



**NASA CR-174665
84SRD006**

EFFECTS OF VANE/BLADE RATIO AND SPACING ON FAN NOISE

Volume II—Data Supplement 3

by
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and
R.A. Kantola

Prepared for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

**NASA-Lewis Research Center
Contract NAS3-22062**

(NASA-CR-174665) EFFECTS OF VANE/BLADE
RATIO AND SPACING ON FAN NOISE. VOLUME 2:
DATA SUPPLEMENT Final Report (General
Electric Co.) 359 P HC A16/MI A01 CSCL 20A

N65-15792

**Unclas
63/71 14262**



NASA V/B RATIO
SPACING PROGRAM

48-VANE N/Bs

NARROW BAND SPECTRA (20 Hz.)

MICROPHONES 4-7 (30°-60°)

• 48 VANES, S/C = 0.5

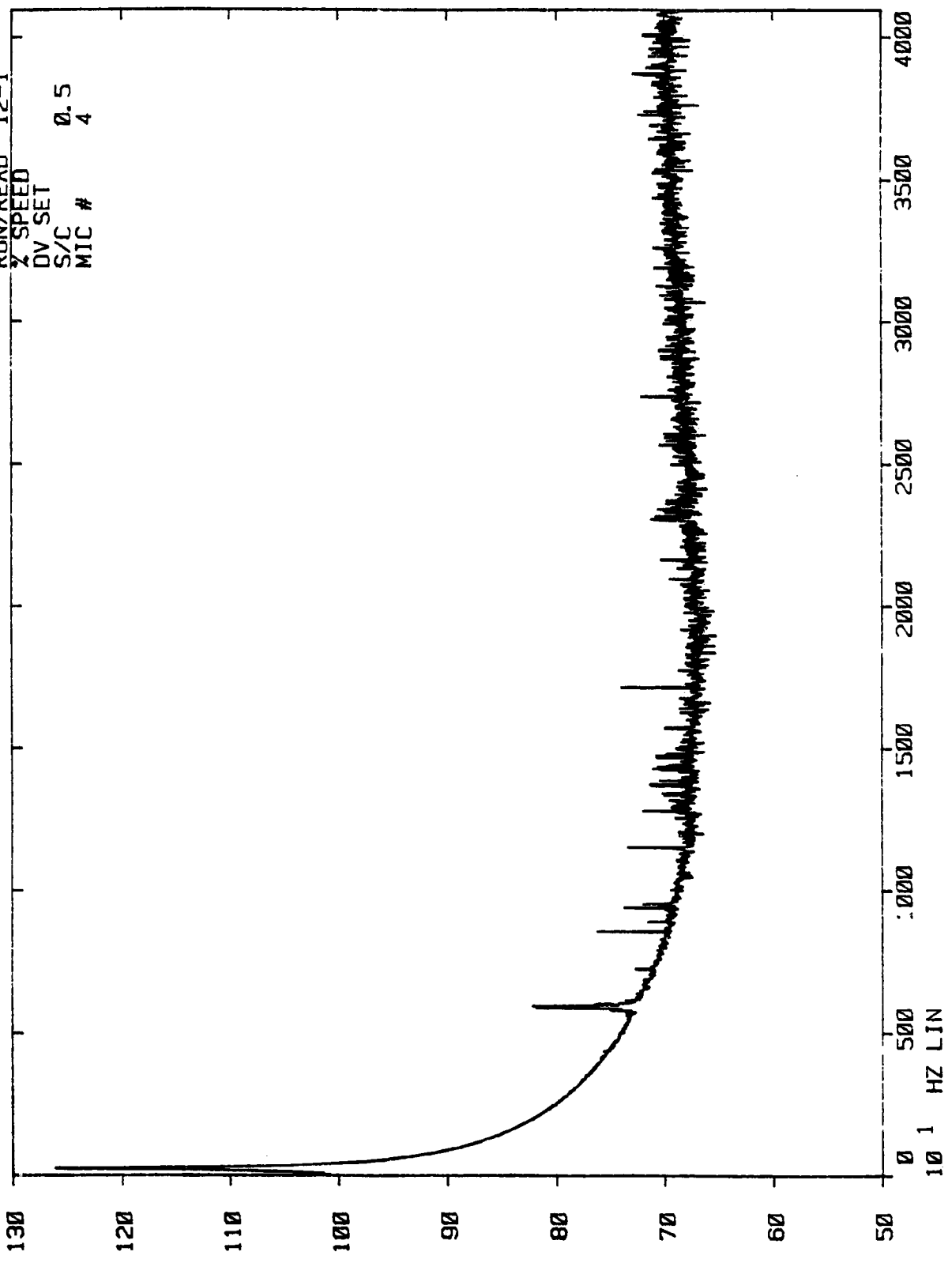
<u>RUN/RDG.</u>	<u>%NF</u>	<u>DV</u>	<u>REMARKS</u>
12/1	0	0	BACKGROUND NOISE CHECK
12/31	54	1.35	
12/29	63	0.88	
12/28	63	1.35	
12/26	69	0.88	
12/27	69	1.35	
12/25	76	0.88	
12/24	76	1.35	
12/22	80	0.88	
12/23	80	1.35	
12/21	86	0.88	
12/20	86	1.35	
12/18	95	0.88	
12/19	95	1.35	
12/17	100	0.88	

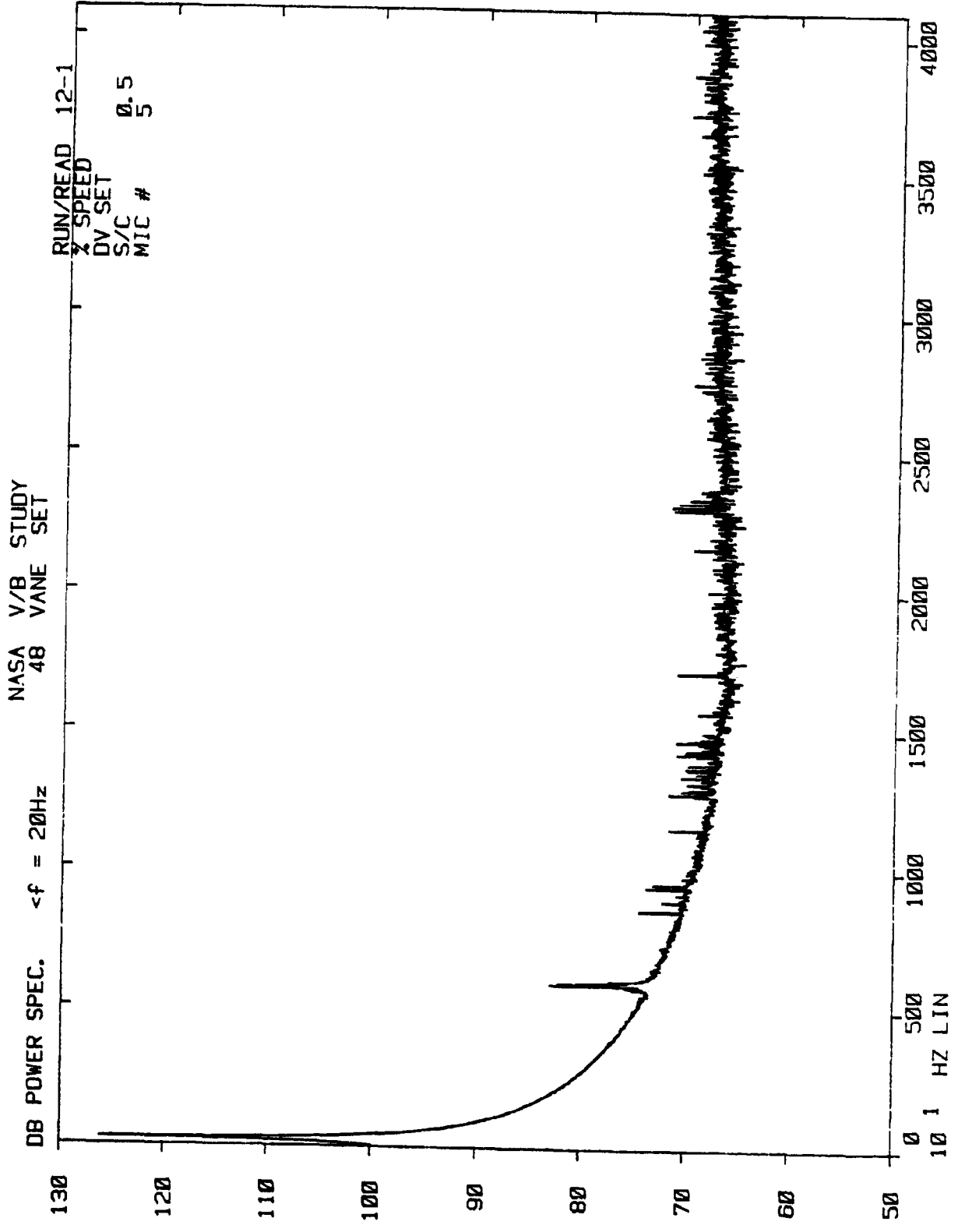
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

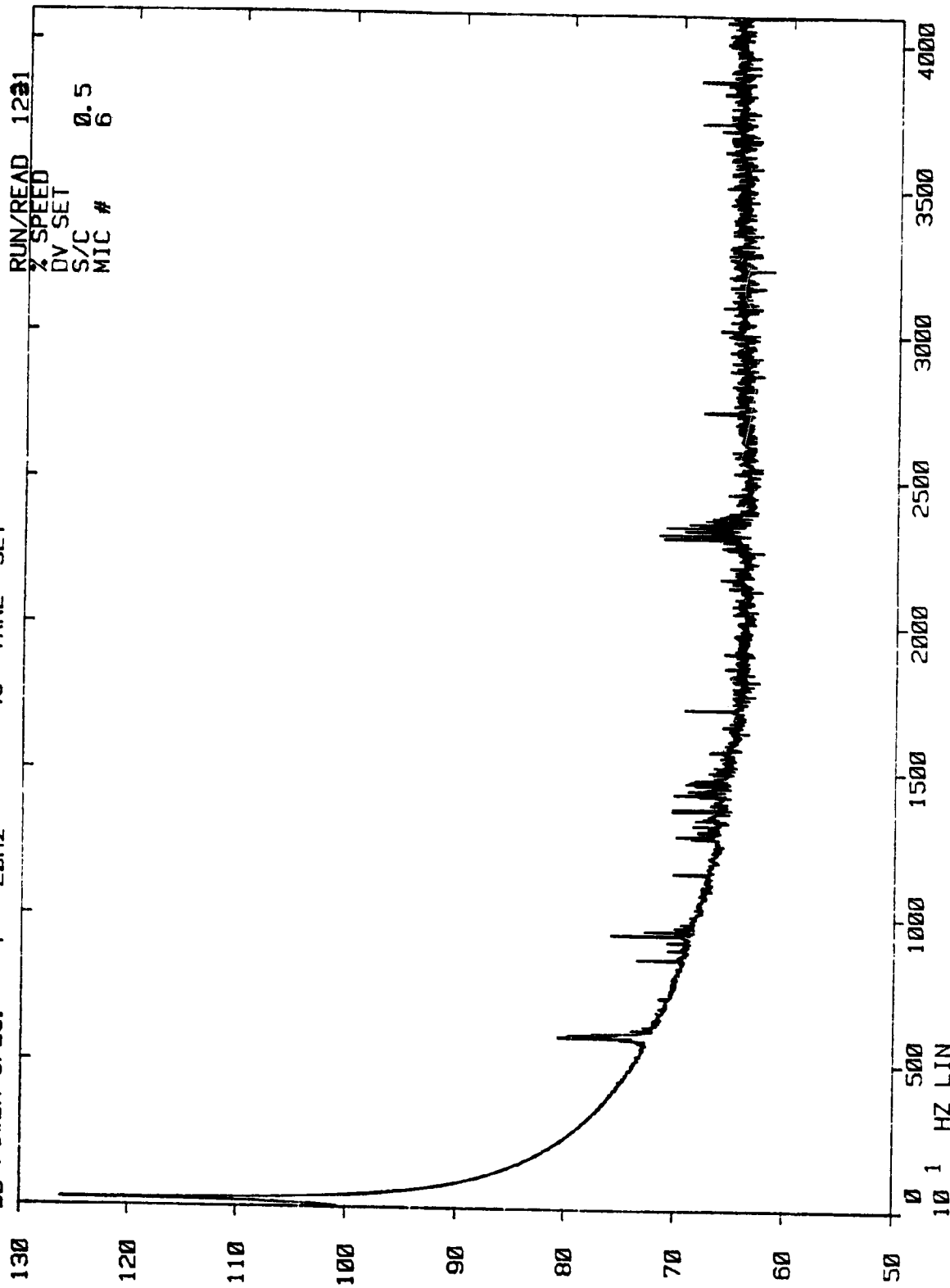
RUN/READ 12-1
X SPEED
DV SET
S/C 0.5
MIC # 4





NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\langle f = 20\text{Hz}$



RUN/READ 1231
% SPEED
DV SET
S/C 0.5
MIC # 6

NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $<f = 20\text{Hz}$

RUN/READ 12-1

% SPEED

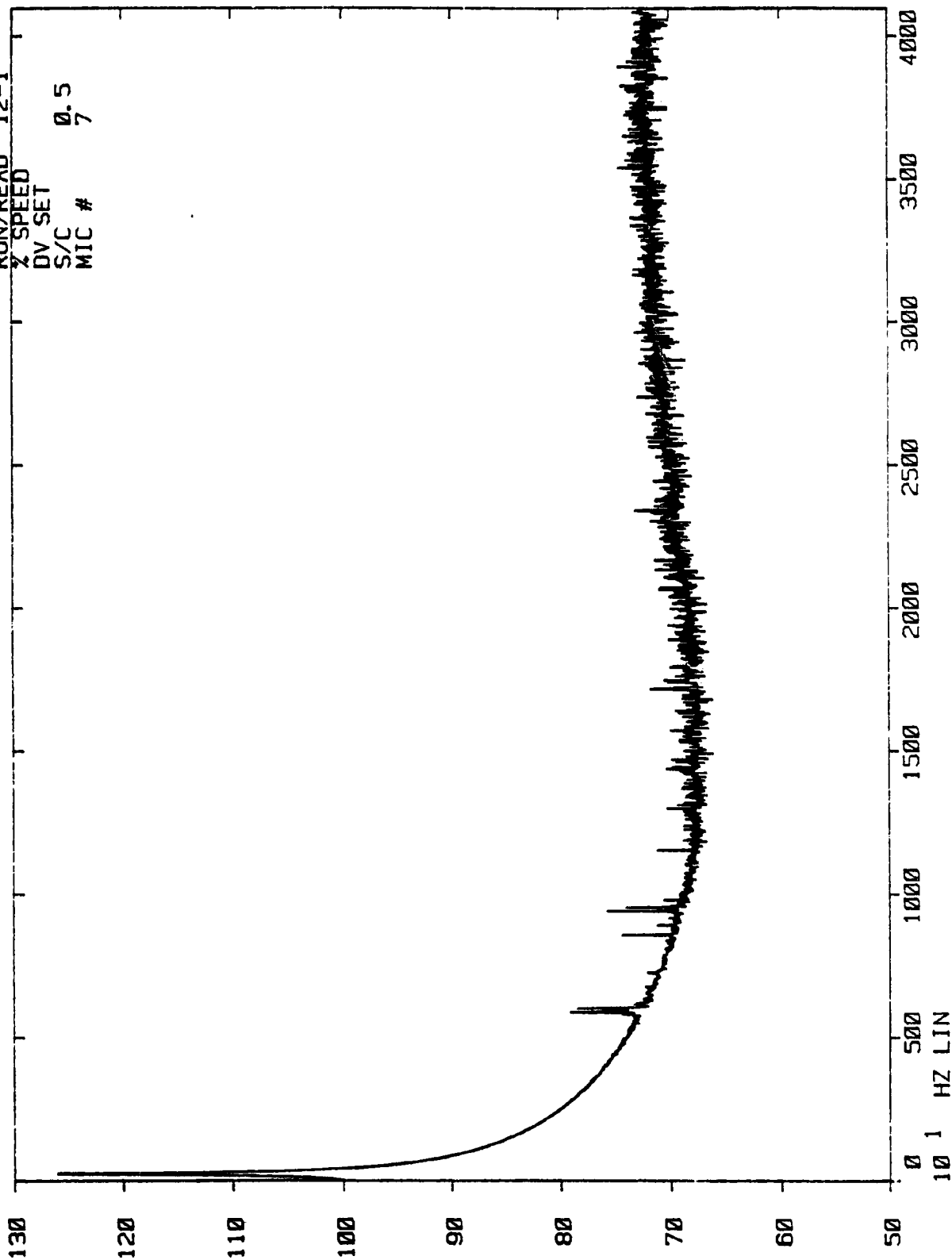
DV SET

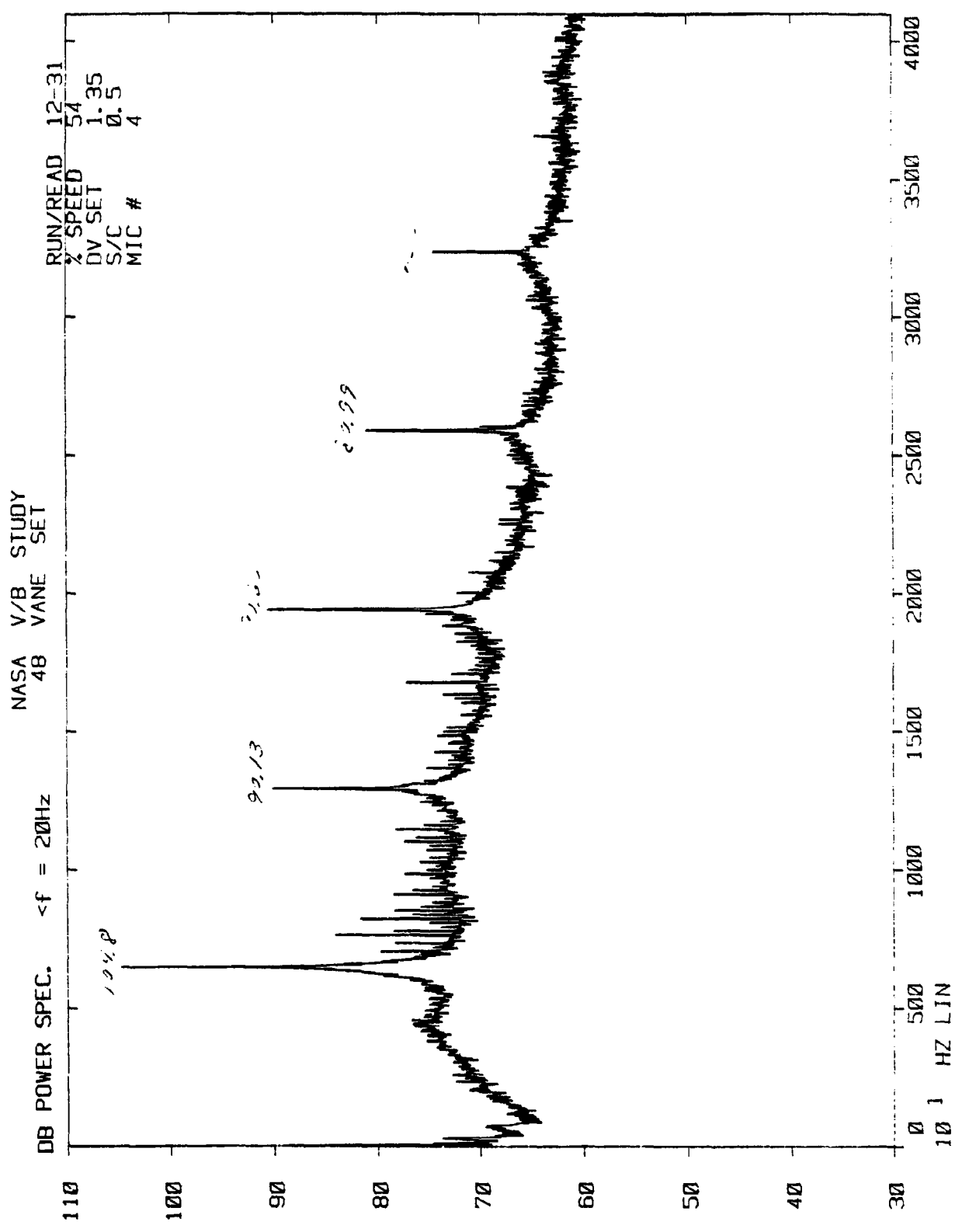
S/C

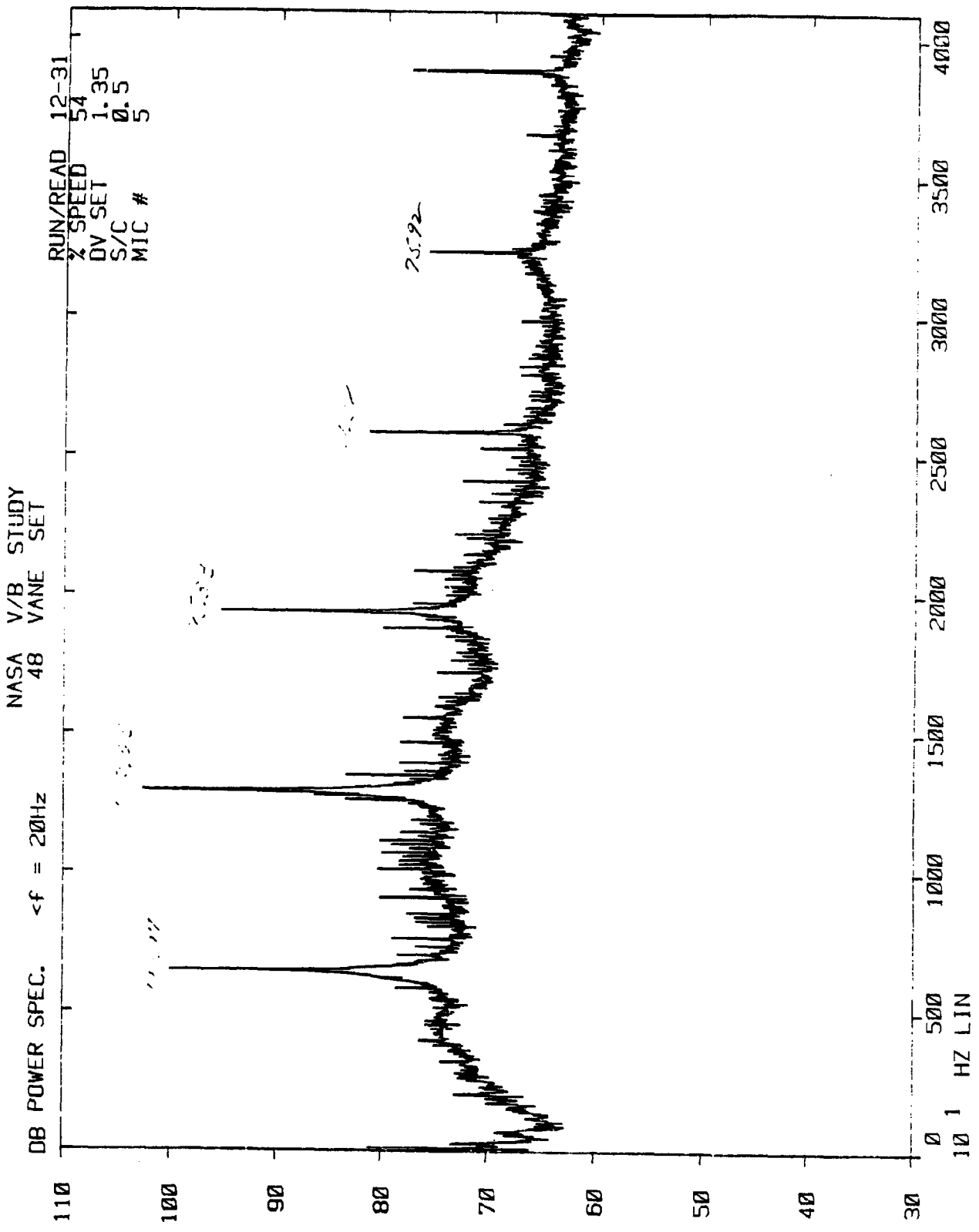
MIC #

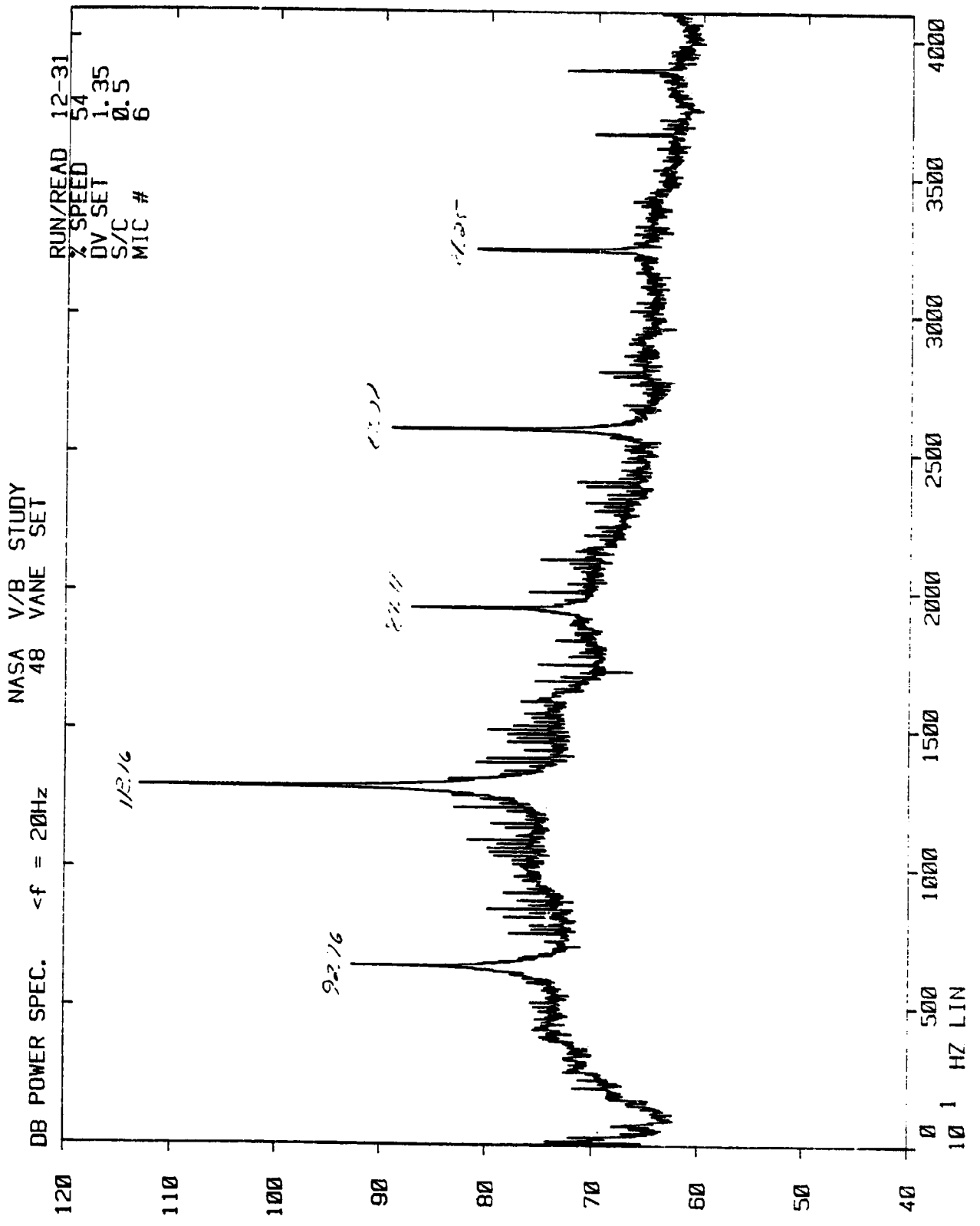
0.5

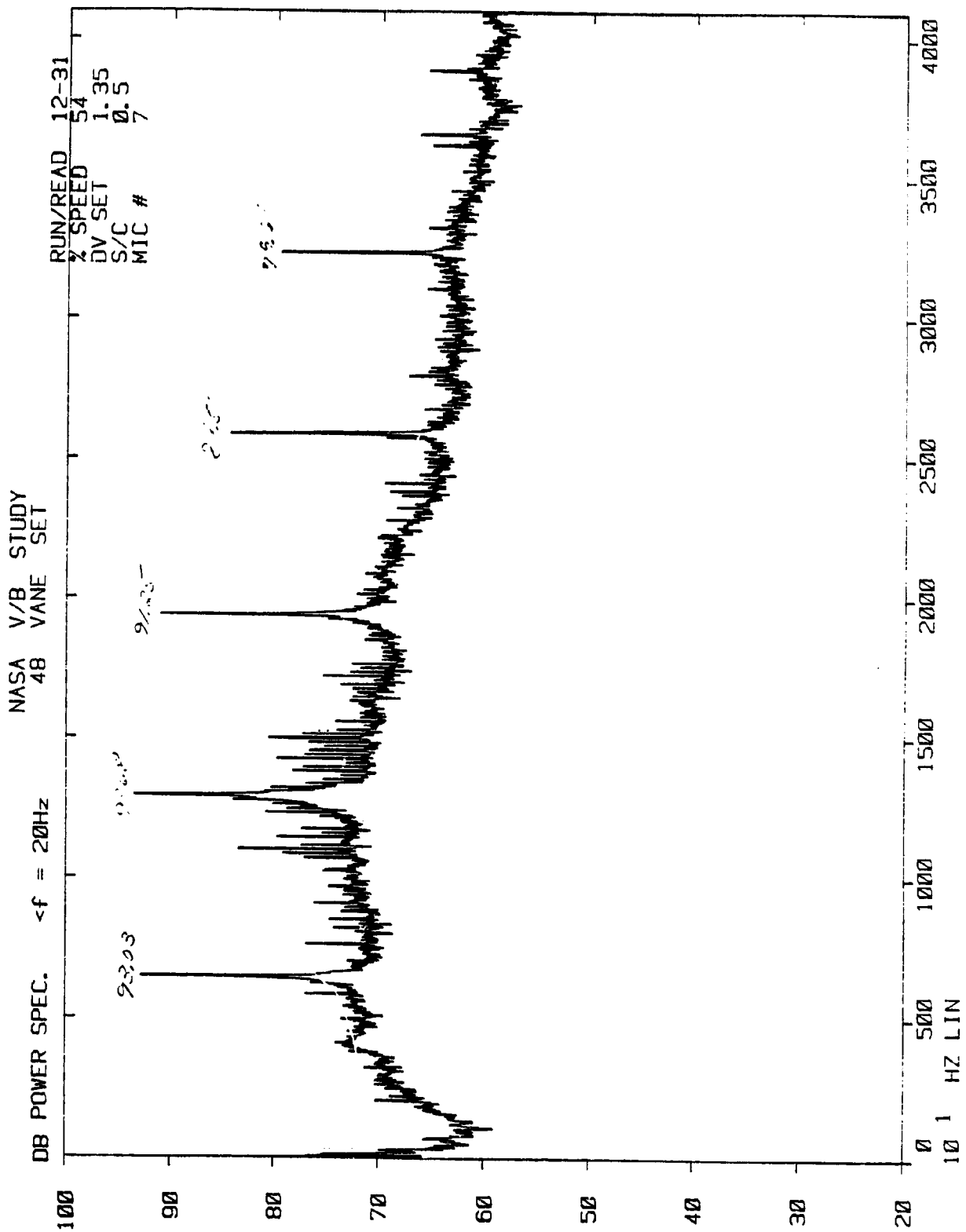
7

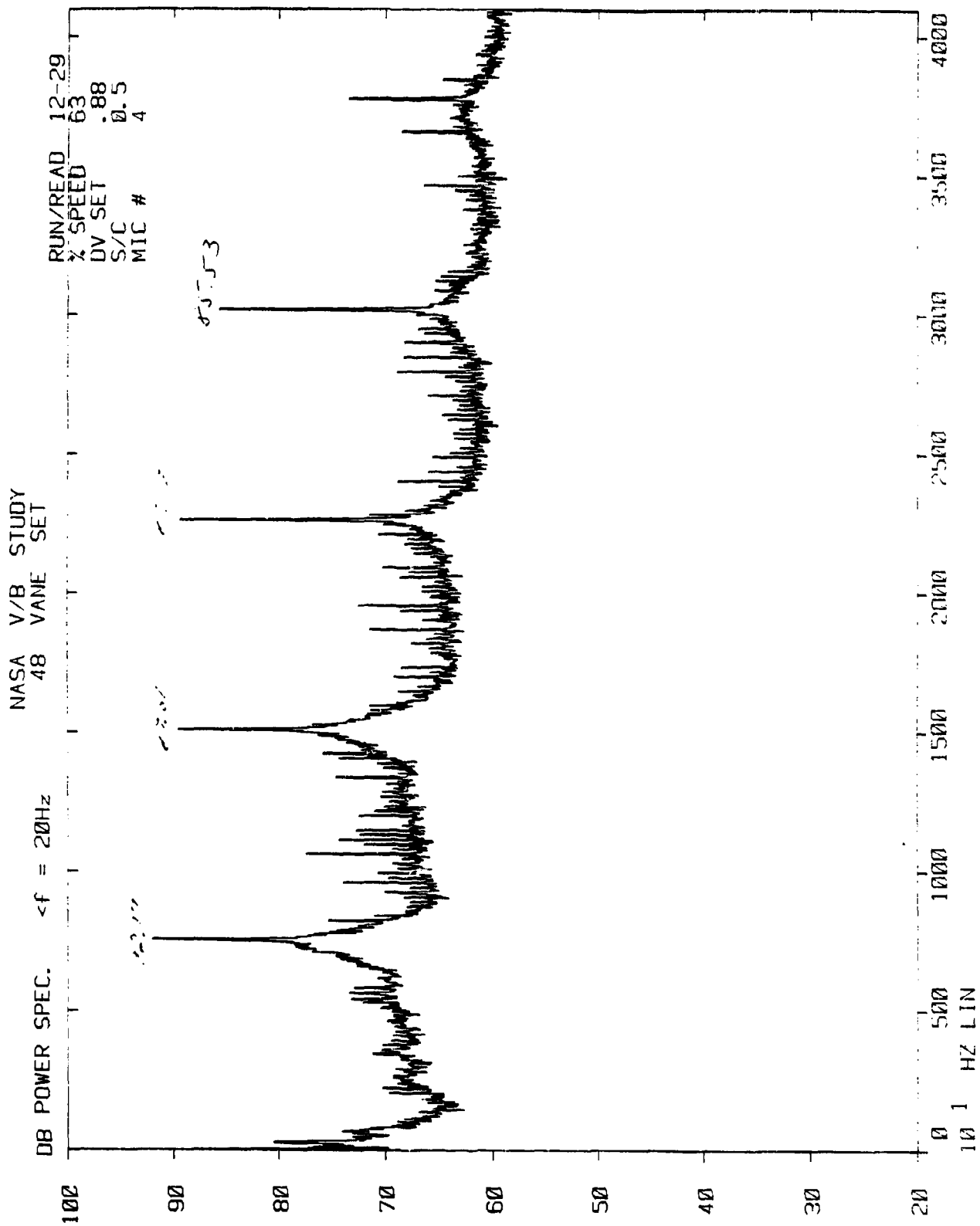


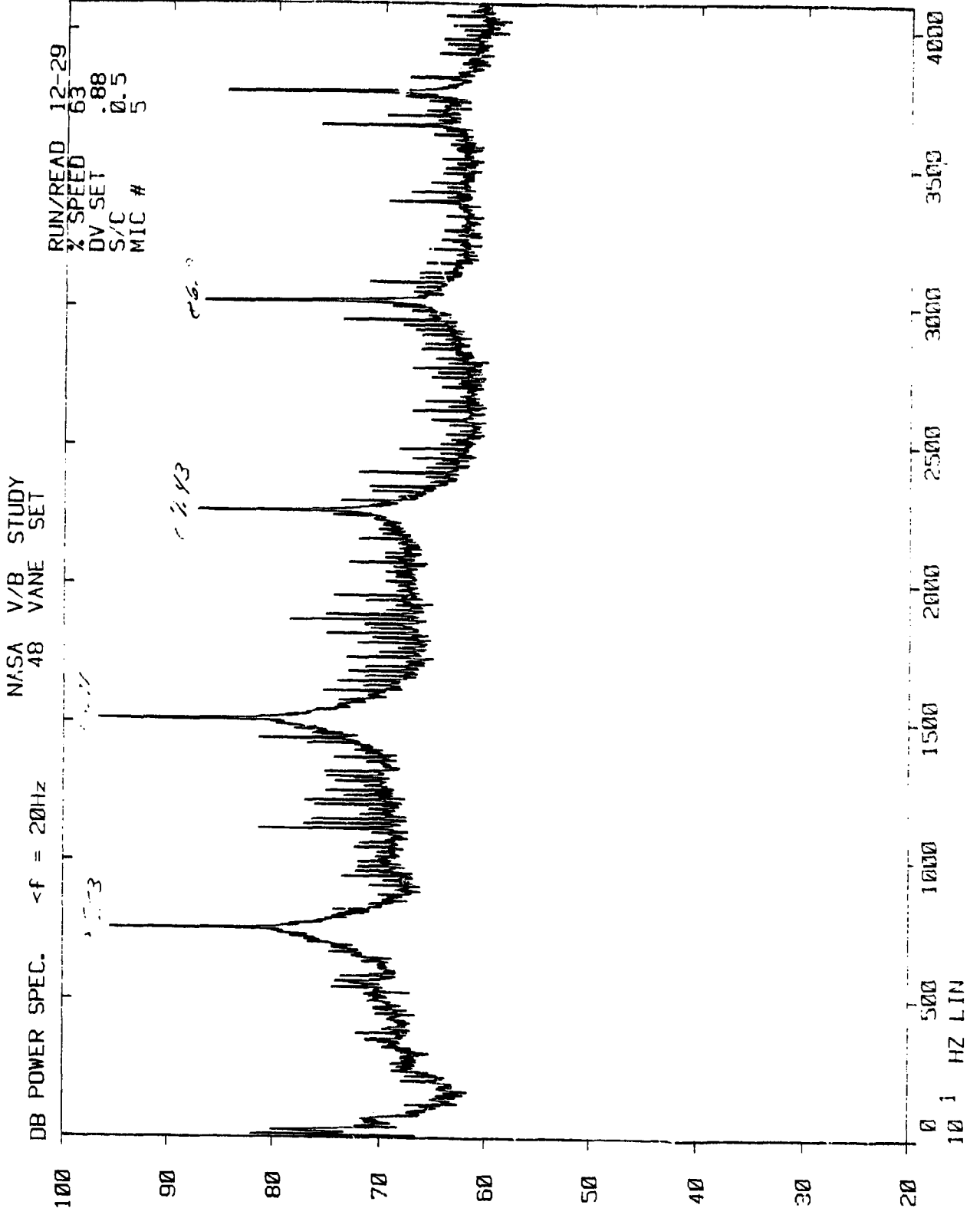


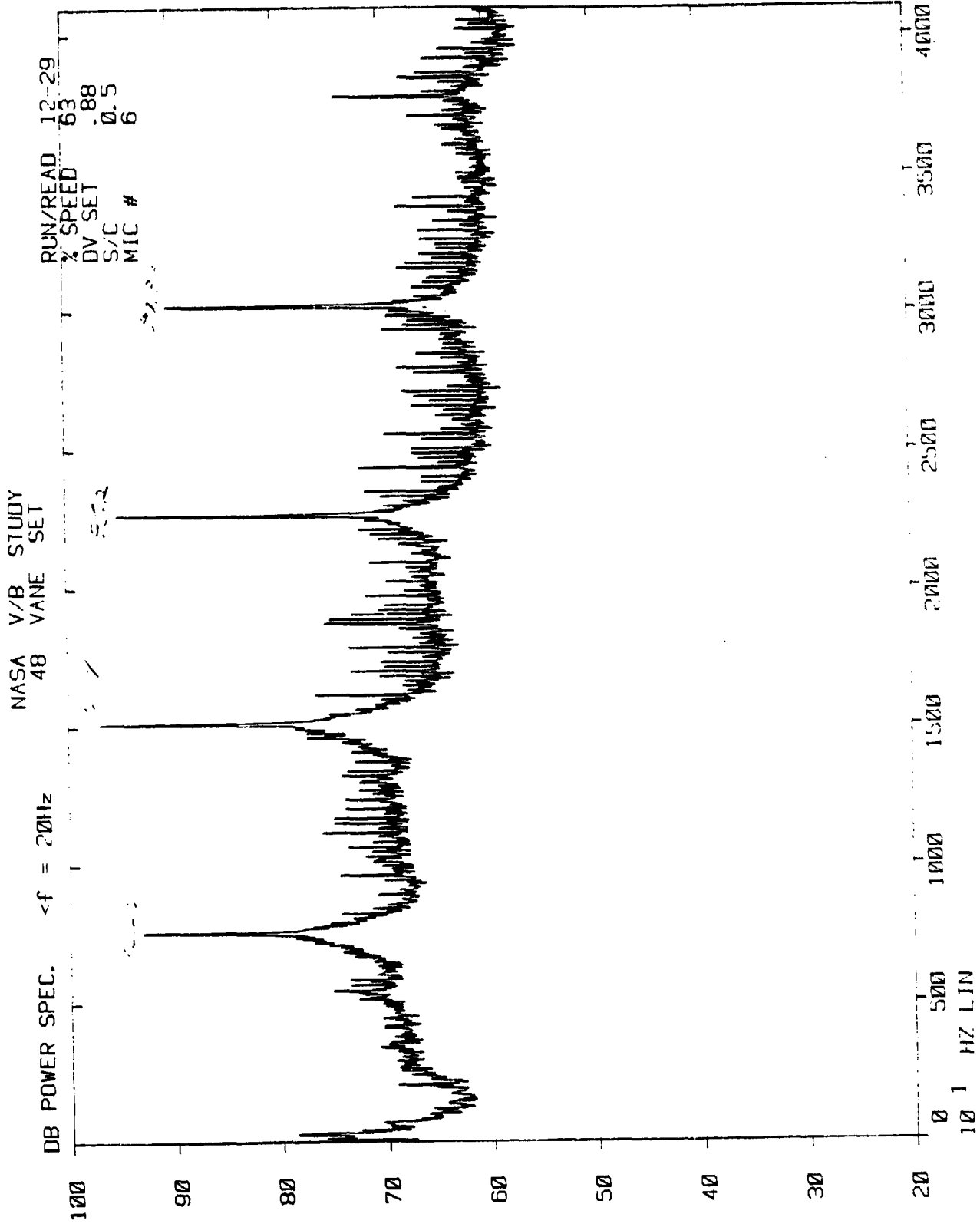


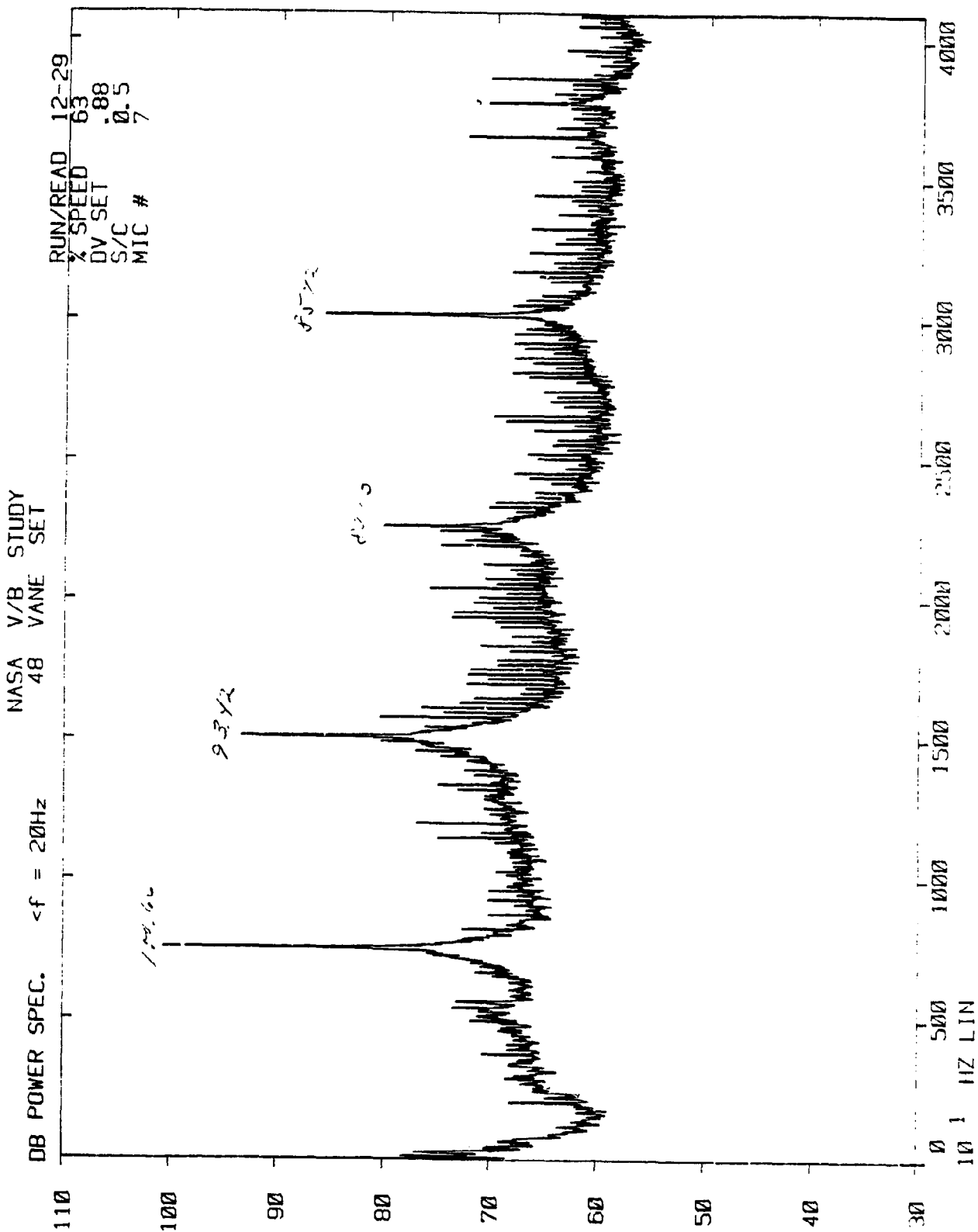


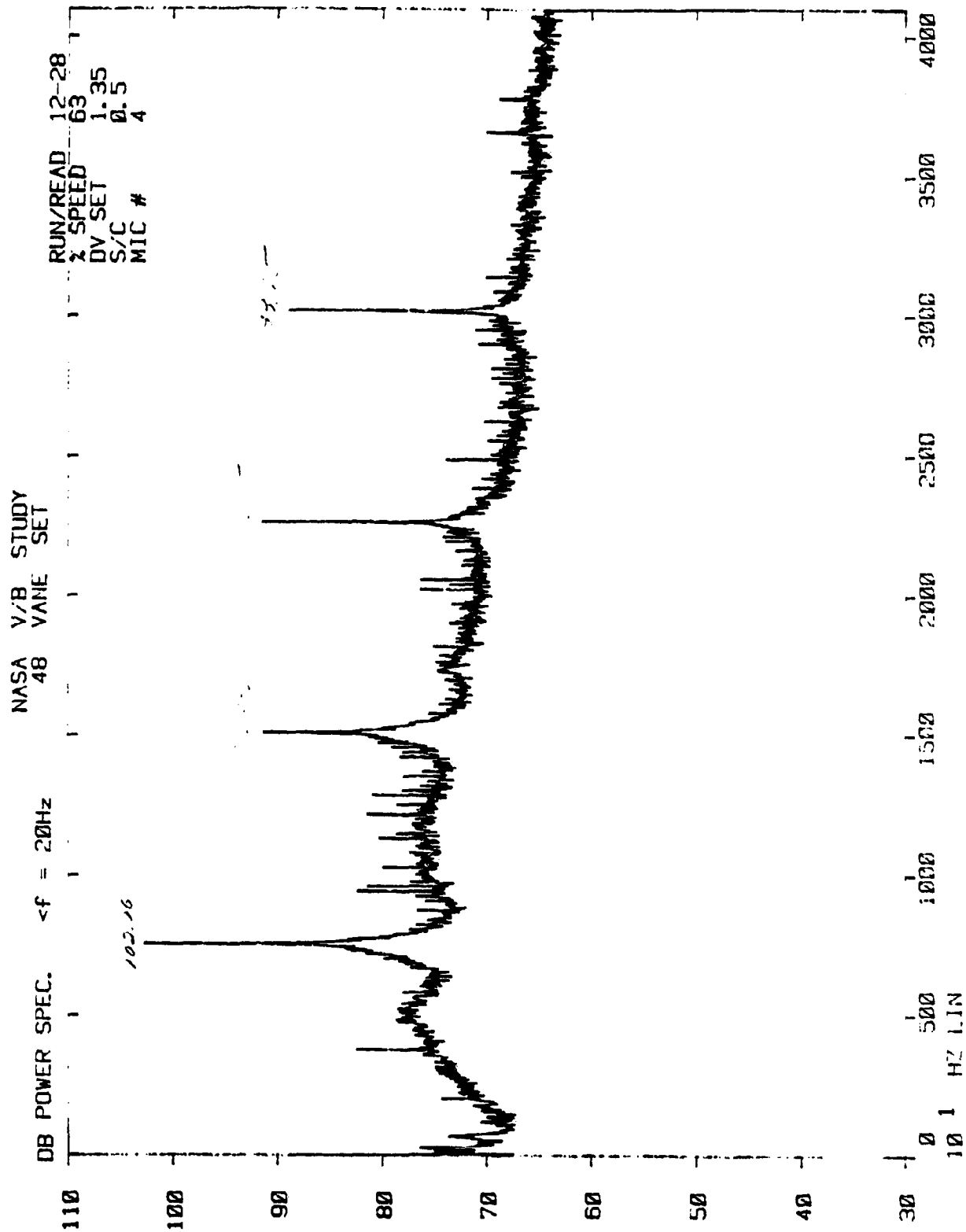


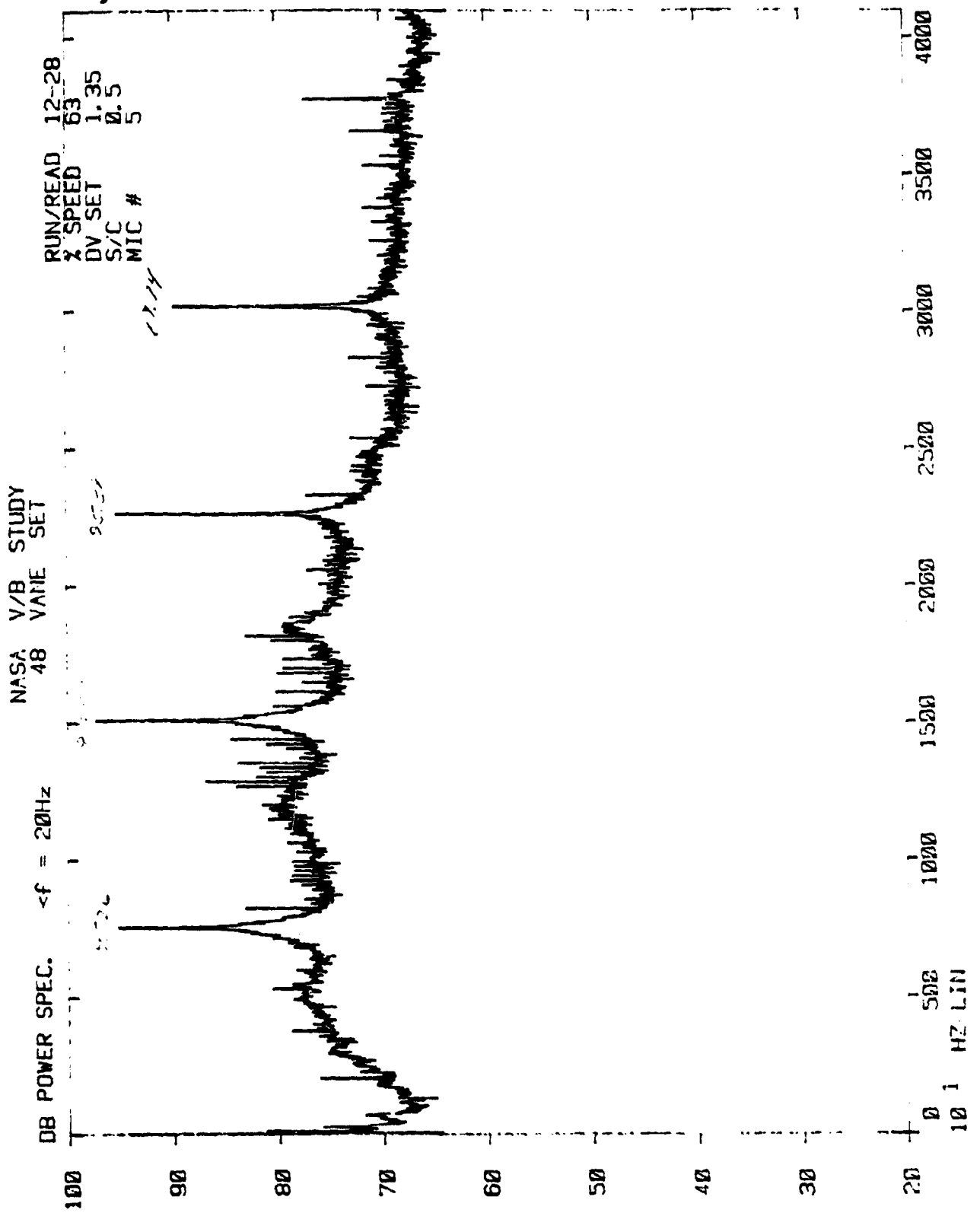


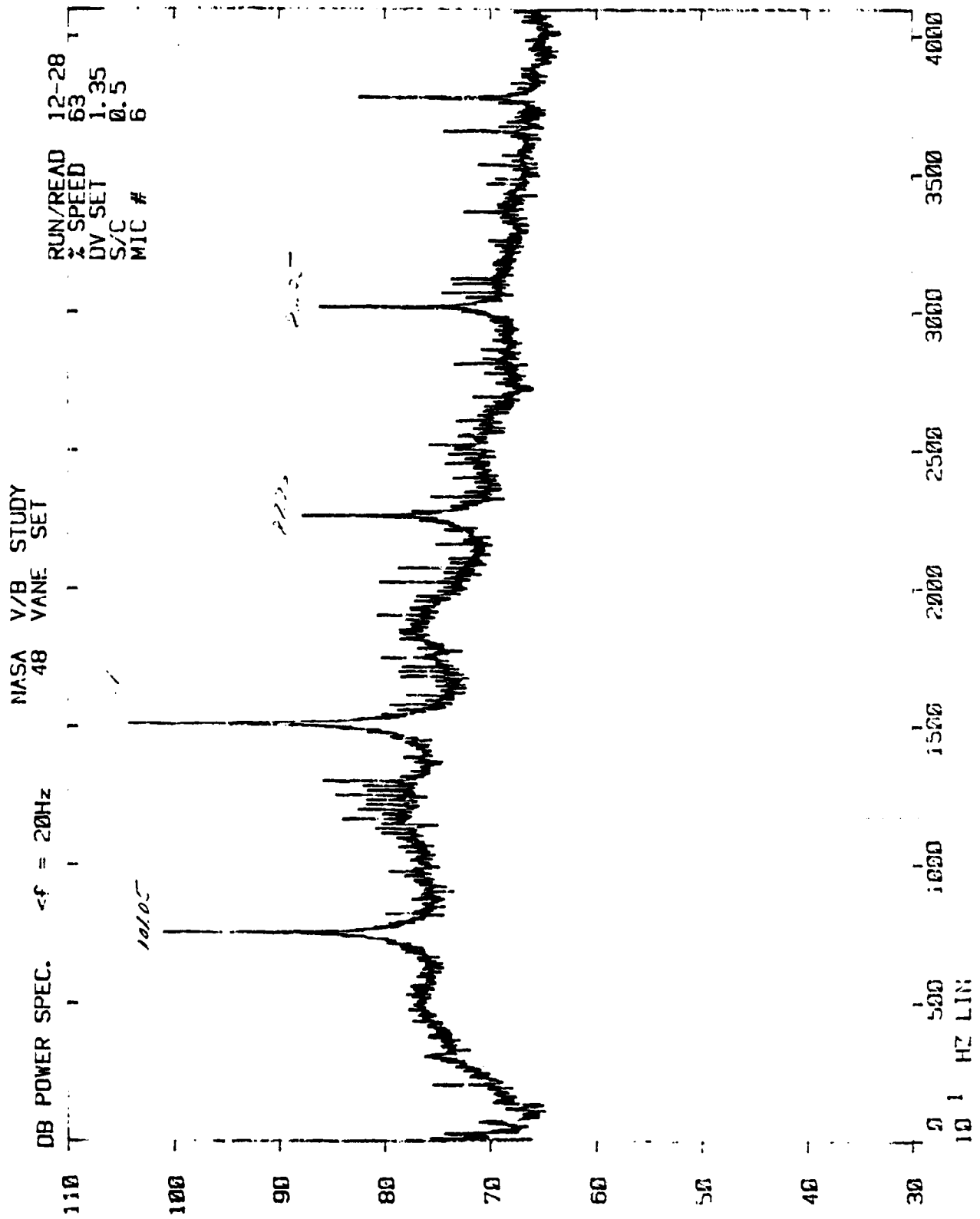


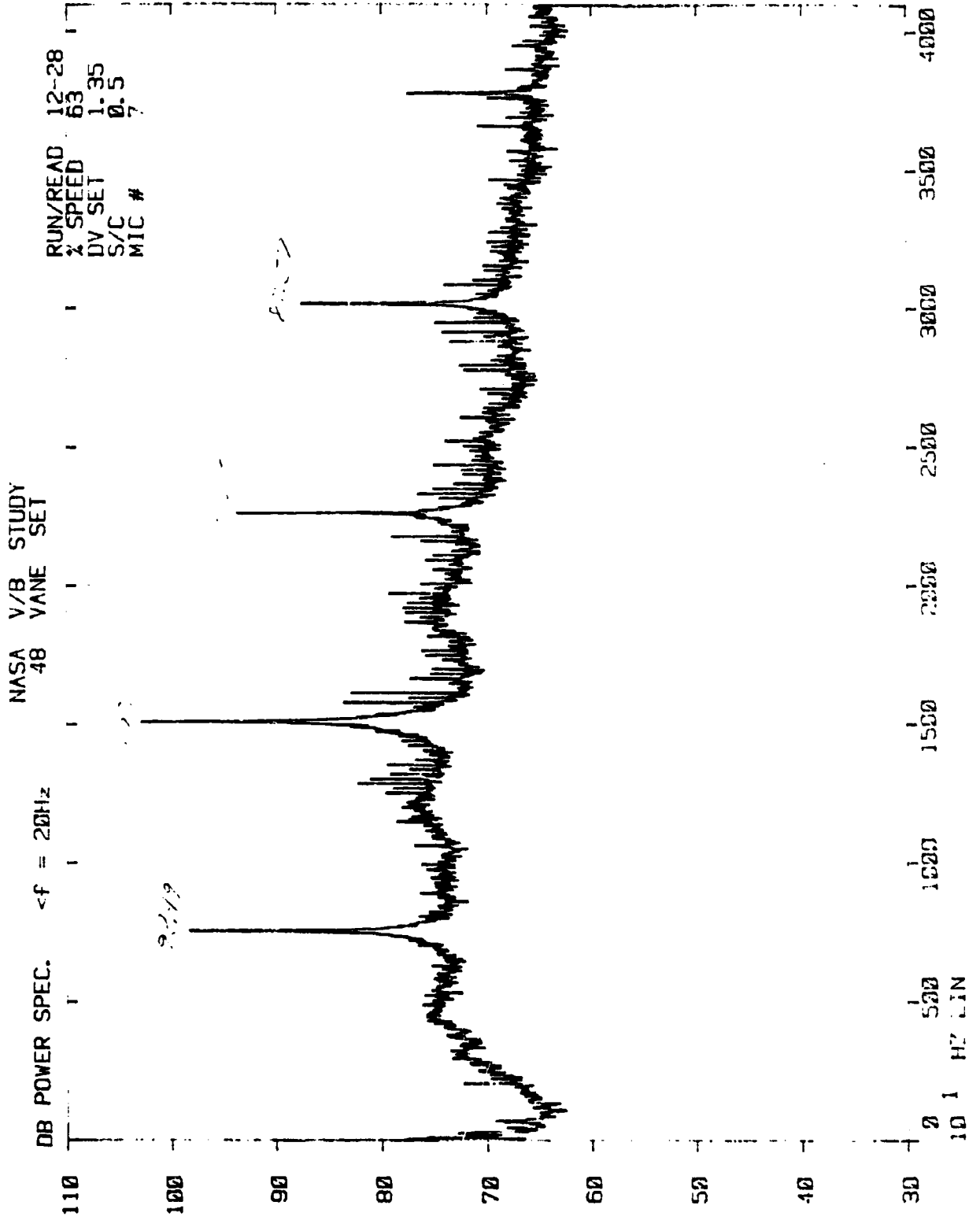








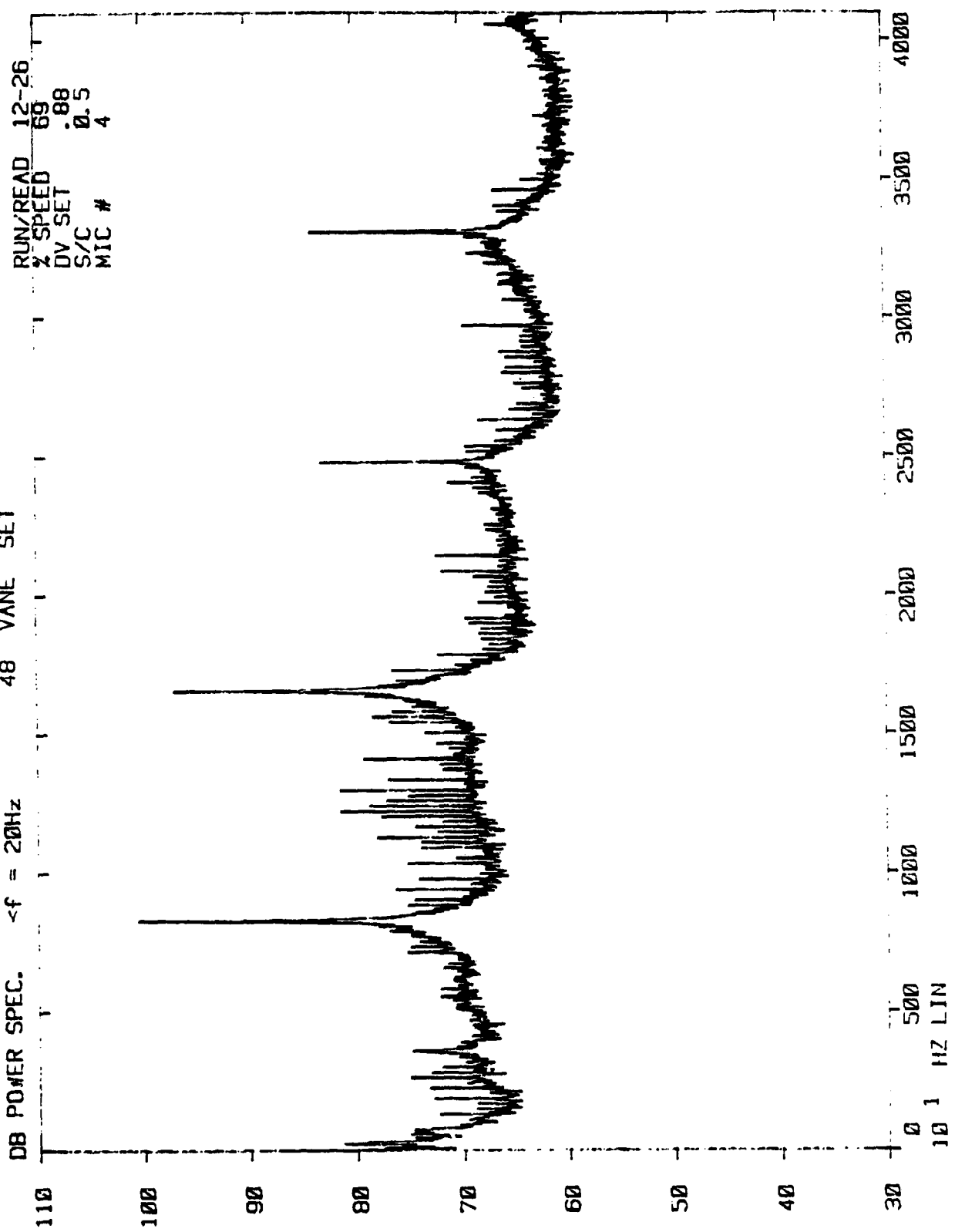


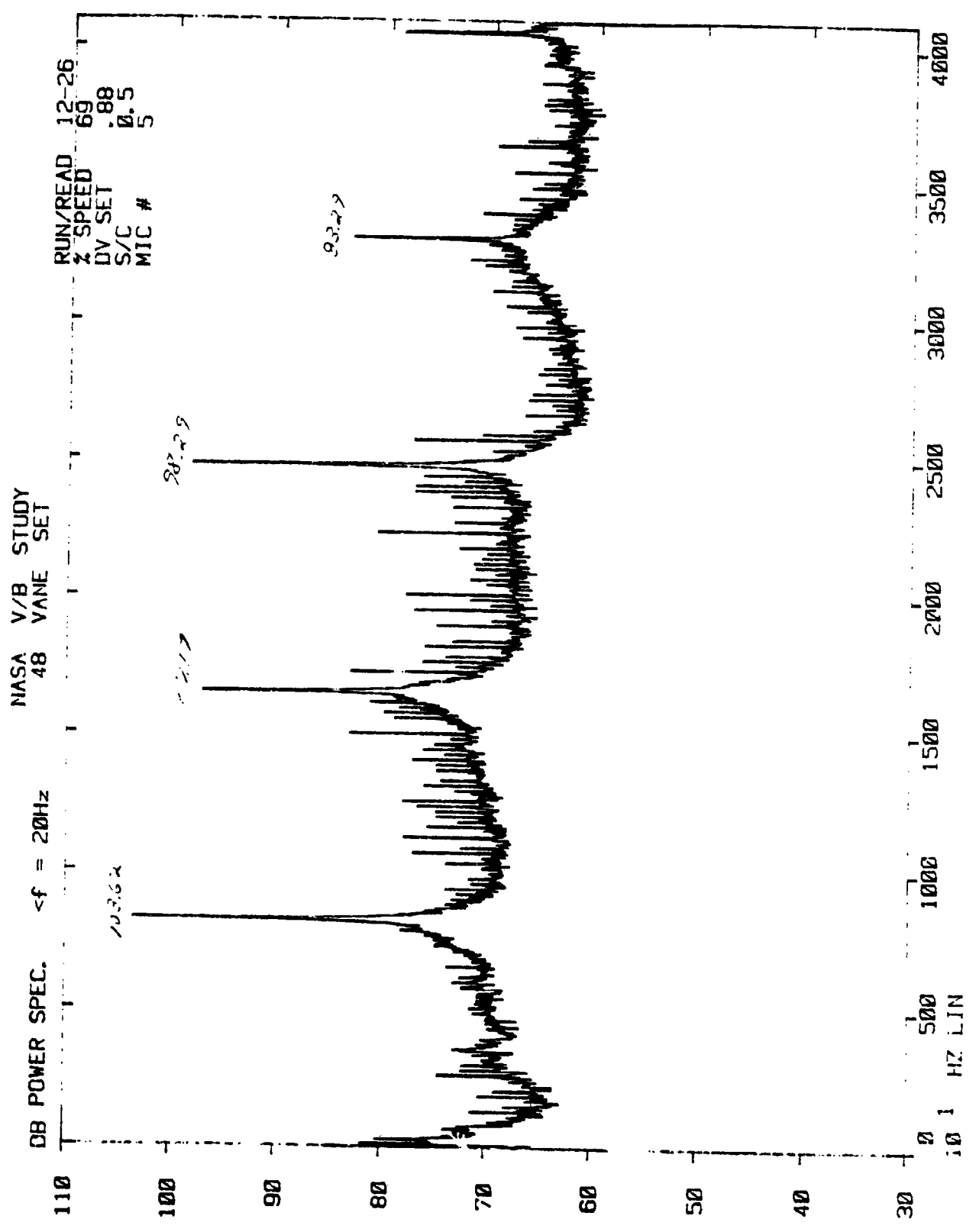


NASA V/B STUDY
48 VANE SET

<f = 20Hz

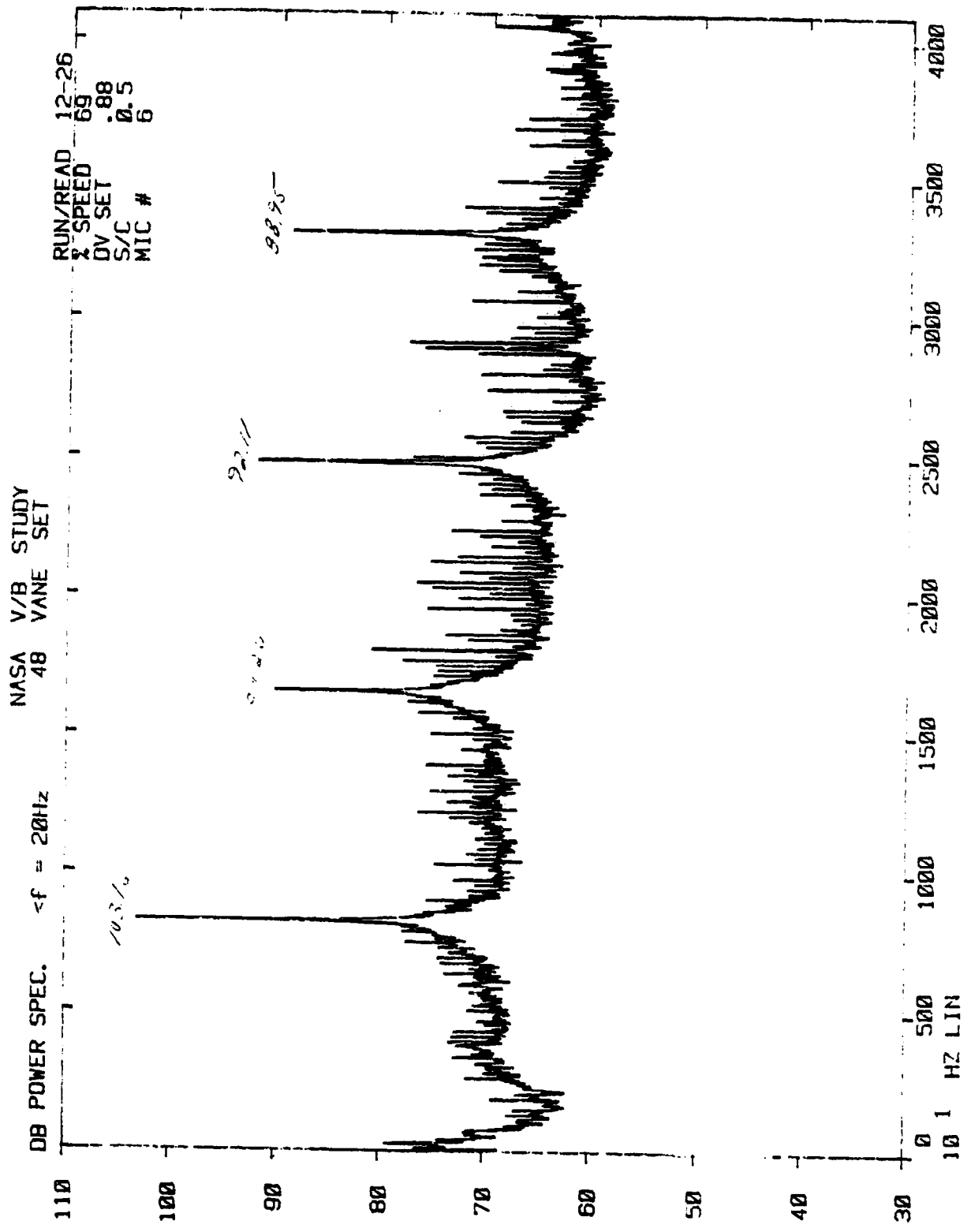
RUN/READ 12-26
% SPEED 69
DV SET .88
S/C 0.5
MIC # 4





✓



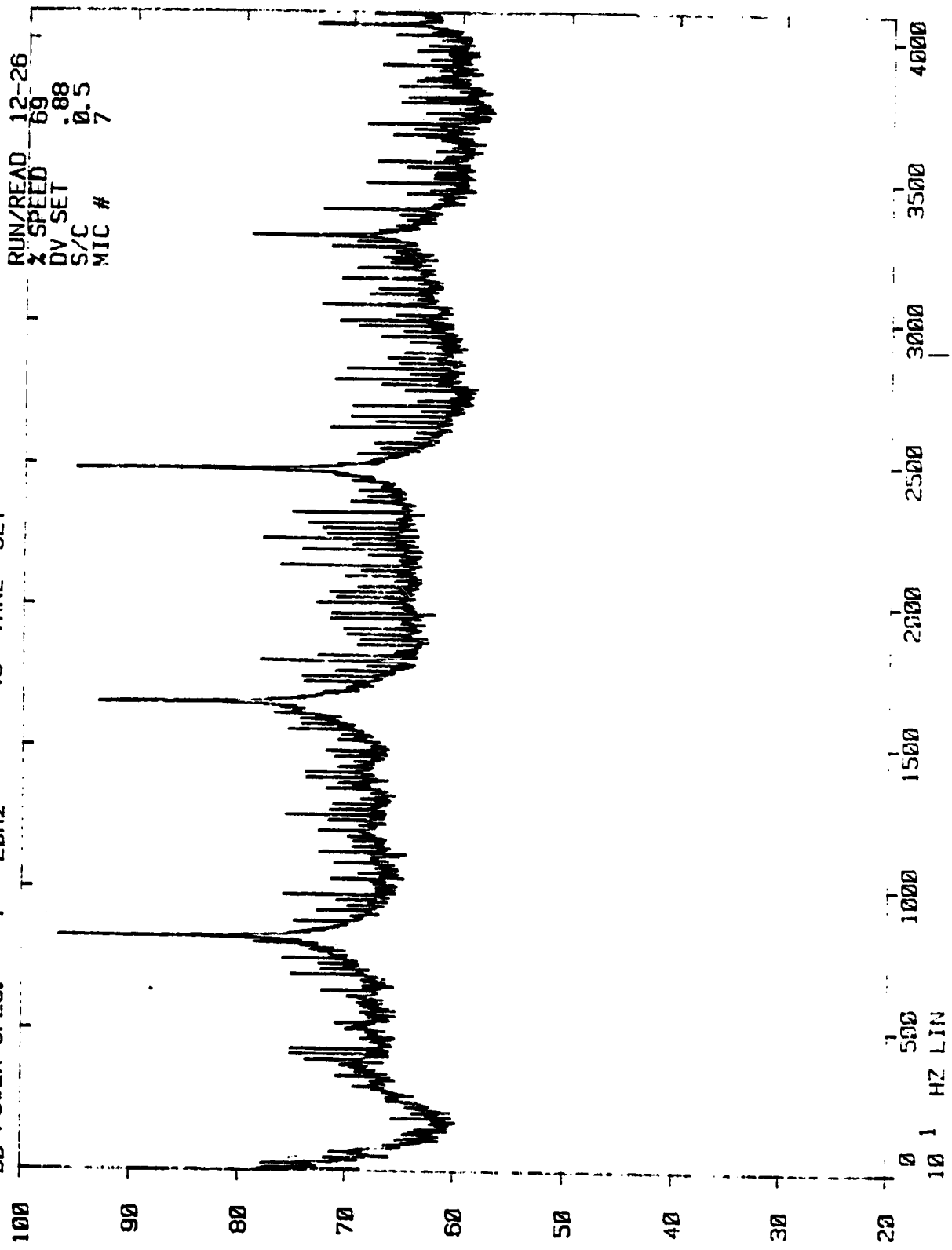


NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

RUN/READ 12-26
X SPEED 69
DV SET .88
S/C 0.5
MIC # 7



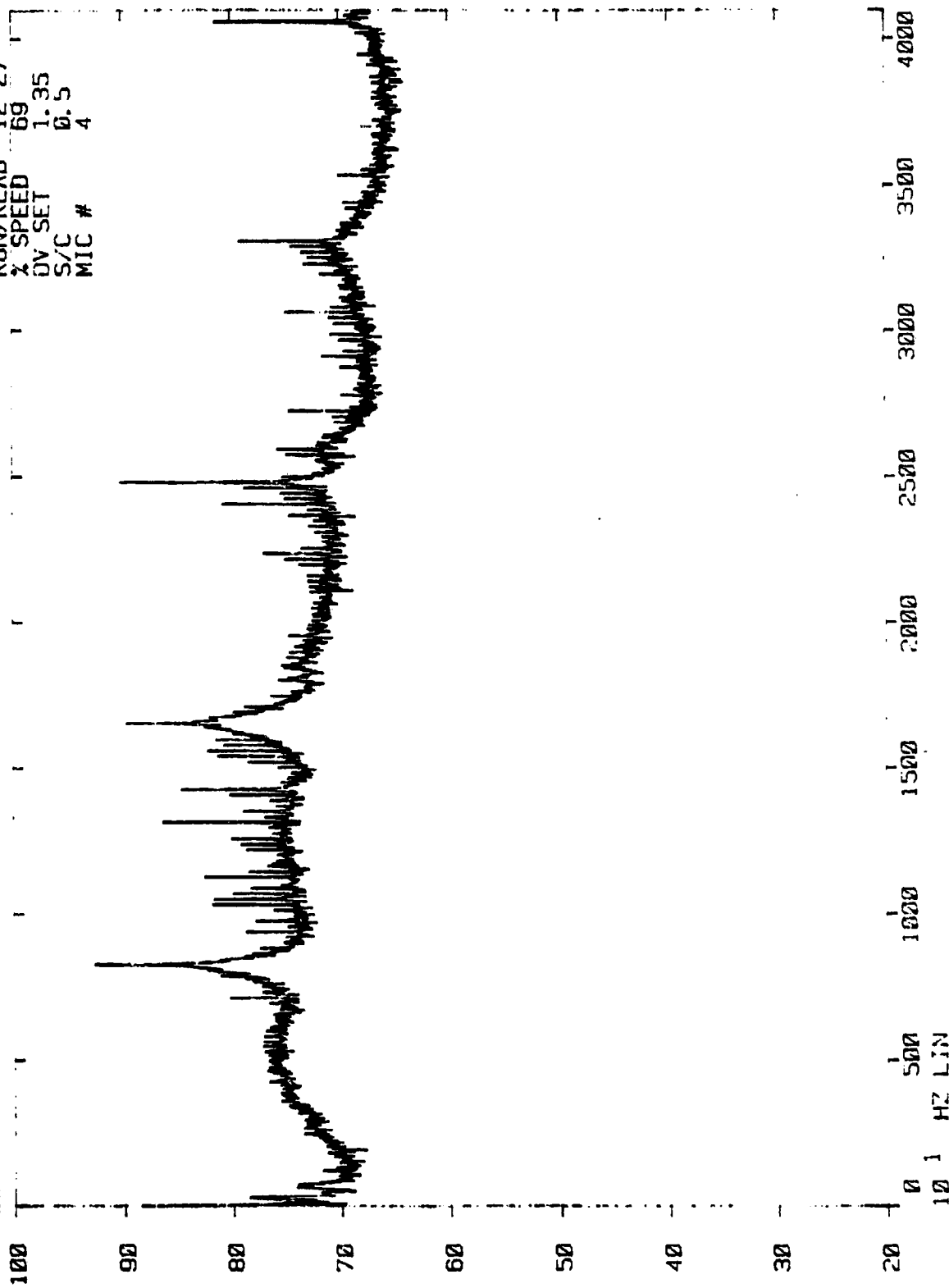
171

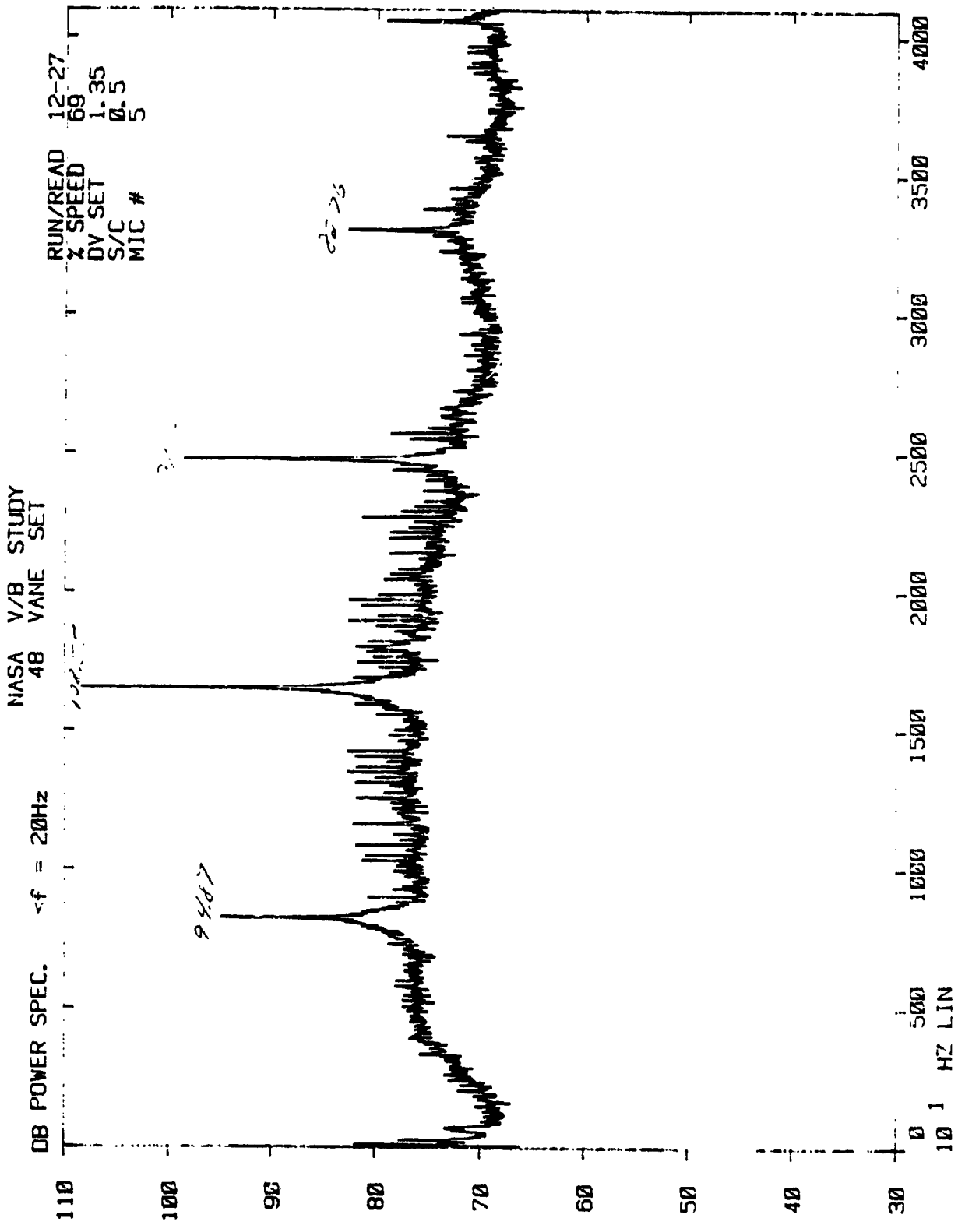
NASA V/B STUDY
48 VANE SET

<f = 20Hz

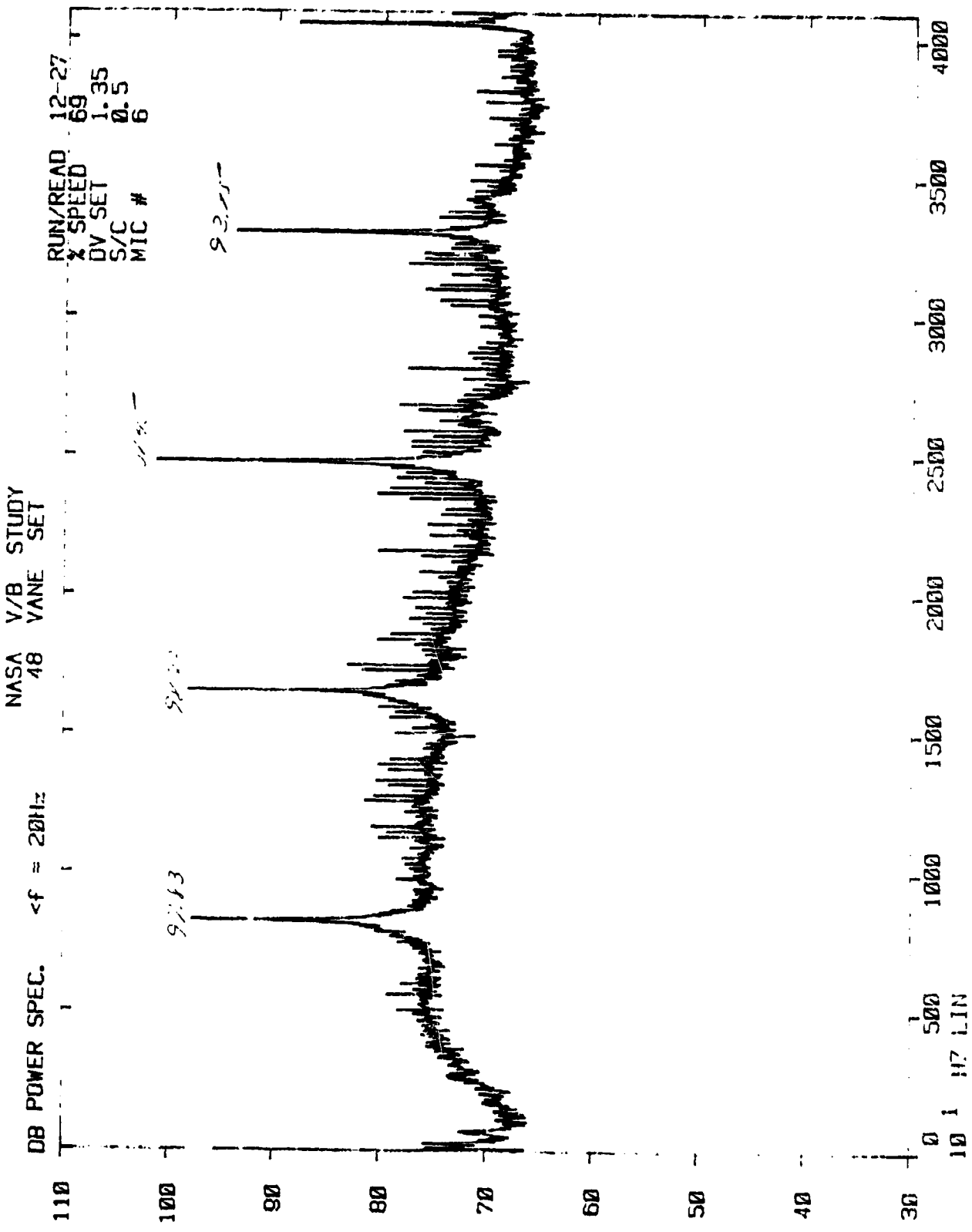
DB POWER SPEC.

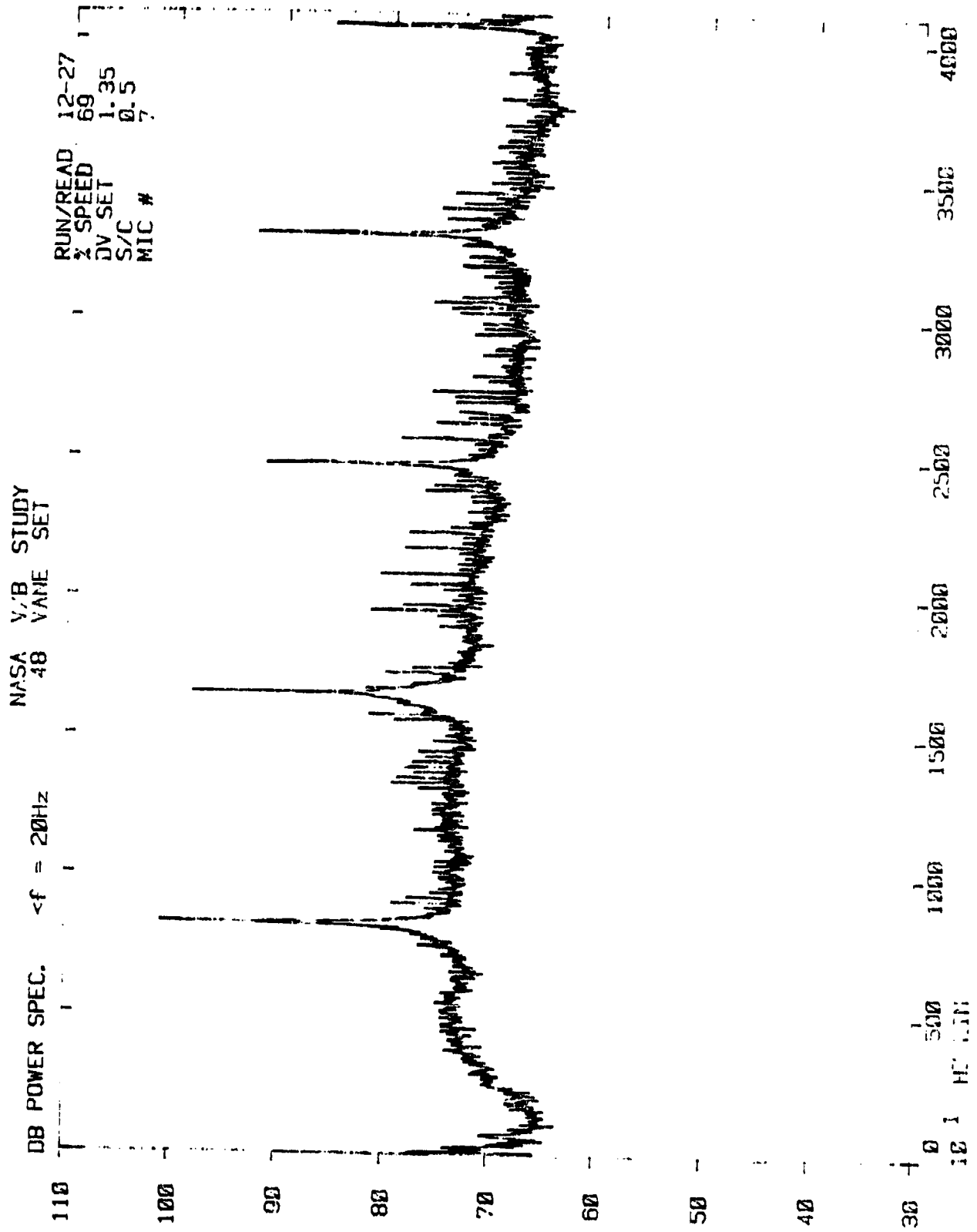
RUN/READ 12-27
% SPEED 69
DV SET 1.35
S/C 0.5
MIC # 4





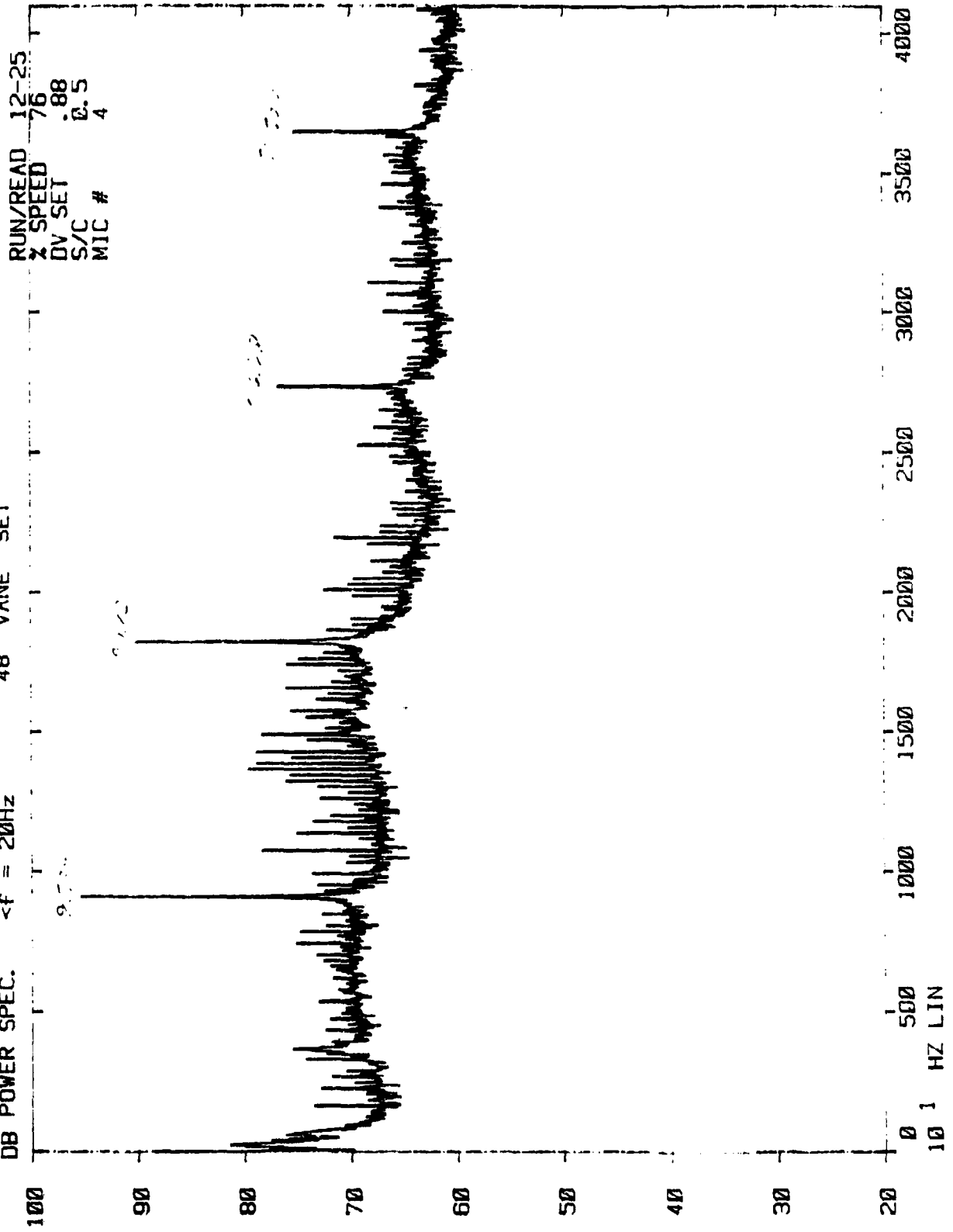
✓

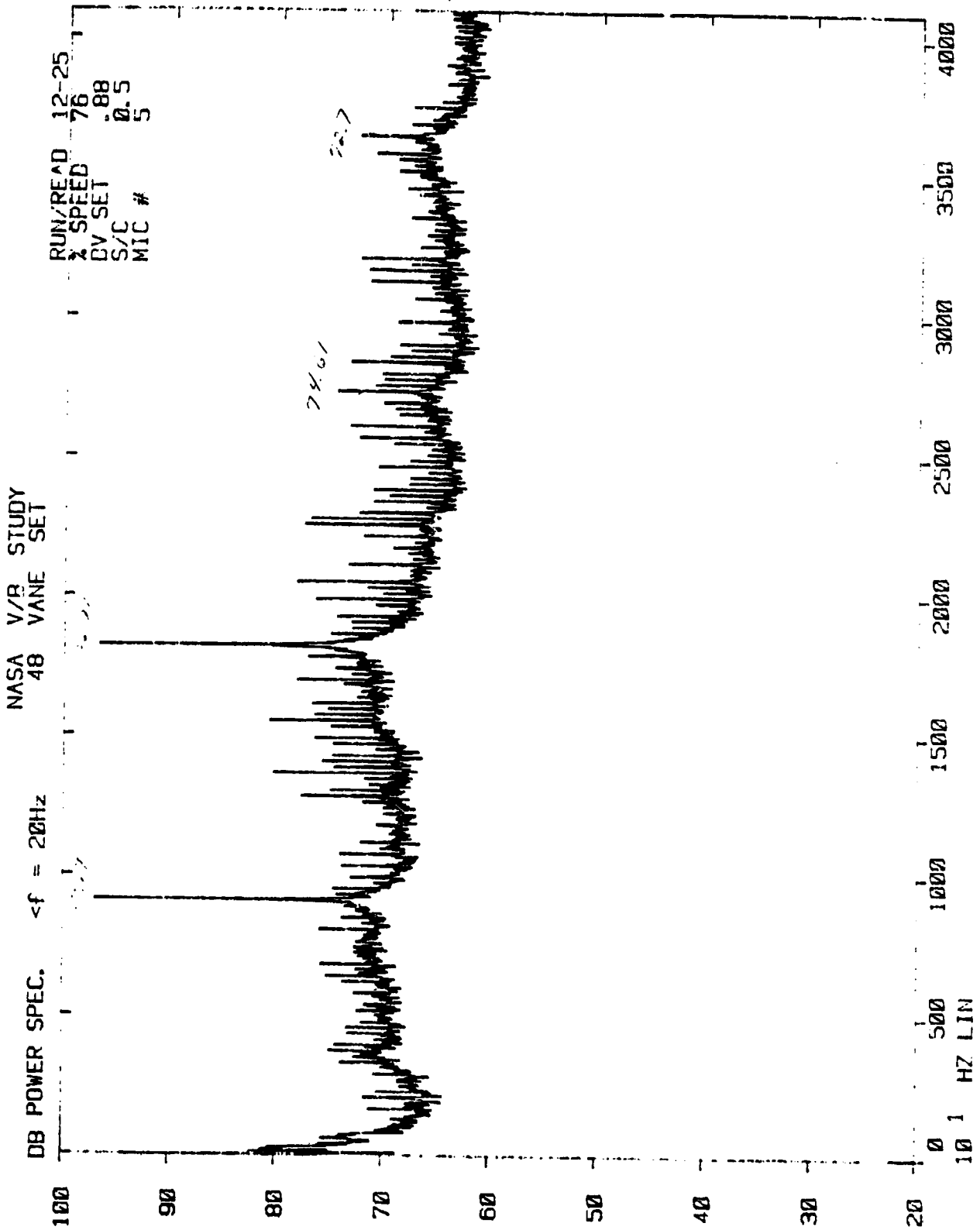




NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$

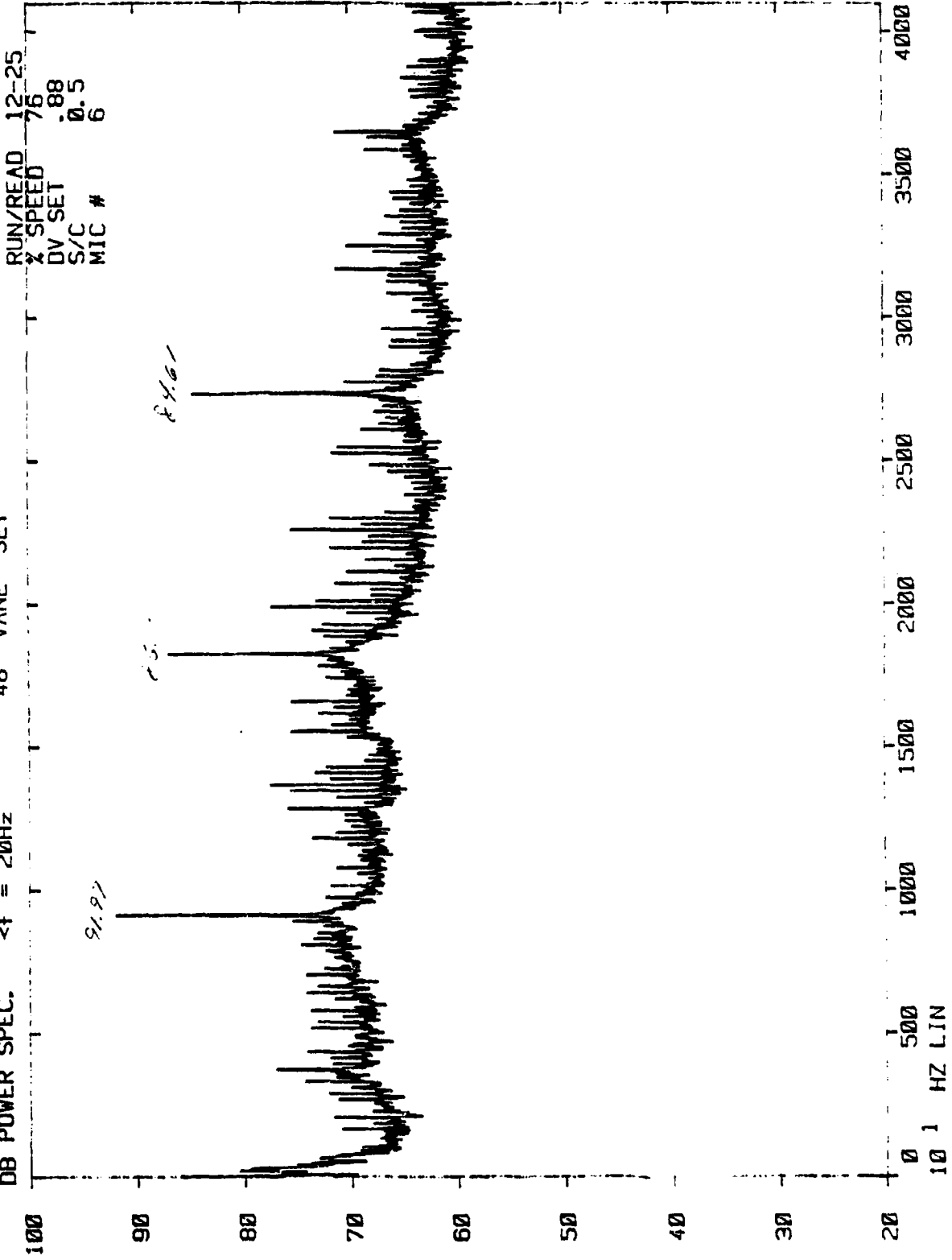




NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.



RUN/READ 12-25
% SPEED 75
DV SET .88
S/C 0.5
MIC # 6

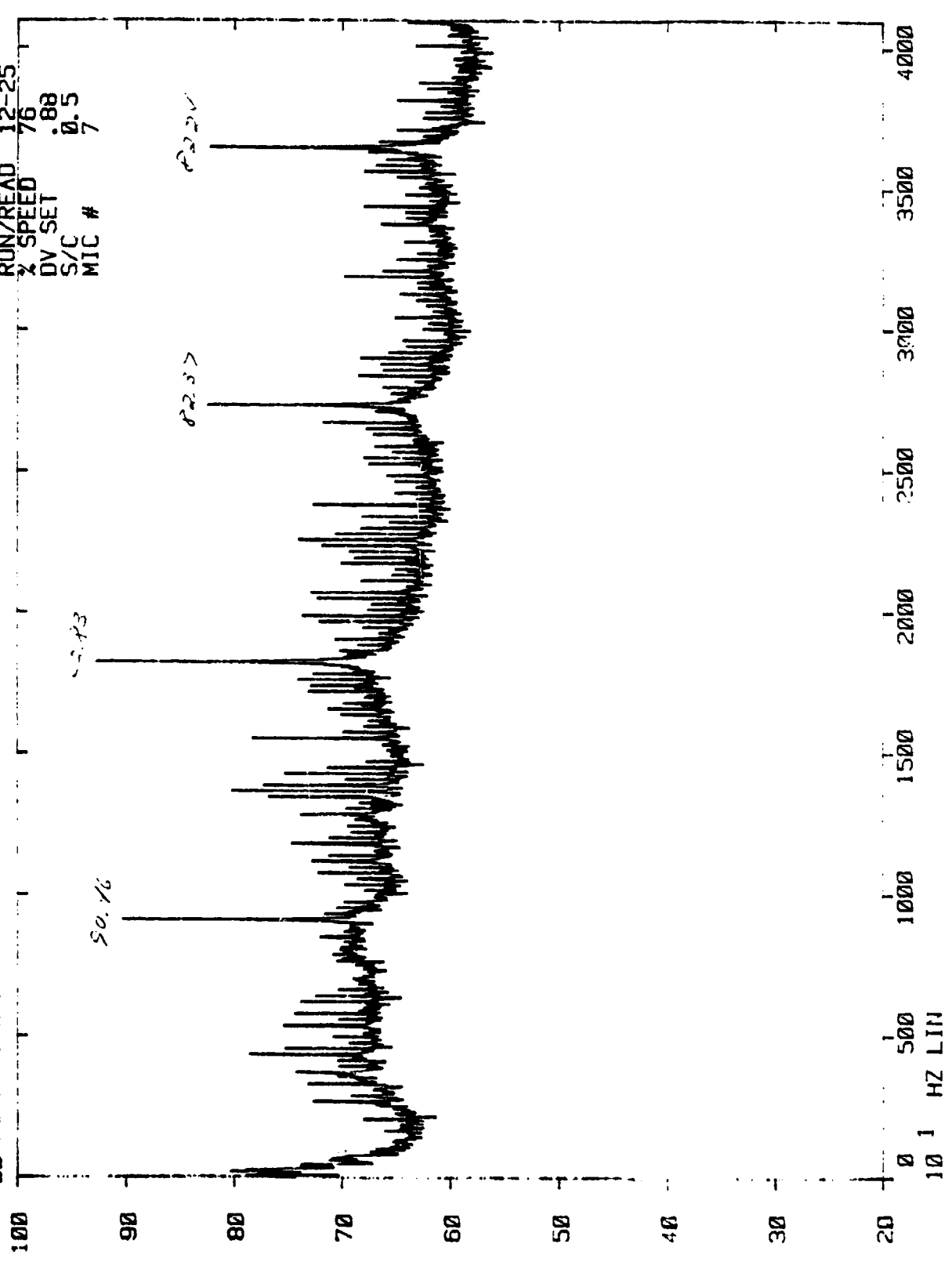
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

RUN/READ 12-25

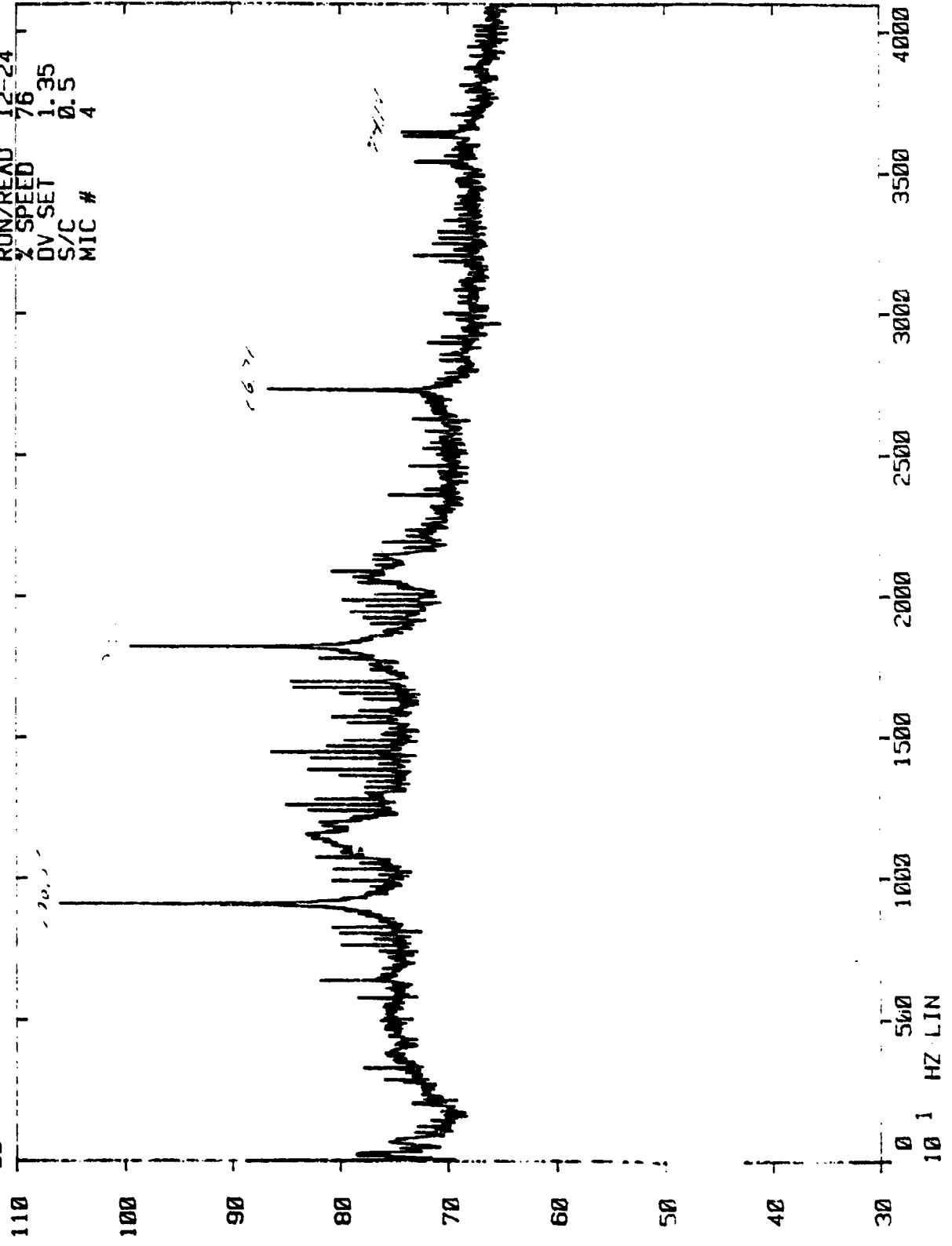
% SPEED 76
DV SET .88
S/C 0.5
MIC # 7

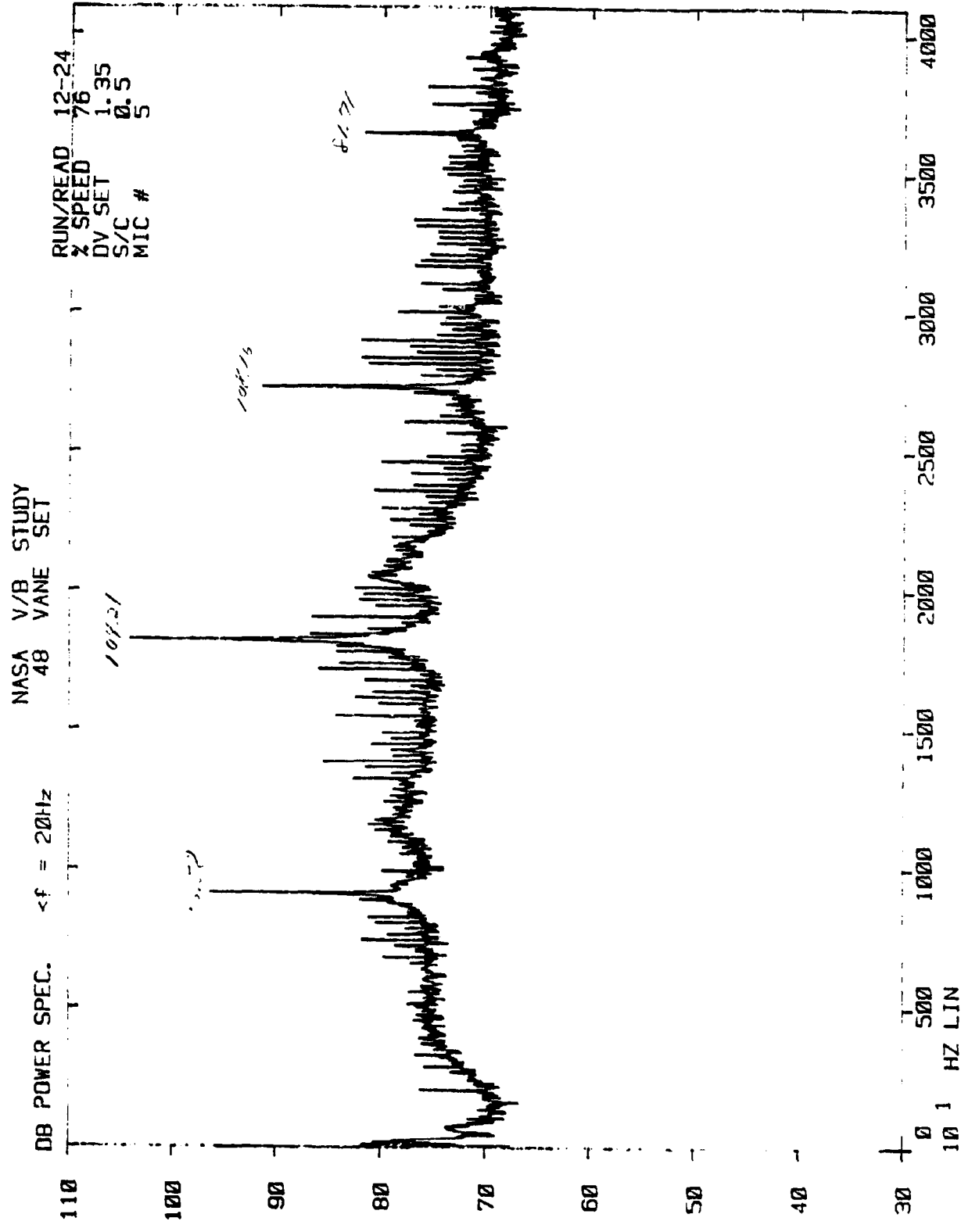


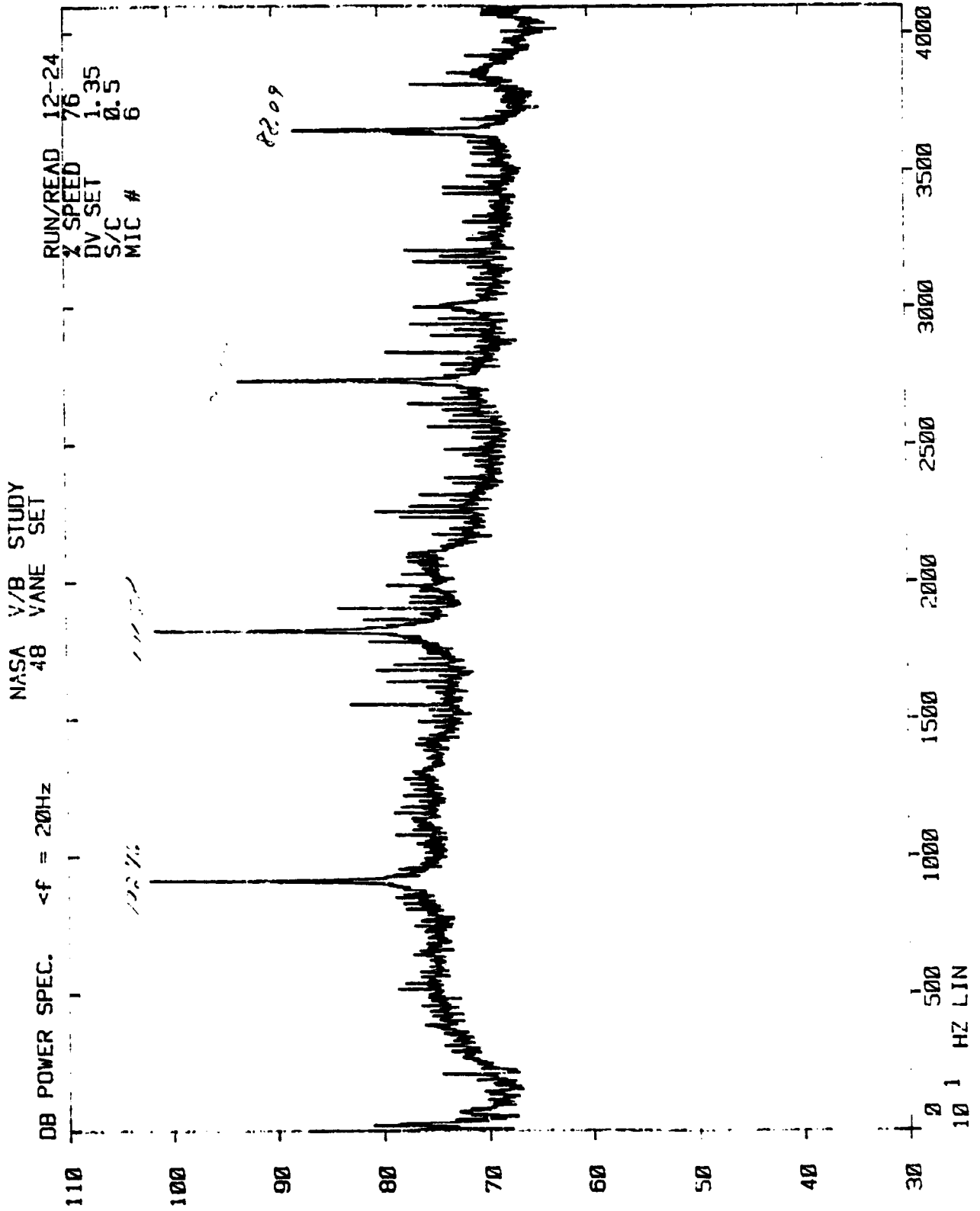
NASA V/B STUDY
48 VANE SET

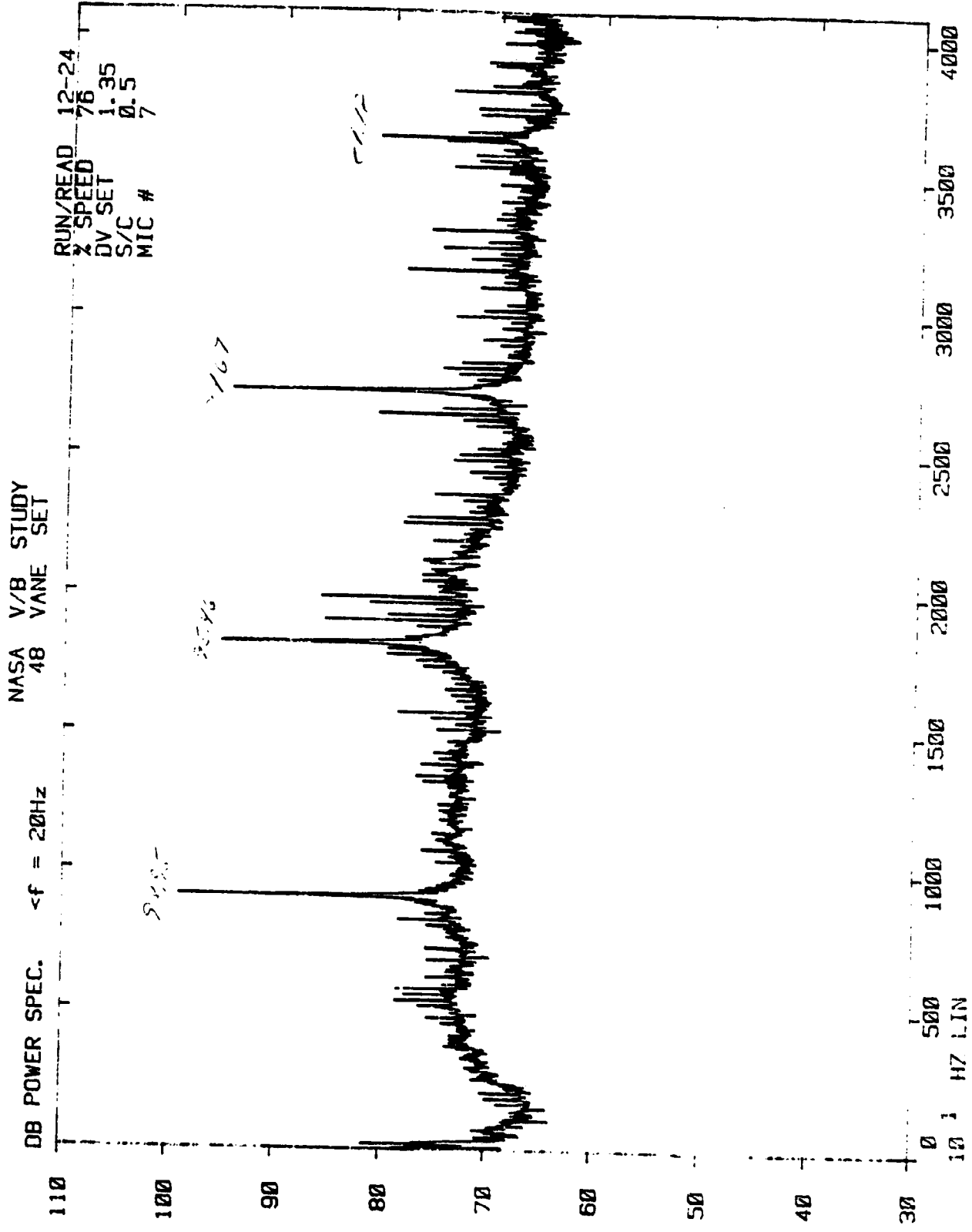
DB POWER SPEC. <f = 20Hz

RUN/READ 12-24
% SPEED 76
DV SET 1.35
S/C 0.5
MIC # 4







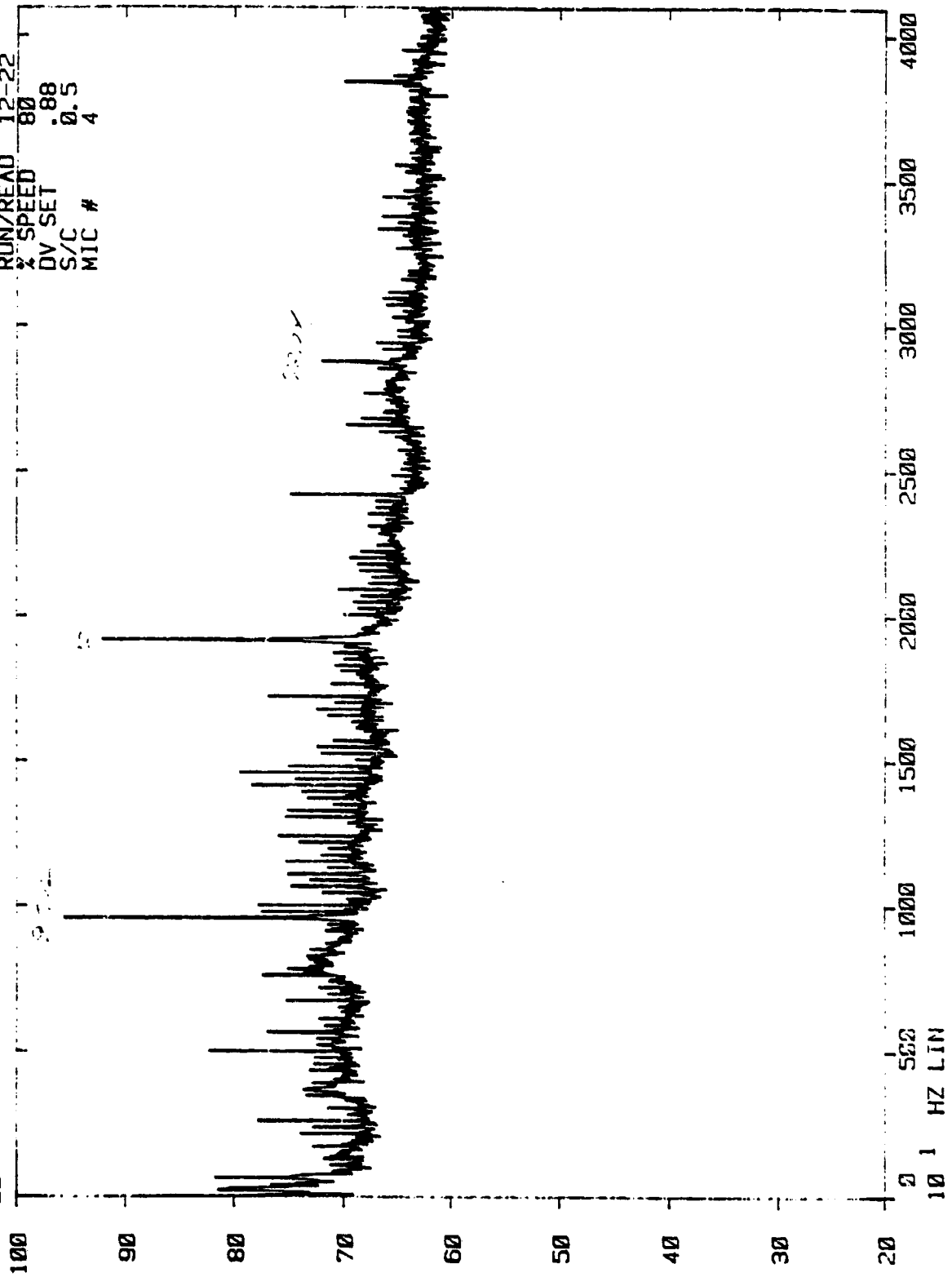


NASA V/B STUDY
48 VANE SET

<f = 20Hz

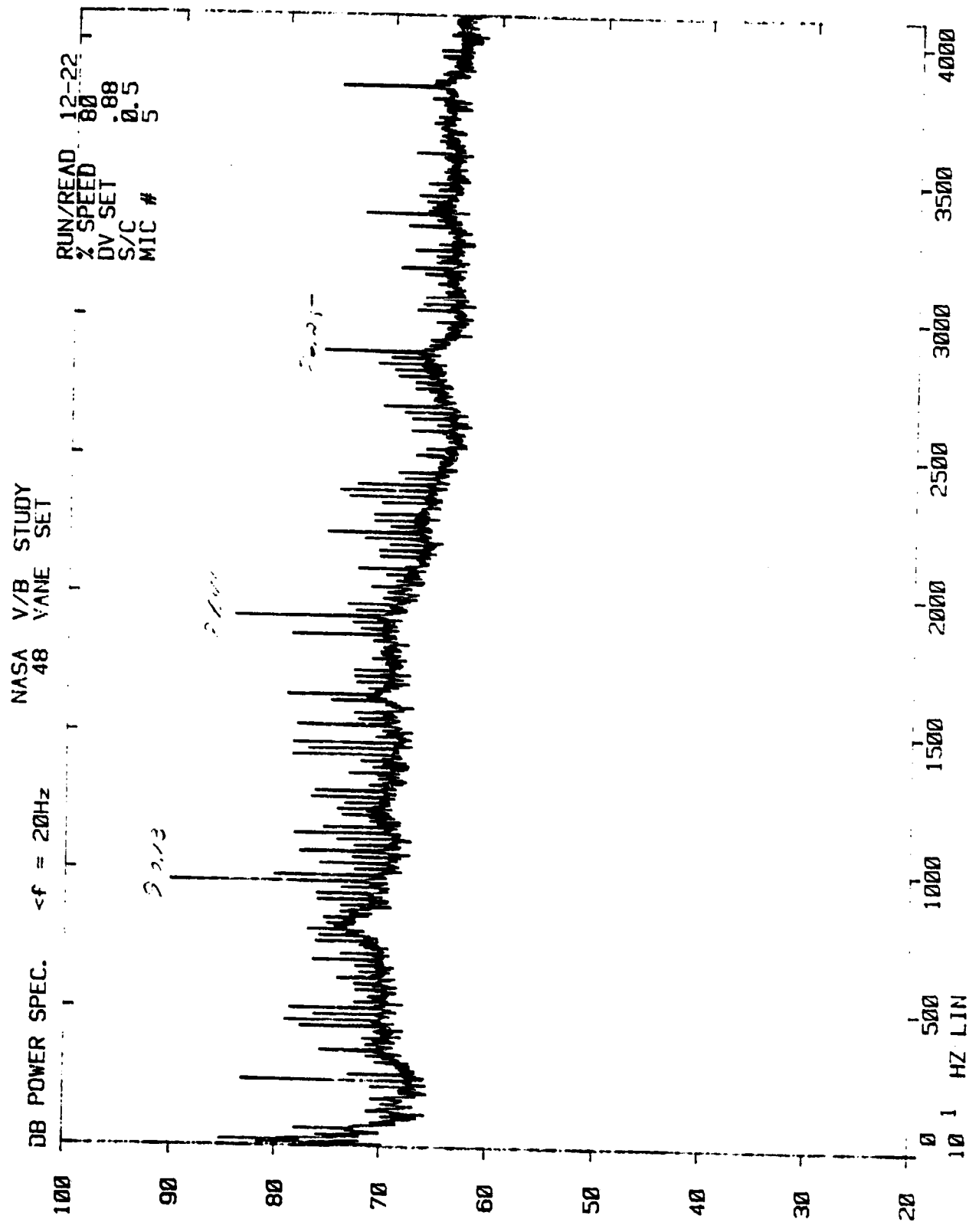
DB POWER SPEC.

RUN/READ 12-22
% SPEED 80
DV SET .88
S/C 0.5
MIC # 4



✓

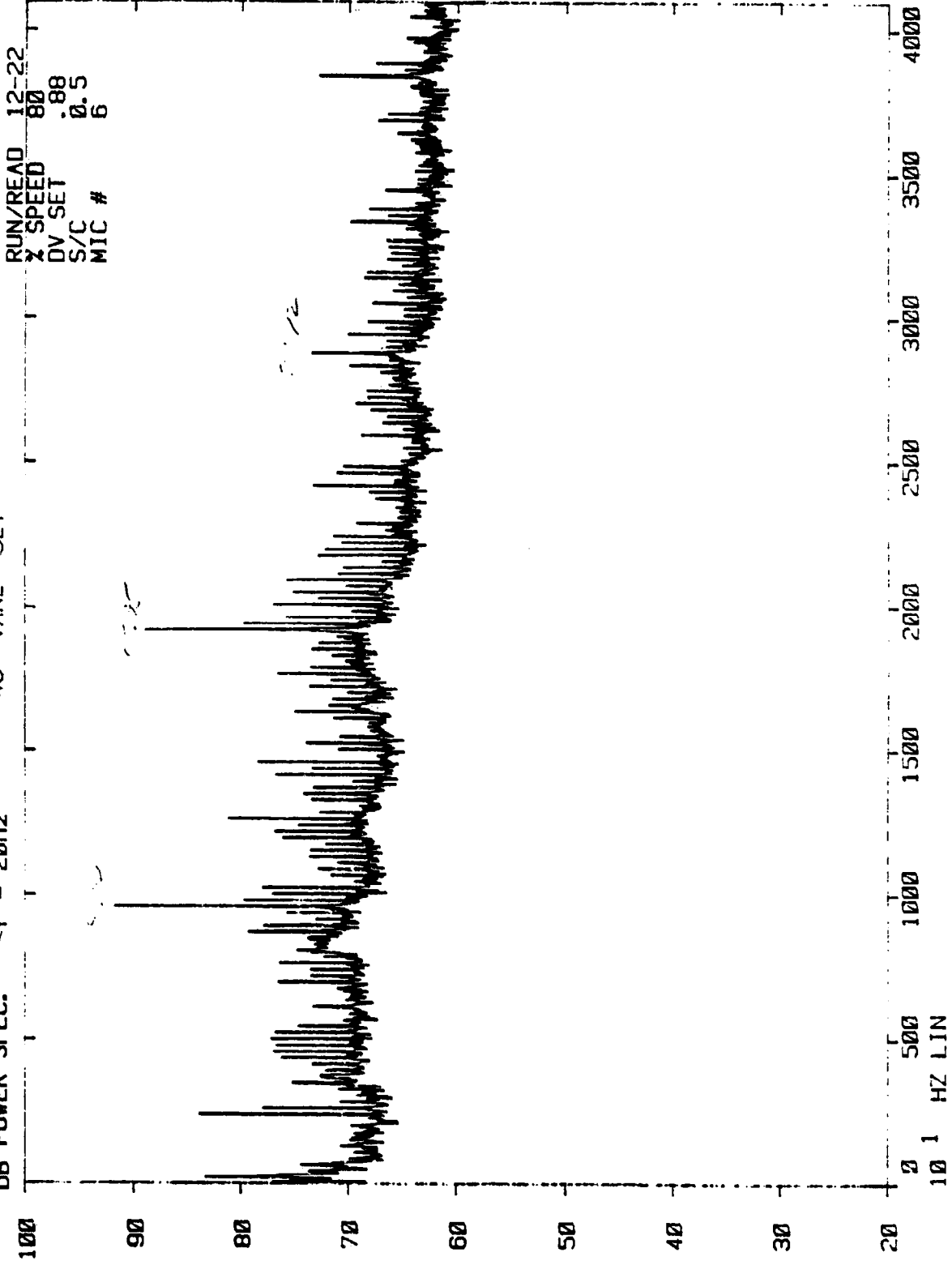
Aish



(4)

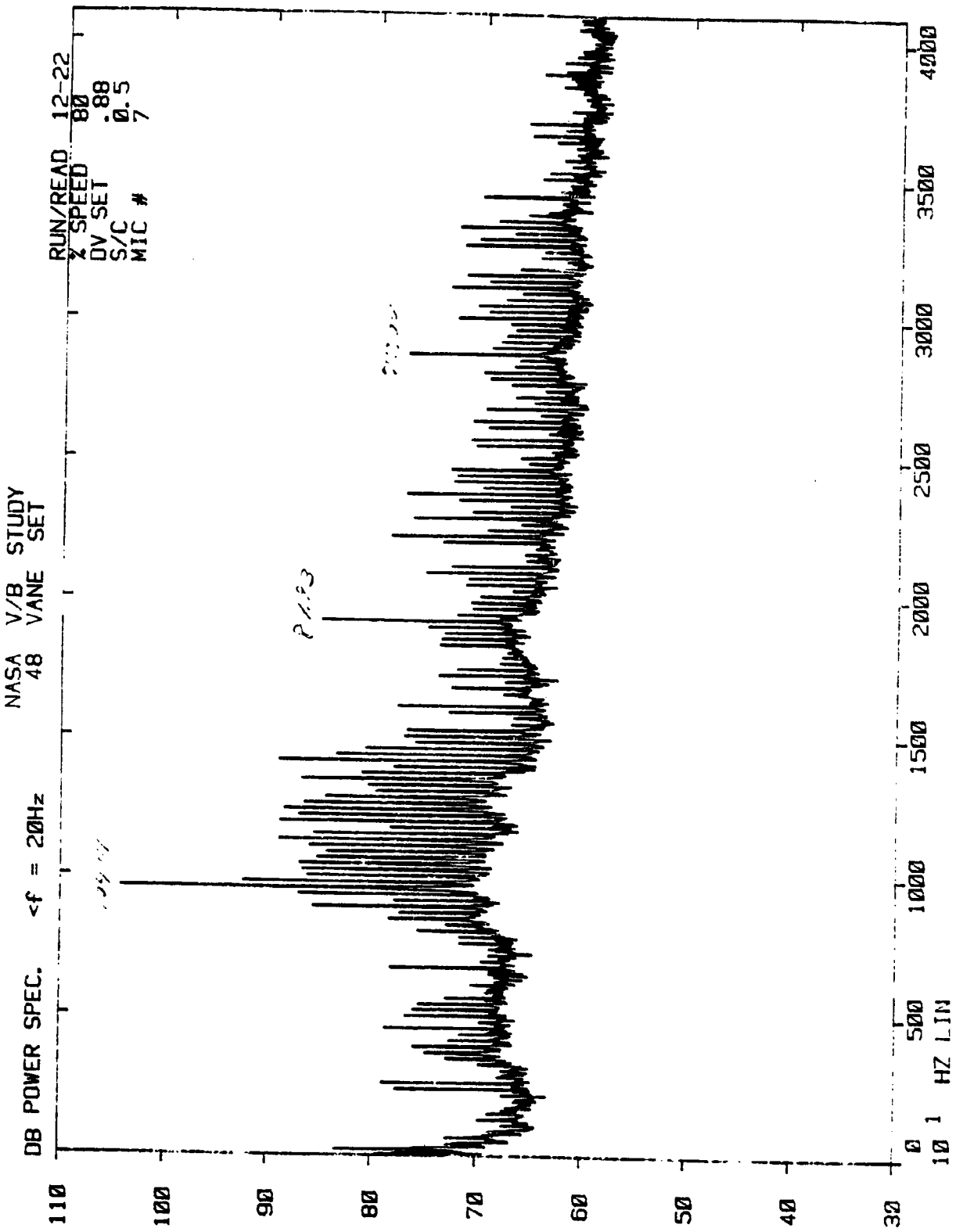
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

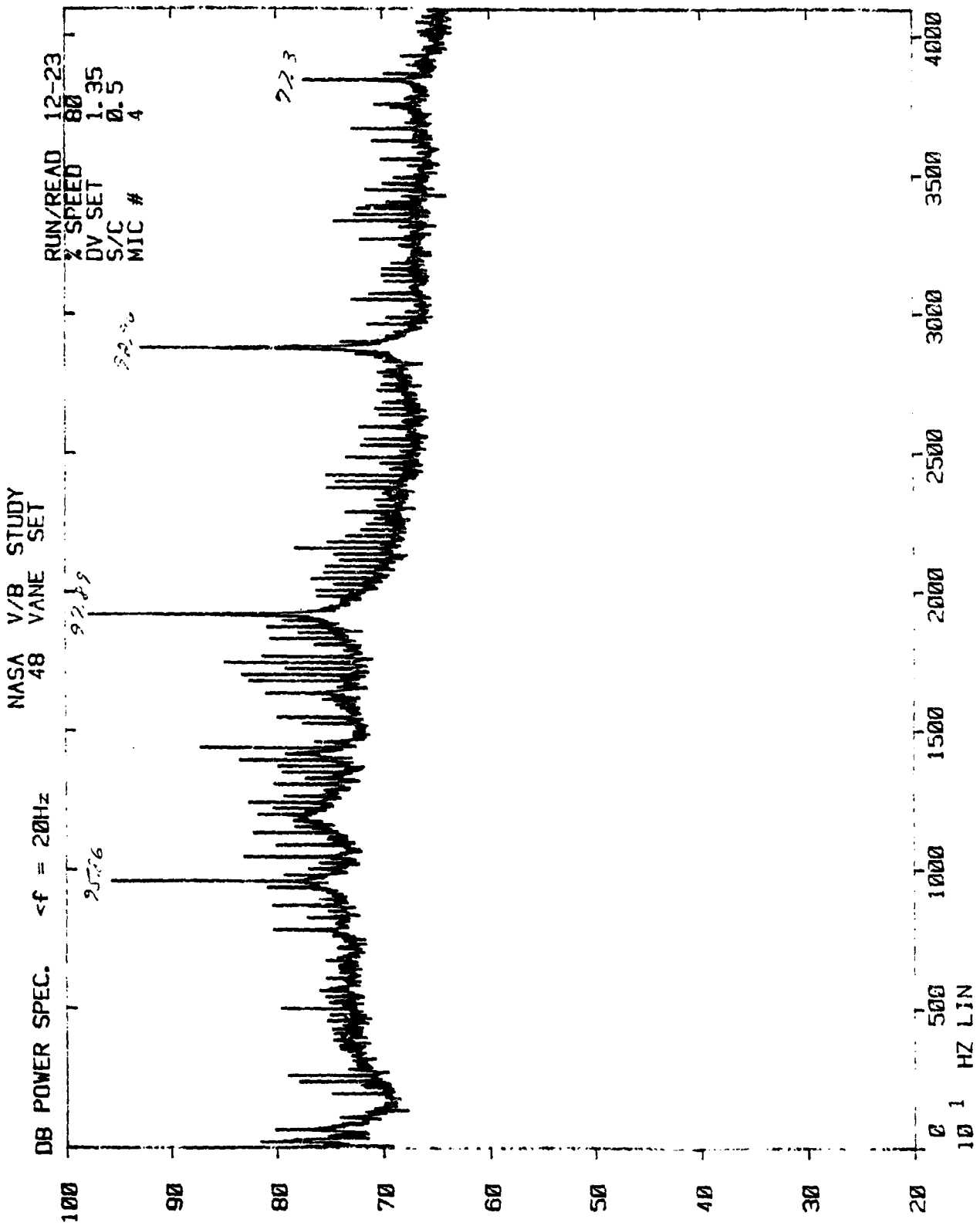


RUN/READ 12-22
X SPEED 80
DV SET .88
S/C 0.5
MIC # 6

✓



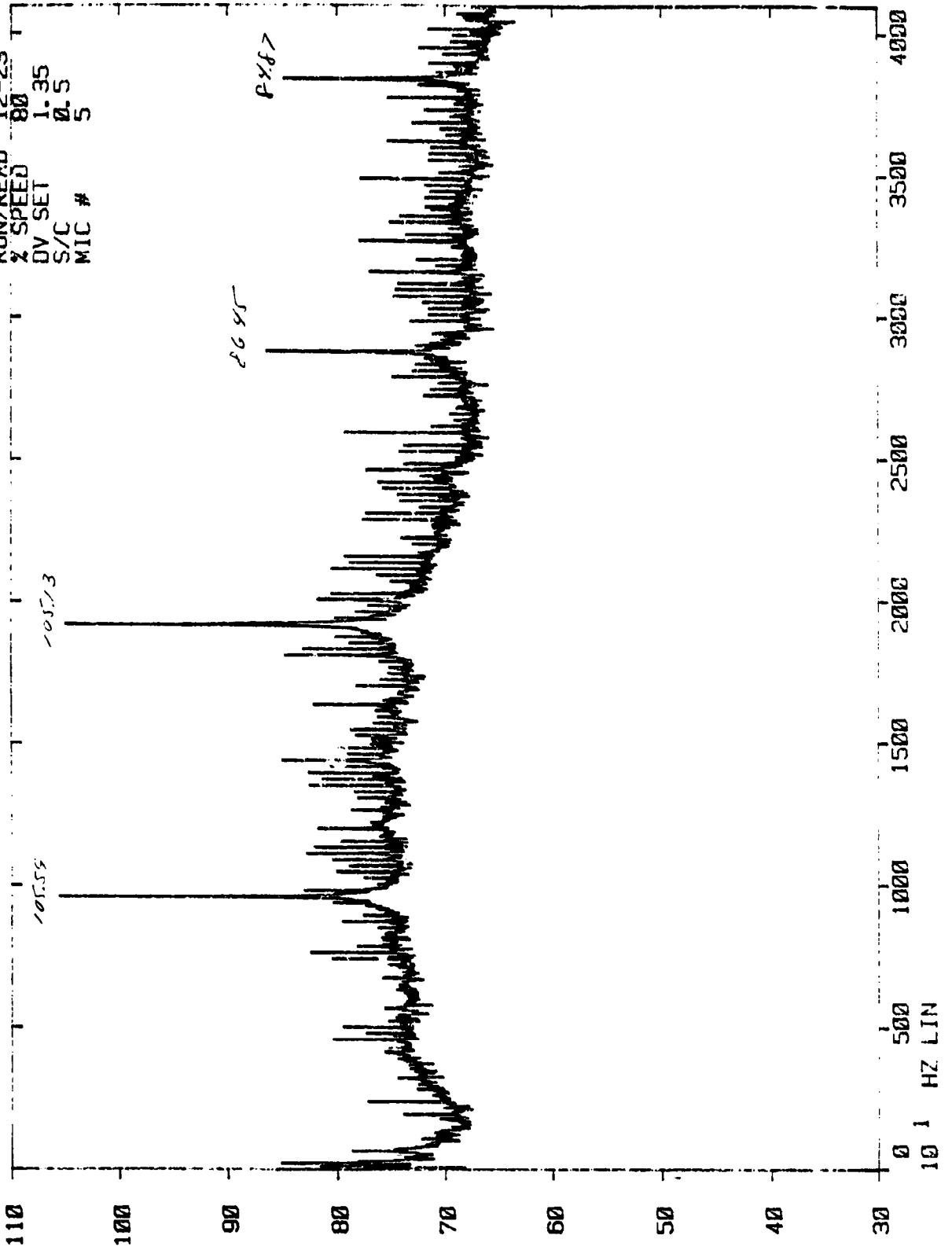
✓



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $<f = 20\text{Hz}$

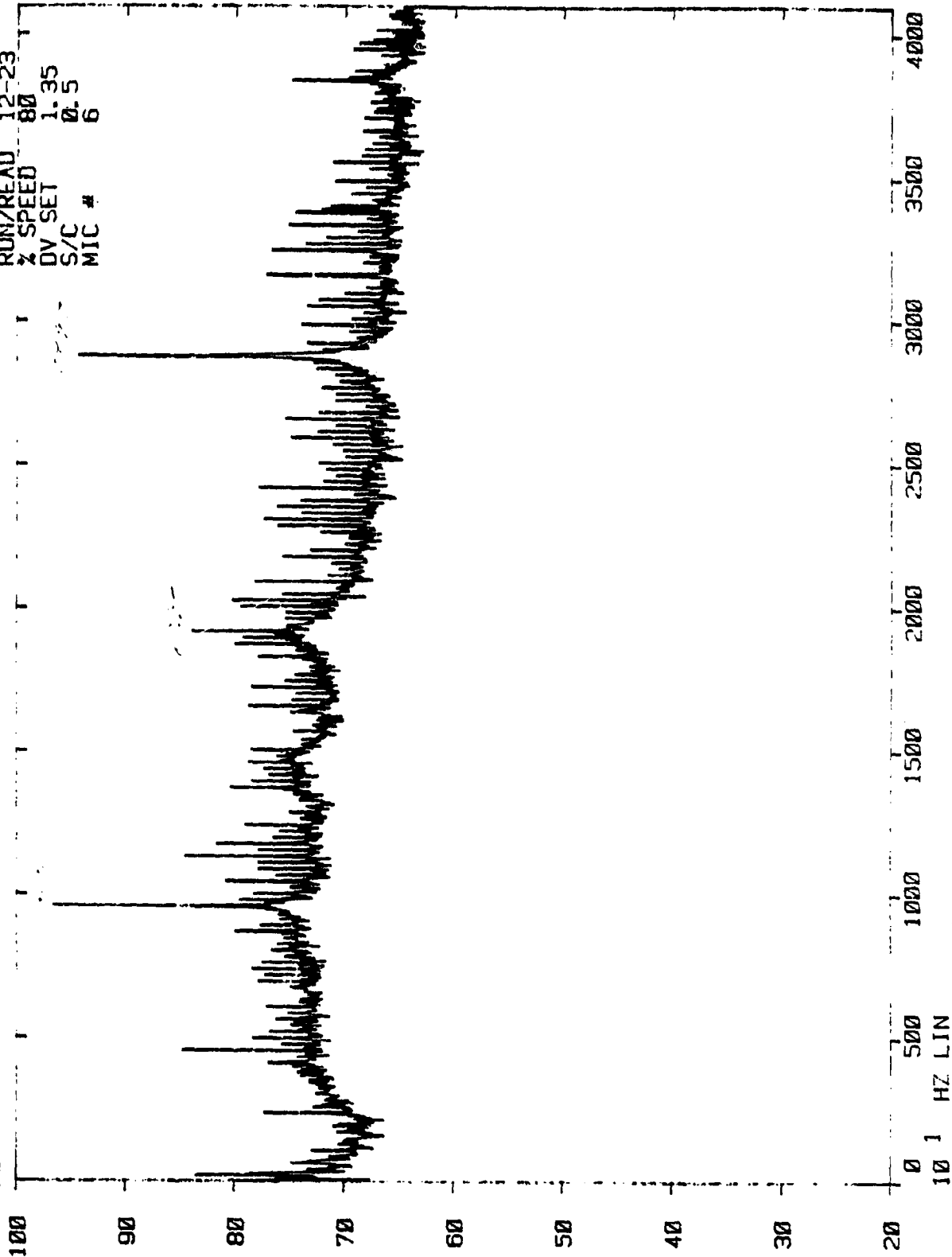
12-23
RUN/READ 80
2 SPEED 1.35
DV SET 0.5
S/C 5
MIC #

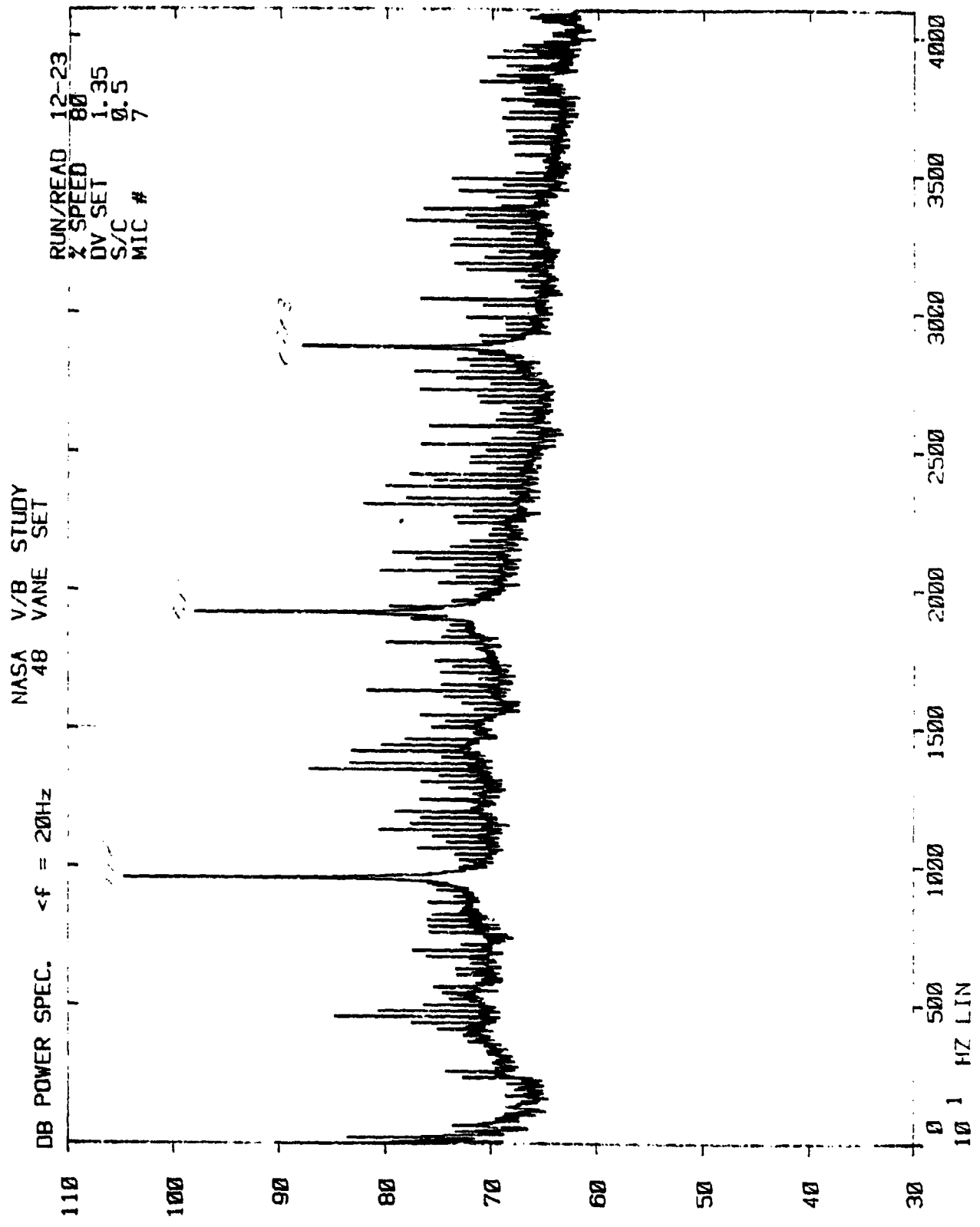


NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

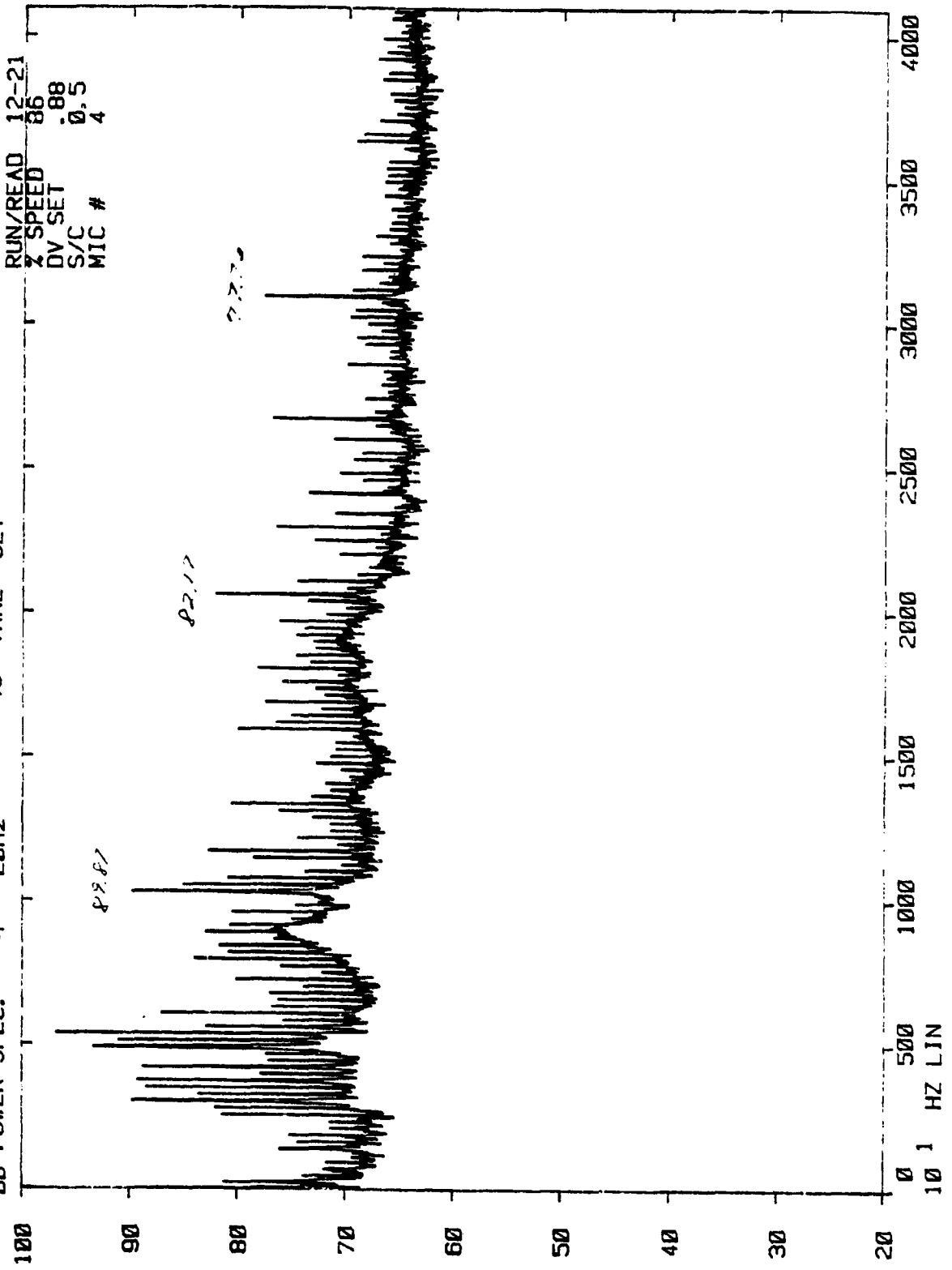




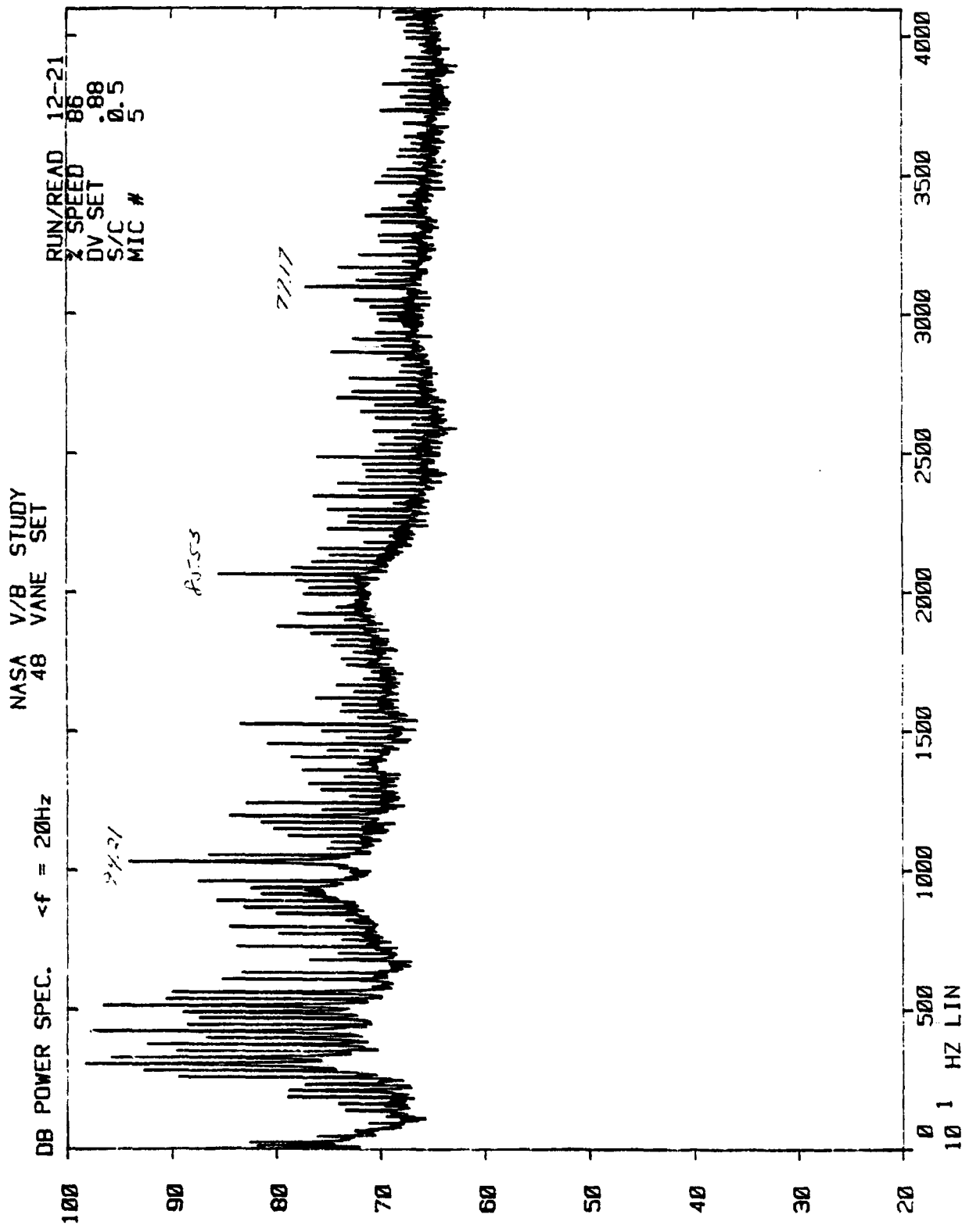
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

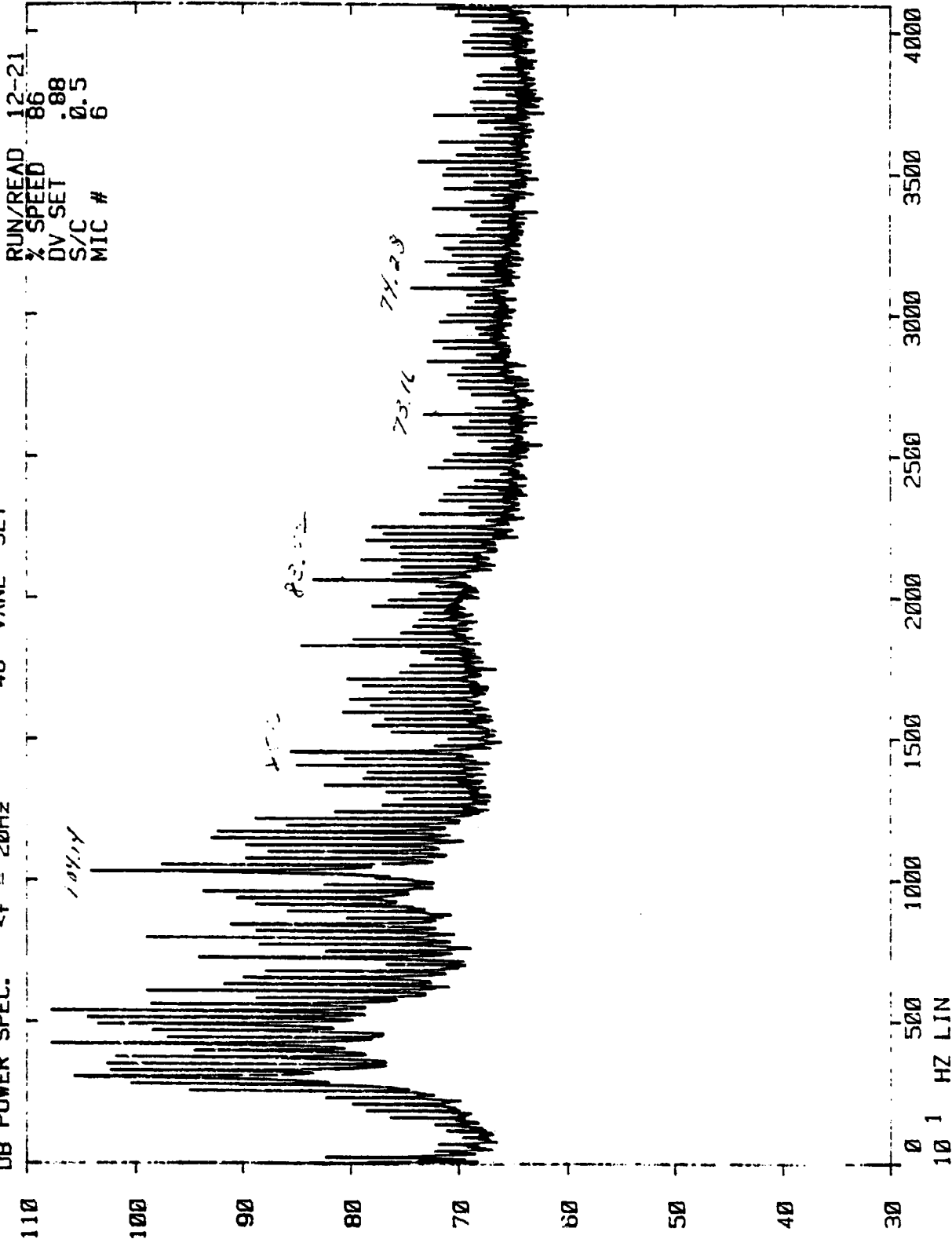


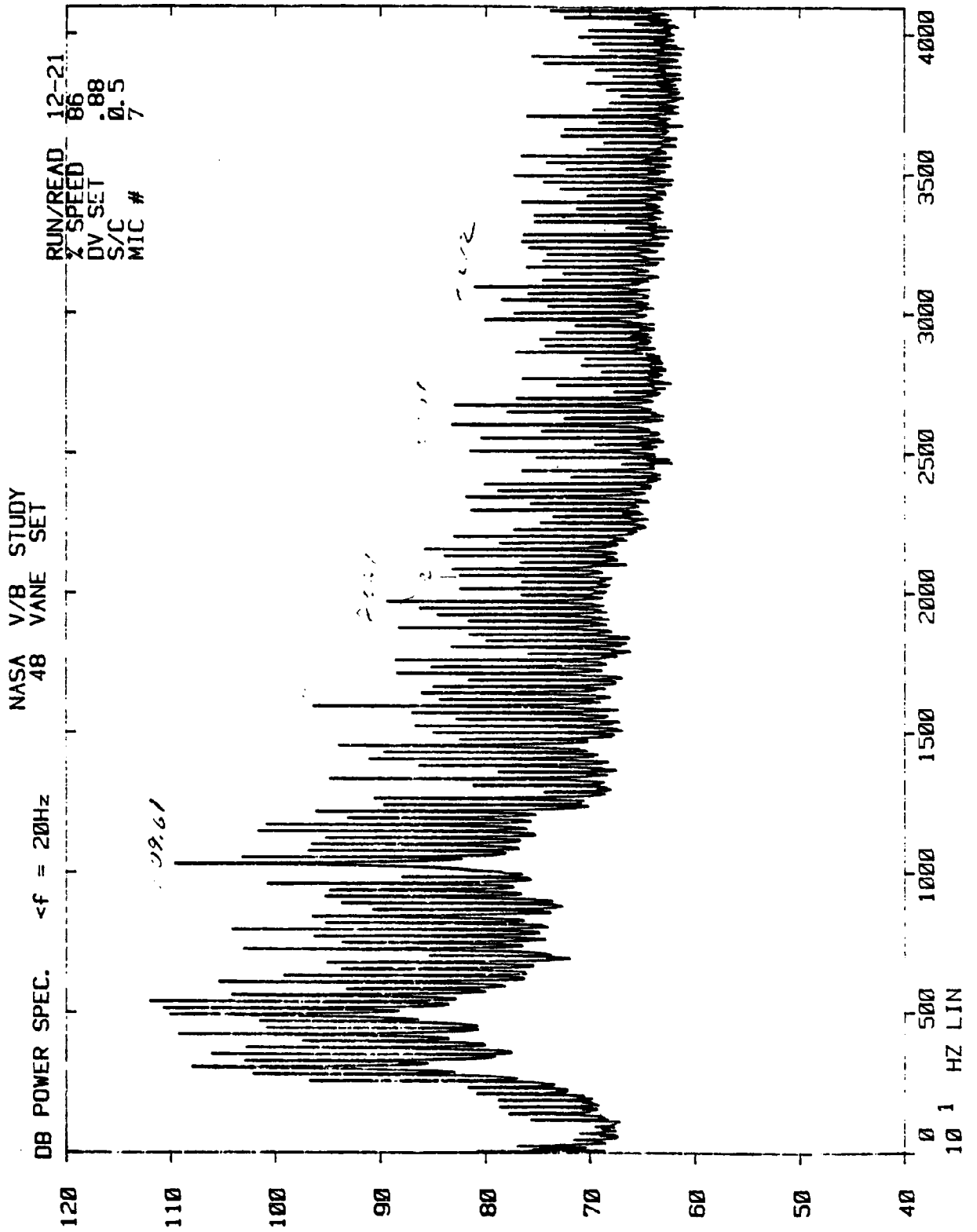
✓



NASA V/B STUDY
48 VANE SET

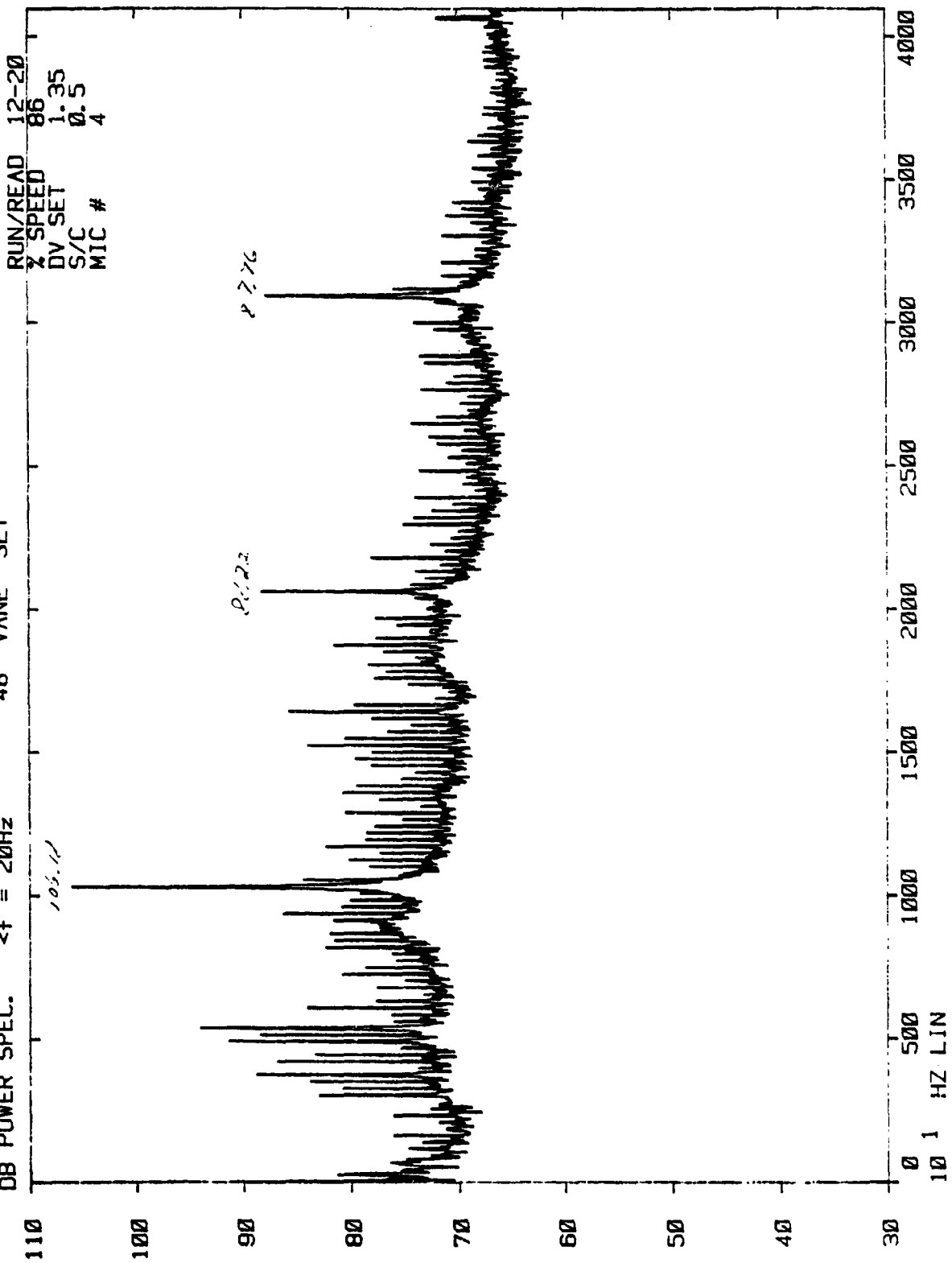
DB POWER SPEC. <f = 20Hz





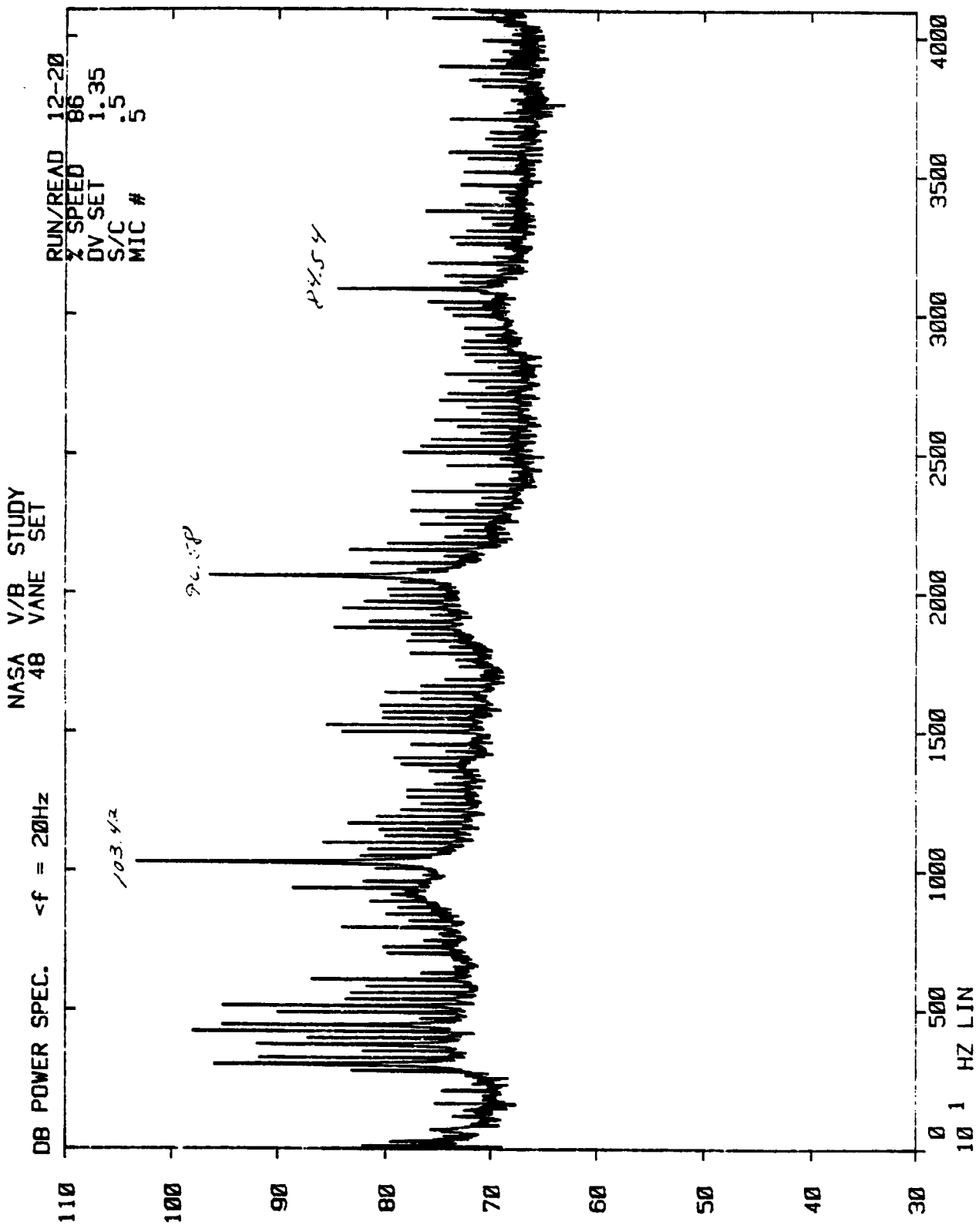
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

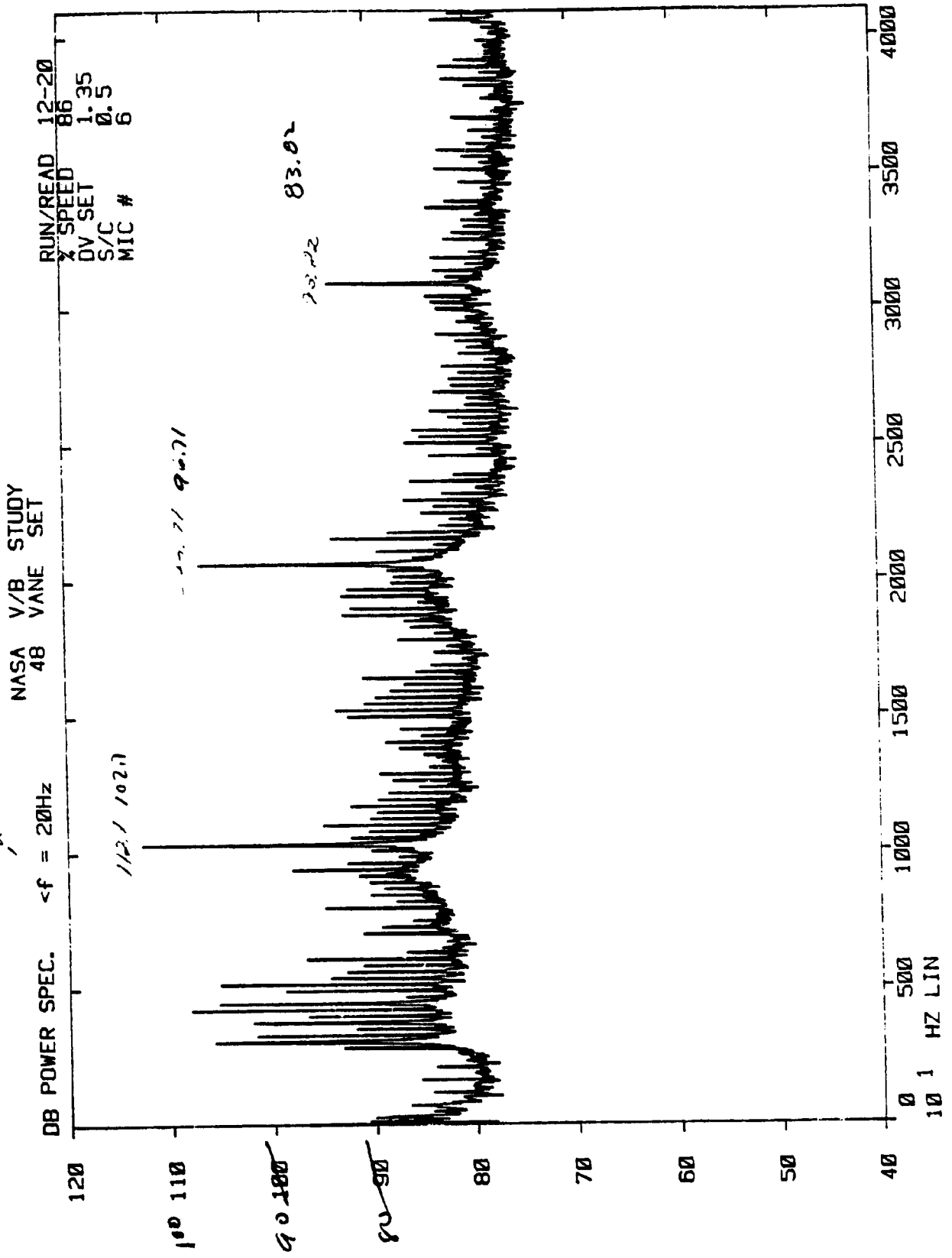


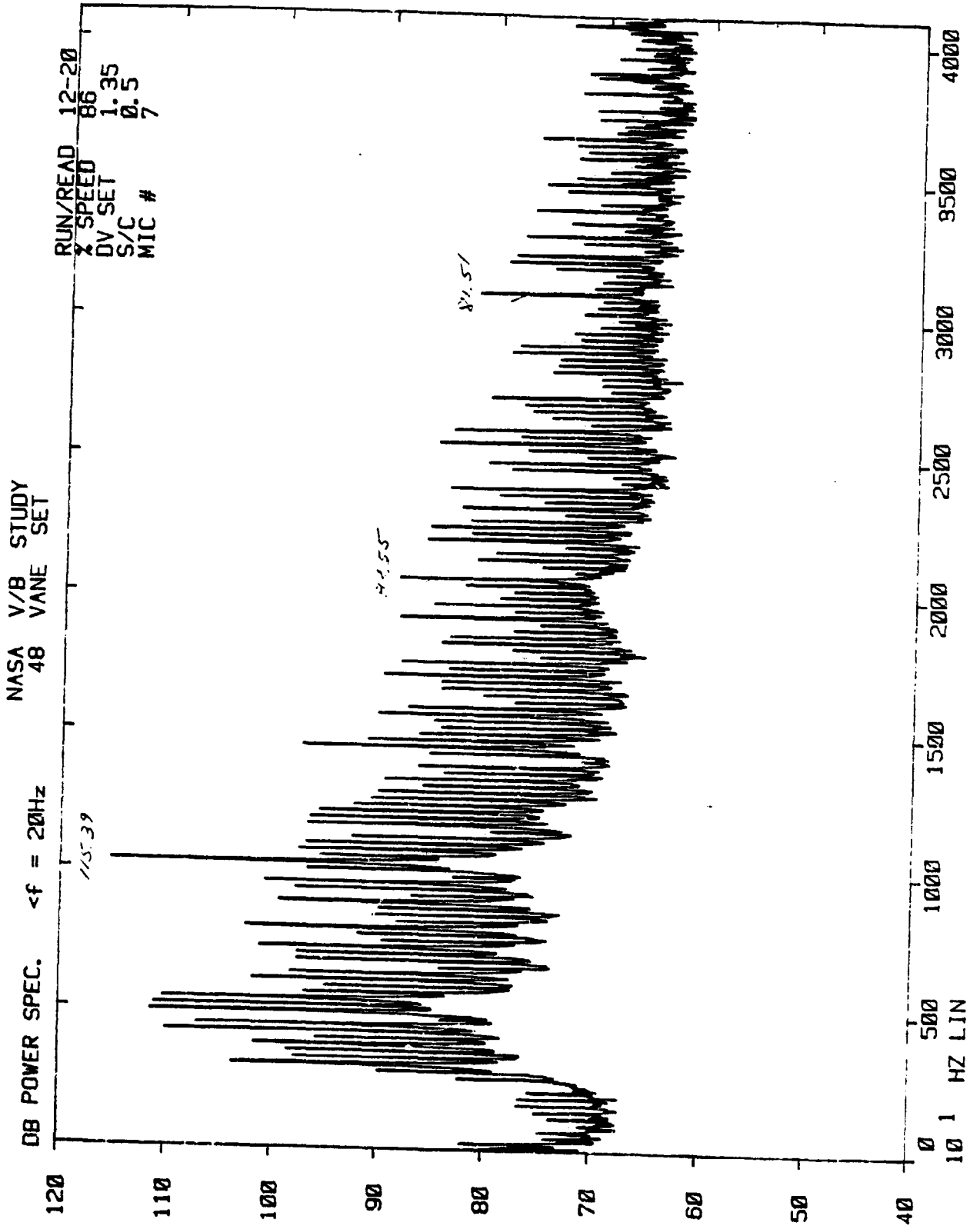
RUN/READ 12-20
% SPEED 86
DV SET 1.35
S/C 0.5
MIC # 4

12



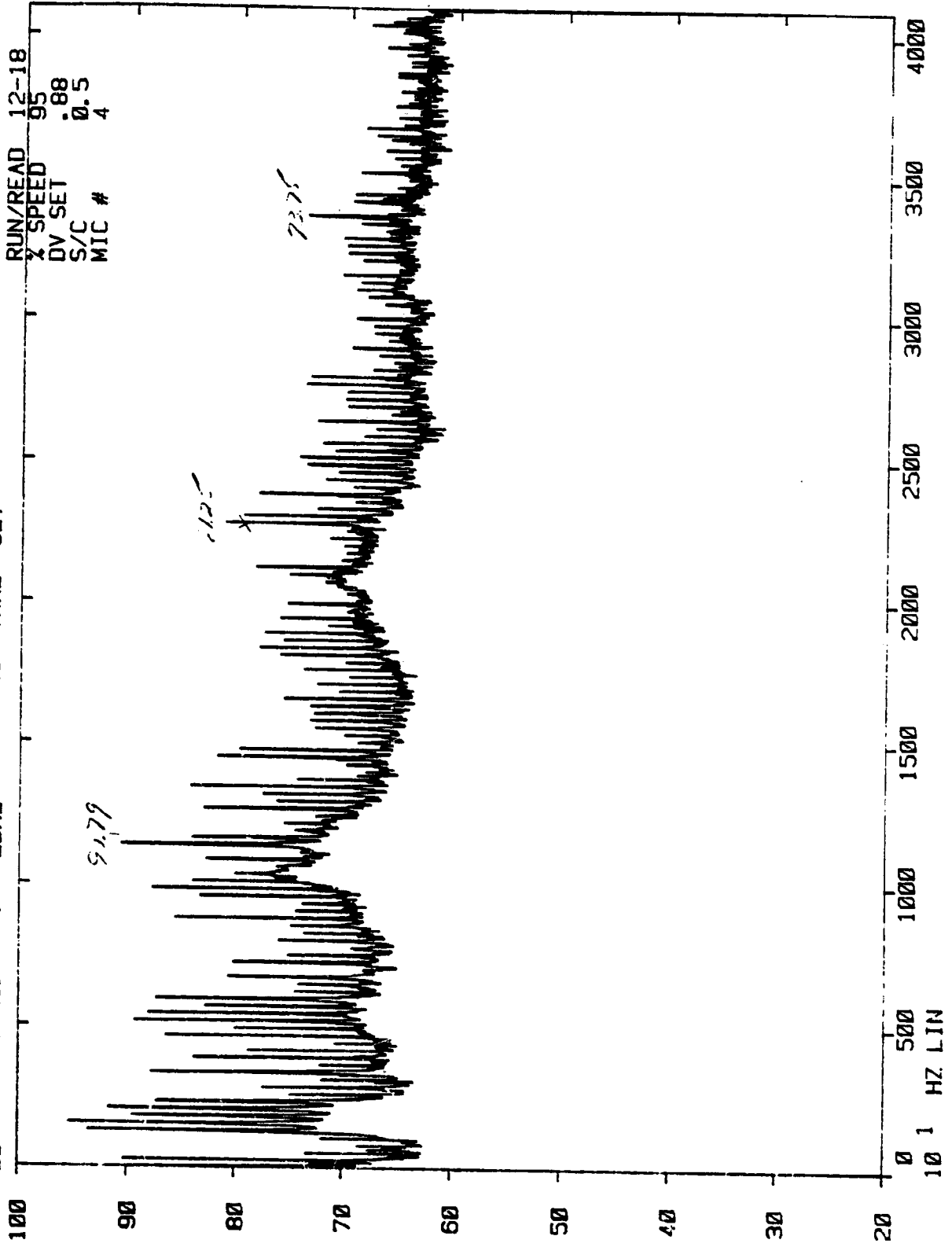
✓
110 dB
110 Hz
100 Hz





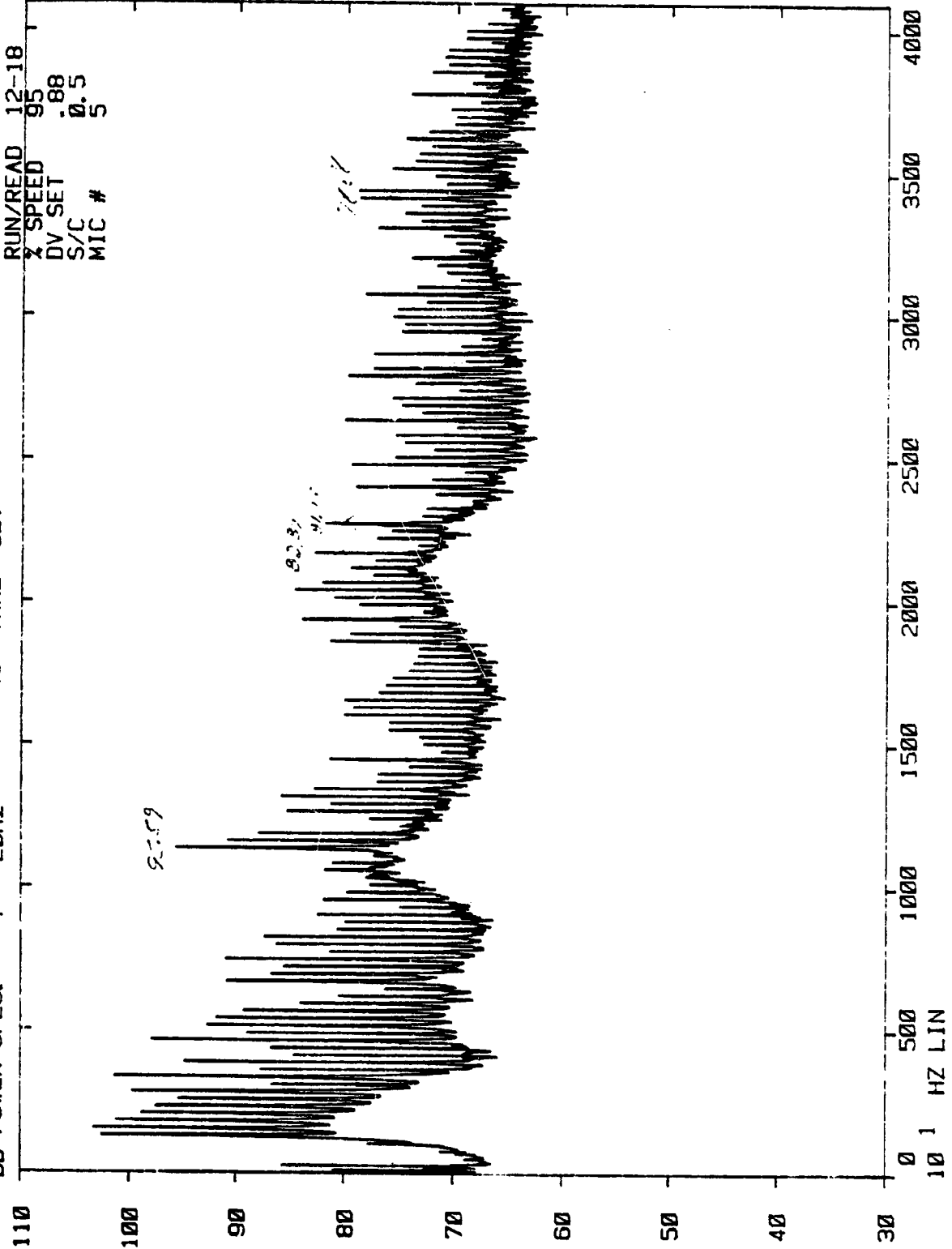
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $<f = 20\text{Hz}$



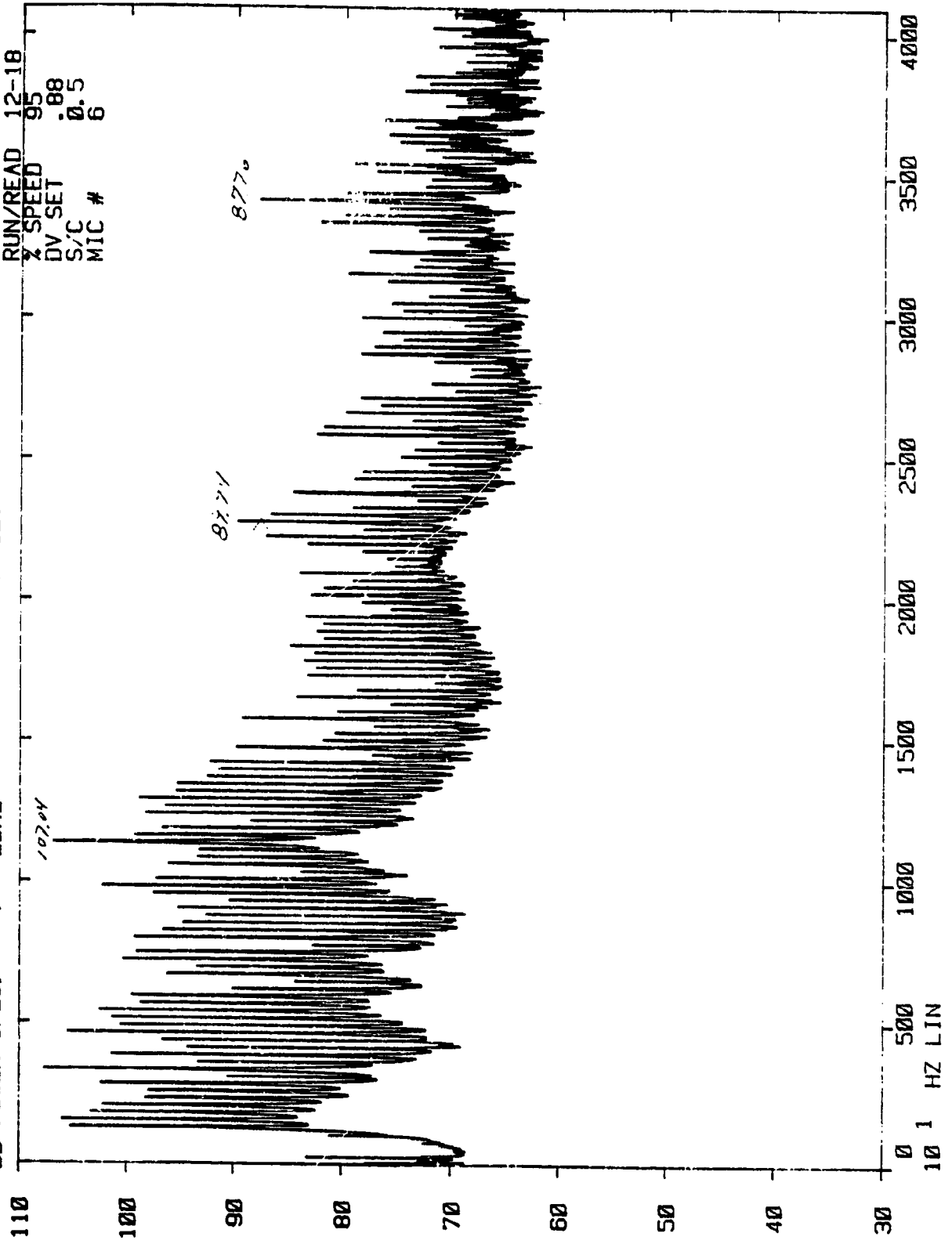
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
48 VANE SET

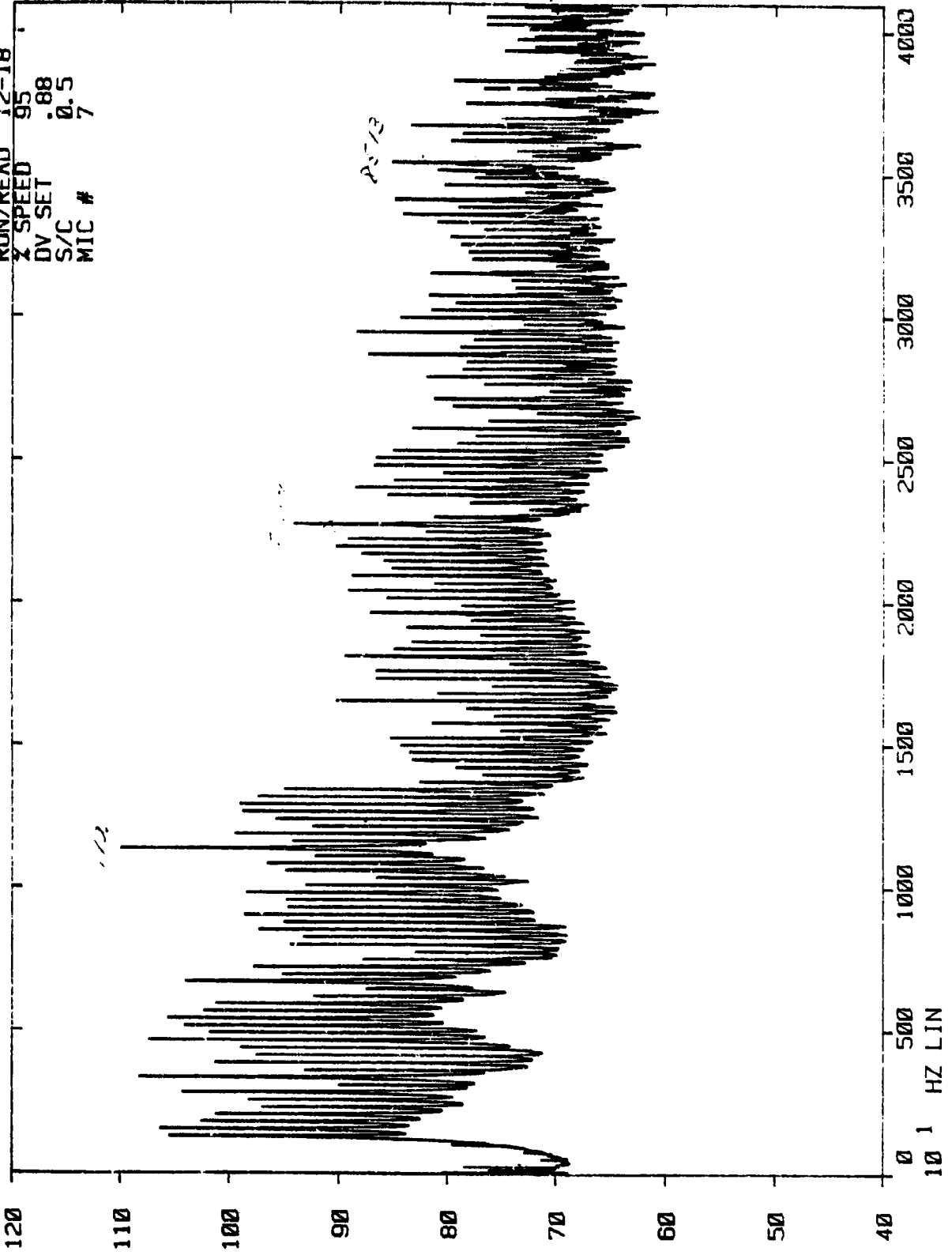
DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$

RUN/READ 12-18
Z SPEED 95
DV SET .88
S/C 0.5
MIC # 7

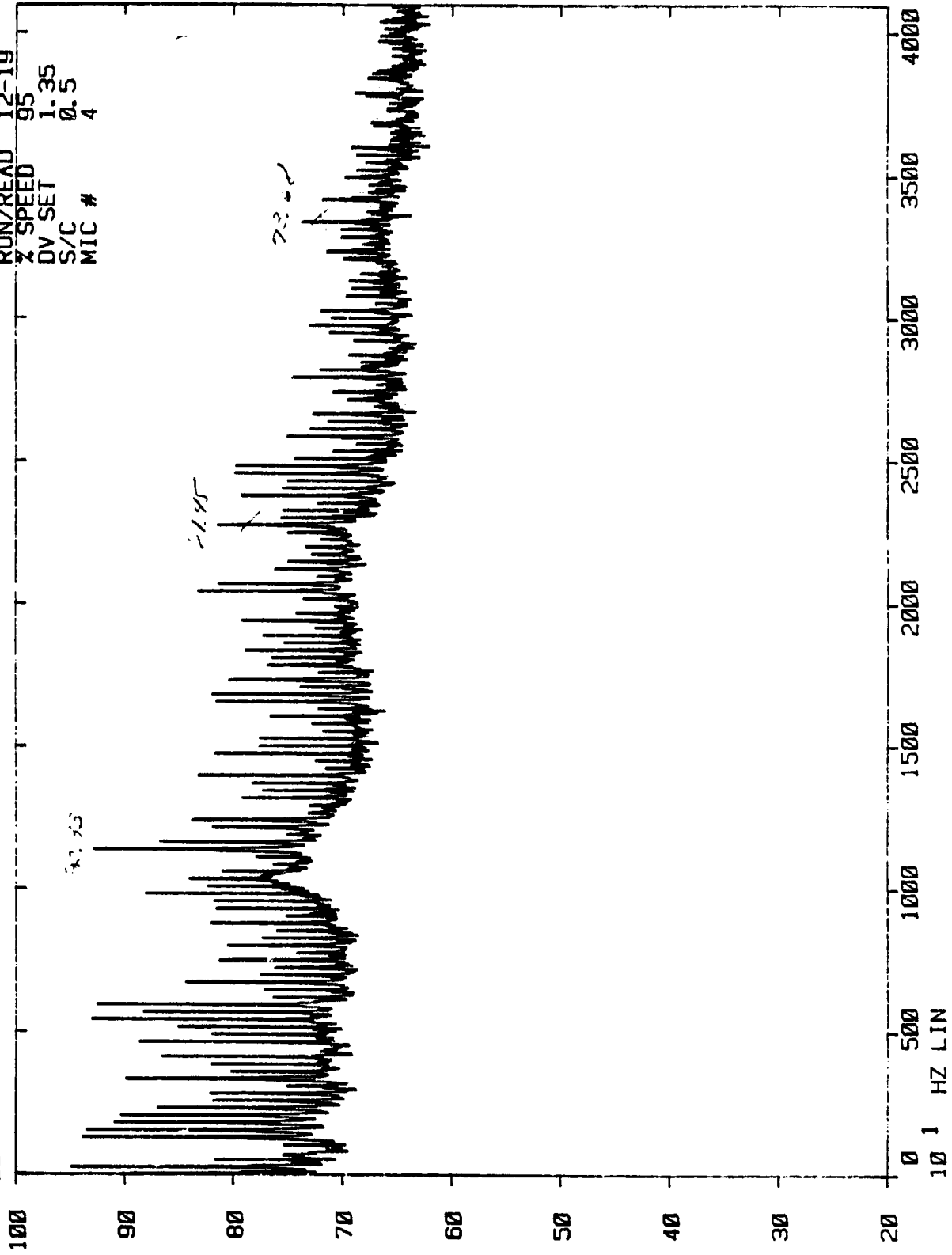


✓

NASA V/B STUDY
48 VANE SET

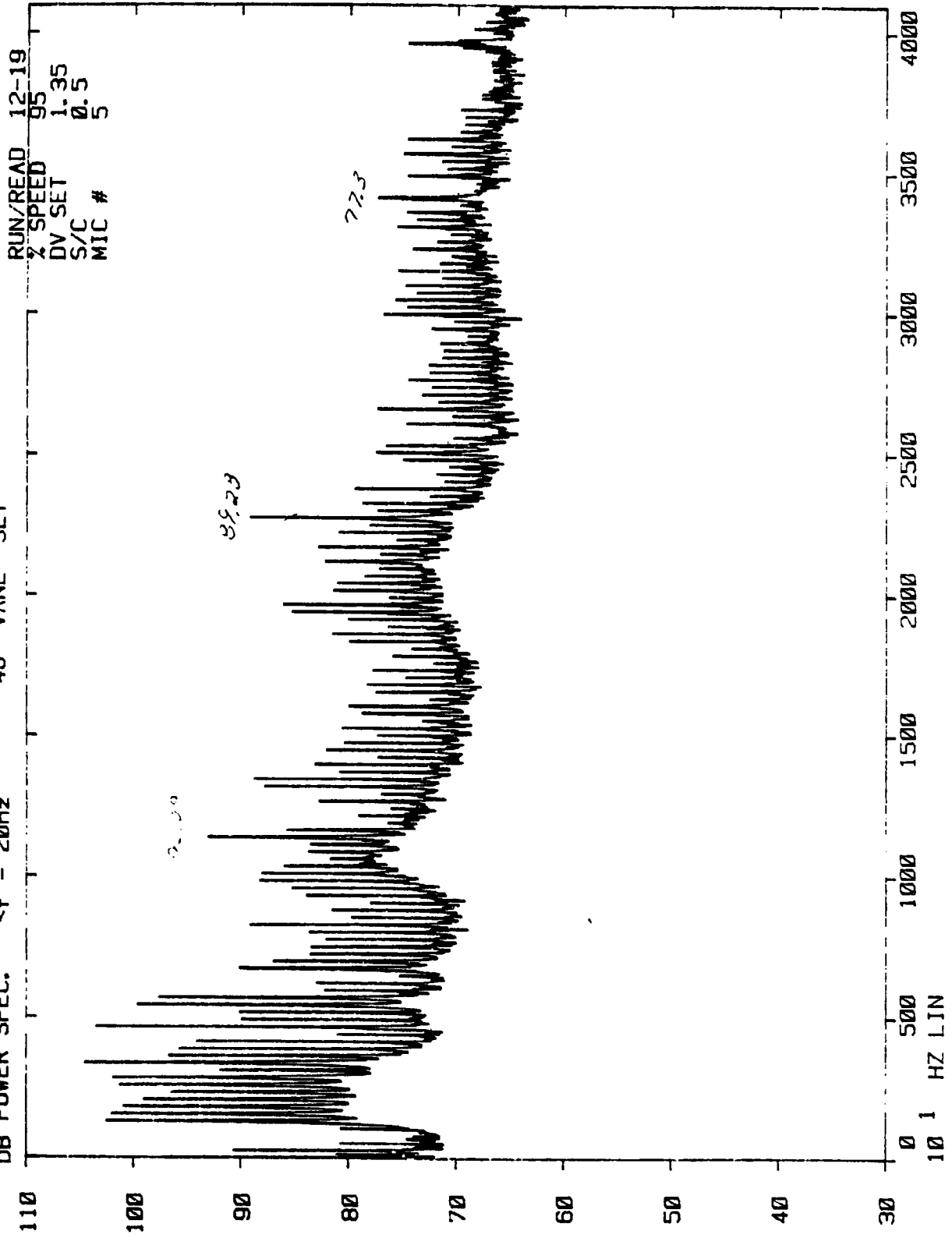
DB POWER SPEC. $\Delta f = 20\text{Hz}$

RUN/READ 12-19
% SPEED 95
DV SET 1.35
S/C 0.5
MIC # 4



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$

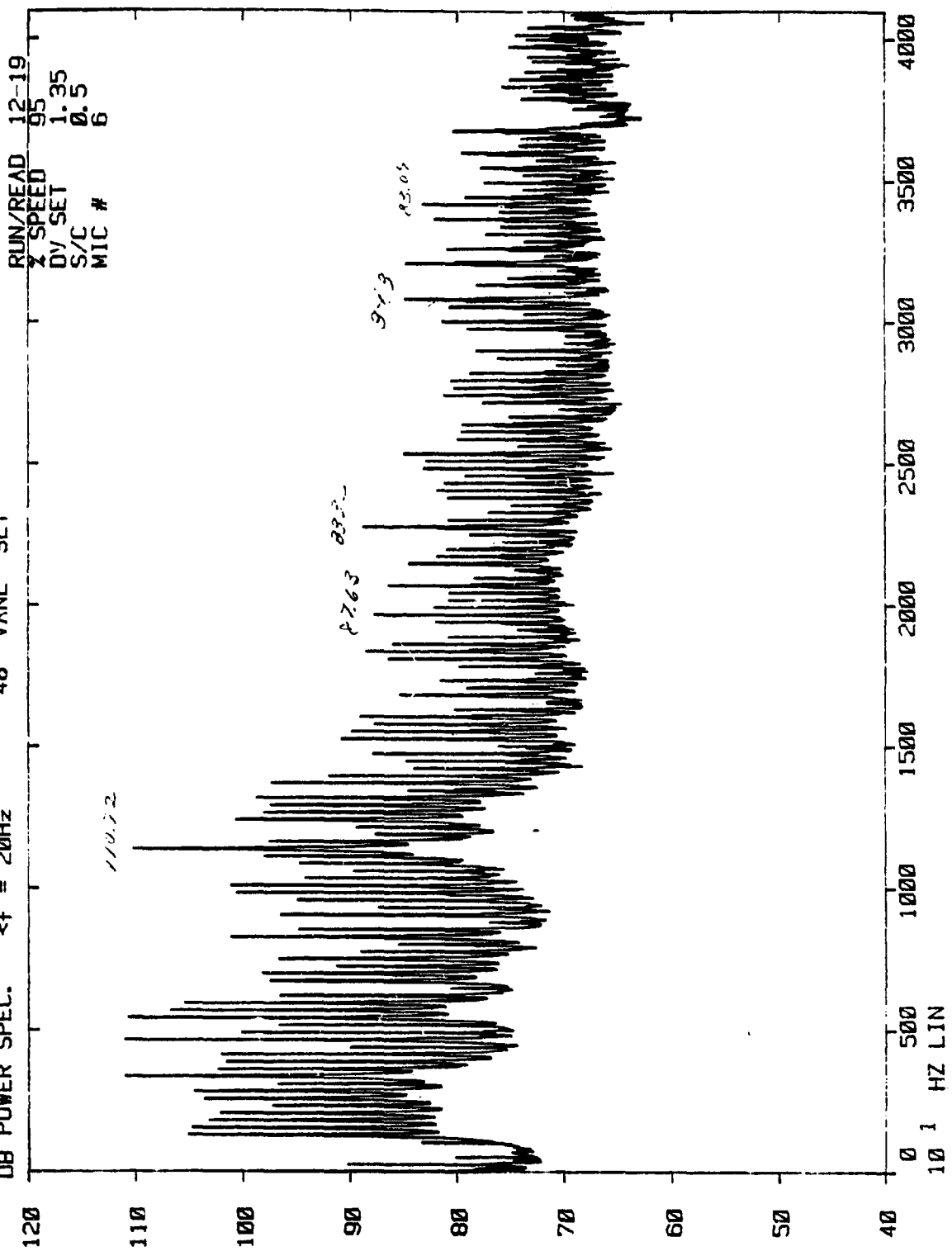


✓
No. 1015

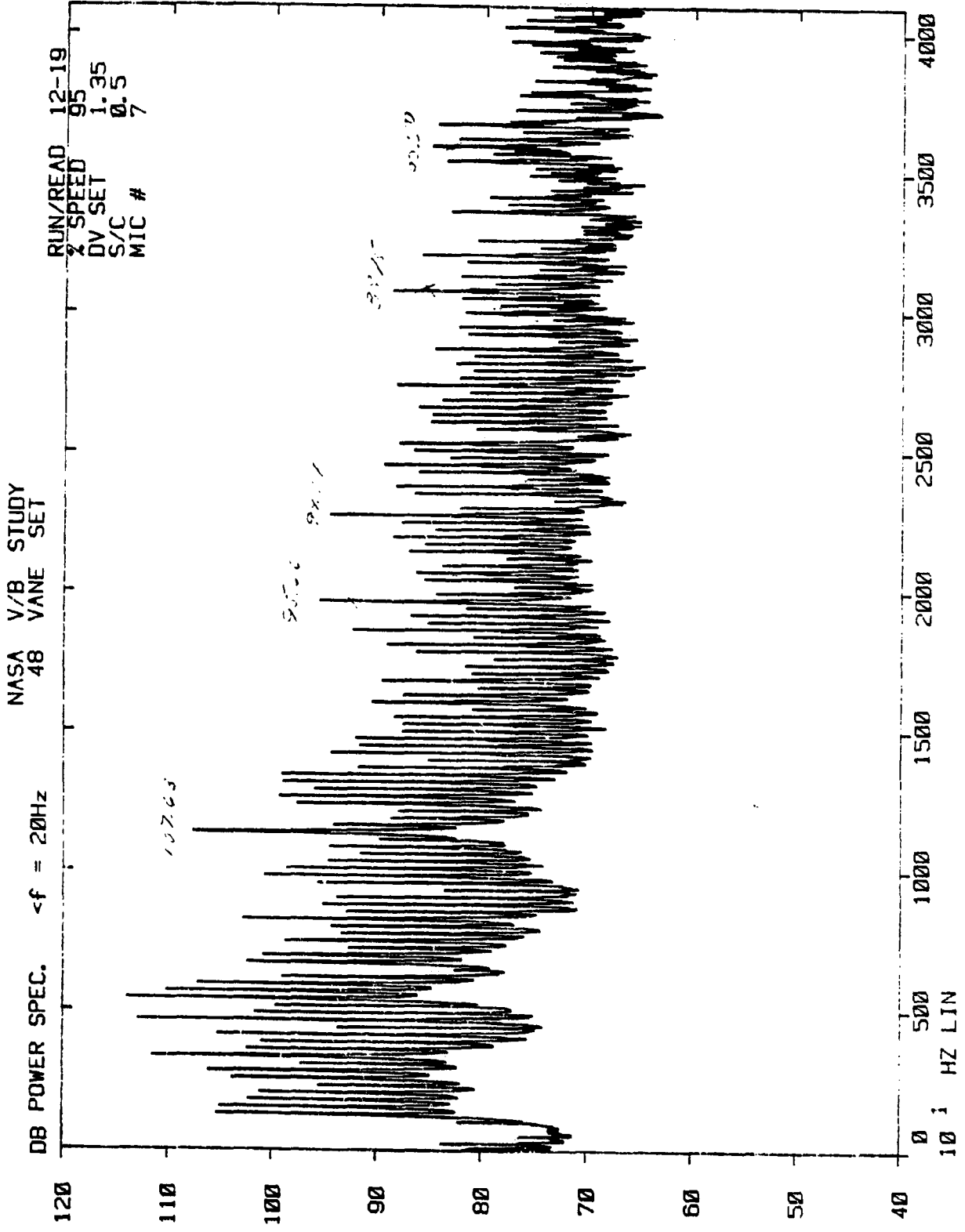
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.



6-



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $<f = 20\text{Hz}$

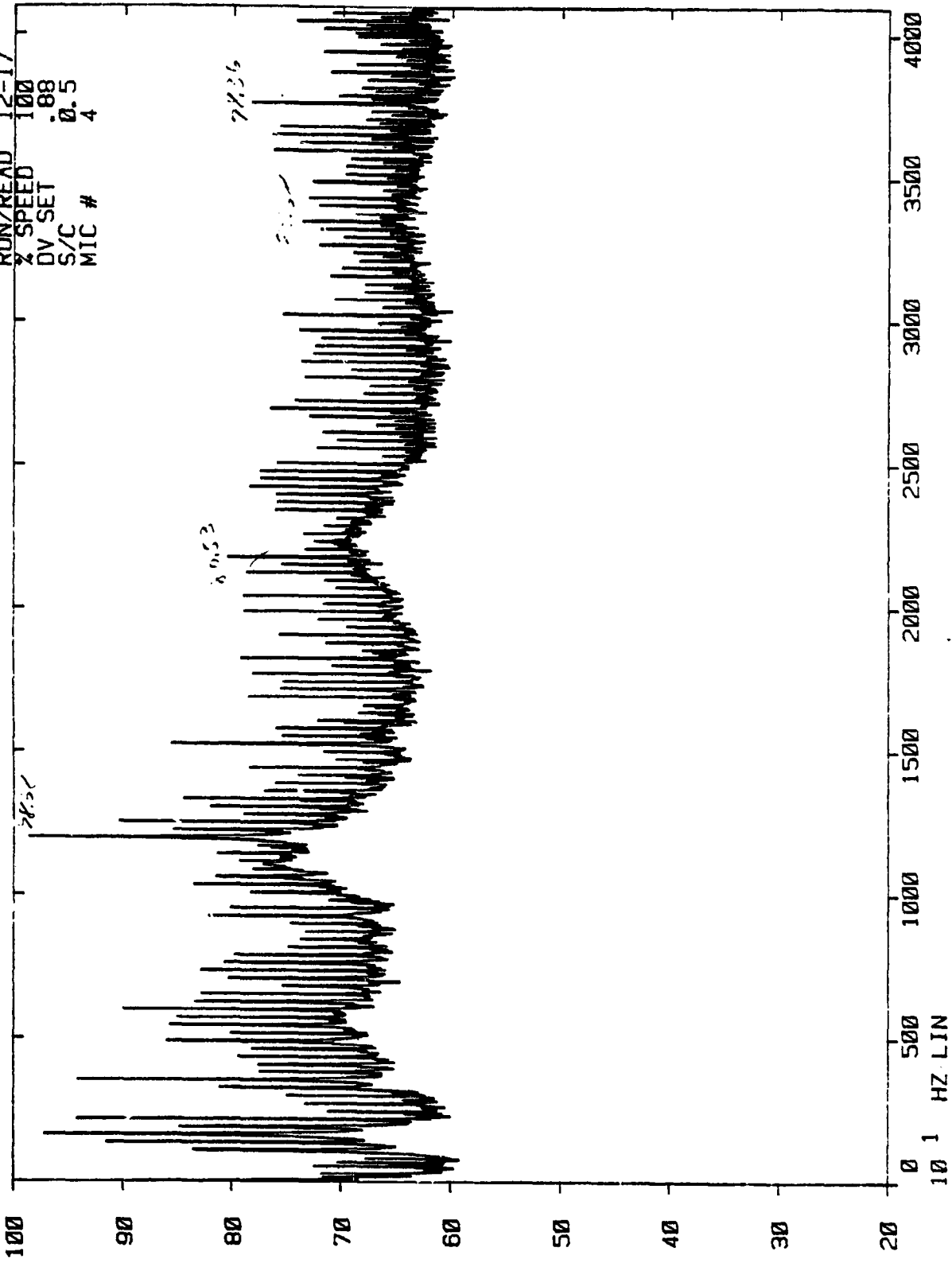
RUN/READ 12-17

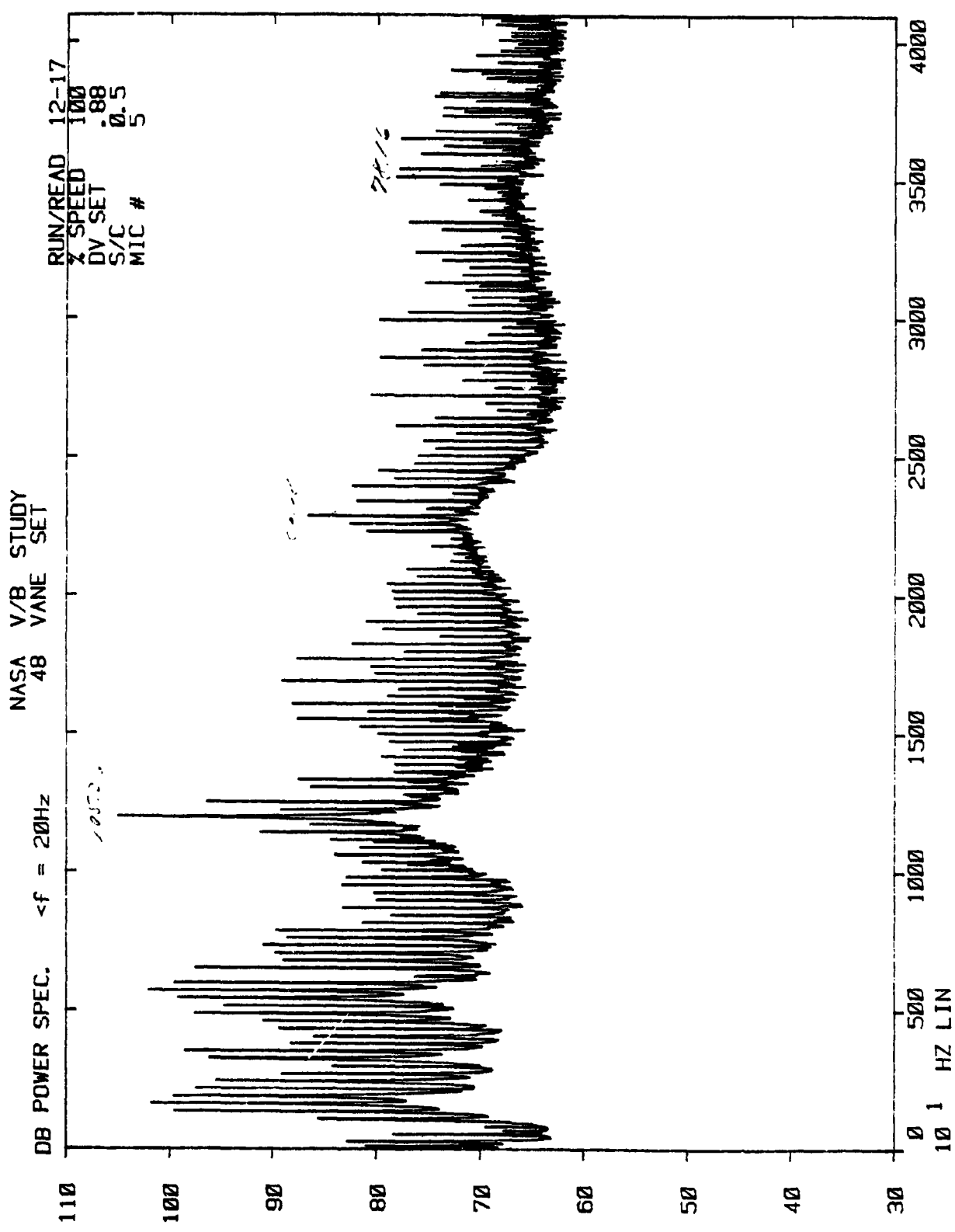
Z SPEED 100

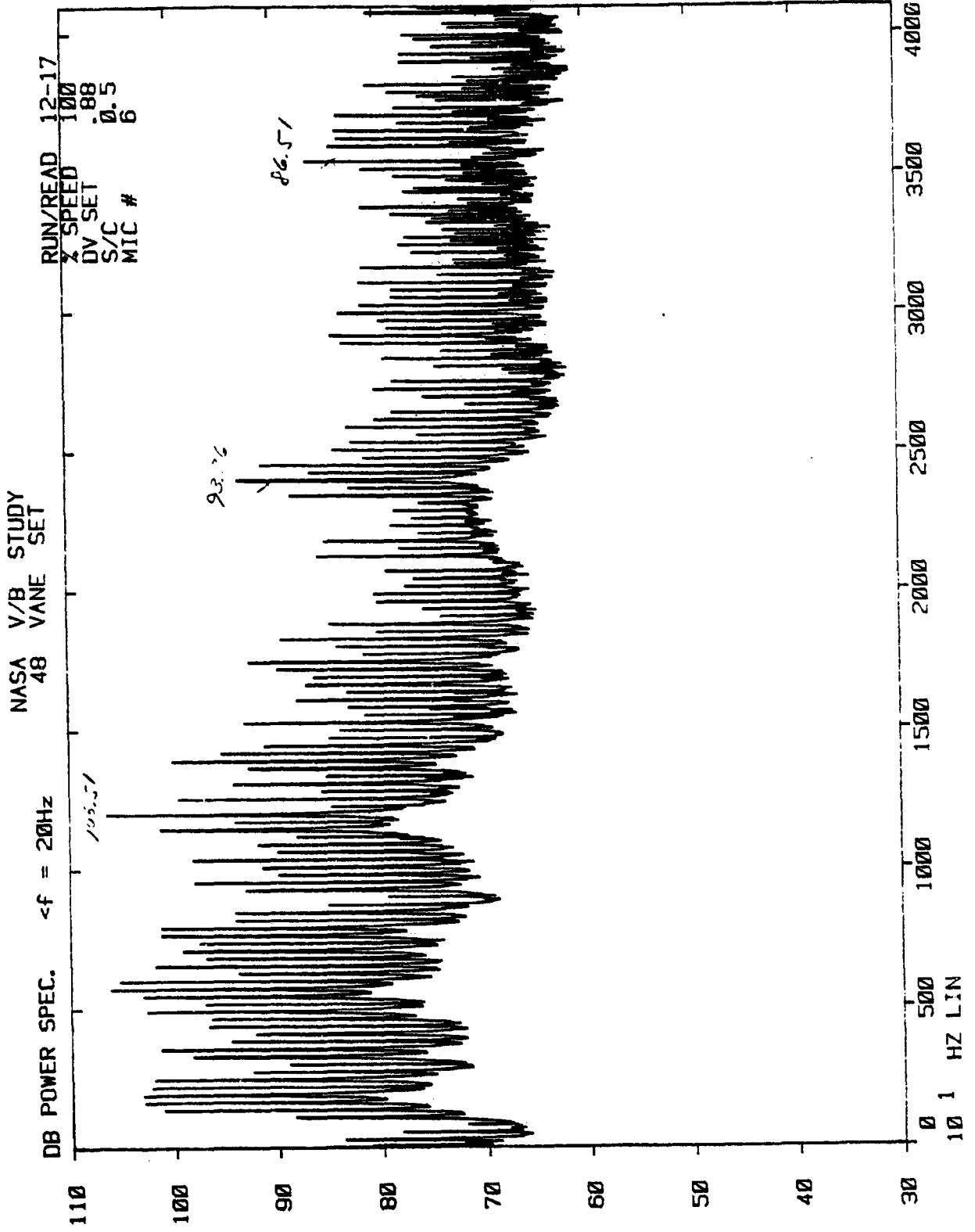
DV SET .88

S/C 0.5

MIC # 4





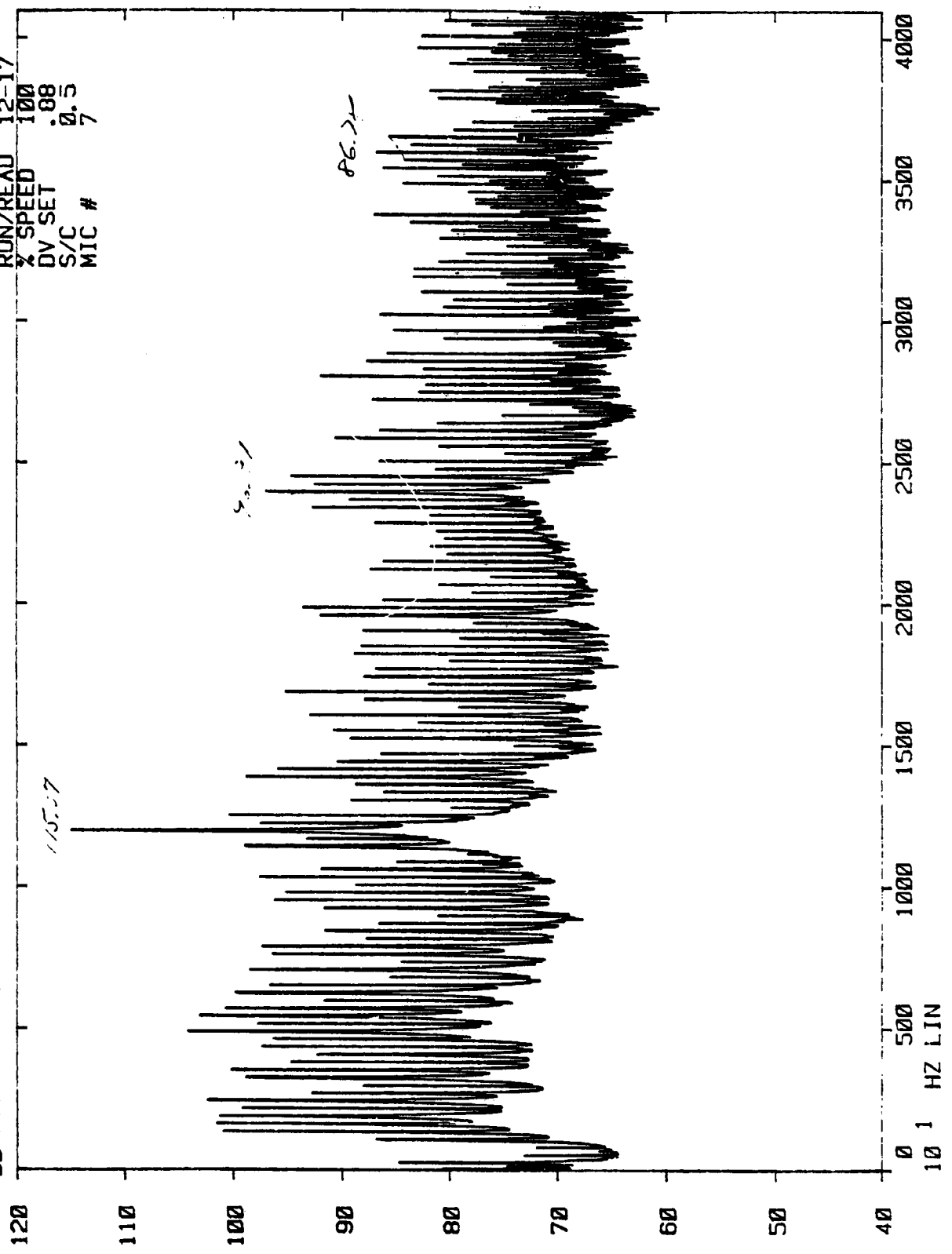


NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

RUN/READ 12-17
% SPEED 100
DV SET .08
S/C 0.5
MIC # 7



NARROWBAND SPECTRA (20 Hz.)

MICROPHONES 4 THRU 7 (30° THRU 60°)

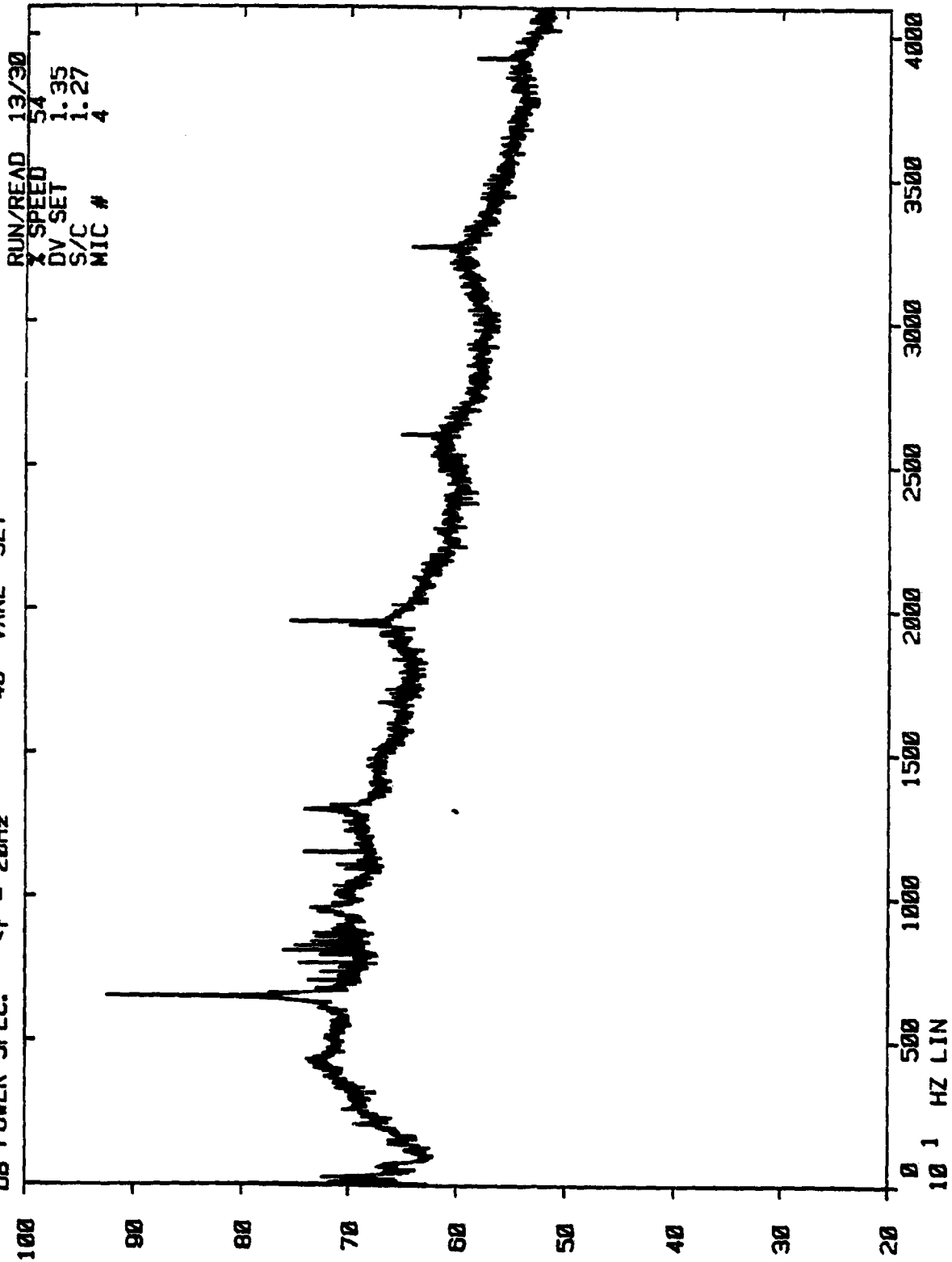
• 48 VANES, S/C = 1.27

<u>RUN/RDG.</u>	<u>% N_F</u>	<u>DV</u>	<u>REMARKS</u>
13/2	100	0.95	
13/4	95	0.95	
13/5	95	1.35	
13/8	86	0.95	
13/9	86	1.35	
13/12	76	0.95	
13/13	76	1.35	
13/17	80	1.35	
13/19	80	0.95	
13/20	69	0.95	
13/21	69	1.35	
13/24	63	0.95	
13/25	63	1.35	
13/30	54	1.35	

NASA V/B STUDY
48 VANE SET

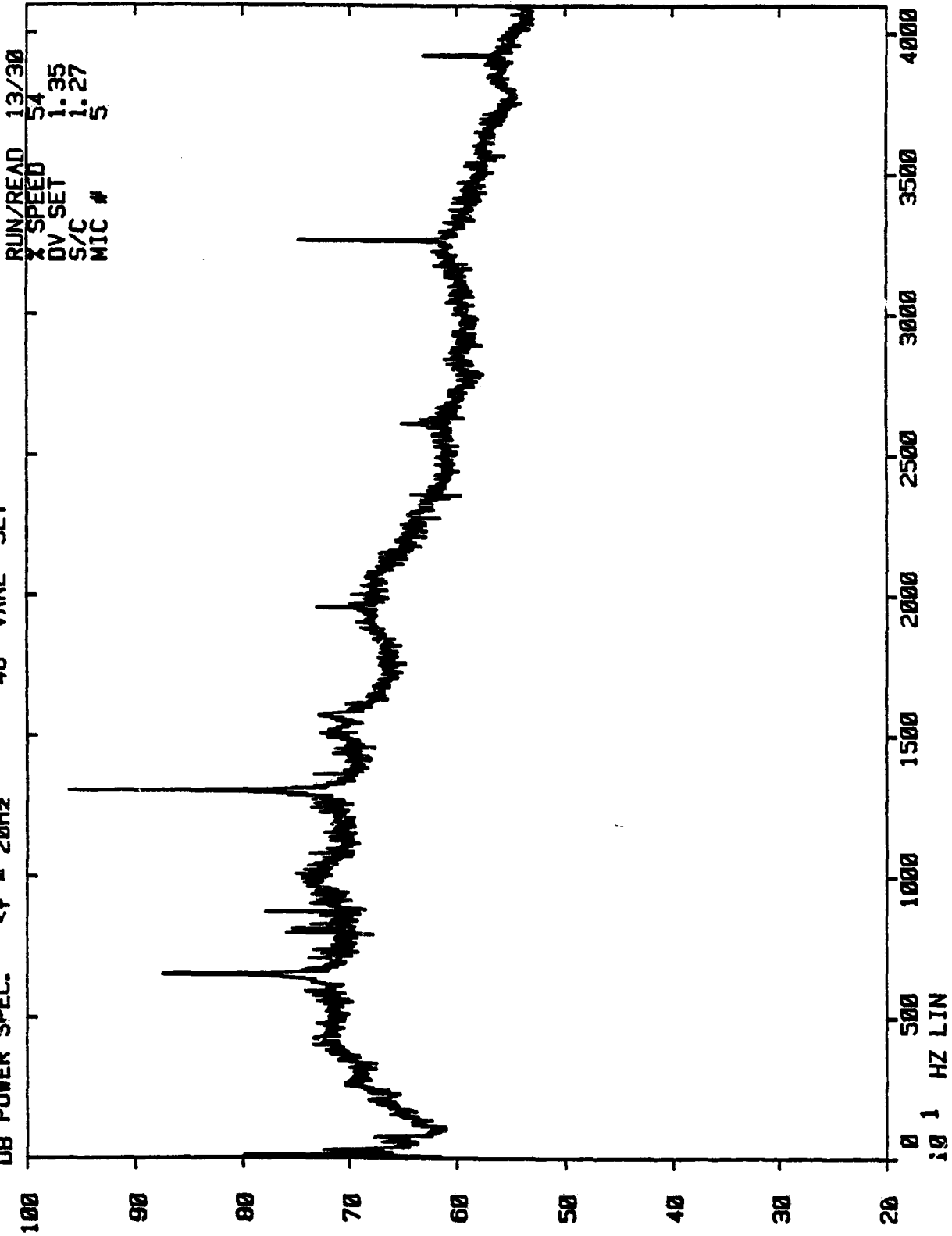
<f = 20Hz

DB POWER SPEC.



NASA V/B STUDY
48 VANE SET

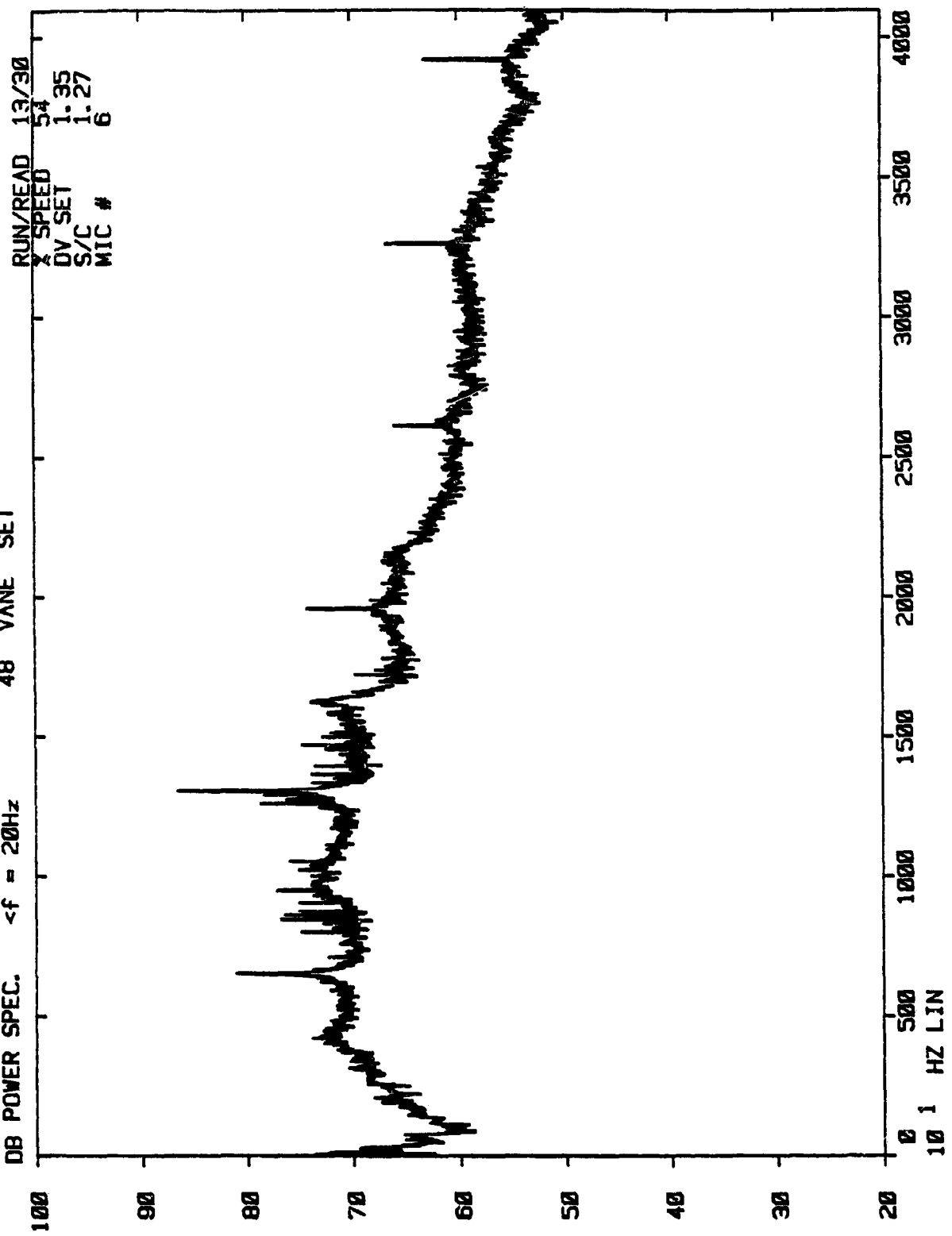
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
48 VANE SET

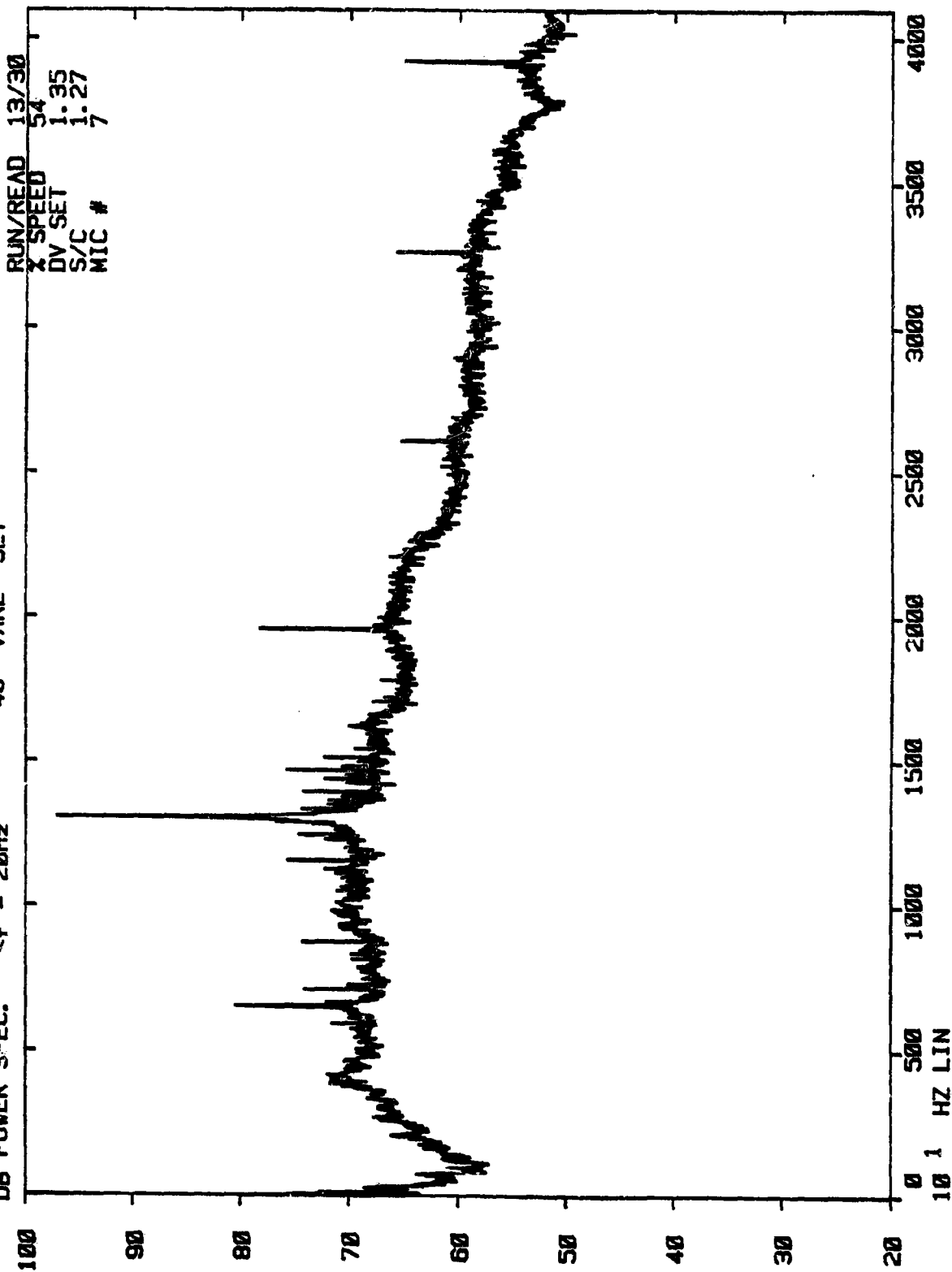
<f = 20Hz

DB POWER SPEC.



NASA V/B STUDY
48 VANE SET

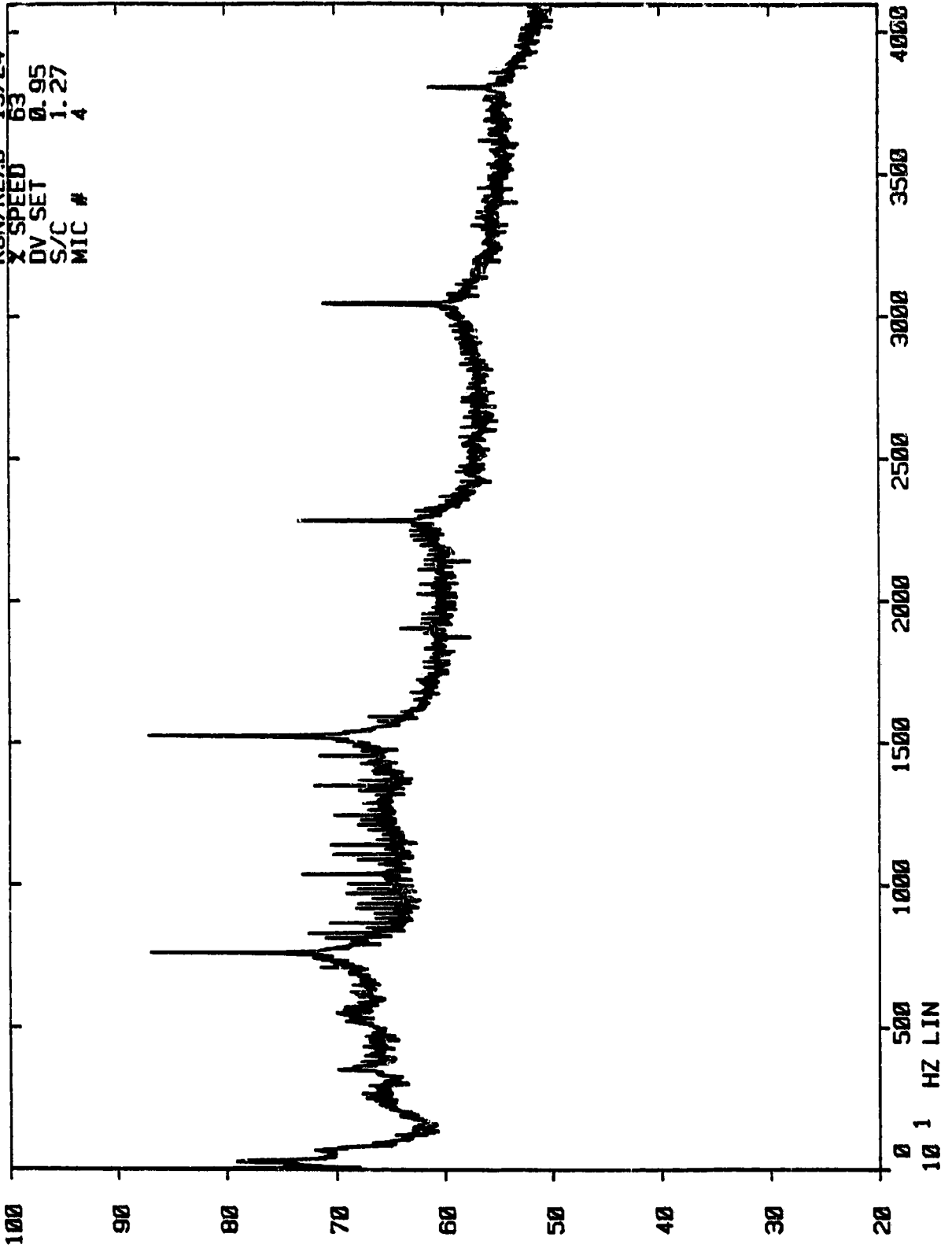
DB POWER SPEC. <f = 20Hz

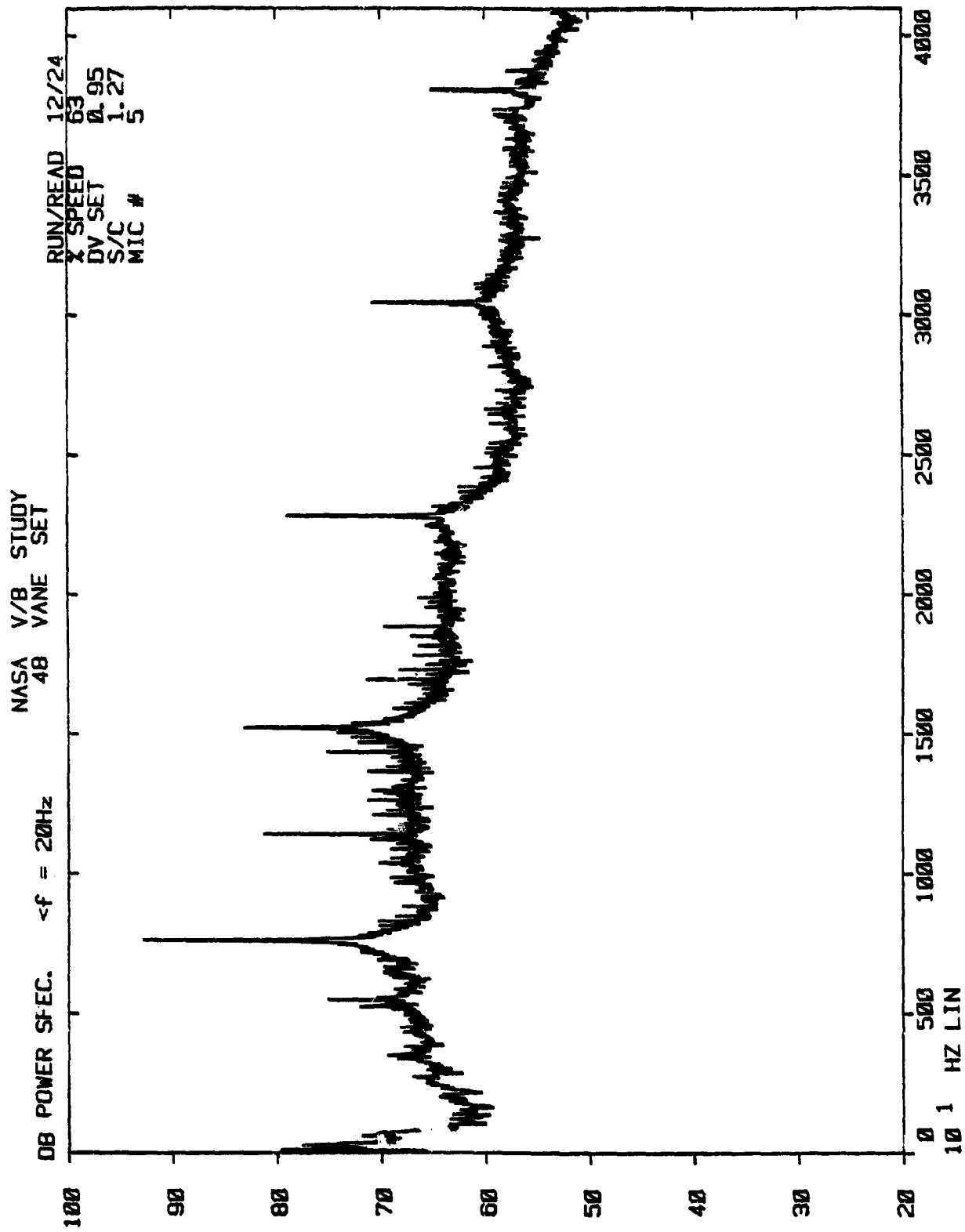


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

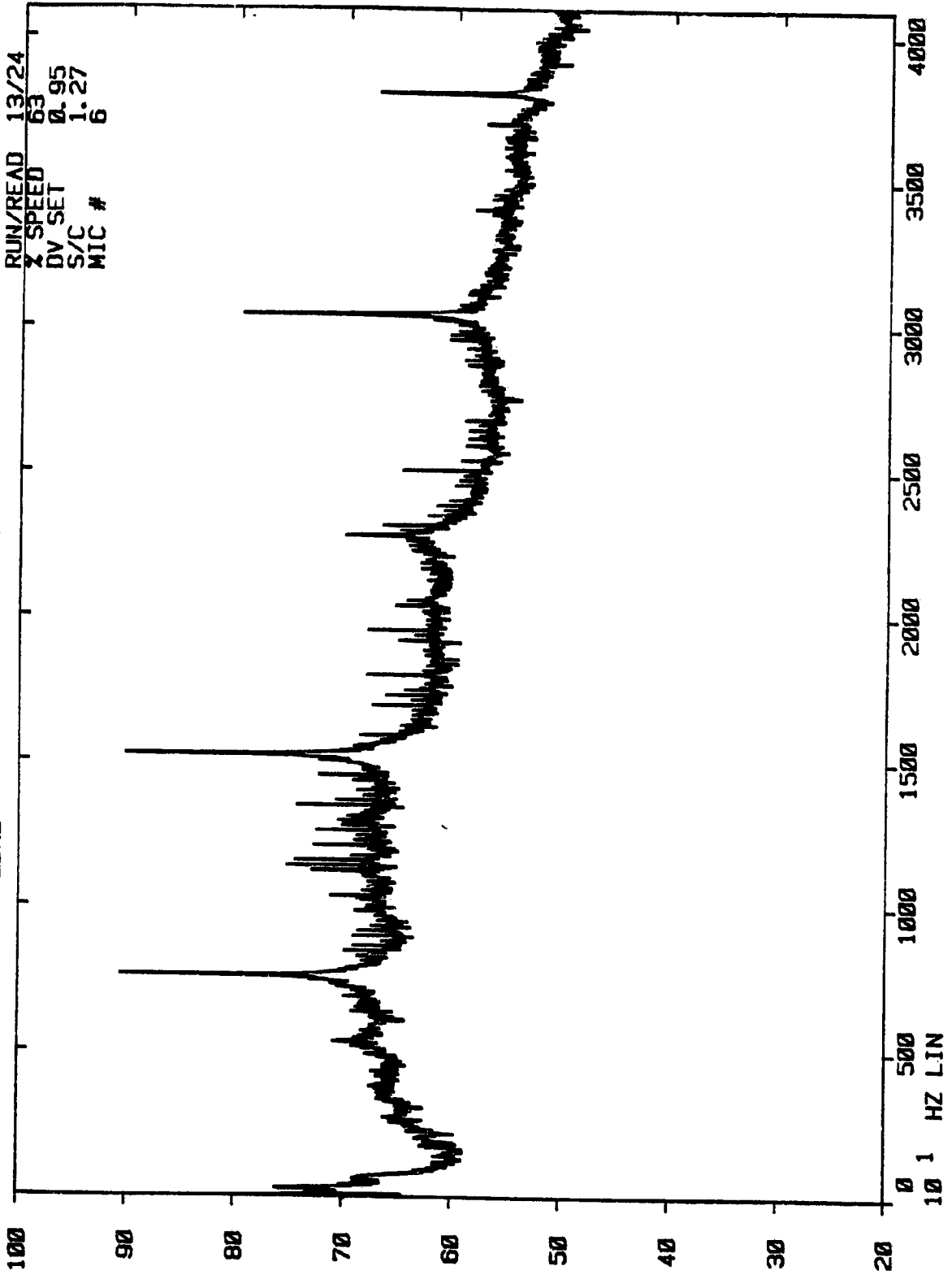
RUN/READ 13/24
X SPEED 63
DV SET 0.95
S/C 1.27
MIC # 4





NASA V/B STUDY
48 VANE SET

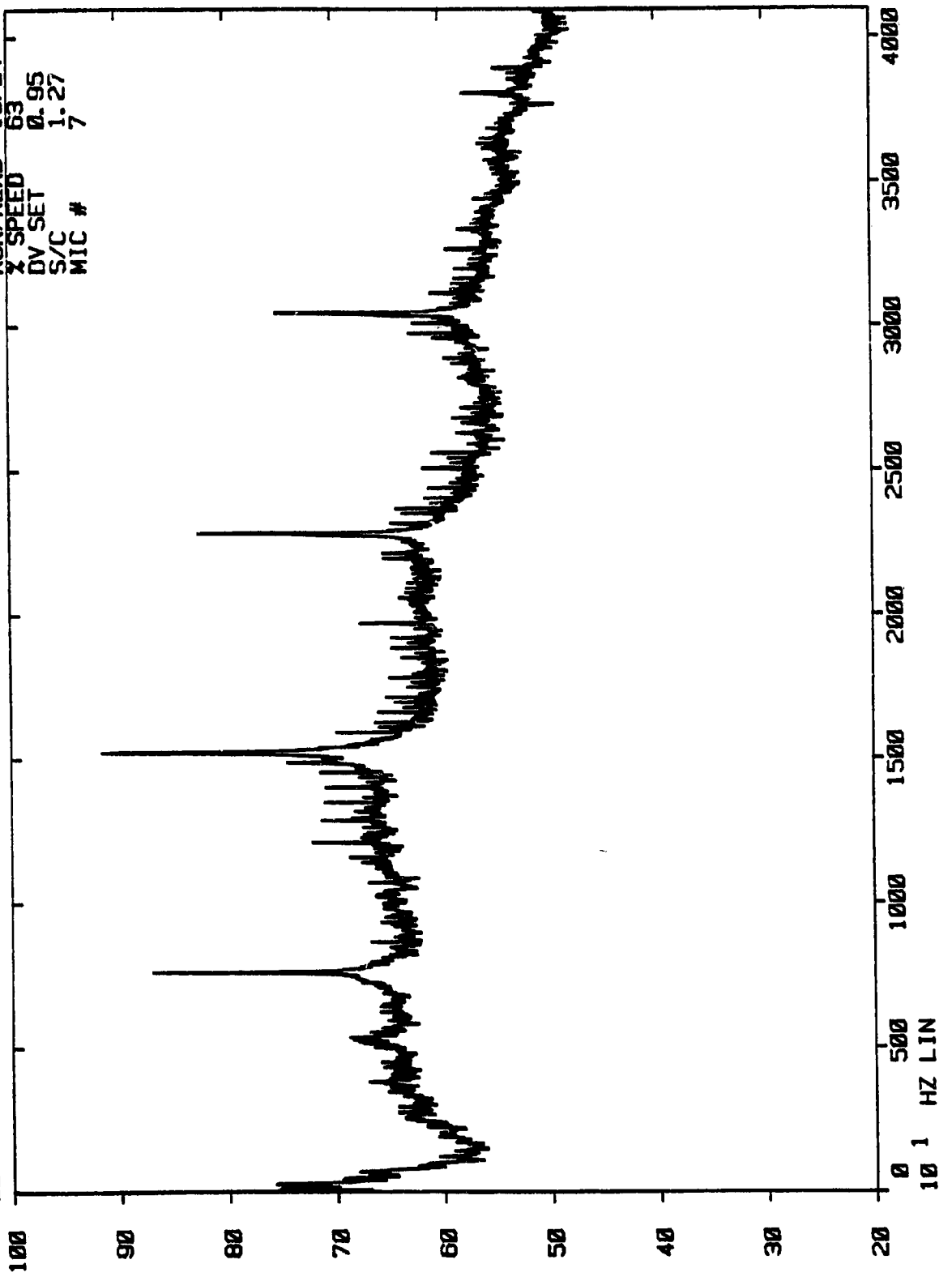
DB POWER SPEC. <f = 20Hz

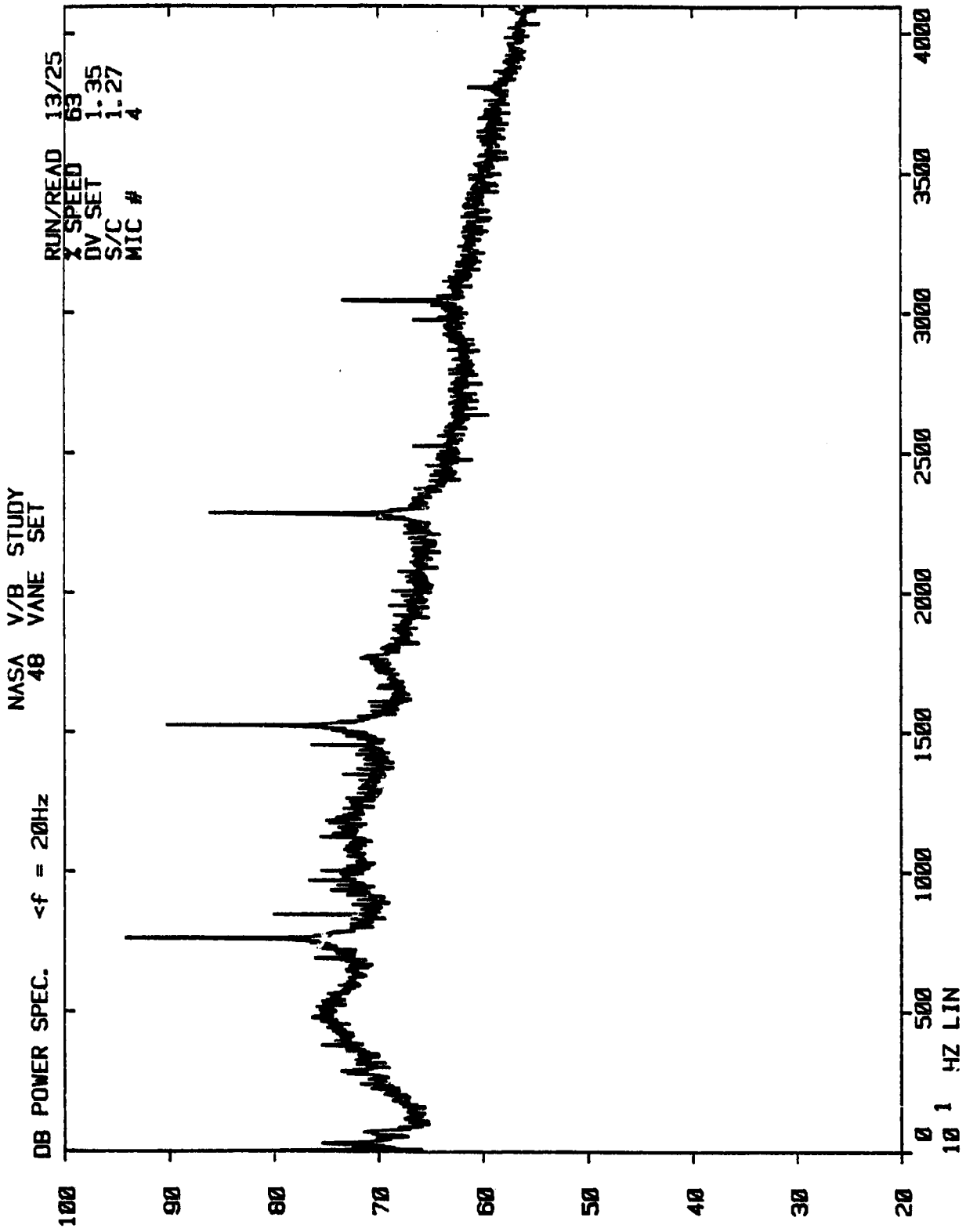


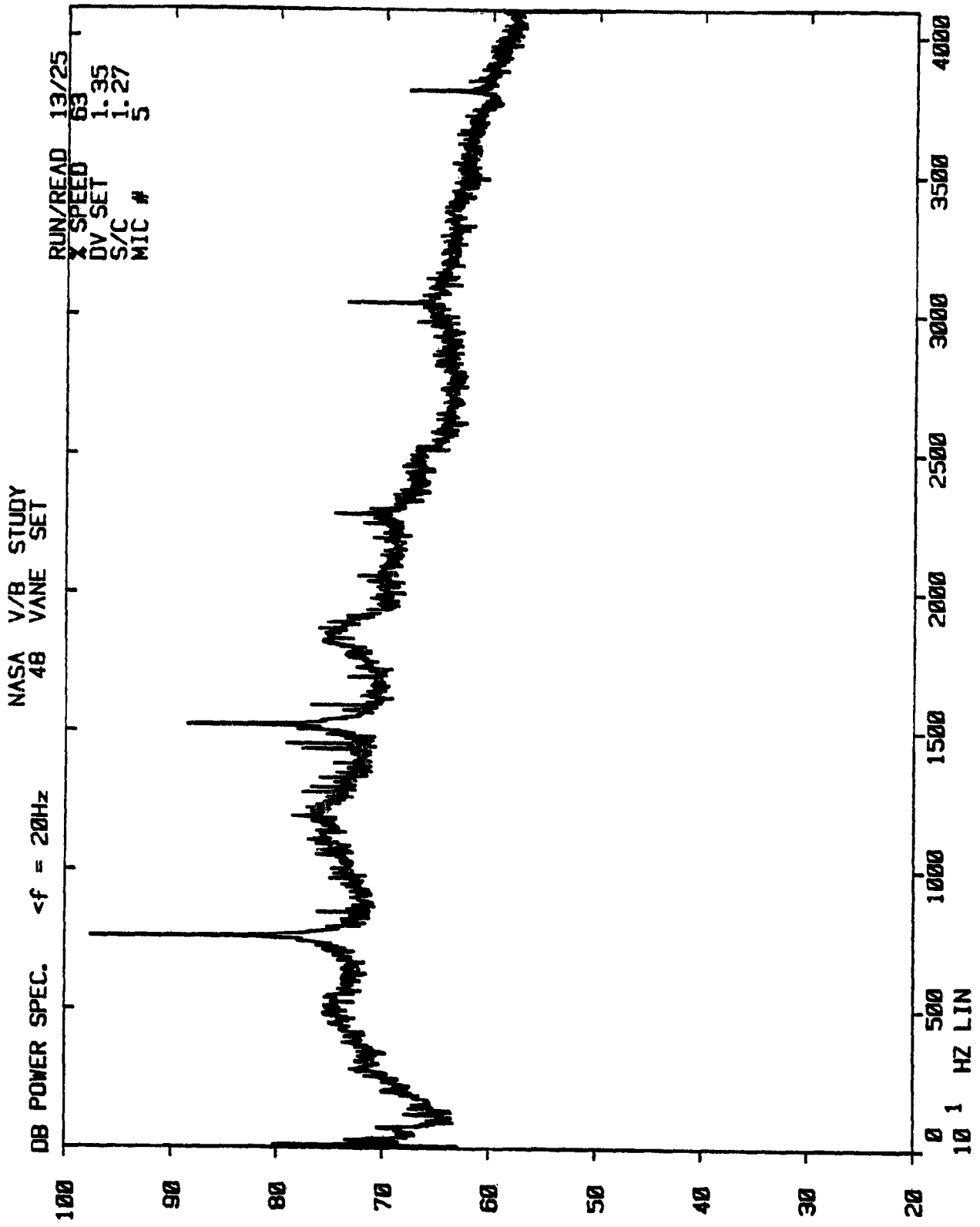
NASA V/B STUDY
48 VANE SET

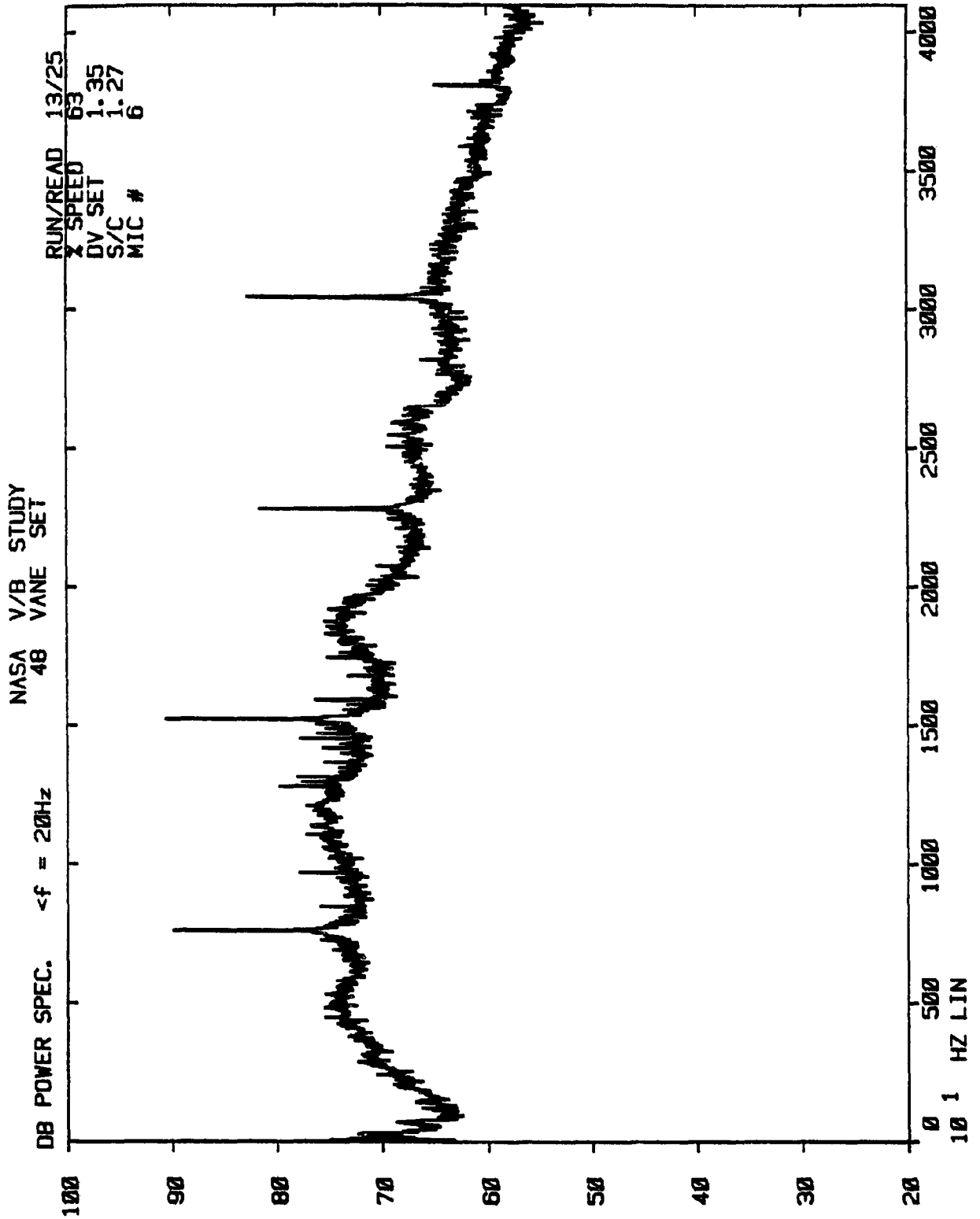
DB POWER SPEC. <f = 20Hz

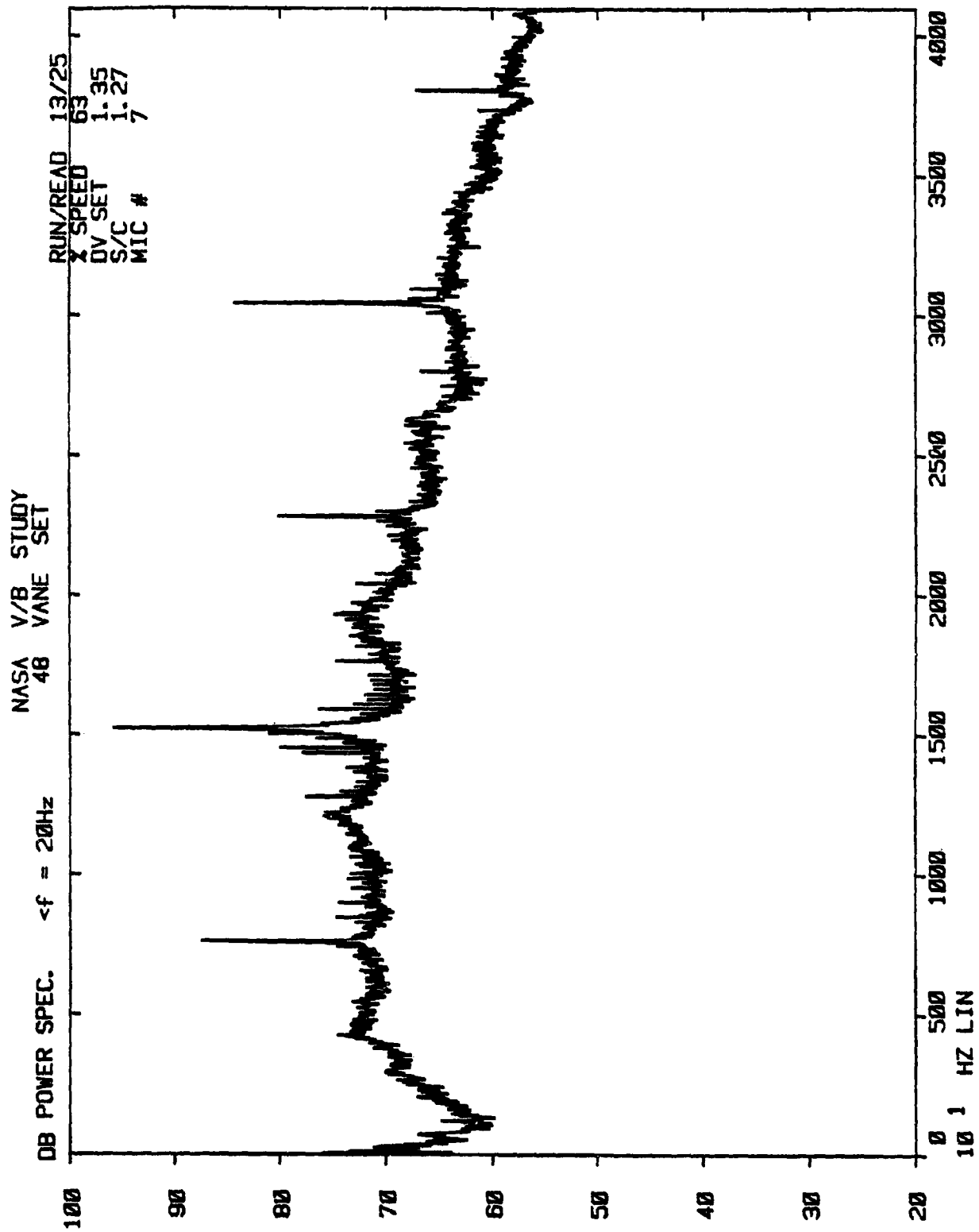
RUN/READ 13/24
X SPEED 63
DV SET 0.95
S/C 1.27
MIC # 7





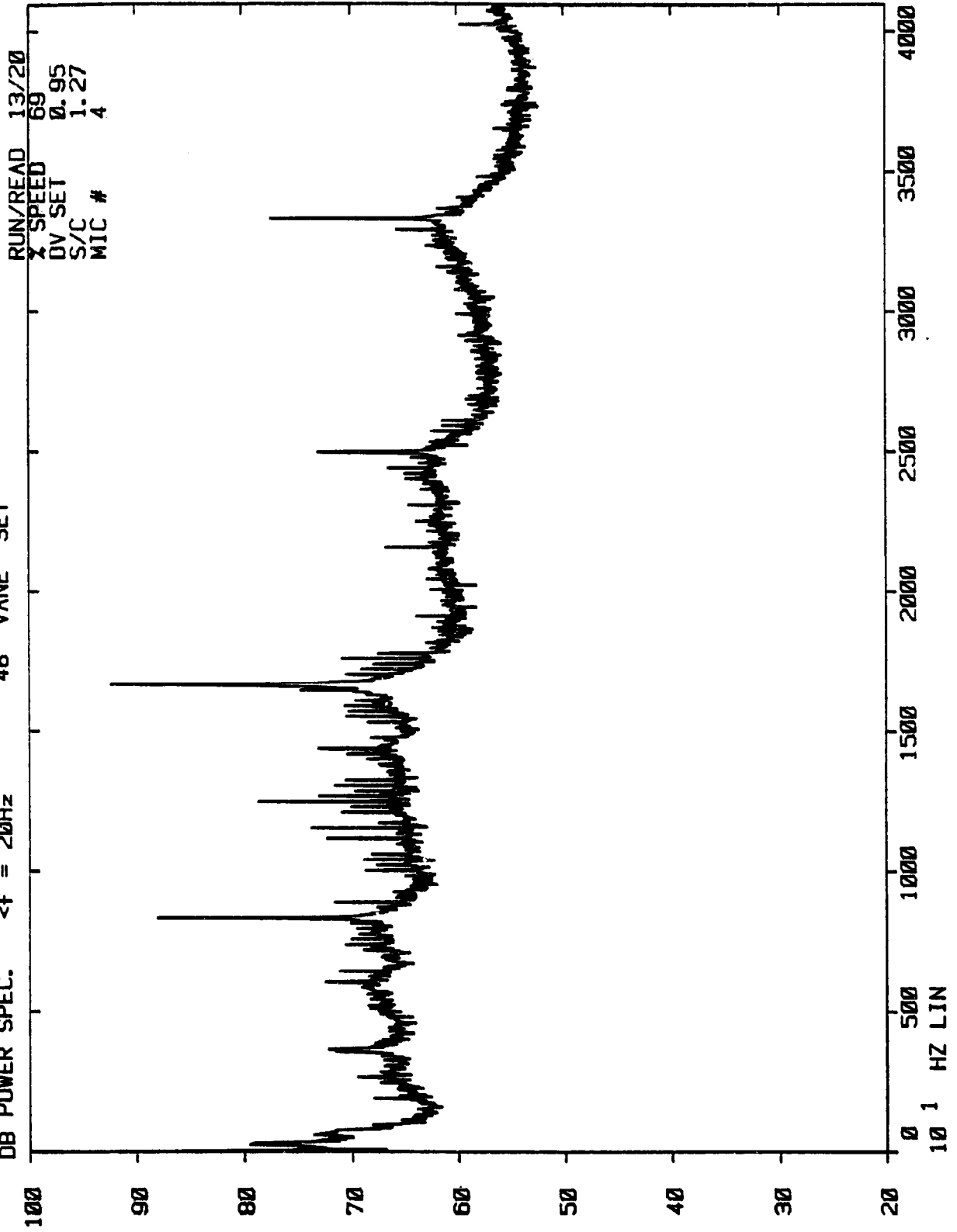


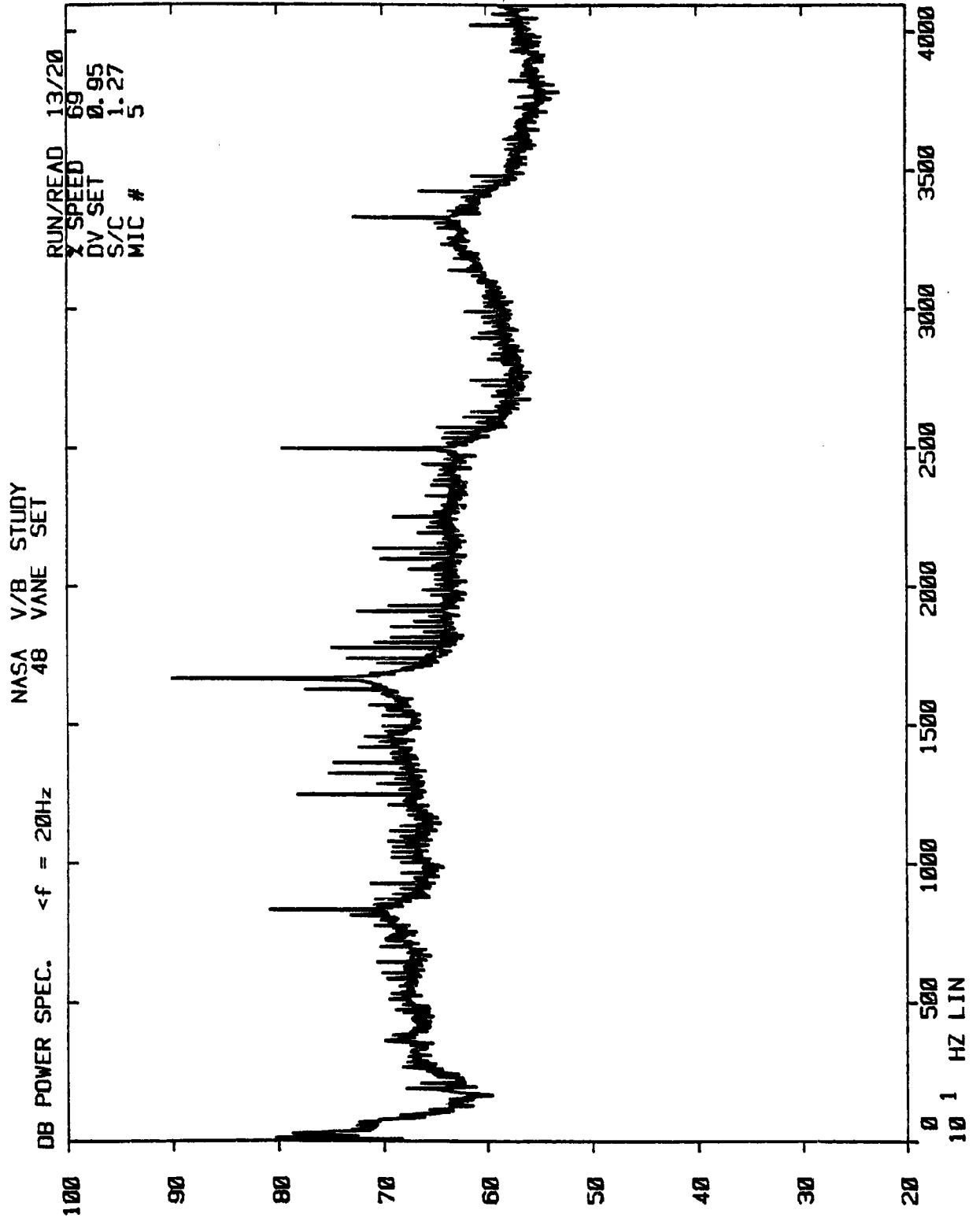


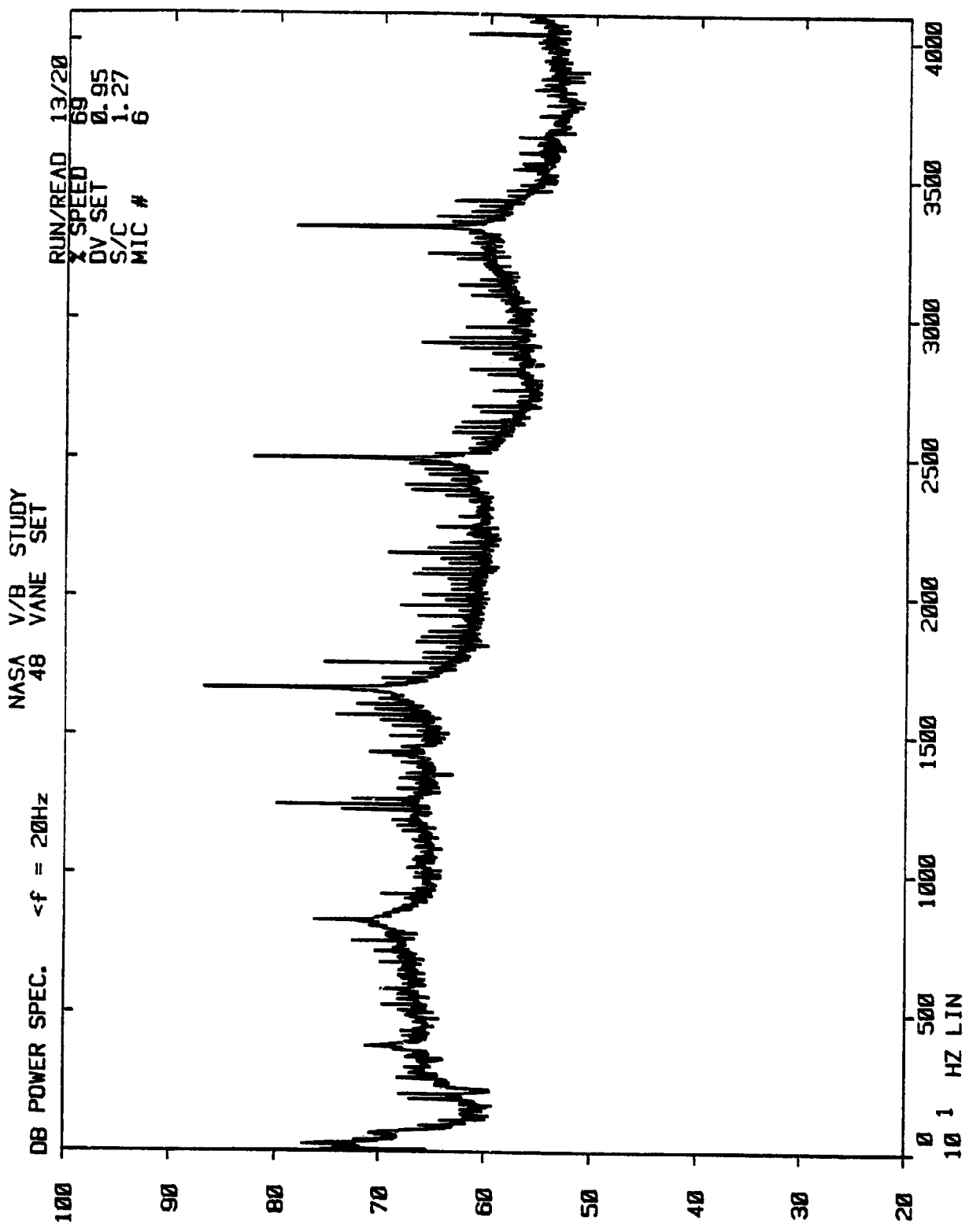


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



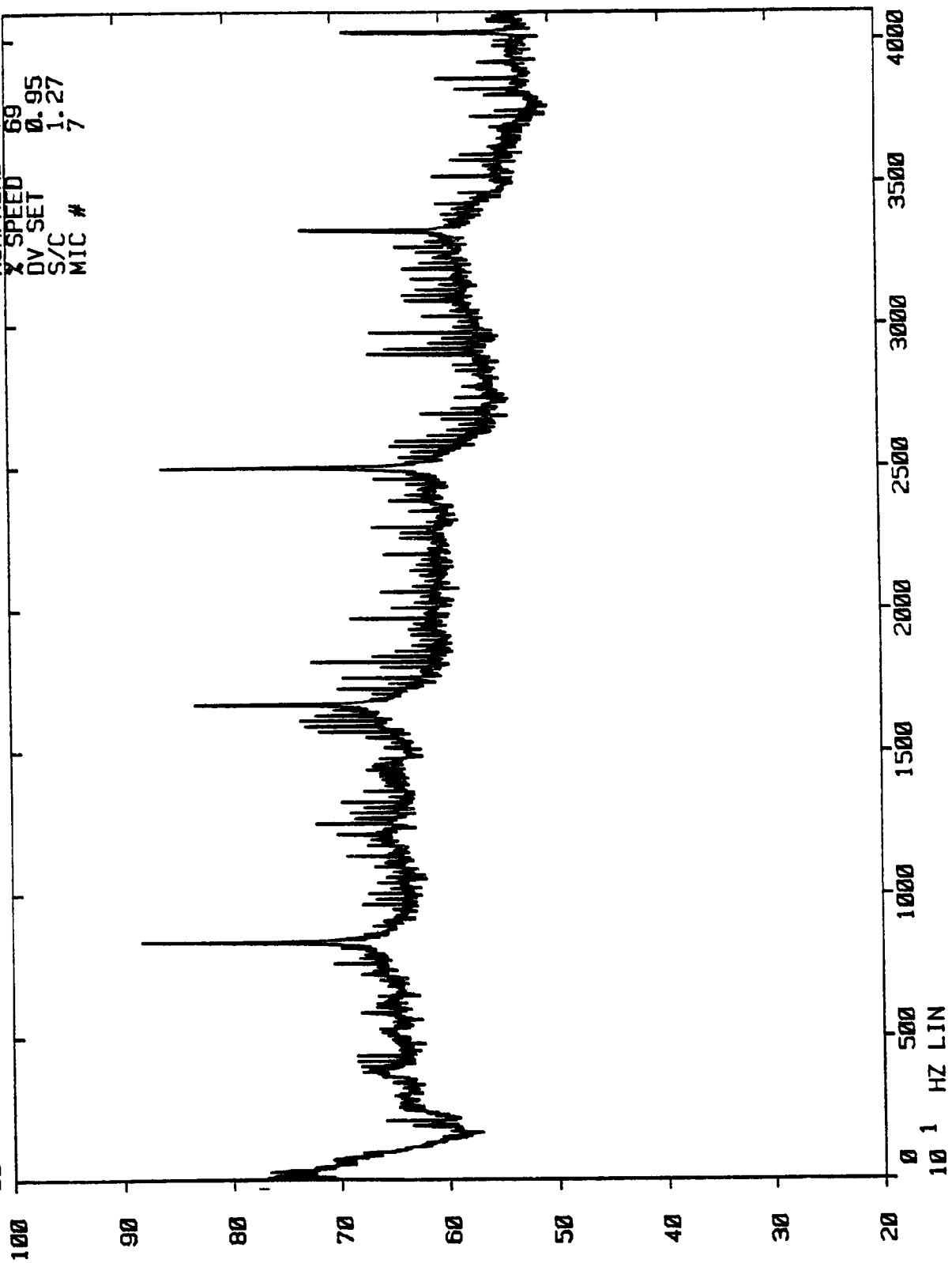


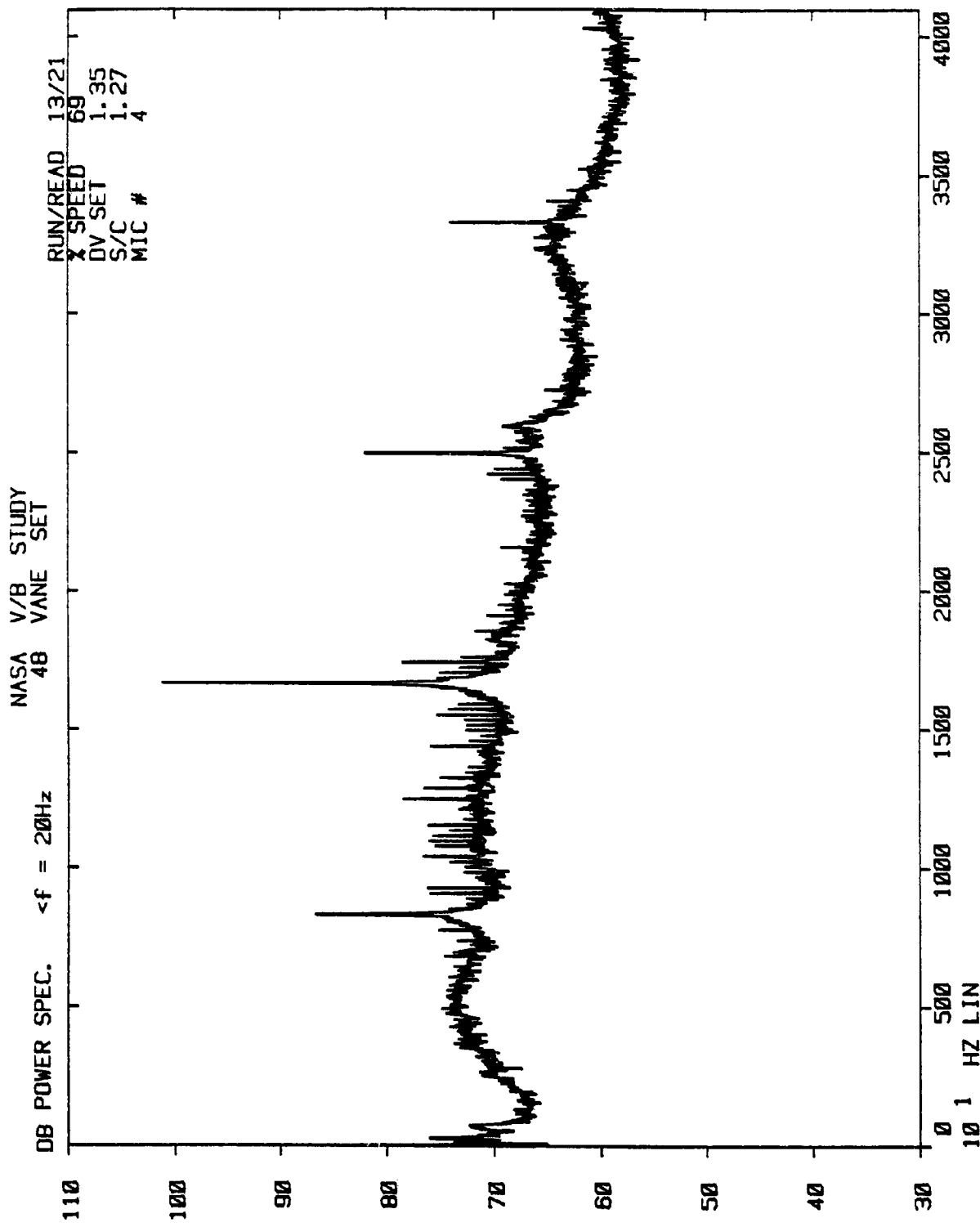


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

RUN/READ 13/20
X SPEED 69
DV SET 0.95
S/C 1.27
MIC # 7





NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

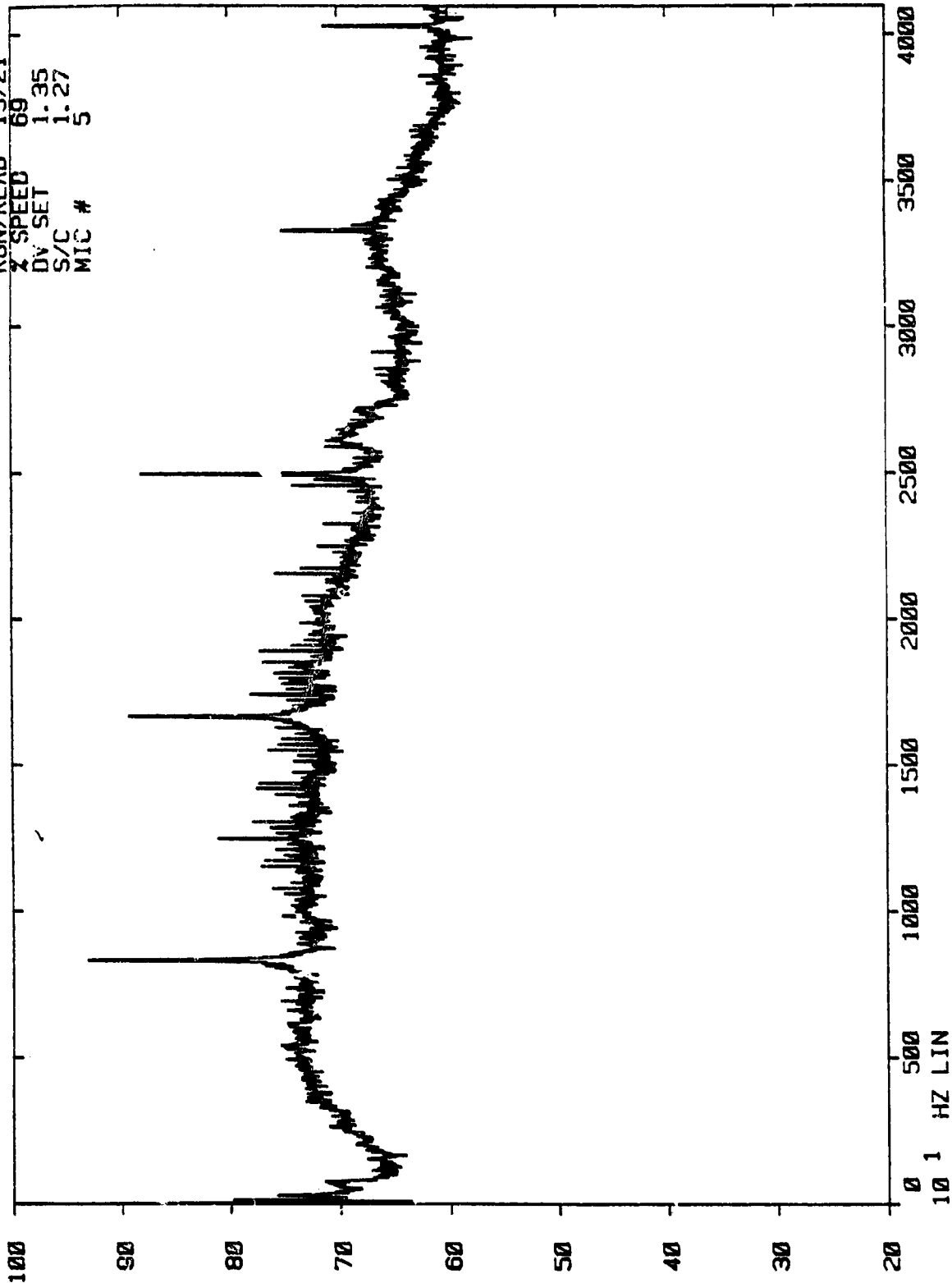
RUN/READ 13/21

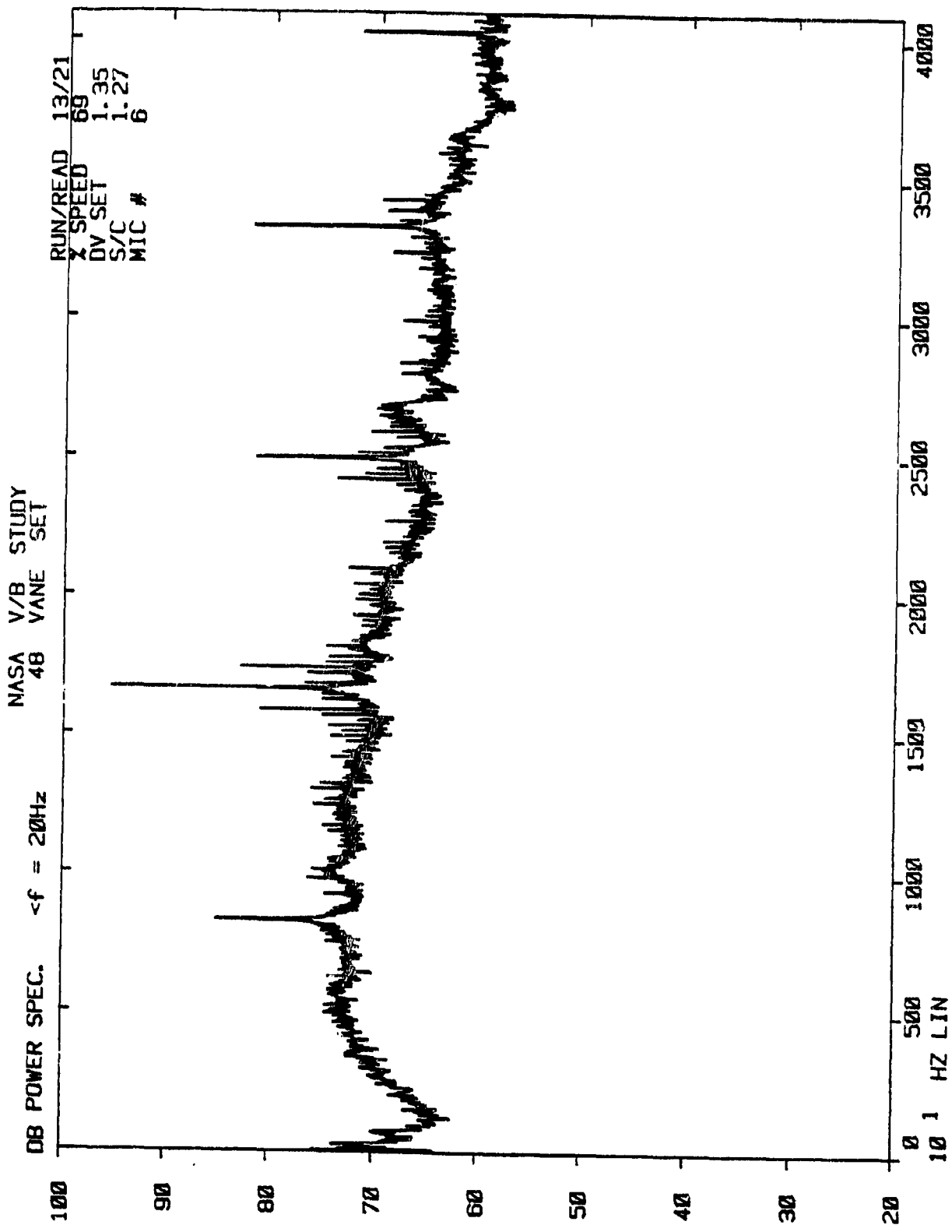
Z SPEED 69

DV SET 1.35

S/C 1.27

MIC # 5



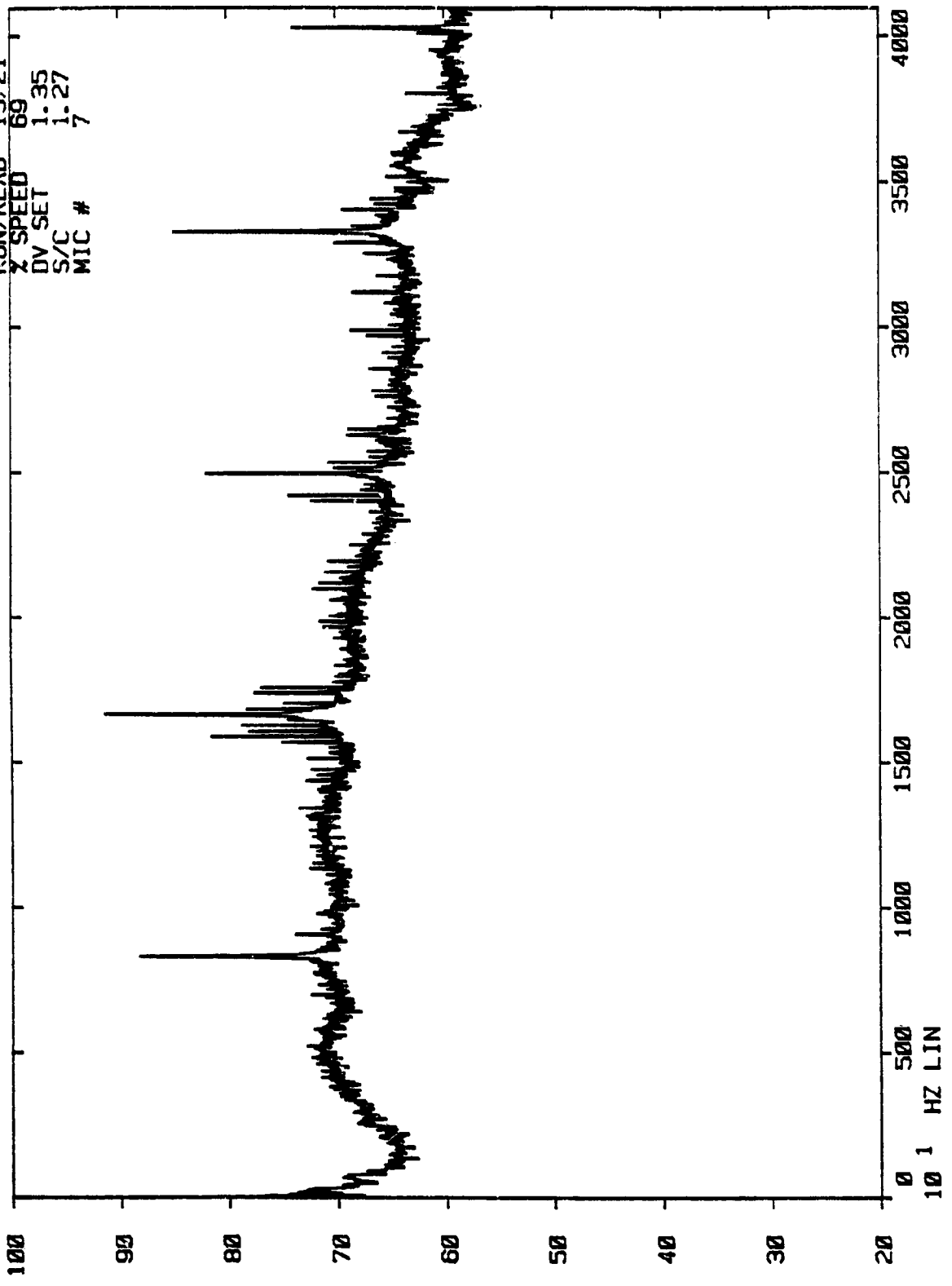


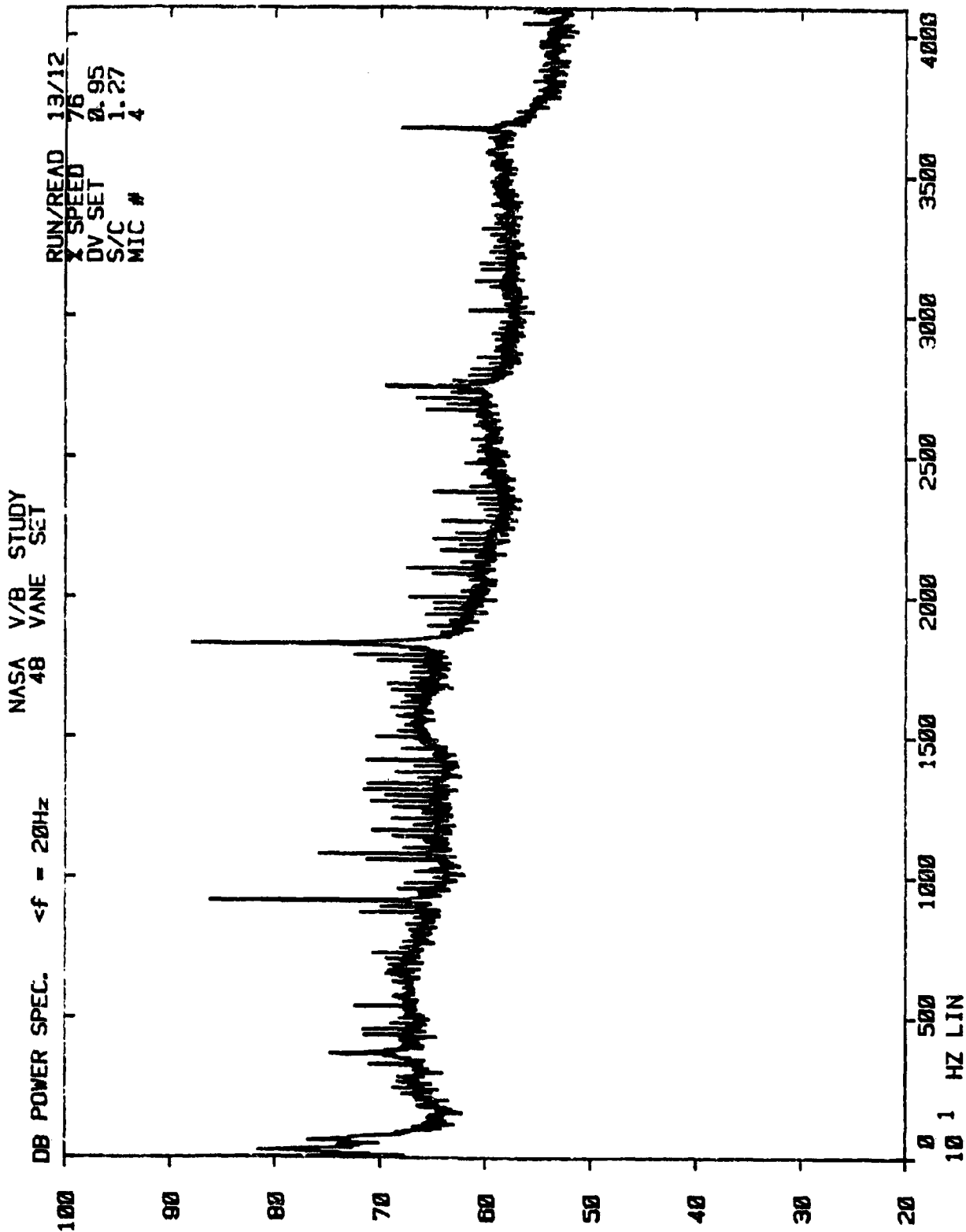
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

RUN/READ 13/21
Z SPEED 69
DV SET 1.35
S/C 1.27
MIC # 7

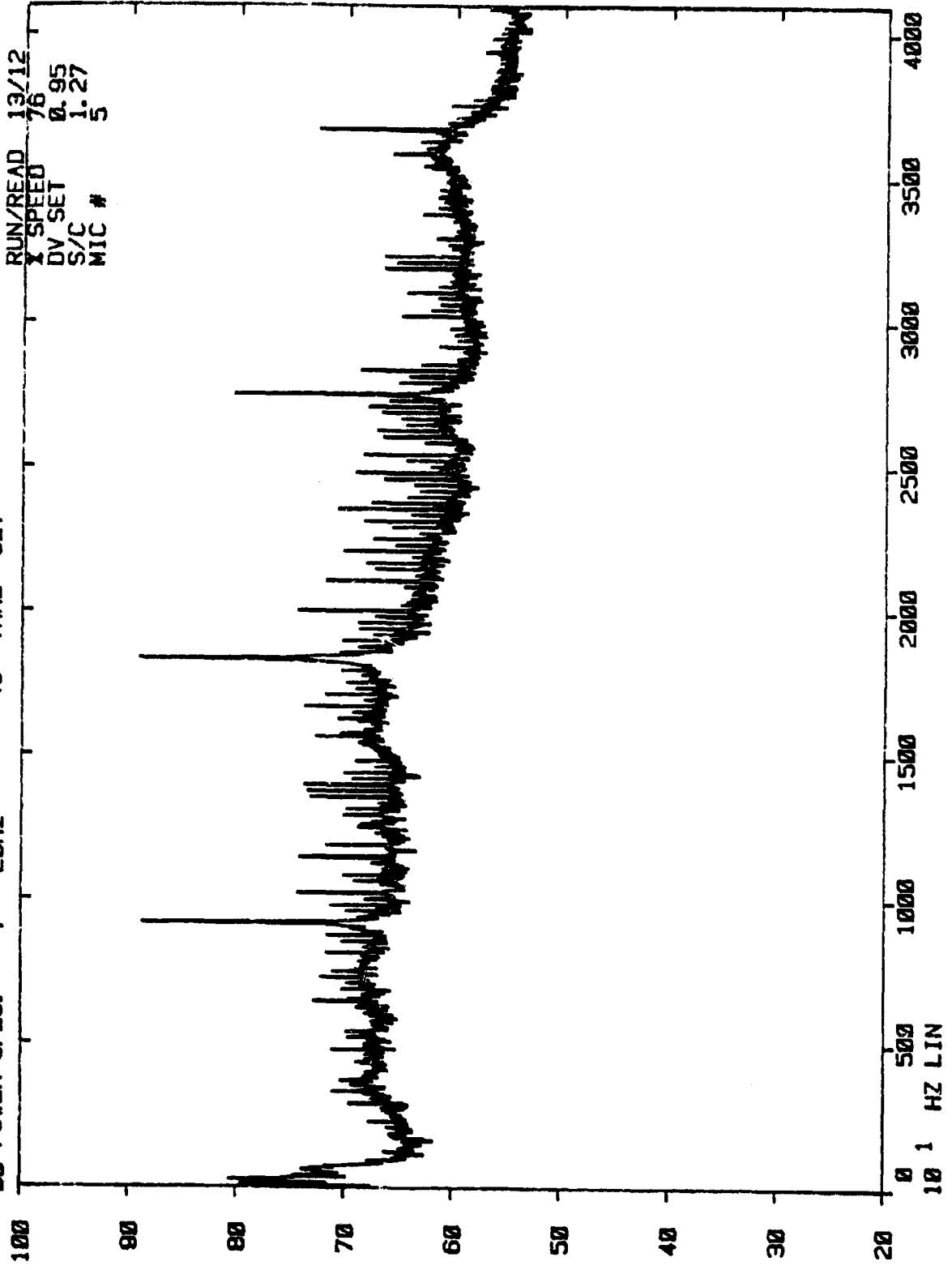




NASA V/B STUDY
48 VANE SET

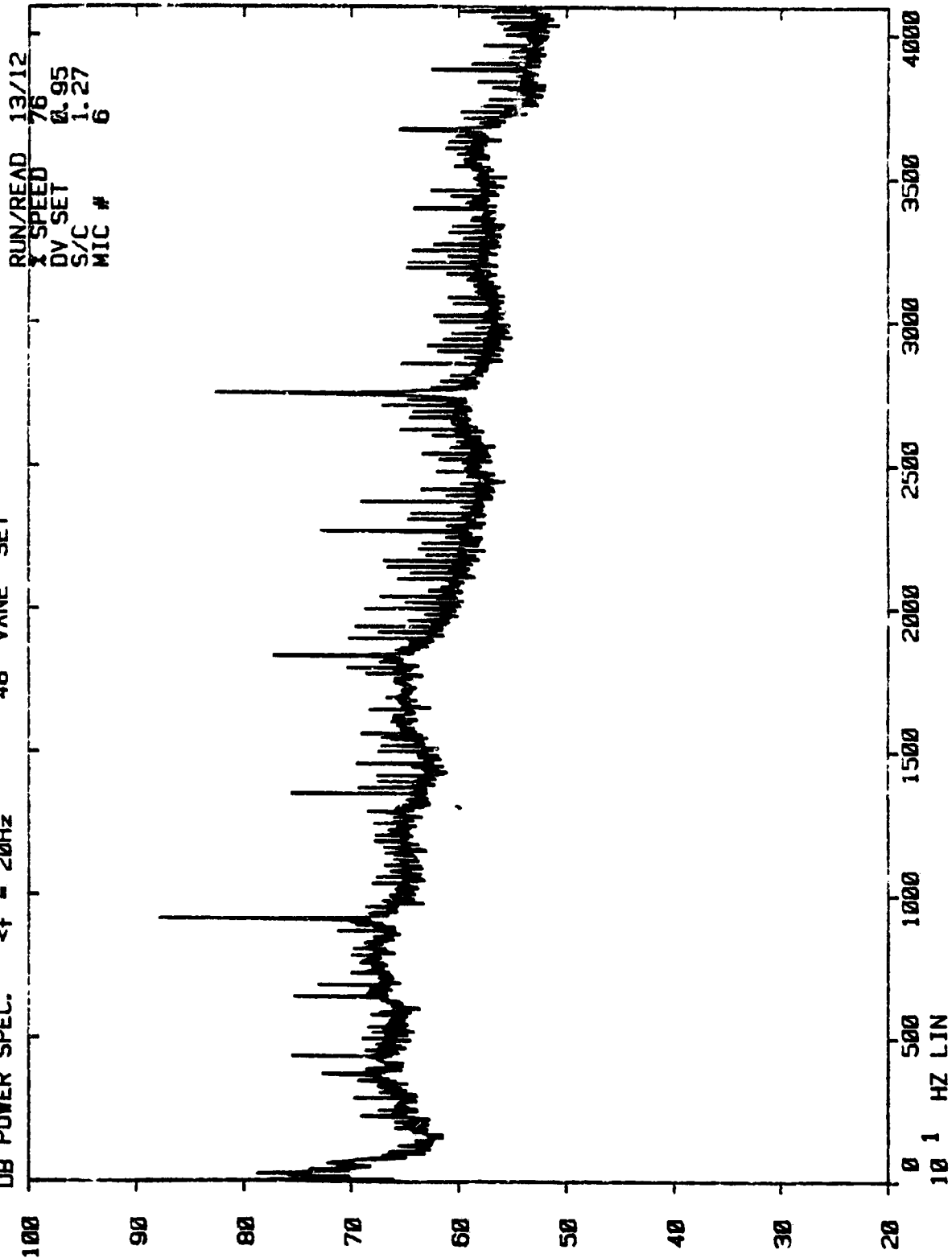
<f = 20Hz

DB POWER SPEC.



NASA V/B STUDY
48 VANE SET

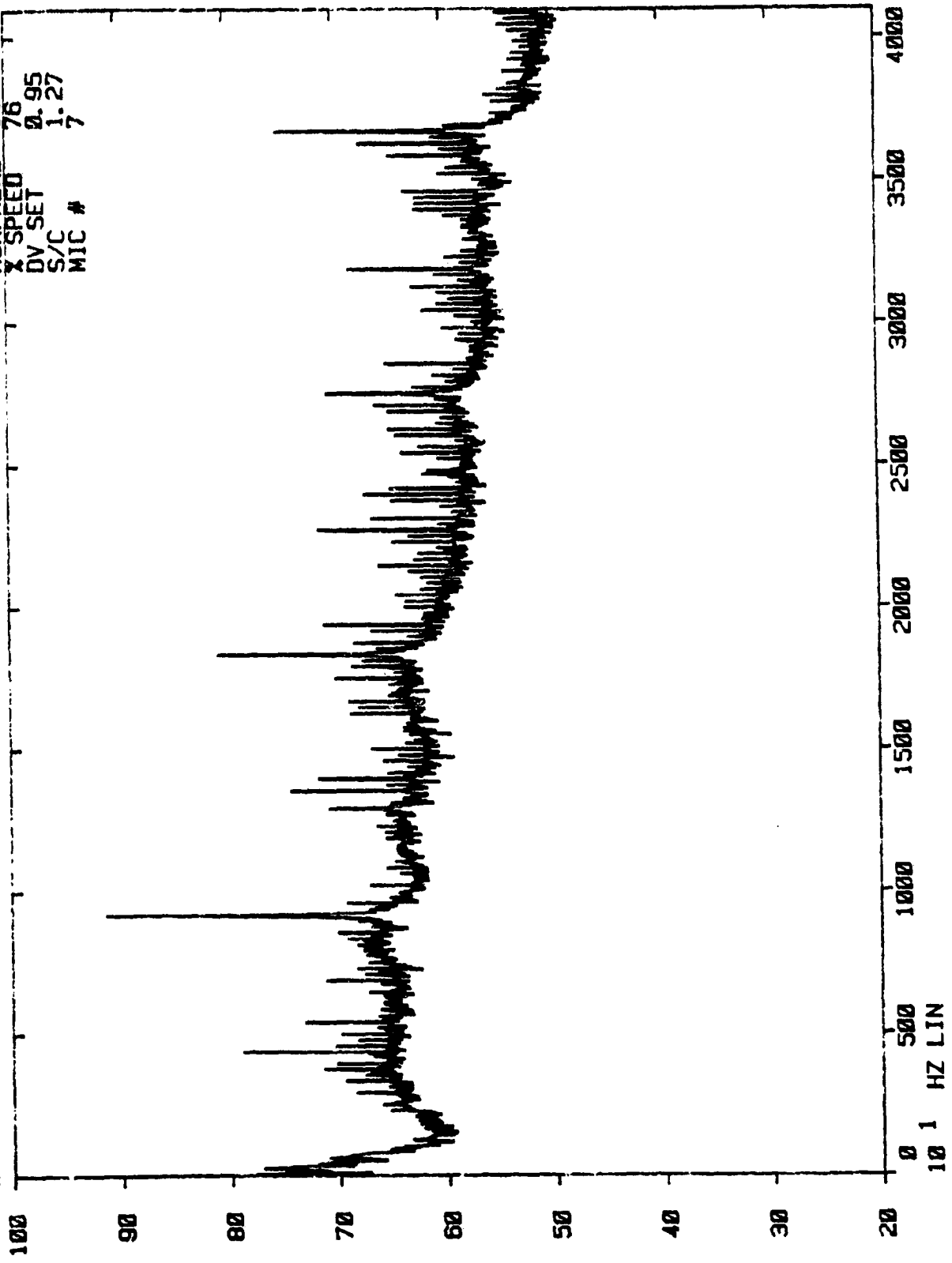
DB POWER SPEC. <f = 20Hz

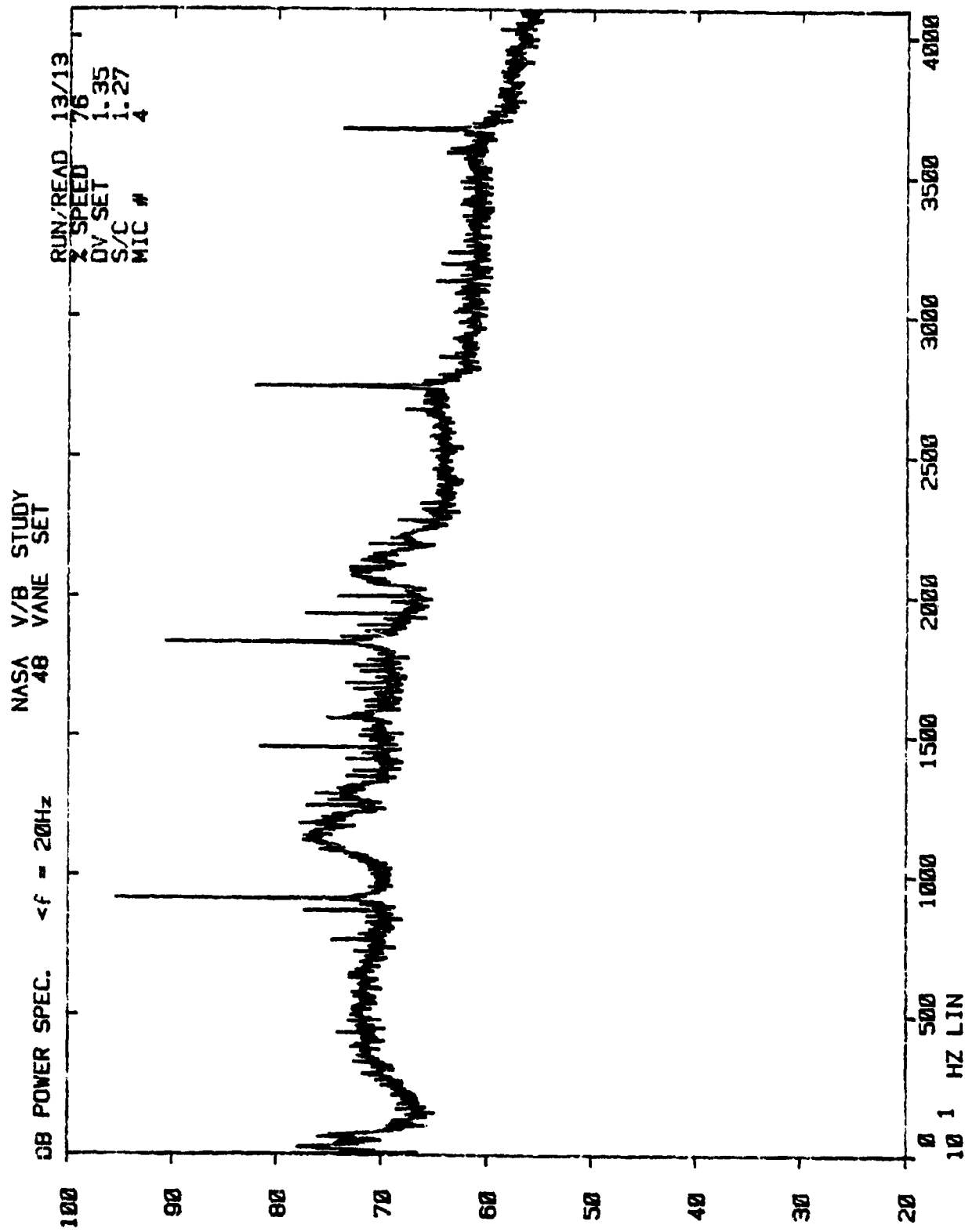


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f - 20Hz

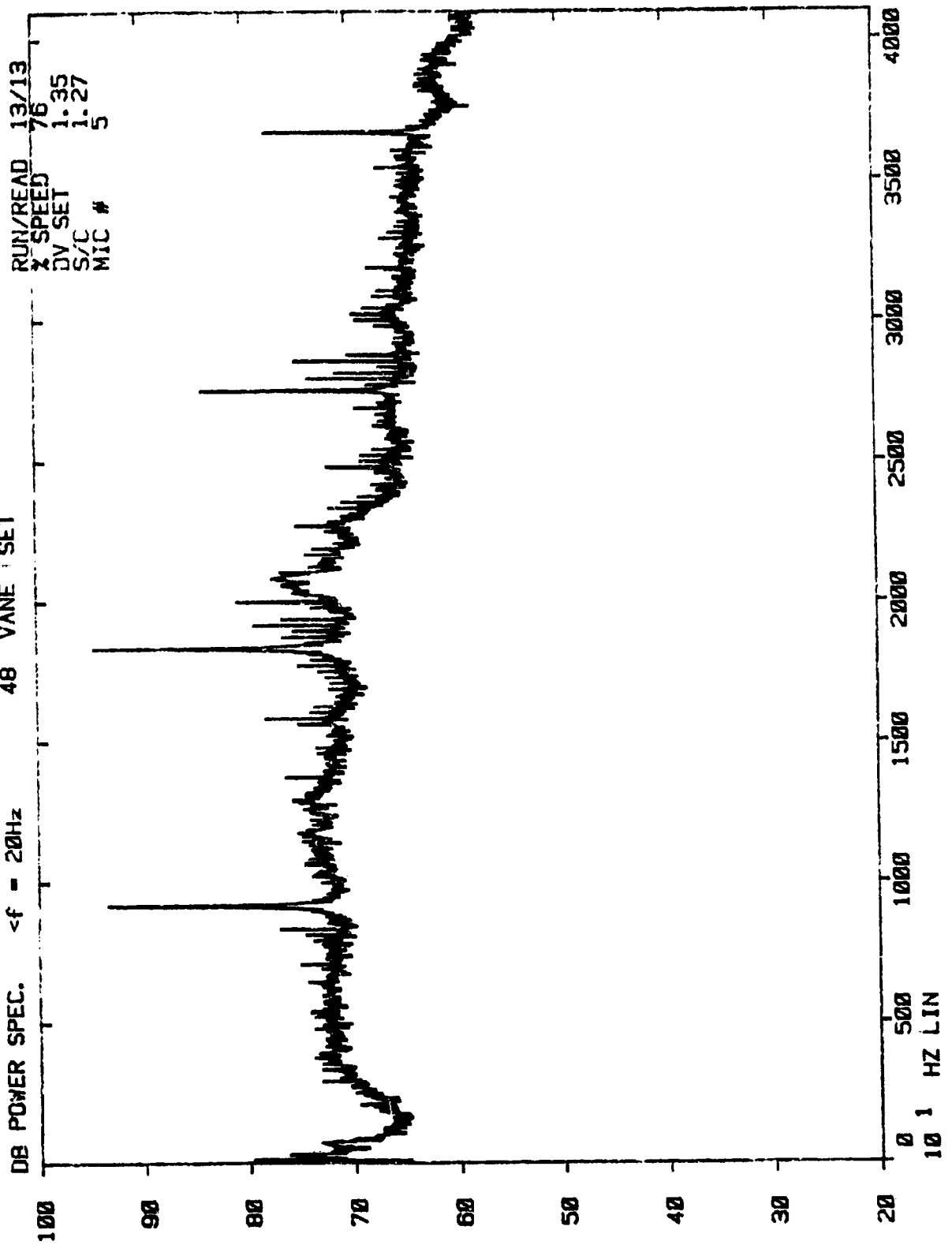
RUN/READ 13/12
X SPEED 76
DV SET 0.95
S/C 1.27
MIC # 7





NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

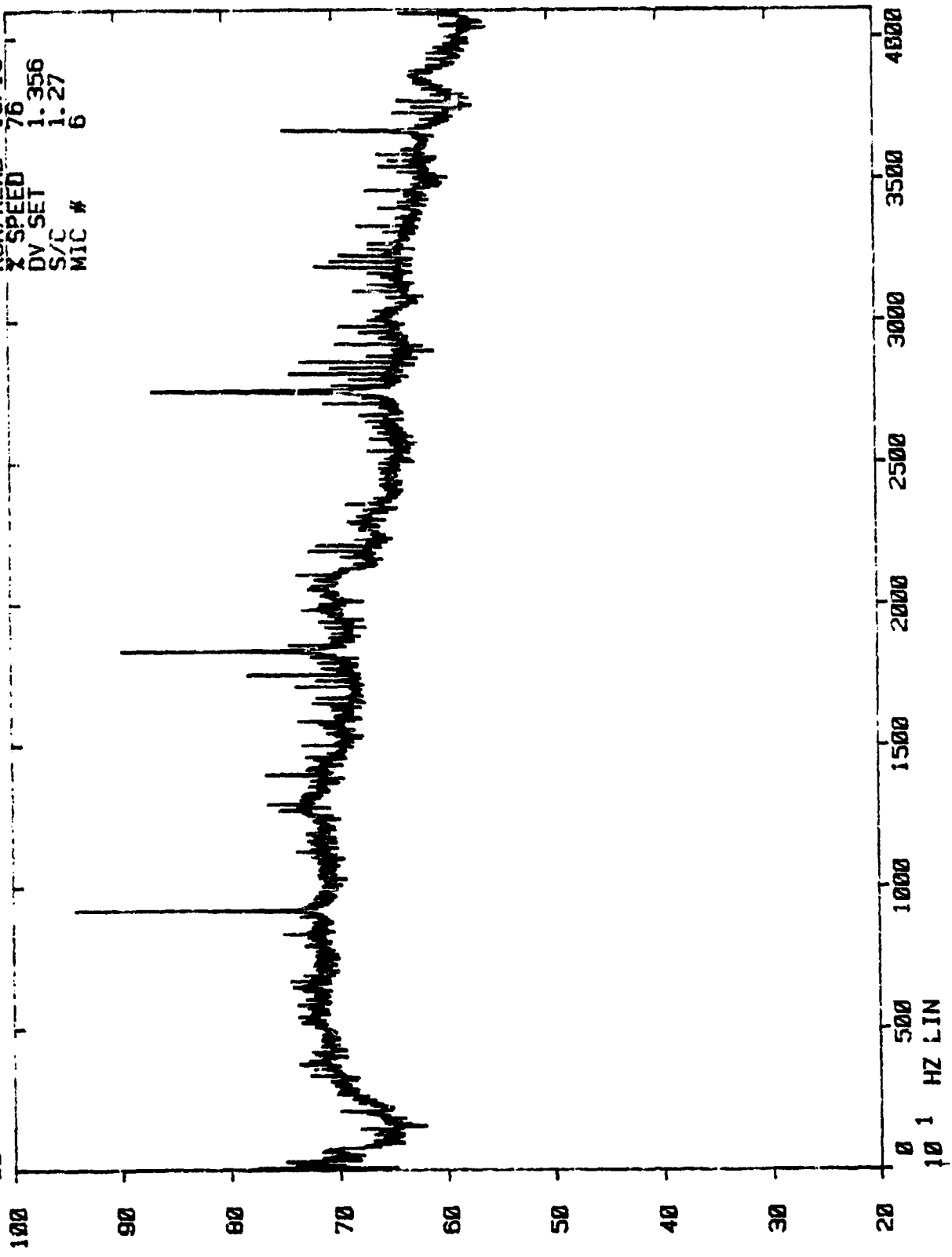


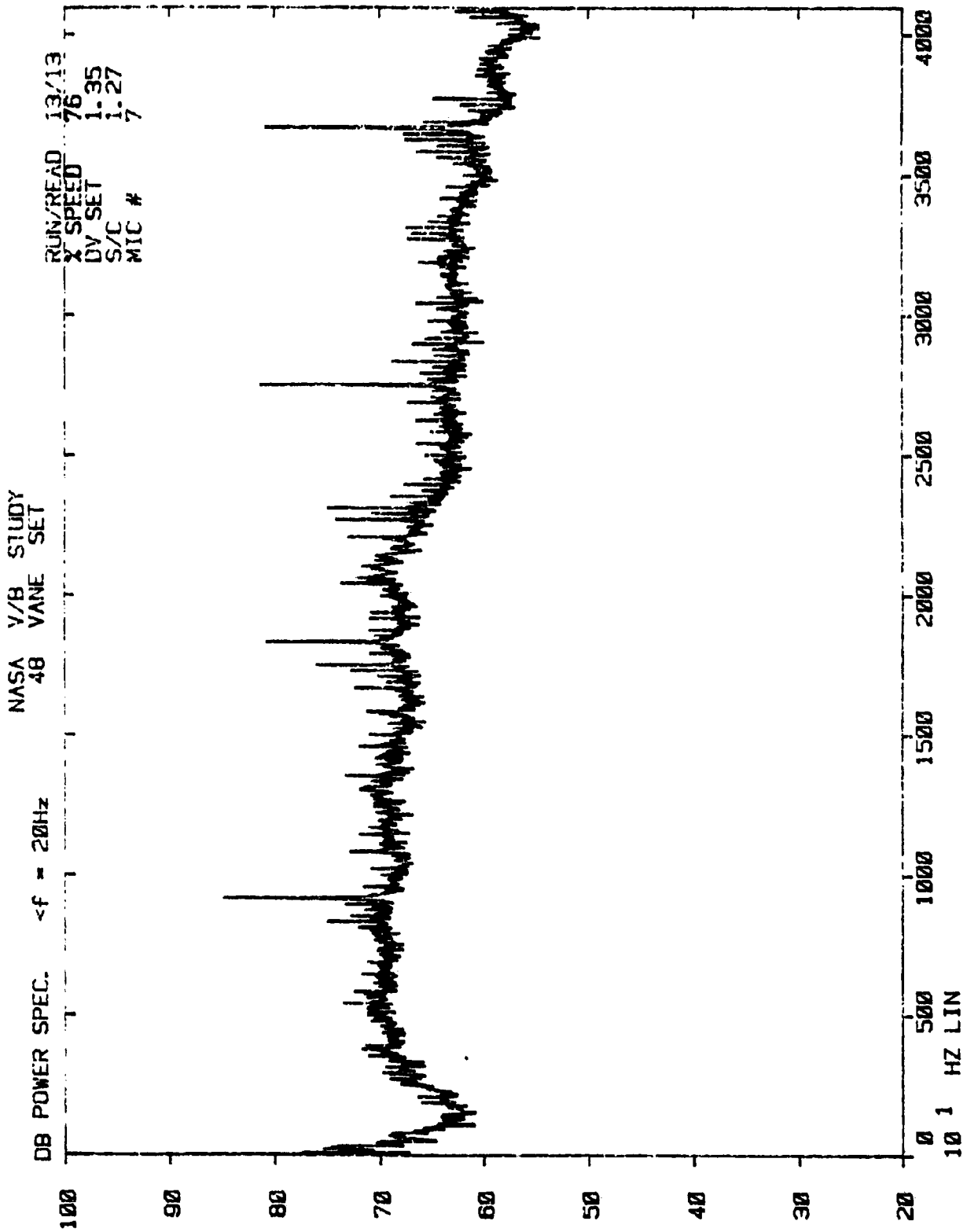
RUN/READ 13/13
X SPEED 76
DV SET 1.35
S/C 1.27
MIC # 5

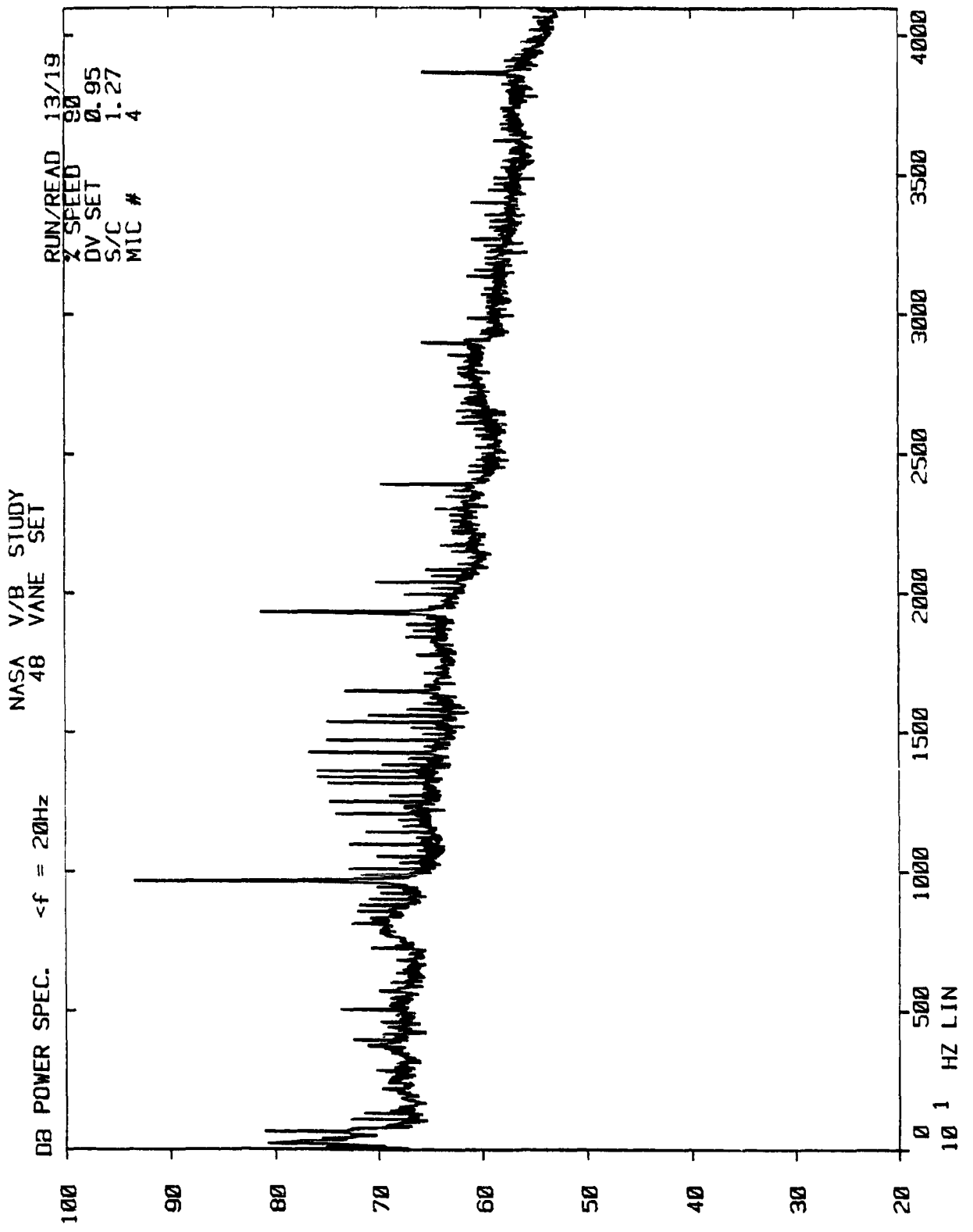
NASA V/B STUDY
48 VANE SET

RUN/READ 13/13
X SPEED 76
DV SET 1.356
S/C 1.27
MIC # 6

1/3B POWER SPEC. <f = 20Hz



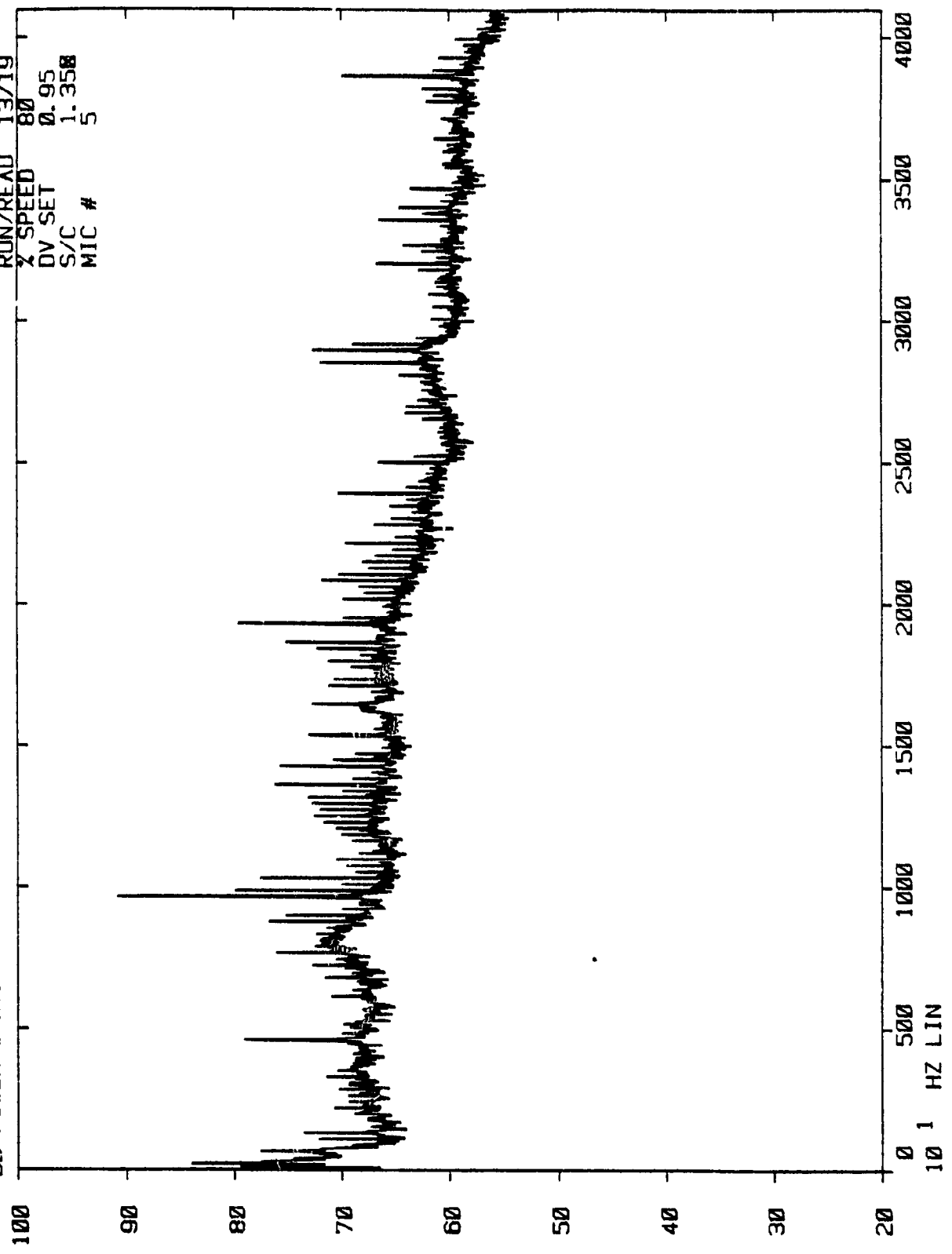


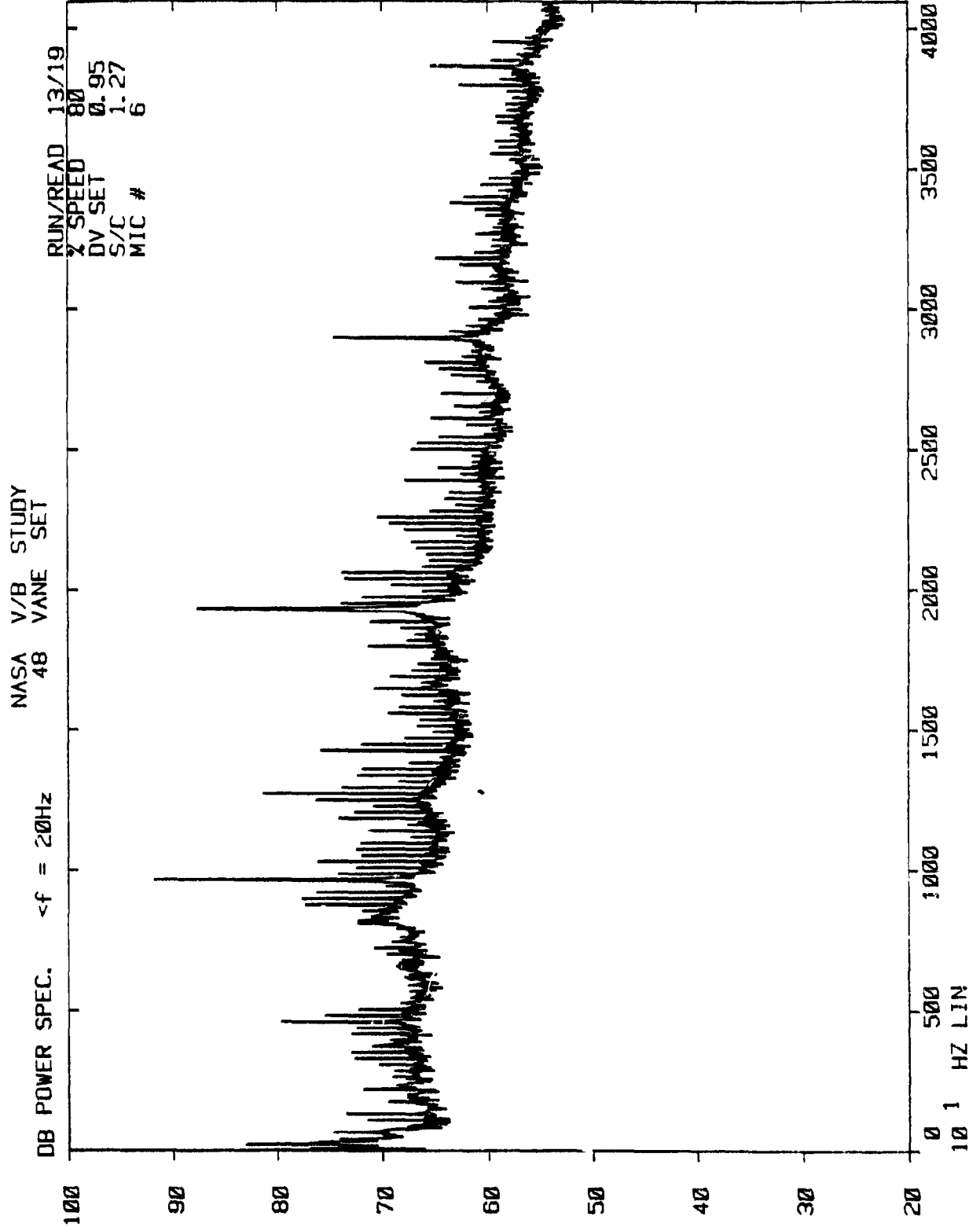


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

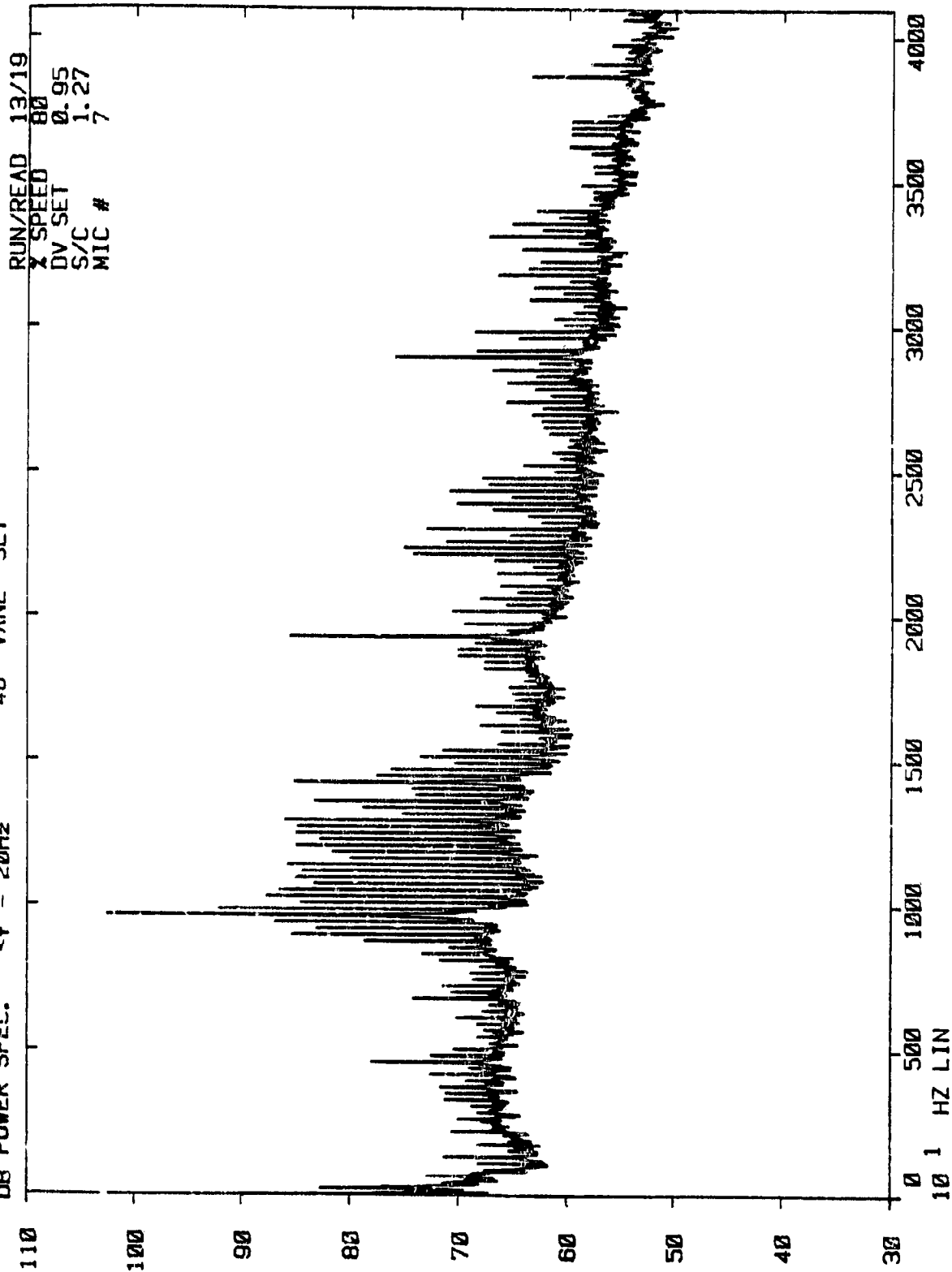
RUN/READ 13/19
X SPEED 80
DV SET 0.95
S/C 1.358
MIC # 5



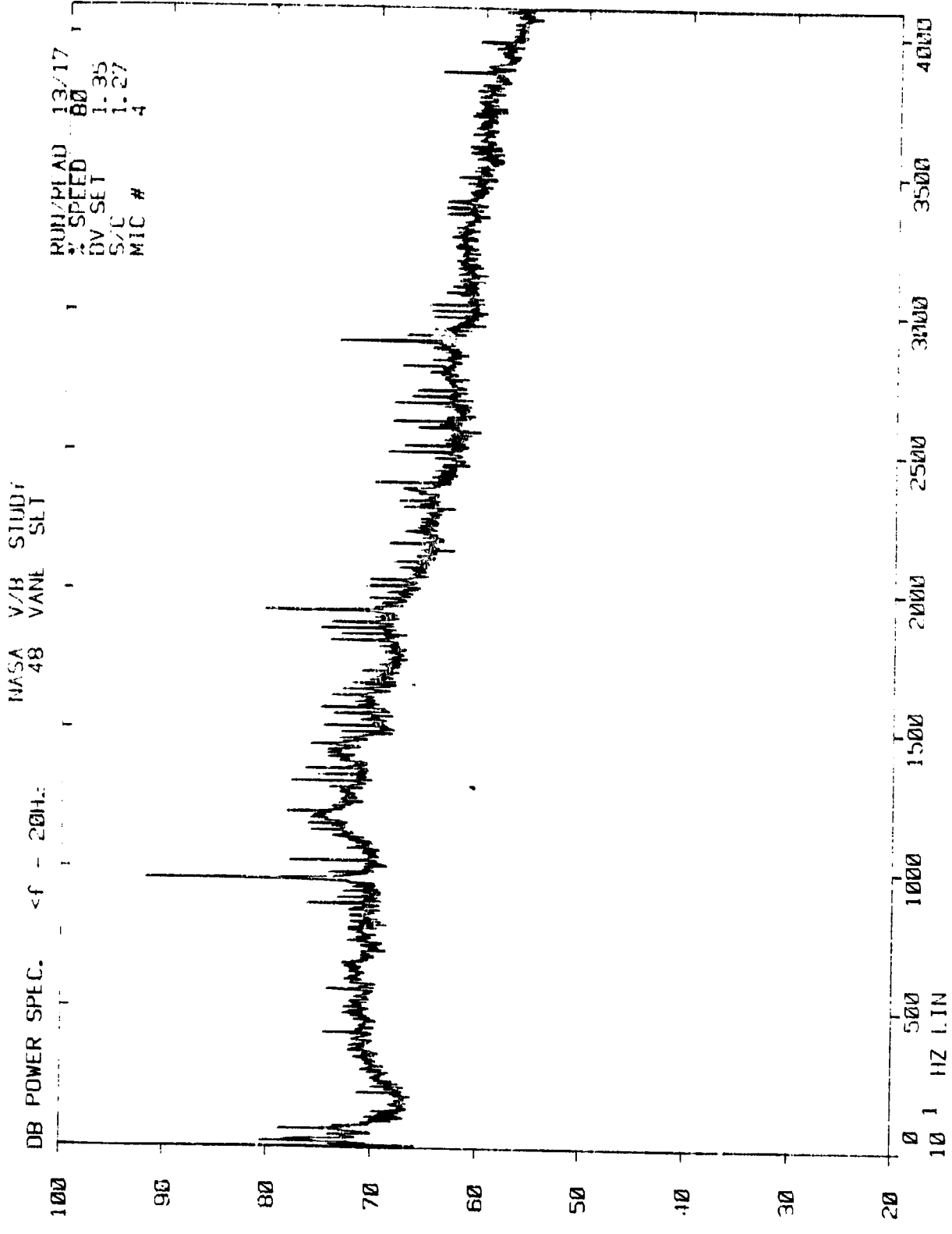


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$



RUN/READ 13/19
X SPEED 80
DV SET 0.95
S/C 1.27
MIC # 7





4.5

5.0

5.6

6.3

7.1

8.0

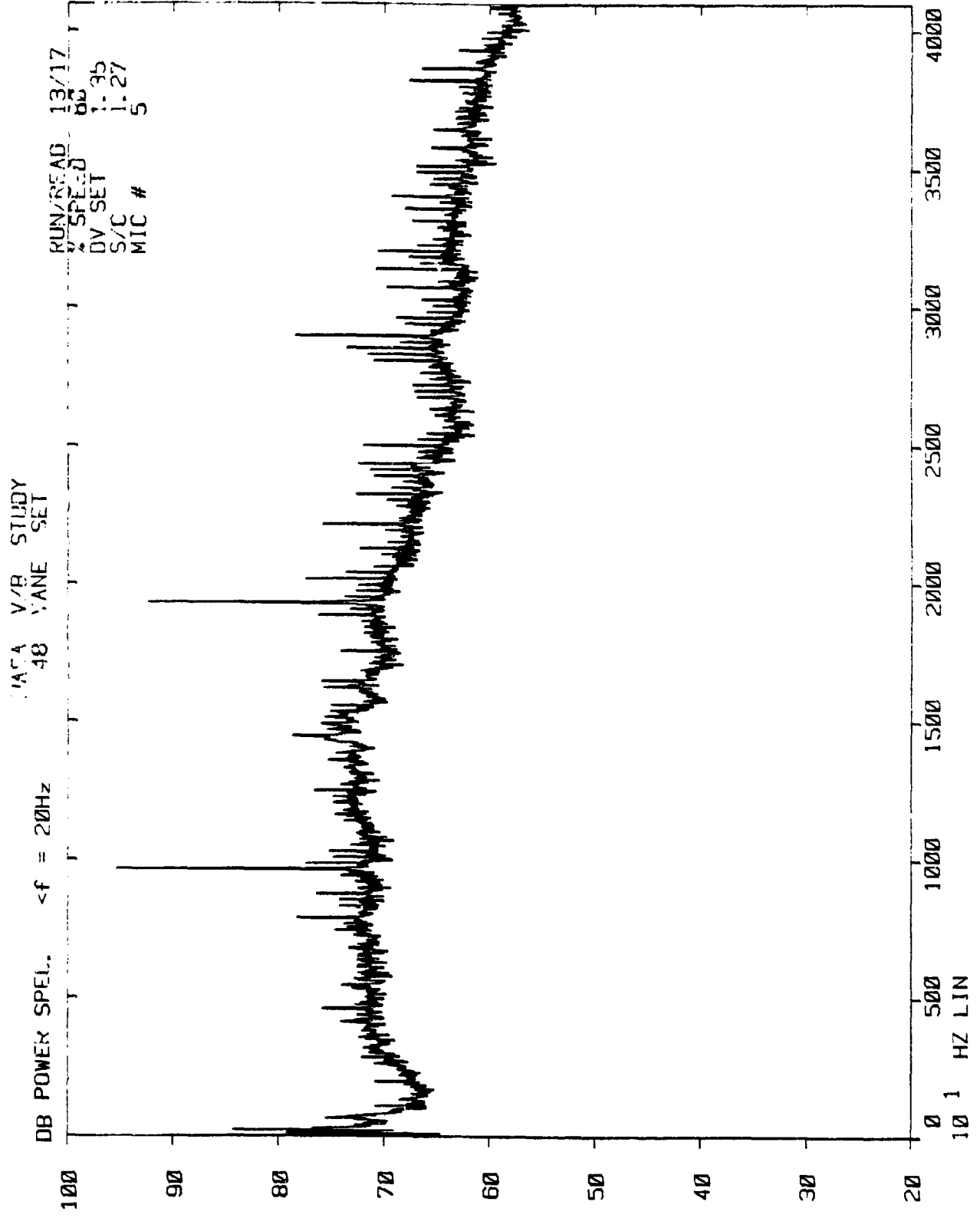
9.0

10

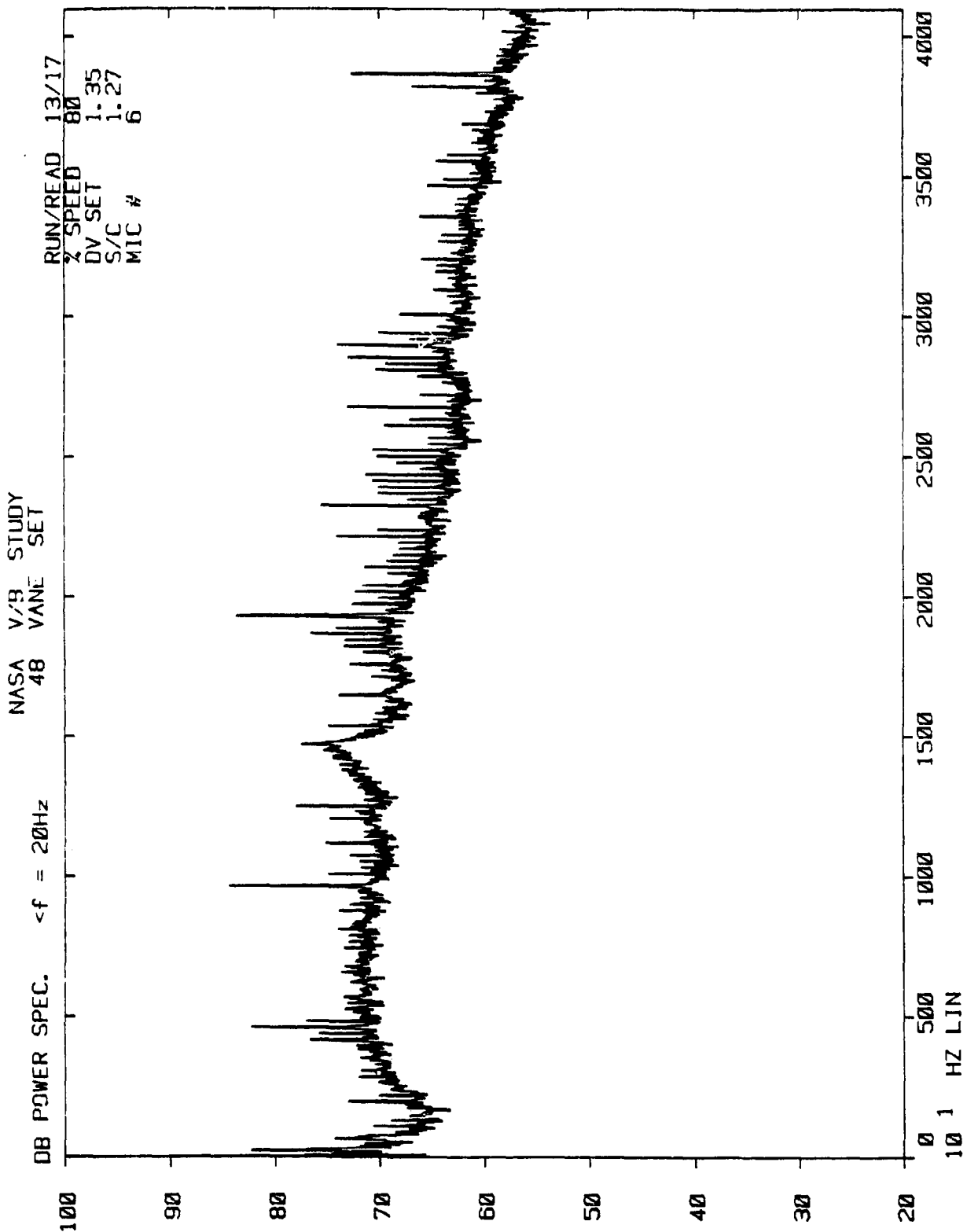


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)



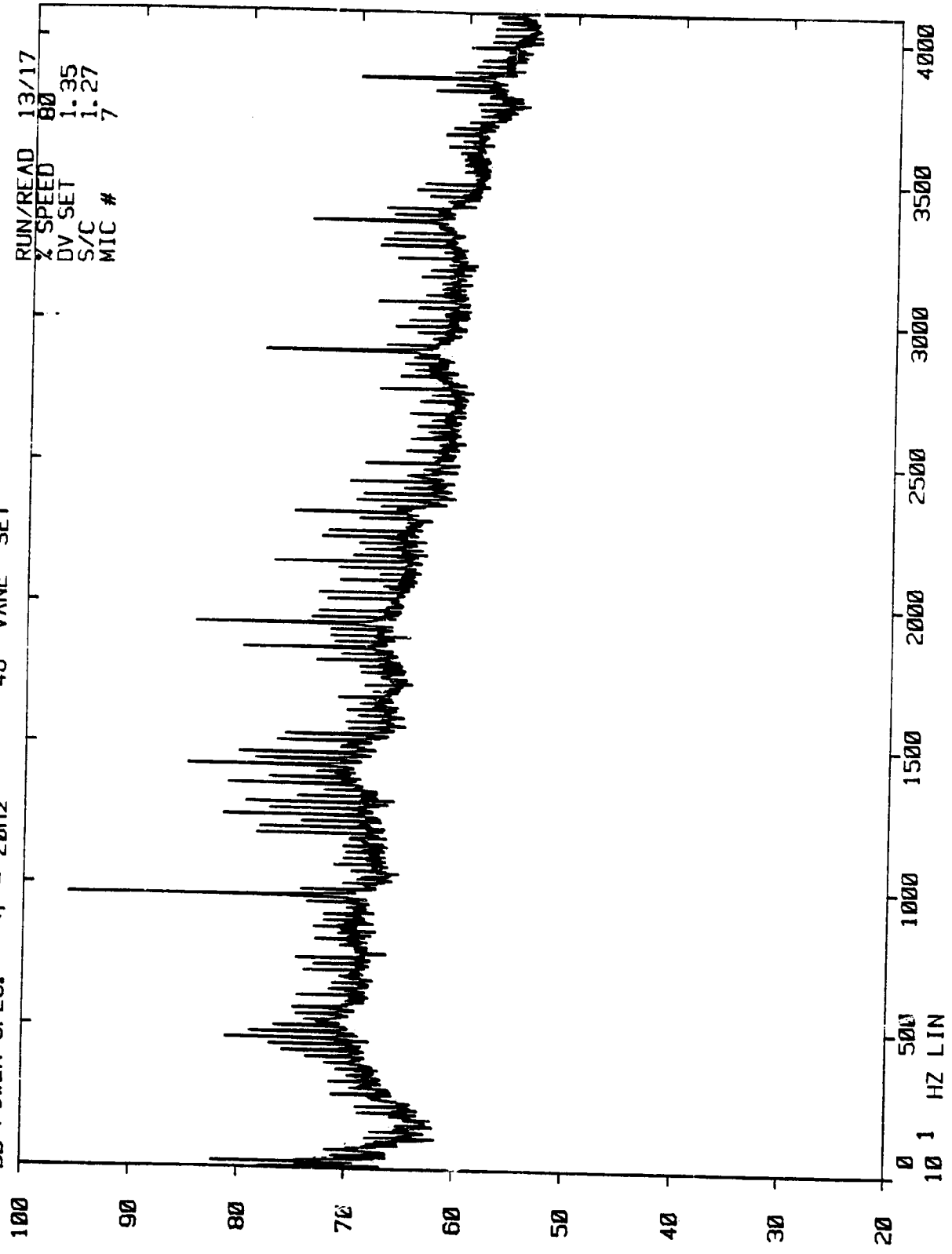


C. 2



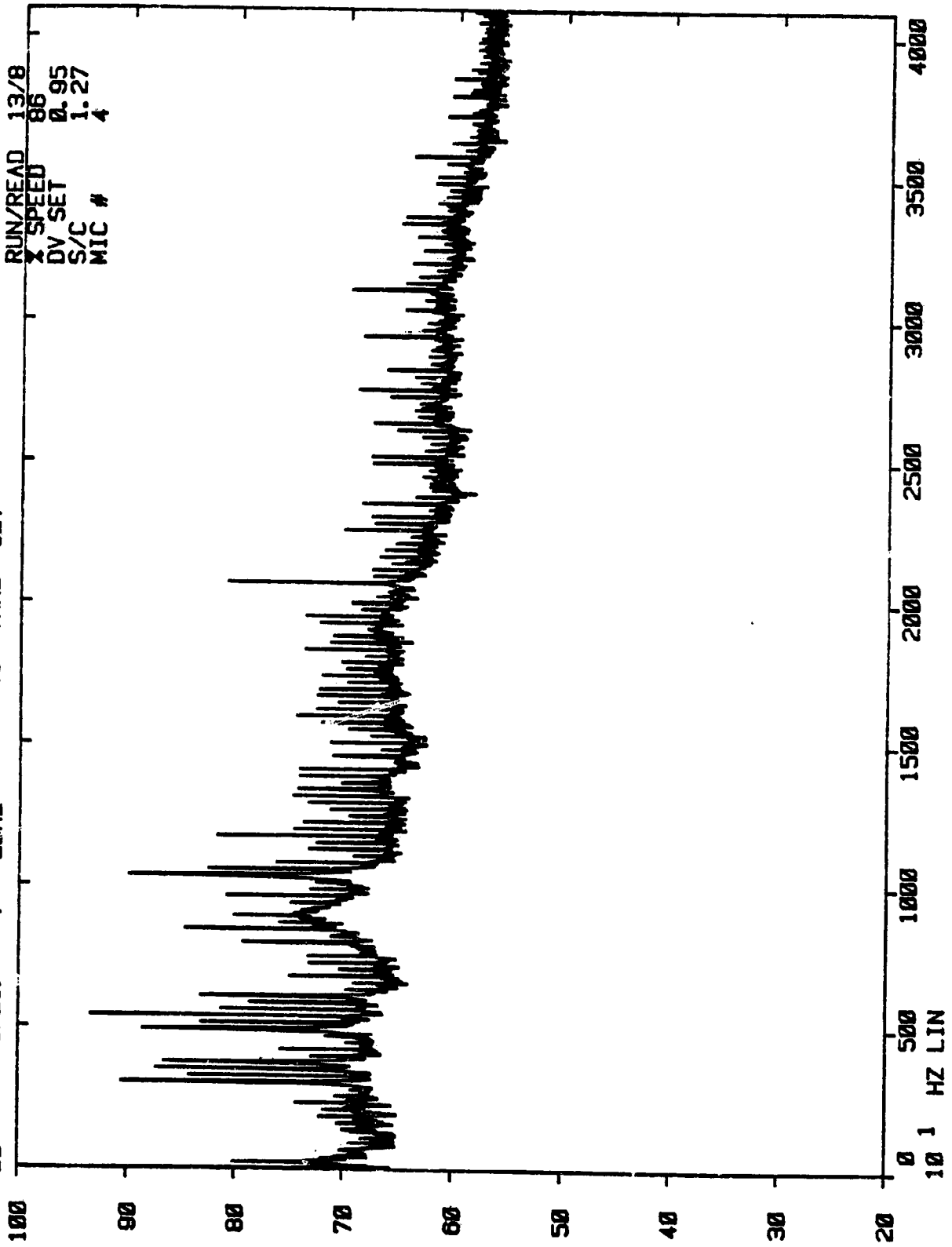
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 2MHz

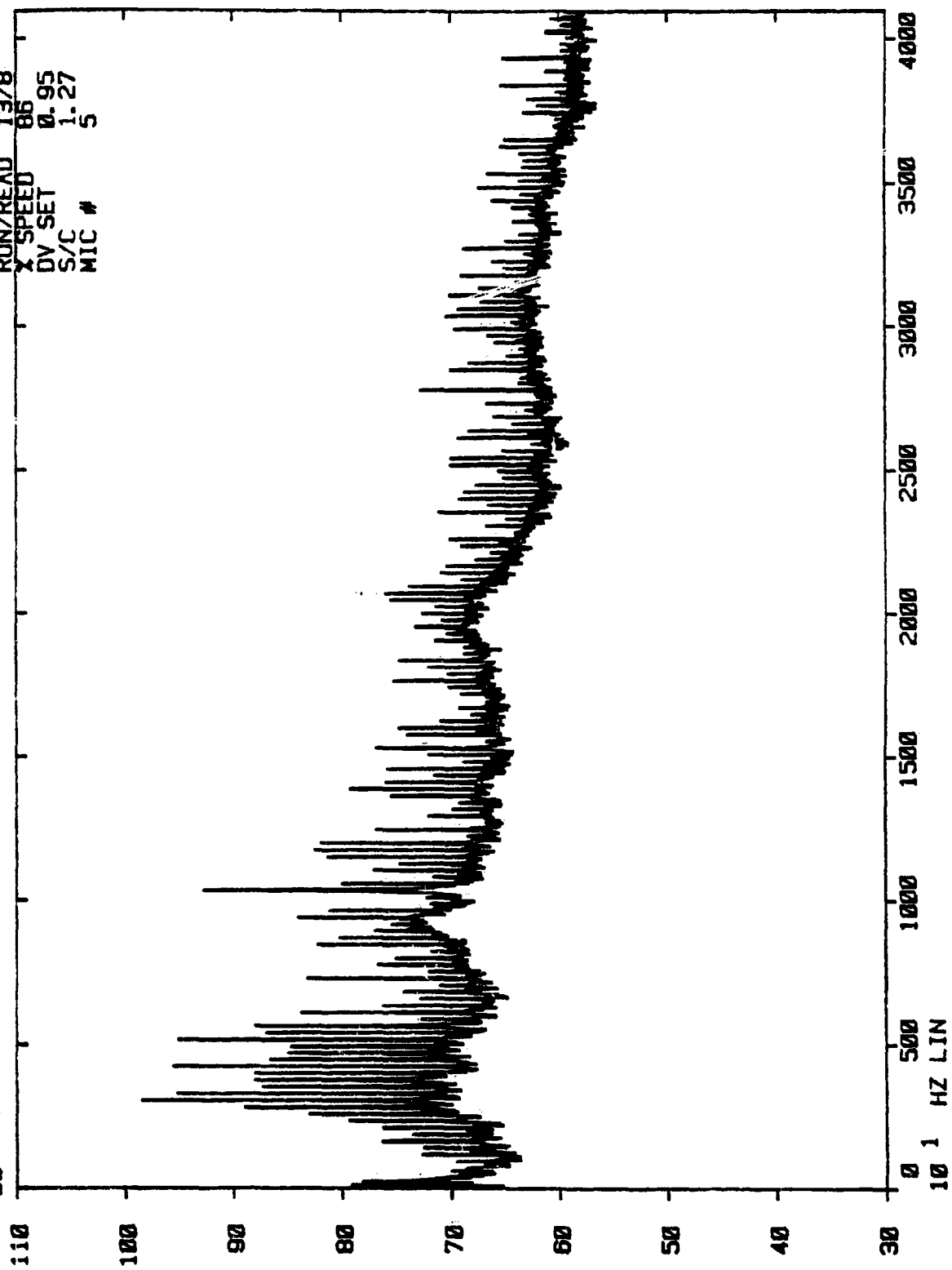


RUN/READ 13/8
X SPEED 86
DV SET 0.95
S/C 1.27
MIC # 4

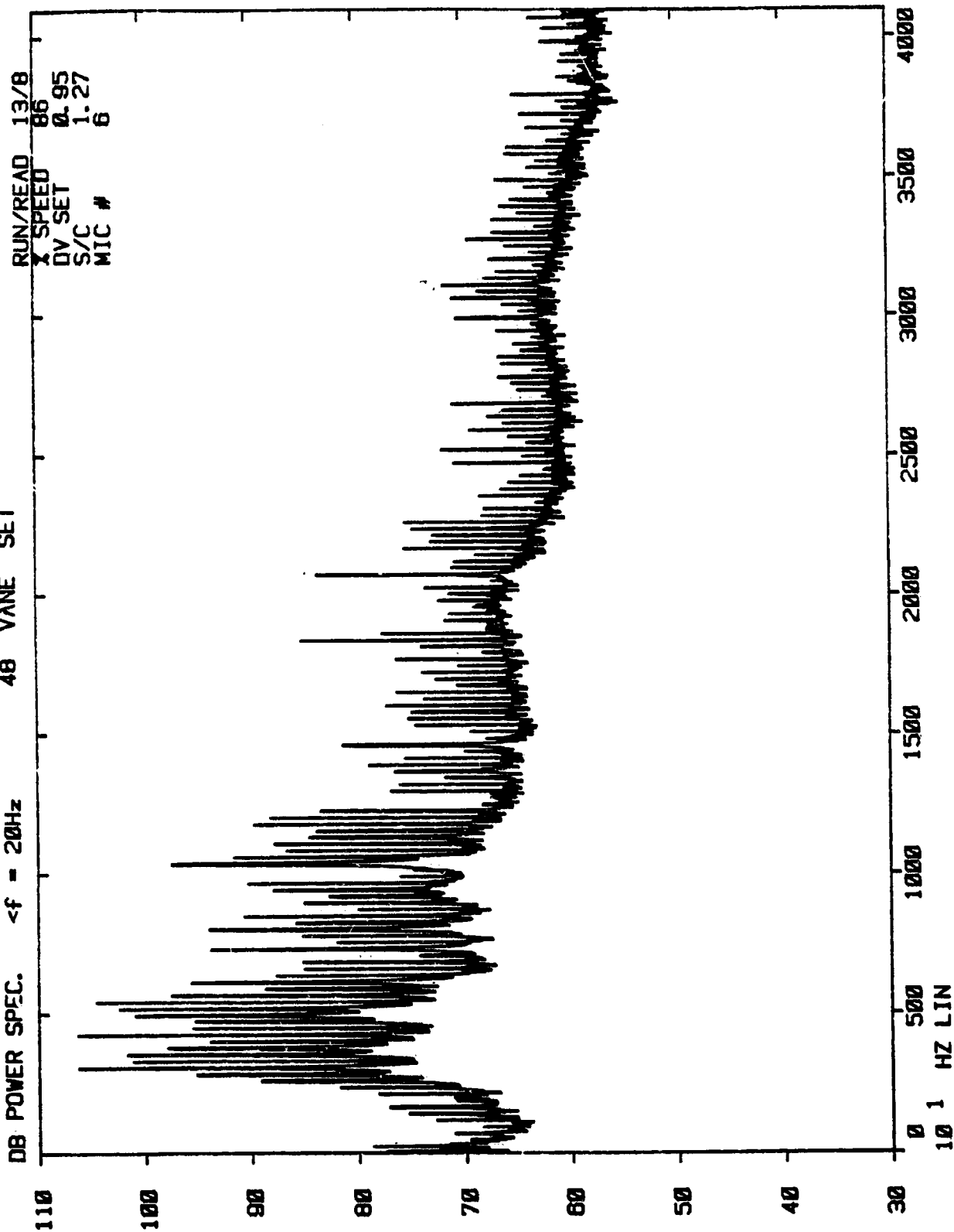
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f - 20Hz

RUN/READ 13/8
X SPEED 86
DV SET 0.95
S/C 1.27
MIC # 5

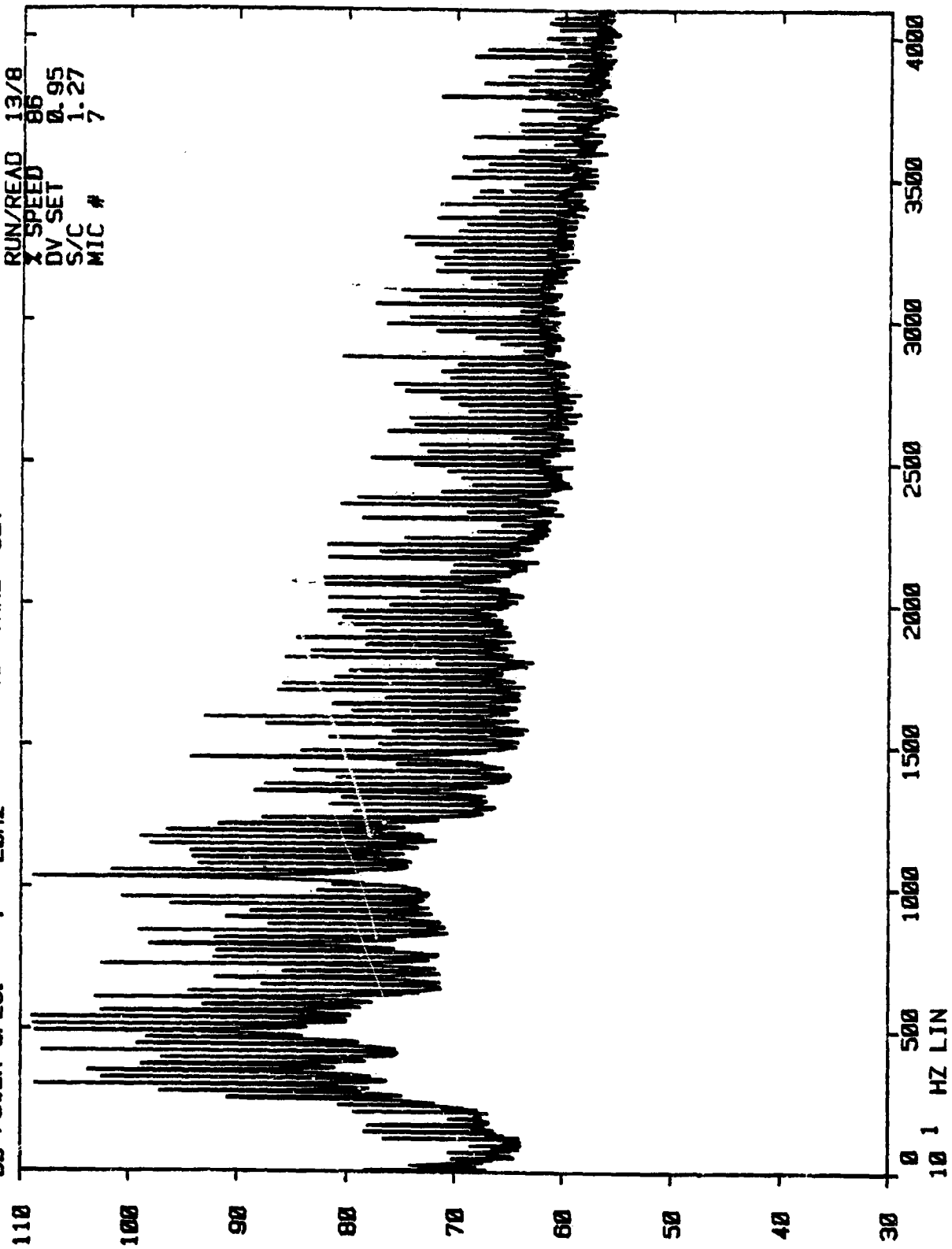


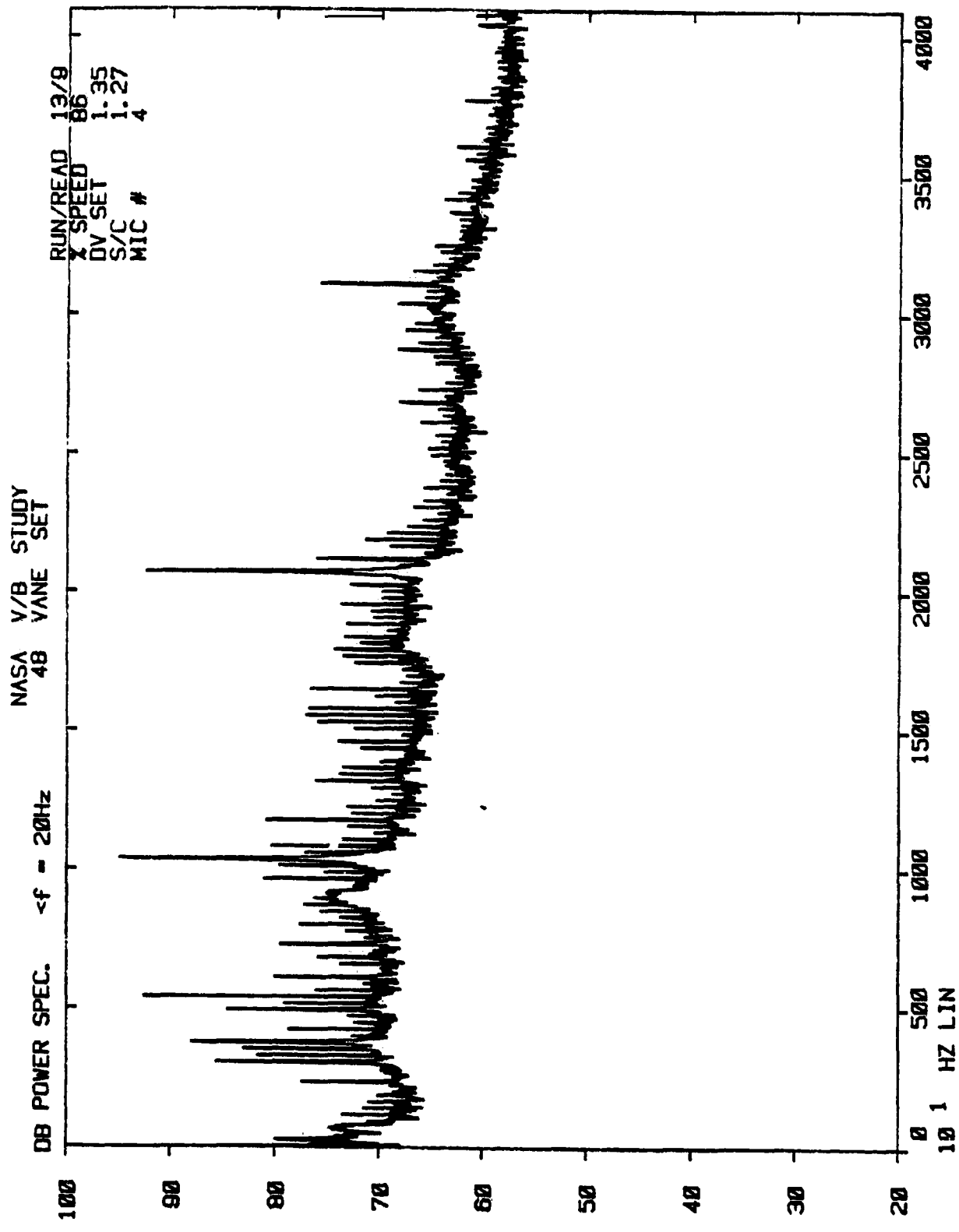
NASA Y/B STUDY
48 VANE SET



NASA V/B STUDY
48 VANE SET

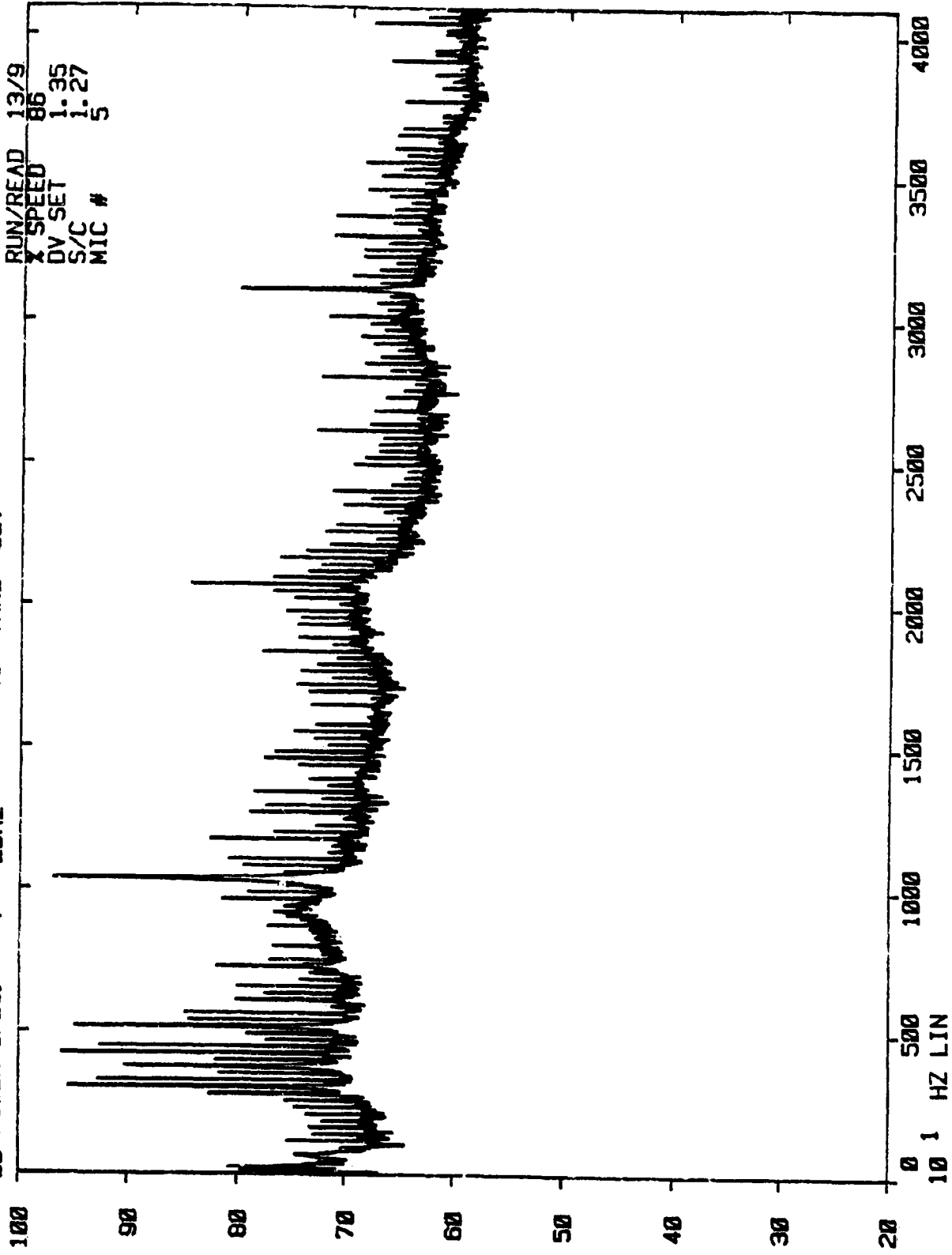
DB POWER SPEC. <f - 20Hz





NASA V/B STUDY
48 VANE SET

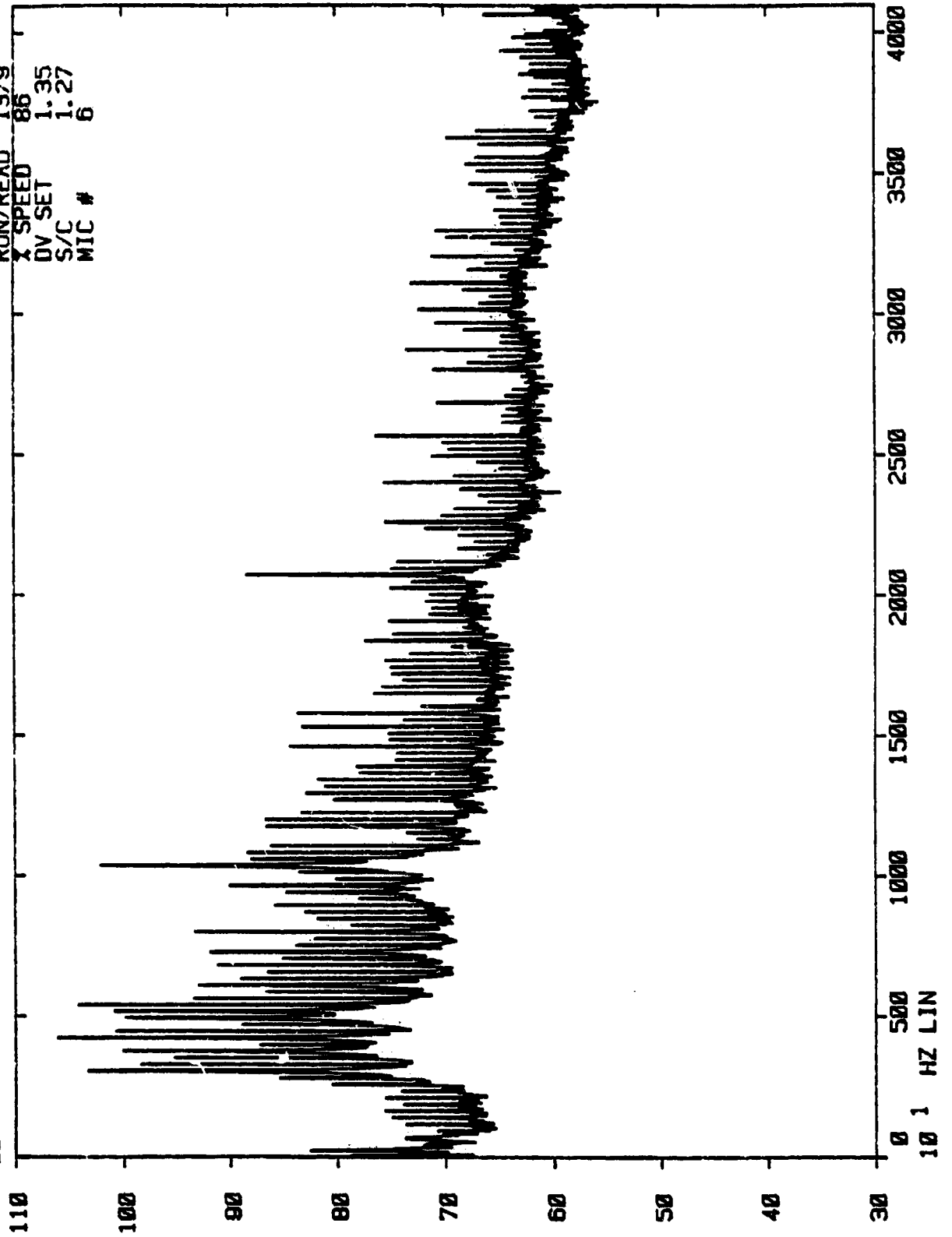
DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
48 VANE SET

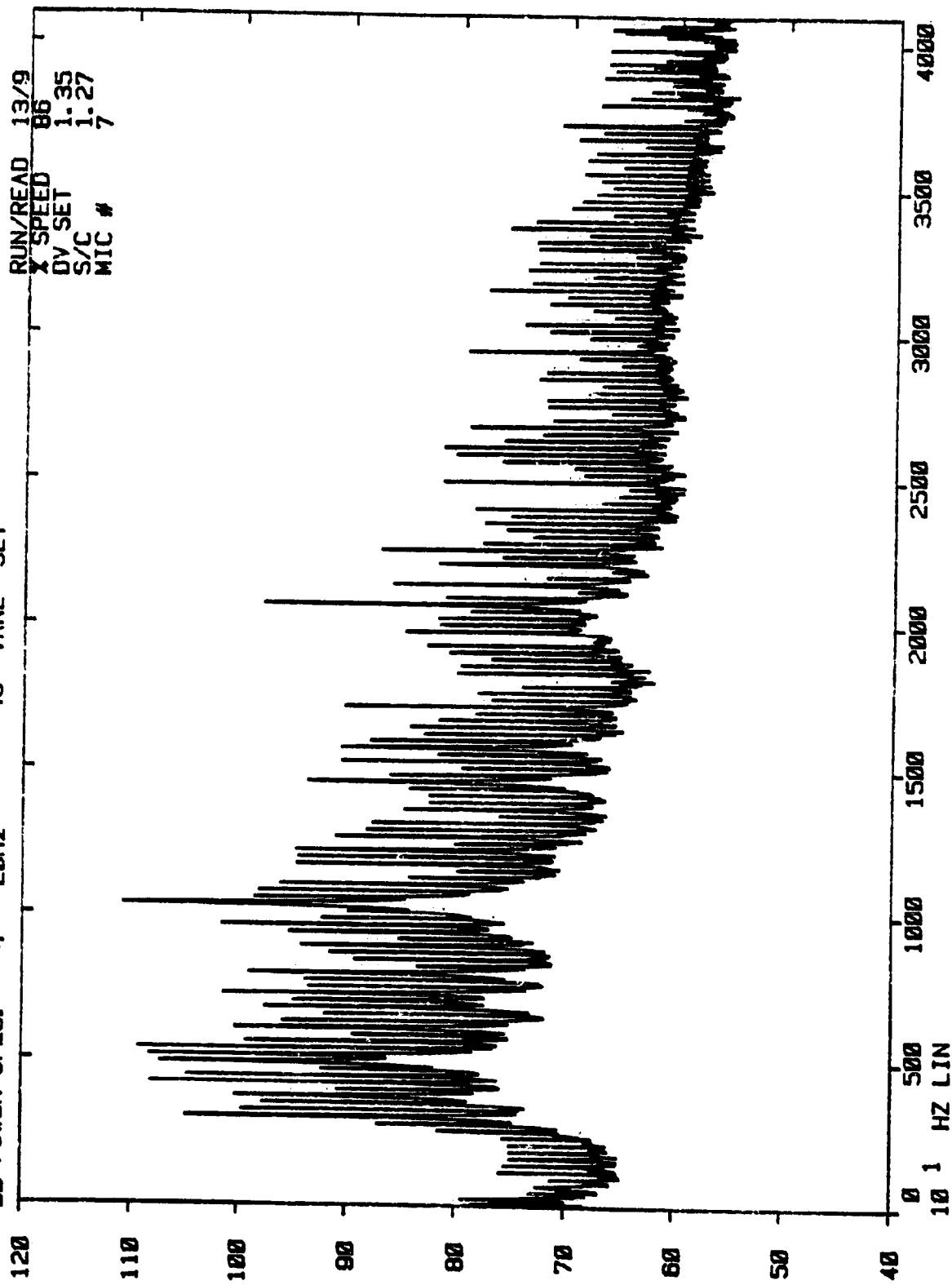
DB POWER SPEC. <f = 20Hz

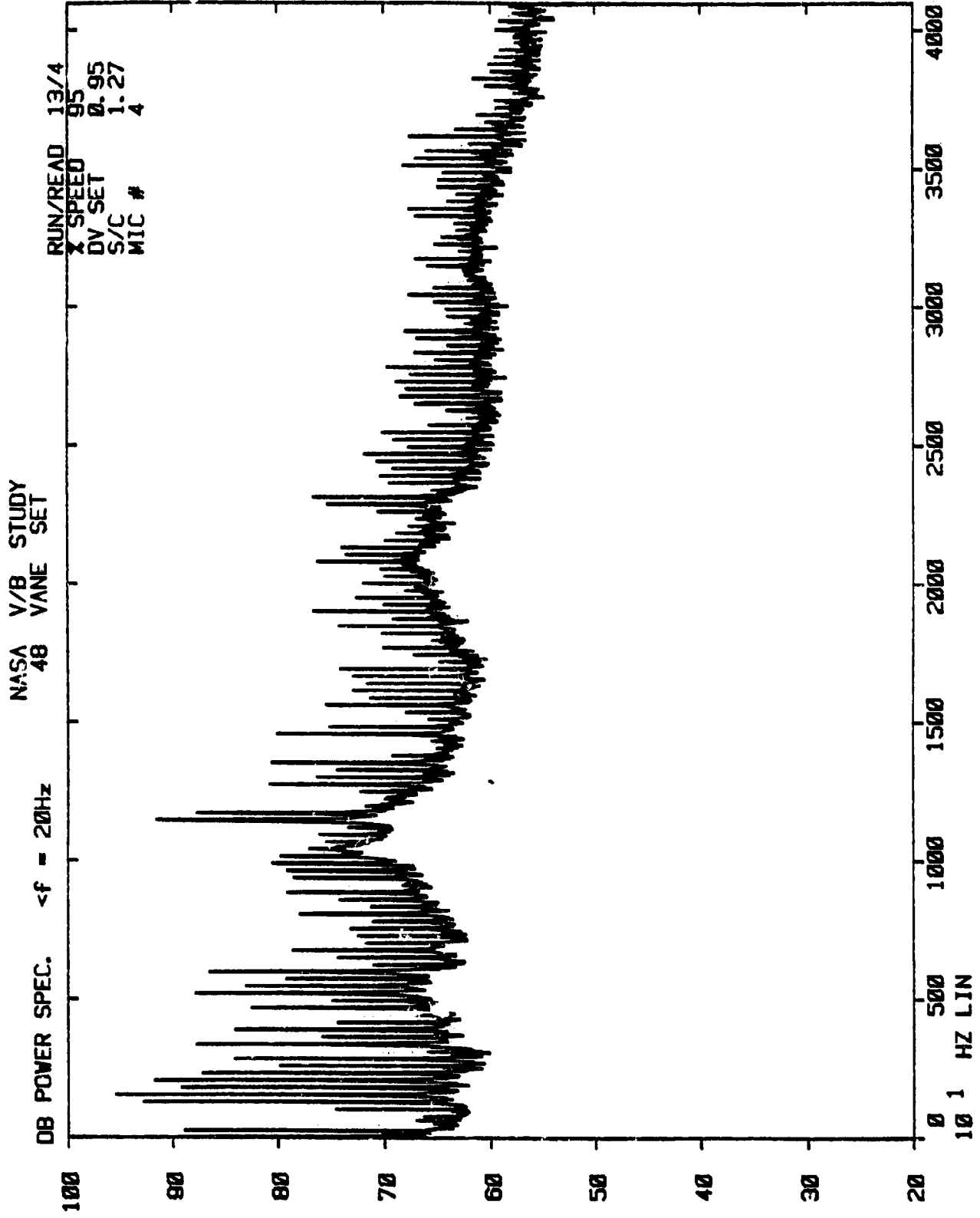
RUN/READ 13/9
X SPEED 86
DV SET 1.35
S/C 1.27
MIC # 6



NASA V/B STUDY
48 VANE SET

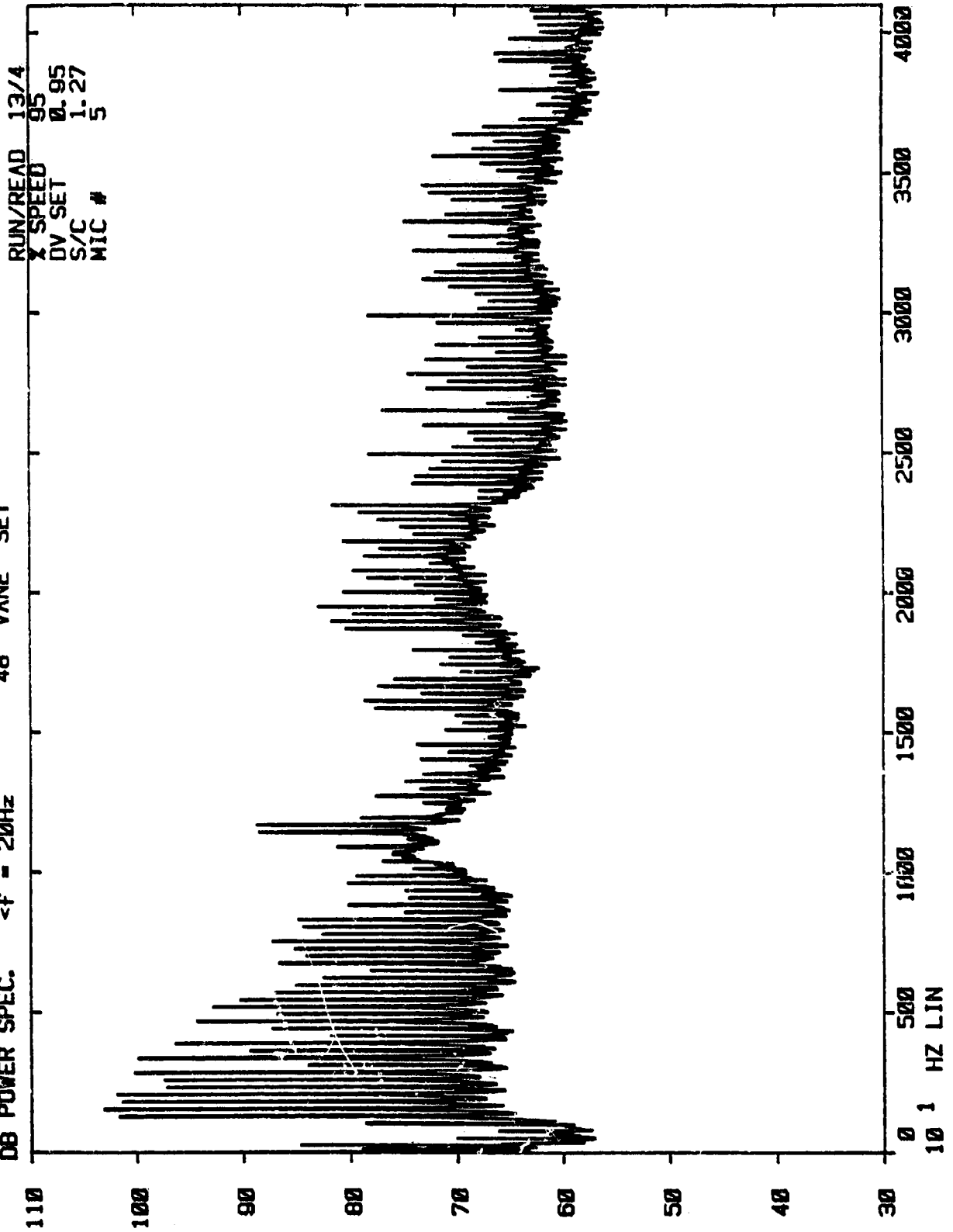
DB POWER SPEC. <f = 20Hz





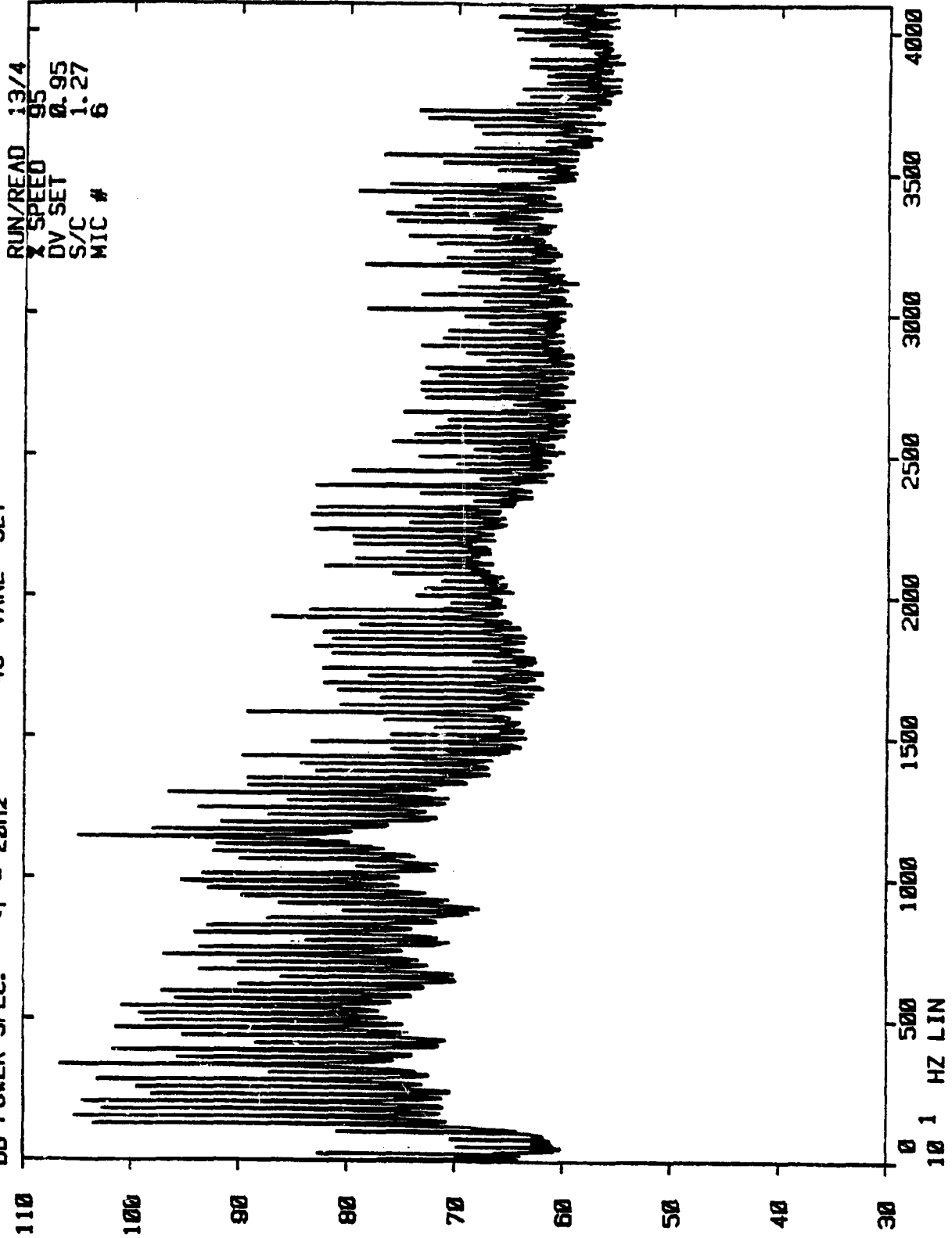
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



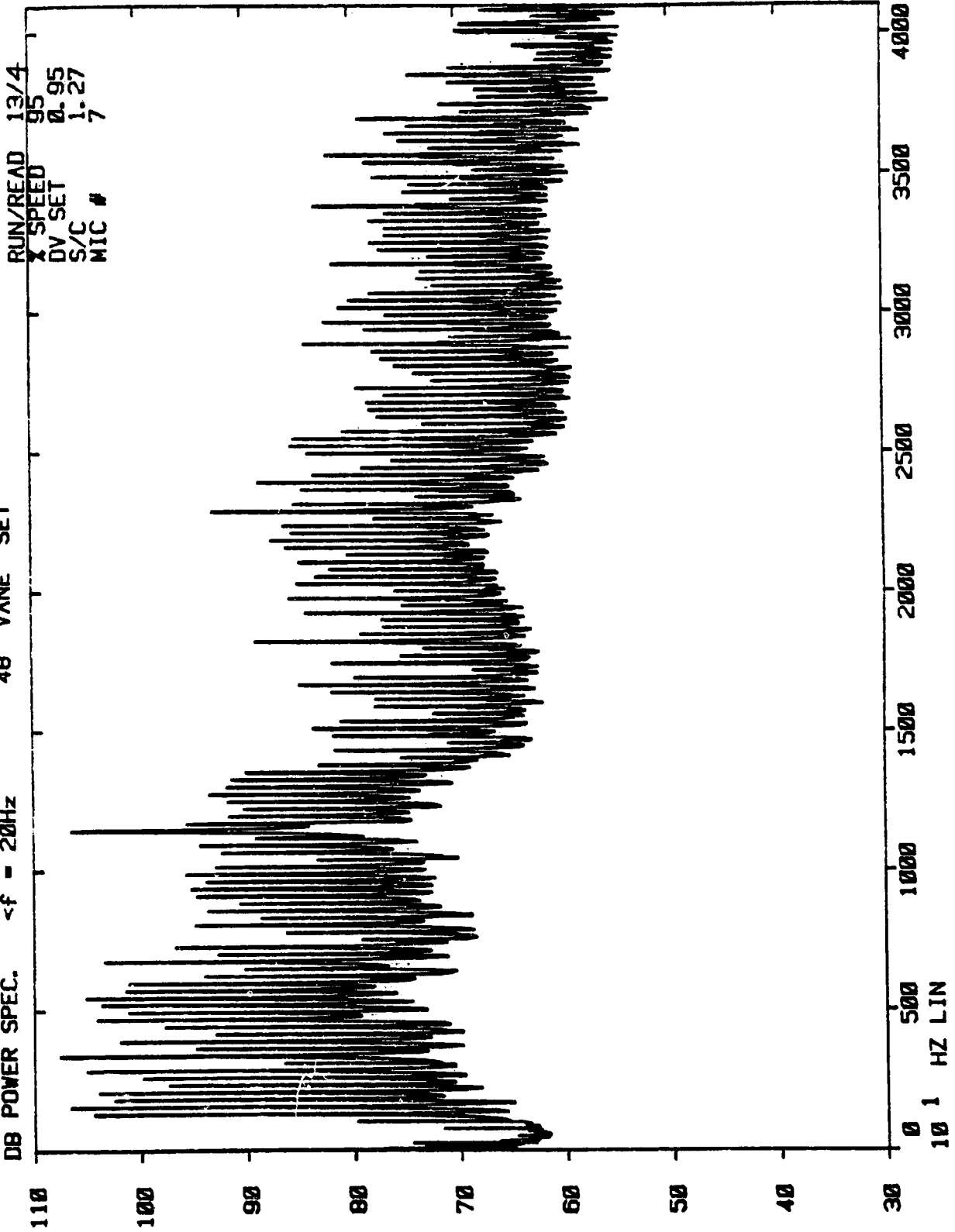
NASA V/B STUDY
48 VANE SET

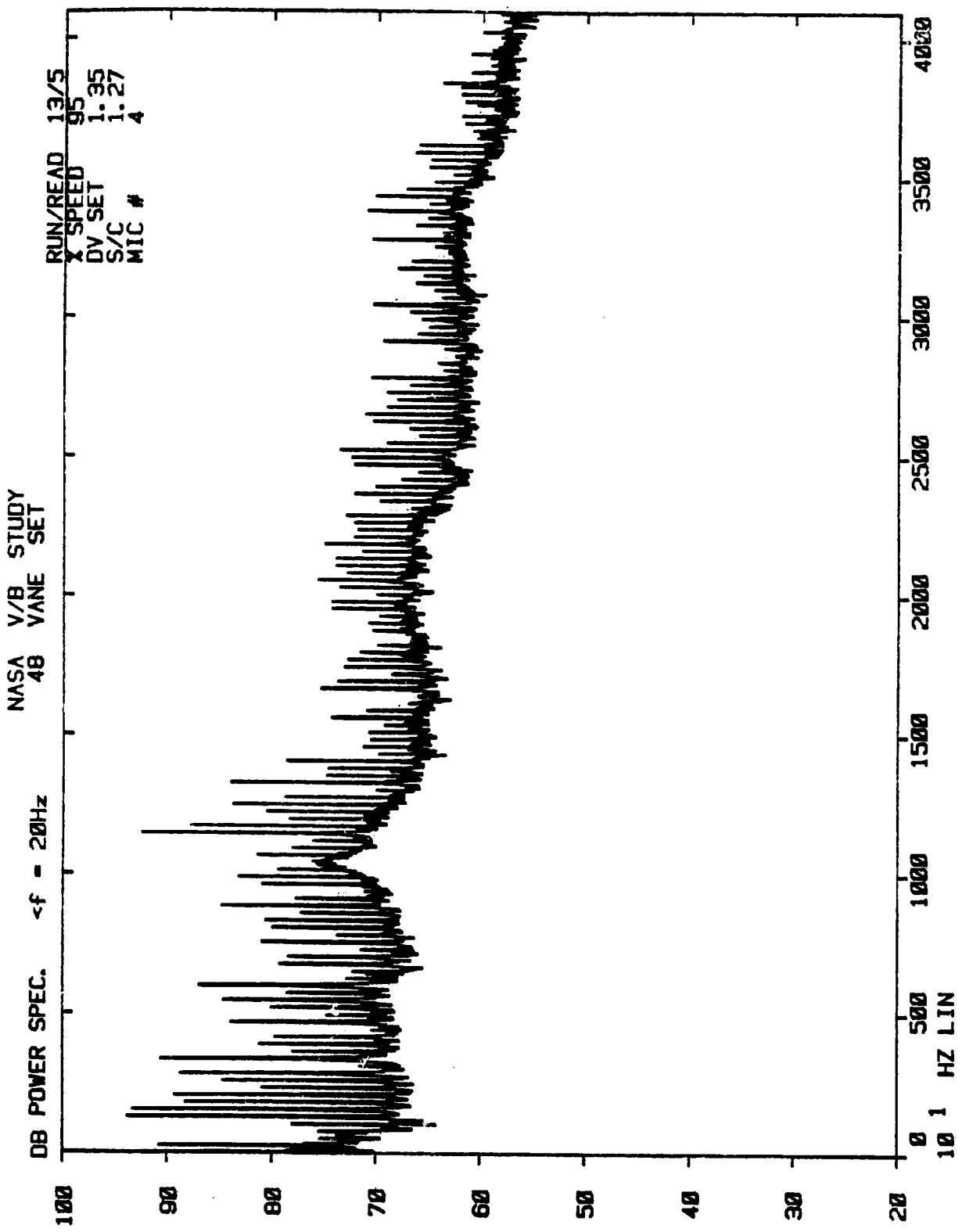
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
48 VANE SET

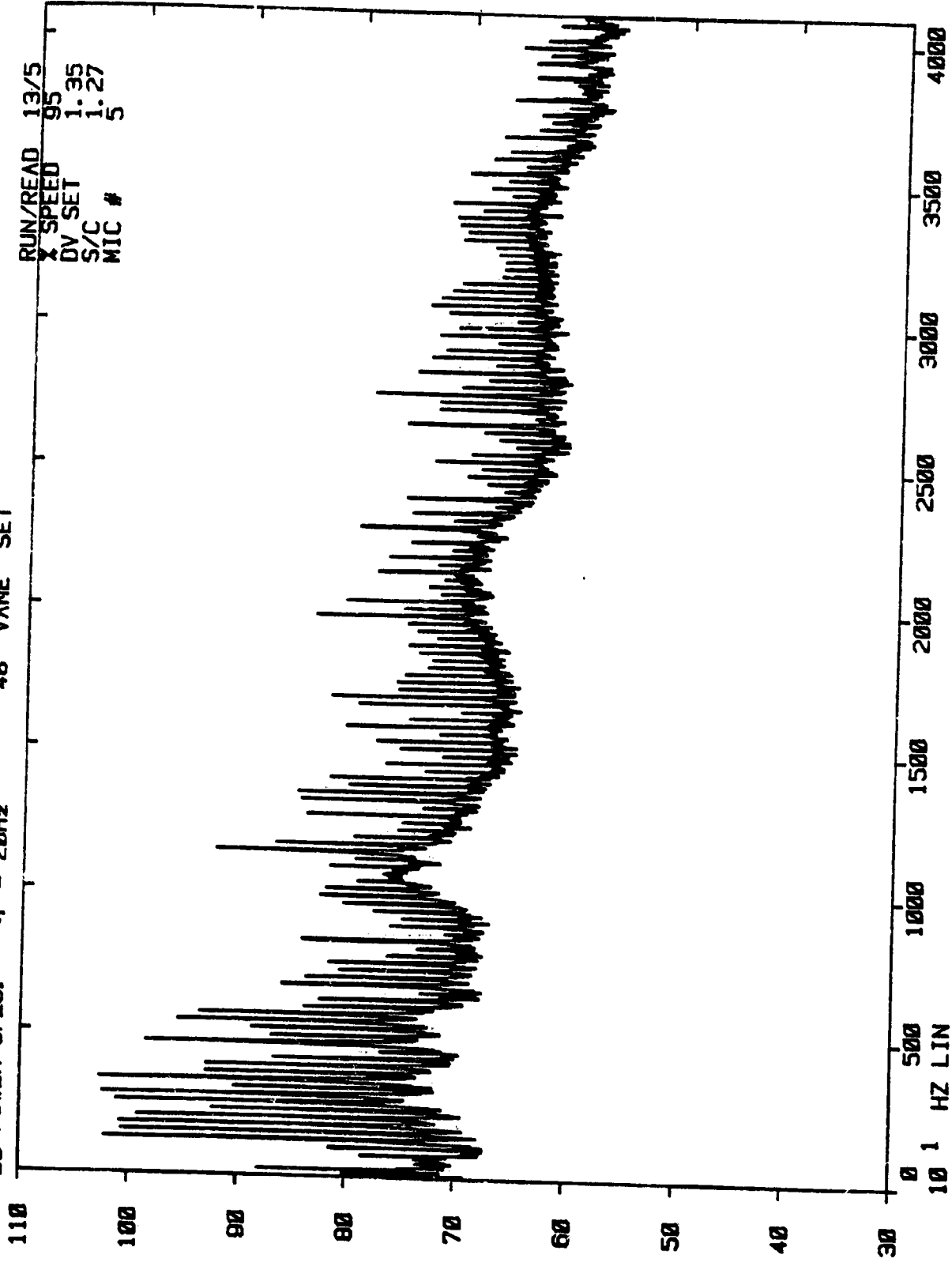
DB POWER SPEC. <f = 20Hz





NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



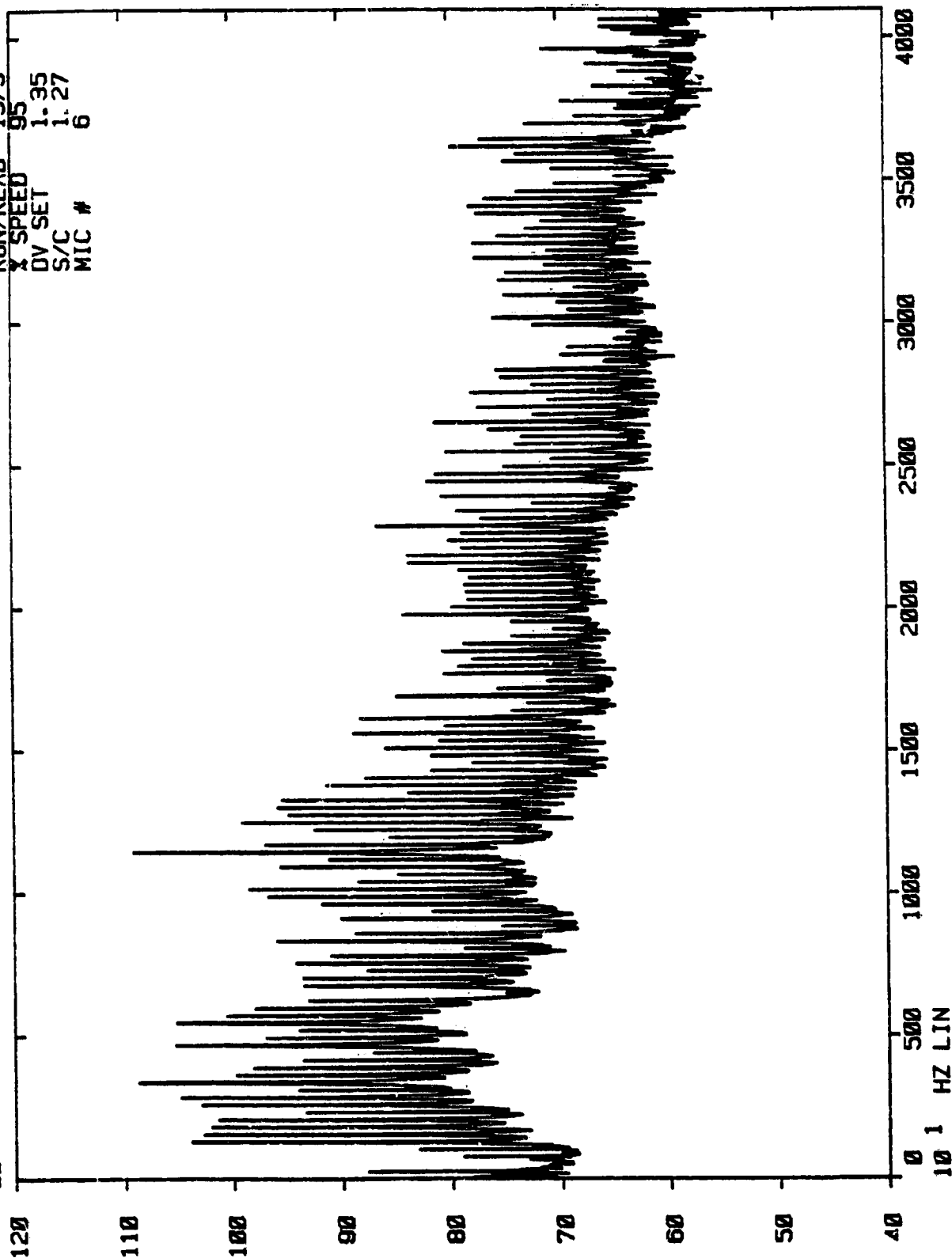
RUN/READ 13/5
X SPEED 95
DV SET 1.35
S/C 1.27
MIC # 5

NASA V/B STUDY
48 VANE SET

<f = 20Hz

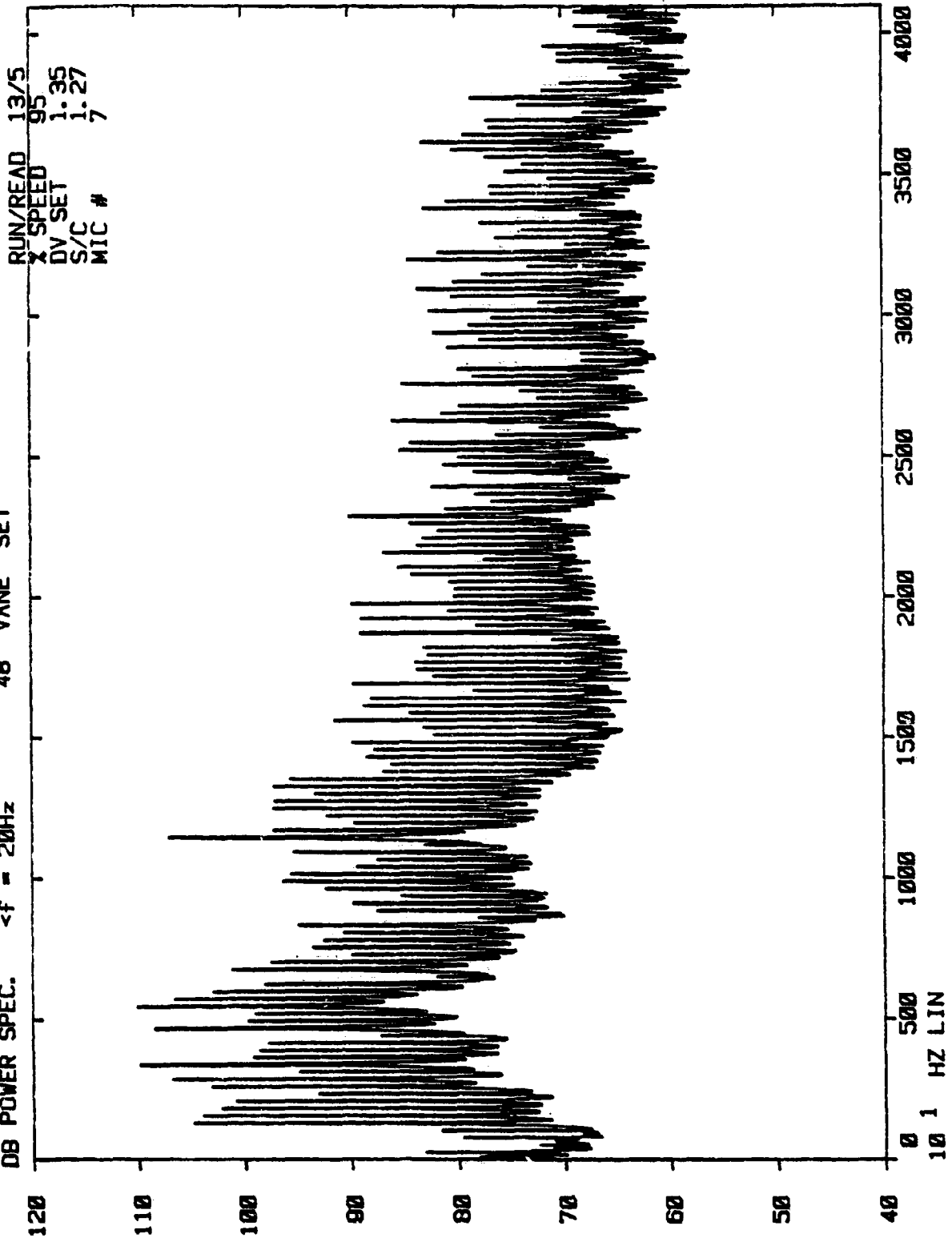
DB POWER SPEC.

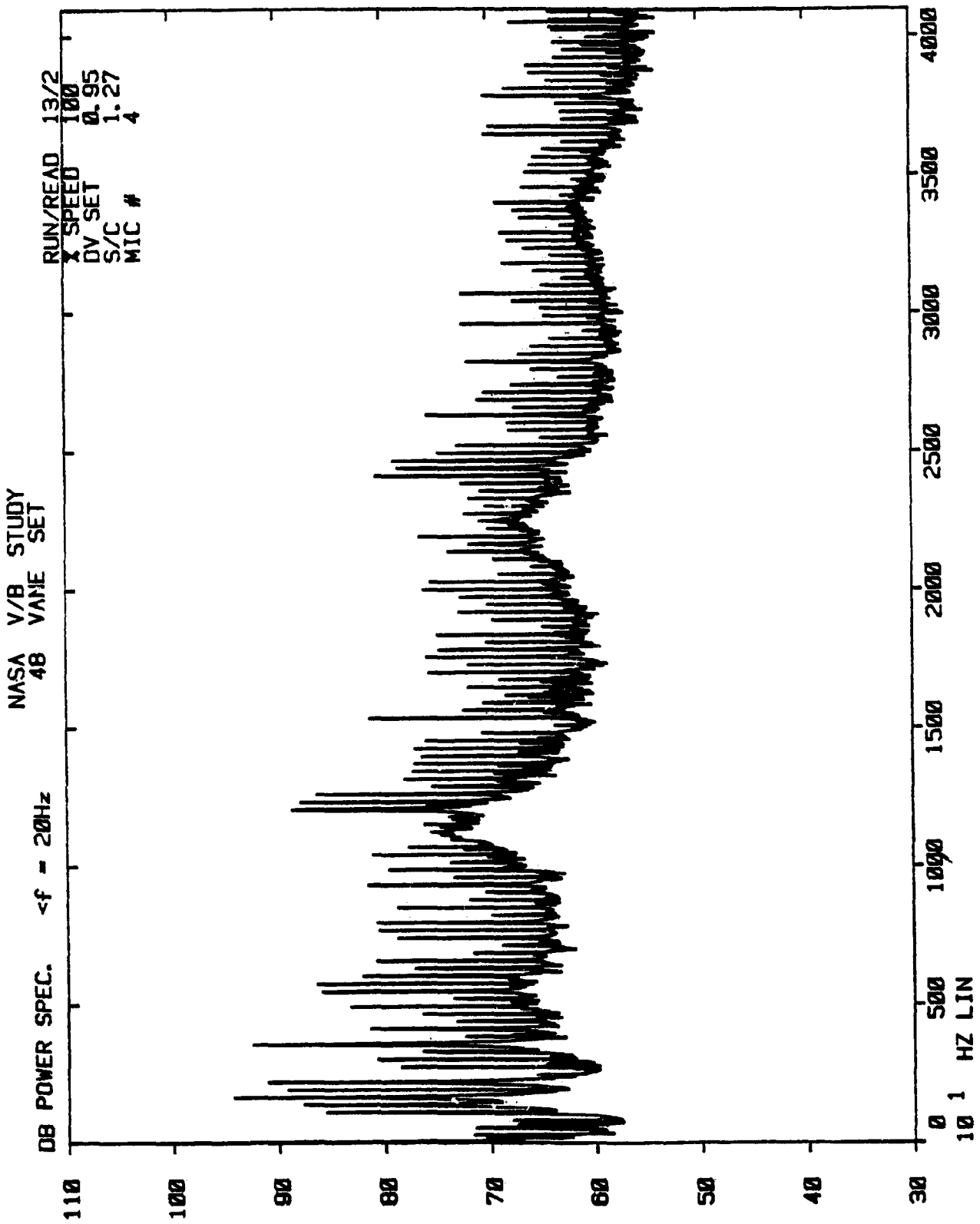
RUN/READ 13/5
X SPEED 95
DV SET 1.35
S/C 1.27
MIC # 6



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

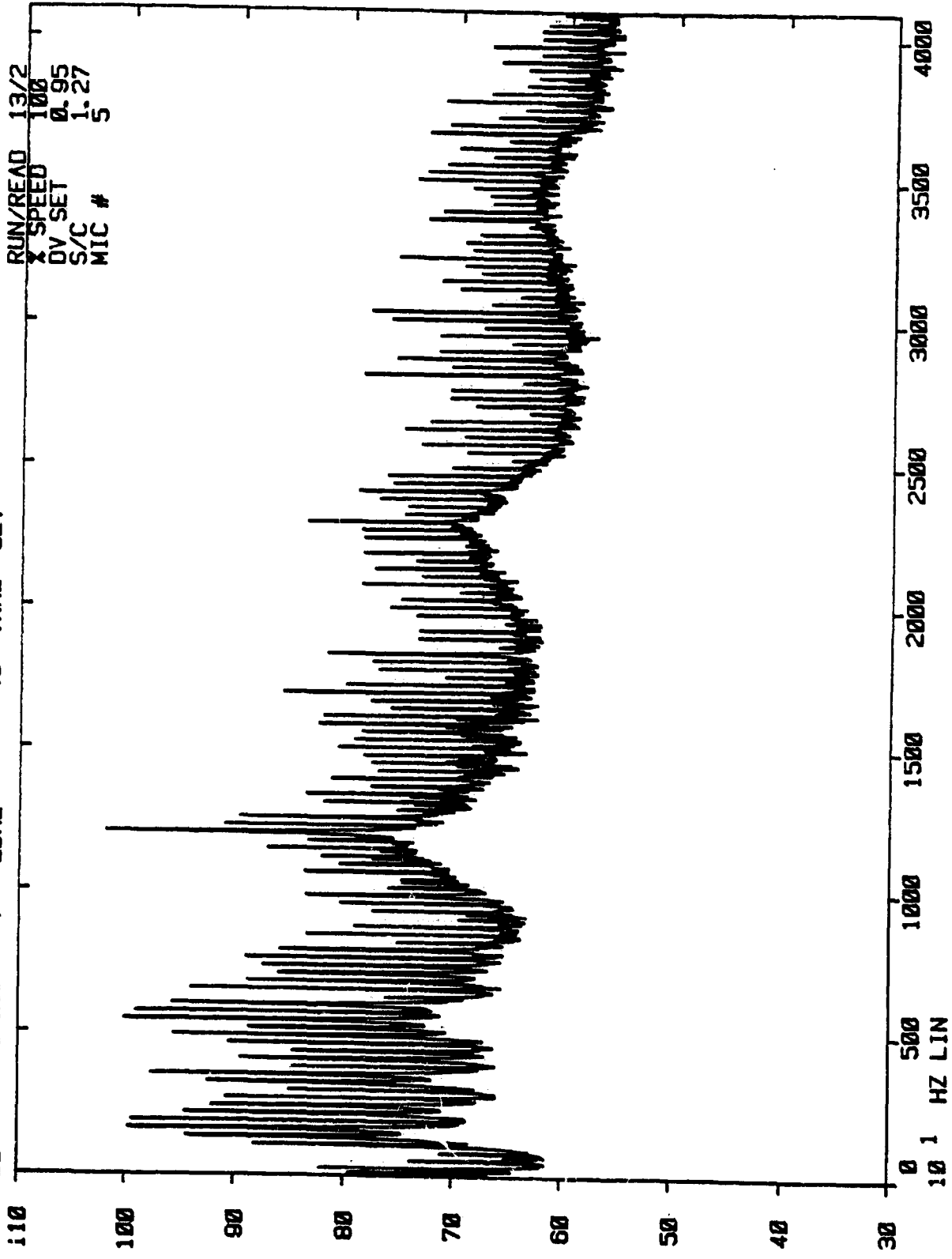




NASA V/B STUDY
48 VANE SET

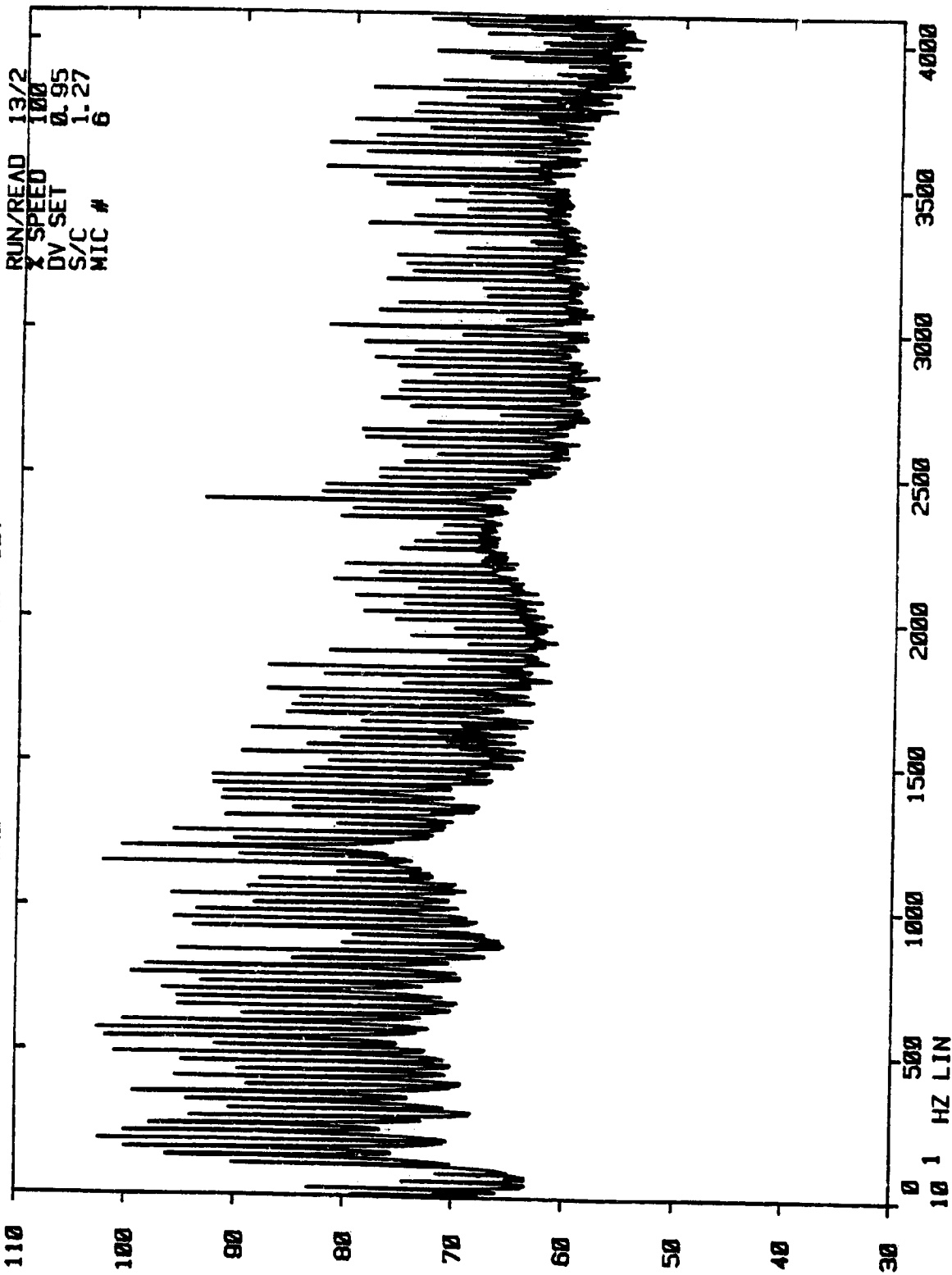
<f = 20Hz

DB POWER SPEC.



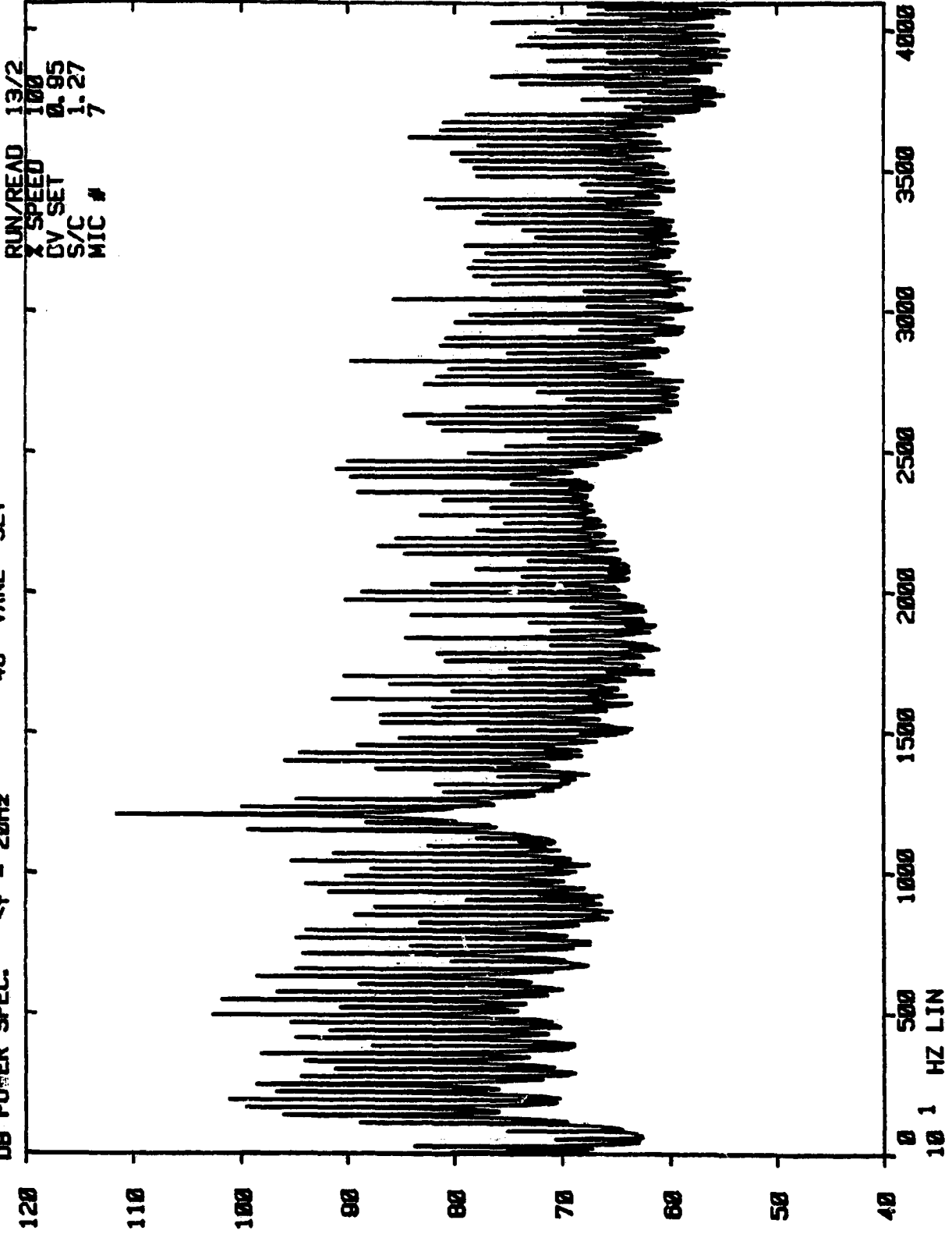
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f - 20Hz



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f - 20Hz



RUN/READ 13/2
X SPEED 100
DV SET 0.95
S/C 1.27
MIC # 7

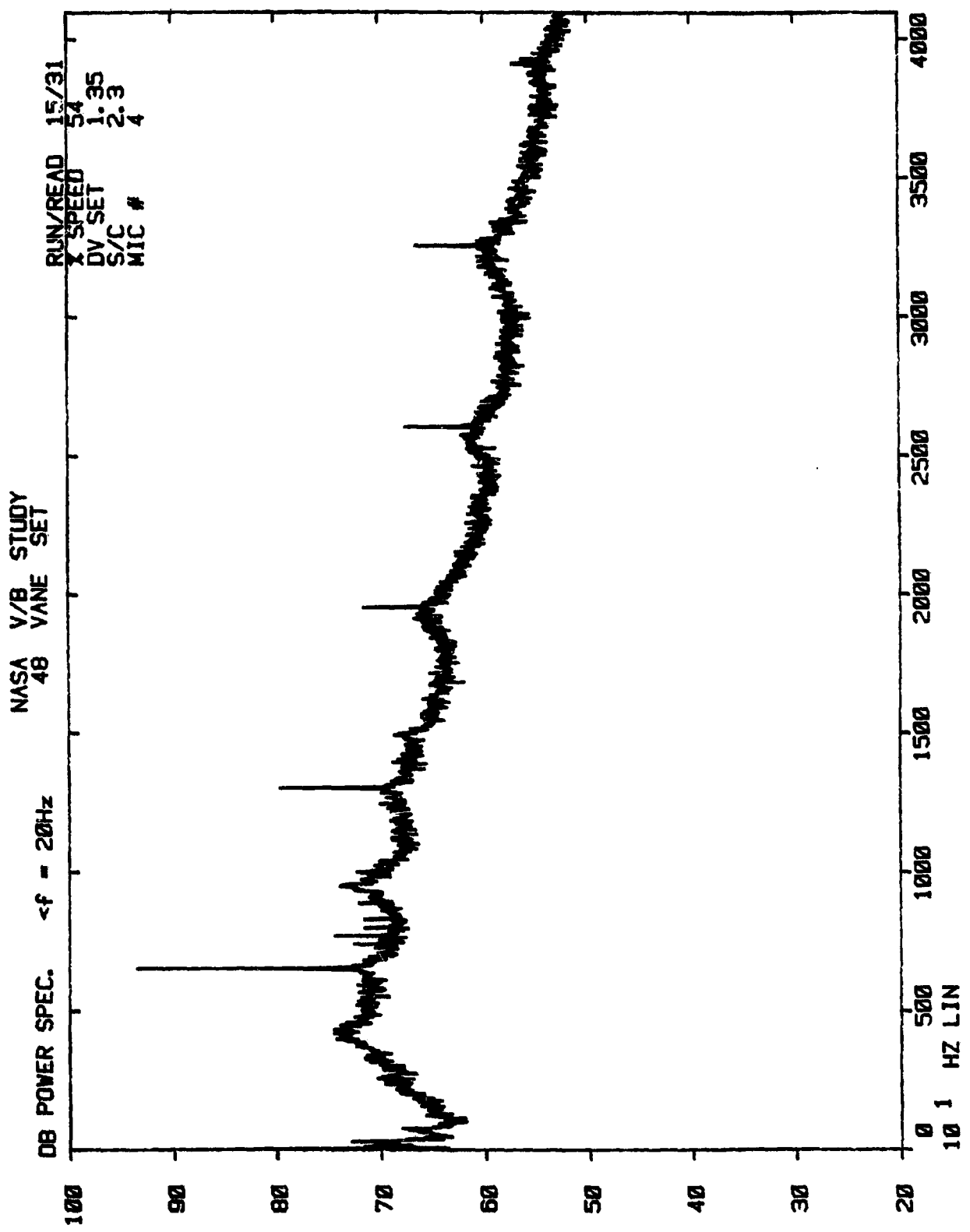


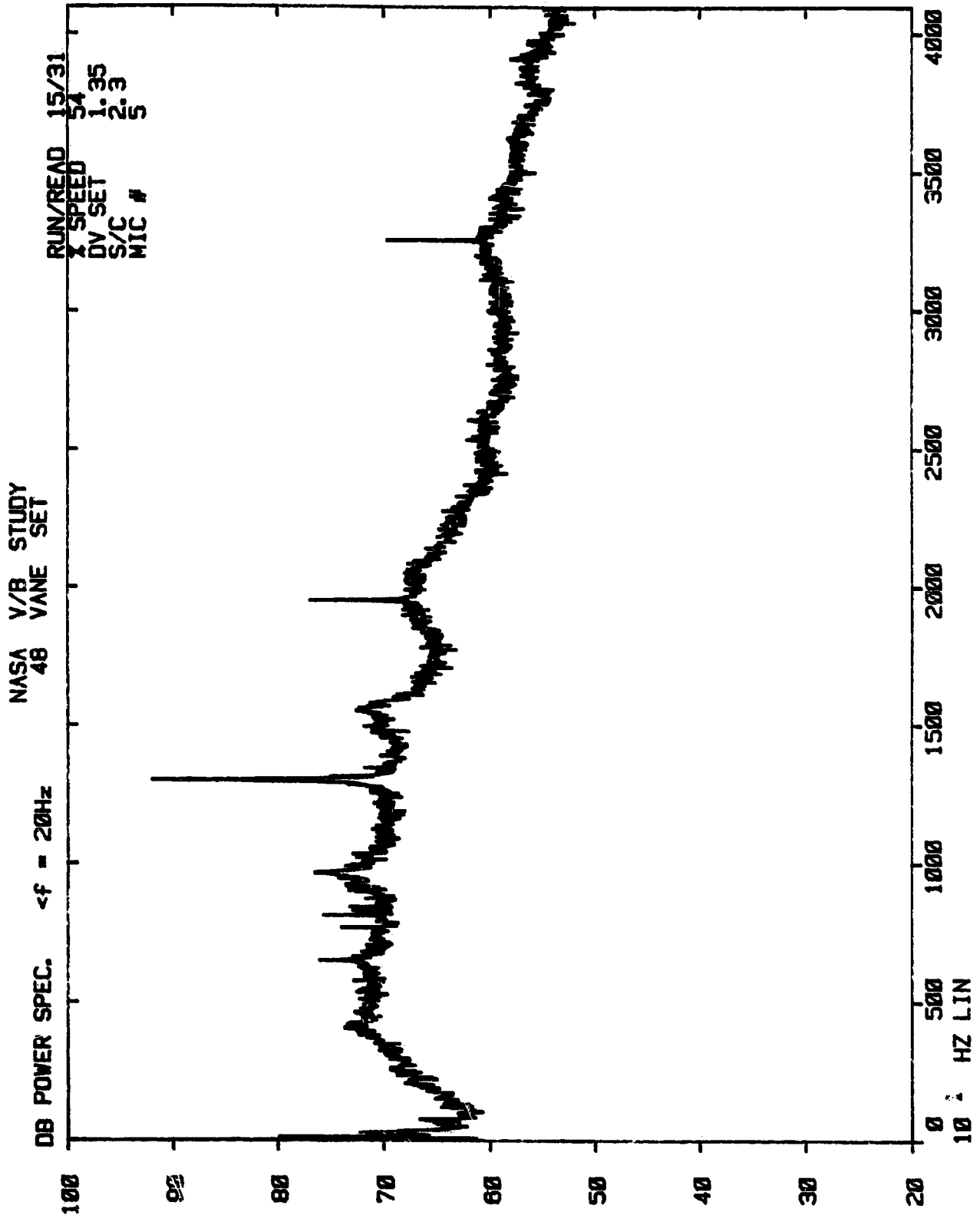
NARROWBAND SPECTRA (20 Hz.)

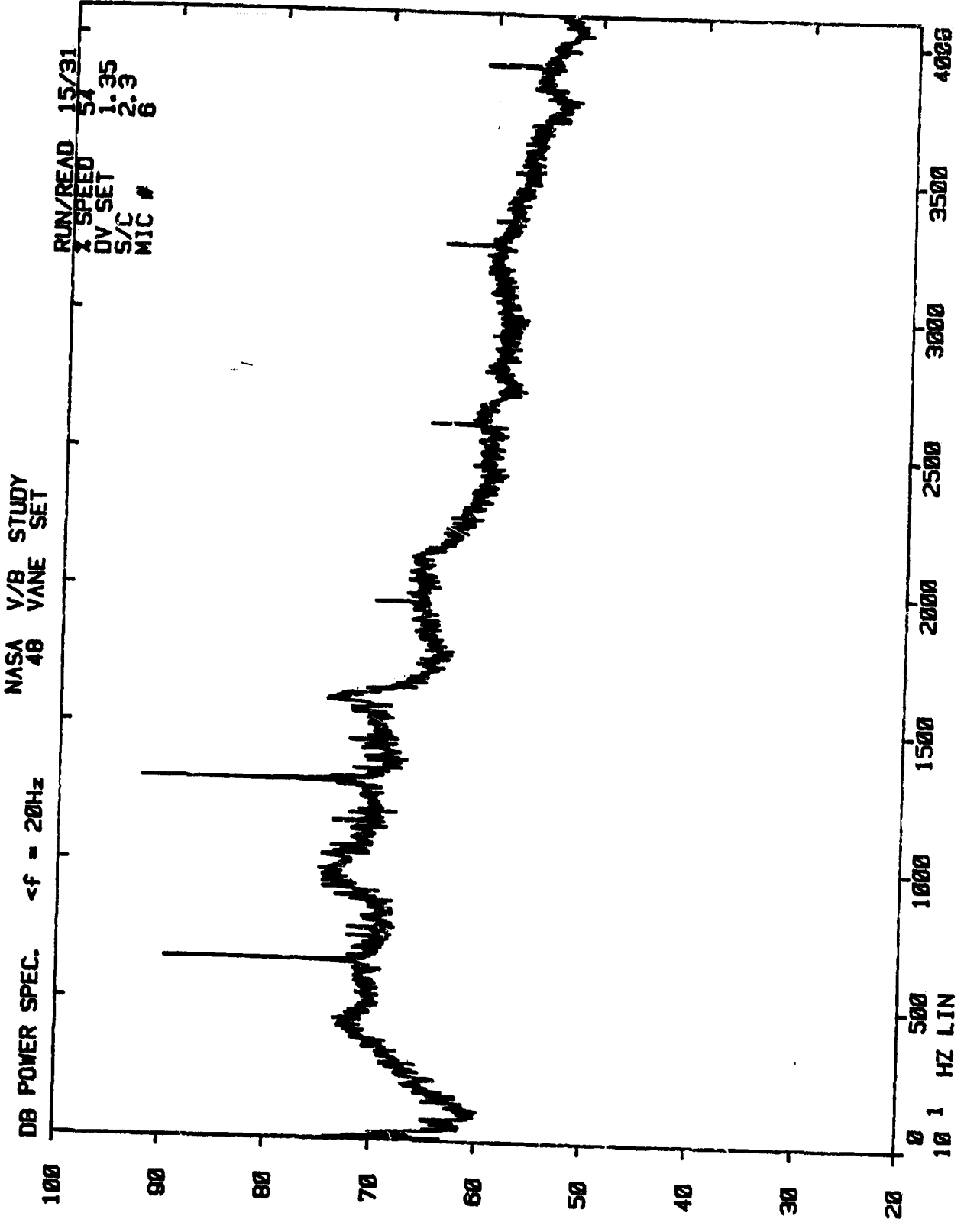
MICROPHONES 4 THRU 7 (30°-60°)

• 48 VANES, $S/C = 2.3$

<u>RUN/RDG.</u>	<u>%NF</u>	<u>DV</u>	<u>REMARKS</u>
15/17	100	0.88	
15/19	95	0.88	
15/20	95	1.35	
15/21	86	0.88	
15/22	86	1.35	
15/23	80	1.35	
15/24	80	0.88	
15/25	76	0.88	
15/26	76	1.36	
15/27	69	1.35	
15/28	69	0.88	
15/29	63	0.88	
15/30	63	1.35	
15/31	54	1.35	

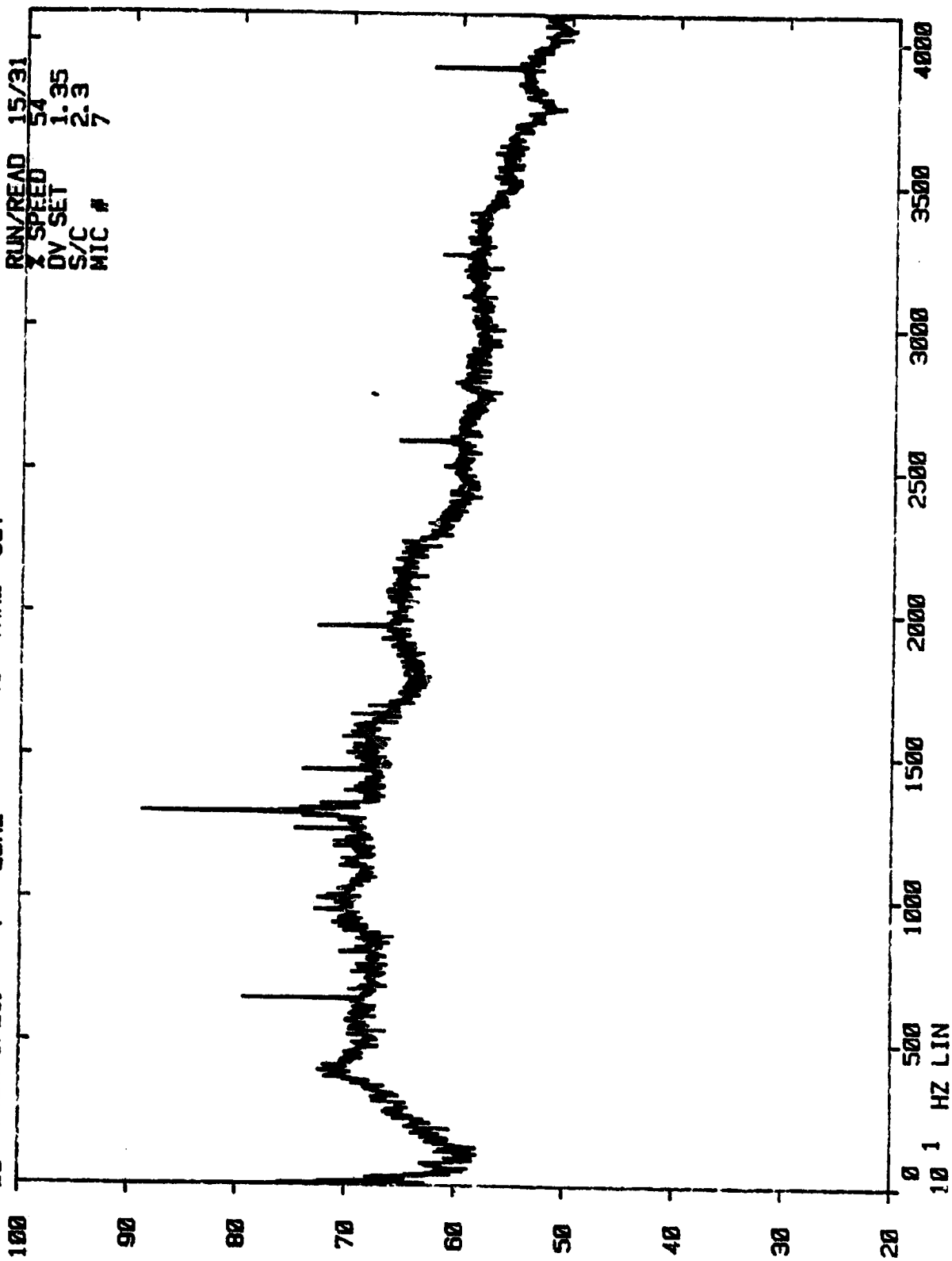


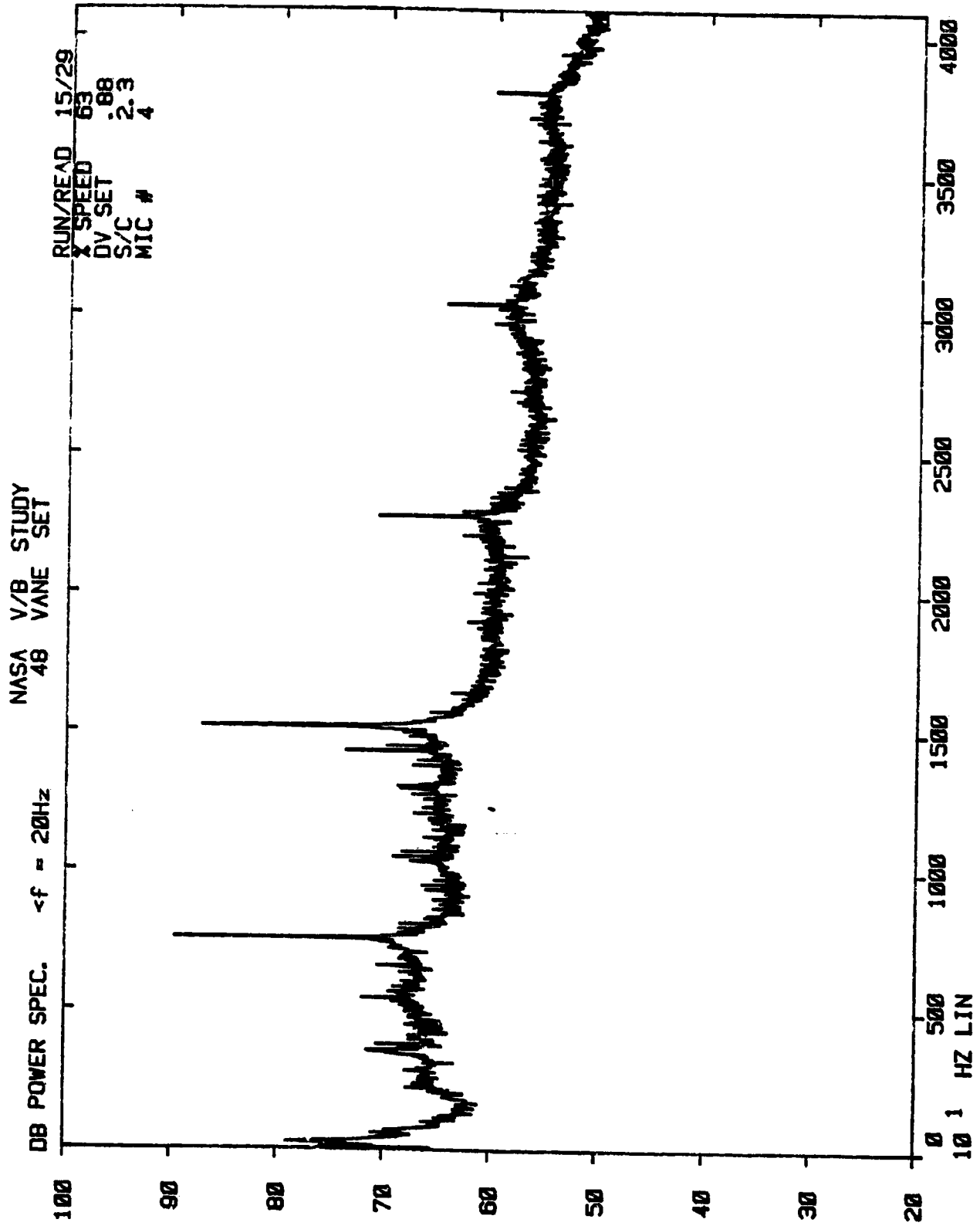


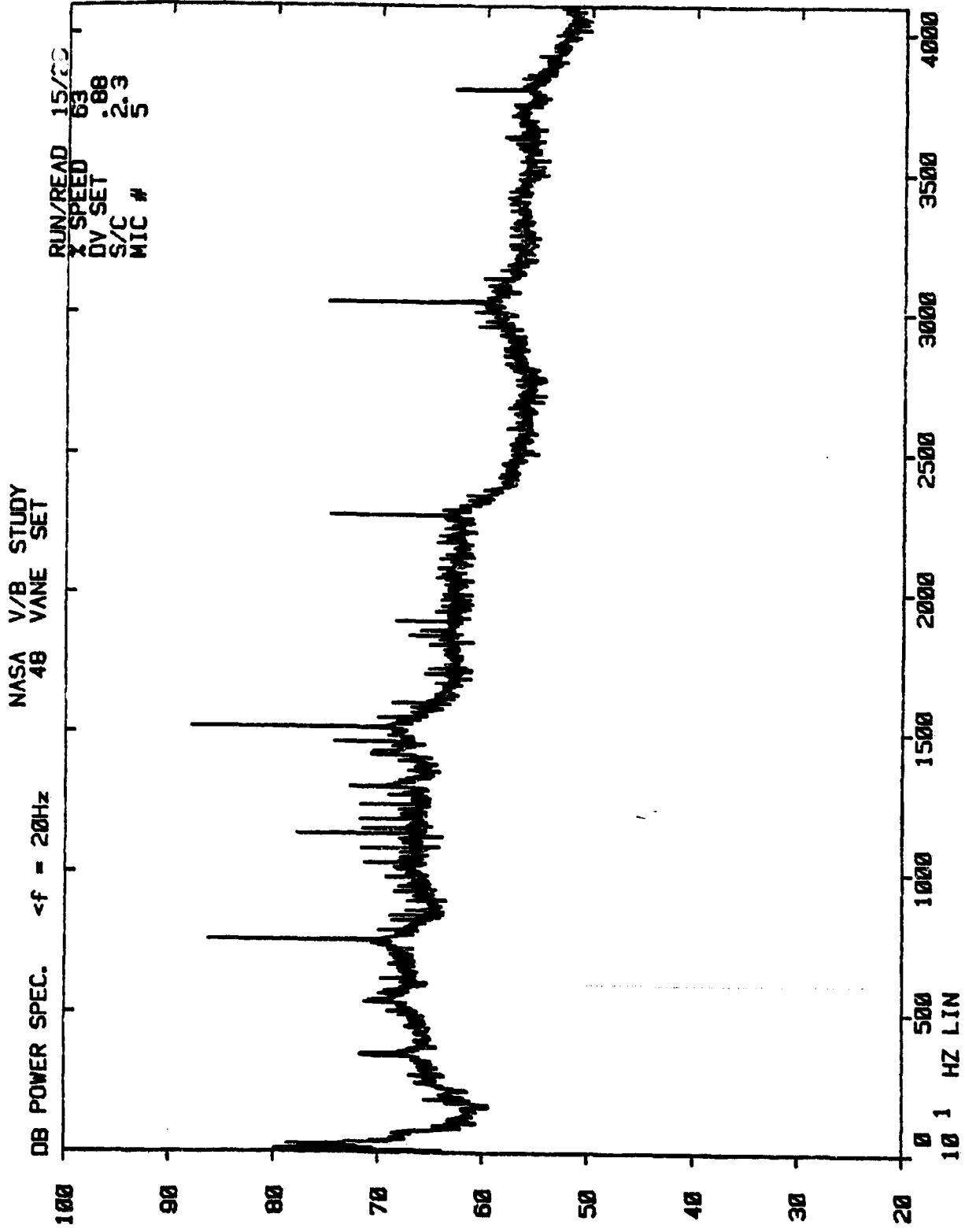


NASA V/8 STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz

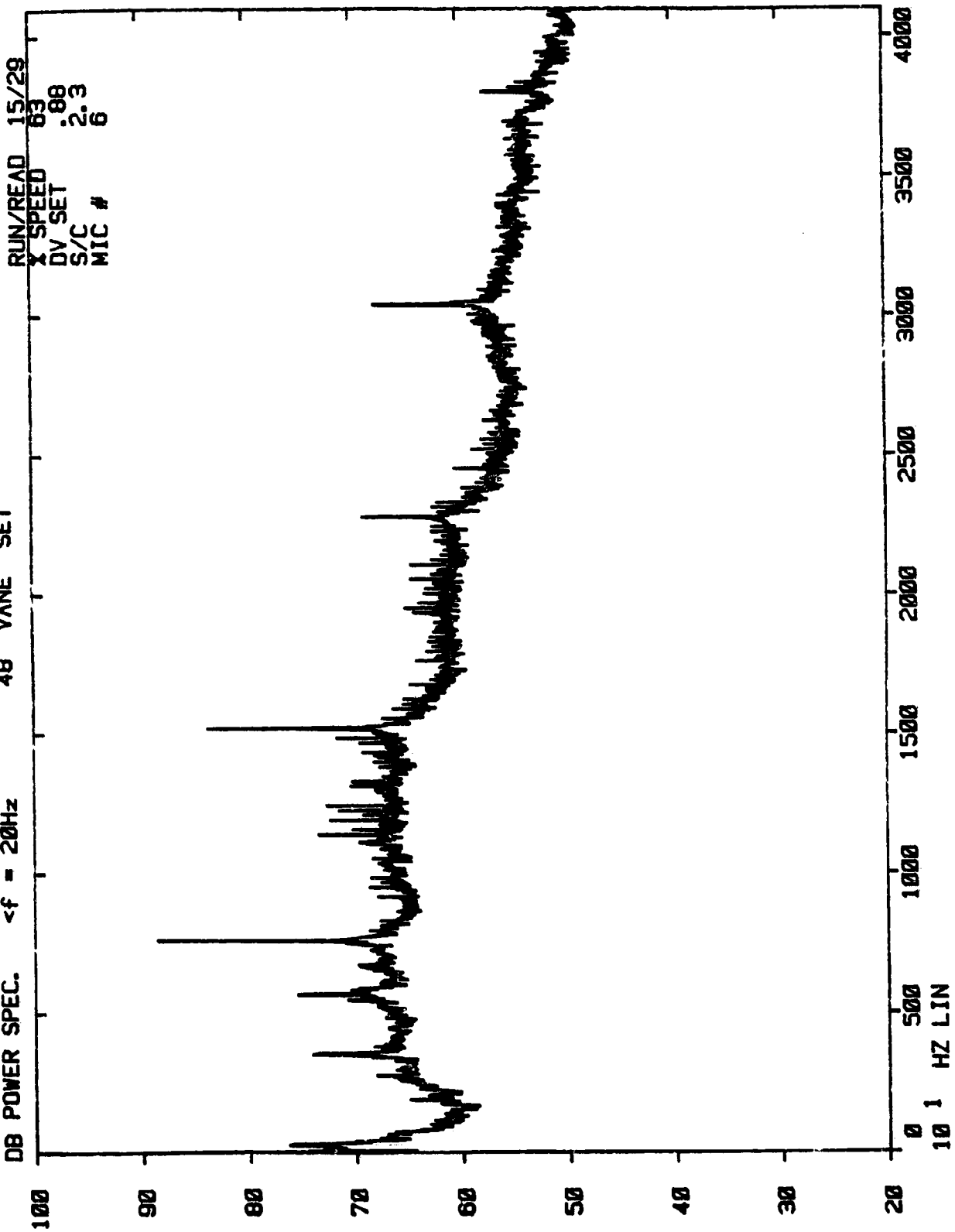


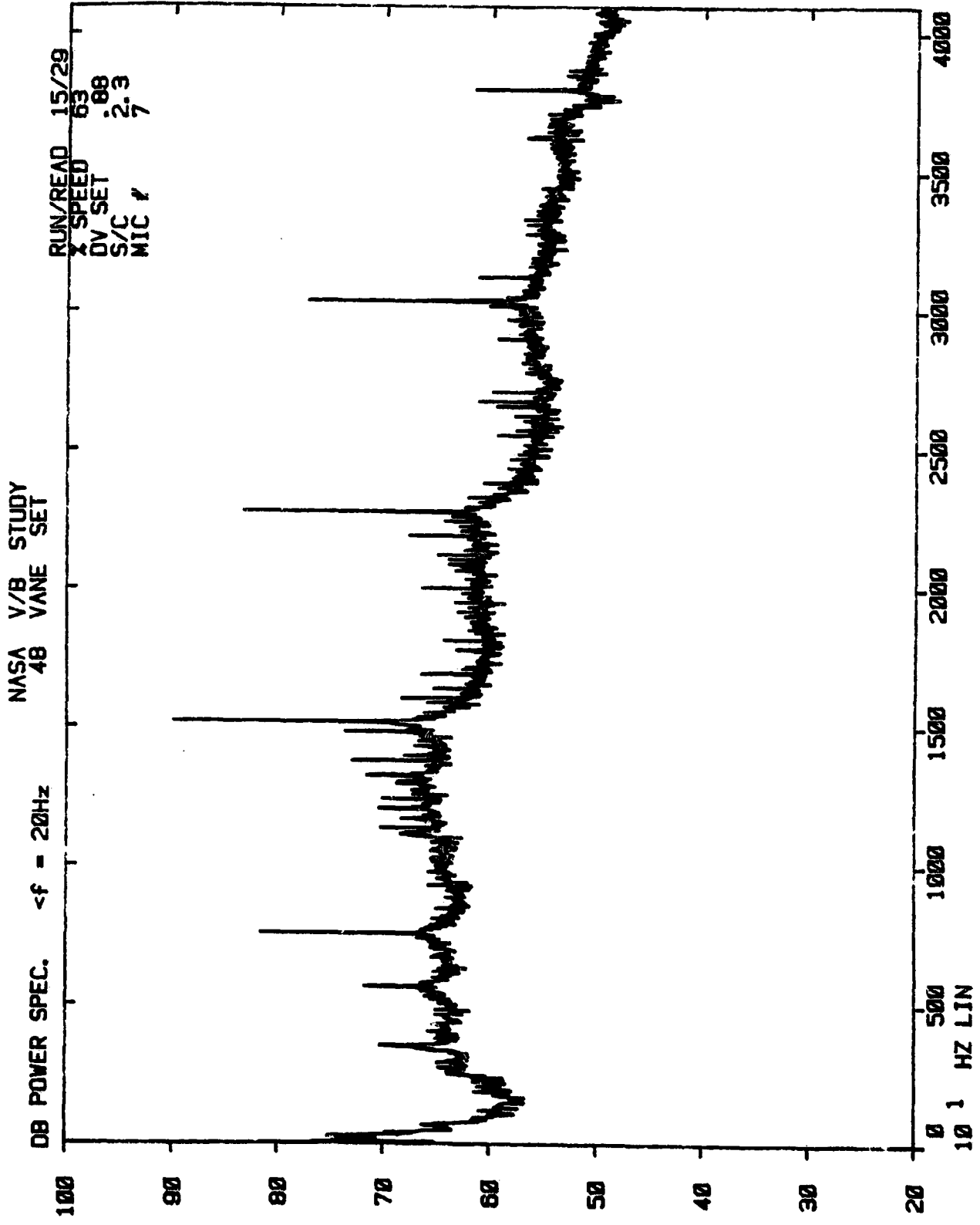


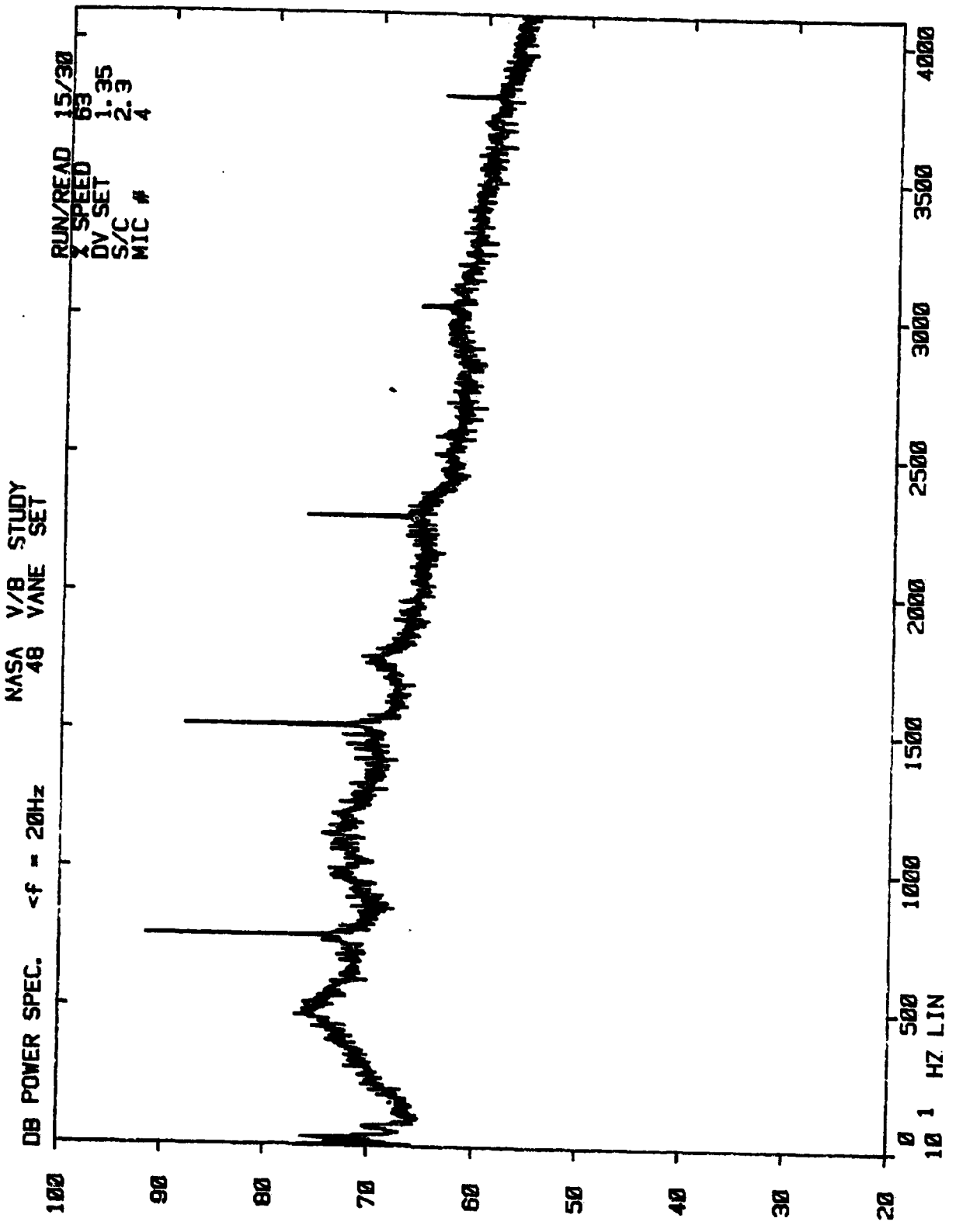


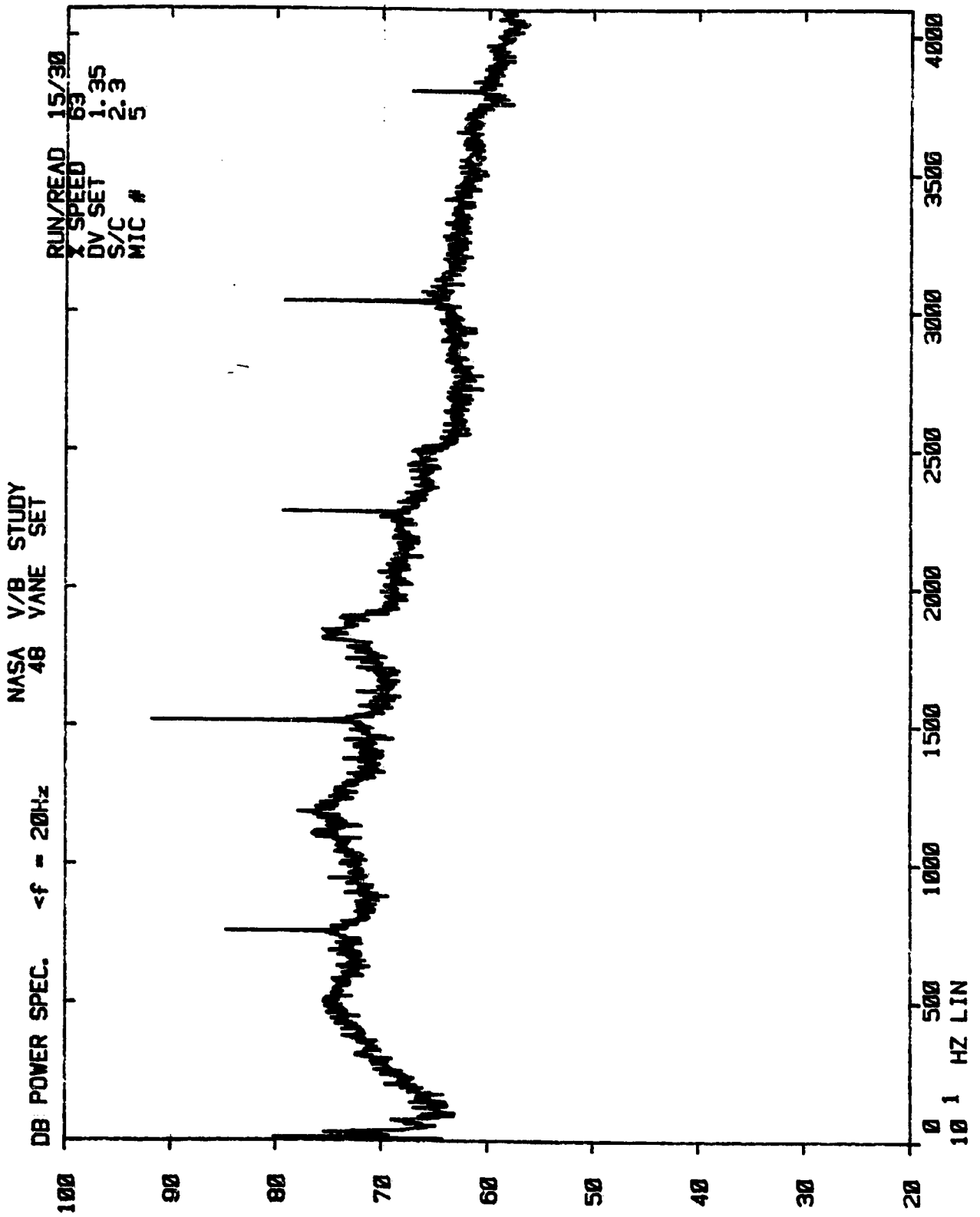
NASA V/B STUDY
48 VANE SET

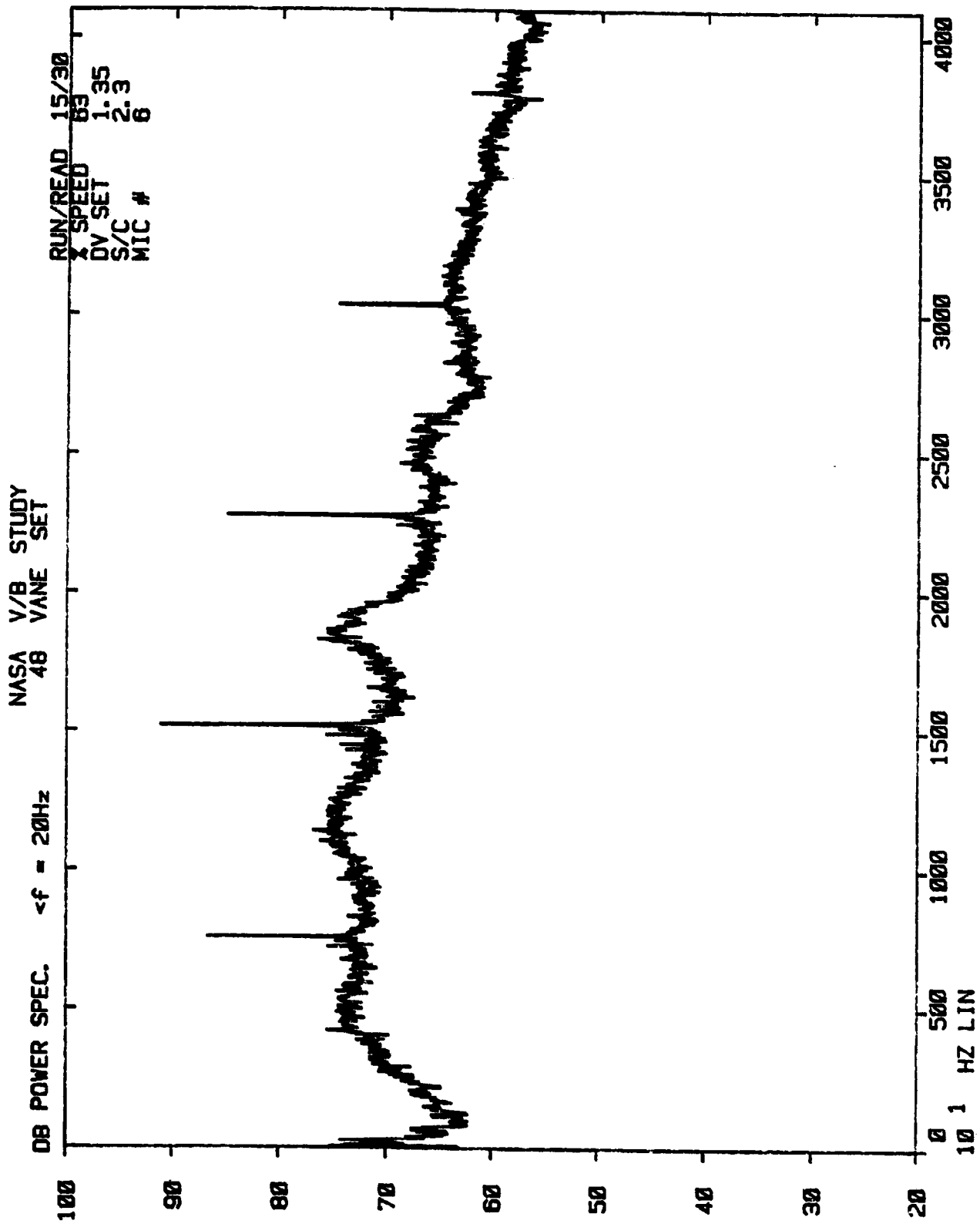
DB POWER SPEC. <f = 20Hz

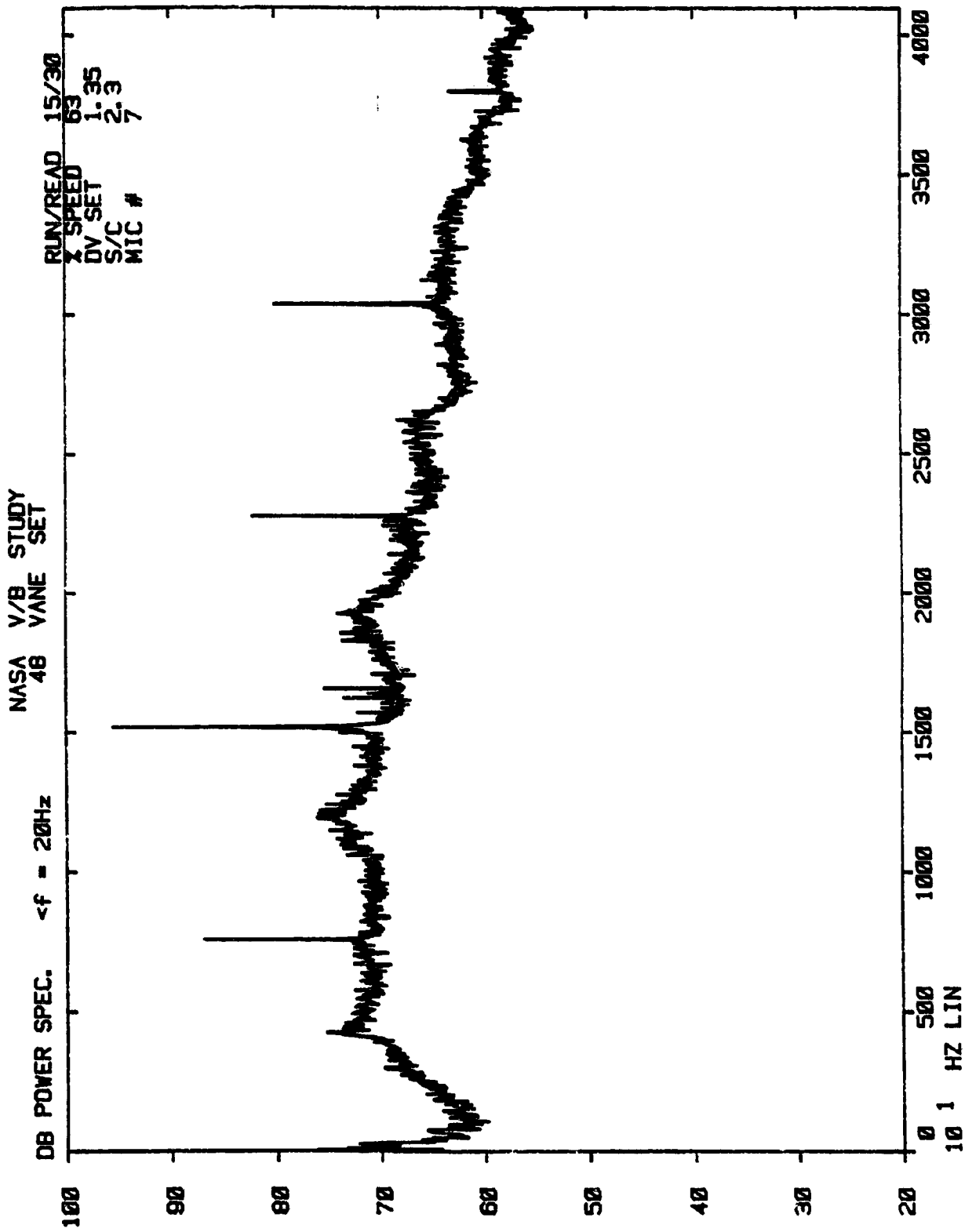






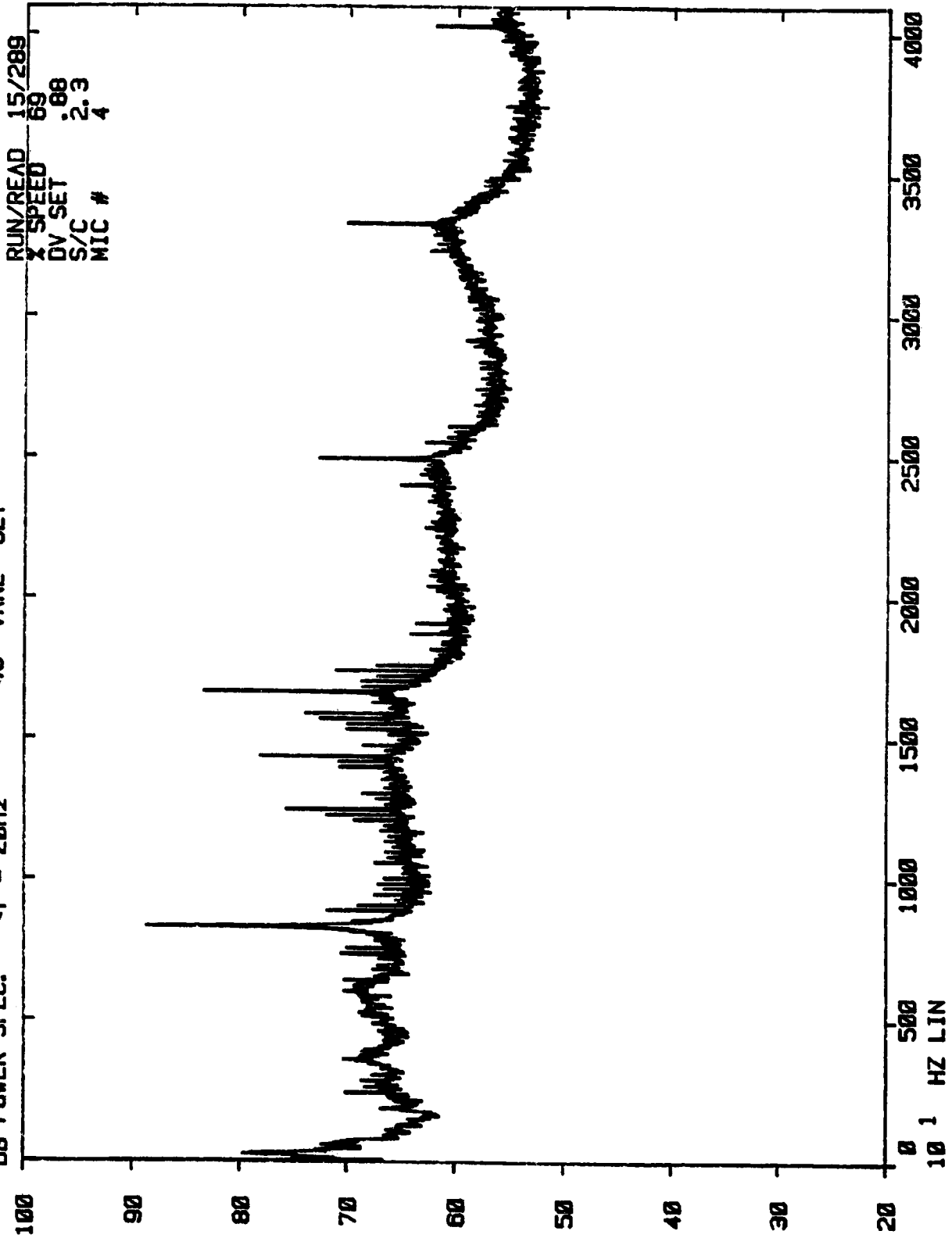






NASA V/B STUDY
48 VANE SET

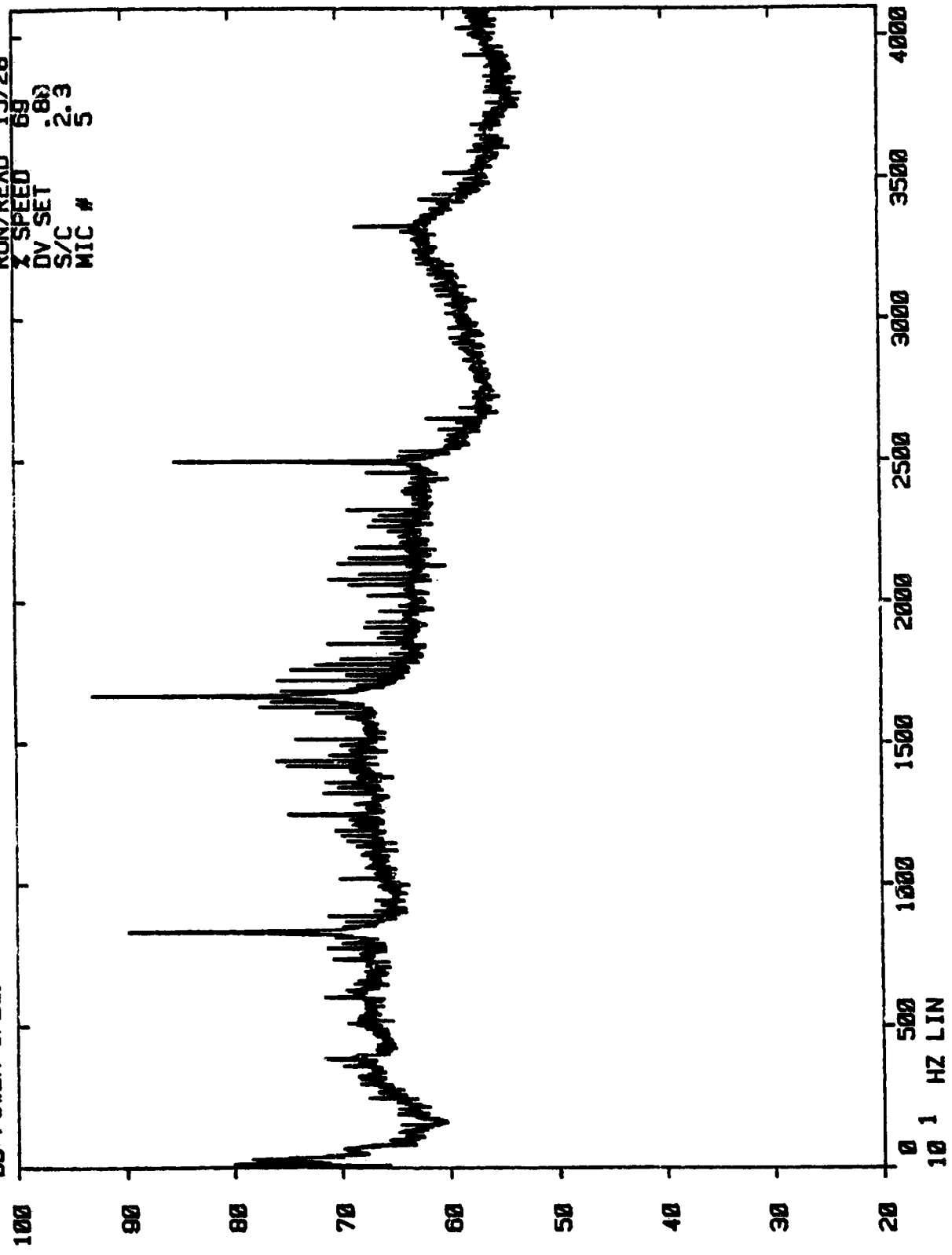
DB POWER SPEC. <f = 20Hz

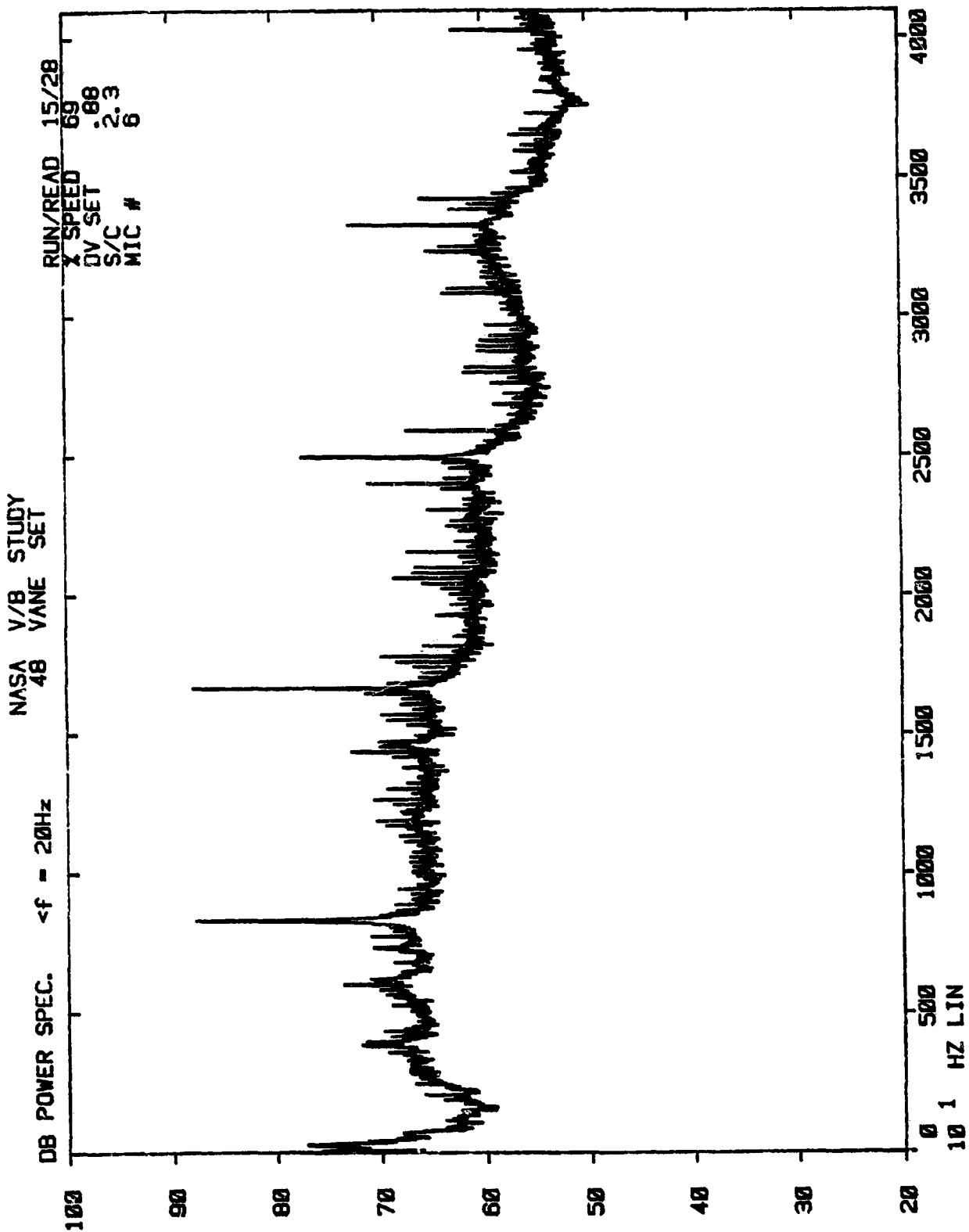


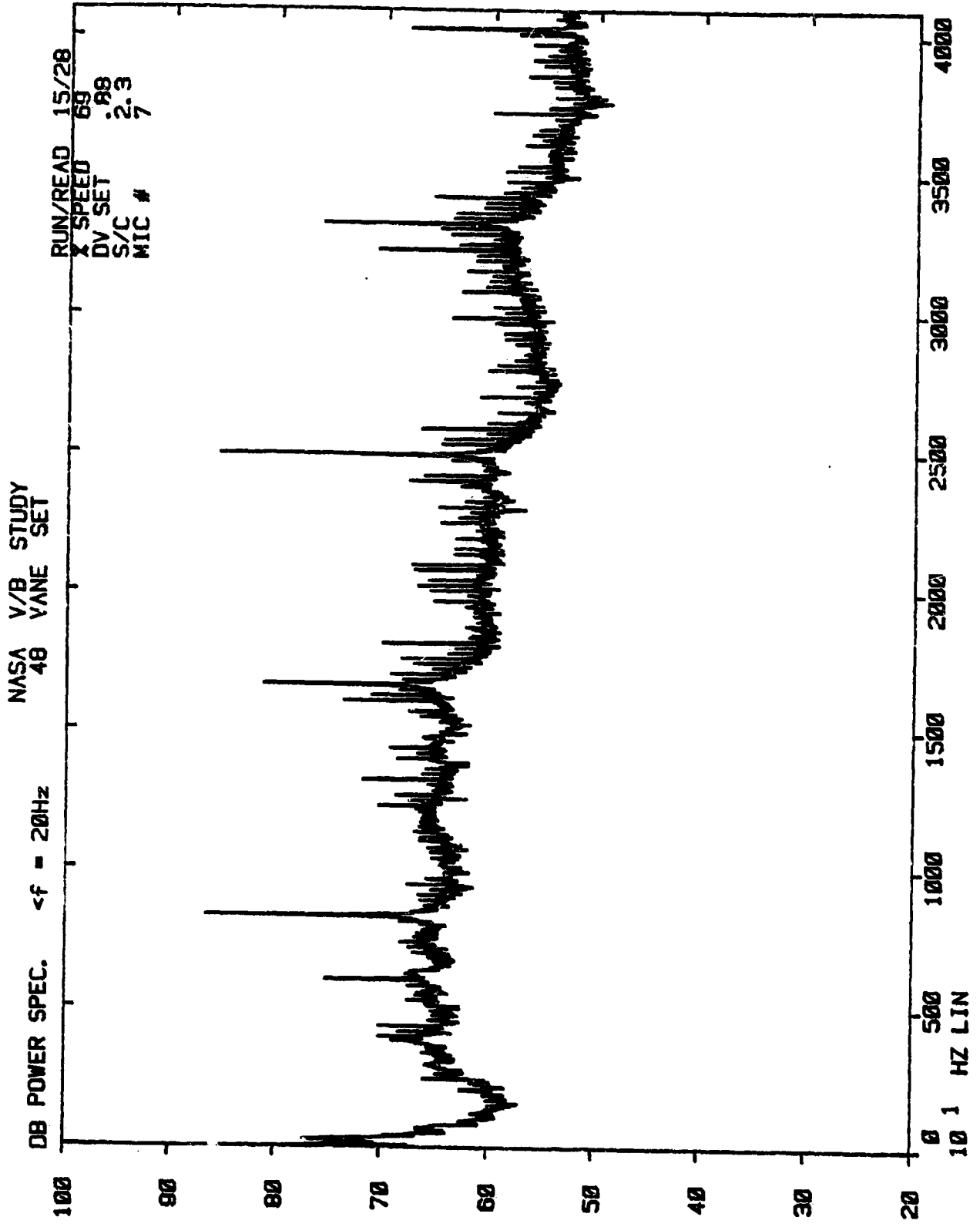
NASA V/B STUDY
48 VANE SET

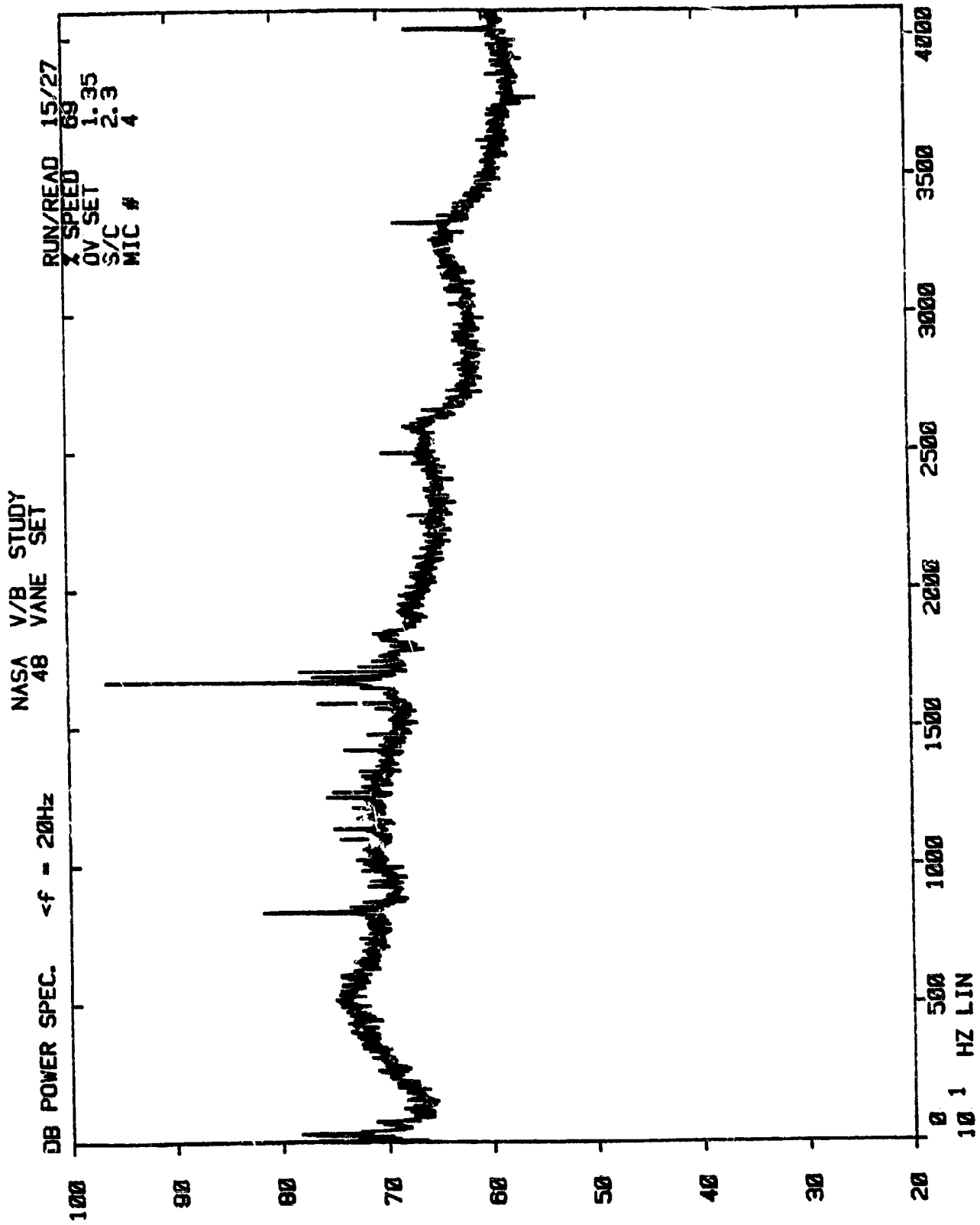
DB POWER SPEC. <f = 20Hz

RUN/READ 15/28
X SPEED 69
DV SET .83
S/C 2.3
MIC # 5







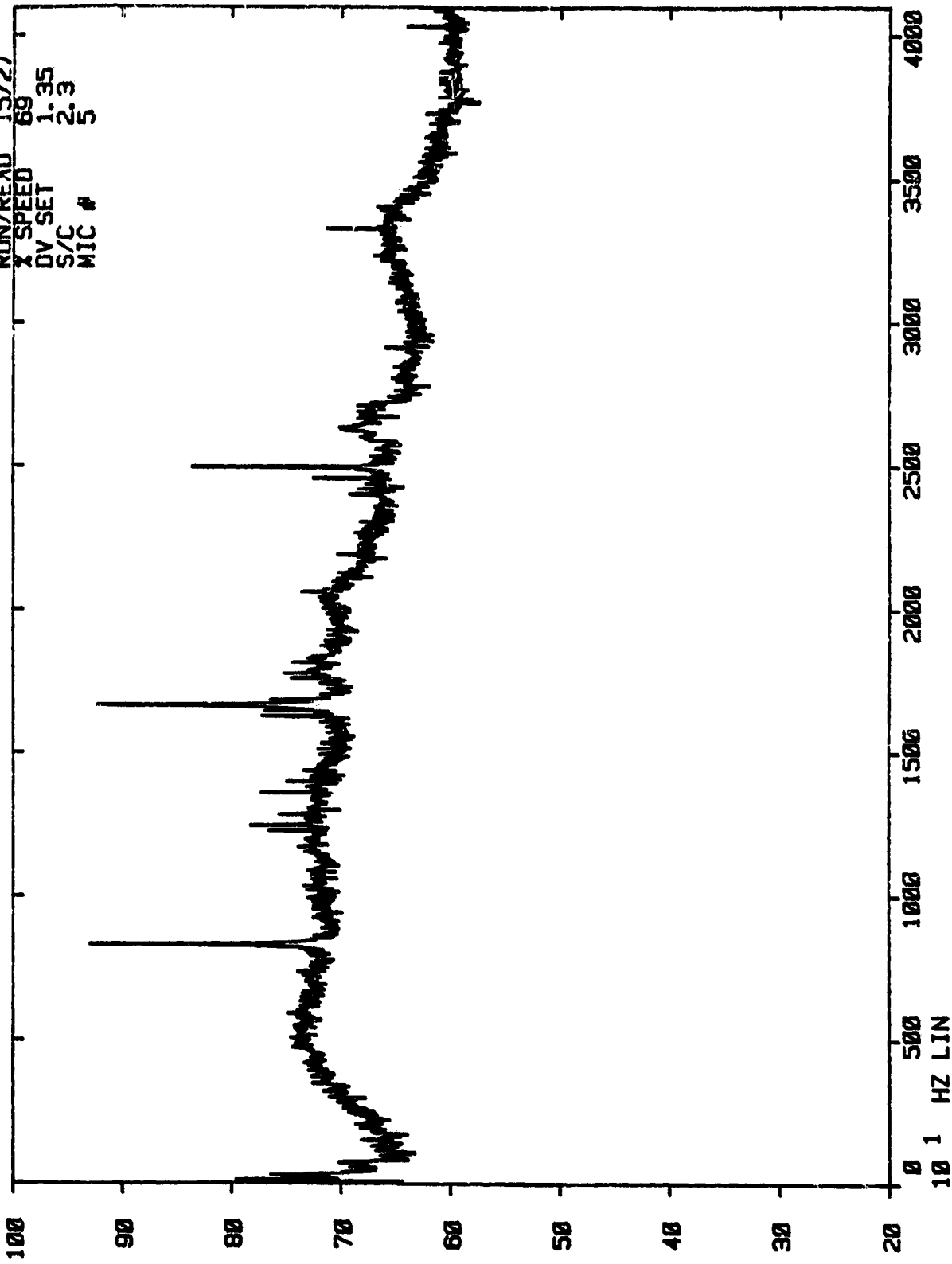


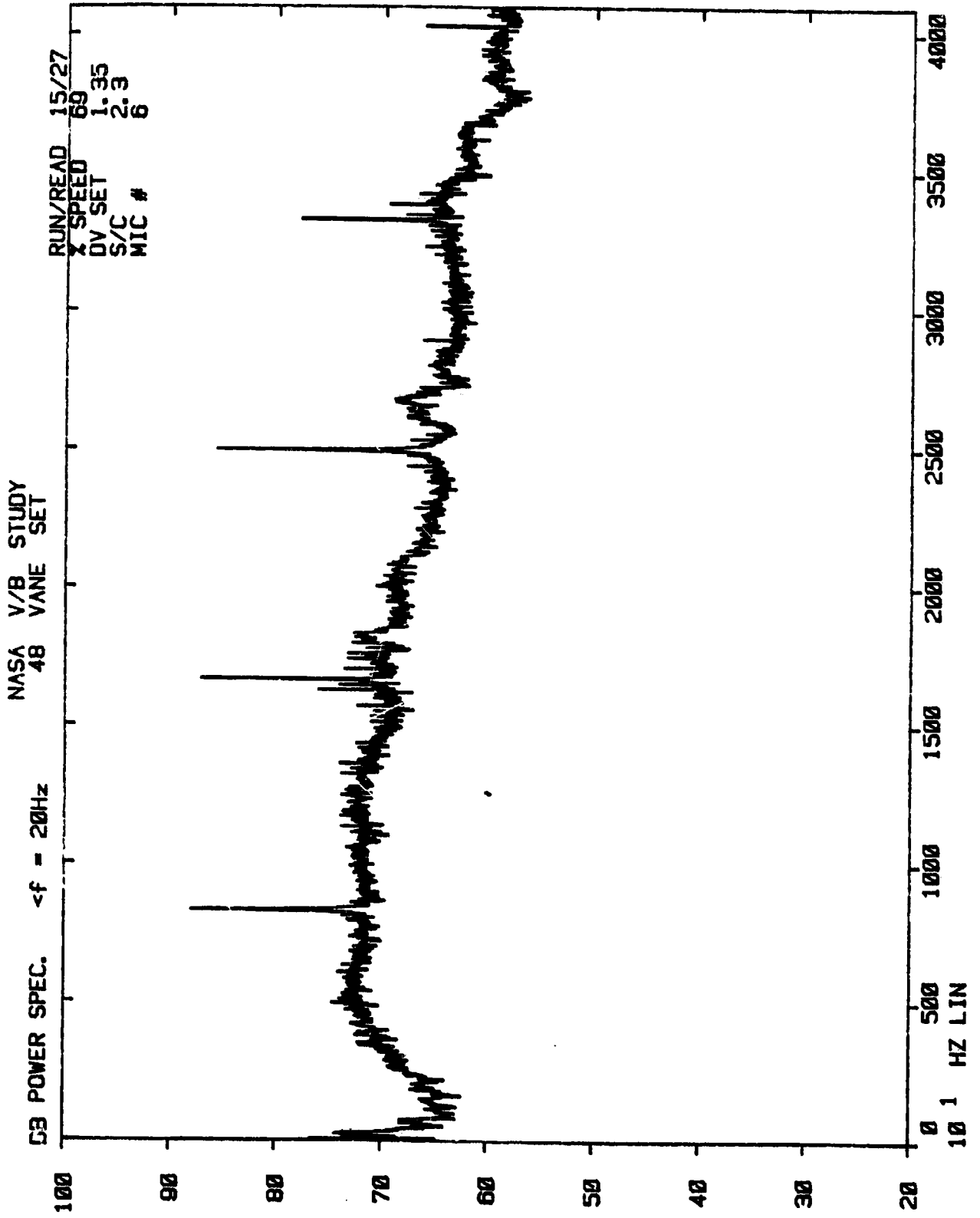
NASA V/B STUDY
48 VANE SET

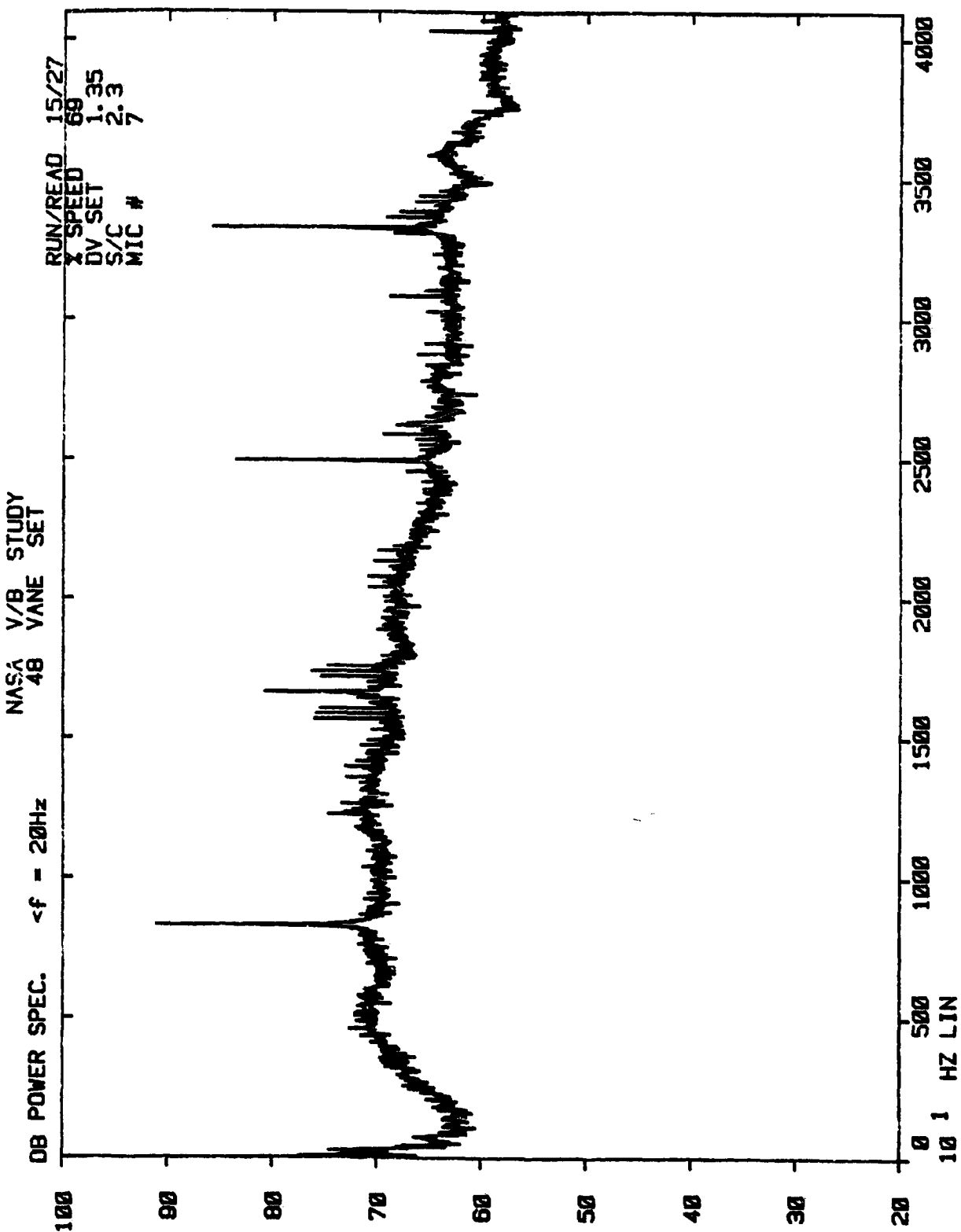
DB POWER SPEC. <f = 20Hz

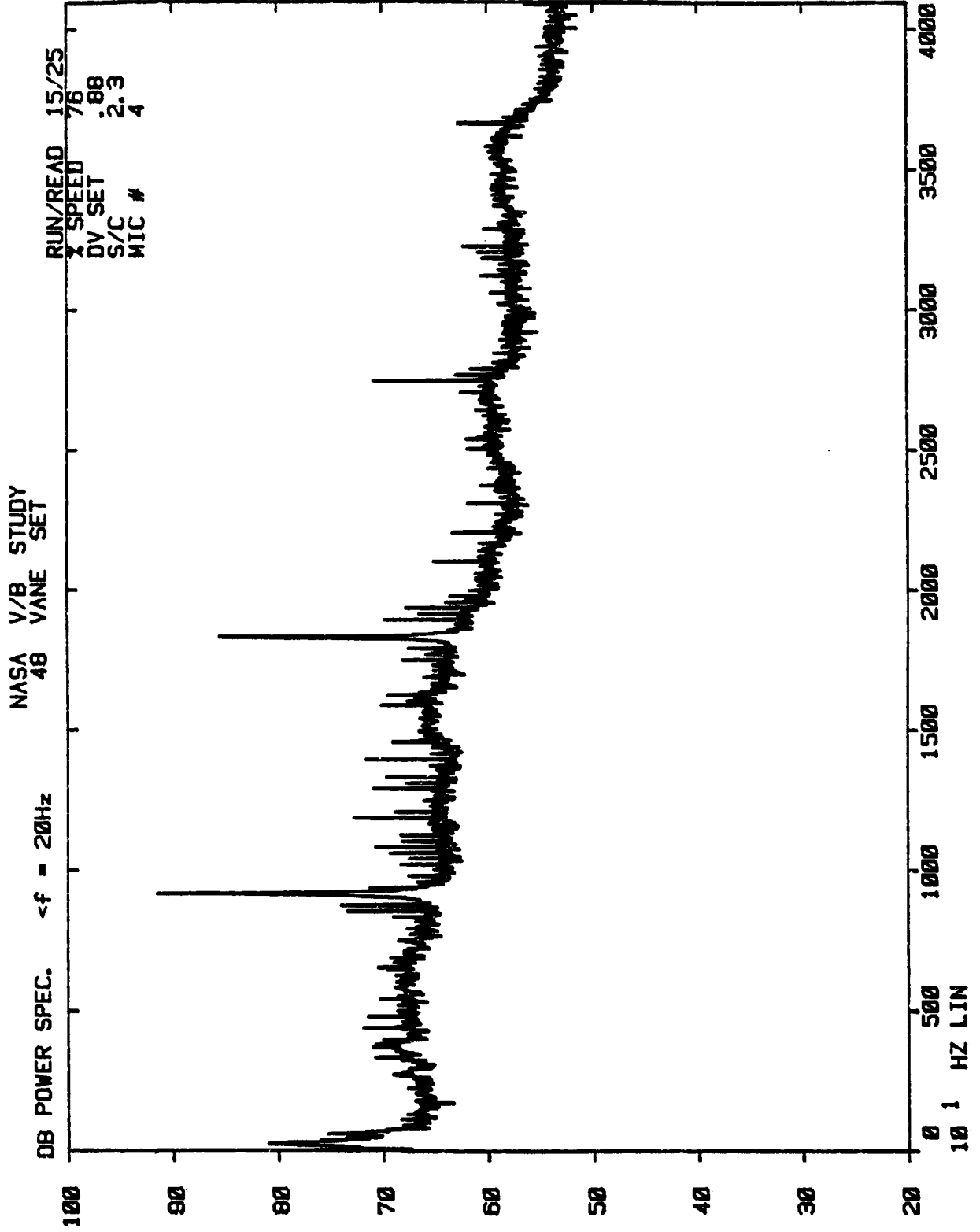
RUN/READ 15/27

7 SPEED 69
DV SET 1.35
S/C 2.3
MIC # 5



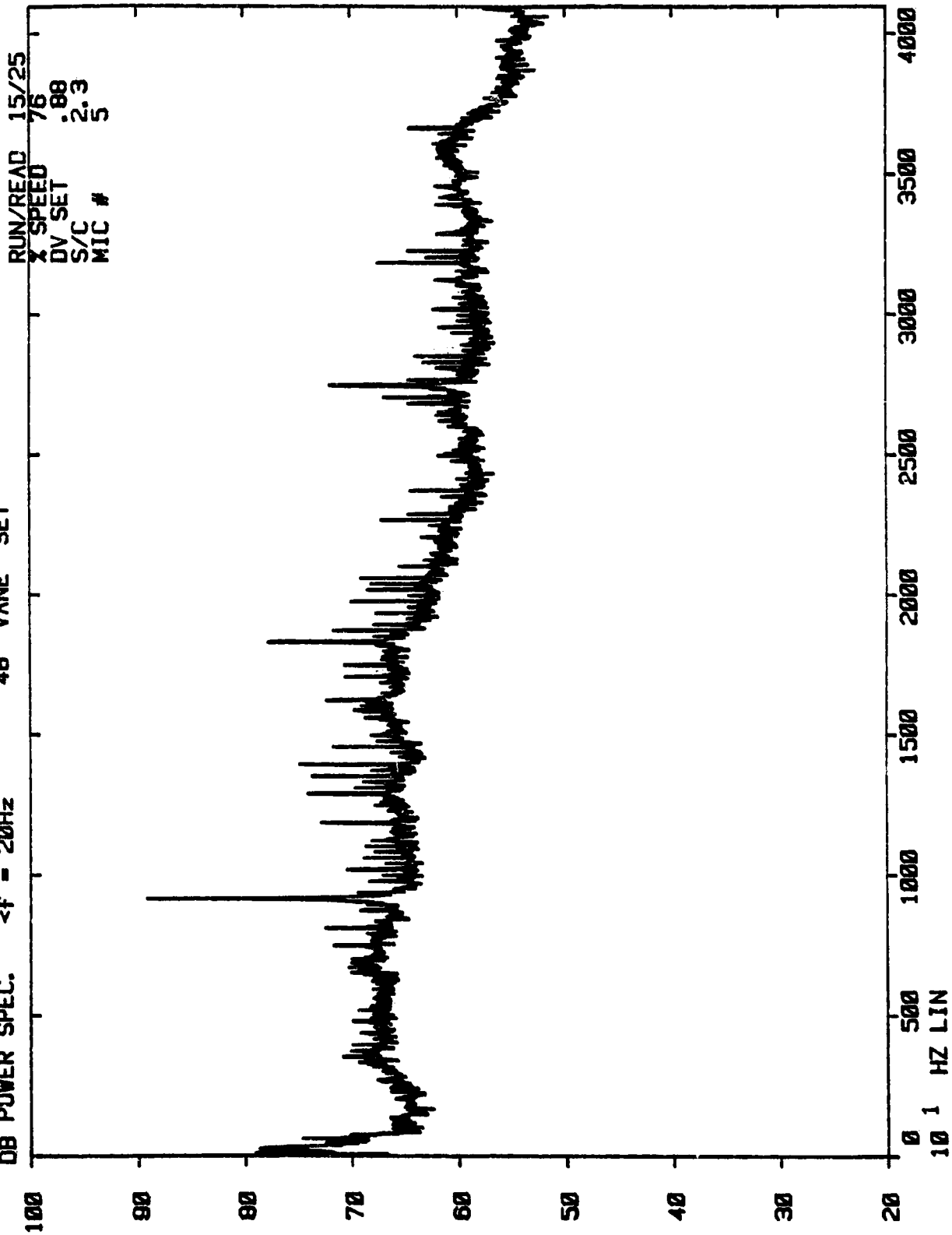


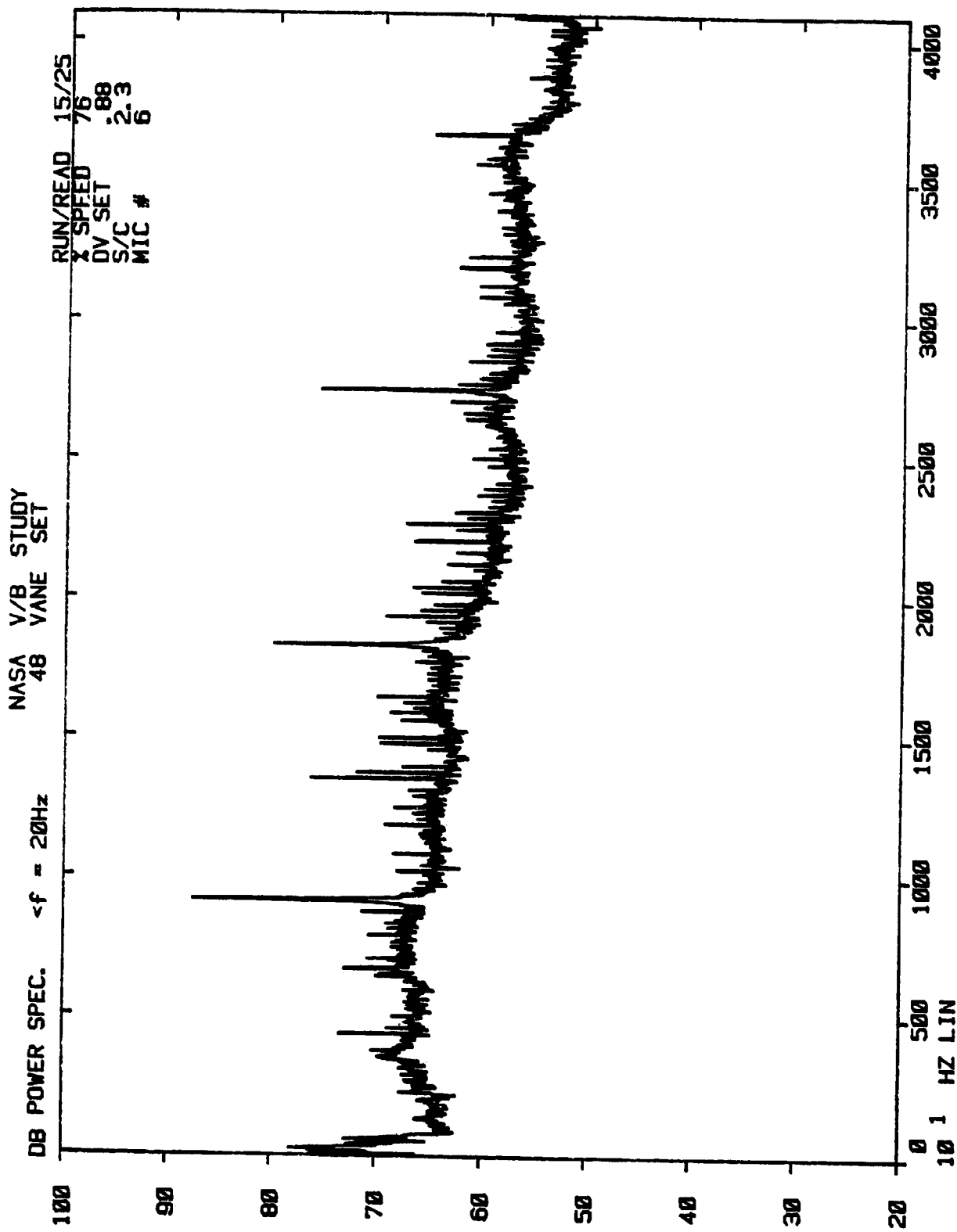




NASA V/B STUDY
4B VANE SET

DB POWER SPEC. <f = 20Hz

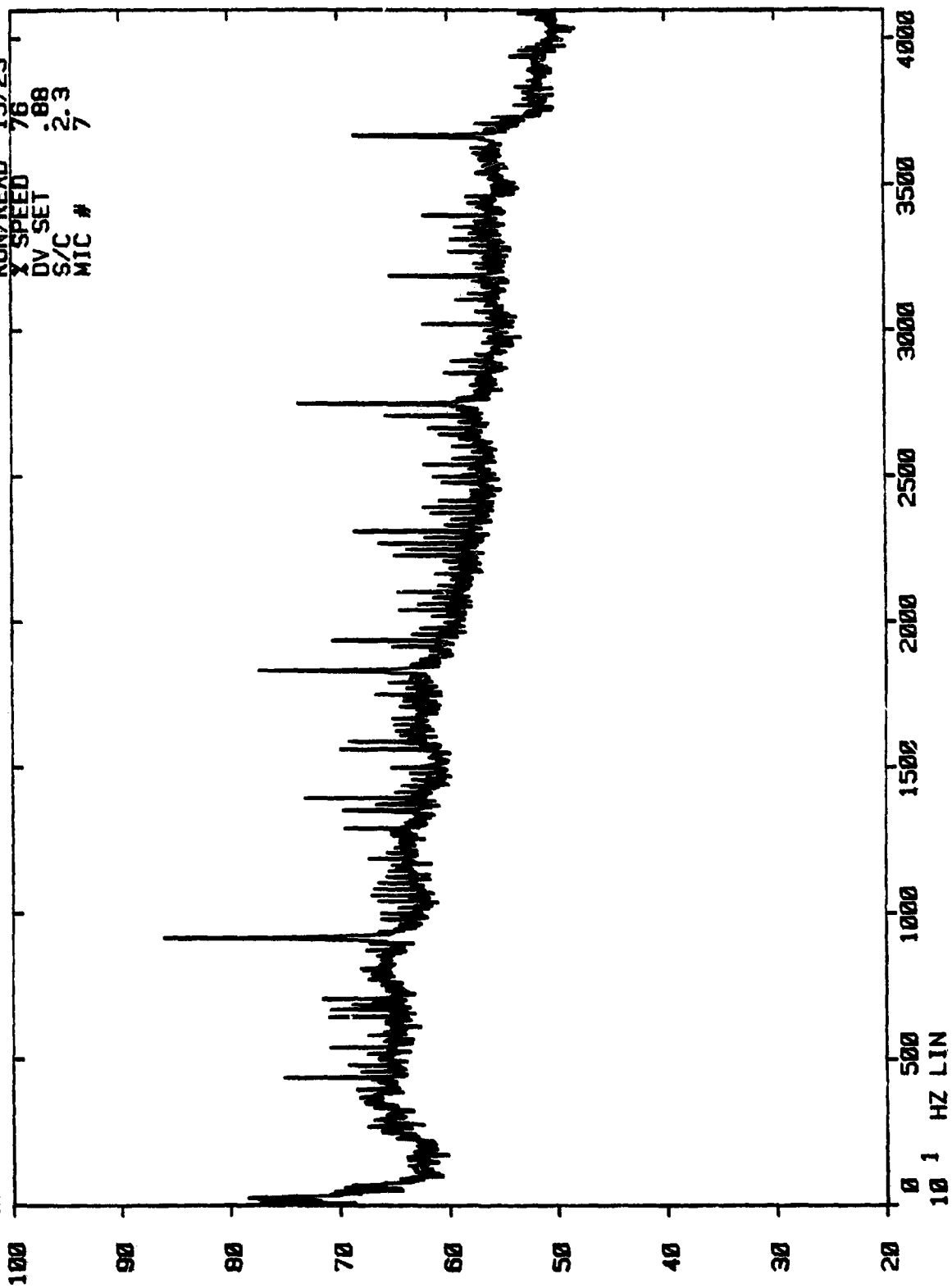




NASA V/B STUDY
48 VANE SET

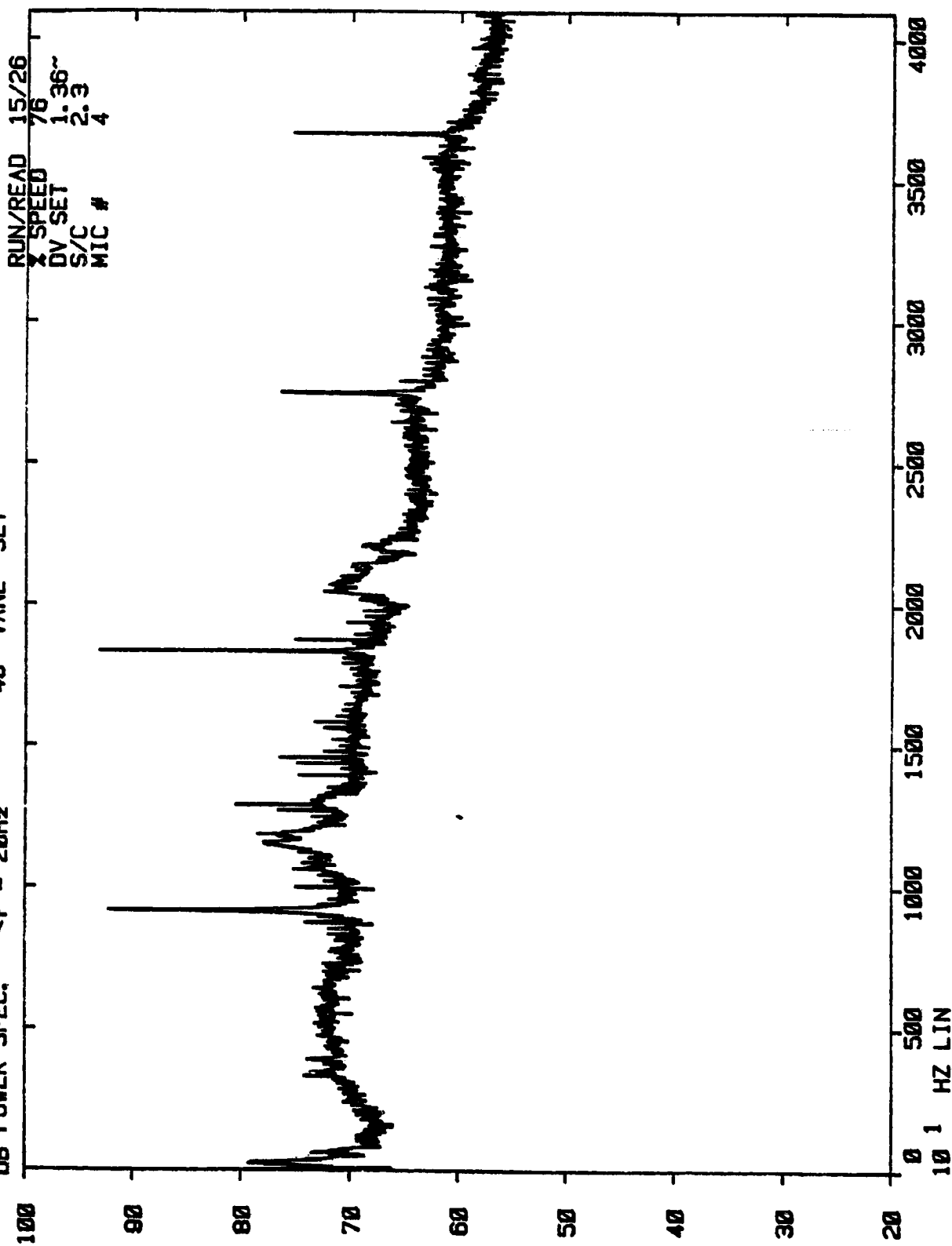
DB POWER SPEC. <f = 20Hz

RUN/READ 15/25
X SPEED 76
DV SET .88
S/C 2.3
MIC # 7



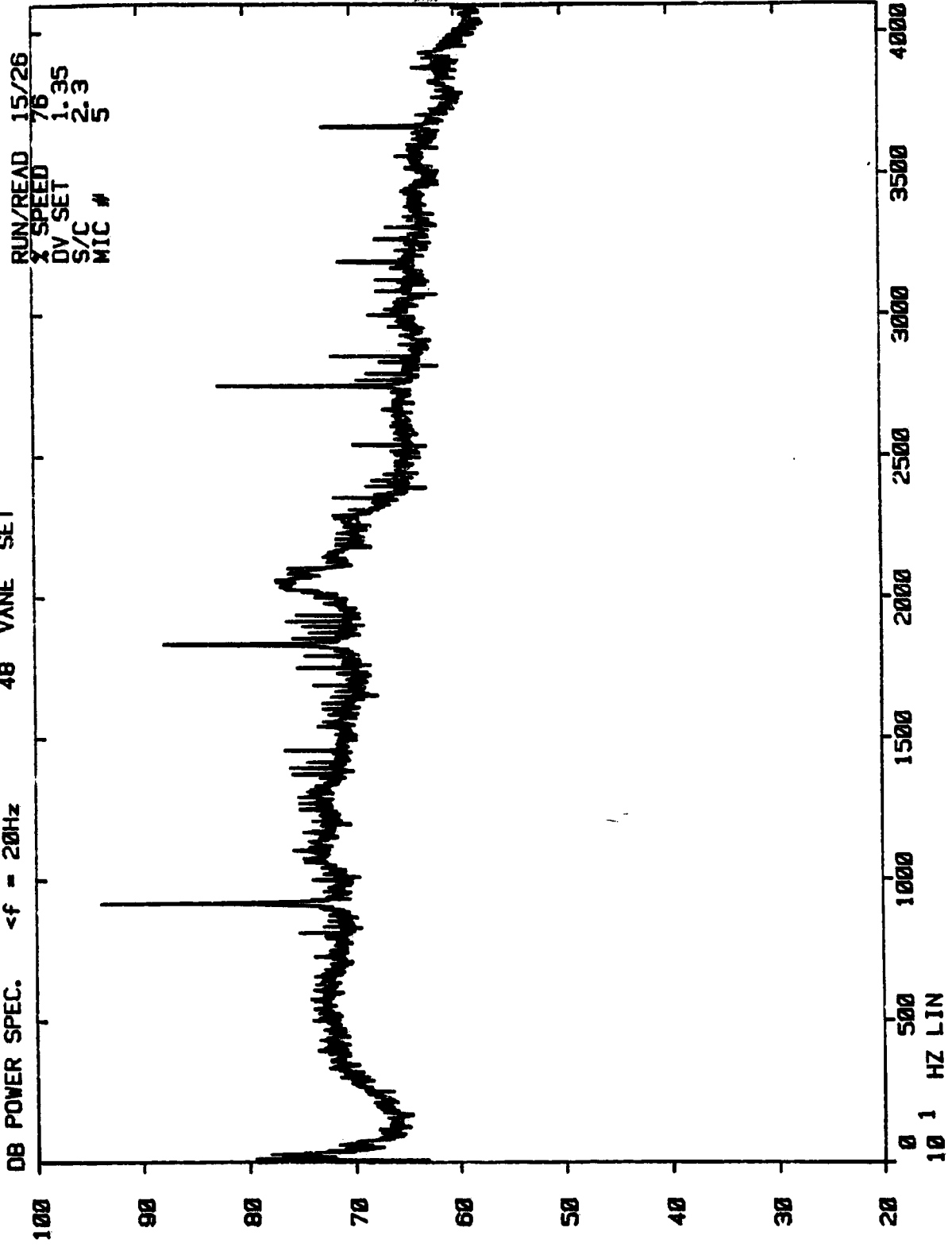
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
48 VANE SET

<f = 20Hz

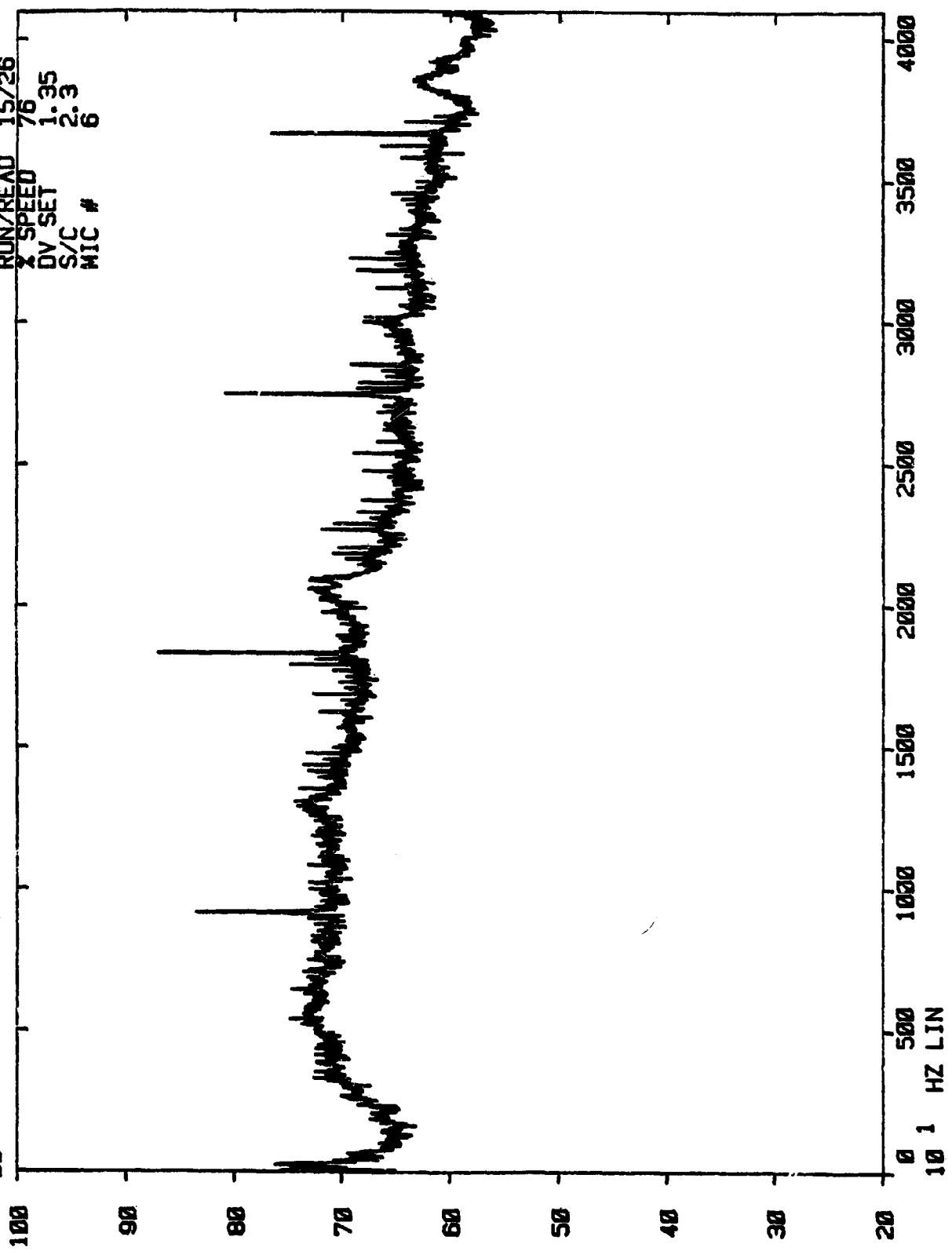


RUN/READ 15/26
X SPEED 76
DV SET 1.35
S/C 2.3
MIC # 5

NASA V/B STUDY
48 VANE SET

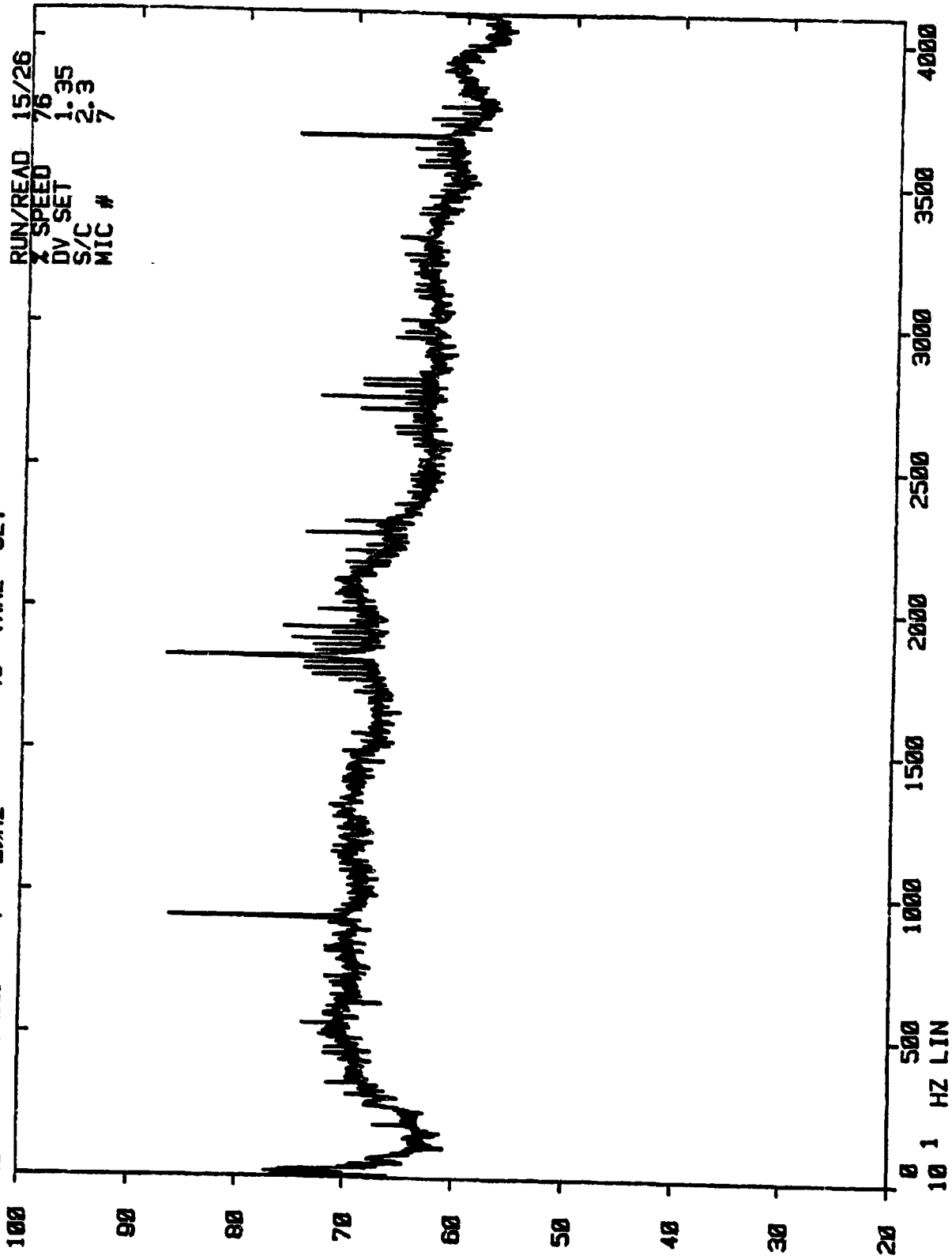
DB POWER SPEC. <f = 20Hz

RUN/READ 15/26
X SPEED 76
DV SET 1.35
S/C 2.3
MIC # 6



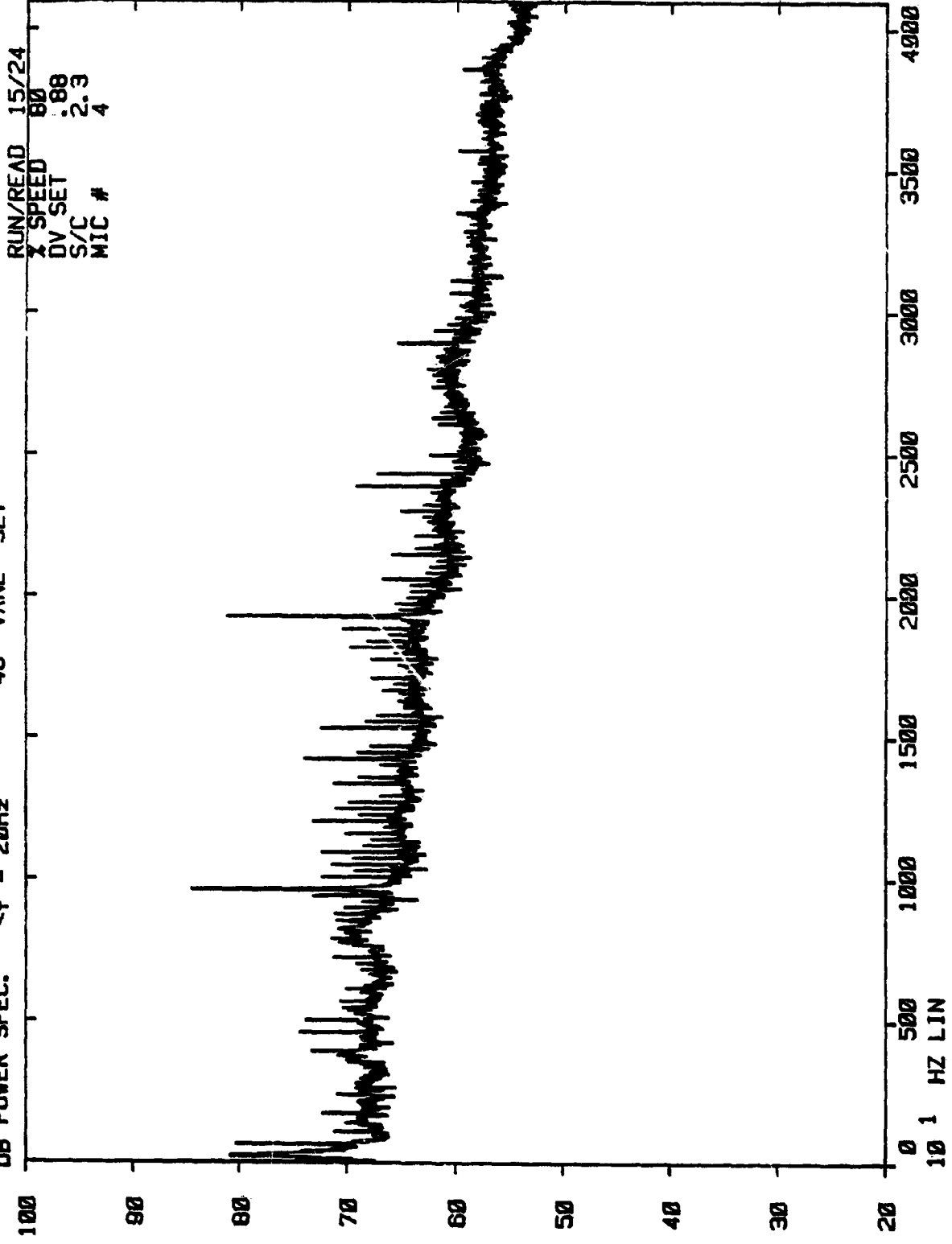
NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



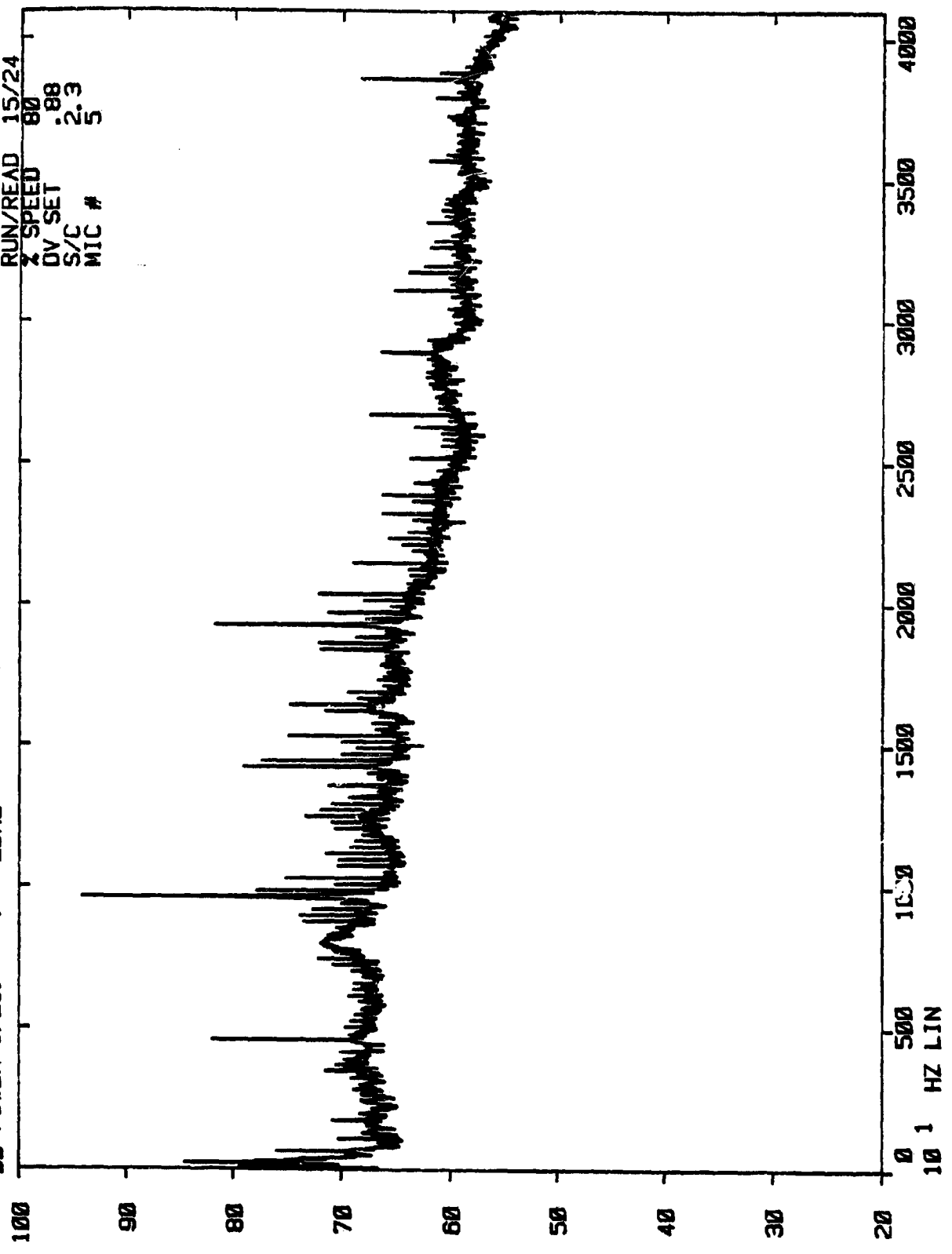
RUN/READ 15/24
X SPEED 80
DV SET .88
S/C 2.3
MIC # 4



NASA V/B STUDY
48 VANE SET

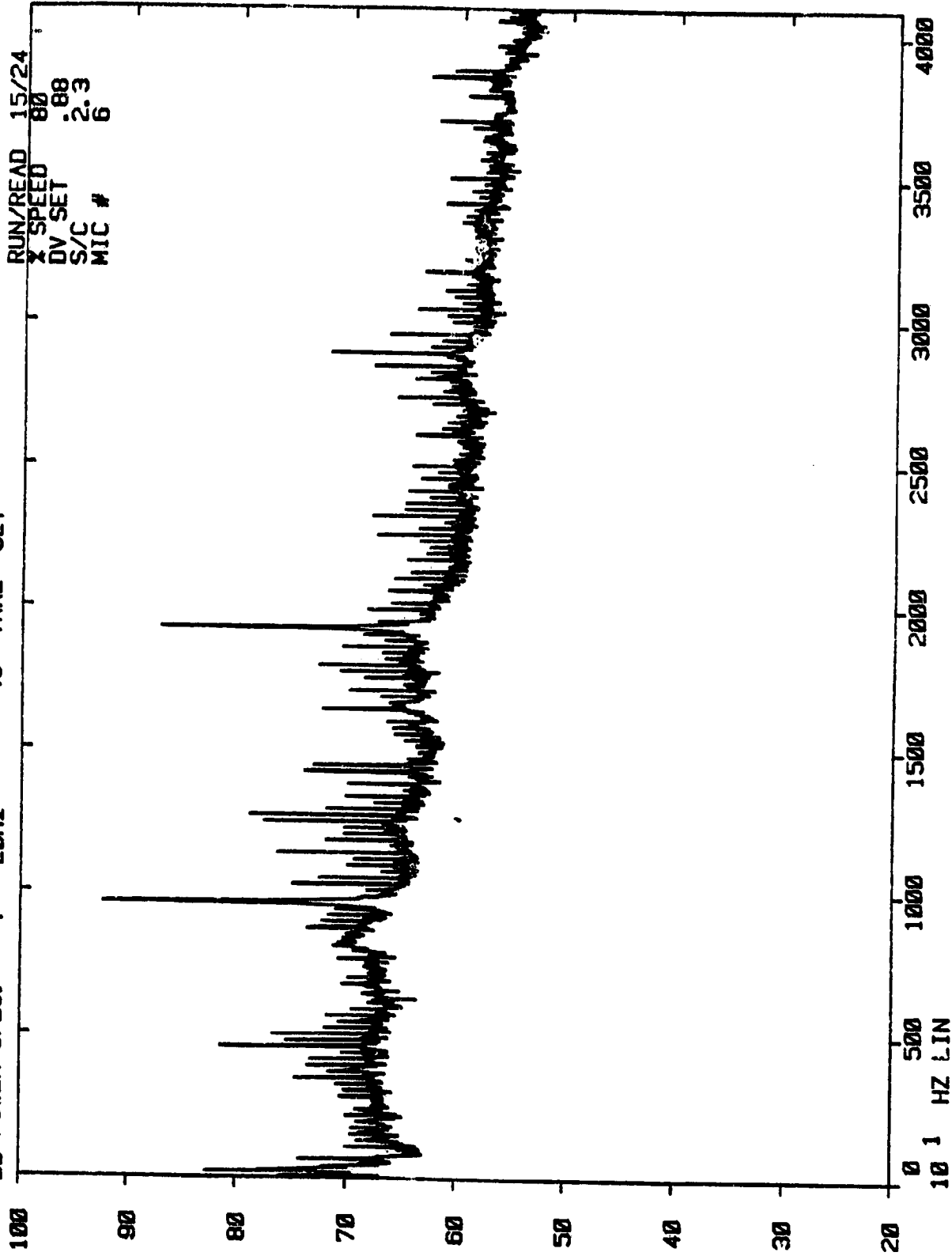
DB POWER SPEC. $\Delta f = 20\text{Hz}$

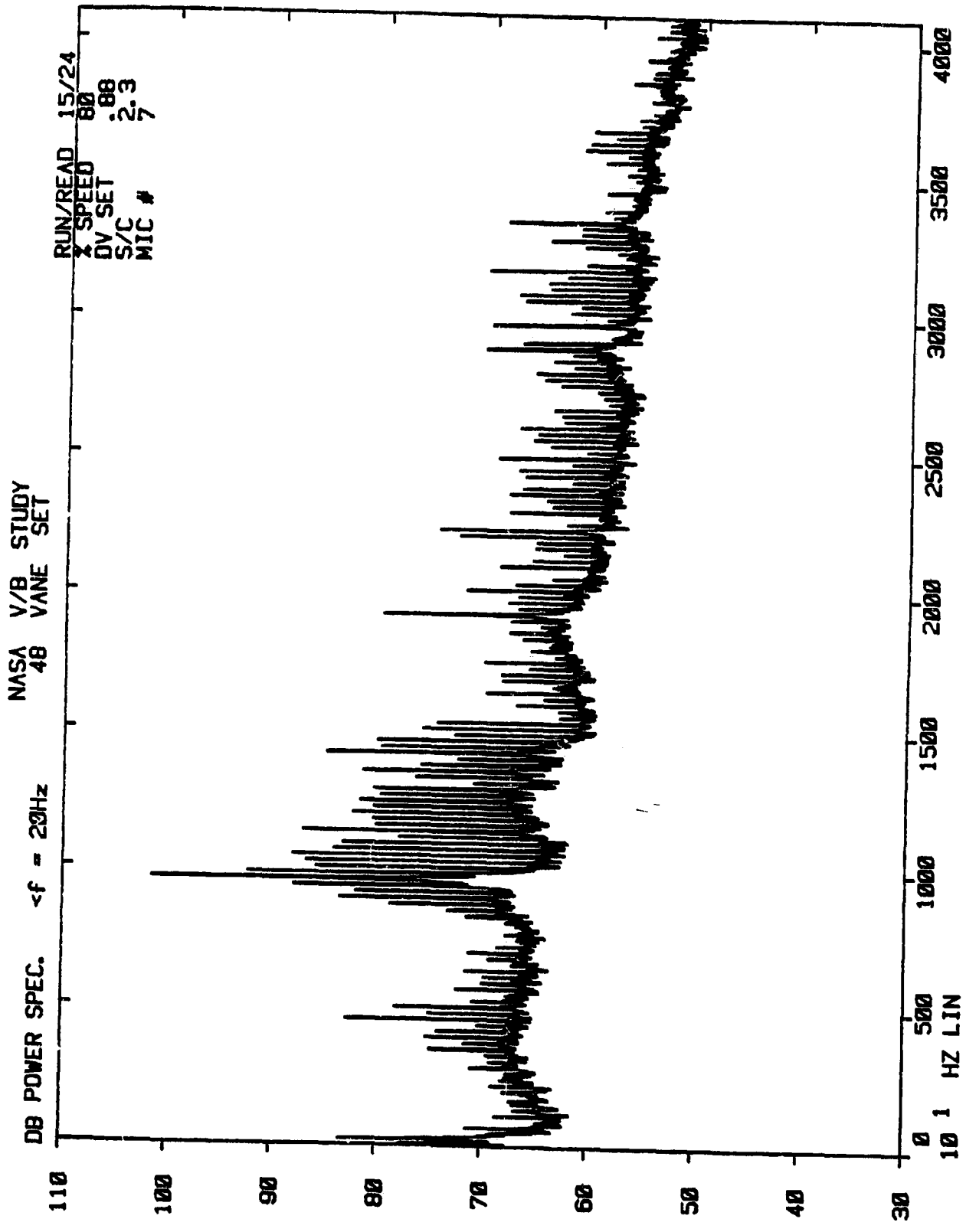
RUN/READ 15/24
% SPEED 80
DV SET .88
S/C 2.3
MIC # 5

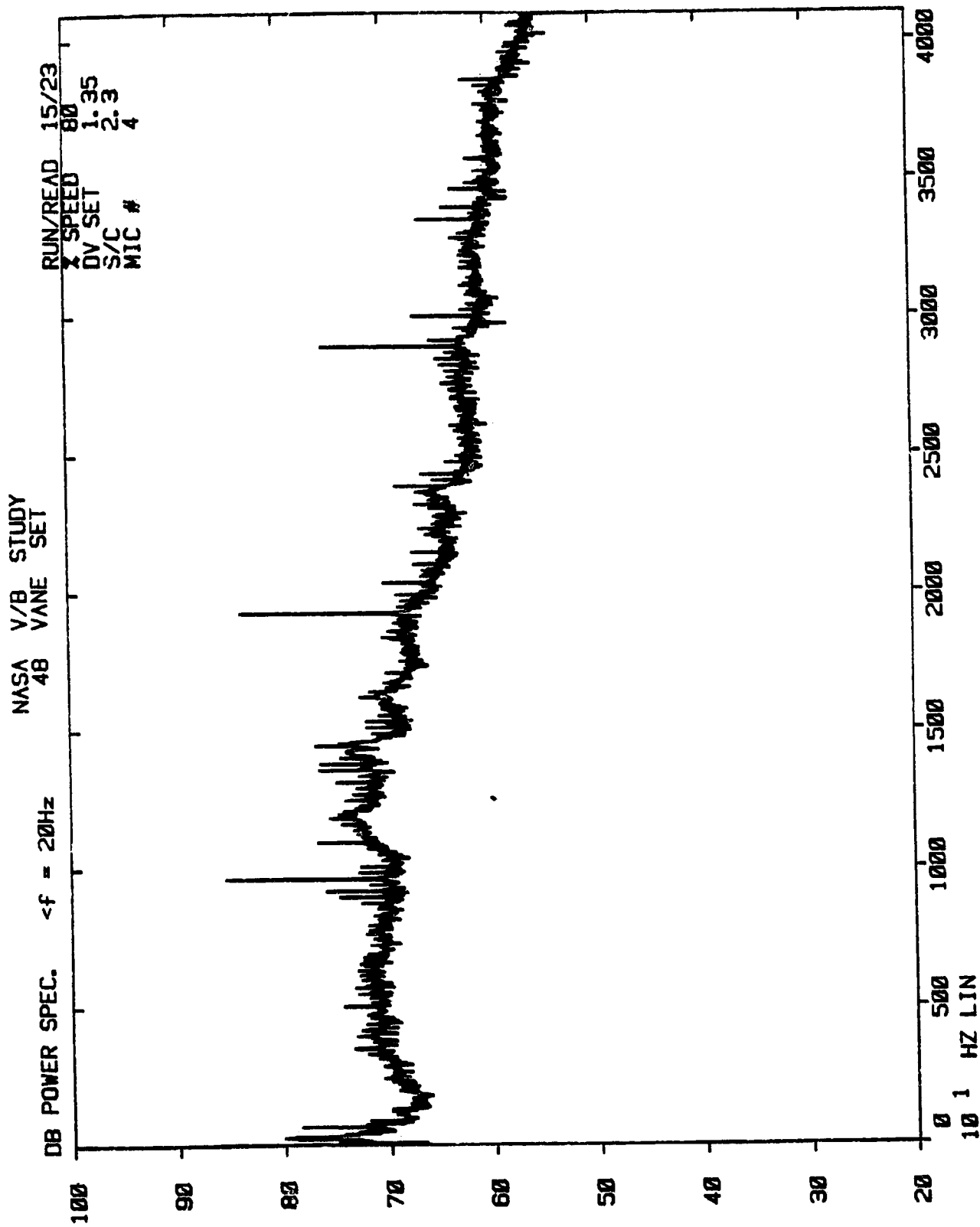


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz





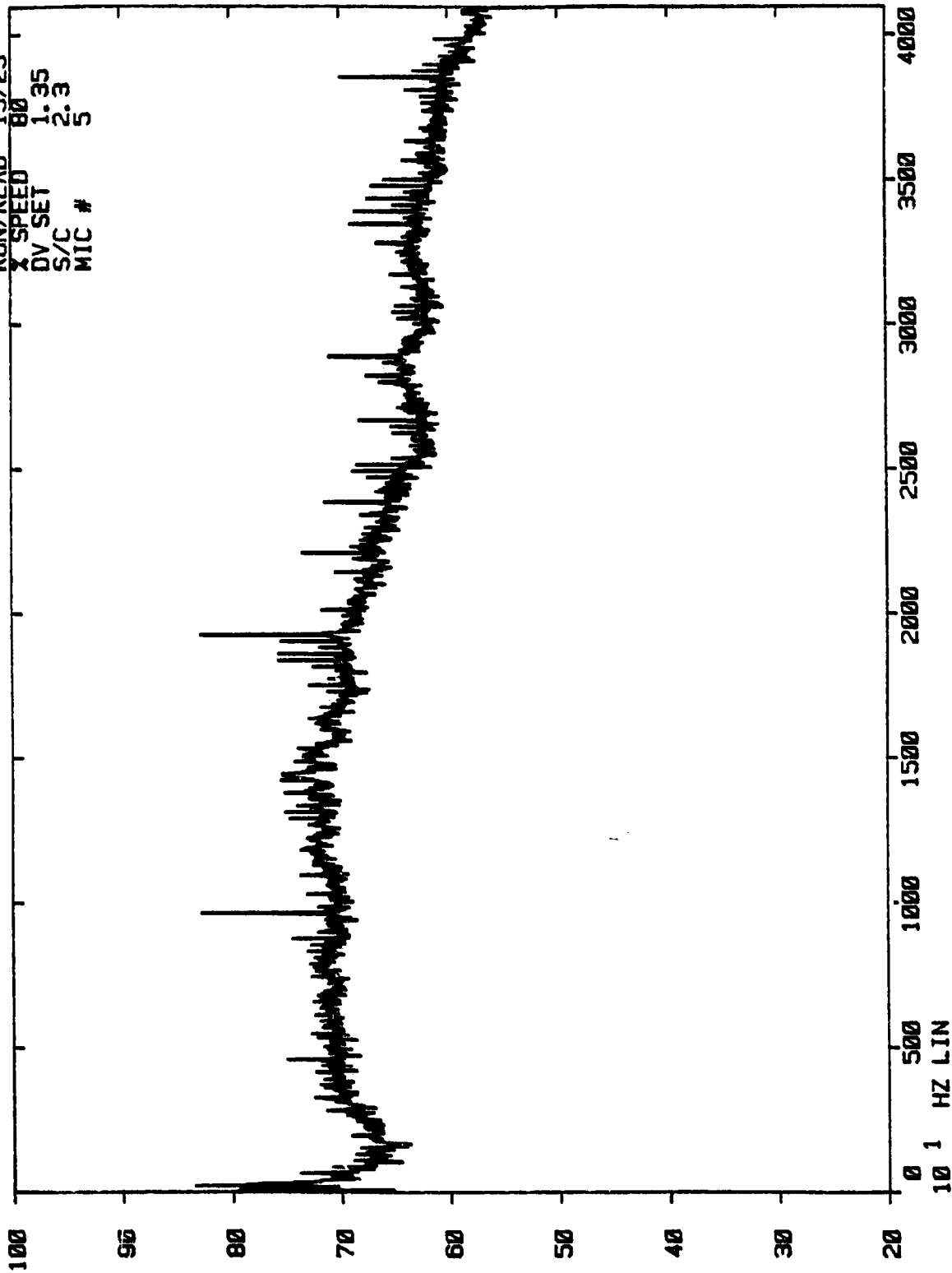


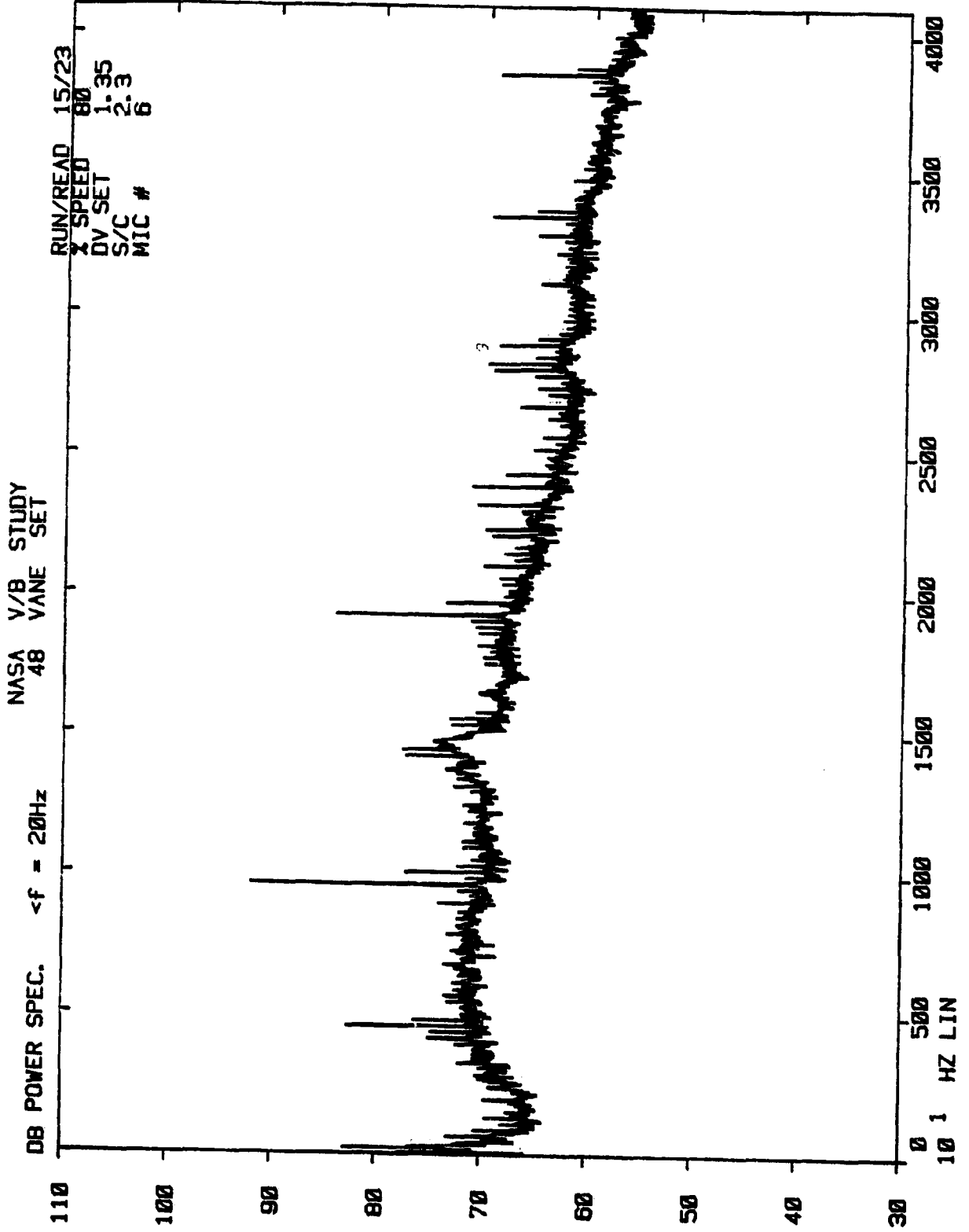
NASA V/B STUDY
48 VANE SET

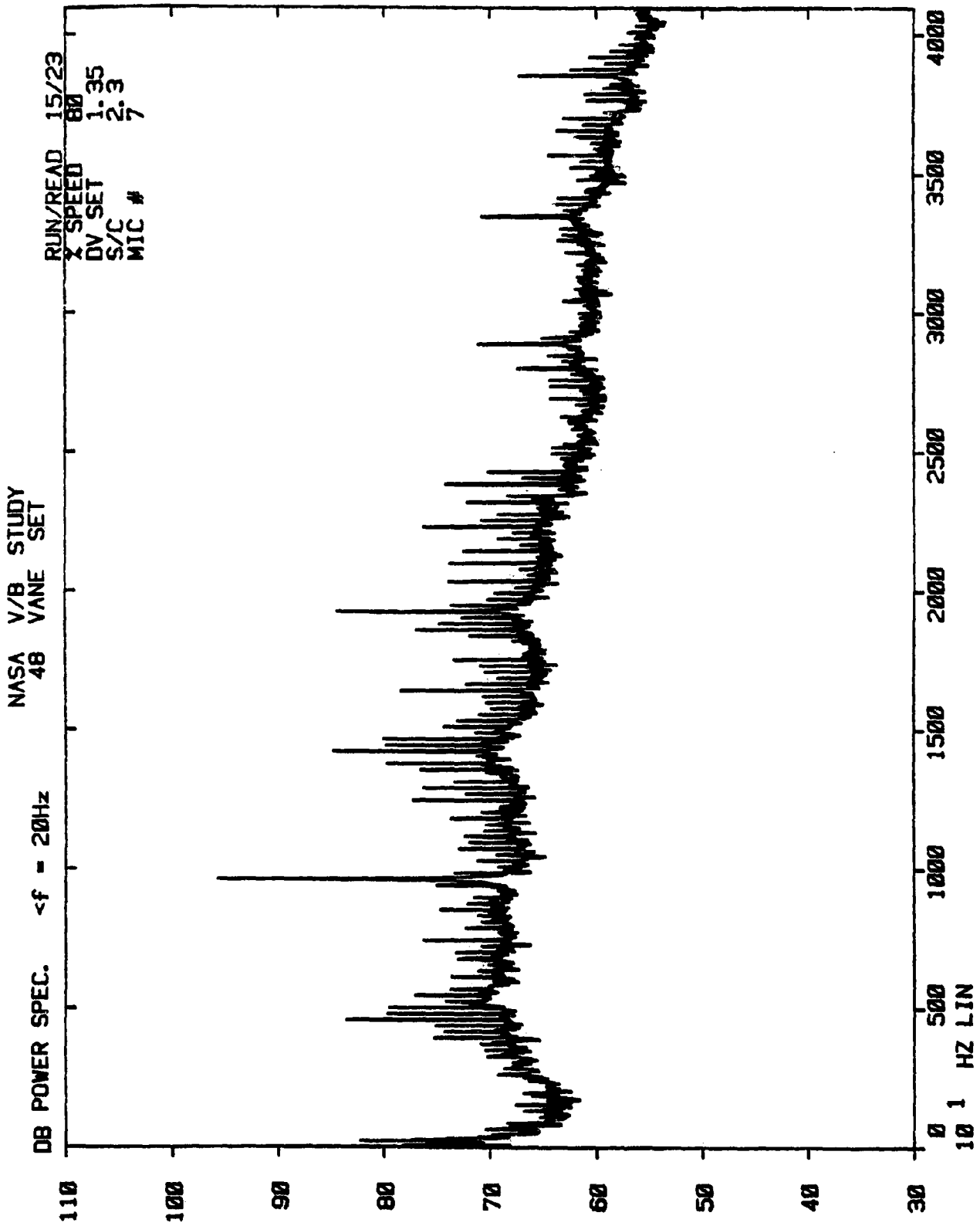
DB POWER SPEC. <f = 20Hz

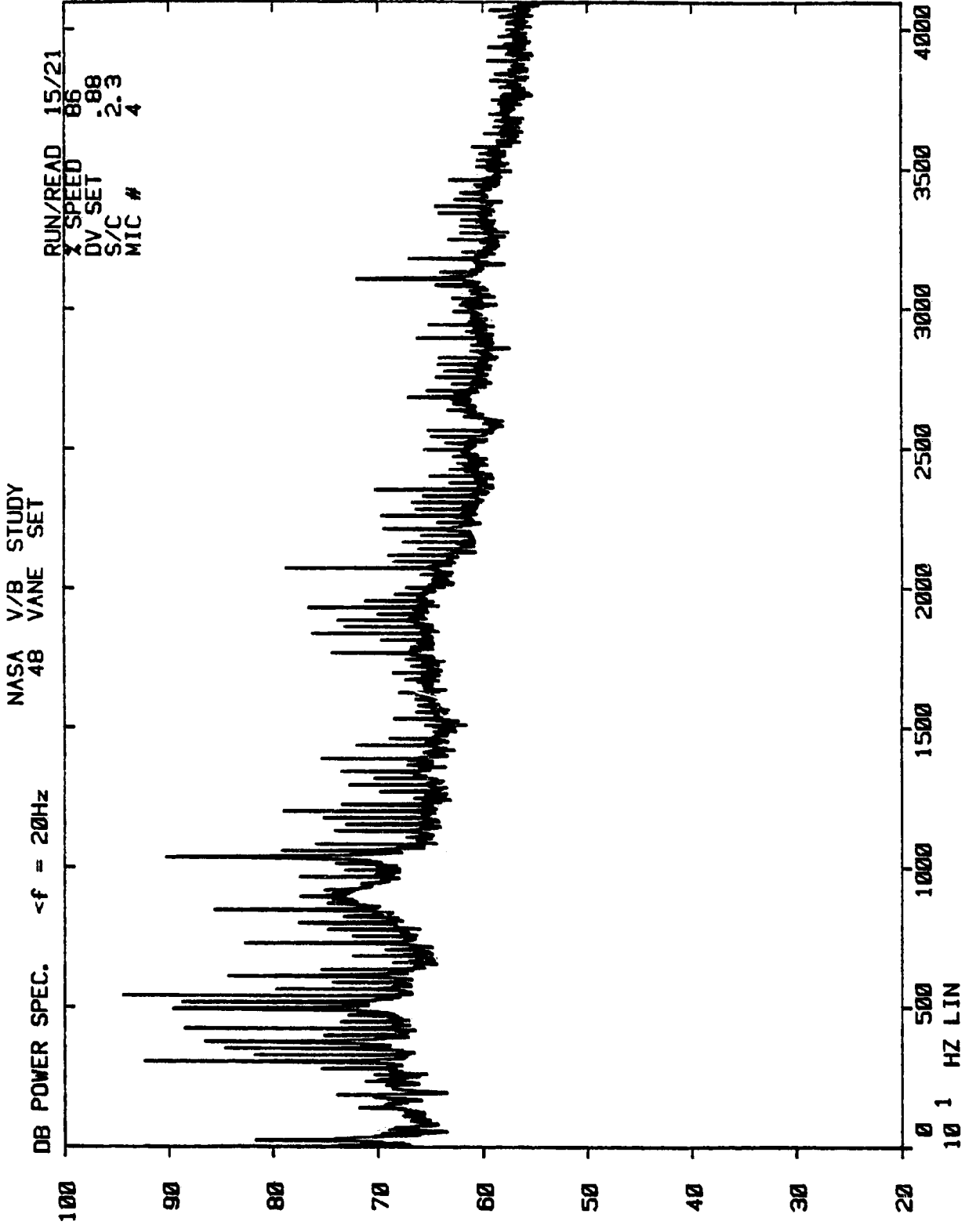
RUN/READ 15/23

7 SPEED 80
DV SET 1.35
S/C 2.3
MIC # 5





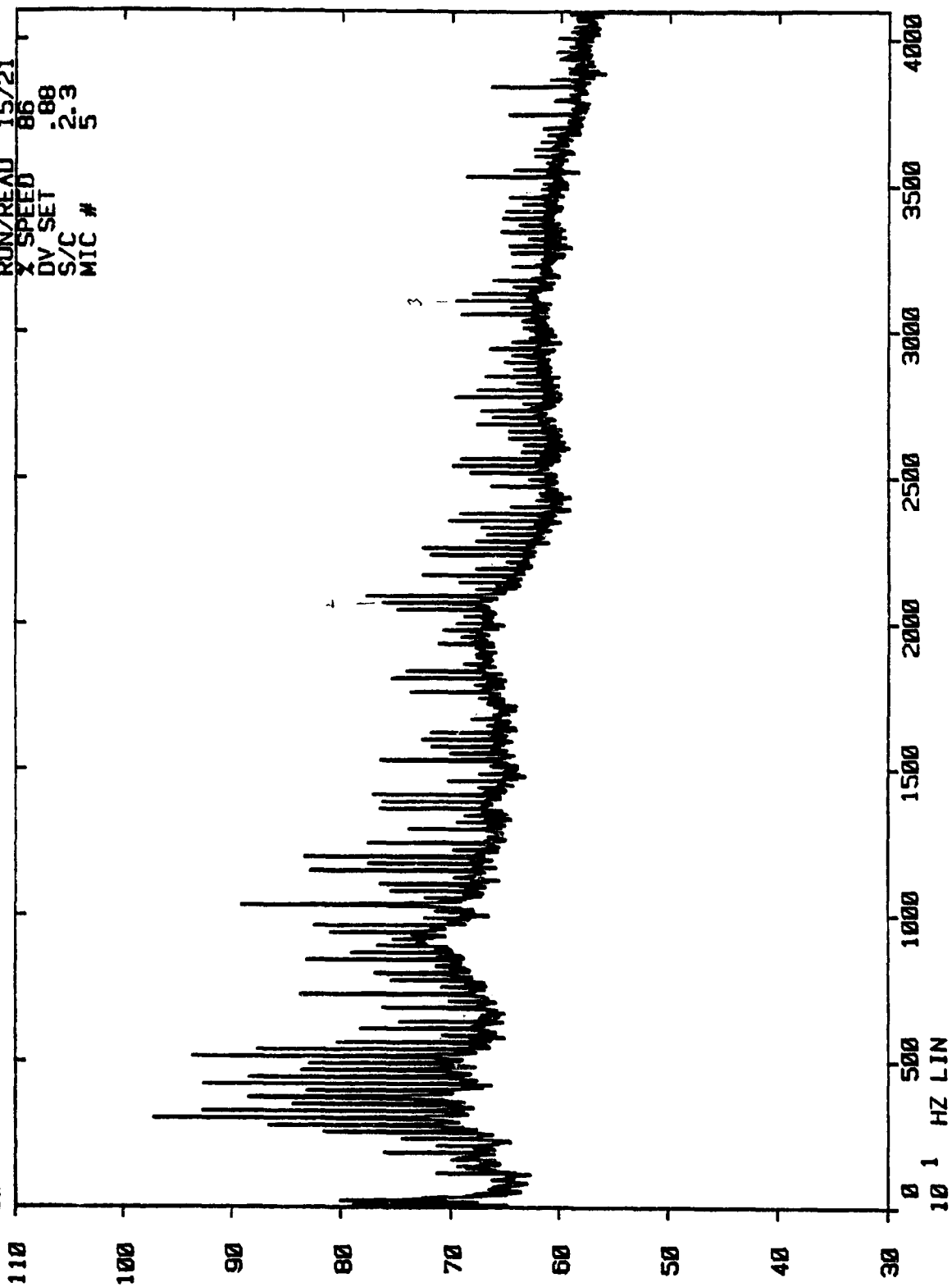


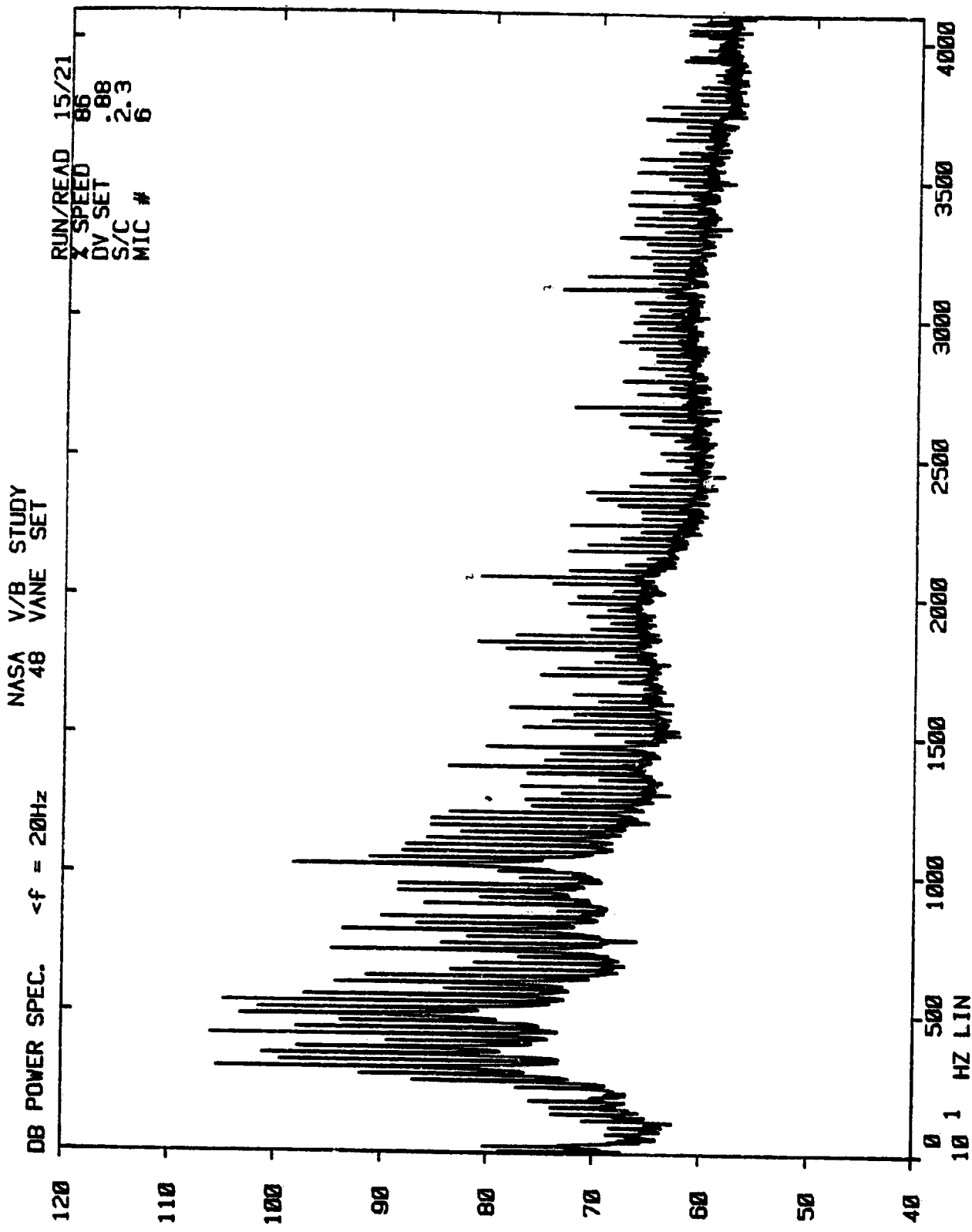


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $\langle f = 20\text{Hz}$

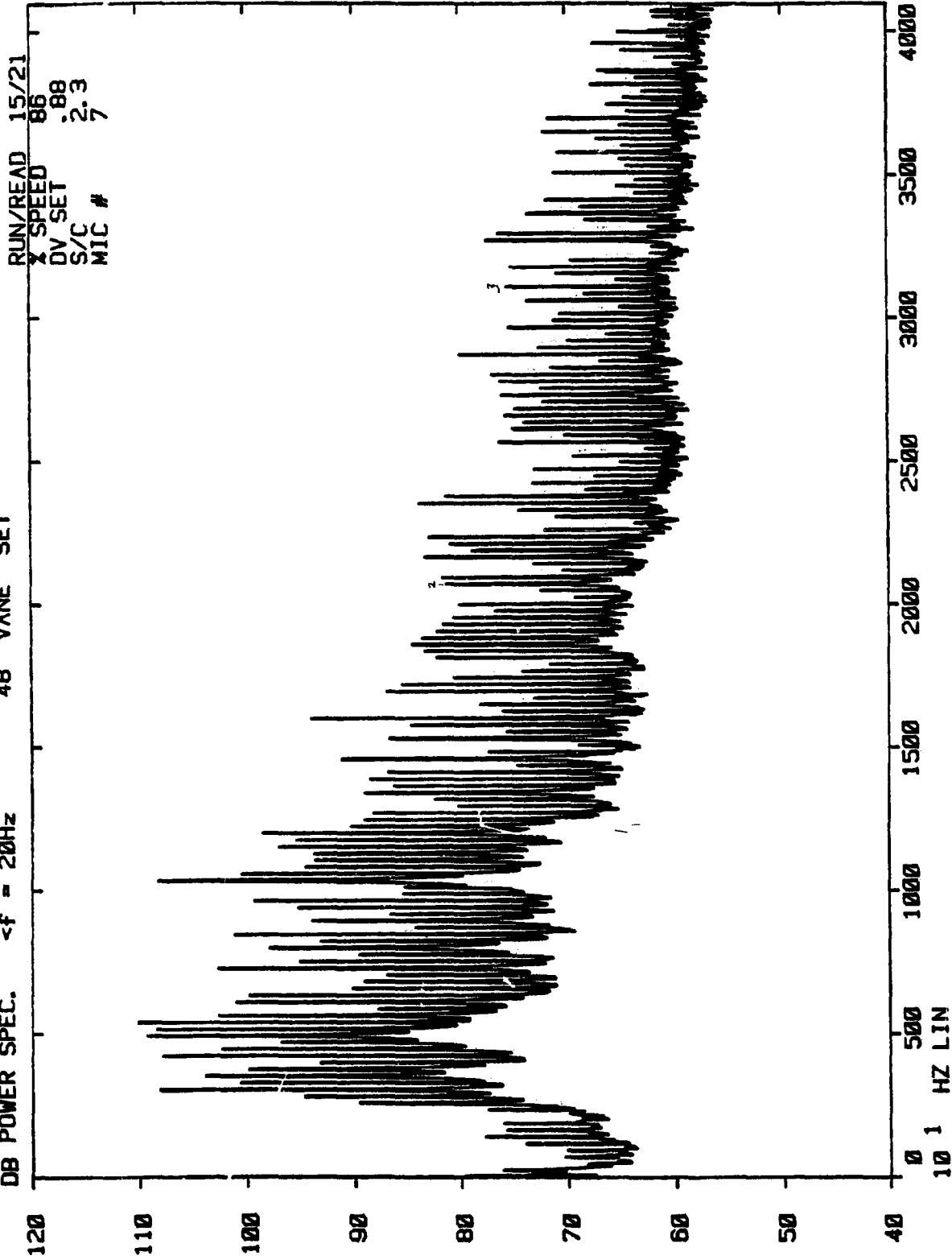
RUN/READ 15/21
X SPEED 86
DV SET .88
S/C 2.3
MIC # 5

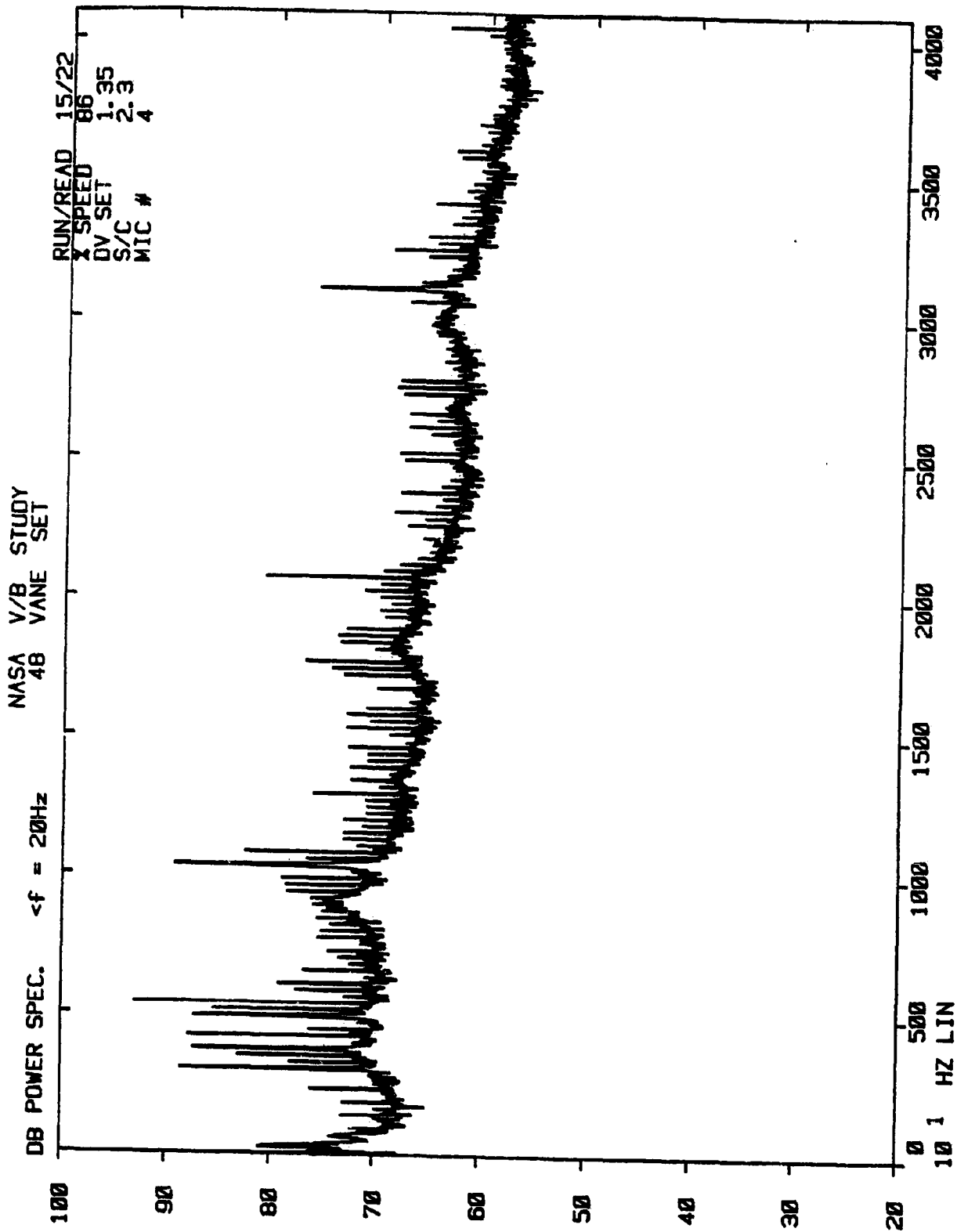


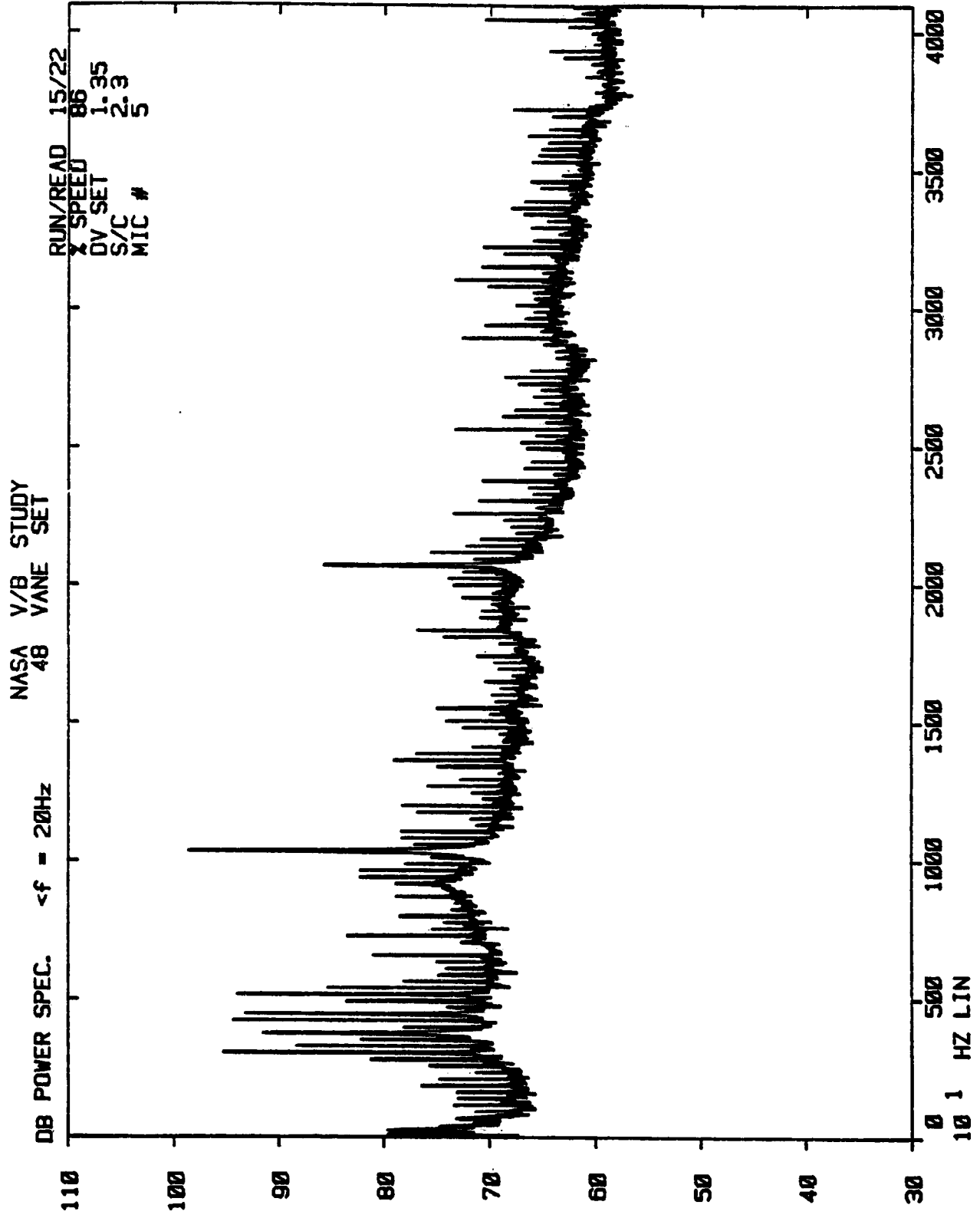


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. $<f = 20\text{Hz}$

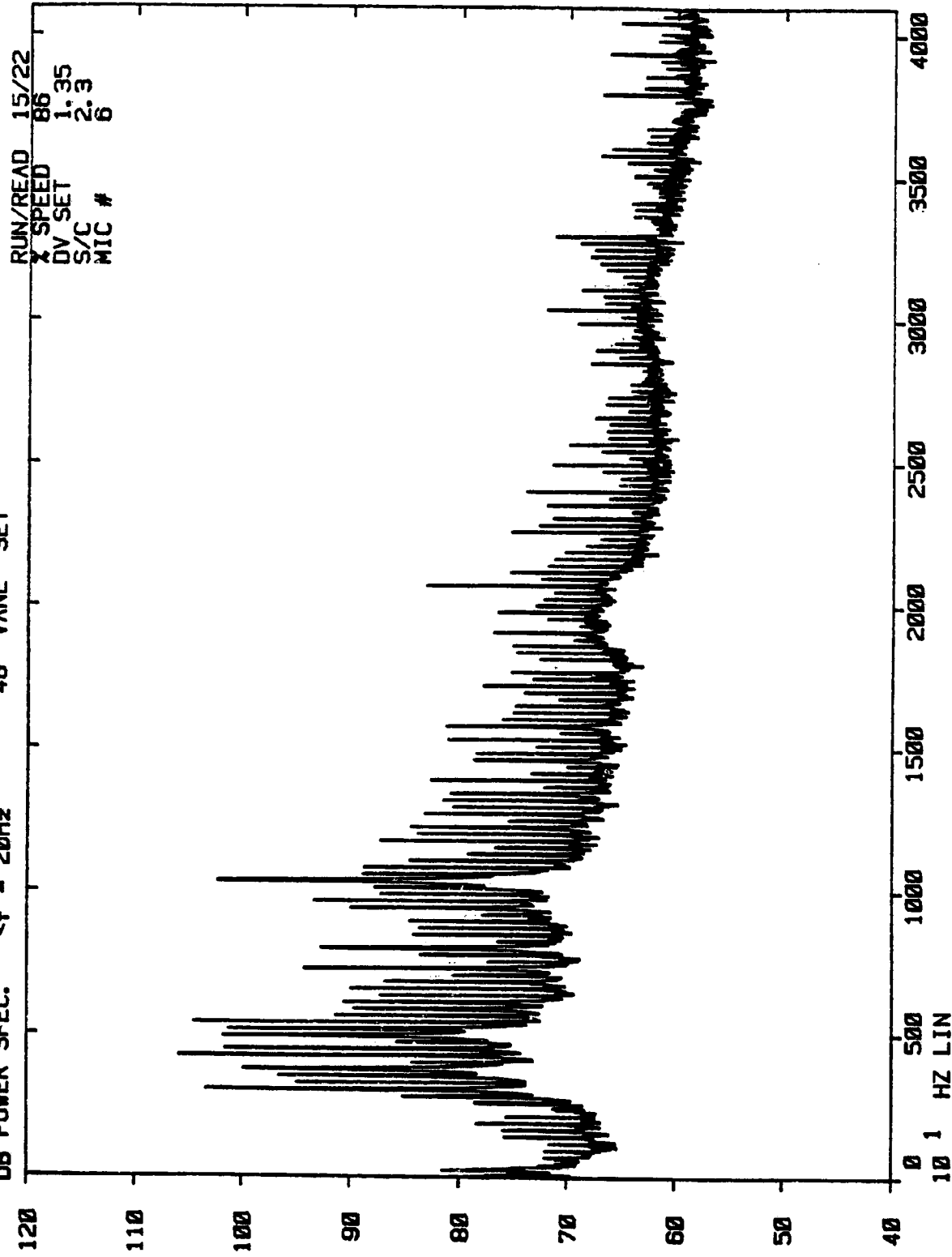




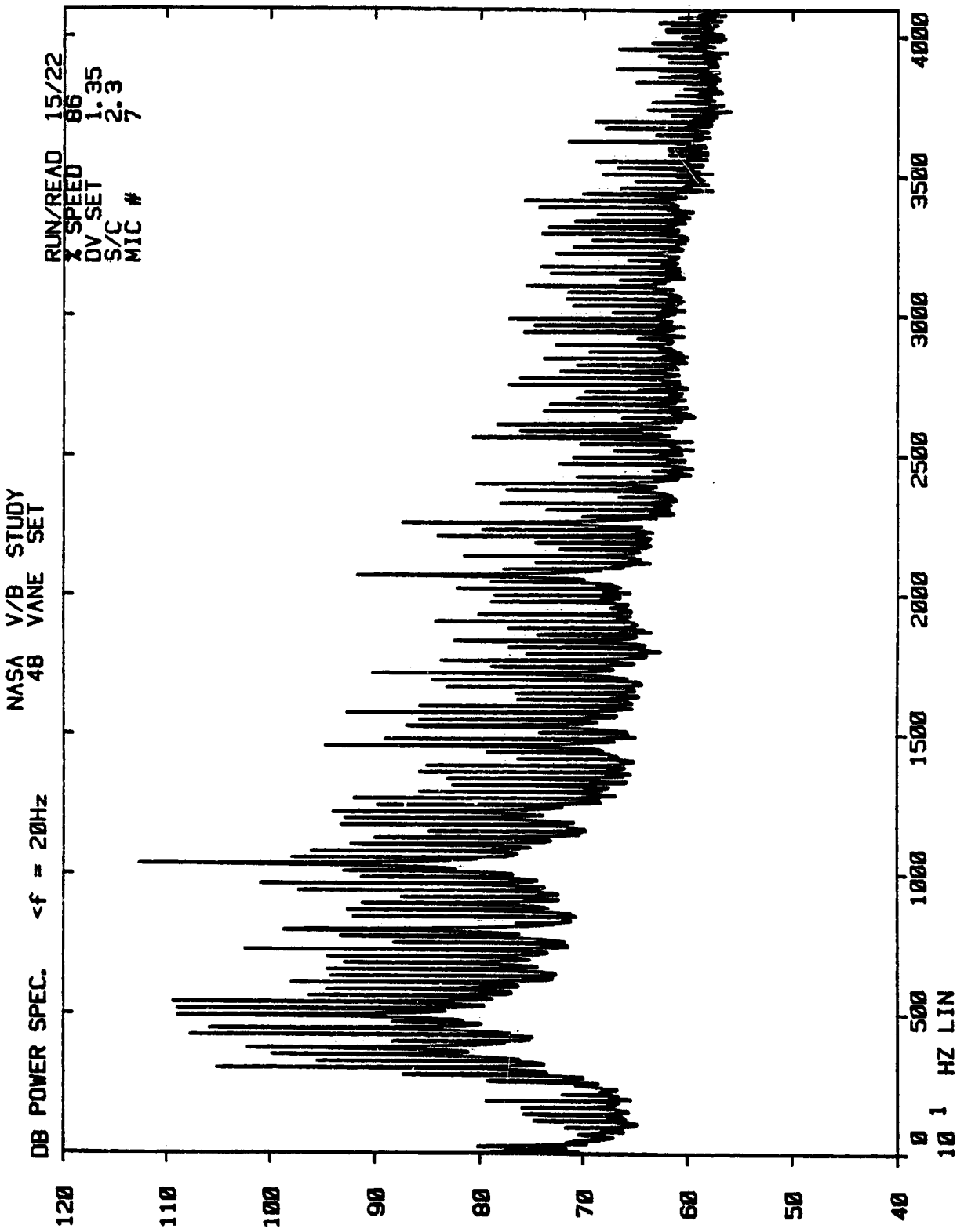


NASA V/B STUDY
48 VANE SET

DB POWER SPEC. <f = 20Hz



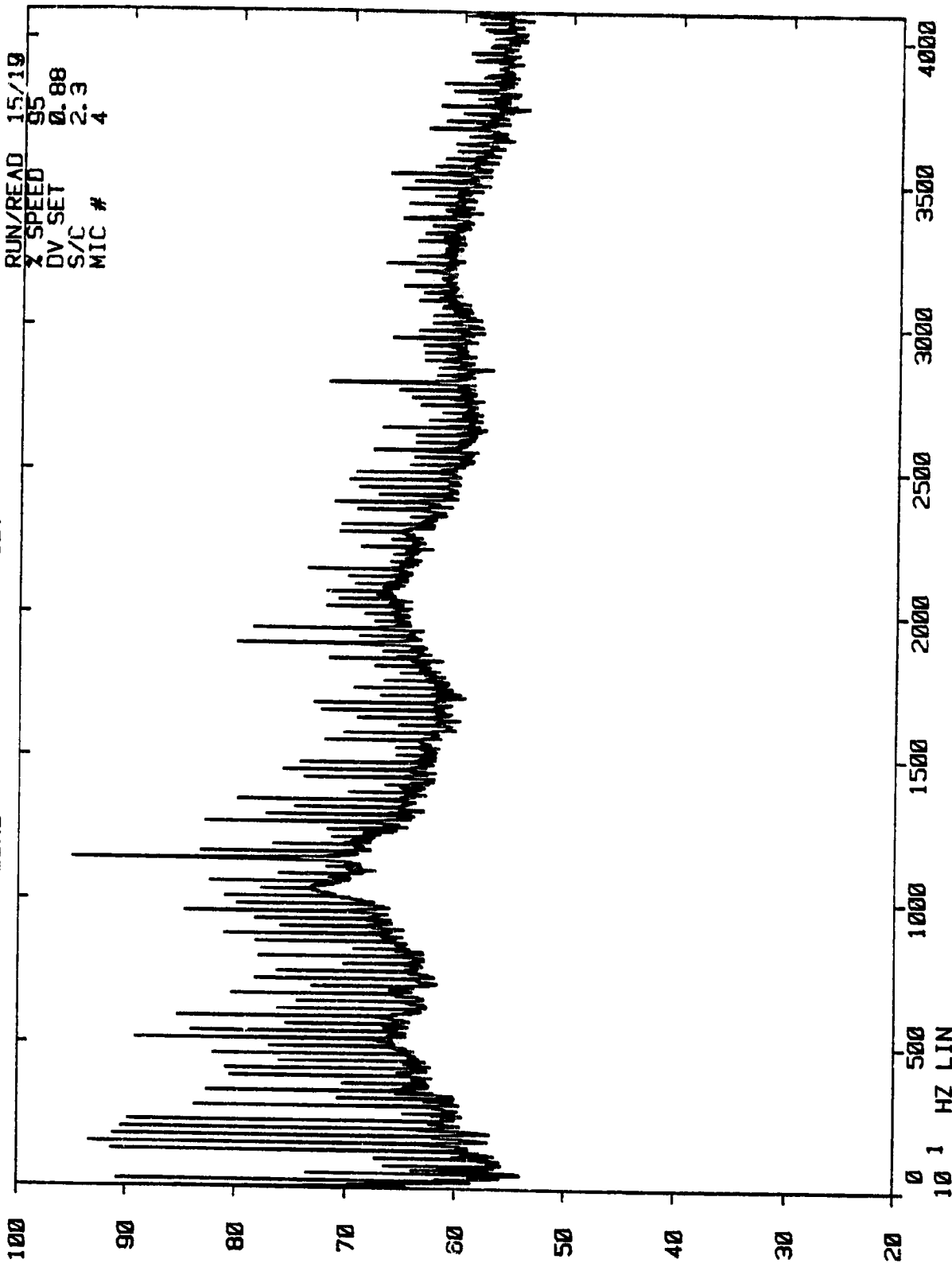
0 500 1000 1500 2000 2500 3000 3500 4000
10 1 HZ LIN



NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.



RUN/READ 15/19
X SPEED 95
DV SET 0.88
S/C 2.3
MIC # 4

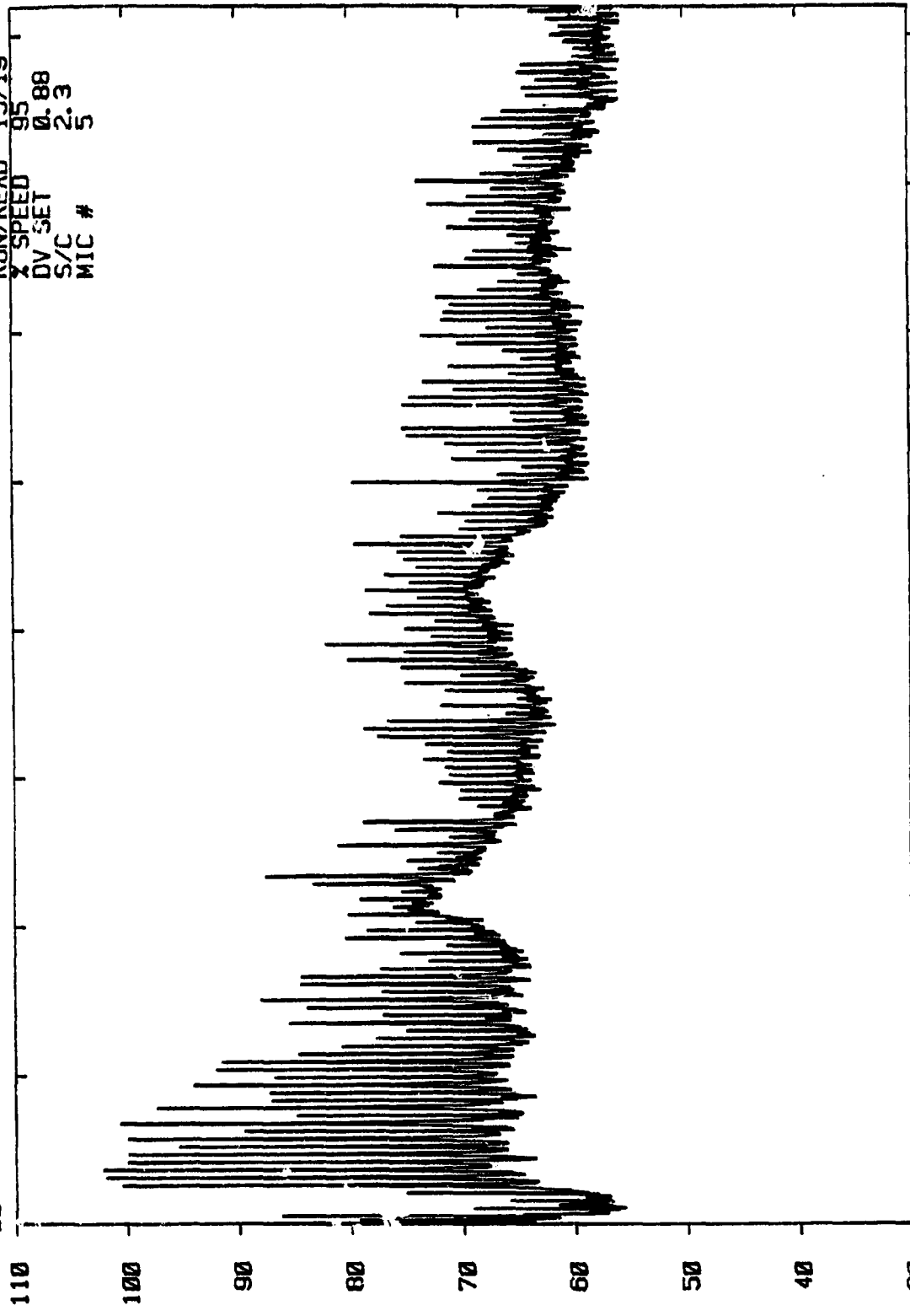
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

RUN/READ 15/19

X SPEED 95
DV SET 0.88
S/C 2.3
MIC # 5



NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.

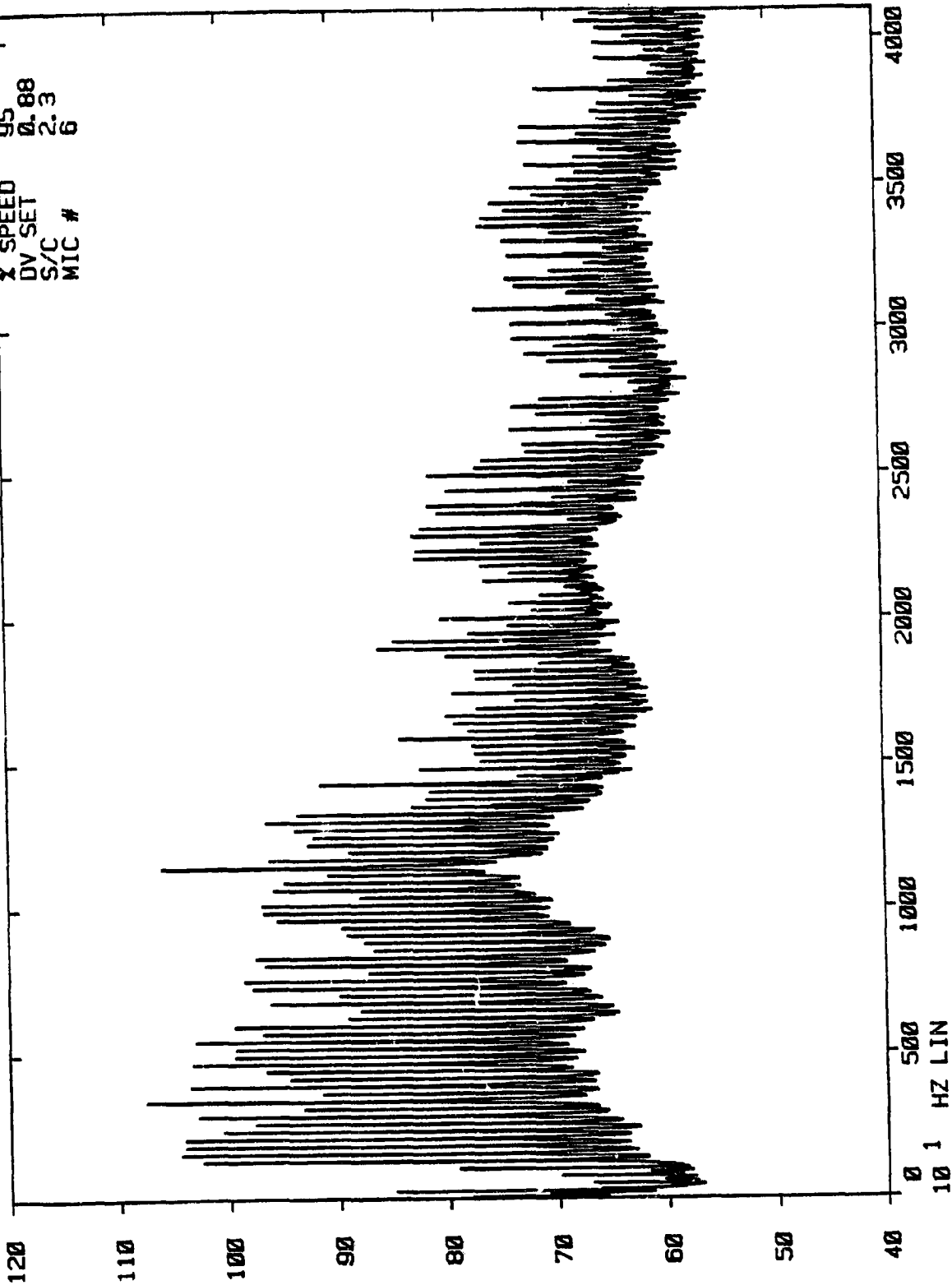
RUN/READ 15/19

X SPEED 95

DV SET 0.88

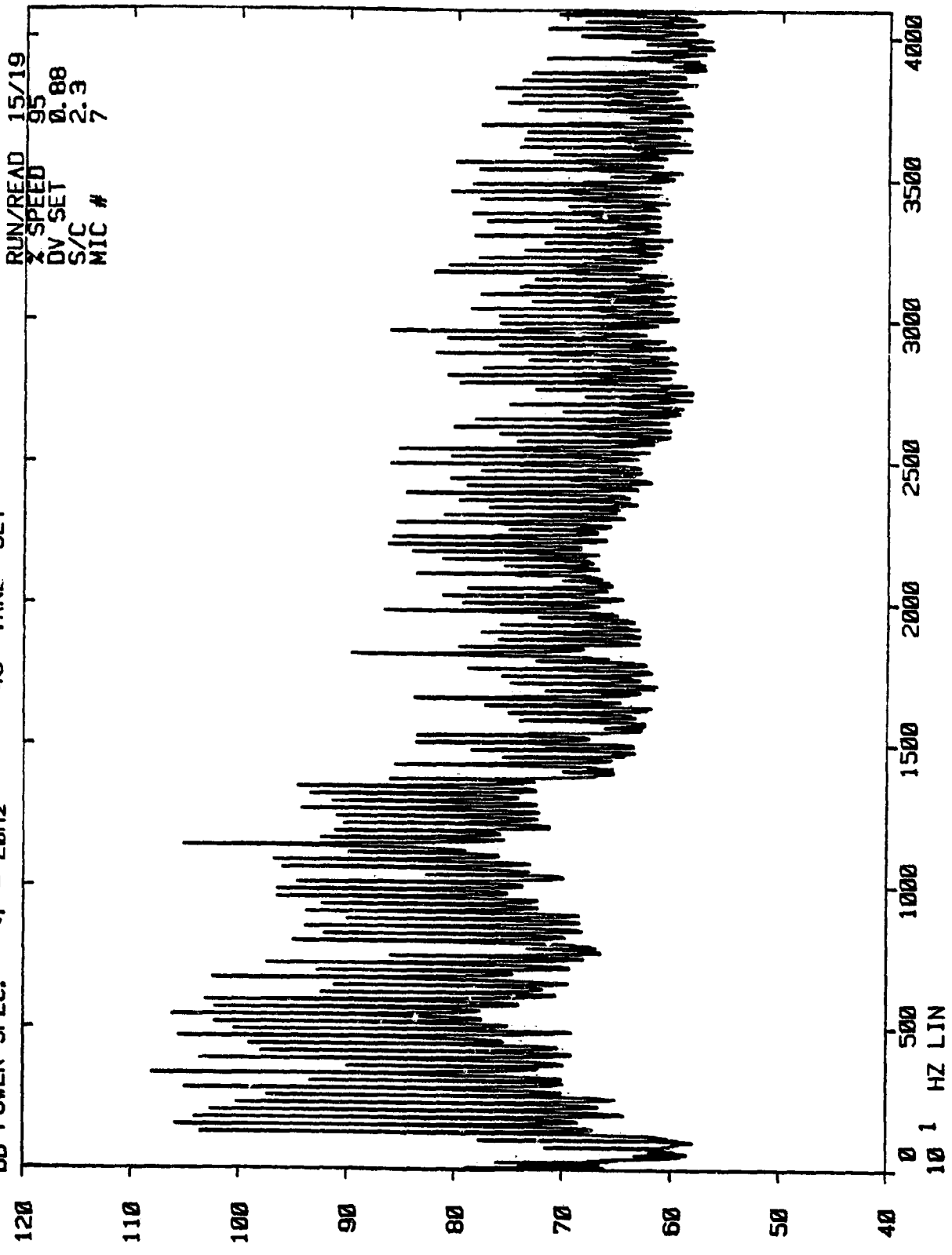
S/C 2.3

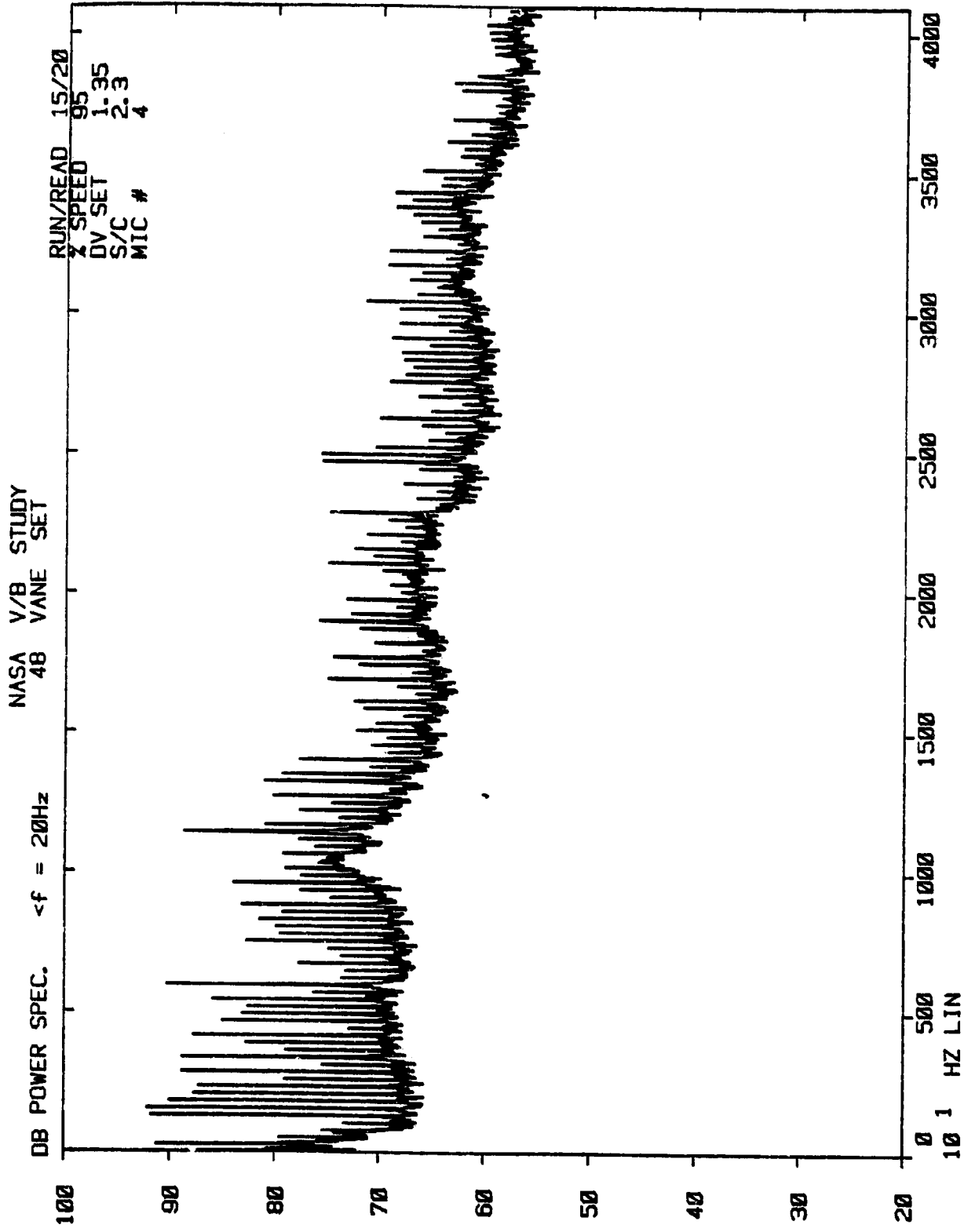
MIC # 6



NASA V/B STUDY
48 VANE SET

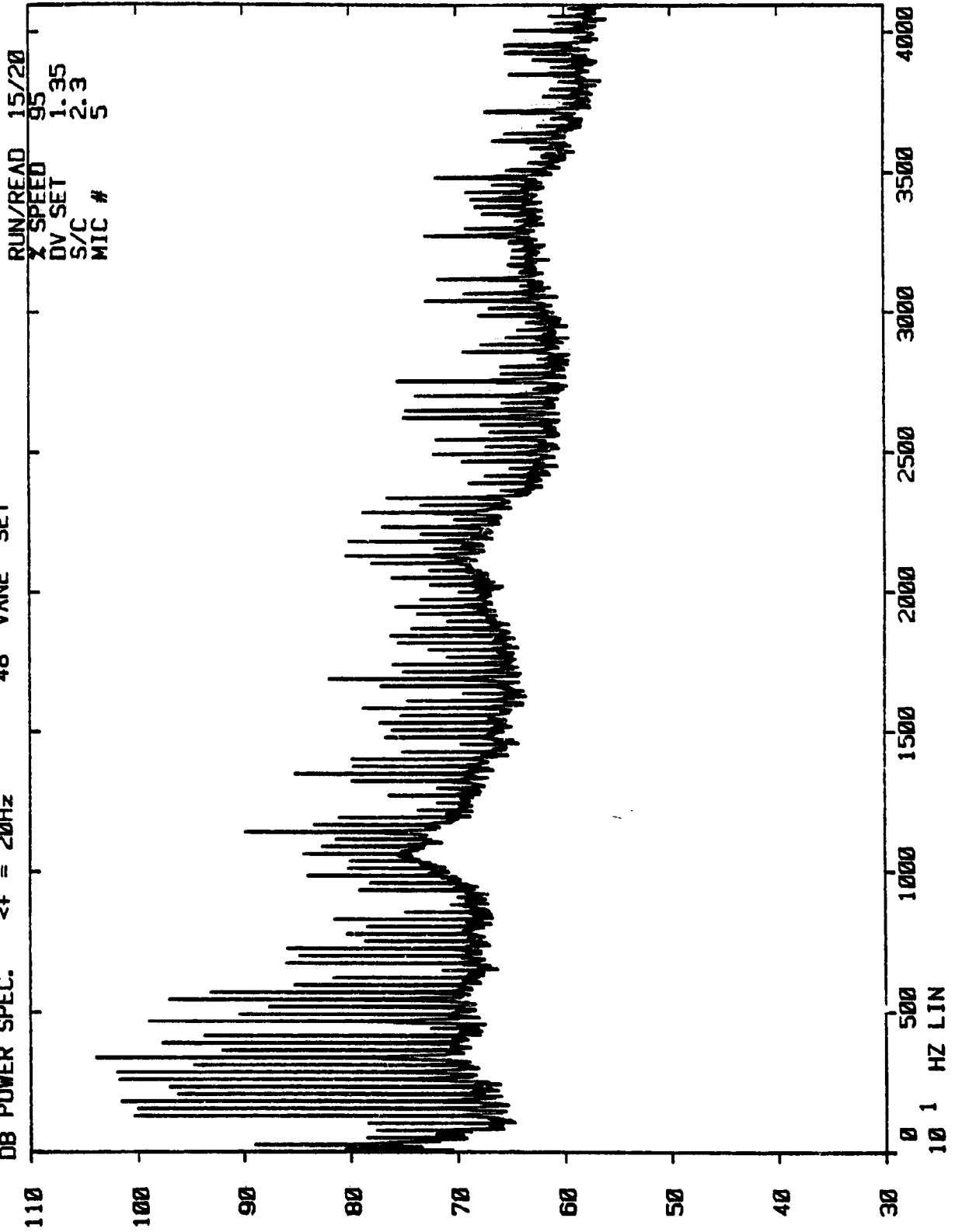
DB POWER SPEC. <f = 20Hz





NASA V/B STUDY
48 VANE SET

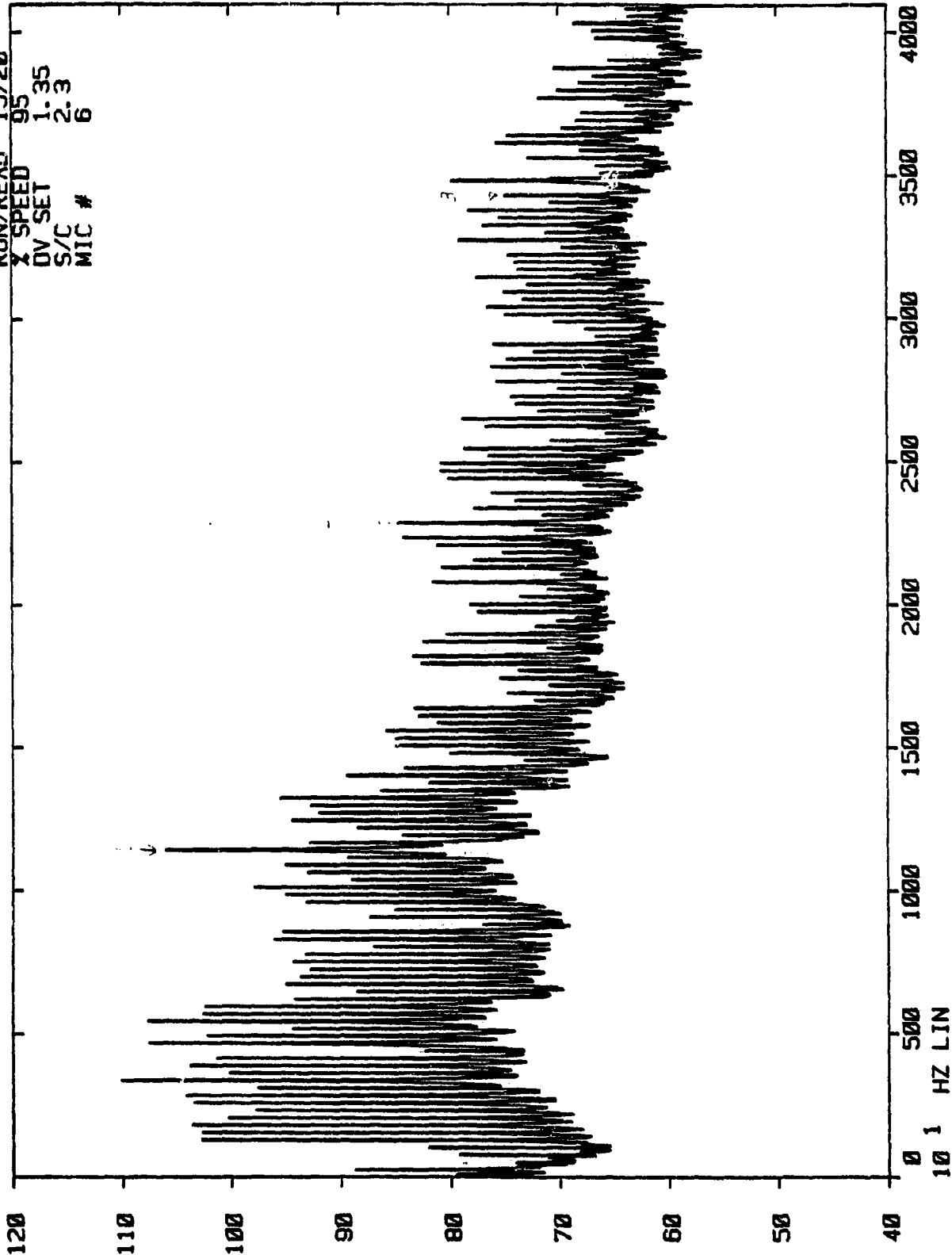
DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
48 VANE SET

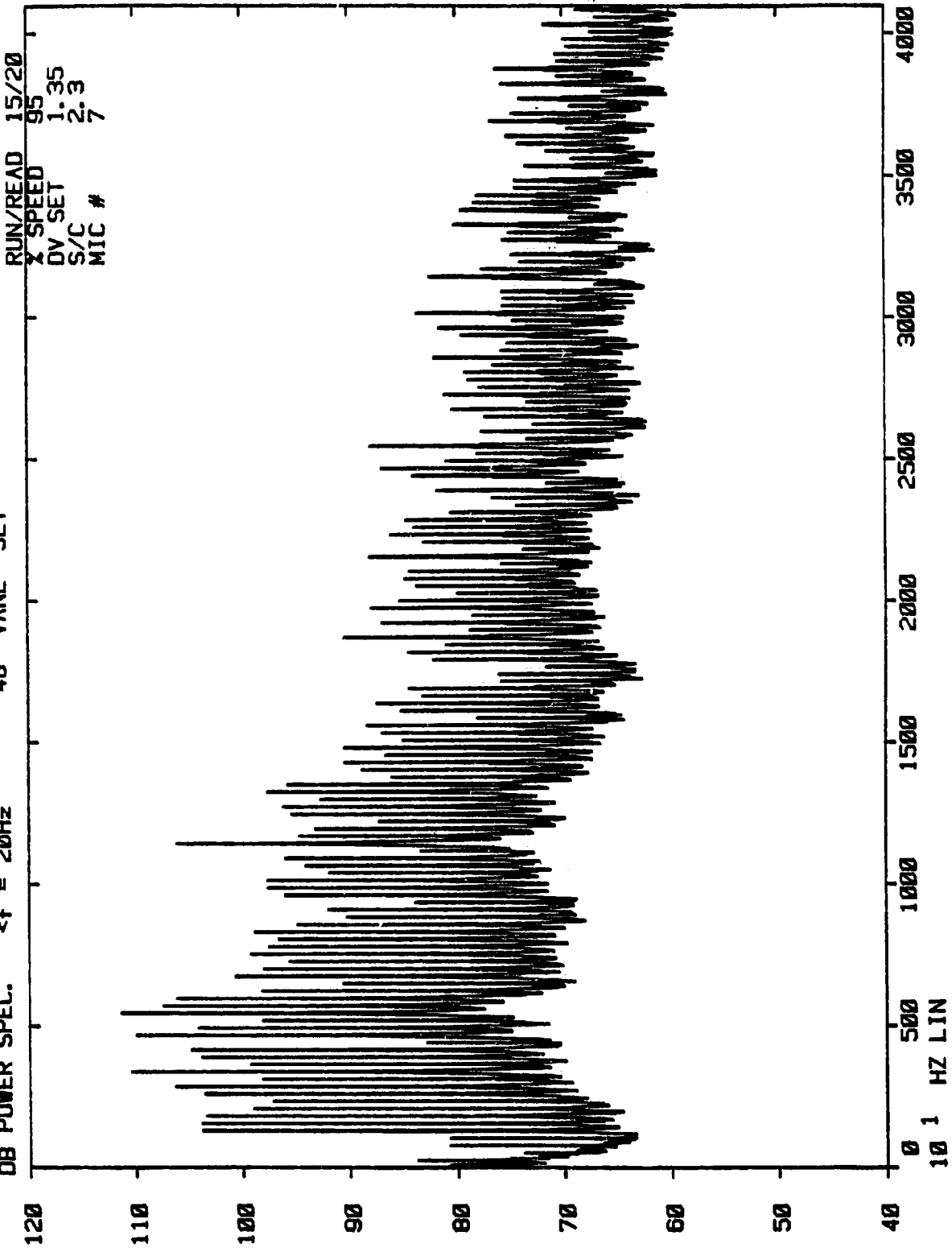
DB POWER SPEC. $\Delta f = 20\text{Hz}$

RUN/READ 15/20
X SPEED 95
DV SET 1.35
S/C 2.3
MIC # 6



NASA V/B STUDY
48 VANE SET

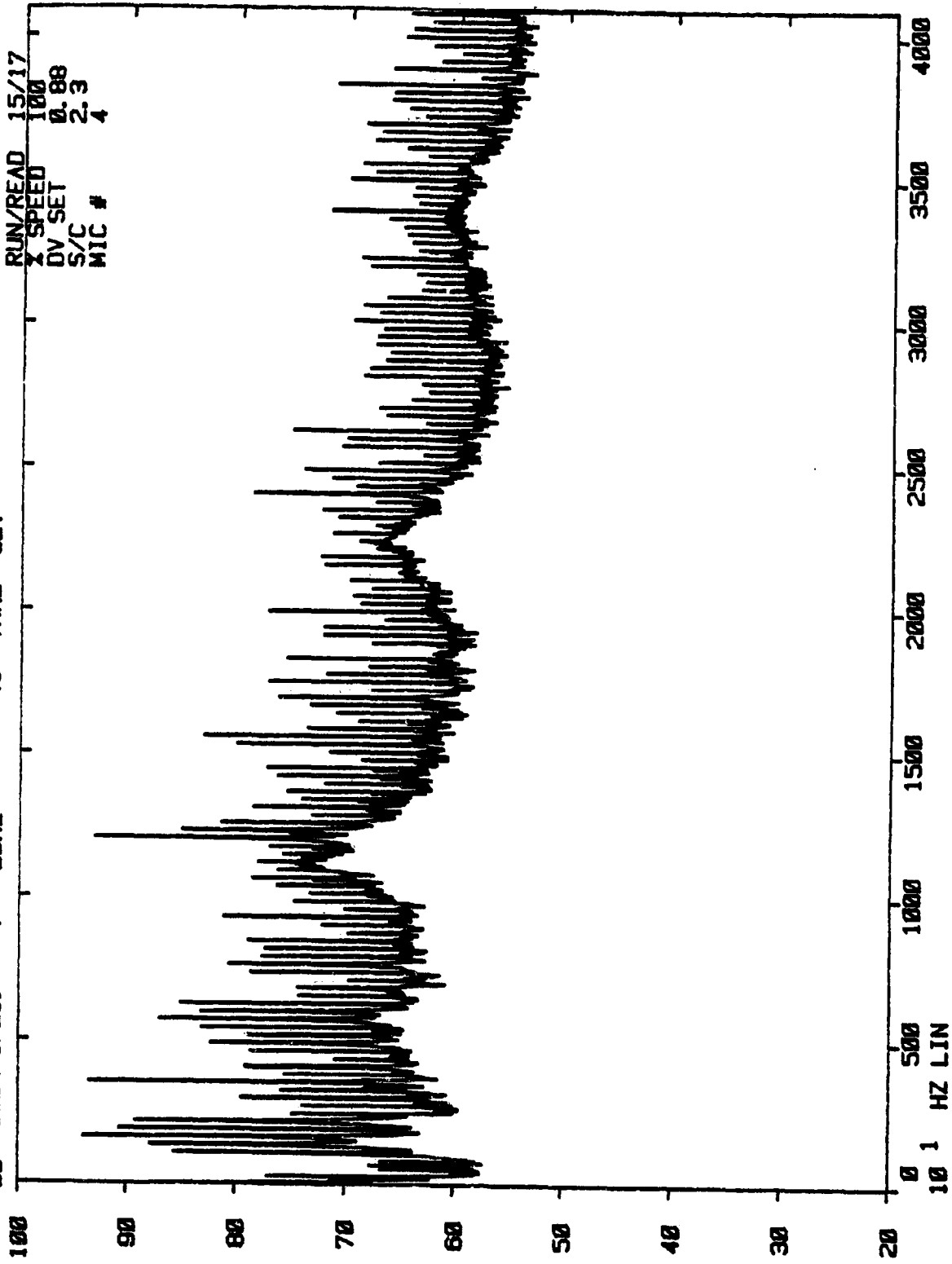
DB POWER SPEC. $<f = 20\text{Hz}$

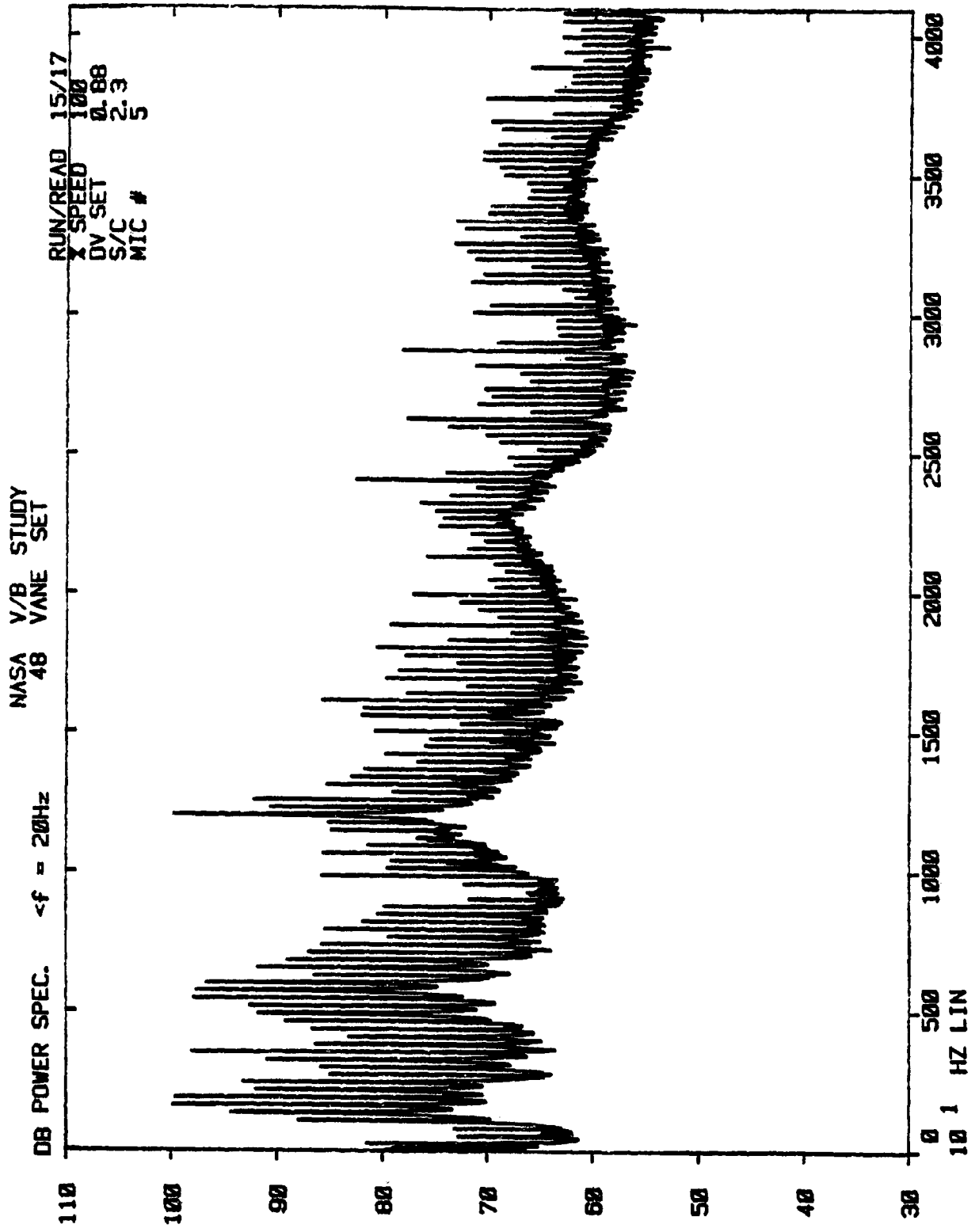


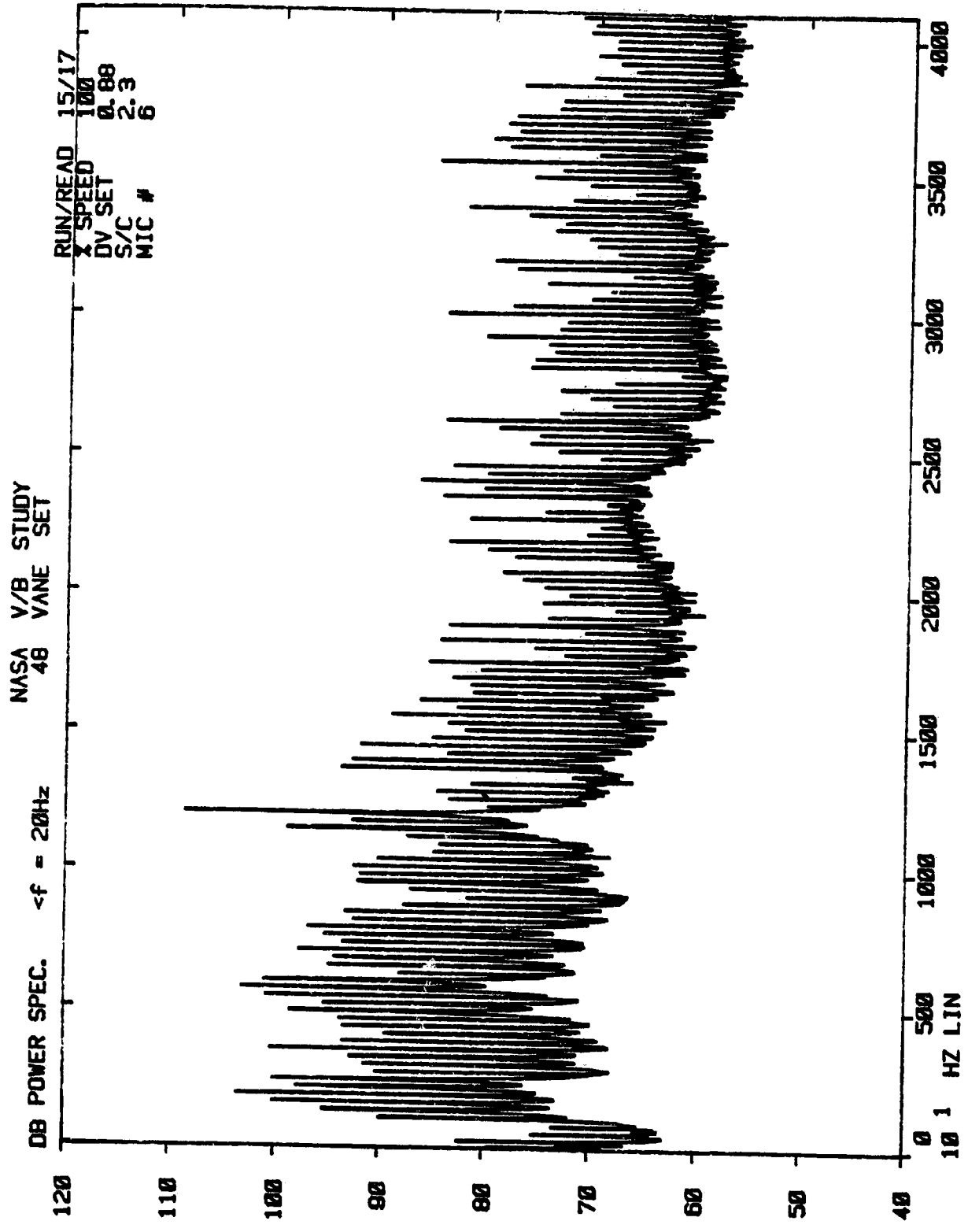
NASA V/B STUDY
48 VANE SET

<f = 20Hz

DB POWER SPEC.





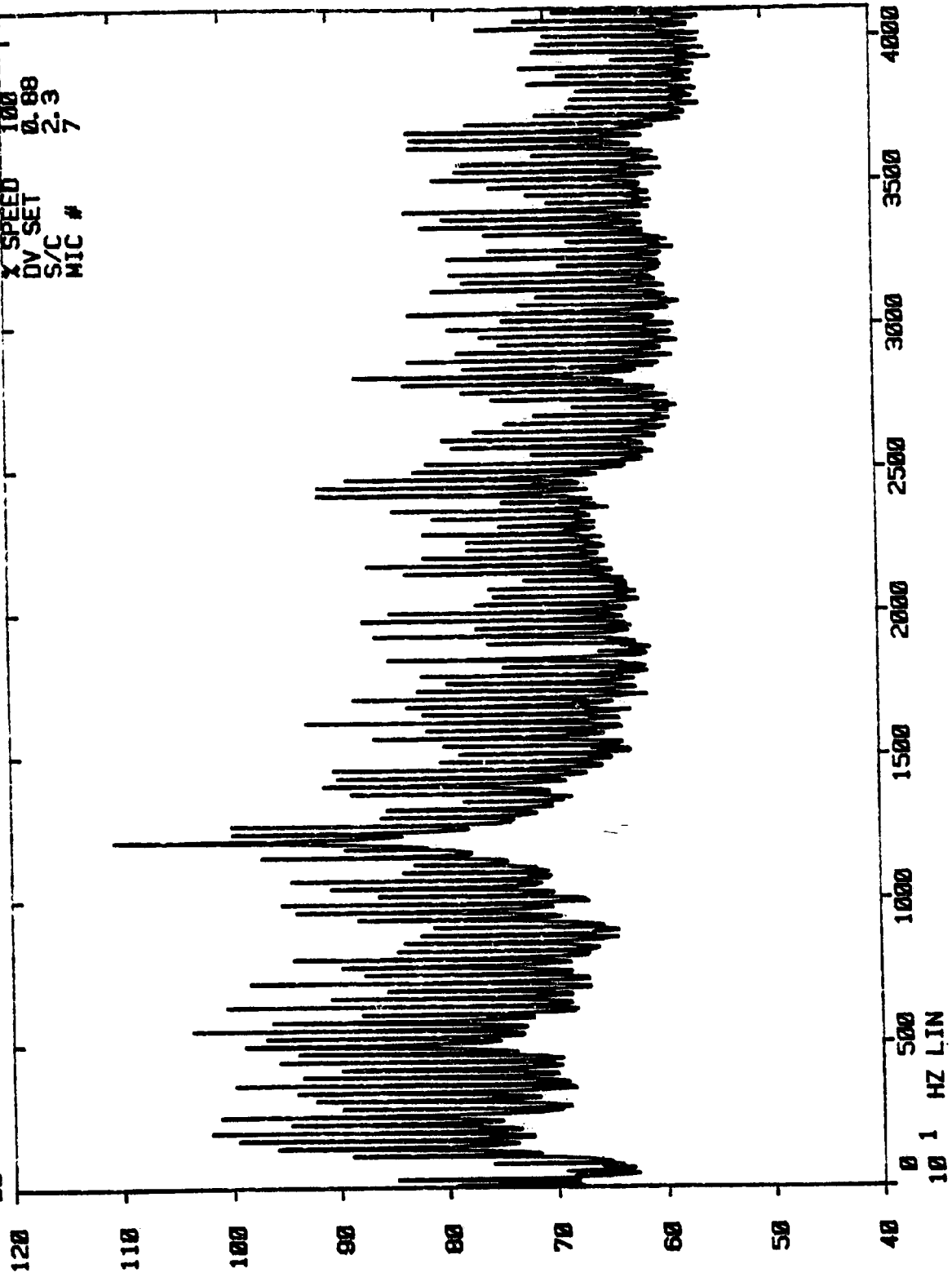


NASA V/B STUDY
48 VANE SET

<f = 20Hz

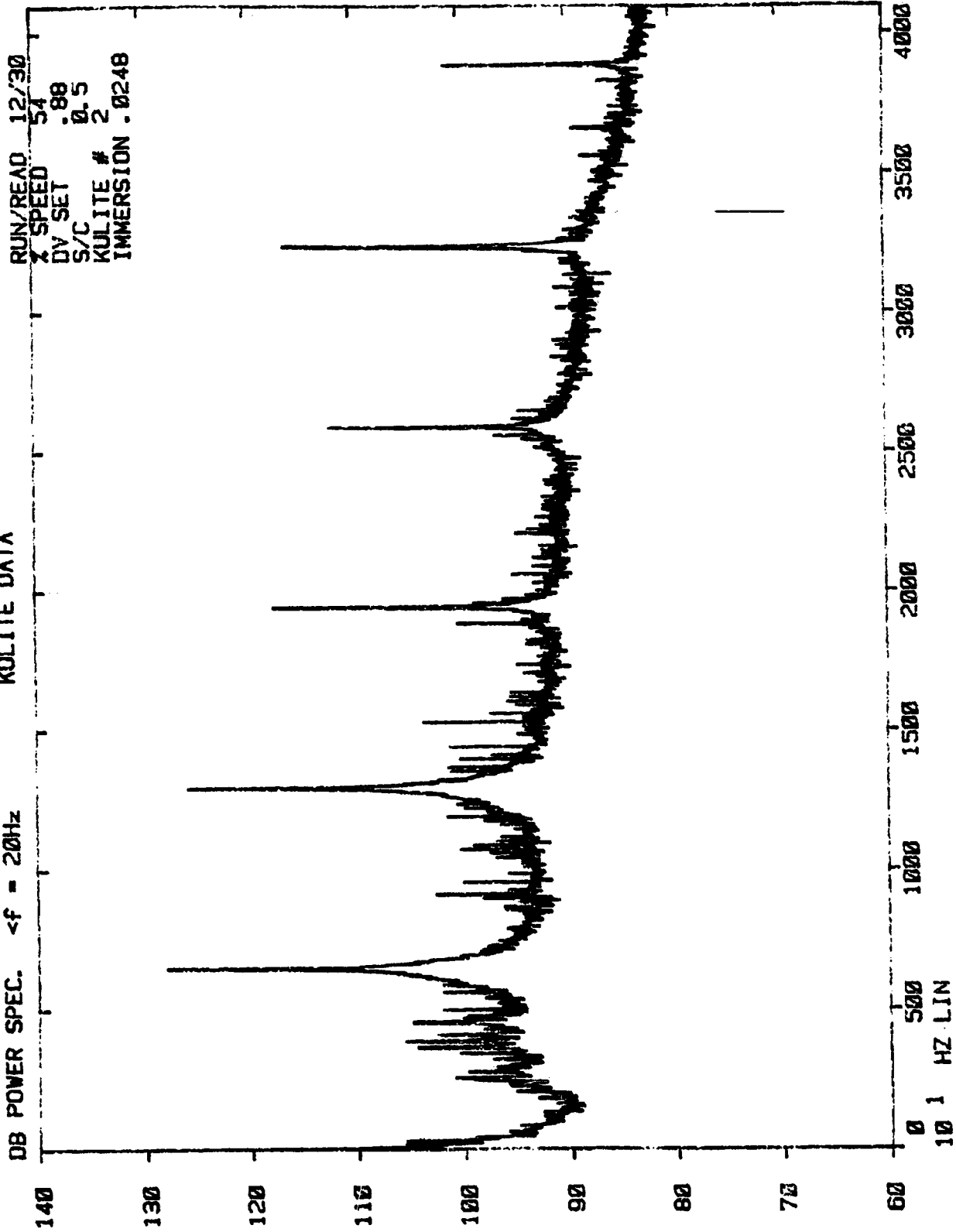
DB POWER SPEC.

RUN/READ 15/17
X SPEED 100
DV SET 0.88
S/C 2.3
MIC # 7



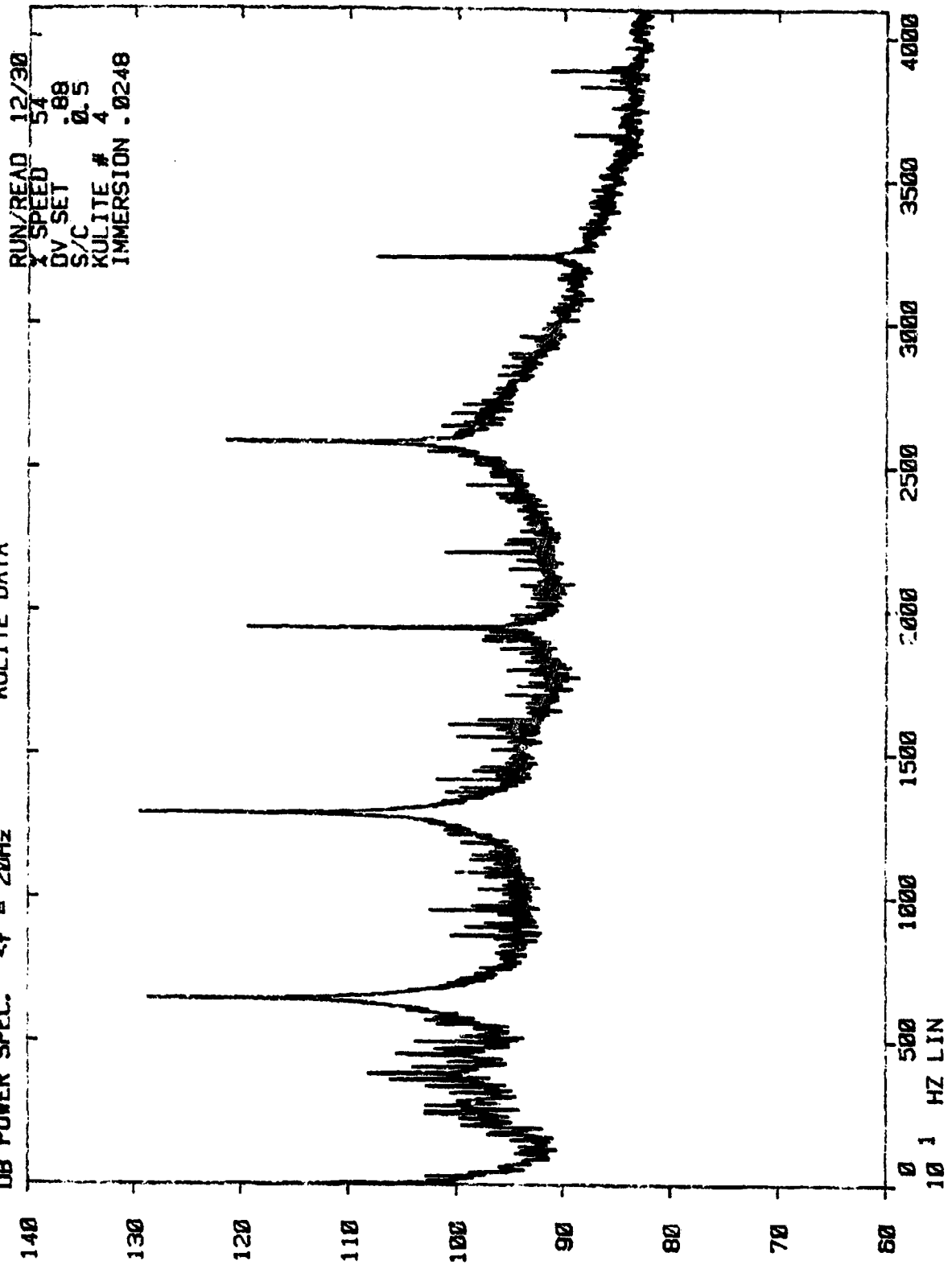
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



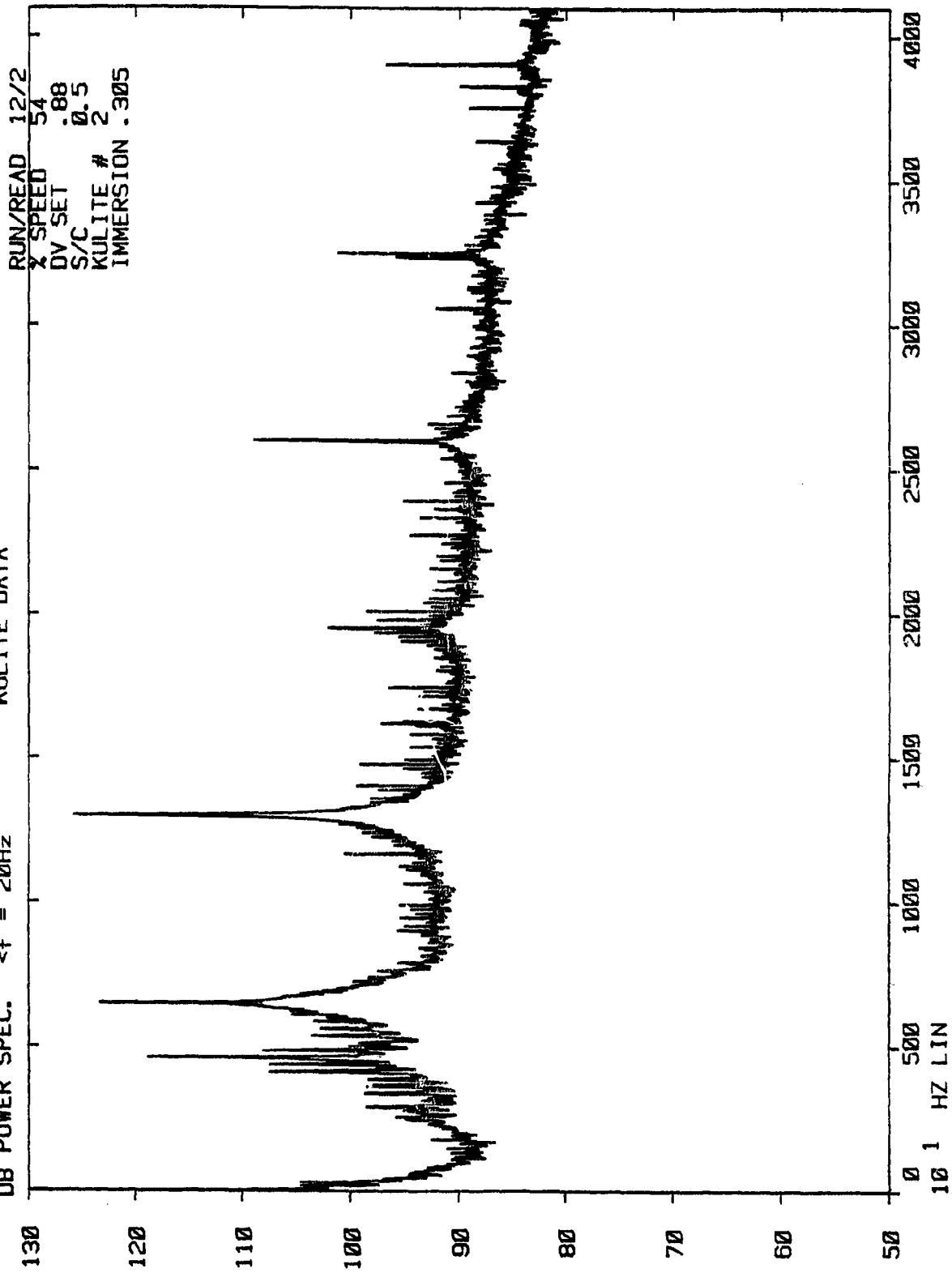
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

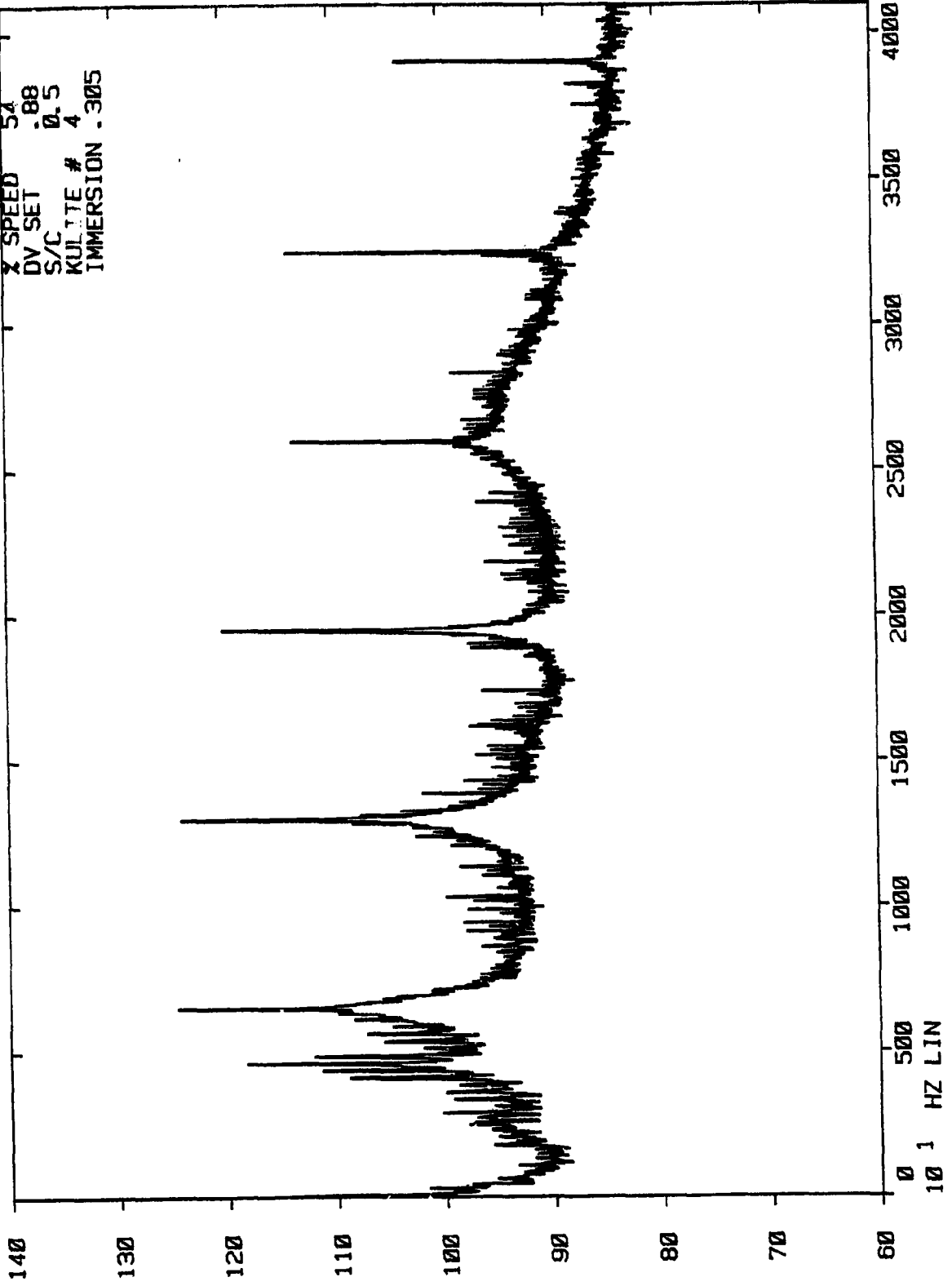
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$

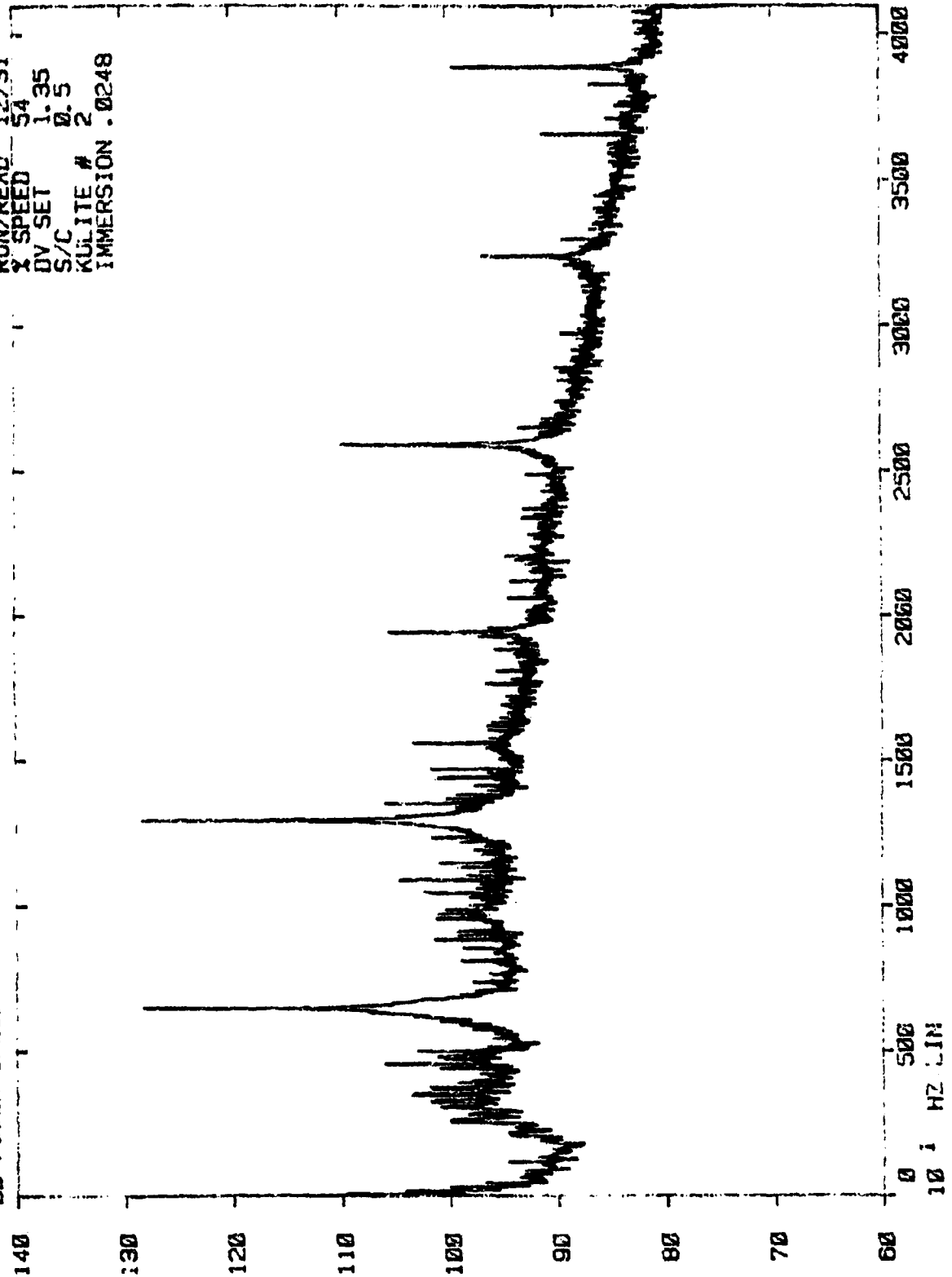
RUN/READ 12/2
X SPEED 54
DV SET .88
S/C 0.5
KULITE # 4
IMMERSION .305



NASA V/B STUDY
KULITE DATA

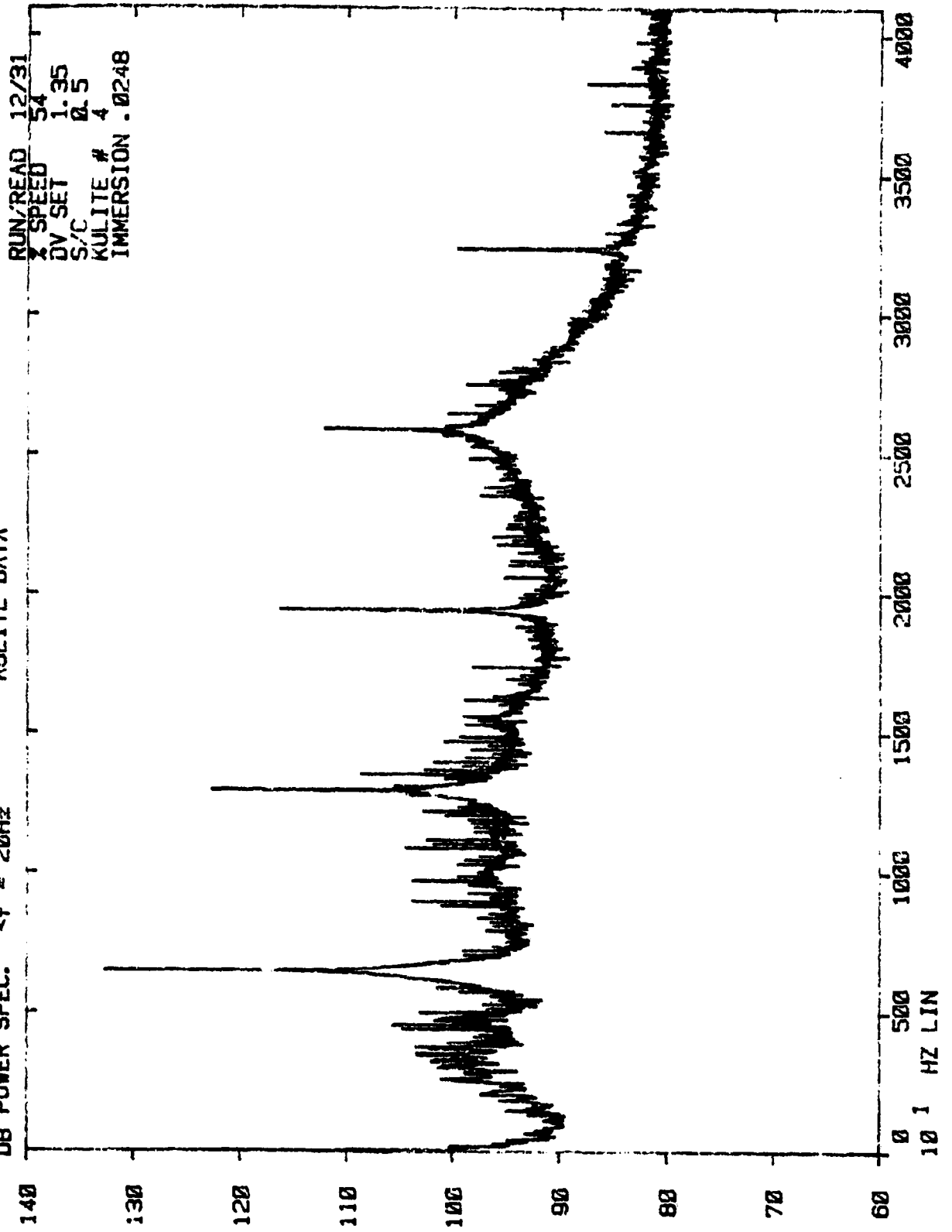
DB POWER SPEC. $\Delta f = 20\text{Hz}$

RUN/READ 12/31
SPEED 54
DV SET 1.35
S/C 0.5
KULITE # 2
IMMERSION .0248



NASA V/B STUDY
KULITE DATA

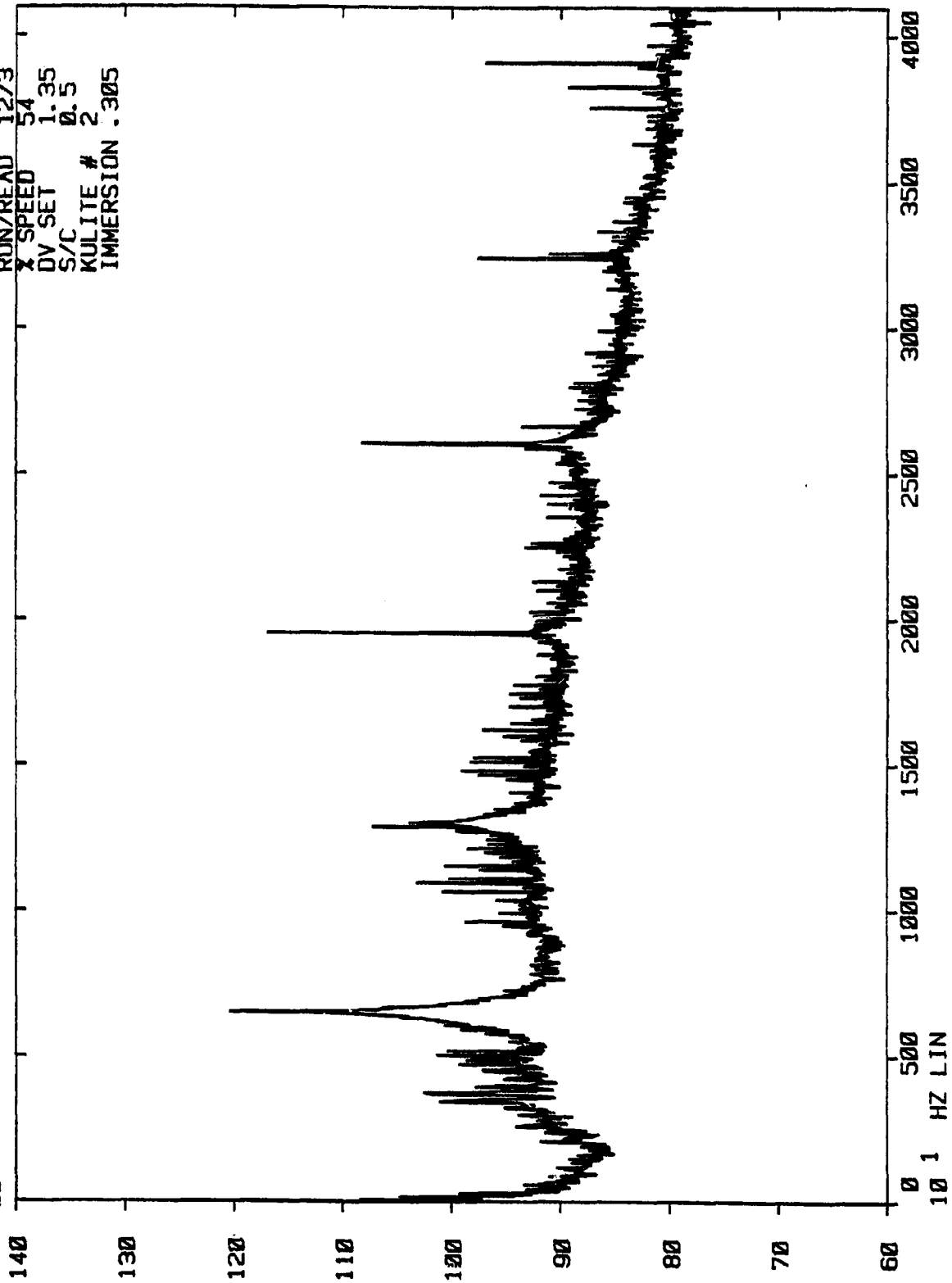
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

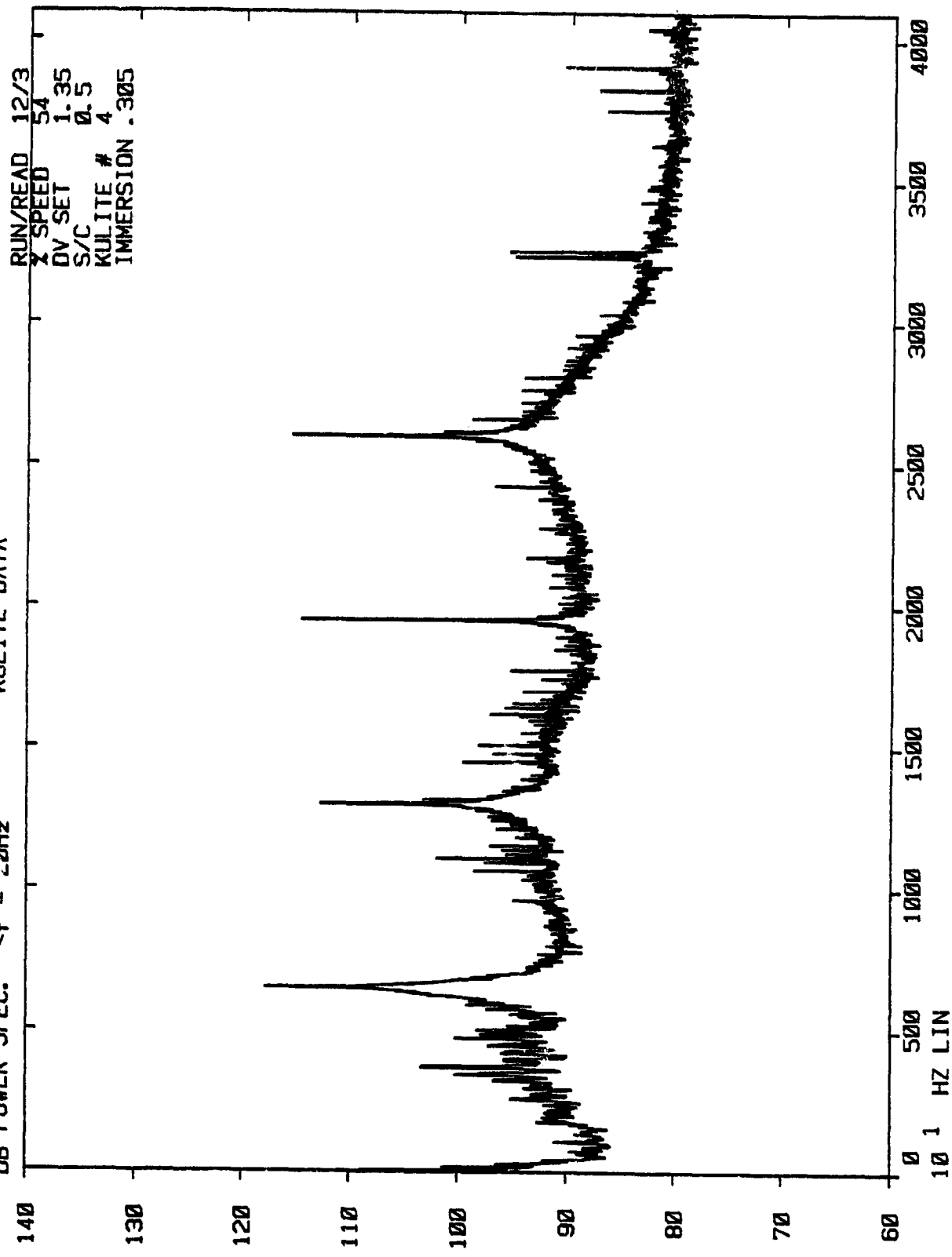
DB POWER SPEC. $<f = 20\text{Hz}$

RUN/READ 12/3
X SPEED 54
DV SET 1.35
S/C 0.5
KULITE # 2
IMMERSION .305



NASA V/B STUDY
KULITE DATA

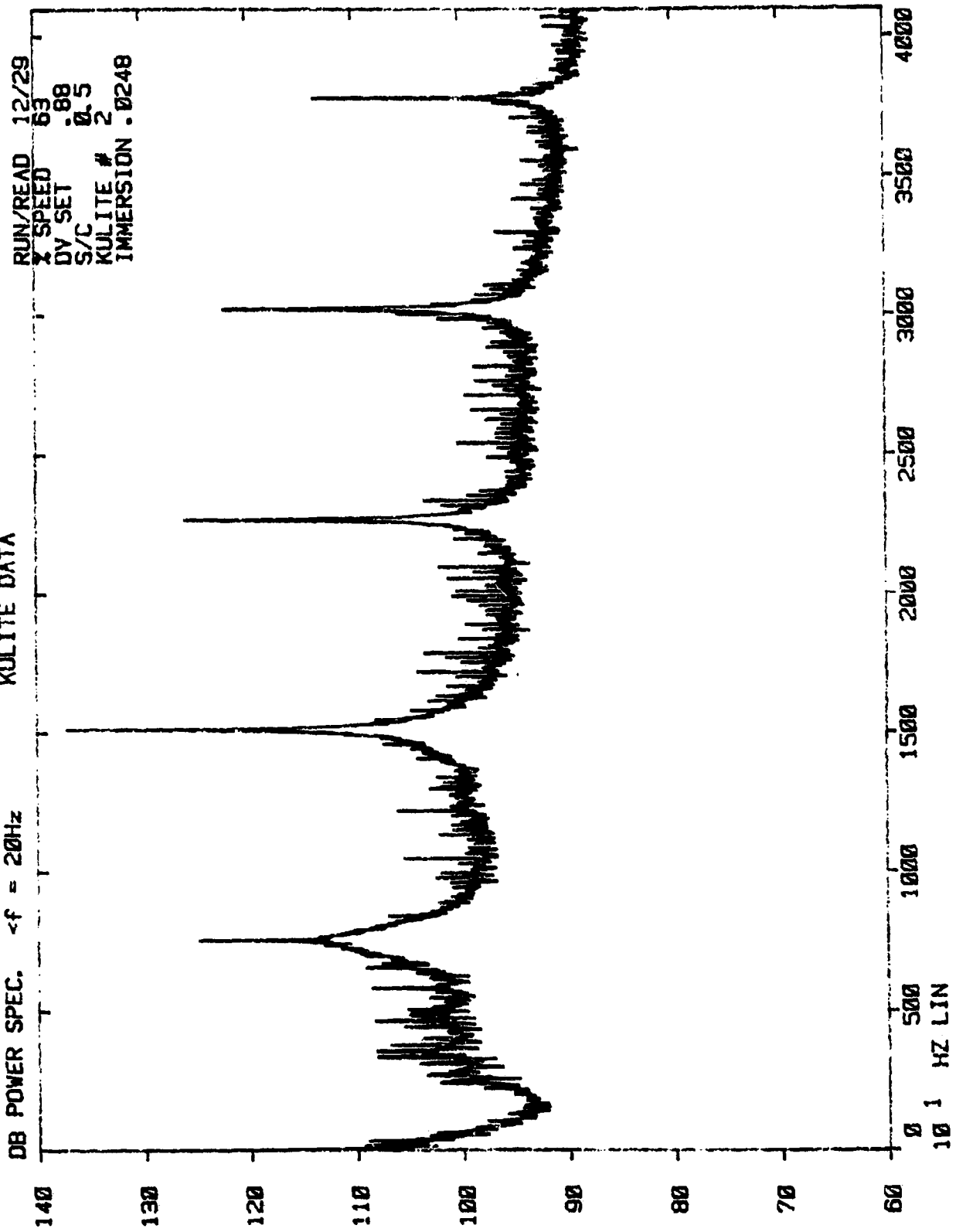
DB POWER SPEC. $\Delta f = 20\text{Hz}$



RUN/READ 12/3
X SPEED 54
DV SET 1.35
S/C 0.5
KULITE # 4
IMMERISION .305

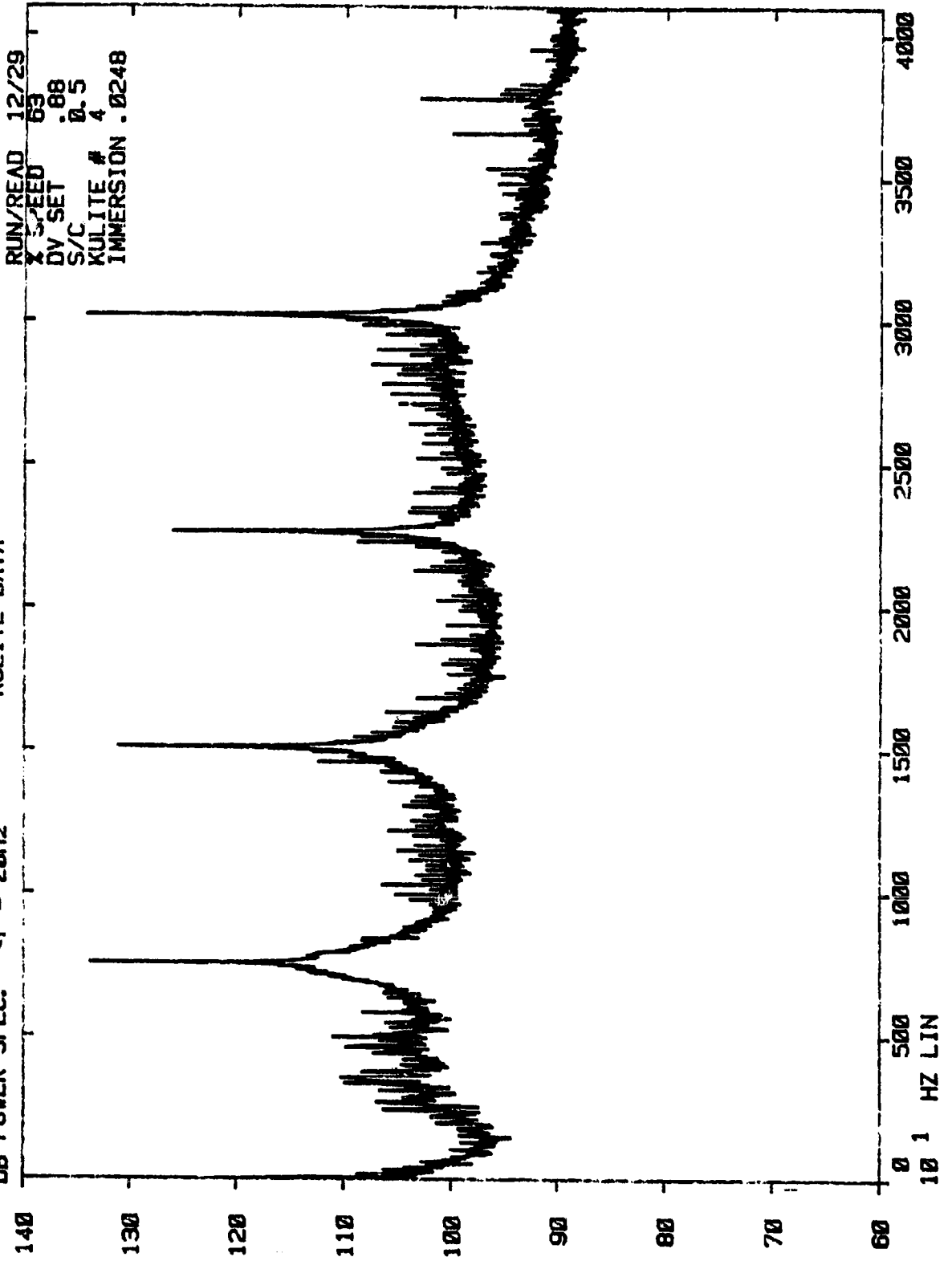
NASA Y/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



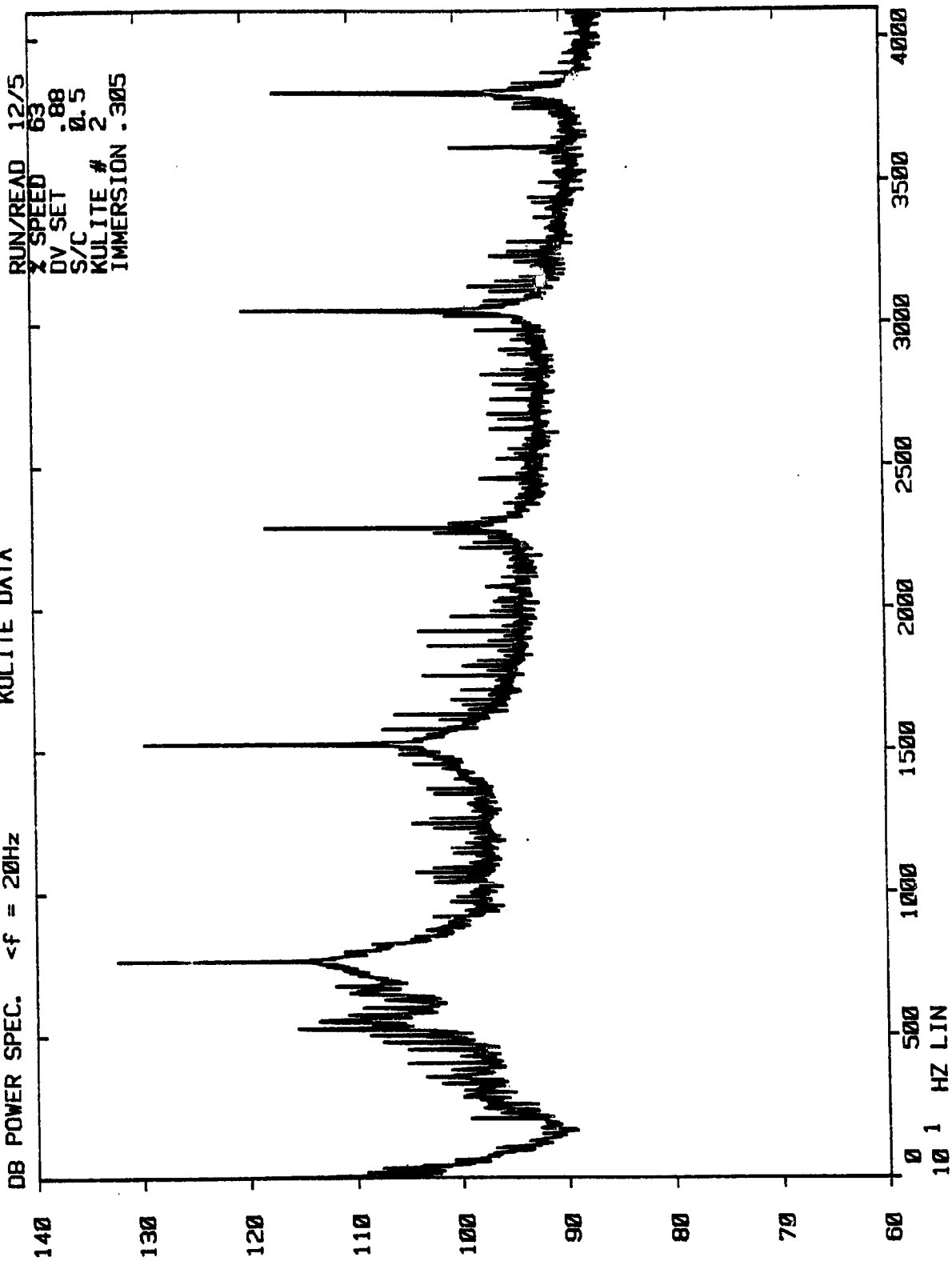
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



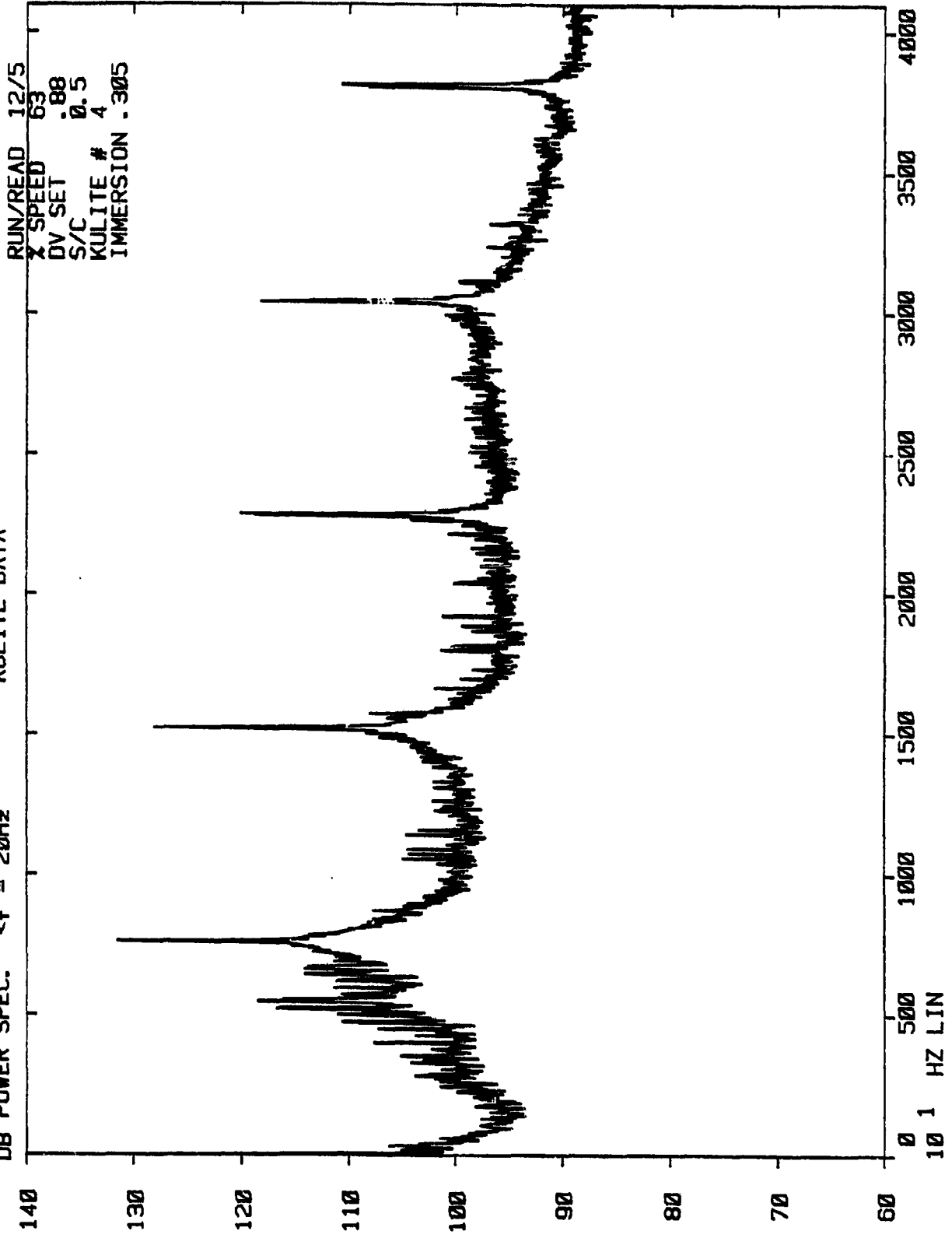
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



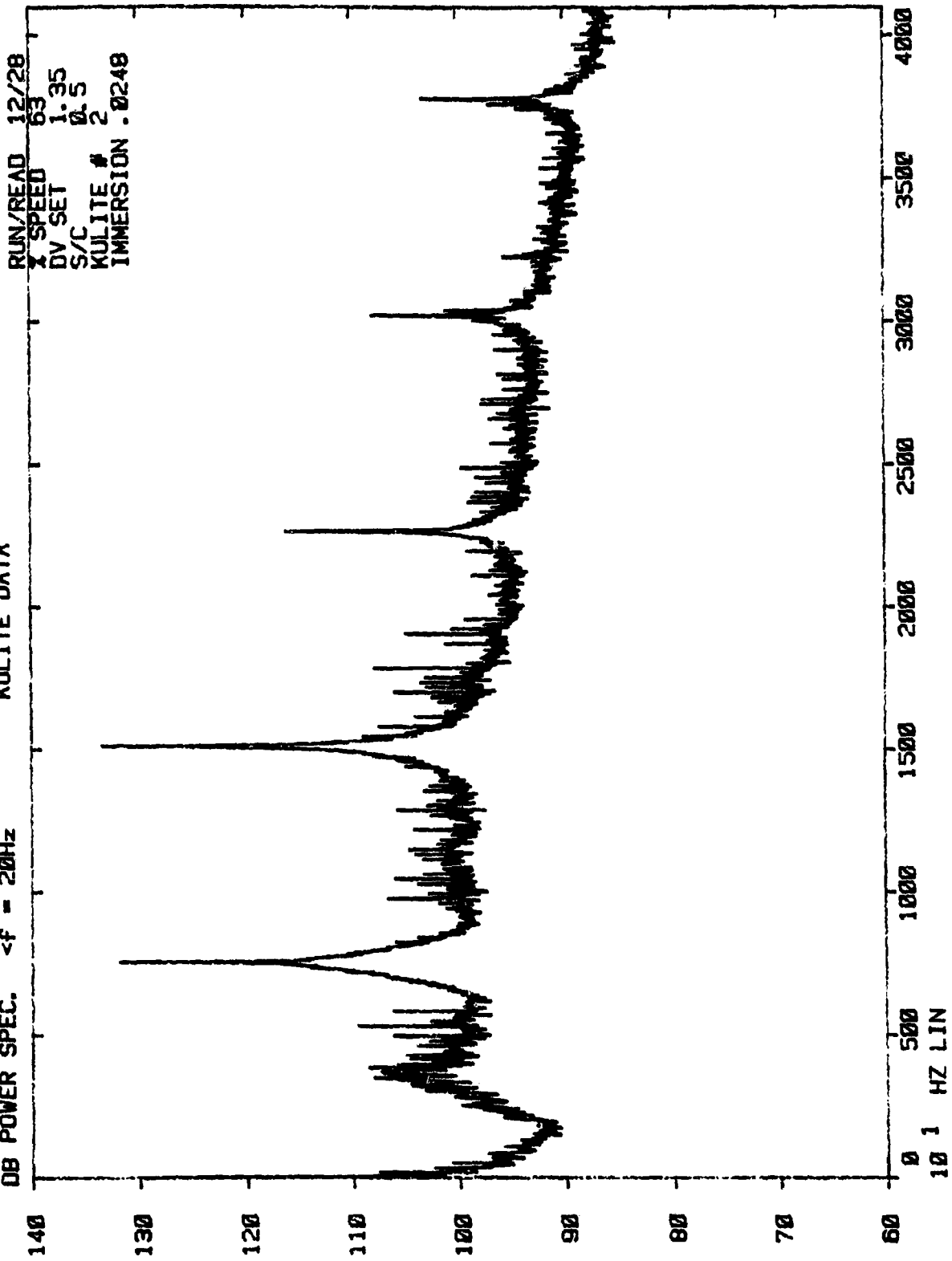
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



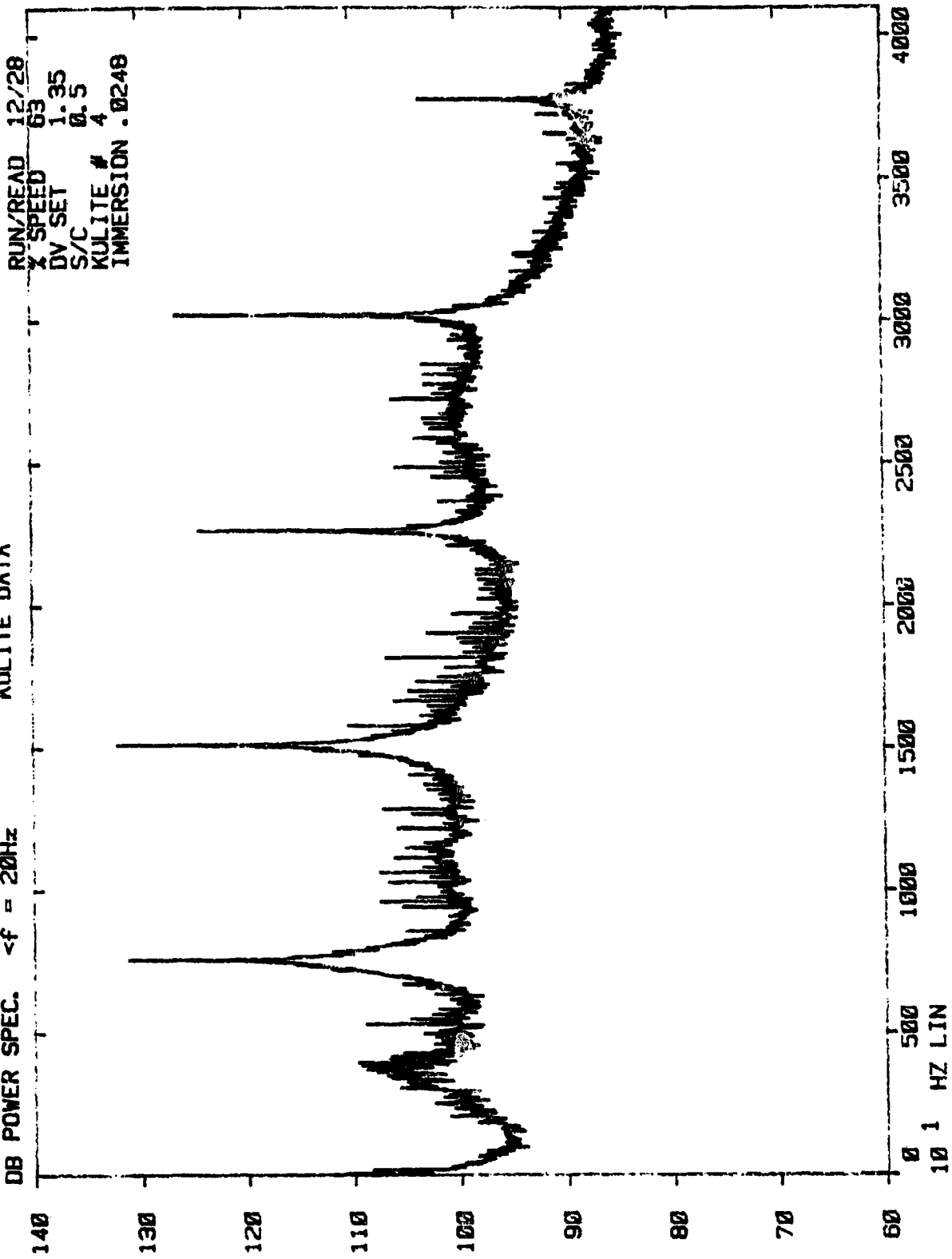
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



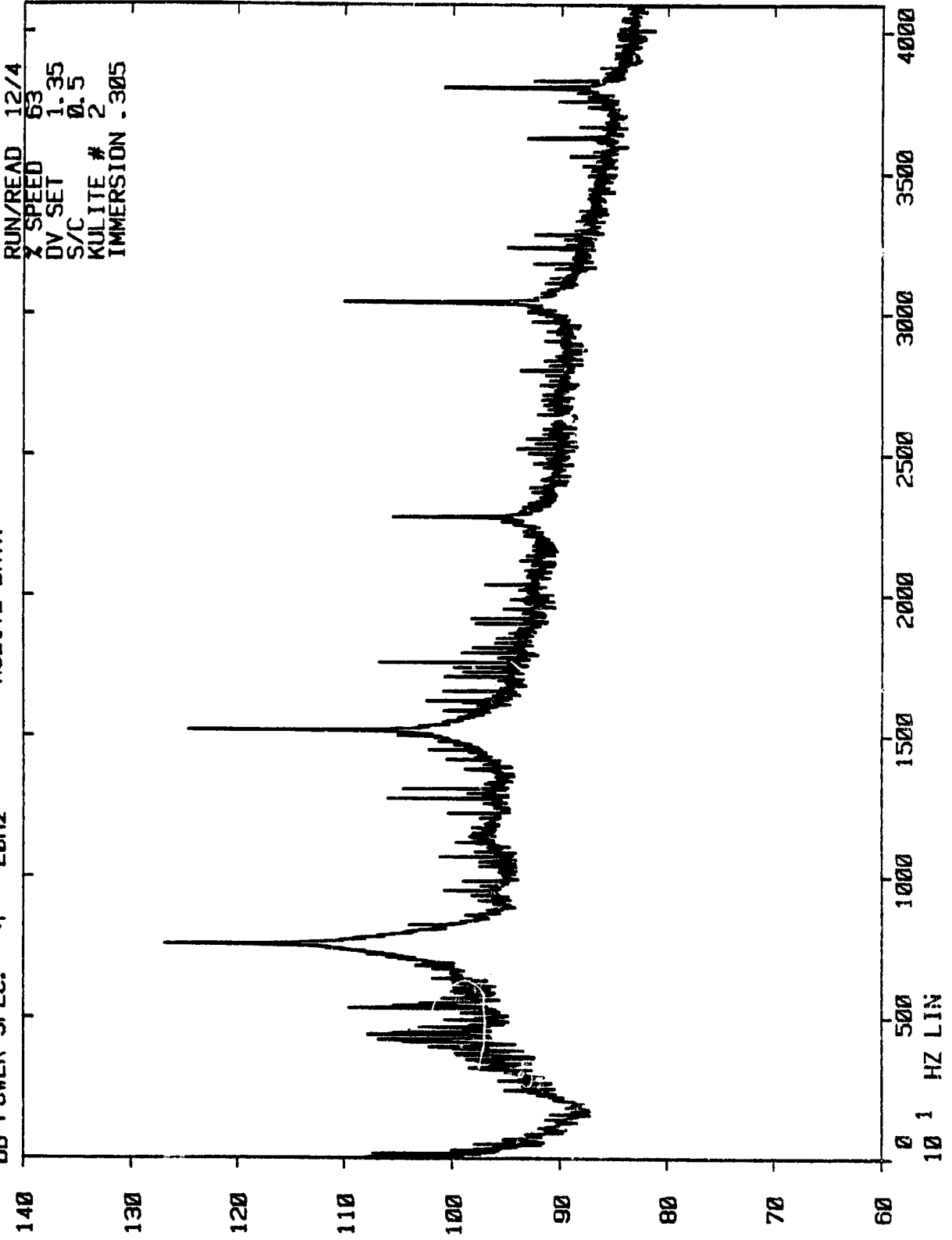
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



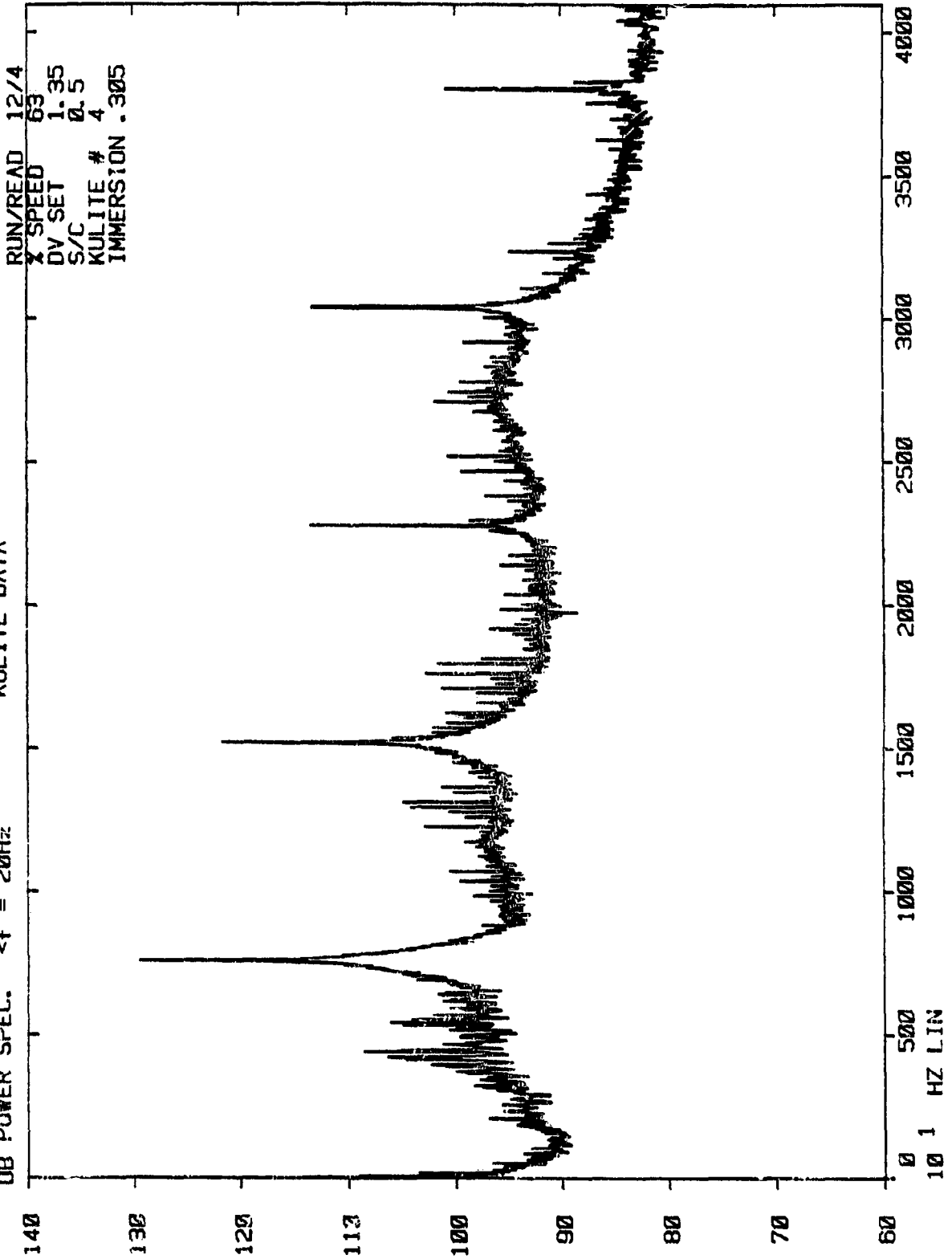
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

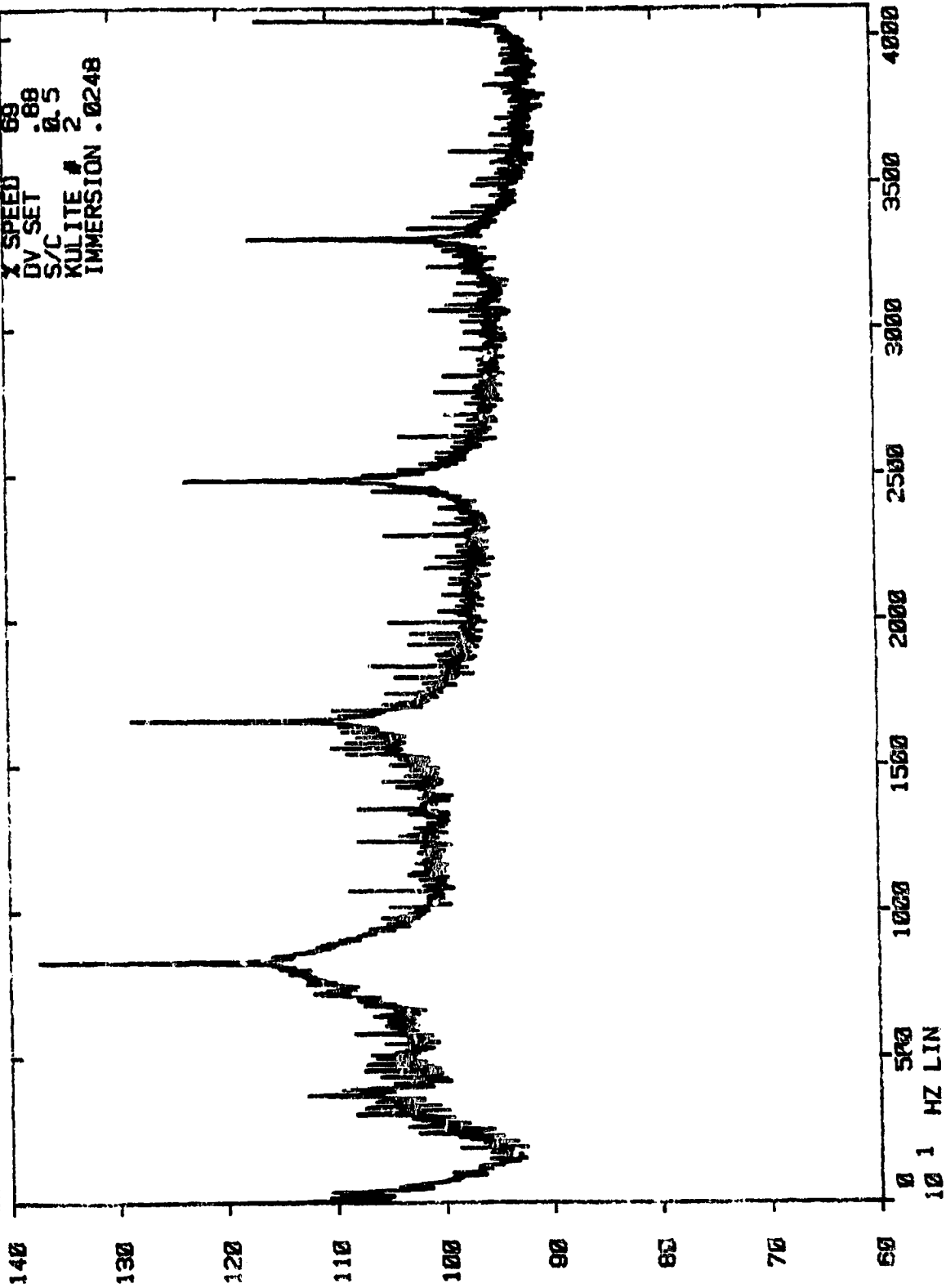
DB POWER SPEC. $<f = 20\text{Hz}$

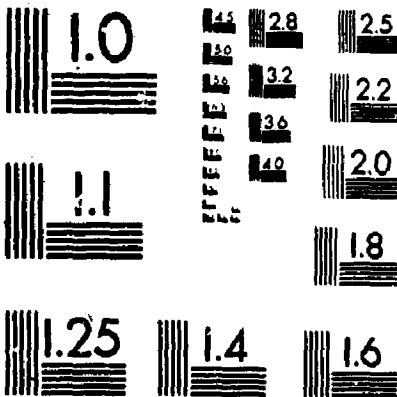


NASA V/B STUDY
KULITE DATA

RUN/READ 12/26
X SPEED 68
DV SET .68
S/C 0.5
KULITE # 2
IMMERSION .0248

DB POWER SPEC. $\langle f = 20\text{Hz}$



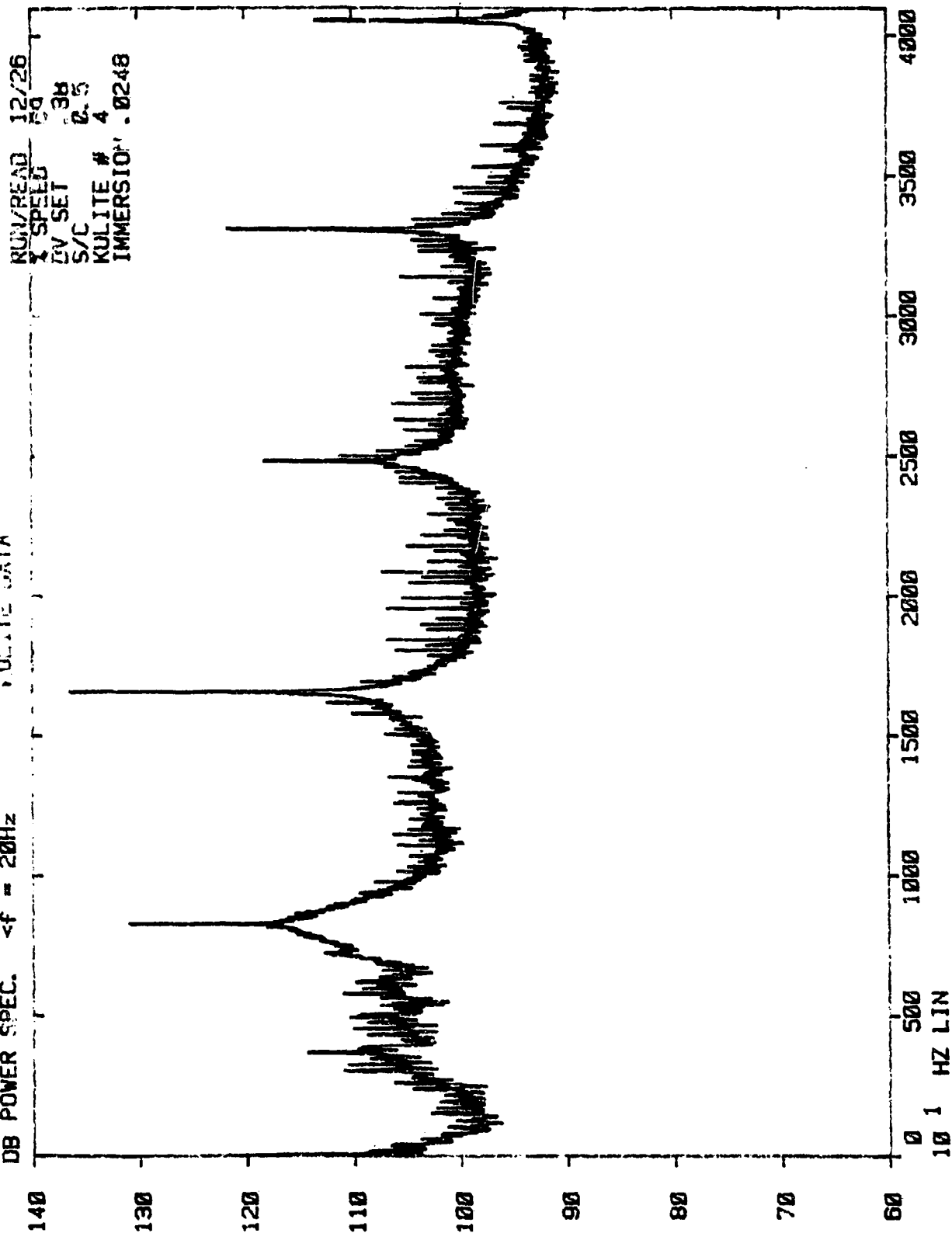


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)



NASA Y2B STUDY
KULITE DATA

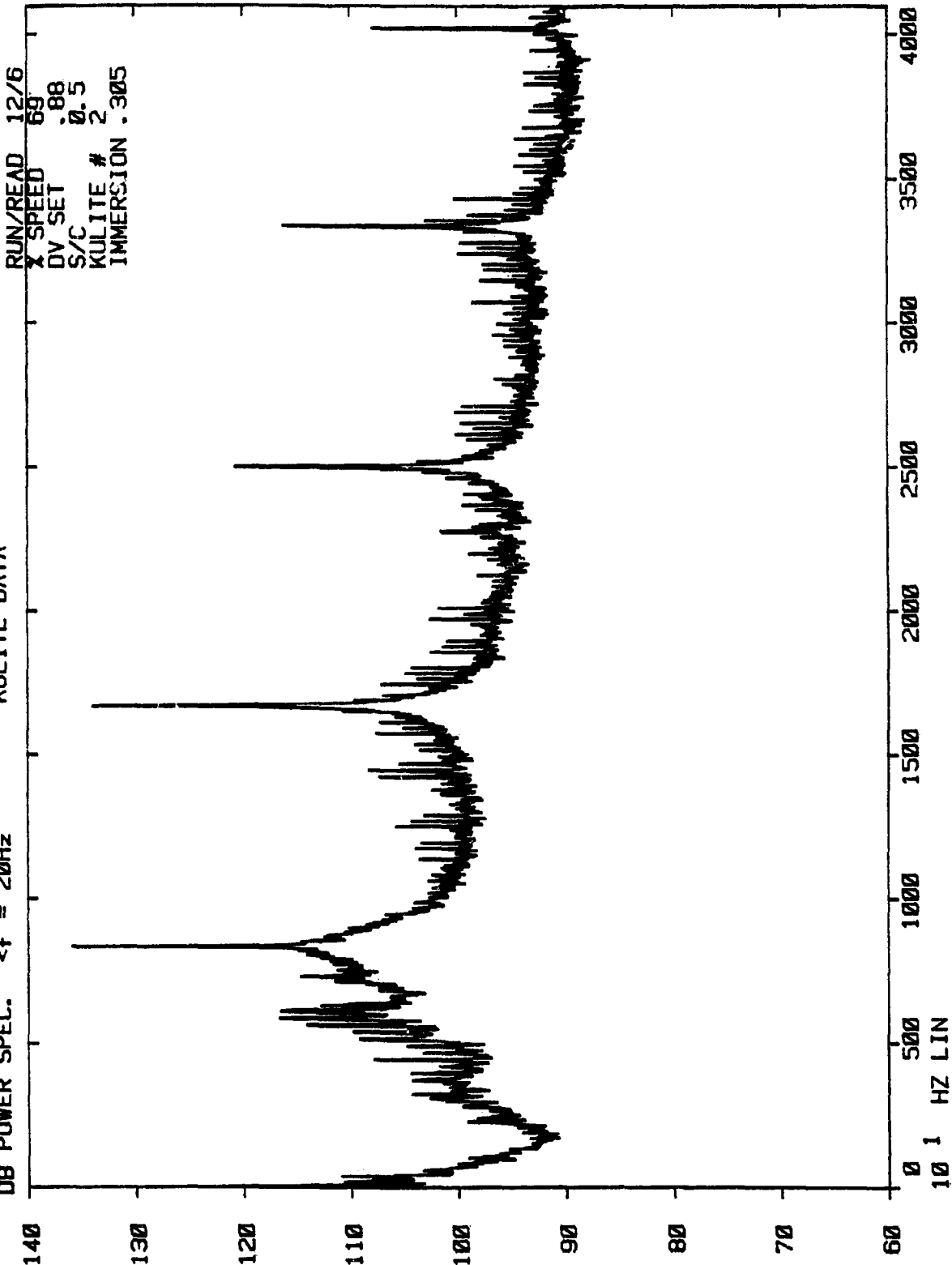
DB POWER SPEC. <f = 20Hz



C-3

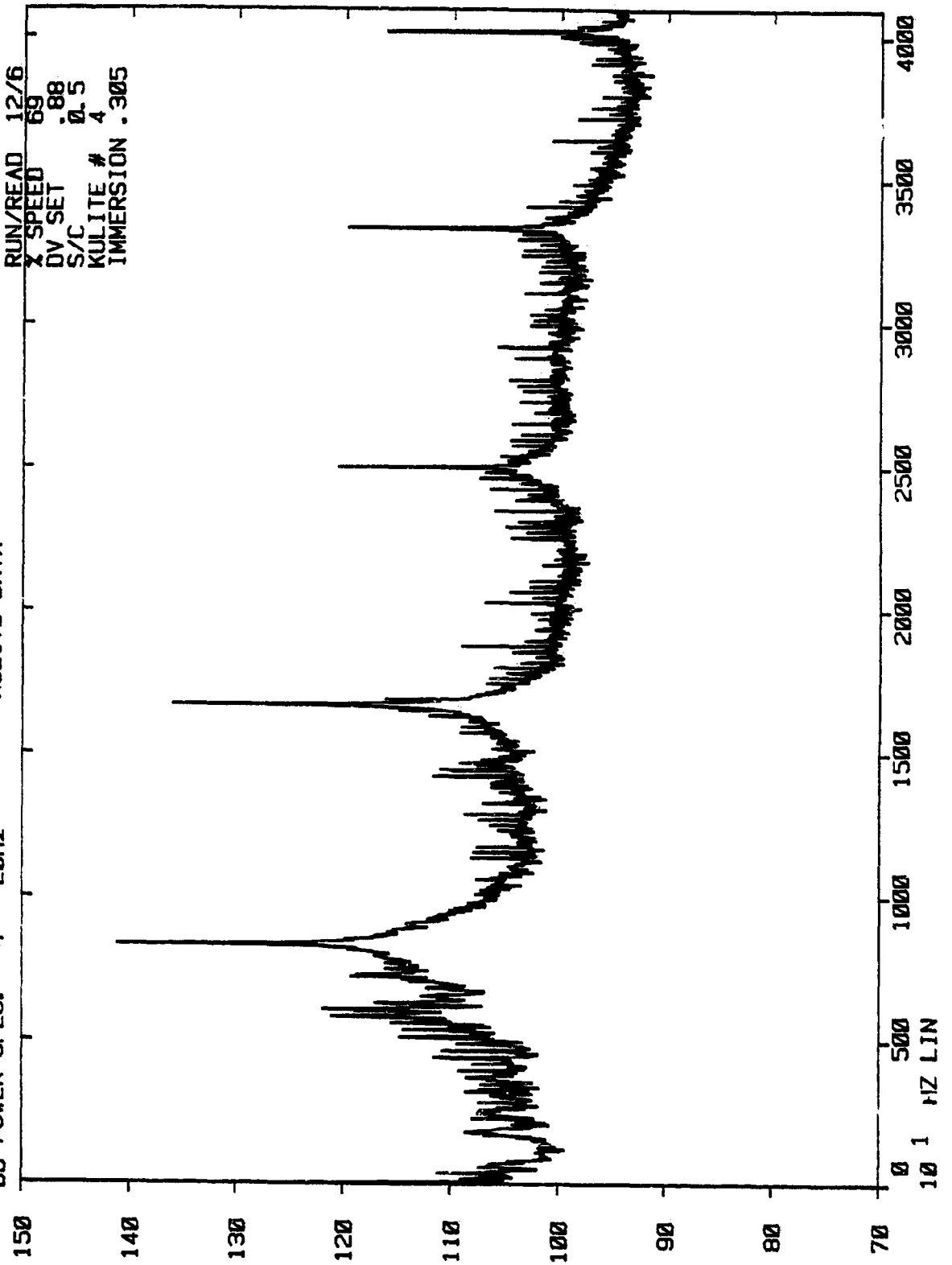
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



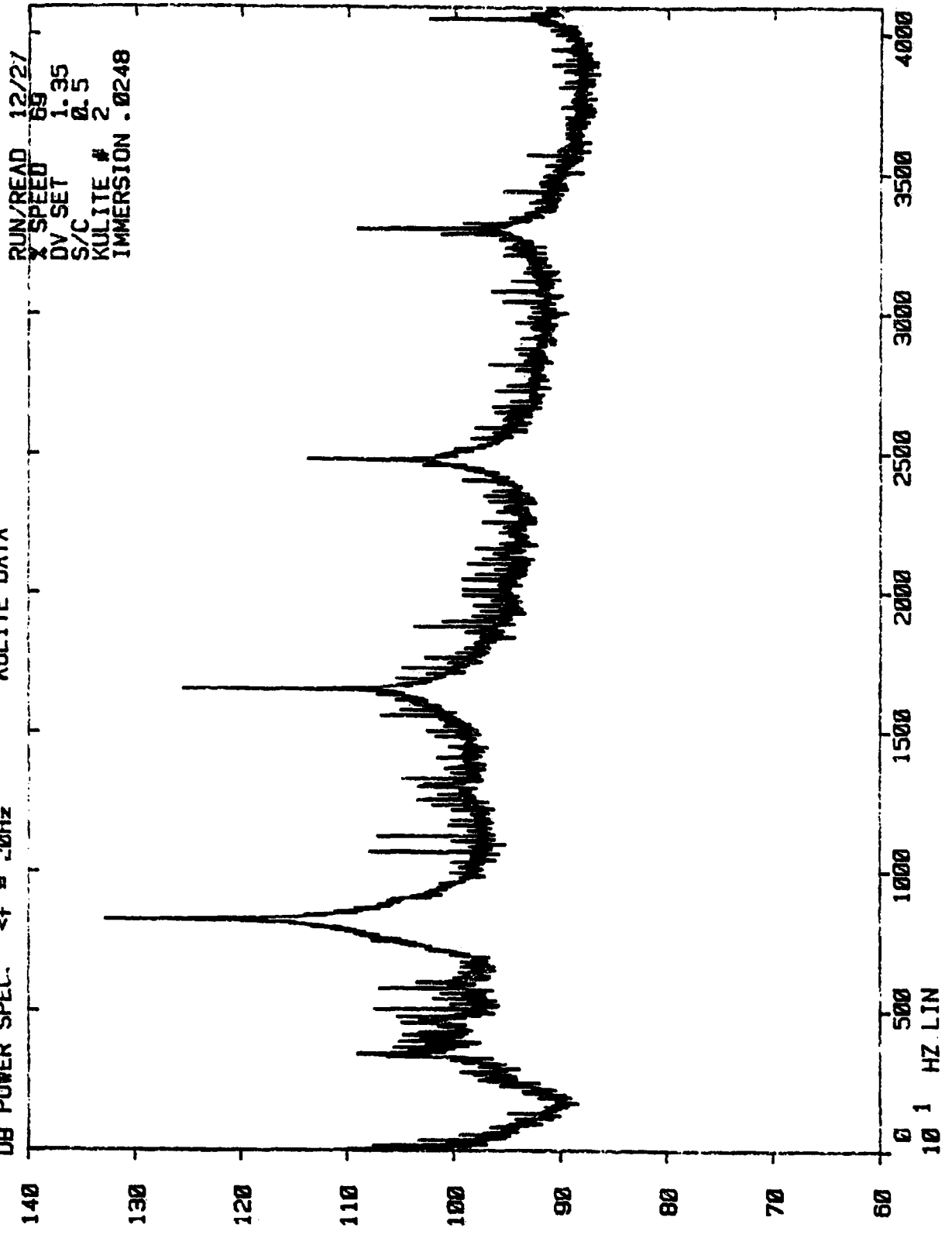
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

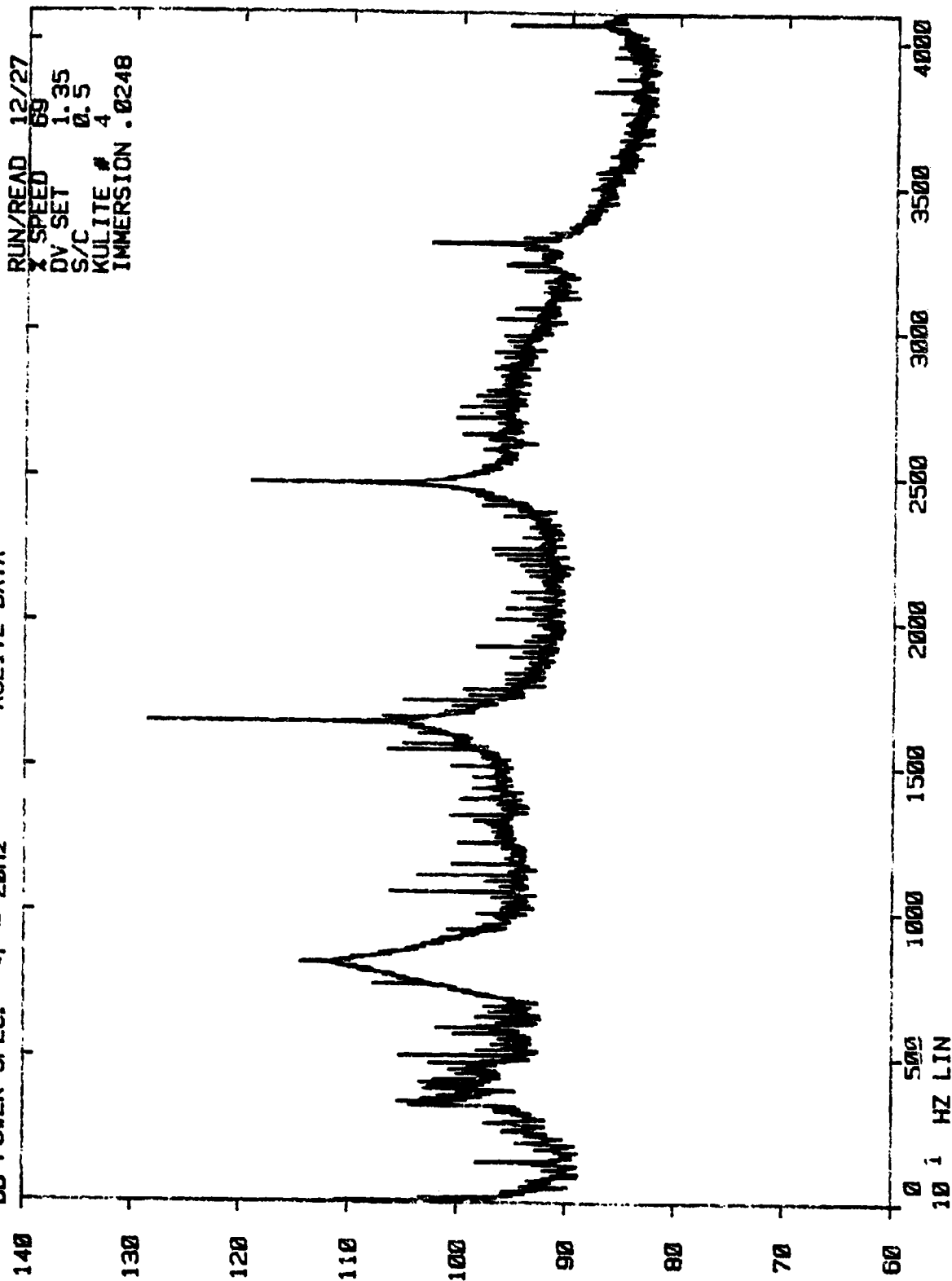
DB POWER SPEC. $\Delta f = 20\text{Hz}$



RUN/READ 12/27
X SPEED 69
DV SET 1.35
S/C 0.5
KULITE # 2
IMMERSION .0248

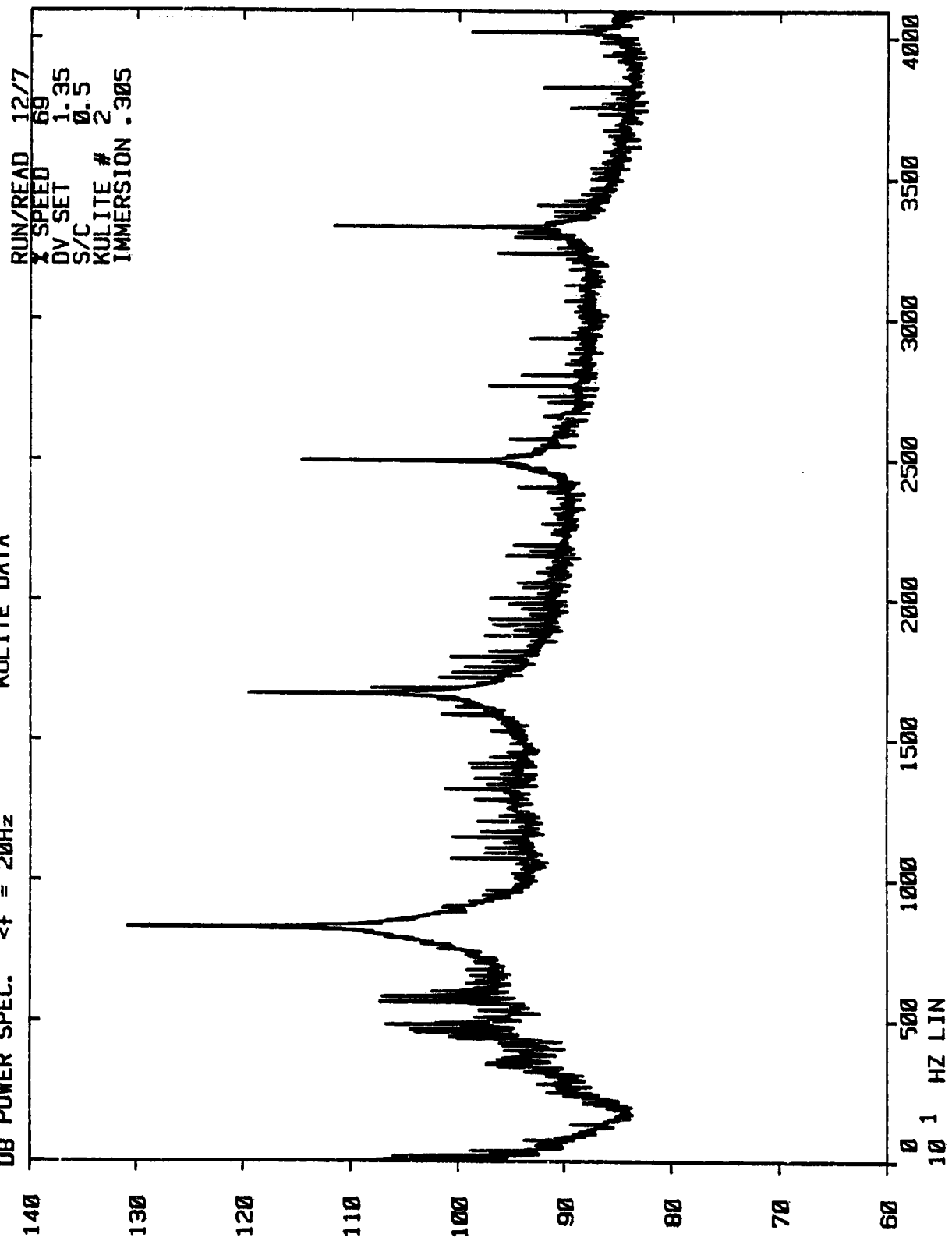
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



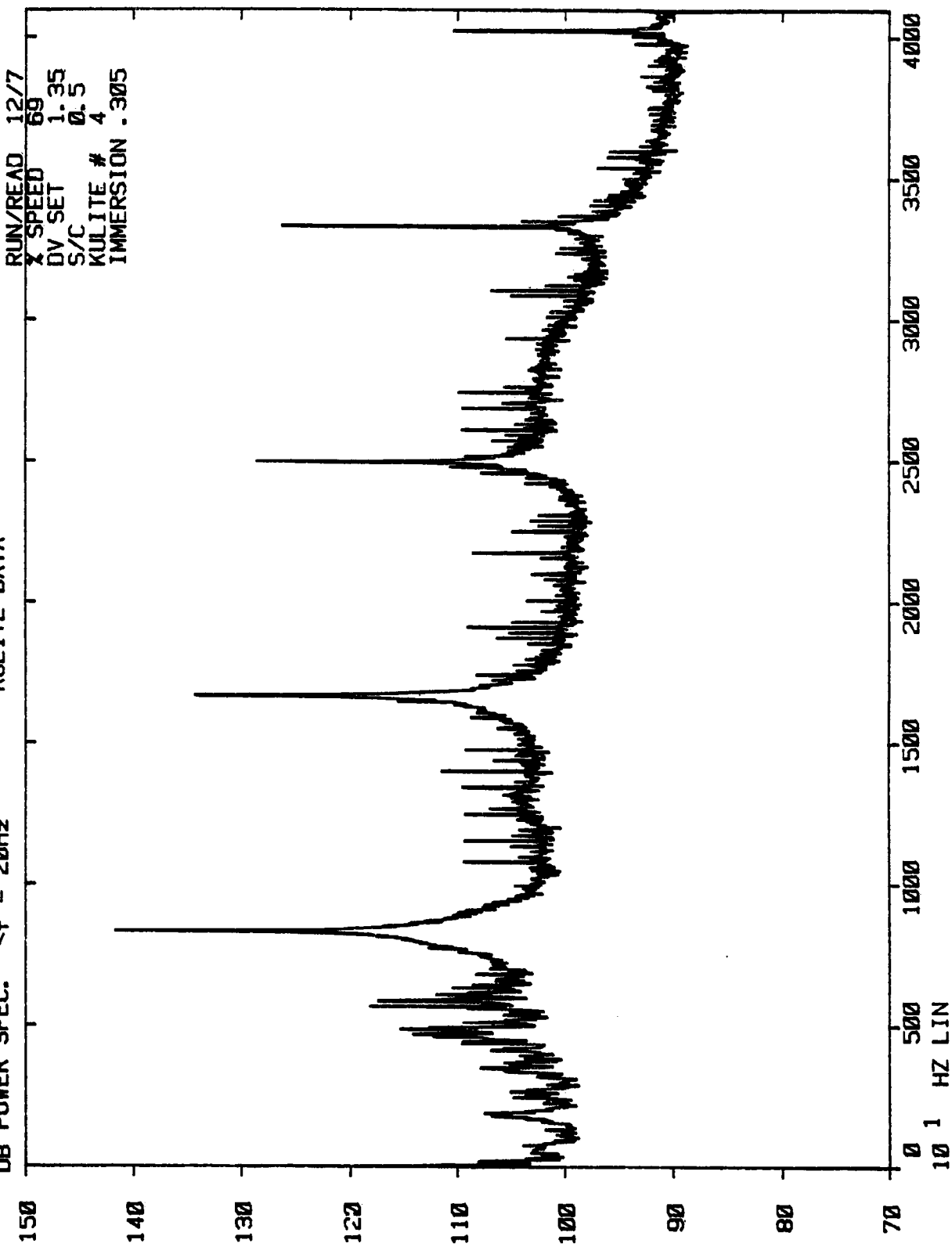
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



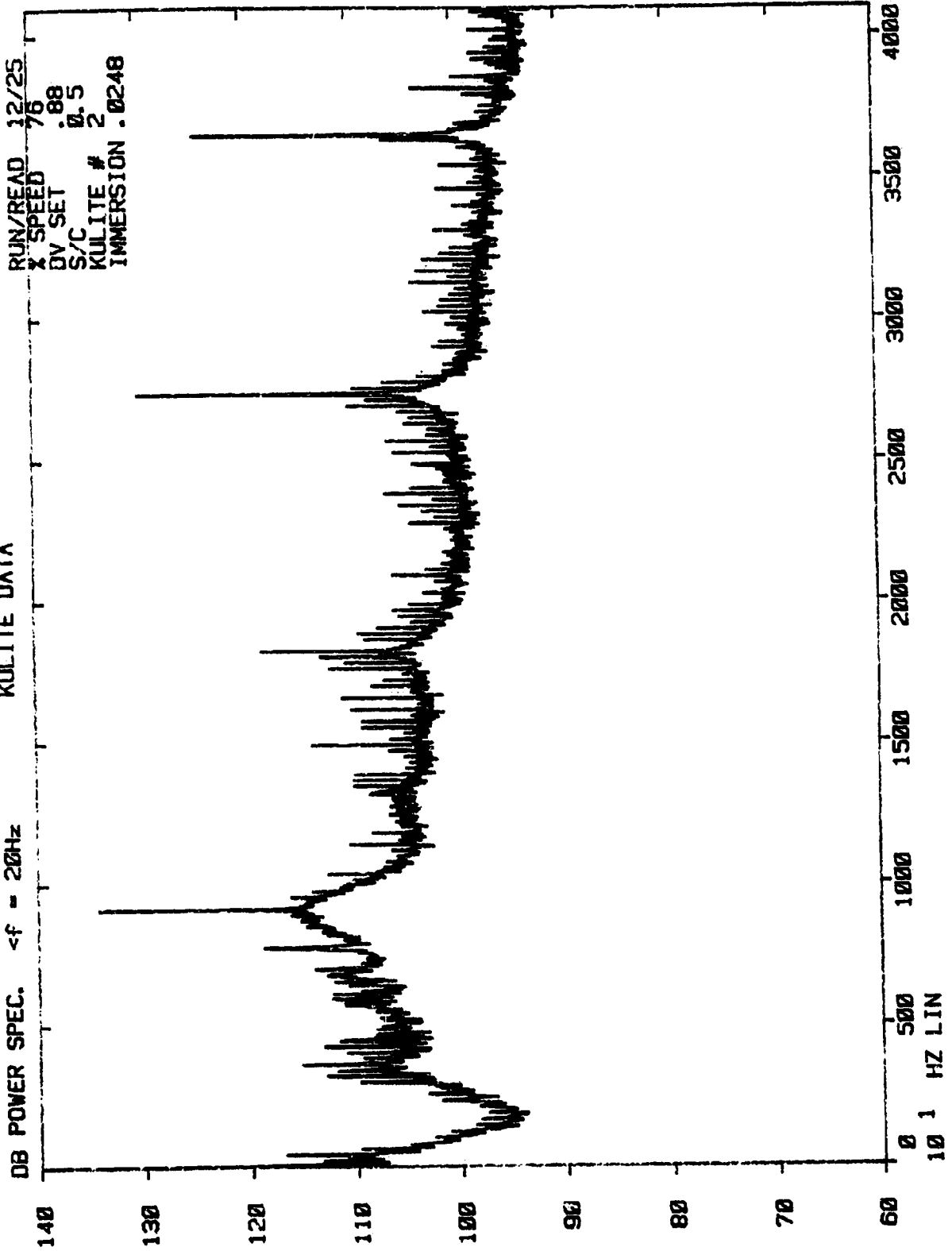
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



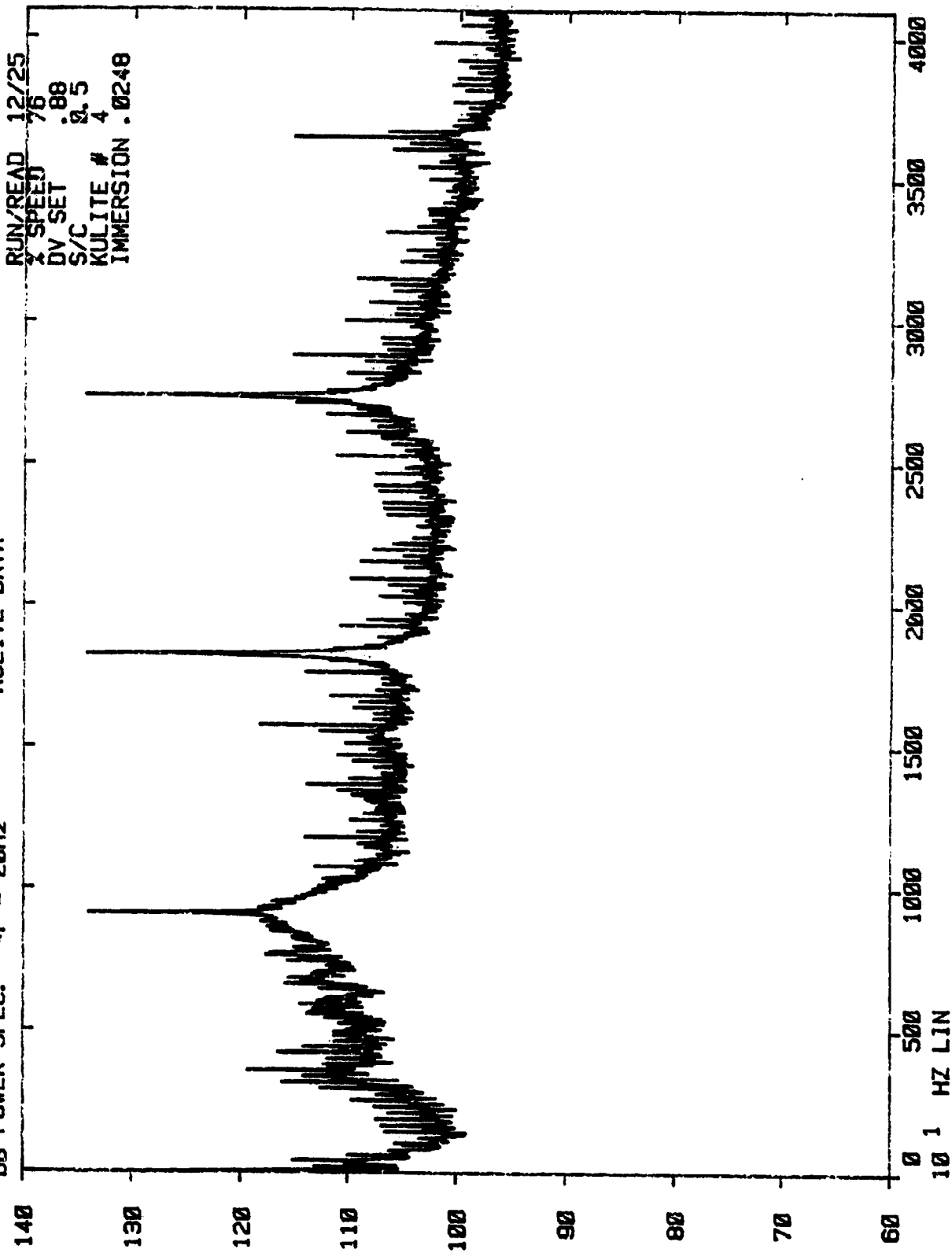
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



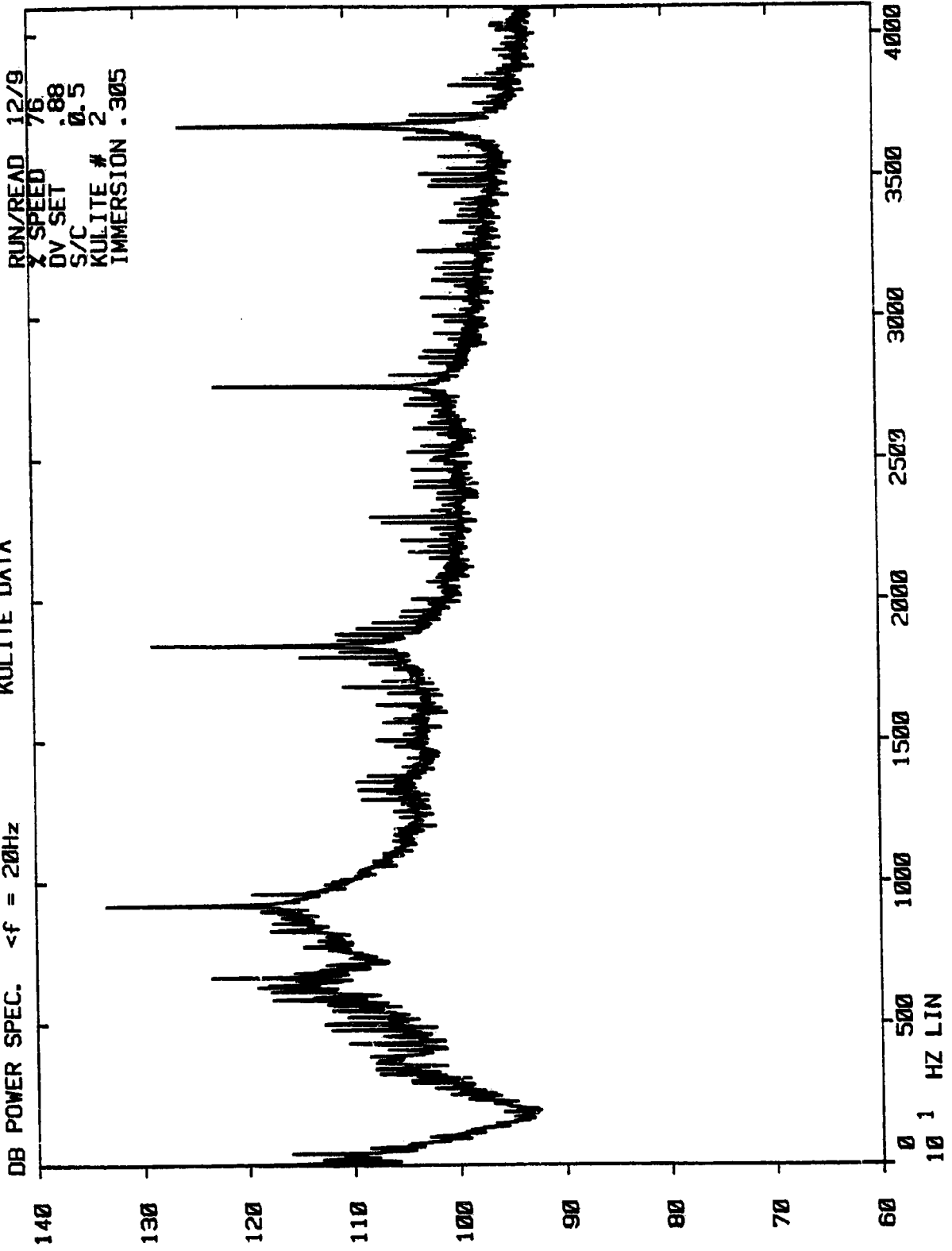
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



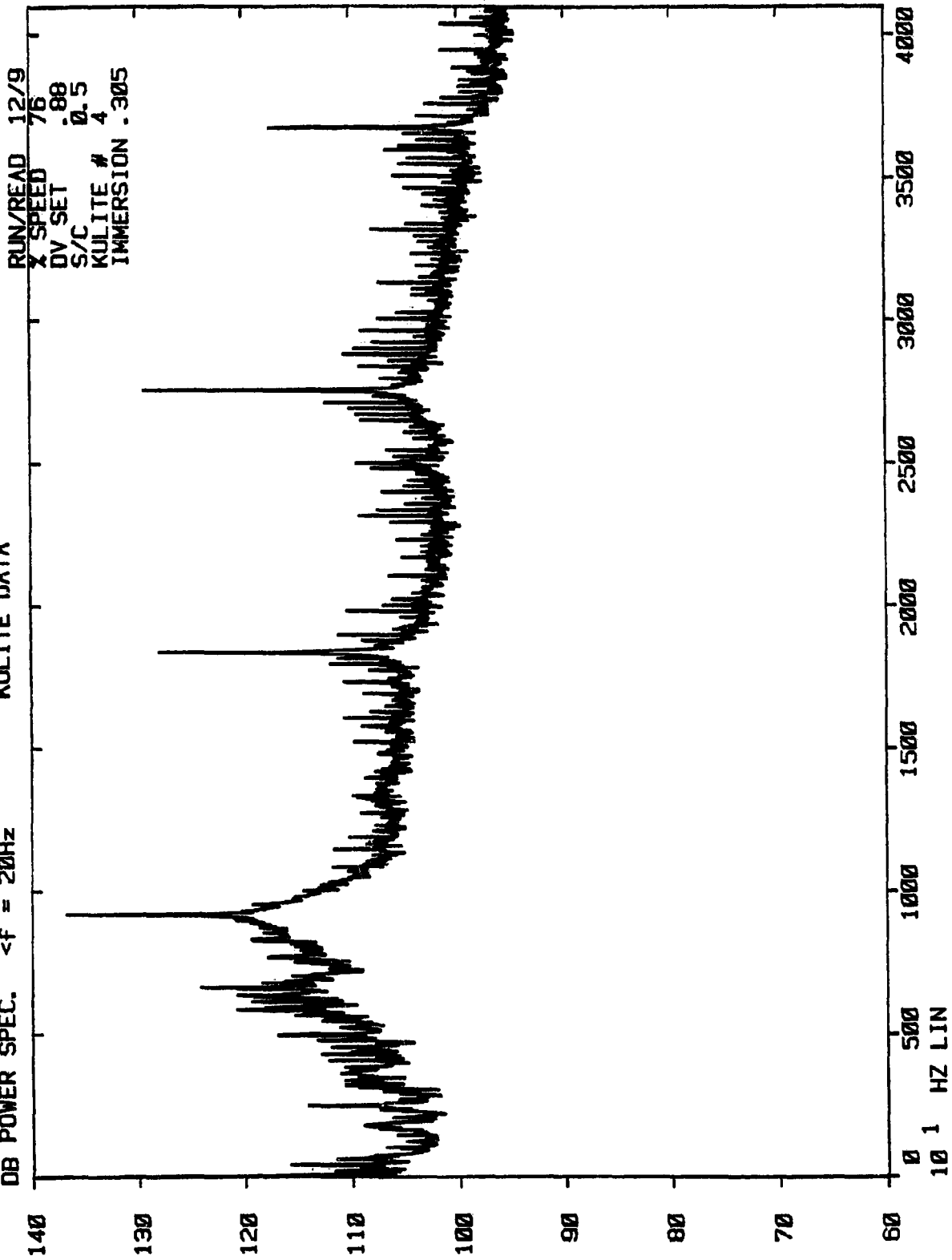
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



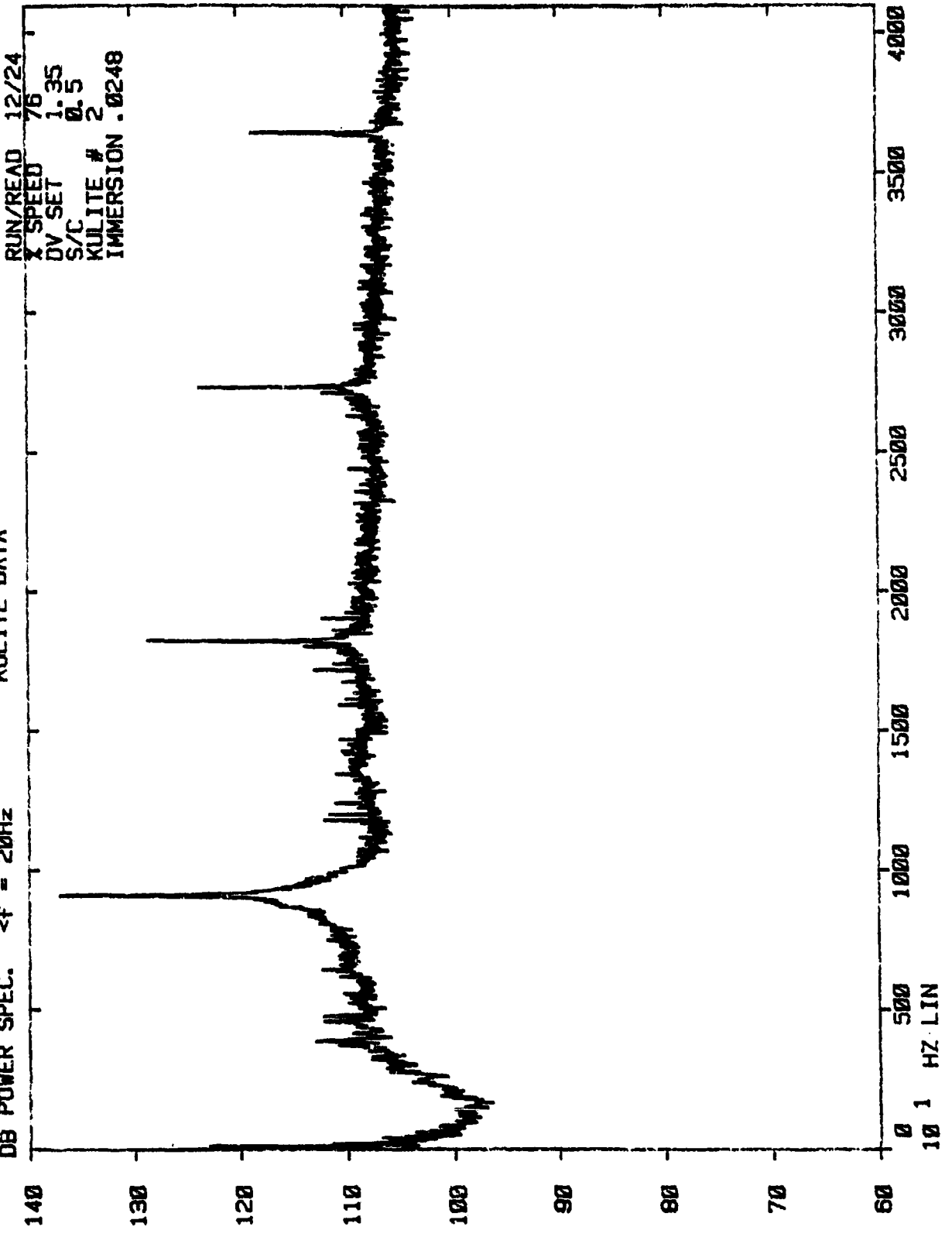
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

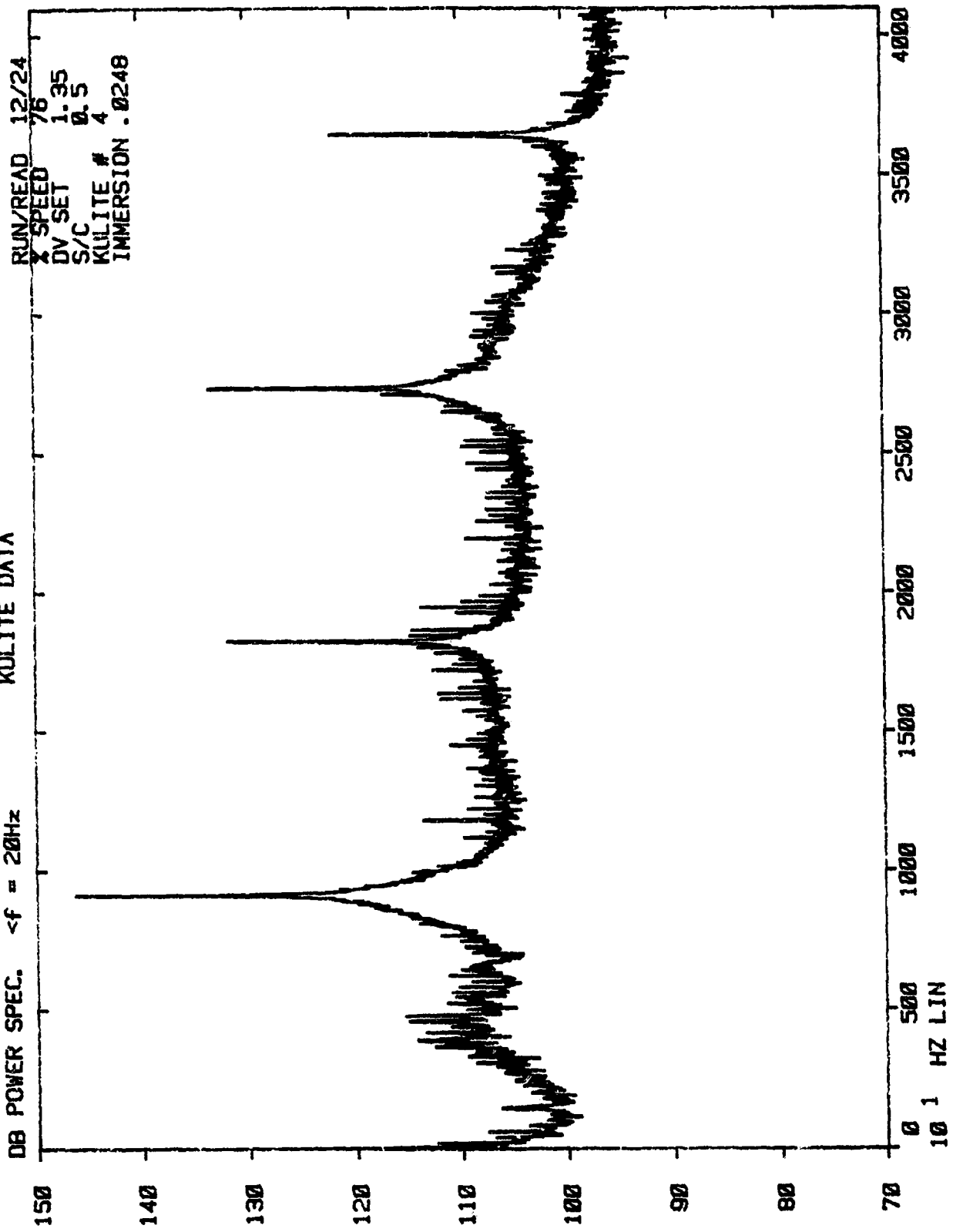


RUN/READ 12/24
X SPEED 76
DV SET 1.35
S/C 0.5
KULITE # 2
IMMERSION .0248

140
130
120
110
100
90
80
70
60
0
500
1000
1500
2000
2500
3000
3500
4000
10¹ HZ LIN

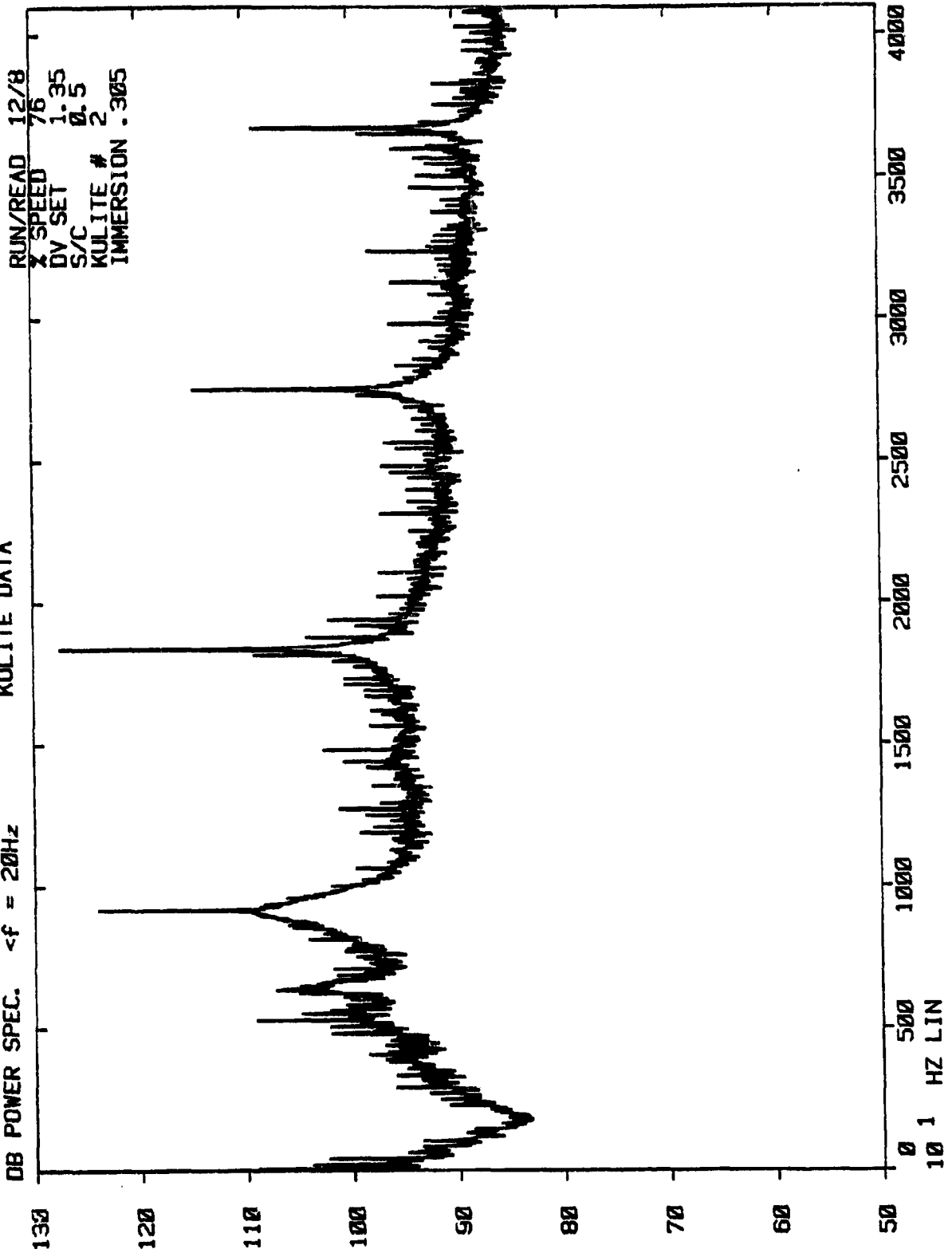
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



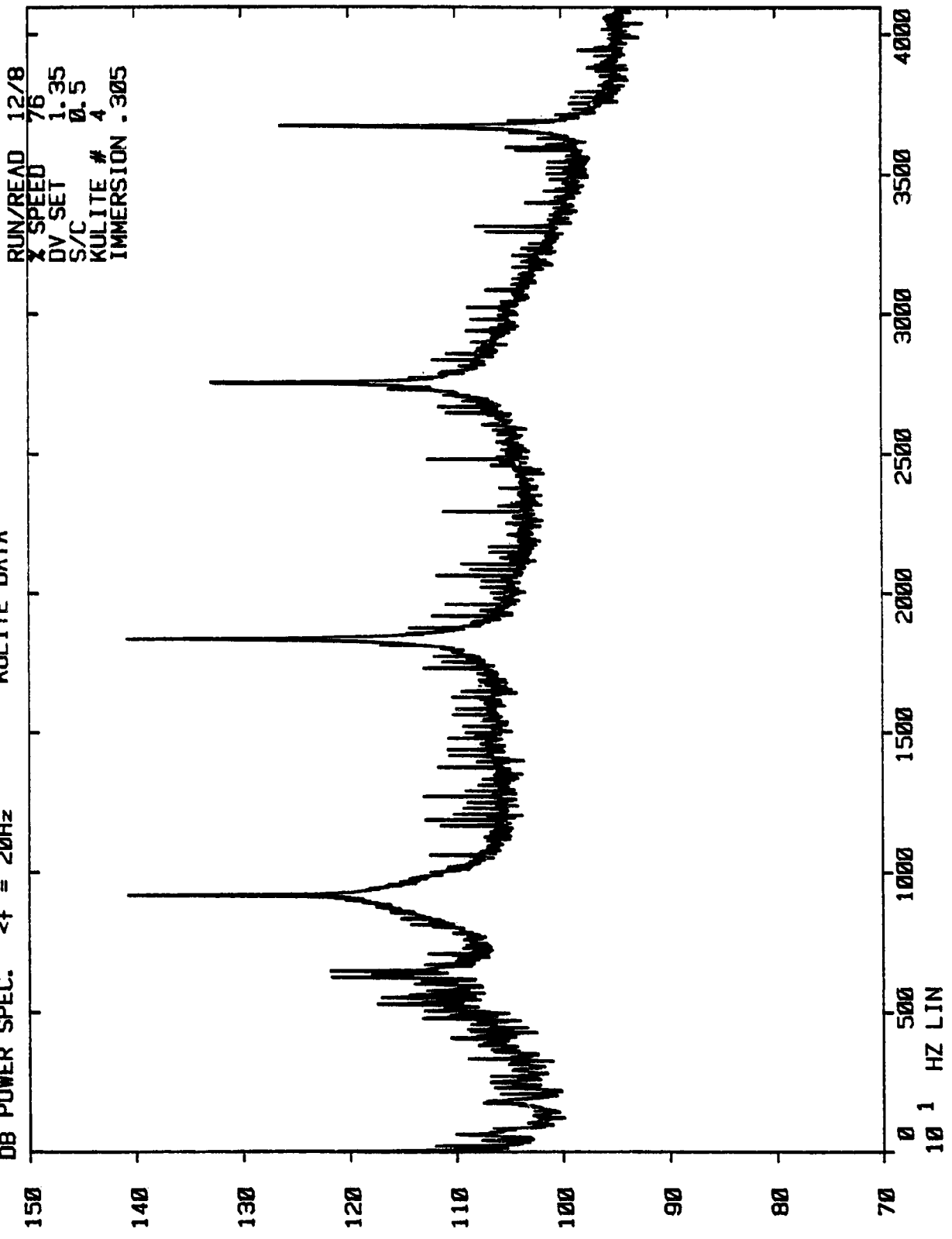
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



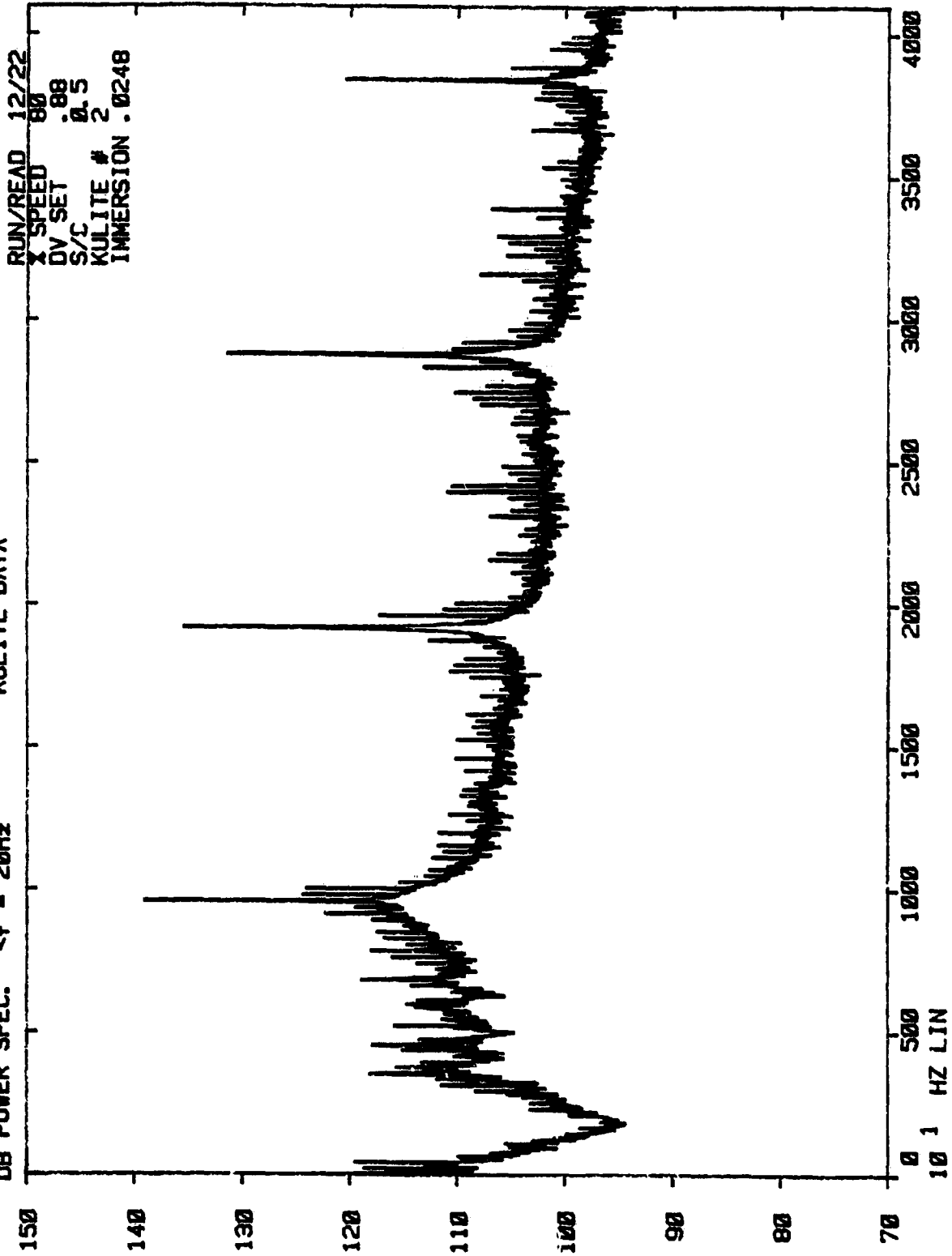
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



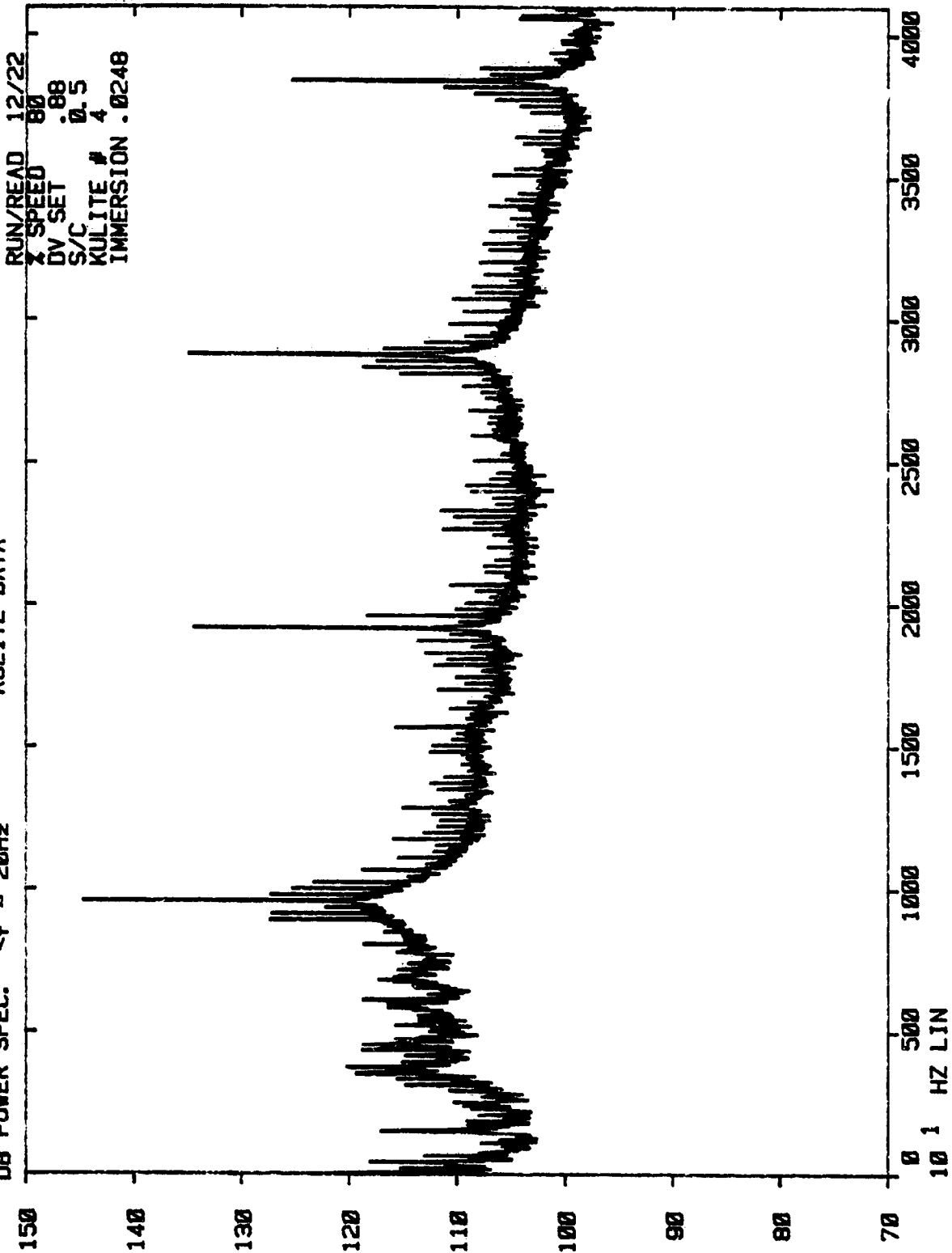
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$

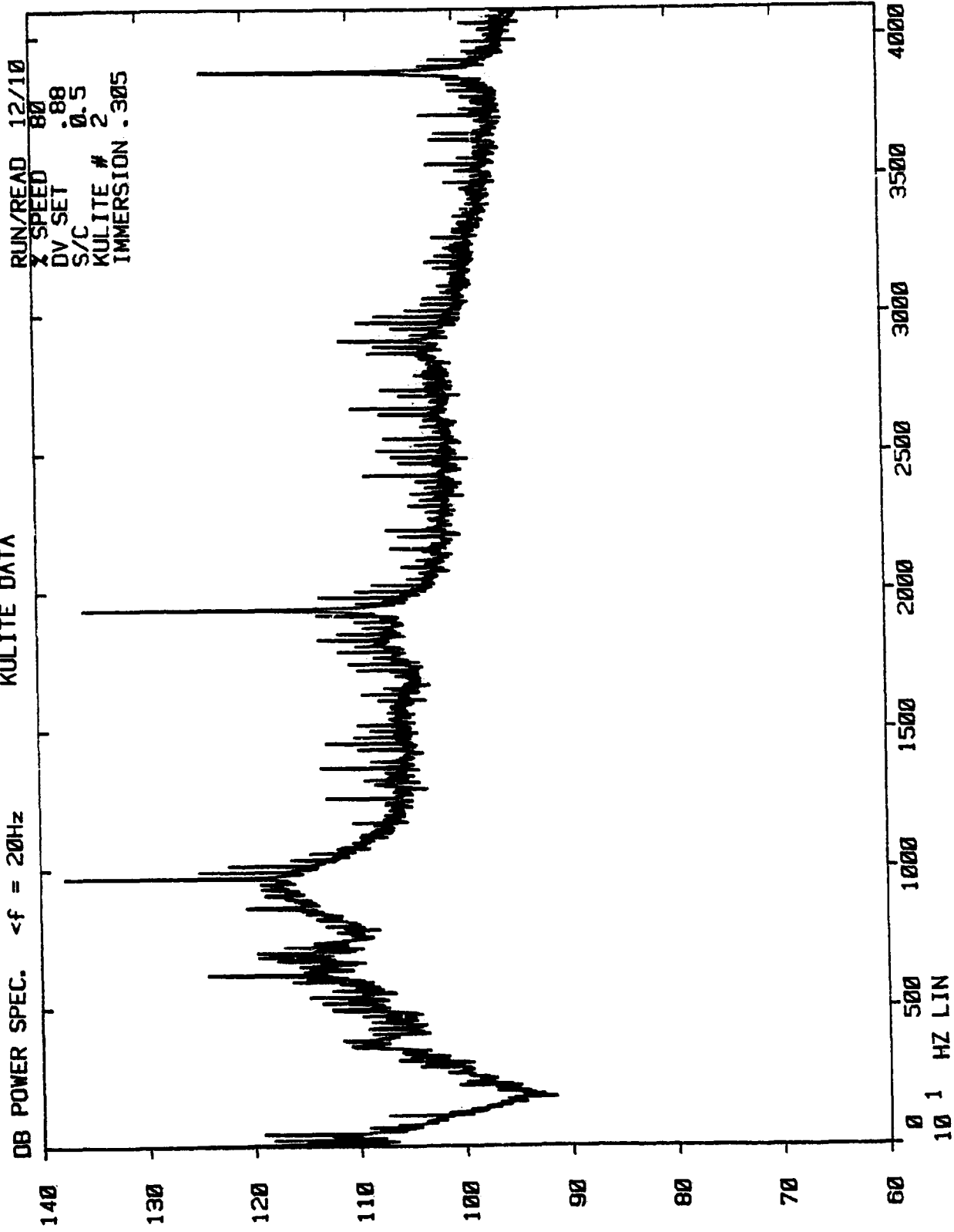


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

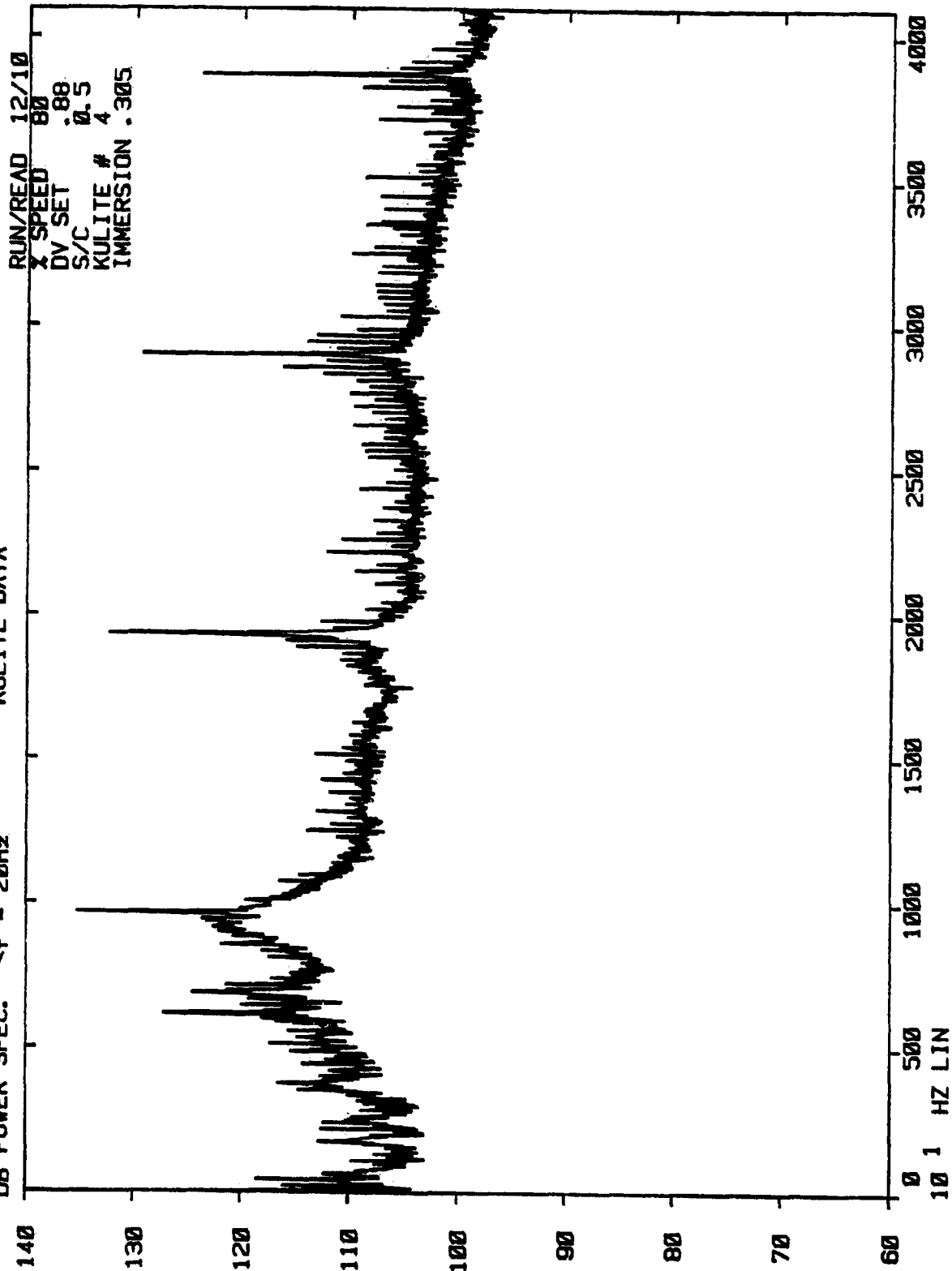


NASA V/B STUDY
KULITE DATA



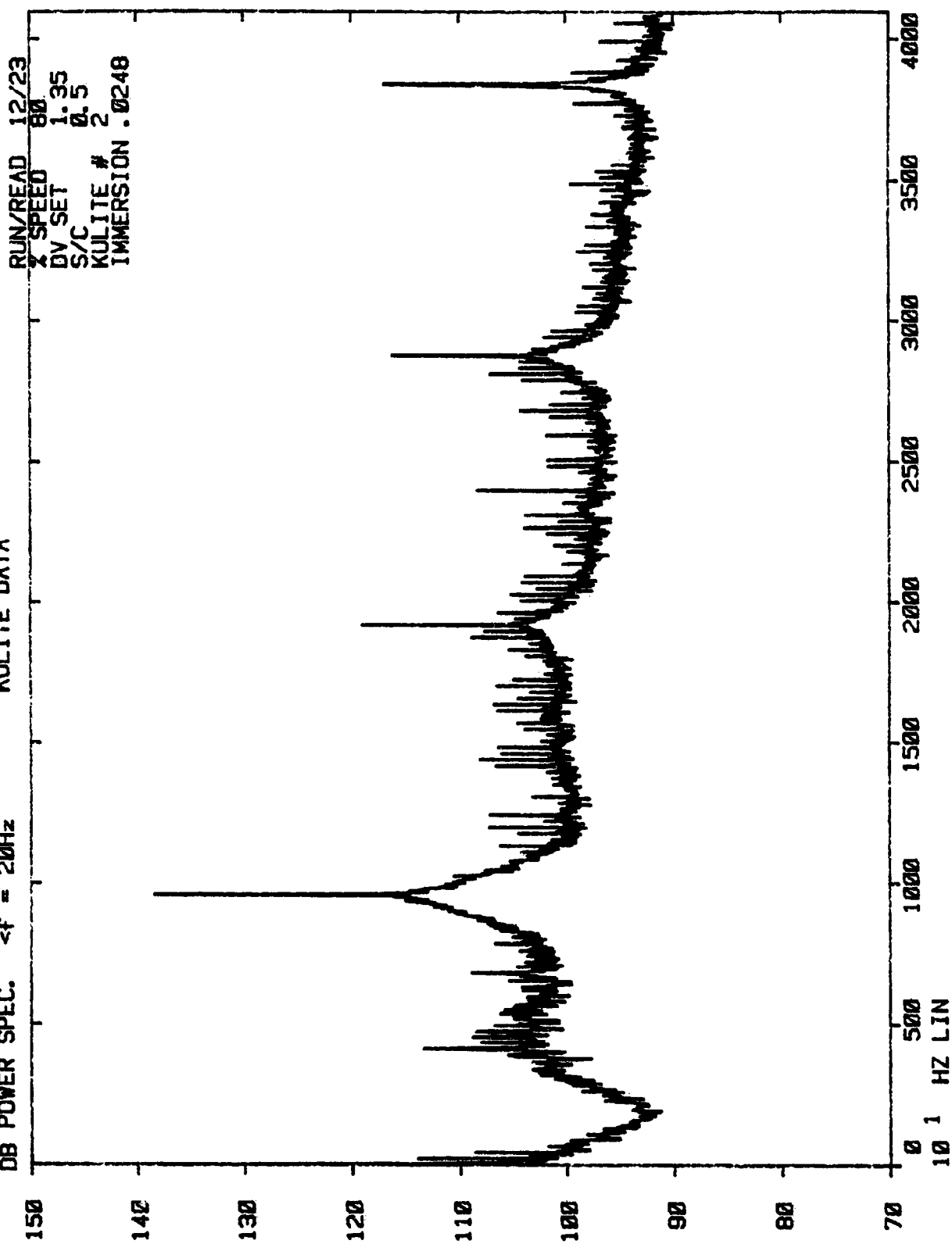
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



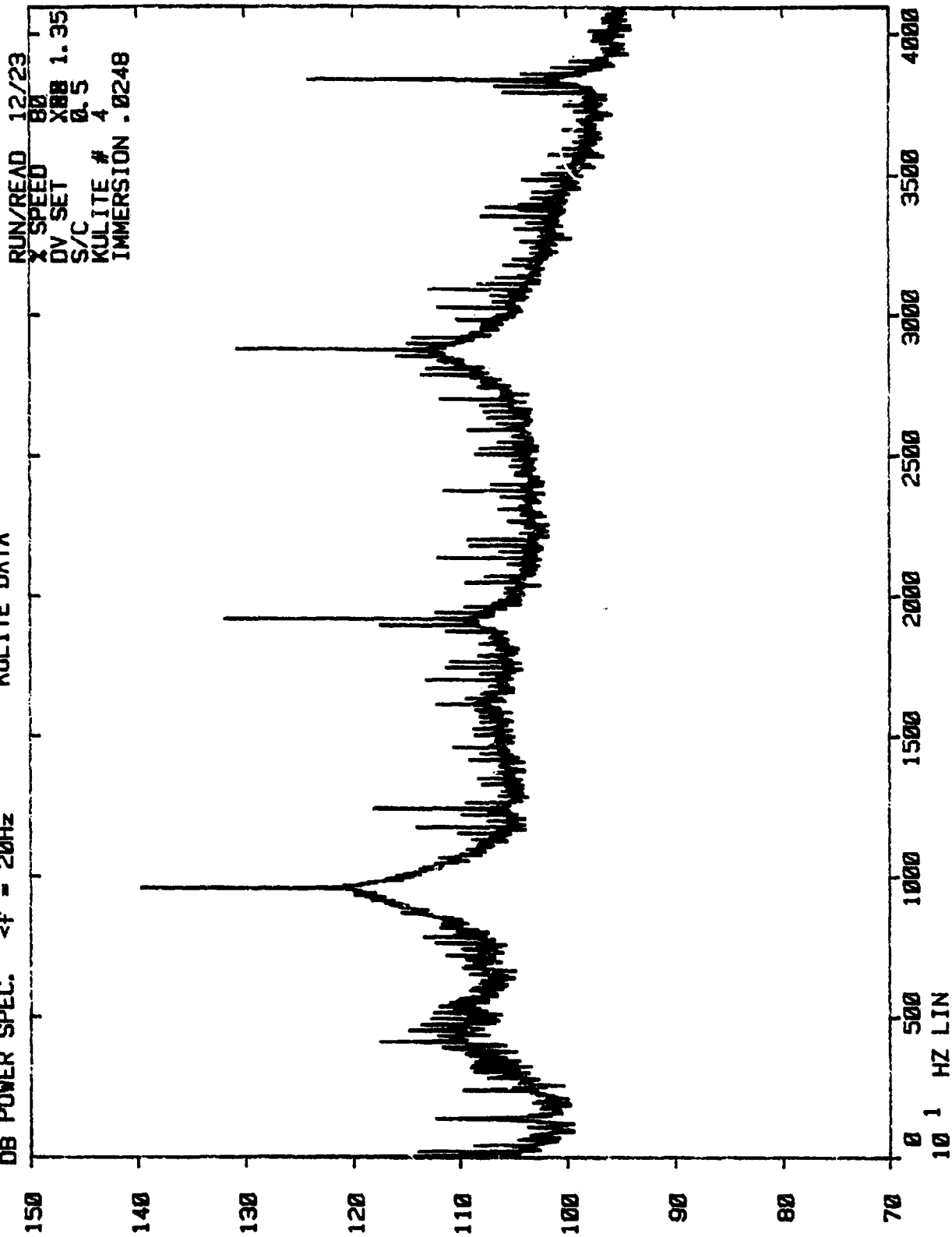
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

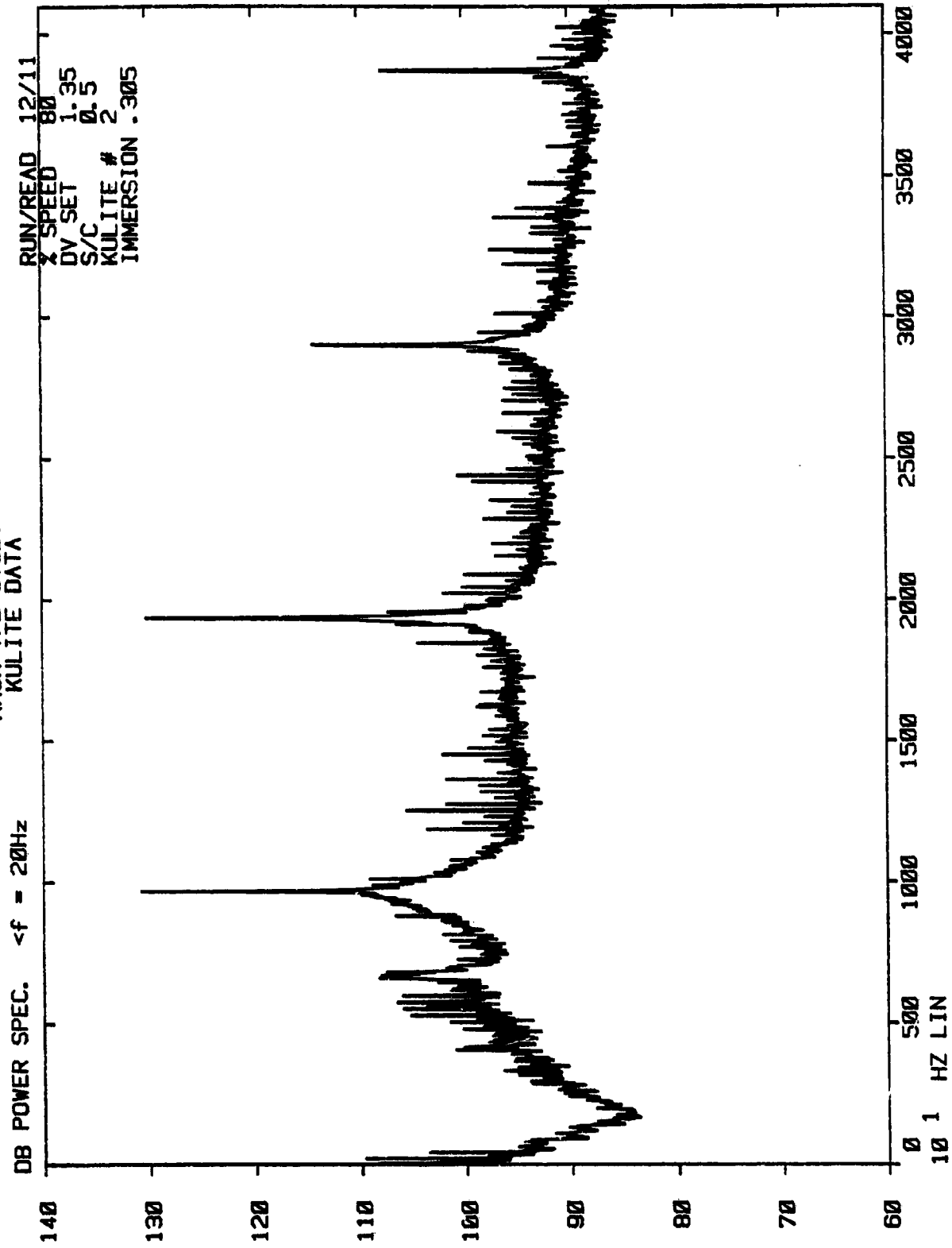


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

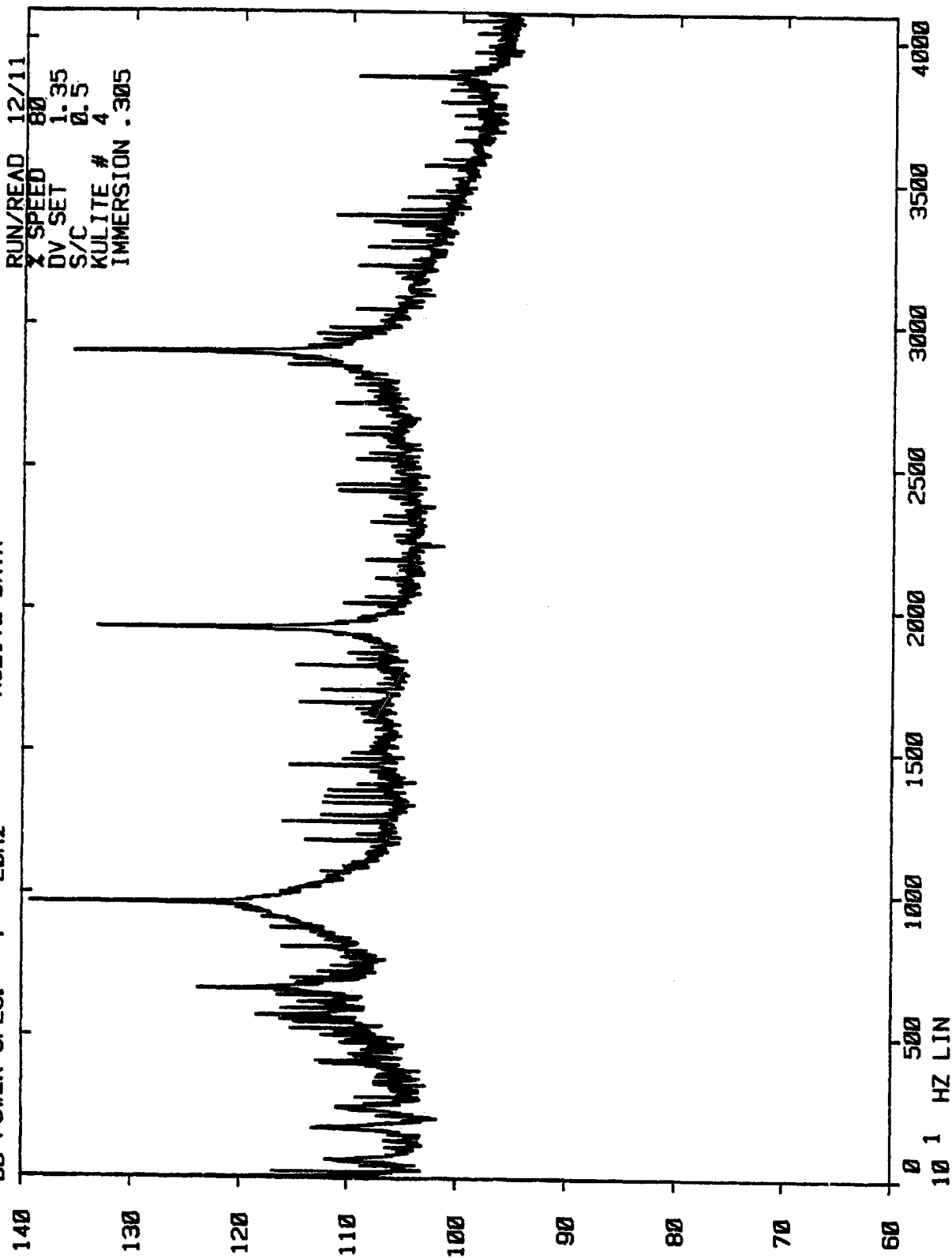


NASA V/B STUDY
KULITE DATA



NASA V/B STUDY
KULITE DATA

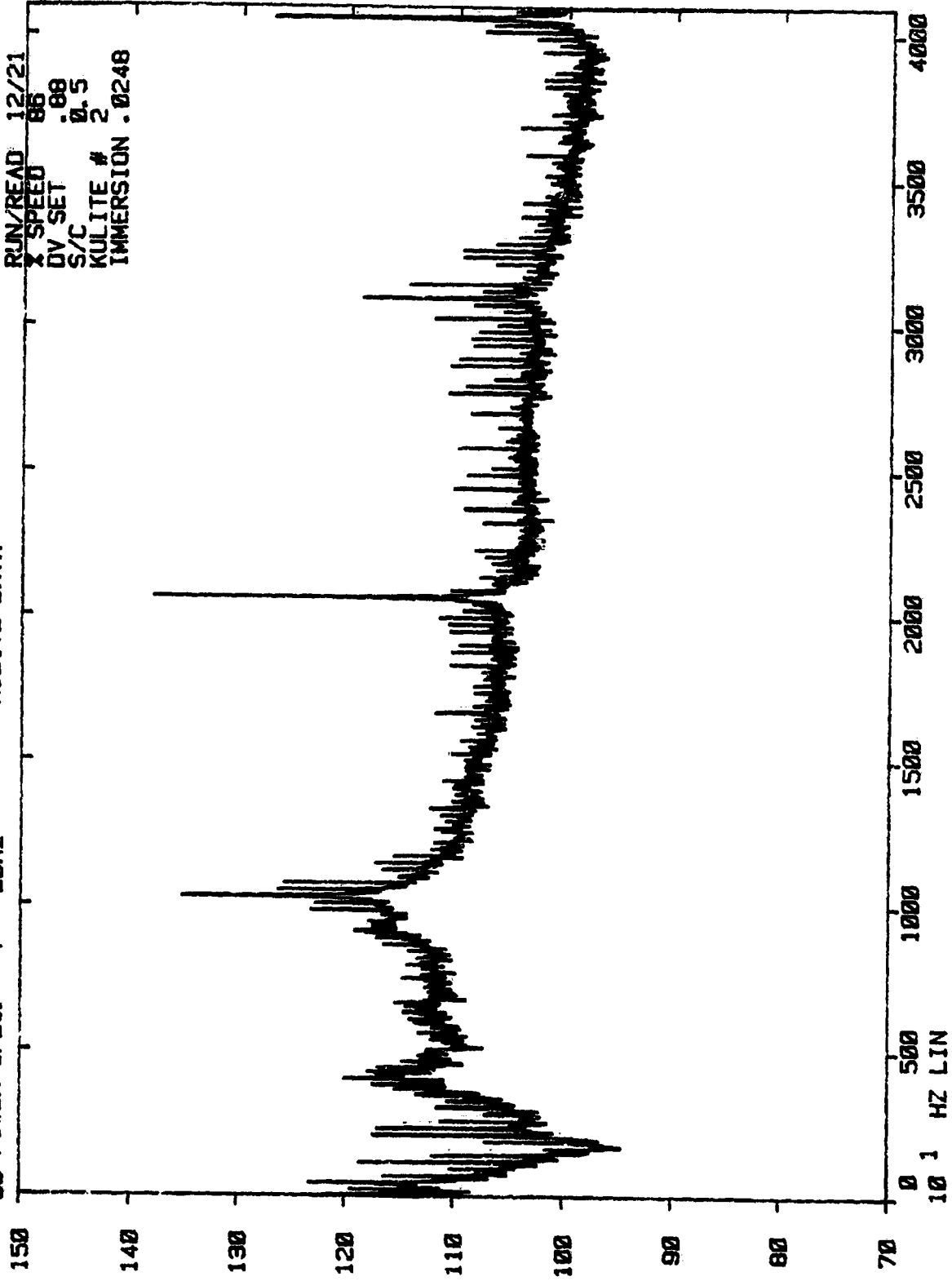
DB POWER SPEC. $\langle f = 20\text{Hz}$



W. J. ...

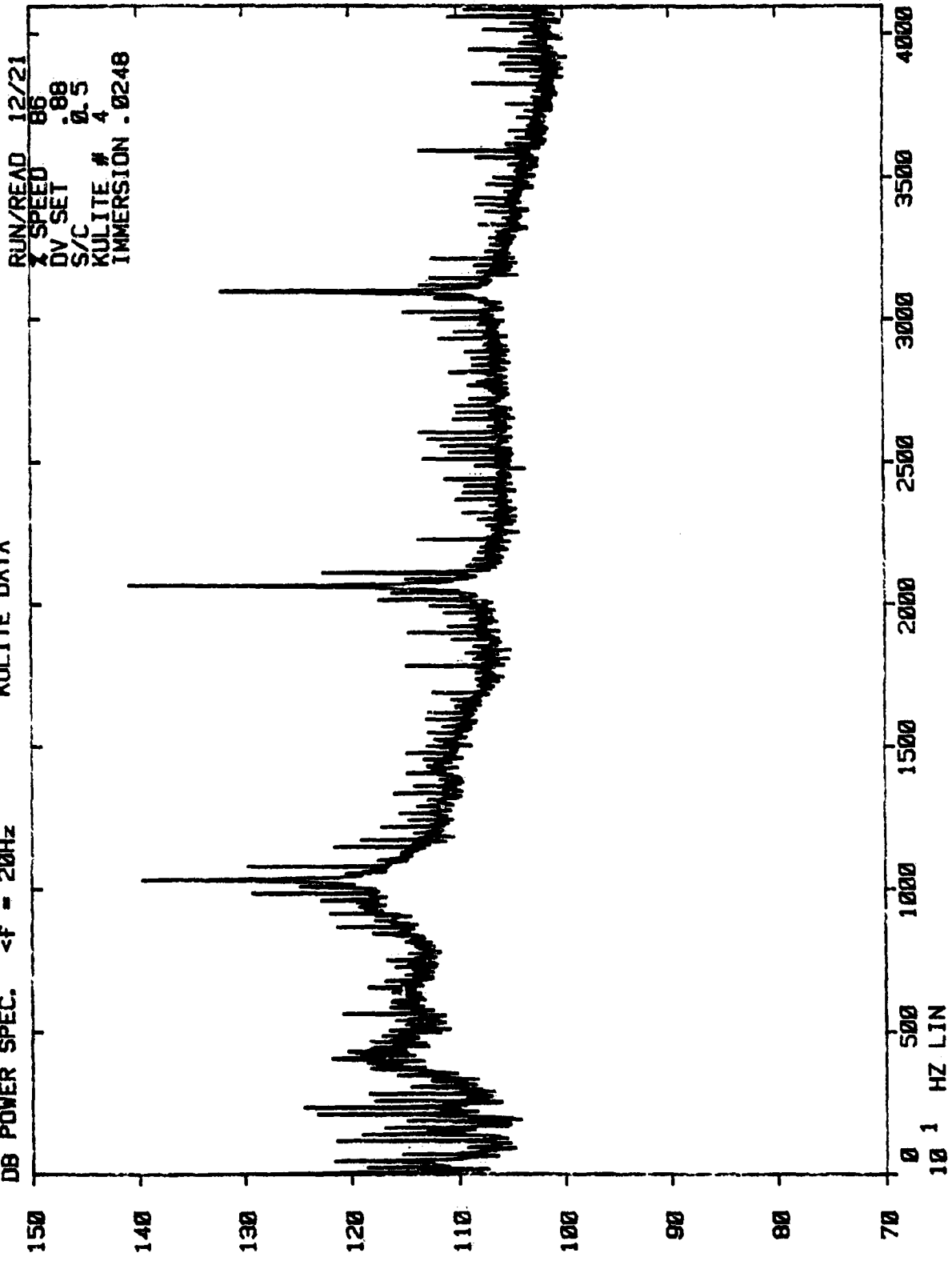
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



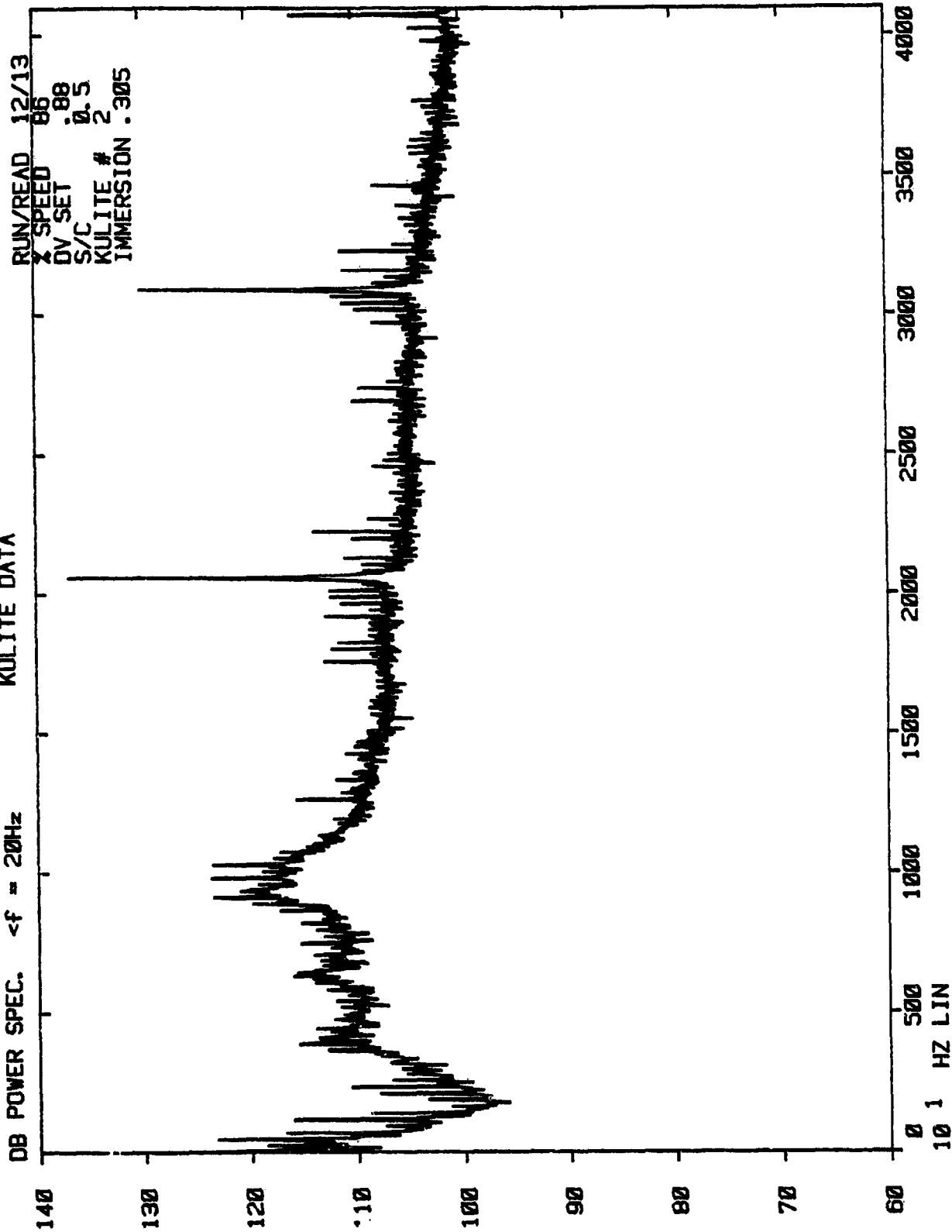
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f - 20Hz



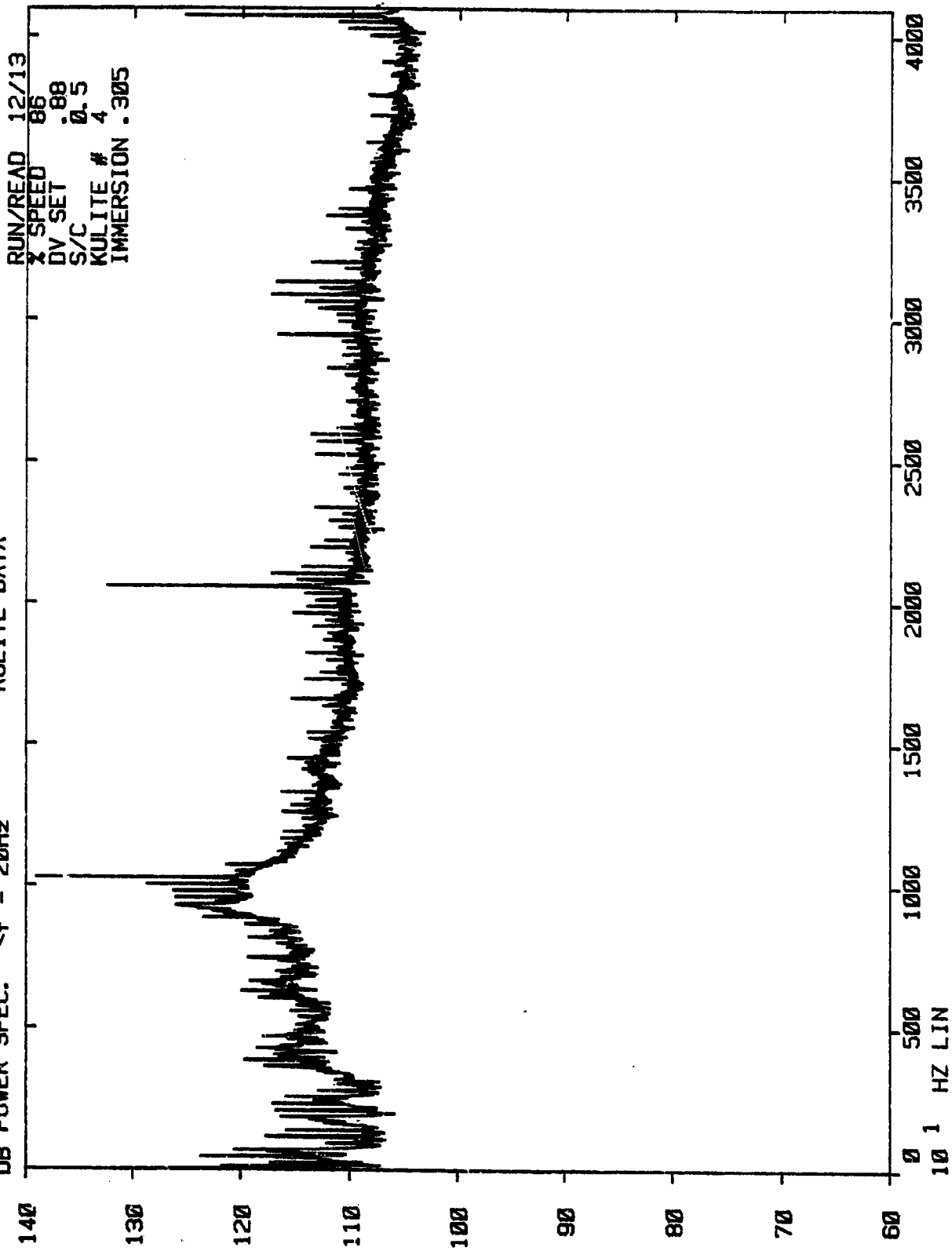
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$

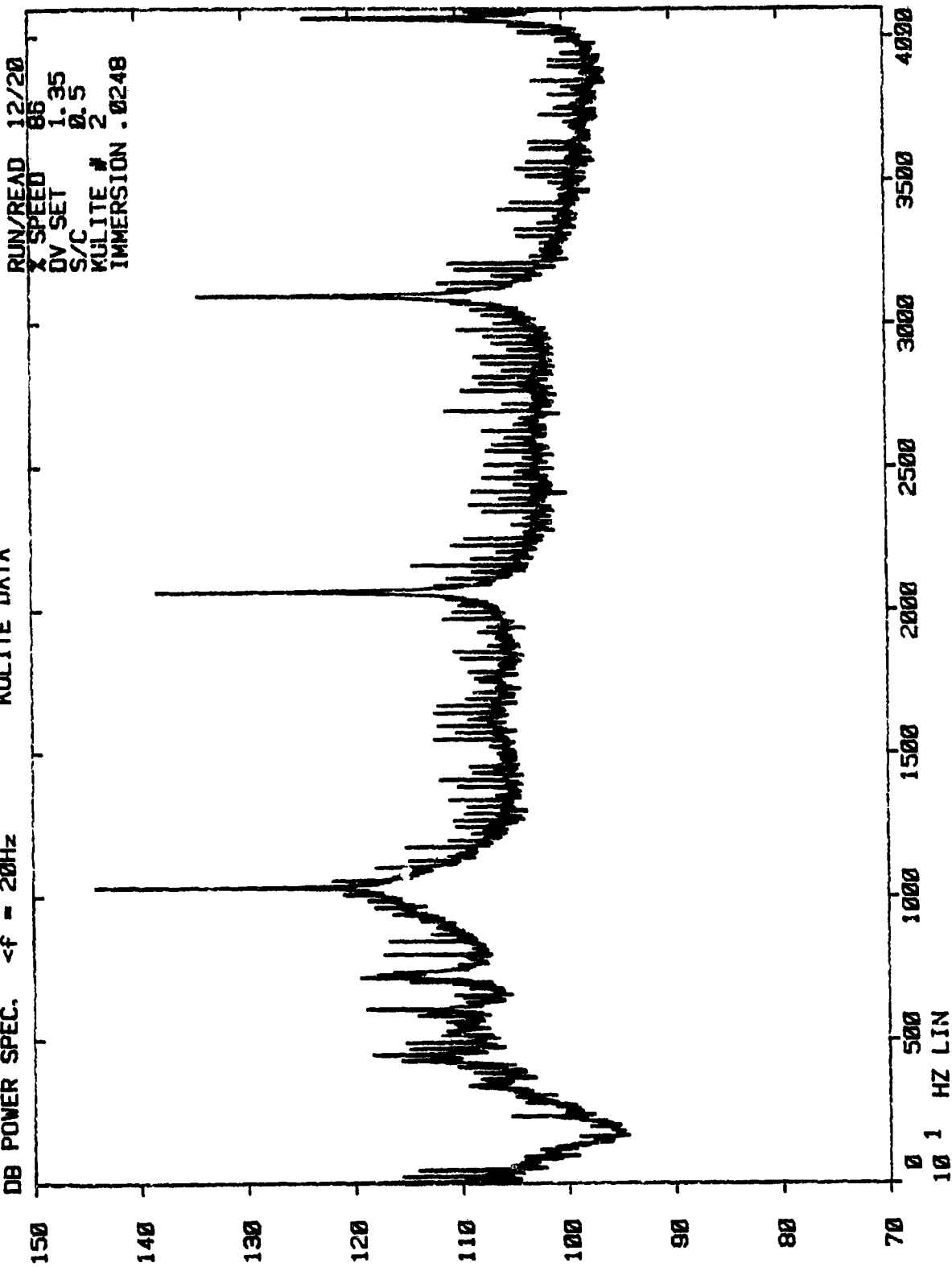


WJ 1000

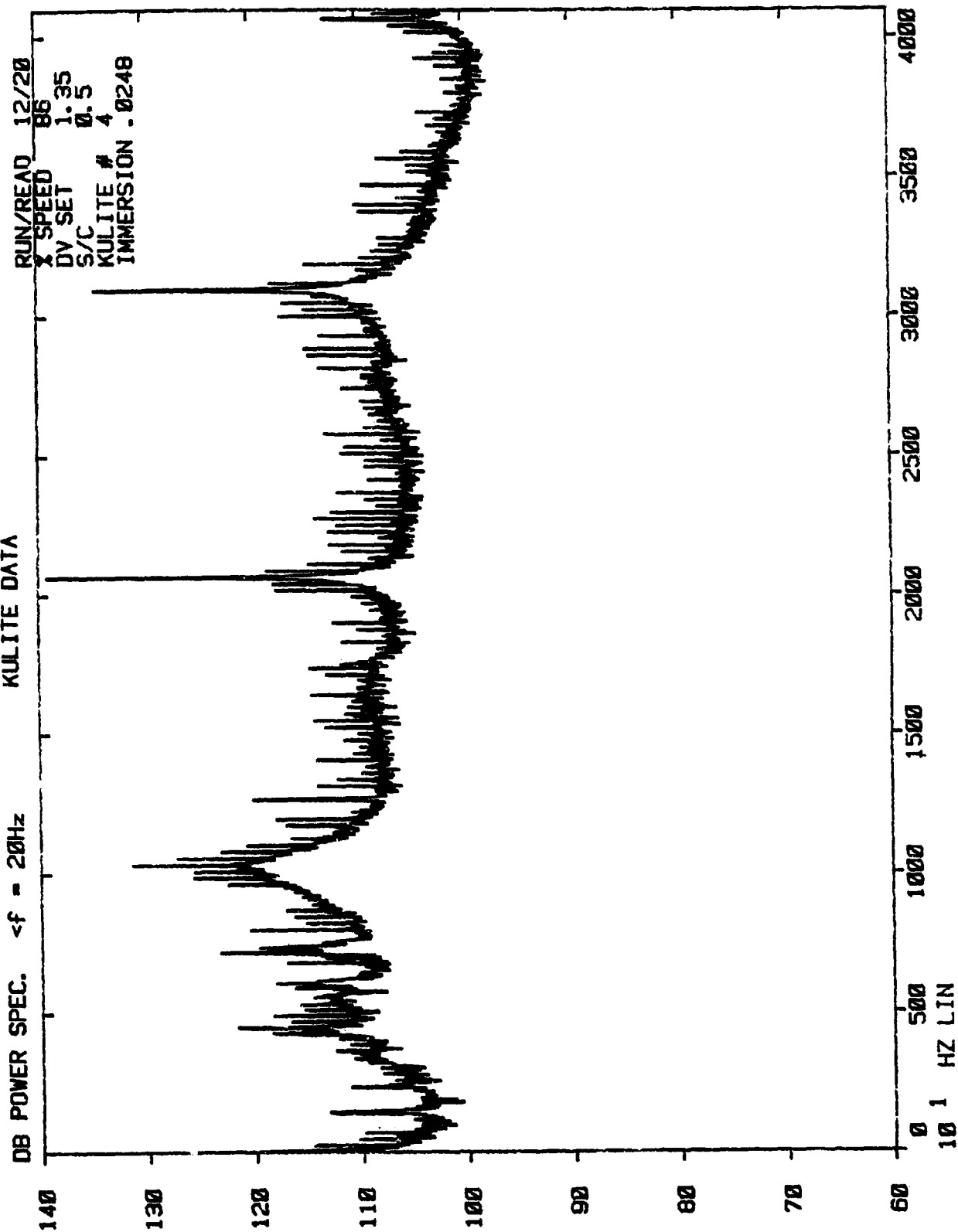


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

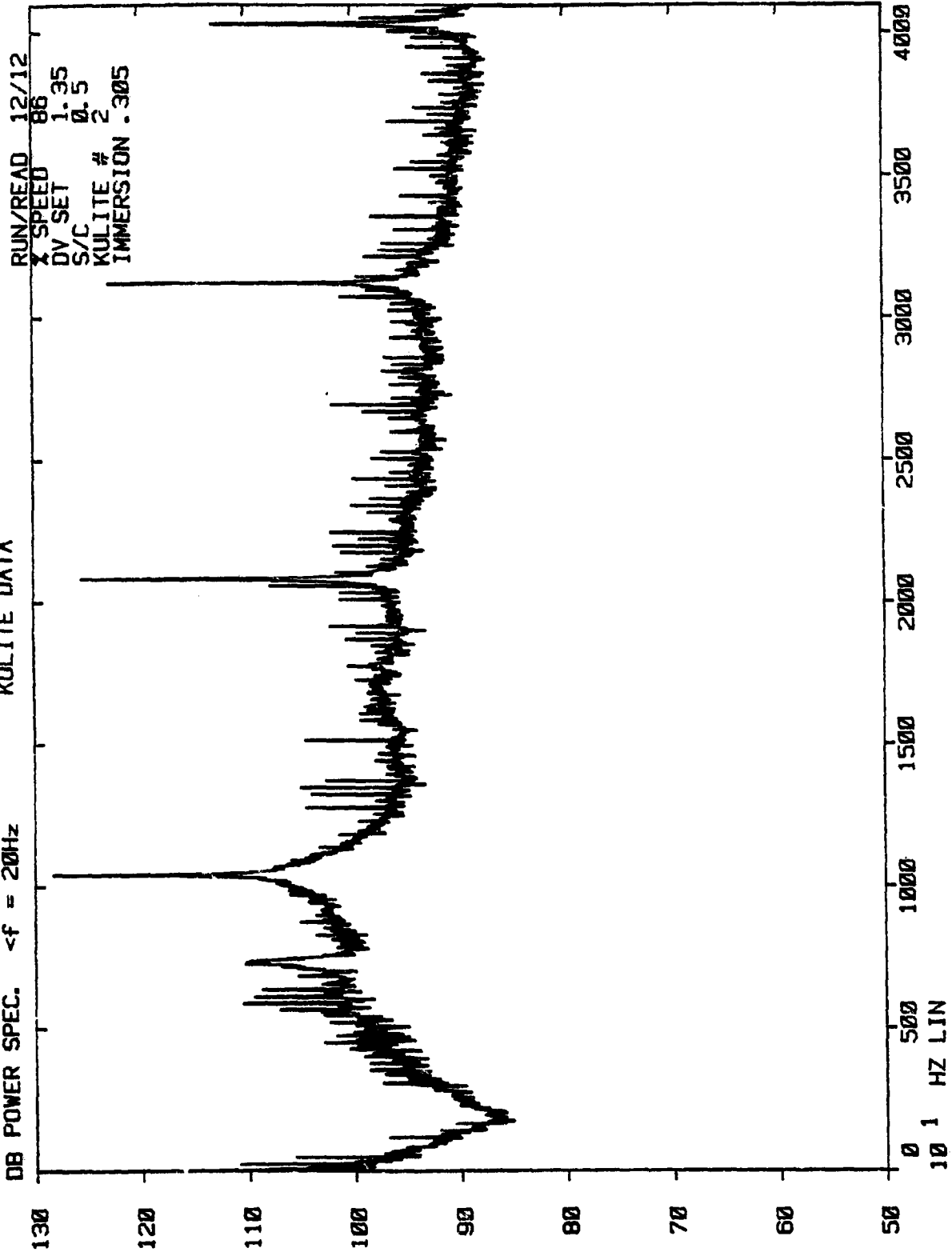


NASA V/B STUDY
KULITE DATA



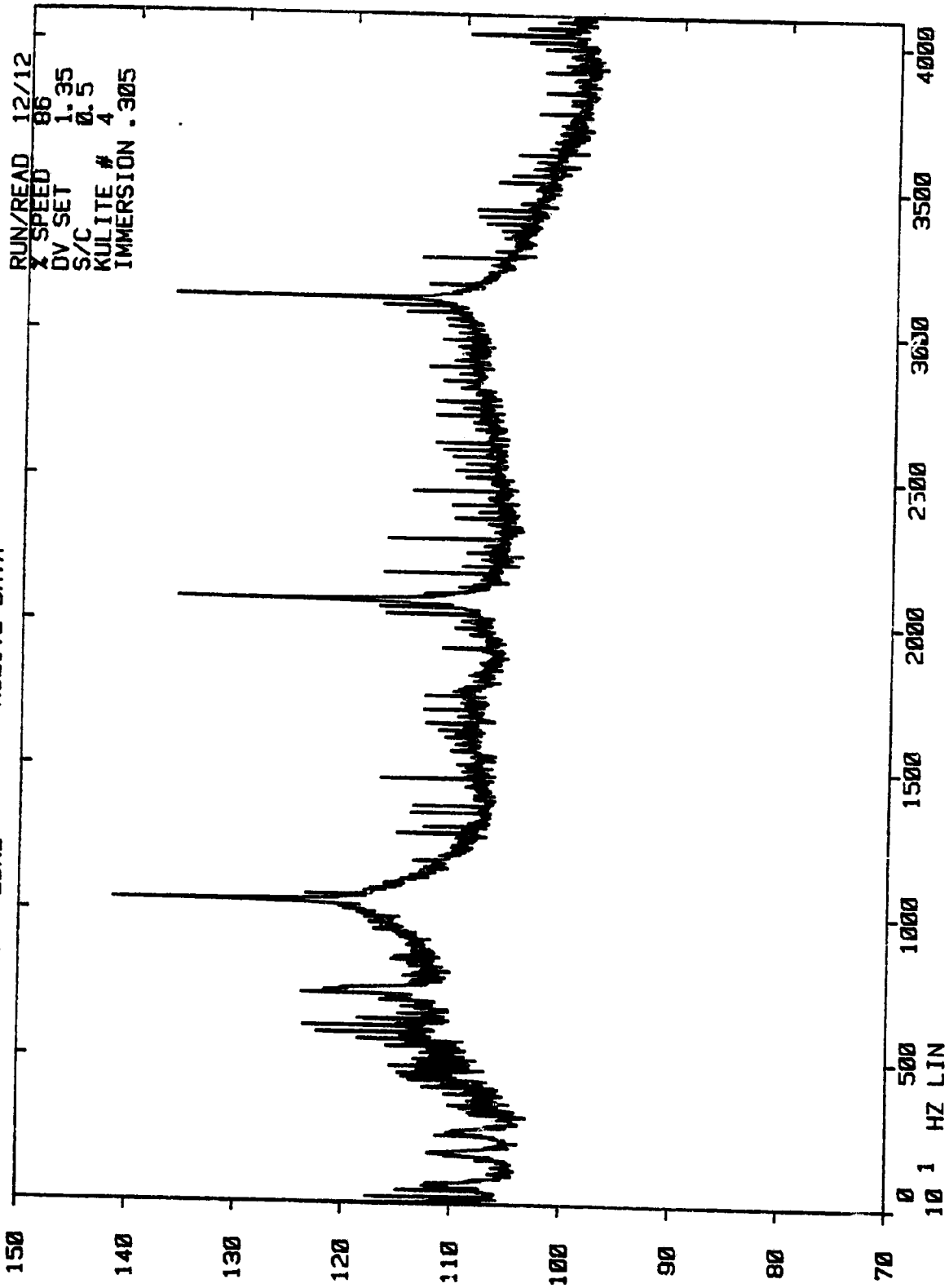
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



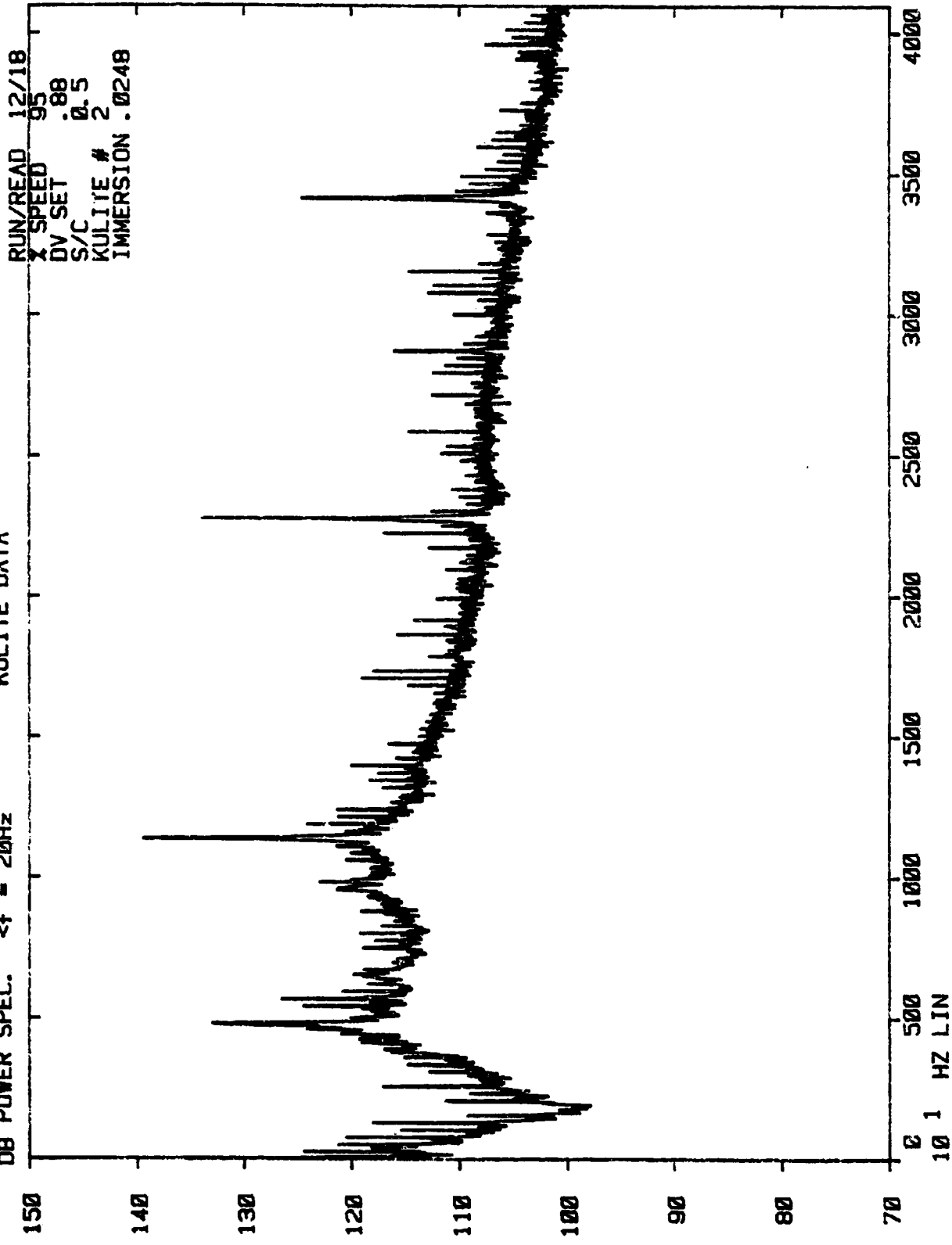
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



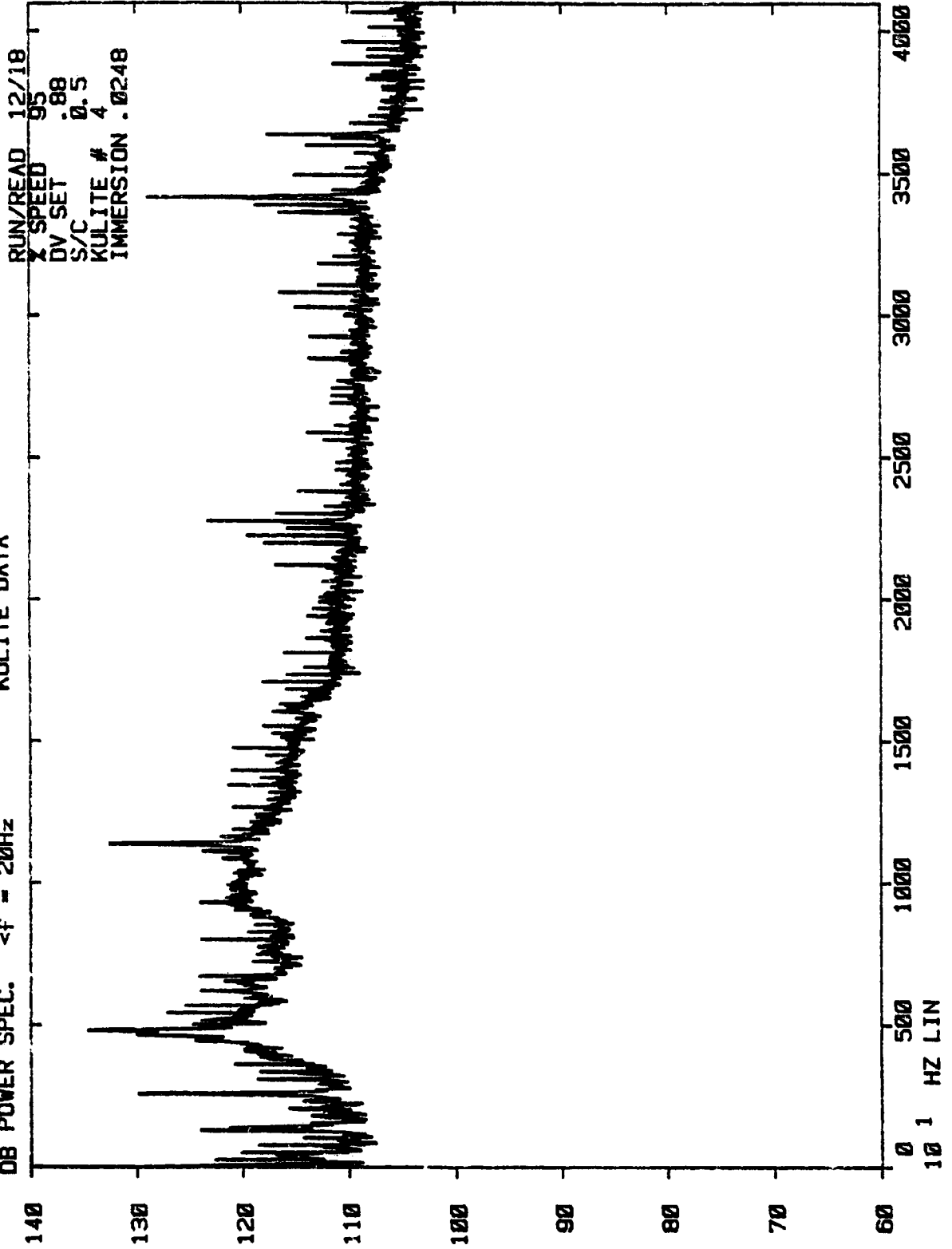
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



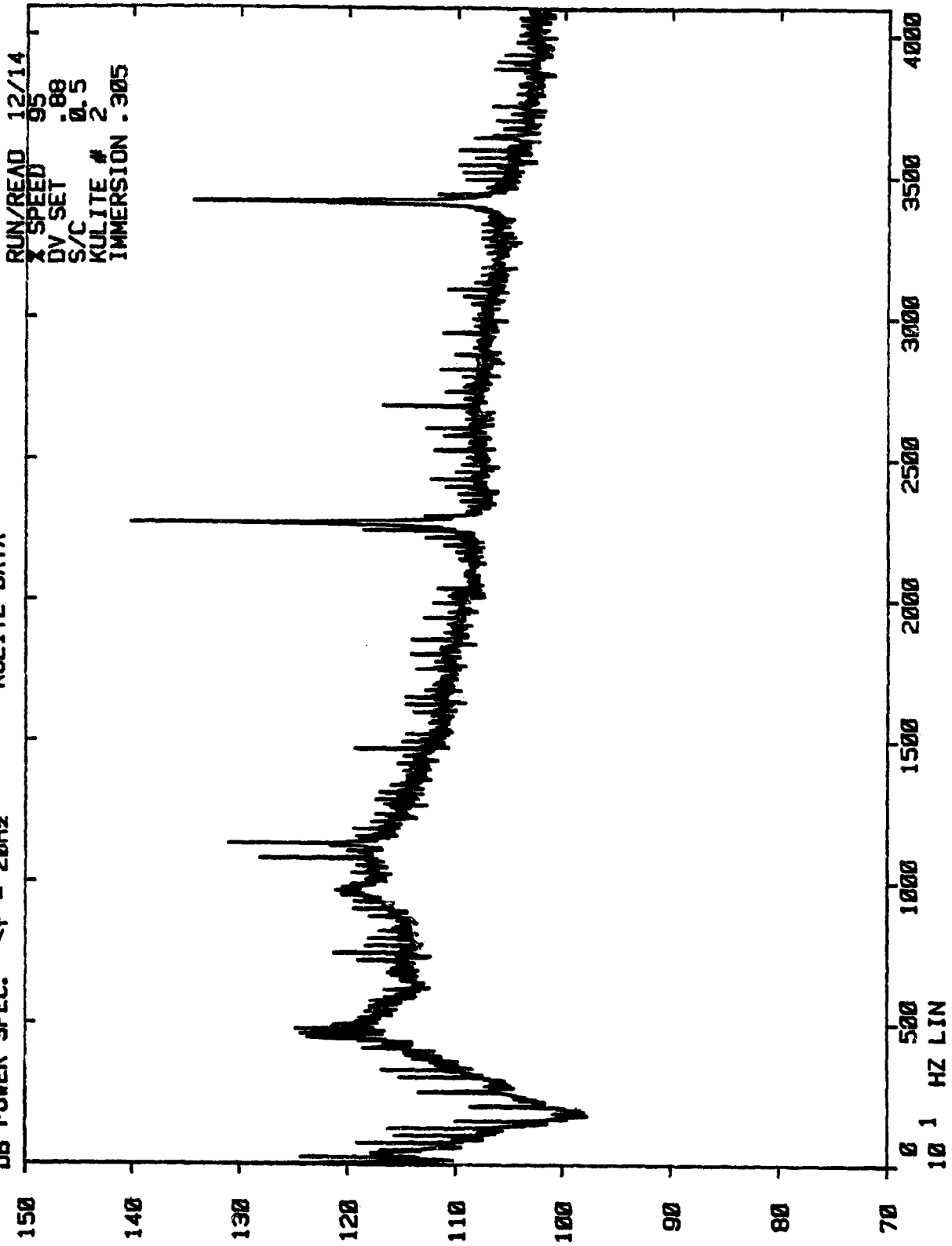
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



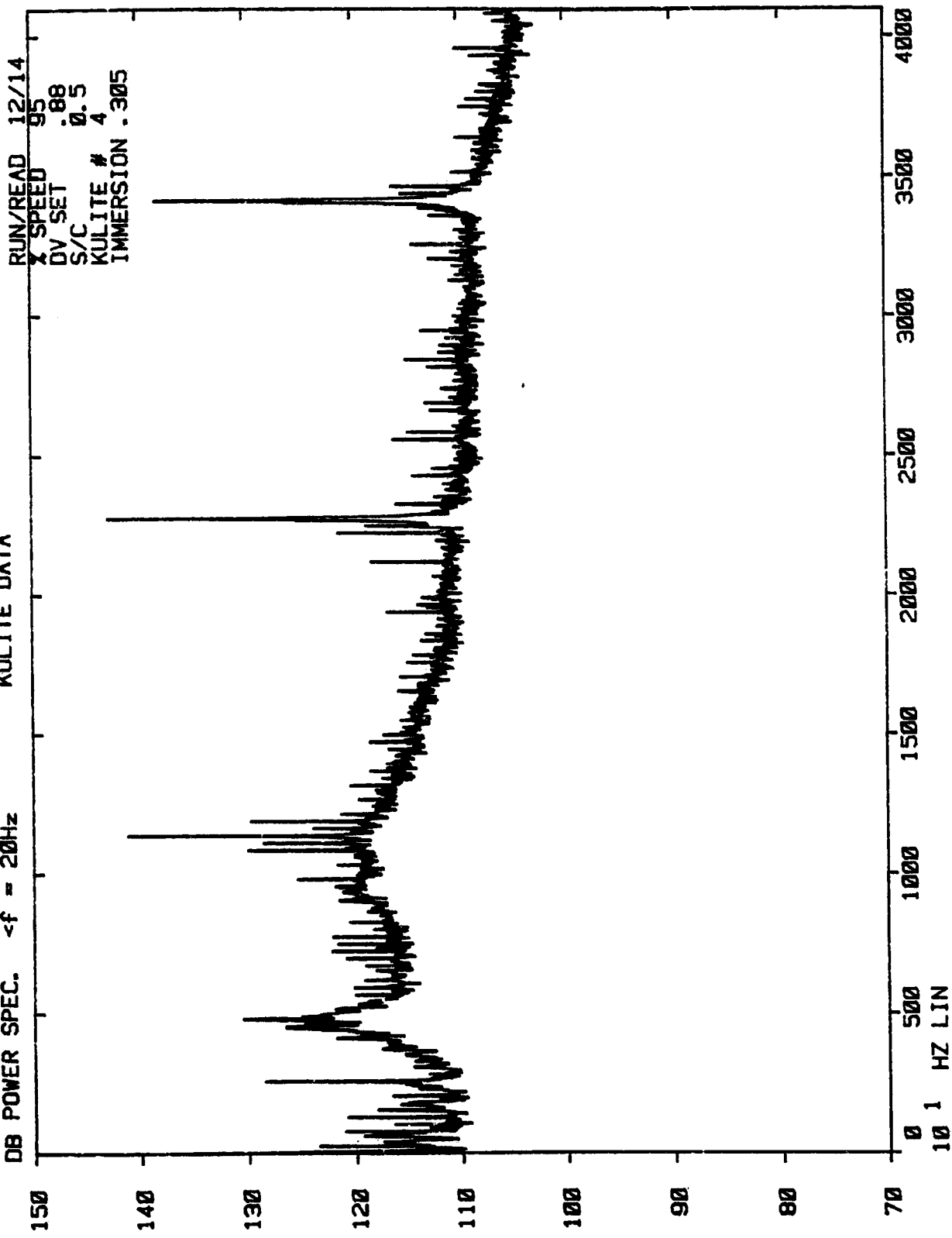
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



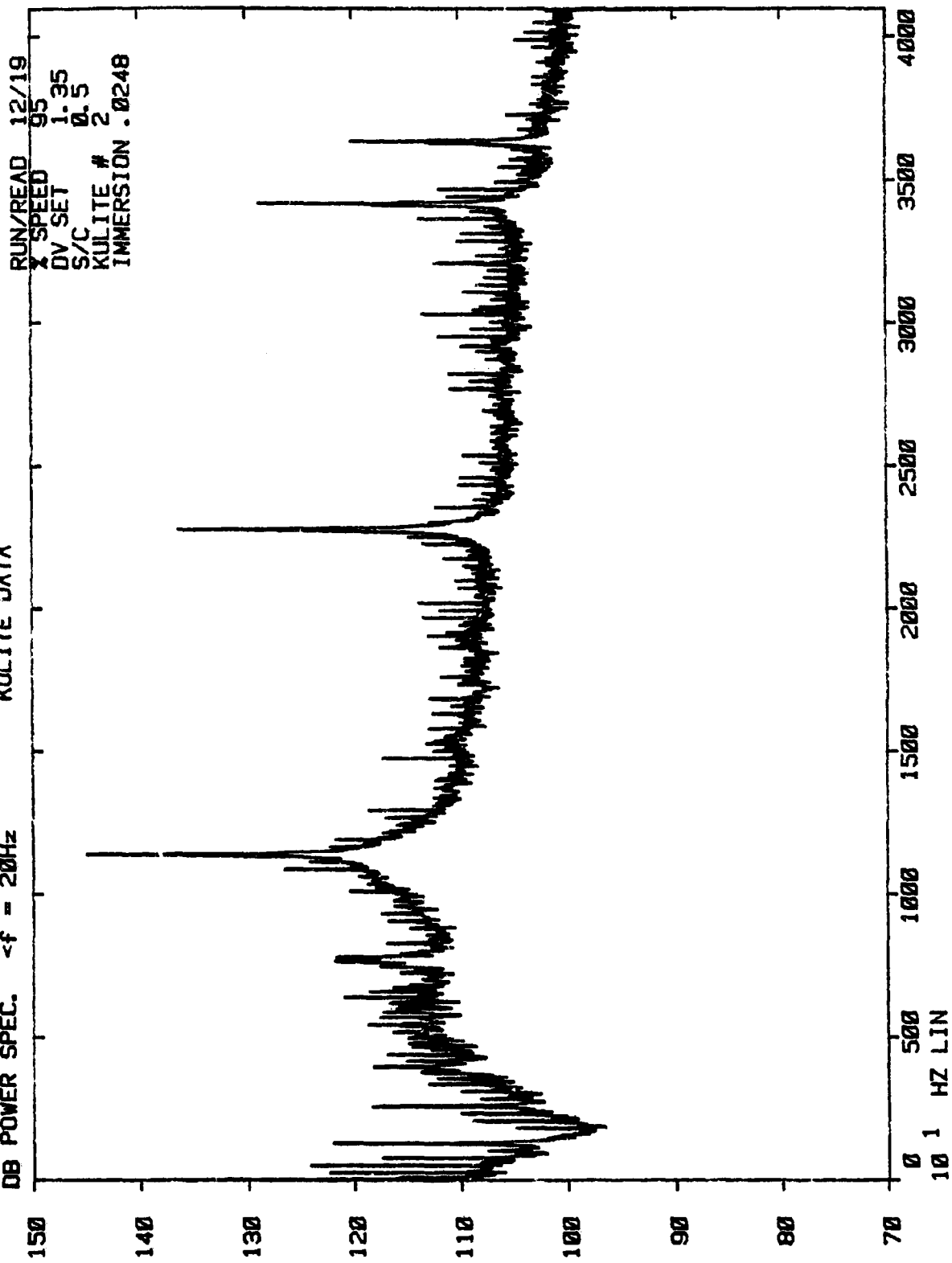
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



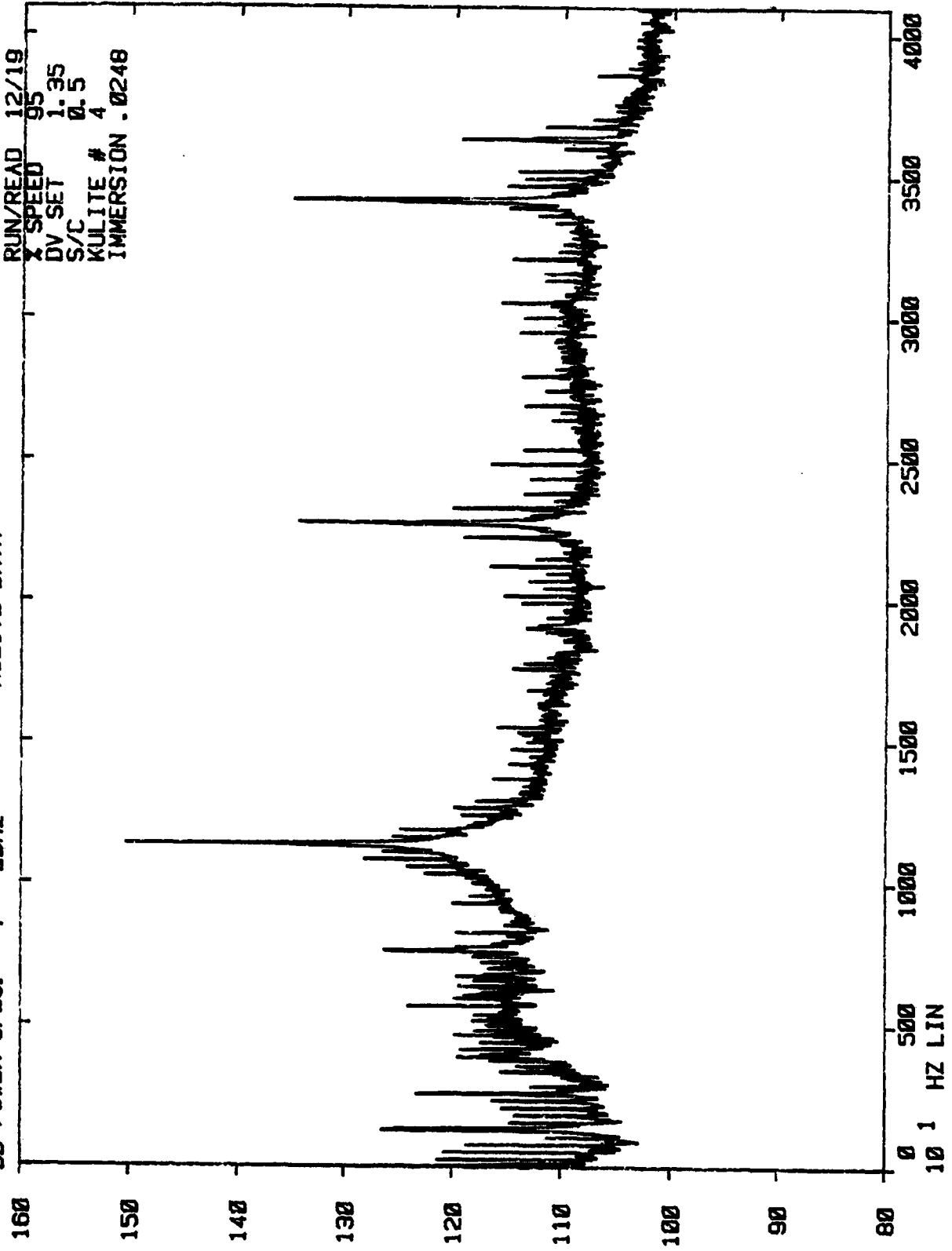
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



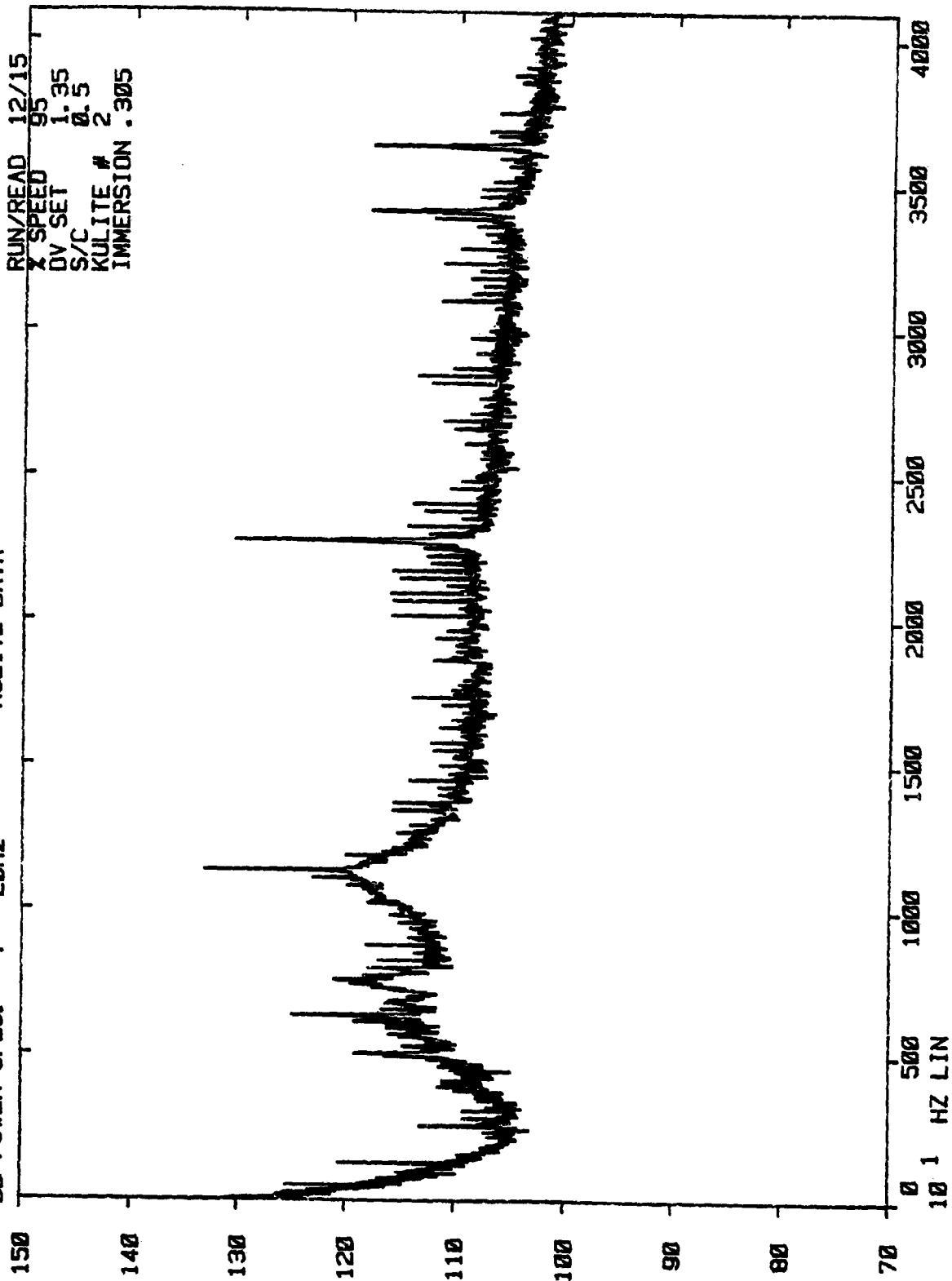
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



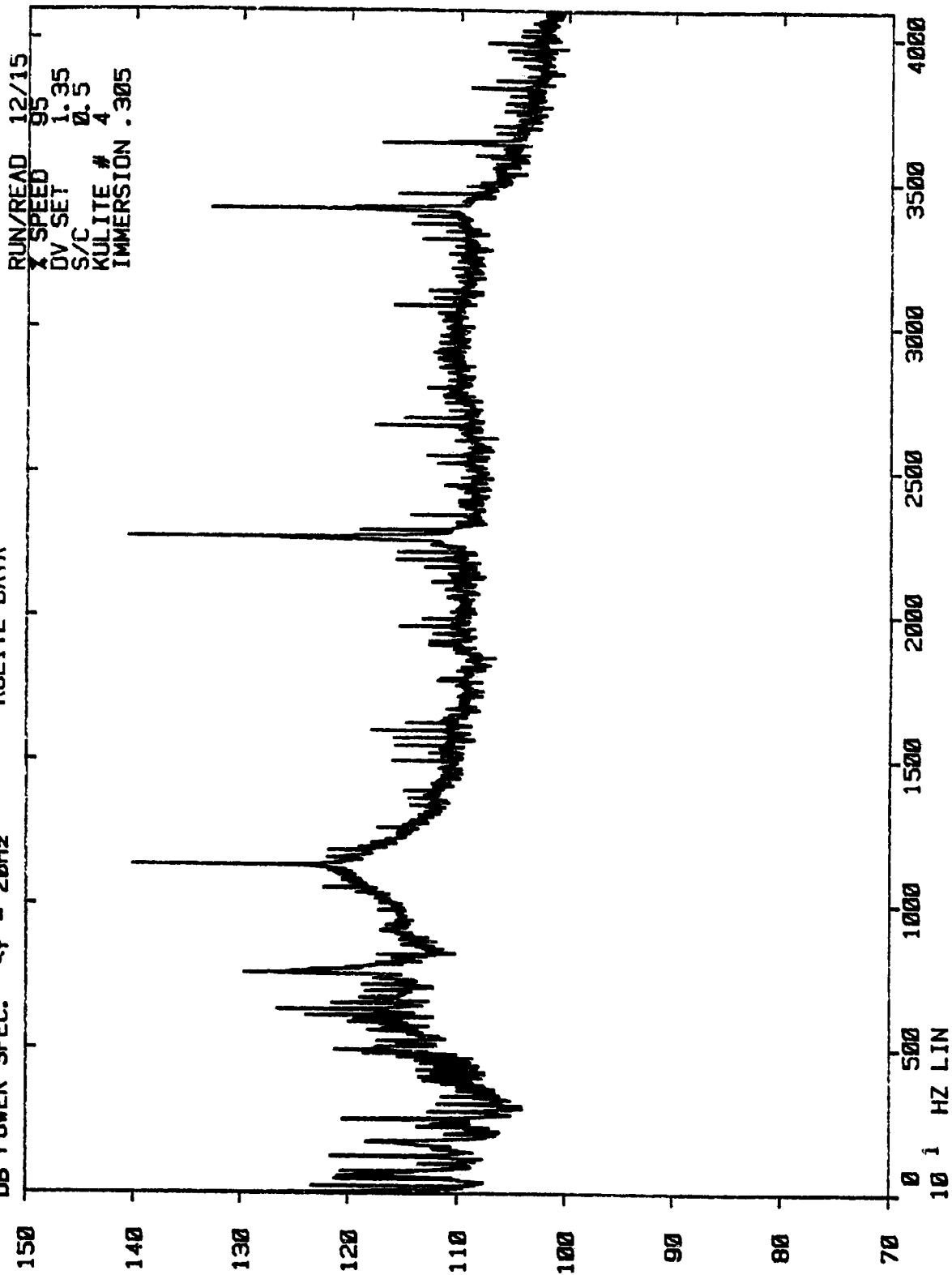
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



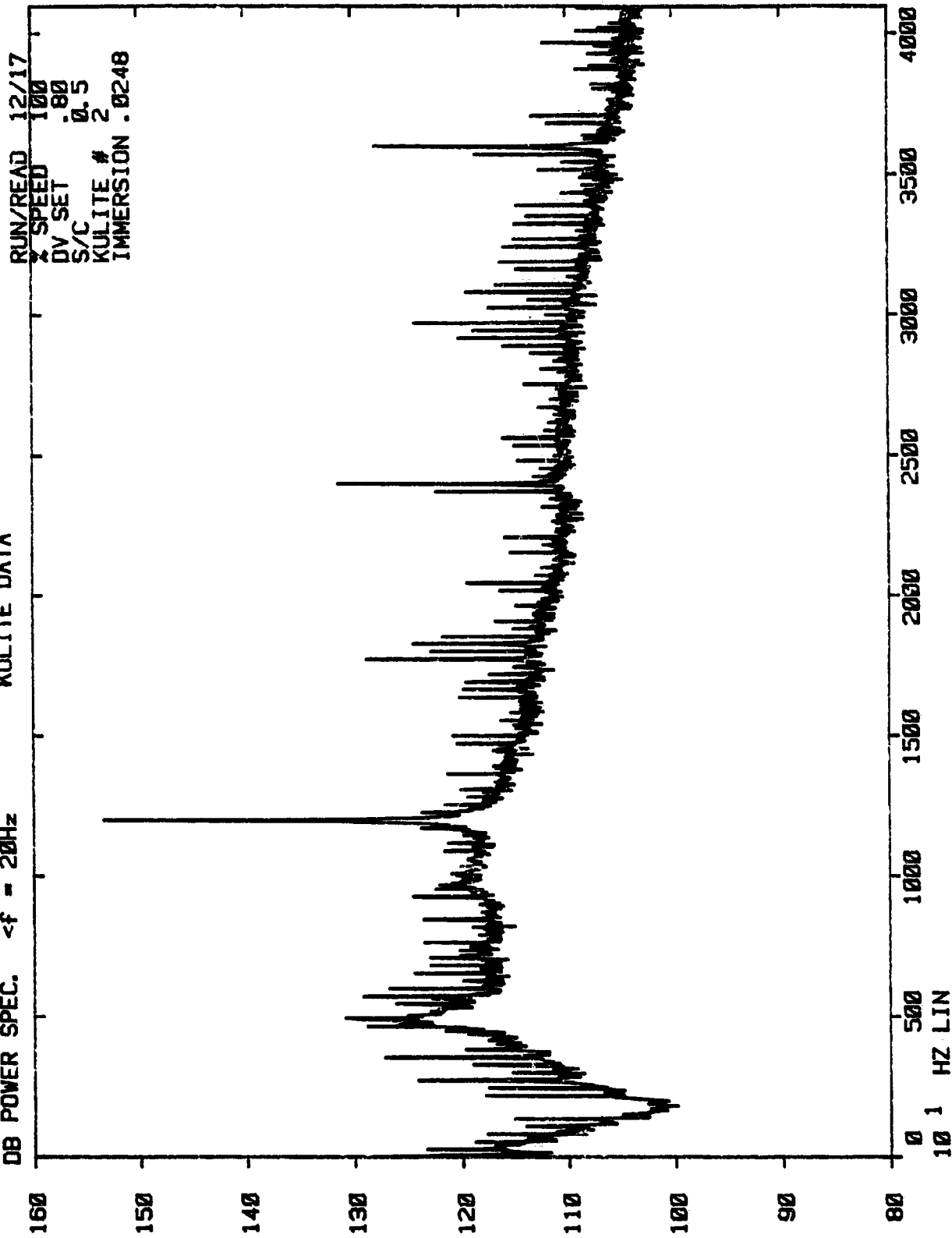
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

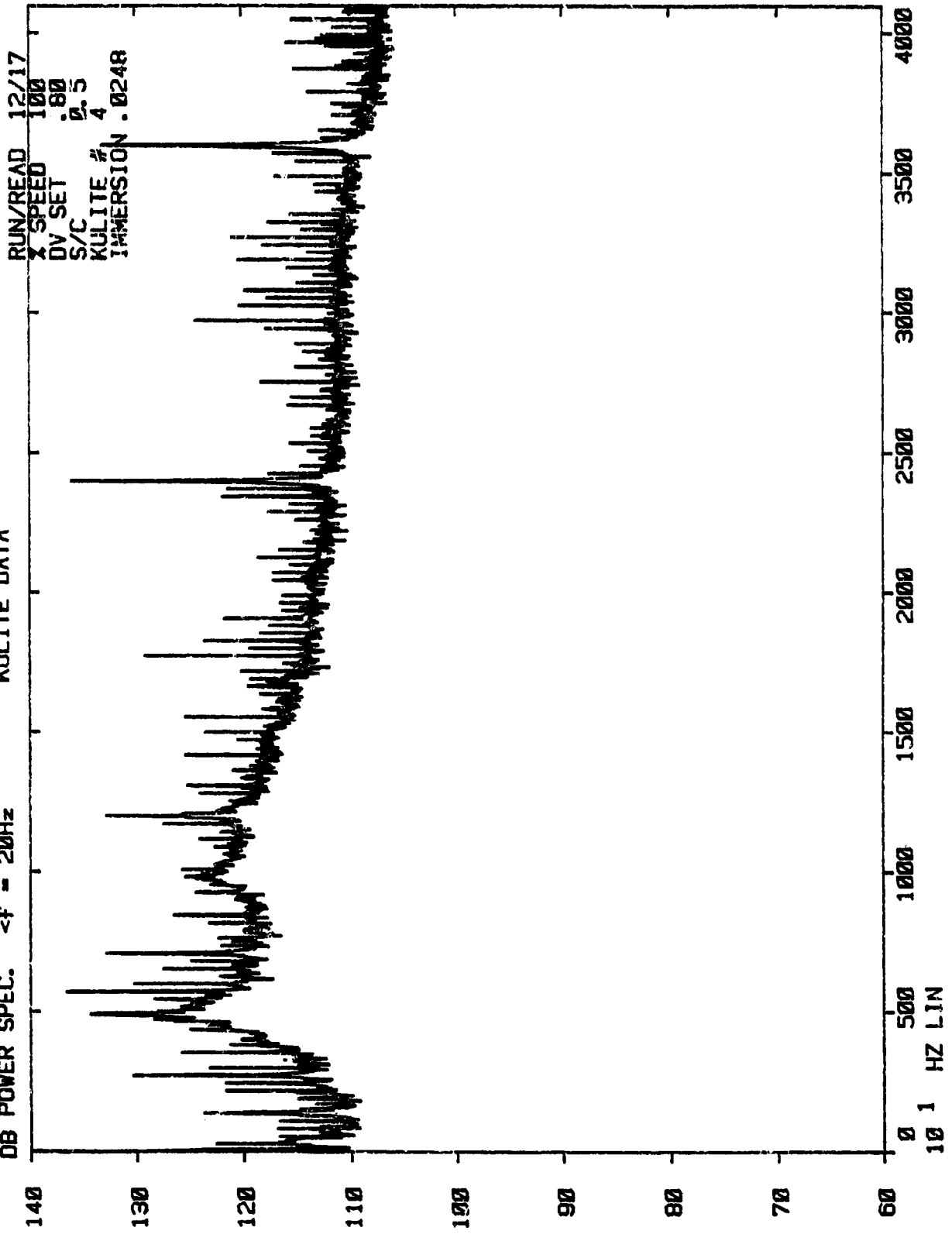
DB POWER SPEC. $\Delta f = 20\text{Hz}$



RUN/READ 12/17
* SPEED 100
DV SET .80
S/C 0.5
KULITE # 2
IMMERSION .0248

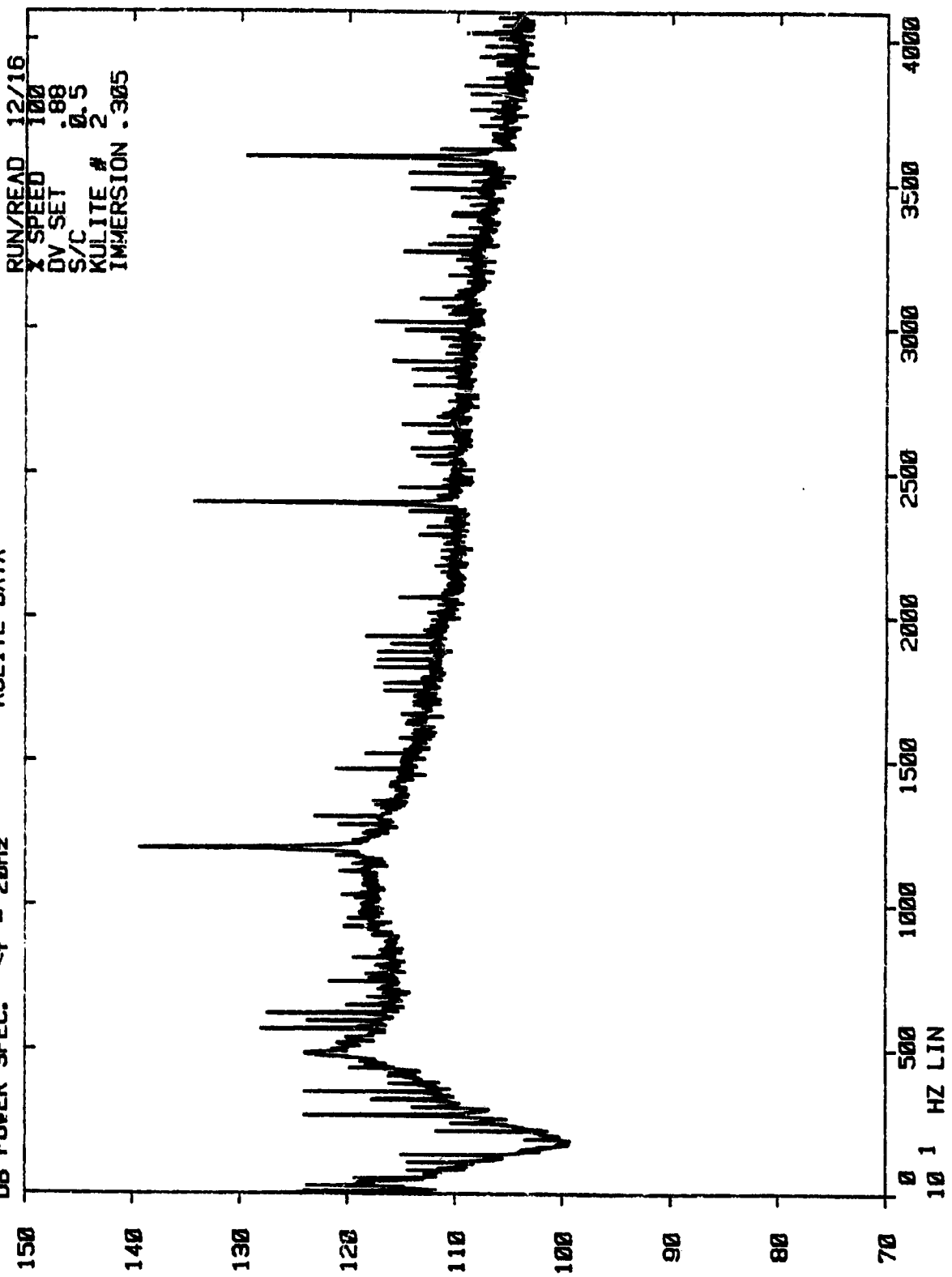
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



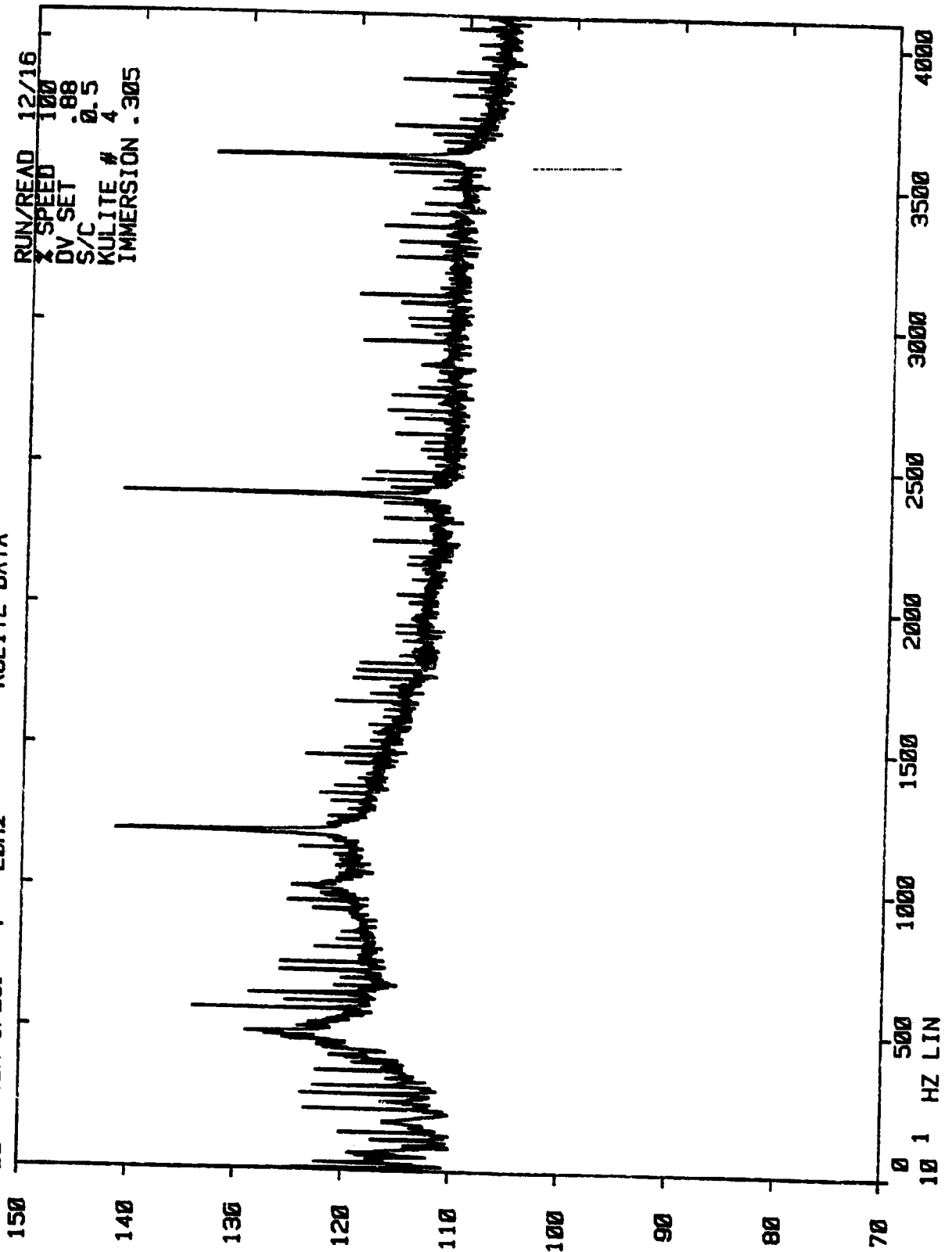
NASA V/B STUDY
KULLITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

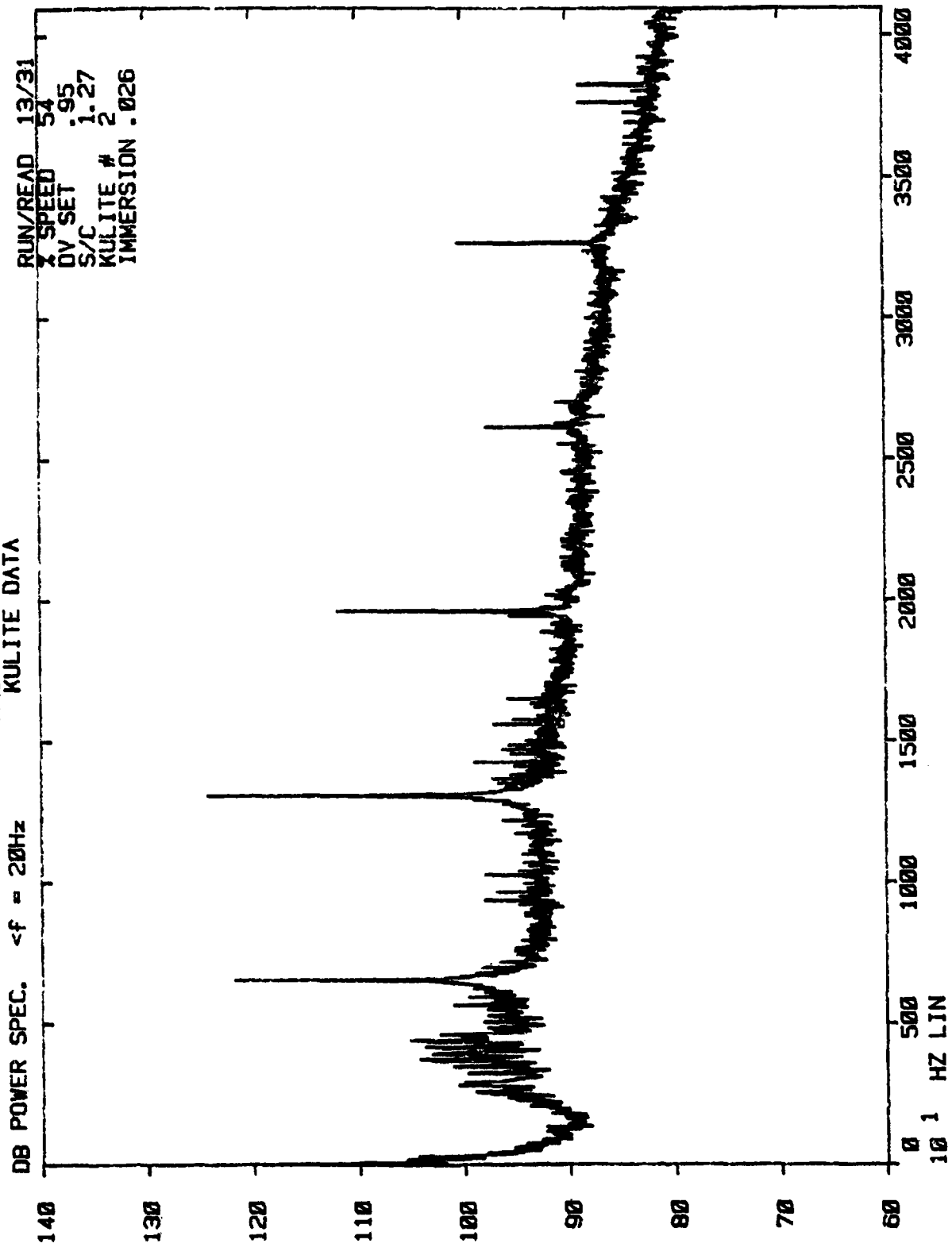


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

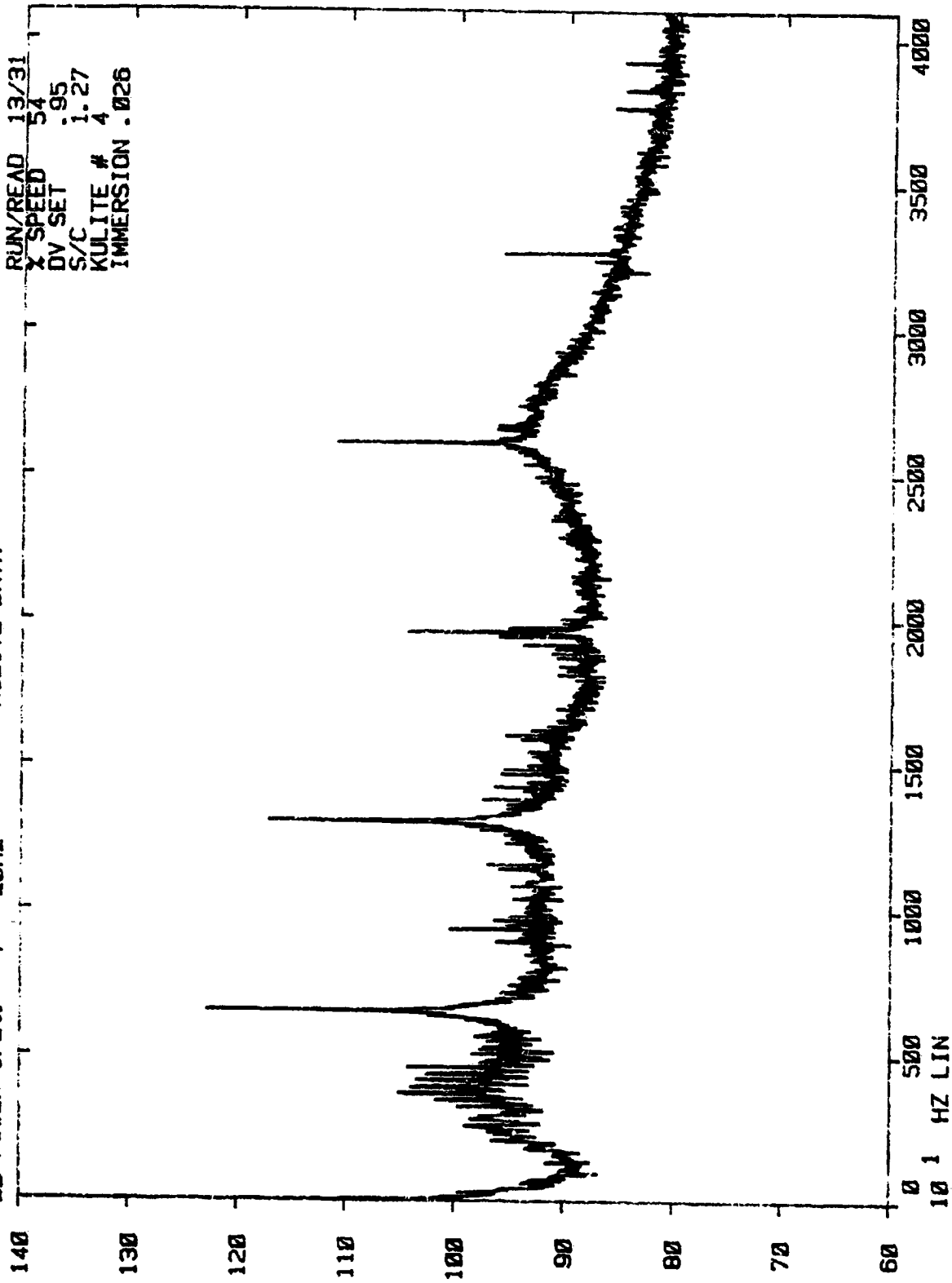


NASA V/B STUDY
KULITE DATA



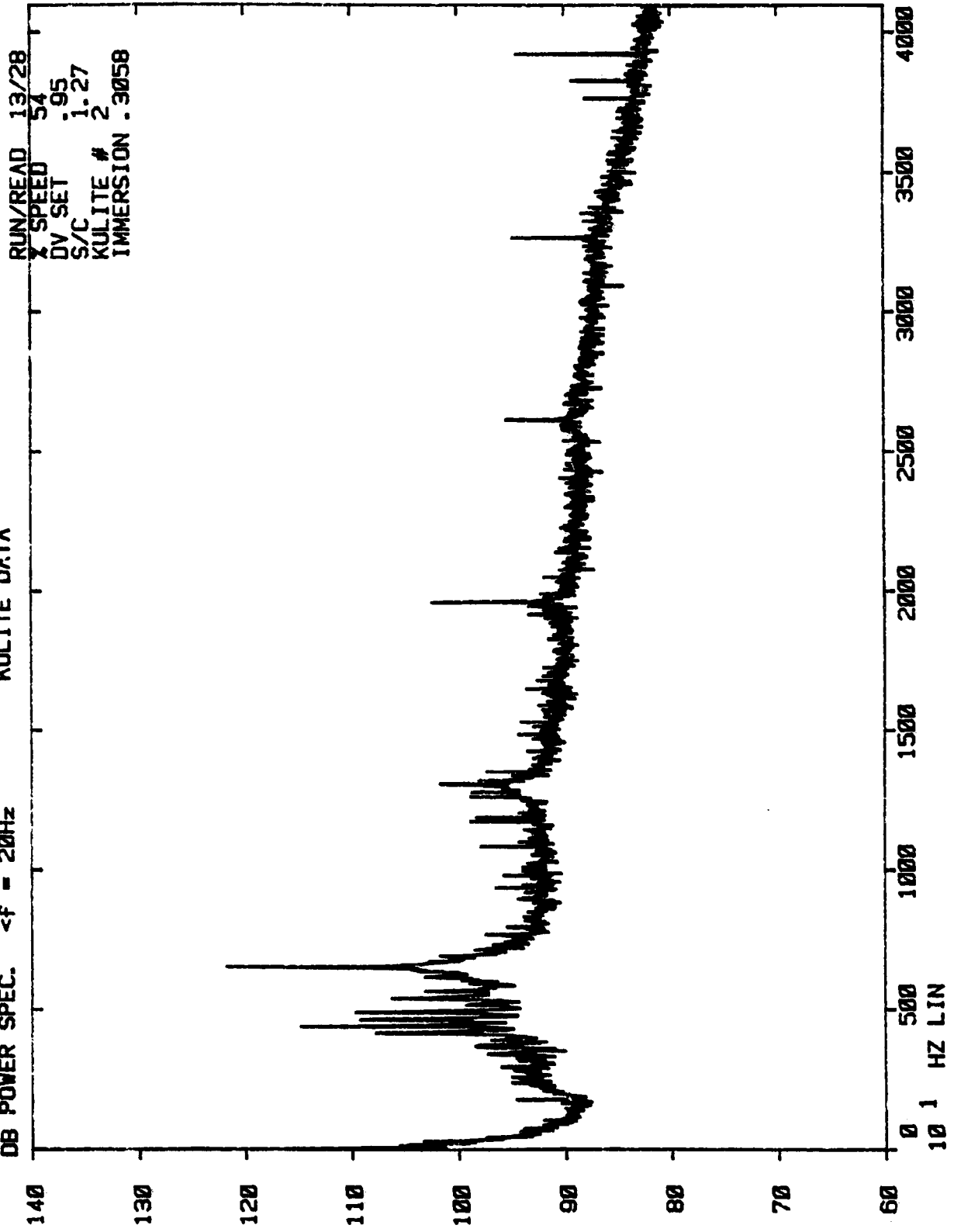
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

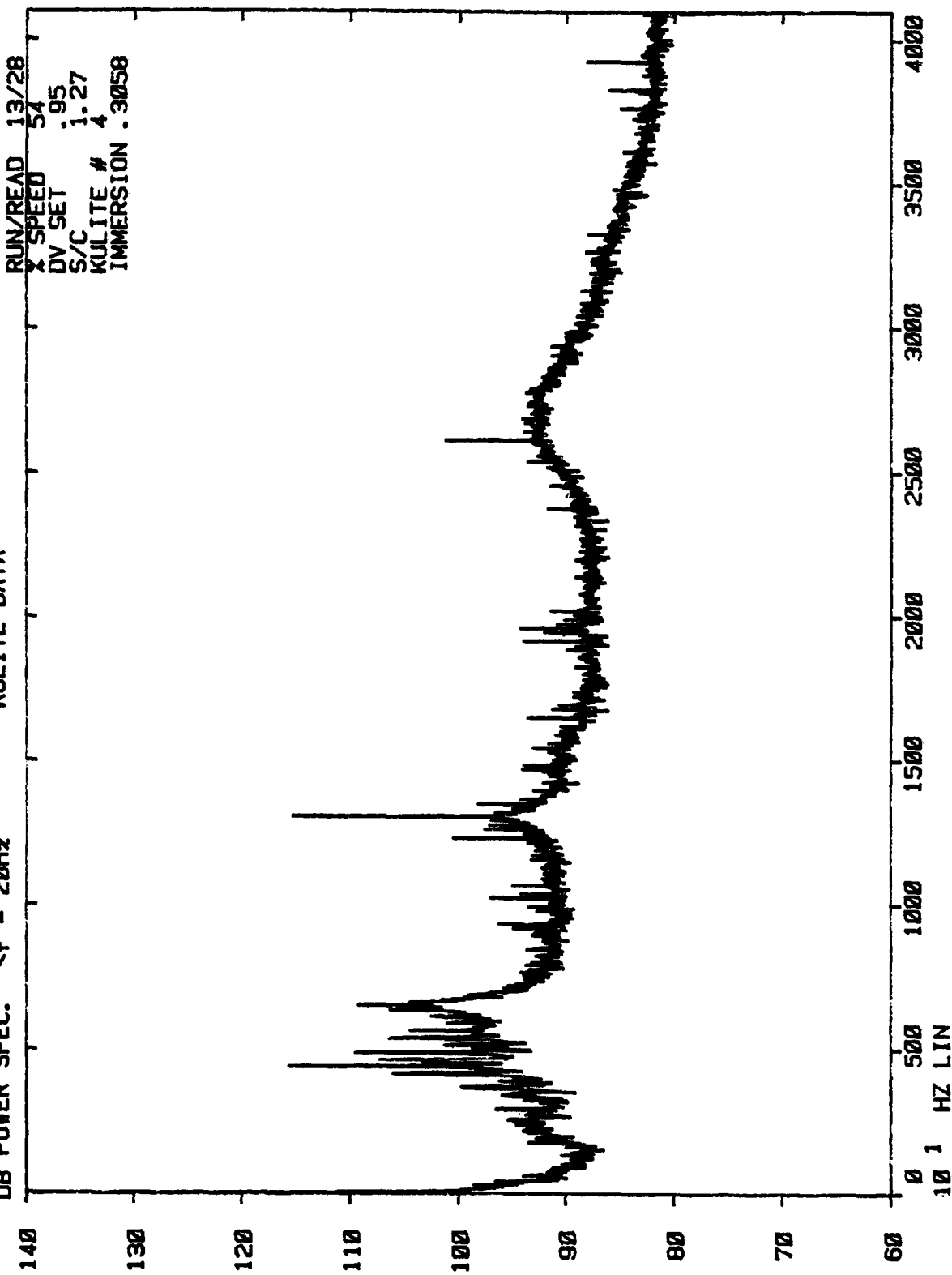
DB POWER SPEC. <f = 20Hz



RUN/READ 13/28
X SPEED 54
DV SET .95
S/C 1.27
KULITE # 2
IMMERSION .3058

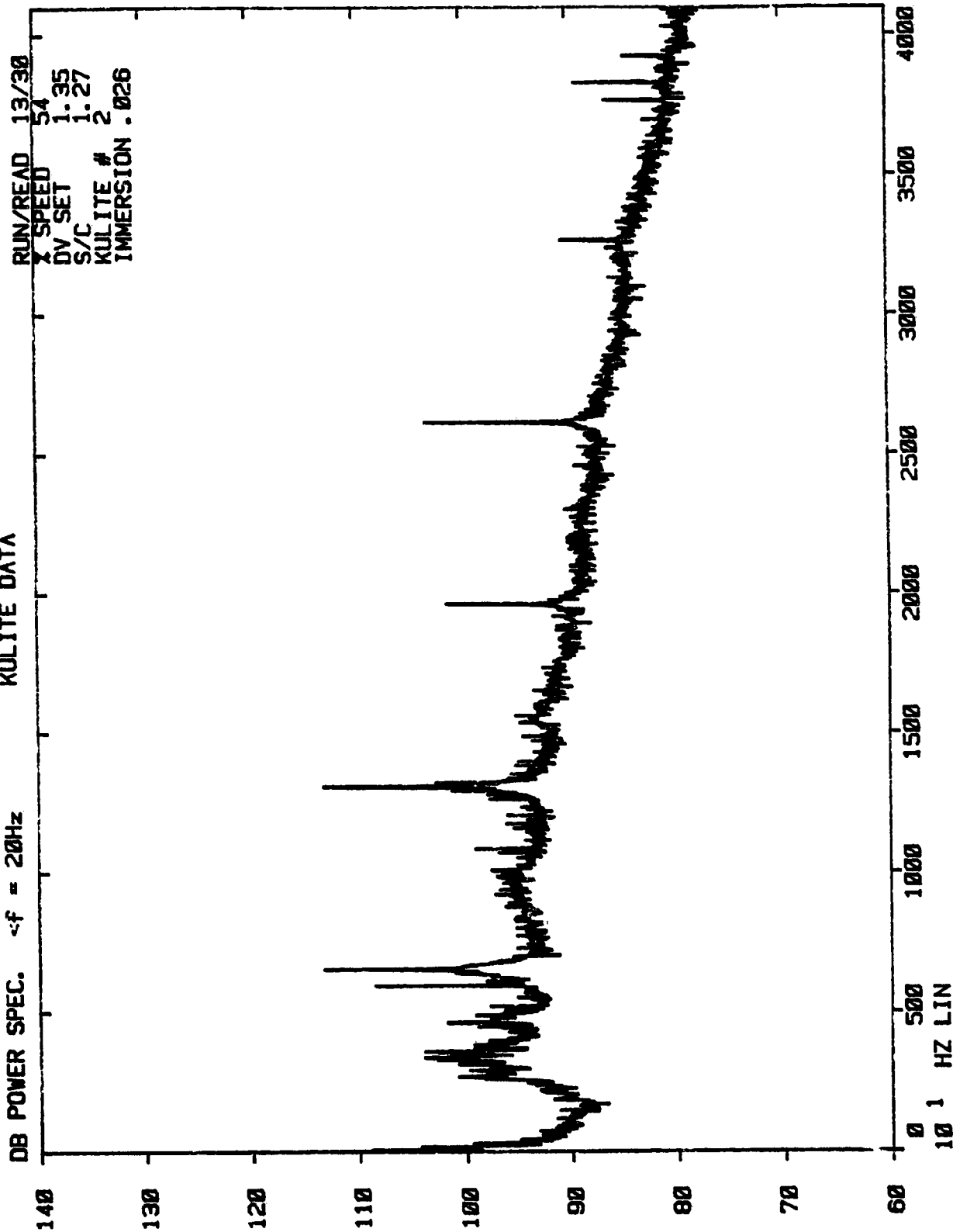
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



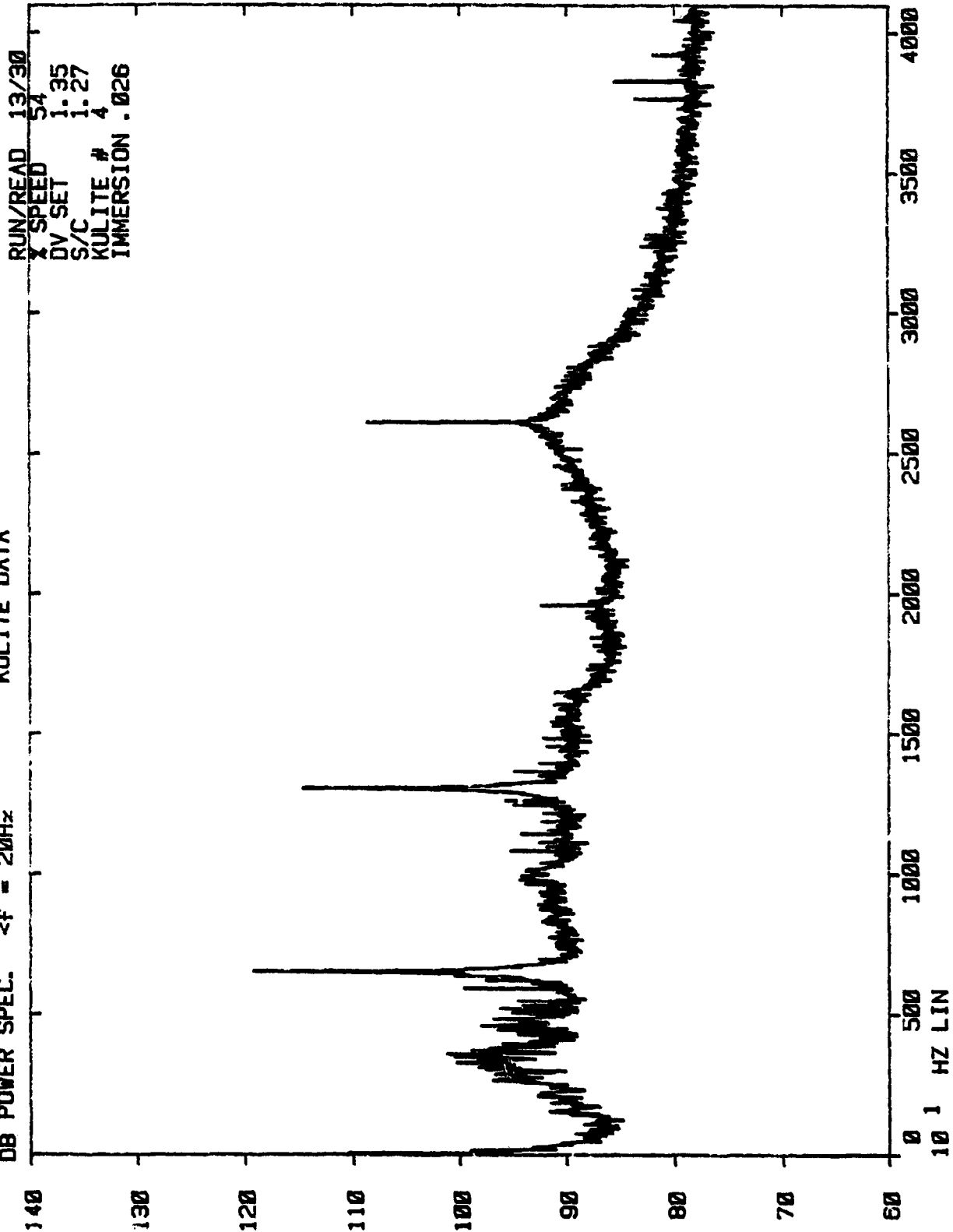
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



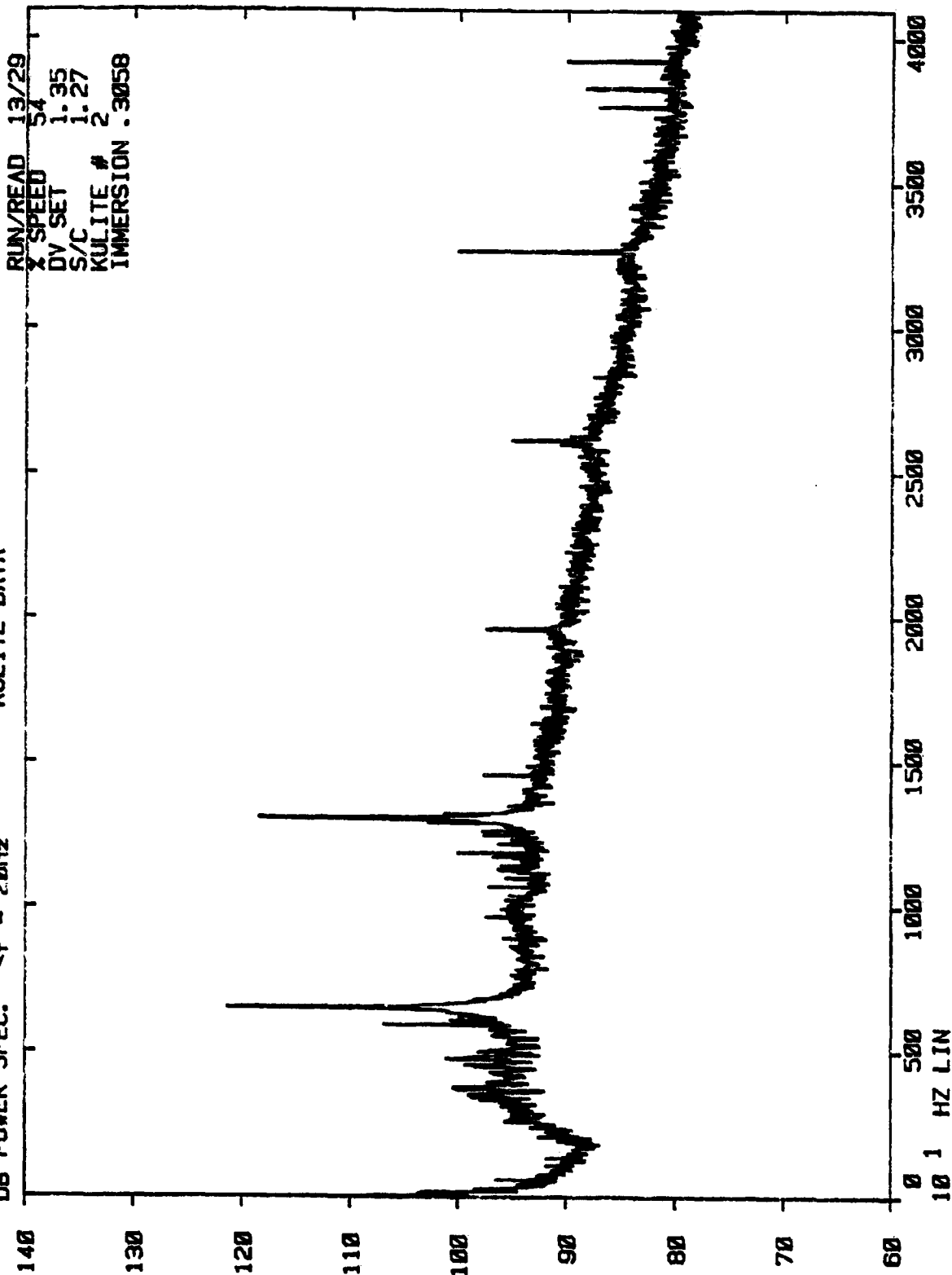
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

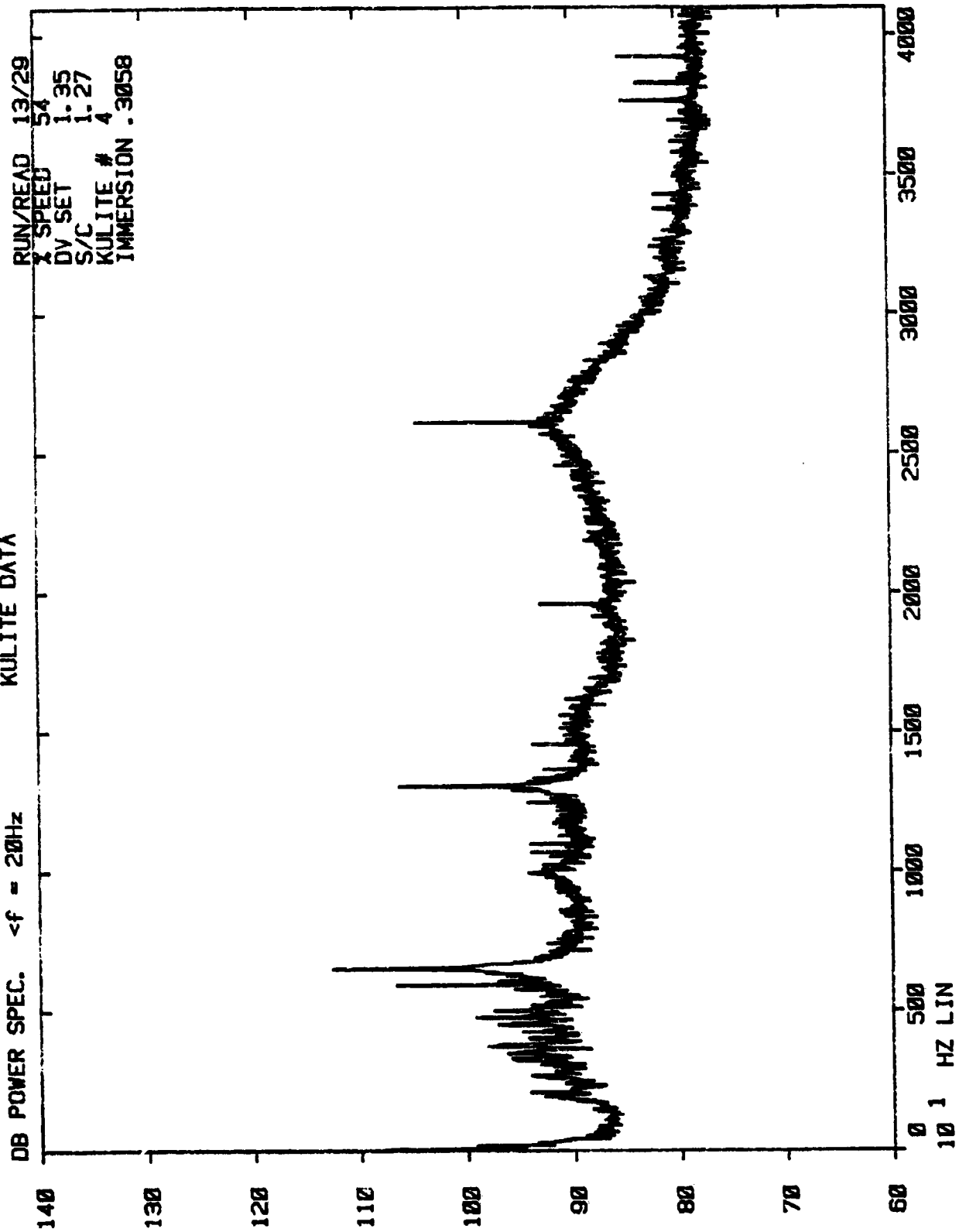


NASA V/B STUDY
KULITE DATA

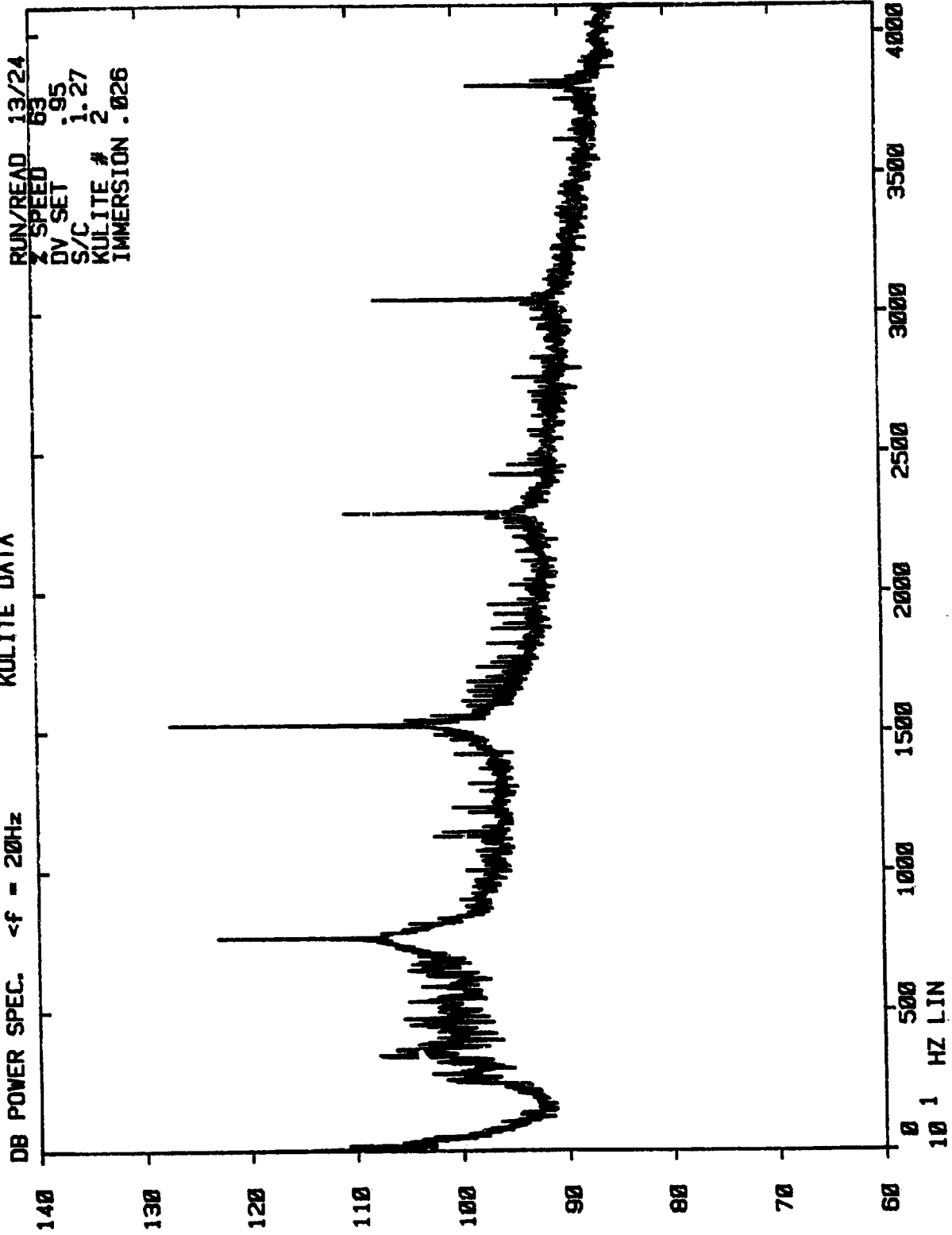
DB POWER SPEC. <f = 20Hz



NASA V/B STUDY
KULITE DATA

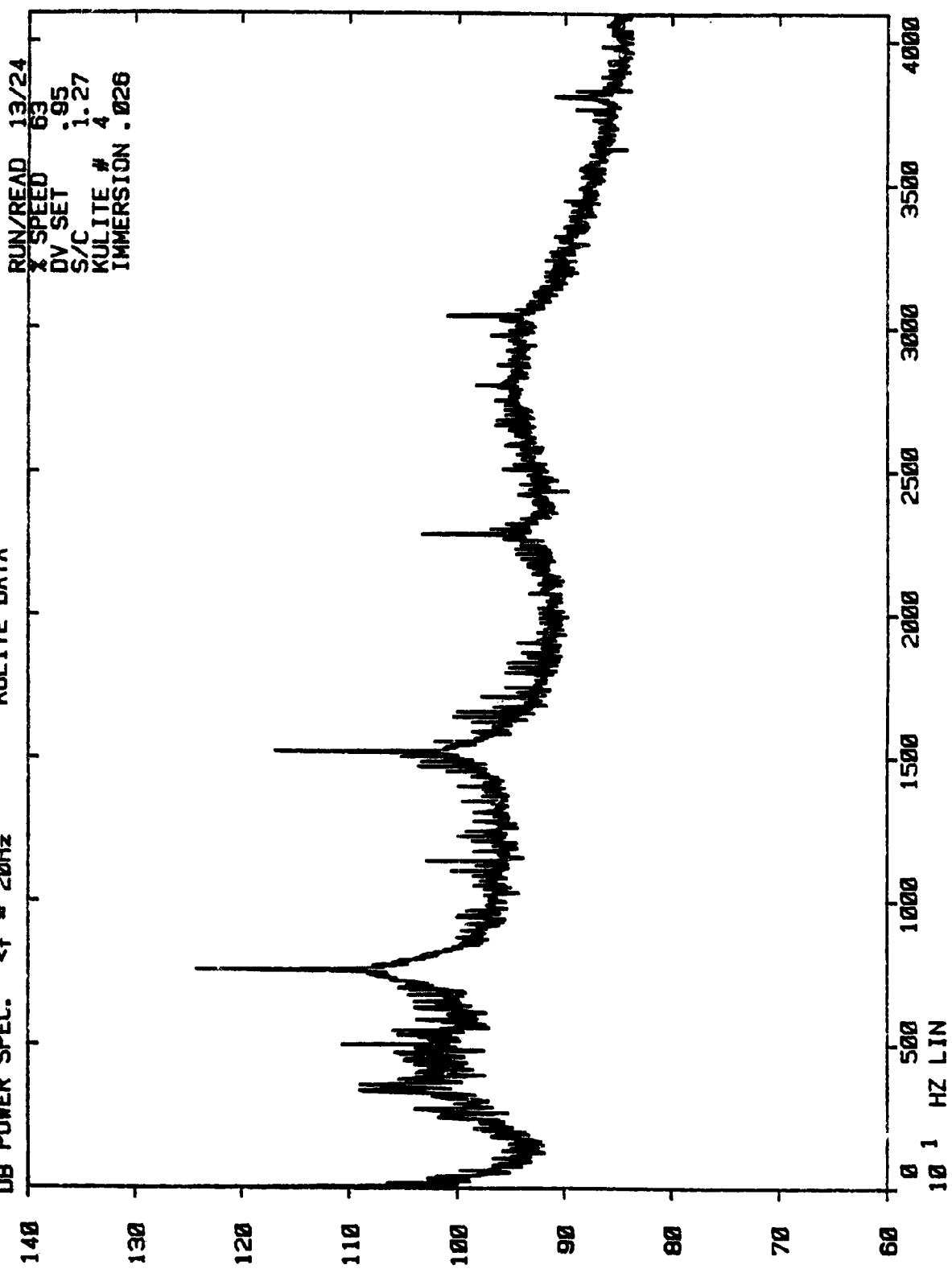


NASA V/B STUDY
KULITE DATA



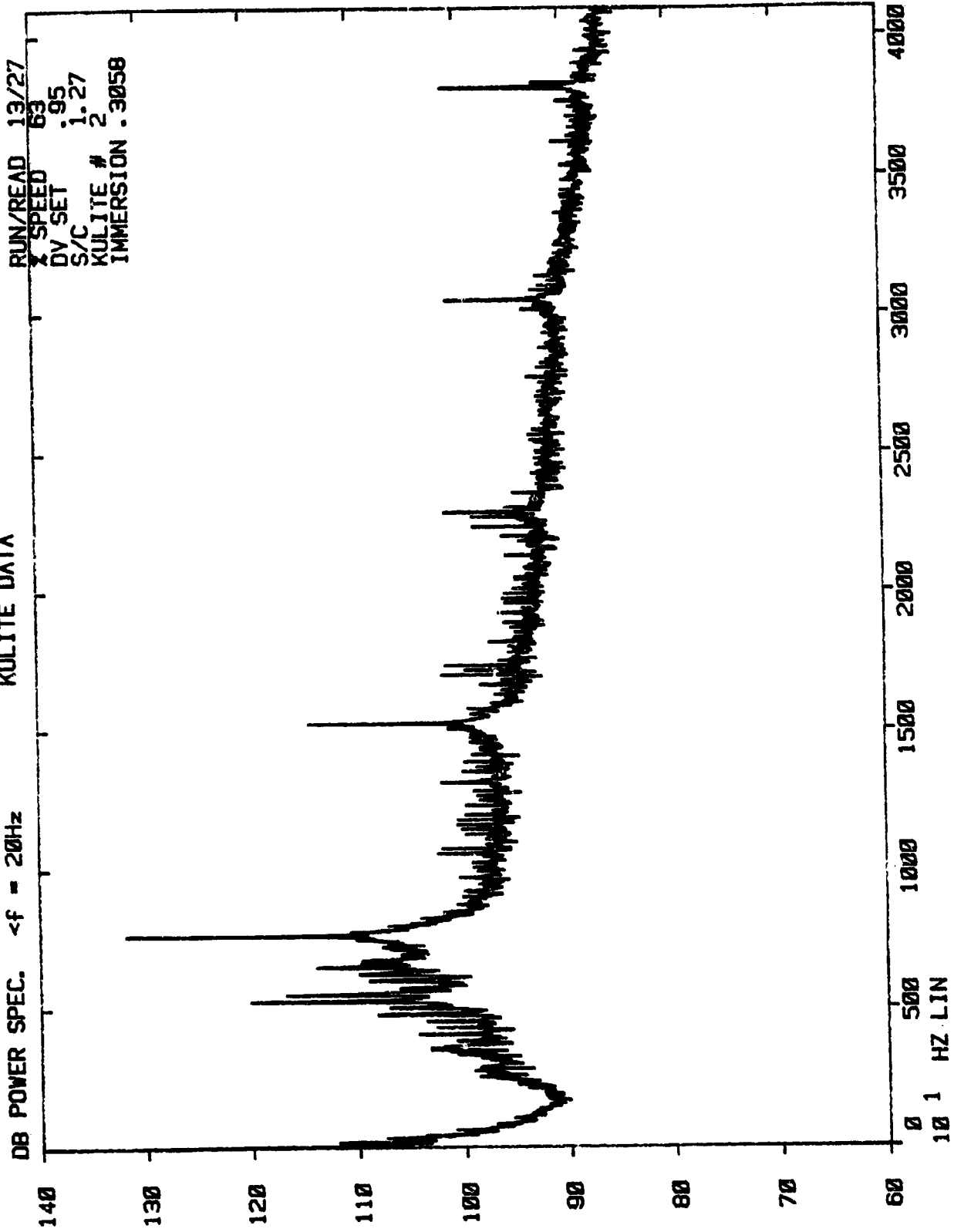
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



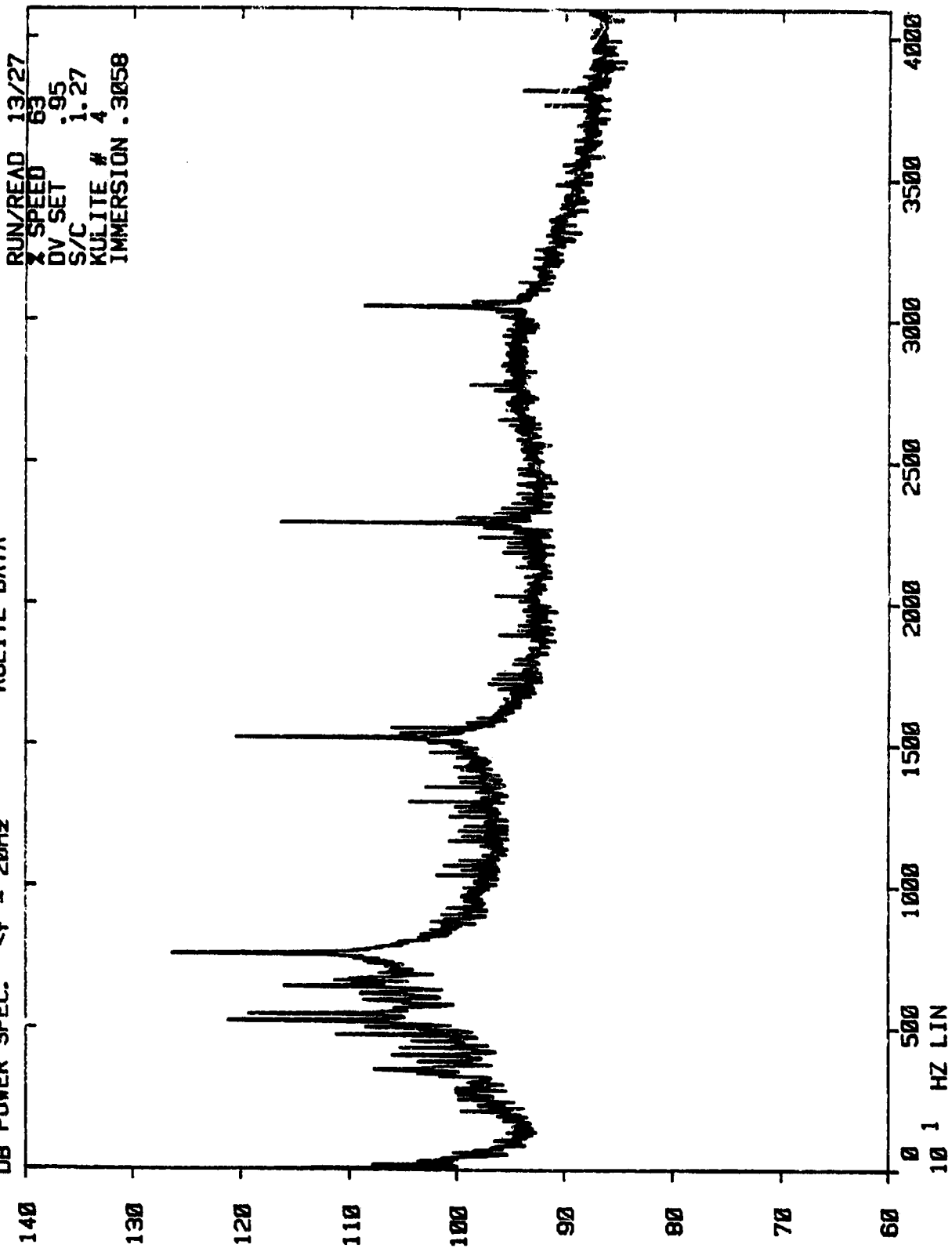
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



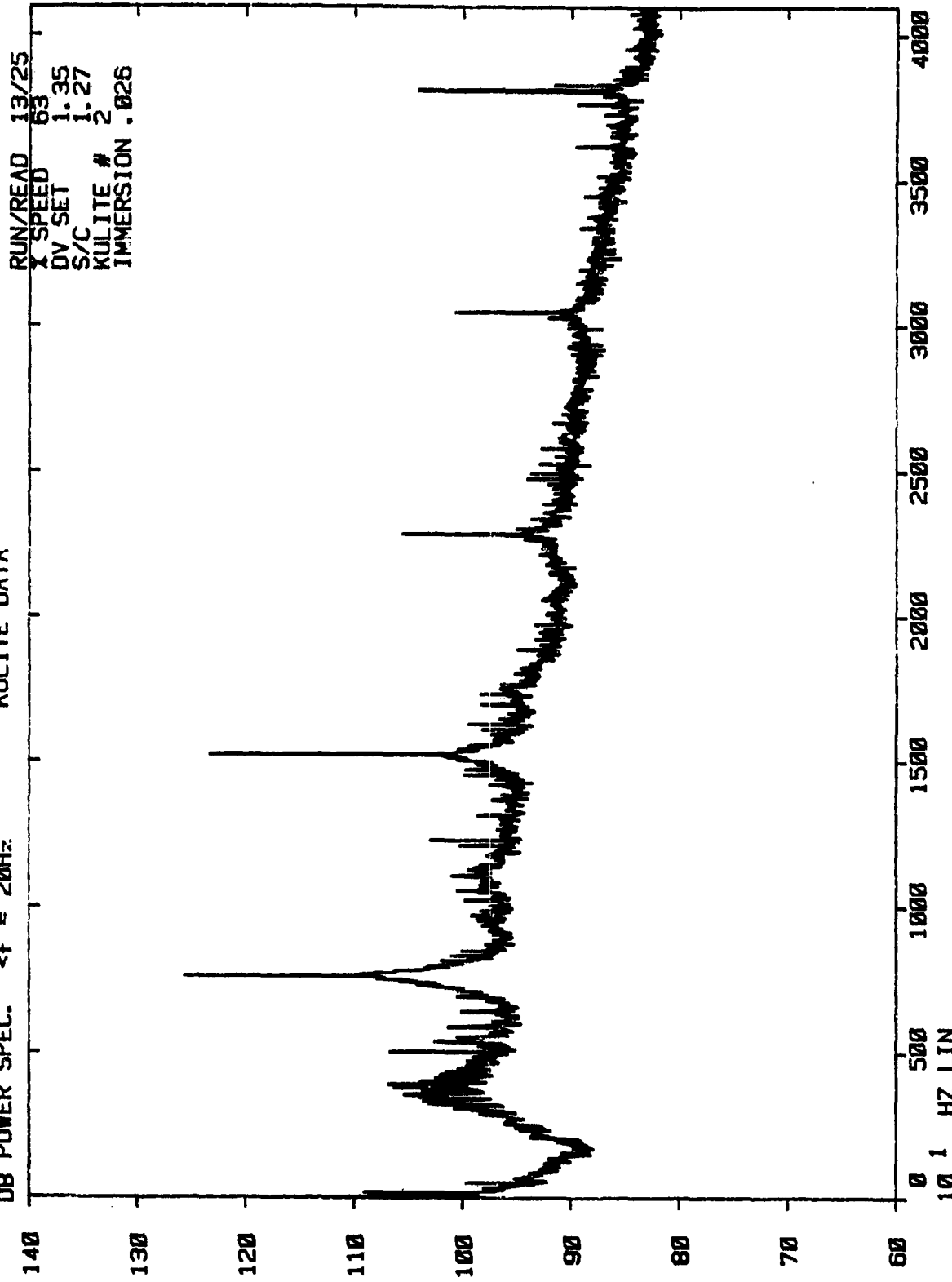
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



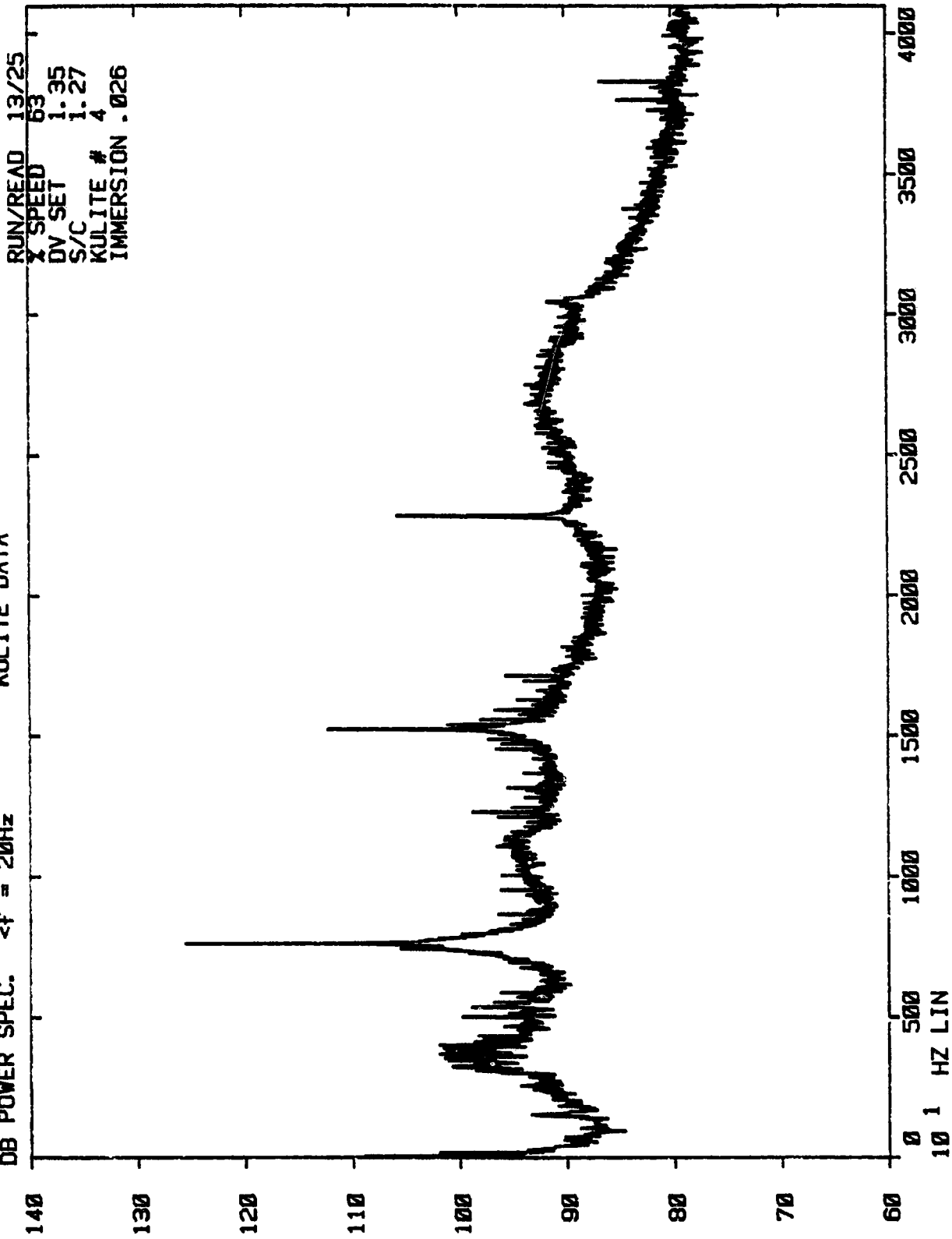
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



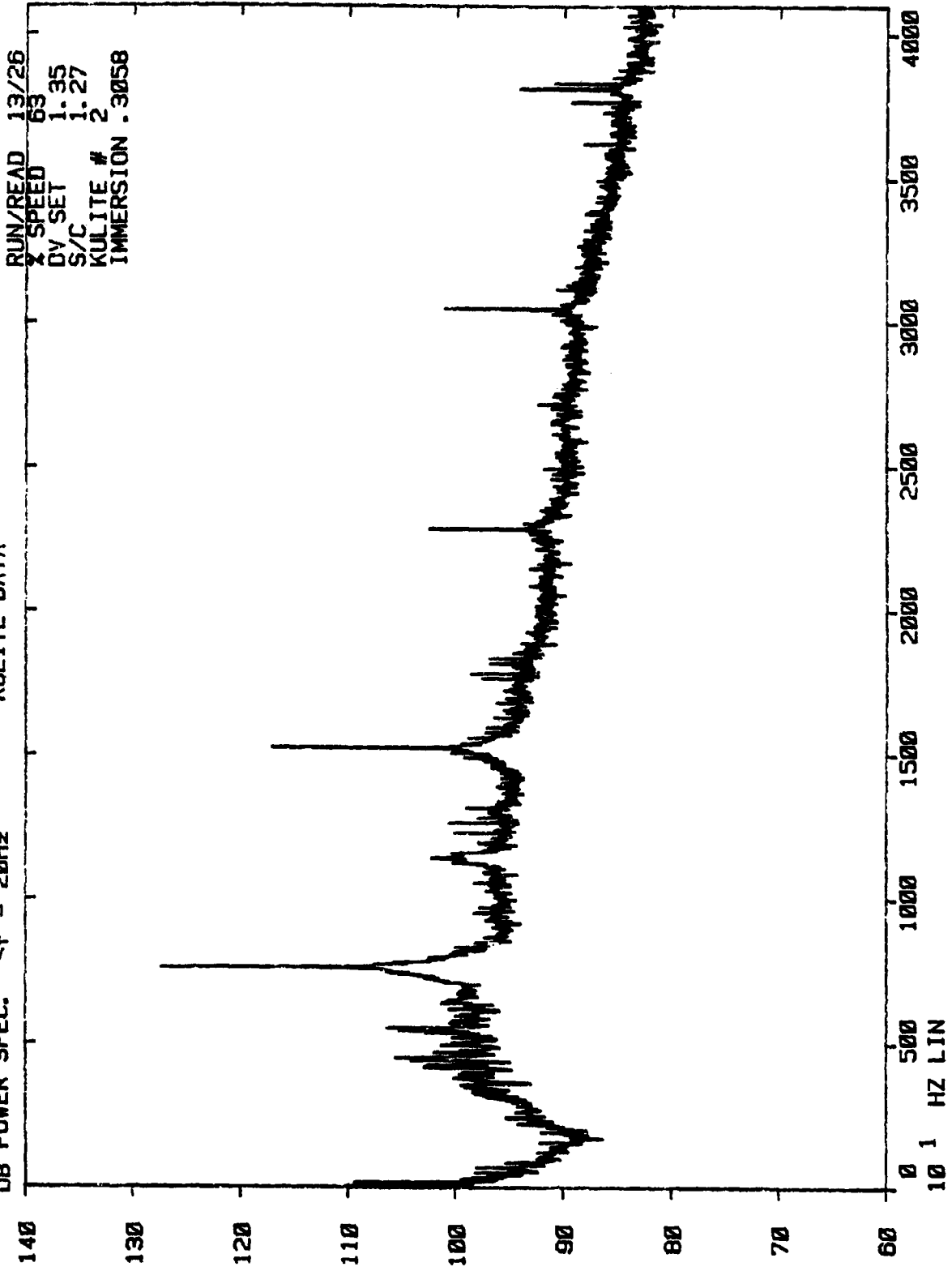
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



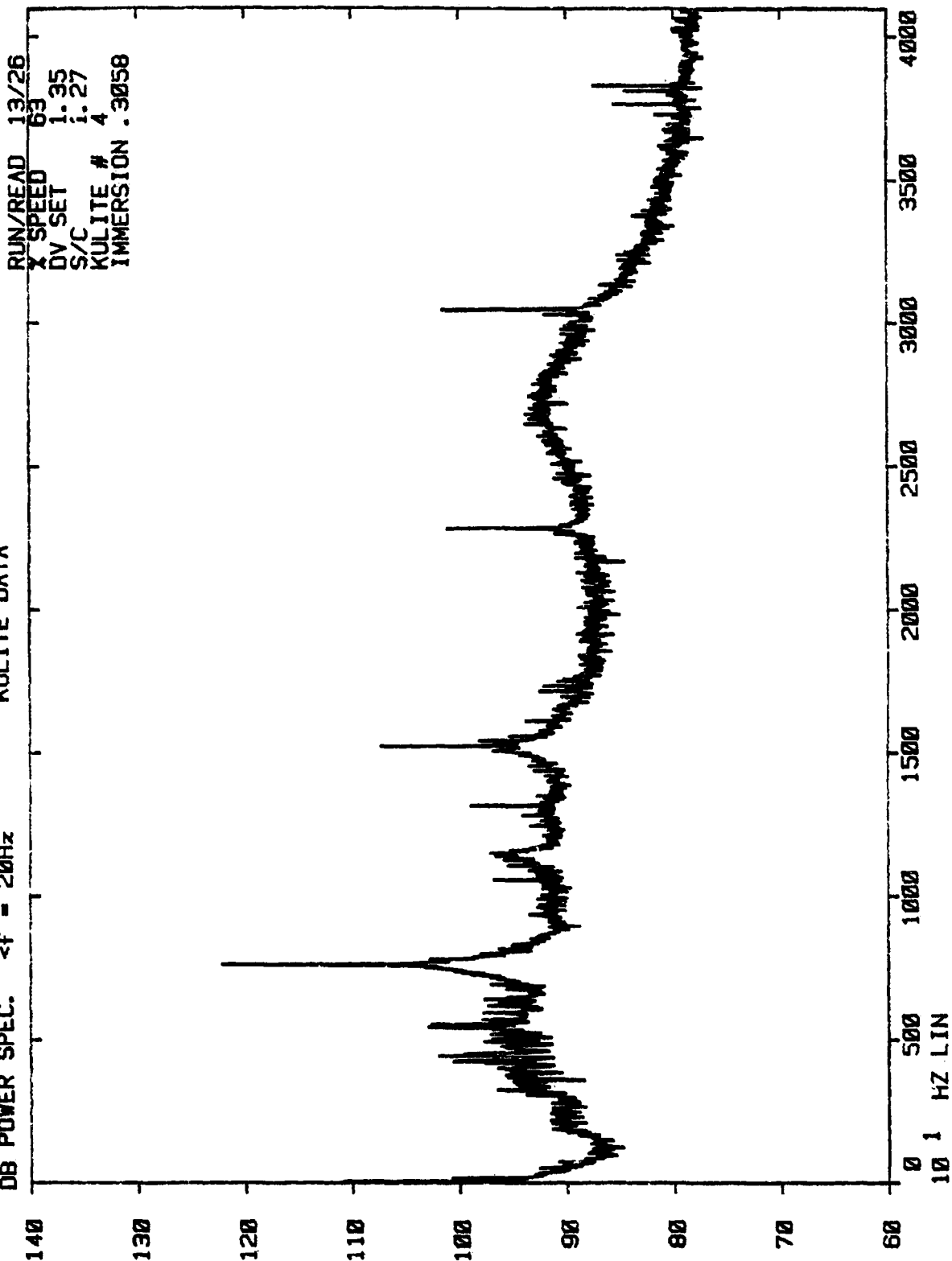
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

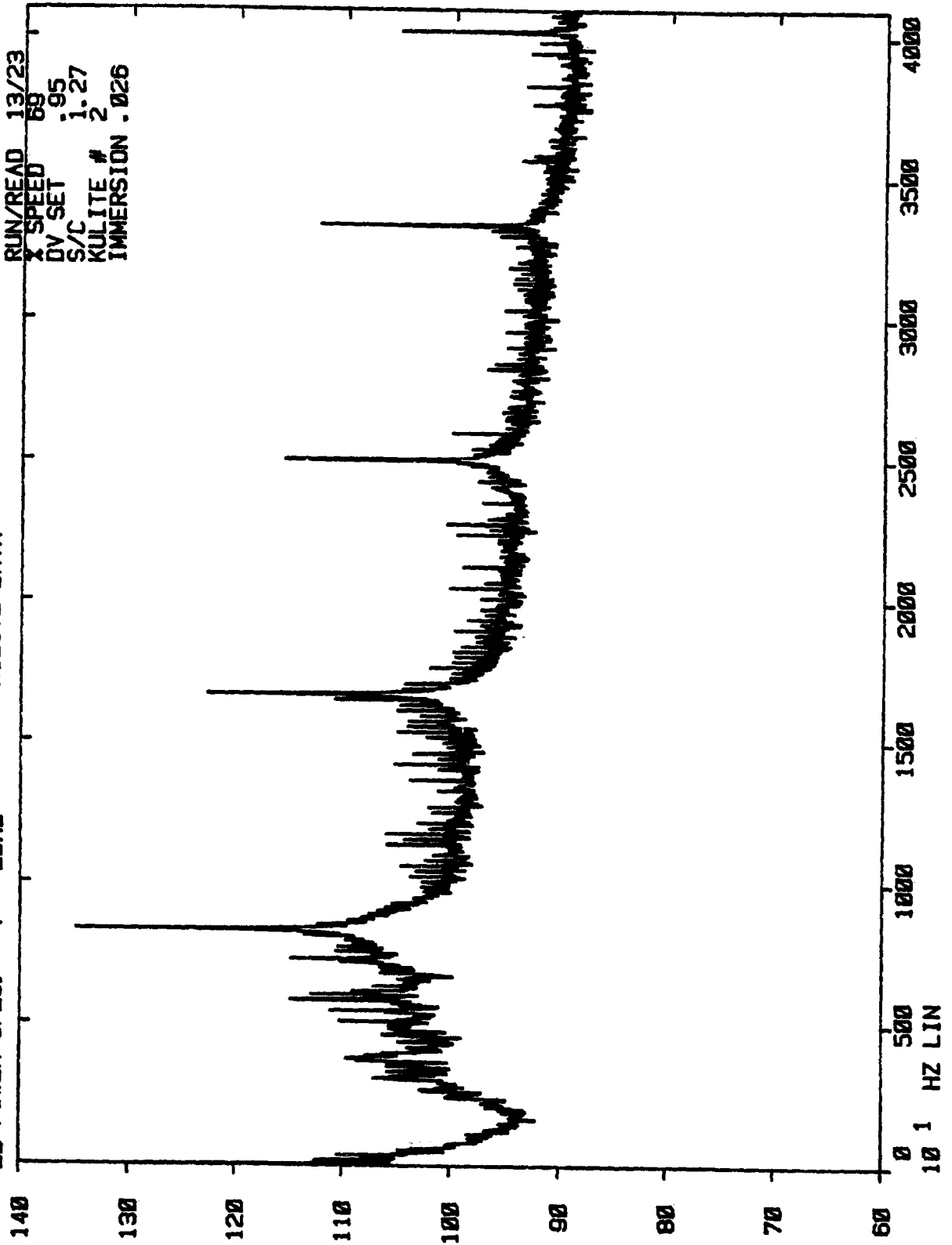
DB POWER SPEC. <f = 20Hz





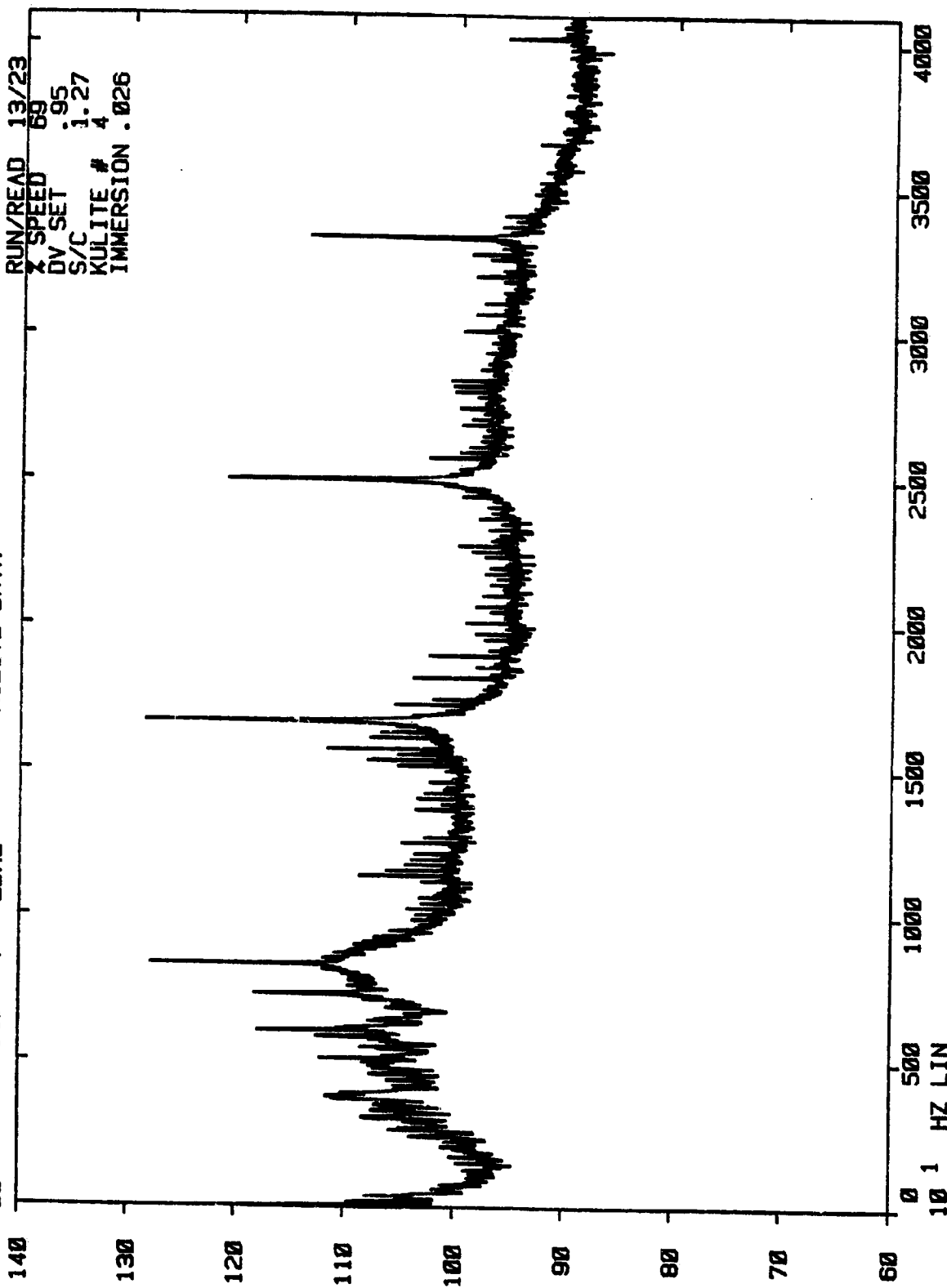
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



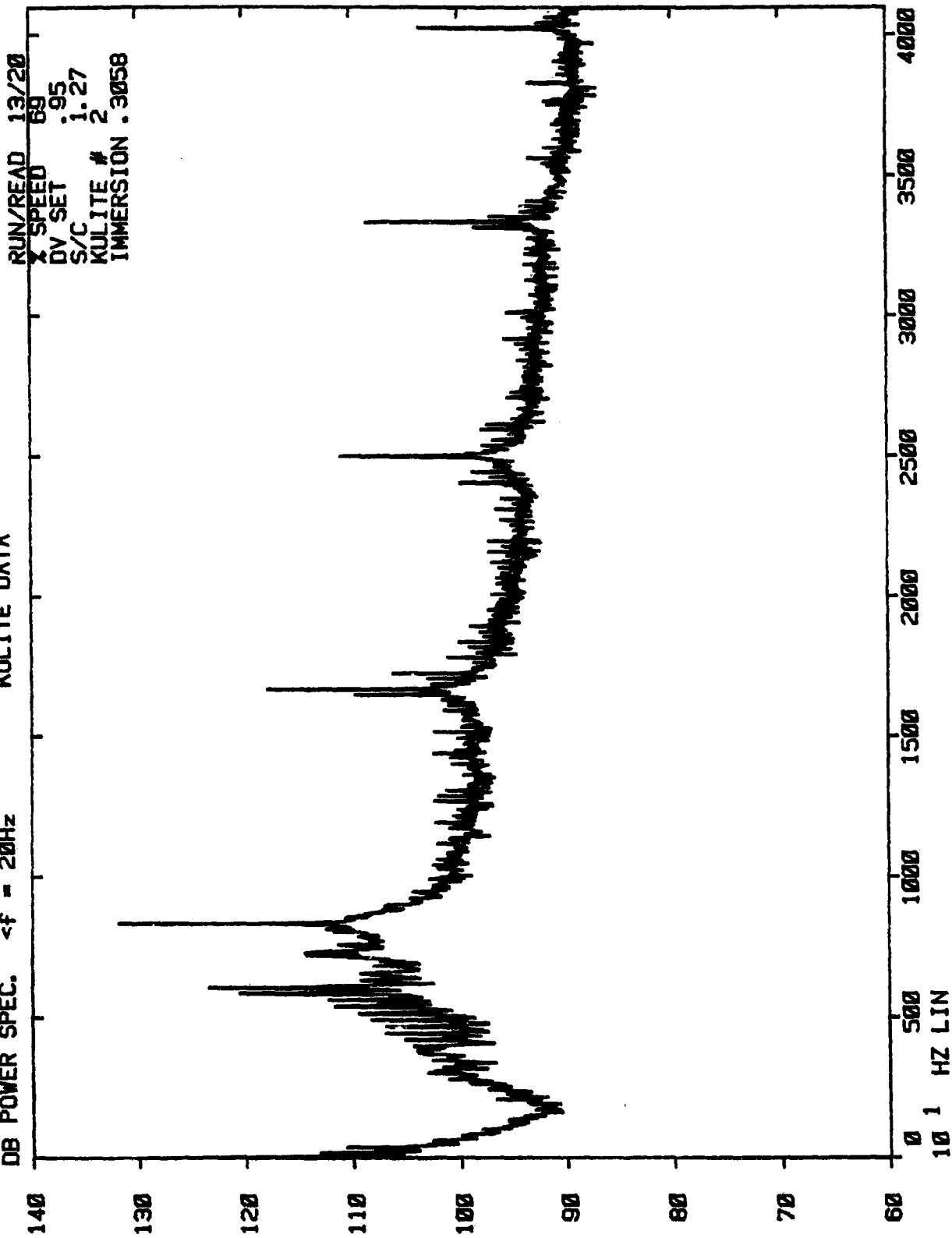
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



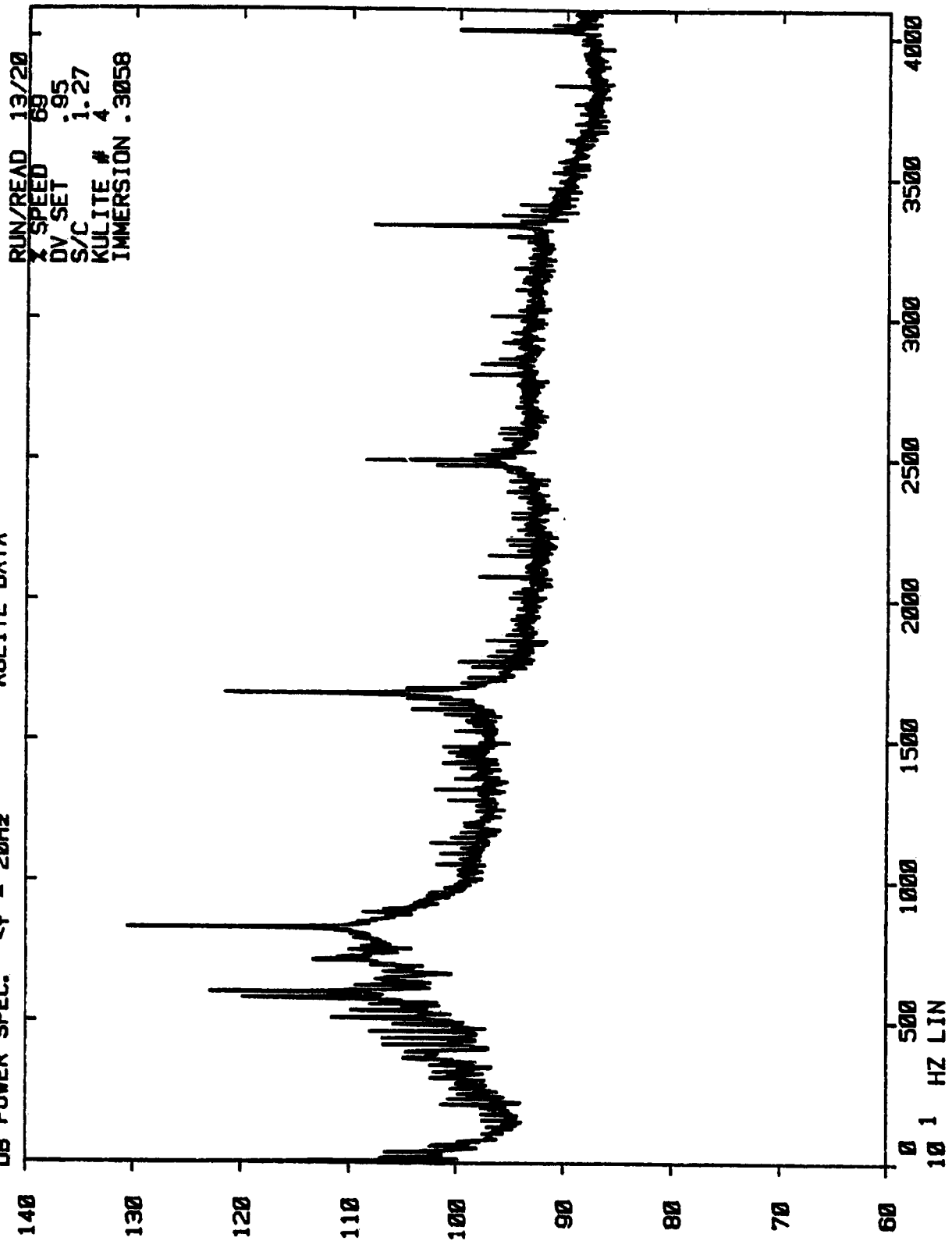
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



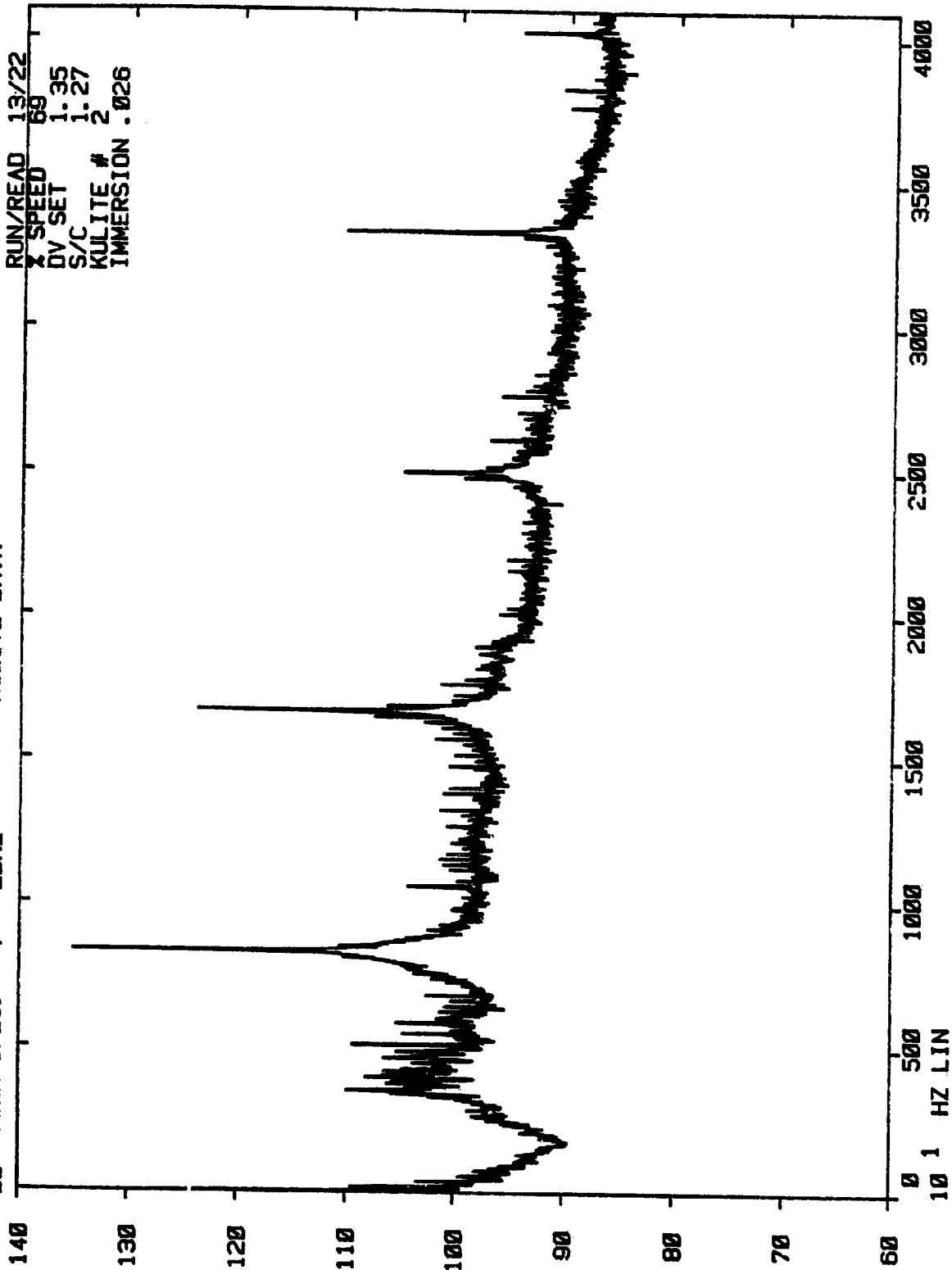
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



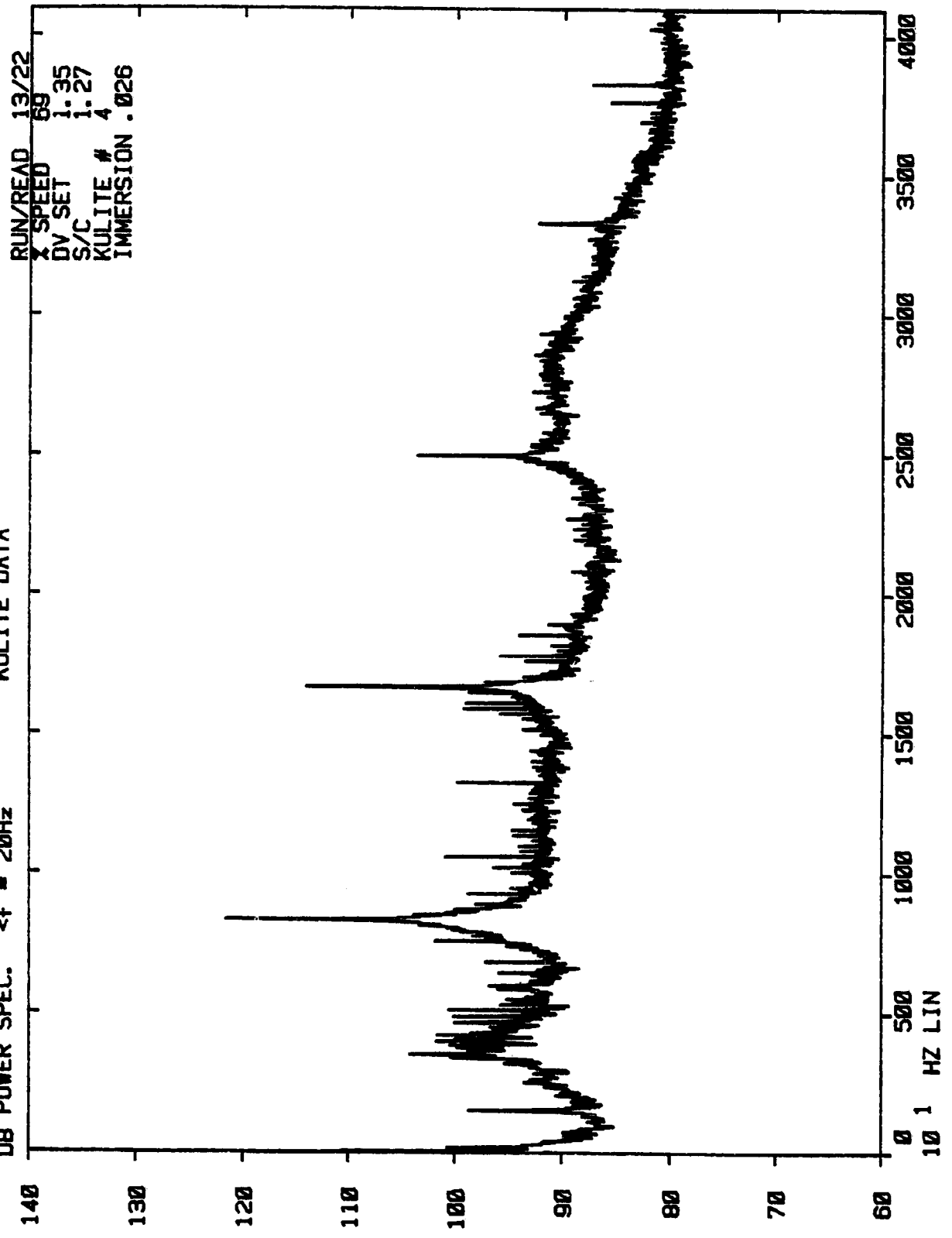
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$

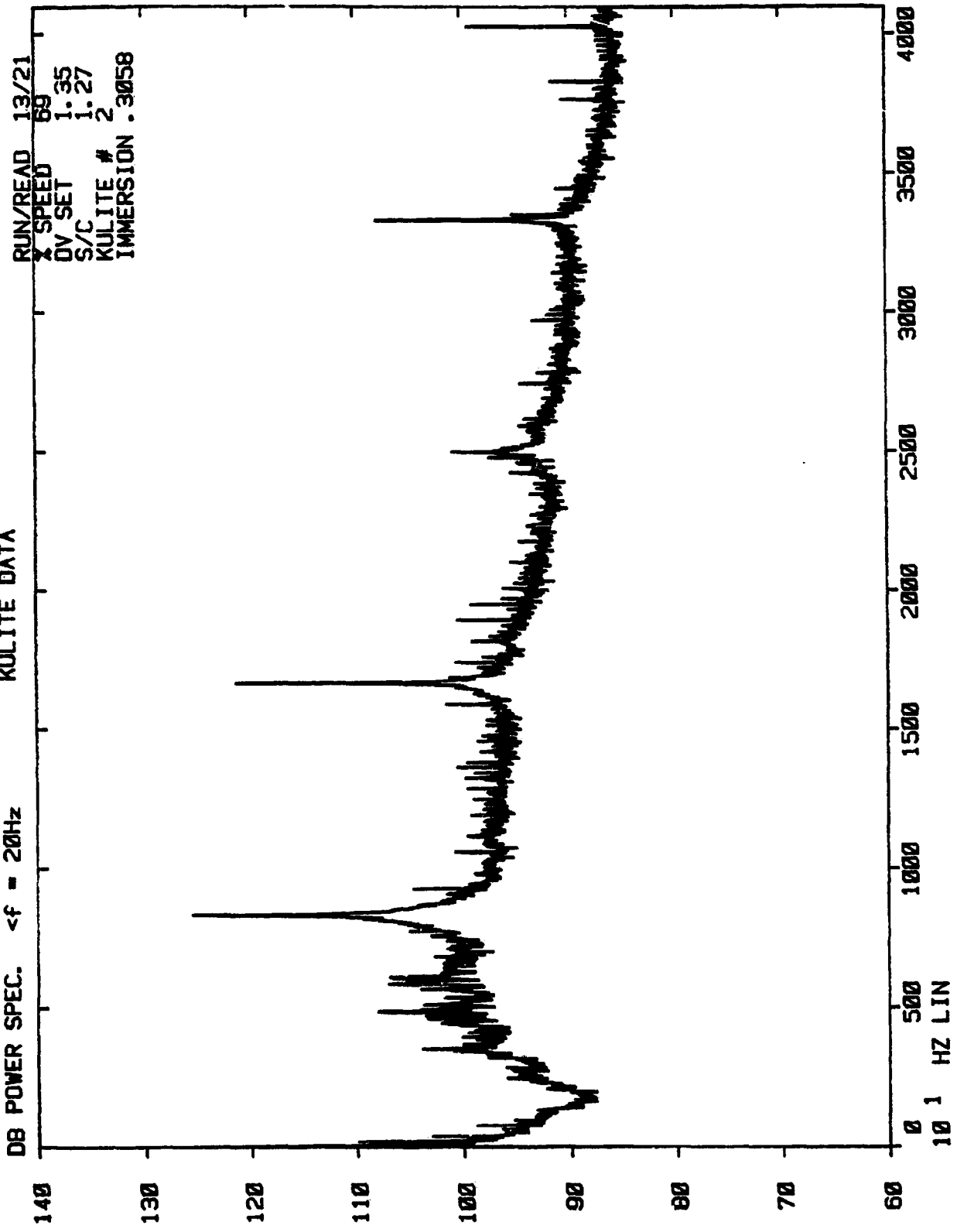


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$

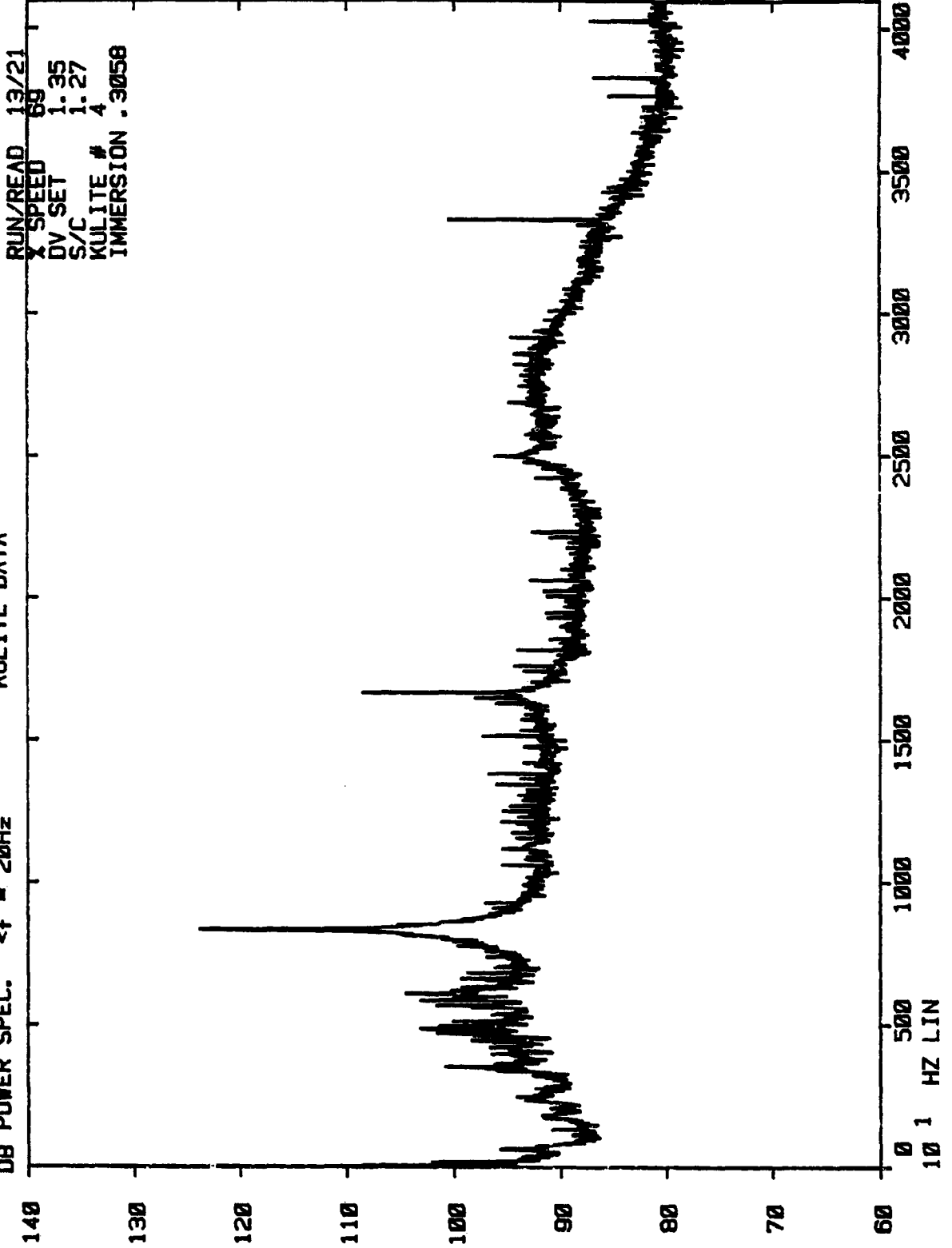


NASA V/B STUDY
KULITE DATA



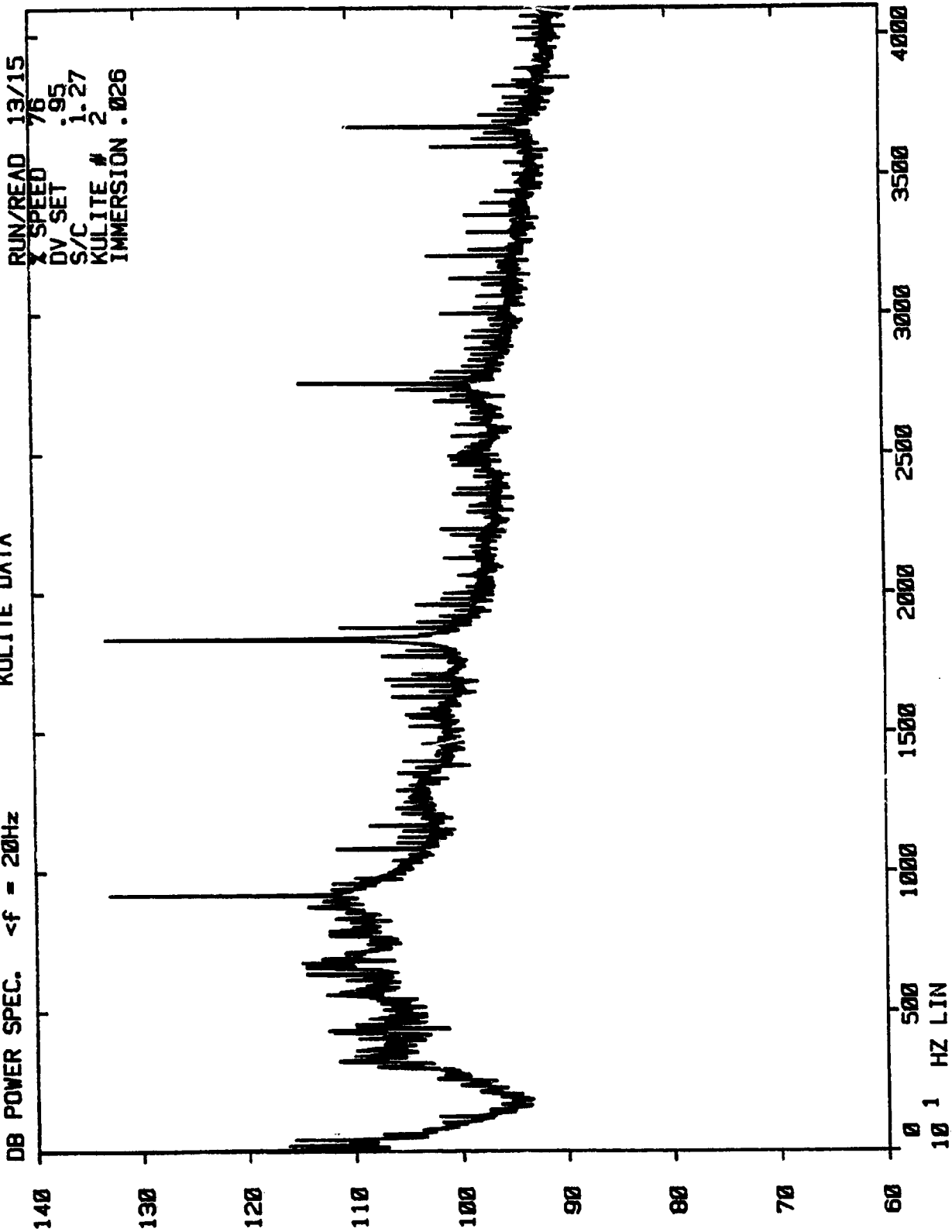
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



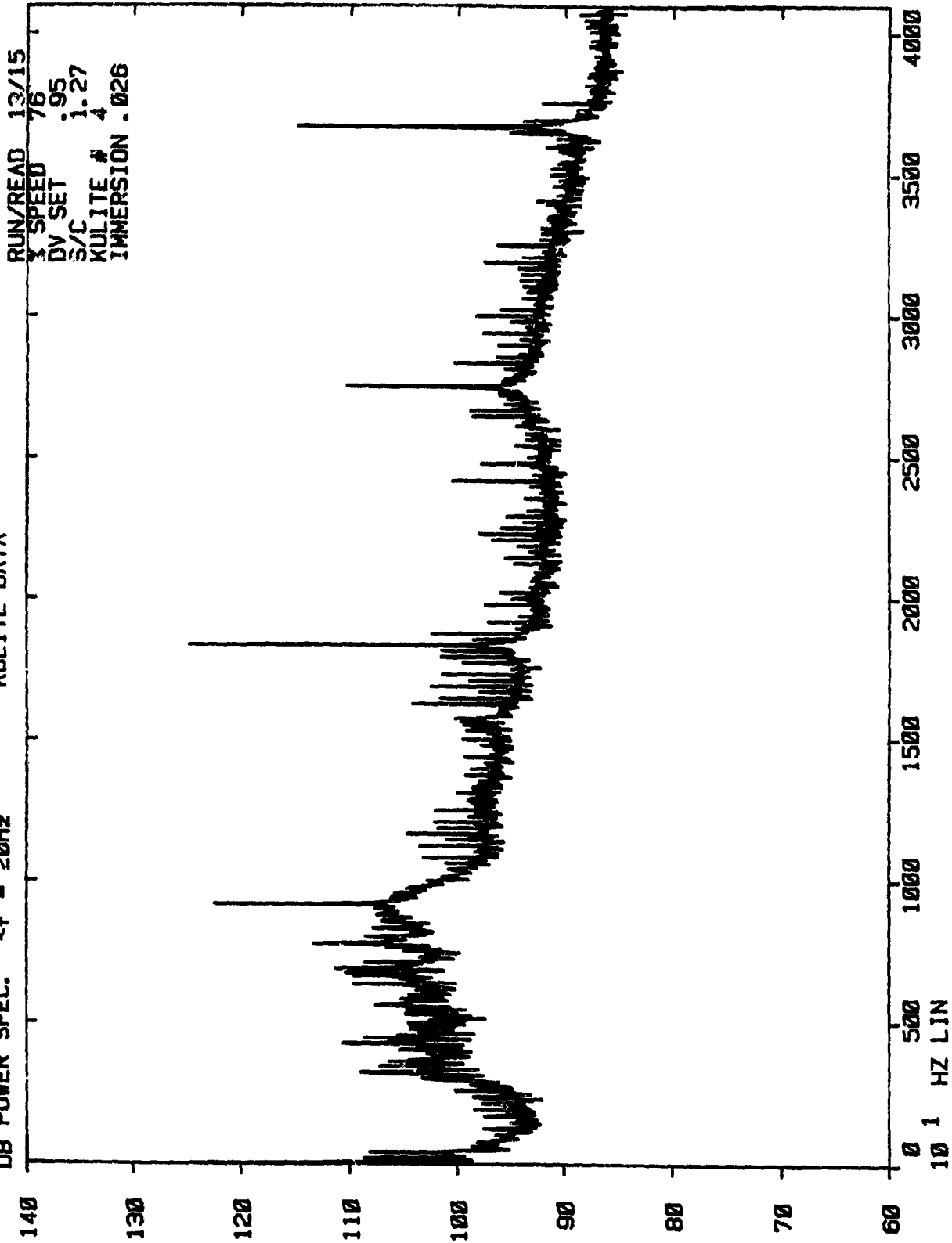
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



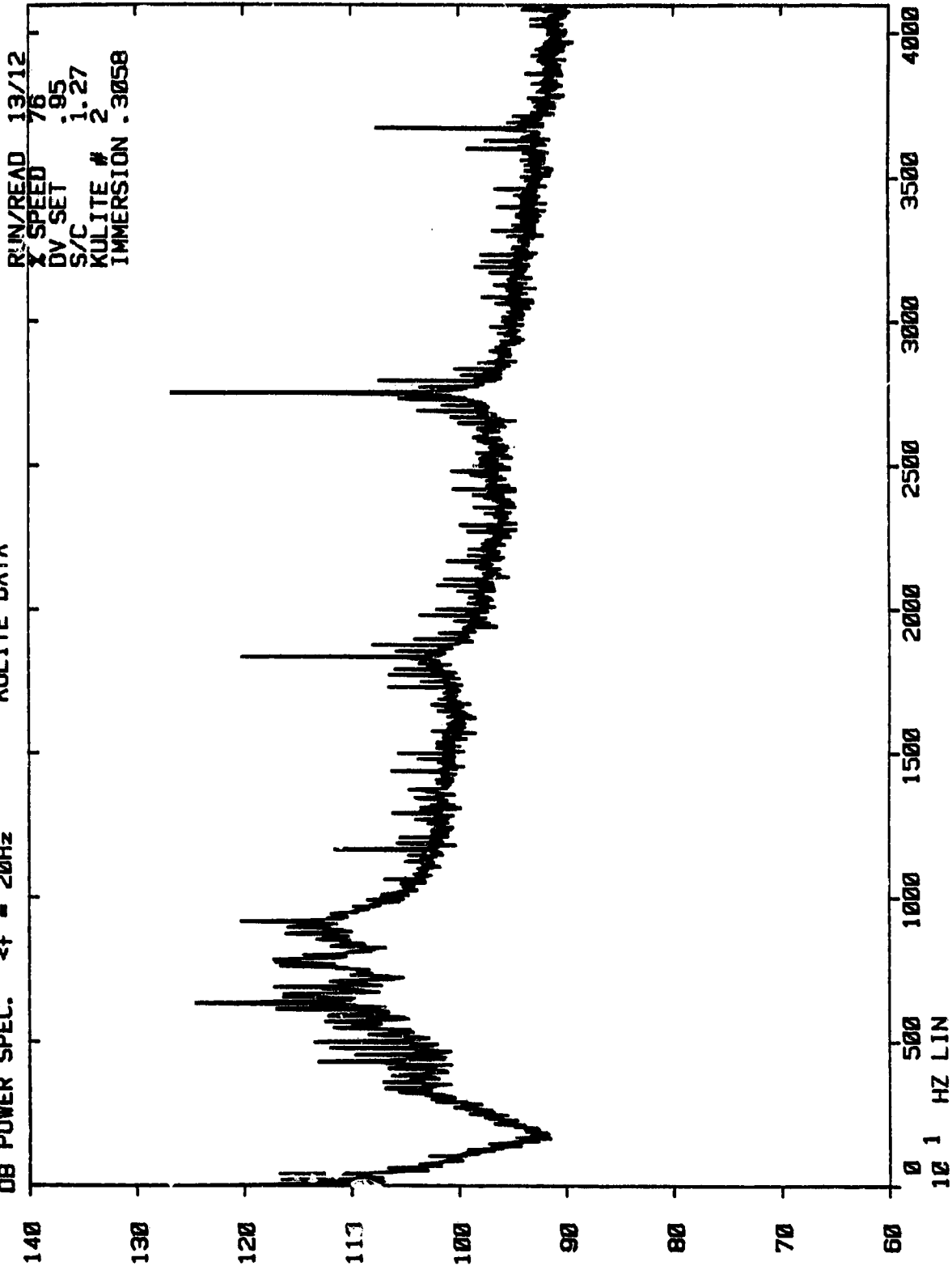
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



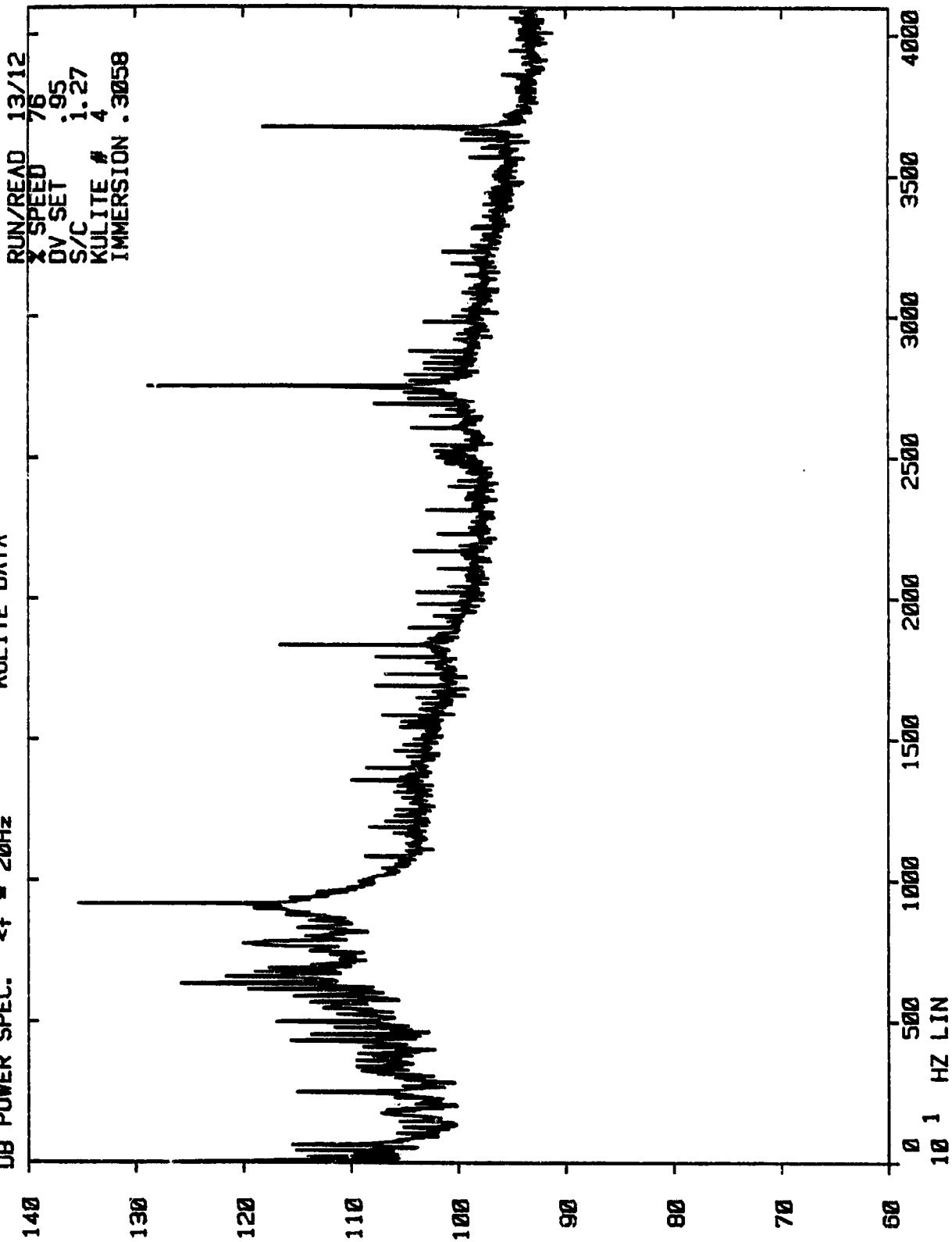
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



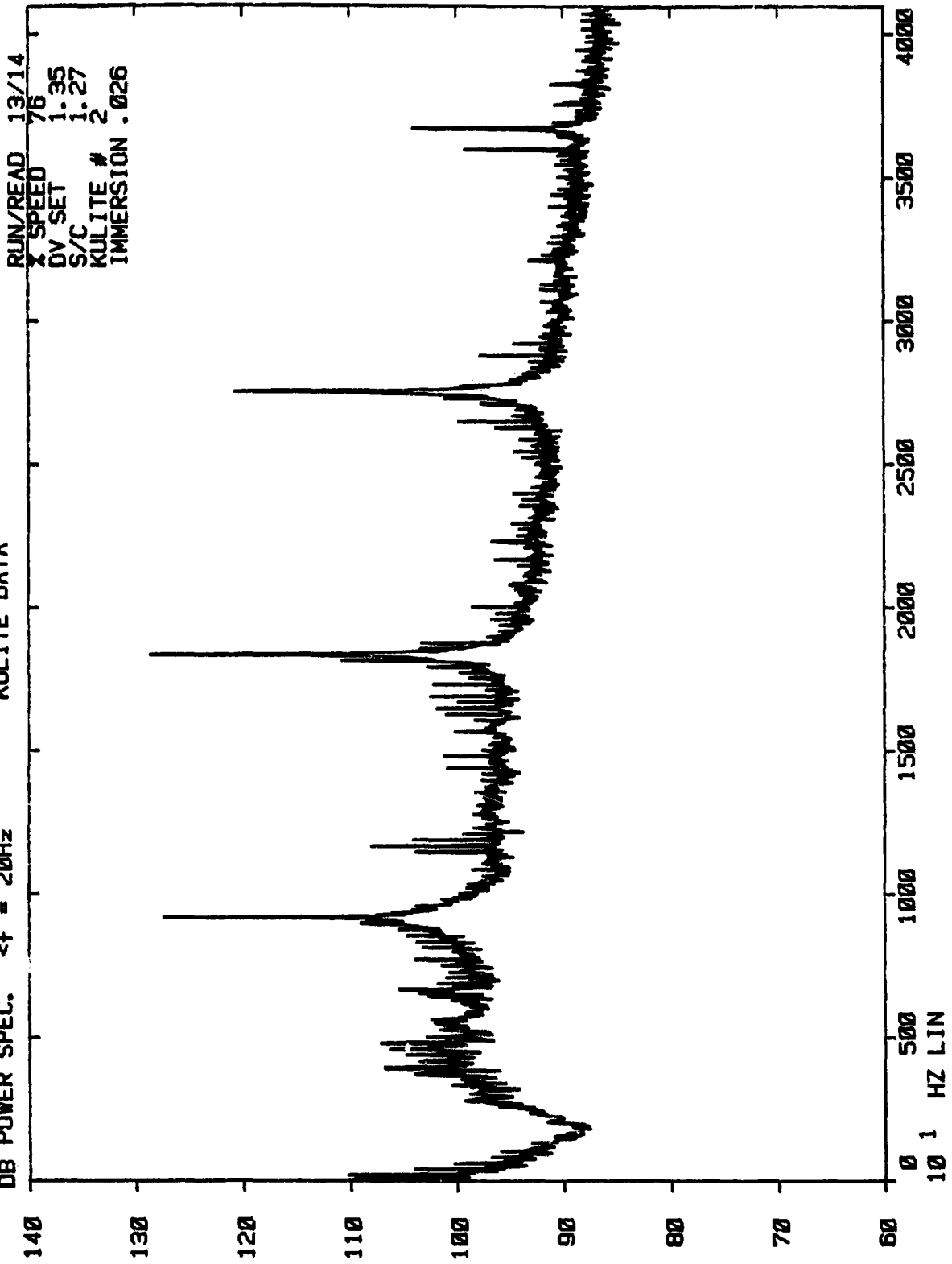
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



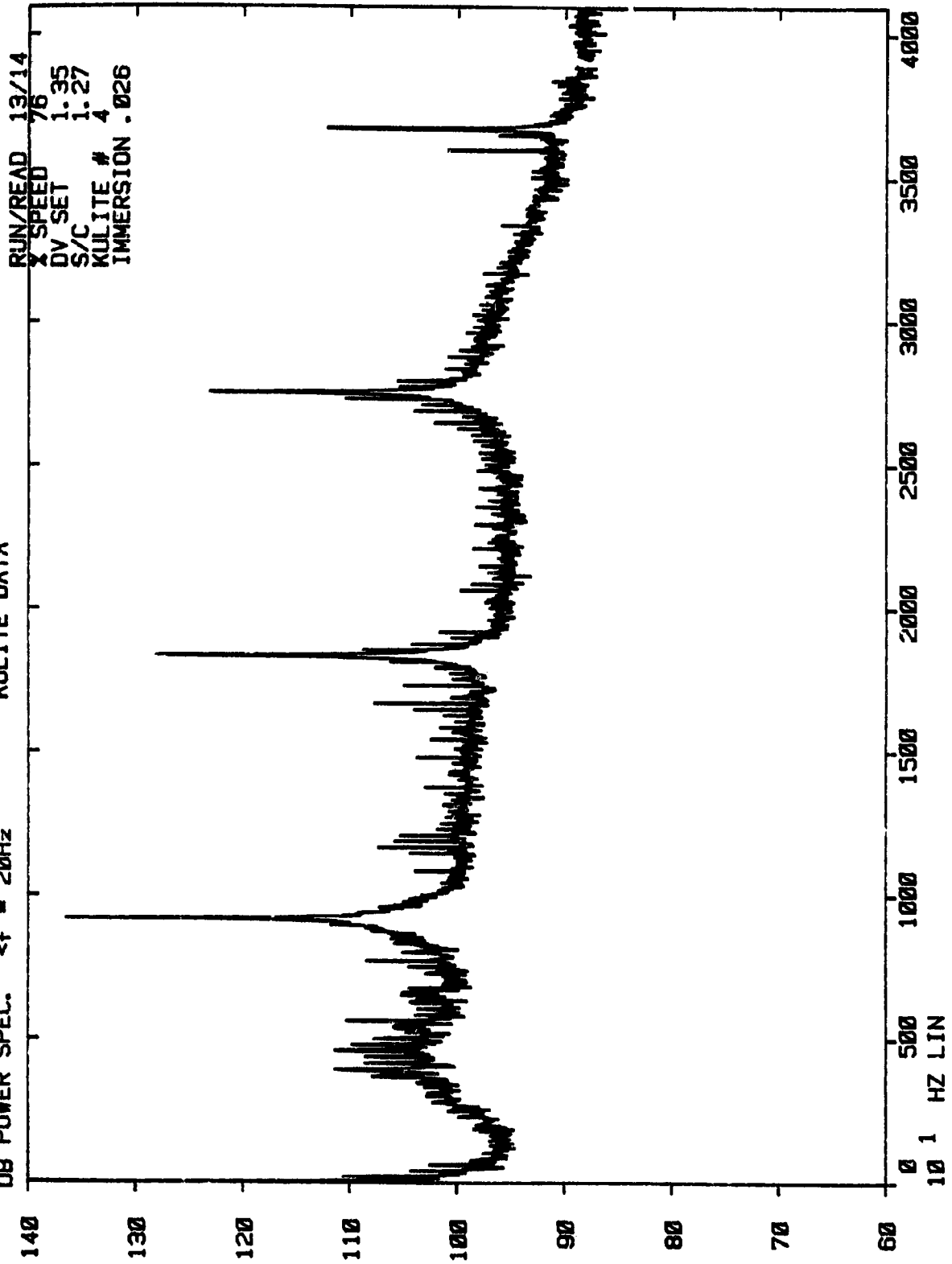
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



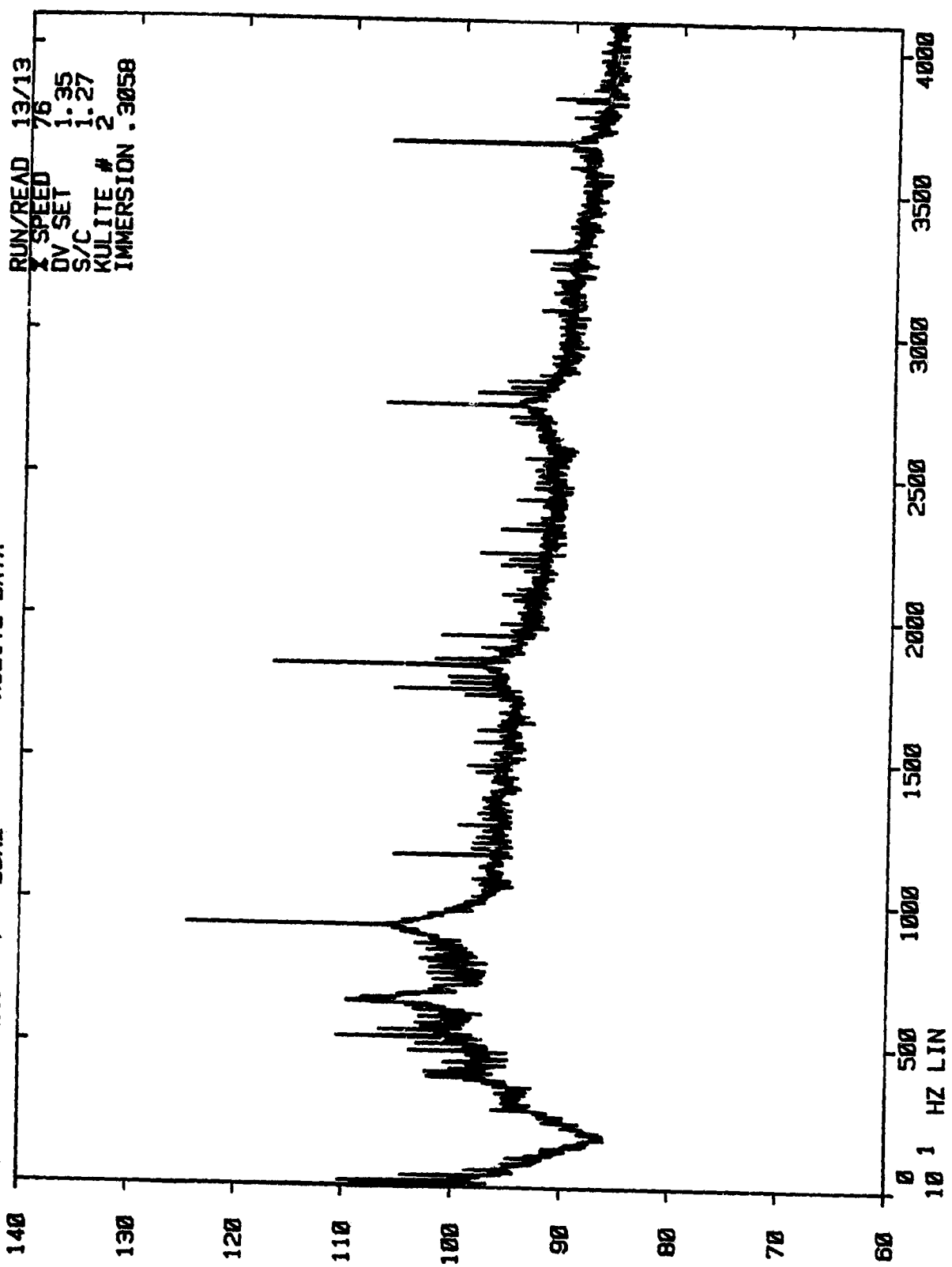
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



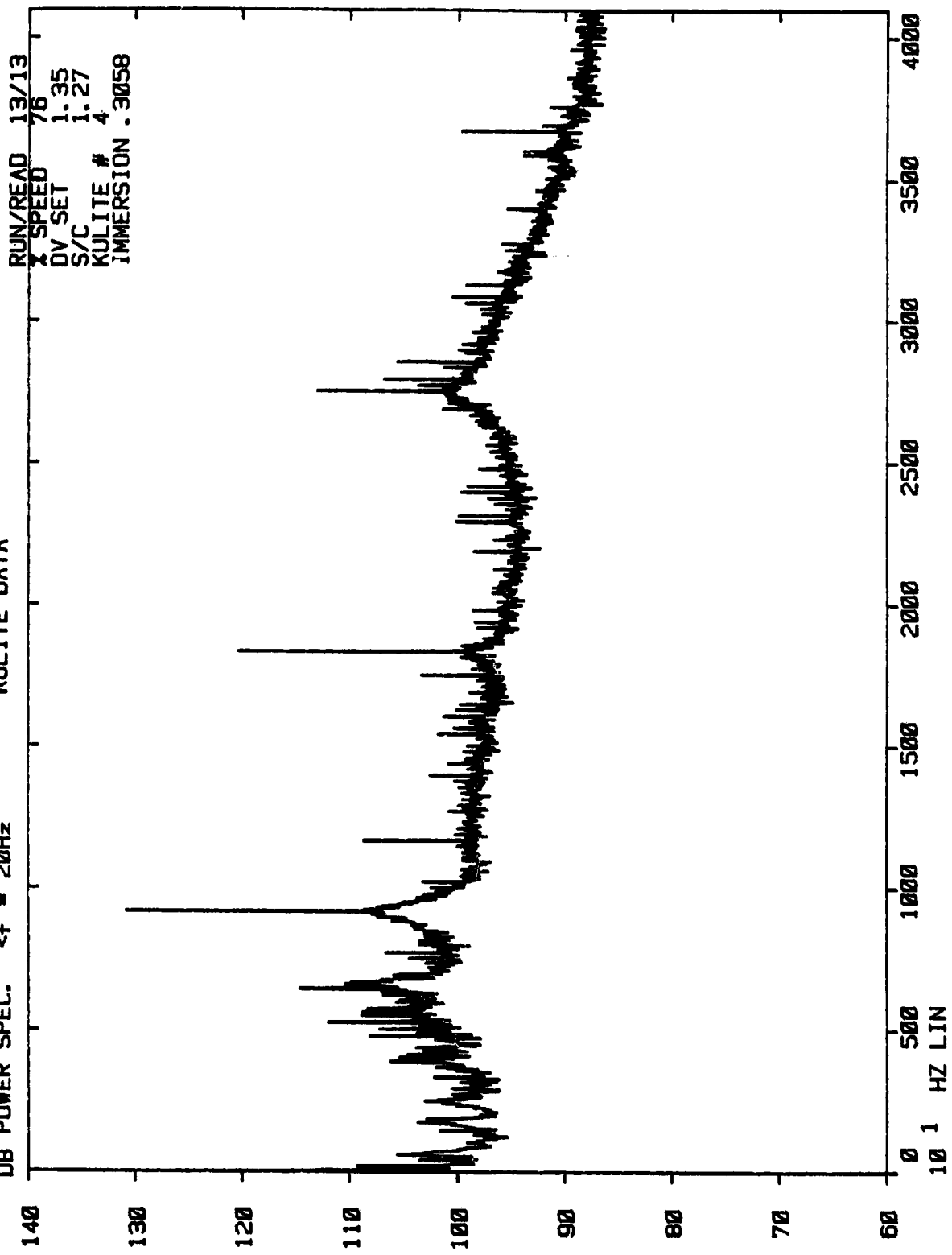
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



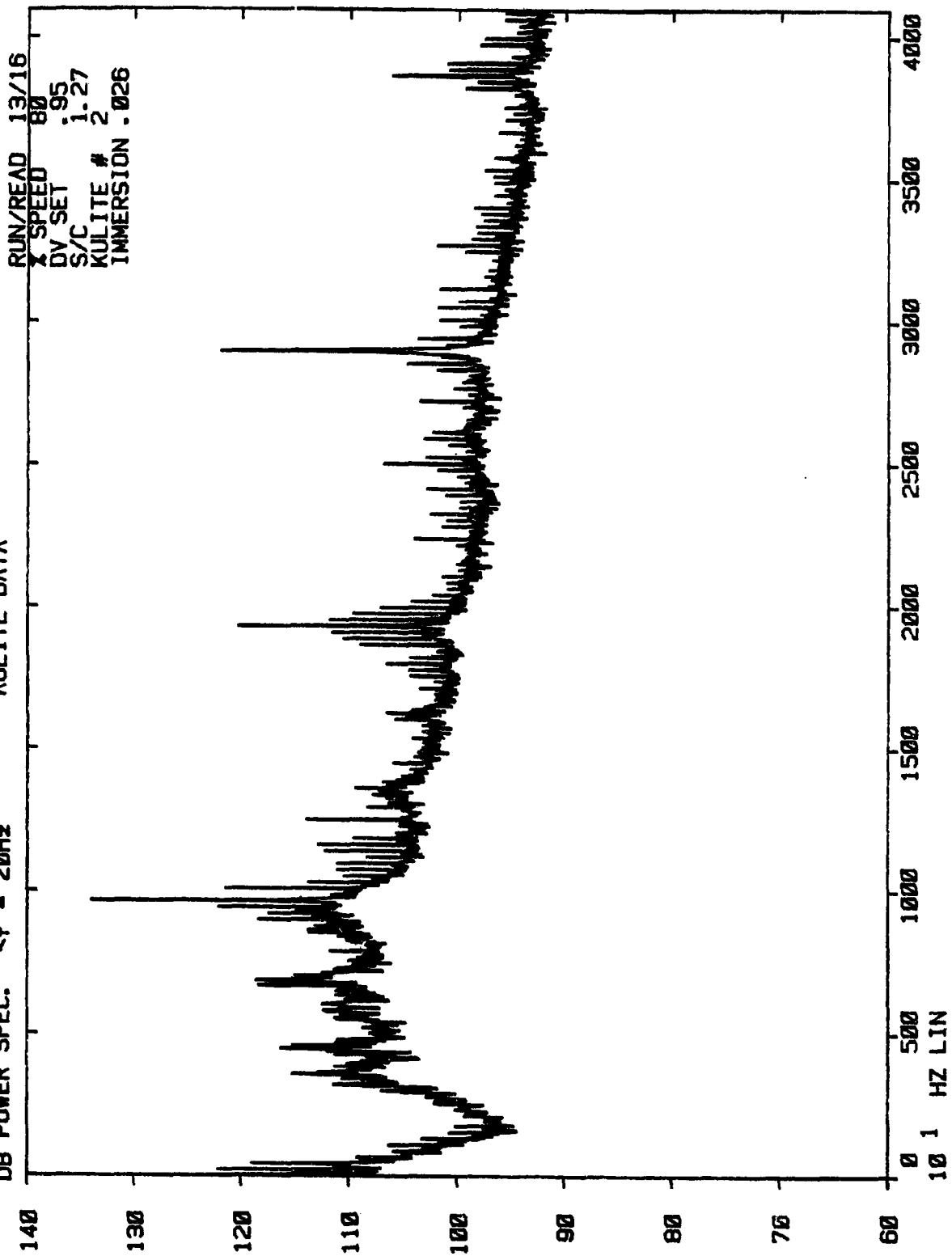
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

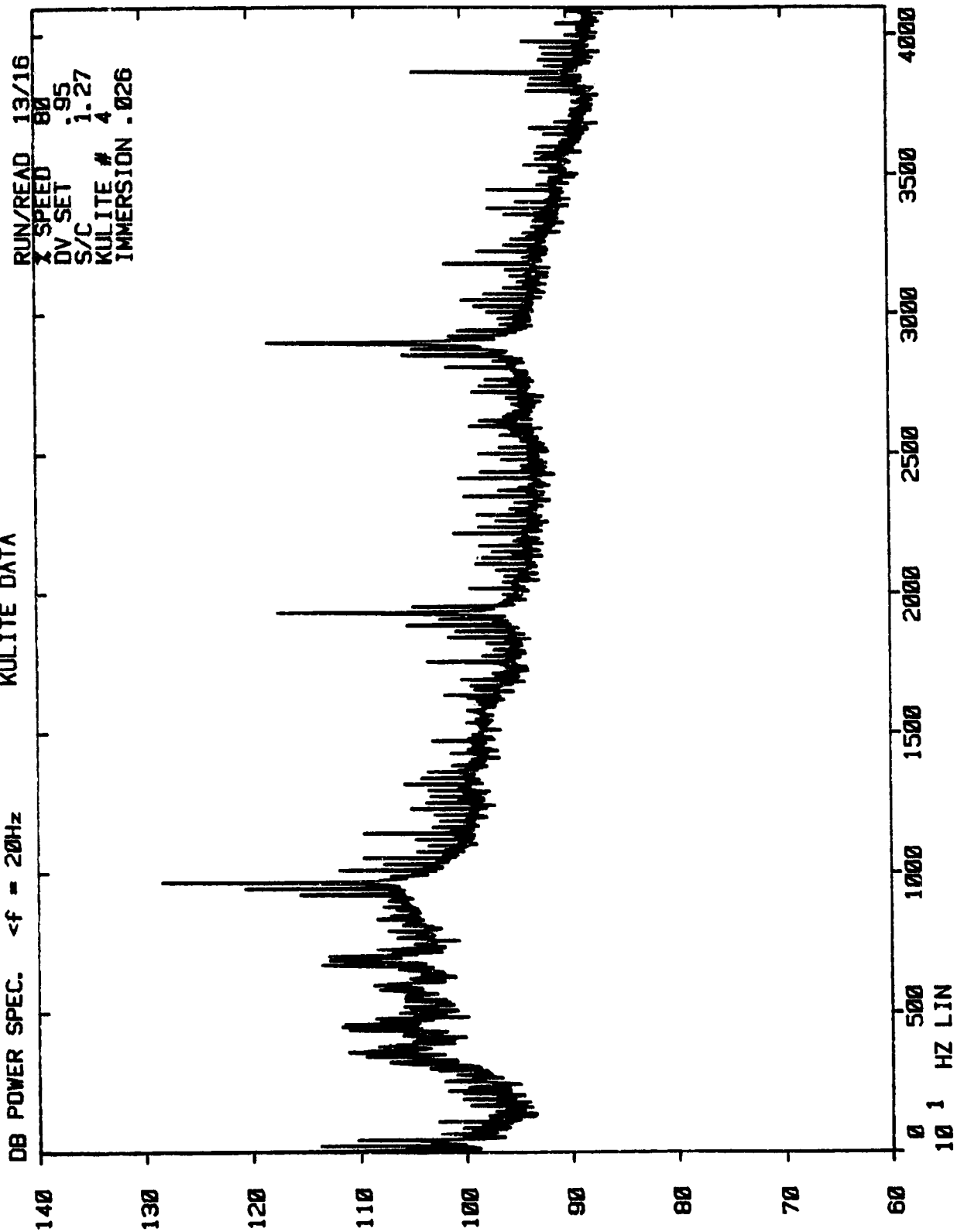


NASA Y/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



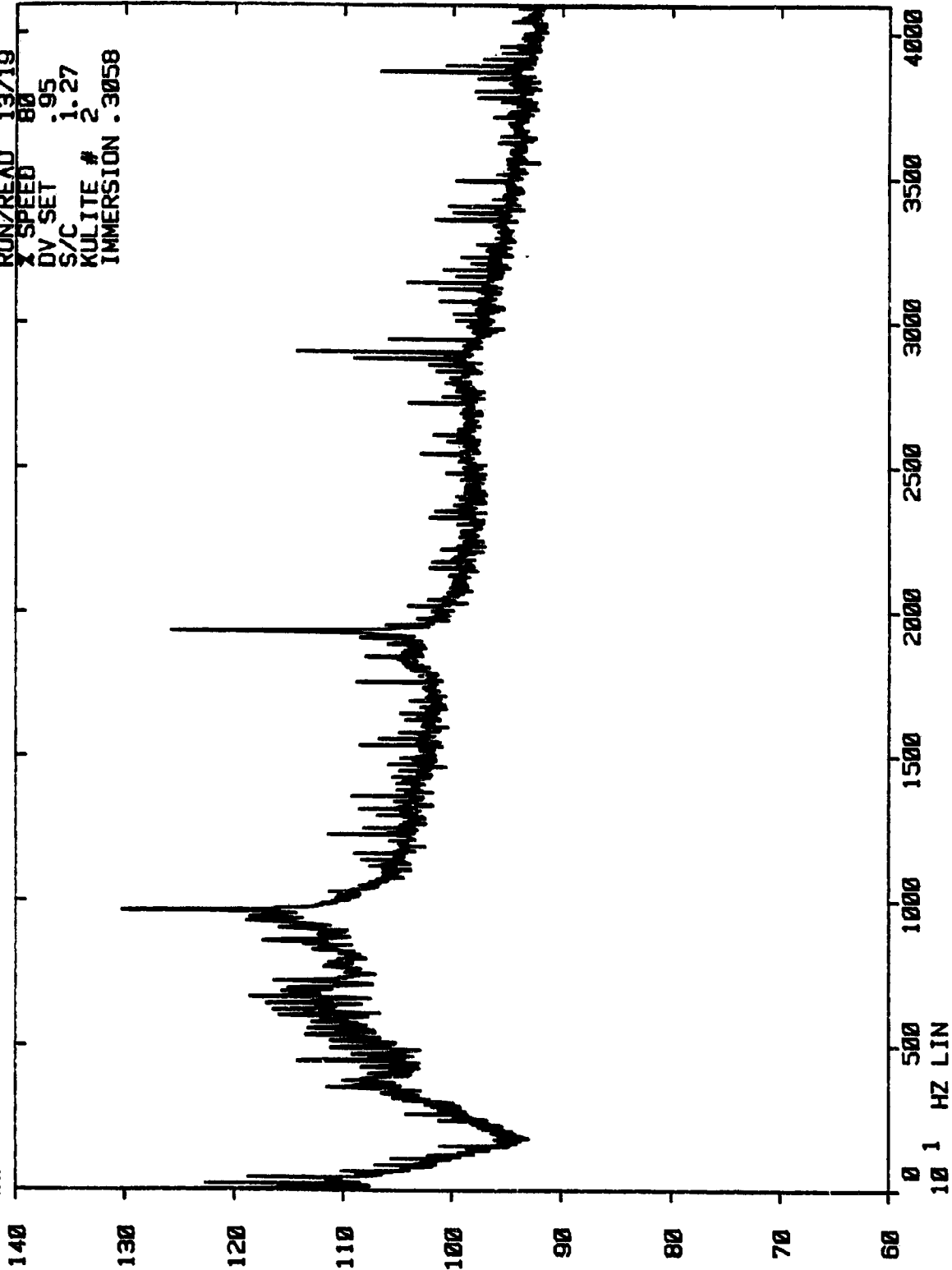
NASA V/B STUDY
KULITE DATA



NASA V/B STUDY
KULITE DATA

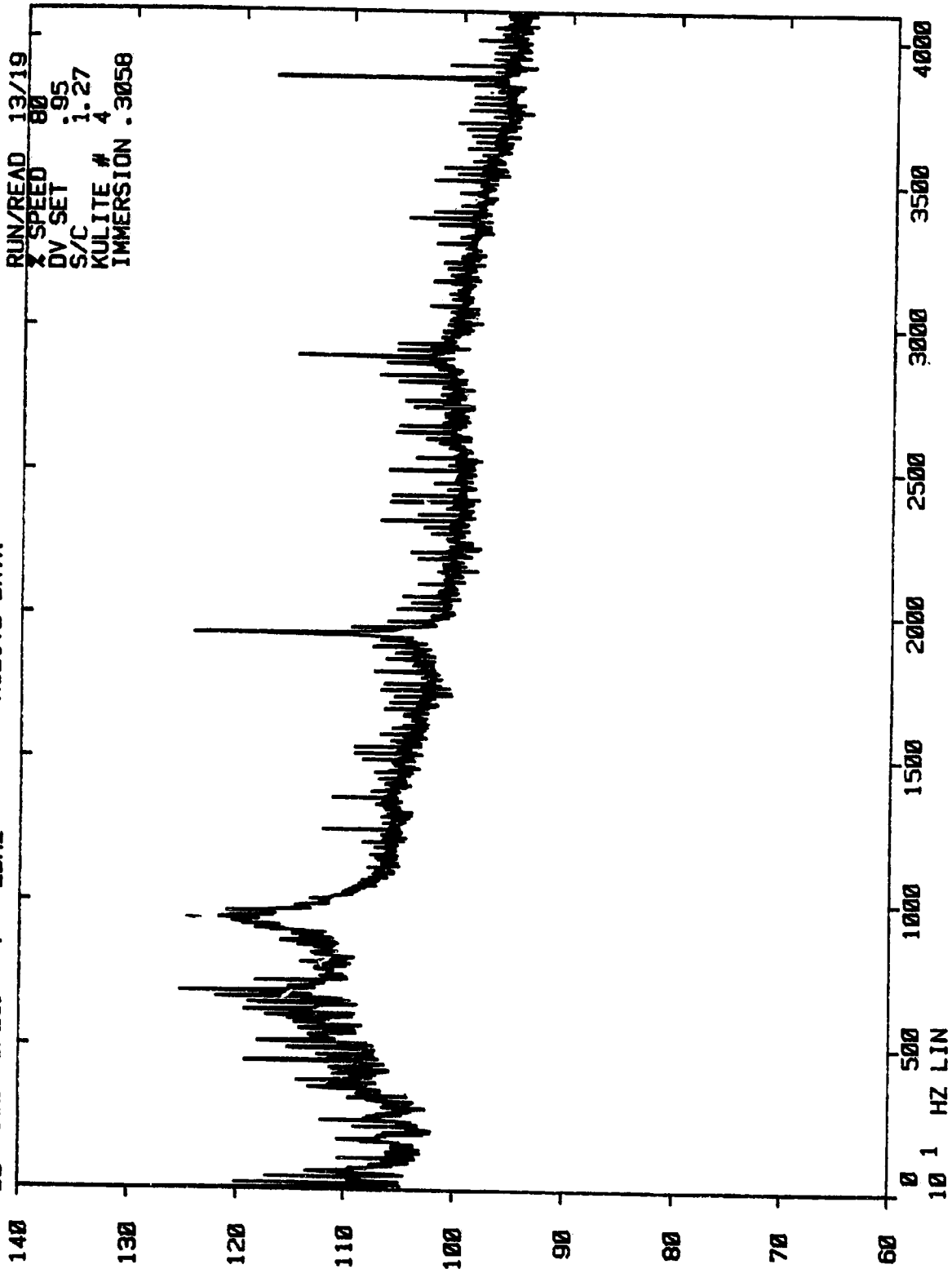
DB POWER SPEC. <f = 20Hz

RUN/READ 13/19
X SPEED 80
DV SET .95
S/C 1.27
KULITE # 2
IMMERSION .3058



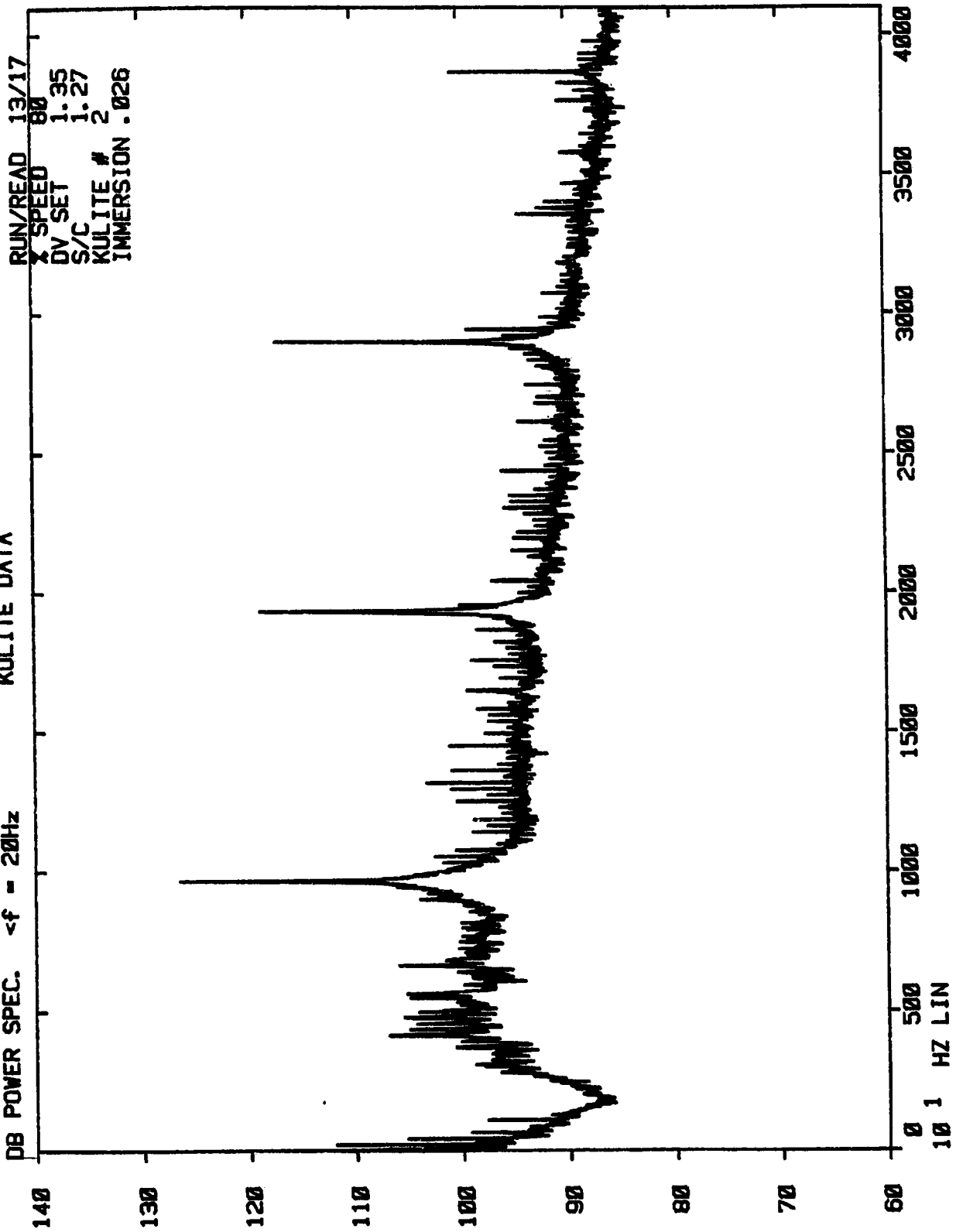
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



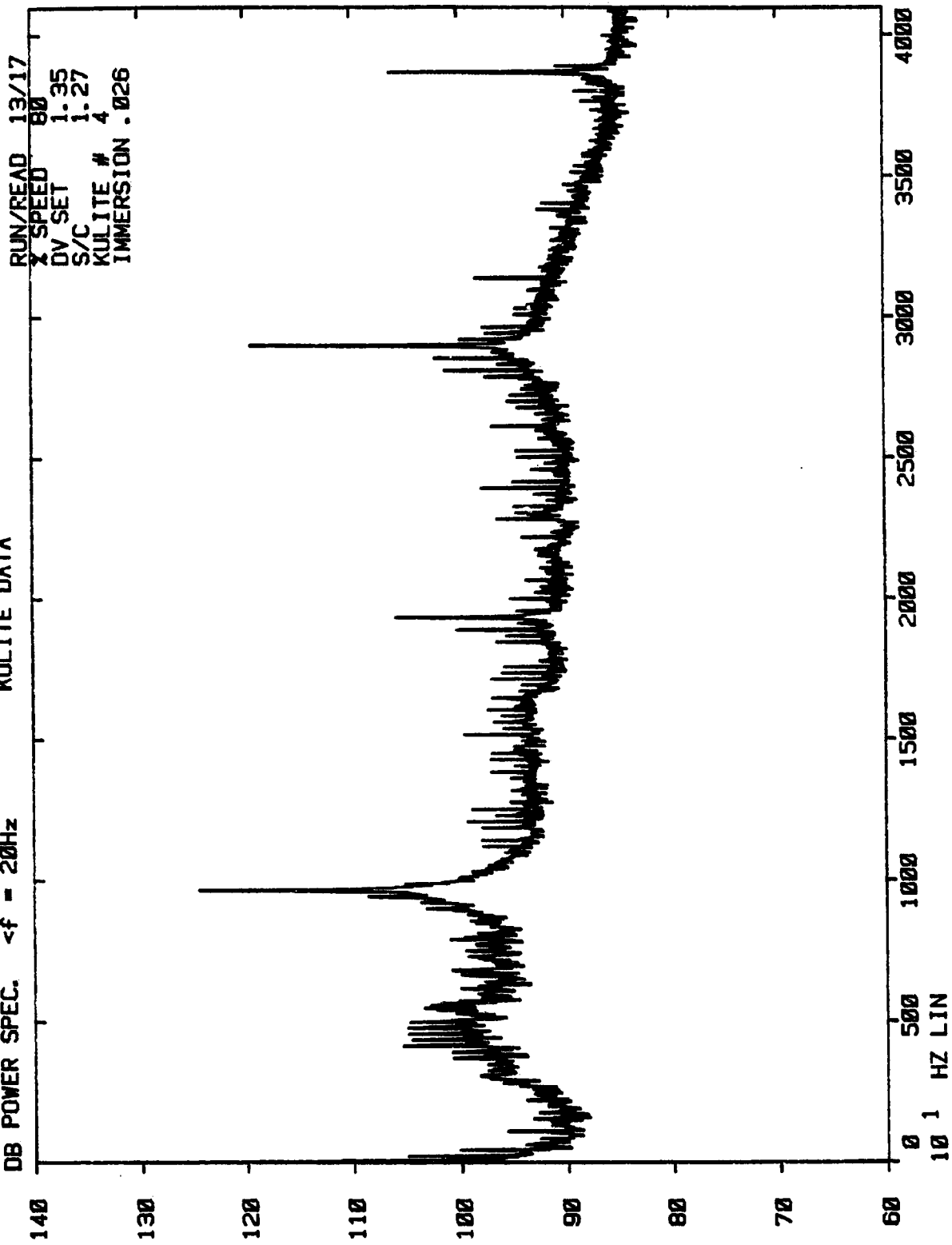
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



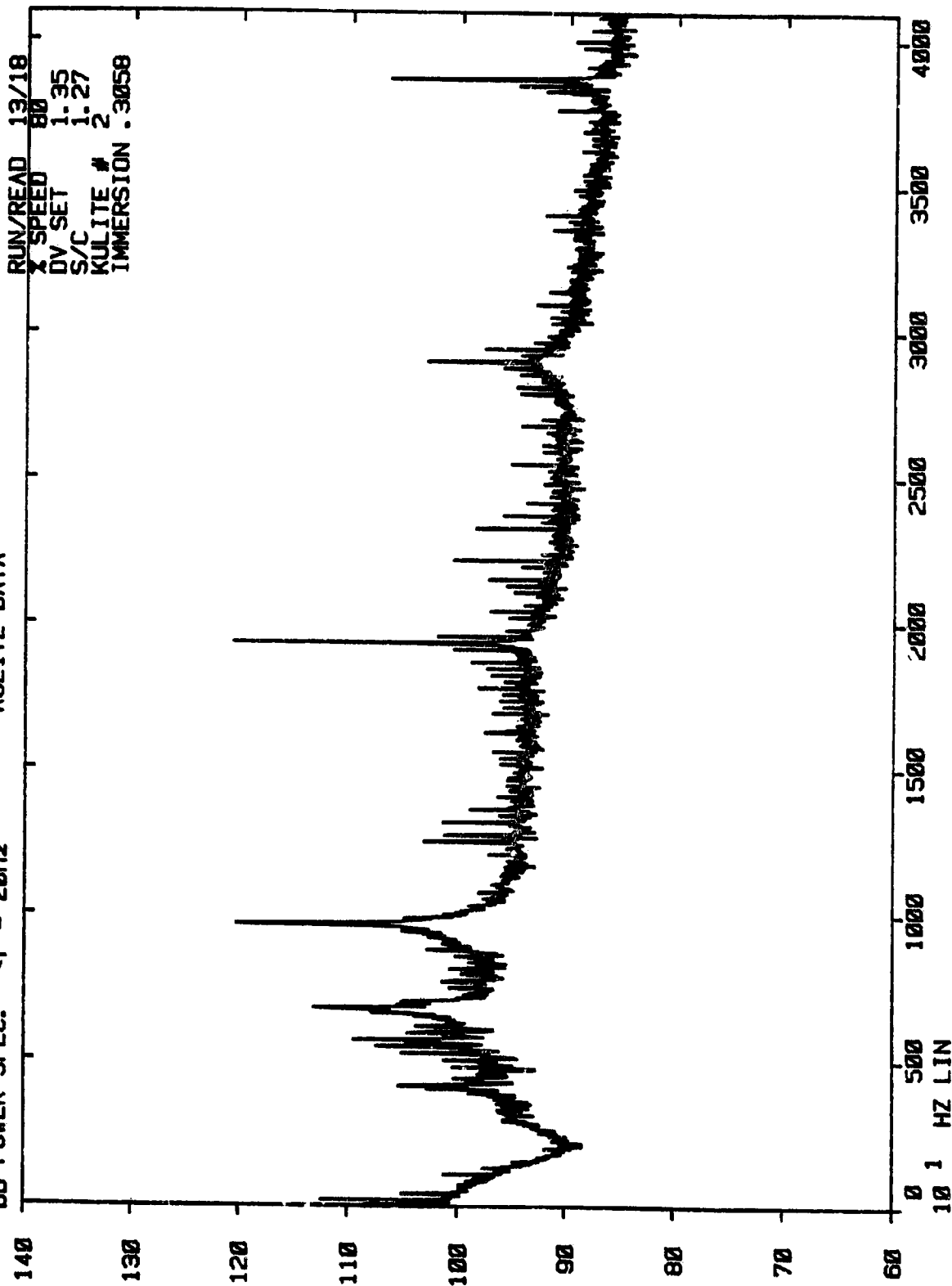
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



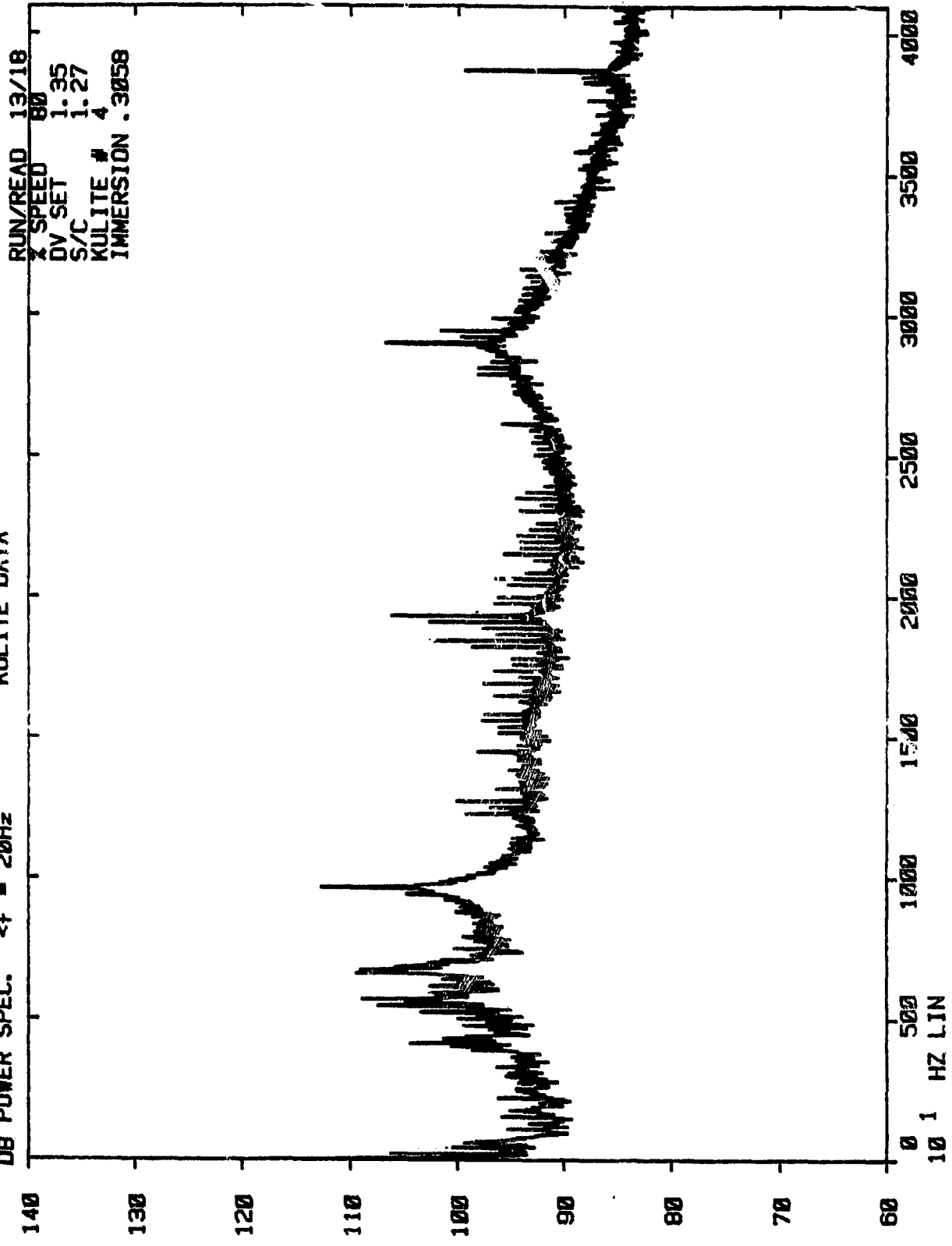
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$

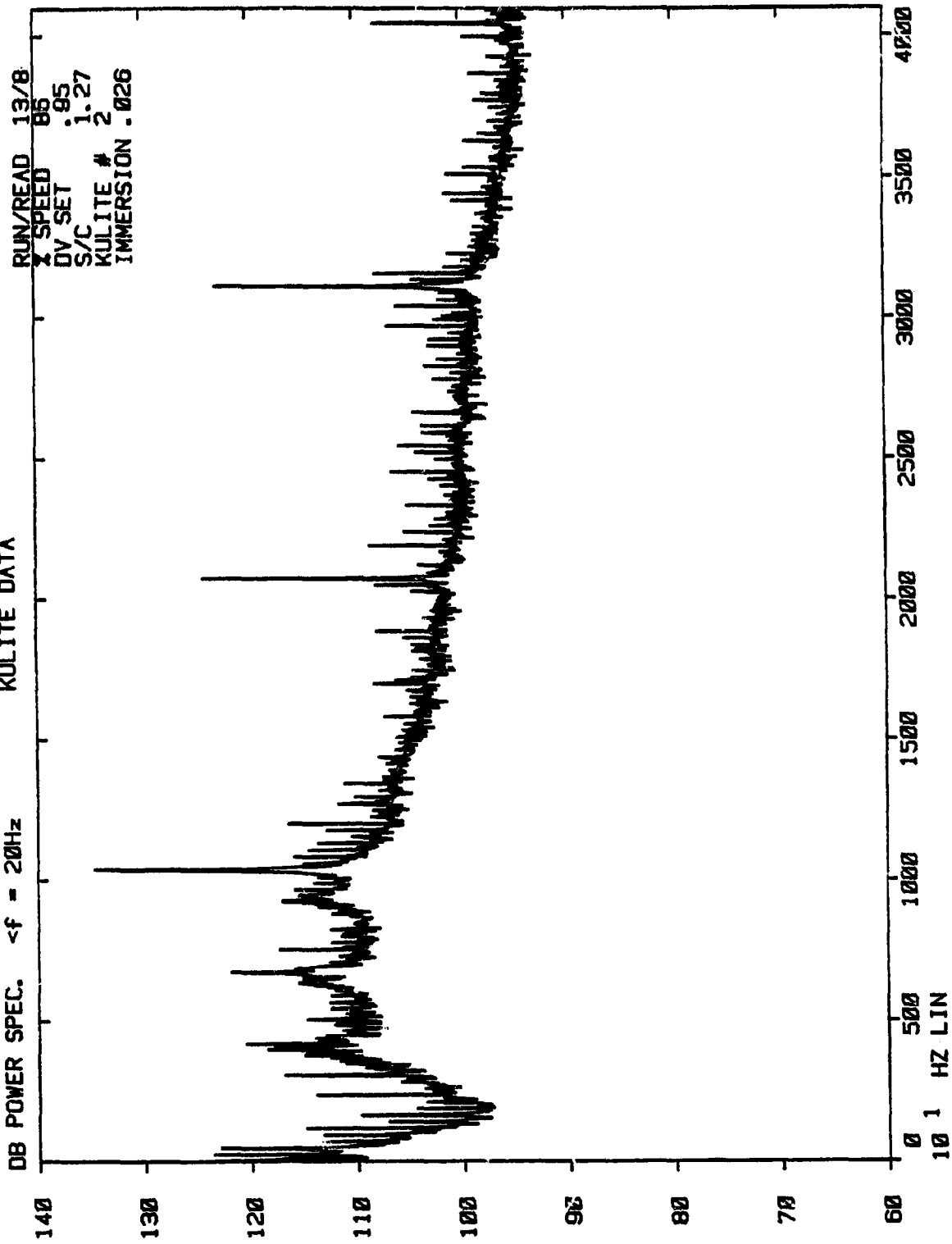


NASA V/B STUDY
KULLITE DATA

DB POWER SPEC. <f = 20Hz

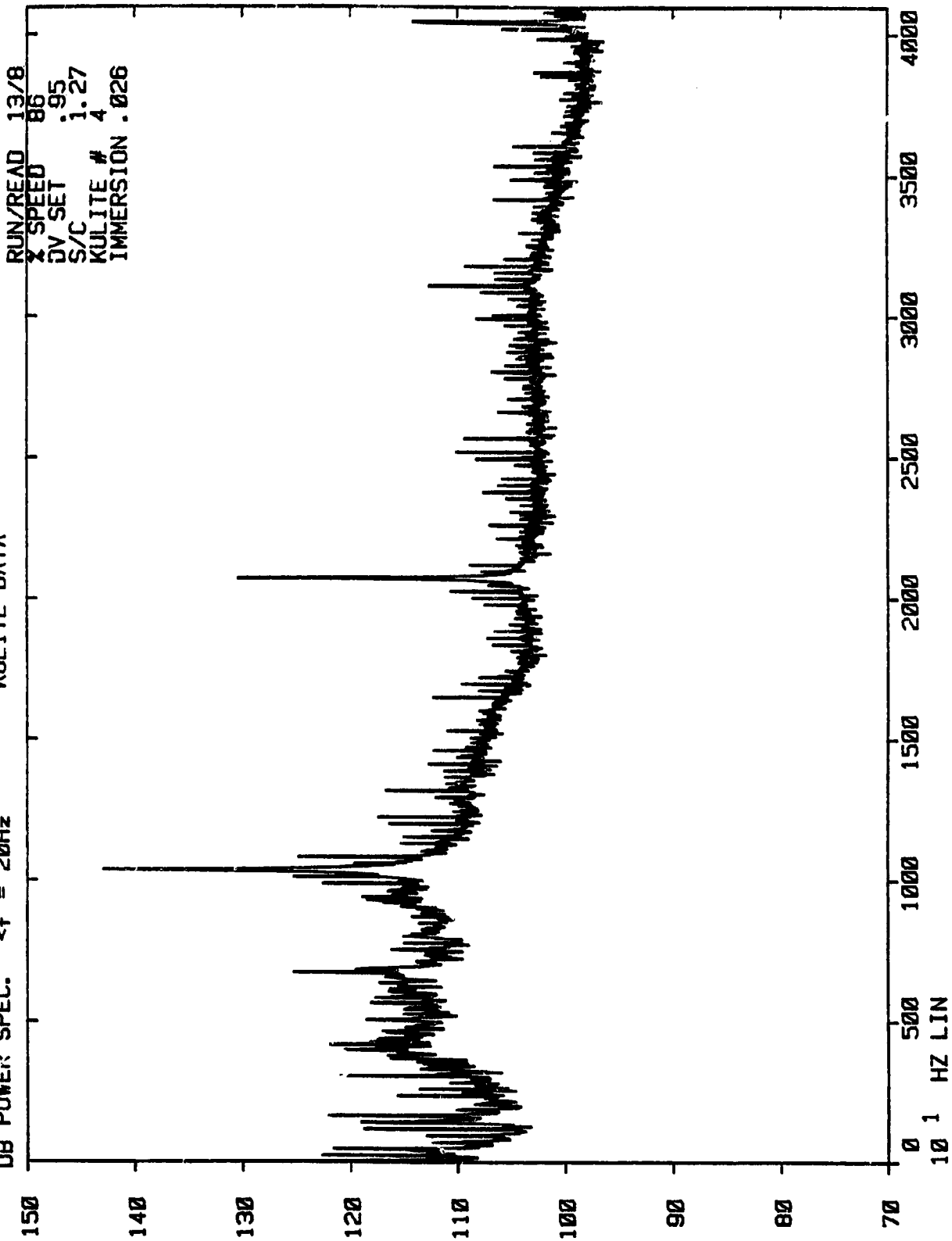


NASA V/B STUDY
KULITE DATA



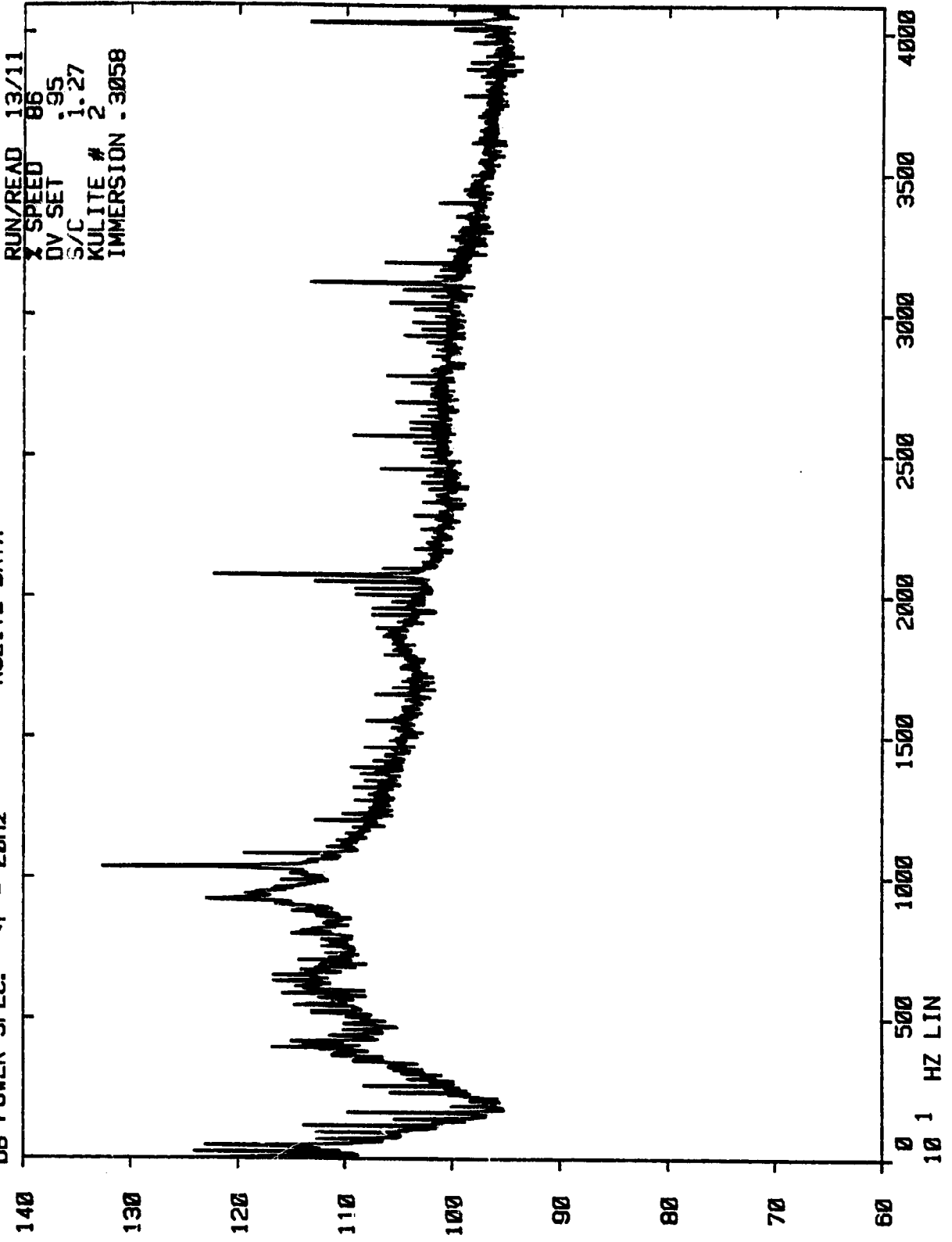
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



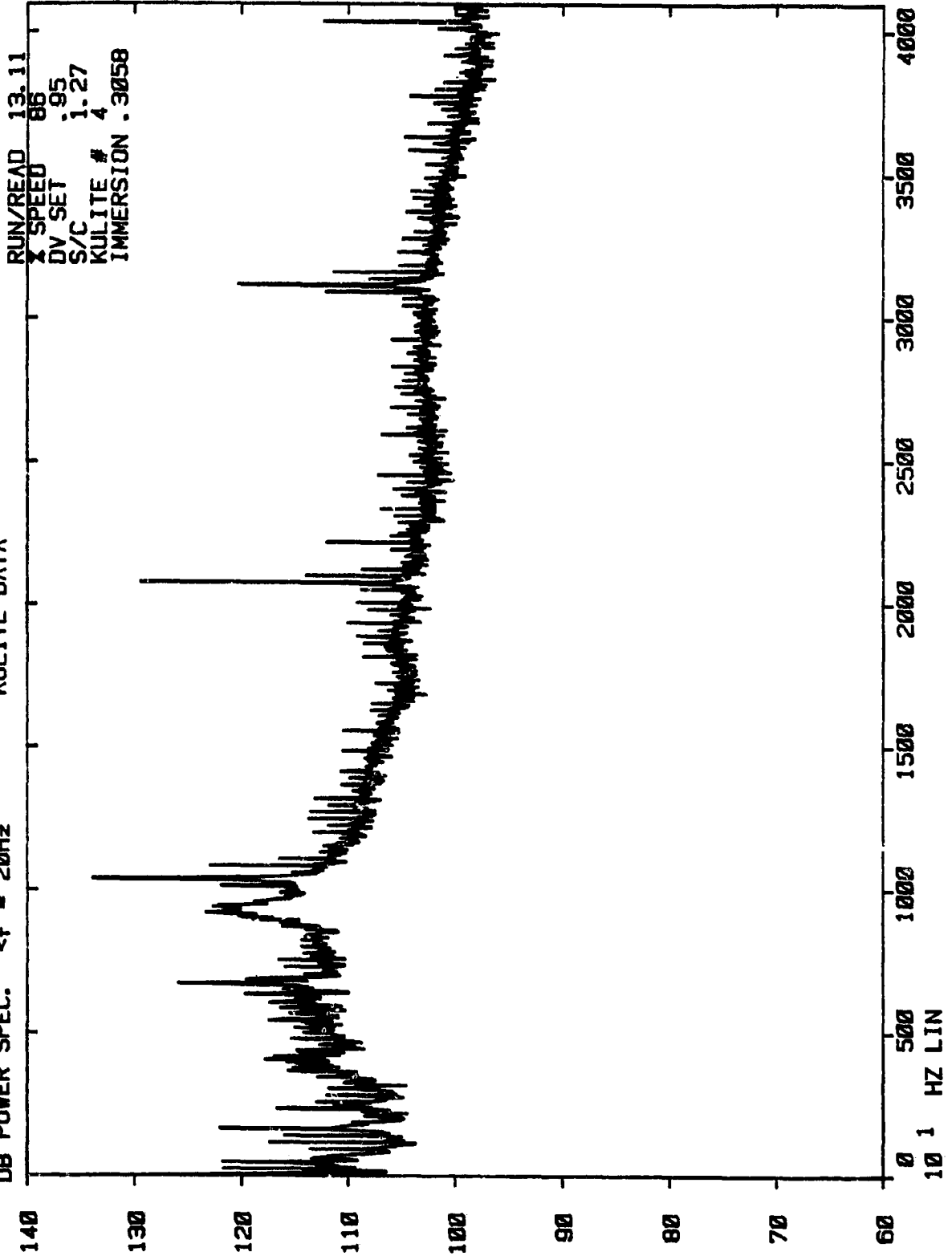
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



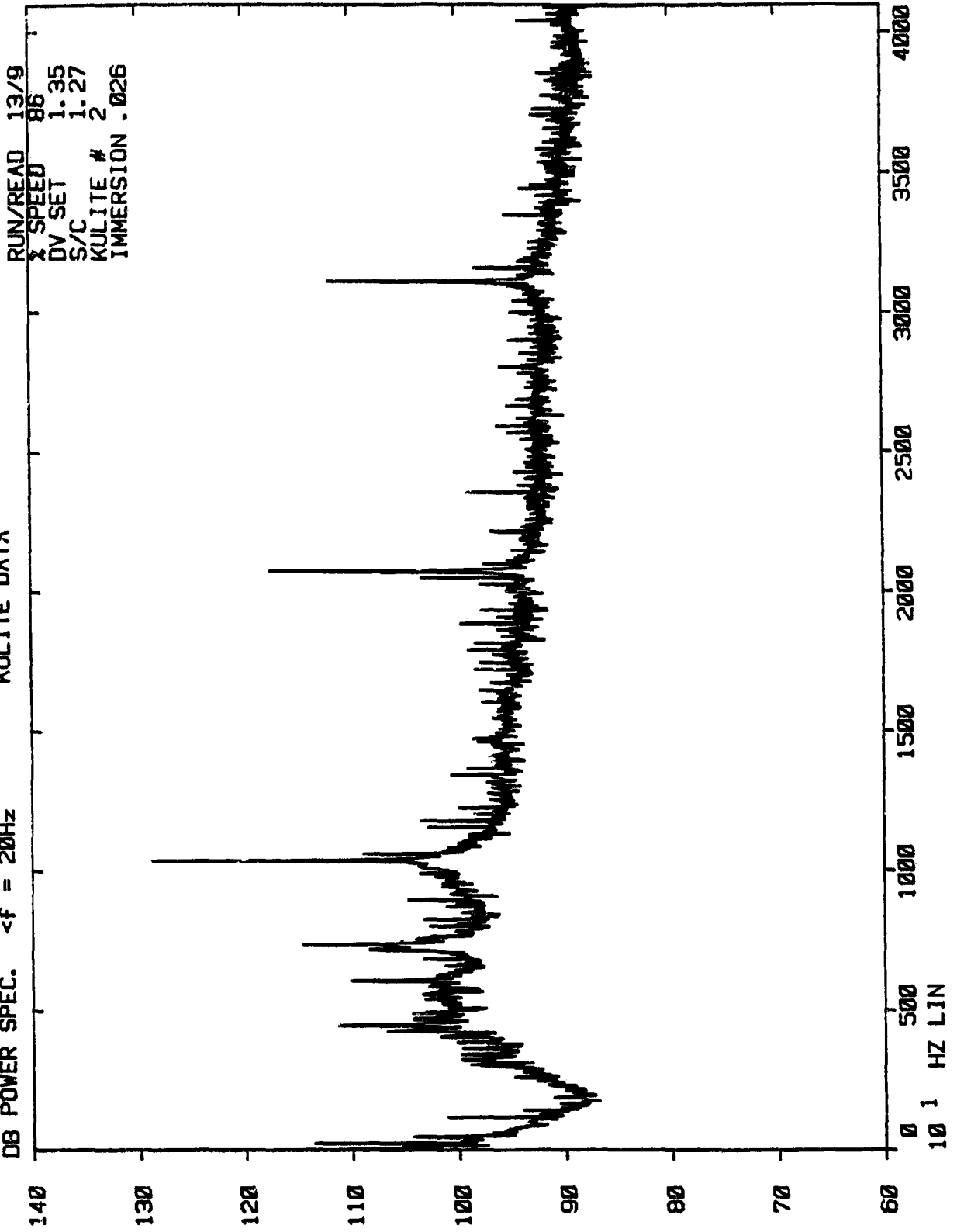
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



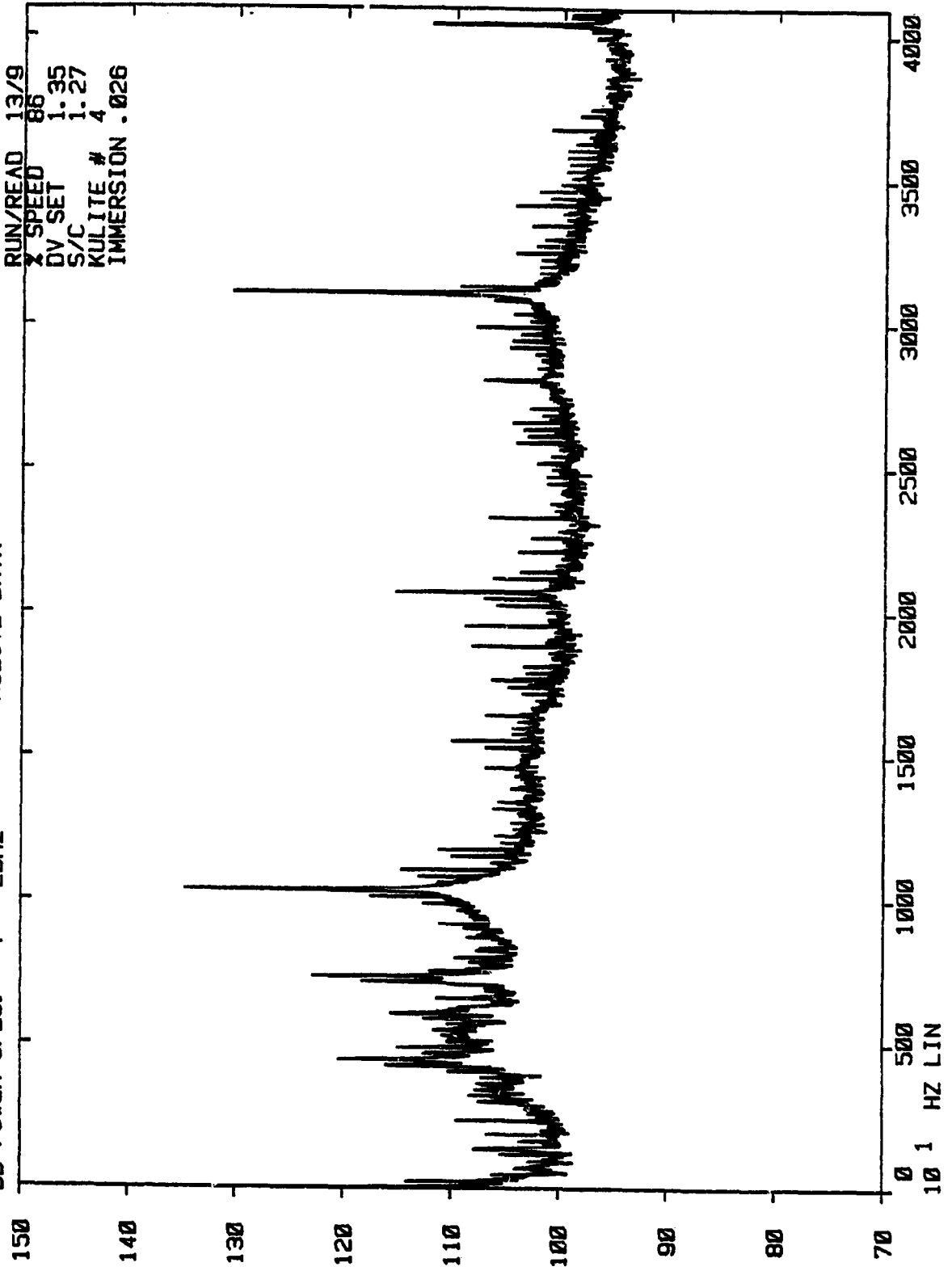
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



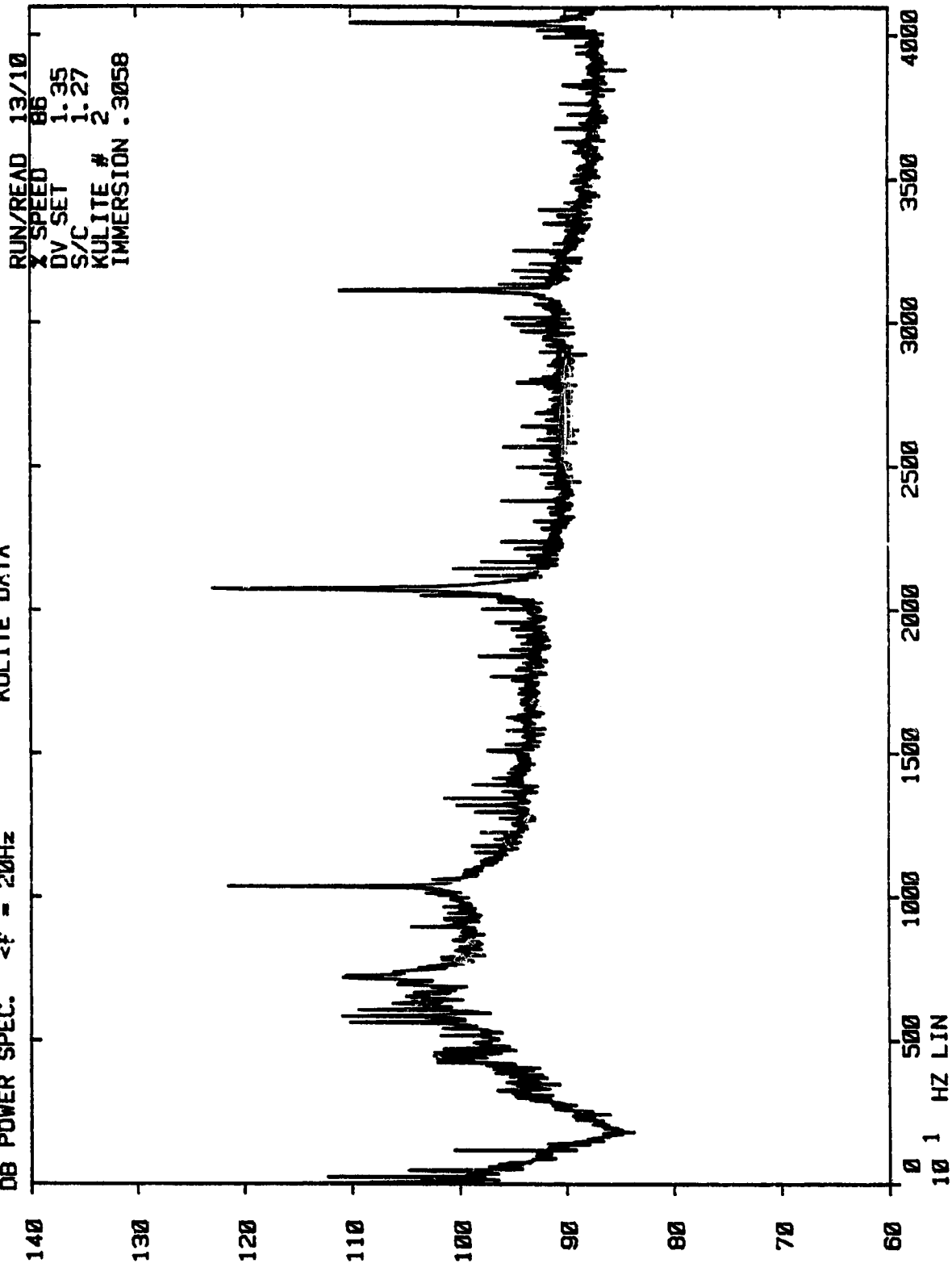
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



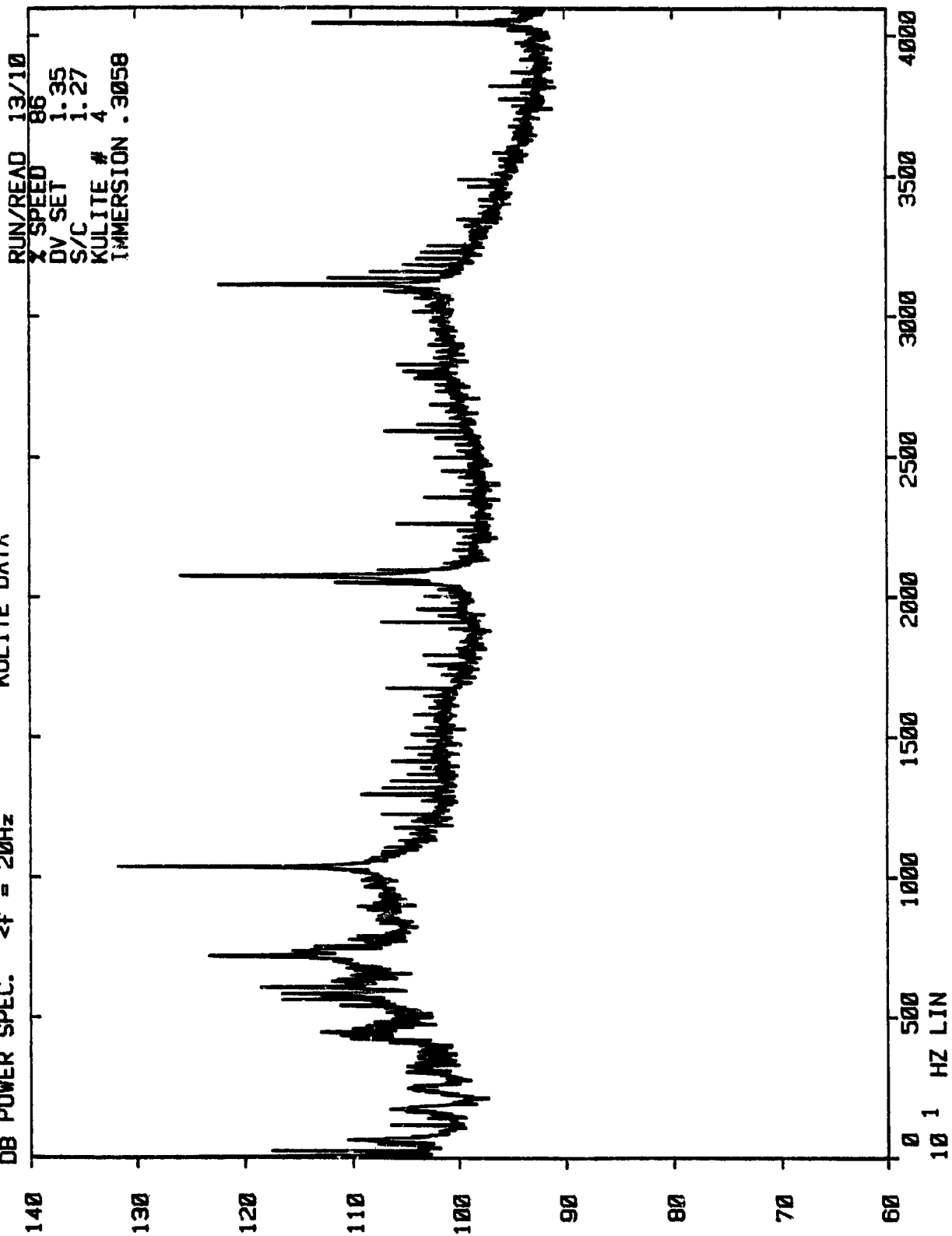
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



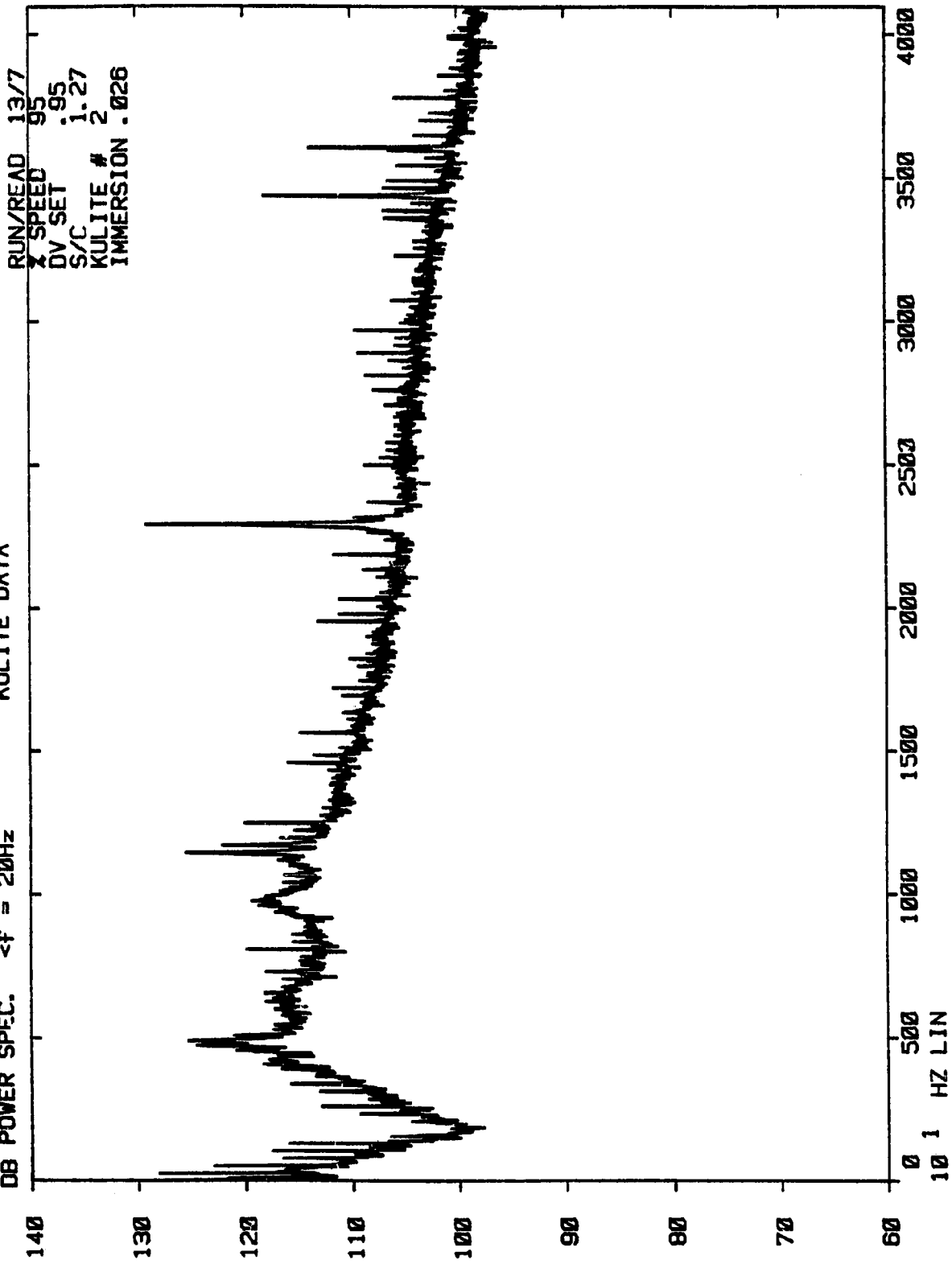
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



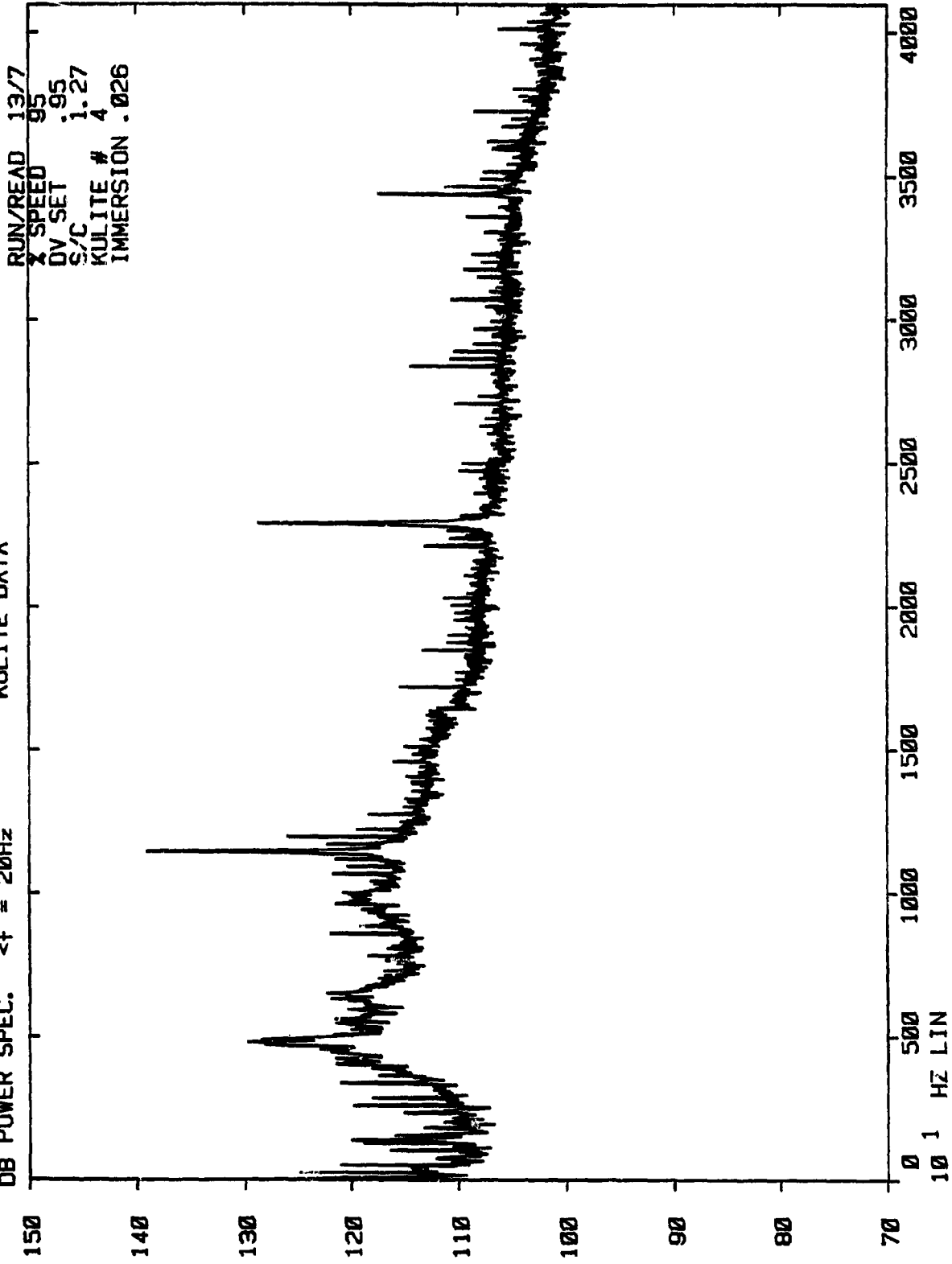
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



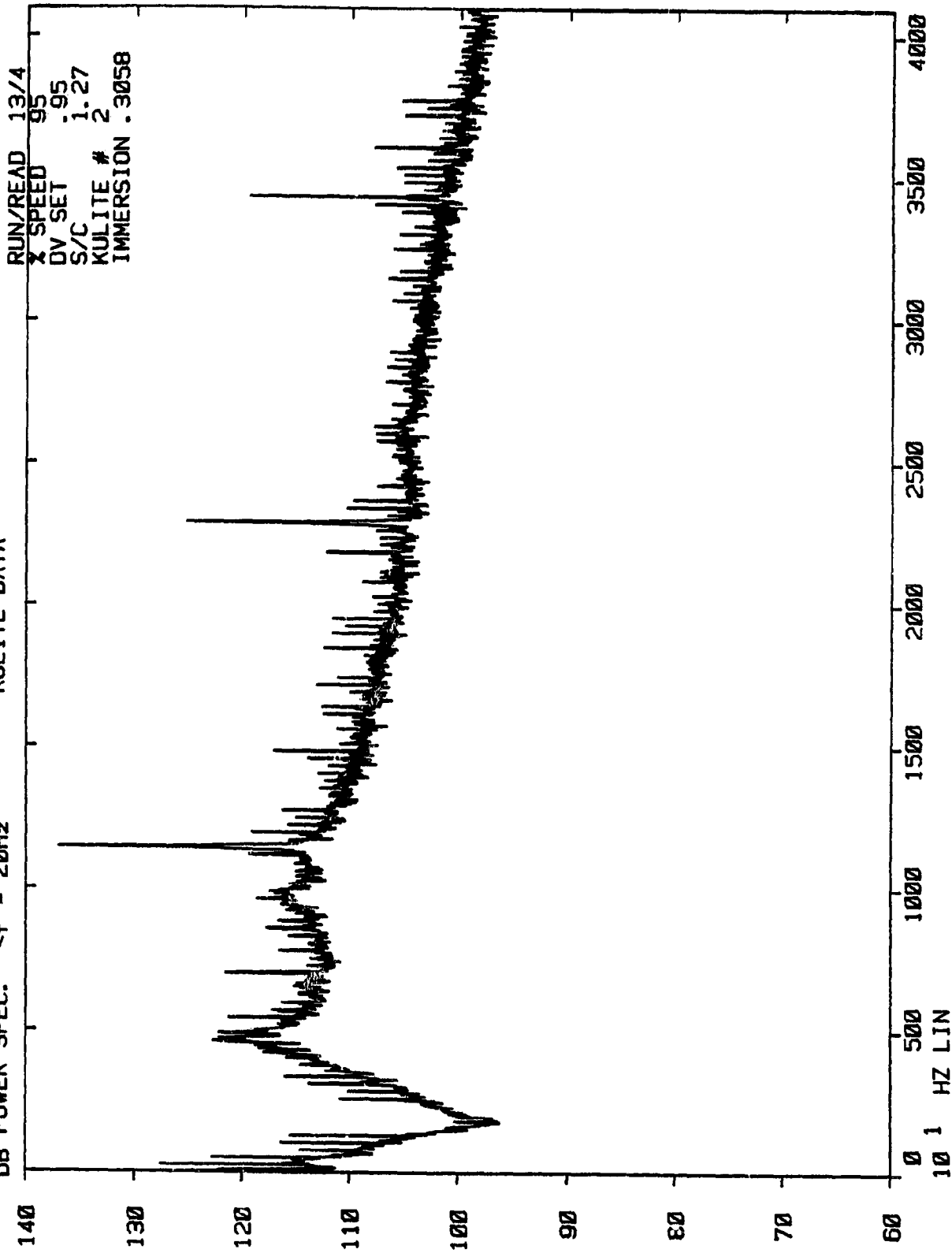
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\leq f = 20\text{Hz}$



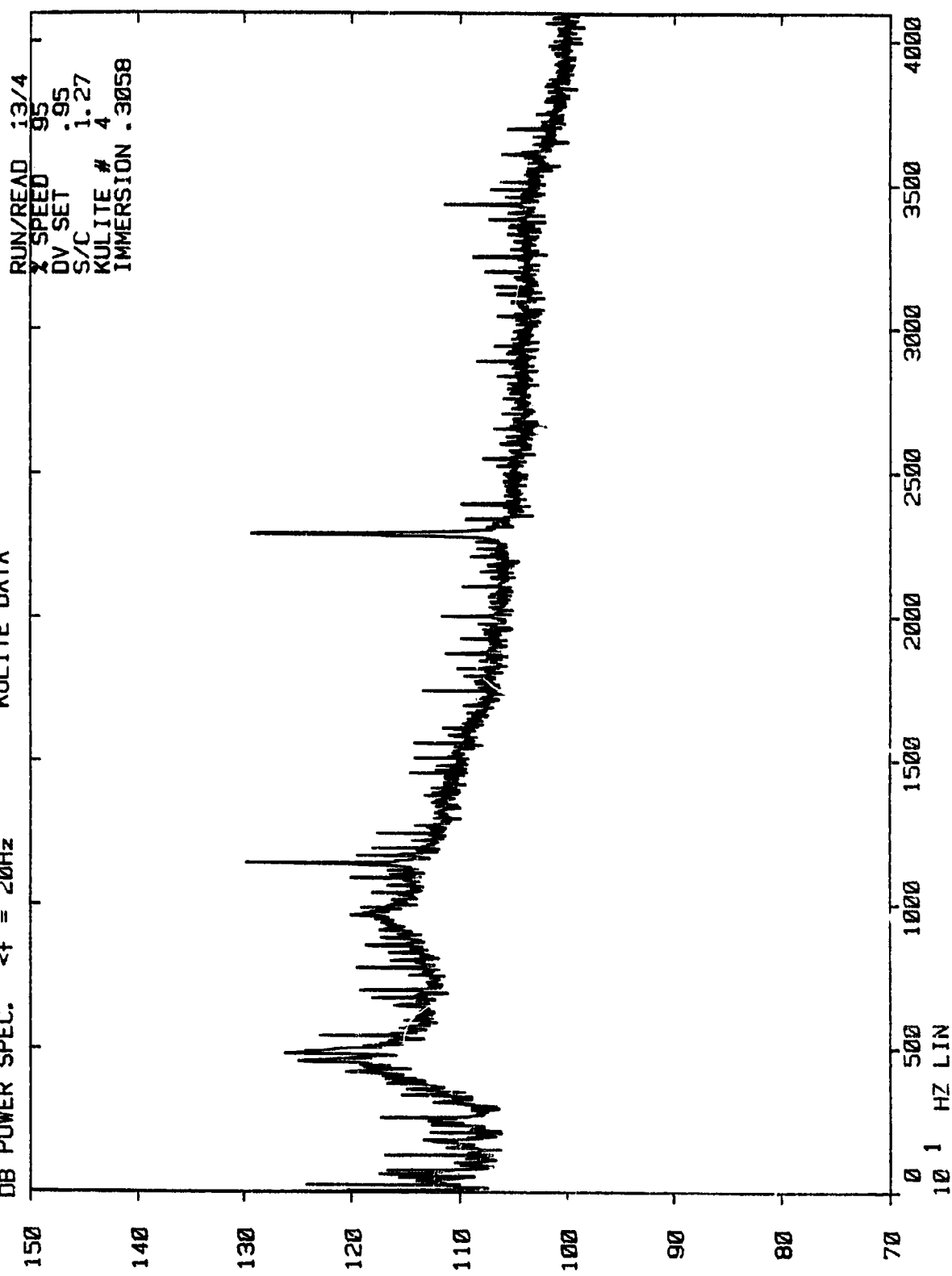
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

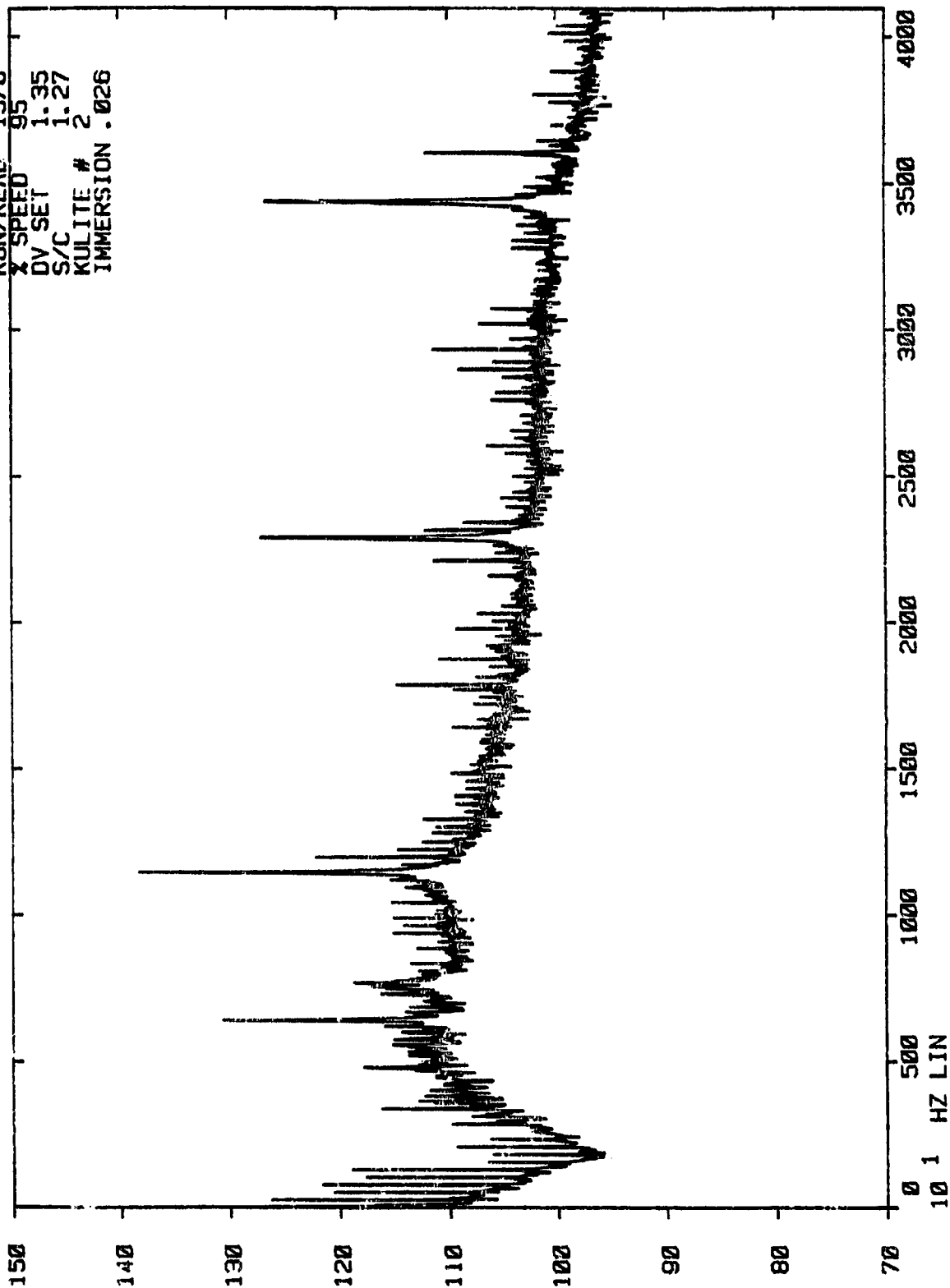
DB POWER SPEC. $\langle f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

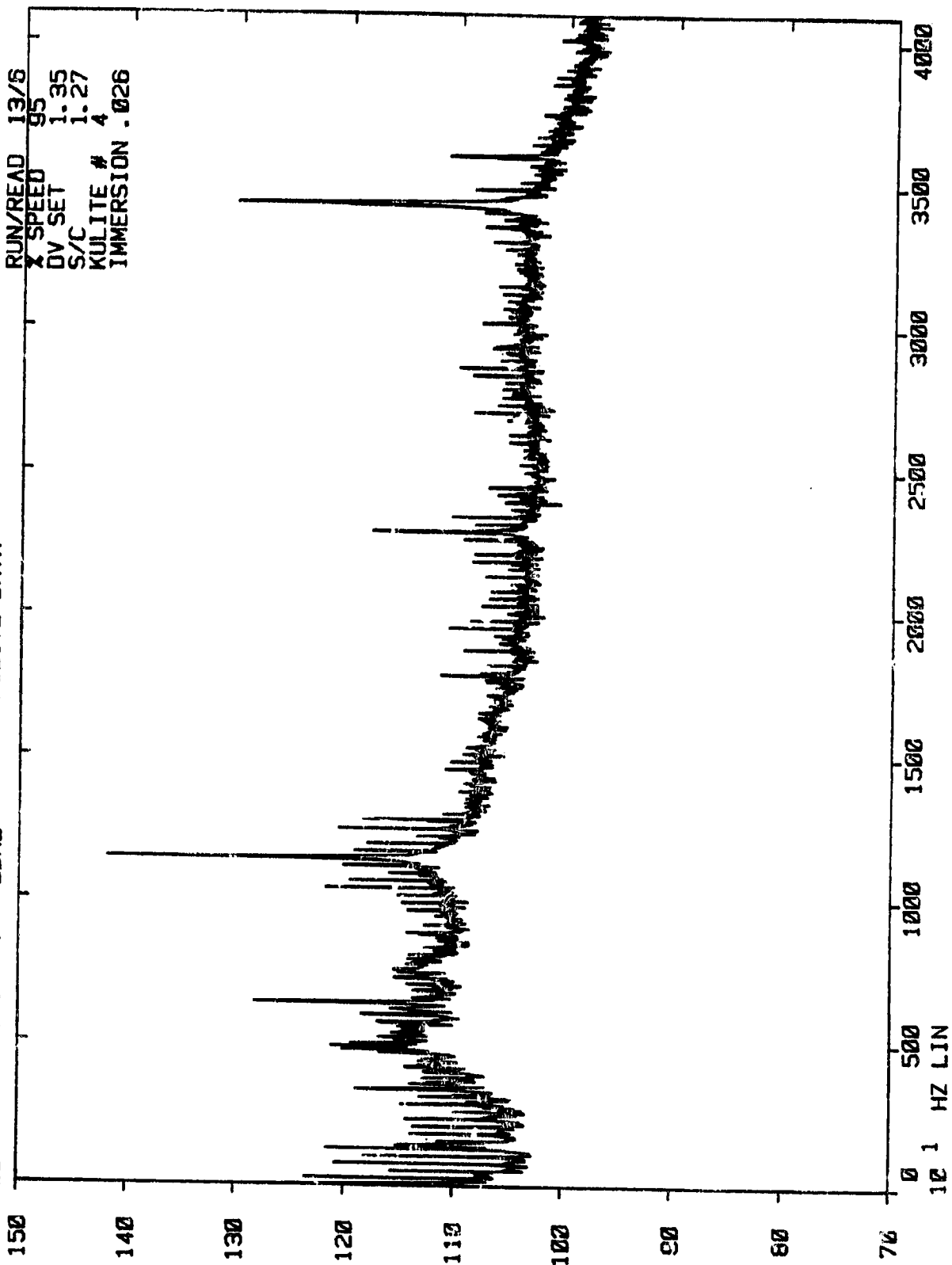
DB POWER SPEC. $\Delta f = 20\text{Hz}$

RUN/READ 13/6
X SPEED 95
DV SET 1.35
S/C 1.27
KULITE # 2
IMMERSION .026



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$





4.5
5.0
5.6
6.3
7.1
8.0



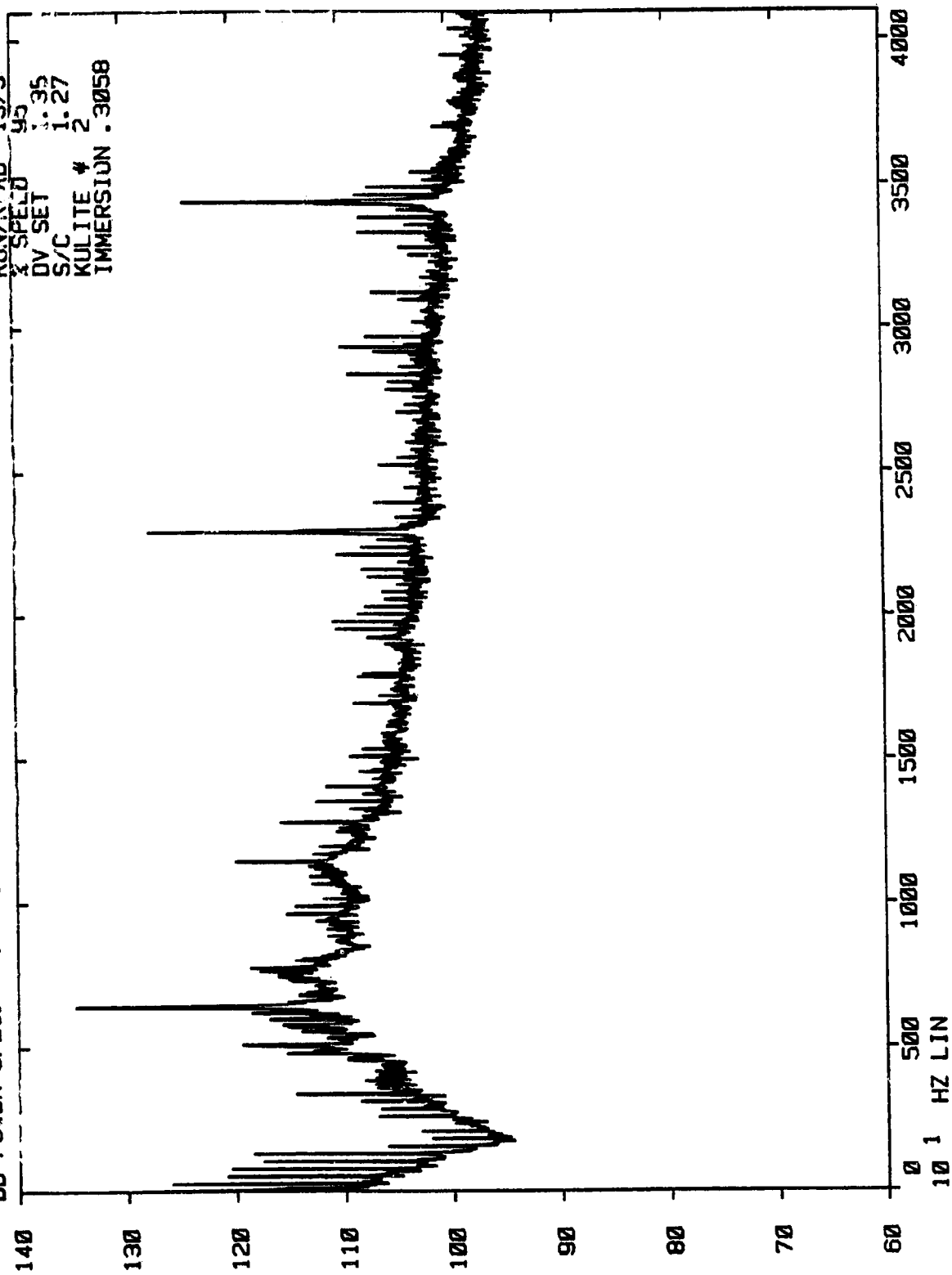
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS
STANDARD REFERENCE MATERIAL 1010a
(ANSI and ISO TEST CHART No. 2)



NASA W3 STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

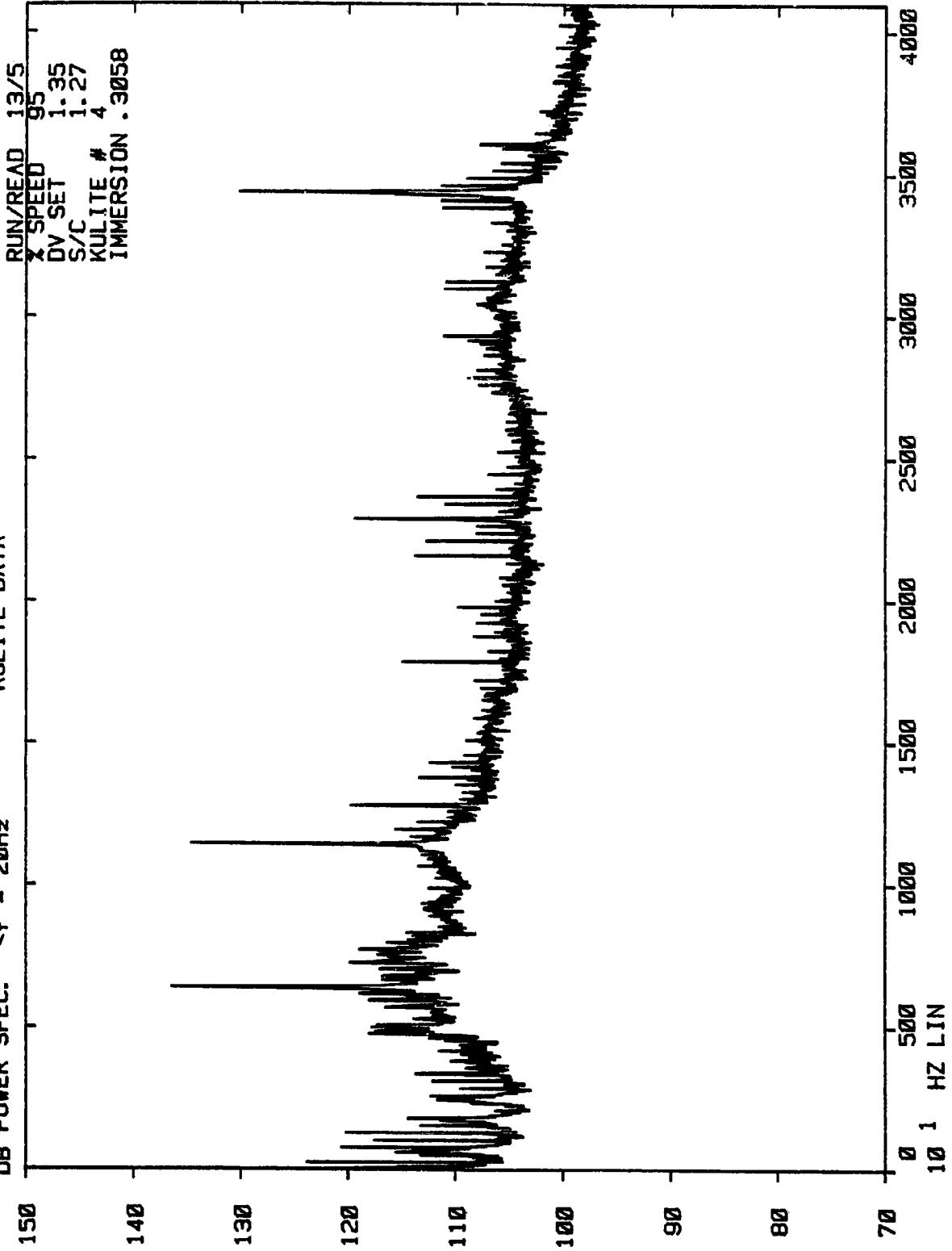
RUN/READ 13/5
X SPEED 95
DV SET 1.35
S/C 1.27
KULITE # 2
IMMERSION .3058



C-4

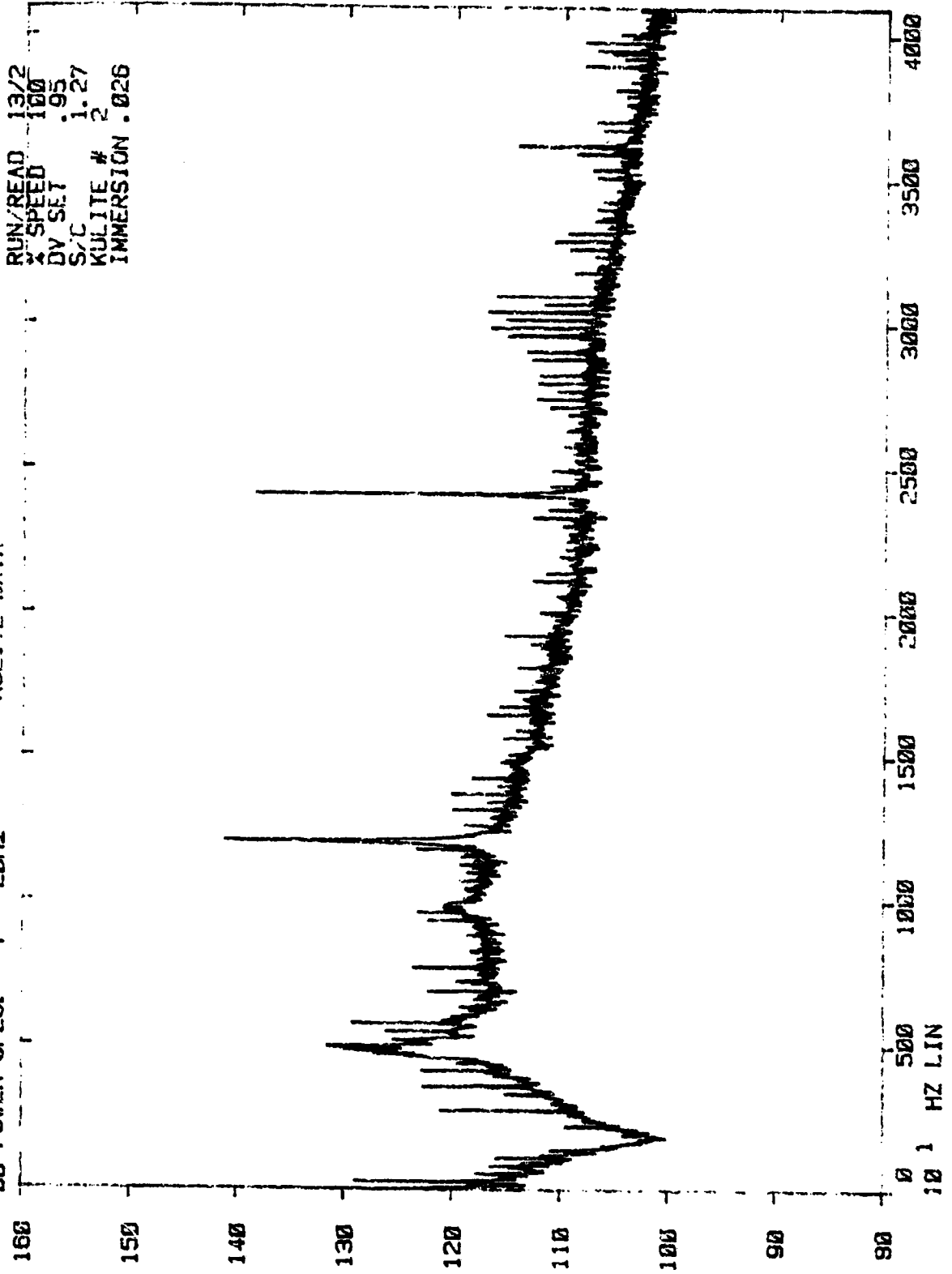
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

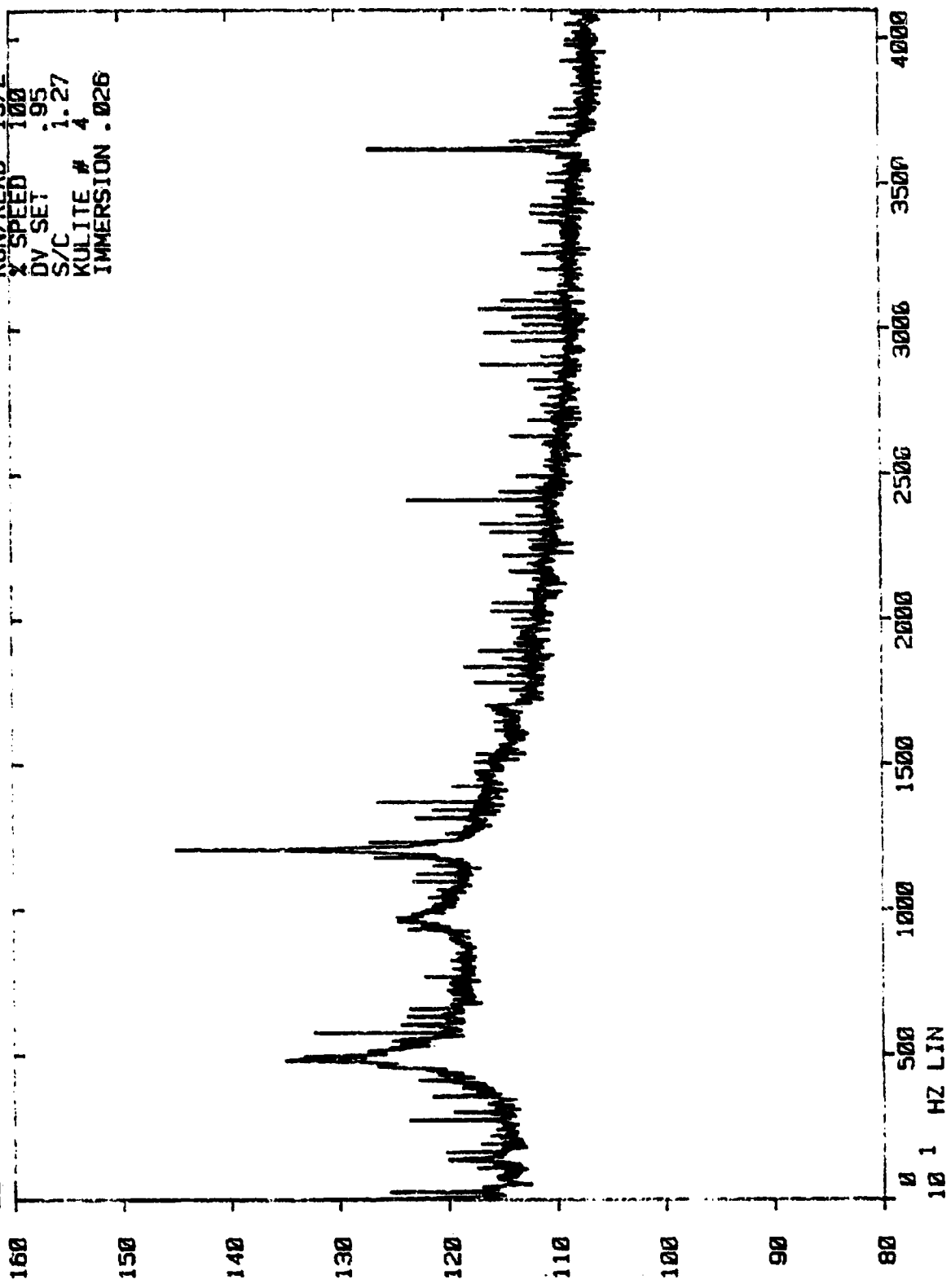
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

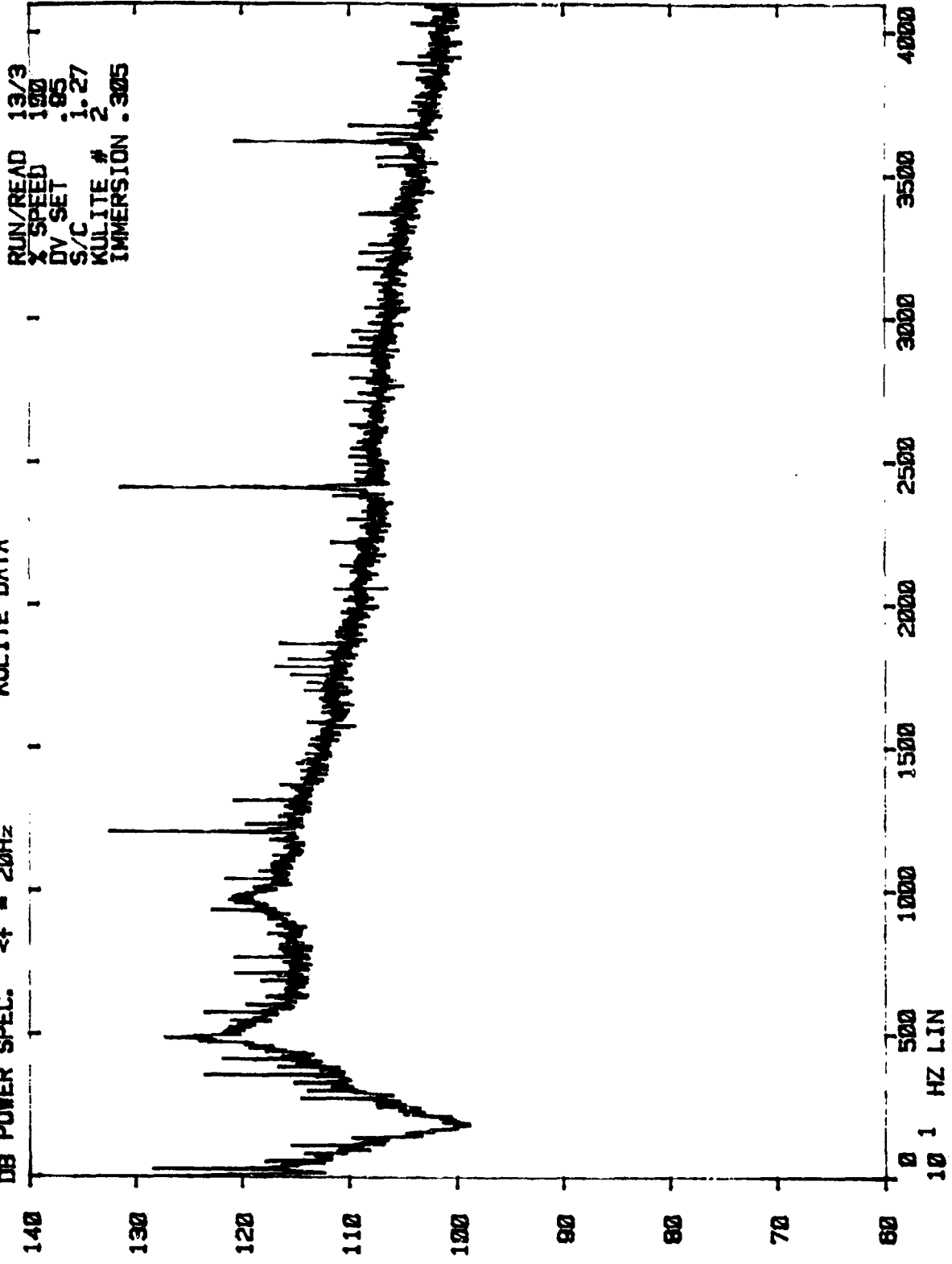
DB POWER SPEC. <f = 20Hz

RUN/READ 13/2
X SPEED 100
DV SET .95
S/C 1.27
KULITE # 4
IMMERSION .026



NASA Y/B STUDY
KULITE DATA

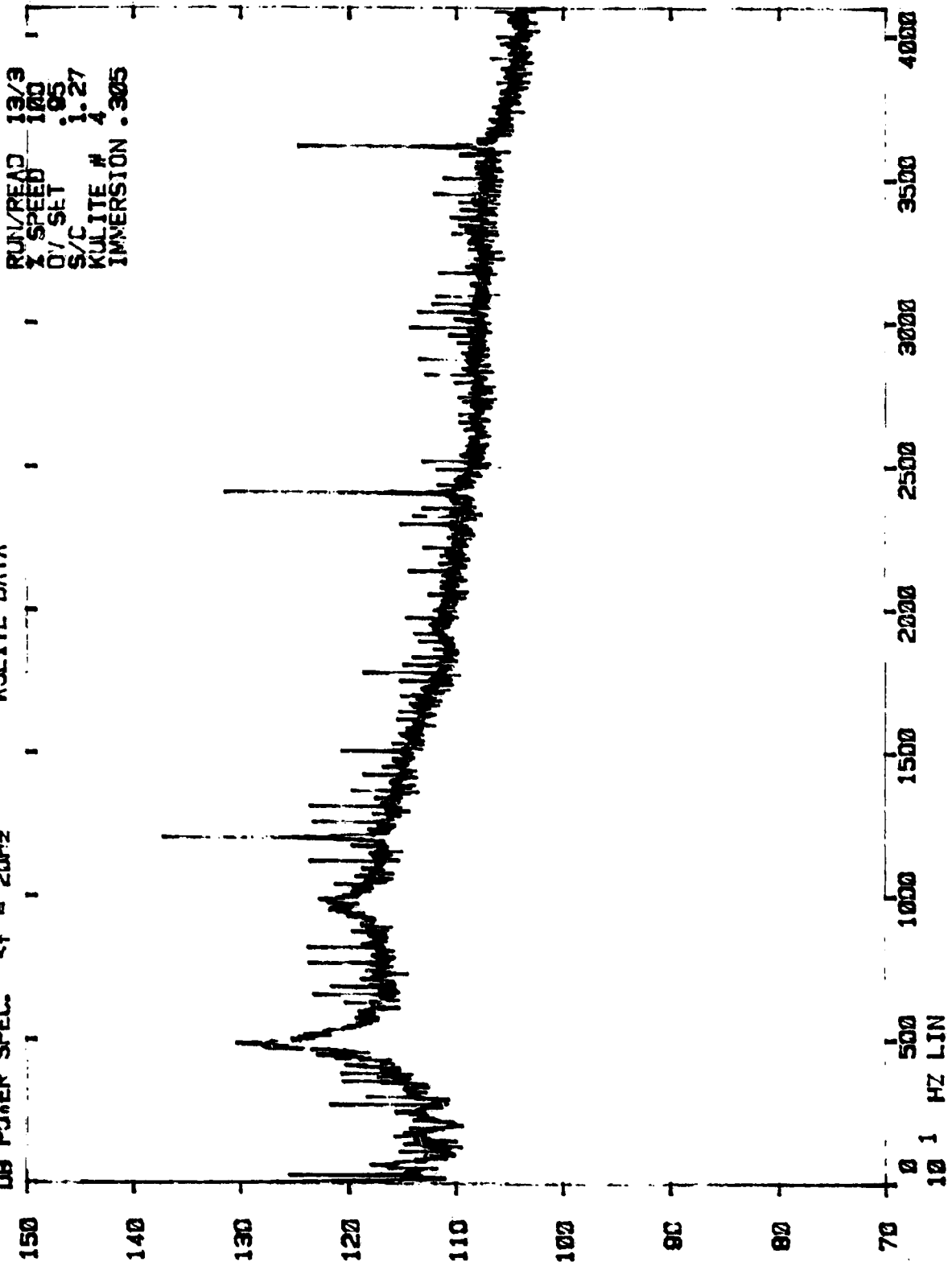
DB POWER SPEC. $\langle f = 20\text{Hz} \rangle$



RUN/READ 13/3
X SPEED 100
DY SET .85
S/C 1.27
KULITE # 2
IMMERSION .3005

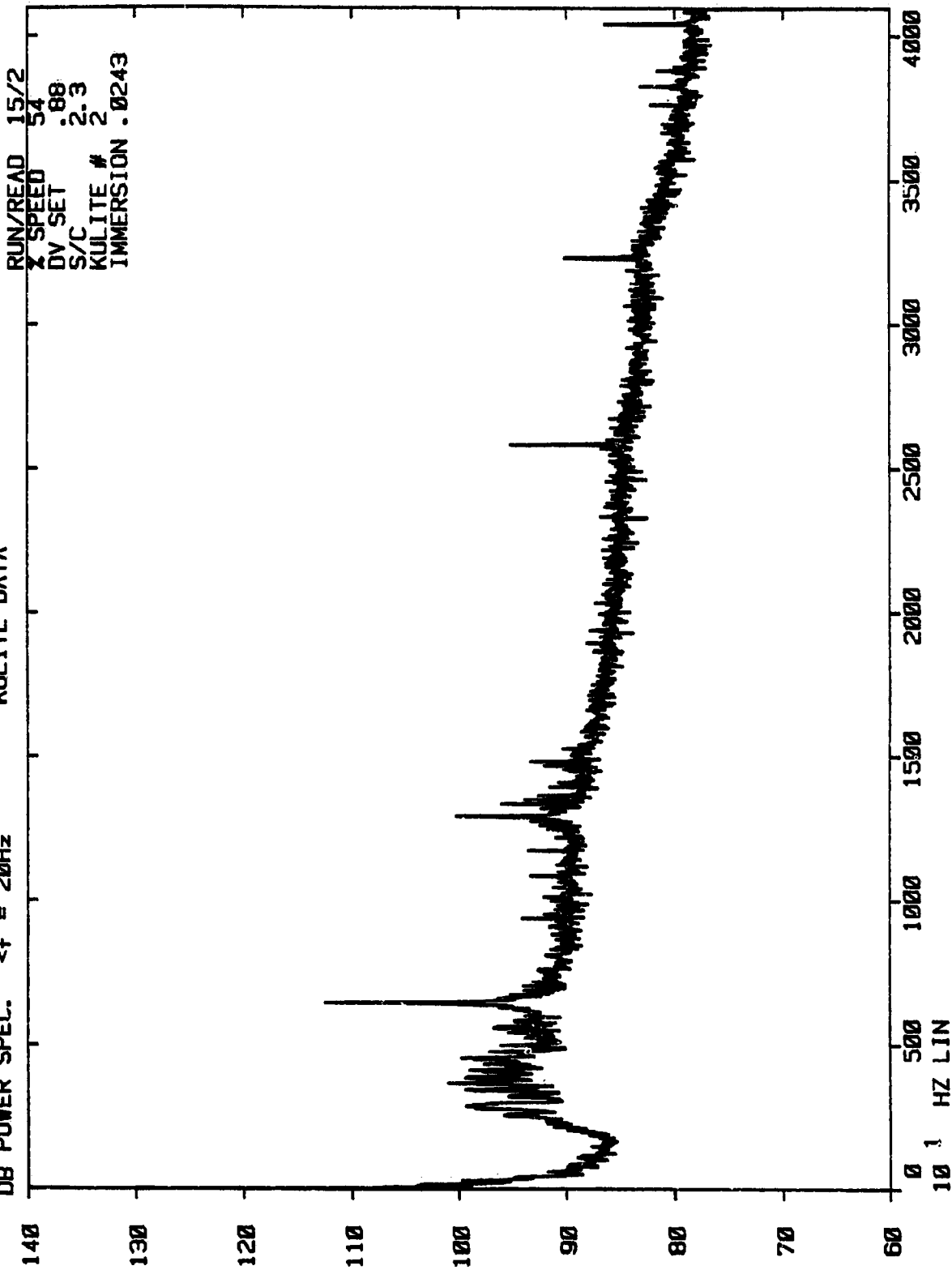
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



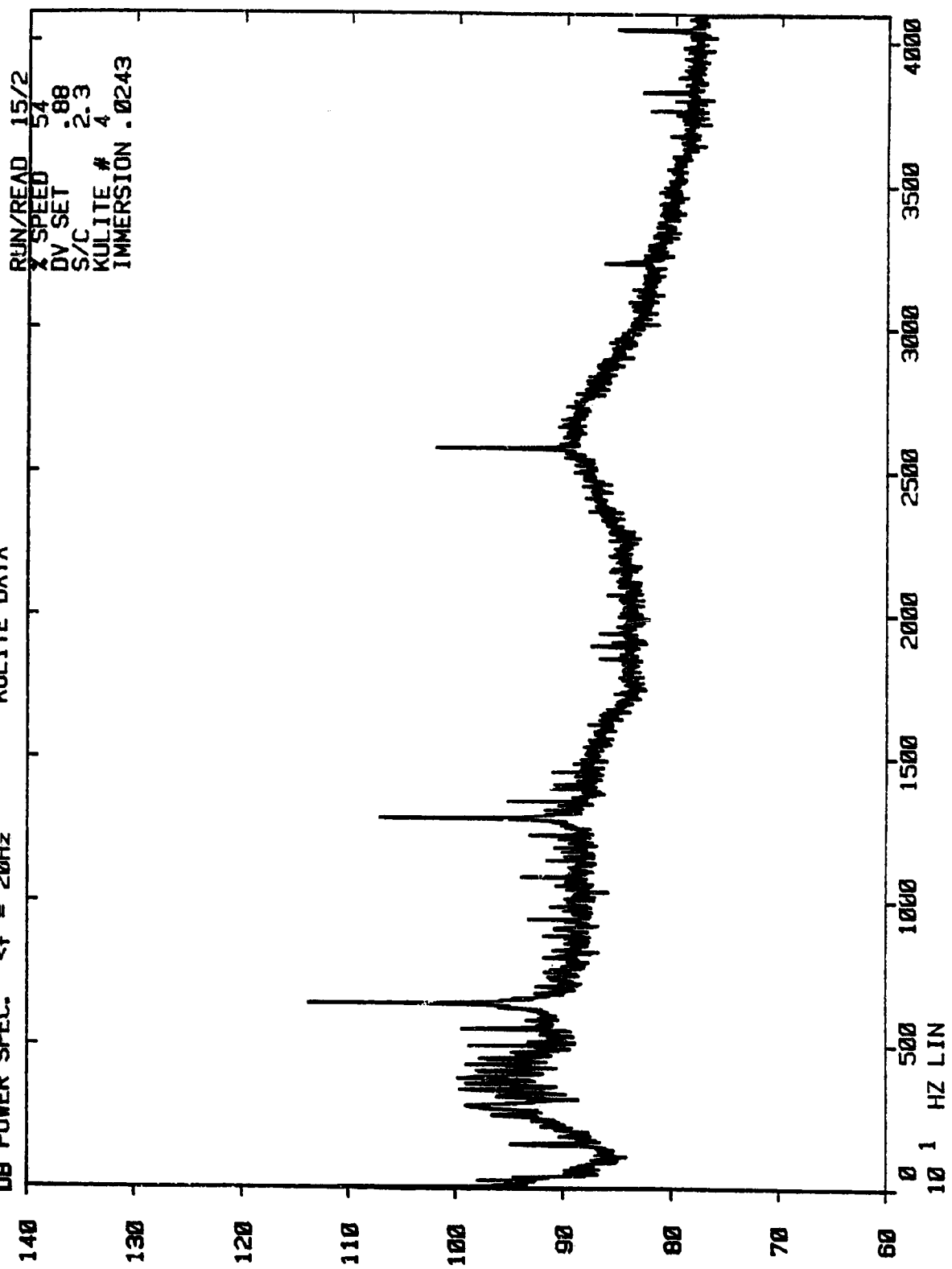
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



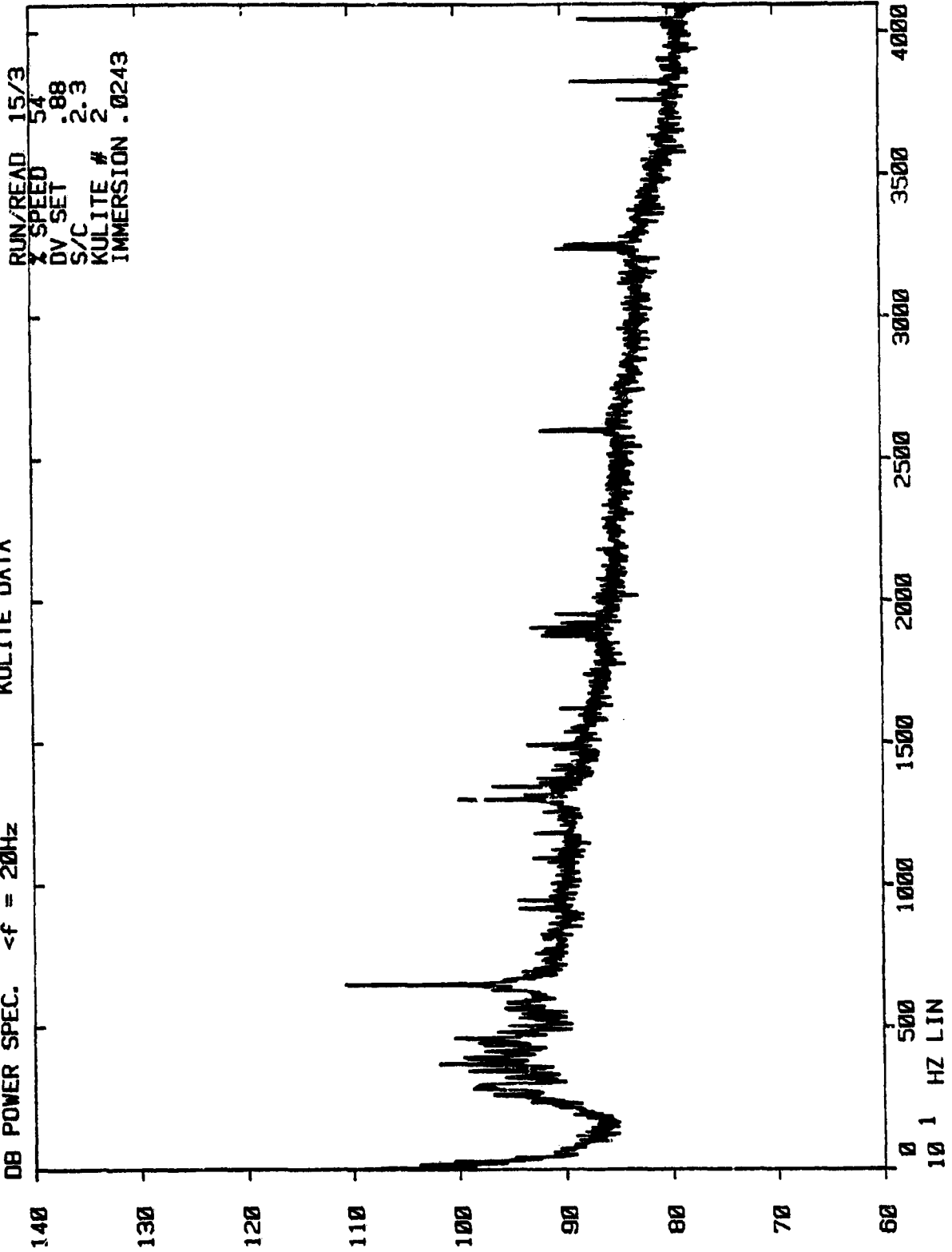
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



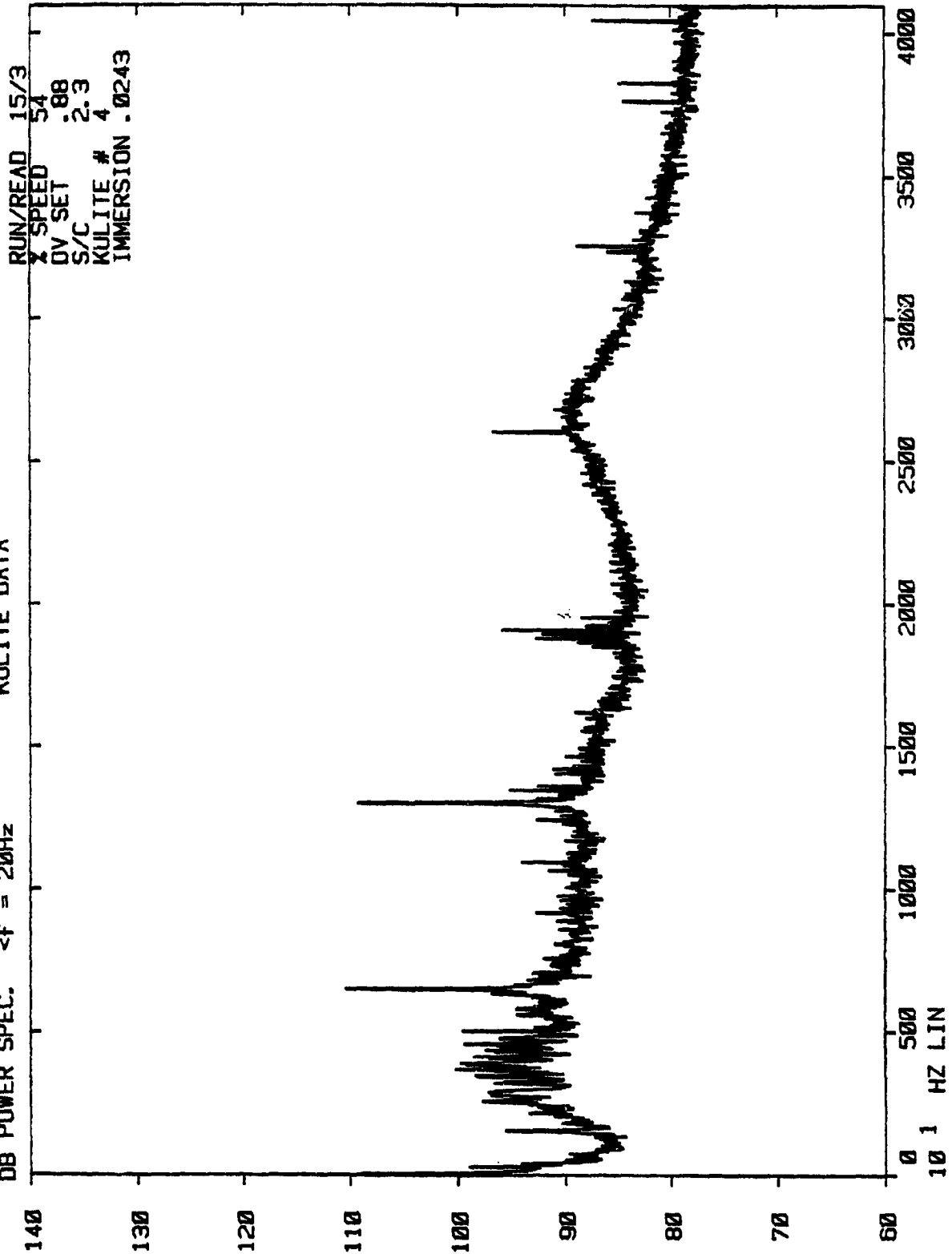
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



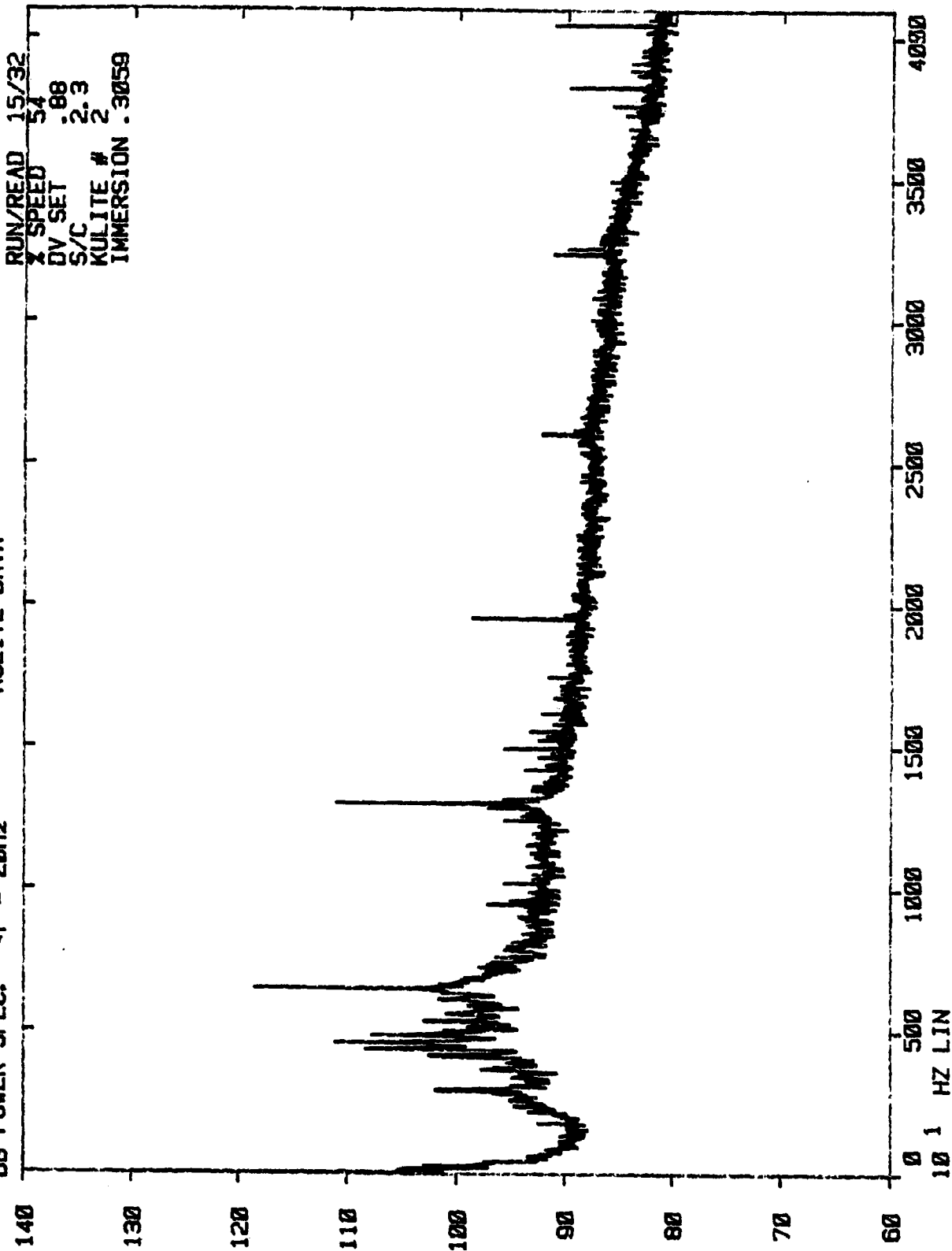
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



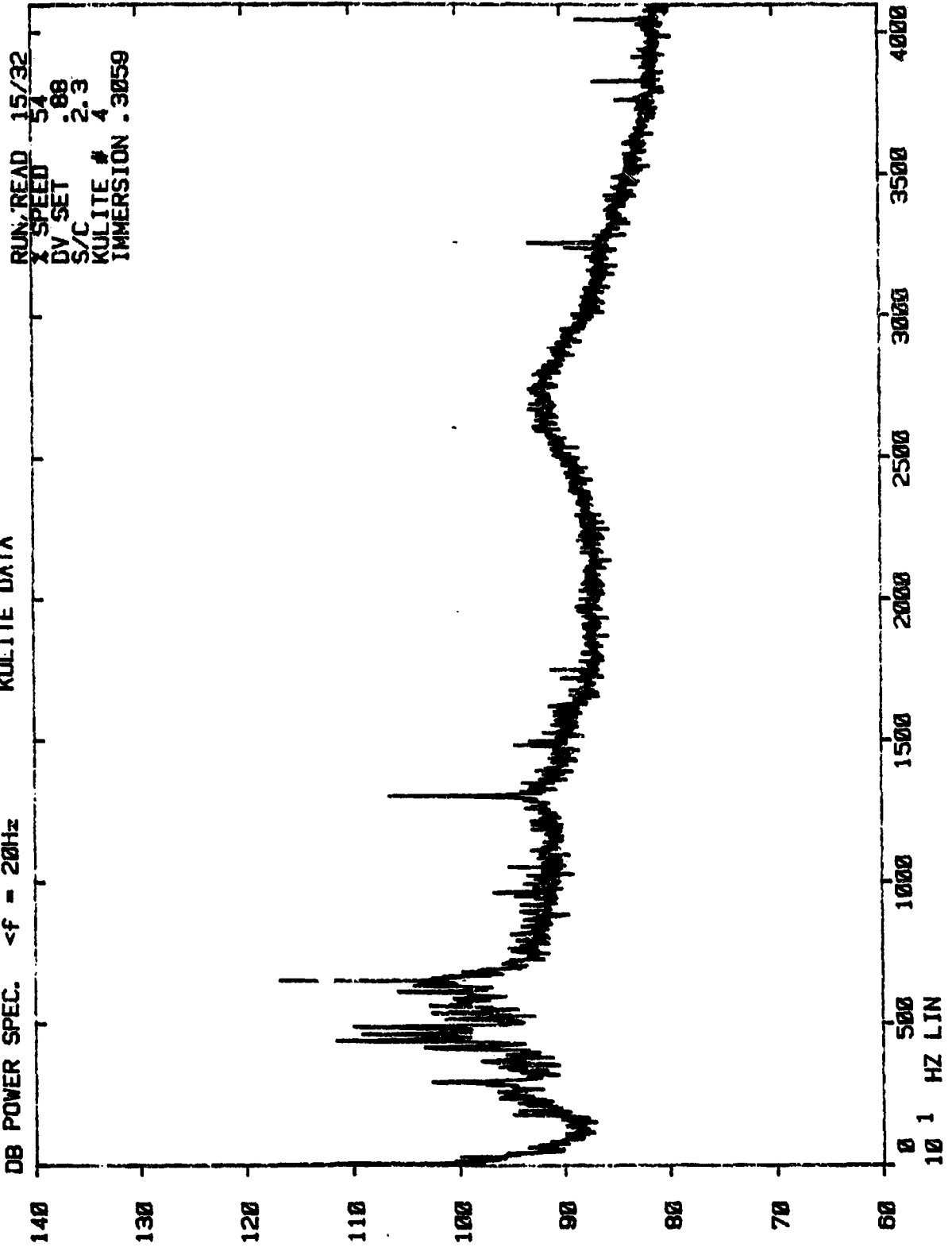
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

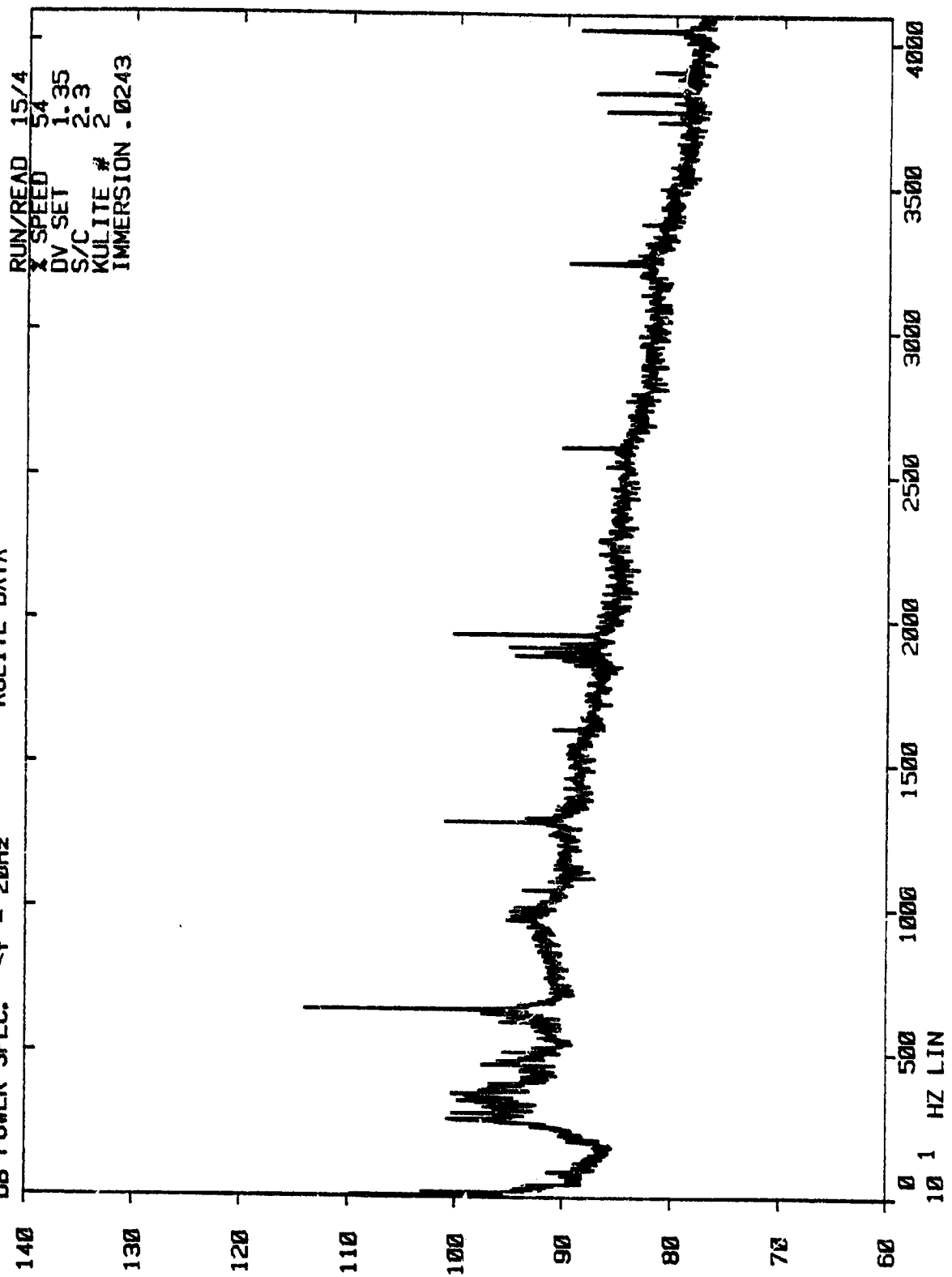
DB POWER SPEC. <f = 20Hz



RUN: READ 15/32
X SPEED 54
DV SET .88
S/C 2.3
KULITE # 4
IMMERSION .3059

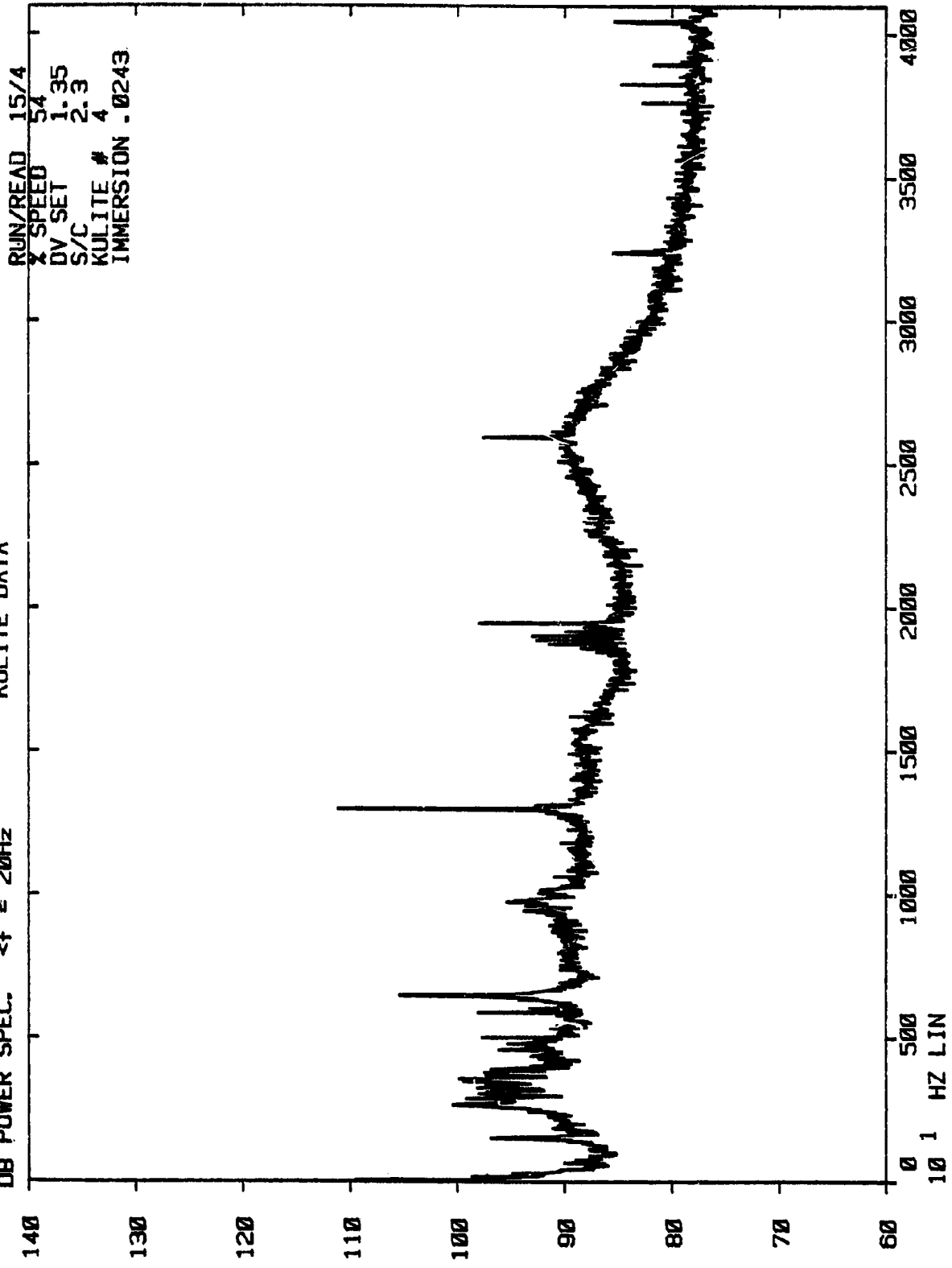
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

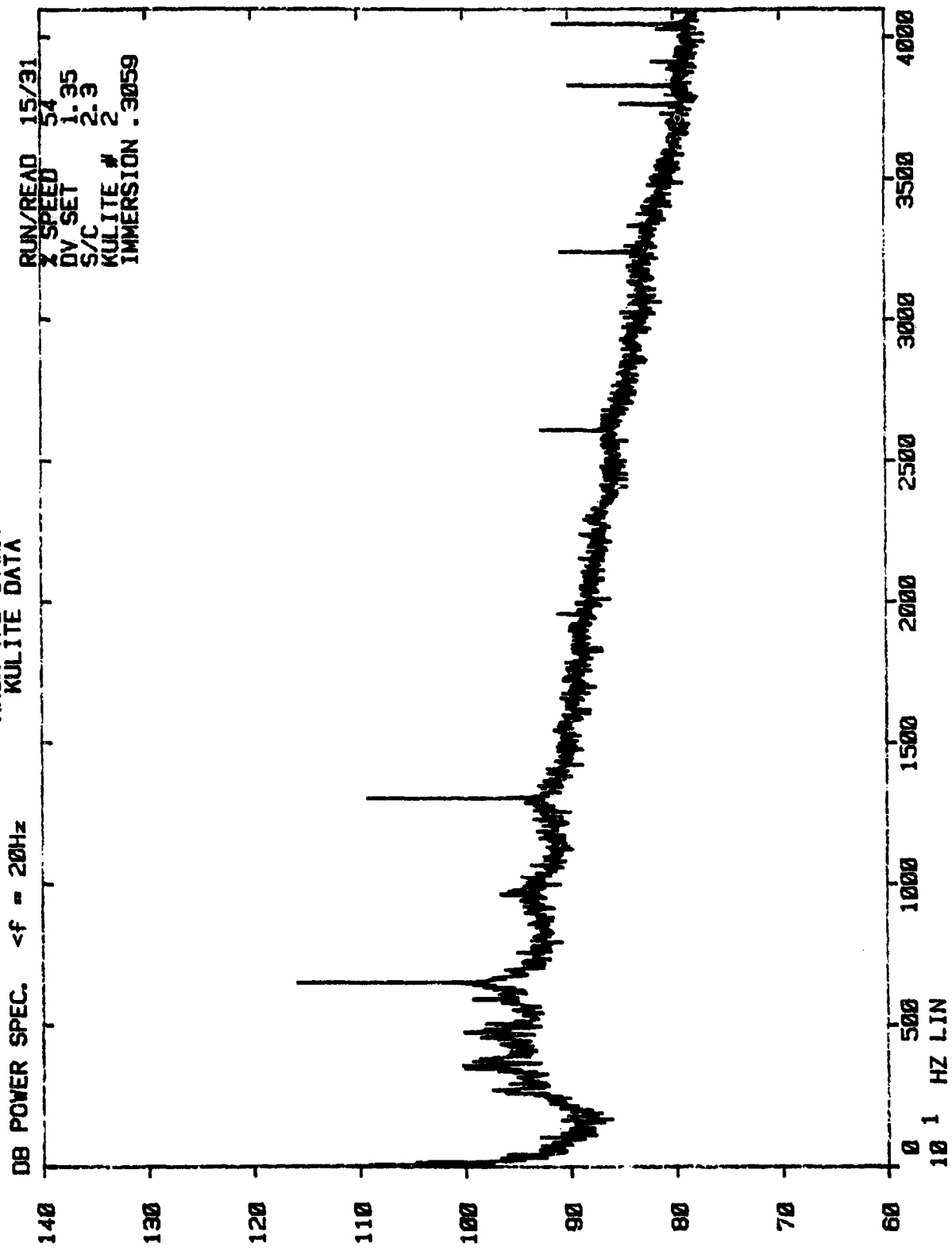


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$

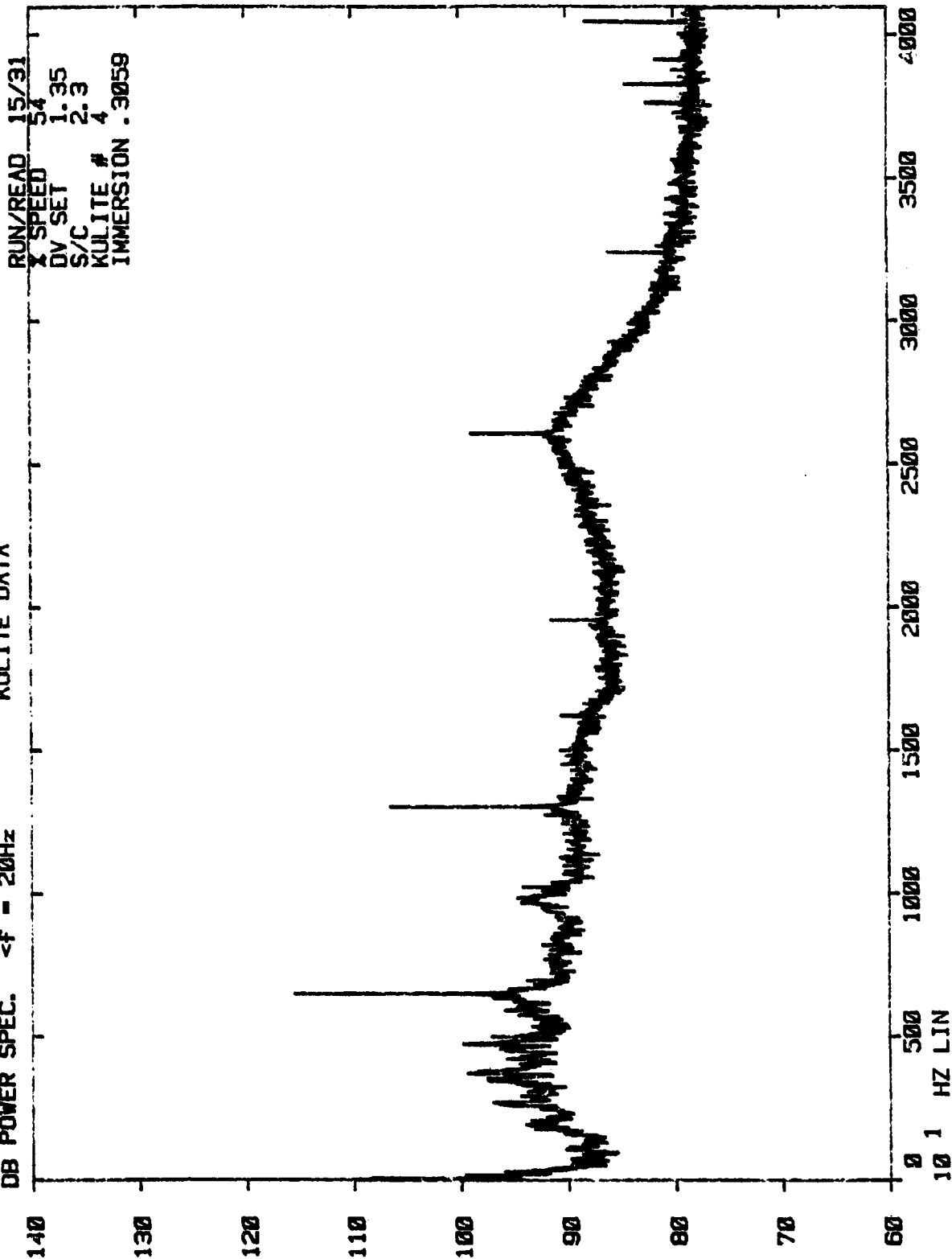


NASA V/B STUDY
KULITE DATA



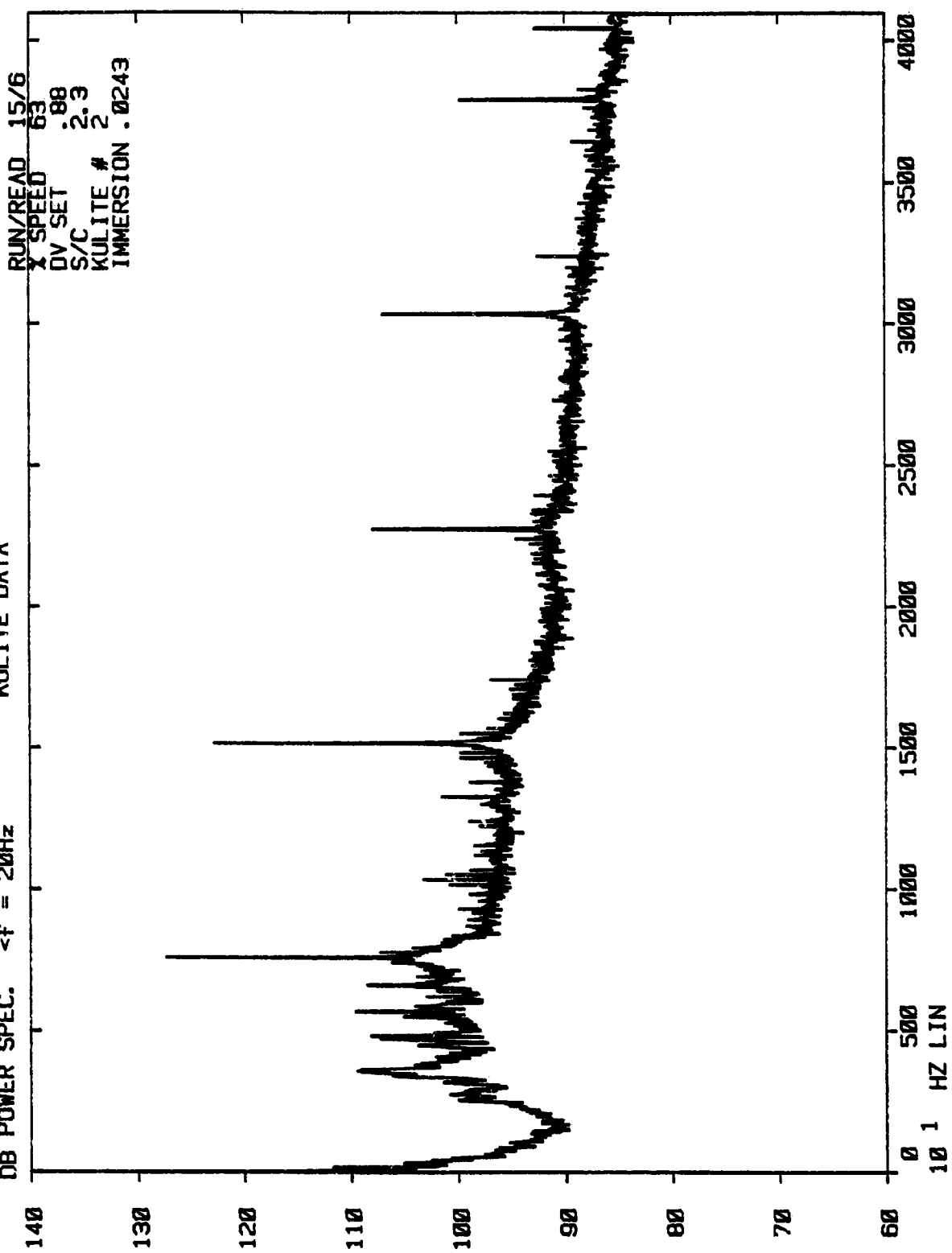
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



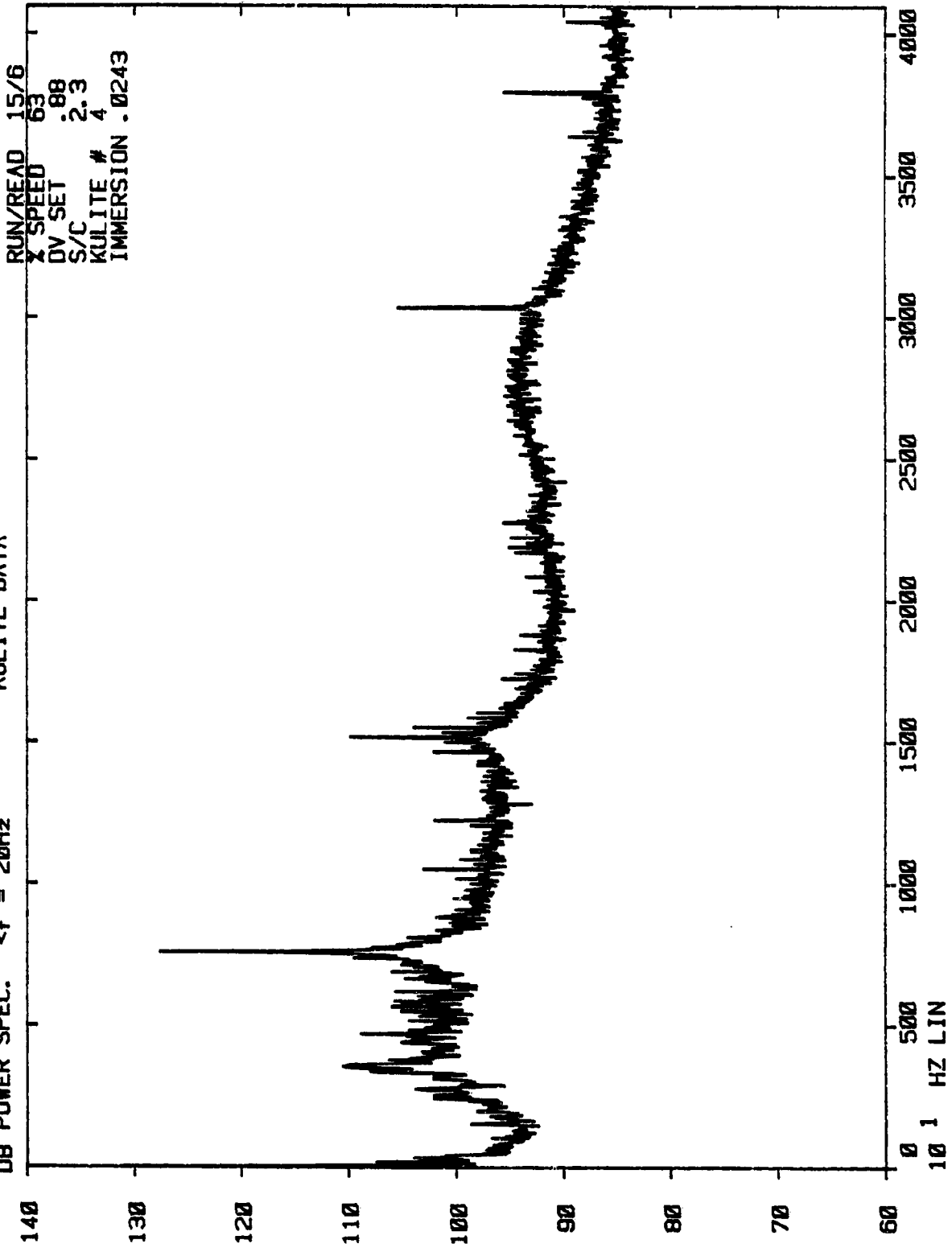
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



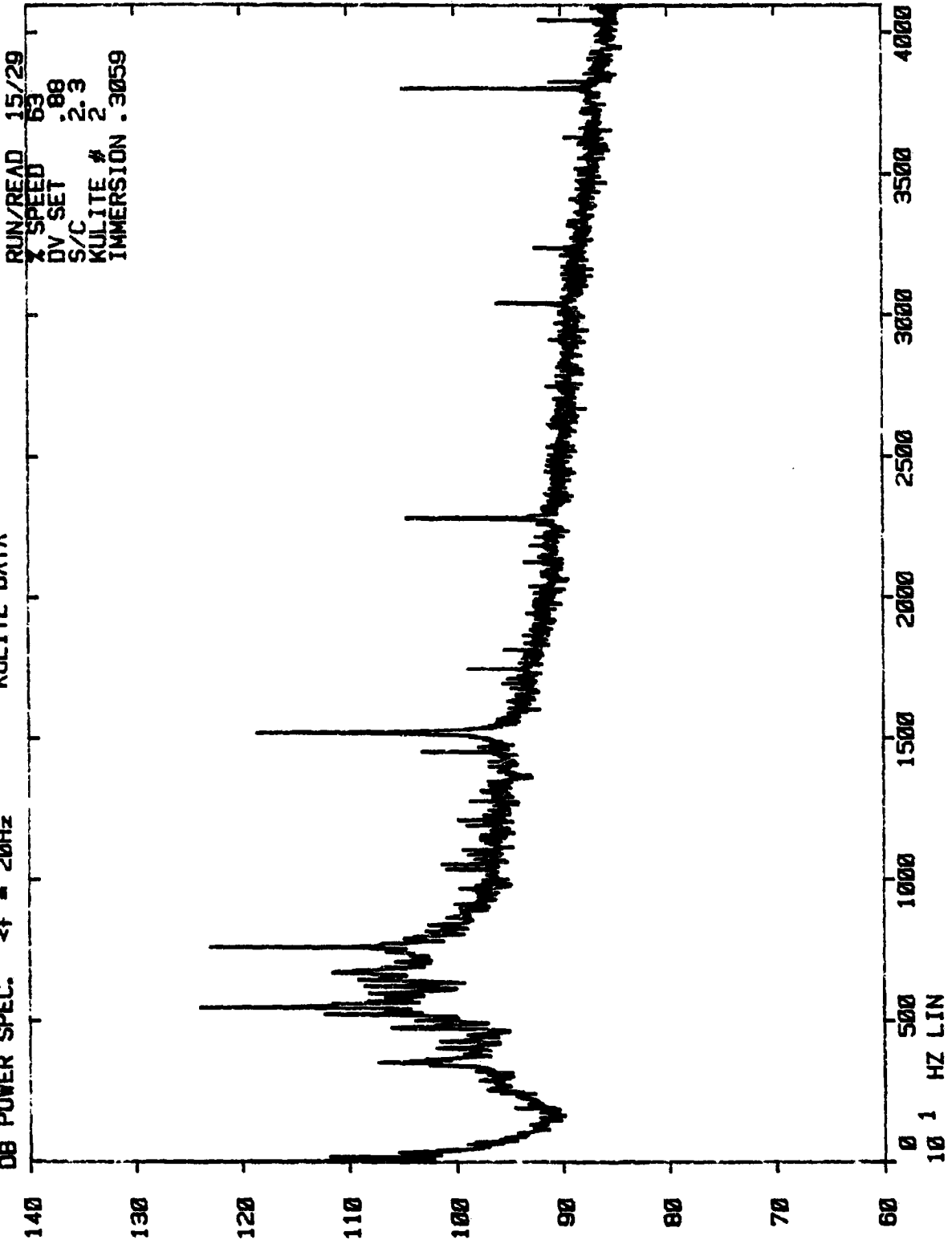
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



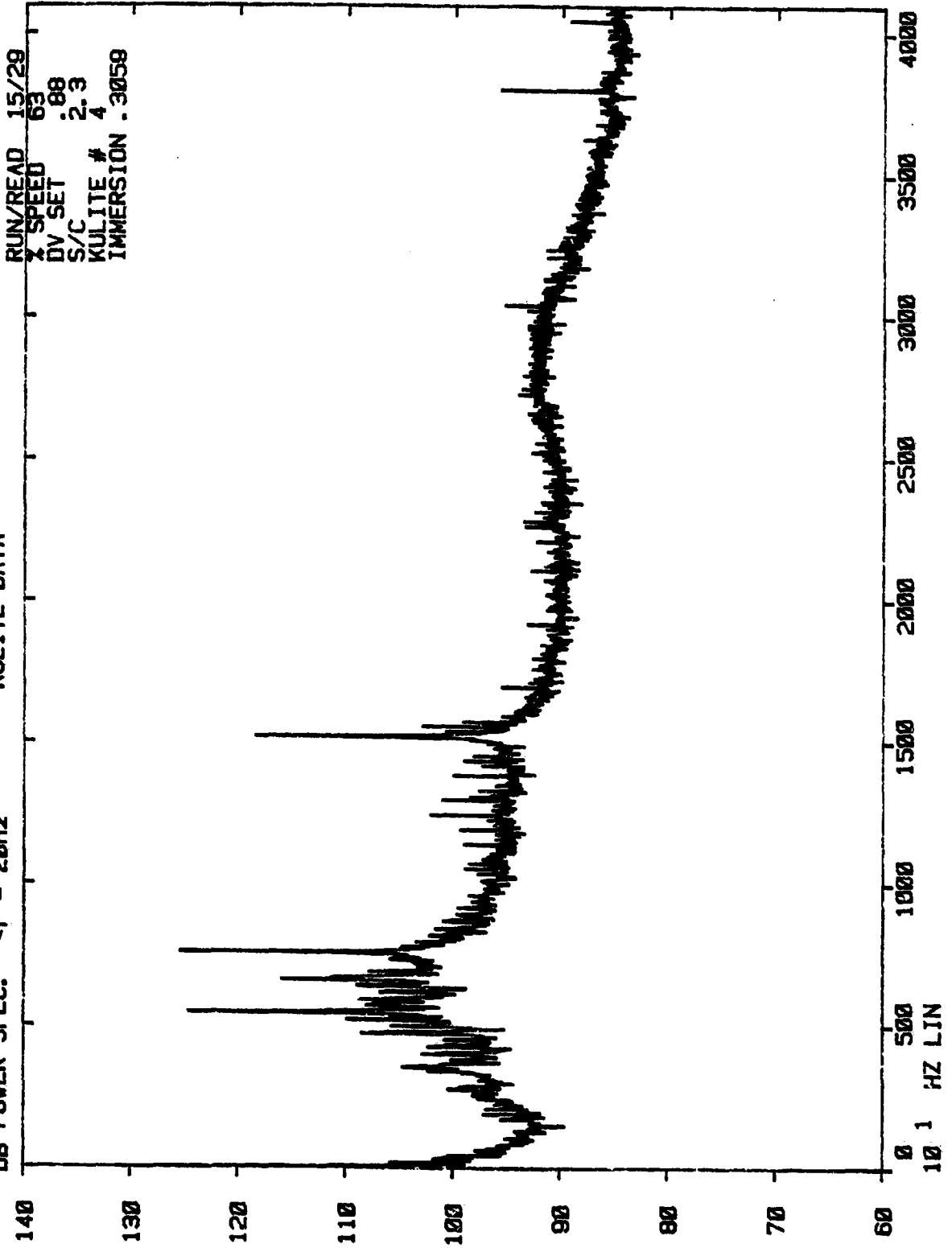
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



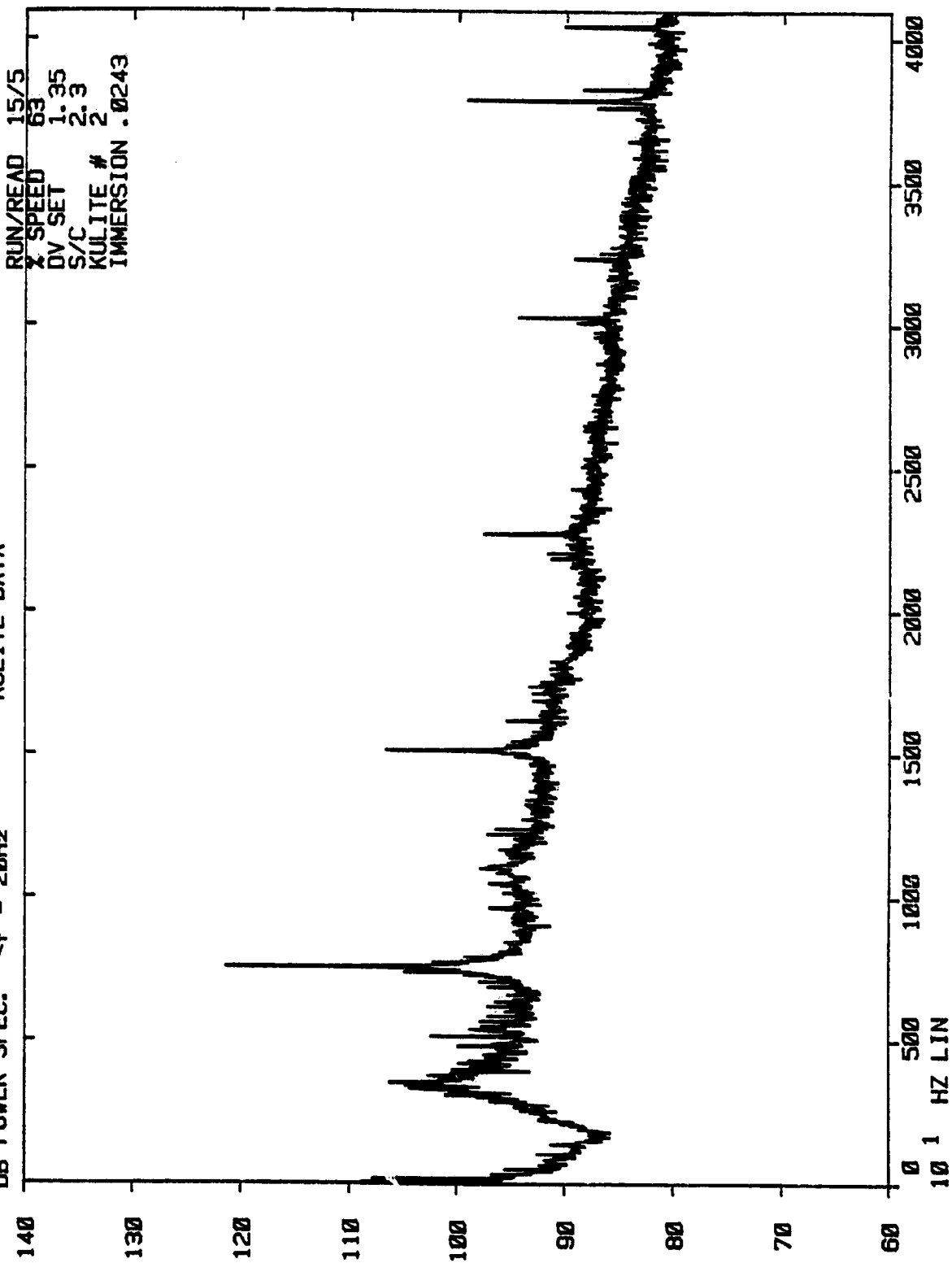
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\leq f = 20\text{Hz}$



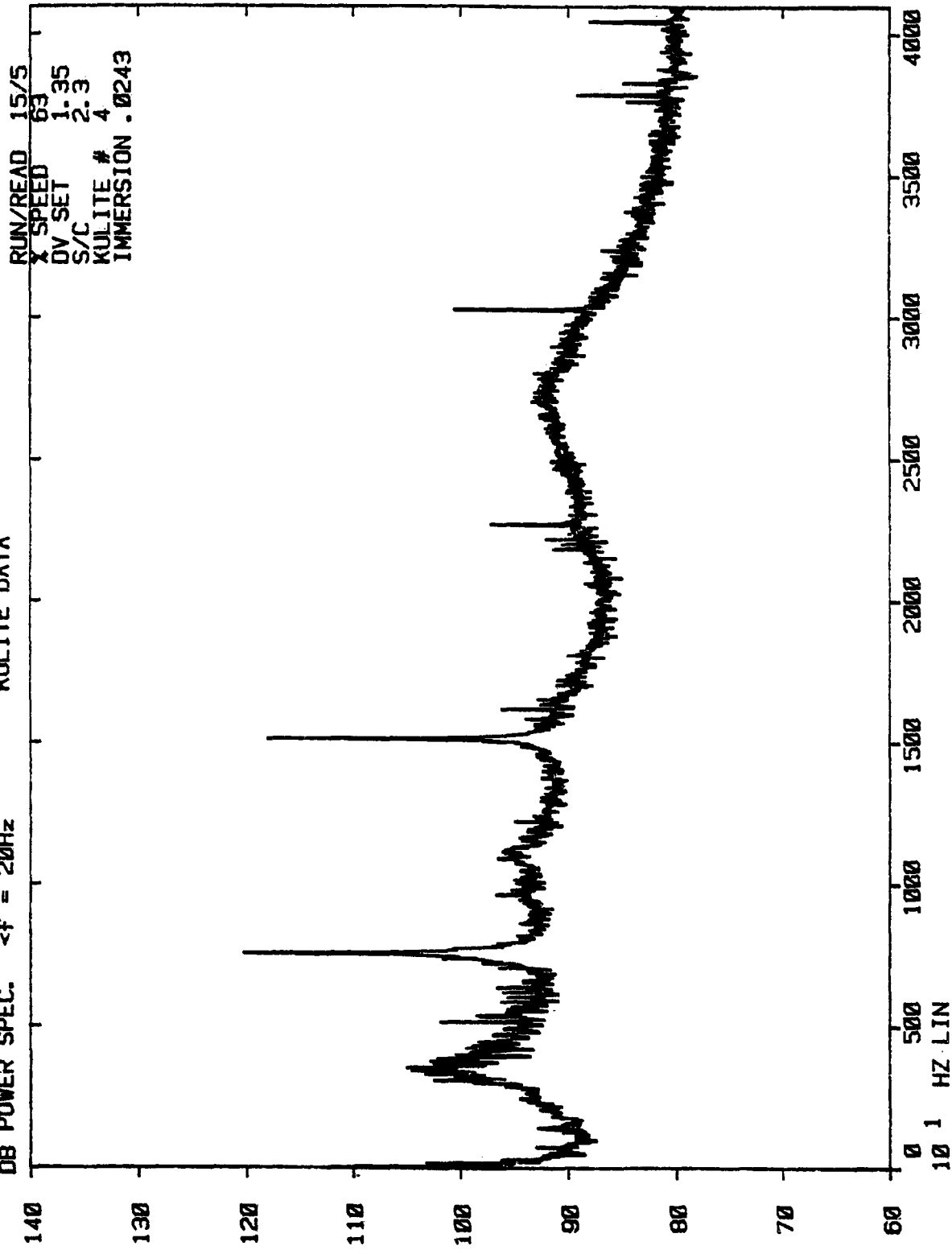
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



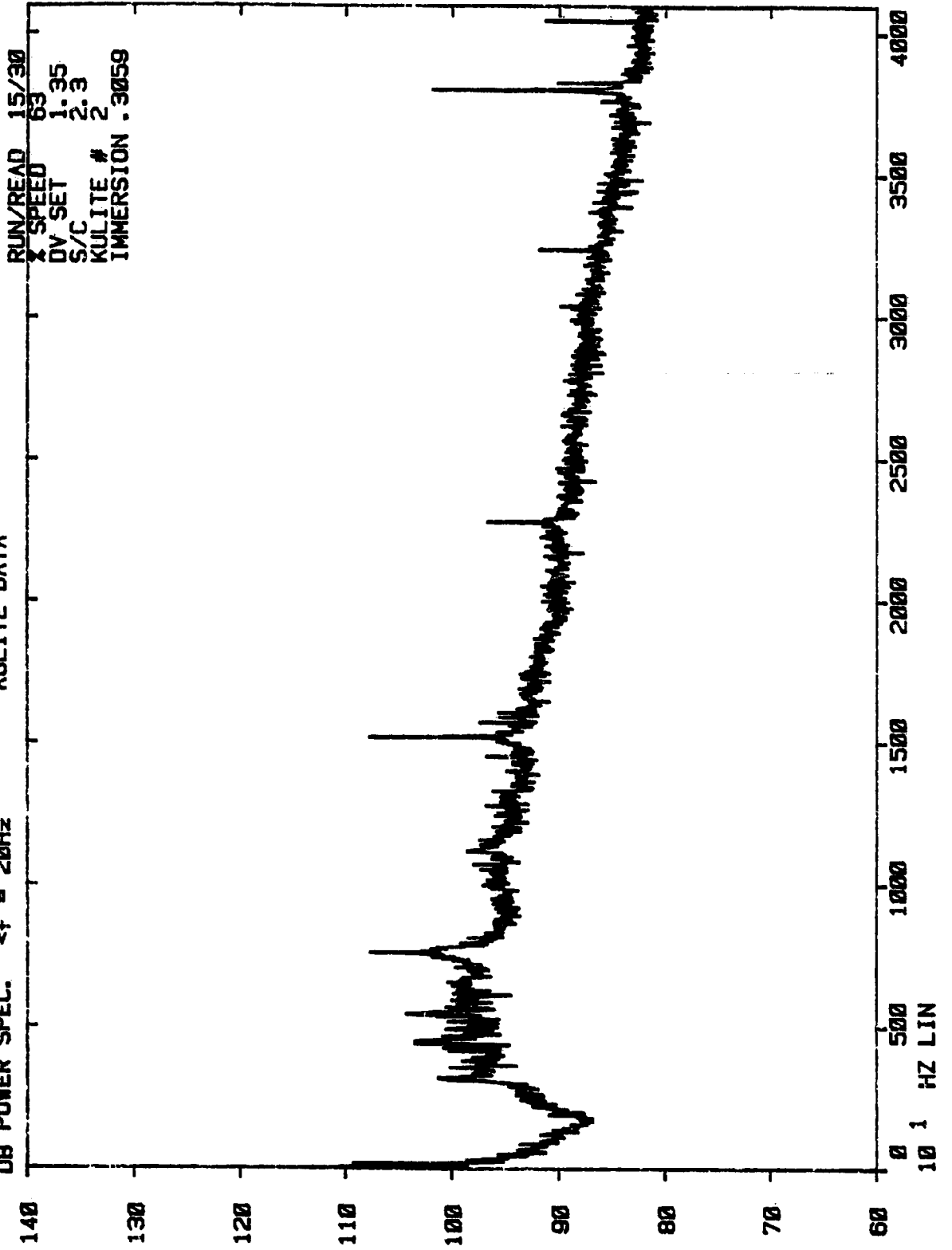
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



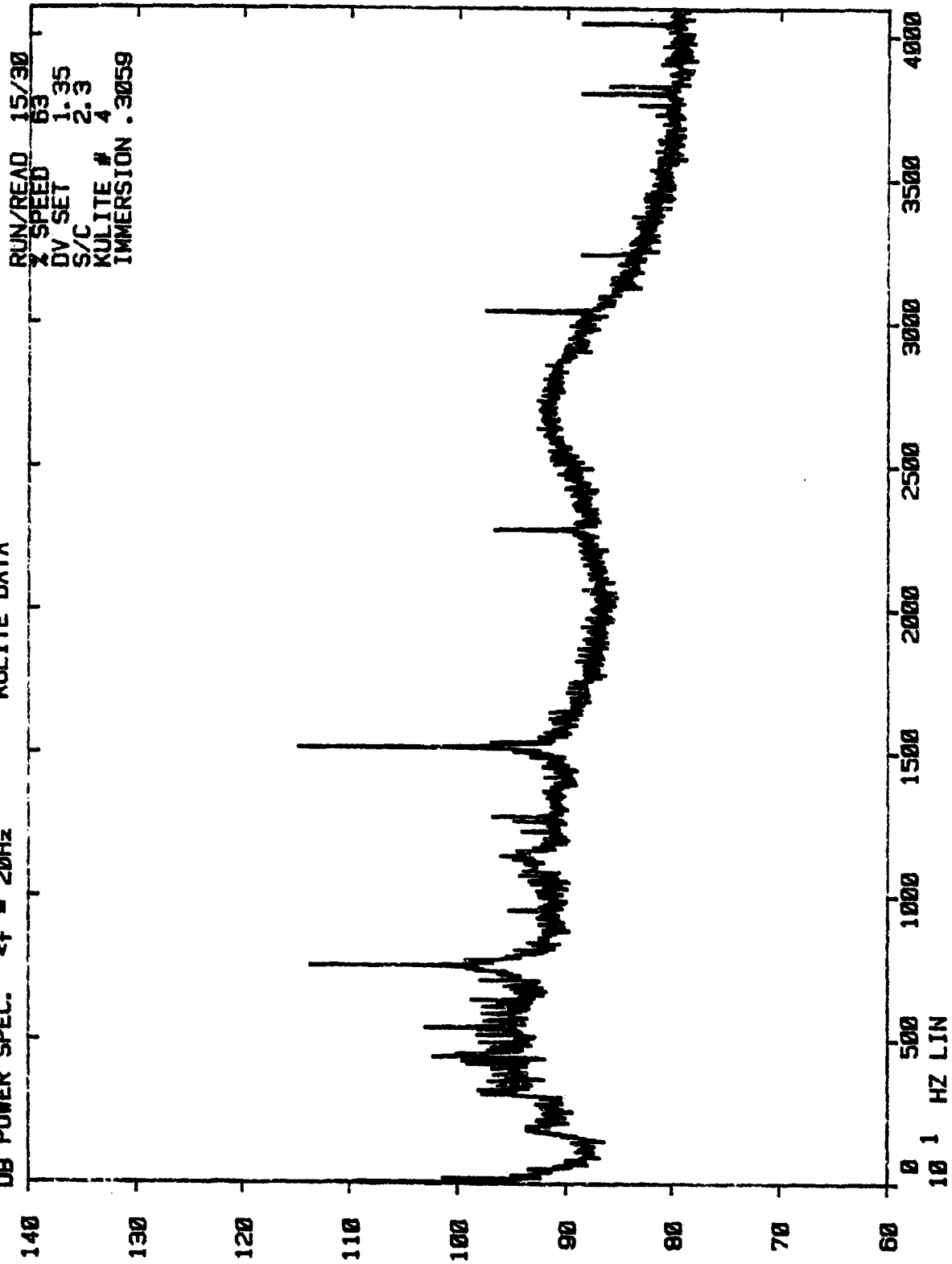
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



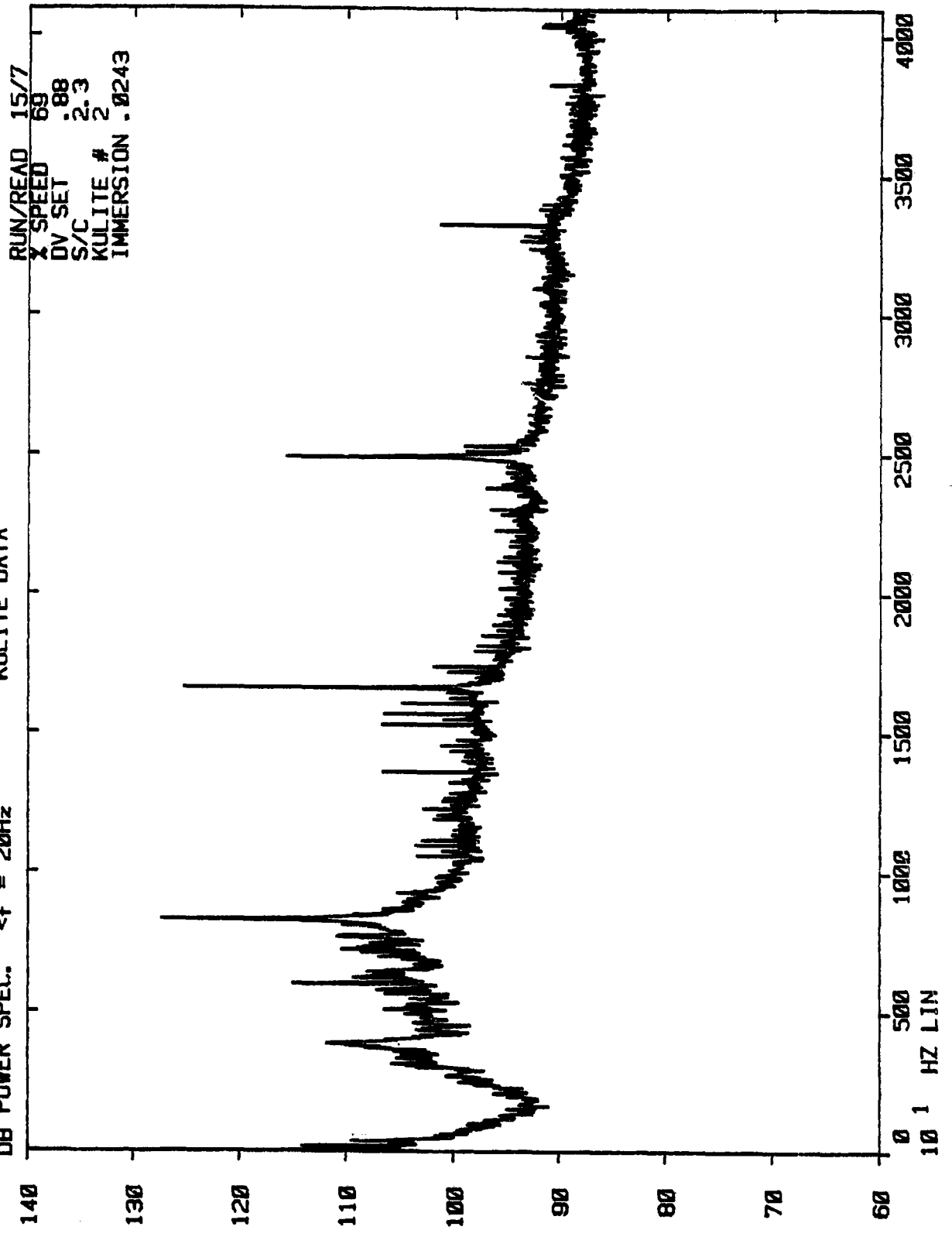
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\leftarrow f = 20\text{Hz}$



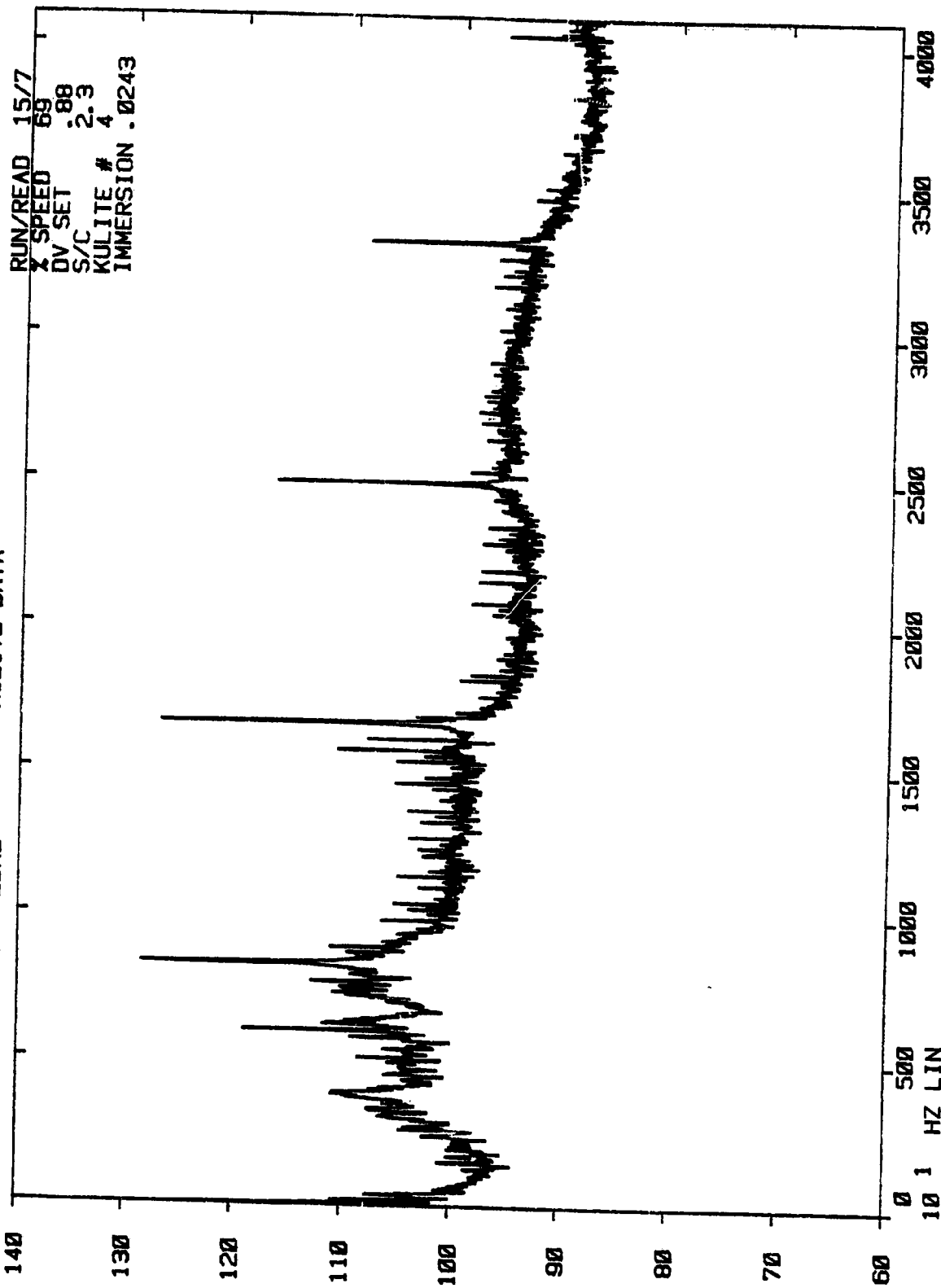
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



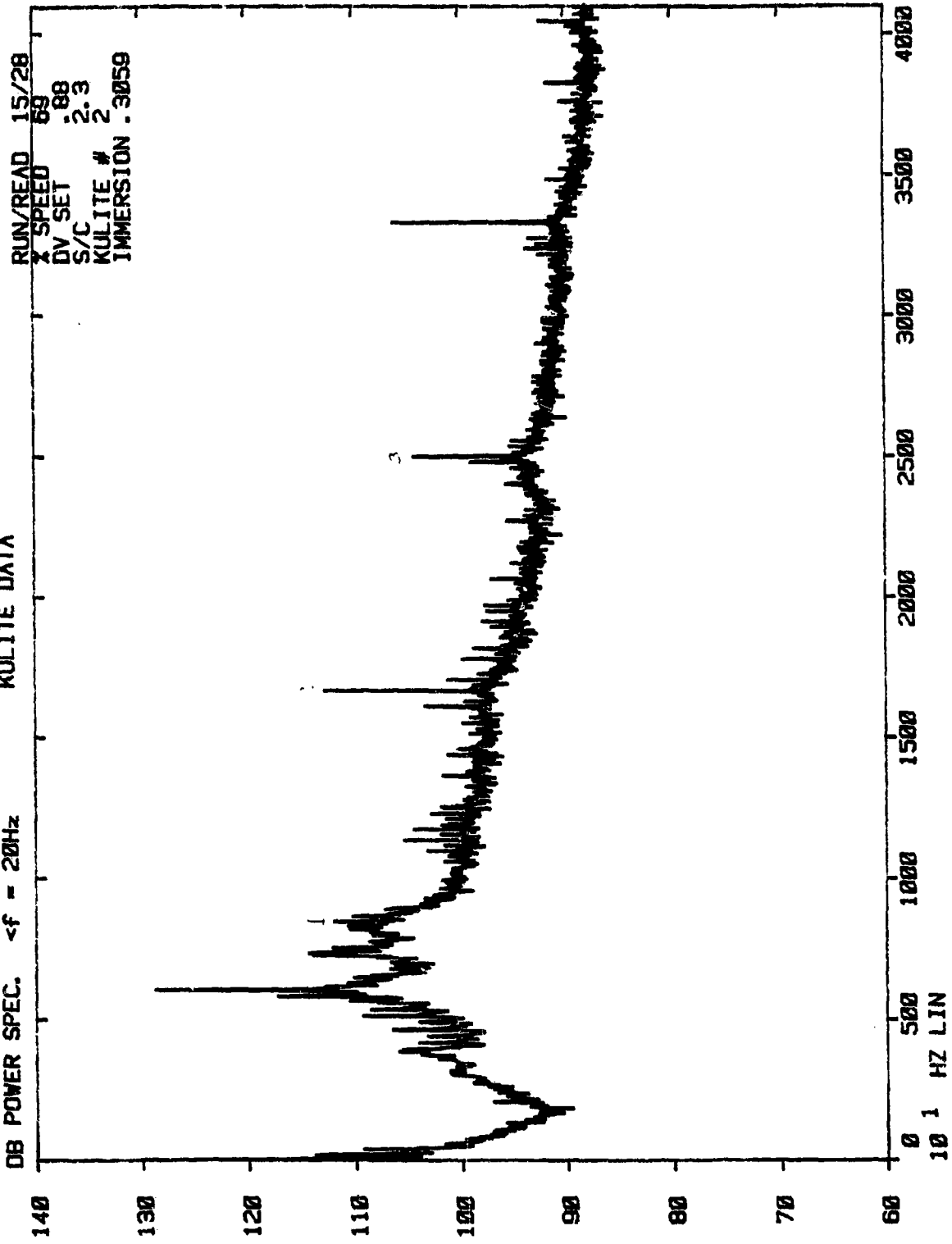
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

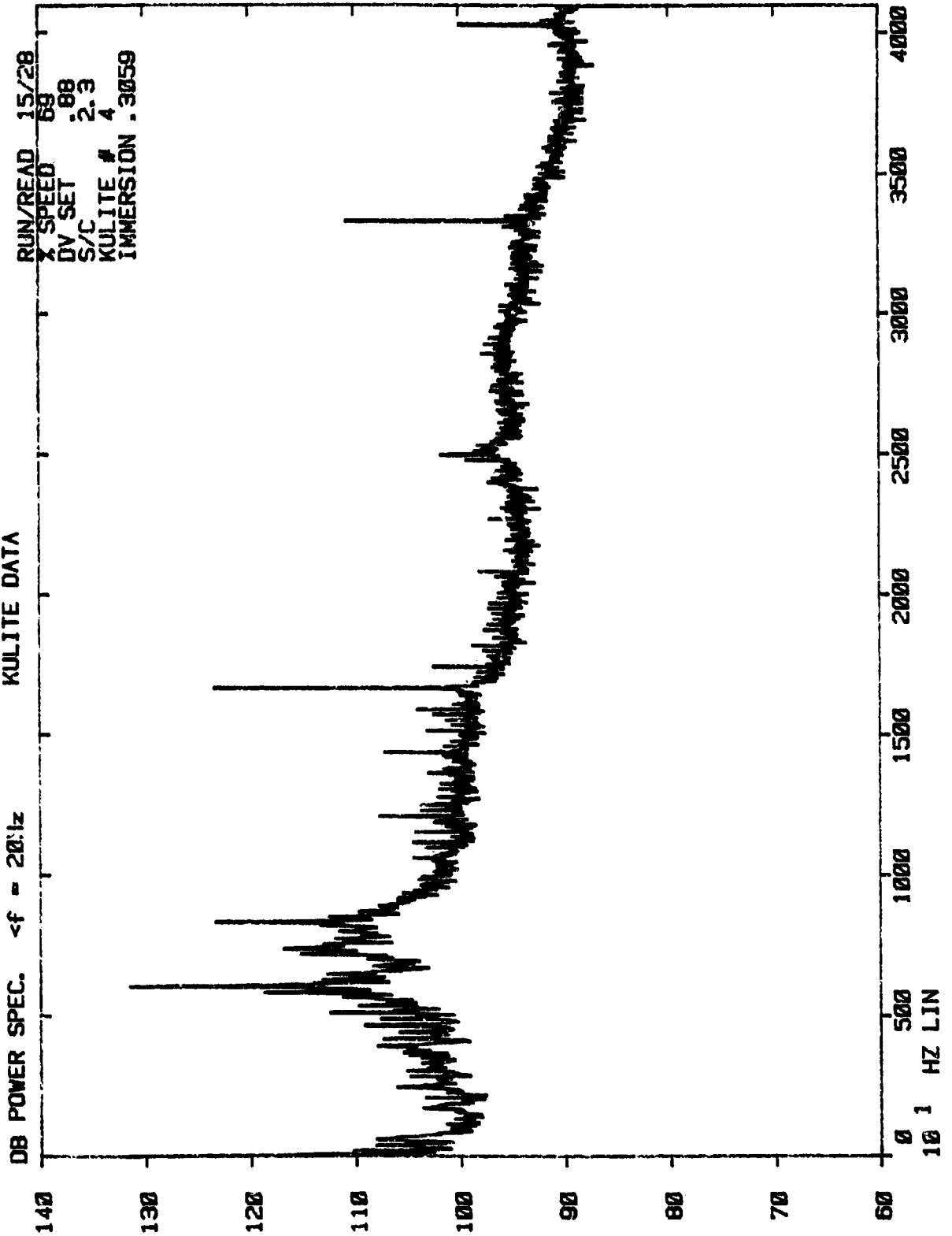


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

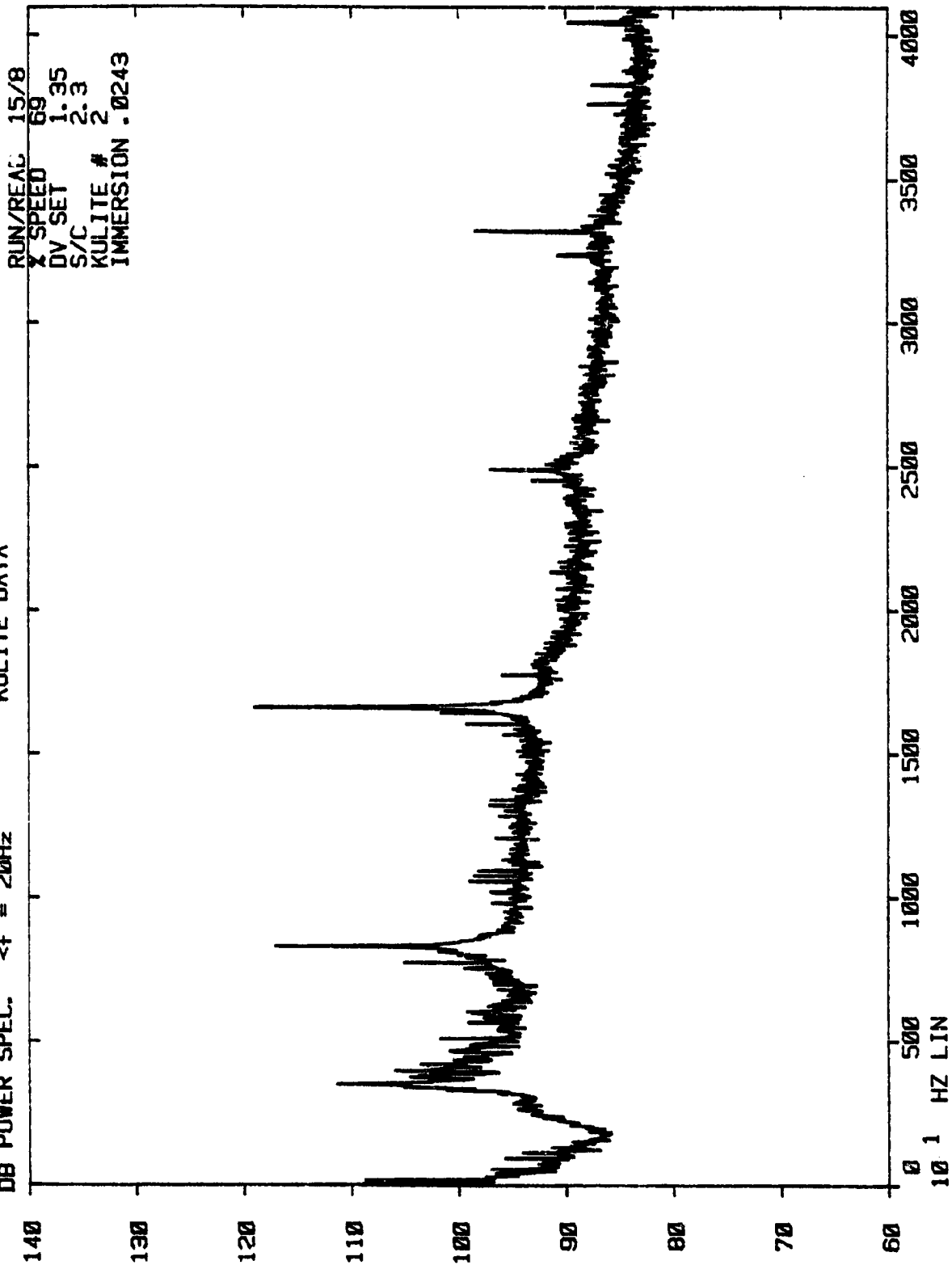


NASA V/B STUDY
KULITE DATA



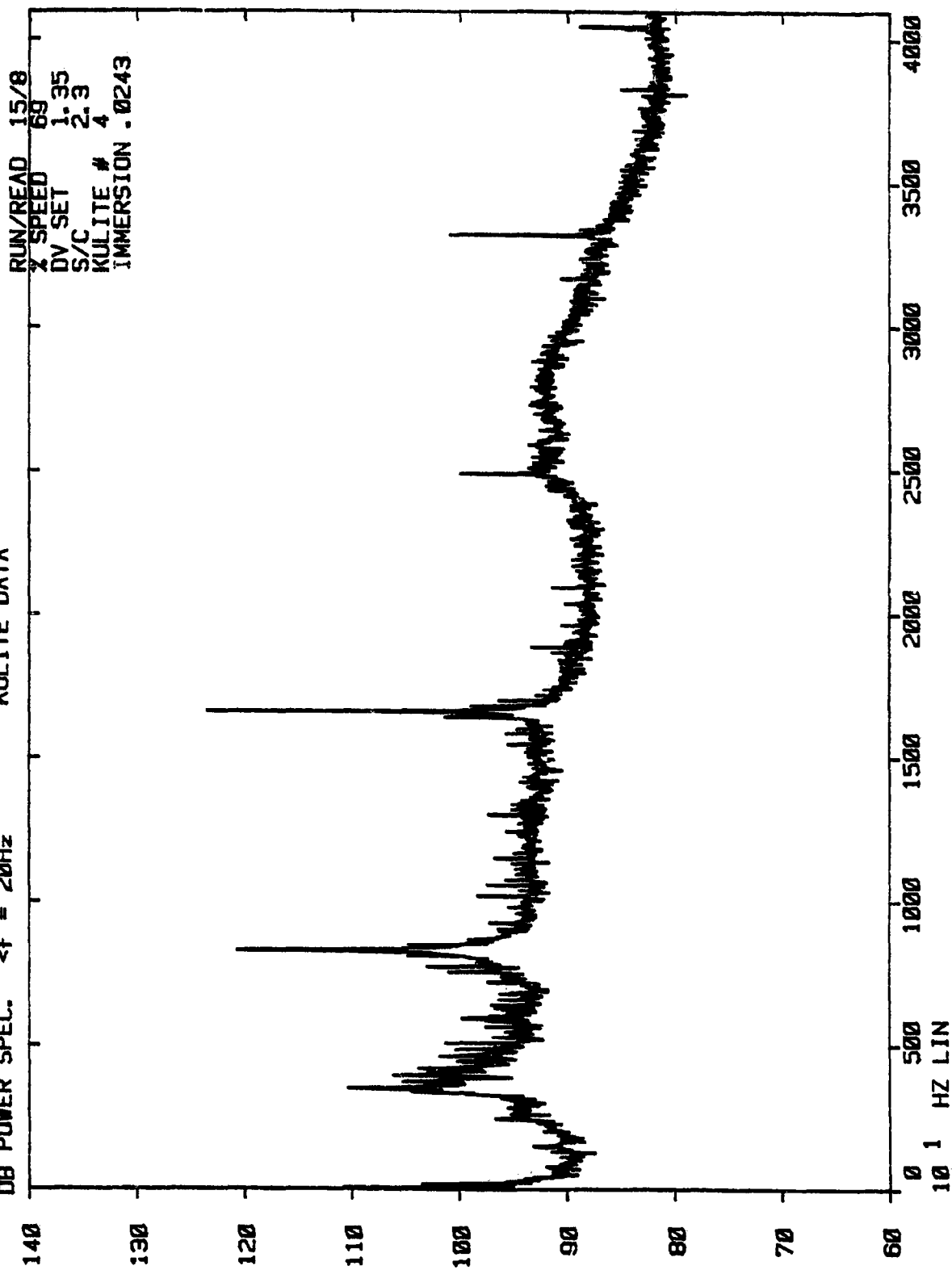
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



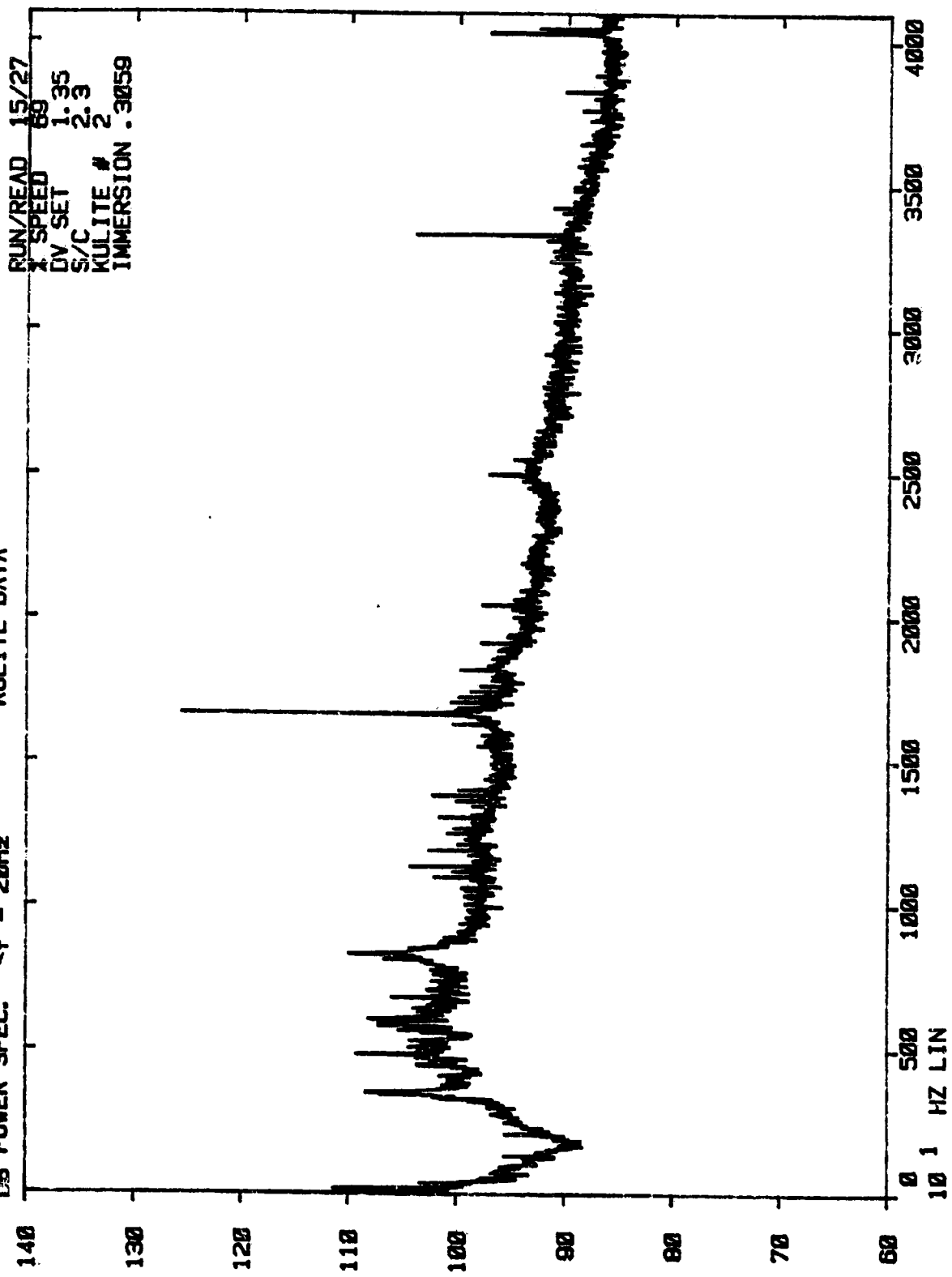
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



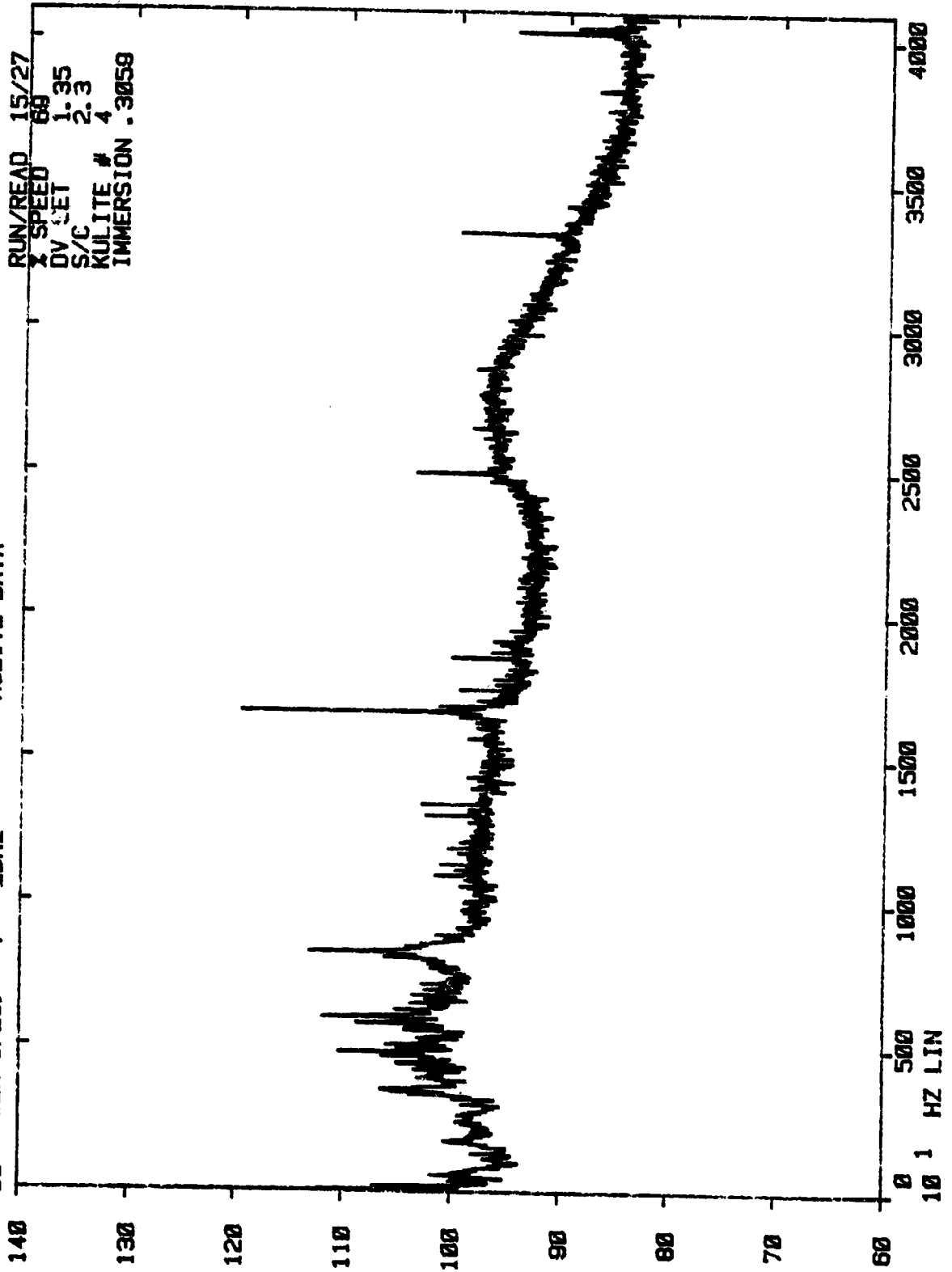
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



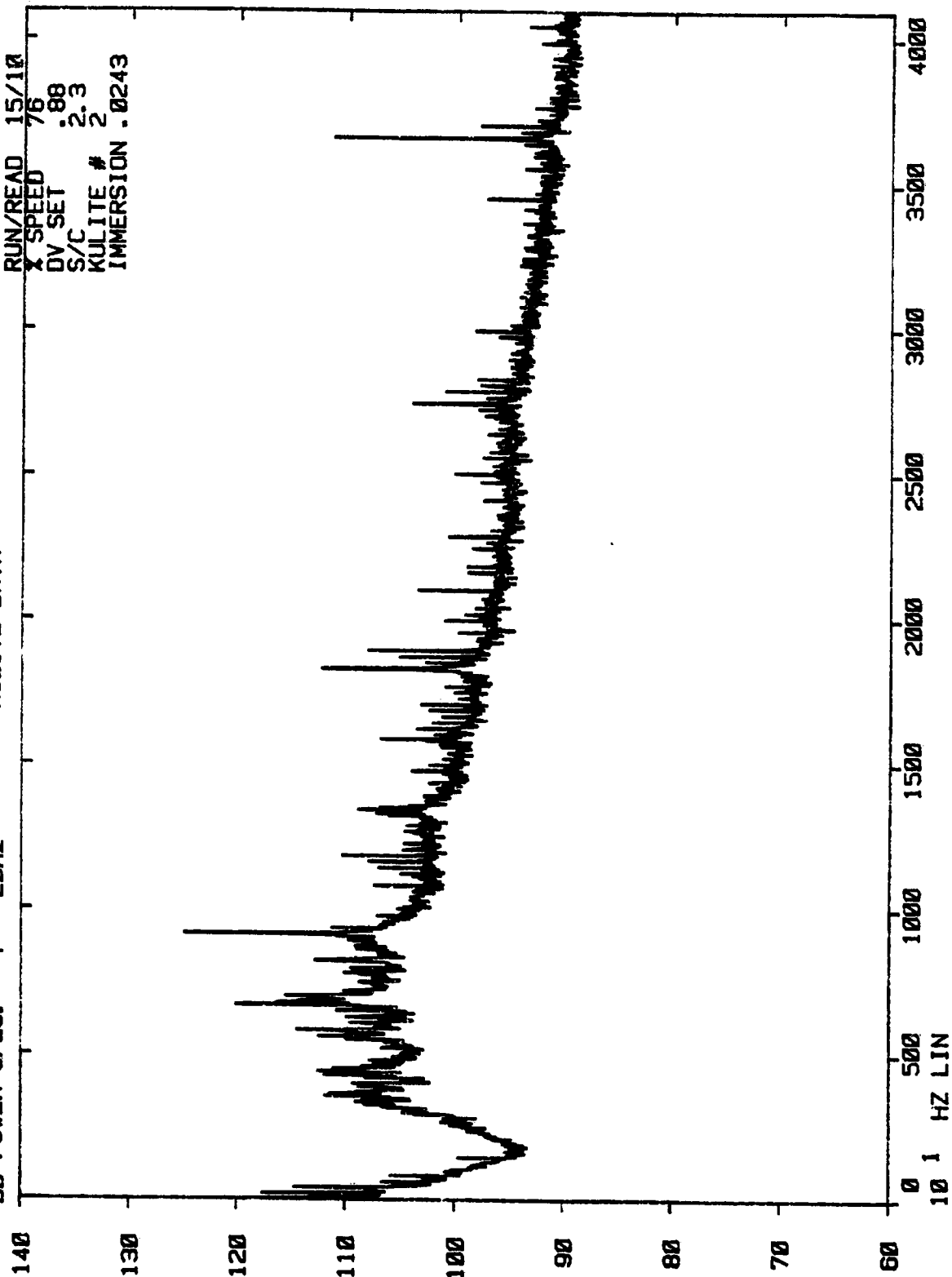
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

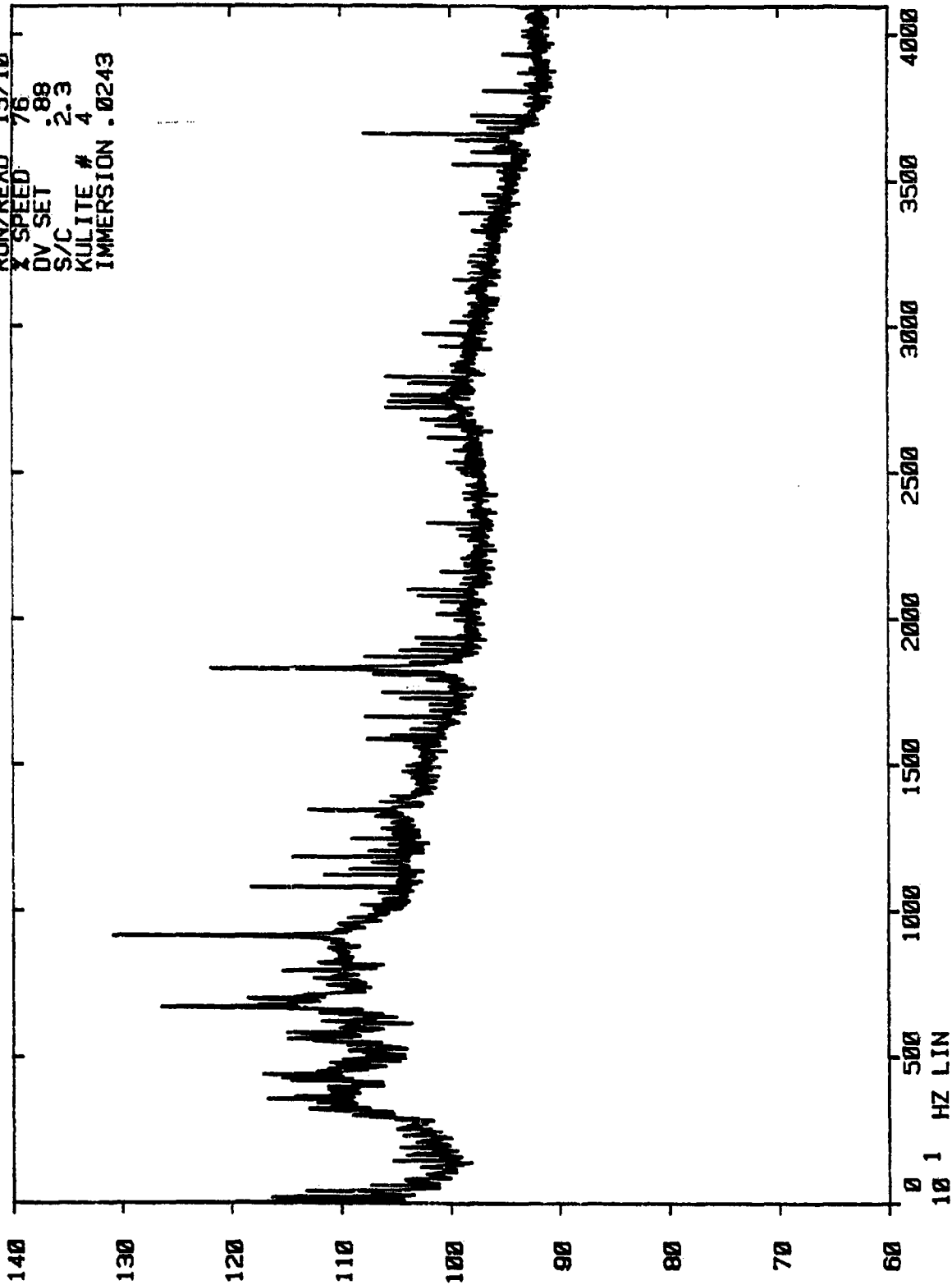
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

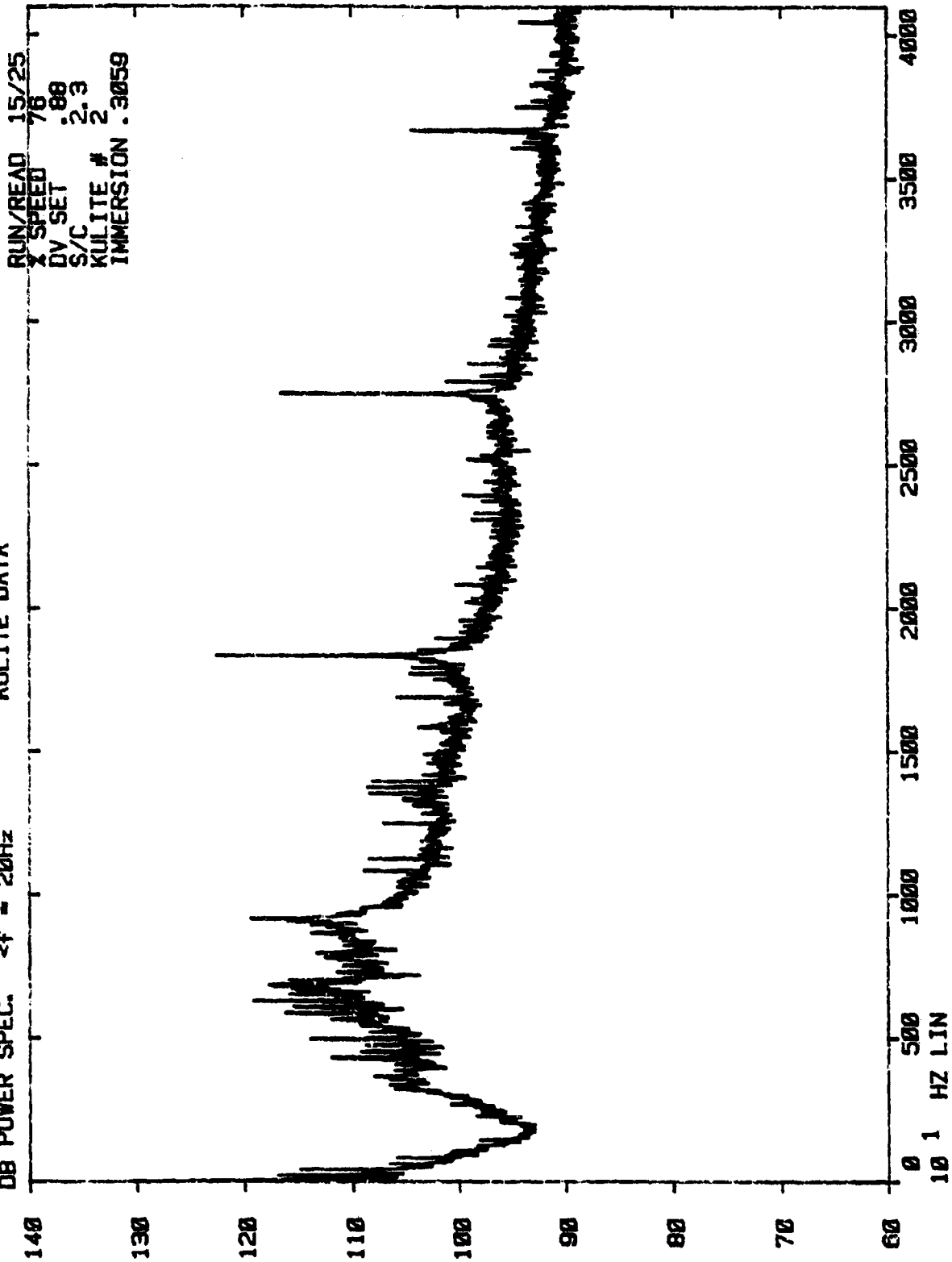
DB POWER SPEC. <f = 20Hz

RUN/READ 15/10
X SPEED 76
DV SET .88
S/C 2.3
KULITE # 4
IMMERSION .0243



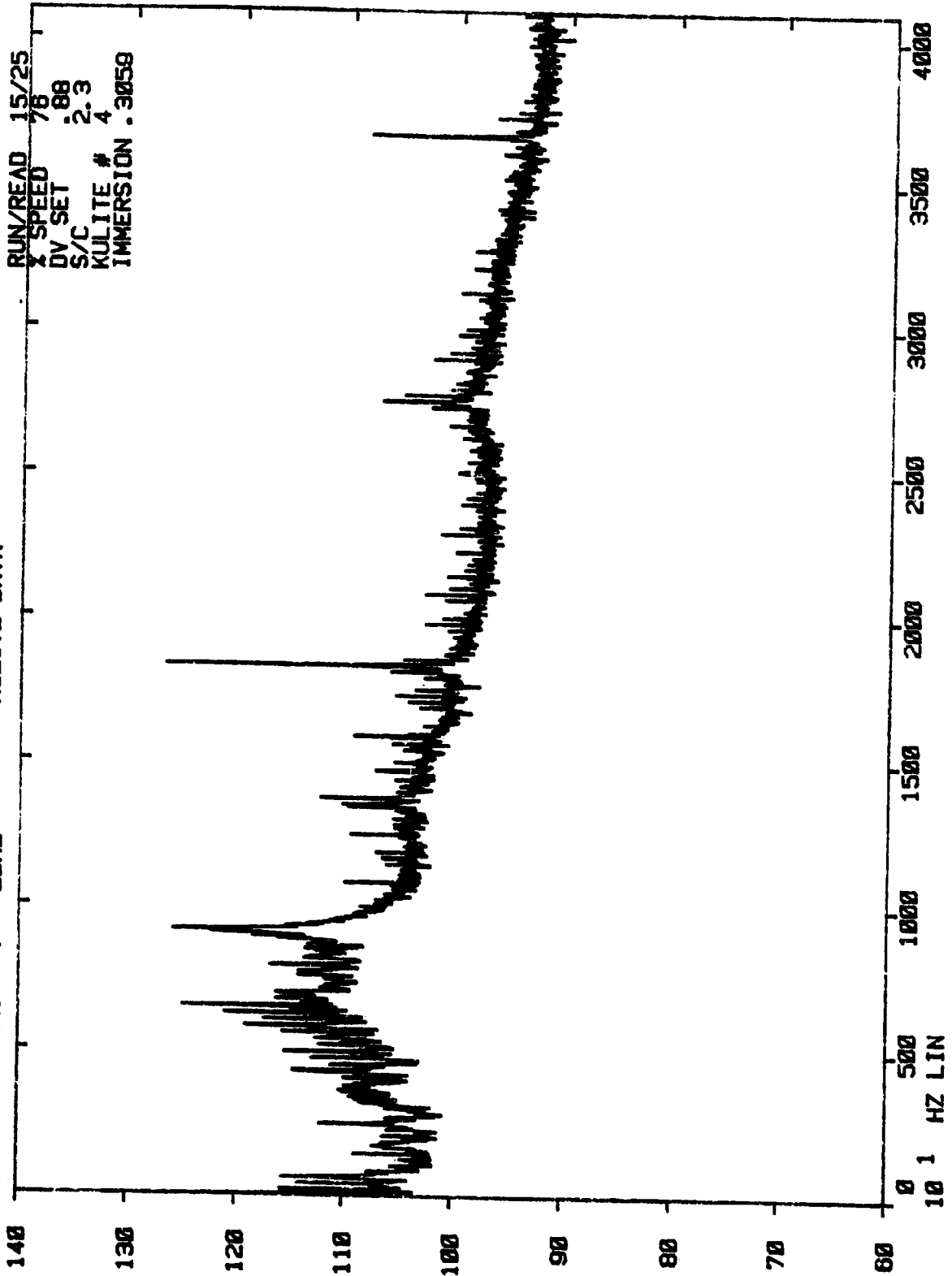
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



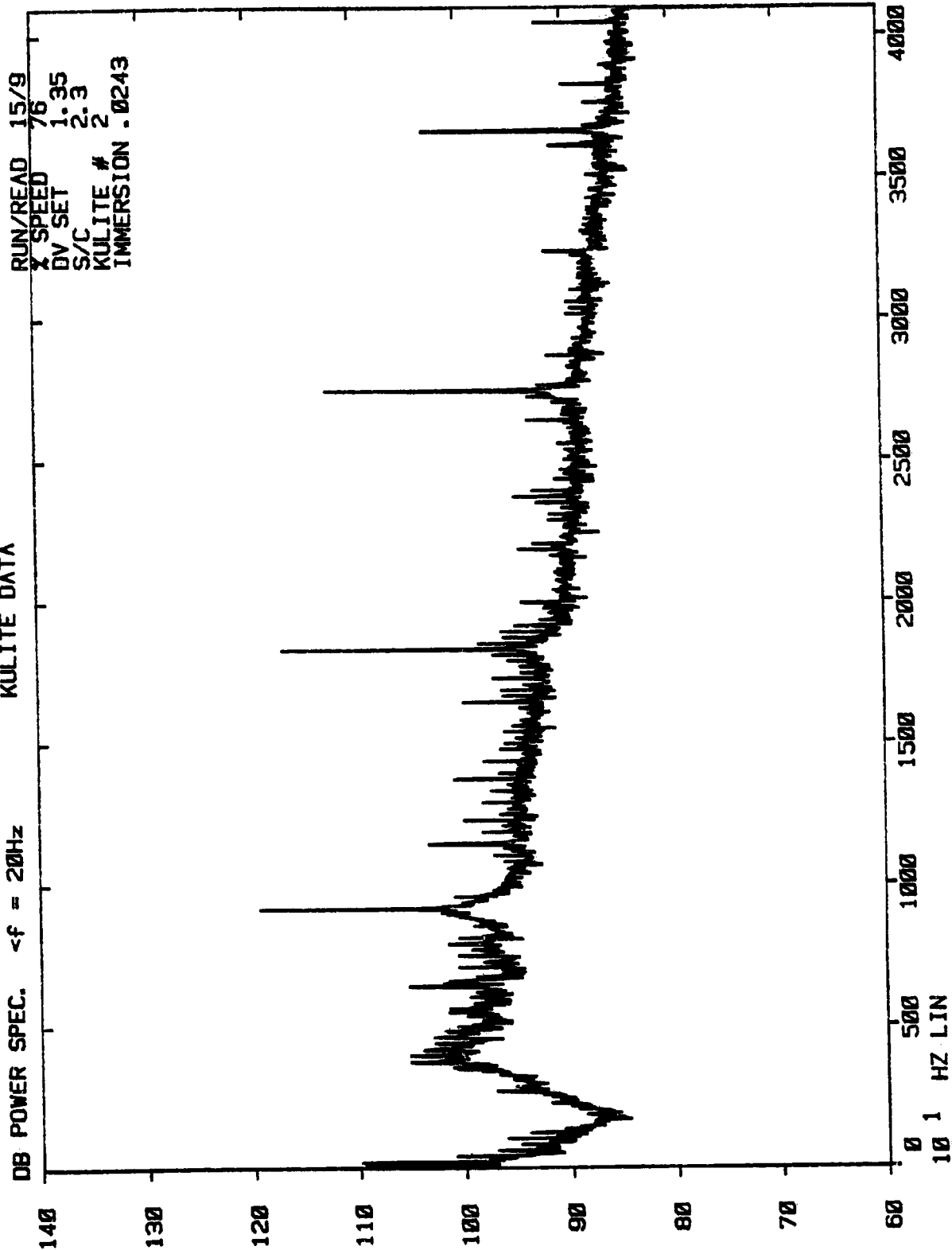
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



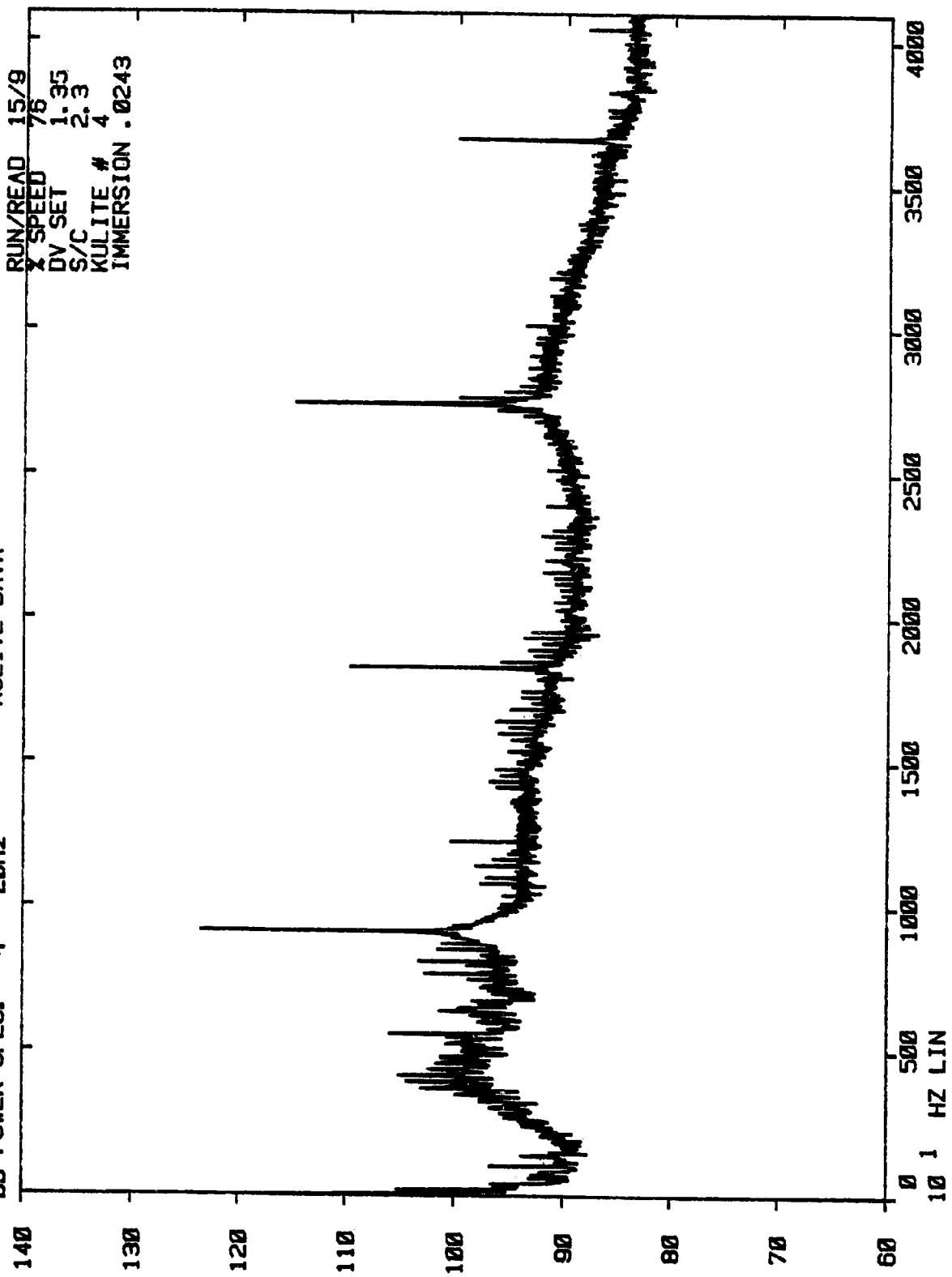
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



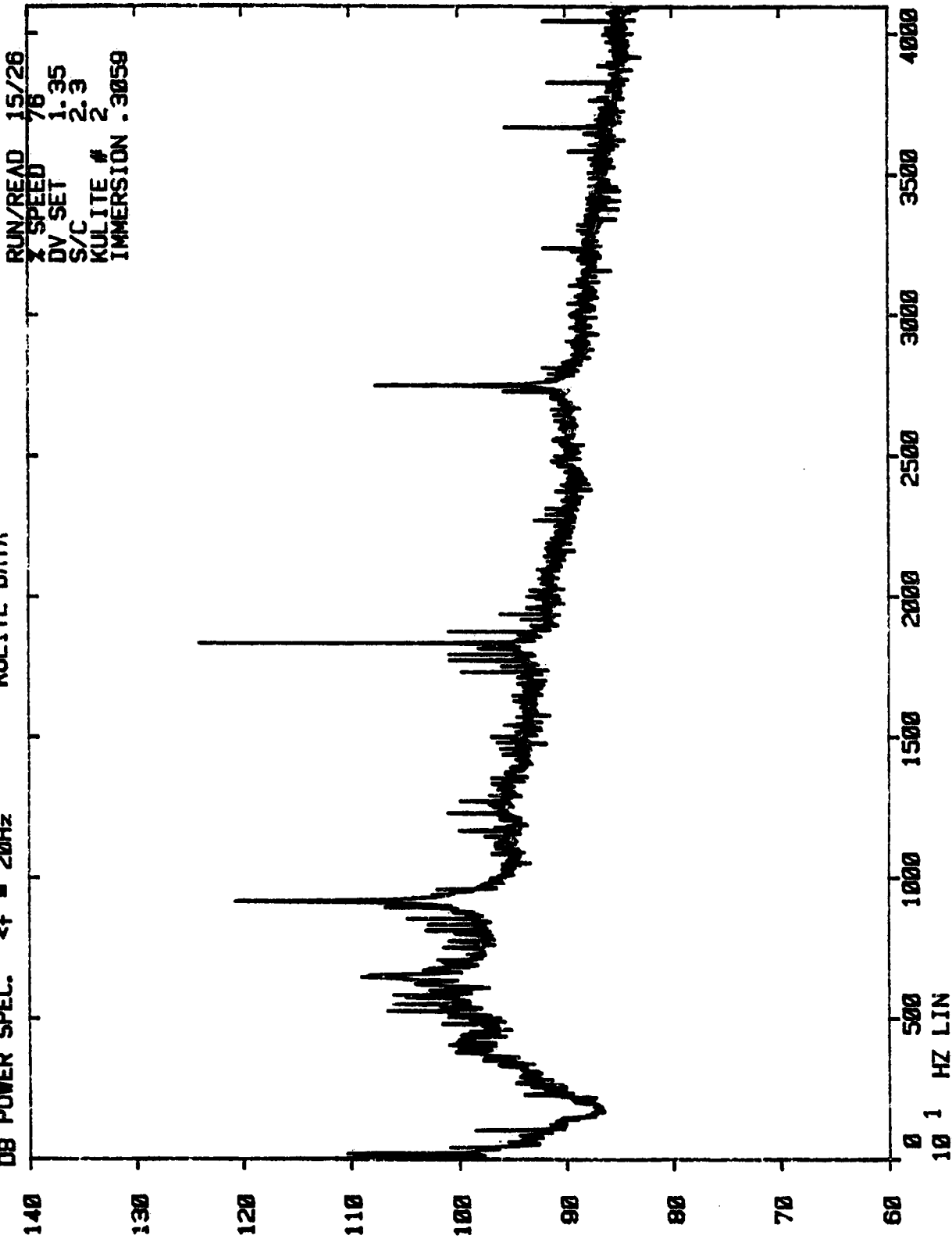
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



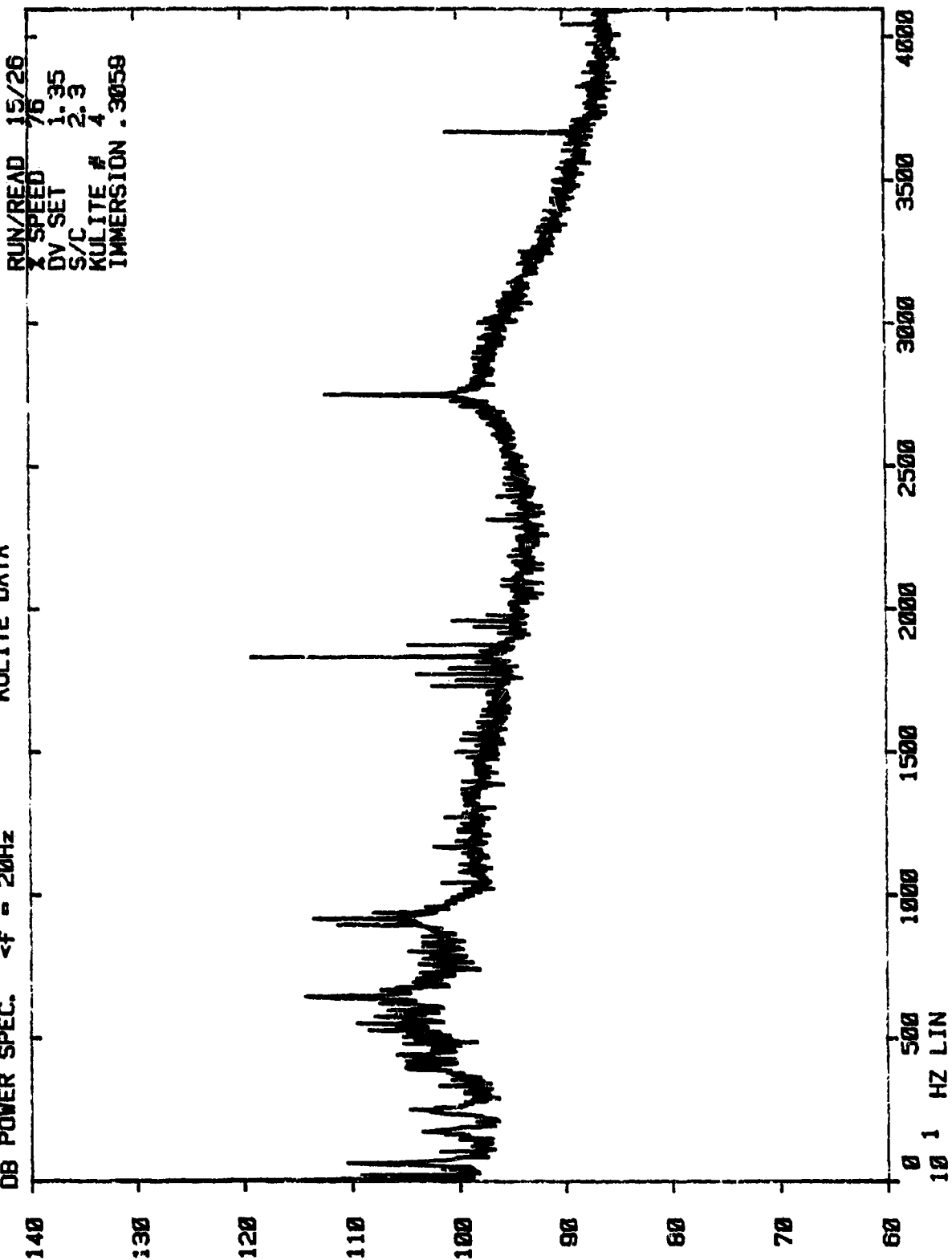
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



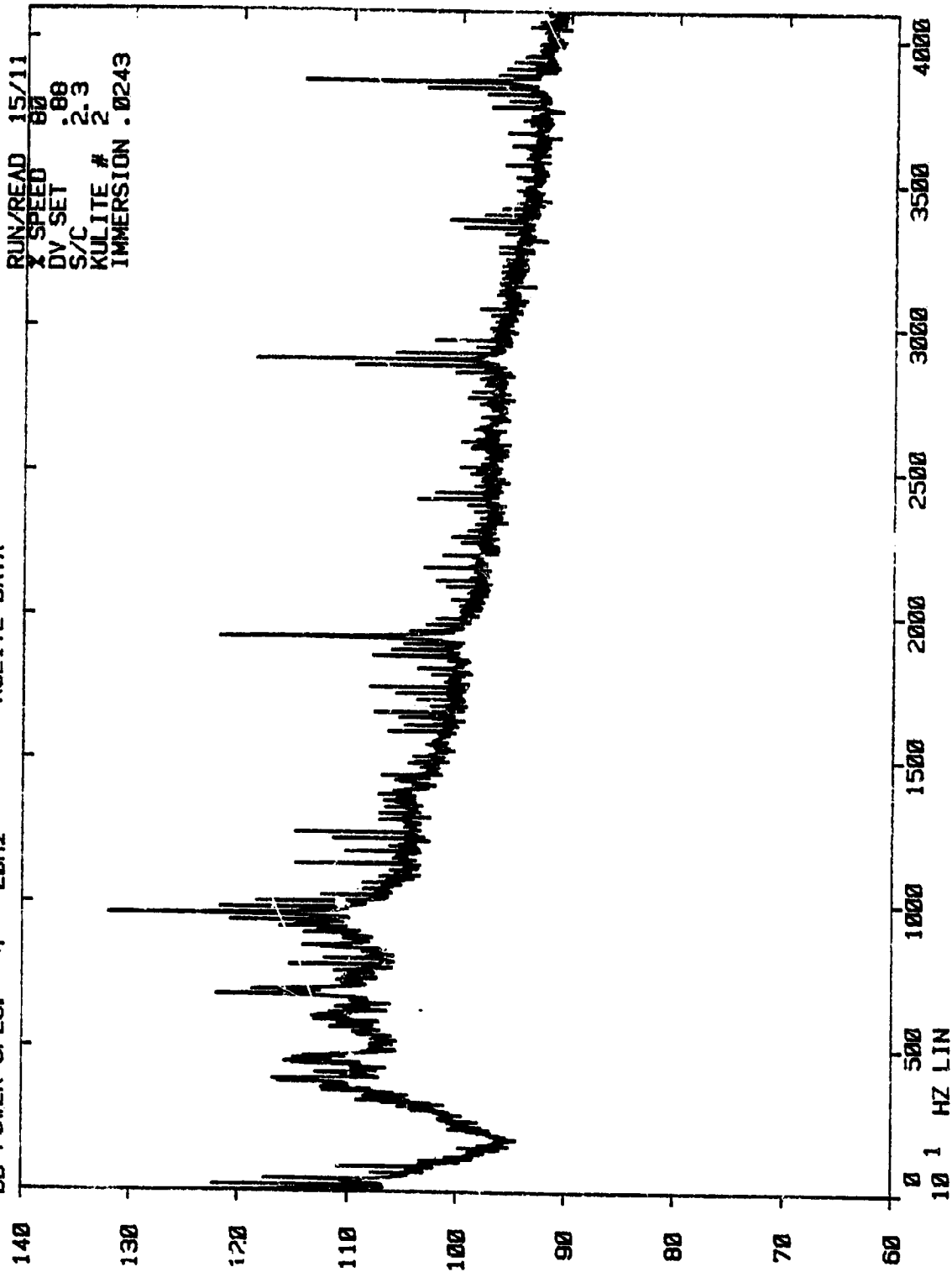
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



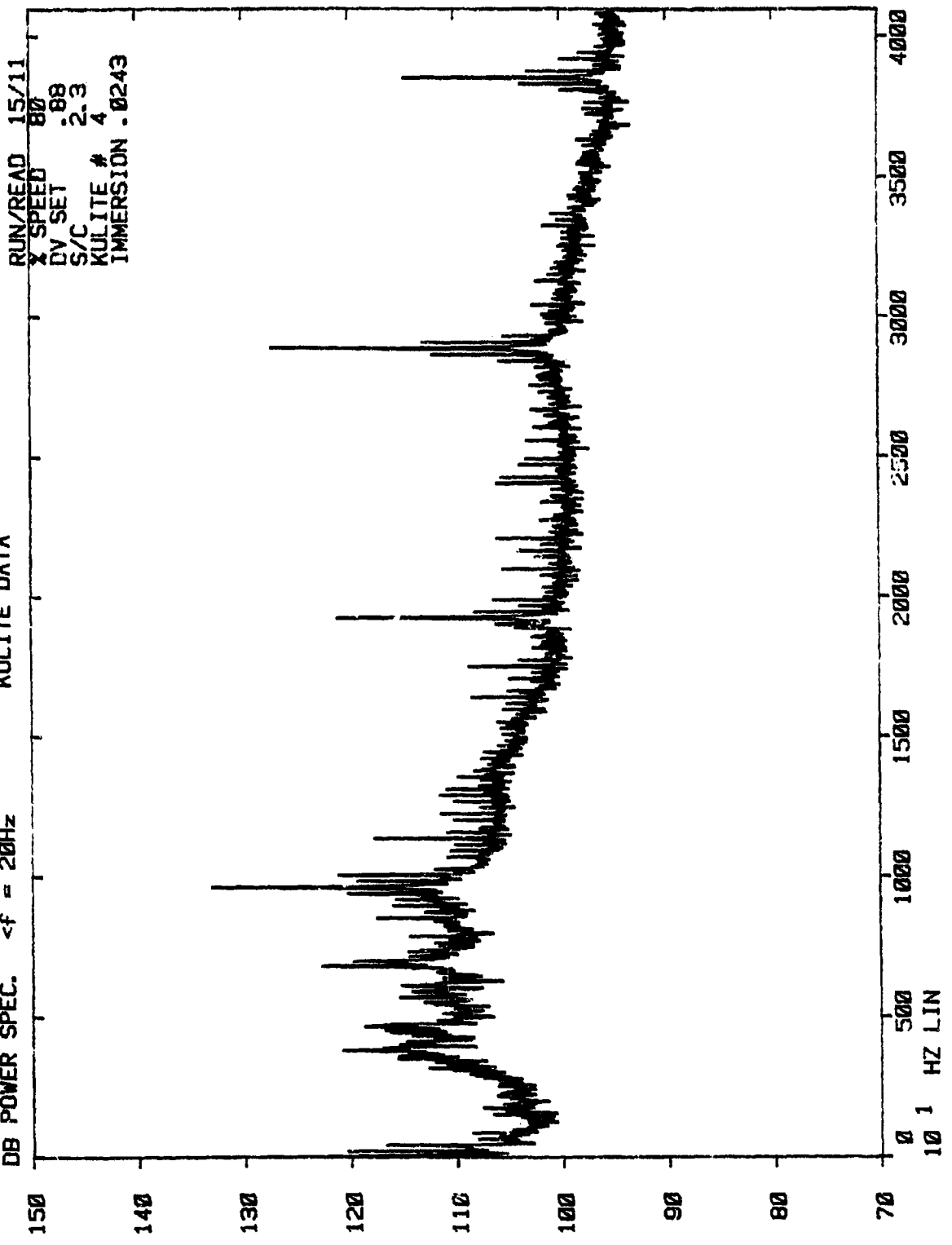
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



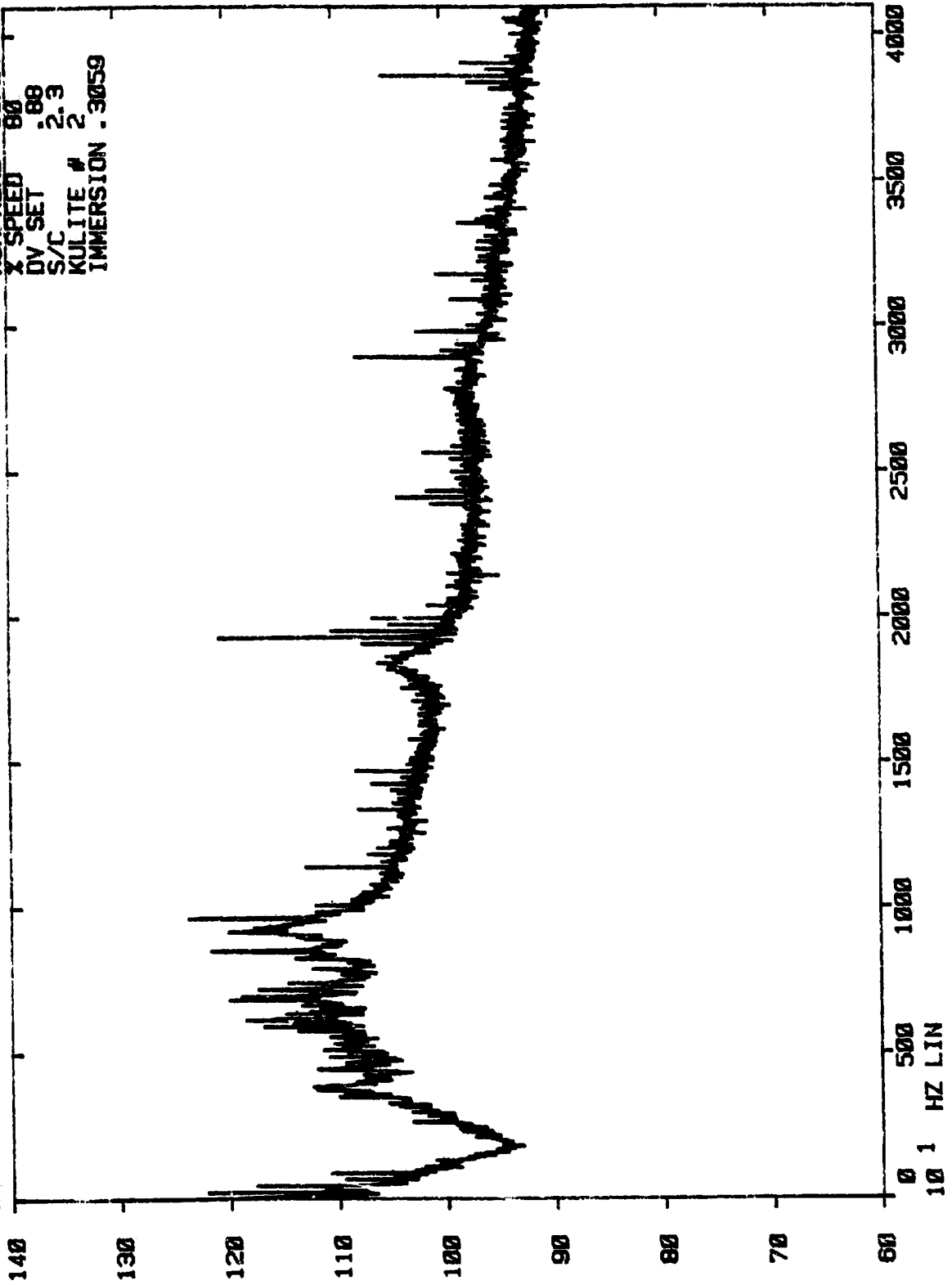
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



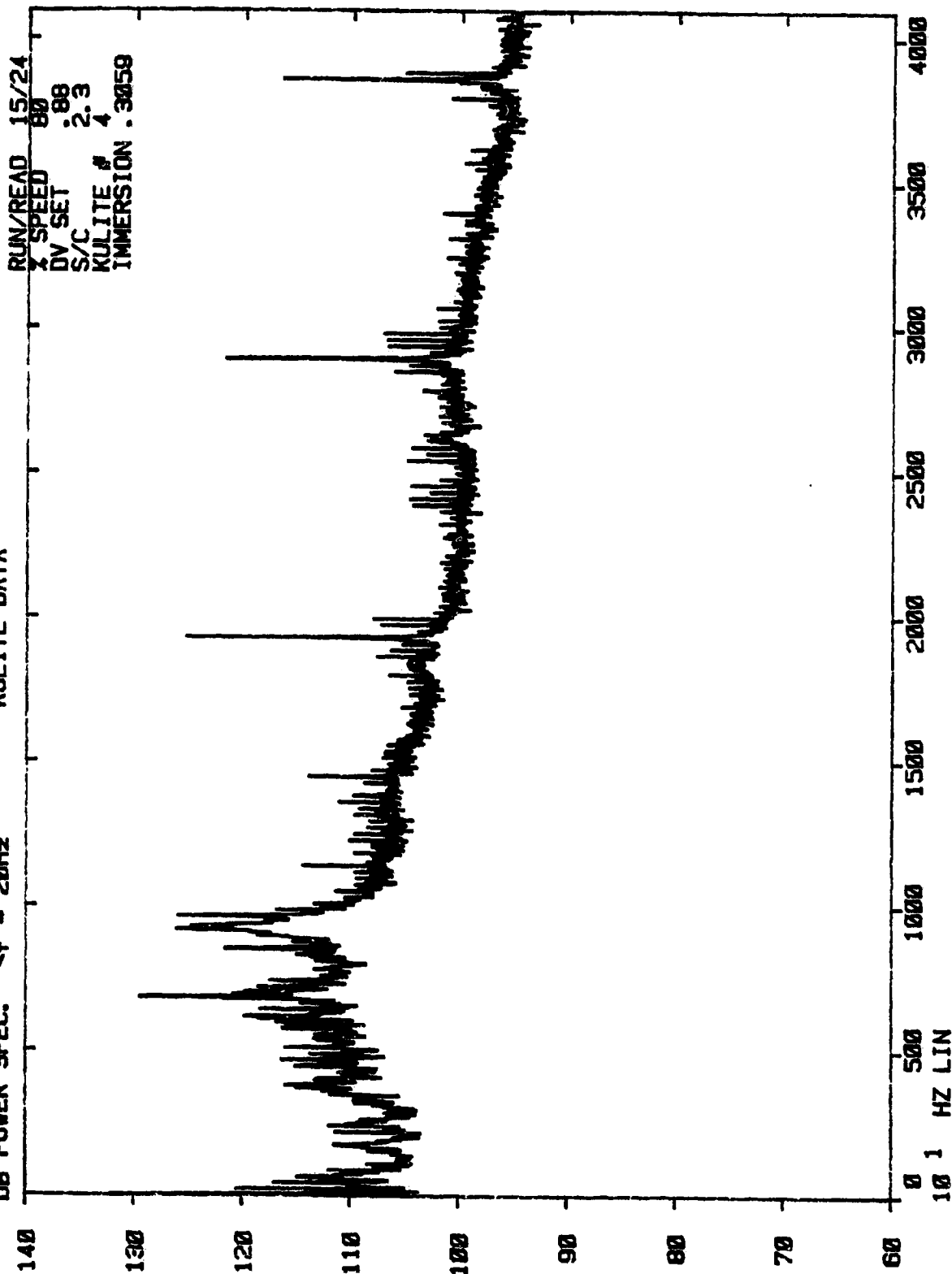
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



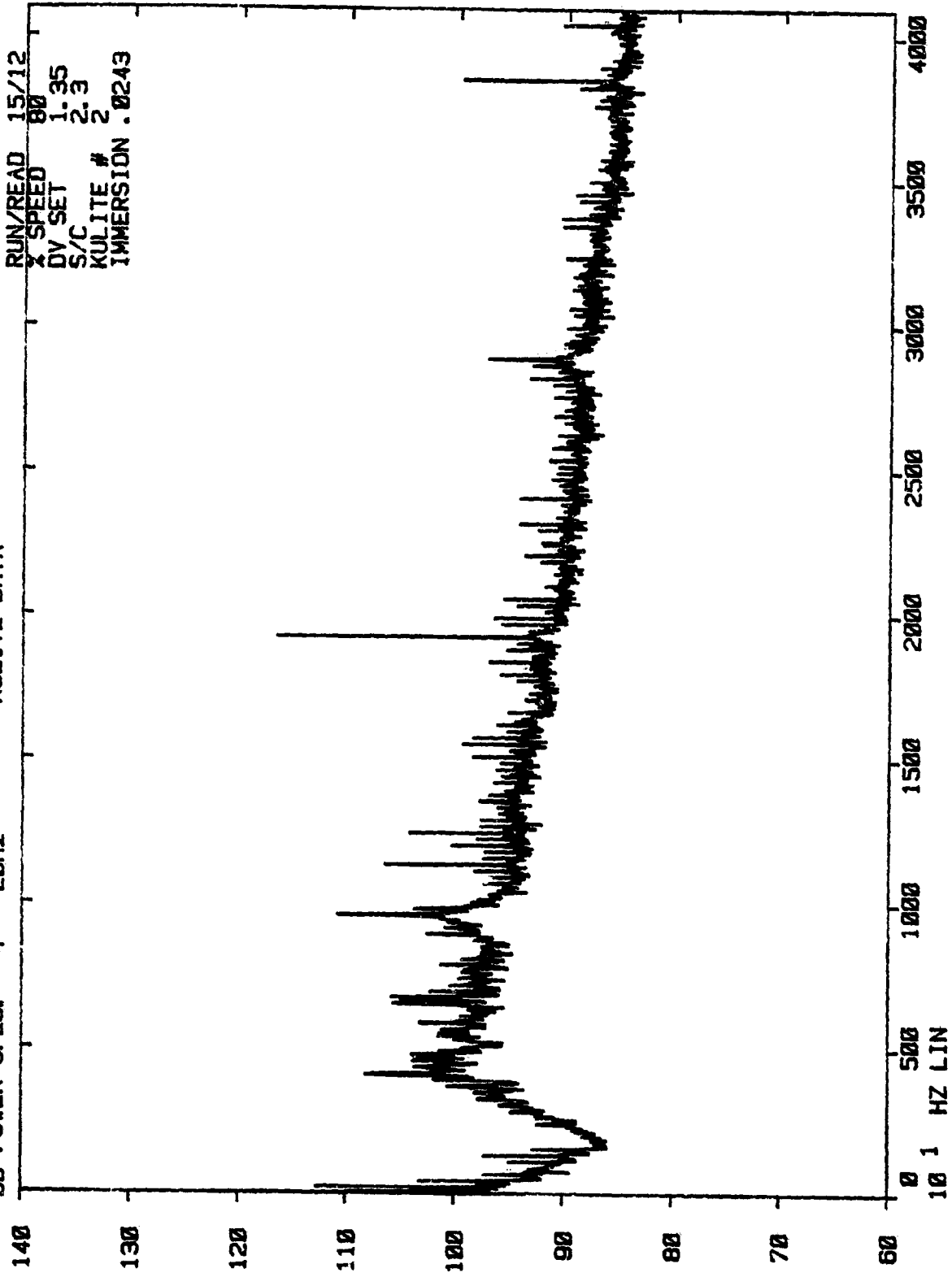
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



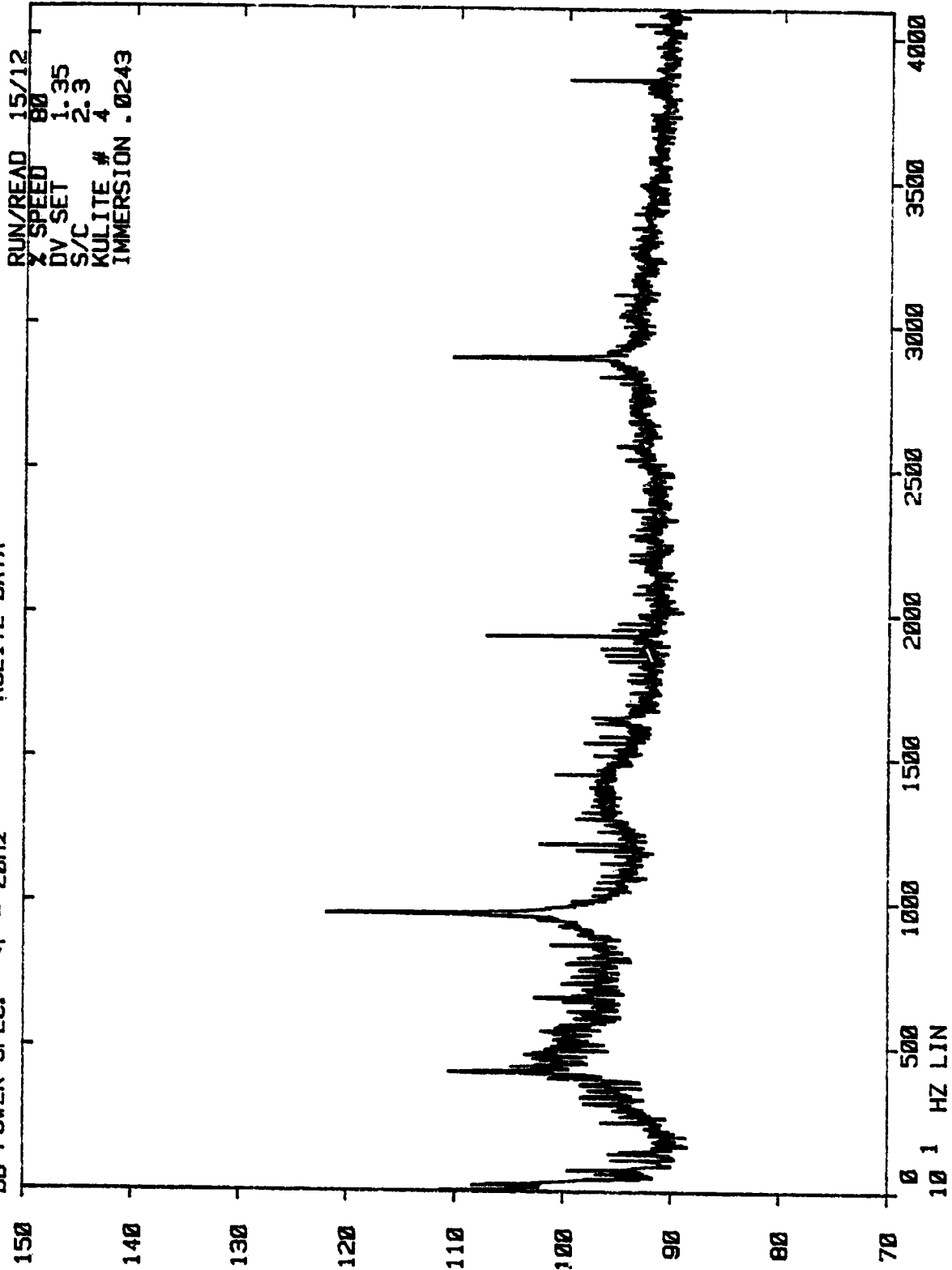
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



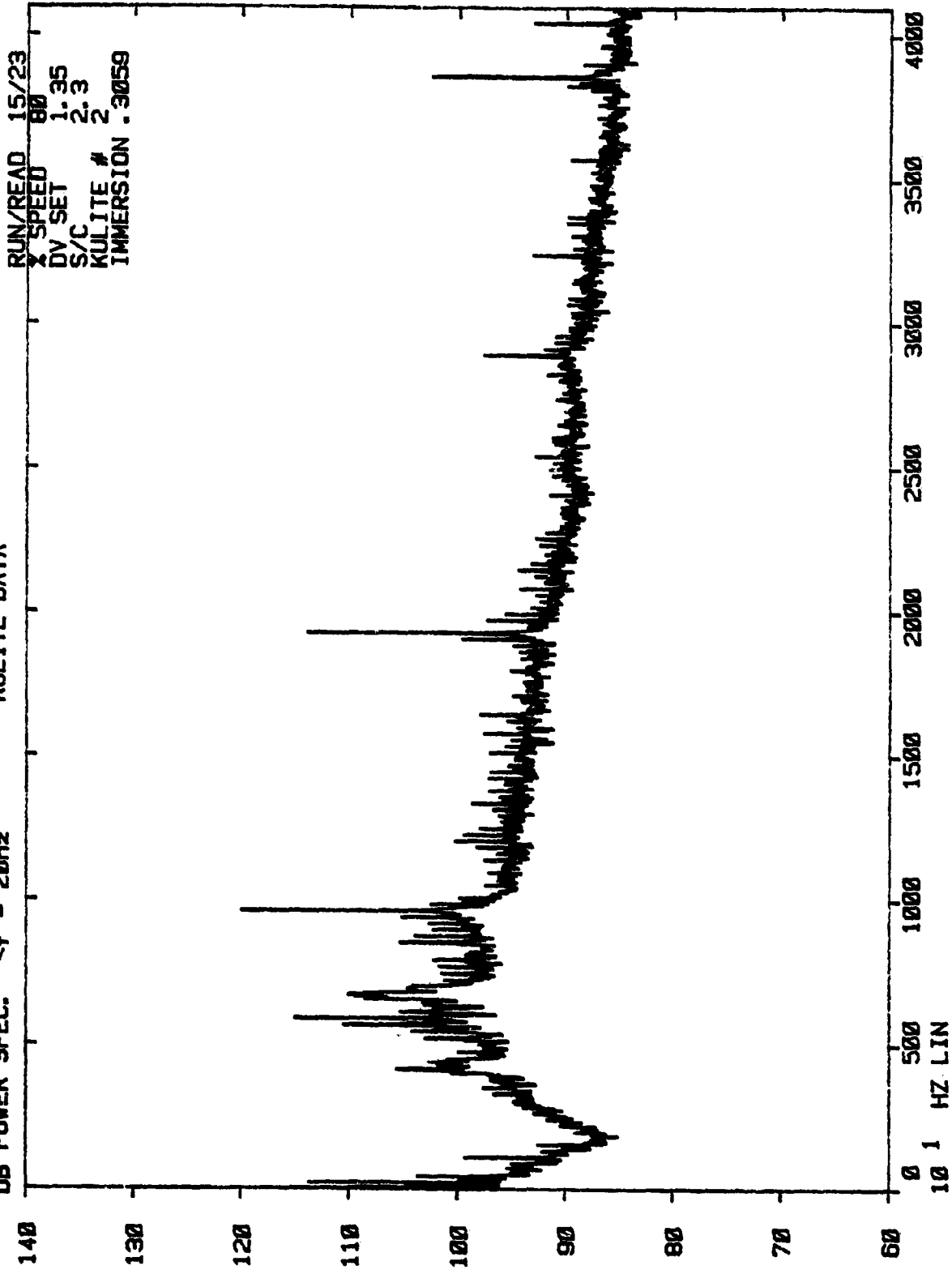
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



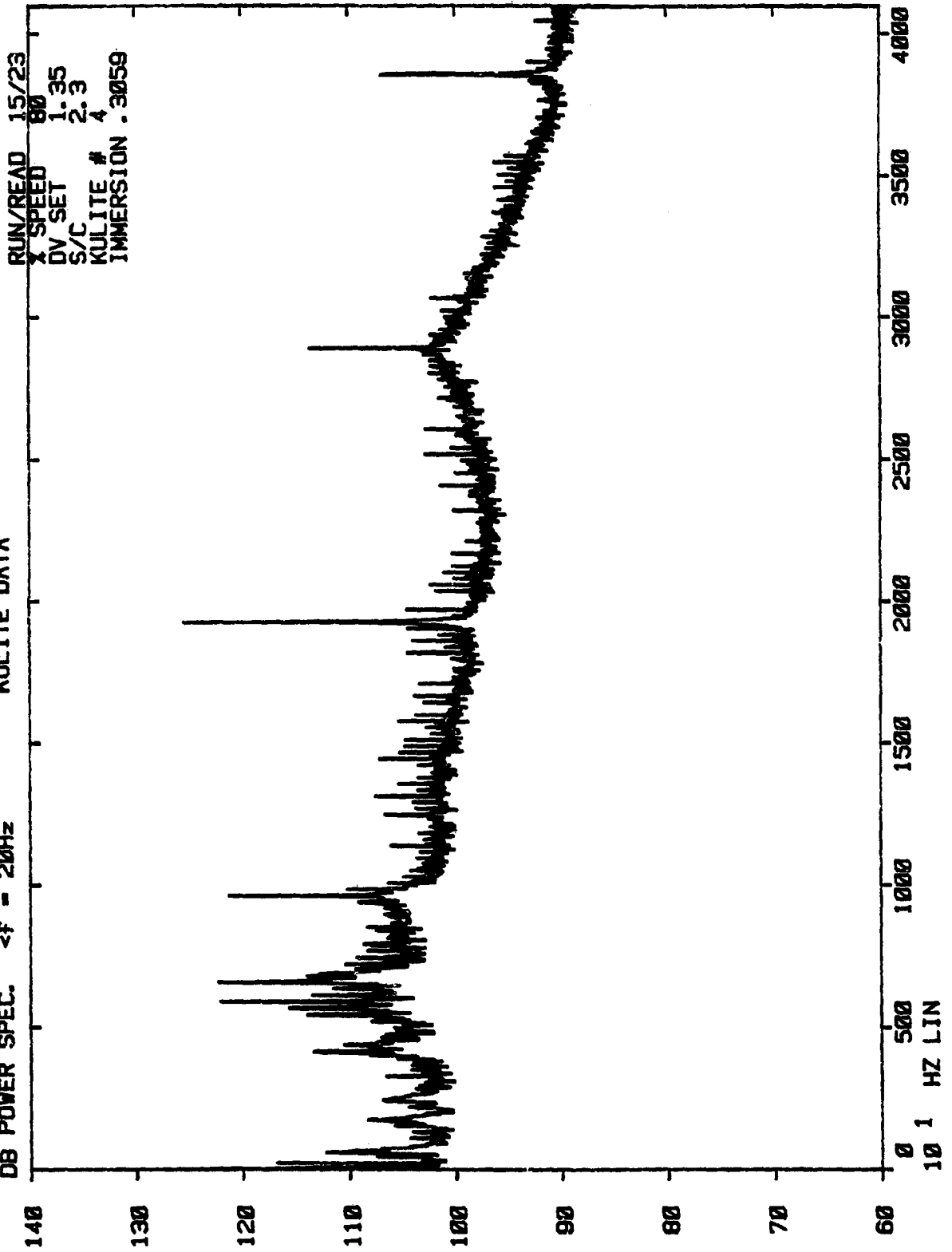
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

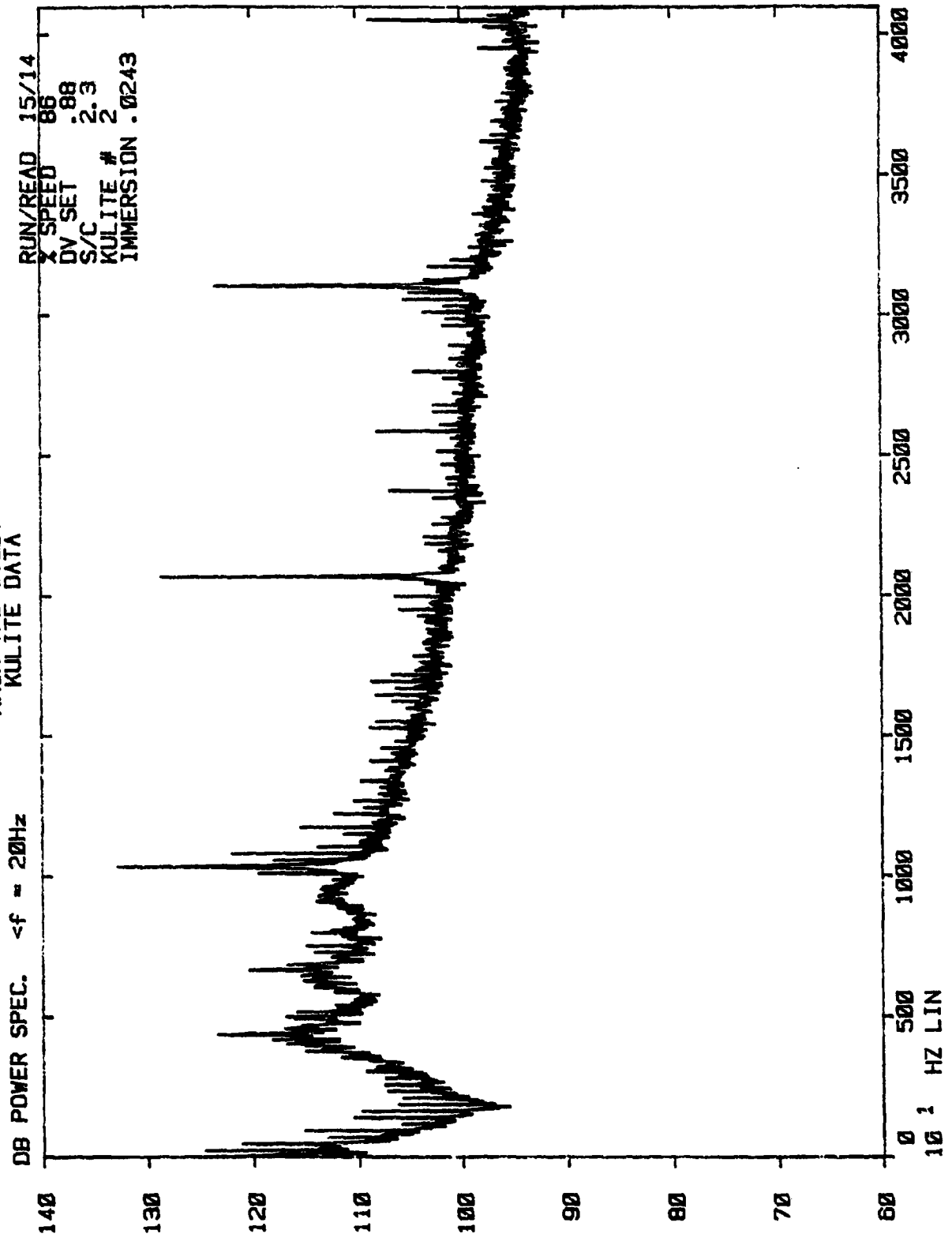


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

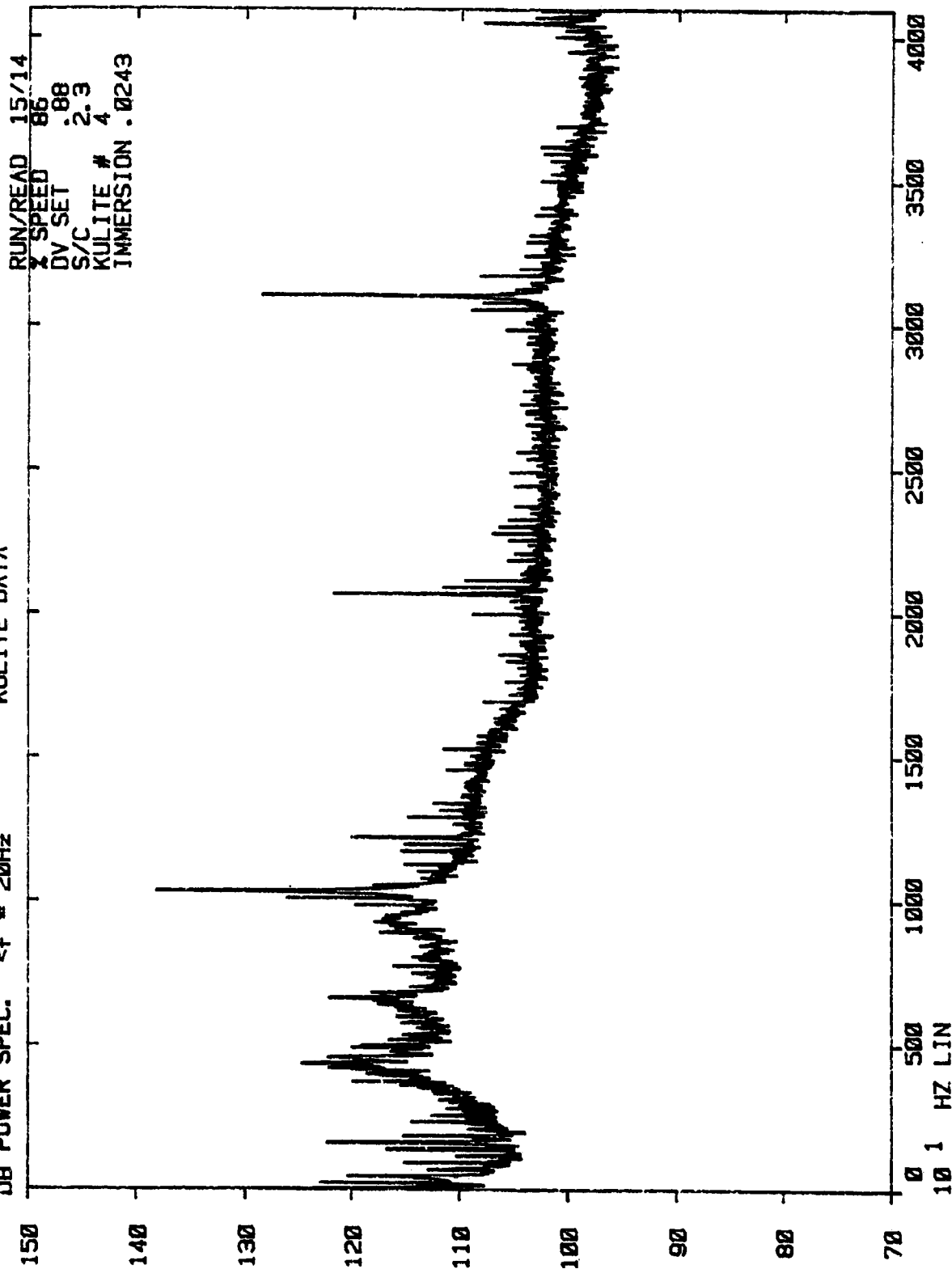


NASA V/B STUDY
KULITE DATA

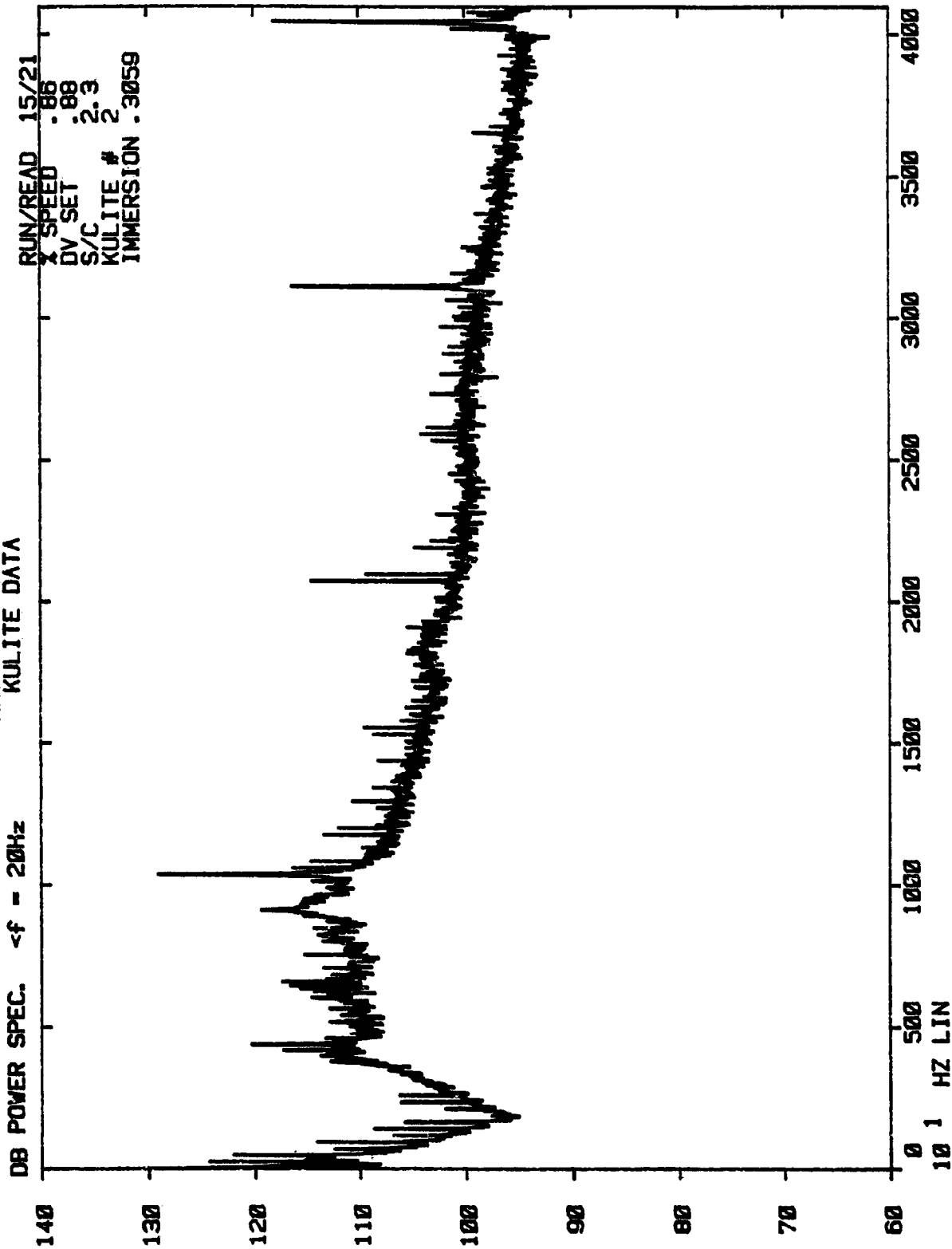


NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

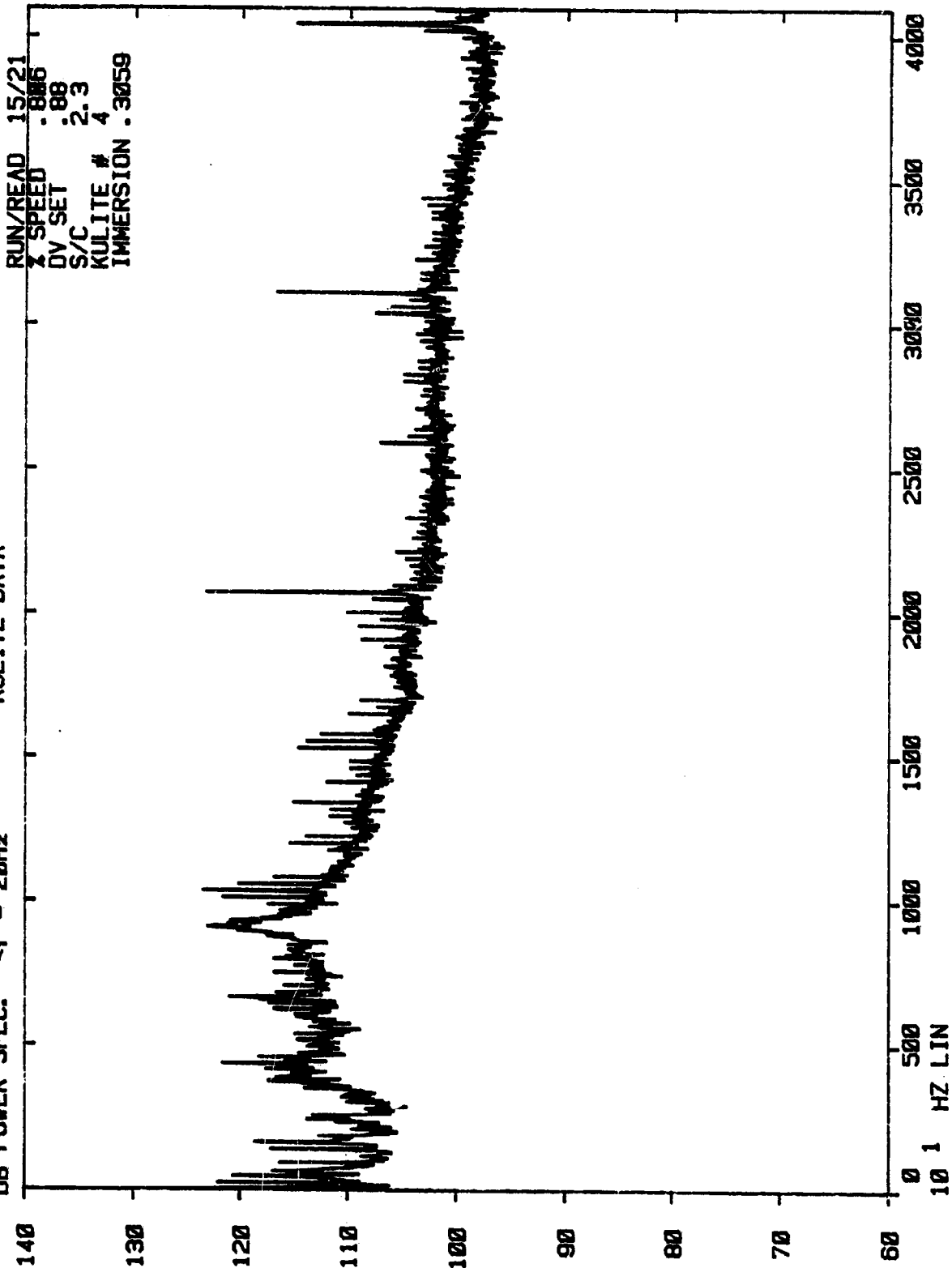


NASA V/B STUDY
KULITE DATA



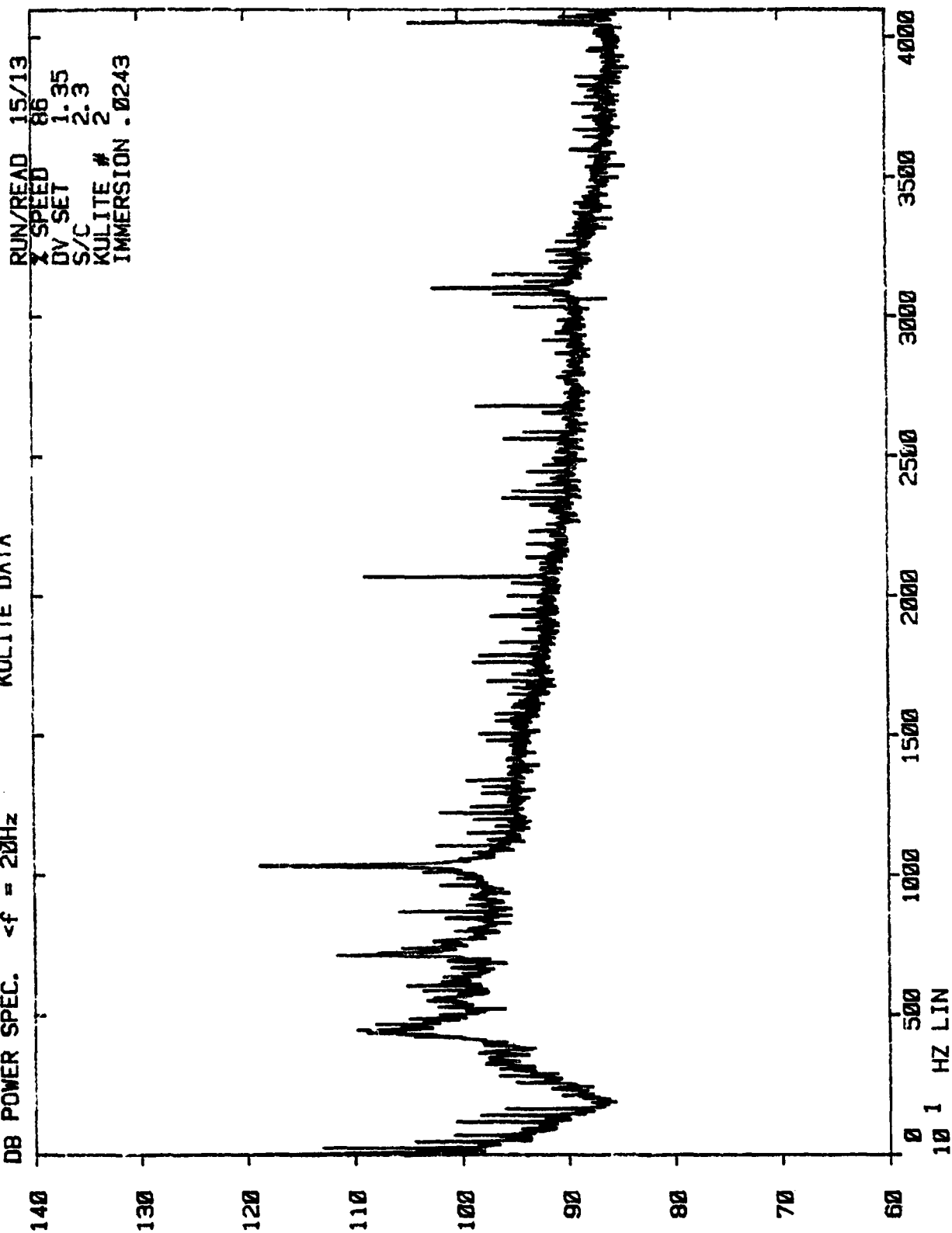
NASA Y/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

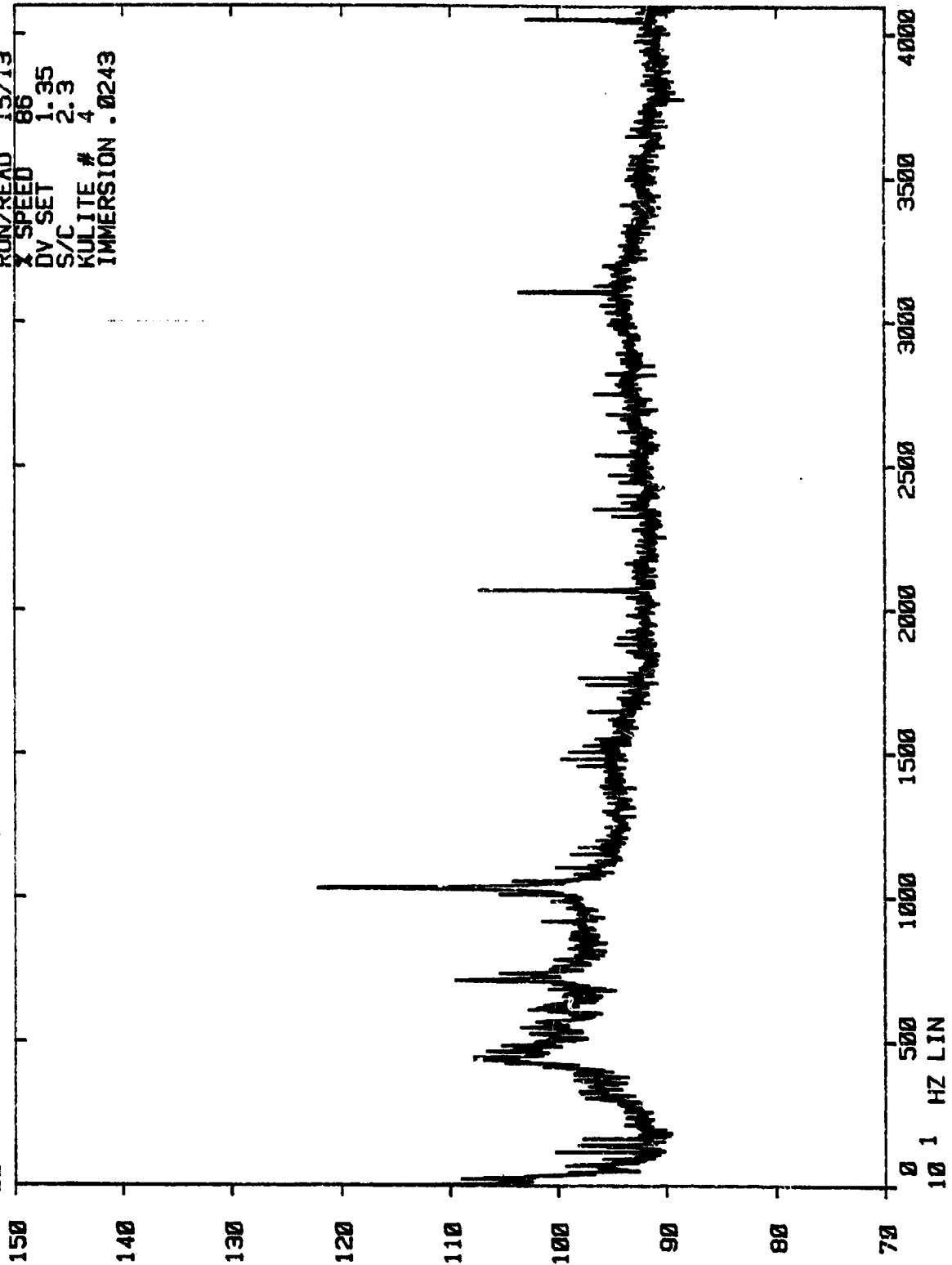
DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

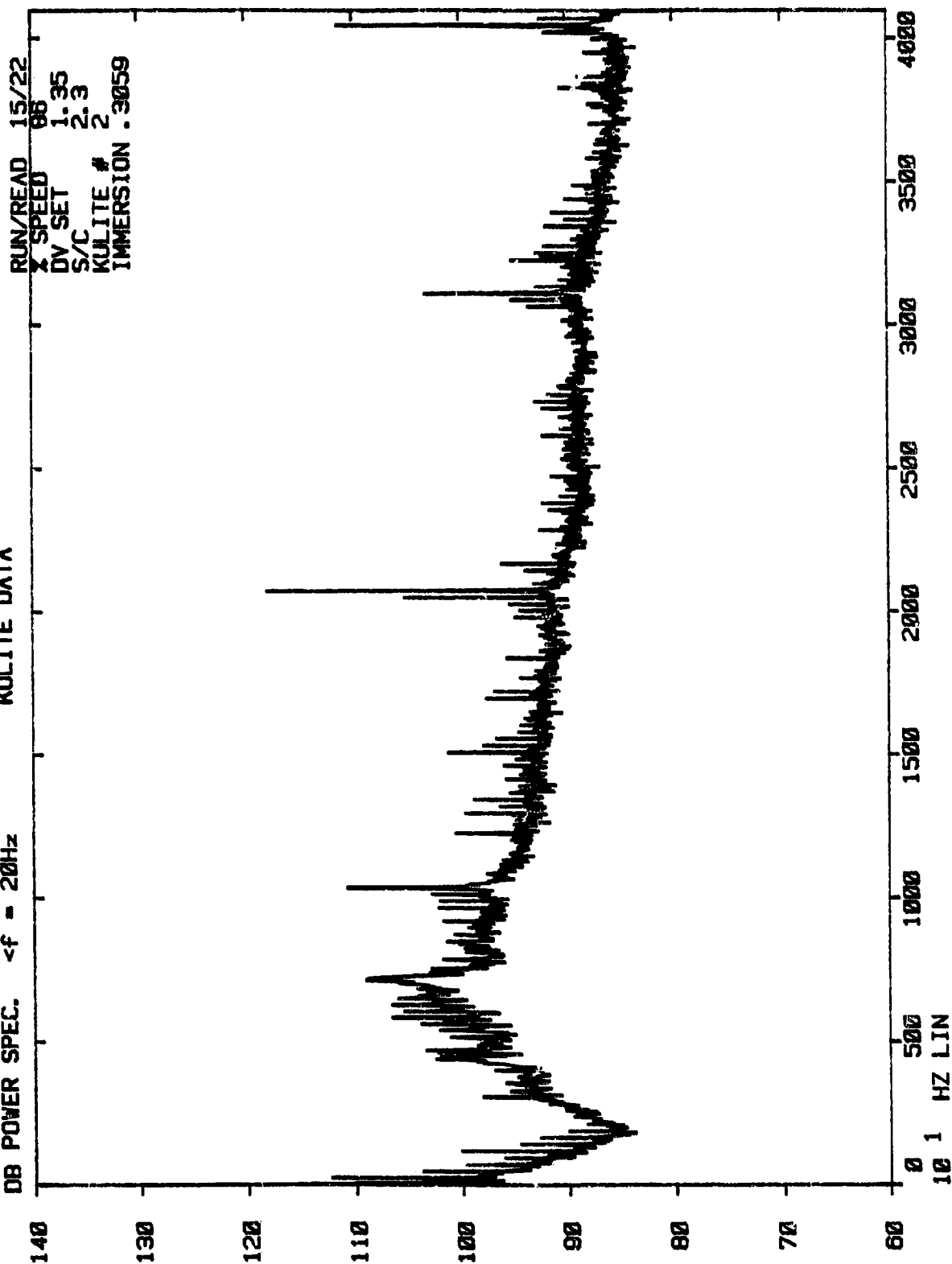
DB POWER SPEC. $<f = 20\text{Hz}$

RUN/READ 15/13
X SPEED 86
DV SET 1.35
S/C 2.3
KULITE # 4
IMMERSION .0243



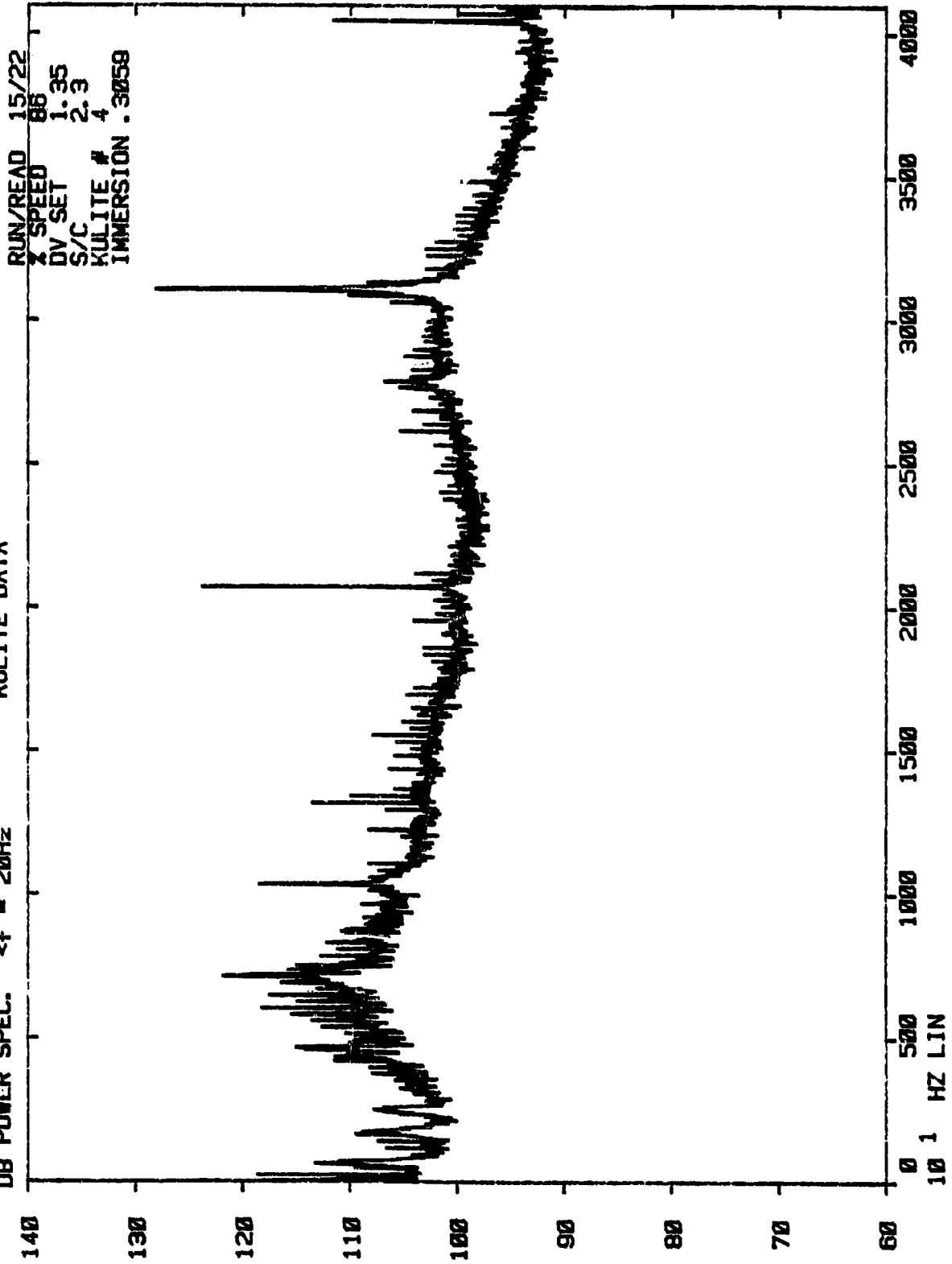
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $<f = 20\text{Hz}$



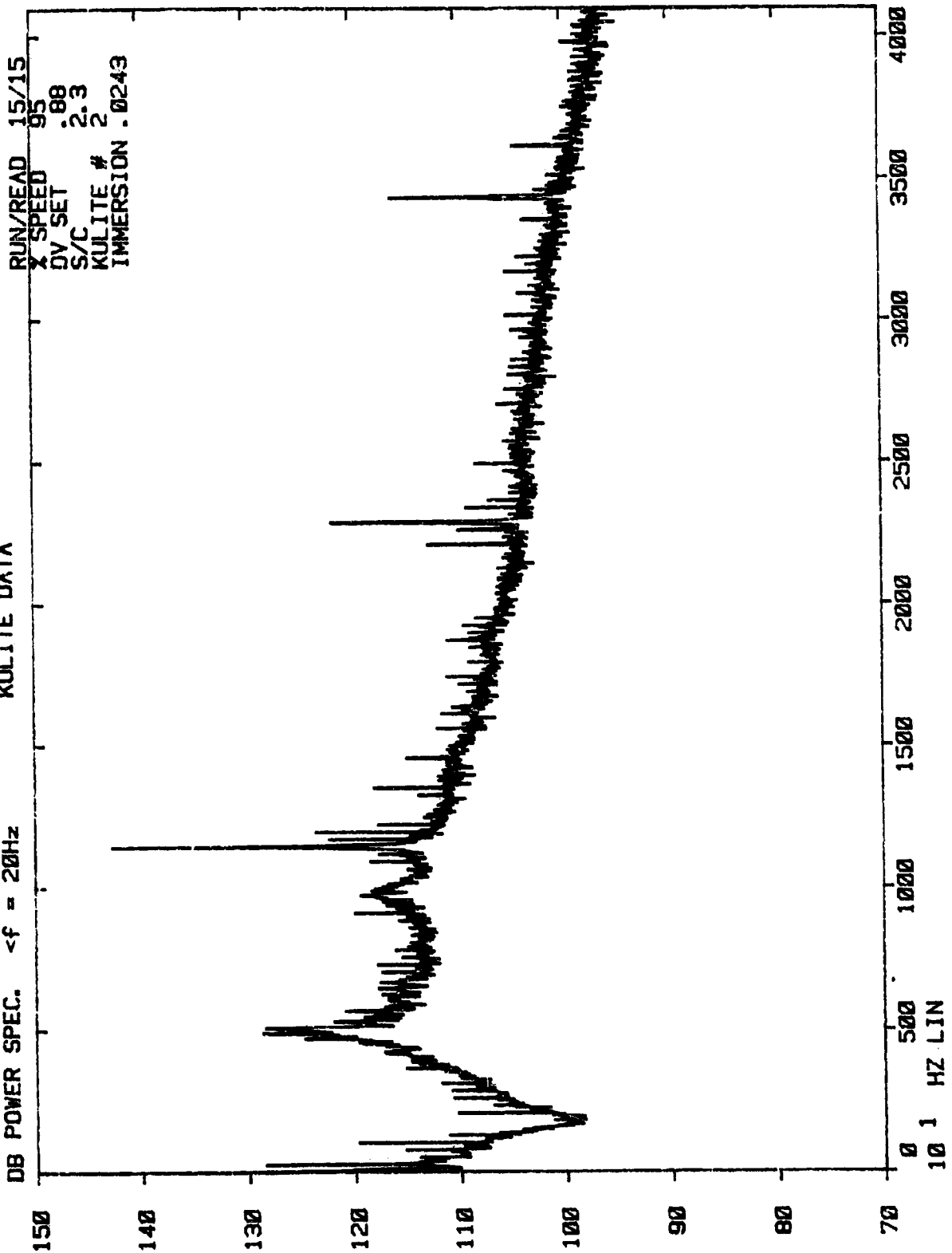
NASA V/3 STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



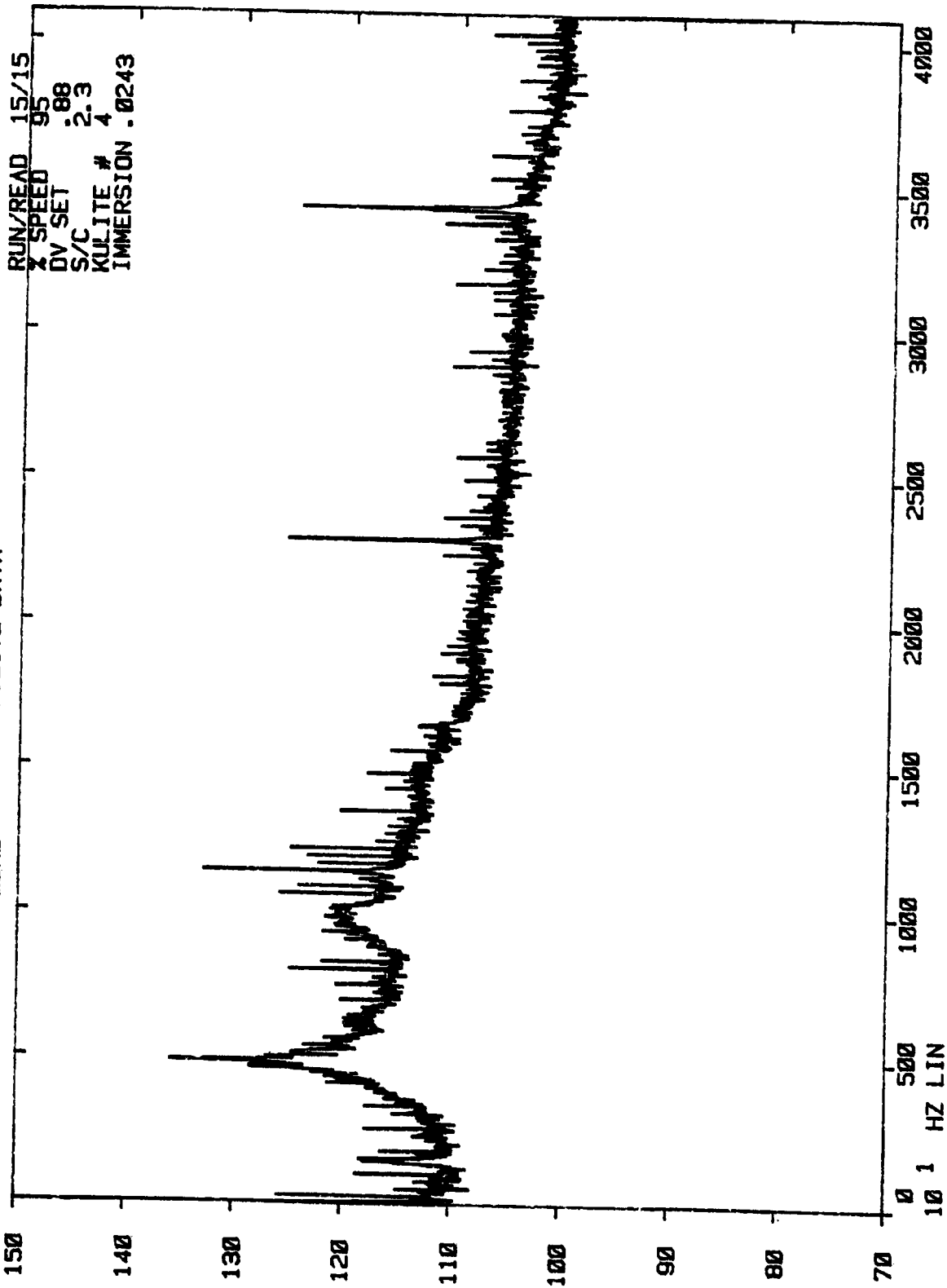
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



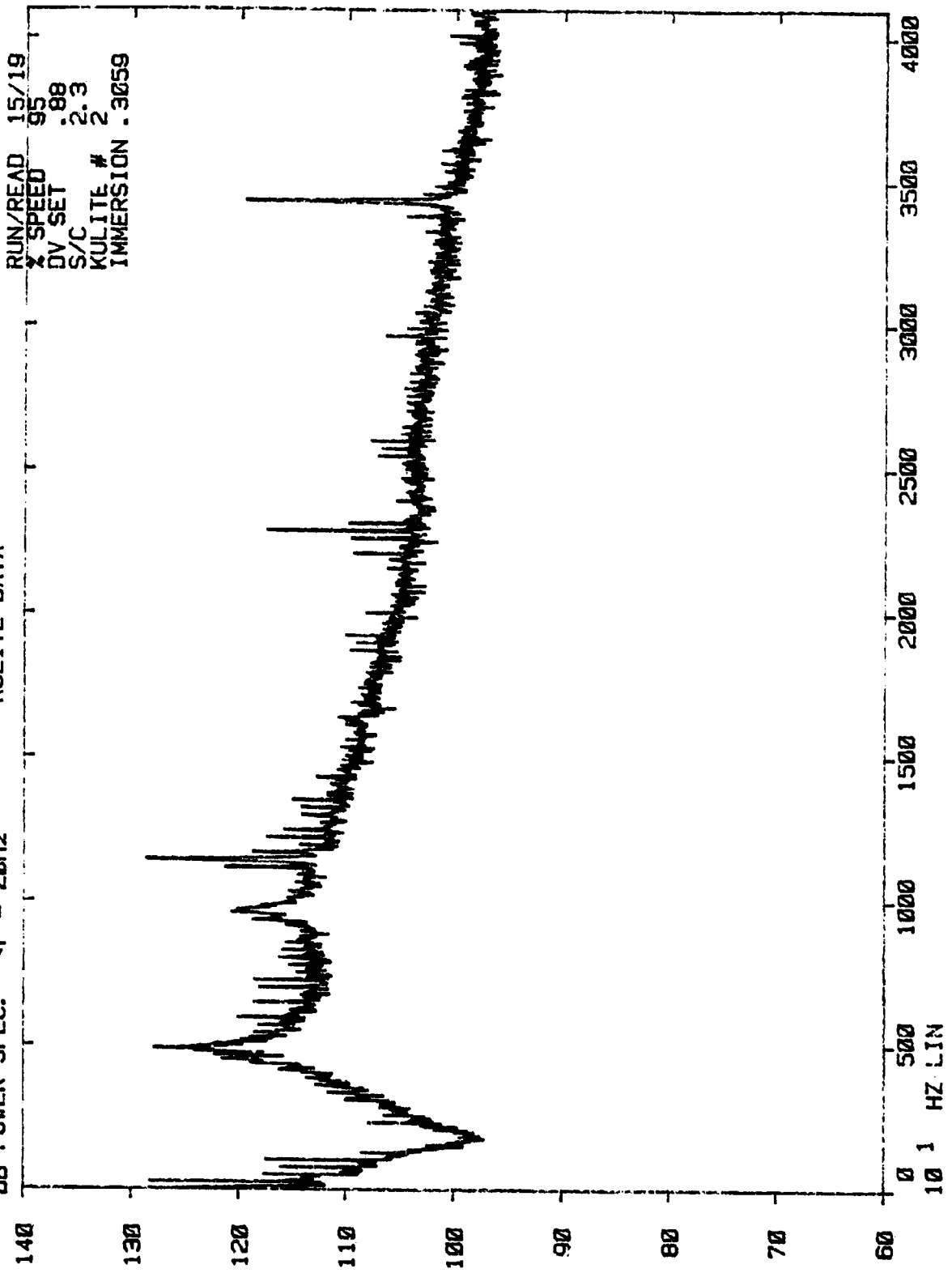
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



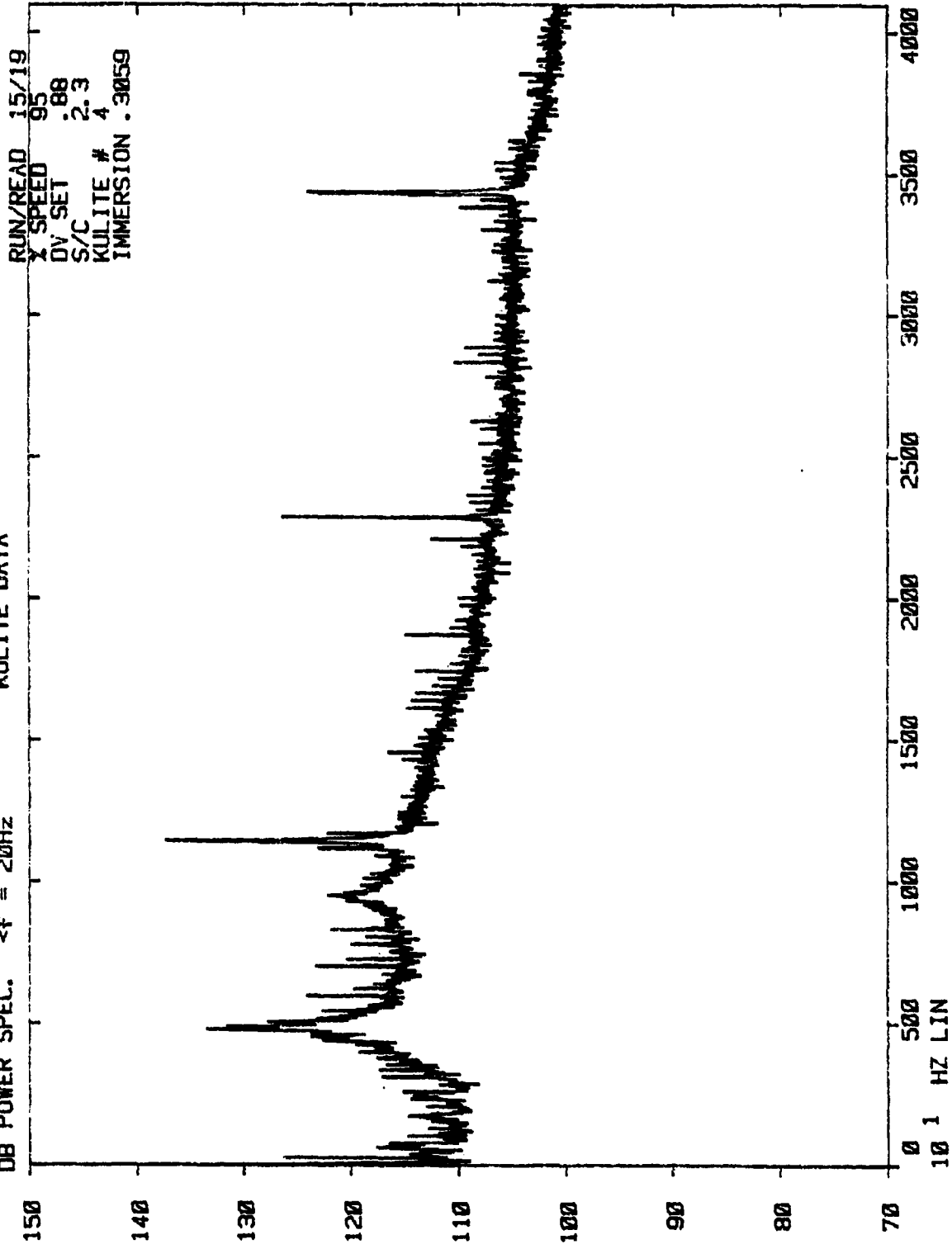
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



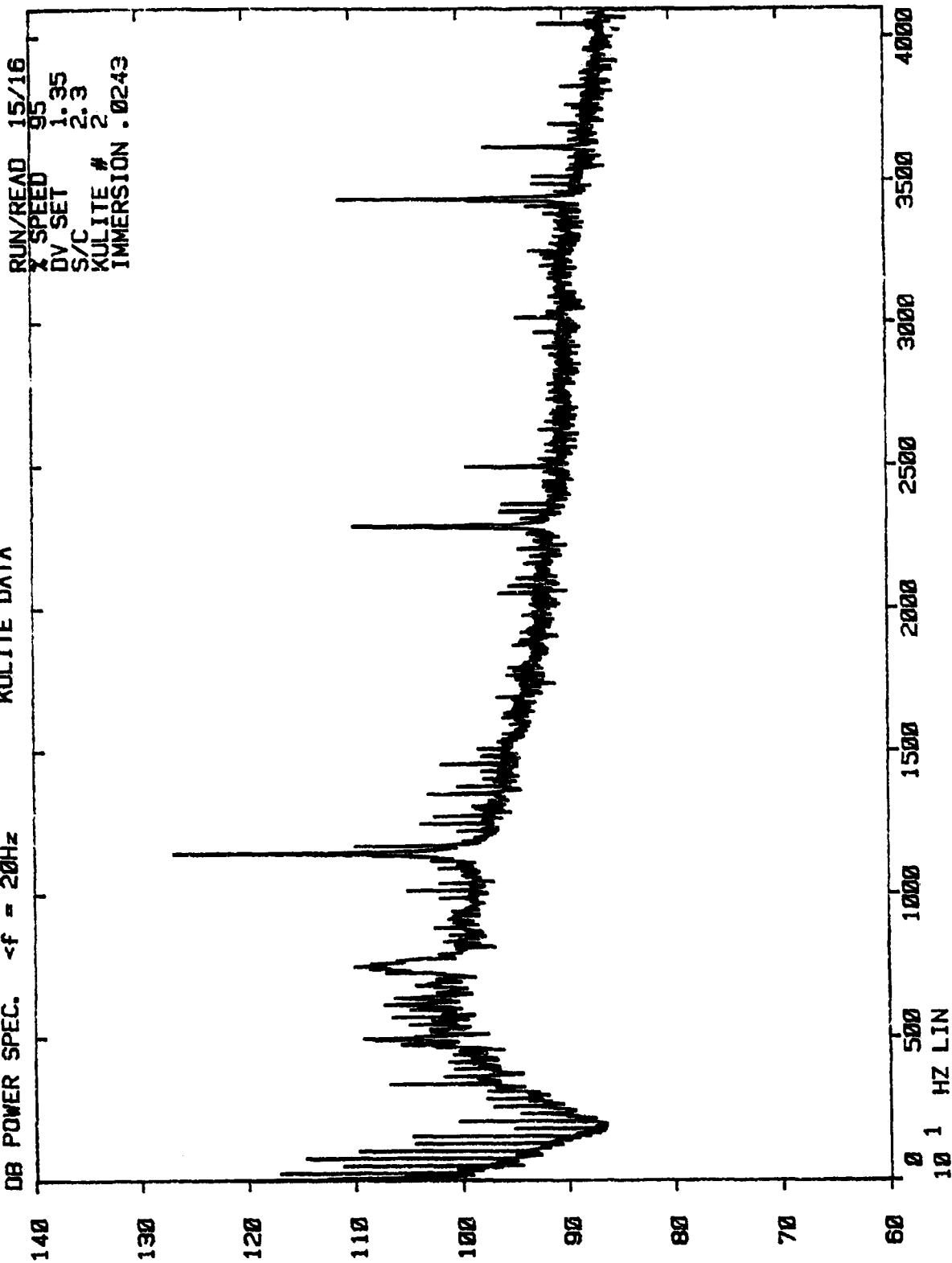
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



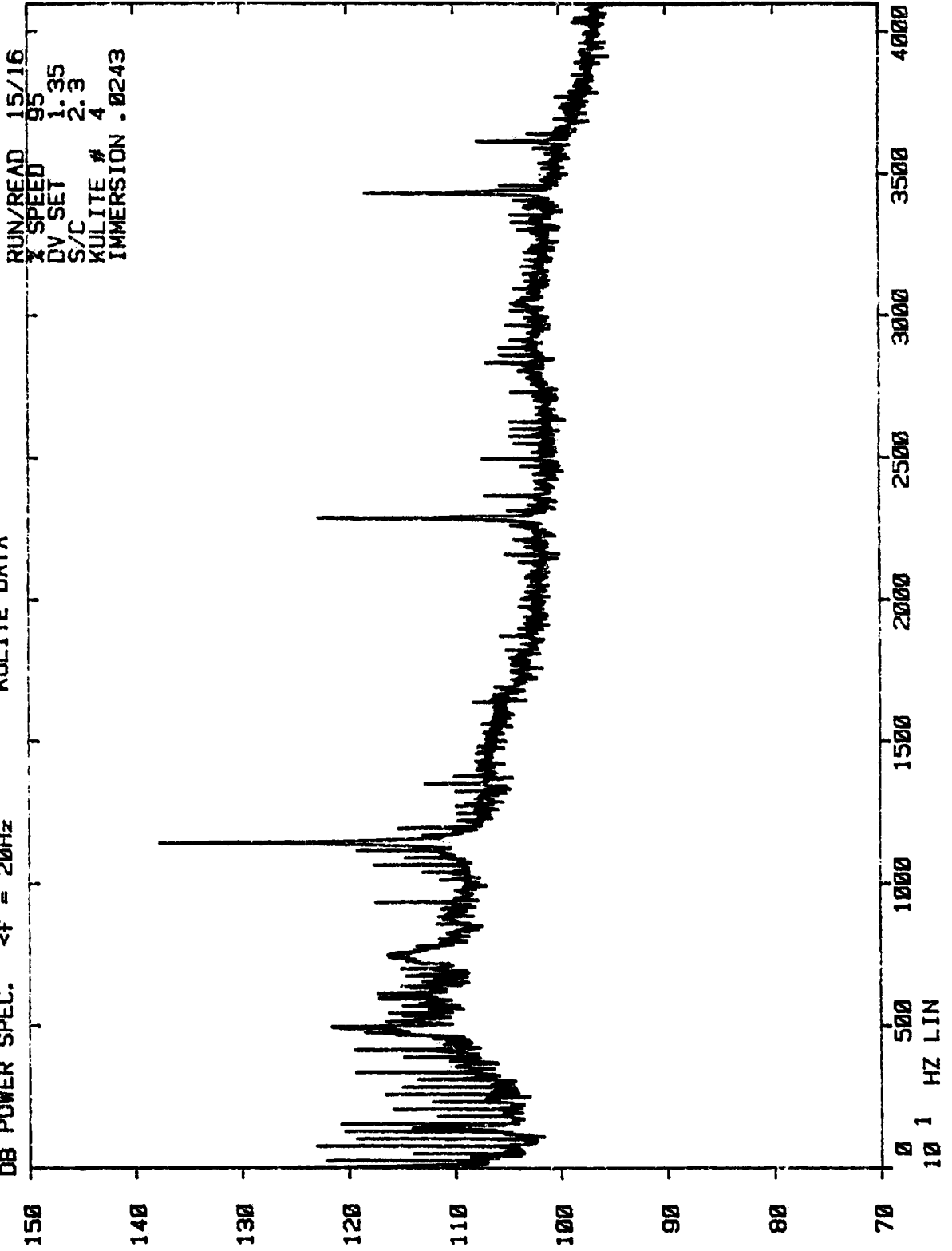
NASA V/B STUDY
KULLITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

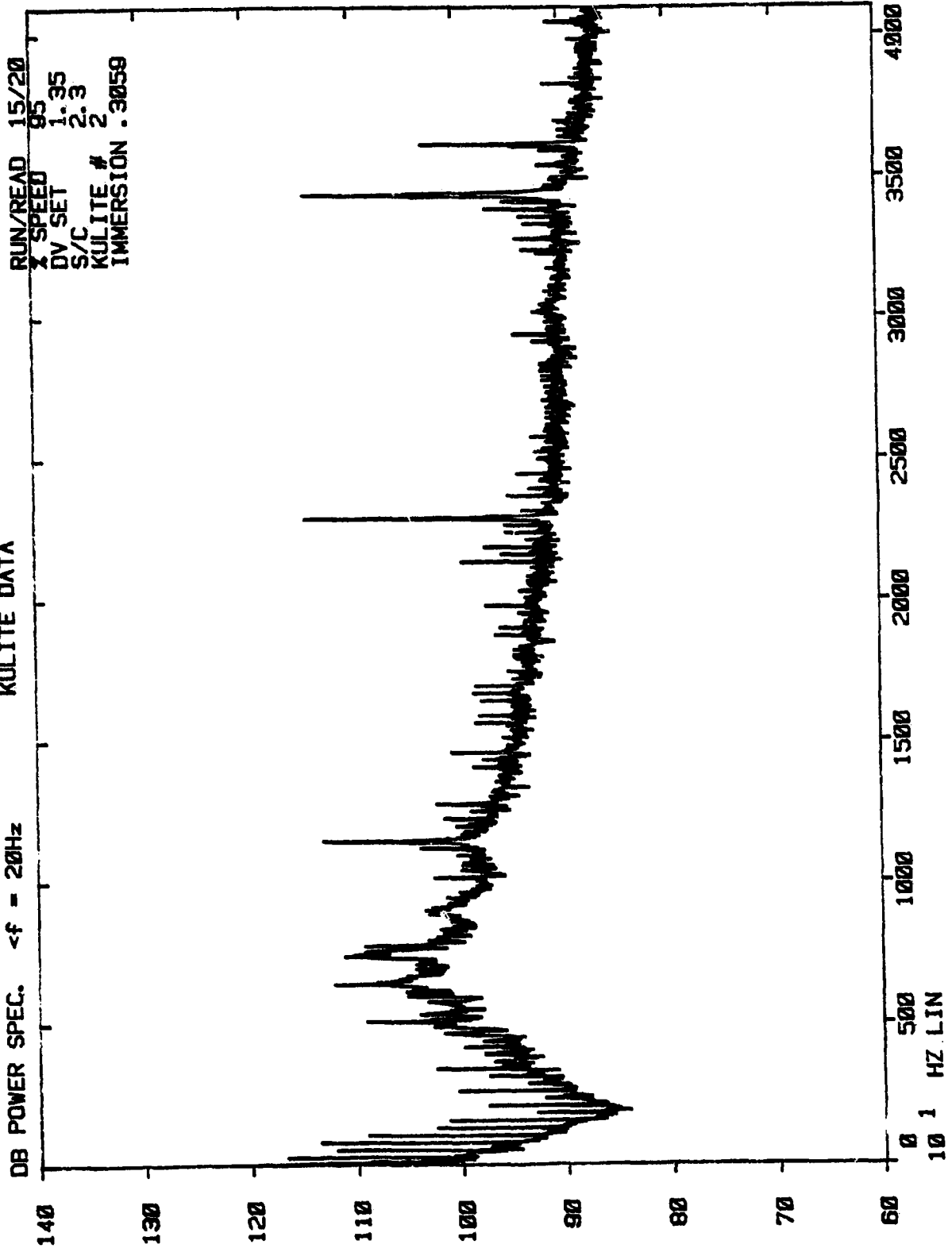


NASA Y/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$

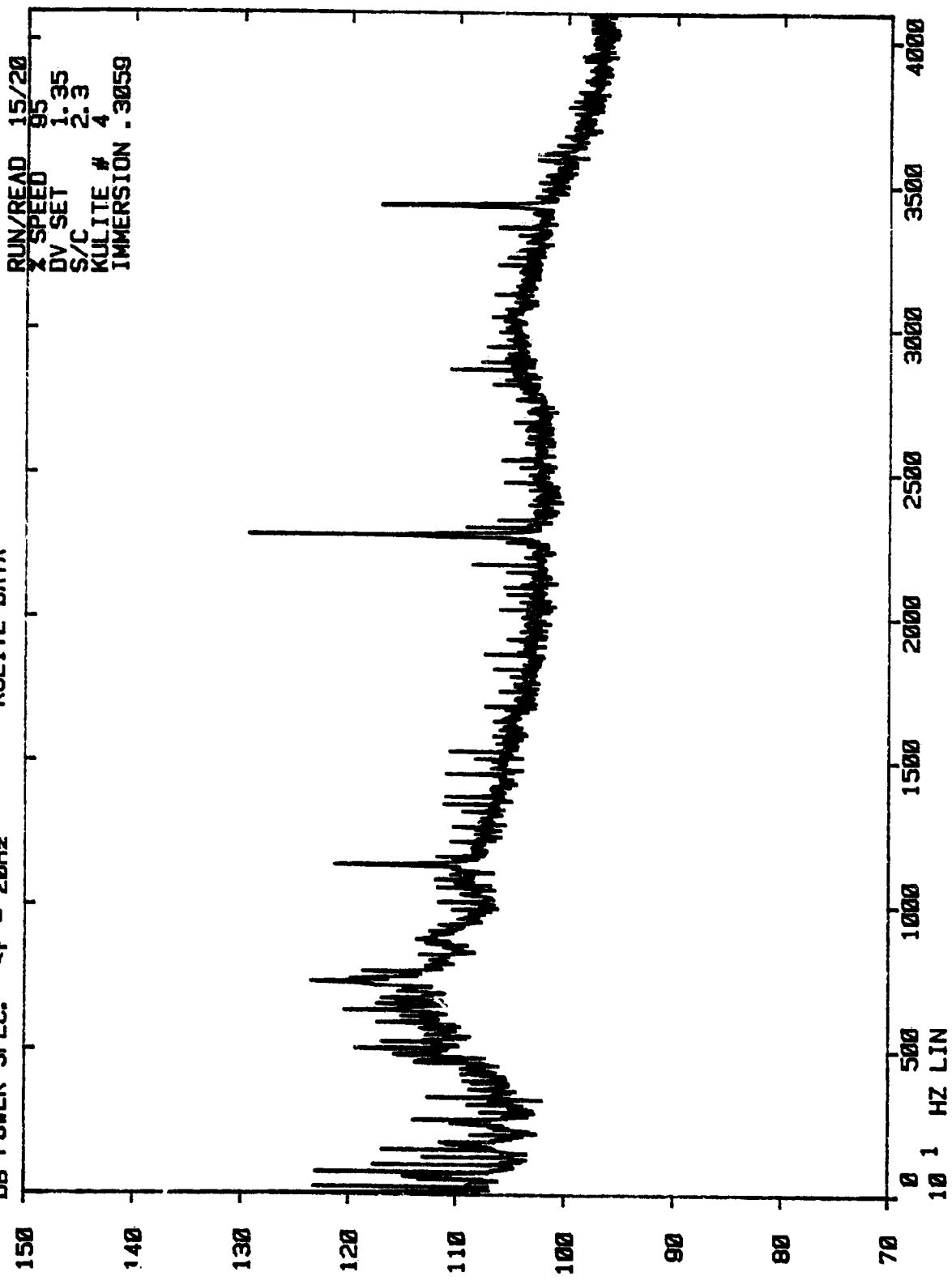


NASA V/B STUDY
KULITE DATA



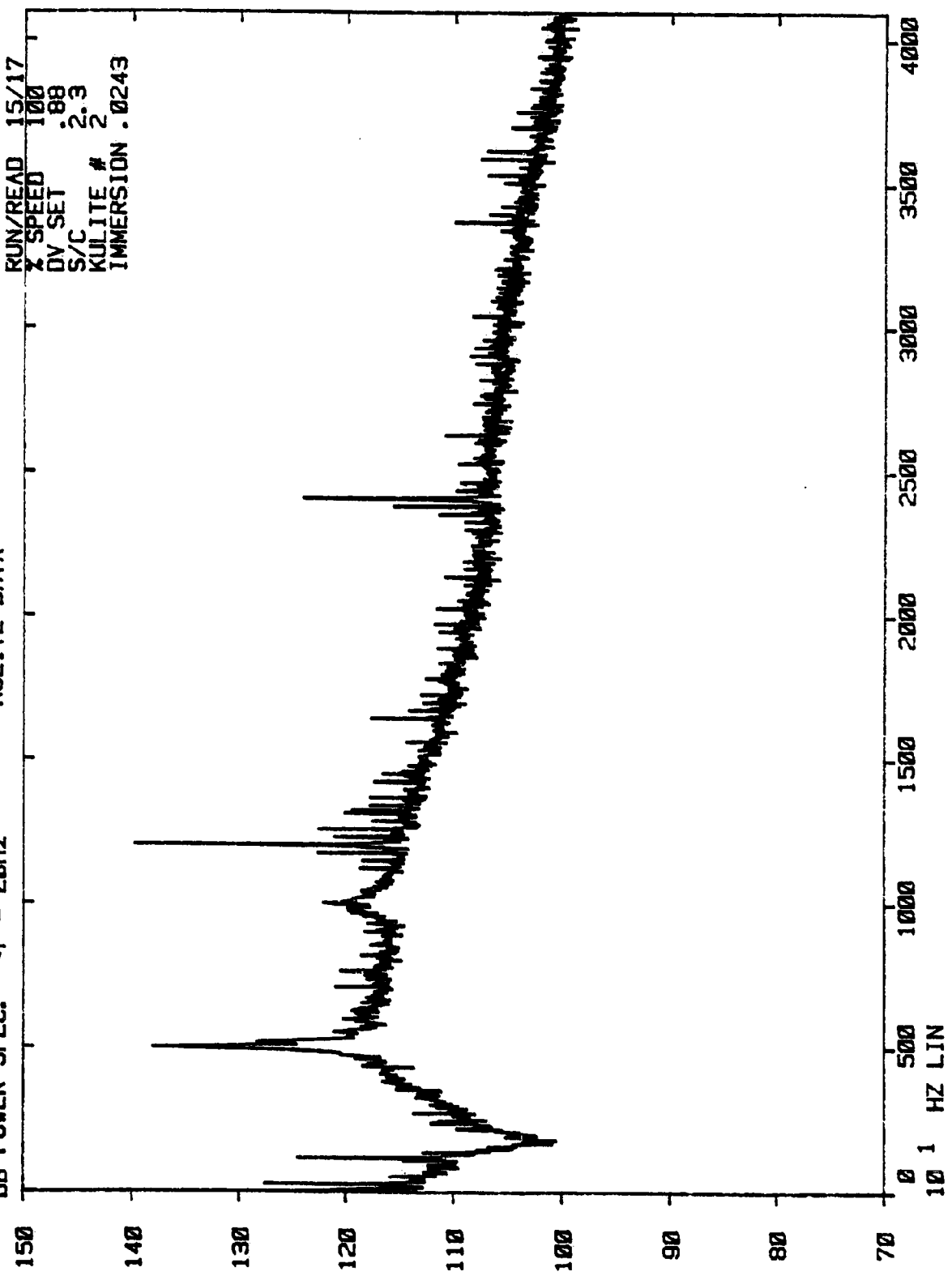
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz



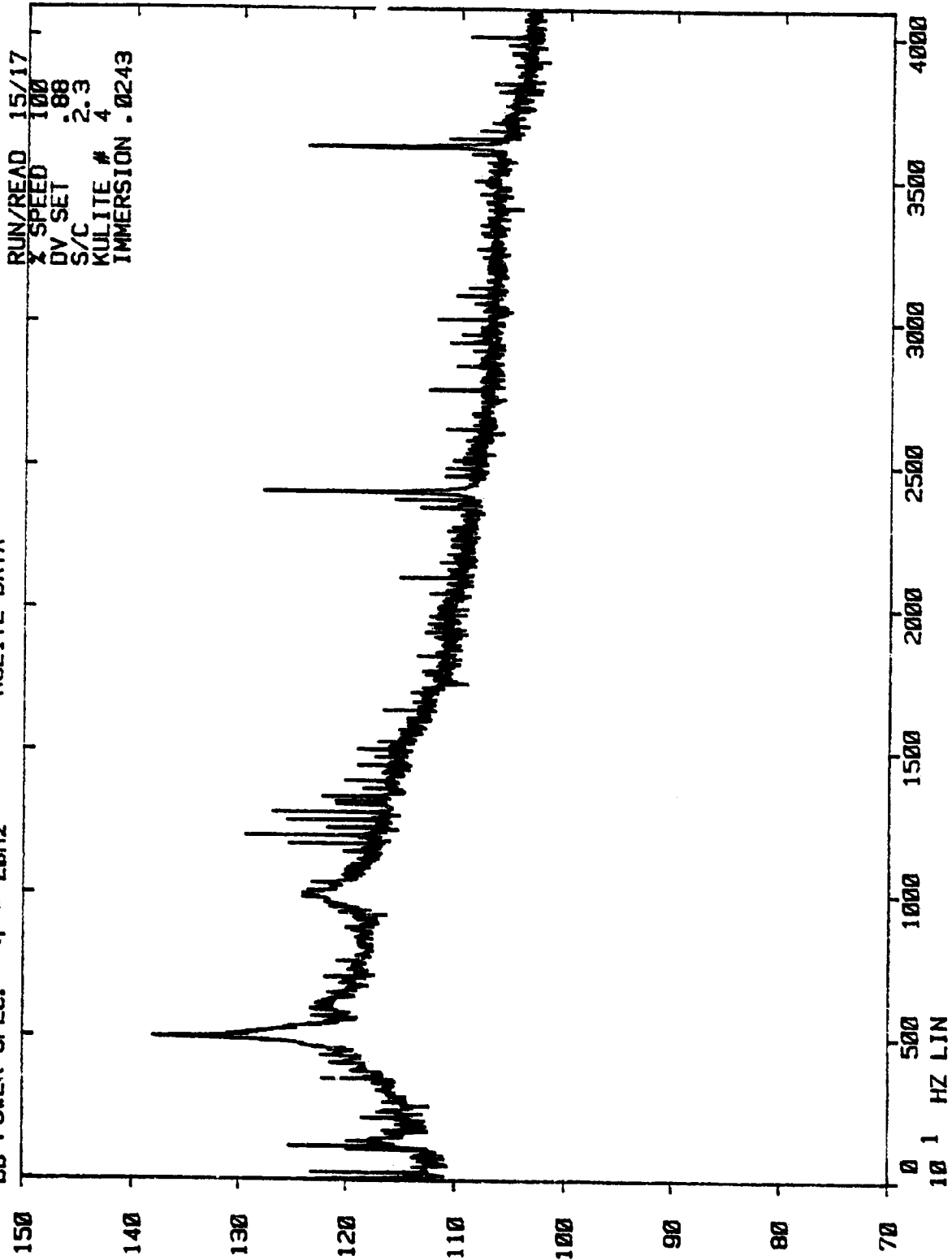
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



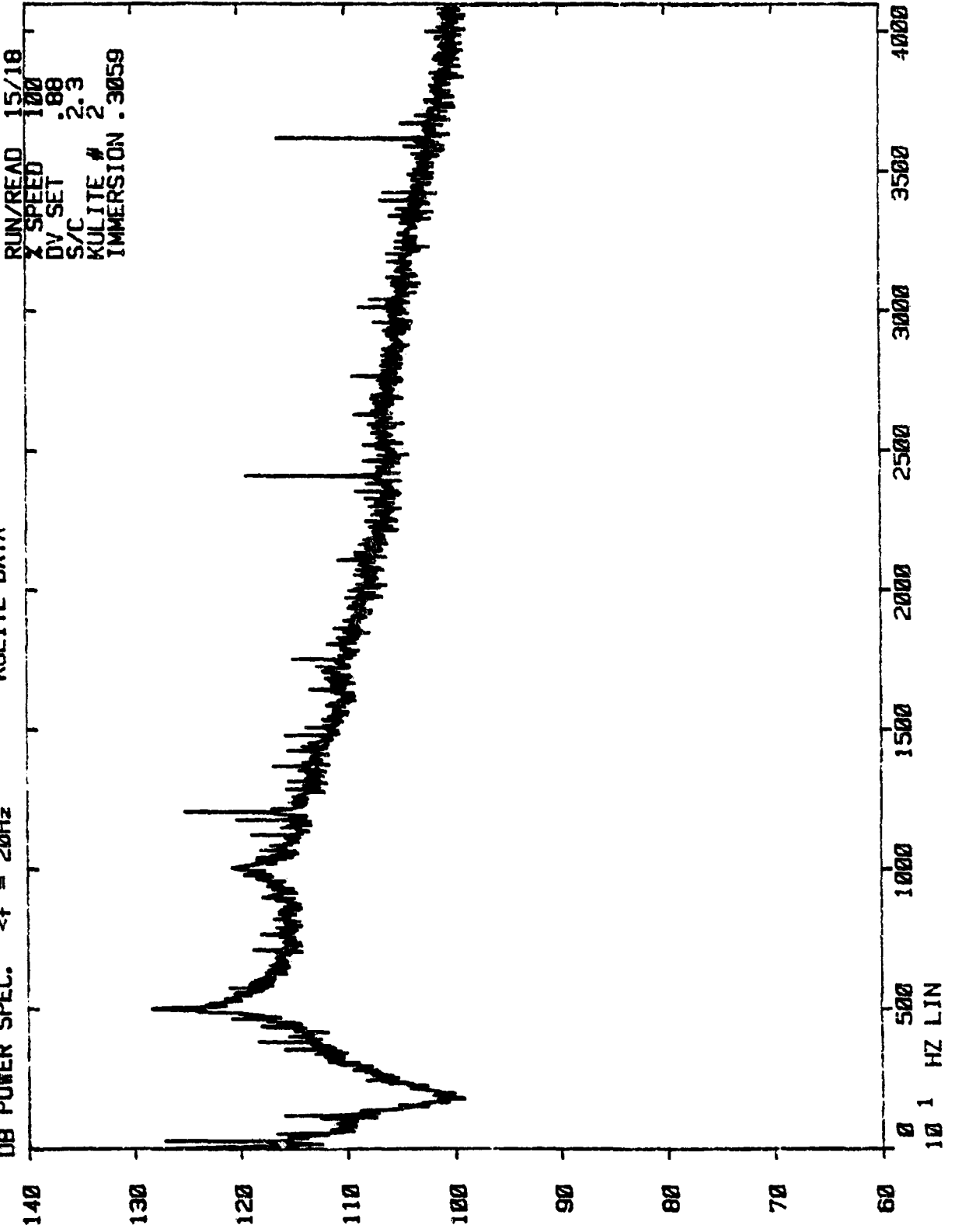
NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\langle f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. $\Delta f = 20\text{Hz}$



NASA V/B STUDY
KULITE DATA

DB POWER SPEC. <f = 20Hz

RUN/READ 15/18
X SPEED 1000
DV SET .88
S/C 2.3
KULITE # 4
IMMERSION .3059

