.7	.03
108	4675.2	.12
109	4716.3	.07
110	4751.1	.07
111	4800.9	.03
112	4812.8	.23
113	4845.4	.05
114	4920.7	.03
115	4962.2	.03
116	4977.8	.03
117	5011.8	.10
118	5036.9	.03
119	5079.5	.02
120	5097.3	.05
121	5146.9	.58
122	5170.9	.10
123	5229.6	.02
124	5249.1	.05
125	5274.0	.38
126	5342.1	.10
127	5367.8	.08
128	5395.0	.02
129	5414.9	.12
130	5447.0	.02
131	5483.5	.07
132	5505.7	.02
133	5530.6	.08
134	5571.5	.05
135	5583.3	.05
136	5640.4	.03
137	5684.0	.26
138	5702.6	.03
139	5723.1	.02
140	5884.2	.08
141	5919.6	.02
142	5933.0	.08
143	5969.5	.03
144	6059.9	.05

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

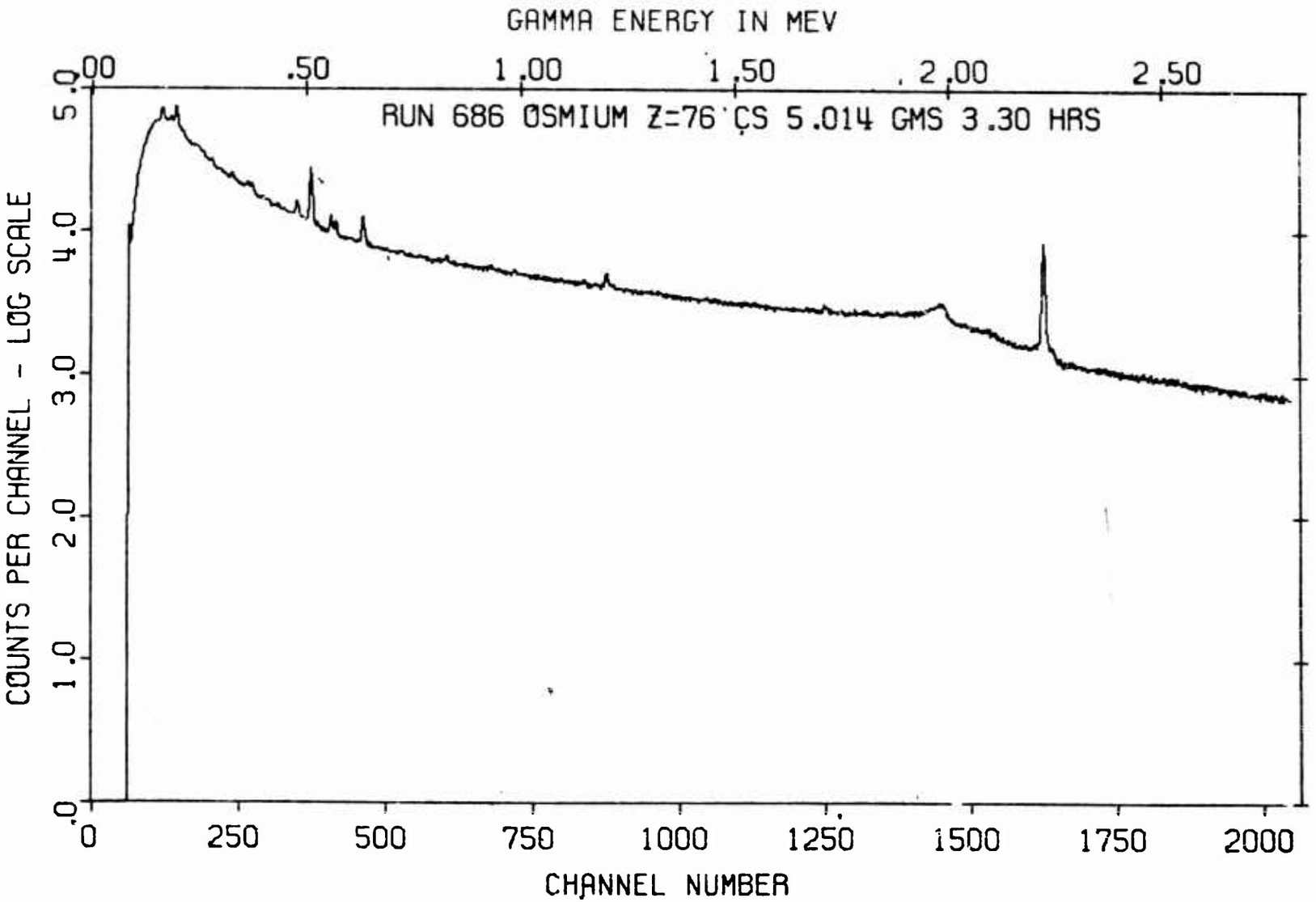
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	6081.6	.02
146	6157.0	.02
147	6181.6	.03
148	6217.0	.07
149	6247.2	.05
150	6321.2	.02
151	6357.6	.02
152	6411.2	.07
153	6558.5	.02
154	6587.2	.15
155	6620.4	.03
156	6785.7	.02
157	6987.4	.02
158	7234.2	.08
159	7605.2	.02
160	7792.6	.07
161	7834.4	.07
162	7990.5	.05

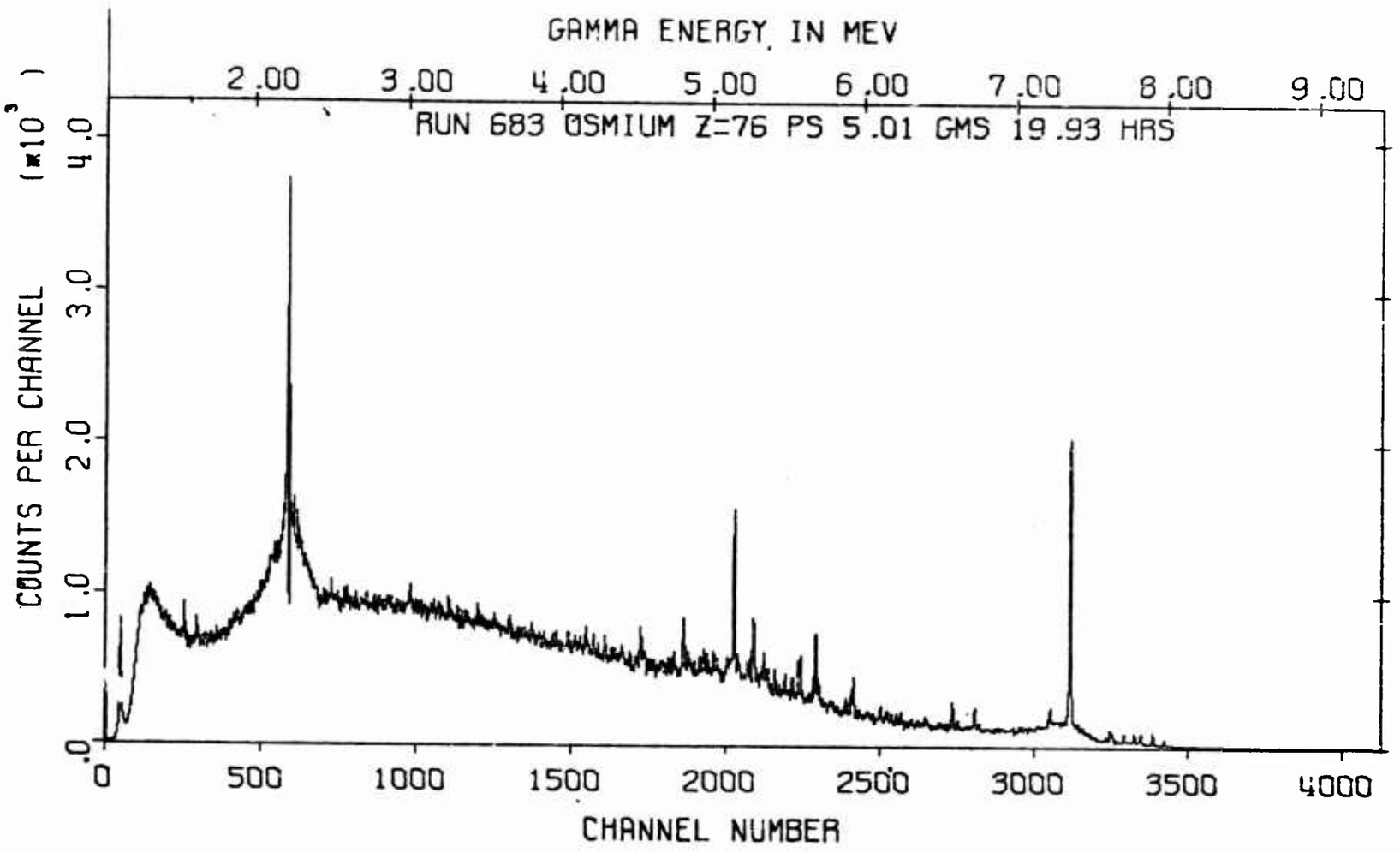
BE(KEV) 7000.0 OBSERVED %BE 60.72 NORMALIZED %BE 100.00

OSMIUM Z=76 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	15.55	.00	15.55
2	250.0	500.0	31.16	.00	31.16
3	500.0	750.0	41.67	.00	41.67
4	750.0	1000.0	9.47	.00	9.47
5	1000.0	1250.0	1.93	1.65	3.57
6	1250.0	1500.0	2.75	6.59	9.34
7	1500.0	1750.0	.00	16.95	16.95
8	1750.0	2000.0	.33	24.85	25.18
9	2000.0	2250.0	25.30	33.30	58.60
10	2250.0	2500.0	.92	25.97	26.90
11	2500.0	2750.0	.49	18.40	18.89
12	2750.0	3000.0	.35	15.05	15.40
13	3000.0	3250.0	.31	11.56	11.87
14	3250.0	3500.0	.26	8.53	8.80
15	3500.0	3750.0	.12	6.95	7.07
16	3750.0	4000.0	.18	5.35	5.53
17	4000.0	4250.0	.10	4.51	4.61
18	4250.0	4500.0	.35	3.38	3.72
19	4500.0	4750.0	.51	2.98	3.49
20	4750.0	5000.0	.48	2.95	3.43
21	5000.0	5250.0	.94	3.33	4.27
22	5250.0	5500.0	.77	2.67	3.44
23	5500.0	5750.0	.54	2.03	2.57
24	5750.0	6000.0	.21	1.20	1.42
25	6000.0	6250.0	.23	.59	.82
26	6250.0	6500.0	.10	.21	.31
27	6500.0	6750.0	.20	-.08	.12
28	6750.0	7000.0	.03	-.61	-.58
29	7000.0	7250.0	.08	.77	.86
30	7250.0	7500.0	.00	1.68	1.68
31	7500.0	7750.0	.02	.49	.51
32	7750.0	8000.0	.18	.31	.49
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
BE(KEV)	7000.0	%E	20.20	75.39	99.59


GAMMA ENERGY IN MEV
.00
.50
1.00
1.50
2.00
2.50
RUN 686 OSMIUM Z=76 CS 5.014 GMS 3.30 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 683 OSMIUM Z=76 PS 5.01 GMS 19.93 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

819

IRIDIUM Z=77 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CART
1	200.4	6.80
2	217.4	1.94
3	225.4	1.47
4	229.5	1.12
5	247.8	0.88
6	253.8	0.92
7	259.5	0.62
8	263.2	0.96
9	338.5	0.77
10	351.9	5.04
11	401.5	0.30
12	418.8	1.24
13	422.5	0.49
14	450.8	0.32
15	558.2	0.48
16	574.2	0.61
17	597.8	0.32
18	680.8	0.21
19	838.5	0.42
20	844.2	0.38
21	981.1	0.32
22	1618.8	1.92
23	3965.2	0.12
24	4257.1	0.15
25	4365.6	0.19
26	4401.1	0.23
27	4474.9	0.12
28	4507.3	0.12
29	4531.1	0.34
30	4588.3	0.19
31	4712.3	0.15
32	4732.9	0.27
33	4755.1	0.19
34	4808.8	0.15
35	4839.1	0.15
36	4859.0	0.60
37	4867.0	0.49
38	4897.6	0.31
39	4981.7	0.37
40	5027.1	0.11
41	5067.5	0.20
42	5088.5	0.27
43	5129.0	0.18
44	5147.3	0.39
45	5166.7	0.36
46	5194.9	0.21
47	5220.1	0.27
48	5261.6	0.46

IRIDIUM Z=77 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5283.0	0.46
50	5303.9	0.21
51	5329.3	0.40
52	5356.4	0.34
53	5385.3	0.09
54	5399.1	0.19
55	5430.3	0.28
56	5448.3	0.11
57	5464.5	0.45
58	5486.7	0.11
59	5516.1	0.31
60	5534.0	0.59
61	5564.1	0.82
62	5595.6	0.27
63	5611.6	0.47
64	5628.4	0.15
65	5667.0	1.24
66	5688.6	0.54
67	5728.8	0.52
68	5758.5	0.20
69	5782.3	0.85
70	5806.7	0.12
71	5821.5	0.19
72	5865.3	0.34
73	5907.2	0.37
74	5926.9	0.17
75	5957.2	1.38
76	6003.5	0.13
77	6081.3	0.88

BINDING ENERGY = 6030.0 %BE = 18.65 + 89.75 = 108.40

IRIDIUM Z=77 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	200.4	6.27
2	217.4	1.79
3	225.4	1.36
4	229.5	1.03
5	247.8	0.82
6	253.8	0.85
7	259.5	0.57
8	263.2	0.88
9	338.5	0.71
10	351.9	4.65
11	401.5	0.27
12	418.8	1.14
13	422.5	0.45
14	450.8	0.30
15	558.2	0.45
16	574.2	0.57
17	597.8	0.30
18	680.8	0.20
19	838.5	0.39
20	844.2	0.35
21	981.1	0.29
22	1618.8	1.77
23	3965.2	0.11
24	4257.1	0.14
25	4365.6	0.17
26	4401.1	0.22
27	4474.9	0.11
28	4507.3	0.11
29	4531.1	0.31
30	4588.3	0.17
31	4712.3	0.14
32	4732.9	0.25
33	4755.1	0.18
34	4808.8	0.13
35	4839.1	0.14
36	4859.0	0.56
37	4867.0	0.45
38	4897.6	0.29
39	4981.7	0.34
40	5027.1	0.10
41	5067.5	0.19
42	5088.5	0.25
43	5129.0	0.16
44	5147.3	0.36
45	5166.7	0.33
46	5194.9	0.19
47	5220.1	0.25
48	5261.6	0.42

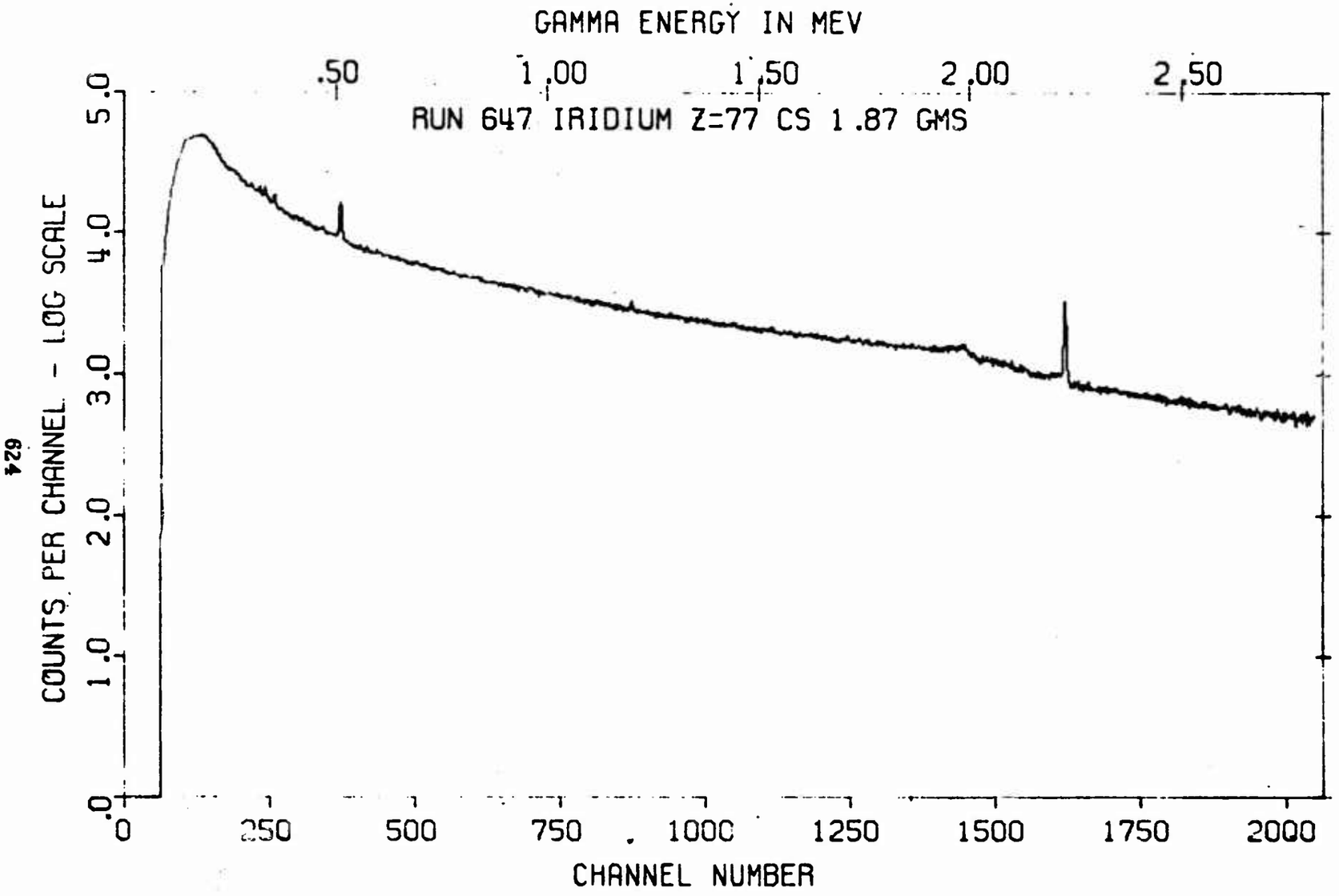
IRIDIUM Z= 77 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

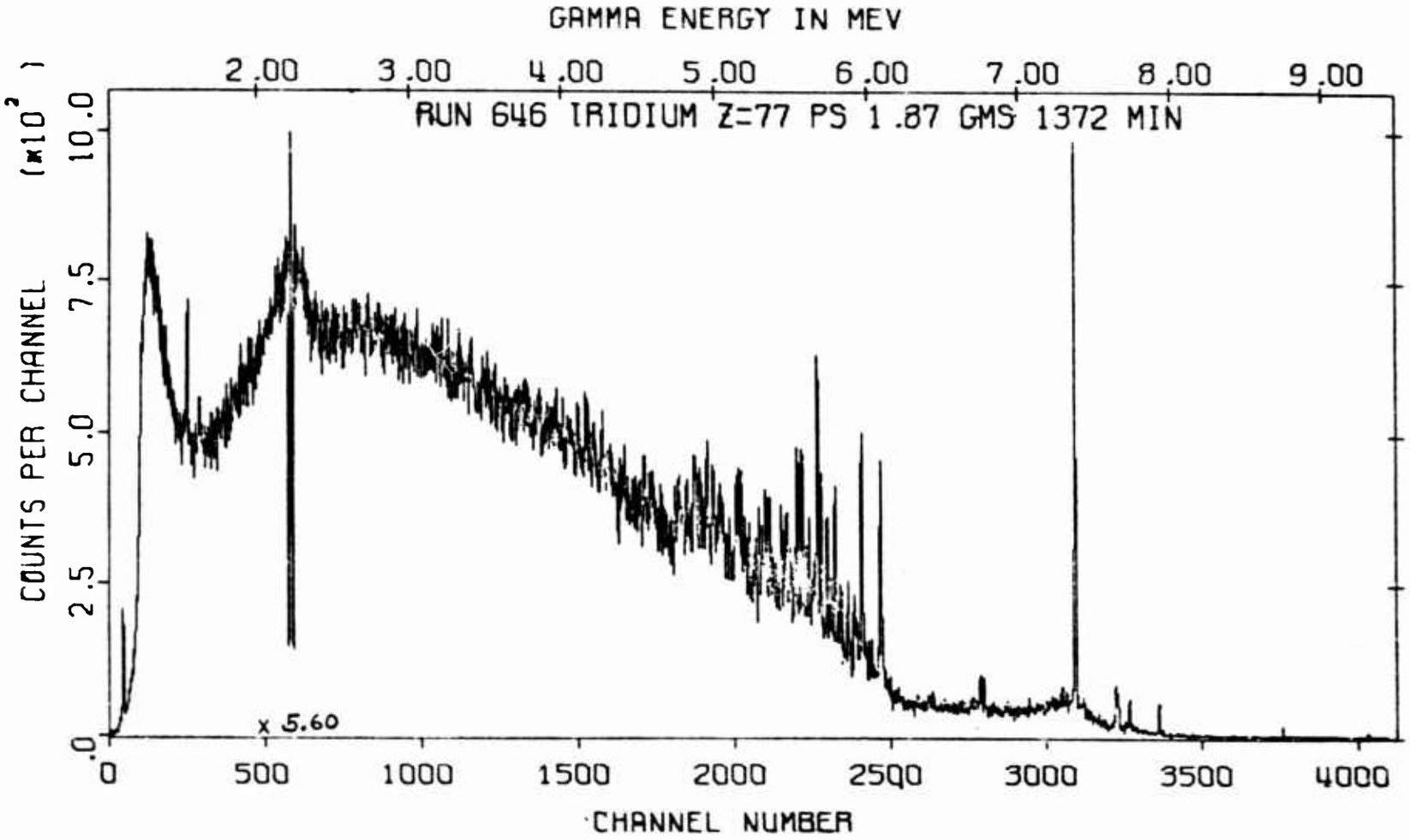
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	5283.0	0.42
50	5303.9	0.19
51	5329.3	0.37
52	5356.4	0.31
53	5385.3	0.08
54	5399.1	0.17
55	5430.3	0.26
56	5448.3	0.10
57	5464.5	0.41
58	5486.7	0.10
59	5516.1	0.28
60	5534.0	0.54
61	5564.1	0.76
62	5595.6	0.25
63	5611.6	0.43
64	5628.4	0.14
65	5667.0	1.15
66	5688.6	0.50
67	5728.8	0.48
68	5758.5	0.19
69	5782.3	0.78
70	5806.7	0.11
71	5821.5	0.17
72	5865.9	0.31
73	5907.2	0.34
74	5926.9	0.16
75	5957.2	1.28
76	6003.5	0.12
77	6081.3	0.81

BE(KEV) 6030.0 OBSERVED %BE 108.40 NORMALIZED %BE 100.00

IRIDIUM Z=77 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	11.26	0.0	11.26
2	250.0	500.0	9.83	0.0	9.83
3	500.0	750.0	1.51	0.0	1.51
4	750.0	1000.0	1.04	0.0	1.04
5	1000.0	1250.0	0.0	0.92	0.92
6	1250.0	1500.0	0.0	5.54	5.54
7	1500.0	1750.0	1.77	11.07	12.84
8	1750.0	2000.0	0.0	20.20	20.20
9	2000.0	2250.0	0.0	25.99	25.99
10	2250.0	2500.0	0.0	18.91	18.91
11	2500.0	2750.0	0.0	16.80	16.80
12	2750.0	3000.0	0.0	13.97	13.97
13	3000.0	3250.0	0.0	11.25	11.25
14	3250.0	3500.0	0.0	9.03	9.03
15	3500.0	3750.0	0.0	7.67	7.67
16	3750.0	4000.0	0.11	7.23	7.34
17	4000.0	4250.0	0.0	6.13	6.13
18	4250.0	4500.0	0.63	4.27	4.91
19	4500.0	4750.0	0.99	3.38	4.36
20	4750.0	5000.0	2.09	3.69	5.78
21	5000.0	5250.0	1.83	3.07	4.91
22	5250.0	5500.0	2.85	2.10	4.95
23	5500.0	5750.0	4.52	1.42	5.94
24	5750.0	6000.0	3.34	0.62	3.96
25	6000.0	6250.0	0.92	0.65	1.58
BE(KEV)	6030.0	%BE	17.11	82.80	99.91


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 647 IRIDIUM Z=77 CS 1.87 GMS
COUNTS PER CHANNEL - LOG SCALE
624
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 646 IRIDIUM Z=77 PS 1.87 GMS 1372 MIN
COUNTS PER CHANNEL (×10²)
10.0
7.5
5.0
2.5
0.0
x 5.60
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	241.2	.26
2	252.1	.24
3	333.3	19.48
4	356.1	33.81
5	393.1	.49
6	430.4	.26
7	481.9	.29
8	558.4	.91
9	575.0	.38
10	596.7	.81
11	673.2	1.17
12	696.5	1.17
13	779.8	.47
14	1048.2	.68
15	1091.8	.85
16	1358.4	1.12
17	1804.0	1.14
18	1491.3	1.66
19	1629.8	.68
20	1645.1	.32
21	1654.1	.33
22	1676.8	1.25
23	1695.9	.45
24	1713.2	1.19
25	1737.7	.54
26	1803.7	1.62
27	1826.3	1.09
28	1875.6	.32
29	1889.3	.77
30	1913.5	.35
31	1971.2	1.16
32	1978.7	1.66
33	2041.1	.40
34	2067.8	1.24
35	2115.6	.25
36	2150.3	.37
37	2184.0	.71
38	2187.9	.27
39	2311.4	1.73
40	2334.8	.24
41	2344.1	.12
42	2376.0	.31
43	2393.2	.54
44	2402.0	.13
45	2429.1	.33
46	2445.3	.20
47	2469.6	1.40
48	2487.6	.12

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2506.5	.19
50	2526.9	.65
51	2595.3	.11
52	2614.3	.35
53	2665.5	.12
54	2735.3	.38
55	2749.0	.38
56	2767.9	.12
57	2798.4	.08
58	2824.4	.74
59	2857.3	.07
60	2862.3	.11
61	2876.0	.33
62	2896.2	.21
63	2928.3	.10
64	2995.9	.06
65	3022.6	.29
66	3041.5	.34
67	3062.2	.09
68	3084.3	.06
69	3117.3	.09
70	3133.1	.16
71	3145.4	.10
72	3165.3	.09
73	3176.2	.12
74	3230.0	.10
75	3251.5	.21
76	3284.1	.06
77	3311.7	.16
78	3369.0	.06
79	3387.3	.05
80	3406.5	.07
81	3425.9	.17
82	3553.9	.10
83	3583.6	.19
84	3609.7	.18
85	3623.2	.07
86	3652.5	.06
87	3685.9	.28
88	3747.6	.13
89	3761.6	.10
90	3776.5	.14
91	3799.7	.09
92	3815.9	.04
93	3848.5	.04
94	3881.6	.08
95	3927.9	.11
96	3946.9	.25

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3962.1	.12
98	3980.2	.04
99	4007.6	.12
100	4025.2	.22
101	4041.1	.06
102	4084.8	.22
103	4121.6	.08
104	4152.4	.07
105	4167.9	.15
106	4202.2	.04
107	4208.8	.12
108	4223.2	.06
109	4227.8	.06
110	4256.3	.15
111	4287.5	.13
112	4312.2	.27
113	4342.7	.17
114	4368.0	.58
115	4401.5	.18
116	4416.1	.06
117	4431.9	.08
118	4442.4	.07
119	4453.8	.06
120	4477.3	.11
121	4481.7	.09
122	4513.3	.20
123	4546.2	.11
124	4557.3	.05
125	4584.0	.04
126	4614.6	.15
127	4634.5	.16
128	4677.4	.05
129	4693.4	.16
130	4709.0	.30
131	4729.5	.18
132	4746.7	.09
133	4767.9	.18
134	4791.8	.23
135	4816.4	.25
136	4839.6	.12
137	4858.6	.04
138	4882.4	.38
139	4899.4	.45
140	4947.6	.68
141	4970.7	.14
142	4989.9	.05
143	4995.2	.08
144	5033.3	.04

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5046.6	.43
146	5060.9	.17
147	5078.1	.11
148	5098.8	.96
149	5116.8	.06
150	5140.0	.05
151	5173.4	1.77
152	5184.9	.81
153	5254.6	4.85
154	5307.0	1.16
155	5393.2	.99
156	5417.2	.07
157	5432.6	.13
158	5451.3	.36
159	5468.3	.59
160	5499.6	.17
161	5521.1	.23
162	5546.7	.25
163	5576.7	.15
164	5611.4	1.04
165	5676.7	.16
166	5692.8	.04
167	5721.1	.58
168	5738.5	.11
169	5759.3	.38
170	5795.7	.32
171	5829.3	.22
172	5847.4	.30
173	5874.5	.36
174	5910.5	.42
175	5935.1	.06
176	5952.8	.50
177	6003.9	.45
178	6033.5	1.10
179	6074.1	.29
180	6097.5	.07
181	6118.1	.14
182	6244.2	.08
183	6319.1	.10
184	6518.8	.05
185	6560.4	.14
186	6738.0	.06
187	7232.9	.57
188	7565.6	.18
189	7722.4	.07
190	7920.9	.41

BINDING ENERGY = 7716.4 %BE = 32.34 + 90.13 = 122.48

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	241.2	.21
2	252.1	.20
3	333.3	15.91
4	356.1	27.61
5	393.1	.40
6	430.4	.21
7	481.9	.24
8	558.4	.74
9	575.0	.31
10	596.7	.66
11	673.2	.96
12	696.5	.96
13	779.8	.38
14	1048.2	.56
15	1091.8	.69
16	1358.4	.91
17	1804.0	.93
18	1491.3	1.36
19	1629.8	.56
20	1645.1	.26
21	1654.1	.27
22	1676.8	1.02
23	1695.9	.37
24	1713.2	.97
25	1737.7	.44
26	1803.7	1.32
27	1826.3	.89
28	1875.6	.26
29	1889.3	.63
30	1913.5	.29
31	1971.2	.95
32	1978.7	1.36
33	2041.1	.33
34	2067.8	1.01
35	2115.6	.20
36	2150.3	.30
37	2184.0	.58
38	2187.9	.22
39	2311.4	1.41
40	2334.8	.20
41	2344.1	.10
42	2376.0	.25
43	2393.2	.44
44	2402.0	.11
45	2429.1	.27
46	2445.3	.16
47	2469.6	1.14
48	2487.6	.10

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2506.5	.16
50	2526.9	.53
51	2595.3	.09
52	2614.3	.29
53	2665.5	.10
54	2735.3	.31
55	2749.0	.31
56	2767.9	.10
57	2798.4	.07
58	2824.4	.60
59	2857.3	.06
60	2862.3	.09
61	2876.0	.27
62	2896.2	.17
63	2928.3	.08
64	2995.9	.05
65	3022.6	.24
66	3041.5	.28
67	3062.2	.07
68	3084.3	.05
69	3117.3	.07
70	3133.1	.13
71	3145.4	.08
72	3165.3	.07
73	3176.2	.10
74	3230.0	.08
75	3251.5	.17
76	3284.1	.05
77	3311.7	.13
78	3369.0	.05
79	3387.3	.04
80	3406.5	.06
81	3425.9	.14
82	3553.9	.08
83	3583.6	.16
84	3609.7	.15
85	3623.2	.06
86	3652.5	.05
87	3685.9	.23
88	3747.6	.11
89	3761.6	.08
90	3776.5	.11
91	3799.7	.07
92	3815.9	.03
93	3848.5	.03
94	3881.6	.07
95	3927.9	.09
96	3946.9	.20

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	3962.1	.10
98	3980.2	.03
99	4007.6	.10
100	4025.2	.18
101	4041.1	.05
102	4084.8	.18
103	4121.6	.07
104	4152.4	.06
105	4167.9	.12
106	4202.2	.03
107	4208.8	.10
108	4223.2	.05
109	4227.8	.05
110	4256.3	.12
111	4287.5	.11
112	4312.2	.22
113	4342.7	.14
114	4368.0	.47
115	4401.5	.15
116	4416.1	.05
117	4431.9	.07
118	4442.4	.06
119	4453.8	.05
120	4477.3	.09
121	4481.7	.07
122	4513.3	.16
123	4546.2	.09
124	4557.3	.04
125	4584.0	.03
126	4614.6	.12
127	4634.5	.13
128	4677.4	.04
129	4693.4	.13
130	4709.0	.24
131	4729.5	.15
132	4746.7	.07
133	4767.9	.15
134	4791.8	.19
135	4816.4	.20
136	4839.6	.10
137	4858.6	.03
138	4882.4	.31
139	4899.4	.37
140	4947.6	.56
141	4970.7	.11
142	4989.9	.04
143	4995.2	.07
144	5033.3	.03

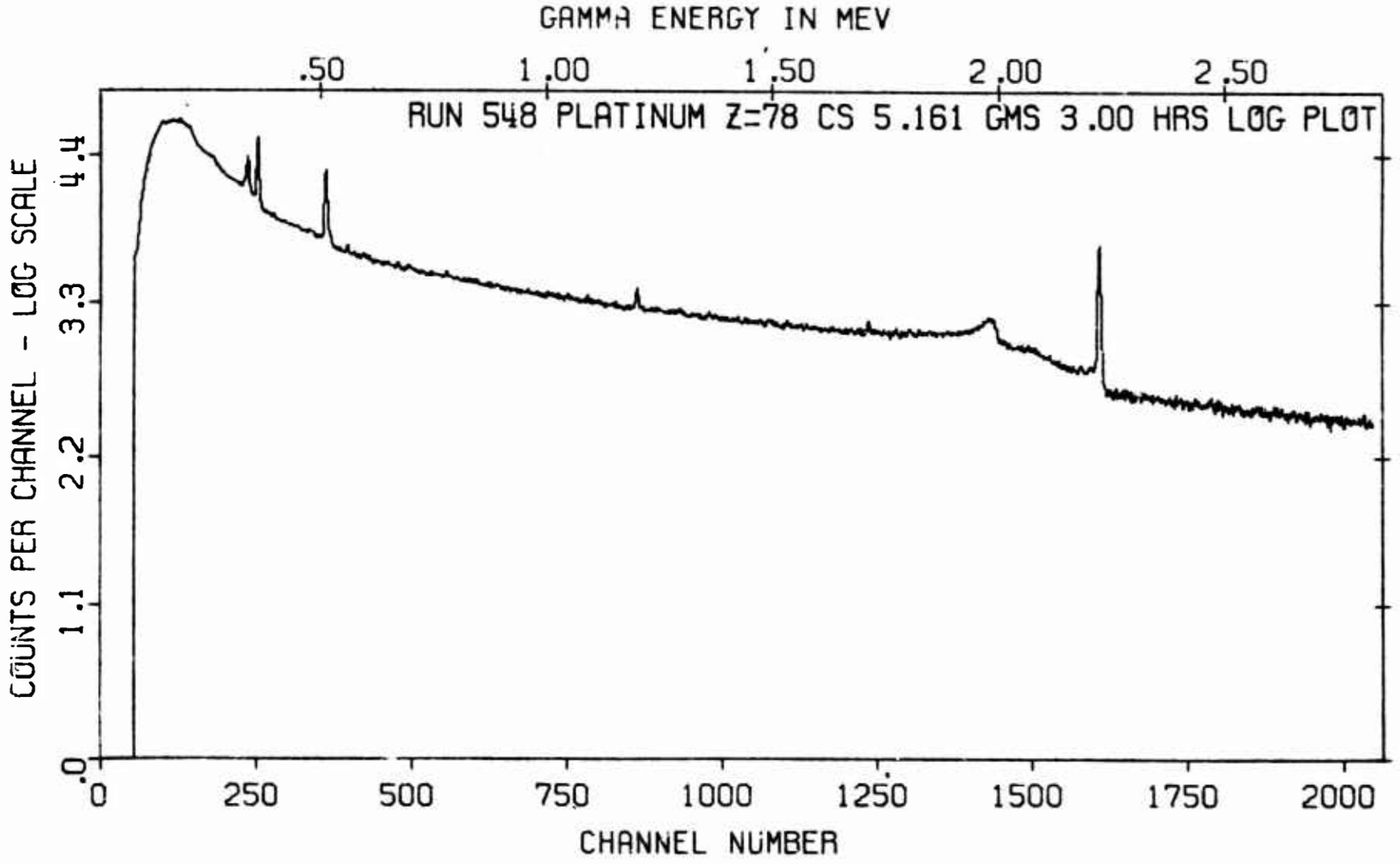
PLATINUM Z=78 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

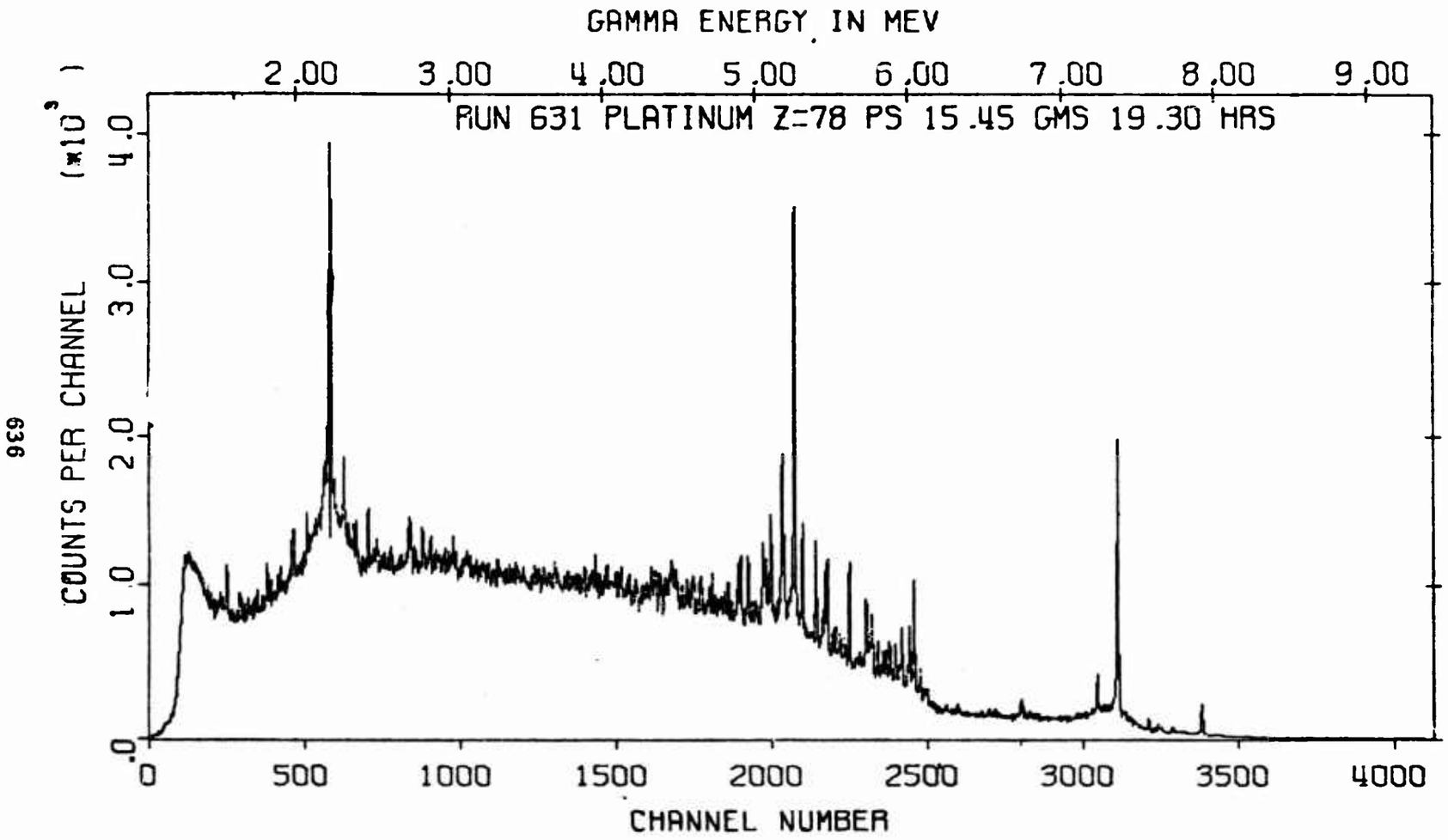
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
145	5046.6	.35
146	5060.9	.14
147	5078.1	.09
148	5098.8	.78
149	5116.8	.05
150	5140.0	.04
151	5173.4	1.45
152	5184.9	.66
153	5254.6	3.96
154	5307.0	.95
155	5393.2	.81
156	5417.2	.06
157	5432.6	.11
158	5451.3	.29
159	5468.3	.48
160	5499.6	.14
161	5521.1	.19
162	5546.7	.20
163	5576.7	.12
164	5611.4	.85
165	5676.7	.13
166	5692.8	.03
167	5721.1	.47
168	5738.5	.09
169	5759.3	.31
170	5795.7	.26
171	5829.3	.18
172	5847.4	.24
173	5874.5	.29
174	5910.5	.34
175	5935.1	.05
176	5952.8	.41
177	6003.9	.37
178	6033.5	.90
179	6074.1	.24
180	6097.5	.06
181	6118.1	.11
182	6244.2	.07
183	6319.1	.08
184	6518.8	.04
185	6560.4	.11
186	6738.0	.05
187	7232.9	.47
188	7565.6	.15
189	7722.4	.06
190	7920.9	.33

BE(KEV) 7716.4 OBSERVED %BE 122.48 NORMALIZED %BE 100.00

PLATINUM Z=78 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.21	.00	.21
2	250.0	500.0	44.56	.00	44.56
3	500.0	750.0	3.63	.00	3.63
4	750.0	1000.0	.38	.00	.38
5	1000.0	1250.0	1.25	.41	1.66
6	1250.0	1500.0	.91	1.43	2.34
7	1500.0	1750.0	.00	1.63	1.63
8	1750.0	2000.0	11.86	3.21	15.07
9	2000.0	2250.0	2.65	19.82	22.46
10	2250.0	2500.0	4.18	16.12	20.30
11	2500.0	2750.0	1.78	16.71	18.49
12	2750.0	3000.0	1.49	14.99	16.48
13	3000.0	3250.0	1.18	11.64	12.82
14	3250.0	3500.0	.64	9.18	9.81
15	3500.0	3750.0	.82	8.03	8.85
16	3750.0	4000.0	.82	7.53	8.35
17	4000.0	4250.0	.98	7.35	8.33
18	4250.0	4500.0	1.59	6.65	8.24
19	4500.0	4750.0	1.22	5.71	6.92
20	4750.0	5000.0	2.12	5.92	8.04
21	5000.0	5250.0	3.59	5.51	9.10
22	5250.0	5500.0	6.79	5.63	12.42
23	5500.0	5750.0	2.09	4.12	6.21
24	5750.0	6000.0	2.09	3.52	5.61
25	6000.0	6250.0	1.74	1.46	3.20
26	6250.0	6500.0	.08	.63	.71
27	6500.0	6750.0	.20	.82	1.02
28	6750.0	7000.0	.00	.59	.59
29	7000.0	7250.0	.47	.67	1.13
30	7250.0	7500.0	.00	1.64	1.64
31	7500.0	7750.0	.20	.57	.78
32	7750.0	8000.0	.33	.41	.74
33	8000.0	8250.0	.00	.00	.00
34	8250.0	8500.0	.00	.00	.00
35	8500.0	8750.0	.00	.00	.00
36	8750.0	9000.0	.00	.00	.00
BE(KEV)	7716.4	%BE	26.79	73.59	100.38


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 548 PLATINUM Z=78 CS 5.161 GMS 3.00 HRS LOG PLOT
COUNTS PER CHANNEL - LOG SCALE
0.0
1.1
2.2
3.3
4.4
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 631 PLATINUM Z=78 PS 15.45 GMS 19.30 HRS
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

939 636

GOLD Z=79 GAMAEC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	214.9	10.54
2	236.2	4.51
3	247.8	6.12
4	261.1	6.13
5	278.1	.56
6	291.6	1.86
7	307.5	.31
8	342.9	.92
9	349.8	1.03
10	371.0	.35
11	381.7	4.42
12	411.4	.68
13	418.0	.43
14	421.9	.36
15	440.6	2.76
16	456.0	.83
17	474.6	.51
18	477.7	.49
19	528.9	2.24
20	597.0	1.77
21	601.8	.73
22	612.6	.73
23	869.2	1.51
24	1201.8	12.99
25	1245.8	.53
26	1712.0	1.90
27	2010.6	.79
28	2302.1	.74
29	2390.7	5.95
30	2458.9	4.20
31	2593.7	1.38
32	2596.7	1.02
33	2649.8	1.80
34	2842.8	2.11
35	2659.6	.23
36	3186.6	.12
37	3265.1	.20
38	3558.6	.08
39	3614.6	.10
40	3692.9	.09
41	3705.5	.31
42	4006.5	.43
43	4025.8	.17
44	4073.6	.14
45	4123.8	.34
46	4188.2	.47
47	4278.8	.49
48	4301.0	.13

GOLD Z=79 CAMAC CODE MITNE-6 OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHO[illegible]/100CAPT
49	4321.6	.17
50	4338.1	.09
51	4369.6	.51
52	4397.6	.13
53	4478.9	.09
54	4510.6	.62
55	4525.9	.12
56	4543.4	.91
57	4573.6	.72
58	4587.7	.74
59	4600.2	.07
60	4637.1	.40
61	4643.6	.37
62	4688.7	.11
63	4733.2	.56
64	4762.9	.18
65	4770.3	.19
66	4785.7	.13
67	4799.5	1.14
68	4828.8	.16
69	4851.9	.56
70	4865.8	.53
71	4886.6	.55
72	4899.3	.55
73	4904.5	.58
74	4929.9	.14
75	4957.4	.96
76	4973.5	.23
77	4998.1	.79
78	5038.0	.42
79	5077.5	.58
80	5085.7	.79
81	5102.4	1.60
82	5140.8	.52
83	5148.2	.79
84	5175.4	.32
85	5204.9	.33
86	5224.1	.75
87	5279.3	.58
88	5307.9	.51
89	5354.0	.55
90	5364.6	.25
91	5385.9	.22
92	5394.2	.20
93	5419.9	.09
94	5463.5	.23
95	5473.2	.26
96	5493.4	.56

GOLD Z=79 GAMABC CODE MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5512.8	.19
98	5523.8	1.08
99	5541.1	.08
100	5594.0	.62
101	5619.7	.40
102	5642.9	.18
103	5675.9	.24
104	5710.1	1.76
105	5723.8	.52
106	5767.1	.11
107	5786.2	.07
108	5808.3	.31
109	5839.4	.35
110	5873.9	.45
111	5940.0	.61
112	5982.2	1.36
113	6057.8	.18
114	6105.6	.63
115	6148.3	1.18
116	6165.1	.17
117	6251.6	5.90
118	6266.0	.32
119	6275.7	1.28
120	6318.9	3.51
121	6416.7	.09
122	6456.6	2.26
123	6511.9	1.66

BINDING ENERGY = 6512.1 KBE = 54.99 + 51.75 = 106.74

GOLD Z=79 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	214.9	9.88
2	236.2	4.22
3	247.8	5.74
4	261.1	5.75
5	278.1	.52
6	291.6	1.75
7	307.5	.29
8	342.9	.86
9	349.8	.96
10	371.0	.32
11	381.7	4.14
12	411.4	.64
13	418.0	.40
14	421.9	.34
15	440.6	2.58
16	456.0	.78
17	474.6	.47
18	477.7	.46
19	528.9	2.10
20	597.0	1.66
21	601.8	.69
22	612.6	.69
23	869.2	1.42
24	1201.8	12.17
25	1245.8	.50
26	1712.0	1.78
27	2010.6	.74
28	2302.1	.70
29	2390.7	5.58
30	2458.9	3.93
31	2593.7	1.29
32	2596.7	.96
33	2649.8	1.68
34	2842.8	1.97
35	2659.6	.21
36	3186.6	.11
37	3265.1	.13
38	3558.6	.07
39	3614.6	.10
40	3692.9	.08
41	3705.5	.29
42	4006.5	.40
43	4025.8	.16
44	4073.6	.13
45	4123.8	.32
46	4188.2	.44
47	4278.8	.46
48	4301.0	.12

GOLD Z=79 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	4321.6	.16
50	4338.1	.09
51	4369.6	.47
52	4397.6	.12
53	4478.9	.08
54	4510.6	.58
55	4525.9	.12
56	4543.4	.85
57	4573.6	.58
58	4587.7	.70
59	4600.2	.06
60	4637.1	.37
61	4643.6	.34
62	4688.7	.10
63	4733.2	.52
64	4762.9	.17
65	4770.3	.18
66	4785.7	.12
67	4799.5	1.06
68	4828.8	.15
69	4851.9	.52
70	4865.8	.49
71	4886.6	.51
72	4899.3	.51
73	4904.5	.54
74	4929.9	.13
75	4957.4	.90
76	4973.5	.22
77	4998.1	.74
78	5038.0	.39
79	5077.5	.54
80	5085.7	.74
81	5102.4	1.50
82	5140.8	.49
83	5148.2	.74
84	5175.4	.30
85	5204.9	.31
86	5224.1	.70
87	5279.3	.55
88	5307.9	.48
89	5354.0	.51
90	5364.6	.23
91	5385.9	.21
92	5394.2	.19
93	5419.9	.09
94	5463.5	.22
95	5473.2	.24
96	5493.4	.53

GOLD Z=79 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

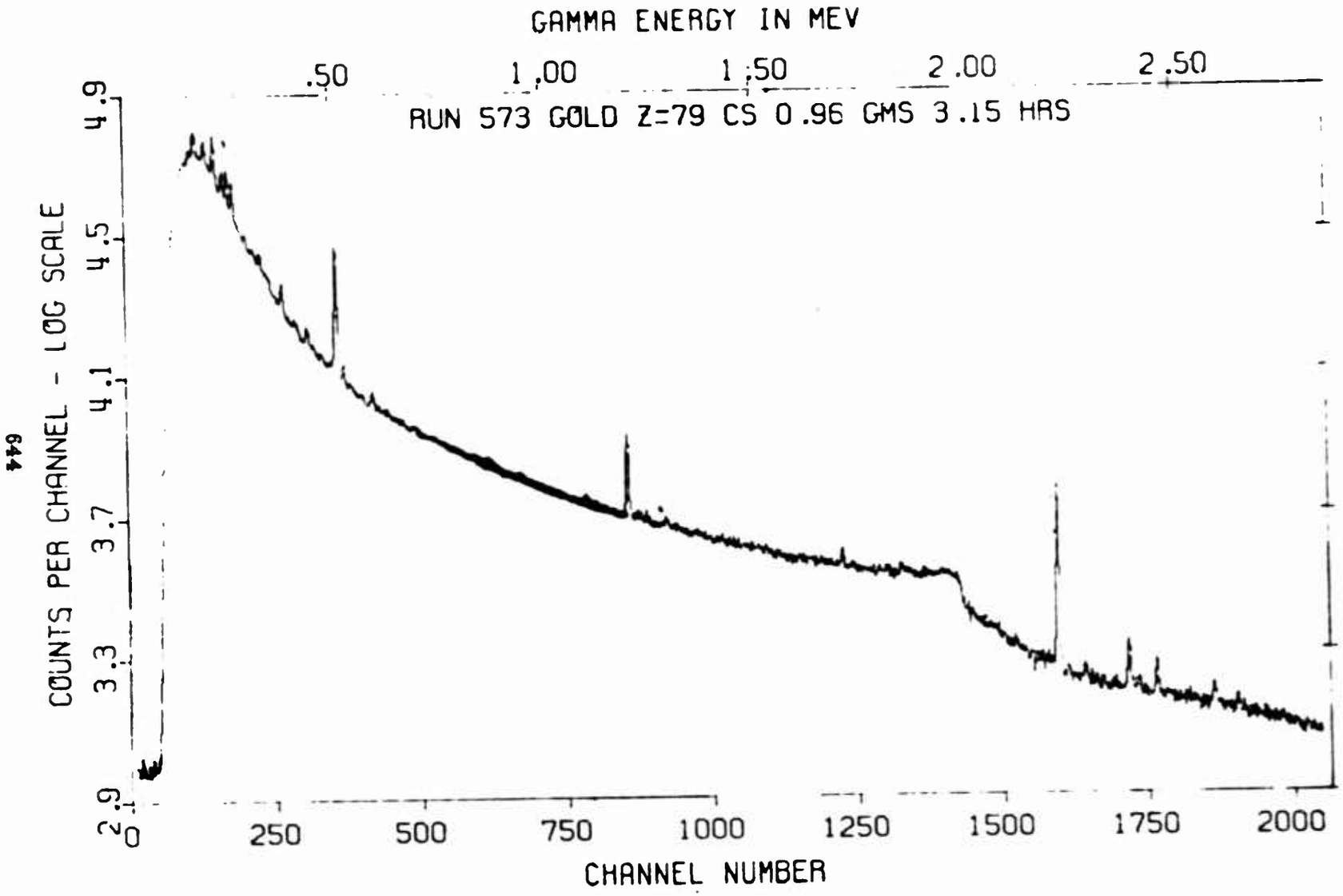
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	5512.8	.17
98	5523.8	1.01
99	5541.1	.08
100	5594.0	.58
101	5619.7	.37
102	5642.9	.17
103	5675.9	.23
104	5710.1	1.65
105	5723.8	.49
106	5767.1	.11
107	5786.2	.07
108	5808.3	.29
109	5839.4	.33
110	5878.9	.43
111	5940.0	.57
112	5982.2	1.27
113	6057.8	.17
114	6105.6	.59
115	6148.3	1.11
116	6165.1	.15
117	6251.6	5.52
118	6266.0	.30
119	6275.7	1.20
120	6318.9	3.28
121	6416.7	.09
122	6456.6	2.11
123	6511.9	1.55

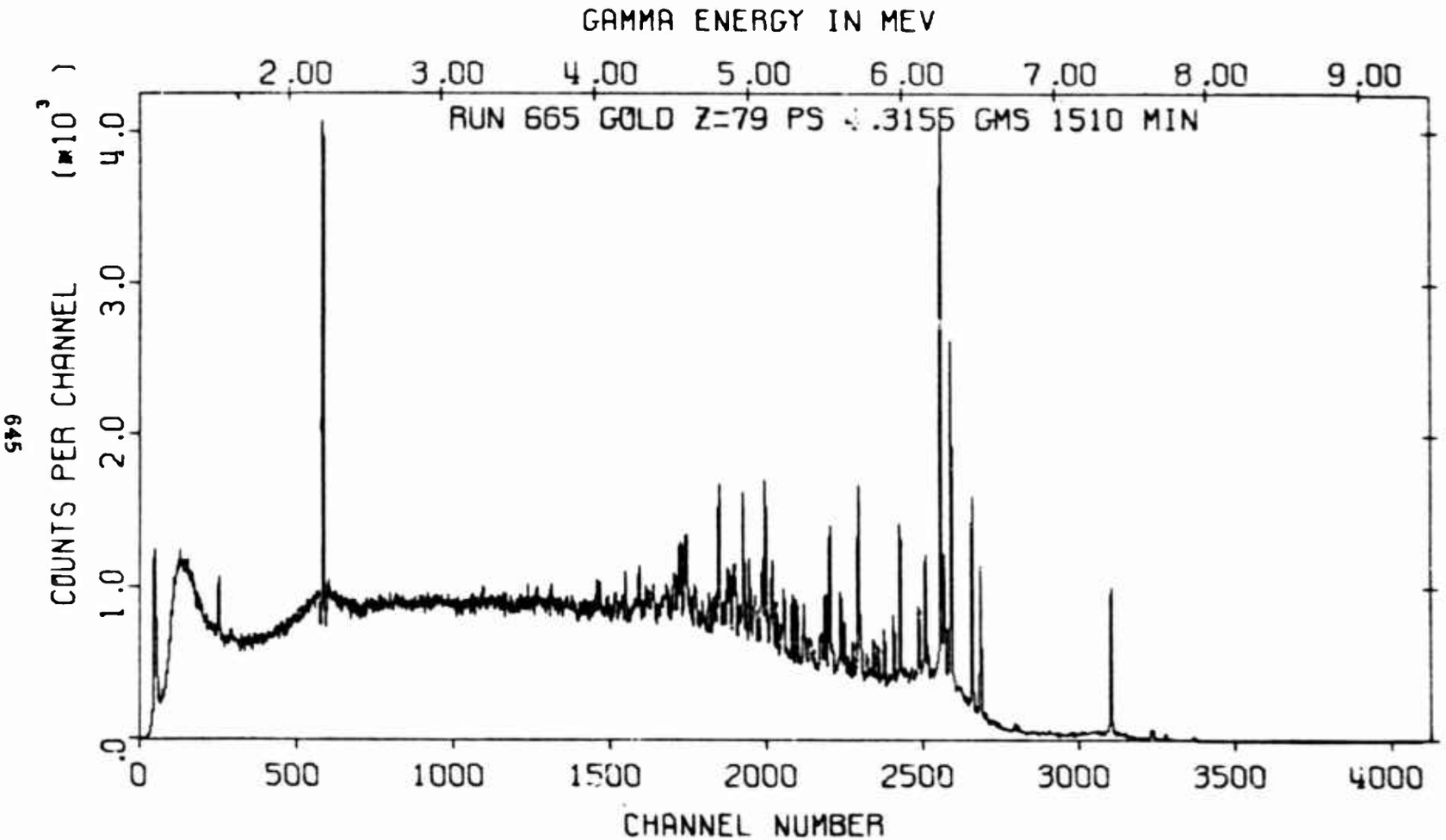
BE(KEV) 6512.1 OBSERVED %BE 106.74 NORMALIZED %BE 100.00

GOLD Z=79 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	19.84	.00	19.84
2	250.0	500.0	20.27	.00	20.27
3	500.0	750.0	5.13	.00	5.13
4	750.0	1000.0	1.42	.00	1.42
5	1000.0	1250.0	12.67	.00	12.67
6	1250.0	1500.0	.00	1.87	1.87
7	1500.0	1750.0	1.78	5.62	7.40
8	1750.0	2000.0	.00	9.73	9.73
9	2000.0	2250.0	.74	14.05	14.79
10	2250.0	2500.0	10.21	10.72	20.93
11	2500.0	2750.0	3.93	9.74	13.67
12	2750.0	3000.0	2.18	8.37	10.55
13	3000.0	3250.0	.11	6.07	6.18
14	3250.0	3500.0	.19	5.48	5.67
15	3500.0	3750.0	.54	5.00	5.55
16	3750.0	4000.0	.00	4.50	4.50
17	4000.0	4250.0	1.45	3.61	5.06
18	4250.0	4500.0	1.50	4.19	5.69
19	4500.0	4750.0	4.32	2.99	7.31
20	4750.0	5000.0	6.25	2.95	9.20
21	5000.0	5250.0	5.72	1.75	7.47
22	5250.0	5500.0	3.23	1.55	4.78
23	5500.0	5750.0	4.75	1.34	6.09
24	5750.0	6000.0	3.06	1.37	4.42
25	6000.0	6250.0	2.03	.99	3.02
26	6250.0	6500.0	12.51	.67	13.18
27	6500.0	6750.0	1.55	.48	2.03
28	6750.0	7000.0	.00	.00	.00
29	7000.0	7250.0	.00	.00	.00
30	7250.0	7500.0	.00	.00	.00
31	7500.0	7750.0	.00	.00	.00
BE(KEV)	6512.1	%BE	51.27	48.48	99.75


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 573 GOLD Z=79 CS 0.96 GMS 3.15 HRS
COUNTS PER CHANNEL - LOG SCALE
4.9
4.5
4.1
3.7
3.3
2.9
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 665 GOLD Z=79 PS .3155 GMS 1510 MIN
COUNTS PER CHANNEL (*10^3)
4.0
3.0
2.0
1.0
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	518.1	92.21
2	540.1	.39
3	573.4	1.98
4	661.1	4.51
5	851.3	.78
6	895.8	2.62
7	1147.2	.59
8	1225.7	2.18
9	1254.0	.94
10	1263.0	2.25
11	1274.2	.97
12	1349.2	.77
13	1407.6	1.25
14	1571.4	7.35
15	1693.9	14.28
16	1719.5	2.74
17	1862.4	.98
18	2002.4	7.09
19	2214.0	1.22
20	2254.5	.57
21	2259.2	.68
22	2271.9	1.92
23	2296.7	1.13
24	2613.4	.46
25	2639.5	3.92
26	2704.8	.39
27	2817.6	.62
28	2883.6	.26
29	2900.8	1.17
30	2920.2	1.31
31	2984.3	.66
32	3052.7	.61
33	3073.7	.29
34	3125.3	.22
35	3185.7	3.37
36	3216.2	.91
37	3268.4	.90
38	3288.6	3.01
39	3352.8	.64
40	3425.3	.27
41	3499.4	.40
42	3601.5	.19
43	3633.6	.54
44	3748.4	.26
45	3840.2	.22
46	3850.2	.26
47	3868.1	.51
48	3891.8	.20

MERCURY Z=80 GAMAEC CODE MAINE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3950.2	.57
50	4094.9	.32
51	4114.8	.63
52	4243.1	.26
53	4271.9	.53
54	4280.5	.47
55	4351.2	.27
56	4372.3	.59
57	4458.1	.23
58	4536.0	.25
59	4555.2	.31
60	4574.3	1.04
61	4604.1	.26
62	4675.4	3.03
63	4739.1	7.34
64	4756.8	3.27
65	4799.5	.21
66	4811.3	.85
67	4841.8	5.06
68	4893.5	.20
69	4904.7	.12
70	4919.3	.20
71	4953.6	1.05
72	4974.8	1.16
73	5049.8	5.07
74	5148.6	.42
75	5387.6	3.86
76	5484.0	.15
77	5566.0	.24
78	5657.7	6.22
79	5731.2	.41
80	5966.2	14.01
91	6229.9	.28
92	6310.0	.72
93	6397.0	.80
94	6457.5	5.25

BINDING ENERGY = 8029.3 %BE = 66.59 + 34.46 = 101.05

MERCURY Z=80 GAMAMC CODE MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	368.1	81.35
2	540.1	.39
3	573.4	1.96
4	661.1	4.47
5	851.3	.77
6	886.6	2.59
7	1147.2	.59
8	1225.7	2.15
9	1254.0	.93
10	1263.0	2.23
11	1274.2	.86
12	1349.2	.76
13	1407.6	1.23
14	1571.4	7.27
15	1693.3	14.13
16	1719.5	2.71
17	1862.4	.97
18	2002.4	7.02
19	2214.0	1.20
20	2254.5	.57
21	2259.2	.67
22	2271.9	1.80
23	2295.7	1.12
24	2619.4	.45
25	2639.5	3.89
26	2704.8	.38
27	2817.8	.61
28	2883.6	.26
29	2900.6	1.16
30	2920.2	1.29
31	2984.3	.65
32	3052.7	.60
33	3073.7	.28
34	3125.3	.22
35	3185.7	3.34
36	3216.2	.90
37	3268.4	.89
38	3283.6	2.98
39	3352.8	.63
40	3425.3	.27
41	3499.4	.39
42	3601.5	.18
43	3633.6	.54
44	3748.4	.26
45	3840.2	.21
46	3850.2	.26
47	3868.1	.51
48	3891.8	.20

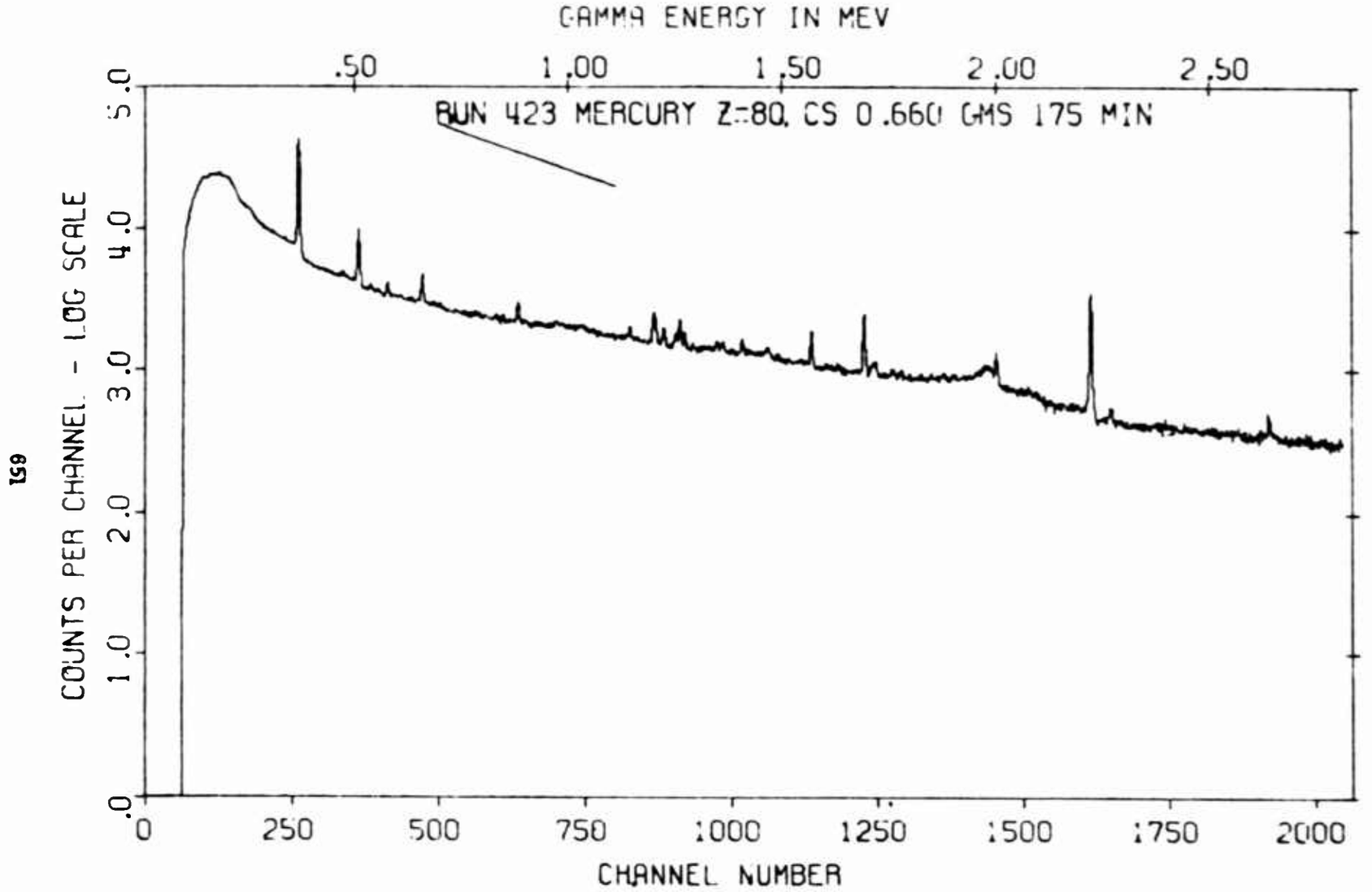
MERCURY Z=80 GAMABC CODE MITNE-85 DATA NORMALIZED YIELDS

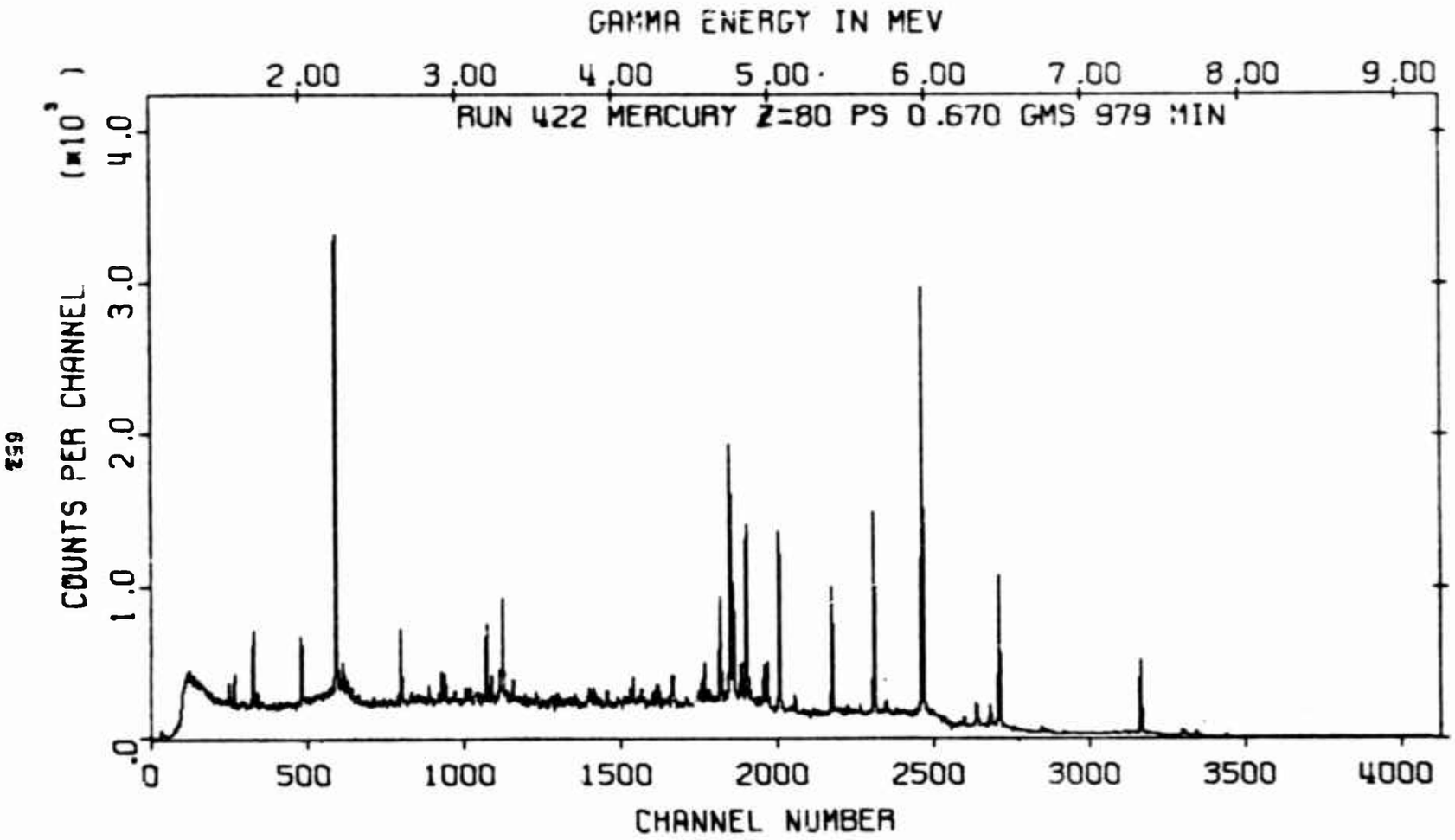
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	3950.2	.56
50	4094.9	.32
51	4114.8	.62
52	4243.1	.26
53	4271.9	.62
54	4280.3	.47
55	4351.2	.27
56	4372.3	.58
57	4458.1	.23
58	4536.0	.24
59	4555.2	.30
60	4574.3	1.02
61	4604.0	.25
62	4675.4	2.99
63	4739.1	7.27
64	4758.8	3.24
65	4799.5	.21
66	4811.3	.84
67	4841.8	5.00
68	4893.5	.20
69	4904.7	.12
70	4919.3	.20
71	4953.6	1.04
72	4974.8	1.15
73	5049.8	5.02
74	5148.6	.42
75	5387.6	3.82
76	5484.0	.15
77	5566.0	.24
78	5657.7	6.16
79	5731.2	.41
80	5966.2	13.86
81	6229.9	.28
82	6310.0	.71
83	6397.0	.79
84	6457.5	5.20

BE(KEV) 8028.3 OBSERVED %BE 101.05 NORMALIZED %BE 100.00

MERCURY Z=80 GAMABC CODE MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY	(KEV)	RESOLVED	UNRESOLVED	TOTAL
1	.0	250.0	.00	.00	.00
2	250.0	500.0	81.64	.00	81.64
3	500.0	750.0	6.84	.00	6.84
4	750.0	1000.0	3.38	.00	3.38
5	1000.0	1250.0	2.75	.70	3.45
6	1250.0	1500.0	6.05	1.69	7.74
7	1500.0	1750.0	24.20	3.58	27.77
8	1750.0	2000.0	.98	6.47	7.44
9	2000.0	2250.0	8.25	11.87	20.12
10	2250.0	2500.0	4.18	9.98	14.16
11	2500.0	2750.0	4.73	7.42	12.15
12	2750.0	3000.0	4.00	7.68	11.68
13	3000.0	3250.0	5.36	4.76	10.12
14	3250.0	3500.0	5.18	5.17	10.36
15	3500.0	3750.0	.98	3.18	4.16
16	3750.0	4000.0	1.75	2.41	4.16
17	4000.0	4250.0	1.21	2.75	3.96
18	4250.0	4500.0	2.18	1.83	4.00
19	4500.0	4750.0	12.13	2.00	14.13
20	4750.0	5000.0	12.04	2.13	14.17
21	5000.0	5250.0	5.45	1.40	6.85
22	5250.0	5500.0	3.99	1.86	5.85
23	5500.0	5750.0	6.82	1.54	8.36
24	5750.0	6000.0	13.91	1.85	15.76
25	6000.0	6250.0	.28	1.31	1.59
26	6250.0	6500.0	6.73	1.49	8.22
27	6500.0	6750.0	.00	.73	.73
28	6750.0	7000.0	.00	.68	.68
29	7000.0	7250.0	.00	.37	.37
30	7250.0	7500.0	00	.26	.26
BE (KEV)	8028.3	%BE	65.99	33.86	99.86


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 423 MERCURY Z=80. CS 0.660 GMS 175 MIN
COUNTS PER CHANNEL - LOG SCALE
.0
1.0
2.0
3.0
4.0
5.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER


GAMMA ENERGY IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 422 MERCURY Z=80 PS 0.670 GMS 979 MIN
COUNTS PER CHANNEL (×10³)
0.0
1.0
2.0
3.0
4.0
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	195.3	0.74
2	241.6	0.15
3	253.0	0.35
4	265.6	0.23
5	270.2	0.15
6	275.8	0.18
7	292.9	1.19
8	319.5	2.39
9	331.0	0.56
10	338.5	0.36
11	348.7	3.53
12	396.1	0.87
13	425.1	1.19
14	472.0	1.31
15	489.6	1.57
16	540.8	0.57
17	558.3	0.41
18	562.0	0.52
19	625.9	0.68
20	627.9	0.83
21	632.9	0.46
22	679.3	0.63
23	713.8	0.67
24	737.6	2.51
25	764.6	0.78
26	873.2	2.51
27	910.9	1.48
28	931.1	0.72
29	949.9	0.87
30	1094.1	0.95
31	1109.8	0.41
32	1113.1	0.23
33	1121.5	0.75
34	1143.7	0.16
35	1154.9	0.62
36	1203.7	1.86
37	1235.4	1.13
38	1293.3	0.86
39	1360.3	0.45
40	1459.5	0.70
41	1478.0	1.16
42	1582.2	0.62
43	1601.6	0.59
44	1712.6	0.68
45	1741.1	1.17
46	1781.9	1.28
47	1819.8	1.03
48	2111.2	0.71

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2341.0	0.65
50	2397.4	0.48
51	2859.6	0.06
52	3942.1	0.10
53	4016.6	0.04
54	4079.2	0.12
55	4114.4	0.17
56	4196.3	0.40
57	4225.7	0.71
58	4287.0	0.05
59	4309.7	0.30
60	4343.5	0.46
61	4403.9	0.08
62	4439.9	0.19
63	4464.7	0.05
64	4495.4	0.54
65	4540.8	0.42
66	4569.3	0.26
67	4601.9	0.50
68	4659.1	0.07
69	4687.6	1.53
70	4705.8	0.93
71	4752.4	1.90
72	4805.1	0.20
73	4841.1	0.60
74	4868.7	0.11
75	4913.4	2.13
76	4980.9	0.28
77	5014.5	0.80
78	5128.6	0.65
79	5154.5	0.06
80	5180.5	1.89
81	5239.4	0.17
82	5261.7	0.98
83	5280.2	2.46
84	5404.1	1.67
85	5450.8	0.91
86	5503.3	0.25
87	5533.4	1.86
88	5603.3	3.30
89	5641.5	3.89
90	5853.2	0.04
91	5866.0	0.09
92	5889.1	0.10
93	5917.1	1.03
94	6025.0	0.26
95	6118.6	0.24
96	6166.3	2.08

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6182.7	0.95
98	6199.1	0.11
99	6222.4	0.78
100	6336.0	0.23
101	6514.9	1.63
102	6654.4	0.12

BINDING ENERGY = 6644.8 %BE = 37.30 + 99.71 = 137.01

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	195.3	0.54
2	241.6	0.11
3	253.0	0.25
4	265.6	0.17
5	270.2	0.11
6	275.9	0.13
7	292.8	0.87
8	319.5	1.75
9	331.0	0.41
10	338.5	0.26
11	348.7	2.58
12	396.1	0.64
13	425.1	0.87
14	472.0	0.96
15	488.6	1.15
16	540.9	0.42
17	558.3	0.30
18	562.0	0.38
19	625.9	0.50
20	627.9	0.61
21	632.9	0.34
22	679.3	0.46
23	713.9	0.49
24	737.6	1.83
25	764.6	0.57
26	873.2	1.83
27	910.9	1.08
28	931.1	0.53
29	949.9	0.63
30	1094.1	0.70
31	1109.8	0.30
32	1113.1	0.17
33	1121.5	0.55
34	1143.7	0.12
35	1154.9	0.46
36	1203.7	1.36
37	1235.4	0.82
38	1293.3	0.63
39	1360.3	0.33
40	1459.5	0.51
41	1478.0	0.85
42	1582.2	0.45
43	1601.6	0.43
44	1712.6	0.50
45	1741.1	0.86
46	1781.9	0.94
47	1819.8	0.75
48	2111.2	0.52

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
49	2341.0	0.47
50	2397.4	0.35
51	2858.6	0.05
52	3942.1	0.07
53	4016.6	0.03
54	4079.2	0.09
55	4114.4	0.13
56	4196.3	0.29
57	4225.7	0.51
58	4287.0	0.04
59	4309.7	0.22
60	4343.5	0.34
61	4403.9	0.06
62	4439.9	0.14
63	4464.7	0.04
64	4495.4	0.40
65	4540.8	0.30
66	4569.3	0.19
67	4601.9	0.37
68	4659.1	0.05
69	4687.6	1.11
70	4705.8	0.68
71	4752.4	1.39
72	4805.1	0.15
73	4841.1	0.44
74	4868.7	0.08
75	4913.4	1.55
76	4980.9	0.20
77	5014.5	0.58
78	5128.6	0.48
79	5154.5	0.04
80	5180.5	1.38
81	5239.4	0.12
82	5261.7	0.72
83	5280.2	1.80
84	5404.1	1.22
85	5450.8	0.67
86	5503.3	0.18
87	5533.4	1.36
88	5603.3	2.41
89	5641.5	2.84
90	5853.2	0.03
91	5866.0	0.06
92	5889.1	0.07
93	5917.1	0.75
94	6025.0	0.19
95	6118.6	0.17
96	6166.3	1.52

THALLIUM Z=81 GAMABC CODE MITNE-85 DAT NORMALIZED YIELDS

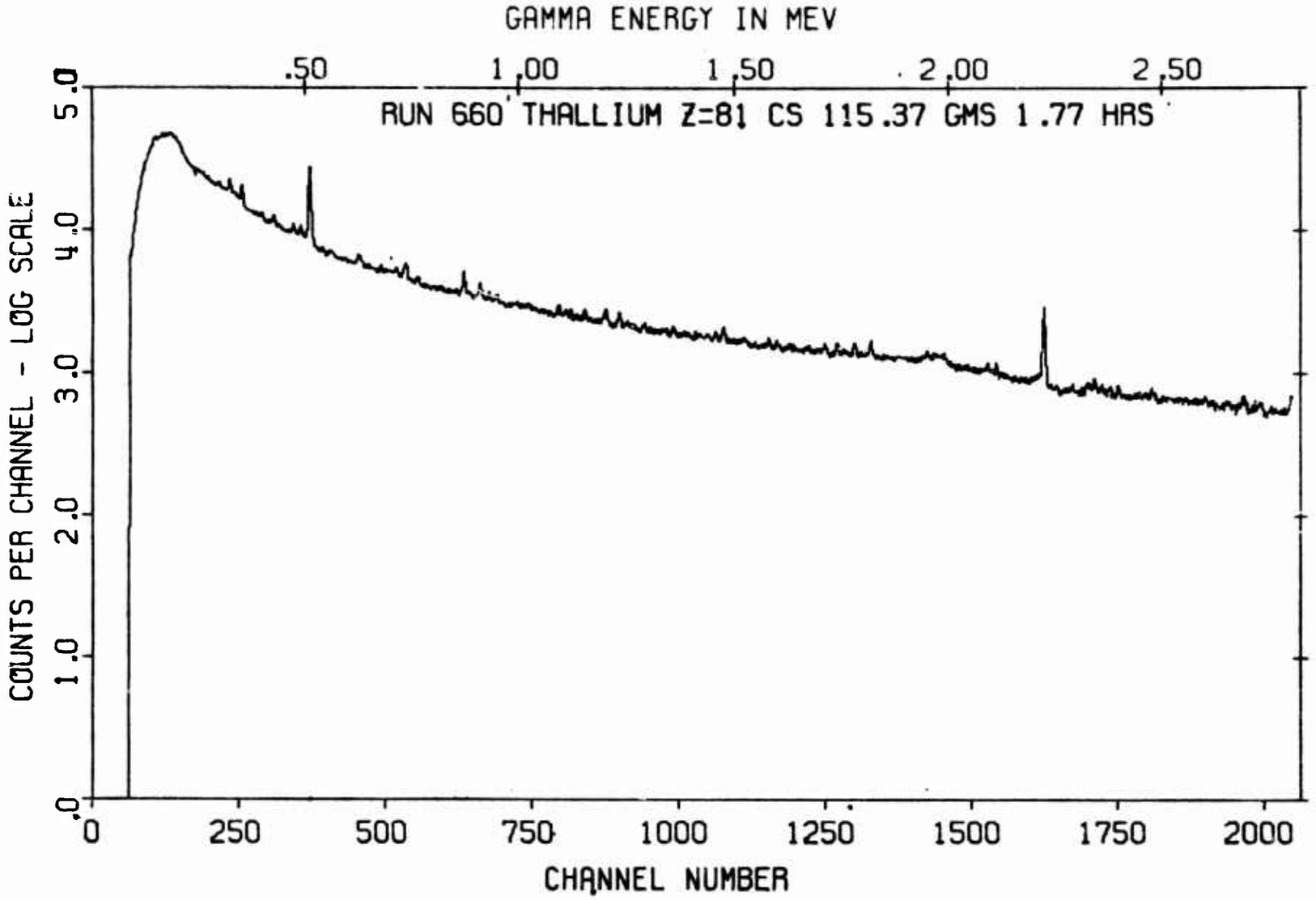
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
97	6182.7	0.70
98	6199.1	0.08
99	6222.4	0.57
100	6336.0	0.17
101	6514.9	1.19
102	6654.4	0.09

BE(KEV) 6644.8 OBSERVED %BE 137.01 NORMALIZED %BE 100.00

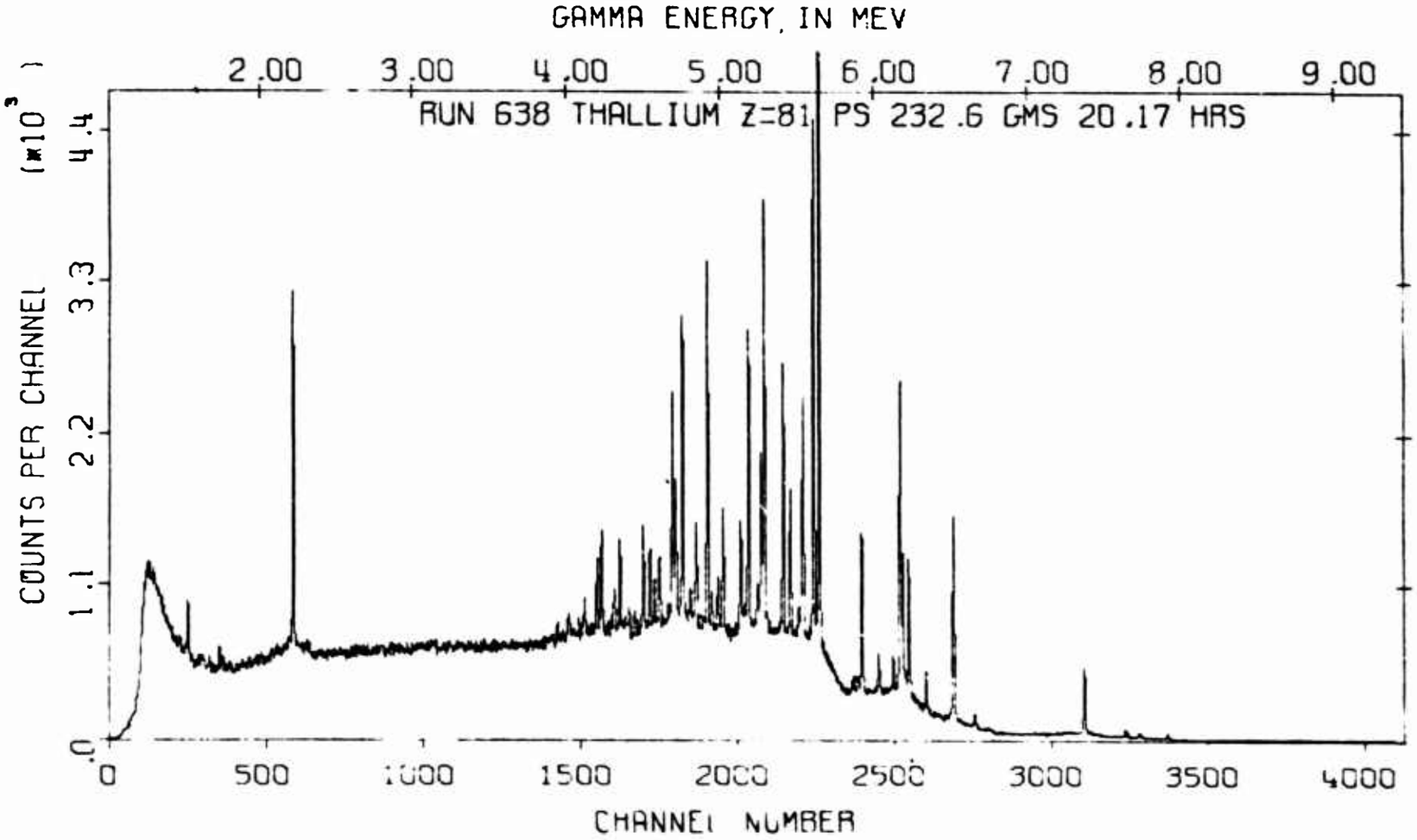
THALLIUM Z=81 GAMABC CODE MITNE-85 DAT NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED	UNRESOLVED	TOTAL
1	0.0	250.0	0.65	0.0	0.65
2	250.0	500.0	10.13	0.0	10.13
3	500.0	750.0	5.32	0.0	5.32
4	750.0	1000.0	4.65	0.73	5.38
5	1000.0	1250.0	4.47	1.46	5.93
6	1250.0	1500.0	2.31	4.38	6.69
7	1500.0	1750.0	2.23	31.75	33.98
8	1750.0	2000.0	1.69	17.45	19.14
9	2000.0	2250.0	0.52	15.14	15.66
10	2250.0	2500.0	0.82	11.82	12.64
11	2500.0	2750.0	0.0	10.06	10.06
12	2750.0	3000.0	0.05	8.55	8.60
13	3000.0	3250.0	0.0	6.50	6.50
14	3250.0	3500.0	0.0	4.88	4.88
15	3500.0	3750.0	0.0	3.86	3.86
16	3750.0	4000.0	0.07	3.50	3.58
17	4000.0	4250.0	1.05	3.87	4.92
18	4250.0	4500.0	1.22	3.63	4.85
19	4500.0	4750.0	2.70	4.31	7.01
20	4750.0	5000.0	3.81	4.46	8.27
21	5000.0	5250.0	2.60	4.80	7.41
22	5250.0	5500.0	4.40	5.50	9.89
23	5500.0	5750.0	6.79	5.12	11.91
24	5750.0	6000.0	0.91	2.25	3.16
25	6000.0	6250.0	3.23	3.04	6.27
26	6250.0	6500.0	0.17	1.63	1.80
27	6500.0	6750.0	1.28	0.82	2.10
BE(KEV)	6644.8	%BE	27.18	72.78	99.96


GAMMA ENERGY IN MEV
.50
1.00
1.50
2.00
2.50
RUN 660 THALLIUM Z=81 CS 115.37 GMS 1.77 HRS
COUNTS PER CHANNEL - LOG SCALE
5.0
4.0
3.0
2.0
1.0
.0
0
250
500
750
1000
1250
1500
1750
2000
CHANNEL NUMBER

089


GAMMA ENERGY, IN MEV
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
RUN 638 THALLIUM Z=81 PS 232.6 GMS 20.17 HRS
COUNTS PER CHANNEL (*10^3)
0.0
1.1
2.2
3.3
4.4
0
500
1000
1500
2000
2500
3000
3500
4000
CHANNEL NUMBER

LEAD Z=82 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	6736.4	5.08
2	7367.7	94.77

BINDING ENERGY = 7270.0 SBF = 100.75

LEAD Z=82 MITNE-85 DATA NORMALIZED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	6736.4	5.04
2	7367.7	94.96

BE(KEV) 7270.0 OBSERVED %BE 100.75 NORMALIZED %BE 100.00

LEAD Z=82 MITNE-85 DATA NORMALIZED BIN YIELDS
GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	0.0
5	1000.0	1250.0	0.0
6	1250.0	1500.0	0.0
7	1500.0	1750.0	0.0
8	1750.0	2000.0	0.0
9	2000.0	2250.0	0.0
10	2250.0	2500.0	0.0
11	2500.0	2750.0	0.0
12	2750.0	3000.0	0.0
13	3000.0	3250.0	0.0
14	3250.0	3500.0	0.0
15	3500.0	3750.0	0.0
16	3750.0	4000.0	0.0
17	4000.0	4250.0	0.0
18	4250.0	4500.0	0.0
19	4500.0	4750.0	0.0
20	4750.0	5000.0	0.0
21	5000.0	5250.0	0.0
22	5250.0	5500.0	0.0
23	5500.0	5750.0	0.0
24	5750.0	6000.0	0.0
25	6000.0	6250.0	0.0
26	6250.0	6500.0	0.0
27	6500.0	6750.0	5.04
28	6750.0	7000.0	0.0
29	7000.0	7250.0	0.0
30	7250.0	7500.0	94.06
31	7500.0	7750.0	0.0

BE(KEV) 7270.0 BIN NORMALIZED %BE 100.02

BISMUTH Z=83 MITNE-85 DATA OBSERVED YIELDS

PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	4054.7	26.49
2	4101.8	17.72
3	4171.1	36.93

BINDING ENERGY = 4599.7 %BE = 72.64

BISMUTH Z=83		MITNE-85 DATA NORMALIZED YIELDS
PEAK NO	ENERGY(KEV)	NO OF PHOTONS/100CAPT
1	4054.7	36.47
2	4101.8	24.39
3	4171.1	50.84
BE(KEV)	4599.7 OBSERVED %BE	72.64 NORMALIZED %BE 100.00

BISMUTH Z=83 MITNE-85 DATA NORMALIZED BIN YIELDS

GAMMA YIELDS IN UNITS OF NO OF PHOTONS/100 CAPT

NO	ENERGY (KEV)		RESOLVED
1	0.0	250.0	0.0
2	250.0	500.0	0.0
3	500.0	750.0	0.0
4	750.0	1000.0	0.0
5	1000.0	1250.0	0.0
6	1250.0	1500.0	0.0
7	1500.0	1750.0	0.0
8	1750.0	2000.0	0.0
9	2000.0	2250.0	0.0
10	2250.0	2500.0	0.0
11	2500.0	2750.0	0.0
12	2750.0	3000.0	0.0
13	3000.0	3250.0	0.0
14	3250.0	3500.0	0.0
15	3500.0	3750.0	0.0
16	3750.0	4000.0	0.0
17	4000.0	4250.0	111.70
18	4250.0	4500.0	0.0

BE(KEV) 4599.7 BIN NORMALIZED %BE 100.17

5. TRANSLATION OF CAPTURE DATA INTO THE ENDF FORMAT

To facilitate the use of the present data in shielding calculations, we have translated the normalization bin yields into the ENDF format. The data have been written onto magnetic tape and the tape has been submitted to the National Neutron Cross Section Center at the Brookhaven National Laboratory. Use was made of the new ENDF/B formats for photon production and interaction data.[15] This section gives a brief general outline of the format used.

The thermal capture gamma-ray yield data was written using three ENDF files. File 1 contains a brief documentation of the data and a dictionary of files included for each material. File 12 contains the multiplicity (number of photons/capture) information while File 15 contains a tabulation of the normalized photon energy distribution function.

Using the same definitions and conventions given in reports describing the ENDF system,[15-17] the general data formats for Files 12 and 15 are given in Tables 18 and 19, respectively. Note that the general format for File 12 has been simplified considerably in Table 18 since for the present data only one photon spectrum is present. Also, note that the general format for File 15 has been specialized in Table 19 for the present data which apply to only one neutron energy. The thermal capture γ-ray yields are arbitrarily given at a neutron energy, $E = 1 \times 10^{-5}$ eV. The photon production cross section for the continuous spectrum is given by

$$\frac{d\sigma_\gamma^{NK}(E_\gamma \leftarrow E)}{dE_\gamma} = \sigma(E)\, y_{NK}(E_\gamma \leftarrow E) = \sigma(E)\, y_{NK}(E)\, p(E_\gamma \leftarrow E)$$

where $\sigma(E)$ is determined from File 3; $y_{NK}(E)$ is the photon yield (multiplicity) for neutrons of energy, E, and is given in File 12; p $p(E_\gamma \leftarrow E)$, the normalized photon energy distribution, has been divided into NC (=1, in this case) normalized components, $g_j(E_\gamma \leftarrow E)$, with associated probabilities, $p_j(E)$ (=1.0, in this case). The $g_j(E_\gamma \leftarrow E_l)$ functions in Table 19 are normalized so that

$$\int_0^\infty g_j(E_\gamma \leftarrow E_l)dE_\gamma \equiv 1.0,$$

and have units of (eV^{-1}). The $g_j(E_\gamma \leftarrow E_l)$'s are obtained by dividing the normalized capture γ-ray bin yields (photons/capture) by the binding energy (eV/capture). Since the ENDF/B procedures require that the tabulated functions, $g_j(E_\gamma \leftarrow E_l)$ be normalized to unity within four significant figures, it was necessary to renormalize the bin yields (for the sum of resolved and unresolved γ-rays) shown in the tables of Section 4 to the binding energy within this tolerance.

A computer program DATTAP was written in FORTRAN V for the UNIVAC-1108 computer to read the capture gamma-ray energies and bin intensities from cards and to write this data onto magnetic tape in the ENDF format described above. A listing of this program is given in Appendix A. In order to allow the data tape to be easily read at other computers, the data was written in BCD format. We used a 7-track tape and wrote at a speed of 556 bpi.

A sample listing of the data for one element, iron, is given in Table 20. DATTAP prints the data in exactly the same "card-image" format used in writing the tape. Note that the gamma-ray energies are in keV and the tabulated function $g_j(E_\gamma \leftarrow E_l)$ has units of eV^{-1}.

Table 18

ENDF/B CARD IMAGE FORMAT FOR FILE 12

Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Record Type
ZA	AWR	LO=1	b*	NK=0	b	HEAD
EG_K=0.0 NBT(1) E_1	ES=0.0 INT(1) $y_1(E_1)$	b	LF=1	NR=1	NP=1	TAB1
b	b	b	b	b	b	SEND

*b = blank

Field 7 (Cols 67-70) = MAT

Field 8 (Cols 71-72) = MF = 12

Field 9 (Cols 73-75) = MT (except SEND card)

Field 10 (Cols 76-80) = Card sequence number

Table 19

ENDF/B CARD IMAGE FORMAT FOR FILE 15

Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Record Type
ZA	AWR	b*	b	NC	b	HEAD
b NBT(1) --- E_1 ---	b INT(1) --- $p(E_1)$ ---	b NBT(2) --- E_2 ---	LF INT(2) --- $p(E_2)$ ---	NR NBT(3) NBT(NR) E_3 E_{NP}	NP INT(3) INT(NR) $p(E_3)$ $p(E_{NP})$	TAB1
T=0.0 NBT(1)	b INT(1)	LT=0 ---	b ---	NR=1 NBT(NR)	NE=1 INT(NR)	TAB2
b NBT(1) $E_{\gamma 1}$ ---	E_1 INT(1) $g(E_{\gamma 1} \leftarrow E_1)$ ---	b --- $E_{\gamma 2}$ ---	b --- $g(E_{\gamma 2} \leftarrow E_1)$ ---	NR NBT(NR) $E_{\gamma 3}$ $E_{\gamma NP}$	NP INT(NR) $g(E_{\gamma 3} \leftarrow E_1)$ $g(E_{\gamma NP} \leftarrow E_1)$	TAB1
0.0	0.0	0.0	0.0	0.0	0.0	SEND

*b = blank

Field 7 (Cols 67-70) = MAT

Field 8 (Cols 71-72) = MF = 15

Field 9 (Cols 73-75) = MT (except SEND card)

Field 10 (Cols 76-80) = Card sequence numbers

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APPENDIX A

LISTING OF DATTAP COMPUTER PROGRAM

```
00101     1•          PARAMETER  LL=50• KK=19
00103     2•          DIMENSION LINE(LL)•EGLB(LL)•GAMINT(LL)•V(5)•NBT(3)•INT(3)•NEL(KK)•
00103     3•         1GAMPRB(LL)•EGLBEV(LL)•W(5)•F(2)•G(2)•H(2)•GK(LL)•HOLDAT(11•6)
00104     4•          DATA V(1)/6H(IS•F1/
00104     5•         1      V(2)/4HD.1•/
00104     6•         2      V(4)/6HOX•F10/
00104     7•         3      V(5)/3H.1)/
00111     8•          DATA A/1H1/• B/1H3/
00114     9•          DATA W(1)/1H(/
00114    10•         1      W(4)/6HI4•12•/
00114    11•         2      W(5)/6HI3•I5)/
00120    12•          DATA F(1)/4H6E11/• F(2)/3H.4•/
00123    13•          DATA G(1)/6H4E11.4/• G(2)/5H•22X•/
00126    14•          DATA H(1)/6H2E11.4/• H(2)/5H•44X•/
00131    15•          DATA LRP•LFI•LDD•LFP•NK/5•0/
00137    16•          DATA EGK•ESQ/2•0.0/
00142    17•          DATA MF1•L0•INT(3)•INT(2)•NBT(2)•NP1•NR•LF•NC•NE/10•3/
00155    18•          DATA NBT(1)•INT(1)•NP2/3•2/
00161    19•          DATA E1•E2•PE1•PE2/1.0E-05•3•1.0/
00166    20•          DATA NXC•MT3•NC1•NWD•NC2•MF2•MF3•MT1•MT2/3•102•11•6•4•12•151•451•
00166    21•         1102/
00200    22•          READ(5•21)((HOLDAT(I•J) •I=1•11)•J=2•6)
00211    23•       21 FORMAT(11A6)
00212    24•          IF(KK.EQ.0) GO TO 15
00214    25•          READ(5•12) (NEL(I)•I=1•KK)
00222    26•       12 FORMAT(14I5)
00223    27•       15 L=1
00224    28•          READ(5•20•END=1000) MAT•IZ•AWR•BE
00232    29•       20 FORMAT(I10•10X•I10•2E10.3)
00233    30•          READ(5•21)(HOLDAT(I•1)•I=1•11)
00241    31•          CALL BCDCON(HOLDAT(1•6))
00242    32•          WRITE(0•500) BE
00245    33•      500 FORMAT(F10.1)
00246    34•          IF(KK.EQ.0) GO TO 31
00250    35•          DO 25 I=1•KK
00253    36•          IF(IZ.EQ.NEL(I)) GO TO 30
00255    37•       25 CONTINUE
00257    38•       31 V(3)=B
00260    39•          GO TO 35
00261    40•       30 V(3)=A
00262    41•       35 READ(5•V) LINE(L)•EGLB(L)•GAMINT(L)
00267    42•          IF(LINE(L).LT.0) GO TO 40
00271    43•          L=L+1
00272    44•          GO TO 35
00273    45•       40 NP=L-1
00274    46•          NBT(3)=NP
00275    47•          ZA=1000.•FLOAT(IZ)
00276    48•          SUM=0.0
00277    49•          DO 45 I=1•NP
00302    50•       45 SUM=SUM+((EGLB(I)+125.)•GAMINT(I))/100.
00304    51•          FBE=SUM/BE
```

```
00305    52.          WRITE(6,70) IZ
00310    53.       70 FORMAT(1H1//' A T O M I C  N U M B E R ' I5//)
00311    54.          WRITE(6,75) BE,FBE,(I,EGLB(I),GAMINT(I),I=1,NP)
00323    55.       75 FORMAT(//' BINDING ENERGY='F10.1//' FRACTION OF BINDING ENERGY='F5.2
00323    56.         1//'     I   '5X,'ENERGY(KEV)',3X,' GAMMAS/100'/(I5,1P2E16.4))
00323    57.    C      RENORMALIZE GAMINT
00324    58.          DO 50 I=1,NP
00327    59.          GAMINT(I)=GAMINT(I)/FBE
00330    60.       50 CONTINUE
00332    61.          WRITE(6,55) (GAMINT(I),I=1,NP)
00340    62.       55 FORMAT(//' RENORMALIZED GAMINT'/(10X,1PE11.4))
00341    63.       60 SUM=0.0
00342    64.          DO 65 I=1,NP
00345    65.          EGLBEV(I)=EGLB(I)
00346    66.          GAMPRB(I)=GAMINT(I)/100.
00347    67.          GK(I)=GAMPRB(I)/(BE*1000.)
00350    68.          SUM=SUM+GAMPRB(I)
00351    69.       65 CONTINUE
00353    70.          WRITE(6,61) SUM
00356    71.       61 FORMAT(//5X,' MULTIPLICITIES='1PE11.4//)
00357    72.          Y=SUM
00357    73.    C           MAKING FILE 1
00360    74.          LM=1
00361    75.          MF=MF1
00362    76.          MT=MT1
00363    77.          WRITE(9,80) ZA,AWR,LRP,LFI,NXC,MAT,MF,MT,LM
00376    78.          WRITE(6,80) ZA,AWR,LRP,LFI,NXC,MAT,MF,MT,LM
00411    79.       80 FORMAT(2E11.4,2I11,11X,I11,I4,I2,I3,I5)
00412    80.          LM=LM+1
00413    81.          WRITE(9,81) LDD,LFP,NWD,MAT,MF,MT,LM
00424    82.          WRITE(6,81) LDD,LFP,NWD,MAT,MF,MT,LM
00435    83.       81 FORMAT(22X,3I11,11X,I4,I2,I3,I5)
00436    84.          DO 82 J=1,6
00441    85.          LM=LM+1
00442    86.          WRITE(9,83) (HOLDAT(I,J),I=1,11),MAT,MF,MT,LM
00454    87.          WRITE(6,83)(HOLDAT(I,J),I=1,11),MAT,MF,MT,LM
00466    88.       83 FORMAT(11A6,I4,I2,I3,I5)
00467    89.       82 CONTINUE
00471    90.          LM=LM+1
00472    91.          WRITE(9,81) MF1,MT1,NC1,MAT,MF,MT,LM
00503    92.          WRITE(6,81) MF1,MT1,NC1,MAT,MF,MT,LM
00514    93.          LM=LM+1
00515    94.          WRITE(9,81) MF2,MT2,NC2,MAT,MF,MT,LM
00526    95.          WRITE(6,81) MF2,MT2,NC2,MAT,MF,MT,LM
00537    96.          JJ=NP/3
00540    97.          IPRT=MOD(NP,3)
00541    98.          IF(IPRT.GT.0) JJ=JJ+1
00543    99.          NC3=JJ+8
00544   100.          LM=LM+1
00545   101.          WRITE(9,81) MF3,MT3,NC3,MAT,MF,MT,LM
00556   102.          WRITE(6,81) MF3,MT3,NC3,MAT,MF,MT,LM
00567   103.          LM=LM+1
00570   104.          MT=0
00571   105.          WRITE(9,84) MAT,MF,MT,LM
```

```
00577   106*          WRITE(6,84) MAT,MF,MT,LM
00605   107*       84 FORMAT(66X,I4,I2,I3,I5)
00605   108*    C          MAKING FILE 12
00606   109*          MT=MT2
00607   110*          MF=MF2
00610   111*          LM=1
00611   112*          WRITE(9,85) ZA,AWR,LO,NK,MAT,MF,MT,LM
00623   113*          WRITE(6,85) ZA,AWR,LO,NK,MAT,MF,MT,LM
00635   114*       85 FORMAT(2E11.4,I11,11X,I11,11X,I4,I2,I3,I5)
00636   115*          LM=LM+1
00637   116*          WRITE(9,86) EGK,ES,LF,NR,NP1,MAT,MF,MT,LM
00652   117*          WRITE(6,86) EGK,ES,LF,NR,NP1,MAT,MF,MT,LM
00665   118*       86 FORMAT(2E11.4,11X,3I11,I4,I2,I3,I5)
00666   119*          LM=LM+1
00667   120*          WRITE(9,87) NBT(2),INT(2),MAT,MF,MT,LM
00677   121*          WRITE(6,87) NBT(2),INT(2),MAT,MF,MT,LM
00707   122*       87 FORMAT(2I11,44X,I4,I2,I3,I5)
00710   123*          LM=LM+1
00711   124*          WRITE(9,88) E1,Y,MAT,MF,MT,LM
00721   125*          WRITE(6,88) E1,Y,MAT,MF,MT,LM
00731   126*       88 FORMAT(2E11.4,44X,I4,I2,I3,I5)
00732   127*          MT=0
00733   128*          LM=LM+1
00734   129*          WRITE(9,84) MAT,MF,MT,LM
00742   130*          WRITE(6,84) MAT,MF,MT,LM
00742   131*    C          MAKING FILE 15
00750   132*          LM=1
00751   133*          MT=MT3
00752   134*          MF=MF3
00753   135*          WRITE(9,90) ZA,AWR,NC,MAT,MF,MT,LM
00764   136*          WRITE(6,90) ZA,AWR,NC,MAT,MF,MT,LM
00775   137*       90 FORMAT(2E11.4,22X,I11,11X,I4,I2,I3,I5)
00776   138*          LM=LM+1
00777   139*          WRITE(9,91) LF,NR,NP2,MAT,MF,MT,LM
01010   140*          WRITE(6,91) LF,NR,NP2,MAT,MF,MT,LM
01021   141*       91 FORMAT(33X,3I11,I4,I2,I3,I5)
01022   142*          LM=LM+1
01023   143*          WRITE(9,87) NBT(1),INT(1),MAT,MF,MT,LM
01033   144*          WRITE(6,87) NBT(1),INT(1),MAT,MF,MT,LM
01043   145*          LM=LM+1
01044   146*          WRITE(9,92) E1,PE1,E2,PE2,MAT,MF,MT,LM
01056   147*          WRITE(6,92) E1,PE1,E2,PE2,MAT,MF,MT,LM
01070   148*       92 FORMAT(4E11.4,22X,I4,I2,I3,I5)
01071   149*          LM=LM+1
01072   150*          WRITE(9,93) NR,NE,MAT,MF,MT,LM
01102   151*          WRITE(6,93) NR,NE,MAT,MF,MT,LM
01112   152*       93 FORMAT(44X,2I11,I4,I2,I3,I5)
01113   153*          LM=LM+1
01114   154*          WRITE(9,87) NBT(2),INT(2),MAT,MF,MT,LM
01124   155*          WRITE(6,87) NBT(2),INT(2),MAT,MF,MT,LM
01134   156*          LM=LM+1
01135   157*          WRITE(9,94) E1,NR,NP,MAT,MF,MT,LM
01146   158*          WRITE(6,94) E1,NR,NP,MAT,MF,MT,LM
01157   159*       94 FORMAT(11X,E11.4,22X,2I11,I4,I2,I3,I5)
```

```
01160   160*          LM=LM+1
01161   161*          WRITE(9,87) NBT(3),INT(3),MAT,MF,MT,LM
01171   162*          WRITE(6,87) NBT(3),INT(3),MAT,MF,MT,LM
01201   163*          LM=LM+1
01202   164*          I1=1
01203   165*          I2=3
01204   166*          W(2)=F(1)
01205   167*          W(3)=F(2)
01206   168*          DO 100 I=1,JJ
01211   169*          IF(I.NE.JJ) GO TO 191
01213   170*          IF(IPRT.NE.1) GO TO 97
01215   171*          W(2)=H(1)
01216   172*          W(3)=H(2)
01217   173*       97 IF(IPRT.NE.2) GO TO 98
01221   174*          W(2)=G(1)
01222   175*          W(3)=G(2)
01223   176*       98 I2=NP
01224   177*      191 WRITE(9,W) (EGLBEV(K),GK(K),K=I1,I2),MAT,MF,MT,LM
01237   178*          WRITE(6,W) (EGLBEV(K),GK(K),K=I1,I2),MAT,MF,MT,LM
01252   179*          I1=I2+1
01253   180*          I2=I2+3
01254   181*          LM=LM+1
01255   182*      100 CONTINUE
01257   183*          MT=0
01260   184*          WRITE(9,84) MAT,MF,MT,LM
01266   185*          WRITE(6,84) MAT,MF,MT,LM
01274   186*          GO TO 15
01275   187*     1000 END FILE 9
01276   188*          REWIND 9
01277   189*          END
```

Table 20

SAMPLE PRINTOUT OF DATA FOR IRON ILLUSTRATING FORMAT OF DATA WRITTEN ON TAPE

```
 .2600+05    .5585+02
                                  0
                                  0          0
IRON          Z=26      THERMAL CAPTURE GAMMA RAY YIELDS                  6
 LINE AND CONTINUUM - THERMAL CAPTURE GAMMA RAY YIELDS
 GULF GENERAL ATOMIC REPORT GA 10248, JULY 1970
 MEASURED LINE AND CONTINUUM GAMMA RAY YIELDS
 NORMALIZED TO A BINDING ENERGY OF
   7845.0  KEV.
                                  1          451          11
                                 12          102           4
                                 15          102          22
 .2600+05    .5585+02                       1                        0
 .0000       .0000
          1           1                                   1           1
 .1000-04    .1698+01
 .2600+05    .5585+02
                                                                      1
          2           2                                   1           1
 .1000-04    .1000+01    .1000+01    .1000+01
          1           1                                               1
              .1000-04
         42           1                                               1
 .0000       .2104-08    .2500+03    .2071-07    .5000+03    .8009-08
 .7500+03    .4668-08    .1000+04    .4540-08    .1250+04    .4693-06
 .1500+04    .1932-07    .1750+04    .3023-08    .2000+04    .3520-08
 .2250+04    .1862-08    .2500+04    .4030-08    .2750+04    .2755-08
 .3000+04    .3035-08    .3250+04    .7410-08    .3500+04    .1326-08
 .3750+04    .2666-08    .4000+04    .6530-08    .4250+04    .3520-08
 .4500+04    .7780-09    .4750+04    .3482-08    .5000+04    .5867-09
 .5250+04    .9565-09    .5500+04    .5994-09    .5750+04    .1180-07
 .6000+04    .1126-07    .6250+04    .1084-08    .6500+04    .3316-09
 .6750+04    .2296-09    .7000+04    .3826-09    .7250+04    .6441-08
 .7500+04    .6825-07    .7750+04    .0000       .8000+04    .6377-10
 .8250+04    .1020-09    .8500+04    .0000       .8750+04    .8800-09
 .9000+04    .0000       .9250+04    .5293-08    .9500+04    .0000
 .9750+04    .0000       .1000+05    .1403-09    .1025+05    .0000
```

```
                                                  3  26 1451      1
                                                     26 1451      2
                                                     26 1451      3
                                                     26 1451      4
                                                     26 1451      5
                                                     26 1451      6
                                                     26 1451      7
                                                     26 1451      8
                                                     26 1451      9
                                                     26 1451     10
                                                     26 1451     11
                                                     26 1  0     12
                                                  2612102         1
                                                  2612102         2
                                                  2612102         3
                                                  2612102         4
                                                  2612  0         5
                                                  2615102         1
                                                  2615102         2
                                                  2615102         3
                                                  2615102         4
                                                  2615102         5
                                                  2615102         6
                                                  2615102         7
                                                  2615102         8
                                                  2615102         9
                                                  2615102        10
                                                  2615102        11
                                                  2615102        12
                                                  2615102        13
                                                  2615102        14
                                                  2615102        15
                                                  2615102        16
                                                  2615102        17
                                                  2615102        18
                                                  2615102        19
                                                  2615102        20
                                                  2615102        21
                                                  2615102        22
                                                  2615  0        23
```

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13. ABSTRACT

Presented are the results of an analysis of thermal capture gamma-ray spectral data obtained at the MIT Thermal Capture Gamma-Ray Facility using a Ge(Li)-NaI spectrometer. This data has been previously analyzed to obtain the energies and intensities of the resolved lines from radiative neutron capture in 75 natural elements. In the present work, the spectral data was unfolded to remove the effect of the spectrometer response, and the total gamma-ray yield for both discrete lines and continuum, was determined. The method of analysis, described previously by Harper and Rasmussen, is briefly summarized. Also discussed are the binding energies producing a consistent set of values. A comparison of some of the present results with previous data is given. The capture gamma-ray energies and intensities are tabulated and the original gamma-ray spectra are shown for each element. The total gamma-ray yield data for each element has been written onto magnetic tape in the ENDF format to facilitate the use of this data by radiation transport codes. A description of the tape preparation procedure and the data formats employed are given.

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