

DEPARTMENT OF MINES & ENERGY

NORTHERN TERRITORY

OPERATIONAL REPORT

OF

AIRBORNE GEOPHYSICAL SURVEY TB 1435/82 (KAKADU II)

BY

AUSTIREX INTERNATIONAL LTD

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1. STATISTICS:

Contract: TB 1435/82, dated August 1, 1982

For: Department of Mines & Energy, Northern Territory of Australia

Contractor: Austirex International Pty. Ltd.

Type of Survey: Airborne geophysical for acquisition of magnetic and radiometric data

Area of Survey: Kakadu Stage II within the 1:100,000 map sheets; Point Stuart, Mary River, Field Island, Kapalga, East Alligator and Cahill

Aircraft: Nomad N22B, registration number VH-CPX

Personnel:

Pilots:	W. Hay
	D. Gibson
Navigators:	G. Macdonald
	C. Rowlands
	P. Robinson
Engineers:	G. Watts
	R. Jordan
	J. Lock
Technicians:	R. Butler
	J. Morton
	R. Pullin
	W. Edwards

Duration: 18 August to 26 November, 1982

Climatic Conditions: Generally dry during the period of survey except for minor rain recorded on 17, 19, 20 and 22 November, none of which precluded data acquisition.

Geomagnetic Conditions: Major diurnal disturbances were recorded on September 6, 7, 9, 21, 22 and October 26 and 29; these precluded any flying on the days involved. Minor diurnal disturbances were recorded on September 19, 20, 24 and 29 and November 1. Flying continued on these days but some parts of the lines flown were outside diurnal specifications and re flown at a later date.

General Flight Statistics:

<i>Ferry Days:</i>	6	
<i>100-hourly Days:</i>	5	
<i>Diurnal Days:</i>	7	
<i>System Days</i>	17.5	(Magnetometer and camera malfunctions)
<i>Aircraft Days:</i>	4	(Fuel control unit and doppler/TANS malfunctions)
<i>Other System Days:</i>	4	(Range/range processor malfunction and lost spares)
<i>Survey Days:</i>	63.5	
 <i>Total Attendance Days:</i>	 107	
 <i>Survey Flights:</i>	 141 flights for 511.9 hours	
<i>Ferry Flights:</i>	8 flights for 39.0 hours	
<i>Test Flights:</i>	22 flights for 20.7 hours	
 <i>Total Flights:</i>	 171 flights for 571.6 hours	

2. SURVEY SPECIFICATIONSArea:

Block A: approximately 4100 square kilometres
 Flight Lines: 629 lines spaced at nominal 150 metre intervals
 Direction 090° - 270°
 Tie Lines: 33 lines spaced at nominal 2 kilometre intervals
 Direction 180° - 360°
 Linear Distance Surveyed: 29332.0 kilometres

Area:

Block B: approximately 3580 square kilometres
 Flight Lines: 334 lines spaced at nominal 250 metre intervals
 Direction 090° - 270°
 Tie Lines: 17 lines spaced at nominal 3 kilometre intervals
 Direction 180° - 360°
 Linear Distance Surveyed: 15535.75 kilometres

TOTAL 44867.75

Flight:

Aircraft/Detector Elevation: nominal 80 metres terrain clearance
 maximum terrain clearance 200 metres

General:

The aircraft should be free of radioactive contamination and fuel tanks should not obscure the "field of view" of the spectrometer. No articles likely to cause contamination will be carried (e.g. personal cameras).

The distance between adjacent lines shall not exceed 1.3 times the nominal spacing for a distance exceeding 3 km and shall not exceed 1.6 times the nominal spacing for any distance.

The mean terrain clearance for each line shall lie within 5 m of the nominal value, and the mean for any section of 3 km shall lie within 20 m of the nominal value. The terrain clearance shall not exceed the maximum for any distance.

The system will record total magnetic field, a gamma ray spectrogram, terrain clearance and other data detailed herein.

1. Sampling Interval: All data will be recorded at constant time intervals such that the ground separation between readings does not exceed 25 m for magnetic data or 50 m for radiometric data.

2. Magnetic Data:

Recording Precision: 0.01 nT

Noise Level: The noise parameter shall be less than 0.5 nT over any section of consecutive data of 100 readings or more.

Noise Parameter: The standard deviation of the 4th differences of the magnetic data, normalised to nano Teslas (i.e. divided by six).

Heading Error: Compensated to ± 0.5 nT prior to acquiring survey data.

Manoeuvre Noise: Compensated to less than 0.5 nT peak to peak with 10^0 rolls on an east-west heading.

Diurnal Monitor: A base station magnetometer will be maintained within the survey area, or as close as possible to it. The sensor will be mounted in a low gradient area beyond the influence of any man-made interference. The monitor must be run so as to record magnetic field and time in digital form at intervals not exceeding 12 seconds during periods when survey data is being acquired. The record must be annotated with the date. Time will be recorded to 1 second.

Diurnal Drift: The survey data will not be acceptable if recorded during periods when the diurnal record changes by more than 5 nT in 5 minutes (modified to 10 nT in 5 minutes due to excessive number of days lost to diurnal), or during periods of magnetic storm activity.

3. Gamma Ray Spectrometer Data:

Sensitivity:	The ratio of crystal volume in the main array to the maximum aircraft speed will be 0.6 litres/m/sec or greater.
Recording:	256 channels, each 16 bits, for downward array and 128 channels, each of 8 bits for upward array.
Resolution:	Better than 10% full width half maximum of the photopeak at 0.662 MeV (Cs137).
Cosmic Monitor:	3.0 to 6.0 MeV approximately.

Flight Path Recovery:

A location in Geographic co-ordinates will be computed for each record such that the distance between true location and computed location does not exceed 30 metres.

The contractor will supply information to verify the accuracy of the flight path recovery.

Comments on Specifications:

It is difficult to comment on the adequacy of specifications without an in-depth knowledge of the purpose of the survey, and subsequent experience of working with the results to achieve this purpose. However, some comments, with particular regard to operational parameters, are in order.

Terrain Clearance:

Nominal terrain clearance was sufficiently high, in relation to line spacing, that it is unlikely that any significant magnetic or radio-metric signature has been missed. Terrain clearance specifications were occasionally exceeded over the more rugged terrain in the eastern portion of the survey area. Typically, terrain clearance would exceed 200 metres for a short distance (say, $\frac{1}{4}$ km), and then return to the nominal clearance. However, a consequential breach of the specifications requiring ± 20 metres for a 3 km distance would then occur also.

Positional Accuracy:

It is difficult and expensive to obtain routine checks on positional accuracy. Normally this can only be done by employing two or more independent methods. Random or periodic checks, can, however, be made by selecting known points on the ground and comparing their co-ordinates with those obtained by the positioning methods in use. Such checks have indicated that the range-range method has greater accuracy and precision than most other techniques.

Magnetometer Noise Specifications:

The specification called for a noise parameter to be achieved over 100 fiducials. Many cases occurred where a single noise spike caused this specification to be exceeded.

Our experience is indicating that the noise parameter as defined (standard deviation of normalised fourth difference) is not entirely free of geological influence, and that there is some correlation with magnetic gradient and terrain clearance.

BMR Test Ranges:

It appears that the BMR test ranges near Parkes were not suitable for system calibration. Subsequent flying of the test range at Dalgety has given much better results. The problem appears to be one of sampling (i.e. inhomogeneity).

Altimeter Checks:

Checking of a radar altimeter against a barometric altimeter is unsatisfactory as the barometric altimeter is less accurate. Various other checking techniques are available, but they are not usually suitable for routine on-site checking.

It should be noted that absolute accuracy of the radar altimeter is not important provided that altimeter calibration does not change from the time that radiometric height attenuation calibrations are carried out.

3. EQUIPMENT SPECIFICATIONS

Aircraft:

Government Aircraft Factories NOMAD N22B. Twin turbo-prop engines.

Altimeters:

Radar altimeter - Collins ALT-50, range 0-610 metres.

Barometric altimeter - Penny and Giles.

Range-Range Navigation and Positioning System:

Motorola Miniranger Mark III with Processor and track indicator.

Digital recording of measured ranges coincident with geophysical data.

Doppler System:

Sperry Decca Type 72 with Tactical Air Navigation System computer 9447D. Digital recording of long and cross track pulses and of compass heading.

Airborne Magnetometer:

Geometrics G.813 proton precession magnetometer with auto tuning. Recording precision 0.01 nT. The sensor is mounted as a tail stinger installation.

Ground Magnetometer:

Geometrics G.866 proton precession magnetometer. Recording precision 0.1 nT. Time controlled total field recording at 6 second intervals on to data cassette and 54 second intervals onto digital printout.

Spectrometer:

Geometrics GR-800/900. 256 channels for the main downward detector and 128 channels for the upward detector.

Crystal Detectors:

Geometrics DET-3072/512R. Sodium iodide crystals, 50.34 litres main packs and 8.39 litres for the upward packs.

Calibration Sources:

Standards of Cesium, Uranium, and Thorium used for daily pre and post flight ground calibrations.

Data Acquisition System:

Sonotek IGSS-1 using a Fabritek MP-12 computer with two Digi Data 9 track tape decks.

Analogue Recorder:

Exploranium MARS-6, a six channel recorder for magnetic, radiometric, radar altimeter and fiducial data. Hewlett-Packard 7155 dual channel recorder for radiometric calibrations and spectral plots.

Tracking Camera:

35 mm Geocam 75 SF camera fitted with a 17 mm wide angle lens. Continuous strip mode with fiducial numbers imposed on film exposures.

4. SURVEY PROCEDURES

Operations:

For the survey, Jabiru was used as the base for flight and field operations, where all accumulated flight and sensor data was subjected to infield quality control. A subsequent office computer evaluation of all digital data was made to ensure that all systems and information were recorded properly and as a final acceptance of the raw data.

Logistics:

Aviation turbine fuel in 200 litre drum containers was supplied from Darwin and road freighted to the landing field at Jabiru.

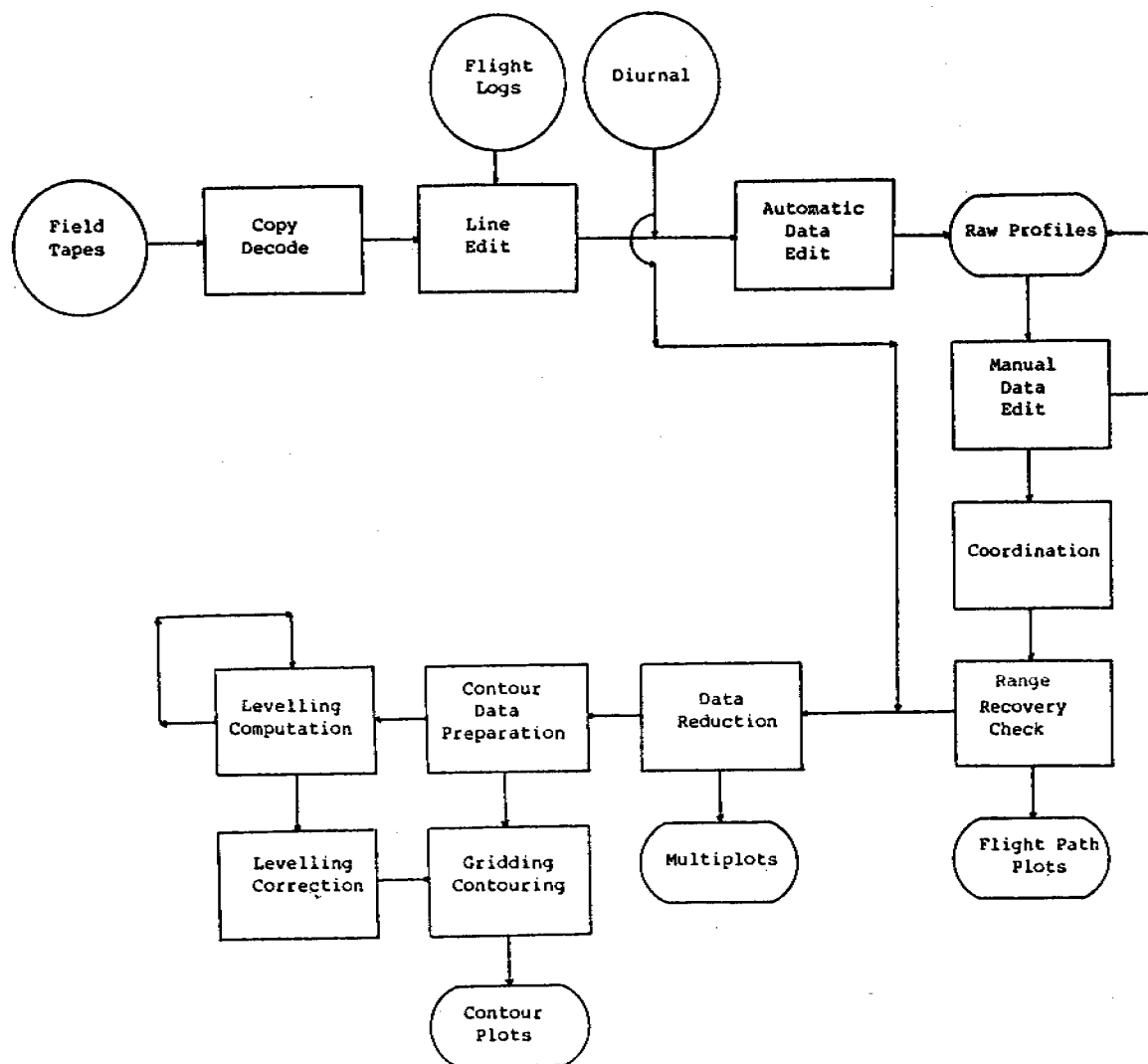
Instrument Calibrations:

Prior to survey commencement, airborne tests were conducted for magnetic heading calibrations and systems parallax. These tests were repeated at the conclusion of the survey. During the survey an altitude stack over the land-water interface and cosmic tests were conducted to aid in processing.

During the course of the survey ground pre and post flight spectrometer calibrations were performed to ensure that systems stability and response were within normal tolerance limits.

Airborne pre and post flight tests were conducted over a 5 kilometre length line at survey altitude to confirm all systems repeatability and for the assessment of ground water conditions.

For the prequalification tests, altitude stacks were flown over the Dubbo test ranges, also land-water interface and cosmic tests were flown at Perth.



Schematic Diagram

Austirex data processing system

5. DATA REDUCTION

The data processing procedure followed the flow shown in the Schematic diagram.

Preprocessing:

Tapes from the field were decoded and then corrected, if necessary, to remove duplicated fiducials and to change line numbers. All lines deleted in the field were removed. The data then went through an automatic edit where spikes were removed and the doppler and range data were filtered. For each line both the raw and corrected data were plotted (as well as spectral plots for calibrations and test lines). Any errors that were not corrected in the automatic edit were manually corrected.

Flight Path:

The recorded ranges were used to compute co-ordinates by trilateration and where range signal was lost, the doppler pulse information was used to compute infill co-ordinates. The range sites used in the survey are listed in the Appendix. The flight path was then plotted as a final check on positioning and if any errors remained, these were manually corrected.

Diurnal:

The diurnal was read off the cassettes, edited to remove spikes and then filtered to remove magnetic noise. Raw profiles showing original and corrected data were plotted and any errors remaining were manually corrected. A diurnal datum of 46600 nT was selected from examination of the records and removed from the diurnal values. The diurnal was then incorporated to a data base to be used in magnetic reductions.

Magnetics:

The diurnal correction was removed from the magnetic values along with the IGRF value. The IGRF model used was the 1980 model with secular variation and was computed for every fiducial. The data was corrected for system parallax and a new set of co-ordinates for each fiducial was computed. Tie line levelling was used to remove any linear level variations between traverse lines. The resultant levelled and corrected data was filtered prior to gridding using a light filter with cutoff frequency of 0.33 cycles per data interval. The data was gridded using a 50 metre grid cell with maximum interpolation distance along line of 350 metres and a maximum interpolation distance across line of 750 metres.

Prior to contouring two dimensional filters were applied to the grid (for 1:25,000 maps, a cut off frequency of 0.2 cycles/data interval with termination frequency of 0.25 cycles/data interval and for 1:100,000 maps 0.09 and 0.11 respectively).

Radiometrics:

The following reduction procedures were applied to the radiometric data:

1. Dead time (fixed for our system at 8 microseconds) and normalisation of data to counts per second from counts per scan.
2. Removal of aircraft background (determined from high altitude tests). This removes any counts due to sources within the aircraft and system.
3. Spectral reduction - a matrix operator reduces the data to stripped K, U, Th and Total Count and also removes effects due to cosmic sources. Stripping ratios used were:

$$\alpha = 0.295, \quad \beta = 0.453 \quad \text{and} \quad \delta = 0.83.$$

4. Atmospheric correction and altitude attenuation corrections. The atmospheric correction was computed from the upward total count data and corrected for the geometric factor (from the relationship of upward and downward crystals) and for the shield leakage factor (the amount of downward counts that 'leak' into the upward counts). All factors are altitude dependent and were corrected from 'look up' tables. Both atmospheric and altitude data were filtered to remove statistical noise.
5. Conversion to ground concentration. Element sensitivities were computed from test areas of known concentrations. This enables conversion of count rates to concentrations of relevant elements. For U and Th, eU and eTh were computed. The "e" is used to denote "equivalent" in recognition of the fact that these analyses have been made on radiation emitted from daughter products in a series. Total Radioelement data are expressed as "ur" units. This unit is defined as the concentration of uranium in the sample (ground) which would generate the measured count rate if all the counts were originating from uranium series radiation in equilibrium.
6. Levelling. Any level variations between traverses were removed.
7. Prior to gridding along line filters were used on the data. The cut off frequencies used for each element were:

Total	0.25	cycles/data	interval
Potassium	0.2	"	"
Uranium	0.175	"	"
Thorium	0.175	"	"

The grid cell size and the interpolation distances were the same as for the magnetic data.

8. Prior to contouring, two dimensional filters were used on each grid.

These were:

	<u>Cut off Frequency Cycles/Data Interval</u>	<u>Termination Frequency Cycles/Data Interval</u>
1:25,000 maps		
Total	0.2	0.25
Potassium	0.2	0.25
Uranium	0.15	0.2
Thorium	0.2	0.25
1:100,000 maps		
Total	0.15	0.2
Potassium	0.15	0.2
Uranium	0.1	0.15
Thorium	0.15	0.2

Comments

1. Negative readings for reduced data will occur because the aircraft background and atmospheric components are subtracted with the assumption made that no statistical variation occurs in either of these (statistical variation for radio-metric data is defined as $\sqrt{n}$, where n is the number of counts recorded).
2. From examination of spectral plots, it was found that the high voltage gains to photomultipliers were drifting. To check on the effect of this, three lines were chosen where this was most evident.

A manual correction was applied to the spectral windows to remove this drift and the lines reprocessed. The results are shown below:

*No gain correction**Mean Values*

	<i>Line 1</i>	<i>Line 2</i>	<i>Line 3</i>
<i>Total radioelement (ur)</i>	11.70	11.98	11.31
<i>Potassium (%)</i>	0.21	0.17	0.22
<i>Uranium (eppm)</i>	4.65	5.42	4.50
<i>Thorium (eppm)</i>	11.19	12.00	11.01
<i>Uranium air (eppm)</i>	0.51	0.40	0.28

*With gain correction**Mean Values*

	<i>Line 1</i>	<i>Line 2</i>	<i>Line 3</i>
<i>Total radioelement (ur)</i>	11.77	11.99	11.29
<i>Potassium (%)</i>	0.23	0.21	0.25
<i>Uranium (eppm)</i>	4.62	5.17	4.24
<i>Thorium (eppm)</i>	12.04	12.76	11.52
<i>Uranium air (eppm)</i>	0.43	0.39	0.29

The gain shift effect is most apparent on the Thorium window but is much less than the statistical variation that would be expected and as a result no gain shift correction was applied to the data.

Line Number Structure:

The last digit on all lines is used as an attempt number,
 --.1 is the first attempt, --.2 is the second and so on.

Test Lines:	Pre Flight		1.1
	Post Flight		2.1
Calibrations:	Pre Flight	Cs 137	10.1
		U	11.1
		Th	12.1
		Background	13.1
	Post Flight	Background	17.1
		Th	16.1
		U	15.1
		Cs 137	14.1
Parallax Test:			20.1
Attenuation Test/Altimeter	check:	50.1 to	59.1
Heading Test:		60.1 to	69.1
Traverses:	Area A	1001.1 to	1629.1
	Area B	101.1 to	434.1
Tie Lines:	Area A	9101.1 to	9133.1
	Area B	9002.1 to	9017.1
Common tie (Area A & B):		9001.1	

Field Data Tape Format:

1. One (1) type of Block containing:-
 - A: Data Block Header
 - B: Three (3) Data Scans
2. The data block header contains the following information (in four (4) bit units) in either BCD or BIN as set out below:-

<u>No. of 4 bit units</u>	<u>Code</u>	<u>Meaning - Content</u>
4	None	Marker (HEX F)
2	BCD	Day
2	BCD	Month
2	BCD	Year (last 2 digits)
2	None	Marker (HEX F)
4	BCD	Scan type
2	None	Marker
2	BCD	Unassigned
2	None	Marker (HEX F)
4	BCD	Tape number
2	None	Marker (HEX F)
4	BCD	Block number
2	None	Marker (HEX F)
6	BCD	Line number
2	None	Marker (HEX F)
4	BCD	Flight number
2	None	Marker (HEX F)
48		

3. Each of the Three Data Scans contains the following information:

<u>No. of 4 bit units</u>	<u>Code</u>	<u>Meaning - Content</u>
6	BCD	Fiducial number
2	None	Marker (HEX F)
6	BIN	24 bit count of acquisition period of spectrometer, for this scan in units of 1/10th of a millisecond.
6	BIN	24 bit count COSMIC, DOWN
6	BIN	" " " K - 40, "
6	BIN	" " " Bi-214, "
6	BIN	" " " Tl-208, "
6	BIN	" " " TOTAL, "
6	BIN	" " " 1.0 - 2.3 MeV UP
6	BIN	" " " TOTAL UP
1024	BIN	256 x 16 bit counts, channels 0 - 255, Spectrometer, DOWN
256	BIN	128 x 8 bit counts, channels 0 - 127, Spectrometer, UP
2	BIN	8 bit checksum for all Spectrometer channels excluding itself.
2	None	All zero marker 00
6	None	Marker (HEX F)
1	BCD	Unassigned
1	BCD	Range signal strength indicator either 8 (good) or 0 (bad)
1	BCD	Right station code
5	BCD	Range right station (metres)
1	BCD	Unassigned
1	BCD	Left station code
5	BCD	Range left station (metres)
3	BCD	Heading, degrees
2	BCD	Heading, minutes
6	BCD	Unassigned
4	BCD	Doppler along-heading pulse count
4	BCD	Doppler across-heading pulse count, right
4	BCD	Doppler across-heading pulse count, left
2	BCD	Time hours
2	BCD	Time minutes
2	BCD	Time seconds

<u>No. of 4 bit units</u>	<u>Code</u>	<u>Meaning - Content</u>
2	BCD	Identifier 00 - Fixed
4	BCD	Data from analogue channel 00 Temperature in Celsius in format 000.0°C
2	BCD	Identifier 01 - Fixed
4	BCD	Data from analogue channel 01 Altitude in metres in format 000.0 m
2	BCD	Identifier 02 - Fixed
4	BCD	Data from analogue channel 02 Air pressure in millibars in format 0000 mb
2	BCD	Identifier 03, - Fixed
4	BCD	Data from analogue channel 03 Auxiliary input for channel 02
2	BCD	Identifier 04 - Fixed
4	BCD	Data from analogue channel 04 Unassigned
2	BCD	Identifier 05 - Fixed
8	BCD	Magnetometer data in format 00000.000 nT
4	BCD	Marker (HEX F)

1438 Four (4) Bit units, or 719 bytes

Total Record Length

Block header	24 bytes
3 Scans x 719	2157 bytes
TOTAL	2181 bytes

The Survey Header records are:

- (1) Survey Header
- (2) Survey code
- (3) Survey area name
- (4) Exploration licence
- (5) Area size - Sq km
- (6) Who flew
- (7) Who processed
- (8) For whom
- (9) A or D acquisition + Control
- (10) Traverse separation - m
- (11) Tie separation - m
- (12) Average altitude ASL - m
- (13) Nominal ground clearance - m
- (14) Nominal line bearing from north - deg
- (15) Length of non header records - bytes
- (16-) 100,000 sheet numbers - 1 / record

The Data record format follows:

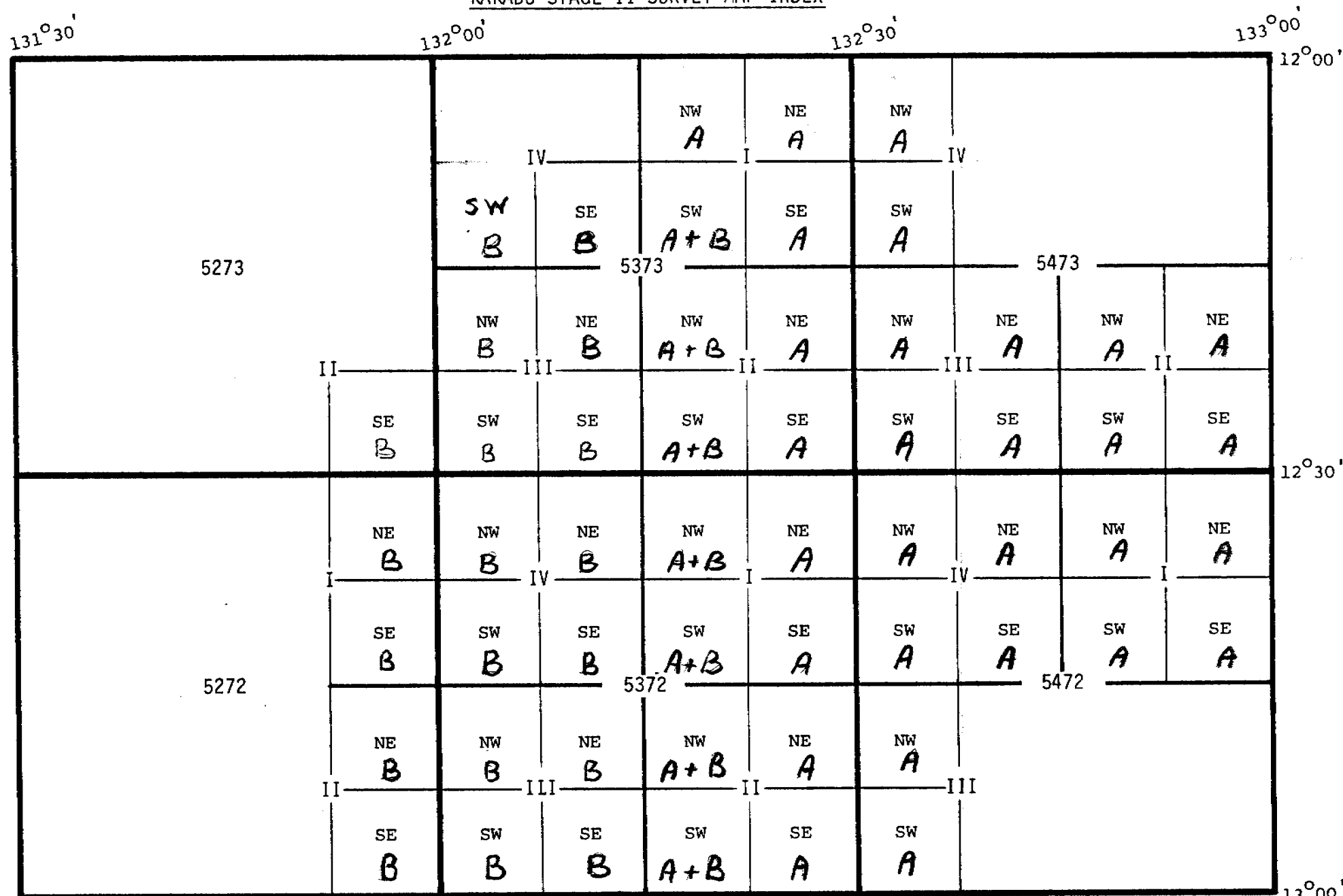
Block size = 5000 bytes, Data record length = 100 bytes:

Date (16,1X),
 Flight number (I3),
 Time (sec) (I6,1X),
 Line number (I6),
 Fiducial number (I6),
 Recovery longitude (deg) (F10.5),
 Recovery latitude (deg) (F10.5),
 Terrain clearance (m) (F5.1),
 Uncorrected magnetic intensity (nT) (1X,F8.2)
 Mag diurnal correction (nT) (1X,F8.2),
 Total radioelement (ur) (F6.2),
 Potassium (percent) (F5.2),
 Uranium (eppm) (F6.2),
 Thorium (eppm) (F6.2),
 Uranium air (eppm) (F5.2),

Notes:

1. *Diurnal datum = 46600 nT*
Hence, Mag diurnal = Diurnal datum + Diurnal correction
and Corrected mag = Uncorrected mag + Diurnal correction
2. *Any undefined data is shown as an **
3. *An EOF mark is written at the end of all the line data*
4. *Data is unlevelled.*

KAKADU STAGE II SURVEY MAP INDEX



Point Stuart 5273
Mary River 5272

Field Island 5373
Kapalga 5372

East Alligator 5473
Cahill 5472

A P P E N D I C E S

HEADING CHECKS

Pre Production:

These tests were conducted over flights 2 - 8. Flights 2 - 4 were flown over an area near Mudginberri station at co-ordinates 263750E 8605500N at terrain clearances ranging from 80 m to 500 m. The tests from these flights were rejected due to a small magnetic anomaly occurring at the crossover point.

Flights 5 - 8 were flown over an area approximately 14 km WNW of Jabiru airstrip at co-ordinates 258000E 8603225N. These flights were conducted at a terrain clearance of 500 m to escape from small magnetic anomalies induced by cultural features. The crossover point occurred at a creek junction with a north-south trending fence line and the local magnetic gradient was flat.

Due to the high terrain clearance, picking the crossover point on the tracking film was rejected as small errors in the picking would lead to large positional differences on the ground. As the range - range data was being recorded, with its inherent high precision, it would allow for accurate positioning.

For all the tests a common datum of 46600 nT was used. The results of these tests are shown below.

	FLT 05		FLT 06		FLT 07		FLT 08	
	Ave.		Ave.		Ave.		Ave.	
	Ave.	-Mean	Ave.	-Mean	Ave.	-Mean	Ave.	-Mean
N	56.4	+2.2	51.8	-0.6	52.1	-0.2	53.0	+0.4
S	55.4	+0.9	54.5	+2.1	53.7	+1.4	52.1	-0.5
E	53.2	-1.0	51.6	-0.6	51.9	-0.4	52.6	0
W	52.1	-2.1	51.6	-0.6	51.4	-0.9	52.5	-0.1
Mean	54.2		52.4		52.3		52.6	

The aircraft system was within the job specifications on Flight 8.

Post Production:

These tests were conducted on flights 129, 141. Flight 141 was flown over an area near the Wildman River north of the Arnhem Highway at a terrain clearance of 120 m.

Flight 129 was flown over an area north of the Arnhem Highway between Jabiru and the South Alligator River at a terrain clearance of 120 m. As no range signals were recorded during this test, The tracking film was examined to determine the relevant fiducials at the crossover point.

For all these tests a common datum of 46600 nT was used. The results are shown below.

	FLT 129		FLT 141	
	Ave.	Ave. -Mean	Ave.	Ave. -Mean
N	-17.2	+0.7	-109.8	+2.1
S	-18.4	-0.5	-112.4	-0.5
E	-18.1	-0.2	-111.4	+0.5
W	-17.9	0	-112.2	-0.3
Mean	-17.9		-111.9	

The tests indicate that the N-S variation had increased from earlier tests. However, as the difference was sufficiently small it could easily be handled by the levelling procedures.

RANGE-RANGE NAVIGATION AND POSITIONING SYSTEM:

MODEL: Motorola Miniranger MK III with Processor

TRANSPONDERS: Universal 16 Code and 171c 4 Codes

REFERENCE STATION DATA:

Sites	Codes	S/N	Name	Zone	Easting	Northings	E.Longitude	S.Latitude	Elevation Metres ASL	Antenna Height	Control Order
01	1	B1400	Pocock Nth.	53	187542.894	8613036.434	132 07 30.256	12 31 51.119	119.5	12.3	Dop/Sat
02,12	2,3	824273	U-659	53	207991.136	8562422.866	132 18 29.903	12 59 23.991	125.4	5.0	2nd
03,11	3,2	713002	Cahill	53	250773.248	8576534.477	132 42 12.696	12 51 58.601	153.3	5.0	2nd
04	4	713002	Kapalga Trg.	53	221363.867	8593644.578	132 26 03.411	12 42 33.112	110.3	15.2	2nd
05	2	506030	Munmarlary Tower	53	234297.797	8620289.638	132 33 20.100	12 28 10.560	116.0	20.0	Telecom
06,07	4,3	824273	Jabiluka	53	271834.000	8617705.000	132 54 01.980	12 29 45.060	150.0	5.0	4th
08	3	824274	Jabiluka West	53	270823.000	8618053.000	132 53 28.560	12 29 33.480	145.0	5.0	4th
09,14	3,4	824274	Kapalga Stat.	53	206557.843	8613001.015	132 17 59.583	12 31 58.803	92.0	12.1	Dop/Sat
10	1	B1400	Pocock Sth.	53	186746.153	8610528.923	132 07 02.981	12 33 12.364	114.0	15.2	Dop/Sat
13	2	824274	Wildman West	53	178321.246	8595521.227	132 02 18.536	12 41 17.239	95.6	12.1	2nd

POST SURVEY REFERENCE TRANSPONDER CALIBRATIONS:

Measured distance along Jabiru air strip = 550 metres.

<u>Transponder S/N</u>	<u>Codes</u>	<u>Range distance</u>	<u>Transponder S/N</u>	<u>Codes</u>	<u>Range distance</u>
B1400	1	550	824273	1	549
	2	551		2	550
	3	552		3	550
	4	556		4	552
506030	1	547	824274	1	549
	2	548		2	549
	3	550		3	553
	4	550		4	552
713002	1	544			
	2	544			
	3	545			
	4	551			

RANGE SYSTEM ACCURACY TEST

These tests were flown on flights 5 and 26 and involved flying down the baselines between pairs of stations and comparing the computed baseline length with the actual baseline length. The results are listed below:

Station 1	Station 2	Actual Baseline	Computed Baseline	Difference
		Length	Length	
Cahill	U659	45049.4	45026	-23.4
			45038	-11.4
			45036	-13.4
Cahill	Kapalga	34024.5	34012	-12.5
			34012	-12.5
			34011	-13.5
			34018	- 6.5
			34004	-20.5
			34015	- 9.5
			34004	-20.5
			34006	-18.5
Kapalga	U659	33965.1	34013	-11.5
			33950	-15.1
			33948	-17.1
			33959	- 6.1

Average difference all tests - 14.1 m (standard deviation 5.1)

Average difference as percentage of baseline length -0.4%

PARALLAX TESTS

Parallax tests were conducted on flights 106 and 141 using both range-range measurements and camera measurements. The lines covered an area of high magnetic gradient. The peaks and troughs of each magnetic trace were picked to the nearest tenth of a fiducial from multiplots. For the range-range measurements the co-ordinates of these fiducials were calculated and the distance between each corresponding peak or trough determined. For the camera test these points on the tracking film for one line were transferred to the tracking film for the other line and the fiducial difference computed. These were then corrected to metres using the speed determined from the range - range co-ordinates. The results for both tests are shown below:

Range-range positioning:

Flt 106	mean distance 88.2 m	parallax correction 44.1 m	speed 24.0 m/fid
Flt 141	95.6 m	47.8 m	23.3 m/fid

Camera positioning:

Flt 106	22.6 m	11.3 m	24.0 m/fid
Flt 141	26.9 m	13.4 m	23.3 m/fid

MANOEUVRE NOISE TESTS

Pre Production:

The manoeuvre noise tests were conducted on Flight 2 over an area of low magnetic gradient near Mudginberri station. The results of the tests show that the manoeuvre noise is less than the noise envelope of the magnetometer.

The mean noise envelope indicated by the standard deviation of fourth differences for the lines are 0.37, 0.36, 0.31.

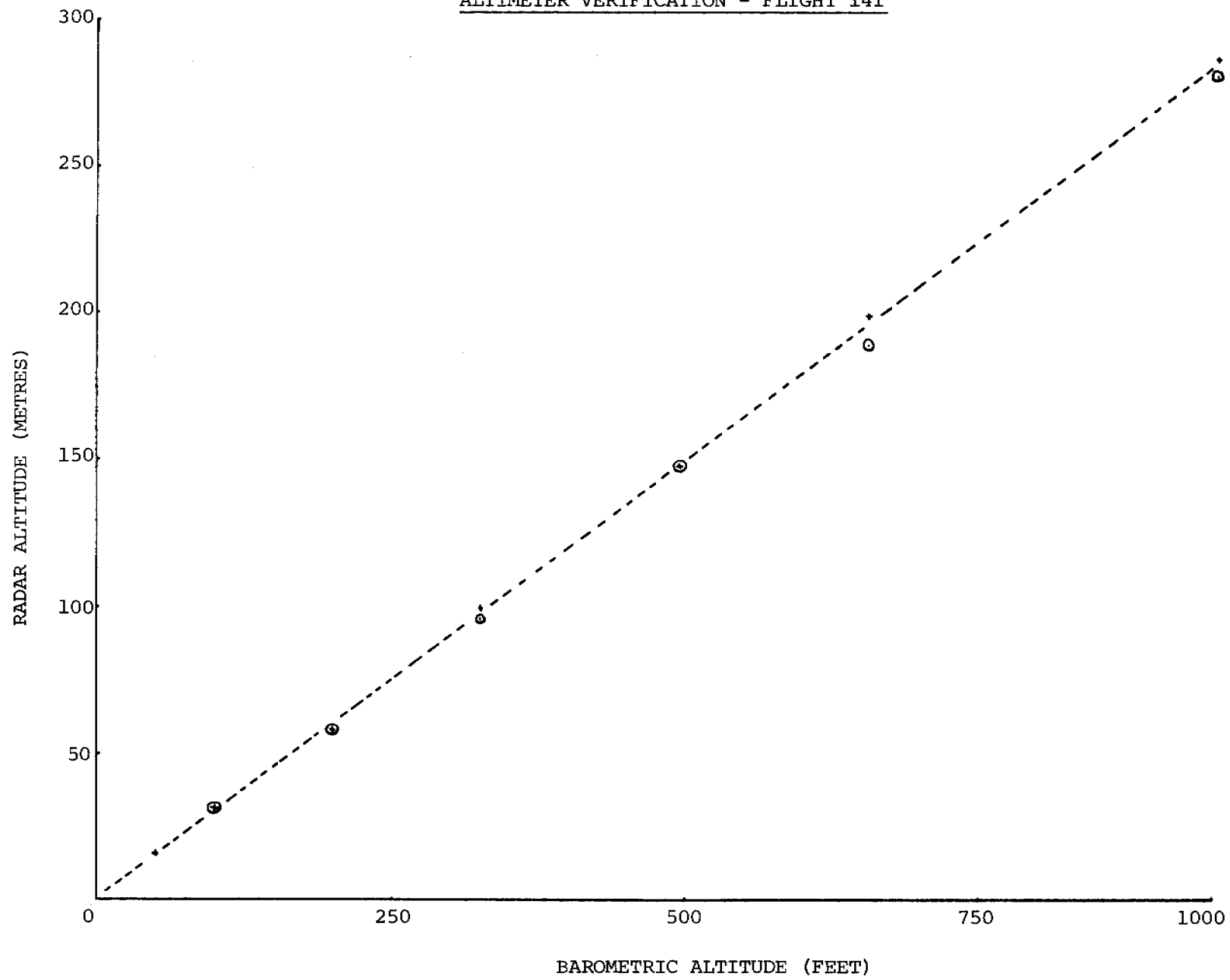
Post Production:

The results of the post production manoeuvre noise tests show similar results to the pre production tests. The mean noise envelopes measured were 0.30, 0.35.

ALTIMETER VERIFICATION

The test was conducted on Flight 141 with a series of lines flown at various barometric altitudes. The mean terrain clearance from the radar altimeter was plotted against the barometric height. The results are shown on the attached graph. The slope of the line was computed as 3.28 which indicates the radar altimeter was functioning correctly. The discrepancies from the plotted line are due to errors in reading barometric height.

ALTIMETER VERIFICATION - FLIGHT 141



TEST RANGE

The Dubbo test ranges were flown as the Dalgety test range was unavailable at the time due to weather. Both Plens and Eulandool test ranges (see attached maps) were flown but due to the reported high count rates at Plens, the Eulandool data was primarily used in computation of reductions. Two stacks were flown at each site from 30 m to 300 m. Weather conditions recorded at Dubbo at the test time are shown below.

Time	Wind		Temperature		Area QNH mb
	Direction	Speed Km/h	Dry Bulb °C	Dew Point °C	
0800	160	09	06	02	1022
0930	150	09	09	02	1022
1000	140	09	12	04	1022
1100	100	09	16	03	1022
1200	170	16	18	02	1021
1300	190	27	18	01	1020

General Weather:

Sunny with light scatterd cloud. Humidity recorded at Dubbo Post Office at 0900 was 70% with pressure 1035 mb.

The reduced values recorded on the test range for each element are shown below:

Mean Values: Thorium (eppm)

Altitude (m)	Plens		Eulandool	
30	14.54	12.53	14.61	14.55
60	12.36	13.49	14.41	14.54
80	12.85	14.95	14.41	14.45
100	13.32	14.78	15.15	15.52
120	13.87	15.54	15.17	14.87
150	13.29	14.65	14.39	14.19
200	14.37	14.89	13.40	13.14
300	15.46	15.80	13.03	13.05
Average both tests	14.02		14.30	
Standard deviation	1.09		0.77	

Mean Values: Uranium (eppm)

Altitude (m)	Plens		Eulandool	
30	2.87	2.21	3.47	3.67
60	2.19	2.64	3.85	3.88
80	2.41	2.97	4.32	4.05
100	2.85	3.25	4.21	4.34
120	2.85	3.36	4.13	3.80
150	2.60	3.24	4.64	4.14
200	4.01	4.55	3.97	3.11
300	4.67	4.41	4.50	2.69
Average both tests	3.19		3.92	
Standard deviation	0.81		0.51	

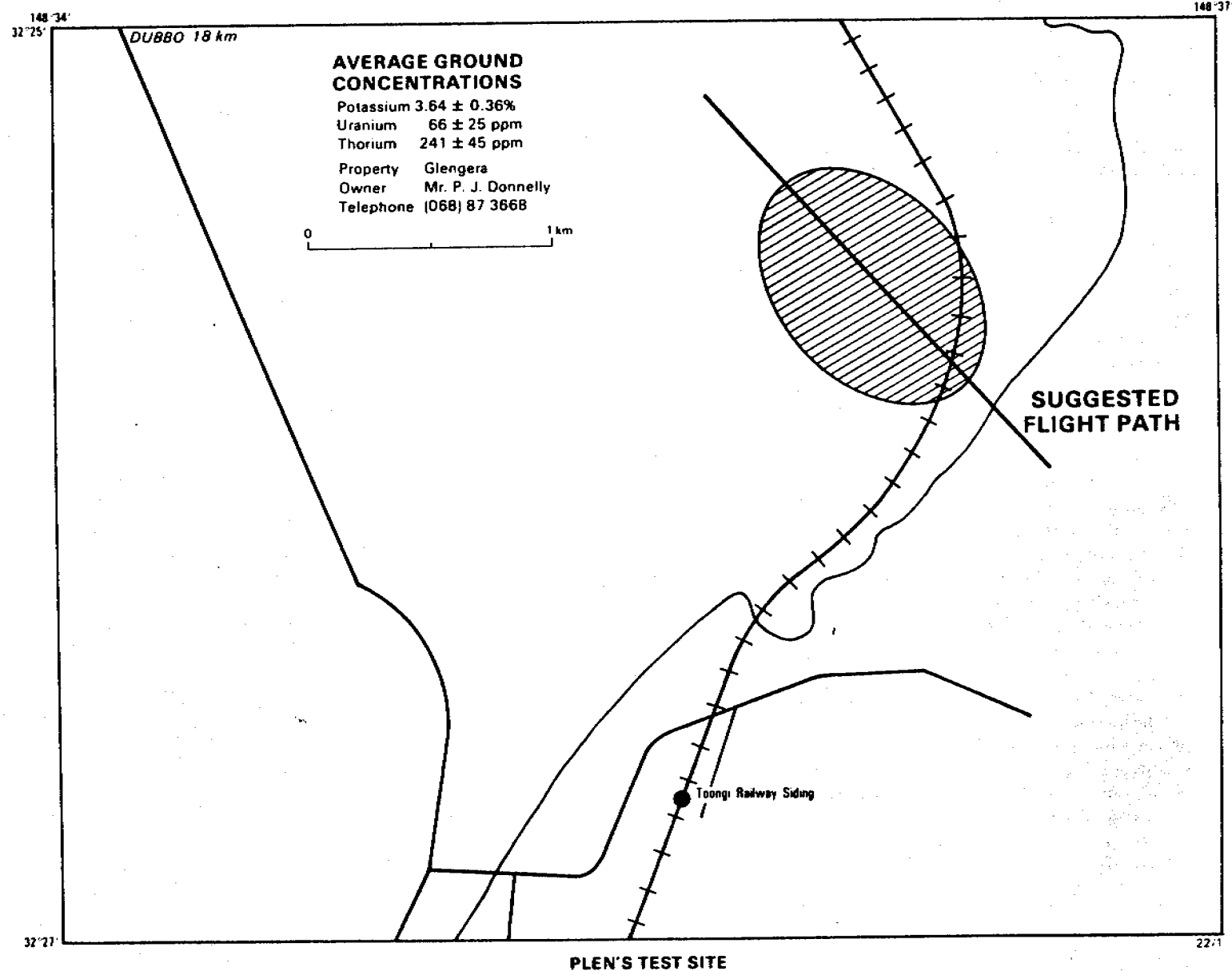
Mean Values: Potassium (%)

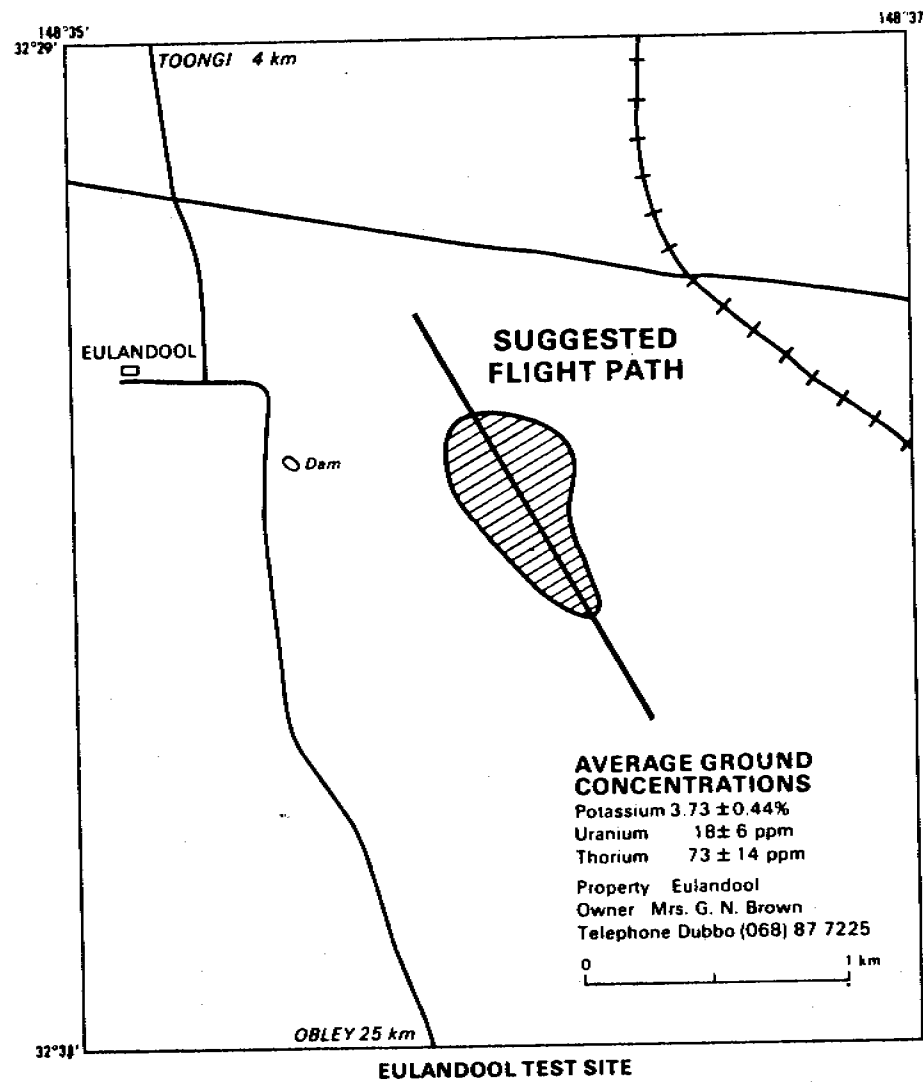
Altitude (m)	Plens		Eulandool	
30	0.88	0.85	1.65	1.64
60	0.81	0.78	1.46	1.55
80	0.80	0.78	1.44	1.53
100	0.76	0.78	1.40	1.52
120	0.75	0.83	1.32	1.40
150	0.70	0.64	1.29	1.31
200	0.63	0.59	1.02	0.94
300	0.61	0.50	0.83	0.94
Average both tests	0.73		1.33	
Standard deviation	0.11		0.26	

Mean Values: *Total Radioelement (ur)*

<i>Altitude (m)</i>	<i>Plens</i>		<i>Eulandool</i>	
30	11.03	9.34	13.23	13.21
60	9.37	10.07	13.35	13.51
80	9.78	11.13	13.64	13.76
100	10.16	11.21	13.91	14.55
120	10.55	11.89	13.77	13.56
150	10.01	10.92	13.66	13.21
200	11.48	12.03	11.98	10.88
300	12.76	11.96	11.92	10.59
<i>Average both tests</i>	10.86		13.05	
<i>Standard deviation</i>	1.02		1.11	

The values determined differ markedly from those quoted by the BMR. As there is no report available on assay techniques or distribution of samples assayed, it is difficult to determine the reasons for this difference. However, a reasonable test on the confidence of the airborne reduction is to note the consistency of the values recorded at the various heights. The differences are due to variations in the position of each line, that is, the lines were not flown exactly on top of one another and also that the sampled area varies with altitude.





SPECTRAL PLOTS RADIOMETRIC TESTS

Flt 4	11/ 8/82	Land/water and cosmic tests - Perth, WA.
Flt 1	14/ 8/82	Test Range - Dubbo, NSW.
Flt 30	10/ 9/82	Land/water and cosmic tests - Jabiru, NT.
Flt 141	26/11/82	Altitude stack - Jabiru, NT.

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 171
FLIGHT 1
TAPE 1
DATE 820811
ACQUISITION INTERVAL 0.4
TIME 44734 44773
FIDUCIAL 1 100

COUNTS / SCAN

600

500

400

300

200

100

0

CHANNEL NUMBER

0

10

20

30

40

50

60

70

80

90

100

110

120

130

140

150

160

170

180

190

200

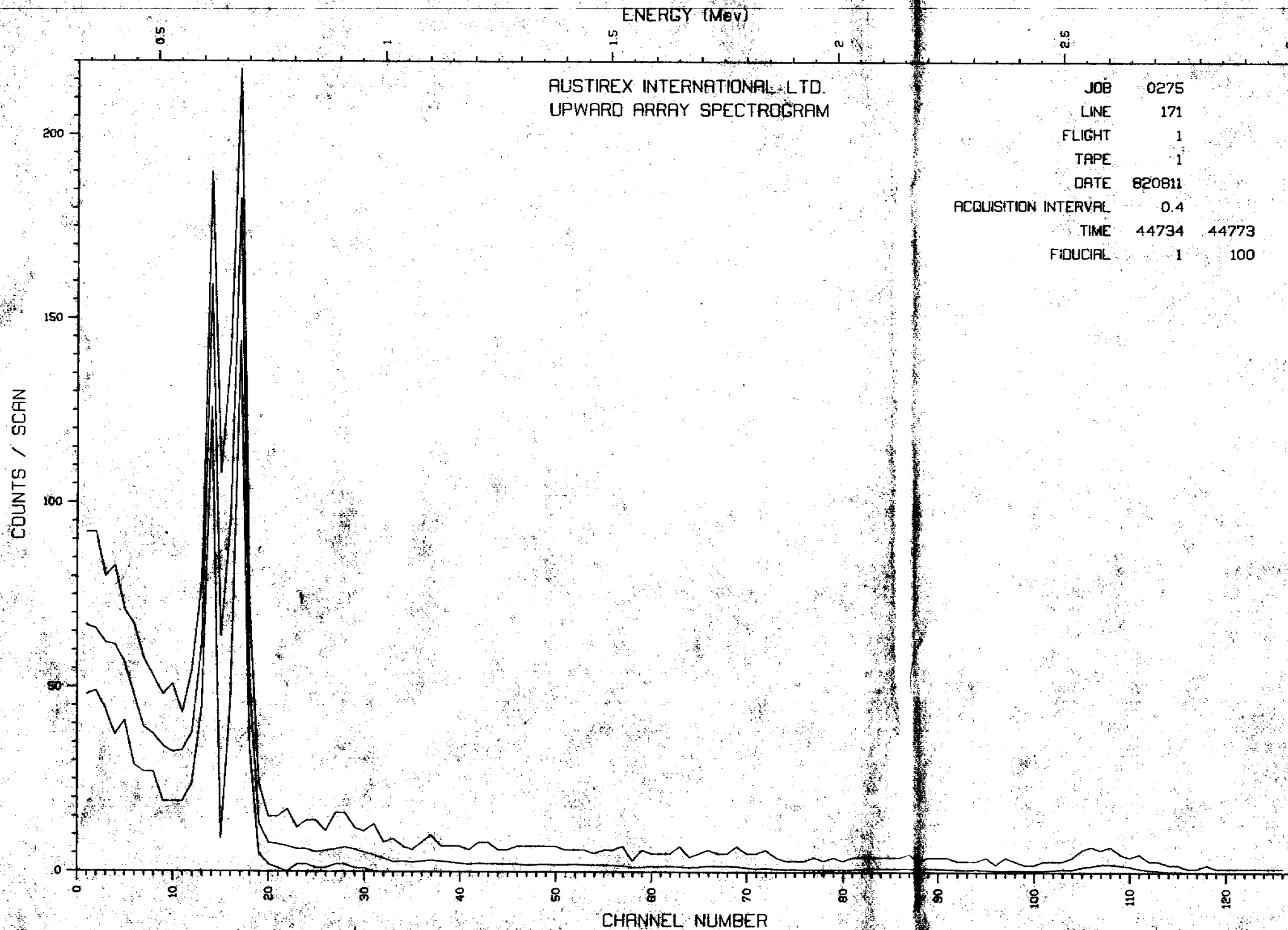
210

220

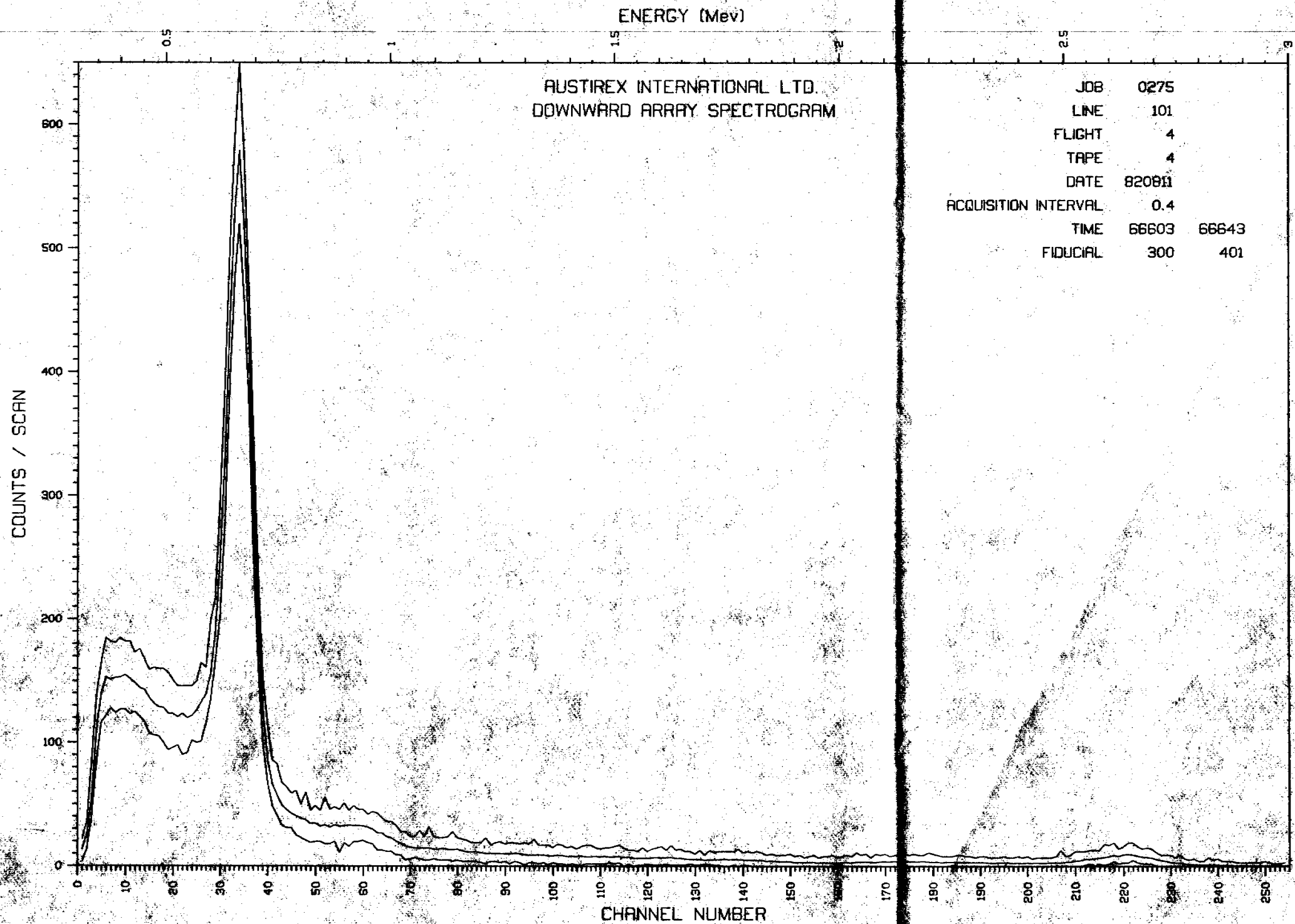
230

240

250



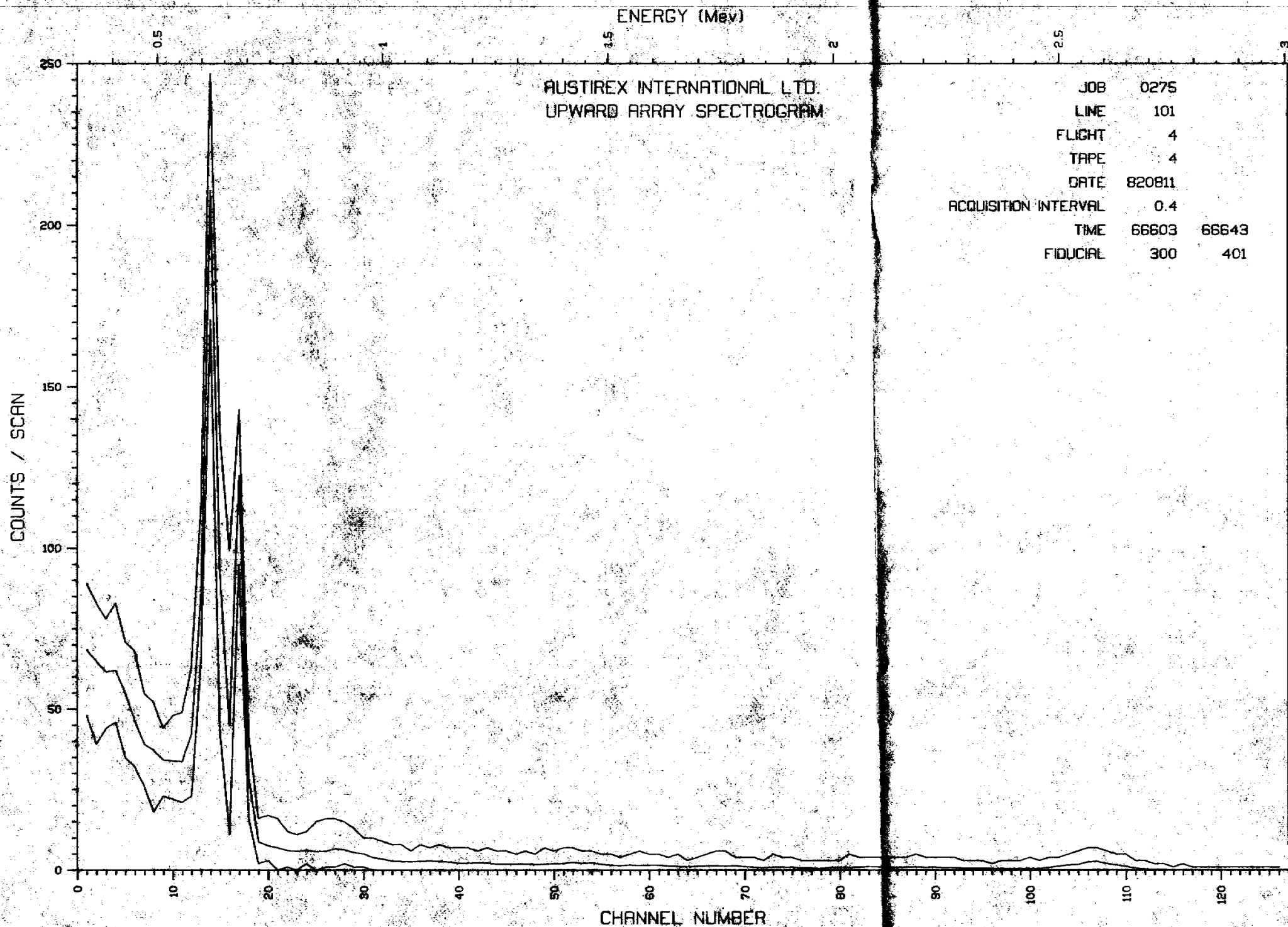
AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

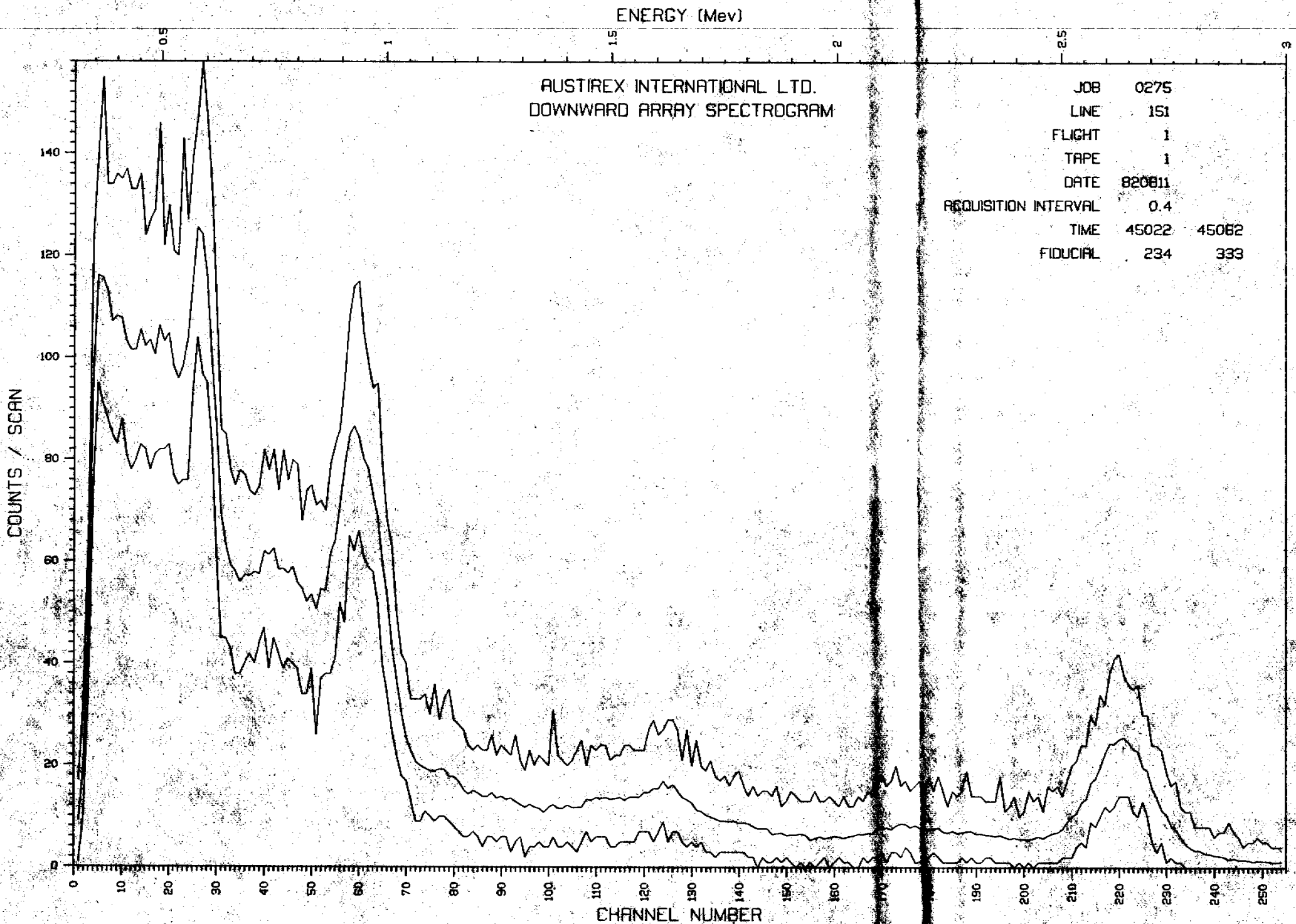


JOB	0275
LINE	101
FLIGHT	4
TAPE	4
DATE	820811
ACQUISITION INTERVAL	0.4
TIME	66603 66643
FIDUCIAL	300 401

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 101
FLIGHT 4
TAPE 4
DATE 820811
ACQUISITION INTERVAL 0.4
TIME 66603 66643
FIDUCIAL 300 401



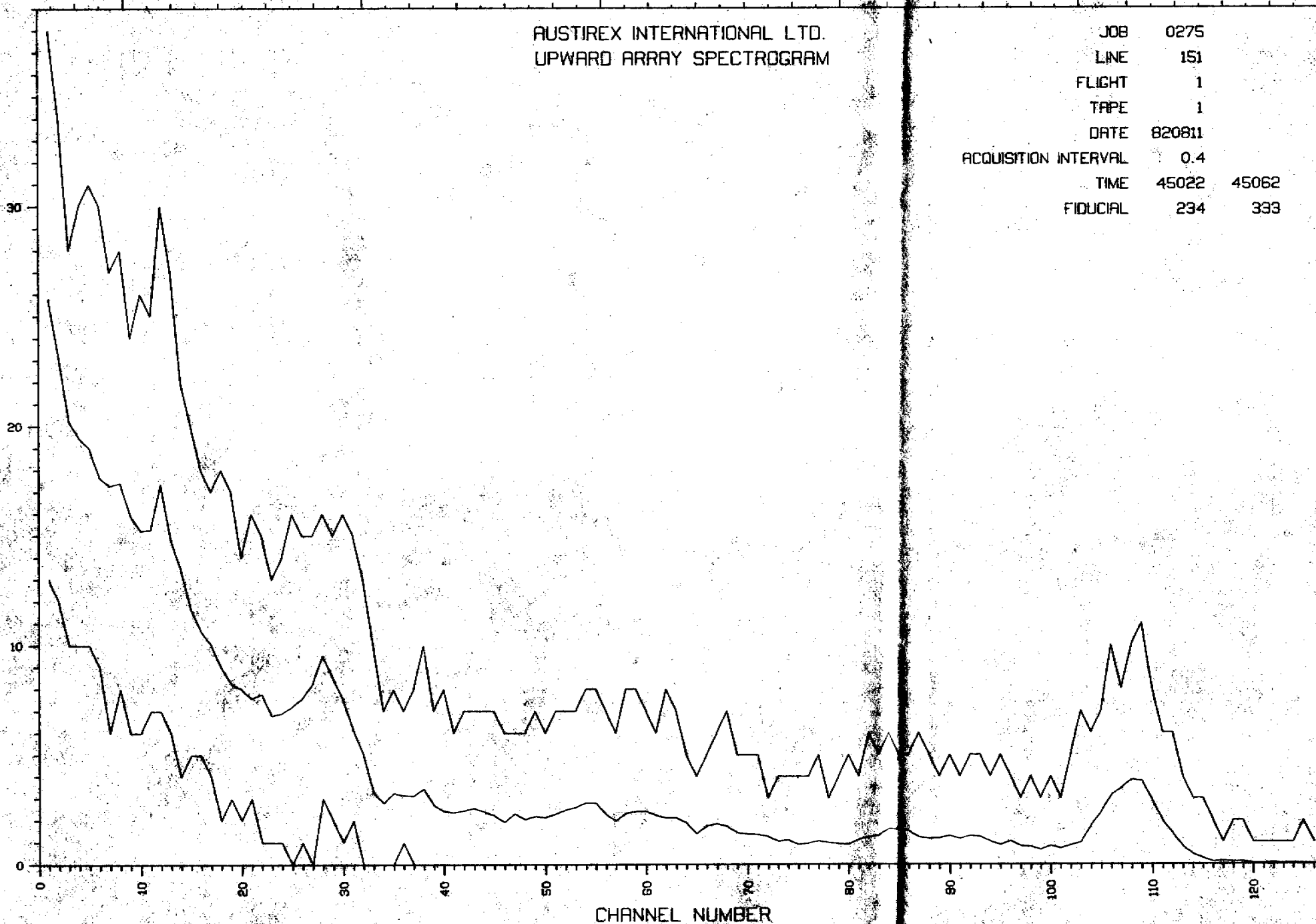


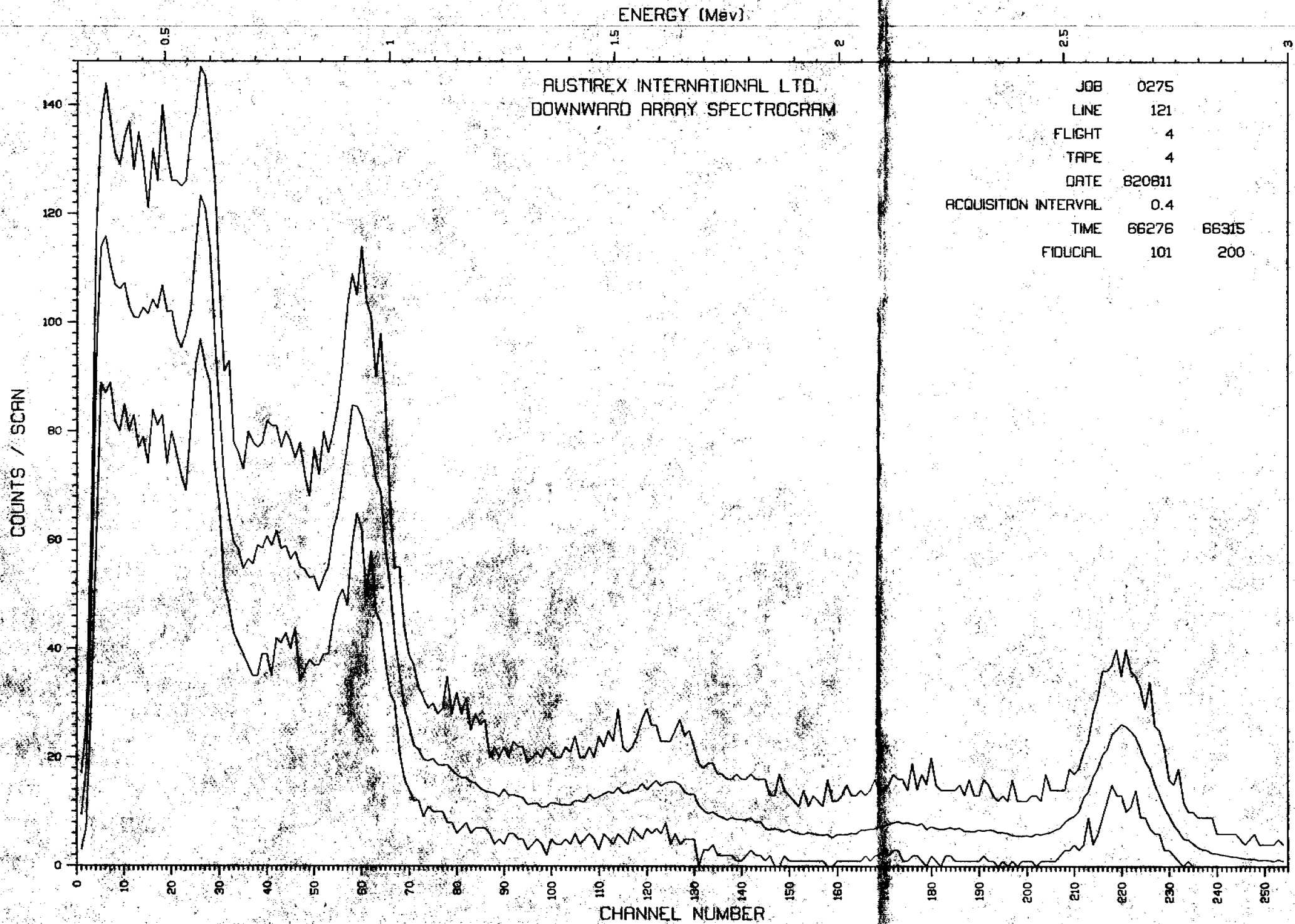
ENERGY (Mev)

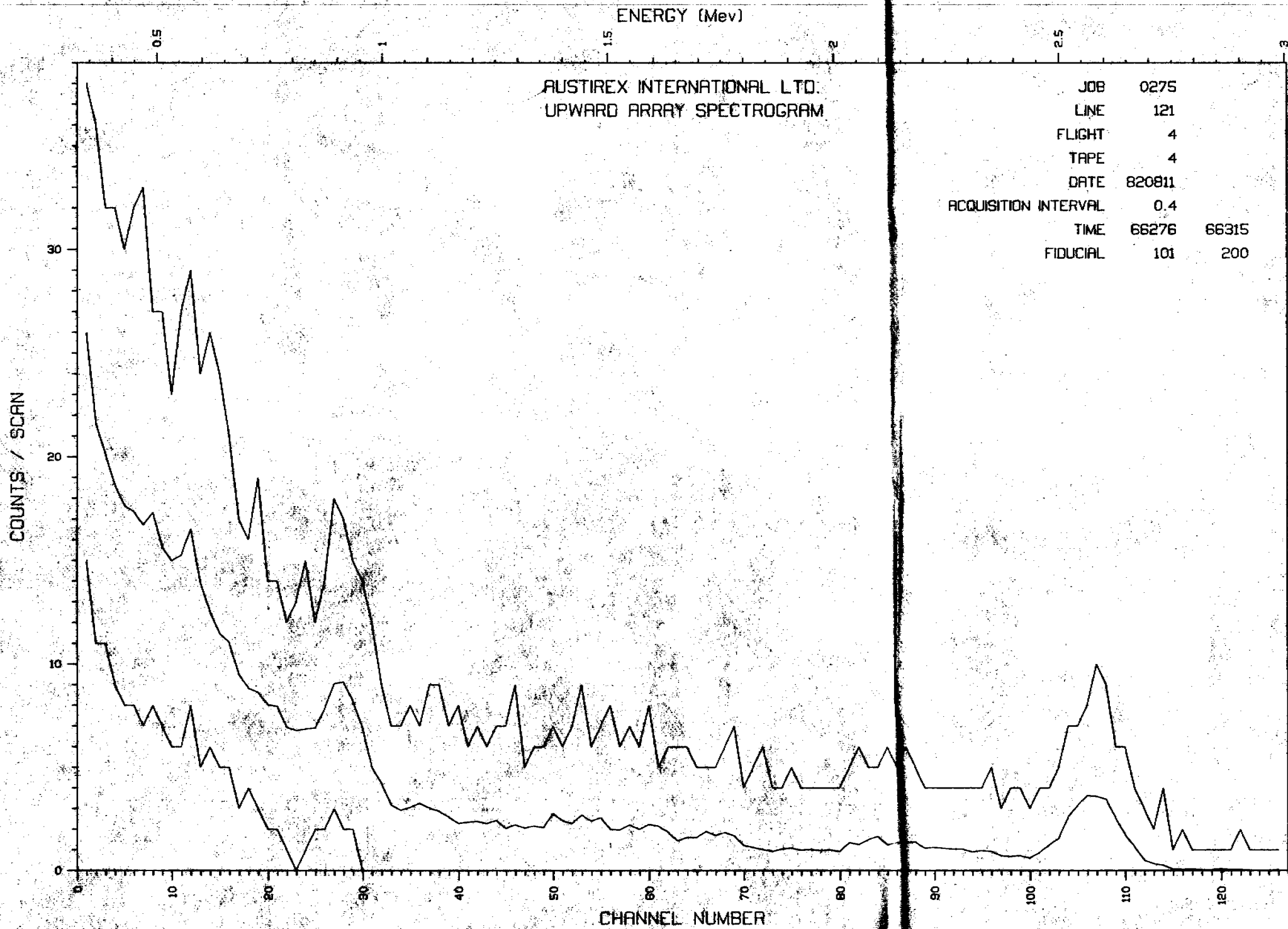
AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	151
FLIGHT	1
TAPE	1
DATE	820811
ACQUISITION INTERVAL	0.4
TIME	45022 45062
FIDUCIAL	234 333

COUNTS / SCAN





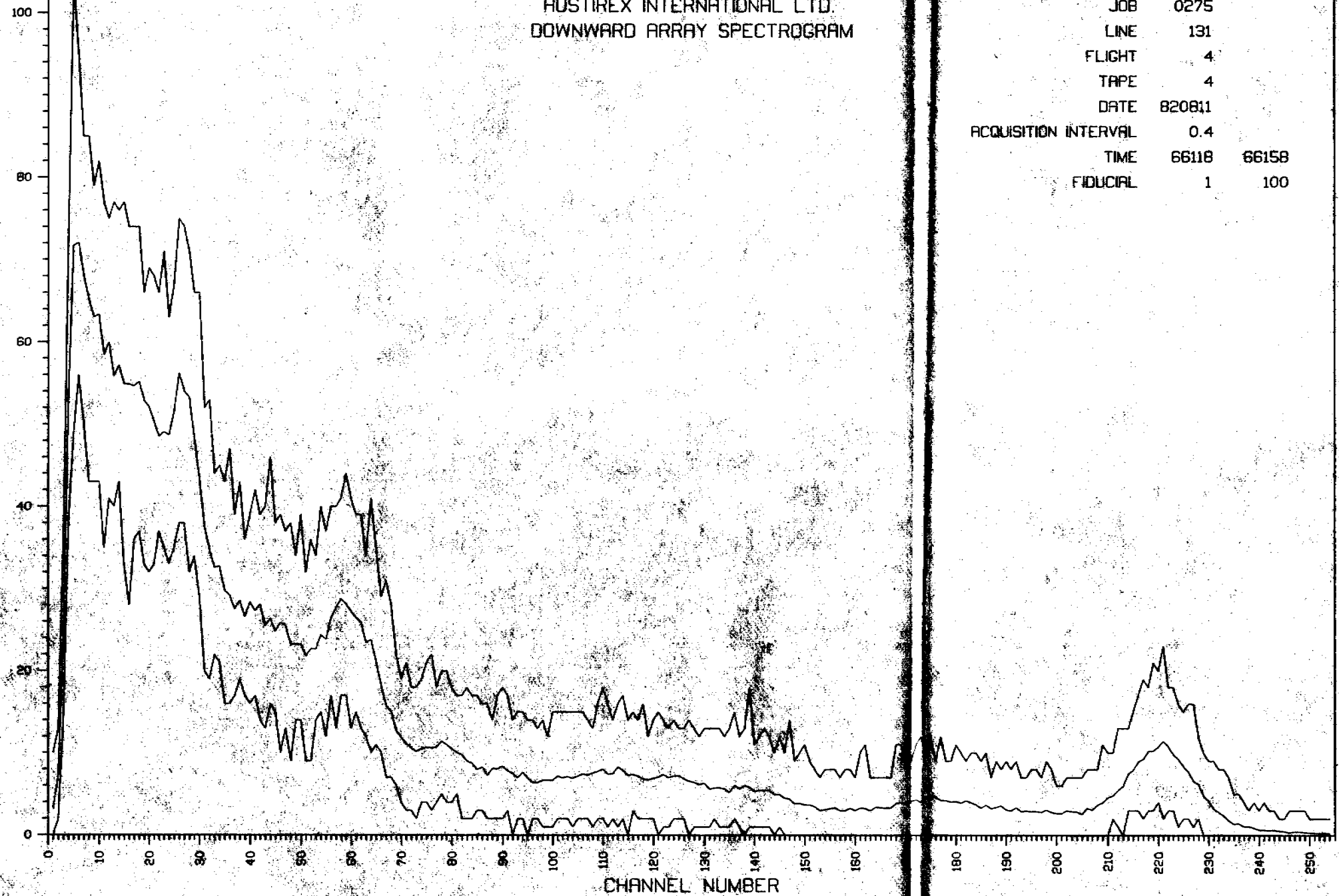


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	131
FLIGHT	4
TAPE	4
DATE	820811
ACQUISITION INTERVAL	0.4
TIME	66118 66158
FIDUCIAL	1 100

COUNTS / SCAN



CHANNEL NUMBER

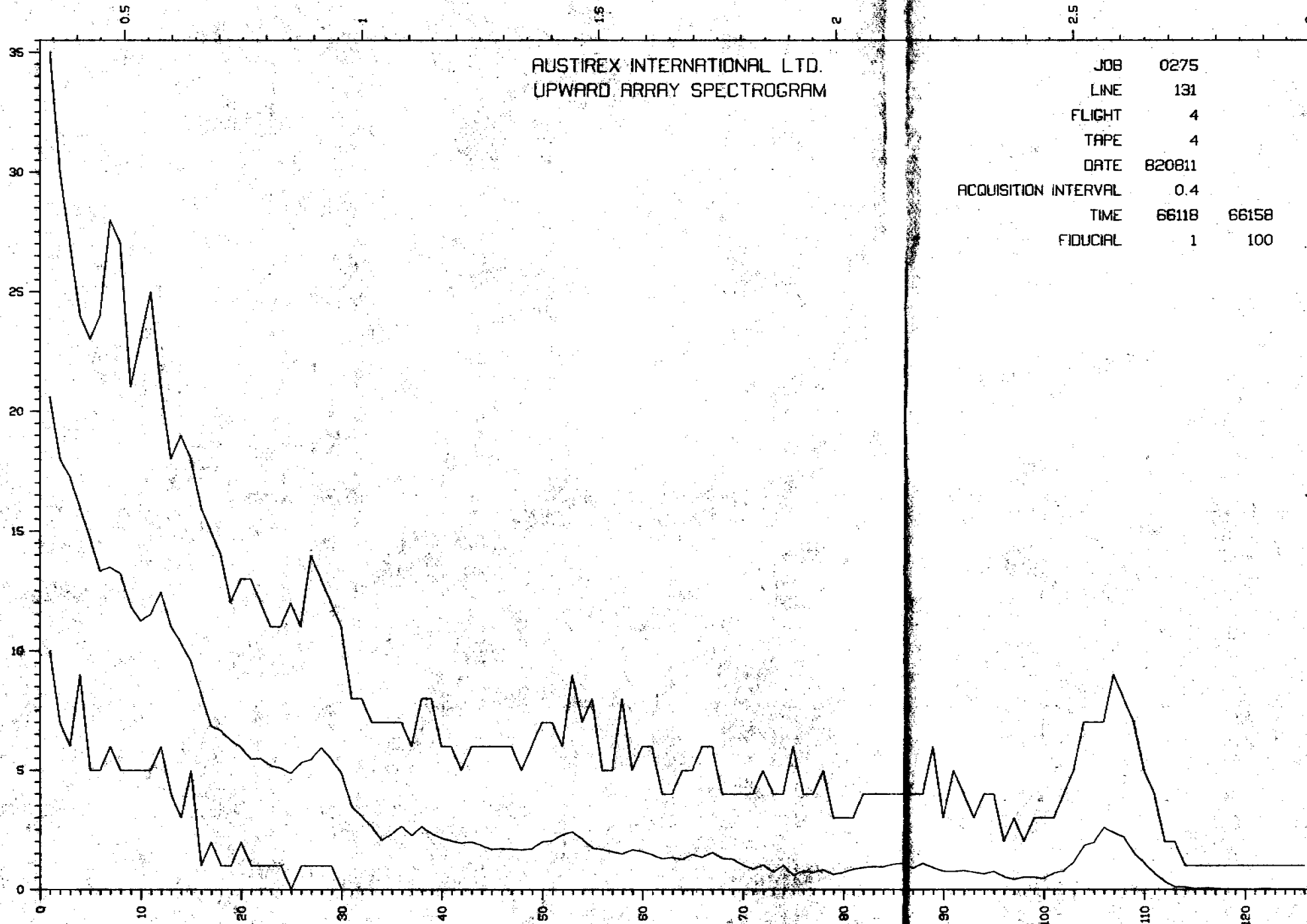
ENERGY (Mev)

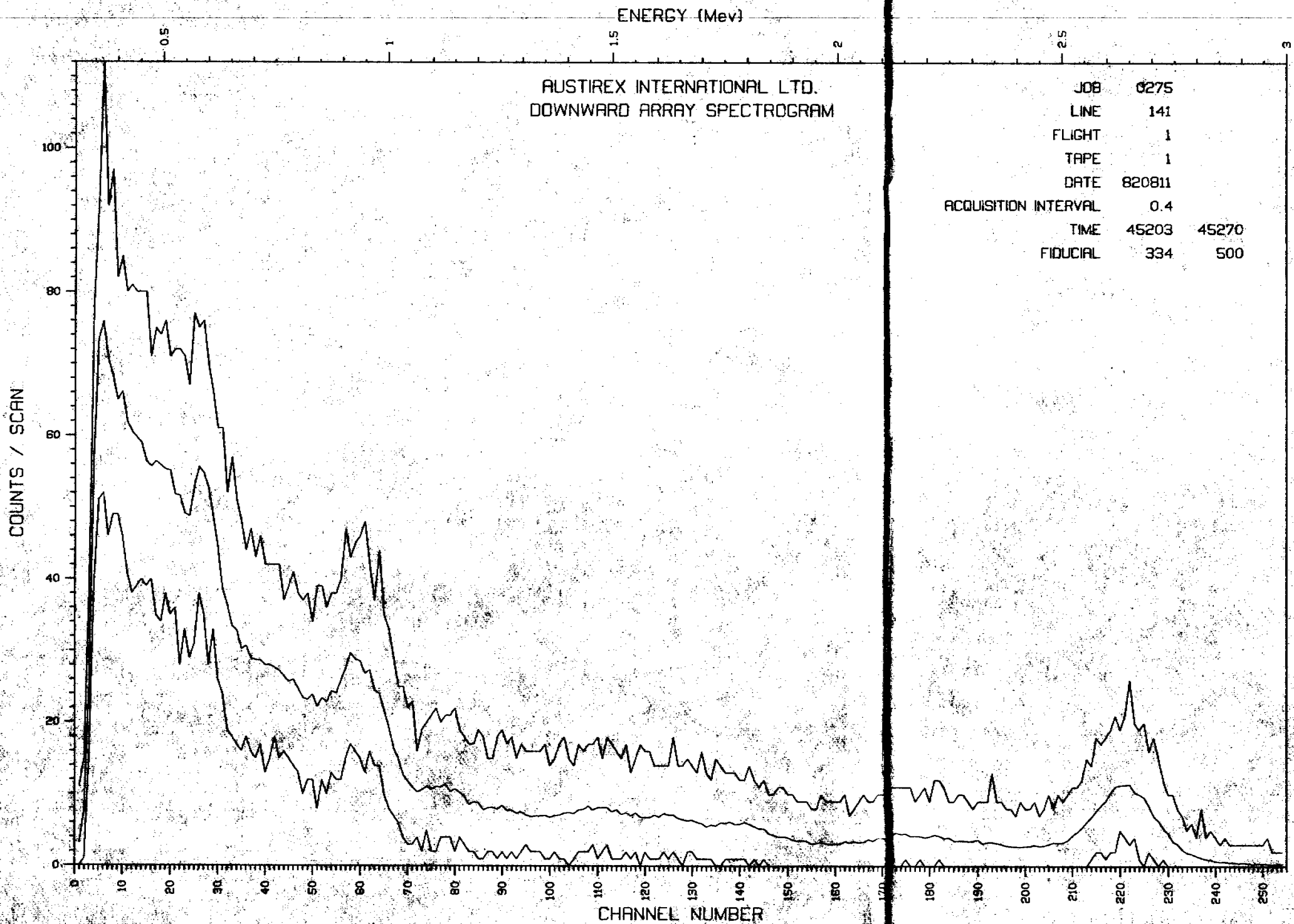
AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275	
LINE	131	
FLIGHT	4	
TAPE	4	
DATE	820811	
ACQUISITION INTERVAL	0.4	
TIME	66118	66158
FIDUCIAL	1	100

COUNTS / SCAN

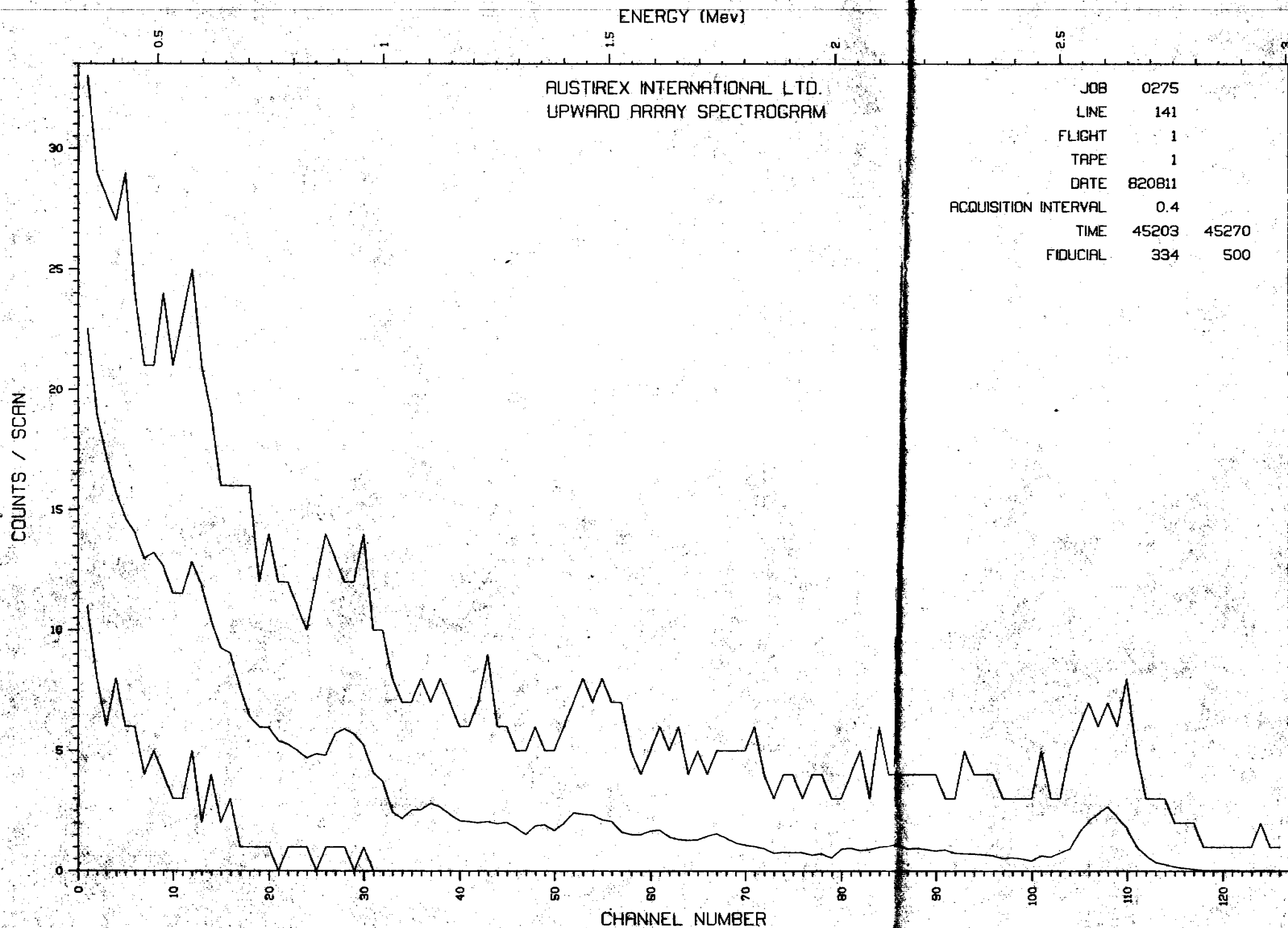
CHANNEL NUMBER





AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 141
FLIGHT 1
TAPE 1
DATE 820811
ACQUISITION INTERVAL 0.4
TIME 45203 45270
FIDUCIAL 334 500



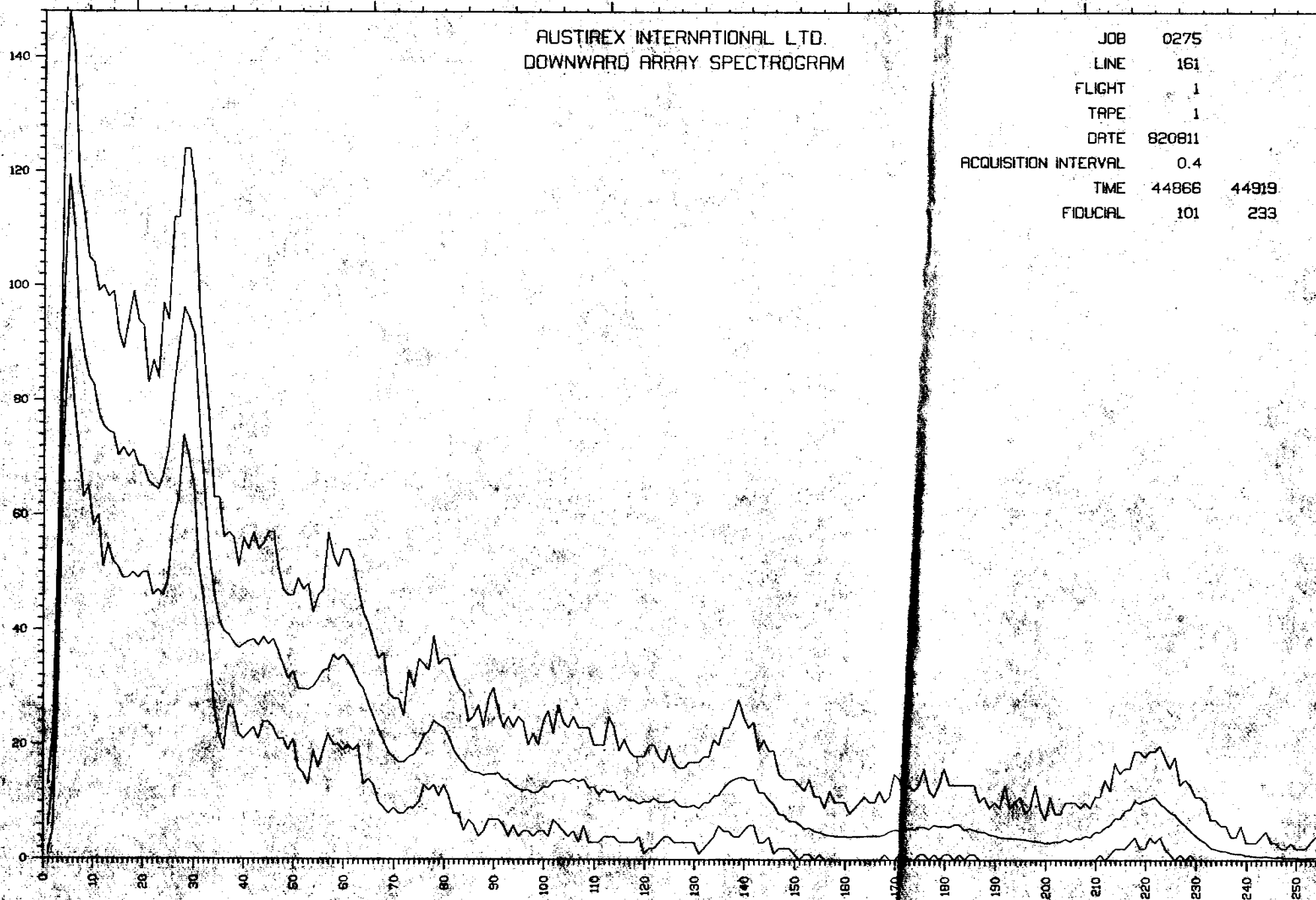
ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275	
LINE	161	
FLIGHT	1	
TAPE	1	
DATE	820811	
ACQUISITION INTERVAL	0.4	
TIME	44866	44919
FIDUCIAL	101	233

COUNTS / SCAN

CHANNEL NUMBER

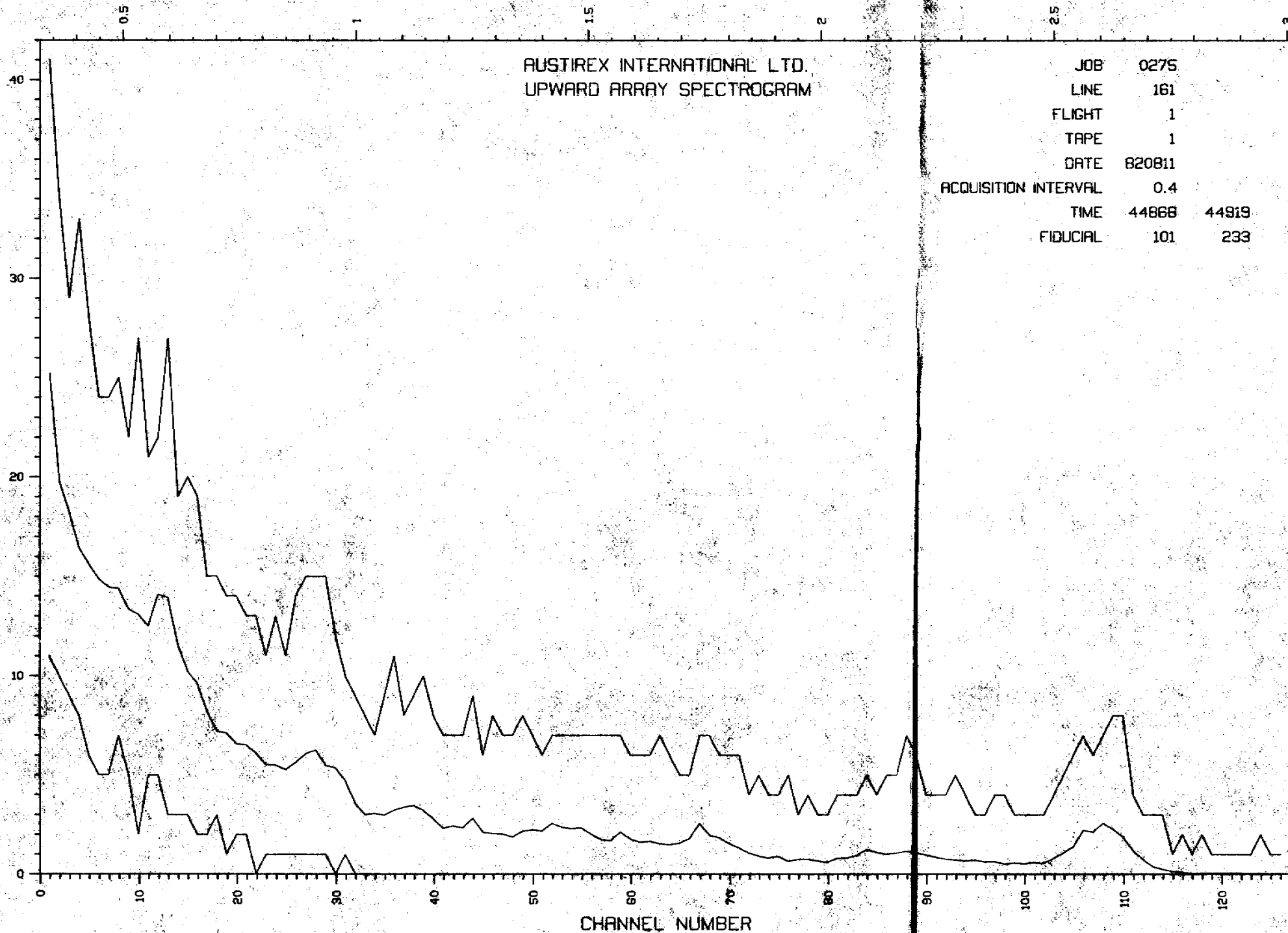


ENERGY (MeV)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 161
FLIGHT 1
TAPE 1
DATE 820811
ACQUISITION INTERVAL 0.4
TIME 44868 44919
FIDUCIAL 101 233

COUNTS / SCAN



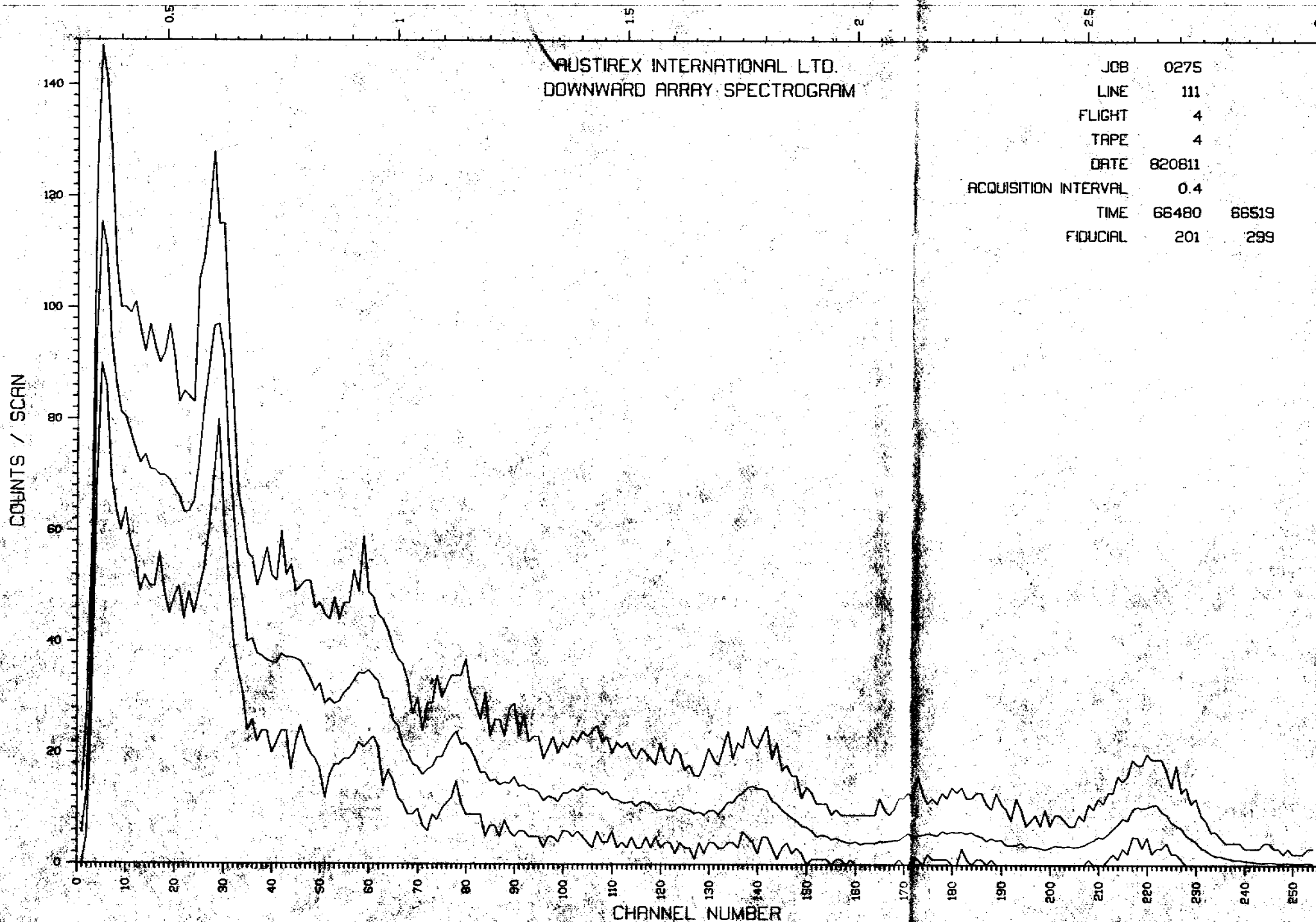
ENERGY (Mev)

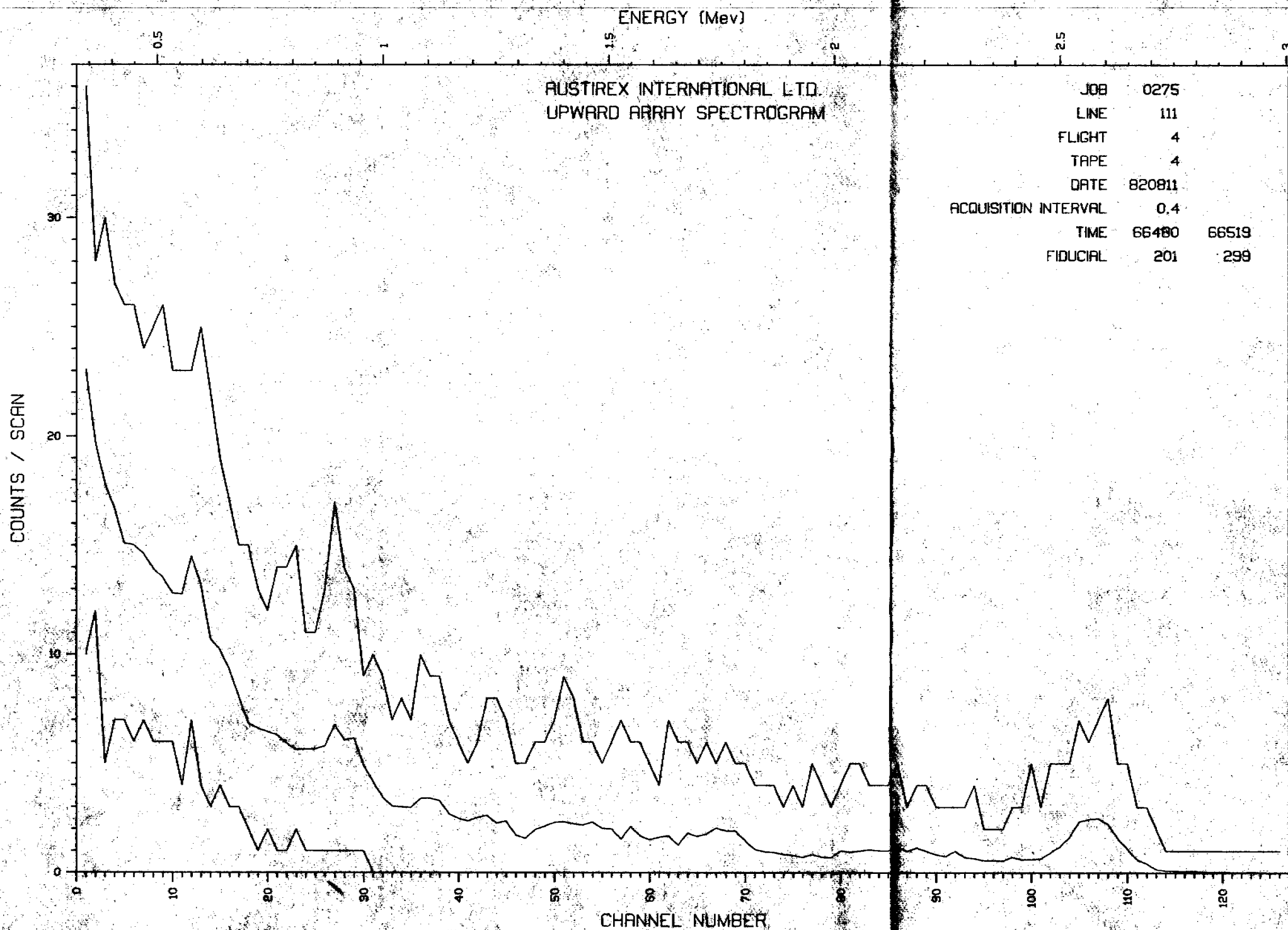
AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275	
LINE	111	
FLIGHT	4	
TAPE	4	
DATE	820811	
ACQUISITION INTERVAL	0.4	
TIME	66480	66519
FIDUCIAL	201	299

COUNTS / SCAN

CHANNEL NUMBER





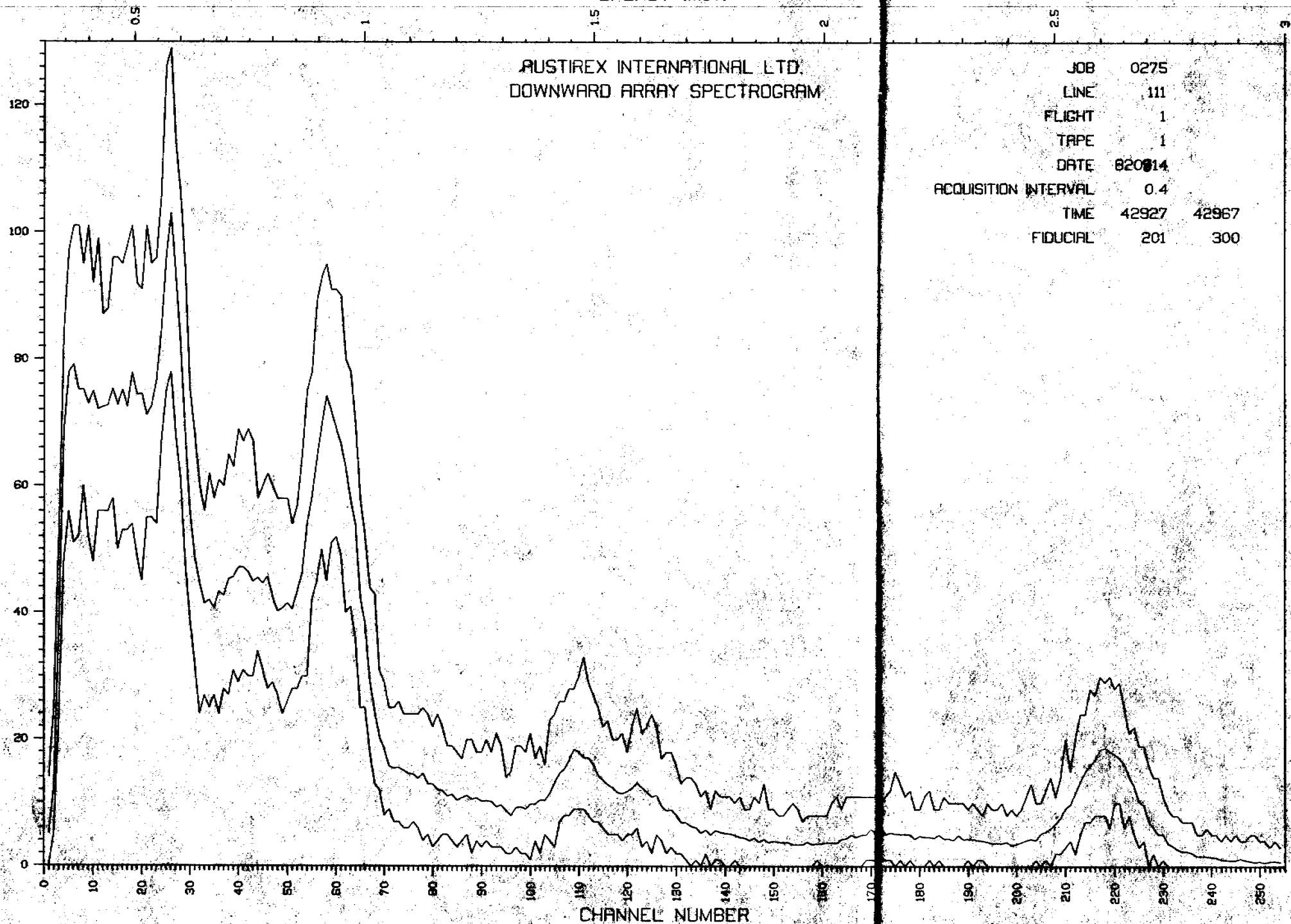
AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	111
FLIGHT	1
TAPE	1
DATE	820814
ACQUISITION INTERVAL	0.4
TIME	42927 42967
FIDUCIAL	201 300

COUNTS / SCAN

CHANNEL NUMBER

ENERGY (Mev)



ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275

LINE 111

FLIGHT 1

TAPE 1

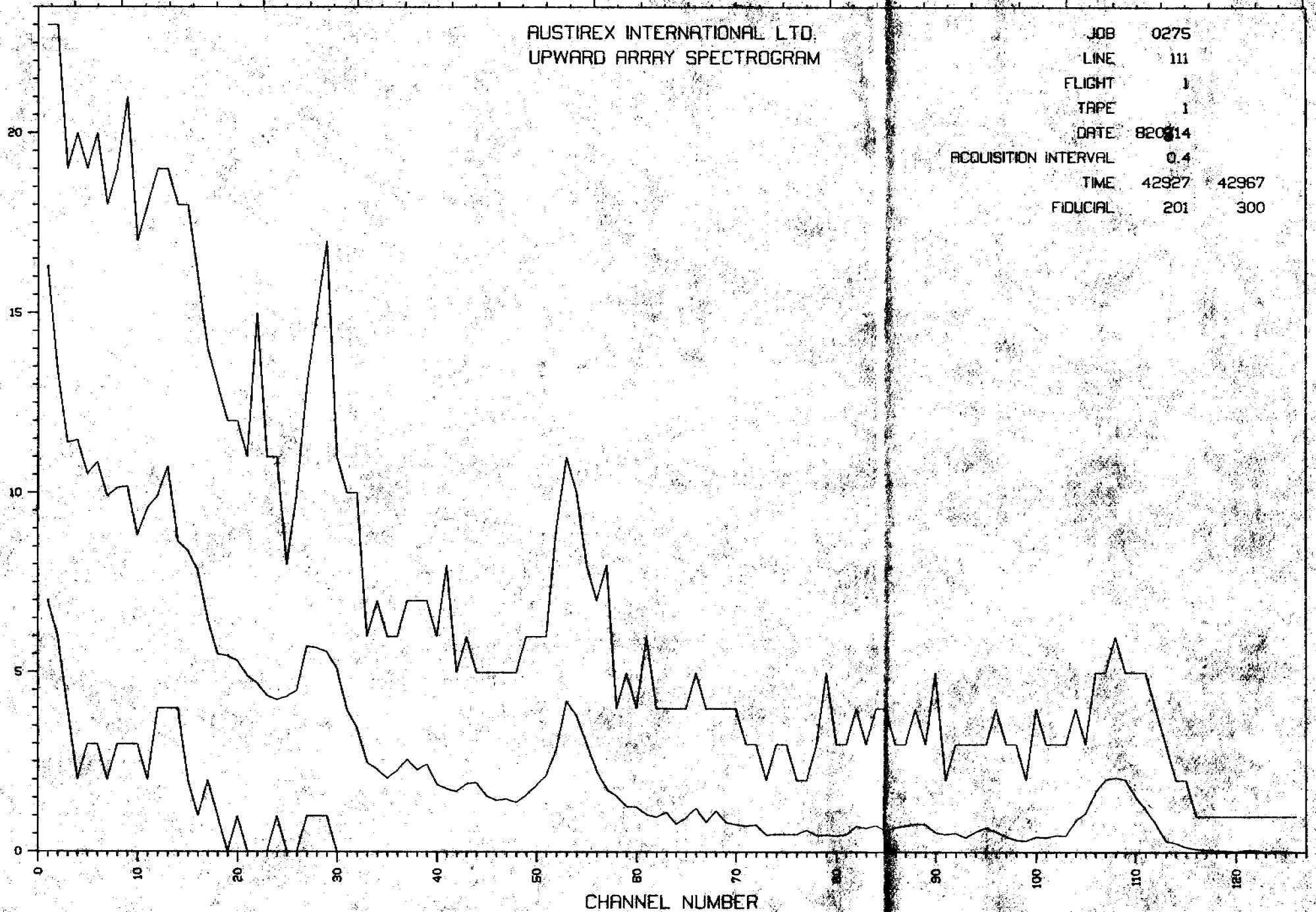
DATE 820314

ACQUISITION INTERVAL 0.4

TIME 42927 42967

FIDUCIAL 201 300

COUNTS / SCAN



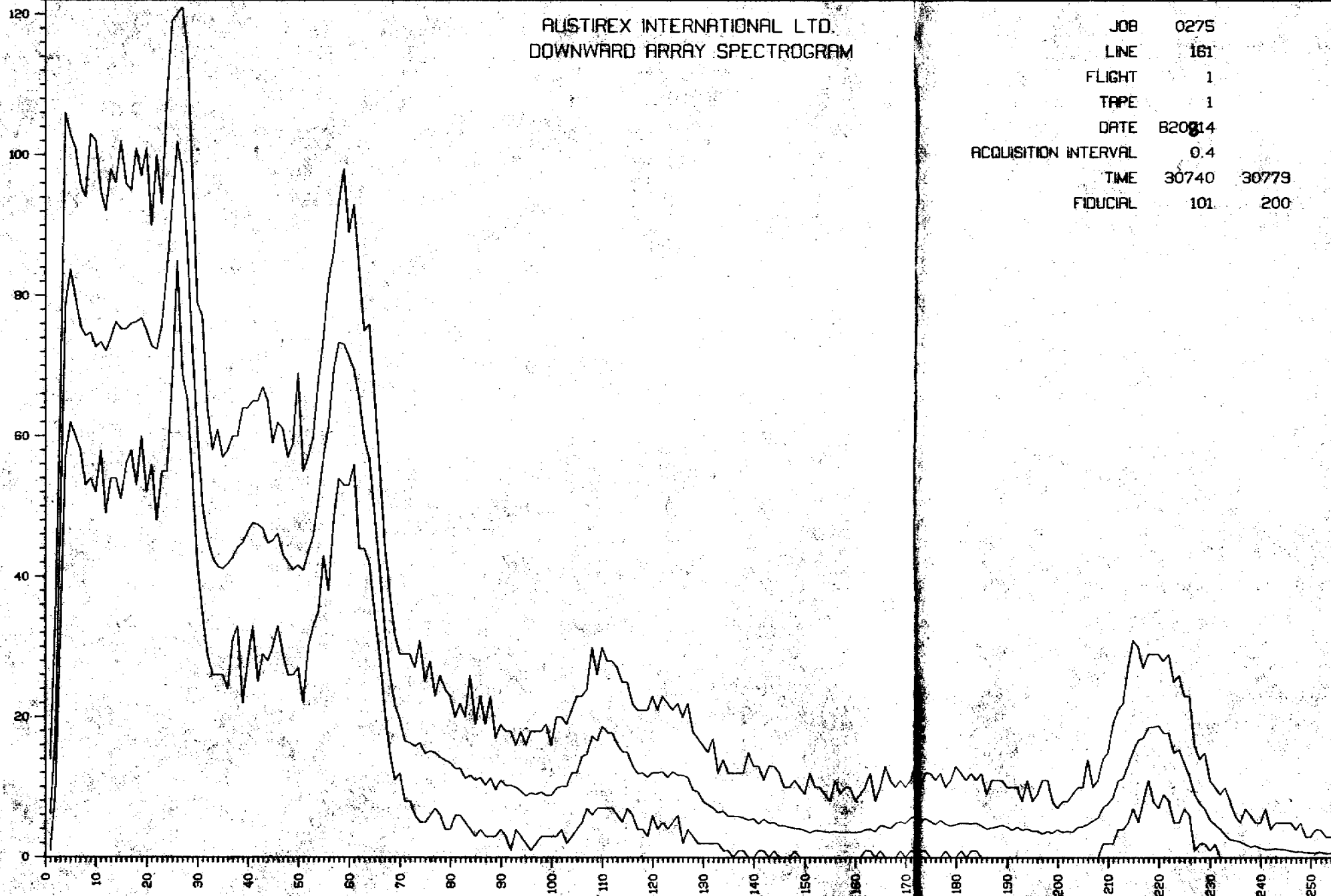
ENERGY (MeV)

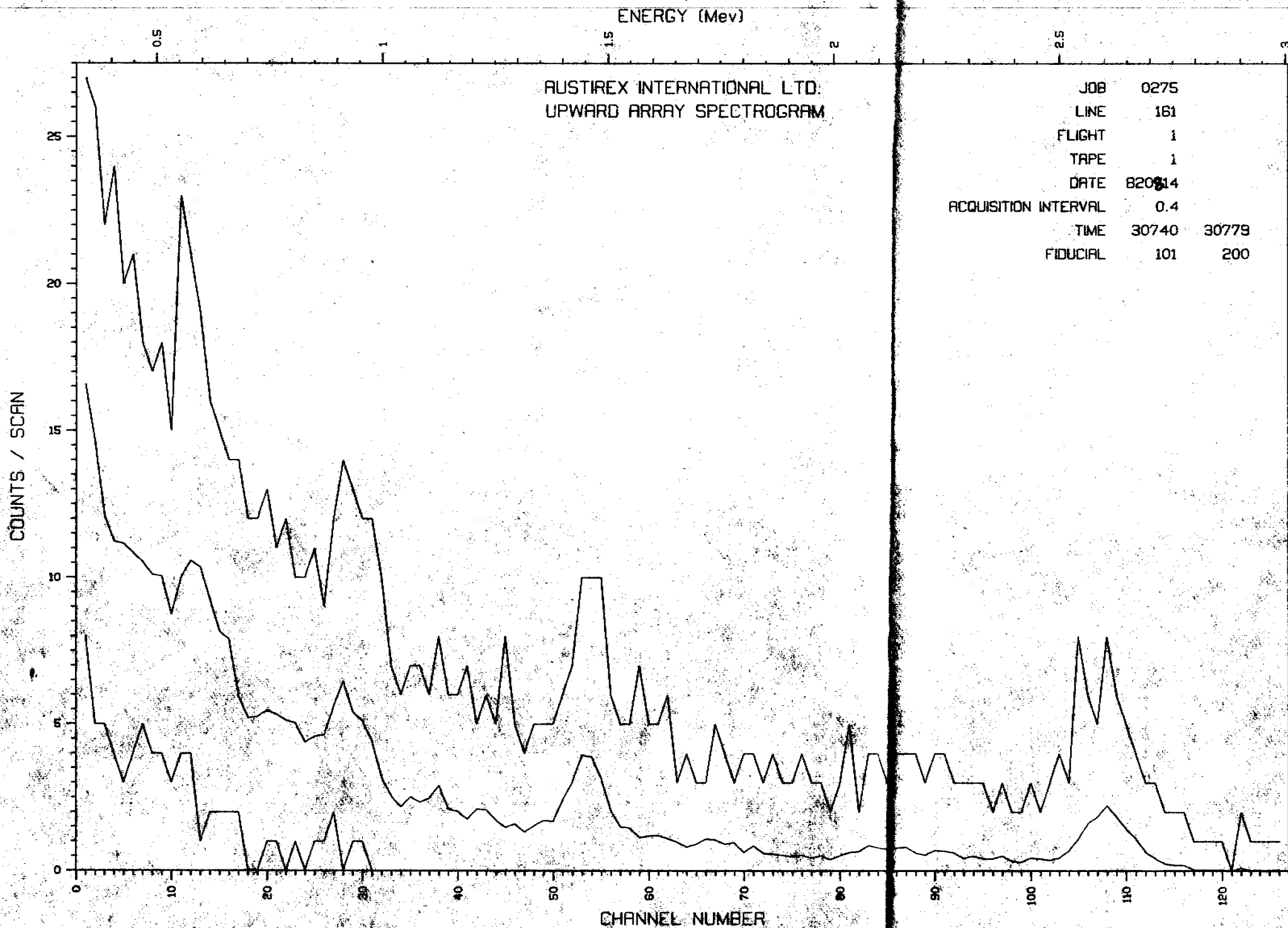
AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

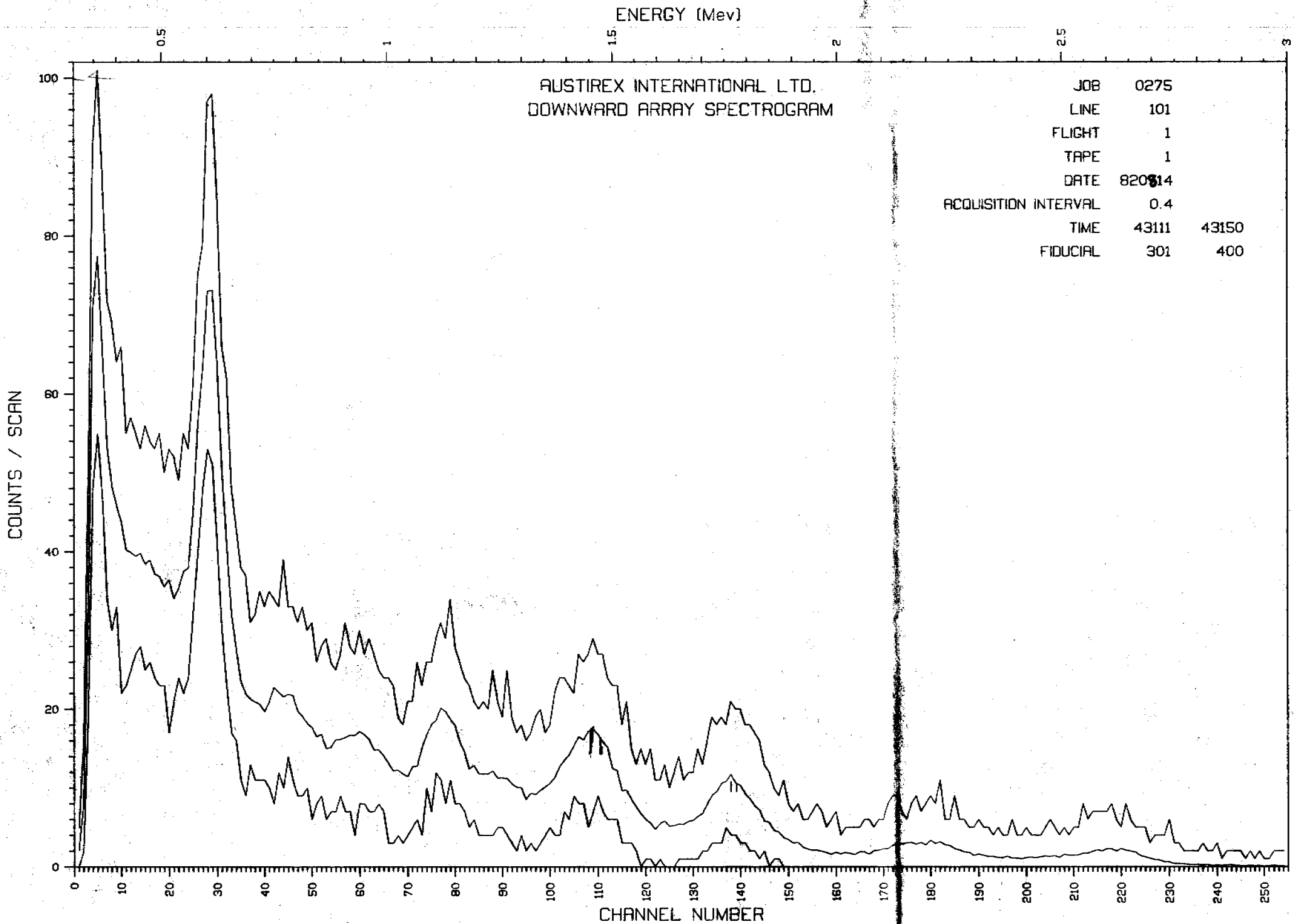
JOB 0275
LINE 161
FLIGHT 1
TAPE 1
DATE 820814
ACQUISITION INTERVAL 0.4
TIME 30740 30779
FIDUCIAL 101 200

COUNTS / SCAN

CHANNEL NUMBER







ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275

LINE 101

FLIGHT 1

TAPE 1

DATE 820814

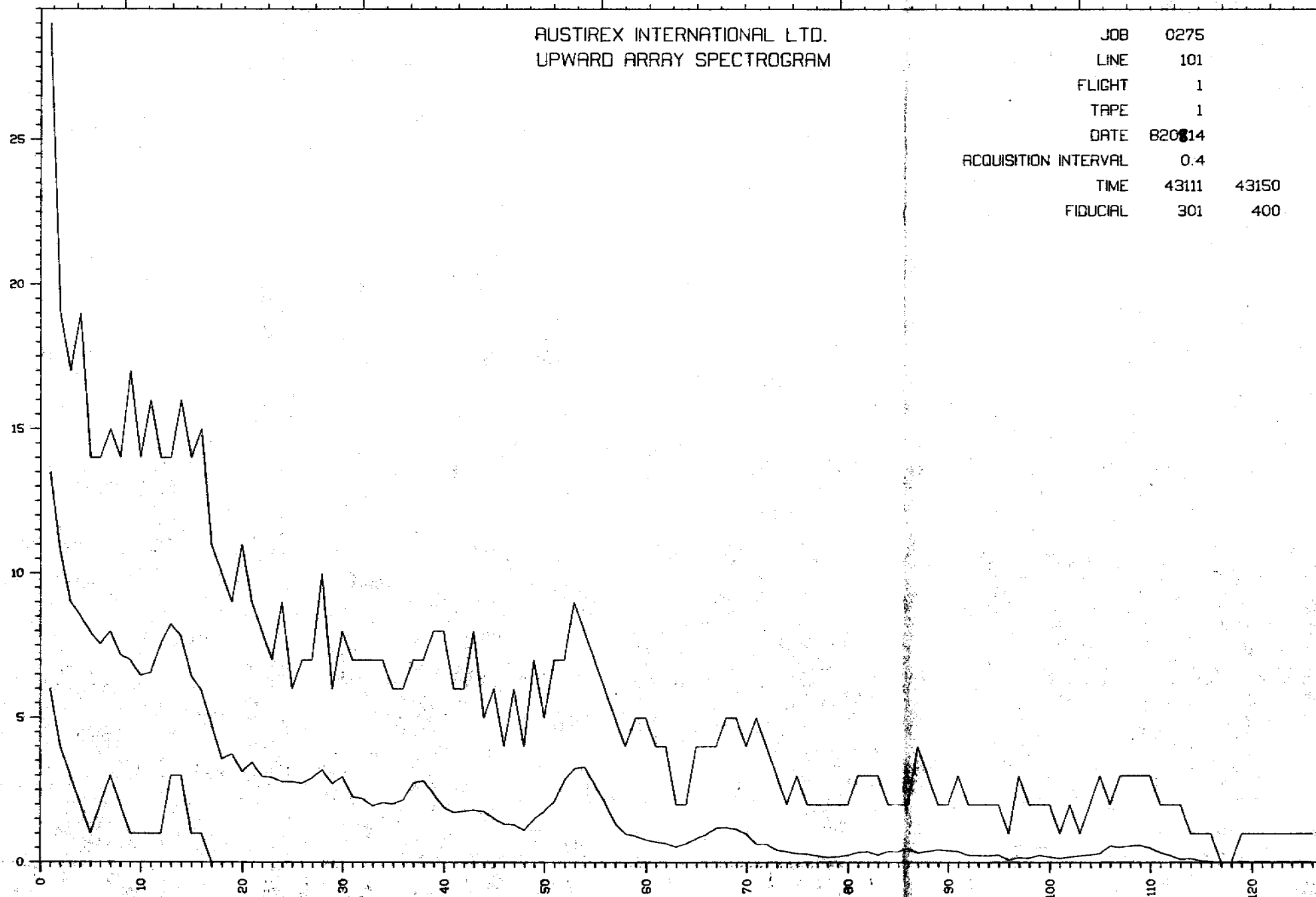
ACQUISITION INTERVAL 0.4

TIME 43111 43150

FIDUCIAL 301 400

COUNTS / SCAN

CHANNEL NUMBER



ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275

LINE 141

FLIGHT 1

TAPE 1

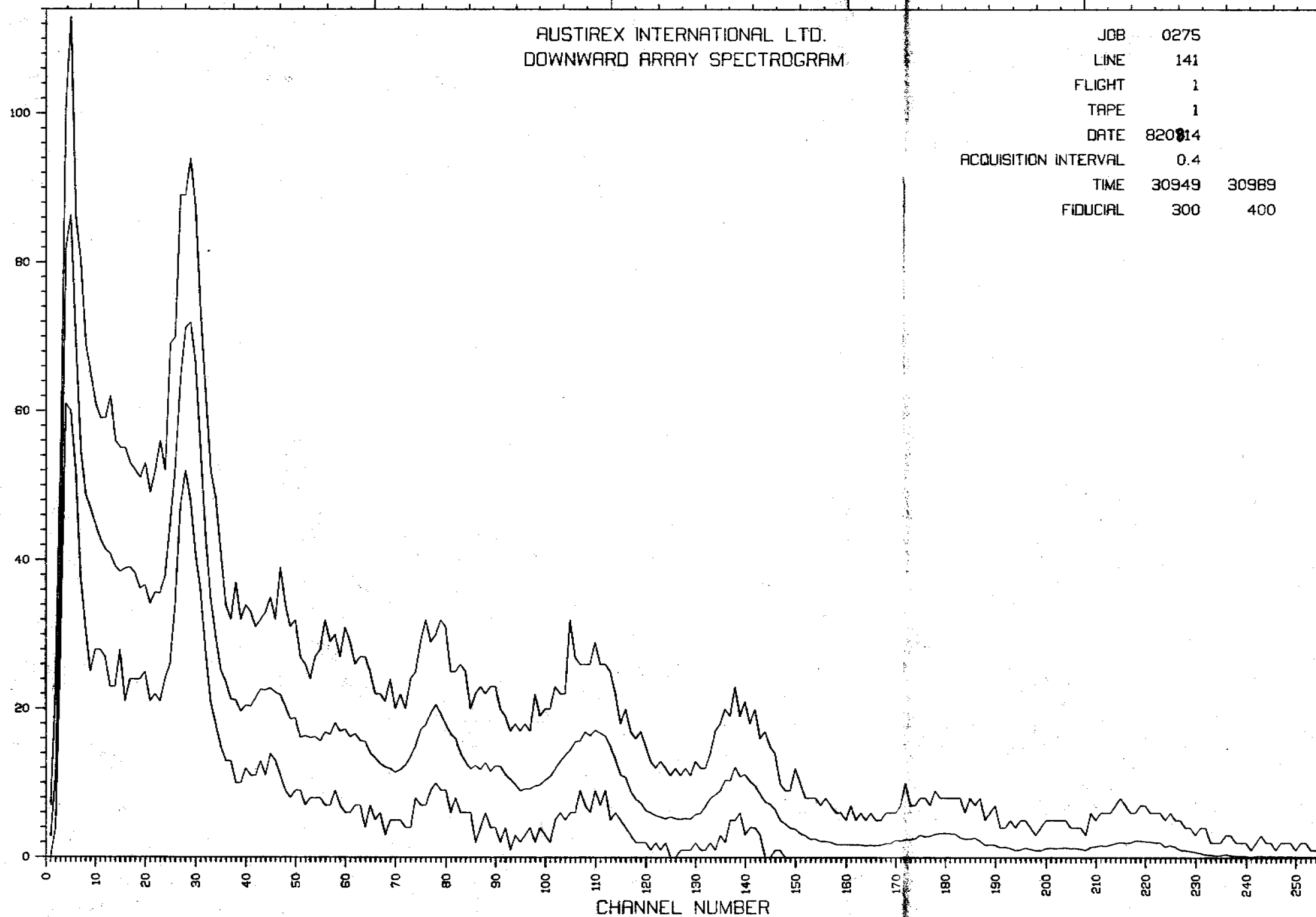
DATE 820814

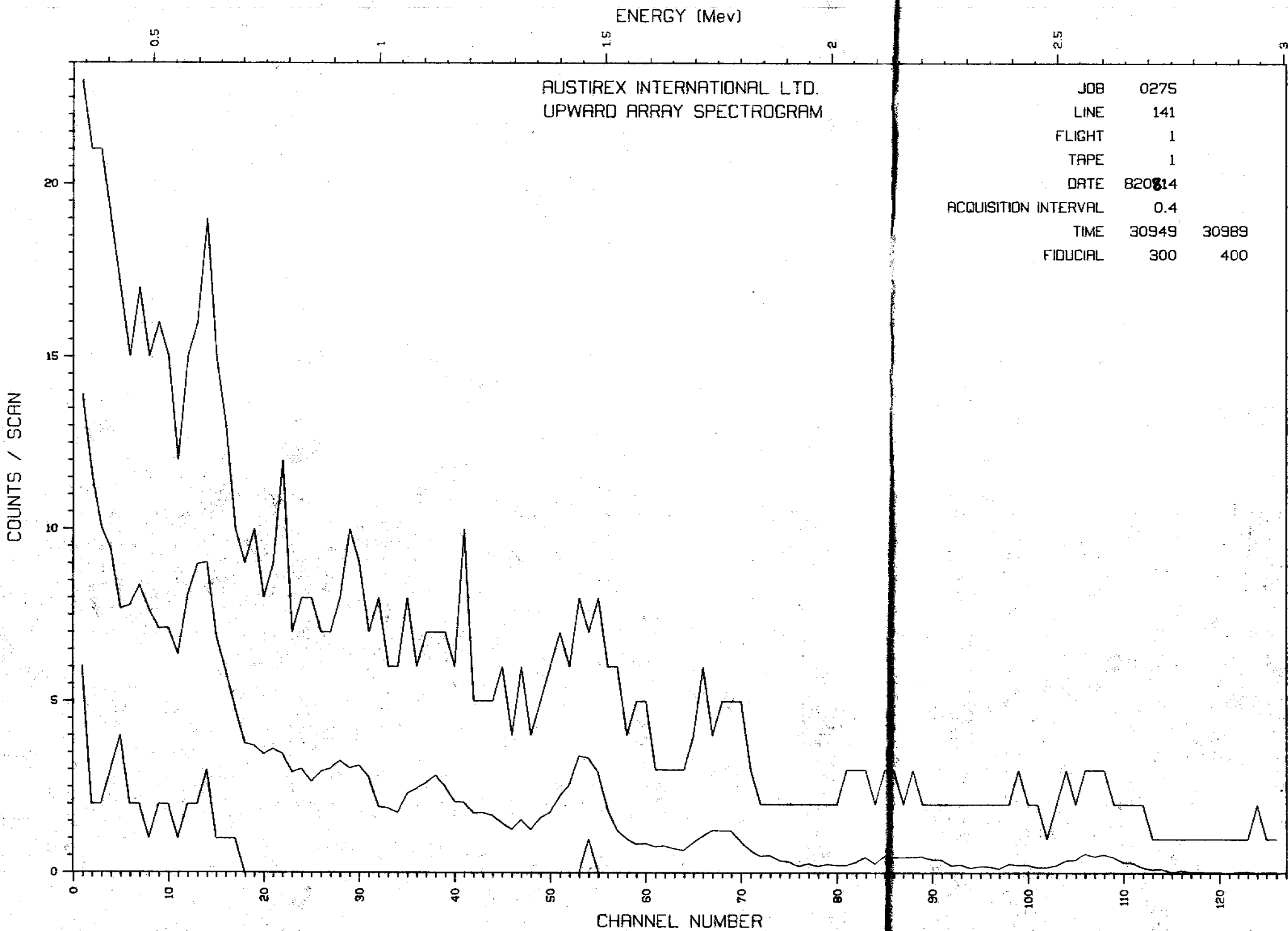
ACQUISITION INTERVAL 0.4

TIME 30949 30989

FIDUCIAL 300 400

COUNTS / SCAN



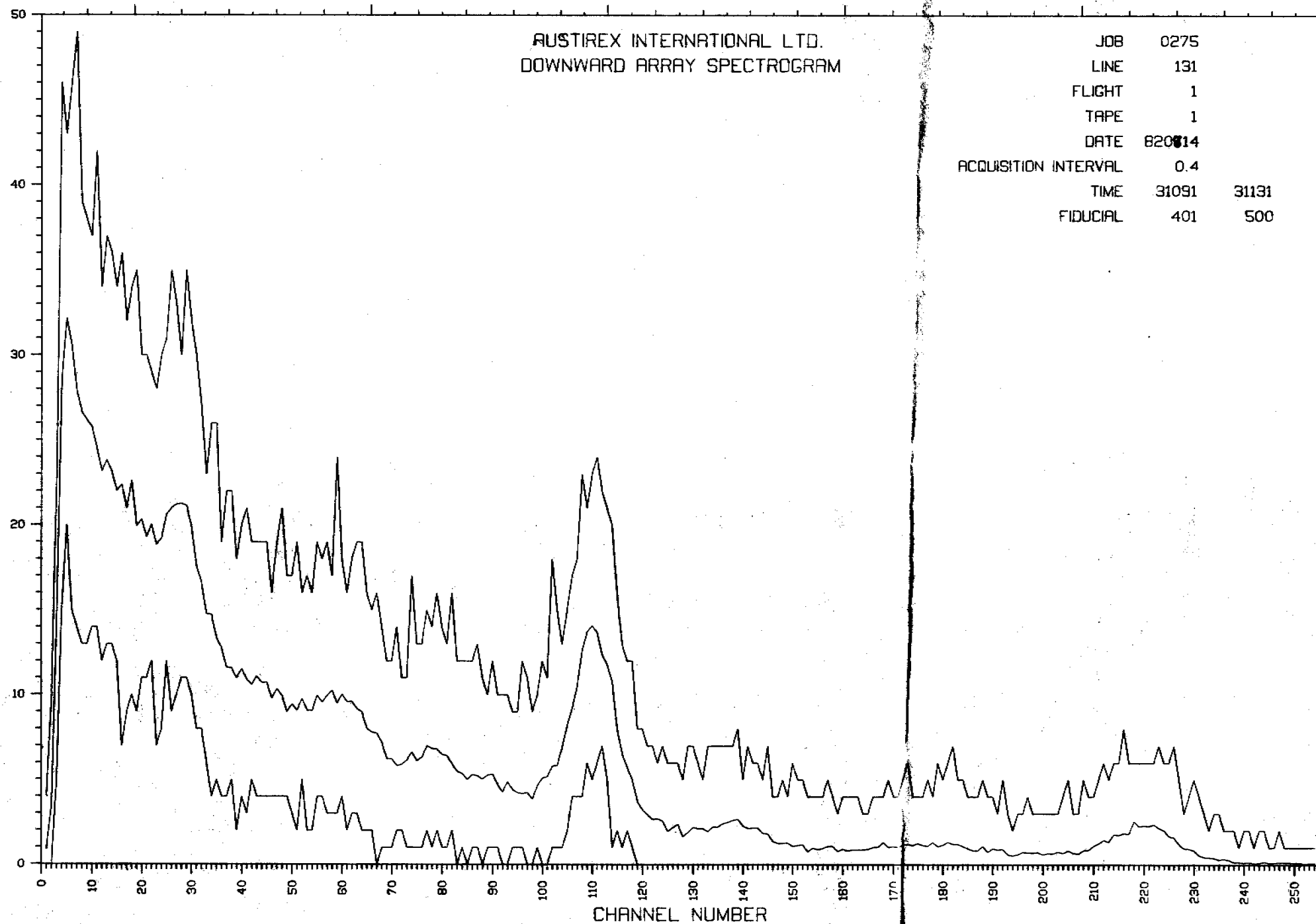


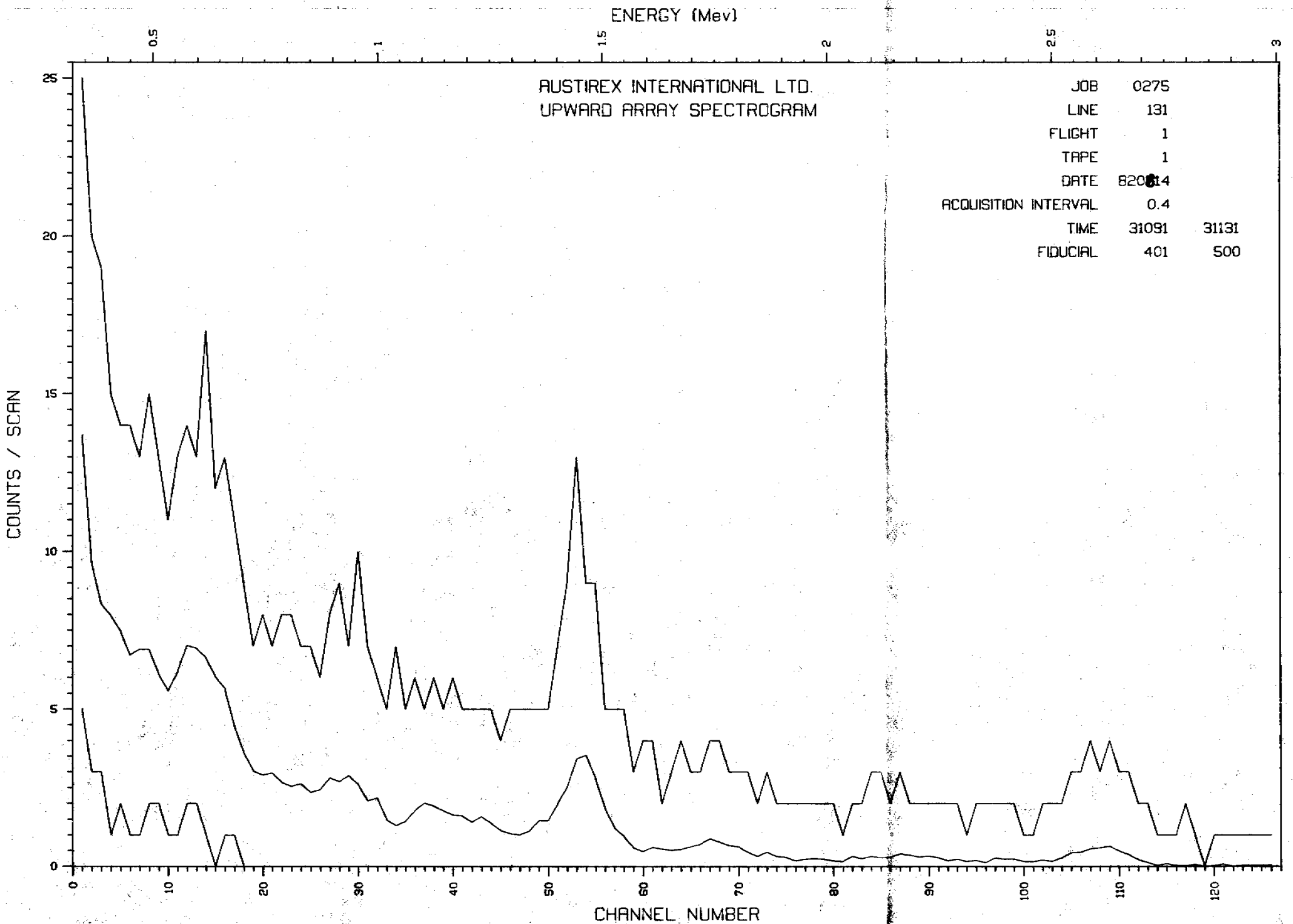
ENERGY (Mev)

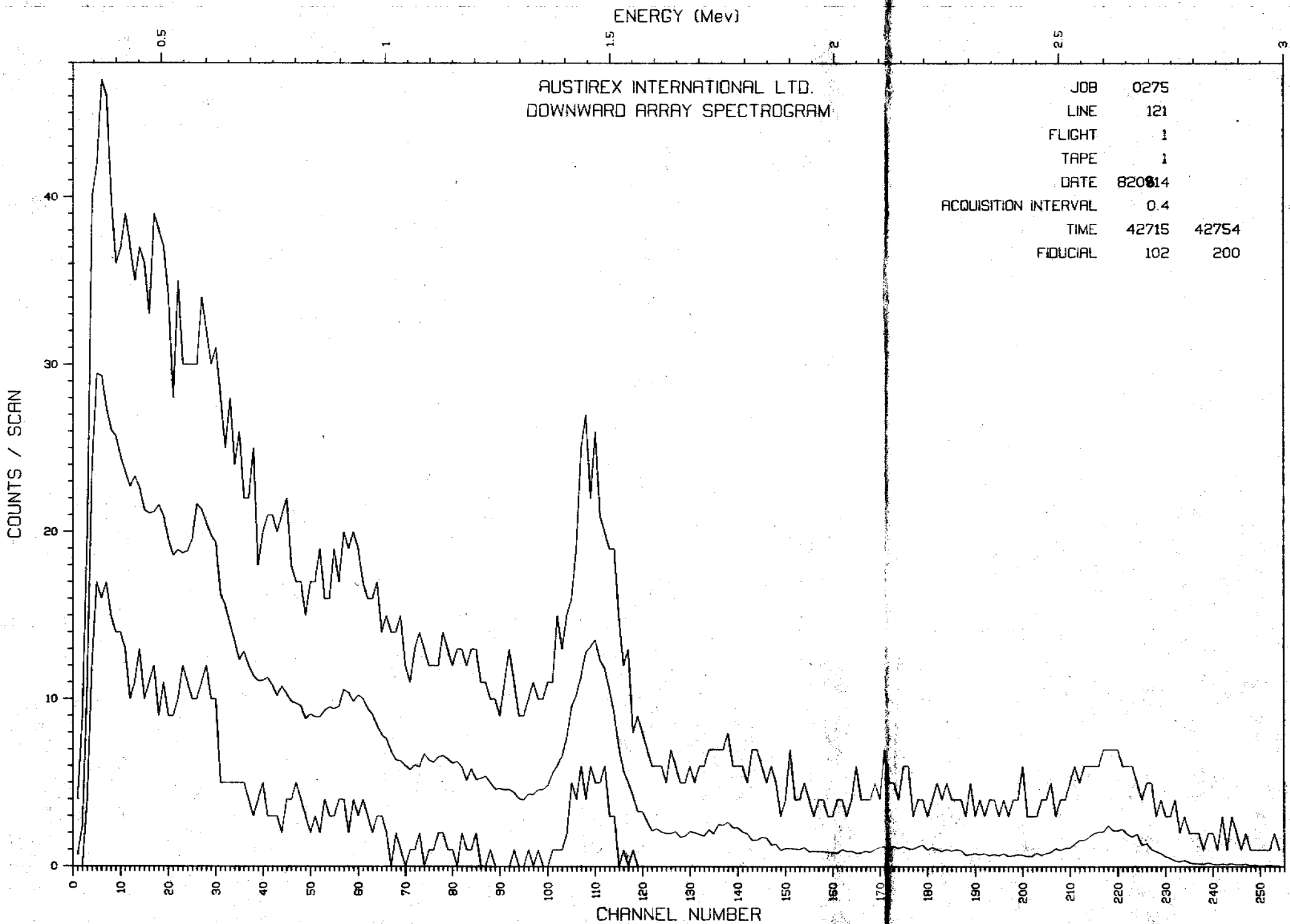
AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

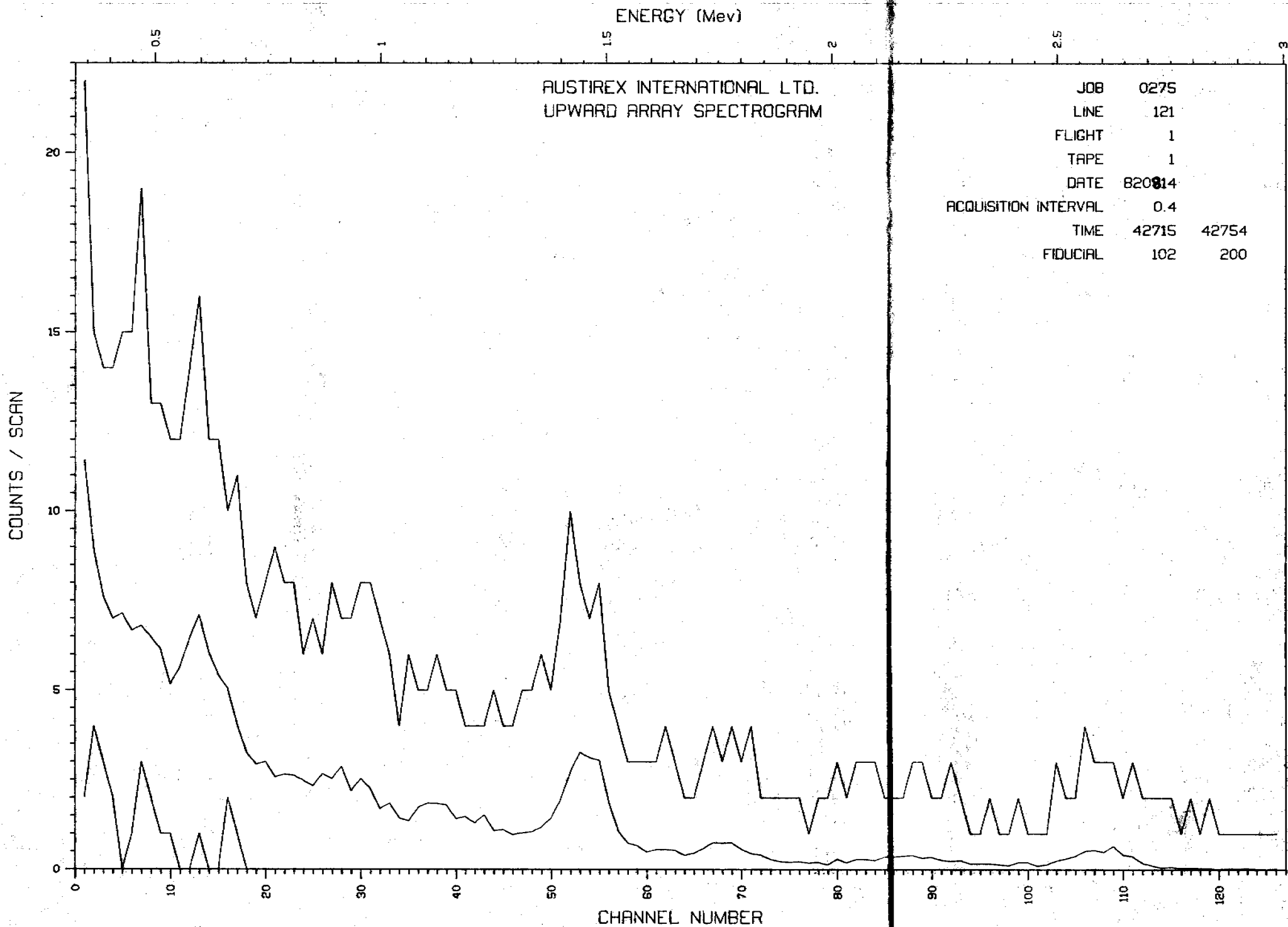
JOB 0275
LINE 131
FLIGHT 1
TAPE 1
DATE 820814
ACQUISITION INTERVAL 0.4
TIME 31091 31131
FIDUCIAL 401 500

COUNTS / SCAN









ENERGY (MeV)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

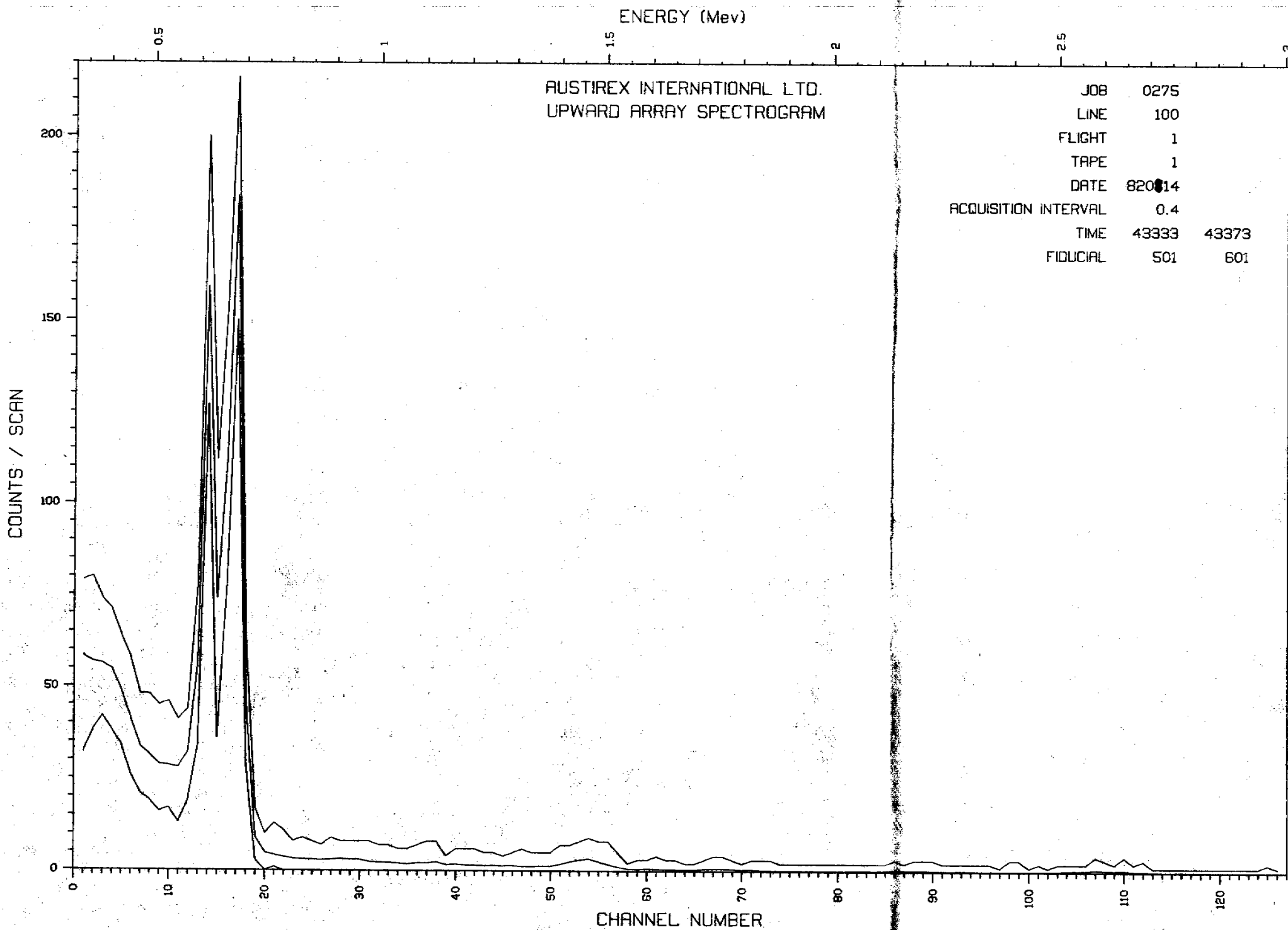
JOB 0275
LINE 100
FLIGHT 1
TAPE 1
DATE 820814
ACQUISITION INTERVAL 0.4
TIME 43333 43373
FIDUCIAL 501 601

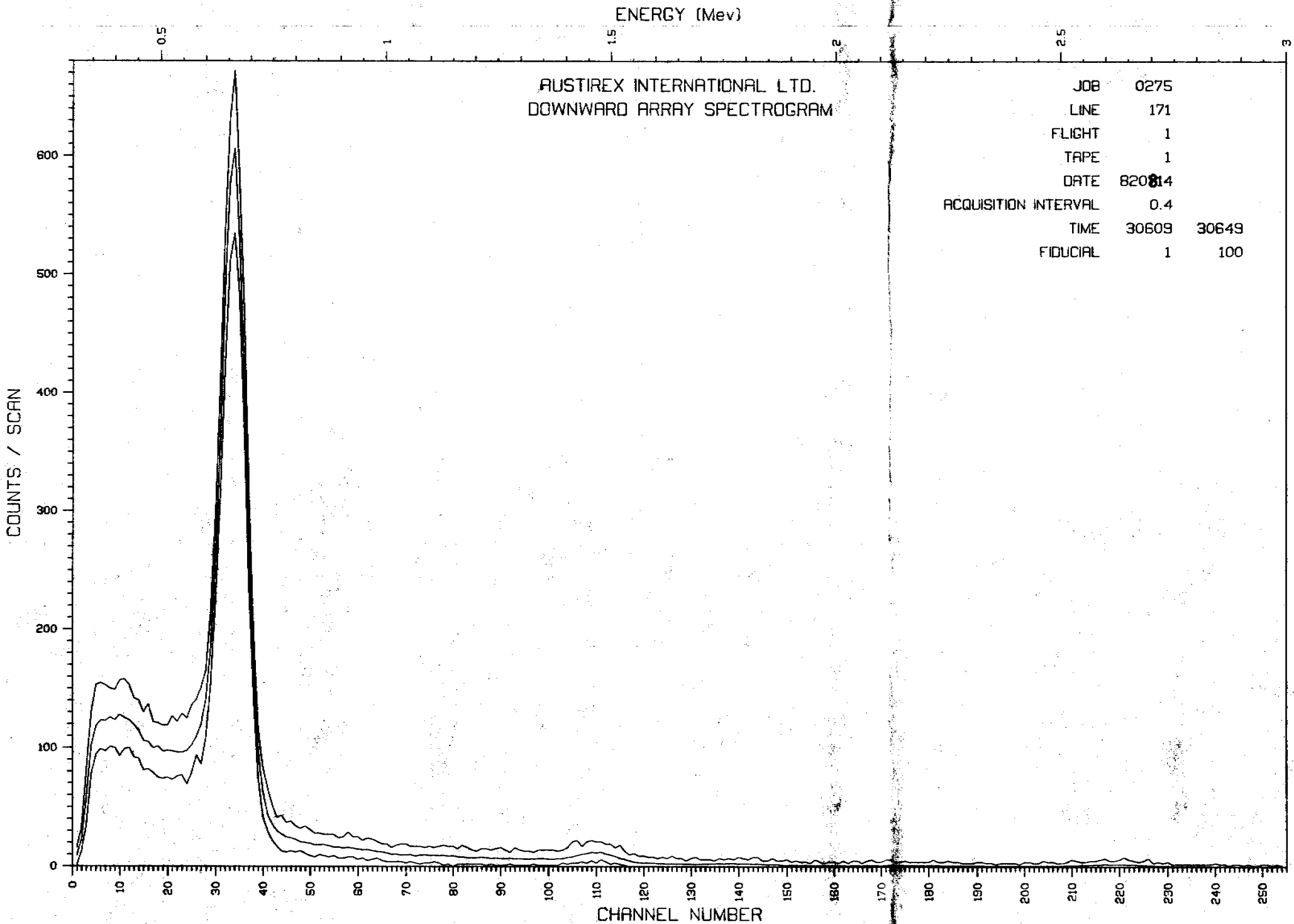
COUNTS / SCAN

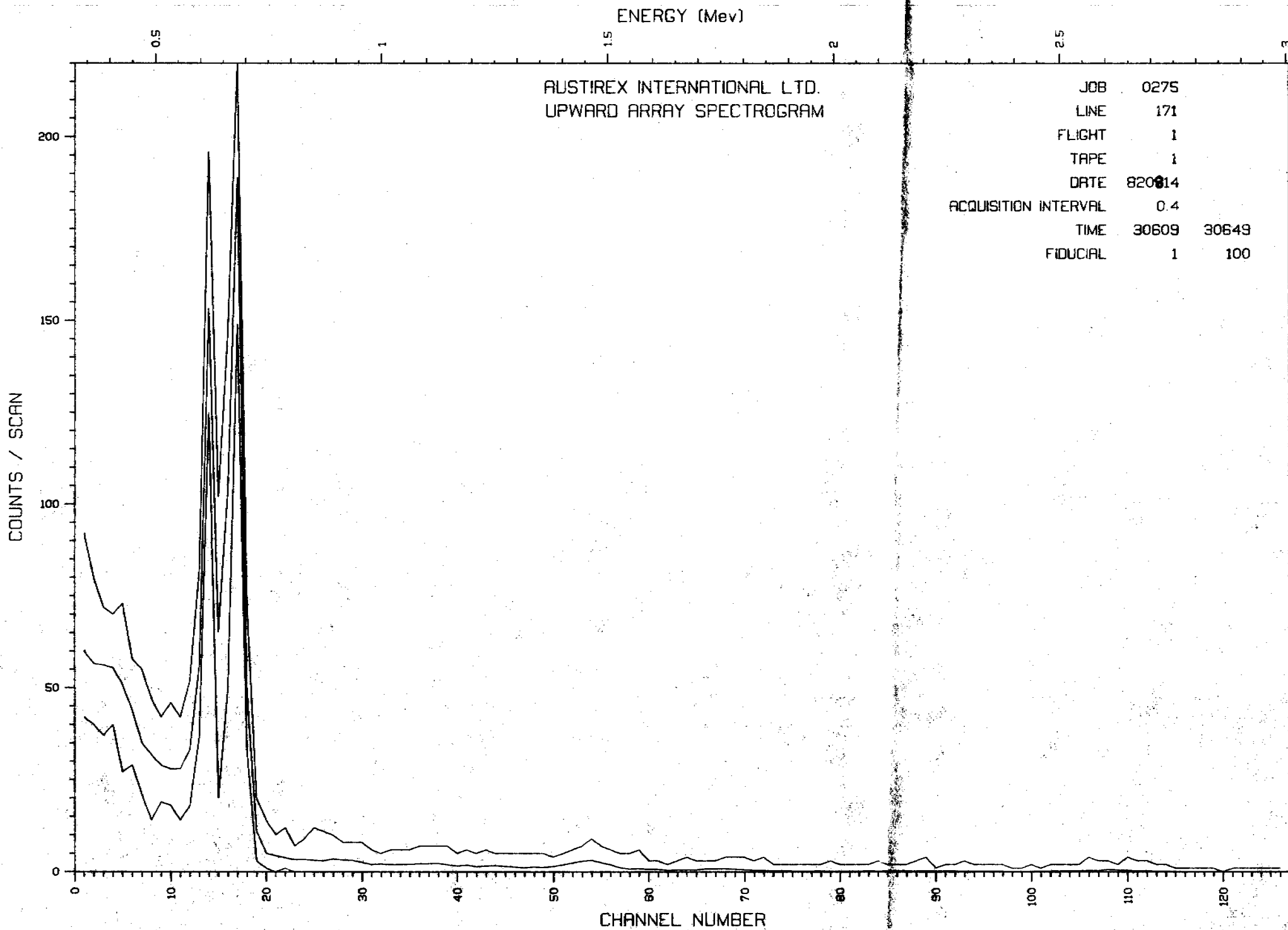
600
500
400
300
200
100
0

CHANNEL NUMBER

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250





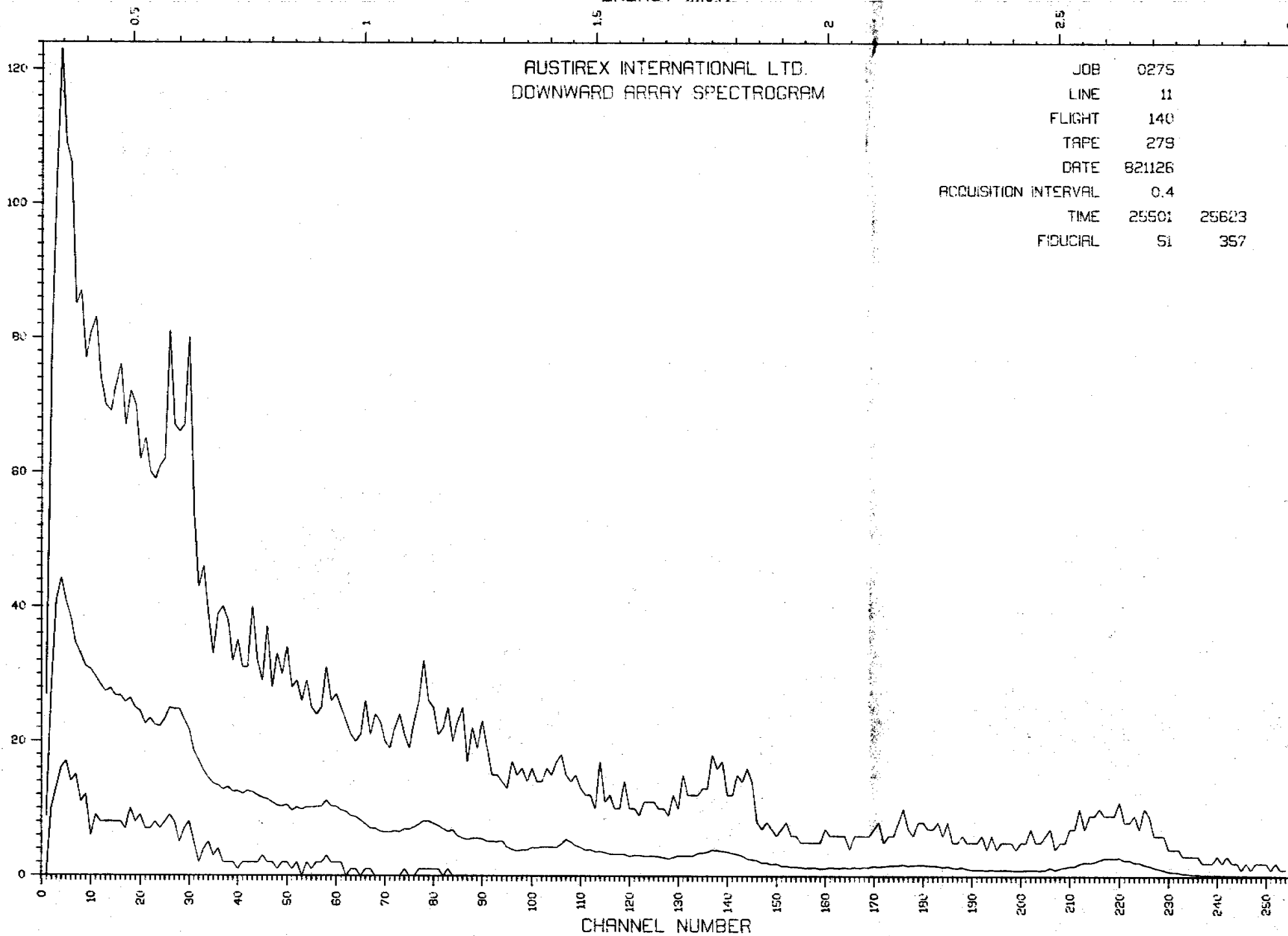


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	11
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	25501 25623
FIDUCIAL	51 357

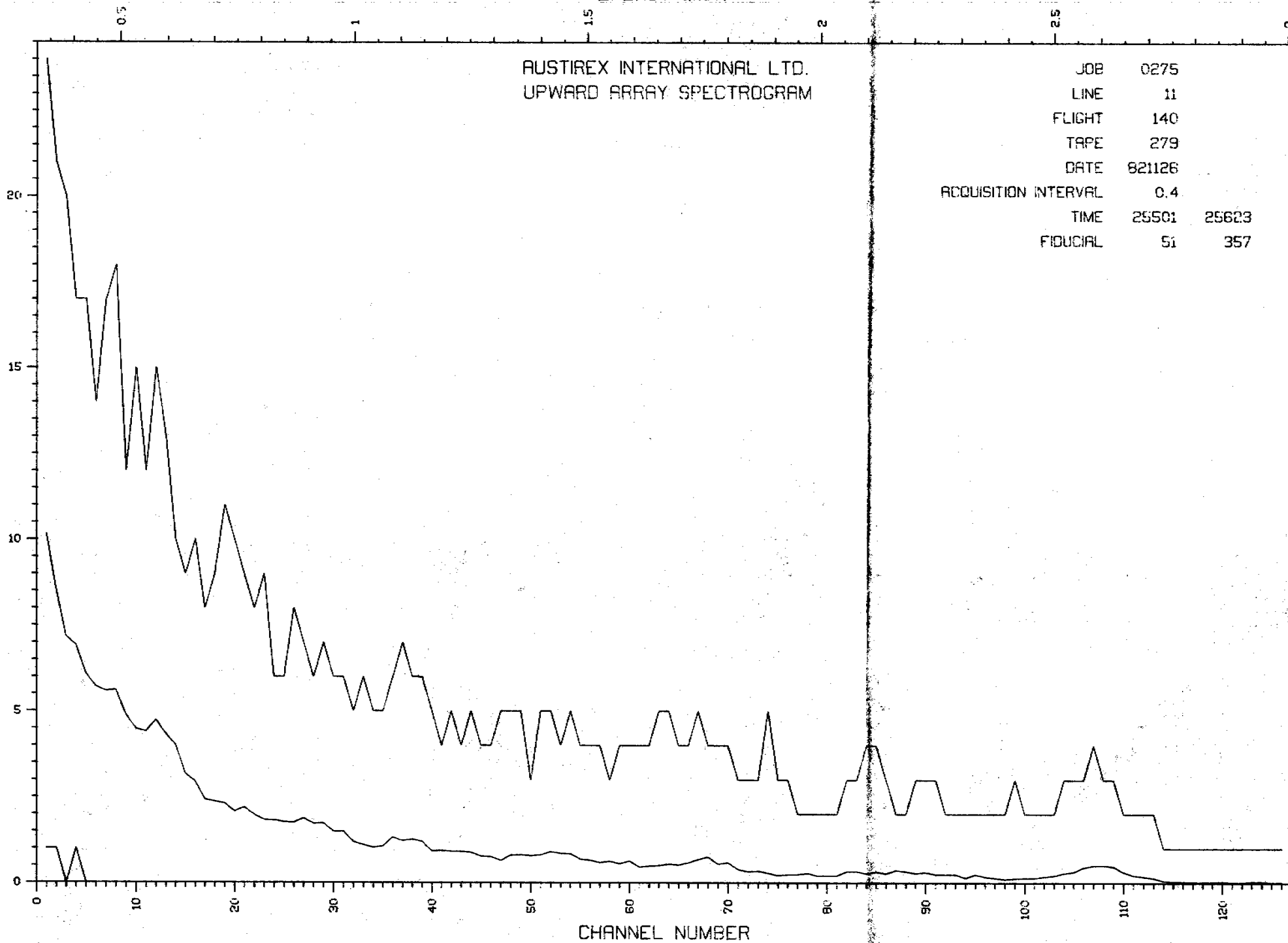


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	11
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	25501 25623
FIDUCIAL	51 357

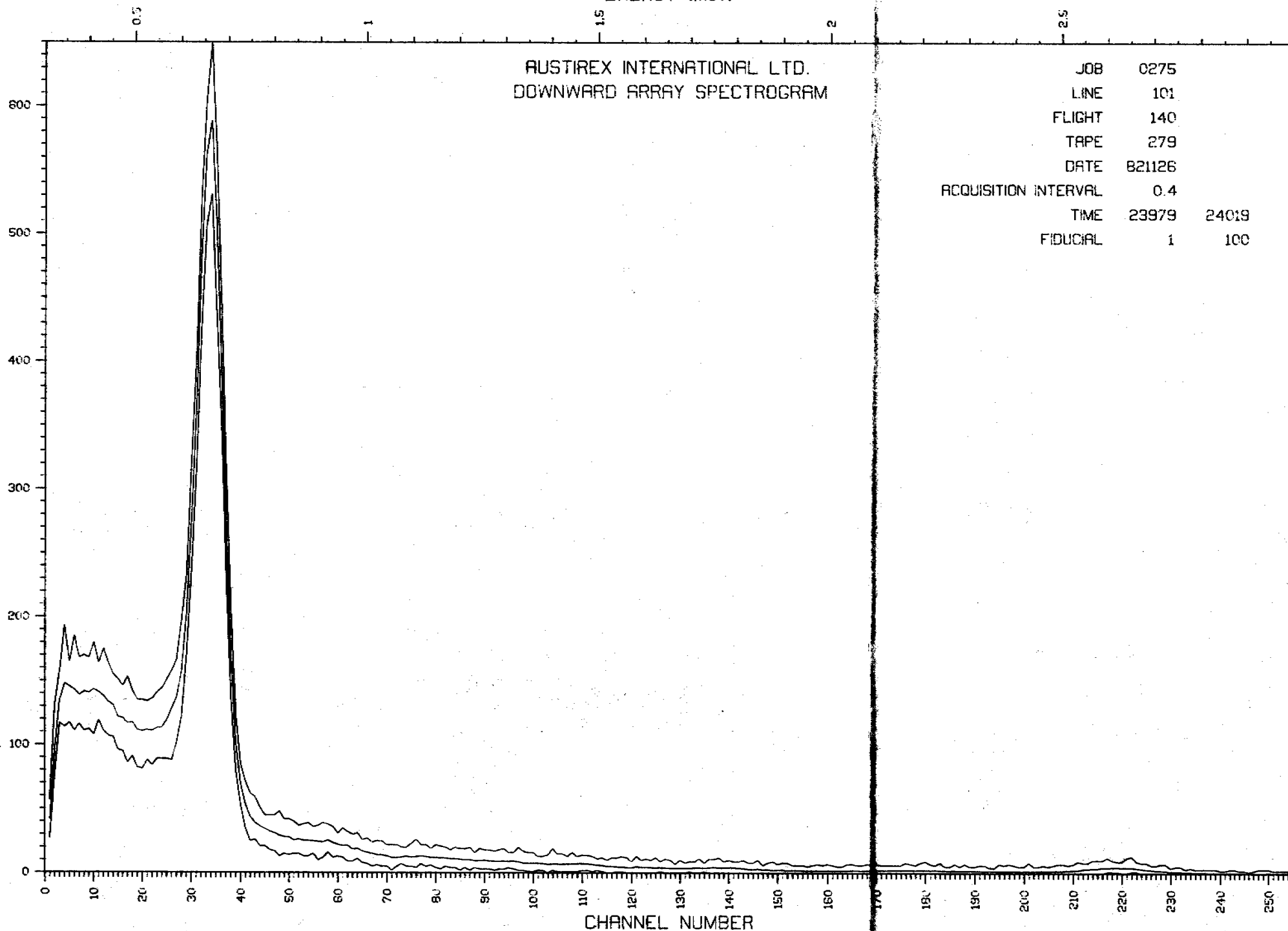


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	101
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	23979 24019
FIDUCIAL	1 100

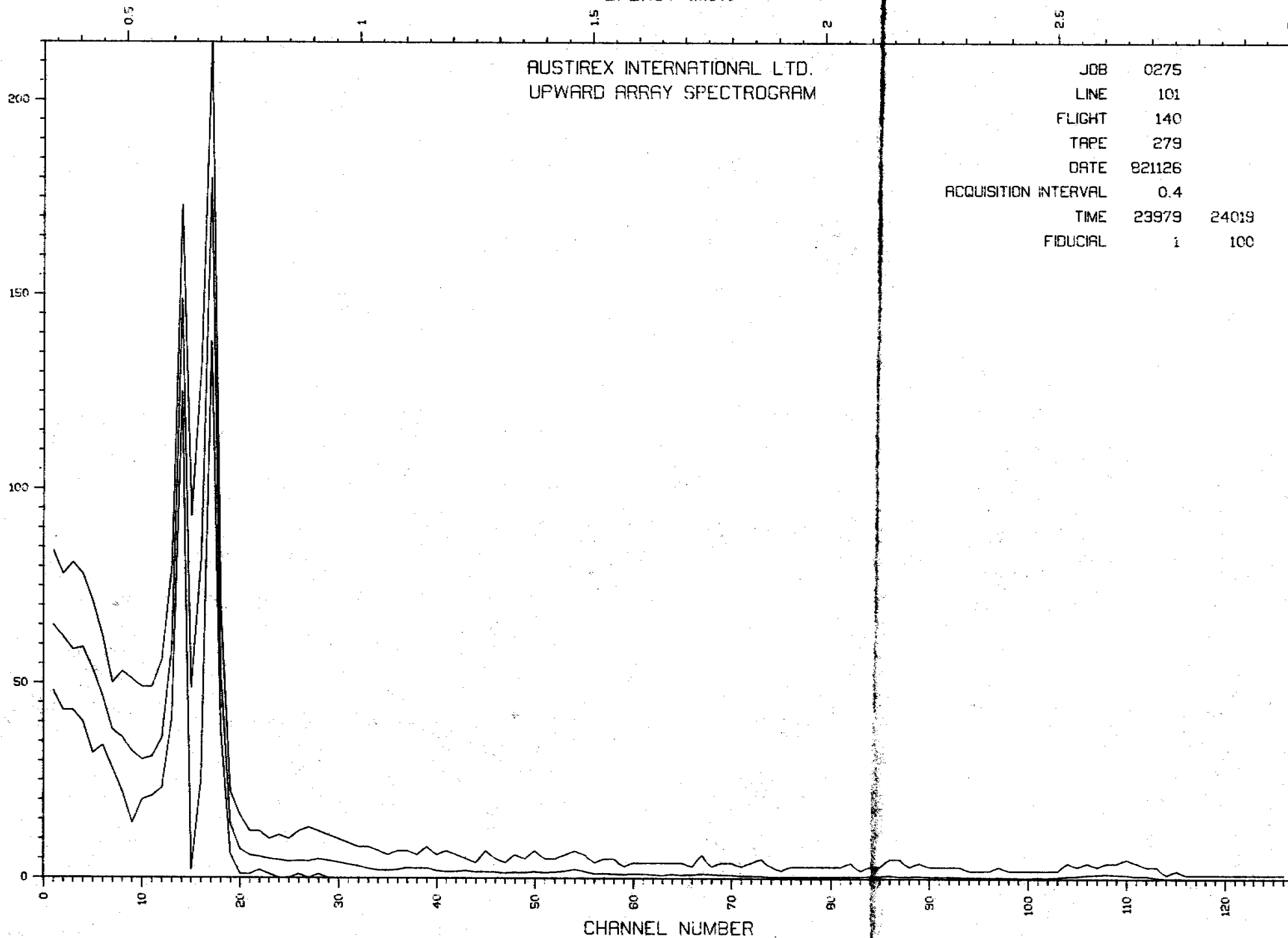


COUNTS / SCAN

ENERGY (MeV)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	101
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	23979 24019
FIDUCIAL	1 100

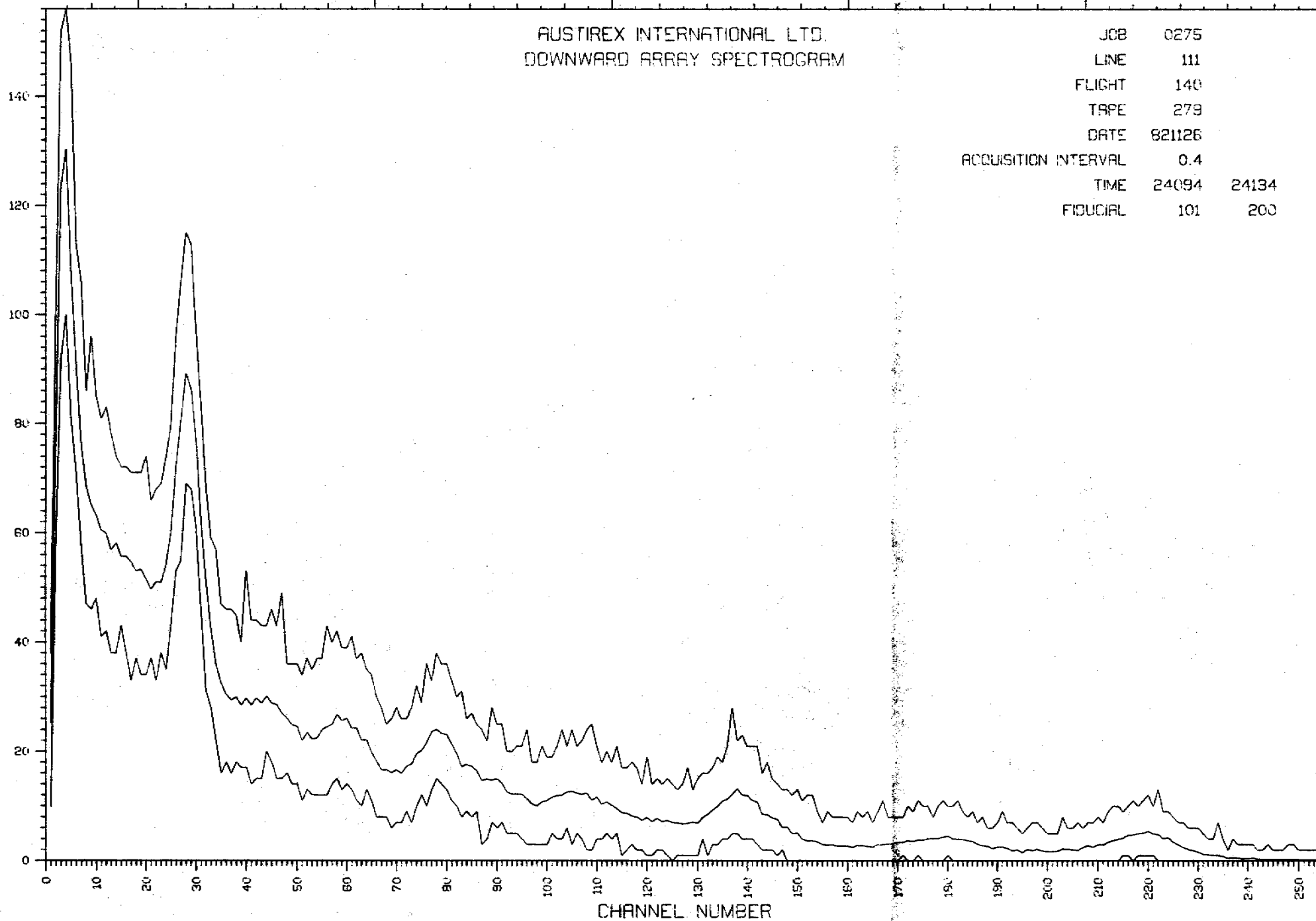


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	111
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	24094 24134
FIDUCIAL	101 200

COUNTS / SCAN

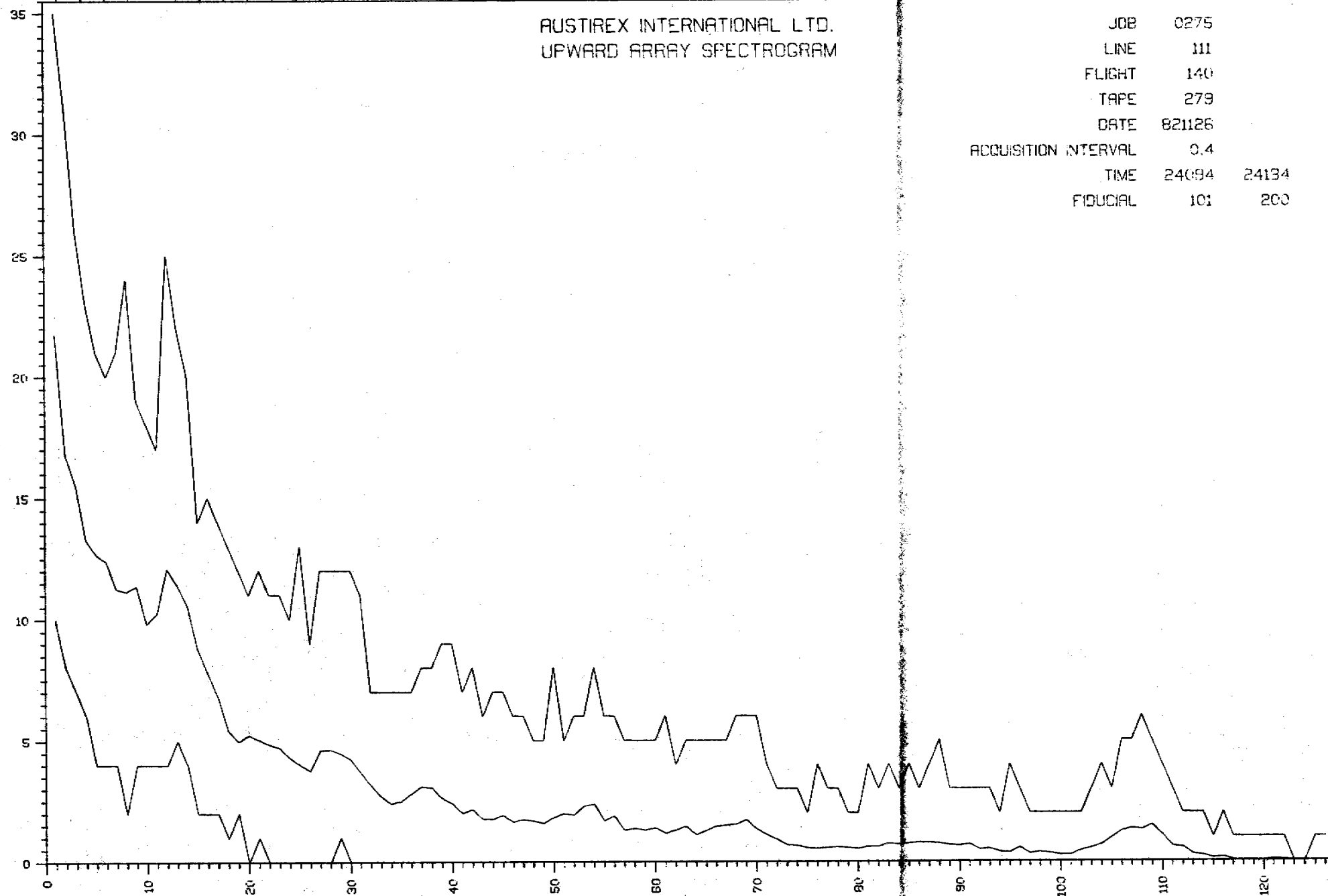


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	111
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	24094 24134
FIDUCIAL	101 200

COUNTS / SCAN



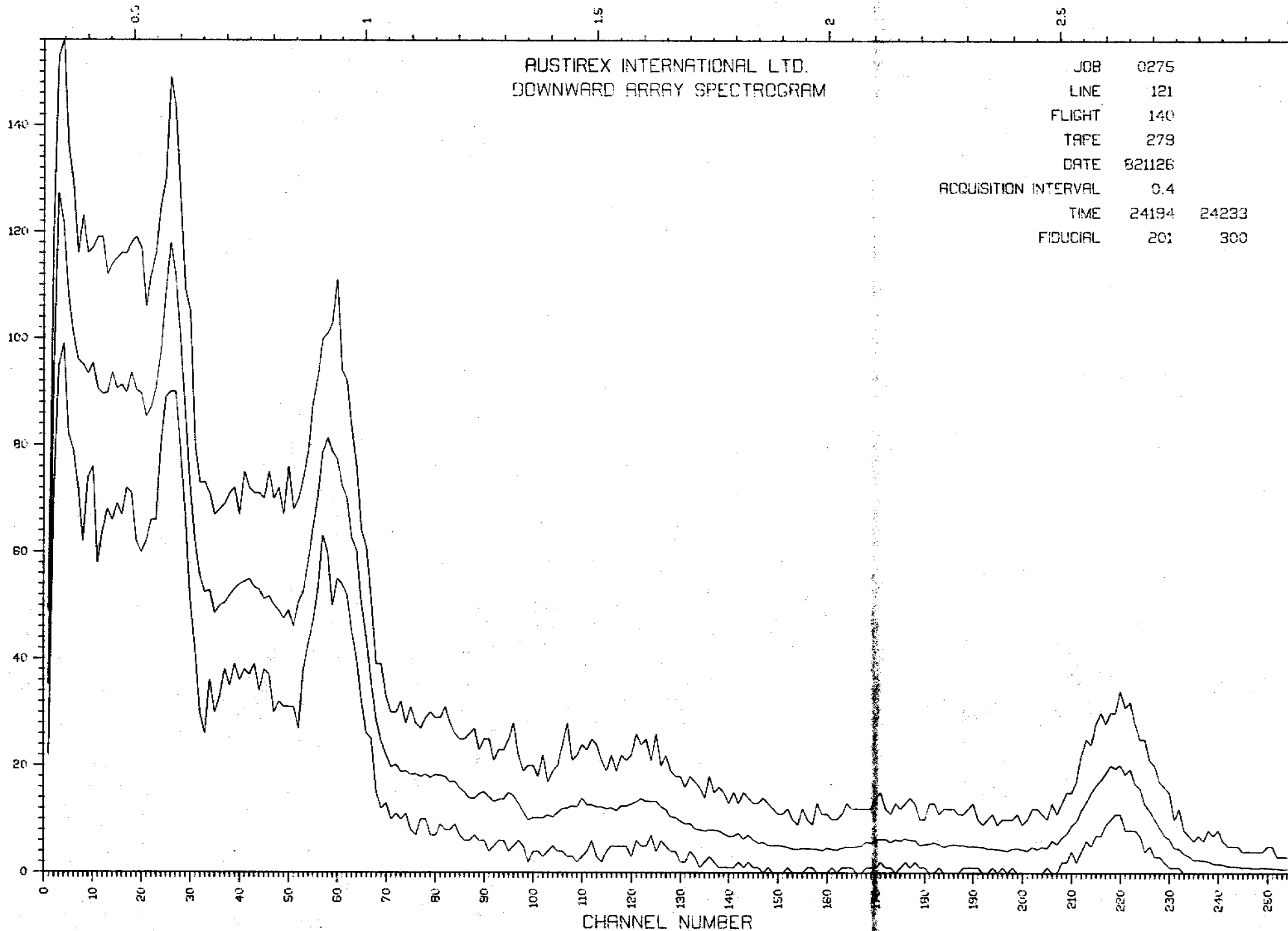
CHANNEL NUMBER

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 121
FLIGHT 140
TAPE 279
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 24194 24233
FIDUCIAL 201 300

COUNTS / SCAN

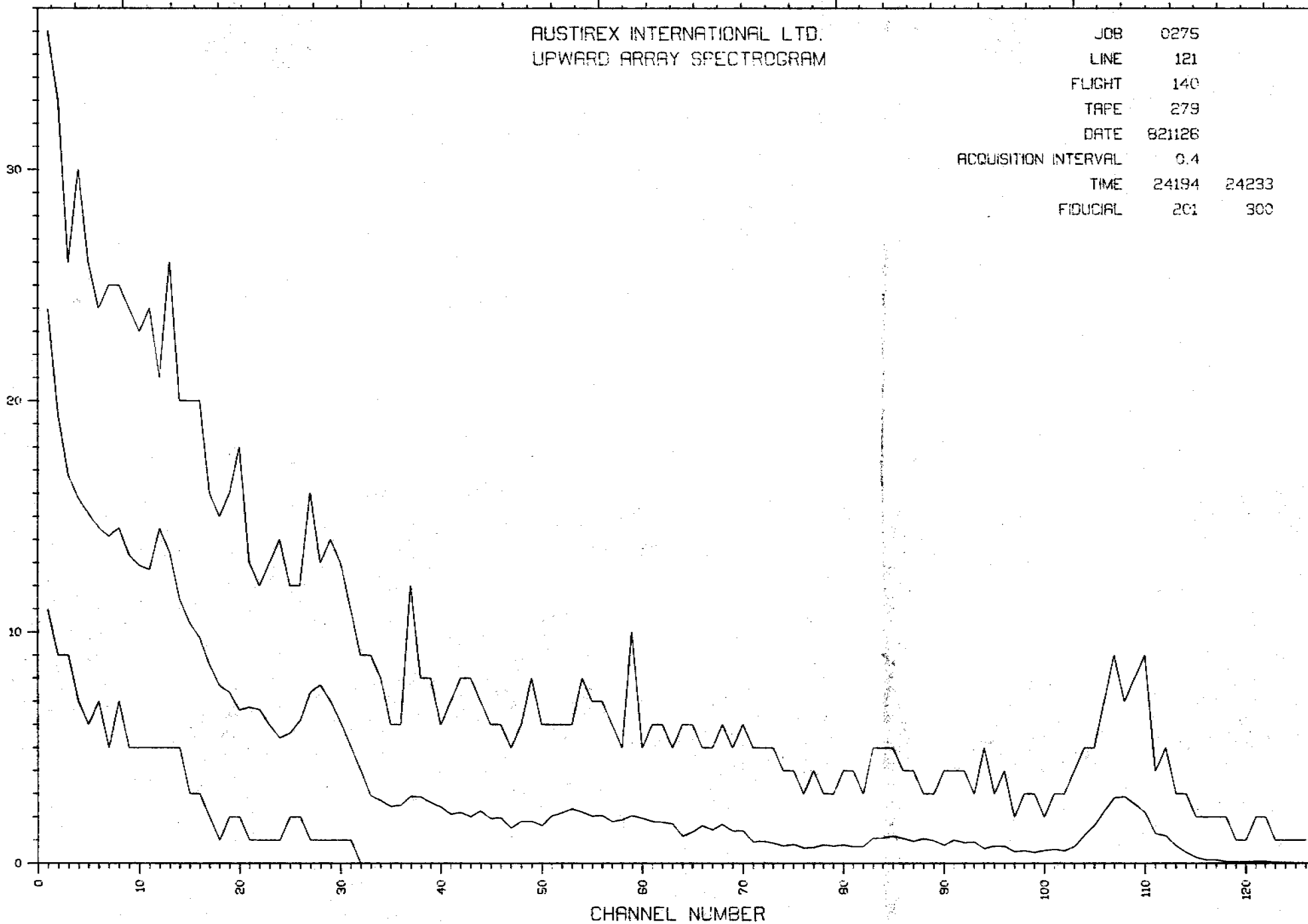


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 121
FLIGHT 140
TAPE 279
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 24194 24233
FIDUCIAL 201 300

COUNTS / SCAN

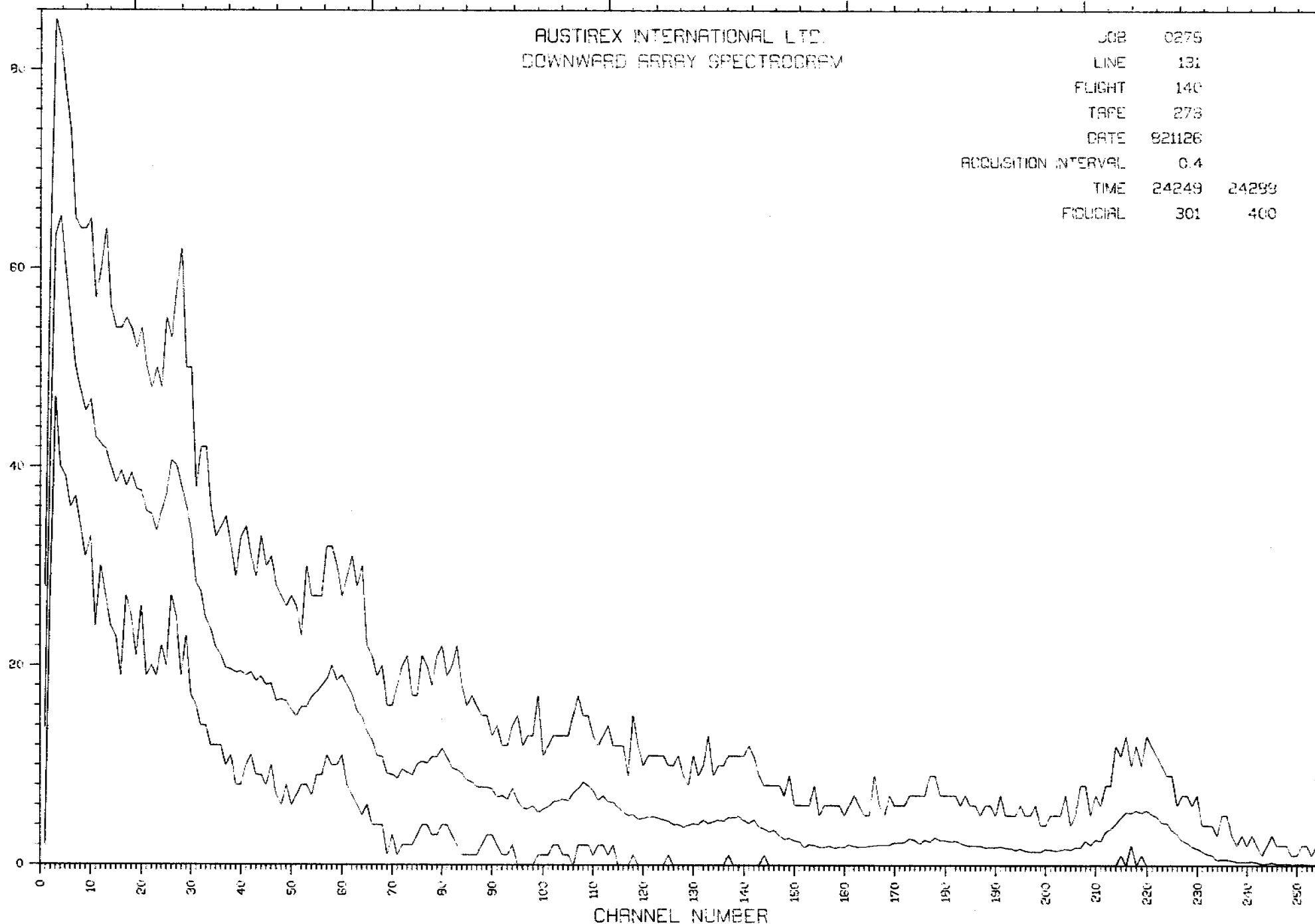


ENERGY (MeV)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTRODRAM

JOB	0275
LINE	131
FLIGHT	140
TAPE	273
DATE	921126
ACQUISITION INTERVAL	0.4
TIME	24249 24299
FIDUCIAL	301 400

UNIN / 31 1
COUNTS / SCAN

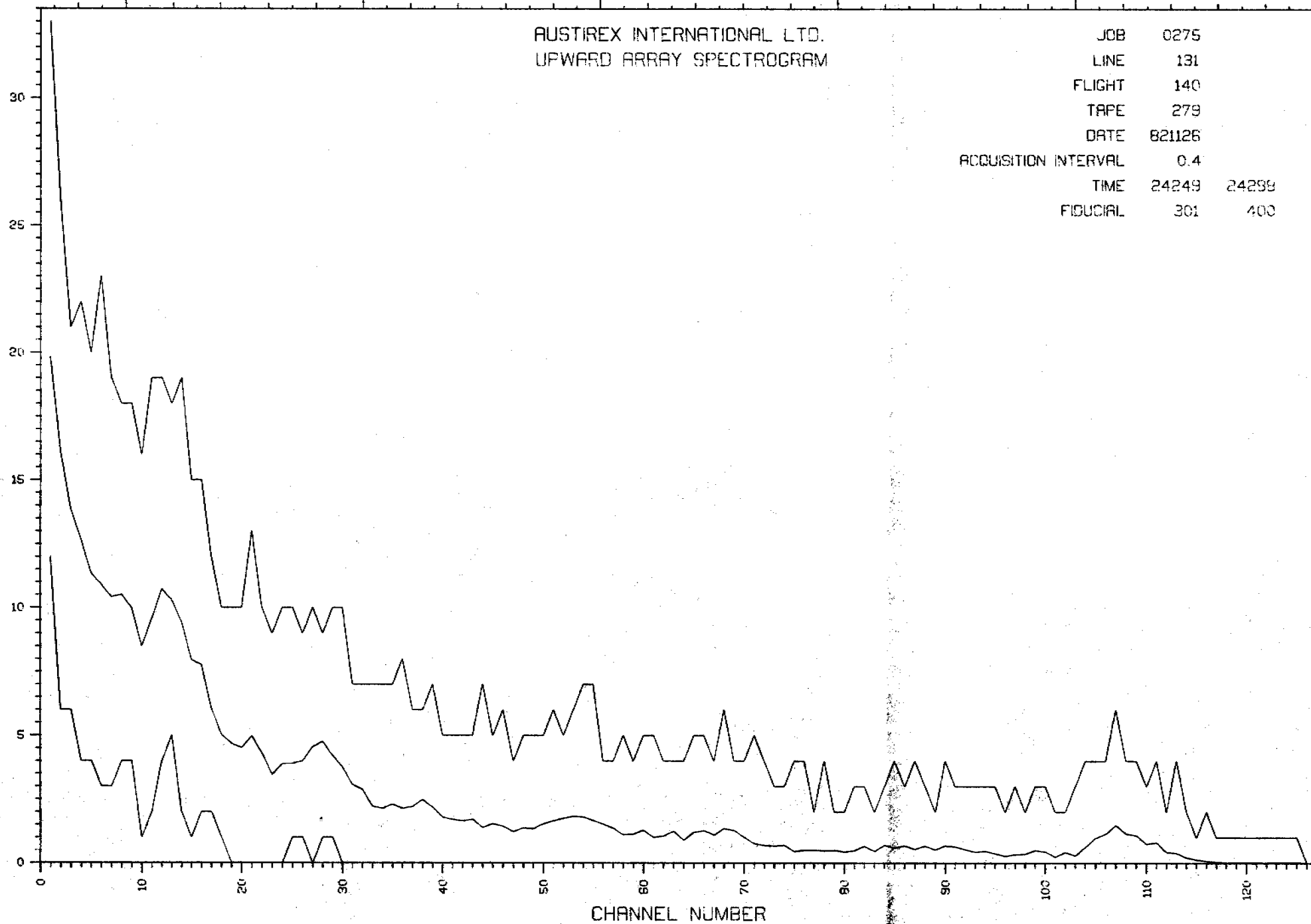


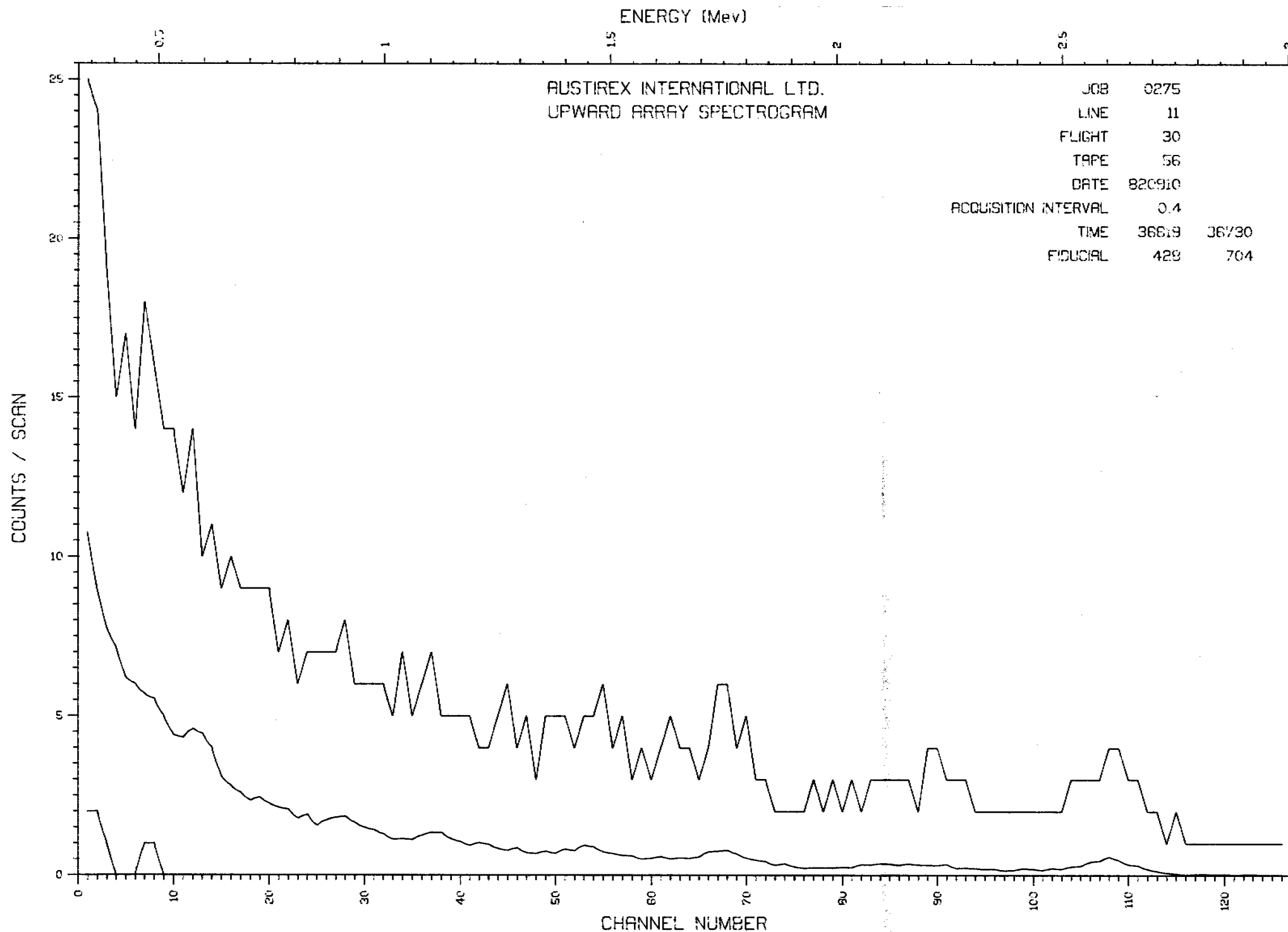
ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	131
FLIGHT	140
TAPE	279
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	24249 24298
FIDUCIAL	301 400

COUNTS / SCAN



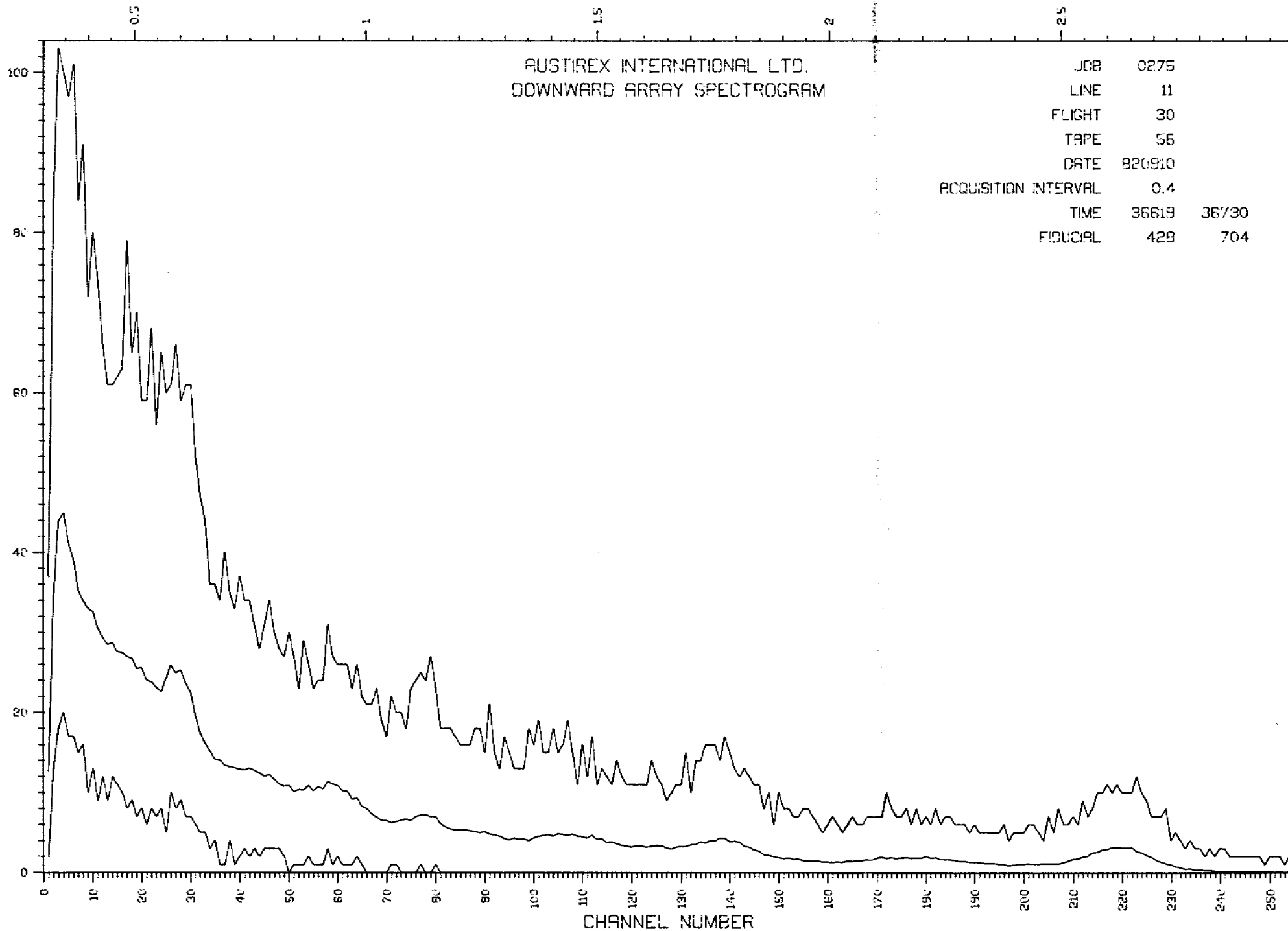


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 11
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 36619 36730
FIDUCIAL 429 704

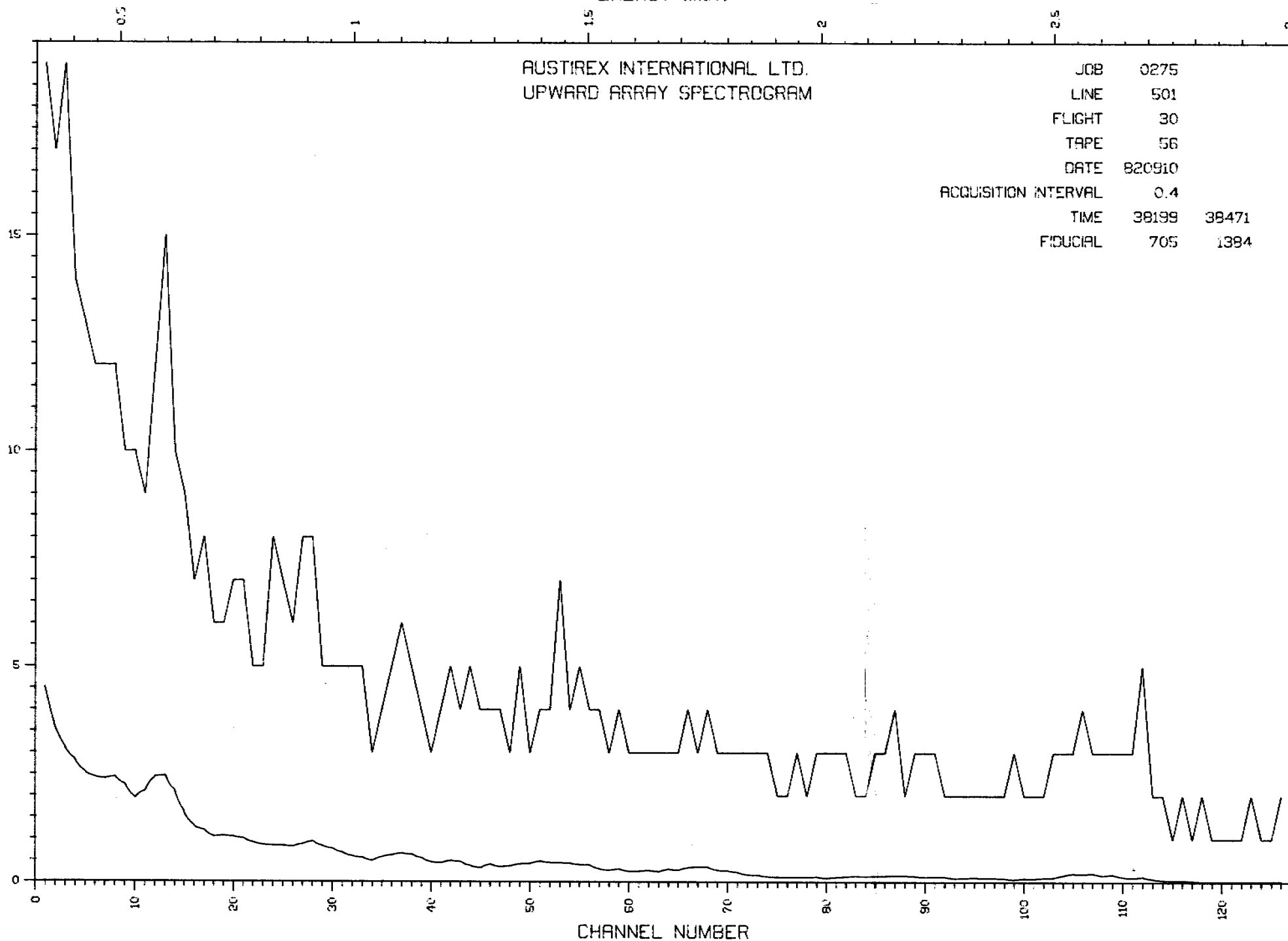


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 501
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 38199 38471
FIDUCIAL 705 1384

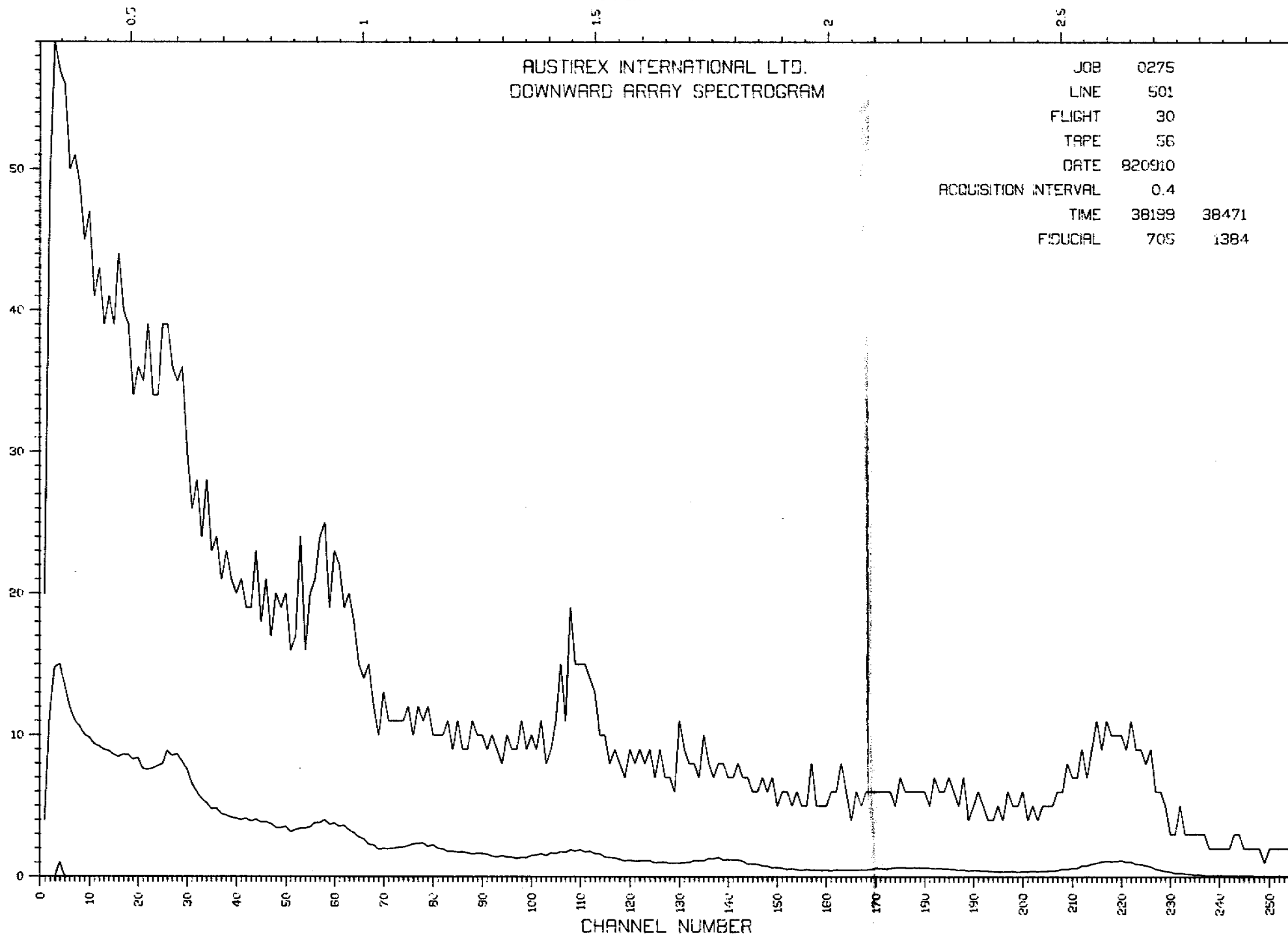


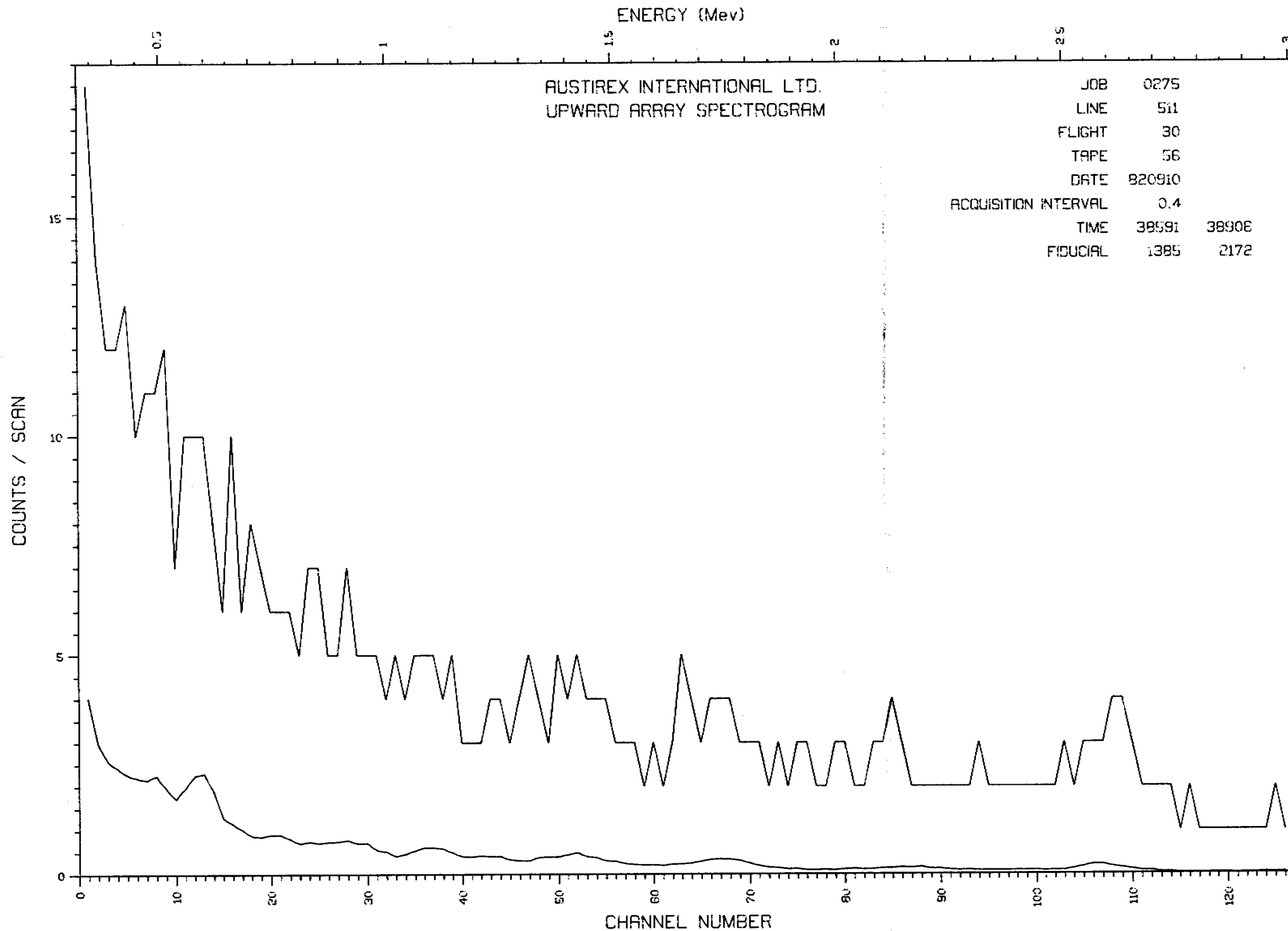
COUNTS / SCAN

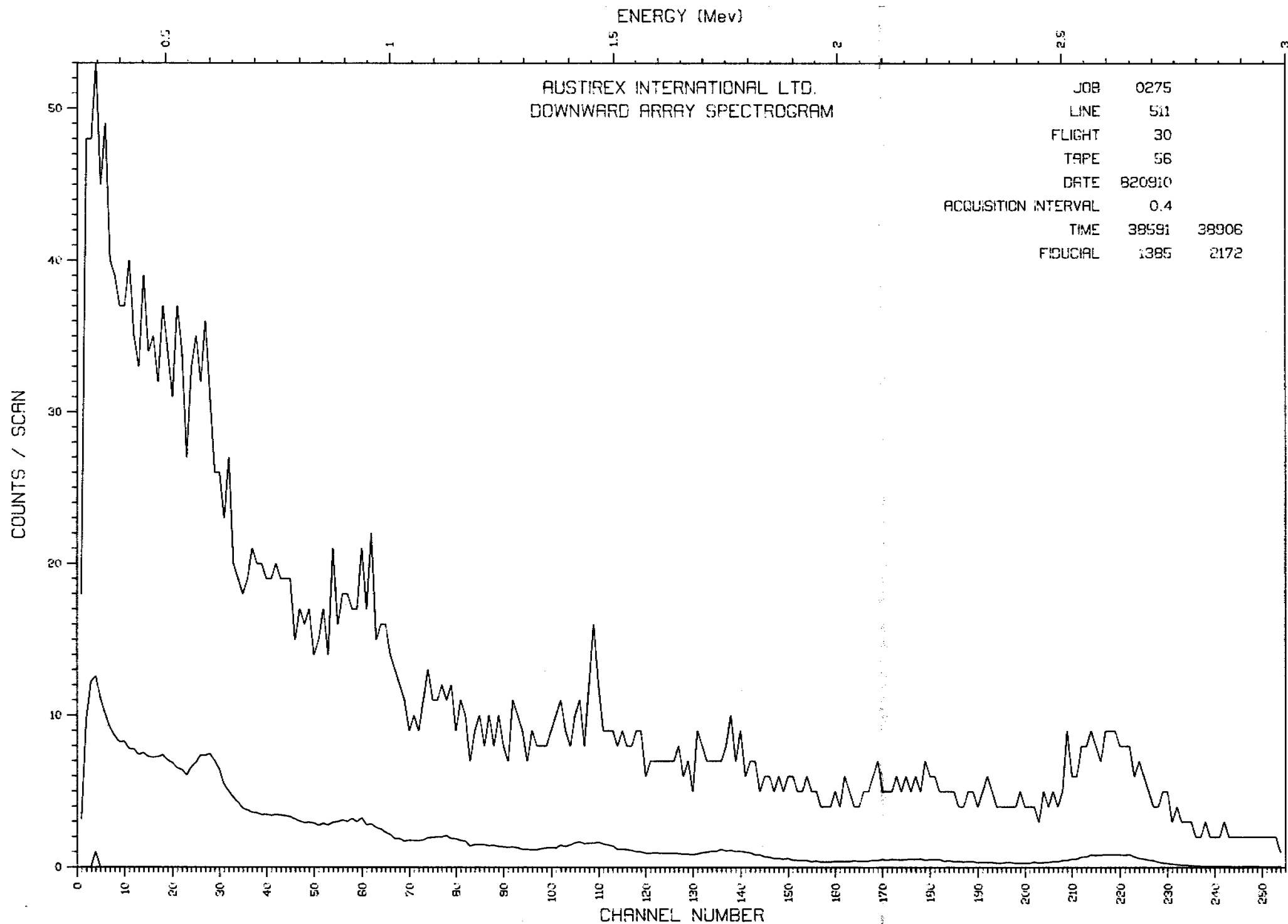
ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 501
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 38199 38471
FIDUCIAL 705 1384





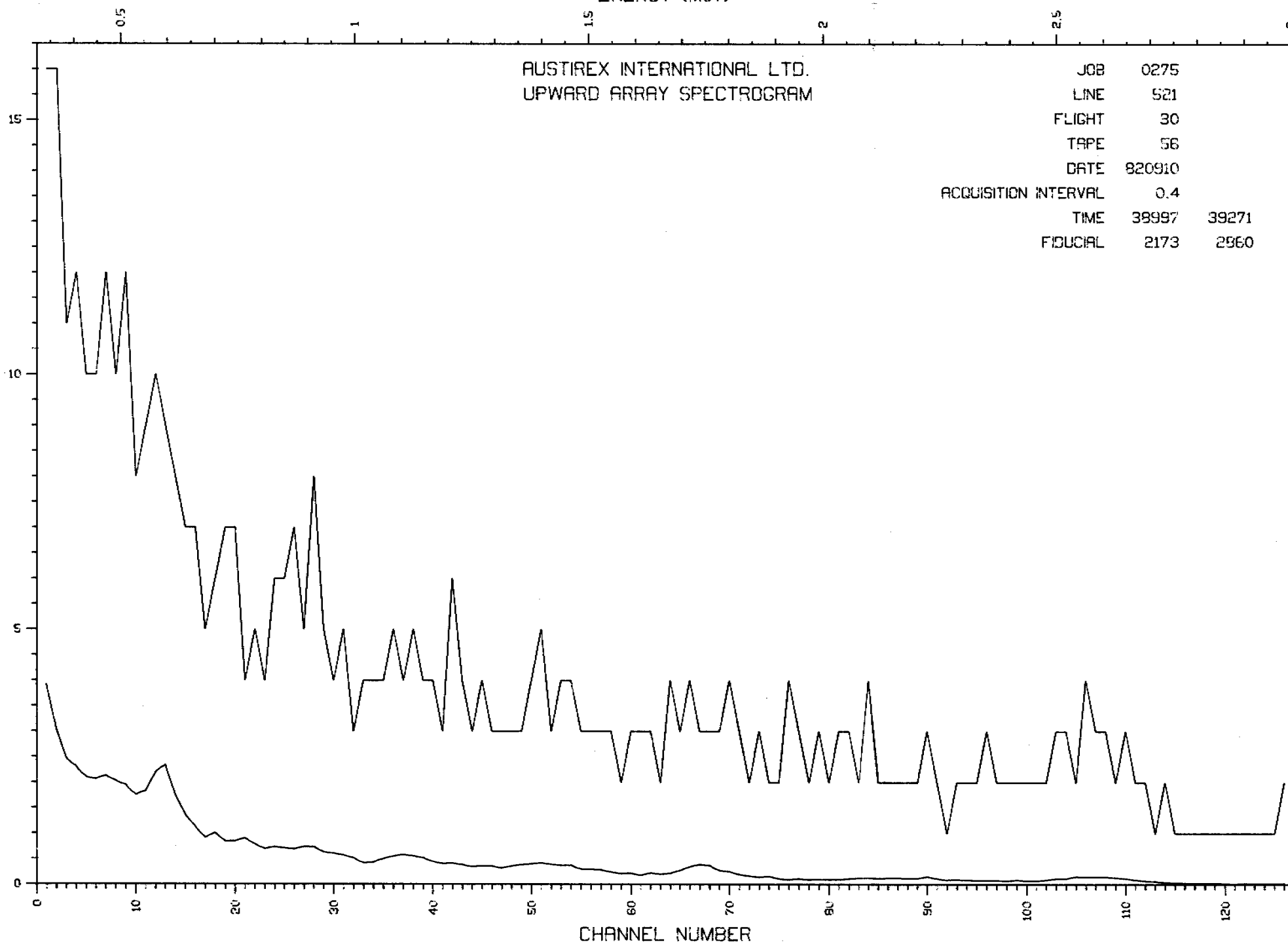


COUNTS / SCAN

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 521
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 38997 39271
FIDUCIAL 2173 2960

ENERGY (Mev)

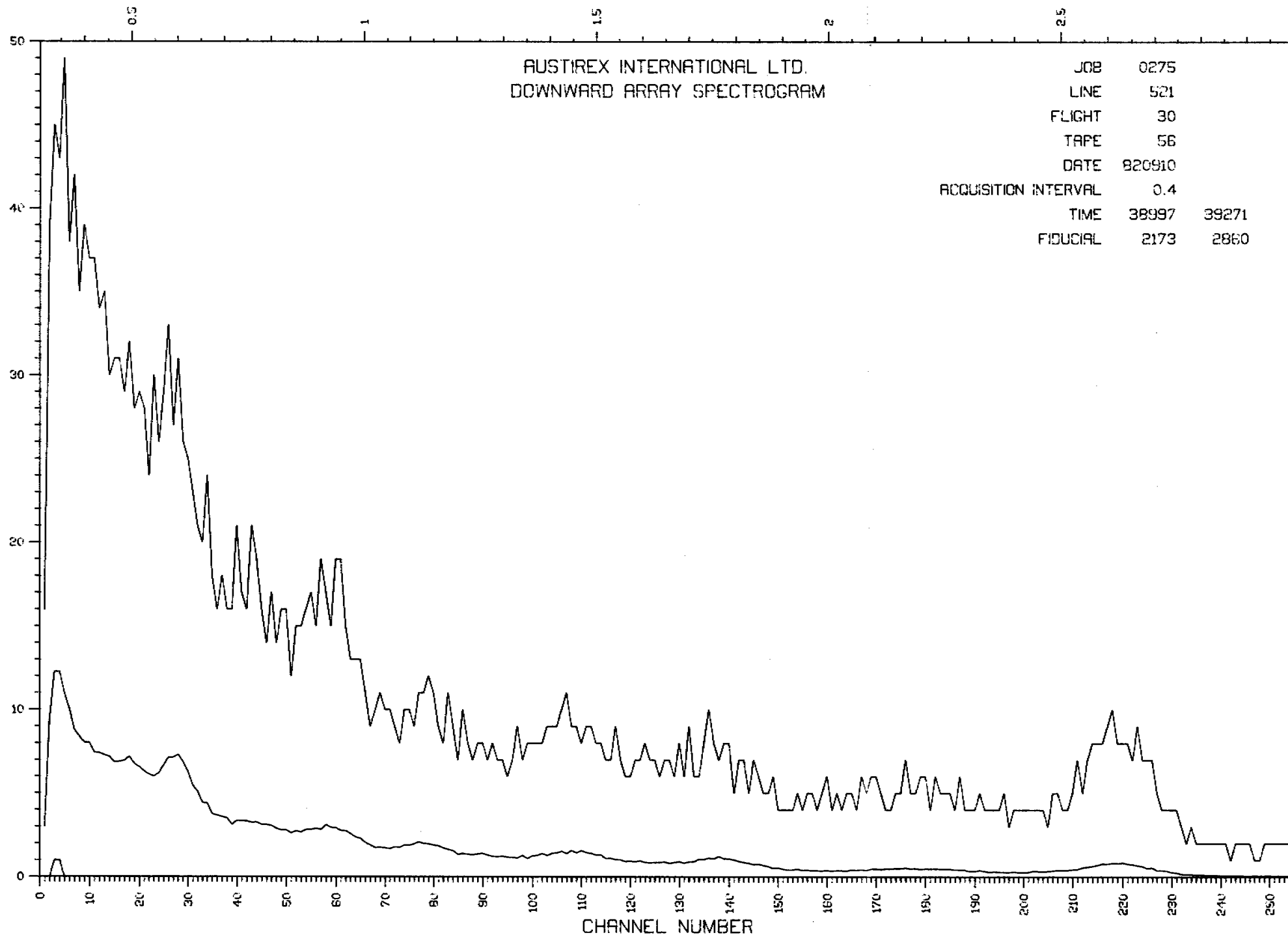


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	521
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	38997 39271
FIDUCIAL	2173 2860

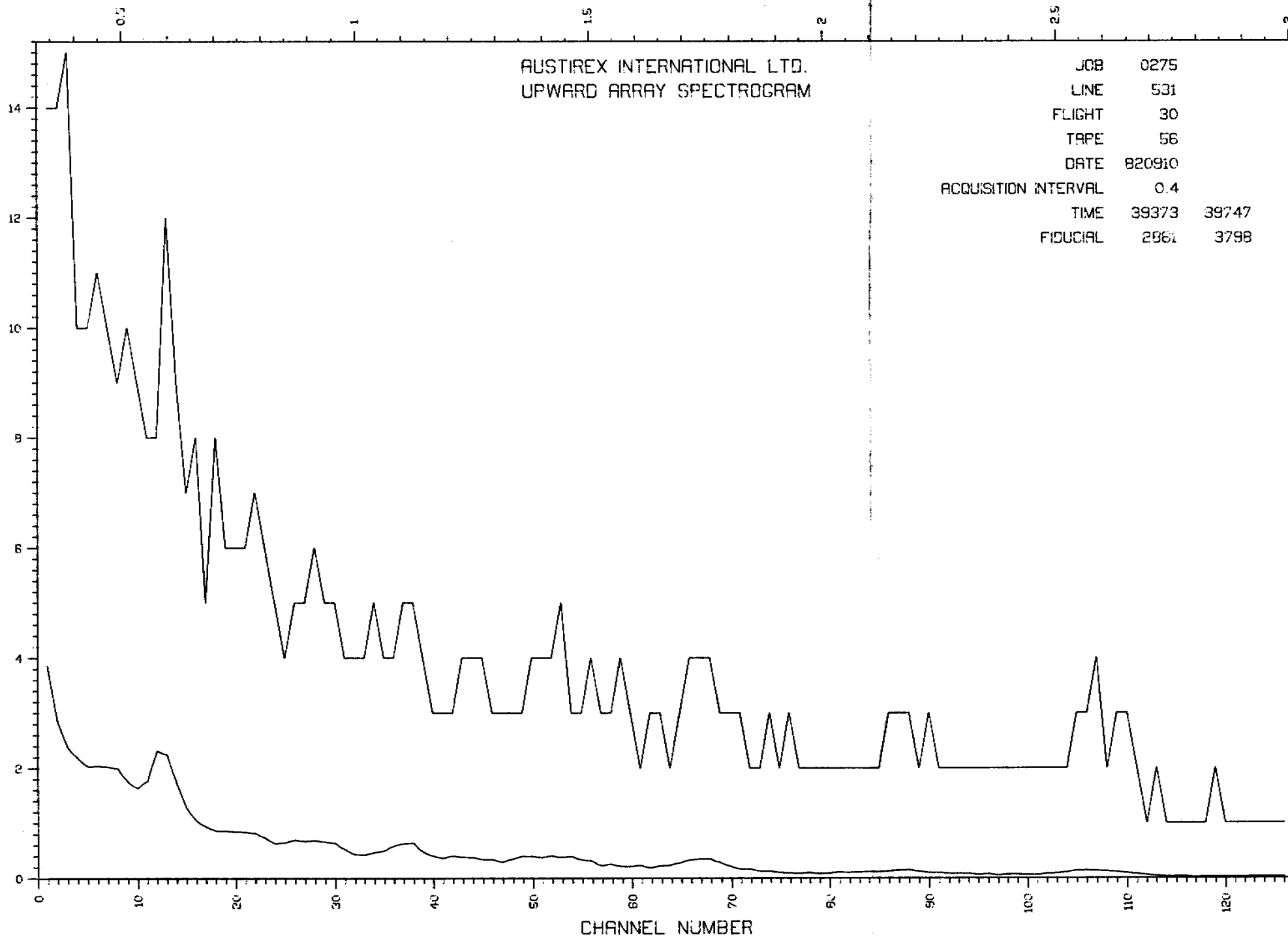


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	531
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	39373 39747
FIDUCIAL	2961 3798

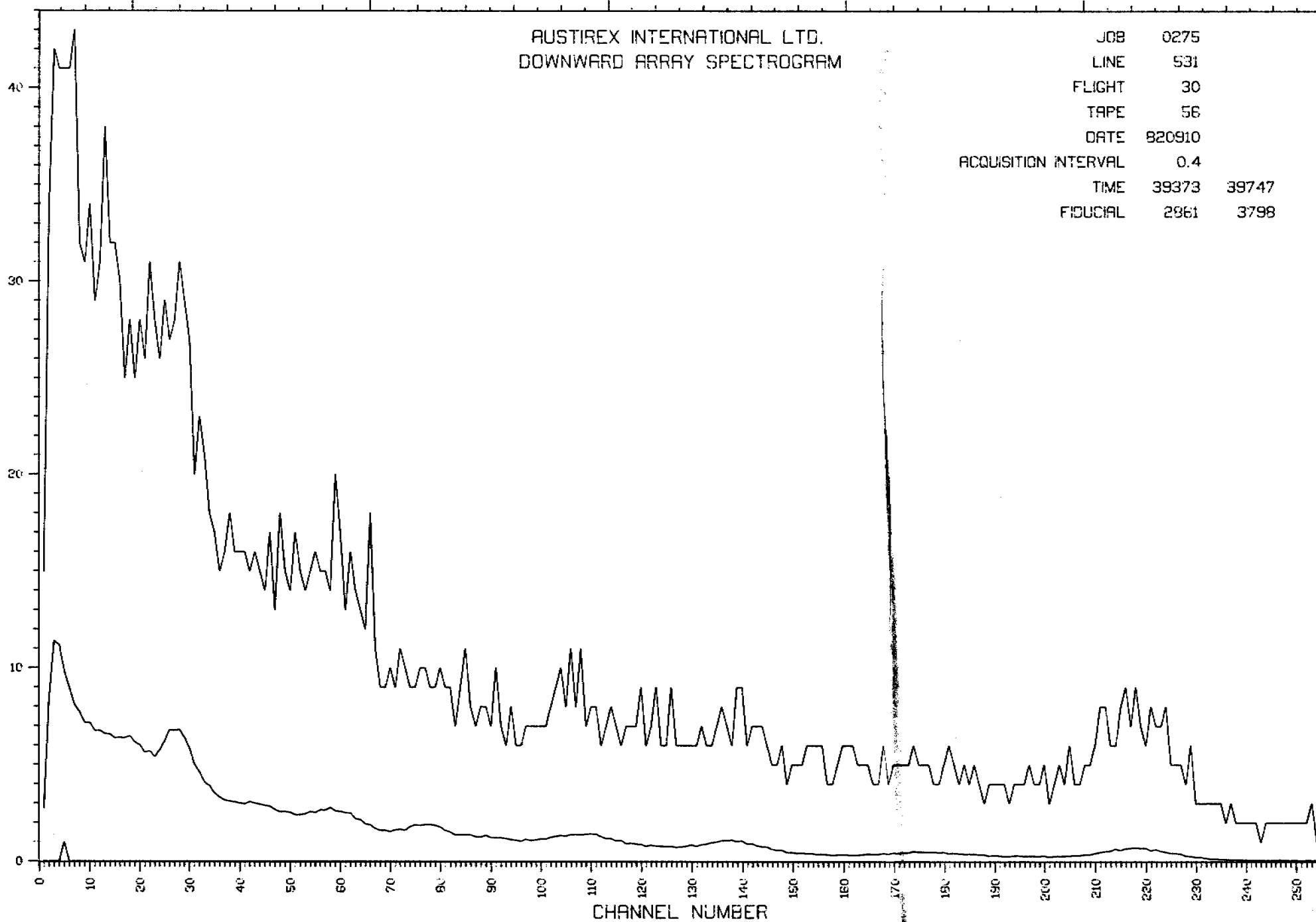


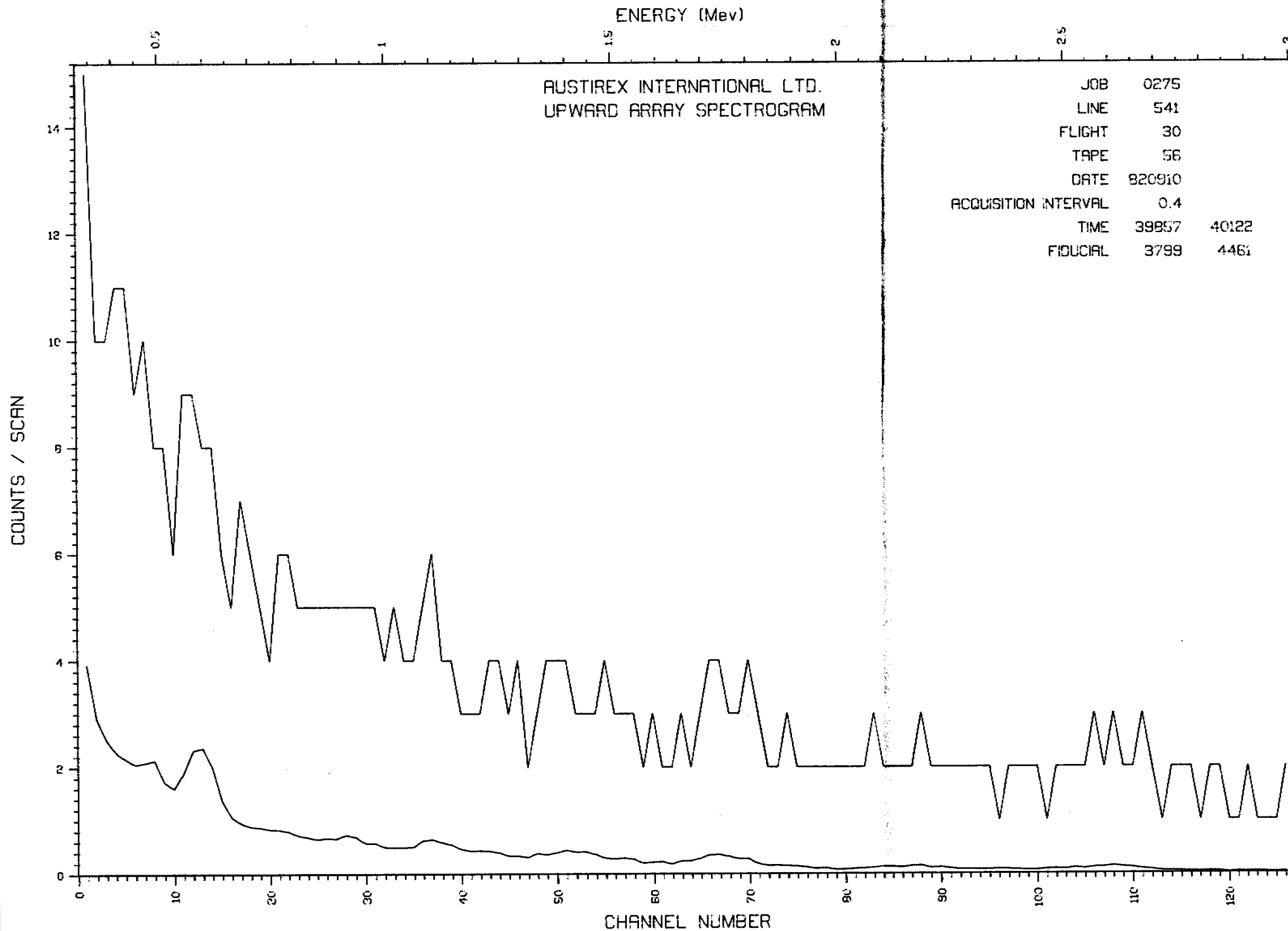
COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	531
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	39373 39747
FIDUCIAL	2861 3798



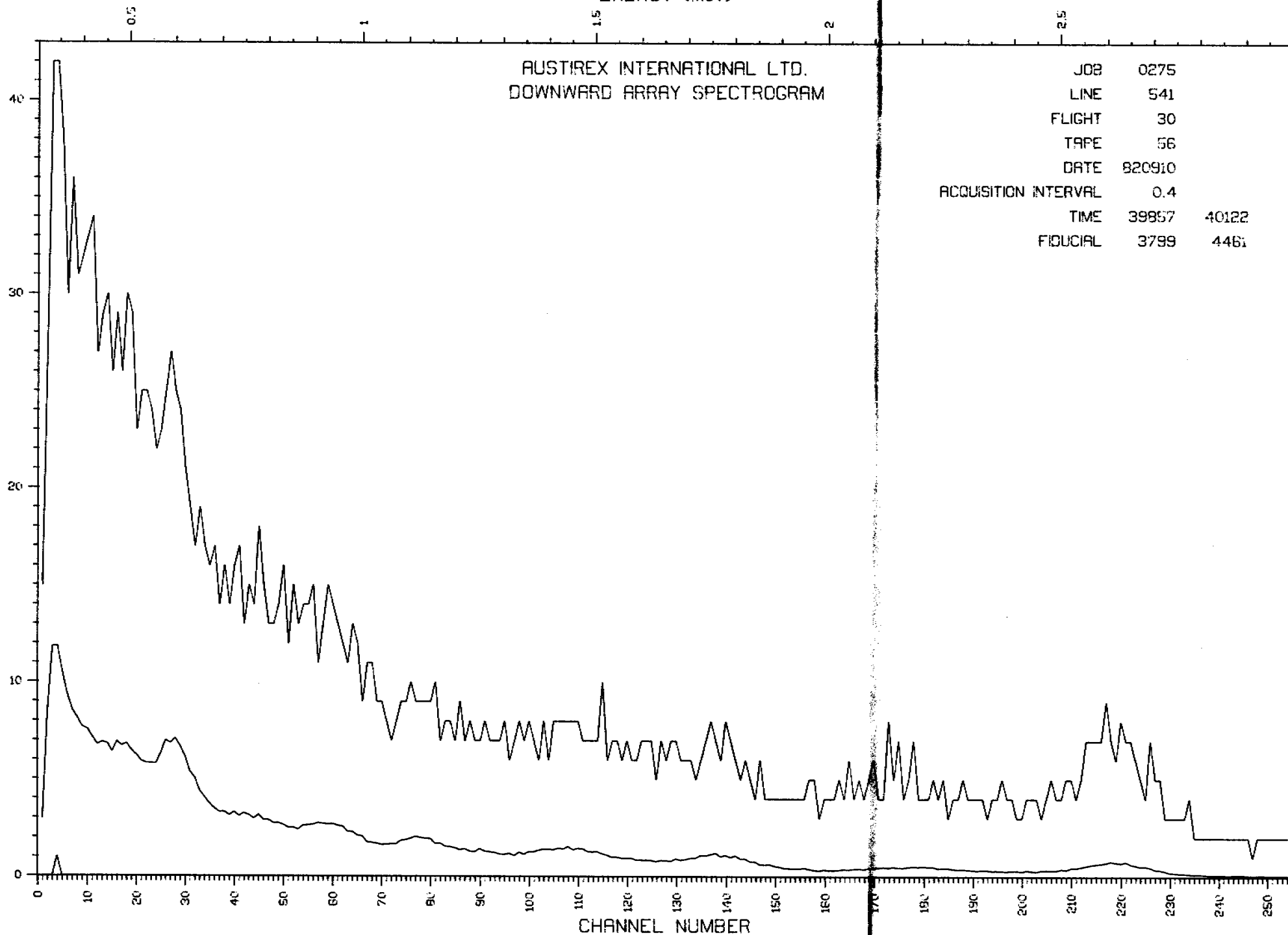


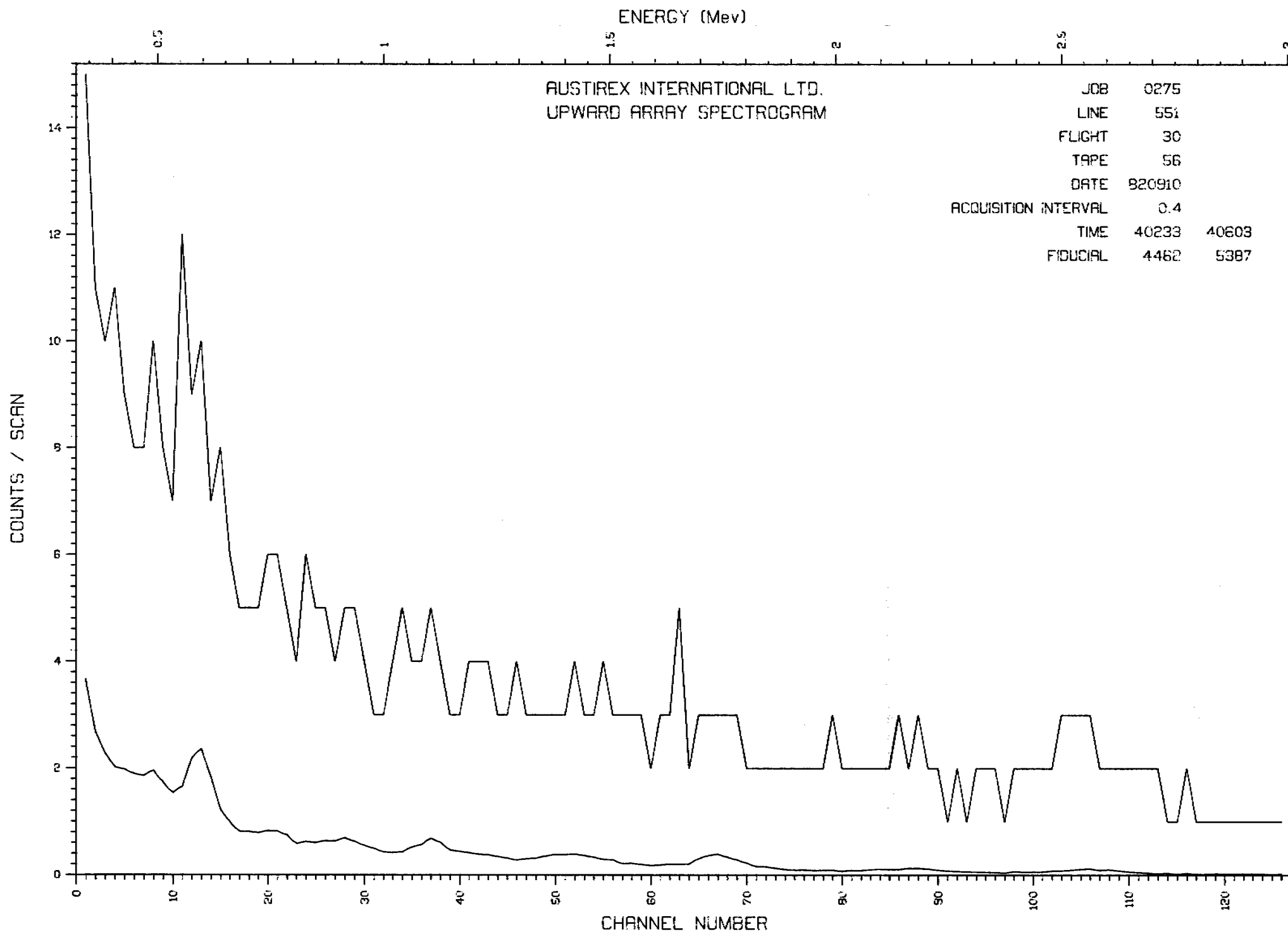
COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 541
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 39857 40122
FIDUCIAL 3799 4461



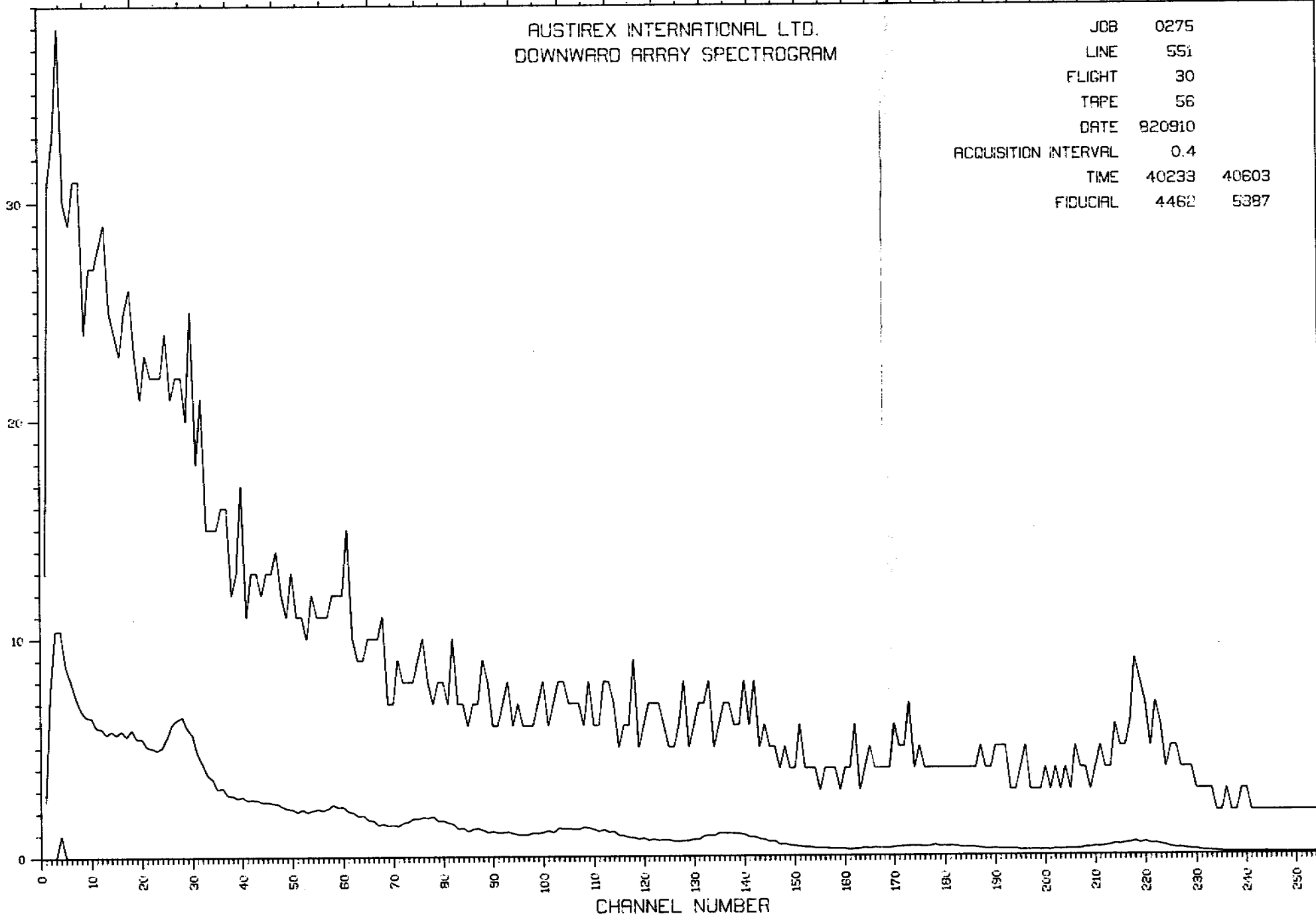


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 551
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 40233 40603
FIDUCIAL 4462 5387

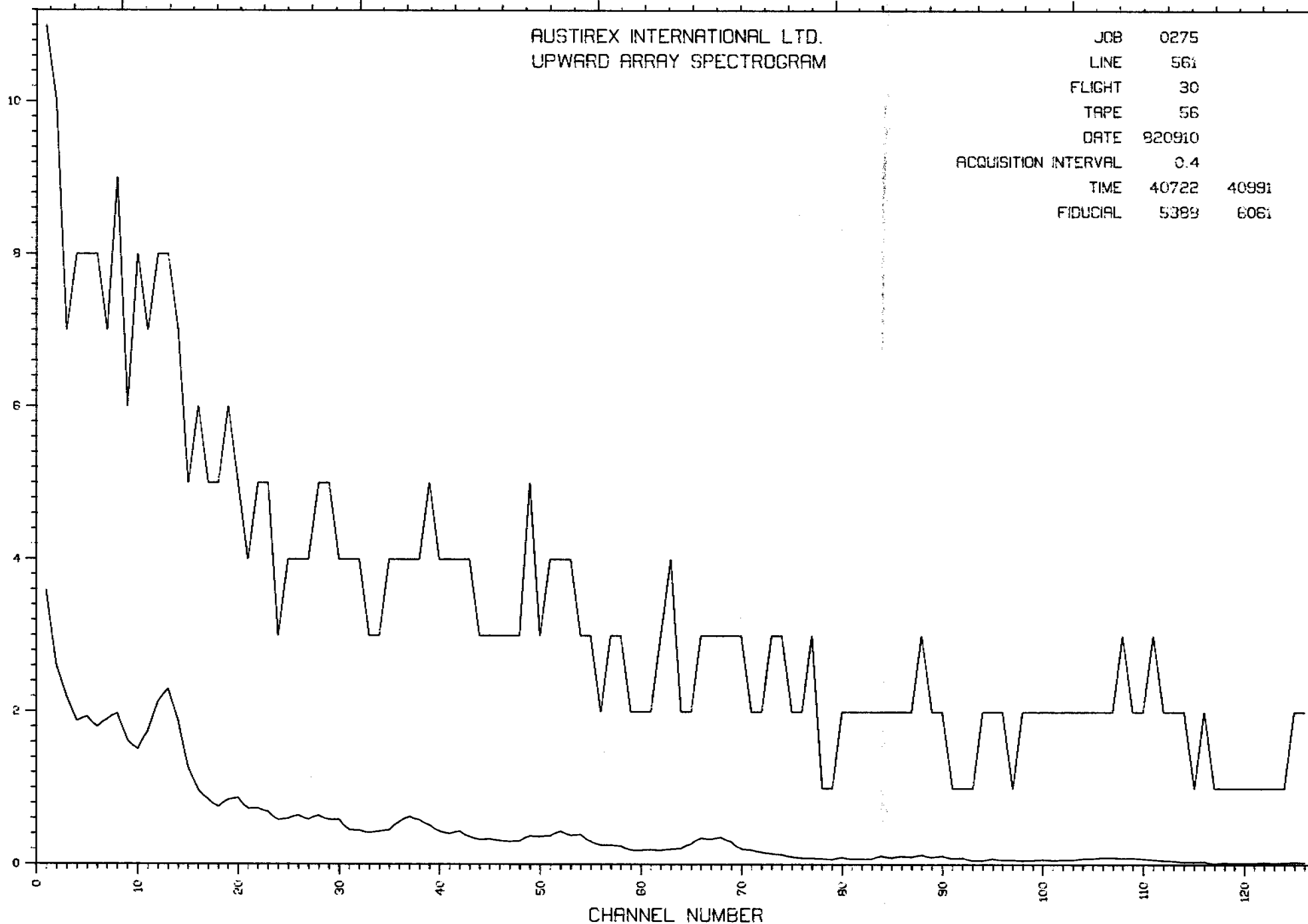


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	561
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	40722 40991
FIDUCIAL	5389 6061



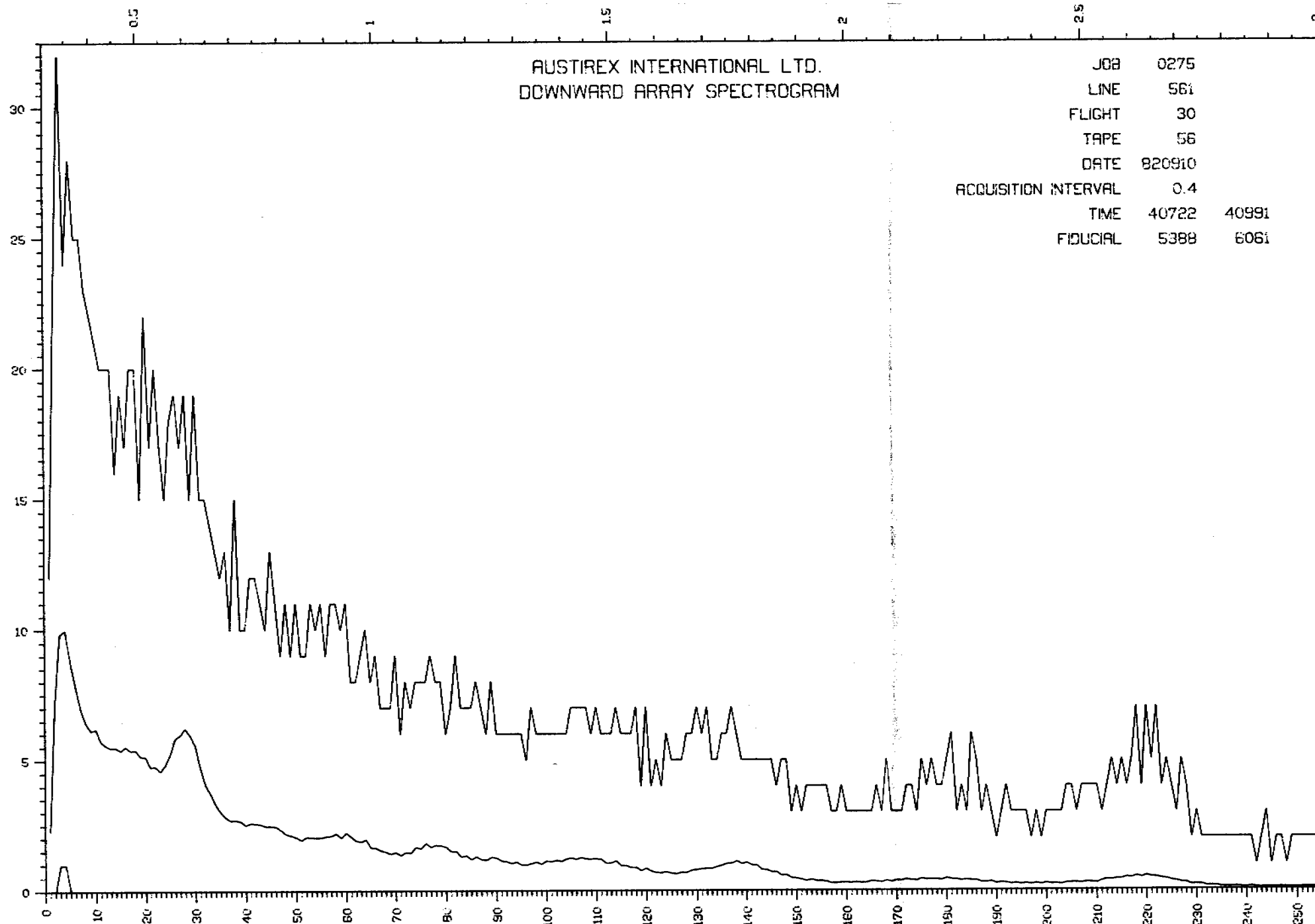
COUNTS / SCAN

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	561
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	40722 40991
FIDUCIAL	5388 6061

ENERGY (Mev)

CHANNEL NUMBER

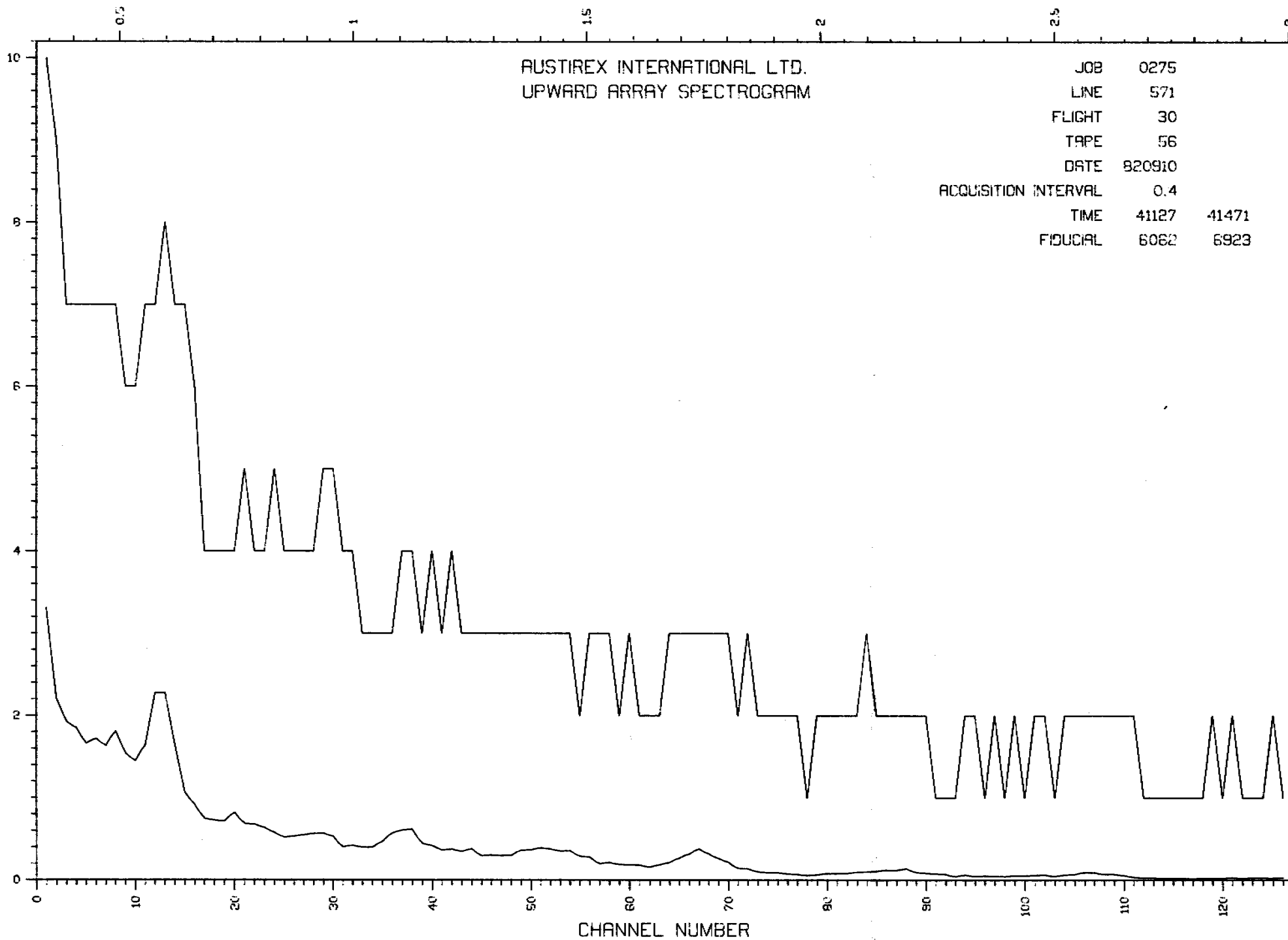


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	571
FLIGHT	30
TAPE	56
DATE	820910
ACQUISITION INTERVAL	0.4
TIME	41127 41471
FIDUCIAL	6062 6923

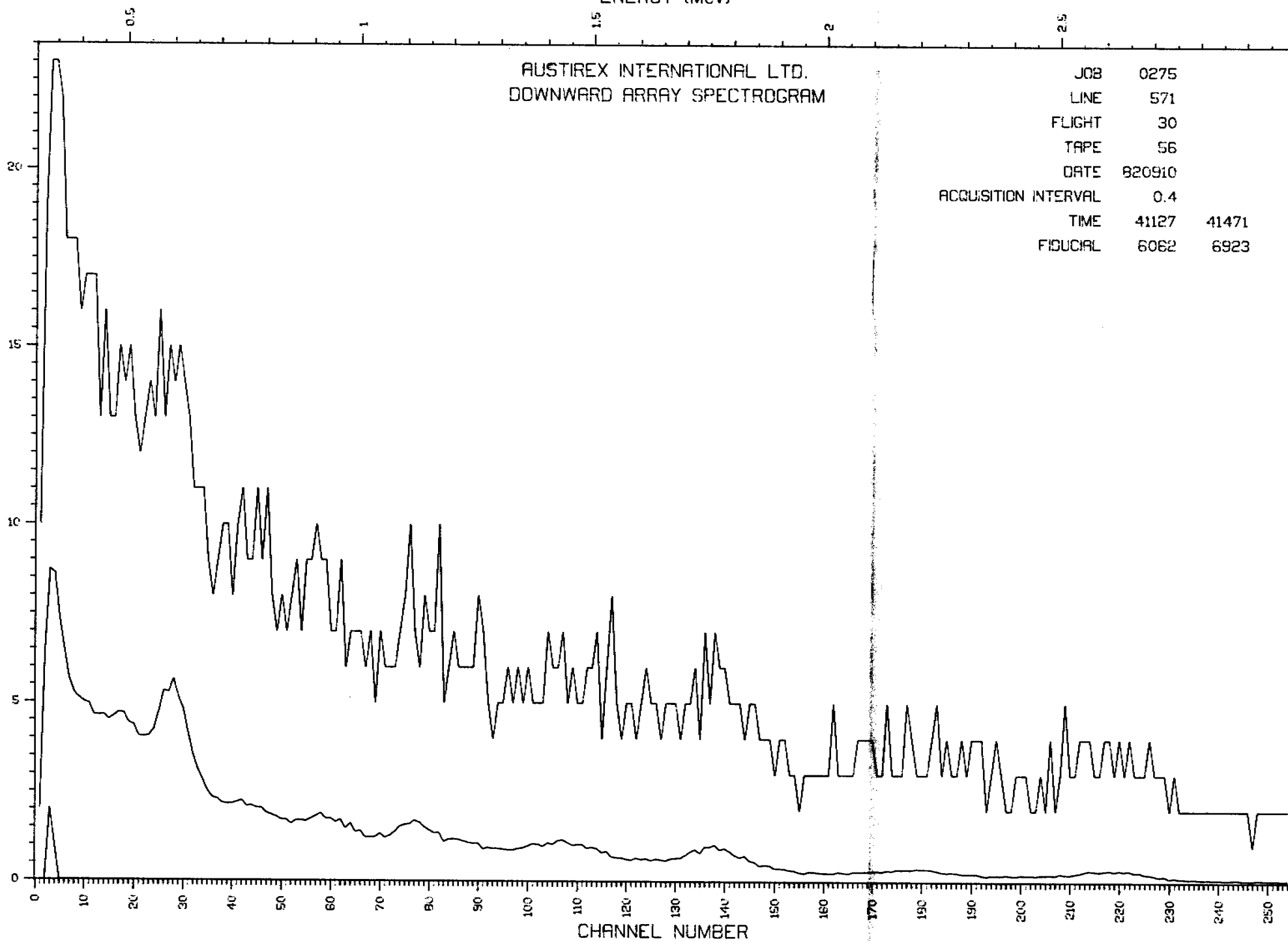


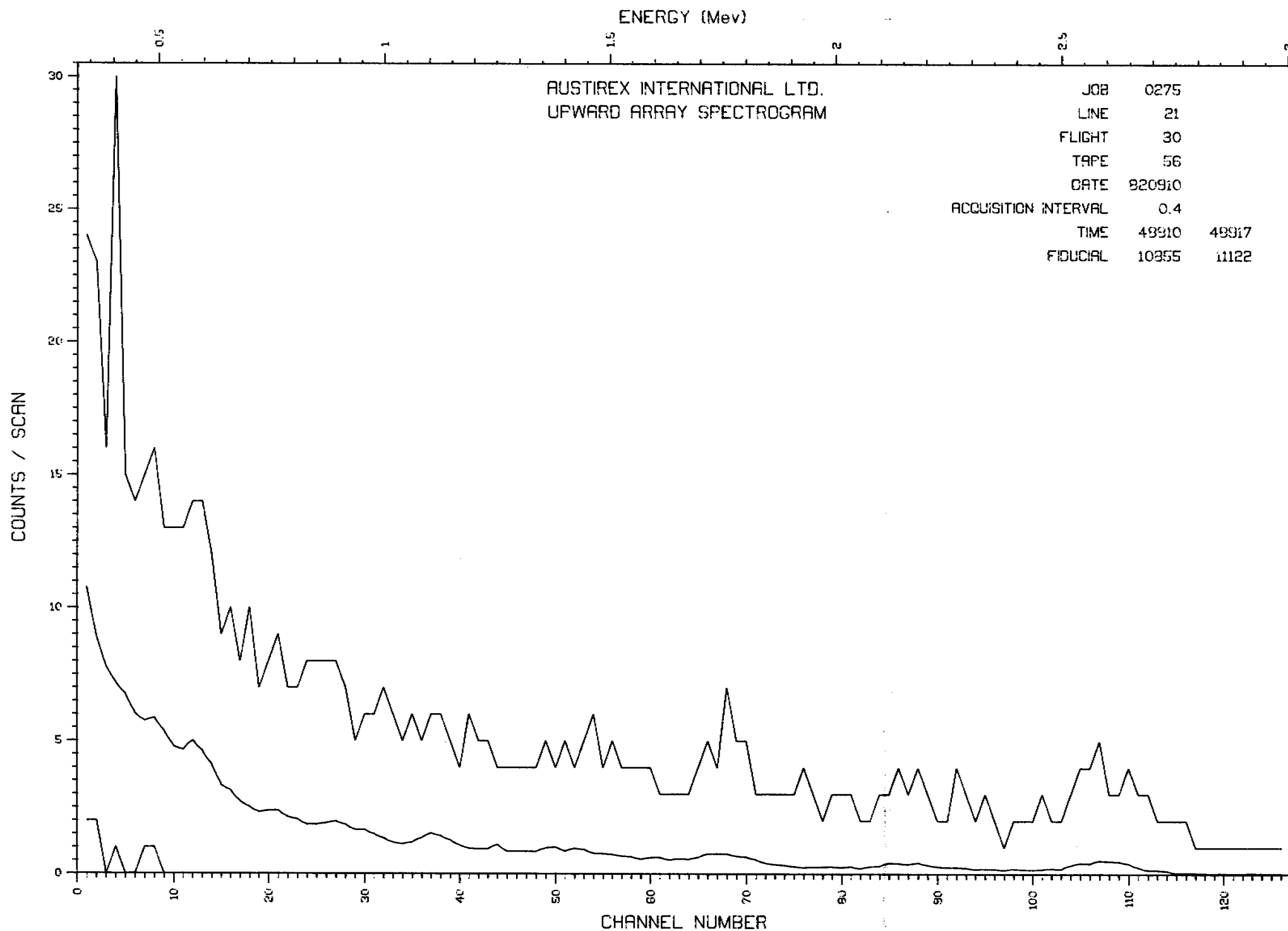
COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 571
FLIGHT 30
TAPE 56
DATE 820910
ACQUISITION INTERVAL 0.4
TIME 41127 41471
FIDUCIAL 6062 6923



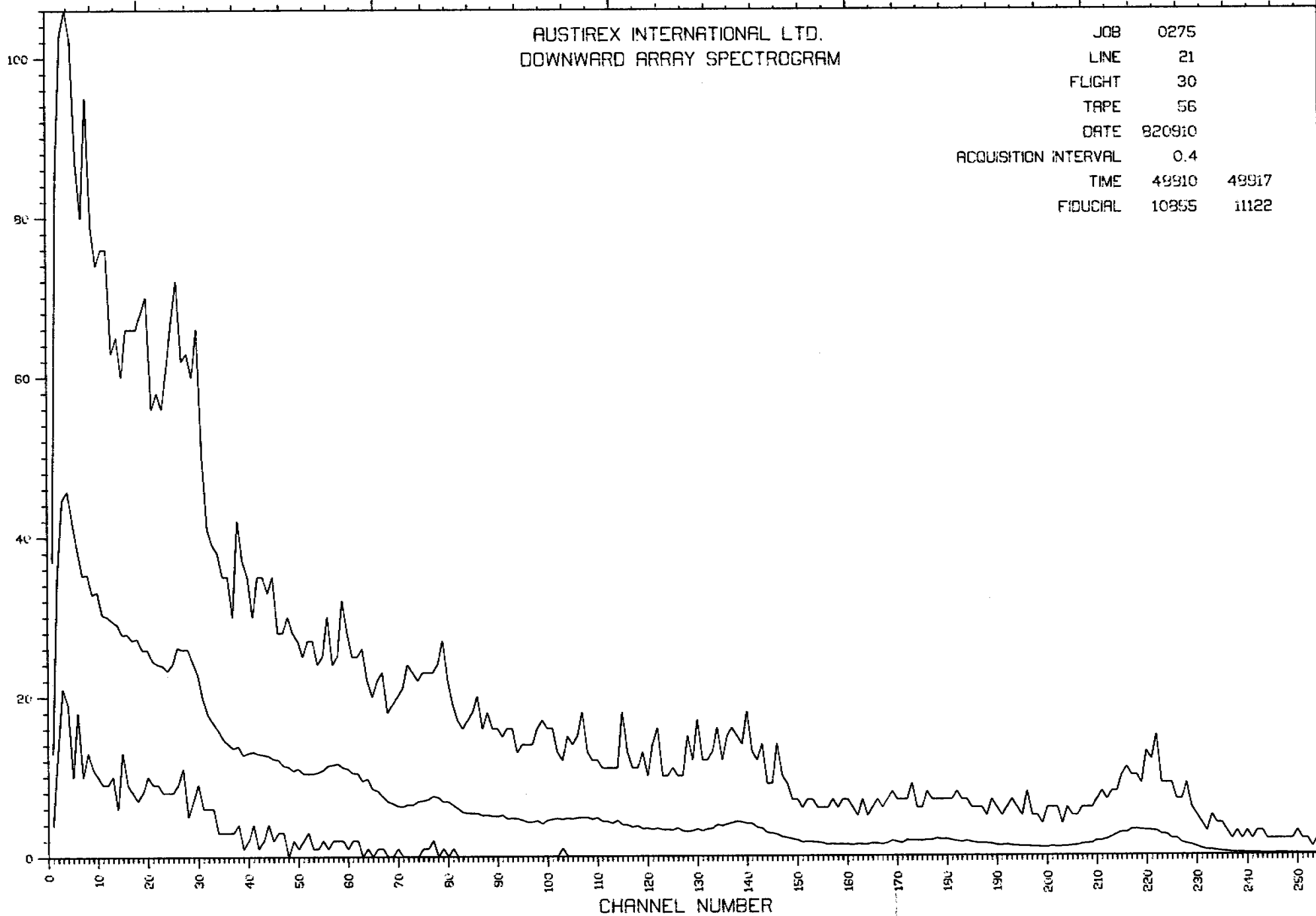


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275	
LINE	21	
FLIGHT	30	
TAPE	56	
DATE	920910	
ACQUISITION INTERVAL	0.4	
TIME	49910	49917
FIDUCIAL	10955	11122

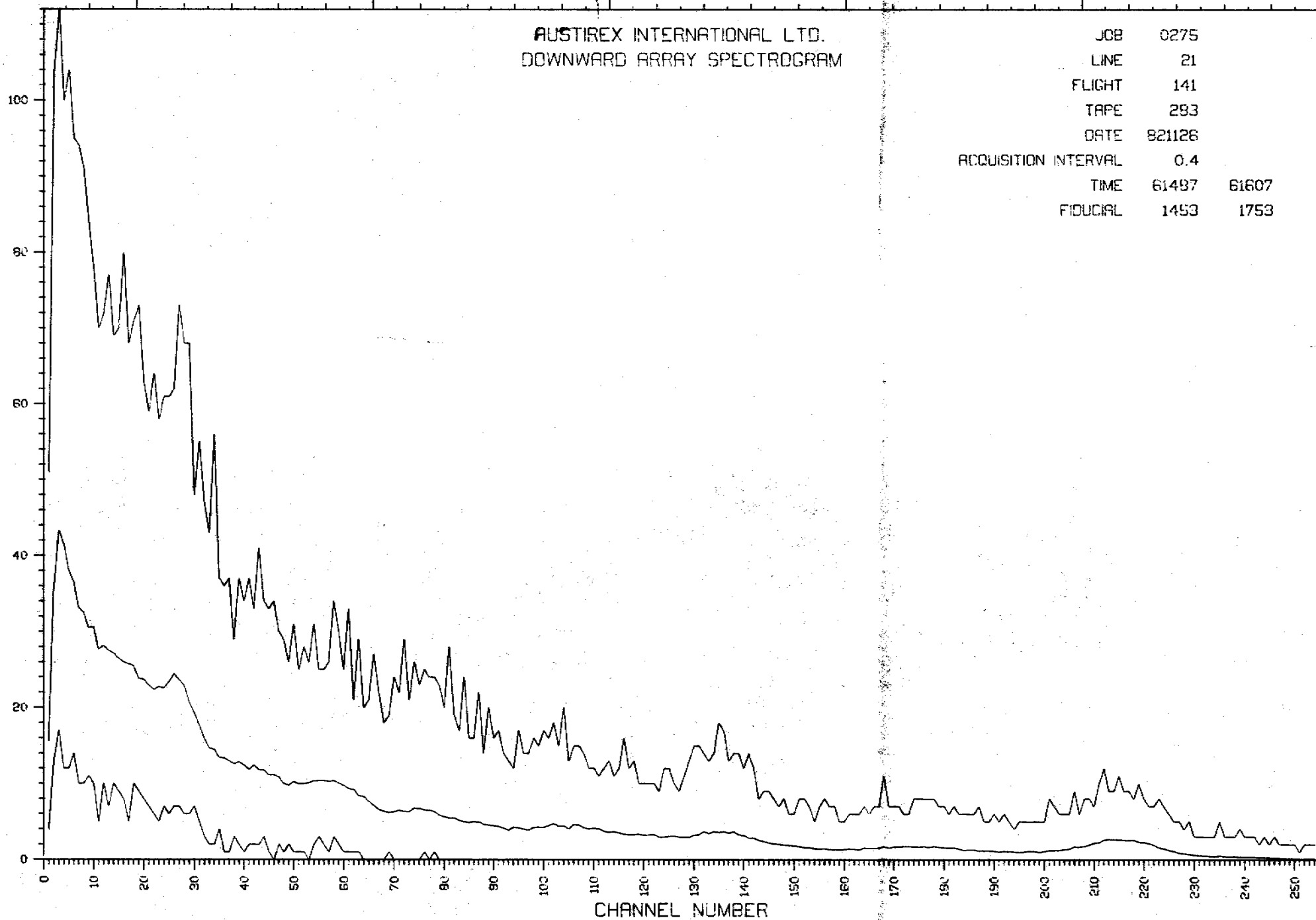


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 21
FLIGHT 141
TAPE 293
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 61487 61607
FIDUCIAL 1453 1753

COUNTS / SCAN

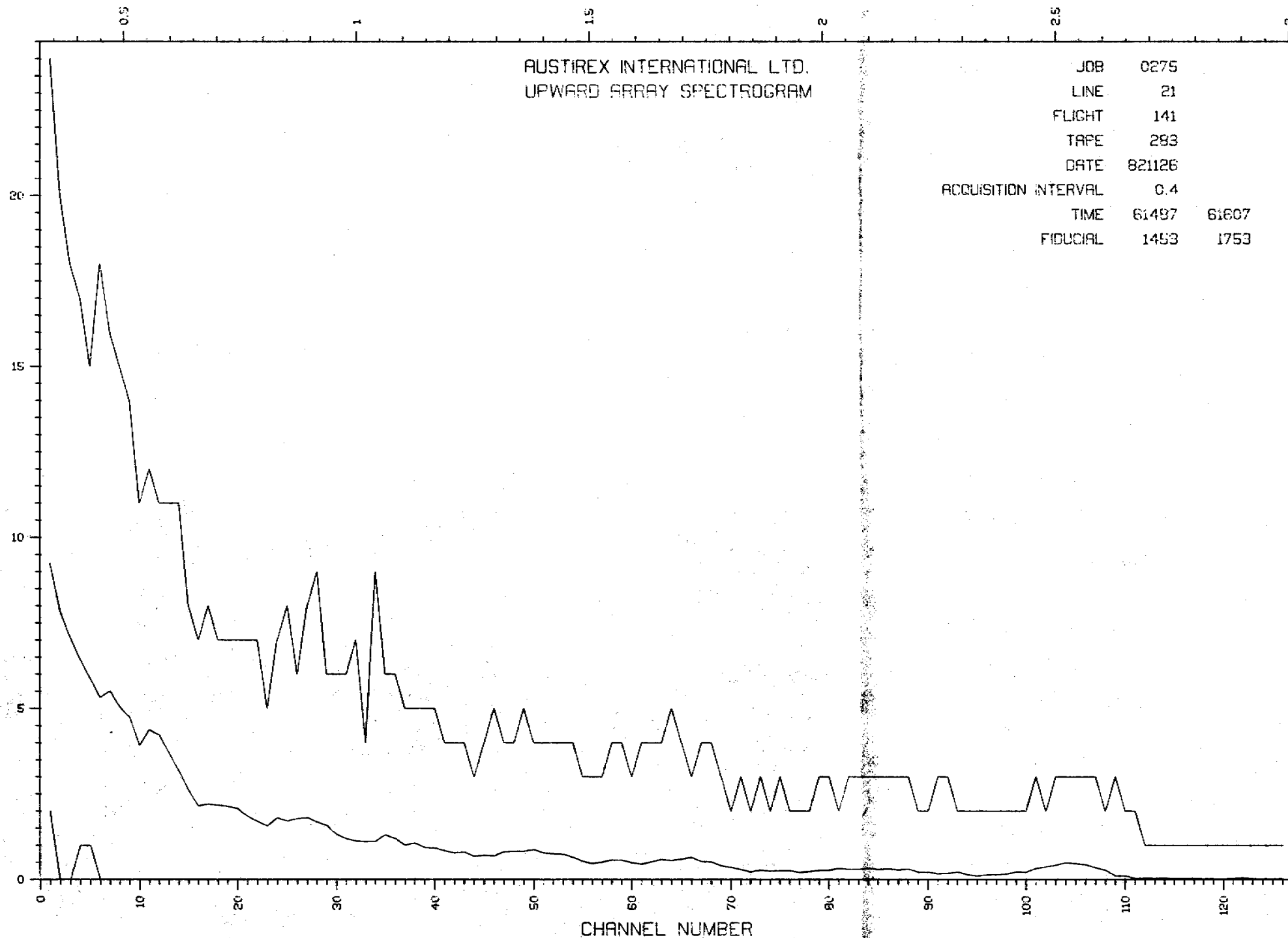


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB 0275
LINE 21
FLIGHT 141
TAPE 283
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 61497 61607
FIDUCIAL 1453 1753

COUNTS / SCAN

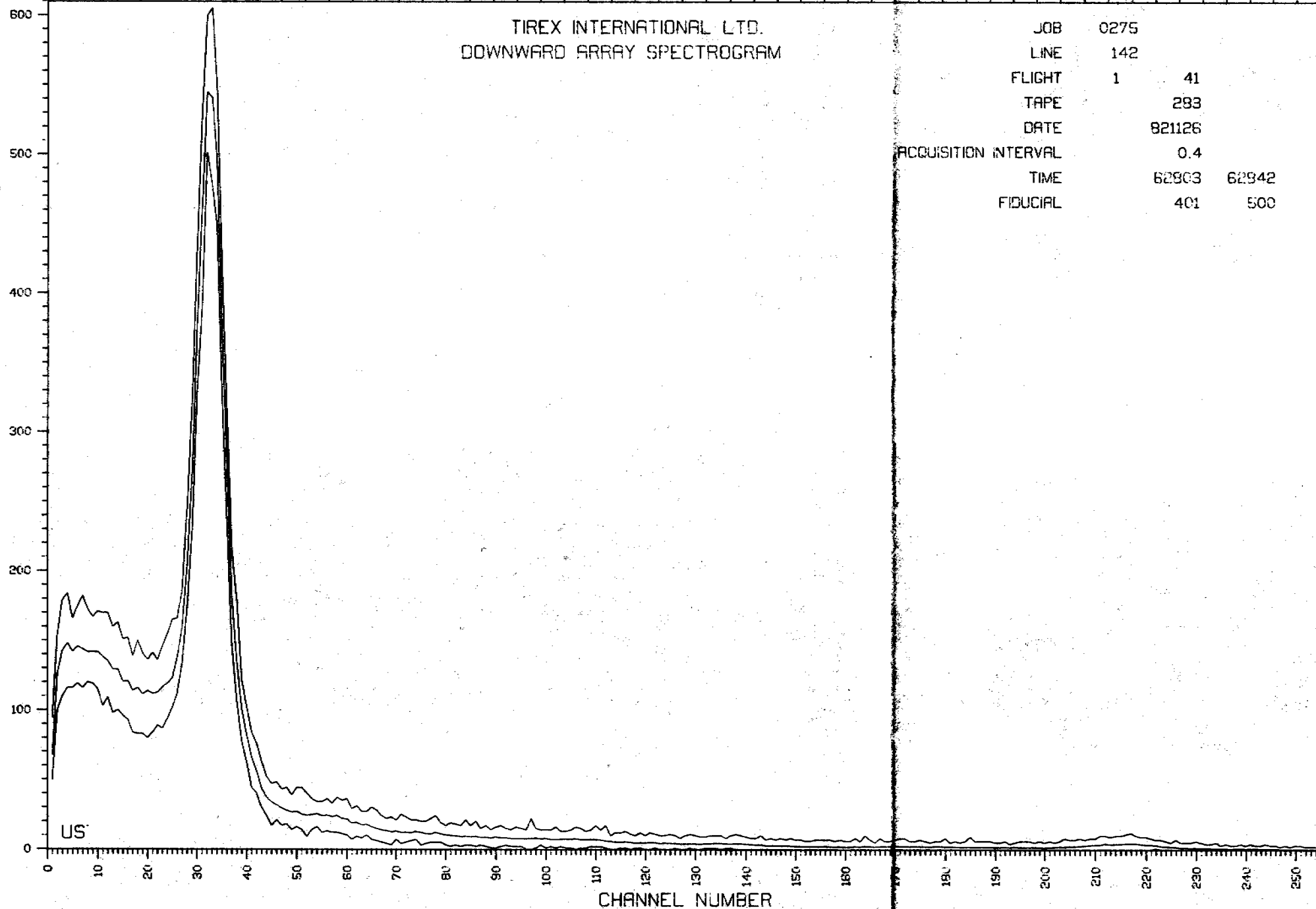


ENERGY (Mev)

TIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 142
FLIGHT 1 41
TAPE 293
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 62903 62942
FIDUCIAL 401 500

COUNTS / SCAN

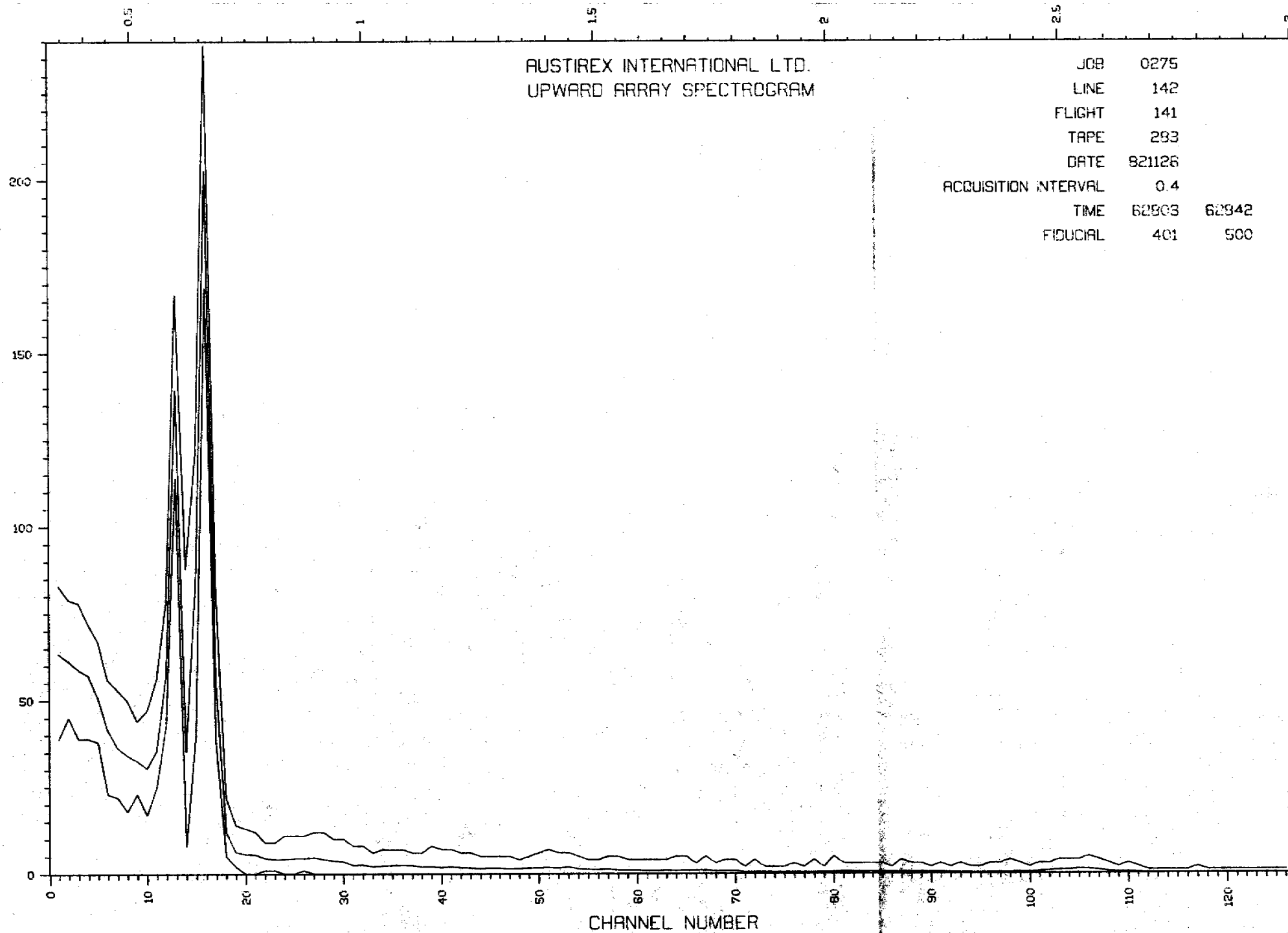


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	142
FLIGHT	141
TAPE	293
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	62903 62942
FIDUCIAL	401 500

COUNTS / SCAN



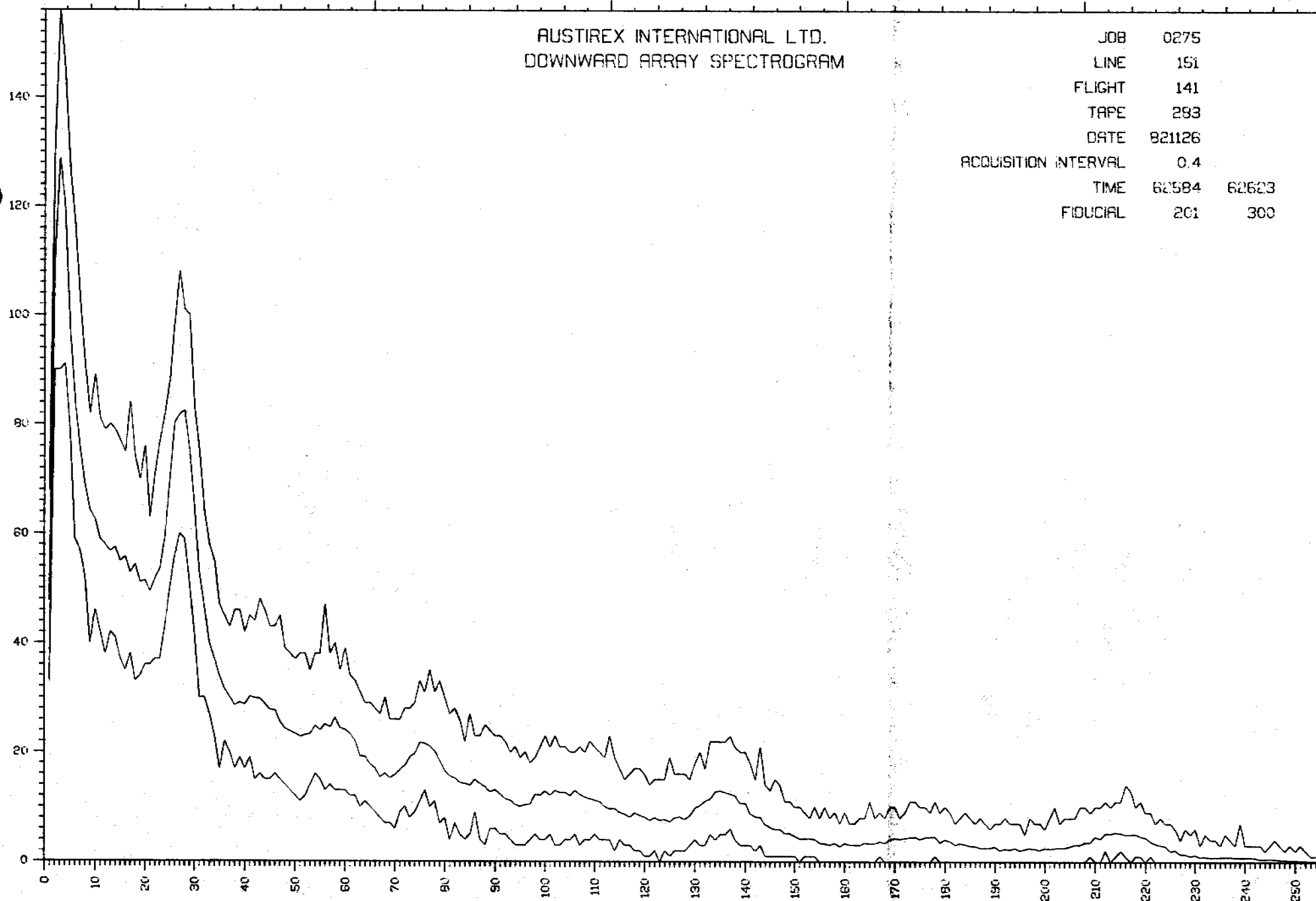
ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	151
FLIGHT	141
TAPE	293
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	62584 62623
FIDUCIAL	201 300

COUNTS / SCAN

CHANNEL NUMBER

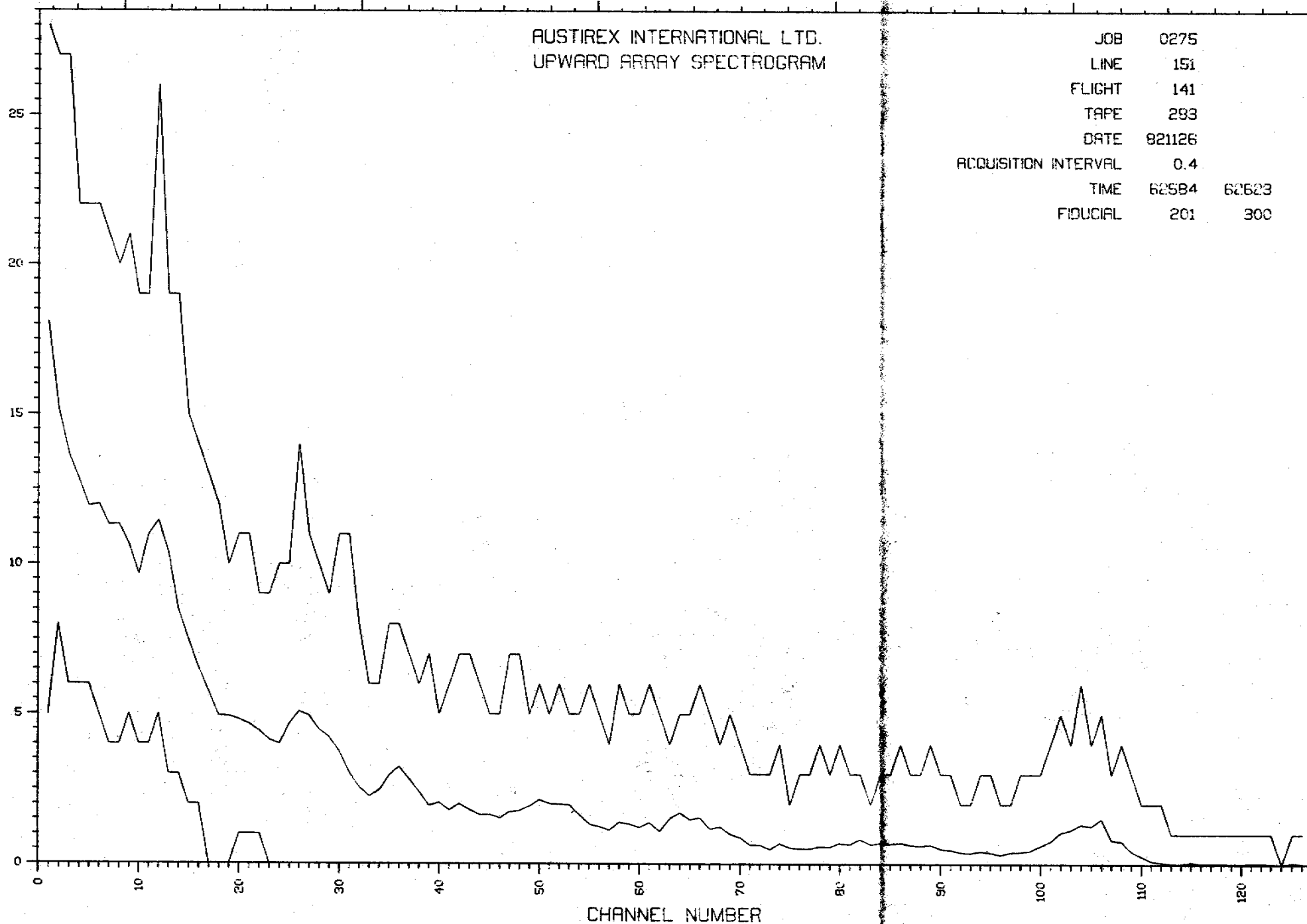


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	151
FLIGHT	141
TAPE	293
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	62584 62623
FIDUCIAL	201 300

COUNTS / SCAN



ENERGY (Mev)

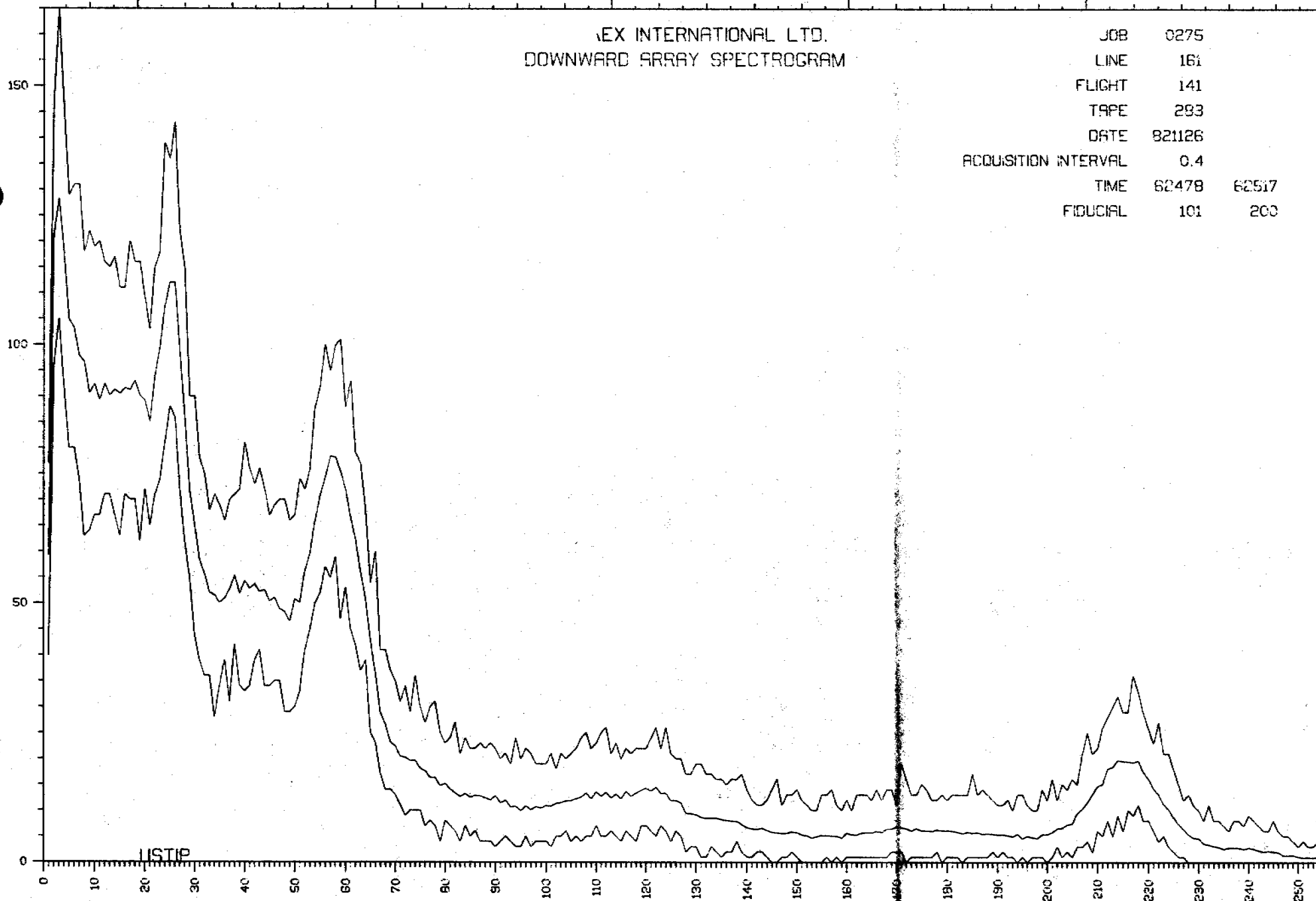
EX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB	0275
LINE	161
FLIGHT	141
TAPE	293
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	62478 62517
FIDUCIAL	101 200

COUNTS / SCAN

HISTIP

CHANNEL NUMBER



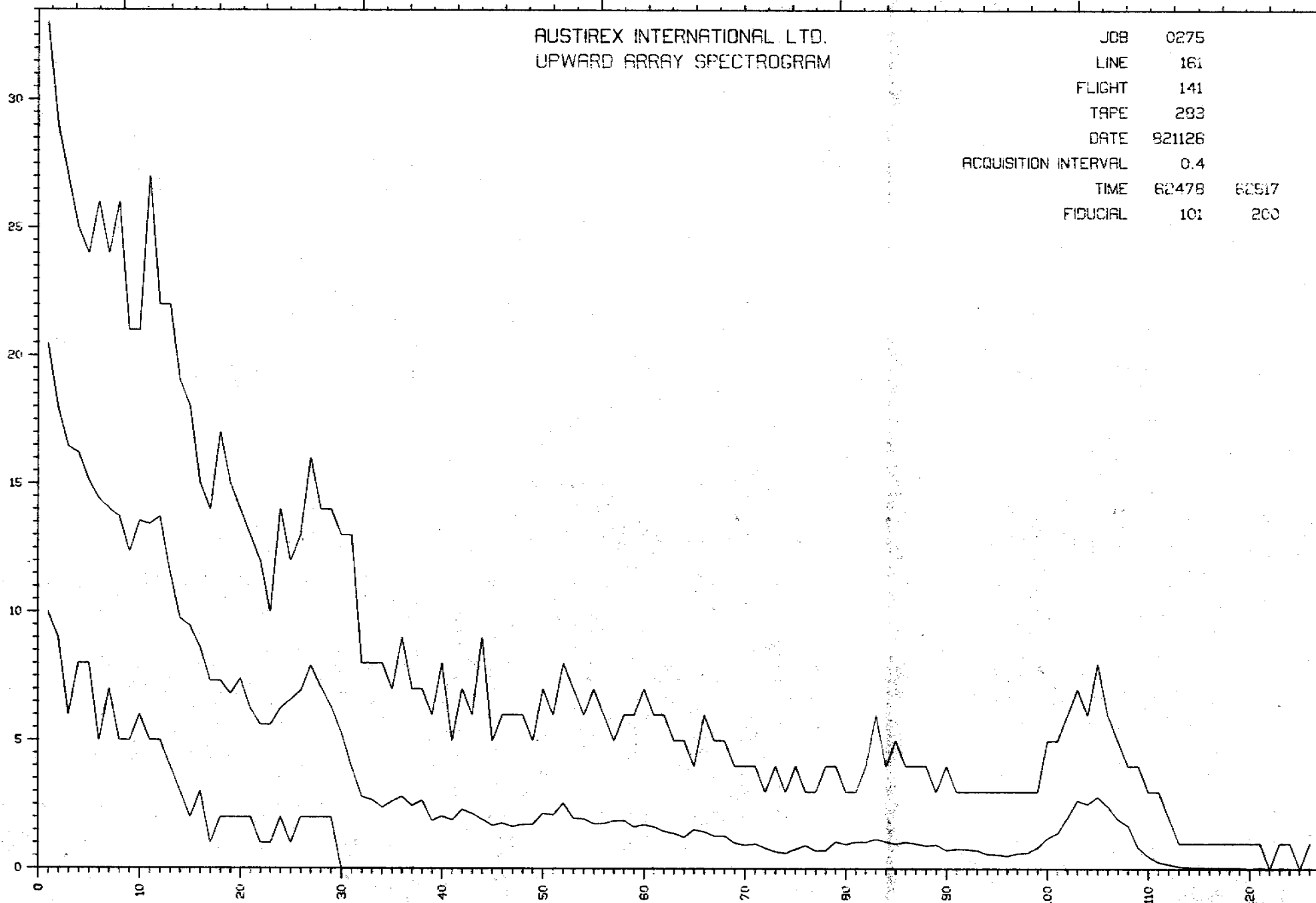
ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	161
FLIGHT	141
TAPE	293
DATE	921126
ACQUISITION INTERVAL	0.4
TIME	62478 62517
FIDUCIAL	101 200

COUNTS / SCAN

CHANNEL NUMBER

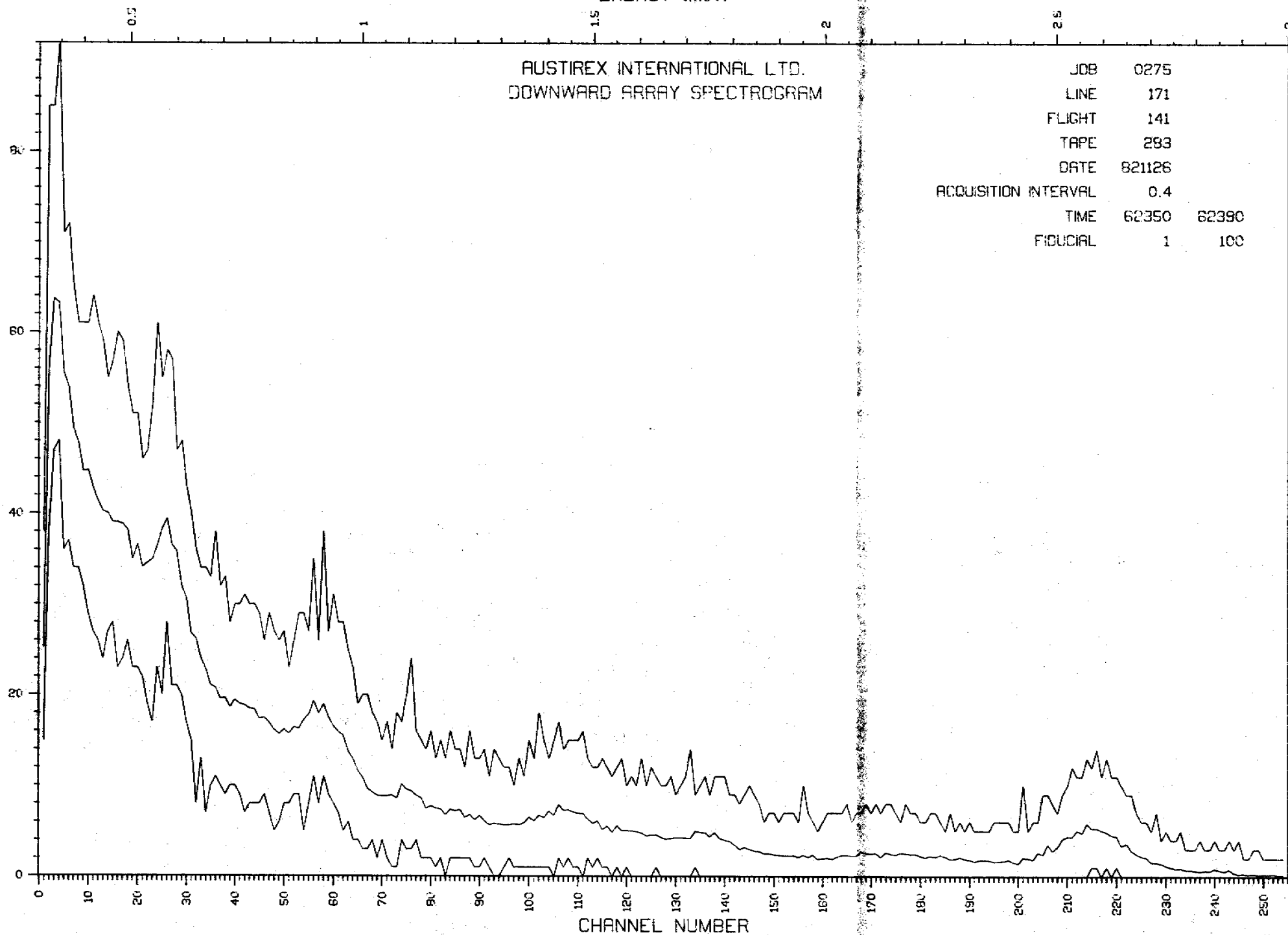


COUNTS / SCAN

ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
DOWNWARD ARRAY SPECTROGRAM

JOB 0275
LINE 171
FLIGHT 141
TAPE 293
DATE 821126
ACQUISITION INTERVAL 0.4
TIME 62350 62390
FIDUCIAL 1 100

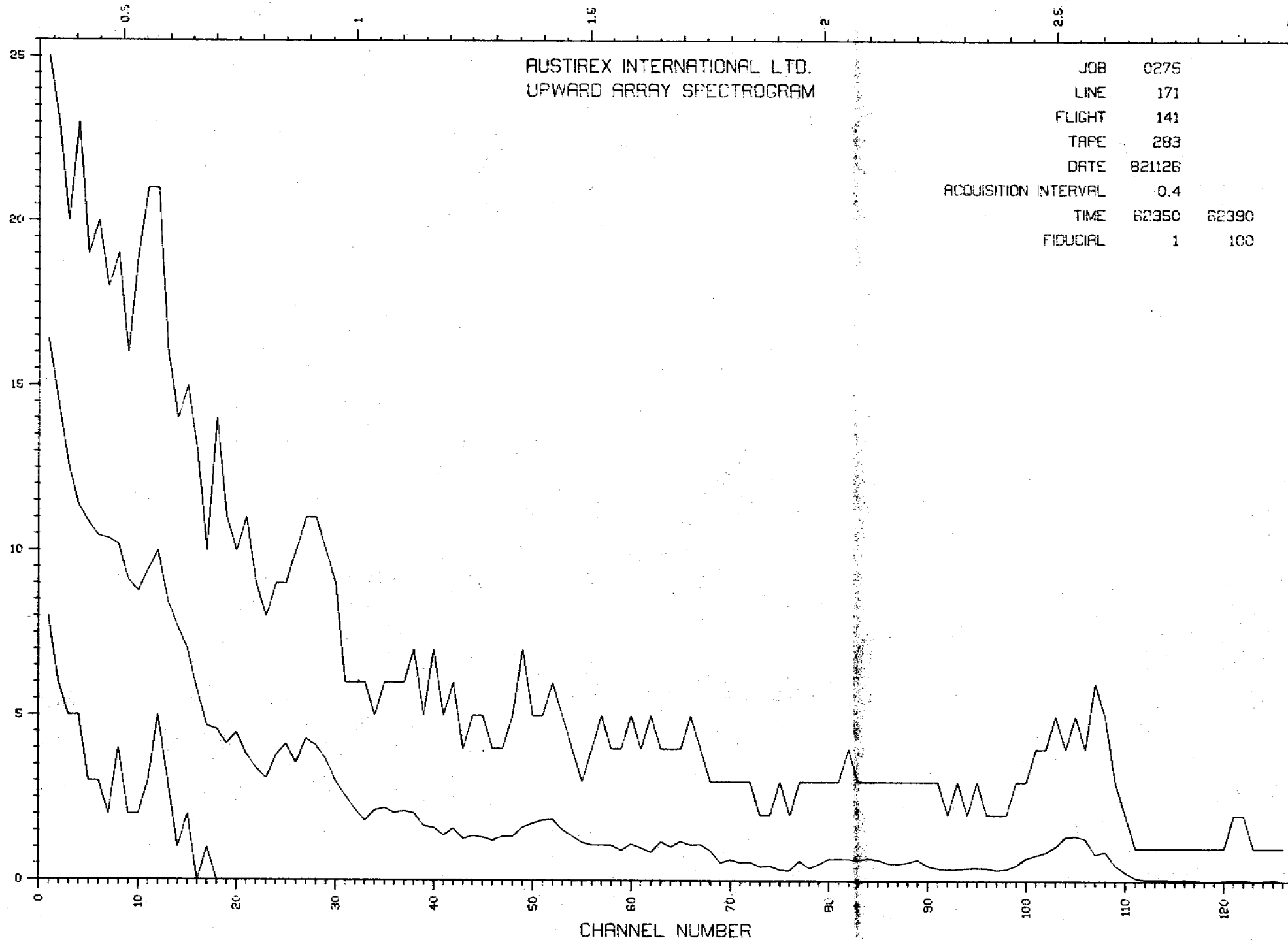


ENERGY (Mev)

AUSTIREX INTERNATIONAL LTD.
UPWARD ARRAY SPECTROGRAM

JOB	0275
LINE	171
FLIGHT	141
TAPE	283
DATE	821126
ACQUISITION INTERVAL	0.4
TIME	62350 62390
FIDUCIAL	1 100

COUNTS / SCAN



STATISTICS

JANDAKOT TEST:

RAW DATA

11/ 8/82

LINE 201
FLIGHT 4
TAPE 4

DATE 820811
NUMBER 263

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	969.000	76.066	838.000	1100.000	262.000	0
23 12 ALTITUDE	31.580	6.775	23.700	55.800	32.100	0
5 3 D.TOT1	302.433	18.482	261.000	368.000	107.000	0
7 4 D.POT1	21.308	4.925	10.000	34.000	24.000	0
9 5 D.URA1	14.475	3.924	6.000	30.000	24.000	0
11 6 D.THO	5.459	2.280	.000	12.000	12.000	0
13 7 D.COS	16.502	4.093	5.000	29.000	24.000	0
15 8 D.TOT	24.494	4.921	14.000	40.000	26.000	0

LINE 202
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 156

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1180.500	45.177	1103.000	1258.000	155.000	0
23 12 ALTITUDE	38.289	6.824	24.700	53.800	29.100	0
5 3 D.TOT1	1068.769	142.774	593.000	1260.000	667.000	0
7 4 D.POT1	141.788	27.558	50.000	193.000	143.000	0
9 5 D.URA1	24.724	5.463	13.000	44.000	31.000	0
11 6 D.THO	16.590	5.155	4.000	30.000	26.000	0
13 7 D.COS	16.481	4.060	7.000	28.000	21.000	0
15 8 D.TOT	52.449	9.336	24.000	74.000	50.000	0

LINE 212
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 161

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1530.000	46.621	1450.000	1610.000	160.000	0
23 12 ALTITUDE	54.958	6.125	37.700	68.500	30.800	0
5 3 D.TOT1	988.981	121.327	619.000	1221.000	602.000	0
7 4 D.POT1	125.453	21.758	62.000	178.000	116.000	0
9 5 D.URA1	24.472	5.377	10.000	48.000	38.000	0
11 6 D.THO	15.348	5.387	3.000	30.000	27.000	0
13 7 D.COS	17.217	4.205	7.000	34.000	27.000	0
15 8 U.TOT	47.590	8.378	26.000	75.000	49.000	0

LINE 211
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 202

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1715.500	58.457	1615.000	1816.000	201.000	0
23 12 ALTITUDE	59.194	5.478	49.900	72.200	22.300	0
5 3 D.TOT1	323.500	18.246	273.000	377.000	104.000	0
7 4 D.POT1	22.193	5.168	7.000	35.000	28.000	0
9 5 D.URA1	16.233	3.668	6.000	26.000	20.000	0
11 6 D.THO	5.891	2.487	1.000	14.000	13.000	0
13 7 D.COS	16.703	3.955	7.000	27.000	20.000	0
15 8 U.TOT	24.554	4.819	11.000	34.000	27.000	0

LINE 221
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 244

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1938.500	70.581	1817.000	2060.000	243.000	0
23 12 ALTITUDE	77.357	4.332	66.800	84.000	17.200	0
5 3 D.TOT1	325.705	17.761	284.000	387.000	103.000	0
7 4 D.POT1	21.254	4.669	6.000	34.000	28.000	0
9 5 D.URA1	16.287	4.353	5.000	28.000	23.000	0
11 6 D.THO	6.078	2.577	1.000	16.000	15.000	0
13 7 D.COS	16.672	3.994	7.000	27.000	20.000	0
15 8 U.TOT	25.520	5.038	13.000	39.000	26.000	0

LINE 222
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 149

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2138.000	43.157	2064.000	2212.000	148.000	0
23 12 ALTITUDE	80.136	5.902	63.200	91.100	27.900	0
5 3 D.TOT1	859.765	146.447	444.000	1123.000	679.000	0
7 4 D.POT1	96.960	24.327	33.000	155.000	122.000	0
9 5 D.URA1	23.919	5.421	13.000	42.000	29.000	0
11 6 D.THO	14.369	5.710	3.000	30.000	27.000	0
13 7 D.COS	17.101	4.118	8.000	29.000	21.000	0
15 8 U.TOT	41.497	7.432	25.000	67.000	42.000	0

LINE 232
 FLIGHT 4
 TAPE 4
 DATE 820A11
 NUMBER 177

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2490.000	51.240	2402.000	2578.000	176.000	0
23 12 ALTITUDE	97.690	4.792	82.800	106.800	24.000	0
5 3 D.TOT1	773.147	172.587	328.000	991.000	663.000	0
7 4 D.POT1	84.282	26.474	18.000	127.000	109.000	0
9 5 D.HRA1	22.243	5.595	7.000	40.000	33.000	0
11 6 D.THO	11.831	4.975	2.000	24.000	22.000	0
13 7 D.COS	16.678	3.857	8.000	32.000	24.000	0
15 8 U.TOT	38.249	7.966	20.000	58.000	38.000	0

LINE 231
 FLIGHT 4
 TAPE 4
 DATE 820A11
 NUMBER 174

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2670.500	50.374	2584.000	2757.000	173.000	0
23 12 ALTITUDE	95.980	3.201	90.100	102.800	12.700	0
5 3 D.TOT1	332.534	18.236	289.000	376.000	87.000	0
7 4 D.POT1	21.603	4.437	11.000	33.000	22.000	0
9 5 D.HRA1	17.362	4.279	7.000	28.000	21.000	0
11 6 D.THO	6.075	2.485	.000	15.000	15.000	0
13 7 D.COS	17.029	4.181	8.000	30.000	22.000	0
15 8 U.TOT	24.707	5.113	13.000	42.000	29.000	0

LINE 241
FLIGHT 4
TAPE 4
DATE 820811

NUMBER 239

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2877.000	69.138	2758.000	2996.000	238.000	0
23 12 ALTITUDE	119.182	5.386	107.500	128.600	21.100	0
5 3 D.TOT1	336.121	20.672	284.000	399.000	115.000	0
7 4 D.POT1	22.393	4.596	11.000	36.000	25.000	0
9 5 D.URA1	16.946	4.069	7.000	30.000	23.000	0
11 6 D.THO	5.929	2.466	.000	14.000	14.000	0
13 7 D.COS	17.100	3.862	8.000	31.000	23.000	0
15 8 U.TOT	25.146	5.019	10.000	40.000	30.000	0

LINE 242
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 149

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3076.000	43.157	3002.000	3150.000	148.000	0
23 12 ALTITUDE	122.135	6.737	106.800	136.400	29.600	0
5 3 D.TOT1	747.174	84.434	457.000	900.000	443.000	0
7 4 D.POT1	76.497	13.888	36.000	112.000	76.000	0
9 5 D.URA1	22.772	4.992	10.000	34.000	24.000	0
11 6 D.THO	12.537	4.505	4.000	23.000	19.000	0
13 7 D.COS	16.940	3.856	9.000	28.000	19.000	0
15 8 U.TOT	37.221	6.666	19.000	55.000	36.000	0

LINE 252
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 148

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3433.500	42.868	3360.000	3507.000	147.000	0
23 12 ALTITUDE	150.345	2.369	139.100	152.100	13.000	0
5 3 D.TOT1	679.824	68.964	514.000	827.000	313.000	0
7 4 D.POT1	65.250	11.282	40.000	107.000	67.000	0
9 5 D.URA1	22.108	4.852	10.000	41.000	31.000	0
11 6 D.THO	11.068	3.793	4.000	21.000	17.000	0
13 7 D.COS	17.554	4.259	7.000	27.000	20.000	0
15 8 U.TOT	34.493	5.903	24.000	52.000	28.000	0

LINE 251
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 180

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3601.500	52.106	3512.000	3691.000	179.000	0
23 12 ALTITUDE	149.982	.758	147.900	151.600	3.700	0
5 3 D.TOT1	342.361	18.811	297.000	393.000	96.000	0
7 4 D.POT1	22.444	4.538	11.000	38.000	27.000	0
9 5 D.URA1	18.239	4.596	9.000	34.000	25.000	0
11 6 D.THO	6.206	2.353	1.000	15.000	14.000	0
13 7 D.COS	17.656	4.072	9.000	32.000	23.000	0
15 8 U.TOT	26.022	4.958	12.000	43.000	31.000	0

LINE 261
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 207

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3795.000	59.900	3692.000	3898.000	206.000	0
23 12 ALTITUDE	194.932	5.373	181.500	204.500	23.000	0
5 3 D.TOT1	348.280	21.061	295.000	436.000	141.000	0
7 4 D.POT1	22.121	4.715	10.000	36.000	26.000	0
9 5 D.URA1	18.188	4.290	6.000	33.000	27.000	0
11 6 D.THO	6.304	2.552	1.000	16.000	15.000	0
13 7 D.COS	18.150	4.091	7.000	31.000	24.000	0
15 8 D.TOT	25.319	5.314	13.000	44.000	31.000	0

LINE 262
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 152

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3978.500	44.023	3903.000	4054.000	151.000	0
23 12 ALTITUDE	196.207	6.813	179.900	204.500	24.600	0
5 3 D.TOT1	577.224	60.792	407.000	693.000	286.000	0
7 4 D.POT1	49.125	10.123	27.000	74.000	47.000	0

9 5 D.URA1	21.789	4.928	8.000	38.000	30.000	0
11 6 D.THO	9.404	3.119	2.000	19.000	17.000	0
13 7 D.COS	18.539	4.326	9.000	30.000	21.000	0
15 8 D.TOT	30.855	5.559	18.000	46.000	28.000	0

LINE 272
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 149

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4324.000	43.157	4250.000	4398.000	148.000	0
23 12 ALTITUDE	291.819	5.209	279.800	304.400	24.600	0
5 3 D.TOT1	475.758	28.474	379.000	548.000	169.000	0
7 4 D.POT1	35.289	6.423	22.000	54.000	32.000	0
9 5 D.URA1	19.738	4.782	7.000	31.000	24.000	0
11 6 D.THO	8.456	2.798	2.000	14.000	12.000	0
13 7 D.COS	19.228	4.903	8.000	39.000	31.000	0
15 8 U.TOT	27.698	5.376	13.000	43.000	30.000	0

LINE 271
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 188

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4495.500	54.415	4402.000	4589.000	187.000	0
23 12 ALTITUDE	297.319	2.889	288.000	302.800	14.800	0
5 3 D.TOT1	345.527	19.241	297.000	404.000	107.000	0
7 4 D.POT1	21.564	4.656	13.000	35.000	22.000	0
9 5 D.URA1	17.984	4.539	7.000	32.000	25.000	0
11 6 D.THO	6.489	2.584	1.000	13.000	12.000	0
13 7 D.COS	18.920	4.459	7.000	30.000	23.000	0
15 8 U.TOT	24.867	4.712	13.000	41.000	28.000	0

LINE 501
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 1292

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5235.500	373.113	4590.000	5881.000	1291.000	0
23 12 ALTITUDE	49.046	8.975	6.200	66.900	60.700	0
5 3 D.TOT1	399.235	26.285	329.000	485.000	156.000	0
7 4 D.POT1	24.690	5.239	9.000	47.000	38.000	0
9 5 D.URA1	20.273	4.720	7.000	39.000	32.000	0
11 6 D.THO	7.796	2.891	1.000	19.000	18.000	0
13 7 D.COS	20.839	4.589	6.000	37.000	31.000	0
15 8 D.TOT	26.998	5.209	11.000	45.000	34.000	0

LINE 512
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 1309

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	655.000	378.020	1.000	1309.000	1308.000	0
23 12 ALTITUDE	411.045	.319	410.200	411.700	1.500	1
5 3 D.TOT1	317.870	33.487	227.000	423.000	196.000	0
7 4 D.POT1	20.677	4.691	6.000	38.000	32.000	0
9 5 D.URA1	16.059	4.342	3.000	32.000	29.000	0
11 6 D.THO	7.357	2.692	.000	16.000	16.000	0
13 7 D.COS	26.521	4.926	13.000	49.000	36.000	0
15 8 D.TOT	22.413	4.988	9.000	40.000	31.000	0

LINE 521
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 1293

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1956.000	373.401	1310.000	2602.000	1292.000	0
23 12 ALTITUDE	410.188	.138	410.000	410.700	.700	1
5 3 D.TOT1	269.080	17.705	211.000	323.000	112.000	0
7 4 D.POT1	18.167	4.359	6.000	38.000	32.000	0
9 5 D.URA1	13.008	3.606	3.000	24.000	21.000	0
11 6 D.THO	8.103	2.849	1.000	18.000	17.000	0
13 7 D.COS	35.317	5.797	19.000	57.000	38.000	0
15 8 U.TOT	20.558	4.553	9.000	38.000	29.000	0

LINE 551
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 1409

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3307.000	404.858	2603.000	4011.000	1408.000	0
23 12 ALTITUDE	410.255	.186	410.000	410.900	.900	1
5 3 D.TOT1	284.368	16.546	236.000	343.000	107.000	0
7 4 D.POT1	19.307	4.455	6.000	36.000	30.000	0
9 5 D.URA1	13.441	3.633	3.000	26.000	23.000	0
11 6 D.THO	9.334	2.999	2.000	21.000	19.000	0
13 7 D.COS	46.435	7.043	24.000	72.000	48.000	0
15 8 U.TOT	22.163	4.740	9.000	38.000	29.000	0

LINE 541
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 1398

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4710.500	403.712	4012.000	5409.000	1397.000	0
23 12 ALTITUDE	410.659	.185	410.000	411.200	1.200	1
5 3 D.TOT1	298.278	18.144	246.000	353.000	107.000	0
7 4 D.POT1	19.938	4.448	7.000	34.000	27.000	0
9 5 D.URA1	13.996	3.671	3.000	27.000	24.000	0
11 6 D.THO	11.454	3.249	2.000	23.000	21.000	0
13 7 D.COS	62.303	7.847	35.000	91.000	56.000	0
15 8 U.TOT	23.401	4.770	11.000	41.000	30.000	0

LINE 551
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 720

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5771.200	209.269	5410.000	6132.000	722.000	0
23 12 ALTITUDE	410.096	.161	410.000	410.900	.900	1
5 3 D.TOT1	334.806	17.762	289.000	402.000	113.000	0
7 4 D.POT1	22.019	4.686	8.000	40.000	32.000	0
9 5 D.URA1	15.258	3.921	6.000	32.000	26.000	0
11 6 D.THO	14.308	4.017	5.000	28.000	23.000	0
13 7 D.COS	83.699	9.071	58.000	112.000	54.000	0
15 8 U.TOT	26.665	5.462	11.000	47.000	36.000	0

LINE 561
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 642

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	321.500	185.474	1.000	642.000	641.000	0
23 12 ALTITUDE	410.102	.124	410.000	410.700	.700	1
5 3 D.TOT1	337.062	18.772	282.000	394.000	112.000	0
7 4 D.POT1	21.555	4.529	9.000	34.000	25.000	0
9 5 D.URA1	15.142	4.058	5.000	35.000	30.000	0
11 6 D.THO	13.995	3.652	4.000	26.000	22.000	0
13 7 D.COS	82.805	9.063	57.000	115.000	58.000	0
15 8 U.TOT	26.517	5.139	13.000	43.000	30.000	0

LINE 100701
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 170

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	727.500	49.219	643.000	812.000	169.000	0
23 12 ALTITUDE	410.009	.043	410.000	410.200	.200	1
5 3 D.TOT1	337.724	19.183	284.000	388.000	104.000	0
7 4 D.POT1	22.412	5.095	11.000	41.000	30.000	0
9 5 D.URA1	15.253	3.812	7.000	25.000	18.000	0
11 6 D.THO	14.353	3.779	7.000	25.000	18.000	0
13 7 D.COS	82.565	9.943	59.000	113.000	54.000	0
15 8 U.TOT	27.859	5.239	15.000	42.000	27.000	0

LINE 100711
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 120

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	872.500	34.785	813.000	932.000	119.000	0
23 12 ALTITUDE	411.753	1.256	410.700	417.800	7.100	1
5 3 D.TOT1	262.083	15.695	226.000	294.000	68.000	0
7 4 D.POT1	18.975	4.174	10.000	28.000	18.000	0
9 5 D.URA1	12.617	3.776	4.000	22.000	18.000	0
11 6 D.THO	6.833	2.548	1.000	13.000	12.000	0
13 7 D.COS	25.042	5.294	14.000	43.000	29.000	0
15 8 U.TOT	19.642	4.674	7.000	32.000	25.000	0

LINE 100721
FLIGHT 4
TAPE 4
DATE 820811
NUMBER 107

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	986.000	31.032	933.000	1039.000	106.000	0
23 12 ALTITUDE	411.234	.305	410.400	412.400	2.000	1
5 3 D.TOT1	256.402	15.744	225.000	300.000	75.000	0
7 4 D.POT1	18.467	4.403	9.000	32.000	23.000	0
9 5 D.URA1	11.850	3.120	5.000	19.000	14.000	0
11 6 D.THO	6.822	2.460	2.000	13.000	11.000	0
13 7 D.COS	25.271	4.645	12.000	38.000	26.000	0
15 8 U.TOT	18.280	4.251	9.000	32.000	23.000	0

LINE 100731
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 110

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1094.500	31.898	1040.000	1149.000	109.000	0
23 12 ALTITUDE	411.171	.305	410.400	412.200	1.800	1
5 3 D.TOT1	254.927	15.245	224.000	295.000	71.000	0
7 4 D.POT1	19.145	4.368	10.000	31.000	21.000	0
9 5 D.DRA1	11.355	3.560	3.000	22.000	19.000	0
11 6 D.THO	7.236	2.682	1.000	13.000	12.000	0
13 7 D.COS	25.682	4.848	13.000	37.000	24.000	0
15 8 U.TOT	19.391	4.337	11.000	32.000	21.000	0

LINE 100741
 FLIGHT 4
 TAPE 4
 DATE 820811
 NUMBER 109

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1204.000	31.610	1150.000	1258.000	108.000	0
23 12 ALTITUDE	410.910	.301	410.200	411.700	1.500	1
5 3 D.TOT1	248.725	14.104	215.000	294.000	79.000	0
7 4 D.POT1	18.294	4.076	8.000	29.000	21.000	0
9 5 D.DRA1	11.743	3.494	5.000	24.000	19.000	0
11 6 D.THO	6.963	2.607	2.000	14.000	12.000	0
13 7 D.COS	26.183	5.354	15.000	38.000	23.000	0
15 8 U.TOT	18.982	4.170	11.000	31.000	20.000	0

DUBBO TEST:

RAW DATA

14/ 8/82

LINE 10301
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 1A8

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	303.500	54.415	210.000	397.000	187.000	0
23 12 ALTITUDE	32.387	3.770	23.200	38.900	15.700	0
5 3 D.TOT1	2291.612	1879.691	1281.000	10443.000	9162.000	0
7 4 D.POT1	155.128	92.312	80.000	538.000	458.000	0
9 5 D.URA1	73.074	61.287	32.000	363.000	331.000	0
11 6 D.THO	92.473	98.522	30.000	557.000	527.000	0

13 7 D.COS	20.096	6.520	9.000	52.000	43.000	0
15 8 D.TOT	97.000	65.395	40.000	372.000	328.000	0

LINE 10601
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 172

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	483.500	49.706	398.000	569.000	171.000	0
23 12 ALTITUDE	57.600	5.119	48.800	70.500	25.700	0
5 3 D.TOT1	1453.860	1081.119	1134.000	6240.000	5106.000	0
7 4 D.POT1	124.017	50.920	64.000	352.000	288.000	0
9 5 D.URA1	59.680	45.145	23.000	204.000	181.000	0
11 6 D.THO	70.750	54.801	26.000	307.000	279.000	0
13 7 D.COS	20.297	4.970	10.000	35.000	25.000	0
15 8 D.TOT	79.285	43.997	40.000	243.000	203.000	0

LINE 10401
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 172

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	655.500	49.796	570.000	741.000	171.000	0
23 12 ALTITUDE	74.620	7.767	42.300	86.400	44.100	0
5 3 D.TOT1	1712.971	1051.573	1066.000	5955.000	4889.000	0
7 4 D.POT1	114.151	53.713	62.000	350.000	288.000	0
9 5 D.WRA1	56.814	33.477	27.000	193.000	166.000	0
11 6 D.THO	66.169	52.941	25.000	291.000	266.000	0
13 7 D.COS	19.448	5.124	7.000	35.000	28.000	0
15 8 D.TOT	72.331	37.954	35.000	206.000	171.000	0

LINE 11001
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 169

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	824.000	48.930	742.000	910.000	168.000	0
23 12 ALTITUDE	99.812	6.139	88.100	114.100	26.000	0
5 3 D.TOT1	1529.870	846.737	915.000	4619.000	3704.000	0
7 4 D.POT1	100.065	44.874	53.000	259.000	206.000	0
9 5 D.WRA1	53.757	29.667	24.000	191.000	167.000	0
11 6 D.THO	58.503	42.851	24.000	226.000	202.000	0
13 7 D.COS	19.746	4.528	9.000	33.000	24.000	0
15 8 D.TOT	63.166	29.231	28.000	161.000	133.000	0

LINE 11201
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 165

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	993.000	47.776	911.000	1075.000	164.000	0
23	12 ALTITUDE	120.620	4.461	107.000	129.500	22.500	0
5	3 D.TOT1	1452.261	837.195	863.000	4363.000	3500.000	0
7	4 D.POT1	91.994	43.512	49.000	260.000	211.000	0
9	5 D.HRA1	51.618	28.467	20.000	155.000	135.000	0
11	6 D.THO	54.394	42.726	16.000	202.000	186.000	0
13	7 D.COS	19.636	4.753	7.000	36.000	29.000	0
15	8 D.TOT	59.885	29.818	26.000	163.000	137.000	0

LINE 11501
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 163

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	1157.000	47.198	1076.000	1238.000	162.000	0
23	12 ALTITUDE	150.144	1.226	145.000	151.800	6.800	0
5	3 D.TOT1	1216.129	621.054	716.000	3273.000	2557.000	0
7	4 D.POT1	76.061	33.108	37.000	178.000	141.000	0
9	5 D.HRA1	44.540	21.340	18.000	117.000	99.000	0
11	6 D.THO	43.890	33.344	12.000	170.000	158.000	0
13	7 D.COS	19.479	4.302	8.000	31.000	23.000	0
15	8 D.TOT	51.362	27.434	21.000	117.000	96.000	0

LINE 12001
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 158

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1317.500	45.755	1239.000	1396.000	157.000	0
23 12 ALTITUDE	197.113	4.970	184.800	207.800	23.000	0
5 3 D.TOT1	984.981	526.959	586.000	2526.000	1940.000	0
7 4 D.POT1	60.785	28.743	28.000	160.000	132.000	0
9 5 D.HRA1	38.044	19.672	13.000	100.000	87.000	0
11 6 D.THO	36.361	27.911	10.000	133.000	123.000	0
13 7 D.COS	20.525	4.400	9.000	36.000	27.000	0
15 8 D.TOT	38.633	16.008	18.000	97.000	79.000	0

LINE 13001
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 160

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1476.500	46.332	1397.000	1556.000	159.000	0
23 12 ALTITUDE	287.161	6.848	266.700	301.100	34.400	0
5 3 D.TOT1	674.950	331.814	412.000	1623.000	1211.000	0
7 4 D.POT1	41.319	18.720	20.000	106.000	86.000	0
9 5 D.HRA1	26.744	13.256	8.000	70.000	62.000	0
11 6 D.THO	24.475	17.609	5.000	76.000	71.000	0
13 7 D.COS	20.869	4.824	10.000	42.000	32.000	0
15 8 D.TOT	27.775	9.723	11.000	64.000	53.000	0

LINE 13002
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 174

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1643.500	50.374	1557.000	1730.000	173.000	0
23 12 ALTITUDE	284.242	6.364	268.400	299.500	31.100	0
5 3 D.TOT1	660.402	324.147	414.000	1634.000	1220.000	0
7 4 D.POT1	40.046	17.796	19.000	100.000	81.000	0
9 5 D.URA1	26.805	13.254	10.000	78.000	68.000	0
11 6 D.THO	25.253	14.270	6.000	88.000	82.000	0
13 7 D.COS	21.759	5.058	11.000	34.000	23.000	0

15 8 D.TOT	27.759	9.092	14.000	55.000	41.000	0
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LINE 12002
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 171

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1816.000	49.508	1731.000	1901.000	170.000	0
23 12 ALTITUDE	196.750	5.633	186.500	207.800	21.300	0
5 3 D.TOT1	999.702	590.058	573.000	2770.000	2197.000	0
7 4 D.POT1	60.889	32.298	28.000	160.000	132.000	0
9 5 D.URA1	39.251	20.971	15.000	109.000	94.000	0
11 6 D.THO	37.304	31.278	10.000	144.000	134.000	0
13 7 D.COS	20.240	4.333	9.000	33.000	24.000	0
15 8 D.TOT	38.374	15.070	16.000	86.000	70.000	0

LINE 11502
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 164

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	1983.500	47.487	1902.000	2065.000	163.000	0
23	12 ALTITUDE	150.625	1.157	146.400	153.700	7.300	0
5	3 D.TOT1	1269.951	767.286	695.000	3817.000	3122.000	0
7	4 D.POT1	77.159	40.170	32.000	215.000	183.000	0
9	5 D.HRA1	47.659	28.743	23.000	159.000	136.000	0
11	6 D.THO	47.530	38.689	14.000	181.000	167.000	0
13	7 D.COS	20.372	4.678	9.000	34.000	25.000	0
15	8 D.TOT	52.390	24.694	24.000	130.000	106.000	0

LINE 11202
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 165

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	2148.000	47.776	2066.000	2230.000	164.000	0
23	12 ALTITUDE	120.084	5.275	110.200	132.700	22.500	0
5	3 D.TOT1	1564.085	1007.393	454.000	5032.000	4178.000	0
7	4 D.POT1	99.527	53.653	50.000	286.000	236.000	0
9	5 D.HRA1	55.491	33.472	21.000	179.000	157.000	0
11	6 D.THO	59.406	50.983	20.000	242.000	222.000	0
13	7 D.COS	20.121	4.420	11.000	35.000	24.000	0
15	8 D.TOT	63.133	30.758	28.000	179.000	150.000	0

LINE 11002
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 176

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	2318.500	50.951	2231.000	2406.000	175.000	0
23	12 ALTITUDE	98.848	4.745	89.600	110.700	21.100	0
5	3 D.TOT1	1676.972	1124.676	949.000	5890.000	4941.000	0
7	4 D.POT1	107.335	56.993	50.000	330.000	280.000	0
9	5 D.HRA1	59.665	37.213	25.000	218.000	193.000	0
11	6 D.THO	64.398	59.669	17.000	315.000	298.000	0
13	7 D.COS	19.778	4.358	11.000	33.000	22.000	0
15	8 U.TOT	69.341	36.109	31.000	199.000	168.000	0

LINE 10802
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 170

		MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3	2 FID	2491.500	49.219	2407.000	2576.000	169.000	0
23	12 ALTITUDE	80.584	3.896	72.500	88.600	16.100	0
5	3 D.TOT1	1834.094	1293.530	1044.000	6865.000	5821.000	0
7	4 D.POT1	116.894	64.232	63.000	372.000	309.000	0
9	5 D.HRA1	62.741	42.273	27.000	239.000	212.000	0
11	6 D.THO	72.441	67.081	27.000	334.000	307.000	0
13	7 D.COS	20.518	5.061	9.000	42.000	33.000	0
15	8 U.TOT	76.694	41.110	38.000	224.000	186.000	0

LINE 10602

FLIGHT 1
TAPE 1
DATE 820714
NUMBER 171

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2662.000	49.508	2577.000	2747.000	170.000	0
23 12 ALTITUDE	60.589	4.582	51.900	68.800	16.900	0
5 3 D.TOT1	1916.579	1271.482	1158.000	7239.000	6081.000	0
7 4 D.POT1	126.485	64.020	66.000	389.000	323.000	0
9 5 D.URA1	64.889	41.468	32.000	249.000	217.000	0
11 6 D.THO	75.076	67.109	27.000	365.000	338.000	0
13 7 D.COS	19.924	4.906	9.000	35.000	26.000	0
15 8 D.TOT	83.047	48.366	37.000	273.000	236.000	0

LINE 10302
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 170

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2832.500	49.219	2748.000	2917.000	169.000	0
23 12 ALTITUDE	31.615	3.164	24.000	41.100	17.100	0
5 3 D.TOT1	2119.499	1284.418	1329.000	7742.000	6413.000	0
7 4 D.POT1	148.253	65.878	87.000	420.000	333.000	0
9 5 D.URA1	68.282	41.848	21.000	249.000	228.000	0
11 6 D.THO	83.618	64.657	37.000	393.000	356.000	0
13 7 D.COS	19.924	5.476	9.000	47.000	38.000	0
15 8 D.TOT	94.959	53.664	46.000	324.000	278.000	0

LINE 23001
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 139

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2987.000	40.270	2918.000	3056.000	138.000	0
23 12 ALTITUDE	280.085	15.272	242.200	301.100	58.900	0
5 3 D.TOT1	723.216	166.316	534.000	1129.000	595.000	0
7 4 D.POT1	46.978	12.617	27.000	91.000	64.000	0
9 5 D.URA1	29.230	7.379	15.000	51.000	36.000	0
11 6 D.THO	22.885	8.643	8.000	49.000	41.000	0
13 7 D.COS	22.324	4.522	12.000	32.000	20.000	0
15 8 U.TOT	31.712	6.449	16.000	51.000	35.000	0

LIVE 22001
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 137

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3125.000	39.693	3057.000	3193.000	136.000	0
23 12 ALTITUDE	219.511	13.280	189.700	250.400	60.700	0
5 3 D.TOT1	951.314	244.435	694.000	1591.000	897.000	0
7 4 D.POT1	64.664	16.481	35.000	103.000	68.000	0
9 5 D.URA1	36.080	9.082	15.000	61.000	46.000	0
11 6 D.THO	31.007	11.992	13.000	76.000	63.000	0
13 7 D.COS	20.920	4.279	11.000	32.000	21.000	0
15 8 U.TOT	38.964	7.416	17.000	57.000	40.000	0

LINE 21501
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 143

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3265.000	41.425	3194.000	3336.000	142.000	0
23 12 ALTITUDE	147.084	3.774	136.600	153.700	17.100	0
5 3 D.TOT1	1447.147	418.599	1011.000	2593.000	1582.000	0
7 4 D.POT1	104.993	26.378	64.000	194.000	130.000	0
9 5 D.URA1	50.629	15.918	22.000	102.000	80.000	0
11 6 D.THO	48.573	20.019	20.000	107.000	87.000	0
13 7 D.COS	20.350	4.180	11.000	34.000	23.000	0
15 8 H.TOT	53.154	10.975	31.000	82.000	51.000	0

LINE 21201
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 137

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3405.000	39.693	3337.000	3473.000	136.000	0
23 12 ALTITUDE	119.598	11.432	104.300	149.400	45.100	0
5 3 D.TOT1	1685.679	493.798	1090.000	3160.000	2070.000	0
7 4 D.POT1	122.102	31.764	68.000	224.000	156.000	0
9 5 D.URA1	55.401	19.393	24.000	119.000	95.000	0
11 6 D.THO	58.920	22.127	28.000	123.000	95.000	0
13 7 D.COS	20.460	4.726	7.000	32.000	25.000	0
15 8 H.TOT	61.847	12.934	41.000	100.000	59.000	0

LINE 21001
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 148

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3547.500	42.868	3474.000	3621.000	147.000	0
23 12 ALTITUDE	100.185	9.072	86.400	130.300	43.900	0
5 3 D.TOT1	1848.372	524.996	1153.000	3406.000	2253.000	0
7 4 D.POT1	138.230	32.793	80.000	256.000	176.000	0
9 5 D.URA1	58.892	20.026	27.000	129.000	102.000	0
11 6 D.THO	65.865	24.247	31.000	134.000	103.000	0
13 7 D.COS	19.926	4.731	9.000	32.000	23.000	0
15 8 U.TOT	66.095	12.491	39.000	101.000	62.000	0

LINE 20801
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 137

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3690.000	39.693	3622.000	3758.000	136.000	0
23 12 ALTITUDE	75.698	6.509	66.100	98.700	32.600	0
5 3 D.TOT1	2088.482	693.020	1231.000	4182.000	2951.000	0
7 4 D.POT1	161.482	45.086	96.000	324.000	228.000	0
9 5 D.URA1	65.818	24.420	30.000	142.000	112.000	0
11 6 D.THO	73.438	29.790	30.000	163.000	133.000	0
13 7 D.COS	20.234	4.378	7.000	30.000	23.000	0
15 8 U.TOT	75.394	17.562	43.000	119.000	76.000	0

LINE 20601
FLIGHT 1

TAPE 1
DATE 820714
NUMBER 141

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3829.000	40.847	3759.000	3899.000	140.000	0
23 12 ALTITUDE	64.420	7.084	53.600	85.400	31.800	0
5 3 D.TOT1	2200.631	679.543	1234.000	4208.000	2974.000	0
7 4 D.POT1	171.191	42.525	107.000	308.000	201.000	0
9 5 D.URA1	66.716	23.923	34.000	144.000	110.000	0
11 6 D.THO	78.312	30.992	32.000	166.000	134.000	0
13 7 D.COS	19.560	4.568	10.000	31.000	21.000	0
15 8 U.TOT	81.121	18.428	47.000	129.000	82.000	0

LINE 20301
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 150

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3974.500	43.445	3900.000	4049.000	149.000	0
23 12 ALTITUDE	56.666	7.445	25.200	62.900	37.700	0
5 3 D.TOT1	2621.633	905.112	1361.000	5440.000	4079.000	0
7 4 D.POT1	216.920	64.354	122.000	429.000	306.000	0
9 5 D.URA1	76.387	31.504	25.000	178.000	153.000	0
11 6 D.THO	94.047	38.851	41.000	214.000	173.000	0
13 7 D.COS	20.173	4.539	9.000	32.000	23.000	0
15 8 U.TOT	102.980	26.807	57.000	176.000	119.000	0

LINE 20302
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 157

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4128.000	45.466	4050.000	4206.000	156.000	0
23 12 ALTITUDE	36.177	6.215	27.600	58.700	31.100	0
5 3 D.TOT1	2599.490	944.645	1447.000	6016.000	4569.000	0
7 4 D.POT1	217.484	68.375	119.000	451.000	332.000	0
9 5 D.URA1	76.439	33.559	32.000	201.000	169.000	0
11 6 D.THO	94.408	41.359	34.000	259.000	225.000	0
13 7 D.COS	20.624	4.677	9.000	35.000	26.000	0
15 8 U.TOT	100.541	26.177	60.000	195.000	135.000	0

LINE 20602
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 151

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4282.000	43.734	4207.000	4357.000	150.000	0
23 12 ALTITUDE	57.590	6.162	45.000	75.900	30.900	0
5 3 D.TOT1	2334.596	464.451	1280.000	5365.000	4085.000	0
7 4 D.POT1	186.364	58.178	105.000	385.000	280.000	0
9 5 D.URA1	70.126	28.908	30.000	174.000	144.000	0
11 6 D.THO	83.119	36.312	35.000	203.000	168.000	0
13 7 D.COS	19.874	4.664	10.000	35.000	25.000	0
15 8 U.TOT	86.954	25.240	51.000	176.000	125.000	0

LINE 20802
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 156

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4435.500	45.177	4358.000	4513.000	155.000	0
23 12 ALTITUDE	74.429	5.767	59.700	85.400	25.700	0
5 3 D.TOT1	2132.737	781.260	1283.000	4762.000	3479.000	0
7 4 D.POT1	167.365	52.999	95.000	360.000	265.000	0
9 5 D.URA1	64.526	27.518	30.000	159.000	129.000	0
11 6 D.THO	75.109	34.274	31.000	200.000	169.000	0
13 7 D.COS	20.231	4.559	8.000	37.000	29.000	0
15 8 U.TOT	76.436	22.369	45.000	145.000	100.000	0

LINE 21002
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 153

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4590.000	44.311	4514.000	4666.000	152.000	0
23 12 ALTITUDE	96.316	5.085	86.700	110.400	23.700	0
5 3 D.TOT1	1954.540	694.530	1117.000	3925.000	2808.000	0
7 4 D.POT1	148.529	45.542	90.000	301.000	211.000	0
9 5 D.URA1	60.471	22.823	24.000	127.000	103.000	0
11 6 D.THO	69.588	28.808	25.000	160.000	135.000	0
13 7 D.COS	20.582	4.598	8.000	32.000	24.000	0
15 8 U.TOT	68.209	18.821	39.000	118.000	79.000	0

LINE 21202
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 141

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4737.000	40.847	4667.000	4807.000	140.000	0
23 12 ALTITUDE	119.211	4.895	109.000	132.200	23.200	0
5 3 D.TOT1	1672.461	506.650	1093.000	2986.000	1893.000	0
7 4 D.POT1	124.007	31.477	74.000	212.000	138.000	0
9 5 D.URA1	53.255	18.480	26.000	105.000	79.000	0
11 6 D.THO	58.475	22.659	28.000	131.000	103.000	0
13 7 D.COS	20.213	5.054	8.000	36.000	28.000	0
15 8 U.TOT	60.950	14.359	33.000	98.000	65.000	0

LINE 21502
 FLIGHT 1
 TAPE 1
 DATE 820714
 NUMBER 158

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4886.500	45.755	4808.000	4965.000	157.000	0
23 12 ALTITUDE	147.268	3.641	134.900	151.800	16.700	0
5 3 D.TOT1	1392.278	392.501	971.000	2505.000	1534.000	0
7 4 D.POT1	102.614	27.075	58.000	207.000	149.000	0
9 5 D.URA1	46.886	13.264	25.000	84.000	59.000	0
11 6 D.THO	47.956	18.175	15.000	103.000	88.000	0
13 7 D.COS	19.652	4.177	7.000	30.000	23.000	0
15 8 U.TOT	50.633	10.383	27.000	79.000	52.000	0

LINE 22002
FLIGHT 1
TAPE 1

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DATE 820714
NUMBER 162

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5046.500	46.909	4966.000	5127.000	161.000	0
23 12 ALTITUDE	222.784	12.336	199.600	261.800	62.200	0
5 3 D.TOT1	897.574	161.256	687.000	1358.000	671.000	0
7 4 D.POT1	60.414	12.460	36.000	102.000	66.000	0
9 5 D.URA1	34.012	7.761	17.000	62.000	45.000	0
11 6 D.THO	29.673	8.795	15.000	60.000	45.000	0
13 7 D.COS	21.228	5.002	9.000	37.000	28.000	0
15 8 U.TOT	38.525	6.819	24.000	61.000	37.000	0

LINE 23002
FLIGHT 1
TAPE 1
DATE 820714
NUMBER 159

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5207.000	46.043	5128.000	5286.000	158.000	0
23 12 ALTITUDE	279.763	12.444	256.900	311.000	54.100	0
5 3 D.TOT1	727.094	111.057	578.000	1054.000	476.000	0
7 4 D.POT1	47.899	8.488	28.000	71.000	43.000	0
9 5 D.URA1	28.579	7.174	14.000	52.000	38.000	0
11 6 D.THO	22.528	6.398	9.000	43.000	34.000	0
13 7 D.COS	21.346	4.840	12.000	41.000	29.000	0
15 8 U.TOT	34.226	6.725	17.000	57.000	40.000	0

DUBBO TEST:

REDUCED DATA

14/ 8/82

Line 10301
Flight 1
Tape 1
Date 820714
Number 188

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	303.500	54.415	210.000	397.000	187.000	0
89 45 Temp	15.858	.557	14.400	17.300	2.900	0
91 46 Alt	32.387	3.770	23.200	38.900	15.700	0
93 47 Pres	987.617	.926	986.000	989.000	3.000	0
129 65 Tot	11.027	12.688	4.987	68.685	63.698	0
131 66 Pot	.878	.445	.176	2.389	2.213	0
133 67 Ura	2.870	3.852	-.377	23.214	23.591	0
135 68 Tho	14.540	19.116	3.865	108.607	104.742	0
137 69 Ura air	1.924	.355	1.369	2.696	1.327	0

Line 10601
Flight 1
Tape 1
Date 820714
Number 172

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	483.500	49.796	398.000	569.000	171.000	0
89 45 Temp	16.264	.455	15.400	17.500	2.100	0
91 46 Alt	57.600	5.119	44.800	70.500	25.700	0
93 47 Pres	984.250	.434	984.000	985.000	1.000	0
129 65 Tot	9.366	7.620	4.197	41.962	37.765	0
131 66 Pot	.807	.371	.234	2.097	1.862	0
133 67 Ura	2.191	2.178	-1.115	11.432	12.547	0
135 68 Tho	12.360	11.725	4.084	63.989	59.905	0
137 69 Ura air	2.213	.895	1.182	3.710	2.529	0

Line 10801
Flight 1
Tape 1
Date 820714
Number 172

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	655.500	49.796	570.000	741.000	171.000	0
89 45 Temp	16.216	.479	15.200	16.900	1.700	0
91 46 Alt	74.620	7.767	42.300	86.400	44.100	0
93 47 Pres	984.058	.235	984.000	985.000	1.000	0
129 65 Tot	9.776	8.095	4.674	44.223	39.549	0
131 66 Pot	.798	.383	.278	2.532	2.254	0
133 67 Ura	2.410	2.288	-.375	12.710	13.085	0
135 68 Tho	12.847	12.076	3.705	66.040	62.337	0
137 69 Ura air	2.025	.750	1.206	3.444	2.237	0

Line 11001
Flight 1
Tape 1
Date 820714
Number 169

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	826.000	48.930	742.000	910.000	168.000	0
89 45 Temp	16.067	.481	15.100	16.900	1.800	0
91 46 Alt	99.812	6.139	88.100	114.100	26.000	0
93 47 Pres	981.000	.218	980.000	983.000	3.000	0
129 65 Tot	10.158	8.034	4.263	41.766	37.503	0
131 66 Pot	.757	.391	.107	2.215	2.108	0
133 67 Ura	2.850	2.718	-1.380	17.865	19.246	0
135 68 Tho	13.315	11.968	4.727	62.155	57.429	0
137 69 Ura air	1.920	.610	1.171	2.981	1.810	0

Line 11201
Flight 1
Tape 1
Date 820714
Number 165

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	993.000	47.776	911.000	1075.000	164.000	0
89 45 Temp	15.923	.467	15.000	16.700	1.700	0
91 46 Alt	120.620	4.461	107.000	129.500	22.500	0
93 47 Pres	978.000	.000	978.000	978.000	.000	0
129 65 Tot	10.545	8.286	3.991	40.954	36.963	0
131 66 Pot	.745	.382	.122	2.274	2.151	0
133 67 Ura	2.845	2.698	-.897	13.974	14.871	0
135 68 Tho	13.866	12.569	2.666	59.206	56.540	0
137 69 Ura air	2.106	.731	1.298	3.305	2.008	0

Line 11501
Flight 1
Tape 1
Date 820714
Number 163

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1157.000	47.198	1076.000	1238.000	162.000	0
89 45 Temp	15.894	.526	14.900	17.900	3.000	0
91 46 Alt	150.144	1.326	145.000	151.800	6.800	0
93 47 Pres	975.000	.000	975.000	975.000	.000	0
129 65 Tot	10.009	7.676	4.319	36.523	32.204	0
131 66 Pot	.695	.407	-.142	1.907	2.049	0
133 67 Ura	2.601	2.529	-2.602	12.011	14.613	0
135 68 Tho	13.294	12.184	1.688	59.844	58.156	0
137 69 Ura air	2.092	.447	1.559	2.857	1.298	0

Line 12001
Flight 1
Tape 1
Date 820714
Number 158

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1317.500	45.755	1239.000	1396.000	157.000	0
89 45 Temp	16.716	.536	15.500	17.600	2.100	0
91 46 Alt	197.113	4.970	184.800	207.800	23.000	0
93 47 Pres	967.057	.233	967.000	968.000	1.000	0
129 65 Tot	11.475	8.761	4.058	37.817	33.759	0
131 66 Pot	.633	.465	-.175	2.922	3.097	0
133 67 Ura	4.006	3.275	-2.326	15.180	17.506	0
135 68 Tho	14.369	13.656	1.524	62.370	60.846	0
137 69 Ura air	1.203	.481	.587	1.903	1.317	0

Line 13001
Flight 1
Tape 1
Date 820714
Number 160

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1476.500	46.332	1397.000	1556.000	159.000	0
89 45 Temp	16.617	.449	15.500	17.500	2.000	0
91 46 Alt	287.161	6.848	266.700	301.100	34.400	0
93 47 Pres	957.006	.079	957.000	958.000	1.000	0
129 65 Tot	12.759	9.747	3.913	40.365	36.452	0
131 66 Pot	.611	.599	-.691	3.058	3.749	0
133 67 Ura	4.666	4.497	-3.556	20.222	23.778	0
135 68 Tho	15.457	14.687	-1.228	57.672	58.900	0
137 69 Ura air	.724	.190	.423	1.038	.615	0

Line 13002
Flight 1
Tape 1
Date 820714
Number 174

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1643.500	50.374	1557.000	1730.000	173.000	0
89 45 Temp	16.608	.455	15.700	17.700	2.000	0
91 46 Alt	284.242	6.364	268.400	299.500	31.100	0
93 47 Pres	956.000	.000	956.000	956.000	.000	0
129 65 Tot	11.955	9.662	4.216	41.777	37.561	0
131 66 Pot	.500	.576	-.641	2.802	3.442	0
133 67 Ura	4.405	4.571	-3.717	23.801	27.517	0
135 68 Tho	15.795	15.185	-.923	68.251	69.174	0
137 69 Ura air	.749	.109	.518	.977	.459	0

Line 12002
Flight 1
Tape 1
Date 820714
Number 171

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1816.000	49.508	1731.000	1901.000	170.000	0
89 45 Temp	16.653	.521	15.600	19.400	3.800	0
91 46 Alt	196.750	5.633	186.500	207.800	21.300	0
93 47 Pres	966.614	.488	966.000	967.000	1.000	0
129 65 Tot	12.034	10.562	4.876	44.275	39.399	0
131 66 Pot	.590	.488	-.479	2.519	2.998	0
133 67 Ura	4.549	3.995	-2.018	19.063	21.081	0
135 68 Tho	14.887	15.469	1.329	68.729	67.400	0
137 69 Ura air	1.081	.163	.816	1.372	.557	0

Line 11502
Flight 1
Tape 1
Date 820714
Number 164

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	1983.500	47.487	1902.000	2065.000	163.000	0
89 45 Temp	16.476	.459	15.500	17.300	1.800	0
91 46 Alt	150.625	1.157	146.400	153.700	7.300	0
93 47 Pres	975.079	.271	975.000	976.000	1.000	0
129 65 Tot	10.924	9.816	3.382	44.606	41.224	0
131 66 Pot	.636	.389	-.210	1.929	2.139	0
133 67 Ura	3.240	3.840	-1.140	21.427	22.567	0
135 68 Tho	14.654	14.276	1.610	64.905	63.295	0
137 69 Ura air	1.990	.362	1.575	2.649	1.074	0

Line 11202
Flight 1
Tape 1
Date 820714
Number 165

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2148.000	47.776	2066.000	2230.000	164.000	0
89 45 Temp	16.764	.494	15.800	17.800	2.000	0
91 46 Alt	120.084	5.275	110.200	132.700	22.500	0
93 47 Pres	977.170	.377	977.000	978.000	1.000	0
129 65 Tot	11.893	10.993	5.207	51.137	45.931	0
131 66 Pot	.825	.493	.063	2.491	2.428	0
133 67 Ura	3.355	3.502	-1.500	17.657	19.157	0
135 68 Tho	15.542	15.910	3.656	75.874	72.219	0
137 69 Ura air	2.082	.392	1.545	2.736	1.191	0

Line 11002
Flight 1
Tape 1
Date 820714
Number 176

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2318.500	50.951	2231.000	2406.000	175.000	0
89 45 Temp	17.119	.511	16.100	19.000	2.900	0
91 46 Alt	98.848	4.745	89.600	110.700	21.100	0
93 47 Pres	981.006	.293	980.000	982.000	2.000	0
129 65 Tot	11.213	10.610	4.922	52.612	47.691	0
131 66 Pot	.777	.418	.032	2.727	2.695	0
133 67 Ura	3.245	3.194	-.950	17.657	18.607	0
135 68 Tho	14.784	16.239	2.481	84.724	82.243	0
137 69 Ura air	2.164	.461	1.636	2.982	1.346	0

Line 10802
Flight 1
Tape 1
Date 820714
Number 170

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2491.500	49.219	2407.000	2576.000	169.000	0
89 45 Temp	17.347	.515	16.300	19.000	2.700	0
91 46 Alt	80.584	3.896	72.500	88.600	16.100	0
93 47 Pres	984.000	.000	984.000	984.000	.000	0
129 65 Tot	11.126	10.990	4.911	55.672	50.761	0
131 66 Pot	.777	.410	.033	2.443	2.410	0
133 67 Ura	2.968	3.314	-.262	18.193	18.455	0
135 68 Tho	14.935	16.379	4.302	79.804	75.502	0
137 69 Ura air	2.188	.363	1.699	2.932	1.233	0

Line 10602
Flight 1
Tape 1
Date 820714
Number 171

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2662.000	49.508	2577.000	2747.000	170.000	0
89 45 Temp	17.720	.491	16.500	18.600	2.100	0
91 46 Alt	60.589	4.582	51.900	68.800	16.900	0
93 47 Pres	985.000	.000	985.000	985.000	.000	0
129 65 Tot	10.072	9.202	4.685	50.544	45.859	0
131 66 Pot	.783	.386	.187	2.319	2.132	0
133 67 Ura	2.635	2.702	-.161	16.801	16.962	0
135 68 Tho	13.487	14.203	3.637	76.961	73.324	0
137 69 Ura air	2.320	.647	1.662	3.507	1.845	0

Line 10302
Flight 1
Tape 1
Date 820714
Number 170

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2832.500	49.219	2748.000	2917.000	169.000	0
89 45 Temp	18.114	.490	17.100	19.100	2.000	0
91 46 Alt	31.615	3.164	24.000	41.100	17.100	0
93 47 Pres	987.971	.479	987.000	989.000	2.000	0
129 65 Tot	9.343	7.947	4.571	46.432	41.861	0
131 66 Pot	.851	.374	.321	2.190	1.869	0
133 67 Ura	2.210	2.366	-1.377	12.844	14.221	0
135 68 Tho	12.531	11.865	4.482	70.973	66.491	0
137 69 Ura air	2.424	.911	1.553	3.951	2.398	0

Line 23001
Flight 1
Tape 1
Date 820714
Number 139

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	2987.000	40.270	2918.000	3056.000	138.000	0
89 45 Temp	16.059	.516	14.800	17.200	2.400	0
91 46 Alt	280.085	15.272	242.200	301.100	58.900	0
93 47 Pres	952.827	.576	952.000	954.000	2.000	0
129 65 Tot	11.917	4.196	7.034	21.233	14.199	0
131 66 Pot	.830	.567	-.403	2.353	2.756	0
133 67 Ura	4.497	3.136	-2.489	14.744	17.233	0
135 68 Tho	13.033	6.507	.578	32.233	31.655	0
137 69 Ura air	1.141	.106	.964	1.328	.364	0

Line 22001
Flight 1
Tape 1
Date 820714
Number 137

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3125.000	39.693	3057.000	3193.000	136.000	0
89 45 Temp	16.503	.538	15.300	18.100	2.800	0
91 46 Alt	219.511	13.280	189.700	250.400	60.700	0
93 47 Pres	959.876	1.396	957.000	961.000	4.000	0
129 65 Tot	11.983	4.788	6.510	22.103	15.593	0
131 66 Pot	1.016	.466	-.135	2.520	2.655	0
133 67 Ura	3.969	2.573	-2.481	10.368	12.849	0
135 68 Tho	13.399	6.258	3.302	33.718	30.416	0
137 69 Ura air	1.412	.145	1.124	1.664	.540	0

Line 21501
Flight 1
Tape 1
Date 820714
Number 143

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3265.000	41.425	3194.000	3336.000	142.000	0
89 45 Temp	17.367	.557	16.300	18.900	2.600	0
91 46 Alt	147.084	3.774	136.600	153.700	17.100	0
93 47 Pres	970.699	2.467	967.000	973.000	6.000	0
129 65 Tot	13.657	5.501	7.798	27.871	20.073	0
131 66 Pot	1.293	.417	.616	2.629	2.013	0
133 67 Ura	4.644	2.806	-1.147	13.881	15.028	0
135 68 Tho	14.385	6.963	4.365	33.894	29.529	0
137 69 Ura air	1.311	.290	.802	1.670	.868	0

Line 21201
Flight 1
Tape 1
Date 820714
Number 137

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3405.000	39.693	3337.000	3473.000	136.000	0
89 45 Temp	17.757	.538	16.600	18.800	2.200	0
91 46 Alt	119.598	11.432	104.300	149.400	45.100	0
93 47 Pres	974.321	2.955	969.000	977.000	8.000	0
129 65 Tot	13.767	5.719	7.316	28.465	21.149	0
131 66 Pot	1.321	.416	.491	2.369	1.878	0
133 67 Ura	4.134	2.793	-.681	12.192	12.873	0
135 68 Tho	15.167	7.021	5.639	35.732	30.093	0
137 69 Ura air	1.419	.119	1.161	1.669	.508	0

Line 21001
Flight 1
Tape 1
Date 820714
Number 148

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3547.500	42.868	3474.000	3621.000	147.000	0
89 45 Temp	18.049	.521	16.900	19.000	2.100	0
91 46 Alt	100.185	9.072	86.400	130.300	43.900	0
93 47 Pres	977.182	3.048	972.000	981.000	9.000	0
129 65 Tot	13.911	5.689	7.401	29.298	21.897	0
131 66 Pot	1.396	.428	.598	2.708	2.110	0
133 67 Ura	4.210	2.609	-.506	13.271	13.778	0
135 68 Tho	15.154	6.970	5.821	33.526	27.705	0
137 69 Ura air	1.088	.212	.753	1.376	.623	0

Line 20801
Flight 1
Tape 1
Date 820714
Number 137

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3690.000	39.693	3622.000	3758.000	136.000	0
89 45 Temp	18.384	.543	17.200	20.600	3.400	0
91 46 Alt	75.698	6.509	66.100	98.700	32.600	0
93 47 Pres	979.343	2.539	976.000	983.000	7.000	0
129 65 Tot	13.643	5.869	7.259	30.296	23.037	0
131 66 Pot	1.442	.465	.476	3.131	2.655	0
133 67 Ura	4.316	2.474	.746	11.978	11.232	0
135 68 Tho	14.412	6.950	4.724	34.288	29.564	0
137 69 Ura air	.927	.297	.504	1.504	1.000	0

Line 20601
Flight 1
Tape 1
Date 820714
Number 141

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3829.000	40.847	3759.000	3899.000	140.000	0
89 45 Temp	18.457	.509	17.500	19.400	1.900	0
91 46 Alt	64.420	7.084	53.600	85.400	31.800	0
93 47 Pres	980.482	2.618	975.000	983.000	8.000	0
129 65 Tot	13.347	5.621	6.645	30.396	23.751	0
131 66 Pot	1.462	.431	.845	2.785	1.940	0
133 67 Ura	3.845	2.285	-.073	12.227	12.300	0
135 68 Tho	14.408	6.964	5.020	34.928	29.908	0
137 69 Ura air	1.066	.401	.555	1.887	1.332	0

Line 20301
Flight 1
Tape 1
Date 820714
Number 150

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	3974.500	43.445	3900.000	4049.000	149.000	0
89 45 Temp	18.998	.546	17.800	20.100	2.300	0
91 46 Alt	36.666	7.445	25.200	62.900	37.700	0
93 47 Pres	984.053	2.887	979.000	987.000	8.000	0
129 65 Tot	13.228	6.005	6.006	32.800	26.794	0
131 66 Pot	1.650	.588	.736	3.573	2.837	0
133 67 Ura	3.474	2.378	.082	12.618	12.536	0
135 68 Tho	14.609	7.265	5.522	38.459	32.937	0
137 69 Ura air	1.444	.461	.743	2.343	1.600	0

Line 20302
Flight 1
Tape 1
Date 820714
Number 157

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4128.000	45.466	4050.000	4206.000	156.000	0
89 45 Temp	18.942	.556	17.700	19.800	2.100	0
91 46 Alt	36.177	6.215	27.600	58.700	31.100	0
93 47 Pres	984.191	2.590	980.000	987.000	7.000	0
129 65 Tot	13.212	5.951	6.455	34.388	27.933	0
131 66 Pot	1.642	.581	.816	3.553	2.737	0
133 67 Ura	3.669	2.443	.597	12.667	12.070	0
135 68 Tho	14.548	7.391	4.363	43.507	39.144	0
137 69 Ura air	1.087	.311	.595	1.748	1.153	0

Line 20602
Flight 1
Tape 1
Date 820714
Number 151

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4282.000	43.734	4207.000	4357.000	150.000	0
89 45 Temp	18.818	.512	17.500	20.200	2.700	0
91 46 Alt	57.590	6.162	45.000	75.900	30.900	0
93 47 Pres	981.358	1.722	978.000	983.000	5.000	0
129 65 Tot	13.509	5.823	6.372	33.162	26.789	0
131 66 Pot	1.554	.531	.699	3.287	2.587	0
133 67 Ura	3.880	2.251	.495	12.656	12.161	0
135 68 Tho	14.537	7.095	5.151	36.856	31.705	0
137 69 Ura air	1.036	.354	.544	1.651	1.107	0

Line 20802
Flight 1
Tape 1
Date 820714
Number 156

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4435.500	45.177	4358.000	4513.000	155.000	0
89 45 Temp	18.362	.548	17.200	20.100	2.900	0
91 46 Alt	74.429	5.767	59.700	85.400	25.700	0
93 47 Pres	979.205	2.018	977.000	982.000	5.000	0
129 65 Tot	13.758	5.712	7.429	32.196	24.767	0
131 66 Pot	1.533	.518	.672	3.147	2.475	0
133 67 Ura	4.052	2.402	.299	11.563	11.264	0
135 68 Tho	14.479	7.176	4.857	39.545	34.688	0
137 69 Ura air	.845	.172	.605	1.186	.580	0

Line 21002
Flight 1
Tape 1
Date 820714
Number 153

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4590.000	44.311	4514.000	4666.000	152.000	0
89 45 Temp	18.409	.543	17.300	19.400	2.100	0
91 46 Alt	96.316	5.085	86.700	110.400	23.700	0
93 47 Pres	976.948	1.929	974.000	979.000	5.000	0
129 65 Tot	14.547	6.339	7.431	31.172	23.741	0
131 66 Pot	1.518	.542	.482	3.331	2.848	0
133 67 Ura	4.341	2.503	.191	11.960	11.769	0
135 68 Tho	15.515	7.318	4.503	37.184	32.681	0
137 69 Ura air	.867	.106	.645	1.081	.435	0

Line 21202
Flight 1
Tape 1
Date 820714
Number 141

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4737.000	40.847	4667.000	4807.000	140.000	0
89 45 Temp	18.536	.559	17.200	19.500	2.300	0
91 46 Alt	119.211	4.895	109.000	132.200	23.200	0
93 47 Pres	973.695	1.373	972.000	976.000	4.000	0
129 65 Tot	13.560	5.386	7.318	27.303	19.985	0
131 66 Pot	1.400	.422	.629	2.573	1.944	0
133 67 Ura	3.798	2.366	-.153	11.307	11.460	0
135 68 Tho	14.862	6.756	6.608	36.917	30.309	0
137 69 Ura air	1.335	.126	1.129	1.597	.468	0

Line 21502
Flight 1
Tape 1
Date 820714
Number 158

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	4886.500	45.755	4808.000	4965.000	157.000	0
89 45 Temp	18.098	.531	17.000	19.000	2.000	0
91 46 Alt	147.268	3.641	134.900	151.600	16.700	0
93 47 Pres	971.842	2.648	969.000	976.000	7.000	0
129 65 Tot	13.213	4.833	7.979	26.723	18.743	0
131 66 Pot	1.314	.458	.310	3.174	2.863	0
133 67 Ura	4.137	2.079	-.288	10.253	10.541	0
135 68 Tho	14.191	6.155	2.596	31.905	29.309	0
137 69 Ura air	1.119	.168	.893	1.500	.607	0

Line 22002
Flight 1
Tape 1
Date 820714
Number 162

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	5046.500	46.909	4966.000	5127.000	161.000	0
89 45 Temp	17.041	.570	15.700	18.200	2.500	0
91 46 Alt	222.784	12.336	199.600	261.800	62.200	0
93 47 Pres	960.148	2.557	956.000	963.000	7.000	0
129 65 Tot	10.875	3.702	6.524	19.891	13.367	0
131 66 Pot	.938	.490	-.406	2.506	2.912	0
133 67 Ura	3.112	2.448	-3.246	9.663	12.909	0
135 68 Tho	13.135	5.374	3.882	28.799	24.917	0
137 69 Ura air	1.578	.094	1.395	1.739	.344	0

Line 23002
Flight 1
Tape 1
Date 820714
Number 159

	Mean	Stand dev	Minimum	Maximum	Range	Und
3 2 Fid	5207.000	46.043	5128.000	5286.000	158.000	0
89 45 Temp	16.672	.550	15.300	17.700	2.400	0
91 46 Alt	279.763	12.444	256.900	311.000	54.100	0
93 47 Pres	952.774	1.432	950.000	955.000	5.000	0
129 65 Tot	10.592	3.203	5.928	19.500	13.572	0
131 66 Pot	.940	.520	-1.007	2.216	3.224	0
133 67 Ura	2.685	3.435	-4.699	11.997	16.696	0
135 68 Tho	13.048	5.271	2.142	29.727	27.584	0
137 69 Ura air	1.595	.077	1.409	1.764	.355	0

JABIRU TEST:

RAW DATA

10/ 9/82

LINE 502
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 246

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	827.500	71.158	705.000	950.000	245.000	0
23 12 ALTITUDE	33.762	2.323	26.200	39.400	13.200	0
5 3 D.TOT1	1253.000	363.948	465.000	1989.000	1524.000	0
7 4 D.POT1	59.752	18.966	27.000	176.000	149.000	0
9 5 D.URA1	42.805	13.054	13.000	81.000	68.000	0
11 6 D.THO	57.264	24.524	15.000	112.000	97.000	0
13 7 D.COS	14.695	3.971	4.000	26.000	22.000	0
15 8 U.TOT	44.171	12.210	17.000	75.000	58.000	0

LINE 501
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 425

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1172.000	122.831	960.000	1384.000	424.000	0
23 12 ALTITUDE	30.276	2.270	24.400	34.500	10.100	0
5 3 D.TOT1	218.179	15.169	176.000	266.000	90.000	0
7 4 D.POT1	15.445	3.972	6.000	30.000	24.000	0
9 5 D.URA1	9.638	3.084	2.000	18.000	16.000	0
11 6 D.THO	5.202	2.289	.000	13.000	13.000	0
13 7 D.COS	13.715	3.887	4.000	26.000	22.000	0
15 8 U.TOT	16.040	4.035	7.000	28.000	21.000	0

LINE 511
FLIGHT 30
TAPE 56
DATE 820910
NUMRER 516

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	1642.500	149.101	1385.000	1900.000	515.000	0
23 12 ALTITUDE	56.965	3.636	47.200	65.400	18.200	0
5 3 D.TOT1	226.593	15.702	175.000	283.000	108.000	0
7 4 D.POT1	15.401	3.927	4.000	27.000	23.000	0
9 5 D.URA1	10.190	3.239	1.000	22.000	21.000	0
11 6 D.THO	5.264	2.331	.000	15.000	15.000	0
13 7 D.COS	14.045	3.522	4.000	27.000	23.000	0

15 8 D.TOT	15.855	3.803	4.000	31.000	27.000	0
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LINE 512
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 265

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2040.000	76.643	1908.000	2172.000	264.000	0
23 12 ALTITUDE	55.646	2.508	48.900	63.200	14.300	0
5 3 D.TOT1	1034.902	296.810	375.000	1727.000	1352.000	0
7 4 D.POT1	50.891	13.524	22.000	112.000	90.000	0
9 5 D.URA1	35.453	11.444	12.000	69.000	57.000	0
11 6 D.THO	46.525	20.344	10.000	102.000	92.000	0
13 7 D.COS	14.487	3.929	5.000	28.000	23.000	0
15 8 D.TOT	34.045	9.871	16.000	66.000	50.000	0

LINE 522
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 233

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2298.000	67.405	2182.000	2414.000	232.000	0
23 12 ALTITUDE	77.406	4.235	68.100	86.700	18.600	0
5 3 D.TOT1	959.854	243.393	390.000	1551.000	1161.000	0
7 4 D.POT1	46.000	10.749	15.000	75.000	60.000	0
9 5 D.URA1	34.914	9.493	10.000	59.000	49.000	0
11 6 D.THO	42.665	17.316	6.000	91.000	85.000	0
13 7 D.COS	14.438	3.756	6.000	35.000	29.000	0
15 8 D.TOT	34.717	8.395	15.000	57.000	42.000	0

LINE 521
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 431

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	2645.000	124.563	2430.000	2860.000	430.000	0
23 12 ALTITUDE	72.689	4.789	60.500	81.300	20.800	0
5 3 D.TOT1	234.299	15.600	185.000	290.000	105.000	0
7 4 D.POT1	15.415	5.841	5.000	25.000	20.000	0
9 5 D.URA1	10.543	3.397	2.000	21.000	19.000	0
11 6 D.THO	5.234	2.254	.000	12.000	12.000	0
13 7 D.COS	13.470	3.598	4.000	25.000	21.000	0
15 8 D.TOT	16.543	3.825	7.000	29.000	22.000	0

LINE 531
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 620

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3170.500	179.123	2861.000	3480.000	619.000	0
23 12 ALTITUDE	97.290	5.800	75.600	110.700	35.100	0
5 3 D.TOT1	241.000	15.806	195.000	301.000	106.000	0
7 4 D.POT1	15.490	4.149	6.000	33.000	27.000	0
9 5 D.URA1	11.185	3.445	3.000	21.000	18.000	0
11 6 D.THO	5.340	2.196	.000	13.000	13.000	0
13 7 D.COS	14.227	3.819	5.000	28.000	23.000	0
15 8 U.TOT	17.184	4.247	5.000	31.000	26.000	0

LINE 532
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 291

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3643.000	84.149	3498.000	3788.000	290.000	0
23 12 ALTITUDE	95.380	2.988	87.400	101.600	14.200	0
5 3 D.TOT1	879.337	229.350	368.000	1468.000	1100.000	0
7 4 D.POT1	42.911	10.920	16.000	79.000	63.000	0
9 5 D.URA1	32.079	9.231	9.000	59.000	50.000	0
11 6 D.THO	37.656	15.937	7.000	91.000	84.000	0
13 7 D.COS	14.766	4.083	4.000	28.000	24.000	0
15 8 U.TOT	33.577	7.863	16.000	56.000	40.000	0

LINE 542

FLIGHT 30
TAPE 56
DATE 820910
NUMBER 243

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	3931.000	70.292	3810.000	4052.000	242.000	0
23 12 ALTITUDE	119.072	2.895	113.100	125.400	12.300	0
5 3 D.TOT1	814.263	200.860	359.000	1249.000	890.000	0
7 4 D.POT1	40.000	8.673	19.000	65.000	46.000	0
9 5 D.URA1	30.428	8.354	12.000	62.000	50.000	0
11 6 D.THO	34.683	13.933	11.000	74.000	63.000	0
13 7 D.COS	14.765	3.728	4.000	25.000	21.000	0
15 8 D.TOT	31.572	7.286	16.000	55.000	39.000	0

LINE 541
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 392

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4265.500	113.305	4070.000	4461.000	391.000	0
23 12 ALTITUDE	118.632	6.241	102.800	127.600	24.800	0
5 3 D.TOT1	252.204	16.416	208.000	304.000	96.000	0
7 4 D.POT1	16.156	4.077	7.000	28.000	21.000	0
9 5 D.URA1	11.901	3.505	2.000	24.000	22.000	0
11 6 D.THO	5.459	2.317	.000	13.000	13.000	0
13 7 D.COS	14.844	3.966	1.000	28.000	27.000	0
15 8 D.TOT	18.000	4.273	7.000	31.000	24.000	0

LINE 551
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 619

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	4771.000	178.834	4462.000	5080.000	618.000	0
23 12 ALTITUDE	149.063	1.747	142.500	151.300	8.800	0
5 3 D.TOT1	258.622	17.076	215.000	311.000	96.000	0
7 4 D.POT1	16.157	3.898	3.000	27.000	24.000	0
9 5 D.URA1	12.218	3.503	3.000	25.000	22.000	0
11 6 D.THO	5.365	2.367	.000	14.000	14.000	0
13 7 D.COS	14.687	3.655	4.000	26.000	22.000	0
15 8 U.TOT	18.147	4.251	7.000	32.000	25.000	0

LINE 552
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 277

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5232.000	80.107	5094.000	5370.000	276.000	0
23 12 ALTITUDE	148.546	1.891	143.300	151.100	7.800	0
5 3 D.TOT1	709.466	145.049	378.000	1031.000	653.000	0
7 4 D.POT1	55.329	8.054	16.000	58.000	42.000	0
9 5 D.URA1	27.249	7.337	9.000	53.000	44.000	0
11 6 D.THO	29.000	11.018	7.000	61.000	54.000	0
13 7 D.COS	14.606	3.687	5.000	24.000	19.000	0
15 8 U.TOT	28.801	6.304	14.000	54.000	40.000	0

LINE 562
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 233

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5516.000	67.405	5400.000	5632.000	232.000	0
23 12 ALTITUDE	192.163	6.778	179.900	211.000	31.100	0
5 3 D.TOT1	591.644	95.417	409.000	838.000	429.000	0
7 4 D.POT1	31.047	6.458	15.000	48.000	33.000	0
9 5 D.URA1	24.476	6.282	11.000	44.000	33.000	0
11 6 D.THO	22.661	7.919	7.000	47.000	40.000	0
13 7 D.COS	14.966	3.848	7.000	32.000	25.000	0
15 8 U.TOT	25.554	5.417	12.000	45.000	33.000	0

LINE 561
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 402

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	5860.500	116.192	5660.000	6061.000	401.000	0
23 12 ALTITUDE	184.861	4.707	173.300	193.000	19.700	0
5 3 D.TOT1	268.246	15.849	227.000	310.000	83.000	0
7 4 D.POT1	15.856	3.661	6.000	29.000	23.000	0
9 5 D.URA1	13.299	3.591	4.000	26.000	22.000	0
11 6 D.THO	5.572	2.237	1.000	13.000	12.000	0
13 7 D.COS	15.485	4.014	4.000	26.000	22.000	0
15 8 U.TOT	18.652	4.212	9.000	31.000	22.000	0

LINE 571
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 539

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	6331.000	155.740	6062.000	6600.000	538.000	0
23 12 ALTITUDE	294.860	3.944	284.800	304.400	19.600	0
5 3 D.TOT1	271.954	16.743	216.000	329.000	113.000	0
7 4 D.POT1	15.974	4.023	3.000	28.000	25.000	0
9 5 D.URA1	13.176	3.751	4.000	26.000	22.000	0
11 6 D.THO	5.458	2.453	.000	13.000	13.000	0
13 7 D.COS	15.432	3.940	5.000	29.000	24.000	0
15 8 D.TOT	18.857	4.119	9.000	32.000	23.000	0

LINE 572
 FLIGHT 30
 TAPE 56
 DATE 820910
 NUMBER 267

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	6771.000	77.220	6638.000	6904.000	266.000	0
23 12 ALTITUDE	288.311	5.823	274.900	299.500	24.600	0
5 3 D.TOT1	445.865	52.321	294.000	584.000	290.000	0
7 4 D.POT1	24.434	5.228	12.000	41.000	29.000	0
9 5 D.URA1	19.225	4.608	6.000	34.000	28.000	0
11 6 D.THO	14.978	5.110	2.000	37.000	35.000	0
13 7 D.COS	15.880	3.718	7.000	26.000	19.000	0
15 8 D.TOT	22.524	5.313	10.000	45.000	35.000	0

LINE 801
FLIGHT 30

TAPE 56
DATE 820910
NUMBER 476

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	7161.500	137.554	6924.000	7399.000	475.000	0
23 12 ALTITUDE	410.242	.132	410.000	410.700	.700	1
5 3 D.TOT1	283.265	16.410	233.000	328.000	95.000	0
7 4 D.POT1	16.811	4.111	6.000	31.000	25.000	0
9 5 D.HRA1	13.069	3.596	3.000	26.000	23.000	0
11 6 D.THO	8.252	2.908	.000	19.000	19.000	0
13 7 D.COS	35.767	5.922	20.000	58.000	38.000	0
15 8 U.TOT	20.021	4.438	6.000	33.000	27.000	0

LINE 811
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 451

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	7625.000	130.337	7400.000	7850.000	450.000	0
23 12 ALTITUDE	410.233	.124	410.000	410.700	.700	1
5 3 D.TOT1	282.874	16.863	236.000	333.000	97.000	0
7 4 D.POT1	16.683	4.151	7.000	29.000	22.000	0
9 5 D.HRA1	12.951	3.635	2.000	28.000	26.000	0
11 6 D.THO	9.111	3.091	2.000	18.000	16.000	0
13 7 D.COS	42.151	6.672	24.000	68.000	44.000	0
15 8 U.TOT	20.142	4.491	7.000	32.000	25.000	0

LINE 821
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 529

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	8115.000	152.853	7851.000	8379.000	528.000	0
23 12 ALTITUDE	410.295	.122	410.000	410.700	.700	1
5 3 D.TOT1	293.327	16.654	241.000	354.000	113.000	0
7 4 D.POT1	17.240	3.993	6.000	31.000	25.000	0
9 5 D.URA1	12.707	3.665	2.000	28.000	26.000	0
11 6 D.THO	10.130	3.276	2.000	25.000	23.000	0
13 7 D.COS	49.629	7.219	27.000	71.000	44.000	0
15 8 U.TOT	21.161	4.766	9.000	36.000	27.000	0

LINE 831
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 498

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	8628.500	143.964	8380.000	8877.000	497.000	0
23 12 ALTITUDE	410.345	.125	410.000	410.700	.700	1
5 3 D.TOT1	299.739	17.193	231.000	354.000	123.000	0
7 4 D.POT1	17.369	4.159	6.000	31.000	25.000	0
9 5 D.URA1	13.279	3.717	2.000	25.000	23.000	0
11 6 D.THO	10.580	3.001	4.000	21.000	17.000	0
13 7 D.COS	54.558	7.508	31.000	77.000	46.000	0
15 8 U.TOT	21.514	4.732	7.000	36.000	29.000	0

LINE 841
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 473

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	9114.000	136.688	8878.000	9350.000	472.000	0
23 12 ALTITUDE	410.313	.127	410.000	410.700	.700	1
5 3 D.TOT1	303.989	17.502	251.000	366.000	115.000	0
7 4 D.POT1	17.548	4.222	7.000	32.000	25.000	0
9 5 D.URA1	13.326	3.806	5.000	24.000	19.000	0
11 6 D.THO	11.753	3.213	4.000	21.000	17.000	0
13 7 D.COS	61.488	7.980	39.000	85.000	46.000	0
15 8 D.TOT	22.076	4.519	11.000	38.000	27.000	0

LINE 851
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 499

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	9600.000	144.193	9351.000	9849.000	498.000	0
23 12 ALTITUDE	410.273	.111	410.000	410.700	.700	1

5 3 D.TOT1	310.790	16.292	262.000	360.000	98.000	0
7 4 D.POT1	18.261	4.263	7.000	32.000	25.000	0
9 5 D.URA1	13.758	3.720	3.000	29.000	26.000	0
11 6 D.THO	12.533	3.457	4.000	22.000	18.000	0
13 7 D.COS	70.323	8.166	47.000	93.000	46.000	0

LINE 861
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 507

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	10103.000	146.503	9850.000	10356.000	506.000	0
23 12 ALTITUDE	410.238	.083	410.000	410.400	.400	1
5 3 D.TOT1	328.318	16.938	275.000	375.000	100.000	0
7 4 D.POT1	19.020	4.374	5.000	37.000	32.000	0
9 5 D.URA1	13.753	3.721	3.000	27.000	24.000	0
11 6 D.THO	13.899	3.801	4.000	26.000	22.000	0
13 7 D.COS	80.507	9.052	55.000	109.000	54.000	0
15 8 U.TOT	24.387	4.689	13.000	38.000	25.000	0

LINE 871
FLIGHT 30
TAPE 56
DATE 820910
NUMBER 498

	MEAN	STAND DEV	MINIMUM	MAXIMUM	RANGE	UND
3 2 FID	10605.500	143.904	10357.000	10854.000	497.000	0
23 12 ALTITUDE	410.243	.089	410.000	410.700	.700	1
5 3 D.TOT1	339.124	18.042	292.000	396.000	104.000	0
7 4 D.POT1	19.460	4.425	7.000	36.000	29.000	0
9 5 D.URA1	14.092	3.632	5.000	26.000	21.000	0
11 6 D.THO	14.677	4.004	5.000	27.000	22.000	0
13 7 D.COS	86.179	9.762	59.000	121.000	62.000	0
15 8 U.TOT	25.225	5.068	11.000	42.000	31.000	0